Title: WELL 25/2-16 S / 25/2-16 S T2
FINAL WELL REPORT
PL 244

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PREFACE

License PL 244

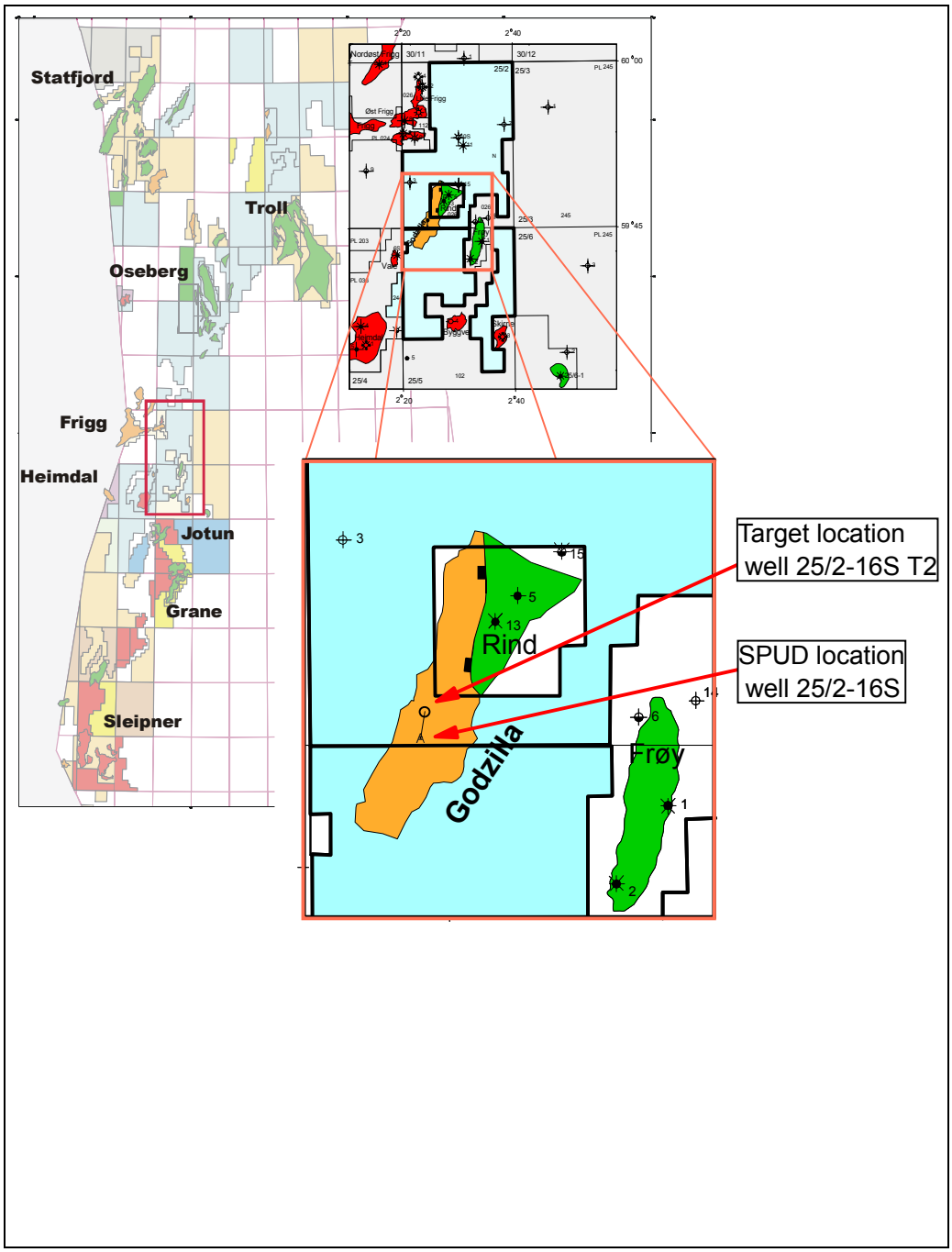
The licensees' percentage share of the block is as follows:

Norsk Hydro ASA(operator)	30 %
Pelican AS	45 %
Enterprise Oil Norge A/S	25 %

The well was drilled by Norsk Hydro ASA., on behalf of the group, during August-September 2001 (see Location Map, page 3).

All depths in this report are mMD RKB unless otherwise stated.

LOCATION MAP 25/2-16S /-16S T2



SUMMARY OF WELL DATA	
LOCATION:	Geo: 59° 45' 07.70" N 02° 24' 33.21" E UTM 6 624 110.1m N 466 800.3m E ED 50, UTM Zone 31, CM 03°E
OPERATOR: RIG: CONTRACTOR:	Norsk Hydro Transocean Arctic Transocean Offshore Europe
KB ELEVATION (to MSL): WATER DEPTH (MSL):	24m 115m
START OF OPERATIONS: WELL SPUDDED: - 6 S, REACHED TD (STUCK) ON: WELL SIDETRACKED: -16 ST2, REACHED TD ON: LEFT LOCATION (OFF COST): STATUS: FORMATION AT TD:	2001-08-01 2001-08-03 2001-08.18 2001-08-23 2001-09-07 2001-09-14 Plugged and abandoned Dunlin Gp
- 16 S, TD DRILLER (mRKB): TD LOGGER (mRKB): KICK OFF DEPTH, -16 ST2: - 16 ST2, TD DRILLER (mRKB): TD LOGGER (mRKB):	3088 m MD / m TVD N/A m MD 1915 m MD / 4013 m MD / 3792,5 m TVD N/A m MD
DRILLING DEPTHS:	36" to 223 m 17½" to 1160 m (12¼" to 3088 m T1, stuck) 12¼" to 3185 m 8½" to 4013 m
CASING DEPTHS:	30" to 223 m 13 3/8" to 1151 m 9 5/8" to 3179 m

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1 Objectives

Well 25/2-16S, ST2 was an exploration well aimed at the Middle Jurassic Vestland Group. The prospect was a down faulted, rotated block with the reservoir being primarily in the Hugin Formation in the Vestland Group. The structure is situated on the hanging wall Southwest of the Rind Horst in blocks 25/2 and 25/5.

The main objectives of the well were to:
- Prove sufficient HC volumes to be able to initiate a development
- Prove a HC-water contact

2 Results

The well 25/2-16S,ST2 was spudded 3rd of August 2001 and reached a total depth of 4013m MD RKB in the Dunlin Group 7th September 2001. The well was permanently plugged and abandoned as a dry well 14th September 2001.

Because of hole problems at 3088m MD RKB in 25/2-16S the hole was cemented and plugged back to 1850 mMD RKB and side tracked. The side track started at 1915m MD RKB

25/2-16S has a total depth of 3088m MD RKB.
25/2-16ST2 has a total depth of 4013m MD RKB.

The main results were as follows:
No mobile hydrocarbons were encountered in the Hugin or Sleipner Formations though log analysis indicates that residual quantities of hydrocarbons may be present.

Pressure measurements in the Hugin and Sleipner Formations indicates that there exits pressure barriers internally in the reservoir section.

No core was cut in this well.

3 Biostratigraphy

The biostratigraphical evaluation of well 25/2-16S and 16ST2 was carried out by GeoStrat Biostratigraphic Consultants. The analysed intervals are 1185m - 3070m and 3090m - 4031m MD RKB, repectively.
Micropaleontological and palynological analyses form the basis for the biostratigraphical interpretation of the well. The analyses were carried out on cuttings samples.
The results are documented in the following report: " Norsk Hydro 25/2-16S and 25/2-16ST2, Biostratigraphy of the Intervals 1185m - 3070m and 3090m - 4013m".
Tables 3.1, and 3.2 show a summarised lithostratigraphic sub-division and geochronological breakdown of well 25/2-16S and 25/2-16ST2. The interpretation is in accordance with Norsk Hydro's standard interpretation for the area and differs slightly from GeoStrat's interpretation.

Some of the major points from well 25/2-16S and 25/2-16ST2 are summarised below:

- The youngest sediments analysed at 1185m are of Late Oligocene age

- The oldest sediments at 4013m are of Early Toarcian age (Dunlin Group).

- The Rogaland Group(Balder Formation.) was penetrated at 2228m (log)

- The Shetland Group was penetrated at 2913m (log)

- An unconformity was indicated between the Rogaland Group and the Shetland Group, where sediments of earliest Early Palaeocene seem to be absent.

Cromer Knoll Group (3693m -3711m)
-The presence of Albian specimens is uncertain. Specimens of Barremian age are present as caved in the well, indicating the presence of a thin Cromer Knoll Group. A hiatus is seen in this group**,** where sediments of Aptian age seem to be missing. An unconformity is also seen at the base of the Cromer Knoll Group where sediments of Hautervian, Valangian and Ryazanian are absent.

Viking Group (3711m- 3796m)
- An unconformity is seen within the Viking Group where sediments of Kimmeridgian rest on sediments of Early Callovian age.

Vestland Group (3795m- 3970m)
A stratigraphical break is also seen between the Vestland Group and the underlying Dunlin Group where sediments of Late Bajocian rest on sediments of Late Toarcian age.

Biostratigraphic summary of sand units

In 25/2-16S sands occur within the Balder Formation (Odin Member) of earliest Early Eocene age, assigned to the palyno zones PT3A-2 and PT3A-1 and micropalaeontology zone MEP1A.

Sands in the Lista Formation (Heimdal Member) are of Late Palaeocene age. The uppermost sand is assigned to palynozone PT2B-2, mikropalaeontology zones MPB2B and MPP5. The lowermost sand is assigned to palyno zone PT2A-4A - PT2A-3 and the micropalaeontology zone MPP4A.

Sands in the Våle Formation (Ty Member) are of Late/Early Palaeocene age, assigned to mikropalaeontology zone MPP4-MPP2

In well 25/2-16ST2 sands are present throughout the Vestland Group (Hugin and Sleipner Formations). The Hugin Formation is of Late- Middle Bathonian age. (palynozone zone PJ5B), and the Sleipner Formation is of Late- Middle Bathonian to Late Bajocian (palynozonezones PJ5B, PJ5A and palynozone PJ4).

LITHOSTRATIGRAPHICAL BREAKDOWN, WELL 25/2-16 S

GROUP	FORMATION	MEMBER	DEPTH mMDRKB
Nordland			139
	Utsira		258
Hordaland			1064
		Frigg equiv	2167
Rogaland	Balder		2228
		Odin	2255 - 2295
	Sele		2364
	Lista		2404
		Heimdal 1	2444 - 2450
		Heimdal 2	2655 - 2715
	Våle		2746
		Ty 1	2876 - 2885
		Ty 2	2904 - 2911
Shetland	Hardråde		2913
			TD 3088

Table 3.1 Lithostratigraphical breakdown of well 25/2-16 S

LITHOSTRATIGRAPHICAL BREAKDOWN, WELL 25/2-16 S T2

GROUP	FORMATION	MEMBER	DEPTH mMDRKB
Nordland			139
	Utsira		258
Hordaland			1064
	Frigg equiv		2162
Rogaland	Balder		2227
		Odin	2243 - 2330
	Sele		2364
	Lista		2404
		Heimdal 1	2445 - 2475
		Heimdal 2	2538 - 2550
		Heimdal 3	2596 - 2603
		Heimdal 4	2636 - 2706
	Våle		2735
		Ty 1	2868 - 2878
		Ty 2	2898 - 2907
Shetland	Hardråde		2909
	Kyrre		3247
	Tryggvason		3488
	Blodøks		3631
	Svarte		3640
Cromer Knoll	Rødby		3693
	Mime		3709
Viking	Draupne		3711
	Heather		3755
Vestland	Hugin		3796
	Sleipner		3921
Dunlin			3970
			TD 4013

Table 3.2 Lithostratigraphical breakdown of well 25/2-16 S T

4 Litostratigraphy

All depths are in mMD RKB (RKB elevation is 24 m).

This summary is compiled from ditch cuttings descriptions. 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 139 m to 1160 m before setting 13 3/8" casing at 1151 m. The first drill cuttings samples were taken at 1170 m.

4.1 25/2-16S

4.1.1 Nordland Group (139 - 1064m MD)

139-258 m MD: From MWD logs: Clays interbedded with Sands.

4.1.1.1 Utsira Formation (258- 1064m MD)

258-1064 m MD: From MWD logs: Sand with Clay units.

4.1.2 Hordaland Group (1064 - 2228 m MD)

1064-1160 m MD: From MWD logs: Claystones with traces of Sand / Sandstringers and occational Limestone/Dolomite stringers.

1160-1620 m MD: The interval comprises of Silty Claystone with Dolomittic Limestone stringers
Claystones: pred olv gry, loc brn gry, r mdk gry, mod hd, blky, gen non calc, loc sl calc, micromic, loc r carb, gen slty IP v slty, loc vf sdy.
Limestone: lt brn gry-lt gry, mod hd-hd, blky, microxln, loc arg, dol.
Age: Late Oligocene to Late Eocene

1620 - 2010 m MD: The interval comprises of Claystone with Dolomite and Limestone stringers
Claystones: gen olv gry, ip grad dk grn gry, frm-mod hd, blky, non calc, loc sl calc, micromic, gen slty, Tr sdy vf, Tr micropyr
Dolomites: pl yel brn-gry brn, gen hd-v hd, crpxln, blky.
Limestones: pl yel brn, mod hd, blky, microxln
Age: Late-Middle Eocene

2010 - 2228 m MD: The interval comprises of Claystone with Limestone stringers
Claystones: varic m dk gry-dusky brn-gry brn-olv gry, mod hd, blky, non-sl calc, var silty, also med dk gry-gry bl grn, frm, non calc, micromic, occ slily slty.
Limestones: pl yel brn, mod hd, blky, microxln
Age: Middle-Early Eocene

4.1.3 Rogaland Group (2228 - 2913m MD)

4.1.3.1 Balder Formation (2228 - 2364 m MD)

2228-2255 m MD: The interval comprises of Tuffaceous Claystone
Claystones: varic gry brn-olv gry, m dk gry, lt gry, lt gn gry, mod hd, blky, non-sl calc, tf grad Tf.
Age: Early Eocene

2255-2300 m MD: The interval comprises of Sandstone with thin Claystone beds
Sandstones: lt gry, clr-mky Qtz, f-m, sbang-sbrndd, mod srt, fri-lse, loc arg Mtrx, r Glauc
Claystones: lt olv gry-lt bl gry, mod hd, blky, non calc-calc, IP tf.
Age: Early Eocene

2300-2340 m MD: The interval comprises of Calcareous Sandstone
Sandstones: lt gry, clr-mky Qtz, f-m, sbang-sbrndd, mod srt, fri-mod hd, calc cmt, gen arg Mtrx/Cmt, Tr Pyr
Age: Early Eocene

2340-2364 m MD: The interval comprises of Tuffaceous Claystone
Claystones: varic m dk gry-lt olv gry-lt bl gry, firm-mod hd, blky, non calc-v calc, micromic, slty, gen vf sdy, Tr Pyr.
Tuff: m dk gry-m bl gry, mod hd, blky, amor, var calc, blk spk.
Age: Early Eocene

4.1.3.2 Sele Formation (2364 - 2404 m MD)

2364-2404 m MD: The interval comprises of Claystone
Claystones: dk gry-gry blk, mod hd, blky, non calc, micromic, sdy vf, slty.
Age: Early Eocen to Late Paleocene

4.1.3.3 Lista Formation (2404 - 2746 m MD)

2404 - 2746m MD: The interval comprises of Interbedded Sandstone, Siltstone and Claystone
Sandstones: lt gry, gen clr Qtz, f-m, pred m, r crs, gen sbrndd, wl srt, fri-lse, r Mic, r Pyr, n/s
Sandstones: med gry, gen clr Qtz, gen vf-f, tr med-crs, sbang-sbrnd, pr srt, mod hd, r calc cmt, gen sil cmt, gen v arg mtx, loc v slty grad sltst
Siltstones: m dk gry, mod hd, blky, non calc, clyly grad Clst, loc v sdy, grad Sst, micromic, carb
Claystones: dk gry-olvblk, mod hd, blky, non calc, Tr Micromic
Age: Late Paleocene

4.1.3.4 Våle Formation (2746 - 2913 m MD)

2746-2838 m MD: The interval comprises of Calcareous Sandstone with Marl and Claystone Layers

Sandstones: lt med gry-med dk gry, slty-vf, occ slty grad slty Sst, occ clyly, med hd, calc cmt

Marl: offwh-v pl orng, arg calc grad marl, frm-mod hd

Claystone: dk med gry-dk gry, occ olv blk, frm-mod hd, occ hd, occ calc,loc slty.

Age: Late Paleocene

2838-2876 m MD: The interval comprises of Calcareous Claystone with Sandstone and dolomite stringers

Claystones: m dk gry, mod hd-hd, blky, calc, occ non calc, loc slty.

Sandstones: m dk gry, gen clr Qtz, vf-f, sbang-sbrndd, mod srt, mod hd, calc cmt, occ v arg grad sdy Clst.

Sandstones: lt gry, clr-trnsl Qtz, vf-crs, sbrndd-rndd, pr-mod srt, lse.

Dolomites: pl yel brn, vhd, crpxln, arg.

Limestones: wh-lt gry, hd, crsxln, sdy m-crs.

Siltstones: dk gry, mod hd, blky, calc, micromic, v arg, v pyr, sdy vf grad Sst.

Age: Late Paleocene

2876-2913 m MD: The interval comprises of Calcareous Sandstone with Claystone layers and Limestone stringers.

Sandstones: dk gry-lt gry, clr-trnsl Qtz, gen vf-f, r m, sbang-sbrndd, Tr rndd, mod-pr srt, mod hd-hd, gen calc cmt, gen varg, loc v slty grad Sltst, micromic, Tr carb, Pyr, nvp, n/s.

Claystones: mod brn, mod hd, blky, amor, v calc grad Mrl, micromic, slty.

Claystones: dk gn gry, hd, fis, Splin, non calc, micromic, slty.

Limestones: lt gry-yel gry, hd, blky, IP chky, IP crsxln.

Age: Early Paleocene

4.1.4 Shetland Group (2913 3088 m MD)

4.1.4.1 Hardråde Formation (2913 3088 m MD (TD))

2913-2941 m MD: The interval comprises of Limestones

Limestones: yel gry-v pl orng, hd, loc mod hd, loc chky, microxln

Age: Late Maastrichtian

2941-2990 m MD:	The interval comprises of Limestones with layers of Marls, Claystones, Siltstones and Dolomites.
Limestones:	yel gry-v pl orng, hd, loc mod hd, loc chky, microxln
Marls:	med gry-lt olv gry, arg ls, frm occ mod hd, microxln occ chky
Claystones:	med dk gry, mod hd-hd, slty, sl calc-calc
Siltstones:	med dk gry-olv gry, cl, hd, sl calc, micromic
Age:	Late Maastrichtian

2990-3088m MD:	Limestone with a few layers of Claystone
Limestones:	yel gry-lt olv gry, hd, microxln
Claystones:	gry blk, hd, blky, ip v slty grad siltst, v calc grad marl
Age:	Late Maastrichtian

4.2 Sidetrack, 25/2-16S T2

4.2.1 Hordaland Group (1064 - 2227 m MD)

1915-2022 m MD: The interval comprises of Claystones with Limestone stringers
Claystones : med dk gry, ip dk grn gry, mod hd, sl slty - slty, non calc
Limestones : pl yel brn - dk yel brn, mod hd - hd, microxln
Age: Middle Eocene

2022-2227 m MD: The interval comprises of Claystones with Limestone stringers
Limestones : lt brn-dk yel brn,mod hd,microxln.
Claystones : varic m dk gry-dusky brn-gry brn-olv gry,mod hd, blky, non-sl calc, var silty.
Age: Middle-Early Eocene

4.2.2 Rogaland Group (2227 - 2909 m MD)

4.1.2.1 Balder Formation (2227 - 2364 m MD)

2227-2243 m MD: The interval comprises of Tuffaceous Claystones
Claystones : varic gry brn-olv gry, m dk gry, lt gry, lt gn gry, mod hd, blky, non-sl calc, tf grad Tf.
Age: Early Eocene

2243-2290 m MD: The interval comprises of Sandstone with thin Claystone beds
Sandstones : lt gry, clr-mky Qtz, f-m, sbang-sbrndd, mod srt, fri-lse, loc arg Mtrx, r Glauc
Claystones : lt olv gry-lt bl gry, mod hd, blky, non calc-calc, IP Tf.
Age: Early Eocene

2290-2330 m MD: The interval comprises of Calcareous Sandstones
Sandstones : lt gry, clr-mky Qtz, f-m, sbang-sbrndd, mod srt, fri-mod hd, calc cmt, gen arg Mtrx/Cmt, Tr Pyr
Age: Early Eocene

2330-2364 m MD: The interval comprises of Tuffaceous Claystones
Claystones : varic m dk gry-lt olv gry-lt bl gry, frm-mod hd, blky, non calc-v calc, micromic, slty, gen vf sdy, Tr Pyr.
Tuff : m dk gry-m bl gry, mod hd, blky, amor, var calc, blk spk.
Age: Early Eocene

4.1.2.2 Sele Formation (2364 - 2404 m MD)

2364-2404 m MD: The interval comprises of Claystones
Claystones : dk gry-gry blk, mod hd, blky, non calc, micromic, sdy vf, slty.
Age: Early Eocene to Late Palaeocene

4.1.2.3 Lista Formation (2404 - 2735 m MD)

2404-2445 m MD: The interval comprises of Claystones
Claystones : dk gry-gry blk, mod hd, blky, non calc, micromic, sdy vf, slty.
Age: Early Eocene

2445-2457 m MD: The interval comprises of Sandstones
Sandstones : lt gry, gen clr Qtz, f-m, pred m, r crs, gen sbrndd, wl srt, fri-lse, r Mic, r Pyr, n/s
Age: Late Palaeocene

2457-2475 m MD: The interval comprises of Silty Sandstones
Sandstones : m gry, gen clr Qtz, vf-f, r m, sbang-sbrndd, mod-pr srt, mod hd, r calc cmt, v arg, gen v slty IP grad Sltst, carb, micromic, nvp, n/s..
Age: Late Palaeocene

2475-2535 m MD: The interval comprises of Claystones
Claystones : dk gry, mod hd, blky, non calc, slty, loc v slty, Tr carb, micromic.
Age: Late Palaeocene

2535-2635 m MD: The interval comprises of interbedded Sandstones, Siltstones and Claystones
Sandstones : med gry, gen clr Qtz, gen vf-f, tr med-crs, sbang-sbrnd, pr srt, mod hd, r calc cmt, gen sil cmt, gen v arg mtx, loc v slty grad sltst
Siltstones : m dk gry, mod hd, blky, non calc, clyly grad Clst, loc v sdy, grad Sst, micromic, carb
Claystones : dk gry - olvblk, mod hd, blky, non calc, Tr Micromic
Age: Late Palaeocene

2635-2660 m MD: The interval comprises of interbedded Sandstones, Siltstones and Claystones
Sandstones : med gry, gen clr Qtz, gen vf-f, Tr med-crs, sbang-sbrnd, pr srt, mod hd, r calc cmt, gen sil cmt, gen v arg mtx, loc v slty grad Sltst
Siltstones : m dk gry, mod hd, blky, non calc, clyly grad Clst, loc v sdy, grad Sst, micromic, carb
Claystones : dk gry-olvblk, mod hd, blky, non calc, Tr Micromic
Age: Late Palaeocene

2660-2680 m MD: The interval comprises of Sandstones

Sandstones :	lt gry-med dk gry, vf-f, frm-mod hd, sbrnd-sbang, mod srtd
Age:	Late Palaeocene

2680-2735 m MD:	The interval comprises of interbedded Claystones and Sandstones
Claystones :	dk gry-olv blk, mod hd, blky, non calc, Tr Micromic
Sandstones :	lt-med dk gry, vf-f, occ med-crs, mod-pr srtd, sbrnd-sbang, occ v arg, non calc
Age:	Late Palaeocene

4.1.2.4 Våle Formation (2735 - 2909 m MD)

2735-2750 m MD:	The interval comprises of calcareous Sandstones with Marls and Claystone layers
Sandstones :	lt med gry-med dk gry, slty-vf, occ v slty, med hd, w srt, calc cmt
Claystones :	dk med gry-dk gry, occ olv blk, frm-mod hd, occ hd, occ slty, occ calc
Marls :	off wh-v pl org, arg calc grad marl, frm-mod hd
Age:	Late Palaeocene

2750-2830 m MD:	The interval comprises of calcareous Claystone with Sandstone and Dolomite stringers
Claystones :	med dk gry, mod hd-hd, slty-sdy, calc, occ non calc
Sandstones :	med dk gry-dk grn gry, vf, v arg, calc, mod hd, grad sdy Clst. Also as lse Qtz grns, v f-crs, pr srt, sbrnd-sbang.
Dolomites :	lt brn, hd, crpxln
Age:	Late Palaeocene

2830-2909 m MD:	The interval comprises of calcareous Claystones with Sandstone layers, Dolomite, Limestone and Siltstone stringers
Claystones(1) :	m dk gry-dk gry, mod hd-hd, blky, calc, occ non calc, loc slty.
Claystones(2) :	mod brn, mod hd, blky, amor, v calc grad Mrl, micromic, slty.
Claystones(3) :	dk gn gry, hd, fis, Splin, non calc, micromic, slty.
Sandstones :	dk gry-lt gry, clr-trnsl Qtz, gen v f-f, r m, sbang-sbrndd, Tr rndd, mod-pr srt, mod hd-hd, gen calc cmt, gen varg, loc v slty grad Sltst, micromic, Tr Carb, Pyr, nvp, n/s.,
Dolomites :	pl yel brn, vhd, crpxln, arg.
Limestones :	lt gry-yel gry, hd, blky, IP chky, IP crsxln
Siltstones :	dk gry, mod hd, blky, calc, micromic, v arg, v pyr, sdy vf grad Sst.
Age:	Late-Early Palaeocene

4.1.1 Shetland Group (2909 - 3693 m MD)

4.1.1.1 Hardråde Formation (2909 - 247 m MD)

2909-2946 m MD: The interval comprises of Limestones with Claystone and Sandstone layers
Limestones : yel gry-v pl orng occ wh, hd, loc mod hd, chky, I.P. microxln
Claystones : varicol, olv gry, olv grn, olv blk, mod brn-rd brn, lam, blky, mod hd, calc-grad Mrl, micromic, sdy
Sandstones : lt gry, clr trnsl Qtz, m, Tr crs, rndd-sbrndd, mod srt, hd-v hd, calc cmt, r lse, r pyr cmt
Age: Late Maastrichtian

2946-2970 m MD: The interval comprises of Claystones and Limestones with Traces of Dolomites
Claystones : m dk gry-dk gry, blky, sft-frm, v calc-grdg Mrl
Limestones : v lt gry, off wh, blky, hd, pred v hd, brit I.P., microxln, mnr cryptoxln.
Dolomites : lt brn-pl yel brn, blky, hd-v hd, brit, microxln
Age: Late Maastrichtian

2970-2995 m MD: The interval comprises of Limestones and Claystones with Traces of Dolomites
Limestones : v lt gry, off wh, blky, v hd, pred v hd, brit I.P.,cryptoxln.
Claystones : m dk gry-dk gry, blky, sft-frm, v calc-grdg Mrl
Dolomites : lt brn-pl yel brn, blky, hd-v hd, brit, microxln
Age: Late Maastrichtian

2995-3068 m MD: The interval comprises of Limestones with Traces of Claystones and rare Dolomites
Limestones : off wh-yelsh gry, blky, hd, I.P. bcm mod hd, microxln-I.P. cryptoxln
Claystones : m dk gry-dk gry, blky, sft-frm, v calc-grdg Mrl
Dolomites : lt brn-pl yel brn, blky, hd-v hd, brit, microxln
Age: Late Maastrichtian

3068-3095 m MD: The interval comprises of Limestones with Traces of Claystones and rare Dolomites
Limestones : off wh-yelsh gry, blky, hd, I.P. bcm mod hd, microxln-I.P. cryptoxln
Claystones : m dk gry-dk gry, blky, sft-frm, v calc-grdg Mrl
Dolomites : lt brn-pl yel brn, blky, hd-v hd, brit, microxln
Age: Late Maastrichtian

3095-3104 m MD: The interval comprises of Claystones and Limestones
Claystones : m dk gry-dk gry, sbplaty, frm, mod calc, hom
Limestones : off wh-yelsh gry, blky, hd, I.P. bcm mod hd, microxln-I.P. cryptoxln

Age:	Late Maastrichtian
3104-3130 m MD:	The interval comprises of Limestones
Limestones :	pred off wh-yelsh gry, blky, hd, brit, microxln, I.P. cryptoxln
Age:	Late Maastrichtian
3130-3185 m MD:	The interval comprises of Claystones and Limestones
Claystones :	dk gry-m dk gry, blky, frm-mod hd, mod calc, hom
Limestones :	pl yelsh gry-grysh or pnk, blky, hd, brit, micro-cryptoxln
Age:	Early Maastrichtian
3185-3247 m MD:	The interval comprises of Claystones, Marls and minor Limestone stringers
Claystones :	olv blk, dk gnsh gry, m dk gry-dk gry, sbblky-blky, mod hd-hd, I.P. sft, calc
Marls :	mod rd brn-mod brn, blky, frm-mod hd, r Tr slt, r carb mat
Age:	Early Maastrichtian-Late Campanian

4.1.1.2 Kyrre Formation (3247 - 3488 m MD)

3247-3295 m MD:	The interval comprises of Claystones with minor Marls and Limestone stringers
Claystones :	med bl gry-med gry, blky, occ slily lam, frm-mod hd, slily calc, r slty, r Tr Micromic
Marls :	mod rd brn-mod brn, blky, frm-mod hd, r Tr slt, r carb mat
Limestones :	wh, blky, hd, microxln
Age:	Late-Middle Campanian
3295-3488 m MD:	The interval comprises of Claystones with rare Traces of Limestones
Claystones :	olv blk-gry blk, v lt gry, blky, occ sbblky, occ stky, frm-mod hd, sli calc, r micromic,occ sli slty, r carb mat
Limestones :	wh, blky, frm, microxln
Age:	Middle-Late Campanian to Midlle-?Early Santonian

4.1.1.3 Tryggvason Formation (3488 - 3631 m MD)

3488-3543 m MD:	The interval comprises of Limestones with minor Claystones
Limestones :	lt gry-lt olv gry, occ lt bl gry, r wh, blky, frm-occ mod hd, non arg-arg, Tr Glauc, r Tr v f carb grag, microxln
Claystones :	olv blk-blk, Tr gry blk, occ m lt gry, sbblky-blky, frm, sli calc, r micromic, sli slty, r carb mat
Age:	?Early Santonian- Middle-Early Turonian
3543-3600 m MD:	The interval comprises of Marls with Limestones and minor Claystones
Marls :	med dk gry-olv gry, blky, frm-mod hd, slily slty, Tr Micromic

Limestones : lt gry-lt olv gry, occ lt bl gry, r wh, blky, frm-occ mod hd, non arg-arg, Tr Glauc, r Tr v f carb grag, microxln
Claystones : olv blk-blk, Tr gry blk, occ m lt gry, sbblky-blky, frm, sli calc, r micromic, sli slty, r carb mat
Age: Middle-Early Turonian

3600-3631 m MD: The interval comprises of Claystones
Claystones : olv blk-blk, blky, frm-mod hd, lam, sli slty, r calc, r micromic, r glauc, r sdy, r v f carb frag
Age: Middle-Early Turonian

4.1.1.4 Blodøks Formation (3631-3640 m MD)

3631-3640 m MD: The interval comprises of Claystones
Claystones : olv blk-blk, blky, frm-mod hd, lam, sli slty, r calc, r micromic, r glauc, r sdy, r vf carb frag
Age: Middle-Early Turonian

4.1.1.5 Svarte Formation (3640-3693 m MD)

3640-3693 m MD: The interval comprises of Limestones
Limestones : lt brnsh gry-lt gry, blky, lam, mod hd, arg, r glauc, r Carb Frag, microxln

Age: Middle-Early Turonian to Cenomanian

4.1.2 Cromer Knoll Group (3693-3711 m MD)

4.1.2.1 Rødby Formation (3693-3709 m MD)

4.1.2.2 Mime Foramtion (3709-3711 m MD)

3693-3711 m MD: The interval comprises of Limestones and Claystones
Limestones : lt brnsh gry-lt gry, blky, lam, mod hd, arg, r glauc, r Carb Frag, microxln
Claystones : olv blk-blk, blky, frm-mod hd, lam, sli slty, r calc, r micromic, r glauc, r sdy, r v f carb frag
Age: ?Albian

4.1.3 Viking Group (3711 - 3796 m MD)

4.1.3.1 Draupne Formation (3711 - 3755 m MD)

3711-3755 m MD: The interval comprises of Claystones/Shales

Shales :	blk-brn blk, gry blk, blky, frm, non calc, r slty, r sdy, r micromic, Tr Micropyr, carb mat
Age:	Late-Early Volgian

4.1.3.2 Heather Formation (3755 - 3796 m MD)

3755-3796 m MD:	The interval comprises of Siltstones with minor Claystones/Shales
Siltstones :	v lt gry-lt gry, sbblky, sft-frm, v f sdy, sli calc, sli arg, Tr Micromic, Tr v f Carb Frag, n/s
Shales :	blk-brn blk, gry blk, blky, frm, non calc, r slty, r sdy, r micromic, Tr Micropyr, carb mat
Age:	Early Volgian-Early Callovian

4.1.4 Vestland Group (3796 - 3970 m MD)

4.1.4.1 Hugin Formation (3796 - 3921 m MD)

3796-3813 m MD:	The interval comprises of Sandstones with Traces of Claystones/Shales
Sandstones :	v lt gry-med dk gry, clr trnsl-mlky wh Qtz, v f-f, pred v f, sbang-sbrndd, wl srt,
	fri-frm, calc-v calc cmt, slty, arg I.P., Tr Carb Frag, no-pr vis por, n/s
Shales :	blk-brn blk, gry blk, blky, frm, non calc, r slty, r sdy, r micromic, Tr Micropyr, carb mat
Age:	Late-Middle Bathonian

3813-3841 m MD:	The interval comprises of Sandstones with Traces of Claystones/Shales
Sandstones :	v lt gry-med dk gry, clr trnsl-mlky wh Qtz, v f-f, pred v f, sbang-sbrndd, wl srt,
	fri-frm, non calc-calc cmt, occ Kao mtx, slty, arg I.P., Tr Carb Frag, no-pr vis por, n/s
Shales :	blk-brn blk, gry blk, blky, frm, non calc, r slty, r sdy, r micromic, Tr Micropyr, carb mat
Age:	Late-Middle Bathonian

3841-3891 m MD:	The interval comprises of Sandstones with Traces of Coal
Sandstones :	lt gry-med dk gry, clr trnsl-mlky wh Qtz, v f-m, sbrndd-rndd, wl-mod srt, fri-frm, non-slily calc cmt, I.P v calc cmt, Kao mtx, slty I.P., arg I.P., occ Tr Micromic, occ Tr v f Carb Frag, no-pr vis por, n/s
Coal :	blk, blky, occ splin, brit, frm, occ arg
Age:	Late-Middle Bathonian

4.1.4.2 Sleipner Formation (3921 - 3970 m MD)

3891-3933 m MD: The interval comprises of Sandstones and Claystones and Traces of Coal
Sandstones : pl brn, clr trnsl Qtz, v f-f, sbang-sbrndd, Kao cmt, r micromic, arg, r C, n.v.p, n/s
Claystones : olv gry-olv blk, blky, frm, calc, slty, sdy I.P., r micromic
Coal : blk, blky, occ splin, brit, frm, occ arg
Age: Late Middle Bathonian

3933-3939 m MD: The interval comprises of Sandstones
Sandstones : pl brn, clr trnsl Qtz, v f-f, sbang-sbrndd, Kao cmt, r micromic, arg, r C, n.v.p, n/s
Age: Late-Middle Bathonian

3939-3942 m MD: The interval comprises of Claystones with minor Sandstones
Claystones : olv gry-olv blk, blky, frm, calc, slty, sdy I.P., r micromic
Sandstones : pl brn, clr trnsl Qtz, v f-f, sbang-sbrndd, Kao cmt, r micromic, arg, r C, n.v.p, n/s
Age: Late-Middle Bathonian

3942-3945 m MD: The interval comprises of Sandstones
Sandstones : brnsh blk-olv blk, clr trnsl Qtz, v f-f, sbrndd-rndd, mod hd, Kao cmt, Tr C, v arg I.P. grad Clst, n.v.p, n/s
Age: Late-Middle Bathonian

3945-3954 m MD: The interval comprises of Coal
Coal : blk, blky, brit, mod hd
Age: Early Bathonian

3954-3966 m MD: The interval comprises of Sandstones with Traces of Coal
Sandstones : brnsh blk-olv blk, clr trnsl Qtz, v f-f, sbrndd-rndd, mod hd, Kao cmt, Tr C, v arg I.P. grad Clst, n.v.p, n/s
Coal : blk, blky, brit, mod hd
Age: Early Bathonian-Late Bajocian

3966-3970 m MD: The interval comprises of Claystones and Sandstones with minor Coal
Claystones : olv blk-brnsh blk, blky, frm, sli slty, non-sli calc
Sandstones : brnsh blk-olv blk, clr trnsl Qtz, v f-f, sbrndd-rndd, mod hd, Kao cmt, Tr C, v arg I.P. grad Clst, n.v.p, n/s
Coal : blk, blky, brit, mod hd
Age: Late Bajocian

4.1.5 Dunlin Group (3970 - 4013 m MD)

3970-3984 m MD: The interval comprises of Claystones
Claystones : brnsh blk-brnsh gry-olv blk, blky, lam, frm-mod hd, sli slty, v f sdy, r calc
Age: Late-Early Toarcian

3984-3993 m MD: The interval comprises of Sandstones and Claystones
Sandstones : brnsh gry, clr trnsl-mlky wh Qtz, v f-f, sbrndd-rndd, blky, frm, wl srt, Kao cmt, v arg, Tr C, Tr Glauc, r micromic
Claystones : brnsh blk-brnsh gry-olv blk, blky, lam, frm-mod hd, sli slty, v f sdy, r calc
Age: Late-Early Toarcian

3993-4013 m MD: The interval comprises of Claystones and minor Sandstones
Claystones : brnsh blk-brnsh gry-olv blk, blky, lam, frm-mod hd, sli slty, v f sdy, r calc
Sandstones : brnsh gry, clr trnsl-mlky wh Qtz, v f-f, sbrndd-rndd, blky, frm, wl srt, Kao cmt, v arg, Tr C, Tr Glauc, r micromic
Age: Late-Early Toarcian

5 Hydrocarbon Shows

The evaluation of hydrocarbon shows at the wellsite was carried out in a conventional manner.A standard (Geoservices) hydrocarbon total gas detector system(Geoservices Gaslogger) together with a gas chromatograph for automatic and continuous gas analysis, recorded as ppm by volume of C1 through nC5, were operational below 1160m down to the TD of the well.

Hydrocarbon shows on ditch cuttings was evaluated according to procedures described in Norsk Hydro's "Wellsite Geologist's Manual".

5.1 Gas Record

139 - 1160m: This interval was drilled with returns to sea bed.

1160 - 4013m. The gas record was made by the Reserval system providing C_1 to C_5 breakdown.

5.2 Oil stain and Fluorescence

No oil stain or fluorescence was observed in the ditch cuttings.

6 Coring

No core was cut in this well.

7 Logging

7.1 MWD Logs

A MWD service (Schlumberger Anadrill) yielding gamma ray, resistivity, density, neutron, sonic and survey measurements was run in the following sections:

Run no.	Hole section	Drill Depth Interval m MD RKB	Log Depth Interval m MD RKB	Tool	Comments
1	36"	139 - 223	139 - 223	PowerPulse	
2	17½"	223 - 1160	223 - 1142	Power Pulse-CDR w/APWD	
3	12¼"	1160 - 2768	1151 - 2749	PowerPulse-CDR w/APWD	
4	12¼"	2768 - 2923	2749 - 2923	PowerPulse-CDR w/APWD	
5	12¼"	2923 - 2966	2923 - 2966	PowerPulse-CDR w/APWD	
6	12¼"	2966 - 3055	2966 - 3036	PowerPulse-CDR w/APWD	
7	12¼"	3055 - 3088	3036 - 3068	PowerPulse-CDR w/APWD	Stuck. Tools lost in hole.

Table 7.1: MWD runs 25/2-16 S

Run no.	Hole section	Drill Depth Interval m MD RKB	Log Depth Interval m MD RKB	Tool	Comments
1	12¼"	1915 - 2912	1886 - 2883	Power Pulse-CDR w/APWD	No GR data 2650-2705 No Res data 2352-2883
2	12¼"	2912 - 2985		Power Pulse-CDR w/APWD	
3	12¼"	2985 - 2995		PowerPulse-CDR w/APWD	
4	12¼"	2995 - 3185		PowerPulse-CDR w/APWD	
5	8½"	3185 - 3969	3179 - 3956	PowerPulse-VISION-ADN-ISONIC	
6	8½"	3969 - 4013	3956 - 4000	PowerPulse-VISION-ADN-ISONIC	Well TD

Table 7.2: MWD runs 25/2-16 S T2

More detailed MWD results can be found in the report "End of Well Report"/Logs, (Schlumberger/Geoservices) Well 25/2 16 S / 16 S T2

7.2 Wireline Logs

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

Run:	Logs:	Date:	Logged interval (mRKB)	Comments:
1A	GR/MDT	07.09.2001	2796.5 - 3969,0	15 valid pressure points
1A	GR/VSP(CSAT)	08.09.2001	2365,0 - 4000,0	116 stations

Table 7.3: Wireline logs 25/2-16 S T2

7.2.1 MDT pressure points and sampling

A total of 32 pressure measurements were recorded, of which 15 were regarded as valid. No sampling were performed.

7.2.2 Velocity Surveys

A zero offset VSP was aquired and processed by Schlumberger. No problems occured during the acquisition, and the data quality is good.

For more information see the VSP report.

Type of log	Run No.	Interval m MD	Operational Comments
VSP CSAT)	1A	2365 - 4000	2 level VSP tool (CSI), 15 m level spacing.

Table 7.4: VSP Runs 25/2-16 S T2

7.2.3 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. (hrs)
GR/MDT	1A	3969	121.3	12 hrs
GR/VSP (CSAT)	1A	4000	121.0	27 hrs

Table 7.5: Bottom Hole Temperatures 25/2-16 S T2

When entered into a Horner plot, this give a static formation temperature estimate of 121 ° C at 4000m.

8 Petrophysical Evaluation

8.1 MWD / LWD Log Quality

The MWD/LWD log runs for the two tracks are listed in Chapter 7.

The primary track of well 25/2-16 S was prematurely terminated due to abandonment of the bottomhole assembly which became stuck at 3088 m RKB in the 12¼" section.
The 17½" section was drilled with a mud consisting of seawater and high viscous pills. The 12.25" section was drilled using 1.25 s.g. Versavert oil based mud.
In 25/2-16 S, the log quality is generally good though the GR and phase shift and amplitude CDR resistivities are uncharacteristically noisy above about 1000 m MD RKB in the 17½" section and are of dubious validity. The GR above 1000 m MD is affected by barite in the viscous pills and the resistivity measurements are disrupted by a combination of hole size and conductive mud. The 25/2-16 S logs below 2000 m RKB are shown in *figure 8.1*.

The 25/2-16 S T2 sidetrack was kicked off at 1915 m MD RKB and was drilled with 1.5 s.g. Versavert oilbased mud. The 25/2-16 S T2 logs are shown in *figure 8.2*.

The log quality in the 12¼" section is generally acceptable except in the interval 2356-2888m MD where the CDR resistivity log data are unstable and unreliable. The 9 5/8" casing shoe is at 3179 m MD RKB.

In the 8.5" section the log quality is generally good. The ISONIC derived compressional slowness is of good quality. The Vision 675 tool provides 5 phase shift and 5 amplitude derived resistivity measurements each corresponding to a different depth of investigation. No marked deviation in the responses of the different phase shift resistivities is apparent and likewise for the amplitude resistivities. The 2 MHz 28" phase shift measurements have been used for interpretation purposes.

The GR log data has been corrected for bit size and mud weight. The density log has been corrected for stand-off and the neutron log corrected for bit size, mud weight, pressure, temperature and salinity. The resistivity logs were borehole corrected but not invasion corrected. These corrections have been carried out by Schlumberger as part of the logging process.

8.2 Petrophysical Evaluation Methodology

Vertical depths have been calculated from the survey data through application of the enhanced minimum curvature method. The primary petrophysical evaluation presented here has been carried out over the interval 3175 - 4000 m MD RKB in well 25/2-16 S T2 and incorporates formations in the Shetland, Cromer Knoll, Viking and Vestland Groups. The logs over this interval are shown in *figure 8.3*. The Vestland Group comprising the Hugin

and Sleipner formations was the primary exploration target for this well. The evaluation has been performed using the RECALL program and the values assigned to various computational parameters are listed in *table 8.1*.

Parameter	Symbol	Value	Unit
Formation temperature	T	122.0 at 3970 m RKB temp gradient = 0.03 TVD	deg C
formation water density	r_w	1,060	g/cc
formation water resistivity	R_w	0.042 at 120 deg C	ohm.m
shale resistivity	R_{sh}	6,0	ohm.m
matrix density		2,65	g/cc
shale density	r_{sh}	2,55	g/cc
shale neutron porosity	$NPHI_{sh}$	3175 - 3710 m MD 0.27 3710 - 4000 0.33	fraction
matrix neutron porosity	$NPHI_{ma}$	-0,02	fraction
fluid neutron porosity	$NPHI_{fl}$	1,0	fraction
gamma ray minimum	GR_{sand}	3175 - 3710 m MD 20 3710 - 4000 25	GAPI
gamma ray maximum	GR_{sh}	3175 - 3710 m MD 120 3710 - 4000 80	GAPI
Archie constant	a	1	-
Archie m exponent	m	2,0	-
Archie n exponent	n	2,0	-

Table 8.1: Summary of Petrophysical Parameter Values,Well 25/2-16 S T2

8.2.1 *Lithology*

Coal intervals have been identified by visual inspection of the logs. In these intervals the porosity and water saturation have been set to zero and one respectively. Significant quantities of mica and feldspar are often found the Hugin and Sleipner formations and the contribution of these minerals can lead to overestimation of the shale volume if not taken into account. To compensate for the effects of these minerals shale volumes have been determined as the minimum of the individual shale volumes from the density-neutron and gamma ray methods. In the interval 3175 - 3710 m MD the linear GR method has been applied, while in the interval 3710 - 4000 m MD the Steiber-Clavier equation has been applied with GFCT=1.4. The end point values used for the shale volume computation from GR and density-neutron logs are listed in *table 8.1*

Steiber-Clavier equation: $V_{sh} = GRI.(GFCT - 1)/(GFCT - GRI)$
where $GRI = (GR_{log} - GR_{min})/(GR_{max} - GR_{min})$

8.2.2 *Porosity*

The total porosity was calculated from the density log without use of a hydrocarbon correction.Oil based mud was used and in the invaded zone sensed by the density log, the fluid is a mixture of oil based mud filtrate, formation water and any formation hydrocarbons which may be present.
As an approximation a single fluid density of 0.94 g/cc was used. In the invaded zone sensed by the density log, a fluid mixture density of 0.94 g/cc corresponds to a range of permutations of individual fluid saturations and densities, e.g. a water saturation of 25% and density of 1.06 g/cc mixed with a oil based mud filtrate saturation of 75% and density 0.9g/cc.

Total porosity f_t was calculated from the density log using the relationship:

$$f_t = \frac{r_{ma} - r_{log}}{r_{ma} - r_{fl}}$$

The effective porosity was calculate from the total porosity and the shale volume via the equation.

$$f_e = f_t - f_{sh.} V_{sh}$$

where $f_{sh} = (r_{dsh} - r_{sh}) / (r_{dsh} - r_w)$

and
f_e = effective porosity (fraction)
r_{sh} = shale density (g/cc)
r_{dsh} = dry shale grain density = 2.65 g/cc
V_{sh} = shale volume (fraction)

8.2.3 *Water Saturation*

Water saturation has been calculated using the Indonesia (Poupon-Leveaux) shaly sand equation.

$$\frac{1}{R_t} = \left\{ \frac{f_e^{m/2}}{(a.\,R_w)^{0.5}} + \frac{V_{sh}^{(1 - Vsh/2)}}{R_{sh}^{(0.5)}} \right\}^2 .S_w^n$$

R_t was obtained from the 2 MHz phase shift 28" resistivity log chosen from the set of Vision 675 resistivity curves. This set comprised the 40", 34", 28", 22" and 16 phase shift and amplitude derived resistivities at 2 MHz and 400 MHz. There is little or no separation

between the different 2 MHz phase shift curves. The formation water resistivity R_w, for the Hugin and Sleipner formations in well 25/2-16 S T2 is unknown. An estimate of R_w has been attempted using the MDT pressure gradient of 0.104 bar/m which corresponds to an in situ formation water density of 1.059 g/cc. The maximum recorded temperature during the MDT run is 122 degC at 3969 m RKB. Using this temperature, a reservoir pressure of about 375 bar and a formation water density of 1.059 g/cc as input to correlations yields a formation water salinity of about 150,000 ppm NaCl equivalent and an R_w of about 0.017 ohm.m.

Regional water salinity data suggest that the salinity should be much lower than 150,000 ppm NaCl and at most about 50,000 ppm NaCl. Various R_w values have been tried to gauge sensitivities, however the base case water salinity is taken as 50,000 ppm NaCl which corresponds to a formation water resistivity of 0.042 ohm.m at 120 degC.

A formation temperature gradient of 0.03 degC/m TVD is assumed in the interpreted interval.

The Archie constant *a* has been constrained to be equal to one and the corresponding values for the Archie *m* and *n* exponents have been set equal to 2. The corresponding CPI is shown in *figure 8.6*.

8.2.4 *Net Reservoir*

In the Hugin and Sleipner formations, net reservoir and net pay cutoff criteria have been defined using the effective porosity and effective water saturation. Shale volume has not been included in the cutoff criteria. The preferred cutoff limits are 12% effective porosity for net sand designation and 12% effective porosity with 60% effective water saturation for net pay designation.

net sand $>$ 12% f_e
net pay $>$ 12% f_e and $<$ 60% S_{we}

The porosity cutoff values have been subjectively chosen based on regional experience.

8.3 MDT Data Analysis

A total of 32 formation pressure measurements were attempted with varying degrees of success. Pretests at 4 depths can be considered as dry tests. Supercharging of some pressure points is evident. No fluid samples were taken. The MDT pressure data are presented in *table 8.2*. The CQG formation pressure data are plotted in *figure 8.4*.
From both the CQG and strain gauge data at least 3 separate water compartments are apparent over the interval covered by the MDT data. No evidence of mobile hydrocarbons is apparent from the MDT pressure data.

The pressure gradients are (m TVD MSL):

CQG: water 1 $P_{wat} = 0.104\ TVD + 1.127$

	water 2	P_{wat} = 0.104 TVD - 1.080
	water 3	P_{wat} = 0.104 TVD - 1.655
strain:	water 1	P_{wat} = 0.104 TVD + 1.525
	water 2	P_{wat} = 0.104 TVD - 0.690
	water 3	P_{wat} = 0.104 TVD - 1.240

A pressure gradient of 0.104 bar/m corresponds to a fluid density of 1.059 g/cc.

CQG pressure data and pressure gradients are shown in *table* 8.2

	25/2-16 S T2				CQG gauge				STRAIN gauge			
	Test No.	Depth	Formation	Depth	FINAL BUILDUP	Initial MUD	Final MUD	drawdown	FINAL BUILDUP	Initial MUD	Final MUD	drawdown
		m RKB		m TVD	Pressure CQG	Pressure CQG	Pressure CQG	mobility	Pressure SG	Pressure SG	Pressure SG	mobility
		MD		MSL	bar	bar	bar	md/cp	bar	bar	bar	md/cp
1	41	3796.50	Upper Hugin	3557.47	378.1456	531.17	530.99	-	378.5703	531.38	531.18	-
2	39	3798.01	Upper Hugin	3558.94	299.3210	531.57	531.52	-	299.9107	531.78	531.71	-
3	22	3803.99	Upper Hugin	3564.73	-	-	-	-	354.3796	531.00	531.22	-
4	38	3804.02	Upper Hugin	3564.02	354.6159	532.51	532.79	-	355.0969	532.72	532.98	-
5	37	3812.49	Upper Hugin	3572.97	377.2502	532.51	532.58	-	377.6166	532.70	532.77	-
6	34	3816.01	Upper Hugin	3576.39	244.7523	533.02	533.11	-	245.2865	533.21	533.30	-
7	33	3820.00	Upper Hugin	3580.26	376.1899	533.53	533.63	-	376.5487	533.72	533.83	-
8	32	3824.00	Upper Hugin	3584.14	373.8768	534.12	534.16	17.55	374.2817	534.32	534.36	17.63
9	31	3825.97	Upper Hugin	3586.05	374.0700	534.36	534.41	4.71	374.4788	534.55	534.61	4.71
10	30	3827.95	Upper Hugin	3587.97	374.2632	534.65	534.68	7.7	374.6773	534.85	534.88	7.7
11	29	3829.99	Upper Hugin	3589.94	374.4897	534.88	534.95	7.11	374.9011	535.09	535.14	7.12
12	28	3831.96	Upper Hugin	3591.85	374.7096	535.03	535.16	1.68	375.1092	535.23	535.37	1.68
13	27	3836.51	Upper Hugin	3596.26	244.6083	535.64	N/A	-	245.1482	535.84	535.45	-
14	26	3843.03	Upper Hugin	3602.59	375.8434	536.58	536.70	2.43	376.2503	536.78	536.90	-
15	25	3853.02	Lower Hugin	3612.28	376.6586	538.56	538.38	-	377.0302	538.78	538.58	-
16	24	3857.01	Lower Hugin	3616.15	374.9618	539.69	539.45	4.19	375.3949	539.93	539.66	4.19
17	23	3858.97	Lower Hugin	3618.05	375.0159	540.29	540.11	62.72	375.4738	540.54	540.35	65.11
18	56	3861.01	Lower Hugin	3620.03	375.4263	539.91	540.03	1.32	375.8146	540.09	540.20	1.32
19	55	3867.00	Lower Hugin	3625.85	376.0563	540.90	540.87	2.36	376.4444	541.09	541.06	2.36
20	54	3870.01	Lower Hugin	3628.77	377.4405	541.46	541.49	0.3	377.8195	541.64	541.66	0.3
21	53	3880.02	Lower Hugin	3638.02	326.2017	542.74	543.12	-	326.6895	542.93	543.29	-
22	52	3882.50	Lower Hugin	3640.90	377.5862	542.65	542.93	0.32	377.9657	542.83	543.13	-
23	51	3891.98	Lower Hugin	3650.11	347.8800	544.20	544.16	-	348.3790	544.40	544.35	-
24	49	3894.01	Lower Hugin	3652.08	378.2205	544.69	544.65	2.19	378.6193	544.89	544.85	2.19
25	58	3895.01	Lower Hugin	3653.05	378.2714	545.45	545.36	38.06	378.6691	545.64	545.54	38.48
26	48	3895.99	Lower Hugin	3654.01	378.2646	544.69	545.00	15.21	378.6788	544.89	545.20	15.25
27	57	3898.00	Lower Hugin	3655.96	378.6001	546.21	546.11	6.8	378.9961	546.39	546.28	6.81
28	47	3937.01	Sleipner	3693.96	343.4464	550.65	550.79	-	388.9586	550.85	550.99	-
29	46	3939.01	Sleipner	3695.92	388.5842	550.78	550.94	0.44	388.9586	550.97	551.14	-
30	44	3955.94	Sleipner	3712.47	300.8594	553.88	553.82	-	301.3450	554.05	553.99	-
31	43	3964.99	Sleipner	3721.34	304.2892	555.89	555.77	-	304.8215	556.07	555.94	-
32	42	3969.02	Sleipner	3725.29	302.2630	556.89	556.75	-	302.7271	557.02	556.92	-

Table 8.2: Summary of MDT Data ,Well 25/2-16 S T2

8.4 Petrophysical Results and Discussion

The preferred log interpretation is shown in *figure 8.6*. The reservoir zonation and log derived petrophysical averages are presented in *table 8.3*.

As confirmed by the MDT pressure gradients, no mobile hydrocarbons were encountered in the Hugin or Sleipner Formations though log analysis indicates that residual quantities of hydrocarbons may be present. In the case here, the primary uncertainty underlying S_w calculations is in the R_w value. The hydrocarbon saturations corresponding to selected R_w values (water salinities) are shown in *figure 8.7* These show that for $R_w > 0.066$ ohm.m (water salinity < 30,000 ppm NaCl) the Hugin and Sleipner Formations are probably 100% water bearing. For R_w values less than about 0.066 ohm.m there is an increasingly likelihood that residual hydrocarbons are in place. Waters with NaCl equivalent salinities greater than 50,000 ppm are not usually associated with aquifers in this region of the North Sea. As a base case, a value of $R_w = 0.042$ohm.m (50,000 ppm NaCl equiv.) is applied here, and it is concluded that residual hydrocarbons are present.

The compatibility of a 50,000 ppm NaCl equivalent salinity with an interpreted formation water density of 1.059 g/cc needs to be addressed. Assuming that the interpreted MDT gradients are correct one possibility is that there are very significant concentrations of non-NaCl ions which contribute markedly to the water density but less so to the water conductivity, e.g. HCO3 ions.

A net sand cutoff of 12% effective porosity was subjectively chosen. The interpreted net sand is very sensitive to the porosity cutoff as shown in *figure8.8*

25/2-16 S T2					NET SAND: cutoffs - PHIE > 0.12					NET PAY:
ZONE	INTERVAL	START	GROSS	GROSS	NET	NET	N/G (m RKB)	PHIE	SWE	PAY
	m RKB	m TVD	m RKB	m TVD	m TVD	m RKB	fraction	fraction	fraction	m TVD
	MD	MSL	MD	MSL						
UPPER HUGIN	3796.0 - 3845.0	3556.99	49.00	47.51	20.84	21.49	0.439	0.141	0.68	0.00
LOWER HUGIN	3845.0 - 3921.0	3604.5	76.00	73.85	24.12	24.84	0.327	0.148	0.785	0.00
SLEIPNER	3921.0 - 3970.0	3678.34	49.00	47.90	2.68	2.74	0.056	0.132	0.688	0.00
TOTAL	3796.0 - 3970.0	3678.34	174.00	169.26	47.64	49.07	0.282	0.144	0.735	0.00

Table 8.3: Reservoir zonation and log derived petrophysical averages

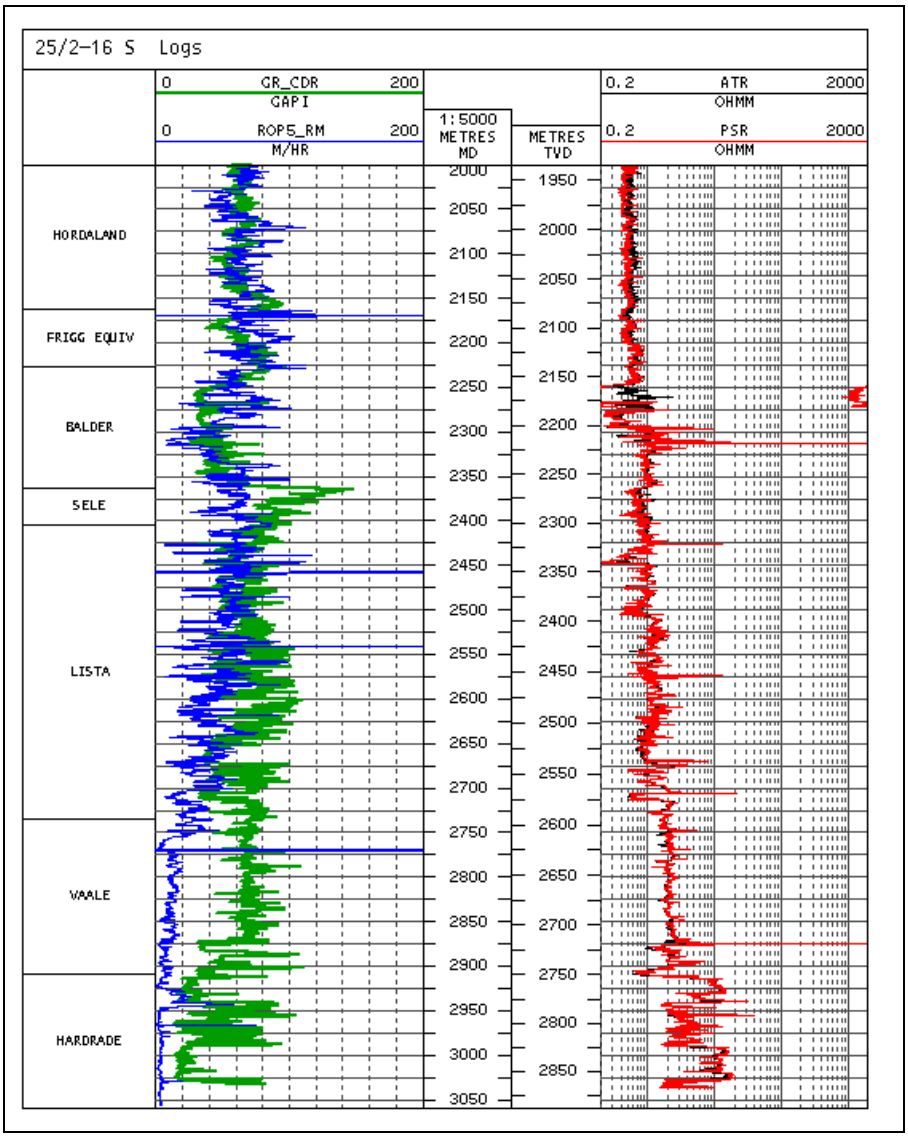


Figure 8.1: Logs below 2000m RKB, Well 25/2-16 S

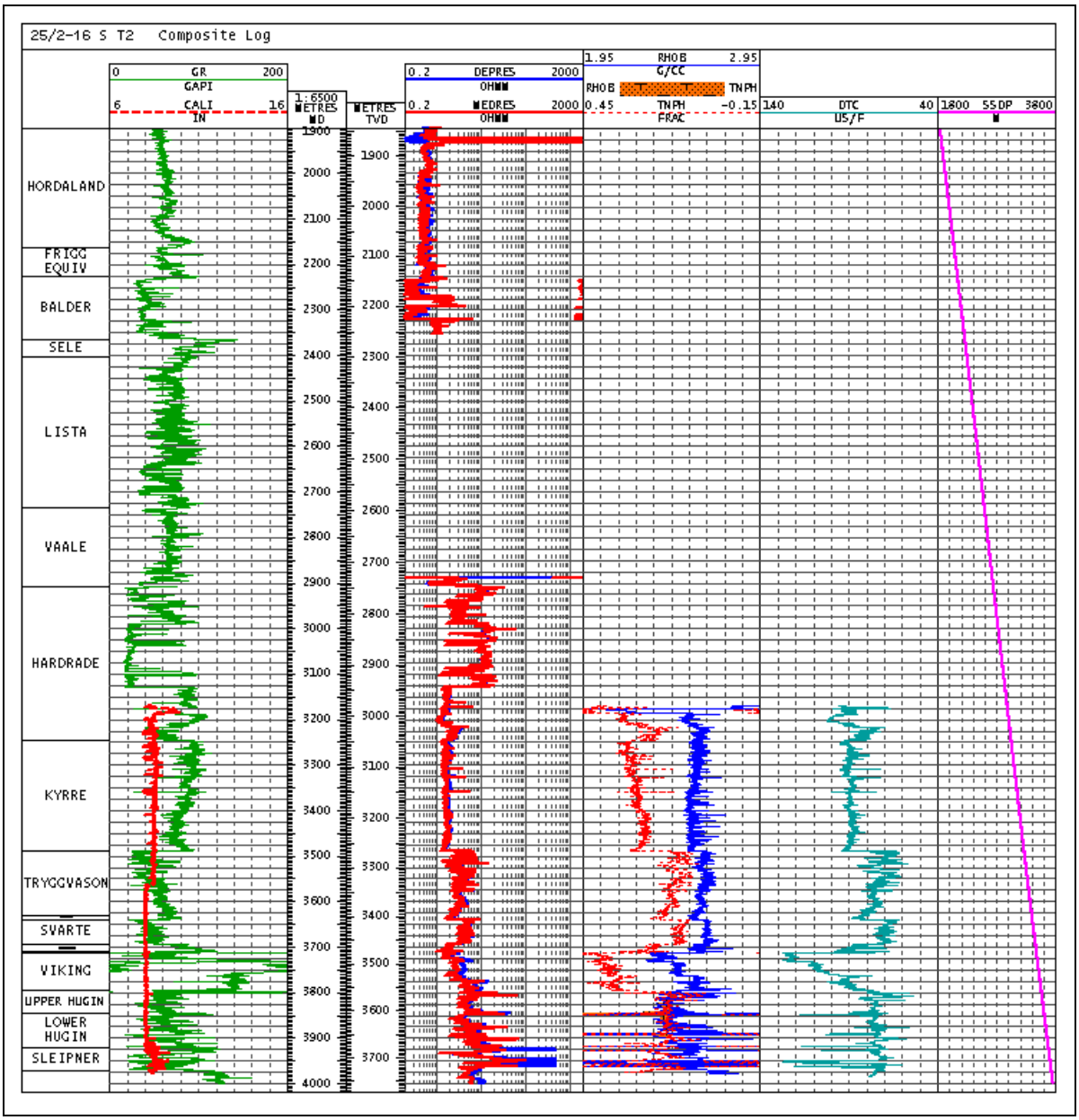


Figure 8.2: Composite Logs below 1900 m RKB, Well 25/2-16 S T2

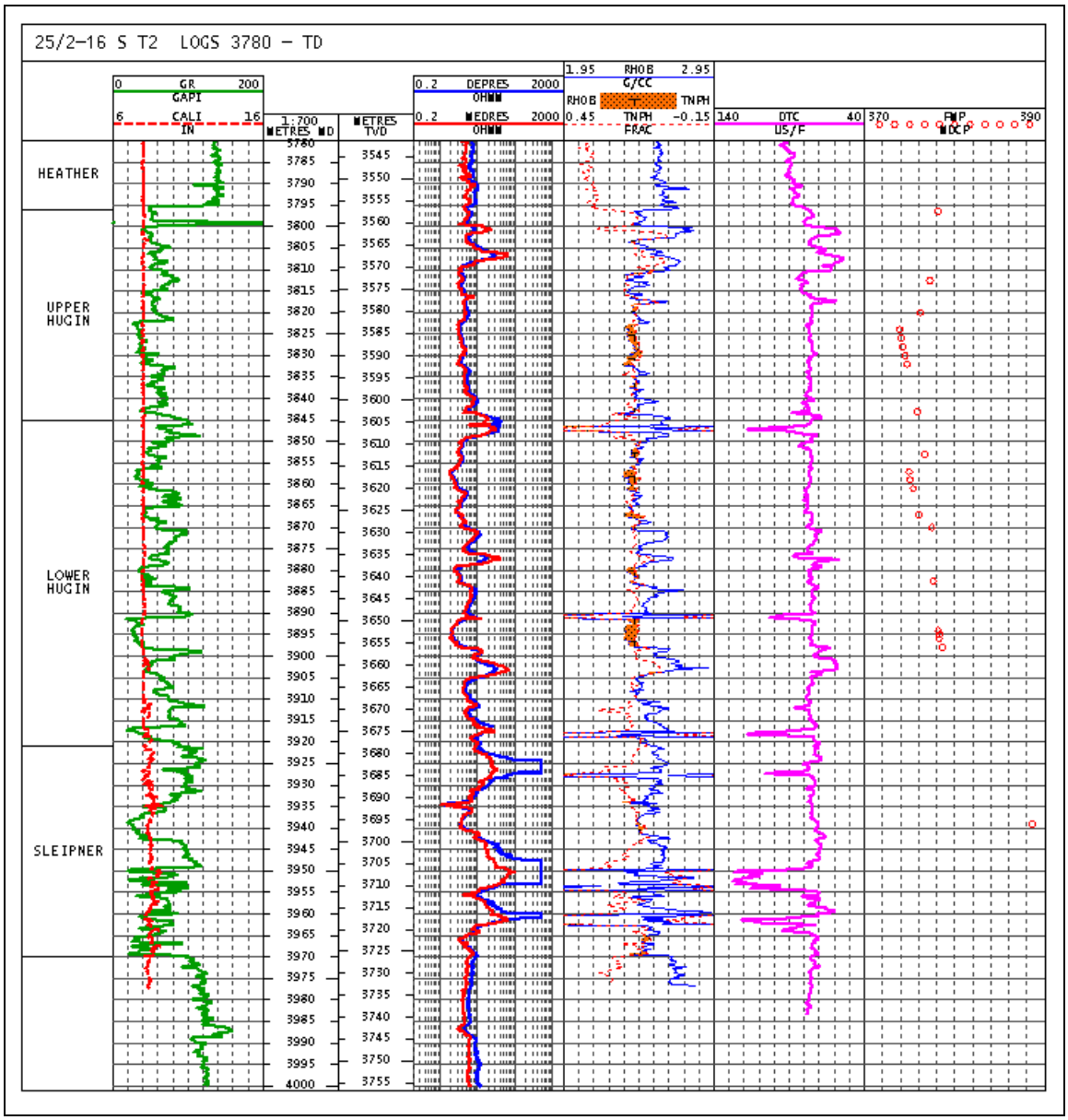


Figure 8.3: Composite Logs in the Hugin and Sleipner Formations, Well 25/2-16 S T2

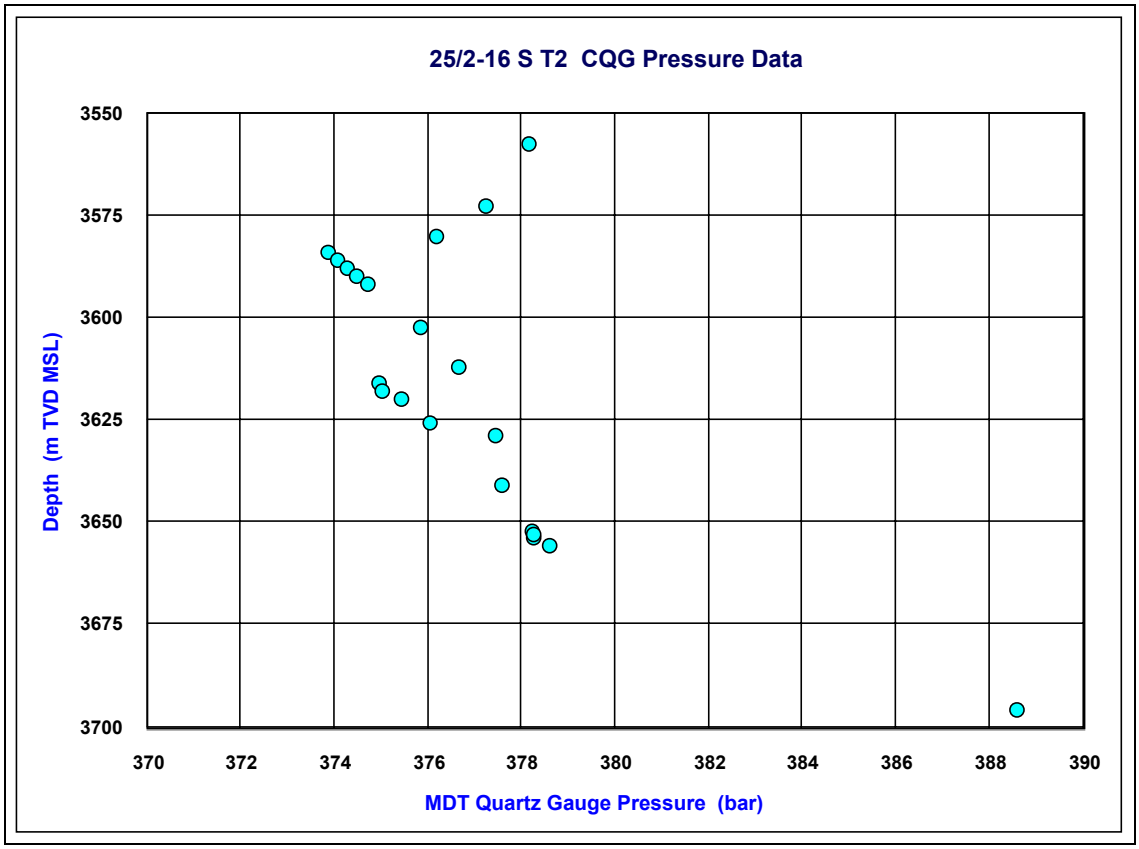


Figure 8.4: MDT Formation Pressure Data, Well 25/2-16 S

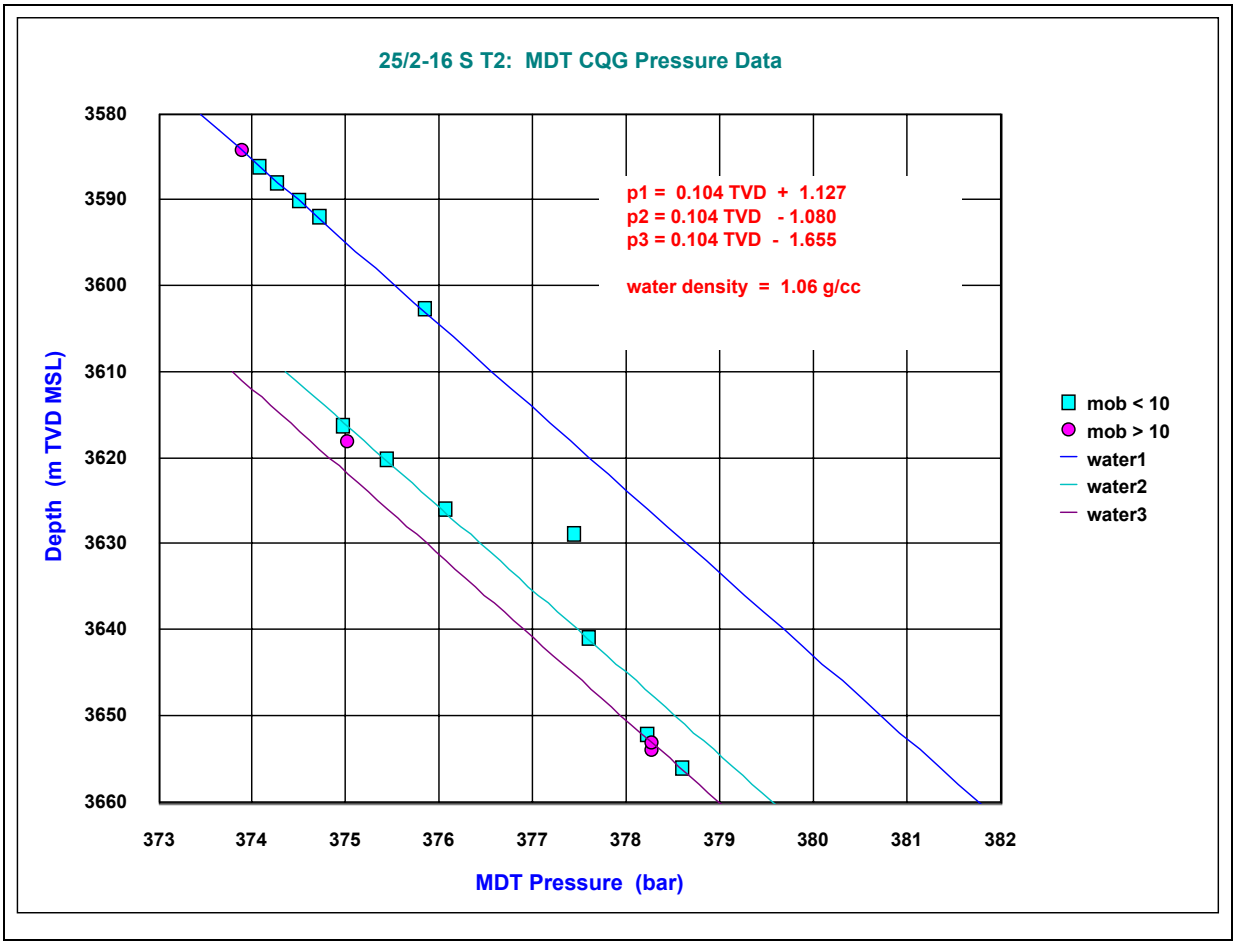


Figure 8.5: MDT Formation Pressure Gradients, Well 25/2-16 S T2

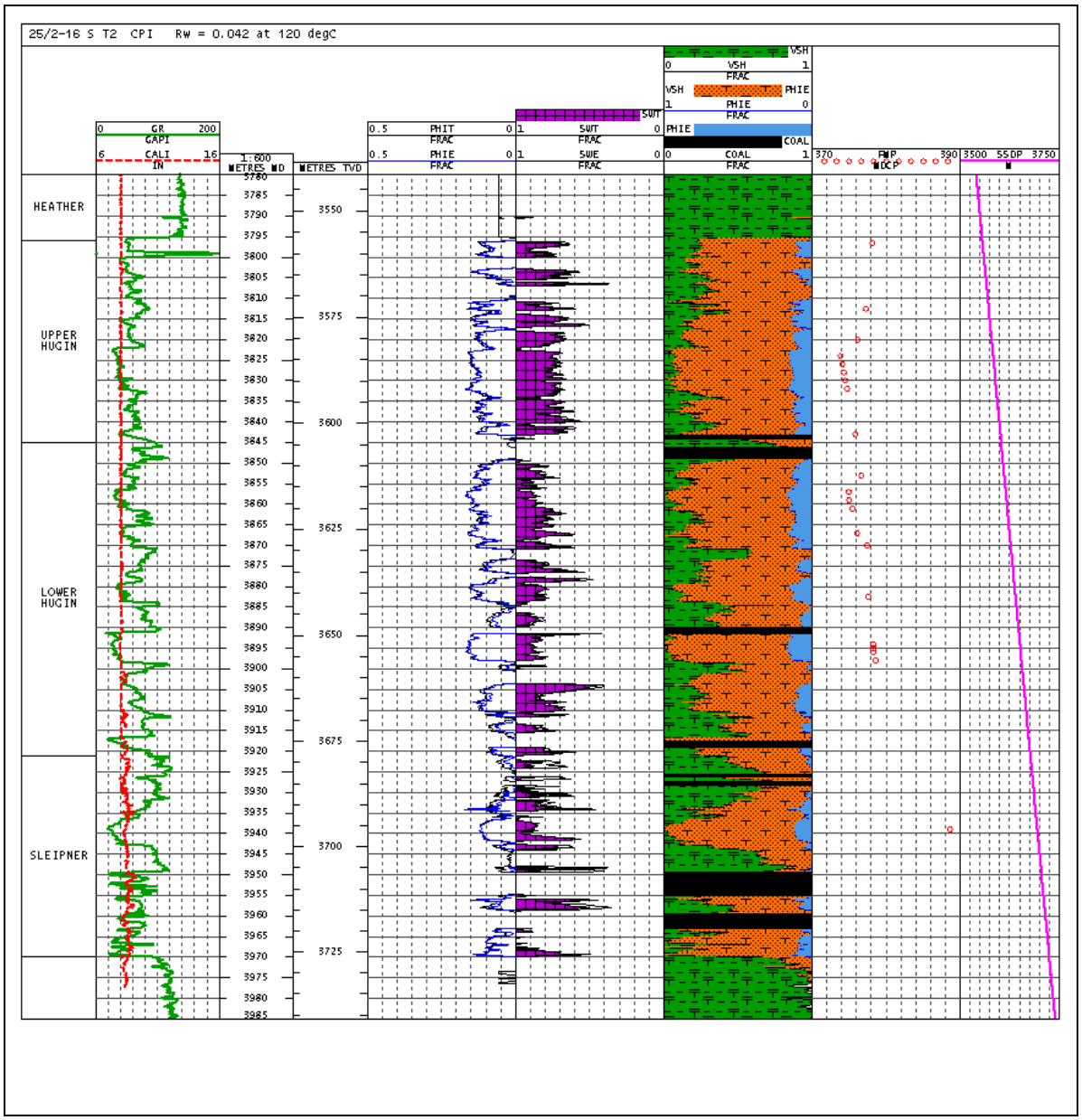


Figure 8.6: CPI over Hugin and Sleipner Formations, Well 25/2-16 S T2

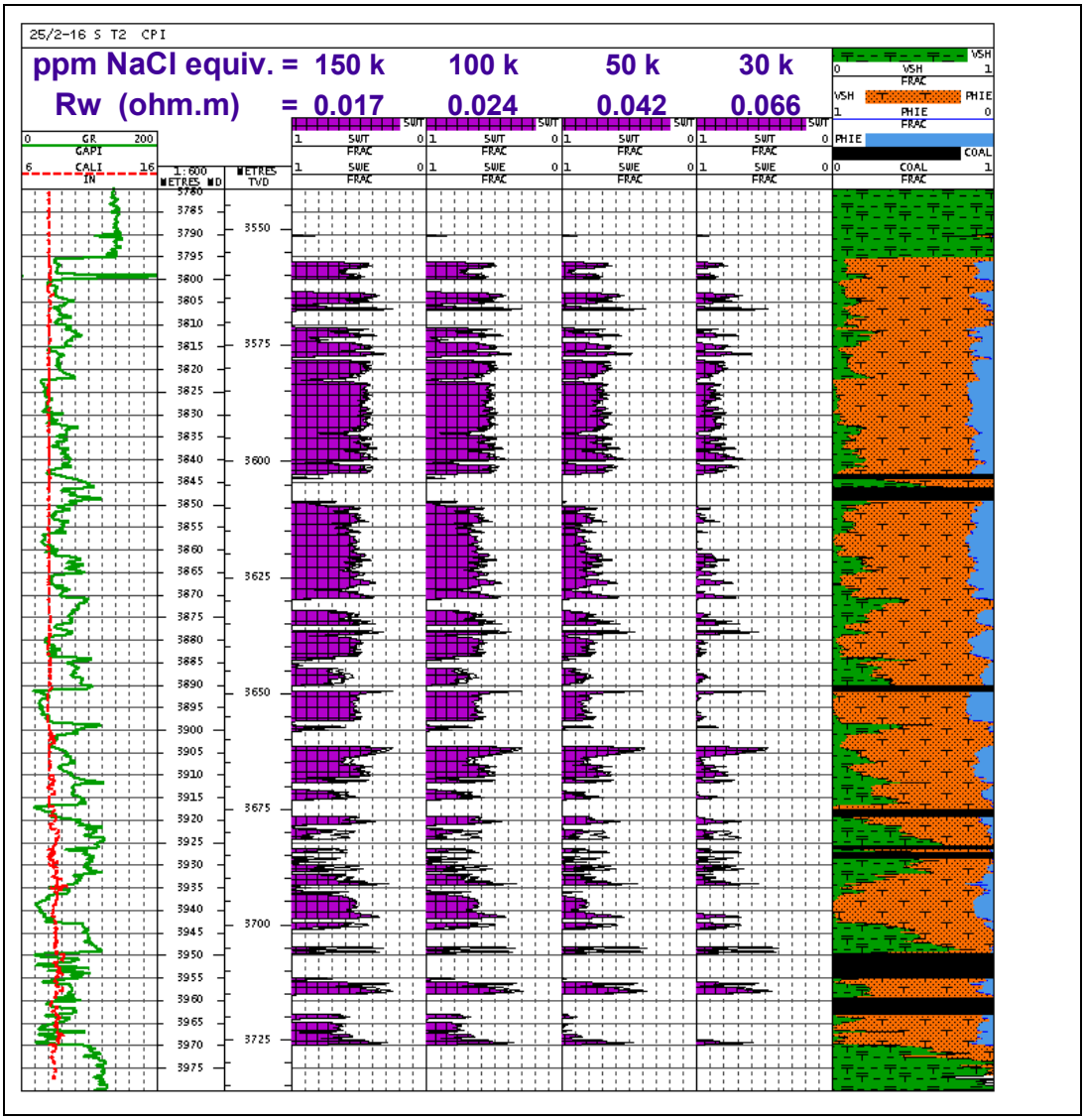


Figure 8.7: Water Sensitivity to Porosity Cutoff, Well 25/2-16 S T2

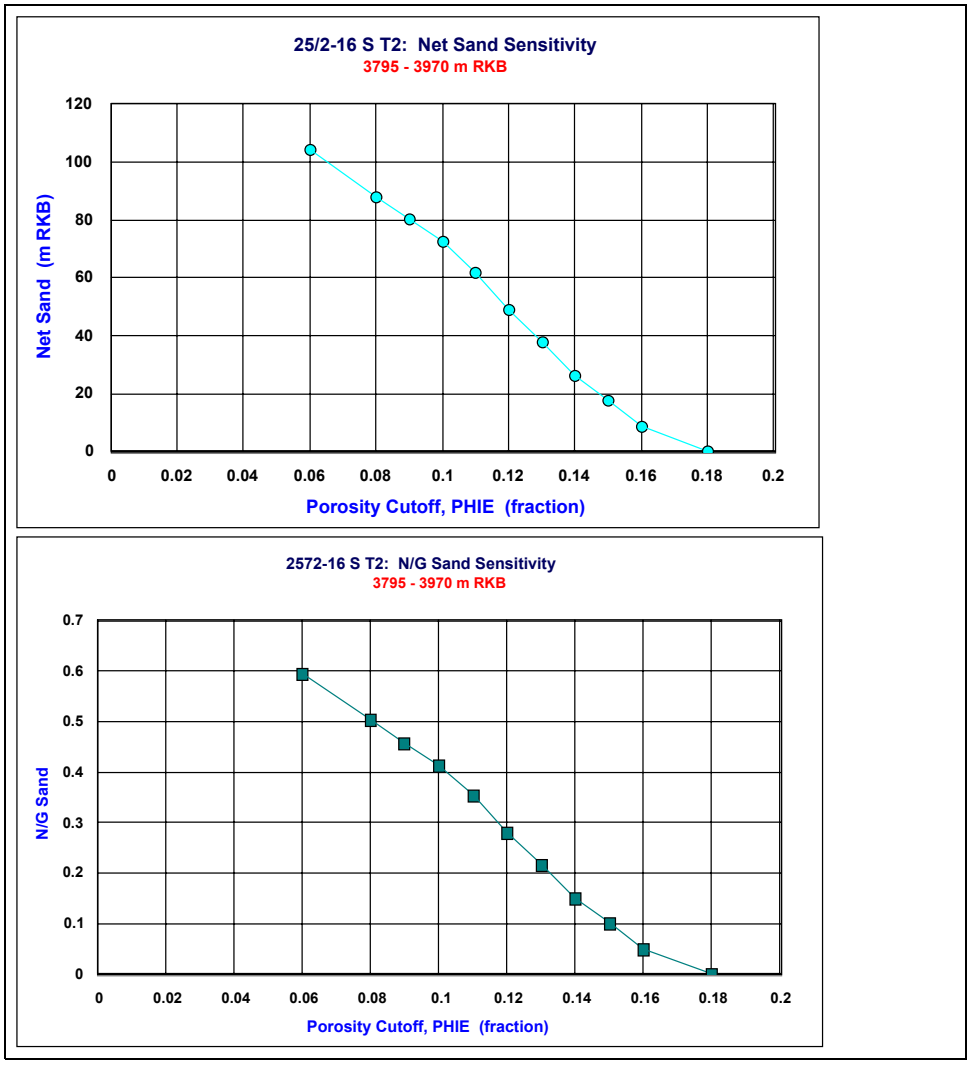


Figure 8.8: Net Sand Sensitivity to Porosity Cutoff, Well 25/2-16 S T2

9 Estimated Pore Pressure, Fracture, Overburden and Temperature Gradients

9.1 Pore Pressure

The pore pressures in well 25/2-16 S, ST2 are based on well site observations, gas data, MDT pressure readings and calculations based on logs (MWD and Dxc). All depths are quoted as m RKB unless otherwise stated.

The Pore pressure-, Fracture- and Overburden gradients are given in figure. 9.1.

No shallow gas was observed.

Based on Dxc and resistivity data there was a normal gradient down to 1550m from were the pore pressure incrased to 1,09sg.
It stayed at approx. 1,09sg to top Frigg were it dropped to normal again and stayed at this level to below Lista sands.
From 2525m TVD the pore pressure raised slowly reaching 1,07sg at mid Hardråde (2870m TVD). From here it was evident from logs that the pore pressure raised quickly reaching maximum of 1,40sg at top Tryggvason (3289m TVD). This transition zone may have increased faster than interpreted from logs due to the fact that we were stuck with the bit at 2940m TVD and had to sidetrack the hole. At this incident depth we had a mudweight of 1,25sg instead of the recommended mudweight, by the rock mechanics engineer, of 1,40sg. The sidetrack was drilled using higher mudweights and no further hole problem was encountered. The reason for using low mudweight was the risk of getting stuck in depleted tertiary sands. The stuck pipe incident may also be the result of drillers action. Drillbreak - stop pumps for flowcheck without circulating the BHA clean of cuttings nor pulling the pipe up from the soft formation.
Pore Pressure remained at approx. 1,40sg until top Draupne at 3499m TVD were it starts to drop rapidly towards the reservoir.
MDT pressure points were taken in the reservoir section, all confirming a close to normal gradient, indicating no fault seal towards the east.

9.2 Formation Strength

Two LOT's were taken at 1151m TVD to 1,54sg and at 3012m TVD to 1,84sg. They were both above the minimum proposed fracture gradient but well within the range of LOT's in this area.

9.3 Overburden Gradient

Overburden gradient is based on regional studies, calculated values and the density log.

9.4 Temperature Gradient

MDT-readings gives a formation temperature of 121,3° C at TD calculated using Horner plot. This gives an average formation temperature gradient of 3,2° C/ 100m assuming 4°G at seafloor. This was lower than expected and is possibly due to different thermal gradient in the tertiary (were all reference data is collected) and the Jurassic succession. This might be influenced by the transition zone or most likely different aquifer temperatures.
The Temperature Gradient is given in figure 9.2.

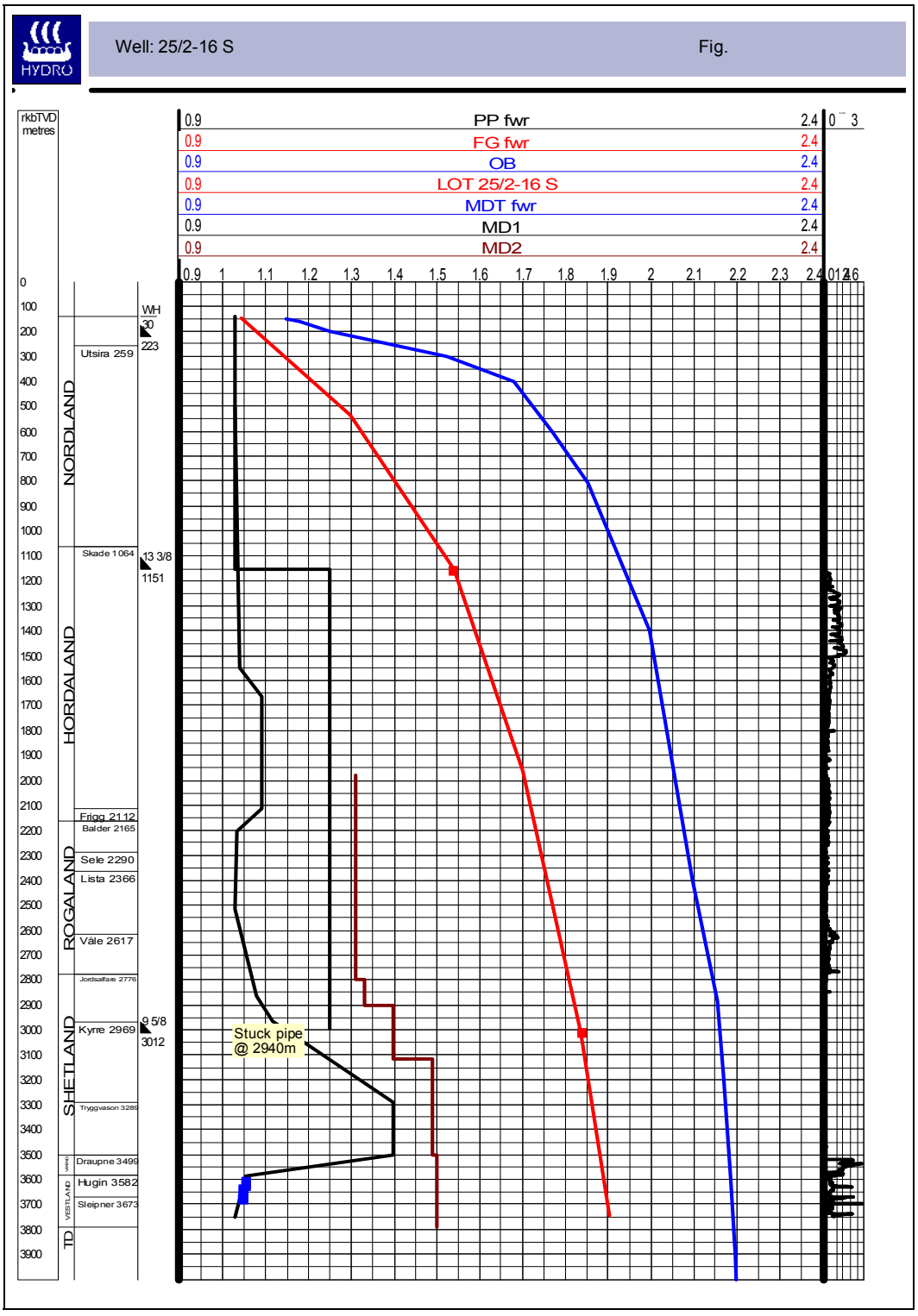


Figure 9.1: Estimated pore pressure, fracture and overburden gradient

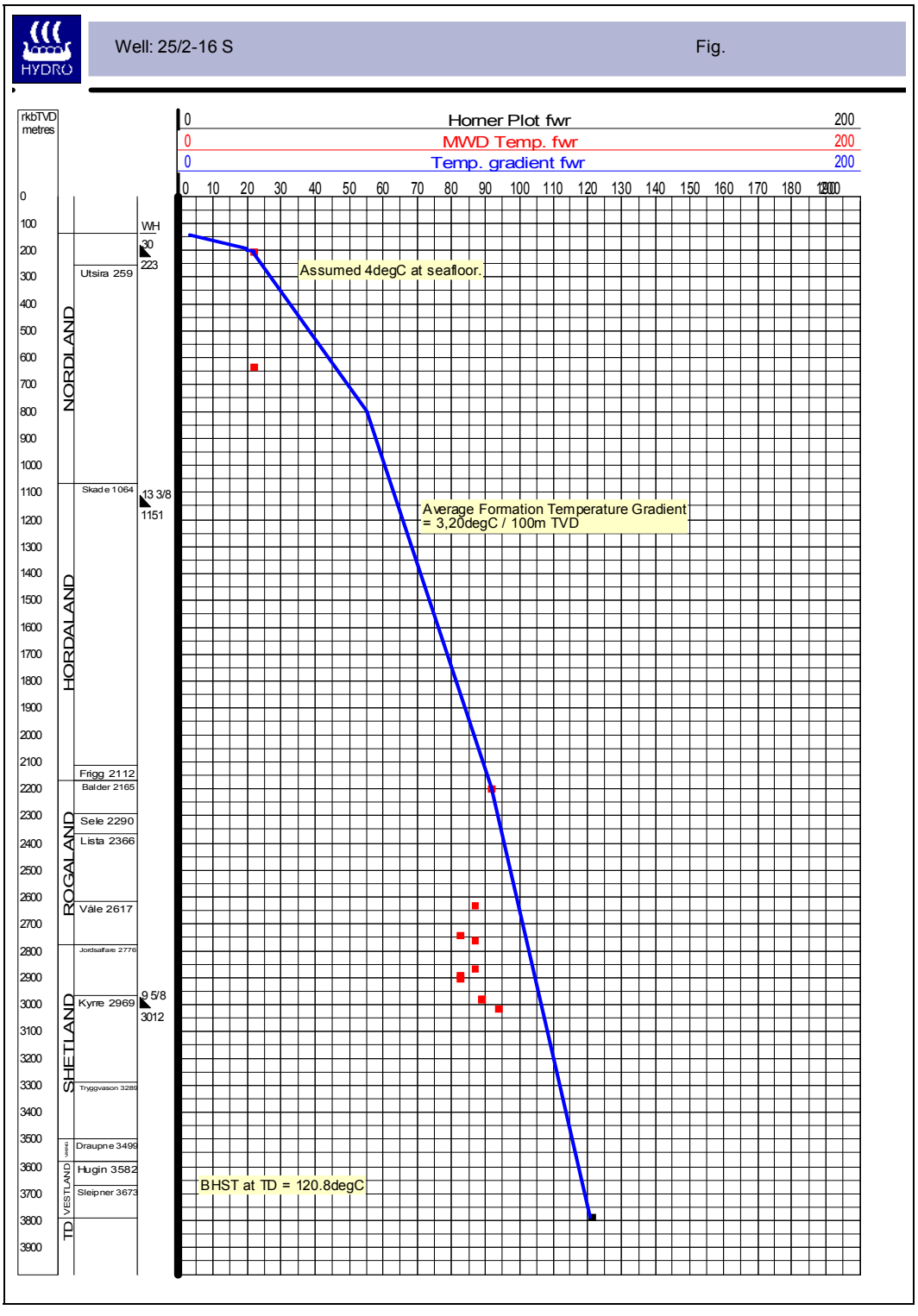


Figure 9.2: Formation temperature gradient

10 Geophysical results

Prognosed and actual time/depth values in well 25/2-16S T2 are listed in table 10.1, and a time/depth curve is presented in figure 10.1. Check shots start at 2365m MD (RKB). In the Paleocene and early Eocene there are significant deviations between prognosed and actual depth. This is mainly due to poorly defined seismic events in this interval.
Cretaceous and Jurassic reflectors show smaller deviations, within the defined uncertainty range.

Horizon	Prognosed (ms) TWT	Actual (ms) TWT	Deviation (ms)	Prognosed (mRKB) TVD	Actual (mRKB) TVD	Actual (mRKB) MD	Deviation (m) TVD
Seabed	154			139	139.0	139	0.0
Top Utsira Fm	286	28	0	264	258.0	258	-6
Top Hordaland Gp.	1068	1068	0	1092	1064.0	1064	-28.0
Top Skade Sst.	1133			1167	Not pres.		
Near Top Frigg Eqv.	2042	1948	-94	2173	2106.2	2162	-66.8
Near Top Balder Fm.	2142	1993	-149	2237	2165.2	2227	-71.8
Top Sele Fm.		2086		2328	2288.7	2364	-39.3
Top Lista Fm.		2112		2399	2324.8	2404	-74.2
Top Heimdal Fm.					2361.6	2445	
Top Vaale Fm.		2324		2589	2619.1	2735	+30.1
Top Shetland Gp.	2476	2429	-47	2784	2771.8	2909	-12.2
Top Kyrre Fm.	2602	2624	22	3018	3072.8	3247	+54.8
Top Tryggvason Fm.	2770	2753	-17	3330	3289.4	3488	-40.6
Top Draupne Fm.	2863	2857	-6	3499	3499.0	3711	0.0
Top Hugin Fm.	2922	2911	-11	3597	3581.0	3796	-16.0
Top Dunlin Gp.	3021	2996	-25	3783	3750.3	3970	-32.7
TD					3792.0	4013	

Table 10.1: Geophysical results well 25/2-16S T2

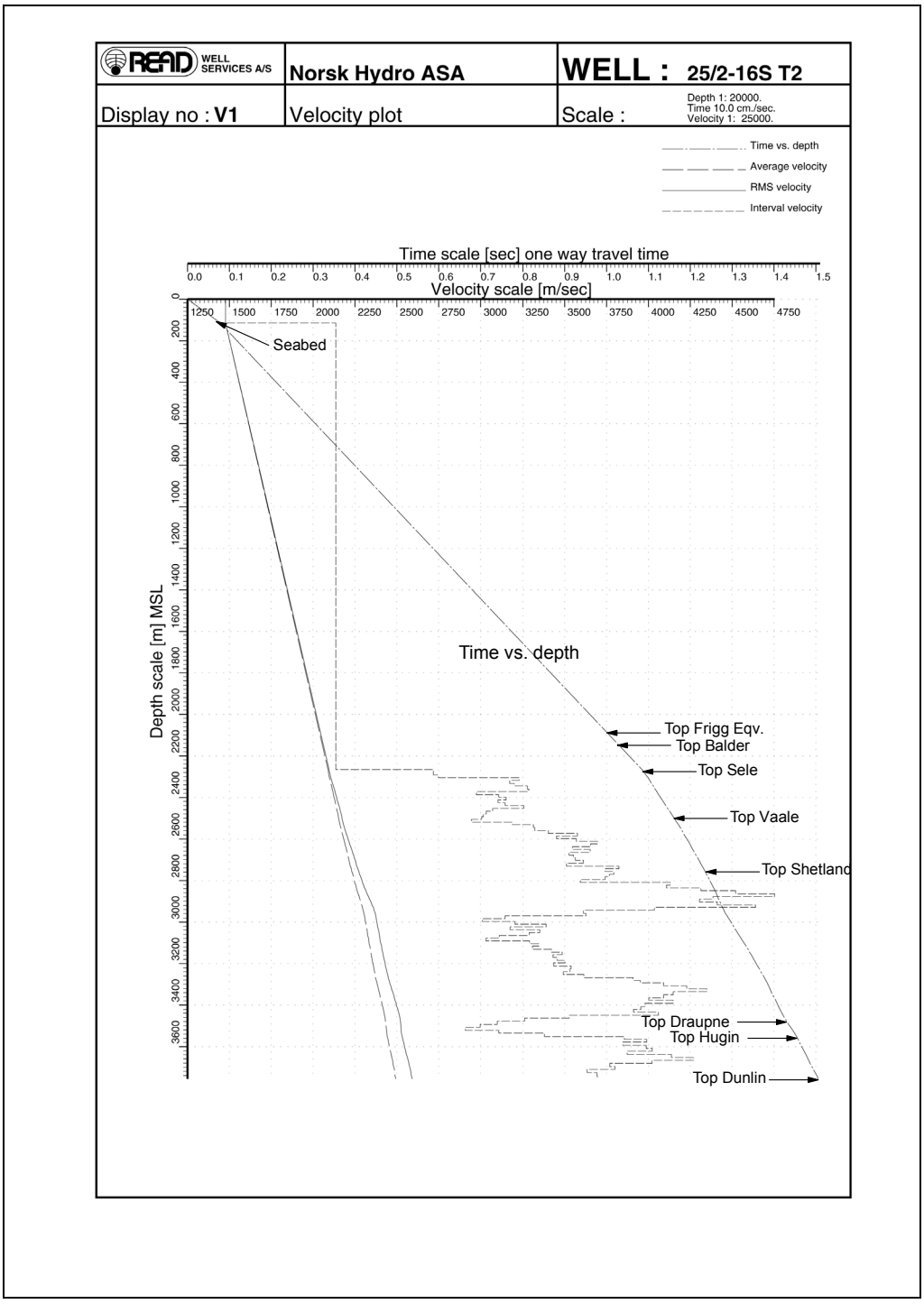


Figure 10.1: Time/depth curve

11 Post Site Survey Report

11.1 Well data:

1 Distance from rig floor to sea level: 24 m

2 Water depth (MSL): 115 m

3a Setting depth for conductor (m RKB): 223 m

b Leak Off / Formation Integrity Test (g/cc): N/A

4a Setting depth (m RKB TVD) for casing with BOP mounted: 1151 m

b Formation Integrity Test (g/cc): N/A

5 Depth (m RKB (TVD) & Two Way Time) to formation/section/layer tops:

Base Pleistocene:	258 m	(286 ms)
Intra Pliocene/Miocene (Refl. 1):	294 m	(327 ms)
Intra Pliocene/Miocene (Refl. 2):	424 m	(441 ms)
Intra Pliocene/Miocene (Refl. 3):	552 m	(589 ms)
Intra Pliocene/Miocene (Refl. 4):	612 m	(649 ms)
Intra Pliocene/Miocene (Refl. 5):	658 m	(685 ms)
Intra Miocene (Refl. 6):	933,5 m	(949 ms)
Intra Miocene (Refl. 7):	984 m	(994 ms)
Base Miocene:	1064 m	(1068 ms)

Note:

No chronostratigraphic information was collected in the tophole section of the well (from seabed down to 1160 m RKB MD). No MWD logs were recorded from seabed down to 223 m RKB. Consequently, the interpretation of the different formations in this area between 223 m to 1160 m RKB is based on the MWD logs, seismic character and previous work.

Mud logging commenced at 1170 m RKB MD. Samples for description were taken at 15 m intervals. Formation tops below 1170 m RKB are based upon MWD logs and cuttings analysis.

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

The following sand bodies have been identified in well 25/2-16 S:

Pleistocene Interval:

240 m - 251 m
253 m - 255 m

Pliocene Interval:

258 m - 266 m
266,5 m - 888 m
893 m - 927 m
933,5 m - 976 m
984 m - 1035 m
1052 m - 1064 m

7 By what means is the presence of gas proven:

No data exists on background gas levels from seabed down to 1160 m (17 ½" hole section drilled using seawater and high viscosity sweeps, with return going to the seabed). However, no gas related incidents were reported when drilling this interval.

8 Composition and origin of gas: N/A

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

11.2 Seismic data

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

The 2D high resolution and 3D exploration seismic have been examined for indications of shallow gas. No amplitude anomalies were mapped at the Well 25/2-16S Location.

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

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

a Shallow Gas:

No amplitude anomalies were mapped and no gas warning was given for Well 25/2-16 S.

No gas related problems were experienced in the well, and no shallow gas indications are seen on the MWD logs.

b Sand Bodies:

The Pleistocene, Pliocene and Miocene sand layers were predicted and encountered sand layers correspond with the interpretation.

c Boulders:

Scattered boulders were predicted in the shallow section between 153 m - 264 m RKB TVD. No boulders layers were predicted. No boulders were encountered.

d Unconformities (depths in metres RKB (TVD):

Horizon	*Prognosed (P)*	*Observed (O)*	*Difference (O-P)*
Base Pleistocene:	264 m ± 5 m	258 m	-6 (shallower)
Intra Plio/Mio (Refl. 1):	303 m ± 10 m	294 m	-9 (shallower)
Intra Plio/Mio (Refl. 2):	423 m ± 10 m	424 m	+1 (deeper)
Intra Plio/Mio (Refl. 3):	568 m ± 15 m	552 m	-16 (shallower)
Intra Plio/Mio (Refl. 4):	627 m ± 20 m	612 m	-15 (shallower)
Intra Plio/Mio (Refl. 5):	662 m ± 20 m	658 m	-4 (shallower)
Intra Miocene (Refl. 6):	937 m ± 25 m	933,5 m	-3,5 (shallower)
Intra Miocene (Refl. 7):	998 m ± 25 m	984 m	-14 (shallower)
Base Miocene:	1092 m± 25 m	1064 m	-28 (shallower)

The prognosed depths to different formation tops were generally slightly deeper than the observed depths, but the differences were, with three exceptions (Base Pleistocene, Intra Plio/Mio Reflector 3 and Base Miocene) within the uncertainty limits. The difference may be

caused by discrepancies in either the seismic pick, the log pick or the velocity model used for depth conversion. No chronostratigraphic information was collected in the tophole section of the well to confirm the pick of formation tops.

e Correlation to Nearby Wells:

The drilling conditions experienced in well 25/2-16 S are as predicted and similar to those encountered in tie-wells 25/4-6S, 25/2-13 and 25/2-5.

12 Standard and special studies

Norsk Hydro, 2001: Site Survey at Location 25/2-16S, PL244. NH-00014169.

Norsk Hydro, 2001: Formation Evaluation Report, Well 25/2-16ST2, PL244.

Norsk Hydro, 2001: Biostratigraphy. Well 25/2-16ST2. Norsk Hydro Zonation. NH-00038363

Norsk Hydro, 2001: SNS-Reservoir Sandstones Petroleum Geochemistry Data Report. R-054356

GeoStrat, 2001: Biostratigraphy of the Intervals 1185m - 3170m and 3090m - 4013m. Well 25/2-16ST2.

Fugro Survey AS, 2001: Navigation and Positioning of Transocean Arctic to Well 25/2-16. Report No 7181.

GeoTeam, 2001: Site Survey at Location 25/2-16, PL244, NH0075 for Norsk Hydro Production AS. Field Report. Report No 34747.31. NH-00021769.

Read Well Services, 2001: Normal Incident VSP Report, Well 25/2-16ST2.

Andrews Survey, 2001: Borehole Seismic Positioning Report, Well 25/2-16S.

Schlumberger Drilling and Measurement, 2001: End of Well Report, Directional and MWD/LWD, Well 25/2-16 ST2.

Geoservices,2001: End of Well Report, Well 25/2-16S & 25/2-16ST2, Mud Logging.

APPENDIX I

WELL SUMMARY

GEOLOGICAL WELL SUMMARY

Title: WELL 25/2-16 S / 25/2-16 S T2
FINAL WELL REPORT
PL 244

WELL SUMMARY:

Coord: 59°45' 07.70"N UTM: 6 624 110.1 mN
02°24' 33.21"E 466 800.3 mE

Zone: ED-50 UTM Zone 31 CM 3° E

Line: EL9201M99, In-line 1515, X-line 927

Rig: Transocean Arctic

Waterdepth: 115 m MSL **KB:** 24 m

Stopped in: Dunlin Group

On location:	01.08.01
Spud:	03.08.01
Stuck:	18.08.01
Sidetrack T2:	23.08.01
At TD:	07.09.01
P&A finished:	14.09.01
Stuck at Driller:	3088 m MD (2940mTVD)
TD T2 Driller:	4013 m MD (3793mTVD)
TD Logger:	Not logged to TD
Wireline Logg:	Schlumberger WS
MWD:	Schlumberger Anadrill
Mudlogging:	Geoservices

WELL:
25/2-16 S
25/2-16 ST2

LICENCE:
PL 244

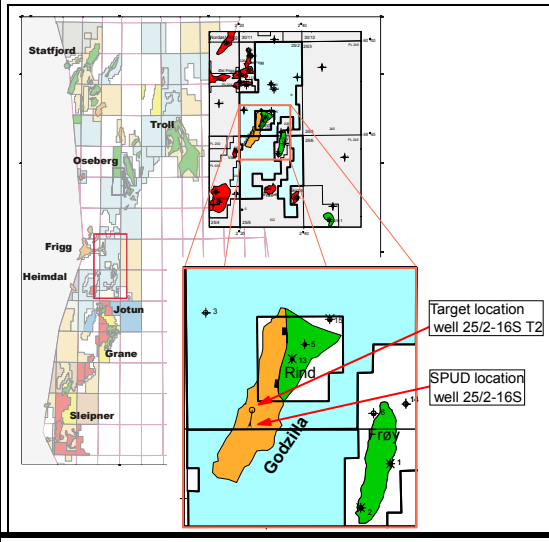
COUNTRY:
Norway

OPERATOR: NORSK HYDRO ASA **OWNED BY: Norsk Hydro ASA, Pelican AS, Enterprise Oil Norge AS**

TARGETS: Middle Jurassic Hugin and Sleipner Formations in the Vestland group.

RESULTS:
- Dry well

CASING (MD / TVD RKB)	**MUD TYPE / WEIGHT**
30" at 223.0 m / 223.0m	Seawater -HiVis pills
13 3/8" at 1151.0 m / 1151.0m	Seawater -HiVis pills
9 5/8" at 3179.0 m / 3012.5m	OBM.Versavert 1.25sg
TD at 4013.0 m / 3792,5m	OBM.Versavert 1.50sg

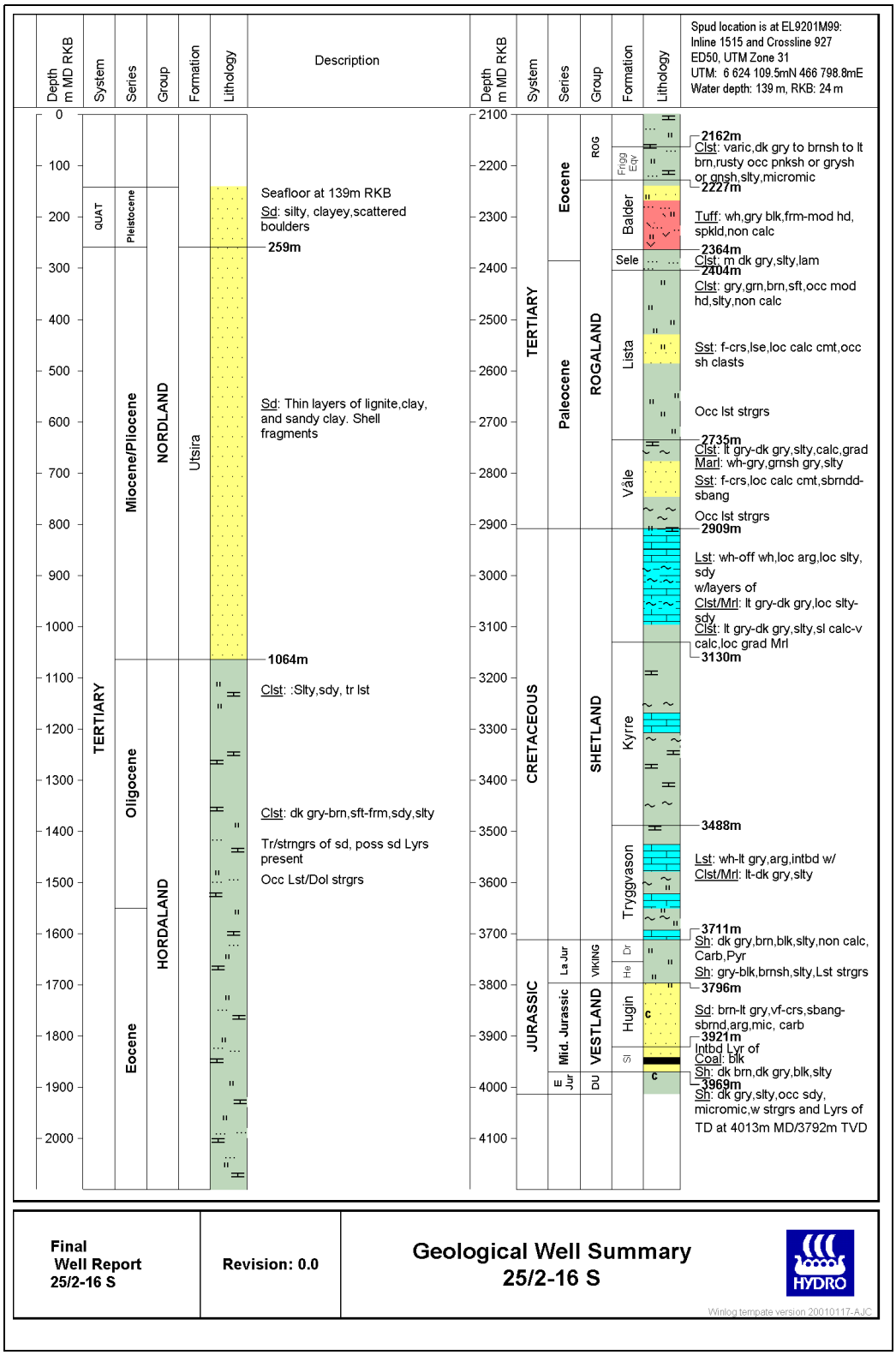


LOGS

MWD/LWD		
PowerPulse	36"	139,0 - 223,0 m
PowerPulse-CDR	17½"	223,0 - 1160,0 m
PowerPulse-CDR	12¼"	1160,0 - 2768,0 m
PowerPulse-CDR	12¼"	2768,0 - 2923,0 m
PowerPulse-CDR	12¼"	2923,0 - 2966,0 m
PowerPulse-CDR	12¼"	2966,0 - 3055,0 m
PowerPulse-CDR	12¼"	3055,0 - 3088,0 m
T2:		
PowerPulse-CDR	12¼"	1915,0 - 2912,0 m
PowerPulse-CDR	12¼"	2912,0 - 2985,0 m
PowerPulse-CDR	12¼"	2985,0 - 2995,0 m
PowerPulse-CDR	12¼"	2995,0 - 3185,0 m
PwrPlse-Vision-ADN-ISONIC	8½"	3185,0 - 3969,0 m
PwrPlse-Vision-ADN-ISONIC	8½"	3969,0 - 4013,0 m
WIRELINE		
MDT (Pressure only)	1A	2796,5 - 3969,0 m
VSP (0-offset)	1A	2365,0 - 4000,0 m

CORES

No cores were cut


Depth m MD RKB
System
Series
Group
Formation
Lithology
Description
Seafloor at 139m RKB
Sd: silty, clayey,scattered boulders
259m
Sd: Thin layers of lignite,clay, and sandy clay. Shell fragments
1064m
Clst: :Slty,sdy, tr lst
Clst: dk gry-brn,sft-frm,sdy,slty
Tr/strngrs of sd, poss sd Lyrs present
Occ Lst/Dol strgrs
TERTIARY
QUAT
Pleistocene
Miocene/Pliocene
Oligocene
Eocene
NORDLAND
HORDALAND
Utsira
CRETACEOUS
JURASSIC
Mid. Jurassic
ROGALAND
SHETLAND
VESTLAND
Eocene
Paleocene
La Jur
E Jur
ROG
VIKING
DU
Frigg Ety
Balder
Sele
Lista
Våle
Kyrre
Tryggvason
Dr
He
Hugin
Sl
Spud location is at EL9201M99:
Inline 1515 and Crossline 927
ED50, UTM Zone 31
UTM: 6 624 109.5mN 466 798.8mE
Water depth: 139 m, RKB: 24 m
2162m
Clst: varic,dk gry to brnsh to lt brn,rusty occ pnksh or grysh or gnsh,slty,micromic
2227m
Tuff: wh,gry blk,frm-mod hd, spkld,non calc
2364m
Clst: m dk gry,slty,lam
2404m
Clst: gry,grn,brn,sft,occ mod hd,slty,non calc
Sst: f-crs,lse,loc calc cmt,occ sh clasts
Occ lst strgrs
2735m
Clst: lt gry-dk gry,slty,calc,grad
Marl: wh-gry,grnsh gry,slty
Sst: f-crs,loc calc cmt,sbrndd-sbang
Occ lst strgrs
2909m
Lst: wh-off wh,loc arg,loc slty, sdy
w/layers of
Clst/Mrl: lt gry-dk gry,loc slty-sdy
Clst: lt gry-dk gry,slty,sl calc-v
calc,loc grad Mrl
3130m
3488m
Lst: wh-lt gry,arg,intbd w/
Clst/Mrl: lt-dk gry,slty
3711m
Sh: dk gry,brn,blk,slty,non calc, Carb,Pyr
Sh: gry-blk,brnsh,slty,Lst strgrs
3796m
Sd: brn-lt gry,vf-crs,sbang-sbrnd,arg,mic, carb
3921m
Intbd Lyr of
Coal: blk
Sh: dk brn,dk gry,blk,slty
3969m
Sh: dk gry,slty,occ sdy, micromic,w strgrs and Lyrs of
TD at 4013m MD/3792m TVD
Final Well Report 25/2-16 S
Revision: 0.0
Geological Well Summary
25/2-16 S
Winlog tempate version 20010117-AJC

SECTION B

OPERATIONS

Prepared by: P. V. Fossum / P. Skødt

Approved by: Terje Skram

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1 DRILLING SUMMARY AND EXPERIENCES

1.1 Mobilising

Total time used:	68.0 hrs	
Operational time:	64.5 hrs	(94.9 %)
Downtime:	3,5 hrs	(5.1 %)

Wellhead co-ordinates:
6 624 110.1 mN 0 466 800.3 mE

The rig move towards well 25/2-16 S started on 01.08.2001 at 07:00 and anchor handling was finished on August 3rd., 2001 at 14:00 hrs.

Rig heading was 249 degrees.

1.2 36" Hole Section / 30" Conductor

Water depth: 139.0 m

Total depth of section: 223.0 m

Total time used:	29.0 hrs	
Operational time:	27.0 hrs	(93.1 %)
Downtime:	1.5 hrs	(6.9 %)

1.2.1 Drilling

A 36" BHA with 17-1/2" 02M insert bit and 36" x 26" hole opener was run. The 36" hole was drilled with sea water and hi-vis pills. At TD, a 25 m3 hi-visc. pill was pumped prior and after a wipertrip. and 1,50 sg mud were spotted in hole. Topped up with 1,40 sg bentonite mud same.

1.2.2 Casing

The 30" conductor with the Permanent Guide Base was run to 223 m and cemented back to the sea bed with good returns.

1.3 17-1/2" Hole Section/ 13-3/8" Casing

Total depth of section: 1160 m

Total time used:	103.5 hrs	
Operational time:	89.5 hrs	(86.5 %)
Downtime:	14.0 hrs	(13.5 %)

1.3.1 LOT

No leak-off test (LOT) was performed.

1.3.2 Drilling

A run with 26" bottom hole assembly (BHA) was performed in order to clean out inside conductor and drill rathole. The 17 ½" section was drilled with a motor assembly through Utsira sands to TD at 1160 m in Hordaland shale. Sea water and hi-vis sweeps were used. The string got stuck while wiping hole prior to connection

at 337 m and while drilling at 364 m and 371 m. The string was free by pumping hi-vis pills. Consequently the rate of penetration (ROP) was controlled however increased with depth and use of hi-vis sweeps plentiful. At TD the well was displaced to 1,40 sg bentonite mud and a 10 stand wiper trip performed.

The well was then displaced to 1,40 sg with old KCl mud prior pulling out of hole.

1.3.3 Casing

The 13 3/8" casing was run to 220 m where La Fleur circulating tool was installed prior to entering open hole. The casing was then run from 220 m to 1000 m and the 18 ¾" wellhead with 20 x 13 3/8" crossover was installed. The casing was landed and cemented in place with shoe at 1151 m.

The BOP was run and choke/kill lines were tested after installing double riser. Yhe planned test on kill line was not possible as lower outside kill valve leaked. A new packer was installed, thereby pressure-tested kill line valves to 35/460 bar. Good test. Ran BOP and pressure tested kill and choke line to 35/460 bar. Tested wellhead connector to 460 bar.

1.4 12-1/4" Hole Section/ 9-5/8" Casing

Total depth of section:	T1: 3087.0 m MD	
	T2: 3185.0 m MD	
Total time used:	571.5 hrs	
Operational time:	282.5 hrs	(49.4 %)
Downtime:	289.0 hrs	(50.6 %)
	T1: 287.5 hrs	
	T2: 1.5 hrs	

1.4.1 LOT

The cement, shoetrack, rathole and 3 m formation was drilled with seawater and pills. Performed a leak-off test to 1,54 EMW with a 10 m3 hi-visc pill on bottom.

1.4.2 Drilling

Displaced well to 1,25 sg oil based mud and continued drilling 12 ¼" hole to 2768 m MD, through Hordaland and most of Rogaland formations (top Våle coming in at 2715m MD). Pulled out of hole due to low ROP (dull grading: 3-8-RO-S-X-I-LT-PR).

Changed bit to Smith 15GMDPDC and drilled to 2923 m MD through rest of Våle formation (Rogaland Group) and into top Shetland Group at at 2914m MD. Had to pull out again due to low ROP (dull grading: 8-3-BT-N-E-1-LT-PR).

Changed bit to Smith MRS74PX and drilled to 2965 m MD. Again, the ROP was getting low, and a bit trip was perfomed (dull grading: 1-3-CT-N-X-I-NO-PR).

Changed bit to Smith 20GFPD and drilled to 3056m MD in Shetland Group, mainly limestone/dolomite formation. Pulled out due to suspected Power Drive failure as there was no effect observed when programming direction changes (dull grading: 8-3-BT-2-E-1.JD-BHA). Some very strong dolomite stringers were experienced from 2914m MD to 3056m MD.

Changed Power Drive and bit to Smith MRS62PX and drilled to 3088m MD, where BHA became stuck, see details below.

Stuck Pipe
After the bit change at 3056 m MD, the bit was drilled in gently. ROP increased gradually to 10-12 m/hr, before experiencing a drilling break at 3087m MD to 3088m MD, where ROP increased up to 28 m/hr. The well was flow checked, as per procedure, meanwhile rotating the string. No signs of anything abnormal were observed.

When starting pumps after the flow check, the hole packed off. Rotation was established without big problems, but it was not possible to get circulation re-established. The string was worked for 3 hrs, rotating and moving string between 3086 m MD and 3070 m MD, but string tended to be harder to move (torque increase) as pump pressure was added. It did not succeed to establish circulation. It was therefore decided to attempt moving pipe further by jarring action. The jar was verified working, i.e. stuck point was located in BHA below jar. The process of freeing the pipe was not successful and not re-establish circulation at this stage either, but it was still possible to re-establish rotation.

While working string, torque suddenly disappeared and weight was lost, indicating string having backed off at +-700 m. It was attempted to make up connection twice, but each time weight was lost when overpulling, a damaged connection was suspected. Top string was pulled and verified damaged pin and top fish at 677m. An 8 1/8" overshot w/ 6 ½" spiral grapple, control & pack off was ran and latched onto fish. However, when pulling on it, it slipped (2 attempts performed) twice, indicating grapple too big. An 11 ¼" overshot w/ 6 ½" basket grapple (smaller tolerances than spiral grapple) and mill control packer was thereafter ran and latched onto fish.

By jarring and overpull action the string was pulled upwards a total of 37 m, before overshot suddenly slipped off top fish. Since it was not succeeded to re-latch overshot onto fish without same slipping (twice), the fishing assembly was pulled and a new grapple was run in.

The overshot with 6 3/8" basket grapple and mill control packer was ran and latched onto fish. String was pulled free with 97 MT on weight indicator (original string weight was 135MT), indicating fish having parted due to shock when the overshot run earlier, slipped.

The string with upper fish was recovered, and remaining top fish was determined to 2098 m MD. Bottom 1.5 m of recovered string was bent (25 degrees), and at breaking point flat and +- 7.5" wide.

It was decided to make one milling run, (to possibly be able to latch on to top fish on a separate run) with 8 3/8" mill and 8" control (for guidance/stabilisation of fish) inside an 11 ¾" overshot with 2 ea. extension joints. The string had to be worked considerably to get down to assumed top fish. Milling operation on assumed top fish continued for 5 ½ hrs before torque readings indicated mill worn.

Upon recovery of overshot, it was observed that the lip guide had been completely milled away, resulting in leaving the 8" control downhole, whereas the mill had no signs of wear.

The decision was then made to side-track the well.

Kick off plug
When mixing the 20 m3 2.05 sg kick off plug, some problems were experienced with the mix water valve and Automatic Density Control, and the slurry had to be mixed manually. The plug was planned to be set from 1850-2095 m. No spacer was seen when circulating bottoms up from 1750 m.

Side-track (1915 m MD- 3185 mMD)
Bottom hole assembly (BHA) #9 was a steerable assembly with a Power PDM with 1.15 bend. The mudweight was increased to 1,33 sg to resist pack-off. Resistance i.e. cement was encountered at 1815 m, but new formation was not drilled until 1915 m (time drilling). Sliding gave low ROP, so It was decided to rotate as much as possible, thus altering the well path with a slightly less bent geometry. The motor assembly responded well directionally and the planned well path was followed within acceptable tolerance. The FM2943RI bit drilled to 2912 m, it was pulled after drilling less than 1 m/hr for about 4 hrs.

Bit #10 was a DBS FM2961DRSC with 19mm scribe cutters. It was run on a packed rotary assembly, and reaming was required to come down to TD. This bit drilled 15-20 m/hr for about 30 m, then suddenly down to 1 m/hr after a very hard chalk stringer at 2945 m. The bit was pulled at 2985 m. Bit wear was 1-3.

On BHA #11, a string stabiliser was replaced by an under gauge stab, thus giving it more flexibility in order to reduce the drop rate seen with the previous BHA. Bit #11 was a Hughes ATMPS33DT insert bit. The bit drilled only 10 m in 9,5 hrs.

The mudweight was increased further to 1,40 sg as expected to drill into pack-off zone.

BHA #12 was the same as BHA #11. Bit #12 was another FM2961DRSC with scribe cutters. The bit held the direction / inclination well, gave good ROP and drilled to TD at 3185 m MD.

A report is issued regarding the stuck pipe incident, and is located at: k:\Bbs\500-TOA\03-Rapporter

1.4.3 Casing

256 joints of 53.5# casing were run in 20 hrs excluding landing string, i.e. 12.8 joints/hr. The hole was in good condition, except for one tight spot at 1930 m MD / 1895 m TVD, which was worked through without problems.

The casing was cemented with 35.5 m3 1.90 SG cement. The cement had only 10% excess, and was designed to reach 100 m above Balder, i.e. 2127 m MD / 2062 m TVD. Pump pressure increased about 70 bar when the cement entered the annulus, i.e. indicating a cement level up to 1580 m TVD.

1.5 8 1/2" Hole Section

Total depth of section: 4013 m MD/3792,5 m TVD

Total time used:	125.0 hrs	
Operational time:	119.0 hrs	(95.0 %)

Downtime: 6.0 hrs (5.0 %)

1.5.1 FIT

The cement in the 9 5/8" shoe track and 3 m new formation was drilled out using 1,33 sg oil based mud. The leak off test (LOT) did not confirm formation strength of 1,73 sg according to programme, the initial LOT leaked off at 1.99 sg whilst the second leaked off at 1.85 sg.

1.5.2 Drilling

Started off drilling with a DBS FM2745DR run on a motor assembly with 1.22 deg. bend and 8.5" NBS and two 8.25" stabilisers further up. Weighted up the mud from 1,40 sg to 1,50 sg as drilling procceded.

This BHA built angle in rotation and gave a right hand walk. The BHA showed some tendencies of dropping and right hand walk when rotating. It was difficult to steer, with low ROPs (<3 m/hr), and unable to get left hand direction. Hard chalk stringers were encountered. At 3969 m MD the assembly was pulled for motor- and bit change. The bit was graded 1-3-WT-S-X-I-NO-PR, the motor with only 3 mm clearance was more likely the cause of the low ROP and steering problems (rubber from motor was also found on shakers, Anadrill to come with report). A re-run MA74PX and new motor was run and drilled to TD of 4013 m MD/3792.5 m TVD.

No cores were cut.

1.5.3 Logging

Total time used: 28.5 hrs
Operational time: 28.0 hrs (98.2 %)
Downtime: 0.5 hrs (1.8 %)

The following wireline logging runs were performed :

Log suite	Logged interval mMD	Comments
MDT	3969-3796.5	49 settings, 15 good
DSI-VSP	4000-2700	56 stations

MDT wireline run showed water gradient. The only other log run was a VSP run.

1.6 Plug and Abandonment

Total time used: 162.0 hrs
Operational time: 120.5 hrs (76.5 %)
Downtime: 38.0 hrs (23.5 %)

The well was permanently abandoned with cement in open hole from TD 4013 m and across the reservoir to top of cement (TOC) at 3585 m MD.

Further, a water base high-visc/weight pill was spotted from TOC to 50m below 9 5/8" shoe at a depth of 3230 m MD.

A third plug from 3230 m and 200 into casing to TOC at 2980 m was set. When tagging this with 10 ton, the top was found as low as 3127 m (52 m above shoe). While washing down to tag, stringed out soft cement was seen on shakers even

though a total of 24 hrs had passed to leave the plug to set up. Another 3 hrs after load test the plug was pressure tested but did not hold. It was then tagged at 3128 m and dressed off to 3134 m and a 200 m cement plug was set on top.

The whole cement plug was pressure tested to 70 bar above leak off at 9 5/8" casing successfully.

At 500 m the well was displaced to 1,40 sg mud and the seal assembly pulled before the 9 5/8" casing was cut at 358 m. After displacing to sea water a cement plug was set on parabow from 457 m to 157 m. This plug was also load tested with 10 ton and pressure tested to 70 bar above leak off at 13 3/8" casing.

The wellhead was cut and retrieved at 142,3 m (3,3 m below seabed) and last anchor was in bolster 14.09.2001 at 01:47.

GENERAL INFORMATION ON WELL 25/2-16 S

Field	: GODZILLA	**Country**	: NORWAY
Licence	: 244	**Installation**	: TRANSOCEAN ARCTIC
UTM zone	: 31	**Central Median**	: 3' E **Horiz. Datum:** ED50

Location coordinates:		**Surface**	**Target**
UTM	**North [m]:**	6624110,1	
UTM	**East [m]:**	466800,3	
Geographical	**North :**	59 45'07.70"	
Geographical	**East :**	02 24'33.21"	

Water Depth: 115,0 **m** **Reference Point Height:** 24,0 **m**

Formation at TD: SLEIPNER at 3891 m MD

Operators:	NORSK HYDRO PRODUKSJON A/S	**Share:** 30,00 %
Partners:	PELICAN	**Share:** 45,00 %
	ENTERPRISE OIL NORGE LIMITED	25,00 %

Total depth (RKB) : 4013,0 **m MD** 3792,5 **m TVD**

TIME SUMMARY

Start Time	:	2001-08-01 07:00:00
Spudding date	:	2001-08-03
Abandonment date	:	2001-09-13

Main operation	**Hours**	**Days**	**%**
MOBILIZATION	68,0	2,8	6,5
DRILLING	518,5	21,6	49,3
FORMATION EVALUATION LOGGING	28,5	1,2	2,7
PLUG AND ABANDONMENT	83,5	3,5	7,9
DOWNTIME MOBILIZATION	3,5	0,1	0,3
DOWNTIME DRILLING	310,5	12,9	29,5
DOWNTIME FORM. EVAL. LOGGING	0,5	0,0	0,0
DOWNTIME PLUG AND ABANDONMENT	38,0	1,6	3,6
Sum:	**1051,0**	**43,8**	

Hole and casing record

Hole	**Track**	**Depth [m MD]**	**Casing/Tubing**	**Track**	**Depth [m MD]**
36"		223,0	30"		223,0
17 1/2"		1160,0	13 3/8"		1151,2
12 1/4"		3087,0	9 5/8"	T2	3179,0
12 1/4"	T2	3185,0			
8 1/2"	T2	4013,0			

Well status: PERMANENTLY ABANDONED

BRØNN 25/2-16 S DRILLING

Periode 11/2001

EDI	TEKST	BOKFØRT TOTAL	DAGRAPP ESTIMAT	EVT. KORR.	NY FINAL COST	BUDSJ. TOTAL	AVSETN. 11/2001
0	EMPLOYEE RELATED COSTS	5 179 837	9 308 694	-3 628 857	5 679 837	7 880 000	500 000
1	RIGCOSTS	75 736 897	78 084 675	-2 347 778	75 736 897	66 100 278	0
2	RIG SUPPORT COSTS/REIMBURSABLES	3 591 310	7 646 839	-2 055 529	5 591 310	6 473 206	2 000 000
3A	FUEL/LUB	2 023 852	2 185 417	0	2 185 417	1 850 000	161 565
3C	BITS	5 644 669	5 551 299	93 370	5 644 669	2 176 299	0
3D	CASING/CASING EQUIPMENT	5 156 461	3 857 661	2 000 000	5 857 661	3 857 661	701 200
3E	WELLHEAD/X-MASTREE	1 428 360	1 576 860	0	1 576 860	1 576 860	148 500
3F	CEMENT/CEMENT ADDITIVES	1 558 121	1 334 275	400 000	1 734 275	1 334 275	176 154
3G	MUD	5 345 381	4 911 198	734 183	5 645 381	3 964 930	300 000
0	0	0	0	0	0	0	0
					0	0	0
4B	CHARTERFLY	0	0		0	0	
4C	OTHER TRANSPORTATION	80 907	218 542	0	218 542	185 000	137 635
4D	STANDBY VESSEL	2 529 242	3 059 583	0	3 059 583	2 590 000	n/a
4F	HELICOPTER TRANSPORTATION	1 202 503	1 529 792	0	1 529 792	1 295 000	n/a
4G	POOL VESSEL -*	18 786 800	13 157 742	0	13 157 742	11 875 000	n/a
							0
5A	CORING	121 595	0	121 595	121 595	0	0
5B	DRILLING TOOLS	243 193	1 438 549	-695 356	743 193	1 182 978	500 000
5C	CUTTING OF CASING	407 666	484 453	0	484 453	410 099	76 787
5D	COMPLETION SERVICES	0	0	0	0	0	0
5E	PERFORATION	0	0	0	0	0	0
5F	MWD SERVICES	21 028 112	2 655 418	18 375 674	21 031 092	2 510 860	2 980
5G	CASING OPERATIONS	401 257	590 653	0	590 653	500 000	189 396
5H	MUD LOG - Noe tidsrel. + noe forbruk	1 040 904	1 303 954	-263 050	1 040 904	1 109 426	0
5H	MUD SERVICES	0	0	0	0		0
5I	CEMENTING SERVICES	496 220	830 458	-134 238	696 220	703 000	200 000
5J	ELECTRICAL LOGGING	5 497 140	2 718 000	2 779 140	5 497 140	2 718 000	0
5K	VSP- DSL	0	1 656 191		1 656 191	1 402 000	1 656 191
5L	PROD TESTING	266 808	491 719	0	491 719	416 250	224 911
5M	DIVING/ROV	1 100 055	1 667 123	-167 068	1 500 055	1 411 254	400 000
5N	RIGPOOL	976 360	969 888	28 662	998 550	821 030	22 190
5N	DIVERSE	1 006 850	3 175 399	-1 468 549	1 706 850	2 688 040	700 000
						0	0
6A	SITE SURVEY	0	531 588		531 588	450 000	531 588
6B	RIG POSITIONING	525 250	590 653		590 653	500 000	65 403
6C	DRILLING SITE CLEAN UP	0				0	0
						0	0
7	WAREHOUSE COSTS	859 422	2 622 500		2 622 500	2 220 000	Na
					0		0
8	LAB COST	0	1 417 568		1 417 568	1 200 000	1 417 568
SUM		162 235 172	155 566 690	13 772 199	167 921 322	131 401 446	10 112 067

AVSETNING BORING	10 112 067
AVS. KOMPLETTERING	
TOTAL AVSETNING	10 112 067

BILAGSNUMMER: 300006872

DAILY REPORT ON WELL 25/2-16 S

Daily report no : 1 **Date:** 2001-08-01
Midnight depth : m MD **Estimated PP:** sg **Mud weight:** 0,00 sg

Stop time	Description
07:00	No activity.
23:59	In transit from 6305/9-1. Position : 61 deg 50' 55,9" N, 4 deg 19' 11,4" E. Distance sailed 98,3 Nm. Distance to go 139,6 Nm. Average speed 5,8 knots. ETA 3/8 00:07 hrs.

Daily report no : 2 **Date:** 2001-08-02
Midnight depth : m MD **Estimated PP:** sg **Mud weight:** 0,00 sg

Stop time	Description
23:59	Rig in transit.

Daily report no : 3 **Date:** 2001-08-03
Midnight depth : 225 m MD **Estimated PP:** 1,03 sg **Mud weight:** 1,40 sg

Stop time	Description
01:00	Rig on tov.
12:00	Laid out anchors. Cross tensioned anchors to 180 ton test tension.
14:00	Ran in hole and tagged seabed at 139 m with 5 ton.
22:00	Drilled 36" hole from 139 m to 223 m (17 1/2" hole depth 225 m).
22:30	Swept hole with 25 m3 hi-vis and displaced to 1,40 sg mud.
23:30	Performed wipertrip to seabed.
23:59	Swept hole with 25 m3 hi-vis and displaced to 1,4 sg mud.

Daily report no : 4 **Date:** 2001-08-04
Midnight depth : 225 m MD **Estimated PP:** 1,03 sg **Mud weight:** 1,40 sg

Stop time	Description
01:30	Attempted to spot bouys. Lost bouys. ROV out of water to pick up new bouys.
02:00	Spotted bouys around well.
03:00	POOH with 36" hole opener assembly.
04:00	Skidded PGB to with 30" casing to well center. Ran in with stinger. Engaged running tool.
05:30	Ran in hole with 30" conductor to 223 m.
06:00	Installed cement hose and circulated casing content.
08:30	Mixed and pumped 51m3 of 1,56 sg silica cement, 10 m3 of 1,56 sg G cement and 28 m3 of 1,95 sg G neat tail cement. Displaced same from cement unit.
14:30	Held conductor in tension while waiting on cement.
15:30	Released running tool. POOH and laid out running tool.
16:00	Broke down and laid out cement stand.
17:00	Made up and loaded cement head. Racked back in derrick.
18:30	Made up 18 3/4" by 13 3/8" housing. Installed plugs and engaged running tool. Laid out assembly.
19:00	Made up 26" bottom hole assembly.
20:30	Ran in hole with 26" assembly.
22:30	Drilled hard cement from 219 m to 223 m. Cleaned rathole to 225 m. Sweet with hi-vis pills.
23:59	POOH with 26" assembly. Laid out bit and stabilizer.

Daily report no : 5 **Date:** 2001-08-05
Midnight depth : 634 m MD **Estimated PP:** 1,03 sg **Mud weight:** 1,03 sg

Stop time	Description
01:00	Broke out 17 1/2" bit and laid out 26/36" hole opener.
02:30	Made up 17 1/2" motor assembly.
04:00	Ran in hole with 17 1/2" motor assembly.
09:30	Drilled 17 1/2" hole from 225 m to 337 m.
10:00	Started wiping on connection. String stuck after 1 m. Max over pull 150 ton. Not able to rotate. Swept hole with 2x10 m3 of hi-vis. Attempted to rotate. No go. Pulled string free without over pull.
11:00	Drilled 17 1/2" hole from 337 m to 364 m.
12:00	String stuck while drilling. Not able to rotate. Pumped 2x10 m3 hi-vis pills and worked string free. Max over pull 50 ton.
12:30	Drilled 17 1/2" hole from 364 m to 371 m.
13:00	String stuck while drilling. Not able to rotate. Pumped 2x10 m3 hi-vis. String free.

DAILY REPORT ON WELL 25/2-16 S

Daily report no : 5 **Date:** 2001-08-05
Midnight depth : 634 m MD **Estimated PP:** 1,03 sg **Mud weight:** 1,03 sg

Stop time	Description
23:59	Drilled 17 1/2" hole from 371 m to 634 m.

Daily report no : 6 **Date:** 2001-08-06
Midnight depth : 1160 m MD **Estimated PP:** 1,03 sg **Mud weight:** 1,40 sg

Stop time	Description
16:30	Drilled 17 1/2" hole from 634 m to 1160 m.
18:00	Swept hole with 25 m3 hi-vis and circulated clean.
19:00	Displaced hole to 1,40 sg bentonite mud.
20:00	Performed 10 stands wiper trip to 867 m.
21:30	Displaced hole to 1,40 sg KCL mud.
23:59	POOH with 17 1/2" motor assembly. Racked all in derrick.

Daily report no : 7 **Date:** 2001-08-07
Midnight depth : 1160 m MD **Estimated PP:** 1,03 sg **Mud weight:** 1,03 sg

Stop time	Description
01:30	Prepared to run 13 3/8" casing.
05:00	Picked up shoe track and baker locked same. Ran 13 3/8" casing to 220 m.
05:30	Installed La Fleur circulating tool.
10:00	Ran in hole with 13 3/8" casing from 220 m to 1000 m.
11:30	Laid out circulating tool. Picked up 18 3/4" well head with 20x13 3/8" crossover and made up same. Laid out flush mounted slips.
12:30	Ran 13 3/8" casing on landing string. Made up cement stand. Broke circulation with 500 l/min, ran in and landed casing with shoe at 1151 m. Performed pull test with 25 ton over pull.
13:00	Circulated casing volume.
17:00	Pressure tested cement lines to 345 bar. Dropped ball, mixed and pumped 148,7 m3 of 1,44 sg lead cement followed by 28 m3 of 1,92 sg tail cement. Released dart and displaced same from cement unit.
18:00	Displaced plug with rig pumps. Bumped plug and pressure tested casing to 140 bar.
18:30	Checked for back flow. Released running tool.
20:00	Racked cement head in derrick and POOH. Laid out running tool, x/o and 2 pup joints.
21:30	Prepared to run BOP. Held safety meeting.
23:59	Made up terminal joint and a double riser joint. Skidded BOP to center.

Daily report no : 8 **Date:** 2001-08-08
Midnight depth : 1160 m MD **Estimated PP:** 1,03 sg **Mud weight:** 1,03 sg

Stop time	Description
01:00	Prepared and ran BOP on double riser.
04:30	Unable to get test on kill line. Cement unit. OK. Pulled back, changed seals on upper joint. No test. Pulled BOP and landed on cellar deck. Changed terminal spool and all seals. Functioned failsafe. Ran BOP on double.
06:00	Attempted to pressure test kill line. No go. Pulled BOP. Laid out 2 riser joints. Installed test plug on top of BOP. Attempt to test against failsafe. No go. leak on kill line.
12:00	Pressure tested kill line valves on BOP. Lower outside kill valve leaked. Observed leak in indicator rod. Changed packing and pressure tested to 35/460 bar. Good test.
13:00	Made up terminal spool and 1 riser joint. Ran BOP and 2 more riser joints.
15:30	Pressure tested kil and ckoke lines to 35/460 bar. Continued running BOP. Tested kill and choke lines before slip joint was picked up.
17:00	Picked up and installed slip joint. Installed support ring and landed BOP. Latched connector and performed pull test to 25 ton over pull.
18:30	Installed diverter and laid out all BOP handling equipment.
19:30	Made up and ran in hole with BOP test tool. Cleaned well head area and landed test tool.
21:30	Closed MPR with accustic and pressure tested well head connector to 35/460 bar. POOH and laid out test tool.
23:00	Made up wear bushing and running tool. Ran in and landed wear bushing. POOH and laid out running tool and jet sub.
23:59	Made up 9 5/8" casing hanger on running tool.

DAILY REPORT ON WELL 25/2-16 S

Daily report no : 9 **Date:** 2001-08-09

Midnight depth : 1163 m MD **Estimated PP:** 1,03 sg **Mud weight:** 1,03 sg

Stop time	Description
01:30	Continued making up 9 5/8" hanger and installing cement plugs. Racked back in derrick.
02:30	Serviced and loaded cement head. Racked back in derrick.
04:30	Pressure tested kelly cock valves on top drive, drilling stand and IBOP to 690 bar. Wash pipe and hose to 345 bar.
06:00	Laid out 17 1/2" motor assembly.
07:30	Made up 12 1/4" Power Drive assembly.
10:00	Attempted to make up MWD with extender to Power Drive. Extender wrong length. Changed MWD and adjusted extender to fit this.
11:00	Picked up CDR and surface tested Power Drive with MWD/CDR.
12:30	Picked up 2 NMDC and changed jar.
14:00	Ran in hole with Power Drive assembly to 1087 m. Washed down and tagged plugs on top of float collar at 1111 m.
14:30	Performed choke drill with drilling crew.
19:30	Drilled on cement plugs on top of float collar.
21:00	Drilled shoe track and shoe from 1112 m to 1151 m. Cleaned out rat hole to 1160 m.
22:00	Drilled 3 m new hole to 1163 m. Swept hole with hi-vis pill and circulated clean.
22:30	Spotted 10 m3 hi-vis pill on bottom.
23:00	Performed leak off test to 1,54 EMW.
23:59	Performed safety meeting and displaced well to 1,25 sg oil based mud.

Daily report no : 10 **Date:** 2001-08-10

Midnight depth : 2117 m MD **Estimated PP:** 1,09 sg **Mud weight:** 1,25 sg

Stop time	Description
00:30	Continued displacing well to 1,25 sg oil base mud.
01:30	Installed cuttings conveyer in dump shute. Padlocked dump valves.
23:00	Drilled 12 1/4" hole from 1163 m to 2117 m.
23:59	Stand pipe manifold leaked. Changed hose to starboard manifold. Moved Anadrill pressure sensors.

Daily report no : 11 **Date:** 2001-08-11

Midnight depth : 2754 m MD **Estimated PP:** 1,09 sg **Mud weight:** 1,25 sg

Stop time	Description
00:30	Continued changing hose to starboard stand pipe manifold.
23:59	Drilled 12 1/4" hole from 2117 m to 2754 m.

Daily report no : 12 **Date:** 2001-08-12

Midnight depth : 2837 m MD **Estimated PP:** 1,09 sg **Mud weight:** 1,25 sg

Stop time	Description
05:30	Drilled 12 1/4" hole from 2754 m to 2768 m.
10:00	Flow checked well. Commenced POOH for bit change.
11:00	Dumped CDR memory. Laid out extension sub between MWD and Power Drive. Laid out Power Drive and bit.
12:00	Picked up new Power Drive and new 12 1/4" bit.
15:30	Ran in hole with new Power Drive assembly to 2738 m.
16:00	Washed down last stand to bottom at 2768 m.
23:59	Set Power Drive. Drilled 12 1/4" hole from 2768 m to 2837 m.

Daily report no : 13 **Date:** 2001-08-13

Midnight depth : 2923 m MD **Estimated PP:** 1,09 sg **Mud weight:** 1,25 sg

Stop time	Description
20:30	Drilled 12 1/4" hole from 2837 m to 2923 m.
21:30	Flow checked and POOH to 2565 m.
23:00	Took weigth at 2565 m. Max over pull 40 ton. Not able to circulate. Worked string down and established rotation. Worked string further down and gained circulation.
23:59	Attempted to pull straigth. No go. Hole tigth at 2537 m. Max over pull 25 ton. Established circulation and rotation without problems and reamed stand out to 2500 m.

DAILY REPORT ON WELL 25/2-16 S

Daily report no : 14 **Date:** 2001-08-14

Midnight depth : 2960 m MD **Estimated PP:** 1,09 sg **Mud weight:** 1,25 sg

Stop time	Description
01:00	Pumped out of hole from 2500 m to 2350 m.
03:00	Pumped slug and POOH to 13 3/8" casing shoe at 1151 m.
05:00	POOH from 1151 m to surface.
06:00	Changed bit and tested Power Drive.
08:00	Ran in hole with 12 1/4" Power Drive assembly to 1000 m.
09:00	Performed slip and cut on drilling line.
09:30	Contiued running in hole with drilling assembly from 1000 m to 1250 m.
10:00	Problems with main brake on draw works. Resat hydraulic for same.
12:00	Continued running in hole with 12 1/4" assembly from 1250 m to 2886 m.
13:00	Washed down last stand and swept bottom of hole. Set Power Drive.
23:59	Drilled 12 1/4" hole from 2923 m to 2960 m.

Daily report no : 15 **Date:** 2001-08-15

Midnight depth : 2983 m MD **Estimated PP:** 1,09 sg **Mud weight:** 1,25 sg

Stop time	Description
05:30	Drilled 12 1/4" hole from 2960 m to 2965 m.
12:00	Flow checked well and POOH. Checked Power Drive and laid out bit.
16:30	Made up 12 1/4" rock bit and Power Drive. Ran in hole with assembly to 2944 m.
17:00	Set Power Drive and washed down from 2944 m to 2965 m. Swept bottom.
23:59	Drilled 12 1/4" hole from 2965 m to 2978 m.

Daily report no : 16 **Date:** 2001-08-16

Midnight depth : 3035 m MD **Estimated PP:** 1,03 sg **Mud weight:** 1,25 sg

Stop time	Description
07:30	Drilled 12 1/4" hole from 2978 m to 3001 m.
08:30	Changed leaking wash pipe.
23:59	Drilled 12 1/4" hole from 3001 m to 3035 m.

Daily report no : 17 **Date:** 2001-08-17

Midnight depth : 3062 m MD **Estimated PP:** 1,03 sg **Mud weight:** 1,25 sg

Stop time	Description
06:00	Drilled 12 1/4" hole from 3035 m to 3052 m.
07:30	Continued drilling 12 1/4" hole to 3055m. Unable to reset Power drive
13:00	Flowcheck. Pulled 5 stds wet. Pumped slug & POOH.
14:00	Dumped memory from MWD-tool. L/d bit & powerdrive.
15:00	Cleaned drillfloor. M/u new powerdrive & bit. Function test same.
18:30	Cont m/u BHA & RIH. Hit tight spot @2040m. Set down 20MT.
20:00	Reamed through tight interval from 2060m - 2119m, + through tight spot @ 2227m.
22:00	RIH to 3033m. Washed down last stand, 5m fill on bottom. Recorded SCR & set powerdrive.
23:59	Drilled 12 1/4" hole from 3055m to 3062m.

Daily report no : 18 **Date:** 2001-08-18

Midnight depth : 3088 m MD **Estimated PP:** 1,03 sg **Mud weight:** 1,25 sg

Stop time	Description
03:00	Drilled to 3088m, drilling break @3087m.
06:00	Hole packed off when starting pumps after flowcheck. Established rotation and worked string in interval between 3070m & 3086m. Attempted to pull string free without rotation. Nogo. Jarred both upwards and downwards without success.
07:00	Continued working string, alternating jarring up/down without rotation, and rotating string, at no time being able to establish circulation
09:00	While working string (rotation), @0705hrs, torque was suddenly lost, combined with loss of stringweight, indicating DP connection backed off around 700m. B/o w/rigtongs & l/d 3 x 5" DP from drilling stand due to overtorque.
12:00	Unable to break drilling pup using torque wrench. Attempted to break same with rigtongs. Connection above IBOP broke. Dismantled torque wrench, before breaking & l/d drilling pup/kelly cock/ saver sub. Broke IBOP.

DAILY REPORT ON WELL 25/2-16 S

Daily report no : 18 **Date:** 2001-08-18

Midnight depth : 3088 m MD **Estimated PP:** 1,03 sg **Mud weight:** 1,25 sg

Stop time	Description
14:00	Ran in and engaged top of fish. M/u connection. Pressured up to 30 bar, no leak. Increased stringweight stepwise up to 195 MT (60MT o/p) before fish suddenly slipping. Made one more attempt, fish slipping this time @150MT (25MT o/p).
16:30	POOH w/ 23 stands of 5" DP (top of fish @ 677m). L/d bottom single due to thread damage on pin. L/d 1ea stand bent 5" DP from derrick.. Cleaned rig floor.
20:00	M/u fishing assembly consisting of 8 1/8" overshot w/ 6 1/2" spiral grapple, control and pack off, 8 " bumper sub and 2 ea 8" DC's. RIH w/ same on 5" DP
21:30	Tagged top of fish, attempted to latch on to fish w/slight rotation and low circulation, fish slipped twice.Relatched onto fish and worked bumpersub. Attempted to lift string, overshot slipped off fish @ 125MT (ie not complete string wt).
22:30	POOH w/ overshot, l/d & inspect same
23:59	M/u 11 1/4" overshot w/ 6 1/2" basket grapple & mill control packer installed. RIH w/ same to top of fish @ 677m.

Daily report no : 19 **Date:** 2001-08-19

Midnight depth : 3088 m MD **Estimated PP:** 1,03 sg **Mud weight:** 1,25 sg

Stop time	Description
00:30	Continued RIH. Tagged top of fish & set down weight to latch overshot onto fish, using pumppressure as reference. Overshot latched on 2nd attempt. Pulled up and verified jar working, prior to attempting to get rotation established, nogo.
06:00	Jarred to free stuck BHA. Observed string starting to move slightly after +- 1/2 hr of jarring and overpull. Continued to work string. Moved string gradually upwards a total of 37 m, l/d singles of DP as required.
07:00	Continued jarring & pulling to free stuck BHA. Overshot suddenly slipped off top fish, causing shock in topdrive and fishing string. DP above rotary got bent due to shock.
08:00	Checked topdrive, as well as inspection of derrick for loose parts after heavy jarring. Attempted to relatch overshot, but grapple slipped each time.
11:30	POOH w/ fishing string. L/d first stand of 5" DP that were bent. Broke overtorqued connections using rigtongs. L/d overshot. Cleaned rigfloor. Performed complete derrick inspection.
13:00	Attempted to make up lipguide to overshot, neg. M/u new overshot, dressed w/ 6 1/2" basket grapple w/ mill control.
15:30	RIH to top of fish @ +-640m. Attempted to latch onto fish, grapple slipped each time. POOH.
18:00	Changed grapple/mill control on overshot to 6 3/8" & RIH, washing down from 632m to top of fish. Engaged top of fish, pick up weight of 97MT indicating fish being parted around 2100m. Pulled out and racked back 2 stds.
18:30	Circulated until returns from parting point reaching BOP. Pumped slug.
23:30	POOH w/ fish, meanwhile continuing circulation via booster pump. Recovered fish down to +-2098m.
23:59	Cleaned drillfloor

Daily report no : 20 **Date:** 2001-08-20

Midnight depth : 3088 m MD **Estimated PP:** 1,03 sg **Mud weight:** 1,25 sg

Stop time	Description
00:30	Cleaned rigfloor, meanwhile preparing milling equipment
01:30	Cut & slip 66m drilline
03:30	M/u 11 3/4" overshot w/ 2 ea extension subs, w/ 8 3/8" mill inside, & 8" mill control for centralisation of top fish.
06:00	RIH w/ milling assy. Took weight at 1853m.
08:30	Worked through tight spot, washing & reaming down to 1878m.
10:00	Continued RIH. Took weight at 2073m.
14:30	Worked through tight section, washing & reaming down to assumed top of fish at 2098m.
20:30	Milled on assumed top of fish.
22:00	Unable to break topdrive connection with torque wrench, dyes slipping each time. Broke bottom connection of stand with rigtongs, thereafter lowering stand through mouse hole and breaking topdrive connection also with rigtongs.
22:30	Iron roughneck malfunctioned, leak in clamp piston, caused insufficient power available to break connections..
23:59	POOH w/ milling assembly, using rigtongs to break connections.

Daily report no : 21 **Date:** 2001-08-21

Midnight depth : 3088 m MD **Estimated PP:** 1,03 sg **Mud weight:** 1,25 sg

Stop time	Description
01:30	Continued POOH, breaking connections using rigtongs.
02:30	Extra time spent, since connections had to be broken w/rigtongs.
04:30	B/o & l/d 11 3/4" overshot w/ internal milling assembly. L/d bumpersub, rearranged BHA for racking in derrick.
10:00	Cleaned rigfloor, prepared & m/u 3 1/2" cement stinger w/diverting tool on bottom. RIH w/same on 5" DP.
14:30	M/u BOP testplug to string, RIH w/same, tested BOP to 35/250bar from blue pod, function test from yellow pod. POOH w/ BOP test plug, l/d same.
17:00	Pressuretested mudhose, IBOP & kelly cock to 35/345bar.

DAILY REPORT ON WELL 25/2-16 S

Daily report no : 21 **Date:** 2001-08-21

Midnight depth : 3088 m MD **Estimated PP:** 1,03 sg **Mud weight:** 1,25 sg

Stop time	Description
18:30	Continued RIH to 2095m.
20:00	Circulated bottoms up, before pumping a 5 m3 1.80sg hivisc pill and displacing same w/ 16 m3 1.25sg mud to balance.
20:30	POOH to 2045m.
21:30	Installed DP w/ circ.sub & kelly cock, and with low-torque/ circ. hose attached to same. Circulated bottoms up.
23:00	Pumped 10 m3 MSC-J soapwash spacer, mixed & pumped 20 m3 of 2.05sg cement slurry, pumped 700 ltr of spacer behind to balance, all with cement unit, prior to displacing w/ 13.9 m3 1.25sg mud, using rigpumps. Rotated 50rpm w/ displacing.
23:30	Pulled string slowly out of plug.
23:59	Circulated bottoms up, checking for spacer & excess cement in returns.

Daily report no : 22 **Date:** 2001-08-22

Midnight depth : 3088 m MD **Estimated PP:** 1,03 sg **Mud weight:** 1,25 sg

Stop time	Description
00:30	Contiued circulating bottoms up. No traces of spacer nor excess cement in returns observed.
04:00	POOH, l/d 5" DP on way.
07:00	Iron roughneck malfunctioned, clamp piston failed, no more spare parts on board. Performed SJA prior to continuing tripping out using rigtongs.
08:00	Held safety meeting with crew. Continued to lay down 5" drill pipe.
12:00	Ran in 16" stands 5" drill pipe. Laid down same. Racked back 3 1/2" drill pipe.
13:30	Changed inner BOP on top drive due to leakage.
19:00	Made up 12 1/4" BHA. Changed angle to 1.15 deg. on mud motor. Checked scribe line. Made up bit and continued to make up 12 1/4" BHA. Picked up 15 x 5" HWDP.
20:30	Held safe job analysis with drill crew due to use of rig tongs. Picked up 21 jnts 5" drill pipe.
21:30	Ran in hole 19 stds 5" drill pipe. Filled pipe and tested MWD.
23:59	Continued to pick up 5" drill pipe to 1505 m. Took 20 ton weight.

Daily report no : 23 **Date:** 2001-08-23

Midnight depth : 2022 m MD **Estimated PP:** 1,15 sg **Mud weight:** 1,31 sg

Stop time	Description
02:00	Pulled out 20 stands 5" drill pipe to 920 m.
05:00	Ran in hole while picking up 5" drill pipe.
06:00	Broke circulation at 1505 m. Washed through former tight spot. Ran in to 1750 m. No further restrictions.
06:30	Washed down from 1750 m. Indications of top cement at 1815 m.
10:00	Made survey. Washed down from 1815-1915 m. Only occational spots of hard cement.
14:00	Started to kick off at 1915 m, time drilling to 1923 m.
20:00	Drilled 12 1/4" hole from 1923-1983 m. Max gas 0,5 %.
20:30	Pulled back 3 stds to 1893 m to verify new well path.
21:30	Worked string through kick off interval untill no restriction. Ran in hole to TD, washed down last 6 m.
23:59	Continued oriented drilling from 1983-2022 m.

Daily report no : 24 **Date:** 2001-08-24

Midnight depth : 2635 m MD **Estimated PP:** 1,09 sg **Mud weight:** 1,31 sg

Stop time	Description
23:59	Continued drilling 12 1/4" hole from 2022-2635 m. Max gas 0.45%.

Daily report no : 25 **Date:** 2001-08-25

Midnight depth : 2910 m MD **Estimated PP:** 1,09 sg **Mud weight:** 1,31 sg

Stop time	Description
01:00	Continued drilling 12 1/4" hole to 2646 m. Made connection.
01:30	Leakage on drilling stand. Broke out same. Installed new stand.
02:00	Continued drilling to 2652 m. With mud pump #2 down, discharge valve failure.
02:30	At 01:45 piston washout in MP#1. Continued drilling at 02:20 hrs with MPs #2 & #3.
07:30	Continued drilling from 2652-2740m. Max gas = 0.4%.
08:00	Changed leaking washpipe

DAILY REPORT ON WELL 25/2-16 S

Daily report no : 25 **Date:** 2001-08-25
Midnight depth : 2910 m MD **Estimated PP:** 1,09 sg **Mud weight:** 1,31 sg

Stop time	Description
23:59	Continued drilling 12 1/4" hole from 2740m MD to 2910m MD. Max. gas 1.05%.

Daily report no : 26 **Date:** 2001-08-26
Midnight depth : 2946 m MD **Estimated PP:** 1,09 sg **Mud weight:** 1,33 sg

Stop time	Description
02:00	Continued drilling from 2910-2912 m.
07:00	Flowchecked OK. Pumped slug. POOH due to low ROP.
09:00	Laid down MWD, stabilizer, pony DC, mud motor and bit. Cleaned rig floor.
12:00	Made up new 12 1/4" BHA with new MWD.
20:00	Continued to RIH on 5" drill pipe. Washed / reamed down from 1899-1911 m, 2322-2380 m, 2628-2666 m, 2724-2867 m. Logged from 2867 to TD.
23:59	Drilled 12 1/4" hole from 2912-2946 m.

Daily report no : 27 **Date:** 2001-08-27
Midnight depth : 2985 m MD **Estimated PP:** 1,09 sg **Mud weight:** 1,33 sg

Stop time	Description
23:59	Drilling 12 1/4" hole from 2946-2985 m.

Daily report no : 28 **Date:** 2001-08-28
Midnight depth : 2995 m MD **Estimated PP:** 1,09 sg **Mud weight:** 1,33 sg

Stop time	Description
01:30	Flowchecked. Pumped slug. POOH due to low ROP.
02:00	Draw works electromotor failure. Corrected same while circulating well from 01:20 to 01:45 hrs.
05:30	Continued to POOH with 12 1/4" BHA.
06:00	Changed bit and middle stabiliser.
08:00	RIH with BHA #10 to casing shoe. Filled pipe.
09:00	Slipped and cut drilling line.
11:00	Continued to RIH to 2953 m.
12:00	Washed down from 2953 m to TD. 5 m fill.
21:30	Drilled 12 1/4" hole from 2985-2995 m. Max gas 0.25%.
23:59	Flowchecked. Pumped slug. POOH for bit change due to low ROP.

Daily report no : 29 **Date:** 2001-08-29
Midnight depth : 3068 m MD **Estimated PP:** 1,10 sg **Mud weight:** 1,40 sg

Stop time	Description
02:00	Continued to pull out BHA#11. Flowchecked at casing shoe.
07:00	Changed bit and RIH. Filled pipe at 1000 and 2000 m.
07:30	Washed down from 2982-2995 m.
10:00	Drilled 12 1/4" hole from 2995-3005 m.
11:00	Changed wash pipe while circulating well.
23:59	Continued drilling 12 1/4" hole from 3005-3068 m. Raised mudweight to 1.40 SG while drilling from 3014-3023 m. Max gas 0.35%.

Daily report no : 30 **Date:** 2001-08-30
Midnight depth : 3185 m MD **Estimated PP:** 1,10 sg **Mud weight:** 1,40 sg

Stop time	Description
02:30	Drilled 12 1/4" hole drilling from 3068-3088 m.
08:30	Drilled 12 1/4" hole from 3088-3133 m. Flowchecked on drilling break at 3096 m. Neg.
09:00	Flowchecked due to drilling break at 3130 m.
12:30	Continued drilling 12 1/4" hole from 3133-3185 m.
14:30	Circulated bottoms up and hole clean. Flowchecked.
15:30	Pulled wet to 2838 m. Pumped slug.

DAILY REPORT ON WELL 25/2-16 S

Daily report no : 30 **Date:** 2001-08-30

Midnight depth : 3185 m MD **Estimated PP:** 1,10 sg **Mud weight:** 1,40 sg

Stop time	Description
20:00	Continued to POOH. Dumped CDR, laid down bit and racked back BHA.
22:00	Made up Multi Purpose Tool, D-Q jet mandrel and one stand with jet sub below. RIH same. Washed wellhead and BOP w/3000 lpm while boosting riser. POOH with wear bushing.
23:00	Released wear bushing and laid down same.
23:59	Discovered that MPT jet mandrel was not bored through (solid). Made extra washing run to clean wellhead area and BOP. Boosted riser.

Daily report no : 31 **Date:** 2001-08-31

Midnight depth : 3185 m MD **Estimated PP:** 1,10 sg **Mud weight:** 1,40 sg

Stop time	Description
00:30	POOH with jet sub while boosting riser.
02:30	Changed bails and prepared to run 9 5/8" casing. Held Safe Job Meeting with crew.
11:00	Picked up shoe joint. Tested floats. Ran 9 5/8" casing.
22:00	Continued to run 9 5/8" casing. Boosted riser when running casing from 1900 m. Took 25 ton weight at 1930 m. Worked casing through. Lost 5 m3 mud.
23:30	Laid down Lafleur and surface equipment. Changed to 5" handling equipment. Ran in on V-150 drill pipe and landed casing.
23:59	Commenced to circulate casing volume.

Daily report no : 32 **Date:** 2001-09-01

Midnight depth : 3185 m MD **Estimated PP:** 1,10 sg **Mud weight:** 1,42 sg

Stop time	Description
02:00	Continued to circulate casing volume. Established circulation in increments up to 1200 lpm. Lost 100 lpm at 1000 lpm flow, 150 lpm at 1200 lpm flow. Lost totally 12 m3.
02:30	Pumped 15 m3 1.65 SG spacer at 1500 lpm while boosting riser at 1200 lpm. Lost 2 m3.
04:00	Mixed and pumped 35.5 m3 1.90 SG cement at 750 lpm while boosting riser at 1200 lpm. Lost 2 m3.
05:30	Displaced cement with 1500 lpm in casing, 1800 lpm in open hole. Bumped plug at 6937 stks (theoretical 7001). Losses during displacement = 51.4 m3 (46% losses). Total losses for the casing/cement job = 70 m3.
07:30	Checked for backflow. Set seal assy and pressure tested same to 460/35 bar.
09:30	Tested BOP to 35/460 bar on yellow pod. Function tested on blue pod from minipanel.
10:00	Released running tool. Picked up 3 m and relanded tool. Flushed and applied 460 bar on seal assy according to DQ procedure.
11:30	POOH and laid down casing hanger running tool.
12:00	Made up Multi Purpose Tool and 9 5/8" wear bushing.
13:30	RIH and installed wear bushing.
14:00	POOH and laid down MPT.
15:00	Laid down cement head.
17:00	Pressure tested IBOP on top drive and drilling stand to 460 bar. Tested kelly hose to 345 bar.
17:30	Changed bails.
20:00	Laid down 12 1/4" BHA. Tidyed rig floor.
23:59	Made up 8 1/2" BHA. Installed radioactive source. Meanwhile pressure tested casing to 460 bar.

Daily report no : 33 **Date:** 2001-09-02

Midnight depth : 3295 m MD **Estimated PP:** 1,15 sg **Mud weight:** 1,49 sg

Stop time	Description
02:30	Ran in with 8 1/2" BHA. Filled pipe and tested MWD at 1140 m.
07:00	Continued to run in with 8 1/2" BHA while picking up 78 jnts.
08:00	Closed upper annular and performed choke drill.
08:30	Continued to RIH and washed down last stand to 3127-3179 m.
11:30	Drilled float and shoetrack from 3127 m.
13:00	Washed and reamed shoetrack. String packed off several times.
13:30	Drilled 3 m new formation to 3188 m.
14:30	Performed LOT to 1.84 SG.
19:00	Drilled 8 1/2" hole from 3188-3241 m. Raised mudweight to 1.50 SG from 3192-3210 m. Oriented from 3203-3210 m. Max gas 0.05%.
20:00	Changed leaking wash pipe.
23:59	Drilled and oriented 8 1/2" hole from 3241-3295 m. Oriented from 3264-3271 m.

DAILY REPORT ON WELL 25/2-16 S

Daily report no : 34 **Date:** 2001-09-03
Midnight depth : 3543 m MD **Estimated PP:** 1,22 sg **Mud weight:** 1,49 sg

Stop time	Description
23:59	Drilled / oriented 8 1/2" hole from 3295-3543 m. Oriented from 3295-3298 m, 3306-3310 m, 3320 - 3328m, 3358 - 3360m, 3392 - 3399m and 3445 3448m.

Daily report no : 35 **Date:** 2001-09-04
Midnight depth : 3840 m MD **Estimated PP:** 1,39 sg **Mud weight:** 1,50 sg

Stop time	Description
23:59	Drilled 8 1/2" hole from 3543-3840 m. Raised mudweight to 1.50 SG from 3667-3707 m. Flowchecked at 3700 m, 3804 m and 3811 m, due to drilling breaks. Well static.

Daily report no : 36 **Date:** 2001-09-05
Midnight depth : 3969 m MD **Estimated PP:** 1,29 sg **Mud weight:** 1,50 sg

Stop time	Description
15:30	Drilled 8 1/2" hole from 3840-3969 m. Max gas 2%.
17:00	Circulated bottoms up and flow checked well.
21:30	POOH for bit change from 3969 m to 843 m.
23:00	Discovered broken clamp arm on Iron roughneck. Not able to break connections. Laid out torque wrench.
23:59	Continued POOH with 8 1/2" motor assembly.

Daily report no : 37 **Date:** 2001-09-06
Midnight depth : 4013 m MD **Estimated PP:** 1,29 sg **Mud weight:** 1,50 sg

Stop time	Description
00:30	Continued POOH with 8 1/2" motor assembly.
01:30	Retrieved radioactive sources. Laid out motor and bit.
02:00	Picked up new motor and bit. Oriented motor and MWD.
04:00	Not able to down load memory from tools. Trouble shoot for reason.
05:00	Installed radioactive sources and ran in hole to 110 m.
06:00	Performed slip and cut on drilling line
10:00	Ran in hole with 8 1/2" motor assembly from 110 m to 2575 m.
11:30	Installed torque wrench on Iron Roughneck.
13:30	Continued running in hole from 2575 m to 3945 m. Washed down last stand to 3969 m.
17:00	Drilled 8 1/2" hole from 3969 m to TD of well at 4013 m.
18:30	Circulated hole clean and flow checked well.
20:00	POOH to 9 5/8" casing shoe at 3179 m.
23:00	Flow checked well and continued POOH to 65 m.
23:59	Laid out 8 1/2" bottom hole assembly.

Daily report no : 38 **Date:** 2001-09-07
Midnight depth : 4013 m MD **Estimated PP:** 1,05 sg **Mud weight:** 1,50 sg

Stop time	Description
00:30	Continued laying out 8 1/2" bottom hole assembly.
01:00	Cleaned rig floor and prepared to rig up for wireline job.
03:00	Rigged up for wireline logging and checked tool.
03:30	Problems with electrical connection on bottom nose of tool. Trouble shoot and repaired same.
18:30	Ran in hole with logging run no 1. Correlated depths and logged MDT pressure points. POOH and laid out tools..
19:30	Rigged up for boat supported VSP logging. Surface checked tools.
23:59	Performed VSP logging.

Daily report no : 39 **Date:** 2001-09-08
Midnight depth : 4013 m MD **Estimated PP:** 1,05 sg **Mud weight:** 1,50 sg

Stop time	Description
04:00	Continued vessel supported VSP logging.
05:00	POOH with logging tools.

DAILY REPORT ON WELL 25/2-16 S

Daily report no : 39 **Date:** 2001-09-08

Midnight depth : 4013 m MD **Estimated PP:** 1,05 sg **Mud weight:** 1,50 sg

Stop time	Description
06:00	Laid out tools and rigged down sheaves.
12:00	Continued repairing caliper disc brake on drawworks.
17:30	Made up diverter sub and 231 m 3 1/2" drill pipe. Ran in hole on 5" drill pipe to 3985 m.
18:30	Washed down last stand to TD 4013 m. Circulated bottoms up
19:00	Made up pump in sub and cement hose.
20:30	Pumped 5 m3 weighed spacer. Pressure tested surface lines to 345 bar. Mixed and pumped 8 m3 of 1.90 SG silica cement followed by 565 l spacer to balance.
21:00	Spotted cement as balanced plug no 1 from 4010 m to 3810 m with 1,50 SG mud.
21:30	Pulled slowly out of plug from 4010 m to 3781 m.
23:00	Made up cement stand and hose. Pumped 5 m3 weighed spacer, 8 m3 of 1,90 SG silica cement followed by 565 l spacer.
23:30	Spotted balanced cement plug no 2 from 3781 m to 3581 m with 1,50 SG mud.
23:59	Pulled slowly out of plug from 3781 m to 3581 m. Continued with normal tripping speed from 3581 m to 3250 m.

Daily report no : 40 **Date:** 2001-09-09

Midnight depth : 4013 m MD **Estimated PP:** 1,05 sg **Mud weight:** 1,50 sg

Stop time	Description
00:30	POOH from 3250 m to 3230 m. Installed cement stand and hose.
01:30	Circulated bottoms up.
02:30	Pumped 10 m3 weighed spacer. Mixed and pumped 9,5 m3 1,92 SG silica cement followed by 1920 l spacer to balance. Spotted plug no 3 from 3230 m to 2980 m with 1,50 SG mud.
03:30	Pulled controlled out of plug from 3230 m to 2950 m.
04:30	Reverse circulated out excess cement.
06:00	Gelled up OBM spacer and cement in return plugged shaker screens and pipe from flow divider to shaker. Pulled back 3 stands while cleaning out pipes to shaker.
06:30	Circulated string volume conventionally with maximum rate.
10:30	Pumped slug and POOH with cement stinger.
11:00	Cleaned rig floor.
13:00	Made up 9 5/8" cutting assembly and spear assembly racked both back in derrick.
13:30	Made up wear bushing retrieval tool and racked back same.
18:00	Made up 8 1/2" bit and ran in hole to 2930 m.
19:30	Washed down to tag cement to 3100 m, no cement.
20:30	Circulated bottoms up to verify cement present.
23:59	Waited on cement.

Daily report no : 41 **Date:** 2001-09-10

Midnight depth : 4013 m MD **Estimated PP:** 1,05 sg **Mud weight:** 1,49 sg

Stop time	Description
02:00	Continued waiting on cement.
02:30	Washed down to tag cement. Set down 10 ton at 3127 m.
05:30	Pumped slug and POOH to 500 m.
07:00	Attempted to press test plug. No success.
09:30	Ran in hole from 500 m to 3105 m.
10:00	Washed down and tagged cement at 3128 m. Dressed off cement down to 3134 m. Load tested with 10 ton.
13:30	Pumped slug and POOH.
16:30	Made up diverter sub and 231 m 3 1/2" drill pipe. Ran in hole to 3131 m.
18:00	Circulated with max rate 400 lpm due to very thick and viscous mud. Had several stops to clean flowline.
20:00	Circulated and conditioned mud viscosity and to even mud weigth.
21:00	Pressure tested lines to 345 bar. Pumped 10 m3 weighed MCS spaver, 10 m3 1,90 SG G-neat cement and 1.9 m3 weighed MSC spacer to balance.
22:30	Spotted cement plug no 3b from 3131 m to 2860 m with 1,50 SG OBM. POOH slowly from 3131 m to 2830 m and with normal tripping speed from here to 2400 m.
23:00	Circulated string volume with max rate. Pumped slug.
23:59	POOH from 2400 m to 1100 m.

DAILY REPORT ON WELL 25/2-16 S

Daily report no : 42 **Date:** 2001-09-11

Midnight depth : 4013 m MD **Estimated PP:** 1,05 sg **Mud weight:** 1,49 sg

Stop time	Description
00:30	Continued POOH from 1000 m to 500 m.
01:30	Performed slip and cut of drilling line while waiting on cement.
02:30	While waiting on cement laid out 6 1/2" jar, 6 1/2" monel and 3 joints 6 1/2" drill collars.
06:30	Waited on cement while circualting.
07:30	Pressure tested surface lines to 200 bar. Closed ram and pressure tested cement plug to 170 bar.
08:00	Displaced kill line, choke line, booster line and well to 1,40 SG OBM.
09:30	POOH and laid out diverter sub.
10:30	Ran in hole with multi purpose tool and pulled wear bushing with 27 ton over pull. POOH and laid out same.
12:30	Redressed multi purpose tool and ran in hole with same. Washed well head and performed strip test. Engaged tool, closed BOP and pulled seal assembly free with 40 ton. Opened BOP, POOH and laid oul tool and seal assembly.
13:30	Made up 9 5/8" casing cutter and ran in hole. Spaced out and installed marine swivel. Continued running in hole and landed in wellhead.
14:00	Cut 9 5/8" casing at 358 m.
15:00	POOH with cutting assembly and racked all back in derrick.
16:00	Picked up 9 5/8" casing spear and ran in hole with same.
17:00	Engaged spear and POOH with cut 9 5/8" casing to 219 m. Released spear and laid out same.
17:30	Prepared to retrieve 9 5/8" casing.
19:30	POOH while laying down casing.
20:00	Cleared rig floor of casing handling equipment.
21:00	Ran in hole with Parabow on 5" drill pipe to 460 m.
21:30	Circulated to clean setting area, dropped ball and set Parabow at 460 m.
23:00	Picked up 3 m to 457 m. Displaced kill, choke and booster lines to seawater. Pumped 5 m3 base oil and 10 m3 water based hi-vis ahead and displaced the well to sea water.
23:59	Disconnected Oil Base Cuttings screw and connected pipe to overboard lines.

Daily report no : 43 **Date:** 2001-09-12

Midnight depth : 4013 m MD **Estimated PP:** 1,05 sg **Mud weight:** 1,49 sg

Stop time	Description
00:30	Mixed and pumped 19 m3 of 1,95 SG cement. Spotted same as balanced plug from 457 m to 157 m.
01:30	Pulled slowly out of plug to 150 m.
02:00	Circulated bottoms up with sea water. Cleaned BOP area.
02:30	POOH and laid out Parabow running tool.
03:00	Laid out 9 5/8" spear assembly.
04:30	Made up jet sub. Ran in hole to well head. Operated rams and washed BOP cavities. POOH and laid out jetting sub.
05:00	Laid out 9 5/8" casing cutter and marine swivel.
06:00	Made up 20/30" casing cutter and retrieval tool. Racked same in derrick.
11:00	Waited on cement plug to cure.
12:00	Made up 12 1/4" bit and bit sub on stand of 8" drill collars. Ran in hole to 150 m.
12:30	Waited on cement.
13:00	Tagged cement plug at 167 m and set down 10 ton.
14:00	POOH with assembly and laid out bit. Closed shear rams while POOH and tested plug to 99 bar.
16:00	Prepared to pull BOP.
17:00	Pulled diverter and laid down same. 16:50 hrs disconnected BOP and pulled 1 m above guide base.
22:30	Pulled and laid out slip joint. Pulled BOP while laying out riser joints. 21:40 BOP out of water.
23:59	Landed BOP on transporter and prepared to skid BOP.

Daily report no : 44 **Date:** 2001-09-13

Midnight depth : 4013 m MD **Estimated PP:** 1,05 sg **Mud weight:** 1,49 sg

Stop time	Description
00:30	Continued preparing to skid BOP.
02:00	Laid down 2 riser joints and all BOP handling equipment.
02:30	Made up 20/30" cutting assembly and ran in water.
03:00	Installed guide frame and stabbed into well head.
03:30	Landed in well head and confirmed with 20 ton over pull. Tensioned up guide wires.
07:30	Cut 20/30" casings. Pulled free with 196 ton over pull.
10:00	Waited for rig up of navigation equipment. Boat with equipment on location 08:30 hrs.
11:00	Waited for rig up of navigation equipment.

DAILY REPORT ON WELL 25/2-16 S

Daily report no :	44	**Date:**	2001-09-13		
Midnight depth :	4013 m MD	**Estimated PP:**	1,05 sg	**Mud weight:**	1,49 sg

Stop time	Description
23:59	Boat at first bouye 11:00 hrs. Anchor 2 off bottom 11:58 hrs. Anchors in bolster : # 6 at 15:00 hrs, # 2 at 16:35 hrs, # 5 at 18:40 hrs, # 1 at 20:47 hrs, # 3 at 22:05 hrs and # 7 at 23:20 hrs.

Daily report no :	45	**Date:**	2001-09-14		
Midnight depth :	4013 m MD	**Estimated PP:**	1,05 sg	**Mud weight:**	1,49 sg

Stop time	Description
02:00	Retrieving anchors. Anchor # 8 in bolster 01:20 hrs and anchor 4 in bolster 01:35 hrs. Pennant wire delivered to rig 01:47 hrs. Anchor handling completed.
23:59	No activity. En route for well 30/6-26.

TIME DISTRIBUTION

Well: 25/2-16 S **PO:** 1 **Start date:** 1980-01-01 **Rig:** TRANSOCEAN ARCTIC **Depth:** 4012,0 **m MD**

All sections **Stop date:** 2001-12-13

Operations	Hours	%	Hours	%	Acc. total
MOBILIZATION					
MOVING	42,0	4,00			
MOORING; RUNNING ANCHORS	11,0	1,05			
MOORING; PULLING ANCHORS	15,0	1,43			
Sum.			68,0	6,47	68,0
DRILLING					
BHA HANDLING/TESTING	25,5	2,43			
EQUIPMENT TEST	4,5	0,43			
TRIPPING IN CASED HOLE	35,0	3,33			
TRIPPING IN OPEN HOLE	47,0	4,47			
DRILLING	271,0	25,78			
OTHER	2,5	0,24			
WELLHEAD EQUIPMENT INSTALLATION	4,0	0,38			
REAMING	5,0	0,48			
CIRC. AND COND. MUD/HOLE	15,5	1,47			
WIPER TRIP	2,0	0,19			
CASING HANDLING/TESTING	16,5	1,57			
RUNNING CASING IN CASED HOLE	8,5	0,81			
RUNNING CASING IN OPEN HOLE	20,0	1,90			
PRIMARY CEMENTING	21,5	2,05			
DRILLING OUT CEMENT PLUG	8,5	0,81			
FORMATION STRENGTH TESTING	1,5	0,14			
BOP HANDLING	5,0	0,48			
BOP RUNNING/RETRIEVING	4,0	0,38			
BOP TESTING	12,0	1,14			
WELLHEAD EQUIPMENT HANDLING	7,0	0,67			
SLIP AND CUT DRILLING LINE	2,0	0,19			
Sum.			518,5	49,33	586,5
FORMATION EVALUATION LOGGING					
LOGGING EQUIPMENT HANDLING/TESTING	4,0	0,38			
FORMATION TESTER	15,0	1,43			
VERTICAL SEISMIC	9,5	0,90			
Sum.			28,5	2,71	615,0
PLUG AND ABANDONMENT					
BHA HANDLING/TESTING	2,0	0,19			
TRIPPING IN CASED HOLE	3,0	0,29			
OTHER	3,0	0,29			
WELLHEAD EQUIPMENT INSTALLATION	3,5	0,33			
CIRC. AND COND. MUD/HOLE	3,0	0,29			
CASING HANDLING/TESTING	3,0	0,29			
TRIPPING FOR CEMENT JOB	22,5	2,14			
BOP HANDLING	4,0	0,38			
BOP RUNNING/RETRIEVING	8,0	0,76			
SET CEMENT PLUG	19,5	1,86			
TRIPPING OF CASING CUTTING EQUIPMENT	4,5	0,43			
CUT CASING/WELLHEAD	4,5	0,43			
CASING RETRIEVING	3,0	0,29			
Sum.			83,5	7,94	698,5
DOWNTIME MOBILIZATION					
WAITING	3,5	0,33			
Sum.			3,5	0,33	702,0
DOWNTIME DRILLING					
EQUIPMENT FAILURE AND REPAIR	35,0	3,33			
STICKING/GOING STUCK WITH EQUIPMENT	44,0	4,19			
FISHING	25,0	2,38			
OTHER	3,0	0,29			
SIDETRACKING	201,5	19,17			

TIME DISTRIBUTION

Well: 25/2-16 S **PO:** 1 **Start date:** 1980-01-01 **Rig:** TRANSOCEAN ARCTIC **Depth:** 4012,0 **m MD**
All sections **Stop date:** 2001-12-13

Operations	Hours	%	Hours	%	Acc. total
DOWNTIME DRILLING					
SLIP AND CUT DRILLING LINE	2,0	0,19			
Sum.			310,5	29,54	1012,5
DOWNTIME FORM. EVAL. LOGGING					
EQUIPMENT FAILURE AND REPAIR	0,5	0,05			
Sum.			0,5	0,05	1013,0
DOWNTIME PLUG AND ABANDONMENT					
EQUIPMENT FAILURE AND REPAIR	6,0	0,57			
WAITING	10,5	1,00			
CEMENTING	17,5	1,67			
OTHER	3,0	0,29			
SLIP AND CUT DRILLING LINE	1,0	0,10			
Sum.			38,0	3,62	1051,0
Reported time (100,0 % of well total 1051,0 hours) :					1051,0

Norsk Hydro

2002-02-12

HOLE DEVIATION

Well: 25/2-16 S **Reference point:** RKB ; 24,0 m ABOVE MSL

Waterdepth: 115,0 m **Vertical to:** 138,9 m **Total Depth:** 4013,0 m MD

Utm zone: 31 **Central Median:** 3° E **Horizontal datum:** ED50

Template Centre Coordinates, UTM: **North :** m, **East :** m

Wellhead Coordinates, UTM: **North :** 6624110,10 m, **East :** 466800,30 m

Official Surveys: Y **Track :** T2

Coordinates are measured from the wellhead centre.

Depth MD [m]	Incli-nation [Deg]	Direc-tion [Deg]	Tool Type	#	Depth TVD [m]	Coordinates North [m]	Coordinates East [m]	Vert. Sect [m]	Dogleg [D/30m]	Build [D/30m]	Turn [D/30m]
139,00	0,00	0,00	MWD	1	139,00	0,00	0,00	0,00	0,00	0,00	0,00
235,70	0,50	33,30	MWD	1	235,70	0,35	0,23	0,42	0,16	0,16	10,33
253,20	0,70	33,10	MWD	1	253,20	0,51	0,33	0,61	0,34	0,34	-0,34
268,20	0,50	44,80	MWD	1	268,20	0,63	0,43	0,76	0,47	-0,40	23,40
282,60	0,50	61,40	MWD	1	282,60	0,70	0,53	0,88	0,30	0,00	34,58
311,00	0,40	47,90	MWD	1	311,00	0,83	0,71	1,09	0,15	-0,11	-14,26
339,70	0,40	31,80	MWD	1	339,69	0,98	0,84	1,29	0,12	0,00	-16,83
370,80	0,40	37,50	MWD	1	370,79	1,16	0,96	1,51	0,04	0,00	5,50
400,10	0,10	344,10	MWD	1	400,09	1,27	1,02	1,62	0,36	-0,31	-54,68
429,10	0,10	14,40	MWD	1	429,09	1,31	1,01	1,66	0,05	0,00	31,34
459,10	0,40	328,40	MWD	1	459,09	1,43	0,97	1,73	0,34	0,30	-46,00
488,80	0,20	308,80	MWD	1	488,79	1,55	0,87	1,78	0,22	-0,20	-19,80
518,80	0,20	259,40	MWD	1	518,79	1,57	0,78	1,76	0,17	0,00	-49,40
547,70	0,50	245,50	MWD	1	547,69	1,51	0,62	1,63	0,32	0,31	-14,43
577,10	0,50	248,40	MWD	1	577,09	1,41	0,38	1,46	0,02	0,00	2,96
606,50	0,50	242,90	MWD	1	606,49	1,31	0,15	1,31	0,05	0,00	-5,61
636,40	1,00	249,80	MWD	1	636,39	1,16	-0,22	1,18	0,51	0,50	6,92
665,50	0,90	256,50	MWD	1	665,48	1,02	-0,68	1,22	0,15	-0,10	6,91
695,00	1,00	275,90	MWD	1	694,98	0,99	-1,16	1,52	0,34	0,10	19,73
724,40	1,40	276,40	MWD	1	724,37	1,05	-1,77	2,06	0,41	0,41	0,51
754,00	1,00	298,50	MWD	1	753,97	1,22	-2,36	2,65	0,61	-0,41	22,40
783,50	1,30	302,70	MWD	1	783,46	1,52	-2,86	3,24	0,32	0,31	4,27
813,20	0,80	290,70	MWD	1	813,16	1,78	-3,34	3,78	0,55	-0,51	-12,12
842,60	0,50	274,80	MWD	1	842,55	1,86	-3,66	4,11	0,35	-0,31	-16,22
871,30	0,40	275,80	MWD	1	871,25	1,88	-3,89	4,32	0,10	-0,10	1,05
900,80	0,60	279,30	MWD	1	900,75	1,92	-4,14	4,56	0,21	0,20	3,56
930,10	0,70	274,50	MWD	1	930,05	1,95	-4,47	4,88	0,12	0,10	-4,91
960,00	1,00	261,30	MWD	1	959,95	1,93	-4,91	5,28	0,36	0,30	-13,24
989,50	0,70	246,40	MWD	1	989,44	1,82	-5,33	5,63	0,38	-0,31	-15,15
1018,90	1,50	231,80	MWD	1	1018,84	1,51	-5,80	5,99	0,86	0,82	-14,90
1048,50	1,30	247,90	MWD	1	1048,43	1,14	-6,41	6,51	0,45	-0,20	16,32
1077,90	1,10	270,50	MWD	1	1077,82	1,02	-7,00	7,08	0,52	-0,20	23,06
1107,20	0,90	273,00	MWD	1	1107,12	1,03	-7,51	7,59	0,21	-0,20	2,56
1134,60	0,90	271,80	MWD	1	1134,51	1,05	-7,94	8,01	0,02	0,00	-1,31
1190,50	1,10	276,50	MWD	1	1190,41	1,13	-8,92	8,99	0,12	0,11	2,52
1220,00	3,00	357,60	MWD	1	1219,89	1,93	-9,23	9,43	3,08	1,93	82,47

Norsk Hydro

2002-02-12

HOLE DEVIATION

Well: 25/2-16 S **Reference point:** RKB ; 24,0 m ABOVE MSL

Waterdepth: 115,0 m **Vertical to:** 138,9 m **Total Depth:** 4013,0 m MD

Utm zone: 31 **Central Median:** 3' E **Horizontal datum:** ED50

Template Centre Coordinates, UTM: **North :** m, **East:** m

Wellhead Coordinates, UTM: **North :** 6624110,10 m, **East:** 466800,30 m

Official Surveys: Y **Track :** T2

Coordinates are measured from the wellhead centre.

Depth MD [m]	Incli-nation [Deg]	Direc-tion [Deg]	Tool Type	#	Depth TVD [m]	Coordinates North [m]	Coordinates East [m]	Vert. Sect [m]	Dogleg [D/30m]	Build [D/30m]	Turn [D/30m]
1249,80	4,50	2,20	MWD	1	1249,63	3,88	-9,22	10,00	1,54	1,51	4,63
1279,70	5,90	9,10	MWD	1	1279,40	6,57	-8,93	11,08	1,54	1,40	6,92
1309,40	7,50	11,30	MWD	1	1308,90	9,98	-8,31	12,98	1,64	1,62	2,22
1338,40	8,80	12,00	MWD	1	1337,60	14,00	-7,48	15,87	1,35	1,34	0,72
1368,50	10,20	13,00	MWD	1	1367,29	18,85	-6,40	19,91	1,40	1,40	1,00
1398,00	11,60	12,80	MWD	1	1396,26	24,29	-5,15	24,83	1,42	1,42	-0,20
1427,80	13,00	13,80	MWD	1	1425,37	30,47	-3,69	30,69	1,43	1,41	1,01
1457,10	14,40	13,50	MWD	1	1453,84	37,21	-2,05	37,27	1,44	1,43	-0,31
1486,30	15,60	13,30	MWD	1	1482,04	44,56	-0,30	44,56	1,23	1,23	-0,21
1516,00	16,90	13,30	MWD	1	1510,56	52,65	1,61	52,67	1,31	1,31	0,00
1545,80	18,40	13,70	MWD	1	1538,95	61,43	3,72	61,55	1,51	1,51	0,40
1575,10	19,20	13,70	MWD	1	1566,69	70,61	5,96	70,86	0,82	0,82	0,00
1604,30	20,20	10,80	MWD	1	1594,18	80,22	8,04	80,63	1,44	1,03	-2,98
1633,80	20,90	7,90	MWD	1	1621,80	90,44	9,72	90,96	1,26	0,71	-2,95
1663,30	21,40	5,20	MWD	1	1649,32	101,01	10,93	101,60	1,11	0,51	-2,75
1692,60	21,30	5,60	MWD	1	1676,61	111,63	11,93	112,27	0,18	-0,10	0,41
1722,10	21,80	6,30	MWD	1	1704,04	122,41	13,05	123,10	0,57	0,51	0,71
1751,50	22,10	6,90	MWD	1	1731,31	133,32	14,32	134,09	0,38	0,31	0,61
1780,50	22,50	7,80	MWD	1	1758,14	144,24	15,73	145,09	0,54	0,41	0,93
1810,30	22,80	8,60	MWD	1	1785,65	155,60	17,36	156,56	0,43	0,30	0,81
1839,50	23,40	7,50	MWD	1	1812,51	166,94	18,97	168,01	0,76	0,62	-1,13
1869,40	24,30	6,10	MWD	1	1839,85	178,94	20,40	180,10	1,07	0,90	-1,40
1898,70	25,20	5,30	MWD	1	1866,46	191,15	21,61	192,37	0,98	0,92	-0,82
1932,50	25,20	8,40	MWD	1	1897,04	205,43	23,33	206,75	1,17	0,00	2,75
1962,70	24,80	10,90	MWD	1	1924,42	218,01	25,47	219,50	1,12	-0,40	2,48
1991,10	24,40	14,70	MWD	1	1950,24	229,54	28,08	231,25	1,72	-0,42	4,01
2021,60	23,60	19,40	MWD	1	1978,11	241,39	31,71	243,46	2,04	-0,79	4,62
2051,20	24,00	18,30	MWD	1	2005,19	252,70	35,57	255,19	0,61	0,41	-1,11
2080,50	24,20	18,20	MWD	1	2031,93	264,06	39,31	266,97	0,21	0,20	-0,10
2109,50	24,30	18,00	MWD	1	2058,38	275,38	43,01	278,72	0,13	0,10	-0,21
2138,50	24,50	16,90	MWD	1	2084,79	286,81	46,60	290,57	0,51	0,21	-1,14
2168,30	24,50	17,90	MWD	1	2111,90	298,60	50,30	302,81	0,42	0,00	1,01
2196,50	24,80	16,90	MWD	1	2137,53	309,82	53,82	314,46	0,55	0,32	-1,06
2224,70	25,00	17,30	MWD	1	2163,11	321,17	57,31	326,24	0,28	0,21	0,43
2253,50	25,30	17,70	MWD	1	2189,18	332,84	60,99	338,39	0,36	0,31	0,42
2282,00	25,60	17,70	MWD	1	2214,92	344,51	64,71	350,54	0,32	0,32	0,00

Norsk Hydro

2002-02-12

HOLE DEVIATION

Well: 25/2-16 S **Reference point:** RKB ; 24,0 m ABOVE MSL

Waterdepth: 115,0 m **Vertical to:** 138,9 m **Total Depth:** 4013,0 m MD

Utm zone: 31 **Central Median:** 3° E **Horizontal datum:** ED50

Template Centre Coordinates, UTM: **North :** m, **East :** m

Wellhead Coordinates, UTM: **North :** 6624110,10 m, **East :** 466800,30 m

Official Surveys: Y **Track :** T2

Coordinates are measured from the wellhead centre.

Depth MD [m]	Incli-nation [Deg]	Direc-tion [Deg]	Tool Type	#	Depth TVD [m]	Coordinates North [m]	Coordinates East [m]	Vert. Sect [m]	Dogleg [D/30m]	Build [D/30m]	Turn [D/30m]
2310,60	26,00	17,60	MWD	1	2240,66	356,37	68,49	362,89	0,42	0,42	-0,10
2339,30	26,20	16,10	MWD	1	2266,44	368,46	72,15	375,45	0,72	0,21	-1,57
2367,80	25,60	8,30	MWD	1	2292,08	380,60	74,78	387,87	3,64	-0,63	-8,21
2396,20	25,70	5,80	MWD	1	2317,68	392,80	76,29	400,13	1,15	0,11	-2,64
2453,20	26,20	5,70	MWD	1	2368,94	417,61	78,79	424,98	0,26	0,26	-0,05
2482,00	26,50	5,50	MWD	1	2394,75	430,33	80,03	437,71	0,33	0,31	-0,21
2511,20	26,70	5,60	MWD	1	2420,85	443,35	81,30	450,74	0,21	0,21	0,10
2540,70	26,90	6,30	MWD	1	2447,19	456,58	82,68	464,00	0,38	0,20	0,71
2568,70	27,30	6,00	MWD	1	2472,11	469,26	84,04	476,72	0,45	0,43	-0,32
2598,40	27,60	5,60	MWD	1	2498,47	482,88	85,43	490,38	0,36	0,30	-0,40
2626,40	27,90	5,30	MWD	1	2523,25	495,86	86,66	503,37	0,35	0,32	-0,32
2684,40	28,30	4,90	MWD	1	2574,41	523,07	89,09	530,60	0,23	0,21	-0,21
2711,60	28,10	4,70	MWD	1	2598,38	535,88	90,17	543,41	0,24	-0,22	-0,22
2740,90	28,40	3,70	MWD	1	2624,19	549,71	91,18	557,22	0,57	0,31	-1,02
2769,70	28,30	3,80	MWD	1	2649,54	563,35	92,08	570,83	0,12	-0,10	0,10
2798,70	28,40	3,20	MWD	1	2675,06	577,10	92,92	584,53	0,31	0,10	-0,62
2827,20	28,70	3,10	MWD	1	2700,09	590,70	93,67	598,08	0,32	0,32	-0,11
2856,10	28,80	2,80	MWD	1	2725,43	604,58	94,38	611,90	0,18	0,10	-0,31
2904,60	29,00	2,50	MWD	1	2767,89	627,99	95,47	635,21	0,15	0,12	-0,19
2950,20	27,70	3,40	MWD	1	2808,02	649,62	96,58	656,76	0,90	-0,86	0,59
2990,30	26,60	2,90	MWD	1	2843,70	667,89	97,58	674,98	0,84	-0,82	-0,37
3048,40	26,60	3,40	MWD	1	2895,65	693,86	99,01	700,89	0,12	0,00	0,26
3076,20	26,70	3,60	MWD	1	2920,50	706,31	99,77	713,32	0,14	0,11	0,22
3105,10	26,60	4,20	MWD	1	2946,33	719,24	100,66	726,25	0,30	-0,10	0,62
3133,50	26,70	4,10	MWD	1	2971,71	731,95	101,58	738,96	0,12	0,11	-0,11
3164,60	26,60	5,00	MWD	1	2999,51	745,85	102,68	752,89	0,40	-0,10	0,87
3207,00	27,40	3,70	MWD	1	3037,29	765,05	104,14	772,10	0,70	0,57	-0,92
3235,50	27,70	4,10	MWD	1	3062,56	778,20	105,04	785,25	0,37	0,32	0,42
3264,20	27,20	5,10	MWD	1	3088,03	791,38	106,10	798,46	0,71	-0,52	1,05
3292,80	26,40	4,90	MWD	1	3113,55	804,23	107,22	811,35	0,84	-0,84	-0,21
3321,50	26,40	4,60	MWD	1	3139,26	816,95	108,28	824,09	0,14	0,00	-0,31
3350,60	26,60	4,90	MWD	1	3165,30	829,89	109,35	837,06	0,25	0,21	0,31
3378,40	26,60	4,80	MWD	1	3190,16	842,29	110,41	849,50	0,05	0,00	-0,11
3407,20	26,00	5,10	MWD	1	3215,98	855,00	111,51	862,24	0,64	-0,63	0,31
3436,10	25,10	5,20	MWD	1	3242,05	867,42	112,63	874,70	0,94	-0,93	0,10
3465,20	24,20	5,60	MWD	1	3268,50	879,50	113,77	886,83	0,94	-0,93	0,41

Norsk Hydro

2002-02-12

HOLE DEVIATION

Well: 25/2-16 S **Reference point:** RKB ; 24,0 m ABOVE MSL

Waterdepth: 115,0 m **Vertical to:** 138,9 m **Total Depth:** 4013,0 m MD

Utm zone: 31 **Central Median:** 3° E **Horizontal datum:** ED50

Template Centre Coordinates, UTM: **North :** m, **East :** m

Wellhead Coordinates, UTM: **North :** 6624110,10 m, **East :** 466800,30 m

Official Surveys: Y **Track :** T2

Coordinates are measured from the wellhead centre.

Depth MD [m]	Incli-nation [Deg]	Direc-tion [Deg]	Tool Type	#	Depth TVD [m]	Coordinates North [m]	Coordinates East [m]	Vert. Sect [m]	Dogleg [D/30m]	Build [D/30m]	Turn [D/30m]
3495,10	23,50	6,80	MWD	1	3295,85	891,52	115,07	898,91	0,85	-0,70	1,20
3523,30	22,60	7,10	MWD	1	3321,80	902,48	116,41	909,95	0,97	-0,96	0,32
3561,90	21,30	7,50	MWD	1	3357,60	916,79	118,24	924,38	1,02	-1,01	0,31
3579,80	20,60	7,40	MWD	1	3374,31	923,14	119,07	930,78	1,17	-1,17	-0,17
3609,20	19,40	7,30	MWD	1	3401,94	933,11	120,35	940,84	1,22	-1,22	-0,10
3638,30	18,10	7,10	MWD	1	3429,49	942,39	121,53	950,19	1,34	-1,34	-0,21
3667,10	17,10	7,10	MWD	1	3456,95	951,03	122,60	958,90	1,04	-1,04	0,00
3696,00	16,40	7,90	MWD	1	3484,62	959,29	123,69	967,23	0,76	-0,73	0,83
3724,00	16,00	8,50	MWD	1	3511,51	967,02	124,80	975,04	0,46	-0,43	0,64
3752,70	15,40	9,00	MWD	1	3539,14	974,69	125,98	982,80	0,64	-0,63	0,52
3779,80	14,70	7,70	MWD	1	3565,31	981,66	127,01	989,84	0,86	-0,77	-1,44
3809,40	14,10	7,50	MWD	1	3593,98	988,95	127,98	997,20	0,61	-0,61	-0,20
3838,00	14,20	7,60	MWD	1	3621,71	995,88	128,90	1004,19	0,11	0,10	0,10
3866,60	13,80	7,60	MWD	1	3649,46	1002,74	129,82	1011,11	0,42	-0,42	0,00
3895,20	13,80	7,20	MWD	1	3677,23	1009,51	130,69	1017,93	0,10	0,00	-0,42
3924,40	12,80	7,80	MWD	1	3705,65	1016,17	131,57	1024,65	1,04	-1,03	0,62
3947,80	12,10	9,00	MWD	1	3728,50	1021,16	132,31	1029,69	0,96	-0,90	1,54
3952,80	11,80	9,10	MWD	1	3733,39	1022,18	132,47	1030,73	1,80	-1,80	0,60
3982,40	11,20	11,40	MWD	1	3762,40	1027,99	133,52	1036,62	0,77	-0,61	2,33
3990,90	10,90	11,70	MWD	1	3770,74	1029,58	133,84	1038,25	1,08	-1,06	1,06
4013,00	10,18	12,50	MWD	1	3792,47	1033,54	134,69	1042,27	1,00	-0,98	1,09

MAIN CONSUMPTION OF CASING/TUBING ON WELL 25/2-16 S PO: 1

Size	Casing string	Grade	Weight [kg/m]	Weight [lb/ft]	Threads type	Length [m]	No. of joints
30"	CONDUCTOR	X-52	460,86	309,70	SL-60	87,0	7
13 3/8"	SURFACE	L-80	107,14	72,00	NS-CC	1016,2	82
9 5/8"	PRODUCTION	L-80	79,61	53,50	NS-CC	3043,0	256

BITRECORD FOR WELL 25/2-16 S PO: 1

Bit No	RR	Type	Size (in)	Manu-fact-urer	Trade name	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)	Cutting Structure I - O -DC- L - B	Gauge 1/16 (in)	Other Remarks	Pull Cause
1		ISRT	17,50	SMIT	02M	LK6329	415X	15,16,20,20	0,983	1	225	86	6,70	12,8		38000	10/70			2 - 2 - BT - A - E	I	NO	TD
		HO	36,00	REDB	HEAVYDUTY	21481		11,11,11,11,11,11	0,557	1	225	86	6,70	12,8		38000	10/70						
2		ISRT	12,25	SMIT	15GMDPD	LW	445	14,22,24,24	1,405	2	225	0	1,60	0,0	58/62	9000	50/80	3060/3090	63/65	1 - 1 - NO - A - E	I	NO	BHA
3		ISRT	17,50	SMIT	10GMODPD	LW8944	435	16,22,24,24	1,451	3	1160	935	25,70	36,4	107/203	312000	10/110	2494/4007	57/180	1 - 1 - WT - A - E	I	NO	TD
4		PDC	12,25	SMIT	MRS74PX	JS4071	M223	14,14,14,16,16,16	1,040	4	2768	1608	57,60	27,9	91/179	349000	10/170	2766/3533	103/321	3 - 8 - RO - S - X	I	LT	PR
5		ISRT	12,25	SMIT	15GMDPD	LW9262	445	15,18,18,18	0,918	5	2923	155	25,50	6,1	78/153	230000	60/250	2857/3242	298/319	8 - 3 - BT - N - E	1	LT	PR
6		PDC	12,25	SMIT	MRS74PX	JS3445	M223	14,14,14,14,14,15	0,924	6	2965	42	14,60	2,9	85/206	144000	20/160	2970/3157	301/316	1 - 3 - CT - N - X	I	NO	PR
7		BIT	12,25	SMIT	20GFPD	LW5212		15,18,18,18	0,918	7	3055	90	25,50	3,5	61/197	173000	70/270	1259/3180	101/309	8 - 3 - BT - 2 - E	1	JD	BHA
8		PDC	12,25	SMIT	MRS62PX	754302	M333	10,11,11,11,11,11	0,893	8	3088	33	3,70	8,9	140/161	67000	70/100	3019/3050	298/301				TW
9		BIT	12,25	SDBS	FM2943DR	61235		18,18,18,18,18,18	1,491	9	2912	997	45,20	22,1	88/193	516000	10/270	2659/3281	242/305	1 - 2 - PN - T - X	I	CT	PR
10		PDC	12,25	SDBS	FM2961DRSC	5012151	M422	13,13,13,13,13,13	1,167	10	2985	73	22,10	3,3	71/124	177000	60/240	2659/2991	248/305	1 - 3 - NO - T - X	I	CT	PR
11		ISRT	12,25	HTC	ATM33	D38DR	537B	20,22,22	1,049	11	2995	10	8,70	1,1	66/109	48000	230/260	2766/2949	278/308	1 - 1 - NO - A - E	I	NO	PR
12		PDC	12,25	SDBS	FM2961DRSC	5012181	M422	13,13,13,13,13,14	1,249	12	3185	190	23,90	7,9	66/118	181000	30/150	2695/2982	258/306	1 - 1 - CT - N - X	I	NO	TD
13		PDC	8,50	SDBS	FM2745DR	5010332	M433	16,16,16,16	0,785	13	3969	784	57,20	13,7	137/267	940000	10/160	1852/2217	235/322	1 - 3 - WT - S - X	I	NO	PR
14		PDC	8,50	SMIT	MA74PX	JS1961	M223	13,13,13,13,14,14	0,819	14	4013	44	2,80	15,7	210/255	68000	10/70	1845/1950	290/310	1 - 1 - NO - A - X	I	NO	TD

Norsk Hydro 2001-12-13

BOTTOM HOLE ASSEMBLIES USED ON WELL 25/2-16 S PO: 1

BHA no. 1: No. / Element / OD(in) / Length(m) Depth In: 139 m MD Out: 225 m MD

1	02M	17,5	0,42	2	HEAVYDUTY	36,0	3,96
3	BIT SUB	9,5	0,91	4	MWD	9,375	8,95
5	NON MAG. STAB	16,75	2,02	6	NON MAG. COLLAR	9,375	9,19
7	DRILL COLLAR STEEL	9,5	17,88	8	X-OVER	9,5	0,95
9	DRILL COLLAR STEEL	8,0	54,77	10	JAR	8,0	9,61
11	DRILL COLLAR STEEL	8,0	18,36	12	X-OVER	8,0	1,21

Reason pulled: TOTAL DEPTH/CASING DEPTI Sum: 126,21

BHA no. 2: No. / Element / OD(in) / Length(m) Depth In: 225 m MD Out: 225 m MD

1	MSDGHODC	26,0	0,67	2	NEAR BIT STAB	26,0	2,47
3	DRILL COLLAR STEEL	9,5	17,88	4	X-OVER	9,5	0,95
5	DRILL COLLAR STEEL	8,0	54,77	6	JAR	8,0	9,61
7	DRILL COLLAR STEEL	8,0	18,36	8	X-OVER	8,0	1,21

Reason pulled: CHANGE BOTTOMHOLE ASSI Sum: 105,92

BHA no. 3: No. / Element / OD(in) / Length(m) Depth In: 225 m MD Out: 1160 m MD

1	10GMODPD	17,5	0,44	2	DOWN HOLE MOTOR WITH ST/	17,25	9,24
3	FLOAT SUB	9,5	0,92	4	NON MAG. STAB	17,25	2,31
5	CDR	9,5	7,29	6	MWD	9,5	8,47
7	NON MAG. STAB	16,75	2,02	8	NON MAG. COLLAR	9,375	9,19
9	DRILL COLLAR STEEL	9,5	17,88	10	X-OVER	9,5	0,95
11	DRILL COLLAR STEEL	8,0	54,77	12	JAR	8,0	9,61
13	DRILL COLLAR STEEL	8,0	18,36	14	X-OVER	8,0	1,21
15	HWDP	5,0	135,83				

Reason pulled: TOTAL DEPTH/CASING DEPTI Sum: 264,92

BHA no. 4: No. / Element / OD(in) / Length(m) Depth In: 1160 m MD Out: 2768 m MD

1	MRS74PX	12,25	0,33	2	POWER DRIVE	9,25	4,48
3	NON MAG. STAB	12,125	1,92	4	FLEX SUB	8,188	2,92
5	MWD	8,5	8,23	6	CDR	8,25	6,86
7	NON MAG. COLLAR	8,0	9,28	8	NON MAG. COLLAR	8,0	8,83
9	DRILL COLLAR STEEL	8,0	54,77	10	JAR	8,0	9,68
11	DRILL COLLAR STEEL	8,0	18,36	12	X-OVER	8,0	1,21
13	HWDP	5,0	135,83				

Reason pulled: PENETRATION RATE Sum: 262,70

BHA no. 5: No. / Element / OD(in) / Length(m) Depth In: 2768 m MD Out: 2923 m MD

1	15GMDPD	12,25	0,33	2	POWER DRIVE	12,25	4,48
3	NON MAG. STAB	12,125	1,99	4	FLEX SUB	8,188	2,71
5	MWD	8,5	8,25	6	CDR	8,25	6,86
7	NON MAG. COLLAR	8,0	9,28	8	NON MAG. COLLAR	8,0	8,83
9	DRILL COLLAR STEEL	8,0	54,77	10	JAR	8,0	9,68
11	DRILL COLLAR STEEL	8,0	18,36	12	X-OVER	8,0	1,21
13	HWDP	5,0	135,83				

Reason pulled: PENETRATION RATE Sum: 262,58

BOTTOM HOLE ASSEMBLIES USED ON WELL 25/2-16 S PO: 1

BHA no. 6: No. / Element / OD(in) / Length(m) Depth In: 2923 m MD Out: 2965 m MD

1	MRS74PX	12,25	0,33	2	POWER DRIVE	12,25	4,48
3	NON MAG. STAB	12,125	1,99	4	FLEX SUB	8,188	2,71
5	MWD	8,5	8,25	6	CDR	8,25	6,86
7	NON MAG. COLLAR	8,0	9,28	8	NON MAG. COLLAR	8,0	8,83
9	DRILL COLLAR STEEL	8,0	54,77	10	JAR	8,0	9,68
11	DRILL COLLAR STEEL	8,0	18,36	12	X-OVER	8,0	1,21
13	HWDP	5,0	135,83				

Reason pulled: PENETRATION RATE Sum: 262,58

BHA no. 7: No. / Element / OD(in) / Length(m) Depth In: 2965 m MD Out: 3055 m MD

1	20GFPD	12,25	0,33	2	POWER DRIVE	12,25	4,48
3	NON MAG. STAB	12,125	1,99	4	FLEX SUB	8,188	2,71
5	MWD	8,5	8,25	6	CDR	8,25	6,86
7	NON MAG. COLLAR	8,0	9,28	8	NON MAG. COLLAR	8,0	8,83
9	DRILL COLLAR STEEL	8,0	54,77	10	JAR	8,0	9,68
11	DRILL COLLAR STEEL	8,0	18,36	12	X-OVER	8,0	1,21
13	HWDP	5,0	135,83				

Reason pulled: CHANGE BOTTOMHOLE ASSI Sum: 262,58

BHA no. 8: No. / Element / OD(in) / Length(m) Depth In: 3055 m MD Out: 3088 m MD

1	MRS62PX	12,25	0,35	2	POWER DRIVE	12,25	4,48
3	NON MAG. STAB	12,125	1,99	4	FLEX SUB	8,188	2,71
5	MWD	8,5	8,25	6	CDR	8,25	6,86
7	NON MAG. COLLAR	8,0	9,28	8	NON MAG. COLLAR	8,0	8,83
9	DRILL COLLAR STEEL	8,0	54,77	10	JAR	8,0	9,68
11	DRILL COLLAR STEEL	8,0	18,36	12	X-OVER	8,0	1,21
13	HWDP	5,0	135,83				

Reason pulled: TWIST-OFF Sum: 262,60

BHA no. 9: No. / Element / OD(in) / Length(m) Depth In: 1915 m MD Out: 2912 m MD

1	FM2943DR	12,25	0,29	2	DOWNHOLE MOTOR		9,72
3	FLOAT SUB	8,0	0,87	4	NON MAG. STAB	11,875	1,60
5	DRILL COLLAR STEEL	7,875	2,83	6	MWD	8,375	8,37
7	CDR	8,25	6,85	8	NON MAG. STAB	11,75	2,30
9	NON MAG. COLLAR	8,0	16,04	10	DRILL COLLAR STEEL	7,813	54,85
11	JAR	7,813	9,62	12	DRILL COLLAR STEEL	7,875	18,21
13	X-OVER	8,0	1,00	14	HWDP	5,0	140,85

Reason pulled: PENETRATION RATE Sum: 263,68

BHA no. 10: No. / Element / OD(in) / Length(m) Depth In: 2912 m MD Out: 2985 m MD

1	FM2961DRSC	12,25	0,35	2	NEAR BIT STAB	12,25	9,72
3	FLOAT SUB	8,0	0,79	4	NON MAG. COLLAR	7,875	2,83
5	NON MAG. STAB	12,25	2,29	6	CDR	8,25	6,81
7	MWD	8,375	8,75	8	NON MAG. STAB	11,75	0,91
9	NON MAG. COLLAR	8,0	16,04	10	DRILL COLLAR STEEL	7,813	82,37
11	JAR	7,813	9,62	12	DRILL COLLAR STEEL	7,875	18,21
13	X-OVER	8,0	1,00	14	HWDP	5,0	140,85

Reason pulled: PENETRATION RATE Sum: 300,54

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BOTTOM HOLE ASSEMBLIES USED ON WELL 25/2-16 S PO: 1

BHA no. 11: No. / Element / OD(in) / Length(m) Depth In: 2985 m MD Out: 2995 m MD

1	ATM33	12,25	0,25	2	NEAR BIT STAB	12,25	9,72
3	FLOAT SUB	8,0	0,79	4	NON MAG. COLLAR	7,875	2,83
5	NON MAG. STAB	11,875	2,29	6	CDR	8,25	6,81
7	MWD	8,375	8,75	8	NON MAG. STAB	11,75	0,91
9	NON MAG. COLLAR	8,0	16,04	10	DRILL COLLAR STEEL	7,813	82,37
11	JAR	7,813	9,62	12	DRILL COLLAR STEEL	7,875	18,21
13	X-OVER	8,0	1,00	14	HWDP	5,0	140,85

Reason pulled: PENETRATION RATE Sum: 300,44

BHA no. 12: No. / Element / OD(in) / Length(m) Depth In: 2995 m MD Out: 3185 m MD

1	FM2961DRSC	12,25		2	NEAR BIT STAB	12,25	9,72
3	FLOAT SUB	8,0	0,79	4	NON MAG. COLLAR	7,875	2,83
5	NON MAG. STAB	11,875	2,29	6	CDR	8,25	6,81
7	MWD	8,375	8,75	8	NON MAG. STAB	11,75	0,91
9	NON MAG. COLLAR	8,0	16,04	10	DRILL COLLAR STEEL	7,813	82,37
11	JAR	7,813	9,62	12	DRILL COLLAR STEEL	7,875	18,21
13	X-OVER	8,0	1,00	14	HWDP	5,0	140,85

Reason pulled: TOTAL DEPTH/CASING DEPT Sum: 300,19

BHA no. 13: No. / Element / OD(in) / Length(m) Depth In: 3185 m MD Out: 3969 m MD

1	FM2745DR	8,5	0,25	2	DOWNHOLE MOTOR	6,75	7,69
3	FLOAT SUB	6,5	0,80	4	NON MAG. STAB	8,25	1,78
5	LOGGING WHILE DRILLING TOOL	6,5	5,42	6	LOGGING WHILE DRILLING TO	8,25	1,47
7	MWD	6,75	8,29	8	LOGGING WHILE DRILLING TO	6,875	7,57
9	LOGGING WHILE DRILLING TOOL	6,625	5,89	10	NON MAG. COLLAR	6,5	8,94
11	DRILL COLLAR STEEL	6,5	9,35	12	JAR	6,5	9,55
13	DRILL COLLAR STEEL	6,5	18,94	14	HWDP	5,0	168,96

Reason pulled: PENETRATION RATE Sum: 254,90

BHA no. 14: No. / Element / OD(in) / Length(m) Depth In: 3969 m MD Out: 4013 m MD

1	MA74PX	8,5	0,27	2	DOWNHOLE MOTOR	6,75	7,68
3	FLOAT SUB	6,5	0,84	4	NON MAG. STAB	8,25	1,78
5	LOGGING WHILE DRILLING TOOL	6,5	5,42	6	LOGGING WHILE DRILLING TO	8,25	1,47
7	MWD	6,75	8,29	8	LOGGING WHILE DRILLING TO	6,875	7,57
9	LOGGING WHILE DRILLING TOOL	6,625	5,89	10	NON MAG. COLLAR	6,5	8,94
11	DRILL COLLAR STEEL	6,5	9,35	12	JAR	6,5	9,55
13	DRILL COLLAR STEEL	6,5	18,94	14	HWDP	5,0	168,96

Reason pulled: TOTAL DEPTH/CASING DEPT Sum: 254,95

CEMENT SLURRY REPORT ON WELL 25/2-16 S PO: 1

Date	CsgSize	Jobtype	Slurry Type	Pumped Volume [m3]	Density [sg]	BHCT [DegC]	Yield [l/100 kg]	Additive	Unit	Additives [../100 kg Cement]	Additives [../m3 Slurry]
2001-08-04	30"	CASING CEMENTING	LEAD	51,00	1,56	7,00	169,71	FP-14L	l	0,20	
								A-3L	l	3,50	
								D-8	kg	35,00	
			LEAD	10,00	1,56	7,00	129,60	FP-14L	l	0,20	
								A-3L	l	3,50	
			TAIL SLURRY	27,00	1,95	7,00	74,73	FP-14L	l	0,20	
								A-7L	l	3,50	
			DISPLACEMENT	3,80	1,03	7,00					
			DISPLACEMENT			7,00					
2001-08-07	13 3/8"	CASING CEMENTING	LEAD	148,00	1,44	33,00	169,27	A-3L	l	5,30	
								R-15L	l	1,20	
								FP-14L	l	0,20	
			TAIL SLURRY	28,00	1,92	33,00	75,02	FP-14L	l	0,20	
								R-12L	l	0,40	
			DISPLACEMENT		1,30	33,00					
			DISPLACEMENT			33,00					
2001-08-21	9 5/8"	PLUG IN OPEN HOLE	SPACER	10,00	1,02	63,00		MCS-G	l		100,00
								FP-14L	l		10,00
			TAIL SLURRY	20,00	2,05	63,00	65,85	CD-31L	l	0,70	
								R-12L	l	0,35	
								FP-14L	l	0,20	
			DISPLACEMENT	15,00	1,28	63,00					
			DISPLACEMENT			63,00					
2001-09-01	9 5/8"	CASING CEMENTING	SPACER	15,00	1,65	90,00		FP-14L	l		10,00
								MCS-G	l		104,00
			TAIL SLURRY	35,50	1,90	90,00	102,49	FP-14L	l	0,20	
								CD-31L	l	0,30	
								MICRO	l	3,00	
								R-12L	l	1,35	
			DISPLACEMENT	112,80	1,40	90,00					
			DISPLACEMENT			90,00					
2001-09-08	9 5/8"	PLUG IN OPEN HOLE	SPACER	5,00	1,65	132,00		FP-14L	l		10,00

CEMENT SLURRY REPORT ON WELL 25/2-16 S PO: 1

Date	CsgSize	Jobtype	Slurry Type	Pumped Volume [m3]	Density [sg]	BHCT [DegC]	Yield [l/100 kg]	Additive	Unit	Additives [../100 kg Cement]	Additives [../m3 Slurry]
2001-09-08	9 5/8"	PLUG IN OPEN HOLE	SPACER	5,00	1,65	132,00		GEL	kg		20,00
								MCS-J	l		104,00
								NAOHL	l		8,00
			TAIL SLURRY	8,00	1,90	132,00	107,07	CD-31L	l	2,00	
								D-8	kg	0,00	
								FL-63L	l	2,50	
								FP-14L	l	0,20	
								MICRO	l	11,00	
								R-15L	l	1,85	
			SPACER	0,72	1,65	132,00					
			DISPLACEMENT			132,00					
2001-09-08	9 5/8"	PLUG IN OPEN HOLE	SPACER	5,00	1,65	124,00		FP-14L	l		10,00
								GEL	kg		20,00
								MCS-J	l		104,00
								NAOHL	l		8,00
			TAIL SLURRY	8,00	1,90	124,00	107,07	CD-31L	l	2,00	
								D-8	kg	0,00	
								FL-63L	l	2,50	
								FP-14L	l	0,20	
								MICRO	l	11,00	
								R-15L	l	1,85	
			SPACER	0,72	1,65	124,00					
			DISPLACEMENT			124,00					
2001-09-09	9 5/8"	PLUG IN CASED TO OPEN HOLE	SPACER	10,00	1,00	100,00		FP-14L	l		10,00
								GEL	kg		20,00
								MCS-J	l		104,00
								NAOHL	l		8,00
			TAIL SLURRY	9,50	1,92	100,00	100,15	FP-14L	l	0,20	
								MICRO	l	3,00	

CEMENT SLURRY REPORT ON WELL 25/2-16 S PO: 1

Date	CsgSize	Jobtype	Slurry Type	Pumped Volume [m3]	Density [sg]	BHCT [DegC]	Yield [l/100 kg]	Additive	Unit	Additives [../100 kg Cement]	Additives [../m3 Slurry]
2001-09-09	9 5/8"	PLUG IN CASED TO OPEN HOLE	TAIL SLURRY	9,50	1,92	100,00	100,15	R-15L	l	0,70	
			FRESHWATER	2,07	1,65	100,00					
			DISPLACEMENT			100,00					
2001-09-10	9 5/8"	PLUG IN CASED HOLE	SPACER	10,00	1,65	87,00		FP-14L	l		10,00
								GEL	kg		20,00
								MCS-J	l		104,00
								NAOH	kg		8,00
			TAIL SLURRY	10,00	1,90	87,00	76,83	FP-14L	l	0,20	
								R-12L	l	1,15	
			SPACER	2,00	1,65	87,00		FP-14L	l		10,00
								GEL	kg		20,00
								MCS-J	l		104,00
								NAOH	kg		8,00
			DISPLACEMENT			87,00					
2001-09-11	13 3/8"	PLUG IN CASED HOLE	TAIL SLURRY	19,00	1,95	17,00	74,73	A-7L	l	3,50	
								FP-14L	l	0,20	
			SALTWATER	1,40	1,03	17,00					
			DISPLACEMENT			17,00					

CEMENT CONSUMPTION PER JOB ON WELL 25/2-16 S PO: 1

Date	CsgSize	Job Type	Cement/ Additive	Description	Unit	Actual Amount Used
2001-08-04	30"	CASING CEMENTING	A-3L	EXTENDER: LIQUID LODENSE	l	1246
			A-7L	ACCELERATOR: LIQUID CACL2	l	1355
			D-8	SPECIAL ADDITIVE: SILICA FLUOR, TEMP. TO 204 I	kg	49
			FP-14L	SPECIAL ADDITIVE: DEFOAMER FP-14L	l	150
			G	API CLASS G	MT	54
2001-08-07	13 3/8"	CASING CEMENTING	A-3L	EXTENDER: LIQUID LODENSE	l	4651
			FP-14L	SPECIAL ADDITIVE: DEFOAMER FP-14L	l	221
			G	API CLASS G	MT	125
			R-12L	RETARDER: LIQUID LIGNOSULFONATE UP TO 93 [	l	149
			R-15L	RETARDER: HIGH TEMP. BETWEEN 93 AND 149 DE	l	1053
2001-08-21	9 5/8"	PLUG IN OPEN HOLE	CD-31L	DISPERSANT: CD-31L LIQUID	l	89
			G	API CLASS G	MT	17
			FP-14L	SPECIAL ADDITIVE: DEFOAMER FP-14L	l	220
			FL-45L	FLUID-LOSS ADDITIVE: BETWEEN 38 AND 177 DEC	l	712
			GEL	EXTENDER: BENTONITE	kg	390
			MICRO	SPECIAL ADDITIVE: MICROBLOCK, ANTI GAS MIGF	l	1425
			R-12L	RETARDER: LIQUID LIGNOSULFONATE UP TO 93 [	l	134
			NAOHL	SPACER ADDITIVE: CAUSTIC SODA LIQUID	l	10
			MCS-G	SPACER ADDITIVE: MCS-G	l	676
2001-09-01	9 5/8"	CASING CEMENTING	CD-31L	DISPERSANT: CD-31L LIQUID	l	104
			D-8	SPECIAL ADDITIVE: SILICA FLUOR, TEMP. TO 204 I	kg	55000
			FP-14L	SPECIAL ADDITIVE: DEFOAMER FP-14L	l	299
			MCS-G	SPACER ADDITIVE: MCS-G	l	1900
			MICRO	SPECIAL ADDITIVE: MICROBLOCK, ANTI GAS MIGF	l	1180
			R-12L	RETARDER: LIQUID LIGNOSULFONATE UP TO 93 [	l	500
2001-09-08	9 5/8"	PLUG IN OPEN HOLE	CD-31L	DISPERSANT: CD-31L LIQUID	l	189
			D-8	SPECIAL ADDITIVE: SILICA FLUOR, TEMP. TO 204 I	kg	12
			FL-63L	FL-63L	l	205
			MICRO	SPECIAL ADDITIVE: MICROBLOCK, ANTI GAS MIGF	l	953
			R-15L	RETARDER: HIGH TEMP. BETWEEN 93 AND 149 DE	l	148
			NAOHL	SPACER ADDITIVE: CAUSTIC SODA LIQUID	l	48
			MCS-J	MCS-J	l	624
			GEL	EXTENDER: BENTONITE	kg	150
			FP-14L	SPECIAL ADDITIVE: DEFOAMER FP-14L	l	90
2001-09-08	9 5/8"	PLUG IN OPEN HOLE	CD-31L	DISPERSANT: CD-31L LIQUID	l	190
			FP-14L	SPECIAL ADDITIVE: DEFOAMER FP-14L	l	90
			MCS-J	MCS-J	l	624
			NAOHL	SPACER ADDITIVE: CAUSTIC SODA LIQUID	l	48
			R-15L	RETARDER: HIGH TEMP. BETWEEN 93 AND 149 DE	l	148
			MICRO	SPECIAL ADDITIVE: MICROBLOCK, ANTI GAS MIGF	l	883
			GEL	EXTENDER: BENTONITE	kg	150
			D-8	SPECIAL ADDITIVE: SILICA FLUOR, TEMP. TO 204 I	kg	12
			FL-63L	FL-63L	l	227
2001-09-09	9 5/8"	PLUG IN CASED TO OPEN HOLE	D-8	SPECIAL ADDITIVE: SILICA FLUOR, TEMP. TO 204 I	kg	17
			GEL	EXTENDER: BENTONITE	kg	325
			FP-14L	SPECIAL ADDITIVE: DEFOAMER FP-14L	l	220
			NAOHL	SPACER ADDITIVE: CAUSTIC SODA LIQUID	l	104
			R-15L	RETARDER: HIGH TEMP. BETWEEN 93 AND 149 DE	l	141
			MICRO	SPECIAL ADDITIVE: MICROBLOCK, ANTI GAS MIGF	l	304
			MCS-J	MCS-J	l	1252
2001-09-10	9 5/8"	PLUG IN CASED HOLE	FP-14L	SPECIAL ADDITIVE: DEFOAMER FP-14L	l	180
			G	API CLASS G	MT	15

CEMENT CONSUMPTION PER JOB ON WELL 25/2-16 S PO: 1

Date	CsgSize	Job Type	Cement/ Additive	Description	Unit	Actual Amount Used
2001-09-10	9 5/8"	PLUG IN CASED HOLE	GEL	EXTENDER: BENTONITE	kg	450
			MCS-J	MCS-J	l	1500
			NAOH	SPACER ADDITIVE: CAUSTIC SODA POWDER	kg	100
			R-12L	RETARDER: LIQUID LIGNOSULFONATE UP TO 93 [	l	164
2001-09-11	13 3/8"	PLUG IN CASED HOLE	A-7L	ACCELERATOR: LIQUID CACL2	l	903
			FP-14L	SPECIAL ADDITIVE: DEFOAMER FP-14L	l	60
			G	API CLASS G	MT	34

TOTAL CONSUMPTION OF CEMENT ADDITIVES ON WELL 25/2-16 S PO: 1

Section	Cement/Additive	Unit	Total Amount Used
36"	ACCELERATOR: LIQUID CACL2	l	1355,00
	SPECIAL ADDITIVE: SILICA FLUOR, TEMP. TO 204 DEGC	kg	49,00
	API CLASS G	MT	54,00
	SPECIAL ADDITIVE: DEFOAMER FP-14L	l	150,00
	EXTENDER: LIQUID LODENSE	l	1246,00
17 1/2"	EXTENDER: LIQUID LODENSE	l	4651,00
	SPECIAL ADDITIVE: DEFOAMER FP-14L	l	221,00
	API CLASS G	MT	125,00
	RETARDER: HIGH TEMP. BETWEEN 93 AND 149 DEGC	l	1053,00
	RETARDER: LIQUID LIGNOSULFONATE UP TO 93 DEGC	l	149,00
12"	SPECIAL ADDITIVE: MICROBLOCK, ANTI GAS MIGRATION	l	2605,00
	FLUID-LOSS ADDITIVE: BETWEEN 38 AND 177 DEGC	l	712,00
	SPACER ADDITIVE: CAUSTIC SODA LIQUID	l	10,00
	RETARDER: LIQUID LIGNOSULFONATE UP TO 93 DEGC	l	634,00
	SPECIAL ADDITIVE: DEFOAMER FP-14L	l	519,00
	SPACER ADDITIVE: MCS-G	l	2576,00
	DISPERSANT: CD-31L LIQUID	l	193,00
	API CLASS G	MT	16,70
	EXTENDER: BENTONITE	kg	390,00
	SPECIAL ADDITIVE: SILICA FLUOR, TEMP. TO 204 DEGC	kg	55000,00
8 1/2"	SPECIAL ADDITIVE: MICROBLOCK, ANTI GAS MIGRATION	l	2140,00
	SPACER ADDITIVE: CAUSTIC SODA LIQUID	l	200,00
	RETARDER: LIQUID LIGNOSULFONATE UP TO 93 DEGC	l	164,00
	DISPERSANT: CD-31L LIQUID	l	379,00
	SPECIAL ADDITIVE: SILICA FLUOR, TEMP. TO 204 DEGC	kg	40,00
	FL-63L	l	432,00
	SPECIAL ADDITIVE: DEFOAMER FP-14L	l	580,00
	API CLASS G	MT	15,00
	EXTENDER: BENTONITE	kg	1075,00
	SPACER ADDITIVE: CAUSTIC SODA POWDER	kg	100,00
	MCS-J	l	4000,00
	RETARDER: HIGH TEMP. BETWEEN 93 AND 149 DEGC	l	437,00
0.0	ACCELERATOR: LIQUID CACL2	l	903,00
	SPECIAL ADDITIVE: DEFOAMER FP-14L	l	60,00
	API CLASS G	MT	34,00

DAILY MUD PROPERTIES:RHEOLOGY PARAMETERS FOR WELL 25/2-16 S PO: 1

Hole section : 36" **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]
2001-08-03 23:00	221	221	BENTONITE MUD		1,40						0	0							

Hole section : 17 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]
2001-08-04 21:00	225	225	BENTONITE MUD	64,0	1,40	19,4					0	0							
2001-08-05 21:00	634	634	SEA WATER	0,0	1,03						0	0							
2001-08-06 21:00	1160	1160	BENTONITE MUD		1,40						0	0							
2001-08-07	1160	1160	SEA WATER		1,03						0	0							
2001-08-08	1160	1160	SEA WATER	0,0	1,03						0	0							

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]
2001-08-09		0	SEA WATER		1,03		0	0	0	0	0	0	0	0					

Hole section : 12 1/4" **OIL 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]
2001-08-10 23:05	2101	2049	VERSAVERT	82,0	1,25	41,0	86	54	43	31	0	0	12	10	50,0	32,0	11,0	9,0	15,0
2001-08-11	2730	2614	VERSAVERT	75,0	1,25	50,0	90	57	44	30	0	0	14	12	50,0	33,0	12,0	9,0	13,0
2001-08-12 23:00	2837	2709	VERSAVERT	88,0	1,25	48,0	95	61	48	33	0	0	14	12	50,0	34,0	13,5	10,0	16,0
2001-08-13 22:50	2924	2787	VERSAVERT	81,0	1,25	52,0	101	63	49	34	0	0	14	13	50,0	38,0	12,5	10,0	15,0
2001-08-14 22:30	2963	2823	VERSAVERT	81,0	1,25	52,0	101	64	50	35	0	0	14	13	50,0	37,0	13,5	10,0	13,0
2001-08-15 22:30	2983	2841	VERSAVERT	79,0	1,25	54,0	100	63	48	34	0	0	14	12	50,0	37,0	13,0	10,0	14,0
2001-08-16 22:30	3035	2890	VERSAVERT	80,0	1,25	55,0	100	62	49	33	0	0	14	12	50,0	38,0	12,0	10,0	13,0
2001-08-17 22:30	3056	2910	VERSAVERT	80,0	1,25	50,0	99	63	49	34	0	0	14	12	50,0	36,0	13,5	10,0	13,0
2001-08-18 22:50	3089	2941	VERSAVERT	90,0	1,25	47,0	100	63	47	33	0	0	14	12	50,0	37,0	13,0	10,0	14,0
2001-08-19 22:30	3089	2941	VERSAVERT	0,0	1,25	31,0	104	65	50	35	0	0	15	13	50,0	39,0	13,0	11,0	15,0
2001-08-20 22:10	3089	2941	VERSAVERT	0,0	1,25	36,0	104	65	50	35	0	0	14	12	50,0	39,0	13,0	11,0	15,0
2001-08-21 22:30	1790	1767	VERSAVERT	0,0	1,25	41,0	102	64	50	34	0	0	14	12	50,0	38,0	13,0	10,0	14,0

DAILY MUD PROPERTIES:RHEOLOGY PARAMETERS FOR WELL 25/2-16 S PO: 1

Hole section : 12 1/4" **OIL BASED SYSTEM**

Date	Depth [m]		Mud Type	Funnel Visc	Dens	Mudtmp Out	Fann Readings								Rheo Test	PV	YP	Gel0	Gel10
	MD	TVD		[sec]	[sg]	[DegC]	600	300	200	100	60	30	6	3	[DegC]	[mPas]	[Pa]	[Pa]	[Pa]
2001-08-22 22:10	1790	1767	VERSAVERT	0,0	1,25	30,0	102	65	49	34	0	0	14	12	50,0	37,0	14,0	11,0	15,0
2001-08-23 22:10	1995	1953	VERSAVERT	83,0	1,31	48,0	110	68	52	35	0	0	14	12	50,0	42,0	13,0	10,0	14,0
2001-08-24 23:00	2635	2531	VERSAVERT		1,31	53,0	140	87	72	47	0	0	21	16	50,0	53,0	17,0	11,0	17,0
2001-08-25 23:00	2910	2773	VERSAVERT	102,0	1,31		117	74	55	36	0	0	13	12	50,0	43,0	15,5	9,0	13,0
2001-08-26 22:00	2946	2804	VERSAVERT		1,33	40,0	122	75	57	37	0	0	14	12	50,0	47,0	14,0	9,0	14,0
2001-08-27 22:30	2985	2839	VERSAVERT		1,33	50,0	118	72	54	36	0	0	13	12	50,0	46,0	13,0	9,0	14,0
2001-08-28 22:00	2995	2848	VERSAVERT		1,33		115	69	53	35	0	0	13	11	50,0	46,0	11,5	8,0	14,0
2001-08-29 22:30	3068	2913	VERSAVERT		1,40		135	81	62	40	0	0	14	12	50,0	54,0	13,5	8,0	14,0
2001-08-30 22:00	3185	3018	VERSAVERT		1,40		130	78	60	39	0	0	12	11	50,0	52,0	13,0	8,0	12,0
2001-09-01 21:00	3185	3018	VERSAVERT		1,42		134	82	61	40	0	0	12	11	50,0	52,0	15,0	8,0	13,0

Hole section : 8 1/2" **OIL BASED SYSTEM**

Date	Depth [m]		Mud Type	Funnel Visc	Dens	Mudtmp Out	Fann Readings								Rheo Test	PV	YP	Gel0	Gel10
	MD	TVD		[sec]	[sg]	[DegC]	600	300	200	100	60	30	6	3	[DegC]	[mPas]	[Pa]	[Pa]	[Pa]
2001-09-02 22:15	3269	3092	VERSAVERT	84,0	1,49		120	72	55	36	0	0	13	11	50,0	48,0	12,0	7,0	11,5
2001-09-03 22:10	3543	3340	VERSAVERT		1,49		107	64	49	31	0	0	12	10	50,0	43,0	10,5	7,0	12,0
2001-09-04 21:30	3841	3625	VERSAVERT		1,50		116	70	53	35	0	0	13	11	50,0	46,0	12,0	7,0	12,0
2001-09-05 15:30	3969	3749	VERSAVERT		1,50		127	76	58	38	0	0	13	12	50,0	51,0	12,5	8,0	12,5
2001-09-06 17:30	4013	3792	VERSAVERT		1,50		139	83	62	40	0	0	14	12	50,0	56,0	13,5	8,0	14,0
2001-09-07 21:00	4013	3792	VERSAVERT		1,50		116	70	53	34	0	0	12	10	50,0	46,0	12,0	6,5	11,5

Hole section : P&A **OIL BASED SYSTEM**

Date	Depth [m]		Mud Type	Funnel Visc	Dens	Mudtmp Out	Fann Readings								Rheo Test	PV	YP	Gel0	Gel10
	MD	TVD		[sec]	[sg]	[DegC]	600	300	200	100	60	30	6	3	[DegC]	[mPas]	[Pa]	[Pa]	[Pa]
2001-09-08 20:00	4013	3792	VERSAVERT		1,50		141	84	63	40	0	0	14	12	50,0	57,0	13,5	8,5	14,5
2001-09-09 21:00	3068	2913	VERSAVERT		1,50		160	94	70	44	0	0	13	11	50,0	66,0	14,0	7,0	12,0
2001-09-10 20:30	2860	2729	VERSAVERT		1,49		129	76	57	37	0	0	13	11	50,0	53,0	11,5	7,0	12,0
2001-09-11	2860	2729	VERSAVERT		1,49		129	76	57	37	0	0	13	11	50,0	53,0	11,5	7,0	12,0
2001-09-12	160	160	VERSAVERT				0	0	0	0	0	0	0	0					
2001-09-13		0	VERSAVERT				0	0	0	0	0	0	0	0					

DAILY MUD PROPERTIES : OTHER PARAMETERS FOR WELL 25/2-16 S PO: 1

Hole section : 36" **WATER BASED SYSTEM**

Date	Depth [m] MD	Depth [m] TVD	Mud Type	Dens [sg]	Filtrate API [ml]	Filtrate HPHT [ml]	Filtcake API [mm]	Filtcake HPHT [mm]	HPHT Press/Temp [bar/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/l]	Percentage Solid [%]	Percentage Oil [%]	Percentage Sand [%]	CEC [Kg/m3]	ASG [sg]	LGS [Kg/m3]
2001-08-03 23:00	221	221	BENTONITE MUD	1,40					/																

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]	Filtcake API [mm]	Filtcake HPHT [mm]	HPHT Press/Temp [bar/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/l]	Percentage Solid [%]	Percentage Oil [%]	Percentage Sand [%]	CEC [Kg/m3]	ASG [sg]	LGS [Kg/m3]
2001-08-04 21:00	225	225	BENTONITE MUD	1,40			0	0	/										0						
2001-08-05 21:00	634	634	SEA WATER	1,03					/																
2001-08-06 21:00	1160	1160	BENTONITE MUD	1,40					/			0,0				0			0				0		
2001-08-07	1160	1160	SEA WATER	1,03					/																
2001-08-08	1160	1160	SEA WATER	1,03					/																

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]	Filtcake API [mm]	Filtcake HPHT [mm]	HPHT Press/Temp [bar/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/l]	Percentage Solid [%]	Percentage Oil [%]	Percentage Sand [%]	CEC [Kg/m3]	ASG [sg]	LGS [Kg/m3]
2001-08-09		0	SEA WATER	1,03					/																

Hole section : 12 1/4" **OIL BASED SYSTEM**

Date	Depth [m] MD	Depth [m] TVD	Mud Type	Density [sg]	Filtrate HPHT [ml]	Filtcake HPHT [mm]	HPHT Press/Temp [bar/DegC]	Electrical stability [V]	Alcalinity Pm [ml]	CaCl2 [mg/l]	Oil/Water Ratio	Percentage Solid [%]	Percentage Oil [%]	Percentage Sand [%]	ASG [sg]	LGS [Kg/m3]
2001-08-10 23:05	2101	2049	VERSAVERT	1,25	2,2	0	/ 121	865		217	71/ 29	15,0	60,0	0,2	3,5	154
2001-08-11	2730	2614	VERSAVERT	1,25	3,8	1	/ 150	835		171	71/ 29	14,5	61,0	0,0	3,5	158
2001-08-12 23:00	2837	2709	VERSAVERT	1,25	3,9	1	/ 150	915		173	74/ 26	14,5	63,0	0,0	3,5	152
2001-08-13 22:50	2924	2787	VERSAVERT	1,25	3,3	1	/ 150	956		170	75/ 25	14,0	64,0	0,0	3,6	123
2001-08-14 22:30	2963	2823	VERSAVERT	1,25	3,2	1	/ 150	1013		208	76/ 24	15,0	65,0	0,0	3,4	170
2001-08-15 22:30	2983	2841	VERSAVERT	1,25	3,2	1	/ 150	1101		201	76/ 24	15,0	65,0	0,2	3,5	170
2001-08-16 22:30	3035	2890	VERSAVERT	1,25	2,4	1	/ 150	1131		230	79/ 21	15,0	67,0	0,3	3,5	163
2001-08-17 22:30	3056	2910	VERSAVERT	1,25	2,4	1	/ 150	1160		229	79/ 21	15,0	67,0	0,3	3,5	163
2001-08-18 22:50	3089	2941	VERSAVERT	1,25	2,5	1	/ 150	1115		230	79/ 21	15,0	67,0	0,3	3,5	163
2001-08-19 22:30	3089	2941	VERSAVERT	1,25	2,7	1	/ 150	1145		230	79/ 21	15,0	67,0	0,3	3,5	163
2001-08-20 22:10	3089	2941	VERSAVERT	1,25	2,8	1	/ 150	1115		230	79/ 21	15,0	67,0	0,2	3,5	163
2001-08-21 22:30	1790	1767	VERSAVERT	1,25	2,7	1	/ 150	1115		222	79/ 21	15,0	67,0	0,2	3,5	163
2001-08-22 22:10	1790	1767	VERSAVERT	1,25	2,7	1	/ 150	1090		224	79/ 21	15,0	67,0	0,2	3,5	163

DAILY MUD PROPERTIES : OTHER PARAMETERS FOR WELL 25/2-16 S PO: 1

Hole section : 12 1/4" **OIL BASED SYSTEM**

Date	Depth [m] MD	Depth [m] TVD	Mud Type	Density [sg]	Filtrate HPHT [ml]	Filtcake HPHT [mm]	HPHT Press/Temp [bar/DegC]	Electrical stability [V]	Alcalinity Pm [ml]	CaCl2 [mg/l]	Oil/Water Ratio	Percentage Solid [%]	Percentage Oil [%]	Percentage Sand [%]	ASG [sg]	LGS [Kg/m3]
2001-08-23 22:10	1995	1953	VERSAVERT	1,31	4,0	1	/ 150	957		186	75/ 25	16,0	64,0	0,3	3,7	129
2001-08-24 23:00	2635	2531	VERSAVERT	1,31	3,6	1	/ 150	1110		203	77/ 23	17,0	64,0	0,3	3,5	180
2001-08-25 23:00	2910	2773	VERSAVERT	1,31	2,4	1	/ 200	1033		234	79/ 21	17,5	65,5	0,0	3,5	199
2001-08-26 22:00	2946	2804	VERSAVERT	1,33	2,6	1	/ 150	1120		234	79/ 21	18,0	65,0	0,3	3,5	194
2001-08-27 22:30	2985	2839	VERSAVERT	1,33	3,0	1	/ 150	1067		239	80/ 20	19,0	65,0	0,3	3,4	202
2001-08-28 22:00	2995	2848	VERSAVERT	1,33	2,4	1	/ 150	1102		220	81/ 19	18,5	66,0	0,3	3,4	179
2001-08-29 22:30	3068	2913	VERSAVERT	1,40	3,0	1	/ 150	1113		213	80/ 20	20,0	64,0	0,3	3,6	155
2001-08-30 22:00	3185	3018	VERSAVERT	1,40	3,2	1	/ 150	1150		201	81/ 19	20,5	64,0	0,3	3,5	176
2001-09-01 21:00	3185	3018	VERSAVERT	1,42	3,2	1	/ 121	1142		195	80/ 20	20,5	63,5	0,3	3,6	151

Hole section : 8 1/2" **OIL BASED SYSTEM**

Date	Depth [m] MD	Depth [m] TVD	Mud Type	Density [sg]	Filtrate HPHT [ml]	Filtcake HPHT [mm]	HPHT Press/Temp [bar/DegC]	Electrical stability [V]	Alcalinity Pm [ml]	CaCl2 [mg/l]	Oil/Water Ratio	Percentage Solid [%]	Percentage Oil [%]	Percentage Sand [%]	ASG [sg]	LGS [Kg/m3]
2001-09-02 22:15	3269	3092	VERSAVERT	1,49	3,5	1	/ 150	1020		204	79/ 21	22,5	61,5	0,3	3,7	148
2001-09-03 22:10	3543	3340	VERSAVERT	1,49	2,0	1	/ 150	1197		183	80/ 20	21,5	63,0	0,3	3,8	132
2001-09-04 21:30	3841	3625	VERSAVERT	1,50	3,0	1	/ 150	1211		201	80/ 20	22,0	62,5	0,3	3,8	135
2001-09-05 15:30	3969	3749	VERSAVERT	1,50	3,0	1	/ 150	1197		215	81/ 19	22,0	63,5	0,5	3,8	131
2001-09-06 17:30	4013	3792	VERSAVERT	1,50	3,0	1	/ 150	1050		193	78/ 22	22,0	61,0	0,5	3,8	140
2001-09-07 21:00	4013	3792	VERSAVERT	1,50	2,8	1	/ 150	1077		195	79/ 21	22,0	62,0	0,5	3,8	137

Hole section : P&A **OIL BASED SYSTEM**

Date	Depth [m] MD	Depth [m] TVD	Mud Type	Density [sg]	Filtrate HPHT [ml]	Filtcake HPHT [mm]	HPHT Press/Temp [bar/DegC]	Electrical stability [V]	Alcalinity Pm [ml]	CaCl2 [mg/l]	Oil/Water Ratio	Percentage Solid [%]	Percentage Oil [%]	Percentage Sand [%]	ASG [sg]	LGS [Kg/m3]
2001-09-08 20:00	4013	3792	VERSAVERT	1,50	3,4	1	/ 150	980		193	78/ 22	22,0	61,0	0,5	3,8	140
2001-09-09 21:00	3068	2913	VERSAVERT	1,50	4,0	1	/ 150	587		147	73/ 27	21,5	58,0	0,4	3,8	125
2001-09-10 20:30	2860	2729	VERSAVERT	1,49	4,0	1	/ 150	711		147	75/ 25	21,5	59,0	0,4	3,8	122
2001-09-11	2860	2729	VERSAVERT	1,49	4,0	1	/ 150	711		147	75/ 25	21,5	59,0	0,4	3,8	122
2001-09-12	160	160	VERSAVERT				/				/					
2001-09-13		0	VERSAVERT				/				/					

TOTAL CONSUMPTION OF MUD ADDITIVES ON WELL 25/2-16 S PO: 1

Section	Product/ Additive	Unit	Total Amount Used
17 1/2"	BARITE	kg	58000,00
	BENTONITE	kg	50000,00
	CMC EHV	kg	425,00
	SODA ASH	kg	500,00
12 1/4"	BARITE	kg	192000,00
	BENTONE 128	kg	315,00
	CALCIUM CHLORIDE	kg	2100,00
	EDC 95/11	l	163460,00
	LIME	kg	16430,00
	VERSAMOD	kg	100,00
	VERSAVERT F	l	9101,00
	VERSAVERT PE	l	16324,00
	VERSAVERT SE	l	9100,00
	VERSAVERT VIS	kg	6025,00
8 1/2"	BARITE	kg	130000,00
	BENTONE 128	kg	85,00
	CALCIUM CHLORIDE	kg	2400,00
	DUOTEC NS	kg	75,00
	EDC 95/11	l	62000,00
	LIME	kg	6075,00
	VERSAVERT F	l	500,00
	VERSAVERT PE	l	4082,00
	VERSAVERT SE	l	2916,00
	VERSAVERT VIS	kg	375,00

LOGGING INFORMATION ON WELL 25/2-16 S

Hole size: 8 1/2"

#	Run No.	Logging Company	Logged Bottom [m MD]	Logged Top [m MD]	Log Suite
1	1A		3969	3796,5	GR/MDT
2	1A		4000	2700	GR/VSP

Downtimereport

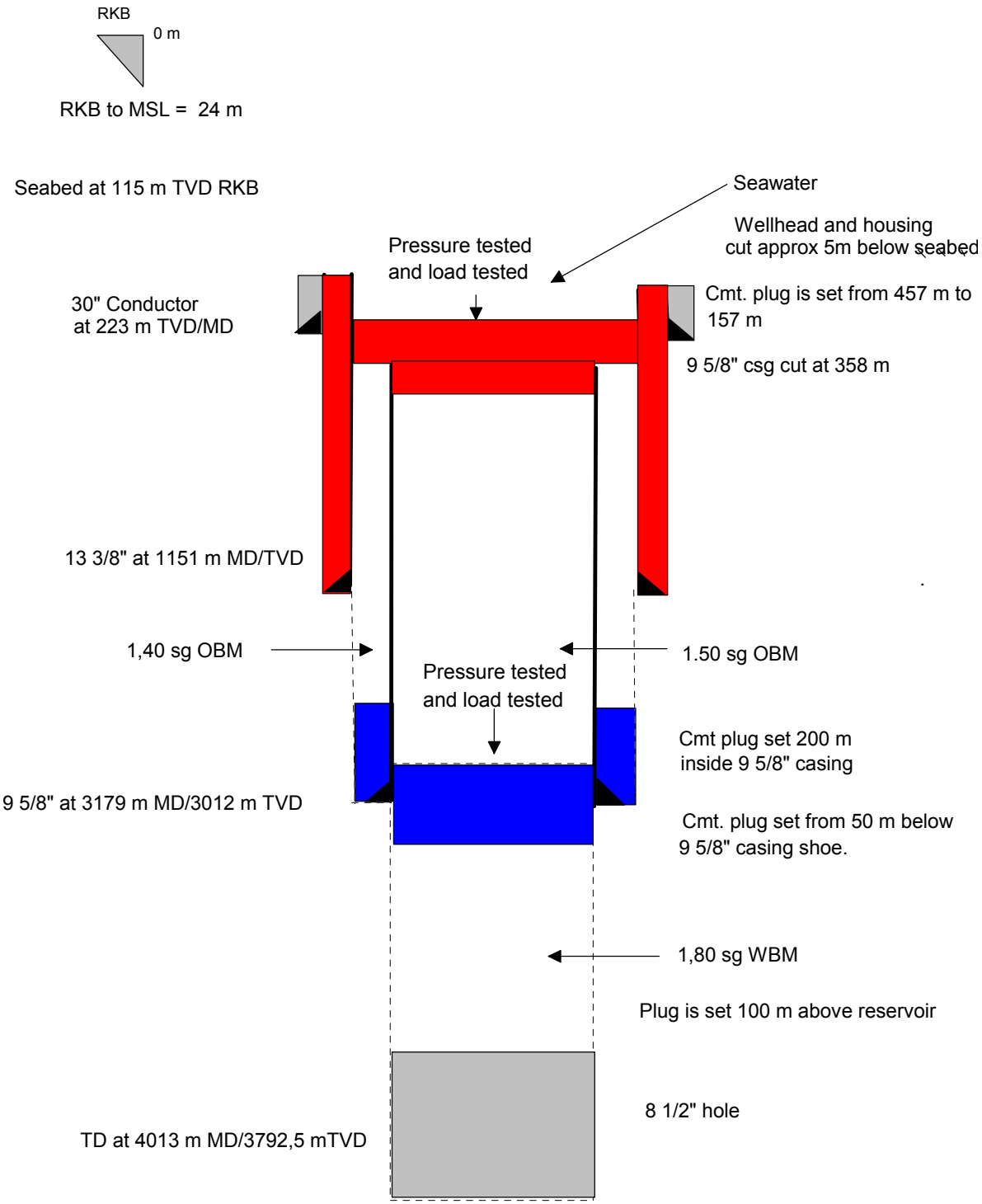
2001-12-13

Well	Rep	#	Hrs	Date	Downtime Type	Short Description	Responsible Contractor	Nsfi Type	Equipment Type	Service Type
25/2-16 S	1.		1.5	2001-08-04	Other	Attempted to spot bouys. Lost bouys. ROV out of water to pick up new bouys.	OCEANEERI			
	2.		2.0	2001-08-05	Other	String stuck after 1 m wiping prior to connection . Max over pull 150 ton. Not able to rotate. Swept hole with 2x10 m3 of hi-vis. Attempted to rotate. No go. Pulled string free without over pull.	NORSK HYD			
	3.		12.0	2001-08-08	Equipment fail	Not able to obtain press test on kill & choke lines. Pressure tested cement unit. OK. Pulled back and changed seals on upper joint. Still leaking. Pulled BOP and landed on cellar deck. Changed terminal spool and all seals.	TRANSOCEA	Riser System (incl.	WELLCONTROL EQ	DRILLING CO
	4.		2.5	2001-08-09	Equipment fail	Attempted to make up MWD with extender to Power Drive. Extender wrong length. Changed MWD and adjusted extender to fit this.	ANADRILL	MWD/LWD	DRILLSTRING/DOW	DIRECTIONA
	5.		1.5	2001-08-10	Equipment fail	Stand pipe manifold leaked. Changed hose to starboard manifold. Moved Anadrill pressure sensors.	TRANSOCEA	Mud Supply(incl. H	MUD AND BULK SYS	DRILLING CO
	6.		1.5	2001-08-13	Other	Pipe stuck.Took weigth at 2565 m. Max over pull 40 ton. Not able to circulate. Put 28 bar on formation. Worked string down and established rotation. Worked string further down and gainec circulation.	NORSK HYD			
	7.		0.5	2001-08-14	Equipment fail	Problems with main brake on draw works. Resat hydraulic for same.	TRANSOCEA	Drawworks and M	DRILL FLOOR EQUI	DRILLING CO
	8.		1.0	2001-08-16	Equipment fail	Changed leaking wash pipe.	TRANSOCEA	Top Drive	HOISTING EQUIPME	DRILLING CO
	10.		266.0	2001-08-18	Other	Hole packed off when starting pumps after flowcheck. Established rotation and worked string in interval between 3070m & 3086m.	NORSK HYD			
		1	6.5	2001-08-18	Equipment fail	While working string (rotation), @0705hrs, torque was suddenly lost, combined with loss of stringweight, indicating DP connection backed off around 700m. B/o w/rigtongs & l/d 3 x 5" DP from drilling stand due to overtorque.	TRANSOCEA	Power Packs	PIPE HANDLING EQ	FISHING
		2	2.0	2001-08-20	Other	Cut & slip 66m drilline	NORSK HYD			
	11.		0.5	2001-08-20	Equipment fail	Iron roughneck malfunctioned, leak in clamp piston, caused insufficient power available to break connections..	TRANSOCEA	Other Drill Floor E	DRILL FLOOR EQUI	DRILLING CO
	12.		1.0	2001-08-21	Other	Extra time spent, since connections had to be broken w/rigtongs.	TRANSOCEA			
	13.		1.5	2001-08-22	Equipment fail	Changed inner BOP on top drive due to leakage.	TRANSOCEA	Other Drill Floor E	DRILL FLOOR EQUI	DRILLING CO
	14.		0.5	2001-08-25	Equipment fail	Leakage on drilling stand. Broke out same. Installed new stand.	TRANSOCEA	Drillpipe	DRILLSTRING/DOW	DRILLING CO

Downtimereport

2001-12-13

Well	Rep	#	Hrs	Date	Downtime Type	Short Description	Responsible Contractor	Nsfi Type	Equipment Type	Service Type
25/2-16 S	15.		0.5	2001-08-25	Equipment fail	Continued drilling to 2652 m. At 01:30 discharge valve failure o MP#2. At 01:45 piston washout in MP#1.	TRANSOCEA	Mud Supply(incl. H	MUD AND BULK SYS	DRILLING CO
	16.		0.5	2001-08-25	Equipment fail	Changed leaking washpipe	TRANSOCEA	Other Drill Floor E	DRILL FLOOR EQUI	DRILLING CO
	17.		0.5	2001-08-28	Equipment fail	Electromotor failure on drawworks. Corrected same from 01:20 to 01:45 hrs.	TRANSOCEA	Drawworks and M	DRILL FLOOR EQUI	DRILLING CO
	16.	1	1.0	2001-08-29	Equipment fail	Changed wash pipe while circulating well.	TRANSOCEA	Other Drill Floor E	DRILL FLOOR EQUI	DRILLING CO
	18.		1.5	2001-08-30	Other	Discovered that Dril Quip jet sub did not have flow through ID. Made separate washing run to clean wellhead area and BOP.	DRIL-QUIP			
	16.	2	1.0	2001-09-02	Equipment fail	Changed leaking wash pipe.	TRANSOCEA	Other Drill Floor E	DRILL FLOOR EQUI	DRILLING CO
	11.	1	3.0	2001-09-05	Equipment fail	Not able to break connections with Iron Roughneck. Laid out torque wrench.	TRANSOCEA	Vertical Pipe Handl	PIPE HANDLING EQ	DRILLING CO
	19.		2.0	2001-09-06	Equipment fail	Not able to down load memory from LWD tools. Trouble shoot for reason.	ANADRILL	Miscellaneous equi	MISCELLANEOUS E	DIRECTIONA
	20.		0.5	2001-09-07	Equipment fail	Problems with electrical connection on bottom nose of tool. Trouble shoot same.	SCHLUMBER	Other logging equi	SERVICE EQUIPME	ELECTRIC LO
	21.		6.0	2001-09-08	Equipment fail	Repaired caliper assembly on drawworks disc brake. Lower OK. Upper still to go.	TRANSOCEA	Drawworks and M	DRILL FLOOR EQUI	DRILLING CO
	22.		1.5	2001-09-09	Other	Gelled up OBM, spacer and cement in return plugged shaker screens and pipe from flow divider to shaker. Pulled back 3 stands while cleaning out pipes to shaker.	NORSK HYD			
	23.		5.5	2001-09-09	Waiting for ce	Waited on cement.	BJ SERVICES			
	24.		18.5	2001-09-10	Other	Not able to press test cement plug to required pressure. Broke down. Plug have had 27 hrs thickening time since displacement	BJ SERVICES			
	25.		1.5	2001-09-10	Other	Mud very thick and viscous. Circulated with max rate 400 lpm due to very thick and viscous mud. Had several stops to clean flowline. Mud had been used in high CaCO3 invironment.	M-I NORGE A			
	24.	1	5.0	2001-09-11	Waiting for ce	While waiting on cement laid out 6 1/2" jar, 6 1/2" monel and 3 joints 6 1/2" drill collars.	BJ SERVICES			
	26.		3.5	2001-09-13	Waiting for ma	Navigation equipment not on location in time due to over bookin of boats and lack of communicating the fact to offshore organisation. Waited for rig up of navigation equipment. Boat with equipment on location 08:30 hrs.	NORSK HYD	Miscellaneous equi	MISCELLANEOUS E	ANCHOR HA
			352.5							



Final Well 25/2-16 S	**Fig: B-9.1** **Revision: 0**	**Permanent Plug and Abandonment**

2002-02-11

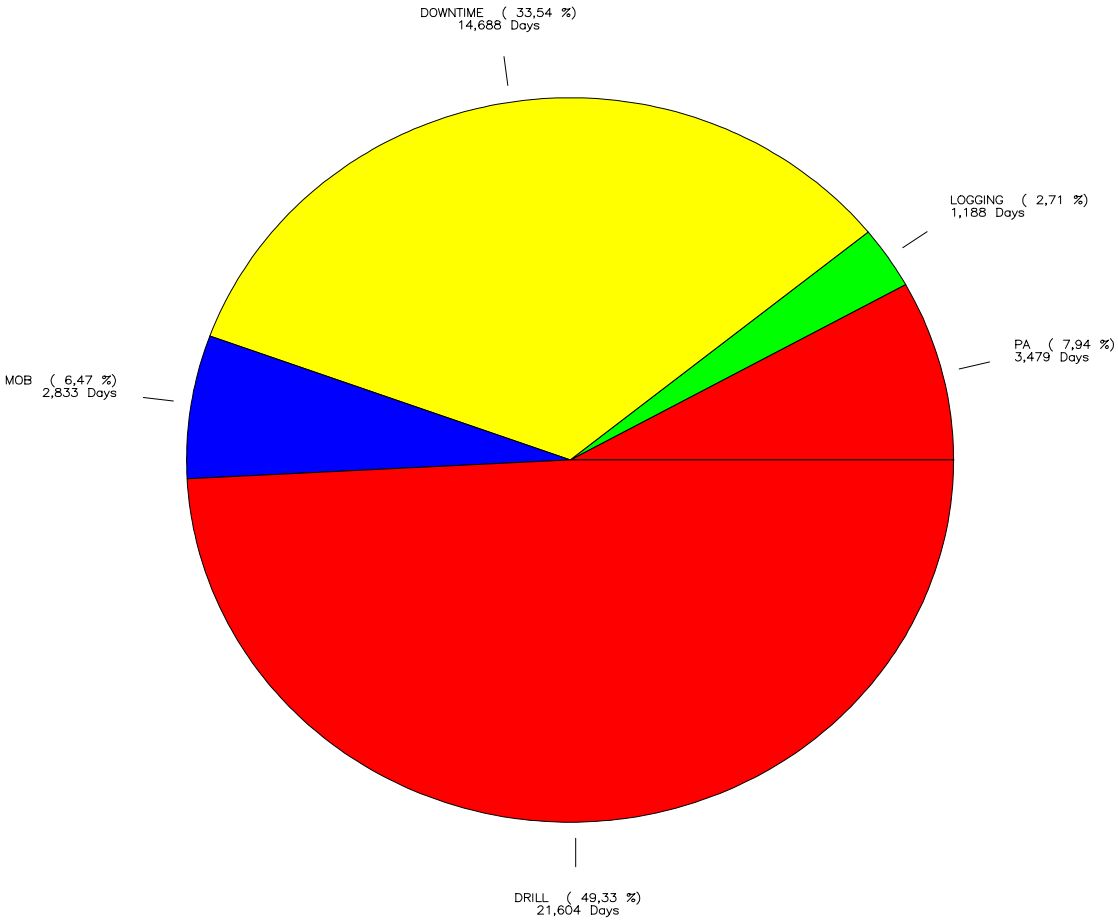
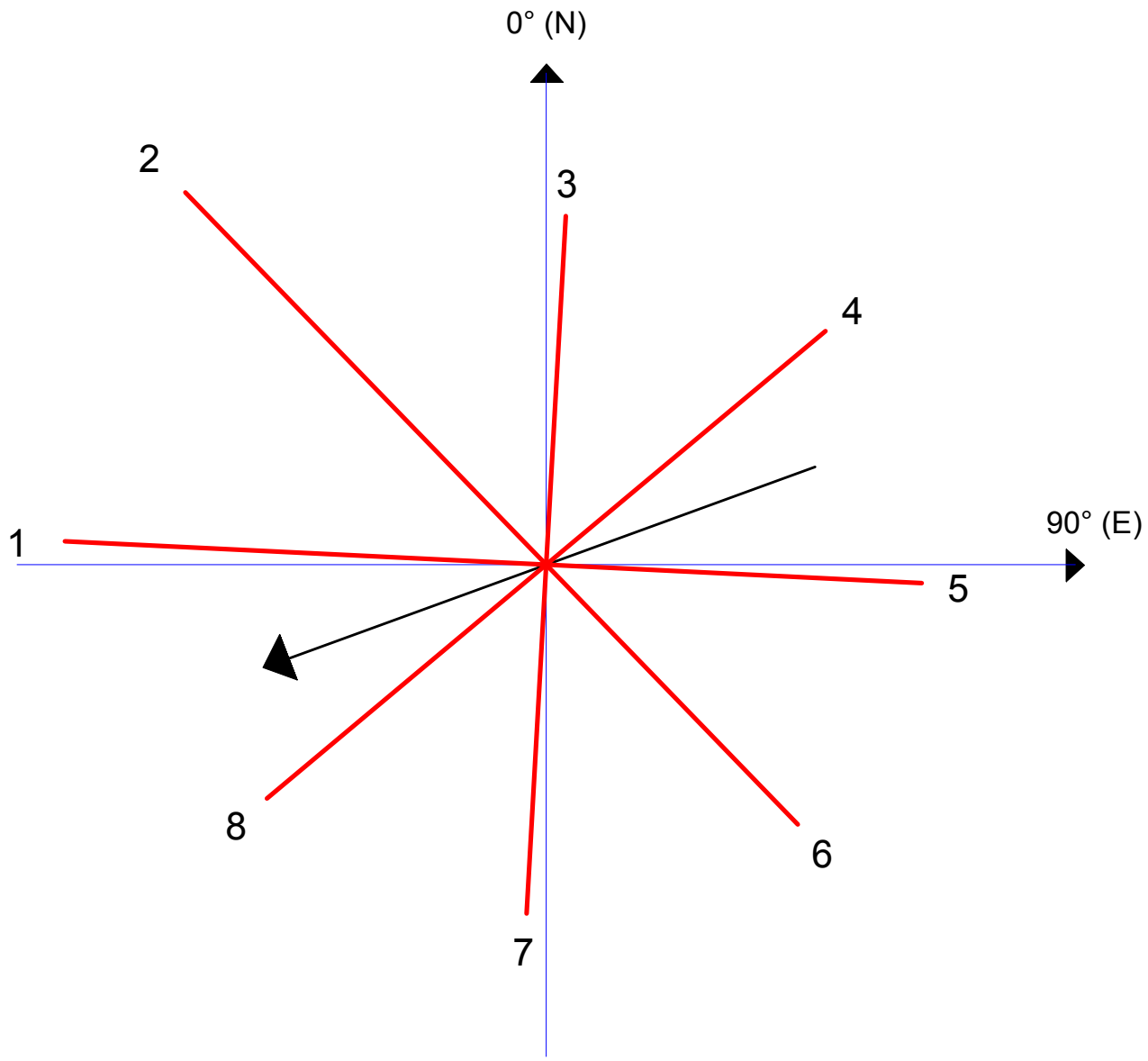


Figure 2		Time Distribution 25/2-16 S	**HYDRO**



RIGHEADING 249 DEG.

ANCHOR NO		DIRECTION (DEG.)		LENGTH (m)	
	1		273		1820
	2		318		2037
	3		3		1420
	4		48		1420
	5		93		1420
	6		138		1420
	7		183		1420
	8		228		1420

Figure 3		RIG ANCHORS TRANSOCEAN ARCTIC 25/2-16 S	**HYDRO**

SECTION C

COMPOSITE LOG

LITHOLOGY LOG

GASRATIO LOG

POST SITE SURVEY LOG