Final Well Report

36/7-3

PL153

Title: WELL 36/7-3
PL 153
FINAL WELL REPORT

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PREFACE

License PL 153 was awarded 8 July 1988 as part of the 12A licence round with Norsk Hydro as the operator. The licence is located in blocks 35/9 and 36/7, and includes the Gjøa Field. The location map is shown on page 3.

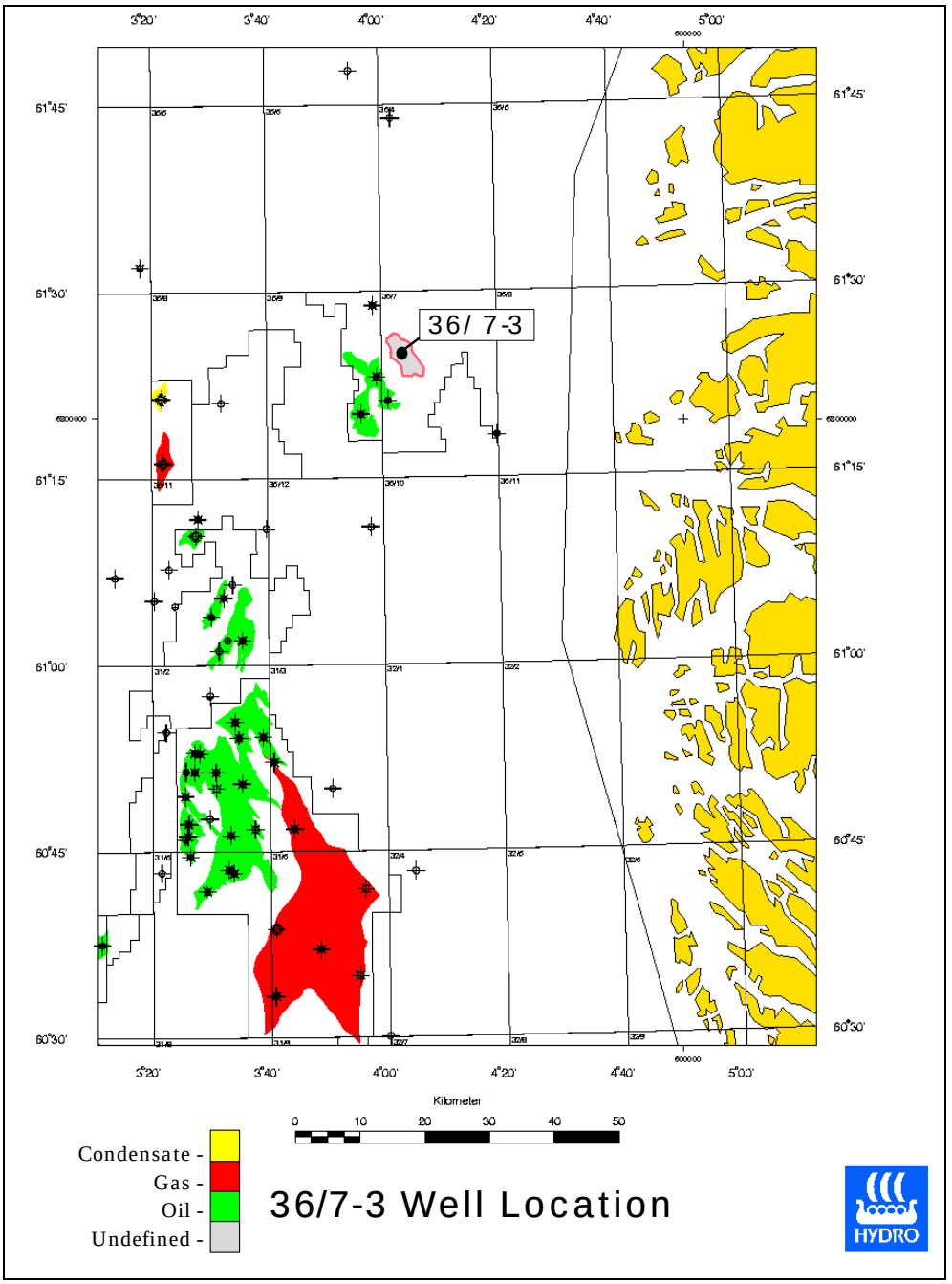
The licencees percentage share at the time of operation was as follows:

Norsk Hydro Production AS (operator)	30.0%
Petoro AS	30.0%
Statoil ASA	20.0%
AS Norske Shell	12.0%
RWE-DEA Norge AS	8.0%

The well was drilled by Norsk Hydro Production AS, on behalf of the group, during December 2001- January 2002.

All depths in this report are in mMD RKB (RKB elevation is 24m) unless otherwise stated

Location map:



SUMMARY OF WELL DATA	
LOCATION:	Geo: 61° 25' 33.12" N 04° 02' 59.61" E UTM 6 810 836.9m N 556 023.6m E ED 50, UTM Zone 31, SM 03°E
OPERATOR: RIG: CONTRACTOR:	Norsk Hydro Transocean Arctic Transocean
KB ELEVATION (to MSL): WATER DEPTH (MSL):	24m 373m
START OF OPERATIONS: WELL SPUDDED: WELL RE-SPUDDED: WELL REENTERED: WELL SIDETRACKED: REACHED TD ON: COMPLETED: STATUS: FORMATION AT TD:	2001-12-09 2001-12-12 No re-spud No reentry No Sidetrack 31.12.2001 N/A Plugged & abandoned as a dry hole Heather
TD DRILLER (mRKB): TD LOGGER (mRKB):	3347m MD N/A MD
DRILLING DEPTHS:	36" to 445 m 26" to 577 m 17 1/2" to 1355 m 12 1/4" to 2357 m 8 1/2" to 3347 m
CASING DEPTHS:	30" to 445 m 20" to 572 m 13 3/8" to 1348 m 9 5/8" to 2953 m

SECTION A

GEOLOGY

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1 Objectives

The well 36/7-3 is an exploration well in block 36/7, located to the northeast of the Gjøa Field, north of the Troll East Gass Province.

The objective of the well was to explore the hydrocarbon potential in the Cretaceous. The primary objective was to prove commercial hydrocarbon resources in the Lower Creataceous C3-E prospect, comprising the Agat Formation.

Secondary objectives were to: a) Confirm reservoir and migration concepts for the Upper Cretaceous C1 prospect within the Kyrre Formation. b) Confirm reservoir concept in the Lower Cretaceou "C4" interval within the Åsgard Formation.

2 Results

Well 36/7-3 was spudded December 12, 2001, and reached TD at 2948 mMD RKB in the Heather Formation, December 31, 2001. The well was drilled by Transocean Arctic. The rig operations were terminated January 7, 2002

The main result of well 36/7-3 was the confirmation of the reservoir model and the seismic interpretation. None of the three targets contained economical amounts of hydrocarbons and are regarded as dry. The Upper Cretaceous Kyrre sand interval (C1) and the Lower Cretaceous Agat Formation sands (C3) were water bearing due to failure in either up-dip reservoir pinch-out or migration concepts. The migration concept is questioned as there are no signs of migrated hydrocarbons. Analysed samples from inclusions and the mud fraction show only traces of in-situ generated hydrocarbons from terrigenous source rocks.

The reservoir models were confirmed for the primary and secondary targets. The primary target Agat Formation comprised 100m thick reservoir section with net sand of 68m, similar to prognosis. The secondary target C1 sand sequence of the Kyrre Formation contained two thin sand layers, with 9m and 11m thickness (8.5m and 7m net sand respectively), and the "C4" unit of the Åsgard Formation contained a 29m thick sandstone layer (10m net sand). These results were also similar to prognosis.

Group:	Formation:	Depth m MD RKB	Depth m TVD RKB	Depth m TVD MSL	TWT (ms)
Nordland	Quaternary	373,0	373,0	349,0	
	B.Pleistocene	602,0	601,9	577,9	
Rogaland	Sele	602,0	601,9	577,9	
	Lista	800,0	799,7	775,7	
Shetland	Jorsalfare	1 249,0	1 248,3	1 224,3	
	Kyrre	1 305,0	1 304,2	1 280,2	
	Top C1 - sand	1 843,0	1 842,0	1 818,0	
	Tryggvason	2 058,0	2 056,9	2 032,9	
	Blodøks	2 264,0	2 262,9	2 238,9	
	Svarte	2 290,0	2 288,9	2 264,9	
Cromer Knoll	Rødby	2 497,0	2 459,9	2 471,9	
	Top C3 - sand	2 532,0	2 530,9	2 506,9	
	Åsgard	2 700,0	2 698,9	2 674,9	
	Top C4 - sand	2 767,0	2 765,8	2 741,8	
Viking	Heather	2 928,0	2 926,8	2 902,8	
TD		2 948,0	2 946,8	2 922,8	

Table 2.1: Formation Tops 36/7-3

3 Biostratigraphy

The biostratigraphical evaluation (585m - 2943mTD) of well 36/7-3 was carried out by Geostrat Ltd. Micropalaeontological and palynological analyses have formed the basis for the biostrati-graphical interpretation of the well. The analyses were carried out on cuttings samples. 121 ditch cuttings samples were analysed for micropalaeontology and 118 were analysed for palynology. The results are documented in the report "Norsk Hydro Well 36/7-3 Biostratigraphy of the interval 585m - 2943m".
Table 3.1 shows a summarised geochronological and lithostratigraphical sub-division of the well. The interpretation is in accordance with Norsk Hydro's standard zonation for the area.

Major points

- The youngest sediments analysed at 585 m are of Pleistocene age

- The oldest sediments at 2943m are of Middle Bathonian age

- The Rogaland group was penetrated at 600m

- The Shetland Group was penetrated at 1292m

- The Cromer Knoll Group was penetrated at 2515m

- The Viking Group was penetrated at 2854m.

A major stratigraphical break is seen near the top of the analysed interval, where Pleistocene sediments (Nordland Group) rest on sediment of Late Paleocene age (Rogaland Group)

An unconformity is also seen between the Rogaland Group and the Shetland Group where sediments of Early Paleocene overlie sediment of Early Maastricthian/Late Campanian age.

Three unconformities are seen within the Cromer Knoll Group:
The uppermost one is between The Sola Formation and the Ågard Formation where sediments of Early Aptian are absent.

Within the Åsgård Formation there are two unconformities, one where sediments of earliest Barremian are missing, and another where sediments of Early Hautervian and Late Valangian are absent.
In the Viking Group two unconformities are registered:
One (between the Early Cretaceous/ Late Jurassic boundary), where sediments of Early Ryazanian and Late Volgian are missing.

Between the Draupne and Heather Formations a major unconformity is seen in where sediments of Early Volgian age rests on sediment of Middle Bathonian age**.**

Biostratigragraphic summary of the sand units
There are three main sandy units in this well:
The Kyrre Sandstone Bed (1843 - 1908.5m) is of Late Turonian age, assigned to palynozone PK7A and mikropalaeontology zone MK9-MK8C

The Agat Formation (2532 -2632m) is of Late Albian age, assigned to palynozone PK5C.

The Åsgard Sand unit (2767- 2796m) is of Late Hautervian age, assigned to palyno zone PK2D and mikropalaeontology zone ? MK

Table. 3.1: Lithostratigraphical Breakdown, Well 36/7-3

GROUP	FORMATION	MEMBER	BED	DEPTH mMDRKB
Nordland				585 at or above
----------Stratigraphic Break----------				
Rogaland	Sele			600 at or above
	Lista			607
	Våle			1101.5
----------Stratigraphic Break----------				
Shetland	Jorsalfare			1292
	Kyrre	Kyrre unit		1355.5
		Kyrre 1		1552
		Kyrre 2		1756
		Kyrre 3		1828
			Kyrre sandstone	1843 - 1908.5
	Tryggvason			2057.5
	Blodøks			2263.5
	Svarte			2301
Cromer Knoll	Rødby			2515.5
	Agat			2532

	Sola			2632
----------Stratigraphic Break----------				
	Åsgard			2725.5
		Åsgard sandstone		2767 - 2796
Viking	Draupne			2854.5
----------Stratigraphic Break----------				
	Heather			2908
				2943 TD

4 Lithostratigraphy

All depths are in mMD RKB (RKB elevation is 24 m). This summary is compiled predominantly from MWD log interpretation and ditch cuttings descriptions.

The well was drilled with returns to seabed from the seafloor at 136 m to 1287 m before setting 13 3/8" casing at 1280 m. The first drill cuttings samples were taken at 1300 m. The lithology interpretation is based on MWD logs and cuttings descriptions.

4.1 Nordland Group 373 - 602 m MD (373.0 - 601.9 m TVD) RKB

373 - 602 m MD (373.0 - 601.9 m TVD) RKB
From MWD logs: Clays interbedded with Sands.

4.2 Rogaland Group 602 - 1249 m MD (601.9 - 1248.3 m TVD) RKB

Sele Formation 602 - 800 m MD (601.9 - 799.7 m TVD) RKB

602 - 800 m MD (601.9 - 799.7 m TVD) RKB

Siltstones, Sandstones and Claystones

Siltstones: olv gry - olv blk, sbblky, sft, arg - v arg, r carb mat, r micromic, r micropyr, r Glauc, r shl frag, r Sst: v f - v crs.

Sandstones: clr trnsl Qtz, ang - sbang, v f - v crs, pr srt, r blk spec, r Glauc

Sandstones: clr trnsl Qtz, ang - sbang, f - crs, pred m, r v crs, pr srt, r blk spec, r Glauc, r pyr, lse.

Claystones: olv gry - olv blk, gnsh gry - gnsh blk, blky, sft - frm, sli slty, r micromic, r blk spec, r Glauc, r sdy, r micropyr, non calc

Lista Formation 800 - 1249 m MD (799.7 - 1248.3 m TVD) RKB

800 - 1249 m MD (799.7- 1248.3 m TVD) RKB
Claystones and Siltstones with minor Sandstones, Dolomites and Limestones

Claystones:	olv gry - olv blk, gnsh gry - gnsh blk, blky, sft, sli - v slty, r micromic, r blk spec, r sdy, r micropyr, non calc
Siltstones:	olv gry - olv blk, gnsh gry - gnsh blk, blky - sbblky, sft - frm, grdg sdy slts, r v f dism carb mat, arg - v arg, r micropyr, non calc
Sandstones:	clr trnsl Qtz, sbang - sbrndd, f - m, pred m, r v f, r crs, mod srt, lse gr, r blk spec, r Glauc, r pyr, r mic, sli arg.
Dolomites:	mod yelsh brn - dk yelsh brn, hd - v hd, ang, r blk spk, microxln
Limestones:	dk yelsh brn - brnsh gry, blky, hd - v hd, elong, v f dism pyr

4.3 Shetland Group 1249 - 2497 m MD (1248.3 - 2495.9 m TVD) RKB

4.3.1 Jorsalfare Formation 1249 - 1305 m MD (1248.3 - 1304.2 m TVD) RKB

1249 - 1305 m MD (1248.3 - 1304.2 m TVD) RKB
Claystones with minor Limestones

Claystones:	olv gry - olv blk, gnsh gry - gnsh blk, blky, sft, sli - v slty, r micromic, r blk spec, r sdy, r micropyr, non calc
Limestones:	lt gnsh gry - gnsh gry, lt blsh gry, sbblky, sft, sli slty, sdy, r blk spec, r xln

4.3.2 Kyrre Formation 1305 - 2058 m MD (1304.2 - 2056.9 m TVD)RKB

1305-1355 m MD (1304.2 - 1354 m TVD) RKB
Claystones with Limestone and Sandstone stringers

Claystones:	m dk gry - olv gry, olv blk, blky - sbblky, sft, sli slty, r glauc, r micropyr, sli calc, r micromic, r blk spec
Claystones:	grysh red - m dusky red, m brn, sbblky, sft, sli slty, r sdy, r glauc, r ls, sli - v calc
Limestones:	wh - yelsh gry, blky, sft - frm, sli slty, sdy
Sandstones:	lt gry - wh, gn spec, ang - sbang, sft - frm, f - m, mod srt, wk calc cmt, r Glauc, no vis por

1355-1440 m MD (1354.2 - 1439.1 m TVD) RKB
Claystones with Traces of Limestones

Claystones: m dk gry-m gry, dk gry, sbblky-blky, sft, r slty, r glauc, r micropyr, sli calc
Limestones: lt gry-grn gry, lt bl gry, sbblky, sft, sli slty, sdy, r glauc, microxln

1440-1575 m MD (1439.1 - 1574.1 m TVD) RKB
Claystones with minor Limestones and Dolomites

Claystones: m dk gry-m gry, occ dk gry, sbblky-blky, sft, r slty, r glauc, non-sli calc
Limestones: wh-v lt gry-m gry, sbblky, sft, microxln
Dolomites: dk yel brn, dsky rd-dsky brn, occ v lt gry-lt olv gry, sbblky-blky, sft-hd, microxln

1575-1725 m MD (1574.1 - 1724.1m TVD) RKB
Claystones with minor Limestones

Claystones: m dk gry-m gry, occ dk gry, sbblky-blky, sft, r slty, r glauc, non-sli calc
Limestones: v lt gry-gry org pk, sbblky, sft-frm, pred arg

1725-1765 m MD (1724.1 - 1764.1m TVD) RKB
Claystones and minor Limestones

Claystones: med lt gry-lt olv gry, occ grn gry-lt bl gry, r lt brn gry, sbblky-blky, frm, occ micromic, r glauc, calc-occ v calc
Limestones: pl yel org-gry org pk, occ v lt gry, sbblky, sft, arg, microxln

1765-1815 m MD (1764.1 - 1814.0 m TVD) RKB
Claystones with Traces of Limestones

Claystones: med lt gry-lt olv gry, occ grn gry-lt bl gry, r lt brn gry, sbblky-blky, frm, occ micromic, r glauc, v calc grad Mrl
Limestones: pl yel org-gry org pk, occ v lt gry, sbblky, sft, arg, microxln

1815-1845 m MD (1814.0 - 1844.0 m TVD) RKB
Claystones with Traces of Sandstones and Limestones

Claystones: lt olv gry-gn gry, med dk gry-lt gry, sbblky-blky, frm, occ micromic, glauc, v calc grad Mrl
Sandstones: lt olv gry-grn gry, occ gn, v f, sbang, wl srt, slty grad Sltst, glauc, calc cmt
Limestones: pl yel org-gry org pk, occ v lt gry, sbblky, sft, arg, microxln

1845-1925 m MD(1844.0 - 1924.0 m TVD) RKB

Claystones and Sandstones

Claystones: olv gry-lt olv gry, med dk gry, occ grn gry, sbblky-blky, sft-frm, slily slty, v calc grad Mrl, glauc
Sandstones: lt olv gry-gry gn, gn spk, clr transl Qtz grns, fri, v f-m, pred f, ang-sbang, wl-mod srtd, slily calc cmt, v glauc, loc v calc grad sdy Ls, occ slty

1925-2030 m MD (1924.0 - 2029.0 m TVD) RKB

Claystones and Sandstones

Claystones: olv gry-lt olv gry, grn gry, lt gry-v lt gry., sbblky-blky, sft- mod hd, calc-v calc, r glauc, occ slty
Sandstones: gry grn, v lt grn-v lt gry, v f-f, Tr med-crs, blky, fri, mod srt, Tr Glauc, calc cmt, slty

2030-2058 m MD (2029.0 - 2056.9 m TVD) RKB

Siltstones and Limestones

Siltstones: med lt gry-lt grn gry, sbblky, frm, arg occ grad Clst, glauc, calc, micromic, v f sdy,
Limestones: wh-gry gn, amor-sbblky, sft, v f sdy, v glauc, microxln

4.3.3 Trygvasson Formation 2058 - 2264 m MD (2056.9 - 2262.9 m TVD) RKB

2058-2099 m MD (2056.9 - 2097.9 m TVD) RKB

Siltstones, Claystones and Limestone stringers

Siltstones: med lt gry-lt grn gry, sbblky, frm, arg occ grad Clst, glauc, calc, micromic, v f sdy,
Claystones: med lt gry-olv gry-lt olv gry, sbblky, sft-frm, glauc, v calc, slty, micromic
Limesone: wh-gry gn, amor-sbblky, sft, v f sdy, occ arg, v glauc, microxln

2099-2190 m MD (2097.9 - 2188.9 m TVD) RKB

Claystones with minor Limestones and rare Siltstone beds

Claystones: m gry-m dk gry, olv gry-dk gn gry, occ lt gry, sbblky-blky, sft-frm, occ mod hd, v calc, glauc-loc abd glauc, loc slily slty, r sdy, r Carb Mat, r Tr Micropyr
Limestones: wh-v lt gry- lt gry, amor-sbblky, sft, occ hd, glauc- occ v glauc, I.P v f sdy, microxln

Siltstones: olv gry-dk gn gry, lt gry, sbblky-blky, sft-frm, occ hd, occ v glauc, v calc, r carb

2190 - 2264 m MD (2188.9 - 2262.9 m TVD) RKB
Claystones and Limestones

Claystones: med lt gry-med dk gry, occ lt olv gry, occ brn gry, sbblky-blky, sft-frm, slily-v calc, pred v calc, loc slty, Tr Glauc, r Carb Mat, pred micromic
Limestones: wh-v lt gry-lt gry, occ gn spec, sbblky, r-occ abd glauc, microxln

4.3.4 Blodøks Formation 2264 - 2290 m MD (2262.9 - 2288.9 m TVD) RKB

2264 - 2290 m MD (2262.9 - 2289.9 m TVD) RKB
Claystones and Limestones

Claystones: med gry-med dk gry, occ dk gnsh gry, occ brn gry, blky, frm, slily-v calc, loc Glauc, r Carb Mat, micromic
Limestones: wh-v lt gry-lt gry, occ gn spec, sbblky, r-occ abd glauc, microxln

4.3.5 Svarte Formation 2290 - 2497 m MD (2288.9 - 2495.9 m TVD) RKB

2290 - 2433 m MD (2288.9 - 2431.9 m TVD) RKB
Claystones with minor Limestones and Sandstones

Claystones: lt olv gry-olv gry, occ med gry, occ lt gry-v lt gry, occ dk gn gry, sft-frm, occ mod hd, slily calc, r glauc, r Carb Mat, micromic, bcm slily slty
Limestones: wh-v lt gry-lt gry, occ gn spec, sbblky, r-occ abd glauc, microxln
Sandstones: clr-trnsl Qtz Gr, v f-f, ang-sbang, occ sbrndd, wl srt, lse

2433-2497 m MD (2431.9 m - 2495.9 m TVD) RKB
Claystones with minor Limestones and Sandstones

Claystones: pl yel brn, lt brn gry-m lt gry, sbblky, sft-frm, v calc grad Mrl, v f sdy, occ slty, pred glauc, occ abd glauc, micromic-mic
Limestones: wh-v lt gry, sbblky, sft-frm, occ arg lam, occ micromic lam, microxln, I.P. v glauc
Sandstones: clr-trnsl Qtz Gr, v f-occ f, sbang-sbrndd, wl srt, lse

4.4 Cromer Knoll Gp. 2497 - 2928 m MD (2459.9 - 2926.8 m TVD) RKB

4.4.1 Rødby Formation 2497 - 2700 m MD (2495.9 - 2698.9 m TVD) RKB

2497 - 2510 m MD (2495.9 - 2508.9 m TVD) RKB

Claystones with minor Limestones and Sandstones

Claystones: pl yel brn-lt brn gry-m lt gry, sbblky, sft-frm, v calc grad Mrl, v f sdy, occ slty, pred glauc, occ abd glauc, micromic-mic

Limestones: wh-lt gry, sbblky, sft-frm, occ arg lam, occ micreomic lam, microxln, I.P. v glauc

Sandstones: clr-trnsl Qtz Gr, v f-occ f, sbang-sbrndd, wl srt, lse

2510 - 2526 m MD (2508.9 - 2524.9 m TVD) RKB

Sandstones and Claystones with minor Limestones

Sandstones: lt brn gry-lt olv gry-gn gry, pred clr-trnsl Qtz, occ mky wh Qtz, f-m, sbang-sbrndd, occ ang, wl srt, fri, arg, calc, glauc-v glauc, Tr carb Frag, Tr micromic, r micropyr

Claystones: lt gry-m lt gry, sbblky, sft-frm, occ slty, pred glauc, occ abd glauc, micromic-mic

Limestones: wh-lt gry, sbblky, sft-frm, occ arg lam, occ micromic lam, microxln, I.P. v glauc

2526 - 2556 m MD (2524.9 - 2554.9 m TVD) RKB

Sandstones with minor Claystones and Limestones

Sandstones: lt brn gry-lt olv gry-m lt gry, clr-trnsl, occ mky wh Qtz Gr, f-occ v crs, pred f-crs, sbang-sbrndd, mod-pr srt, fri, arg, calc cmt, I.P. v glauc, pred slily glauc, Tr carb Frag, Tr micromic, r Pyr

Claystones: m lt gry-m dk gry, amor-sbblky, sft-occ frm, slty, sdy, Tr Glauc, Tr micromic, Tr carb Frag

Limestones: v lt gry-pk gry, sbblky, sft-frm, occ arg, I.P. glauc, microxln

2556 - 2568 m MD (2554.9 - 2566.9 m TVD) RKB

Sandstones with minor Claystones and Limestones

Sandstones: pred mky wh Qtz, pred m-crs, occ f, occ v crs, sbrndd-rndd, pr-mod srt, fri, non-slily arg, non-slily calc cmt, Tr Glauc, Tr carb Frag
Claystones: m lt gry-m dk gry, amor-sbblky, sft-occ frm, slty, sdy, Tr Glauc, Tr micromic, Tr carb Frag
Limestones: v lt gry-pk gry, sbblky, sft-frm, occ arg, I.P. glauc, microxln

2568 - 2616 m MD (2566.9 - 2614.9 m TVD) RKB
Sandstones with minor Claystones and Limestones

Sandstones: pred mky Qtz, f-crs, occ v crs, pred f-m, pr srt, sbrndd-rndd, occ sbang, fri, non-slily arg, non-slily calc cmt, Tr Glauc, Tr carb Frag
Claystones: lt olv gry-gn gry, amor, sft, slty, sdy, calc, v glauc
Limestones: v lt gry-pk gry, sbblky, sft-frm, occ arg, I.P. glauc, microxln

2616 - 2631 m MD (2614.9 - 2629.9 m TVD) RKB
Sandstones with minor Claystones and Limestones

Sandstones: lt olv gry-gn gry, clr-trnsl-occ pl yel or Qtz, f-crs, pred crs, r v crs, sbang-sbrndd, mod srt, fri, non-slily arg, glauc, r carb Frag
Claystones: mod brn-dk gry, blky, frm, non calc
Limestones: wh-clr, blky, frm-mod hd, microxln

2631 - 2700 m MD (2629.9 - 2698.9 m TVD) RKB
Claystones with minor Sandstones and Stringers of Limestones

Claystones: pred m dk gry-olv gry, occ pl yel brn, dk gn gry and v lt gry-lt gry, r mod brn-gry brn, sft-frm, slty, micromic, r glauc, slily calc
Sandstones: lt olv gry-gn gry, clr-trnsl, lse, f-m, occ crs, mod srt, sbang-sbrndd, arg
Limestones: wh-v lt gry, blky, frm, microxln

4.4.2 Åsgard Formation 2700 - 2928 m MD (2698.9 - 2926.8 m TVD) RKB

2700 - 2765 m MD (2698.9 - 2763.9 m TVD) RKB
Claystones with minor Sandstones and Stringers of Limestones

Claystones: pred m dk gry-olv gry, occ pl yel brn, dk gn gry and v lt gry-lt gry, r mod brn-gry brn, sft-frm, slty, micromic, r glauc, slily calc
Sandstones: lt olv gry-gn gry, clr-trnsl, lse, f-m, occ crs, sbang-sbrndd, mod srt, arg
Limestones: wh-v lt gry, blky, frm, microxln

2765 - 2824 m MD (2763.9 - 2822.8 m TVD) RKB
Claystones and Sandstones with Stringers of Limestones

Claystones: pred m dk gry-olv gry, Tr mod brn-gry brn and v pl or-pl yel brn, sft-frm, blky-sbblky, slty, micromic, abd glauc, calc, r micropyr

Sandstones: lt gry-m gry, clr-trnsl-dusky clr Qtz, f-m, occ crs, sbang-sbrndd, pr-mod srt, fri-pred lse Qtz Gr, slily calc cmt, arg

Limestones: wh-v lt gry, sbblky-blky, sft-occ frm, occ arg, r micromic, microxln

2824 - 2908 m MD (2822.8 - 2906.8 m TVD) RKB
Claystones and Sandstones with Stringers of Limestones

Claystones: m gry-m dk gry, lt brn gry-pl brn, sft-frm, slty-occ grad Sltst, non calc-calc, mica, carb, Tr glauc

Sandstones: lt gry-m gry, clr-trnsl-mky wh Qtz, f-crs, r v crs, sbang-sbrndd, pr-mod srt, sft-fri, calc-v calc cmt, slty, occ arg, Tr Glauc,Tr Mica, Tr carb Frag, abd Pyr

Limestones: wh-v lt gry, occ clr-trnsl, sbblky, sft, occ arg, micromic lam microxln

2908 - 2928 m MD (2906.8 - 2926.8 m TVD) RKB
Siltstones with minor Sandstones and Limestones

Siltstones: lt gry-m lt gry, occ pl brn-lt brn gry, r m dk gry-m gry, sbblky, sft-frm, slily calc, arg, mica, Tr carb Frag-r carb Frag, occ v f sdy, Tr Pyr

Sandstones: lt gry-m gry, clr-trnsl-mky wh Qtz, pred f, ang-sbang, occ sbrndd, wl srt, sft-fri, calc-v calc cmt, slty, occ arg, Tr Glauc, Tr MIca, Tr carb Frag, abd Pyr

Limestones: pl yel or-v pl or, v lt gry-lt gry, sbblky-blky, sft-frm, occ slily arg, occ v f sdy, occ Tr v f carb Frag

4.5 Viking Group 2928 - 2948 m MD (2926.8 - 2946.8 m TVD) RKB

4.5.1 Heather Formation 2928-2948 m MD (2926.8 - 2946.8 m TVD) RKB

2928-2948 m MD (2926.8 - 2946.8 m TVD) RKB
Siltstones with minor Sandstones and Limestones

Siltstones: lt gry-m lt gry, occ pl brn-lt brn gry, r m dk gry-m gry, sbblky, sft-frm, slily calc, arg, mica, Tr carb Frag-r carb Frag, occ v f sdy, Tr Pyr

Sandstones: lt gry-m gry, clr-trnsl-mky wh Qtz, pred f, wl srt, ang-sbang, occ sbrndd, sft-fri, calc-v calc cmt, slty, occ arg, Tr Glauc, Tr Mica, Tr carb Frag, abd Pyr

Limestones: wh-v lt gry, sbblky-blky, sft-frm, occ slily arg, occ v f sdy, occ Tr v f carb Frag

5 Hydrocarbon shows

The evaluation of hydrocarbon shows at the wellsite was carried out in a conventional manner.A standard (Geoservice) 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 577m down to the TD of the well.

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

5.1 Gas Record

373 - 577m: This interval was drilled with returns to sea bed.

577 - 2948m. The gas record was made by the Reserval system providing C_1 to C_5 breakdown.

The gas summary for the well is presented in the Gas Ratio Log in Section C of the Final Well Report.

5.2 Oil stain and Fluorescence

No oil stain was observed in the ditch cuttings for this well.On a high percentage quartz grains from Rødby sand (C3-prospect) direct fluorescence was observed, but no cut or residual fluorescence was observed neither from agregates nor individual grains. This phenomena was investigated closer by the Norsk Hydro Research Centre and described in report "Geochemical Characterization, Well 36/7-3". April 2002. NH-00047857.

6 Coring

6.1 Conventional Cores

No cores were cut in this well.

6.2 Sidewall Cores

No sidewall cores was cut in this well.

7 Logging

7.1 MWD Logs

A MWD service (Schlumberger Drilling and Measurement, Anadrill) yielding gamma ray, resistivity, neutron density, sonic and survey measurements was run as listed in the table below. The RAB tool yields Resistivity At Bit and near bit gamma ray readings.

Run #	Section	Sensors	Drilled from	Drilled to	Logged from	Logged to	Comments
1	36"	Power pulse	373	445			Directional only
2	26"	Power pulse	445	577			Directional only
3	17 1/2"	CDR/Power pulse	577	1355	558	1339	
4	12 1/4"	CDR/ADN/ISONIC/ Power pulse	1355	2099	1355	2099	POOH for bit change
5	12 1/4"	CDR/ADN/ISONIC/ Power pulse	2099	2357	2099	2357	Reached section TD
6	8 1/2"	CDR/ADN/ISONIC/ Power pulse	2357	2823	2357	2823	POOH for bit change
7	8 1/2"	CDR/ADN/ISONIC/ Power pulse	2823	2948	2823	2948	Reached well TD

Table 7.1.1: MWD logging sequence

Detailed MWD results can be found in the report "End of Well Report, MWD, for Norsk Hydro, Well 36/7-3"

7.2 Wireline Logs

No wireline logs were run for well 36/7-3.

7.3 Velocity Surveys

No VSP was collected for well 36/7-3.

7.4 Bottom Hole Temperatures

As no wireline logs were run for well 36/7-3, no Horner plot could be made to determine the static bottom hole temperature. The maximum temperature recorded inside the MWD tool was 52 degrees Celsius at 2948 m TVD.

8 Petrophysical Evaluation

8.1 Log data

The logs run in well 36/7-3 are listed in table 8.1.1 below.

Run no.	Logging Tool	Interval (m MD RKB)	Bit Size (inches)	Date
	36/7-3			
1	**None**	**349 - 445**	**36**	
2	**None (MWD only)**	**445 - 571**	**26**	
	LWD LOGS			
3	**CDR/GR**	**571 - 1355**	**17.5**	**16 - 19/12/01**
4	**GVR/CDN/ISONIC**	**1348 - 2099**	**12.25**	**20 - 22/12/01**
5	**GVR/CDN/ISONIC**	**2099 - 2357**	**12.25**	**23 - 25/12/01**
6	**GVR/ADN/ISONIC**	**2357 - 2823**	**8.5**	**28 - 29/12/01**
7	**GVR/ADN/ISONIC**	**2823 - 2948**	**8.5**	**29 - 30/12/01**
	WIRELINE LOGS			
	None			

Table 8.1.1: Logs run in 36/7-3

8.2 Log Quality

The 12.25" hole section was drilled using 1.2 s.g. Glydrill KCl water based mud. The 8.5" section was drilled using 1.17 s.g. Glydrill KCl water based mud.

The log quality is generally good though the GR and the GVR resistivities are occasionally noisy. The 36/7-3 logs are shown in *figs.8.4.1, 8.4.2 and 8.4.3.* The GR log data has been corrected for bit size and mud weight. Overall, the GR is affected by the potassium in the mud resulting in GR readings which are unusually high but valid.

The density log has been corrected for stand-off and the neutron log corrected for bit size, mud weight, pressure, temperature and salinity. The ISONIC derived compressional slowness data are of good quality. The Geovision resistivity tool (GVR8) tool provided 5 resistivity measurements, a ring resistivity, a bit resistivity and 3 button resistivities. All 5 resistivity measurements are laterlog type measurements. The resistivity logs were borehole corrected but not invasion corrected. These corrections have been carried out by Schlumberger as part of the logging process. The log responses of the ring resistivity and the 3 button resistivities are largely identical. However for reasons unknown, the bit resistivity reads very low and does not provide a valid formation resistivity measurement. The medium depth of investigation button resistivity has been used for water saturation calculation purposes.

The composite log for 36/7-3 was constructed using the data over the depth intervals listed in *table 8.2.1.*

Curve Name in Composite Log	Curve Type	Input Curve Source for Composite Log	Interval (m MD RKB)
GR	GAMMA	36/7-3 GR_CDR (CDR/GR) GR_RAB (GVR/CDN/ISONIC) GR_RAB (GVR/CDN/ISONIC) GR_RAB (GVR/ADN/ISONIC) GR_RAB (GVR/ADN/ISONIC)	 572 - 1336 1349 - 2082 2082 - 2348 2348 - 2820 2820 - 2950
DEPRES	DEPRES	ATR (CDR/GR) RES_BD (GVR) resampled 0.03048 to 0.1524 RES_BD (GVR) resampled 0.03048 to 0.1524	572 - 1340 1356 - 2348 2360 - 2948
MEDRES	MEDRES	PSR (CDR/GR) RES_BM (GVR) resampled 0.03048 to 0.1524 RES_BM (GVR) resampled 0.03048 to 0.1524	572 - 1340 1356 - 2348 2360 - 2948
SHARES	SHARES	RES_BS (GVR) resampled 0.03048 to 0.1524 RES_BS (GVR) resampled 0.03048 to 0.1524	1356 - 2348 2360 - 2948
RHOB	DENS	RHOB (GVR/CDN) RHOB (GVR/CDN) RHOB (GVR/ADN)	1356 - 1910 1910 - 2325 2360 - 2925
DRHO	DENCOR	DHRO (GVR/CDN) DHRO (GVR/CDN) DHRO (GVR/ADN)	1356 - 1910 1910 - 2325 2360 - 2925
PEF	PEF	PEF (GVR/CDN) PEF (GVR/CDN) PEF (GVR/ADN)	1356 - 1910 1910 - 2325 2360 - 2925
TNPH	NEUT	TNPH (GVR/CDN) TNPH (GVR/CDN) TNPH (GVR/ADN)	1356 - 1910 1910 - 2323 2360 - 2923.85
DTCO	SONIC	DTBC (ISONIC) DTBC (ISONIC) DTBC (ISONIC)	1348 - 2330 2330 - 2805 2805 - 2930
CALI	CALI	HORD (ADN) HORD (ADN)	2391 - 2820 2820 - 2950

Table 8.2.1: Well 36/7-3, data used to construct the Composite Log

8.3 Core Data

No core was cut in this well.

8.4 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 1725 - 2025 m MD RKB which incorporates the Kyrre Formation and the interval 2500 - 2700 m MD RKB which includes the Rødby, Agat and Sola Formations. The relevant logs are shown in *figs. 8.4.1, 8.4.2 and 8.4.3*. The Kyrre and Rødby Formations were the primary targets for this exploration well.

The evaluation has been performed using the RECALL program and the values assigned to various computational parameters are listed in *table 8.4.1.*

Parameter	Symbol	Value	Unit
Formation temperature	T	90.0 at 2300 m TVD MSL (2325.11 m RKB) temp gradient = 0.033	deg C degC/100 m
invaded zone fluid density	ρ_{fl}	1,010	g/cc
formation water resistivity	R_w	0.121 at 90 deg C (Kyrre Formation) 0.085 at 90 degC (Rødby)	ohm.m
shale resistivity	R_{sh}	1725 - 2025 m MD 7.0 2025 - 2700 m MD 6.0	ohm.m
matrix density	ρ_{ma}	2,65	g/cc
shale density	ρ_{sh}	2,55	g/cc
shale neutron porosity	$NPHI_{sh}$	1725 - 2025 m MD 0.22 2025 - 2700 m MD 0.31	fraction
matrix neutron porosity	$NPHI_{ma}$	-0,02	fraction
fluid neutron porosity	$NPHI_{fl}$	1,0	fraction
gamma ray minimum	GR_{sand}	1725 - 2500 m MD not used 2500 - 2700 m MD 55	GAPI
gamma ray maximum	GR_{sh}	1725 - 2500 m MD not used 2500 - 2700 m MD 130	GAPI
Archie constant	*a*	1	-
Archie m exponent	*m*	2,0	-
Archie n exponent	*n*	2,0	-

Table 8.4.1: Well 36/7-3, Summary of petrophysical Parameter Values

Lithology

Significant quantities of mica and feldspar are often found in shaly sandstones and the influence of these minerals on logging tool responses 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. The linear GR equation has been applied. The end point values used for the shale volume computation from GR and density-neutron logs are listed in *table 8.4.1.*

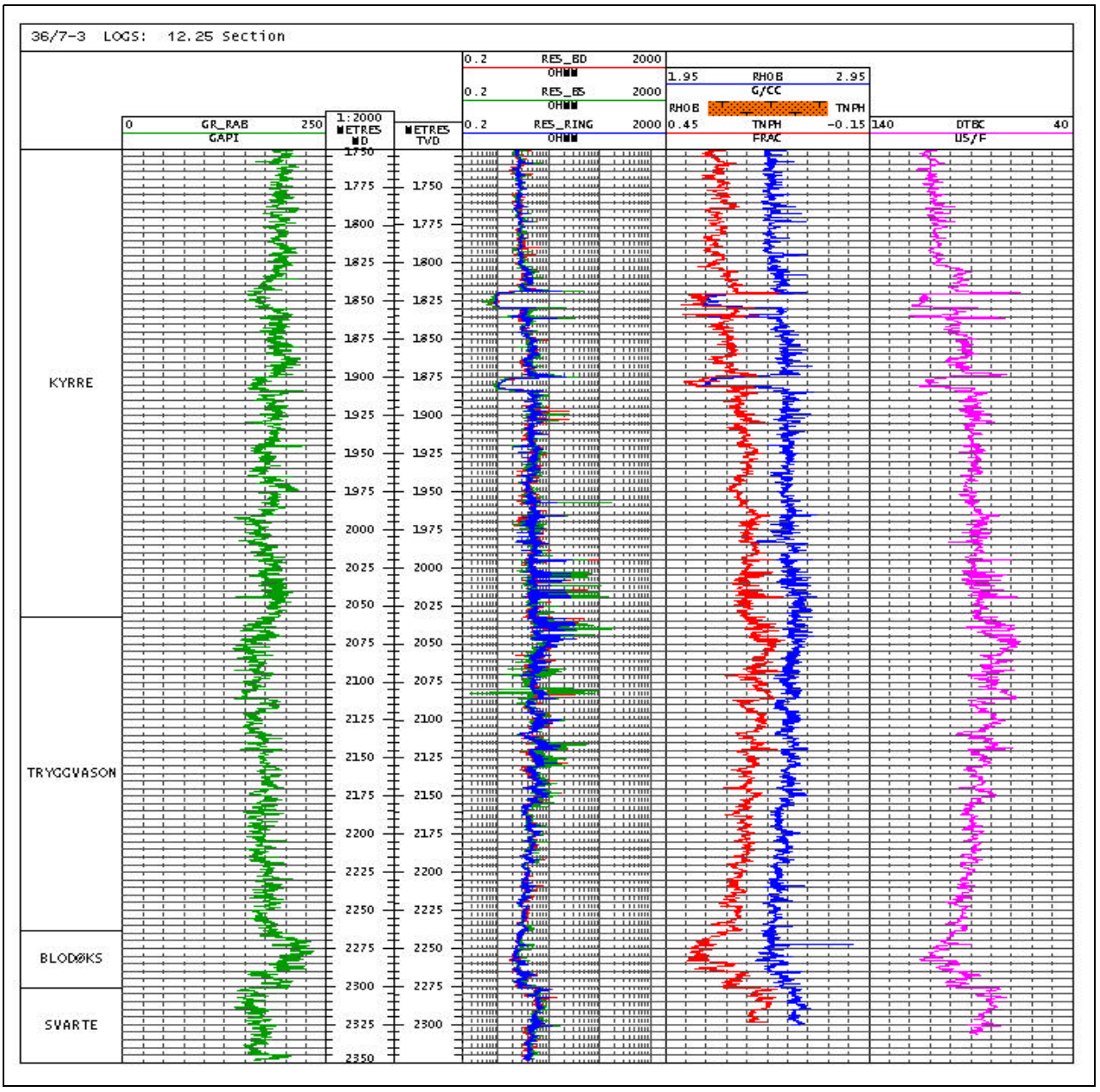


Fig.: 8.4.1: Logs over the Interval 1750 - 2350 m RKB

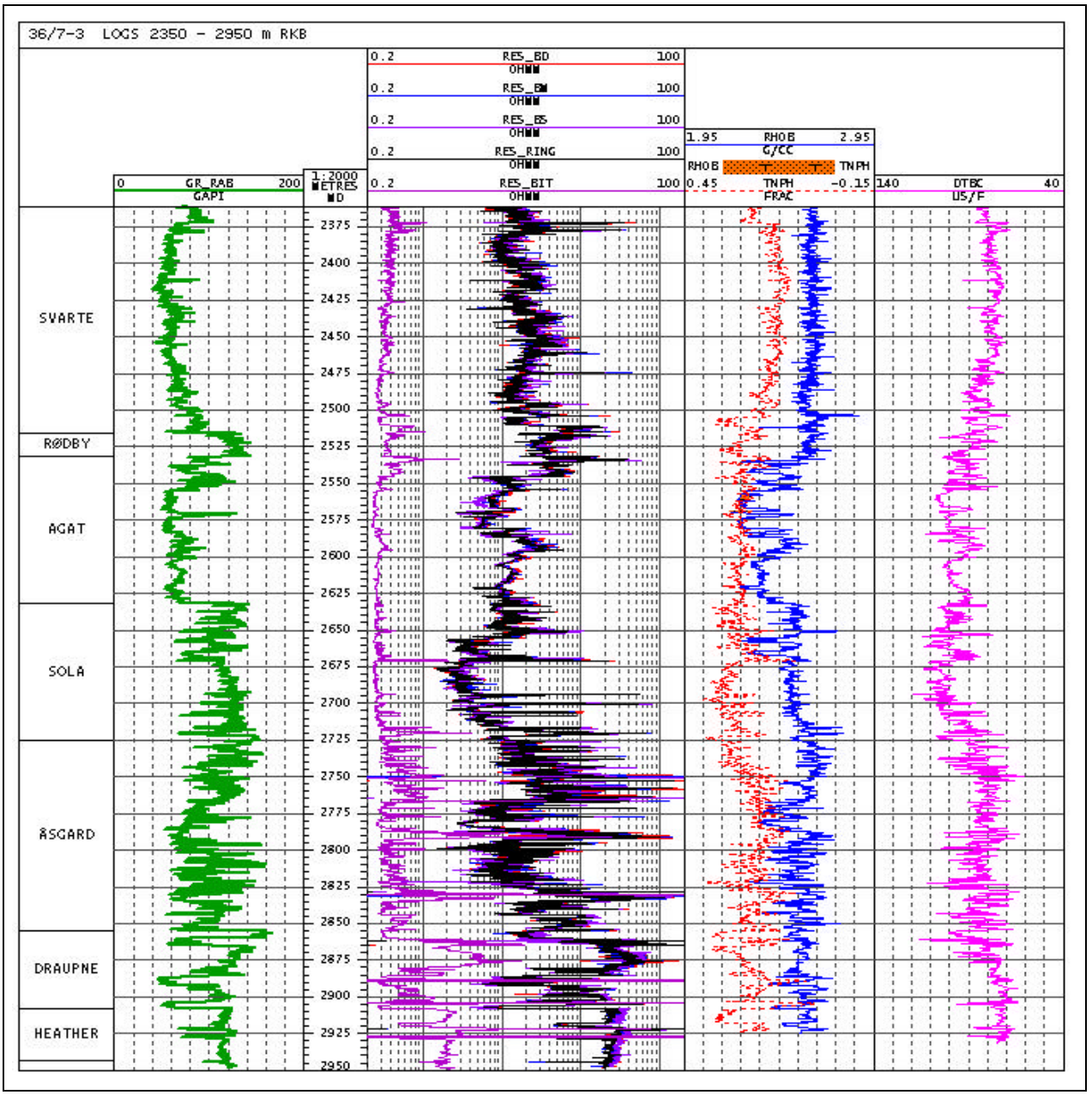


Fig.: 8.4.2: Logs over the Interval 2350 - 2950 m RKB

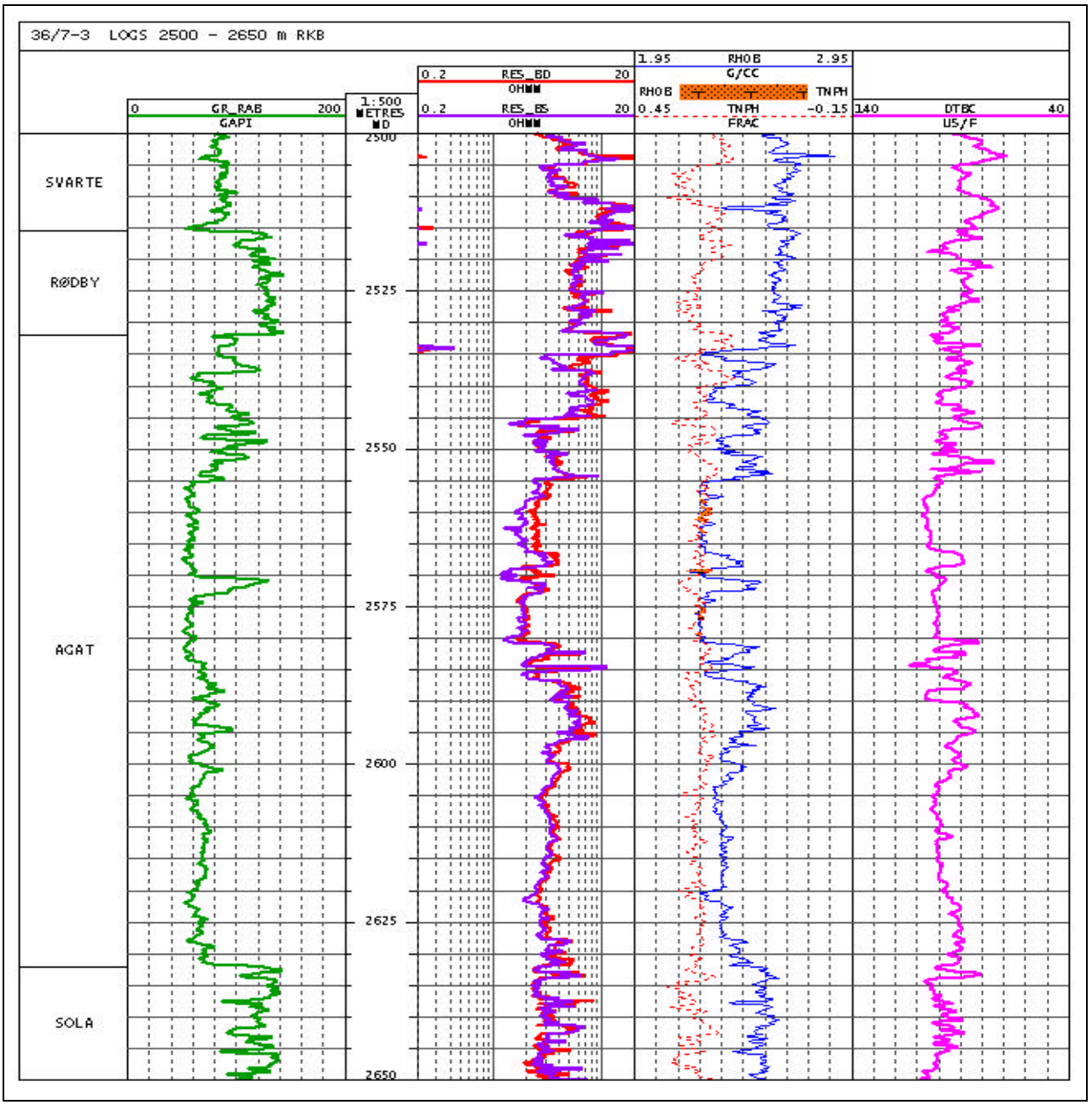


Fig.: 8.4.3: Logs over the Interval 2500 - 2650 m RKB

Porosity

The water in the invaded zone is a mixture of formation water and water based mud filtrate. The relative fractions of these two waters encountered by the density tools depends largely on the extent of filtrate invasion at the time of LWD logging. The KCl mud salinity is quoted as 164,000 ppm KCl. Assuming a mud filtrate salinity of 140,000 ppm KCl, then from correlations the mud filtrate density is calculated as 1.07 g/cc at 90 degC and 380 bar. Formation water density for the both the Kyrre and Agat formation is estimated to be 1.00 g/cc. An invaded zone water density at the time of logging of 1.01 g/cc has been used to calculate porosity from the density logs. This assumes that very little invasion into the region sensed by the density tools had occurred at the time of LWD logging.

The total porosity was calculated from the density log without use of a hydrocarbon correction.

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

$$\phi_t = \frac{\rho_{ma} - \rho_{log}}{\rho_{ma} - \rho_{fl}}$$

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

$$\phi_e = \phi_t - \phi_{sh.} V_{sh}$$

where $\phi_{sh} = (\rho_{dsh} - \rho_{sh}) / (\rho_{dsh} - \rho_w)$

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

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 GVR8 medium button resistivity (RES_BM) chosen from the set of 3 button resistivity curves. Over the reservoir intervals, there is little or no separation between the different button (deep, medium and shallow) resistivity curves or the ring resistivity.

Formation water resistivity is one of the prominent unknowns in this well. Based on regional water resistivity data and apparent water resistivity indications, water salinities of 20,000 and 31,000 ppm

NaCl were used for the Kyrre and Agat/Rødby formations respectively. These correspond to formation water resistivities of 0.121 ohm.m at 90 degC for the Kyrre Formation and 0.085 ohm.m at 90 degC for the Agata Formation.

A formation temperature gradient of 0.03 degC/100 m TVD is assumed over the interpreted intervals.

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's are shown in *figs. 8.6.1, 8.6.2 and 8.6.3*.

Net Reservoir

In the Kyrre and Rødby formations, net reservoir and net pay cutoff criteria have been defined using the effective porosity, shale volume and effective water saturation. The preferred cutoff limits in both formations are 12% PHIE and 40% V_{sh} for net sand designation and 12% PHIE and 40% V_{sh} with 50% effective water saturation for net pay.

Kyrre - Rødby cutoff limits
net sand: $\phi_e = 0.12$ and $V_{sh} = 0.40$
net pay : $\phi_e = 0.12$, $V_{sh} = 0.40$ and $S_{we} = 0.50$

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

8.5 MDT Data Analysis

No wireline formation tester operations were conducted in this well.

8.6 Petrophysical Results and Discussion

The preferred log interpretations are shown in figs*. 8.6.1, 8.6.2 and 8.6.3.* The reservoir zonation and log derived petrophysical averages are presented in *table 8.6.1.*

The petrophysical analysis indicates hydrocarbon bearing rock in the Agat Formation. Some significant separation between the deep and shallow button resistivties is apparent in the interval 2535 - 2570 m RKB. An upward resistivity trend, characteristic of transition zones in hydrocarbon bearing rocks is apparent in the Agat Formation. However there are significant uncertainties associated with the water saturation calculations and the presence of mobile or residual hydrocarbons cannot be reliably inferred on the basis of resistivity log data alone. Other supporting data are required.

No formation tester data are available to confirm the presence of mobile hydrocarbons and no oil shows are apparent from the drill cuttings. The button and ring resistivities are laterlog type measurements which are prone to read high in 100% water filled rock.

On the basis of the currently available data, about 2 m of net pay are interpreted in the interval 2530 - 2545 m RKB (Rødby-Agat formations). The analysis also indicates hydrocarbons in the interval 2555 - 2570 m RKB and if real are likely to be residual hydrocarbons. Currently it is not clear in which phase (gas or oil) these hydrocarbons are present

About 15 m of net sand is interpreted in the Kyrre 3 zone with an average porosity of about 26%. About 68 m of net sand is apparent in the Agat Formation with an average porosity of about 19%.

36/7-3 ZONE	INTERVAL m RKB MD	GROSS m RKB MD	NET SAND cutoff : PHIE = 0.12, VSH=0.40				NET PAY : as net sand + Swe =0.50			
			NET m RKB	N/G (m RKB) fraction	PHIE fraction	SWE fraction	NET m RKB	N/G (m RKB) fraction	PHIE fraction	SWE fraction
KYRRE 1	1552.0 - 1756.0	204	0	0	-	-	0	-	-	-
KYRRE 2	1756.0 - 1828.0	72	0	0	-	-	0	-	-	-
KYRRE 3	1828.0 - 2057.5	229,5	15,39	0,07	0,26	0,96	0,61	0	0,19	0,42
TRYGGVASON	2057.5 - 2263.5	206	0	0	-	-	0	-	-	-
BLODØKS	2263.5 - 2301.0	37,5	0	0	-	-	0	-	-	-
SVARTE	2301.0 - 2515.5	214,5	0,61	0	0,15	0,47	0,46	0	0,15	0,45
RØDBY	2515.5 - 2532.0	16,5	0	0	-	-	0	-	-	-
AGAT	2532.0 - 2632.0	100	68,12	0,68	0,19	0,95	1,83	0,02	0,15	0,45
SOLA	2632.0 - 2725.5	93,5	5,33	0,06	0,18	0,99	0	-	-	-
ÅSGARD	2725.5 - 2854.5	129	10,06	0,08	0,15	0,96	0	-	-	-
DRAUPNE	2854.5 - 2908.0	53,5	2,13	0,04	0,13	1	0	-	-	-
TOTAL	1552.0 - 2908.0	1 356	101,6	0,07	0,26	0,71	2,9	4,11	0,16	0,44

Table 8.6.1: Reservoir zonation, well 36/7-3

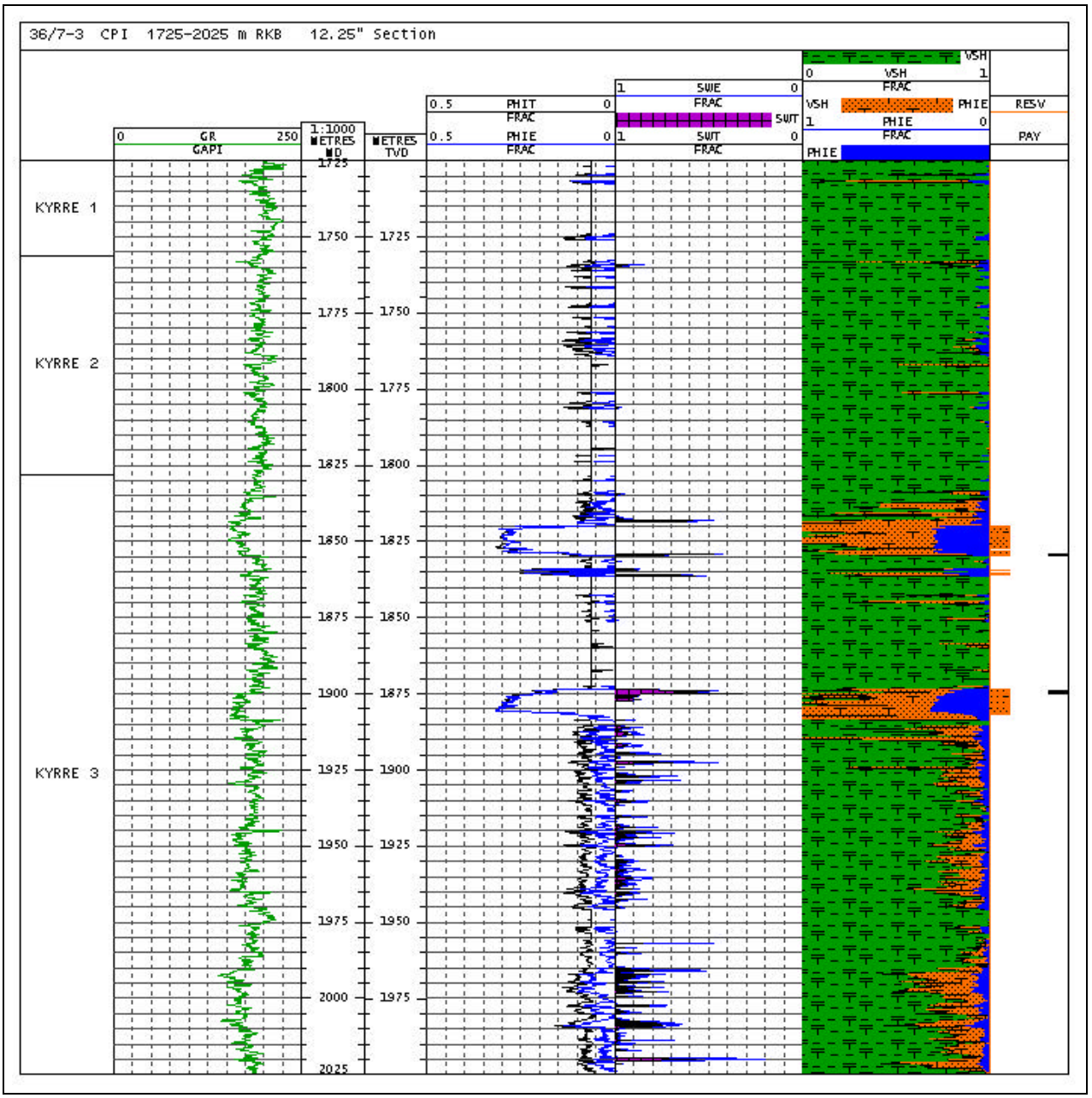


Fig.: 8.6.1: CPI over the Interval 1725 - 2025 m RKB

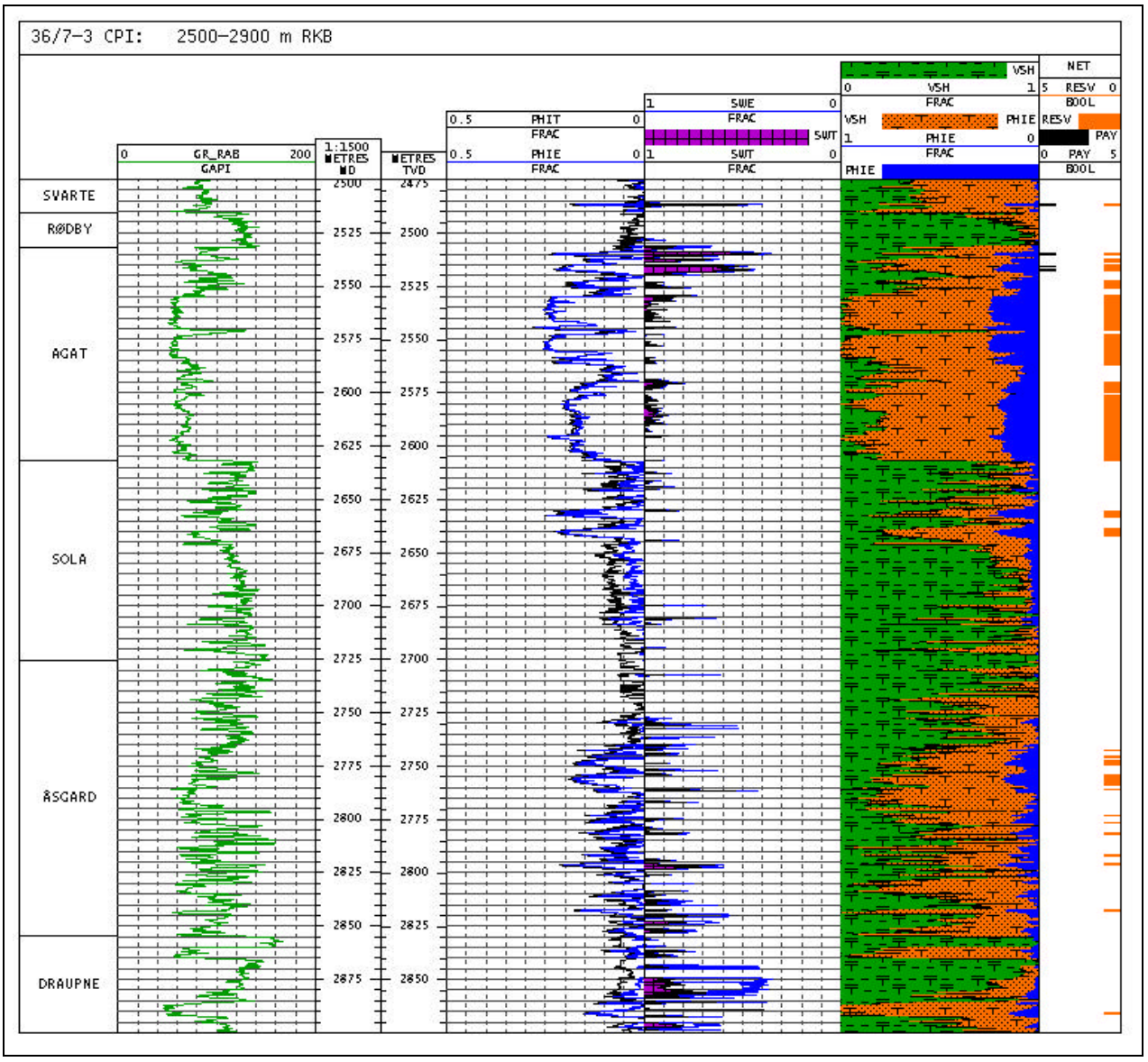


Fig.: 8.6.2: CPI over the Interval 2500 - 2900 m RKB

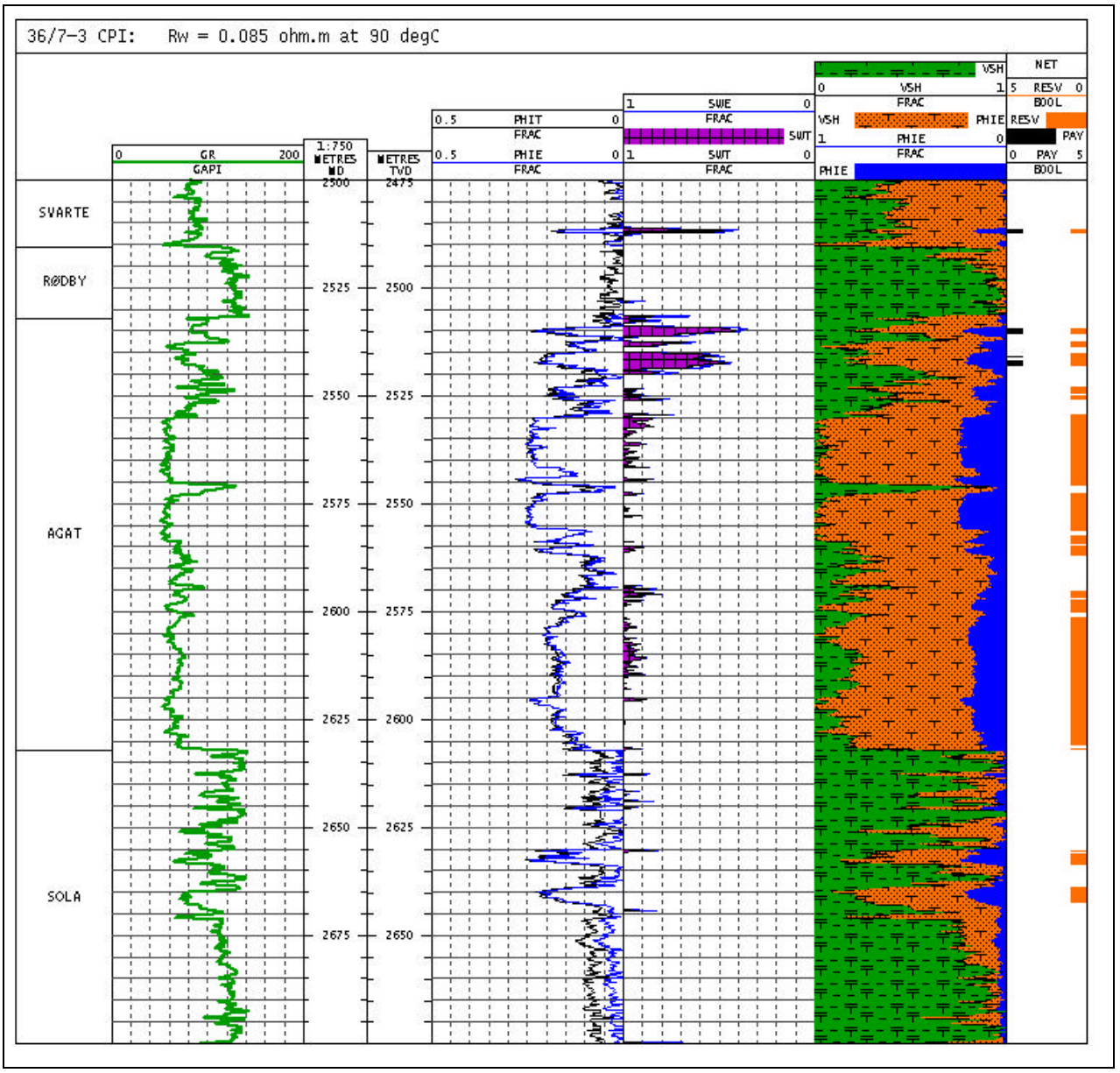


Fig.: 8.6.3: CPI over the Interval 2500 - 2700 m RKB

9 Estimated Pore Pressure, Fracture, Overburden and Temperature Gradients

The pore pressure-, fracture -, and overburden gradients are presented graphically in *figure 8.1.* All depths are in meters true vertical depth TVD, relative to rotary table. Air gap 23 m and water depth 372 m RKB. The pore pressure-, fracture -, and overburden gradient are given in Equivalent Mud Density, g/cm^3 or sg.The pore pressure prognosis was based predominantly on the wells 35/9-1, -2 and -3 and 36/7-1 and 35/4-1.
Shallow gas was observed at one, possibly two depths. The most certain shallow gas zone was at 699m to 701m. The second zone at 1117m to 1122m is more uncertain as it could have been a result of lithological effects.
We drilled through a possibly fresh water (or low saline) bearing sand in Lista. The pressure of this sand is unknown but it was stable using 1,20sg mud. It might be connected to the slightly overpressured Lista sands experienced in 35/9-4SX.
The transition between the Quaterny and Tertiary is missing on MWD-logs due to MWD-failure. This was a zone were possibly a minor pore pressure build-up could have present due to trapping of water or gas below the overcompacted lower Quaterny shales.
The pore pressure is interpreted as generally hydrostatic from seabed to 1500m where a slight pore pressure increase was interpreted, based on resistivity data, reaching 1,10sg at 1840m. From 1840m a rapid decrease in pore pressure was intepreted back to 1,03sg at 1842m due to ventilation of pressure through the Kyrre sands. Pore pressure seems to increase again from just below the Tryggvason formation reaching 1,10sg at 2150m. It stays at 1,10sg until just above the C3 prospect were we interpreted the pressure to drop towards hydrostatic due to lack of any significant hydrocarbon column and possibly ventilation of pressure updip.
We have no indication of increased pore pressure in the remaining of the Creataceous nor in the top of the Heather down to TD. Many internal sand layers have most likely acted as pressure ventilators updip below 2500m.
The fracture gradient is based on the assumed rock mechanical properties to each stratigraphic layer (Daines (1982)), Eckels & van Breckelen and adjusted to leak off tests taken in this well and corrected for the losses in the Kyrre formation. Three LOT's was performed. The upper (at 571m) was higher then expected, most likely due to glacial overcompaction. It falls just below the calculated overburden gradient, indicating abnormal fracture gradient due to overcompaction. The two lower LOT's (at 1358m and 2360m) was both only sligthly higher than minimum expected fracture gradient and well within the range of previous LOT's taken in the area.
Sligth losses was experienced at 1996m. At 2099m, during a connection in the Tryggvason formation, total mud-losses was observed with 1,20sg mud (ECD theoretically at 1,23sg, actual ECD not known). Slight, but decreasing, static losses was measured on the Trip Tank. Regained circulation at slow pump rates. Pumped LCM and regained circulation at full rates. Cut back mudweigth to 1,17sg and experienced no further losses. Tight hole was encountered at 1305m when RIH with 13 3/82 casing. Tight hole was also encountered between 1355m and 1900m when running in hole with 12 1/4" bit. Else the hole was in good shape.
In the prognosis a reduced fracture gradient was indicated between 1800m to 2100m, but the formation should be competent to hold an ECD of up to 1,31sg. This new information indicates that the Kyrre formation should be drilled with 1,17sg and that care should be taken during connection (especially reduced running speed and stepwise increase in flowrate when starting pumps).

No further hole problems was encountered.

9.1 Overburden gradient

Overburden gradient is based on density log readings from 1293m to TD and standard formation weights above. The theoretical trend and density log readings overlapped quite well giving an overburden gradient slightly higher than prognosed.

9.2 Temperature gradient

The temperature gradient (*fig 8.2*) is based on regional data. The MWD-temperatures is presented although they only represents the mud temperature during the last circulation of every bitrun. An average formation temperature gradient of 4.12^0 C / 100m TVD gives a static bottom hole temperature of $111,6^0$ C, assuming 4^0C at seafloor.

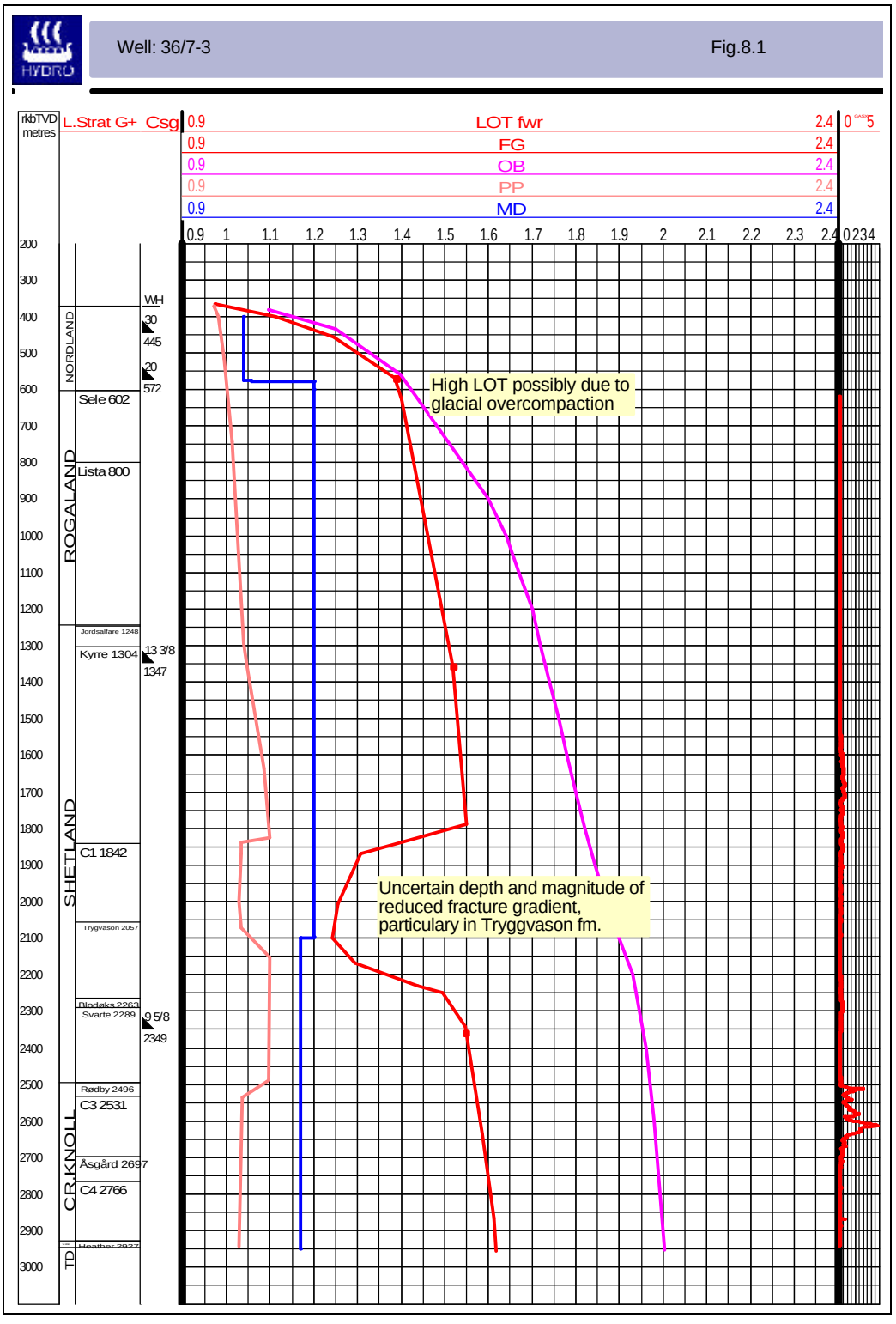


Figure 9.1.1.: Pore Pressure-, Fracture- and Overburden gradients with LOT

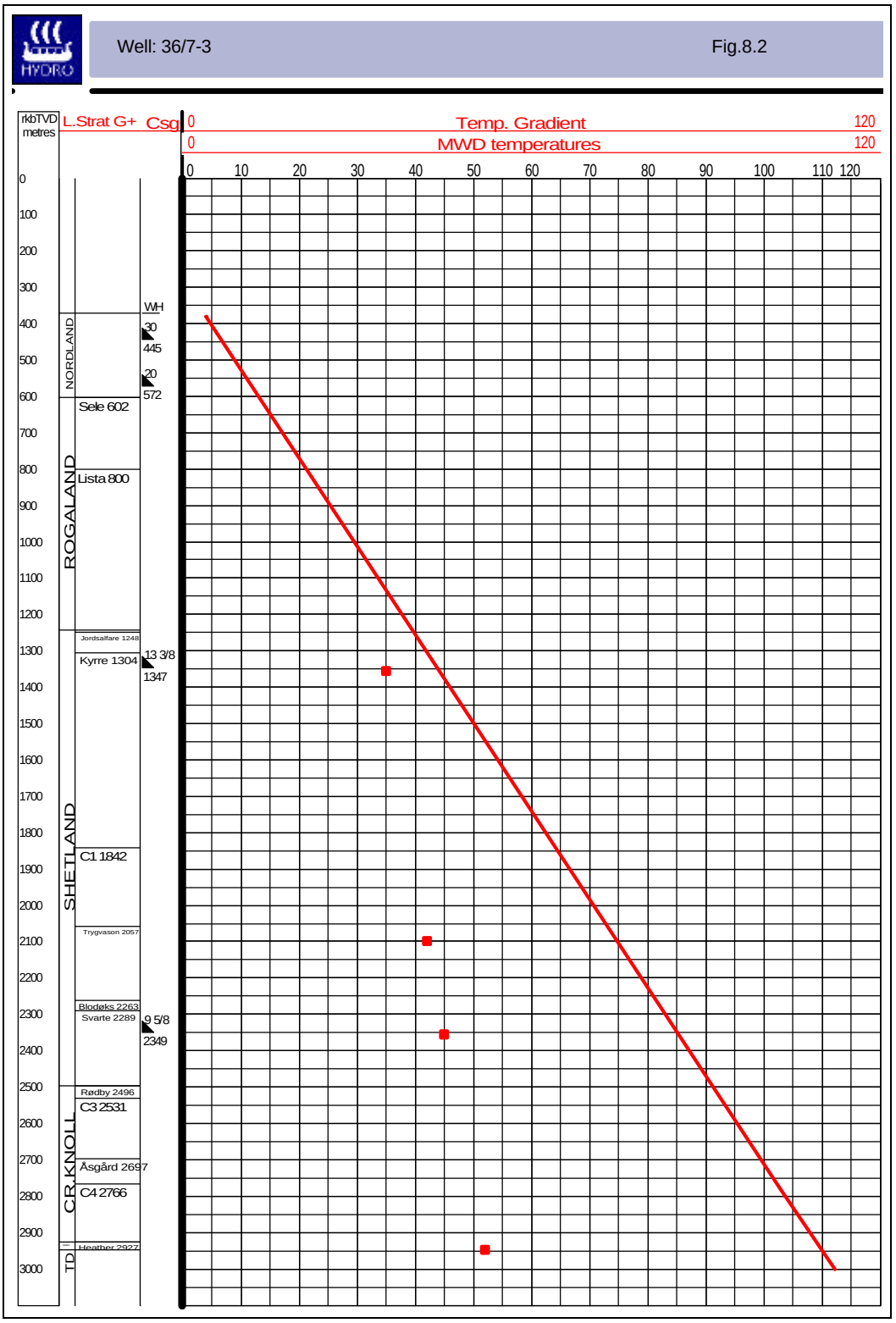


Figure 9.2.1: Temperature gradient

10 Geophysical Results

The actual depths are generally shallower than prognosed, but within the uncertainty range (*Table 9.1*). This is due to error in the velocity estimates from the seismic, that was used in the depth conversion.

The Top Rødby Formation was encountered 48 m deeper than prognosed and this was due to a seismic pick error. Top Rødby is a relatively weak seismic signal and in a well tie to 35/9-3 T2, the thinning of the Rødby sequence above the Agat Formation towards 36/7-3, was not foreseen. Synthetic seismogrammes for well 36/7-2 are shown in *Figures 9.1* and *9.2*, with well tie to the survey nh9805m99.

Wireline logs or VPS were not used to calibrate time-depth in the well, as these were not run.

	DEPTH (mMSL)		ERROR (m)	
	Prognosis	Actual	Prognosis	Actual
T Kyrre sand (TC1)	1838	1819	+/- 58	- 19
B Kyrre sand (BC1)	1900	1884	+/- 60	- 14
T Svarte Fm	2314	2277	+/- 89	- 37
T Rødby Fm	2443	2491	+/- 105	+ 48
T Agat Fm (TC3)	2496	2508	+/- 108	+ 12
T Sola Fm (BC3)	2663	2608	+/- 108	- 55
T Åsgard Fm	2709	2701	+/- 120	- 8
T Åsgard sand (TC4)	2813	2743	+/- 120	- 70
T Heather/Fensfjod Fms	2930	2884	+/- 131	- 46

Table 10.1: Geophysical Summary

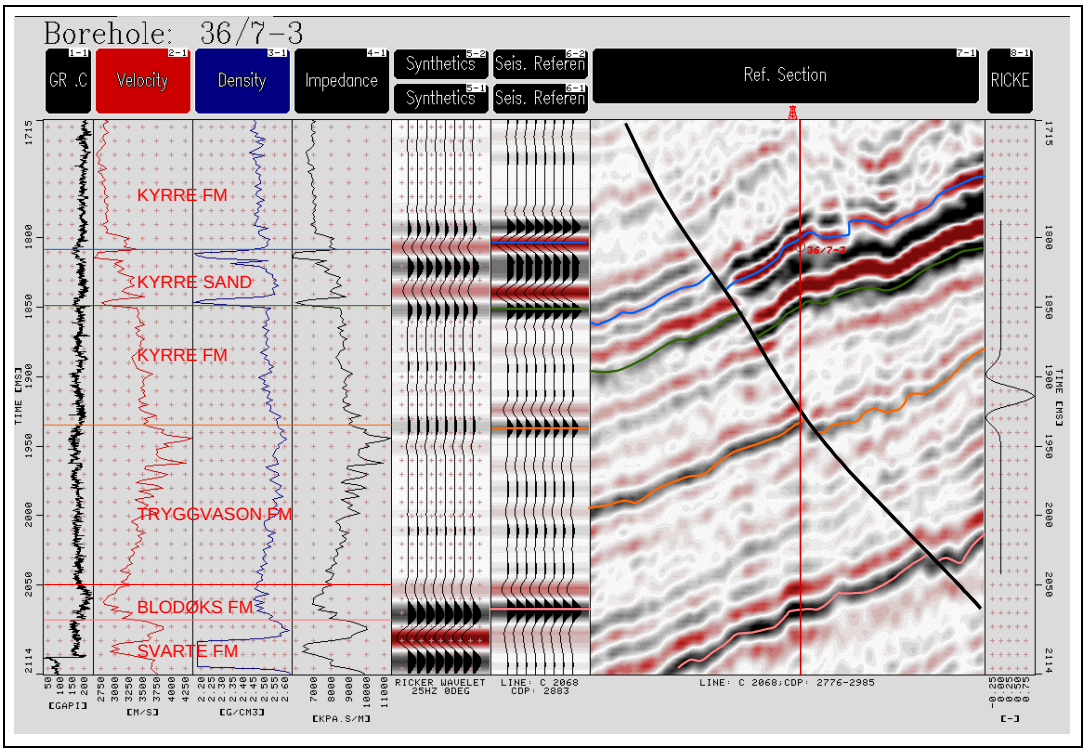


Figure 10.1: Upper Cretaceous seismic tie to well 36/7-2

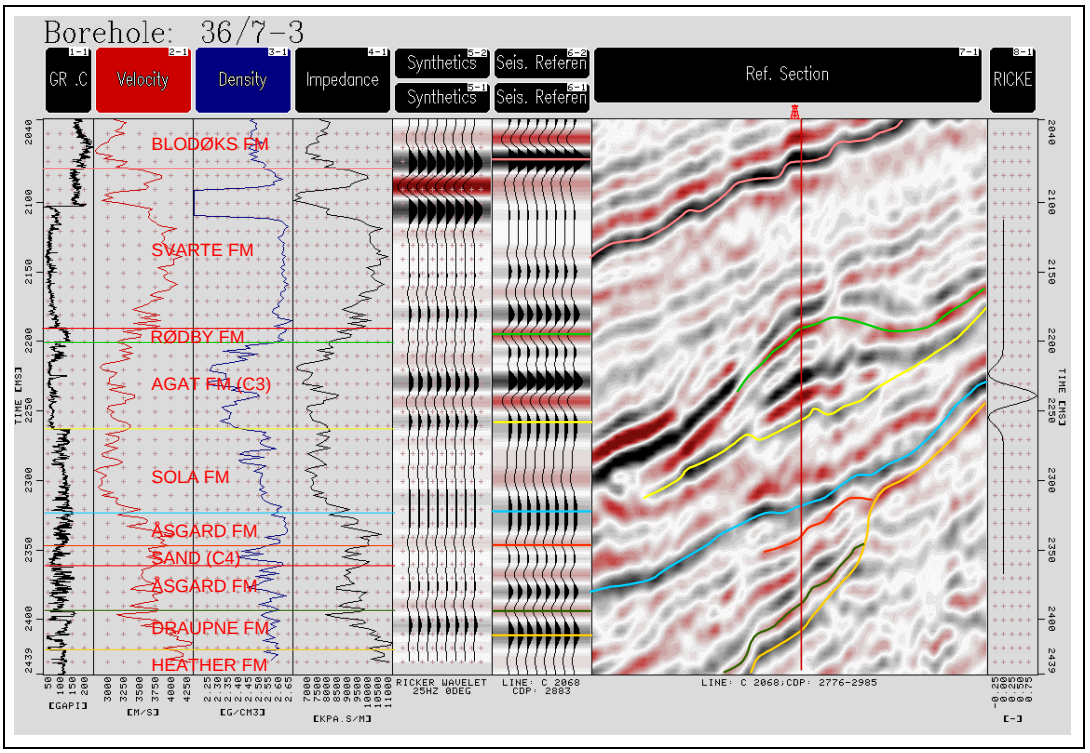


Figure 10.2: Lower Creatceous - Upper Jurassic seismic tie to well 36/7-2

11 Post Site Survey

11.1 Well data

1 Distance from rig floor to sea level: 24m

2 Water depth (MSL): 349m

3a Setting depth for conductor (m RKB): 445m

3b Leak Off / Formation Integrity Test (g/cc): N/A

4a Setting depth (m RKB TVD) for casing on which BOP mounted: 571.6m

4b Formation Integrity Test (g/cc): 1,39

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

Base Pleistocene:	602m	(731ms)
Top Lista:	799.7m	(888ms)
Top Jorsalfar:	1248m	(1296ms)
Top Kyrre:	1304m	

Note:

No chronostratigraphic information was collected in the tophole section of the well (mud logging commenced at 572m RKB TVD). Consequently, the interpretation of the different formations above this level is based on the MWD logs, seismic character and previous work.

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:

No data exists on background gas levels from seabed down to 572m (section drilled with returns to seabed). However, no gas related incidents were reported when drilling this interval.

The following sand bodies have been identified in well 36/7-3:

Paleocene Interval:

697m -	701.5m	
715m -	717m	
745.5m	-	753m
796.5m	-	799.7m
899m -	903m	

7 By what means is the presence of gas proven:

The well is drilled with returns to seabed above 572 RKB TVD and no gas was recorded. Below 572 m RKB TVD gas analyses were accomplished using flame ionisation detectors (FID) with gas measured as percentage methane (C1) equivalent in air, and chromatographic analyses expressed in parts per million.

8 Composition and origin of gas:
The results from the gas measurements in the section 576.89 m - 1357.19 m RKB TVD are as follows:

Depth m RKB TVD	*Minimum %*	*Maximum %*	*Composition*
576.89 - 662.82	0.00	0.20	C1
662.82 -1092.45	0.00	0.01	C1
1092.45 -1289.26	0.03	0.08	C1
1289.26 -1354.19	0.04	0.07	C1
1354.19 -1357.19	0.01	0.05	C1

Chromotographic Breakdown of Peaks:

Depth m RKB TVD	*Peak %*	*Background %*	*Composition*
1354.2	0.03	0.03	C1

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 amplitude anomalies and other indications of shallow gas down to approximately 1500m.

Seismic amplitude anomalies are mapped at following levels:

REFLECTOR	DEPTH (RKB)	NEAREST DISTANCE TO LOCATION
mu_R5	426 m ± 5 m	1480 m NNE of the planned well location
mu_R9	446 m ± 5 m*	268 m NNW of the planed well location (3D data set)
mu_R12	518 m ± 8 m	At planned location
mu_BQUAT	621 m ± 15 m	602 m W of the planned location
mu_TJORSAL	1251 m ± 25 m	32 m North of the planned well location

*2D data shows nearest anomaly at 25 m NNW of location, 2D data includes scaling error.

The higher amplitude reflectors at mu_R5, mu_R9 and mu_BQUAT are not thought to represent a shallow gas problem to drilling, given the distance from the planned well location to the anomalies. The reflector mu_R12 exhibits generally higher amplitudes across the area and was not thought to represent a shallow gas problem to
drilling.

The higher amplitude reflector at mu_TJORSAL is associated with the Top Shetland Group. This horizon has not previously been a source for shallow gas in the neighbouring wells, however none of these wells were located in similar location relative to an anomalously high amplitude area, therefore the possibility of shallow gas at this level could not be discounted.

A minor shallow gas warning was issued for mu_TJORSAL, 1251 m ± 25 m RKB and
caution was advised when drilling this level.

Shallow Water:

Shallow water flow has been encountered in the Gjøa Prospect area, as reported for Well 35/9-4SX.

At Well 36/7-3, the upper Lista Formation consists of sandstones and claystones/siltstones, which are highly faulted (anticline flank at location), and are similar to those found in the Lista Formation in Well 35/9-4SX, which were subject to

minor shallow water flow (observed between 851 m to 962 m TVD MSL in Well 35/9-4SX). Seismic conditions are also similar to those encountered in Well 35/9-3 T2, where no shallow water flow is documented giving conflicting interpretations. However, given that the Gjøa Prospect is an area of known shallow water flow potential, it was advised to proceed with caution between Base Quaternary, 621 m ± 15 m and 947 m ± 15m RKB, with special caution being taken at the Lista sandstone at 767 m ± 15 m RKB.

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:

12a Shallow Gas:

Amplitude anomalies were observed near the 36/7-3 Well Location, and a minor shallow gas warning was given for level 1251 m ± 25 m RKB.

No gas related problems were experienced in the well.

No shallow waterflow was reported.

12b Sand Bodies:

The Paleocene sand layers were predicted and encountered sand layers correspond with the interpretation.

12c Boulders:

Scattered boulders were predicted in the shallow section between 382m ± 3m - 518m ± 8m RKB TVD. No boulders layers were predicted. Boulders were encountered at 432m - 435m, 443m - 445m, 455m - 458m and 472m - 473m RKB TVD.

12d Unconformities (depths in metres RKB (TVD)):

Horizon	Prognosed (P)	Observed (O)	Difference (O-P)
Base Pleistocene (mu_BQUAR)	621 ± 15m	602m	- 19m (shallower)
Top Lista (mu_Lista01)	767± 15m	799.7m	+ 23m (deeper)
Top Jorsalfar (mu_TJorsal)	1251 ± 25m	1248m	- 3m (shallower)
Top Kyrre	Not Prognosed	1304m	

The differences between the prognosed and observed depths to the different horizons were only within the uncertainty limits at Top Jorsalfar. The difference between the predicted and observed depths may be caused by discrepancies in the seismic pick and the velocity model used for depth conversion.

12e Correlation to Nearby Wells:

The drilling conditions experienced in well 36/7-3 are as predicted and similar to those encountered in tie-wells 35/9-1, 35/9-3 T2, 35/9-4SX and 36/7-1.

12 Standard and Special Studies

- Norsk Hydro: Drilling Programme Well 36/7-3
- Norsk Hydro 2001: Site Survey at Location 36/7-3. February 2001. NH-00011411
- Norsk Hydro 2002: Standard Stratigraphic interpretation of Well 36/7-3, Viking Graben Area. May 2002. NH-00047684
- Norsk Hydro 2002: Geochemical Characterization, Well 36/7-3. April 2002. NH-00047857
- GeoStrat: Biostratigraphy of the Interval 585m-2,943m, well 36/7-3. March 2002
- Petrotech: Well 36/7-3, Trace Element Analysis of Mud. August 2002
- Petrotech: Onshore Test Precipitation by addition of $BaC1_2$, Well 36/7-3. December 2001
- BJ Services A/S: End of Well Report, Well 36/7-3. April 2002
- Fugro Survey AS: Navigation and Positioning of Transocean Arctic to Well (Gjøa) 36/7-3. January 2002
- Schlumberger: End of Well Report. January 2002

APPENDIX I

WELL SUMMARY
GEOLOGICAL WELL SUMMARY

WELL SUMMARY

Geo: 61°25'33.12"N 04°02'59.61"E

UTM: 6 810 836.9m N 556 023.6m E

ED 50, UTM Zone 31, SM 03°E

Line: NH9805 M00, inline 2883, crossline 2069

Rig: Transocean Arctic

Waterdepth: 347 m MSL **KB:** 26 m

Stopped in: Heather Formation

On location:	09.12.01
Spud 1:	12.12.01
At TD:	31.12.01
P&A finished:	07.01.02
TD Driller:	2947 m
TD Logger:	N/A
MWD:	Schlumberger Anadrill
Mudlogging:	Geoservices

WELL: **36/7-3**

LICENCE: **PL 153**

COUNTRY: **Norway**

OPERATOR: NORSK HYDRO **OWNED BY: Hydro, Statoil, Petoro, RWE-DEA, Shell**

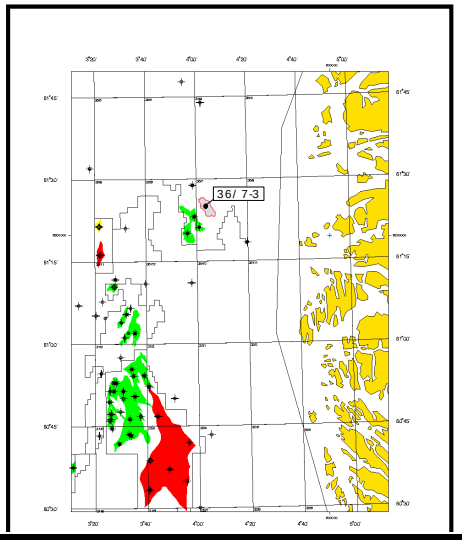
TARGETS:
Primary: Rødby Formation (C3-prospect)
Secondary:
Also possible HC in Kyrre (C1-prospect) and Åsgård (C1-prospect)

RESULTS:

Dry Hole

CASING

30"	at	445 mRKB
20"	at	572 mRKB
9 5/8"	at	1342 mRKB
TD	at	2953 mRKB

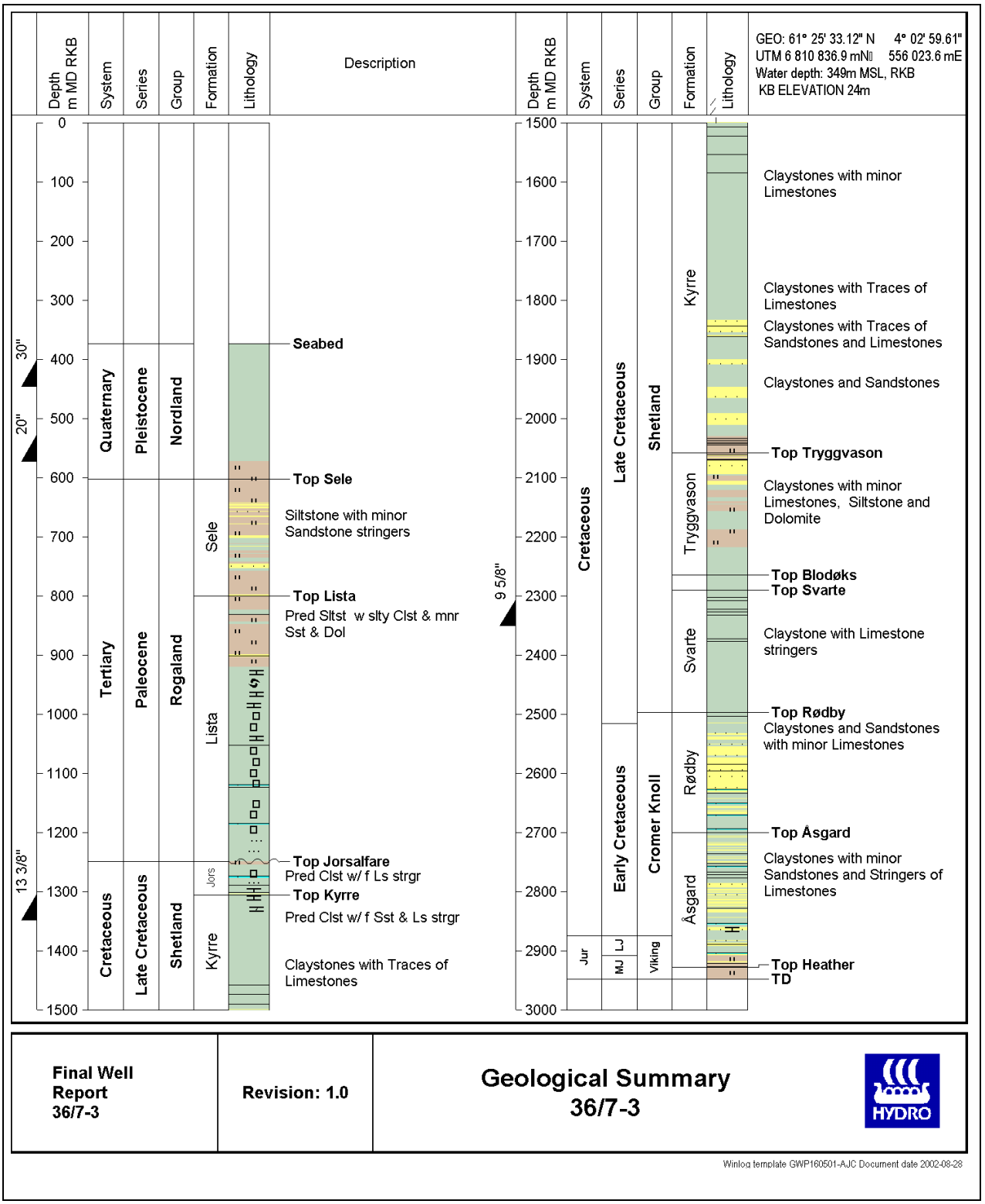


LOGS

No logs were run

CORES

No coring


Depth m MD RKB
System
Series
Group
Formation
Lithology
Description
GEO: 61° 25' 33.12" N 4° 02' 59.61"
UTM 6 810 836.9 mN 556 023.6 mE
Water depth: 349m MSL, RKB
KB ELEVATION 24m
30"
20"
13 3/8"
9 5/8"
Quaternary
Pleistocene
Nordland
Tertiary
Paleocene
Rogaland
Cretaceous
Late Cretaceous
Shetland
Sele
Lista
Kyrre
Jors
Seabed
Top Sele
Siltstone with minor Sandstone stringers
Top Lista
Pred Sltst w slty Clst & mnr Sst & Dol
Top Jorsalfare
Pred Clst w/ f Ls strgr
Top Kyrre
Pred Clst w/ f Sst & Ls strgr
Claystones with Traces of Limestones
Cretaceous
Late Cretaceous
Early Cretaceous
Jur
MJ
LJ
Shetland
Cromer Knoll
Viking
Kyrre
Tryggvason
Svarte
Rødby
Åsgard
Claystones with minor Limestones
Claystones with Traces of Limestones
Claystones with Traces of Sandstones and Limestones
Claystones and Sandstones
Top Tryggvason
Claystones with minor Limestones, Siltstone and Dolomite
Top Blodøks
Top Svarte
Claystone with Limestone stringers
Top Rødby
Claystones and Sandstones with minor Limestones
Top Åsgard
Claystones with minor Sandstones and Stringers of Limestones
Top Heather
TD
Final Well Report 36/7-3
Revision: 1.0
Geological Summary 36/7-3
Winlog template GWP160501-AJC Document date 2002-08-28

SECTION B

OPERATIONS

Prepared by: P. V. Fossum

Approved by: Terje Skram

LIST OF CONTENTS

TABLES

FIGURES

1 DRILLING SUMMARY AND EXPERIENCES

1.1 Mobilising

Total time used:	32.0 hrs	
Operational time:	22.0 hrs	(68.8 %)
Downtime:	10.0 hrs	(31.3 %)

Wellhead co-ordinates :

6 810 836.9 mN 0 556 023.6 mE

Rig heading:

210 degrees

The rig move towards well 36/7-3 started on 9th Dec. 2001 at 13:00 and anchor handling was finished on 10th of Dec. 2001 at 21:00.

1.2 36" Hole Section / 30" Conductor

Water depth:	349.0 m	
Total depth of section:	445.0 m	
Total time used:	56.5 hrs	
Operational time:	27.5 hrs	(48.7 %)
Downtime:	29.0 hrs	(51.3 %)

1.2.1 Drilling

The well was spudded on 12th of Dec. 2001, at 00:00 hrs.

A 36" rotary Bottom Hole Assembly (BHA) with 17 1/2" insert bit and 36" hole opener was run. The 36" hole was drilled with sea water and hi-vis pills from seabed at 372 m to 455 m.

After drilling, high-visc was pumped and the hole displaced to 1,50 Standard Gravity (sg) mud before a wiper trip was performed to below seabed and back to Total Depth (TD). The hole was again displaced to 1.50 sg mud.

1.2.2 Casing

The 30" conductor with the Permanent Guide Base (PGB) was run to 445 m and cemented back to the sea bed with good returns.

1.3 26" Hole Section / 20" Casing

Total depth of section:	577.0 m	
Total time used:	54.0 hrs	
Operational time:	54.0 hrs	(100 %)
Downtime:	0.0 hrs	

1.3.1 Drilling

Drilled 26" hole from 445 m to TD of section at 577 m with a 26” M02SODC bit in one run. Used sea water and high viscous pills for hole cleaning. Displaced hole to 1,50 sg mud and POOH to run casing.

1.3.2 Casing

The 20" casing with the 18-3/4" wellhead was run to 675 m without problems. The casing was cemented in place with returns to seabed, and pressure tested to 70 bar/10 min. The Blow Out Preventer (BOP) was run and tested along with choke/kill lines after installing double riser.

1.4 17-1/2" Hole Section / 13-3/8" Casing

Total depth of section:	1355.0	m	
Total time used:	120.5	hrs	
Operational time:	96.0	hrs	(80.1 %)
Downtime:	24.5	hrs	(19.9 %)

1.4.1 LOT

The 20" casing shoe and 3 m new formation was cleaned out drilling with a milltooth MGSS+ 2C and hi-visc pills. Spotted a 10 m3 hi-visc pill on bottom and performed a Leak Off Test (LOT) which confirmed formation strength of 1,39 SG Equivalent Mud Weight (EMW) at 580 m.

1.4.2 Drilling

The hole was displaced to 1,14 sg. KCl/polymer mud. Continued to drill with a rotary assembly and mill tooth bit to TD at section in one go.

During drilling, the mudweight drifted to 1,17 sg as incorporated drill solids, no weight materials were added. A wiper trip to 20" shoe was performed, and due to tight hole when running back to bottom, the hole was precautionary washed/reamed from 1208 m MD-1355 m MD. The hole was displaced to 1,20 sg mud prior to running the 13 3/8" casing.

The Rate Of Penetration (ROP) was less than expected. Limitations due to use of a 17 1/2" full-gauge stabilizer behind the bit inhibiting weight transmission to it, and leading to a buckling effect when extra weight was applied to improve ROP. The combination of weight and buckling and a full-gauge stabilizer created also higher than normal torque.

The rotary assembly was not capable to orient and thus keep target vertically as rig heave was forcing the bit out of position, final position (TD) was 34 m east and 8 m south of target center.

1.4.3 Casing

The 13 3/8" casing hung up a couple of times and was circulated past these spots between 1305 m MD and TD. The casing was set with shoe at 1348 m MD, and cemented in place. The casing was pressure tested to 130 bar/10 min.

1.5 12-1/4" Hole Section / 9-5/8" Casing

Total depth of section:	2357.0	m	
Total time used:	166.0	hrs	
Operational time:	150.0	hrs	(90.4 %)
Downtime:	16.0	hrs	(9.6 %)

1.5.1 LOT

Drilled out the 13 3/8” casing shoe and 3 m new formation. Circulated bottoms up and conditioned mud to 1,20 sg. Performed LOT which confirmed formation strength of 1,52 sg EMW at 1358 m MD.

1.5.2 Drilling

The 12 1/4" section was drilled with a motor assembly and a DS80 Hycalog bit. The section was drilled from 1358 m MD to 2357 m MD and in two bitruns.

A bittrip was made at 2099 m MD. Difficulty was encountered in steering with the Hycalog PDC bit. This was attributed to the bit being spudded due to rig heave with a consequental consistant loss of toolface leading to an inability to steer. The bit chosen was designed primarily for vertical applications and in normal circumstances should have been capable of minor steering.

A FM 2943 R DBS heavy set bit was applied for the next run and perfomed as planned.

At 2099 m, a drop in pump pressure indicated lost circulation was experienced as well. The circulation was re-established in steps towards 490 Liters Per Minute, LPM. The loss was cured pumping 10 m3 lost circulation material, LCM. Total losses were 21,5 m3. Prior drillling, the MW was cut back to 1,17 sg, and although one incident of a minor loss (below 2 m3) while surveying, the well remained stable during drilling rest of the section.

No bit balling was observed, the bit chosen had a high junkslot area and face volume.

The hole condition at TD was good and after 1 1/2 bottoms up, the string was pulled straight out.

1.5.3 Casing

The 9 5/8" casing and shoe-joint were run as planned. The casing was landed with shoe at 2350 m MD and cemented in place. The casing was pressure tested to 225 bar/10 min.

1.6 8-1/2" Hole Section

Total depth of section:	2948.0	m	
Total time used:	85.5	hrs	
Operational time:	84.0	hrs	(98.2 %)
Downtime:	1.5	hrs	(1.8 %)

1.6.1 FIT

The cement in the 9 5/8” shoe track and 3 m new formation was drilled out with a 8 1/2" M36SPX bit using 1,17 sg KCl/polymer mud. The LOT confirmed formation strength of 1,55 sg EMW at 2360 m MD.

1.6.2 Drilling

After 3 hours of circulating the well clean of cuttings, the displacement of the old mud system to a sulphate free mud system was done. Started off drilling with a Smith MS36SPX bit run on a rotary assembly. The bit failed to reach TD of the section, and was pulled at 2823 m MD with a ring-out on the face of the bit. Junk damage was reported on the bit. The bit was graded 8-3-RO-N-X-1-JD-PR, most likely had an obstacle in the well caused this ring out. An new insert bit, type 15GFDGPD was set on due to prognosed hard stringers in lower part of Shetland (Tryggvason, Blodøks and Svarte), compromising ROP with PDC bits, but more durable. The bit drilled to TD of section, 2948 m MD / 2947 m TVD

No cores were cut.

The sulphate free mud system

In order to obtain a sulphate free Glydril (KCl/polymer) mud, (<50 ppm sulphate) the entire KCl brine volume had to be mixed from 99% pure KCl. For the 8 ½" section, well 36/7-3 – Gjøa, a total of 250 m3 Glydril premix at 1,10 sg and 200 m3 of 1,10 sg KCl brine were mixed at Mongstad base. The premix were mixed and stored while the brine was mixed and transferred directly to a supply vessel due to lack of storage capacity. Level of sulphates were within acceptable niveu until the mud was circulated through the well (mind that shakers were bypassed during the displacement, they were cleaned in afterhand). The analyses done on the rig indicated a doubling of the sulphate content after the mud had been through the well. This implies that improvements can be made in the displacement procedure. Reservoir pressure is the main obstacle because the drilling of cement will ruin any sulphate free system, thus the option is to wash an open well using a fresh water based wash train and large amounts of fresh water. Alternatively a large quantity of sulphate free brine could be used for this washing. Anyhow experience from regular well wash operations performed with NaCl brines shows a tendency towards less efficience compared to operations made with SW or fresh water. As the level of salt saturation increases, the ability to dissolve dirt and salt deposits is reduced. If possible,

1. Mix entire volume offshore (probably not feasible)
2. Clean out mixing facilities both onshore and offshore with soap pills in addition to high preassure steaming. (produces extra slop, thus extra cost.)
3. Discard first batches mixed both onshore and offshore (use as regular glydril mud)!
4. Discard first 3-5 m3 of brine/premix through transferlines to/from boat
5. Need to perform rig / boat specific analysis prior to any new sulphate free operation to ensure that all possible contaminants have been removed
6. Re-evaluate displacement procedures. Before the displacing to sulphate free fluid, it is imperative that the well is circulated clean after drilling of cement. Evaluate possibility of circulating with an intermediate fluid, e.g sulphate free brine

NOTE: This analysis is a summary of the report "Sulphate free drilling fluid" issued by M-I Norge A/S, ref.;*K:\bbs\500-TOA\03-Rapporter.*

Trace Analysis

During the drilling of the Rødby formation there were added thiocyanate to the drilling fluid and the level of sulphates were continously monitored. A preliminary report regarding the trace element analysis of the mud, both thiocyantate and sulphates, is located at: *K:\bbs\500-TOA\03-Rapporter*.

Thiocyanate was added as a tracer to the mud to identify the amount of drilling fluids present in any MDT water samples. The concentration of the tracer identifies the level of contamination from the mud filtrate in the formation water sample. The mud was also continuously monitored for sulphate level during drilling in the zone of interest. However, no MDT samples were taken for this well and the report therefore only contains the analytical results from the sampled drill mud.

1.6.3 Logging

No logging was performed.

1.7 Plug and Abandonment

Total time used:	172.5 hrs	
Operational time:	110.5 hrs	(64.1 %)
Downtime:	62.0 hrs	(35.9 %)

The well was permanently abandoned with cement in open hole from TD 2948 m MD to approx. 2150 m MD (200 m inside casing). No load-or pressure test was performed as a mechanical plug was set above giving a physical barriere hence less time spent on Waiting On Cement (WOC). The 9 5/8" bridge plug was set 2-3 ton down at 2130 m MD and pressure tested to 70 bar above LOT (150 bar/10 min.). Another cement plug was dumped on top to 1864 m MD to verify the setting of the mechanical plug.

The 9 5/8" wear bushing and seal assembly were pulled. The 9 5/8” casing was cut at first attempt and pulled free at 608,3 m with no overpull.

A 13 3/8" bridgeplug was set 10 ton down at 580 m and pressure tested to 70 bar above LOT at 13 3/8" shoe (113 bar).

The 13 3/8" casing was cut at 557 m and pulled free having 25 ton overpull.

Due to detection of shallow (699 m-700 m) while drilling with weighted mud, the zone was pressurized and had to be isolated. Closed the annular preventer and performed an injection test without success. Set a balanced plug from top of bridge plug to 440 m. Closed annular again and performed a squeeze at 1 m3/min and 30 bar, 16 m3 total. Held back pressure on cement while setting up. Set a 200 m cement plug on top. The plug was load tested to 5 ton at 411 m.

Sea water was then circulated in the well and the mud displaced prior to retrieving the BOP.

The 20x30” casing was cut at 277 m using a rotary assembly and retrieved together with guide base and wellhead.

A final seabed survey was performed as well while anchor handling and location was left 7th of Jan. 2001 at 04:00 hrs.

1.8 Recommendations

1.8.1 26" Hole Section

Prior installing riser, the seals should be checked and verified. After a onshore mainetance, lip-seal were missing on the first 3 joints giving total 24,5 hours downtime.

1.8.2 17-1/2" Hole Section

A full gauge stabilizer should not be run in this section, especially on rotary assembly. It creates excessive torque and inhibits weight transmission to the bit-compromising ROP.

1.8.3 12-1/4" Hole Section

In cases where high heave is anticipated, PDC bits with weight arrestors or heavier set PDC bit than would be normally used to drill in this type of formation, should be used.

GENERAL INFORMATION ON WELL 36/7-3

Field	: GJØA	**Country**	: NORWAY
Licence	: 153	**Installation**	: TRANSOCEAN ARCTIC
UTM zone	: 31	**Central Median**	: 3' E **Horiz. Datum:** ED50

Location coordinates:		**Surface**	**Target**
UTM	**North [m]:**	6810836,9	
UTM	**East [m]:**	556023,6	
Geographical	**North :**	61 25'33,12	
Geographical	**East :**	04 02'59,61	

Water Depth: 349,0 **m** **Reference Point Height:** 24,0 **m**

Formation at TD: HEATHER at 2928 m MD

Operators:	NORSK HYDRO PRODUKSJON A/S	**Share:** 30,00 %
Partners:	DEN NORSKE STATS OLJESELSKAP A/S	**Share:** 50,00 %
	A/S NORSKE SHELL	12,00 %
	RWE-DEA	8,00 %

Total depth (RKB) : 2948,0 **m MD** 2946,8 **m TVD**

TIME SUMMARY

Start Time	:	2001-12-09 13:00:00
Spudding date	:	2001-12-11
Abandonment date	:	2001-01-07

Main operation	**Hours**	**Days**	**%**
MOBILIZATION	36,0	1,5	5,2
DRILLING	411,5	17,1	59,9
PLUG AND ABANDONMENT	96,5	4,0	14,0
DOWNTIME MOBILIZATION	10,0	0,4	1,5
DOWNTIME DRILLING	71,0	3,0	10,3
DOWNTIME PLUG AND ABANDONMENT	62,0	2,6	9,0
Sum:	**687,0**	**28,6**	

Hole and casing record

Hole	**Track**	**Depth [m MD]**	**Casing/Tubing**	**Track**	**Depth [m MD]**
36"		445,0	30"		445,0
26"		577,0	20"		571,7
17 1/2"		1355,0	13 3/8"		1348,0
12 1/4"		2357,0	9 5/8"		2350,0
8 1/2"		2948,0			

Well status: PERMANENTLY ABANDONED

BRØNN 36/7-3 DRILLING

Periode 12/2001

EDI	TEKST	BOKFØRT TOTAL	DAGRAPP ESTIMAT	EVT. KORR.	NY FINAL COST	BUDSJ. TOTAL	AVSETN. 12/2001
0	EMPLOYEE RELATED COSTS	770 063	6 440 625	0	6 440 625	5 872 500	5 670 562
1	RIGCOSTS	0	51 138 391	0	51 138 391	46 627 493	51 138 391
2	RIG SUPPORT COSTS/REIMBURSABLES	33 600	4 776 308	0	4 776 308	4 354 992	4 742 708
3A	FUEL/LUB	134 166	2 003 750	0	2 003 750	1 827 000	1 869 584
3C	BITS	0	2 401 000	0	2 401 000	3 422 000	2 401 000
3D	CASING/CASING EQUIPMENT	48 233	3 825 072		3 825 072	3 825 072	3 776 839
3E	WELLHEAD/X-MASTREE	855 025	1 608 000	0	1 608 000	1 608 000	752 975
3F	CEMENT/CEMENT ADDITIVES	284 130	699 459	0	699 459	699 459	415 329
3G	MUD	352 021	2 565 673	0	2 565 673	3 808 153	2 213 652
0	0	0	0	0	0	0	0
					0	0	0
4B	CHARTERFLY	0	0		0	0	
4C	OTHER TRANSPORTATION	705	286 250	0	286 250	261 000	285 545
4D	STANDBY VESSEL	0	2 003 750	0	2 003 750	1 827 000	n/a
4F	HELICOPTER TRANSPORTATION	0	1 202 250	0	1 202 250	1 096 200	n/a
4G	POOL VESSEL -*	0	5 968 750	0	5 968 750	5 760 000	n/a
							0
5A	CORING	0	0	0	0	0	0
5B	DRILLING TOOLS	0	820 848	0	820 848	819 764	820 848
5C	CUTTING OF CASING	0	462 713	0	462 713	421 897	462 713
5D	COMPLETION SERVICES	0	0	0	0	0	0
5E	PERFORATION	0	0	0	0	0	0
5F	MWD SERVICES	0	3 831 498	0	3 831 498	3 791 584	3 831 498
5G	CASING OPERATIONS	0	877 395	0	877 395	800 000	877 395
5H	MUD LOG - Noe tidsrel. + noe forbruk	0	869 458	0	869 458	793 348	869 458
5H	MUD SERVICES	0	0	0	0		0
5I	CEMENTING SERVICES	0	543 875	0	543 875	495 900	543 875
5J	ELECTRICAL LOGGING	0	2 600 000	0	2 600 000	2 600 000	2 600 000
5K	VSP- DSL	0	438 697	0	438 697	400 000	438 697
5L	PROD TESTING	0	322 031	0	322 031	293 625	322 031
5M	DIVING/ROV	0	1 091 815	0	1 091 815	995 506	1 091 815
5N	RIGPOOL	0	715 625	0	715 625	652 500	715 625
5N	DIVERSE	379 342	858 750	0	858 750	783 000	479 408
		0				0	0
6A	SITE SURVEY	0	493 534		493 534	450 000	493 534
6B	RIG POSITIONING	0	548 372		548 372	500 000	548 372
6C	DRILLING SITE CLEAN UP	0				0	0
						0	0
7	WAREHOUSE COSTS	0	2 003 750		2 003 750	1 827 000	Na
					0		0
8	LAB COST	0	1 261 255		1 261 255	1 150 000	1 261 255
SUM		2 857 285	102 658 894	0	101 397 639	97 762 993	88 623 109

AVSETNING BORING	88 623 109
AVS. KOMPLETTERING	
TOTAL AVSETNING	88 623 109

BILAGSNUMMER:

Norsk Hydro

2002-08-22

DOWNTIME REPORT TRANSOCEAN ARCTIC

Last 256 days

Inst.	Wellname	Startdate	#	Sum hrs	Downtime Type	Responsible Contractor	Manufacturer	Short description	Equipment Type	Activity	Service Type	NSFI Code	NSFI Type	Serial Number
TOA	36/7-3	2001-12-10	1	10,0	Other	NORSK HYDRO A/S		Made 2 more attempts (total of 4) to relay #1 anchor and recover chaser without success. Set piggy-back anchor on #1 and bouyed off.		RIG MOVE/SKIDDI				
TOA	36/7-3	2001-12-10	2	22,5	Equipment failure	TRANSOCEAN OFFSHORE EUROPE LIMITED	MARITIME HYDRAULICS A/S	Continued with planned change out of Top Drive.	HOISTING EQUIPMENT	DRILLING	RIG UTILITIES	313.02	Top Drive	
TOA	36/7-3	2001-12-12	3	0,5	Equipment failure	TRANSOCEAN OFFSHORE EUROPE LIMITED	MARITIME HYDRAULICS A/S	Stopped drilling due to overheating on Top Drive. Adjusted oil pump.	HOISTING EQUIPMENT	DRILLING	RIG UTILITIES	313.02	Top Drive	
TOA	36/7-3	2001-12-12	4	6,0	Waiting for cement to cure	NORSK HYDRO A/S		Waiting on cement to cure.		DRILLING				
TOA	36/7-3	2001-12-15	5	24,5	Equipment failure	TRANSOCEAN OFFSHORE EUROPE LIMITED	CAMERON NORGE	Riser leak : Observed loss of fluid in riser during trip. Unlatched BOP stack and pulled riser to investigate. Found 3 lip seals missing from 3 different riser joints.	WELLCONTROL EQUIPMENT/SYS	DRILLING	DRILLING CONTRACTO	335.00	Riser System (incl. K/C/B Lines)	
TOA	36/7-3	2001-12-22	6	0,5	Equipment failure	TRANSOCEAN OFFSHORE EUROPE LIMITED	MARITIME HYDRAULICS A/S	Changed wash pipe.	DRILL FLOOR EQUIPMENT/SYS	DRILLING	DRILLING CONTRACTO	317.00	Other Drill Floor Eq./Syst.	MH DDM 1687-21
TOA	36/7-3	2001-12-23	7	4,5	Other	NORSK HYDRO A/S		Lost circulation completely after connection. Losses at 00:45 hrs: 800 ltr/ 5min, losses at 01:20 hrs : 140 ltr / 5 min. POOH for bit change. Cut back mudweight.		DRILLING				
TOA	36/7-3	2001-12-24	7.1	1,5	Other	NORSK HYDRO A/S		Observed 2 m3 lost when surveying. Checked for losses on trip tank. Negative. Max gas 0.05%.		DRILLING				

Inst.	Wellname	Startdate	#	Sum hrs	Downtime Type	Responsible Contractor	Manufacturer	Short description	Equipment Type	Activity	Service Type	NSFI Code	NSFI Type	Serial Number
TOA	36/7-3	2001-12-25	8	9,5	Waiting on weather			WOW to retrieve wear bushing and run casing.		CASING				
TOA	36/7-3	2001-12-29	9	1,5	Equipment failure	ANADRILL	ANADRILL	Observed crack in new MWD. Laid down same and picked up old MWD tool.	DRILLSTRING/DC EQUIPMENT	DRILLING	MWD/LWD	357.02	MWD/LWD	878
TOA	36/7-3	2002-01-01	10	0,5	Equipment failure	DRIL-QUIP	DRIL-QUIP	Problems to release wear bushing from Multi Purpose Tool.	SERVICE EQUIPMENT/SYS	PLUG AND ABANDONMEI	WELLHEAD	376.01	Wellhead	60563-08
TOA	36/7-3	2002-01-01	11	0,5	Equipment failure	WEATHERFOR NORGE A/S	WEATHERFOF NORGE A/S	Unable to operate modem. Operated casing tong manually.	SERVICE EQUIPMENT/SYS	PLUG AND ABANDONMEI	CASING RUNNING	376.05	Casing	120
TOA	36/7-3	2002-01-02	13	7,5	Waiting for cement to cure	NORSK HYDRO A/S		Held back pressure on cement while setting up.		PLUG AND ABANDONMEI				
TOA	36/7-3	2002-01-03	14	53,5	Waiting on weather			Waited on weather to retrieve BOP.		PLUG AND ABANDONMEI				
			Sum:	143,0										
			Total Sum:	143,0										

DAILY REPORT ON WELL 36/7-3

Daily report no : 1 **Date:** 2001-12-09
Midnight depth : m MD **Estimated PP:** sg **Mud weight:** 1,50 sg

Stop time	Description
13:00	No activity on this well
23:59	Rig in transit from location 34/8-12 S to 36/7-3. Average speed 4,5 knots.

Daily report no : 2 **Date:** 2001-12-10
Midnight depth : m MD **Estimated PP:** sg **Mud weight:** 1,50 sg

Stop time	Description
01:30	Rig in transit from location 34/8-12S to location 36/7-3.
10:30	Ran anchors. 7 anchors completed at this time.
20:30	Made 2 more attempts (total of 4) to lay #1 anchor and recover chaser. These were unsuccessful due to high surface cross currents. Set piggy-back anchor on #1 and bouyed off.
21:00	Completed pre-tensioning all anchors to 140T.
23:59	Continued with planned change out of Top Drive.

Daily report no : 3 **Date:** 2001-12-11
Midnight depth : 372 m MD **Estimated PP:** sg **Mud weight:** 1,03 sg

Stop time	Description
19:30	Continued with planned change out of Top Drive.
22:30	Made up 36" BHA.
23:00	RIH with 36" BHA on 5" drill pipe to 4m above seabed.
23:59	Move rig / drillstring into surface (seabed) target. Tag seabed at 372m MSL.

Daily report no : 4 **Date:** 2001-12-12
Midnight depth : 445 m MD **Estimated PP:** 1,00 sg **Mud weight:** 1,50 sg

Stop time	Description
01:00	Spudded well 36/7-3 and drilled 36" hole from 372m to 394m.
01:30	Stopped drilling due to overheating on Top Drive. Adjusted oil pump.
05:00	Drilled 36" hole from 394m to 445m.
06:00	Pumped round hi vis pill. Wiper tripped to 10m below seabed. Ran back to bottom and displaced the well to 1.50sg mud.
08:00	Dropped totco survey and POOH. Racked back 36" BHA.
09:00	Rigged up to run 30" conductor.
10:30	Ran a total of 6 joints of 30" conductor.
11:30	Made up 30" running tool and ran wellhead down to PGB in moonpool. Engaged wellhead in PGB.
12:30	Pulled running tool to rig floor. Ran 5" dp cement stinger. Reran 30" running tool and engaged wellhead.
13:00	Ran conductor to sealevel and filled casing / removed air from pipe.
14:00	Ran casing down to 3m above seabed.
15:00	Positioned rig according to marker bouys and using ROV sonar stabbed into well.
16:00	Ran casing into well. Worked through tight spots at 385m and 403m.
17:00	Conductor string string stood up at 435m. Could not work past. Broke circulation and washed down to tag bottom at 445m.
18:00	Cemented 30" conductor. Mixed and pumped 23m3 lead slurry at 1.56sg. Tailed with 23m3 at 1.95sg. Displaced to 5m above the shoe.
23:59	Waiting on cement to cure.

Daily report no : 5 **Date:** 2001-12-13
Midnight depth : 577 m MD **Estimated PP:** 1,00 sg **Mud weight:** 1,50 sg

Stop time	Description
01:30	Release running tool from 30" wellhead. POOH and laid out running tool and racked back cement stinger.
02:00	Laid out 30" cementing stand.
03:30	Picked up BJ cement head. Made up to 2 joints drifted drill pipe. Function checked operation of head. Loaded dart and stood back in derrick.
05:30	Laid out 36" BHA.
08:00	Picked up and made up 26" BHA.
10:00	Ran down to seabed and stabbed 26" BHA into the well.
11:00	Ran down and tagged cement at 438m. Broke circulation and tested MWD tool.

DAILY REPORT ON WELL 36/7-3

Daily report no : 5 **Date:** 2001-12-13

Midnight depth : 577 m MD **Estimated PP:** 1,00 sg **Mud weight:** 1,50 sg

Stop time	Description
12:00	Drilled hard cement and 30" shoe to 445m.
19:00	Drilled 26" hole from 445m to 577m - TD for 26" section.
19:30	Swept the hole clean with a hi-vis pill and displaced to 1.50sg mud.
20:00	POOH to the 30" shoe. Hole condition good.
22:00	Continued to POOH and racked back BHA.
22:30	Rigged up to run 20" casing.
23:59	Ran 20" casing.

Daily report no : 6 **Date:** 2001-12-14

Midnight depth : 577 m MD **Estimated PP:** 1,00 sg **Mud weight:** 1,50 sg

Stop time	Description
03:30	Continued to run 20" casing. Picked up and made up 18 3/4" housing.
04:30	Ran casing on 5" pipe and stabbed into 30" wellhead. Continued to run in to 30" shoe.
05:00	Ran 20" casing down through 26" open hole section. Landed 18 3/4" housing in 30" wellhead. Overpulled 25T to check latch.
05:30	Circulated the casing capacity with seawater.
06:30	Cemented 20" casing. Mixed and pumped 41m3 lead slurry at 1.44sg. Tailed with 20m3 slurry at 1.95sg.
07:00	Dropped dart and sheared out cement plug with cement unit. Continued displacement with rig pumps. Bumped plug with 2044str and 70bar.
07:30	Pressure tested casing to 70 bar for 10 minutes - good test. Bled off pressure and checked floats holding - o.k.
09:00	Released running tool and POOH and laid out running tool.
10:30	Reloaded plug dropping head for 13 3/8" cement job and racked back in derrick.
15:30	Prepared to run BOP. Picked up termination spool and 2 joints of riser. Moved BOP below rotary and nippled up same.
23:59	Ran BOP stack. Picked up slip joint at 2230hrs.

Daily report no : 7 **Date:** 2001-12-15

Midnight depth : 577 m MD **Estimated PP:** 1,03 sg **Mud weight:** 1,50 sg

Stop time	Description
02:30	Completed rig up of riser equipment in moonpool. Landed BOP at 0223hrs. Latched and overpulled to 25T.
04:00	Installed diverter housing and rigged down riser handling equipment.
05:30	Ran the BOP isolation test tool and tested connector to 250 bar.
06:30	Function tested BOP on both pods.
07:00	POOH and laid out test tool.
08:00	Ran and set nominal bore protector.
08:30	POOH and laid out running tool.
10:00	Tested surface well control equipment to 345 bar.
11:30	Laid out the 26" BHA.
13:30	Picked up and made up the 17 1/2" BHA.
14:00	Ran in hole with 17 1/2" BHA on 5" drill pipe.
15:30	Riser leak : Observed loss of fluid during trip. Observed riser volume and plotted loss.
16:30	Riser leak : POOH and rack back the BHA.
17:30	Riser leak : Retrieved nominal seat protector from the wellhead.
19:30	Riser leak : Prepare to unlatch from wellhead.
21:30	Riser leak : Unlatched BOP stack at 1945hrs. Laid out slip joint, pup joint and 2 full joints of riser. Found 3 lip seals in total missing from the first 3 full joints.
22:00	Riser leak : Observed water level in riser at rotary table - static.
23:59	Riser leak : Ran down with BOP stack. Picked up slip joint at 2330hrs.

Daily report no : 8 **Date:** 2001-12-16

Midnight depth : 663 m MD **Estimated PP:** 1,03 sg **Mud weight:** 1,14 sg

Stop time	Description
09:00	Riser leak : prepared to relatch BOP stack to the wellhead.
11:00	Riser leak : landed stack at 0900hrs. Latched wellhead connector and overpulled to 25T. Installed diverter and rigged down riser handling equipment.
12:30	Riser leak : ran BOP isolation test tool. Landed in the wellhead and tested the connector to 250bar. POOH and laid out test tool.

DAILY REPORT ON WELL 36/7-3

Daily report no : 8 **Date:** 2001-12-16

Midnight depth : 663 m MD **Estimated PP:** 1,03 sg **Mud weight:** 1,14 sg

Stop time	Description
13:30	Riser leak : ran nominal seat protector and set in wellhead. POOH and laid out running tool.
14:30	Riser leak : made up 17 1/2" BHA and ran into well on 5" drill pipe.
15:00	Continued to run in hole with 17 1/2" BHA on 5" drill pipe.
15:30	Performed choke drill with rig crew.
18:30	Washed down and tagged cement plug at 555m. Drilled out float equipment, shoetrack and shoe at 571m.
19:00	Cleaned out rathole and drilled 3m new hole 577m to 580m. Circulated the well clean with a hi vis sweep.
20:00	Spotted a 10m3 hi vis pill on bottom. Pulled up into the casing and performed a formation Leak-off Test to 1.39sg mud weight equivalent.
21:00	Displaced the well to a Glydril mud system.
23:59	Drilled ahead in 17 1/2" hole from 580m to 662m.

Daily report no : 9 **Date:** 2001-12-17

Midnight depth : 1290 m MD **Estimated PP:** 1,03 sg **Mud weight:** 1,17 sg

Stop time	Description
23:59	Drill 17 1/2" hole from 663m to 1290m.

Daily report no : 10 **Date:** 2001-12-18

Midnight depth : 1355 m MD **Estimated PP:** 1,05 sg **Mud weight:** 1,20 sg

Stop time	Description
04:00	Driledl 17 1/2" hole from 1290m to 1355m - TD of section.
06:00	Circulated the hole clean and circulated and conditioned the mud system.
10:00	Pumped slug and POOH to 20" casing shoe.
11:00	RIH to further condition well.
12:30	Precautionary washed / reamed 1208m - 1355m through troublesome section on trip out of hole.
17:00	Circulated the hole clean. Raised mud weight from 1.17sg to 1.20sg.
18:30	POOH.Pulled 5 stands wet then pumped slug. Continued to POOH to 20" shoe.
21:00	Continued to POOH. Racked back the BHA and broke off the bit.
21:30	Ran the wearbushing retrieval tool with jet sub below. Landed on nominal seat protector.
22:00	Pulled seat protector free with 10T. Jetted wellhead and BOP stack.
23:00	Pulled seat protector to surface and laid out. Laid out retrieval tool and jet sub.
23:59	Rigged up to run 13 3/8" casing.

Daily report no : 11 **Date:** 2001-12-19

Midnight depth : 1355 m MD **Estimated PP:** 1,05 sg **Mud weight:** 1,20 sg

Stop time	Description
01:00	Completed rigging up to run 13 3/8" casing.
02:30	Made up and ran 13 3/8" shoetrack.
14:30	Continued to run 13 3/8" casing. Filled every joint with 1.20 SG mud. Installed 13 3/8" casing hanger. Laid down casing equipment. Slow operation due to rough weather.
18:30	RIH with landing string. Filled every stand with 1.20 SG mud. Took weight at 1305 m, unable to pass. Established circulation. Washed down from 1305 m to TD. Max pumprate 2300 lpm. Landed casing at 18:20 hrs.
20:00	Circulated well, while evaluating weather development, meanwhile rigging up cement hose and pressure testing same to 345 bar/ 10 min.
22:00	Pumped 10 m3 spacer. Mixed and pumped cement 27.7 m3 1.90 SG slurry according to programme. Dropped dart and sheared top plug with 69 bar (2786 ltr). Displaced cement with rig pumps. Bumped plug with 4620 strokes (4647 theoretical). Max pressure: 30 bar circ. pressure + 70 bar = 100 bar.
22:30	Pressure tested casing to 130 bar/10 min. Checked for backflow OK.
23:00	Set seal assy according to D-Q procedure. Pressure tested same to 35/250 bar.
23:59	Pressure tested BOP to 35/250 bar.

Daily report no : 12 **Date:** 2001-12-20

Midnight depth : 1355 m MD **Estimated PP:** 1,05 sg **Mud weight:** 1,20 sg

Stop time	Description
01:00	Continued to pressure test BOP to 35/250 bar.

DAILY REPORT ON WELL 36/7-3

Daily report no : 12 **Date:** 2001-12-20
Midnight depth : 1355 m MD **Estimated PP:** 1,05 sg **Mud weight:** 1,20 sg

Stop time	Description
01:30	Released running tool with 30 ton overpull. Flushed down drill pipe. Relanded casing hanger running tool and retested seal assy to 250 bar to verify setting.
03:00	POOH running tool and laid down same.
04:30	Made up Multi Purpose Tool with cup tester and wear bushing. RIH and set wear bushing.
06:00	Pressure tested MPR to 35/250 bar and function tested BOP on blue pod.
07:30	Pressure tested drilling stand, top drive, IBOP and mud hose to 35/345 bar. Pressure tested cement hose to 345 bar.
08:30	Changed bails.
09:30	Cut & slipped drilling line.
11:00	Loaded cement head and racked same in derrick.
13:30	Laid down 17 1/2" BHA.
20:00	Made up 12 1/4" BHA and RIH to 1300 m. Performed shallow hole test on MWD at 700 m.
20:30	Washed down last stand and tagged float at 1320 m. Performed choke drill.
23:59	Drilled float, cement and casing shoe. Drilled 3 m new formation to 1358 m.

Daily report no : 13 **Date:** 2001-12-21
Midnight depth : 1765 m MD **Estimated PP:** 1,05 sg **Mud weight:** 1,20 sg

Stop time	Description
01:00	Circulated bottoms up and conditioned mud.
02:00	Performed LOT to 1.52 SG EMW.
23:59	Drilled and oriented 12 1/4" hole from 1358-1765 m.

Daily report no : 14 **Date:** 2001-12-22
Midnight depth : 2094 m MD **Estimated PP:** 1,10 sg **Mud weight:** 1,20 sg

Stop time	Description
09:00	Continued drilling from 1765 to 1896 m. Flowchecked drilling break at 1845 m OK. Max gas 0.65%.
09:30	Changed wash pipe due to leakage.
23:59	Drilled 12 1/4" hole from 1896-2094 m. Flowchecked drilling breaks at 1908 and 1973 m, negative. Max gas 0.47%. Slight losses when drilling at 1996 m, reduced pumperate to 3200 lpm.

Daily report no : 15 **Date:** 2001-12-23
Midnight depth : 2099 m MD **Estimated PP:** 1,10 sg **Mud weight:** 1,17 sg

Stop time	Description
00:30	Continued drilling from 2094-2099 m.
01:30	At 00:30 hrs lost circulation completely when starting pumps after connection. Max flowrate 680 lpm. Observed well on trip tank. Losses at 00:45 hrs: 800 ltr/ 5min, losses at 01:20 hrs : 140 ltr / 5 min.
03:00	Established circulation in steps to 490 lpm. Pumped 10 m3 LCM pill. Displaced same.
04:00	POOH 10 stands wet to 1797 m.
05:00	Established circulation in steps to 2100 lpm. No losses.
09:00	POOH for bitchange. Only slight overpull experienced. Flowchecked at casing shoe.
09:30	Removed radioactive sources.
11:00	Dumped MWD.
11:30	Changed bit.
12:00	Checked scribe line.
12:30	Installed radio active sources.
15:00	RIH with 12 1/4" BHA to 1355 m. Filled string at 1000 m.
19:30	Attempted to RIH to below 13 3/8" casing shoe. Tight spot at 1355 m. Washed through same. Serveral tight spots below. Washed down to 1900 m.
20:30	Cut back mudweight from 1.20-1.17 SG.
23:59	Washed and reamed from 1900 m, logging from 1940 m.

Daily report no : 16 **Date:** 2001-12-24
Midnight depth : 2190 m MD **Estimated PP:** 1,10 sg **Mud weight:** 1,17 sg

Stop time	Description
00:30	Continued logging to TD.

DAILY REPORT ON WELL 36/7-3

Daily report no : 16 **Date:** 2001-12-24

Midnight depth : 2190 m MD **Estimated PP:** 1,10 sg **Mud weight:** 1,17 sg

Stop time	Description
06:30	Drilled/oriented 12 1/4" hole from 2099-2116 m.
07:00	Observed 2 m3 lost when surveying. Checked for losses on trip tank. Negative. Max gas 0.05%.
08:00	Broke circulation carefully. Increased circulation in steps to 3200 lpm. Well stable.
11:00	Oriented 12 1/4" hole from 2115-2121 m.
13:00	Drilled 12 1/4" hole from 2121-2150 m.
22:30	Oriented from 2150-2172 m.
23:59	Drilled 12 1/4" hole from 2172-2190 m.

Daily report no : 17 **Date:** 2001-12-25

Midnight depth : 2357 m MD **Estimated PP:** 1,10 sg **Mud weight:** 1,17 sg

Stop time	Description
06:00	Drilled 12 1/4" hole from 2190-2357 m. Flowchecked drilling break at 2274 m. Negative.
09:00	Circulated bottoms up till hole clean. Took survey at TD. Flowchecked OK.
10:30	POOH 15 stands wet to 1920 m.
13:30	Pumped slug and POOH.
14:00	Removed radioactive sources.
16:00	Broke bit. Laid down motor and MWD.
23:59	WOW to retrieve wear bushing and run casing. Max heave 11 m at 16:50 hrs. Heave decreasing from 18:30 hrs.

Daily report no : 18 **Date:** 2001-12-26

Midnight depth : 2357 m MD **Estimated PP:** 1,10 sg **Mud weight:** 1,17 sg

Stop time	Description
01:00	Continued to WOW to pull wear bushing and run casing.
01:30	Displaced riser to 1.17 SG mud and opened shear ram at 01:30 hrs.
03:30	Made up Multi Purpose Tool. RIH same and unseated wear bushing with 30 ton overpull. POOH. Max heave 5.5 m.
06:00	Held safety meeting. Rigged up to run casing.
19:00	Picked up shoe joint. RIH 171 jnts 9 5/8" casing incl. shoe track.
19:30	Made up casing hanger. Laid down casing equipment.
22:00	RIH casing on landing string at 4-5 min/stand. Filled every stand with 1.17 SG mud. Made up cement stand and circulated down last single with 500 lpm. Landed casing at 22:00 hrs.
23:00	Circulated casing volume at 2000 lpm.
23:59	Pressure tested cement lines to 345 bar. Pumped 10 m3 freshwater spacer. Dropped ball. Mixed and pumped 10.2 m3 1.90 SG slurry.

Daily report no : 19 **Date:** 2001-12-27

Midnight depth : 2357 m MD **Estimated PP:** 1,10 sg **Mud weight:** 1,17 sg

Stop time	Description
02:00	Dropped dart and sheared top plug with 107 bar. Displaced cement with 2000 lpm. Increased to 2300 lpm when spacer in open hole. Bumped plug and pressure tested casing to 225 bar/10 min.
02:30	Set and tested seal assy to 250 / 35 bar for 10 min.
04:30	Pressure tested BOP to 35/250 bar.
05:30	POOH Casing Hanger Running Tool.
06:30	Made up Multi Purpose Tool, cup tester and wear bushing. RIH same.
07:30	Continued to pressure test BOP, function tested BOP on both pods.
08:30	Released MPT with 15 ton overpull and POOH. Laid down same.
10:00	Pressure tested mud hose, IBOP and kelly cock on drilling stand to 35/345 bar.
12:00	Picked up jar and 2 x DC. Racked same. Picked up MWD.
12:30	Installed radioactive sources.
16:00	RIH 8 1/2" BHA to 2288 m. Washed down and tagged cement at 2309 m.
16:30	Performed choke drill.
23:00	Drilled float and shoe, cleaned shoetrack and drilled 3 m new formation.
23:59	Circulated well clean.

DAILY REPORT ON WELL 36/7-3

Daily report no : 20 **Date:** 2001-12-28
Midnight depth : 2730 m MD **Estimated PP:** 1,10 sg **Mud weight:** 1,17 sg

Stop time	Description
02:00	Continued to circulate well clean.
03:00	Pulled inside casing shoe. Lined up and pressure tested surface lines to 125 bar. Performed LOT to 1.55 SG.
04:30	Displaced well to 1.17 SG sulphate free Glydril mud.
06:00	Cleaned shakers and flow line.
13:00	Drilled 8 1/2" hole from 2360-2508 m. Flowchecked drilling break at 2506 m.
14:00	Drilled 8 1/2" hole from 2508-2537 m.
15:30	Flowchecked drilling break at 2534 m. Circulated bottoms up for samples. Max gas 3.3%.
16:00	Drilled 8 1/2" hole from 2537-2547 m. Circulated prior to next operation.
23:59	Continued drilling from 2547-2730 m. Max gas at 2651m: 4.8%.

Daily report no : 21 **Date:** 2001-12-29
Midnight depth : 2824 m MD **Estimated PP:** 1,10 sg **Mud weight:** 1,17 sg

Stop time	Description
11:30	Drilled 8 1/2" hole from 2730-2823 m. Flowchecked drilling break at 2780 m. Max gas 0.8%. At 2823 m observed increase in pressure with bit on bottom, unable to continue drilling. Flowchecked and pumped slug.
15:30	POOH for bit change. Tight spots from 2639-2524 m. Max overpull 25 ton. Rotated and worked string.
16:00	Removed radioactive sources from LWD tool.
16:30	Broke out bit.
17:30	Laid down MWD and picked up new MWD. Made up new 8 1/2" bit.
18:00	Dumped RAB memory.
18:30	Observed crack in new MWD. Laid down same and picked up old MWD tool.
19:00	Continued to dump ILS and ADN memories.
19:30	Installed radioactive sources.
22:30	RIH with 8 1/2" BHA to 2790 m. Filled pipe at 1000 m and casing shoe.
23:00	Washed down from 2790 m to TD. 1,5 m fill.
23:59	Drilled 8 1/2" hole from 2823-2824 m.

Daily report no : 22 **Date:** 2001-12-30
Midnight depth : 2948 m MD **Estimated PP:** 1,10 sg **Mud weight:** 1,17 sg

Stop time	Description
05:00	Drilled 8 1/2" hole from 2824-2866 m.
06:00	Circulated bottoms up for samples.
16:00	Drilled 8 1/2" hole from 2866-2948 m. Flowchecked. Pumped slug.
20:00	POOH. Tight hole from 2815-2775 m. Max overpull 25 ton. Held safety meeting with crew.
20:30	Removed radioactive sources from MWD.
21:30	Laid down bit, ADN, Isonic, MWD and RAB.
23:59	Made up diverter sub and 8 stands 3 1/2" drill pipe. RIH same on 5" drill pipe to casing shoe.

Daily report no : 23 **Date:** 2001-12-31
Midnight depth : 2948 m MD **Estimated PP:** 1,10 sg **Mud weight:** 1,17 sg

Stop time	Description
01:00	Slipped and cut 33 m drilling line.
02:30	Continued to RIH to 2946 m. Made up kelly cock and circulation head on 5" single. Pressure tested cement line to 150 bar/5 min.
03:30	Pumped 5 m3 freshwater spacer with BJ. Mixed and pumped cement plug #1 (9.2 m3) according to programme. Displaced cement with 21.6 m3 1.17 SG mud with BJ. Rotated string with 50 rpm.
04:30	POOH to 2670 m.
05:30	Circulated bottoms up while rotating 80 rpm. Dumped 6 m3 contaminated mud. No cement at shakers.
06:30	Made up cement single and pumped 5 m3 freshwater spacer with BJ. Mixed and pumped cement plug #2 (9.2 m3) according to programme. Displaced with BJ while rotating string.
07:30	POOH to 2420 m.
08:00	Circulated bottoms up. Dumped 7 m3 spacer and 7 m3 cement contaminated mud.
09:00	Pumped 5 m3 fresh water spacer. Mixed and pumped cement plug #3 according to programme. Displaced with 1.17 SG mud.
09:30	POOH slowly to 2150 m.
10:00	Circulated bottoms up.

DAILY REPORT ON WELL 36/7-3

Daily report no : 23 **Date:** 2001-12-31
Midnight depth : 2948 m MD **Estimated PP:** 1,10 sg **Mud weight:** 1,17 sg

Stop time	Description
13:00	POOH.
13:30	Made up 9 5/8" bridge plug on 3 1/2" drill pipe.
17:00	RIH with bridge plug to 2130 m with reduced speed according to BJ procedure.
18:00	Dropped ball and circulated down same with BJ. Sat 2-3 ton down and closed upper annular. Pressure tested bridge plug to 150 bar / 10 min.
19:00	Pumped 5 m3 fresh water spacer. Mixed and pumped cement plug #4 according to programme. Displaced with 1.17 SG mud.
19:30	POOH to 1864 m.
20:00	Circulated string volume. Flushed kill and choke lines. Pumped slug.
23:00	POOH. Racked 3 1/2" drill pipe in derrick. Laid down circulating sub and running tool. Cleaned rig floor.
23:59	Made up Multi Purpose Tool, picked up 4 x V-150 pipe and RIH.

Daily report no : 24 **Date:** 2002-01-01
Midnight depth : 2948 m MD **Estimated PP:** 1,10 sg **Mud weight:** 1,17 sg

Stop time	Description
01:00	Pulled 9 5/8" wear bushing with 30 ton over pull. POOH same.
01:30	Problems to release wear bushing from Multi Purpose Tool.
03:00	RIH with MPT. Landed in seal assy and closed upper annular. Pulled seal assy free with 10 ton. Flow checked against closed choke OK. Opened upper annular. Flowchecked on trip tank OK.
04:00	POOH seal assy.
07:00	Made up 9 5/8" casing cutting equipment and function tested same with 300 ltr/s bar. RIH 8 stands 5" drill pipe. Made up marine and annular swivel assy. RIH and landed in wellhead.
07:30	Cut 9 5/8" casing at 608.3 m. Cut at 07:05 hrs. Closed upper annular and flowchecked OK.
08:30	POOH cutting assy.
09:30	Made up spear assy on 1 stand 8" DC.
10:30	RIH and engaged spear.
11:00	Pulled casing free with no overpull. Flowchecked OK.
11:30	POOH with 9 5/8" casing hanger. Released spear and racked same.
12:30	Rigged up casing modem. Held safety meeting with crew.
13:00	Unable to operate modem. Operated casing tong manually.
15:30	POOH 19 9 5/8" joints, pup and casing piece.
16:00	Rigged down casing equipment and cleared rig floor.
17:30	Made up 13 3/8" bridge plug and RIH to 580 m.
18:00	Filled pipe. Observed tool plugged (10 bar).
19:00	Dropped ball. Increased pressure in steps 40-100-140 bar. Confirmed plug set. Set 10 ton down. Released and pressure tested to 113 bar.
20:30	Opened upper pipe ram. Pumped slug and POOH. Laid down x-over and bridge plug running tool. Tidyed rig floor.
22:30	Made up 13 3/8" casing cutter assy. Function tested same with 300 lpm/2 bar. RIH to 557 m.
23:00	Cut 13 3/8" casing at 557 m according to Red Baron instructions. Flowchecked OK.
23:59	Slugged pipe. POOH.

Daily report no : 25 **Date:** 2002-01-02
Midnight depth : 2948 m MD **Estimated PP:** 1,10 sg **Mud weight:** 1,17 sg

Stop time	Description
01:00	POOH and laid down 13 3/8" casing cutting equipment.
02:00	Made up 13 3/8" casing spear and pack off. RIH same.
03:30	Closed upper annular and pulled 13 3/8" casing free with 25 ton overpull. Flowchecked over choke OK. Open annular and flowchecked over trip tank OK. Pumped slug and POOH.
07:30	Released spear and racked spear assembly in derrick. Held safety meeting with crew. POOH and laid down 13 3/8" casing. Rigged down casing equipment.
08:30	Ran in hole with 5" diverter sub to 557 m. Installed cement hose and pressure tested same to 250 bar.
10:00	Closed annular preventer and performed injection test. Not able to get acceptable injection test.
10:30	Pumped 5 m3 drill water, miixed and pumped 16,2 m3 of 1,90 sg cement. Spotted same as balanced plug.
11:30	POOH to 440 m and circulated bottoms up.
12:30	Closed annular preventer and squeezed cement with 1 m3/min and 30 bar. Totally squeezed 16,0 m3 to formation.
20:00	Held back pressure on cement while setting up.
20:30	Opened annular preventer, flow checked well. Ran in hole to 547 m.
21:30	Circulated bottom up and conditioned mud.

DAILY REPORT ON WELL 36/7-3

Daily report no : 25 **Date:** 2002-01-02
Midnight depth : 2948 m MD **Estimated PP:** 1,10 sg **Mud weight:** 1,17 sg

Stop time	Description
22:30	Pumped 5 m3 of drill water spacer followed by 27 m3 of 1,95 sg cement. Spotted same as balanced plug from 557 m to 400 m.
23:00	Pulled out of plug at controlled speed to 390 m.
23:30	Circulated bottoms up.
23:59	POOH with diverter sub. Flushed BOP on the way.

Daily report no : 26 **Date:** 2002-01-03
Midnight depth : 2948 m MD **Estimated PP:** 1,10 sg **Mud weight:** 1,17 sg

Stop time	Description
01:30	Laid out marine swivel assembly and spear assembly.
03:00	Made up 20/30" cutting and fishing assembly. Racked same in derrick.
04:30	Made up 17 1/2" bit on drill collar stand. Ran in hole to BOP.
05:00	Washed down and tagged cement plug wth 5 ton at 411 m.
06:00	Displaced well to seaweater. Flow checked well.
07:00	POOH with 17 1/2" bit.
08:00	Broke out bit. Laid out 6 1/2" jar and two 6 1/2" drill collars.
10:00	Changed out 5" V-150 drill pipe on top of cement head due to wash out in seal area. Re-loaded and serviced cement head.
10:30	Flushed all lines with seawater.
12:00	Installed spider and prepared for retrieving BOP.
23:59	Waited on weather to retrieve BOP. Not able to get close stand by.

Daily report no : 27 **Date:** 2002-01-04
Midnight depth : 2948 m MD **Estimated PP:** 1,10 sg **Mud weight:** 1,17 sg

Stop time	Description
23:59	Waited on weather.

Daily report no : 28 **Date:** 2002-01-05
Midnight depth : 2948 m MD **Estimated PP:** 1,10 sg **Mud weight:** 1,17 sg

Stop time	Description
17:30	Continued waiting on weather.
18:00	Picked up diverter housing and unlatched well head connector.
23:59	Retrievd BOP while laying out riser.

Daily report no : 29 **Date:** 2002-01-06
Midnight depth : 2948 m MD **Estimated PP:** 1,10 sg **Mud weight:** 1,17 sg

Stop time	Description
03:00	Retrieved BOP while laying out riser joints.
04:00	BOP out of water 03:10 hrs, on beams 03:50 hrs.
06:00	Moved BOP to set back and laid out double riser and terminal spool..
07:30	Removed BOP equipment and cleaned rig floor.
09:00	Made up 20/30" cutting assembly. Ran in water to 360 m.
11:00	Installed guide wire 1 and 3. Lowered 2 armed guide frame. Stabbed into well head and retrieved guide frame.
14:00	Cut 20/30" casing 5 m below seabed. At 13:55 hrs pulled wellhead free with 100 ton over pull.
23:59	Handed out pennants. Anchor no 5, first anchor off bottom at 15:02 hrs. Anchors in bolser : No 5 at 17:22 hrs, no 3 at 17:23 hrs, no 2 at 17:55 hrs, no 8 at 19:50 hrs, no 1 at 20:42 hrs, no 7 at 22:15 hrs, no 6 at 23:26 hrs

Daily report no : 30 **Date:** 2002-01-07
Midnight depth : 2948 m MD **Estimated PP:** 1,10 sg **Mud weight:** 1,17 sg

Stop time	Description
04:00	Retrieved anchor no 4, in bolster at 04:00 hrs.
23:59	No activity. Rig in transit for Oseberg well 30/9-20S.

Norsk Hydro

TIME DISTRIBUTION

Well: 36/7-3 **PO:** 1 **Start date:** 1980-01-01 **Rig:** TRANSOCEAN ARCTIC **Depth:** 2948,0 **m MD**
All sections **Stop date:** 2002-08-22

Operations	Hours	%	Hours	%	Acc. total
MOBILIZATION					
MOVING	12,5	1,82			
MOORING; RUNNING ANCHORS	9,5	1,38			
MOORING; PULLING ANCHORS	14,0	2,04			
Sum.			36,0	5,24	36,0
DRILLING					
BHA HANDLING/TESTING	26,0	3,78			
EQUIPMENT TEST	3,5	0,51			
MWD HANDLING/TESTING/SURVEYING	7,0	1,02			
TRIPPING IN CASED HOLE	22,5	3,28			
TRIPPING IN OPEN HOLE	31,5	4,59			
DRILLING	162,5	23,65			
OTHER	1,5	0,22			
WELLHEAD EQUIPMENT INSTALLATION	4,0	0,58			
REAMING	1,5	0,22			
CIRC. AND COND. MUD/HOLE	23,5	3,42			
CASING HANDLING/TESTING	17,5	2,55			
RUNNING CASING IN CASED HOLE	19,5	2,84			
RUNNING CASING IN OPEN HOLE	20,0	2,91			
DRILLING OUT OF CASING	9,5	1,38			
PRIMARY CEMENTING	13,5	1,97			
TRIPPING FOR CEMENT JOB	1,5	0,22			
DRILLING OUT CEMENT PLUG	3,5	0,51			
FORMATION STRENGTH TESTING	3,0	0,44			
BOP HANDLING	6,5	0,95			
BOP RUNNING/RETRIEVING	11,0	1,60			
BOP TESTING	11,0	1,60			
WELLHEAD EQUIPMENT HANDLING	9,5	1,38			
CONDUCTOR CLEAN OUT	1,0	0,15			
SLIP AND CUT DRILLING LINE	1,0	0,15			
Sum.			411,5	59,90	447,5
PLUG AND ABANDONMENT					
BHA HANDLING/TESTING	5,5	0,80			
OTHER	0,5	0,07			
CIRC. AND COND. MUD/HOLE	1,0	0,15			
TRIPPING FOR CEMENT JOB	14,5	2,11			
BOP HANDLING	6,0	0,87			
BOP RUNNING/RETRIEVING	9,5	1,38			
WELLHEAD EQUIPMENT HANDLING	4,5	0,66			
SET CEMENT PLUG	15,5	2,26			
SET MECHANICAL PLUG	9,5	1,38			
TRIPPING OF CASING CUTTING EQUIPMENT	12,5	1,82			
CUT CASING/WELLHEAD	4,0	0,58			
CASING RETRIEVING	12,5	1,82			
SLIP AND CUT DRILLING LINE	1,0	0,15			
Sum.			96,5	14,05	544,0
DOWNTIME MOBILIZATION					
OTHER	10,0	1,46			
Sum.			10,0	1,46	554,0
DOWNTIME DRILLING					
EQUIPMENT FAILURE AND REPAIR	49,5	7,21			
WAITING	15,5	2,26			
LOST CIRCULATION	6,0	0,87			
Sum.			71,0	10,33	625,0
DOWNTIME PLUG AND ABANDONMENT					
EQUIPMENT FAILURE AND REPAIR	1,0	0,15			

TIME DISTRIBUTION

Well: 36/7-3 **PO:** 1 **Start date:** 1980-01-01 **Rig:** TRANSOCEAN ARCTIC **Depth:** 2948,0 **m MD**
All sections **Stop date:** 2002-08-22

Operations	Hours	%	Hours	%	Acc. total
DOWNTIME PLUG AND ABANDONMENT					
WAITING	61,0	8,88			
Sum.			62,0	9,02	687,0
Reported time (100,0 % of well total 687,0 hours) :					687,0

Norsk Hydro

2002-08-22

HOLE DEVIATION

Well: 36/7-3 **Reference point:** RKB ; 24,0 m ABOVE MSL

Waterdepth: 349,0 m **Vertical to:** 371,9 m **Total Depth:** 2948,0 m MD

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

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

Wellhead Coordinates, UTM: **North :** 6810836,90 m, **East:** 556023,60 m

Official Surveys: Y **Track :**

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]
372,00	0,00	0,00	MWD	5	372,00	0,00	0,00	0,00	0,00	0,00	0,00
464,20	2,00	105,60	MWD	5	464,18	-0,43	1,55	1,61	0,65	0,65	34,36
492,60	2,10	102,30	MWD	5	492,56	-0,68	2,54	2,62	0,16	0,11	-3,49
522,50	2,30	106,80	MWD	5	522,44	-0,97	3,65	3,77	0,26	0,20	4,52
550,80	2,50	106,80	MWD	5	550,72	-1,31	4,78	4,96	0,21	0,21	0,00
584,50	2,30	88,00	MWD	5	584,39	-1,50	6,16	6,34	0,72	-0,18	-16,74
613,40	2,20	81,60	MWD	5	613,26	-1,40	7,29	7,42	0,28	-0,10	-6,64
643,80	2,50	81,00	MWD	5	643,64	-1,21	8,52	8,60	0,30	0,30	-0,59
671,80	2,30	80,60	MWD	5	671,61	-1,02	9,68	9,73	0,21	-0,21	-0,43
701,10	2,40	76,30	MWD	5	700,89	-0,78	10,85	10,88	0,21	0,10	-4,40
730,70	2,30	81,10	MWD	5	730,47	-0,54	12,04	12,05	0,22	-0,10	4,86
760,40	2,40	82,30	MWD	5	760,14	-0,37	13,25	13,25	0,11	0,10	1,21
789,80	2,30	82,60	MWD	5	789,52	-0,21	14,44	14,44	0,10	-0,10	0,31
818,70	2,40	80,50	MWD	5	818,39	-0,03	15,61	15,61	0,14	0,10	-2,18
848,90	2,30	81,90	MWD	5	848,57	0,16	16,84	16,84	0,11	-0,10	1,39
878,60	2,40	81,50	MWD	5	878,24	0,33	18,04	18,05	0,10	0,10	-0,40
908,00	2,30	76,40	MWD	5	907,62	0,56	19,22	19,23	0,24	-0,10	-5,20
937,40	2,20	80,30	MWD	5	936,99	0,80	20,35	20,37	0,19	-0,10	3,98
967,40	2,40	86,00	MWD	5	966,97	0,94	21,55	21,57	0,30	0,20	5,70
996,80	2,40	89,00	MWD	5	996,34	0,99	22,78	22,80	0,13	0,00	3,06
1026,30	2,50	90,60	MWD	5	1025,82	1,00	24,04	24,06	0,12	0,10	1,63
1055,20	2,60	89,40	MWD	5	1054,69	1,00	25,32	25,34	0,12	0,10	-1,25
1085,60	2,50	94,20	MWD	5	1085,06	0,95	26,68	26,69	0,23	-0,10	4,74
1115,10	2,40	95,20	MWD	5	1114,53	0,85	27,93	27,95	0,11	-0,10	1,02
1144,10	2,50	92,10	MWD	5	1143,50	0,77	29,17	29,18	0,17	0,10	-3,21
1174,00	2,60	89,60	MWD	5	1173,37	0,75	30,50	30,51	0,15	0,10	-2,51
1202,70	2,60	94,40	MWD	5	1202,05	0,71	31,80	31,81	0,23	0,00	5,02
1368,00	2,50	99,30	MWD	5	1367,18	-0,16	39,09	39,10	0,04	-0,02	0,89
1395,90	2,10	99,00	MWD	5	1395,06	-0,34	40,20	40,20	0,43	-0,43	-0,32
1425,60	1,60	86,00	MWD	5	1424,74	-0,40	41,15	41,15	0,66	-0,51	-13,13
1457,10	0,80	17,90	MWD	5	1456,24	-0,16	41,66	41,66	1,43	-0,76	-64,86
1486,30	1,30	326,40	MWD	5	1485,43	0,31	41,54	41,54	1,05	0,51	-52,91
1515,40	1,40	346,90	MWD	5	1514,53	0,93	41,27	41,28	0,51	0,10	21,13
1546,00	1,30	326,30	MWD	5	1545,12	1,59	41,00	41,03	0,48	-0,10	-20,20
1575,20	1,30	334,10	MWD	5	1574,31	2,16	40,67	40,73	0,18	0,00	8,01
1605,40	1,10	331,20	MWD	5	1604,50	2,72	40,38	40,47	0,21	-0,20	-2,88

Norsk Hydro

2002-08-22

HOLE DEVIATION

Well: 36/7-3 **Reference point:** RKB ; 24,0 m ABOVE MSL

Waterdepth: 349,0 m **Vertical to:** 371,9 m **Total Depth:** 2948,0 m MD

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

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

Wellhead Coordinates, UTM: **North :** 6810836,90 m, **East:** 556023,60 m

Official Surveys: Y **Track :**

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]
1635,10	1,30	338,00	MWD	5	1634,20	3,29	40,11	40,25	0,25	0,20	6,87
1665,00	1,20	342,40	MWD	5	1664,09	3,90	39,89	40,08	0,14	-0,10	4,41
1692,90	1,40	348,20	MWD	5	1691,98	4,51	39,74	39,99	0,26	0,22	6,24
1723,10	1,60	3,70	MWD	5	1722,17	5,29	39,69	40,04	0,45	0,20	15,40
1751,10	1,50	11,40	MWD	5	1750,16	6,04	39,78	40,24	0,25	-0,11	8,25
1778,40	1,40	13,80	MWD	5	1777,45	6,72	39,93	40,50	0,13	-0,11	2,64
1809,50	1,50	12,80	MWD	5	1808,54	7,48	40,12	40,81	0,10	0,10	-0,96
1836,80	1,60	15,10	MWD	5	1835,83	8,20	40,29	41,12	0,13	0,11	2,53
1870,40	1,60	17,50	MWD	5	1869,42	9,10	40,56	41,57	0,06	0,00	2,14
1895,20	1,50	20,00	MWD	5	1894,21	9,73	40,77	41,92	0,15	-0,12	3,02
1928,70	1,60	23,00	MWD	5	1927,70	10,58	41,11	42,44	0,12	0,09	2,69
1958,70	1,70	21,70	MWD	5	1957,69	11,38	41,43	42,97	0,11	0,10	-1,30
1986,40	1,80	28,00	MWD	5	1985,37	12,14	41,79	43,52	0,23	0,11	6,82
2015,40	1,80	31,40	MWD	5	2014,36	12,93	42,24	44,18	0,11	0,00	3,52
2047,10	1,80	27,60	MWD	5	2046,04	13,80	42,73	44,90	0,11	0,00	-3,60
2075,70	1,90	32,60	MWD	5	2074,63	14,60	43,19	45,59	0,20	0,10	5,24
2095,40	1,90	39,00	MWD	5	2094,32	15,12	43,58	46,13	0,32	0,00	9,75
2126,30	1,40	33,00	MWD	5	2125,20	15,84	44,10	46,86	0,51	-0,49	-5,83
2156,40	1,00	34,40	MWD	5	2155,30	16,36	44,45	47,37	0,40	-0,40	1,40
2185,30	0,20	35,00	MWD	5	2184,20	16,61	44,62	47,62	0,83	-0,83	0,62
2214,40	0,30	64,20	MWD	5	2213,30	16,69	44,72	47,73	0,16	0,10	30,10
2244,30	0,50	110,50	MWD	5	2243,20	16,68	44,91	47,91	0,37	0,20	46,45
2273,10	0,60	98,40	MWD	5	2271,99	16,61	45,18	48,14	0,16	0,10	-12,60
2302,70	0,70	108,30	MWD	5	2301,59	16,53	45,51	48,42	0,15	0,10	10,03
2331,70	0,60	129,50	MWD	5	2330,59	16,38	45,79	48,63	0,27	-0,10	21,93
2338,10	0,70	134,00	MWD	5	2336,99	16,33	45,85	48,67	0,52	0,47	21,09
2368,60	0,70	186,20	MWD	5	2367,49	16,02	45,96	48,67	0,61	0,00	51,34
2397,80	0,80	186,00	MWD	5	2396,69	15,64	45,92	48,51	0,10	0,10	-0,21
2427,70	0,40	188,20	MWD	5	2426,58	15,33	45,88	48,37	0,40	-0,40	2,21
2456,90	0,20	123,90	MWD	5	2455,78	15,20	45,91	48,36	0,37	-0,21	-66,06
2486,80	0,70	66,50	MWD	5	2485,68	15,24	46,12	48,57	0,62	0,50	-57,59
2516,60	0,80	59,50	MWD	5	2515,48	15,42	46,47	48,96	0,14	0,10	-7,05
2546,40	1,00	77,20	MWD	5	2545,28	15,58	46,90	49,42	0,34	0,20	17,82
2575,90	0,70	82,30	MWD	5	2574,77	15,66	47,33	49,85	0,31	-0,31	5,19
2664,40	0,80	75,30	MWD	5	2663,27	15,89	48,46	51,00	0,05	0,03	-2,37
2753,10	1,00	103,30	MWD	5	2751,96	15,87	49,81	52,28	0,16	0,07	9,47

Norsk Hydro

2002-08-22

HOLE DEVIATION

Well:	36/7-3	**Reference point:**	RKB ; 24,0 m ABOVE MSL		
Waterdepth:	349,0 m	**Vertical to:**	371,9 m	**Total Depth:**	2948,0 m MD
Utm zone:	31	**Central Median:**	3' E	**Horizontal datum:**	ED50
Template Centre Coordinates, UTM:		**North :**	m,	**East:**	m
Wellhead Coordinates, UTM:		**North :**	6810836,90 m,	**East:**	556023,60 m
Official Surveys:	Y	**Track :**			

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]
2840,90	1,20	94,00	MWD	5	2839,74	15,63	51,48	53,80	0,09	0,07	-3,18
2929,41	0,72	55,70	MWD	5	2928,24	15,88	52,86	55,19	0,26	-0,16	-12,98

Norsk Hydro

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MAIN CONSUMPTION OF CASING/TUBING ON WELL 36/7-3 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	74,5	6
20"	SURFACE	X-52	192,46	129,33	E60MT	202,2	17
13 3/8"	INTERMEDIATE	L-80	107,14	72,00	NS-CC	977,0	86
9 5/8"	PRODUCTION	P-110	79,61	53,50	NEW VAM	1979,2	171

Norsk Hydro

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BITRECORD FOR WELL 36/7-3 PO: 1

No	Bit RR	Bit 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	HTC	MXT03DDT	K10DJ	415	14,16,22,22	1,089	1	445	73	3,90	18,7	40/130	26	1/5	500/4000	40/145	1 - 2 - NO - A - E	I	NO	TD
2		ISRT	26,00	SMIT	M02SODC	LK4720	415	18,22,22,22	1,362	2	577	132	6,10	21,6	40/145	47	20/95	3500/4570	120/160	1 - 1 - NO - A - E	I	NO	TD
3		MITO	17,50	SMIT	MGSS+2C	LW9922	115	15,18,24,24	1,305	3	1355	778	25,10	31,0	100/250	309	25/300	3420/4550	125/225	2 - 2 - BT - G - E	I	NO	TD
4		BIT	12,25	HYCL	DS80	200944		14,14,14,14,14,14	0,902	4	2099	744	32,30	23,0	95/250	470000	1/12	2985/4170	165/295	1 - 1 - WT - G - X	1	PN	UBDT
5		PDC	12,25	SDBS	FM2943R	5008493	M333	14,14,14,14,14,14	0,902	5	2357	258	23,60	10,9	84/230	280000	20/186	2810/3565	200/275	1 - 1 - NO - A - X	I	NO	TD
6		PDC	8,50	SMIT	M36SPX	SC0117	M223	14,14,14,14	0,601	6	2823	466	21,90	21,3	41/169	211000	1/44	1152/2629	74/260	8 - 3 - RO - N - X	1	JD	PR
7		ISRT	8,50	SMIT	15GFDGPD	LW8366	445	16,16,16	0,589	7	2948	125	14,10	8,9	60/168	134000	12/21	2451/2591	206/231	1 - 1 - NO - A - E	I	HC	TD

BOTTOM HOLE ASSEMBLIES USED ON WELL 36/7-3 PO: 1

BHA no. 1: No. / Element / OD(in) / Length(m) Depth In: 372 m MD Out: 445 m MD

1	MXT03DDT	17,5	0,41	2	HOLE OPENER	36,0	3,35
3	FLOAT SUB	9,625	0,85	4	DRILL COLLAR STEEL	9,437	8,96
5	NON MAG. STAB	16,75	1,91	6	NON MAG. COLLAR	9,563	9,15
7	NON MAG. COLLAR	9,625	3,05	8	NON MAG. COLLAR	9,5	8,61
9	DRILL COLLAR STEEL	9,25	17,92	10	X-OVER	9,375	0,75
11	DRILL COLLAR STEEL	7,875	27,75	12	JAR	7,875	9,78
13	DRILL COLLAR STEEL	7,75	18,25	14	X-OVER	8,0	1,00
15	HWDP	5,0	140,85				

Reason pulled: TOTAL DEPTH/CASING DEPT Sum: 252,59

BHA no. 2: No. / Element / OD(in) / Length(m) Depth In: 445 m MD Out: 577 m MD

1	M02SODC	26,0	0,65	2	NEAR BIT STAB	26,0	2,49
3	NON MAG. COLLAR	9,375	8,91	4	NON MAG. STAB	26,0	2,29
5	CDR	9,625	7,35	6	MWD	9,125	8,46
7	NON MAG. COLLAR	9,5	8,61	8	DRILL COLLAR STEEL	9,25	17,92
9	X-OVER	9,375	0,75	10	DRILL COLLAR STEEL	7,875	27,75
11	JAR	7,875	9,78	12	DRILL COLLAR STEEL	7,75	18,25
13	X-OVER	8,0	1,00	14	HWDP	5,0	140,85

Reason pulled: TOTAL DEPTH/CASING DEPT Sum: 255,06

BHA no. 3: No. / Element / OD(in) / Length(m) Depth In: 577 m MD Out: 1355 m MD

1	MGSS+2C	17,5	0,42	2	NEAR BIT STAB	17,25	2,40
3	NON MAG. COLLAR	9,5	8,91	4	NON MAG. STAB	17,5	2,04
5	CDR	9,125	7,13	6	MWD	9,562	8,42
7	NON MAG. STAB	17,25	2,36	8	NON MAG. COLLAR	9,5	8,61
9	DRILL COLLAR STEEL	9,5	9,24	10	DRILL COLLAR STEEL	8,0	8,68
11	X-OVER	9,375	0,74	12	DRILL COLLAR STEEL	8,0	9,24
13	DRILL COLLAR STEEL	8,0	9,34	14	DRILL COLLAR STEEL	8,0	9,17
15	JAR	8,0	9,78	16	DRILL COLLAR STEEL	8,0	9,13
17	DRILL COLLAR STEEL	8,0	9,36	18	X-OVER	8,0	1,00
19	HWDP	5,0	140,85				

Reason pulled: TOTAL DEPTH/CASING DEPT Sum: 256,82

BHA no. 4: No. / Element / OD(in) / Length(m) Depth In: 1355 m MD Out: 2099 m MD

1	DS80	12,25	0,26	2	DOWN HOLE MOTOR WITH ST/	11,25	9,68
3	PIN SUB	8,063	0,59	4	LOGGING WHILE DRILLING TO(	12,063	3,87
5	MWD	8,25	8,38	6	LOGGING WHILE DRILLING TO(	8,375	1,72
7	LOGGING WHILE DRILLING TOOL	8,375	7,12	8	CDN	12,25	8,80
9	DRILL COLLAR STEEL	8,0	9,24	10	DRILL COLLAR STEEL	8,0	9,34
11	DRILL COLLAR STEEL	8,0	9,17	12	NON MAG. COLLAR	8,0	9,39
13	DRILL COLLAR STEEL	8,0	9,03	14	DRILL COLLAR STEEL	8,0	9,11
15	JAR	8,0	9,78	16	DRILL COLLAR STEEL	8,0	9,13
17	DRILL COLLAR STEEL	8,0	9,36	18	HWDP	5,0	56,39

Reason pulled: UNEXPECTED BUILD/DROP/T Sum: 180,36

BOTTOM HOLE ASSEMBLIES USED ON WELL 36/7-3 PO: 1

BHA no. 5: No. / Element / OD(in) / Length(m) Depth In: 2099 m MD Out: 2357 m MD

1	FM2943R	12,25	0,29	2	DOWN HOLE MOTOR WITH ST/	11,25	9,68
3	PIN SUB	8,063	0,59	4	LOGGING WHILE DRILLING TO(	12,063	3,87
5	MWD	8,25	8,38	6	LOGGING WHILE DRILLING TO(	8,375	1,72
7	LOGGING WHILE DRILLING TOOL	8,375	7,12	8	CDN	12,25	8,80
9	DRILL COLLAR STEEL	8,0	9,24	10	DRILL COLLAR STEEL	8,0	9,34
11	DRILL COLLAR STEEL	8,0	9,17	12	DRILL COLLAR STEEL	8,0	9,03
13	DRILL COLLAR STEEL	8,0	9,11	14	JAR	8,0	9,78
15	DRILL COLLAR STEEL	8,0	9,13	16	DRILL COLLAR STEEL	8,0	9,36
17	HWDP	5,0	56,39				

Reason pulled: TOTAL DEPTH/CASING DEPT Sum: 171,00

BHA no. 6: No. / Element / OD(in) / Length(m) Depth In: 2357 m MD Out: 2823 m MD

1	M36SPX	8,5	0,28	2	LOGGING WHILE DRILLING TO(	8,0	3,08
3	MWD	6,94	8,42	4	NON MAG. STAB	8,5	1,48
5	LOGGING WHILE DRILLING TOOL	7,38	7,83	6	LOGGING WHILE DRILLING TO(	8,25	5,82
7	DRILL COLLAR STEEL	6,469	9,46	8	DRILL COLLAR STEEL	6,5	9,47
9	DRILL COLLAR STEEL	6,5	9,46	10	DRILL COLLAR STEEL	6,5	9,46
11	DRILL COLLAR STEEL	6,313	9,37	12	DRILL COLLAR STEEL	6,5	9,47
13	DRILL COLLAR STEEL	6,5	9,46	14	DRILL COLLAR STEEL	6,5	9,47
15	JAR	6,469	9,22	16	DRILL COLLAR STEEL	6,375	9,35
17	DRILL COLLAR STEEL	6,5	9,45	18	DRILL COLLAR STEEL	6,469	9,46
19	HWDP	5,0	56,39				

Reason pulled: PENETRATION RATE Sum: 196,40

BHA no. 7: No. / Element / OD(in) / Length(m) Depth In: 2823 m MD Out: 2948 m MD

1	15GFDGPD	8,5	0,25	2	LOGGING WHILE DRILLING TO(	8,0	3,08
3	MWD	6,94	8,42	4	NON MAG. STAB	8,5	1,48
5	LOGGING WHILE DRILLING TOOL	7,38	7,83	6	LOGGING WHILE DRILLING TO(	8,25	5,82
7	DRILL COLLAR STEEL	6,469	9,46	8	DRILL COLLAR STEEL	6,5	9,47
9	DRILL COLLAR STEEL	6,5	9,46	10	DRILL COLLAR STEEL	6,5	9,46
11	DRILL COLLAR STEEL	6,313	9,37	12	DRILL COLLAR STEEL	6,5	9,47
13	DRILL COLLAR STEEL	6,5	9,46	14	DRILL COLLAR STEEL	6,5	9,47
15	JAR	6,469	9,22	16	DRILL COLLAR STEEL	6,375	9,35
17	DRILL COLLAR STEEL	6,5	9,45	18	DRILL COLLAR STEEL	6,469	9,46
19	HWDP	5,0	56,39				

Reason pulled: TOTAL DEPTH/CASING DEPT Sum: 196,37

BHA no. 8: No. / Element / OD(in) / Length(m) Depth In: 608 m MD Out: 608 m MD

1	EXTERNAL CUTTER	8,25	2,10	2	DRILL PIPE	5,0	235,70
3	X-OVER		0,50	4	OTHER		1,70
5	X-OVER	8,25	0,94	6	PUP JOINT		7,75
7	OTHER	8,25	4,66				

Reason pulled: Sum: 243,40

BHA no. 9: No. / Element / OD(in) / Length(m) Depth In: 608 m MD Out: 608 m MD

1	OTHER			2	SPEAR PACK OFF	8,0	0,99
3	SPEAR	8,25	1,37	4	BUMPER SUB	8,0	1,56
5	DRILL COLLAR STEEL	8,0		6	X-OVER		
7	DRILL PIPE	5,0					

Reason pulled: Sum: 3,92

BOTTOM HOLE ASSEMBLIES USED ON WELL 36/7-3 PO: 1

BHA no. 10: No. / Element / OD(in) / Length(m) Depth In: 557 m MD Out: 557 m MD

1	INTERNAL CUTTER	11,75	3,00	2	DRILL PIPE	5,0	176,68
3	X-OVER		0,50	4	OTHER		1,70
5	X-OVER	8,25	0,94	6	PUP JOINT		7,75
7	OTHER	8,25	4,66	8	DRILL PIPE	5,0	

Reason pulled: Sum: 185,28

BHA no. 11: No. / Element / OD(in) / Length(m) Depth In: 557 m MD Out: 557 m MD

2	SPEAR PACK OFF	12,125	1,35	3	SPEAR	8,25	1,37
4	BUMPER SUB	8,0	1,56	5	DRILL COLLAR STEEL	8,0	
6	X-OVER			7	DRILL PIPE	5,0	

Reason pulled: Sum: 4,28

Norsk Hydro

2002-08-22

CEMENT SLURRY REPORT ON WELL 36/7-3 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]
2001-12-12	30"	CASING CEMENTING	LEAD	23,00	1,56	7,00	129,60	FP-14L	l	0,20	
								A-3L	l	3,50	
			TAIL SLURRY	23,00	1,95	7,00	74,73	FP-14L	l	0,20	
								A-7L	l	3,50	
			DISPLACEMENT			7,00					
2001-12-14	20"	CASING CEMENTING	LEAD	41,00	1,44	10,00	168,53	A-3L	l	5,30	
								FP-14L	l	0,20	
			TAIL SLURRY	20,00	1,95	10,00	74,73	A-7L	l	3,50	
								FP-14L	l	0,20	
2001-12-19	13 3/8"	CASING CEMENTING	DISPLACEMENT	77,00	1,15	36,00					
			TAIL SLURRY	27,60	1,90	36,00	76,70	FP-14L	l	0,20	
								R-12L	l	0,50	
2001-12-26	9 5/8"	CASING CEMENTING	TAIL SLURRY	10,20	1,90	56,00	78,14	CD-31L	l	0,30	
								FP-14L	l	0,20	
								MICRO	l	3,00	
								R-12L	l	0,70	
			DISPLACEMENT	97,70	1,17	56,00					
			DISPLACEMENT			56,00					
2001-12-31	9 5/8"	PLUG IN OPEN HOLE	TAIL SLURRY	9,20	1,90	86,00	78,24	FP-14L	l	0,20	
								MICRO	l	3,00	
								R-12L	l	1,50	
			DISPLACEMENT	22,10	1,17	86,00					
			DISPLACEMENT			86,00					
2001-12-31	9 5/8"	PLUG IN OPEN HOLE	TAIL SLURRY	9,20	1,90	76,00	78,24	FP-14L	l	0,20	
								MICRO	l	3,00	
								R-12L	l	1,50	
			DISPLACEMENT	20,10	1,17	76,00					
			DISPLACEMENT			76,00					
2001-12-31	9 5/8"	PLUG IN OPEN HOLE	TAIL SLURRY	9,20	1,90	68,00	78,13	FP-14L	l	0,20	
								MICRO	l	3,00	
								R-12L	l	0,95	
			DISPLACEMENT	17,00	1,17	68,00					

CEMENT SLURRY REPORT ON WELL 36/7-3 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]
2001-12-31	9 5/8"	PLUG IN OPEN HOLE	DISPLACEMENT			68,00					
2002-01-02	20"	SQUEEZE	TAIL SLURRY	16,00	1,95	17,00	77,13	CD-31L	l	1,00	
								FL-45L	l	5,00	
								FP-14L	l	0,20	
								MICRO	l	8,00	
			DISPLACEMENT	5,50	1,00	17,00					
			DISPLACEMENT			17,00					
2002-01-02	20"	PLUG IN CASED HOLE	TAIL SLURRY	27,00	1,95	13,00	74,73	A-7L	l	3,50	
								FP-14L	l	0,20	
			DISPLACEMENT	2,80	1,17	13,00					
			DISPLACEMENT			13,00					

CEMENT CONSUMPTION PER JOB ON WELL 36/7-3 PO: 1

Date	CsgSize	Job Type	Cement/ Additive	Description	Unit	Actual Amount Used
2001-12-12	30"	CASING CEMENTING	A-3L	EXTENDER: LIQUID LODENSE	l	630
			A-7L	ACCELERATOR: LIQUID CACL2	l	1085
			FP-14L	SPECIAL ADDITIVE: DEFOAMER FP-14L	l	98
2001-12-14	20"	CASING CEMENTING	A-3L	EXTENDER: LIQUID LODENSE	l	1272
			A-7L	ACCELERATOR: LIQUID CACL2	l	945
			FP-14L	SPECIAL ADDITIVE: DEFOAMER FP-14L	l	102
2001-12-19	13 3/8"	CASING CEMENTING	FP-14L	SPECIAL ADDITIVE: DEFOAMER FP-14L	l	72
			R-12L	RETARDER: LIQUID LIGNOSULFONATE UP TO 93 [	l	180
2001-12-26	9 5/8"	CASING CEMENTING	CD-31L	DISPERSANT: CD-31L LIQUID	l	46
			FP-14L	SPECIAL ADDITIVE: DEFOAMER FP-14L	l	30
			G	API CLASS G	MT	14
			MICRO	SPECIAL ADDITIVE: MICROBLOCK, ANTI GAS MIGF	l	461
			R-12L	RETARDER: LIQUID LIGNOSULFONATE UP TO 93 [	l	107
2001-12-31	9 5/8"	PLUG IN OPEN HOLE	FP-14L	SPECIAL ADDITIVE: DEFOAMER FP-14L	l	27
			R-12L	RETARDER: LIQUID LIGNOSULFONATE UP TO 93 [	l	202
			G	API CLASS G	MT	14
			MICRO	SPECIAL ADDITIVE: MICROBLOCK, ANTI GAS MIGF	l	405
2001-12-31	9 5/8"	PLUG IN OPEN HOLE	FP-14L	SPECIAL ADDITIVE: DEFOAMER FP-14L	l	27
			G	API CLASS G	MT	15
			MICRO	SPECIAL ADDITIVE: MICROBLOCK, ANTI GAS MIGF	l	405
			R-12L	RETARDER: LIQUID LIGNOSULFONATE UP TO 93 [	l	202
2001-12-31	9 5/8"	PLUG IN OPEN HOLE	FP-14L	SPECIAL ADDITIVE: DEFOAMER FP-14L	l	27
			R-12L	RETARDER: LIQUID LIGNOSULFONATE UP TO 93 [	l	128
			G	API CLASS G	MT	15
			MICRO	SPECIAL ADDITIVE: MICROBLOCK, ANTI GAS MIGF	l	405
2002-01-02	20"	SQUEEZE	CD-31L	DISPERSANT: CD-31L LIQUID	l	220
			FL-45L	FLUID-LOSS ADDITIVE: BETWEEN 38 AND 177 DEC	l	1101
			FP-14L	SPECIAL ADDITIVE: DEFOAMER FP-14L	l	44
			MICRO	SPECIAL ADDITIVE: MICROBLOCK, ANTI GAS MIGF	l	1759
			G	API CLASS G	MT	21
2002-01-02	20"	PLUG IN CASED HOLE	A-7L	ACCELERATOR: LIQUID CACL2	l	1498
			FP-14L	SPECIAL ADDITIVE: DEFOAMER FP-14L	l	86
			G	API CLASS G	MT	39

TOTAL CONSUMPTION OF CEMENT ADDITIVES ON WELL 36/7-3 PO: 1

Section	Cement/Additive	Unit	Total Amount Used
36"	EXTENDER: LIQUID LODENSE	l	630,00
	SPECIAL ADDITIVE: DEFOAMER FP-14L	l	98,00
	ACCELERATOR: LIQUID CACL2	l	1085,00
26"	ACCELERATOR: LIQUID CACL2	l	945,00
	SPECIAL ADDITIVE: DEFOAMER FP-14L	l	102,00
	EXTENDER: LIQUID LODENSE	l	1272,00
17 1/2"	SPECIAL ADDITIVE: DEFOAMER FP-14L	l	72,00
	RETARDER: LIQUID LIGNOSULFONATE UP TO 93 DEGC	l	180,00
12 1/4"	RETARDER: LIQUID LIGNOSULFONATE UP TO 93 DEGC	l	107,00
	SPECIAL ADDITIVE: DEFOAMER FP-14L	l	30,00
	API CLASS G	MT	14,00
	SPECIAL ADDITIVE: MICROBLOCK, ANTI GAS MIGRATION	l	461,00
	DISPERSANT: CD-31L LIQUID	l	46,00
8 1/2"	API CLASS G	MT	42,50
	SPECIAL ADDITIVE: MICROBLOCK, ANTI GAS MIGRATION	l	1215,00
	RETARDER: LIQUID LIGNOSULFONATE UP TO 93 DEGC	l	532,00
	SPECIAL ADDITIVE: DEFOAMER FP-14L	l	81,00
0.0	DISPERSANT: CD-31L LIQUID	l	220,00
	SPECIAL ADDITIVE: DEFOAMER FP-14L	l	130,00
	API CLASS G	MT	60,00
	FLUID-LOSS ADDITIVE: BETWEEN 38 AND 177 DEGC	l	1101,00
	ACCELERATOR: LIQUID CACL2	l	1498,00
	SPECIAL ADDITIVE: MICROBLOCK, ANTI GAS MIGRATION	l	1759,00

DAILY MUD PROPERTIES:RHEOLOGY PARAMETERS FOR WELL 36/7-3 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]
2001-12-11	385	385	SPUD MUD	120,0	1,03		0	0	0	0	0	0	0	0					
2001-12-12 18:00	445	445	SPUD MUD	80,0	1,50		0	0	0	0	0	0	0	0					

Hole section : 26" — **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]
2001-12-13 18:00	577	577	SPUD MUD	77,0	1,50		0	0	0	0	0	0	0	0					
2001-12-14	577	577	SPUD MUD	80,0	1,50		0	0	0	0	0	0	0	0					
2001-12-15	577	577	SPUD MUD	80,0	1,50		0	0	0	0	0	0	0	0					

Hole section : 17 1/2" — **WATER BASED SYSTEM**

Date	Depth [m] MD	Depth [m] TVD	Mud Type	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]
2001-12-16 23:00	663	663	KCL/POLYMER	50,0	1,14		37	28	22	17	0	0	8	7		9,0	9,5	3,5	4,0
2001-12-17 23:00	1267	1266	KCL/POLYMER	58,0	1,17		52	38	32	24	0	0	9	7	50,0	14,0	12,0	4,5	6,5
2001-12-18 16:00	1355	1354	KCL/POLYMER	62,0	1,20		56	42	35	27	0	0	11	9	50,0	14,0	14,0	5,0	7,0
2001-12-19 20:00	1355	1354	KCL/POLYMER	62,0	1,20	18,0	57	42	35	27	0	0	10	8	50,0	15,0	13,5	4,5	7,5

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]
2001-12-20 22:00	1330	1329	KCL/POLYMER	62,0	1,20	19,0	50	37	31	24	0	0	9	8	53,0	13,0	12,0	4,5	6,5
2001-12-21 22:30	1730	1729	KCL/POLYMER	62,0	1,20	34,0	54	40	34	26	0	0	10	8	50,0	14,0	13,0	4,5	7,5
2001-12-22 22:00	2069	2068	KCL/POLYMER	58,0	1,20	30,0	53	40	34	26	0	0	10	8	50,0	13,0	13,5	4,5	7,0
2001-12-23	2099	2098	KCL/POLYMER	59,0	1,17	22,0	51	37	31	24	0	0	9	8	50,0	14,0	11,5	5,0	7,0
2001-12-24 22:00	2190	2189	KCL/POLYMER	58,0	1,17	35,0	52	39	33	25	0	0	9	7	50,0	13,0	13,0	4,5	7,0
2001-12-25 22:00	2357	2356	KCL/POLYMER	58,0	1,17	35,0	50	37	32	25	0	0	8	7	50,0	13,0	12,0	5,0	7,0
2001-12-26 22:00	2357	2356	KCL/POLYMER	55,0	1,17		50	37	32	25	0	0	8	7	50,0	13,0	12,0	5,0	7,0

DAILY MUD PROPERTIES:RHEOLOGY PARAMETERS FOR WELL 36/7-3 PO: 1

Hole section : 8 1/2" **WATER 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]
2001-12-27 22:00	2360	2359	KCL/POLYMER	55,0	1,17		50	37	32	25	0	0	8	7	50,0	13,0	12,0	5,0	7,0
2001-12-28 22:00	2718	2717	KCL BRINE	64,0	1,17	27,0	51	39	30	25	0	0	10	9	50,0	12,0	13,5	4,5	8,0
2001-12-29 21:00	2823	2822	KCL BRINE	66,0	1,17	19,0	64	46	39	31	0	0	11	9	50,0	18,0	14,0	5,5	8,0
2001-12-30 21:00	2948	2947	KCL BRINE	67,0	1,17	29,0	63	46	39	31	0	0	11	9	50,0	17,0	14,5	5,5	8,0

Hole section : P&A **WATER 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]
2002-01-01 22:00	2948	2947	KCL BRINE	66,0	1,17	18,0	60	43	38	29	0	0	10	8	50,0	17,0	13,0	4,5	7,5
2002-01-02 21:00	2948	2947	KCL BRINE	64,0	1,17	22,0	59	42	38	29	0	0	10	8	50,0	17,0	12,5	4,5	7,5
2002-01-02 22:00	388	388	KCL BRINE	66,0	1,17	17,0	60	43	38	29	0	0	10	8	50,0	17,0	13,0	4,5	7,5
2002-01-03 22:00	388	388	KCL BRINE	66,0	1,17	17,0	60	43	38	29	0	0	10	8	50,0	17,0	13,0	4,5	7,5

DAILY MUD PROPERTIES : OTHER PARAMETERS FOR WELL 36/7-3 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]
2001-12-11	385	385	SPUD MUD	1,03					/																
2001-12-12 18:00	445	445	SPUD MUD	1,50					/																

Hole section : 26" — **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]
2001-12-13 18:00	577	577	SPUD MUD	1,50					/																
2001-12-14	577	577	SPUD MUD	1,50					/																
2001-12-15	577	577	SPUD MUD	1,50					/																

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]
2001-12-16 23:00	663	663	KCL/POLYMER	1,14	4,2		2		/	10,0	1,0	0,0	1,4		94	100000	800		800	8,0	0,0		7	2,6	39
2001-12-17 23:00	1267	1266	KCL/POLYMER	1,17	3,4		2		/	8,2	0,0	0,0	1,6		94	90000	920		920	9,0		0,3	21	2,6	126
2001-12-18 16:00	1355	1354	KCL/POLYMER	1,20	3,2		2		/	8,2	0,0	0,0	1,4		94	91000	640		640	9,5	0,0	0,3	25	2,6	176
2001-12-19 20:00	1355	1354	KCL/POLYMER	1,20	3,2		2		/	8,1		0,0	1,4		94	91000	640		640	9,5		0,3	25	2,6	176

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]
2001-12-20 22:00	1330	1329	KCL/POLYMER	1,20	3,2		2		/	8,3		0,0	1,6		94	92000	920		920	9,0		0,3	28	2,6	174
2001-12-21 22:30	1730	1729	KCL/POLYMER	1,20	3,2		2		/	8,3		0,0	0,9		94	91000	800		800	11,0		0,3	21	2,7	155
2001-12-22 22:00	2069	2068	KCL/POLYMER	1,20	3,2		2		/	8,1		0,0	0,1		85000	100000	720		720	12,0		0,3	14	2,8	115
2001-12-23	2099	2098	KCL/POLYMER	1,17	3,3		2		/	8,3	0,0	0,0	0,4		89000	100000	760		760	12,0		0,3	14	2,6	88
2001-12-24 22:00	2190	2189	KCL/POLYMER	1,17	3,5		2		/	8,0	0,0	0,0	0,6		87000	97000	800		800	12,0		0,3	21	2,6	94
2001-12-25 22:00	2357	2356	KCL/POLYMER	1,17	3,6		2		/	8,0		0,0	0,6		87000	96000	800		800	11,5		0,3	21	2,6	96
2001-12-26 22:00	2357	2356	KCL/POLYMER	1,17	3,6		2		/	8,0	0,0	0,0	0,6		87000	96000	800		1	11,5		0,3	21	2,6	96

DAILY MUD PROPERTIES : OTHER PARAMETERS FOR WELL 36/7-3 PO: 1

Hole section : 8 1/2" — **WATER BASED SYSTEM**

Date	Depth [m] MD	Depth [m] TVD	Mud Type	Dens [sg]	Filtrate API [ml]	Filtrate HPHT [ml]	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]
2001-12-27 22:00	2360	2359	KCL/POLYMER	1,17	3,6		2		/	8,0	0,0	0,0	0,6		87000	96000	800		800	11,5		0,3	21	2,6	96
2001-12-28 22:00	2718	2717	KCL BRINE	1,17	3,8		1		/	8,3	0,2	0,1	0,5		87000	79000	600	600	600	11,0		0,3		2,6	125
2001-12-29 21:00	2823	2822	KCL BRINE	1,17	3,9		1		/	8,0	0,2	0,1	0,5		87000	79000	640	600	640	11,0		0,3	35	2,6	125
2001-12-30 21:00	2948	2947	KCL BRINE	1,17	3,9		1		/	8,0	0,2	0,1	0,5		87000	79000	600	600	600	11,0		0,3	35	2,6	125

Hole section : P&A — **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]
2002-01-01 22:00	2948	2947	KCL BRINE	1,17	4,3		2		/	8,8	1,3	0,3	1,0		87000	80000	840		840	11,0	0,0	0,5	20	2,6	123
2002-01-02 21:00	2948	2947	KCL BRINE	1,17	4,2		2		/	8,7	1,3	0,3	1,0		87000	80000	840		840	11,0	0,0	0,5	20	2,6	123
2002-01-02 22:00	388	388	KCL BRINE	1,17	4,3		2		/	8,9	1,5	0,3	1,0		87000	80000	880		880	11,0	0,0	0,5	20	2,6	123
2002-01-03 22:00	388	388	KCL BRINE	1,17	4,3		2		/	8,9	1,5	0,3	1,0		87000	80000	880		880	11,0	0,0	0,5	20	2,6	123

TOTAL CONSUMPTION OF MUD ADDITIVES ON WELL 36/7-3 PO: 1

Section	Product/ Additive	Unit	Total Amount Used
36"	BARITE	kg	117000,00
	BENTONITE	kg	36000,00
	CMC EHV	kg	125,00
	SODA ASH	kg	200,00
26"	BARITE	kg	11000,00
	BENTONITE	kg	9000,00
	CMC EHV	kg	125,00
	SODA ASH	kg	50,00
17 1/2"	BARITE	kg	11000,00
	BICARBONATE	kg	375,00
	CELPOL ESL	kg	7200,00
	CITRIC ACID	kg	375,00
	DUOTEC NS	kg	3050,00
	GLYCOL	l	10300,00
	KCL	kg	2000,00
	KCL BRINE	l	629000,00
	POLYPAC ELV	kg	1750,00
	POTASSIUM CARBONATE	kg	225,00
12 1/4"	BARITE	kg	14000,00
	BICARBONATE	kg	1025,00
	CELPOL ESL	kg	3500,00
	CITRIC ACID	kg	875,00
	DUOTEC NS	kg	1775,00
	KCL	kg	10000,00
	KCL BRINE	l	216000,00
	MICA MEDIUM	kg	350,00
	NUTPLUG F	kg	350,00
	NUTPLUG M	kg	725,00
	POLYPAC ELV	kg	50,00
	POTASSIUM CARBONATE	kg	100,00
	SODA ASH	kg	25,00
8 1/2"	BARITE	kg	50000,00
	DUOTEC NS	kg	700,00
	GLYCOL	l	4000,00
	KCL BRINE	l	94000,00
	POLYPAC ELV	kg	1300,00
	POTASSIUM CARBONATE	kg	75,00

LEAK OFF TEST ON WELL 36/7-3

Depth m	Section	Date	Mudtype	Mudweight SG	Test Pressure Bar	LOT SG
580 (inside csg)	17 1/2"	2001-12-16	Seawater/ Hi-visc	1,03	20	1,39
1 358	12 1/4"	2001-12-21	Water Base Mud	1,2	43	1,52
2360 (inside csg)	8 1/2"	2001-12-28	Water Base Mud	1,17	88	1,55

2002-02-13

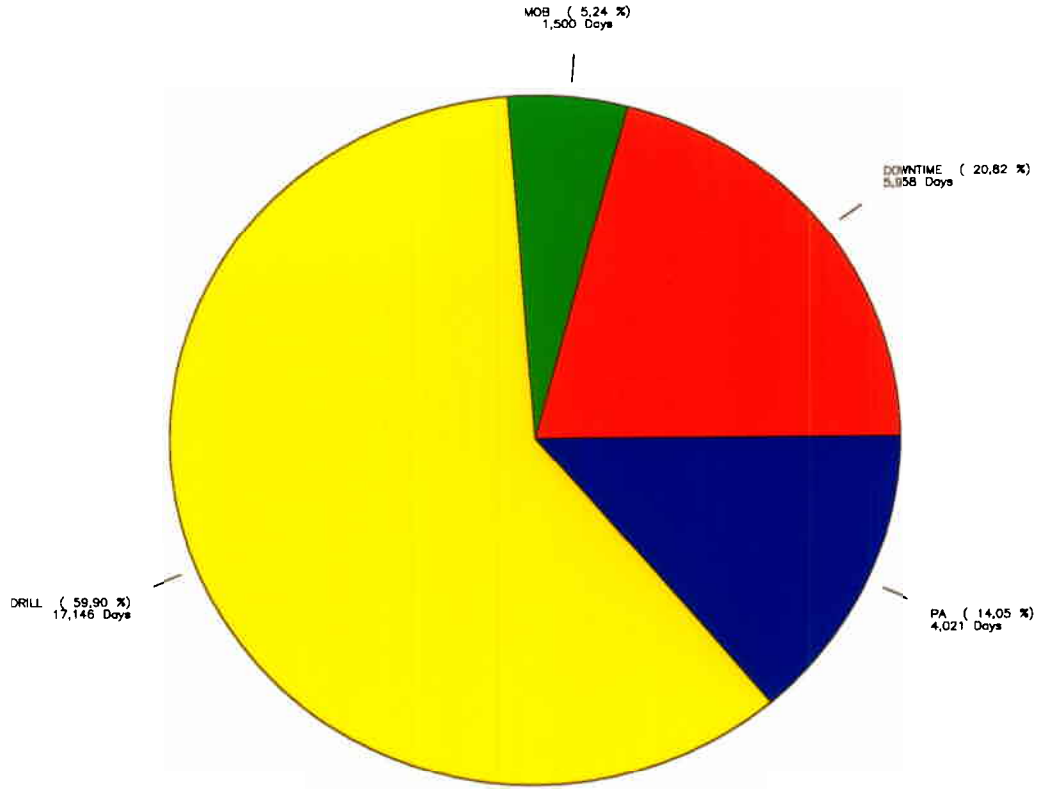
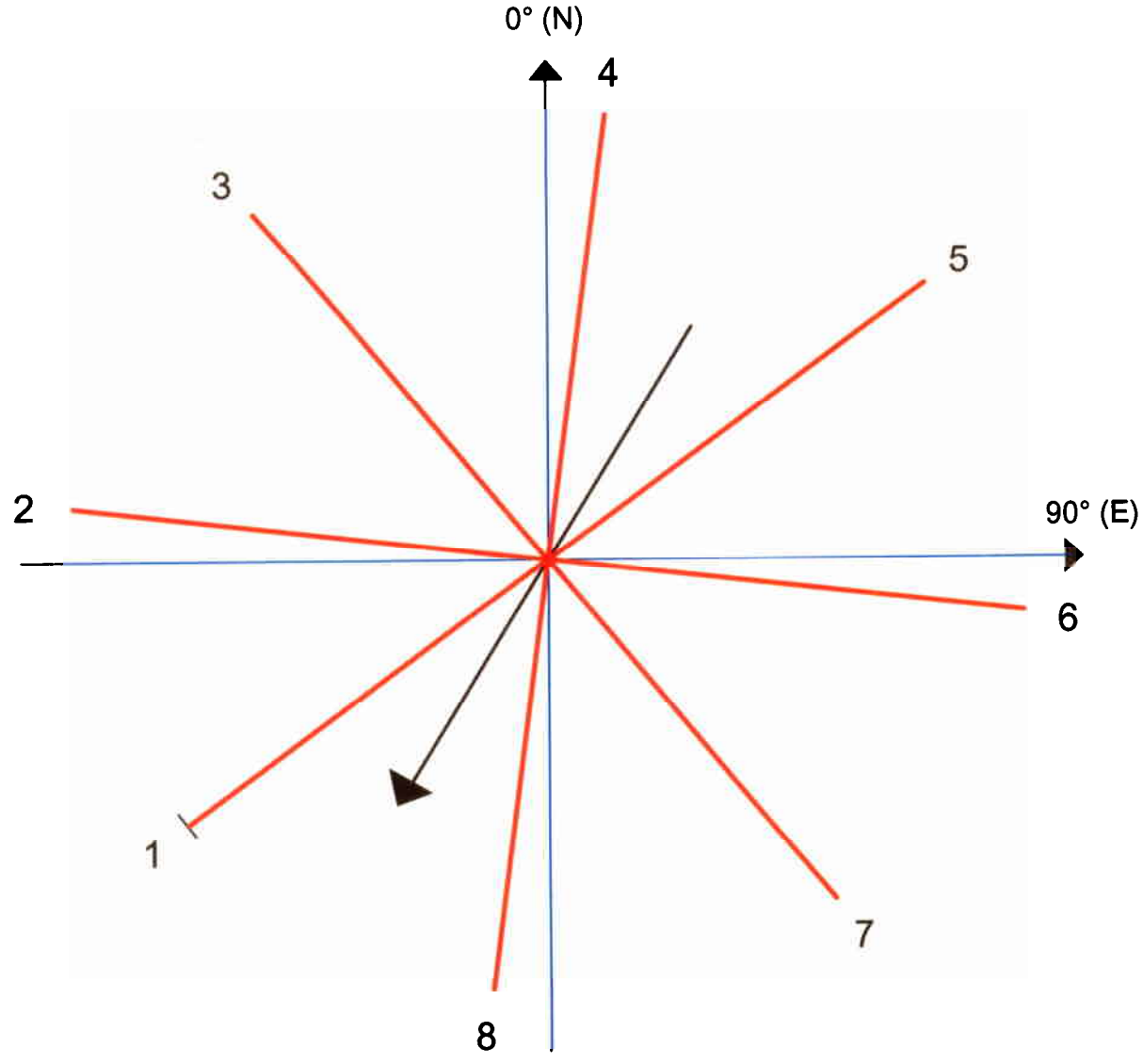


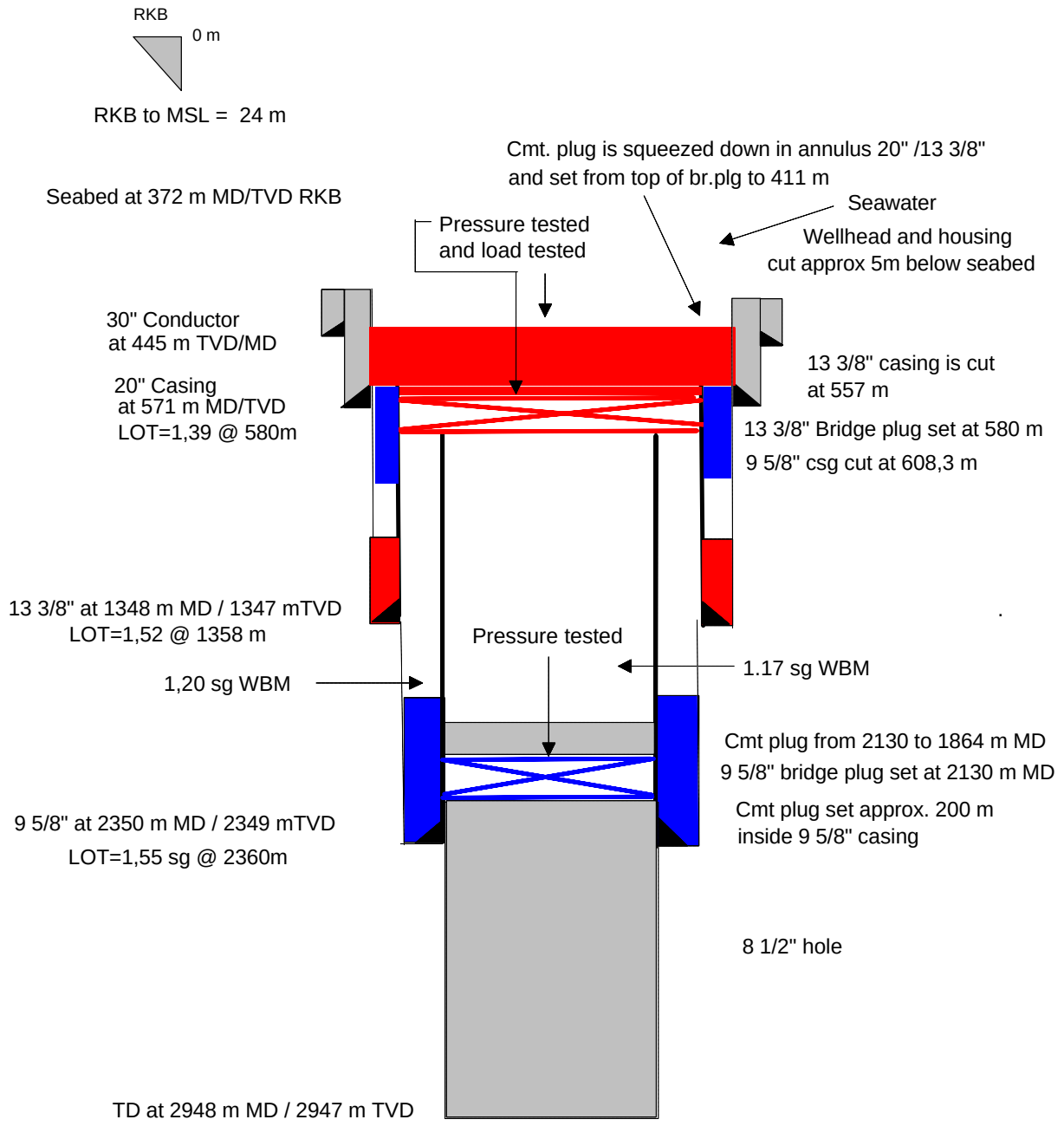
Figure 1		Time Distribution 36/7-3	**HYDRO**



RIGHEADING 210 DEG.

ANCHOR NO	DIRECTION (DEG.)	LENGTH (m)
1	232	1679
2	277	1756
3	322	1747
4	7	1773
5	52	1757
6	97	1758
7	142	1708
8	187	1706

Figure 2		RIG ANCHORS TRANSOCEAN ARCTIC 36/7-3	**HYDRO**



Final Well **Well 36/7-3**	**Fig. 3** **Revision: 0**	**Permanent Plug and Abandonment**

SECTION C

COMPOSITE LOG

LITHOLOGY LOG

CORE LOG

POST SITE SURVEY PANEL