Title: WELL 15/12-12
FINAL WELL REPORT
PL 038

No. :
Rev. : 0
Page : 1 of 67
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PREFACE

License PL 038 was awarded 1974 as part of the 3rd licence round with Saga Petroleum as the operator. The licence is located in block 15/12 in the southern part of the Varg field. The location map is shown on page 3.

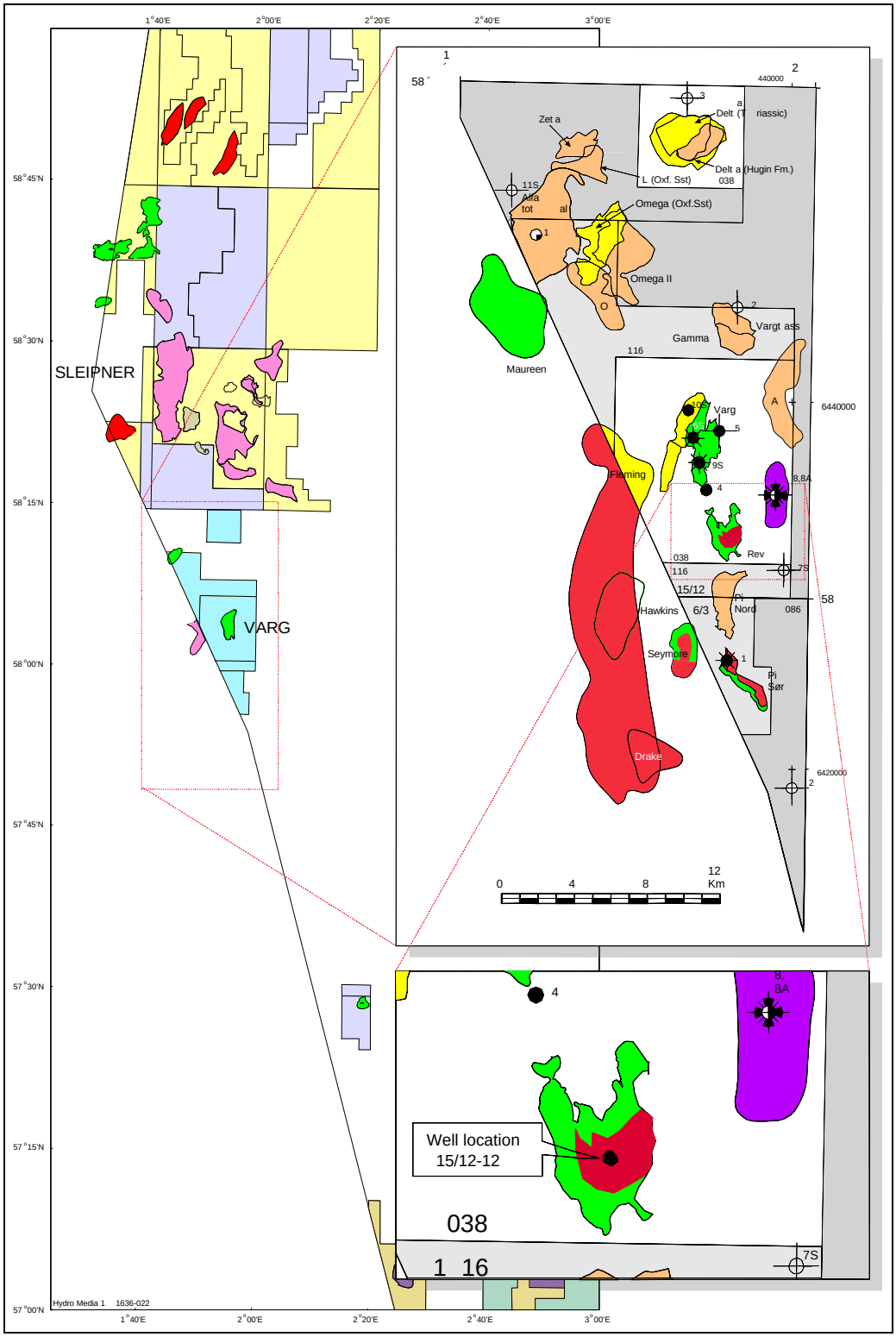
The licensees percentage share at the time of operation is as follows:

Norsk Hydro (operator)	35 %
Statoil	35 %
SDFI	30 %

The well was drilled by Norsk Hydro ASA, on behalf of the group, during December 2000 - February 2001.

All depths in this report are in mMD RKB (RKB elevation is 26m) unless otherwise stated.

LOCATION MAP



SUMMARY OF WELL DATA	
LOCATION:	GEO; 58° 01' 40.68"N 01° 55' 28.34"E UTM; 6 432 475.8 mN 436 478.4 mE ED 50, UTM Zone 31, CM 03°E
OPERATOR: RIG: CONTRACTOR:	Norsk Hydro Scarabeo 6 Saipem
KB ELEVATION (to MSL): WATER DEPTH (MSL):	26.0m 87.0m
START OF OPERATIONS: WELL SPUDDED: REACHED TD ON: COMPLETED: STATUS: FORMATION AT TD:	19.12.2000 25.12.2000 20.01.2001 09.02.2001 Temporarily Plugged and Abandoned. Skagerrak Fm
TD DRILLER (mRKB): TD LOGGER (mRKB):	3085 m MD Not logged
DRILLING DEPTHS:	36" to 185 m 26" to 605 m 17 1/2" to 1384 m 12 1/4" to 2836 m 8 1/2" to 3085 m
CASING DEPTHS:	30" to 185 m 20" to 599 m 13 3/8" to 1377 m 9 5/8" to 2829 m

SECTION A

GEOLOGY

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SECTION A: LIST OF FIGURES, TABLES AND APPENDICES

1 Objectives

The objective for well 15/12-12 was to test the hydrocarbon potential of the Rev structure in PL 038 approximately 5 km south-east of the Varg Field (Varg A Platform). The target level was Oxfordian Sands in the Heather Fm. of the Viking Group.

2 Results

A total of 121 m (2856 - 2977 m MD) gross Upper Jurassic reservoir sequence was penetrated in well 15/12-12 on the Rev Structure. The reservoir is interpreted as shallow marine sand bodies and are dated mainly Oxfordian of age. However, the uppermost part of the reservoir (7 m) is dated Earliest Kimmeridgian of age. The massive sands have very good reservoir quality. The interval between 2864 - 3000 m MD was cored, nearly a complete reservoir section and the upper part of Triassic. The cored interval of the reservoir had good hydrocarbon shows.

Pressure data showed a clear gas gradient with a distinct GOC at 2954 m MD (2912 m TVD MSL) and an oil gradient down to base of reservoir (Top Triassic) at 2977 m MD (2932,5 m TVD MSL). MTD samples of the oil leg indicates and ODT situation. The pressure data also showed approximately 40 bars of depletion, caused by the production on the Varg Field (Southern Segment).

GROUP	FORMATION	mMD / mTVD	m TVD MSL	Thickness m TVD
Nordland Gp	Sea floor	113,0 / 113,0	87,0	
	Top Utsira Formation	1158,0 / 1158,0	1132,0	86,9
Hordaland Gp		1245,0 / 1244,9	1218,9	992,7
Rogaland Gp	Top Balder Fm	2238,0 / 2237,6	2211,6	14,0
	Top Sele Fm	2252,0 / 2251,6	2225,6	60,0
	Top Lista Fm	2312,0 / 2311,6	2285,6	107,9
	Top Våle/Maureen Fm	2420,0 / 2419,5	2393,5	24,2
Shetland Gp	Top Ekofisk Fm	2445,0 / 2444,5	2418,5	5,0
	Top Tor Fm	2450,0 / 2449,5	2423,5	108,0
	Top Hod Fm	2558,0 / 2557,5	2531,5	93,0
	Top Blodøks Fm	2651,0 / 2650,3	2624,3	26,0
Cromer Knoll Gp	Top Rødby Fm	2677,0 / 2676,3	2650,3	55,8
	Top Sola Fm	2733,0 / 2732,1	2706,1	40,5
	Top Valhall Fm	2774,0 / 2772,6	2746,6	18,4
Viking Gp	Top Draupne Fm	2793,0 / 2791,0	2765,0	53,8
	Top Kimmeridgian Sst	2851,0 / 2844,8	2818,8	4,6
	Top Intra Heather Reservoir	2856,0 / 2849,4	2823,4	109,1
	GOC	2954,0 / 2938,0	2912,0	
	ODT	2977,0 / 2958,5	2932,5	
Hegre Gp	Skagerrak Fm	2977,0 / 2958,5	2932,5	
TD		3085,0 / 3055,8	3029,8	

Table 2.1: Formation Tops 15/12-12

3 Biostratigraphy

The biostratigraphical evaluation (1390m -3085m MD) of the well 15/12-12 was carried out by APT and Mike Whitaker. Micropalaeontological and palynological analyses have formed the basis for the biostratigraphical interpretations of the well. The analyses were carried out on ditch cuttings and core material. Results are available within Stratabugs, Hydro biostratigraphical data base. Table --- shows a summarised biostratigraphical subdivision of the well. The interpretation is in accordance with Norsk Hydro standard zonation for the area.

The main highlights are as follows.

- The youngest sediments analysed at 1390m DC are of Early Miocene age.
- The oldest sediments at 2977m LOG (Skagerrak Formation) yielded no datable material and were identified by their red/green lithologies.
- A hiatus is clearly identified between the Early Santonian-Late Coniacian and the underlying Middle Albian.
- A minor hiatus my exist between the Middle Albian and the Early Aptian.
- A minor hiatus may similarly exist between the Early Hauterivian-Late Valanginian and the underlying Ryazanian-Late Volgian strata.
- An extended S1 Zone with a younger interval of sands is noted in the uppermost part of the reservoir.
- A series of faulted contacts are postulated within the Late Oxfordian, Upper sands. Some of the reservoir section is believed faulted out between 2885m CORE and 2885.41m CORE.
- A reduced thickness of Lower Sand is observed due to the hiatus and later onlap of the Early Oxfordian sands on to the Triassic in this area.

CHRONO- AND LITHOSTRATIGRAPHICAL BREAKDOWN, WELL 15/12-12

DEPTH	AGE	MICRO ZONE	PALY-ZONE	LITHO ZONE	LITHO-UNIT
1390m DC	EARLY MIOCENE				HORDALAND GROUP
1400m DC	LATE OLIGOCENE	NSR8A	PT8		
1530m DC	EARLY OLIGOCENE	NSR7A/7B	PT7C		
1800m DC			PT7B		
1960m DC			PT7A		
2040m DC	LATE EOCENE		PT6		
2080m DC	MIDDLE EOCENE	NSR5B-5A	PT5		
2120m DC			PT4B1		
2200m DC			PT4A2		
2240m DC	EARLY EOCENE	NSR3	PT3B1-PT3A2		
2280m DC	EARLIEST EOCENE	NSR3	PT3A2-PT3A1		
2320m DC	LATE PALAEOCENE	NSR2B	PT2B3-PT2C		ROGALAND GROUP
2350m DC			PT2B2		
2400m DC			PT2A2		
2430m DC	EARLY PALAEOCENE	NSR1	PT1C2		
2440m DC			PT1C1		
2450m DC	MAASTRICHTIAN - LATE CAMPANIAN				SHETLAND GROUP
2520m DC	CAMPANIAN				
2640m DC	MIDDLE CAMPANIAN		PK8B2		
2680m DC	EARLY SANTONIAN - LATE CONIACIAN				
					----------HIATUS----------
2700m DC	MIDDLE ALBIAN	FCN10a			CROMER KNOLL GROUP
					----------HIATUS----------
2720m DC	EARLY APTIAN	FCN7			
2730m DC	LATE BARREMIAN	FCN6	PK3C		
2740m DC	EARLY BARREMIAN	FCN5	PK3A2		
2750m DC	LATE HAUTERIVIAN	FCN4			
2780m DC	EARLY HAUTERIVIAN - LATE VALANGINIAN	FCN3			
					----------HIATUS----------
2800m DC	RYAZANIAN - LATE VOLGIAN		PK1B-PK1A		
2810m DC	LATE VOLGIAN		PJ9-PJ7		
2820m DC	MID? VOLGIAN		PJ8?		
2830m DC	EARLY VOLGIAN		PJ7C		
2850m DC	LATE KIMMERIDGIAN		PJ7B		HEATHER FM.
2862m LOG	MID?-EARLY KIMMERIDGIAN		PJA	S1	UPPER SAND
2863m DC	EARLIEST KIMMERIDGIAN		PJ7A	S1	
2865.00m CORE	LATE OXFORDIAN		PJ6C2	S2	

					----------FAULT----------
2885.00m CORE			PJ6C2	S2	
					----------FAULT----------
2885.41m CORE			PJ6C2	S2/3	
2889.00m CORE			PJ6C2	S3	
					----------FAULT----------
2891.75m CORE			PJ6C2	S2?(5?)	
					----------?FAULT?----------
2982.50m LOG			PJ6C2	S5	
2902.00m CORE			PJ6C2-PJ6C1	S7	
2920.50m CORE			PJ6C1	S8	
2921.50m CORE			PJ6C1	S9	LOWER SAND
2949.00m CORE/LOG			PJ6C1	S10	
2957.51m CORE	EARLY OXFORDIAN		PJ6B	S10	
2960.50m LOG			PJ6B	S11	
2963.00m LOG			PJ6B	S12	
					----------HIATUS----------
2977.00m LOG	TRIASSIC				SKAGERRAK FM.

Table 3.1: Chrono- and lithostratigraphy

4 Litostratigraphy

All depths are in mMD RKB (RKB elevation is 26m).

This summary is compiled predominantly from ditch cuttings descriptions. A total of 6 conventional cores were cut in the interval from 2864m to 3000 m in the well, see Table 6.1.1.

Wire line and MWD logs were used to aid lithological interpretation and the placement of formation boundaries.

The well was drilled with returns to the sea floor from 113 m to 605 m before setting 20" casing at 599 m. The first drill cuttings samples were taken at 1390 m. Through the interval down to 1390m, the lithology interpretation is based on MWD logs and drilling parameters.
All Formation depths are well site estimates and are to be interpreted as preliminary until project revision.

4.1 Nordland Group (113 - 1245m)

Undifferentiated (113-1158)
From MWD logs: This interval comprises Clay inter bedded with Sand.

Utsira Formation (1158-1245m)
From MWD logs: This interval comprises of massive sand units separated with thinner clay intervals.

4.2 Hordaland Group (1245-2238m)

1245-1390m
From MWD logs: The interval comprises Clay stones

1390-1440m
The interval comprises silty Clay stones

Clay stone: dsky yel brn, frm sbblky, v slty I.P.grdg Sltst, slily calc, abd Micropyr, Tr Carb

1440-1620m
The interval comprises Claystones with traces of Lime stones and Dolomites

Clay stone: pred brn blk-brn gry also olv gy-lt brn gry, frm-mnr sft, sbblky, non-slily slty, slily micromic, tr-sl carb, r Micropyr, r grn Glauc g, occ Foram, Ech, Shl frag
Limestone: v lt gry-dk yel or-mod yel brn-wh, mod hd-hd, cryptoxln
Dolomite: dsky yel brn, hd, blky, brit, cryptoxln, slily arg

1620-1770m
The interval comprises Clay stones with traces of Lime stones

Clay stone: olv gry-olv blk, mnr lt olv gry and brn blk-brn gry, frm-mnr sft, sbblky, gen non-slily slty, slily micromic, loc Tr Carb, v r Micropyr, r Foram, Ech, Shl frag, non-slily calc
Limestone: v pl or-yel gry, mod hd, blky, microxln, arg mnr grdg Mrl,

1770-1860m
The interval comprises Clay stones with traces of Lime stones

Clay stone: olv gry-m dk gry-m lt gry , mnr brn gry-brn blk, frm, sbblky, gen non-slily slty, slily micromic, loc Tr Carb, v r Micropyr, r Foram, Ech, Shl frag, non-slily calc
Limestone: v lt gry- v pl-off wh, mod hd, blky, microxln, I.P slily arg

1860-2040m
The interval comprises Claystones with traces of Lime stones and rare traces of Dolomite

Clay stones: pred brn gry-brn blk, mnr olv gry-dk gry, frm, sbblky, slily slty, non calc, occ slily calc, Tr Micromic, r-Tr Micropyr, r-tr carb, r Sh frag, occ r Pyr Nod
Limestone: v lt gry-pl yel or, dk yel or-mod yel brn, sbblky-blky, mod hd, crpxln, occ slily arg
Dolomite: dk yel brn, blky, mod hd, I.P. sucr, microxln, slily arg I.P

2040-2110m
The interval comprises varicoloured Claystones with traces of Lime stones

Clay stone(1):olv gry-gn gry, occ m gry, frm, sbblky, gen non calc, I.P. slily calc, r-Tr Micromic, r carb, non-r Micropyr
Clay stone(2):brn gry, dsky yel brn, frm, sbblky, non calc, slily slty, Micromic, Tr Micropyr, r carb
Limestone: wh-v lt gry, pl yel or-dk yel brn, blky, mod hd, gen crpxln, I.P. micro-crpxln, occ slily arg

2110-2190m
The interval comprises Claystones with rare Limestone stringers

Clay stone(1):olv gry-gn gry, occ m gry, frm, sbblky, gen non calc, I.P. slily calc, r-Tr Micromic, r Carb, non-r Micropyr
Clay stone(2):brn gry, dsky yel brn, frm, sbblky, non calc, slily slty, micromic, Tr Micropyr, r carb
Limestone: wh-v lt gry, pl yel or-dk yel brn, blky, mod hd, gen crpxln, I.P. micro- crpxln, occ slily arg

2190-2238m
The interval comprises varicoloured Claystones

Clay stone(1):m dk gry-dk gry, olv gry-gn gry, frm, sbblky, non calc, non slty, r micromic, r Micropyr, r Carb
Clay stone(2):brn gry at top, bcm varicol at btm; brn gry, mod brn, dk yel brn, occ mod yel brn, frm, sbblky, non-slily calc, slily slty, micromic, Tr Micropyr, r-Tr Carb

4.3 Rogaland Group (2238-2445m)

Balder Fm (2238-2252m)

2238-2252m
The interval comprises varicoloured Claystones inter bedded with Tuff and with traces of Lime stones

Clay stone(1):varicol; brn gry, mod brn, dk yel brn, r mod yel brn, sbblky, non-slily calc, slily slty, micromic, Tr Micropyr, r-Tr carb
Clay stone (2): brn gry-brn blk, frm sbblky, non calc, non slty, Tr Micropyr, r carb, r micromic
Tuff: m lt gry-m gry, m bl gry, frm, sbblky, non calc, ashy, Glas Frags, slty ap
Limestone: wh-v lt gry, blky, mod hd, crpxln

Sele Fm (2252-2312m)

2252-2312m
The interval comprises Claystones

Clay stone: olv gry-m dk gry, brn gry-brn blk, frm, sbblky, non calc, mod carb, r Micropyr, r Pyr, r micromic, lam

Lista Fm (2312-2420m)

2312-2350m
The interval comprises Claystones

Clay stone(1): m bl gry-m gry, mnr lt bl gry-m lt gry, frm, blky, non calc, Tr blk spks, r Pyr-Micropyr
Clay stone(2): olv gry-m dk gry, mnr brn gry-brn blk, frm, sbblky, non calc, mod carb, r Micropyr, r Pyr, lam

2350-2400m
The interval comprises Claystones with rare traces of Lime stones

Clay stone(1):m bl gry-m gry, mnr lt bl gry-m lt gry, frm, blky, non calc, Tr blk spks, r Pyr-Micropyr
Clay stone(2):brn gry-dk yel brn-blk rd, mod hd, blky, non calc, lam, slily micromic
Limestone: v lt gry-yel gry, hd, blky, microxln-xln, brit.

2400-2420m
The interval comprises Claystones with rare traces of Lime stones

Clay stone(1):m bl gry-m gry, mnr lt bl gry-m lt gry, frm, blky, non calc, Tr blk spks, r Pyr-Micropyr
Clay stone(2):gry rd-gry brn-dsky brn, mod hd, blky, non calc, Tr Micromic, occ Bnd w/Clst(1)
Limestone: v lt gry-lt gry, wh, hd, blky, microxln-xln, brit

Våle / Maureen Fm (2420-2445m)

2420-2440
The interval comprises Marl inter bedded with Claystones

Marl: olv gry-m dk gry, frm-mod hd, sbblky, v arg grd Clst
Clay stone: m bl gry-m gry, mnr lt bl gry-m lt gry, frm, blky, non calc, Tr blk spks, r Pyr-Micropyr, also mnr Clst: gry rd-gry brn-dsky brn, mod hd, blky, non calc, Tr Micromic

2440-2445
The interval comprises Marl inter bedded with Chalky Limestone

Marl: olv gry-m dk gry, frm-mod hd, sbblky, v arg grd Clst
Limestone: yel gry, mnr wh, hd, blky, crpxln

4.4 Shetland Group (2445-2677m)

Ekofisk / Tor Fm (2445-2558m)

2445-2558m
The interval comprises Chalky Lime stones with traces of Claystones

Limestone(1):yel gry-pk gry, bcm pred wh-v lt gry, mod hd, blky, crpxln, chky
Limestone(2):brn gry-brn blk, Tr mod brn, Tr gn gry, frm, non-mod calc, occ Micromic, occ carb
Clay stone(1):m bl gry-m gry, mnr lt bl gry-m lt gry, frm, blky, non calc, Tr blk spks, r Pyr-Micropyr
Clay stone(2):gry rd-gry brn-dsky brn, mod hd, blky, non calc, Tr Micromic

Hod Fm (2558-2651m)

2553-2651m
The interval comprises Chalky Lime stones with trace of Claystones and rare traces of Marl

Limestone:	wh-v lt gry, r pk gry, bcm wh-v lt gry, m gry, pl yel or, at btm, blky, mod hd, crpxln, chky
Clay stone:	dk gry-brn gry, olv gry, non-slily calc, occ mod calc, slily slty, micropyr, micromic, r carb
Marl:	dk yel brn-pl yel brn, sft-frm, arg, I.P. grd v calc Clst

Blodøks Fm (2651-2675m)

2661-2675m
The interval comprises Chalky Lime stones with traces of Claystones and Sand stones

Limestone:	wh-v lt gry, r pk gry, bcm wh-v lt gry, m gry, pl yel or, at btm, blky, mod hd, crpxln, chky
Clay stone:	brn blk-dusky yel brn, m dk gry-dk gry, frm-mod hd, blky, slty-vf sdy, non-slily calc
Sandstone:	clr Qtz, vf-f, r m, sbrndd, lse, mod srt

Hidra Fm (2675-2677m)

2675-2677m
The interval comprises Marl with traces of Sand stones

Marl:	pl brn-gry brn-gry rd, frm-mod hd, blky, I.P. v calc grad Ls, I.P. vf sdy Glauc grdg Sst, gen Tr grn Glauc, Tr Mic fl
Sandstone:	clr Qtz, vf-tr f, rnd-sbrndd, lse, mod-wl srt

4.5 Cromer Knoll Group (2711-2793m)

Rødby Fm (2711-2733m)

2677-2711m
The interval comprises Marls and Sand stones with traces of Limestone

Marl:	pl brn-gry brn-gry rd, brn, m dk gry-m lt gry, frm-mod hd, blky, I.P. v calc grad Ls, I.P. vf sdy Glauc grdg Mrly Sst, gen Tr grn Glauc, Tr Mic fl
Sandstone:	clr trnsl Qtz, v lt gry-pl yel brn-lt brn, pred vf, mnr f, r m, gen fri-lse, wl srt, wl rnd, mic, Tr Glauc, sli-v arg-Mrly, gen pr vis por.
Limestone:	wh-v lt gry, mod hd, blky, plty, chky-microxln, Tr grn Glauc, r vf sdy

2711-2733m
The interval comprises Marls with traces of Claystones, Lime stones and rare Sandstone

Marl:	mod brn-dk rd brn, sbblky, sft, slily slty-vf sdy, v calc
Clay stone:	brn blk-dusky yel brn, m dk gry-dk gry, frm-mod hd, blky, slty-vf sdy, non-slily calc
Sandstone:	clr trnsl Qtz, v lt gry-pl yel brn-lt brn, pred vf, mnr f, r m, gen fri-lse, wl srt, wl rnd, mic, Tr Glauc, sli-v arg-Mrly, gen pr vis por.
Limestone:	wh-v lt gry, mod hd, blky, plty, chky-microxln, Tr grn Glauc, r vf sdy

Sola Fm (2733-2774m)

2733-2774m
The interval comprises Lime stones and Claystones

Limestone:	olv gry-lt olv gry-m dk gry-v lt gry, Tr pnksh gry-gry org, blky-sbblky, sft, gen sl-mod arg, I.P. v arg grdg Mrl, r Micropyr, r slty, r sdy:vf.
Clay stone:	olv blk-brn blk. mod hd, sbfis-plty, flaky, non calc, slily micromic, carb mat, slily slty.

Valhall Fm (2774-2793m)

2774-2793m
The interval comprises Marls with Lime stones and Claystones

Marl:	grysh rd-mod brn, mnr pl rd brn-lt brn, frm-mod hd, gen v arg grdg Mrly Clst, abd v calc grdg Ls, I.P. micromic.
Limestone:	yel gry-v lt gry-m lt gry, blky, microxln, sl-mod arg.
Clay stone:	olv blk-brn blk, mod hd, sbfis-plty, slily micromic, slily slty, greasy app, non calc

4.6 Viking Group (2793-2977m)

Draupne Fm (2793-2851m)

2793-2851m
The interval comprises organic rich Claystones with Limestone stringers

Clay stone: olv blk-olv gry, sft-frm, subfis, earthy, Tr Micromic, Tr Carb mat, non-slily calc, non-slily slty, mnr Micropyr, Tr Pyr Nod
Limestone: wh-v lt gry, frm-mod hd, blky, Tr arg mat, microxln

Kimmeridge Sand stones (2851-2856m)

2851-2856m
The interval consists primarily of Sandstone

Sand stone: m gry-dk gry, brnsh gry, clr trnsl-mky Qtz, f-m, pred f, v r crs, sbang-sbrndd, wl srt, frm-mod hd, slily calc cmt, r carb frag, gd vis por.

Intra Heather Formation Sand stones (Oxfordian Sands)

2856 - 2977m
The interval consists primarily of Sandstone with minor Clay stone beds towards the base.

Sandstone: olv gry-gn gry-lt brn gry, clr-mky Qtz,vf-crs,gen f-m,gen sbang-sbrndd,I.P.rndd,r ang, mod -wl srt,fri- mod hd,gen slily sil cmt,r calc/dol cmt, I.P. v calc,loc var arg IP grad Clst/Sltst,incr Kao Mtrx/Cmt,gen Mic,micromic,var Tr carb,IP Glauc/Chlor, loc rpl,x-strat,bioturtb,hi angle clst bds w/slick, n.v.p.-gd vis por.

Clay stone: dk gn gry-m dk gry,sbblky-blky,firm-mod hd,non calc,slty-vf sdy,abd micromic,carb frag.

4.7 Hegre Group

Skagerrak Formation

2977 - 3085 m (Total Depth of Well)

The interval comprises Sandstone and Claystone with thin stringers of Limestone.

Sandstone: lt gn gry-lt gry,clr-mky Qtz,vf-f,r m,pred f,sbrndd-rndd,wl srt,fri,pred lse Qtz grns,arg Mtrx,non-slily calc cmt,r carb frag,r Tr Micromic,gen v arg/slty grad Clst/Sltst,pr vis por.

Clay stone: mod brn-dk rd brn,mnr dk gry-gry blk-gn gry,sft-firm,sbblky-amor,loc stky,non-sl calc,loc vf sdy,Tr carb Frag,Tr micromic,loc v carb grad C.

Limestone: v lt gry-dk gry,sbblky,crptoxln,loc grad Dol,I.P.arg grad Mrl.

5 Hydrocarbon Shows

The evaluation of hydrocarbon shows at the well site was carried out in a conventional manner. A standard (Sperry Sun) hydrocarbon total gas detector system (THA) together with a gas chromatograph for automatic and continuous gas analysis, recorded as PPM by volume of C1 through nC5, were operational below 605m down to the TD of the well.

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

5.1 Gas Record

For gas record in the well, see "Lithology Log" attached in Section 3, and End of Well Report from Sperry Sun, Halliburton, Well 15/12-12.

5.2 Oil stain and Fluorescence

A summary of the observed shows is given in the table below:

INTERVAL (mRKB)	SOURCE	LITHOLOGY	SHOWS DESCRIPTION
2440-2490	Drill cuttings	Chalky Limestone	gen dull yel dir Flu, no cut. Tr bri yel dir Flu, fnt v wk bl wh flu cut, no vis cut, no Flu res, no vis res
2690-2710	Drill cuttings	Sandstone	wk pet od, pn pt lam mod bri yel dir fluor, fast strmg-blmg flu Cut, str vis Cut, wh yel fluor Res, lt brn-strav vis Res
2850-2864	Drill cuttings	Sandstone	no od, no O Stn, no dir Fluor, slw cldy wk bl wh cut Fluor, no vis cut Fluor, no vis Res.
2864-2901	Cores	Sandstone	pr-fr spty pl crm-yel dir Fluor, mod-inst blmg mod bl wh Fluor cut, no vis cut, gd mod bl wh - crm even - diskr pts Fluor Res, no vis Res.
2901-2916	Cores	Sandstone	Fr pet od, no O stn, Tr spty fnt crm dir Fluor, mod blmg mod bl wh Fluor cut, no vis cut, fr mod bl wh-crm even disk pts Fluor Res, no vis Res.
2916-2936	Cores	Sandstone	Pr-fr pet od, no-Tr spty lt brn O stn,pr-fr spty dull yel dir Fluor, slow-occ inst strmg bl wh-yel wh Fluor cut, no vis cut, pr-fr, pred fr dull bl wh - crm even Fluor Res, no vis Res
2 936-2960	Cores	Sandstone	Gen fr-gd pet od,Tr lt brn O stn,gen fr uni or yel dir Fluor,inst-fast strmg bl wh-yel wh Fluor cut,gen fast strmng amber vis cut,gd or yel-wh yel Fluor Res,lt brn vis Res.
2961-2969	Cores	Sandstone	Gen fr-gd pet od,Tr lt brn O stn,gen fr uni or yel dir Fluor,inst-fast strmg bl wh-yel wh Fluor cut,gen fast strmng amber vis cut,gd or yel-wh yel Fluor Res,lt brn vis Res.
2970-2971	Cores	Sandstone	Gen fr-gd pet od,Tr lt brn O stn,gen fr uni or yel dir Fluor,inst-fast strmg bl wh-yel wh Fluor cut,gen fast strmng amber vis cut,gd or yel-wh yel Fluor Res,lt brn vis Res
2973- 2977	Cores	Sandstone	wk-mod pet od,uni lt brn O stn,wk dull or uni dir Fluor,fast strmg bl wh Fluor cut,straw vis cut,wk or Fluor Res,wk lt brn vis Res.
2983-2984	Cores	Sandstone	Fr pet od,pch lt brn O stn,fr pch yel dir Fluor,inst strmg strg bl wh-yel wh Fluor cut,fast strmg amber vis cut,gd bl wh-yel wh uni Fluor Res,mod lt brn Fluor Res.
2987-2988	Cores	Sandstone	Fr pet od,lam brn O stn,lam or yel dir Fluor,fast-inst strmg bl wh Fluor cut,inst strmg straw vis cut,fr or yel Fluor Res,lt brn vis Res.
2990-2991	Cores	Sandstone	Fr pet od,lam/uni dk brn O stn,gen or yel pt lam bri yel dir Fluor,fast strmg lt amber vis cut,or yel Fluor Res,lt brn vis Res.
2991-2992	Cores	Sandstone	Fr pet od,lam lt brn O stn,uni or yel dir Fluor,fast strmg lt amber vis cut,fast-inst strmg bl wh Fluor cut,fr or yel Fluor Res,lt brn vis Res.
2994-2996	Cores	Sandstone	Fr pet od,lam/uni dk brn O stn,gen or yel pt lam bri yel dir Fluor,fast strmg amber vis cut,or yel Fluor Res,lt brn vis Res.

Table 5.2 Shows summary 15/12-12

6 Coring

6.1 Conventional Cores

A total of 6 core was cut in Oxfordian Sandstone, of the Heather Formation. 90 ft aluminium inner barrels were used when coring. Experienced significant reduced ROP while cutting Core #4. Core #5 and #6 jammed off.
A summary of the core job is presented in Table 6.1 below and the core description can be found in Appendix I.

Core no.	Top [m MD RKB]	Bottom [m MD RKB]	Recovery (%)	Depth shift (m)*	Formations
1 Rec	2864,00 2864,00	2892,00 2892,00	100	+0.5	S1/S2/S3/S5
2 Rec	2892,00 2892,00	2920,00 2920,00	100	+0.8	S5/S7
3 Rec	2920,00 2920,00	2948,00 2948,00	100	+0.6	S8/S9
4 Rec	2948,00 2948,00	2976,00 2974,70	95,4	+0.6	S9/S10/S11/S12
5 Rec	2976,00 2976,00	2986,00 2984,20	82	-0.7	S12/Trias
6 Rec	2986,00 2986,00	3000,00 2997,70	90	-0.7	Trias
*Average dynamically depth shift applied to each core, there is no overlap in depth between the cores.					

Table 6.1.1: Core Depth Shift 15/12-12

6.2 Side wall Cores

No side wall cores were taken.

7 Logging

7.1 MWD Logs

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

Run no.	Log Depth Interval m RT	Hole section	Tool	Comments
1	113,0 - 177,5	36"	MWD-CDR	
2	184,5 - 593,0	26"	MWD-CDR	
3	605,0 - 1375	17½"	MWD-CDR	Problems with the heave compensator
4	1366 - 2661	12¼"	MWD-CDR-CDN-RAB	RAB and CDN failed, battery and mud invasion
5	2648 - 2823	12¼"	MWD-CDR- CDN-RAB	Unable to retrieve memory data on rig. No RAB data in interval 2793 - 2836m MD due to over-range above 400
6	2818 - 2846	8½"	MWD-ADN-RAB	
7	2827 - 3084	8½"	MWD-ADN-RAB	5m data gap for all curves on real-time log.

Table 7.1: MWD runs

The RAB tool provided resistivity measurements at bit and near bit GR readings.
More detailed MWD results can be found in the report "End of Well Report/Logs, (Schlumberger/Sperry-sun) Well 15/12-12

7.2 Wire line Logs

The following table is a summary of wire line logs run in the well and shows log type, date run, logged intervals and run number for each log.
MDT results are covered in chapter 8.

Logs		Date	Logged interval (mRKB)	Run	Comments
CMR plus -ECS	Wire line	21-24.01.01	2820,0 - 2983,0 m	1A	Stuck. No data.
MDT w/samples	TLC	25-27.01.01	2859,5 - 2937,0 m	1A	16 good p.p. of 20, sample @ 2867,5 m
MDT w/samples	TLC	27-28.01.01	2895,0 - 3040,0 m	1B	11 good p.p. of 35, sample @ 2895 and 2961,5 m
FMI-DSI-CMR200	TLC	29-30.01.01	2182,5 - 2362,0 m	1A	GPIT problems on FMI, made two passes.
DP MDT w/samples	TLC	30.01-01.02.01	2964 and 2972,5m	1C	Sample @ 2964 m and at 2972,5m
APS/VSP/CCL	TLC	01-02.02.01	3040,0 - 2460,0 m	1A	Control lines to VSP gun broke when at station 2460 and job was abandoned.
DSI/ECS/HNGS	Wire line	02.-03.02.02	2829,0 - 2200,0 m	1B	

Table 7.2: Wire line log

7.3 Velocity survey

A Zero Offset VSP was acquired by Schlumberger, and processed by Read Well Services. A total of 73 levels (10 meters interval) were recorded from 3040.5 m to 2330.5 m measured depth bellow kelly bushing (KB). Three clustered 155 cu. in. air guns were used as the source. The receiver array consisted of two tools (CSAT), each containing a 3 component geophone cartridge.
The weather condition during the survey was bad and the data quality is varying, but the match of travel times with the interpretation is quite good.

For more information see the VSP report.

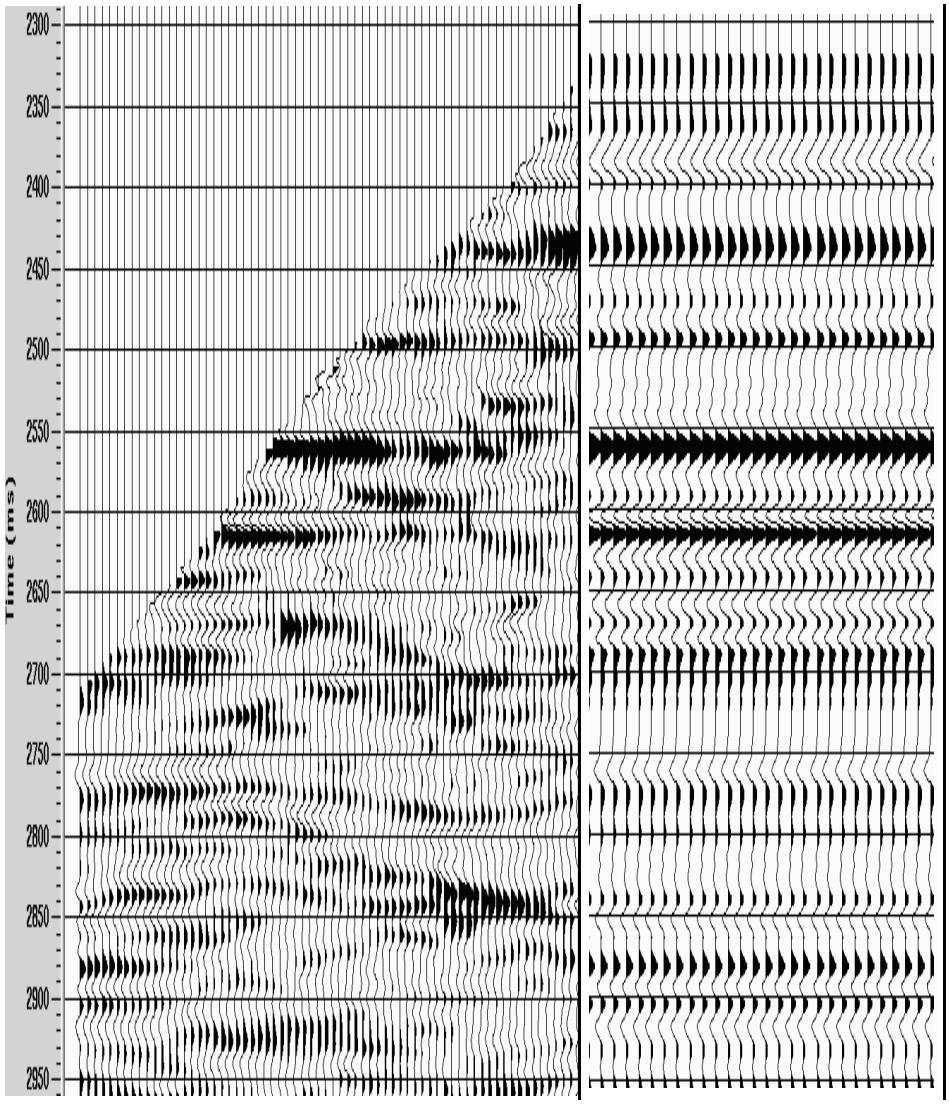


Figure 7.3

7.4 Bottom Hole Temperatures From Wire line Logs

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

Log suite	Run	Depth m MD / TVD	Temp ° C	Time since circ. (hrs)
CMR	1A	3015,5 / 2992,6	125,0	124,4
MDT w/samples	1A	2937,0 / 2992,5	115,6	36,8
MDT w/samples	1B	3040,0 / 3015,0	123,1	79,8
FMI/DSI/CMR200	1A	3060,0 / 3033,1	117,0	111,2
DP MDT	1C	3006,8 / 2985,3	117,0	14,6
VSP/APS/CCL	1A	3040,0 / 3015,0	124,0	185,0
DSI/ECS/HNGS	1B	Inside casing	----	----

Table 7.4: Bottom Hole Temperatures 15/12-12

8 Petrophysical Results

8.1 Summary

About 104 m MD of the Intra Heather Sandstone is interpreted as net reservoir formation in 15/12-12. The well also penetrated a 5 m MD Kimmeridgian sandstone unit above, but this is not considered as net reservoir.

The Upper Sand (S1-S5) consists mainly of homogeneous sandstone with excellent reservoir quality. The Serratum Sand (S7 and S8) is a massive sand with higher shale content than the Upper Sand. The Lower Sand (S9-S12) have also excellent reservoir quality above 2944m MD. Below this depth the sand is more heterogeneous and the reservoir quality decreases downwards.

The MDT formation pressures give a gas gradient of 0.0223 bar/m. The oil gradient is taken from the PVT analysis which gives an oil gradient of 0.0636 bar/m. The gas oil contact is defined at 2954m MD. The pressure points and fluid samples indicate oil down to 2972.5 m MD.

The Rev reservoir was found to be depleted due to production from the Varg field. The communication between the two fields are most likely through the water zone.

Full details of the Formation Evaluation is provided in the report "Well 15/12-12, Formation Evaluation Report" (**Reference 10**).

8.2 Log Data Acquisition

Logs run in the well are listed in **Table 7.1** and **Table 7.2** . The well was drilled and logged using Glydrill (KCL Polymer) water based mud. The quality of the LWD data are generally good in the reservoir section. Due to problems with the LWD depth line system on surface, the data was reprocessed and depth shifted using the first wire line log run in the well (ECS-CMR+-GR) as depth reference. More detailed MWD results can be found in the report "End of Well Report/Logs, (Schlumberger Anadrill) Well 15/12-12".

The ECS-CMR+-GR was run on wire line, but the log got stuck during tuning after the first down pass. After waiting on weather for 32 hours a fishing operation was performed. Due to several problems to free the tool, the tool was damaged in the process. It was then decided to complete the logging operation on drill pipe/ TLC (tough logging conditions). The quality on the down log seems to be good, and the tension curve shows only minor sticking problems.

Due to problems with the hydraulic pump on the first MDT run (1A), another MDT run was needed (1B). The depth correlation was difficult on the first MDT run due to bad weather conditions and "semi-working" heave compensator.

CMR200 was used to complete the CMR survey. This was run together with FMI-DSI. First FMI-DSI-GR was run logging up, the DSI was run in P&S, Upper and Lower Dipole. After tuning, a "Full porosity pass CMR" was run on way down. FMI was then run on way up, the CMR was tuned at 2930 m MD RKB, and a "CMR Diffusion Pass" logged on way down. FMI inclinometer problems required an extra pass to be made. The tension curves from the FMI-DSI-GR show several sticking through the entire interval. This will affect the FMI data since it's difficult to correct the difference in acquisition depth when the tool speed is not constant. The GR, DSI and CMR seem not to be influenced by the sticking and the quality is reasonably good.

An extra MDT run (1C) was performed in order to identify an oil water contact in the low permeability zone. An inflatable packer module was run on this MDT-string. An APS log (neutron porosity) was ran together with VSP to evaluate possible hydrocarbons in the Blodøks formation in the 9 5/8" csg. The VSP was very noisy due to pipe vibration in the riser.

DSI was logged in the 9 5/8" csg. from 2200m MD RKB in P&Sm, Upper Dipole and Lower Dipole mode to complete the survey. The DSI was logged together with ECS-HNGS to evaluate the Blodøks formation.

8.3 Core Data

Six cores were cut in the 8.5" section. Cored intervals, recoveries, depth shift and formations are listed in **Table 6.1**.

The cores were depth shifted by comparing both the core gamma with the reference gamma curve and comparing core porosity with the calculated porosity from the density curve. The reference gamma curve consists of the gamma curve from the ECS-CMR+-GR from 2850 to 2862 m MD RKB and gamma curve from RAB-VISION-ADN-Dir from 2862 m MD RKB and below. The given depth shifts are the average depth shift applied to the cores which are dynamically depth shifted.

Conventional core analysis includes measurements of helium porosity, Klinkenberg corrected air permeability and grain density. Water saturation measurements were also performed by using the Dean-Stark method. For more details reference is made to the Conventional Core Analysis Report (**Reference 9**).

Standard core description will be included as a part of the "Routine Geochemical Study" presently performed by Norsk Hydro Researchcenter.

Net sand core averages of overburden corrected porosity, Klinkenberg corrected permeability, grain density and Dean Stark water saturation measurements for the different reservoir zones are presented in **Table 8.1**.

Zone	Interval [m MD RKB]	PHI AR-TW [%]	KGKH AR-TW [mD]	KGKH GE-TW [mD]	GRD AR-TW [G/CC]	SWE_C AR-P&TW [%]
S1 A	2862.0-2873.0	28,6	1801	1370	2,65	9,3
S2	2873.0-2886.0	25,5	773	334	2,67	13,1
S3	2886.0-2890.0	24,2	2079	1144	2,64	6,1
S5	2890.0-2902.0	26,3	2536	1410	2,64	6,8
S7	2902.0-2920.5	26,6	353	197	2,66	17,3
S8	2920.5-2921.5	27,5	172	169	2,65	3,7
S9	2921.5-2949.0	26,7	1417	778	2,69	15,4
S10	2949.0-2960.5	21,8	427	194	2,65	22,5
S11	2960.5-2963.0	18,4	382	217	2,65	24,1
S12	2963.0-2977.0	19,1	55	20	2,66	42,8
TRIAS	2977.0-3000.0	14,7	1	1	2,65	70,9
Cutoffs: Porosity min. 12% above GOC (2954 m MD), 14,5% below GOC(2954m MD), VSH max. 40 %.						

*Table 8.1 Core data averages (routine analysis, overburden corrected with a factor 0.97 for porosity and 0.865 for permeability (**Reference 1**)*

Figure 8.1 shows relationship of horizontal, Klinkenberg corrected core permeability versus core porosity.

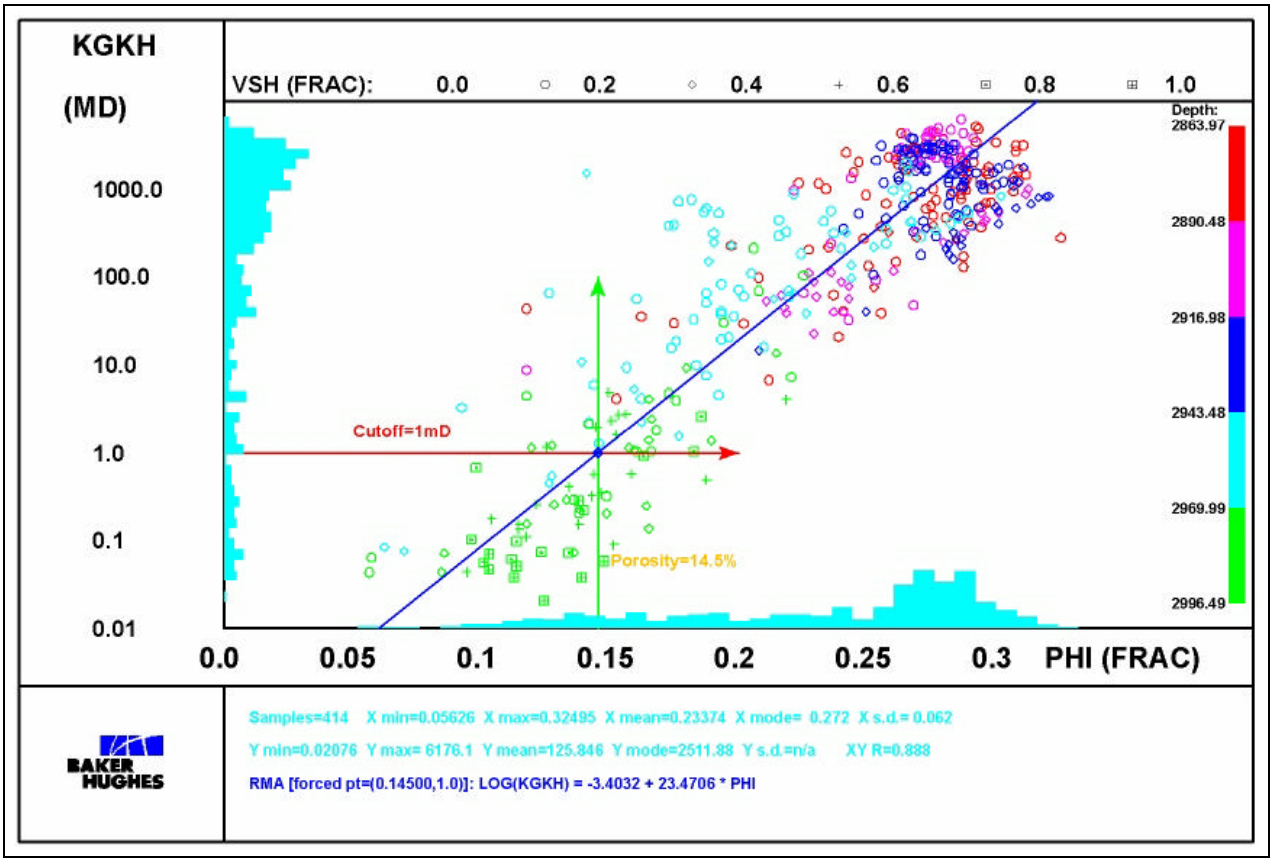


Figure 8.1 Core permeability vs. core porosity

8.4 MDT Pressure and Sampling

8.4.1 Operational Summary

Three runs with the MDT were carried out, runs 1A, 1B and 1C. Below is a summary of these. Valid pressure from the MDT runs are shown in **Table 8.2-8.4**. Pre-tests recorded in connection with sampling are also included, but these should be used with care, and should not be used in the interpretation of the fluid contacts since the probe gauge used is different from the pre-tests.

Run 1A:

20 pre-tests were taken out of which 5 were dry tests due to “tight” formation. After pressure survey, the tool malfunctioning during sampling resulting in having to pull back to surface. 2 gas samples were collected out of 4 possible bottles. Sampling probe had hydraulic leak and later the pumpout experienced hydraulic failure.

Run 1B:

35 pre-tests were taken out of which 25 were dry tests due to "tight" formation. 12 out of 15 samples were secured (7 gas - 5 oil). 3 single phase sample bottles did not catch sample due to engineer error. The tool got stuck during sampling, but was able to get free after some time with working the tool up and down.

Run 1C:

One extra run was conducted in order to locate the OWC in the low permeability zone using a inflatable packer module. The packer element burst on the first attempt to inflate the packer due to drillstring movement (TLC). Managed to sample oil and water in lower zone using the probe. Large overpull was required to get free after sampling.

8.4.2 Formation Pressure

Test	Depth	Depth	Formation Pressure	Initial Hydrostatic Pressure	Final Hydrostatic Pressure	Mob	Remarks
No.	m MD RKB	mTVD MSL	Bar	Bar	Bar	mD/CP	
1	2859,50	2826,58	307.377	387,400	387,950	43.7	Medium permeability
2	2862,50	2829,30	307.388	388,700	388,300	235.9	Poor seal, good perm after re-set
3	2867,50	2833,83	307.531	388,700	n/a	1490	Excellent perm - decided to SAMPLE
4	2866,00	3832,48	307,487	388,950	388,900	1722	Excellent permeability
5	2873,00	2838,82	307,784	390,220	390,130	1709	Excellent permeability
9	2886,00	2850,58	307,957	391,450	391,190	3671	Excellent permeability
10	2891,50	2855,55	308,005	393,850	393,350	2867	Excellent permeability
11	2896,00	2859,61	308,141	394,330	393,010	2220	Excellent permeability
13	2901,80	2864,60	308,227	392,260	392,390	2737	Excellent permeability
14	2907,40	2869,99	308,436	393,070	393,110	20.9	Medium permeability
16	2911,80	2873,60	308,466	393,580	393,540	44	Poor seal , med. perm. after re-set
17	2917,00	2878,56	308,569	394,320	394,120	1040	Excellent permeability
18	2923,00	2883,97	308,697	396,390	395,660	1582	Excellent permeability
19	2930,00	2890,27	308,840	396,140	395,650	2182	Poor seal then excellent perm. after re-set
20	2937,00	2896,57	309,016	396,770	396,640	561	Excellent permeability

Table 8.2 Valid pressure points from MDT run 1A

Test	Depth	Depth	Formation Pressure	Initial Hydrostatic Pressure	Final Hydrostatic Pressure	Mob	Remarks
No.	m MD RKB	mTVD MSL	Bar	Bar	Bar	mD/CP	
1	2907,40	2869,99	308,274	388,360	388,360	43.2	Good perm
2	2929,00	2889,37	308,739	388,540	391,710	1717	Excellent perm
3	2937,00	2896,57	308,920	393,370	393,120	601	Bad seal. Retract set.
4	2942,30	2901,52	309,021	394,330	394,030	27	Medium perm
6	2947,50	2906,01	309,125	396,240	395,390	90	Lost seal . Reset.
8	2949,60	2907,81	309,172	396,680	395,600	903	Good test
9	2958,50	2815,90	309,560	396,240	395,530	53	Good perm
10	2961,50	2918,60	309,760	398,450	396,470	74	Good perm
13	2964,00	2920,84	309,972	398,710	387,490	19.7	Medium perm
34	2961,00	2918,15	309,652	396,700	404,440	514	Good perm - OIL SAMPLE
35	2895,00	2858,71	307,823	388,370	n/a	2170	Excellent perm - GAS SAMPLE

Table 8.3 Valid pressure points from MDT run 1B

Test	Depth	Depth	Formation Pressure	Initial Hydrostatic Pressure	Final Hydrostatic Pressure	Mob	Remarks
No.	m MD RKB	m TVD MSL	Bar	Bar	Bar	mD/CP	
2	2964,20	2920,85	309,650	398,700	n/a	31.1	OIL SAMPLING after a number of resets
7	2972,50	2928,48	310,560	399,240	n/a	15.5	Low permeability, SAMPLING

Table 8.4 Valid pressure points from MDT run 1C

8.5 Petrophysical Evaluation Procedure

The petrophysical model consists mainly of a simple shaly sand log analysis model, verified against core data. Log analysis was conducted using an effective porosity approach with shale volume determined either from; 1) the minimum value of a linear gamma ray relationship and the density-neutron cross plot method, 2) linear gamma ray relationship only or 3) density-neutron cross plot only. Porosity is calculated from the density log and the effective porosity is corrected for hydrocarbons and shale effect. The initial log derived porosity was then calibrated to overburden corrected core porosity. To evaluate the effective water saturation, SWE and saturation in the flushed zone, SXO, the Poupon-Leveaux (Indonesia) equation was applied. Log permeability has

been computed by using the Schlumberger-Doll Research (SDR) equation which is a permeability transform based on NMR measurements (**Reference 10**). A permeability cutoff of 1mD based on the high oil viscosity are earlier used in wells on the Varg Field (**Reference 8**). The porosity corresponding to 1mD permeability by use of linear regression on core porosity/permeability plot was about 14.5 % (**Figure 8.1**). A shale cutoff of 40% was used to avoid including obviously non-reservoir rock. Due to the low water saturation in this well all net sand is considered as net pay.

8.6 Petrophysical Results

A reduced version CPI for the formation interpreted is found in **Figure 8.2**.

Average values of calculated shale volume, porosity, water saturation and log permeability are calculated using the net sand criteria specified in section 8.5. The average results are documented in **Table 8.5**

The Kimmeridgian unit above the reservoir interval consists of a shaly sandstone with thin sections with a high degree of cementation.

The Upper Sand (S1-S5) consists mainly of homogenous sandstone with excellent reservoir quality. Nearly the whole section are considered as net reservoir except from some thin cemented units in S2. The separation between the density and neutron curve gives a clear indication of a gas bearing reservoir which is also confirmed by the pressure points and samples.

The Serratum Sand (S7 and S8) is a massive sand with a higher shale content
than the Upper Sand but still the reservoir quality is considered to be excellent. The separation between the density and neutron curve is smaller, but still gives an indication of gas.

The Lower Sand (S9-S12) shows the same excellent reservoir quality as the Upper Sand above 2944 m MD. Below this depth the sand is more heterogeneous with thin, partly cemented units. The reservoir quality is decreasing downwards to Top Triassic which is mainly considered as no net reservoir. The separation between the density and neutron curve is small from about 2956m MD, which is consistent with the interpreted gas oil contact at 2954m MD.

Two effective water saturations curves have been calculated using two different saturation exponents (n). The difference in water saturation by using n=1.77 or 2.54 Since n=2.54 is measured under laboratory conditions (see **Reference 10**), this probably gives a more correct saturation even it is higher. SCAL measurements are recommended since there is a large uncertainty in the water saturation due to the few and uncertain measurements of the saturation exponent.

Zone	Interval [mMDRKB]	GROSS [MD]	NET [m MD]	N/G [m MD]	VSH AR-TW [%]	PHIE AR-TW [%]	SWE AR-P&TW [%], n=1.77	SWE AR-P&TW [%], n=2.54	KSDR_C AR-TW [mD]
Kimmeridgian	2851.0-2856.0	5,0	0,00	0,00	n/a	n/a	n/a	n/a	n/a
S1 B	2856.0-2862.0	6,0	6,00	1,00	20,4	19,6	8,7	18,2	344
S1 A	2862.0-2873.0	11,0	11,00	1,00	10,7	27,0	5,3	12,9	1795
S2	2873.0-2886.0	13,0	10,87	0,84	11,1	23,6	6,0	14,0	1557
S3	2886.0-2890.0	4,0	4,00	1,00	3,6	24,7	5,7	13,6	2742
S5	2890.0-2902.0	12,0	12,00	1,00	5,7	25,9	5,0	12,3	2097
S7	2902.0-2920.5	18,5	17,43	0,94	27,0	21,6	9,2	19,0	445
S8	2920.5-2921.5	1,0	1,00	1,00	30,6	19,1	7,5	16,4	84
S9	2921.5-2949.0	27,5	26,57	0,97	13,8	25,1	7,1	15,7	619
S10	2949.0-2960.5	11,5	7,47	0,65	12,6	19,6	12,6	23,6	107
S11	2960.5-2963.0	2,5	1,83	0,73	5,6	18,6	15,4	27,1	61
S12	2963.0-2977.0	14,0	6,25	0,45	12,8	18,3	17,4	29,5	14
TRIAS	2977.0-3055[1)]	88,0	2,13	0,02	11,8	15,5	26,3	39,2	12

[1)] Bottom of processed CPI

Table 8.5 Average values in net sand for the entire reservoir section, gas and oil zones.

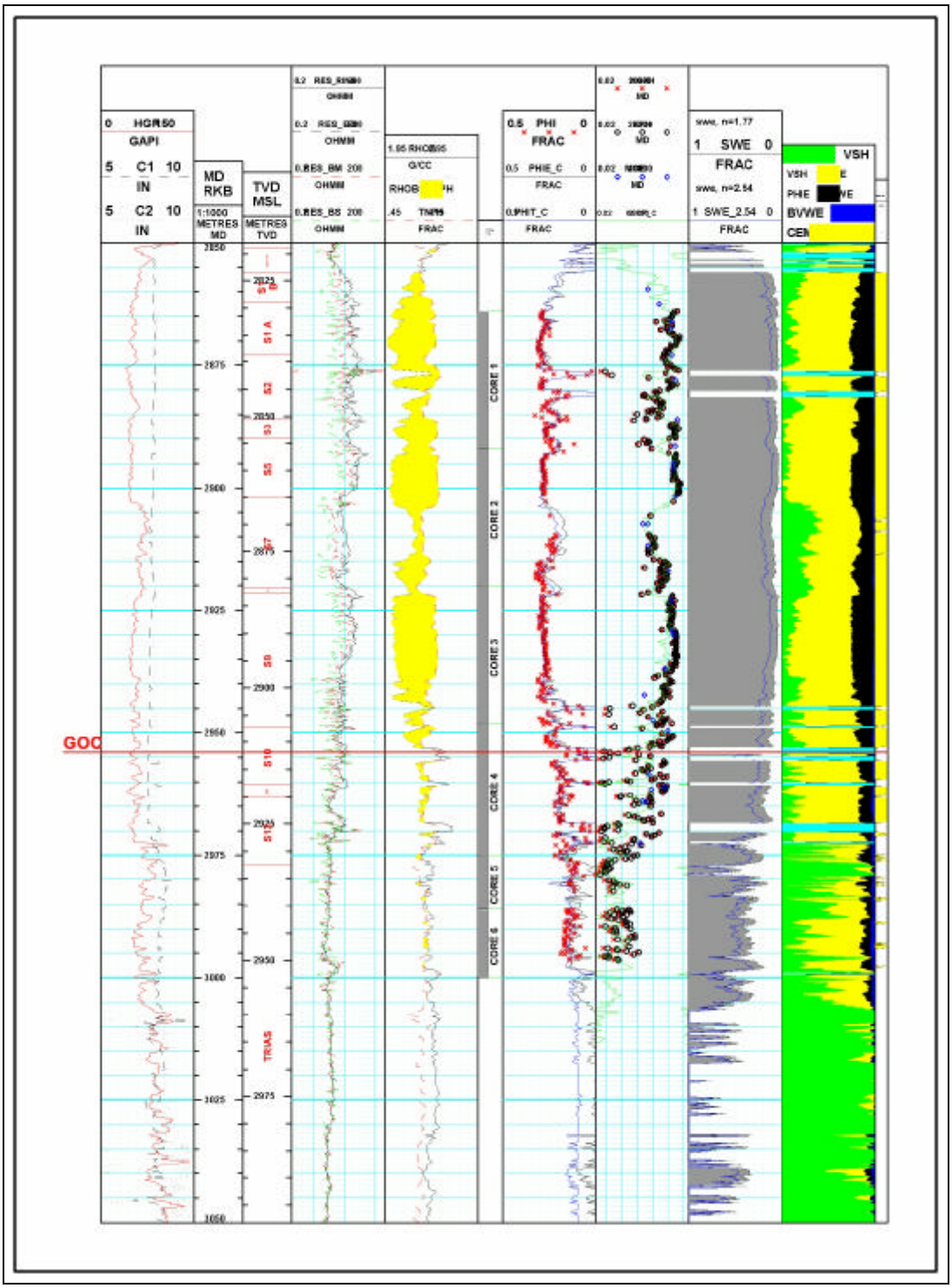


Figure 8.2 Reduced size CPI, well 15/12-12

8.7 Fluid Contacts

An interpretation of the formation pressures is presented in **Figure 8.3**. The three different MDT runs are symbol and colour coded according to the plot heading. Depth where fluid samples were obtained are also marked on this plot.

The gradients evaluated from the MDT pressure points indicate that gas and oil are present in the reservoir. The gas pressure gradient is interpreted to be 0.0223 bar/m (0.23 g/cc) from the pressure points in the gas zone. The oil pressure gradient is taken from the PVT analysis of the sampled oil. The gradient is 0.0636 bar/m (0.648g/cc). This represents a reasonable good fit to the pressure points. The contact between gas and oil (GOC) is interpreted to be at 2954 m MDRKB (2912m TVD MSL).

The initial gas oil contact was probably about 3-5 meters higher than 2954m MD, but due to pressure depletion, caused by the oil production on the Varg Field and the gas cap expansion, may has moved the contact downwards.

Formation pressure points from other wells within the Varg field are presented in **Figure 8.4**. This shows a decrease in pressure between 15/12-12 and 15/12-9 S of about 35-40 Bar.

During the clean-up of the possible water-zone, the oil phase seemed to increase as pumped volume increased. It seems like the mobile phase at the sample depths was the oil and not the water. The table below shows % HC, formation water and filtrate in the captured samples.

Sample Bottle	Sample Depth (m MD RKB)	% HC	% Form. Wtr.	% Filtrate	Pumped volume prior to sampling
MRSC-131	2 964,2	0,54	35,81	63,65	45
MPSR-790	2 964,2	38,46	13,54	48	50
MPSR-085	2 964,2	41,18	17,65	41,18	64
MPSR-926	2 972,5	0,22	30,78	69	26
MPSR-786	2 972,5	27,5	19,58	52,93	35

Table 8.6 Fluid phase captured in samples

As can be seen from the table above, the HC is becoming the dominate phase as the volume pumped increases. Likewise, it is a clear trend that the formation water phase is decreasing over time. This indicates that in the two zones which have been tested, oil is the dominate phase; hence the OWC is somewhere below this depth. The reason why the samples contain some formation water, is most likely due to the fact that the pressure depletion in the reservoir has moved the OWC downward. The oil has not been able to completly displace the formation water, and some "free" formation water is still present in the zone. However, when producing from this zone, the oil will become the main phase as long as the OWC is somewhere below the depth of production. The high level of contamination is due to the limited volume pumped before sampling.

The conclusion is that no oil water contact is defined in the well. Both the pressure points and fluid samples indicate that there are oil down to 2972.5m MD.

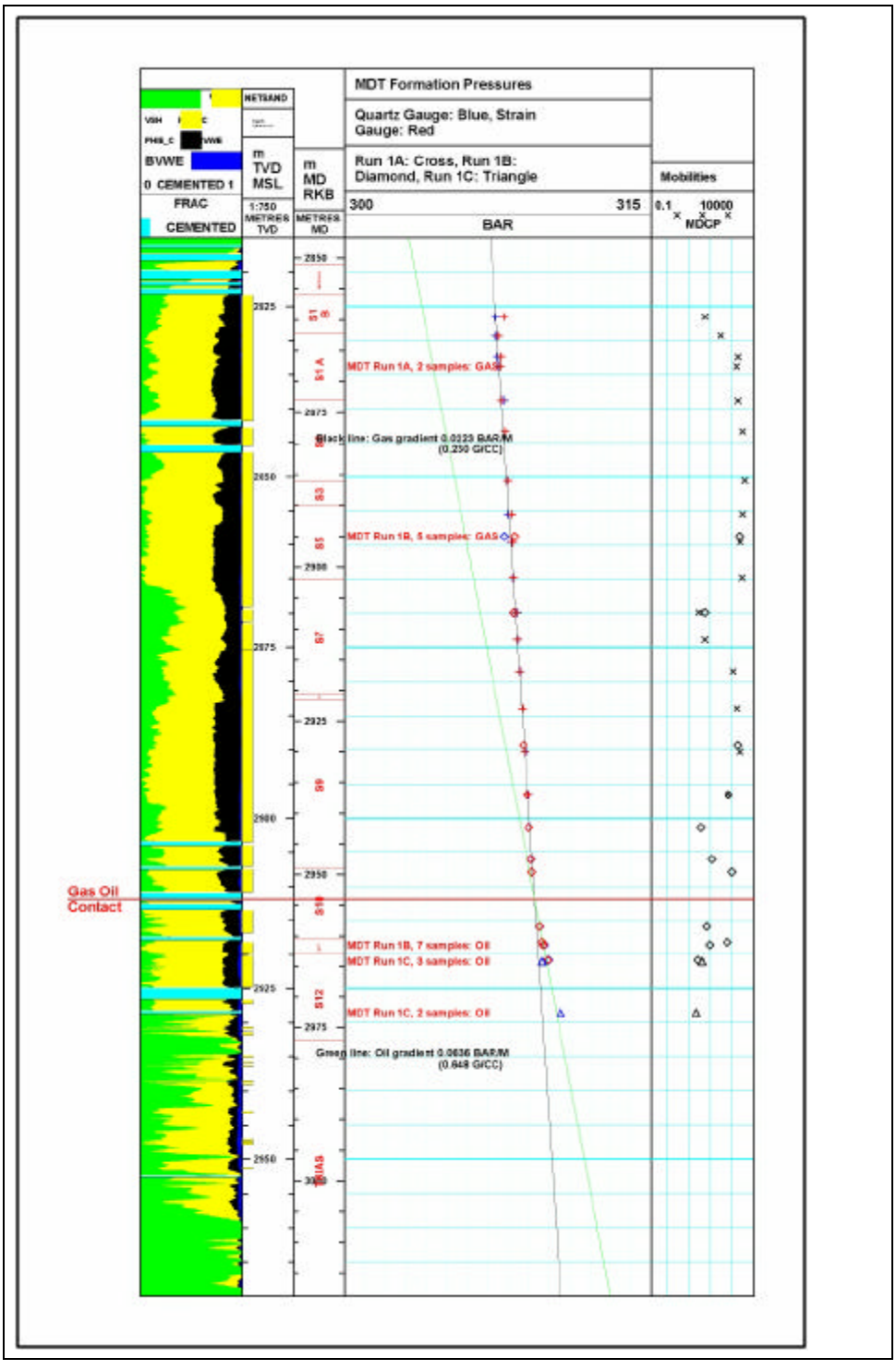


Figure 8.3: 15/12-12 Valid formation pressure/CPI plot vs. depth (TVD MSL)

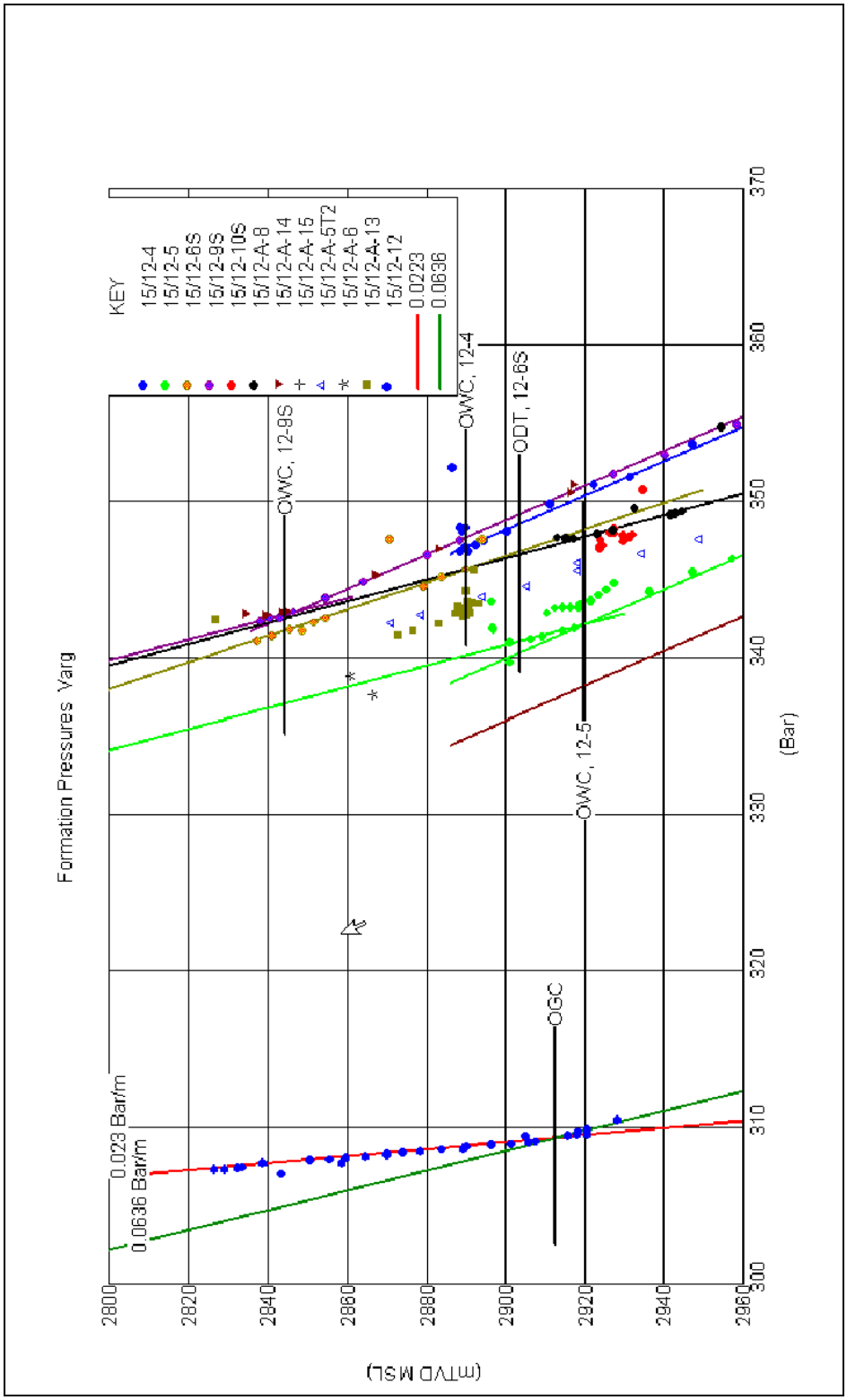


Figure 8.4: Formation Pressure Varg

8.8 Wire line Fluid Sampling

Gas, oil and water samples were taken at several intervals covering the whole reservoir interval. Later analysis of the hydrocarbon phases proved that the data were consistent with the gas and oil gradients through the reservoir. The water samples taken were heavily contaminated with mud filtrate, and hence cannot be used in order to investigate the scaling tendency.

Initial analysis of the gas and oil were performed offshore (using the Petrotech SMARTLAB) in order to investigate the quality of the samples recovered. Later, the results were found to correlate within the appreciated uncertainties with the onshore PVT-analysis done by ResLab. The variation is most likely due to loss of the lighter components, which is frapped in the dead volume between the manual MPSR bottle valve and the MDT single shot valve. This can be seen by inspecting the C_1- and C_2-components in the offshore vs. onshore analysis. Nevertheless, the offshore analysis proved that the samples collected were of high PVT-quality, hence fullfilling the sample objective regarding the hydrocarbon sampling.

The following PVT-results are considered representative from the fluid sampling. The PVT-data are from a single stage separation. The fluid samples are taken from the MDT run 1A and 1B.

MDT chamber	121	3
Sample date	28/1-01	26/1-01
PVT Bottle	8282-MA	3898-MA
Lab	ResLab	ResLab
Depth, mMD	2 961,5	2 867,5
Formation	Oxfordian	Oxfordian
P_b,CME, bar	313	
P_{dew},CME, bar		314
GOR, single flash, Sm^3/Sm^3	193,9	
GCR, single flash, Sm^3/Sm^3		3 078,9
Density, kg/m^3:		
oil, pychnom., bubblept..	648,2	
oil, st.cond..	855,9	
gas, pychnom.,dew pt.		258,2
gas, st. cond.		787
B_o at P_b, m^3/Sm^3	1,6	
$1/B_g$ at P_{dew}, Sm^3/m^3		237,5
Oil visc. at P_b, mPa	0,33	
Oil Mole Weight	220	
Gas Mole Weight		20,6
Cond. Mole Weight		130

Table 8.7 Single stage separation, main PVT-results.

It should be noted that the dew and bubble point is 5-7 bar higher than the measured reservoir pressure. This must be investigated further. Possible explanation to the discrepancies are found in **reference 10**

8.9 References

1. **Norsk Hydro**, Drilling Programme Well 15/12-12, November 2000 and revision of 12.12.00.
2. **Petrotech**, Validity Checks and Analyses of MDT Samples: Water, January 2001.
3. **Petrotech**, Validity Checks and Analyses of MDT Samples: Gas/Condensate, Oil, January 2001.
4. **ResLab**, PVT Analysis of Oil Sample from Well 15/12-12, April 2001.
5. **ResLab**, PVT Analysis of Gas Sample from Well 15/12-12, April 2001.
6. **Oilphase**, Field Operation Report from Well 15/12-12, January 2001.
7. **Statoil**, Petrophysical Evaluation Report, well 15/12-4, -5 and 6, RESGEO-43/91, August 1991.
8. **Saga Petroleum**, Petrophysical Evaluation of the Varg Wells 15/12-4, -5,-6S, -9S and 10S, Saga RA97-306/ERF.
9. **Corpro**, Conventional Core Analysis, Norsk Hydro, Well 15/12-12, (including Water Saturation) Date. April 2001.
10. **Norsk Hydro**, Well 15/12-12 Formation Evaluation Report, May 2001.

9 Estimated Pore Pressure, Fracture, Overburden and Temperature Gradients

9.1 Pore pressure

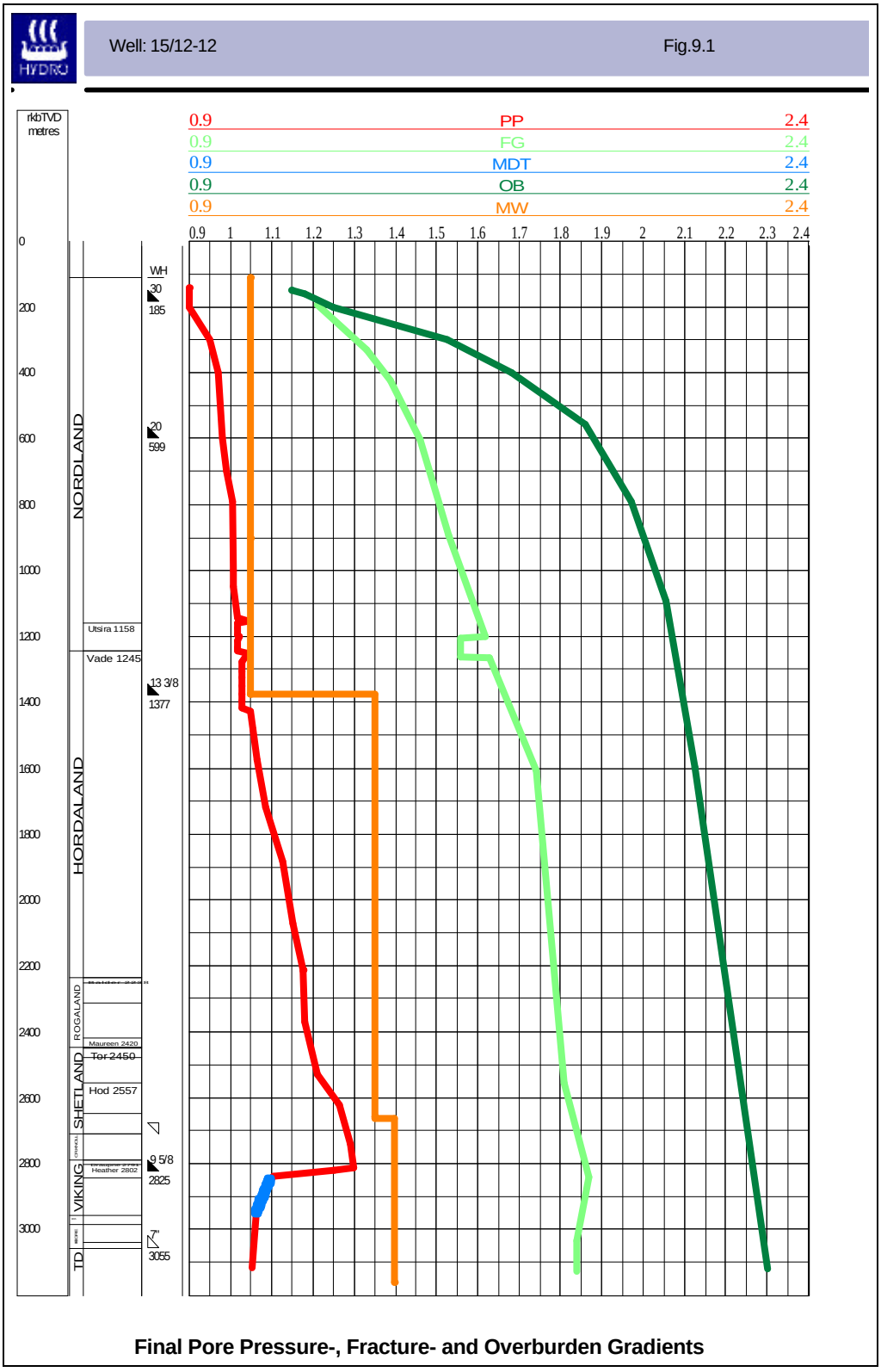
The pore pressures in well 15/12-12 are based on well site observations, gas data, MDT pressure readings and calculations based on logs (MWD and Dxc). All depths are quoted as m RKB unless otherwise stated.

The Pore pressure-, Fracture- and Overburden gradients are given in Fig. 9.1.
No shallow gas was observed.

From sea bottom to 1405m a generally hydrostatic pressure is regarded as most likely and a normal dxc trend was established.
However at 1143m to 1155m a slight over pressure (about 1.05sg) is likely present. Below a dense, high gamma-ray clay stone (1135m to 1143m) a drop in resistivity and left shift in Dxc indicates the presence of a zone of water expulsion disequilibrium. Below 1155m the pore pressure gradient is back to hydrostatic. Just below top Vade a similar clay stone barrier might be present giving a thin zone of slight over pressure (max. 1.04sg) before returning to hydrostatic pressure.

At 1405m a clear cut back in resistivity and dxc marks the start of pressure build-up. This coincide with the prognosis. However, the pressure seems to build up slightly faster than prognosed which differs from observations in nearby wells. The trend shifts is also effected by the change in lithology.
The pore pressure increased steadily through Hordaland and Shetland. Maximum estimated pore pressure was 1.30sg at base Cromer Knoll \ Draupne.

MDT pressure points from parts the reservoir gave a gradient of 0.0223bar/m. This corresponds to a very dry gas gradient. The pore pressure obtained from the MDT- readings is significantly lower than prognosed. As it is not likely that the regional aquifer pressure initially has been lower in 15/12-12 than in nearby wells the most logic explanation is depletion caused by production from the nearby Varg-field.
Whether this depletion is present in the lower parts of the well (below lowest sample point) is uncertain. The reservoir quality is poorer (tight formations) so a reduced draw down in the water zone can not be ruled out.



Final Pore Pressure-, Fracture- and Overburden Gradients

9.2 Formation strength

Mud loss were observed at 2075m MD due to pack off when reaming out of hole with 1.40sg mud weight. One LOT was taken at 609m to 2.18sg. This was an extraordinary high LOT at this shallow depth, and is not regarded as representative of the true fracture gradient. Two FIT's was taken, to 1.67sg at 1377m MD and 1.43sg at 2875m MD.

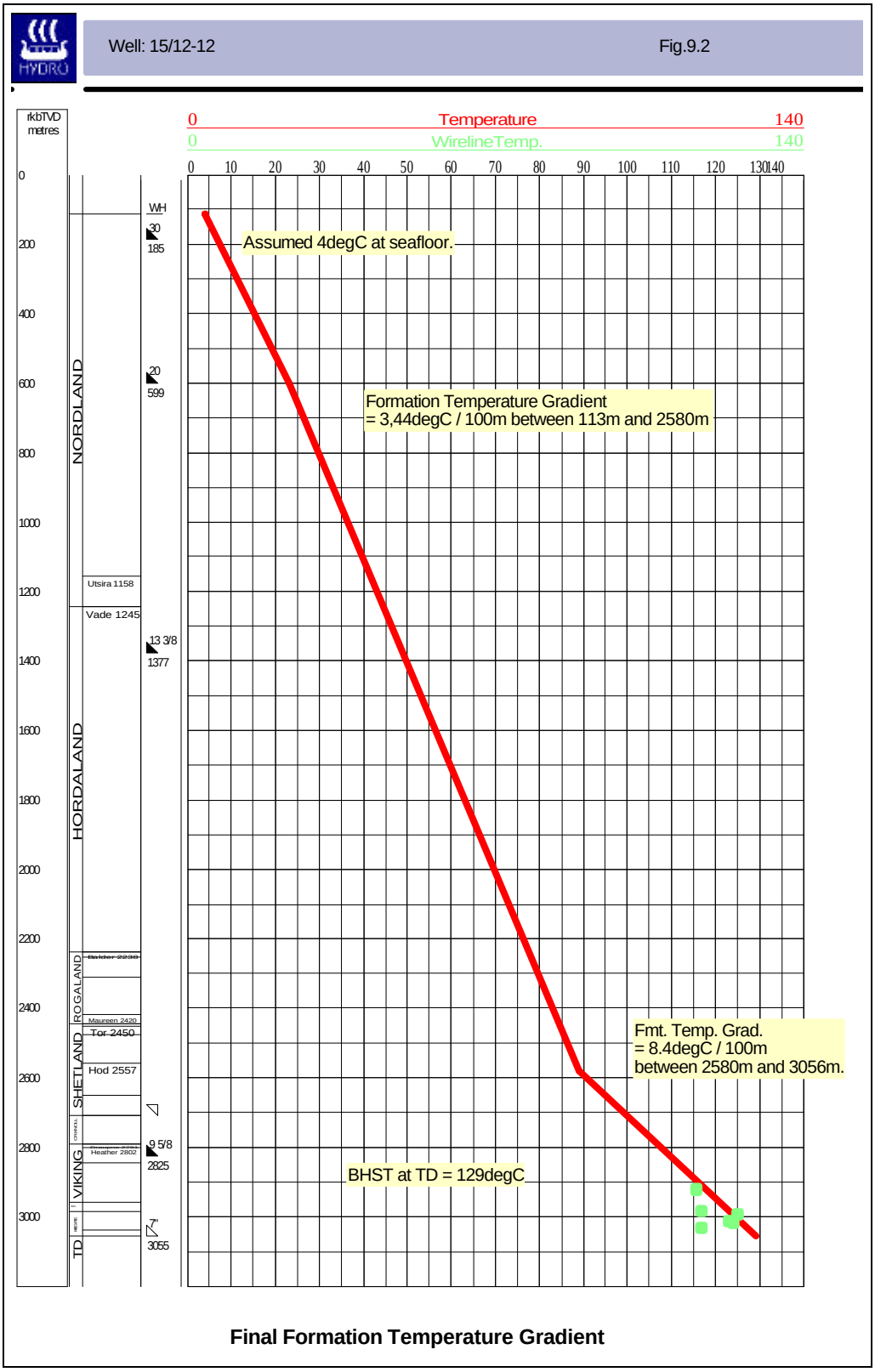
When drilling in Shetland a sudden income of caving from Rogaland appeared. On basis of pictures taken at the rig site it was concluded that they represented stress cavings. The mud weight was raised to 1.40sg as recommended by the rock-mechanics engineer. This cured the problem and drilling could continue. The presence of a regional stress field effecting the Rogaland Group in particular was known from nearby wells, but the magnitude was uncertain before drilling.

9.3 Overburden gradient

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

9.4 Temperature Gradient

MDT-readings gives a formation temperature of 129^{o} C at TD calculated using Horner plot. This gives an average formation temperature gradient of 3,44^{o} C/ 100m assuming 4^{o}G at seafloor down to 2580m. From 2580m to TD the formation temperature gradient is 8.4^{o} C / 100m . The formation temperature gradient is given in Fig. 9.2..



Final Formation Temperature Gradient

10 Geophysical Results

The prognosed depths below Top Shetland Group were generally too deep (Table 10.1). For levels Top Cromer Knoll, BCU and Top Reservoir, the errors are primarly due to the use of too high velocities for the prognosis. In addition, targets levels of up to 10-15 m shallower than prognosed are caused by the fact that well 15/12-12 was drilled approximately 60 m NE updip of the planned well location.

Top Reservoir was penetrated as much as 56 m shallower than prognosed. This was caused by the presence of an anomalous thick Draupne sequence with low interval velocity overlaying the reservoir. In contrast, the wells on the Varg Field show presence of Heather shale with significant higher velocities.

Base Reservoir/Top Triassic was wrongly picked on the seismic. An E-W seismic section through well 15/12-12 is presented in Fig. 10.1 showing seismic picks before and after the well results. The seismic TWT time, as picked on the 3D- survey ST8802SR9801, is in the region of 15-20 ms shallower than on the VSP.

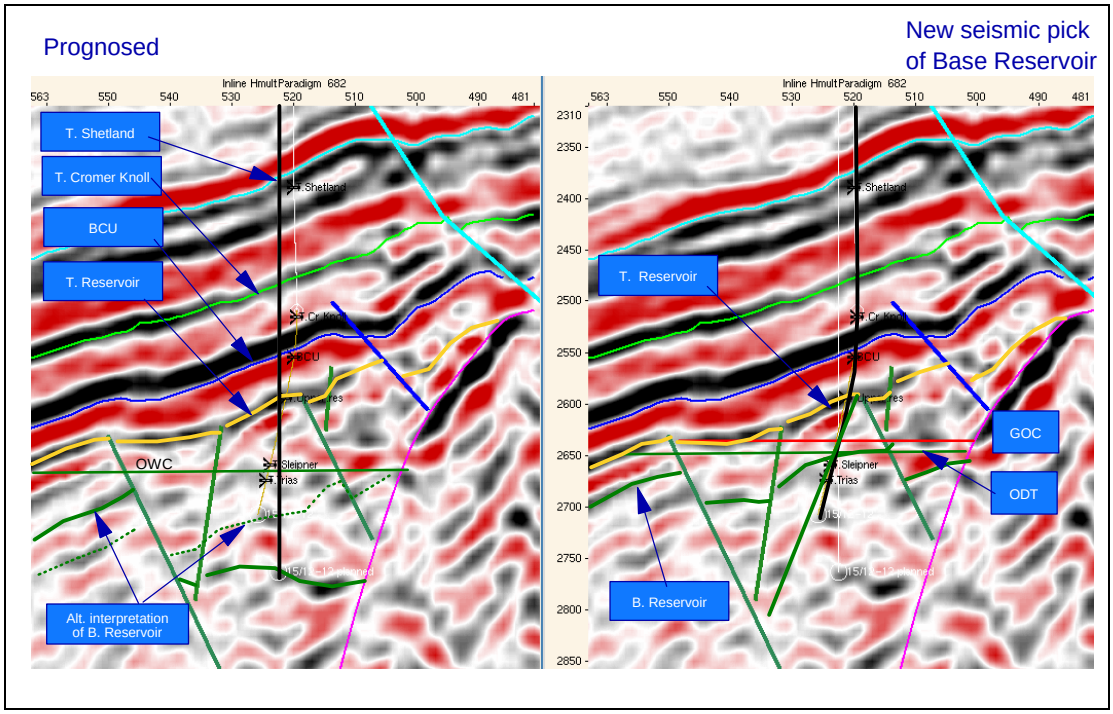


Fig. 10.1: Seismic section (E-W) through well 15/12-12 showing interpretation before and after well results.

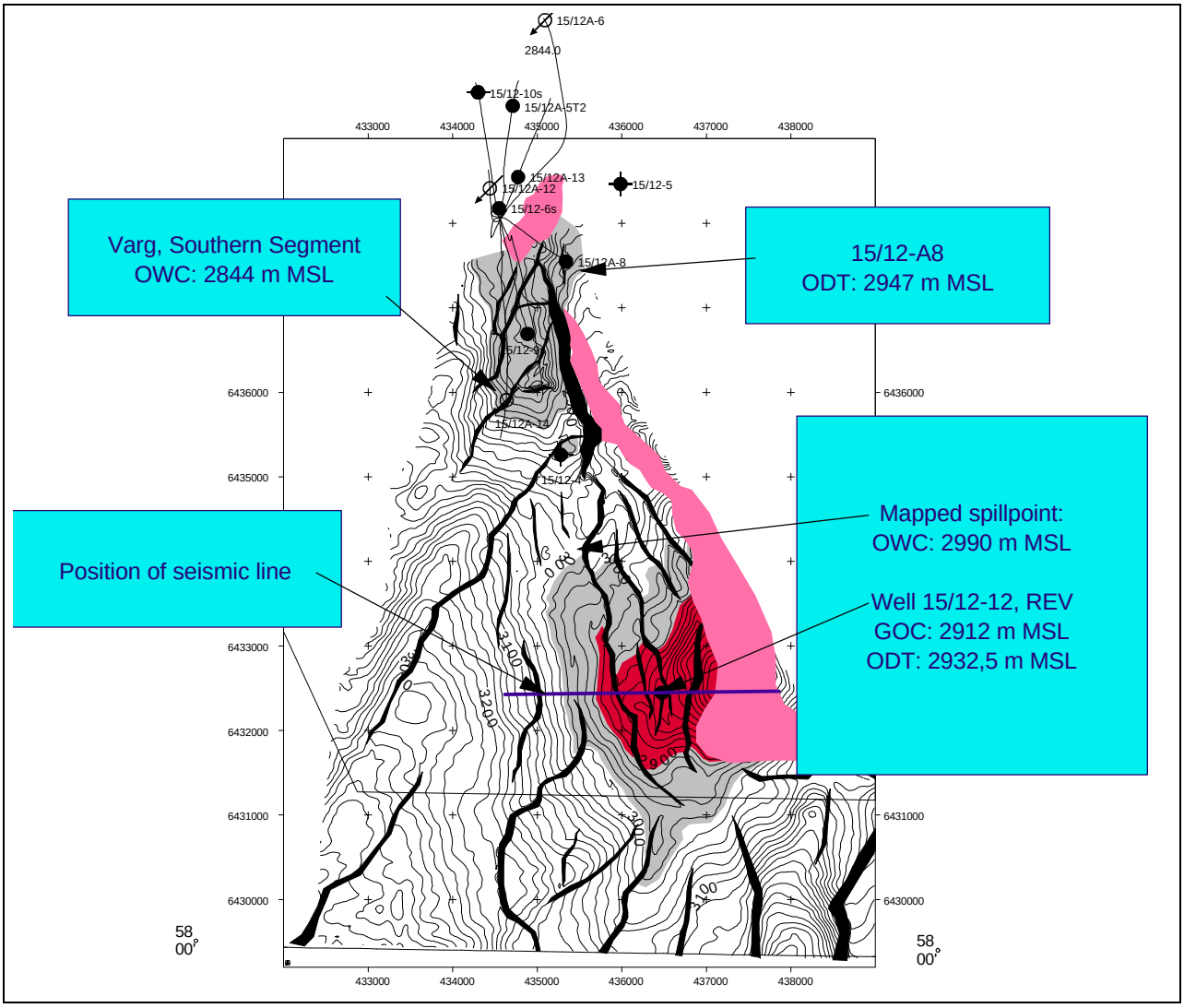


Fig. 10.2: The Rev discovery in the South segment.

Formation Tops	Prognosis	ms TWT Actual	Results	Prognosis	TVD MSL Uncertainty	Actual	Results
Seabed	127 *)			87	+/- 2	87	
Top Hordaland Gp.	1299 *)			1 255	20	1 218,9	-36,1
Top Rogaland Gr.	2195 *)			2 206	40	2 211,6	5,6
Top Shetland Gr.	2369 **)	2 360	-9	2 415	50	2 418,5	2,5
Top Cromer Knoll Gr.	2484 **)	2 477	-7	2 700	60	2 650,3	-49,7
Top Viking Gr. (BCU)	2545 **)	2 537	-8	2 790	80	2 765	-25
Heather Sst. (TopReservoir)	2598 **)	2 593	-5	2 880	100	2 823,4	-56,6
Base Reservoir (Top Triassic)	2691 **)	2 661	-30	3 060	120	2 932,5	-127,5
TD				3 115		3 029,8	

*) TWT estimated from original survey ST8802 at planned well location
**) TWT from Pre-Stack Depth Migrated data (PSDM) at planned well location

Table 10.1: Geophysical Summary

11 Post Site Survey Report

The results are based on:

- 2D high resolution reflection seismic (NH0073, ST9097, SG9515 and SG9809)
- 3D reflection seismic (ST8802)
- MWD logs (resistivity and gamma)
- Drilling results from exploration and production wells (15/12-4, 15/12-5, 15/12-6S, 15/12-7S, 15/12-8, -8A, 15/12-9S and 15/12-10S)
- Site Survey at Well 15/12-12, PL 038, R-092807

11.1 Well data

1	Distance from rig floor to sea level:	26 m
2	Water depth (MSL):	87 m
3a	Setting depth for conductor (m RKB TVD):	185 m
3b	Leak Off / Formation Integrity Test (g/cc):	N/A
4a	Setting depth (m RKB TVD) for casing on which BOP mounted:	598.9 m
4b	Formation Integrity Test (g/cc):	2.19 sg

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

Base Coal Pit Fm. (COP):	149 m	(152 ms)
Base Fisher Fm. (FIS):	195 m	(212 ms)
Base Ling Bank Fm. (LBK):	335 m	(320 ms)
Base Aberdeen Ground Fm. (ANG) (Base Pleistocene):	649 m	(703 ms)
Top Utsira (Base Pliocene):	1158 m	(1180 ms)
Base Utsira (Base Mid-Miocene):	1245 m	(1292 ms)

Note:
No chronostratigraphic information was collected in the tophole section of the well (from seabed down to 605 m RKB TVD). Consequently, the interpretation of the different formations in this area is based on the MWD logs, seismic character and previous work.

Mud logging commenced at 605 m RKB TVD.

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 605 m (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 15/12-12:

Pleistocene Interval:

132 m - 149 m
155 m - 186 m
195 m - 197 m
200 m - 208 m
210 m - 218 m
233 m - 234 m
239 m - 251 m
253 m - 262 m
265 m - 276 m
283 m - 335 m
539 m - 546 m
550 m - 553 m
557 m - 559 m

Miocene Interval:

1158 m - 1161 m
1163 m - 1165 m
1169 m - 1171 m
1180 m - 1189 m
1210 m - 1235 m
1239 m - 1245 m

7 By what means is the presence of gas proven:

The well is drilled with returns to seabed above 605 m RKB TVD. Below 605 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 604.98 m-1383.93 m RKB TVD are as follows:

Depth m RKB TVD	*Minimum %*	*Maximum %*	*Composition*
604.98 - 797.98	0,02	0,7	C1 -C4
797.98 - 861.98	1,3	3,4	C1 -C4
861.98 - 969.97	0,4	1,1	C1 -C4
969.97 - 1150.95	0,3	0,9	C1 -C4
1150.95 - 1261.94	0,4	1,7	C1 -C4
1261.94 - 1383.93	0,9	1,5	C1 -C4

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

11.2 Seismic data

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

The 2D high resolution and 3D exploration seismic have been examined for indications of shallow gas. No amplitude anomalies were mapped at the Well 15/12-12 Location.

The tophole section of the well was drilled with returns to seabed to 605 m RKB TVD. Background gas levels were consequently not monitored. However, no gas-related problems were experienced over this section.

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:

No amplitude anomalies were mapped at the 15/12-12 Location and no gas warning was given for Well 15/12-12.

No gas related problems were experienced in the well.

12b Sand Bodies:

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

12c Boulders:

Scattered boulders were predicted in the shallow section between 127 - 146 m, 163 - 174 m, 198 -218 m and 201 m - 301 m RKB TVD. No boulders layers were predicted. No boulders were encountered.

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

Horizon	*Prognosed (P)*	*Observed (O)*	*Difference (O-P)*
Base LBK Formation (Base Pleistocene):	666 ± 10 m	649 m	- 17 m (shallower)
Top Utsira Formation (Base Pliocene):	1156 ± 20 m	1158 m	+ 2 m (deeper)
Base Utsira Formation (Mid Miocene):	1281 ± 20 m	1245 m	- 36 m (shallower)

Only the Top Utsira Formation (Base Pliocene) was within the uncertainty limit for the proposed depth. The big difference between the predicted and observed depths in the Base Pleistocene and the Base Utsira Formation may be caused by discrepancies in either the seismic pick, the velocity model used for depth conversion or a combination of both.

12e Correlation to Nearby Wells:

The drilling conditions experienced in well 15/12-12 are as predicted and similar to those encountered in tie-wells (15/12-4, 15/12-5, 15/12-6S, 15/12-7S, 15/12-8, -8A, 15/12-9S and 15/12-10S).

12 Standard and Special Studies

- Norsk Hydro, 2000 and Revision 01, 12.12.00: Drilling Well Programme Well 15/12-12
- Saga Petroleum, 1998: Site Survey NOCS Location 15/12-12 Beta South (Saga Petroleum Report no. 985734/H)
- Norsk Hydro, Oct 2000: Conclusion and Summary of Site Survey Results at Proposed Well Location 15/12-12, Licence Area PL 038
- Fugro-Geoteam, Dec 2000: Navigation and Positioning of Scarabeo 6 to Well 15/12-12.
- Schlumberger Anadrill, Jan 2001: End of Well Report/Logs, Well 15/12-12.
- Read Well Services AS, May 2001: VSP, Sonic Calib. & Synthetic Seism., Final Processing Report, Well 15/12-12.
- Parkinson Geoscience Ltd. April 2001, FMI Geological Interpretation, Norsk Hydro, Well 15/12-12
- Petrotech, Jan 2001: Validity Checks and Analyses of MDT Samples: Water.
- Petrotech, Jan 2001: Validity Checks and Analyses of MDT Samples: Gas/Condensate, Oil.
- ResLab, Apr 2001: PVT Analysis of Oil Sample from Well 15/12-12.
- ResLab, Apr 2001: PVT Analysis of Gas Sample from Well 15/12-12.
- Oilphase, Jan 2001: Field Operation Report from Well 15/12-12.
- Halliburton Sperry-sunm, July 2001: End of Well Report, Surface Logging data, Norsk Hydro, Well 15/12-12.
- Corpro, April 2001: Conventional Core Analysis, Norsk Hydro, (Including water saturation) Well 15/12-12.
- Corpro, March 2001: Core Photographs Well 15/12-12, Core # 1-6, Scale 1:4, White Light and UV Light.
- Corpro, March 2001: Autocar Core Photographs, Well 15/12-12, Core # 4-6, Scale 1:4.
- Corpro, March 2001: CT-scans of Whole Core, Well 15/12-12.
- APT, June 2001: Biostratigraphy, Well (NOCS) 15/12-12.
- Norsk Hydro, Aug 2001: Standard Core Description, Well 15/12-12

- Norsk Hydro, 2001: Discovery evaluation report, Well 15/12-12
- Norsk Hydro, 2001: Petroleum Geochemical Study of Well 15/12-12.
- Norsk Hydro, May 2001: Formation Evaluation Report, 15/12-12.
- Norsk Hydro, Jan 2001: Temporary Plug & Abandonment Programme, Well 15/12-12.

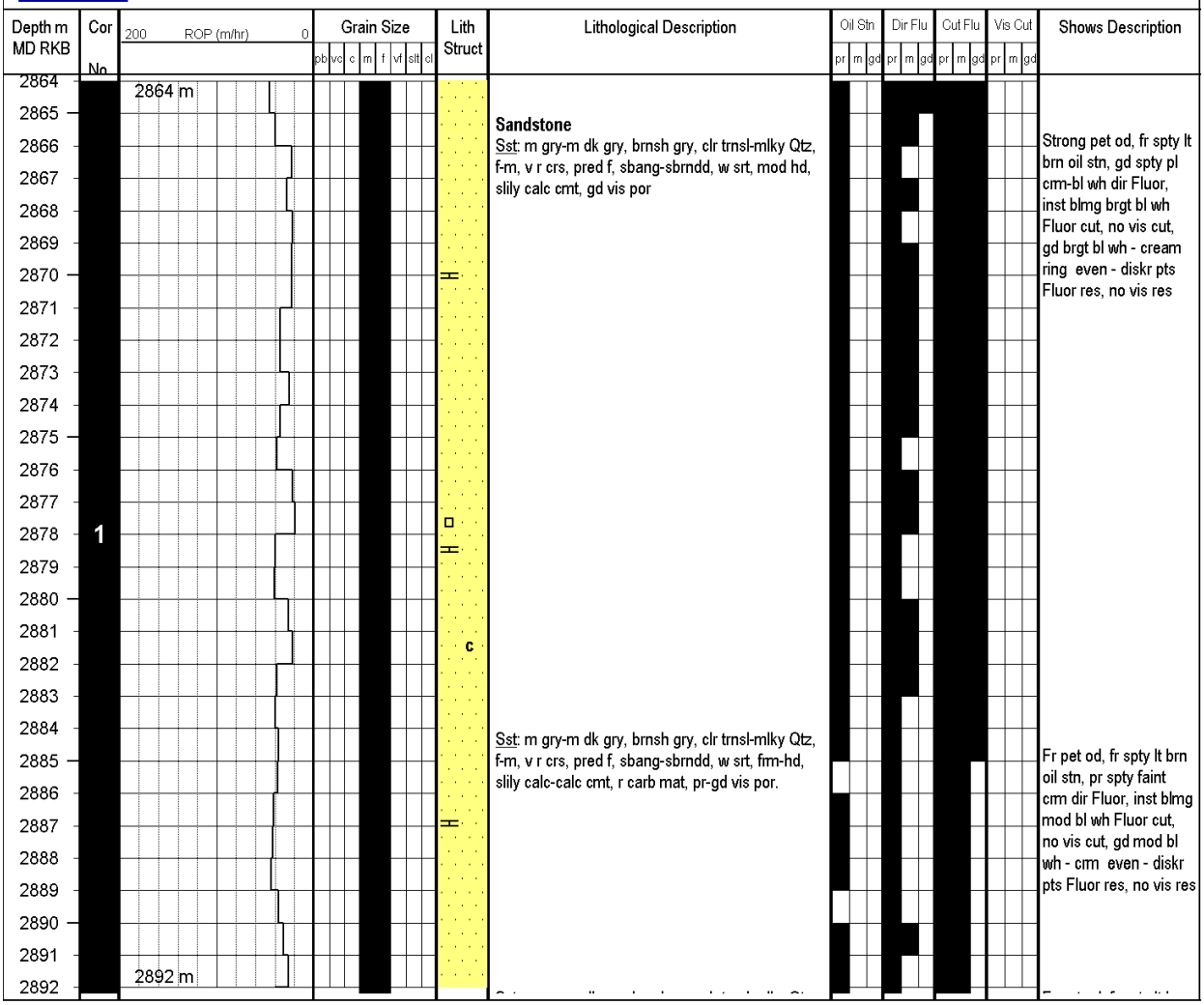
APPENDIX I

CORE DESCRIPTIONS

Core Report

Geologists: B. Schønningsen, E. Skottlien

Field : Varg
Well : 15/12-12
Date : June 2001
Scale : 1 : 200



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Core Report

Geologists: B. Schønningsen, E. Skottlien

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Well : 15/12-12
Date : June 2001
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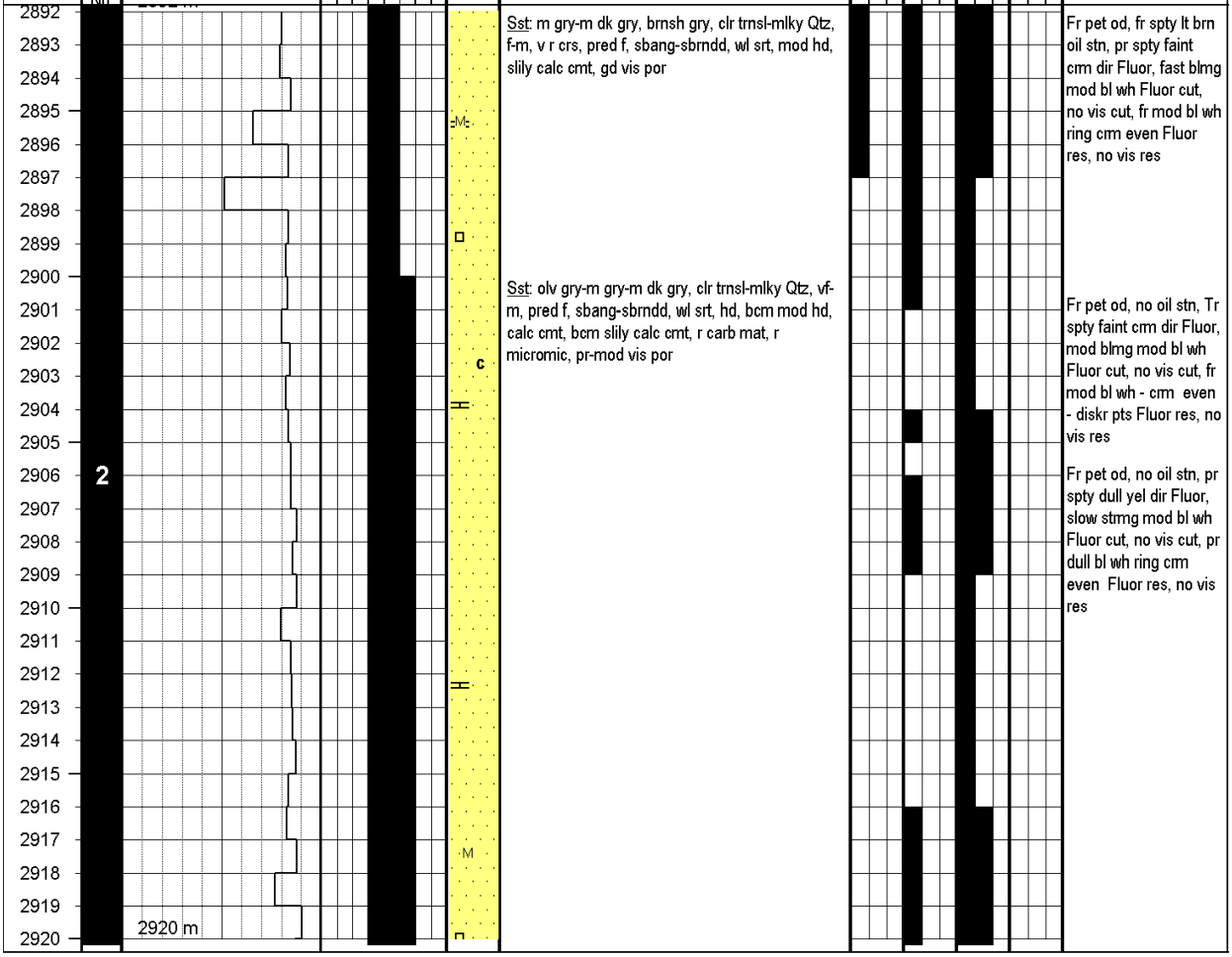

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Core Report

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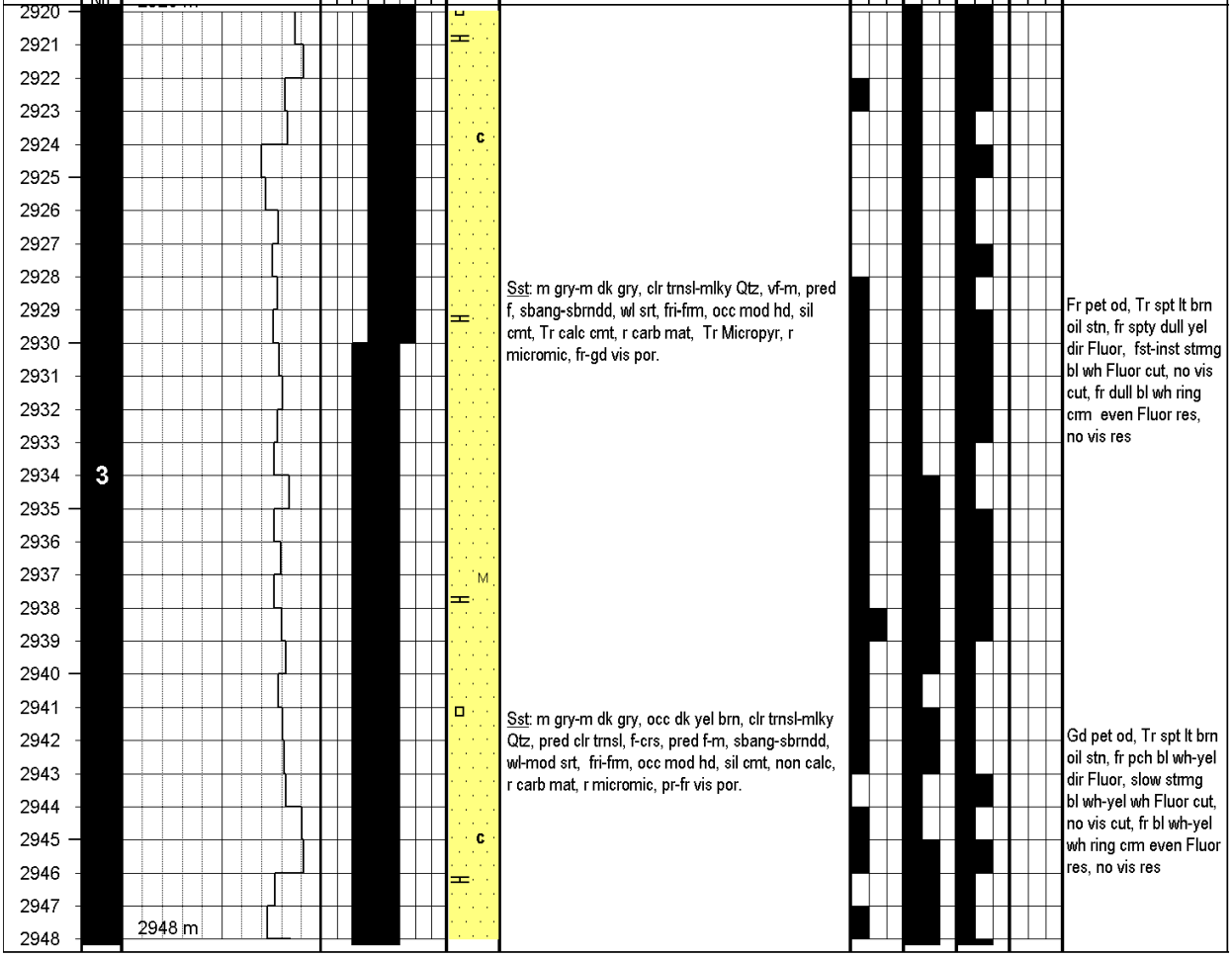

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Core Report

Geologists: B. Schønningsen, E. Skottlien

Field : Varg
Well : 15/12-12
Date : June 2001
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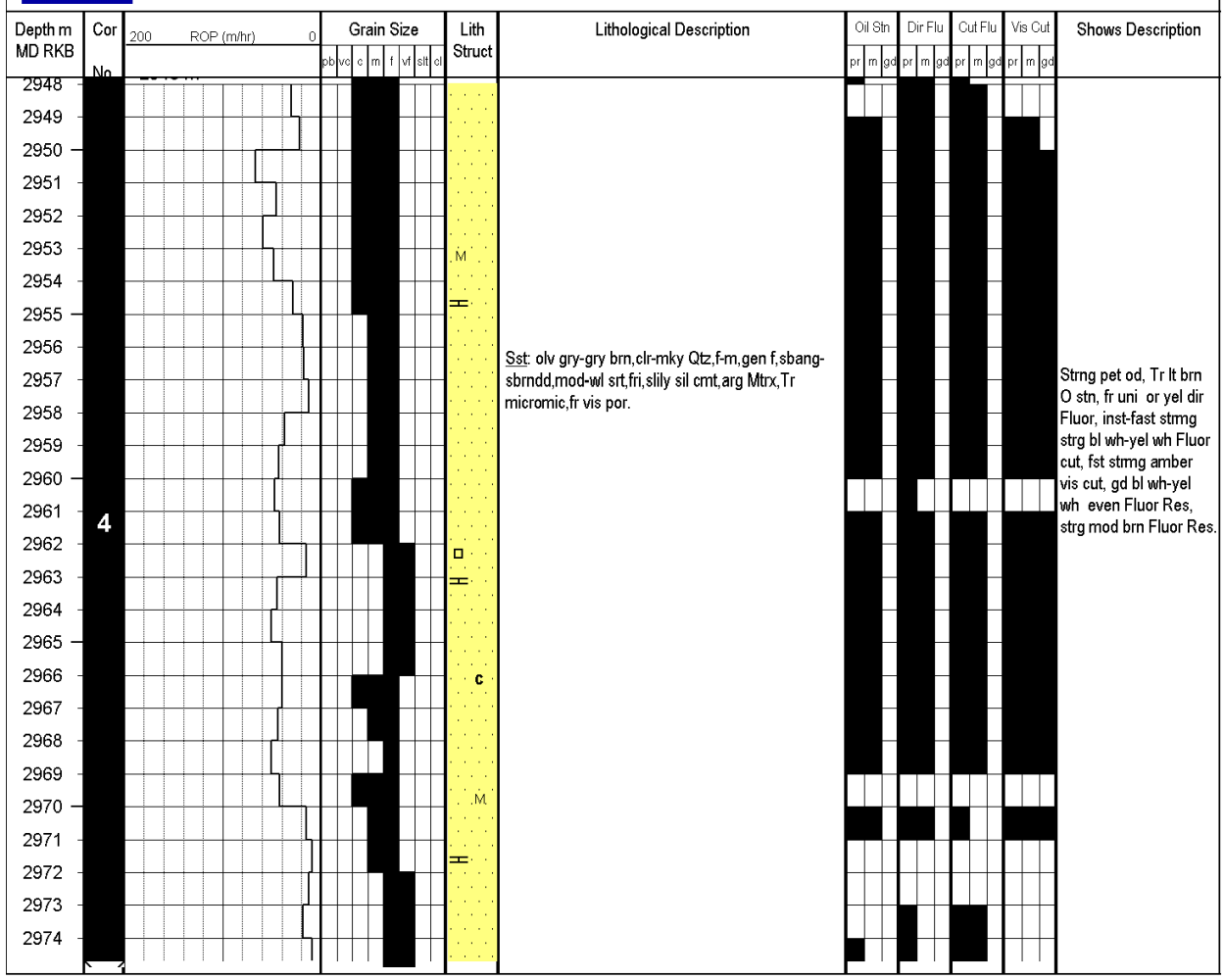

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Core Report

Geologists: B. Schønningsen, E. Skottlien

Field : Varg
Well : 15/12-12
Date : June 2001
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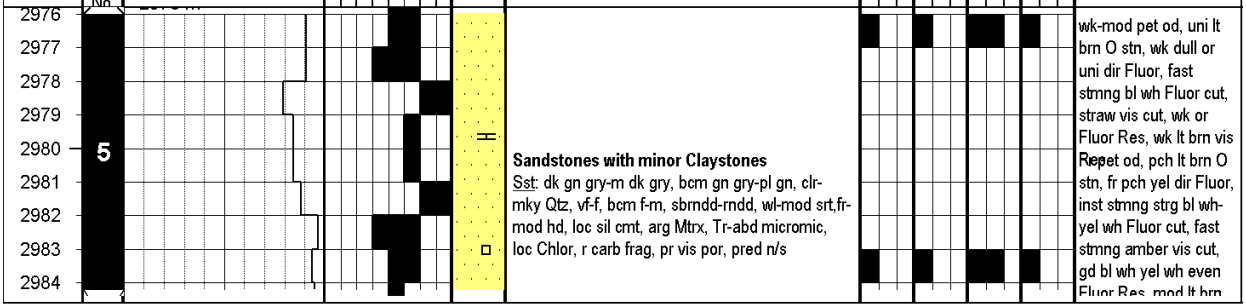

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Core Report

Geologists: B. Schønningsen, E. Skottlien

Field : Varg
Well : 15/12-12
Date : June 2001
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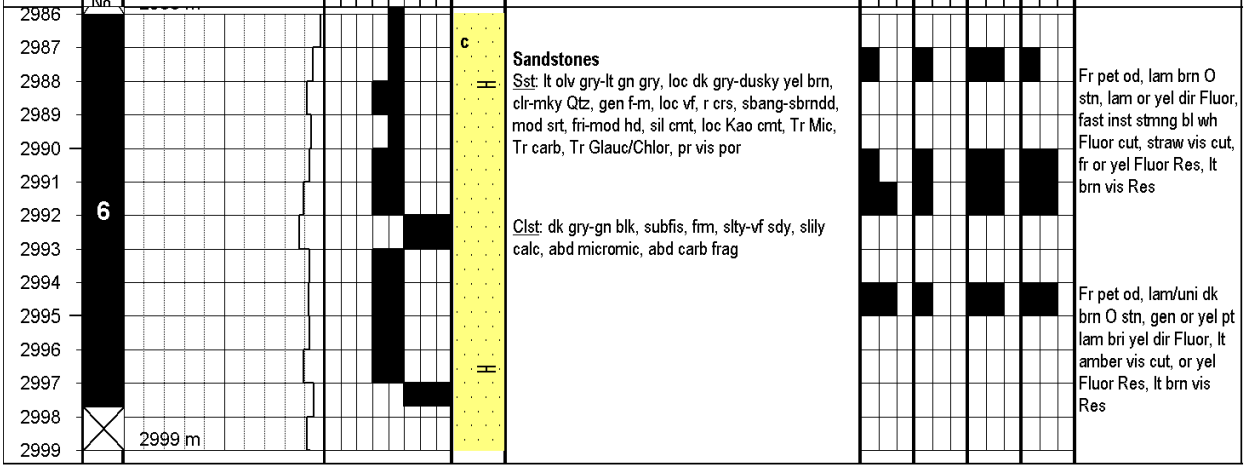


Winlog template version 20010309-AJC Log output date 13:34:13 2001-08-17

APPENDIX II

WELL SUMMARY
GEOLOGICAL WELL SUMMARY

WELL SUMMARY

Coord: 58°01' 40.68"N UTM: 6 432 475.8 mN
01°55' 28.34"E 436 478.4 mE

Zone: ED-50 UTM Zone 31 CM 3º E

Line: NH-inline 682

Rig: Scarabeo 6

Waterdepth: 87 m MSL **KB:** 26 m

Stopped in: Skagerrak Formation

Status: Temporarily Plugged and Abandoned.

On location: 19.12.00
Spud: 25.12.00
At TD: 20.01.01
P&A finished: 09.02.01

TD Driller: 3085 m
TD Logger: Not logged
Wire line Logg: Schlumberger WS
MWD: Schlumberger Anadrill
Mudlogging: Halliburton Sperry-sun

WELL: **15/12-12**

LICENCE: **PL 038**

COUNTRY: **Norway**

OPERATOR: NORSK HYDRO **OWNED BY: Hydro, Statoil, SDØE**

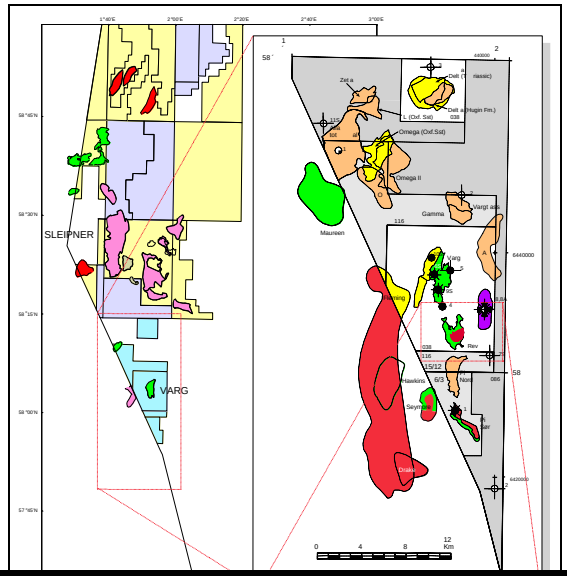
TARGETS:
Shallow marine sand stones of Oxfordian to Lower Kimmeridgian age (Intra Heather Sst)

RESULTS:

- Discovery of oil in the Intra Heather Formation.

CASING

30" : 185 m
20" : 599 m
13 3/8" : 1377 m
9 5/8" : 2829 m

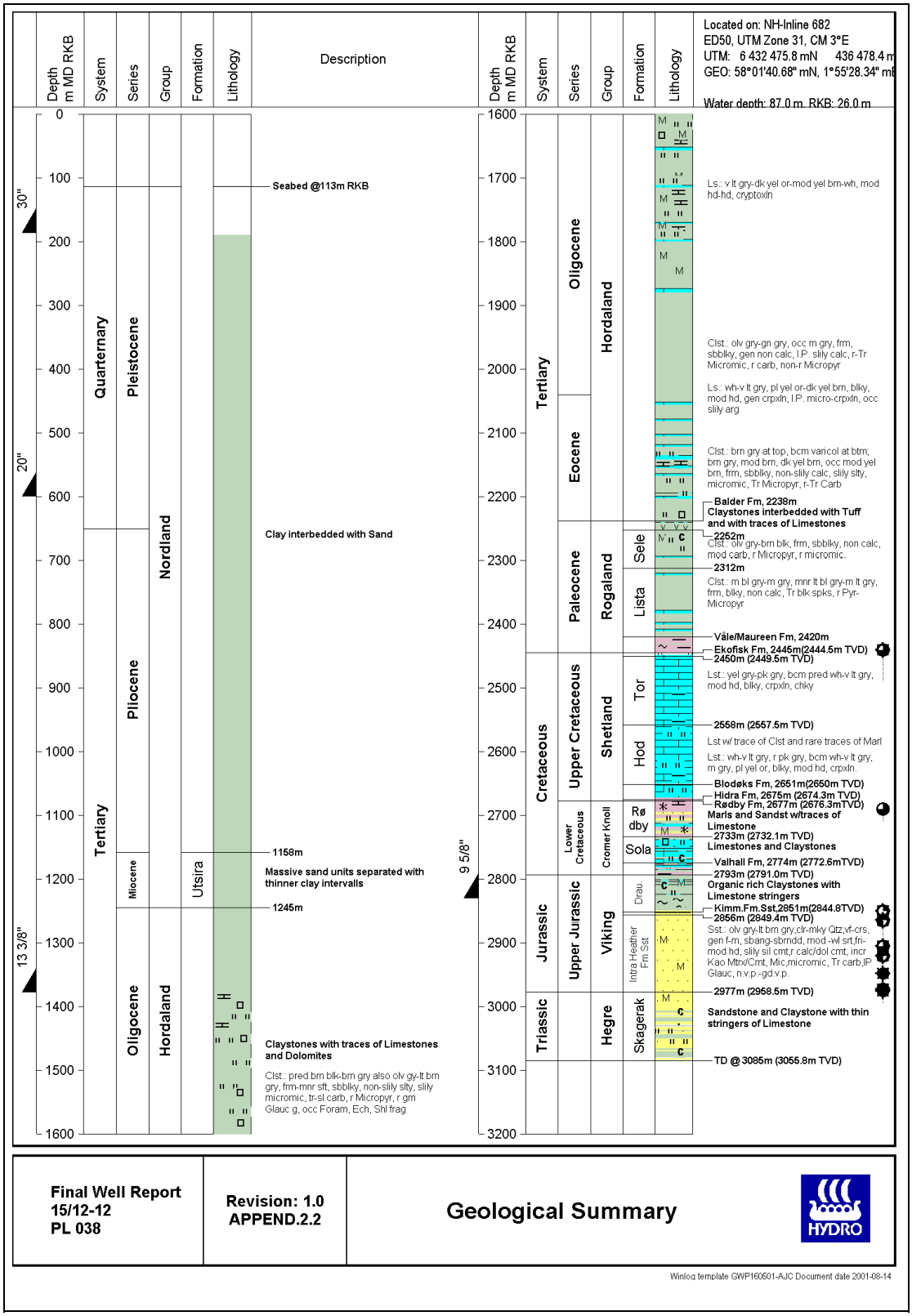


LOGS

CMR-ECS	1A	Stuck.
MDT w/sampling	1A	2859,5 - 2937,0
MDT w/sampling	1B	2895,0 - 3040,0
FMI-DSI-CMR200	1A	2182,5 - 2362,0
DP MDT	1C	2964,0 - 3006,8
VSP-APS-CCL	1A	2460,0 - 3040,0
DSI-ECS-HNGS	1B	2829,0 - 2200,0

CORES

Core #1: 2864,0 - 2892,0
Rec.: 2864,0 - 2892,0 m, 100,0%
Core #2: 2892,0 - 2920,0 m
Rec.: 2892,0 - 2920,0 m, 100,0%
Core #3: 2920,0 - 2948,0 m
Rec.: 2920,0 - 2948,0 m, 100,0%
Core #4: 2948,0 - 2976,0 m
Rec.: 2948,0 - 2974,7 m, 95,4%
Core #5: 2976,0 - 2986,0 m
Rec. 2976,0 - 2984,2 m, 82,0%
Core #6: 2986,0 - 2999,0 m
Rec.: 2986,0 - 2997,7 m, 90,0%


Depth m MD RKB
System
Series
Group
Formation
Lithology
Description
Depth m MD RKB
System
Series
Group
Formation
Lithology
Located on: NH-Inline 682
ED50, UTM Zone 31, CM 3°E
UTM: 6 432 475.8 mN 436 478.4 m
GEO: 58°01'40.68" mN, 1°55'28.34" mE
Water depth: 87.0 m, RKB: 26.0 m
30"
20"
13 3/8"
9 5/8"
Quarternary
Pleistocene
Tertiary
Pliocene
Miocene
Oligocene
Nordland
Hordaland
Utsira
Seabed @113m RKB
Clay interbedded with Sand
1158m
Massive sand units separated with thinner clay intervalls
1245m
Claystones with traces of Limestones and Dolomites
Clst.: pred brn blk-brn gry also olv gy-lt brn gry, frm-mnr sft, sbblky, non-slily slty, slily micromic, tr-sl carb, r Micropyr, r gm Glauc g, occ Foram, Ech, Shl frag
Tertiary
Oligocene
Eocene
Paleocene
Hordaland
Rogaland
Cretaceous
Upper Cretaceous
Lower Cretaceous
Shetland
Cromer Knoll
Jurassic
Upper Jurassic
Viking
Triassic
Hegre
Sele
Lista
Tor
Hod
Rø dby
Sola
Draupne
Intra Heather Fm Sst
Skagerak
Ls.: v lt gry-dk yel or-mod yel brn-wh, mod hd-hd, cryptoxln
Clst.: olv gry-gn gry, occ m gry, frm, sbblky, gen non calc, l.P. slily calc, r-Tr Micromic, r carb, non-r Micropyr
Ls.: wh-v lt gry, pl yel or-dk yel brn, blky, mod hd, gen crpxln, l.P. micro-crpxln, occ slily arg
Clst.: brn gry at top, bcm varicol at btm; brn gry, mod brn, dk yel brn, occ mod yel brn, frm, sbblky, non-slily calc, slily slty, micromic, Tr Micropyr, r-Tr Carb
Balder Fm, 2238m
Claystones interbedded with Tuff and with traces of Limestones
2252m
Clst.: olv gry-brn blk, frm, sbblky, non calc, mod carb, r Micropyr, r micromic.
2312m
Clst.: m bl gry-m gry, mnr lt bl gry-m lt gry, frm, blky, non calc, Tr blk spks, r Pyr-Micropyr
Våle/Maureen Fm, 2420m
Ekofisk Fm, 2445m(2444.5m TVD)
2450m (2449.5m TVD)
Lst.: yel gry-pk gry, bcm pred wh-v lt gry, mod hd, blky, crpxln, chky
2558m (2557.5m TVD)
Lst w/ trace of Clst and rare traces of Marl
Lst.: wh-v lt gry, r pk gry, bcm wh-v lt gry, m gry, pl yel or, blky, mod hd, crpxln.
Blodøks Fm, 2651m(2650m TVD)
Hidra Fm, 2675m (2674.3m TVD)
Rødby Fm, 2677m (2676.3mTVD)
Marls and Sandst w/traces of Limestone
2733m (2732.1m TVD)
Limestones and Claystones
Valhall Fm, 2774m (2772.6mTVD)
2793m (2791.0m TVD)
Organic rich Claystones with Limestone stringers
Kimm.Fm.Sst,2851m(2844.8TVD)
2856m (2849.4m TVD)
Sst.: olv gry-lt brn gry,clr-mky Qtz,vf-crs, gen f-m, sbang-sbrndd, mod -wl srt,fri-mod hd, slily sil cmt,r calc/dol cmt, incr Kao Mtrx/Cmt, Mic,micromic, Tr carb,lP Glauc, n.v.p.-gd.v.p.
2977m (2958.5m TVD)
Sandstone and Claystone with thin stringers of Limestone
TD @ 3085m (3055.8m TVD)
Final Well Report
15/12-12
PL 038
Revision: 1.0
APPEND.2.2
Geological Summary
Winlog template GWP160501-AJC Document date 2001-08-14

SECTION B

OPERATIONS

SECTION B

OPERATIONS

Prepared by: P.V. Fossum Verified by: David Tjøswold Approved by: Terje Skram

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TABLES

FIGURES

1 DRILLING SUMMARY AND EXPERIENCES

1.1 Mobilising

Total time used:	135.5 hrs	
Operational time:	116.5 hrs	(86 %)
Downtime:	19 hrs	(14 %)

For a detailed breakdown, see reports B-6.

Were unable to tension-up the anchors as the axle were broken on the anchor winch. Anchors were tensioned up after setting 13 3/8" casing. The downtime is a total of time spent on this.

Wellhead co-ordinates:

6432475.8 mN 436478.4 mE

1.2 36" Hole Section / 30" Conductor

Total depth of section: 185 m.

Total time used:	36.5 hrs	
Operational time:	35.5 hrs	(97.3 %)
Downtime:	1.0 hrs	(2.7 %)

1.2.1 Drilling

The well was spudded on 25 December 2000, at 22:00 hrs.

A 36" rotary 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 113 m to 185 m. Two pills were pumped on the fly every stand. After drilling, a wiper trip was performed to seabed, and the hole was displaced to 1.50 sg mud.

Swept hole with unweighted mud prior the wipertrip and the displacing.

No overpulls were encountered on the trip.

1.2.2 Casing

The 30" conductor with the Permanent Guide Base was run to 180 m and cemented back to sea bed without any problems.

1.3 26" Hole Section / 20" Casing

Total depth of section: 605 m

Total time used:	111.0 hrs	
Operational time:	87.0 hrs	(78.4 %)
Downtime:	24.0 hrs	(21.6 %)

1.3.1 Drilling

The section was drilled to TD at 605 m with a 26" rotary BHA. Sea water and hi-vis pills were used for cleaning the hole. After drilling, while still having seawater in the hole, a wiper trip to 457 m was made. Some restistance was met and it was necessary to ream the hole in order to clear the hole for tight spots at 588 m. At TD, a hi-vis pill was pumped for cleaning prior displacement to 1,40 sg bentonite mud.

1.3.2 Casing

Ran 20" casing to 599 m with no restrictions.

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

Total depth of section: 1384 m

Total time used:	103,0 hrs	
Operational time:	92,5 hrs	(89,8 %)
Downtime:	10,5 hrs	(10,2 %)

1.4.1 Drilling

A 17 1/2" milltooth bit was made up on a rotary BHA along with MWD tool for surveys. Drilled cement and rathole and circulated hole clean in one go. After that, a hi-vis LCM pill was spotted on bottom prior taking the Leak Off Test. Performed LOT up until 2,18 EMW as a result of this.

Drilled 17 1/2" to TD with 5-7 m3 hi-vis pills pumped on each connection.

Got into a drillbreak indicating Utsira sand at 1163 m and 1215 m.

At TD, a wiper trip was performed. Tight spots where reamed at one occasion while pulling out hole.

1.4.2 Casing

The 9-5/8" casing was run to 1377 m, and cemented in place.

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

Total depth of section: 2836 m

Total time used:	217,0 hrs	
Operational time:	192,0 hrs	(88,5 %)
Downtime:	25,0 hrs	(11,5 %)

1.5.1 Drilling

A 12 1/4" rotary BHA and a PDC bit along with LWD for formation data were made up and run this section. The mudsystem was displaced out to KCl/polymer mud after LOT. At start, the 12 1/4" hole was drilled with lefthand walk and no effect from steering, and a bit trip was made. While pulling, the hole packed off and mud

was lost to formation. A trip in one stand was made to re-establish circulation, before backreaming out to shoe.

Ran in hole with a insert bit. Continued to drill and orient and were able to keep target to TD of section.

1.5.2 Casing

The 9 5/8" casing was set at 2829 m and cemented as planned.

1.6 8 1/2" Hole Section / 7" Liner

Total depth of section: 3085 m

Total time used:	539,0 hrs	
Operational time:	403,0 hrs	(74,8 %)
Downtime:	127,0 hrs	(25,2 %)

1.6.1 Drilling

A non-sulphate KCl/polymer fluid system was incorporated prior drilling to avoid contamination of the MDT water sample.

An 8 1/2" rotary BHA and PDC bit was made up to drill until a drillbreak was recognised and a core assembly could be run. A Resistivity At Bit tool was included to be able to detect possible core points as early as possible. Cored from 2864 m to 2999 m. Experienced stuck pipe once and managed to jar free same.

Drilling was continued with the 8 1/2" bit to final TD of 3085 m.

1.6.2 Coring

Cut a total of 6 cores.

Run #	Cored interval m MD	ROP m/h	Recovery %	Reason pulled
1	2864-2892	14	100	Full core
2	2892-2920	19	100	Full core
3	2920-2948	28	100	Full core
4	2948-2976	19	95	Stuck pipe
5	2976-2986	-	36	Barrel jammed
6	2986-2999	-	46	Barrel jammed

1.6.3 Logging

The logging suite was run to accomodate discovery of hydrocarbones. 3m pay were identified in chalk at 2657 m.

Lost time was experienced during CMR/ECS, MDT and APS/VSP logging due to equipment failures and waiting on weather.

The following logs were run:

Log suite	Logged interval mMD	Log	Comments
CMR/ECS	-	W/L	Stuck & lost

MDT 1A	2859,5-2937	TLC	15 of 20 press.tests 2 of 4 gas samples 2 bottle failures
MDT 1B	2895-3040,5	TLC	10 of 35 press. tests 12 of 15 samples
FMI/DSI/CMR	2829-3050	TLC	Good
MDT	2964-2995	TLC	Packer element burst
APS/VSP	-	TLC	Aborted
DSI/ECS/HNGS	2200-2800	W/L	Good

1.6.4 Casing

Prior running of the 7" liner, drilling assembly was picked up to wash down to bottom. The 7" liner was run and cemented at 3084 m. Set liner hanger packers same.

1.7 Temporary Plug and Abandonment

Total time used:	100,5.0 hrs	
Operational time:	80 hrs	(79.6 %)
Downtime:	20,5 hrs	(20,4 %)

The cased hole was plugged back in two stages. A parabow was installed at bottom of 9 5/8" casing (2600 m), and a cement plug was set from 2600 m-2379 m. The second cementplug was set from 1400 m to 1099 m.

Both cementplugs were load tested to 10 mT and pressure tested to 136 bar. It is not confirmed that the parabow has set.

The riser and BOP was recovered and a trawl frame was installed on the wellhead.

All position beacon was retrieved, and on 9 February 2001 at 15:30 hrs the last anchor was on the bolster and the rig was handed over to well 2/10-2

GENERAL INFORMATION ON WELL 15/12-12

Field : VARG **Country :** NORWAY
Licence : 38
UTM zone : 31 **Central Median :** 3° E **Horiz. Datum:** ED50

Location coordinates:		Surface	Target
UTM	North [m]:	6432475,8	
UTM	East [m]:	436478,4	
Geographical	North :	58 01'40.68"	
Geographical	East :	01 55'28.34"	

Water Depth: 87,0 m **Reference Point Height:** 26,0 m
Formation at TD: SKAGERRAK at 3085 m MD

Operators: NORSK HYDRO PRODUKSJON A/S **Share:** 35,00 %

Partners: DEN NORSKE STATS OLJESELSKAP A/S **Share:** 35,00 %
SDØE 30,00 %

Total depth (RKB) : 3085,0 m MD 3055,8 m TVD

TIME SUMMARY
Start Time : 2000-12-19 21:00:00
Spudding date : 2000-12-19
Abandonment date :

Main operation	Hours	Days	%
MOBILIZATION	135,5	5,6	10,9
DRILLING	509,5	21,2	41,0
FORMATION EVALUATION MWD	7,0	0,3	0,6
FORMATION EVALUATION LOGGING	180,0	7,5	14,5
FORMATION EVALUATION CORING	103,5	4,3	8,3
PLUG AND ABANDONMENT	80,0	3,3	6,4
DOWNTIME MOBILIZATION	19,0	0,8	1,5
DOWNTIME DRILLING	66,0	2,8	5,3
DOWNTIME FORM. EVAL. LOGGING	121,5	5,1	9,8
DOWNTIME PLUG AND ABANDONMENT	20,5	0,9	1,6
Sum:	**1242,5**	**51,8**	

Hole and casing record

Hole	Track	Depth [m MD]	Casing/Tubing	Track	Depth [m MD]
36"		185,0	30"		185,0
26"		605,0	20"		598,9
17 1/2"		1384,0	13 3/8"		1377,3
12 1/4"		2836,0	9 5/8"		2829,3
8 1/2"		3085,0	7"		3084,0

Well status:

Rig name: SCARABEO 6

DOWNTIME REPORT SCARABEO 6

Last 191 days

Inst.	Wellname	Startdate	#	Sum hrs	Downtime Type	Responsible Contractor	Manufacturer	Short description	Equipment Type	Activity	Service Type	NSFI Code	NSFI Type	Serial Number
SCA6	15/12-12	2000-12-25	1	16,5	Equipment failure	SAIPEM S.P.A.	TO BE NAMED	Axle broken on anchor winch for anchor 1 and 2.	MISCELLANEOUS EQUIPMENT/SYS	RIG MOVE/SKIDDI	ANCHOR HANDLING	380.00	Miscellaneous equipment, systems and services	
SCA6	15/12-12	2000-12-25	2	1,0	Equipment failure	SAIPEM S.P.A.	MARITIME HYDRAULICS A/S	Unable to release clamp on topdrive torque wrench. Hydraulic supply hose loose on DDM. + Air supply to elevator loose in cabinet between Dolly tracks.	HOISTING EQUIPMENT	DRILLING	DRILLING CONTRACTOI	313.02	Top Drive	
SCA6	15/12-12	2000-12-27	3	0,5	Equipment failure	SAIPEM S.P.A.	IDECO	Repaired on mudpump no 1. due to mechanical noise.	MUD AND BULK SYSTEMS	DRILLING	DRILLING CONTRACTOI	325.00	Mud Supply(incl. HP mudpumps)	
SCA6	15/12-12	2000-12-29	5	3,0	Equipment failure	FMC KONGSBERG SUBSEA	FMC KONGSBERG SUBSEA	Attempted to make up KOS/FMC hang-off tool, no go due to wrong treads.	DRILLSTRING/DC EQUIPMENT	DRILLING	WELLHEAD	357.07	Other Drilling/Downl Equipment	
SCA6	15/12-12	2000-12-29	6	8,0	Equipment failure	SAIPEM S.P.A.	SAIPEM S.P.A.	During skidding of BOP to transporter it was skidded of skid beams. Repositioned BOP on transporter	WELLCONTROL EQUIPMENT/SYS	BOP INSTALLATIOI AND TESTING	DRILLING CONTRACTOI	331.00	BOP Stack	
SCA6	15/12-12	2000-12-29	7	1,5	Waiting on weather			BOP stack re-installed and secured on transporter. Commenced waiting on weather prior to running the BOP/Riser		BOP INSTALLATIOI AND TESTING				
SCA6	15/12-12	2000-12-30	8	8,5	Waiting on weather			Continued to wait on weater, sea to heavy for the st.by boat.		BOP INSTALLATIOI AND TESTING				
SCA6	15/12-12	2000-12-30	9	0,5	Other	SAIPEM S.P.A.		Lost all rig power		DRILLING				
SCA6	15/12-12	2000-12-30	10	2,0	Other	SAIPEM S.P.A.		Unable to engage booster line hyd.stinger.		BOP INSTALLATIOI AND TESTING				

DOWNTIME REPORT SCARABEO 6

Last 191 days

Inst.	Wellname	Startdate	#	Sum hrs	Downtime Type	Responsible Contractor	Manufacturer	Short description	Equipment Type	Activity	Service Type	NSFI Code	NSFI Type	Serial Number
SCA6	15/12-12	2000-12-31	11	0,5	Equipment failure	SAIPEM S.P.A.	SAIPEM S.P.A.	Functioned diverter bag on HWDP, observed leak on diverter manifold block. Removed block and replaced o-ring. Functioned diverter bag - ok	WELLCONTROL EQUIPMENT/SYS	DRILLING	DRILLING CONTRACTOI	334.00	Diverter w/ Control System	
SCA6	15/12-12	2001-01-01	13	1,0	Waiting on weather			Pulled back into 20"casing shoe and waited on weather		DRILLING				
SCA6	15/12-12	2001-01-01	14	8,0	Waiting on weather			POOH with drillstring to 99 m and wait on weather.		DRILLING				
SCA6	15/12-12	2001-01-03	16	1,0	Equipment failure	ODFJELL DRILLING BERGEN A/S	ODFJELL DRILLING BERGEN A/S	Failure on casing tong.	PIPE HANDLING EQUIPMENT/SYS	CASING	CASING/TUBI RUNNING	347.00	Other Pipe Handling Equipment	
SCA6	15/12-12	2001-01-05	18	0,5	Other	ANADRILL		Reprogrammed MWD.		DRILLING				
SCA6	15/12-12	2001-01-05	19	6,5	Equipment failure	ANADRILL	ANADRILL	Tested LWD on surface and found realtime failure on RAB.	DRILLSTRING/DC EQUIPMENT	DRILLING	MWD/LWD	357.02	MWD/LWD	RBDC003
SCA6	15/12-12	2001-01-07	20	0,5	Equipment failure	SAIPEM S.P.A.	OILWELL	Breakdown of mudpumps #2 & #3. Removed rubber from inlet valve on MP#2, replaced washed out piston on MP #3.	MUD AND BULK SYSTEMS	DRILLING	RIG UTILITIES	325.00	Mud Supply(incl. HP mudpumps)	
SCA6	15/12-12	2001-01-08	21	1,0	Equipment failure	SAIPEM S.P.A.	MARITIME HYDRAULICS A/S	Changed worn out dices on DDM torque wrench while circulating @ 1300 lpm.	DRILL FLOOR EQUIPMENT/SYS	DRILLING	DRILLING CONTRACTOI	317.00	Other Drill Floor Eq./Syst.	030
SCA6	15/12-12	2001-01-08	23	3,0	Equipment failure	ANADRILL	ANADRILL	RAB & CDN failures. Replaced same.	DRILLSTRING/DC EQUIPMENT	DRILLING	MWD/LWD	357.02	MWD/LWD	RAB 003, CDN 835
SCA6	15/12-12	2001-01-09	24	1,0	Equipment failure	SAIPEM S.P.A.	OILWELL	Repaired mud pumps #1, #2, #3 while circulating. Changed liner/piston on MP #1, piston/wear plate on MP #2, piston on MP #3.	MUD AND BULK SYSTEMS	DRILLING	RIG UTILITIES	325.00	Mud Supply(incl. HP mudpumps)	

DOWNTIME REPORT SCARABEO 6

Last 191 days

Inst.	Wellname	Startdate	#	Sum hrs	Downtime Type	Responsible Contractor	Manufacturer	Short description	Equipment Type	Activity	Service Type	NSFI Code	NSFI Type	Serial Number
SCA6	15/12-12	2001-01-10	25	1,0	Equipment failure	SAIPEM S.P.A.	OILWELL	Repaired mudpump #2. Suction valve wash out.	MUD AND BULK SYSTEMS	DRILLING	RIG UTILITIES	325.00	Mud Supply(incl. HP mudpumps)	
SCA6	15/12-12	2001-01-11	26	2,5	Equipment failure	TO BE NAMED	FMC KONGSBERG SUBSEA	Backed out running tool and jettet wellhead again.	SERVICE EQUIPMENT/SYS	CASING	WELLHEAD	376.01	Wellhead	
SCA6	15/12-12	2001-01-11	27	1,0	Equipment failure	SAIPEM S.P.A.	VARCO BJ OIL TOOLS	Repaired BX elevator.	HOISTING EQUIPMENT	CASING	DRILLING CONTRACTOI	305.00	Other Hoisting Equipment	NL 22641
SCA6	15/12-12	2001-01-13	28	6,5	Equipment failure	TO BE NAMED	FMC KONGSBERG SUBSEA	RIH w/ wellhead clean out tool.	SERVICE EQUIPMENT/SYS	WELLHEAD AND GUIDEBASE OPERATIONS	WELLHEAD	376.01	Wellhead	
SCA6	15/12-12	2001-01-13	29	1,5	Equipment failure	SAIPEM S.P.A.	MARITIME HYDRAULICS A/S	Tested floor & crown saver. Replaced saver sub on DDM.	DRILL FLOOR EQUIPMENT/SYS	BOP INSTALLATIOI AND TESTING	DRILLING CONTRACTOI	317.00	Other Drill Floor Eq./Syst.	
SCA6	15/12-12	2001-01-14	30	1,0	Equipment failure	TO BE NAMED	TO BE NAMED	Power failure on logging unit. Investigated same. Purge failure.	SERVICE EQUIPMENT/SYS	DRILLING	MUD LOGGING	373.00	Mud Logging	
SCA6	15/12-12	2001-01-15	31	1,0	Equipment failure	SAIPEM S.P.A.	MARITIME HYDRAULICS A/S	Repaired leaking hose on DDM while circulating bottoms up.	DRILL FLOOR EQUIPMENT/SYS	DRILLING	DRILLING CONTRACTOI	317.00	Other Drill Floor Eq./Syst.	
SCA6	15/12-12	2001-01-15	32	0,5	Equipment failure	SAIPEM S.P.A.	MARITIME HYDRAULICS A/S	Checked IBOP actuator crank.	DRILL FLOOR EQUIPMENT/SYS	CORING	DRILLING CONTRACTOI	317.00	Other Drill Floor Eq./Syst.	
SCA6	15/12-12	2001-01-20	33	3,0	Equipment failure	SAIPEM S.P.A.	MARITIME HYDRAULICS A/S	Replaced burst hose on topdrive.	HOISTING EQUIPMENT	DRILLING	DRILLING CONTRACTOI	313.02	Top Drive	
SCA6	15/12-12	2001-01-21	34	53,5	Other	SCHLUMBERG WIRELINE		Logging tools stuck in hole with bottom of tool at 2935 m wireline depth. Attempted to free tools with max pull 5,5 ton on surface.		LOGGING				
SCA6	15/12-12	2001-01-22	34.1	0,5	Equipment failure	SCHLUMBERG WIRELINE	SCHLUMBERG WIRELINE	Damaged swivel on wireline spearhead. Removed same.	MISCELLANEOUS EQUIPMENT/SYS	LOGGING	ELECTRIC LOGGING	380.00	Miscellaneous equipment, systems and services	

DOWNTIME REPORT SCARABEO 6

Last 191 days

Inst.	Wellname	Startdate	#	Sum hrs	Downtime Type	Responsible Contractor	Manufacturer	Short description	Equipment Type	Activity	Service Type	NSFI Code	NSFI Type	Serial Number
SCA6	15/12-12	2001-02-02	40	1,0	Equipment failure	SCHLUMBERG OFFSHORE SERVICES LTD	SCHLUMBERG OFFSHORE SERVICES LTD	Schlumberger tested tools. Electrial fault on tool head, Schlumberger repaired fault.	DRILLSTRING/DC EQUIPMENT	LOGGING	ELECTRIC LOGGING	357.07	Other Drilling/Downl Equipment	
SCA6	15/12-12	2001-02-02	41	0,5	Equipment failure	SCHLUMBERG OFFSHORE SERVICES LTD	SCHLUMBERG OFFSHORE SERVICES LTD	Re-connected tool head and tested logging tools-OK.	DRILLSTRING/DC EQUIPMENT	LOGGING	ELECTRIC LOGGING	357.07	Other Drilling/Downl Equipment	
SCA6	15/12-12	2001-02-05	42	2,0	Other	SAIPEM S.P.A.		Serviced top drive and travelling assembly.		PLUG AND ABANDONMEI				
SCA6	15/12-12	2001-02-06	43	7,0	Waiting for cement to cure	BJ SERVICES		Pulled back to 1109m and started circulation while waiting on cement.		PLUG AND ABANDONMEI				
SCA6	15/12-12	2001-02-07	44	10,5	Other	BJ SERVICES		RIH with 31/2" cement stinger, made up crossover and changed to 5" drill pipe handling gear.		PLUG AND ABANDONMEI				
SCA6	15/12-12	2001-02-08	45	1,0	Other	SAIPEM S.P.A.		Picked up and made up FMC permanent guide base retrieving tool. Tool would not pass through diverter housing. Racked back stand and made up 3,5m drill pipe pup joint.		PLUG AND ABANDONMEI				
SCA6	15/12-12	2001-02-09	46	2,5	Other	SAIPEM S.P.A.		Chains no.1 and 5 had possible touch down in wellhead area. Jumped ROV to verify move off without interference.		RIG MOVE/SKIDDI				

Sum: 227,0

Total Sum: 227,0

Daily report no : 1 **Date:** 2000-12-19

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

Stop time	Description
21:00	
23:59	Rig in transit from Njord.

Daily report no : 2 **Date:** 2000-12-20

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

Stop time	Description
23:59	In transit from Njord. Latitude 62 50.3' North, Longitude 005 09.3' East. Distanse travelled 100 nautical miles totally. 306 nautical miles to go.

Daily report no : 3 **Date:** 2000-12-21

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

Stop time	Description
23:59	On tow from Njord. Latitude 62 06' North, Longitude 004 10' East. Distance travelled last 24 hrs 53 nautical miles. Totally travelled 153 nautical miles.

Daily report no : 4 **Date:** 2000-12-22

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

Stop time	Description
23:59	In transit from Njord. Latitude 60 26' North, Longitude 003 10' East. Total distance travelled 257 Nautical miles. Distance to go 149 Nautical miles. Average speed last 6 hrs 5,2 knots.

Daily report no : 5 **Date:** 2000-12-23

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

Stop time	Description
23:59	In transit from Njord. Latitude 58 43' North, Longitude 002 17.5' East. Total distanse sailed 378 nautical miles. Distanse to go 28 nautical miles. Average speed last 6 hrs 4,8 knots.

Daily report no : 6 **Date:** 2000-12-24

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

Stop time	Description
06:30	In transit from Njord. 06:00 hrs 1.5 nautical miles from location. Preparing anchor handling. Total distance gone 406 nautical miles.
08:00	Boats on location: Olympic Poseidon, Stirling Iona, Maersk Assister and Northern Challenger. Commenced anchor handling, handed over pennants to Maersk Assister and Northern Challanger. First anchor on bottom 07:56 hrs.
23:59	Anchor handling.

Daily report no : 7 **Date:** 2000-12-25

Midnight depth : 185 m MD **Estimated PP:** sg **Mud weight:** 1,09 sg

Stop time	Description
04:00	Anchor handling. Pretensioned and cross tensioned anchors to stall at 160 ton.
10:00	Problems with anchor winch for anchor 1 and 2. Investigated problem.
11:30	Tagged bottom with with bit and set down 5 ton. Penetration 20 cm. Confirmed seabed at 113 m.
22:00	Took check survey. Inclination 0.1 deg. Spudded well and drilled from 113 m to 123 m. Took check survey. Inclination 0.2 deg. Drilled 17 1/2" hole from 123 m to 187 m. Opened to 36" to 185 m.
23:00	Unable to release clamp on topdrive torque wrench.
23:30	Performed wipertrip to seabed.
23:59	Swept hole with 25 m3 of bentonite hi-vis.

DAILY REPORT ON WELL 15/12-12

Daily report no : 8 **Date:** 2000-12-26

Midnight depth : 185 m MD **Estimated PP:** sg **Mud weight:** 1,09 sg

Stop time	Description
00:30	Displaced hole to 1.5 SG mud.
01:30	POOH and racked back bottom hole assembly.
03:30	Rigged up to run conductor. Held safety meeting.
05:30	Ran conductor pipe.
06:30	Changed elevators. Picked up conductor running tool and made up same.
07:00	Ran conductor housing through rotary table, landed and locked same in PGB on BOP transporter. Retrieved running tool and racked same.
07:30	Ran cement stinger.
08:30	Picked up running tool and made up same to conductor. Removed securing chains and skidded BOP transporter in.
10:30	Ran 30" conductor and PGB and landed off same on bottom. Shoe depth at 185 m. Stick up 2.5 m.
11:00	Made up cement hose and pumed 30 m3 seawater. Pressure tested hose to 100 bar.
13:00	Pumped 5 m3 of seawater spacer, 22.6 m3 of 1.56 SG lead cement followed by 25 m3 of 1.95 SG tail cement. Displaced it with seawater to 180 m.
20:00	Waited on cement.
22:00	Released running tool, POOH and laid out running tool.
23:00	Broke down cement stand and made up remote operated cement head.
23:59	Broke down and laid out 36" hole opener assembly.

Daily report no : 9 **Date:** 2000-12-27

Midnight depth : 459 m MD **Estimated PP:** 1,03 sg **Mud weight:** 1,09 sg

Stop time	Description
01:00	Continued laying out 36" hole opener assembly. Changed out bails to 350 ton.
03:00	Made up 26" bottom hole assembly.
05:30	Made up bit, initialized tools. Ran in and stabbed into wellhead.
06:00	Ran in hole and tagged cement at 178 m.
08:00	Drilled firm cement and shoe from 178 m to 185 m. Drilled 2 m 26" rathole to 187m.
08:30	Drilled 26" hole from 187 m 189 m.
09:00	Pulled back into shoe while investigating noise from mudpump no 1.
23:59	Drilled 26" hole from 189 m to 459 m.

Daily report no : 10 **Date:** 2000-12-28

Midnight depth : 586 m MD **Estimated PP:** 1,03 sg **Mud weight:** 1,09 sg

Stop time	Description
05:30	Drilled 26" hole from 459 m to section TD 605 m.
06:30	Circulatede hole clean
07:30	Made 5 stand wiper trip to 457m
08:00	RIH from 457 m to 605 m. Worked through tight spot at 588 m.
10:00	Circulated bottoms up with seawater, pumped 15m3 hi-vis and displaced hole with 179 m3 1.40 sg bentonite mud.
12:30	POOH and racked back into derrick
13:30	Cleared rig floor and rigged up to run 20" casing. Held safety meeting.
21:30	Made up shoe joint and ran 20" casing. Stabbed into wellhead at 16:45 hrs
23:00	Changed elevators and picked up 18 3/4" wellhead joint, made up same to casing.Removed FMS. Filled void above plug with seawater and installed fill hole plugs.
23:59	RIH with 20" casing on landing string.

Daily report no : 11 **Date:** 2000-12-29

Midnight depth : 605 m MD **Estimated PP:** 1,03 sg **Mud weight:** 1,09 sg

Stop time	Description
01:00	Installed cement hose and hydraulic control hoses to cement stand.Made up cement stand to landing string. Pressure tested lines to 60 bar.RIH and landed 18 3/4"housing with 25 ton down weight. Pull tested to 40 tonn overpull-ok.
02:00	Broke circulation and circulated 100 m3 seawater at 1900 lpm
06:30	Pumped 10 m3 seawater. Mixed and pumped 137 m3 1.44 sg lead slurry followed by 23 m3 1.92 sg tail slurry.Displaced same to drillfloor and dropped dart. Sheared out wiper plug with BJ and displaced cement with rigpumps.
08:00	Released running tool, broke of hyd. hoses on cmt head and POOH
11:00	Attempted to make up KOS/FMC hang-off tool, no go due to wrong treads.

Daily report no : 11 **Date:** 2000-12-29

Midnight depth : 605 m MD **Estimated PP:** 1,03 sg **Mud weight:** 1,09 sg

Stop time	Description
13:00	Rigged up to run BOP.
14:30	Held pre job safety meeting prior to making up 2 joints 21"riser
22:30	During skidding of BOP to transporter it was skidded of skid beams. Repositioned BOP on transporter
23:59	BOP stack re-installed and secured on transporter. Commenced waiting on weather prior to running the BOP/Riser

Daily report no : 12 **Date:** 2000-12-30

Midnight depth : 605 m MD **Estimated PP:** 1,03 sg **Mud weight:** 1,09 sg

Stop time	Description
08:30	Continued to wait on weater, to heavy sea for near st.by .
13:30	Skidded BOP under rotary. Made up dobble riser to adaptor. Fitted guidewires to guideposts Removed pod hose saddles
16:00	Ran BOP on marine riser. 2x flotation joints, 4x slick joints and 1 x pup joint.
16:30	Lost all rig power
20:00	Pressure tested kill and choke lines to 20/390 bar 5/10 min. and booster line to 20/200 bar 5/10 min. Plicked up slip joint and made up same to BOP, took weight of BOP and riser 235 ton on slip joint upper housing support bolts.
22:00	Made up slip joint to riser. Installed landing joint, lowered riser and engaged support ring.
23:59	Unable to engage booster line hyd.stinger.

Daily report no : 13 **Date:** 2000-12-31

Midnight depth : 605 m MD **Estimated PP:** 1,03 sg **Mud weight:** 1,09 sg

Stop time	Description
00:30	Lower support ring to moonpool level and pressure tested kill/choke lines to 20/390 bar 5/10 min.-ok
03:00	Conected 8 x Riser tensioners to support ring, Installed umbilical hoses and safety slings on saddles. Moved rig to well centre. Lowered BOP to check position.
04:00	Landed BOP stack with 65 ton- performed 40 tonn OP test OK.Unlocked dogs and stroked out inner bbl. Installed slip joint hoses and laid out landing joint.
05:30	Installed diverter, landed and took 5 ton overpull-ok. Installed diverter block, energized system ,laid down spider. Installed mud saver ring and bushing.
06:00	Rigged down and laid out all riser handling equipment.
06:30	Changed bails to 350 ton and rigged up t" handling equipment.
08:00	Made up wellhead running tool with wearbushing and test tool. RIH and set same in wellhead. Sheared off from wearbushing and locked same.Took 12 ton overpull to confirm correct position.
09:00	Pressure tested wellhead connector against middle pipe ram to 30/390 bar 5/10 min-ok. Functioned tested all rams on blue pod from rig floor and on yellow pod from toolpushers panel.
09:30	Released running tool and POOH. Simultaniously closed shear ram on accoustic and tested 20" casig to 70 bar-ok.
12:30	Made up 13 3/8" casing hanger with seal assy and racked back in derrick. Made up cement stand with dart and racked back in derrick.
15:00	Pressure tested IBOP on drilling pup,on DDM and 1 valve on mud manifold,racked back drilling stand.
16:00	Picked up and laid down 26" drilling assy.
19:00	Made up 17 1/2" BHA, programmed MWD and tested same. RIH
19:30	Functioned diverter bag on HWDP, observed leak on diverter manifold block. Removed block and replaced o-ring. Functioned diverter bag - ok
22:00	RIH, made up single and washed down last stand. Tagged cement (float) at 585 m
22:30	Performed choke drill with crew
23:59	Drilled float cement and shoetrac to 594 meter.

Daily report no : 14 **Date:** 2001-01-01

Midnight depth : 971 m MD **Estimated PP:** 1,03 sg **Mud weight:** 1,09 sg

Stop time	Description
00:30	Cont.drilling shoetrack to 599 meter. Drilled rathole to 605 meter.
01:30	Drilled 3 m new formation, circulated hole clean
02:00	Spotted 20 m3 unweighted hi-vis lcm pill on bottom.Pulled into shoe
02:30	Performed leak off test equvivalent to 2.18 sg
04:00	Drilled 17 1/2" hole from 608m to 630m
05:00	Pulled back into 20"casing shoe and waited on weather
12:00	POOH with drillstring to 99 m and wait on weather.
13:00	RIH from 90 meter to 588 meter, filled string.

DAILY REPORT ON WELL 15/12-12

Daily report no : 14 **Date:** 2001-01-01
Midnight depth : 971 m MD **Estimated PP:** 1,03 sg **Mud weight:** 1,09 sg

Stop time	Description
13:30	Ream and relogged hole from 588 meter to 630 meter
23:59	Drilled 17 1/2" hole from 630 meter to 970 meter.

Daily report no : 15 **Date:** 2001-01-02
Midnight depth : 1384 m MD **Estimated PP:** 1,03 sg **Mud weight:** 1,09 sg

Stop time	Description
14:00	Continued drilling 17 1/2" hole from 970 meter to 1384 meter. Pumped 5 - 7 m3 Hi-vis pills on every connections.
15:00	Circulated and cleaned hole.
17:00	Displaced hole with 265 m3 1.4 sg mud.
22:00	POOH, Tight hole from 1334m 5 - 20 ton overpull. Pumped out of hole to shoe.
22:30	Circulated bottoms up at shoe. Worked pipe with 4500 lpm and 180 rpm
23:59	RIH from shoe to 1177m. Worked and reamed tight spot from 1177 to 1193 meter.

Daily report no : 16 **Date:** 2001-01-03
Midnight depth : 1384 m MD **Estimated PP:** 1,03 sg **Mud weight:** 1,40 sg

Stop time	Description
01:00	Continued to RIH from 1193 to 1366 meter. Washed from 1366 m to TD at 1384 meter,2 meter fill.
02:30	Circulated bottoms up until shakers clean
04:00	POOH, flow checked at shoe - ok. Pumped slug and continued POOH
06:00	POOH and racked BHA in derrick.
09:30	Made up and RIH with FMC jetting tool and wear bushing tool. Washed wellhead and pulled wear bushing. LD tool.
11:00	Rigged up to run 13 3/8" casing.
16:00	Running 13 3/8" casing.
17:00	Failure on casing tong. Repaired broken shaft on casing tong.
23:59	Continued running 13 3/8" casing.

Daily report no : 17 **Date:** 2001-01-04
Midnight depth : 1384 m MD **Estimated PP:** 1,03 sg **Mud weight:** 1,40 sg

Stop time	Description
03:30	Ran and landed 13 3/8" casing @ 1377 m.
06:00	Broke circulation and pumped 80 m3 1.40 SG mud @ 3000 lpm. Pumped 20 m3 freshwater spacer. Dropped bottom plug, mixed and pumped 1.92 SG cmt slurry. Dropped and sheared dart and displaced cmt @ 3000 lpm.
07:00	Bumped cement plug w/80 bar. Held for 10 min and tested casing OK. Checked for backflow OK. Set seal assy and pressure tested same to 35/390 bar. OK.
08:30	R/D cement hose and retrieved running tool.
09:30	RIH w/ 13 3/8" wear bushing and landed same w/5 ton down.
11:00	M/U 9 5/8" casing hanger & racked back same.
13:30	Changed elevator & bails, displaced riser w/seawater. Removed diverter.
15:00	M/U landing joint to inner barrel and locked slip joint. Overpulled same.
16:00	Unlatched LMRP. Tensioned up anchor #2 to 152 ton, and anchor #6 to 168 ton. Repositioned rig over the well.
17:30	Landed LMRP & reconnected same. Overpulled connector 50 ton.
20:30	Disconnected landing joint & laid down same. Installed diverter. R/D spider, changed elevator and bails. Cleared rig floor.
21:30	RIH w/test tool and tested LMRP connector to 35/390 bar OK.
23:59	Tested BOP to 35/390 bar OK. Functioned BOP on yellow pod from drilling office and operated LPR w/accoustics. POOH test tool.

Daily report no : 18 **Date:** 2001-01-05
Midnight depth : 1387 m MD **Estimated PP:** 1,03 sg **Mud weight:** 1,40 sg

Stop time	Description
00:30	P/U cement stand & serviced cement head. Racked back same.
02:00	L/D 17 1/2" drilling assy.
03:00	P/U 12 1/4" BHA.
03:30	Reprogrammed MWD tool.
05:00	Continued to M/U 12 1/4" MWD.

DAILY REPORT ON WELL 15/12-12

Daily report no : 18 **Date:** 2001-01-05

Midnight depth : 1387 m MD **Estimated PP:** 1,03 sg **Mud weight:** 1,40 sg

Stop time	Description
06:00	MWD realtime failure at surface. Troubleshoot same.
09:30	L/D defective RAB tool. P/U CDR tool. M/U MWD/CDN & CDR & align same.
11:30	B/O MWD/CDN/CDR assy, P/O RAB tool and M/U CDN/MWD/CDR/RAB. Tested MWD/LWD w/2500 lpm/184 stks/45 bar OK.
12:00	Worked on radioactive source.
13:00	Continued to RIH w/8" DC & HWDP.
15:00	P/U 12 new jnts 5" drill pipe and service broke connections.
16:30	M/U hang off tool & racked back same.
19:00	Continued to RIH w/5" drill pipe. Broke circulation @ 1315 m.
19:30	Pressure tested 13 3/8" casing to 185 bar.
20:00	Performed choke drill.
21:00	Changed drilling stand & RIH to 1343 m. Broke circulation w/95 SPM/65 bar. Tagged float @ 1349 m. Circulated out seawater w/2584 lpm/154 bar.
23:59	Drilled & reamed float, cement and shoe w/60 rpm/ 4 ton / 3000 lpm / 202 bar to 1372 m..

Daily report no : 19 **Date:** 2001-01-06

Midnight depth : 2110 m MD **Estimated PP:** 1,11 sg **Mud weight:** 1,35 sg

Stop time	Description
01:00	Installed diverter bag. Continued to clean out shoetrack from 1372 m. Reamed through csg shoe @ 1378 m. Washed down to 1384 m. Drilled 3 m new formation from 1384-1387 m.
02:00	Lined up cmt pump and performed LOT to 36 bar / 1.67 SG.
03:30	Displaced hole to 1.35 SG Glydril mud w/3000 lpm. Rotated string @ 20 rpm. Measured choke line friction loss to 7 bar w/50 SPM, 9 bar w/50 SPM.
23:59	Drilled 12 1/4" hole from 1387-2110 m.

Daily report no : 20 **Date:** 2001-01-07

Midnight depth : 2661 m MD **Estimated PP:** 1,24 sg **Mud weight:** 1,35 sg

Stop time	Description
22:30	Continued drilling from 2110-2652 m.
23:00	Breakdown of mudpumps #2 & #3. Repaired same.
23:59	Continued drilling from 2652-2661 m.

Daily report no : 21 **Date:** 2001-01-08

Midnight depth : 2661 m MD **Estimated PP:** 1,24 sg **Mud weight:** 1,35 sg

Stop time	Description
01:00	Circulated bottoms up w/3223 lpm / 308 bar. Reciprocating pipe w/ 30 rpm.
01:30	Flowchecked for 15 min OK. Pumped slug.
02:00	Unable to break out top drive. B/D drilling stand in mousehole and laid out same.
02:30	Commenced to POOH. 50 ton overpull @ 2583 m.
03:30	Changed dices on DDM torque wrench while circulating @ 1300 lpm.
06:00	Reamed tight spot and continued to POOH.
07:00	Hole packed off @ 2078 m. Lost circulation. Lost 15 m3 mud to formation. RIH one stand and re-established circulation and backreamed out to 2023 m.
09:00	Circulated bottoms up to clean well.
10:00	Continued to POOH.
11:00	Pumped slug & continued to POOH to 13 3/8" shoe.
12:00	Performed kick drill. Slipped & cut drilling line.
12:30	Serviced top drive.
14:00	Continued to POOH.
15:00	Removed diverter bag & wiper and continued to POOH.
16:30	Removed radioactive LWD sources. L/D CDN and dumped memory data.
18:00	L/D MWD, CDR & RAB. B/O bit.
19:30	M/U new bit and set PDM angle to 1.5 deg.
21:00	M/U new CDN / MWD / RAB. Tested same w/ 2400 lpm OK.
21:30	Installed radio active sources.
23:30	Continued to RIH w/ 12 1/4" BHA to 960 m.

DAILY REPORT ON WELL 15/12-12

Daily report no : 21 **Date:** 2001-01-08
Midnight depth : 2661 m MD **Estimated PP:** 1,24 sg **Mud weight:** 1,35 sg

Stop time	Description
23:59	Performed kick drill. Filled pipe & RIH to 1022 m.

Daily report no : 22 **Date:** 2001-01-09
Midnight depth : 2737 m MD **Estimated PP:** 1,27 sg **Mud weight:** 1,40 sg

Stop time	Description
04:00	Continued to RIH. Tight spot @ 2244 m. 30-40 ton overpull. Worked pipe.
04:30	M/U top drive and washed down. Took weight @ 2626 m. No overpull.
06:00	Displaced hole to 1.40 SG mud. Took SCRs.
06:30	Displaced kill & choke lines to 1.40 SG mud. Took survey.
07:30	Oriented stringer from 2661-2662 m.
08:30	Drilled from 2662-2670 m.
09:30	Repaired mud pumps #1, #2, #3 while circulating.
11:00	Drilled from 2670-2680 m.
12:00	Oriented from 2680-2686 m.
17:00	Oriented from 2686-2708 m. Pick up w/ 25 ton overpull.
17:30	Pulled back to 2703 m. Reamed down to 2706 m. Continued to drill to 2710 m.
20:30	Continued to orientate from 2710-2723 m.
22:30	Drilled from 2723-2730 m.
23:00	Oriented from 2730-2732 m.
23:59	Drilled from 2732-2737 m.

Daily report no : 23 **Date:** 2001-01-10
Midnight depth : 2836 m MD **Estimated PP:** 1,32 sg **Mud weight:** 1,40 sg

Stop time	Description
04:00	Oriented from 2737-2753 m.
05:00	Repaired mudpump #2.
16:30	Oriented from 2753-2813 m
18:00	Circulated bottoms up for samples.
20:30	Oriented from 2813-2836 m.
22:00	Circulated bottoms up for samples.
23:00	POOH to 2500 m. No overpull. RIH to TD.
23:59	Pumped 8 m3 HiVis pill and circulated bottoms up.

Daily report no : 24 **Date:** 2001-01-11
Midnight depth : 2836 m MD **Estimated PP:** 1,32 sg **Mud weight:** 1,40 sg

Stop time	Description
01:00	Circulated hole clean. Gas < 0.5%.
04:00	POOH 12 1/4" BHA to casing shoe. Flowchecked OK.
06:00	Continued to POOH 5" HWDP. Pulled diverter bag.
07:00	POOH 12 1/4" BHA.
09:00	Dumped LWD tools. Backed out bit & racked back MWD & motor.
10:00	M/U jetting tool & washed riser, BOP, wellhead.
11:30	M/U Spring loaded wearbushing retrieving tool, RIH & set down 5 ton on wear bushing. POOH but found that wearbushing was still in hole.
12:00	Backed out running tool and jettet wellhead again.
13:00	M/U running tool & RIH. Set down 10 ton several times, no overpull.
14:00	POOH w/ wear bushing. L/D running tool
15:00	Washed BOP & riser while POOH. Boosted riser.
17:00	Rigged up to run 9 5/8" casing. Held prejob meeting.
17:30	Repaired BX elevator.
18:30	Picked up shoe joint. Tested float.
19:00	Problems w/ BX elevator & link tilt. L/D BX elevator & P/U sidedoor elevator.
23:59	RIH 9 5/8" casing to 348 m (jnts #29). Tested LaFleur OK. Installed pip tags on shoe joint collar and on jnt #259 (200 m above shoe).

Daily report no : 25 **Date:** 2001-01-12

Midnight depth : 2836 m MD **Estimated PP:** 1,32 sg **Mud weight:** 1,40 sg

Stop time	Description
06:00	Continued to run 9 5/8" casing to 1125 m.
16:30	Continued to run casing to 2713 m.
19:00	R/D LaFleur, changed elevator. M/U casing hanger. Removed FM slips and install bushings. RIH and landed casing.
20:30	Continued to circulate 100 m3 mud w/2300 lpm & 90 bar. Meanwhile boosted riser.
21:00	R/U cement hose and tested hose and lines to 100 bar. Pumped 15 m3 1.65 SG spacer w/rig pumps and dropped bottom plug ball..
22:00	Mixed & pumped 27.5 m3 1.90 SG lead slurry.
23:00	Dropped dart and sheared wiper plug w/770 l using BJ pump.
23:59	Displaced cement w/rig pumps. Bumped plug w/ 7451 stks / 200 bar.

Daily report no : 26 **Date:** 2001-01-13

Midnight depth : 2836 m MD **Estimated PP:** 1,32 sg **Mud weight:** 1,40 sg

Stop time	Description
00:30	Pressure tested casing to 390 bar/10 min and 35 bar/5 min OK w/BJ pump. Bled off & checked floats OK.
01:00	R/D cement hose. Set seal assy w/3 turns and 25 ton down. Noticed drop in landing string.
03:00	Tested seal assy to 390 bar/10 min & 35 bar/5 min. 2 attempts. Tests OK. POOH w/ running tool. Had 5 ton overpull up through the BOPs and 15 ton through the upper annular. Seal assy intact on running tool at surface.
06:30	Changed bails & RIH w/ jet sub & cuttings clean out tool. Jetted wellhead & BOPs. Boosted riser and circulated riser contents. POOH.
08:30	M/U seal assy & running tool. RIH & land seal assy. Took Vetco measurements. Set seal assy w/300 bar. Tested seal assy to 390/35 bar 10/5 min OK.
09:30	POOH seal assy running tool & L/D same.
10:30	M/U wear bushing, running tool & RIH. Landed wear bushing w/ 7 ton down. No overpull.
13:30	Tested BOPs to 390 bar/10 min.
14:30	POOH w/ running tool & jet sub. L/D same.
17:30	P/U drilling stand, M/U XO & cement hose. Tested drilling stand, stand pipe valve #10 & upper IBOP to 35/330 bar for 5/10 min OK.
19:00	Tested floor & crown saver. Replaced saver sub on DDM. Removed torque wrench for service.
19:30	M/U cement hose, stab in valve. Cleared rig floor.
23:30	M/U 21 jnts new 5" pipe, service broke same. Racked rental pipe in forward finger board.
23:59	L/D 8" CDN tool.

Daily report no : 27 **Date:** 2001-01-14

Midnight depth : 2840 m MD **Estimated PP:** 1,32 sg **Mud weight:** 1,35 sg

Stop time	Description
01:00	Laid down MWD & RAB tools. Service broke internal connections.
03:30	Laid down 8" DCs.
06:00	M/U MWD tools. Performed shallow hole test OK.
07:00	Installed radioactive source. Picked up NMDC & made up same.
08:30	Picked up 6 1/2" DCs & made up same.
09:00	Changed elevator & continued RIH to 340 m.
10:00	Held safety meeting w/crew regarding mud treatment. (BaCl2)
12:30	Continued to RIH from 340-2500 m. Filled pipe at 1000 m & 2000 m.
13:30	P/U drilling stand & installed top drive torque wrench.
14:00	Performed chokedrill & racked back drilling stand.
15:30	Continued to RIH. Washed down 2 stands.
16:30	Tagged cmt @ 2789 m. Drilled cmt & float.
18:00	Drilled shoetrack. Shoe @ 2828 m. Reamed shoe several times. Drilled rat hole & new formation to 2840 m.
19:00	Circulated hole clean and conditioned mud.
20:00	Performed FIT to EMW= 1.43 SG.
22:00	Lined up to circulated sulphate free mud. Displaced choke & kill lines, and surface lines.
23:00	Power failure on logging unit. Investigated same while circulating. Purge failure.
23:59	Pumped 16 m3 HiVis pill and displaced to 1.35 SG sulphate free glydril mud and conditioned mud/hole.

DAILY REPORT ON WELL 15/12-12

Daily report no : 28 **Date:** 2001-01-15
Midnight depth : 2864 m MD **Estimated PP:** 1,32 sg **Mud weight:** 1,35 sg

Stop time	Description
02:30	Cleaned surface mud equipment (shakers, pits, flowline, trip tank etc).
03:00	Continued to circulate & take SCRs, up riser & down chokeline.
04:00	Drilled from 2840-2859 m. Drilling break @ 2854 m. Racked drilling stand to relog due to MWD depth error. Survey: 2836.9 m, I=25.49 deg, A=251.26 deg.
05:00	Repaired leaking hose on top drive. Meanwhile circulating bottoms up.
06:30	Reamed/logged from 2829-2859 m down.
07:00	Drilled 5 m to 2864 m.
08:00	Circulated bottoms up for samples.
09:00	Flowchecked OK. Pulled into shoe 2 stands. Flowchecked again OK. Pumped slug.
12:00	POOH. Flowchecked w/BHA below BOP OK.
13:30	Continued to POOH from 315-20 m.
15:00	Removed radioactive sources. Reloaded data on MWD tool. Backed out bit. Racked MWD stand in derrick.
17:00	Changed elevator. Made up 90' core barrel, core head, inner barrels.
19:00	Made up float sub & 6 1/2" drill collars. RIH to 255 m.
23:00	Continued to RIH 8 1/2" coring assy on 5" drill pipe to casing shoe.
23:30	Serviced top drive.
23:59	Washed down from 2834-2864.

Daily report no : 29 **Date:** 2001-01-16
Midnight depth : 2920 m MD **Estimated PP:** 1,32 sg **Mud weight:** 1,35 sg

Stop time	Description
02:00	Broke connection, dropped ball and circulated same down. Took SCR measurements. Made connection & cut core from 2864-2892 m.
03:00	Pulled into csg shoe. Flowchecked OK. L/D pup, pumped slug.
08:30	POOH corebarrel #1.
09:00	Core barrel @ surface. Held safety meeting with crew. Backed off core head.
11:00	Laid out inner barrels complete with core sample. 100% recovered. Made up new 90 ft coring assy #2.
12:00	RIH with coring assy to 258 m.
16:00	Installed dart sub, 3 m pup joint & auto slips. Continued to RIH from 258-2850 m. Took 5 ton weight and worked pipe to 2862 m.
17:00	Washed & reamed from 2862-2892 m. Circulated for 1/2 hour & reciprocated pipe. Dropped ball & circulated down same @ 1000 lpm, 54 bar & noted 10 bar increase when seated. Took SCRs.
18:30	Cut core #2 from 2892-2920 m.
20:00	Flowchecked OK. Pumped 4 m3 slug & pulled into csg shoe. Laid down 2 x 5" singles. Max overpull 20 ton. Flowchecked OK.
23:59	POOH with core #2.

Daily report no : 30 **Date:** 2001-01-17
Midnight depth : 2948 m MD **Estimated PP:** 1,25 sg **Mud weight:** 1,35 sg

Stop time	Description
01:30	Flow checked with BHA below BOP OK. POOH with core #2. Broke out corehead.
02:30	Laid out core #2. Core recovery 100% = 28 m.
03:00	Made up core assy #3 with 90 ft core barrel.
08:00	RIH core assy #3.
09:00	Washed down from 2891-2920 m & tagged bottom. Continued to circulate bottoms up. Gas peak @ 9.2%. 1900/2500 lpm = 120/184 bar. Dropped and circulated down ball w/1000 lpm and noted a 10 bar increase to 67 bar.
10:00	Cut core #3 from 2920-2948 m. Max 10 ton overpull to break core.
12:00	Flowchecked 10 min OK. Pumped OOH from 2948-2906 m. Stuck pipe problems. Jarred free with 75 ton down & 18 ft.klbs. Backreamed from 2906-2872 m. Pumped OOH from 2872-2829 m.
18:00	Flowchecked 10 min OK inside csg shoe. Pumped slug & laid out single. Continued to POOH core #3. Flowchecked @ 400 m 10 min OK. Continued to POOH from 400 m. Backed off core head.
19:30	Laid out core #3. 100% = 28 m recovery.
20:00	Made up core head & 90 ft core barrel.
23:59	RIH coring assy #4 to 2775 m.

Daily report no : 31 **Date:** 2001-01-18
Midnight depth : 2986 m MD **Estimated PP:** 1,25 sg **Mud weight:** 1,35 sg

Stop time	Description
00:30	Continued to RIH coring assy #4 to 2823 m.
01:30	Slipped & cut drilling line.
03:00	Picked up 1 single & continued to RIH. Washed down from 2890 m to bottom. No tight spots.
04:00	Circulated bottoms up.
05:30	Cut core #4 from 2948-2976 m.
06:00	Flowchecked OK. Pumped OOH. Stuck pipe @ 2918 m, jarred free.
07:00	Pumped OOH to casing shoe at 2829 m. Flow checked well.
12:00	Pumped slug and POOH to 540 m. Flow checked well. POOH and laid out core head.
13:00	Laid out inner barrels. Recovered 26.7 m (95 pct).
14:00	Made up 3 new alluminum inner barrels. Serviced core barrel and made up core head.
18:00	Ran in hole with coring assembly #5 to 2829 m. Broke circulation and washed down to TD at 2976 m.
19:00	Circulated bottoms up and gas out. Max gas 2 pct.
19:30	Dropped ball and circulated down same.
22:00	Cut core #5 from 2976 m to 2986 m. Barrel jammed.
23:30	Pumped OOH from 2986 m to 2829 m. No over pulls.
23:59	Flow checked well. Pumped slug and displaced same.

Daily report no : 32 **Date:** 2001-01-19
Midnight depth : 2999 m MD **Estimated PP:** 1,25 sg **Mud weight:** 1,36 sg

Stop time	Description
04:30	POOH with coring assembly.
05:30	Laid out core #5. Recovered 8,2 m (82 pct).
06:00	Made up core barrel.
10:30	Ran in hole with coring assembly #6.
12:00	Circulated bottoms up. Dropped ball and circulated down same.
13:00	Cut core #6 from 2986 m to 2999 m. Core barrel jammed. Picked up, had 5 ton over pull. Flow checked well.
14:30	Back reamed OOH from 2986 m to 2856 m with 1000 l/m at 74 bar. Flow checked well.
20:00	POOH with core #6.
22:00	Laid out core #6 and evaluated same. Recovered 11,7 m (90 pct). Racked back core barrel.
23:00	Made up 8 1/2" bit and initiated tools.
23:59	Installed radioactive sources and ran in hole to 113 m. Shallow tested MWD tool with 1600 l/m.

Daily report no : 33 **Date:** 2001-01-20
Midnight depth : 3085 m MD **Estimated PP:** 1,25 sg **Mud weight:** 1,36 sg

Stop time	Description
04:00	Ran in hole with 8 1/2" drilling assembly from 113 m to 2770 m.
05:00	Took MWD check surveys at 2770 m, 2800 m and 2820 m to establish dog legs.
09:30	Reamed down to survey cored interval from 2864 m to 2961 m with overlap from 2845 m.
12:30	Replaced burst hose on topdrive.
14:30	Reamed down to survey cored interval from 2961 m to 2999 m.
19:00	Drilled 8 1/2" hole from 2999 m to TD at 3085 m.
20:30	Circulated bottoms up twice to clean hole.
23:30	Flow checked well. Performed wiper trip to casing shoe at 2829 m.
23:59	Circulated bottoms up.

Daily report no : 34 **Date:** 2001-01-21
Midnight depth : 3085 m MD **Estimated PP:** 1,25 sg **Mud weight:** 1,36 sg

Stop time	Description
00:30	Continued circulating bottoms up. Flow checked well.
01:30	POOH to casing shoe at 2829 m. Flow checked well.
05:00	POOH from casing shoe to 40 m.

Daily report no : 34 **Date:** 2001-01-21
Midnight depth : 3085 m MD **Estimated PP:** 1,25 sg **Mud weight:** 1,36 sg

Stop time	Description
06:30	Laid out 8 1/2" bottom hole assembly.
07:30	Laid out core barrels.
08:30	Laid out cement head.
09:00	Tested crown- and flor saver as part of weekly PM.
10:00	Rigged up to run wireline. Installed radioactive sources.
14:30	Ran in hole with CMR/ECS logging tools on wireline to 2935 m wireline depth.
17:00	Logging tools stuck in hole with bottom of tool at 2935 m wireline depth. Attempted to free tools with max pull 5,5 ton on surface.
19:00	Prepared to cut and thread. Held pre-job safety meeting. Clamped wire and set in rotary. Cut wire and installed spearhead quick connection.
22:00	Held pre-job safety meeting. Shackled up hang off sling in derrick. Installed 12' bails and 350 ton elevator.
23:59	Installed top sheave in hang off sling. Positioned chain hoist to help guide sheave in correct position.

Daily report no : 35 **Date:** 2001-01-22
Midnight depth : 3085 m MD **Estimated PP:** 1,25 sg **Mud weight:** 1,36 sg

Stop time	Description
03:00	Picked up a stand of HWDP. Made up overshot and first connection . Made final adjustments to wireline travel.
07:00	Ran in hole while performing "cut and thread" operation to 707 m.
08:30	Held safety meeting. Performed kick drill. Adjusted rig.
10:30	Ran in hole on "cut and thread" operation from 707 m to 1105 m.
11:00	Damaged swivel on wireline spearhead. Removed same.
12:30	Ran in hole on "cut and thread" operation from 1105 m to 1474 m.
14:00	Lower sheave endured damage on sheave guard. Repaired same.
17:00	Ran in hole on "cut and thread" operation from 1474 m to 1985 m.
22:30	Weather conditions deteriorating. Stopped drill pipe operations. Prepared for and broke wire weak link on logging tool. Retrieved wire to surface.
23:30	WOW.Removed diverter. Made up and serviced hang off tool. Ran in hole and landed off in well head. Released with 3 right hand turns.
23:59	WOW.Closed shear rams and displaced riser to drill water.

Daily report no : 36 **Date:** 2001-01-23
Midnight depth : 3085 m MD **Estimated PP:** 1,25 sg **Mud weight:** 1,36 sg

Stop time	Description
01:00	WOW. POOH with hang off assembly.
01:30	WOW. Installed diverter running tool and performed 5 ton overpull test.
15:30	WOW.
16:00	WOW. Installed diverter block. Changed to drilling bails.
16:30	WOW. Made up centralizer. Ran in hole with retrieval tool to above shear rams.
17:00	WOW. Displaced riser to sulphate free mud. Engaged string and opened middle pipe rams.
19:00	WOW. Heave following weather forecast down. POOH with hang off assembly and racked same in derrick. Inserted diverter bag.
20:00	Ran in hole with fishing assembly from 1985 m to 2674 m.
21:00	Flushed kill and choke lines. Circulated bottoms up with 2176 l/m and 120 bar.
22:00	WOW. Wind following weather forecast up. Pulled diverter bag. Made up hang off sub. Serviced connection. Ran in hole and landed in well head. Set down 55 ton.
23:59	WOW.

Daily report no : 37 **Date:** 2001-01-24
Midnight depth : 3085 m MD **Estimated PP:** 1,25 sg **Mud weight:** 1,36 sg

Stop time	Description
06:00	WOW.
06:30	WOW. Retrieved hang off sub to surface. Laid out Gray valve and installed diverter element.
07:00	Ran in hole from 2674 m to 2905 m.
08:00	Washed down with 20 spm/22 bar from 2905 m to 2917 m. Engaged fish and pulled free.
08:30	POOH wet from 2919 m to 2818 m.
09:00	Flow checked well and pumped slug.

Daily report no : 37 **Date:** 2001-01-24
Midnight depth : 3085 m MD **Estimated PP:** 1,25 sg **Mud weight:** 1,36 sg

Stop time	Description
09:30	POOH from 2818 m to 2318 m.
10:00	Hydraulic hose on topdrive burst. Changed same.
13:30	POOH from 2318 m to surface.
14:30	Fish on surface. Unloaded radioactive source. Laid out fish/logging assembly.
20:30	Retracted pads and tested new logging string on deck. At the same time prepared for TLC logging on rigfloor.
21:30	Made up wipertrip BHA and ran in hole to 226 m.
23:59	Ran in hole from 226 m to casing shoe at 2829 m.

Daily report no : 38 **Date:** 2001-01-25
Midnight depth : 3085 m MD **Estimated PP:** 1,25 sg **Mud weight:** 1,36 sg

Stop time	Description
00:30	Picked up single. Broke circulation.
01:00	Ran in hole from 2829 m to 3032 m.
02:00	Washed and reamed from 3032 m to TD at 3085 m with 2500 lpm/244 bar and 100 rpm.
04:00	Circulated clean and to level mudweight at 1.36 SG. Tripgas 2.1 pct.
05:00	Flow checked well. POOH to casing shoe at 2829 m.
05:30	Flow checked well. Pumped slug.
10:00	POOH with wipertrip BHA and racked same.
12:00	Made up MDT/GR logging string and tested same.
17:30	Ran in hole with logging suite no 1 on drill pipe to 2797 m.
19:30	Circulated with 2000 lpm while rigging up wireline sheaves.
20:30	Changed to insert bowls with groove. Installed cses in string.
21:00	Adjusted sheaves.
23:30	Held pre-job safety meeting. Ran in hole with wireline to 2700 m.
23:59	Pumped 3 m3 weighed freshwater pill and spotted at docking head. Latched docking head and tested. OK.

Daily report no : 39 **Date:** 2001-01-26
Midnight depth : 3085 m MD **Estimated PP:** 1,25 sg **Mud weight:** 1,36 sg

Stop time	Description
00:30	Tightened pack-off seal and cable clamp on CSES and performed over pull test to 1.5 ton,
01:30	Displaced freshwater pill up in annulus with 530 lpm/32 bar while rigging up counter balance weight.
03:00	Correlated depths with pip tag in 9 5/8" casing.
05:00	Attempted to correlate depths in open hole. Difficult due to compensation and rig heave.
07:00	Correlation successful. Tied in to first pressurepoint at 2859.5 m.
08:00	Problems with downhole logging tool.Troubleshoot and rectified problem.
11:00	Flushed and took first sample at 2867 m.
16:30	Logged MDT. Took a total of 13 tests.
17:30	Problems with hydraulic system in downhole tools. Trouble shoot same. No success.
18:30	POOH from 2953 m to 2797 m
21:00	CSES at surface. Pulled cable and locomotive to surface. Broke and laid out CSES and locomotive.
21:30	Pumped slug while securing sheave in derrick.
23:59	POOH to suface leaving logging tool in rotary.

Daily report no : 40 **Date:** 2001-01-27
Midnight depth : 3085 m MD **Estimated PP:** 1,25 sg **Mud weight:** 1,36 sg

Stop time	Description
00:30	Connected logging tool in rotary and verified failure.
01:30	Laid out logging tools.
04:00	Redressed sample pad and bottles. Replaced hydraulic pump unit in logging tools.
05:30	Made up logging string in rotary table and surface tested same.
10:30	Ran in hole with logging suite #1B (MDT/GR) to 2797 m.
11:30	Installed CSES in string. Conducted safety meeting.
12:30	Ran in hole with locomotive on wireline to 2700 m.
13:00	Pumped 3 m3 of weighed freshwater pill.
13:30	Pumped down and latched locomotive. Tightened clamp and performed over pull test to 1.5 ton.

Daily report no : 40 **Date:** 2001-01-27
Midnight depth : 3085 m MD **Estimated PP:** 1,25 sg **Mud weight:** 1,36 sg

Stop time	Description
14:00	Rigged up counter balance system while displacing freshwater pill up in annulus with 700 lpm/38 bar.
15:00	Ran in hole with logging tools from 2797 m to 2928 m.
23:59	Performed MDT/GR logging from 2928 m to 3054 m.

Daily report no : 41 **Date:** 2001-01-28
Midnight depth : 3085 m MD **Estimated PP:** 1,25 sg **Mud weight:** 1,36 sg

Stop time	Description
02:30	Performed MDT/GR logging.
07:00	Took downhole samples at 2961.5 m with bottom of tool at 2979 m.
07:30	Attempted to go to next station. No go. String stuck. Worked pipe free with 30 ton over pull.
08:00	POOH from 2979 m to next station at 2915 m.
12:30	Flushed and took sample with bootom of tool at 2915 m.
13:30	POOH from 2915 m to 2797 m.
15:00	Retrieved locomotive to surface.
16:00	Laid out CSES. Secured sheaves in derrick.
19:30	POOH to surface with logging tool.
21:00	Laid out logging tools.
23:59	Made up BOP test tool and ran in hole with same. Tested BOP on blue pod to 35/390 bar.

Daily report no : 42 **Date:** 2001-01-29
Midnight depth : 3085 m MD **Estimated PP:** 1,25 sg **Mud weight:** 1,36 sg

Stop time	Description
03:00	Completed BOP test. POOH with test tool and laid out same.
05:00	Made up logging tools and tested same in rotary.
11:00	Ran in hole with logging tool FMI/DSI/CMR/GR on drill pipe to 2806 m..
12:00	Performed slip and cut of drilling line.
13:00	Rigged up sheaves and installed CSES.
14:30	Ran in hole with locomotive. Spotted 3 m3 weighed freshwater pill around docking head and latched locomotive.
15:00	Tightened clamp and performed over pull test to 1.5 ton.
15:30	Performed safety meeting with oncomming crew.
23:59	Logged FMI/DSI/CMR/GR over open hole section

Daily report no : 43 **Date:** 2001-01-30
Midnight depth : 3085 m MD **Estimated PP:** 1,25 sg **Mud weight:** 1,36 sg

Stop time	Description
08:30	Continued logging FMI/DSI/CMR/GR in open hole section.
10:00	POOH to 9 5/8" casing shoe.
12:00	Unlatched locomotive and retrieved same to surface.
15:30	POOH to surface with logging tools.
16:30	Laid out logging tools.
18:00	Prepared tools for next TLC run.
20:00	Made up logging toolstring in rotary and tested same.
23:59	Ran in hole with MDT/GR/dual packer string to 2425 m.

Daily report no : 44 **Date:** 2001-01-31
Midnight depth : 3085 m MD **Estimated PP:** 1,25 sg **Mud weight:** 1,36 sg

Stop time	Description
00:30	Ran in hole with MDT/GR/dual packer string from 2425 m to 2771 m
01:30	Rigged up sheaves. With locomotive installed made up CSES to string.
03:30	Ran in hole with locomotive, latched same and confirmed good latch.
04:30	Ran in hole with logging tools to 3001 m.
05:00	Correlated depths.
06:00	Attempted to inflate open hole packers. Initially got pressure increase then lost pressure.

Daily report no : 44 **Date:** 2001-01-31
Midnight depth : 3085 m MD **Estimated PP:** 1,25 sg **Mud weight:** 1,36 sg

Stop time	Description
12:00	Pulled back from 3001 m to 2977 m. 10 ton overpull. Took regular MDT pressure test, flushed and took sample at 2964 m.
13:00	Attempted to change sampling depth. Pipe stuck. Worked pipe. Eventually freed pipe with 45 ton overpull on pipe.
22:00	Attempted several places to get sample with increasing depth and 0.5 m intervals. Succeded in taking sample with probe at 2972,5 m.
23:00	POOH to 2771 m.
23:59	Released locomotive and POOH with same on wireline.

Daily report no : 45 **Date:** 2001-02-01
Midnight depth : 3085 m MD **Estimated PP:** 1,25 sg **Mud weight:** 1,36 sg

Stop time	Description
00:30	Laid out CSES. Pumped weighed slug.
04:00	POOH with logging tools from 2771 m to 35 m.
06:00	Laid out logging tools.
07:00	Schlumberger picked up and made up APS / VSP logging tools in rotary table.
08:00	Schlumberger tested logging tools at rotary with locomotive and cable. String length below Heavy weigth drill pipe - 35.89m.
13:00	Held pre-run meeting with Schlumberger and rig crew, ran in hole with logging assembly at 1 m/sec. slack off speed. Broke circulation for 5min every 10th stand pumping 2500 LPM. Pressure increased from 38 to 118bars at 2192m.
15:00	With tool string at 2192m. made up side entry sub and Schlumberger ran in with locomotive latch. Pumped 3 m3 fresh water and displased with mud. Sclumberger latched on locomotive while fresh water was passing latch assembly.
16:00	Schlumberger checked and tested tools and clamped cable prior to pull test.
18:00	Continued to ran in hole. Started logging from 2450m to 2568m. while pumping to keep port open.
20:30	Continued to log from 2568m to 3050m circulating 700LPM every 5 stands.
23:59	Started pulling out of hole from 3050m taking velosity surveys every 20m.

Daily report no : 46 **Date:** 2001-02-02
Midnight depth : 3085 m MD **Estimated PP:** 1,25 sg **Mud weight:** 1,36 sg

Stop time	Description
01:00	Continued to pull out of hole from 2828 to 2770m taking a velosity survey every 20m.
03:30	Schlumberger retrieved sonic gun from the water due to damaged controll lines. Schlumberger repaired same.
08:00	Jumped sonic gun in water and continued taking velosity surveys every 20m from 2770m.
09:00	Held safety brief in dog house and rigged up Schlumberger cable tension compensator.
10:00	Continued to POOH taking surveys every 20m from 2396 to 2347m.
10:30	Logging abandond due to VSP gun cable was torn off in heavy seas. Recovered VSP gun.
12:00	POOH to 2192m.- with side entry sub in rotary, disconnected wire tension compensator and secure sheave in derrick.
13:30	Unlatched Schlumberger connector from logging tools and pulled out with the logging cable. Pumped 1088LPM at 50bars while pullig out, pumped slug.
14:30	Disconnected the side entry sub and collected the locomotive connector.
17:00	POOH from 2192m to surface.
19:00	Schlumberger rigged down and laid out logging tools.
20:30	Rigged up Schlumberger for conventional wire line logging. Made up DSI / ECS assembly.
21:30	Schlumberger tested tools. Electrial fault on tool head, Schlumberger repaired fault.
22:00	Re-connected tool head and tested logging tools-OK.
23:59	Loaded radio active source in tool, Schlumberger RIH to2800m.

Daily report no : 47 **Date:** 2001-02-03
Midnight depth : 3085 m MD **Estimated PP:** 1,25 sg **Mud weight:** 1,36 sg

Stop time	Description
02:00	Schlumberger continued to run DSI / ECS / HNGS from 2800 to 2200m.
02:30	POOH with Schlumberger after completed logging.
03:30	Broke down and laid out logging tools and radio active source
04:30	Rigged down Schlumberger, innstalled 5" equipment and mouse hole.
06:00	Picked up 81/2" bit stand, made up bit and started to RIH with drilling assembly.
10:30	Continued to RIH with 81/2" drilling assembly. to 3070 meter.
12:30	Made up drilling stand and washed to bottom at 3085m. Circulated and conditioned mud while adding inhibitors.

Daily report no : 47 **Date:** 2001-02-03
Midnight depth : 3085 m MD **Estimated PP:** 1,25 sg **Mud weight:** 1,36 sg

Stop time	Description
13:00	POOH to 2700m.
13:30	Lined up and recorded torques and pressures, pumped slug.
17:30	Continued to POOH, laid out bit and float.
18:30	Made up and racked back cement stand.
20:00	Changed to 350ton intermediate bails, removed excess rig floor equipment and commenced rigging up for 7" liner job.
23:59	Ran 7" liner as per programme, checked shoe and float jts. filled on every 5th. joint and installed centralizers on deck prior to pick up.

Daily report no : 48 **Date:** 2001-02-04
Midnight depth : 3085 m MD **Estimated PP:** 1,25 sg **Mud weight:** 1,36 sg

Stop time	Description
01:30	Continued to run 7" liner to 392m. Picked up hanger assembly and made up to liner, laid out flush mounted spider, installed master bushings, Baker Oil Tools engineer checked hanger assembly, made up top drive in hanger assembly.
02:00	Circulated liner volume at 1500LPM / 31bar. Laid out controll hoses and unit for casing tong.
09:30	RIH with 7" liner on 5" drill pipe from 411m. filling pipe on every 10stands.
10:00	Made up cement stand, filled pipe and broke circulation. Circulated to confirm stable system with no losses.
11:00	RIH to bottom and prepaired to set liner hanger. Dropped setting ball.
13:00	Seated ball to 125bar, held pressure for 2min. bled down to 55bar and sat down on hanger with 35ton. Circulated at full rate for 2hrs, while holding safety and pre-job brief. Rigged up for cement job.
14:00	Lined up to BJ, pumped spacer followed by 11.02m3 1.9sg cement slurry as per program.
15:00	Displaced cement with rig pumps at1360LPM- 84bar. Bumped plug with 200bar, bled down- no back flow.
17:00	Sat liner hanger packer as per Baker engineers procedyre, unstung from packer, racked back cement stand and reversed circulated out excess cement and spacer.
17:30	Pumped slug and stowed cement hose.
21:30	POOH to surface and laid down Baker liner running tool.
23:30	Broke down and laid out Baker cement stand. Picked up, made up and racked back cement stand for P&A program.
23:59	Picked up, broke down and laid out FMC emergancy drill pipe hang off tool.

Daily report no : 49 **Date:** 2001-02-05
Midnight depth : 3085 m MD **Estimated PP:** 1,25 sg **Mud weight:** 1,36 sg

Stop time	Description
00:30	Rigging up to pick up 3 1/2" drill pipe cement stinger.
03:00	Picked up parabow and 30 joints of 31/2" drill pipe, RIH with same. Changed to 5" handling equipment.
06:30	Continued to RIH with 5" drill pipe to set cement plug.
07:00	Picked up cement stand, flushed hose to check for ice plugs, made up cement hose.
08:00	Lined up and pressure tested casing to 325bar. for 10min - OK.
09:00	Carried out parabow setting procedyre, not confirmative that parabow was set.
10:00	Lined up, pumped 8m3 F.W. spacer followed by 10m3 1,9sg cement slurry and 0,9m3 F.W. spacer behind to balance plug. Displaced to rig floor with 400Liter F.W.
10:30	Displaced cement while rotating string at 40RPM.
12:00	POOH slowly to 2350m, picked up cement stand and connected same.
13:00	Reverse circulated at 2350m, dumped 7,4m3 spacer and contaminated mud. Rigged down cement hose.
16:00	POOH with 5" and 3 1/2" drill pipe. Laid down parabow setting tool.
16:30	Serviced top drive and travelling assembly.
20:00	RIH to weigth test cement plug.
20:30	Tagged hard cement at 2379m, weight tested plug to 10 ton - OK. Pumped slug.
23:30	POOH to surface.
23:59	Cleared drill floor and istalled new flush mounted slips in rotary table while pressure testing cement plug to136bar surface pressure.

Daily report no : 50 **Date:** 2001-02-06
Midnight depth : 3085 m MD **Estimated PP:** 1,25 sg **Mud weight:** 1,36 sg

Stop time	Description
01:00	Made up parabow on 3 1/2" drill pipe and RIH to 290m.
01:30	Changed to 5" handling gear on drill floor.
03:00	RIH to 1400m.

Daily report no : 50 **Date:** 2001-02-06

Midnight depth : 3085 m MD **Estimated PP:** 1,25 sg **Mud weight:** 1,36 sg

Stop time	Description
03:30	Picked up cement stand, flushed hose and made up same.
04:00	Dropped ball, circulated ball down and observed small and brief pressure increase indicating parabow setting.
05:00	Lined up, pumped 8m3 F.W. spacer followed by 10m3 1.9sg cement slurry and 0,9m3 F.W. spacer behind to balance plug. Displaced to rig floor with 400Liter F.W. Switched to rig pump and displaced cement while rotating string at 40RPM.
06:30	Racked back cement stand and POOH slowly to 1116m.
07:30	Made up cement stand and reverse ciculated from top of plug. Dumped a total of 9.5m3 spacer and comtaminated mud.
08:00	Pumped slug and racked back cement stand.
09:30	POOH and laid down parabow running tool.
11:00	Changed to 5" handling gear, RIH with 81/2" assembly to tag cement.
12:00	Made up top drive and RIH to 1186m. no tag.
13:00	Pulled back to 1109m and started circulation while waiting on cement.
14:00	RIH to 1271m. no tag.
16:00	Pulled back to 1200m. commenced circulating bottoms up, dumped 55m3 contaminated mud.
16:30	Racked back cement stand and continued to circulate and cond mud.
17:00	Ran in to 1272m. no tag. Pulled back to 1200m.
18:30	Slip and cut drill line while waiting on cement.
20:00	Waited on cement.
21:00	Commenced cirulating bottoms up, dumped a total of 24m3 cement comtaminated mud.
21:30	RIH to 1300m. no tag.
22:00	POOH to 1190m - RIH to 1350m. no tag.
22:30	POOH from 1350 to 1200m.
23:00	Circulated bottoms up dumping a total of 9.7m3 of contaminated mud.
23:59	POOH from 1200 to 339m.

Daily report no : 51 **Date:** 2001-02-07

Midnight depth : 1013 m MD **Estimated PP:** 1,25 sg **Mud weight:** 1,37 sg

Stop time	Description
01:00	Continued to POOH to surface, laid out bit and rigged up 31/2" drill pipe handling gear.
02:00	RIH with 31/2" cement stinger, made up crossover and changed to 5" drill pipe handling gear.
04:00	RIH from 290 to 1200m. and installed cement stand.
05:00	Flushed cement hose and made up same, tested lines to 150bar-OK. Circulated bottoms up - 1.39sg mud in and out.
06:00	Pumped 8m3 F.W. spacer, mixed and pumped 7,4m3 - 1.9sg cement slurry followed by 0.9m3 F.W. spacer to balance and displaced to rig floor with 400Liter F.W. Displaced cement with rig pumps while rotating string at 40RPM.
06:30	POOH from 1200 to 100m.
07:00	Picked up cement stand, set in mouse hole and made up hose.
07:30	Made up cement stand, reverse circulated and dumped 6.1m3 spacer and contaminated mud.
08:00	Pumped slug, rigged down cement stand and stowed hose.
09:30	POOH with 5" drill pipe, changed handling gear and racked back 10 stands 31/2" drill pipe.
10:00	Changed handling gear, picked up bull nose and jet sub assembly, RIH through wellhead.
11:00	Cleaned wellhead and BOP with 3333LPM.
11:30	POOH with jetting tool and bull nose, laid down same.
16:00	Waiting on cement. Performed rig PM rutines on drawworks and rotary.
18:00	Laid out cement stand, RIH to 1013m. tagged cement with 10 ton.
20:30	Pumped slug and POOH to surface. Rigged up and pressure tested no 2 top cement plug to 136bar for 10min-OK.
22:00	Made up wear bushing running and retrieving tool, RIH and jet for 5min. Removed diverter insert packer.
23:00	Released wear bushing, displaced booster, kill and choke lines and riser to S.W. POOH with wear bushing and jet tool, laid down same.
23:59	Laid down excess equipment and started to rig up to pull bop.

Daily report no : 52 **Date:** 2001-02-08

Midnight depth : 3085 m MD **Estimated PP:** 1,25 sg **Mud weight:** 1,37 sg

Stop time	Description
01:30	Continued to prerare to pull BOP. Picked up 500 ton elevator and bails, removed rotary and installed riser spider. Installed diverter running tool.
02:00	Took 10ton overpull prior to disconnect diverter, pulled diverter assembly and laid down same.
03:00	Held pre-job safety meeting and picked up landing joint.
04:00	Ran landing joint and connected to slip joint and prepaired to unlatch BOP. Released wellhead connector at 0345hrs. and pulled BOP off wellhead and free from guide posts. Commenced to move rig forward.

Daily report no : 52 **Date:** 2001-02-08

Midnight depth : 3085 m MD **Estimated PP:** 1,25 sg **Mud weight:** 1,37 sg

Stop time	Description
05:30	Rigged down saddles and engaged support ring with 5ton overpull.
06:00	Laid down landing joint, prepared to lay down slip joint.
08:00	Laid down slip joint, and continued to pull BOP.
13:30	Moved BOP transporter aft, removed work platform and pulled BOP into cellar deck. Installed and secured pod hoses in saddles , removed pod lines,secured BOP with wires and moved transporter under BOP. Removed guide wires, sat BOP on stump.
14:30	Cleared rig floor from handling equipment while parking and securing BOP.
15:30	Picked up and made up FMC permanent guide base retrieving tool. Tool would not pass through diverter housing. Racked back stand and made up 3,5m drill pipe pup joint.
17:00	Moved retrieving tool to cellar deck transporter and moved under rotary.
18:00	Pulled retrieving tool pup joint through rotary and made up same. Installed guide ropes and prepared to run inn.
18:30	Laid out 2 singles of drill pipe and ran in with permanent guidebase retrieving tool.
19:00	Moved rig over wellhead.
19:30	Stabbed over wellhead and latched onto guide base. Released guide base with 25ton overpull.
20:00	Moved rig forward and continued to pull out with guide base.
20:30	Moved transporter under guide base, landed guide base on transporter and secured same.
21:00	Disconnected retrieving tool and secured same on transporter.
21:30	Made up trawler frame running tool on drill pipe.
22:30	Installed and secured trawler frame on transporter.
23:00	Lowered running tool onto frame in attempt to latch several times.
23:30	Moved transporter and ran in to 5m above wellhead.
23:59	Moved rig over wellhead.

Daily report no : 53 **Date:** 2001-02-09

Midnight depth : 3085 m MD **Estimated PP:** 1,25 sg **Mud weight:** 1,37 sg

Stop time	Description
01:00	Re-located rig over wellhead.
02:00	Latched trawler frame on wellhead with 5ton downweight, released extentiones on 4 legs and spotted corrotion inhibitor in wellhead.
04:00	ROV started to retract pins to release trawler frame running tool. 3rd pin handle broke off when ROV was strongly effected by ocean current. After several attempts pin no 4 was retrackted and running tool was released and pulled out.
04:30	Service broke tools and laid out.
06:00	Worked on top drive while de-ballasting rig.
12:00	Pulled anchors. No.7 pennant back to rig at 0628hrs, no.2 at 0705hrs, no.6 at 0802hrs and no.3 at 0820hrs. No. 4 anchor racked at 1045hrs, no.6 at 1123hrs and no.5 at 1135hrs.
14:30	Chains no.1 and 5 had possible touch down in wellhead area. Jumped ROV to verify move off without interference. OK.
15:30	Continued to pull anchors, no.5 pennant handed to rig at 1530hrs.
20:30	Rig handed over to well 2/10-2 at 1530hrs.

TIME DISTRIBUTION

Well: 15/12-12 **PO:** 1 **Start date:** 1980-01-01 **Rig:** SCARABEO 6 **Depth:** 3085,0 m MD
All sections **Stop date:** 2001-06-28

Operations	Hours	%	Hours	%	Acc. total
MOBILIZATION					
MOVING	105,5	8,49			
MOORING; RUNNING ANCHORS	21,5	1,73			
MOORING; PULLING ANCHORS	8,5	0,68			
Sum.			135,5	10,91	135,5
DRILLING					
BHA HANDLING/TESTING	24,0	1,93			
EQUIPMENT TEST	6,5	0,52			
MWD HANDLING/TESTING/SURVEYING	12,0	0,97			
TRIPPING IN CASED HOLE	53,5	4,31			
TRIPPING IN OPEN HOLE	25,5	2,05			
DRILLING	151,0	12,15			
OTHER	2,5	0,20			
WELLHEAD EQUIPMENT INSTALLATION	7,5	0,60			
CIRC. AND COND. MUD/HOLE	38,0	3,06			
WIPER TRIP	11,0	0,89			
SURVEYING	0,5	0,04			
CASING HANDLING/TESTING	28,5	2,29			
RUNNING CASING IN CASED HOLE	30,0	2,41			
RUNNING CASING IN OPEN HOLE	32,5	2,62			
PRIMARY CEMENTING	31,0	2,49			
TRIPPING FOR CEMENT JOB	0,5	0,04			
DRILLING OUT CEMENT PLUG	2,5	0,20			
FORMATION STRENGTH TESTING	2,5	0,20			
BOP HANDLING	23,0	1,85			
BOP RUNNING/RETRIEVING	2,5	0,20			
BOP TESTING	15,0	1,21			
WELLHEAD EQUIPMENT HANDLING	8,5	0,68			
SLIP AND CUT DRILLING LINE	1,0	0,08			
Sum.			509,5	41,01	645,0
FORMATION EVALUATION MWD					
LOGGING WITH MWD	7,0	0,56			
Sum.			7,0	0,56	652,0
FORMATION EVALUATION LOGGING					
LOGGING	38,5	3,10			
LOGGING EQUIPMENT HANDLING/TESTING	51,5	4,14			
FORMATION TESTER	50,5	4,06			
TRIPPING IN CASED HOLE	33,5	2,70			
TRIPPING IN OPEN HOLE	4,5	0,36			
OTHER	0,5	0,04			
SLIP AND CUT DRILLING LINE	1,0	0,08			
Sum.			180,0	14,49	832,0
FORMATION EVALUATION CORING					
TRIPPING IN CASED HOLE	53,5	4,31			
CORING EQUIPMENT/CORE HANDLING	16,0	1,29			
TRIPPING IN OPEN HOLE	19,0	1,53			
OTHER	0,5	0,04			
CORING	9,5	0,76			
CIRC. AND COND. MUD/HOLE	4,0	0,32			
SLIP AND CUT DRILLING LINE	1,0	0,08			
Sum.			103,5	8,33	935,5
PLUG AND ABANDONMENT					
BHA HANDLING/TESTING	1,0	0,08			
OTHER	2,5	0,20			
CIRC. AND COND. MUD/HOLE	7,0	0,56			
TRIPPING FOR CEMENT JOB	28,0	2,25			
DRILLING OUT CEMENT PLUG	0,5	0,04			

Norsk Hydro

2001-06-28

Unofficial Data

TIME DISTRIBUTION

Well: 15/12-12 **PO:** 1 **Start date:** 1980-01-01 **Rig:** SCARABEO 6 **Depth:** 3085,0 **m MD**

All sections **Stop date:** 2001-06-28

Operations	Hours	%	Hours	%	Acc. total
PLUG AND ABANDONMENT					
BOP HANDLING	1,0	0,08			
BOP RUNNING/RETRIEVING	13,5	1,09			
WELLHEAD EQUIPMENT HANDLING	15,5	1,25			
SET CEMENT PLUG	11,0	0,89			
Sum.			80,0	6,44	1015,5
DOWNTIME MOBILIZATION					
EQUIPMENT FAILURE AND REPAIR	16,5	1,33			
OTHER	2,5	0,20			
Sum.			19,0	1,53	1034,5
DOWNTIME DRILLING					
EQUIPMENT FAILURE AND REPAIR	44,0	3,54			
WAITING	19,0	1,53			
OTHER	3,0	0,24			
Sum.			66,0	5,31	1100,5
DOWNTIME FORM. EVAL. LOGGING					
EQUIPMENT FAILURE AND REPAIR	31,0	2,49			
WAITING	35,5	2,86			
STICKING/GOING STUCK WITH EQUIPMENT	4,0	0,32			
FISHING	37,5	3,02			
WIPER TRIP	13,5	1,09			
Sum.			121,5	9,78	1222,0
DOWNTIME PLUG AND ABANDONMENT					
WAITING	7,0	0,56			
CEMENTING	10,5	0,85			
OTHER	1,5	0,12			
SLIP AND CUT DRILLING LINE	1,5	0,12			
Sum.			20,5	1,65	1242,5

Reported time (100,0 % of well total 1242,5 hours) : 1242,5

Norsk Hydro

2001-06-28

HOLE DEVIATION

Unofficial Data

Well: 15/12-12 **Reference point:** RKB ; 26,0 m ABOVE MSL

Waterdepth: 87,0 m **Vertical to:** 100,0 m **Total Depth:** 3085,0 m MD

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

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

Wellhead Coordinates, UTM: **North :** 6432475,80 m, **East:** 436478,40 m

Official Surveys: N **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]
100,1	0,10	73,68	MWD	1	100,1	0,00	0,00	0,0	0,00	0,00	0,00
100,1	0,10	73,68	MWD	5	100,1	0,00	0,00	0,0	0,00	0,00	0,00
108,1	0,18	307,29	MWD	1	108,1	0,01	-0,00	0,0	0,95	0,30	-476,34
108,1	0,18	307,29	MWD	5	108,1	0,01	-0,00	0,0	0,00	0,00	0,00
119,1	0,10	123,09	MWD	5	119,1	0,01	-0,01	0,0	0,76	-0,22	479,45
119,1	0,10	123,09	MWD	1	119,1	0,01	-0,01	0,0	0,00	0,00	0,00
126,3	0,12	330,97	MWD	5	126,3	0,02	-0,01	0,0	0,89	0,08	-635,60
136,3	0,22	89,63	MWD	5	136,3	0,03	0,01	0,0	0,89	0,30	355,98
136,3	0,22	89,63	MWD	1	136,3	0,03	0,01	0,0	0,00	0,00	0,00
146,3	0,74	177,29	MWD	5	146,3	-0,04	0,03	0,0	2,30	1,56	263,77
146,3	0,74	177,29	MWD	1	146,3	-0,04	0,03	0,0	0,00	0,00	0,00
154,5	0,81	186,85	MWD	5	154,5	-0,15	0,02	0,1	0,54	0,26	35,15
154,5	0,81	186,85	MWD	1	154,5	-0,15	0,02	0,1	0,00	0,00	0,00
165,8	0,50	179,85	MWD	1	165,8	-0,28	0,02	0,3	0,85	-0,83	-18,67
165,8	0,50	179,85	MWD	5	165,8	-0,28	0,02	0,3	0,00	0,00	0,00
208,9	0,53	167,58	MWD	5	208,9	-0,66	0,06	0,7	0,08	0,02	-8,54
293,1	0,12	242,35	MWD	5	293,1	-1,08	0,06	1,1	0,18	-0,15	26,64
320,6	0,17	284,04	MWD	5	320,6	-1,08	-0,00	1,1	0,12	0,05	45,48
351,3	0,41	271,72	MWD	5	351,3	-1,07	-0,15	1,1	0,24	0,23	-12,04
375,8	0,66	298,65	MWD	5	375,8	-1,00	-0,37	1,1	0,43	0,31	32,98
406,6	0,69	293,10	MWD	5	406,6	-0,84	-0,69	1,1	0,07	0,03	-5,41
434,8	0,69	288,39	MWD	5	434,8	-0,72	-1,01	1,2	0,06	0,00	-5,01
463,9	0,55	292,68	MWD	5	463,9	-0,61	-1,30	1,4	0,15	-0,14	4,42
492,7	0,59	303,82	MWD	5	492,7	-0,48	-1,56	1,6	0,12	0,04	11,60
521,0	0,40	312,08	MWD	5	521,0	-0,33	-1,75	1,8	0,21	-0,20	8,76
551,2	0,55	314,65	MWD	5	551,1	-0,16	-1,93	1,9	0,15	0,15	2,56
580,0	0,15	357,28	MWD	5	580,0	-0,02	-2,03	2,0	0,47	-0,42	44,33
638,3	0,52	333,80	MWD	5	638,3	0,29	-2,15	2,2	0,20	0,19	-12,08
664,5	0,55	323,74	MWD	5	664,5	0,50	-2,28	2,3	0,11	0,03	-11,52
692,6	0,53	328,69	MWD	5	692,6	0,72	-2,43	2,5	0,05	-0,02	5,28
778,4	0,32	338,94	MWD	5	778,4	1,28	-2,72	3,0	0,08	-0,07	3,58
861,6	0,33	352,99	MWD	5	861,6	1,74	-2,83	3,3	0,03	0,00	5,07
889,7	0,35	10,08	MWD	5	889,7	1,90	-2,83	3,4	0,11	0,02	18,25
918,5	0,38	19,77	MWD	5	918,5	2,08	-2,78	3,5	0,07	0,03	10,09
947,2	0,38	15,61	MWD	5	947,2	2,26	-2,72	3,5	0,03	0,00	-4,35
976,4	0,38	28,92	MWD	5	976,4	2,44	-2,65	3,6	0,09	0,00	13,67

Norsk Hydro

2001-06-28

HOLE DEVIATION

Unofficial Data

Well: 15/12-12 **Reference point:** RKB ; 26,0 m ABOVE MSL

Waterdepth: 87,0 m **Vertical to:** 100,0 m **Total Depth:** 3085,0 m MD

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

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

Wellhead Coordinates, UTM: **North :** 6432475,80 m, **East:** 436478,40 m

Official Surveys: N **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]
1004,6	0,42	51,84	MWD	5	1004,6	2,58	-2,52	3,6	0,17	0,04	24,38
1032,9	0,45	55,91	MWD	5	1032,9	2,71	-2,35	3,6	0,04	0,03	4,31
1061,3	0,85	58,30	MWD	5	1061,3	2,88	-2,08	3,6	0,42	0,42	2,52
1090,2	1,11	1,20	MWD	5	1090,2	3,28	-1,89	3,8	1,00	0,27	-59,27
1118,9	1,20	69,62	MWD	5	1118,9	3,66	-1,60	4,0	1,36	0,09	71,52
1174,6	1,25	78,35	MWD	5	1174,5	3,98	-0,46	4,0	0,10	0,03	4,70
1203,6	1,09	81,19	MWD	5	1203,5	4,09	0,12	4,1	0,18	-0,17	2,94
1233,1	0,63	75,91	MWD	5	1233,0	4,17	0,56	4,2	0,47	-0,47	-5,37
1261,8	0,75	75,46	MWD	5	1261,7	4,26	0,89	4,4	0,13	0,13	-0,47
1290,3	0,71	75,99	MWD	5	1290,2	4,35	1,25	4,5	0,04	-0,04	0,56
1318,6	0,75	73,36	MWD	5	1318,5	4,44	1,59	4,7	0,05	0,04	-2,79
1346,0	0,69	72,20	MWD	5	1345,9	4,55	1,92	4,9	0,07	-0,07	-1,27
1365,2	0,57	68,88	MWD	5	1365,1	4,61	2,12	5,1	0,20	-0,19	-5,19
1401,8	0,50	75,05	MWD	5	1401,7	4,72	2,45	5,3	0,07	-0,06	5,06
1431,4	0,68	83,47	MWD	5	1431,3	4,78	2,74	5,5	0,20	0,18	8,53
1460,7	0,82	85,85	MWD	5	1460,6	4,81	3,13	5,7	0,15	0,14	2,44
1489,1	0,87	89,48	MWD	5	1489,0	4,83	3,54	6,0	0,08	0,05	3,83
1515,9	0,67	76,40	MWD	5	1515,8	4,87	3,90	6,2	0,30	-0,22	-14,64
1546,7	0,68	80,09	MWD	5	1546,6	4,94	4,26	6,5	0,04	0,01	3,59
1574,8	0,74	80,64	MWD	5	1574,7	5,00	4,60	6,8	0,06	0,06	0,59
1603,2	0,63	88,66	MWD	5	1603,1	5,03	4,94	7,0	0,15	-0,12	8,47
1631,8	0,63	78,09	MWD	5	1631,7	5,07	5,25	7,3	0,12	0,00	-11,09
1659,1	0,81	77,58	MWD	5	1659,0	5,14	5,58	7,6	0,20	0,20	-0,56
1686,6	0,84	72,16	MWD	5	1686,5	5,24	5,96	7,9	0,09	0,03	-5,91
1715,0	0,79	70,41	MWD	5	1714,9	5,37	6,35	8,3	0,06	-0,05	-1,85
1743,3	1,11	68,18	MWD	5	1743,2	5,54	6,78	8,8	0,34	0,34	-2,36
1771,4	1,10	73,42	MWD	5	1771,3	5,72	7,30	9,3	0,11	-0,01	5,59
1800,4	1,20	69,34	MWD	5	1800,3	5,90	7,85	9,8	0,13	0,10	-4,22
1828,4	1,38	74,64	MWD	5	1828,3	6,10	8,45	10,4	0,23	0,19	5,68
1856,0	1,07	107,66	MWD	5	1855,9	6,11	9,01	10,9	0,82	-0,34	35,89
1884,4	1,20	114,99	MWD	5	1884,3	5,90	9,53	11,2	0,21	0,14	7,74
1913,1	2,10	159,81	MWD	5	1913,0	5,28	9,99	11,3	1,58	0,94	46,85
1942,8	2,39	162,85	MWD	5	1942,6	4,18	10,36	11,2	0,32	0,29	3,07
1970,9	2,43	160,04	MWD	5	1970,7	3,06	10,73	11,2	0,13	0,04	-3,00
1999,9	2,32	161,83	MWD	5	1999,7	1,92	11,13	11,3	0,14	-0,11	1,85
2027,8	2,46	156,10	MWD	5	2027,6	0,84	11,55	11,6	0,30	0,15	-6,16

Norsk Hydro

2001-06-28

HOLE DEVIATION

Unofficial Data

Well: 15/12-12 **Reference point:** RKB ; 26,0 m ABOVE MSL

Waterdepth: 87,0 m **Vertical to:** 100,0 m **Total Depth:** 3085,0 m MD

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

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

Wellhead Coordinates, UTM: **North :** 6432475,80 m, **East:** 436478,40 m

Official Surveys: N **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]
2056,5	2,30	147,09	MWD	5	2056,2	-0,21	12,11	12,1	0,42	-0,17	-9,42
2084,2	2,20	141,36	MWD	5	2083,9	-1,09	12,74	12,8	0,27	-0,11	-6,21
2113,1	2,18	151,26	MWD	5	2112,8	-2,01	13,35	13,5	0,39	-0,02	10,28
2141,3	2,06	151,26	MWD	5	2141,0	-2,92	13,86	14,2	0,13	-0,13	0,00
2170,1	1,98	140,06	MWD	5	2169,7	-3,75	14,42	14,9	0,42	-0,08	-11,67
2198,3	2,07	135,41	MWD	5	2197,9	-4,49	15,09	15,7	0,20	0,10	-4,94
2226,5	1,64	160,24	MWD	5	2226,1	-5,23	15,59	16,4	0,96	-0,46	26,41
2254,8	1,61	153,53	MWD	5	2254,4	-5,97	15,90	17,0	0,20	-0,03	-7,11
2283,1	1,78	145,21	MWD	5	2282,7	-6,69	16,33	17,6	0,32	0,18	-8,82
2310,2	1,80	138,98	MWD	5	2309,8	-7,35	16,85	18,4	0,22	0,02	-6,90
2339,5	1,71	132,97	MWD	5	2339,1	-8,00	17,47	19,2	0,21	-0,09	-6,15
2368,2	1,70	130,10	MWD	5	2367,8	-8,57	18,11	20,0	0,09	-0,01	-3,00
2395,8	1,62	123,89	MWD	5	2395,4	-9,05	18,75	20,8	0,21	-0,09	-6,75
2425,9	1,78	115,77	MWD	5	2425,4	-9,49	19,52	21,7	0,29	0,16	-8,09
2455,0	1,86	108,12	MWD	5	2454,5	-9,83	20,38	22,6	0,26	0,08	-7,89
2483,0	1,89	105,31	MWD	5	2482,5	-10,09	21,25	23,5	0,10	0,03	-3,01
2511,3	2,05	102,49	MWD	5	2510,8	-10,33	22,20	24,5	0,20	0,17	-2,99
2540,1	2,45	103,34	MWD	5	2539,6	-10,58	23,30	25,6	0,42	0,42	0,89
2569,0	2,63	102,01	MWD	5	2568,4	-10,86	24,55	26,8	0,20	0,19	-1,38
2598,6	2,69	100,82	MWD	5	2598,0	-11,13	25,90	28,2	0,08	0,06	-1,21
2627,6	2,96	99,55	MWD	5	2627,0	-11,38	27,30	29,6	0,29	0,28	-1,31
2635,9	2,88	98,47	MWD	5	2635,3	-11,45	27,72	30,0	0,35	-0,29	-3,90
2656,6	3,10	97,18	MWD	5	2655,9	-11,60	28,79	31,0	0,33	0,32	-1,87
2683,6	2,28	117,76	MWD	5	2682,9	-11,94	29,99	32,3	1,39	-0,91	22,87
2711,3	4,42	215,64	MWD	5	2710,6	-13,06	29,86	32,6	5,68	2,32	106,01
2769,3	11,22	241,36	MWD	5	2768,0	-17,59	23,59	29,4	3,87	3,52	13,30
2798,9	16,96	250,10	MWD	5	2796,7	-20,44	17,00	26,6	6,19	5,82	8,86
2814,9	20,93	252,87	MWD	5	2811,8	-22,08	12,07	25,2	7,63	7,44	5,19
2836,9	25,49	251,26	MWD	5	2832,1	-24,76	3,83	25,1	6,28	6,22	-2,20
2862,7	24,95	251,13	MWD	5	2855,4	-28,30	-6,58	29,1	0,63	-0,63	-0,15
2890,5	25,37	251,17	MWD	5	2880,6	-32,12	-17,76	36,7	0,45	0,45	0,04
2918,2	25,66	251,15	MWD	5	2905,6	-35,97	-29,05	46,2	0,31	0,31	-0,02
2946,8	26,00	250,92	MWD	5	2931,3	-40,02	-40,84	57,2	0,37	0,36	-0,24
2969,6	26,04	251,12	MWD	5	2951,8	-43,28	-50,30	66,4	0,13	0,05	0,26
3000,0	26,06	249,68	MWD	5	2979,1	-47,76	-62,87	79,0	0,62	0,02	-1,42
3032,4	25,62	249,12	MWD	5	3008,3	-52,72	-76,09	92,6	0,47	-0,41	-0,52

Norsk Hydro

2001-06-28

Unofficial Data

HOLE DEVIATION

Well: 15/12-12 **Reference point:** RKB ; 26,0 m ABOVE MSL

Waterdepth: 87,0 m **Vertical to:** 100,0 m **Total Depth:** 3085,0 m MD

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

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

Wellhead Coordinates, UTM: **North :** 6432475,80 m, **East:** 436478,40 m

Official Surveys: N **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]
3057,1	25,47	249,68	MWD	5	3030,5	-56,47	-86,06	102,9	0,35	-0,18	0,68
3067,8	25,39	249,60	MWD	5	3040,2	-58,07	-90,37	107,4	0,24	-0,22	-0,22

Norsk Hydro

2001-06-28

MAIN CONSUMPTION OF CASING/TUBING ON WELL 15/12-12 PO: 1

Unofficial Data

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	QUICK STAB	74,5	6
20"	SURFACE	X-56	197,92	133,00	Multi Thread	489,4	44
13 3/8"	INTERMEDIATE	L-80	107,14	72,00	NS-CC	1269,0	111
9 5/8"	PRODUCTION	L-80	79,61	53,50	NS-CC	2721,0	233
7"	PRODUCTION LINER	P-110	43,15	29,00	VAM ACE	408,0	39

BITRECORD FOR WELL 15/12-12 PO: 1

Bit No	RR	Type	Size (in)	Manu-fact-urer	Trade name	Serial no.	IADC code	Nozzles diameter (../32in)	Flow area (in2)	BHA no.	Depth out (m MD)	Bit meter (m)	Rot. hours (hrs)	ROP (m/hr)	Rotation min/max) (rpm)	Total bit revol.	Weight min/max (kN)	Flow min/max (l/min)	Pump min/max (bar)	Cutting Structure I - O -DC- L - B	Gauge 1/16 (in)	Other Remarks	Pull Cause
1		ISRT	17,50	SMIT	02M	LK6329	415X	14,16,20,24	1,095	1	185	72	7,60	9,5	30/96	72700	0/7	2275/3814	21/75	2 - 2 - NO - A - E	3	BU	TD
2		ISRT	26,00	SMIT	M02SODC	LK2487	415	16,20,20,20	1,117	2	605	420	10,60	39,6	85/159	150700	10/168	4011/4557	120/194				
3	1	MITO	17,50	SMIT	MGGHODC	LW5405	135	14,22,22,22	1,264	3	1384	779	17,40	44,8	113/227	239	16/24	3485/4591	213/224	1 - 1 - NO - A - 1	I	RR	TD
4		PDC	12,25	HTC	BD536	0324082	M323	14,14,14,14,14,14	0,902	4	2661	1277	31,40	40,7	90/271	369000	0/21	2327/3571	151/312	1 - 1 - CT - A - X	I	NO	UBDT
5		ISRT	12,25	SMIT	15GFDPD	LW1735	445	13,16,22,22	1,068	5	2836	175	25,80	6,8	88/191	164100	3/57	2783/3214	267/315	1 - 1 - RG - G - E	I	NO	TD
6		PDC	8,50	HTC	DP0062	1403004	M432	14,14,15,15	0,646	6	2864	28	1,30	21,5	69/137	8600	4/13	2078/2305	190/263	0 - 0 - NO - A - X	I	NO	CP
7		CORE	8,50	SDBS	FC284RILI	7000512	M231		0,000	7	2892	28	1,00	28,0	85/94	5400	2/9	950/994	59/65	1 - 1 - NO - A - X	I	NO	NC
7	1	CORE	8,50	SDBS	FC284RILI	7000512	M231		0,000	8	2920	28	3,00	9,3	97/120	6100	4/7	1000/1006	67/69	1 - 1 - NO - A - X	I	NO	NC
7	2	CORE	8,50	SDBS	FC284RILI	7000512	M231		0,000	9	2948	28	0,80	35,0	78/107	5	3/8	1001/1008	68/73	1 - 1 - NO - A - X	I	NO	NC
7	3	CORE	8,50	SDBS	FC284RILI	7000512	M231		0,000	10	2976	28	2,10	13,3	74/97	12400	52/107	1000/1008	72/76	2 - 1 - WT - A - X	I	PN	NC
7	4	CORE	8,50	SDBS	FC284RILI	7000S12	M231		0,000	11	2986	10	2,30	4,3	77/99	13300	78/110	1002/1010	76/82	2 - 1 - WT - A - X	I	PN	CJ
7	5	CORE	8,50	SDBS	FC284RILI	7000S12	M231		0,000	12	2999	13	1,10	11,8	91/111	6800	68/118	990/1015	75/81	2 - 1 - WT - A - X	I	PN	CJ
8	1	PDC	8,50	HTC	DP0062	1403004	M432	14,14,15,15	0,646	13	3085	86	3,30	26,1	102/149	28300	30/100	1410/2543	122/282	1 - 2 - NO - A - X	I	PN	TD
8	2	PDC	8,50	HTC	DP0062	1403004	M432		0,000	14	3085	0		0,0						1 - 2 - NO - A - X	I	NO	TD
8	3	PDC	8,50	HTC	DP0062	1403004	M432	14,14,15,15	0,646	15	3085	0		0,0				2850/2850	300/300	1 - 2 - NO - A - X	1	NO	TD
8	4	PDC	8,50	HTC	DP0062	1403004	M432	14,14,15,15	0,646	16	2379	0		0,0	0/0	0	0/10	0/0	0/0				

Norsk Hydro 2001-06-28

BOTTOM HOLE ASSEMBLIES USED ON WELL 15/12-12 PO: 1

Unofficial Data

BHA no. 1: No. / Element / OD(in) / Length(m) Depth In: 113 m MD Out: 185 m MD

1	02M	17,5	0,43	2	TOSTATE	36,0	3,90
3	FLOAT SUB	9,5	0,88	4	CDR	9,5	7,25
5	MWD	9,5	8,41	6	NON MAG. STAB	26,0	2,03
7	NON MAG. COLLAR	9,5	8,89	8	X-OVER	8,0	0,77
9	DRILL COLLAR STEEL	8,0	55,75	10	JAR	7,875	9,68
11	DRILL COLLAR STEEL	7,875	9,16	12	X-OVER	8,0	0,28

Reason pulled: TOTAL DEPTH/CASING DEPTI Sum: 107,43

BHA no. 2: No. / Element / OD(in) / Length(m) Depth In: 185 m MD Out: 605 m MD

1	M02SODC	26,0	0,65	2	NEAR BIT STAB	26,0	2,45
3	SHORT DRILL COLLAR	9,5	3,59	4	CDR	9,5	7,25
5	MWD	9,5	8,41	6	NON MAG. STAB	26,0	2,03
7	NON MAG. COLLAR	9,5	8,89	8	X-OVER	8,0	0,77
9	DRILL COLLAR STEEL	8,0	55,75	10	JAR	7,875	9,68
11	DRILL COLLAR STEEL	7,875	18,36	12	X-OVER	8,0	0,28
14	X-OVER	9,5	0,87	15	NON MAG. STAB	26,0	2,45
16	HWDP	5,0	136,49				

Reason pulled: Sum: 257,92

BHA no. 3: No. / Element / OD(in) / Length(m) Depth In: 605 m MD Out: 1384 m MD

1	MGGHODC	17,5	0,45	2	NEAR BIT STAB	17,5	1,87
3	SHORT DRILL COLLAR	9,5	2,97	4	NON MAG. STAB	17,5	1,75
5	MWD	9,5	9,00	6	NON MAG. STAB	17,5	2,12
7	NON MAG. COLLAR	9,5	8,89	8	X-OVER	8,0	0,77
9	DRILL COLLAR STEEL	8,0	55,75	10	JAR	7,875	9,68
11	DRILL COLLAR STEEL	7,875	18,36	12	X-OVER	8,0	0,28
14	HWDP	5,0	136,49				

Reason pulled: TOTAL DEPTH/CASING DEPTI Sum: 248,38

BHA no. 4: No. / Element / OD(in) / Length(m) Depth In: 1384 m MD Out: 2661 m MD

1	BD536	12,25	0,36	2	DOWN HOLE MOTOR WITH ST/	12,125	9,70
3	FLOAT SUB	7,875	0,60	4	LOGGING WHILE DRILLING TO(	12,125	4,10
5	CDR	8,875	6,49	6	MWD	8,313	8,30
7	CDN	12,0	8,53	8	DRILL COLLAR STEEL	7,875	55,75
9	JAR	7,875	9,68	10	DRILL COLLAR STEEL	7,875	18,36
11	X-OVER	8,0	0,28	12	HWDP	5,0	136,49

Reason pulled: UNEXPECTED BUILD/DROP/T Sum: 258,64

BHA no. 5: No. / Element / OD(in) / Length(m) Depth In: 2661 m MD Out: 2836 m MD

1	15GFDPD	12,25	0,32	2	DOWN HOLE MOTOR WITH ST/	12,125	9,70
3	FLOAT SUB	7,875	0,60	4	LOGGING WHILE DRILLING TO(	12,125	4,13
6	MWD	8,313	8,30	7	CDN	12,0	8,53
8	DRILL COLLAR STEEL	7,875	55,75	9	JAR	7,875	9,68
10	DRILL COLLAR STEEL	7,875	18,36	11	X-OVER	8,0	0,28
12	HWDP	5,0	136,49				

Reason pulled: TOTAL DEPTH/CASING DEPTI Sum: 252,14

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BOTTOM HOLE ASSEMBLIES USED ON WELL 15/12-12 PO: 1

Unofficial Data

BHA no. 6: No. / Element / OD(in) / Length(m) Depth In: 2836 m MD Out: 2864 m MD

1	DP0062	8,5	0,33	3	FLOAT SUB	5,875	0,50
4	LOGGING WHILE DRILLING TOOL	8,5	3,06	6	LOGGING WHILE DRILLING TO	8,5	1,50
7	MWD	6,75	8,18	8	ADN	8,375	6,00
9	NON MAG. COLLAR	6,5	8,95	10	X-OVER	6,5	0,91
11	DRILL COLLAR STEEL	6,5	56,75	12	JAR	6,25	9,21
13	DRILL COLLAR STEEL	6,5	18,43	14	X-OVER	6,5	0,93
15	HWDP	5,0	109,25	16	DART SUB	6,25	0,62

Reason pulled: CORE POINT Sum: 224,62

BHA no. 7: No. / Element / OD(in) / Length(m) Depth In: 2864 m MD Out: 2892 m MD

1	FC284RILI	8,5	0,36	2	CORE BARREL	6,75	30,06
3	FLOAT SUB	6,5	0,91	4	X-OVER	6,5	0,58
5	DRILL COLLAR STEEL	6,5	84,78	6	JAR	6,25	9,21
7	DRILL COLLAR STEEL	6,5	18,43	8	X-OVER	6,5	0,93
9	HWDP	5,0	109,25	10	DART SUB	6,25	0,62

Reason pulled: NEW CORE/FULL BARREL Sum: 255,13

BHA no. 8: No. / Element / OD(in) / Length(m) Depth In: 2892 m MD Out: 2920 m MD

1	FC284RILI	8,5	0,36	2	CORE BARREL	6,75	30,06
3	FLOAT SUB	6,5	0,91	4	X-OVER	6,5	0,58
5	DRILL COLLAR STEEL	6,5	84,78	6	JAR	6,25	9,21
7	DRILL COLLAR STEEL	6,5	18,43	8	X-OVER	6,5	0,93
9	HWDP	5,0	109,25	10	DART SUB	6,25	0,62
11	PUP JOINT	6,625	3,00				

Reason pulled: NEW CORE/FULL BARREL Sum: 258,13

BHA no. 9: No. / Element / OD(in) / Length(m) Depth In: 2920 m MD Out: 2948 m MD

1	FC284RILI	8,5	0,36	2	CORE BARREL	6,75	30,06
3	FLOAT SUB	6,5	0,91	4	X-OVER	6,5	0,58
5	DRILL COLLAR STEEL	6,5	84,78	6	JAR	6,25	9,21
7	DRILL COLLAR STEEL	6,5	18,43	8	X-OVER	6,5	0,93
9	HWDP	5,0	109,25	10	DART SUB	6,25	0,62
11	PUP JOINT	6,625	3,00				

Reason pulled: NEW CORE/FULL BARREL Sum: 258,13

BHA no. 10: No. / Element / OD(in) / Length(m) Depth In: 2948 m MD Out: 2976 m MD

1	FC284RILI	8,5	0,36	2	CORE BARREL	6,75	30,06
3	FLOAT SUB	6,5	0,91	4	X-OVER	6,5	0,58
5	DRILL COLLAR STEEL	6,5	84,78	6	JAR	6,25	9,21
7	DRILL COLLAR STEEL	6,5	18,43	8	X-OVER	6,5	0,93
9	HWDP	5,0	109,25	10	DART SUB	6,25	0,62
11	PUP JOINT	6,625	3,00				

Reason pulled: NEW CORE/FULL BARREL Sum: 258,13

BHA no. 11: No. / Element / OD(in) / Length(m) Depth In: 2976 m MD Out: 2986 m MD

1	FC284RILI	8,5	0,36	2	CORE BARREL	6,75	30,06
3	FLOAT SUB	6,5	0,91	4	X-OVER	6,5	0,58
5	DRILL COLLAR STEEL	6,5	84,78	6	JAR	6,25	9,21
7	DRILL COLLAR STEEL	6,5	18,43	8	X-OVER	6,5	0,93
9	HWDP	5,0	109,25	10	DART SUB	6,25	0,62
11	PUP JOINT	6,625	1,41				

Reason pulled: CORE JAMMED Sum: 256,54

Norsk Hydro 2001-06-28

BOTTOM HOLE ASSEMBLIES USED ON WELL 15/12-12 PO: 1

Unofficial Data

BHA no. 12: No. / Element / OD(in) / Length(m) Depth In: 2986 m MD Out: 2999 m MD

1	FC284RILI	8,5	0,36	2	CORE BARREL	6,75	30,06
3	FLOAT SUB	6,5	0,91	4	X-OVER	6,5	0,58
5	DRILL COLLAR STEEL	6,5	84,78	6	JAR	6,25	9,21
7	DRILL COLLAR STEEL	6,5	18,43	8	X-OVER	6,5	0,93
9	HWDP	5,0	109,25	10	DART SUB	6,25	0,62
11	PUP JOINT	6,625	1,41				

Reason pulled: CORE JAMMED Sum: 256,54

BHA no. 13: No. / Element / OD(in) / Length(m) Depth In: 2999 m MD Out: 3085 m MD

1	DP0062	8,5	0,33	3	FLOAT SUB	5,875	0,50
4	LOGGING WHILE DRILLING TOOL	8,5	3,06	6	LOGGING WHILE DRILLING TO	8,5	1,50
7	MWD	6,75	8,18	8	ADN	8,375	6,00
9	NON MAG. COLLAR	6,5	8,95	10	X-OVER	6,5	0,49
11	DRILL COLLAR STEEL	6,5	84,78	12	JAR	6,25	9,21
13	DRILL COLLAR STEEL	6,5	18,43	14	X-OVER	6,5	0,93
15	HWDP	5,0	136,49	16	DART SUB	6,25	0,62

Reason pulled: TOTAL DEPTH/CASING DEPT Sum: 279,47

BHA no. 14: No. / Element / OD(in) / Length(m) Depth In: 3085 m MD Out: 3085 m MD

1	DP0062	8,5	0,33	3	FLOAT SUB	6,875	0,76
11	DRILL COLLAR STEEL	6,5	28,03	12	JAR	6,25	9,21
13	DRILL COLLAR STEEL	6,5	18,43	14	X-OVER	6,5	0,40
15	HWDP	5,0	136,49	16	DART SUB	6,25	0,62
17	X-OVER	6,5	0,93	18	NON MAG. STAB	6,625	1,61
19	X-OVER	6,5	0,92	20	DRILL COLLAR STEEL	6,5	28,41

Reason pulled: TOTAL DEPTH/CASING DEPT Sum: 226,14

BHA no. 15: No. / Element / OD(in) / Length(m) Depth In: 3085 m MD Out: 3085 m MD

1	DP0062	8,5	0,33	3	FLOAT SUB	6,875	0,76
11	DRILL COLLAR STEEL	6,5	28,03	12	JAR	6,25	9,21
13	DRILL COLLAR STEEL	6,5	18,43	14	X-OVER	6,5	0,40
15	HWDP	5,0	136,49	16	DART SUB	6,25	0,62
17	X-OVER	6,5	0,93	18	NON MAG. STAB	6,625	1,61
19	X-OVER	6,5	0,92	20	DRILL COLLAR STEEL	6,5	28,41

Reason pulled: TOTAL DEPTH/CASING DEPT Sum: 226,14

BHA no. 16: No. / Element / OD(in) / Length(m) Depth In: 2379 m MD Out: 2379 m MD

1	DP0062	8,5	0,33	3	FLOAT SUB	6,875	0,76
11	DRILL COLLAR STEEL	6,5	28,03	12	JAR	6,25	9,21
13	DRILL COLLAR STEEL	6,5	18,43	14	X-OVER	6,5	0,40
15	HWDP	5,0	136,49	16	DART SUB	6,25	0,62
17	X-OVER	6,5	0,93	18	NON MAG. STAB	6,625	1,61
19	X-OVER	6,5	0,92	20	DRILL COLLAR STEEL	6,5	28,41

Reason pulled: Sum: 226,14

Norsk Hydro

2001-06-28
Unofficial Data

CEMENT SLURRY REPORT ON WELL 15/12-12

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]
2000-12-26	30"	CASING CEMENTING	LEAD	22,60	1,56		129,60	A-3L	l	3,50	
								FP-14L	l	0,20	
			TAIL SLURRY	25,00	1,95		74,73	A-7L	l	3,50	
								FP14L	l	0,20	
			DISPLACEMENT	11,02	1,90		106,46	CD-31L	l		134,59
								R-15L	l		51,77
								D-19LG	l		569,45
								FP14L	l		31,00
2000-12-29	20"	CASING CEMENTING	SPACER		1,03	20,00					
			LEAD	137,00	1,44	20,00	168,86	A-3L	l	5,33	
								FP-14L	l	0,20	
								R-15L	l	0,50	
			TAIL SLURRY	23,00	1,92	20,00	74,94	FP-14L	l	0,20	
			DISPLACEMENT		1,03	20,00					
2001-01-04	13 3/8"	CASING CEMENTING	SPACER		1,00	34,00					
			TAIL SLURRY	27,50	1,92	34,00	75,05	FP-14L	l	0,20	
								R-12L	l	0,55	
			DISPLACEMENT		0,00	34,00					
			DISPLACEMENT			34,00					
2001-01-12	9 5/8"	CASING CEMENTING	SPACER		1,65	77,00		MCS-G	l		52,00
								BARITC	kg		825,00
								GEL	kg		25,00
								NAOH	kg		0,50
			LEAD	27,50	1,90	77,00	82,05	CD-31L	l	0,80	
								FL-45L	l	6,50	
								FP-14L	l	0,40	
								MICRO	l	11,00	
								R-12L	l	0,90	
			DISPLACEMENT		0,00	77,00					
			DISPLACEMENT			77,00					
2001-02-04	7"	CASING CEMENTING	DISPLACEMENT			100,00					
2001-02-04	7"	LINER CEMENTING	SPACER			100,00					

Norsk Hydro

2001-06-28

Unofficial Data

CEMENT SLURRY REPORT ON WELL 15/12-12

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]
2001-02-04	7"	LINER CEMENTING	LEAD	11,03	1,90	100,00	106,46	CD-31L	l	1,30	
								D-19LG	l	5,50	
								FP-14L	l	0,30	
								MICRO	l	11,00	
								R-15L	l	0,50	
			DISPLACEMENT			100,00					
			DISPLACEMENT			100,00					
2001-02-05	9 5/8"	PLUG IN CASED HOLE	FRESHWATER	10,00	1,90	67,00	100,94				
2001-02-05	9 5/8"	PLUG IN CASED HOLE	SPACER			67,00					
			LEAD	10,00	1,90	67,00	101,01	FP-14L	l	0,20	
								R-12L	l	0,95	
			DISPLACEMENT			67,00					
			DISPLACEMENT			67,00					
2001-02-06	9 5/8"	PLUG IN CASED HOLE	SPACER			41,00					
			LEAD	10,00	1,90	41,00	100,94	FP-14L	l	0,20	
								R-12L	l	0,60	
			DISPLACEMENT			41,00					
			DISPLACEMENT			41,00					
2001-02-07	7"	PLUG IN CASED HOLE	SPACER			39,00					
			LEAD	7,60	1,90	39,00	76,68	FP-14L	l	0,20	
								R-15L	l	0,40	
			DISPLACEMENT			39,00					
			DISPLACEMENT			39,00					

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CEMENT CONSUMPTION PER JOB ON WELL 15/12-12

Date	CsgSize	Job Type	Cement/ Additive	Description	Unit	Actual Amount Used
2000-12-29	20"	CASING CEMENTING	A-3L	EXTENDER: LIQUID LODENSE	l	4547
			FP-14L	SPECIAL ADDITIVE: DEFOAMER FP-14L	l	334
			G	API CLASS G	MT	140
			R-15L	RETARDER: HIGH TEMP. BETWEEN 93 AND 149 DE	l	420
2001-01-04	13 3/8"	CASING CEMENTING	FP-14L	SPECIAL ADDITIVE: DEFOAMER FP-14L	l	721
			G	API CLASS G	MT	35
			R-12L	RETARDER: LIQUID LIGNOSULFONATE UP TO 93 D	l	231
2001-01-12	9 5/8"	CASING CEMENTING	CD-31L	DISPERSANT: CD-31L LIQUID	l	348
			FL-45L	FLUID-LOSS ADDITIVE: BETWEEN 38 AND 177 DEG	l	2395
			FP-14L	SPECIAL ADDITIVE: DEFOAMER FP-14L	l	331
			G	API CLASS G	MT	33
			GEL	EXTENDER: BENTONITE	kg	325
			MCS-G	SPACER ADDITIVE: MCS-G	l	1000
			MICRO	SPECIAL ADDITIVE: MICROBLOCK, ANTI GAS MIGF	l	4112
			NAOH	SPACER ADDITIVE: CAUSTIC SODA POWDER	kg	18
			R-12L	RETARDER: LIQUID LIGNOSULFONATE UP TO 93 D	l	355
2001-02-04	7"	LINER CEMENTING	CD-31L	DISPERSANT: CD-31L LIQUID	l	232
			D-19LG	FLUID-LOSS ADDITIVE: BETWEEN 38 AND 177 DEG	l	1236
			D-8	SPECIAL ADDITIVE: SILICA FLUOR, TEMP. TO 204 I	kg	18
			FP-14L	SPECIAL ADDITIVE: DEFOAMER FP-14L	l	47
			MICRO	SPECIAL ADDITIVE: MICROBLOCK, ANTI GAS MIGF	l	1635
			R-15L	RETARDER: HIGH TEMP. BETWEEN 93 AND 149 DE	l	74
2001-02-05	9 5/8"	PLUG IN CASED HOLE	D-8	SPECIAL ADDITIVE: SILICA FLUOR, TEMP. TO 204 I	kg	15
			FP-14L	SPECIAL ADDITIVE: DEFOAMER FP-14L	l	41
			R-12L	RETARDER: LIQUID LIGNOSULFONATE UP TO 93 D	l	136
2001-02-06	9 5/8"	PLUG IN CASED HOLE	D-8	SPECIAL ADDITIVE: SILICA FLUOR, TEMP. TO 204 I	kg	15
			FP-14L	SPECIAL ADDITIVE: DEFOAMER FP-14L	l	23
			R-12L	RETARDER: LIQUID LIGNOSULFONATE UP TO 93 D	l	80
2001-02-07	7"	PLUG IN CASED HOLE	FP-14L	SPECIAL ADDITIVE: DEFOAMER FP-14L	l	47
			G	API CLASS G	MT	15
			R-12L	RETARDER: LIQUID LIGNOSULFONATE UP TO 93 D	l	54

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TOTAL CONSUMPTION OF CEMENT ADDITIVES ON WELL 15/12-12 Unofficial Data

Section	Cement/Additive	Unit	Total Amount Used
26"	EXTENDER: LIQUID LODENSE	l	4547,00
	RETARDER: HIGH TEMP. BETWEEN 93 AND 149 DEGC	l	420,00
	SPECIAL ADDITIVE: DEFOAMER FP-14L	l	334,00
	API CLASS G	MT	140,00
17 1/2"	API CLASS G	MT	35,00
	SPECIAL ADDITIVE: DEFOAMER FP-14L	l	785,00
	RETARDER: LIQUID LIGNOSULFONATE UP TO 93 DEGC	l	447,00
	SPECIAL ADDITIVE: SILICA FLUOR, TEMP. TO 204 DEGC	kg	30,00
12 1/4"	FLUID-LOSS ADDITIVE: BETWEEN 38 AND 177 DEGC	l	2395,00
	SPACER ADDITIVE: MCS-G	l	1000,00
	EXTENDER: BENTONITE	kg	325,00
	API CLASS G	MT	33,00
	SPECIAL ADDITIVE: DEFOAMER FP-14L	l	331,00
	SPACER ADDITIVE: CAUSTIC SODA POWDER	kg	18,00
	SPECIAL ADDITIVE: MICROBLOCK, ANTI GAS MIGRATION	l	4112,00
	RETARDER: LIQUID LIGNOSULFONATE UP TO 93 DEGC	l	355,00
	DISPERSANT: CD-31L LIQUID	l	348,00
8 1/2"	DISPERSANT: CD-31L LIQUID	l	232,00
	FLUID-LOSS ADDITIVE: BETWEEN 38 AND 177 DEGC	l	1236,00
	SPECIAL ADDITIVE: SILICA FLUOR, TEMP. TO 204 DEGC	kg	18,00
	SPECIAL ADDITIVE: DEFOAMER FP-14L	l	94,00
	API CLASS G	MT	15,00
	SPECIAL ADDITIVE: MICROBLOCK, ANTI GAS MIGRATION	l	1635,00
	RETARDER: LIQUID LIGNOSULFONATE UP TO 93 DEGC	l	54,00
	RETARDER: HIGH TEMP. BETWEEN 93 AND 149 DEGC	l	74,00

DAILY MUD PROPERTIES:RHEOLOGY PARAMETERS FOR WELL 15/12-12 PO: 1

Hole section : 0.0 — **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]
2000-12-19	185	185	SPUD MUD	0,0	1,09						0	0							
2000-12-20	185	185	SPUD MUD	0,0	1,09						0	0							
2000-12-21	185	185	SPUD MUD	0,0	1,09						0	0							
2000-12-22	185	185	SPUD MUD	0,0	1,09						0	0							
2000-12-23	185	185	SPUD MUD	0,0	1,09						0	0							
2000-12-24	185	185	SPUD MUD	0,0	1,09						0	0							
2000-12-25	185	185	SPUD MUD	0,0	1,09						0	0							

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]
2000-12-26	185	185	SPUD MUD	0,0	1,09						0	0							
2000-12-27	456	456	SPUD MUD	0,0	1,09						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]
2000-12-28	605	605	SPUD MUD	0,0	1,09						0	0							
2000-12-29	605	605	SPUD MUD	0,0	1,09						0	0							
2000-12-30	605	605	SPUD MUD	0,0	1,09						0	0							
2000-12-31	605	605	SPUD MUD	0,0	1,09						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]
2001-01-01	970	970	SPUD MUD	0,0	1,09						0	0							
2001-01-02	1384	1384	SPUD MUD	0,0	1,09						0	0							
2001-01-03	1384	1384	SPUD MUD	0,0	1,40						0	0							
2001-01-04	1384	1384	SPUD MUD	0,0	1,40						0	0							
2001-01-05	1384	1384	SPUD MUD	0,0	1,40						0	0							

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DAILY MUD PROPERTIES:RHEOLOGY PARAMETERS FOR WELL 15/12-12 PO: 1

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]
2001-01-06	2110	2110	KCL/POLYMER	85,0	1,35		80	60	50	39	0	0	15	13	50,0	20,0	20,0	7,0	11,0
2001-01-07	2645	2644	KCL/POLYMER	79,0	1,35		90	65	56	42	0	0	14	12	50,0	25,0	20,0	6,0	12,0
2001-01-09	2733	2732	KCL/POLYMER	82,0	1,40		86	63	56	43	0	0	15	13	50,0	23,0	20,0	7,0	12,0
2001-01-11	2836	2831	KCL/POLYMER	80,0	1,40	40,0	88	68	57	44	0	0	18	14	50,0	20,0	24,0	7,0	14,0
2001-01-12	2836	2831	KCL/POLYMER	80,0	1,40		95	70	60	45	0	0	16		50,0	25,0	22,5	13,0	7,0
2001-01-13	2836	2831	KCL/POLYMER	80,0	1,40	24,0	95	70	60	45	0	0	16	13	50,0	25,0	22,5	7,0	13,0
2001-01-14	2841	2836	KCL/POLYMER	74,0	1,35		90	67	56	42	0	0	15	12	50,0	23,0	22,0	6,0	9,0

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

Date	Depth [m] MD	Depth [m] TVD	Mud Type	Funnel Visc [sec]	Dens [sg]	Mudtmp Out [DegC]	Fann Readings 600	300	200	100	60	30	6	3	Rheo Test [DegC]	PV [mPas]	YP [Pa]	Gel0 [Pa]	Gel10 [Pa]
2001-01-15	2864	2857	KCL/POLYMER	70,0	1,35	24,0	80	58	48	36	0	0	12	9	50,0	22,0	18,0	5,0	12,0
2001-01-16	2920	2907	KCL/POLYMER	70,0	1,35	24,0	75	52	42	31	0	0	11	9	50,0	23,0	14,5	5,0	9,0
2001-01-17	2948	2932	KCL/POLYMER	71,0	1,35	24,0	76	56	47	35	0	0	13	10	50,0	20,0	18,0	7,0	12,0
2001-01-18	2986	2967	KCL/POLYMER	75,0	1,35	32,0	85	61	52	38	0	0	14	9	50,0	24,0	18,5	6,0	9,0
2001-01-19	2999	2978	KCL/POLYMER	75,0	1,36	30,0	79	58	49	37	0	0	13	11	50,0	21,0	18,5	6,0	8,0
2001-01-20	3085	3056	KCL/POLYMER	57,0	1,36	52,0	77	57	50	39	0	0	13	10	50,0	20,0	18,5	6,0	9,0
2001-01-21	3085	3056	KCL/POLYMER	75,0	1,36	24,0	77	57	48	36	0	0	13	10	50,0	20,0	18,5	6,0	8,0
2001-01-22	3085	3056	KCL/POLYMER	77,0	1,36	15,0	77	57	47	36	0	0	12	10	50,0	20,0	18,5	5,0	8,0
2001-01-23	3085	3056	KCL/POLYMER	76,0	1,36	15,0	77	56	47	36	0	0	12	9	50,0	21,0	17,5	5,0	8,0
2001-01-24	3085	3056	KCL/POLYMER	74,0	1,36	18,0	78	58	49	37	0	0	14	10	50,0	20,0	19,0	6,0	8,0
2001-01-25	3085	3056	KCL/POLYMER	75,0	1,36		75	56	47	36	0	0	13	10	50,0	19,0	18,5	6,0	9,0
2001-01-26	3085	3056	KCL/POLYMER	76,0	1,36	1,4	79	59	49	38	0	0	13	11	50,0	20,0	19,5	6,0	9,5
2001-01-27	3085	3056	KCL/POLYMER	77,0	1,36	25,0	75	57	49	37	0	0	13	11	50,0	18,0	19,5	6,0	9,0
2001-01-28	3085	3056	KCL/POLYMER	76,0	1,36	27,0	77	58	51	39	0	0	14	12	50,0	19,0	19,5	6,0	9,0
2001-01-29	3085	3056	KCL/POLYMER	77,0	1,36	27,0	77	57	48	39	0	0	13	10	50,0	20,0	18,5	7,0	10,0
2001-01-30	3088	3058	KCL/POLYMER	78,0	1,36	22,0	76	57	47	37	0	0	13	11	50,0	19,0	19,0	6,0	8,0
2001-01-31	3085	3056	KCL/POLYMER	77,0	1,36	26,0	76	57	50	38	0	0	14	12	50,0	19,0	19,0	6,0	9,0
2001-02-01	3085	3056	KCL/POLYMER	78,0	1,36	26,0	77	57	49	38	0	0	14	12	50,0	20,0	18,5	6,0	9,0
2001-02-02	3085	3056	KCL/POLYMER	77,0	1,36	26,0	75	57	48	38	0	0	14	12	50,0	18,0	19,5	7,0	10,0
2001-02-03	3085	3056	KCL/POLYMER	77,0	1,36	26,0	73	56	48	37	0	0	14	11	50,0	17,0	19,5	6,0	9,0
2001-02-04	3085	3056	KCL/POLYMER	77,0	1,36	26,0	74	56	48	38	0	0	14	11	50,0	18,0	19,0	6,0	9,0
2001-02-05	3085	3056	KCL/POLYMER	77,0	1,36	26,0	72	54	48	38	0	0	14	11	50,0	18,0	18,0	6,0	9,0
2001-02-06	3085	3056	KCL/POLYMER	79,0	1,36	27,0	71	52	43	32	0	0	13	10	50,0	19,0	16,5	5,5	9,0

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Unofficial Data

DAILY MUD PROPERTIES:RHEOLOGY PARAMETERS FOR WELL 15/12-12 PO: 1

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

Date	Depth [m] MD	Depth [m] TVD	Mud Type	Funnel Visc [sec]	Dens [sg]	Mudtmp Out [DegC]	Fann Readings 600	300	200	100	60	30	6	3	Rheo Test [DegC]	PV [mPas]	YP [Pa]	Gel0 [Pa]	Gel10 [Pa]
2001-02-07	3085	3056	KCL/POLYMER	76,0	1,37	27,0	68	48	38	29	0	0	11	9	50,0	20,0	14,0	5,0	8,5
2001-02-08	3085	3056	KCL/POLYMER	78,0	1,37	25,0	72	54	48	35	0	0	13	11	50,0	18,0	18,0	6,0	9,0

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Unofficial Data

DAILY MUD PROPERTIES : OTHER PARAMETERS FOR WELL 15/12-12 PO: 1

Hole section : 0.0 — **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]
2000-12-19	185	185	SPUD MUD	1,09					/																
2000-12-20	185	185	SPUD MUD	1,09					/																
2000-12-21	185	185	SPUD MUD	1,09					/																
2000-12-22	185	185	SPUD MUD	1,09					/																
2000-12-23	185	185	SPUD MUD	1,09					/																
2000-12-24	185	185	SPUD MUD	1,09					/																
2000-12-25	185	185	SPUD MUD	1,09					/																

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]
2000-12-26	185	185	SPUD MUD	1,09					/																
2000-12-27	456	456	SPUD MUD	1,09					/																

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]
2000-12-28	605	605	SPUD MUD	1,09					/																
2000-12-29	605	605	SPUD MUD	1,09					/																
2000-12-30	605	605	SPUD MUD	1,09					/																
2000-12-31	605	605	SPUD MUD	1,09					/																

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]
2001-01-01	970	970	SPUD MUD	1,09					/																
2001-01-02	1384	1384	SPUD MUD	1,09					/																
2001-01-03	1384	1384	SPUD MUD	1,40					/																
2001-01-04	1384	1384	SPUD MUD	1,40					/																
2001-01-05	1384	1384	SPUD MUD	1,40					/																

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Unofficial Data

DAILY MUD PROPERTIES : OTHER PARAMETERS FOR WELL 15/12-12 PO: 1

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

Date	Depth [m] MD	Depth [m] TVD	Mud Type	Dens [sg]	Filtrate API [ml]	Filtrate HPHT [ml]	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]
2001-01-06	2110	2110	KCL/POLYMER	1,35	3,8		1		/	8,4		0,1	0,5		80000	80000				15,0			36	5,0	168
2001-01-07	2645	2644	KCL/POLYMER	1,35	2,6		1		/	8,3		0,1	0,5		89000	91000	480		480	19,0		0,0	42	5,0	160
2001-01-09	2733	2732	KCL/POLYMER	1,40	2,4		1		/	8,3		0,1	0,6		89000	92000	540		540	21,0			42	5,5	171
2001-01-11	2836	2831	KCL/POLYMER	1,40			1		/	8,3		0,1	0,6		89000	93000	485		485	19,0		0,0	36	5,5	170
2001-01-12	2836	2831	KCL/POLYMER	1,40	1,8		1		/	8,2	0,8	0,0	0,9		89000	92000	620		620	21,0			45	5,5	171
2001-01-13	2836	2831	KCL/POLYMER	1,40	1,8		1	21	/	8,2	0,8	0,0	0,9		89000	92000	620		620		0,0		45	5,5	171
2001-01-14	2841	2836	KCL/POLYMER	1,35	2,0	11,0	1	2	/	8,3		0,0	0,5		82000	73000	420		420	15,0		0,0	14	5,5	153

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]
2001-01-15	2864	2857	KCL/POLYMER	1,35	1,8		1		/	8,5		0,1	0,9		82000	72000	148		148				20	5,5	153
2001-01-16	2920	2907	KCL/POLYMER	1,35	2,0	12,0	1	2	/	8,2		0,0	0,9		86400	72000	520		520	15,0		0,5	0	3,9	44
2001-01-17	2948	2932	KCL/POLYMER	1,35	2,0	12,0	1	2	/	8,0		0,0	0,9		86400	66000	520		520	15,0		0,5	0	3,9	46
2001-01-18	2986	2967	KCL/POLYMER	1,35	2,4	12,0	1	2	/	8,0		0,1	1,1		72798	66000	520		520	15,0		0,8	14	3,7	68
2001-01-19	2999	2978	KCL/POLYMER	1,36	2,0	10,0	1	2	500/	8,0		0,0	1,2		76107	69000	610		610	15,0		0,0	18	3,9	54
2001-01-20	3085	3056	KCL/POLYMER	1,36	2,1	10,0	1	1	500/ 121	8,2		0,0	1,1		79416	72000	250		250	15,0		0,0	13	3,9	47
2001-01-21	3085	3056	KCL/POLYMER	1,36	2,1	10,0	1	1	500/ 121	8,3		0,0	1,1		81622	74000	250		250	15,0		0,0	12	3,9	43
2001-01-22	3085	3056	KCL/POLYMER	1,36	2,0	10,0	1	1	500/	8,3		0,0	1,2		81622	74000	300		300	16,0		0,0	12	3,7	90
2001-01-23	3085	3056	KCL/POLYMER	1,36	2,0	10,0	1	1	500/ 121	8,3		0,0	1,0		79416	72000	300		300	15,0		0,6	13	3,9	46
2001-01-24	3085	3056	KCL/POLYMER	1,36	2,0	10,0	1	1	500/ 121	8,3		0,0	1,0		79416	72000	300		300	15,0		0,0	11	3,9	46
2001-01-25	3085	3056	KCL/POLYMER	1,36	2,2	10,0	1	1	500/ 121	8,4		0,0	1,0		78313	71000	320		320	15,0		0,0	10	3,9	48
2001-01-26	3085	3056	KCL/POLYMER	1,36	2,0	10,0	1	1	500/ 121	8,2		0,0	1,0		76107	69000	300		300	15,0		0,0	9	3,9	53
2001-01-27	3085	3056	KCL/POLYMER	1,36	2,0	9,0	1	1	500/ 121	8,2		0,0	1,0		73901	67000	280		280	15,0		0,0	10	3,9	57
2001-01-28	3085	3056	KCL/POLYMER	1,36	2,0	10,0	1	1	500/ 121	8,1		0,0	0,0		75004	68000	300		300	15,0		0,0	9	3,9	55
2001-01-29	3085	3056	KCL/POLYMER	1,36	2,0	9,0	1	1	500/ 121	8,1		0,0	1,0		75004	69000	280		280	15,0		0,0	9	3,9	54
2001-01-30	3088	3058	KCL/POLYMER	1,36	2,0	10,0	1	1	500/ 121	8,0		0,0	1,0		73901	67000	160		160	15,0		0,0		3,9	57
2001-01-31	3085	3056	KCL/POLYMER	1,36	2,0	10,0	1	1	500/ 121	8,2		0,0	0,9		76107	69000	160		160	15,0		0,0	8	3,9	53
2001-02-01	3085	3056	KCL/POLYMER	1,36	2,0	10,0	1	1	500/ 121	8,1		0,0	0,9		76107	69000	175		175	15,0		0,0	8	3,9	53
2001-02-02	3085	3056	KCL/POLYMER	1,36	2,0	10,0	1	1	500/ 121	8,1		0,0	1,0		76107	67500	175		175	15,0		0,0	8	3,9	53
2001-02-03	3085	3056	KCL/POLYMER	1,36	2,0	10,0	1	1	500/ 121	7,8		0,0	2,0		76107	69000	120		120	15,0		0,0	8	3,9	53
2001-02-04	3085	3056	KCL/POLYMER	1,36	2,0	10,0	1	1	500/ 121	7,4		0,0	1,9		76107	68000	90		90	15,0		0,0	8	3,9	53
2001-02-05	3085	3056	KCL/POLYMER	1,36	2,0	10,0	1	1	500/ 121	8,7		0,0	1,6		76107	68000	120		120	15,0		0,0	8	3,9	53

Norsk Hydro

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Unofficial Data

DAILY MUD PROPERTIES : OTHER PARAMETERS FOR WELL 15/12-12 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]
2001-02-06	3085	3056	KCL/POLYMER	1,36	2,0	10,0	1	1	500/ 121	9,0		0,9	4,1		76107	67500	600		600	15,0		0,0	8	3,9	53
2001-02-07	3085	3056	KCL/POLYMER	1,37	2,0	10,0	1	1	500/ 121	10,0		1,2	4,8		76107	67000	720		720	16,0		0,0	8	3,7	87
2001-02-08	3085	3056	KCL/POLYMER	1,37	2,0	12,0	1	1	500/ 121	9,5		0,5	2,0		76107	66000	180		180	15,0		0,0	7	4,0	40

Norsk Hydro 2001-06-2E

TOTAL CONSUMPTION OF MUD ADDITIVES ON WELL 15/12-12

Unofficial Data

Section	Product/ Additive	Unit	Total Amount Used
36"	BARITE	kg	80000,00
	BENTONITE	kg	24000,00
	CMC EHV	kg	175,00
	SAFE SOLV OE	L	500,00
	SODA ASH	kg	800,00
26"	BARITE	kg	186000,00
	BENTONITE	kg	39000,00
	CMC EHV	kg	3200,00
	MICA COARSE	kg	400,00
	SODA ASH	kg	1050,00
17 1/2"	BARITE	kg	127000,00
	BENTONITE	kg	58000,00
	CMC EHV	kg	900,00
	SODA ASH	kg	575,00
12 1/4"	BARITE	kg	256000,00
	CELPOL ESL	kg	12000,00
	DUOTEC NS	kg	3050,00
	GLYDRIL MC	l	13614,00
	KCL BRINE	l	387000,00
	KCL POWDER	kg	29000,00
	KD-40	l	400,00
	LIME	kg	1000,00
	SODA ASH	kg	900,00
8 1/2"	BARITE	kg	229000,00
	CELPOL ESL	kg	2650,00
	CITRIC ACID	kg	625,00
	DUOTEC NS	kg	1175,00
	GLUTE-10	l	200,00
	GLYDRIL MC	l	5700,00
	KD-40	l	1000,00
	LIME	kg	30,00
	POTASSIUM CARBONATE	kg	400,00
	SODA ASH	kg	25,00
	SODIUM BICARBONATE	kg	1200,00
8 3/8"	BARITE	kg	157000,00
0.0	SODIUM BICARBONATE	kg	100,00

Norsk Hydro

2001-06-28

Unofficial Data

LOGGING INFORMATION ON WELL 15/12-12

Hole size: 12 1/4"

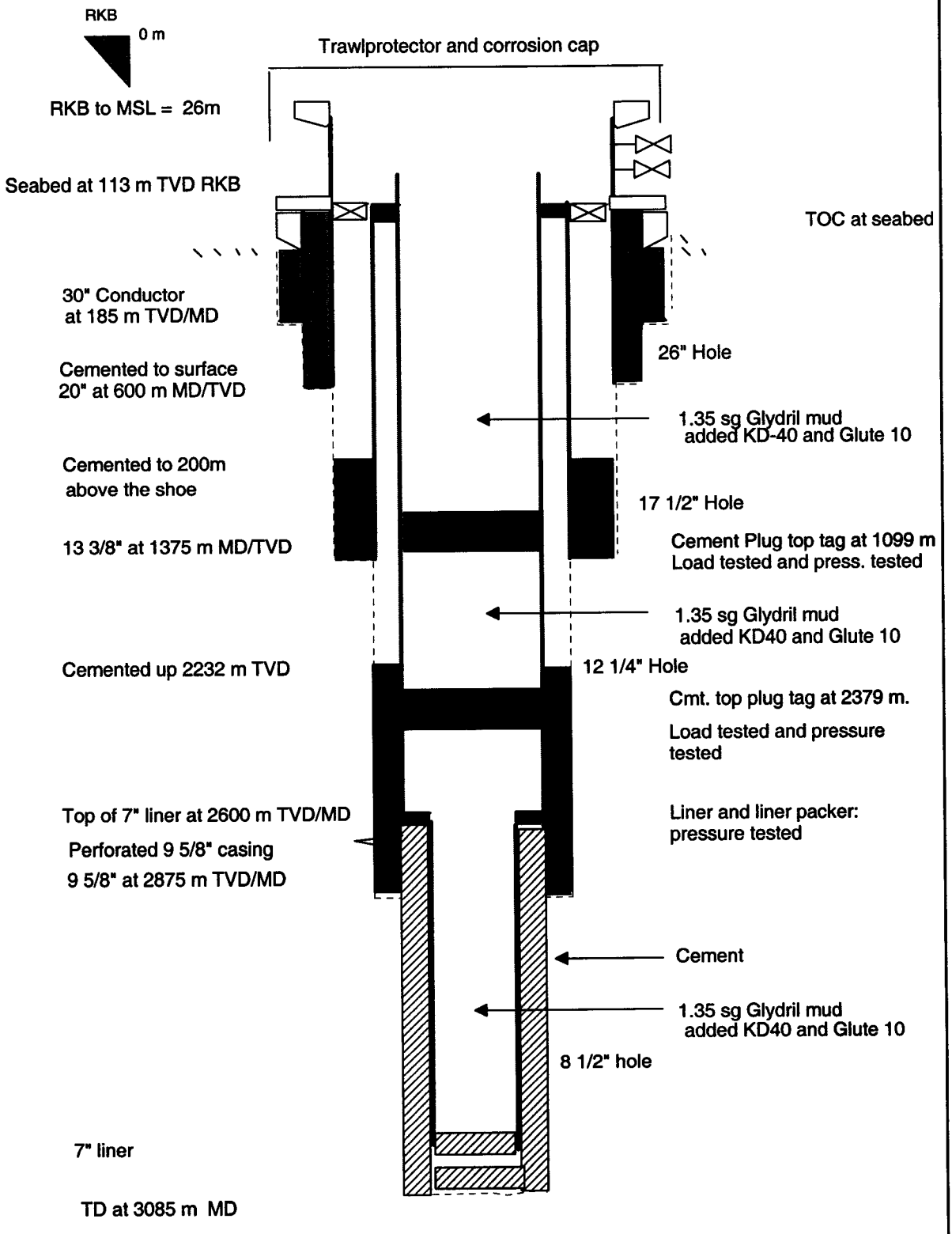
#	Run No.	Logging Company	Logged Bottom [m MD]	Logged Top [m MD]	Log Suite
4	7		2800	2200	HNGS/ECS/DSI

Hole size: 8 1/2"

#	Run No.	Logging Company	Logged Bottom [m MD]	Logged Top [m MD]	Log Suite
1	1A		2937	2859,5	MDT
2	1B		3040,5	2895	MDT
3	1A		3050	2829	FMI/DSI/CMR

FIT TEST ON WELL 15/12-12

Depth	Section	Date	Mudtype	Mudweight SG	Test pressure	FIT SG
608	17 1/2"	2001-01-01	Hi vis / LCM Pill	1,01	-	2,18
1 387	12 1/4"	2001-01-06	Seawater	1,03	36 bar	1,67
2 840	8 1/2"	2001-01-14	KCl / Polymer	1,35		1,43



P & A Programme **Well 15/12-12**	**Fig. B-1** **Revision: 0**	**Temporary Plug and Abandonment**