STATOIL

FINAL WELL REPORT
Drilling and completion
License no.: PL 050
Well: 34/10-B-42 E/F

GF RESU-HF-04 00045

STATOIL

Title:
FINAL WELL REPORT **Drilling and completion** **License no.: PL 050** **Well: 34/10-B-42 E/F**

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1 General well data

Drilling rig: Gullfaks C
License number: PL 050
Well name: 34/10-B-42 F
Slot: 30 (south shaft)
Type of well: Gas and Oil (condensate) producer
Water depth /air gap: 142,5 m MSL / 80,75 m MSL
Wellhead (32" hub): 37,9 m RKB

	Coordinates at Wellhead Level			
	Structure Center		Slot Center	
	Lat.	Long.	Lat.	Long.
Geographic:	61° 12' 10,373" N	02° 16' 04.8796" E	61° 12' 09.925" N	02° 16' 05.931" E
UTM:	6785809.000 m N	457079.000 m E	678579.9353 m N	457094.5241 m E
Rectangular (from structure centre)	----------	----------	14.07 m S	15.53 m E

Primary objective:	Gas and Oil (condensate) producer
Completion type:	7” monobore
P&A operations in well 34/10-B-42 D started:	23.09.03
Drilling operations in well 34/10-B-42 E started:	10.10.03
P&A operations in well 34/10-B-42 E started:	04.11.03
Drilling operations in well 34/10-B-42 F started:	04.12.03
Drilling of well 34/10- B-42 F completed:	10.01.04
Initial completion of well 34/10-B-42 F started:	10.01.04
Completion of well 34/10-B-42 F started:	18.01.04
Completion of well 34/10-B-42 F completed:	27.01.04
Well status:	Producing *(Pr. June 25th 2004)*

2 Exemptions

Fravik er gjort til dok.nr.: GF RESU-HF-03 00020

3 Health, Safety, Environment and Quality (HSE&Q)

3.1 Goals and results of the well

3.1.1 The main goals for this well

The main goal for this well was '**Do it right the first time**'

In addition, the specific HSE&Q goals was:

- Drill and complete the well without accidents or injuries
- No downtime due to equipment not onboard
- No violations of requirements

3.1.2 Achieved results

Based on the development of down hole problems, and the achieved result, the main goal for the well was not achieved.

Neither the HSE&Q goals were fully achieved, as three minor injuries were suffered.

However, this well has provided a lot of experiences that might contribute to future improvement.

3.2 RUH

No of RUH: 214
No of LTA: 0

Among these 'Near miss' reports, one is classified in the red area (RUH no 247765).
Due to a missing safety pin, a bolt fell down from 9,8 m in the derrick. The weight of the bolt was 1,0 kg, and it connect the torque wrench to a lifting cylinder. Neither injuries nor equipment damage was suffered. However, with only minor changes in the circumstances the outcome could have been more dramatic.

The rest of the 'Near miss' reports were classified in the green area.

There was, however three injuries that required 'First aid'. Two persons got a cut in their hand, and one sprained his ankle. (RUH 238130, 238883 and 247703)

3.3 Quality

122 of the reported incidents are classified as 'Non Conformance'.

One of these reports is classified in the yellow area (RUH no 262723).
This report is referring to the loss of section in well 34/10-B-42 E.

3.4 Experience listing

Experience listing

Wellbore: NO 34/10-B-42 E

Section	Down time (hrs)	Time impr (hrs)	Experience (subject and description)	Immediate solution	Solution recommended for the future	Ref	Doc att
8 1/2"							
14.10.2003			How to chose an ROP to achieve minimum time spent on drilling and reaming a stand. How to choose an ROP to achieve minimum time spent on drilling and reaming a stand.	Used Autodriller with constant ROP to spread the cuttings load evenly over a stand instead of using constant WOB. Started with 50 m/h held this until several BU. Performed T&D measurements after each stand drilled. Increased ROP inncreaments to 60 m/h, 70 m/h, 80 m/h, 90 m/h and 100 m/h. Held each ROP level for 4 - 12 hrs to establish constant conditions. BU time wa 2 hrs +/-. Observed increasing ECD and PU wt when going for 100 m/h ROP. Decided to live with 90 m/h.	As above.		
20.10.2003	4,5	4,5	Synergi 239955 (Closed) - 20.10.2003 - Non Conformance - BOR-GFB / Retur flow paddle / Prosafe Drilling Services Ved økning av pumperate fra 0 -300 lpm, droppet retur fra 9% til 5% på "flow paddle". Etter flere forsøk på å øke raten, skjedde det samme. Geoservice viste også 1 m^3 drop. Etter noen forsøk ble det besluttet å sette brønn på trip tank. Under pumping når brønnen var på trip tank, viste det seg at det var full retur. "Flow paddle" på retur line viste feil.	Rengjorde.	Skifte pod-meter.		
14.10.2003			Back Up injcection possibilities of oil based cuttings If CRI injection pump or asosiated equipment fails during drilling, further drilling has to stop until equipment has been fixed.	Piping exists from MPA lower level to pumproom. Have ordered connection pipe to hook up system so that slurry that is ready for injection can be transferred down to cement pump if back up injection capacity is needed.	As above.		
14.10.2003			How to perform T&D measurements with underreamer in the string.				
14.10.2003			How to overcome weak MWD/LWD signals in ERD wells Loosing MWD/LWD information to surface due to weak pulses in Extendted Reach Drilling (ERD wells).	Increase pumprate if possible. Gives stronger signals. Downlink to tool for sending of reduced bitrate, i. e. easier decoding. Pump survey up prior to start drilling to reduce noise, i. e. increased drilling time. SEE ATTACHED PRESENTATION.	Set up tools for ERD in advance from onshore. Other topics -Delayed surveys. -Distance between rotor and stator in Power Pulse tools giving pulsee. Little or no distance gives strong signals but is also easily worn out by mud. Large distance gives weak signals but lasts longer.		
14.10.2003			Synergi 238742 (Closed) - 10.10.2003 - Non Conformance - BOR-GFB / Nedetid pga. magn. interferens / Schlumberger Ved syklus kjøring av slampumpene for å programmere Powerdrive "toolface" til 240 grader med 80% kraft på skovlene, indikerte signalene som kom i retur fra MWD at programmeringen av Powerdrive ikke var fullstendig. Årsak til dette var at signalene (magnetiske bølger) som ble sendt fra Powerdrive til MWD ble utsatt for magnetisk interferens pga. MWD befant seg inne i foringsrør. Powerdrive var riktig programmert, men signalene som ble sendt videre opp til overflaten fra MWD var ikke korrekt.	Be aware of this situation. Few people are. When Powerdrive and MWD/ Power pulse package is out of casing correct code for setting of powerdrive is sent to surface. When drilling first meters one have to anticipate that setting of powerdrive is correct. This is verified when magnetic interference is reduced. The magnetic interference occurs on the signal from Powerdrive to MWD tool (sent by magnetic waves) and prior to MWD sending/ pulsing it to surface. Ie the MWD/ Power pulse tool does not receive the correct signals prior to sending them.	See above.		

Wellbore: NO 34/10-B-42 E

Section	Down time (hrs)	Time impr (hrs)	Experience (subject and description)	Immediate solution	Solution recommended for the future	Ref	Doc att
8 1/2"							
23.10.2003			Synergi 239681 (Closed) - 19.10.2003 - Non Conformance - GFB-BOR / No communication between PD Xtra and MWD tool at SHT / Schlumberger D&M. The MWD tools were tested at surface, as per SOP. No communication was seen to the Powerdrive tool. The Powerdrive Xtra receiver sonde was changed out for the backup, and retested OK before running in hole. 6.5 hours rig downtime were taken to lay down, pick up and test the replacement receiver sonde.	Performed full shallow hole test to late. Changed out equipment.	Change out equipment that has had its hours even though it is durable equipment.		
23.10.2003			Synergi 239374 (Closed) - 14.10.2003 - Non Conformance - BOR-GFB / Svake signaler fra MWD / Schlumberger MWD signal strength on 8.5in Section 34/10-B-42E was low towards the end of the run, resulting in some loss of realtime data. Background: Tool details - PowerPulse 675, modulator gap 0.07", config QPSK 12Hz 3.0bps, delayed surveys* Hole depth from 4109 to 7153m. Mud Paratherm OBM @1.60sg. *Note 1. QPSK 12 Hz 3.0bps describes the tool telemetry configuration. It means Quadrature Phase Shift Keying, 12Hz carrier frequency, 3 bits per second transmission rate.	Managed to get MWD and ECD. Poor logs.	Change gap on modulator. Gap between rotor and stator to be decreased if possible. Small or zero gap can cause erosion and wash out modulator/ pulsator.		
23.10.2003	60	60	Synergi 240563 (Closed) - 23.10.2003 - Non Conformance - BOR-GFB / Havari på DC-motor DDM / Statoil Den 23. oktober ca. kl 18:00 fikk vi havari på DC-motoren til DDM under boring av 8 1/2" x 9 7/8" seksjon, brønn B-42E. Børster og børstebroer var brente og ødelagte og vi fikk fullt overslag til jord. Det antas at dette skyldes et fall i strømforsyningen under oppstart av vanninnjeksjonspumpen. Hendelsen medførte i alt 60 timer nedtid, samt kostnader ifm. rekvirering av ekstra båt.	Rekvirerte ny motor fra land. Installerte samme.	For å unngå lignende situasjoner i fremtiden, ber en om at borer, tlf 6375, må kontaktes hver gang vanninjeksjonspumpen startes. Dette må inngå i oppstartprosedyre for injeksjonspumpa. Prosafe borer kan da legge ut/stoppe DC-motorene mens oppstart av vanninjeksjon pågår, og forhåpentligvis unngår vi kostbare havari i fremtiden. GFB Prod., SKR og GFA er informert om hendelsen.	117304	
26.10.2003			Pack off and lost circulation Drilled through a fault and into Tarbert-2 (fault area from 7715 to 7740 mMD). Hole packed off when the pathfinder (OD 8 1/4") was at 7715 mMD.	Reamed stand and regained circulation. The density ogs show that the fault area is washed out. The upwards density is lower than the downwards density.			

Wellbore: NO 34/10-B-42 E

Section	Down time (hrs)	Time impr (hrs)	Experience (subject and description)	Immediate solution	Solution recommended for the future	Ref	Doc att
8 1/2"							
29.10.2003			Curing of losses with Versapac Had losses when drilling into a possible coal zone at 7927 mMD. Pumped LCM pill - no effect.	Pumped and squeezed 17 m3 Versapac pill #1 - was able to increase the flow to 1500 lpm. Started back reaming. Packed off and lost circulation again. Max pump pressure 240 bar when displacing the pill. Pumped and squeezed 19 m3 Versapac pill #2 - increased the flow to 1950 lpm / 120 RPM. Lost circulation again when increasing the RPM from 130 to 140. Max pump pressure 310 bar when displacing the pill. Waited minimum 6 hrs before increasing the flow rate and challenging the ECD.	The disadvantage with Versapac is mixing time and time to set up. In ERD wells, the pill volume should be thought-through. Larger pill will give larger pump pressure.		
20.10.2003			Loss of ECD from MWD during reaming During reaming of stand, the ECD signal was interrupted and could not be decoded when the the driller started to ream downwards instead of upwards.	Waited 20 seconds before start reaming down to avoid signal interruption.			
PERM P&A							
27.11.2003			Poor plugback and kick off plug cementjob Setting kick off plug 200 m below window (4305 m) and 100 m inside 9 5/8" liner 4005 m. 9 5/8" liner window. Window in 9 5/8" liner from 4105,6 m to 4109,2 m. Used bentonite pill and Perigon Umbrella (Cement Support Tool) as foundation. Were only able to pumpe approx 4-6 m3 of pill since it was too thick and had been standing for too long. Placed plug as a pump and pull plug. Pumped and pulled out of plug to 4005 m. Washed down to remove top of plug down to 4068 m. Circualted BU. Pumped/ POOH RIH with clean up assy. When dressing off plug the cement top was found at 4168 m in open hole. Well started to gain.	Had to set new cement plug.	Better planning and contribution from Halliburton world wide knowledge based on plugging back wells with 85 degree inclination Use a solid foundation for the plug. Large bentonite pill. Or develop a bridge plug for open hole. Use longer/ larger cement plugs when plugging back prior to sidetrack compensating for cement sliding down. Size and length of plug is important to seal off original wellbore to prevent communication with plugged off wellbore. Almost horisontal wells needs large plugs to compensate for cement laying down on the lowside. Do not wash out cement in place to speed up drilling out cement since the main goal was good cement around the shoe. Apply squeeze on plug to seal off propperly around casing window.		

Wellbore: NO 34/10-B-42 E

Section	Down time (hrs)	Time impr (hrs)	Experience (subject and description)	Immediate solution	Solution recommended for the future	Ref	Doc att
PERM P&A							
22.11.2003			Cleaning up 9 7/8" hole After having lost return at 7929 m it was deceided to come out of the well and set a CMT plug. It was impossible to circulate well clean due to poor returns before comming out. A cmt. stinger was run and circulation attempted with several pack offs. The cement plug was finally set with top at 7348 m. Return was lost when circulating after cement plug was set. Made up celean up assembly with 8 1/2" bit (LA 250 BYG), MWD tool and Pathfinder tool. RIH and circulated at 4200 m, 5100 m and 6100 m. Took weight at 6245 m. Was able to pass this restriction but after this the hole started packing off. Depths 6068m to 6000 m, pump OOH dead slow 1900lpm /80 rpm. Persistent packing off. Poor returns over shakers. From 6000m, decision to attempt washing down at 1900 lpm, 160 rpm & 180m/hr. Slow down & work through depths where string takes weight. Work through 6330m, 6445m, 6522m, 6528m. Partial pack offs after working through at low rpm. Work through 6570m to 6580m. At 6580m, torque increased from 22/28 kNm to 47 kNm & string stuck. Jar free. Circulate to liner top 1900 lpm/160 rpm while slowly POOH. Increased returns seen at shakers . Continue attempt to wash into hole with 1900 lpm 160 RPM. @ 6592m, severe pack off. Work pack off, wash back to 6558m attempting to regain returns. Decision to plug back and redrill this hole section. Commence pumping OOH. Pump rates varying 300 to 1550 lpm and rotary speeds 15 to 130 rpm working frequent pack offs. Packoffs disappeared after 6100m. Continue pumping OOH 1500 lpm / 80 rpm.	Due to probable mud invation, length of time this hole has been open and the ballooning effects caused by leakage to formation below the reservoir, it was deceided to come out of hole before getting stuck.	Due to the fact that this hole was not cleaned after the last BHA had been i hole and also after having set a cement plug, the approach should have been to start washing down from the top of the open hole section with maximum flow rate and RPM. In order to do this a cripled bit should have been chosen to avoid worrying about getting side tracked. RIH at increased rotary speeds has greatly assisted hole cleaning. It is significant that pack offs occur after reducing RPM to 15 to work through tight spots in order not to side track.		

3.5 Time distribution

3.5.1 Overview of time distribution

Distribution of down time	Hrs	Cause of waiting time	Hrs
Failure of Power Drive[1]	365	WOC	11
Cmt debris in 5" DP	92,5	WOW	6
'Burned' DC motor on DDM	59,5		
Change annular prev. on BOP	34,5		
Broken Kelly hose	20,5		
Other	103,5		
Total D-time	**675,5**	**Total W-time**	**17**

[1] *The enormous time consume was not caused by the failure itself – see downtime discussion*

Activity[1]	Days	Hrs	%
Budget time[1]	98,7		
Optimum time	86,1		
Actual time	126,4		
Days behind plan	27,7		
Total D+W-time		692,5	22,83
Drilling OPS factor well 34/10-B-42 E			**86,1**
Drilling OPS factor well 34/10-B-42 F			**47,2**

3.5.2 Comparison of budget, actual and optimum time

Both budget and optimum time was hard to predict. This was the longest 8 ½" section ever planned on the Gullfaks field, and the experience regarding ERD wells was limited. Even in retrospective, these predictions still seems in order, recognizing that Budget time was exceeded, and the deviation between Actual and Optimum time. This statement is made considering the heavy downhole problem suffered. It would not be recommendable to incorporate this kind of time spending in any well budget.

This well does not make a good offset well for later ERD wells, regarding time spending.

3.5.3 Down time and Quality time discussion

The achieved result is not satisfactory.
Among all that "went wrong", the heaviest impact came from down hole problems. While it occurred it was hard to interpret the correct failure mechanism, and therefore the chosen solutions was not effective. However, there was no lack of resources assigned to evaluate the problems – internally and externally – as they occurred.

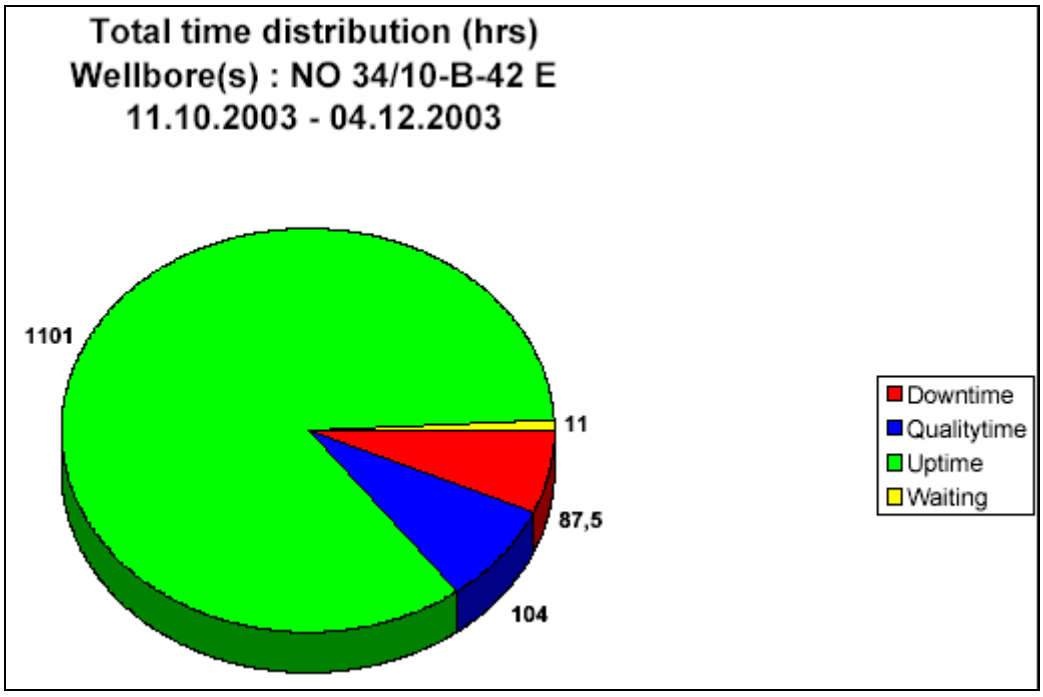
A project group lead by Halvor Kjørholt, evaluated the problems in both wells. Additionally an external consultant was also hired in order to evaluate the problems. On the Arena database a presentation from Halvor Kjørhold, and a report from Arvid Orvedal, can be found. It is strongly recommended that these reports will be incorporated in the planning of future ERD wells.

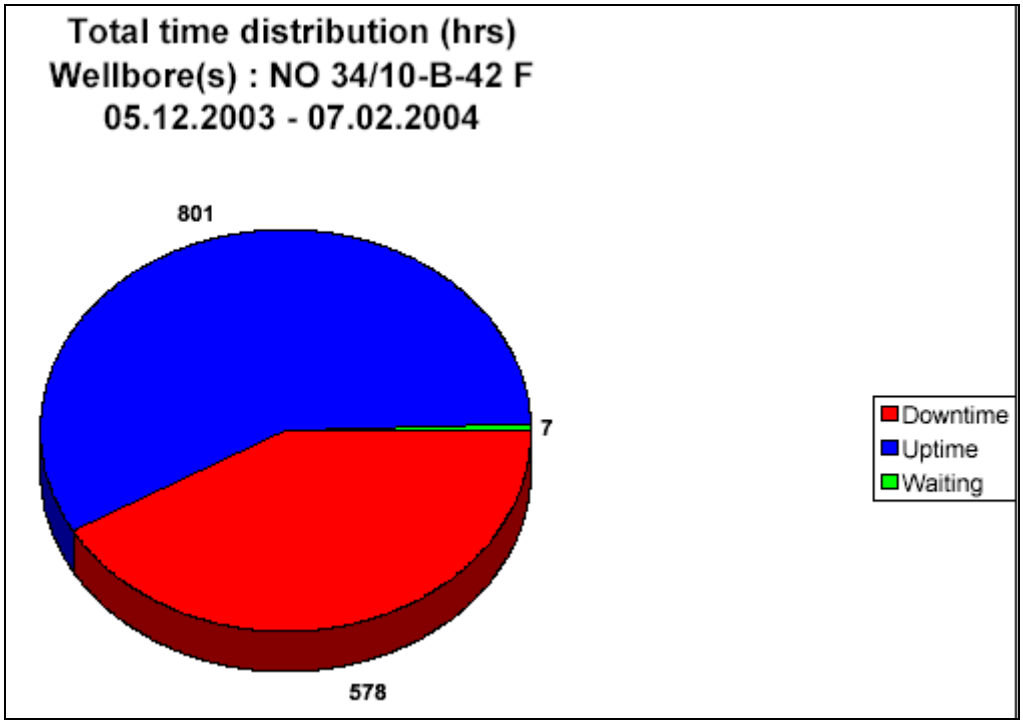
Ref:
Arena – UPN TO GF RU HF – 1.3. Bore/Kompletteringsprogram – 34/10-B42E - Erfaringsrapporter

A brief summarise of their conclusions:

- Not optimal casing design.
- Narrow annulus between 9 $^{5}/_{8}$" liner and 5 ½" DP increases the possibility of pack off
- The actual borehole inclination, relative to formation dip, caused likely formation break out
- Formation break out enlarged the borehole, causing accumulation of cuttings (Worse condition for hole cleaning)
- The accumulated cutting is likely to cause pack off when lifted up into the mud stream by rotation
- The actual drilling parameters was not optimal regarding mending the problem
-

The suffered equipment failure is not satisfactory. As for the Power Drive failure it must be mentioned that the time spending was more a result of down hole problems, than the failure itself. When failure, down time is logged until the bit is back on the same depth as when failure occurred. Since down hole problems made it hard to get back on bottom, down time was running.


Total time distribution (hrs)
Wellbore(s) : NO 34/10-B-42 E
11.10.2003 - 04.12.2003
1101
11
87,5
104
Downtime
Qualitytime
Uptime
Waiting


Total time distribution (hrs)
Wellbore(s) : NO 34/10-B-42 F
05.12.2003 - 07.02.2004
801
7
578
Downtime
Uptime
Waiting

3.5.4 Real costs/Cost estimate discussion

Budget cost; P&A, Drilling & Completion: 125 M NOK (Initial 90 M NOK)
Actual cost; Drilling & Completion: 133 M NOK *(Preliminary pr. Mai 4th 2004)*

It was emphasised from the beginning that this project was considerable challenging. A relative short planning phase combined with the fact that this was an ERD well (Extended Reach Drilling), made it clear to all of the involved that this well was beyond all previous experience.

Recognizing the challenge, this well was a business opportunity. It facilitated the use of the drilling crew during the maintenance stop on GFC, in addition to the predicted high likeliness of finding a considerable HC volume.

The project outcome was a considerable exceed of budget in addition to lack of the predicted reservoir/HC volume. However, the actual production will probably secure a pay back for the investment.

The investment in well 34/10-B-42 E/F might be of great value for future projects. The experience with ERD drilling and floating of liner – even the suffered downhole problems – might contribute to success for other challenging projects. The success of floating the liner offers a complete new technique for Statoil's drilling engineers, which in itself is of great value regarding increased drainage and prolonged lifetime of existing fields.

3.6 Risk Assessment

Risk Assessment was performed as a part of the workshop.

3.7 Workshop and project plan

A combined workshop and peer assist was arranged for the well. The output from the workshop was risk assessment, time plan and detail plans.

3.8 Peer Review

A Peer Review of the drilling programme was performed prior to start drilling the well.

4 Activity Highlights

4.1 P&A" section

- Nipled up 13 $^{5}/_{8}$" BOP
- RIH with 12 ¼" clean out assy. Displaced well to 1,60 Sg WBM
- Tested well to 265 bar/10 min
- Drilled cmt inside 13 $^{3}/_{8}$" csg from 1981 m to 2257,7 m (Top of 9 $^{5}/_{8}$ liner)
- RIH with 9 7/8" PBR clean out assy.
- Drilled cmt inside 9 $^{5}/_{8}$" PBR from 2257,7 m to 2261,8 m.
- RIH with 8 ½" assy
- Drilled cmt inside 9 $^{5}/_{8}$" liner from 2261,8 m to 2329 m (broke through cmt plug)
- RIH/washed down to 3226 m
- Circulated due to 20% as in mud
- Washed down and tagged top of cement plug @ 4252,4 m
- Attempted to test 9 $^{5}/_{8}$" liner and 13 $^{3}/_{8}$" csg to 242 bar in 15 min – leaked off.
- RIH and set EZSV plug @ 4205 m (top). Tagged EZSV with 15 t WOB.
- Tested well to 242 bar in 15 min.
- RIH with whipstock to 4112,5 m
- Set wiphstock and displaced well to 1,60 Sg OBM.
- Milled window in 9 $^{5}/_{8}$" liner from 4105,7 m to 4109,2 m and new formation to 4114,6 m
- Performed a FIT to 1,80 Sg EMW
- POOH and found mill worn above limit of $^{3}/_{16}$"
- RIH with 8 ½" mill assy. Polished window and drilled formation to 4115 m.
- Tested 13 $^{3}/_{8}$" BOP.
- RIH with 8 ½" x 9 $^{7}/_{8}$" drilling assy to 4115 m.

4.2 8 ½" x 9 $^{7}/_{8}$" section

4.2.1 34/10-B-42 E

Section overview

Interval:	4105 m MD (1854,8 m TVD) to 7928 m MD (2206,3 m TVD)
Section length:	3823 m
Inclination:	Hold between 84 - 89°, drop to 71,5°, build to 90,5°
Azimuth:	Turn from 262,6° to 199,2° and back to 211,9° Hold between 208° - 213°. Turn to 248° and back to 236,7°
Mud:	1.60 OBM (Parahterm)

- Drilled with quite high ROP
- Attempted to take pressure points with Pathfinder tool, but it failed
- Was not able to recover from down hole problems
- Experienced losses and problems while plugging back the section – left fish in hole
- Plugged back the section

4.2.2 34/10-B-42 F

Section overview

Interval:	4125 m (1856,2 m TVD) to 7180 m (2043,5 m TVD)
Section length:	3055 m from start B-42 F – 15,8 m from window
Inclination:	Build from 84,7° to 89,5° Drop to 79,7° and build to 90,5° Hold between 86,1° and 90,9°
Azimuth:	Turning from 260,6° to 206,8° Hold between 205,4° and 207,1° Turn to 212,9° and back to 195,2°
Mud:	1.60 Sg OBM (Parahterm)

- Drilled with quite high ROP
- Was not able to continue drilling when down hole problems occurred
- Made a successful attempt to go to bottom with "low energy" (Low RPM, LPM and speed)

4.3 Completion

4.3.1 Running (floating) 7" liner

During the planning phase of the well, torque & drag simulations conducted by K&M indicated that it would be almost impossible to run the 7" liner conventional. With rollers made up to the running string, the liner could be landed with friction factor up to 0,22. (Rollers were only available for 5" DP). The simulations also indicated that a floated liner could be landed with a 0,35 friction factor (5 ½" DP running string). Based on this information a floated liner operation was planned and performed.

Liner and running string were purged with nitrogen, in order to avoid auto ignition (diesel effect) in a worst-case scenario. (Damage in 7" liner – allowing HC to evacuate up to surface – causing a severe u-tube effect in the well.) The likelihood of this worst-case scenario to occur was very low. However, the result could be fatal, if not identified and precautions set in action. As for the actual situation, the formation was due to break down before reaching the collapse pressure of the 7" liner – Statoil minimum safety margin included. Only a damaged joint could lead to a worst-case scenario. As for this situation the following precautions were conducted:

- Each liner joint inspected prior to being picked up, and made up in the string
- 3 float valves included in the shoe track. (6000 psi rated aluminium valves)
- Liner and running string were purged with N_2
- Kelly cock and inside BOP easily available on drillfloor (Attached to winch)
- DDM was made up to the running string prior to RIH on every stand
- Continual X-head circulating during the whole running operation
- Established special procedures for how to react on different well control scenarios

Operation progress:

- RIH with 3126 m 7" liner (included PBR)
- RIH with 7" liner on 5 ½" running string to 5908 m. Unable to slide further down
- Rotated the liner down to 5929 m. Unable to get further down.
- Closed BOP and stripped out to 5906 m. Opened BOP.
- Rotated the liner down to TD @ 7179 m.
- Filled 7" liner and running string with mud – allowing N_2 to evacuate up string and through poor boy degasser.
- Established circulation – experienced some losses

4.3.2 Setting of hanger and cementing the liner

No problem was encountered regarding setting of hanger.

Fluid pumped during cement operation:

	Volume [m^3]	**Pump rate [LPM]**	**Weight [Sg]**	**Remarks**
Spacer with soap	12	600	1,64	
Spacer without soap	4	600	1,64	
Foam cement	16,5	600	1,98	Equivalent to 20 m^3 1,65 Sg at btm. hole conditions
Displacement fluid Paratherm OBM	106	600	1,62	

Suffered “Loss” during pumping.

Plug ‘bumped’ at 95,6% efficiency on mud pumps.
Pressure tested liner to 140 bar for 10 minutes after plug had ‘bumped’.

No problem was encountered during setting of Top Set Packer.
Tested annulus to 170 bar for 10 minutes after setting of TSP.

4.3.3 Set plug and niple up TSR

- RIH and set a HE-3 plug at 2300 m. Had problems to release from plug.
- Nipled down 13 $^{5}/_{8}$" BOP
- Installed 10 ¾" dummy hanger
- Nipled up TSR and TSR Extension
- Nipled up 13 $^{5}/_{8}$" BOP and tested same
- RIH and retrieved HE-3 plug. (No problems retrieving the plug)

4.3.4 Clean out & displace well

- RIH with clean out assy to 7114 m
- Scraped production packer area from 4012 m to 4039 m
- Tagged top of PBR @ 4053 m. Polished PBR.
- Circulated and conditioned mud
- Pumped wash pills and displaced well to SW with constant BHP
- Closed in well with 127 bar.
- Inflow tested well in steps, by bleed off pressure in 30 bar/10 min.
- Pressure tested well to 270 bar/10 minutes
- Cleaned well until NTU reading of 107
- Displaced 7" liner to SW with friction reducer, and remaining wellbore to packer fluid.

4.3.5 Run tubing

- RIH with upper completion
- Landed hanger in WH. (Seal stem mule shoe at 4058,5 m tubing tally depth)
- Tested hanger seals
- Tested 7" tubing in steps to 310 bar/10 minutes
- Set Production packer
- Bled off pressure to 205 bar and closed DHSV
- Inflow tested DHSV for 30 minutes
- Pressure tested production annulus and production packer with 280 bar/10 minutes
- Rigged up false rotary. RIH and set a shallow plug at 57,3 m
- Disconnected tubing running string
- Closed DHSV
- Nipled down BOP and riser

5 Formation evaluation

5.1 Shallow gas

Not relevant for this well.

5.2 Results from 34/10-B-42 E/F

Background

The primary objective for 34/10-B-42 E was to prove the presence of hydrocarbons in the Tarbert Formation in fault segment D2. The target was a prospect, where the probability of making a discovery was estimated to be 80 %. If commercial volumes of hydrocarbons were found, the plan was to produce these.

In case no hydrocarbons (or hydrocarbons of non-economic interest) were encountered in the well, the fall-back plan was to continue drilling to a more westerly location in the D2 segment and use it as a Tarbert water injector. It was anticipated that this area is less faulted, hence a water injector may yield pressure support to a significant part of the Tampen Area (e.g. Tordis, Gulltopp).

The target was picked based on a strong seismic amplitude which indicated hydro-carbons. This was interpreted to represent the Tarbert/base Cretaceous interface, but in the minimum case a gas-filled Krans sandstone was predicted instead of Brent. In that case the signal would be derived from the top of the reservoir with the base Cretaceous unconformity well below this. The uncertainty in the base Cretaceous pick was therefore higher than normal: +/-25 m TVD.

Results

Drilling commenced in October 2004 and went smoothly all the way toward T#1 (Figure 1). Top of the reservoir was encountered at 1960 m TVD MSL some 120 north-east of T#1, and 32 m shallower than predicted (Table 1). It then drilled through a fairly homogenous, gas-filled Krans sandstone of 25 m bed thickness before it encountered the Heather Formation below. Because of the restricted volumes proven (Table 2), it was decided to drill westward to T#3 (Figure 1) to facilitate water injection either prior to, or after producing the Krans sandstone. After drilling some 450 m (MD) of Heather, the well encountered water-filled Ness Formation through a fault (Figure 1). On entering the Tarbert-1B, heavy losses occurred. It turned out that these could not be healed. It was consequently decided to set a plug in the Heather Fm, run a liner through the Krans sandstone and put it on production. This failed, however, and the well had to be plugged and abandoned, and a new sidetrack drilled (B-42 F).

Again drilling toward the reservoir went smoothly, but some 180 m MD into the reservoir, steering problems made it necessary to pull out of the hole. Due to downhole instability, it was

decided to to run liner to TD. B-42 F has been completed as a Krans producer, with 1 interval (7114.4 - 7127.06 m MD BD), and put on production 07.02.04. No aquifer was proven under drilling.
The strategy is to produce until the reservoir pressure is too low to permit it. Due to limited gas capacity, the gas production is around 300000 Sm3/d.
The condensate rate and the GOR were around 250 Sm3/d and 1230 Sm3/Sm3 at production start, and are respectively around 200 Sm3/d and 1300 in april 2004. No water production.

Table 1: Prognosticated and proven stratigraphic picks – well B-42 E

STRATIGRA-PHIC PICKS	**Prognosticated m TVD MSL**	**Proven m TVD MSL**	**Prognosticated isopach m**	**Proven isopach m**
Top Shetland	1777,5	1777,5		
Top Krans	1992*	1960	Not prognosticated	25
Base Cretaceous	1992	1991,5	-	-
Top Tarbert-3	1992	Not present	22	Not present
Top "Silkesand"	2014	Not present	15	Not present
Top Tarbert-2B2	2029	Not present	40	Not present
Top Tarbert-1	2070	Not present	-	Not present
Top Heather	Not prognosticated	1991,5	Not prognosticated	57*
Fault	Not prognosticated	2091	-	-
Top Ness	Not prognosticated	2095	Not prognosticated	40**

* base not penetrated in the well
** base not encountered in the well

Table 2: Expected and proven volumes – B-42 E

	Exp. vol min. case	Exp. vol base case	Exp. vol max case	Risked volumes	Proven volumes
Reservoir	Krans	Tarbert	Tarbert	None/ Krans/ Tarbert	Krans
HCPV	2	4	6	-	2.8
STOIIP oil	0	1.33	4.72	-	0
STOIIP condens	0.09	0.07	0	-	
STOIIP gas	500	400	0	-	
Reserves oil	0	0.533	2.360	0.692	0
Reserves cond	0.02	0.006	0		awaiting
Reserves gas	200	200	0		prod. data

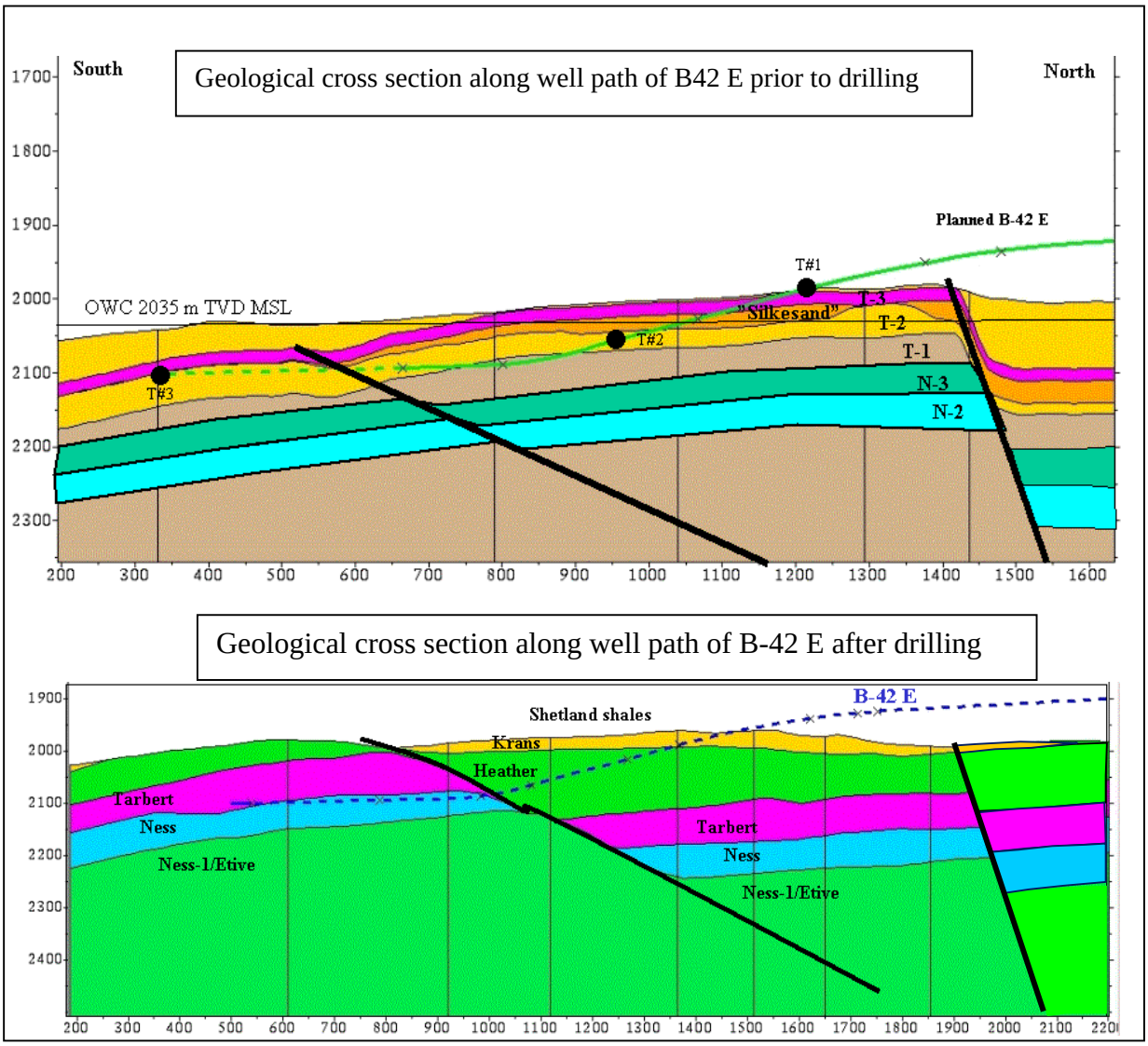


Figure 1: Geological cross section along well path of B-42 E before (prognosticated, upper) and after drilling (lower). Observe that the reservoir turned out to be a Krans sandstone and that the fault between T#2 and T#3 had a greater throw than predicted.

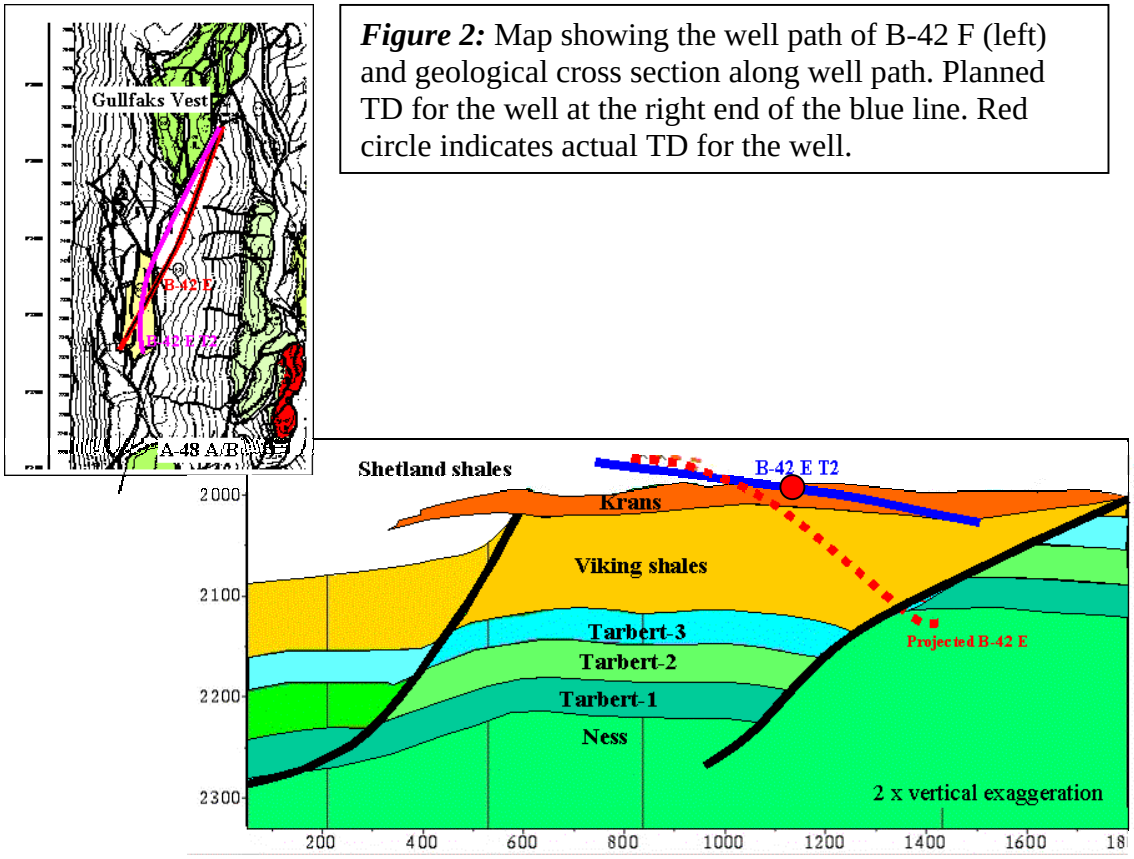


Figure 2: Map showing the well path of B-42 F (left) and geological cross section along well path. Planned TD for the well at the right end of the blue line. Red circle indicates actual TD for the well.

Table 1: Prognosticated and proven stratigraphic picks – well B-42 F

STRATIGRA-PHIC PICKS	Prognosticated m TVD MSL	Proven m TVD MSL	Prognosticated isopach m	Proven isopach m
Top Shetland	1777,5	1777,5		
Top Krans, cemented	Not prognosticated	1957,2*	Not prognosticated	
Top Krans, productive reservoir	Not prognosticated	1959,8*	Not prognosticated	
TD in Krans	1963,3	1965,6	Not prognosticated	

* base not penetrated in the well
** base not encountered in the well

5.3 Pore Pressure

Pore pressure measurements are not taken. In the Shetland Group, the pore pressures are reported according to prognosis during the hole drilling operation. In the top of the Krans Member, the upside pressure in the prognosis was 1.61 sg, giving only one point in over balance. If this was the case, connection- and pump off gas should be expected. This was, however, not the case, indicating a pore pressure lower than 1.61 sg in the top of the reservoir.

5.4 Formation Strength

A good FIT = 1.80 sg was taken after drilling out of the window at 4105.6 m MD/1855 m TVD RKB.

5.4.1 Loss zones

B-42E: 6 m3 observed at 7644 m MD at startup of full circulation (1900 lpm) after having changed topdrive motor. Mudweight out up to 1.74 sg while mudweight in 1.60 sg. Later gained 6 m3 when mudweight out and circulation rate (1470 lpm) was reduced.
Lost 10 m3 while drilling at 7751 m MD, later gained 4 m3.
Lost 30 m3 while drilling at 7928 m MD.
B-42F: Lost 0,5 m3 after having drilled to 7070 m MD.
Lost 7 m3 in interval 6909-6882 when POOH from 7180 m MD to change Powerdrive.
Lost 1,5 m3 when backreaming from 6291-6273 m MD.

5.4.2 Hole stability

No signs of hole collapse. Indications of overgauge hole in some claystone sections. Packing off tendencies most likely due to high amounts of cuttings in the hole (not good enough hole cleaning).

5.5 Logging (formation evaluation purposes)

LWD Run Summary, B-42E						
Section: 8 1/2"x 9 7/8" **Contractor: Schlumberger D&M**						
Run	**Logging Service** (Tool combination)	**Pass**	**Pass direct.**	**Log speed**	**Interval [m MD]**	**Pass remark**
1	V675	Drilling	Down	ROP	4051-7133	
2	V675/ADN/ISONIC/Pathfinder	Drilling	Down	ROP	6750 -7928	
Run remark: Run#1: The MWD tool failed when working trough the milled window.						

LWD Run Summary, B-42F
Section: 8 1/2"x 9 7/8" **Contractor: Schlumberger D&M**

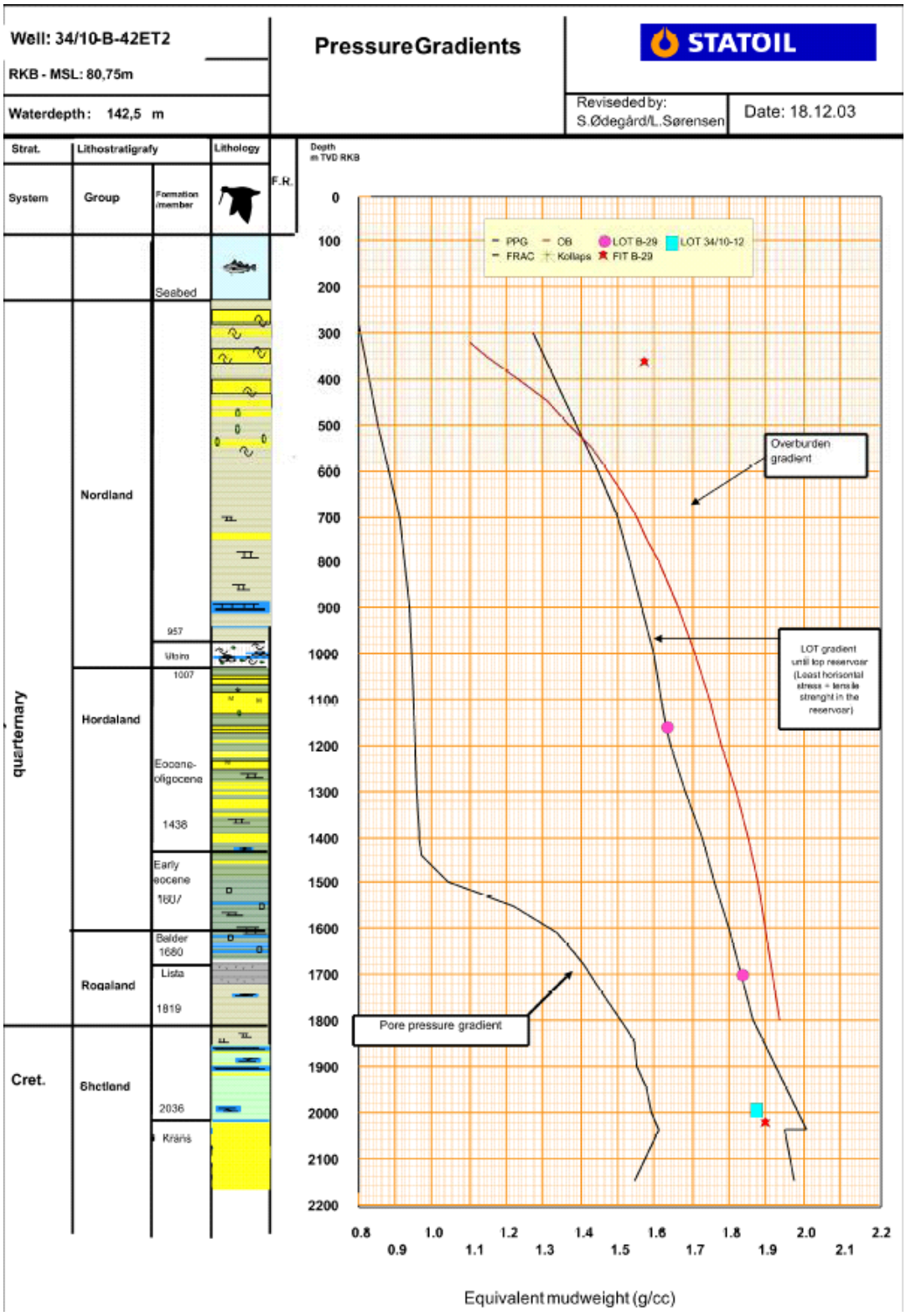
Run #	Vendor	Equipment	Failure & problems	Intervall mMD	Date in/out	Lost time
1	Schlumberger D&M	Vision675 RES/APWD	Yes	4125-5411	06/12	Yes
2	Schlumberger D&M	Vision675 RES/APWD	Yes	5411-7180	12/12	Yes
3	Schlumberger D&M	Vision675 RES/ VDN-6/APWD		7180-7180	15/12 22/12	
4						
5	Schlumberger D&M	Vision675 RES/ VDN-6/APWD		7180 -	24/12 27/12	
6	Schlumberger D&M	Vision675 RES/ VDN-6/APWD	Yes	7180-	28/12	

Run #	Remarks
1	Did not receive GR, RES and ECD signals. Neither Near Bit inclination nor Power Drive settings was received. Had to POOH. Downtime: 41,5 hrs. No memory data
2	Not able to hold or build inclination, due to Power Drive failure. Downtime : 99,0 hrs.
3	RIH. POOH at 6315 m due to Pack off. Had ultra sonic calliper included in the VDN-6, but it is not common to make use/pay for this log/service.
4	12 ½" cleanup BHA. Vent down to top of 9 5/8" liner at 2257,7 m.
5	RIH to 3846 m. POOH due to cement in drillstring.
6	ADN operated only in memory mode, due to lack of connector between AND and MWD.

5.6 Wire line logging

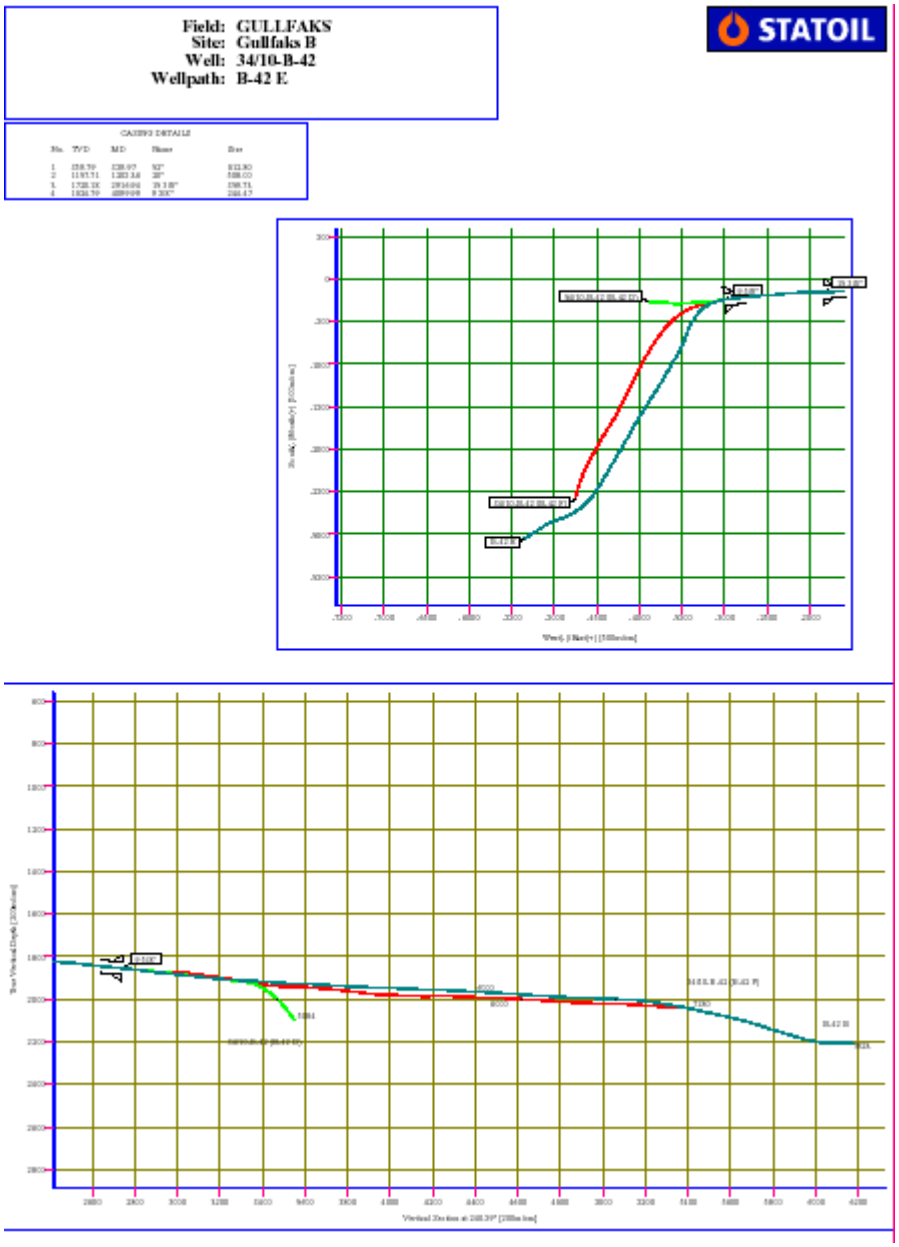
No implementation of wire line logging.

5.7 Pore Pressure



6 Appendix 1 : Directional data

6.1 Plot



6.2 Survey listing well 34/10-B-42 E

STATOIL

Statoil
Survey Report

STATOIL

Company:	STATOIL - Norway			**Date:**	21.06.2004	**Time:**	08:56:32 **Page:** 1
Field:	GULLFAKS			**Co-ordinate(NE) Reference:**	Site: Gullfaks B, Grid North		
Site:	Gullfaks B			**Vertical (TVD) Reference:**	RT #1 80.7		
Well:	34/10-B-42			**Section (VS) Reference:**	Well (-14.07N,15.53E,240.59Azi)		
Wellpath:	B-42 E			**Survey Calculation Method:**	Minimum Curvature	**Db:**	Oracle

Field:	GULLFAKS STATOIL-Norway Norway		
Map System:	Universal Transverse Mercator	**Map Zone:**	UTM Zone 31, North 0 to 6E
Geo Datum:	ED50 (International 1924)	**Coordinate System:**	Site Centre
Sys Datum:	Mean Sea Level	**Geomagnetic Model:**	BGGM2002

Site:	Gullfaks B 34/10						
Site Position:		**Northing:**	6785809.00 m	**Latitude:**	61 12 10.373	N	
From:	Map	**Easting:**	457079.00 m	**Longitude:**	2 12 4.880	E	
Position Uncertainty:	0.00 m			**North Reference:**		Grid	
Water Depth:	142.55 m			**Grid Convergence:**		-0.70	deg

Well:	34/10-B-42				**Slot Name:**	#30	
Surface Position:	**+N/-S** -14.07 m	**Northing:**	6785794.94 m	**Latitude:**	61 12 9.925	N	
	+E/-W 15.53 m	**Easting:**	457094.52 m	**Longitude:**	2 12 5.931	E	
Position Uncertainty:	0.00 m						
Reference Point:	**+N/-S** -14.07 m	**Northing:**	6785794.94 m	**Latitude:**	61 12 9.925	N	
	+E/-W 15.53 m	**Easting:**	457094.52 m	**Longitude:**	2 12 5.931	E	
		Measured Depth:	39.10 m	**Inclination:**	0.00	deg	
		Vertical Depth:	39.10 m	**Azimuth:**	0.00	deg	

Wellpath:	B-42 E			**Drilled From:**	B-42 A		
				Tie-on Depth:	4100.00 m		
Current Datum:	RT #1	**Height**	80.70 m	**Above System Datum:**	Mean Sea Level		
Magnetic Data:	13.06.2003			**Declination:**	-3.35	deg	
Field Strength:	50814 nT			**Mag Dip Angle:**	73.30	deg	

Vertical Section:	**Depth From (TVD)** m	**+N/-S** m	**+E/-W** m	**Direction** deg
	39.10	-14.07	15.53	240.59

Survey Program for Definitive Wellpath
Date: 10.05.2004 **Validated:** Yes **Version:** 27

Actual From m	**To** m	**Survey**	**Toolcode**	**Tool Name**
39.10	2879.99	B-42 RIGS 13 3/8" (39.10-2879.99) (0)	RIGS	cont,Inertial Tool from BHI
2880.00	4100.00	B-42 A KEP 12 1/4" (2879.99-5391.40) (1)	Keeper	cont,Gyro Tool from SDC
4100.00	7903.70	B-42 E MWD 8 1/2" x 9 5/8" (4198.43-7903.70)	Magnetic	IFR, non-mag,Magnetic Tools (MWD, EMS)

Survey

MD m	**Incl** deg	**Azim** deg	**TVD** m	**+N/-S** m	**+E/-W** m	**VS** m	**DLS** deg/30m	**Build** deg/30m	**Turn** deg/30m	**Tool/Comment**
39.10	0.00	0.00	39.10	-14.07	15.53	0.00	0.000	0.000	0.000	TIE LINE
39.98	0.20	250.16	39.97	-14.09	15.51	0.03	6.668	6.668	0.000	RIGS, cont
49.98	0.15	247.89	49.97	-14.11	15.47	0.07	0.155	-0.153	-6.787	RIGS, cont
59.98	0.15	227.58	59.97	-14.12	15.45	0.09	0.155	0.005	-60.944	RIGS, cont
69.98	0.11	264.12	69.97	-14.13	15.43	0.12	0.264	-0.105	109.642	RIGS, cont
79.98	0.10	275.33	79.97	-14.14	15.41	0.14	0.070	-0.031	33.611	RIGS, cont
89.98	0.13	244.01	89.97	-14.15	15.39	0.16	0.211	0.093	-93.960	RIGS, cont
99.98	0.23	240.61	99.97	-14.17	15.36	0.20	0.280	0.278	-10.206	RIGS, cont
109.98	0.41	238.65	109.97	-14.19	15.32	0.25	0.548	0.547	-5.893	RIGS, cont
119.98	0.73	236.43	119.97	-14.25	15.23	0.35	0.955	0.953	-6.644	RIGS, cont
129.99	1.07	231.80	129.98	-14.35	15.10	0.51	1.043	1.021	-13.890	RIGS, cont
139.98	1.42	229.61	139.96	-14.49	14.94	0.72	1.075	1.066	-6.564	RIGS, cont
149.98	1.71	231.58	149.96	-14.67	14.73	0.99	0.868	0.873	5.913	RIGS, cont
159.99	2.02	232.72	159.97	-14.86	14.48	1.31	0.923	0.916	3.400	RIGS, cont
169.98	2.27	231.63	169.95	-15.09	14.18	1.67	0.759	0.749	-3.277	RIGS, cont
179.99	2.55	232.33	179.95	-15.35	13.85	2.09	0.843	0.838	2.117	RIGS, cont
189.99	2.81	232.17	189.93	-15.64	13.50	2.54	0.797	0.797	-0.483	RIGS, cont
199.98	2.89	232.72	199.92	-15.95	13.10	3.04	0.249	0.235	1.653	RIGS, cont
209.99	3.02	232.17	209.91	-16.27	12.69	3.55	0.402	0.393	-1.660	RIGS, cont
219.98	3.03	232.95	219.89	-16.58	12.26	4.08	0.125	0.022	2.340	RIGS, cont
229.98	3.07	233.72	229.88	-16.90	11.84	4.61	0.170	0.117	2.315	RIGS, cont
239.98	3.10	233.57	239.87	-17.22	11.41	5.14	0.107	0.105	-0.435	RIGS, cont
249.99	3.02	234.17	249.85	-17.54	10.99	5.66	0.253	-0.235	1.788	RIGS, cont

STATOIL

Statoil
Survey Report

STATOIL

Company:	STATOIL - Norway	**Date:**	21.06.2004	**Time:** 08:56:32	**Page:** 2
Field:	GULLFAKS	**Co-ordinate(NE) Reference:**	Site: Gullfaks B, Grid North		
Site:	Gullfaks B	**Vertical (TVD) Reference:**	RT #1 80.7		
Well:	34/10-B-42	**Section (VS) Reference:**	Well (-14.07N,15.53E,240.59Azl)		
Wellpath:	B-42 E	**Survey Calculation Method:**	Minimum Curvature	**Db:**	Oracle

Survey

MD m	Incl deg	Azim deg	TVD m	+N/-S m	+E/-W m	VS m	DLS deg/30m	Build deg/30m	Turn deg/30m	Tool/Comment
259.98	2.87	234.53	259.84	-17.83	10.58	6.16	0.454	-0.451	1.093	RIGS, cont
269.98	2.59	233.11	269.83	-18.11	10.20	6.63	0.869	-0.844	-4.282	RIGS, cont
280.00	2.07	232.17	279.83	-18.35	9.88	7.02	1.579	-1.575	-2.816	RIGS, cont
289.99	1.13	219.35	289.82	-18.53	9.68	7.29	2.990	-2.809	-38.484	RIGS, cont
299.99	0.65	143.59	299.81	-18.64	9.66	7.36	3.474	-1.450	-227.394	RIGS, cont
309.98	0.96	113.76	309.81	-18.72	9.79	7.28	1.538	0.937	-89.537	RIGS, cont
319.99	1.20	107.42	319.81	-18.77	9.97	7.15	0.797	0.713	-19.003	RIGS, cont
329.99	1.29	107.97	329.81	-18.83	10.18	7.00	0.278	0.276	1.633	RIGS, cont
340.00	1.24	104.86	339.82	-18.89	10.38	6.85	0.250	-0.143	-9.310	RIGS, cont
349.99	1.10	112.08	349.80	-18.95	10.58	6.71	0.608	-0.416	21.688	RIGS, cont
359.99	0.77	133.25	359.81	-19.03	10.71	6.64	1.426	-1.000	63.475	32"
369.99	0.55	188.34	369.81	-19.12	10.76	6.64	1.927	-0.648	165.276	RIGS, cont
379.99	0.84	219.83	379.80	-19.22	10.70	6.73	1.403	0.856	94.490	RIGS, cont
390.00	1.10	241.25	389.81	-19.32	10.57	6.90	1.321	0.774	64.209	RIGS, cont
400.00	1.59	252.54	399.81	-19.39	10.36	7.12	1.662	1.489	33.894	RIGS, cont
410.00	2.09	257.17	409.80	-19.46	10.03	7.44	1.550	1.485	13.884	RIGS, cont
420.00	2.76	263.34	419.79	-19.51	9.62	7.82	2.166	2.022	18.519	RIGS, cont
429.98	3.43	267.35	429.77	-19.54	9.09	8.29	2.116	2.015	12.036	RIGS, cont
439.98	3.91	272.48	439.75	-19.51	8.45	8.84	1.740	1.436	15.374	RIGS, cont
449.99	4.30	276.05	449.72	-19.47	7.72	9.45	1.397	1.168	10.713	RIGS, cont
459.99	4.60	277.84	459.70	-19.39	6.95	10.08	0.992	0.900	5.378	RIGS, cont
469.99	4.87	279.37	469.66	-19.25	6.12	10.74	0.896	0.812	4.590	RIGS, cont
480.00	5.27	280.27	479.63	-19.09	5.25	11.42	1.199	1.175	2.692	RIGS, cont
490.00	5.73	280.93	489.58	-18.91	4.31	12.15	1.422	1.409	1.988	RIGS, cont
500.01	6.27	282.11	499.53	-18.71	3.27	12.96	1.658	1.616	3.522	RIGS, cont
510.00	6.83	281.20	509.47	-18.50	2.14	13.84	1.669	1.660	-2.736	RIGS, cont
520.00	7.55	280.37	519.39	-18.27	0.90	14.81	2.188	2.166	-2.492	RIGS, cont
530.00	8.04	279.86	529.30	-18.03	-0.44	15.85	1.499	1.485	-1.525	RIGS, cont
539.99	8.47	280.00	539.19	-17.78	-1.86	16.97	1.286	1.285	0.435	RIGS, cont
550.01	8.94	280.19	549.09	-17.54	-3.35	18.15	1.414	1.412	0.548	RIGS, cont
560.01	9.37	279.79	558.96	-17.27	-4.92	19.38	1.292	1.278	-1.191	RIGS, cont
569.99	10.00	280.01	568.80	-16.99	-6.56	20.68	1.890	1.886	0.674	RIGS, cont
580.00	10.65	279.79	578.66	-16.69	-8.32	22.07	1.950	1.947	-0.674	RIGS, cont
590.01	11.23	280.07	588.47	-16.37	-10.20	23.55	1.743	1.736	0.836	RIGS, cont
600.00	11.82	279.65	598.27	-16.04	-12.17	25.09	1.810	1.793	-1.254	RIGS, cont
609.99	12.36	279.82	608.03	-15.69	-14.22	26.71	1.616	1.612	0.517	RIGS, cont
620.01	12.76	279.67	617.82	-15.32	-16.35	28.38	1.214	1.210	-0.453	RIGS, cont
629.99	13.16	279.60	627.54	-14.94	-18.54	30.11	1.193	1.192	-0.224	RIGS, cont
640.01	13.55	279.61	637.29	-14.57	-20.82	31.91	1.163	1.163	0.040	RIGS, cont
650.00	13.92	279.55	647.00	-14.18	-23.16	33.76	1.119	1.118	-0.190	RIGS, cont
659.99	14.29	279.41	656.68	-13.78	-25.57	35.66	1.120	1.116	-0.416	RIGS, cont
670.00	14.71	279.28	666.38	-13.37	-28.03	37.60	1.258	1.255	-0.378	RIGS, cont
679.98	15.04	278.62	676.03	-12.98	-30.57	39.63	1.122	0.998	-1.997	RIGS, cont
690.02	15.44	277.98	685.71	-12.60	-33.17	41.70	1.265	1.185	-1.887	RIGS, cont
700.01	15.81	276.84	695.33	-12.26	-35.82	43.84	1.456	1.124	-3.437	RIGS, cont
709.99	16.20	276.01	704.92	-11.96	-38.54	46.07	1.360	1.171	-2.509	RIGS, cont
719.99	16.63	275.56	714.51	-11.67	-41.32	48.35	1.329	1.275	-1.337	RIGS, cont
729.99	16.95	274.96	724.09	-11.41	-44.19	50.72	1.098	0.968	-1.798	RIGS, cont
740.00	17.35	274.36	733.65	-11.19	-47.11	53.15	1.318	1.206	-1.803	RIGS, cont
750.01	17.70	273.89	743.20	-10.96	-50.10	55.65	1.118	1.036	-1.392	RIGS, cont
759.99	18.06	273.25	752.68	-10.76	-53.16	58.22	1.247	1.095	-1.943	RIGS, cont
770.01	18.44	272.86	762.21	-10.60	-56.29	60.87	1.188	1.133	-1.146	RIGS, cont
779.99	18.84	272.13	771.67	-10.47	-59.48	63.57	1.400	1.211	-2.199	RIGS, cont
790.00	19.10	271.40	781.13	-10.36	-62.71	66.33	1.038	0.755	-2.192	RIGS, cont
799.99	19.50	270.75	790.56	-10.29	-66.00	69.17	1.376	1.212	-1.968	RIGS, cont
810.00	19.93	270.12	799.99	-10.24	-69.38	72.09	1.420	1.273	-1.868	RIGS, cont
820.01	20.36	269.48	809.38	-10.26	-72.83	75.10	1.461	1.302	-1.922	RIGS, cont
830.02	20.73	268.90	818.75	-10.31	-76.34	78.18	1.260	1.124	-1.744	RIGS, cont

STATOIL

Statoil
Survey Report

STATOIL

Company:	STATOIL - Norway	**Date:**	21.06.2004	**Time:**	08:56:32	**Page:**	3
Field:	GULLFAKS	**Co-ordinate(NE) Reference:**	Site: Gullfaks B, Grid North				
Site:	Gullfaks B	**Vertical (TVD) Reference:**	RT #1 80.7				
Well:	34/10-B-42	**Section (VS) Reference:**	Well (-14.07N,15.53E,240.59Azi)				
Wellpath:	B-42 E	**Survey Calculation Method:**	Minimum Curvature	**Db:**	Oracle		

Survey

MD m	Incl deg	Azim deg	TVD m	+N/-S m	+E/-W m	VS m	DLS deg/30m	Build deg/30m	Turn deg/30m	Tool/Comment
840.02	21.14	268.11	828.09	-10.38	-79.92	81.33	1.475	1.205	-2.382	RIGS, cont
850.01	21.58	267.45	837.39	-10.53	-83.54	84.56	1.502	1.318	-1.978	RIGS, cont
860.01	22.06	266.76	846.67	-10.70	-87.26	87.89	1.638	1.449	-2.057	RIGS, cont
870.00	22.61	266.32	855.92	-10.92	-91.07	91.31	1.723	1.646	-1.341	RIGS, cont
880.02	23.06	265.64	865.14	-11.19	-94.95	94.83	1.562	1.374	-2.023	RIGS, cont
890.01	23.58	265.13	874.32	-11.51	-98.90	98.42	1.654	1.537	-1.547	RIGS, cont
899.99	24.23	264.59	883.45	-11.88	-102.93	102.12	2.062	1.958	-1.597	RIGS, cont
910.02	24.92	264.22	892.58	-12.27	-107.07	105.92	2.130	2.077	-1.129	RIGS, cont
920.01	25.51	264.01	901.61	-12.72	-111.30	109.82	1.785	1.766	-0.615	RIGS, cont
930.00	26.06	263.87	910.61	-13.19	-115.63	113.82	1.662	1.651	-0.437	RIGS, cont
939.99	26.67	263.85	919.55	-13.66	-120.04	117.90	1.826	1.826	-0.051	RIGS, cont
950.00	27.36	263.92	928.47	-14.14	-124.57	122.08	2.063	2.060	0.227	RIGS, cont
960.02	27.90	263.95	937.35	-14.65	-129.19	126.35	1.617	1.616	0.067	RIGS, cont
969.99	28.45	263.78	946.14	-15.15	-133.87	130.67	1.676	1.660	-0.491	RIGS, cont
980.02	29.23	263.95	954.93	-15.66	-138.68	135.12	2.339	2.327	0.494	RIGS, cont
990.01	29.88	263.83	963.63	-16.19	-143.58	139.65	1.947	1.939	-0.345	RIGS, cont
999.99	30.62	263.75	972.25	-16.74	-148.58	144.27	2.238	2.235	-0.255	RIGS, cont
1010.01	31.56	263.68	980.83	-17.31	-153.72	149.03	2.819	2.817	-0.197	RIGS, cont
1020.02	32.41	263.58	989.32	-17.90	-159.00	153.92	2.540	2.534	-0.324	RIGS, cont
1030.00	33.06	263.48	997.72	-18.50	-164.36	158.88	1.968	1.962	-0.280	RIGS, cont
1039.98	33.73	263.40	1006.05	-19.13	-169.81	163.94	2.029	2.025	-0.243	RIGS, cont
1050.02	33.97	263.39	1014.39	-19.79	-175.36	169.10	0.702	0.702	-0.048	RIGS, cont
1059.98	34.19	263.28	1022.64	-20.43	-180.91	174.25	0.698	0.676	-0.314	RIGS, cont
1070.01	34.54	263.41	1030.92	-21.08	-186.53	179.46	1.055	1.031	0.398	RIGS, cont
1080.02	34.87	263.64	1039.15	-21.72	-192.19	184.71	1.058	0.982	0.691	RIGS, cont
1090.01	35.34	264.04	1047.33	-22.35	-197.90	189.99	1.586	1.435	1.175	RIGS, cont
1099.99	35.83	264.40	1055.44	-22.91	-203.68	195.30	1.604	1.475	1.062	RIGS, cont
1110.01	36.21	264.38	1063.54	-23.49	-209.56	200.70	1.121	1.121	-0.040	RIGS, cont
1120.02	36.82	264.30	1071.59	-24.08	-215.50	206.17	1.848	1.842	-0.252	RIGS, cont
1129.99	37.35	264.12	1079.55	-24.69	-221.45	211.66	1.610	1.579	-0.524	RIGS, cont
1139.99	37.86	263.83	1087.47	-25.35	-227.54	217.28	1.636	1.548	-0.868	RIGS, cont
1149.98	38.49	263.66	1095.33	-25.99	-233.67	222.94	1.897	1.868	-0.533	RIGS, cont
1160.02	39.25	263.67	1103.15	-26.70	-239.92	228.73	2.292	2.292	0.026	RIGS, cont
1170.01	39.71	264.02	1110.85	-27.40	-246.25	234.59	1.534	1.379	1.057	RIGS, cont
1180.02	40.37	264.23	1118.51	-28.05	-252.66	240.49	2.019	1.978	0.631	RIGS, cont
1190.03	40.70	264.45	1126.11	-28.67	-259.13	246.43	1.062	0.969	0.669	RIGS, cont
1200.02	40.95	264.55	1133.68	-29.30	-265.63	252.41	0.792	0.767	0.302	RIGS, cont
1205.36	41.07	264.52	1137.71	-29.64	-269.12	255.61	0.690	0.681	-0.168	20"
1210.02	41.18	264.50	1141.22	-29.92	-272.15	258.39	0.690	0.681	-0.167	RIGS, cont
1220.00	41.50	264.45	1148.71	-30.55	-278.73	264.43	0.965	0.961	-0.139	RIGS, cont
1230.01	41.95	264.20	1156.18	-31.20	-285.34	270.51	1.447	1.358	-0.748	RIGS, cont
1240.01	42.55	264.03	1163.58	-31.91	-292.03	276.68	1.826	1.793	-0.513	RIGS, cont
1250.00	42.97	263.88	1170.91	-32.62	-298.75	282.89	1.267	1.252	-0.444	RIGS, cont
1260.00	43.43	263.60	1178.22	-33.39	-305.55	289.19	1.511	1.395	-0.848	RIGS, cont
1269.99	43.88	263.38	1185.44	-34.18	-312.40	295.54	1.425	1.350	-0.659	RIGS, cont
1279.99	44.29	263.27	1192.62	-34.99	-319.31	301.96	1.242	1.220	-0.340	RIGS, cont
1289.98	44.46	263.19	1199.76	-35.81	-326.25	308.41	0.544	0.523	-0.212	RIGS, cont
1300.02	44.12	263.21	1206.94	-36.61	-333.20	314.85	1.020	-1.019	0.059	RIGS, cont
1310.02	44.58	263.38	1214.10	-37.43	-340.12	321.29	1.416	1.373	0.497	RIGS, cont
1320.01	45.37	263.54	1221.15	-38.24	-347.13	327.80	2.415	2.391	0.479	RIGS, cont
1330.01	45.62	263.67	1228.16	-39.03	-354.23	334.37	0.761	0.727	0.399	RIGS, cont
1340.02	46.32	264.02	1235.12	-39.79	-361.38	340.97	2.226	2.098	1.035	RIGS, cont
1350.00	47.21	264.25	1241.95	-40.53	-368.62	347.63	2.741	2.692	0.708	RIGS, cont
1360.02	47.58	264.58	1248.73	-41.22	-375.95	354.36	1.312	1.096	0.979	RIGS, cont
1369.98	48.16	264.77	1255.41	-41.90	-383.33	361.13	1.807	1.759	0.556	RIGS, cont
1380.00	48.28	265.08	1262.08	-42.53	-390.75	367.90	0.791	0.354	0.948	RIGS, cont
1390.00	48.55	265.23	1268.72	-43.16	-398.20	374.70	0.876	0.806	0.459	RIGS, cont
1400.00	48.74	265.33	1275.33	-43.74	-405.70	381.51	0.621	0.585	0.275	RIGS, cont
1410.00	49.06	265.41	1281.89	-44.37	-413.19	388.35	0.961	0.941	0.258	RIGS, cont

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Survey Report

STATOIL

Company:	STATOIL - Norway	**Date:**	21.06.2004	**Time:** 08:56:32	**Page:** 4
Field:	GULLFAKS	**Co-ordinate(NE) Reference:**	Site: Gullfaks B, Grid North		
Site:	Gullfaks B	**Vertical (TVD) Reference:**	RT #1 80.7		
Well:	34/10-B-42	**Section (VS) Reference:**	Well (-14.07N,15.53E,240.59Azi)		
Wellpath:	B-42 E	**Survey Calculation Method:**	Minimum Curvature	**Db:**	Oracle

Survey

MD m	Incl deg	Azim deg	TVD m	+N/-S m	+E/-W m	VS m	DLS deg/30m	Build deg/30m	Turn deg/30m	Tool/Comment
1419.99	49.63	265.27	1288.41	-44.98	-420.75	395.23	1.734	1.703	-0.433	RIGS, cont
1430.00	50.53	265.24	1294.83	-45.60	-428.43	402.23	2.719	2.718	-0.093	RIGS, cont
1440.02	51.19	265.19	1301.15	-46.23	-436.19	409.30	1.985	1.981	-0.152	RIGS, cont
1449.99	51.92	265.22	1307.35	-46.91	-443.97	416.41	2.201	2.200	0.111	RIGS, cont
1460.03	52.81	265.28	1313.48	-47.57	-451.88	423.62	2.637	2.633	0.178	RIGS, cont
1470.03	53.53	265.33	1319.47	-48.23	-459.86	430.90	2.163	2.160	0.139	RIGS, cont
1479.99	54.03	265.33	1325.36	-48.86	-467.88	438.20	1.522	1.522	-0.005	RIGS, cont
1489.99	54.54	265.22	1331.19	-49.52	-475.95	445.54	1.550	1.527	-0.329	RIGS, cont
1500.01	55.37	265.01	1336.95	-50.19	-484.12	452.99	2.526	2.473	-0.629	RIGS, cont
1510.02	56.29	264.94	1342.57	-50.96	-492.38	460.57	2.760	2.775	-0.189	RIGS, cont
1520.02	56.56	264.77	1348.08	-51.71	-500.71	468.19	0.906	0.791	-0.530	RIGS, cont
1530.02	56.83	264.61	1353.57	-52.51	-509.02	475.83	0.902	0.812	-0.472	RIGS, cont
1540.00	57.33	264.35	1359.00	-53.32	-517.39	483.51	1.644	1.505	-0.789	RIGS, cont
1549.99	57.70	264.11	1364.35	-54.15	-525.75	491.21	1.268	1.123	-0.699	RIGS, cont
1560.01	57.73	264.04	1369.71	-55.05	-534.18	498.99	0.200	0.076	-0.219	RIGS, cont
1570.02	58.01	263.85	1375.04	-55.93	-542.62	506.78	0.984	0.858	-0.568	RIGS, cont
1580.01	58.73	263.59	1380.28	-56.87	-551.08	514.60	2.251	2.150	-0.783	RIGS, cont
1590.02	59.54	263.23	1385.41	-57.89	-559.63	522.55	2.606	2.435	-1.084	RIGS, cont
1600.02	60.25	263.05	1390.42	-58.94	-568.20	530.54	2.182	2.130	-0.549	RIGS, cont
1610.02	60.36	262.75	1395.37	-60.00	-576.82	538.57	0.843	0.339	-0.888	RIGS, cont
1619.99	60.54	262.73	1400.30	-61.09	-585.43	546.60	0.522	0.520	-0.056	RIGS, cont
1630.00	61.25	262.48	1405.17	-62.17	-594.11	554.69	2.242	2.139	-0.768	RIGS, cont
1640.02	61.75	262.43	1409.95	-63.31	-602.84	562.86	1.495	1.491	-0.131	RIGS, cont
1649.99	62.47	262.50	1414.62	-64.52	-611.57	571.06	2.171	2.163	0.213	RIGS, cont
1659.99	63.36	262.54	1419.17	-65.71	-620.38	579.32	2.667	2.666	0.097	RIGS, cont
1669.99	63.95	262.64	1423.61	-66.82	-629.31	587.64	1.817	1.793	0.328	RIGS, cont
1680.01	64.36	262.82	1427.99	-67.96	-638.24	595.98	1.310	1.218	0.534	RIGS, cont
1690.02	65.15	262.99	1432.26	-69.06	-647.22	604.34	2.425	2.381	0.508	RIGS, cont
1700.01	65.93	263.08	1436.39	-70.15	-656.27	612.76	2.346	2.332	0.277	RIGS, cont
1710.00	66.49	263.09	1440.42	-71.24	-665.34	621.19	1.683	1.682	0.029	RIGS, cont
1719.99	67.11	263.03	1444.36	-72.35	-674.43	629.66	1.860	1.852	-0.187	RIGS, cont
1730.02	67.70	263.06	1448.22	-73.45	-683.66	638.24	1.759	1.757	0.086	RIGS, cont
1739.99	68.19	262.90	1451.97	-74.56	-692.83	646.77	1.549	1.480	-0.494	RIGS, cont
1750.03	68.90	262.89	1455.64	-75.74	-702.08	655.41	2.136	2.136	-0.016	RIGS, cont
1760.03	69.36	262.86	1459.20	-76.93	-711.38	664.10	1.380	1.377	-0.093	RIGS, cont
1770.00	69.94	262.92	1462.68	-78.07	-720.65	672.73	1.740	1.732	0.180	RIGS, cont
1780.03	70.59	262.83	1466.06	-79.23	-730.00	681.45	1.956	1.939	-0.274	RIGS, cont
1790.00	71.19	262.82	1469.32	-80.43	-739.35	690.18	1.826	1.826	-0.039	RIGS, cont
1799.99	72.08	262.98	1472.48	-81.60	-748.76	698.96	2.709	2.666	0.507	RIGS, cont
1810.00	72.85	262.84	1475.50	-82.78	-758.25	707.80	2.332	2.296	-0.432	RIGS, cont
1820.01	73.05	262.71	1478.43	-84.00	-767.72	716.65	0.724	0.622	-0.388	RIGS, cont
1830.03	73.38	262.73	1481.32	-85.17	-777.25	725.53	0.993	0.991	0.071	RIGS, cont
1840.01	73.71	262.74	1484.14	-86.40	-786.76	734.41	0.962	0.962	0.004	RIGS, cont
1850.01	74.07	262.80	1486.92	-87.64	-796.28	743.32	1.060	1.066	0.181	RIGS, cont
1859.98	74.25	262.83	1489.64	-88.85	-805.78	752.19	0.546	0.537	0.101	RIGS, cont
1870.01	74.23	262.82	1492.35	-90.04	-815.35	761.11	0.050	-0.035	-0.036	RIGS, cont
1879.99	74.17	262.76	1495.07	-91.25	-824.89	770.01	0.238	-0.179	-0.163	RIGS, cont
1890.01	74.05	262.54	1497.81	-92.46	-834.42	778.91	0.757	-0.378	-0.682	RIGS, cont
1900.04	73.91	262.58	1500.57	-93.71	-843.87	787.75	0.422	-0.405	0.124	RIGS, cont
1909.99	74.12	262.69	1503.31	-94.99	-853.49	796.76	0.710	0.634	0.334	RIGS, cont
1920.01	74.68	262.74	1506.01	-96.21	-863.04	805.68	1.667	1.659	0.160	RIGS, cont
1930.02	75.06	262.70	1508.61	-97.42	-872.62	814.62	1.162	1.155	-0.129	RIGS, cont
1940.00	75.67	262.66	1511.14	-98.67	-882.16	823.55	1.824	1.821	-0.103	RIGS, cont
1949.98	76.38	262.69	1513.54	-99.89	-891.79	832.54	2.134	2.133	0.074	RIGS, cont
1960.00	76.78	262.61	1515.86	-101.13	-901.43	841.54	1.237	1.216	-0.235	RIGS, cont
1969.99	76.91	262.66	1518.12	-102.36	-911.11	850.58	0.420	0.388	0.164	RIGS, cont
1980.02	77.01	262.73	1520.38	-103.62	-920.80	859.63	0.329	0.275	0.186	RIGS, cont
1990.01	77.04	262.88	1522.62	-104.85	-930.44	868.64	0.456	0.090	0.459	RIGS, cont

STATOIL

Statoil
Survey Report

STATOIL

Company:	STATOIL - Norway	**Date:** 21.06.2004	**Time:** 08:56:32	**Page:**	5
Field:	GULLFAKS	**Co-ordinate(NE) Reference:**	Site: Gullfaks B, Grid North		
Site:	Gullfaks B	**Vertical (TVD) Reference:**	RT #1 80.7		
Well:	34/10-B-42	**Section (VS) Reference:**	Well (-14.07N,15.53E,240.59Azi)		
Wellpath:	B-42 E	**Survey Calculation Method:**	Minimum Curvature	**Db:**	Oracle

Survey

MD m	Incl deg	Azim deg	TVD m	+N/-S m	+E/-W m	VS m	DLS deg/30m	Build deg/30m	Turn deg/30m	Tool/Comment
2000.02	77.10	262.92	1524.86	-106.03	-940.14	877.67	0.231	0.190	0.135	RIGS, cont
2010.02	77.01	262.97	1527.10	-107.21	-949.81	886.67	0.305	-0.277	0.131	RIGS, cont
2020.01	76.92	263.04	1529.35	-108.38	-959.45	895.64	0.331	-0.257	0.214	RIGS, cont
2030.01	76.85	263.09	1531.62	-109.52	-969.12	904.62	0.262	-0.224	0.139	RIGS, cont
2040.00	76.86	263.14	1533.89	-110.70	-978.77	913.61	0.157	0.034	0.157	RIGS, cont
2050.01	76.99	263.24	1536.16	-111.86	-988.46	922.62	0.504	0.400	0.315	RIGS, cont
2059.98	76.86	263.24	1538.41	-112.99	-998.10	931.58	0.382	-0.382	-0.008	RIGS, cont
2070.00	76.91	263.28	1540.68	-114.14	-1007.81	940.61	0.168	0.142	0.127	RIGS, cont
2080.00	76.82	263.38	1542.95	-115.25	-1017.47	949.56	0.399	-0.274	0.298	RIGS, cont
2090.02	76.82	263.39	1545.23	-116.37	-1027.21	958.60	0.032	-0.015	0.029	RIGS, cont
2100.00	76.91	263.48	1547.50	-117.49	-1036.80	967.50	0.373	0.274	0.259	RIGS, cont
2109.98	77.29	263.70	1549.73	-118.60	-1046.53	976.52	1.322	1.147	0.673	RIGS, cont
2119.99	77.75	263.99	1551.89	-119.67	-1056.24	985.50	1.605	1.374	0.851	RIGS, cont
2130.01	77.73	264.23	1554.01	-120.69	-1065.96	994.47	0.712	-0.040	0.728	RIGS, cont
2140.02	77.67	264.40	1556.13	-121.66	-1075.69	1003.43	0.552	-0.202	0.525	RIGS, cont
2149.99	77.25	264.50	1558.29	-122.60	-1085.41	1012.35	1.270	-1.238	0.289	RIGS, cont
2160.00	77.20	264.40	1560.51	-123.54	-1095.12	1021.27	0.320	-0.153	-0.288	RIGS, cont
2169.98	77.33	264.39	1562.71	-124.51	-1104.81	1030.19	0.399	0.396	-0.051	RIGS, cont
2179.99	77.34	264.34	1564.91	-125.45	-1114.53	1039.12	0.131	0.029	-0.131	RIGS, cont
2189.99	77.10	264.49	1567.12	-126.41	-1124.26	1048.07	0.849	-0.730	0.443	RIGS, cont
2200.01	77.01	264.81	1569.36	-127.32	-1133.99	1056.99	0.959	-0.259	0.947	RIGS, cont
2210.01	77.20	265.19	1571.59	-128.19	-1143.70	1065.88	1.239	0.546	1.141	RIGS, cont
2220.01	77.37	265.49	1573.80	-129.01	-1153.41	1074.74	1.024	0.523	0.902	RIGS, cont
2230.02	77.37	265.54	1575.98	-129.72	-1163.16	1083.58	0.154	-0.005	0.158	RIGS, cont
2240.03	77.38	265.45	1578.16	-130.53	-1172.90	1092.47	0.275	0.046	-0.278	RIGS, cont
2249.98	77.44	265.34	1580.33	-131.31	-1182.59	1101.29	0.340	0.153	-0.311	RIGS, cont
2260.02	77.31	265.29	1582.52	-132.11	-1192.35	1110.18	0.399	-0.369	-0.154	RIGS, cont
2270.03	77.20	265.34	1584.74	-132.93	-1202.10	1119.08	0.370	-0.346	0.134	RIGS, cont
2279.99	77.16	265.40	1586.95	-133.69	-1211.76	1127.87	0.200	-0.099	0.178	RIGS, cont
2290.02	77.51	265.62	1589.15	-134.47	-1221.53	1136.76	1.232	1.046	0.669	RIGS, cont
2300.01	77.99	265.94	1591.28	-135.15	-1231.27	1145.59	1.709	1.423	0.968	RIGS, cont
2310.01	78.21	266.20	1593.34	-135.83	-1241.04	1154.43	1.008	0.672	0.768	RIGS, cont
2320.00	78.19	266.23	1595.38	-136.49	-1250.79	1163.24	0.128	-0.075	0.107	RIGS, cont
2330.00	78.12	266.27	1597.44	-137.09	-1260.56	1172.04	0.227	-0.199	0.110	RIGS, cont
2339.99	78.30	266.24	1599.48	-137.69	-1270.33	1180.85	0.561	0.553	-0.098	RIGS, cont
2350.02	78.42	266.15	1601.51	-138.34	-1280.13	1189.71	0.435	0.350	-0.264	RIGS, cont
2359.99	78.23	266.19	1603.53	-139.00	-1289.88	1198.53	0.576	-0.563	0.123	RIGS, cont
2369.99	78.20	266.17	1605.57	-139.65	-1299.64	1207.34	0.113	-0.098	-0.057	RIGS, cont
2380.00	78.15	266.20	1607.62	-140.33	-1309.40	1216.19	0.159	-0.142	0.074	RIGS, cont
2389.99	78.02	266.20	1609.68	-140.98	-1319.18	1225.03	0.403	-0.403	0.005	RIGS, cont
2399.99	77.93	266.37	1611.76	-141.60	-1328.93	1233.82	0.580	-0.273	0.523	RIGS, cont
2410.00	78.01	266.72	1613.86	-142.24	-1338.69	1242.64	1.035	0.231	1.032	RIGS, cont
2420.01	78.12	267.04	1615.93	-142.77	-1348.47	1251.42	1.017	0.335	0.981	RIGS, cont
2430.01	77.87	267.09	1618.02	-143.25	-1358.23	1260.16	0.744	-0.734	0.124	RIGS, cont
2439.99	78.24	267.10	1620.08	-143.76	-1367.99	1268.91	1.117	1.116	0.041	RIGS, cont
2450.03	78.68	266.95	1622.09	-144.24	-1377.80	1277.69	1.384	1.316	-0.438	RIGS, cont
2460.01	78.67	266.86	1624.04	-144.76	-1387.58	1286.46	0.274	-0.030	-0.277	RIGS, cont
2470.02	78.33	267.32	1626.03	-145.30	-1397.35	1295.24	1.690	-1.032	1.365	RIGS, cont
2480.01	78.23	268.06	1628.07	-145.69	-1407.10	1303.93	2.223	-0.307	2.249	RIGS, cont
2490.02	78.36	268.52	1630.11	-145.95	-1416.89	1312.58	1.360	0.391	1.351	RIGS, cont
2500.02	78.53	268.90	1632.11	-146.25	-1426.67	1321.25	1.241	0.527	1.147	RIGS, cont
2510.01	78.82	268.97	1634.07	-146.40	-1436.47	1329.85	0.889	0.860	0.229	RIGS, cont
2519.99	79.04	269.08	1635.99	-146.58	-1446.24	1338.46	0.731	0.660	0.322	RIGS, cont
2530.02	78.50	269.10	1637.92	-146.69	-1456.08	1347.08	1.609	-1.608	0.065	RIGS, cont
2540.02	78.26	269.08	1639.94	-146.92	-1465.86	1355.72	0.725	-0.722	-0.070	RIGS, cont
2550.00	78.37	269.21	1641.96	-147.04	-1475.65	1364.31	0.494	0.326	0.379	RIGS, cont
2559.99	78.59	269.17	1643.96	-147.15	-1485.44	1372.89	0.655	0.647	-0.104	RIGS, cont
2570.00	78.63	269.17	1645.93	-147.30	-1495.25	1381.51	0.141	0.141	0.008	RIGS, cont

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Survey Report

STATOIL

Company:	STATOIL - Norway	**Date:** 21.06.2004	**Time:** 08:56:32	**Page:**	6
Field:	GULLFAKS	**Co-ordinate(NE) Reference:**	Site: Gullfaks B, Grid North		
Site:	Gullfaks B	**Vertical (TVD) Reference:**	RT #1 80.7		
Well:	34/10-B-42	**Section (VS) Reference:**	Well (-14.07N,15.53E,240.59Azi)		
Wellpath:	B-42 E	**Survey Calculation Method:**	Minimum Curvature	**Db:**	Oracle

Survey

MD m	Incl deg	Azim deg	TVD m	+N/-S m	+E/-W m	VS m	DLS deg/30m	Build deg/30m	Turn deg/30m	Tool/Comment
2580.00	78.72	269.14	1647.89	-147.42	-1505.04	1390.09	0.270	0.256	-0.067	RIGS, cont
2590.00	78.60	269.23	1649.83	-147.56	-1514.86	1398.72	0.351	0.253	0.247	RIGS, cont
2600.00	78.75	269.21	1651.78	-147.71	-1524.66	1407.33	0.163	-0.150	-0.064	RIGS, cont
2610.02	78.78	269.21	1653.73	-147.81	-1534.51	1415.95	0.075	0.071	0.026	RIGS, cont
2620.01	78.70	269.25	1655.67	-147.93	-1544.30	1424.55	0.264	-0.241	0.109	RIGS, cont
2630.00	78.55	269.30	1657.65	-148.04	-1554.10	1433.14	0.459	-0.440	0.134	RIGS, cont
2640.02	78.75	269.24	1659.62	-148.18	-1563.93	1441.77	0.634	0.615	-0.156	RIGS, cont
2649.99	78.83	269.33	1661.56	-148.34	-1573.71	1450.37	0.347	0.240	0.256	RIGS, cont
2659.98	78.67	269.28	1663.51	-148.44	-1583.50	1458.94	0.508	-0.489	-0.140	RIGS, cont
2669.99	78.61	269.32	1665.48	-148.55	-1593.30	1467.54	0.211	-0.181	0.110	RIGS, cont
2680.01	78.52	269.27	1667.47	-148.66	-1603.14	1476.16	0.291	-0.258	-0.137	RIGS, cont
2690.00	78.39	269.20	1669.46	-148.81	-1612.92	1484.75	0.468	-0.415	-0.220	RIGS, cont
2700.00	78.19	269.10	1671.50	-148.94	-1622.71	1493.35	0.659	-0.588	-0.302	RIGS, cont
2709.99	78.01	269.13	1673.56	-149.09	-1632.50	1501.95	0.558	-0.551	0.089	RIGS, cont
2720.00	77.83	269.11	1675.65	-149.29	-1642.30	1510.59	0.548	-0.544	-0.068	RIGS, cont
2730.00	77.47	268.98	1677.79	-149.40	-1652.06	1519.14	1.119	-1.057	-0.375	RIGS, cont
2739.98	77.43	268.88	1679.96	-149.64	-1661.83	1527.76	0.319	-0.134	-0.297	RIGS, cont
2750.00	77.55	268.95	1682.13	-149.79	-1671.60	1536.35	0.406	0.351	0.208	RIGS, cont
2759.98	77.56	268.97	1684.28	-149.99	-1681.36	1544.95	0.073	0.059	0.044	RIGS, cont
2769.98	77.49	268.97	1686.45	-150.19	-1691.12	1553.55	0.234	-0.233	0.026	RIGS, cont
2780.01	77.38	268.94	1688.64	-150.37	-1700.91	1562.17	0.346	-0.335	-0.089	RIGS, cont
2790.01	77.27	268.88	1690.83	-150.56	-1710.71	1570.80	0.365	-0.312	-0.193	RIGS, cont
2799.99	77.21	268.95	1693.03	-150.75	-1720.42	1579.35	0.271	-0.172	0.215	RIGS, cont
2809.98	77.13	268.94	1695.26	-150.93	-1730.20	1587.96	0.245	-0.242	-0.039	RIGS, cont
2819.99	77.14	268.86	1697.48	-151.13	-1739.94	1596.54	0.230	0.010	-0.236	RIGS, cont
2829.99	77.11	268.93	1699.71	-151.32	-1749.72	1605.15	0.209	-0.066	0.203	RIGS, cont
2839.98	76.83	268.96	1701.97	-151.51	-1759.45	1613.72	0.871	-0.867	0.086	RIGS, cont
2849.98	76.48	268.99	1704.28	-151.68	-1769.18	1622.29	1.053	-1.047	0.114	RIGS, cont
2859.98	75.97	268.92	1706.67	-151.86	-1778.88	1630.82	1.524	-1.506	-0.239	RIGS, cont
2869.99	76.28	268.95	1709.07	-152.04	-1788.61	1639.38	0.928	0.924	0.094	RIGS, cont
2879.99	76.56	268.99	1711.42	-152.22	-1798.35	1647.96	0.843	0.834	0.123	RIGS, cont
2890.00	76.60	268.95	1713.74	-152.39	-1808.08	1656.52	0.160	0.117	-0.112	Keeper, cont
2900.00	76.53	268.95	1716.06	-152.57	-1817.81	1665.08	0.210	-0.210	0.000	Keeper, cont
2910.00	75.95	269.17	1718.44	-152.73	-1827.52	1673.62	1.854	-1.740	0.660	Keeper, cont
2916.94	75.08	269.23	1720.18	-152.82	-1834.23	1679.52	3.757	-3.750	0.240	13 3/8"
2920.00	74.70	269.25	1720.98	-152.86	-1837.19	1682.11	3.757	-3.750	0.241	Keeper, cont
2930.00	73.25	269.40	1723.74	-152.98	-1846.80	1690.54	4.371	-4.350	0.450	Keeper, cont
2940.00	71.53	269.73	1726.76	-153.05	-1856.33	1698.88	5.246	-5.160	0.990	Keeper, cont
2950.00	69.84	270.06	1730.07	-153.07	-1865.77	1707.11	5.155	-5.070	0.990	Keeper, cont
2960.00	69.15	270.14	1733.57	-153.05	-1875.14	1715.26	2.082	-2.070	0.240	Keeper, cont
2970.00	69.00	270.10	1737.14	-153.03	-1884.48	1723.39	0.464	-0.450	-0.120	Keeper, cont
2980.00	69.08	270.00	1740.72	-153.02	-1893.82	1731.52	0.369	0.240	-0.300	Keeper, cont
2990.00	69.70	269.78	1744.24	-153.04	-1903.18	1739.68	1.960	1.860	-0.660	Keeper, cont
3000.00	70.73	269.50	1747.63	-153.10	-1912.58	1747.91	3.189	3.090	-0.840	Keeper, cont
3010.00	72.07	269.03	1750.82	-153.22	-1922.06	1756.22	4.236	4.020	-1.410	Keeper, cont
3020.00	73.00	268.90	1753.82	-153.39	-1931.60	1764.61	2.815	2.790	-0.390	Keeper, cont
3030.00	73.90	268.94	1756.67	-153.57	-1941.18	1773.05	2.702	2.700	0.120	Keeper, cont
3040.00	75.27	268.67	1759.32	-153.77	-1950.82	1781.55	4.184	4.110	-0.810	Keeper, cont
3050.00	76.54	268.29	1761.76	-154.03	-1960.52	1790.12	3.967	3.810	-1.140	Keeper, cont
3060.00	77.39	268.01	1764.01	-154.35	-1970.25	1798.75	2.678	2.550	-0.840	Keeper, cont
3070.00	78.12	267.80	1766.13	-154.70	-1980.02	1807.44	2.275	2.190	-0.630	Keeper, cont
3080.00	79.21	267.68	1768.10	-155.09	-1989.82	1816.16	3.289	3.270	-0.360	Keeper, cont
3090.00	80.09	267.79	1769.90	-155.48	-1999.65	1824.92	2.660	2.640	0.330	Keeper, cont
3100.00	80.99	267.84	1771.54	-155.86	-2009.50	1833.69	2.704	2.700	0.150	Keeper, cont
3110.00	82.18	267.90	1773.00	-156.22	-2019.39	1842.48	3.574	3.570	0.180	Keeper, cont
3120.00	82.79	267.76	1774.31	-156.60	-2029.29	1851.29	1.877	1.830	-0.420	Keeper, cont
3130.00	83.30	267.83	1775.52	-156.98	-2039.21	1860.12	1.544	1.530	0.210	Keeper, cont
3140.00	83.77	267.89	1776.65	-157.35	-2049.14	1868.95	1.421	1.410	0.180	Keeper, cont
3150.00	84.14	267.77	1777.70	-157.73	-2059.08	1877.80	1.166	1.110	-0.360	Keeper, cont

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Survey Report

STATOIL

Company:	STATOIL - Norway	**Date:**	21.06.2004	**Time:**	08:56:32 **Page:** 7
Field:	GULLFAKS	**Co-ordinate(NE) Reference:**	Site: Gullfaks B, Grid North		
Site:	Gullfaks B	**Vertical (TVD) Reference:**	RT #1 80.7		
Well:	34/10-B-42	**Section (VS) Reference:**	Well (-14.07N,15.53E,240.59Azi)		
Wellpath:	B-42 E	**Survey Calculation Method:**	Minimum Curvature	**Db:**	Oracle

Survey

MD m	Incl deg	Azim deg	TVD m	+N/-S m	+E/-W m	VS m	DLS deg/30m	Build deg/30m	Turn deg/30m	Tool/Comment
3160.00	84.20	267.60	1778.72	-158.13	-2069.02	1886.65	0.538	0.180	-0.510	Keeper, cont
3170.00	84.16	267.54	1779.73	-158.55	-2078.96	1895.52	0.216	-0.120	-0.180	Keeper, cont
3180.00	84.34	267.40	1780.73	-158.99	-2088.90	1904.39	0.683	0.540	-0.420	Keeper, cont
3190.00	84.76	267.12	1781.68	-159.47	-2098.84	1913.29	1.512	1.260	-0.840	Keeper, cont
3200.00	84.95	266.85	1782.58	-159.99	-2108.79	1922.21	0.988	0.570	-0.810	Keeper, cont
3210.00	85.00	266.56	1783.46	-160.56	-2118.73	1931.15	0.880	0.150	-0.870	Keeper, cont
3220.00	85.10	266.26	1784.32	-161.19	-2128.68	1940.12	0.945	0.300	-0.900	Keeper, cont
3230.00	85.47	266.16	1785.14	-161.85	-2138.62	1949.11	1.150	1.110	-0.300	Keeper, cont
3240.00	85.54	266.04	1785.92	-162.52	-2148.57	1958.11	0.416	0.210	-0.360	Keeper, cont
3250.00	85.47	265.89	1786.71	-163.23	-2158.51	1967.11	0.495	-0.210	-0.450	Keeper, cont
3260.00	85.47	265.79	1787.50	-163.95	-2168.45	1976.13	0.299	0.000	-0.300	Keeper, cont
3270.00	85.57	265.70	1788.28	-164.69	-2178.40	1985.15	0.403	0.300	-0.270	Keeper, cont
3280.00	85.67	265.75	1789.04	-165.43	-2188.34	1994.18	0.335	0.300	0.150	Keeper, cont
3290.00	85.55	265.74	1789.81	-166.17	-2198.28	2003.20	0.361	-0.360	-0.030	Keeper, cont
3300.00	85.52	265.62	1790.59	-166.92	-2208.22	2012.23	0.370	-0.090	-0.360	Keeper, cont
3310.00	85.71	265.53	1791.35	-167.69	-2218.17	2021.27	0.630	0.570	-0.270	Keeper, cont
3320.00	85.92	265.49	1792.08	-168.47	-2228.11	2030.32	0.641	0.630	-0.120	Keeper, cont
3330.00	86.01	265.28	1792.78	-169.27	-2238.05	2039.37	0.684	0.270	-0.630	Keeper, cont
3340.00	85.86	265.09	1793.49	-170.11	-2247.99	2048.44	0.725	-0.450	-0.570	Keeper, cont
3350.00	85.69	264.98	1794.23	-170.98	-2257.93	2057.52	0.607	-0.510	-0.330	Keeper, cont
3360.00	85.65	264.89	1794.99	-171.86	-2267.86	2066.61	0.295	-0.120	-0.270	Keeper, cont
3370.00	85.68	264.92	1795.74	-172.74	-2277.79	2075.69	0.127	0.090	0.090	Keeper, cont
3380.00	85.66	264.94	1796.50	-173.62	-2287.72	2084.78	0.085	-0.060	0.060	Keeper, cont
3390.00	85.85	264.84	1797.24	-174.51	-2297.66	2093.87	0.644	0.570	-0.300	Keeper, cont
3400.00	86.05	264.74	1797.94	-175.42	-2307.59	2102.96	0.670	0.600	-0.300	Keeper, cont
3410.00	86.15	264.68	1798.62	-176.34	-2317.52	2112.07	0.350	0.300	-0.180	Keeper, cont
3420.00	86.06	264.64	1799.30	-177.26	-2327.46	2121.18	0.295	-0.270	-0.120	Keeper, cont
3430.00	86.03	264.54	1799.99	-178.21	-2337.39	2130.29	0.313	-0.090	-0.300	Keeper, cont
3440.00	86.35	264.44	1800.66	-179.16	-2347.32	2139.42	1.006	0.960	-0.300	Keeper, cont
3450.00	86.43	264.44	1801.29	-180.13	-2357.25	2148.54	0.240	0.240	0.000	Keeper, cont
3460.00	86.50	264.30	1801.90	-181.11	-2367.19	2157.68	0.469	0.210	-0.420	Keeper, cont
3470.00	86.66	264.25	1802.50	-182.11	-2377.12	2166.82	0.503	0.480	-0.150	Keeper, cont
3480.00	86.62	264.14	1803.09	-183.11	-2387.05	2175.97	0.351	-0.120	-0.330	Keeper, cont
3490.00	86.56	264.18	1803.68	-184.13	-2396.98	2185.12	0.216	-0.180	0.120	Keeper, cont
3500.00	86.66	264.11	1804.27	-185.15	-2406.91	2194.27	0.366	0.300	-0.210	Keeper, cont
3510.00	86.51	264.09	1804.87	-186.18	-2416.84	2203.42	0.454	-0.450	-0.060	Keeper, cont
3520.00	86.50	264.28	1805.48	-187.19	-2426.77	2212.57	0.570	-0.030	0.570	Keeper, cont
3530.00	86.33	264.54	1806.10	-188.16	-2436.70	2221.70	0.931	-0.510	0.780	Keeper, cont
3540.00	86.06	264.90	1806.77	-189.08	-2446.64	2230.80	1.348	-0.810	1.080	Keeper, cont
3550.00	85.51	265.41	1807.50	-189.92	-2456.58	2239.87	2.247	-1.650	1.530	Keeper, cont
3560.00	85.10	265.66	1808.32	-190.69	-2466.51	2248.91	1.439	-1.230	0.750	Keeper, cont
3570.00	84.99	265.86	1809.18	-191.43	-2476.45	2257.93	0.683	-0.330	0.600	Keeper, cont
3580.00	84.87	265.81	1810.07	-192.16	-2486.38	2266.94	0.390	-0.360	-0.150	Keeper, cont
3590.00	84.94	265.80	1810.95	-192.88	-2496.32	2275.95	0.212	0.210	-0.030	Keeper, cont
3600.00	84.84	265.73	1811.85	-193.62	-2506.25	2284.96	0.366	-0.300	-0.210	Keeper, cont
3610.00	84.85	265.61	1812.74	-194.37	-2516.18	2293.98	0.360	0.030	-0.360	Keeper, cont
3620.00	84.93	265.58	1813.63	-195.14	-2526.11	2303.01	0.256	0.240	-0.090	Keeper, cont
3630.00	85.07	265.55	1814.51	-195.91	-2536.04	2312.04	0.429	0.420	-0.090	Keeper, cont
3640.00	85.10	265.53	1815.36	-196.68	-2545.98	2321.07	0.108	0.090	-0.060	Keeper, cont
3650.00	85.18	265.59	1816.21	-197.45	-2555.91	2330.11	0.300	0.240	0.180	Keeper, cont
3660.00	85.44	265.80	1817.03	-198.20	-2565.85	2339.13	1.001	0.780	0.630	Keeper, cont
3670.00	85.46	265.89	1817.82	-198.92	-2575.79	2348.15	0.276	0.060	0.270	Keeper, cont
3680.00	85.39	265.71	1818.62	-199.65	-2585.73	2357.17	0.578	-0.210	-0.540	Keeper, cont
3690.00	85.44	265.50	1819.42	-200.42	-2595.67	2366.20	0.646	0.150	-0.630	Keeper, cont
3700.00	85.51	265.29	1820.21	-201.22	-2605.61	2375.25	0.662	0.210	-0.630	Keeper, cont
3710.00	85.43	265.19	1821.00	-202.04	-2615.54	2384.31	0.383	-0.240	-0.300	Keeper, cont
3720.00	85.54	265.03	1821.78	-202.89	-2625.48	2393.38	0.581	0.330	-0.480	Keeper, cont
3730.00	85.66	265.06	1822.55	-203.76	-2635.41	2402.45	0.371	0.360	0.090	Keeper, cont

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Survey Report

STATOIL

Company:	STATOIL - Norway	**Date:** 21.06.2004	**Time:** 08:56:32	**Page:**	8
Field:	GULLFAKS	**Co-ordinate(NE) Reference:**	Site: Gullfaks B, Grid North		
Site:	Gullfaks B	**Vertical (TVD) Reference:**	RT #1 80.7		
Well:	34/10-B-42	**Section (VS) Reference:**	Well (-14.07N,15.53E,240.59Azi)		
Wellpath:	B-42 E	**Survey Calculation Method:**	Minimum Curvature	**Db:**	Oracle

Survey

MD m	Incl deg	Azim deg	TVD m	+N/-S m	+E/-W m	VS m	DLS deg/30m	Build deg/30m	Turn deg/30m	Tool/Comment
3740.00	85.85	265.23	1823.29	-204.60	-2645.35	2411.52	0.764	0.570	0.510	Keeper, cont
3750.00	86.14	265.46	1823.99	-205.41	-2655.29	2420.58	1.109	0.870	0.690	Keeper, cont
3760.00	86.48	265.77	1824.63	-206.17	-2665.24	2429.63	1.379	1.020	0.930	Keeper, cont
3770.00	86.77	265.86	1825.22	-206.90	-2675.19	2438.66	0.911	0.870	0.270	Keeper, cont
3780.00	86.97	265.71	1825.77	-207.63	-2685.15	2447.69	0.750	0.600	-0.450	Keeper, cont
3790.00	86.83	265.41	1826.31	-208.41	-2695.11	2456.74	0.992	-0.420	-0.900	Keeper, cont
3800.00	86.61	264.97	1826.88	-209.24	-2705.06	2465.82	1.474	-0.660	-1.320	Keeper, cont
3810.00	86.18	264.60	1827.51	-210.15	-2715.00	2474.92	1.700	-1.290	-1.110	Keeper, cont
3820.00	85.79	264.42	1828.21	-211.11	-2724.93	2484.04	1.288	-1.170	-0.540	Keeper, cont
3830.00	85.55	264.31	1828.96	-212.09	-2734.85	2493.17	0.792	-0.720	-0.330	Keeper, cont
3840.00	85.61	264.20	1829.74	-213.08	-2744.77	2502.30	0.375	0.180	-0.330	Keeper, cont
3850.00	85.74	264.37	1830.49	-214.08	-2754.69	2511.43	0.641	0.390	0.510	Keeper, cont
3860.00	85.06	264.12	1831.29	-215.08	-2764.61	2520.56	2.173	-2.040	-0.750	Keeper, cont
3870.00	84.19	263.63	1832.23	-216.14	-2774.51	2529.71	2.992	-2.610	-1.470	Keeper, cont
3880.00	83.77	263.46	1833.28	-217.26	-2784.39	2538.86	1.358	-1.260	-0.510	Keeper, cont
3890.00	83.71	263.21	1834.37	-218.41	-2794.26	2548.03	0.767	-0.180	-0.750	Keeper, cont
3900.00	83.67	263.15	1835.47	-219.59	-2804.13	2557.21	0.215	-0.120	-0.180	Keeper, cont
3910.00	83.62	263.05	1836.57	-220.78	-2814.00	2566.39	0.334	-0.150	-0.300	Keeper, cont
3920.00	83.84	262.87	1837.67	-222.00	-2823.86	2575.58	0.851	0.660	-0.540	Keeper, cont
3930.00	83.78	262.80	1838.74	-223.24	-2833.73	2584.78	0.276	-0.180	-0.210	Keeper, cont
3940.00	83.95	262.82	1839.81	-224.49	-2843.59	2593.99	0.513	0.510	0.060	Keeper, cont
3950.00	84.07	262.86	1840.86	-225.73	-2853.46	2603.19	0.379	0.360	0.120	Keeper, cont
3960.00	84.23	262.94	1841.88	-226.96	-2863.33	2612.40	0.536	0.480	0.240	Keeper, cont
3970.00	84.13	262.92	1842.89	-228.18	-2873.20	2621.60	0.306	-0.300	-0.060	Keeper, cont
3980.00	84.40	262.97	1843.89	-229.40	-2883.08	2630.80	0.824	0.810	0.150	Keeper, cont
3990.00	84.64	262.80	1844.84	-230.64	-2892.96	2640.01	0.881	0.720	-0.510	Keeper, cont
4000.00	84.58	262.81	1845.78	-231.88	-2902.83	2649.23	0.182	-0.180	0.030	Keeper, cont
4010.00	84.80	262.78	1846.71	-233.13	-2912.71	2658.44	0.666	0.660	-0.090	Keeper, cont
4020.00	84.41	262.78	1847.65	-234.38	-2922.59	2667.66	1.170	-1.170	0.000	Keeper, cont
4030.00	84.55	262.75	1848.61	-235.64	-2932.46	2676.88	0.429	0.420	-0.090	Keeper, cont
4040.00	84.89	262.68	1849.53	-236.90	-2942.34	2686.11	1.041	1.020	-0.210	Keeper, cont
4050.00	84.97	262.59	1850.41	-238.18	-2952.22	2695.34	0.360	0.240	-0.270	Keeper, cont
4060.00	85.03	262.55	1851.29	-239.46	-2962.10	2704.58	0.216	0.180	-0.120	Keeper, cont
4070.00	85.01	262.41	1852.15	-240.77	-2971.97	2713.82	0.423	-0.060	-0.420	Keeper, cont
4080.00	84.85	262.30	1853.04	-242.09	-2981.85	2723.07	0.582	-0.480	-0.330	Keeper, cont
4090.00	84.97	262.22	1853.93	-243.43	-2991.72	2732.33	0.432	0.360	-0.240	Keeper, cont
4100.00	85.15	262.16	1854.79	-244.79	-3001.59	2741.59	0.569	0.540	-0.180	9 5/8"
4198.43	82.81	253.24	1865.13	-265.60	-3097.12	2835.04	2.796	-0.713	-2.719	Magnetic, IFR, non-mag
4225.80	82.66	250.12	1868.59	-274.13	-3122.90	2861.68	3.396	-0.164	-3.420	Magnetic, IFR, non-mag
4253.20	83.18	247.02	1871.97	-284.07	-3148.20	2888.60	3.416	0.569	-3.394	Magnetic, IFR, non-mag
4280.33	83.88	244.45	1875.03	-295.15	-3172.78	2915.45	2.928	0.774	-2.842	Magnetic, IFR, non-mag
4307.51	84.30	238.64	1877.83	-308.02	-3196.54	2942.47	6.395	0.464	-6.413	Magnetic, IFR, non-mag
4334.80	84.51	235.72	1880.49	-322.74	-3219.36	2969.58	3.203	0.231	-3.210	Magnetic, IFR, non-mag
4361.97	83.90	231.66	1883.23	-338.74	-3241.14	2996.41	4.511	-0.674	-4.483	Magnetic, IFR, non-mag
4389.05	83.59	229.02	1886.18	-355.92	-3261.86	3022.89	2.927	-0.343	-2.925	Magnetic, IFR, non-mag
4415.98	84.62	225.68	1888.95	-374.07	-3281.56	3048.96	3.875	1.147	-3.721	Magnetic, IFR, non-mag
4443.33	84.36	222.64	1891.58	-393.60	-3300.52	3075.07	3.331	-0.285	-3.335	Magnetic, IFR, non-mag
4470.57	83.76	218.80	1894.40	-414.13	-3318.19	3100.55	4.258	-0.661	-4.229	Magnetic, IFR, non-mag
4497.46	84.34	216.25	1897.19	-435.34	-3334.48	3125.15	2.903	0.647	-2.845	Magnetic, IFR, non-mag
4524.79	84.94	213.29	1899.74	-457.69	-3350.00	3149.64	3.301	0.659	-3.249	Magnetic, IFR, non-mag
4551.96	85.16	210.47	1902.08	-480.67	-3364.29	3173.38	3.112	0.243	-3.114	Magnetic, IFR, non-mag
4579.47	85.51	209.41	1904.32	-504.43	-3377.97	3196.97	1.214	0.382	-1.156	Magnetic, IFR, non-mag
4607.01	85.88	207.86	1906.39	-528.53	-3391.13	3220.27	1.731	0.403	-1.688	Magnetic, IFR, non-mag
4634.34	86.43	206.43	1908.22	-552.80	-3403.58	3243.02	1.679	0.604	-1.570	Magnetic, IFR, non-mag
4661.52	86.68	204.61	1909.86	-577.28	-3415.26	3265.23	2.024	0.276	-2.009	Magnetic, IFR, non-mag
4687.75	86.97	203.63	1911.31	-601.18	-3425.97	3286.29	1.167	0.332	-1.121	Magnetic, IFR, non-mag
4715.24	87.77	201.70	1912.57	-626.52	-3436.55	3307.95	2.278	0.873	-2.106	Magnetic, IFR, non-mag
4743.60	88.37	200.79	1913.52	-652.94	-3446.82	3329.87	1.153	0.635	-0.963	Magnetic, IFR, non-mag

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Survey Report

STATOIL

Company:	STATOIL - Norway	**Date:** 21.06.2004	**Time:** 08:56:32	**Page:**	9
Field:	GULLFAKS	**Co-ordinate(NE) Reference:**	Site: Gullfaks B, Grid North		
Site:	Gullfaks B	**Vertical (TVD) Reference:**	RT #1 80.7		
Well:	34/10-B-42	**Section (VS) Reference:**	Well (-14.07N,15.53E,240.59Azi)		
Wellpath:	B-42 E	**Survey Calculation Method:**	Minimum Curvature	**Db:**	Oracle

Survey

MD m	Incl deg	Azim deg	TVD m	+N/-S m	+E/-W m	VS m	DLS deg/30m	Build deg/30m	Turn deg/30m	Tool/Comment
4769.08	88.43	199.23	1914.24	-676.87	-3455.53	3349.21	1.837	0.071	-1.837	Magnetic, IFR, non-mag
4797.78	87.60	200.29	1915.23	-703.86	-3465.23	3370.91	1.407	-0.868	1.108	Magnetic, IFR, non-mag
4825.06	86.60	201.59	1916.61	-729.31	-3474.97	3391.89	1.802	-1.100	1.430	Magnetic, IFR, non-mag
4852.28	86.03	203.04	1918.36	-754.44	-3485.28	3413.21	1.714	-0.628	1.598	Magnetic, IFR, non-mag
4879.56	86.34	204.50	1920.18	-779.35	-3496.25	3435.00	1.638	0.341	1.606	Magnetic, IFR, non-mag
4906.75	86.68	205.67	1921.83	-803.93	-3507.76	3457.10	1.342	0.375	1.291	Magnetic, IFR, non-mag
4933.92	87.00	206.97	1923.33	-828.24	-3519.78	3479.52	1.476	0.353	1.435	Magnetic, IFR, non-mag
4961.36	87.17	208.11	1924.72	-852.54	-3532.46	3502.49	1.259	0.186	1.246	Magnetic, IFR, non-mag
4988.37	87.45	208.87	1925.99	-876.25	-3545.33	3525.34	0.899	0.311	0.844	Magnetic, IFR, non-mag
5015.50	87.94	210.70	1927.08	-899.78	-3558.79	3548.62	2.093	0.542	2.024	Magnetic, IFR, non-mag
5042.61	88.86	212.14	1927.85	-923.07	-3573.02	3572.46	1.877	1.011	1.562	Magnetic, IFR, non-mag
5069.72	88.46	211.90	1928.47	-945.88	-3587.29	3596.09	0.520	-0.446	-0.268	Magnetic, IFR, non-mag
5097.15	87.94	211.19	1929.34	-969.25	-3601.63	3620.05	0.962	-0.569	-0.777	Magnetic, IFR, non-mag
5124.46	87.63	210.91	1930.39	-992.63	-3615.70	3643.80	0.459	-0.341	-0.308	Magnetic, IFR, non-mag
5151.48	87.49	210.25	1931.54	-1015.87	-3629.44	3667.17	0.748	-0.155	-0.733	Magnetic, IFR, non-mag
5178.43	87.51	209.46	1932.72	-1039.22	-3642.84	3690.32	0.879	0.022	-0.879	Magnetic, IFR, non-mag
5206.15	87.17	208.57	1934.00	-1063.43	-3656.27	3713.91	1.030	-0.368	-0.963	Magnetic, IFR, non-mag
5231.71	86.57	208.93	1935.40	-1085.81	-3668.55	3735.59	0.821	-0.704	0.423	Magnetic, IFR, non-mag
5258.86	86.40	209.07	1937.06	-1109.51	-3681.69	3758.67	0.243	-0.188	0.155	Magnetic, IFR, non-mag
5287.68	86.77	209.88	1938.78	-1134.56	-3695.84	3783.30	0.926	0.385	0.843	Magnetic, IFR, non-mag
5315.18	87.08	209.52	1940.26	-1158.41	-3709.45	3806.87	0.518	0.338	-0.393	Magnetic, IFR, non-mag
5342.42	87.66	210.60	1941.51	-1181.96	-3723.08	3830.30	1.349	0.639	1.189	Magnetic, IFR, non-mag
5369.30	88.20	210.43	1942.48	-1205.10	-3736.72	3853.55	0.632	0.603	-0.190	Magnetic, IFR, non-mag
5396.85	88.54	211.72	1943.26	-1228.69	-3750.93	3877.51	1.452	0.370	1.405	Magnetic, IFR, non-mag
5423.84	88.77	212.08	1943.69	-1251.60	-3765.19	3901.18	0.475	0.256	0.400	Magnetic, IFR, non-mag
5451.23	88.89	212.80	1944.45	-1274.71	-3779.88	3925.33	0.799	0.131	0.769	Magnetic, IFR, non-mag
5478.54	88.31	212.44	1945.12	-1297.70	-3794.60	3949.44	0.750	-0.637	-0.395	Magnetic, IFR, non-mag
5505.72	88.06	212.31	1945.98	-1320.65	-3809.14	3973.38	0.311	-0.276	-0.143	Magnetic, IFR, non-mag
5532.79	87.83	212.41	1946.95	-1343.50	-3823.62	3997.22	0.278	-0.255	0.111	Magnetic, IFR, non-mag
5560.03	87.74	212.75	1948.01	-1366.43	-3838.28	4021.25	0.387	-0.099	0.374	Magnetic, IFR, non-mag
5587.25	87.63	212.93	1949.06	-1389.29	-3853.03	4045.32	0.222	0.099	0.198	Magnetic, IFR, non-mag
5615.23	87.65	212.60	1950.16	-1412.80	-3868.16	4070.04	0.403	-0.193	-0.354	Magnetic, IFR, non-mag
5642.25	87.88	212.87	1951.21	-1435.51	-3882.76	4093.91	0.394	0.255	0.300	Magnetic, IFR, non-mag
5669.63	87.97	212.85	1952.21	-1458.49	-3897.61	4118.13	0.101	0.099	-0.022	Magnetic, IFR, non-mag
5697.43	87.97	212.67	1953.19	-1481.86	-3912.64	4142.70	0.194	0.000	-0.194	Magnetic, IFR, non-mag
5724.09	88.00	212.61	1954.13	-1504.29	-3927.01	4166.24	0.075	0.034	-0.068	Magnetic, IFR, non-mag
5751.55	88.17	212.52	1955.05	-1527.42	-3941.78	4190.47	0.210	0.186	-0.098	Magnetic, IFR, non-mag
5778.65	88.23	211.82	1955.90	-1550.35	-3956.20	4214.29	0.777	0.066	-0.775	Magnetic, IFR, non-mag
5806.12	87.91	210.75	1956.82	-1573.81	-3970.46	4238.23	1.219	-0.349	-1.169	Magnetic, IFR, non-mag
5833.56	87.71	209.98	1957.87	-1597.47	-3984.32	4261.92	0.869	-0.219	-0.842	Magnetic, IFR, non-mag
5887.92	87.46	211.57	1960.16	-1644.13	-4012.11	4309.04	0.887	-0.138	0.877	Magnetic, IFR, non-mag
5914.47	87.54	210.73	1961.32	-1666.83	-4025.83	4332.14	0.953	0.090	-0.949	Magnetic, IFR, non-mag
5941.61	87.71	210.70	1962.44	-1690.14	-4039.68	4355.65	0.191	0.188	-0.033	Magnetic, IFR, non-mag
5970.22	87.34	210.34	1963.68	-1714.77	-4054.20	4380.39	0.541	-0.388	-0.377	Magnetic, IFR, non-mag
5996.53	87.17	210.32	1964.94	-1737.45	-4067.47	4403.09	0.195	-0.194	-0.023	Magnetic, IFR, non-mag
6023.77	87.37	209.98	1966.24	-1760.98	-4081.13	4426.55	0.434	0.220	-0.374	Magnetic, IFR, non-mag
6051.56	87.25	208.88	1967.54	-1785.16	-4094.77	4450.30	1.193	-0.130	-1.187	Magnetic, IFR, non-mag
6078.47	87.17	209.00	1968.85	-1808.68	-4107.78	4473.18	0.161	-0.089	0.134	Magnetic, IFR, non-mag
6105.78	87.60	208.53	1970.10	-1832.59	-4120.91	4496.36	0.699	0.472	-0.516	Magnetic, IFR, non-mag
6133.24	87.51	208.13	1971.27	-1856.74	-4133.93	4519.56	0.448	-0.098	-0.437	Magnetic, IFR, non-mag
6159.97	87.37	208.63	1972.46	-1880.23	-4146.62	4542.16	0.582	-0.157	0.561	Magnetic, IFR, non-mag
6186.68	87.08	209.11	1973.76	-1903.60	-4159.50	4564.85	0.629	-0.326	0.539	Magnetic, IFR, non-mag
6213.22	86.66	210.22	1975.20	-1926.62	-4172.62	4587.58	1.340	-0.475	1.255	Magnetic, IFR, non-mag
6241.12	86.34	210.21	1976.91	-1950.69	-4186.63	4611.61	0.344	-0.344	-0.011	Magnetic, IFR, non-mag
6268.13	86.34	210.79	1978.63	-1973.91	-4200.31	4634.93	0.643	0.000	0.644	Magnetic, IFR, non-mag
6294.82	86.46	210.27	1980.31	-1996.86	-4213.84	4657.98	0.599	0.135	-0.584	Magnetic, IFR, non-mag
6322.50	87.00	211.17	1981.89	-2020.62	-4227.96	4681.95	1.136	0.585	0.975	Magnetic, IFR, non-mag
6349.66	86.77	211.06	1983.36	-2043.83	-4241.97	4705.56	0.282	-0.254	-0.122	Magnetic, IFR, non-mag
6376.35	87.00	210.58	1984.81	-2066.72	-4255.63	4728.69	0.598	0.259	-0.540	Magnetic, IFR, non-mag

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Survey Report

STATOIL

Company:	STATOIL - Norway	**Date:** 21.06.2004	**Time:** 08:56:32	**Page:**	10
Field:	GULLFAKS	**Co-ordinate(NE) Reference:**	Site: Gullfaks B, Grid North		
Site:	Gullfaks B	**Vertical (TVD) Reference:**	RT #1 80.7		
Well:	34/10-B-42	**Section (VS) Reference:**	Well (-14.07N,15.53E,240.59Azi)		
Wellpath:	B-42 E	**Survey Calculation Method:**	Minimum Curvature	**Db:**	Oracle

Survey

MD m	Incl deg	Azim deg	TVD m	+N/-S m	+E/-W m	VS m	DLS deg/30m	Build deg/30m	Turn deg/30m	Tool/Comment
6403.96	87.17	210.63	1986.22	-2090.45	-4269.67	4752.57	0.193	0.185	0.054	Magnetic, IFR, non-mag
6431.22	87.20	209.73	1987.56	-2113.99	-4283.35	4776.06	0.990	0.033	-0.990	Magnetic, IFR, non-mag
6458.66	87.51	209.40	1988.82	-2137.83	-4296.88	4799.55	0.495	0.339	-0.361	Magnetic, IFR, non-mag
6485.95	87.77	209.72	1989.95	-2161.55	-4310.33	4822.91	0.453	0.286	0.352	Magnetic, IFR, non-mag
6513.43	87.57	208.91	1991.06	-2185.49	-4323.77	4846.38	0.910	-0.218	-0.884	Magnetic, IFR, non-mag
6567.86	88.00	210.24	1993.17	-2232.79	-4350.62	4892.99	0.770	0.237	0.733	Magnetic, IFR, non-mag
6595.06	87.97	210.18	1994.12	-2256.28	-4364.30	4916.44	0.074	-0.033	-0.066	Magnetic, IFR, non-mag
6622.38	88.48	210.82	1994.97	-2279.81	-4378.15	4940.07	0.898	0.560	0.703	Magnetic, IFR, non-mag
6649.66	88.74	211.94	1995.63	-2303.09	-4392.35	4963.87	1.264	0.286	1.232	Magnetic, IFR, non-mag
6676.84	88.66	212.00	1996.25	-2326.15	-4406.74	4987.72	0.110	-0.088	0.066	Magnetic, IFR, non-mag
6704.27	87.37	211.69	1997.20	-2349.43	-4421.21	5011.76	1.451	-1.411	-0.339	Magnetic, IFR, non-mag
6731.49	86.74	210.95	1998.60	-2372.65	-4435.34	5035.47	1.070	-0.694	-0.816	Magnetic, IFR, non-mag
6796.06	88.17	211.40	2001.46	-2427.84	-4468.73	5091.66	0.696	0.664	0.209	Magnetic, IFR, non-mag
6813.28	88.17	210.91	2002.01	-2442.57	-4477.63	5106.65	0.853	0.000	-0.854	Magnetic, IFR, non-mag
6840.74	87.34	211.44	2003.09	-2466.05	-4491.84	5130.55	1.076	-0.907	0.579	Magnetic, IFR, non-mag
6866.89	85.74	213.33	2004.67	-2488.09	-4505.81	5153.55	2.838	-1.836	2.168	Magnetic, IFR, non-mag
6893.56	84.65	214.13	2006.90	-2510.19	-4520.57	5177.26	1.519	-1.226	0.900	Magnetic, IFR, non-mag
6921.34	83.70	215.70	2009.72	-2532.85	-4536.39	5202.17	1.974	-1.026	1.695	Magnetic, IFR, non-mag
6948.37	82.78	218.52	2012.90	-2554.26	-4552.58	5226.78	3.271	-1.021	3.130	Magnetic, IFR, non-mag
6975.65	81.71	221.20	2016.59	-2575.00	-4569.90	5252.06	3.148	-1.177	2.947	Magnetic, IFR, non-mag
7002.64	80.88	222.45	2020.67	-2594.88	-4587.69	5277.32	1.654	-0.923	1.389	Magnetic, IFR, non-mag
7030.05	80.50	224.23	2025.10	-2614.56	-4606.26	5303.15	1.967	-0.416	1.948	Magnetic, IFR, non-mag
7057.39	80.48	226.65	2029.62	-2633.47	-4625.47	5329.18	2.619	-0.022	2.655	Magnetic, IFR, non-mag
7085.09	80.21	228.36	2034.27	-2651.92	-4645.60	5355.78	1.849	-0.292	1.852	Magnetic, IFR, non-mag
7112.24	79.37	229.34	2039.08	-2669.50	-4665.72	5381.94	1.413	-0.928	1.083	Magnetic, IFR, non-mag
7120.90	79.07	229.93	2040.70	-2675.01	-4672.20	5390.28	2.273	-1.032	2.062	B-42 E T2 T#1
7139.68	78.43	231.23	2044.36	-2686.71	-4686.43	5408.43	2.273	-1.026	2.068	Magnetic, IFR, non-mag
7164.45	77.56	232.77	2049.52	-2701.62	-4705.52	5432.38	2.107	-1.054	1.865	Magnetic, IFR, non-mag
7179.24	77.59	234.04	2052.70	-2710.24	-4717.12	5446.71	2.519	0.052	2.579	B-42 E T2 T#2
7195.28	77.62	235.42	2056.14	-2719.28	-4729.91	5462.30	2.519	0.064	2.578	Magnetic, IFR, non-mag
7221.64	77.97	237.54	2061.72	-2733.51	-4751.39	5487.99	2.392	0.398	2.413	Magnetic, IFR, non-mag
7248.90	78.21	240.08	2067.34	-2747.32	-4774.20	5514.65	2.748	0.264	2.795	Magnetic, IFR, non-mag
7270.22	78.21	241.08	2071.70	-2757.57	-4792.38	5535.52	1.376	-0.001	1.406	B-42 E T#1
7274.93	78.21	241.30	2072.66	-2759.79	-4796.42	5540.13	1.376	0.002	1.406	Magnetic, IFR, non-mag
7275.11	78.21	241.30	2072.70	-2759.88	-4796.58	5540.31	0.000	0.000	0.000	B-42 E T#1 (18 aug)
7303.22	77.47	242.54	2078.62	-2772.81	-4820.82	5567.78	1.516	-0.790	1.324	Magnetic, IFR, non-mag
7328.13	76.94	244.33	2084.14	-2783.67	-4842.55	5592.04	2.197	-0.638	2.156	Magnetic, IFR, non-mag
7334.98	76.70	244.77	2085.70	-2786.54	-4848.57	5598.69	2.146	-1.037	1.929	B-42 E T2 T#3
7358.97	75.68	246.32	2091.39	-2796.19	-4869.78	5621.91	2.146	-1.029	1.938	Magnetic, IFR, non-mag
7386.48	75.36	248.46	2098.22	-2806.43	-4894.38	5648.37	2.331	-0.567	2.334	Magnetic, IFR, non-mag
7413.31	74.90	249.03	2105.10	-2815.83	-4918.55	5674.04	0.803	-0.514	0.637	Magnetic, IFR, non-mag
7440.81	74.18	248.49	2112.43	-2825.44	-4943.25	5700.27	0.969	-0.785	-0.589	Magnetic, IFR, non-mag
7467.68	72.92	248.16	2120.04	-2834.95	-4967.20	5725.81	1.450	-1.407	-0.368	Magnetic, IFR, non-mag
7494.80	71.70	248.06	2128.28	-2844.59	-4991.18	5751.42	1.354	-1.350	-0.111	Magnetic, IFR, non-mag
7522.41	71.00	247.39	2137.11	-2854.50	-5015.38	5777.38	1.027	-0.761	-0.728	Magnetic, IFR, non-mag
7549.92	73.67	247.24	2145.46	-2864.61	-5039.57	5803.41	2.916	2.912	-0.164	Magnetic, IFR, non-mag
7568.75	74.02	246.16	2150.70	-2871.76	-5056.18	5821.39	1.744	0.560	-1.720	B-42 E T#2 (18 aug)
7577.15	74.18	245.68	2153.00	-2875.06	-5063.55	5829.44	1.744	0.566	-1.716	Magnetic, IFR, non-mag
7604.51	73.08	242.97	2160.71	-2886.43	-5087.21	5855.63	3.096	-1.206	-2.971	Magnetic, IFR, non-mag
7644.77	71.49	238.25	2172.97	-2905.24	-5120.62	5893.97	3.553	-1.185	-3.517	Magnetic, IFR, non-mag
7658.41	72.68	237.59	2177.17	-2912.13	-5131.61	5906.93	2.959	2.617	-1.452	Magnetic, IFR, non-mag
7685.74	74.94	236.57	2184.79	-2926.40	-5153.64	5933.13	2.704	2.481	-1.120	Magnetic, IFR, non-mag
7713.00	77.04	236.82	2191.38	-2940.92	-5175.75	5959.51	2.326	2.311	0.275	Magnetic, IFR, non-mag
7740.09	79.31	236.72	2196.94	-2955.45	-5197.92	5985.97	2.516	2.514	-0.111	Magnetic, IFR, non-mag
7767.61	81.60	236.95	2201.50	-2970.29	-5220.64	6013.04	2.509	2.496	0.251	Magnetic, IFR, non-mag
7794.72	84.65	237.14	2204.74	-2984.93	-5243.22	6039.91	3.382	3.375	0.210	Magnetic, IFR, non-mag
7822.00	88.14	237.52	2206.46	-2999.63	-5266.14	6067.08	3.861	3.838	0.418	Magnetic, IFR, non-mag
7849.19	90.17	238.53	2206.86	-3014.02	-5289.20	6094.24	2.502	2.240	1.114	Magnetic, IFR, non-mag

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Survey Report

STATOIL

Company:	STATOIL - Norway	**Date:**	21.06.2004	**Time:**	08:56:32 **Page:** 11
Field:	GULLFAKS	**Co-ordinate(NE) Reference:**	Site: Gullfaks B, Grid North		
Site:	Gullfaks B	**Vertical (TVD) Reference:**	RT #1 80.7		
Well:	34/10-B-42	**Section (VS) Reference:**	Well (-14.07N,15.53E,240.59Azi)		
Wellpath:	B-42 E	**Survey Calculation Method:**	Minimum Curvature	**Db:**	Oracle

Survey

MD m	Incl deg	Azim deg	TVD m	+N/-S m	+E/-W m	VS m	DLS deg/30m	Build deg/30m	Turn deg/30m	Tool/Comment
7876.52	90.49	239.76	2206.70	-3028.04	-5312.66	6121.56	1.395	0.351	1.350	Magnetic, IFR, non-mag
7903.70	90.46	240.99	2206.48	-3041.47	-5336.28	6148.74	1.358	-0.033	1.358	Magnetic, IFR, non-mag
7928.00	90.46	240.99	2206.28	-3053.26	-5357.54	6173.04	0.000	0.000	0.000	

Targets

Name	Description Dip.	Dir.	TVD m	+N/-S m	+E/-W m	Map Northing m	Map Easting m	<--- Latitude ---> Deg Min Sec	<--- Longitude ---> Deg Min Sec
Hp1 ST			1916.46	-467.18	-3449.30	6785342.00	453631.00	61 11 53.866 N	2 8 14.353 E
B-42 E T2 T#1			2040.70	-2597.98	-4759.60	6783212.00	452321.00	61 10 44.471 N	2 6 48.560 E
B-42 E T2 T#2			2052.70	-2850.08	-4815.62	6782960.00	452265.00	61 10 36.303 N	2 6 45.041 E
B-42 E T2 T#3			2065.70	-3170.20	-4900.85	6782640.00	452180.00	61 10 25.925 N	2 6 39.644 E
B-42 E T#1			2071.70	-2735.03	-4770.60	6783075.00	452310.00	61 10 40.039 N	2 6 47.948 E
B-42 E T#1 (18 aug) -Circle (Radius: 75)			2072.70	-2748.04	-4792.61	6783062.00	452288.00	61 10 39.609 N	2 6 46.487 E
B-42 E T#2			2150.70	-2860.08	-5040.90	6782950.00	452040.00	61 10 35.881 N	2 6 29.993 E
B-42 E T#2 (18 aug) -Circle (Radius: 75)			2150.70	-2869.08	-5055.91	6782941.00	452025.00	61 10 35.583 N	2 6 28.997 E

Casing Points

MD m	TVD m	Diameter in	Hole Size in	Name
359.97	359.79	32.000	34.000	32"
1205.36	1137.71	20.000	26.000	20"
2916.94	1720.18	13.375	17.500	13 3/8"
4099.99	1854.79	9.625	12.250	9 5/8"

6.3 Survey listing 34/10-B-42F

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Survey Report

STATOIL

Company:	STATOIL - Norway	**Date:**	21.06.2004	**Time:**	08:57:51 **Page:** 1
Field:	GULLFAKS	**Co-ordinate(NE) Reference:**	Site: Gullfaks B, Grid North		
Site:	Gullfaks B	**Vertical (TVD) Reference:**	RT #1 80.7		
Well:	34/10-B-42	**Section (VS) Reference:**	Well (-14.07N,15.53E,209.95Azi)		
Wellpath:	B-42 F	**Survey Calculation Method:**	Minimum Curvature	**Db:**	Oracle

Field:	GULLFAKS STATOIL-Norway Norway		
Map System:	Universal Transverse Mercator	**Map Zone:**	UTM Zone 31, North 0 to 6E
Geo Datum:	ED50 (International 1924)	**Coordinate System:**	Site Centre
Sys Datum:	Mean Sea Level	**Geomagnetic Model:**	BGGM2002

Site:	Gullfaks B 34/10						
Site Position:		**Northing:**	6785809.00 m	**Latitude:**	61 12	10.373	N
From:	Map	**Easting:**	457079.00 m	**Longitude:**	2 12	4.860	E
Position Uncertainty:	0.00 m			**North Reference:**		Grid	
Water Depth:	142.55 m			**Grid Convergence:**		-0.70	deg

Well:	34/10-B-42				**Slot Name:**		#30	
Surface Position:	+N/-S	-14.07 m	**Northing:**	6785794.94 m	**Latitude:**	61 12	9.925	N
	+E/-W	15.53 m	**Easting:**	457094.52 m	**Longitude:**	2 12	5.931	E
Position Uncertainty:		0.00 m						
Reference Point:	+N/-S	-14.07 m	**Northing:**	6785794.94 m	**Latitude:**	61 12	9.925	N
	+E/-W	15.53 m	**Easting:**	457094.52 m	**Longitude:**	2 12	5.931	E
			Measured Depth:	39.10 m	**Inclination:**		0.00	deg
			Vertical Depth:	39.10 m	**Azimuth:**		0.00	deg

Wellpath:	B-42 F Producer			**Drilled From:**	B-42 A
				Tie-on Depth:	4100.00 m
Current Datum:	RT #1	**Height**	80.70 m	**Above System Datum:**	Mean Sea Level
Magnetic Data:	15.06.2003			**Declination:**	-3.35 deg
Field Strength:	50815 nT			**Mag Dip Angle:**	73.30 deg

Vertical Section:	**Depth From (TVD)** m	**+N/-S** m	**+E/-W** m	**Direction** deg
	39.10	-14.07	15.53	209.95

Survey Program for Definitive Wellpath
Date: 26.05.2004 **Validated:** Yes **Version:** 15

Actual From m	**To** m	**Survey**	**Toolcode**	**Tool Name**
39.10	2879.99	B-42 RIGS 13 3/8" (39.10-2879.99) (0)	RIGS	cont,Inertial Tool from BHI
2880.00	4100.00	B-42 A KEP 12 1/4" (2879.99-5391.40) (1)	Keeper	cont,Gyro Tool from SDC
4117.00	7140.48	B-42 F MWD 8.5 x 9.875 (4117.00-7140.48)	Magnetic	IFR, non-mag,Magnetic Tools (MWD, EMS)

Survey

MD m	**Incl** deg	**Azim** deg	**TVD** m	**+N/-S** m	**+E/-W** m	**VS** m	**DLS** deg/30m	**Build** deg/30m	**Turn** deg/30m	**Tool/Comment**
39.10	0.00	0.00	39.10	-14.07	15.53	0.00	0.000	0.000	0.000	TIE LINE
39.98	0.20	250.16	39.97	-14.09	15.51	0.03	6.668	6.668	0.000	RIGS, cont
49.98	0.15	247.89	49.97	-14.11	15.47	0.07	0.155	-0.153	-6.787	RIGS, cont
59.98	0.15	227.58	59.97	-14.12	15.45	0.08	0.155	0.005	-60.944	RIGS, cont
69.98	0.11	264.12	69.97	-14.13	15.43	0.11	0.264	-0.105	109.642	RIGS, cont
79.98	0.10	275.33	79.97	-14.14	15.41	0.12	0.070	-0.031	33.611	RIGS, cont
89.98	0.13	244.01	89.97	-14.15	15.39	0.14	0.211	0.093	-93.960	RIGS, cont
99.98	0.23	240.61	99.97	-14.17	15.36	0.17	0.260	0.278	-10.206	RIGS, cont
109.98	0.41	238.65	109.97	-14.19	15.32	0.22	0.548	0.547	-5.893	RIGS, cont
119.98	0.73	236.43	119.97	-14.25	15.23	0.30	0.955	0.953	-6.644	RIGS, cont
129.99	1.07	231.80	129.98	-14.35	15.10	0.46	1.043	1.021	-13.890	RIGS, cont
139.98	1.42	229.61	139.96	-14.49	14.94	0.66	1.075	1.066	-6.564	RIGS, cont
149.98	1.71	231.58	149.96	-14.67	14.73	0.92	0.868	0.873	5.913	RIGS, cont
159.99	2.02	232.72	159.97	-14.86	14.48	1.21	0.923	0.916	3.400	RIGS, cont
169.98	2.27	231.63	169.95	-15.09	14.18	1.55	0.759	0.749	-3.277	RIGS, cont
179.99	2.55	232.33	179.95	-15.35	13.85	1.95	0.843	0.838	2.117	RIGS, cont
189.99	2.81	232.17	189.93	-15.64	13.50	2.37	0.797	0.797	-0.463	RIGS, cont
199.98	2.89	232.72	199.92	-15.95	13.10	2.85	0.249	0.235	1.653	RIGS, cont
209.99	3.02	232.17	209.91	-16.27	12.69	3.32	0.402	0.393	-1.660	RIGS, cont
219.98	3.03	232.95	219.89	-16.58	12.26	3.81	0.125	0.022	2.340	RIGS, cont
229.98	3.07	233.72	229.88	-16.90	11.84	4.30	0.170	0.117	2.315	RIGS, cont
239.98	3.10	233.57	239.87	-17.22	11.41	4.79	0.107	0.105	-0.435	RIGS, cont
249.99	3.02	234.17	249.85	-17.54	10.99	5.27	0.253	-0.235	1.788	RIGS, cont

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Survey Report

STATOIL

Company:	STATOIL - Norway	**Date:**	21.06.2004	**Time:**	08:57:51	**Page:**	2
Field:	GULLFAKS	**Co-ordinate(NE) Reference:**	Site: Gullfaks B, Grid North				
Site:	Gullfaks B	**Vertical (TVD) Reference:**	RT #1 80.7				
Well:	34/10-B-42	**Section (VS) Reference:**	Well (-14.07N,15.53E,209.95Azi)				
Wellpath:	B-42 F	**Survey Calculation Method:**	Minimum Curvature	**Db:**	Oracle		

Survey

MD m	Incl deg	Azim deg	TVD m	+N/-S m	+E/-W m	VS m	DLS deg/30m	Build deg/30m	Turn deg/30m	Tool/Comment
259.98	2.87	234.53	259.84	-17.83	10.58	5.73	0.454	-0.451	1.093	RIGS, cont
269.98	2.59	233.11	269.83	-18.11	10.20	6.16	0.869	-0.844	-4.262	RIGS, cont
280.00	2.07	232.17	279.83	-18.35	9.88	6.53	1.579	-1.575	-2.816	RIGS, cont
289.99	1.13	219.35	289.82	-18.53	9.68	6.79	2.990	-2.809	-38.484	RIGS, cont
299.99	0.65	143.59	299.81	-18.64	9.66	6.90	3.474	-1.450	-227.394	RIGS, cont
309.98	0.96	113.76	309.81	-18.72	9.79	6.89	1.538	0.937	-89.537	RIGS, cont
319.99	1.20	107.42	319.81	-18.77	9.97	6.85	0.797	0.713	-19.003	RIGS, cont
329.99	1.29	107.97	329.81	-18.83	10.18	6.80	0.278	0.276	1.633	RIGS, cont
340.00	1.24	104.86	339.82	-18.89	10.38	6.75	0.250	-0.143	-9.310	RIGS, cont
349.99	1.10	112.08	349.80	-18.95	10.58	6.70	0.608	-0.416	21.688	RIGS, cont
359.99	0.77	133.25	359.81	-19.03	10.71	6.71	1.426	-1.000	63.475	32"
369.99	0.55	188.34	369.81	-19.12	10.76	6.76	1.927	-0.648	165.276	RIGS, cont
379.99	0.84	219.63	379.80	-19.22	10.70	6.87	1.403	0.856	94.490	RIGS, cont
390.00	1.10	241.25	389.81	-19.32	10.57	7.02	1.321	0.774	64.209	RIGS, cont
400.00	1.59	252.54	399.81	-19.39	10.36	7.20	1.682	1.489	33.894	RIGS, cont
410.00	2.09	257.17	409.80	-19.46	10.03	7.41	1.550	1.485	13.884	RIGS, cont
420.00	2.76	263.34	419.79	-19.51	9.62	7.67	2.166	2.022	18.519	RIGS, cont
429.98	3.43	267.35	429.77	-19.54	9.09	7.96	2.116	2.015	12.036	RIGS, cont
439.98	3.91	272.48	439.75	-19.51	8.45	8.25	1.740	1.436	15.374	RIGS, cont
449.99	4.30	276.05	449.72	-19.47	7.72	8.57	1.397	1.168	10.713	RIGS, cont
459.99	4.60	277.84	459.70	-19.39	6.95	8.89	0.992	0.900	5.378	RIGS, cont
469.99	4.87	279.37	469.66	-19.25	6.12	9.19	0.896	0.812	4.590	RIGS, cont
480.00	5.27	280.27	479.63	-19.09	5.25	9.48	1.199	1.175	2.692	RIGS, cont
490.00	5.73	280.93	489.58	-18.91	4.31	9.80	1.422	1.409	1.968	RIGS, cont
500.01	6.27	282.11	499.53	-18.71	3.27	10.14	1.658	1.616	3.522	RIGS, cont
510.00	6.83	281.20	509.47	-18.50	2.14	10.53	1.689	1.660	-2.736	RIGS, cont
520.00	7.55	280.37	519.39	-18.27	0.90	10.94	2.188	2.166	-2.492	RIGS, cont
530.00	8.04	279.66	529.30	-18.03	-0.44	11.40	1.499	1.485	-1.525	RIGS, cont
539.99	8.47	280.00	539.19	-17.78	-1.86	11.90	1.286	1.285	0.435	RIGS, cont
550.01	8.94	280.19	549.09	-17.54	-3.35	12.43	1.414	1.412	0.548	RIGS, cont
560.01	9.37	279.79	558.96	-17.27	-4.92	12.98	1.292	1.278	-1.191	RIGS, cont
569.99	10.00	280.01	568.80	-16.99	-6.56	13.56	1.890	1.886	0.674	RIGS, cont
580.00	10.65	279.79	578.66	-16.69	-8.32	14.18	1.950	1.947	-0.674	RIGS, cont
590.01	11.23	280.07	588.47	-16.37	-10.20	14.84	1.743	1.736	0.836	RIGS, cont
600.00	11.82	279.65	598.27	-16.04	-12.17	15.53	1.810	1.793	-1.254	RIGS, cont
609.99	12.36	279.82	608.03	-15.69	-14.22	16.25	1.616	1.612	0.517	RIGS, cont
620.01	12.76	279.67	617.82	-15.32	-16.35	17.00	1.214	1.210	-0.453	RIGS, cont
629.99	13.16	279.60	627.54	-14.94	-18.54	17.77	1.193	1.192	-0.224	RIGS, cont
640.01	13.55	279.61	637.29	-14.57	-20.82	18.58	1.163	1.163	0.040	RIGS, cont
650.00	13.92	279.55	647.00	-14.18	-23.16	19.41	1.119	1.118	-0.190	RIGS, cont
659.99	14.29	279.41	656.68	-13.78	-25.57	20.26	1.120	1.116	-0.416	RIGS, cont
670.00	14.71	279.28	666.38	-13.37	-28.03	21.14	1.258	1.255	-0.378	RIGS, cont
679.98	15.04	278.62	676.03	-12.98	-30.57	22.07	1.122	0.998	-1.997	RIGS, cont
690.02	15.44	277.98	685.71	-12.60	-33.17	23.04	1.285	1.185	-1.887	RIGS, cont
700.01	15.81	276.64	695.33	-12.26	-35.82	24.07	1.456	1.124	-3.437	RIGS, cont
709.99	16.20	276.01	704.92	-11.96	-38.54	25.17	1.360	1.171	-2.509	RIGS, cont
719.99	16.63	275.56	714.51	-11.67	-41.32	26.31	1.329	1.275	-1.337	RIGS, cont
729.99	16.95	274.96	724.09	-11.41	-44.19	27.51	1.098	0.968	-1.798	RIGS, cont
740.00	17.35	274.36	733.65	-11.19	-47.11	28.77	1.318	1.206	-1.803	RIGS, cont
750.01	17.70	273.89	743.20	-10.96	-50.10	30.07	1.118	1.036	-1.392	RIGS, cont
759.99	18.06	273.25	752.68	-10.76	-53.16	31.43	1.247	1.095	-1.943	RIGS, cont
770.01	18.44	272.86	762.21	-10.60	-56.29	32.85	1.188	1.133	-1.146	RIGS, cont
779.99	18.84	272.13	771.67	-10.47	-59.48	34.33	1.400	1.211	-2.199	RIGS, cont
790.00	19.10	271.40	781.13	-10.36	-62.71	35.84	1.038	0.755	-2.192	RIGS, cont
799.99	19.50	270.75	790.56	-10.29	-66.00	37.43	1.376	1.212	-1.968	RIGS, cont
810.00	19.93	270.12	799.99	-10.24	-69.38	39.08	1.420	1.273	-1.868	RIGS, cont
820.01	20.36	269.48	809.38	-10.26	-72.83	40.81	1.461	1.302	-1.922	RIGS, cont
830.02	20.73	268.90	818.75	-10.31	-76.34	42.60	1.260	1.124	-1.744	RIGS, cont

STATOIL

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Survey Report

STATOIL

Company:	STATOIL - Norway	**Date:** 21.06.2004	**Time:** 08:57:51	**Page:**	3
Field:	GULLFAKS	**Co-ordinate(NE) Reference:**	Site: Gullfaks B, Grid North		
Site:	Gullfaks B	**Vertical (TVD) Reference:**	RT #1 80.7		
Well:	34/10-B-42	**Section (VS) Reference:**	Well (-14.07N,15.53E,209.95Azi)		
Wellpath:	B-42 F	**Survey Calculation Method:**	Minimum Curvature	**Db:**	Oracle

Survey

MD m	Incl deg	Azim deg	TVD m	+N/-S m	+E/-W m	VS m	DLS deg/30m	Build deg/30m	Turn deg/30m	Tool/Comment
840.02	21.14	268.11	828.09	-10.38	-79.92	44.45	1.475	1.205	-2.382	RIGS, cont
850.01	21.58	267.45	837.39	-10.53	-83.54	46.39	1.502	1.318	-1.978	RIGS, cont
860.01	22.06	266.76	846.67	-10.70	-87.26	48.40	1.638	1.449	-2.057	RIGS, cont
870.00	22.61	266.32	855.92	-10.92	-91.07	50.49	1.723	1.646	-1.341	RIGS, cont
880.02	23.06	265.64	865.14	-11.19	-94.95	52.66	1.582	1.374	-2.023	RIGS, cont
890.01	23.58	265.13	874.32	-11.51	-98.90	54.91	1.654	1.537	-1.547	RIGS, cont
899.99	24.23	264.59	883.45	-11.88	-102.93	57.24	2.062	1.958	-1.597	RIGS, cont
910.02	24.92	264.22	892.58	-12.27	-107.07	59.65	2.130	2.077	-1.129	RIGS, cont
920.01	25.51	264.01	901.61	-12.72	-111.30	62.15	1.785	1.766	-0.615	RIGS, cont
930.00	26.06	263.87	910.61	-13.19	-115.63	64.72	1.662	1.651	-0.437	RIGS, cont
939.99	26.67	263.85	919.55	-13.66	-120.04	67.33	1.826	1.826	-0.051	RIGS, cont
950.00	27.36	263.92	928.47	-14.14	-124.57	70.00	2.083	2.080	0.227	RIGS, cont
960.02	27.90	263.95	937.35	-14.65	-129.19	72.75	1.617	1.616	0.067	RIGS, cont
969.99	28.45	263.78	946.14	-15.15	-133.87	75.52	1.676	1.660	-0.491	RIGS, cont
980.02	29.23	263.95	954.93	-15.66	-138.68	78.37	2.339	2.327	0.494	RIGS, cont
990.01	29.88	263.83	963.63	-16.19	-143.58	81.28	1.947	1.939	-0.345	RIGS, cont
999.99	30.62	263.75	972.25	-16.74	-148.58	84.24	2.238	2.235	-0.255	RIGS, cont
1010.01	31.56	263.68	980.83	-17.31	-153.72	87.31	2.819	2.817	-0.197	RIGS, cont
1020.02	32.41	263.58	989.32	-17.90	-159.00	90.45	2.540	2.534	-0.324	RIGS, cont
1030.00	33.06	263.48	997.72	-18.50	-164.36	93.65	1.968	1.962	-0.260	RIGS, cont
1039.98	33.73	263.40	1006.05	-19.13	-169.81	96.92	2.029	2.025	-0.243	RIGS, cont
1050.02	33.97	263.39	1014.39	-19.79	-175.36	100.26	0.702	0.702	-0.048	RIGS, cont
1059.98	34.19	263.28	1022.64	-20.43	-180.91	103.58	0.698	0.676	-0.314	RIGS, cont
1070.01	34.54	263.41	1030.92	-21.08	-186.53	106.95	1.055	1.031	0.398	RIGS, cont
1080.02	34.87	263.64	1039.15	-21.72	-192.19	110.33	1.058	0.982	0.691	RIGS, cont
1090.01	35.34	264.04	1047.33	-22.35	-197.90	113.73	1.586	1.435	1.175	RIGS, cont
1099.99	35.83	264.40	1055.44	-22.91	-203.68	117.10	1.604	1.475	1.062	RIGS, cont
1110.01	36.21	264.38	1063.54	-23.49	-209.56	120.53	1.121	1.121	-0.040	RIGS, cont
1120.02	36.82	264.30	1071.59	-24.08	-215.50	124.01	1.848	1.842	-0.252	RIGS, cont
1129.99	37.35	264.12	1079.55	-24.69	-221.45	127.52	1.610	1.579	-0.524	RIGS, cont
1139.99	37.86	263.83	1087.47	-25.35	-227.54	131.12	1.636	1.548	-0.868	RIGS, cont
1149.98	38.49	263.66	1095.33	-25.99	-233.67	134.74	1.897	1.868	-0.533	RIGS, cont
1160.02	39.25	263.67	1103.15	-26.70	-239.92	138.47	2.292	2.292	0.026	RIGS, cont
1170.01	39.71	264.02	1110.85	-27.40	-246.25	142.24	1.534	1.379	1.057	RIGS, cont
1180.02	40.37	264.23	1118.51	-28.05	-252.66	146.01	2.019	1.978	0.631	RIGS, cont
1190.03	40.70	264.45	1126.11	-28.67	-259.13	149.77	1.062	0.969	0.669	RIGS, cont
1200.02	40.95	264.55	1133.68	-29.30	-265.63	153.57	0.792	0.767	0.302	RIGS, cont
1205.36	41.07	264.52	1137.71	-29.64	-269.12	155.60	0.690	0.681	-0.168	20"
1210.02	41.18	264.50	1141.22	-29.92	-272.15	157.35	0.690	0.681	-0.167	RIGS, cont
1220.00	41.50	264.45	1148.71	-30.55	-278.73	161.19	0.965	0.961	-0.139	RIGS, cont
1230.01	41.95	264.20	1156.18	-31.20	-285.34	165.05	1.447	1.358	-0.748	RIGS, cont
1240.01	42.55	264.03	1163.58	-31.91	-292.03	169.01	1.826	1.793	-0.513	RIGS, cont
1250.00	42.97	263.88	1170.91	-32.62	-298.75	172.98	1.287	1.252	-0.444	RIGS, cont
1260.00	43.43	263.60	1178.22	-33.39	-305.55	177.04	1.511	1.395	-0.848	RIGS, cont
1269.99	43.88	263.38	1185.44	-34.18	-312.40	181.14	1.425	1.350	-0.659	RIGS, cont
1279.99	44.29	263.27	1192.62	-34.99	-319.31	185.29	1.242	1.220	-0.340	RIGS, cont
1289.98	44.46	263.19	1199.76	-35.81	-326.25	189.47	0.544	0.523	-0.212	RIGS, cont
1300.02	44.12	263.21	1206.94	-36.61	-333.20	193.63	1.020	-1.019	0.059	RIGS, cont
1310.02	44.58	263.38	1214.10	-37.43	-340.12	197.80	1.416	1.373	0.497	RIGS, cont
1320.01	45.37	263.54	1221.15	-38.24	-347.13	202.00	2.415	2.391	0.479	RIGS, cont
1330.01	45.62	263.67	1228.16	-39.03	-354.23	206.23	0.781	0.727	0.399	RIGS, cont
1340.02	46.32	264.02	1235.12	-39.79	-361.38	210.45	2.226	2.098	1.035	RIGS, cont
1350.00	47.21	264.25	1241.95	-40.53	-368.62	214.71	2.741	2.692	0.708	RIGS, cont
1360.02	47.58	264.58	1248.73	-41.22	-375.95	218.97	1.312	1.096	0.979	RIGS, cont
1369.98	48.16	264.77	1255.41	-41.90	-383.33	223.24	1.807	1.759	0.556	RIGS, cont
1380.00	48.28	265.08	1262.08	-42.53	-390.75	227.49	0.791	0.354	0.948	RIGS, cont
1390.00	48.55	265.23	1268.72	-43.16	-398.20	231.76	0.876	0.806	0.459	RIGS, cont
1400.00	48.74	265.33	1275.33	-43.74	-405.70	236.01	0.621	0.585	0.275	RIGS, cont
1410.00	49.06	265.41	1281.89	-44.37	-413.19	240.29	0.961	0.941	0.258	RIGS, cont

STATOIL

Statoil
Survey Report

STATOIL

Company:	STATOIL - Norway	**Date:** 21.06.2004	**Time:** 08:57:51	**Page:**	4
Field:	GULLFAKS	**Co-ordinate(NE) Reference:**	Site: Gullfaks B, Grid North		
Site:	Gullfaks B	**Vertical (TVD) Reference:**	RT #1 80.7		
Well:	34/10-B-42	**Section (VS) Reference:**	Well (-14.07N,15.53E,209.95Azi)		
Wellpath:	B-42 F	**Survey Calculation Method:**	Minimum Curvature	**Db:**	Oracle

Survey

MD m	Incl deg	Azim deg	TVD m	+N/-S m	+E/-W m	VS m	DLS deg/30m	Build deg/30m	Turn deg/30m	Tool/Comment
1419.99	49.63	265.27	1288.41	-44.98	-420.75	244.59	1.734	1.703	-0.433	RIGS, cont
1430.00	50.53	265.24	1294.83	-45.60	-428.43	248.96	2.719	2.718	-0.093	RIGS, cont
1440.02	51.19	265.19	1301.15	-46.23	-436.19	253.39	1.985	1.981	-0.152	RIGS, cont
1449.99	51.92	265.22	1307.35	-46.91	-443.97	257.86	2.201	2.200	0.111	RIGS, cont
1460.03	52.81	265.28	1313.48	-47.57	-451.88	262.37	2.637	2.633	0.178	RIGS, cont
1470.03	53.53	265.33	1319.47	-48.23	-459.86	266.94	2.163	2.160	0.139	RIGS, cont
1479.99	54.03	265.33	1325.36	-48.86	-467.68	271.48	1.522	1.522	-0.005	RIGS, cont
1489.99	54.54	265.22	1331.19	-49.52	-475.95	276.08	1.550	1.527	-0.329	RIGS, cont
1500.01	55.37	265.01	1336.95	-50.19	-484.12	280.74	2.526	2.473	-0.629	RIGS, cont
1510.02	56.29	264.94	1342.57	-50.96	-492.38	285.53	2.760	2.775	-0.169	RIGS, cont
1520.02	56.56	264.77	1348.08	-51.71	-500.71	290.34	0.906	0.791	-0.530	RIGS, cont
1530.02	56.83	264.61	1353.57	-52.51	-509.02	295.19	0.902	0.812	-0.472	RIGS, cont
1540.00	57.33	264.35	1359.00	-53.32	-517.39	300.06	1.644	1.505	-0.769	RIGS, cont
1549.99	57.70	264.11	1364.35	-54.15	-525.75	304.96	1.268	1.123	-0.699	RIGS, cont
1560.01	57.73	264.04	1369.71	-55.05	-534.18	309.94	0.200	0.076	-0.219	RIGS, cont
1570.02	58.01	263.85	1375.04	-55.93	-542.62	314.92	0.964	0.858	-0.568	RIGS, cont
1580.01	58.73	263.59	1380.28	-56.87	-551.08	319.96	2.251	2.150	-0.783	RIGS, cont
1590.02	59.54	263.23	1385.41	-57.89	-559.63	325.11	2.606	2.435	-1.084	RIGS, cont
1600.02	60.25	263.05	1390.42	-58.94	-568.20	330.30	2.182	2.130	-0.549	RIGS, cont
1610.02	60.36	262.75	1395.37	-60.00	-576.82	335.53	0.843	0.339	-0.888	RIGS, cont
1619.99	60.54	262.73	1400.30	-61.09	-585.43	340.77	0.522	0.520	-0.056	RIGS, cont
1630.00	61.25	262.48	1405.17	-62.17	-594.11	346.03	2.242	2.139	-0.768	RIGS, cont
1640.02	61.75	262.43	1409.95	-63.31	-602.84	351.38	1.495	1.491	-0.131	RIGS, cont
1649.99	62.47	262.50	1414.62	-64.52	-611.57	356.79	2.171	2.163	0.213	RIGS, cont
1659.99	63.36	262.54	1419.17	-65.71	-620.38	362.22	2.667	2.666	0.097	RIGS, cont
1669.99	63.95	262.64	1423.61	-66.82	-629.31	367.64	1.817	1.793	0.328	RIGS, cont
1680.01	64.36	262.82	1427.99	-67.96	-638.24	373.09	1.310	1.218	0.534	RIGS, cont
1690.02	65.15	262.99	1432.26	-69.06	-647.22	378.52	2.425	2.361	0.508	RIGS, cont
1700.01	65.93	263.08	1436.39	-70.15	-656.27	383.99	2.346	2.332	0.277	RIGS, cont
1710.00	66.49	263.09	1440.42	-71.24	-665.34	389.45	1.683	1.682	0.029	RIGS, cont
1719.99	67.11	263.03	1444.36	-72.35	-674.43	394.96	1.860	1.852	-0.187	RIGS, cont
1730.02	67.70	263.06	1448.22	-73.45	-683.66	400.52	1.759	1.757	0.086	RIGS, cont
1739.99	68.19	262.90	1451.97	-74.56	-692.83	406.05	1.549	1.480	-0.494	RIGS, cont
1750.03	68.90	262.89	1455.64	-75.74	-702.08	411.69	2.136	2.136	-0.016	RIGS, cont
1760.03	69.36	262.86	1459.20	-76.93	-711.38	417.37	1.380	1.377	-0.093	RIGS, cont
1770.00	69.94	262.92	1462.68	-78.07	-720.65	422.99	1.740	1.732	0.180	RIGS, cont
1780.03	70.59	262.83	1466.06	-79.23	-730.00	428.66	1.956	1.939	-0.274	RIGS, cont
1790.00	71.19	262.82	1469.32	-80.43	-739.35	434.36	1.826	1.826	-0.039	RIGS, cont
1799.99	72.08	262.98	1472.48	-81.60	-748.76	440.08	2.709	2.666	0.507	RIGS, cont
1810.00	72.85	262.84	1475.50	-82.78	-758.25	445.84	2.332	2.296	-0.432	RIGS, cont
1820.01	73.05	262.71	1478.43	-84.00	-767.72	451.63	0.724	0.622	-0.388	RIGS, cont
1830.03	73.38	262.73	1481.32	-85.17	-777.25	457.39	0.993	0.991	0.071	RIGS, cont
1840.01	73.71	262.74	1484.14	-86.40	-786.76	463.20	0.982	0.982	0.004	RIGS, cont
1850.01	74.07	262.80	1486.92	-87.64	-796.28	469.04	1.080	1.066	0.181	RIGS, cont
1859.98	74.25	262.83	1489.64	-88.85	-805.78	474.83	0.546	0.537	0.101	RIGS, cont
1870.01	74.23	262.82	1492.35	-90.04	-815.35	480.64	0.050	-0.035	-0.036	RIGS, cont
1879.99	74.17	262.76	1495.07	-91.25	-824.89	486.45	0.238	-0.179	-0.163	RIGS, cont
1890.01	74.05	262.54	1497.81	-92.46	-834.42	492.26	0.757	-0.378	-0.682	RIGS, cont
1900.04	73.91	262.58	1500.57	-93.71	-843.87	498.05	0.422	-0.405	0.124	RIGS, cont
1909.99	74.12	262.69	1503.31	-94.99	-853.49	503.97	0.710	0.634	0.334	RIGS, cont
1920.01	74.68	262.74	1506.01	-96.21	-863.04	509.79	1.667	1.659	0.160	RIGS, cont
1930.02	75.06	262.70	1508.61	-97.42	-872.62	515.62	1.162	1.155	-0.129	RIGS, cont
1940.00	75.67	262.66	1511.14	-98.67	-882.16	521.47	1.824	1.821	-0.103	RIGS, cont
1949.98	76.38	262.69	1513.54	-99.89	-891.79	527.34	2.134	2.133	0.074	RIGS, cont
1960.00	76.78	262.61	1515.86	-101.13	-901.43	533.22	1.237	1.216	-0.235	RIGS, cont
1969.99	76.91	262.66	1518.12	-102.36	-911.11	539.12	0.420	0.388	0.164	RIGS, cont
1980.02	77.01	262.73	1520.38	-103.62	-920.80	545.04	0.329	0.275	0.186	RIGS, cont
1990.01	77.04	262.88	1522.62	-104.85	-930.44	550.93	0.456	0.090	0.459	RIGS, cont

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Survey Report

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Company:	STATOIL - Norway	**Date:** 21.06.2004	**Time:** 08:57:51	**Page:**	5
Field:	GULLFAKS	**Co-ordinate(NE) Reference:**	Site: Gullfaks B, Grid North		
Site:	Gullfaks B	**Vertical (TVD) Reference:**	RT #1 80.7		
Well:	34/10-B-42	**Section (VS) Reference:**	Well (-14.07N,15.53E,209.95Azi)		
Wellpath:	B-42 F	**Survey Calculation Method:**	Minimum Curvature	**Db:**	Oracle

Survey

MD m	Incl deg	Azim deg	TVD m	+N/-S m	+E/-W m	VS m	DLS deg/30m	Build deg/30m	Turn deg/30m	Tool/Comment
2000.02	77.10	262.92	1524.86	-106.03	-940.14	556.80	0.231	0.190	0.135	RIGS, cont
2010.02	77.01	262.97	1527.10	-107.21	-949.81	562.64	0.305	-0.277	0.131	RIGS, cont
2020.01	76.92	263.04	1529.35	-108.38	-959.45	568.47	0.331	-0.257	0.214	RIGS, cont
2030.01	76.85	263.09	1531.62	-109.52	-969.12	574.28	0.262	-0.224	0.139	RIGS, cont
2040.00	76.86	263.14	1533.89	-110.70	-978.77	580.12	0.157	0.034	0.157	RIGS, cont
2050.01	76.99	263.24	1536.16	-111.86	-988.46	585.97	0.504	0.400	0.315	RIGS, cont
2059.98	76.86	263.24	1538.41	-112.99	-998.10	591.76	0.382	-0.382	-0.008	RIGS, cont
2070.00	76.91	263.28	1540.68	-114.14	-1007.81	597.61	0.188	0.142	0.127	RIGS, cont
2080.00	76.82	263.38	1542.95	-115.25	-1017.47	603.39	0.399	-0.274	0.298	RIGS, cont
2090.02	76.82	263.39	1545.23	-116.37	-1027.21	609.22	0.032	-0.015	0.029	RIGS, cont
2100.00	76.91	263.48	1547.50	-117.49	-1036.80	614.98	0.373	0.274	0.259	RIGS, cont
2109.98	77.29	263.70	1549.73	-118.60	-1046.53	620.79	1.322	1.147	0.673	RIGS, cont
2119.99	77.75	263.99	1551.89	-119.67	-1056.24	626.57	1.605	1.374	0.851	RIGS, cont
2130.01	77.73	264.23	1554.01	-120.69	-1065.96	632.31	0.712	-0.040	0.728	RIGS, cont
2140.02	77.67	264.40	1556.13	-121.66	-1075.69	638.01	0.552	-0.202	0.525	RIGS, cont
2149.99	77.25	264.50	1558.29	-122.60	-1085.41	643.67	1.270	-1.238	0.289	RIGS, cont
2160.00	77.20	264.40	1560.51	-123.54	-1095.12	649.33	0.320	-0.153	-0.288	RIGS, cont
2169.98	77.33	264.39	1562.71	-124.51	-1104.81	655.01	0.399	0.396	-0.051	RIGS, cont
2179.99	77.34	264.34	1564.91	-125.45	-1114.53	660.68	0.131	0.029	-0.131	RIGS, cont
2189.99	77.10	264.49	1567.12	-126.41	-1124.26	666.38	0.849	-0.730	0.443	RIGS, cont
2200.01	77.01	264.81	1569.36	-127.32	-1133.99	672.01	0.959	-0.259	0.947	RIGS, cont
2210.01	77.20	265.19	1571.59	-128.19	-1143.70	677.62	1.239	0.546	1.141	RIGS, cont
2220.01	77.37	265.49	1573.80	-129.01	-1153.41	683.17	1.024	0.523	0.902	RIGS, cont
2230.02	77.37	265.54	1575.98	-129.72	-1163.16	688.66	0.154	-0.005	0.158	RIGS, cont
2240.03	77.38	265.45	1578.16	-130.53	-1172.90	694.23	0.275	0.046	-0.278	RIGS, cont
2249.98	77.44	265.34	1580.33	-131.31	-1182.59	699.74	0.340	0.153	-0.311	RIGS, cont
2260.02	77.31	265.29	1582.52	-132.11	-1192.35	705.30	0.399	-0.369	-0.154	RIGS, cont
2270.03	77.20	265.34	1584.74	-132.93	-1202.10	710.88	0.370	-0.346	0.134	RIGS, cont
2279.99	77.16	265.40	1586.95	-133.69	-1211.76	716.37	0.200	-0.099	0.178	RIGS, cont
2290.02	77.51	265.62	1589.15	-134.47	-1221.53	721.92	1.232	1.046	0.669	RIGS, cont
2300.01	77.99	265.94	1591.28	-135.15	-1231.27	727.37	1.709	1.423	0.968	RIGS, cont
2310.01	78.21	266.20	1593.34	-135.83	-1241.04	732.84	1.008	0.672	0.768	RIGS, cont
2320.00	78.19	266.23	1595.38	-136.49	-1250.79	738.27	0.128	-0.075	0.107	RIGS, cont
2330.00	78.12	266.27	1597.44	-137.09	-1260.56	743.67	0.227	-0.199	0.110	RIGS, cont
2339.99	78.30	266.24	1599.48	-137.69	-1270.33	749.07	0.561	0.553	-0.098	RIGS, cont
2350.02	78.42	266.15	1601.51	-138.34	-1280.13	754.52	0.435	0.350	-0.264	RIGS, cont
2359.99	78.23	266.19	1603.53	-139.00	-1289.88	759.97	0.576	-0.563	0.123	RIGS, cont
2369.99	78.20	266.17	1605.57	-139.65	-1299.64	765.40	0.113	-0.098	-0.057	RIGS, cont
2380.00	78.15	266.20	1607.62	-140.33	-1309.40	770.86	0.159	-0.142	0.074	RIGS, cont
2389.99	78.02	266.20	1609.68	-140.98	-1319.18	776.31	0.403	-0.403	0.005	RIGS, cont
2399.99	77.93	266.37	1611.76	-141.60	-1328.93	781.71	0.560	-0.273	0.523	RIGS, cont
2410.00	78.01	266.72	1613.86	-142.24	-1338.69	787.14	1.035	0.231	1.032	RIGS, cont
2420.01	78.12	267.04	1615.93	-142.77	-1348.47	792.49	1.017	0.335	0.981	RIGS, cont
2430.01	77.87	267.09	1618.02	-143.25	-1358.23	797.77	0.744	-0.734	0.124	RIGS, cont
2439.99	78.24	267.10	1620.08	-143.76	-1367.99	803.09	1.117	1.116	0.041	RIGS, cont
2450.03	78.68	266.95	1622.09	-144.24	-1377.80	808.40	1.364	1.316	-0.438	RIGS, cont
2460.01	78.67	266.86	1624.04	-144.76	-1387.58	813.73	0.274	-0.030	-0.277	RIGS, cont
2470.02	78.33	267.32	1626.03	-145.30	-1397.35	819.08	1.690	-1.032	1.365	RIGS, cont
2480.01	78.23	268.06	1628.07	-145.69	-1407.10	824.28	2.223	-0.307	2.249	RIGS, cont
2490.02	78.36	268.52	1630.11	-145.95	-1416.89	829.40	1.360	0.391	1.351	RIGS, cont
2500.02	78.53	268.90	1632.11	-146.25	-1426.67	834.54	1.241	0.527	1.147	RIGS, cont
2510.01	78.82	268.97	1634.07	-146.40	-1436.47	839.56	0.869	0.860	0.229	RIGS, cont
2519.99	79.04	269.08	1635.99	-146.58	-1446.24	844.60	0.731	0.660	0.322	RIGS, cont
2530.02	78.50	269.10	1637.92	-146.69	-1456.08	849.60	1.609	-1.608	0.065	RIGS, cont
2540.02	78.26	269.08	1639.94	-146.92	-1465.86	854.69	0.725	-0.722	-0.070	RIGS, cont
2550.00	78.37	269.21	1641.96	-147.04	-1475.65	859.67	0.494	0.326	0.379	RIGS, cont
2559.99	78.59	269.17	1643.96	-147.15	-1485.44	864.66	0.655	0.647	-0.104	RIGS, cont
2570.00	78.63	269.17	1645.93	-147.30	-1495.25	869.69	0.141	0.141	0.008	RIGS, cont

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Survey Report

STATOIL

Company:	STATOIL - Norway	**Date:** 21.06.2004	**Time:** 08:57:51	**Page:**	6
Field:	GULLFAKS	**Co-ordinate(NE) Reference:**	Site: Gullfaks B, Grid North		
Site:	Gullfaks B	**Vertical (TVD) Reference:**	RT #1 80.7		
Well:	34/10-B-42	**Section (VS) Reference:**	Well (-14.07N,15.53E,209.95Azi)		
Wellpath:	B-42 F	**Survey Calculation Method:**	Minimum Curvature	**Db:**	Oracle

Survey

MD m	Incl deg	Azim deg	TVD m	+N/-S m	+E/-W m	VS m	DLS deg/30m	Build deg/30m	Turn deg/30m	Tool/Comment
2580.00	78.72	269.14	1647.89	-147.42	-1505.04	874.68	0.270	0.256	-0.087	RIGS, cont
2590.00	78.80	269.23	1649.83	-147.56	-1514.86	879.70	0.351	0.253	0.247	RIGS, cont
2600.00	78.75	269.21	1651.78	-147.71	-1524.66	884.72	0.163	-0.150	-0.064	RIGS, cont
2610.02	78.78	269.21	1653.73	-147.81	-1534.51	889.73	0.075	0.071	0.026	RIGS, cont
2620.01	78.70	269.25	1655.67	-147.93	-1544.30	894.72	0.264	-0.241	0.109	RIGS, cont
2630.00	78.55	269.30	1657.65	-148.04	-1554.10	899.71	0.459	-0.440	0.134	RIGS, cont
2640.02	78.75	269.24	1659.62	-148.18	-1563.93	904.74	0.634	0.615	-0.156	RIGS, cont
2649.99	78.63	269.33	1661.56	-148.34	-1573.71	909.76	0.347	0.240	0.256	RIGS, cont
2659.98	78.67	269.28	1663.51	-148.44	-1583.50	914.73	0.508	-0.489	-0.140	RIGS, cont
2669.99	78.61	269.32	1665.48	-148.55	-1593.30	919.72	0.211	-0.181	0.110	RIGS, cont
2680.01	78.52	269.27	1667.47	-148.66	-1603.14	924.73	0.291	-0.258	-0.137	RIGS, cont
2690.00	78.39	269.20	1669.46	-148.81	-1612.92	929.74	0.468	-0.415	-0.220	RIGS, cont
2700.00	78.19	269.10	1671.50	-148.94	-1622.71	934.74	0.659	-0.588	-0.302	RIGS, cont
2709.99	78.01	269.13	1673.56	-149.09	-1632.50	939.76	0.558	-0.551	0.089	RIGS, cont
2720.00	77.83	269.11	1675.65	-149.29	-1642.30	944.82	0.548	-0.544	-0.068	RIGS, cont
2730.00	77.47	268.98	1677.79	-149.40	-1652.06	949.79	1.119	-1.057	-0.375	RIGS, cont
2739.98	77.43	268.88	1679.96	-149.64	-1661.83	954.87	0.319	-0.134	-0.297	RIGS, cont
2750.00	77.55	268.95	1682.13	-149.79	-1671.60	959.88	0.406	0.351	0.208	RIGS, cont
2759.98	77.56	268.97	1684.28	-149.99	-1681.36	964.93	0.073	0.059	0.044	RIGS, cont
2769.98	77.49	268.97	1686.45	-150.19	-1691.12	969.98	0.234	-0.233	0.026	RIGS, cont
2780.01	77.38	268.94	1688.64	-150.37	-1700.91	975.02	0.346	-0.335	-0.089	RIGS, cont
2790.01	77.27	268.88	1690.83	-150.56	-1710.71	980.08	0.365	-0.312	-0.193	RIGS, cont
2799.99	77.21	268.95	1693.03	-150.75	-1720.42	985.09	0.271	-0.172	0.215	RIGS, cont
2809.98	77.13	268.94	1695.26	-150.93	-1730.20	990.13	0.245	-0.242	-0.039	RIGS, cont
2819.99	77.14	268.86	1697.48	-151.13	-1739.94	995.17	0.230	0.010	-0.236	RIGS, cont
2829.99	77.11	268.93	1699.71	-151.32	-1749.72	1000.21	0.209	-0.066	0.203	RIGS, cont
2839.98	76.83	268.96	1701.97	-151.51	-1759.45	1005.23	0.871	-0.867	0.086	RIGS, cont
2849.98	76.48	268.99	1704.28	-151.68	-1769.18	1010.24	1.053	-1.047	0.114	RIGS, cont
2859.98	75.97	268.92	1706.67	-151.86	-1778.88	1015.24	1.524	-1.506	-0.239	RIGS, cont
2869.99	76.28	268.95	1709.07	-152.04	-1788.61	1020.25	0.928	0.924	0.094	RIGS, cont
2879.99	76.56	268.99	1711.42	-152.22	-1798.35	1025.27	0.843	0.834	0.123	RIGS, cont
2890.00	76.60	268.95	1713.74	-152.39	-1808.08	1030.28	0.160	0.117	-0.112	Keeper, cont
2900.00	76.53	268.95	1716.06	-152.57	-1817.81	1035.29	0.210	-0.210	0.000	Keeper, cont
2910.00	75.95	269.17	1718.44	-152.73	-1827.52	1040.27	1.854	-1.740	0.660	Keeper, cont
2916.94	75.08	269.23	1720.18	-152.82	-1834.24	1043.71	3.757	-3.750	0.240	13 3/8"
2920.00	74.70	269.25	1720.98	-152.86	-1837.19	1045.22	3.757	-3.750	0.241	Keeper, cont
2930.00	73.25	269.40	1723.74	-152.98	-1846.80	1050.12	4.371	-4.350	0.450	Keeper, cont
2940.00	71.53	269.73	1726.76	-153.05	-1856.33	1054.94	5.246	-5.160	0.990	Keeper, cont
2950.00	69.84	270.06	1730.07	-153.07	-1865.77	1059.66	5.155	-5.070	0.990	Keeper, cont
2960.00	69.15	270.14	1733.57	-153.05	-1875.14	1064.32	2.062	-2.070	0.240	Keeper, cont
2970.00	69.00	270.10	1737.14	-153.03	-1884.48	1068.97	0.464	-0.450	-0.120	Keeper, cont
2980.00	69.08	270.00	1740.72	-153.02	-1893.82	1073.63	0.369	0.240	-0.300	Keeper, cont
2990.00	69.70	269.78	1744.24	-153.04	-1903.18	1078.31	1.960	1.860	-0.660	Keeper, cont
3000.00	70.73	269.50	1747.63	-153.10	-1912.58	1083.06	3.189	3.090	-0.840	Keeper, cont
3010.00	72.07	269.03	1750.82	-153.22	-1922.06	1087.90	4.236	4.020	-1.410	Keeper, cont
3020.00	73.00	268.90	1753.82	-153.39	-1931.60	1092.81	2.815	2.790	-0.390	Keeper, cont
3030.00	73.90	268.94	1756.67	-153.57	-1941.18	1097.75	2.702	2.700	0.120	Keeper, cont
3040.00	75.27	268.67	1759.32	-153.77	-1950.82	1102.74	4.184	4.110	-0.810	Keeper, cont
3050.00	76.54	268.29	1761.76	-154.03	-1960.52	1107.80	3.967	3.810	-1.140	Keeper, cont
3060.00	77.39	268.01	1764.01	-154.35	-1970.25	1112.93	2.678	2.550	-0.840	Keeper, cont
3070.00	78.12	267.80	1766.13	-154.70	-1980.02	1118.12	2.275	2.190	-0.630	Keeper, cont
3080.00	79.21	267.68	1768.10	-155.09	-1989.82	1123.35	3.289	3.270	-0.360	Keeper, cont
3090.00	80.09	267.79	1769.90	-155.48	-1999.65	1128.59	2.660	2.640	0.330	Keeper, cont
3100.00	80.99	267.84	1771.54	-155.86	-2009.50	1133.84	2.704	2.700	0.150	Keeper, cont
3110.00	82.18	267.90	1773.00	-156.22	-2019.39	1139.09	3.574	3.570	0.180	Keeper, cont
3120.00	82.79	267.76	1774.31	-156.60	-2029.29	1144.36	1.877	1.830	-0.420	Keeper, cont
3130.00	83.30	267.83	1775.52	-156.98	-2039.21	1149.64	1.544	1.530	0.210	Keeper, cont
3140.00	83.77	267.89	1776.65	-157.35	-2049.14	1154.92	1.421	1.410	0.180	Keeper, cont
3150.00	84.14	267.77	1777.70	-157.73	-2059.08	1160.21	1.166	1.110	-0.360	Keeper, cont

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Survey Report

STATOIL

Company:	STATOIL - Norway	**Date:** 21.06.2004	**Time:** 08:57:51	**Page:**	7
Field:	GULLFAKS	**Co-ordinate(NE) Reference:**	Site: Gullfaks B, Grid North		
Site:	Gullfaks B	**Vertical (TVD) Reference:**	RT #1 80.7		
Well:	34/10-B-42	**Section (VS) Reference:**	Well (-14.07N,15.53E,209.95Azi)		
Wellpath:	B-42 F	**Survey Calculation Method:**	Minimum Curvature	**Db:**	Oracle

Survey

MD m	Incl deg	Azim deg	TVD m	+N/-S m	+E/-W m	VS m	DLS deg/30m	Build deg/30m	Turn deg/30m	Tool/Comment
3160.00	84.20	267.60	1778.72	-158.13	-2069.02	1165.52	0.538	0.180	-0.510	Keeper, cont
3170.00	84.16	267.54	1779.73	-158.55	-2078.96	1170.85	0.216	-0.120	-0.180	Keeper, cont
3180.00	84.34	267.40	1780.73	-158.99	-2088.90	1176.19	0.683	0.540	-0.420	Keeper, cont
3190.00	84.76	267.12	1781.68	-159.47	-2098.84	1181.57	1.512	1.260	-0.840	Keeper, cont
3200.00	84.95	266.85	1782.58	-159.99	-2108.79	1186.99	0.968	0.570	-0.810	Keeper, cont
3210.00	85.00	266.56	1783.46	-160.56	-2118.73	1192.45	0.880	0.150	-0.870	Keeper, cont
3220.00	85.10	266.26	1784.32	-161.19	-2128.68	1197.95	0.945	0.300	-0.900	Keeper, cont
3230.00	85.47	266.16	1785.14	-161.85	-2138.62	1203.49	1.150	1.110	-0.300	Keeper, cont
3240.00	85.54	266.04	1785.92	-162.52	-2148.57	1209.04	0.416	0.210	-0.360	Keeper, cont
3250.00	85.47	265.89	1786.71	-163.23	-2158.51	1214.62	0.495	-0.210	-0.450	Keeper, cont
3260.00	85.47	265.79	1787.50	-163.95	-2168.45	1220.21	0.299	0.000	-0.300	Keeper, cont
3270.00	85.57	265.70	1788.28	-164.69	-2178.40	1225.81	0.403	0.300	-0.270	Keeper, cont
3280.00	85.67	265.75	1789.04	-165.43	-2188.34	1231.42	0.335	0.300	0.150	Keeper, cont
3290.00	85.55	265.74	1789.81	-166.17	-2198.28	1237.02	0.361	-0.360	-0.030	Keeper, cont
3300.00	85.52	265.62	1790.59	-166.92	-2208.22	1242.64	0.370	-0.090	-0.360	Keeper, cont
3310.00	85.71	265.53	1791.35	-167.69	-2218.17	1248.27	0.630	0.570	-0.270	Keeper, cont
3320.00	85.92	265.49	1792.08	-168.47	-2228.11	1253.91	0.641	0.630	-0.120	Keeper, cont
3330.00	86.01	265.28	1792.78	-169.27	-2238.05	1259.57	0.684	0.270	-0.630	Keeper, cont
3340.00	85.86	265.09	1793.49	-170.11	-2247.99	1265.25	0.725	-0.450	-0.570	Keeper, cont
3350.00	85.69	264.98	1794.23	-170.98	-2257.93	1270.96	0.607	-0.510	-0.330	Keeper, cont
3360.00	85.65	264.89	1794.99	-171.86	-2267.86	1276.68	0.295	-0.120	-0.270	Keeper, cont
3370.00	85.68	264.92	1795.74	-172.74	-2277.79	1282.41	0.127	0.090	0.090	Keeper, cont
3380.00	85.66	264.94	1796.50	-173.62	-2287.72	1288.13	0.065	-0.060	0.060	Keeper, cont
3390.00	85.85	264.84	1797.24	-174.51	-2297.66	1293.86	0.644	0.570	-0.300	Keeper, cont
3400.00	86.05	264.74	1797.94	-175.42	-2307.59	1299.60	0.670	0.600	-0.300	Keeper, cont
3410.00	86.15	264.68	1798.62	-176.34	-2317.52	1305.36	0.350	0.300	-0.180	Keeper, cont
3420.00	86.06	264.64	1799.30	-177.26	-2327.46	1311.12	0.295	-0.270	-0.120	Keeper, cont
3430.00	86.03	264.54	1799.99	-178.21	-2337.39	1316.90	0.313	-0.090	-0.300	Keeper, cont
3440.00	86.35	264.44	1800.66	-179.16	-2347.32	1322.69	1.006	0.960	-0.300	Keeper, cont
3450.00	86.43	264.44	1801.29	-180.13	-2357.25	1328.48	0.240	0.240	0.000	Keeper, cont
3460.00	86.50	264.30	1801.90	-181.11	-2367.19	1334.29	0.469	0.210	-0.420	Keeper, cont
3470.00	86.66	264.25	1802.50	-182.11	-2377.12	1340.11	0.503	0.480	-0.150	Keeper, cont
3480.00	86.62	264.14	1803.09	-183.11	-2387.05	1345.95	0.351	-0.120	-0.330	Keeper, cont
3490.00	86.56	264.18	1803.68	-184.13	-2396.98	1351.78	0.216	-0.180	0.120	Keeper, cont
3500.00	86.66	264.11	1804.27	-185.15	-2406.91	1357.62	0.366	0.300	-0.210	Keeper, cont
3510.00	86.51	264.09	1804.87	-186.18	-2416.84	1363.47	0.454	-0.450	-0.060	Keeper, cont
3520.00	86.50	264.28	1805.48	-187.19	-2426.77	1369.30	0.570	-0.030	0.570	Keeper, cont
3530.00	86.33	264.54	1806.10	-188.16	-2436.70	1375.10	0.931	-0.510	0.780	Keeper, cont
3540.00	86.06	264.90	1806.77	-189.08	-2446.64	1380.86	1.348	-0.810	1.080	Keeper, cont
3550.00	85.51	265.41	1807.50	-189.92	-2456.58	1386.55	2.247	-1.650	1.530	Keeper, cont
3560.00	85.10	265.66	1808.32	-190.69	-2466.51	1392.18	1.439	-1.230	0.750	Keeper, cont
3570.00	84.99	265.86	1809.18	-191.43	-2476.45	1397.78	0.683	-0.330	0.600	Keeper, cont
3580.00	84.87	265.81	1810.07	-192.16	-2486.38	1403.37	0.390	-0.360	-0.150	Keeper, cont
3590.00	84.94	265.80	1810.95	-192.88	-2496.32	1408.96	0.212	0.210	-0.030	Keeper, cont
3600.00	84.84	265.73	1811.85	-193.62	-2506.25	1414.56	0.366	-0.300	-0.210	Keeper, cont
3610.00	84.85	265.61	1812.74	-194.37	-2516.18	1420.17	0.360	0.030	-0.360	Keeper, cont
3620.00	84.93	265.58	1813.63	-195.14	-2526.11	1425.79	0.256	0.240	-0.090	Keeper, cont
3630.00	85.07	265.55	1814.51	-195.91	-2536.04	1431.41	0.429	0.420	-0.090	Keeper, cont
3640.00	85.10	265.53	1815.36	-196.68	-2545.98	1437.04	0.108	0.090	-0.060	Keeper, cont
3650.00	85.18	265.59	1816.21	-197.45	-2555.91	1442.67	0.300	0.240	0.180	Keeper, cont
3660.00	85.44	265.80	1817.03	-198.20	-2565.85	1448.28	1.001	0.780	0.630	Keeper, cont
3670.00	85.46	265.89	1817.82	-198.92	-2575.79	1453.87	0.276	0.060	0.270	Keeper, cont
3680.00	85.39	265.71	1818.62	-199.65	-2585.73	1459.47	0.578	-0.210	-0.540	Keeper, cont
3690.00	85.44	265.50	1819.42	-200.42	-2595.67	1465.09	0.645	0.150	-0.630	Keeper, cont
3700.00	85.51	265.29	1820.21	-201.22	-2605.61	1470.74	0.662	0.210	-0.630	Keeper, cont
3710.00	85.43	265.19	1821.00	-202.04	-2615.54	1476.42	0.383	-0.240	-0.300	Keeper, cont
3720.00	85.54	265.03	1821.78	-202.89	-2625.48	1482.12	0.581	0.330	-0.480	Keeper, cont
3730.00	85.66	265.06	1822.55	-203.76	-2635.41	1487.82	0.371	0.360	0.090	Keeper, cont

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Survey Report

STATOIL

Company:	STATOIL - Norway	**Date:**	21.06.2004	**Time:** 08:57:51	**Page:** 8
Field:	GULLFAKS	**Co-ordinate(NE) Reference:**	Site: Gullfaks B, Grid North		
Site:	Gullfaks B	**Vertical (TVD) Reference:**	RT #1 80.7		
Well:	34/10-B-42	**Section (VS) Reference:**	Well (-14.07N,15.53E,209.95Azi)		
Wellpath:	B-42 F	**Survey Calculation Method:**	Minimum Curvature	**Db:**	Oracle

Survey

MD m	Incl deg	Azim deg	TVD m	+N/-S m	+E/-W m	VS m	DLS deg/30m	Build deg/30m	Turn deg/30m	Tool/Comment
3740.00	85.85	265.23	1823.29	-204.60	-2645.35	1493.51	0.764	0.570	0.510	Keeper, cont
3750.00	86.14	265.46	1823.99	-205.41	-2655.29	1499.18	1.109	0.870	0.690	Keeper, cont
3760.00	86.48	265.77	1824.63	-206.17	-2665.24	1504.81	1.379	1.020	0.930	Keeper, cont
3770.00	86.77	265.86	1825.22	-206.90	-2675.19	1510.41	0.911	0.870	0.270	Keeper, cont
3780.00	86.97	265.71	1825.77	-207.63	-2685.15	1516.02	0.750	0.600	-0.450	Keeper, cont
3790.00	86.83	265.41	1826.31	-208.41	-2695.11	1521.66	0.992	-0.420	-0.900	Keeper, cont
3800.00	86.61	264.97	1826.88	-209.24	-2705.06	1527.35	1.474	-0.660	-1.320	Keeper, cont
3810.00	86.18	264.60	1827.51	-210.15	-2715.00	1533.10	1.700	-1.290	-1.110	Keeper, cont
3820.00	85.79	264.42	1828.21	-211.11	-2724.93	1538.88	1.288	-1.170	-0.540	Keeper, cont
3830.00	85.55	264.31	1828.96	-212.09	-2734.85	1544.68	0.792	-0.720	-0.330	Keeper, cont
3840.00	85.61	264.20	1829.74	-213.08	-2744.77	1550.50	0.375	0.180	-0.330	Keeper, cont
3850.00	85.74	264.37	1830.49	-214.08	-2754.69	1556.31	0.641	0.390	0.510	Keeper, cont
3860.00	85.06	264.12	1831.29	-215.08	-2764.61	1562.13	2.173	-2.040	-0.750	Keeper, cont
3870.00	84.19	263.63	1832.23	-216.14	-2774.51	1567.99	2.992	-2.610	-1.470	Keeper, cont
3880.00	83.77	263.46	1833.28	-217.26	-2784.39	1573.90	1.358	-1.260	-0.510	Keeper, cont
3890.00	83.71	263.21	1834.37	-218.41	-2794.26	1579.82	0.767	-0.180	-0.750	Keeper, cont
3900.00	83.67	263.15	1835.47	-219.59	-2804.13	1585.77	0.215	-0.120	-0.180	Keeper, cont
3910.00	83.62	263.05	1836.57	-220.78	-2814.00	1591.73	0.334	-0.150	-0.300	Keeper, cont
3920.00	83.84	262.87	1837.67	-222.00	-2823.86	1597.72	0.851	0.660	-0.540	Keeper, cont
3930.00	83.78	262.80	1838.74	-223.24	-2833.73	1603.71	0.276	-0.180	-0.210	Keeper, cont
3940.00	83.95	262.82	1839.81	-224.49	-2843.59	1609.72	0.513	0.510	0.060	Keeper, cont
3950.00	84.07	262.86	1840.86	-225.73	-2853.46	1615.72	0.379	0.360	0.120	Keeper, cont
3960.00	84.23	262.94	1841.88	-226.96	-2863.33	1621.71	0.536	0.480	0.240	Keeper, cont
3970.00	84.13	262.92	1842.89	-228.18	-2873.20	1627.70	0.306	-0.300	-0.060	Keeper, cont
3980.00	84.40	262.97	1843.89	-229.40	-2883.08	1633.69	0.824	0.810	0.150	Keeper, cont
3990.00	84.64	262.80	1844.84	-230.64	-2892.96	1639.69	0.881	0.720	-0.510	Keeper, cont
4000.00	84.58	262.81	1845.78	-231.88	-2902.83	1645.70	0.182	-0.180	0.030	Keeper, cont
4010.00	84.80	262.78	1846.71	-233.13	-2912.71	1651.72	0.666	0.660	-0.090	Keeper, cont
4020.00	84.41	262.78	1847.65	-234.38	-2922.59	1657.73	1.170	-1.170	0.000	Keeper, cont
4030.00	84.55	262.75	1848.61	-235.64	-2932.46	1663.75	0.429	0.420	-0.090	Keeper, cont
4040.00	84.89	262.68	1849.53	-236.90	-2942.34	1669.77	1.041	1.020	-0.210	Keeper, cont
4050.00	84.97	262.59	1850.41	-238.18	-2952.22	1675.81	0.360	0.240	-0.270	Keeper, cont
4060.00	85.03	262.55	1851.29	-239.46	-2962.10	1681.86	0.216	0.180	-0.120	Keeper, cont
4070.00	85.01	262.41	1852.15	-240.77	-2971.97	1687.92	0.423	-0.060	-0.420	Keeper, cont
4080.00	84.85	262.30	1853.04	-242.09	-2981.85	1693.99	0.562	-0.480	-0.330	Keeper, cont
4090.00	84.97	262.22	1853.93	-243.43	-2991.72	1700.08	0.432	0.360	-0.240	Keeper, cont
4100.00	85.15	262.16	1854.79	-244.79	-3001.59	1706.19	0.569	0.540	-0.180	9 5/8"
4117.00	84.74	260.62	1856.28	-247.32	-3018.33	1716.74	2.802	-0.724	-2.718	Magnetic, IFR, non-mag
4199.04	85.28	261.71	1863.42	-259.88	-3099.09	1767.93	0.443	0.197	0.399	Magnetic, IFR, non-mag
4225.77	85.45	260.20	1865.58	-264.06	-3125.40	1784.70	1.700	0.191	-1.695	Magnetic, IFR, non-mag
4253.47	85.48	257.66	1867.77	-269.37	-3152.49	1802.62	2.742	0.032	-2.751	Magnetic, IFR, non-mag
4281.32	85.54	257.53	1869.95	-275.33	-3179.61	1821.53	0.154	0.065	-0.140	Magnetic, IFR, non-mag
4308.56	89.46	257.16	1871.14	-281.29	-3206.16	1839.94	4.336	4.317	-0.407	Magnetic, IFR, non-mag
4335.96	88.91	255.26	1871.53	-287.82	-3232.76	1858.89	2.165	-0.602	-2.080	Magnetic, IFR, non-mag
4363.38	87.77	253.43	1872.32	-295.22	-3259.15	1878.47	2.358	-1.247	-2.002	Magnetic, IFR, non-mag
4390.73	86.40	251.82	1873.71	-303.37	-3285.22	1898.55	2.317	-1.503	-1.766	Magnetic, IFR, non-mag
4418.09	84.25	249.78	1875.94	-312.34	-3310.97	1919.17	3.245	-2.357	-2.237	Magnetic, IFR, non-mag
4445.76	81.72	247.88	1879.32	-322.25	-3336.58	1940.55	3.421	-2.743	-2.060	Magnetic, IFR, non-mag
4472.83	80.39	245.83	1883.53	-332.76	-3361.16	1961.93	2.665	-1.474	-2.272	Magnetic, IFR, non-mag
4500.08	82.61	245.33	1887.56	-343.90	-3385.70	1983.83	2.504	2.444	-0.550	Magnetic, IFR, non-mag
4527.36	82.41	244.54	1891.12	-355.36	-3410.20	2005.99	0.869	-0.220	-0.869	Magnetic, IFR, non-mag
4554.75	82.09	243.84	1894.81	-367.18	-3434.63	2028.43	0.837	-0.350	-0.767	Magnetic, IFR, non-mag
4580.83	81.80	241.68	1898.47	-379.00	-3457.59	2050.13	2.483	-0.334	-2.485	Magnetic, IFR, non-mag
4608.14	81.51	240.15	1902.43	-392.13	-3481.21	2073.30	1.693	-0.319	-1.681	Magnetic, IFR, non-mag
4635.13	80.85	238.19	1906.57	-405.60	-3504.11	2096.58	2.274	-0.734	-2.179	Magnetic, IFR, non-mag
4662.49	80.47	236.55	1911.01	-420.36	-3526.84	2120.54	1.823	-0.417	-1.798	Magnetic, IFR, non-mag
4689.69	79.74	234.05	1915.68	-435.61	-3548.87	2144.75	2.833	-0.805	-2.757	Magnetic, IFR, non-mag
4694.06	79.77	233.73	1916.46	-438.14	-3552.34	2148.68	2.144	0.227	-2.167	Hp1 ST

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Survey Report

STATOIL

Company:	STATOIL - Norway	**Date:**	21.06.2004	**Time:**	08:57:51	**Page:**	9
Field:	GULLFAKS	**Co-ordinate(NE) Reference:**	Site: Gullfaks B, Grid North				
Site:	Gullfaks B	**Vertical (TVD) Reference:**	RT #1 80.7				
Well:	34/10-B-42	**Section (VS) Reference:**	Well (-14.07N,15.53E,209.95Azi)				
Wellpath:	B-42 F	**Survey Calculation Method:**	Minimum Curvature	**Db:**	Oracle		

Survey

MD m	Incl deg	Azim deg	TVD m	+N/-S m	+E/-W m	VS m	DLS deg/30m	Build deg/30m	Turn deg/30m	Tool/Comment
4716.84	79.95	232.09	1920.47	-451.66	-3570.23	2169.33	2.144	0.233	-2.166	Magnetic, IFR, non-mag
4743.88	80.06	229.43	1925.16	-468.51	-3590.85	2194.22	2.909	0.122	-2.951	Magnetic, IFR, non-mag
4771.17	81.08	227.27	1929.64	-486.40	-3610.97	2219.76	2.597	1.121	-2.374	Magnetic, IFR, non-mag
4798.61	83.04	225.19	1933.43	-505.20	-3630.59	2245.85	3.109	2.143	-2.274	Magnetic, IFR, non-mag
4825.93	84.53	223.19	1936.38	-524.67	-3649.52	2272.17	2.728	1.636	-2.196	Magnetic, IFR, non-mag
4853.04	85.54	222.14	1938.73	-544.53	-3667.82	2298.52	1.609	1.118	-1.162	Magnetic, IFR, non-mag
4880.31	89.51	221.55	1939.91	-564.82	-3685.99	2325.17	4.415	4.367	-0.649	Magnetic, IFR, non-mag
4907.71	90.49	220.40	1939.91	-585.51	-3703.96	2352.06	1.654	1.073	-1.259	Magnetic, IFR, non-mag
4934.81	88.51	218.71	1940.15	-606.40	-3721.22	2378.78	2.862	-2.192	-1.871	Magnetic, IFR, non-mag
4961.79	87.17	218.01	1941.16	-627.54	-3737.95	2405.45	1.681	-1.490	-0.778	Magnetic, IFR, non-mag
4989.07	86.37	216.36	1942.70	-649.24	-3754.41	2432.47	2.014	-0.880	-1.815	Magnetic, IFR, non-mag
5016.23	85.62	215.47	1944.60	-671.18	-3770.30	2459.41	1.284	-0.828	-0.983	Magnetic, IFR, non-mag
5043.65	85.82	215.25	1946.64	-693.48	-3786.13	2486.64	0.325	0.219	-0.241	Magnetic, IFR, non-mag
5070.91	85.88	214.85	1948.62	-715.74	-3801.74	2513.72	0.444	0.066	-0.440	Magnetic, IFR, non-mag
5098.04	85.74	213.87	1950.60	-738.07	-3817.01	2540.69	1.092	-0.155	-1.084	Magnetic, IFR, non-mag
5125.05	85.34	213.72	1952.70	-760.45	-3831.99	2567.56	0.474	-0.444	-0.167	Magnetic, IFR, non-mag
5152.27	85.05	212.56	1954.98	-783.16	-3846.82	2594.64	1.313	-0.320	-1.278	Magnetic, IFR, non-mag
5179.52	84.79	211.65	1957.39	-806.16	-3861.24	2621.77	1.038	-0.286	-1.002	Magnetic, IFR, non-mag
5206.61	84.65	211.04	1959.88	-829.19	-3875.27	2648.73	0.690	-0.155	-0.676	Magnetic, IFR, non-mag
5233.84	84.22	210.27	1962.52	-852.51	-3889.09	2675.83	0.968	-0.474	-0.848	Magnetic, IFR, non-mag
5261.35	84.02	209.38	1965.34	-876.25	-3902.70	2703.20	0.990	-0.218	-0.971	Magnetic, IFR, non-mag
5288.42	83.96	208.68	1968.18	-899.79	-3915.77	2730.12	0.774	-0.066	-0.776	Magnetic, IFR, non-mag
5315.48	84.10	208.16	1970.99	-923.46	-3928.58	2757.02	0.594	0.155	-0.576	Magnetic, IFR, non-mag
5342.90	84.62	207.83	1973.69	-947.55	-3941.38	2784.29	0.673	0.569	-0.361	Magnetic, IFR, non-mag
5370.10	85.45	207.08	1976.04	-971.60	-3953.88	2811.36	1.232	0.915	-0.827	Magnetic, IFR, non-mag
5397.42	86.77	206.97	1977.89	-995.88	-3966.26	2838.58	1.454	1.449	-0.121	Magnetic, IFR, non-mag
5424.61	88.00	206.77	1979.13	-1020.11	-3978.54	2865.71	1.375	1.357	-0.221	Magnetic, IFR, non-mag
5452.18	88.89	206.88	1979.88	-1044.70	-3990.97	2893.22	0.976	0.968	0.120	Magnetic, IFR, non-mag
5479.59	88.80	206.86	1980.44	-1069.15	-4003.36	2920.59	0.101	-0.099	-0.022	Magnetic, IFR, non-mag
5506.89	88.49	207.08	1981.08	-1093.47	-4015.74	2947.84	0.418	-0.341	0.242	Magnetic, IFR, non-mag
5533.24	88.08	206.44	1981.87	-1116.99	-4027.60	2974.14	0.865	-0.467	-0.729	Magnetic, IFR, non-mag
5560.56	86.74	205.57	1983.10	-1141.51	-4039.56	3001.37	1.754	-1.471	-0.955	Magnetic, IFR, non-mag
5588.26	87.40	206.12	1984.52	-1166.41	-4051.62	3028.96	0.930	0.715	0.596	Magnetic, IFR, non-mag
5615.48	88.37	206.66	1985.52	-1190.78	-4063.71	3056.11	1.223	1.069	0.595	Magnetic, IFR, non-mag
5643.12	89.34	206.66	1986.08	-1215.47	-4076.11	3083.70	1.053	1.053	0.000	Magnetic, IFR, non-mag
5670.53	90.66	207.12	1986.08	-1239.92	-4088.51	3111.07	1.530	1.445	0.503	Magnetic, IFR, non-mag
5697.75	90.97	207.10	1985.69	-1264.15	-4100.91	3138.25	0.342	0.342	-0.022	Magnetic, IFR, non-mag
5725.17	90.54	207.12	1985.33	-1288.55	-4113.41	3165.64	0.471	-0.470	0.022	Magnetic, IFR, non-mag
5752.58	89.83	206.94	1985.24	-1312.97	-4125.86	3193.01	0.802	-0.777	-0.197	Magnetic, IFR, non-mag
5779.84	89.43	206.92	1985.42	-1337.27	-4138.21	3220.23	0.441	-0.440	-0.022	Magnetic, IFR, non-mag
5806.24	88.91	206.52	1985.80	-1360.85	-4150.08	3246.59	0.745	-0.591	-0.455	Magnetic, IFR, non-mag
5832.87	88.26	206.11	1986.46	-1384.71	-4161.88	3273.15	0.866	-0.732	-0.462	Magnetic, IFR, non-mag
5860.15	87.91	205.68	1987.37	-1409.22	-4173.63	3300.35	0.460	-0.385	-0.253	Magnetic, IFR, non-mag
5887.49	87.60	206.42	1988.44	-1433.74	-4185.87	3327.61	0.663	-0.340	0.593	Magnetic, IFR, non-mag
5914.67	87.66	206.75	1989.56	-1458.03	-4198.02	3354.72	0.370	0.066	0.364	Magnetic, IFR, non-mag
5942.15	87.83	207.21	1990.64	-1482.50	-4210.48	3382.14	0.535	0.186	0.502	Magnetic, IFR, non-mag
5969.58	88.03	207.65	1991.63	-1506.80	-4223.15	3409.53	0.733	0.219	0.700	Magnetic, IFR, non-mag
5996.44	88.20	208.10	1992.52	-1530.51	-4235.74	3436.36	0.338	0.190	0.279	Magnetic, IFR, non-mag
6023.95	88.29	208.36	1993.36	-1554.74	-4248.75	3463.85	0.300	0.098	0.284	Magnetic, IFR, non-mag
6051.19	88.20	208.65	1994.19	-1578.67	-4261.74	3491.06	0.334	-0.099	0.319	Magnetic, IFR, non-mag
6078.35	87.91	209.42	1995.12	-1602.40	-4274.92	3518.21	0.908	-0.320	0.851	Magnetic, IFR, non-mag
6105.70	87.71	210.14	1996.16	-1626.12	-4288.49	3545.54	0.819	-0.219	0.790	Magnetic, IFR, non-mag
6133.01	87.51	210.41	1997.30	-1649.68	-4302.25	3572.82	0.369	-0.220	0.297	Magnetic, IFR, non-mag
6160.27	87.49	210.98	1998.49	-1673.10	-4316.15	3600.05	0.627	-0.022	0.627	Magnetic, IFR, non-mag
6187.47	87.28	211.53	1999.73	-1696.33	-4330.25	3627.22	0.649	-0.232	0.607	Magnetic, IFR, non-mag
6214.45	87.17	212.43	2001.04	-1719.19	-4344.52	3654.15	1.007	-0.122	1.001	Magnetic, IFR, non-mag
6241.89	86.91	212.87	2002.45	-1742.26	-4359.30	3681.52	0.558	-0.284	0.481	Magnetic, IFR, non-mag
6269.07	86.86	212.92	2003.93	-1765.05	-4374.04	3708.63	0.078	-0.055	0.055	Magnetic, IFR, non-mag
6296.43	86.94	212.58	2005.41	-1788.03	-4388.82	3735.91	0.382	0.088	-0.373	Magnetic, IFR, non-mag

STATOIL

Statoil
Survey Report

STATOIL

Company:	STATOIL - Norway	**Date:** 21.06.2004	**Time:** 08:57:51	**Page:**	10
Field:	GULLFAKS	**Co-ordinate(NE) Reference:**	Site: Gullfaks B, Grid North		
Site:	Gullfaks B	**Vertical (TVD) Reference:**	RT #1 80.7		
Well:	34/10-B-42	**Section (VS) Reference:**	Well (-14.07N,15.53E,209.95Azi)		
Wellpath:	B-42 F	**Survey Calculation Method:**	Minimum Curvature	**Db:**	Oracle

Survey

MD m	Incl deg	Azim deg	TVD m	+N/-S m	+E/-W m	VS m	DLS deg/30m	Build deg/30m	Turn deg/30m	Tool/Comment
6323.51	86.77	211.92	2006.90	-1810.90	-4403.25	3762.93	0.754	-0.168	-0.731	Magnetic, IFR, non-mag
6350.69	86.89	211.67	2008.40	-1833.96	-4417.55	3790.05	0.306	0.132	-0.276	Magnetic, IFR, non-mag
6377.99	86.83	210.90	2009.89	-1857.26	-4431.70	3817.31	0.847	-0.066	-0.846	Magnetic, IFR, non-mag
6405.32	86.68	210.11	2011.44	-1880.77	-4445.56	3844.59	0.881	-0.165	-0.867	Magnetic, IFR, non-mag
6432.53	86.77	209.14	2013.00	-1904.38	-4458.98	3871.76	1.072	0.099	-1.069	Magnetic, IFR, non-mag
6459.70	87.03	208.97	2014.47	-1928.10	-4472.16	3898.88	0.343	0.287	-0.188	Magnetic, IFR, non-mag
6486.94	87.49	208.66	2015.77	-1951.94	-4485.27	3926.09	0.611	0.507	-0.341	Magnetic, IFR, non-mag
6514.23	87.77	208.57	2016.90	-1975.87	-4498.33	3953.34	0.323	0.308	-0.099	Magnetic, IFR, non-mag
6541.43	88.03	208.13	2017.89	-1999.79	-4511.24	3980.52	0.563	0.287	-0.485	Magnetic, IFR, non-mag
6568.20	88.23	208.19	2018.77	-2023.38	-4523.87	4007.26	0.234	0.224	0.067	Magnetic, IFR, non-mag
6595.54	88.83	208.81	2019.47	-2047.40	-4536.91	4034.58	0.947	0.658	0.680	Magnetic, IFR, non-mag
6622.81	89.06	208.61	2019.97	-2071.31	-4550.01	4061.84	0.335	0.253	-0.220	Magnetic, IFR, non-mag
6650.21	89.54	209.19	2020.30	-2095.30	-4563.25	4089.23	0.824	0.526	0.635	Magnetic, IFR, non-mag
6676.96	89.09	208.79	2020.62	-2118.70	-4576.21	4115.98	0.675	-0.505	-0.449	Magnetic, IFR, non-mag
6704.22	88.71	208.27	2021.15	-2142.64	-4589.23	4143.22	0.709	-0.418	-0.572	Magnetic, IFR, non-mag
6731.67	87.91	207.14	2021.96	-2166.93	-4601.98	4170.64	1.513	-0.874	-1.235	Magnetic, IFR, non-mag
6758.91	87.26	206.28	2023.11	-2191.24	-4614.22	4197.81	1.187	-0.716	-0.947	Magnetic, IFR, non-mag
6786.09	86.60	206.00	2024.51	-2215.61	-4626.17	4224.89	0.594	-0.508	-0.309	Magnetic, IFR, non-mag
6813.05	86.89	205.54	2026.00	-2239.85	-4637.88	4251.74	0.521	0.100	-0.512	Magnetic, IFR, non-mag
6840.45	86.86	203.77	2027.49	-2264.72	-4649.29	4278.98	1.935	-0.033	-1.938	Magnetic, IFR, non-mag
6867.31	87.06	203.20	2028.92	-2289.32	-4659.98	4305.64	0.674	0.223	-0.637	Magnetic, IFR, non-mag
6893.22	87.26	202.61	2030.20	-2313.16	-4670.05	4331.32	0.721	0.232	-0.683	Magnetic, IFR, non-mag
6921.91	87.31	201.27	2031.56	-2339.74	-4680.76	4359.70	1.401	0.052	-1.401	Magnetic, IFR, non-mag
6948.48	87.11	200.41	2032.85	-2364.54	-4690.20	4385.90	0.996	-0.226	-0.971	Magnetic, IFR, non-mag
6976.27	87.20	198.88	2034.23	-2390.68	-4699.53	4413.21	1.652	0.097	-1.652	Magnetic, IFR, non-mag
7004.16	87.46	198.27	2035.53	-2417.09	-4708.41	4440.52	0.713	0.280	-0.656	Magnetic, IFR, non-mag
7030.82	88.00	197.12	2036.59	-2442.47	-4716.50	4466.55	1.429	0.608	-1.294	Magnetic, IFR, non-mag
7058.72	88.60	195.96	2037.37	-2469.20	-4724.44	4493.68	1.515	0.860	-1.247	Magnetic, IFR, non-mag
7085.98	87.94	194.97	2038.14	-2495.46	-4731.71	4520.06	1.443	-0.946	-1.090	Magnetic, IFR, non-mag
7113.32	87.43	195.11	2039.25	-2521.84	-4738.80	4546.46	0.580	-0.560	0.154	Magnetic, IFR, non-mag
7140.48	86.08	195.18	2040.78	-2548.02	-4745.88	4572.67	1.493	-1.491	0.077	Magnetic, IFR, non-mag
7179.00	86.08	195.18	2043.42	-2585.11	-4755.94	4609.83	0.000	0.000	0.000	7"
7180.00	86.08	195.18	2043.48	-2586.07	-4756.20	4610.80	0.000	0.000	0.000	

Targets

Name	Description Dip.	Dir.	TVD m	+N/-S m	+E/-W m	Map Northing m	Map Easting m	<--- Latitude ---> Deg	Min	Sec		<--- Longitude ---> Deg	Min	Sec	
Hp1 ST			1916.46	-467.18	-3449.30	6785342.00	453631.00	61	11	53.866	N	2	8	14.353	E
B-42 E T2 T#1			2040.70	-2597.98	-4759.80	6783212.00	452321.00	61	10	44.471	N	2	6	48.560	E
B-42 E T2 T#2			2052.70	-2850.08	-4815.82	6782960.00	452265.00	61	10	36.303	N	2	6	45.041	E
B-42 E T2 T#3			2065.70	-3170.20	-4900.85	6782640.00	452180.00	61	10	25.925	N	2	6	39.644	E
B-42 E T#1 (18 aug) -Circle (Radius: 75)			2072.70	-2748.04	-4792.61	6783062.00	452288.00	61	10	39.609	N	2	6	46.487	E

Casing Points

MD m	TVD m	Diameter in	Hole Size in	Name
359.97	359.79	32.000	34.000	32"
1205.36	1137.71	20.000	26.000	20"
2916.94	1720.18	13.375	17.500	13 3/8"
4099.99	1854.79	9.625	12.250	9 5/8"
7179.00	2043.42	7.000	8.500	7"

7 Appendix 2: Figures and tables

7.1 Figure Wellbore schematic

WELL SCHEMATIC

Well: 34/10-B-42 F
Field: Gullfaks
Rig: Gullfaks B

HOLE SIZE [“]	HOLE TVD MD [m]	CASING SIZE [“]	CASING TYPE / PUPS & RAD. MARKERS	CASING CENTRALIZERS / SHOE TRACK	CASING TEST PRESS [BAR]	LOT FIT [SG]	TOC / TOL MD	TOC / TOL TVD	CSG. SHOE TVD	CSG. SHOE MD	RKB	WL LOGS	LWD LOGS	SURV CSG/ OH
SB	223,25													
36“	360	32“	Preinstalled							360				
24“	1298	20“	Preinstalled						_	1297,8				
17 1/2“	_ 2922	13 3/8“	Preinstalled				2260	1583	1720	2917				
12 1/4“	1855 4105	9 5/8“ Liner	Preinstalled				4053	1850	1855	4105,6	Whipstock			
9 7/8“	2044 7180	7“ Liner	7“ liner - 29,0# L-80 VAM TOP	Spiroglider centralizers 1 pr joint from shoe to 6801 m MD	295 bar 1,60 Sg mud		6800	2025	2044	7180			GR/RES DEN/NEU SONIC FPT	

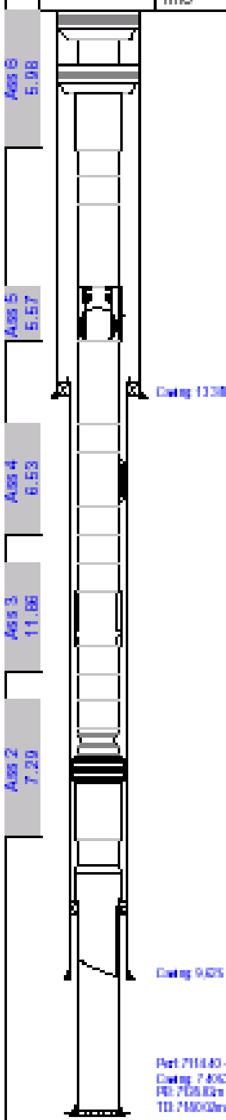
Comments: FIT performed to 1,80 Sg EMW

TOC at 6800 m MD is estimated, and based on no change of pressure while pumping cmt with losses.
An expected increase when foram cmt entered the loss zone was not observed.

7.2 Figure Completion schematic

Gullfaks	COMPLETION SCHEMATIC	Page 1 of 1
Well: NO 34/10-B-42 E (Gas Producer)		**Prep. by:** ASto **Date:** 29.01.2004
Compl.: 1.00 **Tub.Inst.Date:** 26.01.2004		**Rev.:** 1.00 **Opr.Fin.Date:** 27.01.2004

Remark: Det er benyttet Halliburton 7" Seal Stem m/self aligning Mule Shoe. Total lengde under No Go: 4,57 m (self align. Mule Shoe: 1,33 m, Seal Sub: 0,82 m og Stem: 2,42 m) , nominell ID 6,023" og drift ID: 6,00", Minste ID i brønnen er gjennom DHSV: 6,00" (drift ID: 5,995"). Tubing og liner er trykktestet til 310bar. Ringrom og overside av produksjons pakning: 280 bar.



MD [RKB] Top [m]	TVD [RKB] [m]	Length [m]	ID [inch]	Drift ID [inch]	Description	Comment
32.57	32.57	0.74	6.280		7" Upper Hanger	
33.31	33.31	2.52	6.184	6.059	7" 29# BDS Pup Joint	
35.83	35.83	0.50	6.280		7" 29# Lower Hanger	
36.33	36.33	2.22	6.184	6.059	7" 29# BDS P x 7" 29# Vam Top P, X-over	
38.55	38.55	3.58	6.184	6.059	7" 29# Vam Top Pup Joint	
42.13	42.13	2.57	6.184	6.059	7" 29# Vam Top Pup Joint	
44.70	44.70	494.49	6.184	6.059	7" 29# Vam Top Tubing	
539.19	538.40	5.57	6.000	5.995	7" TRM-4P-CF-NS DHSV	
544.76	543.91	3432.18	6.184	6.059	7" 29# Vam Top Tubing	
3976.94	1843.67	3.03	6.184	6.059	7" 29# Vam Top Pup Joint	
3979.97	1843.97	1.45	6.031	6.000	7", 29# Roxar Gauge Carrier	
3981.42	1844.11	2.05	6.184	6.059	7" 29# Vam Top Pup Joint	
3983.47	1844.31	12.02	6.184	6.059	7" 29# Vam Top Tubing	
3995.49	1845.44	2.04	6.184	6.059	7" 29# Vam Top Pup Joint	
3997.53	1845.64	7.73	6.094	6.020	9 5/8" x 7" PBR-20 Expansion Joint	
4005.26	1846.36	2.09	6.184	6.059	7" 29# Vam Top Pup Joint	
4007.35	1846.55	12.02	6.184	6.059	7" 29# Vam Top Tubing	
4019.37	1847.67	3.05	6.184	6.059	7" 29# Vam Top Pup Joint	
4022.42	1847.97	0.19	6.184	6.028	7" RHRS-1MD Stinger	
4022.61	1847.99	2.02	6.039	6.028	9 5/8" x 7.5" HSP-1 ME	
4024.63	1848.18	2.03	6.184	6.059	7" 29# New Vam B x 7" 29# Vam Top P, X-over	
4026.66	1848.38	24.05	6.184	6.059	7" 29# Vam Top Tubing	
4050.71	1850.58	6.95	5.926	6.000	7" 32#Seal Stem w/Self. align muleshoe	HB 7" Seal stem, Max OD (No Go): 8,310", ID 6,023" (drift ID 6,00")
4057.66						

Completion Data

PBTD MD:	7128.00m	TVD:	m	Max deviation:	91.0Deg@5597.02m
TD MD:	7180.00m	TVD:	m	Max dogleg:	5.5Deg@5940.02m
Top of fill MD:	m	TVD:	m	Av. angle thru pay:	87.4Deg
Fill date:		RKB-THGH:	32.57m	Vol. annulus:	137.924m^3
Up/down weight	124,480,4 ton	RKB-MSL:	40.80m	Tub. str. vol:	77.970m^3
Packer fluid: 1,03 sg NaCl					

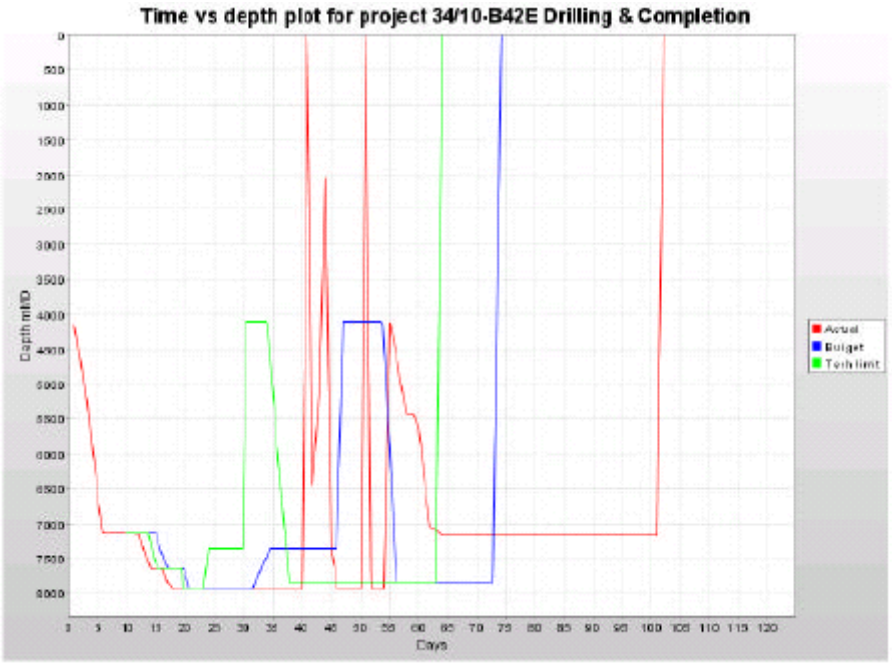
Perforation

Mineral Zones	MD Top m	MD Bottom m	Phasing Deg	Shot/'	Date Shot	Date Closed
	7114.40	7127.05	60	6.0	06.02.2004	

Casing

Size inch	Top MD m	Set MD m	Nom Wt. lb/ft	ID inch	Mat Spec	Threads
32.000	0.02	390.02		30.000	- ? -	
20.000	0.02	1298.02	133.00	18.730	- ? -	Antares
13.375	0.02	2917.02	72.00	12.347	- ? -	New Vam
9.625	2357.70	4109.20	53.50	8.535	- ? -	New Vam
7.000	4053.00	7180.00	29.00	6.184	L-80	Vam Top

7.3 Time/depth curve & key figures



7.4 Time planner

Project planner — 34/10-B42E Drilling _Completion

T.O050C.DG.B042E

		Start time	End time	Budget time hrs	Acc Budget days	Tech limit hrs	Acc tech days	Planned time hrs	Actual time hrs	Acc actual days	% comp	Description
		23.09.03 01:30	10.10.03 22:00	407,8	17,0	379,0	15,8	419,0	428,0	17,8		PERM P&A [NO 34/10-B-42 D]
1	Tue	23.09.03 01:30	25.09.03 07:00	72,0	3,0	55,0	2,3	55,0	53,5	2,2	100	1: R/D TSR & 9 5/8" (dummy) hanger. R/U & test 13 5/8" BOP & riser.Install WB
2	Thu	25.09.03 07:00	25.09.03 16:00	8,0	3,3	6,0	2,5	6,0	9,0	2,6	100	2: P/U, M/U & RIH with BHA for drilling cement plug.
3	Thu	25.09.03 16:00	26.09.03 16:30	24,4	4,4	18,0	3,3	18,0	24,5	3,6	100	3: P/U & RIH with 5" and 5 1/2" DP to 1981 m.
4	Fri	26.09.03 16:30	28.09.03 19:00	48,0	6,4	48,0	5,3	48,0	50,5	5,7	100	4: Drill cement from 1981 m to 2260 m. Pressure test casing to 265 bar. POOH. LD 5" DP.
5	Sun	28.09.03 19:00	29.09.03 15:00	20,0	7,2	22,0	6,2	22,0	20,0	6,6	100	5: MU PBR clean up assy. RIH to 2258 m while PU 82 sgl 5 1/2" DP. Drill cement inside PBR.
6	Mon	29.09.03 15:00	30.09.03 05:30	12,0	7,7	15,0	6,8	15,0	14,5	7,2	100	6: POOH from 2262 m. LD 800 m 5" DP.
7	Tue	30.09.03 05:30	30.09.03 11:30	4,8	7,9	7,0	7,1	7,0	6,0	7,4	100	7: P/U & M/U BHA for run #3. Function test 13 5/8" BOP.
8	Tue	30.09.03 11:30	30.09.03 22:00	7,2	8,2	16,0	7,8	16,0	10,5	7,9	100	8: RIH to 2255 m while Puca. 160 jnts 5 1/2" DP.
9	Tue	30.09.03 22:00	01.10.03 13:00	19,2	9,0	10,0	8,2	10,0	15,0	8,5	100	10: Drill cement from 2262 m to 2309 m
10	Wed	01.10.03 13:00	02.10.03 13:00	19,0	9,8	12,0	8,7	22,0	24,0	9,5	100	11: RIH to approximately 4250 m MD, to gauge 9 5/8" liner prior to run whipstock
11	Thu	02.10.03 13:00	03.10.03 13:00	17,6	10,5	10,0	9,1	22,0	24,0	10,5	100	12: Circ. clean. Press. test. Scrape whip. setting area. POOH to 3200 m. PU 1000 m DP. POOH.
12	Fri	03.10.03 13:00	03.10.03 17:30	6,0	10,8	5,0	9,3	5,0	4,5	10,7	100	13: L/D BHA.
13	Fri	03.10.03 17:30	03.10.03 19:30	4,8	11,0	3,0	9,5	1,0	2,0	10,8	100	14: P/U & M/U EZSV assembly.
14	Fri	03.10.03 19:30	04.10.03 12:00	15,0	11,6	12,0	10,0	15,0	16,5	11,4	100	15: RIH with EZSV and set same at 4205 (top plug). Pressure test well to 242 bar.
15	Sat	04.10.03 12:00	04.10.03 22:00	12,0	12,1	8,0	10,3	9,0	10,0	11,9	100	16: POOH. LD EZSV running tool.
16	Sat	04.10.03 22:00	05.10.03 00:00	2,0	12,2	2,0	10,4	2,0	2,0	11,9	100	17: Slip and cut drill line.
17	Sun	05.10.03 00:00	05.10.03 07:30	7,2	12,5	8,0	10,7	10,0	7,5	12,3	100	18: P/U and MU whipstock assembly.
18	Sun	05.10.03 08:00	06.10.03 07:00	23,2	13,4	20,0	11,5	23,0	23,0	13,2	100	19: RIH with whipstock to 4100 m
19	Mon	06.10.03 07:00	06.10.03 08:00	2,4	13,5	1,0	11,6	1,0	1,0	13,3	100	20: Orient whipstock
20	Mon	06.10.03 08:00	06.10.03 09:30	3,0	13,7	1,0	11,6	2,0	1,5	13,3	100	21: Set & release whipstock
21	Mon	06.10.03 09:30	06.10.03 22:00	8,0	14,0	6,0	11,9	12,0	12,5	13,8	100	22:Displace to OBM. Clean surface system.
22	Mon	06.10.03 22:00	07.10.03 05:00	7,2	14,3	6,0	12,1	6,0	7,0	14,1	100	23: Mill window in 9 5/8" liner
23	Tue	07.10.03 05:00	07.10.03 07:00	4,8	14,5	3,0	12,3	3,0	2,0	14,2	100	24: Perform a FIT to 1,80 Sg EMW
24	Tue	07.10.03 07:00	07.10.03 17:30	14,4	15,1	12,0	12,8	12,0	10,5	14,6	100	25: POOH
25	Tue	07.10.03 17:30	07.10.03 23:30	0,0	15,1	4,0	12,9	4,0	6,0	14,9	100	26: L/D BHA. Clear rig floor.
26	Tue	07.10.03 23:30	08.10.03 02:00	0,0	15,1	4,0	13,1	4,0	2,5	15,0	100	27:MU new 8 1/2" mill BHA.
27	Wed	08.10.03 02:00	08.10.03 13:30	0,0	15,1	9,0	13,5	9,0	11,5	15,5	100	28: RIH with 8 1/2" mill BHA to 4105 m.
28	Wed	08.10.03 13:30	08.10.03 18:00	0,0	15,1	2,0	13,6	2,0	4,5	15,7	100	29: Dress 9 5/8" window.
29	Wed	08.10.03 18:00	09.10.03 09:00	0,0	15,1	9,0	13,9	13,0	15,0	16,3	100	30: POOH with 8 1/2" mill BHA. LD 6 1/2" DC.
30	Thu	09.10.03 09:00	09.10.03 22:00	0,0	15,1	6,0	14,2	6,0	13,0	16,8	100	Flush and test 13 5/8" BOP
31	Thu	09.10.03 22:00	10.10.03 02:30	7,2	15,4	7,0	14,5	7,0	4,5	17,0	100	P/U, M/U & RIH with 8 1/2" BHA
32	Fri	10.10.03 02:30	10.10.03 10:30	31,2	16,7	26,0	15,5	26,0	8,0	17,4	100	P/U & RIH with 5 1/2" DP (Optional 5" DP)
33	Fri	10.10.03 10:30	10.10.03 21:30	2,4	16,8	2,0	15,6	2,0	11,0	17,8	100	Cont. RIH with 8 1/2" BHA on DP (Stands)
34	Fri	10.10.03 21:30	10.10.03 22:00	4,8	17,0	4,0	15,8	4,0	0,5	17,8	100	Establish circulation and slide through window
		10.10.03 22:00	04.11.03 00:30	612,6	25,5	510,0	21,3	647,0	578,5	24,1		8 1/2" [NO 34/10-B-42 E]
35	Fri	10.10.03 22:00	15.10.03 19:30	296,2	29,3	234,0	25,5	293,0	117,5	22,7	100	Drill 8 1/2"x 9 7/8" hole from 4105 m MD to 7153 m MD

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		Start time	End time	Budget time hrs	Acc Budget days	Tech limit hrs	Acc tech days	Planned time hrs	Actual time hrs	Acc actual days	% comp	Description
		10.10.03 22:00	04.11.03 00:30	612,6	25,5	510,0	21,3	647,0	578,5	24,1		8 1/2" [NO 34/10-B-42 E]
36	Wed	15.10.03 19:30	16.10.03 09:00	9,6	29,7	10,0	26,0	12,0	13,5	23,3	100	Circulate hole clean
37	Thu	16.10.03 09:00	18.10.03 10:00	25,0	30,8	50,0	28,0	40,0	49,0	25,3	100	Backream/ Pull OOH. LD pipe when POOH. LD BHA.
38	Sat	18.10.03 10:00	18.10.03 17:30	0,0	30,8	5,0	28,3	8,0	7,5	25,6	100	BOP test. Perform critical maintenance.
39	Sat	18.10.03 17:30	21.10.03 22:30	26,0	31,9	25,0	29,3	50,0	77,0	28,9	100	MU BHA. PU 163 m 5 1/2" drill pipe. Slip and cut. RIH to 6750 m. Log from 6750 m to 7153 m.
40	Tue	21.10.03 22:30	23.10.03 13:30	44,6	33,7	34,0	30,7	40,0	39,0	30,5	100	Drill 8 1/2" x 9 7/8" hole from 7153 m to 7591 m MD. Take pressure points.
41	Thu	23.10.03 13:30	23.10.03 18:00	9,6	34,1	4,0	30,9	6,0	4,5	30,7	100	Drill 8 1/2" x 9 7/8" hole from 7591 m to 7644 m while PU DP.
42	Thu	23.10.03 18:00	26.10.03 03:00	0,0	34,1	50,0	33,0	50,0	57,0	33,0	100	Change DC motor to DDM
43	Sun	26.10.03 03:00	30.10.03 00:00	60,0	36,6	50,0	35,0	56,0	93,0	36,9	100	Drill 8 1/2" x 9 7/8" hole from 7644 m to +/- 8200 m while PU DP.
44	Thu	30.10.03 00:00	30.10.03 04:30	26,4	37,7	4,0	35,2	12,0	4,5	37,1	100	Circulate hole clean
45	Thu	30.10.03 04:30	03.11.03 08:00	84,4	41,2	30,0	36,5	60,0	99,5	41,3	100	Backream/ Pull OOH
46	Mon	03.11.03 08:00	03.11.03 16:00	16,8	41,9	7,0	36,8	8,0	8,0	41,6	100	LD BHA and clear rigfloor.
47	Mon	03.11.03 16:00	04.11.03 00:30	14,0	42,5	7,0	37,0	12,0	8,5	41,9	100	Test BOP
		04.11.03 00:30	04.12.03 06:00	679,0	28,3	303,0	12,6	475,5	725,5	30,2		PERM P&A [NO 34/10-B-42 E]
48	Tue	04.11.03 00:30	04.11.03 09:00	9,0	42,9	11,0	37,5	6,0	8,5	42,3	100	P&A: P/U BHA and DP
49	Tue	04.11.03 09:00	10.11.03 00:00	137,0	48,6	34,0	38,9	20,0	135,0	47,9	100	RIH with cmt stinger. Circ BU at 4100, 6652 and TD.
50	Mon	10.11.03 00:00	12.11.03 21:00	70,0	51,5	23,0	39,9	36,0	69,0	50,8	100	Backream OOH to 5449 m. RIH to 7490 m. Set cmt plug from 7490 m to 7360 m.
51	Wed	12.11.03 21:00	13.11.03 02:30	6,0	51,8	12,0	40,4	8,0	5,5	51,0	100	Circulate hole clean
52	Thu	13.11.03 02:30	14.11.03 21:00	43,0	53,6	35,0	41,8	26,0	42,5	52,8	100	Pump OOH to 4100 m. Slip and cut. Pump/POOH to 2250m. Circulate BU. POOH.
53	Fri	14.11.03 21:00	15.11.03 07:00	11,0	54,0	2,0	41,9	11,0	10,0	53,2	100	POOH while LD 5"/ 3 1/2" DP. L/D cement stinger.
54	Sat	15.11.03 07:00	15.11.03 22:00	15,5	54,7	5,5	42,1	10,0	15,0	53,8	100	Test 13 5/8" BOP. Perform FV routines. Change washpipe.
55	Sat	15.11.03 22:00	16.11.03 02:00	4,5	54,9	2,0	42,2	3,0	4,0	54,0	100	P/U BHA for pressure formation testing.
56	Sun	16.11.03 02:00	21.11.03 06:00	125,0	60,1	30,0	43,5	51,0	124,0	59,2	100	RIH to 7353 while PU 56 jnt 5" DP. Circ. clean at 4160 m.
57	Fri	21.11.03 06:00	23.11.03 05:00	48,0	62,1	30,0	44,7	39,0	47,0	61,1	100	Pump OOH to 2200 m. Circ. clean. POOH. LD 5" DP.
58	Sun	23.11.03 05:00	23.11.03 09:30	5,0	62,3	2,5	44,8	4,0	4,5	61,3	100	L/D BHA.
59	Sun	23.11.03 09:30	24.11.03 04:00	19,0	63,1	18,0	45,6	18,0	18,5	62,1	100	P/U BHA and DP. RIH with cmt stinger.
60	Mon	24.11.03 04:00	25.11.03 08:00	29,0	64,3	15,0	46,2	30,0	28,0	63,3	100	Set cmt plug in 9 5/8" liner. Circulate clean. POOH. LD cmt stinger.
61	Tue	25.11.03 08:00	30.11.03 13:00	64,0	66,9	24,0	47,2	126,0	125,0	68,5	100	Perform clean up run to 4116 m. Incerased MW to 1,76 SG prior to POOH.
62	Sun	30.11.03 13:00	30.11.03 19:00	6,0	67,2	6,0	47,5	6,0	6,0	68,7	100	Test BOP
63	Sun	30.11.03 19:00	03.12.03 02:00	55,0	69,5	34,0	48,9	52,0	55,0	71,0	100	MU cement stinger. PU 3 1/2" DP. RIH to 4168 m. Set/ squeeze cement plug. Hold pressure. Pump/ POOH. LD 3 1/2" DP and assy.
64	Wed	03.12.03 02:00	03.12.03 22:30	24,0	70,5	16,0	49,5	22,0	20,5	71,9	100	MU 8 1/2" x 9 7/8" BHA. PU 17 joints 5" DP range III. RIH to 3937 m. Wash down to 4093 m.
65	Wed	03.12.03 22:30	04.12.03 06:00	8,0	70,8	3,0	49,7	7,5	7,5	72,2	100	Drill cement from 4093 m MD to 4115 m MD. Kick off well. Drill from 4115 m to 4125 m. Perform FIT to 1,80 SG.
		04.12.03 06:00	18.01.04 21:30	459,4	19,1	702,0	29,3	889,0	1095,5	45,6		8 1/2" [NO 34/10-B-42 F]
66	Thu	04.12.03 06:00	06.12.03 19:30	56,0	73,1	99,0	53,8	50,0	61,5	74,7	100	Drill 8 1/2" x 9 7/8" hole from 4125 m to app. 5500 m.
67	Sat	06.12.03 19:30	07.12.03 02:30	17,0	73,9	12,0	54,3	12,0	7,0	75,0	100	Circulate hole clean

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		Start time	End time	Budget time hrs	Acc Budget days	Tech limit hrs	Acc tech days	Planned time hrs	Actual time hrs	Acc actual days	% comp	Description
		04.12.03 06:00	18.01.04 21:30	459,4	19,1	702,0	29,3	889,0	1095,5	45,6		8 1/2" [NO 34/10-B-42 F]
68	Sun	07.12.03 02:30	07.12.03 20:00	36,0	75,4	17,0	55,0	30,0	17,5	75,8	100	Pump/POOH. LD BHA.
69	Sun	07.12.03 20:00	08.12.03 15:00	0,0	75,4	15,0	55,6	22,0	19,0	76,5	100	Change BHA. RIH to 5411 m
70	Mon	08.12.03 15:00	12.12.03 09:00	100,0	79,5	135,5	61,3	120,0	90,0	80,3	100	Drill 8 1/2" x 9 7/8" hole from 5411m to 7180 m
71	Fri	12.12.03 09:00	15.12.03 16:00	0,0	79,5	30,0	62,5	40,0	79,0	83,6	100	Circ BU. Back ream / Pump OOH.
72	Mon	15.12.03 16:00	15.12.03 22:00	0,0	79,5	3,5	62,7	5,0	6,0	83,8	100	LD BHA
73	Mon	15.12.03 22:00	17.12.03 08:30	0,0	79,5	7,0	63,0	6,0	34,5	85,3	100	Test BOP
74	Wed	17.12.03 08:30	18.12.03 12:00	0,0	79,5	13,0	63,5	24,0	27,5	86,4	100	PU new BHA. RIH to 4300 m.
75	Thu	18.12.03 12:00	20.12.03 10:00	0,0	79,5	18,0	64,3	46,0	46,0	88,3	100	Circ. BU. RIH to TD and circ BU at several spots to clean hole. Aborted at 6315 due to pack off problems.
76	Sat	20.12.03 10:00	22.12.03 21:00	0,0	79,5	23,0	65,2	53,0	59,0	90,8	100	Pump OOH to 9 5/8" liner. POOH. LD 8 1/2" BHA.
77	Mon	22.12.03 21:00	24.12.03 12:00	0,0	79,5	23,0	66,2	36,0	39,0	92,4	100	MU 12 1/4" clean up BHA. RIH and clean 13 3/8" casing. POOH. LD 400 m DP. LD 12 1/4" BHA.
78	Wed	24.12.03 12:00	27.12.03 15:00	0,0	79,5	46,0	68,1	76,0	75,0	95,5	100	MU BHA. PU 196 jnt 5" DP. RIH to 3847 m. Plugged BHA. POOH/ LD DP. LD BHA.
79	Sat	27.12.03 15:00	28.12.03 13:00		79,5	7,0	68,4	6,0	22,0	96,5	100	Test BOP.
80	Sun	28.12.03 13:00	07.01.04 02:00	0,0	79,5	44,0	70,2	50,0	229,0	106,0	100	PU 8 1/2" BHA. RIH to 2845 m while PU DP. Lubricated to TD. Attempted to establish circulation at 7100 m. Short trip to 5832 m to establish circulation. Lubricate to 7180 m.
81	Wed	07.01.04 02:00	10.01.04 06:00	0,0	79,5	54,0	72,5	65,0	76,0	109,2	100	Lubricate OOH. Circ. BU at 4100 m. Pump OOH to 2250 m. Circ BU. LD DP and BHA. Test BOP.
82	Sat	10.01.04 06:00	10.01.04 13:00	4,0	79,7	2,0	72,5	5,0	7,0	109,5	100	Rig up handling equipment for running 7" liner
83	Sat	10.01.04 13:00	12.01.04 04:00	65,2	82,4	40,0	74,2	60,0	39,0	111,1	100	4: PAU, MU & RIH with 7" liner to 3128 m MD
84	Mon	12.01.04 04:00	12.01.04 05:00	2,4	82,5	2,0	74,3	2,0	1,0	111,1	100	5: Rig down handling equipment for liner, and rig up handling equipment for DP
85	Mon	12.01.04 05:00	13.01.04 19:00	43,0	84,3	37,0	75,8	42,0	38,0	112,7	100	6: RIH with 7" liner on 5 1/2" DP to TD
86	Tue	13.01.04 19:00	14.01.04 06:00	7,2	84,6	7,0	76,1	7,0	11,0	113,2	100	7: Fill liner
87	Wed	14.01.04 06:00	14.01.04 12:00	7,2	84,9	3,0	76,3	7,0	6,0	113,4	100	8: Set hanger and circulate to clean hole and sufficient rate has been established
88	Wed	14.01.04 12:00	14.01.04 13:00	2,4	85,0	0,5	76,3	2,0	1,0	113,5	100	9: Perform a pre-job meeting prior to cement liner
89	Wed	14.01.04 13:00	14.01.04 18:00	21,6	85,9	4,0	76,4	15,0	5,0	113,7	100	10: Cement & test 7" liner
90	Wed	14.01.04 18:00	14.01.04 20:00	2,4	86,0	0,5	76,5	2,0	2,0	113,8	100	11: Set & test packer
91	Wed	14.01.04 20:00	15.01.04 00:00	9,6	86,4	8,0	76,8	8,0	4,0	113,9	100	12: Circulate out excess cement
92	Thu	15.01.04 00:00	15.01.04 19:00	16,0	87,1	8,0	77,1	16,0	19,0	114,7	100	13: POOH with running string. LD running tool. Clear rig floor. LD 5" pipe.
93	Thu	15.01.04 19:00	16.01.04 17:30	15,0	87,7	8,0	77,5	24,0	22,5	115,6	100	16: Run & set plug in 9 5/8" liner prior to nipple BOP
94	Fri	16.01.04 17:30	16.01.04 20:00	2,4	87,8	1,0	77,5	2,0	2,5	115,8	100	24: Wash WH & BOP with jet sub
95	Fri	16.01.04 20:00	16.01.04 23:00	12,0	88,3	4,0	77,7	8,0	3,0	115,9	100	33: Nipple down 13 5/8" BOP and riser
96	Fri	16.01.04 23:00	17.01.04 03:00	8,0	88,6	3,0	77,8	8,0	4,0	116,0	100	34: Install new bolts in WH, 10 3/4" dummy hanger
97	Sat	17.01.04 03:00	17.01.04 06:00	8,0	89,0	3,0	77,9	6,0	3,0	116,2	100	35: Nipple up TSR and extension
98	Sat	17.01.04 06:00	17.01.04 20:00	12,0	89,5	9,0	78,3	16,0	14,0	116,8	100	36: N/U 13 5/8" BOP and riser. Test BOP and csg.
99	Sat	17.01.04 20:00	18.01.04 21:30	12,0	90,0	15,0	78,9	18,0	25,5	117,8	100	37: Pull plug in 9 5/8" liner and LD 5" DP.
		18.01.04 21:30	27.01.04 18:30	210,2	8,8	171,5	7,1	178,0	213,0	8,9		COMPL [NO 34/10-B-42 F]
100	Sun	18.01.04 21:30	19.01.04 18:30	31,2	91,3	26,0	80,0	26,0	21,0	118,7	100	37: PAU, MU & RIH with clean out string for 7" liner

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		Start time	End time	Budget time hrs	Acc Budget days	Tech limit hrs	Acc tech days	Planned time hrs	Actual time hrs	Acc actual days	% comp	Description
		18.01.04 21:30	27.01.04 18:30	210,2	8,8	171,5	7,1	178,0	213,0	8,9		COMPL [NO 34/10-B-42 F]
101	Mon	19.01.04 18:30	19.01.04 20:30	4,8	91,5	4,0	80,2	3,0	2,0	118,8	100	38: P/U & M/U 7" PBR mill assy
102	Mon	19.01.04 20:30	20.01.04 09:30	15,0	92,1	10,0	80,6	12,0	13,0	119,3	100	39: RIH with clean out assy to 7120 m MD
103	Tue	20.01.04 09:30	20.01.04 14:00	4,0	92,2	4,0	80,8	6,0	4,5	119,5	100	40: Mill/dress 7" PBR / condition mud 2 X BU.
104	Tue	20.01.04 14:00	21.01.04 14:30	16,8	92,9	12,0	81,3	16,0	24,5	120,5	100	41: Displace well to SW/brine. Inflow test & test. Wash well.
105	Wed	21.01.04 14:30	22.01.04 18:00	12,0	93,4	10,0	81,7	21,0	27,5	121,7	100	42: POOH with PBR mill assy. LD DP.
106	Thu	22.01.04 18:00	22.01.04 19:00	2,4	93,5	2,0	81,8	2,0	1,0	121,7	100	43: L/D PBR mill assy
107	Thu	22.01.04 19:00	23.01.04 15:30	28,8	94,7	26,0	82,8	16,0	20,5	122,6	100	44: POOH with clean out string. LD DP.
108	Fri	23.01.04 15:30	23.01.04 19:30	0,0	94,7	4,0	83,0	4,0	4,0	122,7	100	L/D 5" DP from derrick
109	Fri	23.01.04 19:30	23.01.04 22:30	4,8	94,9	2,0	83,1	2,0	3,0	122,9	100	45: Remove wear bushings in TSR.
110	Fri	23.01.04 22:30	24.01.04 02:00	2,4	95,0	2,0	83,2	2,0	3,5	123,0	100	46: P/U and run Dummy hanger. Space out for 7" hanger in WH
111	Sat	24.01.04 02:00	24.01.04 07:00	4,8	95,2	4,0	83,3	4,0	5,0	123,2	100	47: Rig up 7" handling equipment, drums for controll lines, etc
112	Sat	24.01.04 07:00	24.01.04 07:30	2,4	95,3	0,5	83,4	1,0	0,5	123,2	100	48: Perform a pre-job meeting prior to run 7" tubing
113	Sat	24.01.04 07:30	26.01.04 07:30	48,0	97,0	44,0	85,2	30,0	48,0	125,2	100	49: P/U, M/U & RIH with 7" tubing string
114	Mon	26.01.04 07:30	26.01.04 08:00	2,4	97,1	0,5	85,2	1,0	0,5	125,3	100	50: Perform a pre-job meeting prior to p/u hanger and land tubing
115	Mon	26.01.04 08:00	26.01.04 13:00	7,2	97,4	2,0	85,3	7,0	5,0	125,5	100	51: Space out and p/u hanger. Connect control lines.
116	Mon	26.01.04 13:00	26.01.04 16:00	4,8	97,6	2,0	85,4	3,0	3,0	125,6	100	52: Land tubing hanger in WH
117	Mon	26.01.04 16:00	26.01.04 20:00	9,6	98,0	3,5	85,5	7,0	4,0	125,8	100	53: Pressure test well & DHSV
118	Mon	26.01.04 20:00	27.01.04 02:30	0,0	98,0	3,0	85,6	3,0	6,5	126,0	100	RU false rotary. RIH and set shallow plug. POOH and test plug.
119	Tue	27.01.04 02:30	27.01.04 03:30	2,4	98,1	2,0	85,7	2,0	1,0	126,1	100	54: POOH with landing string
120	Tue	27.01.04 03:29	27.01.04 03:30	2,4	98,2	0,0	85,7	2,0	0,0	126,1	100	55: Clear rig floor
121	Tue	27.01.04 03:30	27.01.04 18:30	12,0	98,7	8,0	86,1	8,0	15,0	126,7	100	57: Nipple down 13 5/8" BOP and nipple up X-mas tree

7.5 Drilling fluids recap table

7.5.1 Fluid tests

7.5.2 Drilling fluid volumes

8 Appendix 4: DBR Summary/BHA/BIT

8.1 DBR Summary 34/10-B-42 E

Operations

Wellbore: NO 34/10-B-42 E

Time from	Time to	Time used	Depth mMD	Act code	--- Status --- During opr	End of opr	Description of activities
10.10.2003 22:00	00:00	2,0	4156,0	DDDU	OK	OK	Drilled 8 1/2" hole from 4115 m to 4156 m with 1700 lpm/ 202 bar, 30-80 rpm/ 15-33 kNm, 2-4 t WOB. Dropped ball and engaged underreamer. Observed 5-6 bar pressuredrop. Had to set weight on bit to see second pressure drop of 10-11 bar. Performed overpull test by pumping 1800 lpm and pulling up. Had 10 t overpull. Good indication of engaging underreamer. Underreamed area from 4156 m to 4140 m.
11.10.2003 00:00	06:00	6,0	4255,0	DDDU	OK	OK	Drilled 8 1/2" x 9 7/8" hole from 4156 m to 4255 m with 1800-1900 lpm/ 190-213 bar, 160 rpm/ 24 kNm, 2-4 t WOB. Reamed stand once when needed due to high ECD. Max gas 3,6 %. Max ECD 1,78 SG.
11.10.2003 06:00	00:00	18,0	4621,0	DDDU	OK	OK	Drilled 8 1/2" x 9 7/8" hole from 4255 m to 4621 m with 1900 LPM/ 206-213 bar, 160 RPM/ 18-28 kNm, 0-5 ton WOB. Reamed each stand once. Max ECD 1,75 SG.
12.10.2003 00:00	06:00	6,0	4790,0	DDDU	OK	OK	Drilled 8 1/2" x 9 7/8" hole from 4621 m to 4790 m with 1900 LPM/ 207-220 bar, 160 RPM/ 18-29 kNm, 2-5 ton WOB. Reamed each stand once. Max ECD 1,78 SG. ECD mainly around 1,75 SG.
12.10.2003 06:00	00:00	18,0	5275,0	DDDU	OK	OK	Drilled 8 1/2" x 9 7/8" hole from 4690 m to 5275m with 1900 LPM/ 210-220 bar, 160 RPM/ 22-34 kNm, 0-3 ton WOB. Reamed each stand once using 10 min up/down. Max ECD 1,78 SG. Average ECD 1,73 - 1,75 SG. Stringer at 5086 m.
13.10.2003 00:00	06:00	6,0	5465,0	DDDU	OK	OK	Drilled 8 1/2" x 9 7/8" hole from 5275 m to 5465 m with 1900 LPM/ 210-220 bar, 160 RPM/ 26-34 kNm, 0-3 ton WOB. Reamed each stand once using 10 min up/down. Max ECD 1,75 SG. Average ECD 1,74 - 1,75 SG.
13.10.2003 06:00	00:00	18,0	5985,0	DDDU	OK	OK	Drilled 8 1/2" x 9 7/8" hole from 5465 m to 5985 m with 1900 LPM/ 225-236 bar, 160 RPM/ 26-36 kNm, 0-3 ton WOB. Reamed each stand once using 10 min up/ down. Max ECD 1,76 SG. Avarage ECD 1,74 - 1,75 SG. Stringers at 5557 m and 5587 m.
14.10.2003 00:00	06:00	6,0	6147,0	DDDU	OK	OK	Drilled 8 1/2" x 9 7/8" hole from 5985 m to 6147 m with 1900 LPM/ 230-242 bar, 160 RPM/ 25-37 kNm, 0-5 ton WOB. Reamed each stand once using 10 min up/ down. Max ECD 1,76 SG. Avarage ECD 1,75 SG.
14.10.2003 06:00	09:30	3,5	6255,0	DDDU	OK	E FAIL	Drilled 8 1/2" x 9 7/8" hole from 6147 m to 6255 m with 1900 LPM/ 230-245 bar, 160 RPM/ 25-37 kNm, 0-5 ton WOB. Reamed each stand once using 10 min up/ down. Max ECD 1,77 SG. Average ECD 1,76 SG. Problems with weak MWD signals causing loss of data.
14.10.2003 09:30	10:30	1,0	6255,0	DEMD	E FAIL	OK	Attempted to down link to MWD tool by adjusting the flow rates up and down in certain intervals to change from 3 bits/ second to 2 bits/ second transmission rate.
14.10.2003 10:30	11:30	1,0	6282,0	DDDU	OK	E FAIL	Drilled 8 1/2" x 9 7/8" hole from 6255 m to 6282 m with 1900 LPM/ 246 bar, 160 RPM/ 25-36 kNm, 0-5 ton WOB. Reamed each stand once using 10 min up/ down. Max ECD 1,77 SG. Average ECD 1,76 SG. Problems with weak MWD signals causing loss of data.
14.10.2003 11:30	12:00	0,5	6282,0	DEMD	E FAIL	OK	Attempted to down link to MWD tool by adjusting the flow rates up and down in certain intervals to change from 3 bits/ second to 2 bits/ second. Adjusted treshold in signal prossesing module from 0,09 to 0,07 psi.
14.10.2003 12:00	19:00	7,0	6500,0	DDDU	OK	E FAIL	Drilled 8 1/2" x 9 7/8" hole from 6282 m to 6500 m with 1900 LPM/ 246 -250 bar, 160 RPM/ 25-36 kNm, 0-5 ton WOB. Reamed each stand once using 10 min up/ down. Max ECD 1,78 SG. Average ECD 1,78 SG. Washpipe started to leak.
14.10.2003 19:00	19:30	0,5	6500,0	DEOD	E FAIL	OK	Changed washpipe.
14.10.2003 19:30	00:00	4,5	6609,0	DDDU	OK	OK	Drilled 8 1/2" x 9 7/8" hole from 6500 m to 6609 with 1900 LPM/ 250-254 bar, 160 RPM/ 27-36 kNm, 0-5 ton WOB. Reamed each stand once using 10 min up/ down. Average ECD 1,78 SG.
15.10.2003 00:00	06:00	6,0	6800,0	DDDU	OK	OK	Drilled 8 1/2" x 9 7/8" hole from 6609 m to 6800 m with 1900 LPM/ 250-257 bar, 160 RPM/ 26-37 kNm, 0-5 ton WOB. Reamed each stand once using 10 min up/ down. Average ECD 1,78-1,79 SG.
15.10.2003 06:00	19:30	13,5	7153,0	DDUU	OK	OK	Drilled 8 1/2" x 9 7/8" hole from 6800 m to 7153 m with 1900 LPM/ 245-265 bar, 160 RPM/ 25-37 kNm, 0-6 ton WOB. Reamed each stand once using 10 min up/ down. Max ECD 1,77 SG. Average ECD 1,76 SG. Problems with weak MWD signals causing loss of data.
15.10.2003 19:30	23:30	4,0	7045,0	DCAU	OK	OK	Circulating well clean with 1950 lpm/ 265 bar, 160 rpm/ 28 kNm. Backreamed from 7153 m to 7045 m while circulating well clean . Used 30 min/ stand. Circulated 1BU. Max gas 40 %.
15.10.2003 23:30	00:00	0,5	7045,0	DDOU	OK	OK	Flowchecked well. Dropping trend from 360 l/hrs to 120 l/ hrs.
16.10.2003 00:00	00:30	0,5	7153,0	DDOU	OK	OK	Rotated in hole from 7045 m to 7153 m.
16.10.2003 00:30	03:00	2,5	7080,0	DCAU	OK	OK	Circulated well clean with 1950 lpm/ 265 bar, 160 rpm/ 28 kNm. Backreamed from 7153 m to 7080 m while circulating well clean. Used 30 min/ stand. Circulated 1BU. Increased MW from 1,60 SG to 1,61 SG while circulating.
16.10.2003 03:00	06:00	3,0	6980,0	DCAU	OK	OK	Circulating well clean with 1950 lpm/ 263 bar, 160 rpm/ 28 kNm. Backreamed from 7080 m to 6980 m while circulating well clean. Used 30 min/ stand. Circulated 1BU. ECD 1,77 -1,78 SG.

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Time from	Time to	Time used	Depth mMD	Act code	--- Status --- During opr	End of opr	Description of activities
16.10.2003 06:00	09:00	3,0	6854,0	DCAU	OK	OK	Circulated well clean with 1950 lpm/ 265-245 bar, 160 rpm/ 26-30 kNm. POOH from 6980 m to 6854 m while circulating well clean. Used 30 min/ stand. Totally 4 BU. Well clean after 2 BU. ECD 1,77 -1,78 SG.
16.10.2003 09:00	10:00	1,0	6854,0	DDOU	OK	OK	Flow checked well.
16.10.2003 10:00	00:00	14,0	5000,0	DCBK	OK	OK	Back reamed OOH from 6854 m to 5000 m with 1950 lpm/ 248-228 bar, 160 rpm/ 24-30 kNm.
17.10.2003 00:00	06:00	6,0	4270,0	DCBK	OK	OK	Back reamed OOH from 5000 m to 4270 m with 1950 lpm/ 228-220 bar, 160 rpm/ 26-20 kNm.
17.10.2003 06:00	07:30	1,5	4156,0	DCBK	OK	OK	Back reamed OOH from 4270 m to 4156 m with 1950 lpm/ 228-220 bar, 160 rpm/ 26-17 kNm.
17.10.2003 07:30	09:30	2,0	3193,0	DCAU	OK	OK	Pumped OOH from 4156 m to 3913 m with 450 lpm-700 lpm/ 22-36 bar. Had 10 t overpull when underreamer went through window at 4109 m. Flow checked well.
17.10.2003 09:30	11:00	1,5	3800,0	DDOU	OK	OK	Pulled OOH from 3913 m to 3830 m. Had swabbing tendency. Circulated with 2000 lpm/ 228 bar for 30 minutes. Pulled OOH from 3830 m to 3800 m. Swabbing tendency. Flow checked well.
17.10.2003 11:00	22:00	11,0	2252,0	DDOU	OK	OK	Pumped OOH from 3800 m to 2252 m with 700-950 lpm/ 36-45 bar.
17.10.2003 22:00	00:00	2,0	2116,0	DDOU	OK	OK	Circulated with 2000 lpm/ 170 bar for 20 minutes. Pumped wet OOH from 2252 m to 2116 m. Flow checked well.
18.10.2003 00:00	06:00	6,0	49,0	DDOU	OK	OK	POOH from 2116 m to 49 m. Racked back HWDP and NM DC.
18.10.2003 06:00	09:00	3,0	,0	DDOU	OK	OK	POOH from 49 m and BO and LD 8 1/2" x 9 7/8" BHA to pipe deck.
18.10.2003 09:00	10:00	1,0	,0	DDOU	OK	OK	Cleaned rig floor and changed lifting device on PRS arm. Redressed elevator and slips.
18.10.2003 10:00	11:00	1,0	,0	BBOU	OK	OK	MU wear bushing RT. RIH and retrived wear bushing. LD same. MU and RIH with test plug assembly.
18.10.2003 11:00	15:00	4,0	,0	BBUU	OK	OK	Tested BOP rams and annular against test plug to 20 bar/ 5 min and 345 bar/ 10 min. Changed chain on draw work while testing BOP.
18.10.2003 15:00	16:00	1,0	,0	BBOU	OK	OK	POOH and LD test assy. Installed wearbushing.
18.10.2003 16:00	17:30	1,5	,0	DDOU	OK	OK	Performed prejob meeting with crew. Cleaned rig floor. Changed wear sub.
18.10.2003 17:30	21:00	3,5	,0	DDOU	OK	OK	MU bit, powerdrive assy and MWD assembly. Tested same with 1350 lpm/ 60.
18.10.2003 21:00	00:00	3,0	,0	DDOU	OK	OK	MU LWD tools and Pathfinder tools.
19.10.2003 00:00	01:00	1,0	,0	DDOU	OK	E FAIL	Tested all tools MU with 1700 lpm/ 105 bar. Problems with confimation of setting from Powerdrive. Error code indicates poblems between Electro magnetic receiver and MWD tool when pulsing back from Powerdrive.
19.10.2003 01:00	02:00	1,0	,0	DDOD	E FAIL	OK	Diagnosed problem with erratic confirmation from Powerdrive/ error code. Circulated to check tools and signals.
19.10.2003 02:00	06:00	4,0	,0	DDOD	E FAIL	OK	Racked Pathfinder and LWD tools in derrick. Broke out flex joint and stab/receiver joint in one piece. LD same on pipedeck. PU new Powerdrive assy (which was set for 60 seconds pumps on/off). Broke out flex joint and stab/receiver joint in one piece. LD Powerdrive. MU initial Powerdrive (which was set for 80 seconds pumps on/off) to new flex joint and stab/receiver joint.
19.10.2003 06:00	07:30	1,5	,0	DDOD	E FAIL	OK	Tested signals from Powerdrive/MWD. MU LWD and Pathfinder tools.
19.10.2003 07:30	08:30	1,0	,0	DDOU	OK	OK	Performed pre job meeting with creew before PU radioactive source and installed same.
19.10.2003 08:30	09:30	1,0	35,0	DDOU	OK	OK	MU under reamer, stab and float sub.
19.10.2003 09:30	11:30	2,0	184,0	DDOU	OK	OK	MU 5 jnts 5" HwDp. LD drilling jar and PU new drilling jar.
19.10.2003 11:30	12:30	1,0	184,0	DDOU	OK	OK	Removed master bushing and installed PS-slips. Changed lifting device on PRS arm. Installed serviced torque wrench.
19.10.2003 12:30	14:30	2,0	890,0	DDOU	OK	OK	RIH with BHA on 5" Dp from 184 m to 890 m. Filled pipe, circulated and tested signals from BHA.
19.10.2003 14:30	21:00	6,5	3423,0	DDOU	OK	OK	RIH with BHA on 5" Dp from 890 m to 3423 m. Redressed PRS, elevator and hdraulic slips for 5 /2" drill pipe.
19.10.2003 21:00	22:30	1,5	3595,0	DDOU	OK	OK	PU an MU 163 m 5 1/2" Dp from pipedeck. RIH from 3423 m to 3595 m.
19.10.2003 22:30	00:00	1,5	4077,0	DDOU	OK	OK	RIH with BHA on 5 1/2" Dp.
20.10.2003 00:00	01:30	1,5	4077,0	DEOU	OK	OK	Cut and slip drill line. Checked brakes.
20.10.2003 01:30	02:00	0,5	4077,0	DDOU	OK	OK	Filled pipe and broke circulation. Performed prejob meeting prior to enter open hole while breaking circulation.
20.10.2003 02:00	06:00	4,0	5000,0	DDOU	OK	OK	RIH from 4077 m to 5000 m. String took 5-10 t weight when large OD BHA parts went through window. Took 12 t when underreamer went through window.

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Time from	Time to	Time used	Depth mMD	Act code	--- Status --- During opr	End of opr	Description of activities
20.10.2003 06:00	08:30	2,5	6010,0	DDOU	OK	E FAIL	RIH from 5000 m to 6010 m. Filled pipe every 500 m.
20.10.2003 08:30	14:30	6,0	5956,0	DDOD	OK	OK	Filled pipe and broke circulation. Increased flow to 300 LPM, flow paddler dropped from 9 % to 5%. Attempted several times to increase flow with the same result. Reamed 2 stands OOH and tried again. Investigated the problem and discovered the flow paddler to be faulty. MW out 1,57+ sg to 1,60 sg. Max gas: 1%.
20.10.2003 14:30	15:30	1,0	5956,0	DDOU	OK	OK	Increased flow and pumped at 1400 lpm/ 187 bar, 1500 lpm/ 211 bar and 1700 lpm/ 264 bar to measure the corresponding MWD turbine RPM's and ECD readings. ECD increased from 1,72 to 1,75 sg. MW out: 1,60 sg to 1,62 sg. Max gas: 2,8 %
20.10.2003 15:30	19:00	3,5	6730,0	DDOU	OK	OK	RIH from 5956 m to 6730 m filled pipe and broke circulation. Filled pipe at 6595 m. Pipe took 10 t weight prior to filling.
20.10.2003 19:00	22:30	3,5	6719,0	DDOU	OK	OK	Attempted to establish circulation. String torqued up and pressure was fluctuating 25 bars with constant flowrate. Increased rate in steps up to 1300 lpm/ 180 bar, 15-40 rpm. Experienced partial packoff/ loss of return several times. MW out 1,65 to 1,66 SG.
20.10.2003 22:30	00:00	1,5	6692,0	DCAU	OK	OK	Racked back one stand. Increased rate in steps to 800 lpm/ 100 bar, 15-30 rpm/ 22-27 kNm. Resiprocated string between 6692 m and 6719 m. MW out 1,65 SG.
21.10.2003 00:00	03:00	3,0	6692,0	DCAU	OK	OK	Continued to increase rate in steps to 1500 lpm/ 214 bar, 15-120 rpm/ 22-27 kNm. Resiprocated string between 6692 m and 6719 m. Max gas 25,5 % at BU. Max MW out 1,66 sg.
21.10.2003 03:00	04:30	1,5	6665,0	DCAU	OK	OK	Racked back one stand. Increased rate in steps to 1700 lpm/ 265 bar, 120 rpm/ 22-27 kNm. Resiprocated string between 6692 m and 6665 m. MW out 1.62 sg. ECD 1,75 sg.
21.10.2003 04:30	06:00	1,5	6743,0	DDOU	OK	OK	Reamed in hole from 6665 m to 6743 m with 1500 lpm/ 220 bar, 30 rpm/ 26 kNm. MW out 1,62 SG. Max gas 1 %. ECD 1,75 SG.
21.10.2003 06:00	09:00	3,0	6747,0	DDOU	OK	OK	Back reamed OOH from 6743 m to 6719 m with 1500 lpm/ 220 bar, 120 rpm/ 24-30 kNm. Increased flow to 1900 lpm and circulated gas down while reaming down to 6743 m. Mud weight out 1,61 sg. Max gas 5 %. Max ECD 1,80 sg.
21.10.2003 09:00	22:30	13,5	7153,0	DDOU	OK	OK	Logged down from 6747 m to 7153 m with 60 m/ hrs at 1900 lpm/ 314 bar, 160 rpm/ 24-32 kNm.Mud weight out 1,61 sg. ECD from 1,77sg to 1,80 sg. Max gas: 25 %.
21.10.2003 22:30	00:00	1,5	7161,0	DDDU	OK	OK	Set powerdrive. Drilled from 7153 m to 7161 m with 1850 lpm/ 303 bar, 160 rpm/ 30-33 kNm, 2-3 t WOB. Mud weight out 1,61 sg. ECD 1,80 sg. Max gas 6%.
22.10.2003 00:00	03:00	3,0	7194,0	DDDU	OK	OK	Drilled from 7161 m to 7194 m with 1850 lpm/ 307 bar, 160 rpm/ 30-33 kNm, 2-3 t WOB. Mud weight out.1,62 sg. ECD 1,80 sg. Max gas 18 %. Had problems getting propper MWD signals. Attempted Mud pumps at different SPM and adjusted MWD software.
22.10.2003 03:00	04:00	1,0	7194,0	DDOU	OK	OK	Dropped ball to activate underreamer. Circulated down ball while reaming single from 7194 m to 7161 m with 1850 lpm/ 303 bar, 160 rpm/ 33 kNm. Max gas 33,6 %. ECD 1,79 sg. No pressure drop to be observed. MW 1,62 sg.
22.10.2003 04:00	06:00	2,0	7204,0	DDOU	OK	OK	Activated underreamer. Drilled 8 1/2" x 9 7/8" hole from 7194 m to 7204 m. Reamed stand. ECD 1,805 sg. MW 1.62 sg.
22.10.2003 06:00	08:30	2,5	7236,0	DDDU	OK	OK	Drilled 8 1/2" x 9 7/8" hole from 7204 m to 7236 m with 1950 LPM/ 300 bar, 160 RPM/ 32-40 kNm, 2-4 ton WOB. Average ECD 1,82 SG. Reamed each stand drilled once.
22.10.2003 08:30	09:30	1,0	7191,0	DDOU	OK	E FAIL	Back reamed from 7236 m to 7191 m and performed 30 min stickyness test.
22.10.2003 09:30	12:00	2,5	7191,0	DDOD	E FAIL	OK	Attempted twice to perform formation pressure measurement with DFT Pathfinder tool at 7150 m. Diverter tool did not open when packer set. Pressured up formation until leak off below packer.
22.10.2003 12:00	13:00	1,0	7236,0	DDOU	OK	OK	Reamed down from 7191 m to 7236 m. Took survey, torque / drag and SCR readings.
22.10.2003 13:00	00:00	11,0	7399,0	DDDU	OK	OK	Drilled 8 1/2" x 9 7/8" hole from 7236 m to 7399 m with 1950 LPM/ 300 -304 bar, 160 RPM/ 30-40 kNm, 1-10 ton WOB. Average ECD 1,81 SG. Reamed each stand drilled once.
23.10.2003 00:00	06:00	6,0	7480,0	DDDU	OK	OK	Drilled 8 1/2" x 9 7/8" hole from 7399 m to 7480 m with 1950 LPM/ 300-305 bar, 160 RPM/ 30-40 kNm, 2-4 ton WOB. Average ECD 1,80 - 1,81 SG. Reamed each stand drilled once.
23.10.2003 06:00	13:30	7,5	7591,0	DDDU	OK	OK	Drilled 8 1/2" x 9 7/8" hole from 7480 m to 7591 m with 1950 LPM/ 303-308 bar, 160 RPM/ 34-40 kNm, 2-6 ton WOB. Average ECD 1,81 - 1,815 SG. Reamed each stand drilled once.
23.10.2003 13:30	18:00	4,5	7644,0	DDDU	OK	E FAIL	Drilled 8 1/2" x 9 7/8" hole from 7591 m to 7644 m with 1950 LPM/ 303-308 bar, 160 RPM/ 34-42 kNm, 2-8 ton WOB while PU 5 1/2" DP from deck. Average ECD 1,81 - 1,82 SG. Reamed each stand drilled once.
23.10.2003 18:00	00:00	6,0	7644,0	DEOD	E FAIL	OK	Lost power on DDM. Opened motor and found brushes and brush shoe burned. Circulated with 1350 lpm / 160 bar while trouble shooting on DDM.

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Time from	Time to	Time used	Depth mMD	Act code	--- Status --- During opr	End of opr	Description of activities
24.10.2003 00:00	06:00	6,0	7644,0	DEOD	E FAIL	OK	Circulated with 1350 lpm / 160 bar. Rotated string with to check pipe every hour with rotary table with 30 TPM / 24-30 kNm. Built scaffolding around DDM.
24.10.2003 06:00	00:00	18,0	7644,0	DEOD	E FAIL	OK	Built scaffolding around DDM. Dismatled DC motor. Removed adapter plate between DC motor and gear box. Checked power loop for earth fault. Circulated with 1300 lpm / 162 bar and rotated string every 1,5 hr with 30 RPM / 23-30 kNm using rotary table while working on DC motor. LD motor and PU new motor and installed adapter plate.
25.10.2003 00:00	06:00	6,0	7644,0	DEOD	E FAIL	OK	Installed adapter plate between DC motor and gear box. Performed SJA and pre job meeting prior to lifting and installing new DC motor. Liftet and installed motor. Installed cooling box to DC motor. Circulated with 1350 lpm / 162 bar and rotated string every 1,5 hr with 30 RPM / 23-30 kNm using rotary table while working on DC motor.
25.10.2003 06:00	17:00	11,0	7644,0	DEOD	E FAIL	OK	Installed DC motor and connected electric cables to power swivel. Installed cooling water motor.
25.10.2003 17:00	18:00	1,0	7644,0	DEOD	E FAIL	OK	Rigged down scaffolding and tested power swivel.
25.10.2003 18:00	19:30	1,5	7644,0	DEOD	E FAIL	OK	Tested retract on block to check electrical loop. Had to change hang off point for electrical loop.
25.10.2003 19:30	21:00	1,5	7644,0	DEOD	E FAIL	OK	Backreamed one stand from 7644 m to 7618 m with 1950 lpm / 300-305 bar, 100 RPM / 25-32 kNm to verify hole conditions. Max ECD 1,79 sg. Changed to automatic slips. Performed torque and drag readings.
25.10.2003 21:00	00:00	3,0	7632,0	DEOD	E FAIL	OK	Washed down to 7644 m. PU 1 single from deck and circulated with 1900 lpm / 310 bar. Had loss tendencies. Reduced pump rate to 1500 lpm / 196 bar. Max MW out 1,74 sg. Max gas 25%. Backreamed slowly from 7644 m to 7632 m with 1350-1700 lpm / 175-249 bar, 50-120 RPM / 25-32 kNm while conditioning mud due to high MW out. Had high winding temperature alarm on DC motor.
26.10.2003 00:00	03:00	3,0	7591,0	DEOD	E FAIL	OK	Trouble shoot on winding temperature on DC motor while circulating with 1700 lpm / 250 bar. Adjusted from daylight savings time to standard time. Backreamed from 7632 m to 7591 m with 1700 lpm / 250 bar, 50-150 RPM / 25-32 kNm.
26.10.2003 03:00	05:30	2,5	7591,0	DEOD	E FAIL	OK	Circulated with 1700 lpm / 250 bar while trouble shooting on high winding temperature alarm. Changed sensor outlet. Washed down to 7644 m with 1700 lpm / 253 bar.
26.10.2003 05:30	06:00	0,5	7652,0	DDDU	OK	OK	Drilled 8 1/2" x 9 7/8" hole from 7644 m to 7652 m with 1900 lpm / 292 bar, 160 RPM / 30-37 kNm, 2-4 ton WOB.
26.10.2003 06:00	13:30	7,5	7759,0	DDDU	OK	OK	Drilled 8 1/2" x 9 7/8" hole from 7652 m to 7759 m with 1990 lpm/ 316 bar, 175 rpm/ 32-40 kNm, 2-6 WOB while PU DP from deck.
26.10.2003 13:30	16:30	3,0	7759,0	DCAU	OK	OK	Hole packed off and lost partly return. Worked pipe and regained full return. Circulated and resiprocated string with 1600-1950 lpm / 240-311 bar, 75-165 RPM / 24-40 kNm. Lost app. 10 m3. Gained back app. 4 m3. Max gas 25%.
26.10.2003 16:30	00:00	7,5	7835,0	DDDU	OK	OK	Drilled 8 1/2" x 9 7/8" hole from 7759 m to 7835 m with 1990 lpm / 312 bar, 80-160 rpm/ 32-40 kNm, 2-6 WOB while PU DP from deck. Had pack off tendencies during back reaming stand. ECD max 1,85 during pack off. ECD max 1,81 sg during drilling.
27.10.2003 00:00	06:00	6,0	7888,0	DDDU	OK	OK	Drilled 8 1/2" x 9 7/8" hole from 7835 m to 7888 m with 1950 lpm / 303-308 bar, 165 rpm / 31-40 kNm, 5-10 WOB. while PU DP from deck. Max ECD 1,81 sg. Had pack off tendencies during back reaming stand.
27.10.2003 06:00	09:30	3,5	7928,0	DDDU	OK	OK	Drilled 8 1/2" x 9 7/8" hole from 7888 m to 7928 m with 1960 lpm / 308 bar, 175 rpm / 32-40 kNm, 2-6 WOB while PU DP from deck. Max ECD 1,81 sg.
27.10.2003 09:30	15:30	6,0	7889,0	DCAU	OK	OK	Observed decrease in return and decreasing pump pressure. Worked string and regained circulation with 1000 lpm / 144 bar, 20-60 RPM / 32-36 kNm. Max loss free ECD 1,69 sg. Backreamed slowly out to 7889 m. Lost app. 30 m3.
27.10.2003 15:30	21:30	6,0	7805,0	DCBK	OK	OK	Back reamed out from 7889 m to 7805 m with 1000-1100 lpm / 110-123 bar, 60-120 RPM / 27-31 kNm while evaluating situation and mixing 10 m3 243 kg/m3 LCM pill.
27.10.2003 21:30	22:30	1,0	7805,0	DCAU	OK	OK	Sheared 10 m3 243 kg/m3 LCM pill and performed pre job meeting while circulation with 1000-1100 lpm / 121 bar, 90 RPM / 16-22 kNm.
27.10.2003 22:30	00:00	1,5	7805,0	DCAU	OK	OK	Pumped and displaced 10 m3 LCM pill with 1000 lpm / 105 bar, 30 RPM / 20-30 kNm.
28.10.2003 00:00	01:30	1,5	7805,0	DCAU	OK	OK	Closed bag and squeezed 10 m3 LCM pill with 500 lpm / 58 bar. Left 5 m3 LCM in open hole. Observed 25 bar increase in annulus pressure during squeeze. Observed for pressure build up after squeeze. Bled off pressure and opened bag.
28.10.2003 01:30	04:00	2,5	7700,0	DCBK	OK	OK	Back reamed from 7805 m to 7700 m with 1000 lpm / 104 bar, 30 RPM / 22-35 kNm.
28.10.2003 04:00	06:00	2,0	7670,0	DCBK	OK	OK	Increased pump rate in steps to 1200 lpm / 140 bar while back reaming from 7700 m to 7670 m with 70-120 RPM / 27-34 kNm. Max ECD 1,70 sg. Lost app. 3 m3 mud.

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Time from	Time to	Time used	Depth mMD	Act code	--- Status --- During opr	End of opr	Description of activities
28.10.2003 06:00	11:00	5,0	7665,0	DCBK	OK	OK	Backreamed slowly from 7670 m to 7665 m with 700-1300 lpm / 50-168 bar, 30 RPM / 24-26 kNm. Lost return while back reaming slowly at 7665 m with 1000 lpm. Reduced pumprate to 200 lpm. Increased pumprate in steps to regain circulation while mixing 15 m3 310 kg/m3 LCM pill. Lost app. 36 m3. Max ECD 1,74 sg.
28.10.2003 11:00	18:00	7,0	7833,0	DCAU	OK	OK	Washed down from 7665 m to 7833 m with 500 lpm / 42 bar, 30 RPM / 24-26 kNm while mixing Versapac pill.
28.10.2003 18:00	20:30	2,5	7833,0	DCAU	OK	OK	Pumped and displaced 17 m3 Versapac pill with 480-640 lpm / 55-236 bar, 30 RPM / 22-26 kNm.
28.10.2003 20:30	22:00	1,5	7644,0	DCAU	OK	OK	Closed bag and squeezed 12,5 m3 Versapac pill into formation with 550 lpm / 240-100 bar. Left 3,5 m3 pill in open hole. Max well head pressure 35 bar. Stripped out from 7833 m to 7644 m keeping 30 bar on well head gauge.
28.10.2003 22:00	00:00	2,0	7641,0	DCAU	OK	OK	Opened up bag with constand BHP and increased flowrate in steps to 1000 lpm / 110 bar. Back reamed slowly from 7644 m to 7641m and rotated string with 30 RPM / 25-32 kNm. Increased flowrate to 1060 lpm / 119 bar bar. No losses. ECD 1,696 sg.
29.10.2003 00:00	06:00	6,0	7644,0	DCAU	OK	OK	Circulated to establish loss free rate and clean hole with 1025-1096 lpm / 112-124 bar, 20 RPM / 22-25 kNm. Increased RPM in steps to 120 RPM / 27-30 kNm. Max ECD 1,709 sg. Resiprocated string from 7644 m to 7617 m. Max gas 14,5%.
29.10.2003 06:00	11:30	5,5	7700,0	DCAU	OK	OK	Circulated and increased flow rate in steps from 1060 lpm to 1950 lpm / 124-309 bar, 120-130 RPM / 26-30 kNm. Resiprocated string from 7673 m to 7700 m. Max ECD 1,79 sg.
29.10.2003 11:30	16:00	4,5	7833,0	DCAU	OK	OK	Lost return with ECD 1,78 sg while increasing RPM from 130 to 140 RPM. Circulated with 500-800 lpm / 50-76 bar, 30 RPM / 24-26 kNm and washed down from 7700 m to 7833 m while mixing 19 m3 Versapac pill. Lost app. 12 m3.
29.10.2003 16:00	18:00	2,0	7833,0	DCAU	OK	OK	Pumped and displaced 19 m3 Versapac pill with 800 lpm / 90-310 bar, 15 RPM / 19-22 kNm.
29.10.2003 18:00	20:00	2,0	7700,0	DCAU	OK	OK	Closed annular and squeezed 12 m3 pill into formation with 450-550 lpm / 310-115 bar with final 36 bar well head pressure. Stripped out from 7833 m to 7700 m keeping constant WHP at 32 bar.
29.10.2003 20:00	20:30	0,5	7700,0	DCAU	OK	E FAIL	Circulated with 1146 lpm / 136 bar, 20 RPM / 18-30 kNm while wainting for Versapac pill to set up. ECD 1,70 sg. Had shut down on HPU for shakers.
29.10.2003 20:30	21:00	0,5	7700,0	DEOD	E FAIL	OK	Shut in well with 30 bar well head pressure while working on HPU.
29.10.2003 21:00	00:00	3,0	7700,0	DCAU	OK	OK	Opened up well and circulated with 1146 lpm / 137 bar, 20 RPM / 16-30 kNm while wainting for Versapac pill to set up.
30.10.2003 00:00	01:30	1,5	7700,0	DCAU	OK	OK	Circulated with 1146 lpm / 137 bar, 20 RPM / 16-30 kNm while waiting for Versapac pill to set up.
30.10.2003 01:30	04:30	3,0	7700,0	DCAU	OK	OK	Circulated and increased pump rate and RPM in steps to 1500 lpm / 211 bar, 120 RPM / 20-32 kNm. ECD 1,75 sg.
30.10.2003 04:30	06:00	1,5	7655,0	DCBK	OK	OK	Back reamed OOH from 7700 m to 7645 m with 1500 lpm / 211 bar, 120 RPM / 27-33 kNm. Intermittent ECD readings 1,75 sg. String torqued up and packed off. Pump pressure increased 8 bar. Lost return. Circulated with 500 lpm / 57 bar to establish full return. Wash down from 7645 m to 7655 m with 500 lpm / 49 bar. Lost app. 3,5 m3.
30.10.2003 06:00	08:30	2,5	7647,0	DCAU	OK	OK	Circulated with 500-900 lpm / 46-105 bar, 30-70 RPM / 20-31 kNm. Resiprocated string from 7655 m to 7647 m while circulating. Lost partly return at 7647 m.
30.10.2003 08:30	00:00	15,5	6789,0	DCBK	OK	OK	Pumped OOH from 7647 m to 6789 m with 200-250 lpm / 24-31 bar, 30 RPM / 24-30 kNm.
31.10.2003 00:00	06:00	6,0	6392,0	DCBK	OK	OK	Pumping OOH from 6789 m to 6392 m with 200-500 lpm / 24-51 bar, 30 RPM / 16-33 kNm. Increased pump rate in steps while pumping OOH. Observed pack off tendencies several spots.
31.10.2003 06:00	08:30	2,5	6330,0	DCBK	OK	OK	Pumped OOH from 6392 m to 6330 m with 500 lpm / 24-31 bar, 30 RPM / 24-30 kNm. Reduced flow rate to 200 lpm / 27 bar and worked stand due to packing off tendencies.
31.10.2003 08:30	00:00	15,5	5412,0	DCBK	OK	OK	Pumped OOH from 6330 m to 5412 m with 500 lpm / 24-31 bar, 30 RPM / 24-30 kNm. Max gas 20,1%.
01.11.2003 00:00	06:00	6,0	4969,0	DCBK	OK	OK	Pumped OOH from 6330 m to 4969 m with 500 lpm / 24-31 bar, 30 RPM / 24-30 kNm. Max gas 23,4%.
01.11.2003 06:00	16:00	10,0	4186,0	DCBK	OK	OK	Pumped OOH from 4969 m to 4186 m with 200 lpm / 25 bar, 30 RPM / 12-29 kNm. Gas declined from 17,9 % to 0,12 %.
01.11.2003 16:00	19:00	3,0	4075,0	DTDU	OK	OK	Pumped OOH and into 9 5/8" liner from 4186 m to 4075 m with 200 lpm / 24-26 bar. Observed 10 tons overpull when pulling Anderreamer/Pathfinder through window.
01.11.2003 19:00	00:00	5,0	4075,0	DCAU	OK	OK	Circulated with 250-1800 lpm / 26-227 bar. Increased flow rate in steps. Max 1,71 sg ecd. Max gas 0,3 %. Greased and checked DDM and performed FV on DW motors while circulating.
02.11.2003 00:00	00:30	0,5	4075,0	DDOU	OK	OK	Flow checked well ok.

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Time from	Time to	Time used	Depth mMD	Act code	--- Status --- During opr	End of opr	Description of activities
02.11.2003 00:30	03:30	3,0	4075,0	DCAU	OK	OK	Circulated with 1800-1400 lpm / 225-152 bar to displace 9 5/8" liner and 13 3/8" casing to 1,62 sg mud. Max ECD 1,71 sg. Performed FV on PRS and iron roughneck while circulating.
02.11.2003 03:30	06:00	2,5	3693,0	DTDU	OK	OK	Pumped out of 9 5/8" liner from 4075 m to 3693 m with 700 lpm / 46-50 bar.
02.11.2003 06:00	08:00	2,0	3424,0	DCBK	OK	OK	Pumped OOH from 3693 m to 3424 m with 700 lpm / 46 bar.
02.11.2003 08:00	08:30	0,5	3424,0	DDOU	OK	OK	Redressed elevator and slips.
02.11.2003 08:30	10:00	1,5	3424,0	DDOU	OK	O FAIL	Dismanteled torque wrenck while changing from 5 1/2 to 5" spades in PRS.
02.11.2003 10:00	10:30	0,5	3424,0	DDOD	O FAIL	OK	Installed new torque wrench.
02.11.2003 10:30	17:00	6,5	2226,0	DCBK	OK	OK	MU 5" to 5 1/2" xo to wear sub on DDM. Pumped OOH from 3424 m to 2226 m.
02.11.2003 17:00	20:00	3,0	1165,0	DTDU	OK	OK	Flow check well ok. POOH wet from 2226 m to 2117 m. Pumped slug and POOH from 2117 m to 1165 m.
02.11.2003 20:00	20:30	0,5	1165,0	DDOU	OK	E FAIL	Performed pre job meeting prior to POOH and LD 5 " DP. Rigged up to LD DP. Secured stand in setback due to narrow working area. Catwalk machine trolley did not work.
02.11.2003 20:30	23:30	3,0	1165,0	DEOD	E FAIL	OK	Mechanic and electrician trouble shoot on catwalk machine. Found malfunction in ball valve.
02.11.2003 23:30	00:00	0,5	1125,0	DTPU	OK	OK	POOH from 1165 m to 1125 m while LD 5" DP to deck.
03.11.2003 00:00	06:00	6,0	186,0	DTPU	OK	OK	POOH from 1125 m to 186 m while LD 5" DP to deck.
03.11.2003 06:00	08:00	2,0	123,0	DDOU	OK	OK	POOH from 186 m. Rakced back 5" HWDP in derrick. Installed master bushing.
03.11.2003 08:00	16:00	8,0	,0	DTBU	OK	OK	BO and LD 8 1/2" x 9 5/8" BHA to pipe deck. Removed RA source. Cleaned rig floor. Changed to 5 1/2" elevator inserts.
03.11.2003 16:00	17:00	1,0	,0	BHRU	OK	OK	RU RT for wear bushing. RIH and pulled wear bushing.
03.11.2003 17:00	22:30	5,5	,0	BBDU	OK	OK	MU and RIH with test plug. Tested BOP to 20 bar / 5 min and 345 bar / 10 min. POOH and LD test plug assembly.
03.11.2003 22:30	00:00	1,5	,0	BHRU	OK	OK	RIH and installed wear bushing. POOH and LD RT. MU 1 single 5 1/2" DP to single in mouse hole and racked back same. Redressed elevator and slips.
04.11.2003 00:00	00:30	0,5	,0	BBOU	OK	OK	LD equipement used for BOP test.
04.11.2003 00:30	01:00	0,5	,0	PTTU	OK	OK	PU 3 1/2" cement stinger. Performed pre job meeting prior to PU DP from deck.
04.11.2003 01:00	03:00	2,0	359,0	PTTU	OK	OK	RIH with 3 1/2" cement stinger to 359 m while PU 3 1/2" DP from deck.
04.11.2003 03:00	04:00	1,0	359,0	PTTU	OK	OK	MU 3 1/2" X 5" XO. Redressed elevator and slips. Removed master bushing and installed automatic slips.
04.11.2003 04:00	06:00	2,0	670,0	PTTU	OK	OK	RIH with 3 1/2" cement stinger from 359 m to 670 m while PU 5" DP from deck.
04.11.2003 06:00	09:00	3,0	1174,0	PTTU	OK	OK	RIH with 3 1/2" cement stinger and 5" dp to 1174 m.
04.11.2003 09:00	14:00	5,0	3432,0	PTTU	OK	OK	Continued RIH from 1174 m to 3432 m.
04.11.2003 14:00	15:00	1,0	3432,0	PTTU	OK	OK	Changed inserts in elevator and slips from 5" to 5 1/2". Changed spades in PRS to 5 1/2".
04.11.2003 15:00	16:30	1,5	4100,0	PTTU	OK	OK	Continued RIH with 5 1/2" dp from 3432 m to 4100 m.
04.11.2003 16:30	23:00	6,5	4100,0	PTTU	OK	OK	Broke Circulation in steps until full circulation with 1800 lpm while rotated and reciprocated pipe with 160 RPM and 14/18 Knm string torque. Circulated bottoms up and observed loaded shakers with 1.71 sg mud in return. Continued circulated until mudweight equal to 1.60 sg.
04.11.2003 23:00	00:00	1,0	4141,0	PTTU	OK	OK	Greased washpipe and Laid out TIW and IBOP after pressure tested same to 20/345 bar for 5/10 mins. Continued RIH to 4141 m.
05.11.2003 00:00	06:00	6,0	5857,0	PTTU	OK	OK	Continued RIH to 5857 m
05.11.2003 06:00	08:30	2,5	6652,0	PTTU	OK	OK	RIH with 5 1/2" dp from 5857 m to 6652 m.
05.11.2003 08:30	14:00	5,5	6652,0	PTTU	OK	OK	Broke circulation and increased flowrate in steps from 350 - 1800 lpm/ 34 to 240 bar. Resiprocated pipe. Max gas 21,6%. Mudweigth 1,58 to 1,66 s.g.
05.11.2003 14:00	18:00	4,0	7700,0	PTTU	OK	OK	Continued to RIH from 6652 m to 7700 m.
05.11.2003 18:00	19:00	1,0	7700,0	PTTU	OK	OK	Broke circulation and increased pumprate stepwise from 350 lpm to 1000 lpm. Resiprocated string and recorded 20-35 Knm in string torque.
05.11.2003 19:00	19:30	0,5	7720,0	PTTU	OK	OK	Washed downwards with 1000 lpm. Lost returns at 7720 m.
05.11.2003 19:30	21:00	1,5	7682,0	PTTU	OK	OK	Pumpet out of hole from 7720 m to 7682 m. Had 51 ton overpull and string torque from 18-37 Knm. Worked string free and established full returns with 700 lpm.
05.11.2003 21:00	00:00	3,0	7580,0	PTTU	OK	OK	Increased flowrate in steps to max 1000 lpm and 25 Knm string torque while POOH to 7580 m.

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Time from	Time to	Time used	Depth mMD	Act code	--- Status --- During opr	End of opr	Description of activities
06.11.2003 00:00	00:30	0,5	7580,0	PTTU	OK	OK	Continued increase pumprate to max 1200 lpm while reciprocated string. Mud weight in return 1,62 sg - Lost returns.
06.11.2003 00:30	06:00	5,5	7028,0	PTTU	OK	OK	Pumped out of hole from 7580 m to 7028 m with returns to triptank.
06.11.2003 06:00	09:00	3,0	6652,0	PTTU	OK	OK	Pumped out of hole w/ 50 lpm and 6/8 bar, 50 rpm and 23/28 Knm, from 7028 m to 6652 m due lost returns.
06.11.2003 09:00	12:00	3,0	6652,0	PTTU	OK	OK	Broke circulation and increased pumprate stepwise from 50 lpm and 8 bar to 917 lpm and 84 bar while reciprocated string with 30 RPM and recorded 17/25 Knm string torque.
06.11.2003 12:00	15:30	3,5	6652,0	PTTU	OK	OK	Circulated and conditioned hole while circulated out high gas level - 66%. Pumprate 917/975 lpm, 84/92 bar, 30 RPM and 17/25 Knm.
06.11.2003 15:30	20:00	4,5	6652,0	PTTU	OK	OK	Increased pumprate stepwise from 975 m to 1500 lpm, 182 bar, 30 RPM and 17/30 Knm.
06.11.2003 20:00	21:30	1,5	6652,0	PTTU	OK	O FAIL	Increased string rotation to 150 RPM in steps of 10 RPM while circulated w/ 1500 lpm and reciprocated string. Observed sudden mud loss and pressure increase in pump pressure. Stopped pumps and established new returns with 50/100 lpm. and 11 bar while reciprocated / rotated string with 30 RPM, 20-25 Knm.
06.11.2003 21:30	22:00	0,5	6652,0	PTTU	O FAIL	OK	Flow checked well due to shut off all electric power to PS/DW an MP due to start up water injection pump.
06.11.2003 22:00	23:00	1,0	6652,0	PTTU	OK	OK	Broke circulation and increased pumprate stepwise from 50 - 400 lpm while reciprocated / rotated sting with 30 RPM. 11-33 bar, 18-25 Knm.
06.11.2003 23:00	00:00	1,0	6652,0	PTTU	OK	OK	Increased flow rate in steps of 100 lpm from 400 to 900 lpm while reciprocated/rotated string with 30 RPM. 33-61 bar.
07.11.2003 00:00	01:30	1,5	6652,0	PTTU	OK	OK	Continued increase pump rate in steps of 100 lpm from 900 to 1500 lpm while reciprocated / rotated string with 30 RPM. 81-182 bar - No losses observed.
07.11.2003 01:30	02:00	0,5	6652,0	PTTU	OK	OK	Increased string rotation from 30 to 150 RPM in steps of 10 RPM while reciprocated string and pumped with 1500 lpm. Observed sudden pressure increase in pump pressure and mud losses occured. Reduced pump rate from 1500 to 1200 lpm and string rotation from 150 to 60 RPM. Observed that pump pressure was reading 145 bar instead of 123 bar as normal. Observed excessive cuttings coming over shakers.
07.11.2003 02:00	05:00	3,0	6652,0	PTTU	OK	OK	Circulated bottoms up with 1400 lpm , 60 RPM, 158 bar while reciprocated string - No losses
07.11.2003 05:00	06:00	1,0	6710,0	PTTU	OK	OK	Washed down from 6652 m to 6710 m with 1400 lpm and 60 RPM.
07.11.2003 06:00	07:00	1,0	6729,0	PTTU	OK	OK	Washed downwards from 6710 m to 6729 m w/ 1400 lpm, 60 RPM, 157 bar, 18/28 Knm. Experienced mud loss at 0645 hrs.
07.11.2003 07:00	08:30	1,5	6652,0	PTTU	OK	OK	Backreamed OOH from 6729 m to 6652 m w/ 600 lpm, 49 bar, 19/26 Knm.
07.11.2003 08:30	10:30	2,0	6652,0	PTTU	OK	OK	Broke circulation and increased pumprate stepwise from 600 lpm to 1400 lpm and regained full returns while reciprocated string. 161 bar, 60/60 RPM, 18/27 Knm
07.11.2003 10:30	19:30	9,0	7165,0	PTTU	OK	OK	Washed downwards from 6652 m to 7165 m. 160 bar, 1400 lpm, 16/27 Knm. Max gas 16%.
07.11.2003 19:30	20:30	1,0	7165,0	PTTU	OK	OK	Circulated / conditioned mud due to increasing high gas level of 16%
07.11.2003 20:30	21:30	1,0	7165,0	PTTU	OK	OK	Reduced pumprate due to mud losses and increasing gas level above 18%.
07.11.2003 21:30	00:00	2,5	7328,0	PTTU	OK	OK	Washed downwards from 7165 m to 7300 m. 160 bar, 1400 lpm, 16/28 Knm. Gas level decreased to 15%.
08.11.2003 00:00	00:30	0,5	7355,0	PTTU	OK	OK	Continued washing down from 7328 m to 7355 m w/ 149 bar, 1300 lpm,22/28 Knm. Observed sudden decreasing mud flow in returns and increased pump pressure.
08.11.2003 00:30	01:00	0,5	7355,0	PTTU	OK	OK	Lined up and checked for return in trip tank w/ 100-200 lpm - Neg.
08.11.2003 01:00	03:00	2,0	7328,0	PTTU	OK	OK	Pumped out of hole with one stand from 7355 m to 7328 m. Observed torque increased to 32 Knm and got 65 bar trapped when pump stopped. Bled off pressure and racked stand back in derrick.
08.11.2003 03:00	04:30	1,5	7328,0	PTTU	OK	OK	Broke circulation and increased pumprate stepwise of 100 lpm to 1300 lpm while reciprocated string. After established full returns with 1300 lpm observed pump pressure decreased 20 bar to normal 144 bar.
08.11.2003 04:30	06:00	1,5	7355,0	PTTU	OK	OK	Made connection and continued washing downwards from 7328 m to 7355 m w/ 1300 lpm, 144 bar, 22/28 Knm. Max gas 20%
08.11.2003 06:00	07:00	1,0	7357,0	PTTU	OK	OK	Washed downwards from 7342 m to 7357 m w/ 1250 lpm, 60 RPM, 21-28 Knm. Max gas 22%. Started to loose mudreturns.
08.11.2003 07:00	07:30	0,5	7357,0	PTTU	OK	OK	Performed flow check to verify well stable - Ok.
08.11.2003 07:30	11:00	3,5	7357,0	PTTU	OK	OK	Broke circulation and increased pumprate stepwise to 1500 lpm while reciprocated string. 195 bar, 60 RPM, 17-27 Knm
08.11.2003 11:00	12:00	1,0	7361,0	PTTU	OK	OK	Washed downwards from 7357 m to 7361 m w/ 1300 lpm, 154 bar, 60 RPM, 22-33 Knm. Reamed several times due to tight hole and took 7 ton down weight.
08.11.2003 12:00	15:30	3,5	7361,0	PTTU	OK	OK	Increased pumprate stepwise to 1500 lpm, 195 bar, 60 RPM, 17-27 Knm while reciprocated string and regained circulation w/ full returns.

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Time from	Time to	Time used	Depth mMD	Act code	--- Status --- During opr	End of opr	Description of activities
08.11.2003 15:30	16:00	0,5	7369,0	PTTU	OK	OK	Washed downwards from 7361 m to 7369 m w/ 263-500 lpm, 44-83 bar, 120 RPM, 26-37 Knm.
08.11.2003 16:00	19:00	3,0	7369,0	PTTU	OK	OK	Reamed tight hole section several times w/ 474-1100 lpm, 83-133 bar, 120 RPM, 17-36 Knm.
08.11.2003 19:00	22:30	3,5	7437,0	PTTU	OK	OK	Washed downwards from 7369 m to 7437 m w/ 1300 lpm, 141-143 bar, 60 RPM, 22-28 Knm,
08.11.2003 22:30	23:30	1,0	7437,0	PTTU	OK	OK	Had problems with pack-off tendency and pressure build-up. Worked string w/ different parameters until string was free. Regained circulation with full returns.
08.11.2003 23:30	00:00	0,5	7447,0	PTTU	OK	OK	Washed downwards from 7437 m to 7447 m w/ 1300 lpm, 60 RPM, 22.26 Knm, 141-146 bar.
09.11.2003 00:00	01:30	1,5	7447,0	PTTU	OK	OK	Had problems with pack-off tendency and pressure build-up. Worked string w/ different parameters until string was free. Regained circulation with full returns.
09.11.2003 01:30	02:00	0,5	7458,0	PTTU	OK	OK	Washed downwards from 7447 m to 7458 m w/ 1300 lpm, 147-158 bar, 60 RPM, 22-28 Knm.
09.11.2003 02:00	03:00	1,0	7458,0	PTTU	OK	OK	Had problems with pack-off tendency and pressure build-up. Worked string w/ different parameters until string was free. Regained circulation with full returns.
09.11.2003 03:00	04:30	1,5	7475,0	PTTU	OK	OK	Washed downwards from 7458 m to 7475 m w/ 1200-1300 lpm,
09.11.2003 04:30	06:00	1,5	7475,0	PTTU	OK	OK	Had problems with pack-off tendency and pressure build-up. Worked string w/ different parameters
09.11.2003 06:00	09:00	3,0	7490,0	PTTU	OK	OK	Increased pump rate in steps up to 1200 LPM / 138 BAR / 30-105 RPM / 19-35 kNm while reciprocated string.
09.11.2003 09:00	11:00	2,0	7494,0	PTTU	OK	OK	Washed downwards from 7490 m to 7494 m. 500 LPM / 80 RPM / 25 kNm. Lost return. Trapped 90 BAR on well. Attempted to regain returns by working string and varying rotation up to 170 RPM. Bled off pressure on stand pipe and set back one stand.
09.11.2003 11:00	15:30	4,5	6900,0	PTTU	OK	OK	Back reamed from 7494 m to 6900 m. 500 LPM / 39-53 BAR / 30 RPM / 21-30 kNm.
09.11.2003 15:30	19:00	3,5	6900,0	PTTU	OK	OK	Increased stepwise pumprate up to 1800 lpm / 253 bar and circulated bottoms up. Max gas 28,2%. Continued circulated well until gas level dropped below 3%.
09.11.2003 19:00	00:00	5,0	6702,0	PTTU	OK	OK	Backreamed from 6900 m to 6702 m w/ 1200 lpm, 30 RPM, 123-189 bar, 21-27 Knm. Had to readjust pumprate several times due to swabbing / pack-off tendency. Max gas 2%.
10.11.2003 00:00	06:00	6,0	6266,0	PTTU	OK	OK	Continued backreaming from 6702 m to 6266 m. 30 RPM, 700 lpm, 57-60 bar, 21-24 Knm. Readjusted pump rate due to pack-off tendency. Max gas 3,9%.
10.11.2003 06:00	11:00	5,0	5449,0	PTTU	OK	OK	Backreamed OOH from 6266 m to 5449 m with 700 lpm/ 51 bar, 30 rpm/ 10-24 kNm.
10.11.2003 11:00	19:00	8,0	5449,0	PTTU	OK	OK	Circulated well clean. Increased rate in steps to 2000 LPM/ 257-237 bar. Rotated with 30-160 rpm/ 10-25 kNm. Reciprocated string. Circulated totally 1,5 times BU with 2000 lpm/ 160 rpm. No excessive cuttings over shakers.
10.11.2003 19:00	20:00	1,0	5639,0	PTTU	OK	E FAIL	RIH with cement stinger from 5449 m to 5639 m. Shear pins in PRS broke.
10.11.2003 20:00	20:30	0,5	5639,0	PAOD	E FAIL	OK	Replaced broken shear pins in lower PRS spade. Meanwhile increased rate in steps to 1000 lpm/ 82 bar.
10.11.2003 20:30	00:00	3,5	6321,0	PTTU	OK	OK	RIH with cement stinger from 5639 m to 6321 m. Broke circulation every 500 m with 115 LPM/ 22 bar. Got back CED from 6156 m.
11.11.2003 00:00	06:00	6,0	7410,0	PTTU	OK	OK	RIH with cement stinger from 6321 m to 7460 m. Filled pipe and broke circulation every 10 stand or 500 m with 115 lpm/ 19-23 bar. Got back CED. Took 7 ton weight at 7420 m. POOH to 7410 m.
11.11.2003 06:00	10:00	4,0	7409,0	PTTU	OK	O FAIL	Increased rate in steps and circulated with 1250 lpm/ 147 bar, 20 rpm/ 16-27 kNm. Had pack off tendency and reduced rate to 900 LPM/ 94 bar, 20 RPM/ 11-28 kNm.
11.11.2003 10:00	10:30	0,5	7409,0	PAOD	O FAIL	OK	Aborted operation due to reduced power supply as GFA started water injection pumps. Meanwhile flow checked well.
11.11.2003 10:30	14:00	3,5	7421,0	PTTU	OK	OK	Increased rate in steps and circulated with 1250 lpm/ 147 bar, 20 rpm/ 11-25 kNm. Had pack off tendency and decreased rate to 570 lpm/ 82 bar. Increased rate in steps and circulated with 950 lpm/ 101 bar, 101 bar. Maximum gas 70 % at 26000-32000 strokes, BU 32300 strokes. MW ot 1.57-1.63 SG. Had pack off tendency and decreased rate to 500 LPM/ 56 bar.
11.11.2003 14:00	15:00	1,0	7437,0	PTTU	OK	OK	Washed down from 7421 m to 7437 m with 520 lpm/ 56-62 bar, 50-100 RPM/ 15-31 kNm. Maximum gas 59 %. Maximum MW out 1.63 SG.
11.11.2003 15:00	22:00	7,0	7437,0	PTTU	OK	OK	Attempted to achieve pump rate of 1000 LPM with stable parameters. Hole packed off several times. Lost returns and trapped 90 bar on well.

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Time from	Time to	Time used	Depth mMD	Act code	--- Status --- During opr	End of opr	Description of activities
11.11.2003 22:00	23:30	1,5	7350,0	PTTU	OK	OK	Attempted to regain returns by working string and varying rotation up to 80 bar. Backreamed out from 7437 m to 7410 m with 100 lpm with no return. Trapped 62 bar on well. Bled off pressure on DP and set back one stand. Backreamed out from 7437 m to 7380 m with 100 lpm with no returns. Trapped 60 bar pressure on well. Bled off pressure in DP and set back stand. Backreamed out from 7380 m to 7355 m with 100-200 LPM without returns. Trappped 42 bar on well. Bled off pressure in DP and set back stand. Backreamed out from 7355 to 7350 with 100 lpm. Regained returns.
11.11.2003 23:30	00:00	0,5	7350,0	PTTU	OK	OK	Increased rate in steps and circulated with 350 lpm/ 37 bar, 15 rpm/ 22-28 kNm. MW out 1.62 SG.
12.11.2003 00:00	06:00	6,0	7355,0	PTTU	OK	OK	Increased rate in steps and circulated with 1320 lpm/ 145 bar, 15 rpm/ 20-25 kNm. Reciprocated pipe. Attempted to increase RPM and observed pack off tendency. Decreased rate to 700 lpm and regainded full returns. Increased rate in steps to 1500 lpm/ 187 bar. Increased RPM gradually to 40 RPM. Had pack off tendency. Increased rate in steps and circulated with 1500 lpm/ 187 bar, 30 rpm/ 20-28 kNm. Maximum gas 27%. MW out 1.61-1.63 SG
12.11.2003 06:00	09:00	3,0	7355,0	PCCU	OK	OK	Increased rate in steps and circulated with 1500 LPM/ 186 bar, 35 RPM/ 13-23 kNm. Hole packed off. Established full returns and increased rate in steps to 860 LPM/ 83 bar, 20 RPM/ 17-35 kNm.
12.11.2003 09:00	12:00	3,0	7437,0	PTTU	OK	OK	Washed down from 7355 m to 7437 m with 500 LPM/ 52 bar, 20 RPM/ 17-29 kNm.
12.11.2003 12:00	15:00	3,0	7437,0	PCCU	OK	OK	Circulated and conditioned hole. Increased rate in steps to 700 LPM/ 72 bar, 20 RPM/ 17-29 kNm. Attempted to increase to 60 RPM in steps, had pack off tendencies with RPM above 20. Reciprocated string. Held pre job safety meeting prior to cement job while circulating.
12.11.2003 15:00	16:30	1,5	7437,0	PSSU	OK	OK	Pumped 7 m3 1.75 SG spacer with rig pumps at 700 LPM/ 77 bar, 15 RPM/ 19-22 kNm. Left 1 m3 spacer in lines. Mixed and pumped 7 m3 1.90 SG gas tight cement slurry with cement pump with 550-600 LPM/ 75-40 bar. Displaced same to rig floor with 630 l drill water. Closed annular and dropped 2 rubber sponge balls. WHP 10 bar. Opened annular.
12.11.2003 16:30	18:00	1,5	7437,0	PSSU	OK	OK	Displaced cement with 1 m3 1.75 SG spacer and 70,2 m3 1.60 SG mud with 700 LPM/ 44-68 bar, 6 RPM/ 21 kNm. Increased RPM to 20 when spacer entered open hole.
12.11.2003 18:00	18:30	0,5	7342,0	PSSU	OK	OK	Pumped and pulled out of cement plug from 7437 m to 7342 m with 600 l/stand, 20 RPM/ 21-24 kNm. Readjusted pumped volume as string was pulled wet.
12.11.2003 18:30	21:00	2,5	7083,0	PSSU	OK	OK	Pumped and pulled from 7342 m to 7300 m with 500 LPM/ 57 bar, 20 RPM/ 19-25 kNm. Attempted to increase RPM and had pack off tendency. Continued to pump and pull from 7300 m to 7083 m with 300-500 LPM/ 41-56 bar, 20 RPM/ 19-25 kNm. Maximum gas 15 %. Theoretical TOC at 7348 m.
12.11.2003 21:00	00:00	3,0	7083,0	PCCU	OK	OK	Increased rate in steps to 1150 LPM/ 115-137 bar, 25 RPM/ 20-25 kNm. Hole packed off. Pumped OOH to 7054 m and set back stand. Established maximum loss free rate and circulated with 1000 LPM/ 95-96 bar, 15-20 RPM/ 15-20 kNm. Maximum gas 22 %. MW out 1.60-1.61 SG. Dropped drift.
13.11.2003 00:00	02:30	2,5	7054,0	PCCU	OK	OK	Circulated with 1000 LPM/ 96-97 bar, 15-20 RPM/ 15-20 kNm. Had traces of spacer and cement in the returns from 32000 strokes, BU 31030 strokes. Circulated totally 1,2 x BU. Lost totally 6 m3 while circulating. MW out 1.60 SG. Moved pipe slowly upwards to 7024 m while circulating.
13.11.2003 02:30	06:00	3,5	6486,0	PTTU	OK	OK	Pumped OOH from 7024 m to 6486 m with 500 LPM/ 40 bar, 50 RPM/ 18-22 kNm. Max gas 10%.
13.11.2003 06:00	14:00	8,0	4632,0	PTTU	OK	O FAIL	Pumped OOH from 6486 m to 4632 m with 500 LPM/ 39 bar, 50 RPM/ 17-21 kNm. Max gas 8,5 %. Took torque and drag reading every 500 m for liner running preparations.
13.11.2003 14:00	14:30	0,5	4632,0	PAOD	O FAIL	OK	Shut off all electrical power to PS, DW and MPs due to reduced power supply as GFA started water injection pump.
13.11.2003 14:30	17:00	2,5	4087,0	PTTU	OK	OK	Pumped OOH from 4632 m to 4087 m with 500 LPM/ 39 bar, 50 RPM/ 17-21 kNm. Max gas 3,2 %. Took torque and drag readings every 500 m for liner running preparations.
13.11.2003 17:00	20:00	3,0	4087,0	PCCU	OK	OK	Circulated BU with 1500 LPM/ 143 bar, 80 RPM/ 10-17 kNm. Started displacing well to 1.61 SG OBM. Reciprocated string.
13.11.2003 20:00	20:30	0,5	4087,0	PAOU	OK	OK	Installed TIW and x-over.
13.11.2003 20:30	22:00	1,5	4087,0	PAOU	OK	OK	Slipped and cut 33 m drill line. Checked draw work brakes. Meanwhile circulated with 1000 LPM/ 76-80 bar. Continued displacing well to 1.61 SG OBM.
13.11.2003 22:00	23:00	1,0	4087,0	PAOU	OK	OK	Performed PM routines. Checked disk wheel on travelling block. Meanwhile circulated with 1000 LPM/ 78 bar.
13.11.2003 23:00	00:00	1,0	3870,0	PTTU	OK	OK	Flowchecked well. Pumped OOH from 4087 m to 3870 m with 1000 LPM/ 78 bar.

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Time from	Time to	Time used	Depth mMD	Act code	--- Status --- During opr	End of opr	Description of activities
14.11.2003 00:00	02:00	2,0	3432,0	PTTU	OK	OK	Pumped OOH from 3870 m to 3432 m with 1000 LPM/ 78 bar.
14.11.2003 02:00	02:30	0,5	3432,0	PTTU	OK	OK	Redressed elevator and slips from 5 1/2" to 5".
14.11.2003 02:30	03:00	0,5	3432,0	PTTU	OK	OK	B/D and LD X-over.
14.11.2003 03:00	03:30	0,5	3432,0	PTTU	OK	OK	Changed from 5 1/2" to 5" spades in PRS.
14.11.2003 03:30	06:00	2,5	3409,0	PTTU	OK	OK	Dropped 3 1/2" drift. Attempted to POOH. No go. Dismanteled torque wrench. Changed saver sub in order to continue pump OOH.
14.11.2003 06:00	06:30	0,5	3409,0	PTTU	OK	OK	Changed saver sub i DDM from 5 1/2" to 5".
14.11.2003 06:30	10:30	4,0	2834,0	PTTU	OK	OK	Pumped OOH from 3409 m to 2834 m with 1000 LPM/ 61 bar, 60 RPM/ 12-9 kNm. Mud weight out dropped to 1,58 SG.
14.11.2003 10:30	11:30	1,0	2807,0	PCCU	OK	OK	Circulated and conditioned mud until eaven mud weight, increasing flow rate to 1500 LPM/ 119 bar and increasing rotation to 80 RPM/ 8-12 kNm. Resiprocated string between 2834 m and 2807 m.
14.11.2003 11:30	14:30	3,0	2235,0	PTTU	OK	OK	Pumped OOH from 2807 m to 2235 m with 1000 LPM/ 58 bar, 60 RPM/ 9 kNm. Mud weight out 1,61 SG-1,64 SG.
14.11.2003 14:30	17:00	2,5	2208,0	PCCU	OK	OK	Circulated well clean increasing flow rate to 3000 LPM/ 324 bar and increasing rotation to 160 RPM/ 7 kNm. Circulated a total of 360 m3. Resiprocated string from 2235 m to 2208 m.
14.11.2003 17:00	17:30	0,5	2208,0	PAOU	OK	O FAIL	Flow checked well.
14.11.2003 17:30	18:00	0,5	2208,0	PAOD	O FAIL	OK	Shut of all electrical power to PS, DW and MP's due to reduced power supply as GFA started water injection pumps. Meanwhile flow checked well.
14.11.2003 18:00	19:30	1,5	2072,0	PTTU	OK	OK	POOH 6 stands wet. Pumped slug.
14.11.2003 19:30	21:00	1,5	1310,0	PTTU	OK	OK	POOH with cement stinger from 2072 m to 1310 m.
14.11.2003 21:00	21:30	0,5	1310,0	PAOU	OK	OK	Performed pre job safety meeting with crew prior to LD 5"/ 3 1/2" DP to pipe deck.
14.11.2003 21:30	00:00	2,5	997,0	PTPU	OK	OK	POOH with cement stinger from 1310 m to 997 m while LD 5" DP to pipe deck.
15.11.2003 00:00	04:00	4,0	359,0	PTPU	OK	OK	POOH with cement stinger from 997 m to 359 m while LD 5" DP to pipe deck.
15.11.2003 04:00	04:30	0,5	359,0	PTPU	OK	OK	Changed from hydraulic slips to master bushing and manual slips. Redressed elevator from 5" to 3 1/2".
15.11.2003 04:30	06:00	1,5	85,0	PTPU	OK	OK	POOH with cement stinger from 359 m to 85 m while LD 3 1/2" DP to pipe deck.
15.11.2003 06:00	06:30	0,5	,0	PTTU	OK	OK	POOH with cement stinger from 85 m to 67 m while LD 3 1/2" DP to pipe deck. 4 1/2 joints of 3 1/2" DP and cement stinger equal 67,54 m lost in hole.
15.11.2003 06:30	07:00	0,5	,0	PTTU	OK	OK	Cleaned rig floor.
15.11.2003 07:00	07:30	0,5	,0	BBOU	OK	OK	Changed inserts in hydraulic elevator from 3 1/2" to 5 1/2".
15.11.2003 07:30	08:30	1,0	,0	BHRU	OK	OK	MU running tool for wear bushing and RIH. Had problems passing lower pipe ram when RIH with running tool. POOH with wear bushing.
15.11.2003 08:30	09:00	0,5	,0	BBOU	OK	OK	Changed inserts in hydraulic elevator from 5 1/2" to 5" before MU of jetsub due to 5" saver sub. Laid out hydraulic slips.
15.11.2003 09:00	10:30	1,5	,0	BBOU	OK	OK	MU jet sub on 5" DP and RIH with same. Washed wellhead and BOP area with 2000 LPM/ 14 bar, 30 RPM/ 1 kNm. POOH with jet sub and LD same.
15.11.2003 10:30	11:00	0,5	,0	BBOU	OK	OK	Changed inserts in hydraulic elevator from 5" to 5 1/2".
15.11.2003 11:00	12:00	1,0	37,0	BBOU	OK	OK	MU and RIH with BOP test plug.
15.11.2003 12:00	15:30	3,5	37,0	BBUU	OK	OK	Tested annular preventer to 20 bar/ 5 min and 280 bar/ 10 min. Tested rams and valves to 20 bar/ 5 min and 345 bar/ 10 min. Meanwhile performed mechanical PM routine on DDM and crown block.
15.11.2003 15:30	16:00	0,5	,0	BBOU	OK	OK	POOH and LD BOP test plug.
15.11.2003 16:00	17:30	1,5	,0	PAOU	OK	OK	Changed saver sub from 5" to 5 1/2". Installed torque wrench after service.
15.11.2003 17:30	18:30	1,0	,0	BHRU	OK	OK	RIH and installed wear bushing. POOH with RT.
15.11.2003 18:30	19:00	0,5	,0	BBOU	OK	OK	Cleaned rig floor.
15.11.2003 19:00	20:00	1,0	,0	PAOU	OK	OK	Changed wash pipe in DDM.
15.11.2003 20:00	22:00	2,0	,0	BBOU	OK	OK	Attempted to test IBOP. No go. MU spear IBOP's, x-over and hose.
15.11.2003 22:00	00:00	2,0	17,0	PTPU	OK	OK	PU MWD vision tool. PU 8 3/8" stab and MU same. MU 8 1/2" bit. PU and MU MWD power pulse. MU x-over and tested MWD with 1500 LPM/ 54 bar. Meanwhile tested spear IBOP's on rig floor-ok.
16.11.2003 00:00	02:00	2,0	43,0	PTPU	OK	OK	PU drilling formation tester. PU 8 3/8" stab and MU same. PU 8 3/8" stab and HDS1 tool. MU same. Tested drilling formation tester with 1000-1500 LPM/ 43-70 bar.
16.11.2003 02:00	02:30	0,5	134,0	PAOU	OK	OK	Removed master bushing and installed hydraulic slips.
16.11.2003 02:30	06:00	3,5	2256,0	PTTU	OK	OK	RIH with 8 1/2" clean up/formation testing assembly from 134 m to 2256 m. Filled pipe with 1.60 SG mud at 500 m, 1000 m and 1500 m.

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Time from	Time to	Time used	Depth mMD	Act code	--- Status --- During opr	End of opr	Description of activities
16.11.2003 06:00	06:30	0,5	2256,0	PTTU	OK	OK	Filled string with 1,60 SG mud and held pre job meeting for picking up DP.
16.11.2003 06:30	12:30	6,0	3317,0	PTTU	OK	OK	RIH with 8 1/2" clean up/ formation testing assembly from 2256 m to 3317 m while PU 78 jnts 5" DP from pipe deck.
16.11.2003 12:30	13:00	0,5	3317,0	PTTU	OK	OK	Changed from 5" to 5 1/2" inserts in hydraulic elevator. Installed x-over from 5" to 5 1/2"
16.11.2003 13:00	13:30	0,5	3345,0	PTTU	OK	OK	Filled string and broke circulation with 230 LPM/ 20 bar. Meanwhile changed inserts in hydraulic slips from 5" to 5 1/2". RIH from 3317 m to 3345 m. MU x-over to 2" Veco on saver sub on DDM.
16.11.2003 13:30	14:30	1,0	3345,0	PTTU	OK	OK	Pressure tested upper and lower IBOPs on DDM to 20 bar/ 5 min and 345 bar/10 min. Meanwhile changed spades in PRS from 5" to 5 1/2". Rigged down x-over and hose.
16.11.2003 14:30	17:30	3,0	4243,0	PTTU	OK	OK	RIH with 8 1/2" clean up/ formation testing assembly from 3345 m to 4243 m. Run slowly with formation testing tool through window.
16.11.2003 17:30	21:00	3,5	4243,0	PCCU	OK	OK	Filled string and broke circulation with 345 LPM/ 24 bar. Increased rate in steps and circulated with 345-1950 LPM/ 24-242 bar. Rotated with 10 RPM/ 13-18 kNm. Conditioned mud and reduced mudweight to 1.60 SG. ECD 1.69 with 1950 LPM. Reciprocated from 4243 m to 4215 m.
16.11.2003 21:00	21:30	0,5	4243,0	PCCU	OK	OK	Circulated with 1950 LPM and increased RPM in steps to 160 RPM/ 27-32 kNm while POOH from 4243 m to 4225 m. Pressure dropped from 242 bar to 234 bar while increasing RPM. ECD 1.70-1.72 SG EMW.
16.11.2003 21:30	23:30	2,0	5114,0	PTTU	OK	OK	RIH with 8 1/2" clean up/ formation testing assembly from 4245 m to 5114 m. Limited running speed to 2 min/ stand.
16.11.2003 23:30	00:00	0,5	5109,0	PCCU	OK	OK	Filled pipe and broke circulation with 220 LPM/ 21 bar. Increased rate in steps to 1400 LPM/ 132 bar. Rotated with 25 RPM/ 11-22 kNm. ECD 1.68 SG. POOH from 5114 m to 5109 m while circulating.
17.11.2003 00:00	00:30	0,5	5100,0	PCCU	OK	OK	Increased rate in steps and circulated with 1950 LPM/ 255 bar, 25 RPM/ 11-22 kNm. Maximum ECD 1.70 SG. Increased rotation to 100 RPM. Had decreasing return flow. Maximum ECD 1.73 SG. Decreased rotation to 50 RPM. Increased rotation in steps to 160 RPM/ 27-32 kNm. Maximum ECD 1.72 SG. MW out 1.60 SG. POOH from 5109 m to 5100 m while increasing rate and RPM.
17.11.2003 00:30	03:00	2,5	6122,0	PTTU	OK	OK	RIH with 8 1/2" clean up/ formation testing assembly from 5100 m to 6122 m. Limited running speed to 2 min/ stand.
17.11.2003 03:00	04:30	1,5	6103,0	PCCU	OK	OK	Filled pipe and broke circulation with 220 LPM/ 24 bar. Started rotation with 25 RPM/ 15-19 kNm. Increased rate in steps to 1950 LPM/ 278 bar. MW out 1.60 SG. Had problems decoding signals from MWD. Reduced rate to 800 LPM and brought pumps rapidly up to 1600 LPM/ 197 bar. Still impossible to decode signals from MWD. Turned off pumps and brought rate rapidly up to 1750 LPM/230 bar. Achelved good signals from MWD. POOH from 6122 m to 6103 m while circulating.
17.11.2003 04:30	05:00	0,5	6095,0	PCCU	OK	OK	Circulated with 1950 LPM/ 278 bar and increased rotation in steps to 160 RPM/ 27-30 kNm. ECD increased from 1.68 - 1.74 SG. MW out 1.60 SG. POOH from 6103 m to 6095 m while circulating.
17.11.2003 05:00	05:30	0,5	6245,0	PTTU	OK	OK	RIH with 8 1/2" clean up/ formation testing assembly from 6095 m to 6245 m. Limited running speed to 2 min/ stand. Took 10 ton WOB.
17.11.2003 05:30	06:00	0,5	6239,0	PTTU	OK	OK	Pumped OOH to 6239 m with 200 LPM/ 20 bar, 20 RPM/ 14-18 kNm. Increased rate in steps to 1000 LPM/ 90 bar.
17.11.2003 06:00	06:30	0,5	6258,0	PTTU	OK	OK	Washed down from 6239 m to 6258 m with 1000 LPM/ 90-98 bar, 10 RPM/ 14-29 kNm. Took 5 ton weight.
17.11.2003 06:30	08:00	1,5	6231,0	PTTU	OK	OK	Backreamed slowly from 6258 m to 6231 m increasing flowrate in steps to 1600 LPM/ 243 bar, 100-130 RPM/ 21-27 kNm.
17.11.2003 08:00	08:30	0,5	6285,0	PTTU	OK	OK	RIH with 8 1/2" clean up/ formation testing assembly from 6231 m to 6285 m. Took 10 ton weight at 6272 m.
17.11.2003 08:30	09:30	1,0	6285,0	PTTU	OK	OK	Reamed area from 6285 m to 6258 m increasing flow rate to 1900 lpm/ 260 bar/ 160 RPM/ 27-30. kNm.
17.11.2003 09:30	10:00	0,5	6313,0	PTTU	OK	OK	Washed down with clean up/ formation testing assembly from 6285 m to 6313 m with 1950 LPM/ 280 bar, 15 RPM/ 20 kNm. Took 5 ton weight.
17.11.2003 10:00	11:30	1,5	6285,0	PTTU	OK	OK	Backreamed from 6313 m to 6299 m with 1950 LPM/ 260 bar, 160 RPM/ 25-28 kNm. Pressure increased to 290 bar and ECD increased from 1,72 SG to 1,78 SG. Hole partly packed off and lost partly return. Pumped OOH from 6299 m to 6285 m with 460 LPM/ 77 bar. Racked 1 stand back I derrick.
17.11.2003 11:30	14:30	3,0	6285,0	PTTU	OK	OK	Established full return and increased flow rate insteps of 100 LPM from 175 LPM to 1900 LPM/ 25-270 bar and rotation in steps from 10 - 80 RPM/ 14-26 kNm. Reciprocated string from 6285 m to 6258 m.
17.11.2003 14:30	16:00	1,5	6503,0	PTTU	OK	OK	RIH with clean up/ formation testing assembly from 6285 m to 6503 m. Took 10 ton weight at 6421 m. Washed down from 6421 m to 6449 m with 1000 LPM/ 91 bar, 7-10 RPM/ 18-23 kNm. Continued RIH to 6503 m.

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Time from	Time to	Time used	Depth mMD	Act code	--- Status --- During opr	End of opr	Description of activities
17.11.2003 16:00	17:30	1,5	6476,0	PTTU	OK	OK	Circulated and backreamed stand from 6503 m to 6476 m increasing flow rate in steps from 230-1530 LPM/ 25-188 bar and increasing rotation in steps from 10-30 RPM/ 20-25 kNm. Lost partly return. Reduced flow rate to 300 LPM and rotation to 10 RPM. Got normal return. Increased flow rate in steps to 1200 LPM and started loosing return. Turned off pumps and slided in to 6503 m. Backreamed from 6503 m to 6476 m increasing flow rate to 1100 LPM/ 113 bar, 10 RPM/ 20-25 kNm loosing and regaining return several times.
17.11.2003 17:30	18:30	1,0	6580,0	PTTU	OK	OK	Washed down with clean up/ formation testing assembly from 6476 m to 6580 m with 500 LPM/ 46 bar, 20 RPM/ 13-17 kNm. Increased rate in steps to 1070 LPM/ 110 bar, loosing and regaing returns several times.
17.11.2003 18:30	00:00	5,5	6375,0	PTTU	OK	OK	Backreamed from 6580 m to 6375 m with 500-1300 LPM/ 53-156 bar, 15-30 RPM/ 14-28 kNm. Increased rate in steps several times up to maximum 1300 LPM/ 156 bar. Partly lost and regained returns several times. Observed fluctulating torque and small pressure increase prior to loosing returns. MW out 1.60-1.62 SG.
18.11.2003 00:00	06:00	6,0	6245,0	PTTU	OK	OK	Backreamed from 6375 m to 6245 m with 400-1200 LPM/ 54-128 bar, 20-60 RPM/ 16-28 kNm kNm. Increased rate in steps several times up to 1200 LPM/ 128 bar. Lost and regained returns several times. Maximum ECD 1.71 SG. MW out 1.61-1.64 SG.
18.11.2003 06:00	08:00	2,0	6258,0	PTTU	OK	OK	Pumped OOH from 6285 m to 6258 m with 500-1100 LPM/ 40-122 bar, 10-50 RPM/ 16-28 kNm. Partly lost and regained returns at 6261 m.
18.11.2003 08:00	11:00	3,0	6231,0	PTTU	OK	OK	Set back 1 stand and pumped OOH from 6258 m to 6231 m with 1100-1400 LPM/ 124-161 bar, 50-80 RPM/ 16-26 kNm. Reamed stand 3 times increasing flow rate and rotation.
18.11.2003 11:00	16:00	5,0	6204,0	PCCU	OK	OK	Set back 1 stand and pumped OOH from 6231 m to 6204 m with 1400-1900 LPM/ 161-264 bar, 50-80 RPM/ 16-26 kNm. Reamed stand 4 times increasing flow rate and rotation. When increasing flow rate from 1860 LPM to 1900 LPM, pressure increased 3,2 bar after 5 min and hole packed off and return was partly lost. Trapped 31 bar pressure when reduced flow rate to 1000 LPM. Reduced flow rate to 460 LPM and regained return. Increased flow rate gradualy to 1300 LPM/ 141 bar, 75 RPM/ 16-26 kNm.
18.11.2003 16:00	21:00	5,0	6149,0	PCCU	OK	OK	Set back 1 stand. Pumped OOH from 6204 m to 6149 m with 400-1800 LPM/ 224 bar, 50-80 RPM/ 16-26 kNm. Reamed stand 3 times.
18.11.2003 21:00	00:00	3,0	6122,0	PCCU	OK	OK	Set back 1stand. Pumped OOH from 6149 m to 6122 m with 400-1800 LPM/ 38-240 bar, 80 RPM/ 18-26 kNm. Circulated 0,8 BU with 1800 LPM. Maximum ECD 1.71 SG. Reamed stand 2 times.
19.11.2003 00:00	00:30	0,5	6122,0	PCCU	OK	OK	Contiued circulating with 1800 LPM/ 240 bar, 80 RPM/ 18-24 kNm. Circulated totally 1 x BU with 1800 LPM. Maximum ECD 1.70. Reamed stand.
19.11.2003 00:30	03:00	2,5	6122,0	PCCU	OK	OK	Increased rate in steps to 1950 LPM/ 268 bar, 80 RPM/ 18-26 kNm. MP2 shut down due to bearing failure in DC motor. Circulated with 1000 LPM/ 94 bar while lined up to MP3. Increased rate in steps to 1950 LPM/ 265 bar, 80 RPM/ 18-26 kNm. Started loosing with 15 m3/ hr. Reduced rate to 1800 LPM/ 237 bar. Maximum ECD 1.72 SG. Reamed stand totally 3 times.
19.11.2003 03:00	06:00	3,0	6095,0	PCCU	OK	OK	Set back 1 stand. Had 16 m3 backflow at connection. Pumped OOH from 6122 m to 6095 m with 400-1950 LPM/ 35-262 bar, 80 RPM/ 18-26 kNm. Circulated totally 2 x BU from bit to top of 9 5/8" liner. Reamed stand 2 times.
19.11.2003 06:00	15:30	9,5	6218,0	PTTU	OK	OK	Washed down from 6095 m to 6218 m with one single at a time with 1100 LPM/ 101 bar, 10-15 RPM/ 16-26 kNm. Reamed each single up increasing pump rate in 100 LPM steps to 1950 LPM/ 269 bar, 80 RPM/ 18-26 kNm. ECD 1,70 SG. Lost about 16 m3 on each stand which was regained on connections.
19.11.2003 15:30	16:30	1,0	6204,0	PTTU	OK	OK	Reamed back from 6218 m to 6208 m with 1950 LPM/ 258 bar, 80 RPM/ 16-24 kNm. Pressure built up to 264 bar and hole packed off. Decreased rate to 1190 LPM/ 131 bar and regained returns. Washed down to 6215 m. Pumped OOH from 6215 m to 6208 m increasing pump rate in steps to 1900 LPM/ 257 bar, 80 RPM/ 16-25 kNm. Pressure built up to 264 bar and hole packed off. Decreased rate to 300 LPM/ 61 bar, 25 RPM/ 22-26 kNm. Hole packed off. RIH to 6218 m. Pumped OOH from 6218 m to 6204 m with 200 LPM/ 61 bar, 25 RPM/ 20-26 kNm. Lost and regained circulation several times.
19.11.2003 16:30	18:00	1,5	6177,0	PTTU	OK	OK	Racked back 1 stand. Pumped OOH from 6204 m to 6177 m with 400-1000 LPM/ 51-91 bar, 50 RPM/ 16-25 kNm. Lost and regained returns several times.
19.11.2003 18:00	22:30	4,5	6095,0	PTTU	OK	O FAIL	Racked back 1 stand. Pumped OOH from 6177 m to 6095 m with 500-1800 LPM/ 34-240 bar, 50 RPM/ 19-25 kNm. Hole packed off twice with 1800 LPM after pressure increase from 236-240 bar.

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Time from	Time to	Time used	Depth mMD	Act code	--- Status --- During opr	End of opr	Description of activities
19.11.2003 22:30	00:00	1,5	6095,0	PAOD	O FAIL	OK	Shut off all electrical power to PS, DW and MP's due to reduced power supply as GFB and GFA started water injection pumps. Moved string and pumped slowly every 0,5 hrs. GFA attempted several times to start up injection pumps. Had 5 m3 backflow.
20.11.2003 00:00	00:30	0,5	6095,0	PAOD	O FAIL	OK	Had stop in operation due to reduced power supply as GFA attempted to start water injection pumps.
20.11.2003 00:30	01:30	1,0	6081,0	PTTU	OK	O FAIL	Pumped OOH from 6095 m to 6090 m with 400- 1000 LPM/ 33-100 bar, 80 RPM/ 17-26 kNm. Hole packed off. RIH to 6095 m. Pumped OOH from 6095 m to 6081 m with 400-1450 LPM/ 58-164 bar, 50-80 RPM/ 20-24 kNm. RIH to 6095 m and aborted operation due to GFA starting water injection pumps.
20.11.2003 01:30	02:30	1,0	6095,0	PAOD	O FAIL	OK	Waited for GFA/ GFB to start up water injection pumps. Had 6 m3 backflow.
20.11.2003 02:30	06:00	3,5	6068,0	PTTU	OK	OK	Pumped OOH from 6095 m to 6078 m with 500-1700 LPM/ 38-220 bar, 50-80 RPM/ 20-24 kNm. Pressure built up to 226 bar. Decreased rotation to 15 RPM and washed down to 6073 m with 1700 LPM/ 231 bar. Pumped OOH from 6081 m to 6078 m with 1700 LPM/ 220 bar, 80-120 RPM/ 20-27 kNm and unstable returns. ECD increased from 1.72 to 1.80 SG when increasing rotation to 100/120 RPM. Had pressure build up from 220-234 bar and lost returns. Decreased rate to 500 LPM/ 77 bar and RIH to 6083 m. Regained returns. Circulated with 500 LPM/ 50 RPM for 8 min and pressure dropped to 50 bar. Pumped OOH from 6083 m to 6068 m increasing rate in steps to 1600 LPM/ 190 bar, 50 RPM/ 21-25 kNm. Pressure built up to 198 bar and partly lost returns. Decreased rate to 1500 LPM and pressure dropped to 173 bar in 6 min. Increased rate in steps to 1700 LPM/ 216 bar. ECD 1.70 SG. Set back 1 stand.
20.11.2003 06:00	15:30	9,5	6000,0	PTTU	OK	OK	Pumped OOH from 6068 m to 6000 m increasing flowrate in steps from 1000-1900 LPM/ 96-256 bar, increasing rotation in steps of 20 RPM from 80-160 RPM/ 17-30 kNm. Hole packed off and return was partly lost and regained at 6039 m, 6025 m, 6018 m, 6013 m, 6010 m and 6006 m. Experienced ballooning effects up to 23 m3.
20.11.2003 15:30	00:00	8,5	6445,0	PXXU	OK	OK	Washed down with 180-200 m/ hrs from 6000 m to 6445 m with 1900 LPM/ 253 bar, 160 RPM/ 22-26 kNm. Problem area at 6330 m and 6445 m. String took weight. Reduced return. Circulated until ECD, returns and pump pressure was stable and continued to wash down. Experienced ballooning effects.
21.11.2003 00:00	03:00	3,0	6580,0	PXXU	OK	OK	Washed down with 180-200 m/ hrs from 6445 m to 6580 m with 1900 LPM/ 260 bar, 160 RPM/ 22-28-36 kNm. Problem area at 6522 m and 6526 m String took weight. Reduced return. Circulated until ECD, returns and pump pressure was stable and continued to wash down. Reduced RPM to 15 RPM when going through tight spots/ taking weight. Problem area 6570-6580 m. Rotated with 15 PRM through this area. Increased torque up to 36 kNm. Stable returns and pressure. Experienced ballooning effects.
21.11.2003 03:00	04:30	1,5	6575,0	PXXU	OK	OK	Circulated with 1500-1900 LPM/ 180-260 bar, 160 RPM/ 29-35 kNm. POOH slowly while circulating. Started with 1500 LPM due to high pump pressure. Pressure was reduced from 220 bar to 180 bar while circulating with 1500 LPM. Circulated 1 BU from 6580 m to top of 9 5/8" liner. Experienced ballooning effects.
21.11.2003 04:30	06:00	1,5	6531,0	PXXU	OK	OK	Washed down from 6570 m to 6580 m with 1900 LPM/ 260 bar, 10 RPM/ 28 kNm. String torqued up to 47 kNm while reaming. Stopped rotation. String stuck. Worked string. Jared string free. 42 t overpull. Resiprocated string to reduce pump pressure and torque. Performed check MWD survey to check for magnetic interference from fish. Washed down from 6580 m to 6583 m with 1900 LPM/ 260 bar, 10 RPM/ 28 kNm. String torqued up to 45 kNm while reaming. Hole packed off when reaming up. Lost returns fully while RIH. Reduced rate to 500 LPM. Racked back one stand. Worked string. Reestablished returns with 500 LPM. Increased rate in steps to 900 LPM. Resiprocated string on one stand. Experienced ballooning effects. Max gas 13 %.
21.11.2003 06:00	09:00	3,0	6558,0	PTTU	OK	OK	Increased flow rate in steps to 1900 LPM. Washed down from 6531 m to 6595 m with 1900 LPM/ 260 bar, 160 RPM/ 27-29 kNm. Took 4 tons weight and torque increased to 34 kNm. Pumped OOH to 6584 m. Hole packed off and partly lost return. Reduced flow rate to 600 LPM and rotation to 15 RPM. Had decrease and increase in return several times. Racked back 1 stand. Increased flow rate in steps to 1900 LPM/ 267 bar and rotation to 160 RPM/ 30-45 kNm. Hole partly packed off. Worked string. ECD increased to 1,87 SG. Reduced flow rate to 1300 LPM/ 175 bar and rotation to 140 RPM/ 26-36 kNm. Pumped OOH to 6558 m loosing and regaining returns. ECD decreased to 1,78 SG. Experienced more ballooning effects. Max gas 20,9 %.

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Time from	Time to	Time used	Depth mMD	Act code	--- Status --- During opr	End of opr	Description of activities
21.11.2003 09:00	17:00	8,0	6094,0	PTTU	OK	OK	Backreamed OOH from 6558 m to 6094 m with 700-1550 LPM/ 75-194 bar, 15-130 RPM/ 15-32 kNm. ECD 1,83-1,71 SG. Hole partly packed off at 6540 m, 6526 m, 6513 m, 6473 m, lost 9 m3, 6468 m, 6439 m, 6419 m, 6409 m, 6332 m and 6335 m. Max gas 15,2 %.
21.11.2003 17:00	00:00	7,0	5139,0	PTTU	OK	OK	Backreamed OOH from 6094 m to 5139 m with 900-1500 LPM/ 90-170 bar, 80 RPM/ 20-28 kNm. ECD 1,65-1,72 SG.
22.11.2003 00:00	06:00	6,0	4290,0	PTTU	OK	OK	Backreamed OOH from 5139 m to 4290 m with 1500 LPM/ 160-170 bar, 80 RPM/ 15-20 kNm. ECD 1,64-1,71 SG.
22.11.2003 06:00	07:00	1,0	4161,0	PTTU	OK	OK	Backreamed OOH from 4290 m to 4161 m with 1500 LPM/ 157-160 bar, 80 RPM/ 10-19 kNm.
22.11.2003 07:00	07:30	0,5	4079,0	PTTU	OK	OK	Pumped OOH through window with 1000 LPM/ 85 bar. Took 4 ton overpull at 4137 m. Correspondes to datalink NM stabilizer beeing pulled through window. Rotated with 10 RPM and pumped through.
22.11.2003 07:30	08:30	1,0	4079,0	PTTU	OK	OK	Circulated BU to top of 9 5/8" liner with 1950 LPM/ 243 bar, 80 RPM/ 10-19 kNm. Reciprocated string between 4079 m and 4052 m. Experienced ballooning effects. Reduced rate to 1000 LPM/ 80 bar, 80 RPM/ 10-19 kNm. Active volume leveled out.
22.11.2003 08:30	09:30	1,0	4079,0	PTTU	OK	OK	Flow checked well. Gained 250 liter/ hour in beginning. Gain rate decreased and last 10 min well was stable.
22.11.2003 09:30	13:00	3,5	3330,0	PTTU	OK	OK	Pumped OOH inside 9 5/8" casing from 4079 m to 3330 m with 1500 LPM/ 152 bar.
22.11.2003 13:00	13:30	0,5	3330,0	PTTU	OK	OK	Changed inserts in hydraulic elevator and slips from 5" to 5 1/2". Changed spades in PRS arm from 5" to 5 1/2".
22.11.2003 13:30	15:00	1,5	3330,0	PTTU	OK	OK	Disconected torque wrench. Changed inserts from 5 1/2" to 5". Changed wear sub in DDM from 5 1/2" to 5". Installed torque wrench.
22.11.2003 15:00	20:00	5,0	2230,0	PTTU	OK	OK	Pumped OOH inside 9 5/8" casing from 3330 m to 2230 m with 1500 LPM/ 140-120 bar.
22.11.2003 20:00	23:00	3,0	2200,0	PTTU	OK	OK	Circulated until clean returns with 1950 LPM/ 175 bar, 80 RPM/ 6-11 kNm. Flow checked well.
22.11.2003 23:00	00:00	1,0	2000,0	PTTU	OK	OK	Pulled 6 stands wet from 2200 m to 2000 m. Slugged pipe.
23.11.2003 00:00	03:30	3,5	300,0	PTTU	OK	OK	POOH from 2000 m to 300 m. Performed prejob meeting prior to LD DP.
23.11.2003 03:30	05:00	1,5	40,0	PTPU	OK	OK	POOH and LD 5" DP from 300 m to 40 m. Changed to manual slips. Broke and LD jar.
23.11.2003 05:00	06:00	1,0	30,0	PTPU	OK	OK	Broke and LD stab. Removed and LD probe for Pathfinder tool.
23.11.2003 06:00	08:00	2,0	,0	PTTU	OK	OK	POOH with 8 1/2" BHA. Broke and LD Pathfinder DFT tool to deck. Broke and LD 8 1/2" bit. Broke and LD MWD tool items to deck.
23.11.2003 08:00	08:30	0,5	,0	PTTU	OK	OK	Cleaned rig floor. LD stabilizers and x-o to deck.
23.11.2003 08:30	09:30	1,0	,0	PTTU	OK	OK	Broke and LD 5" saver sub. Disconnected DDM torque wrench.
23.11.2003 09:30	10:00	0,5	,0	PTTU	OK	OK	Performed pre job meeting with crew prior to PU 3 1/2" DP from deck. Changed inserts in hydraulic elevator from 5" to 3 1/2".
23.11.2003 10:00	13:00	3,0	439,0	PTTU	OK	OK	PU and MU 3 1/2" DP range 2 from deck and RIH to 96 m. Continued PU and MU 3 1/2" DP range 3 from deck and RIH to 439 m. MU x-o from 3 1/2" to 5".
23.11.2003 13:00	13:30	0,5	439,0	PTTU	OK	OK	Changed inserts in hydraulic slips and elevator from 3 1/2" to 5"
23.11.2003 13:30	14:30	1,0	439,0	PTTU	OK	OK	Installed 5 1/2" saver sub in DDM. Installed torque wrench.
23.11.2003 14:30	18:30	4,0	3107,0	PTTU	OK	OK	RIH with cement stinger on 5" DP from 439 m to 3107 m.
23.11.2003 18:30	19:00	0,5	3107,0	PTTU	OK	OK	Redressed PRS and elevator to 5 1/2" DP.
23.11.2003 19:00	22:00	3,0	4295,0	PTTU	OK	OK	RIH with cement stinger on 5 1/2 DP from 3107 m to 4295 m.
23.11.2003 22:00	00:00	2,0	4495,0	PTTU	OK	OK	Wash in hole with 1500 lpm/ 150 bar from 4295 m to 4495 m.
24.11.2003 00:00	02:00	2,0	4305,0	PTTU	OK	OK	Pumped 6 m3 1.60 SG bentonite pill with 1000-1250 LPM/ 110-130 bar. Displaced same. Pumped OOH and pill from 4495 m to 4305 m.
24.11.2003 02:00	04:00	2,0	4305,0	PAOU	OK	OK	Pumped BU from 4305 m to 2258 m (top of 9 5/8" liner) with 1500 LPM/ 150 bar. Performed prejob meeting while pumping BU. Dumped shakerbox. Flushed cement line with water.
24.11.2003 04:00	06:00	2,0	4305,0	PSSU	OK	OK	Installed Cement Support Tool and dart in string. Pumped 8 m3 1.75 SG spacer. Mixed and pumped 23 m3 2.0 SG cement slurry with 800 LPM/ 110 bar. Closed annular. Installed dart in string. Opened annular. Displaced cement with 32 m3 OBM with 1000 LPM/ 114 bar, 130 rpm/ 15 kNm.
24.11.2003 06:00	08:00	2,0	4006,0	PTTU	OK	OK	Pumped out of cement plug from 4305 m to 4006 m with 136 LPM/ 13 bar, 15 RPM and 2 min/ stand.
24.11.2003 08:00	08:30	0,5	4088,0	PTTU	OK	OK	Washed down from 4006 m to 4088 m with 1400 LPM/ 147 bar, 130 RPM/ 13-16 kNm.
24.11.2003 08:30	10:30	2,0	4061,0	PTTU	OK	OK	Circulated out excess cement and conditioned mud. Increased flow rate in steps from 1400 LPM/ 147 bar to 1800 LPM/ 220-225 bar, 130 RPM/ 13-16 kNm. Resiprocated string from 4074 m to 4061 m. Got 55 m3 spacer and cement contaminated mud in return.
24.11.2003 10:30	15:00	4,5	3106,0	PTTU	OK	OK	Pumped OOH from 4061 m to 3106 m with 1000 LPM/ 75 bar, 130 RPM/ 12-15 kNm. Dropped drifts for 5" and 5 1/2" DP.

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24.11.2003 15:00	15:30	0,5	3106,0	PTTU	OK	OK	Circulated BU above 9 5/8" liner top with 1500 LPM/ 144 bar, 130 RPM/ 10 kNm. Meanwhile changed inserts from 5 1/2 to 5" in hydraulic slips. LD x-o from 5 1/2" to 5".
24.11.2003 15:30	16:00	0,5	3106,0	PTTU	OK	OK	Changed spades in PRS from 5 1/2" to 5" and inserts in hydraulic elevator.
24.11.2003 16:00	17:30	1,5	2971,0	PTTU	OK	OK	POOH wet from 3106 m to 2971 m. Hole did not take correct amount of mud.
24.11.2003 17:30	19:30	2,0	2971,0	PTTU	OK	OK	Changed saver sub and TW inserts for 5" DP.
24.11.2003 19:30	21:30	2,0	2644,0	PTTU	OK	OK	Pumped OOH from 2971 m to 2644 m with 1000 LPM/ 65 bar.
24.11.2003 21:30	22:30	1,0	2500,0	PTTU	OK	OK	Pulled 5 stands wet from 2644 m to 2500 m. Slugged pipe.
24.11.2003 22:30	00:00	1,5	1700,0	PTTU	OK	OK	POOH from 2500 m to 1700 m.
25.11.2003 00:00	03:00	3,0	438,0	PTTU	OK	OK	POOH from 1700 m to 438 m with 5" DP.
25.11.2003 03:00	03:30	0,5	438,0	PTTU	OK	OK	Changed to manual slips. Changed to 3 1/2" inserts in elevator.
25.11.2003 03:30	06:00	2,5	240,0	PTTU	OK	OK	POOH with 3 1/2" DP from 438 m to 240 m and LD same to pipedeck. 18 joints range III pipe.
25.11.2003 06:00	07:30	1,5	,0	PTTU	OK	OK	POOH with 3 1/2" DP from 140 m to surface and LD same to pipe deck. LD 7 joints range III and 10 joints range II.
25.11.2003 07:30	08:00	0,5	,0	PTTU	OK	OK	Cleaned rig floor.
25.11.2003 08:00	09:00	1,0	,0	PTTU	OK	OK	Changed DDM saver sub and disconected DDM torque wrench.
25.11.2003 09:00	11:30	2,5	112,0	PTTU	OK	OK	PU 2x6 1/2" DC from deck. MU 8 1/2" bit and near bit stabilizer. RIH to 20 m. Installed string stabilizer. RIH from derrick with 3x5" HWDP to 48 m. PU jar from deck and MU same. RIH with jar and 6x5" HWDP to 112 m.
25.11.2003 11:30	12:00	0,5	112,0	PTTU	OK	OK	Removed master bushing and installed hydraulic slips.
25.11.2003 12:00	13:30	1,5	1000,0	PTTU	OK	OK	RIH with 8 1/2" clean up BHA from 112 m to 1000 m. Filled pipe and broke circulation
25.11.2003 13:30	22:00	8,5	3900,0	PTTU	OK	OK	RIH with 8 1/2" clean up BHA from 1000 m to 3900 m. Filled pipe at 2000 m, 3000 m and 3900 m.
25.11.2003 22:00	00:00	2,0	4105,0	PTTU	OK	OK	Washed in from 3900 m to 4105 m with 1800 LPM/ 150 bar, 80 rpm/ 15-20 kNm.
26.11.2003 00:00	02:00	2,0	4155,0	PTTU	OK	OK	Washed down from 4105 m to 4155 m with 1800 LPM/ 145 bar, 80 rpm/ 15-20 kNm. Washed down with reduced torque limit.
26.11.2003 02:00	02:30	0,5	4168,0	PTTU	OK	OK	Drilled cement from 4155 m to 4168 m with 1800 LPM/ 145 bar, 120 rpm/ 16-24 kNm. 2-7 t WOB.
26.11.2003 02:30	04:00	1,5	4068,0	PTTU	OK	OK	Pumped OOH from 4168 m to 4116 m with 1800 LPM/ 150 bar, 80 rpm/ 15-20 kNm. Pumped through window with 1000 LPM/ 54 bar. Circulated BU to above top of 9 5/8" liner with 1800 LPM/ 150 bar.
26.11.2003 04:00	05:00	1,0	4068,0	EXFU	OK	OK	Performed FIT to 1,80 SG EMW. Pumped 1200 litre. Bleed back 1000 litre.
26.11.2003 05:00	05:30	0,5	4068,0	PTTU	OK	OK	Pumped mud from cement unit to trip tank. Flow checked well.
26.11.2003 05:30	06:00	0,5	4000,0	PTTU	OK	OK	Pumped OOH from 4068 m to 4000 m with 1000 lpm/ 52 bar.
26.11.2003 06:00	10:00	4,0	3977,0	PTTU	OK	OK	Pumped OOH from 4000 m to 3977m with 1000 LPM/ 52 bar. Circulated BU with 1400-1800 LPM/ 98-151 bar to check for cement comtaminated mud. Meanwhile worked on lower arm on PRS.
26.11.2003 10:00	12:00	2,0	3977,0	PTTU	OK	OK	Flow checked well on trip tank. Gained 400 liters. Meanwhile worked on lower racking arm on PRS.
26.11.2003 12:00	14:30	2,5	3977,0	PTTU	OK	OK	Circulated BU with 1700-1800 LPM/ 137-151 bar. Meanwhile worked on lower racking arm on PRS and performed a SJA meeting for how to operate arm.
26.11.2003 14:30	15:00	0,5	3977,0	PTTU	OK	OK	Flow checked well on trip tank. Gained 900 liters in 24 minutes. Meanwhile worked on lower racking arm on PRS.
26.11.2003 15:00	18:30	3,5	3977,0	PTTU	OK	OK	Circulated to increase MW from 1,60 SG to 1,62 SG with 1800 LPM/ 150 bar, 30 rpm/ 8-20 kNm.
26.11.2003 18:30	19:00	0,5	3977,0	PTTU	OK	OK	Observed well on TT. Gained 320 litre in 15 minutes. Closed inn well. WH pressure of 13 bar. 5 bar above normal pressure when well shut in with annular. Bled off pressure. Opened annular preventer. Performed SJA meeting for operating PRS.
26.11.2003 19:00	20:00	1,0	4168,0	PTTU	OK	OK	RIH from 3977 m to 4168 m.
26.11.2003 20:00	21:00	1,0	4100,0	PTTU	OK	OK	Circulated 5 min at 4168 m and filled hole with 1,62 SG mud. Pumped OOH from 4168 m to 4100 m with 1500 LPM/ 110 bar, 80 rpm/15- 18 kNm. Stopped rotation and reduced rate to 1000 LPM while pumping through window.
26.11.2003 21:00	23:00	2,0	4100,0	PTTU	OK	OK	Circualeld BU to check for gas with 1800 LPM/ 157 bar, 30 rpm/ 16-18 kNm. Gas increased from 0,1 % to 0,4%.

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Time from	Time to	Time used	Depth mMD	Act code	--- Status --- During opr	End of opr	Description of activities
26.11.2003 23:00	00:00	1,0	4087,0	PTTU	OK	OK	Racked back one stand. Flow checked well on TT. Gained 100 litres in 30 minutes. Flushed kill and choke lines with 1,62 SG mud. Closed annular preventer. Opened HCR for chokeline on BOP. Observed pressure on WH gauge. Initial WH pressure 5,2 bar. After closing BOP 7,2 bar. Pressure built up to 13.5 bar over 30 minutes. Started to increase MW in active pits at surface to 1.67 SG.
27.11.2003 00:00	01:00	1,0	4087,0	PTTU	OK	OK	Observed pressure on WH gauge. Pressure built up from 13.5 bar to 14,2 bar. Pressure stable last 20 minutes. Continued to increase MW in active pits at surface to 1.67 SG.
27.11.2003 01:00	06:00	5,0	4087,0	PTTU	OK	OK	Bled off pressure on well. Opened annular preventer. Circulated in 1,67 SG mud with 1000-1800 LPM/ 55-157 bar, 40 rpm/ 15-17 kNm. Pump rate was limited / adjusted to max baryte adding speed. Resiprocated string while displacing well to 1,67 SG mud.
27.11.2003 06:00	09:00	3,0	4086,0	PAOU	OK	OK	Increased MW from 1,62 SG to 1,67 SG with 1800 lpm/ 154 bar, 40 rpm/ 8-18 kNm.
27.11.2003 09:00	10:00	1,0	4086,0	PAOU	OK	OK	Flow checked well. Gained 340 litre in 30 minutes/ 680 litres/hrs.
27.11.2003 10:00	11:00	1,0	4086,0	PAOU	OK	OK	Closed annular preventer. Observed pressure on well head gauge. Pressure increased from 6,2 sg bar to 9,6 bar. Bled off pressure. Opened annular preventer.
27.11.2003 11:00	15:30	4,5	4086,0	PAOU	OK	OK	Increased MW from 1,67 SG to 1,70 SG with 1500-1300 lpm/ 117-91bar, 30 rpm/ 8-20 kNm.
27.11.2003 15:30	16:00	0,5	4086,0	PAOU	OK	OK	Flow checked well. Gained 410 litre in 15 minutes/ 1640 litres/hrs.
27.11.2003 16:00	17:00	1,0	4086,0	PAOU	OK	OK	Closed annular preventer. Observed pressure on well head gauge. Pressure increased from 6,2 sg bar to 12,2 bar. Bled off pressure. Opened annular preventer.
27.11.2003 17:00	21:30	4,5	4086,0	PAOU	OK	OK	Increased MW from 1,70 SG to 1,74 SG with 1300-1000 lpm/ 87-66bar, 30 rpm/ 8-20 kNm.
27.11.2003 21:30	22:00	0,5	4086,0	PAOU	OK	OK	Flow checked well. Gained 100 litre in 25 minutes/ 240 litres/hrs.
27.11.2003 22:00	00:00	2,0	4086,0	PAOU	OK	OK	Closed annular preventer. Observed pressure on well head gague. Pressure increased from 5,8 sg bar to 8,8 bar. Bled off pressure. Opened annular preventer.
28.11.2003 00:00	05:30	5,5	4086,0	PAOU	OK	OK	Increased MW from 1,74 SG to 1,76 SG with 1000 lpm/ 66bar, 30 rpm/ 8-20 kNm. RIH and washed down to 4186 m prior to 1,76 mud entering bit. Pumped OOH to 4086 m. Continued displacement until 1,76 SG mud around. No sign of gas from BU from 4168 m.
28.11.2003 05:30	06:00	0,5	4068,0	PAOU	OK	OK	Flow checked well. Gained 100 litre in 30 minutes/ 200 litres/hrs.
28.11.2003 06:00	09:30	3,5	4068,0	PAOU	OK	OK	Closed annular preventer. Observed pressure on well head gauge. Pressure increased from 5,8 bar to 7,0 bar. Bled off pressure on well.
28.11.2003 09:30	19:00	9,5	4068,0	PAOU	OK	OK	Observed well on trip tank.Total gain 300 l. Gain rate decreased from 100 litres/ hours to 0 litres/ hours at 17.00 hours.Well stable after initial gain. Started 14:30 hours to decrease MW in active pits from 1,76 SG to 1,68 SG.
28.11.2003 19:00	00:00	5,0	4068,0	PAOU	OK	OK	Decreased MW from 1,76 SG to 1,68 SG. Circulated with 500 lpm/ 48 bar , 30 rpm/ 15 kNm when circulating mud down to bit. Increased rate in steps from 500 lpm/ 48 bar to 1800 lpm/ 145 bar when 1,68 SG was pumped up annulus.
29.11.2003 00:00	01:30	1,5	4068,0	PAOU	OK	OK	Decreased MW from 1,76 SG to 1,68 SG. Circualted with 1800 lpm/ 145 bar , 30 rpm/ 15 kNm.
29.11.2003 01:30	02:30	1,0	4068,0	PAOU	OK	OK	Flow checked well. Well gained 2 m3. Initial gain rate 3600 litres/ hour. Final gain rate 1200 litres hours. Trend was continously decreasing.
29.11.2003 02:30	04:00	1,5	4068,0	PAOU	OK	OK	RIH to 4168 m on elevator. Pumped OOH to 4068 m with 1750 lpm/ 153 bar. Reduced rate when pulling through window.
29.11.2003 04:00	05:30	1,5	4068,0	PAOU	OK	OK	Circulated BU with 1750 lpm/ 150bar. 0,5 % gas at BU.
29.11.2003 05:30	06:00	0,5	4068,0	PAOU	OK	OK	Flow checked well. Gained 0,9 m3/ 25 minutes. Initial gainrate 3600 litres. Final gainrate 1200 litres/ hour. Gain rate decreasing. Identic gain pattern/ gain decrease rate as previous flowcheck.
29.11.2003 06:00	13:00	7,0	4068,0	PAOU	OK	OK	Flow checked well until well stable. Totally gained 1150 litres. Gained 500 litres first hour.
29.11.2003 13:00	21:00	8,0	2751,0	PAOU	OK	OK	Pumped OOH from 4068 m to 2751 m with 1000 lpm/ 54-43 bar.
29.11.2003 21:00	23:00	2,0	2751,0	PAOU	OK	OK	Redressed PS 21 and elevator for 5" DP. Changed wear sub from 5 1/2" to 5" DP. Changed spade on star racker. Changed jaws in torque wrench. Flow checked well.
29.11.2003 23:00	00:00	1,0	2600,0	PTTU	OK	OK	Pumped OOH from 2751 m to 2600 m with 1000 lpm/ 43 bar.
30.11.2003 00:00	02:00	2,0	2342,0	PTTU	OK	OK	Pumped OOH from 2600 m to 2342m with 1000 lpm/ 40-35 bar. Had to pull slowly due to strong wind. Danger for DDM loop hanging up in derrick. Wind guesting at 85 knots. Wind caused stands to slide in fingers.
30.11.2003 02:00	03:00	1,0	2342,0	PAOU	OK	OK	Performed SJA prior to securing pipe in derrick from sliding in fingers. Secured pipe.
30.11.2003 03:00	04:00	1,0	2231,0	PTTU	OK	OK	Pumped OOH from 2342 m to 2231 m with 1000 lpm/ 35 bar.
30.11.2003 04:00	06:00	2,0	2231,0	PTTU	OK	OK	Flow checked well while slip and cut drill line.

Wellbore: NO 34/10-B-42 E

Time from	Time to	Time used	Depth mMD	Act code	--- Status --- During opr	End of opr	Description of activities
30.11.2003 06:00	07:00	1,0	2043,0	PTTU	OK	OK	POOH wet from 2231 m to 2043 m. Pumped slug. Performed SJA meeting before securing DP on monkey board due to strong wind.
30.11.2003 07:00	11:00	4,0	112,0	PTTU	OK	OK	POOH from 2043 m to 30 m with reduced pulling speed due to strong wind.
30.11.2003 11:00	11:30	0,5	112,0	PTTU	OK	OK	Changed to manually operated slips.
30.11.2003 11:30	13:00	1,5	,0	PTTU	OK	OK	POOH and LD 8 1/2" BHA. Cleaned rig floor.
30.11.2003 13:00	13:30	0,5	,0	BBOU	OK	OK	MU wear bushing RT. RIH and retrieved wear bushing. LD RT.
30.11.2003 13:30	14:00	0,5	,0	BBOU	OK	OK	MU and RIH with test plug assembly.
30.11.2003 14:00	17:30	3,5	,0	BBUU	OK	OK	Tested BOP rams and annular preventor against test plug and kelly hose and IBOP to 20 bar/ 5 min and 345 bar/ 10 min.
30.11.2003 17:30	19:00	1,5	,0	BBOU	OK	OK	POOH with test string. Broke and LD same. Installed WB.
30.11.2003 19:00	20:30	1,5	,0	PAOU	OK	OK	Changed saver sub from 5" to 5 1/2". Changed inserts in elevator to 3 1/2". Function test shear ram. Dismantled torque wrench. Cleaned rig floor.
30.11.2003 20:30	23:00	2,5	341,0	PTTU	OK	OK	PU cement stinger. PU and RIH with 3 1/2" DP (total 25 jnts range III DP) to 341 m.
30.11.2003 23:00	00:00	1,0	341,0	PTTU	OK	OK	Redressed PRS and elevator for 5" DP. MU XO from 3 1/2" DP to 5" DP. Changed to hydraulic slips.
01.12.2003 00:00	06:00	6,0	2983,0	PTTU	OK	OK	RIH with 5" DP from 341 m to 2983 m. Had problems to retrieve stands after last nights storm. Had to run IR in manual mode due to problems with automatic mode.
01.12.2003 06:00	07:00	1,0	2983,0	PTTU	OK	OK	Changed lifting device in PRS and inserts in slips and elevator to 5 1/2" DP
01.12.2003 07:00	10:00	3,0	4168,0	PAOU	OK	OK	Broke circulation at 2983 m for 15 minutes. Increased rate in steps with max 1000 lpm/ 63 bar. RIH from 2983 m to 4168 m.
01.12.2003 10:00	15:30	5,5	4168,0	PAOU	OK	OK	Circulated to condition mud with 1900 lpm/ 225 bar, 30 rpm/ 10-18 kNm. MW out varied from 1,64 SG to 1,72 SG. Weighed up spacer to 1,75 SG. Performed prejob meeting prior to cementing with new day crew when starting shift at 1400 hours.
01.12.2003 15:30	17:00	1,5	4168,0	PSSU	OK	OK	Pumped 8,0 m3 1,75 SG spacer with 800 lpm/ 58 bar. Mixed and pumped 14 m3 1,95 SG slurry. Displaced same to RKB.
01.12.2003 17:00	18:30	1,5	3937,0	PSSU	OK	OK	Closed annular preventer. Dropped dart. Opened annular preventer. Displaced cement in place with 30,5 m3 mud with 800 lpm/ 58 bar, 150 rpm/ 18 kNm. Pumped and pulled out of cement plug from 4168 m to 3937 m. Pumped 750 litres pr stand pulled with 30 rpm/ 15 kNm.
01.12.2003 18:30	20:30	2,0	3937,0	PSSU	OK	OK	Circulated BU with 2400-2300 lpm/ 310-291 bar, 90 rpm/ 12-16 kNm. Used MP1 and MP2 when circulating. MP3 had piston failure during start up of circulation. 1m3 was squeezed into formation when circualting BU. Maintained max 1,815 SG ECD on well during circulation. Got spacer and cement in return. Separated 31 m3 spacer/cement contaminated mud. Spaced out for squeeze with stinger at 3934 m.
01.12.2003 20:30	22:00	1,5	3934,0	PSQK	OK	OK	Closed annular preventer while bringing MP down. Well was closed in. Pressured up with cement unit both down DP and annulus. Pump rate during squeeze 110 lpm. Squeezed 800 litre (totally 1,6 m3)/ max 30 bar on WH. Held pressure for 5 minutes. Pressure dropped to 29 bar. Squeezed 1600 litre (totally 3,4 m3) / max 35,8 bar on WH. Held pressure for 15 minutes. Pressure dropped to 28,3 bar. Squeezed 400 litre (totally 3,8 m3)/ max 33,1 bar on WH. Held pressure for 30 minutes. Pressure dropped to 23,2 bar. Squeezed 400 litre (totally 4,2 m3)/ max 32,1 bar on WH. Pressure dropped to 25 bar in 15 minutes.
01.12.2003 22:00	00:00	2,0	3934,0	PSCW	OK	OK	WOC. WH pressure dropped from 25 bar to 20 bar.
02.12.2003 00:00	06:00	6,0	3934,0	PSCW	OK	OK	WOC. WH pressure dropped from 20 bar to 12,3 bar.
02.12.2003 06:00	09:00	3,0	3934,0	PSCW	OK	OK	WOC. WH pressure dropped from 12,3 bar to 10 bar.
02.12.2003 09:00	11:30	2,5	4093,0	PAOU	OK	OK	Washed down from 3934 m to to 4093 m (top of cement) with 1500 lpm/ 153 bar, 50 rpm/ 12-17 kNm. String took 5 t wt and torqued up at 4093 m. Pulled up and increased rate to 2000 lpm/ 280 bar, 20 rpm/ 8-13 kNm. Estimated ECD of 1,815 SG.
02.12.2003 11:30	12:00	0,5	4093,0	PAOU	OK	OK	Flow checked well on TT. Well stable.
02.12.2003 12:00	15:00	3,0	2984,0	PTTU	OK	OK	Pulled 5 stands wet. Dropped drift for 5 1/2" DP. Slugged pipe. POOH. Pulled from 4093 m to 2984 m.
02.12.2003 15:00	16:00	1,0	2984,0	PTTU	OK	OK	Redressed PRS, elevator and slips for 5" DP. BO XO from 5 1/2" DP to 5" DP. Dropped drift for 5" DP.
02.12.2003 16:00	21:00	5,0	343,0	PTTU	OK	OK	POOH hole from 2984 m to 343 m.
02.12.2003 21:00	22:00	1,0	343,0	PTTU	OK	OK	Changed to 3 1/2" inserts in elevator. Changed to manual slips.

Wellbore: NO 34/10-B-42 E

Time from	Time to	Time used	Depth mMD	Act code	--- Status --- During opr	End of opr	Description of activities
02.12.2003 22:00	00:00	2,0	,0	PTTU	OK	OK	POOH and LD 3 1/2" DP and cement stinger to pipe deck.
03.12.2003 00:00	02:00	2,0	,0	PTTU	OK	OK	Cleaned drill floor for all equipment from cement assy. BD and LD IBOP and TIW after pressure testing. Performed prejob meeting for making up BHA.
03.12.2003 02:00	04:00	2,0	,0	DDOU	OK	O FAIL	PU and MU Powerdrive assy and MWD tool. Testet same. Found MWD tool was programmed with 12 Hz 1,5 bps BPSK decoding model instead of 12 Hz 1,5 bps QPSK decoding model.
03.12.2003 04:00	06:00	2,0	25,0	DDOD	O FAIL	OK	BO and LD primary MWD tool to pipedeck. Reprogrammed same. PU and MU primary MWD tool. Tested same. Greased dolly, DW and travelling block while reprogramming tool.
03.12.2003 06:00	09:00	3,0	159,0	DDOU	OK	OK	MU 8 1/2" x 9 5/8" BHA and RIH to 159 m. Removed master bushing and installed PS 21 slips.
03.12.2003 09:00	10:30	1,5	377,0	DDOU	OK	OK	PU 16 jnts 5" DP from pipe deck and RIH from 159 m to 377 m.
03.12.2003 10:30	13:00	2,5	1110,0	DDOU	OK	OK	RIH with 5" DP from 377 m to 1110 m. Filled pipe and tested MWD.
03.12.2003 13:00	20:30	7,5	3937,0	DDOU	OK	OK	RIH with 5" DP from 1110 m to 3937 m. Filled pipe every 1000 m. Filled pipe with 1,66 SG mud. Changed inserts in slips, elevator and spade in PRS.
03.12.2003 20:30	21:00	0,5	3937,0	ZNON	OK	OK	Stopped all motors due to production start up of water injection pumps.
03.12.2003 21:00	22:30	1,5	4093,0	DDOU	OK	OK	Washed down from 3937 m to 4093 m with 1300 lpm/ 140 bar, 60 rpm/ 12-16 kNm. Displaced hole to 1.66 SG mud while washing down. Tagged TOC at 4093 m.
03.12.2003 22:30	00:00	1,5	4109,0	DDOU	OK	OK	Drilled hard cement from 4093 m to 4109 m with 1200 lpm/ 121 bar, 60 rpm/ 18-25 kNm, 4-6 t WOB.
04.12.2003 00:00	01:30	1,5	4111,0	DDOU	OK	OK	Drilled hard cement from 4109 m to 4115m with 1200 lpm/ 121 bar, 60 rpm/ 18-25 kNm, 4-6 t WOB. 1,77 SG. Pumped back into liner for each 1 m drilled.
04.12.2003 01:30	02:30	1,0	4115,0	DDOU	OK	OK	Pumped into liner to 4100 m. Cycled pumps to set Powerdrive. Setting 323 degree / 100 % force. RIH to 4115 m.
04.12.2003 02:30	04:00	1,5	4125,0	DDDU	OK	OK	Drilled from 4115 m to 4125 m with 1600 lpm/ 230 bar, 30-40 rpm/ 16-25 kNm, 2-7 t WOB. ECD 1,80 SG. Pumped into liner at 4100 m. Kicked off cement at 4117 m and drilled new formation. No bit inclination and PD steer info from Powerdrive. MWD inclination at 4125 m bit depth was 87,5 degree.
04.12.2003 04:00	04:30	0,5	4100,0	DDDU	OK	OK	Downlinked to Power drive new setting. 225 degree and 60 % force. Stopped pumps. Started pumps and circulated up static pressure reading of 1,66 SG.
04.12.2003 04:30	05:30	1,0	4100,0	EXFU	OK	OK	Performed FIT to 1,80 SG EMW with 1,66 SG mud in hole and 26 bar RKB. Pumped 400 litres. Bled back 400 litres.
04.12.2003 05:30	06:00	0,5	4125,0	DDDU	OK	OK	Washed down from 4100 m to 4125 m with 1400 lpm/ 150 bar and started drilling well NO 34/10-B-42E-T2. Next days report will be on well number NO 34/10-B-42E-T2. ******** End of wellbore NO 34/10-B-42E **********

8.2 DBR Summary 34/10-B-42 F

Wellbore: NO 34/10-B-42 F

Time from	Time to	Time used	Depth mMD	Act code	--- Status --- During opr	End of opr	Description of activities
04.12.2003 06:00	06:30	0,5	4150,0	DDDU	OK	OK	Kicked off cement while drilling from 4125 m to 4150 m with 8 1/2" x 9 5/8" BHA.
04.12.2003 06:30	07:00	0,5	4150,0	DDOU	OK	OK	Pumped down ball and activated under reamer. Observed 2 bar and 13 bar pressure dropp. Performed pull test to 6 ton overpull.
04.12.2003 07:00	07:30	0,5	4173,0	DDDU	OK	OK	Drilled from 4150 m to 4173 m with 1850 lpm / 224 bar, 160 RPM / 18-24 kNm, 1-3 ton WOB. ECD 1,80 sg and peaked at 1,83 sg. Started to decrease mud weight from 1,66 sg to 1,60sg.
04.12.2003 07:30	09:30	2,0	4147,0	DDOU	OK	OK	Back reamed from 4173 m to 4147 m 1600 lpm / 198 bar, RPM / 18-24 kNm. ECD 1,78 sg. Decreased mud weight from 1,66 sg to 1,60 sg. ECD dropped to 1,74 sg.
04.12.2003 09:30	10:00	0,5	4173,0	DDOU	OK	OK	Washed down from 4147 m to 4173 m with 1950 lpm/ 238 bar, 80 rpm/ 18 - 24 kNm.
04.12.2003 10:00	18:30	8,5	4430,0	DDDU	OK	OK	Drilled 8 1/2" X 9 7/8" hole from 4173 m to 4377 m with 1960 lpm / 238 bar, 160 RPM / 18-25 kNm, 1-5 ton WOB. Reamed each stand once.
04.12.2003 18:30	23:00	4,5	4460,0	DDDU	OK	OK	Drilled 8 1/2" X 9 7/8" hole from 4377 m to 4460 m with 1960 lpm / 238 bar, 160 RPM / 18-25 kNm, 1-5 ton WOB. Drilled with limited ROP due low steering respons with high ROP. Reamed each stand once. ECD 1,73 sg.
04.12.2003 23:00	00:00	1,0	4486,0	DDDU	OK	OK	Drilled 8 1/2" X 9 7/8" hole from 4460 m to 4486 m with 1960 lpm / 238 bar, 160 RPM / 18-25 kNm, 1-5 ton WOB. Reamed each stand once.
05.12.2003 00:00	06:00	6,0	4650,0	DDDU	OK	OK	Drilled 8 1/2" X 9 7/8" hole from 4486 m to 4650 m with 1960 lpm / 240 bar, 160 RPM / 15-27 kNm, 1-5 ton WOB. Reamed each stand once. Drilled with limited ROP 70 m/hr due low steering respons with high ROP.
05.12.2003 06:00	06:30	0,5	4650,0	DDOU	OK	OK	Shut down operation due to start up of loading pumps on GFA.
05.12.2003 06:30	19:00	12,5	4901,0	DDDU	OK	OK	Drilled 8 1/2" x 9 7/8" hole from 4650 m to 4901 m with 1960 lpm / 240 bar, 100-170 rpm / 18-26 kNm, 1-5 ton WOB. Reamed each stand. Drilled with limited ROP (70 m/hr) due to low steering respons with high ROP.
05.12.2003 19:00	23:00	4,0	4901,0	DCAU	OK	OK	Stopped drilling due to plugging of CRI. Plugged line below CRI shaker due to high viscousity of the fluid going through the CRI. Thinned flud and emptied shale shute. Circulated with 500-1960 lpm / 34-238 bar, 18-160 RPM / 16-26 kNm while unplugging line.
05.12.2003 23:00	23:30	0,5	4904,0	DDDU	OK	E FAIL	Drilled from 4901 m to 4904 m with 1960 lpm / 238 bar, 160 RPM / 23-28 kNm, 3-5 ton WOB. Got problems with equalizing sensors on CRI.
05.12.2003 23:30	00:00	0,5	4904,0	DEOD	E FAIL	OK	Circulated with 500 lpm / 34 bar, 80 RPM / 16-21 kNm and resiprocated string while trouble shoot on CRI. Cleaned sensors for equalizing between mill tank and active tank.
06.12.2003 00:00	06:00	6,0	5030,0	DDDU	OK	OK	Drilled 8 1/2" X 9 7/8" hole from 4904 m to 5030 m with 1960 lpm / 239-242 bar, 160 RPM / 23-28 kNm, 3-5 ton WOB. Drilled with limited ROP (70 m/hr) due to low steering respons with high ROP.
06.12.2003 06:00	19:30	13,5	5411,0	DDDU	OK	E FAIL	Drilled 8 1/2" X 9 7/8" hole from 5030 m to 5411 m with 1960 lpm / 242-253 bar, 160-170 RPM / 19-27 kNm, 1-5 ton WOB. Reamed each stand once.
06.12.2003 19:30	23:00	3,5	5315,0	DTMD	E FAIL	OK	Circulated hole clean and treated mud with 1960 lpm / 252 bar, 170 RPM / 19-23 kNm. Back reamed slowly from 5411 m to 5315 m while circulating.
06.12.2003 23:00	23:30	0,5	5315,0	DDOU	OK	OK	Shut off all electrical equipment due to start of loading pumps on GFA.
06.12.2003 23:30	00:00	0,5	5308,0	DTMD	E FAIL	OK	Circulated hole clean with 1960 lpm / 252 bar, 170 RPM / 19-23 kNm. Back reamed slowly from 5315 m to 5308 m while circulating.
07.12.2003 00:00	02:30	2,5	5221,0	DTMD	E FAIL	OK	Circulated hole clean with 1960 lpm / 252-246 bar, 170 RPM / 19-24 kNm. Back reamed slowly from 5308 m to 5221 m while circulating. Circulated total 2,5 X BU.
07.12.2003 02:30	05:30	3,0	4890,0	DTMD	E FAIL	OK	POOH wet from 5221 m to 4908 m. Reamed area from 4908 m to 4890 m twice with 1960 lpm / 240 bar, 160 RPM / 18-23 kNm.
07.12.2003 05:30	06:00	0,5	4840,0	DTMD	E FAIL	OK	Flow checked well. Pumped slug and POOH from 4890 m to 4840 m.
07.12.2003 06:00	09:30	3,5	3368,0	DTMD	E FAIL	OK	POOH from 4840 m to 3368 m. Observed 5 ton overpull when pulling reamer and 8 ton when pulling stabilizer through window.
07.12.2003 09:30	10:00	0,5	3368,0	DTMD	E FAIL	OK	Flow checked well whil redressing elevator and slips.
07.12.2003 10:00	15:30	5,5	106,0	DTMD	E FAIL	OK	POOH from 3368 m to 106 m.
07.12.2003 15:30	16:00	0,5	106,0	DTMD	E FAIL	OK	Removed automatic slips and installed master bushing.
07.12.2003 16:00	20:00	4,0	,0	DTMD	E FAIL	OK	POOH from 106 m. PU 1 single and racked back stand. LD bit, Powerdrive assy, powerpulse, vision, 8 3/8" stab, anderreamer and float sub.
07.12.2003 20:00	23:00	3,0	30,0	DTMD	E FAIL	OK	Cleaned rig floor. Performed pre job meeting prior to PU new BHA. PU Powerdrive assy and MU bit. PU powerpulse and vision and MU same. Tested powerdrive and MWD with 1360 lpm / 52 bar. PU and MU 8 3/8" stabilizer and anderreamer and RIH to 30 m.

Wellbore: NO 34/10-B-42 F

Time from	Time to	Time used	Depth mMD	Act code	--- Status --- During opr	End of opr	Description of activities
07.12.2003 23:00	00:00	1,0	72,0	DTMD	E FAIL	OK	RIH from 30 m to 72 m with 2 X NMHWDP, 3 X 5" HWDP, jar and 8 X 5" HWDP.
08.12.2003 00:00	06:00	6,0	2600,0	DTMD	E FAIL	OK	Removed master bushing and installed automatic slips. RIH from 72 m to 2600 m. Filled pipe every 1000 m.
08.12.2003 06:00	08:00	2,0	3368,0	DTMD	E FAIL	OK	RIH with 5" Dp from 2600 m to 3368 m. Filled pipe every 1000 m. Redressed elevator and slips from 5" Dp to 5 1/2" Dp. Changed spade on star racker.
08.12.2003 08:00	09:30	1,5	4104,0	DTMD	E FAIL	OK	RIH with 5 1/2" Dp from 3368 m to 4104 m.
08.12.2003 09:30	10:30	1,0	4104,0	DEOU	OK	OK	Performed DDM check, greased wash pipe and DDM. Filled pipe and tested MWD.
08.12.2003 10:30	13:30	3,0	5383,0	DTMD	E FAIL	OK	RIH with 5 1/2" Dp from 4104 m to 5383 m. Filled pipe every 1000 m.
08.12.2003 13:30	14:00	0,5	5383,0	DDOU	OK	OK	Shut off all elecrical equipment due to start of loading pumps on GFA.
08.12.2003 14:00	15:00	1,0	5418,0	DTMD	E FAIL	OK	Dropped ball for under reamer. Washed down to 5411 m and drilled from 5411 m to 5418 m with 1700 lpm / 230 bar, 160 RPM / 23-27 kNm, 2 ton WOB while pumping down ball. Set Anderreamer and performed pull test.
08.12.2003 15:00	00:00	9,0	5635,0	DDDU	OK	OK	Drilled 8 1/2" X 9 7/8" hole from 5418 m to 5635 m with 1960 lpm / 253-243 bar, 160 RPM / 23-27 kNm, 2-5 ton WOB. Reamed each stand. Max ECD 1,75 sg.
09.12.2003 00:00	06:00	6,0	5806,0	DDDU	OK	OK	Drilled 8 1/2" X 9 7/8" hole from 5635 m to 5806 m with 1960 lpm / 251-257 bar, 160 RPM / 22-26 kNm, 2-3 ton WOB. Reamed each stand. Max ECD 1,74 sg.
09.12.2003 06:00	00:00	18,0	6336,0	DDDU	OK	OK	Drilled 8 1/2" X 9 7/8" hole from 5806 m to 6336 m with 1960 lpm / 258-272 bar, 160-170 RPM / 25-28 kNm, 2-6 ton WOB. Reamed each stand. Average ECD 1,75-1,76 sg. Max gas 6,5%.
10.12.2003 00:00	06:00	6,0	6528,0	DDDU	OK	OK	Drilled 8 1/2" X 9 7/8" hole from 6336 m to 6528 m with 1960 lpm / 268-272 bar, 160-170 RPM / 22-33 kNm, 1-5 ton WOB. Reamed each stand. Average ECD 1,76-1,77 sg.
10.12.2003 06:00	00:00	18,0	7040,0	DDDU	OK	OK	Drilled 8 1/2" X 9 7/8" hole from 6528 m to 7040 m with 1960 lpm / 270-284 bar, 160 RPM / 22-36 kNm. Average ECD 1,76-1,79 sg. Max gas 9,4%.
11.12.2003 00:00	02:30	2,5	7070,0	DDDU	OK	E FAIL	Drilled 8 1/2" X 9 7/8" hole from 7040 m to 7070 m with 1960 lpm / 281-286 bar, 160 RPM / 28-39 kNm, 5-9 ton WOB. Average ECD 1,80 sg. Max gas 42%. Stopped drilling due to broken HP mud hose between stand pipe and DDM.
11.12.2003 02:30	06:00	3,5	7070,0	DEOD	E FAIL	OK	MU circulating head and hose. Circulated with 1000 lpm / 99 bar. Cleaned rig floor. Rotated string every 30 min with 5 RPM / 20-26 kNm. Perfromed SJA and pre job meeting prior to changing mud hose. Dismantled mud hose.
11.12.2003 06:00	07:00	1,0	7070,0	DEOD	E FAIL	OK	Dismantled HP mud hose between DDM and standpipe. Circulated with 1000 LPM/ 100 bar. Rotated string every 30 min for 5 min.
11.12.2003 07:00	07:30	0,5	7070,0	DEOD	E FAIL	OK	Performed SJA meeting for installing new HP mud hose. Circulated with 1000 LPM/ 100 bar. Rotated string every 30 min for 5 min.
11.12.2003 07:30	11:00	3,5	7070,0	DEOD	E FAIL	OK	Installed new HP mud hose between DDM and standpipe. Circulated with 1300 LPM/ 159 bar. Rotated string every 30 min for 5 min.
11.12.2003 11:00	11:30	0,5	7070,0	DEOD	E FAIL	E FAIL	Pressure tested new HP mud hose to 20 bar/ 5 min and 345 bar 10 min. Rigged down hose used for pumping down string and installed hydraulic hose to hydraulic slips.
11.12.2003 11:30	15:00	3,5	6963,0	DEOD	E FAIL	OK	Dismantled burned electrical motor for cuttings crusher on CRI unit. Meanwhile backreamed OOH from 7070 m to 6963 m with 1400-1960 LPM/ 162-292 bar, 80-130 RPM/ 24-30 kNm. Max ECD 1,81 SG. Max mud weight 1,66 SG.
11.12.2003 15:00	16:00	1,0	6963,0	DEOD	E FAIL	OK	Waited for new electrical motor for CRI unit. Meanwhile attempted to increase mud weight from 1,61 SG to 1,62 SG. Found both transfere line and bulk line plugged. Worked to open lines. While well on trip tank lost 460 liters in 40 min.
11.12.2003 16:00	20:00	4,0	6936,0	DDOU	OK	OK	Circulated with 1960 LPM/ 284-276 bar, 80-170 RPM/ 24-30 kNm. Increased mud weight from 1,61 SG to 1,62 SG. Resiprocated string between 6963 m and 6936 m. Meanwhile installed new electrical motor for cuttings crusher.
11.12.2003 20:00	23:00	3,0	7070,0	DDOU	OK	OK	Logged down from 6963 m to 7025 m with 1960 lpm / 282 bar, 160 RPM / 29-31 kNm. RIH from 7025 m to 7070 m. Max mud weight out 1,65 sg.
11.12.2003 23:00	00:00	1,0	7086,0	DDDU	OK	OK	Drilled 8 1/2" X 9 7/8" hole from 7070 m to 7086 m with 1960 lpm / 282 bar, 160 RPM / 30-40 kNm, 1-3 ton WOB. Average ECD 1,80-1,81 sg.
12.12.2003 00:00	06:00	6,0	7153,0	DDDU	OK	OK	Drilled 8 1/2" X 9 7/8" hole from 7086 m to 7153 m with 1960 lpm / 284 bar, 160 RPM / 30-38 kNm, 1-2 ton WOB. Average ECD 1,80-1,81 sg. Max gas 42,7%.
12.12.2003 06:00	09:00	3,0	7180,0	DDDU	OK	E FAIL	Drilled 8 1/2" x 9 7/8" hole from 7153 m to 7180 m with 1960 LPM/ 285 bar, 160 RPM/ 33-40 kNm, 0-3 ton WOB. Average ECD 1,80 SG. Max gas 36,3 %. Cycled pumps and set Power Drive high side first 60 %, then 80 % and at the end 100 %. Not able to hold inclination.

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Time from	Time to	Time used	Depth mMD	Act code	--- Status --- During opr	End of opr	Description of activities
12.12.2003 09:00	12:30	3,5	7127,0	DTDD	E FAIL	OK	Circulated 1,5 X BU with 1960 lpm / 282 bar, 160 RPM / 33-37 kNm. Increased low end rheology from 8 to 10. Reamed back slowly from 7180 m to 7127 m and racked back two stands. Max gas 36,1%. ECD 1,79 sg.
12.12.2003 12:30	15:30	3,0	6897,0	DTDD	E FAIL	OK	Back reamed from 7127 m to 6897 m with 1960 lpm / 282 bar, 160 RPM / 21-33 kNm. Max gas 4,6%. ECD 1,79 sg. Pump pressure increased from 283 bar to 295 bar and ECD to 1,83 sg.
12.12.2003 15:30	18:30	3,0	6855,0	DTDD	E FAIL	OK	Lost partly return. Reduced flow rate to 1850 lpm / 258 bar. Pump pressure dropped to 256 bar. RIH to 6909 m. Increased flow rate in steps to 1960 lpm / 284 bar, 160 RPM / 25-32 kNm. Back reamed out from 6909 m to 6855 m. Lost return partly.
12.12.2003 18:30	00:00	5,5	6766,0	DTDD	E FAIL	OK	Increased flowrate in steps to 1960 lpm / 283 bar. Pump pressure increased to 293 bar. Back reamed / pumped OOH from 6855 m to 6766 m with 600-1800 lpm / 42-290 bar, 30-160 RPM / 21-36 kNm. Attempted to circulated BU with 1500 lpm / 182 bar while back reaming slowly. Lost partly return. Max ECD 1,87 sg.
13.12.2003 00:00	06:00	6,0	6691,0	DTDD	E FAIL	OK	Pumped OOH from 6766 m to 6691 m with 80-300 lpm / 20-54 bar, 30-160 RPM, 17-32 kNm. Lost partly return at several spots. Worked string with different parameters to maintain full return.
13.12.2003 06:00	09:00	3,0	6637,0	DTDD	E FAIL	OK	Pumped OOH from 6691 m to 6637 m with 114-28 LPM/ 25-16 bar, 30 RPM/ 25-34 kNm. Lost partly return at 6656 m. Pumped OOH to 6648 m with 28 LPM, 30 RPM. Pressure increased to 35 bar, torque increased to 44 bar and hook load increased from 96 tons to 107 tons. Shut off pumps and pulled through with 30 RPM from 6648 m to 6644 m. Torque, pump pressure and hook load decreased. Regained full return.
13.12.2003 09:00	00:00	15,0	5655,0	DTDD	E FAIL	OK	Pumped OOH from 6637 m to 5655 m with 60-100 LPM/ 17-23 bar, 30 RPM/ 22-32 kNm. Increased pulling speed from 30 m/hr to 180 m/hr.
14.12.2003 00:00	06:00	6,0	5111,0	DTDD	E FAIL	OK	Pumped OOH from 5655 m to 5111 m with 100 lpm/ 17 bar, 30 RPM/ 16-28 kNm. Increased flow rate to 120 lpm/ 16 bar and pulling speed from 180 m/hr to 250 m/hr.
14.12.2003 06:00	13:00	7,0	4240,0	DTDD	E FAIL	OK	Pumped OOH from 5111 m to 4240 m with 120 lpm/ 15-17 bar, 40 RPM/ 10-22 kNm. Increased flow rate to 154 lpm/ 16 bar and pulling speed from 250 m/hr to 330 m/hr.
14.12.2003 13:00	15:00	2,0	4213,0	DTDD	E FAIL	OK	Circulated 2 x BU above 9 5/8" liner top. Increased flow rate in steps of 200 lpm from 150 lpm to 1800 lpm/ 214-209 bar. Increased rotation in steps of 30 RPM from 20 RPM to 170 RPM/ 12-19 kNm. Resiprocated string from 4240 m to 4213 m. ECD 1,72 sg - 1,73 sg.
14.12.2003 15:00	16:30	1,5	4097,0	DTDD	E FAIL	OK	Pumped OOH from 4213 to 4145 m with 500 lpm/ 34 bar. Reduced flow rate to 350 lpm/ 25 bar and pumped OOH from 4145 m to 4097 m into 9 5/8" liner. Had 1-2 ton overpull when pulling reamer into window.
14.12.2003 16:30	21:00	4,5	3367,0	DTDD	E FAIL	OK	Pumped OOH from 4097 m to 3367 m with 480 lpm/ 25-28 bar. Pulling speed 5-2 min / stand.
14.12.2003 21:00	23:00	2,0	3367,0	DTDD	E FAIL	OK	Performed pre job meeting. Changed to 5" inserts in elevator, slips and mud bucket. Changed PRS spade to 5" while MU XO to DDM saver sub. Observed well on trip tank while changing to 5" handling equipment.
14.12.2003 23:00	00:00	1,0	3203,0	DTDD	E FAIL	OK	Pumped OOH from 3367 m to 3203 m with 480 lpm / 28 bar. Pulling speed 2 min / stand.
15.12.2003 00:00	05:30	5,5	2252,0	DTDD	E FAIL	OK	Pumped OOH from 3203 m to 2252 m with 480 lpm/ 26-16 bar. Pulling speed 2 min/stand.
15.12.2003 05:30	06:00	0,5	2252,0	DTDD	E FAIL	OK	Installed circulation head and hose. Cleaned rig floor. Circulated to clean well with 500-1000 lpm/ 22-63 bar. Increased flow rate rate in steps. Prepared to cut and slip drill line while circulating.
15.12.2003 06:00	06:30	0,5	2252,0	DEOU	OK	OK	Performed pre job meeting prior to cut and slip. Meanwhile increased flowrate in steps of 200 lpm to 1960 lpm/ 199 bar.
15.12.2003 06:30	08:30	2,0	2252,0	DEOU	OK	O FAIL	Cut and slip 33 m drill line. Adjusted breaks on drawwork. Meanwhile continued circulating with 1960 lpm/ 199 bar.
15.12.2003 08:30	10:00	1,5	2252,0	DDOD	O FAIL	OK	Circulated with 1960 lpm/ 199 bar until even mud weight in/ out. Meanwhile cleaned drill floor after cut and slip.
15.12.2003 10:00	10:30	0,5	2252,0	DTDD	E FAIL	OK	Broke and LD circulation head and hose.
15.12.2003 10:30	12:00	1,5	2217,0	DTDD	E FAIL	OK	Pulled 5 stands wet from 2252 m to 2217 m. Pumped slug and displaced same. Broke and LD 5 1/2" x 5" x-o.
15.12.2003 12:00	16:00	4,0	158,0	DTDD	E FAIL	OK	POOH from 2217 m to 158 m.
15.12.2003 16:00	17:00	1,0	85,0	DTDD	E FAIL	OK	Performed pre job meeting prior to LD BHA. POOH from 158 m to 85 m and racked back 2 stands 5" HWDP. Changed to master bushing and manual slips. Clean rig floor.
15.12.2003 17:00	22:00	5,0	,0	DTDD	E FAIL	E FAIL	BD jar and LD same. LD 1 joint 5" HWDP and racked back 1 stand 5" HWDP in derrick. BD float sub and racked back 1 stand HWDP. BD and LD underreamer, stabilizer, vision, power pulse and powerdrive assembly. BD bit.
15.12.2003 22:00	22:30	0,5	,0	BBOD	E FAIL	OK	Redressed elevator and slips. Closed shear ram and monitored WHP. Performed pre job meeting prior to washing and displacing riser to SW. Monitored WHP.

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Time from	Time to	Time used	Depth mMD	Act code	--- Status --- During opr	End of opr	Description of activities
15.12.2003 22:30	00:00	1,5	,0	BBOD	E FAIL	OK	MU jet sub. RIH and tagged shear ram. Washed riser with 5 m3 base oil followed by SW. Circulated with 2200 lpm/ 8 bar, 25 RPM/ 1-2 kNm. Monitored WHP.
16.12.2003 00:00	01:00	1,0	,0	BBOD	E FAIL	OK	Washed riser with SW. Circulated with 2200 lpm/ 8 bar, 25 RPM/ 1-2 kNm. BD jet sub and racked back stand. Monitored WHP.
16.12.2003 01:00	06:00	5,0	,0	BBOD	E FAIL	OK	Drained riser. Pulled and LD overshot mandrel. Had problems to release nuts on cap to annular preventer. Monitored WHP. Meanwhile changed wash pipe and greased PRS.
16.12.2003 06:00	19:30	13,5	,0	BBOD	E FAIL	OK	Changed annular element and O-ring on seal adapter. Found failure in pilot valve on 13 5/8" BOP diverter function. Meanwhile pressure tested IBOP, stand pipe and loose valves to 20/ 5 min and 345 bar/ 10 min. Screened 50 m3 mud with 1000 lpm/ 123 bar.
16.12.2003 19:30	23:00	3,5	,0	BBOD	E FAIL	OK	Waited on pilot valve from GFA. Bled off pressure on BOP pod. Changed pilot valve and pressurized system. Function tested annular preventer. Found failure in regulator valve on BOP control unit. Installed manometer. Pressure on annular is 6 bar even if regulator is set to zero. Meanwhile changed rotor on cuttings crusher.
16.12.2003 23:00	00:00	1,0	,0	BBOD	E FAIL	OK	Installed overshot mandrel.
17.12.2003 00:00	00:30	0,5	,0	BBOD	E FAIL	OK	Installed overshot mandrel and filled riser with 1,62 sg oil based mud.
17.12.2003 00:30	01:00	0,5	,0	BHRU	OK	OK	MU running tool for wear bushing. RIH and pulled wear bushing. BD running tool.
17.12.2003 01:00	02:30	1,5	,0	BBOU	OK	OK	RIH with jet sub. Washed well head and BOP area. POOH.
17.12.2003 02:30	06:00	3,5	37,0	BBUU	OK	OK	MU and RIH with test plug to 37 m. Tested BOP to 20 bar/ 5 min, 345 bar/ 10 min.
17.12.2003 06:00	07:00	1,0	,0	BBOU	OK	OK	Completed testing BOP. POOH with BOP test plug and LD same.
17.12.2003 07:00	08:00	1,0	,0	BHRU	OK	OK	MU, RIH and installed wear bushing. POOH and LD running tool.
17.12.2003 08:00	08:30	0,5	,0	BBOU	OK	OK	Cleaned rig floor after nippling and test operation.
17.12.2003 08:30	09:00	0,5	,0	DTDD	E FAIL	OK	Perform pre job meeting with crew prior to PU BHA. Redressed elevator and slips.
17.12.2003 09:00	11:00	2,0	29,0	DTDD	E FAIL	OK	PU from deck and MU Powerdrive, 8 1/2" bit, powerpulse, vision and ADN tool.
17.12.2003 11:00	11:30	0,5	29,0	DTDD	E FAIL	OK	Tested Powerdrive and MWD with 1200 LPM/ 48 bar.
17.12.2003 11:30	12:00	0,5	29,0	DTDD	E FAIL	OK	MU 8 1/2" stab to 5" NM HWDP stand from derrick. Installed RA sorce in ADN tool.
17.12.2003 12:00	14:00	2,0	214,0	DTDD	E FAIL	E FAIL	RIH with 2 joints 5" NM HWDP, 3 x 5" HWDP, JAR from deck, 8 x 5" HWDP and 2 stands 5" DP from derrick to 214 m.
17.12.2003 14:00	14:30	0,5	214,0	DEOD	E FAIL	OK	Changed valve on BX elevator.
17.12.2003 14:30	15:00	0,5	214,0	DTTD	E FAIL	OK	Installed automatic slips.
17.12.2003 15:00	15:30	0,5	348,0	DTTD	E FAIL	E FAIL	RIH with 8 1/2" BHA from 214 m to 348 m.
17.12.2003 15:30	17:00	1,5	348,0	DEOD	E FAIL	OK	Changed from hydraulic to air operated elevator.
17.12.2003 17:00	19:30	2,5	1110,0	DTTD	E FAIL	OK	RIH with 8 1/2" BHA from 348 m to 1110 m.
17.12.2003 19:30	20:00	0,5	1110,0	DTTD	E FAIL	OK	Filled string and tested MWD and LWD tools with 1400 lpm/ 83 bar.
17.12.2003 20:00	22:30	2,5	2000,0	DTTD	E FAIL	OK	RIH with 8 1/2" BHA from 1110 m to 2000 m.
17.12.2003 22:30	00:00	1,5	2000,0	BBUU	OK	OK	Pressure tested DDM upper and lower IBOP to 20 bar/ 5 min and 345 bar/ 10 min.
18.12.2003 00:00	05:00	5,0	3368,0	DTTD	E FAIL	OK	Filled string. RIH from 2000 m to 3368 m.
18.12.2003 05:00	06:00	1,0	3368,0	DTTD	E FAIL	OK	Changed from 5" to 5 1/2" handling equipment. Meanwhile performed pre job meeting with crew prior to enter open hole.
18.12.2003 06:00	06:30	0,5	3368,0	DTDD	E FAIL	OK	Changed inserts in hydraulic slips from 5" to 5 1/2". Checked pressure on closing indicator for hydraulic elevator.
18.12.2003 06:30	08:30	2,0	3995,0	DTDD	E FAIL	OK	RIH with 8 1/2" BHA from 3368 m to 3995 m. Max running speed 2 min/ stand inside 9 5/8" liner. At 3900 m adjusted drawwork hight meassurement for MWD tool due to previous cut and slip of drill line.
18.12.2003 08:30	09:00	0,5	3995,0	DTDD	E FAIL	OK	Filled string and broke circulation. Meanwhile started changing pressure transmitter on DDM dolly for closing indication on hydraulic elevator.
18.12.2003 09:00	10:00	1,0	3995,0	DTDD	E FAIL	E FAIL	Performed pre job meeting with day crew. Meanwhile changed pressure transmitter on DDM dolly for closing indication on hydraulic elevator.
18.12.2003 10:00	10:30	0,5	3995,0	DEOD	E FAIL	OK	Changed from air operated to hydraulic operated elevator.
18.12.2003 10:30	12:00	1,5	4294,0	DTDD	E FAIL	OK	RIH with 8 1/2" BHA from 3995 m to 4294 m. Max running speed 2 min/ stand inside 9 5/8" liner and 3 min/ stand in open hole.
18.12.2003 12:00	18:30	6,5	4294,0	DTDD	E FAIL	OK	Filled pipe. Rotated with 10 RPM and increased flowrate in 200 LPM steps to 1960 LPM/ 245-240 bar and rotation in steps of 30 RPM to 160 RPM/ 20 kNm. Circulated 2 x BU with full flowrate and rotation. Resiprocated drill string from 4294 m to 4267 m. ECD 1,74 - 1,71 SG. Mud weight out 1,59+ to 1,68+ SG.

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Time from	Time to	Time used	Depth mMD	Act code	--- Status --- During opr	End of opr	Description of activities
18.12.2003 18:30	22:30	4,0	5493,0	DTDD	E FAIL	OK	RIH with 8 1/2" BHA from 4294 m to 5493 m. Max running speed 3 min/ stand. Filled pipe every 1000 m.
18.12.2003 22:30	00:00	1,5	5493,0	DTDD	E FAIL	OK	Filled pipe and broke circulation with 250 LPM/ 18 bar. Rotated with 10 RPM and increased flow rate in 200 LPM steps to 1300 LPM/ 133 bar. Mud weight out 1.59 - 1.60 SG.
19.12.2003 00:00	05:30	5,5	5493,0	DTDD	E FAIL	OK	Rotated with 10 RPM and increased flowrate in 200 LPM steps to 1950 LPM/ 254-250 bar and rotation in steps to 160 RPM/ 23-25 kNm. Circulated 2 x BU with full flow rate and rotation. Mudweight out 1.60-1.64 SG. ECD 1.73-1.74 SG. Maximum gas 4 %. Lost ECD signals at 2:00 hrs. Cycled pumps twice and reagined signals at 03:30 hrs.
19.12.2003 05:30	06:00	0,5	5575,0	DTDD	E FAIL	OK	RIH with 8 1/2" BHA from 5493 m to 5575 m. Max running speed 3 min/ stand.
19.12.2003 06:00	07:30	1,5	5657,0	DTDD	E FAIL	OK	RIH with 8 1/2" BHA from 5575 m to 5671 m. Max running speed 2-3 min/ stand. Took 10 ton weight at 5671 m. Picked up 2 m above up weight and RIH again slowly. Took 7 ton weight. POOH from 5671 m to 5657 m and racked stand back in derrick.
19.12.2003 07:30	08:30	1,0	5657,0	DTDD	E FAIL	OK	Rotated with 10 RPM. Broke circulation, increased flowrate in steps of 200 LPM to 1960 LPM/ 258 bar and increased rotation in steps of 30 RPM to 160 RPM/ 25-27 kNm. Resiprocated string from 5657 m to 5645 m.
19.12.2003 08:30	10:00	1,5	5711,0	DTDD	E FAIL	OK	Reamed down from 5657 m to 5711 m with 1960 LPM/ 258 bar, 160 RPM/ 25-27 kNm. Did not take any weight. Reaming speed 10 min/ stand. ECD 1,75 SG.
19.12.2003 10:00	13:30	3,5	6099,0	DTDD	E FAIL	OK	RIH with 8 1/2" BHA from 5711 m to 6099 m. Took 5 tons weight at 5745 m and 5869 m. Running speed 5-30 min/ stand. At 6099 m took 4 tons weight. Picked up 2 m above up weight 3 times and RIH slowly. Took 4 tons weight each time and up weight increased 4 tons on the last try.
19.12.2003 13:30	16:30	3,0	6099,0	DTDD	E FAIL	OK	Picked up to neutral weight. Rotated with 10 RPM. Broke circulation, increased flowrate in steps of 200 LPM to 1960 LPM/ 271 bar and increased rotation in steps of 30 RPM to 160 RPM/ 27-29 kNm. Resiprocated string from 6099 m to 6090 m.
19.12.2003 16:30	17:00	0,5	6119,0	DTDD	E FAIL	OK	Reamed down from 6099 m to 6119 m with 1960 LPM/ 271 bar, 160 RPM/ 27-29 kNm. Reaming speed 10 min/ stand. ECD 1,77 SG. Max gas 12,1 %.
19.12.2003 17:00	18:00	1,0	6164,0	DTDD	E FAIL	OK	RIH with 8 1/2" BHA from 6119 m to 6166 m. Max running speed 10 min/ stand. Took 4-5 ton weight. Picked up 2 m above up weight and RIH again. Took 4 ton weight. Pu to neutral weight at 6164 m.
19.12.2003 18:00	20:00	2,0	6175,0	DTDD	E FAIL	OK	Increased flow rate in steps to 1960 LPM/ 270 bar and increased rotation in steps to 160 RPM/ 26-30 kNm. Reamed stand. Maximum ECD 1.74 SG.
19.12.2003 20:00	20:30	0,5	6223,0	DTDD	E FAIL	OK	RIH with 8 1/2" BHA from 6175 m to 6223 m. Had gradually increasing drag and took 5 ton weight at 6223 m. Picked up 2 m above up weight and RIH again. Took 5 ton weight. PU to neutral weight at 6222 m.
19.12.2003 20:30	21:30	1,0	6217,0	DTDD	E FAIL	OK	Increased rate in steps to 1960 LPM/ 276 bar with 10 RPM rotation. Had sudden increase in torque and pressure built up to 286 bar. Partly lost returns. Reduced pump rate to 1500 LPM/ 180 bar and rotated with 10 RPM. Circulated until stable conditions and increased rate in steps to 1700 LPM/221 bar moving string slowly upwards. Had pressure build up to 228 bar and pack off tendensies.
19.12.2003 21:30	22:00	0,5	6175,0	DTDD	OK	OK	Pumped OOH from 6217 m to 6175 m with 600 LPM/ 68-50 bar, 10 RPM/ 20-29 kNm. Had 10 ton OP at several spots.
19.12.2003 22:00	00:00	2,0	6164,0	DTDD	OK	OK	Increased flow rate in steps to 1950 LPM/ 275 bar and rotation in steps to 60 RPM/ 18-25 kNm moving string slowly upwards. Maximum ECD without rotation 1.72 SG. Maximum ECD with rotation 1.74 SG. MW out 1.61 +.
20.12.2003 00:00	01:00	1,0	6158,0	DTDD	OK	OK	Circulated with 1950 LPM/ 274 bar and increased rotation in steps to 160 RPM/ 26-30 kNm moving string slowly upwards. MW out 1.61+. Pressure decreased from 274 - 268 bar when increasing rotation from from 60-160 RPM. ECD increased from 1.74 - 1.77 at same time. Had sudden pressure increase to 278 bar with string at 6158 m. ECD increased to 1.79 SG.

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Time from	Time to	Time used	Depth mMD	Act code	--- Status --- During opr	End of opr	Description of activities
20.12.2003 01:00	05:00	4,0	6175,0	DTDD	E FAIL	OK	RIH to 6165 m and decreased flow rate to 1300 LPM/ 132 bar and rotation to 10 RPM. Regained full returns. Increased pump rate in steps to 1960 LPM/ 274 bar and rotation in steps to 120 RPM/ 21-26 kNm moving string slowly upwards. Pressure increased from 274 - 277 bar and return flow decreased at 6161 m. ECD 1.79 SG. RIH 4 m with same parameters and pressure decreased to 274 bar. Increased rotation to 160 RPM/ 23-27 kNm and reamed down to 6175 m without problems. Pressure decreased to 271 bar. Circulated with 1950 LPM and rotated with 160 RPM moving string slowly upwards. Pressure increased from 271-273 bar and return flow decreased at 6161 m. ECD 1.78 SG. RIH 2 m with same parameters and pressure regained full returns. Circulated with 1950 LPM and rotated with 160 RPM moving string slowy upwards. Pressure increased from 272 - 279 bar and return flow decreased at 6161 m. ECD 1.78 SG. RIH to 6166 m and decreased rotation to 20 RPM and regained full returns. Increased rotation to 160 RPM/ 24-26 kNm and reamed down to 6175 m without problems. Circulated with 1950 LPM/ 270 bar and rotated with 160 RPM/ 24-26 kNm moving string upwards increasing the pulling speed. Reamed back to 6150 m without problems. Reamed down to 6175 m. Circulated totally 2 x BU with full parameters. Had an increasing amount of cuttings coming over shakers at 1,2 x BU.
20.12.2003 05:00	06:00	1,0	6225,0	DTDD	OK	OK	Reamed down from 6175 m to 6225 m with 1950 LPM/ 271-275 bar, 160 RPM/ 23-27 kNm increasing the parameters in steps. Maximum ECD 1.77 SG. MW out 1.62 SG.
20.12.2003 06:00	10:00	4,0	6315,0	DTDD	E FAIL	O FAIL	Reamed down from 6225 m to 6315 m with 1960 LPM/ 272-280 bar, 160 RPM/ 25-28 kNm. Had pack off tendencies at 6234 m, 6281 m, 6293 m, 6307 and 6315 m. Max ECD 1,82 SG. MW out 1,62 SG.
20.12.2003 10:00	17:00	7,0	6255,0	DDOD	O FAIL	OK	Backreamed slowly from 6315 m to 6255 m with 1000-1900 LPM/ 113-270 bar, 160 RPM/ 25-31 kNm. Had pack off tendencies at 6291 m, 6273 m and 6255 m. Max ECD 1,83 SG. MW out 1,62-1,63 SG. Lost a total of 1 to 1,5 m3 mud.
20.12.2003 17:00	00:00	7,0	5720,0	DDOD	O FAIL	OK	Pumped OOH from 6255 m to 5720 m with 100-120 LPM/ 14-16 bar, 30 RPM/ 18-28 kNm. MW out 1.63 SG. Increased pulling speed gradually from 100 m/hr-130 m/hr.
21.12.2003 00:00	01:30	1,5	5616,0	DDOD	O FAIL	OK	Pumped OOH from 5720 m to 5616 m with 100-120 LPM/ 14-16 bar, 30 RPM/ 18-28 kNm. Increased pulling speed from 130 m/hr - 140 m/hr. Well did not take enough mud from 5660 m.
21.12.2003 01:30	02:00	0,5	5616,0	DDOD	O FAIL	OK	Flow checked well. Well stable.
21.12.2003 02:00	06:00	4,0	5200,0	DDOD	O FAIL	OK	Pumped OOH with 8 1/2" BHA from 5616 m to 5300 m with 100-120 LPM/ 14-16 bar, 30 RPM/ 18-28 kNm. MW out 1.63 SG. Increased pulling speed gradually from 120 m/hr to 200 m/hr.
21.12.2003 06:00	15:00	9,0	4156,0	DDOD	O FAIL	OK	Pumped OOH with 8 1/2" BHA from 5300 m to 4156 m with 120-140 LPM/ 16 bar, 30 RPM/ 14-22 kNm. MW out 1,63 SG. Increased pulling speed gradually from 200 m/hr to 360 m/hr.
21.12.2003 15:00	16:00	1,0	4075,0	DDOD	O FAIL	OK	Pumped OOH with 8 1/2" BHA from 4156 m to 4075 m with 400 LPM/ 25 bar. Took 4 tons when bit at 4105 m. RIH to 4107 m and set 5 RPM rotation on string. Pumped out of window with a flick of 2 tons.
21.12.2003 16:00	16:30	0,5	4075,0	DDOD	O FAIL	OK	Flow checked well. Well stable.
21.12.2003 16:30	17:30	1,0	3886,0	DDOD	O FAIL	OK	Pumped OOH with 8 1/2" BHA from 4075 m to 3886 m with 500 LPM/ 28 bar. Increased pulling speed gradually from 360 m/hr to 440 m/hr. MW out 1.63-1.65 SG.
21.12.2003 17:30	18:00	0,5	3886,0	DDOD	O FAIL	OK	Stopped operation due to derrick camera covered with snow and ice. Performed SJA and sent man in riding belt to clear camera lence.
21.12.2003 18:00	20:00	2,0	3507,0	DDOD	O FAIL	O FAIL	Pumped OOH from 3886 m to 3507 m with 500 LPM/ 26-28 bar. Pulling speed 2 min/ stand. MW out 1.65 SG.
21.12.2003 20:00	20:30	0,5	3507,0	DDOD	O FAIL	OK	Shut of all electrical power to PS, DW and MP's due to reduced power supply as GFA started water injection pumps. Meanwhile monitored well on trip tank.
21.12.2003 20:30	21:00	0,5	3368,0	DDOD	O FAIL	OK	Pumped OOH from 3507 m to 3368 m with 500 LPM/ 26-28 bar. Pulling speed 2 min/ stand. MW out 1.65 SG.
21.12.2003 21:00	22:30	1,5	3368,0	DDOD	O FAIL	OK	Changed to 5" inserts in elevator, slips and mud bucket. Changed to 5" spade in PRS.
21.12.2003 22:30	00:00	1,5	3368,0	DDOD	O FAIL	OK	Dismanteled torque wrench.
22.12.2003 00:00	01:00	1,0	3368,0	DDOD	O FAIL	OK	Changed saver sub in DDM from 5 1/2" to 5" and changed lower inserts in torque wrench to 5". Installed torque wrench.
22.12.2003 01:00	01:30	0,5	3368,0	DDOD	O FAIL	OK	Stopped operation due to derrick camera covered with mud. Performed SJA and sent man in riding belt to clean camera lence.
22.12.2003 01:30	06:00	4,5	2552,0	DDOD	O FAIL	OK	Pumped OOH with 8 1/2" BHA from 3368 m to 2552 m with 500 LPM/ 24 bar. Pulling speed 2 min/stand. MW out 1.62 SG.
22.12.2003 06:00	06:30	0,5	2552,0	DDOD	O FAIL	OK	Unable to unscrew connection in DDM. Held pre job meeting and used rig tong to breake connection.
22.12.2003 06:30	08:30	2,0	2253,0	DDOD	O FAIL	OK	Pumped OOH with 8 1/2" BHA from 2552 m to 2253 m with 500 LPM/ 19-22 bar. Pulling speed 2 min/ stand.

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Time from	Time to	Time used	Depth mMD	Act code	--- Status --- During opr	End of opr	Description of activities
22.12.2003 08:30	09:30	1,0	2117,0	DDOD	O FAIL	OK	Pulled 5 stand wet from 2253 m to 2117 m. Pumped and chased 4 m3 1,92 SG slug.
22.12.2003 09:30	10:00	0,5	2117,0	DDOD	O FAIL	OK	Performed pre job meeting and dismantled torque wrench from DDM due to service.
22.12.2003 10:00	13:00	3,0	539,0	DDOD	O FAIL	OK	POOH with 8 1/2" BHA from 2117 m to 539 m.
22.12.2003 13:00	13:30	0,5	539,0	DDOD	O FAIL	OK	Performed pre job meeting with drill floor and pipe deck crew prior to LD 5" DP singles.
22.12.2003 13:30	14:00	0,5	485,0	DDOD	O FAIL	OK	POOH with 8 1/2" BHA from 539 m to 485 m while LD 5" DP singles to pipe deck.
22.12.2003 14:00	14:30	0,5	485,0	DDOD	O FAIL	OK	Performed pre job meeting with new crew prior to LD 5" DP singles.
22.12.2003 14:30	17:00	2,5	159,0	DDOD	O FAIL	OK	POOH with 8 1/2" BHA from 485 m to 87 m while LD 5" DP singles to pipe deck. LD a total of 28 singles.
22.12.2003 17:00	18:00	1,0	87,0	DDOD	O FAIL	OK	Changed from hydraulic slips to master bushing and manual slips. POOH from 159 m to 87 m with 1 stand 5" HWDP, 6 1/2" jar and 2 ea 5" HWDP and 2 stands 5" HWDP and racked back same in derrick.
22.12.2003 18:00	19:00	1,0	31,0	DDOD	O FAIL	OK	POOH with 2 ea 5" NMHWDP and LD same to pipe deck.
22.12.2003 19:00	20:00	1,0	31,0	DDOD	O FAIL	OK	Held pre job meeting prior to handling RA source in MWD. Removed RA source.
22.12.2003 20:00	21:00	1,0	,0	DDOD	O FAIL	OK	BD bit and LD same. BD MWD and power drive and LD same to pipe deck.
22.12.2003 21:00	22:00	1,0	,0	DDOD	O FAIL	OK	Greased and checked DDM. Performed FV routines on DDM.
22.12.2003 22:00	23:00	1,0	,0	DDOD	O FAIL	OK	Changed from 5" to 5 1/2" inserts in hydraulic slips. Cleared rig floor.
22.12.2003 23:00	23:30	0,5	,0	DDOD	O FAIL	OK	Performed pre job meeting prior to MU BHA. PU 12 1/4" bit, bit sub, 12 1/4" stab and 2 x-overs from pipe deck. Cleared rig floor.
22.12.2003 23:30	00:00	0,5	,0	DDOD	O FAIL	OK	Dismanteled 5" saver sub.
23.12.2003 00:00	01:00	1,0	,0	DDOD	O FAIL	OK	Installed 5 1/2" saver sub.
23.12.2003 01:00	02:00	1,0	,0	DDOD	O FAIL	OK	Installed torque wrench after service.
23.12.2003 02:00	02:30	0,5	,0	DDOD	O FAIL	OK	Changed from 5" to 5 1/2" spade in PRS.
23.12.2003 02:30	03:30	1,0	,0	DDOD	O FAIL	OK	MU 12 1/4" bit, bit sub with float, 12 1/4" stab and 2 x-overs.
23.12.2003 03:30	04:00	0,5	116,0	DDOD	O FAIL	OK	MU 2 stands 5" HWDP, jar stand and 1 stand 5" HWDP and RIH to 116 m.
23.12.2003 04:00	04:30	0,5	116,0	DDOD	O FAIL	OK	Performed pre job meeting prior to RIH and clean 13 3/8" casing.
23.12.2003 04:30	05:00	0,5	116,0	DDOD	O FAIL	OK	Changed inserts in elevator from 5" to 5 1/2". Changed from master bushing and manual slips to hydraulic slips.
23.12.2003 05:00	06:00	1,0	470,0	DDOD	OK	OK	RIH with 12 1/4" clean up BHA from 116 m to 470 m.
23.12.2003 06:00	08:30	2,5	1096,0	DDOD	O FAIL	OK	RIH with 12 1/4" clean up BHA from 470 m to 1096 m.
23.12.2003 08:30	09:00	0,5	1096,0	DDOD	O FAIL	OK	Filled pipe. Broke circulation with 10 RPM and increased in steps of 300 LPM to 3400 LPM/ 140 bar. Increased rotation in steps from 10 to 160 RPM/ 4-6 kNm.
23.12.2003 09:00	11:00	2,0	1096,0	DDOD	O FAIL	OK	Circulated 3 x BU with 3400 LPM/ 140 bar, 160 RPM/ 4-6 kNm. Resiprocated string from 1096 m to 1069 m. Approximately 0,5 m3 cuttings in return.
23.12.2003 11:00	13:30	2,5	1695,0	DDOD	O FAIL	OK	RIH with 12 1/4" clean up assembly from 1096 m to 1695 m.
23.12.2003 13:30	14:00	0,5	1695,0	DDOD	O FAIL	OK	Filled pipe. Broke circulation with 10 RPM and increased in steps of 300 LPM to 3400 LPM/ 170 bar. Increased rotation in steps from 10 to 160 RPM/ 6-8 kNm.
23.12.2003 14:00	16:00	2,0	1695,0	DDOD	O FAIL	OK	Circulated 3 x BU with 3400 LPM/ 170 bar, 160 RPM/ 6-8 kNm. Resiprocated string from 1695 m to 1668 m. Approximately 0,25 m3 cuttings in return.
23.12.2003 16:00	17:00	1,0	1900,0	DDOD	O FAIL	OK	RIH with 12 1/4" clean up assembly from 1695 m to 1900 Took 4 ton weight at 1900 m.
23.12.2003 17:00	21:00	4,0	2257,7	DDOD	O FAIL	OK	Reamed down with 8 1/2" celan up assembly from 1900 m to 2250 m with 2500 LPM/ 105 bar, 50 RPM/ 4-6 kNm. Stopped rotation and washed down with 1000 LPM/ 24 bar. Tagged top of 9 5/8" liner at 2257,7 m.
23.12.2003 21:00	23:00	2,0	2239,0	DDOD	O FAIL	OK	Racked back stand. Circulated 3 x BU with 3500 LPM/ 204 bar, 160 RPM/ 9-11 kNm. Reciprocated string from 2213 m to 2239 m. Approximately 0,25 m3 cuttings i return.
23.12.2003 23:00	00:00	1,0	2090,0	DDOD	O FAIL	OK	POOH 5 stands wet from 2239 m to 2090 m.
24.12.2003 00:00	00:30	0,5	2090,0	DDOD	O FAIL	OK	Flowchecked well. Well stable.
24.12.2003 00:30	01:00	0,5	1967,0	DDOD	O FAIL	E FAIL	Pumped slug. POOH with 12 1/4" clean up assembly from 2090 m to 1967 m.
24.12.2003 01:00	02:30	1,5	1967,0	DDOD	E FAIL	OK	Had problems getting signals from hydraulic elevator. Changed to air operated elevator.
24.12.2003 02:30	05:00	2,5	550,0	DDOD	O FAIL	OK	POOH with 12 1/4" clean up assembly from 1967 m to 550 m.
24.12.2003 05:00	05:30	0,5	550,0	DDOD	O FAIL	OK	Held pre job meeting prior to LD 5 1/2" DP singles.

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Time from	Time to	Time used	Depth mMD	Act code	--- Status --- During opr	End of opr	Description of activities
24.12.2003 05:30	06:00	0,5	510,0	DDOD	O FAIL	OK	POOH with 12 1/4" clean up assembly from 550 m to 510 m while LD 5 1/2" DP singles.
24.12.2003 06:00	08:00	2,0	168,0	DDOD	O FAIL	OK	POOH with 12 1/4" clean up assembly from 510 m to 168 m while LD 5 1/2" DP singles to deck. Held pre job meeting with day crew prior to LD singles.
24.12.2003 08:00	09:00	1,0	115,0	DDOD	O FAIL	OK	Flow checked well prior to pull BHA. POOH with 12 1/4" clean up assembly from 168 m to 115 m while LD 5 1/2" DP to deck.
24.12.2003 09:00	11:30	2,5	,0	DDOD	O FAIL	OK	Removed hydraulic slips and installed master bushing. POOH and racked 5" HWDP in derrick. Rearranged jar stand. Broke and LD 12 1/4" bit, bit sub, 12 1/4" stabilizer and x-overs.
24.12.2003 11:30	12:00	0,5	,0	DDOD	O FAIL	OK	Cleaned rig floor.
24.12.2003 12:00	12:30	0,5	,0	DDOD	O FAIL	OK	Performed pre job meeting prior to PU 8 1/2" BHA.
24.12.2003 12:30	15:30	3,0	30,0	DDOD	O FAIL	OK	PU from deck, MU and RIH to 30 m with 8 1/2" bit, PowerDrive and MWD tool.
24.12.2003 15:30	16:00	0,5	30,0	DDOD	O FAIL	OK	Tested Powerdrive and MWD with 1300 LPM/ 36 bar.
24.12.2003 16:00	16:30	0,5	30,0	DDOD	O FAIL	OK	Installed RA source in ADN tool.
24.12.2003 16:30	17:30	1,0	50,0	DDOD	O FAIL	E FAIL	PU and MU 2 ea 5" NM HWDP. Had som problems due to slipping on dies on IR. Changed 4 dies on IR.
24.12.2003 17:30	19:30	2,0	50,0	DDOD	E FAIL	OK	1 kg bolt from torque wrench fell 9 m down on rig floor. Investigated incident and secured bolt and other bolts on torque wrench with safety wire. Dismanteled torque wrench to install safety wires on 2 more bolts.
24.12.2003 19:30	21:00	1,5	160,0	DDOD	O FAIL	OK	MU and RIH with 3 stands 5" HWDP and 2 ea 5" HWDP and 6 1/2" jar to 160 m.
24.12.2003 21:00	21:30	0,5	160,0	DDOD	O FAIL	OK	Removed master bushing and manual slips and installed hydraulic slips.
24.12.2003 21:30	22:00	0,5	160,0	DDOD	O FAIL	OK	Changed from air operated elevator to hydraulic elevator. Performed pre job meeting prior to PU 5" DP from piepdeck.
24.12.2003 22:00	00:00	2,0	350,0	DDOD	O FAIL	OK	RIH with 8 1/2" drilling assembly from 160 m to 350 m while PU 5" DP.
25.12.2003 00:00	05:00	5,0	1086,0	DDOD	O FAIL	OK	RIH with 8 1/2" drilling assembly from 350 m to 1086 m while PU 5" DP.
25.12.2003 05:00	05:30	0,5	1086,0	DDOD	E FAIL	OK	Installed torque wrench after service.
25.12.2003 05:30	06:00	0,5	1086,0	DDOD	O FAIL	OK	Filled pipe and broke circulation with 300 LPM/ 14 bar. Tested MWD and LWD tools with 1300 LPM/ 63 bar.
25.12.2003 06:00	07:00	1,0	1195,0	DDOD	O FAIL	OK	RIH with 8 1/2" drilling assembly from 1086 m to 1195 m while PU 5" DP from deck.
25.12.2003 07:00	18:00	11,0	2845,0	DDOD	O FAIL	E FAIL	Held pre job meeting with day crew. Continued RIH with 8 1/2" drilling assembly from 1195 m to 2845 m while PU 5" DP from deck. Filled pipe every 1000 m. Some joints with 5" DP was found with cement coating inside and were laid out. Some of the joints found with cement inside were jetted on pipe deck nad "hammered" on rig floor to get cement out prior to RIH.
25.12.2003 18:00	20:00	2,0	2845,0	DDOD	E FAIL	OK	Filled pipe. Increased rate in steps and circulated with 1950 LPM. Pressure fluctulating between 204-245 bar. Circulated 40 min with 1950 LPM and stable pressure of 206-204 bar until operation proceeded.
25.12.2003 20:00	23:00	3,0	3847,0	DDOD	E FAIL	OK	RIH with 8 1/2" drilling assembly from 2845 m to 3847 m. Limited running speed to 2 min/ stand.
25.12.2003 23:00	00:00	1,0	3846,0	DDOD	E FAIL	OK	Filled pipe and broke circulation with 200 LPM/ 13 bar. Increased rate in steps to 1930 LPM. Pressure fluctulated between 241 - 260 bar. Had sudden pressure increase to 272 bar and reduced rate to 1560 LPM/ 196 bar. Increased pump rate again to 1930 LPM. Pressure fluctulated between 246 - 268 bar.
26.12.2003 00:00	01:00	1,0	3846,0	DDOD	E FAIL	OK	Circulated with 1930 LPM in attempt to clean string. Pressure still fluctulated between 243 -260 bar but stabilized at 243-240 bar for periods in between.
26.12.2003 01:00	02:00	1,0	3846,0	DDOD	E FAIL	OK	Circulated with 1950 LPM. Pressure decreased from 240-238 bar. Had rapid pressure increase of maximum 10 bar for short time intervals 7 times in one hour. Meanwhile evaluated situation.
26.12.2003 02:00	04:00	2,0	3846,0	DDOD	E FAIL	OK	Changed saver sub from 5 1/2" to 5". Meanwhile observed well on trip tank. Well stable.
26.12.2003 04:00	06:00	2,0	3466,0	DDOD	E FAIL	OK	Pumped OOH from 3846 m to 3466 m with 500 LPM/ 27-28 bar. Pulling speed 2 min/ stand.
26.12.2003 06:00	09:30	3,5	2854,0	DDOD	E FAIL	OK	Pumped OOH from 3466 m to 2854 m with 500 LPM/ 25-26 bar. Pulling speed 2 min/ stand. Cleaned and greased hydraulic slips.
26.12.2003 09:30	12:00	2,5	2716,0	DDOD	E FAIL	OK	Performed pre job meeting prior to LD 5" DP to deck. Pumped OOH from 2854 m to 2716 m with 500 LPM while LD 5" DP to deck.
26.12.2003 12:00	16:00	4,0	2247,0	DDOD	E FAIL	OK	Pumped OOH from 2716 m to 2247 m with 500 LPM and racked stands back in derric. Pulling speed 2 min/ stand. Problems to breake with torque wrench due to hard facing on DP.
26.12.2003 16:00	16:30	0,5	2165,0	DDOD	E FAIL	OK	Pulled 3 stands wet from 2247 m to 2116 m.

Operations

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Time from	Time to	Time used	Depth mMD	Act code	--- Status --- During opr	End of opr	Description of activities
26.12.2003 16:30	17:00	0,5	2165,0	DDOD	E FAIL	OK	Flow checked well. Well stable. Meanwhile started dismanteling torque wrench for maintenance.
26.12.2003 17:00	17:30	0,5	2165,0	DDOD	E FAIL	OK	Pumped 4m3 1.92 SG slug. Dismanteled torque wrench for maintenance.
26.12.2003 17:30	19:00	1,5	2029,0	DDOD	E FAIL	OK	POOH with 8 1/2" drilling assembly from 2165 m to 2029 m while LD 5" DP.
26.12.2003 19:00	22:00	3,0	1469,0	DDOD	E FAIL	OK	Performed pre job meeting with night crew prior to LD 5" DP. POOH with 8 1/2" drilling assembly from 2029 m to 1469 m while LD 5" DP. Pulled wet from 1564 m.
26.12.2003 22:00	00:00	2,0	1157,0	DDOD	E FAIL	OK	Pumped 3,5 m3 1.96 SG slug. POOH with 8 1/2" drilling assembly from 1469 m to 1157 m.
27.12.2003 00:00	06:00	6,0	159,0	DDOD	E FAIL	OK	POOH with 8 1/2" drilling assembly from 1157 m to 159 m while LD 5" DP. Pumped another 2 m3 1.96 SG slug at 539 m due to pulling wet.
27.12.2003 06:00	08:00	2,0	682,0	DDOD	E FAIL	OK	RIH from 159 m to 682 m with 19 std 5" DP from derrick. Performed prejob meeting prior to LD 5" DP.
27.12.2003 08:00	11:00	3,0	159,0	DDOD	E FAIL	OK	POOH from 682 m to 159 m and LD 19 std 5" DP.
27.12.2003 11:00	15:00	4,0	,0	DDOD	E FAIL	OK	POOH with BHA. BD and LD same. Had problems removing radioactive source due to cement on top of sorce.
27.12.2003 15:00	16:00	1,0	,0	BBOU	OK	E FAIL	Connected pumpin T, pup joint and hose to DDM. Pressure tested upper IBOP on DDM to 20/ 345 bar.
27.12.2003 16:00	17:00	1,0	,0	BBOD	E FAIL	OK	Attempted to pressure test lower IBOP, greased and cycled same.
27.12.2003 17:00	18:00	1,0	,0	BBOU	OK	OK	Pressure tested lower IBOP on DDM to 20 / 345 bar. Rigged down pumpin T, pup joint and hose.
27.12.2003 18:00	20:00	2,0	,0	BBOU	OK	OK	MU RT and RIH. Pulled wearbushing. LD RT. Redressed elevator to 5" . Only one cyber base chair working.
27.12.2003 20:00	21:30	1,5	,0	BBOU	OK	OK	MU and RIH with jet sub. Washed wellhead. POOH. Only one cyber base chair working.
27.12.2003 21:30	22:30	1,0	,0	BBOU	OK	OK	Redressed elevator to 5 1/2". MU and RIH with test plug.
27.12.2003 22:30	00:00	1,5	,0	BBUU	OK	OK	Tested UPR and LPR to 20/ 345 bar.
28.12.2003 00:00	01:00	1,0	,0	BBUU	OK	OK	Tested annular preventer to 20/ 345 bar.
28.12.2003 01:00	02:00	1,0	,0	BBUU	OK	E FAIL	Greased HCR on choke line. Attempted to test same.
28.12.2003 02:00	06:00	4,0	,0	BBUD	E FAIL	OK	Performed SJA meeting for changing BOP HCR valve on choke line. Removed malfunctioned HCR.
28.12.2003 06:00	10:00	4,0	,0	BBUD	E FAIL	OK	Installed new HCR on chokeline. Reinstalled chokeline.
28.12.2003 10:00	10:30	0,5	,0	BBUD	E FAIL	OK	Pressure tested new HCR and choke line to 20 bar / 5 min, 345 bar / 10 min.
28.12.2003 10:30	11:00	0,5	,0	BBOU	OK	OK	POOH with BOP test plug and LD same.
28.12.2003 11:00	12:30	1,5	,0	BHRU	OK	OK	MU, RIH and installed wearbushing in wellhead. POOH with RT and LD same.
28.12.2003 12:30	13:00	0,5	,0	BBOU	OK	OK	Cleared and cleaned rig floor.
28.12.2003 13:00	13:30	0,5	,0	DDOD	E FAIL	OK	Performed prejob safety meeting and redressed elevator and slips to 5".
28.12.2003 13:30	16:00	2,5	29,0	DDOD	E FAIL	OK	PU and MU powerdrive and MWD. Tested MWD tools at surface. Installed radioactive source.
28.12.2003 16:00	17:00	1,0	160,0	DDOD	E FAIL	OK	RIH with NM HWDP, HWDP and jar to 160 m.
28.12.2003 17:00	00:00	7,0	1096,0	DDOD	E FAIL	OK	PU and MU clean 5" DP range 3 from pipedeck and RIH from 160 m to 1096 m. Filled pipe. Performed prejob meeting with day and night crew prior to PU DP from pipedeck.
29.12.2003 00:00	06:00	6,0	2100,0	DDOD	E FAIL	OK	PU and MU clean 5" DP range 3 from deck and RIH from 1096 m to 2100 m. Filled pipe.
29.12.2003 06:00	10:00	4,0	2534,0	DDOD	E FAIL	E FAIL	PU and MU clean 5" DP, range 3, from pipedeck and RIH from 2100 m to 2534 m. Measured rearranged DP on deck. Found loose bolt for load cell. Safety pin in bolt missing.
29.12.2003 10:00	13:00	3,0	2534,0	DDOD	E FAIL	OK	Performed DDM check for loose bolts and bolt missing pins and/or safety wire.
29.12.2003 13:00	15:00	2,0	2841,0	DDOD	E FAIL	OK	PU and MU clean 5" DP, range 3, from pipedeck and RIH from 2534 m to 2841 m.
29.12.2003 15:00	20:30	5,5	3846,0	DEOU	OK	OK	RIH from 2841 m to 3846 m.
29.12.2003 20:30	21:30	1,0	4010,0	DEOU	OK	OK	RIH from 3846 m to 4010 m. Performed prejob meeting with new crew at 21:00 hrs.
29.12.2003 21:30	00:00	2,5	4010,0	DEOU	OK	OK	Cut and slip drill line. Checked DW brakes. Greased DDM.
30.12.2003 00:00	02:00	2,0	4010,0	DDOU	OK	OK	Installed TW dressed for 5 1/2" DP. Changed DDM saver sub to 5 1/2".
30.12.2003 02:00	06:00	4,0	4010,0	DDOU	OK	OK	Broke circulation. Increased rate ins steps to 1950 lpm. Circulated with 1950 lpm/ 262-250 bar, 10 rpm/ 10-14 kNm. MW out had one heavy spot with peak of 1,70 SG. No gas. Final MW out 1,62 SG. ECD 1.745 - 1.705 SG. Circulated 2 BU.

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Time from	Time to	Time used	Depth mMD	Act code	--- Status --- During opr	End of opr	Description of activities
30.12.2003 06:00	10:30	4,5	5491,0	DTDU	OK	OK	RIH with 5" DP on elevator from 4010 m. Met 20 ton restriction at 5190 m and 15 ton at 5443 m. Wiped tightspots. Met 20 ton restriction at 5491 m. Unable to wipe through tightspot. Installed 5 1/2" x 4 1/2" XO on DDM 5 1/2" saversub.
30.12.2003 10:30	13:30	3,0	5641,0	DTDU	OK	OK	Engaged DDM and RIH with 5" DP from 5491 m to 5641 m with 8 - 10 rpm / 14 - 23 kNm.
30.12.2003 13:30	14:00	0,5	5641,0	DDOU	OK	OK	Changed spade from 5" to 5 1/2" on Star Racker. Filled string and broke circulation with 100 lpm / 21 bar.
30.12.2003 14:00	14:30	0,5	5668,0	DTDU	OK	OK	RIH with 5" DP from 5641 m to 5668 m with 8 - 10 rpm / 16 - 23 kNm. Replaced inserts in PS-21 slips to 5 1/2" and broke out XO on DDM saversub.
30.12.2003 14:30	16:00	1,5	5751,0	DTDU	OK	OK	RIH with 5 1/2" DP from 5668 m to 5751 m with 8 - 10 rpm / 16 - 23 kNm. Broke circulation with 100 lpm / 18 bar, 8 - 10 rpm / 16 - 23 kNm.
30.12.2003 16:00	00:00	8,0	6296,0	DTDU	OK	OK	RIH from 5751m to 6296 m with 100 lpm / 15-18 bar, 8 -10 rpm / 16 - 29 kNm.
31.12.2003 00:00	02:30	2,5	6420,0	DTDU	OK	OK	RIH from 6296 m to 6420 m with 100 lpm / 15-45 bar, 8 -10 rpm / 16 - 29 kNm. From 6366 m to 6420 m pump pressure increased from 25 bar to 45 bar. Picked off bottom and attempted to bring pressure down by resiprocating string.
31.12.2003 02:30	04:30	2,0	6317,0	DTDU	OK	OK	Pumped OOH from 6420 m to 6317 m with 100 lpm, 10 rpm/ 20-26 kNm. Pressure gradually decreased from 47 bar to 23 bar. Increased pump rate to 200 lpm/ 33 bar for 15 min. Reduced pump rate to 100 lpm/ 18 bar and observed normal pressure.
31.12.2003 04:30	06:00	1,5	6400,0	DTDU	OK	OK	RIH from 6317 m to 6400 m with 100 lpm / 18-21 bar, 8 -10 rpm / 18 - 26 kNm.
31.12.2003 06:00	07:00	1,0	6446,0	DTDU	OK	OK	RIH from 6418 m to 6446 m with 100 lpm / 20 bar, 8 - 10 rpm / 14 - 26 kNm at 24 m/hr. Pressure increased to 33 bar.
31.12.2003 07:00	08:00	1,0	6405,0	DTDU	OK	OK	Pumped OOH from 6446 m to 6405 m with 100 lpm / 33 - 42 bar, 8 - 10 rpm / 14 - 33 kNm. Pressure dropped to 20 bar.
31.12.2003 08:00	12:30	4,5	6487,0	DTDU	OK	OK	RIH from 6405 m to 6487 m with 100 lpm / 20 bar, 8 - 10 rpm / 14 - 26 kNm. Pump pressure increased to 44 bar.
31.12.2003 12:30	15:30	3,0	6387,0	DTDU	OK	OK	Pumped OOH from 6487 m to 6387 m with 100 lpm / 44 - 33 bar, 10 rpm / 18 - 36 kNm at 24 m/hr. Pressure dropped to 20 bar. Attempted to increase pump rate to 200 lpm, pressure increased to 45 bar. Hole paking off. Attempted to increase RPM to 20. Packing off tendencies.
31.12.2003 15:30	16:00	0,5	6387,0	DTDU	OK	OK	Flowchecked, well static.
31.12.2003 16:00	20:00	4,0	6490,0	DTDU	OK	OK	RIH from 6387 m to 6490 m with 100 lpm / 22-25 bar, 10 rpm / 18-30 kNm at 24 - 50 m/hr. Pressure increased to 36 bar.
31.12.2003 20:00	21:00	1,0	6430,0	DTDU	OK	OK	Pumped OOH from 6490 m to 6430 m with 100 lpm/ 35 -40-30 bar, 10 rpm/ 18-28 kNm. Presssure dropped to 23 bar.
31.12.2003 21:00	00:00	3,0	6555,0	DTDU	OK	OK	RIH from 6430 m to 6555 m with 100 lpm / 22-25 bar, 10 rpm / 18-30 kNm at 30 m/hr.
01.01.2004 00:00	02:30	2,5	6596,0	DTDU	OK	OK	RIH from 6555 m to 6596 m with 100 lpm / 22-36 bar, 10 rpm / 18-30 kNm at 30 m/hr.
01.01.2004 02:30	06:00	3,5	6666,0	DTDU	OK	OK	RIH from 6596 m to 6666 m with 200 lpm / 38-40 bar, 10 rpm / 18-30 kNm at 30-50 m/hr.
01.01.2004 06:00	16:00	10,0	7032,0	DTDU	OK	OK	RIH from 6666 m to 7032 m with 200 lpm / 33 - 38 bar, 10 - 15 rpm / 14 - 30 kNm at 50 m/hr. Mud weight out 1,66 - 1,68 sg.
01.01.2004 16:00	21:00	5,0	7180,0	DTDU	OK	OK	RIH from 7032 m to 7180 m gradually increased pump rate from 200 to 600 lpm / 35 - 68 bar, 10-15 rpm/ 14-30 kNm. Tagged with 5 ton WOB at 7180 m and torque increase. Mud weight out 1,68 - 1,65 sg.
01.01.2004 21:00	00:00	3,0	7135,0	DTDU	OK	OK	Pumped OOH from 7180 m to 7110 m with 600 lpm/ 66-75 bar, 10-15 rpm/ 18-30 kNm. Circulated while resiprocating string between 7110 m to 7137 m. Mud weight out 1,65 - 1,66 sg. Experienced increased DP pressure/ reduced return flow several times. Reduced pump rate and worked string. Increased pump rate in steps each time to 600 lpm.
02.01.2004 00:00	01:00	1,0	,0	DTDU	OK	OK	Increased pump rate in steps from 600 - 700 lpm / 70 - 80 bar. Resiprocated string between 7110 m and 7137 m with 10-15 rpm/ 20-30 kNm. Pressure increased to 90 bar. Reduced pump rate. Worked string to release trapped pressure. Racked back one stand. Mud weight out 1,65 - 1,66 sg. Max gas 19.5 %.
02.01.2004 01:00	03:00	2,0	7082,0	DTDU	OK	OK	Circulated with 700 lpm / 70 - 80 bar. Resiprocated string between 7082 m and 7110 m with 10-15 rpm/ 20-30 kNm. Experienced increased DP pressure/ reduced return flow twice. Reduced pump rate and worked string. Increased pump rate in steps to 700 lpm. Racked back one stand after second packoff. Mud weight out 1,65 sg. Max gas 19.4 %.
02.01.2004 03:00	06:00	3,0	7055,0	DTDU	OK	OK	Circulated with 400-600 lpm / 50-70 bar. Resiprocated string between 7055 m and 7082 m with 15-30 rpm/ 20-30 kNm. Experienced increased DP pressure/ reduced return flow several times. Racked back one stand. Mud weight out 1,65 sg. Max gas 36,9 % at BU. Circulated 1x BU totally after tagging TD at 7180 m. Gas level 24 % at 06:00 hrs.

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Time from	Time to	Time used	Depth mMD	Act code	--- Status --- During opr	End of opr	Description of activities
02.01.2004 06:00	08:00	2,0	7030,0	DDOD	OK	OK	Gradually increased pumprate while resiprocating drill string from 7055 m to 7030 m with 600 - 700 lpm / 70 - 78 bar, 10 - 30 rpm / 14 - 33 kNm. Mud weight out 1,65 -1,63 sg.
02.01.2004 08:00	11:30	3,5	7045,0	DDOD	OK	OK	Gradually increased pumprate while reciprocating drillstring from 7030 m to 7045 m with 700 - 1050 lpm / 76 - 137 bar. Observed reduced return flow and packing off tendencies. Stopped pumping. Observed 30 bar trapped pressure. Worked string with 30 rpm / 33 kNm and regained full circulation. Mud weight for rest of this report stable at 1,62 sg.
02.01.2004 11:30	13:00	1,5	7045,0	DDOD	OK	OK	Increased pumprate gradually to 900 lpm / 99 bar, 10 - 15 rpm / 18 - 24 kNm while resiprocating drillstring from 7040 m to 7045 m. Observed pump pressure increase and reduced return flow. Stopped pumps.
02.01.2004 13:00	14:00	1,0	7059,0	DDOD	OK	OK	Increased rotation to 30 rpm / 33 kNm. Worked string and regained circulation. Washed down from 7045 m to 7059 m with 500 lpm / 48 bar, 10 - 15 rpm/ 18 - 24 kNm.
02.01.2004 14:00	16:00	2,0	7086,0	DDOD	OK	OK	MU new stand. Increased pumprate in steps to 900 lpm/ 99 bar, 15 rpm/ 20-30 kNm. Pump pressure increased to 105 bar and return flow was reduced. Turned pumps off. Worked string. Regained full circulation. Increased pumprate in steps to 800 lpm/ 92-106 bar. Increased pump pressure/ reduced return flow. Had to work string to regain full circulation. Resiprocated string between 7059 m to 7082 m while bringing up pump rate.
02.01.2004 16:00	19:00	3,0	7086,0	DDOD	OK	OK	Ream down from 7059 m to 7086m with 700 lpm/ 71-73 bar, 10-15 rpm/ 17-26 kNm. Increased pumprate in steps from 700-950 lpm/ 73-115 bar, 10-15 rpm/ 16-27 kNm. Pressure increased from 115 to 119 bar. Reduced flowrate. Worked to regaing circulation. Resiprocated string between 7059 m to 7082 m while bringing up pump rate.
02.01.2004 19:00	21:00	2,0	7086,0	DDOD	OK	OK	Increased pumprate in steps to 450 lpm/ 47 bar, 10- 30 rpm/ 14-33 kNm. Experienced frequent increases in pressure and slight reduction in return flow. Had to work string at frequent intervals to be able to increase flowrate. Resiprocated string between 7059 m to 7082 m while bringing up rate.
02.01.2004 21:00	00:00	3,0	7113,0	DDOD	OK	OK	Circulated with 200- 400 lpm / 25-50 bar. Resiprocated string between 7086 m and 7113 m with 15-30 rpm/ 20-30 kNm. Experienced increased DP pressure/ reduced return flow several times. Unable to maintain pump rate due to increased DP pressure / reduced return flow. Had to work string to relieve DP pressure and regain full returns at times. Other times it was enough to reduce rate and/ or move string up/ down to get full returns and relieve trapped DP pressure. Max gas 3 %.
03.01.2004 00:00	03:00	3,0	6880,0	DDOD	OK	OK	Performed short trip from 7113 m to 6880 m. Pumped OOH with 200-400 lpm/ 25-50 bar, 0-20-60 rpm/ 0- 20-32 kNm. Attempted to increase pump rate in steps while POOH. Attempted with high and low rotation and without rotation. Experienced increased DP pressure/ reduced return flow.
03.01.2004 03:00	04:00	1,0	6934,0	DDOD	OK	OK	Pumped in hole one stand from 6880 m to 6909 with 200 lpm/ 25 bar, 0 - 20 rpm/ 0- 20-30 kNm. MU new stand. Increased pumprate to 500 lpm/ 54 bar while moving in on stand with 20 rpm/ 20-30 kNm. Increased rpm to 60 rpm/ 20-30 kNm while POOH. DP pressure 56 bar. Increased rpm to 80 rpm/ 20 -30 kNm while POOH. DP pressure 57 bar. Increased pump rate to 560 lpm/ 62 bar. DP pressure increased/ reduced return flow. Worked string to release trapped DP pressure. Resiprocated string beween 6934 m to 6909 m.
03.01.2004 04:00	06:00	2,0	6934,0	DDOD	OK	OK	Increased rate in steps on one stand to 700 lpm/ 80 bar, 15 rpm/ 20-30 kNm. Resiprocating on stand between 6934 m to 6909 m. Experienced increasing DP pressure/ reduced return flow. Max DP pressure 93 bar. Worked string to release pressure.
03.01.2004 06:00	07:00	1,0	6955,0	DDOD	OK	OK	Lubricated down from 6934 m to 6955 m. Increased pumprate in steps to 500 LPM/ 46 BAR. 10/60 RPM, 14-33 kNm.
03.01.2004 07:00	09:00	2,0	7004,0	DDOD	OK	OK	Lubricated down from 6955 m to 7004 m. 560 LPM / 59 BAR, 10-15 RPM / 17-26 kNm.
03.01.2004 09:00	20:00	11,0	6242,0	DDOD	OK	OK	Lubricated out of hole from 7004 m to 6242 m. 150 LPM / 22 BAR, 10-15 RPM / 17-26 kNM. Tight spots at; 6909 m, 6895 m, 6771 m and disappeared after one passing.

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03.01.2004 20:00	00:00	4,0	6242,0	DDOD	OK	OK	Increased pump rate in steps to 957 LPM/ 100 BAR, 10-15 RPM/ 17-26 kNm. Experienced increase in DP pressure/ decrease in return flow. Decreased pump rate to 450 LPM. Increased pump rate in steps to 957 LPM/ 100 BAR, 10-15 RPM/ 17-26 kNm. Experienced increase in DP pressure/ decrease in return flow. Decreased pump rate. Increased pump rate in steps to 1057 LPM/ 111 BAR, 10-15 RPM/ 17-26 kNm. Experienced increase in DP pressure/ decrease in return flow. Decreased pump rate. Increased pump rate in steps to 1125 LPM/ 123.8 BAR, 10-15 RPM/ 17-26 kNm. Experienced increase in DP pressure/ decrease in return flow. Decreased pump rate. Resiprocated on one stand between 6242 m to 6269 m.
04.01.2004 00:00	02:00	2,0	6242,0	DDOD	OK	OK	Increased pump rate in steps to 1000 LPM/ 102 BAR, 10-15 RPM/ 17-26 kNm. Increased RPM in steps to 40 RPM and 60 RPM with 1000 LPM/ 107 - 108 bar BAR. Increased pump rate in steps to 1250 LPM/ 150 BAR, 60 RPM/ 17-26 kNm. Max ECD 1,708 SG. Experienced increase in DP pressure/ decrease in return flow. Shut off pumps.
04.01.2004 02:00	04:00	2,0	5996,0	DDOD	OK	OK	Lubricated out of hole from 6242 m to 5996 m with 200-500 LPM / 22-43 BAR, 10-22 RPM / 17-26 kNM.
04.01.2004 04:00	06:00	2,0	5996,0	DDOD	OK	OK	Increased pump rate in steps to 1000 LPM/ 100 BAR, 10-15 RPM/ 17-26 kNm. Increased RPM in steps to 60 RPM/ 18-26 kNm. Increased pump rate in steps to 1500 LPM/ 200 BAR. ECD 1,701 SG Experienced increase in DP pressure/ decrease in return flow. Decreased pump rate to 1400 LPM/ 185 BAR. Increased RPM to 70 RPM/ 18-24 kNm. With 1400 LPM DP pressure increased to 192 BAR and declined to 187 BAR. ECD 1,704 SG. Increased RPM to 80 RPM/ 18-24 kNm. DP pressure increased to 190 BAR. ECD 1,708 - 1,719 SG. Increased pump rate in steps from 1400 LPM to 1500 LPM. DP pressure 188-210 BAR. Resiprocated on one stand between 5996 m to 5969 m. Reduced RPM to 20 RPM when moving down hole.
04.01.2004 06:00	10:30	4,5	5969,0	DDOD	OK	OK	Increased pump rate in steps from 1500 lpm to 1615 lpm, 210-222 bar, 80-115 rpm, 14-33 kNm Resiprocating between 5996 m and 5960 m. Redused rpm to 20 rpm when moving down hole. Set back one stand.
04.01.2004 10:30	15:30	5,0	5942,0	DDOD	OK	OK	Circulated between 1500-1600 lpm, 201-236 bar, 17-26 kNm. ECD 1,70-1,74 SG. Pumped w/ 1590 lpm, 213 bar, 80 rpm, 14-27 kNm. Increased string rotation from 80 rpm to 120 rpm. Pressure increased to 230 bar. Redused rpm in short steps down to 60 rpm and flowrate down 1500 lpm. Observed a sudden pressure increase to 236 bar and ECD increased to 1,80 SG. Had a reduction in return flow. Lubricated OOH from 5969 m to 5942 m with 450 lpm, 49 bar,17-21 kNm, 20 rpm and set back one stand.
04.01.2004 15:30	19:00	3,5	5915,0	DDOD	OK	OK	Increased pump rate in steps to 1450 lpm, 200-210 bar, 20 -80-115 rpm, 14-33 kNm Resiprocating between 5942 m and 5915 m. Redused rpm to 20 when moving down hole.
04.01.2004 19:00	21:00	2,0	5915,0	DDOD	OK	OK	Increased pump rate in steps to 1650 lpm, 275-253 bar, 60 rpm, 14-26 kNm. Experienced pressure drop from 275 bar to 253 bar over 5 minutes. Unable to decode MWD signals including ECD. Checked MP 1 and 2. Experienced increasing DP pressure/ decrease in return flow. Resiprocated string between 5942 m and 5915 m. Reduced rpm to 20 when moving down hole.
04.01.2004 21:00	23:00	2,0	5915,0	DDOD	OK	OK	Increased pump rate in steps to 1050 lpm, 112 bar, 20 rpm, 14-33 kNm while POOH from 5915 m to 5888 m. Experienced increasing DP pressure/ decrease in return flow. Had problems with MWD signals. Racked back one stand.
04.01.2004 23:00	00:00	1,0	5888,0	DDOD	OK	OK	Increased pump rate in steps to 1100 lpm, 135 bar and rpm in steps from 20 to 60 rpm, 14-33 kNm Resiprocated string between 5915 m and 5988 m. Reduced rpm to 20 when moving down hole. Experienced increasing DP pressure/ decrease in return flow.
05.01.2004 00:00	01:00	1,0	5888,0	DDOD	OK	OK	Pumped OOH from 5888 m to 5833 m and increased pump rate in steps from 150 to 1700 lpm, 20- 255 bar, 20 rpm, 14-26 kNm.

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05.01.2004 01:00	04:00	3,0	5806,0	DDOD	OK	OK	Increased pump rate in steps to 1950 lpm, 272-288 bar and increased rpm in steps from 20 to 120 rpm, 14-28 kNm. Reciprocated string between 5833 m and 5806 m. Experienced increasing DP pressure/ decrease in return flow. Reduced flow rate and rpm. Worked string. Regained return flow. Reduced rpm to 20 rpm when running down hole. Worked to get MWD signals.
05.01.2004 04:00	06:00	2,0	5860,0	DDOD	OK	OK	Increased pump rate in steps to 1950 lpm, 272-288 bar and increased rpm in steps from 20 to 120 rpm, 14-28 kNm. Shut down pumps to cycle tools to get MWD signals back. Increased pump rate in steps to 1850 lpm, 277 bar. Had good MWD signals. Had pressure drop to 257 bar. Lost MWD signals. Increased rpm in steps from 20 to 120 rpm, 14-28 kNm. Reciprocated string between 5833 m and 5806 m. Have circulated 1 x BU with rate above 1800 lpm / 60 rpm. RIH one stand to 5860 m with 200 lpm/ 10 rpm. Started to bring up pumps.
05.01.2004 06:00	10:00	4,0	5887,0	DDOD	OK	OK	Back reamed from 5860 m to 5832 m w/ 1800 lpm, 253-266 bar, 17-26 kNm, 120 rpm. At 5832 m observed a reduction in return flow. Reduced flow rate to 1060 lpm and regained normal return. Increased flow rate to 1800 lpm. RIH from 5832 m to 5887 m with 200 lpm, 15-20 rpm. Back reamed from 5888 m to 5860 m w/ 1800 lpm, 253-266 bar, 17-26 kNm, 120 rpm. Lost MWD signals at 5880 m. Cycled pumps and regained MWD signals. At the top of the stand; Increased pump rate 1950 lpm/300-283 bar and lost MWD signals after two minutes.
05.01.2004 10:00	12:30	2,5	5942,0	DDOD	OK	OK	Lubricated down from 5887 m to 5942 m , w/ 200 lpm, 17 bar, 16-18 kNm, 10 rpm. Back reamed from 5942-5915 m with 1800-1880 lpm, 265-295 bar, 120 rpm, 21-24 kNm. Lubricated down from 5887 m to 5942 m, w/ 200 lpm, 17 bar, 16-18 kNm, 10 rpm. At 10:52 hrs lost electric power due to shut down on GFA power generators. In operation after 15 minutes.
05.01.2004 12:30	17:00	4,5	6024,0	DDOD	OK	OK	Lubricated down from 5942 m to 6024 m w/ 200 lpm, 17 bar 17-22 kNm, 10 rpm. Back reamed from 6024 m to 5997 m w/1800 lpm, 266 bar, 120 rpm, 18-26 kNm. Had to stop operation due to start up of water injection pumps on Gullfaks A / B.
05.01.2004 17:00	18:30	1,5	6024,0	ZNON	OK	OK	Had to stop operation due to start up of water injection pumps on Gullfaks A / B. Rotated string each 15 min.
05.01.2004 18:30	22:30	4,0	6105,0	DDOD	OK	OK	Lubricated down from 6024 m to 6078 m w/ 200 lpm, 17 bar, 17-22 kNm, 10 rpm. Reamed between 6078 m-6051 m w/ 1800 lpm 266 bar 120 rpm 18/26 knm. Had to backream with 10 m/ hr to be able to maintain flow rate and stable return flow. RIH with stand that was backreamed and one new stand to 6105 m with 200 lpm, 15-20 rpm. Had to stop operation due to start up of water injection pumps on Gullfaks A / B.
05.01.2004 22:30	23:00	0,5	6115,0	ZNON	OK	OK	Stop in operation due to start up of water injection pumps on Gullfaks A / B.
05.01.2004 23:00	00:00	1,0	6115,0	DDOD	OK	OK	Back reamed stand with 1800 lpm, 260-246 bar, 120 rpm, 21-24 kNm. Lubricated reamed stand down to 6115 m, w/ 200 lpm, 17 bar, 16-18 kNm, 10 rpm. Had to stop operation due to start up of water injection pumps on Gullfaks A / B
06.01.2004 00:00	00:30	0,5	6115,0	ZNON	OK	OK	Stop in operation due to start up of water injection pumps on Gullfaks A / B.
06.01.2004 00:30	02:00	1,5	6142,0	DDOD	OK	OK	Lubricated a new stand down to 6142 m, w/ 200 lpm, 17 bar, 16-18 kNm, 30 rpm. Back reamed stand with 1800 lpm, 245-255 bar, 120 rpm, 21-24 kNm. Lubricated reamed stand down to 6142 m, w/ 200 lpm, 17 bar, 16-18 kNm, 30 rpm.
06.01.2004 02:00	03:00	1,0	6159,0	DDOD	OK	OK	Lubricated a new stand down to 6159 m, w/ 200 lpm, 17 bar, 16-18 kNm, 30 rpm. Back reamed stand with 1800 lpm, 245-255 bar, 120 rpm, 21-27 kNm. Reaming speed 45 m/hr. Lubricated reamed stand down to 6159 m, w/ 200 lpm, 17 bar, 16-18 kNm, 30 rpm.
06.01.2004 03:00	04:00	1,0	6186,0	DDOD	OK	OK	Lubricated a new stand down to 6186 m, w/ 200 lpm, 17 bar, 16-18 kNm, 30 rpm. Back reamed stand with 1800 lpm, 245-255 bar, 120 rpm, 21-27 kNm. Reaming speed 45-90 m/hr. Lubricated reamed stand down to 6186 m, w/ 200 lpm, 17 bar, 16-18 kNm, 30 rpm.

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06.01.2004 04:00	05:30	1,5	6240,0	DDOD	OK	OK	Lubricated two new stands down to 6240 m, w/ 200 lpm, 17 bar, 16-18 kNm, 30 rpm. Back reamed stand with 1800 lpm, 245-255 bar, 120 rpm, 21-27 kNm. Reaming speed 20-45-80 m/hr. Reamed half a stand. Experienced increased DP pressure/ reduced return flow. Stopped pumps. Worked string.
06.01.2004 05:30	06:00	0,5	6214,0	DDOD	OK	OK	Lubricated out the rest of the stand to 6214 m w/ 200 lpm, 17 bar, 16-23 kNm, 30 rpm. Racked stand back. Increased flow rate and rpm in steps to 1800 lpm, 260 bar, 120 rpm, 25 kNm.
06.01.2004 06:00	10:30	4,5	6214,0	DDOD	OK	OK	Back reamed stand from 6214 m to 6187 m with 1800 lpm, 245-255 bar, 120 rpm, 21-27 kNm. Experienced increased DP pressure/ reduced return flow several times. Lubricated in w/200 lpm 20 bar 30 rpm 14/28 knm.
06.01.2004 10:30	12:30	2,0	6242,0	DDOD	OK	OK	Lubricated in one stand from 6214 m to 6242 m w/200 lpm 20 bar 30 rpm. Back reamed from 6242 m to 6214 m w/1800 lpm, 244 bar, 14/28 kNm
06.01.2004 12:30	16:00	3,5	6323,0	DDOD	OK	OK	Lubricated in from 6242 m to 6323 m w/200 lpm, 20 bar, 30 rpm, 14-28 kNm and back reamed each stand w/ 1800 lpm, 244 bar, 120 rpm, 14/28 kNm. DP pressure built up/ slightly reduced return.
06.01.2004 16:00	20:00	4,0	6730,0	DDOD	OK	OK	Lubricated in from 6323 m to 6730 m w/200 lpm, 20 bar, 30 rpm, 14-28 kNm. Had to stop operation due to start up of water injection pumps on Gullfaks A / B.
06.01.2004 20:00	21:00	1,0	6730,0	ZNON	OK	OK	Stop in operation due to start up of water injection pumps on Gullfaks A / B.
06.01.2004 21:00	00:00	3,0	7000,0	DDOD	OK	OK	Lubricated in from 6730 m to 7000 m w/200 lpm, 20 bar, 30 rpm, 14-28 kNm. Displaced DP to viscous mud.
07.01.2004 00:00	02:00	2,0	7180,0	DDOD	OK	OK	Lubricated in from 7000 m to 7180 m w 200 lpm, 40 bar, 20 rpm, 14-28 kNm. Tagged TD at 7180 m with 4 t.
07.01.2004 02:00	06:00	4,0	6750,0	DDOD	OK	OK	Pumped OOH from 7180 m to 6750 m w 300 lpm, 40 bar. Pumped viscous mud while pumping OOH.
07.01.2004 06:00	07:30	1,5	6528,0	DTCU	OK	OK	Pumped out of hole from 6750 m to 6528 m with 300 lpm 40/35 bar. Had 10 ton over pull at 6528. Slightly reduction of returns.
07.01.2004 07:30	08:00	0,5	6596,0	DTCU	OK	OK	Lubricated in hole from 6528 m to 6596 m with 200 lpm, 25 bar, 20 rpm, 24/35 kNm. Had reduced returns on the first stands running in hole.
07.01.2004 08:00	14:00	6,0	5669,0	DTCU	OK	OK	Pumped out of hole from 6596 m to 5669 m with 300 lpm, 36 bar. Had maximum 10 ton over pull from 6528 m to 6518 m.
07.01.2004 14:00	17:00	3,0	5669,0	DTCU	OK	OK	Changed to masterbushing. Performed prejob meeting. Changed to 5" saver sub. Changed to 5" dies in TW, elevator and PRS. Had to stop operation due to start up of water injection pumps on Gullfaks A / B.
07.01.2004 17:00	18:00	1,0	5669,0	ZNON	OK	OK	Stop in operation due to start up of water injection pumps on Gullfaks A / B.
07.01.2004 18:00	00:00	6,0	4850,0	DTCU	OK	E FAIL	Pumped out of hole from 5669 m to 4850 m with 300 lpm, 35-38 bar. Had 5 ton over pull at 5315 m. Hydraulic hose on IR ruptured.
08.01.2004 00:00	00:30	0,5	4850,0	DEOD	E FAIL	OK	Installed new hydraulic hose on iron roughneck.
08.01.2004 00:30	06:00	5,5	4100,0	DTCU	OK	OK	Pumped out of hole from 4850 m to 4100 m 300 lpm, 35-38 bar. Max gas 7,4 %.
08.01.2004 06:00	09:30	3,5	4095,0	DTCU	OK	OK	Pumped out of hole from 4100 m to 4095 m with 300 lpm, 35-38 bar. Performed torque and drag measurements for liner job. Circulated BU and well clean with 1950 lpm, 265 bar, 120 rpm, 17-22 kNm. Max gas 31% at BU. Had to stop operation due to start up of water injection pumps on Gullfaks A / B.
08.01.2004 09:30	10:00	0,5	4095,0	ZNON	OK	OK	Stopped operation due to start up of water injection pumps on Gullfaks A / B.
08.01.2004 10:00	11:30	1,5	4095,0	DTCU	OK	OK	Circulated well clean with 1950 lpm, 265 bar, 160 rpm, 17-22 kNm. Resiprocated string.
08.01.2004 11:30	22:00	10,5	2250,0	DTCU	OK	OK	Pumped out of hole from 4095 m to 2250 m with 300 lpm, 35-38 bar.
08.01.2004 22:00	00:00	2,0	2230,0	DTCU	OK	OK	Circulated BU with 2000 lpm, 182 bar, 160 rpm, 17-23 kNm. Resiprocated string. Flow checked well.
09.01.2004 00:00	05:00	5,0	1700,0	DTCU	OK	OK	Slugged pipe. POOH from 2230 m to 1700 m while LD 5" DP range 3 to pipedeck.
09.01.2004 05:00	06:00	1,0	1700,0	DDWW	OK	OK	WOW. Wind gusting up to 70 knots. Wind direction; 90 degrees across the axis of the boom of the catwalk machine. Checked DDM for loose objects while WOW.
09.01.2004 06:00	10:00	4,0	1700,0	DDWW	OK	OK	WOW. Wind gusting up to 70 knots. Wind direction 90 degrees across the axis of the boom of the catwalk machine. Changed saver sub and checked torque wrench. Performed safety meeting before comencing to LD 5" DP to pipe deck.
09.01.2004 10:00	18:30	8,5	157,0	DTCU	OK	OK	POOH from 1700 m to 157 m and LD 5" DP range 3 to pipedeck.
09.01.2004 18:30	21:00	2,5	30,0	DTCU	OK	OK	POOH from 157 m to 30 m. BD and LD 11singles 5" HW DP, jar and 2 singles NMHW DP.

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Time from	Time to	Time used	Depth mMD	Act code	--- Status --- During opr	End of opr	Description of activities
09.01.2004 21:00	23:00	2,0	,0	DTCU	OK	OK	Removed radioactive source. POOH. BD and LD BHA.
09.01.2004 23:00	00:00	1,0	,0	DDOU	OK	OK	Cleaned drillfloor. Changed inserts in PRS and elevator to 5 1/2" DP.
10.01.2004 00:00	02:00	2,0	,0	BBOU	OK	OK	MU RT and retrieved Wear Bushing. POOH. MU test plug/ test string. RIH.
10.01.2004 02:00	05:30	3,5	,0	BBUU	OK	OK	Tested rams, annular preventer and HCR/ manual valves on choke line/ kill line outlet on BOP stack to 20 bar/ 5 min and 345 bar/ 10 min.
10.01.2004 05:30	06:00	0,5	,0	BBOU	OK	OK	POOH with test plug/ test string. MU RT and WB. Installed WB. POOH.
10.01.2004 06:00	13:00	7,0	,0	CAOU	OK	OK	Rigged up for running liner. Changed inserts in elevator. Pressure tested 5 1/2" x 4 1/2" TIW and 5 1/2" Gray valve. MU x-o 4 1/2" TIW to 7" Vam Top circulating swedge. PU nitrogen bank and hose. PU and installed casing tong. Performed pre-job meeting.Tested choke manifold while RU for running liner.
10.01.2004 13:00	18:00	5,0	50,0	CARU	OK	OK	PU reamer shoe and intermediate joint. Baker locked same. Tested float. PU lower float joint and intermediate joint. Baker locked same. Tested float. PU upper float joint and intermediate joint. Baker locked same. Baker locked reamer shoe assy,lower float assy and upper float assy.
10.01.2004 18:00	19:00	1,0	50,0	CARU	OK	OK	P/U Jnt nr 381,and broke circulation to check operation of float valves.
10.01.2004 19:00	20:00	1,0	50,0	CARU	OK	OK	Performed prejob meeting.
10.01.2004 20:00	21:00	1,0	70,0	CARU	OK	OK	Rigged up nitrogen purge hose for purging liner with nitrogen.
10.01.2004 21:00	00:00	3,0	300,0	CARU	OK	OK	MU and RIH with 7"/ 29 lbs/ft liner from 70 m to 300m. Purged liner with nitrogen for each 4th joint RIH. Installed radioactive marker at bottom of pup joint 208 m from bottom of liner. Final liner tally will be attached to DBR when liner is installed.
11.01.2004 00:00	01:00	1,0	376,0	CARU	OK	OK	MU and RIH with 7"/ 29 lbs/ft liner from 300 m to 376 m. Purged liner with nitrogen for each 4th joint RIH. X head circulated in kill line on BOP and up riser/ out flowline with 350 lpm.
11.01.2004 01:00	02:00	1,0	376,0	CARU	OK	OK	Removed 100 jnts w/ centralisers on deck due to shortening of liner.
11.01.2004 02:00	06:00	4,0	720,0	CARU	OK	OK	MU and RIH with 7"/ 29 lbs/ft liner from 376 m to 720 m. Purged liner with nitrogen for each 4th joint RIH. X head circulated in kill line on BOP and up riser/ out flowline with 350 lpm.
11.01.2004 06:00	00:00	18,0	2888,0	CARU	OK	OK	MU and RIH with 7" / 29 lbs/ft liner from 720 m to 2888 m. Entered top of 9 5/8" liner at 2257 m. Purged liner with nitrogen. X-head circulated with 350 lpm while RIH.
12.01.2004 00:00	02:30	2,5	3128,0	CARU	OK	OK	MU and RIH with 7" / 29 lbs/ft liner from 2888 m to 3128 m. Purged liner with nitrogen. X-head circulated with 350 lpm while RIH.
12.01.2004 02:30	04:00	1,5	3128,0	CARU	OK	OK	Changed inserts in elevator to 5 1/2". Counted remaining liner joints on pipe deck. PU liner hanger. Installed dual wiper plugs. MU liner hanger to line string. Filled PBR with high visc pill. Checked shear pins. Picked up to check RT. Weight of liner only 7 t when PU. Changed inserts in casing slips for use on DP.
12.01.2004 04:00	05:00	1,0	3128,0	CARU	OK	OK	Moved casing tong from drill floor to pipe deck. Installed equipment for flushing DP with N2.
12.01.2004 05:00	06:00	1,0	3200,0	CARU	OK	OK	RIH with 7" liner on 5 1/2" DP from 3128 m to 3200 m. Flushed each stand of DP with N2 prior to stabbing stand.
12.01.2004 06:00	11:30	5,5	4100,0	CARU	OK	OK	RIH with 7" liner on 5 1/2" DP from 3200 m to 4100 m. Flushed each stand of DP with N2 prior to MU stand. x head circulated Broke rotation with 20 rpm / 5 KNm at 4100 m. Leveled out at 3 KNm. Started RIH and into open hole.
12.01.2004 11:30	00:00	12,5	5800,0	CARU	OK	OK	RIH with 7" liner on 5 1/2" DP from 3200 m to 4100 m. Flushed each stand of DP with N2 prior to MU stand.
13.01.2004 00:00	01:30	1,5	5908,0	CARU	OK	OK	RIH with 7" liner on 5 1/2" DP from 4100 m to 5908 m. Flushed each stand of DP with N2 prior to MU stand.
13.01.2004 01:30	02:30	1,0	5929,0	CARU	OK	OK	Unable to RIH. Started to rotate. Rotated in hole from 5908 m to 5929 m with 20-40 rpm/ 9 - 17 kNm. Worked string several up/ down while rotating. Unable to pass 5929 m. X head circulated with 350 lpm.
13.01.2004 02:30	03:00	0,5	5906,0	CARU	OK	OK	Closed bag. Pressured up on WH gauge from 5,4 bar to 10 bar. Attempted to strip OOH. Stopped due to increasing WH pressure. Pressure building up. Pressured up to 15 bar. Stripped out and observed dropping pressure on WH gauge. Stripped out from 5929 m to 5906 m while pumping 350 litres. Opened annular preventor.
13.01.2004 03:00	06:00	3,0	6150,0	CARU	OK	OK	Rotated in hole from 5906 m to 6150 m with 20 rpm/ 9 - 17 kNm. Torque at 8-14 kNm. X head circulated with 350 lpm. Flushed each stand of DP with N2 prior to MU stand. Attempted at 6040 m - 6053 m to RIH without rotation.
13.01.2004 06:00	18:00	12,0	7179,0	CARU	OK	OK	Rotated in hole from 6150 m to TD at 7180 m with 25 - 30 rpm, 11-19 kNm. Spaced out. Pulled up to 7179 m. X-head circulated with 350 lpm. Flushed each stand of DP with N2 prior to MU stand.
13.01.2004 18:00	19:00	1,0	7179,0	CARU	OK	OK	MU kelly cock and pump-in sub in string. Connected hose to choke manifold. MU Top Drive to string.

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Time from	Time to	Time used	Depth mMD	Act code	--- Status --- During opr	End of opr	Description of activities
13.01.2004 19:00	00:00	5,0	7179,0	CARU	OK	OK	Filled string with mud. Max rate 580 lpm. Stopped pumps 2 x 30 min to vent nitrogen through poorboy.
14.01.2004 00:00	01:30	1,5	7179,0	CARU	OK	OK	Filled string with mud. Max rate 580 lpm. Topped up string several times with mud and vent nitrogen through poorboy.
14.01.2004 01:30	04:30	3,0	7179,0	CARU	OK	OK	Broke circulation. Max pressure 60 bar before breaking circulation/ opening floats. Increased rate in steps from 100 - 200 - 300 - 400 - 500 - 600 - 700 lpm / 60 bar. Held each step for 10-20 minutes. Experienced pressure increase from 60 to 70 bar. Reduced rate to 400 lpm. Lost return. Stopped pumps. Totally pumped 44 m3 of 75 m3 OH volume. MW in return 1,56 SG. Max gas 1 %.
14.01.2004 04:30	05:00	0,5	7179,0	CARU	OK	OK	Pumped with 100 lpm. Pressure increasing gradually from 23 bar to 46 bar. Stopped pumps. Bled off pressure.
14.01.2004 05:00	06:00	1,0	7179,0	CARU	OK	OK	Pressured up string to 20 bar. Pulled string up to 210 t. String came free. String was pulled up 20 cm. Experienced increased return. Attempted to establish circulation rate. Max rate 175 lpm/ max pressure 58 bar with partial returns. Shut off pumps.
14.01.2004 06:00	06:30	0,5	7179,0	CARU	OK	OK	Observed well on TT.
14.01.2004 06:30	08:00	1,5	7179,0	CARU	OK	OK	Broke and LD 10 ft 5 1/2" DP pup, TIW, pump-in sub and 1 DP single. Dropped 1 3/4" aluminium ball for setting of liner hanger. MU cement head with control lines.
14.01.2004 08:00	12:00	4,0	7179,0	CARU	OK	OK	Circulated down ball. Increased rate in steps to 400 lpm/ 65 bar. 30 % return. Landed ball. Pressured up to 160 bar. Held pressure for 4 minutes. Set down 40 t to conform setting of hanger. Bled off pressure. Slacked off to 10 t on hanger/ RT. Rotated 10 turns left to release RT. Set down totally 20 t on liner RT. Pressured up and sheared ball seat with 200 bar. Lost 29,3 m3 mud while displacing ball.
14.01.2004 12:00	13:00	1,0	7179,0	CSOU	OK	OK	Performed pre job meeting for cement job.
14.01.2004 13:00	14:30	1,5	7179,0	CSSU	OK	OK	Pumped 12 m3 1.64 sg spacer with soap and 4 m3 1.64 sg spacer without spacer with 600 lpm/ 70 bar. Released dart for bottom plug. Mixed 16,5 m3 1.98 sg cement wth 600 lpm/ 70 bar. Foamed slurry to 20 m3 slurry with 1,65 sg at bottom hole conditions. Released dart for top plug. Lost 27 m3 mud while pumping spacer and mixing cement.
14.01.2004 14:30	18:00	3,5	7179,0	CSSU	OK	OK	Displaced cement with 106 m3 mud at 600 lpm/ 100 bar. Bumped top plug. 95,6 % pump efficiency. Pressured up to 140 bar/ 10 min. Bled off pressure. Checked floats for backflow on TT. Lost 90 m3 mud while displacing cement.
14.01.2004 18:00	19:00	1,0	7179,0	CAOU	OK	OK	Pulled up to free up weight 103 t. Pulled up 4 m and released packer setting dogs above top PBR. Set down 35 t on PBR. Observed shear when setting packer. Pulled up and closed annular preventer. Tested well down annulus to 170 bar/ 10 minutes. Bled off pressure. Opened annular preventer. Pulled up 5 m and pulled RSM pack off above liner.
14.01.2004 19:00	20:00	1,0	4030,0	CAOU	OK	OK	Broke off cement head and set same in mouse hole. Racked back one stand. Connected DDM to string.
14.01.2004 20:00	00:00	4,0	4030,0	CAOU	OK	OK	Circulated until well free for gas with 2500 lpm/ 180 bar. Resiprocated string. Max gas 37 %. Slugged pipe. LD cement head to pipedeck. Had to LD cement head with catwalk machine due to deck crane out of order. Rearranged casing and cement equipment on drill floor. Unable to remove equipment from drill floor due to deck crane not working.
15.01.2004 00:00	06:00	6,0	800,0	DDOU	OK	OK	Installed hydraulic slips. POOH from 4030 m to 800 m.
15.01.2004 06:00	10:00	4,0	30,0	CARU	OK	OK	POOH with liner RT from 800 m to 30 m. Installed master bushing and manual slips. POOH and LD RT for liner.
15.01.2004 10:00	19:00	9,0	,0	CAOU	OK	OK	Changed inserts in PRS and elevator to 5". LD 74 joints 5" DP range 3 to pipe deck. Cleaned drill floor for casing and cement equipment. Performed DDM check.
15.01.2004 19:00	21:00	1,5	,0	DDOU	OK	OK	MU HE-3 plug. Removed master bushing. Installed hydraulic slips.
15.01.2004 22:00	00:00	2,0	1100,0	DDOU	OK	OK	RIH with HE-3 plug to 1100 m on 5" DP.
16.01.2004 00:00	03:30	3,5	2300,0	DDOU	OK	OK	RIH with HE-3 plug from 1100 m to 2295 m on 5" DP. Dropped ball.
16.01.2004 03:30	04:30	1,0	2295,0	DDOU	OK	OK	MU XO sub and one stand 5 1/2" stand. RIH 10 m. Took up wt 79 t and down wt 72 t. Circulated ball down with 200 - 600 lpm/ 74 bar. Had pressure increase to 77 bar while pumping. Varied rate since ball did not land. Stopped pumps. Had 60 bar backpressure on string. Bled off pressure. Waited 5 min. Pressured up to 80 bar. Pressure slowly bleeding off.
16.01.2004 04:30	05:30	1,0	2295,0	DDOU	OK	E FAIL	Pressured up with cement unit in steps to 100, 150 and 210 bar. Pressure slowly bled off. Pressured up to 210 bar with cement pumps running at slow rate. Pressure dropped off to 8 bar. Pulled up. No idication of overpull. Pulled up 1 m. Normal up wt 79 t. Tagged plug with max 5 t. Pulled up to max 85 t/ 6 t overpull. Unable to get off plug.
16.01.2004 05:30	06:00	0,5	2295,0	DEOD	E FAIL	OK	Evaluated stuation.

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Time from	Time to	Time used	Depth mMD	Act code	--- Status --- During opr	End of opr	Description of activities
16.01.2004 06:00	11:00	5,0	2295,0	DEOD	E FAIL	OK	Not able to release RT from plug. Worked string with 10 ton over pull. Evaluated situation. Pressured up string to 140 bar and pulled 20 ton over pull. Observed communication to annulus. Closed annular and pressured up annulus to 170 bar. Pressure communicated to string. Bled off pressure and opened annular. Pulled 30 ton overpull. Closed annular and pressured up to 170 bar. Bled off pressure and pulled string free with 15 ton over pull.
16.01.2004 11:00	17:00	6,0	,0	DDOU	OK	OK	Pumped slug and POOH from 2295 m.
16.01.2004 17:00	17:30	0,5	,0	DDOU	OK	OK	LD running tool. Cleaned rig floor.
16.01.2004 17:30	20:00	2,5	,0	BBOU	OK	OK	Changed inserts in elevator. MU jet sub on 5 1/2" DP. RIH and washed BOP and riser with 1500-1700 lpm / 3-5 bar. POOH with jet sub and LD same while bleeding down pressure on overshot.
16.01.2004 20:00	21:30	1,5	,0	BBNU	OK	OK	Disconnected and liftet overshot. Disconnected and moved 13 5/8" BOP to stump.
16.01.2004 21:30	23:00	1,5	,0	BBNU	OK	OK	Built scaffolding around BOP while preparing to pull HP riser. Shut down production in nearby wells. Disconnected and pulled HP riser. Started production.
16.01.2004 23:00	00:00	1,0	,0	BBNU	OK	OK	Changed bolts in C-section while PU running tool for wear bushing and for dummy hanger. PU 10 3/4" dummy hanger.
17.01.2004 00:00	01:30	1,5	,0	BBNU	OK	OK	MU 5 1/2" DP to running tool and 10 3/4" dummy hanger. Meanwhile changing door on BOP UPR.
17.01.2004 01:30	03:00	1,5	37,0	BBNU	OK	OK	RIH with 10 3/4" dummy hanger and 7,383 m mule shoe joint and installed same. Installed seal assembly. Set down 2 ton and MU tie down bolts.
17.01.2004 03:00	04:30	1,5	,0	BBNU	OK	OK	POOH with running tool. Tested seal assembly to 345 bar. Prepared to lift TSR and TSR ext. Installed door on BOP while waiting on production to shut in nearby wells.
17.01.2004 04:30	06:00	1,5	,0	BBNU	OK	OK	Installed TSR and TSR ext. Started production.
17.01.2004 06:00	16:00	10,0	,0	BBNU	OK	OK	MU bolts on TSR EXT and pressure tested same. Changed upper pipe rams to 3 1/2". Changed door on BOP. Installed BOP on well and function tested same. Installed over shot mandrel and LP riser. Performed FV on DDM while working on BOP.
17.01.2004 16:00	19:00	3,0	,0	BBUU	OK	OK	PU and MU BOP test plug. RIH on 3 1/2" Dp from pipe deck and set same. Filled riser with sea water. Performed BOP installation body test to 20/ 345 bar and 3 1/2" Dp to 20/ 345 bar. POOH and LD test plug.
17.01.2004 19:00	20:00	1,0	,0	BHRU	OK	OK	RIH and installed wear bushing. POOH.
17.01.2004 20:00	21:00	1,0	,0	DDOU	OK	OK	Cleaned rig floor. MU pulling tool for 9 5/8" plug and XO to 4 1/2" IF.
17.01.2004 21:00	22:00	1,0	247,0	DDOU	OK	OK	RIH with pulling tool to 247 m. Installed hydraulic slips.
17.01.2004 22:00	00:00	2,0	1552,0	DDOU	OK	OK	RIH with pulling tool from 247 m to 1552 m.
18.01.2004 00:00	01:30	1,5	2292,0	DDOU	OK	OK	RIH with pulling tool from 1552 m to 2292 m. Filled string.
18.01.2004 01:30	03:00	1,5	2317,0	DDOU	OK	OK	Washed down from 2292 m to 2303 m with 300 lpm / 27 bar and tagged plug with 2 ton. Stopped circulation and set down 10 ton. No overpull when pilling plug free. Washed down to 2317 m. No overpull when pulling out.
18.01.2004 03:00	06:00	3,0	1851,0	DDOU	OK	OK	Pumped slug and POOH with plug from 2317 m to 1851 m while LD 5" DP.
18.01.2004 06:00	08:30	2,5	1443,0	DDOU	OK	E FAIL	POOH with 9 5/8" plug from 1851 m to 1443 m while LD 5" DP.
18.01.2004 08:30	11:00	2,5	1443,0	DEOD	E FAIL	OK	Trouble shoot on gantry crane. Found cooling pump not working.
18.01.2004 11:00	17:00	6,0	530,0	DDOU	OK	E FAIL	POOH with 9 5/8" plug from 1443 m to 530 m while LD 5" DP.
18.01.2004 17:00	19:00	2,0	530,0	DEOD	E FAIL	OK	Trouble shoot on gantry crane.
18.01.2004 19:00	21:00	2,0	,0	DDOU	OK	OK	POOH with 9 5/8" plug from 530 m while racking back 5" DP. Pull slowly into mule shoe. BD 9 5/8" plug with running tool and XO. Worked on gantry crane while POOH.
18.01.2004 21:00	21:30	0,5	,0	DDOU	OK	OK	Grased dolly and travelling block. Cleand rig floor and changed inserts in elevator to 3 1/2".
18.01.2004 21:30	22:30	1,0	41,0	LTPU	OK	E FAIL	Picked up clean out assembly with bit, bit sub, and 7" scraper. Changed inserts in hydraulic slips. RIH with clean out assembly to 41 m while PU 3 1/2" DP.
18.01.2004 22:30	23:00	0,5	41,0	DEOD	E FAIL	OK	Trouble shoot on gantry crane. Found broken fan belt to generator.
18.01.2004 23:00	00:00	1,0	41,0	LXXU	OK	OK	Changed spade on PRS to 5 1/2" while working on gantry crane.
19.01.2004 00:00	00:30	0,5	41,0	LXXU	OK	OK	Changed spade on PRS to 5 1/2" while working on gantry crane.
19.01.2004 00:30	03:00	2,5	328,0	LTPU	OK	OK	RIH with clean out assembly from 41 m to 328 m while PU 3 1/2" DP. Installed hydraulic slips.
19.01.2004 03:00	06:00	3,0	828,0	LTPU	OK	OK	RIH with clean out assembly from 328 m to 828 m while PU 3 1/2" DP.
19.01.2004 06:00	18:30	12,5	3064,0	LTPU	OK	OK	RIH with clean out assembly from 828 m to 2003 m while PU 3 1/2" DP.

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Time from	Time to	Time used	Depth mMD	Act code	--- Status --- During opr	End of opr	Description of activities
19.01.2004 18:30	20:30	2,0	3064,0	LXXU	OK	OK	Redressed elevator and slips. PU and MU polish mill and 9 5/8 scraper / circulation assemblies. Broke circulation and circulated with 900 lpm / 260 bar.
19.01.2004 20:30	00:00	3,5	4091,0	LXXU	OK	OK	RIH with clean out assembly from 3064 m to 4091 m on 5 1/2" DP.
20.01.2004 00:00	06:00	6,0	6161,0	LXXU	OK	OK	RIH with clean out assembly from 4091 m to 6161 m on 5 1/2" DP.
20.01.2004 06:00	08:30	2,5	7087,0	LXXU	OK	OK	RIH with clean out assembly from 6161 m to 7087 m.
20.01.2004 08:30	09:30	1,0	7114,0	LXXU	OK	OK	Filled string. Scraped production packer setting area from 4012 m to m 4039 m with 400-700 lpm / 83-212 bar.
20.01.2004 09:30	10:00	0,5	7087,0	LXXU	OK	OK	Washed down and polished PBR with 400 lpm / 83 bar, 25 RPM / 22-28 kNm. Tagged top of PRB at 4052,94 m with 2 ton. Pumped out to 7087 m and racked back stand.
20.01.2004 10:00	12:00	2,0	7123,0	LXXU	OK	OK	Conditioned mud with 960 lpm / 338 bar. Resiprocated string from 7114 m to 7087 m with 60 RPM / 22-30 kNm while circulating. Circulated total 2 X 7" liner volume. Sheared and opened circulation sub with 45 ton.
20.01.2004 12:00	14:00	2,0	7123,0	LXXU	OK	OK	Conditioned mud with 3100 lpm / 141 bar, 40 RPM / 6-22 kNm. Circulated total 2 X 9 5/8" and 13 3/8" volume.
20.01.2004 14:00	14:30	0,5	7113,0	LXXU	OK	OK	Pulled out from 7123 m to 7113 m. Verifyed closed circulation sub. Performed pre job meeting prior to displacing well til SW.
20.01.2004 14:30	17:00	2,5	7113,0	LFCU	OK	OK	Pumped wash pills and displaced 7" liner to SW with constant BHP with 1300 lpm / 336 bar.
20.01.2004 17:00	20:30	3,5	7123,0	LFCU	OK	OK	Opened circulation sub. Pumped wash pills and displaced 13 3/8" casing and 9 5/8" liner to SW with constant BHP by reverse circulating with 1500-2050 lpm / 198-262 bar. Closed in well with 127 bar.
20.01.2004 20:30	21:00	0,5	7123,0	LFIU	OK	OK	Inflow tested well by bleeding off pressure in 30 bar / 10 min steps .
20.01.2004 21:00	22:30	1,5	7123,0	LFCU	OK	OK	Flushed and cleaned BOP and riser. Displaced riser to SW. Observed well head pressure while cleaning surface system.
20.01.2004 22:30	00:00	1,5	7113,0	LFIU	OK	OK	Open well and racked back stand. MU XO and hose. Flow checked well through hose. Performed pre job meeting prior to cut and slip drill line while flow checking.
21.01.2004 00:00	02:00	2,0	7113,0	LFIU	OK	OK	Flow checked well through hose while cut and slip 20 m drill line. Checked DW brakes. Cleaned rig floor.
21.01.2004 02:00	03:30	1,5	7113,0	LXXU	OK	OK	Pressure tested well in 50 bar step to 270 bar / 10 min with 1,03 sg. Pumped 4,14 m3 and bled back same. Pumped with 150 lpm.
21.01.2004 03:30	06:00	2,5	7114,0	LFCU	OK	OK	Pumped wash pill and washed well with 1500 lpm / 260 bar, 50 RPM / 20 kNm.
21.01.2004 06:00	09:00	3,0	7109,0	LFCU	OK	OK	Pumped wash pills to surface with max. 1640 lpm/320 bar, 50 RPM/20 kNm. Pumped total 313,5 m3.
21.01.2004 09:00	11:30	2,5	7114,0	LFCU	OK	OK	Opened circulation sub and pumped seawater until final NTU reading = 107 with 3100 lpm/97 bar, 40 RPM/ 11 kNm. Pumped total 322 m3.
21.01.2004 11:30	12:30	1,0	7114,0	LCPU	OK	OK	Displaced 7" liner to 50 m3 SW added friction reducer with 1700 lpm/323 bar.
21.01.2004 12:30	14:30	2,0	7114,0	LCPU	OK	OK	Displaced 9 5/8" and 13 3/8" annulus to packer fluid with 1300 lpm/200 bar. Opened circulation sub and pumped with 3100 lpm/90 bar. Pumped total 236 m3.
21.01.2004 14:30	00:00	9,5	5856,0	LTPU	OK	OK	Pumped slug and POOH from 7114 m while LD 5 1/2" DP to pipe deck.
22.01.2004 00:00	06:00	6,0	4962,0	LTPU	OK	OK	Pulled out from 5856 m to 4962 m, laying down 5 1/2" DP to pipe deck. Waited on crane for 15 mins every 14th joint due to handling of drill pipe on pipe deck. Performed general maintenance while waiting.
22.01.2004 06:00	12:00	6,0	3900,0	LTPU	OK	E FAIL	POOH with DP from 4962 m to 3900 m while laying down DP. Waited on crane 15 mins for every 14th joint joint due to handling of DP on deck.
22.01.2004 12:00	12:30	0,5	3900,0	DERD	E FAIL	OK	Trouble shoot on Gantry crane due to problems w/high temp. on hyd. oil.
22.01.2004 12:30	18:00	5,5	3073,0	LTPU	OK	OK	POOH with DP from 3900 m to 3073 m while laying down DP. Waited on crane 15 mins for every 14th joint joint due to handling of DP on deck
22.01.2004 18:00	19:00	1,0	3064,0	LTPU	OK	OK	Changed inserts to 5" and POOH from 3073 m to 3064 m. LD PBR mill assy. and casing scraper.
22.01.2004 19:00	00:00	5,0	2232,0	LTPU	OK	OK	POOH with 3 1/2" DP from 3064 m to 2232 m while LD DP. Waited on crane 15 mins for every 20th joint joint due to handling of DP on deck
23.01.2004 00:00	06:00	6,0	1200,0	LTPU	OK	OK	POOH from 2232 m to 1210 m while LD DP. Waited on crane 15 mins for every 20th joint joint due to handling of DP on deck
23.01.2004 06:00	06:30	0,5	1134,0	LTPU	OK	E FAIL	POOH from 1210 m to 1134 m while LD DP. Gantry crane failed.
23.01.2004 06:30	07:30	1,0	1134,0	DERD	E FAIL	OK	Troubel shooting on Gantry Crane due to electric generator failure.
23.01.2004 07:30	15:30	8,0	,0	LTPU	OK	OK	POOH from 1134 while LD 3 1/2" DP using deck crane. LD 7" casing scraper.
23.01.2004 15:30	19:30	4,0	,0	LTPU	OK	OK	LD 50 jnts 5" DP from derric.
23.01.2004 19:30	22:30	3,0	,0	LHWU	OK	OK	Pulled upper and lower wearbushings in wellhead.

Wellbore: NO 34/10-B-42 F

Time from	Time to	Time used	Depth mMD	Act code	--- Status --- During opr	End of opr	Description of activities
23.01.2004 22:30	00:00	1,5	,0	LEEU	OK	OK	Made up jet sub, RIH and washed BOP and wellhead area.
24.01.2004 00:00	02:00	2,0	33,6	LEEU	OK	OK	PU and ran dummy tubing hanger. Drained riser and observed correct landing in wellhead.
24.01.2004 02:00	06:00	4,0	,0	LGBU	OK	OK	Performed prejob meeting prior to start rigging up for running tubing. Cleaned rigfloor and PU handling equipment for 7" tubing, tong, control line drums etc.
24.01.2004 06:00	07:00	1,0	6,0	LJRU	OK	OK	Held pre job meeting with night shift. Picked up and made up seal stem assembly with mule shoe.
24.01.2004 07:00	07:30	0,5	6,0	LJRU	OK	OK	Held pre job meeting with day crew.
24.01.2004 07:30	18:00	10,5	873,0	LJRU	OK	E FAIL	Picked up and RIH with 2 ea 7" tubing joints, 7"x9 5/8" production packer, 1 ea 7" tubing joint, Exp Joint, 1 ea 7" tubing joint, Gauge Carrier and 1 ea 7" tubing joint. Removed master bushing and installed hydraulic slips. Ran tubing to 873 m.
24.01.2004 18:00	21:00	3,0	873,0	LJRD	E FAIL	OK	Attempted to repair chain on tail-in arm. Retracted trolly and continued with trolly in stationary mode. Replaced damaged sensor cable between OWS tong and computer.
24.01.2004 21:00	00:00	3,0	1188,0	LJRU	OK	OK	Ran tubing from 873 m to 1188 m.
25.01.2004 00:00	06:00	6,0	1760,0	LJRU	OK	OK	Ran tubing from 1188 m to 1760 m.
25.01.2004 06:00	08:00	2,0	1980,0	LJRU	OK	E FAIL	Ran 7" tubing from 1770 m to 1980 m.
25.01.2004 08:00	08:30	0,5	1980,0	LJRD	E FAIL	OK	Changed broken hose on hydraulic slips.
25.01.2004 08:30	10:00	1,5	2198,0	LJRU	OK	E FAIL	Ran 7" tubing from 1980 m to 2198 m.
25.01.2004 10:00	10:30	0,5	2198,0	LJRD	E FAIL	OK	Adjusted fan belt for generator on Gantry crane.
25.01.2004 10:30	20:30	10,0	3510,0	LJRU	OK	OK	Ran 7" tubing from 2198 m to 3510 m. Entered top of 9 5/8" liner at 11:00 hrs.
25.01.2004 20:30	23:00	2,5	3533,0	LJRU	OK	OK	Performed pre-job meeting prior to PU DHSV assembly. PU DHSV assembly. Connected control line and pressure tested line/connection to 620 bar.
25.01.2004 23:00	00:00	1,0	3630,0	LJRU	OK	OK	Ran tubing from 3510 m to 3630 m.
26.01.2004 00:00	04:00	4,0	4000,0	LJRU	OK	OK	Ran tubing from 3630 m to 4013 m.
26.01.2004 04:00	05:00	1,0	4013,0	LJRU	OK	OK	Changed elevator inserts to 5 1/2". MU swedge and XO. Problems with too high stick up for OWS tong. Had to brake off kelly cock.
26.01.2004 05:00	06:00	1,0	4053,0	LJRU	OK	OK	RIH on 5 1/2" DP, stung into 7" PBR with 120 lpm/ 2 bar. Observed loss of return, weight increase and pressure increase to 6 bar when seals entered PBR. Bled off pressure. Landed no-go on top of pbr with 8 ton. POOH with space out string to 4039 m.
26.01.2004 06:00	07:30	1,5	4013,0	LJCU	OK	OK	POOH with space out string from 4039 m to 4013 m. Changed inserts in slips and elevator. LD circulation swedge and XO.
26.01.2004 07:30	08:00	0,5	4018,0	LJCU	OK	OK	RIH with 2 X 7" tubing pups from 4013 m to 4018 m. Performed pre job meeting prior to PU tubing hanger. Upweight / downweight before landing 124,4 / 90,4 ton.
26.01.2004 08:00	13:00	5,0	4018,0	LEFU	OK	OK	PU tubing hanger. Terminated contol lines through lower / upper hanger. Pressure tested DHSV control line at upper hanger to 620 bar / 15 min. Opened DHSV. Field spliced electric line on top of upper hanger. Removed handling tool and installed running tool for tubing hanger. MU tubing hanger.
26.01.2004 13:00	16:00	3,0	4053,0	LEFU	OK	OK	RIH with tubing hanger on 7" landing string and landed same with seal stem mule shoe at 4058,5 m tubing tally depth. Tested hanger seals.
26.01.2004 16:00	20:00	4,0	4053,0	LEVU	OK	OK	Test 7" tubing in steps to 310 bar / 10 min and sat production packer. Bled off pressure to 205 bar and closed DHSV. Bled off pressure above DHSV to 30 bar and inflow tested DHSV for 30 min. Pressured up to 210 bar and opened DHSV. Bled off pressure inside tubing. Pressure tested production annulus and production packer to 260 bar / 10 min. Bled off pressure.
26.01.2004 20:00	00:00	4,0	4053,0	LZBU	OK	OK	RU false rotary. MU bridge plug and RIH to 57,3 m while PU 3 1/2" DP. MU 2 x XO and dropped ball to actuate plug. Set plug by pressuring up to 200 bar. Top of plug 51,2 m.
27.01.2004 00:00	01:00	1,0	4053,0	LZBU	OK	OK	POOH with RT from 50 m while LD 3 1/2" DP. RD 2 x XO. Broke XO in IRN.
27.01.2004 01:00	02:30	1,5	4053,0	LELU	OK	OK	MU circulation swedge and hose to 7" tubing. Pressure tested plug to 310 bar / 10 min. Bled off pressure and RD circulations swedge and hose.
27.01.2004 02:30	03:30	1,0	,0	LEGU	OK	OK	Disconnected tubing landing string and POOH from 33,4 m. LD 7" landing string.
27.01.2004 03:30	04:00	0,5	,0	LBDU	OK	OK	Closed DHSV and cut control line. Meanwhile drained riser.
27.01.2004 04:00	06:00	2,0	,0	LBDU	OK	OK	Cleared rig floor for completion equipment while ND overshot manrli. Removed scaffolding around BOP.
27.01.2004 06:00	06:30	0,5	,0	LBDU	OK	OK	Disconnected kill / choke hoses from 13 5/8" BOP stack. Disconnected and moved 13 5/8" BOP stack to test stump.
27.01.2004 06:30	07:00	0,5	,0	LBDU	OK	OK	Disconnected and moved 13 5/8" BOP stack

Wellbore: NO 34/10-B-42 F

Time from	Time to	Time used	Depth mMD	Act code	--- Status --- During opr	End of opr	Description of activities
27.01.2004 07:00	08:30	1,5	,0	LBDU	OK	OK	Disconnected and pulled HP riser. ********** END OF RIG OPERATION **********
27.01.2004 08:30	11:00	2,5	,0	LBUU	OK	OK	Installed fire resistant pack off.
27.01.2004 11:00	15:00	4,0	,0	LBUU	OK	OK	Terminated control line and E-line. Leak tested control line outlets and fire resistant pack off to 5000 PSI.
27.01.2004 15:00	17:00	2,0	,0	LBUU	OK	OK	Landed and MU X-mas tree.
27.01.2004 17:00	18:30	1,5	,0	LBUU	OK	OK	Leak Tested X-mas tree. Filled TSR extension with 40 l hydraulic oil and 10 bar N2.
03.02.2004 06:00	13:00	7,0	,0	GRSU	OK	OK	Spotted 7/16" and slick line winches on pipe deck. Hooked up power to tractor container and slick line winch. Carried out system check on equipment.
03.02.2004 13:00	15:00	2,0	,0	GXOW	OK	OK	Waited on crane due to boat.
03.02.2004 15:00	16:30	1,5	,0	GRSU	OK	OK	Lifted WL equipment and risers to drill floor.
03.02.2004 16:30	17:00	0,5	,0	GRSU	OK	OK	Held pre-job meeting with day crew.
03.02.2004 17:00	17:30	0,5	,0	GRSU	OK	OK	Prepared WL equipment on BOP deck.
03.02.2004 17:30	19:00	1,5	,0	GRUU	OK	OK	Handed well over from production to well operations. Installed WL hatch. RU riser.
03.02.2004 19:00	21:30	2,5	,0	GRUU	OK	OK	RU BOP. Connected hoses to BOP and function tested same. Leak tested riser/BOP/x-mas tree connections.
03.02.2004 21:30	22:00	0,5	,0	GRUU	OK	OK	Held prejob meeting with night shift for RU WL on rigfloor.
03.02.2004 22:00	00:00	2,0	,0	GRUU	OK	OK	Pulled out slickline and prepared slickline equipment on rig floor.
04.02.2004 00:00	04:00	4,0	,0	GRUU	OK	OK	Pulled out e-line and prepared 7/16" equipment on rig floor.
04.02.2004 04:00	06:00	2,0	,0	GRUU	OK	OK	Ran riser through rotary.
04.02.2004 06:00	08:30	2,5	,0	GRUU	OK	OK	Built lubricator on drill floor. Bully cable head on 7/16" cable.
04.02.2004 08:30	10:30	2,0	,0	GRUU	OK	OK	Leak tested x-mas tree. RU and leak tested 2" pump line to KV.
04.02.2004 10:30	12:00	1,5	,0	GRUU	OK	OK	MU BHA on drill floor. Tested and adjusted jar to 1200 lbs.
04.02.2004 12:00	13:30	1,5	,0	GRUU	OK	OK	RU lubricator with BHA # 1 (GS pulling tool). Leak tested RU.
04.02.2004 13:30	15:00	1,5	51,0	GMOU	OK	OK	Open SV and HMV. WHP 6 bar. RIH to 51 m and latched on plug with GS pulling tool. Jarred up 3 times. Let element retract. POOH. Problems to pass 36 m. POOH. Closed SV. WHP 6,6 bar.
04.02.2004 15:00	16:30	1,5	,0	GRBU	OK	OK	LD BHA # 1 with 7" XO plug. RD slick line equipment on drill floor.
04.02.2004 16:30	19:30	3,0	,0	GROU	OK	OK	Rigged over to 7/16" mono cable. Lifted tractor, logging tools and guns to drillfloor. Function tested CCL/GR and tractor through 7/16" cable. PU lubricator and installed tractor in riser.
04.02.2004 19:30	20:00	0,5	,0	GRBU	OK	OK	Held prejob meeting for tractor/gun run.
04.02.2004 20:00	22:00	2,0	,0	GRBU	OK	OK	Adjusted counterhead alignment on winch. Stabbed lubricator and leak tested RU to 20/345 bar 5/10 min.
04.02.2004 22:00	00:00	2,0	,0	GRBU	OK	OK	Broke lubricator and PU tractor. Installed guns and GR/CCL in riser. MU to tractor and stabbed lubricator. Leak tested RU to 150 bar/10 min.
05.02.2004 00:00	04:00	4,0	3110,0	GERU	OK	OK	Opened well and RIH with BHA #2 - perforating guns on tractor, to 3110 m.
05.02.2004 04:00	06:00	2,0	3900,0	GETU	OK	OK	Started tractor and continued RIH from 3110 m to 3900 m at 10 m/min.
05.02.2004 06:00	16:30	10,5	7126,0	GETU	OK	OK	Continued to RIH with tractor active from 3900 m to 7126 m at 10 m/min. RIH speed reduced to 6,5 m/min from 5600 m to 6800 m. Reduced RIH speed to 4-5 m/min from 6800 m to 7126 m.
05.02.2004 16:30	17:00	0,5	6960,0	GEOU	OK	OK	Carried out correlation CCL and GR log from 7126 m to 6960 m.
05.02.2004 17:00	18:30	1,5	7126,0	GETU	OK	OK	RIH from 6960 m to 7126 m with tractor active at 3,5 m/min speed. Ran to tractor stopped.
05.02.2004 18:30	19:15	0,8	7127,5	GEOU	OK	OK	With BHA 2 at 7127,5 m. Pressured up well to 110 bar / DHG 295 bar. Perforated interval 7114,4 m to 7127,06 m Pressure increased to 113 bar on WH / 300 bar on DHG.
05.02.2004 19:15	00:00	4,8	3950,0	GEOU	OK	OK	Logged OOH at 10 m/min to 3950 m.
06.02.2004 00:00	03:30	3,5	,0	GEPU	OK	OK	Testet wl tractor at 3950 m. POOH to surface. Closed Swab valve. SIWHP = 113,8 bar.
06.02.2004 03:30	04:30	1,0	,0	GRDU	OK	OK	Closed and inflow tested HMV. Bled off pressure in wl riser. Laid down guns, all shots fired. Closed BOP.
06.02.2004 04:30	06:00	1,5	,0	GRDU	OK	OK	Cut 7/16" cable and spooled in on wl unit. Cleaned drillfloor. Opened HMV. Started to inflow test DHSV.
06.02.2004 06:00	06:30	0,5	,0	GRDU	OK	OK	Continued to inflow test DHSV, 10 bar/ 30 min. Bled pressure above DHSV to 0 bar.
06.02.2004 06:30	09:30	3,0	,0	GRDU	OK	OK	LD riser from drill floor.

Wellbore: NO 34/10-B-42 F

Time from	Time to	Time used	Depth mMD	Act code	--- Status --- During opr	End of opr	Description of activities
06.02.2004 09:30	12:30	3,0	,0	GRDU	OK	OK	RD lower riser and tripple BOP. Leak tested x-mas tree cross 20/200 bar 5/10 min, KW cap and top cap 345 bar/10 min. Changed to permamet hatch. Handed well to production. ***** End of operation *****
06.02.2004 12:30	15:00	2,5	,0	GDMU	OK	OK	Packed equipment for backloading
06.02.2004 15:00	18:00	3,0	,0	GDMU	OK	OK	Skidded rig to mid position between north and south shaft.

8.3 BHA summary

Wellbore: NO 34/10-B-42 E

BHA seq: 1 **BHA category:** Drilling **BHA description:** 8 ½" PowerDrive assy.
BHA no: 1

String component	OD in	ID in	Length m	Acc length m
BIT	8,500		0,22	0,22
POWERDRIVE 675 X-TRA	8,375		8,71	8,93
MWD, POWER PULSE	6,750		8,49	17,42
VISION675	6,750		5,72	23,14
X-OVER	6,800	2,750	0,49	23,63
STAB STRING	8,375	2,750	1,55	25,18
ANDERREAMER	9,625		4,38	29,56
FLOAT SUB	6,750	2,750	0,84	30,40
NM HW DRILL PIPE	6,875	2,750	18,84	49,24
H W DRILL PIPE	5,000	3,000	26,92	76,16
JAR	6,375	2,750	9,62	85,78
H W DRILL PIPE	5,000	3,000	72,79	158,57

BHA seq: 2 **BHA category:** Drilling **BHA description:** 8 ½" PowerDrive assy.
BHA no:

String component	OD in	ID in	Length m	Acc length m
BIT	8,500		0,22	0,22
POWERDRIVE 675 X-TRA	8,375		8,69	8,91
MWD, POWER PULSE	6,750		8,31	17,22
VISION675	6,750		5,72	22,94
ISONIC TOOL	6,750		7,70	30,64
ADN	6,750		5,98	36,62
OTHER	8,380		24,07	60,69
STAB STRING	8,375	2,750	1,55	62,24
ANDERREAMER	9,625		4,55	66,79
FLOAT SUB	6,750	2,750	0,84	67,63
NM HW DRILL PIPE	6,875	2,750	18,84	86,47
H W DRILL PIPE	5,000	3,000	26,92	113,39
JAR	6,500	2,750	9,86	123,25
H W DRILL PIPE	5,000	3,063	63,51	186,76
5" DRILL PIPE	5,000	4,276	3236,79	3423,55
X-OVER	6,500	2,938	0,48	3424,03

BHA seq: 3 **BHA category:** **BHA description:**
BHA no:

String component	OD in	ID in	Length m	Acc length m
CEMENT STINGER	3,500	2,842	3,00	3,00
DP 3 1/2"	3,500		355,25	358,25
XO SUB	6,750	2,313	1,20	359,45
DP 5"			3073,36	3432,81

BHA seq: 4 **BHA category:** Drilling **BHA description:** 8 1/2" formation testing assembly
BHA no: 4

String component	OD in	ID in	Length m	Acc length m
BIT	8,500		0,29	0,29
NM STAB W/FLOAT	8,375	2,813	1,89	2,18
VISION675	7,650		6,10	8,28
POWER PULSE MWD			8,85	17,13
NON MAG. STAB,	8,375		1,55	18,68
DRILLING FORMATION TESTER			12,26	30,94
NON MAG. STAB,	8,375		1,57	32,51
HDS1-L			10,23	42,74
HW DRILL PIPE	5,000	3,000	26,92	69,66
JAR	6,500	2,750	9,23	78,89
HW DRILL PIPE	5,000	3,000	54,95	133,84

Wellbore: NO 34/10-B-42 E

BHA seq: 4 BHA category: Drilling BHA description: 8 1/2" formation testing assembly
BHA no: 4

String component	OD in	ID in	Length m	Acc length m
DP 5"	5,000	4,276		133,84

BHA seq: 5 BHA category: BHA description:
BHA no:

String component	OD in	ID in	Length m	Acc length m
CEMENT STINGER	3,500		1,93	1,93
DRILL PIPE	3,500		438,00	439,93
XO SUB	6,750		1,20	441,13
DRILL PIPE	5,000		2665,36	3106,49
XO SUB	7,500		1,00	3107,49
DRILL PIPE	5,500			3107,49

BHA seq: 6 BHA category: Drilling BHA description: Rotary clean out assembly
BHA no: 6

String component	OD in	ID in	Length m	Acc length m
PDC BIT	8,500		0,29	0,29
NB STAB W/FL	8,375	2,813	1,89	2,18
DRILL COLLAR	6,500	3,000	9,06	11,24
DRILL COLLAR	6,500	2,875	9,25	20,49
STABILIZER	8,375	2,875	1,55	22,04
HWDP 5"	5,000		26,92	48,96
JAR	3,375	2,750	9,23	58,19
HWDP 5"	5,000		54,56	112,75

BHA seq: 7 BHA category: BHA description:
BHA no:

String component	OD in	ID in	Length m	Acc length m
CEMENT STINGER	3,500		1,93	1,93
DRILL PIPE	3,500		342,00	343,93
XO SUB	6,690		1,20	345,13
DRILL PIPE	5,000		2683,18	3028,31
XO SUB	7,250		1,00	3029,31
DRILL PIPE	5,500			3029,31

BHA seq: 8 BHA category: Drilling BHA description: 8 ½" PowerDrive assy.
BHA no: 8

String component	OD in	ID in	Length m	Acc length m
BIT	8,500		0,22	0,22
POWERDRIVE 675 X-TRA	8,375		8,68	8,90
MWD, POWER PULSE	6,750		8,48	17,38
VISION675	6,750		6,11	23,49
STAB STRING	8,375	2,750	1,55	25,04
ANDERREAMER	9,625		4,57	29,61
FLOAT SUB	6,750	2,750	0,84	30,45
NM HW DRILL PIPE	6,875	2,750	18,84	49,29
H W DRILL PIPE	5,000	3,000	26,92	76,21
JAR	6,500	2,750	9,23	85,44
H W DRILL PIPE	5,000	3,063	72,84	158,28
5" DRILL PIPE	5,000	4,276	3209,56	3367,84
X-OVER	6,500	2,938	1,00	3368,84
DRILL PIPE	5,500	3,750		3368,84

Wellbore: NO 34/10-B-42 F

BHA seq: 1 BHA category: Drilling BHA description: 8 1/2" PowerDrive Assy
BHA no: 1

String component	OD in	ID in	Length m	Acc length m
BIT	8,500		0,22	0,22
POWERDRIVE 675 X-TRA	8,375		8,67	8,89
MWD, POWER PULSE	6,750		8,21	17,10
VISION675	6,750		6,21	23,31
STAB STRING	8,375	2,750	1,55	24,86
ANDERREAMER	9,875		4,34	29,20
FLOAT SUB	6,750	2,750	0,84	30,04
NM HW DRILL PIPE	6,875	2,750	18,84	48,88
H W DRILL PIPE	5,000	3,000	26,92	75,80
JAR	6,500	2,750	9,23	85,03
H W DRILL PIPE	5,000	3,063	72,84	157,87
5" DRILL PIPE	5,000	4,276	3209,56	3367,43
X-OVER	6,500	2,938	1,00	3368,43
DRILL PIPE	5,500	3,750		3368,43

BHA seq: 2 BHA category: Drilling BHA description: 8 1/2" PowerDrive Assy
BHA no: 2

String component	OD in	ID in	Length m	Acc length m
BIT	8,500		0,22	0,22
POWERDRIVE 675 X-TRA	8,375		8,68	8,90
MWD, POWER PULSE	6,750		8,48	17,38
VISION675	6,750		6,11	23,49
STAB STRING	8,375	2,750	1,55	25,04
ANDERREAMER	9,875		4,57	29,61
FLOAT SUB	6,750	2,750	0,84	30,45
NM HW DRILL PIPE	6,875	2,750	18,84	49,29
H W DRILL PIPE	5,000	3,000	26,92	76,21
JAR	6,500	2,750	9,23	85,44
H W DRILL PIPE	5,000	3,063	72,84	158,28
5" DRILL PIPE	5,000	4,276	3209,56	3367,84
X-OVER	6,500	2,938	1,00	3368,84
DRILL PIPE	5,500	3,750		3368,84

BHA seq: 3 BHA category: Drilling BHA description: 8 1/2" PowerDrive Assy
BHA no: 3

String component	OD in	ID in	Length m	Acc length m
BIT	8,500		0,23	0,23
POWERDRIVE 675 X-TRA	8,375		8,75	8,98
MWD, POWER PULSE	6,750		8,40	17,38
VISION675	6,750		5,98	23,36
ADN-6 W/8 1/4" STABILIZER	8,250		6,11	29,47
STAB STRING	8,375	2,675	1,55	31,02
NM HW DRILL PIPE	5,000	2,675	18,84	49,86
H W DRILL PIPE	5,000	3,000	27,26	77,12
JAR	6,125	2,750	9,52	86,64
H W DRILL PIPE	5,000	3,000	72,50	159,14
5" DRILL PIPE	5,000	4,276	3209,56	3368,70
X-OVER	6,188	3,000	1,00	3369,70
DRILL PIPE	5,500	3,750		3369,70

BHA seq: 4 BHA category: Drilling BHA description: 12 1/4" clean up assembly
BHA no: 4

String component	OD in	ID in	Length m	Acc length m
12-1/4" BIT	12,500		0,30	0,30
BIT SUB W/FLOAT	8,063	3,000	1,01	1,31

Wellbore: NO 34/10-B-42 F

BHA seq: 4 **BHA category:** Drilling **BHA description:** 12 1/4" clean up assembly
BHA no: 4

String component	OD in	ID in	Length m	Acc length m
STABILIZER, NM	8,063	2,875	2,23	3,54
X-OVER	8,000	3,000	1,10	4,64
X-OVER	7,500	3,000	1,02	5,66
HW DRILL PIPE	5,000	3,000	72,50	78,16
JAR	6,125	2,750	9,52	87,68
HW DRILL PIPE	5,000	3,000	27,26	114,94
X-OVER	6,500	3,125	1,00	115,94
DP 5 1/2"	5,500			115,94

BHA seq: 5 **BHA category:** Drilling **BHA description:** 8 1/2" PowerDrive Assy
BHA no: 5

String component	OD in	ID in	Length m	Acc length m
BIT	8,500		0,23	0,23
POWERDRIVE 675 X-TRA	8,375		8,75	8,98
MWD, POWER PULSE	6,750		8,30	17,28
VISION675	6,750		5,98	23,26
ADN-6 W/8 1/4" STABILIZER	8,250		6,11	29,37
STAB STRING	8,375	2,675	1,55	30,92
NM HW DRILL PIPE	5,000	2,675	18,82	49,74
H W DRILL PIPE	5,000	3,000	27,26	77,00
JAR	6,125	2,750	9,52	86,52
H W DRILL PIPE	5,000	3,000	72,50	159,02
5" DRILL PIPE	5,000	4,276	0,00	159,02
X-OVER	6,188	3,000	1,00	160,02
DRILL PIPE	5,500	3,750	5511,57	5671,59

BHA seq: 6 **BHA category:** Drilling **BHA description:** 8 1/2" PowerDrive Assy
BHA no: 6

String component	OD in	ID in	Length m	Acc length m
BIT	8,500		0,23	0,23
POWERDRIVE 675 X-TRA	8,375		8,70	8,93
MWD, POWER PULSE	6,750		8,40	17,33
VISION675	6,750		6,04	23,37
ADN-6 W/8 1/4" STABILIZER	8,250		6,19	29,56
NM HW DRILL PIPE	5,000	2,675	18,82	48,38
H W DRILL PIPE	5,000	3,000	27,26	75,64
JAR	6,125	2,750	9,52	85,16
H W DRILL PIPE	5,000	3,000	72,50	157,66
5" DRILL PIPE	5,000	4,276	5511,37	5669,03
X-OVER	6,188	3,000	1,00	5670,03
DRILL PIPE	5,500	3,750	0,00	5670,03

BHA seq: 7 **BHA category:** Drilling **BHA description:** Setting HE-3 plug
BHA no:

String component	OD in	ID in	Length m	Acc length m
HE-3 PLUG	8,260		1,43	1,43
RUNNING TOOL	8,015		3,49	4,92
CIRC. SUB			0,76	5,68
DRILL PIPE	5,000		2295,00	2300,68
X-OVER,			0,51	2301,19
DRILL PIPE	5,500			2301,19

BHA seq: 8 **BHA category:** Drilling **BHA description:** Pulling HE-3 plug
BHA no:

String component	OD in	ID in	Length m	Acc length m
PULLING TOOL	4,750		0,98	0,98

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BHA seq: 8 **BHA category:** Drilling **BHA description:** Pulling HE-3 plug
BHA no:

String component	OD in	ID in	Length m	Acc length m
X-OVER	6,375		1,20	2,18
DP 5"				2,18

BHA seq: 9 **BHA category:** Completion **BHA description:** Clean out assy
BHA no:

String component	OD in	ID in	Length m	Acc length m
BIT	6,000		0,23	0,23
BIT SUB	4,700		0,91	1,14
PUP JOINT	4,750		2,40	3,54
RAZOR BACK	5,874		1,72	5,26
PUP JOINT	4,750		3,00	8,26
DP 3 1/2"	5,000		3055,80	3064,06
POLISH MILL	7,438		6,24	3070,30
PUP JOINT	8,375		2,98	3073,28
MFCT	6,500		2,29	3075,57
BRISTLE BACK	8,375		2,16	3077,73
MAGNO BACK	6,500		2,86	3080,59
X-OVER	8,063		0,92	3081,51
DP 5 1/2"				3081,51

BHA seq: 10 **BHA category:** Wireline **BHA description:** Pulling 7" XO Bridge plug
BHA no: 1

String component	OD in	ID in	Length m	Acc length m
GS PULLING TOOL + PRONG	5,500		1,40	1,40
X-OVER	1,875		0,18	1,58
MECHANICAL JAR	1,875		2,20	3,78
X-OVER	2,500		0,20	3,98
EASY ADJUSTABLE JAR	2,500		1,80	5,78
X-OVER	2,500		0,22	6,00
ROLLER WEIGHT	2,875		1,52	7,52
ACCELERATOR	1,875		1,60	9,12
CABLE HEAD	1,875		0,15	9,27

BHA seq: 11 **BHA category:** Wireline Tractor **BHA description:** Perforating guns
BHA no: 2

String component	OD in	ID in	Length m	Acc length m
AH-BOTTOM NOSE	3,375		0,18	0,18
AH-ADAPTER	3,720		0,10	0,28
GUN	3,375		6,34	6,62
AH-ADAPTER	3,720		0,22	6,84
GUN	3,375		6,34	13,18
AH-SPACER HOUSING	3,375		0,36	13,54
AH-FIRING HEAD	3,375		0,28	13,82
SHOCK ABSORBER	3,375		1,07	14,89
AH-83	3,375		0,17	15,06
PGGT-D	3,375		1,78	16,84
AH-66	3,375		0,28	17,12
PEH-PEK-B	3,375		0,29	17,41
AH-TRACTOR MWS	1,687		0,07	17,48
TRACTOR MWS	3,350		5,20	22,68
SWIVEL	2,125		0,26	22,94
CABLE HEAD	1,438		0,40	23,34

8.4 Bit summary

Bit record

Wellbore: NO 34/10-B-42 E

Run no	Bit size	Bit no	BHA no	Bit type	IADC code	Bit manufacturer	Serial no	Nozzles (n/32") no x n	no x n	no x n	no x n	Flow area In2
1	8 1/2"	1	1	RS162DGV	S447	Hycalog	203868	6 x 11	x	x	x	,557
2	8 1/2"	1RR	2	RS162DGV	S447	Hycalog	203868	3 x 11	3 x 12	x	x	,610
3	NA	NA	3	NA		RBI		x	x	x	x	
4	8 1/2"	2RR1	4	LA250BYG	M649	Lyng	2042	2 x 15	2 x 16	x	x	,843
6	8 1/2"	2RR2	6	LA250BVHG	M649	Lyng	2042	2 x 15	2 x 16	x	x	,843
7	8 1/2"	3	7	RSX162A6DGW		Reed-Hycalog	205801	3 x 11	3 x 12	x	x	,610

Wellbore: NO 34/10-B-42 E

Run no	Bit size	Pump rate l/min	Pump press bar	Depth in mMD	Depth out mMD	Form drld m	Total drld m	Drld hrs	Circ hrs	ROP m/hr	Min WOB ton	Max WOB ton	Min RPM	Max RPM	Torque Min Nm	Torque Max Nm	Con drag Min 1000 daN	Con drag Max 1000 daN
1	8 1/2"	1900	265	4115	7153	3038,0		46,0		66,0	0	5		170	22	37		
2	8 1/2"	1800	225	7153	7928	775,0	775,0	27,8	238,8	27,9				0		0		
3	NA	1320	145	7928	7928	0,0		0,0	146,5				15	160	9	12		
4	8 1/2"	1950	255						105,3				0	160	14	47		
6	8 1/2"	1800	150	4455	4468	13,0	13,0	0,5	45,3	26,0	0	7	80	120	11	20		
7	8 1/2"			4117	4125	8,0	8,0	0,5		16,0	2	8	30	40	16	25		

Wellbore: NO 34/10-B-42 E

Run no	Bit size	IADC dull grading I	O	DC	L	B	G	OC	RP	Remarks
1	8 1/2"	1	1	BT	S	X	I	CT	BHA	Underreamer grading. 3 acutters totally. Top cutters for gauge and backreaming is referred to as OutherGauge and InnerGauge. Front cutters are referred to as InnerTeeth and OutherTeeth. IG: 4 4 4 OG: 2 2 2 IT: 2 2 2 OT: 2 2 2.
2	8 1/2"	1	1	BT	A	X	IN	WT	HP	Broken teeth on Anderreamer.
3	NA									
4	8 1/2"	0	3	BT	S	X	I	NO	HP	
6	8 1/2"	1	4	BT	S	X	I	JD	TD	Bit used, Grading in: 0-3-BT-S-X-I-NO-HP Interval drilled from 4455mMD to 4468mMD was cement.
7	8 1/2"									

Bit record

Wellbore: NO 34/10-B-42 F

Run no	Bit size	Bit no	BHA no	Bit type	IADC code	Bit manufacturer	Serial no	Nozzles (n/32") no x n	no x n	no x n	no x n	Flow area In2
1	8 1/2"	1	1	RSX162A6DGW		Reed-Hycalog	205801	3 x 11	3 x 12	x	x	,610
2	8 1/2"	2	2	RSX162A3DGW	M322	Reed-Hycalog	205409	3 x 11	3 x 12	x	x	,610
3	8 1/2"	3	3	RSX162A3DGW	M322	Reed-Hycalog	203807	6 x 12	x	x	x	,663
4	12 1/4"	4RR1	4	ATJG8	347	Hughes Christensen	S59CK	3 x 22	x	x	x	1,114
5	8 1/2"	3RR1	5	RSX 162	M322	Reed-Hycalog	203807	6 x 12	x	x	x	,663
6	8 1/2"	3RR2	6	RSX 162	M322	Reed-Hycalog	203807	6 x 12	x	x	x	,663

Wellbore: NO 34/10-B-42 F

Run no	Bit size	Pump rate l/min	Pump press bar	Depth in mMD	Depth out mMD	Form drld m	Total drld m	Drld hrs	Circ hrs	ROP m/hr	Min WOB ton	Max WOB ton	Min RPM	Max RPM	Torque Min Nm	Torque Max Nm	Con drag Min 1000 daN	Con drag Max 1000 daN
1	8 1/2"	1960	253	4125	5411	1286,0	1286,0	23,2	64,0	55,4	3	6	100	170	21	26		
2	8 1/2"	1960	284	5411	7180	1769,0	1769,0	28,3	103,0	62,5	0	0	150	165	34	40		
3	8 1/2"	100	16	7180	7180	0,0	0,0	0,0	47,4									
4	12 1/4"	3500	204										50	160	4	11		
5	8 1/2"			7180			0,0	0,0	0,0									
6	8 1/2"	1950	280	7180			0,0	0,0	156,0		0	5	10	30	18	30		

Wellbore: NO 34/10-B-42 F

Run no	Bit size	IADC dull grading I	O	DC	L	B	G	OC	RP	Remarks
1	8 1/2"	0	4	BT	G	X	In	CT	BHA	Bit - 20 broken teeth in gauge area. Anderreamer - In gauge, operational. 9 broken cutters in leading edges
2	8 1/2"	1	2	BT	G	X	I	NO	DTF	Anderreamer: 12 broken / lost teeth on leading row. 3 on trailing row. In gauge.
3	8 1/2"	0	1	WT	G	X	I	NO	HP	
4	12 1/4"	1	1	WT	A	E	I	NO	BHA	
5	8 1/2"	1	2	BT	G	X	I	PN	HP	
6	8 1/2"	3	1	BT	N	X	I	NO	TD	5 teeths borken off in same row. 1 plugged nozzle. BHA was clean. NO traces of stuck clay.