

FINAL WELL REPORT
Second re-entry
Licence no.: PL128
Well: 6608/10-6 R2

EXPLORATION, SVALE

NOR-2001-26R

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Subjects: Re-entry Permanent P&A
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12/11/01
14-01

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1 Introduction

1.1 Summary and status

All depths in this programme are referring to m MD RKB Borgland Dolphin if not otherwise are stated.

The well 6608/10-6 was drilled to 2109 m MD with West Navion.

Oil was proved in the Melke and Åre Formation.

The well was completed with a 7" liner through the reservoir to be able to perform a DST on a later stage. The well is temporary plugged and abandoned.

The well (6608/10-6 R) was re-entered in November 2000 with West Navion.

The 7" liner was perforated in two 4 m intervals in the Åre Formation

Four sets of independent pressure- and temperature gauges were installed above the perforated intervals.

The objective of installing these gauges is to measure any possible communication between the water zones down flanks in the 6608/10-7 explorations well and the reservoir in well 6608/10-6R.

The well (6608/10-6 R2) was re-entered again in August 2001 with Borgland Dolphin. The pressure- and temperature gauges were retrieved and communication between 6608/10-7 and 6608/10-6 was verified. A production test was performed in the Melke Formation.

The well is permanently plugged and abandoned.

1.2 General Well Data

License number	:	PL 128
Well name	:	6608/10-6 R2
Field	:	Svale Field
Licenses	:	Statoil 65% Norsk Hydro 13.5% Norsk Agip 11.5% Enterprise Oil 10%
Type of well	:	Exploration well
Water depth	:	378 m MD MSL
Total depth of well	:	2109 m MD RT
Drilling completed and well temporary P&A	:	15.05.2000 w/ West Navion
Re-entry completed and well temporary P&A	:	03.12.2000 w/ West Navion
Re-entry completed and well permanently P&A	:	30.08.2001 w/ Borgland Dolphin
Drilling rig	:	Borgland Dolphin
Air gap	:	31 m
Wellhead	:	Vetco w/ H-4 connector
Well status	:	Permanently plugged and abandoned.
Distances	:	200 km NW of Brønnøysund. 10 km north of the Norne field.
Geographic co-ordinates	:	latitude 66° 03' 55.95" N longitude 08° 15' 26.07" E
UTM co-ordinates	:	UTM Zone 32, CM 09° E 7 327 600 N 466 374 E

2 Exemptions

2.1 Exemptions from NPD regulations

None.

2.2 Exemptions from Statoil regulations

None.

3 Health, environment, Safety and Quality (HES&Q)

3.1 General HES objectives

Norne B&B HES goals for 2001

- Operations efficiency higher than 90%. Not met, 88.5%.
- Zero lost time accidents – Obtained.
- Further safety culture and zero philosophy. Obtained.
- Rest waste less than 30%. Not met 38%.
- Service companies to report 30% of the RUH's. Not met, 20% reported by service companies.

Conclusion: General HES objectives were not met fully.

3.2 Well specific HES objectives

- Reduce frequency of falling objects to less than 26 per million working hours. We had none incidents during 21,3 days / 511 hours, which is along the zero philosophy.
- No unintended spills, and the discharge permit known to all participants. We had no spills to sea of hydraulic oil, helifuel or diesel.

Conclusion: Well specific HES objectives were met.

3.2.1 Synergi reporting

Number of Synergy reports:	45
Number of incidents in 'red' area:	0
Number of first aid incidents:	2
Number of oil spill incidents:	0
Number of falling objects incidents:	0
Number of lost time accidents:	0

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3.2.2 Experience listing

System / events	D-time hrs	Experience	Immediate solution	Solution recommended	Ref.
<i>Transit and Re-entry</i>					
Anchor handling	Saved 4,5 hrs	Saved 4,5 hrs compared to optimum time on anchor handling and positioning by using four anchor-handling boats.		Use four boats if possible.	
Trawl frame		To get access to the wellhead the trawl deflection frame was removed and placed on seabed. Later in the operation an anchor handler retrieved the frame.	Used an arrangement with wire sling and ROV hooks to lift the frame above wellhead, moved the rig and landed the frame on seabed. Used an anchor handling boat to retrieve the frame from seabed.		
Install PGB	7,0 hrs	Not able to lock PGB to wellhead.	Pulled PGB to surface and installed new shear pins.		
BOP	35,0	BOP-BSR did not hold high-pressure test.	Contacted Shafer and found that the Poslock was not adjusted. Shafer personnel came out to the rig and adjusted the Poslock .	Make sure that the Sub sea personnel check the Poslock every i.e. 6 th month or when the shear ram is changed. Keep record of adjustment and maintenance in the maintenance system on board.	Synergi 184694

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System / events	D-time hrs	Experience	Immediate solution	Solution recommended	Ref.
Well intervention					
Iron roughneck	1,5	Iron roughneck failed.	Troubleshooting, found broken cylinder and repaired it.		
Electrical power in ROV unit	0,5 hrs	440 V in ROV unit tripped.	Reset motor protection.		
Compensator	0,5 hrs	Difficulties to open compensator.			
K-1 cement retainer	12,5	Not able to set K-1 cement retainer on drill pipe.	Pulled K-1 to surface. Rigged up wire-line and set EZSV cement retainer on wire-line.	Set EZSV cement retainer on drill-pipe.	Synergi 184700
Production test					
LPR-N / production valve	2,0 hrs	Difficulties to open production valve.			Test report from Halliburton Appendix B
6K-rupture disk.	0,5 hrs	Attempted to burst rupture disk by pressuring up annulus to 215 bars.	Increased annulus pressure in steps to 250 bars. Cycled OMNI valve to circulating position.		Test report from Halliburton Appendix B

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<i>Permanent plug and abandoned</i>					
MOST Tool	1,0 hrs	Problem to latch MOST tool to 20" wellhead.	Locked MOST tool to 20" wellhead by turning locking screws with ROV torque tool.	Modify the tool with indicator pins to verify catch position.	Synergi 185011
30" RGB landing ring		When the cut 30" casing was about to be laid down a half landing ring fell off.	Checked equipment for loose parts.	Modify the landing ring to be able to retrieve it or to perform a separate run to retrieve the RGB prior to cut the wellhead. NB: This landing ring is associated with the Retrivable Guide Base (RGB), not the Permanent Guide Base(PGB).	Synergi 184994

3.2.3 Time distribution

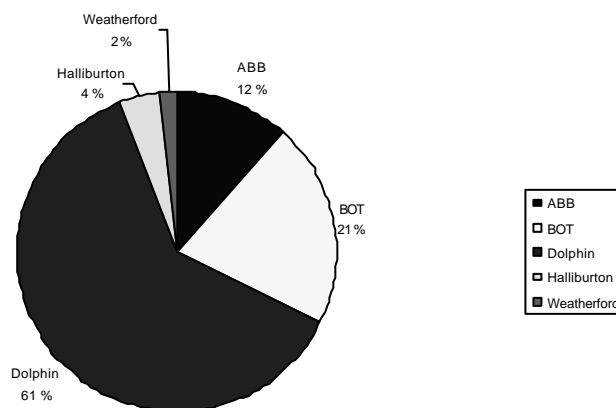
Distribution of down time	Hrs	Cause of waiting time	Hrs
ABB	7		
BOT	12,5		
Dolphin	37,5		
Halliburton	2,5		
Weatherford	1		
TOTAL D-TIME	60,5	TOTAL W-TIME	0,0

Activity parameters	Days	Hrs	%
Budget time ⁽¹⁾ (excl. Åre production test)	17,0		
Actual time (of which 7,6 days Melke production test)	22,0		
Days behind of Budget ⁽²⁾	5,0		
Total D+W-time		60,5	11,5
Op. factor / Efficiency = $\frac{\text{TotalTime}-\text{DownTime}-\text{WOW}}{\text{TotalTime}-\text{WOW}}$			88,5

(1) Original Budget time (25,3 days) was including optional Åre production test.

(2) Compared to original budget the total operation was finished 3,3 days ahead of budget.

Downtime 6608/10-6 R2



4 Activity summary

4.1 Transit and re-entry

4.1.1 Summary

Borgland Dolphin was towed from 6608/10-B04BH on the Norne field to well location on 6608/10-6 R2.

Prior to installing the Retrievable Guide Base (RGB), the trawl deflection frame was pulled and landed on seabed 40 m of the wellhead. The trawl deflection frame was later retrieved to surface by one of the anchor handling boats.

Installed the RGB to the 30" conductor. West Navion has performed previous work, which did not require a RGB/PGB (Permanent Guide Base).

The BOP was landed and the connector was pressure tested to 250 bars against the GT-plug at 635 m. The GT-plug was then retrieved without any problems.

4.1.2 Experiences / recommendations

- Four boats performed the anchor handling and positioning of the rig in 19,5 hours. Budget was 30 hours and the planned optimum time was 24 hours.
Recommendation: Evaluate the economy of using four boats instead of three boats.
- Since the trawl deflection frame was installed without any shear pins, the plan was to retrieve it with wire slings and ROV hooks on drill pipe to surface. Logistic wise the rig had not the required deck space to handle the frame on surface. It was decided to place the frame on seabed and retrieve it to surface later. An anchor handling boat fished and retrieved it to surface when the anchor handling operation was finished.
Recommendation: In such situations where the frame is installed without shear pins it is convenient to use an arrangement of wire slings and ROV hooks and place the frame on seabed with an acoustic transmitter. The frame can be located and retrieved at a later stage even after the well is abandoned.
- ABB planned to use hydraulics from a mini-reel in the moon pool to run the Retrievable Guide Base (RGB). On this mini reel the pressure was too high, KOS

hydraulics was used instead.

Recommendation: ABB has to update interface documents and perform better planning prior to the job. The ABB representative should be on the rig in good time, at least one shift before, so he is able to prepare the operation.

- The RGB was prepared and run, but didn't lock to the 30" conductor due to broken shear pins. Pulled RGB to surface and changed shear pins. The RGB was landed and locked as planned.
- The blind shear ram (BSR) failed both the low and high-pressure test. The BSR was disassembled two times to check the seals without success. Contacted Shafer and found that the Poslock was not acting as supposed. Adjusted both sides of the BSR according to Shafer manual. Shafer personnel came out to the rig to verify correct adjustment.

Recommendations: Add a new routine to the Sub Sea Manual to make sure that the BSR is checked every 6th month or when ever it is changed. Keep record of all adjustments and maintenance performed on the equipment.

4.2 Well intervention

4.2.1 Summary

Prior to retrieving the modified SC1 packer, containing temperature- and pressure gauges, from 1854 m, the hole was displaced to 1,12 sg Brine. While pulling the packer, swabbing was observed and necessary action was taken.

The pressure gauges verified communication between the 6608/10-7 and the 6608/10-6 R2 well. Therefore the Åre production test was cancelled and the existing Åre perforations were squeezed off cemented through a cement retainer at 1846 m.

4.2.2 Experiences/ recommendations

- Prior to retrieve the SC1 packer the hole was displaced to 1,12 sg brine. A lot of debris, steel, cavings and cuttings came out on bottoms up. The fluid looked like drilling fluid contamination and the weight was 1,14 sg, which should have been 1,12 sg brine.
- The SC1 packer was pulled free with 6-ton over-pull. Opened circulation valve above the packer and circulated bottom up to wellhead. Closed annular preventer and took returns up choke line and through poor boy degasser. Had no gas in

return and the hole was stable. Placed a kill pill and flow-checked, the hole was stable.

While pulling out to 1750 m the packer elements was not fully retracted and swabbing was observed. Ran in to 30 m above the perforations at 1872 m and circulated bottoms up. Took bottoms up through choke line and poor boy degasser, had traces of crude in return.

Pulled out of hole and flow-checked when packer was out of the 7" liner.

4.3 Production test - Melke

4.3.1 Summary

Perforated the Melke formation on wire line and installed gravel pack.

Installed the production string and the surface flow tree. Hung of the string in wellhead on the fluted hanger. Pressure tested entire system to 345 bars.

Displaced production string to diesel and injected Nitrogen to be able to flow the well. Collected fluid in calibration tank, burned off oil on burner boom and dumped produced water to slop tank.

At the end of the production test the well was shut in for 16 hours for pressure build up. A minifac test was performed prior to pull the production string.

4.3.2 Experiences

- *Perforation:* Ran in hole the perforation guns on wire line and tagged cement retainer at 1851 m. Correlated and perforated 1810 m to 1842 mMD. Lost 300 ltr of 1.18 sg Brine to the formation after perforation.
- *Gravel pack:* Ran in hole the 18 gauge screen on 3 ½" drill pipe to 523 m. Continued to run in on 5 ½" drill pipe to 1851 m and tagged cement retainer. Pulled up to 1850 m and hung of the screens by setting the SC-1 packer. Pumped acid into the perforations prior to pump the 12/18 mesh gravel pack with 1000 lpm, 65 bar. Reversed out excess gravel pack slurry.
- *Test string:* Made up two Halliburton gauges and two Altinex gauges in carrier and ran the test string in hole. Landed the fluted hanger in wellhead. Pressure tested the system.

- *Clean up flow*: Cycled the OMNI valve to circulation position. Displaced the tubing to 6m³ diesel. Cycled the OMNI valve to well test position and opened the choke. Injected Nitrogen at the Sub Sea Test Tree (SSTT) and demulsifier at the choke manifold. The well produced the diesel and 100 % water.
- *Reverse out tubing content #1*: Cycled the OMNI valve to circulation position. Reversed out tubing content until brine in return. Pumped 4,6 m³ diesel and Nitrogen down the tubing. Cycled the OMIN valve to test position.
- *Reopen well*: Opened the choke gradually to 116/64 and increased injection of Nitrogen to 7 m³/min. Not able to flow the well.
- *Reverse out tubing content #2*: Cycled the OMNI valve to circulation position. Reversed out tubing content. Traces of oil in diesel returns. Displaced tubing with 3 m³ diesel and 3 m³ Nitrogen. Cycled OMIN valve to well test position.
- *Reopen well*: Opened the choke to 116/64 and waited 3 hrs and 55 min before started to inject Nitrogen. Waited 17 min before oil to surface.
3% water, 97% oil, oil 0,886 sg at 18,6°C, 0 ppm H₂S, 2% CO₂.
- *Reverse out tubing content #3*: Cycled the OMNI valve to circulation position. Reversed out tubing content until brine in return.
Oil 0.896 sg at 19,2°C, 7 ppm H₂S, 1,8% CO₂.
- *Attempt to reopen well*: The production valve (LPR-N) did not open. Pumped nitrogen into tubing and pressured up annulus in cycles.
- *Reopen well*: Opened choke to 116/64 and waited 3 hrs and 2 min before oil to surface.
Oil 0,891 sg at 17,7°C, 0 ppm H₂S, 1% CO₂ and traces of solids.
Stopped Nitrogen injection and the well flow also stopped.
- *Build up*: Closed choke, surface shut in, and bled of annulus pressure to close the production valve (LPR-N).
- *Minifrac*: Cycled OMNI valve and reversed out tubing content to burner. Flushed lines to burner and calibration tank.
Pumped 6 m³ gel down the tubing. Cycled the OMIN valve to well test position. Pumped the gel into the formation with 140 lpm and the wellhead pressure was up to 300 bars.
Attempted to perform a step-rate test by using the mud pumps, but was not able to get reliable data at the slow rates. Performed a successful step-rate test using the cement pump.

- *POOH with test string*: Attempted to open rupture disk. Pressured up annulus, but no response on the rupture disk. Cycled the OMNI valve and circulated the string clean. Pulled out the test string.

4.4 Permanent Plug and Abandonment

4.4.1 Summary

The Melke perforations were squeeze cemented through a cement retainer at 1779 m and the gravel pack below. A 100 m cement plug was placed on top of the retainer. The retainer was pressure tested to 250 Bar.

A 217 m balanced cement plug was set in the liner top area. The plug was load tested with 11 ton and pressure tested to 160 Bar.

A mechanical bridge plug (EZSV) was set at 680 m as base for the surface plug. The EZSV was load tested to 16 ton prior to setting the balanced surface plug up to 21 m below seabed.

The 20" and 30" casing were cut five meter below seabed and the 18 ¾" wellhead was retrieved to surface.

4.4.2 Experiences / recommendations

- Set cement retainer at 1779 m and load tested it to 12 ton. Performed the squeeze cementing and set a balanced cement plug on top of the retainer. Pressure tested the retainer to 250 bars.
- Set 1.14 sg havis pill from 1600 m to 1400 m as prior to set the liner top plug from 1400 m to 1183 m. Top of liner is at 1339 m. Load tested the cement plug to 11 ton.
- A mechanical bridge plug (EZSV) was set at 680 m as base for the surface plug. The EZSV was load tested to 16 ton prior to setting the balanced surface plug up to 21 m below seabed.
- To cut the 20" and 30" casing a MOST tool from Weatherford was used. The MOST tool was recently modified with improved flow-area to prevent swarf in the locking area and also modified to catch the wellhead automatically. The casings were cut five meter below seabed. Attempted to catch the 18 ¾" wellhead without success. The ROV locked the MOST to the wellhead by turning the locking screws. Pulled the wellhead free by 10 ton over-pull and retrieved it to surface.

Recommendations: Modify the MOST-tool with indication pins.

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5 Appendix A: Well schematic

Well: 6608/10-6 R
 Field: Exploration
 Rig: Borgland Dolphin

ORIGINAL WELL SCHEMATIC

(All depth are adjusted to Borgland Dolphin airgap)

HOLE		CASING				LOT FIT	TOC		CSG. SHOE		RKB	P&A	
SIZE	TVD MD	SIZE	TYPE / RAD. MARKERS	CENTRALIZERS	TEST PRESS [BAR]		TVD	MD	TVD	MD		MD	ITEMS
SB	409												
36"	470 470	30"	309.7 lb/ft, X-52, ST2 1 x 1.5" WT 4 x 1" WT		-	-	surface	surface	468.5	468.5	Corr. inhibitor 1.12 SG Brine		KOS trawl deflector frame on WH (S/N 117617/0/0)
12 1/4"	1405 1405	20" x 9 5/8"	53.5 lb/ft, P-110, AMS 20" WH is crossed over to 9 5/8" casing at 10.99 m below top 18 3/4" housing	1 centr/jnt on 5 last jnts	200 (above/below) 200 200	LOT 1.76 SG					1.12 SG Brine	635	BOT GT Retr. plug <u>NB ! Depths below are corr. to wireline depths.</u>
8 1/2"	2109 2109	7"	32 lb/ft, P-110, BDS RA markers at 1615.9 m and 1350.1 m	1965 - 2005 m (ref. Liner tally)	200 (above) 200	LOT 1.48 SG	1635 from USIT		1393	1393	1.14 SG Brine	1846.20 2.44 - 1876.41	Top PBR Top Liner packer top BOT SC-1A packer (w/ temp./press. gages) 1. perforating interval 1904.70 - 1908.67 2. perforating interval EZSV Landing collar
Comments :													

Well Schematic for Permanent P&A

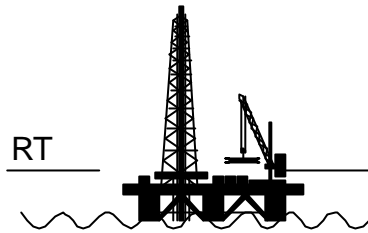
Well no: 6608/10-6R

Vertical Well

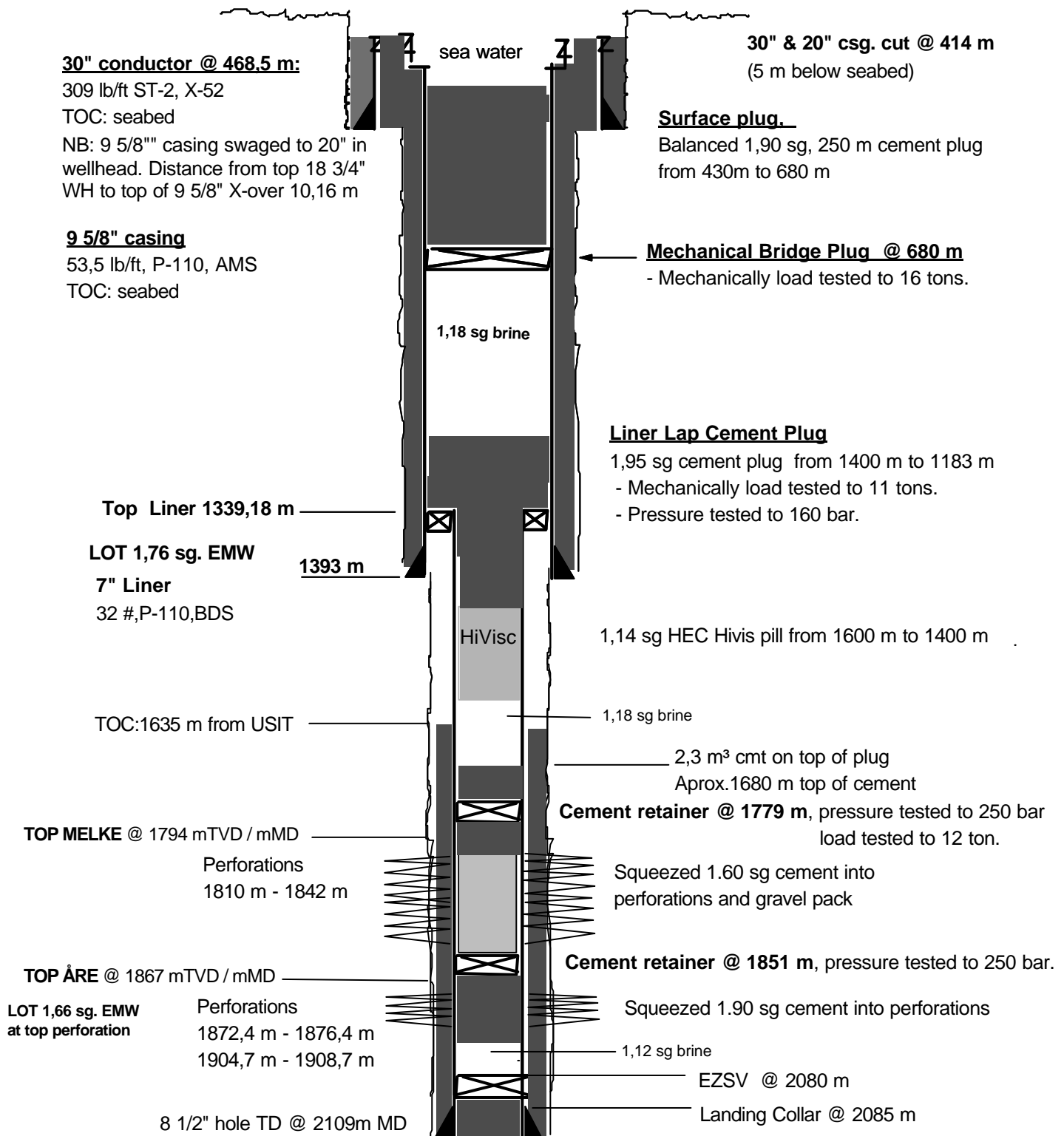
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Not to scale
All depth are MD

BORGLAND DOLPHIN



RKB to MSL : 31 m
Water Depth : 378 m
RKB-Wellhead 409 m
Sea bed : 409 m



6 Appendix B: Halliburton test report w/ Test Certificates

Place :Halliburton Workshop Tananger

Date :05/09/01

Attendents :Koen Sinke (Statoil)
:Jan van der Plas (Halliburton)
:Knut Jacobsen (Halliburton)

During testing operations on well Svale 6608/10-6 R2 questions raised about functionality of Down Hole Tools.

Decided to have a inspection and a functionality check witnessed by Customers Representative. Tools have been left untouched upon arrival of Statoil Rep. at Halliburton's premises in Tananger.

At date of inspection/testing ambient temperature in workshop was 18 Degr. Celcius.

Tools inspected:

Rupture Disc Circulating Valve (CVRD-XNR-04)

Disc installed in tool was a 6K (6000 Psi) lot no. 010845
Calculated burst pressure at ambient temp. in shop was 6306 PSI
Actual burst pressure in shop at ambient temp was 6210 PSI

OMNI Valve (OMNI-XNR-10)

Inspected OMNI valve visually and found no discrepancies, found 2360PSI N2 in tool which was according to calculating sheet of operator, found OMNI in circ. Pos. #12.5.
Cycled tool round once and tool functioned properly.

LPR-N Tester Valve (TLPR-XNR-2)

Inspected LPR-N valve visually and found no discrepancies, found 2250 PSI N2 in tool which was according to calculating sheet of operator.
Opened and Closed ball valve 3 times , tool functioned properly.
Herafter we took a 15 min 5000 Psi pressure test from below ballvalve, pressure test was OK

Will attach Test Certificates from Tests we performed on tools dated 05/09/01

Trust this information will be sufficient to take away any doubts about functioning of Down Hole Tools during formation test on Svale 6608/10-6 R2.

If you have any questions please do not hesitate to call me in our Tananger Office

Best regards,
Jan van der Plas
Operations Service Coordinator DHT & Spec Tools

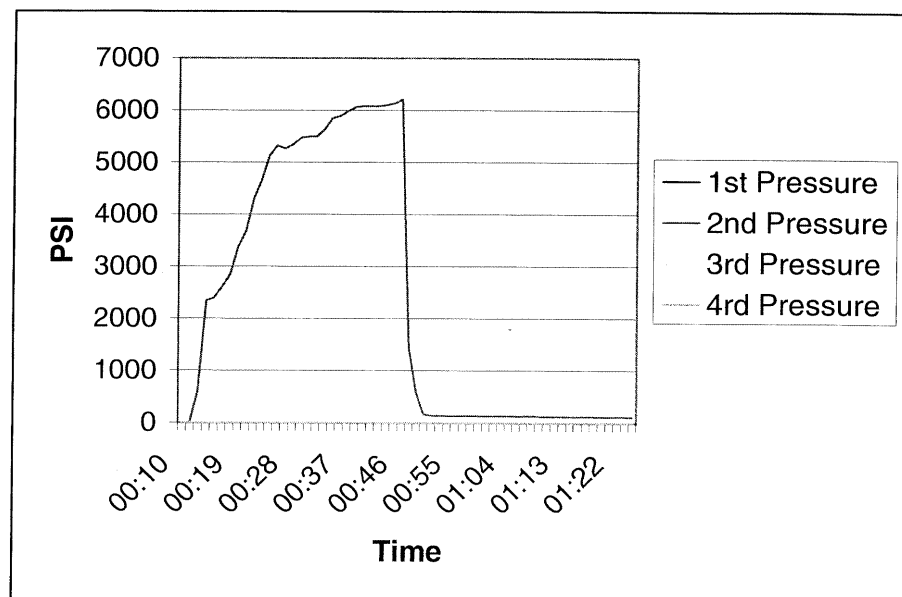
TESTCERTIFICATE

Certificate no. : 110

CUSTOMER DATA

HOSE DATA

Customer name	:	Hose type	: RD Circ valve
adress	:	Hose Diameter	: 0
Zip + Place	:	Hose Length	: 0
Remarks	:	Manufacturer	:
	:	Working pressure	: 10000
Test medium	: Water	Test pressure	: 8000
Hose number	: CVRD-XNR-4	Burst pressure	: 0



Tested by : Knut Jacobsen
Date : 05.09.2001 10:47
Order no : CR

Approved by :

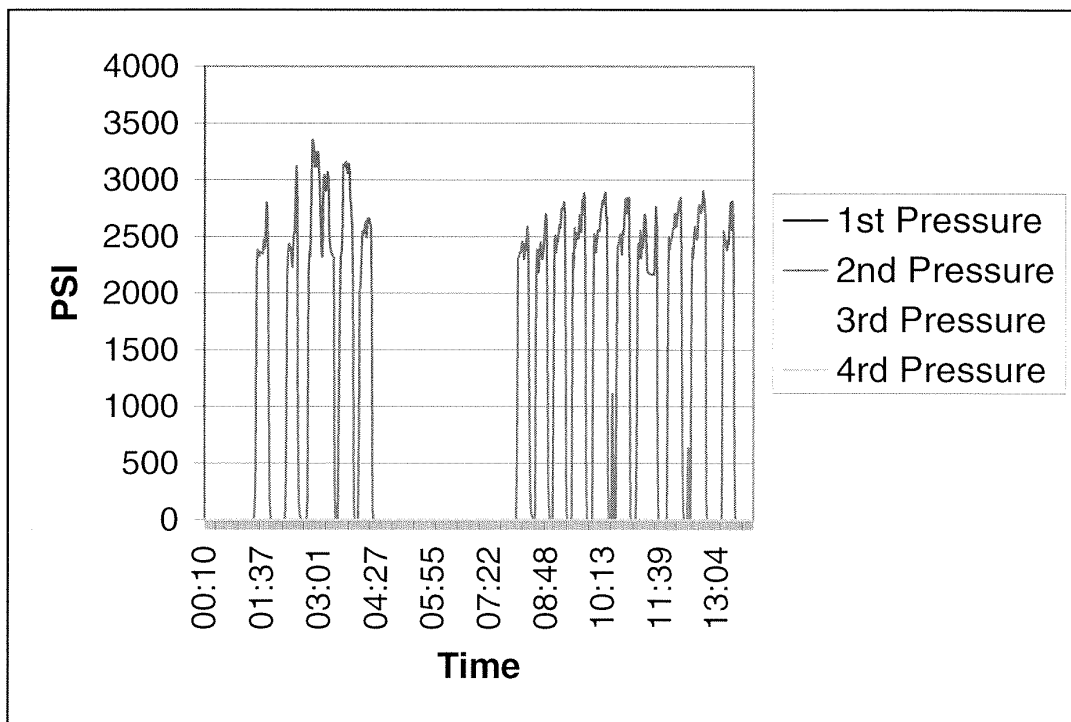
TESTCERTIFICATE

Certificate no. : 111

CUSTOMER DATA

HOSE DATA

Customer name	:	Hose type	: Cycling Omni from circ. posit
address	:	Hose Diameter	: 0
Zip + Place	:	Hose Length	: 0
Remarks	:	Manufacturer	:
	:	Working pressure	: 10000
Test medium	: Water	Test pressure	: 5000
Hose number	: Omni-XNR-10	Burst pressure	: 0



Tested by : Knut Jacobsen
Date : 05.09.2001 11:02
Order no : CR

Approved by :

TESTCERTIFICATE

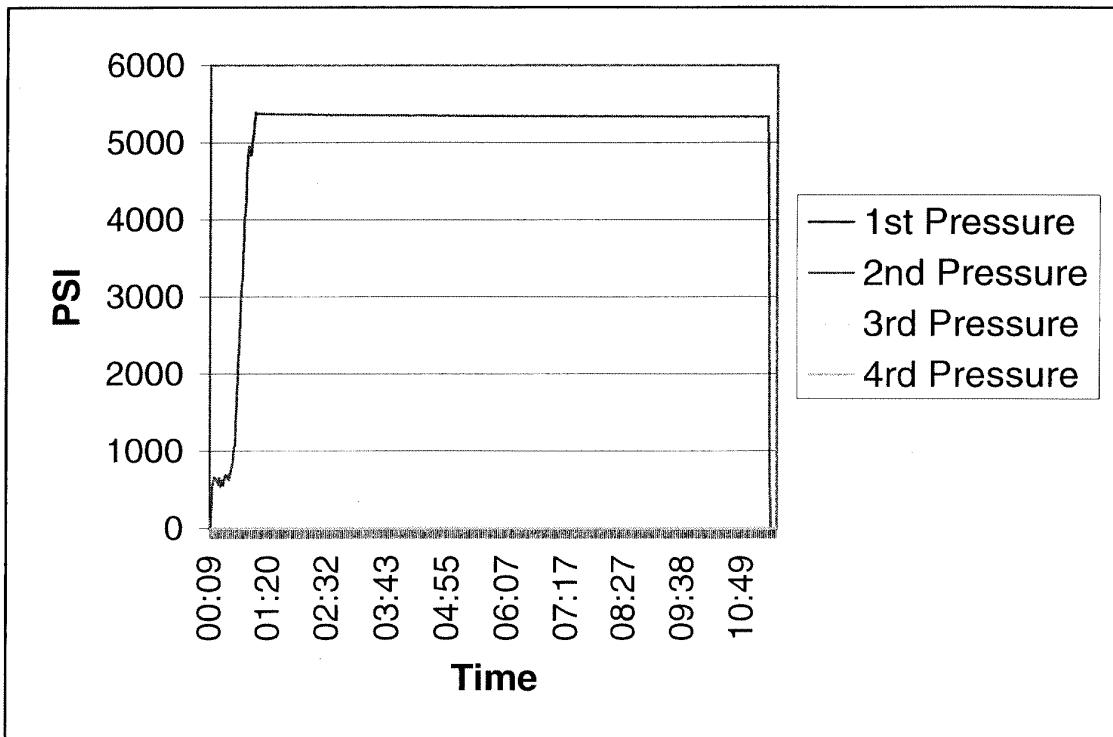
Certificate no. : 113

CUSTOMER DATA

HOSE DATA

Customer name :
address :
Zip + Place :
Remarks :
Test medium : Water
Hose number : TLPR-XNR-2

Hose type : Pressure test from below
Hose Diameter : 0
Hose Length : 0
Manufacturer :
Working pressure : 10000
Test pressure : 5000
Burst pressure : 0



Tested by : Knut Jacobsen
Date : 05.09.2001 11:44
Order no : CR

Approved by :

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7 Appendix C: Figures and specifications

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7.1 Schlumberger wireline perforation guns



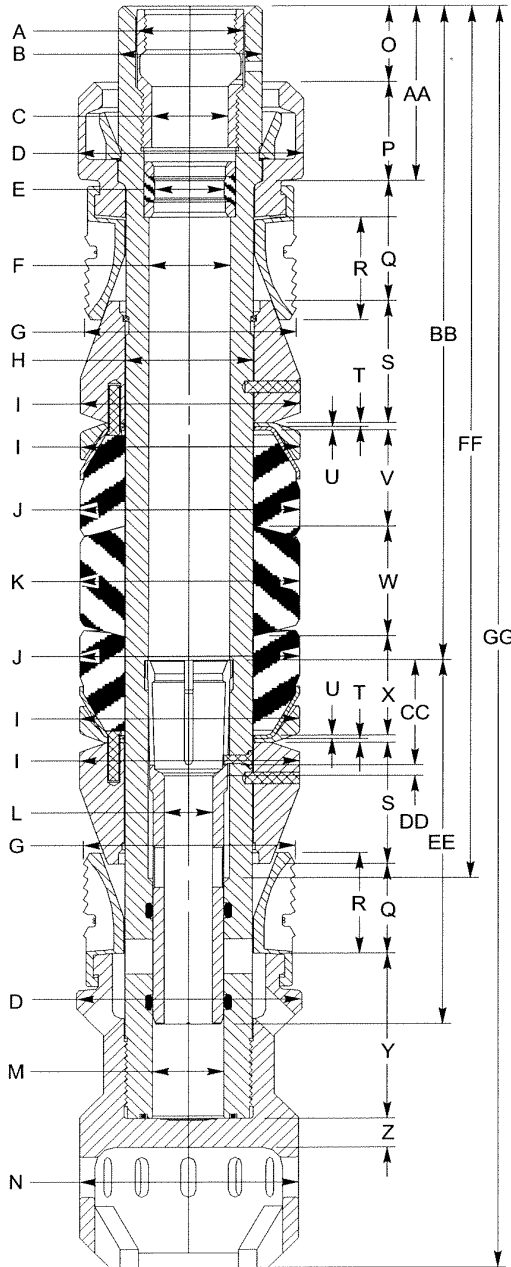
**Svale 6608/10-6R2
Melke Perforations**

	OD (in)	length (m)	Acc. length (m)	weight (lbs)
		0.09	34.44	
			34.35	
PEH-A	3 3/8"	0.57		29
EAH-B	3 3/8"	0.17	33.78	19
			33.61	
CAL-B	3 3/8"	0.71		77
Firing Head	3 3/8"	0.14	32.90	15
SAFE - gun adaptor	3 3/8"	0.17	32.76	19
			32.59	
3.05m fully loaded				
10' gun	4 1/2"	3.31		225
Intercarrier	4 1/2"	0.11	29.28	
			29.17	
3.05m fully loaded				
10' gun	4 1/2"	3.31		225
Intercarrier	4 1/2"	0.11	25.86	
			25.75	
6.1m fully loaded				
20' gun	4 1/2"	6.34		450
Intercarrier	3 3/8"	0.11	19.41	
	4 1/2"		19.30	
6.1m fully loaded				
20' gun	4 1/2"	6.34		450
Intercarrier	4 1/2"	0.11	12.96	
	4 1/2"		12.85	
6.1m fully loaded				
20' gun	4 1/2"	6.34		450
Intercarrier	4 1/2"	0.11	6.51	
			6.40	
6.1m fully loaded				
20' gun	4 1/2"	6.34		450
Bottom nose	3 3/8"	0.06	0.06	15
				Total weight 2424 lbs

**4 1/2" HSD 12spf 60deg UltraPack (43C UP RDX)
Top to Bottom Shot (M): 32.29**

This drawing is a guideline only and actual configuration and lengths may vary and should be checked onsite.

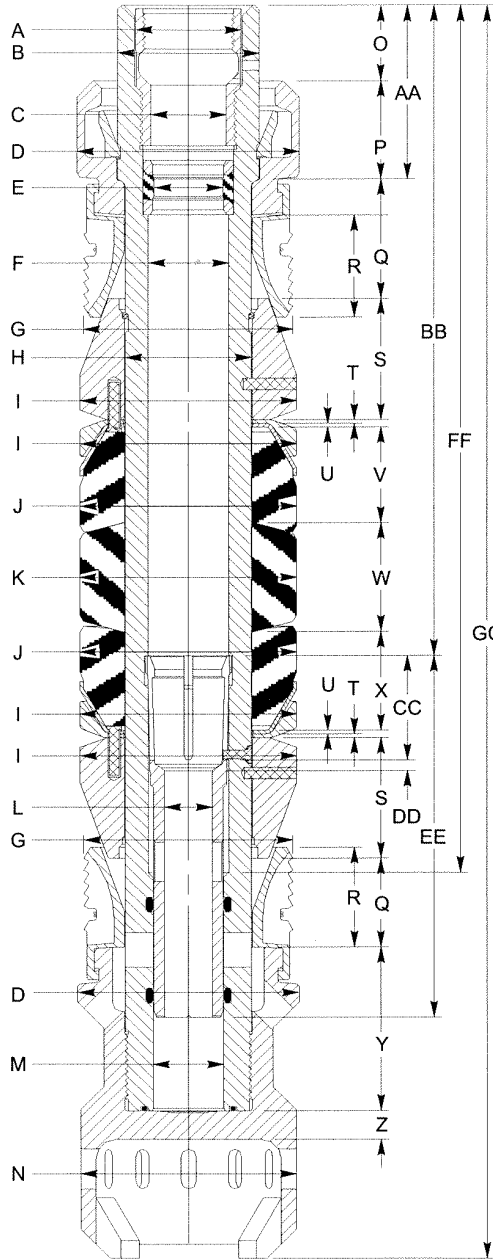
7.2 Halliburton EZSV packer



EZ DRILL® SV Squeeze Packer Dimensional Data
 (6 5/8- through 10 3/4-in. Sizes)

	802.345 (6 5/8) in. (mm)	802.349 (7) in. (mm)	802.351 (7 5/8) in. (mm)	802.353 (8 5/8) in. (mm)	802.354 (9 5/8) in. (mm)	802.346 (10 3/4) in. (mm)	802.357 (10 3/4) in. (mm)
A	2.62 (66.5)	2.68 (68.1)	2.68 (68.1)	2.68 (68.1)	3.31 (84.1)	3.25 (82.6)	3.31 (84.1)
B	3.51 (89.2)	3.51 (89.1)	3.51 (89.1)	3.51 (89.1)	4.37 (111.0)	4.37 (111.0)	4.37 (111.0)
C	1.87 (47.5)	1.87 (47.5)	1.87 (47.5)	1.87 (47.5)	2.50 (63.5)	2.50 (63.5)	2.50 (63.5)
D	5.32 (135.1)	5.50 (139.7)	6.12 (155.4)	7.00 (177.8)	7.75 (196.9)	8.69 (220.7)	9.00 (228.6)
E	1.71 (43.4)	1.71 (43.4)	1.71 (43.4)	1.71 (43.4)	2.20 (55.9)	2.20 (55.9)	2.20 (55.9)
F	1.99 (50.5)	1.99 (50.5)	1.99 (50.5)	1.99 (50.5)	2.62 (66.5)	2.62 (66.5)	2.62 (66.5)
G	5.02 (127.5)	5.25 (133.4)	5.87 (149.1)	6.75 (171.5)	7.50 (190.5)	8.44 (214.4)	8.75 (222.3)
H	3.12 (79.2)	3.12 (79.2)	3.12 (79.2)	3.12 (79.2)	4.00 (101.6)	4.00 (101.6)	4.00 (101.6)
I	5.20 (132.1)	5.37 (136.4)	6.00 (152.4)	6.75 (171.5)	7.62 (193.5)	8.57 (217.7)	8.87 (225.3)
J	5.17 (131.3)	5.40 (137.2)	6.00 (152.4)	6.75 (171.5)	7.62 (193.5)	8.33 (211.6)	8.87 (225.3)
K	5.17 (131.3)	5.39 (136.9)	6.00 (152.4)	6.75 (171.5)	7.62 (193.5)	8.56 (217.4)	8.87 (225.3)
L	1.19 (30.2)	1.19 (30.2)	1.19 (30.2)	1.19 (30.2)	1.37 (34.8)	1.37 (34.8)	1.37 (34.8)
M	1.75 (44.5)	1.75 (44.5)	1.75 (44.5)	1.75 (44.5)	2.25 (57.2)	2.25 (57.2)	2.25 (57.2)
N	5.22 (132.6)	5.34 (135.6)	5.96 (151.4)	6.83 (173.5)	7.56 (192.0)	8.69 (220.7)	9.00 (228.6)
O	1.90 (48.3)	1.90 (48.3)	2.06 (52.3)	2.06 (52.3)	1.90 (48.3)	1.90 (48.3)	1.90 (48.3)
P	3.36 (85.3)	3.36 (85.3)	3.18 (80.8)	3.20 (81.3)	3.50 (88.9)	3.50 (88.9)	3.50 (88.9)
Q	2.09 (53.1)	2.10 (53.3)	2.10 (53.3)	2.15 (54.6)	2.50 (63.5)	2.60 (66.0)	2.50 (63.5)
R	2.52 (64.0)	2.50 (63.5)	2.49 (63.2)	2.49 (63.2)	3.07 (78.0)	3.10 (78.7)	3.07 (78.0)
S	3.05 (77.5)	3.05 (77.5)	3.11 (79.0)	2.90 (73.7)	3.50 (88.9)	3.25 (82.6)	3.25 (82.6)
T	0.09 (2.3)	0.09 (2.3)	0.09 (2.3)	0.09 (2.3)	0.09 (2.3)	0.09 (2.3)	0.09 (2.3)
U	0.09 (2.3)	0.09 (2.3)	0.09 (2.3)	0.09 (2.3)	0.09 (2.3)	0.09 (2.3)	0.09 (2.3)
V	2.61 (66.3)	2.40 (61.0)	2.32 (58.9)	2.42 (61.5)	2.20 (55.9)	2.90 (73.7)	2.15 (54.4)
W	2.75 (69.9)	2.75 (69.9)	2.92 (74.2)	2.86 (72.6)	4.36 (110.7)	4.50 (114.3)	4.50 (114.3)
X	2.61 (66.3)	2.49 (63.2)	2.42 (61.5)	2.51 (63.8)	2.19 (55.6)	2.90 (73.7)	2.15 (54.4)
Y	4.19 (106.4)	4.13 (104.9)	4.13 (104.9)	4.13 (104.9)	4.25 (108.0)	4.80 (121.9)	4.25 (108.0)
Z	0.66 (16.8)	0.72 (18.3)	0.82 (20.8)	0.93 (23.6)	1.12 (28.4)	1.00 (25.4)	1.40 (35.6)
AA	4.35 (110.5)	4.35 (110.5)	4.35 (110.5)	4.35 (110.5)	4.50 (114.3)	4.50 (114.3)	4.50 (114.3)
BB	16.67 (423.4)	16.67 (423.4)	16.67 (423.4)	16.67 (423.4)	19.25 (489.0)	19.25 (489.0)	19.25 (489.0)
CC	2.64 (67.1)	2.64 (67.1)	2.64 (67.1)	2.64 (67.1)	3.06 (77.7)	3.06 (77.7)	3.06 (77.7)
DD	0.25 (6.4)	0.25 (6.4)	0.25 (6.4)	0.25 (6.4)	0.26 (6.6)	0.26 (6.6)	0.26 (6.6)
EE	9.14 (232.2)	9.14 (232.2)	9.14 (232.2)	9.14 (232.2)	9.72 (246.9)	9.72 (246.9)	9.72 (246.9)
FF	21.83 (554.5)	21.83 (554.5)	21.83 (554.5)	21.83 (554.5)	24.90 (632.5)	24.90 (632.5)	24.90 (632.5)
GG	31.51 (800.4)	31.57 (801.9)	31.67 (804.4)	31.87 (809.5)	36.36 (923.5)	36.54 (928.1)	36.64 (930.7)

Note: A through N = Diameter in. (mm)
 O through GG = Length in. (mm)



EZ DRILL® SV Squeeze Packer Dimensional Data
 (11 3/4- through 20-in. Sizes)

	802.352 (11 3/4 HW) in. (mm)	802.355 (11 3/4) in. (mm)	802.359 (13 3/8 HW) in. (mm)	802.358 (13 3/8) in. (mm)	802.364 (16) in. (mm)	802.36500 (18 5/8) in. (mm)	802.04660 (20) in. (mm)
A	3.31 (94.1)	3.31 (84.1)	3.25 (82.6)	3.31 (84.1)	3.25 (82.6)	3.25 (82.6)	3.25 (82.6)
B	4.37 (111.0)	4.37 (111.0)	4.37 (111.0)	4.37 (111.0)	10.10 (256.5)	10.10 (256.5)	10.10 (256.5)
C	2.50 (63.5)	2.50 (63.5)	2.50 (63.5)	2.50 (63.5)	2.50 (63.5)	2.50 (63.5)	2.50 (63.5)
D	9.73 (247.1)	9.87 (250.7)	11.31 (287.3)	11.68 (296.7)	13.96 (354.6)	16.80 (426.7)	17.24 (437.9)
E	2.20 (55.9)	2.20 (55.9)	2.20 (55.9)	2.20 (55.9)	2.20 (55.9)	2.20 (55.9)	2.20 (55.9)
F	2.62 (66.5)	2.62 (66.5)	2.62 (66.5)	2.62 (66.5)	5.75 (146.1)	7.00 (177.8)	7.00 (177.8)
G	9.96 (237.7)	9.47 (240.5)	10.90 (48.3)	11.25 (285.8)	13.50 (342.9)	16.65 (422.9)	16.91 (427.7)
H	4.00 (101.6)	4.00 (101.6)	4.00 (101.6)	4.00 (101.6)	8.00 (203.2)	9.50 (241.3)	9.50 (241.3)
I	9.61 (244.1)	9.75 (247.7)	11.13 (282.7)	11.50 (292.1)	13.87 (352.3)	16.68 (423.7)	17.16 (435.9)
J	9.60 (243.8)	9.75 (247.7)	10.81 (274.6)	11.50 (292.1)	13.75 (349.3)	16.68 (423.7)	17.03 (432.6)
K	8.15 (207.0)	8.30 (210.8)	10.00 (254.0)	10.00 (254.0)	12.63 (320.8)	14.73 (374.1)	14.73 (374.1)
L	1.37 (34.8)	1.37 (34.8)	1.37 (34.8)	1.37 (34.8)	1.37 (34.8)	1.37 (34.8)	1.37 (34.8)
M	2.25 (57.2)	2.25 (57.2)	2.25 (57.2)	2.25 (57.2)	2.25 (57.2)	2.25 (57.2)	2.50 (63.5)
N	9.73 (247.1)	9.87 (250.7)	11.31 (287.3)	11.68 (296.7)	13.94 (354.1)	16.68 (423.7)	17.19 (436.6)
O	1.90 (48.3)	1.90 (48.3)	1.95 (49.5)	1.90 (48.3)	4.13 (104.9)	3.93 (99.8)	3.93 (99.8)
P	3.50 (88.9)	3.50 (88.9)	3.50 (88.9)	3.50 (88.9)	3.81 (96.8)	3.81 (96.8)	3.81 (96.8)
Q	2.74 (69.6)	2.50 (63.5)	2.50 (63.5)	2.50 (63.5)	2.98 (75.7)	2.75 (69.9)	3.83 (97.3)
R	3.02 (76.7)	3.06 (77.7)	3.02 (76.7)	3.06 (77.7)	3.30 (83.8)	3.14 (79.8)	4.10 (104.1)
S	3.50 (88.9)	3.50 (88.9)	3.70 (94.0)	3.50 (88.9)	3.25 (82.6)	2.75 (69.9)	3.71 (94.2)
T	0.12 (3.0)	0.12 (3.0)	0.12 (3.0)	0.12 (3.0)	0.12 (3.0)	0.12 (3.0)	0.12 (3.0)
U	—	—	—	—	—	—	—
V	2.20 (55.9)	.96 (24.4)	1.66 (42.7)	1.66 (42.7)	2.22 (56.4)	2.57 (65.3)	2.57 (65.3)
W	5.35 (135.9)	8.06 (204.7)	7.00 (177.8)	7.00 (177.8)	6.71 (170.4)	5.98 (151.9)	5.98 (151.9)
X	2.20 (55.9)	.96 (24.4)	1.66 (42.7)	1.66 (42.7)	2.22 (56.4)	2.57 (65.3)	2.57 (65.3)
Y	4.41 (112.0)	4.25 (108.0)	4.31 (109.5)	4.25 (108.0)	4.98 (126.5)	5.98 (151.9)	5.87 (149.1)
Z	1.24 (31.5)	1.40 (35.6)	1.06 (26.9)	1.12 (28.4)	1.05 (26.7)	1.27 (32.3)	1.27 (32.3)
AA	4.50 (114.3)	4.50 (114.3)	4.50 (114.3)	4.50 (114.3)	6.83 (173.5)	6.93 (176.0)	6.93 (176.0)
BB	19.25 (489.0)	19.25 (489.0)	19.25 (489.0)	19.25 (489.0)	23.65 (600.7)	23.67 (601.2)	23.53 (597.7)
CC	3.06 (77.7)	3.06 (77.7)	3.06 (77.7)	3.06 (77.7)	3.06 (77.7)	3.06 (77.7)	3.06 (77.7)
DD	0.26 (6.6)	0.26 (6.6)	0.26 (6.6)	0.26 (6.6)	0.26 (6.6)	0.26 (6.6)	0.26 (6.6)
EE	9.72 (246.9)	9.72 (246.9)	9.72 (246.9)	9.72 (246.9)	9.72 (246.9)	9.72 (246.9)	9.81 (249.2)
FF	24.90 (632.5)	24.90 (632.5)	24.90 (632.5)	24.90 (632.5)	—	29.77 (756.2)	—
GG	36.48 (926.6)	36.64 (930.7)	36.24 (920.5)	36.36 (923.5)	41.66 (1058.2)	41.70 (1059.2)	45.62 (1158.7)

Note: A through N = Diameter in. (mm)
 O through GG = Length in. (mm)

7.3 BOT gravel pack assembly

O.D. (Inches)	I.D. (Inches)	LENGTH (M)	DEPTH (M)	WELL PROFILE	DESCRIPTION	COMMODITY NUMBER	W.O. & SER. No
						PRIMARY	
5.82	4.00	1.71	1784.88		MODEL 'SC-1A' PACKER SIZE 70A-47X40 W/5-1/2" HT SL BOX DOWN FLOW WETTED PARTS 13 CR	488-22-7004	SN 007
5.53	4.88	2.78	1786.69		UPPER EXTENSION W/3-1/2" HT SL PIN X PIN 13%CR		
5.81	4.00	1.08	1788.36		MODEL 'S' GRAVEL PACK EXTENSION W/SLEEVING SLEEVE SIZE: 80-40 W/5-1/2" HTSL BDX X 5" HTSL BDX	487-08-410M	
6.03	4.37	8.80	1790.43		LOWER EXTENSION W/3" HT SL PIN X 5" HT SL PIN 13%CR		
5.57	4.40	0.19	1797.23		SAVER SUB W/6" HT SL BOX X BOX 13%CR	494-D1-5225	J-019796 CH C-8774 CF-36141-3
5.57	4.40	2.08	1787.42		INDICATING EXTENSION W/6" HT SL BOX X PIN 13% CR	494-03-8018	
5.58	3.50	0.33	1799.48		INDICATING COUPLIND FOR SMART COLLET W/3" HT SL BOX X BOX 13%CR	445-28-3520	
5.03	4.45	1.30	1799.81		INDICATING EXTENSION W/6" HT SL PIN X PIN 13% CR	494-03-8014	
5.38	3.55	0.21	1801.31		TUBIND SUB W/3" SL-HT BOX X 4" SL-HT PIN 13%CR	494-D1-6226	
4.48	3.48	8.10	1801.32		BLANK PIPE SIZE: 4" 2# W/4" SL-HT BOX X PIN 13%CR	485-07-4141	
4.62	3.55	35.73	1807.62	BAKERWELD SCREENS SIZE 4" X 0.020" GA W/4" SL-HT BOX X PIN 13% CR BASEPIPE	486-70-4020	6-505 8-11082 4-01108 3-01122 2-01088 1-11088	
			1810		UPPER PERF		
	4				4" BOW TYPE CENTRALIZERS		
			1842		LOWER PERF		
4.79	3.25	0.74	1843.35		SEAL BORE RECEPT. SIZE: 3.25" W/4" SL-HT BOX X PIN 13%CR	485-34-4684	WO 203839
4.55	3.48	0.58	1844.09		FUP JOINT W/4" SL-HT BOX X PIN 13% Cr	494-07-8108	
4.50	-	0.45	1844.64		MODEL 'SPV' SET SHOE W/4" SL-HT BOX UP 13%CR MATERIAL	487-38-4015	SN 001 WO 1734057
					BOTTOM ASSY TD: 1845.08 M.		
					TOTAL ASSY LENGTH 80.21 M		
						DATE: 18.08 01	
						SIGN: O Nordbø	
GRAVEL PACK HOOK-UP				DWGING Scale 2			
Scale				DRAWN TO Nordham			
WELL 6608/10-6				DATE 22.08.01			
Øvre Sane Melke				REV 22.08.01			

Final Well Report
6608/10-6 R2
PL 128
Re-entry no. two

Doc. no.



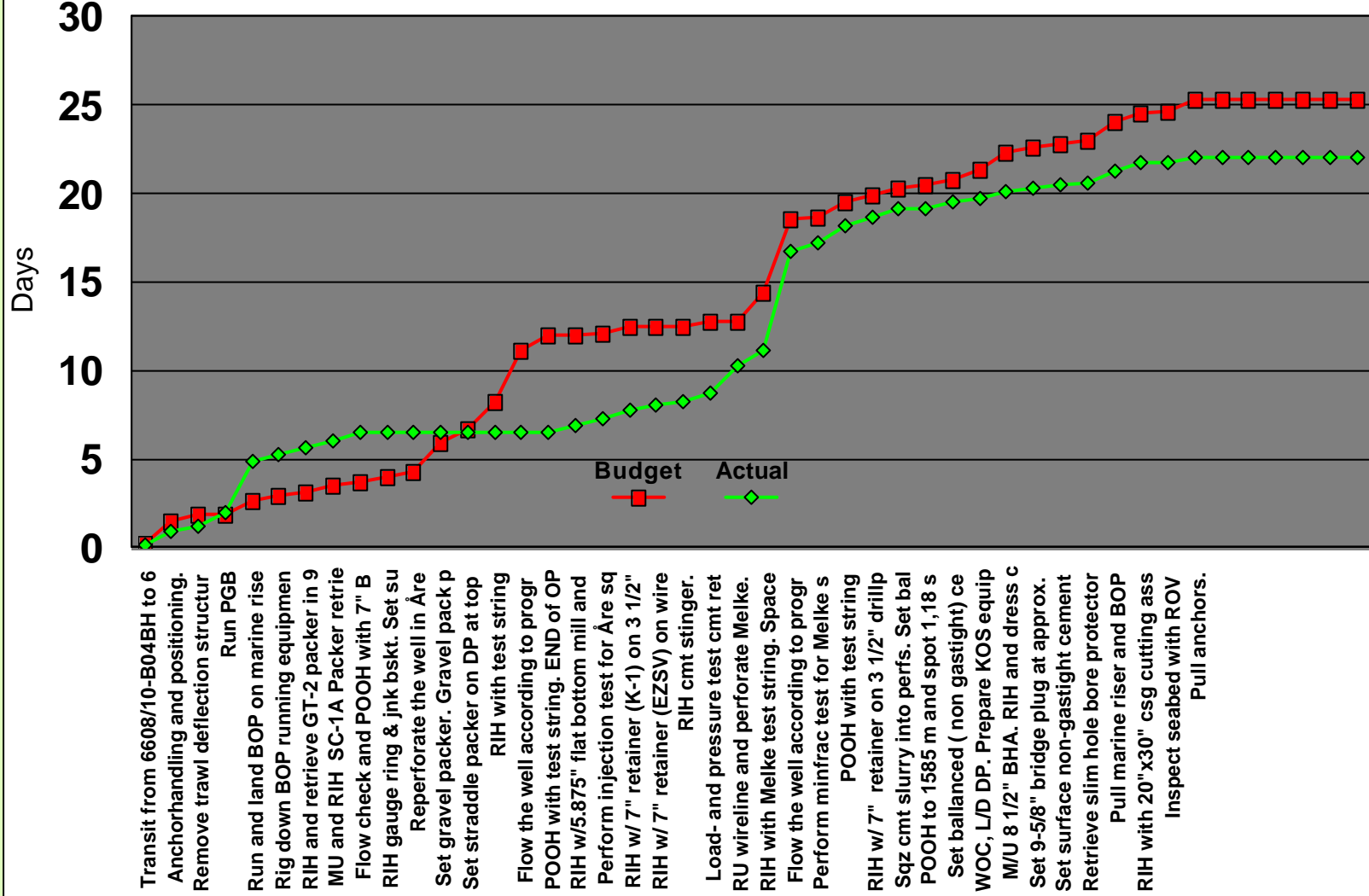
Date
2001-10-31

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8 Appendix D: Timeplanner

Work progress

Scale 10-6 R2



9 Appendix E: Operational listing

Operations

Wellbore: 6608/10-006R2

Time from	Time to	Time used	Depth mMD	---- Status ----			Description of activities
				Act code	During opr	End of opr	
08.08.2001.05:00	06:00	1,0		MNMU	OK	OK	Rig in transit from Norne to Svalde 6608/10-6R2 location.
08.08.2001.06:00	07:30	1,5		MNMU	OK	OK	Moved rig to location. Anchorhandlers Northern Corona, Normand Borg, Maersk Blazer and Normand Jarl in anchorchains #5, #4, #1 and #8 respectively.
08.08.2001.07:30	22:00	14,5		MARU	OK	OK	Commenced anchorhandling. Anchor #5 on bottom 0845 hrs - pennant passed back to rig 0918 hrs. Anchor #4 on bottom 1134 hrs - pennant passed to rig 1202 hrs. Anchor #1 on bottom 1002 hrs - pennant passed to rig 1030 hrs. Anchor #8 on bottom 1102 hrs - pennant passed to rig 1140 hrs. Pennant #6 passed to Northern Corona 0925 hrs - anchor on bottom 1336 hrs - pennant passed to rig 1410 hrs. Pennant #7 passed to Normand Jarl 1258 hrs - anchor on bottom 1515 hrs - pennant passed to rig 1544 hrs. Pennant #3 passed to Normand Borg 1207 hrs - anchor on bottom 1442 hrs - pennant passed to rig 1510 hrs. Pennant #2 passed to Maersk Blazer 1605 hrs - anchor on bottom 2044 hrs - piggy-back on bottom 2140 hrs - surface buoy in water 2200 hrs. Tension tested all anchors to 180 tons. Commenced ballasting of rig 2155 hrs.
08.08.2001.22:00	22:30	0,5		MNBU	OK	OK	Cont. ballasting rig.
08.08.2001.22:30	23:30	1,0		MARU	OK	OK	Shut down emergency power panel for repair. Stopped deballasting while taking on board navigation equipment from anchorhandlers. Meanwhile prepared for running HXT debris cap RT through intervention moonpool.
08.08.2001.23:30	00:00	0,5		MNBU	OK	OK	Cont. ballasting rig.
09.08.2001.00:00	02:30	2,5		MNBU	OK	OK	Cont. ballasting rig - on operational dra ft 0230 hrs. Meanwhile jumped ROV and inspected trawl deflector/WH and ran HXT debris cap RT to seabed. Briefed Normand Borg on recovery procedure for trawl deflector and prepared wire-sling.
09.08.2001.02:30	03:30	1,0		MNPU	OK	OK	Positioned rig over location.
09.08.2001.03:30	06:00	2,5		JXXU	OK	OK	Connected debris cap RT to trawl deflector. Lifted trawl deflector 10 m above wellhead. Moved rig 40 m stbd. Installed dust cover on WH.
09.08.2001.06:00	06:30	0,5		JXXU	OK	OK	Placed trawl deflector on sea bed. Not able to disconnect running tool due to hydraulic failure on ROV. Pulled Rov to surface. Meanwhile tested shear ram on BOP. Shear ram did not pass low pressure test.
09.08.2001.06:30	10:00	3,5		BBOU	OK	OK	Prepared to run PGB. Meanwhile changed broken o-ring in ROV hydraulic system. Opened BOP to change upper and lower rubber on shear ram block.

09.08.2001.10:00	10:30	0,5	405,0	JXXU	OK	OK	Released debris cap running tool from trawl deflector and pulled running tool to surface.
09.08.2001.10:30	13:00	2,5		BBOU	OK	OK	Prepared to run PGB as per ABB procedure. Pulled rig 10 m starboard. Meanwhile attempted to fish trawl deflector from sea bed using Normand Borg assisted by rig ROV. Aborted fishing operations due to poor visibility and difficulties connecting lifting slings to trawl deflector frame.
09.08.2001.13:00	15:00	2,0	405,0	BBOU	OK	OK	Ran PGB on 5" dp landing string. Clamped umbilical to landing string as running in.
09.08.2001.15:00	16:00	1,0		MNPU	OK	OK	Positioned rig over well head.
09.08.2001.16:00	16:30	0,5	405,0	BBOU	OK	OK	Landed PGB on well head.
09.08.2001.16:30	17:00	0,5	405,0	BBOU	OK	O FAIL	Attempted to lock PGB to well head. no success.
09.08.2001.17:00	18:00	1,0		BBOD	O FAIL	OK	Pulled PGB above well head. Moved rig 15 m to port side and pulled PGB to surface.
09.08.2001.18:00	20:00	2,0		BBOD	O FAIL	OK	Landed PGB on 105 ton skid and skidded PGB out of moon pool. Inspected and changed shear pins.
09.08.2001.20:00	21:30	1,5	386,0	BBOD	O FAIL	OK	Ran in with PGB on 3 std 5" hwdp and 5" dp to 386 m.
09.08.2001.21:30	23:30	2,0		BBOD	O FAIL	OK	Positioned rig over well head.
09.08.2001.23:30	00:00	0,5	405,0	BBOD	O FAIL	OK	Landed PGB on well head and started locking according to ABB procedure.
10.08.2001.00:00	00:30	0,5	405,0	BBOU	OK	OK	Continued locking PGB to well head according to ABB procedure. Performed overpull test to 3 mt and released running tool at 0030 hrs.
10.08.2001.00:30	01:30	1,0		MNPU	OK	OK	Pulled rig 35 m off location.
10.08.2001.01:30	03:30	2,0		BBOU	OK	OK	Pulled out and l/d PGB running tool.
10.08.2001.03:30	04:00	0,5		JXXU	OK	OK	L/D debris cap running tool for trawl deflector.
10.08.2001.04:00	06:00	2,0		BBRU	OK	OK	R/U BOP running equipment.
10.08.2001.06:00	06:30	0,5		BBRU	OK	E FAIL	R/U to run BOP.
10.08.2001.06:30	00:00	17,5		BBOD	E FAIL	OK	Troubleshoot on leaking BOP shear ram.
11.08.2001.00:00	04:00	4,0		BBOD	E FAIL	OK	Cont troubleshooting on leaking BOP shear ram. Found clearance between metal to metal contact in ram aproximately 7 mm. Removed boost cylinder starbord side. Adjusted Poslock. Meanwhile r/d BOP running equipment.
11.08.2001.04:00	06:00	2,0		JXXU	OK	OK	L/D 4 ea 8" dc and hang off stand from derrick. Meanwhile cont adjusting BSR Poslock.
11.08.2001.06:00	14:00	8,0		JXXU	OK	OK	L/d 4 x 8 " dc, 8" jar, 9 x 6 1/2" dc and 27 ea 3 1/2" dp from derrick. Meanwhile worked on BOP.
11.08.2001.14:00	16:30	2,5		BBOD	E FAIL	OK	Worked on BOP. Meanwhile prepared to pick up 4 3/4" dc from deck.
11.08.2001.16:30	17:00	0,5		BBOD	E FAIL	OK	Troubleshoot on iron roughneck. Found broken sylinder.
11.08.2001.17:00	18:00	1,0		JXXD	E FAIL	OK	Cleared rig floor. R/u rig tongs. Held SJA meeting prior to start using rig tongs. Meanwhile worked on BOP.
11.08.2001.18:00	18:30	0,5		JXXU	OK	OK	M/u 3 x 4 3/4" dc using rig tongs and racked in derrick. meanwhile worked on BOP.
11.08.2001.18:30	00:00	5,5		BBOD	E FAIL	OK	Troubleshoot on leaking BOP shear ram.
12.08.2001.00:00	03:30	3,5		JXXU	OK	OK	M/u 12 jnts 4 3/4" dc and racked stands in derrick. L/d 6 jnts 5 1/2" hwdp and 6 jnts 5" dp from derrick. Meanwhile tested BOP shear ram to 20/690 bar for 5/10 min - ok.
12.08.2001.03:30	06:00	2,5		BBOD	E FAIL	OK	Function tested BOP on both pods from control room. Prep to skid BOP to moon pool.

12.08.2001.06:00	08:00	2,0		BBOD	E FAIL	OK	Prepared to skid and run BOP.
12.08.2001.08:00	08:30	0,5		BBOU	OK	OK	Skid BOP to moon pool.
12.08.2001.08:30	09:00	0,5		BBOU	OK	OK	Function tested BOP. Installed guide and pod wires.
12.08.2001.09:00	11:30	2,5		BBRU	OK	OK	Connected 50 ft joint to BOP. Installed transponder. Lowered BOP to underhull guiding. Prepared to test kill/choke lines. Lowered guide wires to seabed.
12.08.2001.11:30	12:00	0,5		BBRU	OK	OK	Tested kill/choke lines to 20/690 bar. Disconnected test equipment.
12.08.2001.12:00	12:30	0,5		BBRU	OK	OK	Connected 75 ft riser joint. Ran BOP through splash zone.
12.08.2001.12:30	20:30	8,0		BBRU	OK	OK	Continued running BOP and riser to 370 m. Tested kill/choke lines to 345 bar for 10 min every third joint.
12.08.2001.20:30	21:30	1,0	370,0	BBRU	OK	E FAIL	M/u riser slip joint. Meanwhile rearranged guide line no 4 assisted by ROV.
12.08.2001.21:30	22:00	0,5		BBOD	E FAIL	OK	Troubleshoot tripping of electrical power, 440 volts, in ROV unit. ROV out of function.
12.08.2001.22:00	23:00	1,0	390,0	BBRU	OK	OK	M/u riser landing joint and support ring.
12.08.2001.23:00	23:30	0,5		MNPU	OK	OK	Moved and positioned rig over well head.
12.08.2001.23:30	00:00	0,5	390,0	BBRU	OK	OK	Checked bulls eyes. Established guide line no 1.
13.08.2001.00:00	00:30	0,5	390,0	BBRU	OK	OK	Continued establishing guide lines. Adjusted rig position.
13.08.2001.00:30	02:00	1,5	405,0	BBRU	OK	OK	Landed BOP on well head at 0035 hrs. Locked connector and performed 30 mt over pull. Racked landing joint. L/d 6 m bails and IR riser claw.
13.08.2001.02:00	06:00	4,0		BBRU	OK	OK	Installed diverter. R/d spider and running equipment. Installed master bushing. Installed pod line saddles and connected pod line reels.
13.08.2001.06:00	07:00	1,0	390,0	JXXD	E FAIL	OK	Repairing Iron Roughneck. Meanwhile pressure testing connector to 250 bar.
13.08.2001.07:00	07:30	0,5	390,0	BBDU	OK	OK	Function tested BOP. Meanwhile continuing repairing Iron Roughneck.
13.08.2001.07:30	09:30	2,0	390,0	BBUU	OK	OK	Pressure testing Top Drive safety valves.
13.08.2001.09:30	11:00	1,5	390,0	JXXU	OK	OK	Changed bails and elevator. Rig down test equipment. Held prejob meeting with involved personell.
13.08.2001.11:00	14:00	3,0	390,0	JXXU	OK	O FAIL	Made up GT - retrieving tool and RIH to 630 m.
13.08.2001.14:00	14:30	0,5	630,0	JXXD	O FAIL	OK	Difficulties to open compensator.
13.08.2001.14:30	15:00	0,5	635,0	JXXU	OK	OK	Circulated 5 minutes. Engaged and released plug.
13.08.2001.15:00	16:00	1,0	635,0	JXXU	OK	OK	Waited 45 minutes for elements to relax. RIH 5 m, pulled up and flow checked for 15 minutes.
13.08.2001.16:00	17:30	1,5	635,0	JXXU	OK	OK	Closed annular preventer and circulated seawater up choke line rough poor boy degasser - no gass. Displaced riser with seawater through booster line. Opened annular preventer and flow checked.
13.08.2001.17:30	19:30	2,0		JXXU	OK	OK	Pooh with GT-2 packer. Rotated string every 5th stand.
13.08.2001.19:30	20:30	1,0		JXXU	OK	OK	L/d GT-2 packer and retrieving tool. Drifted 3 1/2" dp and held pre-job meeting prior to rih to retrieve SC-1A packer. Meanwhile tested casing against SC-1A packer and shear ram to 250 bar for 10 min.
13.08.2001.20:30	22:30	2,0	930,0	JXXU	OK	OK	M/u SC-1A packer retrieving tool and rih with 18 stands 3 1/2" dp and 5 1/2" dp to 930 m.
13.08.2001.22:30	23:00	0,5		BBDU	OK	OK	Function tested BOP on both pods from bop control room.
13.08.2001.23:00	00:00	1,0	1825,0	JXXU	OK	OK	Rih with 5 1/2" dp from 930 m to 1825 m.
14.08.2001.00:00	02:30	2,5	1830,0	JXXU	OK	OK	Dislaced well to 1.12 sa brine. 1800 lbm. 86 bar. Had

								excessive amount of debris, steel, cavings, cuttings on bottoms up. Looked like drilling fluid contamination. Weight was 1,14 S.G..
14.08.2001.02:30	04:00	1,5	1854,0	JXXU	OK	OK		Washed down with 450 lpm. Tagged top of packer at 1854 m. Stopped pumps and stung into packer. Set down 10mt weight. Pulled SC-1A packer free with 6 mt overpull. Hole stable.
14.08.2001.04:00	05:00	1,0	1854,0	JXXU	OK	OK		Dropped ball and waited for 20 min. Pumped 100 lpm and sheared pins in circ sub with 40 bar. Circ bottoms up to well head. Closed annular and took returns up choke line and through poor boy degasser. Flow rate 1800 lpm, 70 bar. No gas in returns. Hole stable.
14.08.2001.05:00	06:00	1,0	1854,0	JXXU	OK	OK		Pumped 10 m3 of 1,15 S.G. kill pill. Displaced with 14 m3 brine and set pill balanced, 1700 lpm, 65 bar. Flow checked well for 30 min - stable.
14.08.2001.06:00	07:30	1,5	1750,0	JXXU	OK	OK		POOH to 1750m, had increase in Triptank of 200ltr, flowcheck 15min (OK). Fill pipe hole swabbing. POOH to 1709m.
14.08.2001.07:30	08:30	1,0	1840,0	JXXU	OK	OK		RIH to 1840m due to swabbing.
14.08.2001.08:30	10:00	1,5	1840,0	JXXU	OK	OK		Circ. 22,3 m3. Closed annular BOP and circulated through choke. Flow checked 15 min., OK. Had small gas peak of 0,14 % on bottoms up. Background gas 0,06 %. Traces of crude on bottoms up. Pooh.
14.08.2001.10:00	16:30	6,5		JXXU	OK	OK		POOH to above liner lap at 1339m. Flow checked - ok. Cont pooh.
14.08.2001.16:30	18:00	1,5	,0	JXXU	OK	OK		LD BOT SC-1A Packer and temperature and pressure gauges as per SLB instructions.
14.08.2001.18:00	00:00	6,0	1770,0	JXXU	OK	OK		MU & RIH cleanout BHA to 1770m, scrape and clean casing to 1865m. Circ. hi-vis pill followed by 6 m3 soap pill. Circulated hole clean with 1,12 S.G. NaCl brine. Final NTU reading 214.
15.08.2001.00:00	04:30	4,5	1865,0	JXXU	OK	OK		Established injection with 1,12 S.G. NaCl brine at 150lpm with 48bar, increased to 200lpm at 50bar. Reduced rate to 150 lpm, pump pressure 45 bar. Flow check well, lost 400ltrs in 30min.
15.08.2001.04:30	06:00	1,5	1140,0	JXXU	OK	OK		POOH from 1865 m to 1140 m. Losses 800 lph.
15.08.2001.06:00	07:00	1,0	795,0	JXXU	OK	OK		Pooh from 1140 m to 795 m.
15.08.2001.07:00	09:30	2,5	92,0	JXXU	OK	OK		Changed to 3 1/2" handling equipment and pooh with 3 1/2" dp from 795 m to 92 m.
15.08.2001.09:30	11:00	1,5		JXXU	OK	OK		Changed handling equipment. Pooh. Racked 4 3/4" dc and l/d remaining bha. Cleaned rig floor.
15.08.2001.11:00	11:30	0,5		JXXU	OK	OK		M/u Baker K-1 cmt retainer with running tool to 3 1/2" dp.
15.08.2001.11:30	14:30	3,0	532,0	JXXU	OK	OK		Rih with Baker K-1 cmt retainer on 3 1/2" dp to 532 m.
15.08.2001.14:30	15:30	1,0	720,0	JXXU	OK	OK		Rih with 5 1/2" dp from 532 m to 720 m. Pooh from 720 m to 522 m. L/d 1 joint 3 1/2" dp for correct space out. Rih from 522 m to 720 m.
15.08.2001.15:30	17:30	2,0	1855,0	JXXU	OK	E FAIL		Rih with 5 1/2" dp from 720 m to 1855 m - top of cmt retainer.
15.08.2001.17:30	20:00	2,5	1855,0	JXXD	E FAIL	OK		M/u pump in sub and cmt hose. Performed pre-job meeting and attempted to set K-1 cmt retainer by pumping 400 lpm, 10 bar. Pumped straight through retainer. Shocked string several times to allow ball to seat. Attempted to set cmt retainer by pumping 500 lpm, 20 bar - no success - pumped through retainer.
15.08.2001.20:00	00:00	4,0		JXXD	E FAIL	OK		Pooh with Baker K-1 packer.
16.08.2001.00:00	00:30	0,5		JXXD	E FAIL	OK		L/d Baker K-1 packer and running tool. Held pre-job meeting prior to r/u Schlumberger wireline.
16.08.2001.00:30	01:30	1,0		JXXD	E FAIL	OK		R/u Schlumberger wireline with EZSV cmt retainer. Rih to 50 m.

16.08.2001.01:30	02:00	0,5	50,0	JXXD	E FAIL	OK	Problems with wireline sheave tuching construction on rig.
16.08.2001.02:00	02:30	0,5	800,0	JXXD	E FAIL	OK	Rih with wireline from 50 m to 800 m.
16.08.2001.02:30	03:00	0,5	800,0	JXXD	E FAIL	OK	Problems with wireline sheave tuching construction on rig.
16.08.2001.03:00	03:30	0,5	1865,0	JXXD	E FAIL	OK	Cont rih with wirelin from 800 m to 1865 m. Correlated radioactive marker at 1612 m.
16.08.2001.03:30	04:00	0,5	1865,0	JXXD	E FAIL	OK	Problems with wireline sheave tuching construction on rig.
16.08.2001.04:00	04:30	0,5	1846,0	JXXD	E FAIL	OK	Correlated and set EZSV cmt retainer with top at 1846 m
16.08.2001.04:30	05:30	1,0		JXXD	E FAIL	OK	Pooh with wireline.
16.08.2001.05:30	06:00	0,5		JXXD	E FAIL	OK	R/d Schlumberger wireline.
16.08.2001.06:00	08:00	2,0	520,0	JTWU	OK	OK	M/u Halliburton cmt stinger and rih with 3 1/2" dp to 520 m.
16.08.2001.08:00	08:30	0,5		JTWU	OK	OK	M/u and racked cmt stand in derrick.
16.08.2001.08:30	11:00	2,5	1851,0	JTWU	OK	OK	Cont rih with 5 1/2" dp from 520 m to 1830 m. P/u cmt stand from derrick and rih to 1850 m without tagging cmt retainer. M/u 1 joint 5 1/2" dp to string. Ran in and tagged EZSV cmt retainer at 1851 m.
16.08.2001.11:00	11:30	0,5	1851,0	JELU	OK	OK	Weight tested cmt retainer to 10 mt. Closed annular and pressure tested cmt retainer from above to 100 bar for 10 min.
16.08.2001.11:30	13:00	1,5	1851,0	JCMK	OK	OK	Opened annular and stung out of retainer. Circ bottoms up prior to cmt job, 1700 lpm, 115 bar.
16.08.2001.13:00	13:30	0,5		JSMU	OK	OK	R/u and tested cmt surface lines to 250 bar for 10 min.
16.08.2001.13:30	15:00	1,5	1850,0	JSMU	OK	OK	Pumped 6 m3 1,50 sg spacer. Mixed and pumped 6 m3 1,90 sg cmt slurry followed by 1,5 m3 1,50 sg spacer holding 30-80 bar back pressure on rig choke.
16.08.2001.15:00	15:30	0,5	1851,0	JSSU	OK	OK	Stung into cmt retainer and squeezed 5,2 m3 cmt, leaving 0,8 m3 cmt slurry in string. Final squeeze pressure 75 bar. Held 80 bar pressure on annulus while squeezing.
16.08.2001.15:30	16:00	0,5	1850,0	JSCU	OK	OK	Pulled out of retainer keeping 80 bar pressure on annulus. Reverse circ out excess cmt, 1700 lpm, 145 bar.
16.08.2001.16:00	18:00	2,0	1850,0	JCBU	OK	OK	Tested cmt retainer from above to 250 bar for 10 min. Opened annular and pumped 10 m3 citric acid pill, 1,13 sg, - 100 kg clean citric used - followed by 10 m3, 1,13 sg high visc pill and displaced hole to 1,18 sg NaCl brine, 3000lpm, 230 bar, 40 rpm. Final NTU reading 200.
16.08.2001.18:00	18:30	0,5	1851,0	JCBU	OK	OK	Set 4 m3 ballanced kill pill from top of cmt retainer at 1851 m.
16.08.2001.18:30	20:30	2,0	520,0	JTWU	OK	OK	Pooh from 1850 m to 520 m.
16.08.2001.20:30	22:00	1,5		JTWU	OK	OK	Changed to 3 1/2" equipment and pooh with 3 1/2" dp and cmt stinger.
16.08.2001.22:00	23:00	1,0		JXXU	OK	OK	P/u Halliburton lubricator valve. Broke connection and changed o-ring. M/u connection and l/d lubricator on deck.
16.08.2001.23:00	00:00	1,0		JPEU	OK	OK	Held pre-job meeting and p/u perf guns from deck.
17.08.2001.00:00	01:00	1,0		JPEU	OK	OK	Continued p/u perf guns from deck and r/u Schlumberger wireline.
17.08.2001.01:00	02:30	1,5	1842,0	JPEU	OK	OK	Rih with perf guns on wireline. Correlated pup joint at 1612 m. Tagged cmt retainer at 1846 m wireline depth. Correlated and perforated 7" liner from 1810 m to 1842 m. Lost 300 ltr brine to formation after perforation.

17.08.2001.02:30	05:00	2,5		JPEU	OK	OK	Pooh with wireline. l/d perf guns. All shots fired. R/d wireline.
17.08.2001.05:00	05:30	0,5		JXXU	OK	OK	P/u 1 std 5 1/2" dp. Installed 2 ea kelly valves and pump in sub. Loaded 1 1/4" steel ball on top of upper kelly valve.
17.08.2001.05:30	06:00	0,5		JGRU	OK	OK	Held pre-job meeting prior to run gravelpack string.
17.08.2001.06:00	10:00	4,0		JGTU	OK	OK	M/u gravel pack screens. R/u false rotary with bowl and slips for 2 7/8" wash pipe. Ran 2 7/8" wash pipe inside gravel pack screens.
17.08.2001.10:00	10:30	0,5		JGTU	OK	OK	R/d casing tong and cleaned rig floor.
17.08.2001.10:30	11:00	0,5		JGTU	OK	OK	Pumped through gravel pack assembly, 200 lpm, 2 bar and 400 lpm, 4 bar.
17.08.2001.11:00	13:30	2,5	523,0	JGTU	OK	OK	Rih with gravel pack string on 3 1/2" dp to 523 m.
17.08.2001.13:30	14:30	1,0	523,0	JGTU	OK	OK	Changed to 5 1/2" running equipment. Broke circ, 380 lpm, 7 bar. Broke off top joint from pump in stand in derrick and installed pup joint.
17.08.2001.14:30	18:30	4,0	1846,0	JGTU	OK	OK	Rih with gravel pack bha on 5 1/2" dp from 523 m to 1846 m. Filled string every 5 stands. Broke circ at 1000 m, 380 lpm, 8 bar and at 1500 m, 380 lpm, 9 bar.
17.08.2001.18:30	19:00	0,5	1851,0	JGTU	OK	OK	M/u pump in stand to string. Recorded up/down weights, 70/70 mt. Ran in from 1846 m and tagged top of cmt retainer at 1851 m. Set down 5 mt weight. Pulled to 1850 m.
17.08.2001.19:00	20:00	1,0	1850,0	JGTU	OK	OK	Installed high press line to gravel pack manifold and pressure tested line against low torque valve to 20/345 bar for 5/10 min. Set down 5 mt weight to confirm Vetco measurement.
17.08.2001.20:00	20:30	0,5	1850,0	JGTU	OK	OK	Pumped 1,18 sg NaCl brine to displace kill pill up annulus, 400 lpm, 28 bar. Pressure increased to 70 bar and lifted string 2 m after pumping 1700 ltr. Stopped pumping, bled off pressure and lowered string to 1850 m.
17.08.2001.20:30	21:30	1,0	1850,0	JGTU	OK	OK	Dropped 1 1/4" steel ball. Let ball fall for 20 min. Pressured up on string and set Baker SC-1 packer as per Baker procedure. Set down 20 mt weight to verify packer set. Pulled to 10 mt up-weight and returned to neutral weight. Top gravel pack at 1789,8 m. SC-1 packer at 1790,6 m.
17.08.2001.21:30	22:00	0,5	1850,0	JGTU	OK	OK	Held pre-job meeting with involved personnel prior to perform gravel pack.
17.08.2001.22:00	00:00	2,0	1850,0	JGTU	OK	OK	Lined up Baker. Closed annular preventer. Pressured up on annulus to test SC-1 packer to 170 bar and to release work string. Bled down pressure to 20 bar. P/u on string to confirm release from SC-1 packer. pulled to 20 mt over pull - no success. Slacked off to neutral weight. Bled off pressure and opened annular. Set down 10 mt weight and closed annular. Closed annular and pressured up on annulus to 40 bar. Pulled work string free with 6 mt over pull. Set down 20 mt weight. Started circ, 185 lpm, 20 bar. P/u and observed pressure dropping after 4 m.
18.08.2001.00:00	01:00	1,0	1850,0	JGTU	OK	OK	Closed annular. Reverse circ. Got kill pill in returns after pumping 19 m3.
18.08.2001.01:00	01:30	0,5	1850,0	JGTU	OK	OK	Pumped 4 m3 10% HCL acid down string and displaced with 12,4 m3 1,18 NaCl brine.
18.08.2001.01:30	03:00	1,5	1850,0	JGTU	OK	OK	Operated x-over tool to circ position. Displaced 2,7 m3 acid to the perforated interval, 100 lpm, 9 bar. Observed well while acid soaking for one hour. Lost 120 ltr to formation in one hour.
18.08.2001.03:00	04:00	1,0	1850,0	JGTU	OK	OK	Opened annular. Moved string to position for reverse circ. Reverse circ with 4 m3 brine and displaced acid into string. Adjusted string to circ position. Closed

								annular. Pumped 4 m# down string and squeezed acid into formation, 100 lpm, 100 bar.
18.08.2001.04:00	04:30	0,5	1850,0	JGTU	OK	OK		Circ bottoms up, 1200 lpm, 124 bar. Had traces of acid and oil in returns.
18.08.2001.04:30	05:00	0,5	1850,0	JGTU	OK	OK		Performed circ test at several different rates. Performed pre-job meeting prior to pump gravel.
18.08.2001.05:00	06:00	1,0	1850,0	JGGU	OK	OK		Pumped gravel pack slurry. Had screenout after 23 m3 pumped. Pump rate 1000 lpm, 65 bar. FCP 120 bar after screenout. Reversed out excess gravel pack slurry.
18.08.2001.06:00	07:30	1,5	1850,0	JGGU	OK	OK		Flow checked for 30 min. Lost 130 ltr to formation during flow check. Circ bottoms up. Took returns through poor boy degasser. No gas observed.
18.08.2001.07:30	08:00	0,5	1850,0	JGGU	OK	OK		R/d high pressure hoses and racked pump-in stand in derrick. Meanwhile observed well on trip tank. Well stable.
18.08.2001.08:00	09:30	1,5	523,0	JGTU	OK	OK		Pooh with 5 1/2" dp from 1850 m to 523 m.
18.08.2001.09:30	10:30	1,0	62,0	JGTU	OK	OK		Changed to 3 1/2" equipment and cont pooh with 3 1/2" dp from 523 m to 62 m.
18.08.2001.10:30	12:30	2,0		JGTU	OK	OK		Cont pooh. L/d gravel pack wash pipe. L/d pump-in stand from derrick.
18.08.2001.12:30	13:30	1,0		TEDU	OK	OK		P/u Halliburton Surface Flow Tree. M/u x-overs and 1 joint 3 1/2" PH-4, AC-95 to bottom of SFT.
18.08.2001.13:30	14:30	1,0		TEDU	OK	OK		R/u tubing tong and test string running equipment. Held pre-job meeting prior to rih with DST string.
18.08.2001.14:30	18:30	4,0	226,0	TEDU	OK	OK		M/u and rih with DST bha and one joint of 3 1/2" PH-6 tbg. Pressure tested entire bha against TST valve to 345 bar for 10 min.
18.08.2001.18:30	00:00	5,5	1377,0	TEDU	OK	OK		Cont rih with DST bha on 3 1/2" ph-6 test tubing from 226 m to 1377 m. Activated compensator while passing through liner lap at 1339 m.
19.08.2001.00:00	01:30	1,5	1389,0	TEDU	OK	OK		M/u Super Tree II, Sub Sea Test Tree, assembly including x-overs, adjustable mandrel, fluted hanger, slick joint and pup joints to test string. Installed control lines. Checked that valves opened properly and checked Super Tree latch. Installed glycol injection line.
19.08.2001.01:30	02:00	0,5	1389,0	TEDU	OK	OK		Prep to run Super Tree through rotary. Removed master bushing and installed bushing with cut out for umbilical.
19.08.2001.02:00	04:30	2,5	1752,0	TEDU	OK	OK		Cont rih with 3 1/2" PH-4 tbg above Super Tree to 1752 m. Secured control lines to string every stand.
19.08.2001.04:30	05:30	1,0	1752,0	TEDU	OK	OK		M/u lubricator assembly to test string. Connected control lines and function tested lubricator valve.
19.08.2001.05:30	06:00	0,5	1783,0	TEDU	OK	OK		Rih with test string from 1752 m to 1783 m. Secured control lines to string.
19.08.2001.06:00	10:00	4,0	1783,0	TEDU	OK	OK		R/u Halliburton line to string. Pressure tested entire string against TST valve to 345 bar. Closed SSTT, bled down pressure above to 35 bar and inflow tested SSTT for 10 min. Equalized pressure and opened SSTT. Bled off pressure to check volume. Pressured up entire string to 345 bar. Closed SSLV, bled down pressure above to 35 bar and inflow tested SSLV for 10 min. Equalized pressure and opened SSLV. Bled off pressure and checked volume. Closed SSLV and pressure tested from above to 345 bar for 10 min.
19.08.2001.10:00	14:00	4,0	1783,0	TEDU	OK	OK		R/d Halliburton test line. R/u Coflexip flow line hose to testing manifold in derrick. Changed to 13,7 m bails and 5" manual elevator.
19.08.2001.14:00	19:00	5,0	1783,0	TEDU	OK	OK		P/u SFT from deck and m/u to test string. Connected flow and kill hoses to SFT.

19.08.2001.19:00	21:00	2,0	1786,0	TEDU	OK	OK	Ran in from 1783 m to 1786 m and landed fluted hanger in well head. Meanwhile positioned rig and verified well head datum. Prepared to test surface equipment.
19.08.2001.21:00	23:00	2,0	1786,0	TEDU	OK	OK	Pressure tested SFT body, kill and flow hoses to 345 bar for 15 min. Rigged up chemical injection pump and BJ nitrogen hoses.
19.08.2001.23:00	00:00	1,0	1786,0	TEDU	OK	OK	Pressure tested entire string through kill line against TST, prod wing valve and swab valve to 345 bar for 10 min. Closed master valve, bled down pressure above to 35 bar and inflow tested master valve for 10 min. Equalized pressure and opened master valve.
20.08.2001.00:00	02:30	2,5	1786,0	TEDU	OK	OK	Closed kill valve, bled down pressure above to 35 bar and inflow tested kill valve for 10 min. Equalized pressure and opened kill valve. Bled off pressure and verified volume bled back. Closed master valve and opened production wing valve. Flushed lines to burners. Closed upstream valves on Halliburton choke manifold. Pressure tested lines against manifold to 345 bar for 10 min. bled off pressure and opened master valve.
20.08.2001.02:30	03:30	1,0	1781,0	TEDU	OK	OK	Set RTTS packer. Closed one and a half slip joint and landed fluted hanger in well head. Closed lower pipe rams.
20.08.2001.03:30	04:30	1,0	1731,6	TEDU	OK	OK	Pressured up on string and sheared open. Cycled OMNI valve to circ position.
20.08.2001.04:30	05:30	1,0	1731,6	TEDU	OK	OK	Pumped 6 m3 diesel oil down string with circ through OMNI valve. Meanwhile held pre-job meeting prior to open well.
20.08.2001.05:30	06:00	0,5	1731,6	TEDU	OK	OK	Cycled OMNI valve to well testing position. Meanwhile inspected lines downstream SFT.
20.08.2001.06:00	07:00	1,0	1810,0	TEDU	OK	OK	Continued cycling OMNI valve to testing position. Meanwhile tested PSD system from drillfloor. Prep to open well.
20.08.2001.07:00	09:00	2,0	1810,0	TFFU	OK	OK	Opened well at 0653 hrs on 20/64" adjustable choke. Started injecting N2 through SSTT at 3 m3/min. Increased choke size in steps to 64/64" and N2 injection to 11,4 m3/min. Produced 5,7 m3 diesel oil and brine into tank. Emptied tank to burner. Final BS&W - 100% brine.
20.08.2001.09:00	14:00	5,0	1810,0	TFFU	OK	OK	Injected N2 at SSTT at different rates from 3,5 m3/min to 12,5 m3/min. Choke size 64/64". Produced 2,55 m3 brine into tank. BS&W - 100 % brine. Emptied tank to burner.
20.08.2001.14:00	15:00	1,0	1731,6	TFFU	OK	OK	Held pre-job meeting. Bled off annulus pressure and closed LPR-N tester valve. Cycled OMNI valve to circulation position. Reverse circulated out tubing content until clean returns, 500 lpm, holding 60 bar back pressure on Halliburton choke manifold. Took returns to tank.
20.08.2001.15:00	17:00	2,0	1731,6	TFFU	OK	OK	Displaced DST string with 4,6 m3 diesel oil from cmt unit, direct suction. Closed SFT kill valve. Displaced with N2 until a total of 6 m3 returns in trip tank. Pressure increased to 80 bar.
20.08.2001.17:00	17:30	0,5	1810,0	TFFU	OK	OK	Cycled OMNI valve to well testing position. Pressured up on annulus to 100 bar and opened LPR-N tester valve.
20.08.2001.17:30	23:00	5,5	1810,0	TFFU	OK	OK	Opened up well at Halliburton choke manifold, 24/64" adjustable choke, at 1734 hrs. Increased choke in steps to 116/64". Injected N2 at several rates between 3 and 7 m3/min and attempted to flow well. Produced 3,4 m3 diesel oil and brine to tank. Closed in at choke manifold.

20.08.2001.23:00	00:00	1,0	1731,6	TFFU	OK	OK	Held pre-job meeting. Bled off annulus pressure and closed LPR-N tester valve. Cycled OMNI valve to circulation position.
21.08.2001.00:00	00:30	0,5	1731,6	TFFU	OK	OK	Reverse circulated out 7 m3 of tubing content until clean returns, 500 lpm, holding 60 bar back pressure on Halliburton choke manifold. Took returns to tank. Had traced of oil in returns.
21.08.2001.00:30	03:00	2,5	1731,6	TFFU	OK	OK	Displaced DST string with 3 m3 diesel oil from cmt unit, direct suction. Closed SFT kill valve. Displaced with N2 from BJ until 6 m3 returns in trip tank. Pressure increased to 118 bar.
21.08.2001.03:00	04:00	1,0	1810,0	TFFU	OK	OK	Cycled OMNI valve to well testing position. Pressured up on annulus to 100 bar and opened LPR-N tester valve.
21.08.2001.04:00	06:00	2,0	1810,0	TFFU	OK	OK	Opened up well at Halliburton choke manifold, 16/64" adjustable choke, at 0355 hrs. Increased choke in steps to 116/64". Had 1 m3 diesel oil and N2 in returns, followed by only N2.
21.08.2001.06:00	14:30	8,5	1810,0	TFFU	OK	OK	Cont. flowing well on 116/64" choke. Had returns to surface in slugs containing diesel, crude oil at 0.896 sg. and brine at 1.18 sg. Injected N2 at SSTT periodically 4 m3/min. Flowed totally 9,35m3 fluid from 06:00 -14:30 hrs consisting of approx. 2m3 diesel, 3,1 m3 crude oil and 4,25 m3 brine.
21.08.2001.14:30	16:00	1,5	1810,0	TFFU	OK	OK	Closed choke, held pre-job meeting. Bled off annulus pressure and closed LPR-N tester valve. Cycled OMNI valve to circ. position.
21.08.2001.16:00	17:00	1,0	1810,0	TFFU	OK	OK	Opened adjustable choke and reversed out tubing contents. Pumped 9,6 m3 brine w/ rig pumps - 60 bar back pressure on rig choke. Calibration tank volume after reversing approx. 3,7 m3 1.18 sg. brine and 3,6 m3 crude oil. M/U N2 injection line to wing kill valve and closed lower master valve on Flowhead, flushed through surface test lines with N2.
21.08.2001.17:00	18:30	1,5	1810,0	TFFU	OK	OK	Opened lower master valve and displaced DST tubing with N2 at 64 m3/min until 6m3 returns in trip tank, final displacement pressure 162 bar. Cycled OMNI valve to well test position, tubing pressure increased to 185 bar while cycling OMNI valve. Pressured up annulus to 100 bar to open LPR-N valve, had no pressure variation indicating opening.
21.08.2001.18:30	19:30	1,0	1810,0	TFFU	OK	OK	Opened adjustable choke to 60/64" and flowed N2 over burner boom - bypassed separator. Slowly increased choke to 116/64". Flow ceased - no indication of flow from bubble hose. Suspected LPR-N did not open.
21.08.2001.19:30	23:00	3,5	1810,0	TFFU	OK	OK	Bled off annulus pressure. Pressured up tubing with N2 through wing kill valve on Flowhead to 139 bar. Pressured up annulus with rig pump in steps from 110 - 150 bar to verify/attempt to open LPR-N valve. Had slight pressure fall off in tubing from 139 -135 bar on last step.
21.08.2001.23:00	00:00	1,0	1810,0	TFFU	OK	OK	Held pre-job meeting. Pressured up tubing with N2 through wing kill valve on Flowhead to 160 bar to verify LPR-N open.
22.08.2001.00:00	00:30	0,5	1810,0	TFFU	OK	OK	Evaluated situation, meanwhile observed tubing pressure decreasing from 165 to 145 bar indicating LMR-P valve open and pressure leaking off to formation.
22.08.2001.00:30	06:00	5,5	1810,0	TFFU	OK	OK	Opened well at 116/64" choke, flowed N2 content in tubing over burner. Waited and observed bubbling at choke manifold. Had crude oil to surface at 03:44 hrs. Flowed approx. 3.45 m3 fluid from 03:44 to 06:00 hrs.
22.08.2001.06:00	15:30	9,5	1810,0	TFFU	OK	OK	Cont flowina well at 116/64" adjustable choke. Flow

								unstable. Injected N2 at SSTT, 1,5 m3/min to 4 m3/min, from 0944 hrs to 1515 hrs. BS&W up to 8% H2O and 5% solids. Bled off annulus pressure and shut in well at LPR-N valve at 1531 hrs. Closed Halliburton choke manifold. Flowed approximately 16,9 m3 from 0600 hrs to 1530 and a total of 43,3 m3 during entire testing period.
22.08.2001.15:30	00:00	8,5	1810,0	TFFU	OK	OK		Well shut in for pressure build up on LPR-N valve and on Halliburton choke manifold.
23.08.2001.00:00	06:00	6,0	1818,0	TFFU	OK	OK		Well shut in for pressure build up on LPR-N valve and on Halliburton choke manifold.
23.08.2001.06:00	21:30	15,5	1810,0	TFSU	OK	OK		Well shut in for pressure build up on LPR-N valve and on Halliburton choke manifold. Final shut in pressure 19,2 bar
23.08.2001.21:30	22:00	0,5	1810,0	TFFU	OK	OK		Performed additional Flow periode due to possible leak in LPR-N valve during build up. Held pre-job meeting. Opened LPR-N valve and observed tubing pressure on Halliburton choke manifold - increased from 19 to 23 bar indicated that valve cycled.
23.08.2001.22:00	00:00	2,0	1810,0	TFFU	OK	OK		Opened well for flow at 22:00 hrs on 116/64" adjustable choke. Injected N2 at SSTT - 3 m3/min. Had crude oil at choke at 22:19 hrs. Burned off gas from port burner and collected fluid in calibration tank.
24.08.2001.00:00	06:00	6,0	1810,0	TFFU	OK	OK		Cont. flowing well on 116/64" adjustable choke and injecting N2 at SSTT - 3 m3/min. Stopped N2 injection at 05:00 hrs. Flowed approx. 14,55 m3 fluid in 8 hrs. BS&W measured max. 6 % H2O and trace of soilds. Shut in well on Halliburton choke manifold for 16 hrs. bulid-up at 06:00.
24.08.2001.06:00	22:00	16,0	1810,0	TFSU	OK	OK		Well shut in for pressure build up on Halliburton choke manifold, final shut in pressure - 52 bar.
24.08.2001.22:00	23:00	1,0	1810,0	TCCU	OK	OK		Held prejob meeting. Bled off annulus pressure and cycled OMNI valve, in circulation position at 22:35 hrs, tubing pressure increased from 52 to 63 bar. Revers circulated out tubing contents - 6 m3 oil. Burned off returns over port burner boom.
24.08.2001.23:00	00:00	1,0	1810,0	TCCU	OK	OK		Closed master valve and opened wing valve on SFT, cleaned and flushed lines from cement unit to Halliburton testing with sea water. Opened master valve and closed production wing valve on SFT. Circulated 6 m3 with 1.14 sg HEC gel down tubing.
25.08.2001.00:00	00:30	0,5	1810,0	TCCU	OK	E FAIL		Cycled OMNI valve to well test position and isolated 130 bar annulus pressure to cement unit. Had no tubing pressure decrease on last cycle indicating LPR-N still closed. Pressured up tubing from 61 to 155 bar with 30 liter, pressure was stabile for 5 min indicating that LPR-N had not opened.
25.08.2001.00:30	02:30	2,0	1810,0	TEOD	E FAIL	OK		Lined up mud pump on annulus and cycled OMNI valve with 160 bar to circulation position, got positive indication that OMNI was in circulating position. Cycled OMNI to well test position and pressured up tubing to 250 bar, pressure dropped with 20 bar/5 min indicated closed valves in the tubing. Bled off pressure and cycled OMNI to well test position no. 2 with 170 bar annulus pressure. Pumped up tubing to 250 bar, pressure dropped rapidly indicating that LPR-N had opened.
25.08.2001.02:30	06:00	3,5	1810,0	TCCU	OK	OK		Bullheaded tubing content below OMNI with 0,7 m3 gel - 200 lpm/196 bar. Increased pump rate to 215 lpm/300 bar and maintained rate for 3 min. Stopped pump, closed valve and monitored pressure decline from 300 to 5 bar/8 min. Pumped 15 m3 1.14 sa. HEC

									gel at 150 lpm/290 bar followed by 7 m3 1,18 sg. NaCl brine at 150 lpm/285 bar.
25.08.2001.06:00	07:00	1,0	1810,0	TCCU	OK	OK			Cont. minifrac test - shut in and observed fall off in well head pressure.
25.08.2001.07:00	09:30	2,5	1810,0	TCCU	OK	OK			Performed step rate test by pumping 1,18 sg NaCl brine into formation at: 75lpm/65 bar, 150 lpm/105 bar, 200 lpm/225 bar, 250 lpm/270 bar, 285 lpm/300 bar. Shut in and observed pressure decline. Performed new step rate test due to insufficient data at low pump rates. 75 lpm/65 bar, 120 lpm/150 bar, 150 lpm/185 bar, 200 lpm/225 bar, 250 lpm/270 bar, 285 lpm/300 bar. Shut in and observed pressure decline.
25.08.2001.09:30	11:00	1,5	1810,0	TCCU	OK	OK			Lined over to cement unit and performed new step rate test due to insufficient data at low pump rate: 40 lpm/75 bar, 80 lpm/105 bar, 120 lpm/140 bar, 150 lpm/167 bar, 185 lpm/205 bar, 215 lpm/240 bar, 250 lpm/280 bar, 280 lpm/330 bar. Shut in and observed pressure decline.
25.08.2001.11:00	11:30	0,5	1810,0	TEOD	E FAIL	E FAIL			Attempted to burst rupture disc set to rupture at 215 bar by increasing annulus pressure in steps to 250 bar.
25.08.2001.11:30	12:00	0,5	1810,0	TCCU	OK	OK			Cycled OMNI valve 8 times to circulating position.
25.08.2001.12:00	13:00	1,0	1810,0	TCCU	OK	OK			Circ b/u over poorboy degasser at 1500 lpm/150 bar. Diverted 10 m3 contaminated NaCl brine to slop tank.
25.08.2001.13:00	14:00	1,0	1810,0	TCCU	OK	OK			Opened LPR and circ riser volum at 2250 lpm/260 bar.
25.08.2001.14:00	15:00	1,0	1810,0	TCCU	OK	OK			Released RTTS and closed LPR, bullheaded 2 m3 1,18 sg NaCl brine down kill line. Opened LPR and flowchecked 30 min. Meanwhile held prejob meeting for RD coflex hose from SFT.
25.08.2001.15:00	16:30	1,5	1810,0	TEDU	OK	OK			PU string and set slips, disconnected HP and control hoses from SFT.
25.08.2001.16:30	18:00	1,5	1810,0	TEDU	OK	OK			RU casing tong, BU and LD SFT.
25.08.2001.18:00	18:30	0,5	1800,0	TEDU	OK	OK			Changed from 45' to 15' bails and HYC elevator.
25.08.2001.18:30	22:30	4,0	1369,0	TEDU	OK	OK			POOH f/1800 to 1369 m and LD 3 1/2" tubing.
25.08.2001.22:30	23:00	0,5	1380,0	TEDU	OK	OK			Removed control hoses for SSTT. LD x-over's, SSTT, slick joint and adjustable mandrel.
25.08.2001.23:00	00:00	1,0	1340,0	TEDU	OK	OK			POOH f/1380 to 1340 m and LD 3 1/2" tubing.
26.08.2001.00:00	05:30	5,5	214,0	TEDU	OK	OK			Cont POOH f/1340 to 214 m and LD 3 1/2" tubing.
26.08.2001.05:30	06:00	0,5	197,0	TEDU	OK	OK			POOH f/214 to 197 m and LD BHA.
26.08.2001.06:00	09:00	3,0		TEDU	OK	OK			Cont. POOH and l/d DST BHA f/197 m.
26.08.2001.09:00	10:00	1,0		TEDU	OK	OK			Cleaned and rearranged on drill floor, changed to BX elevator and normal master bushing, made up cement stand.
26.08.2001.10:00	11:30	1,5		TEDU	OK	OK			p/u SFT from deck, b/u and l/d on deck.
26.08.2001.11:30	13:30	2,0		TEDU	OK	OK			Held prejob meeting prior to use manrider winch, went through incident an Byford Dolphin, tested slack wire function on manrider winch. Disconnected and LD Coflex hose.
26.08.2001.13:30	14:30	1,0		TEDU	OK	OK			Rebuilt bridge plug to cement retainer based on low pressure readings from down hole gauges during step rate test.
26.08.2001.14:30	15:00	0,5		TEDU	OK	OK			MU cement retainer. Held prejob meeting prior to RIH
26.08.2001.15:00	20:30	5,5	1779,0	TEDU	OK	OK			RIH with cement retainer on 490 m 3 1/2" DP and 5 1/2" DP to 1779 m. Meanwhile went through manrider winch incident on Byford Dolphin with night crew.
26.08.2001.20:30	21:30	1,0	1779,0	TEDU	OK	OK			p/u cement stand, installed LTV and cement hose. Circ and cleaned setting area and set cement retainer

							at 1779 m according to Halliburton procedures. Load tested plug with 12 ton, and released stinger.
26.08.2001.21:30	23:00	1,5	1779,0	TEDU	OK	OK	Connected cement hose and flushed lines. Tested surface equipment to 345 bar/10 min. Closed LPR and pulled tool joint underneath, pressure tested plug and casing to 35 bar/10 min and 250 bar/10 min.
26.08.2001.23:00	00:00	1,0	1779,0	TCCU	OK	OK	Circ string volum prior to step rate test. Stung into retainer, closed annular and kept 50 bar monitoring pressure on annulus.
27.08.2001.00:00	01:00	1,0	1779,0	TCCU	OK	OK	Performed step rate test with cement unit: (lpm/bar) 9/3, 38/3, 57/42, 67/59, 83/73, 95/85, 110/87, 143/92, 320/97, 491/105, 676/122, 1443/177, 1532/190.
27.08.2001.01:00	02:00	1,0	1779,0	TCCU	OK	OK	Shut in and monitored pressure decline, meanwhile held prejob meeting prior to cement squeeze job.
27.08.2001.02:00	03:30	1,5	1779,0	PCCU	OK	OK	Circulated b/u due to slurry designed circulating temperatur prior to cement squeeze.
27.08.2001.03:30	05:30	2,0	1779,0	PSQK	OK	OK	Closed annular to control U-tube pressure on choke. Mixed and pumped 6 m3 DW spacer, 7 m3 1.60 sg cement slurry and 1 m3 DW spacer with cement unit. Displaced 4,7 m3 with rig pumps, stopped pumps and stung into retainer. Squeezed 3 m3 DW spacer and 4 m3 cement slurry into formation, pressure increased from 84 to 116 bar, maintained 40 bar monitoring pressure on annulus. Pulled out of retainer and displaced 2,3 m3 brine to balance.
27.08.2001.05:30	06:00	0,5	1775,0	PAOU	OK	OK	r/b cement stand.
27.08.2001.06:00	07:00	1,0	1585,0	PTTU	OK	OK	POOH f/1775 to 1585 m.
27.08.2001.07:00	08:00	1,0	1585,0	PCCU	OK	OK	Circ b/u with 1500 lpm/46 bar, had no cement in returns.
27.08.2001.08:00	09:00	1,0	1585,0	PSMU	OK	OK	Compensated string and spaced out. Colsed MPR and tested cement retainer to 250 bar/10 min. Pumped 1,1 m3, bled same back
27.08.2001.09:00	10:00	1,0	1585,0	PCCU	OK	OK	Spotted 1.14 sg. HEC havis pill f/1585 to 1400 m with 1600 lpm/50 bar. Pulled out to 1400 m.
27.08.2001.10:00	11:00	1,0	1400,0	PCCU	OK	OK	Circ b/u with 1600 lpm/50 bar.
27.08.2001.11:00	11:30	0,5	1400,0	PBSU	OK	OK	m/u cement stand and pressure tested cement lines to 200 bar/10 min.
27.08.2001.11:30	13:00	1,5	1400,0	PSSU	OK	OK	Pumped 6 m3 1.50 sg spacer with mud pumps, controled U-tube pressure with closed annular preventer and choke while changing line-up to cement pump. Mixed and pumped 6,7 m3 1.95 sg. cement slurry. Closed choke while changing to mud pump. Pumped 0,8 m3 1.50 sg. spacer behind cement and displaced with 10 m3 brine.
27.08.2001.13:00	14:00	1,0	1100,0	PTTU	OK	OK	POOH slowly f/1400 to 1100 m.
27.08.2001.14:00	15:00	1,0	1100,0	PCCU	OK	OK	Dropped sponge ball and circ b/u with 1600 lpm/52 Had no spacer or cement in returns.
27.08.2001.15:00	17:30	2,5		PTTU	OK	OK	POOH f/1100 m.
27.08.2001.17:30	18:30	1,0		PTPU	OK	OK	Changed to 5 1/2" equipment. b/d cement stand.
27.08.2001.18:30	23:00	4,5		PTPU	OK	OK	m/u rigidizing tool, b/u x-over on EDTHOT and prepared EDPHOT.
27.08.2001.23:00	00:00	1,0	261,0	PTTU	OK	OK	m/u and RIH with 8 1/2" bit on 5 1/2" DP to 261 m.
28.08.2001.00:00	02:30	2,5	1183,0	PTTU	OK	OK	Cont RIH f/261 - washed down last stand and tagged firm cement with 11 ton WOB at 1183 m.
28.08.2001.02:30	03:00	0,5	1183,0	PSSU	OK	OK	Closed annular and pressure tested cement plug to 160 bar/10 min, pumped 229 liter and bled same back.
28.08.2001.03:00	04:00	1,0	1183,0	PCCU	OK	OK	Started to POOH, had steady back flow on DP. Connected top drive and circ annulus and string

							volume with 4200 lpm/ 295 bar. Got cement in returns on b/u.
28.08.2001.04:00	06:00	2,0	146,0	PTTU	OK	OK	POOH f/1183 to 146 m.
28.08.2001.06:00	07:00	1,0		PTTU	OK	OK	Cont POOH f/146 m. b/u x-over,bitsub and 8 1/2" PDC bit.
28.08.2001.07:00	08:00	1,0		PTPU	OK	OK	m/u EZSV BP. Held prejob meeting prior to RIH with BP. Reset DrillView server to RamRig due to lost communication with mudlogger.
28.08.2001.08:00	09:00	1,0	320,0	PWPU	OK	OK	RIH with EZSV BP on 5" DP to 320 m, filled every 4. stand acc.to Halliburton procedure.
28.08.2001.09:00	09:30	0,5	320,0	PWPU	OK	OK	Changed to 5 1/2" equipment and m/u cement stand.
28.08.2001.09:30	11:00	1,5	680,0	PWPU	OK	OK	Cont RIH f/320 to 680 m with 5 1/2" DP, filled every 4. stand.
28.08.2001.11:00	11:30	0,5	680,0	PWPU	OK	OK	Set EZSV BP at 680 m acc. to Halliburton procedures. Pulled free with 20 ton OP, tested plug with 16 ton down weight. Pulled out to 675 m.
28.08.2001.11:30	12:00	0,5	675,0	PSSU	OK	OK	m/u cement hose and tested to 200 bar/10 min. Compensated string and closed annular preventer.
28.08.2001.12:00	13:00	1,0	675,0	PSSU	OK	OK	Pumped 6 m3 SW spacer, 9.4 m3 1.90 sg cement slurry, and 0.5 m3 SW spacer with cement unit. Held 50 bar back pressure on annulus to control U-tube. Pumped 4,2 m3 1,18 sg NaCl brine with rig pump to balance plug.
28.08.2001.13:00	14:00	1,0	420,0	PTTU	OK	OK	POOH f/675 to 420 m.
28.08.2001.14:00	14:30	0,5	420,0	PCCU	OK	OK	Circ b/u with 4000 lpm/50 bar, no cement in returns.
28.08.2001.14:30	16:00	1,5		PTTU	OK	OK	POOH f/420 m and l/d RT.
28.08.2001.16:00	19:00	3,0		BHRU	OK	OK	m/u slim hole bore protector RT, RIH and pulled bore protector free with 11 ton OP. POOH and l/d bore protector and RT.
28.08.2001.19:00	21:30	2,5		BBNU	OK	OK	Cleaned rig floor and r/u to pull riser and BOP. Installed diverter running tool.
28.08.2001.21:30	23:00	1,5		BBNU	OK	OK	Held prejob meeting, p/u diverter and removed seals, l/o diverter.
28.08.2001.23:00	23:30	0,5		BBNU	OK	OK	l/d sling, installed elevator and riser running tool.
28.08.2001.23:30	00:00	0,5		BBNU	OK	OK	p/u and installed landing joint. Collapsed and locked slip joint. Prepared pod reels and removed clamps on pod lines.
29.08.2001.00:00	00:30	0,5		BBRU	OK	OK	Pulled BOP above guide base.
29.08.2001.00:30	02:30	2,0		BBRU	OK	OK	Racked back landing and slip joint.
29.08.2001.02:30	03:00	0,5		BBRU	OK	OK	l/d 5' riser pup joint.
29.08.2001.03:00	06:00	3,0		BBRU	OK	OK	Pulled riser and BOP to 114 m.
29.08.2001.06:00	08:30	2,5		BBRU	OK	OK	Pulled riser and BOP f/114 to splash zone.
29.08.2001.08:30	10:00	1,5		BBRU	OK	OK	Pulled BOP through splash zone, r/d pod lines and landed BOP on transporter, disconnected BOP.
29.08.2001.10:00	12:00	2,0		BBRU	OK	OK	l/d 50' pup, r/d BOP running gear.
29.08.2001.12:00	15:00	3,0		PACU	OK	OK	p/u MOST tool and 9 ea 8" DC. Installed DP guide. Changed to 5 1/2" equipment.
29.08.2001.15:00	15:30	0,5		PACU	OK	OK	RIH with 5 1/2" DP, p/u one singel for space out.
29.08.2001.15:30	16:30	1,0		PACU	OK	OK	Ran DP guide. Made final adjustment before stinging into WH with ROV.
29.08.2001.16:30	19:00	2,5		PACU	OK	OK	Set down 10 ton. Started 16:34 hrs to cut 20" x 30" at 414 m with 3000 lpm/102 bar. Pulled DP guide to surface. Finished cutting job at 19:00 hrs.
29.08.2001.19:00	20:00	1,0		PACD	E FAIL	E FAIL	Attempted to latch MOST tool, no go. Locked MOST tool to 20" WH by turning locking screws with ROV torque tool.

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29.08.2001.20:00	20:30	0,5	PACU	OK	OK	Pulled WH free with 10 ton OP. POOH f/405 to 90 m. Meanwhile prepared to start anchor handling and performed seabed survey with ROV, no debris located.
29.08.2001.20:30	00:00	3,5	MARU	OK	OK	Commenced anchor handling at 20:25 hrs. Meanwhile changed to 8" handling equipment. Held prejob meeting and pulled PGB to moonpool. Moved 105 ton skid to center of moonpool and set down PGB, one bulls eye were missing.
30.08.2001.00:00	05:00	5,0	MARU	OK	OK	Cont anchor handling, finished anchor handling at 05:00 hrs. Meanwhile cut off brackets welded to 30" housing below PGB for bulls eyes. Welded 30" and 20" WH together due to loose conductor, proper latching were not confirmed when initially installed. Released lock ring on PGB and prepared to pull 20" x 30" through rotary.

10 Appendix F: Sequence of events, Production Test

PERFORATION

GRAVEL PACK JOB

RUN IN HOLE WITH TEST STRING

18.08 12:30	Install gauges in carrier together. Two Halliburton and two Altinex gauges
18.08 12:45	Start pressure testing gauge carrier to 400 Bar / 10 min. Good test. Bleed off pressure
18.08 14:30	RIH with test string
18.08 14:45	RIH LPR-N / gauge carrier
19.08 00:30	Pick up SSTT
19.08 02:00	Start RIH with SSTT assembly
19.08 14:20	Rig up STT
19.08 20:40	Land fluted hanger in wear bushing
19.08 21:10	Begin pressure test of coflexip hose and flow line against choke manifold
19.08 21:21	Bleed off to hammer up leaking union, disconnect wellhead sensors
19.08 21:42	Union hammered up, reconnect sensors
19.08 22:18	Start pressure testing coflexip hose and flow line against choke manifold
19.08 22:21	Bleed off to hammer up leaking union
19.08 22:25	Retest coflexip hose and flow line against choke manifold to 160 bar, increase pressure to 350 bar
19.08 22:32	Good visual test, bleed off pressure at cement unit.
20.08 03:08	Pick up the string, set the packer and land the fluted hanger in wear bushing
20.08 03:41	Start to cycle OMNI to circulate position
20.08 04:21	OMNI in circulate position
20.08 04:50	Hold pretest safety meeting in drillers control room
20.08 04:52	Start displace tubing with 6 m ³ diesel from cement unit
20.08 05:10	Walk flow lines and make visual inspection
20.08 05:33	Start to cycle OMNI to well test position
20.08 06:20	OMNI in well test position

CLEANUP FLOW

20.08 06:53	Open well at Choke Manifold on 20/64 adjustable choke
20.08 06:53	Divert flow to tank. Initial tank level = 0.75 m ³
20.08 06:58	Start injecting N2 at SSTT at 3 m ³ /min
20.08 07:05	Increase N2 injection rate to 5.5 m ³ /min
20.08 07:10	Increase to 32/64 adjustable choke
20.08 07:21	Start chemical injection (MEG) at SSTT
20.08 07:25	Start chemical injection (Demulsifier) at Choke Manifold
20.08 07:26	Change MEG injection point from SSTT to SSLV
20.08 07:30	Increase N2 injection rate to 7 m ³ /min
20.08 07:59	Increase to 40/64 adjustable choke
20.08 08:06	Increase to 48/64 adjustable choke
20.08 08:15	BS&W = 30 % H2O, 70 % diesel
20.08 08:22	Increase to 64/64 adjustable choke

20.08 08:35 Increase N2 injection rate to 11.4 m³/day
20.08 08:43 BS&W = 100 % H2O
20.08 08:50 Start pumping out of calibration tank to burner. **Final tank level = 6.45 m³**
20.08 08:58 Finish pumping out of calibration tank. **Initial tank level = 0.65 m³**
20.08 09:00 BS&W = 100 % H2O
20.08 09:15 BS&W = 100 % H2O
20.08 09:27 Decrease N2 injection rate to 7 m³/min
20.08 09:32 No liquid return at Choke Manifold
20.08 09:33 Increase N2 injection rate to 62 m³/min
20.08 09:34 Liquid return at Choke Manifold again
20.08 09:35 BS&W = 100 % H2O, trace of solids
20.08 09:36 Decrease N2 injection rate to 12.4 m³/min
20.08 09:36 No liquid return at Choke Manifold
20.08 09:42 Liquid return at Choke Manifold again
20.08 09:45 BS&W = 100 % H2O, trace of solids
20.08 10:00 BS&W = 100 % H2O, trace of solids
20.08 10:15 BS&W = 100 % H2O, trace of solids
20.08 10:28 Stop N2 injection due to loss of suction
20.08 10:30 No liquid return at Choke Manifold
20.08 10:31 Restart N2 injection at SSTT at 12.4 m³/min
20.08 10:34 Liquid return at Choke Manifold again
20.08 10:45 BS&W = 100 % H2O
20.08 10:49 Stop N2 injection due to loss of suction
20.08 10:51 No liquid return at Choke Manifold
20.08 11:18 Restart N2 injection at SSTT at 7 m³/min
20.08 11:21 Liquid return at Choke Manifold again
20.08 11:30 No liquid return at Choke Manifold
20.08 11:39 Decrease N2 injection rate to 3.5 m³/min
20.08 11:45 Liquid return at Choke Manifold again
20.08 11:45 BS&W = 100 % H2O
20.08 11:53 Increase N2 injection rate to 7 m³/min
20.08 11:58 No liquid return at Choke Manifold
20.08 11:59 Decrease N2 injection rate to the min of what the pump can pump
20.08 12:04 Stop N2 injection
20.08 12:06 Stop chemical injection (Demulsifier) at Choke Manifold
20.08 13:26 Close Choke Manifold
20.08 13:43 Start pumping out of calibration tank to burner. **Final tank level = 3.2 m³**
20.08 13:46 Finish pumping out of calibration tank. **Initial tank level = 0.8 m³**

CIRCULATE OUT TUBING CONTENT (REVERSE CIRCULATION #1)

20.08 13:51 Start to cycle OMNI to circulate position
20.08 14:19 OMNI in circulate position
20.08 14:20 Open Choke Manifold to reverse circulate out string contents
20.08 14:20 Choke at 16/64 adjustable
20.08 14:21 Increase to 22/64 adjustable choke
20.08 14:22 Increase to 30/64 adjustable choke
20.08 14:23 Increase to 36/64 adjustable choke
20.08 14:37 Brine in return at Choke Manifold. Stop pumping brine down annulus.
20.08 14:38 Close Choke Manifold
20.08 14:47 Start pumping out of calibration tank to burner. **Final tank level = 8.4 m³**
20.08 14:48 Close Flow wing valve
20.08 14:56 Stop MEG injection at SSTT
20.08 14:58 Finish pumping out of calibration tank. **Initial tank level = 0.8 m³**

20.08 15:00 Open kill wing valve
20.08 15:04 Start to pump diesel down tubing
20.08 15:29 Finish to pump diesel. Total volume pumped = 4.6 m³
20.08 16:01 Close Kill wing valve
20.08 16:10 Open Flow wing valve
20.08 16:13 Start pumping N2 down tubing at 2.5 m³/min
20.08 16:21 Increase N2 injection rate to 5 m³/min
20.08 16:24 Increase N2 injection rate to 10 m³/min
20.08 16:28 Decrease N2 injection rate to 7.7 m³/min. Stop N2 injection
20.08 16:29 Restart pumping N2 down tubing at 7 m³/min
20.08 16:52 Stop pumping N2
20.08 16:54 Start to cycle OMNI to well test position
20.08 17:22 OMNI in well test position

REOPEN WELL AFTER REVERSE CIRCULATION #1

20.08 17:34 Open well at Choke Manifold on 24/64 adjustable choke
20.08 17:35 Increase to 32/64 adjustable choke
20.08 17:36 Increase to 40/64 adjustable choke
20.08 17:38 Increase to 46/64 adjustable choke
20.08 17:39 Increase to 52/64 adjustable choke
20.08 17:39 Start N2 injection at 3.5 m³/min
20.08 17:40 Increase N2 injection rate to 7 m³/min
20.08 17:41 Increase to 56/64 adjustable choke
20.08 17:42 Increase to 60/64 adjustable choke
20.08 17:43 Increase to 64/64 adjustable choke
20.08 17:46 Increase to 116/64 adjustable choke
20.08 17:53 Decrease N2 injection rate to 3.5 m³/min
20.08 17:56 No liquid return at Choke Manifold
20.08 17:57 Stop pumping N2
20.08 18:14 Restart N2 injection at 7 m³/min
20.08 18:18 Liquid return at Choke Manifold again
20.08 18:22 No liquid return at Choke Manifold
20.08 18:22 Stop pumping N2
20.08 18:30 N2 at choke manifold
20.08 19:00 N2 at choke manifold
20.08 19:10 Restart N2 injection at 4 m³/min
20.08 19:23 Increase N2 injection rate to 7 m³/min
20.08 19:27 Liquid return at Choke Manifold again
20.08 19:40 Decrease N2 injection rate to 3 m³/min
20.08 19:50 Stop pumping N2
20.08 20:20 Restart N2 injection at 5 m³/min
20.08 20:23 Increase N2 injection rate to 7 m³/min
20.08 20:25 Liquid return at Choke Manifold again
20.08 20:32 No liquid return at Choke Manifold
20.08 20:43 Stop pumping N2
20.08 20:50 Liquid return at Choke Manifold again
20.08 20:59 No liquid return at Choke Manifold
20.08 21:38 Restart N2 injection at 5 m³/min
20.08 21:47 Increase N2 injection rate to 7 m³/min
20.08 22:10 Stop pumping N2
20.08 22:44 Liquid return at Choke Manifold again
20.08 22:56 Close Choke Manifold

CIRCULATE OUT TUBING CONTENT (REVERSE CIRCULATION #2)

20.08 23:08 Start to cycle OMNI to circulate position
20.08 23:55 OMNI in circulate position
21.08 00:05 Open Choke Manifold
21.08 00:05 Choke at 28/64 adjustable
21.08 00:05 Start reverse circulating 7 m³ at 30 strokes/min
21.08 00:10 Increase to 32/64 adjustable choke
21.08 00:10 Trace of oil in diesel returns
21.08 00:22 Close Choke Manifold
21.08 00:22 Stop reverse circulating
21.08 00:38 Start pumping out of calibration tank to burner. **Final tank level = 11.6 m³**
21.08 00:42 Stop pumping out of calibration tank. Pump tripped
21.08 00:44 Open kill valve
21.08 00:52 Start displacing tubing with 3 m³ diesel
21.08 01:11 Transfer pump reset. Continue pumping out of calibration tank to burner
21.08 01:17 Oil SG = 0.889 @ 18.4 degC
21.08 01:20 Stop pumping diesel
21.08 01:26 Finish pumping out of calibration tank. **Initial tank level = 0.6 m³**
21.08 01:37 Start displacing tubing with 3 m³ N₂
21.08 02:50 Stop pumping N₂
21.08 02:52 Start to cycle OMNI to welltest position
21.08 03:35 OMNI in welltest position

REOPEN WELL AFTER REVERSE CIRCULATION #2

21.08 03:55 Open well at Choke Manifold
21.08 03:57 Choke at 16/64 adjustable
21.08 04:00 Increase to 24/64 adjustable choke
21.08 04:02 Increase to 32/64 adjustable choke
21.08 04:06 Increase to 116/64 adjustable choke
21.08 04:06 No liquid return at Choke Manifold
21.08 04:10 Liquid return at Choke Manifold again
21.08 04:12 No liquid return at Choke Manifold
21.08 06:51 Liquid return at Choke Manifold again
21.08 07:56 BS&W = 1 % H₂O, 99 % diesel
21.08 08:01 Start N₂ injection at 4 m³/min
21.08 08:04 BS&W = 2.5 % H₂O, 97.5 % diesel
21.08 08:07 Divert flow bypass heater
21.08 08:12 Divert flow through heater again
21.08 08:15 BS&W = 1.5 % H₂O, 98.5 % diesel, trace of oil
21.08 08:18 Oil to surface
21.08 08:18 BS&W = 3 % H₂O (97 % oil)
21.08 08:23 H₂S = 0 ppm, CO₂ = 2 %
21.08 08:23 Oil SG = 0.886 @ 18.6 degC
21.08 08:30 BS&W = 2 % H₂O
21.08 08:43 No liquid return at Choke Manifold
21.08 08:44 Stop pumping N₂
21.08 09:30 Start N₂ injection at 4 m³/min
21.08 09:36 Liquid return at Choke Manifold again
21.08 09:40 BS&W = 50 % H₂O
21.08 09:40 H₂S = 0 ppm, CO₂ = 0 %
21.08 09:40 Oil SG = 0.896 @ 19 degC
21.08 09:45 BS&W = 70 % H₂O, trace of solids
21.08 10:00 BS&W = 15 % H₂O

21.08 10:00 Oil SG = 0.896 @ 19 degC
21.08 10:15 BS&W = 57 % H2O, trace of solids
21.08 10:30 BS&W = 26 % H2O, 2 % solids
21.08 10:45 BS&W = 10 % H2O, trace of solids
21.08 10:45 H2S = 0.6 ppm, CO2 = 1.2 %
21.08 10:45 Oil SG = 0.894 @ 18.2 degC
21.08 11:00 BS&W = 9 % H2O, 1 % solids
21.08 11:00 Oil SG = 0.887 @ 18 degC
21.08 11:11 No liquid return at Choke Manifold
21.08 11:11 Stop pumping N2
21.08 11:15 BS&W = 6 % H2O, trace of solids
21.08 11:26 Start dumping water from calibration tank to slop tanks
21.08 11:26 **Final cal tank reading = 6.65 m³**
21.08 11:30 BS&W = 14 % H2O, 1 % solids
21.08 11:35 Stop dumping water from calibration tank to slop tanks
21.08 11:35 **Initial cal tank reading = 2.4 m³**
21.08 11:45 BS&W = 9 % H2O
21.08 11:55 Start N2 injection at 4 m³/min
21.08 12:00 BS&W = 9 % H2O, trace of solids
21.08 12:05 H2S = 1.6 ppm, CO2 = 1.2 %
21.08 12:05 Oil SG = 0.907 @ 18.1 degC
21.08 12:21 Stop pumping N2
21.08 12:55 BS&W = 2 % H2O
21.08 13:00 BS&W = 2 % H2O
21.08 13:12 Almost no liquid at Choke Manifold
21.08 13:53 Liquid return at Choke Manifold again
21.08 14:00 BS&W = 11 % H2O, trace of solids
21.08 14:10 Start N2 injection at 4 m³/min
21.08 14:15 BS&W = 3.5 % H2O
21.08 14:25 Oil SG = 0.894 @ 22.3 degC
21.08 14:32 No liquid return at Choke Manifold
21.08 14:33 Stop pumping N2
21.08 14:47 Disconnect N2 hose from SS reel
21.08 15:03 Liquid return at Choke Manifold again
21.08 15:07 Close Choke Manifold. Prepare for reverse circulating
21.08 15:11 Start pumping out of calibration tank to burner. **Final tank level = 6.7 m³**
21.08 15:20 Stop pumping out of calibration tank. **Initial tank level = 0.75 m³**

CIRCULATE OUT TUBING CONTENT (REVERSE CIRCULATION #3)

21.08 15:29 Start to cycle OMNI to circulate position
21.08 15:53 OMNI in circulate position
21.08 16:03 Open Choke Manifold on 12/64 adjustable choke
21.08 16:03 Start reverse circulating
21.08 16:04 Increase to 20/64 adjustable choke
21.08 16:05 Increase to 26/64 adjustable choke
21.08 16:06 Increase to 32/64 adjustable choke
21.08 16:14 H2S = 7 ppm, CO2 = 1.8 % (sample taken during reverse circulation)
21.08 16:14 Oil SG = 0.896 @ 19.2 degC
21.08 16:16 Brine at Choke Manifold
21.08 16:23 Stop reverse circulating
21.08 16:27 Choke Manifold fully open (116/64 adjustable)
21.08 16:29 Close Choke Manifold
21.08 16:36 Close Lower Master valve on Flowhead
21.08 16:41 Open kill valve

21.08 16:48 Open Choke Manifold on 24/64 adjustable
21.08 16:53 Start pumping N2 up kill line and down flowline to Choke Manifold
21.08 17:00 N2 at Choke Manifold. Stop N2 injection
21.08 17:01 Close Choke Manifold
21.08 17:02 Start dumping water from calibration tank to slop tanks
21.08 17:02 **Final cal tank reading = 8 m³**
21.08 17:05 Open Lower Master valve
21.08 17:07 Start displace tubing to N2. Pump at 10 m³/min
21.08 17:14 Increase N2 injection rate to 20 m³/min
21.08 17:14 Stop dumping water from calibration tank to slop tanks
21.08 17:14 **Initial cal tank reading = 3.6 m³**
21.08 17:17 Increase N2 injection rate to 40 m³/min
21.08 17:25 Increase N2 injection rate to 64 m³/min
21.08 17:37 Stop pumping N2
21.08 17:38 Start to cycle OMNI to welltest position
21.08 17:56 Reconnect N2 hose to SS reel
21.08 18:14 Start MEG injection at Choke Manifold
21.08 18:18 OMNI in welltest position

ATTEMPT TO REOPEN WELL AFTER REVERSE CIRCULATION #2

21.08 18:18 LPR-N didn't open ?
21.08 18:27 Open well at Choke Manifold on 60/64 adjustable choke
21.08 18:27 Divert flow bypass separator to port burner
21.08 18:28 Slowly increase adjustable choke
21.08 18:31 Adjustable choke at 116/64
21.08 18:34 Stop MEG injection at Choke Manifold
21.08 18:37 Divert flow to calibration tank, no well respons
21.08 19:28 Close Choke Manifold
21.08 19:29 Bleed Annulus pressure to zero
21.08 19:33 Open kill valve
21.08 19:53 Start pumping N2 through kill line to tubing
21.08 20:07 Stop pumping N2
21.08 20:12 Close Kill valve
21.08 20:13 Pressure annulus to 133 bar
21.08 20:18 Bleed Annulus pressure to zero
21.08 20:30 Pressure annulus to 147 bar
21.08 20:32 Bleed Annulus pressure to zero
21.08 20:47 Pressure annulus to 150 bar
21.08 21:04 Open Choke Manifold and bleed pressure down by 10 bar
21.08 21:05 Close Choke Manifold
21.08 21:19 Bleed Annulus pressure to zero
21.08 21:23 Open Choke Manifold and bleed pressure down by 10 bar
21.08 21:34 Pressure annulus to 157 bar
21.08 23:10 Open kill valve
21.08 23:32 Start pumping N2 through kill line to tubing at 30 m³/min
21.08 23:45 Stop pumping N2
21.08 23:48 Kill valve closed

REOPEN WELL AFTER REVERSE CIRCULATION #3

22.08 00:38 Open well at Choke Manifo ld
22.08 00:42 Choke at 116/64 adjustable

22.08 02:00 Well still bubbling at Choke manifold
22.08 03:44 Oil to surface
22.08 03:51 Oil SG = 0.891 @ 17.7 degC
22.08 04:00 Oil flowing to calibration tank
22.08 04:03 H2S = 0 ppm, CO2 = 1 %
22.08 04:45 Oil SG = 0.896 @ 17.8 degC
22.08 05:00 Oil SG = 0.882 @ 18 degC
22.08 05:11 Bleed Annulus pressure to 105 bar
22.08 05:13 H2S = 0 ppm, CO2 = 1 %
22.08 05:30 BS&W = 5 % H2O
22.08 05:33 H2S = 0.1 ppm
22.08 06:00 BS&W = trace H2O
22.08 06:01 Increase Annulus pressure to 120 bar
22.08 06:04 Start pumping out of calibration tank to burner. **Final tank level = 8.0 m³**
22.08 06:10 Stop pumping out of calibration tank. **Initial tank level = 2.8 m³**
22.08 06:14 Oil SG = 0.890 @ 17.2 degC
22.08 06:22 H2S = 0.3 ppm, CO2 = 1 %
22.08 06:30 No liquid return at Choke Manifold
22.08 07:19 Oil to surface
22.08 07:25 Oil SG = 0.889 @ 19.3 degC
22.08 07:30 BS&W = 5 % H2O, trace of solids
22.08 07:33 No liquid return at Choke Manifold
22.08 07:41 Divert flow through heater
22.08 07:52 Liquid return at Choke Manifold again
22.08 07:55 BS&W = 8 % H2O, 5 % solids
22.08 08:05 BS&W = 20 % H2O, 5 % solids
22.08 08:13 Almost no liquid at Choke Manifold
22.08 08:18 No liquid return at Choke Manifold
22.08 08:34 Liquid return at Choke Manifold again
22.08 08:45 BS&W = 3 % H2O, 2 % solids
22.08 09:00 BS&W = 3 % H2O, 1 % solids
22.08 09:15 Almost no liquid at Choke Manifold
22.08 09:19 No liquid return at Choke Manifold
22.08 09:27 Start dumping water from calibration tank to slop tanks
22.08 09:27 **Final cal tank reading = 8.6 m³**
22.08 09:30 Stop dumping water from calibration tank to slop tanks
22.08 09:30 Change slop tank to dump oil from calibration tank
22.08 09:31 Start dumping oil from calibration tank to slop tanks
22.08 09:41 Stop dumping oil from calibration tank to slop tanks
22.08 09:41 **Initial cal tank reading = 3.85 m³**
22.08 09:44 Start N2 injection at 1.5 m³/min
22.08 09:49 Liquid return at Choke Manifold again
22.08 09:50 BS&W = 1 % H2O, 2 % solids
22.08 10:00 BS&W = trace of solids
22.08 10:05 Increase N2 injection rate to 2.5 m³/min
22.08 10:05 Oil SG = 0.886 @ 21.5 degC
22.08 10:11 No liquid return at Choke Manifold
22.08 10:17 Slight liquid return at Choke Manifold again
22.08 10:23 Good liquid return at Choke Manifold again
22.08 10:25 Slight liquid return at Choke Manifold again
22.08 10:28 Well slugging
22.08 10:30 BS&W = 3 % H2O, 2 % solids
22.08 10:30 Fairly steady flow
22.08 10:43 Slight liquid return at Choke Manifold again

22.08 10:45 BS&W = trace of solids
22.08 11:00 Start pumping out of calibration tank to burner. **Final tank level = 7.4 m³**
22.08 11:06 H2S = 1 ppm, CO2 = 0.3 %
22.08 11:07 Stop pumping out of calibration tank. **Initial tank level = 2.5 m³**
22.08 11:15 BS&W = trace of solids
22.08 11:30 BS&W = 0 %
22.08 11:45 BS&W = 2 % H2O, trace of solids
22.08 12:00 BS&W = 1 % H2O, trace of solids
22.08 12:15 BS&W = 2 % H2O, 1 % solids
22.08 12:30 BS&W = 3 % H2O, 1 % solids
22.08 12:30 Increase N2 injection rate to 3 m³/min
22.08 12:45 Oil SG = 0.894 @ 21.1 degC
22.08 12:45 Slight liquid return at Choke Manifold again
22.08 12:51 Good liquid return at Choke Manifold again
22.08 12:57 Stop N2 injection
22.08 13:00 BS&W = 1.5 % H2O, trace of solids
22.08 13:00 Restart N2 injection at 3 m³/min
22.08 13:15 Slight liquid return at Choke Manifold again
22.08 13:20 Increase N2 injection rate to 4 m³/min
22.08 13:30 BS&W = 3 % H2O, 1 % solids
22.08 13:45 BS&W = 2 % H2O, trace of solids
22.08 14:00 BS&W = 1.5 % H2O, trace of solids
22.08 14:00 Oil SG = 0.891 @ 19.4 degC
22.08 14:15 BS&W = 2 % H2O, 1 % solids
22.08 14:22 Start pumping out of calibration tank to burner. **Final tank level = 8.75 M³**
22.08 14:31 Stop pumping out of calibration tank. **Initial tank level = 3.1 m³**
22.08 14:32 No liquid return at Choke Manifold
22.08 14:58 Oil to surface
22.08 15:00 BS&W = 0 %
22.08 15:00 H2S = 0.2 ppm, CO2 = 0.2 %
22.08 15:00 Oil SG = 0.891 @ 19.4 degC
22.08 15:14 Stop N2 injection
22.08 15:15 No liquid return at Choke Manifold

PRESSURE BUILD-UP AFTER CLEAN-UP

22.08 15:31 Bleed off annulus pressure to close LPR-N for build up
22.08 15:35 Close Choke Manifold

ADDITIONAL FLOW PERIOD DUE TO POSSIBLE LEAKAGE IN TESTER VALVE

23.08 21:40 Pressure Annulus to open LPRN tester valve
23.08 21:42 LPRN tester valve open
23.08 21:58 Well lined up to calibration tank, **initial level = 4 m³**
23.08 22:00 Open well at Choke Manifold on 14/64 adjustable choke
23.08 22:00 Gradually increase choke size
23.08 22:02 Start N2 injection at 3 m³/min
23.08 22:03 Choke at 116/64 adjustable
23.08 22:19 Liquid at Choke Manifold
23.08 22:35 Liquid return at Choke Manifold again
23.08 23:30 BS&W = 6 %
24.08 00:00 BS&W = 1 % H2O, trace of solids
24.08 00:30 No liquid return at Choke Manifold
24.08 01:05 Liquid return at Choke Manifold again

24.08 01:30 BS&W = 5 % H2O, trace of solids
24.08 01:40 Attempt to pump out water from calibration tank to slop tank
24.08 01:40 No free water, stop pumping
24.08 01:50 Recirculate oil in calibration tank with steam exchanger
24.08 02:00 BS&W = 4 % H2O, trace of solids
24.08 02:15 Start pump out tank to port burner, **final tank level = 11.95 m³**
24.08 02:30 Stop pumping out tank, initial tank level = 0.8 m³
24.08 03:00 BS&W = 1 % H2O
24.08 03:01 Liquid return at Choke Manifold again
24.08 03:30 No liquid return at Choke Manifold
24.08 03:42 Liquid return at Choke Manifold again
24.08 04:00 Oil SG = 0.875 @ 28 degC
24.08 04:30 BS&W = 2 % H2O, trace solids
24.08 05:00 BS&W = trace
24.08 05:00 Stop N2 injection
24.08 05:40 Liquid return at Choke Manifold again
24.08 05:45 H2S = 0.2 ppm, CO2 = 0.5 %

BUILD-UP AFTER ADDITIONAL FLOW

24.08 06:00 Close Choke Manifold for build up (surface shut in)
24.08 22:22 Bleed off annulus pressure to close LPR-N tester valve

MINIFRAC

24.08 22:24 Start cycle Omni to circulate position
24.08 22:34 Omni in circulate position
24.08 22:40 Open well at Choke Manifold to port burner
24.08 22:41 Gradually increase choke size to fully open
24.08 22:40 Start reverse circulation @ 100 lt/min
24.08 22:44 Choke at 116/64 adjustable
24.08 22:57 Flush lines to boom
24.08 22:58 Divert to calibration tank
24.08 22:59 Divert to port burner
24.08 23:01 Stop pumping
24.08 23:05 Divert to calibration tank
24.08 23:10 Close Master valve
24.08 23:11 Flush cement line to calibration tank
24.08 23:15 Bleed off pressure at cement unit
24.08 23:24 Open Kill valve (Mud pump sensor now open to tubing)
24.08 23:27 Restart flush cement line to calibration tank
24.08 23:31 Lines clean, stop pumping
24.08 23:39 Close flow wing valve, master valve open
24.08 23:46 Start circulate 6 m³ gel down the tubing
24.08 23:55 Finish pumping gel
25.08 00:04 Start cycle Omni to welltest position
25.08 00:23 Omni in welltest Position
25.08 00:32 Isolate cement unit to annulus side
25.08 00:41 Start pumping gel, shut down due to pressure increase
25.08 00:42 Stop pumping
25.08 01:09 Bleed down tubing pressure through kill side
25.08 01:24 Start cycling Omni valve
25.08 01:42 Omni in circulate position
25.08 01:43 Start cycling Omni valve

25.08 01:51 Omni in blank position
25.08 01:53 Start cycling Omni valve
25.08 02:06 Omni in welltest position
25.08 02:11 Start pressure tubing to check LPRN
25.08 02:24 Bleed tubing pressure to zero
25.08 02:25 Bleed off annulus pressure
25.08 02:34 Start pressure annulus to 180 bar
25.08 02:35 Start pressure tubing to check LPRN
25.08 02:37 Bleed tubing pressure to zero
25.08 02:50 Start pumping gel,
25.08 03:07 Start pumping gel at maximum rate (only appx 140 lpm in average achieved, WHP up to 300 bar)
25.08 05:52 Stop pumping, 14.8 m³ followed by 8 m³ brine, total of 22.8 m³ (brine at perforations)
25.08 05:52 Monitor falloff pressure
25.08 07:08 Perform step-rate test using mud pumps, problems to pump with low rates
25.08 07:20 Stop pumping
25.08 07:41 Perform new step-rate test using mud pumps, problem to achieve reliable data at low rates
25.08 07:53 Stop pumping
25.08 09:41 Perform new step-rate test using cement pump
25.08 10:16 Stop pumping

POOH WITH TESTSTRING

25.08 11:02 Pressure up annulus 234 bar to open RD valve
25.08 11:16 Pressure up annulus 255 bar to open RD valve
25.08 11:37 No response on RD valve, start cycle OMNI valve
25.08 12:03 Omni in circulate position, start circulate
25.08 13:50 Finish circulating
25.08 14:39 Finish release packer and bullhead, commence rig down flowhead

26.08 08:30 Gauge carrier at surface

ADDITIONAL STEP RATE TEST WITH CEMENT STINGER AND SURFACE

RECORDING

26.08 23:57 Start pumping brine with cement pump, 9 lpm, 2.5 bar pump pressure
27.08 00:00 Increase pump rate to 38 lpm, 3.1 bar pump pressure
27.08 00:03 Increase pump rate to 57 lpm, 42 bar pump pressure
27.08 00:07 Increase pump rate to 67 lpm, 59 bar pump pressure
27.08 00:10 Increase pump rate to 83 lpm, 73 bar pump pressure
27.08 00:13 Increase pump rate to 95 lpm, 85 bar pump pressure
27.08 00:16 Increase pump rate to 110 lpm, 87 bar pump pressure
27.08 00:19 Increase pump rate to 143 lpm, 92 bar pump pressure
27.08 00:22 Increase pump rate to 320 lpm, 97 bar pump pressure
27.08 00:25 Increase pump rate to 491 lpm, 105 bar pump pressure
27.08 00:28 Increase pump rate to 676 lpm, 122 bar pump pressure
27.08 00:31 Increase pump rate to 1443 lpm, 177 bar pump pressure
27.08 00:34 Increase pump rate to 1532 lpm, 190 bar pump pressure
27.08 00:44 Stop pumping, shut in for pressure fall-off

END OF TEST