



PL 270, Well 35/3-6

FINAL WELL REPORT

Ref. No.: PL270/611.0 – 6.81



AKER ENERGY AS

RWE Dea Norge AS

16TH JUNE 2002

LIST OF CONTENTS

1	Summary and Conclusions.....	6
1.1	<i>Introduction.....</i>	6
1.2	<i>Well Programme Summary.....</i>	7
2	General Well Data	8
2.1	<i>Well Data Record</i>	8
2.2	<i>Well Location Map.....</i>	9
2.3	<i>Technical Objective</i>	10
2.4	<i>Well Result</i>	10
2.5	<i>Well Progress Curve.....</i>	11
2.6	<i>Well Status after Plug and Abandonment.....</i>	12
2.7	<i>Operational Safety Results vs. Objectives.....</i>	12
2.8	<i>List of Service Companies.....</i>	13
3	Geological Report.....	15
3.1	<i>Previous Drilling.....</i>	15
3.2	<i>Geological Setting</i>	15
3.3	<i>Data Acquisition Summary</i>	18
3.3.1	<i>Casing</i>	18
3.3.2	<i>Conventional Core.....</i>	18
3.3.3	<i>Sidewall Cores.....</i>	18
3.3.4	<i>Mudlogging.....</i>	18
3.3.2	<i>Logging.....</i>	20
3.3.6	<i>Velocity Survey.....</i>	20
3.4	<i>Stratigraphy</i>	20
3.4.1	<i>Table of Chronostratigraphy</i>	21
3.4.2	<i>Table of Stratigraphy</i>	22
3.4.3	<i>Lithostratigraphical Description.....</i>	22
3.5	<i>Hydrocarbon Show Summary.....</i>	32
3.5.1	<i>Shows.....</i>	32
3.5.2	<i>Gas Peaks.....</i>	32
3.6	<i>Pore Pressure and Well Temperature Summary</i>	33
3.6.1	<i>Pore Pressure.....</i>	33
3.6.2	<i>Temperature</i>	35
3.7	<i>Petrophysical Evaluation</i>	38
3.7.1	<i>Log Corrections, Splicing, and Depth Shifts</i>	38

3.7.2	Input Parameters	38
3.7.3	Formation Water Salinity	39
3.7.4	Computations	39
3.7.5	Mnemonics	45
3.8	<i>Geological and Geophysical Evaluation Summary</i>	47
3.8.1	Geophysical Result.....	47
3.8.2	Revised Mapping.....	49
3.8.3	VSP-Survey.....	50
4	Operational Summary and Data	51
4.1	<i>Rig Move and Anchoring Summary, Rig Move from CCB to Well 35/3-6</i> ...	51
4.1.1	Anchor Handling Operations Onshore(at CCB)	51
4.1.2	Rig Move and Anchor Handling Operations on Location	51
4.2	<i>DSB Rig De-Mobilization and Anchor Recovery Plan from Well 35/3-6</i>	52
4.2.1	Anchor Handling Operations Offshore at Well 35/3-6.....	52
4.2.2	Transfer from Well Location to Stavanger at Åmøyfjorden Anchorage	52
4.2.3	Anchor Position Diagram - Deepsea Bergen at Well 35/3-6.....	54
4.3	<i>36" Hole and 30" Conductor Cementation</i>	55
4.3.1	9 7/8" Pilot Hole, 17 1/2" Hole Opening and 13 3/8" Cementation.....	56
4.3.2	12 1/4" Hole and 9 5/8" Casing.....	59
4.3.3	8 1/2" Hole Section	66
4.4	<i>Casing Program Summary</i>	70
	<i>Design Conditions</i>	70
4.5	<i>Drilling Fluid Summary</i>	71
4.6	<i>Cementing Summary – Primary Jobs</i>	72
4.7	<i>BHA Summary</i>	76
4.8	<i>Bit Summary</i>	77
4.9	<i>Survey Summary</i>	78
4.10	<i>LOT Summary</i>	84
4.11	<i>Equipment Failure Summary</i>	86
4.12	<i>Well Time Analysis</i>	95
4.13	<i>Environmental Discharge Summary</i>	99
5	Lessons Learned	101
6	Special Reports.....	106
6.1	<i>Shallow Water-Flow Report</i>	106
7	Appendices	107



7.1	<i>Appendix 1: Activity Repots</i>	107
7.2	<i>Appendix 2: Wireline Witness Reports</i>	146
7.3	<i>Appendix 3: Sidewall Core Descriptions</i>	150
7.4	<i>Appendix 4: Well Site Sample Descriptions</i>	152
7.5	<i>Appendix 5: Gas Peaks and Chromatography</i>	157
8	References	158
8.1	<i>References</i>	158
9	Enclosures	159
9.1	<i>List of Enclosures</i>	159
	• Composite Well Log 1:500	159
	• ELAN CPI Llog 1:1000	159

1 SUMMARY AND CONCLUSIONS

1.1 Introduction

The 35/3-6 exploration well was drilled to a total depth of 3366 m MD with the Deepsea Bergen in 58.8 days, including 26.4 days of non-productive time. No personal injuries causing lost time were sustained during the operation.

Beyond fulfilling the PL270 Licence commitment, the objective of well was to test for commercial hydrocarbons and locate any associated hydrocarbon contacts within the Måke Nord prospect. The primary target, the Albian Agat Fm, was only 2,5 m thick and carbonate cemented sandstone with traces of hydrocarbons. No reservoir was found and drilling stopped in claystones of Jurassic age (Heather Fm).

Data Acquisition

LWD logs were obtained from below the 30" shoe and to total depth. In addition, wireline logs were run the 8 ½" hole section, including sidewall cores and zero offset VSP. No cores were obtained.

Operational Execution

The rig came under contract at 23:30 hrs on 1st of February 2002. Due to deteriorating weather conditions, departure was delayed and anchor handling operations on the location were temporarily suspended. The rig was moved 21 m west of intended position and the well was spudded on 06.02.2002.

The 36" hole was drilled from seabed at 250 m to 309 m, followed by installation of the 30" conductor at 309 m.

The 9-7/8" pilot hole was drilled riserless with seawater and hi-vis pills to 1300 m and displaced to 1.20 sg mud. This hole was then opened to 17 ½" with seawater and hi-vis pill and displaced to 1.20 sg mud prior to running the 13 3/8" casing.

On 17th February, following a 36 hour waiting on weather period to run the BOP, the wellhead was inspected with the ROV and a flow was observed from below the guide base, which was partially covered by debris.

After an unsuccessful attempt to stop the flow by grouting the 30" conductor and landing the BOP, a combined cement bond log and temperature log were then run. It was concluded that the water-flow was entering the well bore at approximately 600 m, coming from the Utsira FM.

A bridge plug was set at 591 m, the casing perforated at 568 m and a cement retainer installed at 547 m.

By repeated injection and partially circulation of kill mud through the perforations, the well was stabilized. A combination of a cross-linked polymer pill and low-density

cement was placed in the annulus, which effectively stopped the flow on February 26th.

With the BOP installed, an internal casing patch was set across the perforations and pressure tested to 185 bar, which was the specified test pressure for the casing.

Due to the restricted internal diameter of the casing patch, the 12 ¼" hole was drilled with two PDC bi-centre bits, mud motor and casing wear protectors. A 1.45 sg formation test was obtained and the hole was displaced to a 1.32 sg KCl-glycol-polymer mud system. Due to high torque and pipe sticking, the section depth became 2696 m, about 200 m shallower than planned (2900 m).

The 9 5/8" casing was run and landed successfully. When circulating prior to cementing, the top cement plug was accidentally released, then intentionally landed and later drilled out. With a cement retainer set on drill pipe above the casing shoe, circulation was established and the casing was cemented and pressure tested.

When milling on the cement retainer, the drill pipe parted in the area of the upper annular preventer and the flex-joint. The lower marine riser package was pulled for visual inspection and function testing of these items, but no apparent explanation to the incident was found.

The riser package was re-run and drilling of the 8 1/2" hole section could commence after having tested the formation to 1.50 sg. Casing wear protectors were used to minimize wear on drill pipe in the area of the flex-joint.

The 8 ½ hole was drilled problem free with one PDC bit and the same mud system to total depth of 3366 m.

Upon completion of wireline logging , a cement plug was placed across the 9 5/8" casing shoe. The 9 5/8" casing was cut and pulled from 596 m. A 13 3/8" bridge plug was set at 590 m, followed by placing 200 m long cement plug above it.

The 30" and 18 5/8" wellheads were recovered by cutting the 13 3/8" and 30" approximately 5 m below the seabed. No objects on the seabed were observed by the ROV.

The anchors were pulled and the rig was off contract at 18:30 hrs on the 1st of April, heading for Dusavik.

1.2 Well Programme Summary

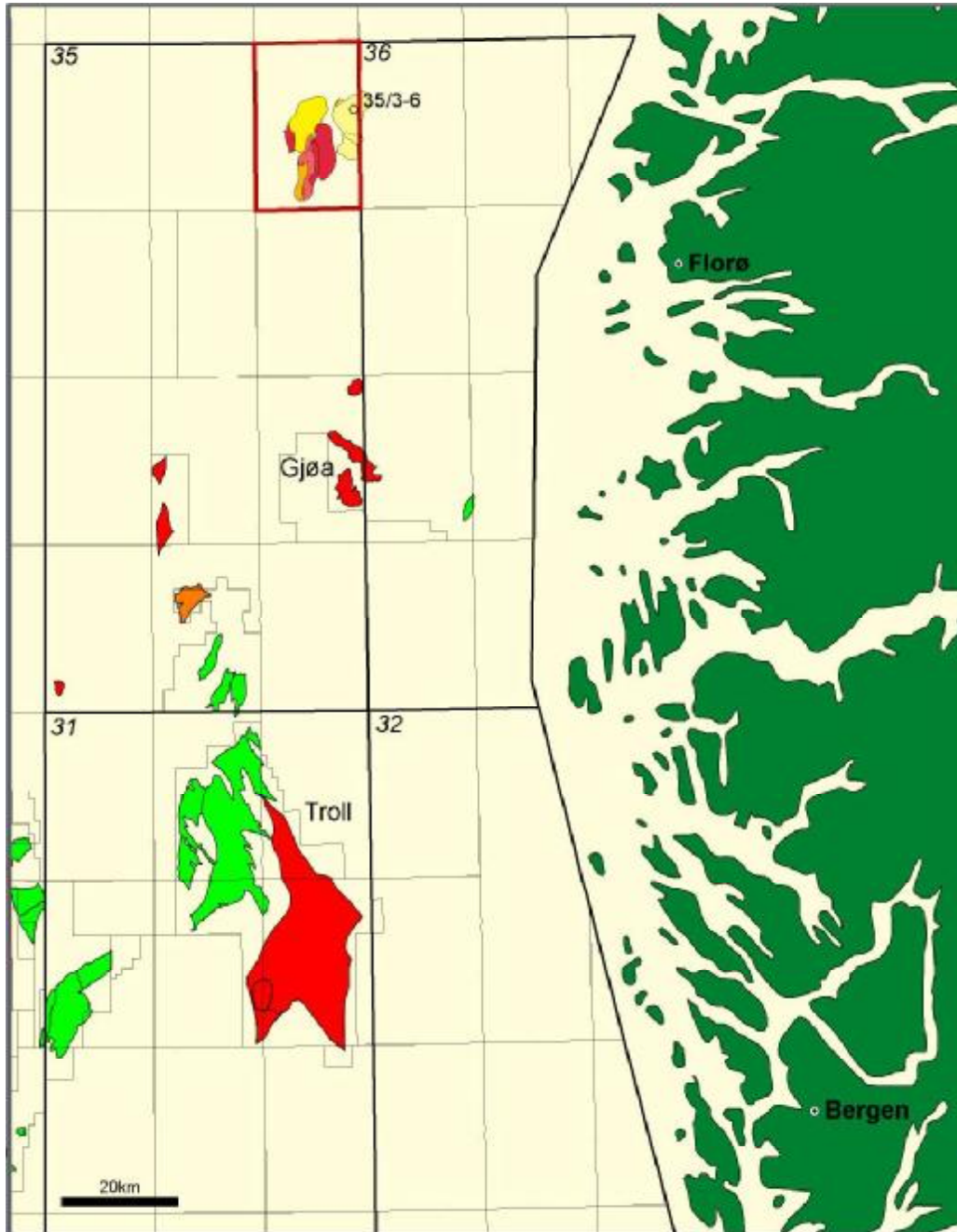
Reference is made to Fig. 1.1, Well Summary

2 GENERAL WELL DATA

2.1 Well Data Record

Well Name	35/3-6
Licence	PL 270
Operator	RWE-DEA Norge AS
RDN %	51
Partners	Aker Energy AS
Rig	Deepsea Bergen
DST's	None
Rig on Contract	1 st February 2002
Spudded	6 th February 2002
TD date	24 th March 2002
Rig released	2 nd April 2002
Status	P&A
KB above MSL	23 m
Water depth	225 m
Datum / Spheroid	ED50 / Int 1924
UTM	UTM zone 31, CM 03° E
Geographic Location	61° 53' 36.86'' N
	03° 59' 15.79'' E
Actual Surface Coordinates	6 862 883.4 mN
	551 915.7 mE
Planned Target Coordinates	6 862 887 mN
	551 937.3 mE
Actual Target Coordinates	6 862 880 mN
	551 995.5mE
Total Depth	3366 mMD RKB
TD Fm, Age	Heather Fm, Jurassic
Target core	None

2.2 Well Location Map



2.3 Technical Objective

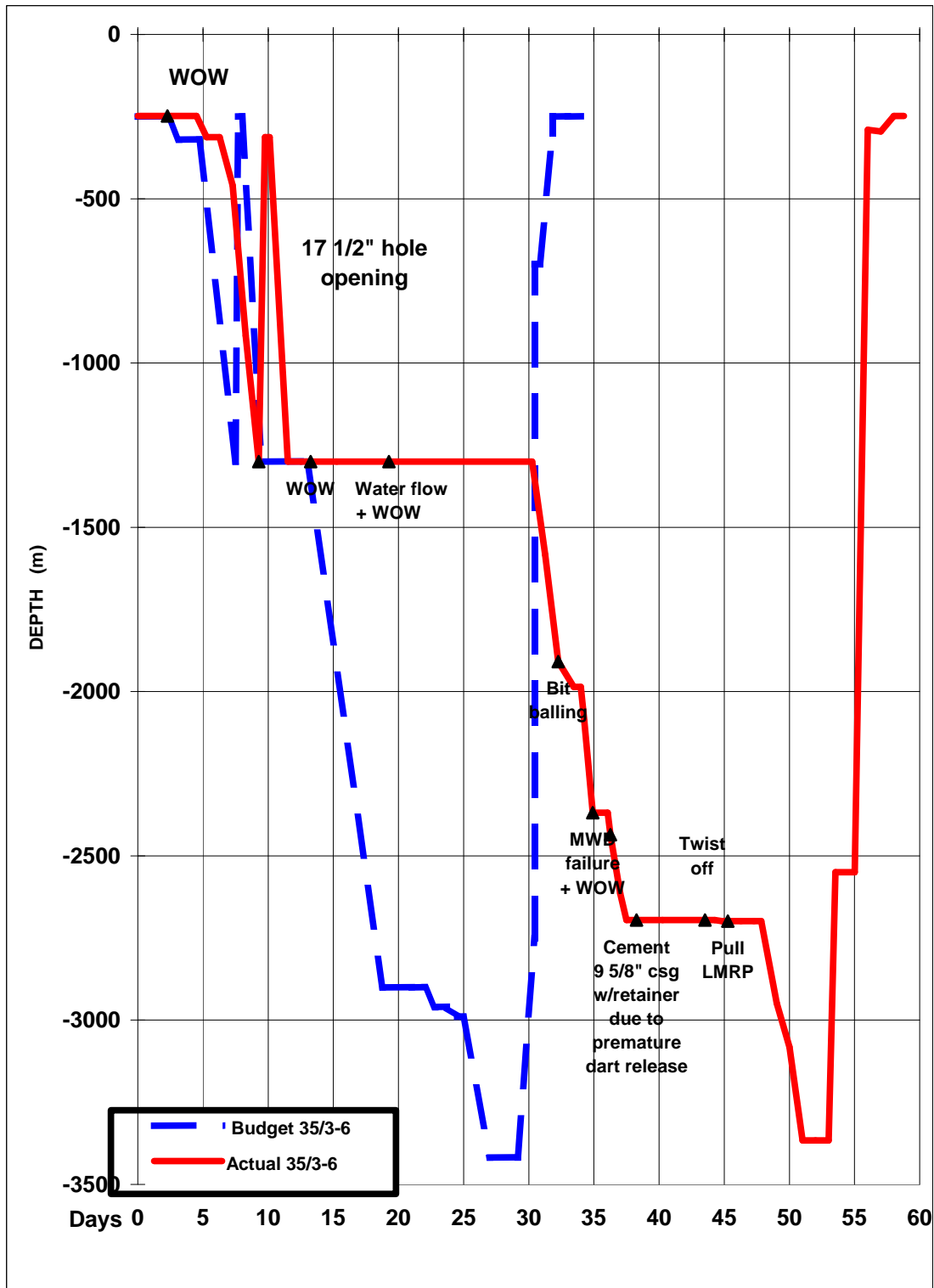
The primary objectives of well 35/3-6 was:

- to test for commercial hydrocarbons and locate any associated hydrocarbon contacts within the Måke Nord prospect
- to obtain and evaluate data required for any potential future (appraisal) drilling
- to fulfil the PL270 Licence Commitment

2.4 Well Result

The well encountered no hydrocarbon bearing intervals. The primary objective, the Albian Agat Fm, was only 2,5 m thick and carbonate cemented with traces of hydrocarbons. The well was designed to be drilled in 38 days (dry hole basis, AFE) but took 58,8 days. The increase of 20,8 days was mainly due to water flow and associated events in the shallow part of the hole. No reservoir was found and drilling stopped in claystones of Jurassic age (Heather Fm).

2.5 Well Progress Curve



Time depth curve reflects contractual days of 58.8 days as opposed to 57.13 operational days.

2.6 Well Status after Plug and Abandonment

See Fig. 1.1, Well Summary

2.7 Operational Safety Results vs. Objectives

RWE Dea and Odfjell Drilling Management introduced a joint ZERO incident philosophy, which was introduced to all involved rig personnel and service contractors. A well established HSE Management System existed on Deepsea Bergen, which made it possible to quickly implement required HSE guidelines and objectives, despite the fact that the rig had been laid up and stacked prior to commencement of well 35/3-6. For further details reference is given to the specific HSE report. Ref.no:PL270/587-6.80.

The project targets are stated below:

"It is the duty of every person to take time to plan the work so that it can be carried out safely and efficiently the first time. The HSE targets are:

- 3 Zero injuries to personnel**
- 4 Zero unplanned discharges**
- 5 Zero falling objects**
- 6 Zero high risk potential incidents**

It is the right and obligation of each individual to stop or call attention to hazardous work."

MEASURE INDICATOR	GOAL	RESULT
Personnel injuries with absence (LTI)	0	0
Medical treatment frequency (H2)	<20	0
Work related illness frequency (M1)	<20	0
Falling objects	0	4
Incidents with risk potential >50	0	0
Spill to environment	0	1
Fire	0	0
98% available rig	98 %	97 %
Incidents with serious risk potential	0	2

ODAS have implemented a reporting system where RUH are classified either as green (proactive reports of potential hazardous situations) or red (actual hazardous situations/incidents where consequences were suffered). The objective was to have at least 4 green RUH's for each red RUH. This goal was not achieved, however the consciousness of the rig crew towards HSE and reporting of incidents was very good during the operation. The reporting of RUH's is presented in table below.

Reporting of Incidents:	Total	Green	Red
Incidents reported	362	250	112
Fraction		69 %	31 %

List of Service Companies

SERVICE COMPANIES				
Type of service	Company	Address/telephone	Contact person	E Mail
Cementing	BJ Services	Plattformveien 9 4056 Tananger Tel. 51 64 82 00 Fax. 51 64 82 99		akastad@bjservices.co.uk
Cement Plugs and Float equipment from Saga Fjordbase	Weatherford (Saga Fjordbase)	Tel.51 81 44 34 Tel.57 74 57 22 Fax. 57 73 56 67	Arve Falk Egil Bjorkedal	Arve.falk@weatherford.com egil.bjorkedal@inc.sf.no
Casing	Saga Fjordbase	Tel.57 74 57 22 Fax. 57 73 56 67	Egil Bjorkedal	egil.bjorkedal@inc.sf.no
Wellhead	Dril-Quip Europe	Ryfylkegt. 70 4014 Stavanger Tel. 51 44 37 00 Fax 51 44 37 01	Torstein Lunder	torstein_lunder@dril-quip.com
Coring	CorPro	Tel. 51 90 65 00 Fax. 51 90 65 02	Stig Risvik	stigr@corpro.no
Directional Drilling/ LWD	Schlumberger	Risabergveien 3, P.O.Box 8013 4056 Tananger Tel. 51 94 65 51 Fax. 51 94 65 52	Ben Heidenreich	bheidenreich@stavanger.oilfield.slb.com
Drilling Contractor	Odfjell	P. O. Box 33 N-5863 Bergen Tel. 55 99 89 00 Fax. 55 99 89 01	Arve Grasdal manager	agr@odfjelldrilling.com
Casing running	Odfjell			
Drilling Fluids Supply	MI Norge AS	Gamle Forusvei 33 4033 Forus Tel. 51 57 73 00 Fax. 51 57 65 03	Jan Moe Henning Balzer	jmoe@midf.com
Electric Logging	Schlumberger	Risabergveien 3, P.O.Box 8013 4056 Tananger Tel. 51 94 65 51 Fax. 51 94 65 52	Ben Heidenreich	bheidenreich@stavanger.oilfield.slb.com
Mudlogging	Halliburton	P.O. Box 67 4056 Tananger Tel. 51 83 70 00 Fax. 51 83 83 83	Svein Magne Osnes	Sveinmagne.osnes@halliburton.com

SERVICE COMPANIES

Type of service	Company	Address/telephone	Contact person	E Mail
Morning report System	IDS (Asia)	Tel. 00 60 3 21 66 20 66 Fax. 00 60 3 21 66 30 66 Mob. 00 60 193 869 730	John Hanson	ids@indrill.com
Production Testing	Schlumberger	Risabergveien 3, P.O.Box 8013 4056 Tananger Tel. 51 94 65 51 Fax. 51 94 65 52	Ben Heidenreich	bheidenreich@stavanger.oilfield.slb.com
ROV Services	Oceaneering	P.O.Box 8024 4001 Stavanger Tel. 51 82 51 00 Fax. 51 82 52 90	Eivind Brimsoe	ebrimso@stavanger.oceaneering.com
Supply Boats	Saga fjord Base	Tel. 57 74 56 59 Fax. 57 73 56 65	Knut A Eltvik	knut.arne.eltvik@inc.sf.no
Surveying - Inclination	Andergauge	Risavika Havnering 4056 Tananger Tel. 51 64 75 10 Fax. 51 64 75 11	Evan McGlynn	mcglynn@andergauge.com
Drilling bits	Smith	Gamle Forusvei 25 4033 Stavanger Tel. 51 44 47 50 Fax. 51 44 57 51	Kenneth Soendervik	ksoendervik@smith.com
Fishing equipment Downhole tools Sidetrack equipment	Smith Red Baron	P.O.Box 151 4065 Stavanger Tel. 51 80 02 00 Fax. 51 80 02 13	Finn Hausken	fhausken@smith.com
Navigation rel. To rig move and positioning	Fugro Geoteam	P.O.Box 490 – Skøyen 0213 Oslo Tel. 22 13 46 00 Fax. 22 13 46 46	Ops. Manager Eivind Fredriksen	e.fredriksen@fugro-survey.no

3 GEOLOGICAL REPORT

All depths used in this section are in m MD RKB, unless otherwise stated.

3.1 Previous Drilling

Five exploration wells have been drilled in block 35/3 over the period 1976-1982. This resulted in two gas/condensate discoveries, well 35/3-2 and well 35/3-4.

Well 35/3-1 (Saga) was drilled in 1976 on a Jurassic prospect in the western part of the block. Drilling was terminated at 4475 m due to indications of high pore pressure. Only weak hydrocarbon shows were encountered in sandstones of Cretaceous and Jurassic age.

Well 35/3-2 (Saga/BP) was drilled in 1980 approximately 2.5 km east of well 35/3-1 and encountered gas/condensate in sandstones of Lower Cretaceous age. TD was 4400 m in Basement. The well was production tested and was the first test from a Lower Cretaceous reservoir on the Norwegian shelf.

Well 35/3-3 (Saga) was drilled in 1980 5.5 km east of 35/3-2, with sandstones of Lower Cretaceous age as main objective. Due to technical problems the well was abandoned at 900 m.

Drilling was resumed as well 35/3-4 and again gas/condensate was encountered in sandstones of Lower Cretaceous (Albian) age. The well was production tested. Pressure data showed no pressure communication with the Lower Cretaceous sandstones in well 35/3-2.

Well 35/3-5 (Saga) was drilled in 1981/82 approximately 8 km southeast of well 35/3-4 with main objective to appraise the discovery. Sandstones of Lower Cretaceous (Albian) age were encountered but the well was dry. Total depth was 4110 m.

Outside block 35/3

Well 36/1-2 (Saga) is the closest well to 35/3-6 and was drilled in 1975 to a total depth of 3255 m. The well did not encounter hydrocarbons, but oil shows were seen both in the Lower Cretaceous (Cenomanian-Turonian) and Middle Jurassic.

3.2 Geological Setting

PL 270 (Block 35/3) is located where the Måløy Terrace continues into the Selje High (Figure 3.1).

The Selje High has a NE/SW trend, whereas the Måløy Terrace is dominated by a N-S fault trend.

The previous gas discoveries proven by wells 35/3-2 and 35/3-4 are situated on the western margin of the Måløy Terrace, between the Øygard Fault Complex to the east and the deep Sogn Graben in the west .

The prospect was a stratigraphically defined structure, with a reservoir interpreted as submarine fan sandstones deposited during the Lower Cretaceous (Albian) period.

It was assumed to be a pinch-out trap with sandstones lapping onto older Cretaceous sediments and the Base Cretaceous Unconformity (BCU). The probability of discovery was estimated at 38 %, with the seal being the main area of uncertainty. The expected hydrocarbon phase within the primary Albian Formation sandstone target was gas with associated condensate.

The prognosed gross vertical thickness of a potential hydrocarbon column within the primary Agat Fm target was ca. 240 m TVD RKB.(see Figure 3.6 in Chap 3.8).

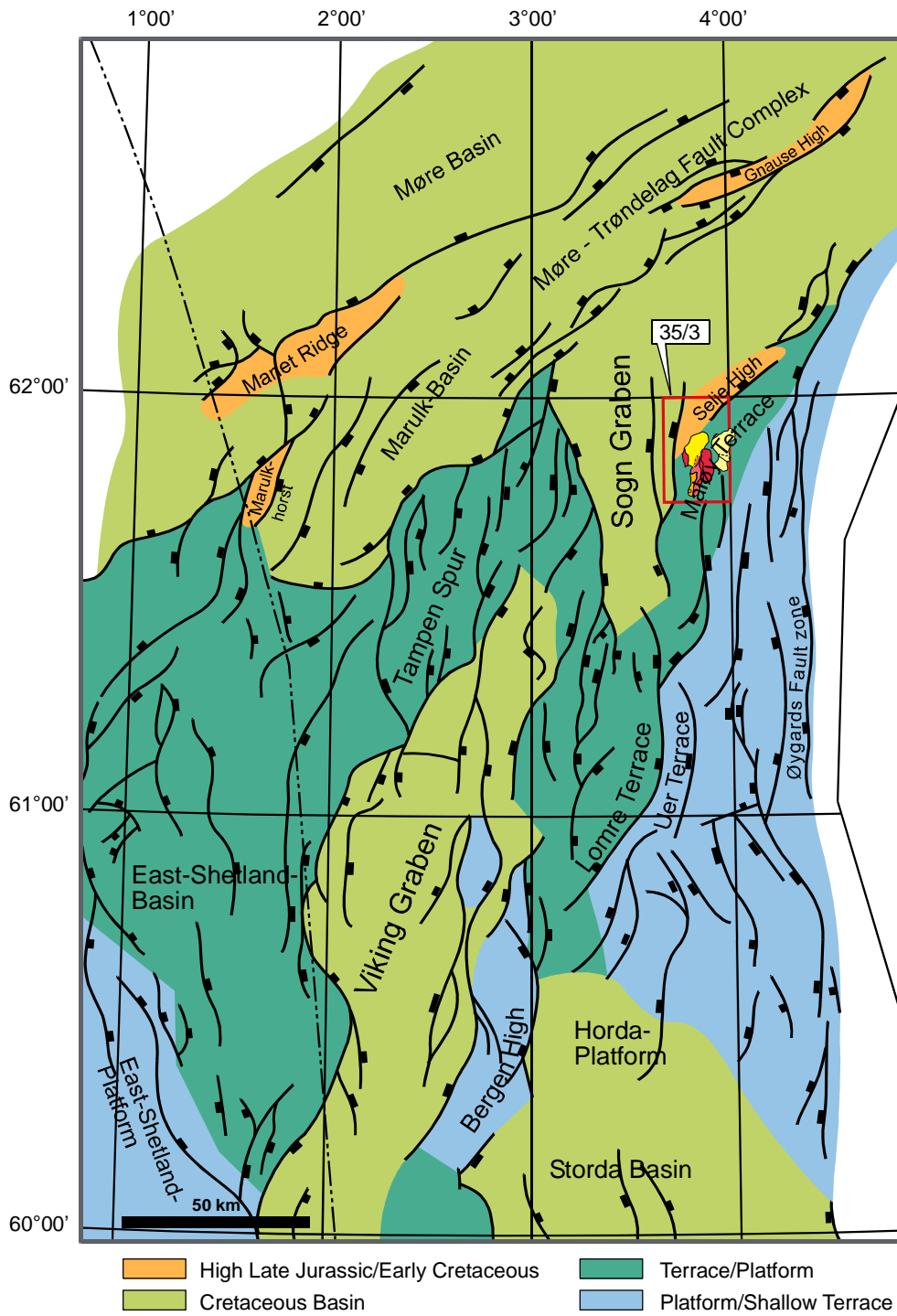


Figure 3.1

3.3 Data Acquisition Summary

3.3.1 Casing

The table below lists the setting depth of casing and result of formation tests run in the well:

Casing	Shoe depth, m MD RKB	Formation Integration test
20"	309	No test
13 3/8"	1294	1.45 sg
9 5/8"	2686	1.50 sg

3.3.2 Conventional Core

It was planned to cut one core of 30m length in Cretaceous Agat Fm, but due to missing sands in this interval, coring was cancelled.

3.3.3 Sidewall Cores

After TD of the well sidewall cores were collected using the Schlumberger CST tool.

Re CST: Schlumberger tension device was not working – had to use Maritime Winch tension (analogue system which Schlumberger could not access) causing no visible tension in logging unit, which made controlling pulling of CSTs difficult.

The table below shows a summary of the sidewall core run.

Run	No. of cores	Depth interval, m MD RKB	Recovered
2A	30	2940 - 3365	18

3.3.4 Mudlogging

A standard mudlogging unit was used, equipped with the INSITE Computerised Mudlogging Service.

Gas was monitored by means of a Total Hydrocarbon Gas detector (Flame Ionisation Detector – FID), calibrated such that 50 API units are equal to 1% total gas in air. A gas chromatograph was used for detailed breakdown of the gas in its different components and was calibrated to analyse C1, C2, C3, iC4, nC4. Gas chromatograph values are reported in ppm.

The gas trap set-up was not optimal due to there was no header box before the shaker on Deep Sea Bergen and the gas trap was positioned in a bend in the flow

line. Due to very low readings in the 12.25" section, the gas trap was regularly checked and flow characteristics in the flow line were adjusted to optimise flow through and around the gas trap. Test with carbide gave lower readings than expected.

Summary of the actual cutting sample programme is displayed in the table below

Kind of samples	Depth (mRKB)	Quantity	Interval (m)	Comments
Wet	1303 – 2467	5 bags a 0.5 kg	10	
	2467 – 2490		3 – 4	
	2490 – 2957		10	
	2957 - 3366		3	
Dried	1303 – 2467	2 a 50 g	10	From 2299 to 3193 m most of the samples were not washed because the dominant lithology (very soft and sticky) would then be washed away
	2467 – 2490		3	
	2490 – 2957		10	
	2957 - 3366		3	
Geochemical	1303 – 2950	One canned	10	
	2950 - 3366		9	
Mud	1310 and 3366	One litre		

3.3.2 Logging

MWD Logging

RUN No.	LOG DEPTH INTERVAL m MD RKB	COLLAR (Inches)	TOOL	COMMENTS
1	309 - 983	6 5/8"	CDR	9 7/8" Pilot Hole: ECD failed at 900 m, RES failed after experiencing shocks at 960 m.
2	983 - 1300	6 5/8"	CDR	9 7/8" Pilot Hole: DIR & ECD failed at start drilling. Last survey at 831.65 m.
3	309 -1300	9 1/2"	CDR	17.5" Hole opening
4	1300 -1986	9 1/2"	CDR	Pulled due to bit balling. KCL-mud produces ~75 API increase in GR readings.
5	1986-2369	9 1/2"	CDR	Pulled due to MWD failure. Power pulser failure
6	2369 -2695	9 1/2"	CDR	TD of section
7	2695 - 3366	6 3/4"	ARC5, RAB, ADN	TD of well.

Wireline Logging

Type of log	Run no	Interval (m MD RKB)		Comments
		from	to	
USIT/GR/CCL/AMS	1A	256	1209	One misrun
CSAT-GR -(LEH-QT)	2A	3333	589	76 levels + total 8 check shots
CST-GR-(LEH-QT)	2A	3365	2940	Recovered 18 (1 empty), 12 lost

3.3.6 Velocity Survey

A zero offset VSP was run. The main VSP was run with 15 m intervals from 3335 m to 2688 m in open hole and in cased hole from 2688 m to 2210 m. Check shots were taken at major formation boundaries; from 1900 m to 589 m.

3.4 Stratigraphy

As a background for the work with the stratigraphic division various information have been used. Due to no return before 1300 m the interpretation of top hole section is based solely on LWD and offset wells. A section based listing is given in the table below.

Hole Section	Depth m MD RKB	LWD	Wireline	Cuttings	Biostratigraphy	Offset wells correlation
17 ^{1/2"}	310 - 1300	X				X
12 ^{3/4"}	1300 - 2695	X		X	X	X
8 ^{1/2"}	2695 - 3366	X	X	X	X	X

3.4.1 Table of Chronostratigraphy

Depth, m MD RKB From - To		Age
1310	1330	Late Paleocene
1330	1356	Early Paleocene
1356	1405	Early - Late Maastrichtian
1405	1500	Late Campanian
1500	1700	"Middle" Campanian
1700	2020	Early Campanian
2020	2070	Santonian
2070	2140	Early Santonian
2140	2230	Coniacian
2230	2440	Turonian
2440	2770	Late Cenomanian - Early Turonian
2770	2845	Cenomanian
2845	2935	Middle Cenomanian
2935	2955	Early Cenomanian
-- Hiatus --		
2955	2982	Late Albian
-- Hiatus --		
2982	3030	Late Barremian - Aptian
-- Hiatus --		
3030	3080	Valanginian – Early Hauterivian
3080	3155	Late Ryazanian – Early Valanginian
-- Hiatus --		
3155	3209	Middle Volgian
3209	3230	Early Volgian
3230	3272	Middle – Late Kimmeridgian
3272	3344	Late Oxfordian – Early Kimmeridgian
3344	3366	Late middle Oxfordian

3.4.2 Table of Stratigraphy

Period	Group / Formation	Prognosed Depth m TVD RKB	Depth m MD RKB	Depth m TVD RKB	Depth m TVD MSL	TWT ms
QUATERNARY / TERTIARY	Nordland Group (Sea Bed)	248	248	248.0	225.0	304
	Utsira Fm.	566	573	572.4	549.4	649
TERTIARY	Hordaland Group	654	619	618.3	595.3	
	Skade Fm.	654	619	618.3	595.3	697
	Grid Fm.	814	826	825.1	802.1	899
	Rogaland Group	1032	1053	1052	1029	
	Balder Fm.	1032	1053	1052	1029	1123
	Sele / Lista Fm.	1060	1072	1071	1048	1141
CRETACEOUS	Våle Fm.	1300	1337	1335.9	1312.9	1402
	Shetland Group	1354	1356	1354.9	1331.9	
	Jorsalfare Fm.	1354	1356	1354.9	1331.9	1423
	Kyrre Fm.	1413	1429	1427.8	1404.8	
	Tryggvason Fm.	2215	2222.5	2221.1	2198.1	2128
	Blødøks Fm.	2762	2770.5	2768.9	2745.9	
	Svarte Fm.	2870	2785.5	2783.9	2760.9	
	Cromer Knoll Group	2960	2955	2953.7	2930.7	
	Agat Fm.	2960	2955	2953.7	2930.7	2560
Rødby Fm.		2957.5	2955.7	2932.7		
JURASSIC	Åsgard Fm	3200	2982	2980.2	2957.2	2575
	Viking Group	3368	3155	3152.9	3129.9	
	Draupne Fm		3155	3152.9	3129.9	2678
TD	Heather Fm	3368	3335	3332.5	3309.5	2791
	31 m into Heather Fm.		3366	3363.3	3340.3	

3.4.3 Lithostratigraphical Description

NORDLAND GROUP

The Nordland Group (370.3 m thick) is divided into two units, Quaternary Undifferentiated and Utsira Fm.

Quaternary Undifferentiated

Age: Pleistocene
Top - Base: 248 – 573 m MD (Seabed)/ 248 – 572.6 m TVD RKB
Thickness: 324.4 m
Lithology: The whole group was drilled without returns to seafloor.

Possible boulder bed was experienced between 270 and 275 m, and the whole group is believed to be a mixture of glacial till, glaciomarine / marine silty and sandy clays with thin interbeds of sand

Boundaries: The upper boundary of this unit is the seabed. The lower boundary is the Base Quaternary erosion surface at 573 m.

Utsira Formation

Age: Pliocene to Late Miocene

Top - Base: 573 - 619 m MD/572.6 – 618.3 m TVD RKB

Thickness: 45.7 m

Lithology: From the LWD Gamma and resistivity logs and lithology described in offset wells, this unit is considered to consist of clay and possible sands and siltstones at the base

Boundaries: The upper boundary is picked at the base Quaternary erosion surface, and correlate with a sharp downwards decrease in the GR curve. The lower boundary is taken at top of the Skade Fm, and is observed as a slow downward rise in the gamma ray.

HORDALAND GROUP

The Hordaland Group (433.7 m thick) consists of major sandy intervals defined as the Skade, Grid and ?Frigg Fms. These sand units are interbedded with claystone/siltstone that have not been further subdivided into formations.

Skade Formation

Age: Late Oligocene

Top - Base: 619 - 826 m MD / 618.3 – 825.1 m TVD RKB

Thickness: 206.8 m

Lithology: Clay/claystone interbedded with sands is interpreted from the LWD logs.

Boundaries The upper boundary is characterised by a downward increase in gamma-ray response going from sand of the Nordland Group into the Skade Formations. The lower boundary shows a downward decrease in gamma-ray response into sand/sandstone of the Grid Fm.

Grid Formation

Age: Middle to Late Eocene

Top - Base: 826 – 1053 m MD / 825.1 - 1052 m TVD RKB

Thickness: 225.9 m

- Lithology:** Sand or sandstones units interbedded with minor siltstones and claystones are interpreted from the LWD logs with correlation to nearby offset well for lithology interpretation.
- Boundaries:** The upper boundary is characterised by a sharp decrease in gamma-ray and generally lower resistivity readings going downwards from the younger mudstones of the Hordaland Group and into the sands of the Grid Fm. The lower boundary is characterised by a higher level of spiky gamma-ray readings together with slightly higher resistivity

?Frigg Sand Unit's presence is not clear but it might be located in the sand body between 1017 and 1032 m MD

ROGALAND GROUP

The Rogaland Group consists of the Balder, Sele, Lista and Våle Formations and is 332.9 m thick.

Balder Formation

- Age:** Earliest Eocene
- Top - Base:** 1053 -1072 m MD / 1052.0 - 1071 mTVD RKB
- Thickness:** 18 m.
- Lithology:** In offset wells the Balder Formation is composed of claystones with tuff layers and with occasional stringers of limestone.
- Boundaries:** The log response of the Balder Formation is often bell shaped. In this well the bell shape of the resistivity is poorly developed but the gamma-ray has a pronounced downward bulge. The upper boundary of the formation is picked at a high gamma-ray spike just before the downward sharp drop in the gamma-ray. The lower boundary is associated with a rather abrupt downward increase in gamma-ray response and a slight decrease into a more level resistivity when going into the Sele/Lista Fm.

Sele/Lista Formation

- Age:** Late Palaeocene - Earliest Eocene
- Top - Base:** 1073 - 1337 m MD/ 1072.0 – 1335.9 m TVD RKB
- Thickness:** 264.9 m.
- Lithology:** The Sele/Lista Formations consists of claystones with occasional limestone stringers and siltstones with some thin interbeds of tuff in the upper part (described in offset wells) . Limestone/Dolomite stringers occur more frequent in the upper part of the Lista Formation. A sandstone bed which might belong to the Heimdal Formation is observed on the LWD logs between 1128-1140 m.

Boundaries: The upper boundary of the Sele Fm is expressed by a rather abrupt downward increase in gamma-ray response and slightly lower and more level resistivity readings. The lower boundary is characterised by a downward increase in the resistivity readings and a change in character from steady to fluctuating values

Lista formation down to 1300 m was drilled without returns to seabed.

Claystones: are coloured olive black to dark grey. They are firm to moderately hard, friable, deformed to sub-blocky and moderately to occasionally very calcareous. In places the claystones are slightly silty and locally very fine sandy, glauconitic, and with traces of micromica and micropyrite.

Limestones: are dark to pale yellowish brown, hard, brittle, sub-blocky, micro- to crypto-crystalline, slightly argillaceous and dolomitic.

A rare sandstone was found close to the base of the Lista Fm.: it is olive black, dark green grey, very fine to fine, sub-angular to sub-rounded. It has a poor sorting, and is friable to loose, calcareous, and with a slight to very argillaceous matrix in part grading to a claystone. It is also slightly to very glauconitic and has no visible porosity.

Våle Formation

Age: Early Palaeocene

Top - Base: 1337 - 1356 m MD /1335.9 – 1354.9 m TVD RKB

Thickness: 19 m

Lithology: The Våle Fm consists of claystones with occasional interbedded limestone/dolomite stringers. A few sandstone beds probably belonging to the intraformational Ty Formation were present.

Claystones: are olive grey-light olive grey, firm to moderately hard, friable, deformed and sub-blocky. They are very calcareous and occasionally grade to limestone. The claystones were sandy and glauconitic.

Sandstones: has a green grey to light green grey or grey green colour. It is predominantly composed of clear quartz grains with occasionally milky or smoky quartz. It is fine to coarse and occasionally very coarse grained. The sand grains are sub-angular to rounded and sub-spherical. Occasionally they also have a polished surface. The sorting is poor and the hardness is predominantly loose. Local trace of calcareous and argillaceous matrix was present. Locally a very argillaceous matrix was observed when the sandstone grades to a claystone. Glauconite grains are common to locally abundant. No visible porosity.

Limestones/dolomites: have a dark to pale yellow brown colour. They are hard, brittle and sub-blocky, micro- to crypto-crystalline and slightly argillaceous. The limestones are dolomitic.

Boundaries: The upper boundary is characterised by a downward slight increase in the resistivity readings and a change in character from steady to fluctuating values. The internal sand beds of the Ty Fm. appear as decreased gamma ray response

SHETLAND GROUP

Jorsalfare Formation

Age: Campanian – Late Maastrichtian
Top - Base: 1356 - 1429 m MD /1354.9 – 1427.8 m TVD RKB
Thickness: 72.9 m
Lithology: The Jorsalfare Formation consists of interbedded limestones and claystones with a marly claystone at its base.

Limestones: are white, soft to firm, amorphous to deformed, crypto to occasionally microcrystalline. It is also clean and has a chalky appearance.

Claystones: are medium dark grey to olive grey, locally minor dark green grey, soft to moderately hard, friable, plastic to deformed, very calcareous, slightly silty, and local glauconite and pyrite.

Marly claystone: is moderate brown, firm, blocky to sub-blocky, occasionally amorphous, moderately calcareous to very calcareous when grading to marl.

Boundaries: The upper boundary is characterised by a sharp downward increase in GR. The Jorsalfare is characterised by large fluctuations in gamma ray values and associated lesser variations in resistivity. The lower boundary is taken at the base of the last interval of low gamma-ray (prior to the constant high values of the Kyrre Fm.) and the corresponding drop to constant low resistivity values.

Kyrre Formation

Age: Early Santonian – Late Campanian
Top - Base: 1429 – 2222.5 m MD/1427.8 – 2221.6 m TVD RKB
Thickness: 793.8 m
Lithology: The formation consists of claystones with frequent dolomite stringers and occasional limestone stringers. The dolomite stringers are more frequent in the upper part of the formation.

Claystones: are medium dark to dark grey, firm, plastic, massive, sub-blocky to blocky, non to slightly or occasionally moderately calcareous, slightly silty, occasionally slightly microcarbonaceous speckled and occasionally slight micromicaceous. Locally traces of pyrite and rare glauconite are present.

Dolomites: are brownish grey to dark greyish brown, dusky yellowish brown, pale yellowish brown and occasionally light grey or yellowish orange, hard to very hard, brittle, platy to sub-blocky or blocky and microcrystalline. When grading to dolomitic limestones they are commonly speckled with different colours and have a crumbly appearance.

Limestones: are white, very light grey to yellowish grey, firm to moderately hard, amorphous to sub-blocky, deformed, crypto to microcrystalline and locally glauconitic.

Boundaries: The upper boundary is associated with a downward increase in of the Kyrre Fm. as opposed to the fluctuating values of the overlying Jorsalfare Fm. The lower boundary is associated with a slight downward shift in the resistivity to a slightly higher values and a slight downward reduction in gamma ray values.

Tryggvason Formation

Age: Early Turonian - Coniacian
Top - Base: 2222.5 m – 2770.5 m MD / 2221.6 m – 2768.9 m TVD RKB
Thickness: 547.3 m
Lithology: The Tryggvason Formation consists generally of claystones with minor stringers of dolomites and limestones. Common calcareous sandstone beds associated with siltstones occur between 2440 m and 2500 m.

Claystones: are generally light grey to medium grey to medium dark grey, rarely greenish grey, firm to occasionally soft, friable to sometimes plastic, sub-blocky to occasionally amorphous, slight to moderately calcareous, locally non calcareous, occasionally very calcareous grading to marl, silty to very silty in part grading to siltstone, trace of microcarbonaceous material, locally trace glauconite, rarely micromicaceous, locally trace pyrite.

Dolomites: are dark yellow brown, brownish grey, moderate yellowish brown, hard to very hard, brittle, blocky to platy, crypto to microcrystalline, commonly grading to dolomitic limestone.

Limestones: are yellow grey, firm, friable, deformed, subblocky, microcrystalline to crypto-crystalline and slightly argillaceous.

Siltstones: are medium light grey, light greenish grey in part, friable to firm, sub-blocky, argillaceous in part, moderately calcareous, glauconitic to very glauconitic in part, grading to very fine glauconitic sandstone.

Sandstones: are very light grey to white, clear to translucent quartz grains, very fine, commonly grading to siltstone, very well sorted, sub-angular, firm, well to occasionally very well calcareous cemented or with calcareous matrix grading to arenaceous limestone, common to abundant glauconite. Traces of mica are occasionally present and rarely also chlorite and micropyrrite. No visible porosity. Occasionally sand grains are seen which are clear to translucent quartz, very fine to fine, occasionally medium, rarely coarse, moderately sorted, subangular to subrounded, subspherical to sub-elongated.

Boundaries: The upper boundary is associated with a slight downward shift in the resistivity to a slightly higher values and a slight downward reduction in gamma ray values. The lower boundary is characterised by a downward increase in gamma ray and an increase in separation between density and neutron porosity curves going from the Tryggvason Fm and into the Blodøks Fm.

Blodøks Formation

Age: Late Cenomanian
Top - Base: 2770.5 m – 2785.5 m MD / 2768.9 m – 2783.9 m TVD RKB
Thickness: 15 m
Lithology: The Blodøks Fm consists of Claystones.

Claystones: are dark grey to olive black, firm to moderately hard, friable, deformed to sub blocky, slightly to very calcareous, slightly to very silty grading to siltstone, carbonaceous, locally glauconite, rare micromica and micropyrrite.

Boundaries: The upper boundary is characterised by a downward increase in gamma ray and an increase in separation between density and neutron porosity curves going from the Tryggvason Fm and into the Blodøks Fm. The lower boundary is associated with a downward gamma-ray decrease and corresponding reduction in density / porosity separation going into the Svarte Fm below.

Svarte Formation

Age: Cenomanian
Top - Base: 2785.5-2955 m MD / 2783.9-2953.7 m TVD RKB
Thickness: 169.8 m

- Lithology:** The formation consists of claystones that locally grade to siltstones, and occasional limestone stringers
- Claystones: are dark grey to medium dark grey to olive black, locally medium to light grey, firm to moderately hard, friable, deformed to sub blocky to locally amorphous, slightly to very calcareous, slightly to very silty locally grading to siltstone, carbonaceous, locally glauconitic, rare micromica and micropyrrite.
- Siltstones: are dark to medium dark grey, locally very light grey, moderately hard, friable, deformed to sub blocky, non to moderately calcareous, very argillaceous grading to claystone, carbonaceous, local trace glauconite.
- Limestones: are generally light olive grey, yellowish grey, hard, brittle, platy, crypto to microcrystalline, slightly argillaceous. Locally they are white to very light grey, moderately hard, locally firm, brittle, blocky, crypto crystalline, clean, chalky. Rarely
- Boundaries:** The upper boundary is associated with a downward gamma-ray decrease and corresponding reduction in density / porosity separation going from the Blodøks Fm and into the Svarte Fm. The lower boundary is taken at the top of an Albian sand as indicated by a downward increase in resistivity and corresponding decrease in density and neutron porosity values.

CROMER KNOLL GROUP

The Cromer Knoll Group consists of the Rødby, Agat and Åsgard Formations and is 199.2 m thick. The Agat Fm was the primary objective for this well.

Rødby Formation

Age: Late Albian
Top - Base: 2955.5-2982 m MD / 2953.7-2980.2 m TVD RKB
Thickness: 26.5 m.

Lithology: The formation consists of claystones and siltstones with a 2.5 m thick calcareous sandstone at the top of the Group. This sandstone lies within the Agat Fm. – and represents probably a hard ground/erosion surface.

Claystones: are dark grey to greyish black and medium to medium light grey, firm to moderately hard, occasionally soft, friable, blocky to sub blocky to amorphous, slightly calcareous to very calcareous when medium light grey, slightly speckled microcarbonaceous, rare mica.

Siltstones: are medium grey, firm, occasionally friable, sub blocky, very calcareous grading to marl, slightly carbonaceous, slightly micromicaceous.

Sandstones: are white to very light grey, clear to translucent quartz, very fine to fine, very well sorted, subangular, abundant calcareous cement, rare mica, rare glauconite, rare chlorite, no visible porosity.

Boundaries: The upper boundary is taken at the top of a presumed Albian sand as indicated by a downward increase in resistivity and corresponding decrease in density and neutron porosity values. The gamma ray values are relatively unaffected.

The lower boundary is picked at a sharp downward increase in gamma ray values and corresponding increase in density/porosity curve separation caused by a decrease in density and associated increase in porosity.

Åsgard Formation

Age: Late Ryazanian - Aptian

Top - Base: 2982-3155 m MD / 2980.2- 3152.9 m TVD RKB

Thickness: 172.7 m

Lithology: Basically a claystone with very high gamma-ray readings of generally 140 API. Thin stringers of limestone and occasional dolomite are present.

Claystones: is greyish black, firm to commonly moderately hard, blocky, massive, occasionally brittle, silty, micromicaceous, microcarbonaceous speckled and slightly calcareous.

Boundaries: The upper boundary of the Åsgard Formation is taken at the base of the Rødby Formation, and is associated with a downward increase in gamma ray.

The lower boundary, representing the transition to the Jurassic Draupne formation, is picked at a slight downwards increase in both gamma ray and neutron porosity and a corresponding reduction in density.

VIKING GROUP

The Viking Group consists of the Draupne Formation and Heather Formation.

Draupne Formation

Age: Early Kimmeridgian – Middle Volgian
Top - Base: 3155 – 3335 m MD / 3152.9 – 3332.5 m TVD RKB
Thickness: 179.6 m
Lithology: The formation consists mainly of claystone and siltstones with stringers of limestone and dolomite.

Claystones: is greyish black, firm to commonly moderately hard, blocky, massive, occasionally brittle, silty, micromicaceous, microcarbonaceous speckled and slightly calcareous.

Siltstone: greyish black to olive black to brownish black to dusky brown, locally medium dark grey, moderately hard to firm, friable, crumbly surface texture, sub blocky, non to rarely slightly calcareous, argillaceous, very carbonaceous, moderately to very micromicaceous, locally micropyrritic, trace pyrite, local trace plant fragments.

Limestone: brownish grey, pale yellowish brown, locally dark brown (oil stained), occasionally off white, firm to moderately hard to hard, brittle, sub blocky to platy, crypto to microcrystalline, slightly argillaceous, locally dolomitic.

Dolomites: are yellowish grey, moderately hard, brittle, and microcrystalline.

Boundaries: The upper boundary, representing the transition from Åsgard formation, is picked at a slight downwards increase in both gamma ray and neutron porosity and a corresponding reduction in density. The lower boundary representing the transition from the Draupne Fm, is picked at a slight downwards decrease in gamma ray.

Heather Formation

Age: Late Middle Oxfordian
Top: 3335 m MD / 3332.5 m TVD RKB
Thickness: Unknown (TD after drilling 31 m of formation)
Lithology: The formation consists of siltstones with stringers of limestone.

Siltstone brownish black to dusky brown, occasionally greyish black, firm, occasionally moderately hard, friable, crumbly surface texture, blocky, occasionally hard, non to rarely slightly calcareous, argillaceous, very carbonaceous, micromicaceous, locally micropyrritic, trace pyrite nodules, local trace plant fragments.

Limestone: brownish grey, pale yellowish brown, firm to moderately hard to hard, brittle, blocky to sub blocky, crypto to microcrystalline, locally dolomitic.

Boundaries: The upper boundary, representing the transition from the Draupne Fm, is picked at a slight downwards decrease in gamma-ray.

3.5 Hydrocarbon Show Summary

3.5.1 Shows

Show in Sandstone 2450 – 2500 m: very pale yellow direct fluorescence, no direct cut, weak-dull yellow fluorescent crush cut, no visible Residue, very weak yellow Fluorescent Residue, dull yellow fluorescent Ring Residue.

Gas peak of 1.0% at 2468 m when drilling through the sand stringer interval at 2450-2500 m. Very dry gas .

Shows in Siltstones 2500- 2695 m: no direct fluorescence, very slow cloudy dull blue-white fluorescent cut, bright blue-white fluorescent Residue, bright white fluorescent Ring Residue.

Shows in Siltstones and Claystones grading Siltstones 2695- 3366 m: no direct fluorescence, no - trace very slow blooming blue white fluorescence crush cut, no visible direct cut, trace weak yellow to commonly moderate blue white fluorescence residue, moderate bright blue white fluorescent residual Ring, no visible residue.

3.5.2 Gas Peaks

No gas was observed before 1700 m. Through the 12.25" section the background gas showed values less than 0.1 %. A mud weight of 1.32 sg in relation to an estimated normal pore pressure would account for the lack of gas. A few gas peaks were recorded in the Tryggvason Fm. No connection gas were recorded

In the 8.5" section the background gas was still below 0.1 % until entering the Draupne Fm at 3155 m. From this depth it gradually increased to 0.4 % at TD of the well. The increase was probably related to easier and faster drilling in the Draupne Fm siltstones and does not necessarily reflect any pore pressure increase.

The section was drilled with 1.32 sg KCL mud. No connection gas were observed.

The most prominent gas peaks are listed in the table below.

DEPTH m RKB	GAS, % peak/BG	C ₁ ppm	C ₂ ppm	C ₃ ppm	iC ₄ ppm	nC ₄ ppm	iC ₅ ppm	nC ₅ ppm	TYPE/COMMENTS
2369	0.6 / 0.02	6017	45	13					TG
2468	1.0 / 0.02	5309	75						FG
2957	0.2 / 0.014	545	22	10	7	12			FG
3348	0.6 / 0.2	1300	101	110	8	30			FG

3.6 Pore Pressure and Well Temperature Summary

3.6.1 Pore Pressure

The pore pressure estimations are in general based on resistivity data. The estimation is very uncertain due to lack of sonic data, drilling exponent from Tri Cone Bit in top hole only and high overbalance.

Results are plotted in Figure 3.2

9 7/8" Pilot Hole and 17.5" Section Hole Opening

The section was drilled with seawater (1.03 sg) and no return to surface.

In this section pore pressure calculated with Eaton from the resistivity data shows a normal 1.03 sg trend

Drilling exponent is variable because of limitation of ROP to 50 m/hr and 20 m/hr around the prognosed possible shallow gas intervals. Tricone insert bit was used, but because of the limitations mentioned, the Dxc trend could not be used to establish a normal trend line in these sandy / silty formations.

SHALLOW WATER-FLOW

After setting the 13 3/8" casing a shallow water flow was observed coming from outside the 30" conductor below the PGB. (Considerable material accumulated around the PGB and eventually the stick up was lost and the PGB had to be cleared several times using the ROV.)

After analysis of USIT logs and comparisons between LWD logs from 9 7/8" pilot hole and 17 1/2" hole opening, it was clear that the flow originated from Utsira Fm sands below 587 m.

Attempts to kill the water flow reaching seabed from behind 13 3/8" csg, was done through perforations at 568 m, and using mud weights in range 1.2 to 1.4 sg. Flow continued while pumping 1.5 sg mud and it was assumed that this was due to the heavy mud sinking past up-welling water. The mud weight was reduced in stages

and eventually 1.30 sg mud was displaced into the annulus behind the casing (with seawater hydrostatic operating over the seabed). This weight seemed to balance the flow initially, but how much mud column was above and how much below the perforations was impossible to calculate. After some time there was slight seepage that possibly could be the result of barite settling or, more probably, mud losses to the formation. Topping up with 1.30 sg mud combined with 1.15 sg in the string stabilised the well again. Thus the pore pressure of the formation was estimated to lie between 1.12 and 1.13 sg EMW. More exact calculation was impossible due to the variables in the system (annulus geometry and fluid composition).

A separate report is prepared on Shallow water-flow. See Chap. 6, Special Reports.

12.25" Section

This section was drilled with 1.32 sg KCL mud. No connection gases were observed.

In this section no pore pressure increase from 1.03 sg was reported during drilling.

Slight cutbacks in drilling exponent from 2000 m to 2100 m, probably due to increased WOB, resulted in increased ROP and gas values. The drilling exponent seemed to follow the normal trend line for the rest of the section. Bi-centre PDC bit was used.

On a compressed vertical scale the resistivity also showed a cutback through the interval 1950 m to 2150 m, which might indicate a pore pressure increase in the lower part of the Kyrre Fm.

When calculating the pressure applying Eaton's method a maximum pressure of 1,15 sg +/- 0,05 may be a possible estimate. Due to the uncertainty of this calculation, this number was not reported as the maximum pore pressure in the open hole in the morning report at the end of the section.

8.5" Section

The section was drilled with 1.32 sg KCL mud. No connection gas were observed.

Using drilling exponent with PDC bit, as used in this section, had little value for calculating pore pressure but could indicate trends of increasing pressure.

A pore pressure of 1.22 sg was calculated with Eaton from a resistivity cutback around 2850 m in the Svarte Fm. This value was reported on the midnight reports. The formation seems fairly homogenous in this interval so the cutback is probably not caused by formation change. The drilling exponent does not confirm any pressure increase from this depth. A slight increase in the drilling gas below 2850 m down to 3000 m may indicate increasing pore pressure (gas increase from 0.05 to 0.1 %).

Cutback in resistivity between 3050 and 3150 m could indicate increase in pore pressure. 1.25 sg pore pressure could be calculated. The hole was tight from 3070

m to 2964 m on a short trip from PTD 3070 m. This could also correspond to formation change into the Åsgard hot shale.

Below 3190 m the drilling exponent started cutting back and the drilling gas increased. This was probably related to easier and faster drilling in the Draupne Fm siltstones and does not necessarily reflect pore pressure increase. A slight cut back in the resistivity between 3300 m and 3325 m could reflect a local pore pressure increase but is doubtful.

Conclusion: the cutbacks observed from the resistivity could indicate increasing pore pressure. Other parameters like gas does not confirm this but the gas readings have been low and as such indicate a huge over balance. At TD the overbalance is 96 bar with a normal pore pressure.

3.6.2 Temperature

Temperature data were obtained through USIT-logging run to detect shallow water flow. Abnormal temperature as recorded from 618 m to seabed. The temperature at 618 m matched with prognosed temperature gradient of 3.3°C / 100 m in overburden. Temperature were logged down to 1140 m, but was severely affected by heat from cement setting up and does not represent the actual formation temperatures.

During wireline logging after TD of the well, a maximum bottom hole temperature of 96°C was recorded at 3365 m, 35 hrs after circulation was stopped.

Data from offset wells and new data are presented in Figure 3.3.



AKER ENERGY AS

PL 270, Well 35/3-6
FINAL WELL REPORT
Geological Report

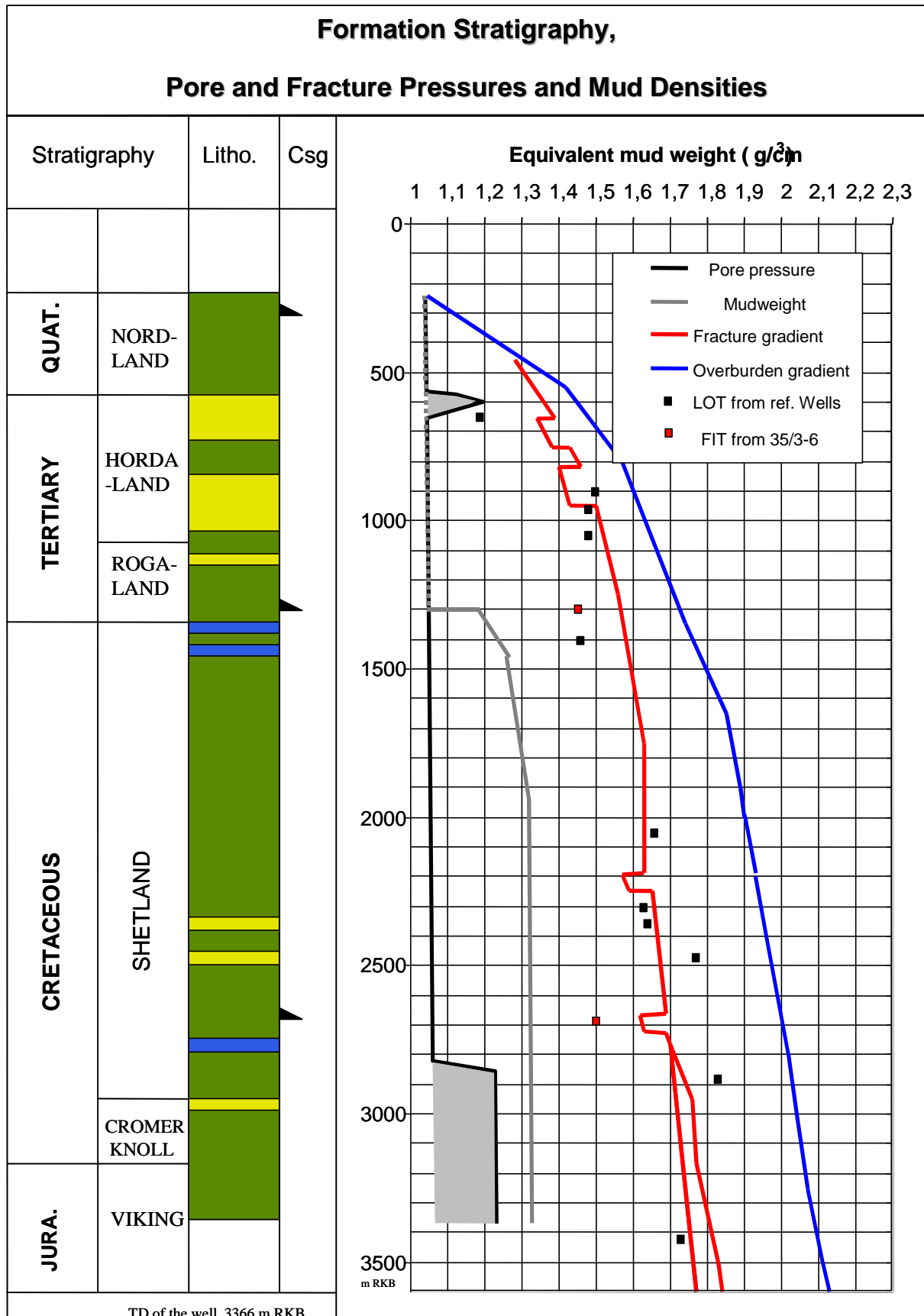


Figure 3.2

WELL 35/3-6, Formation Temperature Plot

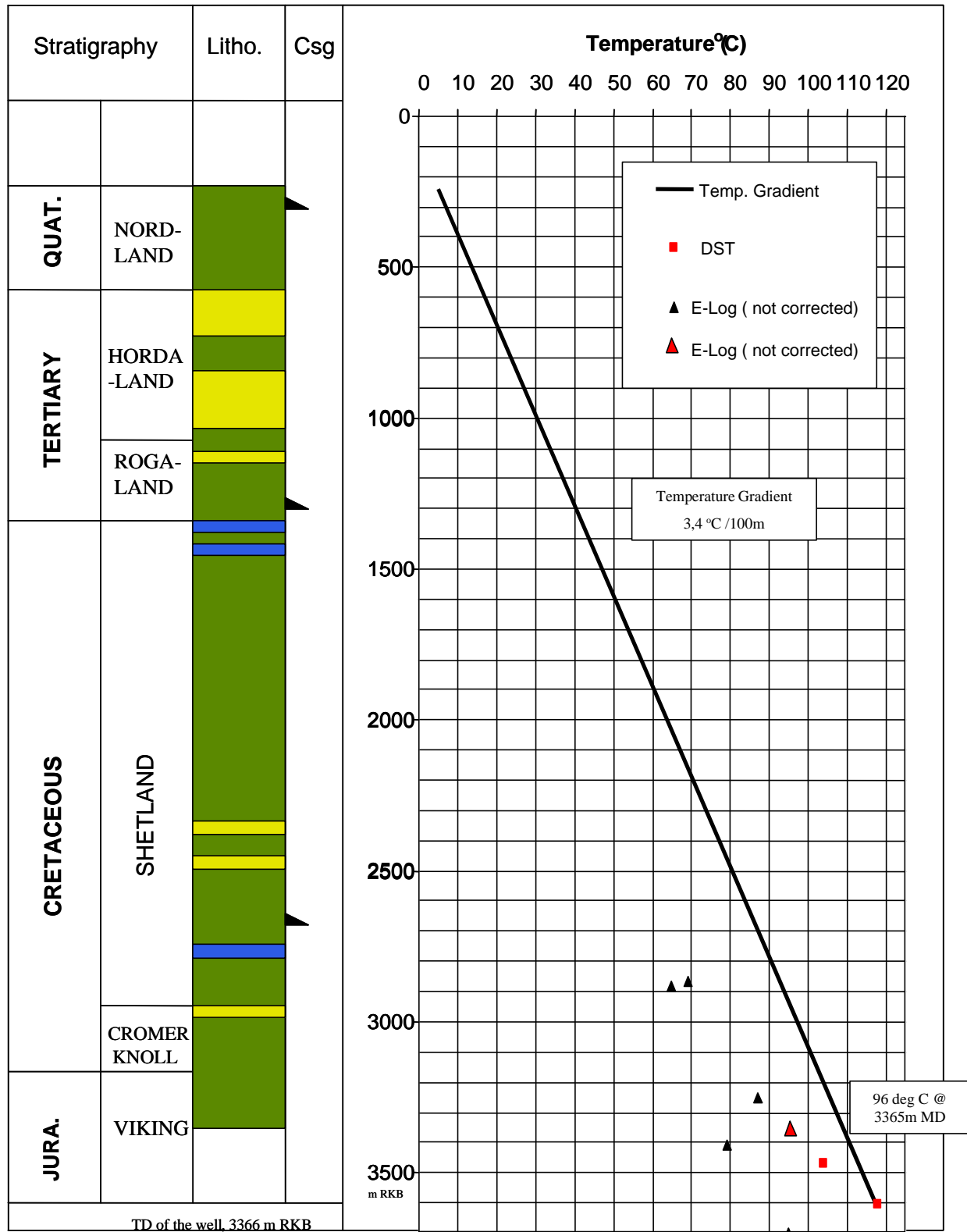


Figure 3.3

3.7 Petrophysical Evaluation

3.7.1 Log Corrections, Splicing, and Depth Shifts

All curves used for interpretation purposes have been environmentally corrected prior to the analyses of the top section, sea bed to 2670 m, and the bottom section, 2700-3366 m. GR and propagation resistivity curves have been spliced to obtain continuous GR and RES logs which have been used as reference logs for depth shifting.

3.7.2 Input Parameters

Input parameters are based on physical measurements and empirical relations.

Bottom hole temperatures were taken from the log Bit Run Summary. For the top section a temperature gradient of 2.69°C/m, whereas a constant temperature of 77°C has been used for the analysis of the bottom zone.



AKER ENERGY AS

PL 270, Well 35/3-6
FINAL WELL REPORT
Geological Report



Run number		1	2	3	4	5	6	7
Bit size	in.	9 7/8	9 7/8	17 1/2	12 1/4	12 1/4	12 1/4	8 1/2
Bit start depth	m	310 m	980 m	310 m	1300 m	1990 m	2370 m	2697 m
Bit end depth	m	980 m	1300 m	1300 m	1990 m	2370 m	2695 m	3366 m
Top interval logged	m	310 m	964 m	310 m	1293 m	1967.16 m	2347.16 m	2688 m
Bottom interval logged	m	964 m	1291 m	1295 m	1970.64 m	2350.64 m	2675.64	3363.2
Begin log: time		22:30	16:00	02:50	03:21	22:58	0:53	19:00
Begin log: date		08-Feb-02	10-Feb-02	12-Feb-02	4-Mar-02	7-Mar-02	10-Mar-02	21-Mar-02
End log: time		10:00	12:00	12:05	10:20	10:00	15:00	09:30
End log: date		10-Feb-02	11-Feb-02	13-Feb-02	6-Mar-02	8-Mar-02	11-Mar-02	15-Mar-02
Mud data								
Depth	m	800	1100	1100	1963	2369	2696	3200
Type		Seawater	Seawater	Seawater	Gly drill	Gly drill	Gly drill	Gly drill
Mud weight	SG	1.03	1.03	1.03	1.32	1.32	1.32	1.32
Solids	% Vol	na	na	na	14	14	14	14.5
Chlorides	mg/l	na	na	na	77000	80000	75000	76000
Rm	Ohm-m	na	na	na	0.056	na	na	0.0611@23°C
Rmf	Ohm-m	na	na	na	na	na	na	0.0525@24°C
Rmc	Ohm-m	na	na	na	na	na	na	0.180@24°C
Potassium		na	na	na	na	na	na	160
Environmental data								
GR								
Mud weight	SG	1.03	1.03	1.03	1.32	1.32	1.32	1.32
Bit size	in.	9 7/8	9 7/8	17 1/2	12 1/4	12 1/4	12 1/4	8 1/2
Resistivity								
Neutron porosity								
Hole Size	in.	9 7/8	9 7/8	17 1/2	12 1/4	12 1/4	12 1/4	8 1/2
Mud weight	SG	1.03	1.03	1.03	1.32	1.32	1.32	1.32
Temperature	DegC	12	13	13	42	54	77	54
Mud salinity	na	na	na	na	na	na	na	na (WBM)
Formation salinity	na	na	na	na	na	na	na	na
Recording rate 1	SEC	10 sec	10 sec	10 sec	10 sec	10 sec	10 sec	10 sec
Recording rate 2	SEC	na	na	na	na	na	na	5 sec
Filtering GR		3 pt	3 pt	3 pt	3 pt	3 pt	3 pt	3 pt
Filtering density		na	na	na	na	na	na	3 pt
Filtering Neutron		na	na	na	na	na	na	3 pt

Table 3.1 Bit Run Summary depicting BHT and mud resistivity values for different sections.

3.7.3 Formation Water Salinity

The value used in the analysis is taken from log readings across the water zone at 2755-2770 m. A Pickett plot derived value of SAL 52,000 ppm NaCl equiv. is used.

Mud properties are picked from the Bit Run Summary.

3.7.4 Computations

Top section (Quaternary, Tertiary, and Upper Cretaceous) 312-2670 m

The Crocker complex reservoir analysis programme was used for this analysis, supplemented by wet/dry shale differentiation.

Wet shale volume VCL1 was calculated from the GR log using the Larionov equation. Dry shale volume is calculated using a wet clay porosity of 13 p.u. for illite type clays.

Effective porosity PIGN (non-claybound porosity) was computed from deep resistivity ATR and formation water salinity SAL using the Simandoux equation assuming 100 % water saturation. Default values for $a=1$, $m=2$, $n=2$ were used.

Lack of separation of CDR shallow phase and deep attenuation resistivities PSR and ATR, respectively, in intervals of high resistivity and low GR readings were used as a logic to allow for carbonate stringers within the analysis.

Interval		312 - 2670 m
Borehole	Bit Size	9 7/8" / 12 1/4"
	RTMP ₁	38°C @ 1209 m
	RTMP ₂	77°C @ 2696 m
	TGRAD	26.9°C/km
Borehole Fluid	Type	Glydrill
	ρ_m	n/a
	R_m	n/a
	R_{mf}	n/a
	R_{mc}	n/a
	Barite	n/a
	Potassium	n/a
Formation Water	SAL	52,000 ppm (NaCl eq.)
	R_w	0.055 Ωm @ 77°C
	ρ_w	1.064 g/ccm
	Δt_w	n/a
Shale	GR _{min}	0 gAPI
	GR _{max}	135 gAPI
	ρ_{sh}	n/a
	PEF _{sh}	n/a
	Φ_{sh}	n/a
	Δt_{sh}	n/a
	RT _{sh}	n/a
	RXO _{sh}	n/a

Table 3.2 Top section CPI input parameters

Bottom Section (Upper Cretaceous, Lower Cretaceous, and Upper Jurassic) 2700-3366 m

The complex clay mineralogy encountered in this interval made it impossible to construct a detailed petrophysical inverse model in a straight fashion. Instead a two step approach has been devised. Initially, the logged interval is classified into subintervals according to some similarity measure between different log sets (GR, RHOB, TNPH, RING). Subsequently, on each subinterval a well posed mathematical model is constructed and covers all relevant mineralogical and petrophysical aspects in the data. The procedure in detail:

1. Lithology classification using a statistical methodology (GeoFrame RockClass). In a first step, lithofacies types will be determined by crossplot analysis, see Fig. 3.4. The program fits multidimensional ellipsoids to the selected data clouds in the crossplot and stores their definition criteria in a lithofacies database. In the subsequent classification phase a Bayesian decision rule permits assignment of each log depth level to one of the predefined lithofacies clusters. In principle, to each set of log readings a probability is attached which defines the most likely membership in one of the lithofacies classes.
2. Quantitative petrophysical interpretation using a constrained least square solver (GeoFrame ELAN) on simple lithology models. Within each model one type of clay is used. The ELAN model can then be combined automatically using the imported probability curves for facies membership from the RockClass run.

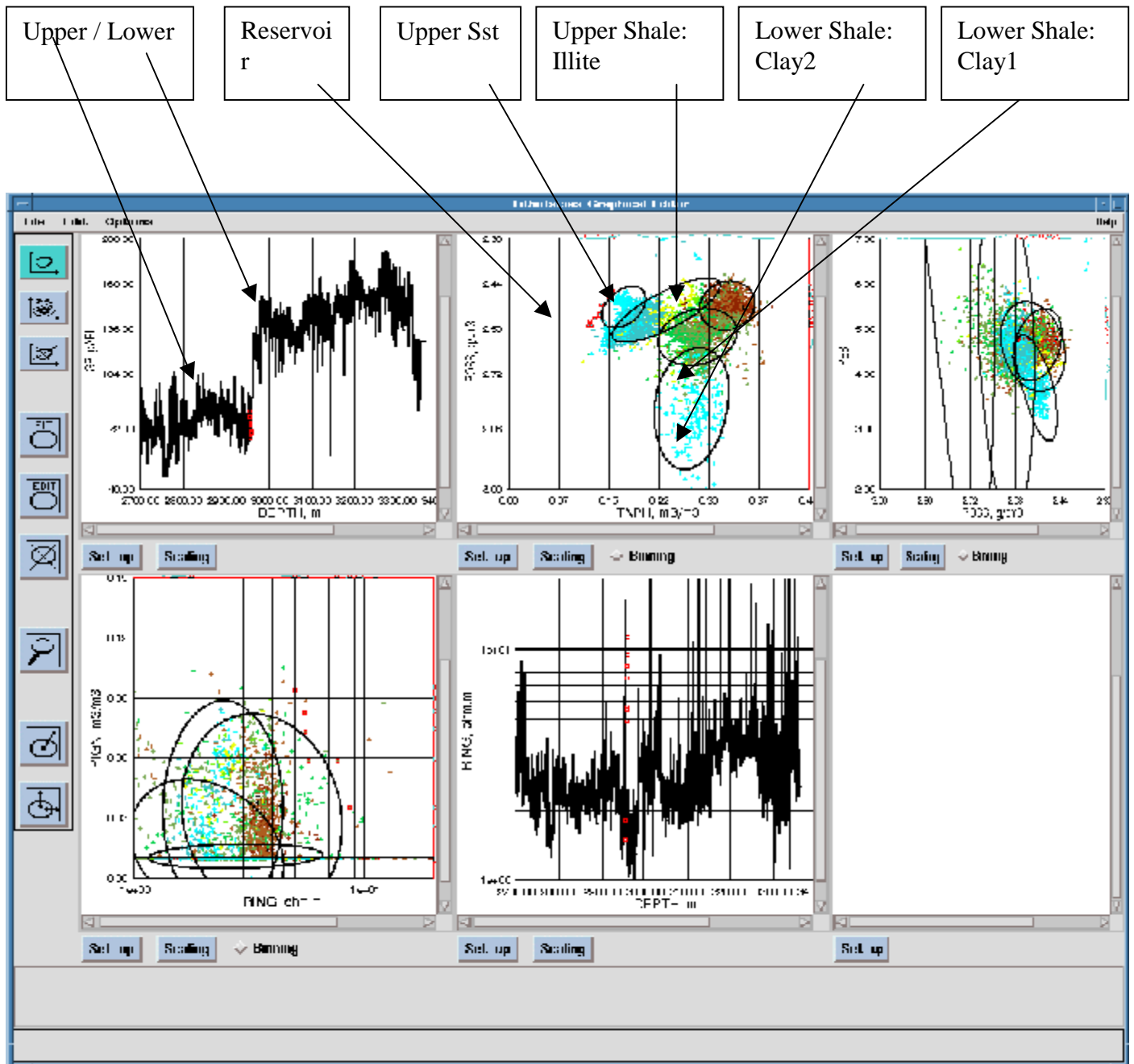


Figure 3.4 RockClass lithofacies definition phase for the interpretation section 2700-3366 m RKB. Facies descriptions based here on density-neutron crossplot data clusters.

Wet clay volumes VILL, VCL1, VCL2 within the different shale types were computed from density-neutron crossplot and linear GR shale indicator. Parameters for wet/dry clay conversion and resistivity endpoints for the clay-bound water VXBW input into the ELAN analysis are given in Table 3.3 below.

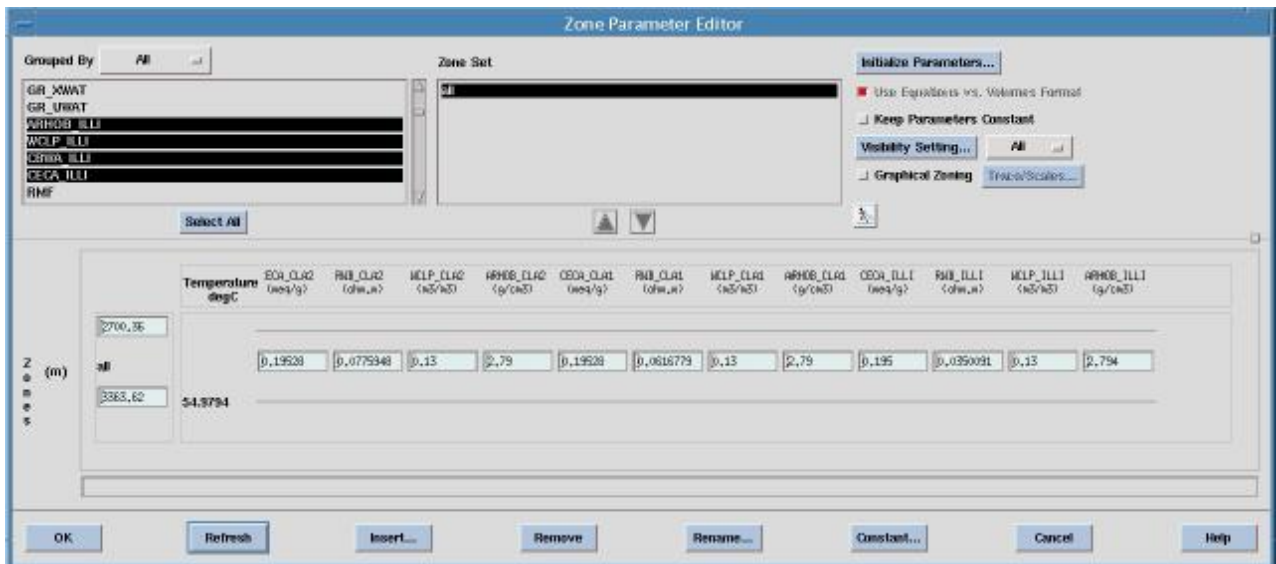


Table 3.3 Endpoints input to ELAN for 3 illicit clays used to classify different shale types in the analysis.

Carbonate stringers were identified during the RockClass lithofacies definition phase, and have been assigned to a separate facies model. The volumetric photoelectric factor U has been input to ELAN to quantify the carbonate volume.

Total porosity PHIT has been obtained from the neutron-density crossplot. Effective porosity PIGN is derived here from PHIT minus clay-bound water VXBW. Effective porosity PIGE accounts for the volume of movable fluids within the pore space and is derived at by subtracting from PIGN the irreducible water volume UIWA associated with capillary bound water. Irreducible water has been defined to fill all of the pore space not associated with clay-bound porosities within the RockClass derived shale electrofacies.

Effective water saturation SUWI has been computed from the GVR deep laterolog resistivity RING by means of the Dual Water equation using parameters $a=1$, $m^*=2$, $n=2$, and $c=0$. The formation water salinity of 52,000 ppm NaCl eqv. at BHT 77°C was used as before.

All parameters input into the ELAN analysis are given in Table 3.4 at the end of this section.

The final ELAN result for the interval from base Tryggvason Fm to Heather Fm, embracing the gas bearing Agat Fm at 2955-2957.5 m, is shown in Figure 3.5 below. Net sand is based on 5 % porosity and 50 % clay volume cutoff.

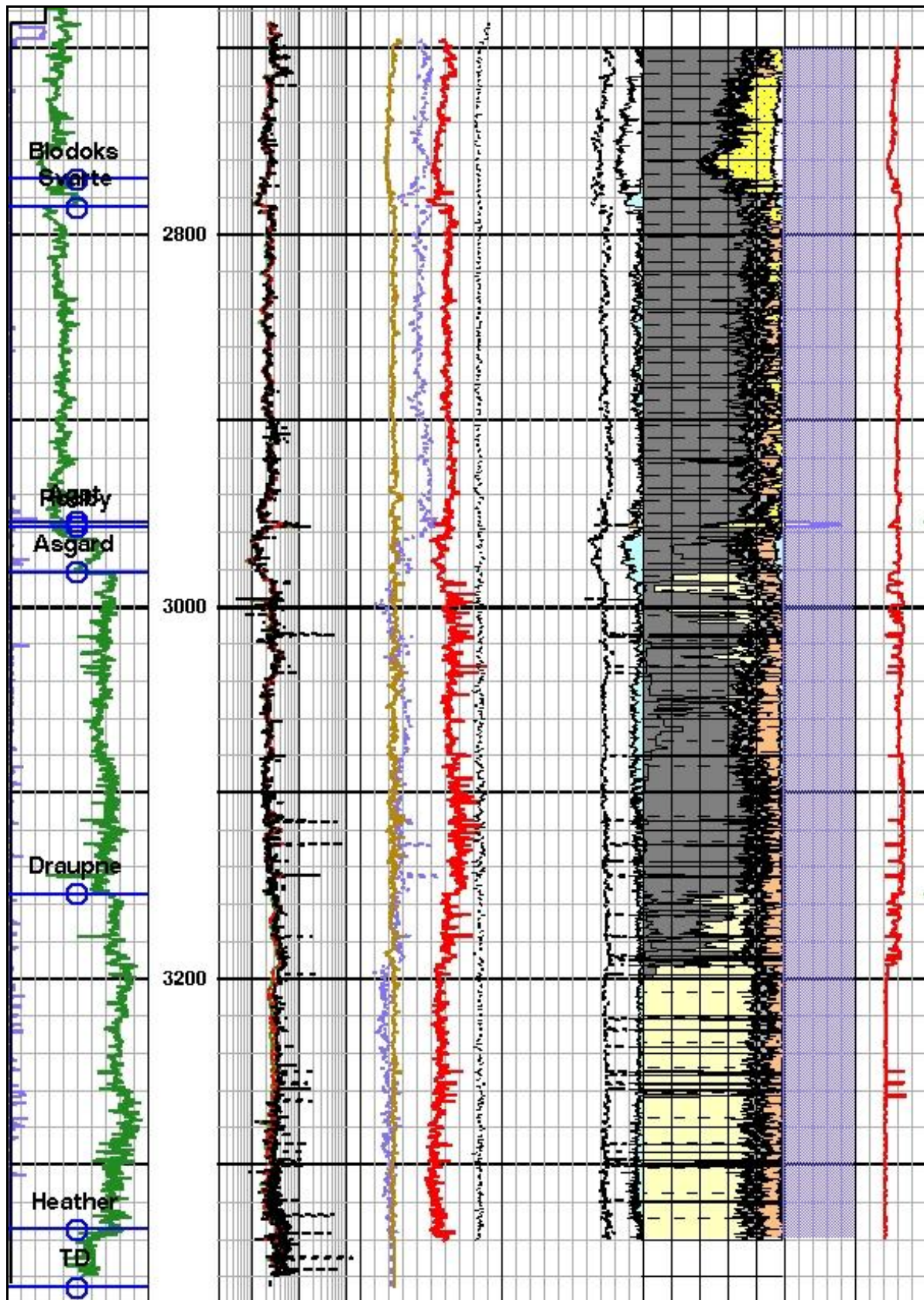


Figure 3.5

Bottom Section ELAN interpretation, scale 1:3000 RKB. Track 1: GR (0-150gAPI, green), Caliper (8-23in, blue). Track 3: resistivity P28H (0.2-200Ωm, green), A28H (0.2-200Ωm, red), RING (0.2-200Ωm, black). Track 4: RHOB (1.95-2.95g/cc, red), TNPH (0.45-(-0.15)m³/m³, blue), PEF (0-20barn, brown), DRHO ((-0.8)-0.2, black). Track 5: total porosity PHIT (0.5-0 m³/m³, black dashed), ELAN fluids (0.5-0 m³/m³). Track 6: ELAN volumes (0-1 m³/m³). Track 7: effective water saturation SUWI (1-0 m³/m³, blue). Track 8: grain density RHGA (2.5-3.0 g/cc, red). Interval at 2955-2957.5 m RKB has been interpreted as Agat sand layer with top and bottom carbonate seal, mean water saturation SUWI 30 %.

3.7.5 Mnemonics

VCLC	m ³ /m ³	Volume of calcite mineral CALC
VCAR	m ³ /m ³	Volume of carbonate rock CARB
VQUA	m ³ /m ³	Volume of quartz mineral QUAR
VSIL	m ³ /m ³	Volume of silt rock SILT
VILL	m ³ /m ³	Volume of wet illite ILLI
VCL1	m ³ /m ³	Volume of wet clay, illitic type 1, CLA1
VCL2	m ³ /m ³	Volume of wet clay, illitic type 2, CLA2
VXWA	m ³ /m ³	Volume of flushed zone water XWAT
VUWA	m ³ /m ³	Volume of undisturbed zone water UWAT
VXGA	m ³ /m ³	Volume of flushed zone gas XGAS
VUGA	m ³ /m ³	Volume of undisturbed zone gas UGAS
VMHY	m ³ /m ³	Volume of flushed/moved hydrocarbon UGAS-GAS
VXWI	m ³ /m ³	Volume of flushed zone irreducible water XIWA
VUWI	m ³ /m ³	Volume of undisturbed zone irreducible water UIWA
WCLP	m ³ /m ³	Wet Clay Porosity
CECA	meq/g	Caution Exchange Capacity
ARHOB	g/cc	Dry clay grain density
VXBW	m ³ /m ³	Volume of clay-bound water
PHIT	m ³ /m ³	Total porosity
PIGN	m ³ /m ³	Effective porosity including capillary bound water
PIGE	m ³ /m ³	Effective porosity
SUWI	m ³ /m ³	Effective water saturation including capillary bound water



AKER ENERGY AS

PL 270, Well 35/3-6
 FINAL WELL REPORT
 Geological Report



Zone Parameter Editor

Grouped By: Equations

Zone Set: all

Initialize Parameters...
 Use Equations vs. Volumes Format
 Keep Parameters Constant
 Visibility Setting... All
 Graphical Zoning Trace/Scales...

Select All

Current Zone: all (2700.36 m - 3363.62 m) Temperature (degC) : 54.9794

	CALC	UGAS	XGAS	CARB	CLA2	CLA1	UIWA	XIWA	SILT	UMAT	XMAT	ILLI	QUAR
RHOB (g/cm)	2.71	0.152571	0.152571	2.95	2.5	2.62	1.09	1.11	2.68	1.09355	1.11335	2.59	2.65
NPHI (m3/m)	0	0.396884	0.396884	0	0.37	0.32	1	1	-0.07	1	1	0.2	-0.051519
U	0.14	0	0.012	0	13	13	0	1.17	5	0	1.17025	13.5	5
RT (ohm.m)	----	----	----	----	-999.25	-999.25	0.0222532	----	----	0.075017	----	-999.25	----
GR (gAPI)	10	0	0	70	190	150	0	0	40	0	30	90	30

OK Refresh insert... Remove Rename... Constant... Cancel Help

Table 3.4 Bottom section ELAN mineral and fluid input parameters. Note that BHT must read 77 °C.

3.8 Geological and Geophysical Evaluation Summary

3.8.1 Geophysical Result

The observed formation tops from seafloor to top Agat Fm was in accordance with the prognosis with only minor differences observed. An approximate 90 m of Agat Fm sandstone was anticipated, but only 2,5 m was present in the well location. As a consequence, both the Top Åsgard Fm and the Base Cretaceous Unconformity came in much shallower than prognosed. The prognosed and actual formation tops are listed in Table 3.4.2.

The geophysical interpretation and geological model at reservoir level prior to drilling was obviously incorrect. Instead of drilling through the predicted thick turbiditic, good quality sandstones of the Agat Fm, only 2,5 m of carbonate-cemented sandstones were encountered at the top of the target interval.

The majority of the prospect strata is older than the Agat reservoir sandstones of the Agat Fm observed in offset wells. The space available for deposition defined by isopachs, was filled with mostly Barremian shales prior to sandstone input in the Albian. This resulted in bypass and erosion rather than deposition in the prospect area during Albian times.

A cross-section of the model with prognosed and revised model is shown in Figure 3.6.

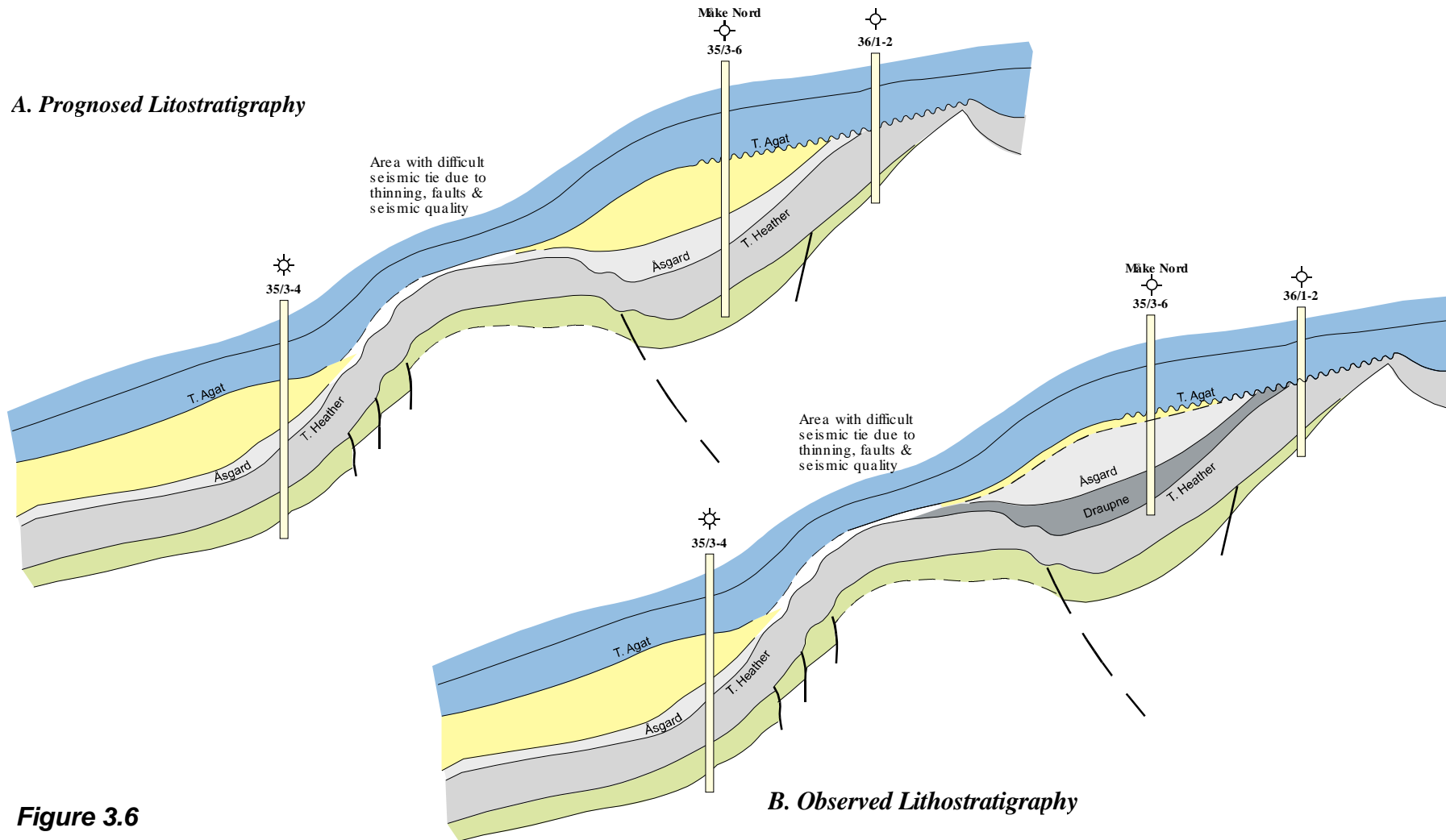


Figure 3.6

3.8.2 Revised Mapping

An updated Top Agat depth map is shown in Figure 3.7

Top Albian Depth Map

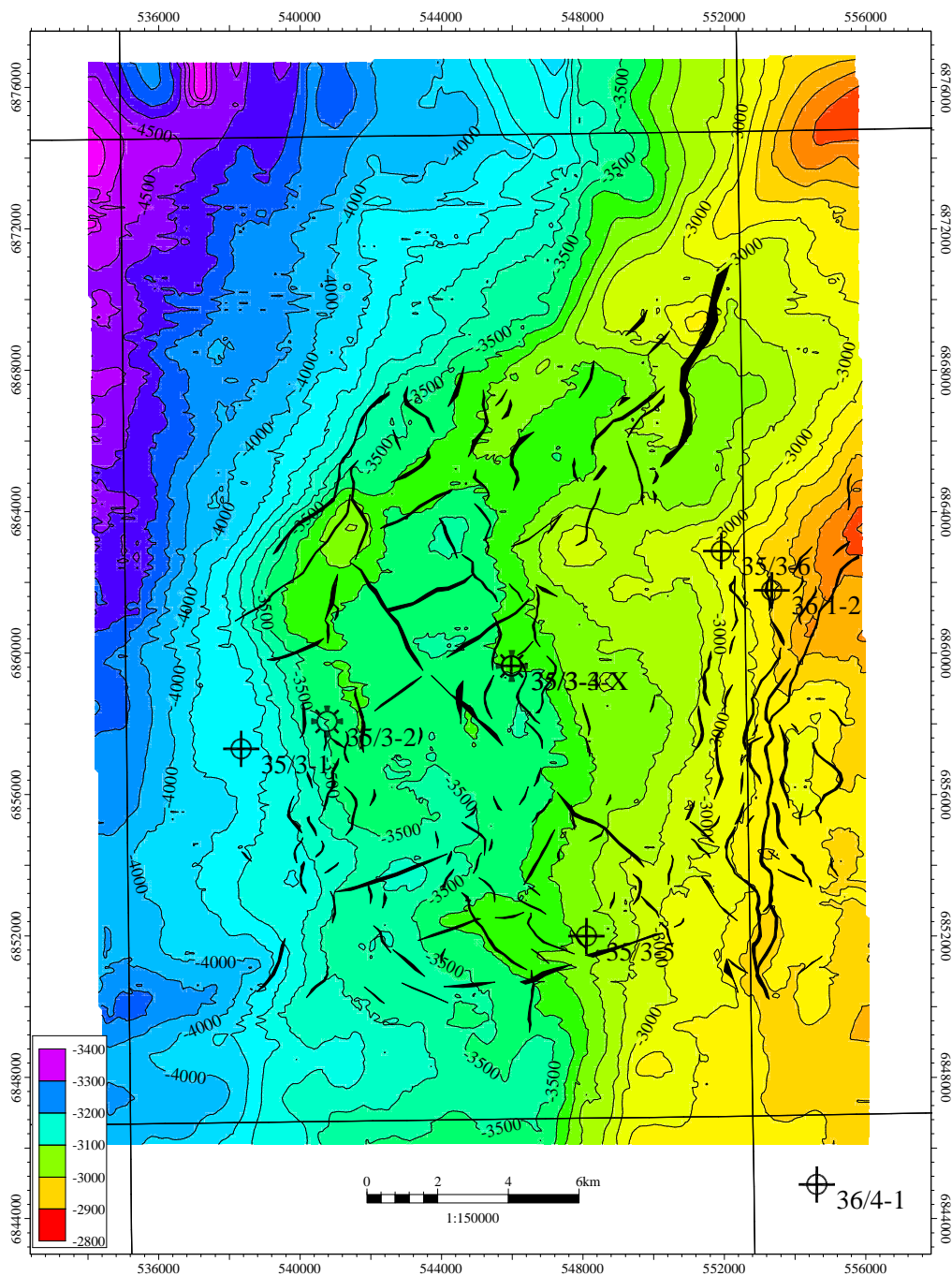


Figure 3.7

3.8.3 VSP-Survey

A zero offset VSP was run with 15 m intervals from 3335 m to 2688 m in open hole and in cased hole from 2688 m to 2210 m. Check shots were taken at major formation boundaries; from 1900 m to 589 m. No sonic log was acquired, but a synthetic sonic will be created based on the velocity survey and the density log.

4 OPERATIONAL SUMMARY AND DATA

All depths used in this section are in m MD RKB, unless otherwise stated.

4.1 Rig Move and Anchoring Summary, Rig Move from CCB to Well 35/3-6

4.1.1 Anchor Handling Operations Onshore(at CCB)

Three AH vessels were required for the up-coming chain operations which consisted of quay winch off operations, extension of all eight mooring lines and finally basic anchor retrieval upon departure for field. In addition, two harbor tugs were required for support during the first part of the operation.

Prior to commence of operations all vessels including the stand-by vessels was inspected, separate kick off meetings conducted where our commitment to safe work practices and current operational plans were communicated to all participating crew members.

Finally a pre-start safety meeting with all participants was scrambled on DSB.

Two formal SJAs with the Rig Move HAZOP as reference were conducted prior sail out.

Extra personnel was added on DSB to reduce operational time and prevent personnel fatigue in order to re-assure safe and efficient operations.

CCB anchor operations commenced	0100 hrs	03-02-02
CCB anchor handling concluded	1545 hrs	03-02-02
Total hrs.	14h 45min.	

AHTS Vessels	:	North Crusader	as AHTS #1
	:	Tor Viking	as AHTS #2
	:	Far Senior	as AH #3 back-up
Position Equipment	:	Fugro Survey provided positioning services with two surveyors to operate Starfix Navsuite, interfacing two independent system; Starfix MN8 and Starfix Spot.	

4.1.2 Rig Move and Anchor Handling Operations on Location

Due to deteriorating weather the transfer was aborted and two informal SJAs were conducted in cooperation with masters of towing vessels and onboard pilots.

Upon on-site AH operation, due to weather circumstances, two formal SJAs were conducted based on the Rig Move HAZOP.



During the transfer, the third AH vessel(Far Senior) was “lost” to their initial operator. A substitute vessel (mobilized from Aberdeen) was immediately requested to maintaining a safe operation and utilizing weather windows if any.

The anchor handling operations on location were aborted with only five anchors out. Upon the next available weather window the remaining 3 anchors were deployed, and back loading commenced.

DSB moored up with heading at 220°, in a position 21 m to the west (270°) of intended position.

Anchor operations start	1937 hours - aborted at	2343 hours 04-02-02
Resumed anchor handling	0808 hours – completed	1105 hours 04-02-02
Total handling time	0703 hours	
Tensioning time	1001 hours, all anchors 130 mt tension	
	#2+6 to 180 mt test-all others 170 mt test.	
Final confirmed position	61 53 36.86 N	UTM 6,862,883.4 m N
	03 59 15.79 E	UTM 551,915.7 m E
Rig heading	220.4° (true)	

4.2 DSB Rig De-Mobilization and Anchor Recovery Plan from Well 35/3-6

Summary of Actions and Events.

4.2.1 Anchor Handling Operations Offshore at Well 35/3-6

Two AH vessels of high reputation/qualification were required for the anchor recovery and rig transit to the inshore anchorage.

Prior to commence of operations two start up meetings were conducted on the two vessels respectively. Time spent for the total anchor recovery operations was 9 hrs, 20 minutes.

4.2.2 Transfer from Well Location to Stavanger at Åmøyfjorden Anchorage

Tow commenced	1830 hrs	01-04-02
Anchor handling	1706 hrs	03-04-02
Anchored up-tensioned	2100 hrs	03-04-02

The two AH vessels were each towing by the two forward main anchor chains, which were paid out to 150m on each. Due to excessive rig displacement (bulk cargo and trimming ballast), the rig had to be towed at survival draft during most of the transfer to Stavanger, which reduced the speed from 7 to 4 knots.

Upon arrival at Stavanger the DSB primary anchor #5 was dropped during the run in line, and consequently, the two towing chains were run at the same time.



PL 270, Well 35/3-6
FINAL WELL REPORT
Operational Summary and Data



The DSB was moored at Åmøyfjorden anchorage by use of four main anchors, and tension tested to 120mts at 2100 hrs 03-04-2002.

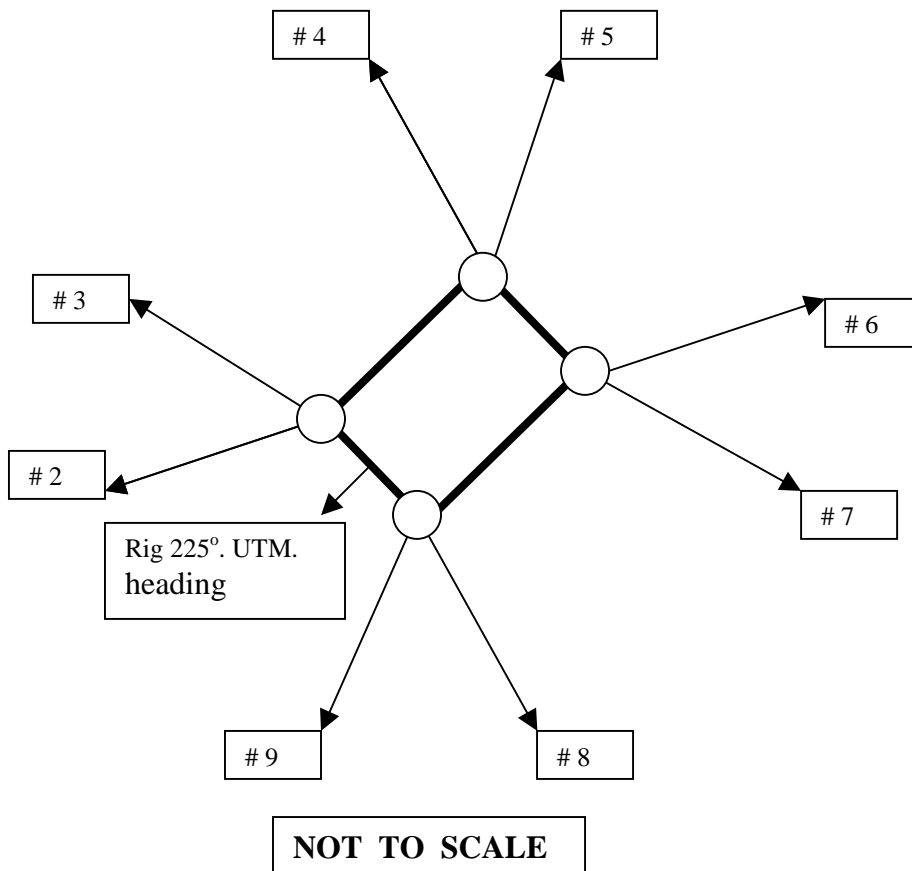
AHTS Vessels : Balder Viking (BV) - as AHTS #1- nominated as leading tug.
: Havila Charisma (HC) - as AHTS #2

4.2.3 Anchor Position Diagram - Deepsea Bergen at Well 35/3-6

Final confirmed position. **61 53 36.86 N** **UTM 6,862,883.4 m N**
 03 59 15.79 E **UTM 551,915.7 m E**
 Datum ED50 on Zone 31 CM03 (East)
 Grid convergence angle **+ 0.87°**
 Magnetic to Grid North **- 3.722°**
 Magnetic Declination **- 2.851°**

Anchors	#	Chain Length	N	E	Bearing
	#2	1549 m chain	6 862 263.0N	550 446.0E	247.5*
	#3	1502 m chain	6 863 446.0N	550 479.0E	293.1*
	#4	1560 m chain	6 864 372.0N	551 317.0E	338.5*
	#5	1588 m chain	6 864 411.0N	552 489.0E	022.1*
	#6	1581 m chain	6 863 511.0N	553 417.0E	067.8*
	#7	1556 m chain	6 862 306.0N	553 405.0E	112.8*
	#8	1506 m chain	6 861 459.0N	552 526.0E	157.1*
	#9	1542 m chain	6 861 403.0N	551 350.0E	202.5*•

* All anchor bearings are degrees True



4.3 36" Hole and 30" Conductor Cementation

Item	Plan	Actual	Notes
Rig on Location		1930 hrs on 04-02-02	
Location	6,862,887.0 N 551,937.3 E	6,862,883.4 N 551,917.7 E	
Spudded well		1145 hrs on 06-02-02	
Water Depth		225 m.	
RKB to Seabed		248 m	Air gap 23 m.
36" TD	ca. 310 m	309 m 36" HO. With 17 1/2" hole at 313 m.	To suite conductor with minimum 1.5 m stick up above sea bed.
Drilling Fluid		Seawater & hi-vis sweeps	1.2 sg Bentonite mud for hole fill.
30" Conductor	5 joints ca. 313 m	4 Joints 309 m	Minimum of 5 joints required, dependant on geology. Cement to sea bed.
Drill Pipe		5.5" x 21.9 ppf-nominal x 5 1/2" FH (DSTJ)	3.5" ID tool joints 4.778" ID pipe Body

In anticipation of a building tendency that had been identified in the offset wells and to reduce the amount of corrective work deeper in the well bore, the well was located at the edge of its surface tolerance, ca.22 m to the west of its designed location.

The well was Spudded with a Red Baron heavy duty two stage integral body hole opener

(36" x 26") with a Smith mill tooth 17 1/2" bit as a pilot. Hydraulics were split to give a 42 – 58 percentage split flow in favour of the Hole Opener. The BHA contained a Anderdrift tool for inclination monitoring.

Drilling progressed down to 270 m without problems using seawater and hi-vis sweeps.

A boulder bed from 270 m to 275 m caused the BHA to kick off to an inclination of 3.5°, which required heavy reaming to reduce the angle through the bed to 3°. Additional reaming was required at the selected TD of 309 m to reduce the angle from 3.5 to 2.5°.

A wiper trip showed no tight hole with 2 m of fill on bottom. The hole was swept with a high- vis pill then displaced to 1.2 sg bentonite mud.

The 30" conductor was run without problems but initial observations showed bulls eye readings of 3°, necessitating moving of the rig and re-tensioning of guidelines to give pre-cementing readings of 1.0 and 1.5° respectively.

The casing was cemented using 200 % excess on gauge hole and was completed without problems. Sea bed returns of both the dye marker and cement were observed at sea bed.

After WOC for 12 hours the running tool was released and the bull eyes checked with no movement in the readings observed.

Further checks showed that during the rig re-positioning the guide base had been rotated ca. 180°, necessitating reconnection of the guide lines to match the new heading of the PGB.

Prior to the 9 7/8" pilot hole the conductor and rat hole were cleaned out with a 26" mill tooth bit with out problems.

4.3.1 9 7/8" Pilot Hole, 17 1/2" Hole Opening and 13 3/8" Cementation

Item	Plan	Actual	Notes
9 7/8" TD	ca. 1300 m	1300 m	Pilot hole
17 1/2" TD	ca. 1300 m	1300 m	17 1/2" bit used for hole opening
13 3/8" casing		1294 m	
Cementing		TOC sea Bed	125 m ³ -1,5 lead-20 m ³ -1.92 tail 100% OH excess
Drilling Fluid		Seawater & hi-vis sweeps	1.2 sg Bentonite mud for hole fill with 1.2 sg KCL over lower section
Drill Pipe		5.5" x 21.9 ppf-nominal x 5 1/2" FH (DSTJ)	3.5" ID tool joints 4.778" ID pipe Body

In line with shallow gas procedures and the potential for shallow water flow the pilot hole

9 7/8" BHA comprised of a Smith 05MFT insert (4-2-7) bit with an Anadrill Power pulse CDR Gamma – resistivity- pressure and a MWD directional sub.

Drilling commenced from 313 m using seawater and pumping 3 X 5 m³ hi-vis pills per stand. Drilling parameters were 2600 lpm flow and 100-150 RPM and the ROP was kept below 50 mph at regular intervals and maximum 20 mph through the possible shallow gas anomalies. No problems were experienced until at 503 m the ROV sonar detected bubbles at the wellhead. As the rig crew had been instructed to react to any bubbles as being gas, 7 m³ of 1.6 sg kill mud was immediately pumped. The bubbles stopped and the well was flow checked for 15 minutes and confirmed stable.



After reviewing the videotape from the ROV, the initial stream of bubbles were seen to be rather small and were, most probably, only air bubbles. To confirm stable conditions the well was displaced back to clean seawater and flow checked for 20 minutes before drilling recommenced.

Drilling continuing down to 528 m with a maximum ROP of 20 mph. At 528 m, a 1 hour flow check with clean seawater was reported with no flow observed. The MWD/CDR data from the "bubble depth " of 503 m was examined and no signs of formation gas were seen. No problems were observed with regards to visibility other than the normal "mist" created by the hi-vis pills and the seabed current, and the PGB / bulls eyes were clearly visible.

Controlled drilling (20 mph) continued down to 600 m and a 15 minutes flow check with clean seawater was held with no visual signs of flow at the wellhead, and still with good visibility. Drilling continued with fluctuations and a increase on the ECD and on the stand pipe pressure noted. At 906 m the Anadrill pressure signals failed and in anticipation of a POOH, a flow check of 30 minutes with clean seawater was carried out showing the well stable and visibility good. It was agreed with town to continue without the pressure signals and drilling continued down to 983 m where the Anadrill resistivity sensor failed. High torque and slow ROP had been experienced at 946m and the string stalled out two times. A 15 minutes flow check with clean seawater in the well showed no visual signs of flow or bad visibility.

Prior to POOH to change MWD/CDR tool the well was displaced with 55 m³ of 1.2 sg bentonite mud to the 30" shoe.

After the roundtrip at 983 m, it was observed that the visibility had deteriorated prior to stabbing in with the 9 7/8" BHA. However it was still possible to see the PGB and the stick up above the seabed. The remainder of the pilot hole was basically drilled trouble free down to 1300 m, however the ECD and the directional sensor failed at approximately 1000 m and were inoperative to the 1300 m section TD. Anadrill claimed this was due to high shock levels on their tool, and the RPM was modified accordingly.

One 15 minutes flow check was carried out at 1030 m (prior to drilling into Balder formation) with clean seawater in the hole. At this stage, the visibility was poor but no flow was observed from the wellhead vicinity.

At 1300 m a 15 min flow check with clean seawater in the well, the hole was displaced to 29 m³ 1.2 sg KCL mud over the bottom 400 m (to cover the Balder) and then 35 m³ 1.2 sg bentonite mud up to the 30" shoe. A wiper trip to 1052 m was clean with 1 m of fill noted on bottom. The 9 7/8" pilot hole BHA was tripped out from TD without problems .

The pilot hole opening was drilled using a 17 1/2" Smith 4-3-5 insert (10GMODPD) with a new CDR/MWD assembly, pumping seawater and hi-vis sweeps every single at a average flow rate of 4400 lpm.

When attempting stabbing in with the 17 ½” bit bad visibility was encountered, half an hour of rig time was spent circulating seawater to improve but without success. The BHA was finally stabbed in blind.

This was the first time that the wellhead visibility was obscured by a cloud of fine particles, preventing the ROV from obtaining a good picture of the PGB and wellhead. The bull’s eyes were not visible and a build up of 0.5 m of loose cuttings was noted on the PGB.

No visible flow could be seen exiting from the wellhead.

The PGB stick up was checked and a 2 m stick up confirmed above the seabed.

The 17 ½” hole opening progressed to 932 / 960 m where the high torque in the Dolomite/Limestone stringers at this depth caused the string to stall out and giving low ROP’s. After reaming through this section the hole was opened up to 1300 m without problems.

At section TD the well was circulated to clean seawater and flow checked with no flow seen.

The hole was displaced to 63 m³ of 1.2 sg KCL mud on bottom and 107 m³ of 1.2 bentonite to the 30” shoe. The 17 ½” BHA was pulled to 1168 m, requiring working due to tight hole (50 mt over pulls) and again at 818m. The hole was then topped up with 1.2 mud at the 30” shoe and the PGB flushed clean prior to running casing.

13 3/8” Casing Operations

Some initial problems were experienced with making up the first 13 3/8” Buttress No-cross couplings (not able to see pin end make up triangle due to the additional swallow of the extended couplings) resulting in making up to the required torque values with a measured make up check.

As with the 17 ½” BHA the stabbing of the 13 3/8” casing shoe had to be done “blind” due to the same lack of ROV visibility.

Casing running proceeded down to 946 m where the casing hung up on a ledge and had to be worked through with circulation and 50 mt set down. Running continued until fill was encountered at 1260 m requiring washing down with 1.2 sg mud to land the wellhead with the shoe at 1294 m.

The casing was cemented with 125 m³ of 1.5 lead and 20 m³ of 1.92 tail.(100 % excess on open hole volume) and displaced with the rig pumps.

Plug bump was not achieved on the calculated volume and the displacement was stopped at 4250 strokes. The floats were checked with no back flow observed.

Bow spring centralisers were installed 1 x joint up to 944 m, with 2 x joint on the shoe track.

No fluorescence marker or cement returns were observed at seabed during the displacement.

Although visibility was poor it was still possible to see the marker on the running tool when releasing and pulling the casing running string.

Prior to POOH the wellhead and PGB were flushed with seawater using the running string.

4.3.2 12 1/4" Hole and 9 5/8" Casing

Item	Plan	Actual	Notes
12 1/4" TD	ca. 2900 m	2696 m	12 1/4" section terminated early due to hole/BHA problems.
9 5/8" Casing TD	ca. 2900 m	2687.8 m	.ca. 2686 m TVD
Cementing		TOC 1900 planned.	18.4 m ³ -1.56 Lead – 12.7m ³ -1.90 tail.
13 3/8" FIT		1.45 sg	
Drilling Fluid		KCL / polymer / Glycol "Glydrill"	1.32 sg – 5% Glycol – KCL ca. 160 KG/m ³
Drill Pipe		5.5" x 21.9 ppf-nominal x 5 1/2" FH (DSTJ)	3.5" ID tool joints 4.778" ID pipe Body

Water-Flow (see separate detailed report)

Following a 36 hour WOW period to run the BOP the wellhead was inspected with the ROV and a flow was observed from below the PGB and a build up of debris was partially covering the PGB. After flushing with open ended drill pipe, a 3 1/2" cementing string was run and stabbed through the grouting funnels. Cement was tagged at 2 m and 3.5 m respectively below guide base. Initially 15 m³ of grout slurry was pumped, causing the string to move down a further 5 m, initiating another 6 m³ of grout being pumped. Total string penetration below guide base during these operations was 12 m.

Prior to landing the BOP another wellhead inspection showed that the flow had increased and a excessive build up of sand was burying the PGB and the wellhead.

Due to the build up around the wellhead and the bad visibility it was decided not to risk attempting to land the BOP, and subsequently the stack was retrieved to surface.

After landing a purpose built wellhead protector and flushing the wellhead area, preparations were made for open water logging, including the fabrication of a wire line compensating system for Schlumberger. Due to tool failure two runs were made with a combined USIT/temperature log, tagging cement at 1216 m.

However, the first temperature log showed an anomaly from 600 m to the seabed, clearly indicating a water flow was entering the well bore from this depth. Further data from the second run of the USIT log confirmed the absence of cement of cement from below 700 m and to the sea bed. In general the casing was relatively good cemented up to 845 m and then varying patches of cement between 845 m and 700 m.

To act as a footing for cement squeeze operations, a bridge plug was run on drill pipe in open waters and set at 591 m. The 13 3/8" casing was then perforated at 568 m with radially spaced 6 shots per foot over a 2 foot interval before running a cement retainer and attempting to set same at 547 m. The cement retainer could not be set properly and was later pushed passed the perforations down to 580 m, the final cement retainer was set on wire line, on a second attempt, at 547 m.

The perforating depth was selected in a shale area above the top of the flow to optimise the setting conditions for a cement plug due to concerns over potentially large localised washouts associated with the water-flow and sand production.

After stinging into the retainer, 3.2 m³ of seawater with dye and mica was pumped followed by 10 m³ 1.5 sg mud and 50 m³ 1.4 sg mud (pump rate 2500 lpm). The dye was seen in returns after only 13 m³ pumped indicating channels up to seabed, but apparently the 1.5/1.4 sg mud went into the formation and did not reach the seabed and hence was not able to stop the water-flow. After further pumping to stabilise the well, mud at 1.3 sg was pumped and after 75 m³, the water-flow ceased and no more flow was observed around the PGB area for a period of time.

Following further observed flows, 1.3 sg mud pumping and observations periods the operations were interrupted for ca. 24 hrs because of bad weather. Flow observed at this time was observed from stable to "inconsistent trickle".

With resumption of operations 1.3 sg mud lubricated into the well, a slight, but a consistent, backflow was observed after some time between post 1 and 2 from the 13 3/8" x 30" annulus. Two steps of pumping were carried out with 30 m³ and 35 m³ of 1.3 sg bentonite mud respectively (max flow 1000 lpm), giving pressure build up after about 2.5 m³ pumped and full returns to seabed after 8.5 m³ and 2.7 m³ pumped respectively. The well was not killed after this pumping and a small, but consistent flow was coming from the 30" x 13 3/8" annulus. Another 35 m³ of 1.3 sg bentonite mud was pumped prior to pumping 20 m³ of 1.5 sg bentonite pill (500 lpm rate) followed by 12 m³ of the cross linked PBS polymer pill. Some returns were seen at sea bed during pumping the bentonite pill, but for the PBS pill the returns were very minor and the assumption was that the pill was located below the perforations.



Two hours were spent waiting on the PBS pill to set up to providing a footing for a cement plug. To keep perforations open, a few strokes were pumped every 30 minutes. Before pumping the cement, another 30 m³ of 1.30 sg mud was pumped with good returns to the seabed indicating that the PBS and bentonite pills had created a footing as intended.

10 m³ of 1.5 sg "G" cement was then pumped with low rates of between 220 and 406 lpm.

A slight pressure increase from 3-4 bar to 5-6 bar. was seen after 6 m³ was pumped when the cement entered the annulus but further pumping and displacement showed no significant changes, indicating that most of the cement was below the perforations. The displacement rate with seawater was 600-800 lpm and 1 m³ of cement inside the string was dumped on top of the retainer. The "G" cement was a fast set slurry with a very tight rheology control.

To check on sea bed / conductor conditions a 3 ½" cement stinger was ran. Penetration of the funnel for the first grouting job (between posts number 3 and 4) tagged hard cement after 3 m penetration and requiring no grouting.

However, between post 1 and 2 the stinger was washed down 23 m with pumps on and a total of 23 m³ of 1.5 sg slurry was pumped. The PGB and surrounding areas was washed with 5000 lpm prior to tripping out and preparing to run the BOP.

BOP Operations

The BOP was run and prior to landing it was observed that the BOP heading was 47° off (anticlockwise) with respect to the PGB requiring the BOP to be turned from the surface in order to safely latch on the wellhead. The first attempt to land broke off one guide wire and released another one. However, number 3 guide wire could be re-stabbed in and the BOP was safely landed with only 3 guide wires in approximately 1 m heave. The connector was locked and a total 100 MT of weight set down on the wellhead to simulate a LMRP disconnect. No change was observed in the bulls eye readings. The wellhead connector was tested to 345 bar and the BOP function tested from both pods.

13 3/8" Cleanout

A clean out BHA with a Smith SVHR (2-1-5) and two junk subs was ran and drilled out soft cement (532 m) and the retainer (545 m). No cement was found between the retainer and the failed first run retainer at 590 m. A perforations flow check showed a stable well. Drilling on the retainer caused an eventual POOH do to high torque and stall out of the string. The bit was later found to be severely worn. Both junk subs were filled with steel recovery from the retainer.

A Red Baron 12 ¼" flat bottom junk mill was run with the junk subs and drilled the failed bottom retainer plus the bridge plug in 3.5 hours. Continuing RIH located soft

cement at 1216 m and hard cement at 1225 m. Cement was drilled to 1228 m with the mill before POOH to change over to a 2-1-5 SVH rock bit to drill out remaining cement and float collar (1255 m) and cement to 1265 m. The mill run showed full junk baskets and the rock bit run at 50 % full.

13 3/8" Internal Casing Patch.

Prior to running a Weatherford internal casing patch to isolate the perforations, and allowing further programmed drilling, a scraper assembly was then run including junk mill, scraper, string mill (12 1/4"), two junk subs and a 12 1/4" AGR junk trapper. The area from 548 m to 588 m was scraped to prepare for the casing patch.

The 6.1 m patch assembly was put together and run in the hole with top patch at 565.25 m and bottom patch at 571.35 m, straddling the perforations with ca. 2.7 m either side. After extruding the steel patch as per Weatherford procedures, the patch was tested successfully to 185 bar on 1.15 mud.

It should be noted that to optimise pumping operations and pressure testing of the patch the perforation charges were selected to give a radial spread of 6 shots per foot over a two foot interval with perforation diameter of 0.45".

12 1/4" drilling operations (10 5/8" x 12 1/4" Bi-centre bit)

Due to the restricted internal diameter of the patch (12.115") and to obtain a suitable drift a Smith steel body 10 5/8" x 12 1/4" licenser bit with a 8 1/2" pilot (Q0S75 PX) was run with a motor (0.7°), 11 3/4" stabilizer, CDR,PWD,MWD.

The assembly gave a pass through of 10 5/8" and drilled hole OD of 12 1/4". The bit was dressed with 16/32" nozzles, 4 on the pilot and 5 on the reamer giving approximately a 55-45 flow distribution and a total TFA of 1.76 with an average of 4000 lpm pumped. The HSI was kept low on the pilot (2.12) to ensure that the pilot hole would not washout, de-stabilising the reamer and causing under gauge and/or spiralled hole to be drilled.

The hole angle at the shoe was 1.6° and the above BHA was selected for inclination correction deeper in the well, due to a noted formation build tendency in offset wells.

To reduce the concerns over wear on the casing patch Western Well non rotating protectors were positioned to be across the patch for drilling. A total of 75 joints with one protector per joint were made up, this represented the number available at this time.

A FIT to 1.45 sg equivalent mud weight carried out with 36 bars on 1.17 sg seawater /polymer mud. Prior to drilling the well was displaced to 1.25 sg KCL- Glycol "Glydrill" mud. The 12 1/4" hole was drilled down to 1415 m where pressure increase with torque/penetration decrease indicated bit balling. A de-balling pill consisting of KCl brine and glycol was pumped with a increase to 4500 lpm both when exiting the bit.



PL 270, Well 35/3-6
FINAL WELL REPORT
Operational Summary and Data



and with the bit put back on bottom. The pill and high flow un-balled the bit and drilling continued at 20 mph all included rate (increasing the mud weight to the planned 1.32 from 1545 m sg down to 1965 m where a wiper trip was done to 684 m to re-arrange the drill pipe protectors.

During this period a wellhead inspection showed a small flow from the sea bed area between number 1 & 2 posts of the PGB.

It was observed that the drill pipe protectors from Namtvedt had suffered wear on the top protector clamp collar (aluminium). This was especially observed on the first 6-7 stands out of the hole. The drill pipe protectors were checked for correct M/U and rerun in the hole.

Drilling continued with very slow ROP down to 1986 m. At this depth, the bit was pulled due to lack of progress despite three de-balling pills being pumped.

The bit had one nozzle plugged, parts of the bit and the entire reamer was packed off with very hard clay, the pilot blade directly opposite the reamer blade was missing 2 studs behind the cutter row and cutters were badly chipped.

This localised wear can be attributed to RIH damage.

Based on this, the Read Hycalog Bi-centre bit SB 154 with 19 mm PDC cutters dressed with 4x14's in the pilot bit and 3 x 16 on the reamer. This produced a high 5.05 HHSI on the pilot (8 1/8" OD) and 2.76 on the reamer. After the experience with the previous bi-centre bit, care was taken during the RIH with the last 5 stands washed to bottom and gradually bedding in. Averaged penetration was 20 m/hr, which increased to 40/50 mph by 2100 m. but gradually decreased to 22 mph by 2369 m where the power pulse on the MWD failed, necessitated a roundtrip to change the MWD. Correction steering modes had been started to bring down the inclination from 1.8°.

Drill pipe protectors were again re-arranged to allow for drilling down to planned section TD of ca. 2900 m.

Bad weather required the string to be hung off at 800 m for a WOW period of 13.5 hrs.

Wellhead inspection at this time showed that the small flow had stopped from the PGB area.

After WOW, drilling continued from 2369 m. correction interval were required to bring the angle down and to change the orientation. The trend in rotary was for a slight build (0.3/stand) and a tendency to walk to the right. Steering was difficult with the low angle and the aggressive bi-centre bit. Eventually the well was brought back at the expense of slow penetration to help meet the intended target.

After further discussions with the reservoir group the target tolerance was relaxed, giving a additional 15 m. horizontal displacement.

Further drilling at approximately 2645 m and onwards encountered several stringers of very hard and compacted sandstone were encountered. Between 2662 and 2696 m the stringers were stalling the string and the pipe was stuck several times, requiring working free and up to a maximum over pull to of 60 mt. to free. From the behaviour it appeared that the string was hanging up on the 11 7/8" stabiliser.

The behaviour was attributed to the bi-centre bit. The bi centre bit requires a pilot hole which the reamer section of the bit revolves around to cut the 12 1/4" hole. To all intent the reamer section is a single "blade" which cuts on one side of the pilot hole, if the pilot hole is enlarged then the assembly is destabilised and the reamer "blade" will cut an under gauge hole (less than 12 1/4" but not less than 10 3/4".)

With this effect great problems were experienced after drilling through a thin stringer in getting the 11 7/8" stabiliser through the under gauge hole in the stringer,

As recognised the key when hitting a stringer was to lower the flow (from 4000 to 3400 lpm) to reduce the potential for washing out the pilot hole and to increase the RPM (from 100 to 130) and then use very little WOB when the 11 7/8" stabiliser (16 m behind the bit) was passing through the stringer.

Due to the problems with the BHA in the stringers, drilling was terminated at 2695 m and a decision was made to call this TD of the 12 1/4" section. The hole was circulated clean with 2 1/2 bottoms up prior to POOH for casing. No over pull whatsoever was seen. Before running casing the extended wear bushing was retrieved and showed only some slight polishing marks on one side, but no major key seating marks.

9 5/8" casing and cementing

The 9 5/8" casing was run trouble free with respect to hole conditions. Circulation was broken inside the 13 3/8" shoe and very slight losses (1.5 m³) were reported for the first 10 stands in the open hole. The running speed as reduced to 0.5 min/joint and then to 1.0 min/joint from 1900 m to TD. Weatherford rigid Spirogliders were run 1 x joint on the first 40 joints with 2 x joint on the shoe track. Four centralisers were also spaced out to cover the potential sidetrack interval between 1900 and 2006 m.

Prior to landing the hanger with the cementing stand circulation was broken and a sudden pressure increase of 75 bars observed. After investigation is was found that the dart had unintentionally released from the remote cement head due to a hydraulic leak, launching the plugs, making it impossible to carry out a standard cementing job.

During re-landing of the hanger the casing initially hung up in the LAP but after moving the rig, the casing was successfully landed and the landing depth verified with the index line.



The casing hanger running tool was released with 3 right hand turns and the pack off also retrieved showing no damage, but with a piece of rubber from the annular preventer attached showing that was where we had hung up.

A Smith 1-3-7 8 1/2" MFDGH was run in and drilled out plugs, float collar and shoe and tagged 4 m of fill which was washed and reamed clean in a total operational time of 1.5 hours.

After circulating the well clean a 9 5/8" cement retainer was RIH on DP and set at 2645 m. With the retainer set circulation through the stinger was not possible. When pulled to surface the equalizing sub was found to be packed with small cuttings and fragments of rubber and cement. The stinger was rerun without the equalizing sub and circulation broken every 1000 m to ensure the tool did not plug up again. Circulation was confirmed after a re-stab to open the sleeve and the casing cemented via the retainer with 18.4 m³ of 1.56 lead followed with 12.7 m³ of 1.9 tail. 0.5 m³ of cement was dumped on top of the retainer. No losses were observed and the pressure increase indicated that the cement went up into the annulus to at least 1900 m.

Following the cementation operations, the mill and flush tool was run to clean the wellhead prior to installing and testing the pack off to 345 bar with the seal assembly running and retrieving tool against the middle pipe ram. The remaining BOP tests were performed at this time to 20/345 bar.

After releasing the running tool and reseating a second retest of the seal assembly was attempted without success. Subsequent examination at surface showed a ruptured "O" ring

The wear bushing was run with a cup tester and landed and the seals test confirmed with 175 bar.

4.3.3 8 ½” Hole Section

Item	Plan	Actual	Notes
8 ½ “ TD	3418 m –50 m into Jurassic Dry hole case	3366 m	Jurassic confirmed by Biostratigraphy. No commercial Albian reservoir present.
9 5/8” FIT		1.5 sg.	.
Drilling Fluid	KCL/polymer / Glycol-Glydrill 1.32 sg	KCL/ polymer/Glycol “Glydrill” 1.32 sg	5% Glycol – KCL ca. 160 kg/m ³
Drill Pipe	5” in 8 ½” hole 5 ½” above.	5” in 8 ½” hole 5 ½” above	

A 8 ½” Red Baron Junk Mill was run in the hole to drill out the cement retainer. The cement was tagged and drilled at 2639 m and the retainer at 2645 m. Virtually no progress could be made and after 8 hours, following stand pipe pressure loss, the string parted. After POOH the string was found to be parted at 237 m, between the annular preventers. The pipe showed exterior contact polishing with radial scratches on both sides of the break. Cracks were present on the break and from the inside, both showing mud erosional wear.

The fish was recovered in one run using an 8 3/8” overshot and a 5 ½” basket grapple.

Although documented as such, inspection of the mill showed that it was not the intended junk mill but a cone buster mill. This type has a large concave face for capturing and milling on large loose junk (i.e. Rock bit cones) and is not the optimum type for drilling out cement or retainers.

A drift run with the BOP isolation test tool was performed which showed that the annular's and rams were fully retracted.

The retainer was then drilled with an 8 ½” 2-1-5 SVH bit in 1.5 hours. Cement and 3 m of new formation were drilled out and an FIT performed to 1.50 sg equivalent mud weight.

During drilling of the retainer and cement fluctuating torque was drilling and the cement drilling high intermittent torque was observed and during POOH, severe scratch marks were seen on the pipe that had been in the BOP when drilling on the retainer.

A test was conducted by closing the middle pipe ram to mark the pipe then rotating stationary pipe for 5 min at 70 rpm. When at surface the wear point (scratches) was found to be 7.9 m above the middle pipe ram, locating the wear in the flex-joint.



The LMRP connector was disconnected and the riser package retrieved. Upon examination no new or excessive key seating, damage or internal protrusions inside the flex joint and/or on the upper or smaller lower wear bushings were seen. The upper annular was functioned, inspected and found to be working OK.

The LMRP was rerun and latched without problems and the BOP was function tested from all locations and the LMRP connector tested to 30/345 bar (no obstructions found with the test plug).

A 8 ½" rotary drilling BHA with a Smith steel body S91HPX (19 & 13 mm cutters), CDR - MWD was run in the hole for drilling to core point. To reduce the concerns over notated string wear, non-rotating protectors were added to cover the BOP area for the drilling operations down to the core point.

During the trip in the hole another rotation test (after marking pipe with the middle pipe rams) was performed and the string pulled back to examine the drill pipe. No visible signs of wear were found.

After discussions with the reservoir group the target restrictions were lifted and the above assembly was run locked up to minimize walk and build tendency.

Drilling continued for coring point with an average of 12 m/hr all in down to 2840 m where bottoms up were circulated due to an increase in the ECD of 1.47 to 1.50. Drilling continued to 3009 m with a flow check due to increase in background ECD. The flow rate was reduced from 2000 to 1950 lpm to keep the circulating ECD at 1.53. In general there was a change in formation to a higher silt content in the shale. The silty clays were also much stickier than previously, often blinding off the shale shakers.

Drilling progressed to 3366 m without encountering the expected Albian reservoir sandstone sequence, other than a tight approximately 3 m thick sandstone at 2955m.

With the previous noted formation change accompanied by increased gamma ray at ca. 3000 m, indicating Jurassic formations, TD was finally called at 3366 m after biostratigraphy samples confirmed Jurassic age shale's.

Prior to POOH for logging the wiper trip revealed one tight spot at 3132 m requiring 35 mt over pull and reaming. On the final POOH a tight spot at 3329 m required working through with a maximum over pull of 20 mt, but the remaining trip showed good hole conditions.

A reduced Schlumberger logging programme of a VSP and CST were conducted without problems.

Plug and Abandon

Item	Plan	Verification	Notes
Plug #1	2800 – 2550 m	Tagged at 2530 m Load tested to 10 mt. Pressure tested to 157 bar on 1.32 mud	Set on a 100m hi-vis 1.32 pill. Pressure test 70 bar over 1.5 FIT
9 5/8" cut.	596 m		
13 3/8" bridge plug	590 m	Set on DP and tagged with 10 mt. Pressure test to 88 bar on 1.32 mud.	Tested to 70 bar over FIT.
Plug #2	590 – 290 m	TOC 295 m Tagged with 10 mt.	
30"/20" cut	253	253 m	5 m below sea bed

A 3 1/2" cement stinger was used to set the first cement plug across the 9 5/8" shoe. After WOC the plug was tagged, load and pressure tested.

The 9 5/8" casing cutter assembly included a motor, allowing the cut to be performed under closed in conditions at 596 m in 5 minutes. A Drill quip Multi Purpose Tool (MPT) was incorporated in the assembly which allowed the recovery of the 9 5/8" wear bushing (30 mt over pull) in the same trip.

Inspection of the wear bushing showed no major wear and a slightly polished area at one end.

The 9 5/8" spear assembly was RIH with the MPT incorporated for seal assembly retrieval under closed in conditions. The lower annular was closed and the stripping friction was recorded as 5 MT. The seal assembly pulled with 20 MT over pull and the casing spear engaged and the casing pulled 1 m while observing for pressure on the choke line. The diverter element was closed and the LAP opened to flow check the well, circulated bottoms up and carrying out another flow check. Casing and seal assembly were recovered to surface.

A 13 3/8" Halliburton EZSV bridge plug was run and set 590m, load tested to 10mt and pressure tested to 85 bar.

The top cement plug was then set and after WOC tagged with 10 mt. The well was displaced to sea water and all lines flushed clean.

The BOP and riser were retrieved and the Weatherford MOST cut and pull tool was RIH and landed on the wellhead. The 30" and 20" housing extension were cut at 253 m. After 50 minutes of cutting pressures indicated that the cut was complete and the



PL 270, Well 35/3-6
FINAL WELL REPORT
Operational Summary and Data



lockdown of the MOST tool was attempted with left rotation, without success. The ROV manually engaged the activators and locked the tool to the wellhead.

Recovery was attempted with 150 mt over pull but without movement. Cutting recommenced at a slightly higher flow rate and after 10 minutes the string stalled indicating that the cut was complete. The wellhead assembly was then pulled free from the seabed with only 10 mt over pull and recovered to surface. No cement was found between the cut 30"/20" extension.

Subsequent onshore inspection of the 30" wellhead housing showed that the internal running tool /18 3/4" locking profile has sustained localized heavy wear across the crests of the profiles, extending down into the main body (reaction shoulder) of the 30" housing. The wear was heavier across the profiles and reduces further down into the main body. The wear was also angled slightly across the housing, as viewed from above and the pattern typical of rotational wear from the drill pipe.

The 30" internal profiles were out of tolerance, irreparable and the housing needed replacing.

The final ROV survey was performed with no sea bed objects reported. Back loading of equipment carried on until 0400 hrs on the 01-04-02, when de-ballasting operations started. Anchor handling commenced 0900 hrs with the last anchor being on deck at approximately 1830 hrs on 01-04-02.

Deepsea Bergen was under tow to Åmøyfjorden anchorage off Dusavik and off contract at 1830 hrs on 01-04-02.



PL 270, Well 35/3-6
 FINAL WELL REPORT
 Operational Summary and Data



4.4 Casing Program Summary

Csg size	Interval		Casing type			Rated properties			Actual safety factors v DF			csg. test pressure
	From	To	Weight	Grade	Connections	Collapse	Burst	Tension	Collapse	Burst	Tension	
inches	m RKB	m RKB	lbf/ft			bar	bar	M Tonnes	DF > 1.10	DF > 1.10	DF > 1.60- > 1.4 Static	Bar
30	248 seabed	309	456/309	X52	SL-60 30"	103 SL60 112	103 SL60 215	1486 SL60 2150	2.29	1.50	2.40	NA
20x13 3/8	248 seabed	1294	68.0	X56 N-80	Swedge New Vam/BTC	173 156	274 346	622 354	6.79 1.10	1.09*-1.34** 1.37*-1.45**	>2.30 2..30	257*-185**
9 5/8	248 seabed	2686	53.5	L-80	NSCC	456	547	283	1.15	1.12	1.56 - static	345

Design Conditions

	Collapse	Burst	Axial
20" x 13 3/8"	External - 1.30 mud Internal - Evacuation to 1175 m.	External - 1.03 sg equivalent Internal - *257 bar gas to surface. and - **185bar test on 1.32 mud.	185 bar plug bump with bending.
9 5/8"	External - 1.32 mud Internal - Full Evacuation to 2950m	External - 1.03 sg equivalent Internal - 345 bar test on 1.32 mud	345 bar plug bump with bending.

Notes: Top Joint of conductor is 1.5" wall thickness. 30" safety factors are for the connector "O" ring seal and connectors in Axial.
 13 3/8" has been de-rated for casing wear (potential sidetrack) and temperature. These conditions are built into the loads shown above. 29 joints of Buttress "No Cross" couplings were run first followed by New Vam.
 9 5/8" has been de-rated for casing wear- 8% (potential sidetrack) and temperature. These conditions are built into the loads shown above. *1.09 13 3/8" burst Safety factor is acceptable as this is gas to surface (257bar) with no frac at the shoe. The shoe will frac at ca. 165 bar surface pressure (1.60 leak off). This case represents unplanned reservoir penetration, the plan is to stop before the reservoir in a normal pressure regime (1.03 sg). The above properties as based on the "as designed" case. The casing depths are "as run".



PL 270, Well 35/3-6
FINAL WELL REPORT
Operational Summary and Data



4.5 Drilling Fluid Summary

See enclosed table.

4.6 Cementing Summary – Primary Jobs

	Job >>	30" Conductor	13 3/8" Csg	9 5/8" Csg	
	Comment >>				
Well data	Hole size	inch	36	17 1/2	12 1/4
	Shoe depth	mMD/mTVD	309	1294	2688
	Top of Lead	mMD/mTVD	248 (S.B.)	248 (S.B.)	1900
	Top of Tail	mMD/mTVD	248	1144	2388
	B.H.S.T	°C	7	40	94
	B.H.C.T.	°C	7	31	66
Mud	Type		S.W.	S.W.	WBM
	Weight	sg	1.03	1.03	1.32
Spacer data	Spacer type		S.W.	S.W.	F.W.
	Spacer volume	m ³	12.00	10.00	10.00
	Spacer density	SG	1.03	1.03	1.00
Lead slurry	Norcem "G"-cement	kg	100	100	100
	FP-14L (defoamer)	LHK	0.20	0.20	0.20
	A-3L (extender)	LHK	3.50	3.50	
	Bentonite (extender)	%BWOC			1.50
	CD-31L (dispersant)	LHK			0.30
	R-12L (low temp retarder)	LHK			0.80
	R-15L (ext.slurry retarder)	LHK		1.00	
	Water type		Sea	Sea	Fresh
	Water requirement	LHK	94.84	110.76	92.22
	Density	SG	1.56	1.5	1.56
	Yield	LHK	129.60	146.51	125.15
	Thickening time (30 BC)	Hrs.Mins	06:00	07:00	06:35
	Fluid loss	ml/30 min	-	-	-
	Free water	%	< 1.4	0.6	0.2
	Compressice strength	Bar/24 Hrs	15	30	70
Tail slurry	Norcem "G"-cement	kg	100	100	100
	FP-14L (defoamer)	LHK	0.20	0.20	0.20
	A-7L (accelerator)	LHK	3.50		
	CD-31L (dispersant)	LHK			0.40
	R-12L (low temp retarder)	LHK		0.50	0.70
	MICROBLOCK (gasblock)	LHK			4.00
	Water type		Sea	Fresh	Fresh
	Water requirement	LHK	39.97	43.28	42.26
	Density	SG	1.95	1.92	1.90
	Yield	LHK	74.73	75.04	78.61



PL 270, Well 35/3-6
FINAL WELL REPORT
 Operational Summary and Data



	Thickening time (30 BC)	Hrs:Mins	03:30	03:28	04:30
	Fluid loss	ml/30 min	-	-	-
	Free water	%	< 1.4	1.0	0.20
	Compressive strength	Bar/24 hrs.	50	132	238
Volume	Lead (incl. excess)	m ³	23.0	125.5	18.1
	Tail (incl. excess)	m ³	15.0	20.0	12.7
	Excess in open hole	%	200	100	30
Bulk cement	Tons		35	126	42
Shoetrack		No. of joints	1	3	4
Lab report			NL-038-02	NL-061-02	NL-069-02
Comments					

13 3/8" - Plug not bumped. Cement found inside casing at 1261m. No cement returns seen. Displacement pressure indicates TOC did not reach 600m. The back up slurry (water tight = gastight) to be used in future if water flow detected and excess increased to 200%

As a minimum. Review use of Class A construction cement (very rapid set) with cementing contractor for "water zone" isolation.
 9 5/8" - Cement job performed via cement retainer to 1900m (plan top – no losses).

Cementing Summary – Secondary Jobs

Job >>	Comments	30" grouting	Squeeze/ plug	30" grouting 2'nd job	P&A of dry hole		
					Plug 1	Plug 2	
Well data	Hole size	inch	36"	17 1/2"	36"	8 1/2"OH - ins 9 5/8"	ins 13 3/8"
	Bottom of Cmt	mMD	248	600	248	2800	590
	Top of Cmt	mMD	248	600	248	2550	290
	B.H.S.T	°C	7	18	7	88	17
	B.H.C.T.	°C	7	17	7	69	16
Mud	Type		SW	WBM	SW	WBM	WBM
	Weight	sg	1.03	1.3	1.03	1.32	1.32
Spacer data	Spacer type		SW	-	SW	F.W.	FW
	Spacer volume	m ³				7.00	7.00
	Spacer density	SG	1.03		1.03	1.00	1.03
Tail slurry	Norcem "G"-cement	kg	100	100	100	100	100
	FP-14L (defoamer)	LHK	0.20	0.2	0.20	0.20	0.20
	A-3L (extender)	LHK		1.5			
	A-7L (accelerator)	LHK	3.50		3.50		2.00
	CD-31L (dispersant)	LHK		1			
	R-12L (low temp retarder)	LHK				0.80	
	MICROBLOCK (gasblock)	LHK		40			
	FL-45LN (fluid loss control)	LHK		12			
	Water type		Sea	Sea	Sea	Fresh	Sea
	Water requirement	LHK	39.97	90.59	39.97	44.71	41.03
	Density	SG	1.95	1.5	1.95	1.90	1.95
	Yield	LHK	74.73	176.55	74.73	76.76	74.28
	Thickening time (30 BC)	Hrs:Mins	03:30	02:15	03:30	04:15	03:00
	Fluid loss	ml/30 min	-	50	-	-	-
	Free water	%	< 1.4	0	< 1.4	1.0	1.2
	Compressive strength	Bar/24 hrs.	50		50	196	82
Volume	Slurry (incl. excess)	m ³	21	10	23	10.0	23.5
	Excess in open hole	%	-	-	-	20	-
Bulk cement	Tons		29	6	31	13	34
Lab report			NL-038-02	NL-061-02	NL-038-02	NL-084-02	NL-084-02
Comments	<p>30" Grout #1 - Tried to stop water flow with grouting slurry. No success Perforations Squeeze – Performed through a retainer.</p> <p>P&A #1 plug - Tagged & pressure tested (10 Ton / 157 bar) after 18 hrs. P&A #2 Plug – Bridge plug Tagged (10 Ton) and tested to 85 bar. Cement tagged to 10mt after 15 hrs.</p>						



AKER ENERGY AS

PL 270, Well 35/3-6
 FINAL WELL REPORT
 Operational Summary and Data



4.7 BHA Summary

#	Length	Weight (k-lbs)	Weight blw/Jars (k-lbs)	String Weight (k-lbs)	Pick-Up Weight (k-lbs)	Slack-Off Weight (k-lbs)	Torque Max (ft-lbs)	Torque on bottom (ft-lbs)	Torque off bottom (ft-lbs)	BHA DESCRIPTION
1	108	30	19	41						17 1/2"Bit- Bit sub- Extension sub- 26"x36" H/O-8"Pony DC-Bit sub- 22" Stab-X/Over-Anderdrift Tool-8x8 DC-71/2"Jar-3x8" DC-X/Over-12 x 5 1/2" HWDP- 5 1/2"DP
2	108									Bit 26"-Bit sub- 25 3/4"stab- x/over- 8x8"DC- 8" Jar- 3x8"DC- x/over-12x51/2" HWDP
3	108	30	16	103	98	88	5,000	2,500	1,600	9 7/8"Bit-9 7/8"NB stab-8" PonyDC-9 7/8"String stab-CDR Tool-MWD Collar-9 7/8"string stab-2x8"DCNM-4x8"DC-Jar-3x8" DC-X/over-12x5 1/2" HWDP- 5 1/2"DP
4	127		15				23,000	6,000	4,000	Bit 171/2"-171/2"NB Stab-9 1/2"CDR-91/2"MWD-171/2"NM Stab-NM x/over-2x8"NMDC-6x8"DC-jar-3x8"DC-x/over-12xHWDP-51/2" DP
5	108	32	12	51	68		15,000	4,000	1,000	12.25" Bit-2 x junk subs-Bitsub-8x8"DC- Jar- 3x8" DC- x/over-12x5 1/2" HWDP
6	108	32	12	51	68		15,000	5,000	3,000	12.25" Bit -2 x junk subs-Bit sub-8x8"DC- Jar- 3x8" DC- x/over-12x5 1/2" HWDP
7	249	27	15	100	129	120	5	4		2BiCentic bit10 3/8"x12 1/4"- PowerPack GT motor-Float-8"PonyNM-11 7/8"Stab-X/over-CDR w/APWD-PowerPulseHF w/IWOB-x/over-2x8"NMDC-6x8"NMDC-Jar-3x8"-x/over-12x5 1/2" HWDP-5 1/2" DP
8	249	27	15	100	129	120	20	15		5BiCentic bit10 3/8"x12 1/4"- PowerPack GT motor-Float-8"PonyNM-11 7/8"Stab-X/over-CDR w/APWD-PowerPulseHF w/IWOB-x/over-2x8"NMDC-6x8"NMDC-Jar-3x8"-x/over-12x5 1/2" HWDP-5 1/2" DP
9	229		8				8	8		38 1/2" rock bit (MFDGH)"- NB Stab- 6 3/4" Pony DC- 8 1/2" Stab - 9 x 6 1/2" DC-Jar- 2 x 6 1/2" DC - x/over-12x5 1/2" HWDP- x/over- 90 x 5" DP - x/over - 5 1/2" DP
10	235	17	9				8,000	8,000	3,000	Red Baron Junk Mill - 2 x Junk Subs- 8 1/2" NB Stab- 6 3/4" Pony DC- 8 1/2" Stab - 9 x 6 1/2" DC - 6 1/2" Jar - 2 x 6 1/2" DC - x/over-12x5 1/2" HWDP- x/over- 90 x 5" DP - x/over - 5 1/2" DP
11	235	17	9				8,000	8,000	3,000	Rock bit - 2 x Junk Subs- 8 1/2" NB Stab- 6 3/4" Pony DC- 8 1/2" Stab - 9 x 6 1/2" DC - 6 1/2" Jar - 2 x 6 1/2" DC - x/over-12x5 1/2" HWDP- x/over- 90 x 5" DP - x/over - 5 1/2" DP
12										PDC bit - 8 1/2 stab - pony DC - 6 3/4" MWD - 8 1/4" stab - 6 3/4" NMDC - 9 x 6 1/2" DC - 6 1/2" Jar - 2 x 6 1/2" DC - 12 x 5" HWDP - 90 x 5" DP - XO



AKER ENERGY AS

PL 270, Well 35/3-6
FINAL WELL REPORT
Operational Summary and Data



4.8 Bit Summary

35/3-6

Drilling Co.: ODFJELL DRILLING AS

Rig : DEEPSEA BERGEN

RT above GL : 23 mtrs Lat : 61 deg 53 min 36.86 sec
GL above MSL : 225 mtrs Long : 3 deg 59 min 15.79 sec

Spud Date: 06.02.2002
Spud Time: 11:45:00 AM

Release Date: 01.04.2002
Release Time: 6:30:00 PM

BIT RECORD

DATE	IADC	BIT#	SIZE	SER	MFR	TYPE	JETS	D.IN	D.OUT	MTRG	HRS	SPP	FLW	WOB	RPM	MW	TFA	VEL	HHP	ROP	I	O1	D	L	B	G	O2	R
			"					mtrs	mtrs		o/b	bars	l/min	M.tn		kgm3	sq.in	mps	/sq"	m/hr								
06.02.2002		HO 36	36.00	C9544030927	S.R.BA	HO	6x12	248	309	61	3.7	0	3032	5.2	97	1.0	0.663	118	0.53	16.5								
06.02.2002		HO 26	26.00		SMITH	HO	6x11	250	310	60	3.7	0	3032	5.2	97	1.0	0.657	140	1.44	16.2								
06.02.2002	111	1	17.50	LW3368	SMITH	DLJ	2x18,1x16,1x	248	313	65	3.7	0	3031	5.2	97	1.0	0.866	90	1.31	17.6	1	1	WT	A	I	IN	NO	TD
08.02.2002	115	2	26.00	MJ5220	SMITH	MSDSSHC	3x24,1x21	301	310	9	1.0	0	3031	0.0	0	1.0	1.664	47	0.16	9.0	1	1	WT	A	E	IN	NO	BHA
10.02.2002	427	3	9.87	MH8545	SMITH	05MFT	2x24,1x16	283	983	700	21.0	57	2625	2.4	145	1.0	1.080	63	0.00	33.3	1	1	WT	A	E	IN	NO	DTF
11.02.2002	427	3RR	9.87	MH0545	SMITH	05MFT	2x24,1x16	984	1,300	316	11.6	76	2687	4.9	115	1.0	1.080	64	0.00	27.2	1	1	WT	A	E	I	NO	TD
13.02.2002	435	4	17.50	MJ0254	SMITH	10GMCCPD	2x22,1x14,1x	313	1,300	987	21.9	117	4501	2.0	100	1.0	1.023	113	3.58	45.1	2	2	BT	O	E	IN	CT	TD
01.03.2002	215	5	12.25	LK4877	SMITH	SVHR MT	3x24	532	591	59	12.0	76	3522	14.0	65	0.0	1.325	58	1.24	4.9	8	6	BT	NM	6	IN	G	TQ
01.03.2002		6	12.25	Red Baron	SMITH	Junk Mill	3x24	1,215	1,228	13	4.5	0	3001	14.0	60	1.2	1.325	58	1.24	2.9								
02.03.2002	215	7	12.25	LW 7624	Smith	SVH	3x24	1,227	1,265	38	8.0	77	3501	14.0	60	1.2	1.325	68	1.96	4.8	1	4	BT	M	E	IN	CT	BHA
07.03.2002	S223	8	12.25	V83761	Smith	QD675PX	9x16	1,300	1,986	696	47.6	164	3997	11.2	179	1.3	1.767	58	1.89	14.4	3	3	FNCT	A	X	I	BU	FR
08.03.2002	S121	9	12.25	202171	HYC	SB154	4x14,3x16	1,986	2,369	383	17.4	207	4001	4.9	206	1.3	1.191	87	4.17	22.0	1	1	NO	A	X	IN	NO	DTF
11.03.2002	S121	9RR	12.25	202171	HYC	SB154	4x14,3x16	2,369	2,696	327	29.2	223	4020	6.0	187	1.3	1.191	88	4.41	11.2	2	2	WT	A	X	I	CC	HP
13.03.2002	137	10	8.50	LW7092	Smith	MFDGH	3x20	2,650	2,688	38	0.5	40	2000	6.0	50	1.3	0.921	56	1.81	76.0	1	1	NO	A	E	IN	NO	BHA
17.03.2002		11	8.50	RB 181203	OTHER	Junk Mill	3x24	2,639	2,646	7	9.0	180	2000	7.0	100	1.3	1.325	39	0.87	.8	2	2	NO	A	X	I	FN	TW
18.03.2002	215	12	8.50	MJ3227	SMITH	SVH	3x20	2,646	2,699	53	5.6	120	2000	4.0	70	1.3	0.921	56	1.81	9.5	4	3	BT	M	E	I	CT	DP
24.03.2002	S123	13	8.50	J82450	SMITH	891HPX	3x12,4x11	2,699	3,366	667	50.7	166	1969	6.0	89	1.3	0.703	72	2.88	13.2	2	1	LT	N	X	IN	NO	TD

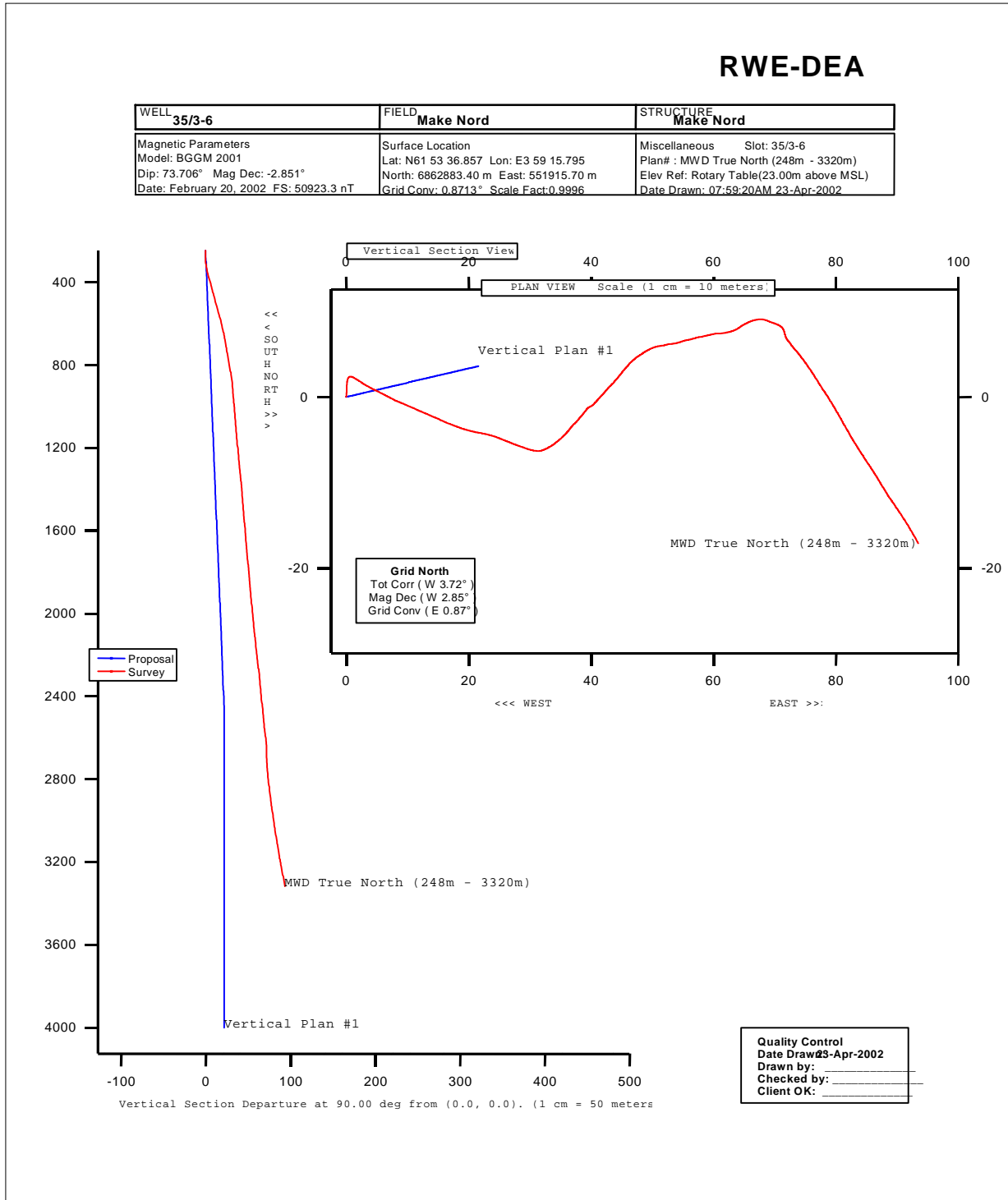


AKER ENERGY AS

PL 270, Well 35/3-6 FINAL WELL REPORT Operational Summary and Data



4.9 Survey Summary





PL 270, Well 35/3-6
FINAL WELL REPORT
 Operational Summary and Data



<p>Report Date: 18-Mar-2002 Client: RWE-DEA Field: Maake Nord Structure / Slot: Maake Nord / 35/3-6 Well: 35/3-6 Borehole: 35/3-6 UWI / API#: Survey Name / Date: MWD (248m - m) / February 20, 2002 Tort / AHD / DDI / ERD ratio: 21.298° / 79.19 m / 3.743 / 0.030 Grid Coordinate System: UTM Zone 31 on ED50 Datum Location Lat / Long: N 61 53 36.857, E 3 59 15.795 Location Grid N/E Y/X: N 6862883.400 m, E 551915.700 m Grid Convergence Angle: +0.87126213° Grid Scale Factor: 0.99963301</p>	<p>Survey / DLS Computation Method: Minimum Curvature / Lubinski Vertical Section Azimuth: 90.000° Vertical Section Origin: S 3.600 m, W 21.610 m TVD Reference Datum: Rotary Table TVD Reference Elevation: 23.000 m relative to MSL Sea Bed / Ground Level Elevation: -225.000 m relative to MSL Magnetic Declination: -2.851° Total Field Strength: 50923.287 nT Magnetic Dip: 73.706° Declination Date: February 20, 2002 Magnetic Declination Model: BGGM 2001 North Reference: Grid North Total Corr Mag North -> Grid North: -3.722° Local Coordinates Referenced To: Structure Reference Point</p>
--	--

Station ID	MD (m)	Incl (°)	Azim (°)	TVD (m)	VSec (m)	N/-S (m)	E/-W (m)	Closure (m)	at Azim (°)	DLS (°/30m)	TF (°)
Tie-In	248.00	0.00	0.00	248.00	0.00	-3.60	-21.61	0.00	260.54		113.0 M
	337.49	3.63	113.05	337.43	2.61	-4.71	-19.00	2.84	256.08	1.22	112.4 M
	366.17	3.84	112.39	366.05	4.33	-5.43	-17.28	4.70	252.55	0.22	108.2 M
	395.74	4.10	108.21	395.55	6.25	-6.14	-15.36	6.75	248.21	0.39	110.4 M
	425.31	4.12	110.42	425.04	8.25	-6.84	-13.36	8.87	242.88	0.16	105.5 M
	454.40	3.93	105.49	454.06	10.19	-7.47	-11.42	10.90	236.80	0.41	106.9 M
	482.91	3.84	106.93	482.51	12.05	-8.01	-9.56	12.83	230.05	0.14	105.8 M
	569.67	4.20	105.79	569.05	17.88	-9.72	-3.73	18.90	200.97	0.13	95.6 M
	657.55	2.66	95.61	656.77	23.01	-10.80	1.40	24.11	172.61	0.56	105.8 M
	743.23	2.52	105.83	742.37	26.80	-11.50	5.19	27.94	155.71	0.17	103.4 M



PL 270, Well 35/3-6
 FINAL WELL REPORT
 Operational Summary and Data



830.30	2.59	103.39	829.35	30.56	-12.48	8.95	31.82	144.37	0.04	77.9 M
917.55	1.10	77.87	916.55	33.29	-12.76	11.68	34.53	137.53	0.57	63.8 M
1006.10	1.26	63.83	1005.08	35.00	-12.15	13.39	36.03	132.23	0.11	54.9 M
1093.46	1.51	54.89	1092.42	36.80	-11.07	15.19	37.55	126.08	0.11	46.8 M
1149.68	1.78	46.76	1148.61	38.04	-10.04	16.43	38.59	121.43	0.19	53.8 M
1179.50	1.60	53.82	1178.42	38.72	-9.48	17.11	39.16	119.00	0.28	45.3 M
1266.92	1.64	45.29	1265.81	40.59	-7.88	18.98	40.82	112.55	0.08	71.3 M
1294.35	1.77	71.26	1293.23	41.27	-7.47	19.66	41.45	110.80	0.85	49.6 M
1323.40	1.75	49.58	1322.26	42.03	-7.04	20.42	42.17	109.01	0.68	51.7 M
1352.77	1.65	51.73	1351.62	42.71	-6.48	21.10	42.80	107.08	0.12	52.4 M
1382.09	1.56	52.44	1380.93	43.36	-5.98	21.75	43.42	105.37	0.09	49.0 M
1409.32	1.50	49.05	1408.15	43.92	-5.52	22.31	43.96	103.90	0.12	53.9 M
1435.40	1.53	53.93	1434.22	44.46	-5.09	22.85	44.48	102.56	0.15	54.3 M
1466.22	1.61	54.28	1465.03	45.14	-4.60	23.53	45.15	101.05	0.08	47.3 M
1493.65	1.55	47.33	1492.45	45.73	-4.12	24.12	45.73	99.69	0.22	48.3 M
1524.74	1.49	48.33	1523.53	46.34	-3.57	24.73	46.34	98.21	0.06	50.1 M
1548.92	1.52	50.08	1547.70	46.82	-3.15	25.21	46.82	97.12	0.07	50.6 M
1584.42	1.49	50.59	1583.19	47.54	-2.56	25.93	47.55	95.63	0.03	56.9 M
1612.05	1.30	56.89	1610.81	48.08	-2.16	26.47	48.10	94.66	0.26	59.5 M
1642.93	1.27	59.51	1641.68	48.66	-1.79	27.05	48.70	93.79	0.06	66.3 M
1670.94	1.38	66.29	1669.68	49.24	-1.50	27.63	49.29	93.10	0.20	63.6 M
1698.49	1.34	63.57	1697.22	49.83	-1.22	28.22	49.89	92.48	0.08	66.8 M
1726.70	1.42	66.79	1725.43	50.45	-0.94	28.84	50.52	91.86	0.12	71.4 M
1750.00	1.37	71.44	1748.72	50.98	-0.73	29.37	51.06	91.43	0.16	76.1 M
1783.15	1.37	76.07	1781.86	51.74	-0.51	30.13	51.83	90.98	0.10	82.4 M
1812.24	1.21	82.44	1810.94	52.38	-0.39	30.77	52.48	90.72	0.22	84.9 M



PL 270, Well 35/3-6
 FINAL WELL REPORT
 Operational Summary and Data



1838.38	1.19	84.89	1837.08	52.93	-0.33	31.32	53.03	90.60	0.06	81.2 M
1869.25	1.39	81.24	1867.94	53.62	-0.24	32.01	53.72	90.43	0.21	85.9 M
1902.56	1.28	85.91	1901.24	54.39	-0.15	32.78	54.49	90.27	0.14	83.9 M
1930.50	1.26	83.86	1929.17	55.00	-0.10	33.39	55.11	90.17	0.05	78.5 M
1956.60	1.46	78.49	1955.27	55.61	-0.00	34.00	55.73	90.00	0.27	76.8 M
1990.63	1.41	76.82	1989.28	56.45	0.18	34.84	56.57	89.70	0.06	81.0 M
2016.82	1.31	81.02	2015.47	57.06	0.30	35.45	57.19	89.52	0.16	80.2 M
2048.39	1.28	80.17	2047.03	57.76	0.42	36.15	57.90	89.34	0.03	77.5 M
2076.24	1.49	77.52	2074.87	58.42	0.55	36.81	58.57	89.15	0.24	85.3 M
2106.51	1.33	85.29	2105.13	59.15	0.66	37.54	59.31	88.99	0.25	79.8 M
2134.93	1.35	79.85	2133.54	59.81	0.75	38.20	59.97	88.88	0.14	80.8 M
2164.87	1.53	80.79	2163.47	60.55	0.87	38.94	60.72	88.71	0.18	79.8 M
2191.16	1.72	79.84	2189.75	61.29	1.00	39.68	61.46	88.56	0.22	89.7 M
2221.11	1.70	89.66	2219.69	62.17	1.08	40.56	62.35	88.47	0.29	83.7 M
2250.23	1.81	83.66	2248.80	63.06	1.13	41.45	63.24	88.43	0.22	80.3 M
2277.86	1.84	80.25	2276.41	63.93	1.26	42.32	64.12	88.30	0.12	73.5 M
2310.14	1.31	73.55	2308.68	64.80	1.45	43.19	65.00	88.08	0.52	64.4 M
2333.67	1.36	64.43	2332.20	65.31	1.65	43.70	65.52	87.84	0.28	65.6 M
2367.27	1.49	65.63	2365.79	66.07	2.00	44.46	66.30	87.43	0.12	69.7 M
2395.03	1.43	69.69	2393.55	66.72	2.27	45.11	66.98	87.12	0.13	73.8 M
2421.14	1.54	73.79	2419.65	67.36	2.48	45.75	67.64	86.90	0.18	80.9 M
2452.54	1.45	80.89	2451.04	68.16	2.66	46.55	68.45	86.73	0.20	85.7 M
2485.35	1.12	85.66	2483.84	68.89	2.75	47.28	69.18	86.67	0.32	96.5 M
2512.97	1.32	96.45	2511.45	69.48	2.73	47.87	69.76	86.73	0.33	106.3 M
2541.78	1.65	106.33	2540.25	70.20	2.58	48.59	70.47	86.96	0.43	104.0 M
2571.35	1.93	104.02	2569.81	71.09	2.34	49.48	71.34	87.29	0.29	109.5 M



PL 270, Well 35/3-6
 FINAL WELL REPORT
 Operational Summary and Data



2601.66	1.94	109.49	2600.10	72.07	2.05	50.46	72.29	87.68	0.18	136.4 M
2627.61	1.34	136.42	2626.04	72.70	1.68	51.09	72.89	88.12	1.11	164.9 M
2656.54	1.07	164.93	2654.96	73.00	1.17	51.39	73.16	88.69	0.67	---

Survey Error Model: Topographic 3-D 95.00% Confidence 2.7957 sigma
Surveying Programme:

MD From (m)

248.00

MD To (m) **EOUSurvey Tool**
Freq Type

2656.54 Act-StnsHlat MWD2-S

4.10 LOT Summary

13 3/8" FIT

With the 13 3/8" casing swedged down from the 18 3/4" wellhead extension joint the first LOT (actual FIT) was performed on the 13 3/8" shoe. The basic data is tabulated below

Item	Type	Shoe Depth	Mud weight-SG	Applied Pressure	Equivalent SG at Depth.	Notes
13 3/8" shoe test	FIT	1294	1.17	36 bar	1.45	12 1/42 hole at 1303 m. Water based mud

9 5/8" FIT

After premature launch of the sub sea release plugs and subsequent cementing operations via a cement retainer the following FIT was performed on the 9 5/8" shoe.

Item	Type	Shoe Depth	Mud weight-SG	Applied Pressure	Equivalent SG at Depth.	Notes
9 5/8" shoe test	FIT	2686	1.32	48 bar	1.50	8 1/2 hole at 2699 m. Water based mud.

4.11 Equipment Failure Summary

Equipment Failure Report

Well : 35/3-6

Total hrs lost to Equipment Failure: 139.50

Equipment Failure by Type

Failure Type	Hrs
Choke/Kill sys	1.00
Downhole Drill tools	4.50
Hoists	5.00
Pipe Handling	2.00
Drillpipes	24.00
Diverter	0.50
Misc D.String Equip	1.50
Special Service Equip	90.50
Subs and Lift plugs	2.00
Top Drive	7.50
Vertical Pipe Hndl sys	1.00

Equipment failure Overview

WELL	DATE	REP #	HRS	DEPTH	DESCRIPTION-ACTIVITY
Vertical Pipe Hndl sys	05.02.2002	3	1.00	0.00	Rig Repair: Trouble shoot Iron Rougneck and found i solenoid valve hanging up. Repaired same.
Top Drive	08.02.2002	6	1.50	309.00	Serviced rig. Checked Top drive for loose connections. Found worn roller bearing on BOP actuator, replaced same.
Misc D.String Equip	10.02.2002	8	1.50	916.00	Got fluctuating pump pressure. Dropped to max 7 bars and than back to normal. ECD increased to max 2.2 Sg. Flow checked with Rov. Well static. Swept 5m ³ and 15m ³ Hi-Vis with Seawater between whilst evaluated Anadrill's ECD signals. Rotated and reciprocated string. Attempted to flush through MWD with 3300 lpm SW, tool still not sending correct values.
Special Service Equip	21.02.2002	19	0.50	1,300.00	POOH to 320m.
Special Service Equip	21.02.2002	19	1.50	1,300.00	Dropped ball and installed pump-in sub and cement hose. Positioned retainer @ 545m and sheared ball seat @95 bar. Unable to build pressure further to initiate setting sequence.
Special Service Equip	21.02.2002	19	2.50	1,300.00	Made up bullnose and ran in with same on 5 1/2" drill pipe to verify position/integrity of retainer. Lowered 2 armed guideframe down to wellhead and stabbed in. Tagged cement retainer @ 550m and pushed down same with 5 tons to 580m.
Top Drive	06.03.2002	32	3.50	1,963.00	Rig Repair; Unable to assign electric motor on Top Drive, Trouble shoot and found signal from oil temperature sensor not correct. By passed sensor.
Downhole Drill tools	08.03.2002	34	1.00	2,341.00	Troubleshoot MWD tool.
Downhole Drill tools	08.03.2002	34	1.00	2,369.00	Drilled one stand from 2341m to 2369 while continued to troubleshoot MWD tool.

Subs and Lift plugs	09.03.2002	35	2.00	2,369.00	Attempted to engage retrieving string into Hang-Off Tool, no go. POOH and inspected string. Observed diameter of 4 1/2" IF X-over to big (7 1/8") to enter into Hang-Off Tool. Changed out X-over with 5" drill pipe pup joint and RIH. Engaged retrieving string OK.
Downhole Drill tools	09.03.2002	35	2.50	2,369.00	RIH to 2223m.
Special Service Equip	13.03.2002	39	0.50	2,696.00	Experienced sudden pressure increase to 75 bar. Stopped pumps. Moved string up and down while troubleshooting. Found dart un-intentionally launched from remote operated cement head. Hydraulic leak on control system allowed internal pressure on DP from circulation to activate dart launcher. Not able to perform primary cementing due to dart/plug blocking the casing.
Special Service Equip	13.03.2002	39	0.50	2,696.00	Flowchecked, pump slug and re-arranged stands in derrick.
Special Service Equip	13.03.2002	39	0.50	2,696.00	POOH to 1800m.
Special Service Equip	13.03.2002	39	1.00	2,696.00	Pulled into shoe and circulated bottoms up, 4000 lpm, 288 bar.
Special Service Equip	13.03.2002	39	1.00	2,696.00	Rigged down casing tong and associated equipment. Changed to 5 1/2" saver sub and BX elevator inserts. Cleared rig floor.
Special Service Equip	13.03.2002	39	1.00	2,696.00	Racked back cement stand. Performed several attempts to land casing, hung up in the BOP. Adjusted rig position and landed casing. Verified correct landing depth with index line.
Special Service Equip	13.03.2002	39	1.50	2,696.00	Tagged plugs/float and drilled out same. Washed down shoe track and drilled out shoe. Reamed down through rat hole and tagged 4m fill @ 2691m. Reamed through shoe several times and washed/reamed rathole clean of fill to 2695m.
Special Service Equip	13.03.2002	39	4.00	2,696.00	Released casing hanger running tool by 3 right-hand turns. POOH with running tool and pack-off. Racked running tool. Inspected cement head and laid down same.

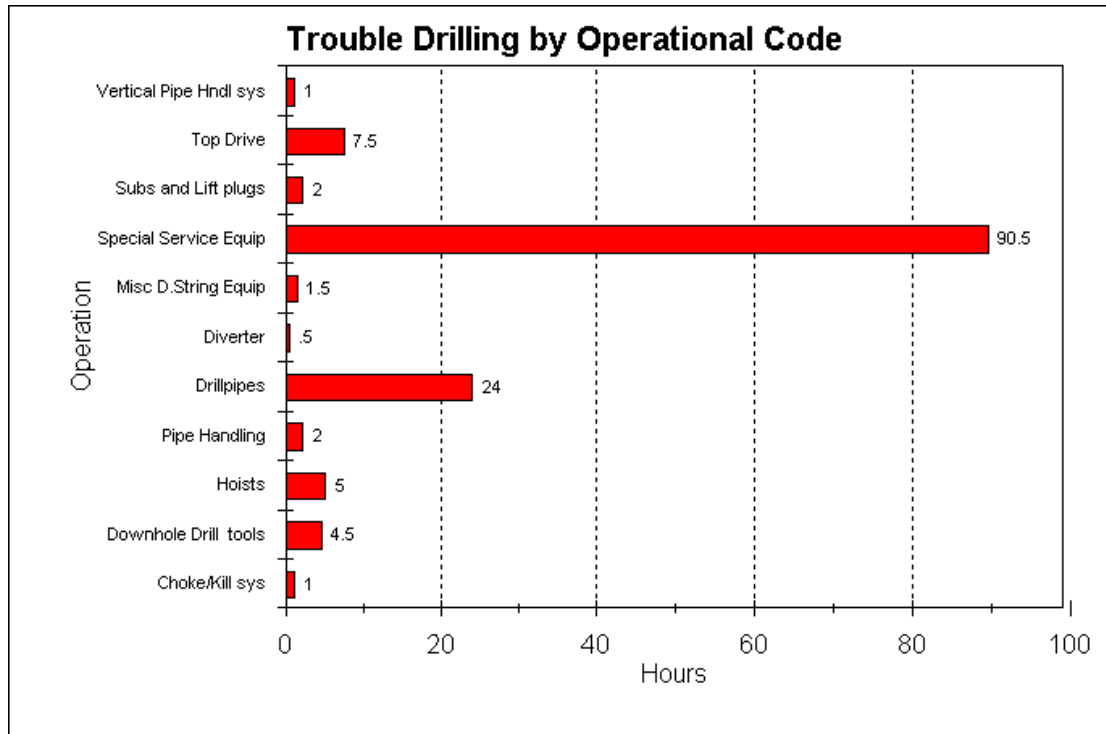
Special Service Equip	13.03.2002	39	8.00	2,696.00	Picked up 8 1/2" BHA and RIH.
Special Service Equip	14.03.2002	40	0.50	2,696.00	Broke circulation in steps up to 1000 lpm and recorded pressures. Verified circulation outside casing. Circulated bottoms up @ 1000 lpm/67 bar, no losses.
Special Service Equip	14.03.2002	40	0.50	2,696.00	Made up cement stand with pump-in sub and kelly cock and racked same.
Special Service Equip	14.03.2002	40	0.50	2,696.00	Redressed CT-tool without fill-up sub and made up same.
Special Service Equip	14.03.2002	40	0.50	2,696.00	Stinged into retainer, set down 20 tons and attempted to break circulation with 100 bar, no go (pumped 130 ltrs, indicating retainer sleeve not opened). Pulled out of retainer with 5 tons overpull and repeated sequence and opened retainer sleeve with 100 bar.
Special Service Equip	14.03.2002	40	1.00	2,696.00	Attempted to break circulation above retainer. Increased pressure up to 345 bar, no go due to stinger being blocked.
Special Service Equip	14.03.2002	40	1.00	2,696.00	Broke out cement stinger CT-tool, found fill-up sub blocked with solids and rubber particles.
Special Service Equip	14.03.2002	40	1.00	2,696.00	Dropped ball and made up cement stand. Chased ball down with 300 lpm/24 bar. Positioned retainer @ 2645m and set same with 245 bar. Picked up stinger 4m.
Special Service Equip	14.03.2002	40	1.50	2,696.00	Circulated one casing volume @ 1000 lpm/55 bar, while running one pump on booster line.
Special Service Equip	14.03.2002	40	3.50	2,696.00	RIH with CT-tool, broke circulation @ 1000m, 2000m and 2640m and recorded pressures to verify stinger open.
Special Service Equip	14.03.2002	40	3.50	2,696.00	Continued to POOH. Flowchecked below BOP. Racked BHA and laid down bit/stabs on cat walk.
Special Service Equip	14.03.2002	40	4.00	2,696.00	Racked cement stand and POOH.
Special Service Equip	14.03.2002	40	6.50	2,696.00	Made up cement retainer and RIH to 2633m. Opened compensator when running through BOP/wellhead.
Pipe Handling	15.03.2002	41	0.50	2,696.00	Repaired Iron Rougneck, changed broken solenoid valve.

Pipe Handling	15.03.2002	41	0.50	2,696.00	Repaired Iron Rougneck, changed broken hydraulic hose.
Special Service Equip	15.03.2002	41	0.50	2,696.00	Closed upper pipe ram and attempted to re-test seal assy, no go.
Special Service Equip	15.03.2002	41	0.50	2,696.00	Displaced cement down to retainer with 26.9 m ³ 1.32sg mud using rig pumps @ 1000 lpm. Observed steady pressure increase after pumping approx 18 m ³ , indicating cement coming up on the outside. No losses observed during the displacement.
Special Service Equip	15.03.2002	41	0.50	2,696.00	POOH and inspected running tool. Observed ruptured O-ring.
Special Service Equip	15.03.2002	41	0.50	2,696.00	Pulled out 1 stand to 2604m and flushed pipe clean with 60m ³ 1.32sg mud @ 2400 lpm.
Special Service Equip	15.03.2002	41	0.50	2,696.00	Pulled out of retainer (15 ton overpull required to release from retainer). Pressure bled off and no subsequent pressure build up, confirming integrity of retainer. Dumped 0.5 m ³ cement on top. Racked back cement stand.
Special Service Equip	15.03.2002	41	0.50	2,696.00	Pumped 10m ³ fresh water spacer with rig pumps @ 1000 lpm. Lined up to cement unit and pressure tested against low torque valve on cement stand to 345 bar.
Special Service Equip	15.03.2002	41	0.50	2,696.00	Released running tool with 30 ton overpull. Set down same including string weight.
Special Service Equip	15.03.2002	41	1.00	2,696.00	Mixed and pumped 18.4 m ³ 1.56 sg lead slurry and 12.7 m ³ 1.90sg tail slurry @ 900 lpm. Displaced same to rig floor with 200 ltrs.
Special Service Equip	15.03.2002	41	1.00	2,696.00	POOH and laid down mill and flush tool.
Special Service Equip	15.03.2002	41	1.50	2,696.00	Continued to circulate bottoms up @ 1000 lpm/67 bar, no losses. Meanwhile run one pump on booster line.

Special Service Equip	15.03.2002	41	1.50	2,696.00	Laid down casing hanger running tool. Attempted to release seal assy from tool, no go. Laid down cement stand. Meanwhile tested casing against shear ram to 345 bar (pumped 1200 ltrs).
Special Service Equip	15.03.2002	41	2.00	2,696.00	Continued to POOH and laid down CT-tool.
Special Service Equip	15.03.2002	41	2.00	2,696.00	Flowchecked and POOH to 1260m.
Special Service Equip	15.03.2002	41	2.00	2,696.00	Made up seal assembly running/retrieval tool and RIH with same. Set set seal assembly by setting down landing string weight and pressure up same against middle pipe ram (MPR) to 180 bar. Tested seal assy and MPR to 345 bar.
Special Service Equip	15.03.2002	41	2.50	2,696.00	RIH with mill and flush tool. Washed down last 2 meters, set down 1 ton and worked tool.
Special Service Equip	15.03.2002	41	3.00	2,696.00	Made up multi purpose tool with cup tester and RIH with 9 5/8" wear bushing. Landed same, set down 9 ton, re-tested seal assy to 175 bar and pulled free with 12 ton overpull. POOH and laid down multi purpose tool.
Pipe Handling	16.03.2002	42	1.00	2,696.00	Continued to repair Iron Rougneck, changed broken solenoid valve.
Special Service Equip	16.03.2002	42	1.50	2,696.00	RIH with 25 stand 5 1/2" drill pipe with protectors.
Hoists	16.03.2002	42	5.00	2,696.00	Repaired draw work low clutch, changed diaphragm. Meanwhile adjusted top drive RPM sensor. Changed gear oil on top drive.
Special Service Equip	16.03.2002	42	5.00	2,696.00	Made up cement retainer milling BHA. Picked up 12 joints 5" HWDP and RIH to 1450m.
Special Service Equip	16.03.2002	42	5.00	2,696.00	POOH while disconnecting protectors. Experienced problems to release several of the protectors. Used disc cutter on stuck bolts.

Drillpipes	17.03.2002	43	0.50	2,696.00	Circulated off bottom with steady pump pressure. Continued milling. Twisted off drill string in the BOP. Lost 80 ton of total 120 ton (Martin Decker) string weight and pump pressure.
Drillpipes	17.03.2002	43	0.50	2,696.00	Checked drilling line on top drive and crown block due to DDM jumping when string parted.
Special Service Equip	17.03.2002	43	0.50	2,696.00	Pressure tested surface equipment, OK.
Drillpipes	17.03.2002	43	1.00	2,696.00	POOH, found string parted @ 237m (between upper and lower annular).
Drillpipes	17.03.2002	43	1.00	2,696.00	RIH to top of fish. Entered fish with 500lpm, 10 rpm until pressure increased. Stopped pumps and rotation, set down 10 tons and engaged fish. Pulled fish with 130 tons (Martin Decker), no overpull.
Drillpipes	17.03.2002	43	2.50	2,696.00	POOH with fish, laid down fishing BHA.
Special Service Equip	17.03.2002	43	2.50	2,696.00	Continued to RIH with retainer milling BHA. Washed down last stand and tagged cement @ 2639m.
Drillpipes	17.03.2002	43	3.00	2,696.00	Made up fishing BHA with 8 3/8" overshot and 5 1/2" basket grapple.
Drillpipes	17.03.2002	43	3.50	2,696.00	Flowchecked and pumped slug. POOH with string from 2528m to 300m.
Special Service Equip	17.03.2002	43	8.00	2,696.00	Washed down and drilled firm cement from 2639m to 2645. Milled on retainer from 2645m to 2646m. Parameters: 100 rpm, WOB 3- 10 ton, 2000-3500 lpm, 180 bar. Observed falling pump pressure.
Drillpipes	18.03.2002	44	1.00	2,696.00	Function and pressure tested upper and lower annular to 15/345bar, OK.
Drillpipes	18.03.2002	44	1.00	2,696.00	POOH and laid down BOP Isolation Test Tool.

Drillpipes	18.03.2002	44	1.50	2,696.00	Continued to POOH with string from 300m. Broke out junk mill.
Drillpipes	18.03.2002	44	1.50	2,696.00	RIH with BOP Isolation Test Tool with 1 stand 6 1/2" Drill Collars and jet sub below. Drifted BOP with tool to verify rams and annulars fully retracted. No obstructions seen when landing the tool.
Special Service Equip	18.03.2002	44	1.50	2,696.00	Drilled cement retainer, 2000lpm, 118 bar, 70 rpm, 8-10 ton WOB. Off bottom torque 4kft#. Observed fluctuating string torque (2-15kft#) with WOB above ca. 7 tons.
Drillpipes	18.03.2002	44	7.00	2,696.00	Made up 8 1/2" BHA with junk bit for milling retainer and cement. RIH, washed down last stand.
Top Drive	22.03.2002	48	1.00	2,886.00	Repaired rig; Replaced broken bearings on Top Drive IBOP actuator arm. Circulated with 1500 lpm during repair.
Top Drive	23.03.2002	49	1.00	3,070.00	Repaired rig; Repaired Top drive, IBOP actuator arm.
Top Drive	25.03.2002	51	0.50	3,366.00	Made up guide-wire and block to guide Top Drive service loop in order to avoid interference with BX elevator.
Diverter	30.03.2002	56	0.50	295.00	Odfjell pressure tested diverter. Rig on "0" rate
Choke/Kill sys	30.03.2002	56	1.00	295.00	Odfjell continued test on Kill/Choke lines to 1035 bar, both failed test. Rig on "0" rate.





4.12 Well Time Analysis

Time Analysis Overview

Well : 35/3-6
 Drilling Co : ODFJELL DRILLING AS
 Rig : DEEPSEA BERGEN
 TD Depth : 3,366.0 mdbrt
 Water depth: 225.0 m
 RKB to MSL 23.0 m
 Operations Start : 1530 hrs 03-02-02 (rig move)
 Spud : 1130 hrs 06.02.02
 Operations stop: 1830 hrs 01-04-02
 Total Time (hrs) - Start Ops/Release: 1,371.00 hrs - 57.13 days
 Total Time – operation start to Release : 1,371.00 hrs - 57.13 days*

Total NPT (hrs) : 628.00 hrs - 26.17 days

Trouble Free Time 743.00 hrs - 30.96 days

* Due to contractual start definitions, an additional 1.67 days need to be added to the operational times, giving 58.8 days contractual days.

Time-Breakdown : Times by Class and Operation

Operations of < than 2 hrs

Class	Hrs
OK – Trouble Free	743.0
Operations Fail -NPT	461.5
	153.0
Equipment fail - NPT	13.5

Operation (including NPT)	Hrs
Other	395.5
Drill	224.0
Trip	155.0
Casing	106.5
Waiting on Weather	95.0
Hole Open	43.0
BOP Activities	36.5
Anchoring	33.5
Log	32.5
BOP/WellHead	31.0
Cmt Plug	30.0
Maintain	26.5
Fish	23.5
Repair	20.5
Circulate	20.5
Cut	18.5
Mill	17.5
Transit	15.5
Press Detection	15.5
Equip recovery	12.5
Position	6.5
Mechanical Plug	5.5
Ream	3.5
RFT/fit	1.0
Survey	1.0
Rig Up/Down	.5
TOTAL WELL TIME HOURS.	1371
TOTAL WELL TIME DAYS	57.13

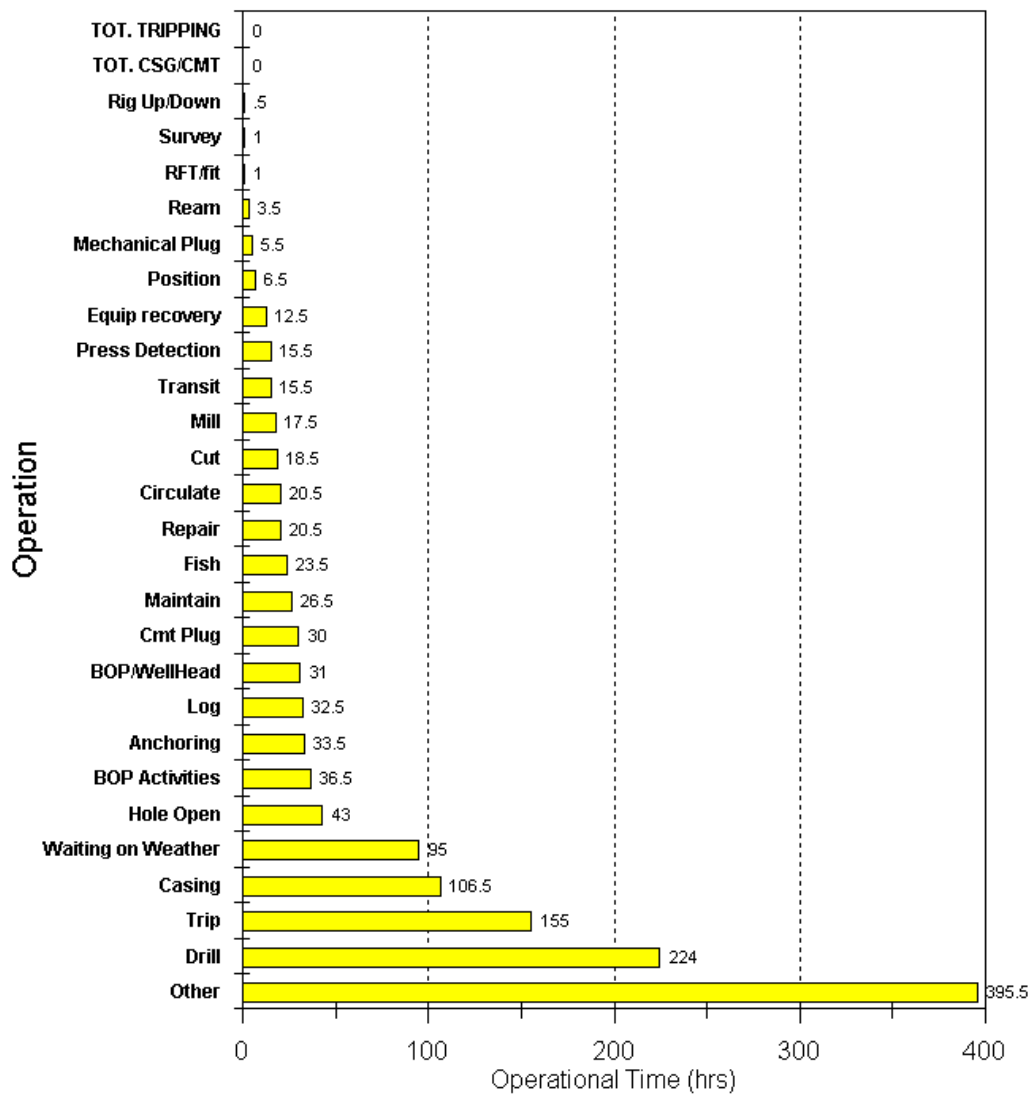


AKER ENERGY AS

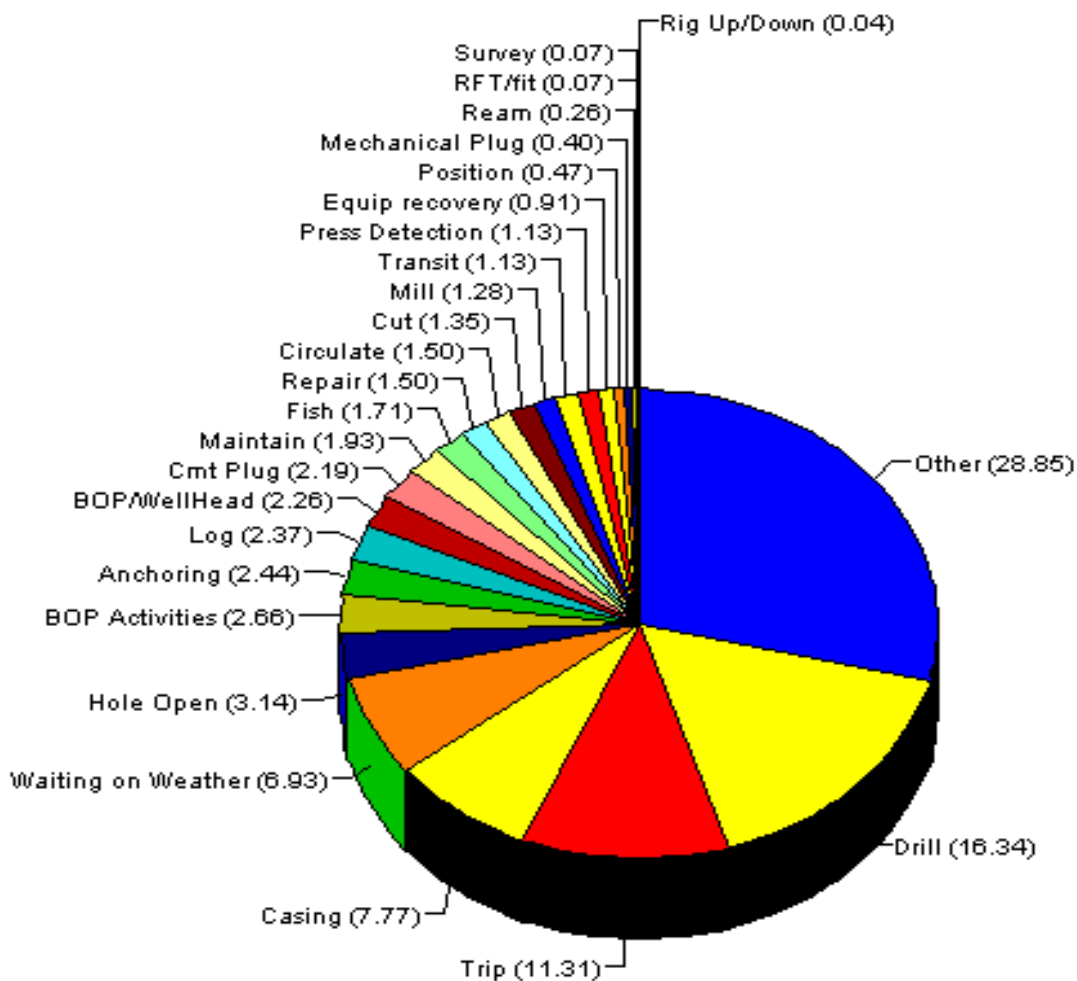
PL 270, Well 35/3-6
FINAL WELL REPORT
Operational Summary and Data



Time Breakdown by Operational Code



Time Analysis by Operational Codes



Note. The operational codes are defined as per the NPD reporting system. When there is not a available category available for use the code “Other” is used.

The breakdown of the “other” category below is as follows;

Associated Water flow operations	269
Associated MWD problems	20
Remedial work, 13 3/8” premature dart release	58
Drill pipe wear leading up to LMRP retrieval	33
Flow checks/pressure tests/miscellaneous ops	15.5

TOTAL “Other” Time breakdown 395.5 hours

Operations including NPT	hrs
Other	395.5
Drill	224.0
Trip	155.0
Casing	106.5
Waiting on Weather	95.0
Hole Open	43.0
BOP Activities	36.5
Anchoring	33.5
Log	32.5
BOP/WellHead	31.0
Cmt Plug	30.0
Maintain	26.5
Fish	23.5
Repair	20.5
Circulate	20.5
Cut	18.5
Mill	17.5
Transit	15.5
Press Detection	15.5
Equip recovery	12.5
Position	6.5
Mechanical Plug	5.5
Ream	3.5
RFT/fit	1.0
Survey	1.0
Rig Up/Down	0.5
TOTAL WELL TIME HOURS.	1371
TOTAL WELL TIME DAYS	57.13

4.13 Environmental Discharge Summary

A detailed environmental report has been issued and submitted to SFT 30 May 2002. Ref.no: PL270/580-1.42. *Rapportering av operasjonelle og akutte utslipp til luft og vann fra leteboring på 35/3-6.*

A highlight summary of this report is listed below :

Environmentally Friendly Operation

No particular environmental sensitivities in the area

Drilling fluid: conventional seawater/bentonite/polymer/Glydril mud

- Drill cuttings: approx. 1200 tonnes discharged to sea
- 3381 m³ mud used, 240 m³ mud delivered ashore, 411 m³ remaining in hole
- 2700 m³ mud discharged to sea (incl. seawater)
- 860 tonnes of chemicals discharged to sea
- 96 weight% PLONOR chemicals (pose little or no risk to the environment; OSPAR)
- Weighting material (barite/bentonite) constituted 508 tonnes of the discharged quantity
- 0,90 tonne "Yellow" chemicals (drilling mud chemicals; Glydril/Hibtrol)
- 0,06 tonne "Red" chemicals (Microcit 120 M, Bestolife 3000, drilling mud chemicals)
- 0,01 tonne "Black" chemicals (dope grease; Bestolife 2000 NM, Copr Cote)
- 35,4 tonnes "Other" chemicals discharged

Discharge to sea above SFT discharge permit:

BOP-fluid (Stack Magic): ca. 50 litres ("Red" chemical)

Glydril: ca. 9,3 m³ ("Yellow chemical")

Hibtrol: ca.16 kg ("Yellow chemical")

Excess use explained by well problems / longer operational period

NB: no limits given by SFT for PLONOR chemicals

- "Non-conformance" to SFT discharge permit requirements:
No substitution plans in place for all chemicals (dope grease and BOP fluid)
- Important achievements:
LAS (liquid additive system) for mixing of cementing chemicals significantly reduced discharge quantities

The tabel below presents the total consumption and discharges of chemicals used during drilling operation.

ID-Nr	Funksjon	Forbruk [tonn]	Utslipp [tonn]	Injisert (tonn)
4	Skumdemper	0,8	0,1	0
9	Frostvæske	5,1	5,1	0
10	Hydraulikkvæske (inkl. BOP væske)	0,7	0,6	0
11	pH regulerende kjemikalier	1,6	1,2	0
14	Fargestoff	0,007	0	0
16	Vektstoffer og uorg. kjemikalier	654,3	508,1	0
17	Kjemikalier for å hindre tapt sirkulasjon	8,0	7,1	0
18	Viskositetsendrende kjemikalier	224,4	191,9	0
19	Dispergeringsmidler	0,3	0,1	0
23	Gjengefett	0,2	0,03	0
25	Sementeringskjemikalier	357,4	27,5	0
27	Vaske- og rensemidler	3,6	2,7	0
37	Andre	215,6	116,2	0
Sum		1472	860	0

Drilling with water based mud

Brønn	Seksjon		Borevæske type	Teoretisk Hullvolum ¹⁾ [m ³]	Faktor ²⁾ [tonn/m ³]	Utboret Masse ³⁾ [tonn]	Forbruk av borevæske [m ³]	Utslipp av borevæske ⁴⁾			Borevæske-Utslipp ⁶⁾ [m ³ /m hull]
	dia-meter ["]	lengde [m]						Volum [m ³]	Tetthet [g/cm ³]	Masse ⁵⁾ [tonn]	
35/3-6	36"	61	Sjøvann/bentonitt ⁷⁾	40	3,6	144	95	95	1,03	98	1,56
35/3-6	17,5"	991	Sjøvann/bentonitt/polymer ⁷⁾	154	3,6	554	2404	2122	1,20	2546	2,14
35/3-6	12,25"	1395	Glydril	106	3,6	382	417	375	1,32	495	0,27
35/3-6	8,5"	671	Glydril	25	3,6	88	465	140	1,32	185	0,21
Sum	-	3118	-	325	-	1168	3381	3732	-	3324	-

1) Teoretisk hullvolum betyr hull volumet beregnet fra borekronens størrelse og seksjonslengden

2) Faktor som gir tonn utboret stein (borekaks) per m3 (faktor estimeres av operatøren)

3) Tonn kaks teoretisk hull multiplisert med faktor

4) Borevæske utslipp basert på massebalanse over seksjonen

5) Tonn borevæske sluppet ut: slamvolum multiplisert med tetthet

6) Borevæskeforbruk: utslipp av borevæske per boret meter. Et mål for slamforbruket og dermed "effektiviteten".

7) Boret uten bruk av lukket borevæskesystem, dvs. utslipp direkte til sjø.

5 LESSONS LEARNED

Report No.	Description of Event	Consequences of Event	Lost / Gained Rig Time
1	When the equipment from Drilquip were inspected on the Deepsea Bergen, it was observed that the 30" wellhead running tool with a 5" handling tool on top had not been made up to the primary 30" wellhead housing joint.	Could possibly have led to non productive time while running the 30" conductor.	None
2	On the pre-made up 26" drill-out assembly, the 26" bit had, for some unknown reason, not been made up.	Have to use rig time and manual rig tongs for torquing the 26" bit up.	-½ hrs
3	We had planned on using 3 AHTS vessels for the rig move / anchoring. Norsk Hydro did however take one of the subleased vessels back during tow, and as a contingency, we decided to charter a replacement vessel (Pacific Blade) which was delivered from Aberdeen 04.02 at 10.45 hrs. The vessel did not arrive in time to participate in the rig move, and we planned to use the vessel as spud vessel from Florø. It did during the afternoon however appear that the vessel did not have sufficient deadweight for the cargo requirement, and the vessel was turned around for redelivery in Aberdeen and a substitute vessel used for the cargo run.	Additional cost for AHTS vessel – two vessels did the job	None
4	When drilling 36" hole, a boulder bed was experienced from 270m to 275 m RKB. (22 m to 27 m below seabed). This led to hole inclination going up from 1 degrees at 263 m to 3.5° at 290 m.	Had to ream hole 5-6 times and had to move rig to get an acceptable PGB bullseye reading. Also, had to increase WOC time from 8 hrs to 12 hrs to ensure bullseye inclination steady.	-6 hrs
5	When 30" casing was landed, the two PGB bullseyes were both reading 3 degrees. This was not acceptable for cementing the casing.	Use of rig time to straighten up PGB.	-1 hr
6	On the 30" cementing job, 4 joints of fibreglass stinger, a x-over from fibreglass tinger to 4 ½" IF and a full single of 5" drill pipe was used as the cement inner stinger.	If cement displacement is slightly wrong, does not loose well (as with normal drill pipe stinger) as the fibreglass stinger can very easily be drilled out.	None



AKER ENERGY AS

PL 270, Well 35/3-6
FINAL WELL REPORT
Lessons Learned



7	When RIH with 26" BHA, it was observed that guide wires were tangled up.	Had to disconnect guide wires and rerun.	-1 hr
8	In order to displace the bottom of the 9 7/8" hole and 17 1/2" hole to KCl polymer mud with glycol, the intentions were to get out mud that basically could be put directly into a pit and pumped down-hole. However, the mud weight (intended at or close to 1.2 sg) was 1.6 sg when the mud was taken onboard.	Problems to de-weight mud with brine due to potassium content getting so high that one could dry out the formation. Had to de-weight the mud with a combination of water and brine. This reduced the glycol content from 5% to about 3%.	None
9	When drilling 9 7/8" pilot hole at 983 m, the PWD sensor first failed and then the resistivity sensor on the MWD/CDR tool failed and necessitated a bit trip to change the CDR tool and the MWD tool.	Lost rig time. Longer hole exposure before running casing.	-8 1/2 hrs
10	When drilling 9 7/8" pilot hole at about 930 m, the PWD stopped working.	No ECD data on drillers screen	-1 1/2 hrs
11	When drilling the 9 7/8" pilot hole, the 8" drilling jar several times hit when running and when circulating at TD, without being set first. Hence, the tool was laid out and the back up tool picked up when RIH with 17 1/2" hole opener	Used 1/2 rig time to lay out and pick up new jar. Had to mobilize new back up jar from beach.	-1/2 hrs
12	When making up the joints of 13 3/8" casing with no-cross couplings, it was experienced that it was very difficult to tell when the casing thread shouldered out and was fully made up. The main reason for this is that the triangle on the pin end is not showing due to being swallowed by the no-cross coupling.	Used rig time to check with the expertise what should be the proper make up criteria.	-1 hr
13	When getting ready to run the 13 3/8" casing, the Odfjell BX-elevator did not function (problems with hydraulic steering signals) and when starting to run the casing, there was a malfunction on the Odfjell Services supplied power pack.	Lost a little rig time. With regards to the BX-elevator, had to use manual 350 MT side door elevator instead.	-1/2 hrs
14	When stabbing the 13 3/8" shoe into the 30" wellhead, the visibility was very poor and approximately 1 1/2 hours was spent positioning the rig and "blind stabbing" the casing before the shoe finally entered the well bore.	Lost 1 hr rig time. Possibilities of damaging equipment on the PGB (bullseyes) or alternatively the 13 3/8" shoe	-1 hr
15	After pumping spacer and dropping the ball, the cement unit A/R engine stopped due to Engine protection system failure.	Delayed cement job seeking for fail on A/R engine. Backup system have lower pumping rate. Because of the large	-1/2 hrs



PL 270, Well 35/3-6
FINAL WELL REPORT
Lessons Learned



		cement volumes involved (125 +20m ³) and low thickening time of the tail (3.5 hrs), it was decided to spend time fixing the problem prior to start mixing/pumping the cement..	
16	The Drilquip supplied pup joint of 5" was 0.6m rather than the specified 6m (!) length that was specified from Drilquip. This would make it difficult to test the BOP , hence rig time had to be used in order to lay out 0.6m pup and replace with a single of drill pipe.	Lost rig time.	-1 hr
17	When making up the 13 3/8" casing patch assembly, it was observed on the rig floor that the uppermost sub (the top sub), which supposedly had been pre-made up in town, was not made up.	Lost rig time. Could have caused major downtime if not spotted on rig floor.	-¼ hrs
18	To rectify the fact that the integrity of the 13 3/8" casing had been lost after perforating the casing from 568.0 to 568.6m in order to kill the water flow, a 13 3/8" casing patch was installed and tested. The operation was a success and gave us the casing integrity back in addition to allow us to carry on the operation almost according to the original plan (not able to run 12 ¼" BHA through patch).	Got full casing integrity back. Possible to carry on without setting 9 5/8" casing high.	None
19	Mudloggings Gas trap gives low total gas percentage readings of gas in the mud. When dropping carbide tests the percentage values after circulating around the carbide was only 0.2% over a background gas of 0.02%. Would have expected at least 2-3%.	With low Total gas readings the gas composition from the Sperry –Sun chromatograph will be incorrect. With low total gas readings C4 values as high as C1 was observed and this is nonsense. Use of gas composition could then not be utilized with certainty to determine e.g. HC or water wet reservoir.	None
20	When RIH to retrieve the hang-off tool, it was not possible to enter the taper to screw into the 4 ½" box to retrieve the string .	Had to pull out and run sub with less OD. Used 1 hr extra rig time.	-1 hr
21	When RIH to hang off string, it was sen that the HOT had 5" OD on body. This is OK, but not ideal as it leaves out the option of closing the MPR around the pipe after hanging off. If the UPR is closed, problems with tool-joint in the rams. Has to close the LPR which is not ideal since it has no outlet underneath.	Nothing really, but should get out 5 ½" tool that allows us to close MPR that has a 5 ½" fixed ram installed.	None
22	When drilling at 2341m, the MWD tool stopped working. Tried to drill one stand while troubleshooting	Loss of rig time due to roundtrip out to	-5 hrs



AKER ENERGY AS

PL 270, Well 35/3-6
FINAL WELL REPORT
Lessons Learned



	tool, no success to restart tool. At 2369m, stop drilling and roundtrip to change out tool.	change to new tool.	
23	After being pulled, the 18 3/4" extended wearbushing was inspected on the inside to check for wear. Wearmarks were found on one side, but no keyseating marks were observed.	Marks showed that pipe at some pipe has laid against one side of the wearbushing, but the lack of keyseating marks tells us that the deviation (1.5 deg at the PGB) has not given us a major wear problem with the tool joints keyseating against the wearbushing and flexjoint.	None
24	The 12 1/4" hole section was drilled utilizing bi-center bits (2 ea). This was, all in all, a positive experience as the 9 5/8" casing was run without any hole related problems, hence indicating that a close to full gauge hole has been drilled with the bi-center bit set-up.	Saved approximately 2 days of rig time due to not having to drill an 8 1/2" pilot hole and then underream same to 12 1/4".	None
25	After making up the cement stand and running in to land off the 9 5/8" casing, the pumps were started in order to land the casing with the pumps on. At this point the pressure increased rapidly from 10 bar to 70 bar and pressure was apparently trapped. After troubleshooting, it was realized that the cement dart had been released unintentionally. After landing the casing and releasing and retrieving the running tool, it was observed that the cementing plugs had sheared and was somewhere in the well.	Not able to cement the 9 5/8" casing the normal way. Lost rig time.	ca - 36 hrs
26	Efficient drilling of the cement plugs, float & shoe, prior to cementing the 9 5/8" casing. The plugs/float/shoe had to be drilled out prior to cementing the casing, due to the dart being launched un-intentionally prior to the cement job (ref ERF 25).	Expected long duration of this operation due to the plugs rotating and not being supported by cement. The operation went very smooth, plugs+ float drilled in 25 min, shoe drilled in 12 min.	None
27	In the official survey listing from Anadrill, a survey taken @ 299 m, inside the 30" conductor (shoe @ 309 m), was included. Down to the next survey point, an apparent change in azimuth of 110°, gave an apparent local dogleg of 4.5°/30 m. Due to the fact that the survey was taken inside the casing, the azimuth measurement could not be trusted (magnetic interference), and thus the survey point should not have been included as an official survey measurement	<ul style="list-style-type: none"> • During a later twist off this local wrongly interpreted dogleg caused confusion regarding possible causes. • This dogleg was used as a basis for calculations related to use of drill pipe 	None

		<p>protectors, and possibly causing and over-estimation of the sideways forces in this area and an over-design of the protector placement.</p> <ul style="list-style-type: none"> By disregarding this survey the well path was shifted 3.2m south & 1.3m east. 	
28	During milling of 9 5/8" cement retainer, the drill string twisted off inside the BOP, @ 237mRKB between the Upper and the Lower Annular Preventer.	Retrieved the upper part of the string. RIH with fishing BHA with a 8 3/8" overshot with a 5 1/2" basket grapple and fished the string. There was no suitable lip guide available on the rig, but managed to enter the fish with the 8 3/8" overshot inside the 18 3/4" bore on the first attempt.	ca -20 hrs
29	When POOH after cleaning out the 9 5/8" casing shoe track and performing FIT, all the 5 1/2" DP that had been rotating inside the BOP was found to have scratch marks and to be heavily polished.	Lost rig time	-64 1/2 hrs
30	A 5" hang off tool (HOT) was supplied to the rig, made up and racked in the derrick. 5 1/2" HOT was specified in the HSG and check list. 2 hours of rig time was used to change HOT's. The 5 1/2" HOT proved to have too short space out between upper donut and MPR, only 6 cm. A 7 5/8" REG space out sub was therefore ordered out by ODAS based on input from DrilQuip rig eng. However, the connection on the HOT spacer proved to be 6 5/8 FH. 0,5 hrs rig time was used to find out that (no drawings with thread connection supplied by Dril-Quip). The correct 6 5/8 FH spacer sub was finally sent out and made up to the HOT, 0,5 hrs rig time lost.	Lost rig time	-3 hrs
31	Water flow was observed from outside of the 30" casing coming up underneath the PGB. The flow was detected ca 2 days after cementing the 13 3/8" surface casing (WOW for running BOP).	ca 2,5 week of lost rig time	ca. -2 1/2 weeks

6 SPECIAL REPORTS

6.1 Shallow Water-Flow Report

The report (ref.: PL270/428.0-6.341) describes the sequence of events relating to the occurrence and effectively stopping a water-flow from the Utsira Formation on the outside of a cemented 13 3/8" casing and to the seabed.

The report also summarizes relevant information and data recorded and provides explanations and discussions to why this water-flow occurred.

A recommendation for improved exploration well design is also provided.



7 APPENDICES

7.1 Appendix 1: Activity Repots

WELL : 35/3-6
Drilling Co : ODFJELL DRILLING AS
Rig : DEEPSEA BERGEN

Date : 03 feb, 2002 **NOK 33,987,884** **Report Number : 1**

Depth	Phase	Cls	Op	R.C.	Hrs	Activity
0	MOV	P	BTR	P	2.50	RIG STARTED TIGHT TOW FROM COAST CENTRE BASE, BERGEN TO RWE DEA LOCATION 35/3-6. AH VESSELS "TOR VIKING" AND "NORTH CRUSADER" IN TOWING BRIDLE. INVENTORY AT COMMENCEMENT OF OPERATIONS: "FAR SENIOR" FUEL: 507 M ³ , LUBE OIL: 2442 LTR, POT WATER: 350 M ³ . "TOR VIKING" FUEL: 465 M ³ , LUBE OIL: 19810 LTR, POT WATER: 206 M ³ . "NORTH CRUSADER" FUEL: 381 M ³ , LUBE OIL: 7798 LTR, POT WATER: 298 M ³ "STRIL LOS" FUEL: 69,3 M ³ , LUBE OIL: 1822 LTR, POT WATER 72 M ³ . "DEEPSEA BERGEN" FUEL: 407 M ³ , LUBE OIL: 3700 LTR, POT WATER 190 M ³ .
0	INT	TPO	XWO	TPO	6.00	STOPPED TOWING AT SOUTH EAST OF FEDJEJOSEN DUE TO UN-EXPECTED WEATHER FORECAST FOR TOWING ROUTE. TOWED DISTANCE: 20 NM. AWAIT WEATHER CONDITIONS FOR TOWING ROUTE TO IMPROVE.

Date : 04 feb, 2002 **NOK 1,960,927** **Report Number : 2**

Depth	Phase	Cls	Op	R.C.	Hrs	Activity
0	INT	TPO	XWO	TPO	6.00	Continued wait on weather to commence tow to 35/3-6 location.
0	INT	TPO	XWO	TPO	0.50	Continued waiting on weather inside Fedje.
0	MOV	P	BTR	P	13.00	Started tow from inside Fedje with AHTV Tor Viking and AHTV North Crusader in towing bridle. Deballasted rig to 11.5m draft and arrived 35/3-6 location at 1930 hrs. Total 96 NM towing distance.
0	MOV	P	BAN	P	4.00	Dropped anchor no 6 on btm 1937 hrs and approached location. Anchor # 2 on btm 22:07 hrs by Tor Viking Anchor # 9 on btm 22:12 hrs by Northern Crusader Anchor # 5 on btm 23:14 hrs by Tor Viking Anchor # 8 on btm 23:21 hrs by Northern Crusader Anchor handling vessels aborted operation due to deteriorating weather.
0	MOV	P	BAN	P	0.50	Started ballasting rig.



PL 270, Well 35/3-6 FINAL WELL REPORT
Appendices



Date : 05 feb, 2002

NOK 1,862,589

Report Number : 3

Depth	Phase	Cls	Op	R.C.	Hrs	Activity
0	MOV	P	BAN	P	5.00	Continued ballasting rig to operation draft at 22m.
0	INT	P	XWO	P	3.00	Wait on weather to run anchors. Meanwhile pre-tensioned anchors in stages up to 130 mt. No 5 anchor slipping. Continued WOW.
0	MOV	P	BAN	P	3.00	Commenced anchor handling: Anchor # 7 on btm 09:03 hrs by Northern Crusader Anchor # 3 on btm 09:09 hrs by Tor Viking Anchor # 4 on btm 10:23 hrs by Tor Viking Anchor # 5 on btm 10:35 hrs by Northern Crusader (reset of anchor)
0	MOV	P	BAN	P	6.50	Pre tension on all anchors to 130mt. Tensioned anchor #2 and #6 to 180mt and remaining anchors to min 170 mt in 15 min, ok. Positioned rig to spud position. All anchors tested with minimum of 1500m of chain deployed. Rig in position 22m in direction 270 degrees from the intended position.
0	DRI	P	ATR	P	2.00	Picked up new 5 1/2" DP and racked back in derrick. Drifted pipe.
0	INT	TPP	XRE	QVP	1.00	Rig Repair: Trouble shoot Iron Rougneck and found i solenoid valve hanging up. Repaired same.
0	DRI	P	ATR	P	3.50	Continued pick up tubulars for 36" and 17 1/2" section. Racked back total 45 stands of 5 1/2" DP and 4 stands of 5 1/2" HWDP. Started to pick up 5" Itag HWDP.

Date : 06 feb, 2002

NOK 2,577,942

Report Number : 4

Depth	Phase	Cls	Op	R.C.	Hrs	Activity
0	DRI	P	ATR	P	6.00	Continued pick up 5" Itag HWDP, total 7 stands. Made up cementing stand and 30" Cam acuated running tool on 5" Itag HWDP and racked back. Change to 3 1/2" handling equipment and picked up 2 stands 3 1/2" DP for grouting string. Made up 8x8"DC with jar.
0	DRI	P	ATR	P	0.50	Continued make up 8" DC and rack in derrick.
0	DRI	P	ATR	P	1.00	Cleared and cleaned drill floor. Prepared to pick up 36" drilling Bha.
0	DRI	P	ATR	P	3.50	Picked up 26"x 36" pre-made hole opener Bha with Anderdrift tool and function tested, Ok. Rih and tag seabed at 248 m.
0	DRI	P	BPO	P	0.50	Placed 3 reflector buoys and transmitter on seabed around well centre with ROV.
299	DRI	P	DHO	P	4.00	Spudded well at 1145 hrs. Set down 5 mt without circ and rotation-Competent seabed @ 250 m. Rotated with limited Rpm to 270 m. Max circ 2500 lpm. Drilled 36" hole to 299 m. Boulder bed from 270 to 275 m. Sweeping 5 m ³ hi-vis pill each single drilled. Survey at 263 m 1°.



PL 270, Well 35/3-6 FINAL WELL REPORT
Appendices



299	DRI	P	DHO	P	1.00	Obtained 3.5 dgr inclination on survey at 287 m. Reamed boulder section 270 to 275 m aggressively 5 times. Improved conditions and re-surveyed to 3°.
309	DRI	P	DHO	P	0.50	Drilled 36" hole from 299 m to 309 m. (17 1/2" hole to 313 m) 145 Rpm, 2-3Mt Wob.
309	DRI	P	DHO	P	1.00	Reamed from 290 m to 309 m 2 times and reduced inclination from 3,5° to 2,5°.
309	DRI	P	ATR	P	0.50	Performed wiper trip to 257 m. Rih to TD and had 2 m fill. No overpull or obstructions. Pumped away fill with slow rotation.
309	DRI	P	CIR	P	0.50	Swept 15 m ³ hi-vis mud around. Displaced hole to 1,2 Sg bentonite mud. Total pumped 33 m ³ .
309	DRI	P	ATR	P	2.00	Pooh with 36" Bha. Laid down Anderdrift and 26"x36" H/O assy to deck.
309	DRI	P	CIR	P	1.00	Rig up to run 30" Csg.
309	DRI	P	DCS	P	2.00	Run 30" csg to 62 m.

Date : 07 feb, 2002

NOK 2,950,969

Report Number : 5

Depth	Phase	Cls	Op	R.C.	Hrs	Activity
309	DRI	P	DCS	P	3.50	Made up false rotary and 5" handling gear. Ran 49m glassfiber stinger. Made up 30" CAM tool to 30" housing. Made up housing to PGB and Rih to splash zone. Filled csg with Sea water and closed ball valve.
309	DRI	P	DCS	P	1.50	Rih with 30" Csg on 5" Itag landing string to 246.6 m. Csg shoe at 309 m. Had to move rig 1 m against current to stab into hole. Observed 2,8° on bullseye.
309	DRI	P	DCS	P	1.00	Moved rig 30 m and got improvement to 1° on PGB.
309	DRI	P	DCS	P	0.50	Continued moved rig and alternated pull on Guide wires to improve PGB inclination. PGB remained 1 dgr.
309	DRI	P	DCS	P	2.50	Pumped 12 m ³ SW with 1300 lpm. Tested Cmt line to 100 bar. Pumped 3 m ³ SW and with dye and mica with Cmt pump. Pumped 23 m ³ lead and 15 m ³ tail slurry as per program. Observed dye cmt to seabed. Checked float, ok.
309	DRI	P	DCS	P	12.00	Wait on Cement. Maintained 1° on PGB with rig 30 m in 135° direction.
309	DRI	P	DCS	P	3.00	Moved rig to well center. Opened ball valve on CAM tool. Released CAM tool and had 25 mt overpull to retrieve cam tool out of 30" housing. Inclination on PGB 1 and 1.5°. Laid down CAM tool.



PL 270, Well 35/3-6 FINAL WELL REPORT
Appendices



Date : 08 feb, 2002

NOK 2,905,154

Report Number : 6

Depth	Phase	Cls	Op	R.C.	Hrs	Activity
309	DRI	P	DCS	P	1.50	Rigged up and laid down glassfiber stinger. Changed to 5 1/2" FH saver sub on Top drive. Laid down cmt stand.
309	DRI	THO	XOT	QTD	1.50	Serviced rig. Checked Top drive for loose connections. Found worn roller bearing on BOP actuator, replaced same.
309	DRI	THO	XOT	P	3.00	Made up 26" Bit. Rih and made up guide rope to guide wires. Continued make up clean out Bha to 235 m. Start moving rig towards well center.
309	DRI	P	BPO	P	2.50	Continued move rig to well centre. Found 2 guide ropes broken. Prepared to run guide frame. Adjusted rig to well centre and stabbed into wellhead with active heave compensator.
309	DRI	TPO	DBW	TPO	2.00	Found PGB turned 180°. Released guide line anchors ROV and retrieved lines to surface. Ran guide wires and stabbed in with ROV.
310	DRI	P	DRI	P	1.50	Rih and tag top cmt at 301 m. Drilled hard cmt from 301 m to shoe at 308.5 m. Rotated to 310 m. Work bit in shoe to clean out same. Swept 15 m ³ Hi-Vis mud around.
310	DRI	P	ATR	P	0.50	Pooh to above PGB.
310	DRI	P	BPO	P	1.00	Moved rig to safe position 20m off PGB.
310	DRI	P	ATR	P	1.50	Pooh and laid down 26" Bha to deck.
310	DRI	P	DCS	P	1.00	Made up running tool stand for 20"/13 3/8" Csg and rack back in derrick.
310	DRI	P	DCS		3.50	Picked up and made up 9 7/8" Bha and Rih. Made up guide ropes to guide wires. Rih to 130 m.
310	DRI	P	DSU	P	0.50	Tested MWD tool with 2000 lpm.
310	DRI	P	ATR	P	0.50	Rih to 211 m.
310	DRI	P	BPO	P	0.50	Moved rig to well centre.
310	DRI	P	ATR	P	0.50	Rih to above guide posts and stabbed into wellhead with active heave compensator.
310	DRI	P	XOT	P	0.50	Started circulation. Held shallow gas drill with involved personnel. Pumped 1 m ³ kill mud in 5 min. improved to 1,5 min second drill. Crew up the windlasses took 3,5 min.
340	DRI	P	DRI	P	2.00	Drilled 9 7/8" Pilot hole from 313 m to 340 m. Surveyed with mwd each stand. Worked rathole 2 times. Observed with ROV's sonar from Cage.



PL 270, Well 35/3-6 FINAL WELL REPORT
Appendices



Date : 09 feb, 2002

NOK 2,049,745

Report Number : 7

Depth	Phase	Cls	Op	R.C.	Hrs	Activity
468	DRI	P	DRI	P	6.00	Continued drilling from 340 m to 468 m. Reamed each stand. Pumped 2x5 m ³ Hi-Vis pills each stand at start and pumped 5 m ³ each single drilled from 444 m. Restricted Rop to max 20 m/hr from 444 m. ROV flow checking at seabed in connections from same depth.
503	DRI	P	DPR	P	3.00	Continued drill 9 7/8" Pilot hole from 468 m to 503 m. ROV had identifications on sonar of possible bubbles. Stopped rotation and moved ROV camera to wellhead. Appeared to be small bubbles coming out of wellbore. Pumped 7 m ³ of 1,6 m ³ kill mud, bubbles disappeared. Flowchecked for 15 min. Ok. Looked at videotape recording of the bubbles- bubbles not continuous. Displaced well back to clean seawater and flowchecked for 20 min. Well dead- most probably only air bubbles.
528	DRI	P	DRI	P	2.00	Contiued drilling from 503 to 528 m with restricted Rop to 20 m/hr to position MWD tool below 503 m. Swept hole with 5 m ³ Hi-vis mud followed by seawater.
528	DRI	P	DPR	P	1.00	Flow checked at PGB for 1 hr with Rov. Well static. No sign of any bubbles. Assessed MWD data. No indication of shallow gas or reduction in ECD.
820	DRI	P	DRI	P	12.00	Continued drilling from 528 m to 600 m with restricted Rop to max 20 m/hr. Swept hole with 5 m ³ Hi-Vis mud followed by seawater. Flow checked 15 min, well static. Continued drilling from 600 m to 820 m.

Date : 10 feb, 2002

NOK 1,954,196

Report Number : 8

Depth	Phase	Cls	Op	R.C.	Hrs	Activity
916	DRI	P	DRI	P	4.50	Continued drilling from 820 m to 916 m. Surveyed each 3 stand drilled.
916	DRI	TDD	XRE	QMD	1.50	Got fluctuating pump pressure. Dropped to max 7 bars and than back to normal. ECD increased to max 2.2 Sg. Flow checked with Rov. Well static. Swept 5 m ³ and 15 m ³ Hi-Vis with Seawater between whilst evaluated Anadrill's ECD signals. Rotated and reciprocated string. Attempted to flush through MWD with 3300 lpm SW, tool still not sending correct values.
916	DRI	P	CIR	P	0.50	Continued circulate out HI-Vis pill, Reciprocate string. Flowcheck 15 min with Rov, well static.
983	DRI	P	DRI	P	4.00	Continue drilling from 916 m to 983 m. String stalled out in hard stringers in section 947 to 956 m. Anadrill RES signals not functioning.
983	INT	TPE	XRE	P	0.50	Circulated well with seawater. Flow checked 15 min with Rov, well static. Displaced well with total 55 m ³ of 1.2 sg Hi-Vis mud.

983	INT	TPE	XRE	P	1.50	Pooh to 212 m due to CDR (RES) failure. Hole in good condition.
983	INT	TPE	XRE	P	0.50	Moved rig 20 m off location.
983	INT	TPE	XRE	P	1.00	Pooh to surface.
983	INT	TPE	XRE	P	1.00	Changed Anadrill MWD and CDR tool. Re-ran bit no 3
983	INT	TPE	XRE	P	1.00	Installed guide ropes on guide wires and Rih to 130 m.
983	INT	TPE	XRE	P	0.50	Function tested MWD and CDR tool, Ok. Rih to 230 m.
983	INT	TPE	XRE	P	0.50	Moved rig into well centre.
963	INT	TPE	XRE	P	1.50	Stab into well and Rih to td at 963 m.
993	INT	TPE	XRE	P	1.00	Re logg section 963 m to 993 m.
1,030	DRI	P	DRI	P	3.50	Drilled 9 7/8" hole from 993 m to 1030m. From 997 m, adjusted drilling parameters due to high vibration level on Anadrill MWD-CDR tool to; 2600 lpm, 85 rpm, 2-5 klbs. Found MWD dir not functioning for surveys.
1,030	DRI	P	CIR	P	0.50	Swept 5 m ³ hi-vis mud. Flow checked 10 min with Rov, well static.
1,037	DRI	P	DRI	P	0.50	Continued drilling from 1030 m to 1037 m w/ 2600 lpm, 73 bar, 70 rpm.

Date : 11 feb, 2002

NOK 2,275,077

Report Number : 9

Depth	Phase	Cls	Op	R.C.	Hrs	Activity
1,161	DRI	P	DRI	P	6.00	Continued drilling from 1037m to 1161m. Varied drilling parameters to avoid too high vibration level on MWD-CDR tool; Wob 0-8, Rpm 90-125, Lpm 2615. Pumped 4 m3 Hi-Vis pill each singel drilled.
1,161	DRI	P	DRI	P	6.00	Continued drilling from 1161m to 1300m.(TD)
1,300	DRI	P	CIR	P	1.00	Swept hole with 15 m3 Hi-Vis mud followed by seawater. Flow checked well with Rov, well static.
1,300	DRI	P	CIR	P	0.50	Pumped 39 m3 1,20 Sg Hi-Vis mud, followed by 20 m3 1,2 Sg KCL mud.
1,300	DRI	P	ATR	P	1.00	Performed wiper trip to 1052m. Hole slick, 1 m fill on btm.
0	DRI	P	ATR	P	1.00	Pooh to above PGB at 230m. Hole in good condition.
0	DRI	P	XOT	P	0.50	Moved rig 20m off location.
0	DRI	P	ATR	P	1.50	Continued Pooh and laid down 9 7/8" Bha.
0	DRI	P	ATR	P	0.50	Made up cmt stand of 5" Itag pipe with BJ Remote operated Cmt head and racked back in derrick.
0	DRI	P	ATR	P	4.50	Picked up 17 1/2" BHA. Laid down 9 7/8" NM stabilizer from Bha. Installed guide ropes to guide wires. Changed jar.
0	DRI	P	ATR	P	0.50	Rih to Hwdp and tested MWD-CDR with 3200 lpm, 76 bar, Ok.
0	DRI	P	ATR	P	0.50	Continued Rih to 235m.



PL 270, Well 35/3-6 FINAL WELL REPORT
Appendices



0 DRI P XOT P 0.50 Started to move rig into well centre. Rov had difficulties to located PGB due to poor visibility.

Date : 12 feb, 2002

NOK 2,196,448

Report Number : 10

Depth	Phase	Cls	Op	R.C.	Hrs	Activity
0	DRI	P	BPO	P	2.00	Found 2 broken guide ropes. Pumped SW above PGB to improve visibility from betonite debris in water. Positioned rig and stabbed into well blind. Cuttings bed approx 0.50m above PGB. Checked PGB depth versus seabed, Ok. Circulated SW at inside 30" Csg.
0	DRI	P	ATR	P	0.50	RIH to 30" Csg shoe. Pulled ROV to garage and observed well with sonar.
323	DRI	P	DHO	P	1.50	Open hole from 9 7/8" to 17 1/2" from 313m to 323m. Cleaned and worked past shoe 2 times.
323	DRI	P	DSU	P	0.50	Anadrill set MWD tool and performed survey. Ok second time.
962	DRI	P	DHO	P	19.00	Continued open hole from 9 7/8" to 17 1/2" from 323m to 962m. Swept 5m3 Hi-Vis mud each single drilled.
962	DRI	P	DRW	P	0.50	Reamed/worked hole from 932m to 960m due to string torquing up (stalled out with 23kftlbs@ 946m). Continued to work interval.

Date : 13 feb, 2002

NOK 2,218,521

Report Number : 11

Depth	Phase	Cls	Op	R.C.	Hrs	Activity
962	DRI	P	DRW	P	0.50	Continued to work tight interval until OK.
1,300	DRI	P	DHO	P	11.50	Continued to open 17 1/2" hole to 1300m.
1,300	DRI	P	CIR	P	1.50	Swept hole with 15 m3 hi-vis and circulated to clean sea water. Flowchecked 15 mins, OK.
1,300	DRI	P	CIR	P	1.00	Displaced well to 107m3 1.20sg bentonite mud and 63m3 1.20sg KCl mud.
1,300	DRI	P	ATR	P	2.00	POOH to 1168m. Worked tight spot @ 1168m, max overpull 50 ton, then OK. Continued to POOH. Worked tight spot @ 818m and continued to POOH to 308m. Refilled hole with 8m3 1.2sg mud. Pumped through bit to clean PGB when bit was just above sea bed.
1,300	DRI	P	XOT	P	0.50	Moved rig 20 m off well centre.
1,300	DRI	P	ATR	P	2.00	Continued to POOH. Disconnected guideline 1 & 2, due to twist around drill string.
1,300	DRI	P	ATR	P	1.00	Laid down 17 1/2" BHA.
1,300	DRI	P	DCS	P	4.00	Laid down BX-elevator and bails, changed to 4 1/2" IF saver sub, made up LaFleur circulating device, installed 13 3/8" elevator, picked up and installed Flush Mounted Spider, installed rails and OWS casing tong. Held safety meeting with crew.



PL 270, Well 35/3-6 FINAL WELL REPORT
Appendices



Date : 14 feb, 2002

NOK 3,526,773

Report Number : 12

Depth	Phase	Cls	Op	R.C.	Hrs	Activity
1,300	DRI	P	DCS	P	2.50	Picked up and made up 13 3/8" casing shoe joint, spacer joints and float joint, bakerlocked same. Experienced difficulties with make up.
1,300	INT	TPO	XOT	P	1.00	Troubleshoot 13 3/8" BTC no-cross connections.
1,300	DRI	P	DCS	P	3.50	Made up first joint above shoe track and bakerlocked same. Drifted same in rotary table to verify connection. Continued to RIH with 13 3/8" BTC no-cross casing to 240m (19 jts of 86 jts run).
1,300	DRI	P	DCS	P	2.00	Moved rig into well centre and stabbed into 30" conductor.
1,300	DRI	P	DCS		2.00	Continued to RIH with 13 3/8" BTC no-cross connections (21 jts run). Made up X-over.
1,300	DRI	P	DCS	P	7.00	Continue to RIH with 13 3/8" New Vam connections to 946m (78 jts run).
1,300	DRI	P	DCS	P	0.50	Casing hung up @ 946m. Attempted to work casing past restriction by reciprocating and pumping @ 2000lpm. Set down max 50 ton and managed to get past restriction.
1,300	DRI	P	DCS	P	1.50	Continued to RIH with 13 3/8" casing (85 joints run).
1,300	DRI	P	DCS	P	0.50	Picked up 18 3/4" wellhead assy from deck to catwalk.
1,300	DRI	P	DCS	P	1.00	Rigged down casing elevator and long bails. Installed drilling bails and BX-elevator.
1,300	DRI	P	DCS	P	1.00	Picked up wellhead assy with BX-elevator and made up same. Removed FMS and casing tong. Changed bushing and landed wellhead assy in same.
1,300	DRI	P	DCS	P	1.00	Disconnected wellhead handling tool and laid down same. Picked up wellhead running tool with stinger, broke out pup joint, made up cement plugg set and installed into wellhead.
1,300	DRI	P	DCS	P	0.50	Removed master bushing and RIH with wellhead assy on 5" ITAG landing string. Filled string every 2'nd stand.

Date : 15 feb, 2002

NOK 2,427,091

Report Number : 13

Depth	Phase	Cls	Op	R.C.	Hrs	Activity
1,300	DRI	P	DCS	P	2.00	Continued to RIH with 13 3/8" casing on 5" ITAG landing string.
1,300	DRI	P	DCS	P	0.50	Tagged fill @ 1260m. Washed down with 1.2 sg mud @ 900lpm to 1284m.
1,300	DRI	P	DCS	P	1.00	Installed cement head and continued to wash down with 900lpm. Recorded up weight to 150 ton Martin Decker (TDS: 35 ton, landing string: 17 ton, casing: 98 ton)



AKER ENERGY AS

PL 270, Well 35/3-6 FINAL WELL REPORT
Appendices



1,300	DRI	P	DCS	P	1.00	Landed wellhead with 900 lpm, sat down casing weight and performed 25 ton overpull test (175 ton Martin Decker).
1,300	DRI	P	DCS	P	0.50	Broke circulation with 1.20sg mud for 5 mins @ 1900lpm, 30 bar. Held pre-job meeting with crew.
1,300	DRI	P	DCS	P	0.50	Pressure tested surface lines to 200 bar. Pumped 10m3 spacer and dropped ball.
1,300	INT	TPE	XRE	P	0.50	Troubleshoot motor on cement unit.
1,300	DRI	P	DCS	P	4.00	Mixed and pumped 125m3 1.50sg lead cement and 20m3 1.92 tail cement. Dropped dart.
1,300	DRI	P	DCS	P	1.00	Displaced cement with rig pumps @ 2500 lpm. Reduced flowrate to 1100 lpm @3650 strokes. Stopped @ 4250 strokes, plug did not bump. Chekced floats by bleeding off to cement unit, OK.
1,300	DRI	P	DCS	P	1.00	Released running tool and racked cement stand.
1,300	DRI	P	DCS	P	1.00	Washed wellhead and PGB by circulating through landing string @ 3000 lpm.
1,300	DRI	P	DCS	P	3.50	Pulled out with landing string. Moved rig 20m off location. Broke running tool and rigged down OWS casing tong. Meanwhile disconnected and retrieved guide lines and recovered transponder.
1,300	DRI	P	DCS	P	0.50	Tidied rig floor, greased top drive and changed to 5 1/2" saver sub. Picked up LaFleur assy and dismantled same.
1,300	INT	P	XWO	P	7.00	Waited on weather to run BOP and riser. Meanwhile picked up and racked 5 1/2" drill pipe (78 jts). Maximum significant weather data: wind 40 knots, waves 4.3m, pitch 1.6 deg, roll 3.4 deg, heave 2.3m.

Date : 16 feb, 2002

NOK 1,936,517

Report Number : 14

Depth	Phase	Cls	Op	R.C.	Hrs	Activity
1,300	INT	TPO	XWO	P	24.00	Continued to wait on weather to run BOP. Maximum significant weather data: wind 52 knots, waves 5.0 m, pitch 3.5 deg, roll 4.2 deg, heave 2.9 m. Meanwhile picked up 5 1/2" drill pipe (total 171jts) and 5" drill pipe (total 90 jts). Pressure tested choke manifold, standpipe manifold, BOP's and stab-in valves. Made up cement stand and hang-off stand. Changed to 6" mud pump liners and performed pump maintenance.

Date : 17 feb, 2002

NOK 2,062,612

Report Number : 15

Depth	Phase	Cls	Op	R.C.	Hrs	Activity
1,300	INT	TPO	XWO	P	6.00	Continued to wait on weather to run BOP.
1,300	DRI	P	DBW	P	3.50	Prepared to run BOP. Disconnected monkey tail, installed riser stabbing guide, changed to 500 ton bails and elevator and installed riser spider.



PL 270, Well 35/3-6 FINAL WELL REPORT
Appendices



1,300	INT	TPO	XOT	P	2.50	Inspected wellhead with ROV. Discovered water flow from underneath guide base, causing guide base to be partly covered in debris. Rigged down riser handling equipment and rigged up pipe handling equipment.
1,300	INT	TPO	XOT	P	1.50	Ran down to guide base with 2 stand 3 1/2" drill pipe (open ended) on 5 1/2" drill pipe.
1,300	INT	TPO	XOT		0.50	Moved rig over well.
1,300	INT	TPO	XOT		1.00	Cleaned debris from guidebase by flushing down drill string with sea water at high rate. Guided string with ROV.
1,300	INT	TPO	XOT		1.00	Pulled out with cleaning string.
1,300	INT	TPO	XOT		4.50	Made up diverting tool and ran in with 2 stands of 3 1/2" drill pipe on 5 1/2" drill pipe. Positioned rig and stinged into grouting funnel on guide base, assisted by ROV. Stabbing Tagged cement 1.5m down from guide base. Attempted to work string further down by circulating, rotating and adjusting rig position, no go. Pulled out with diverting tool. Made up and racked cement stand with kelly cock and pump-in sub.
1,300	INT	TPO	XOT		1.50	Made up grouting stinger (made of 3 1/2" drill pipe joint with cut off pin connector and half mule shoe) and ran in with 2 stands 3 1/2" drill pipe on 5 1/2" drill pipe. Made up cement stand and moved rig over wellhead.
1,300	INT	TPO	XOT		1.00	Stung into grouting funnel with grouting stinger and washed down. Tagged cement 2 m below guide base, worked string down 0.5 m further while pumping @ 3400 lpm.
1,300	INT	TPO	XOT		1.00	String accidentally slipped out of the grouting funnel. Repositioned rig and stinged into funnel again.

Date : 18 feb, 2002

NOK 1,957,312

Report Number : 16

Depth	Phase	Cls	Op	R.C.	Hrs	Activity
1,300	INT	TPO	XOT		0.50	Washed down with grouting stinger down to 3.5 m below guide base. No further progress.
1,300	INT	TPO	XOT		1.50	Mixed and pumped 15m3 grouting slurry. String moved another 5m down while pumping cement. Mixed and pumped another 6m3 cement and string came down to a total of 12 m below guide base while displacing the cement.
1,300	INT	TPO	XOT		2.50	Pulled out of grouting funnel and flushed sting. Cleaned guidebase by pumping through string @ 3000 lpm, guided by the ROV. Observed 1.5 degree angle on bulls eye (no change).
1,300	INT	TPO	XOT		1.50	Pulled out with grouting string. Laid down cement stand and stinger.



PL 270, Well 35/3-6 FINAL WELL REPORT
Appendices



1,300	INT	TPO	XOT	6.00	Held prejob safety meeting and rigged up to run BOP. Picked up two riserjoints and skidded BOP to moonpool centre.
1,300	INT	TPO	XOT	3.50	Prepared BOP on cellar deck and connected riser to BOP.
1,300	INT	TPO	XOT	0.50	Lifted BOP off carrier and ran BOP through splash zone.
1,300	INT	TPO	XOT	5.50	Ran in with riser/BOP. Pressure tested kill & choke lines to 20/345 bar.
1,300	INT	TPO	XOT	2.50	Inspected wellhead/PGB with ROV. Observed excessive debris build-up from waterflow on guide base and poor visibility, causing problems to land the BOP. Pulled BOP/riser.

Date : 19 feb, 2002

NOK 2,199,376

Report Number : 17

Depth	Phase	Cls	Op	R.C.	Hrs	Activity
1,300	INT	TPO	XOT		0.50	Pulled BOP through splash zone. Removed guide lines.
1,300	INT	TPO	XOT		0.50	Deballasted rig to 21m draught.
1,300	INT	TPO	XOT		4.50	Disconnected pod wires, skidded carrier underneath BOP and landed same. Disconnected riser and skidded BOP to parking position. Laid down two riser joints.
1,300	INT	TPO	XOT		1.50	Rigged down riser spider. Changed bails and elevator.
1,300	INT	TPO	XOT		1.00	Ran in with 2 stands of 3 1/2" drill pipe on 5 1/2" drill pipe for further cleaning of wellhead/PGB. Moved rig over well centre.
1,300	INT	TPO	XOT		2.50	Ran purpose made wellhead protector down on guideline and landed same with assistance of ROV.
1,300	INT	TPO	XOT		4.50	Performed cleaning of debris carried by the waterflow, by pumping down the drill string @ 4500 lpm, guided by the ROV.
1,300	INT	TPO	XOT		1.00	Pulled out with the cleaning string.
1,300	INT	TPO	XOT		4.50	Held safety meeting and rigged up for open water logging operation. Connected compensating line to TDS. Connected two guidelines down to PGB posts and connected compensating line to the guidelines. Rigged up sheave wheels.
1,300	INT	TPO	XOT		3.50	Picked up logging tools and tested same. Ran down to moon pool, hooked up guiding device against guidelines and ran down to 100m depth with the tool string.



PL 270, Well 35/3-6 FINAL WELL REPORT
Appendices



Date : 20 feb, 2002

NOK 2,030,823

Report Number : 18

Depth	Phase	Cls	Op	R.C.	Hrs	Activity
1,300	INT	TPO	XOT		0.50	Inspected toolstring with ROV and opened compensator and ran down to wellhead.
1,300	INT	TPO	XOT		2.00	Stabbed toolstring into wellhead with ROV and RIH to 1150m. Logged temperature on the way down.
1,300	INT	TPO	XOT		1.50	Attempted to log up from 1150 m with USIT-tool, no go due to USIT-tool failure. Logged temperature up to wellhead.
1,300	INT	TPO	XOT		0.00	Pulled toolstring out of wellhead and retrieved same to surface.
1,300	INT	TPO	XOT		3.00	Changed USIT tool and tested same on surface.
1,300	INT	TPO	XOT		1.50	Ran tool string down to moonpool, hooked up guiding device against guidelines and continued down to wellhead.
1,300	INT	TPO	XOT		9.00	RIH to 1150m and performed USIT logging to wellhead. RIH to 1216 and logged repeat section to 1064m. POOH to wellhead.
1,300	INT	TPO	XOT		2.00	Pulled toolstring out of wellhead and retrieved same to surface. Laid down logging tools and rigged down sheaves, etc.
1,300	INT	TPO	XOT		0.50	Rigged up BX-elevator.
1,300	INT	TPO	XOT		1.00	Made up BJ bridge plug on HS setting tool. Ran down to moonpool and connected guiding device.
1,300	INT	TPO	XOT		0.50	Ran down with bridge plug to wellhead on 5 1/2" drill pipe.
1,300	INT	TPO	XOT		2.00	Unable to stab bridge plug into wellhead with the ROV due to poor visibility. Hooked up 2-arm guideframe in moon pool and ran down same while waiting for visibility.
1,300	INT	TPO	XOT		0.50	Stabbed bridgeplug into wellhead, assisted by active heave compensator, guide frame and ROV. RIH to 350m.

Date : 21 feb, 2002

NOK 1,978,561

Report Number : 19

Depth	Phase	Cls	Op	R.C.	Hrs	Activity
1,300	INT	TPO	XOT		0.50	Continued to RIH with plug to setting depth.
1,300	INT	TPO	XOT		1.00	Dropped ball and chased same with 1.20sg mud. Set bridge plug @ 591m, shearing pressure 175 bar. Tagged plug with 15 ton.
1,300	INT	TPO	XOT		0.50	Spotted 7.8m3 fresh 1.20 sg bentonite mud from 590m to 490m.
1,300	INT	TPO	XOT		1.00	POOH with HS setting tool and rigged down BX-elevator.
1,300	INT	TPO	XOT		3.00	Rigged up wireline and perforation string. Installed compensation wire on guideline 2 & 4. RIH to wellhead and stabbed string in with ROV.
1,300	INT	TPO	XOT		1.50	Logged down with CCL from wellhead, performed depth correlation and perforated 13 3/8" casing with top shot @ 568m (6spf over 2 ft



PL 270, Well 35/3-6 FINAL WELL REPORT
Appendices



						length, total of 12 charges). POOH to wellhead.
1,300	INT	TPO	XOT		1.50	Continued to pull out. Removed compensation wire and guiding device in moonpool and rigged down wireline.
1,300	INT	TPO	XOT		1.50	Rigged up cement retainer, ran down to moon pool and inserted string into two armed guide frame.
1,300	INT	TPO	XOT		2.50	RIH with retainer on 9 x 8" DC, 12 x 5 1/2" HWDP and 5 1/2" drill pipe. Ran down guide frame and stinged into wellhead.
1,300	INT	TPO	XOT		2.50	RIH with retainer to setting depth.
1,300	INT	TDD	XOT	QSE	1.50	Dropped ball and installed pump-in sub and cement hose. Positioned retainer @ 545m and sheared ball seat @95 bar. Unable to build pressure further to initiate setting sequence.
1,300	INT	TPE	XOT	P	4.00	POOH with setting tool. Cement retainer left in hole without being properly set. Broke setting tool and troublehoot same.
1,300	INT	TPO	XOT	QSE	2.50	Made up bullnose and ran in with same on 5 1/2" drill pipe to verify position/integrity of retainer. Lowered 2 armed guidelframe down to wellhead and stabbed in. Tagged cement retainer @ 550m and pushed down same with 5 tons to 580m.
1,300	INT	TPO	XOT	QSE	0.50	POOH to 320m.

Date : 22 feb, 2002

NOK 2,000,561

Report Number : 20

Depth	Phase	Cls	Op	R.C.	Hrs	Activity
1,300	INT	TPO	XOT	P	0.50	Continued to POOH and laid down bull nose.
1,300	INT	TPO	XWO	TPO	5.50	Waited on weather to run new retainer on wireline. Standby boat unable to perform pick up duty. Max wind: 54 knots, max waves: 9.5 m, max roll: 3.5 deg, max pitch: 5 deg, max heave: 3.3 m.
1,300	INT	TPO	XWO	P	3.00	Continued WOW. Weather conditions improved to max: Wind 26 kts, Waves 5.7 m, Pitch 2.7 dgr, Roll 2.2 dgr, Heave 2.0m.
1,300	INT	TPO	XOT	P	3.50	Rih with washing assy: Muleshoe on 3 1/2" Dp followed by 5 1/2" Dp. Installed 2 arm guide frame. Washed PGB area with 3200 lpm. Pooh and laid down muleshoe.
1,300	INT	TPO	XOT	TPO	2.50	Rigged up 2 guide lines and heave compensator to run Cmt retainer on Schlumberger Wireline. Installed guide line device. Rih to wellhead and attempted to stab into well. No success due to heave and not sufficient centralization.
1,300	INT	TPO	XOT	P	2.50	Pulled wireline to cellar deck and installed 2 arm guide frame. Ran wireline to wellhead and stabbed into well assisted by ROV.
1,300	INT	TPO	XOT	P	1.50	Rih with Cmt retainer on wireline . Positioned at 545m.
1,300	INT	TPO	XOT	P	5.00	Attempted to set retainer, no success. Pulled out to surface with wireline and troubleshoot cable head. Found water inside cable head and changed to backup head. Held SJA meeting and ran retainer to wellhead. Stabbed into wellhead with ROV assistance. Positioned Cmt retainer. CCL signals inconsistent. Set Cmt retainer at 547m.



PL 270, Well 35/3-6 FINAL WELL REPORT
Appendices



Date : 23 feb, 2002

NOK 2,381,311

Report Number : 21

Depth	Phase	Cls	Op	R.C.	Hrs	Activity
1,300	INT	TPO	XOT	TPO	1.50	Pulled wireline to surface. Laid down assy and rigged down wireline.
1,300	INT	TPO	XOT		4.00	Changed bailes and made up cementing stinger on 2 stands 8" DC and 4 stands 5 1/2" HWDP. Installed 2 arm guide frame and Rih to wellhead. Stabbed into well and continued Rih to 480m. Re-arrange and made up cmt line to cmt stand. Continued Rih to 530m. Wash with 900 lpm from 530m to retainer at 547m.
1,300	INT	TPO	XOT		0.50	Displaced well to 1.2 SG mud with 1500 lpm, 30 bar.
1,300	INT	TPO	XOT		0.50	Changed to Cmt stand. Stung in and set down 20mt on Cement retainer, ok. Pumped 3.2 m3 SW with dye and mica at 600 lpm, 12 bar, with cmt unit.
1,300	INT	TPO	XOT		1.00	Pumped 10 m3 1,5 Sg mud at 800 Lpm, 18,bar. Continued pumping 50 m3 1,1,4 Sg Hi-vis mud. Staged pumps to 2500 lpm, 142 bar. Observed dye marker in return after 13 m3 pumped. After 26 m3 pumped, pump pressure peaked up to 236 bar, indicating stinger was partly lifted out of cement retainer due to rig heave. Increased down weight on cement retainer from average 15 to 20 mt. Continued pumping 1,4 Sg mud. 2500 lpm, 127 bar.
1,300	INT	TPO	XOT		1.00	Observed around PGB with ROV, still flow to seabed by post no 4 and around wellhead.
1,300	INT	TPO	XOT		0.50	Pumped 30 m3 with 1,4 Sg. The string had U tubed, filled 4,2 m3 mud before pressure build up. Pump with 2000 lpm, pressure decreased from 81 to 73 bar, indicating injection to formation.
1,300	INT	TPO	XOT		0.50	Observed return flow and mixed 30 m3, 1,30 Sg hi-vis mud.
1,300	INT	TPO	XOT		1.00	Pumped 40 m3 with 1,30 Sg mud. Staged pumps up to 1500 lpm, 34 bar steady. Filled string with 2,5 m3 before pressure build up. Displaced string with 1.15 Sg mud.
1,300	INT	TPO	XOT		1.50	Observed well. No flow to seabed observed.
1,300	INT	TPO	XOT		0.50	Pumped 35 m3 1,3 Sg mud, 1000 lpm, 11 bar. Got returns after 20 m3 pumped. Displaced string with 1,30 Sg mud.
1,300	INT	TPO	XOT		3.00	Observed well. No flow observed around PGB area.
1,300	INT	TPO	XOT		0.50	Pumped 15 m3 1,3 Sg hi-vis mud with 1000 lpm, 11 bar. Observed return to seabed after 7,5 m3 pumped.
1,300	INT	TPO	XOT		3.00	Observed well. No backflow observed around PGB area.
1,300	INT	TPO	XOT		0.50	Pumped 30 m3 1.3 Sg mud, 1000 lpm, 11 bar. Filled string with 2,5 m3 before pressure build up. Observed returns to seabed after 7,3 m3 pumped.



AKER ENERGY AS

PL 270, Well 35/3-6 FINAL WELL REPORT
Appendices



1,300	INT	TPO	XOT	3.50	Observed well. Backflow to seabed between post 1 and 2 from void between 13 3/8" csg and 30" csg. Flow was of minor character but consistent. Mixed 25 m3 1,5 Sg hi-vis mud pill with calcium carbonate.
1,300	INT	TPO	XOT	1.00	Pumped 25 m3 with 1,5 Sg hi-vis mud containing 224 kg/m3 mix of coarse and fine Calcium Carbonate. Pumped with 500 lpm, increased to 700 lpm without pump pressure. observed slight increase of backflow after 14.5 m3 pumped. Reduced pump speed to 500 lpm, no pump pressure. Displaced string and csg with 6,8 m3 of 1,3 Sg mud.

Date : 24 feb, 2002

NOK 2,031,460

Report Number : 22

Depth	Phase	Cls	Op	R.C.	Hrs	Activity
1,300	INT	TPO	XOT		0.50	Wait 10 mins and pumped 30 m3 1,3 Sg mud with 1000 lpm, 15 bar. Distinct increase in returns to seabed after 27m3 pumped.
1,300	INT	TPO	XOT		3.00	Observed well. Unstung from Cmt retainer and added 5m pup jt to improve space out to rig floor. Tested Cmt line to 250 bar. Stung into retainer with active heave compensator. Well backflowing between post 1 and 4 with increasing rate.
1,300	INT	TPO	XOT		0.50	Pumped 35 m3 with 1,3 Sg mud with 1000 lpm, 11 bar. Got pump pressure after 2m3 pumped and returns to seabed after 15.7 m3 pumped. Heave increased to max 5.4 m, pulled 10m above retainer.
1,300	INT	TPO	XWO		2.00	Waiting on weather. Observing PGB area with ROV. Weather conditions at 0600 hrs; max Wind 38 kts, Waves 7 m, Pitch 2,8, Roll 3,8, Heave 6m.
1,300	INT	TPO	XWO		18.00	Continued waiting on weather. Observed PGB area with ROV. No backflow observed during period. Cleaned and checked bullseyes, no change. at 1200 hrs; Wind 36 kts, Wave 8 m, Pitch 2.3, Roll 4.9, Heave 5 m. 1800 hrs; Wind 32 kts, Wave 8.5m, Pitch 2.3, Roll 4.9, Heave 5 m. 2400 hrs; Wind 30 kts, Wave 5.0m, Pitch 3.2, Roll 5.1, Heave 6 m.

Date : 25 feb, 2002

NOK 1,938,451

Report Number : 23

Depth	Phase	Cls	Op	R.C.	Hrs	Activity
1,300	INT	TPO	XWO		4.50	Continued waiting on weather. Observed PGB area with ROV. At 0330 hrs, after 23,5 hrs since last mud pill was pumped, observed small inconsistent trickle from between funnel and housing, guide post 1 and 4. at 0430 hrs; Wind 22 kts, wave 7m, pitch 2.1, roll 3,9, heave 4 m.
1,300	INT	TPO	XOT		0.50	Rih to top of retainer. Filled Dp with 1.3 Sg mud and stabbed into retainer at 547m and set down 20 mt.
1,300	INT	TPO	XOT		1.00	Continued observing PGB area with ROV to get impression of inconsistent flow.



PL 270, Well 35/3-6 FINAL WELL REPORT
Appendices



1,300	INT	TPO	XOT	0.50	Pumped 35 m3 1.30 Sg hi-vis mud, 1000 lpm, 11 bar. Returns increased after 5,2 m3 pumped. Observed returns from ports from 30"x13 3/8" annulus. Got mud in returns from 25 m3 pumped.
1,300	INT	TPO	XOT	11.50	Observed well. Mixed 30 m3 bentonite pill. Observed backflow from 30"x13 3/8"annulus to seabed.
1,300	INT	TPO	XOT	0.50	Pumped 30 m3 1.30 Sg mud. Got pressure buildt up after 2,5 m3 pumped and returns after 8.5 m3 pumped. increased to max flow after 17,5 m3 pumped, 1000 lpm, 14 bar.
1,300	INT	TPO	XOT	1.50	Observed well. Backflow declined but no stop. Flow started to increase. Mixing 12 m3 PBS and 30 m3 bentonite pills.
1,300	INT	TPO	XOT	0.50	Pumped 35 m3 mud with 1000 lpm, 14 bar. Pressure build up from 2,5 m3 pumped and got full returns after 2,7 m3 pumped. Started with 750 l and increased to 1000 lpm.
1,300	INT	TPO	XOT	2.00	Observed PGB area. Consistent flow from 30"x 13 3/8" csg annulus to seabed.
1,300	INT	TPO	XOT	0.50	Pumped 35 m3 1.30 sg mud with 1000 lpm, 14 bar. Pressure build up after 2.0 m3 and full returns after 7,2 m3 pumped.
1,300	INT	TPO	XOT	1.00	Pumped 20 m3 1.50 Sg bentonite pill with max 500 lpm. Pill U tubed down string. Some returns observed during pumping. Start mixing PBS pill accelerator from 23:45 hrs.

Date : 26 feb, 2002

NOK 2,035,498

Report Number : 24

Depth	Phase	Cls	Op	R.C.	Hrs	Activity
1,300	INT	TPO	XOT		1.00	Pumped 12 m3 of 1.5 Sg PBS pill with 500 lpm, 4 bar. Observed minor returns to seabed during pumping. Displaced pill with 5 m3 1.5 Sg bentonite mud followed by 6,2 m3 1.3 Sg mud at 500 lpm. Minor to slight returns to seabed. Finished pumping at 00:55 hrs.
1,300	INT	TPO	XOT		3.00	Wait on PBS pill to go off. Pumped 500 l each 1/2 hr with 1.3 Sg mud to keep perforations open. Monitored PBS sample on surface.
1,300	INT	TPO	XOT		1.50	Pumped 30 m3 1.3 Sg mud with 1000 lpm. Pressure buildt up after 1,6 m3 pumped. Pressure started from 18 bar and declined to 14 bar during pumping. Lost visibility with ROV and had to reposition. Pumped another 15 m3 with full return to seabed.
1,300	INT	TPO	XOT		0.50	ROV had to clear tether from PGB and reposition, whilst awaiting backflow to stabilized. Flow of light nature. Pumped another 10 m3 1.3 Sg mud whilst observing return. Had pressure build up from 1,2 m3 pumped, 1000 lpm, 14 bar.
1,300	INT	TPO	XOT		1.50	Observed well. Unable to check due to poor visibility caused by no current.



PL 270, Well 35/3-6 FINAL WELL REPORT
Appendices



1,300	INT	TPO	XOT	3.00	Mixed and pumped 10 m ³ 1,50 Sg cement slurry with 406-220 lpm. Pressure increased when cement entered annulus after 6 m ³ pumped, from 3-4 bar to 5-6 bar. Intermittent pressure increased when pumping and displaced cement. Displaced with 800-600 lpm. No significant change observed when mixing and pumping cement except for the beginning. Pulled out of cement retainer and dumped 1 m ³ cement on top of retainer. Pulled up to 480m and flushed string with SW.
1,300	INT	TPO	XOT	2.50	Removed compensation wire and guide frame from guide wire 2 and 4. Racked back cmt stand and Pooh with cmt stinger.
1,300	INT	TPO	XOT	5.00	Made up 3 1/2" Muleshoe on 3 1/2" Dp and Rih to wellhead. Washed PGB for debris. Installed guide frame and continued washing on PGB.
1,300	INT	TPO	XOT	1.00	Entered Grouting funnel between post 3 and 4 and had hard bottom after 3 m. (previous grouting job) Entered funnel between post 1 and 2, worked down to 23 m below seabed with pumps on. Circulated SW. Held pre job meeting prior to grouting.
1,300	INT	TPO	XOT	2.00	Mixed and pumped 23 m ³ 1.95 Sg cement slurry. Dust at seabed start being heavier after 13 m ³ slurry was pumped. Displaced string with 2.2 m ³ SW and pulled above PGB. Circulated string with SW with 4700 lpm. Guided string and washed PGB with 5000 lpm.
1,300	INT	TPO	XOT	1.50	Pooh with Cmt assy. Flushed cement stand and hose.
1,300	INT	TPO	DBW	0.50	Whilst moving rig 20 m off location, held pre job safety meeting prior to run BOP.
1,300	INT	TPO	DBW	1.00	Rigged up to run BOP and marine risers.

Date : 27 feb, 2002

NOK 2,074,277

Report Number : 25

Depth	Phase	Cls	Op	R.C.	Hrs	Activity
1,300	INT	TPO	DBW		1.00	Continued rig up to run BOP.
1,300	INT	TPO	DBW		5.00	Picked up 2 jt marine risers and mounted position beacon. Moved BOP to well centre. Mounted guidelines and beacon. Deballasted rig from 22m to 20m draft. Installed VX ring in wellhead connector. Adjusted and recorded bullseye positions. Lifted BOP off trolley and start mounting control lines clamps.
1,300	INT	TPO	DBW		14.00	Continued run BOP through splash zone 0610 hrs. Tested kill and choke lines each 3rd. jt to 20/345 bar for 5/10 min. Picked up slip jt.
1,300	DRI	P	DBO	P	2.50	Installed marine riser support ring and BOP control hose saddles. Pressure tested kill and choke lines with 15/345 bar for 5/10 min, ok whilst move BOP over to well centre. Installed guide wires with ROV. Found BOP not in line with PGB heading. Turned BOP in steps and positioned rig. Attempted to land BOP. Guideline no 3 released prematurely and cut no 4 guideline over post when approached top

of posts. No 1 and 2 posts entered, no 3 and 4 went on the side of posts. Rig heave ca 1-1.3 m.

1,300 DRI TPO DBO TPO 1.50 Pulled BOP above PGB and inspected posts, ok. Re installed guideline no 3 and continued adjust BOP line up with PGB heading. Total 47 degrees to port from rig heading. Landed BOP with 20 mt down weight.

Date : 28 feb, 2002

NOK 2,296,758

Report Number : 26

Depth	Phase	Cls	Op	R.C.	Hrs	Activity
1,300	DRI	P	DBO	P	3.00	Closed wellhead connector and tested with 20 mt o/pull. Sat down with total 100 ton on BOP and checked PGB Bullseyes, no movement on bullseyes. Riser 0 dgr, PGB 1.25 dgr and 1.75 dgr. Opened slip jt and installed diverter housing. Function tested diverter.
1,300	DRI	P	DBO		1.00	Cleared drill floor and rigged up BX elevator and bailes. Filled riser with SW.
1,300	DRI	P	DBO		2.00	Made up Drilquip BOP test plug assy and Rih.
1,300	DRI	P	DBO		0.50	Continued Rih and set BOP test plug in wellhead. Flushed kill and choke lines.
1,300	DRI	P	DBO		1.50	Pressure tested wellhead connector against lower annular with 20/345 bar in 5/10 min. Function tested BOP on blue pod from drillers panel and with yellow pod from mini panel in rig office.
1,300	DRI	P	DBO		2.50	Pooh with testplug. Function tested diverter and flushed through both diverter lines.
1,300	INT	TPO	XOT	TPO	3.00	Made up 12 1/4" clean out Bha and Rih to 525m.
1,300	INT	TPO	XOT		0.50	Displaced to 1.15 Sg mud and washed down with 4000 lpm. Tagged cmt at 532m
1,300	INT	TPO	XOT		6.00	Drilled soft cmt from 532m to 539 m. Tagget plug on 545m. No cement between 539-545m. Drilled plug and continued wash and rotated to 568m. Pumped 10 m3 hi-vis mud around.
1,300	INT	TPO	XOT		0.50	Flow checked in 30 min at perforations, well static.
1,300	INT	TPO	XOT		3.50	Wash and rotated on top of loose plug to 590m. Drilled on plugs with 10-15 mt wob, 30-80 rpm.



PL 270, Well 35/3-6 FINAL WELL REPORT
Appendices



Date : 01 mar, 2002

NOK 2,286,626

Report Number : 27

Depth	Phase	Cls	Op	R.C.	Hrs	Activity
1,300	INT	TPO	XOT		2.00	Continued drilling on plug at 590m. String stalled out with 15k ft-lbs 2 times. Pumped 10 m3 hi-vis mud.
1,300	INT	TPO	XOT		0.50	Circulated out Hi-vis pills and flow checked well in 10 min. No rotation of string.
1,300	INT	TPO	XOT		2.50	PooH to surface. Broke out bit and 2 x junk subs. Junk subs had 100% steel recovery.
1,300	INT	TPO	XOT		1.00	Made up 2 x junk subs on 12 1/4" junk mill and Rih.
1,300	INT	TPO	XOT		1.00	Continued Rih to 510m.
1,300	INT	TPO	XOT		1.00	Slip 30m drill line.
1,300	INT	TPO	XOT		0.50	Continued Rih with Junk Mill to 590m.
1,300	INT	TPO	XOT		3.50	Milled through bottom retainer and bridge plug from 590-591m. Washed and rotated down to 599m. Pumped 10 m3 havis pill around. Flow checked, well static.
1,300	INT	TPO	XOT		1.50	Rih and tagged soft cmt at 1216m.
1,300	INT	TPO	XOT		1.00	Washed cmt from 1216m to hard cmt at 1225m. Drilled cmt from 1225m to 1228m.
1,300	INT	TPO	XOT		1.00	Pumped 10 m3 hi vis pill and displaced with max rate around. 1 pump on Booster line. Flow checked, well static. Pumped slug.
1,300	INT	TPO	XOT		3.50	PooH to surface. Laid down mill and junk baskets. 100% steel recovery in baskets, mill 5% worn.
1,300	INT	TPO	XOT		4.00	Made up 12 1/4" Bit on 2 Junk subs. Rih and filled string. Washed with 4100 lpm from 1207 to 1228m.
1,300	INT	TPO	XOT		1.00	Broke in bit and drilled cmt from 1228m to 1229m. Excessive and inconsistant torque indicate parts from bridge plug below bit.

Date : 02 mar, 2002

NOK 1,860,767

Report Number : 28

Depth	Phase	Cls	Op	R.C.	Hrs	Activity
1,300	INT	TPO	XOT		2.00	Drilled from 1229m to 1234m. Got rubber from csg wiper plug in returns from 1230m. Inconsistent torque to 1234m.
1,300	INT	TPO	XOT		4.00	Drilled cmt from 1234m to float collar at 1255m. Drilled float collar in 1 hr and continued drilling hard cmt to 1261m. Rubber from wiper plugs in return.
1,300	INT	TPO	XOT		1.00	Continued drill cmt from 1261m to 1265m. Worked junk basket.
1,300	INT	TPO	XOT		0.50	Pumped 10 m3 hi vis mud around.



PL 270, Well 35/3-6 FINAL WELL REPORT
Appendices



1,300	INT	TPO	XOT		3.50	Flow checked, well static. Pumped slug. Pooh to surface. Broke out bit and junk baskets. 50% steel recovery in baskets.
1,300	INT	TPO	XOT		0.50	Cleared rig floor. Prepared new Bha.
1,300	INT	TPO	XOT		3.50	Made up 13 3/8" Csg scraper assy on junk mill. Made up AGR junk catcher. Rih to 540m.
1,300	INT	TPO	XOT		1.00	Scrape and polished with csg scraper from 548m to 588m. Pumped with 3000 Lpm. No obstructions observed.
1,300	INT	TPO	XOT		1.50	Washed down to 617m. Circulated with 5000 lpm in 6 btm's up before shakers clean.
1,300	INT	TPO	XOT		3.00	Flow checked, well static. Pooh. Drifted string. Racked scraper assy in derrick.
1,300	INT	P	XMA	P	0.50	Greased Top Drive
1,300	INT	TPO	XOT		0.50	Changed to 3 1/2" handling equipment. Picked up Patching tools and held pre job meeting with involved personnel.
1,300	INT	TPO	XOT	P	2.50	Made up 13 3/8" Patch x 6.1 m. Coated expansion sleeve with resin. Rih with max 2 min/stand running speed. Filled water inside string each conn.

Date : 03 mar, 2002

NOK 1,720,377

Report Number : 29

Depth	Phase	Cls	Op	R.C.	Hrs	Activity
1,300	INT	TPO	XOT	P	3.50	Continued Rih with csg patch assy. Landed marine swivel in wellhead with 10 t.
1,300	INT	TPO	XOT	P	1.00	Pressured up with cmt unit to 90-100 bar and had positive indications on lower 10 ft patch expanded until pressure build up to 214 bar. Held pressure for 5 min and bled off. Picked up with heave compensator first 10 ft with 3-4 t resistance than next 10 ft travel with 20 t overpull. Pulled 1 stand wet, dropped ball and sheared circulation valve. Patch set from 571,35 to 565,25m
1,300	INT	TPO	XOT	P	1.50	Pooh with patch assy. Current depth 200m.
1,300	INT	TPO	XOT	P	1.50	Continued Pooh and laid down Patch assy.
1,300	INT	TPO	XOT	P	2.50	Laid dow 13 3/8" csg scaper assy from derrick. Re-arr tubulars in derrick.
1,300	INT	TPO	XOT	P	1.50	Held pre job meeting. Picked up 9 5/8" Csg hanger. Changed handling pups and racked back in derrick on 2 x 5" HWDP.
1,300	INT	TPO	XOT	P	4.50	Rih with 5 1/2" Dp. Installed Rotating protectors; 1 each jt, total 75 jts. Racked back in derrick.
1,300	INT	TPO	XOT	P	0.50	Pressure tested 13 3/8" csg and patch. Pumped 897 ltr to 185 bar, held in 15 mins, bled back 100%.
1,300	DRI	TPO	DBO	P	2.00	Pressure test top drive IBOP's, Check valve and Rotary hose against first valve on standpipe manifold to 20/345 bar in 5/10 min.
1,300	DRI	P	ATR	P	4.00	Made up Anadrill Bha with 10 5/8"x12 1/4" Bicentric bit, Power Pack GT motor, CDR w/APWD, Power Puls HF w/WOB. Set motor on 0.7°



PL 270, Well 35/3-6 FINAL WELL REPORT
Appendices



1,300 DRI P ATR P 1.50 Rih with 12 1/4" Bha to 560m. Used heave compensator when passed patch at 560 to 572m. No obstructions seen. Continued Rih to 587m.

Date : 04 mar, 2002

NOK 3,878,761

Report Number : 30

Depth	Phase	Cls	Op	R.C.	Hrs	Activity
1,300	DRI	P	ATR	P	2.00	Continue Rih to 945m. Found loose bolt (half 3/4" size) on Dp setback. Filled string and tested Anadrills downhole tools whilst checked derrick for loose items, no items found.
1,300	DRI	P	ATR	P	0.50	Continued Rih to 1250m. Broke circulation.
1,300	DRI	P	DBO	P	0.50	Performed choke drill prior to drill out of csg shoe. Recorded SCR's
1,300	DRI	P	DCS	P	3.00	Washed down with 3500 Lpm, 30 Rpm. Tagged hard cmt at 1265m, Wob 3-6t. Drilled cmt to 1290m.
1,303	DRI	P	DCS	P	2.00	Continued drilling cmt. from 1290m to csg shoe at 1294.5m. Cleaned rathole and drilled new formation from 1300m to 1303m.
1,303	DRI	P	CIR	P	0.50	Swept around 10 m3 hi vis pill with 3500 lpm. Circulated until uniform mud weight in/ out, 1.17 Sg.
1,303	DRI	P	DPR	P	1.00	Pressure tested test line w/cmt unit to 50 bar. Closed Upper Annular and performed FIT with 36 bar, equiv to 1.45 Sg. Pumped 200 l, bled back same.
1,303	DRI	P	CIR	P	1.00	Displaced well to 1.25 Sg Glydril mud. Displaced Kill/ Choke and Booster lines to mud.
1,483	DRI	P	DRI	P	13.50	Drilled 12 1/4" hole from 1303m to 1483m. Rig heaved suddenly 3m. Had 20 bar pressure increase, reduction in torque and low ROP from 1412m. Mixed and pumped 10 m3 KCL brine pill with 25% Glycol. Displaced pill to bit and set bit on btm. Displaced pill over bit with 4500 lpm, pressure dropped from 192 to 180 bar. Unballed bit, torque and ROP back to normal from 1424m.

Date : 05 mar, 2002

NOK 2,519,403

Report Number : 31

Depth	Phase	Cls	Op	R.C.	Hrs	Activity
1,542	DRI	P	DRI		3.00	Continued drilling from 1483m to 1542m.
1,542	DRI	P	CIR	P	0.50	Circulated well 1 btms up due to increase of ECD from 1.29 to 1.32. No excess of cuttings, pump pressure or string torque noted.
1,584	DRI	P	DRI	P	2.50	Continued drilling from 1542m to 1584m.
1,838	DRI	P	DRI	P	18.00	Continued drilling from 1584 m to 1838m using 4000 lpm, 185 bar, 5-10t Wob, 50 Rpm on string, 6-4 klbs torque. Alternated parameters during periode maximize Rop.



PL 270, Well 35/3-6 FINAL WELL REPORT
Appendices



Date : 06 mar, 2002

NOK 1,588,484

Report Number : 32

Depth	Phase	Cls	Op	R.C.	Hrs	Activity
1,909	DRI	P	DRI		6.00	Continued drilling from 1838m to 1909m. Pump 4000 lpm, 188 bar, wob 14-18, rpm 50, torque 5-7 klbs, mud weight 1.32 Sg, ECD 1.375 Sg
1,963	DRI	P	DRI		7.00	Continued drilling from 1909m to 1963m with 4000 lpm, 192 bar, 226 rpm on bit, 5 klbs torque, 15-18 t wob.
1,963	DRI	P	ATR		2.50	Flow checked, well static. Pumped slug. Pooh to 684m. Hole slick and took fluid ok. Flow checked in csg shoe. Observed top protectors worn on 6-7 first stands out of 25 stands total with protectors.
1,963	DRI	P	ATR		2.00	Rih to csg shoe at 1265m using Dp without protectors. Filled string.
1,963	INT	TDR	XRE	QTD	3.50	Rig Repair; Unable to assign electric motor on Top Drive, Trouble shoot and found signal from oil temperature sensor not correct. By passed sensor.
1,963	DRI	P	DBO	P	1.00	Function tested all BOP functions on yellow pod from drillers panel, and on blue pod from Rig office. Tested accustic package with portable unit.
1,963	DRI	P	ATR	P	2.00	Pumped 4000 lpm and checked MWD. Continued Rih with protectors on drillpipe from 1385m to 1700 m. Checked make up on all protectors.

Date : 07 mar, 2002

NOK 1,983,647

Report Number : 33

Depth	Phase	Cls	Op	R.C.	Hrs	Activity
1,963	DRI	P	ATR		1.00	Continued Rih to 1931m. Checked all Dp protectors.
1,963	DRI	P	ATR		0.50	Filled string and staged up pumps to 4000 lpm. Wash down to btm at 1963m.
1,963	DRI	P	ATR		3.00	Drilled from 1963m to 1966m. Pumped 10 m3 brine/glycol # 2 pill as per section guideline. Displaced pill over bit with wob and 4500 lpm. No significant improvement om Rop. Continued drilling to 1976m.
1,974	DRI	P	CIR	P	0.50	Pumped 9 m3 #2 pill to bit and lubricated pill over bit during 25 min to allow soaking. Reciprocated string.
1,982	DRI	P	DRI		1.00	Approached btm with 4500 lpm and 230 bar and started drilling. No change in Rop. Drilled from 1976m to 1982m. Current parameters; 4000 lpm, 180 bar, wob 16-20 t, Rpm 70, torque 4-5 klbs, mud weight 1.32 Sg, ECD 1.37 Sg.
1,986	DRI	P	DRI		4.50	Continued drilling from 1982m to 1986m. Pumped 10 m3, 5 kg/m3 SAPP and fresh water as per #1 pill in section guideline. Displaced to bit and pumped with 4500 lpm whilst pill through bit. No change in Rop. Pumped 10 m3 #1 pill and allowed bit to soak in 20 min. No change in Rop. Flow checked , well static. Pumped slug.
1,986	DRI	TPO	ATR	TPO	4.50	Pooh to surface. flow checked at csg shoe and at 841m, well static. Checked 11 7/8" stabilizer gauge. Found bicentric bit partly balled up 30% on bit and 100% on reamer. 1 nozzle plugged.



PL 270, Well 35/3-6 FINAL WELL REPORT
Appendices



1,986	DRI	P	ELO	P	0.50	Recovered datas from Anadrill MWD tool.
1,986	DRI	TPO	ATR	TPO	3.50	Made up new 10 3/8" x 12 1/4" Bicentric bit, Hycalog type SB154 and Rih to Csg shoe at 1294m.
1,986	DRI	TPO	ATR	TPO	2.50	Tested MWD, and rih to 1815m.
1,986	DRI	TPO	ATR	TPO	2.00	Staged up pumps to 4000 lpm and 198 bar. Washed/rotated to btm at 1986m.
1,993	DRI	P	DRI	P	0.50	Drilled from 1986m to 1993m. Drilled in bit with 1-2 t wob, 4000 lpm, 188 bar,

Date : 08 mar, 2002

NOK 2,103,688

Report Number : 34

Depth	Phase	Cls	Op	R.C.	Hrs	Activity
2,090	DRI	P	DRI		6.00	Continued drilling from 1993m to 2090m. Current parameters at 06.00 hrs; 4000 lpm, 211 bar, 6-10 wob, 6-12 klbs torque, 98 rpm. Rop 45 m/hr
2,341	DRI	P	DRI		13.50	Continued drilling from 2090m to 2341m (steered 13m from 2286m to 2299m). Drilling parameters: 4000 lpm, 211 bar, 5-10 wob, 5-15 klbs torque, 105 rpm surface, 207 rpm downhole.
2,341	INT	TDD	XOT	QDD	1.00	Troubleshoot MWD tool.
2,369	INT	TDD	XOT	QDD	1.00	Drilled one stand from 2341m to 2369 while continued to troubleshoot MWD tool.
2,369	INT	TDD	XOT		1.00	Circulated bottoms up and performed flow check.
2,369	INT	TDD	XOT		1.50	POOH to 2280m. Attempted to obtain good signals from MWD-tool, no go. Slugged pipe and continued to POOH to 1960m.

Date : 09 mar, 2002

NOK 1,915,630

Report Number : 35

Depth	Phase	Cls	Op	R.C.	Hrs	Activity
2,369	INT	TDD	XOT		3.50	Continued to POOH.
2,369	INT	TDD	XOT		0.50	Downloaded data from MWD.
2,369	INT	TDD	XOT		1.00	Laid down malfunctioning MWD and picked up new tool. Checked bit and stabs.
2,369	INT	TDD	XOT		3.00	RIH to 270m and tested MWD, OK. Continued to RIH to 800m.
2,369	INT	TPO	XWO		1.00	Made up gray valve and kelly cock and made up Hang-Off Tool due to excessive heave (max 5.2m). RIH to 18 m above hang-off point with bit @ 1064m.



PL 270, Well 35/3-6 FINAL WELL REPORT
Appendices



2,369	INT	TPO	XWO	7.00	Waited on weather.																																																															
					<table border="0"> <tr> <td>HRS</td> <td>Wind</td> <td>Dir</td> <td>Wave</td> <td>Pitch</td> <td>Roll</td> <td>Heave</td> </tr> <tr> <td>0900</td> <td>58</td> <td>260</td> <td>6.6</td> <td>3.3</td> <td>4.5</td> <td>5.2</td> </tr> <tr> <td>1000</td> <td>56</td> <td>280</td> <td>6.5</td> <td>3.5</td> <td>5.5</td> <td>4.7</td> </tr> <tr> <td>1100</td> <td>50</td> <td>280</td> <td>6.0</td> <td>3.8</td> <td>4.6</td> <td>5.4</td> </tr> <tr> <td>1200</td> <td>40</td> <td>300</td> <td>5.6</td> <td>2.7</td> <td>3.9</td> <td>5.2</td> </tr> <tr> <td>1300</td> <td>38</td> <td>300</td> <td>5.0</td> <td>2.8</td> <td>3.9</td> <td>5.0</td> </tr> <tr> <td>1400</td> <td>36</td> <td>300</td> <td>4.7</td> <td>2.1</td> <td>3.3</td> <td>4.5</td> </tr> <tr> <td>1500</td> <td>30</td> <td>310</td> <td>4.5</td> <td>2.2</td> <td>3.5</td> <td>4.5</td> </tr> <tr> <td>1600</td> <td>32</td> <td>310</td> <td>4.2</td> <td>2.5</td> <td>4.0</td> <td>3.5</td> </tr> </table>	HRS	Wind	Dir	Wave	Pitch	Roll	Heave	0900	58	260	6.6	3.3	4.5	5.2	1000	56	280	6.5	3.5	5.5	4.7	1100	50	280	6.0	3.8	4.6	5.4	1200	40	300	5.6	2.7	3.9	5.2	1300	38	300	5.0	2.8	3.9	5.0	1400	36	300	4.7	2.1	3.3	4.5	1500	30	310	4.5	2.2	3.5	4.5	1600	32	310	4.2	2.5	4.0	3.5
HRS	Wind	Dir	Wave	Pitch	Roll	Heave																																																														
0900	58	260	6.6	3.3	4.5	5.2																																																														
1000	56	280	6.5	3.5	5.5	4.7																																																														
1100	50	280	6.0	3.8	4.6	5.4																																																														
1200	40	300	5.6	2.7	3.9	5.2																																																														
1300	38	300	5.0	2.8	3.9	5.0																																																														
1400	36	300	4.7	2.1	3.3	4.5																																																														
1500	30	310	4.5	2.2	3.5	4.5																																																														
1600	32	310	4.2	2.5	4.0	3.5																																																														
					Ran in and hanged off drill string @ 11:00 hrs. Blue pod wire slipped out of sheave, fixed same. POOH with landing string and displaced riser to sea water.																																																															
2,369	INT	TPO	XWO	1.50	Made up retrieving string, RIH to 235 m and displaced riser to 1.32 sg mud.																																																															
2,369	INT	TDD	XOT	QSL	2.00 Attempted to engage retrieving string into Hang-Off Tool, no go. POOH and inspected string. Observed diameter of 4 1/2" IF X-over to big (7 1/8") to enter into Hang-Off Tool. Changed out X-over with 5" drill pipe pup joint and RIH. Engaged retrieving string OK.																																																															
2,369	INT	TDD	XOT		2.00 Retrieved Hang-Off Tool, broke kelly cock and gray valve. Installed diverter element.																																																															
2,369	INT	TDD	XOT	QDD	2.50 RIH to 2223m.																																																															

Date : 10 mar, 2002

NOK 2,021,481

Report Number : 36

Depth	Phase	Cls	Op	R.C.	Hrs	Activity
2,369	INT	TDD	XOT		1.00	Washed down from 2223m to 2369m. Took check surveys.
2,436	DRI	P	DHO		4.50	Drilled from 2369m to 2436m . Attempted to steer from 2378m to 2386m, difficult due to excessive heave (3m). Steered from 2431m to 2436m.
2,436	INT	TPO	XOT	P	0.50	Stopped drilling due to high mud loses over the shakers, caused by very viscous mud. Reduced flow rate and conditioned mud prior to drilling ahead.
2,613	DRI	P	DRI		18.00	Drilled 12 1/4" hole from 2436m to 2613m. Drilling parametres: 230-250bar, 4000-4500lpm, 3-11 ton WOB, 5-17kft-lbs torque. Steering interval: 2465m - 2475m, 2525m - 2540m, 2604m - 2613m.



PL 270, Well 35/3-6 FINAL WELL REPORT
Appendices



Date : 11 mar, 2002

NOK 2,139,463

Report Number : 37

Depth	Phase	Cls	Op	R.C.	Hrs	Activity
2,645	DRI	P	DRI		7.00	Continued to steer 12 1/4" hole from 2613m to 2645m.
2,662	DRI	P	DRI		2.00	Continued to drill 12 1/4" hole from 2645m to 2662m.
2,662	DRI	P	DRW		2.50	Experienced high torque peaks, string stalled out and got stuck several times. Worked string free with 60 ton overpull. Worked/reamed area with 130 RPM/3800 lpm.
2,696	DRI	P	DRI		3.50	Continued to drill from 2662m to 2696m. Experienced high torque peaks and string stalling. Worked string free with 40 ton overpull. String apparently hanging on 11 7/8" stabilizer. Unable to continue drilling.
2,696	DRI	P	CIR		2.50	Circulated hole clean 2 1/2 x bottoms up. Flowchecked, OK.
2,696	DRI	P	ATR		3.50	POOH wet to 2400m, slugged pipe and continued to POOH into shoe. Hole talking fluids correctly and in good condition, no overpull observed.
2,696	DRI	P	XOT		1.50	Flowchecked in shoe. Slipped and cut drilling line.
2,696	DRI	P	ATR		1.50	Continued to POOH to 250m.

Date : 12 mar, 2002

NOK 1,961,791

Report Number : 38

Depth	Phase	Cls	Op	R.C.	Hrs	Activity
2,696	DRI	P	ATR		1.50	Continued to POOH, racked BHA. Inspected bit/BHA.
2,696	DRI	P	ATR		0.50	Dumped MWD memory.
2,696	DRI	P	DBW		0.50	Changed to 4 1/2" saver sub and 5" insert in BX elevator.
2,696	DRI	P	DBW		1.50	Made up multi purpose tool, RIH and engaged wear bushing. Took depth measurement with index line and retrieved wear bushing with 25 ton overpull to surface.
2,696	DRI	P	DCS		3.50	Cleared rig floor and rigged up to run casing. Changed to long bails and 9 5/8" elevator inserts. Removed railing for Iron Roughneck and installed rails for casing tong. Hooked up and tested casing tong.
2,696	DRI	P	DCS		0.50	Held pre job safety meeting and picked up shoe joint.
2,696	DRI	P	DCS		10.00	Picked up 2 ea intermediate joints and float joint. Checked float. Bakerlocked shoe track. Continued to RIH with 9 5/8" casing. Filled casing every 5 joints. Used compensator when passing BOP and patch.
2,696	DRI	P	DCS		6.00	Broke circulation 20 mins inside shoe. Continued to RIH with 9 5/8" casing. Observed minor losses (approx 1.5 m3 loss during 10 first stands) after entering the open hole. Reduced lowering speed to 0.5 min/joint and further down to 1min/joint @ 1900m.



PL 270, Well 35/3-6 FINAL WELL REPORT
Appendices



Date : 13 mar, 2002

NOK 4,256,291

Report Number : 39

Depth	Phase	Cls	Op	R.C.	Hrs	Activity
2,696	DRI	P	DCS		2.50	Continued to RIH with 9 5/8" casing.
2,696	DRI	P	DCS		0.50	Laid down LaFleur circulating device and ran 2 remaining joints prior to picking up the casing hanger. Lost volume total while running casing: 4 m3. Ran a total of 209 joints of 9 5/8" casing, 53.5#/ft, L-80, NSCC connections.
2,696	DRI	P	DCS		1.00	Picked up casing hanger and made up same. Laid out FMS and installed 5" remote slips. Removed railing for casing tong and installed rails for Iron Roughneck.
2,696	DRI	P	DCS		1.50	RIH with casing on 5" ITAG landing string. Lowering speed: 3min/stand. Filler casing every stand. Got approx 1.5 m3 mud volume back while RIH.
2,696	DRI	P	DCS		0.50	Picked up cement stand and broke circulation.
2,696	INT	TMA	XOT	QSE	0.50	Experienced sudden pressure increase to 75 bar. Stopped pumps. Moved string up and down while troubleshooting. Found dart unintentionally launched from remote operated cement head. Hydraulic leak on control system allowed internal pressure on DP from circulation to activate dart launcher. Not able to perform primary cementing due to dart/plug blocking the casing.
2,696	INT	TMA	XOT	QSE	1.00	Racked back cement stand. Performed several attempts to land casing, hung up in the BOP. Adjusted rig position and landed casing. Verified correct landing depth with index line.
2,696	INT	TMA	XOT	QSE	4.00	Released casing hanger running tool by 3 right-hand turns. POOH with running tool and pack-off. Racked running tool. Inspected cement head and laid down same.
2,696	INT	TMA	XOT	QSE	1.00	Rigged down casing tong and associated equipment. Changed to 5 1/2" saver sub and BX elevator inserts. Cleared rig floor.
2,696	INT	TMA	XOT	QSE	8.00	Picked up 8 1/2" BHA and RIH.
2,696	INT	TMA	XOT	QSE	1.50	Tagged plugs/float and drilled out same. Washed down shoe track and drilled out shoe. Reamed down through rat hole and tagged 4m fill @ 2691m. Reamed through shoe several times and washed/reamed rathole clean of fill to 2695m.
2,696	INT	TMA	XOT	QSE	1.00	Pulled into shoe and circulated bottoms up, 4000 lpm, 288 bar.
2,696	INT	TMA	XOT	QSE	0.50	Flowchecked, pump slug and re-arranged stands in derrick.
2,696	INT	TMA	XOT	QSE	0.50	POOH to 1800m.



PL 270, Well 35/3-6 FINAL WELL REPORT
Appendices



Date : 14 mar, 2002

NOK 2,020,719

Report Number : 40

Depth	Phase	Cls	Op	R.C.	Hrs	Activity
2,696	INT	TMA	XOT	QSE	3.50	Continued to POOH. Flowchecked below BOP. Racked BHA and laid down bit/stabs on cat walk.
2,696	INT	TMA	XOT	QSE	0.50	Made up cement stand with pump-in sub and kelly cock and racked same.
2,696	INT	TMA	XOT	QSE	6.50	Made up cement retainer and RIH to 2633m. Opened compensator when running through BOP/wellhead.
2,696	INT	TMA	XOT	QSE	1.00	Dropped ball and made up cement stand. Chased ball down with 300 lpm/24 bar. Positioned retainer @ 2645m and set same with 245 bar. Picked up stinger 4m.
2,696	INT	TMA	XOT	QSE	1.00	Attempted to break circulation above retainer. Increased pressure up to 345 bar, no go due to stinger being blocked.
2,696	INT	TMA	XOT	QSE	4.00	Racked cement stand and POOH.
2,696	INT	TMA	XOT	QSE	1.00	Broke out cement stinger CT-tool, found fill-up sub blocked with solids and rubber particles.
2,696	INT	TMA	XOT	QSE	0.50	Redressed CT-tool without fill-up sub and made up same.
2,696	INT	TMA	XOT	QSE	3.50	RIH with CT-tool, broke circulation @ 1000m, 2000m and 2640m and recorded pressures to verify stinger open.
2,696	INT	TMA	XOT	QSE	1.50	Circulated one casing volume @ 1000 lpm/55 bar, while running one pump on booster line.
2,696	INT	TMA	XOT	QSE	0.50	Stinged into retainer, set down 20 tons and attempted to break circulation with 100 bar, no go (pumped 130 ltrs, indicating retainer sleeve not opened). Pulled out of retainer with 5 tons overpull and repeated sequence and opened retainer sleeve with 100 bar.
2,696	INT	TMA	XOT	QSE	0.50	Broke circulation in steps up to 1000 lpm and recorded pressures. Verified circulation outside casing. Circulated bottoms up @ 1000 lpm/67 bar, no losses.

Date : 15 mar, 2002

NOK 1,986,697

Report Number : 41

Depth	Phase	Cls	Op	R.C.	Hrs	Activity
2,696	INT	TMA	XOT	QSE	1.50	Continued to circulate bottoms up @ 1000 lpm/67 bar, no losses. Meanwhile run one pump on booster line.
2,696	INT	TMA	XOT	QSE	0.50	Pumped 10m3 fresh water spacer with rig pumps @ 1000 lpm. Lined up to cement unit and pressure tested against low torque valve on cement stand to 345 bar.
2,696	INT	TMA	XOT	QSE	1.00	Mixed and pumped 18.4 m3 1.56 sg lead slurry and 12.7 m3 1.90sg tail slurry @ 900 lpm. Displaced same to rig floor with 200 ltrs.
2,696	INT	TMA	XOT	QSE	0.50	Displaced cement down to retainer with 26.9 m3 1.32sg mud using rig pumps @ 1000 lpm. Observed steady pressure increase after dumping approx 18 m3. indicating cement coming in on the outside.

						pumping approx 18 m3, indicating cement coming up on the outside. No losses observed during the displacement.
2,696	INT	TMA	XOT	QSE	0.50	Pulled out of retainer (15 ton overpull required to release from retainer). Pressure bled off and no subsequent pressure build up, confirming integrity of retainer. Dumped 0.5 m3 cement on top. Racked back cement stand.
2,696	INT	TMA	XOT	QSE	0.50	Pulled out 1 stand to 2604m and flushed pipe clean with 60m3 1.32sg mud @ 2400 lpm.
2,696	INT	TMA	XOT	QSE	2.00	Flowchecked and POOH to 1260m.
2,696	INT	TDR	XOT	QDN	0.50	Repaired Iron Rougneck, changed broken hydraulic hose.
2,696	INT	TMA	XOT	QSE	2.00	Continued to POOH and laid down CT-tool.
2,696	INT	TMA	XOT	QSE	2.50	RIH with mill and flush tool. Washed down last 2 meters, set down 1 ton and worked tool.
2,696	INT	TMA	XOT	QSE	1.00	POOH and laid down mill and flush tool.
2,696	INT	TMA	XOT	QSE	2.00	Made up seal assembly running/retrieval tool and RIH with same. Set set seal assembly by setting down landing string weight and pressure up same against middle pipe ram (MPR) to 180 bar. Tested seal assy and MPR to 345 bar.
2,696	DRI	P	DPR	P	3.00	Tested remaining BOP to 20/345 bar. Function tested BOP on blue pod from drillers panel and yellow pod from toolpushers panel. Function tested acoustic system.
2,696	INT	TMA	DPR	QSE	0.50	Released running tool with 30 ton overpull. Set down same including string weight.
2,696	INT	TMA	DPR	QSE	0.50	Closed upper pipe ram and attempted to re-test seal assy, no go.
2,696	INT	TMA	DPR	QSE	0.50	POOH and inspected running tool. Observed ruptured O-ring.
2,696	INT	TMA	DPR	QSE	3.00	Made up multi purpose tool with cup tester and RIH with 9 5/8" wear bushing. Landed same, set down 9 ton, re-tested seal assy to 175 bar and pulled free with 12 ton overpull. POOH and laid down multi purpose tool.
2,696	INT	TMA	DPR	QSE	1.50	Laid down casing hanger running tool. Attempted to release seal assy from tool, no go. Laid down cement stand. Meanwhile tested casing against shear ram to 345 bar (pumped 1200 ltrs).
2,696	INT	TDR	DPR	QDN	0.50	Repaired Iron Rougneck, changed broken solenoid valve.



PL 270, Well 35/3-6 FINAL WELL REPORT
Appendices



Date : 16 mar, 2002

NOK 1,788,277

Report Number : 42

Depth	Phase	Cls	Op	R.C.	Hrs	Activity
2,696	INT	TDR	DPR	QDN	1.00	Continued to repair Iron Rougneck, changed broken solenoid valve.
2,696	DRI	P	ATR	P	2.50	Laid down 12 1/4" BHA.
2,696	INT	TMA	ATR	QSE	1.50	RIH with 25 stand 5 1/2" drill pipe with protectors.
2,696	INT	TMA	ATR	QSE	5.00	POOH while disconnecting protectors. Experienced problems to release several of the protectors. Used disc cutter on stuck bolts.
2,696	DRI	P	DBW	P	2.00	Broke and laid down 5" Hang-off Tool and made up new 5 1/2" Hang-off Tool.
2,696	DRI	P	DBO	P	2.00	Pressure tested upper and lower inside BOP on top drive to 20/345 bar.
2,696	INT	TDR	XRE	QDH	5.00	Repaired draw work low clutch, changed diaphragm. Meanwhile adjusted top drive RPM sensor. Changed gear oil on top drive.
2,696	INT	TMA	XMI	QSE	5.00	Made up cement retainer milling BHA. Picked up 12 joints 5" HWDP and RIH to 1450m.

Date : 17 mar, 2002

NOK 1,899,292

Report Number : 43

Depth	Phase	Cls	Op	R.C.	Hrs	Activity
2,696	INT	TMA	XMI	QSE	2.50	Continued to RIH with retainer milling BHA. Washed down last stand and tagged cement @ 2639m.
2,696	DRI	P	XMI	P	1.00	Racked one stand and performed choke drill with crew. Recorded SCR's.
2,696	INT	TMA	XMI	QSE	8.00	Washed down and drilled firm cement from 2639m to 2645. Milled on retainer from 2645m to 2646m. Parametres: 100 rpm, WOB 3- 10 ton, 2000-3500 lpm, 180 bar. Observed falling pump pressure.
2,696	INT	TMA	XMI	QSE	0.50	Pressure tested surface equipment, OK.
2,696	INT	TDD	XMI	QDP	0.50	Circulated off bottom with steady pump pressure. Continued milling. Twisted off drill string in the BOP. Lost 80 ton of total 120 ton (Martin Decker) string weight and pump pressure.
2,696	INT	TDD	XFI	QDP	0.50	Checked drilling line on top drive and crown block due to DDM jumping when string parted.
2,696	INT	TDD	XFI	QDP	1.00	POOH, found string parted @ 237m (between upper an lower annular).
2,696	INT	TDD	XFI	QDP	3.00	Made up fishing BHA with 8 3/8" overshot and 5 1/2" basket grapple.
2,696	INT	TDD	XFI	QDP	1.00	RIH to top of fish. Entered fish with 500lpm, 10 rpm until pressure increased. Stopped pumps and rotation, set down 10 tons and engaged fish. Pulled fish with 130 tons (Martin Decker), no overpull.



PL 270, Well 35/3-6 FINAL WELL REPORT
Appendices



2,696 INT TDD XFI QDP 2.50 POOH with fish, laid down fishing BHA.
2,696 INT TDD XFI QDP 3.50 Flowchecked and pumped slug. POOH with string from 2528m to 300m.

Date : 18 mar, 2002

NOK 1,994,501

Report Number : 44

Depth	Phase	Cls	Op	R.C.	Hrs	Activity
2,696	INT	TDD	XFI	QDP	1.50	Continued to POOH with string from 300m. Broke out junk mill.
2,696	INT	TDD	XFI	QDP	1.50	RIH with BOP Isolation Test Tool with 1 stand 6 1/2" Drill Collars and jet sub below. Drifted BOP with tool to verify rams and annulars fully retracted. No obstructions seen when landing the tool.
2,696	INT	TDD	XFI	QDP	1.00	Function and pressure tested upper and lower annular to 15/345bar, OK.
2,696	INT	TDD	XFI	QDP	1.00	POOH and laid down BOP Isolation Test Tool.
2,696	INT	TMA	XFI	QDP	7.00	Made up 8 1/2" BHA with junk bit for milling retainer and cement. RIH, washed down last stand.
2,696	INT	TMA	XOT	QSE	1.50	Drilled cement retainer, 2000lpm, 118 bar, 70 rpm, 8-10 ton WOB. Off bottom torque 4kft#. Observed fluctuating string torque (2-15kft#) with WOB above ca. 7 tons.
2,696	DRI	P	DRI	P	3.50	Drilled cement from 2646m to 2689m , 2000lpm, 120 bar, 70 rpm, 4-7 ton WOB, 2-10.000ft# torque. Cleaned out rathole.
2,699	DRI	P	DRI		2.00	Drilled new formation from 2696m to 2699m, 2000 lpm, 120 bar, 50-100rpm, 10 ton WOB, 5000 ft# torque.
2,699	DRI	P	CIR		0.50	Circulated hole clean, worked junk subs.
2,699	DRI	P	ERF		1.00	Performed FIT to 1.5 sg EMW (max pressure 48 bar, pumped/received 160 ltrs).
2,699	INT	TPO	XOT		2.50	POOH, observed heavy wear on 3 stands of drill pipe located in the BOP-area while drilling cement. Laid down same + one stand above and below (5 stands total).
2,699	INT	TPO	XOT		1.00	Rotated 70 rpm for 5 mins to confirm wear pont in BOP. Continued to POOH to 2005m.

Date : 19 mar, 2002

NOK 1,507,380

Report Number : 45

Depth	Phase	Cls	Op	R.C.	Hrs	Activity
2,699	INT	TPO	XOT		3.00	Spaced out, closed midle pipe ram and landed string on ram. Opened ram and rotated 70 rpm for 5 mins to confirm wear pont in BOP. Wear mark indicated that wear point was 7.9 m above middle pipe ram (in the LMRP). Continued to POOH to 260m.
2,699	INT	TPO	XOT		1.00	Displaced riser + kill,choke and booster line to sea water.

2,699	INT	TPO	XOT	1.00	Continued to POOH, laid down BHA.
2,699	INT	TPO	XOT	3.00	Rigged up to pull LMRP. Held safety meeting.
2,699	INT	TPO	XOT	2.00	Pulled diverter and laid down same. Collapsed slip joint with landing string, adjusted tensioners and disconnected LMRP.
2,699	INT	TPO	XOT	0.50	Pulled rig off location, rigged down pod hose loops, compensator wire and index line.
2,699	INT	TPO	XOT	1.50	Hung off support ring on housing, made up single and racked back slip joint in derrick.
2,699	INT	TPO	XOT	6.00	POOW with LMRP on drilling riser and landed same on carrier.
2,699	INT	TPO	XOT	1.00	Disconnected LMRP from riser and skidded carrier starboard.
2,699	INT	TPO	XOT	5.00	Inspected LMRP for possible internal damage (Performed SJA for working in the moonpool).

Date : 20 mar, 2002

NOK 1,519,890

Report Number : 46

Depth	Phase	Cls	Op	R.C.	Hrs	Activity
2,699	INT	TPO	XOT		2.00	Continued to inspect LMRP for possible internal damage. Skidded carrier to well centre. Function tested and inspected annular preventer.
2,699	INT	TPO	XOT		3.00	Skidded LMRP/carrier to starboard and repaired broken hose and piping on LMRP. Pressure tested same.
2,699	INT	TPO	XMA		1.00	Slipped and cut drilling line. Meanwhile continued to test/repair damaged piping.
2,699	INT	TPO	XMA		1.50	Continued to test/repair damaged piping on LMRP, yellow pod.
2,699	INT	TPO	XMA		4.00	Moved LMRP to well centre, connected riser and installed guidelines. Repositioned transponder to aft side of LMRP. Secured LMRP on carrier and inspected LMRP from below.
2,699	INT	TPO	XMA		6.50	RIW with LMRP on drilling riser.
2,699	INT	TPO	XMA		3.50	Made up slip joint and connected support ring. Adjusted riser tensioners and installed pod hose sheaves in moonpool.
2,699	INT	TPO	XMA		0.50	Moved rig to position LMRP above BOP. Meanwhile, attempted to install guideline #2 in guidepost on BOP, no go, anchor not compatible with post. Pulled guideline # 2 to surface.
2,699	INT	TPO	XMA		0.50	Landed LMRP, set down 20 ton, closed connector and performed overpull test tp 20 ton.
2,699	INT	TPO	XMA		1.50	Pressure tested Kill & Choke line to 345 bar. Meanwhile stroke out slip joint and installed diverter.



PL 270, Well 35/3-6 FINAL WELL REPORT
Appendices



Date : 21 mar, 2002

NOK 2,407,319

Report Number : 47

Depth	Phase	Cls	Op	R.C.	Hrs	Activity
2,699	INT	TPO	XMA		1.00	Locked down diverter and overpull tested same to 5 ton. Installed diverter hydraulic system.
2,699	INT	TPO	XMA		1.50	Rigged down riser running equipment. Meanwhile monitored for pressure under shear ram and flowchecked, negative. Opened shear ram and displaced riser and Kill&Choke lines to 1.32.sg mud.
2,699	INT	TPO	XMA		1.50	Made up Universal Test Plug Tool, RIH and landed same in wellhead. No obstructions through BOP/LMRP.
2,699	INT	TPO	XMA		0.50	Pressure tested LMRP connector to 20/345 bar.
2,699	INT	TPO	XMA		1.00	Function tested BOP on blue pod from drillers panel and yellow pod from toolpushers panel.
2,699	INT	TPO	XMA		1.50	POOH with test plug and laid down same.
2,699	DRI	P	ATR		2.50	Picked up 8 1/2" rotary BHA, installed radioactive sources.
2,699	DRI	P	ATR		4.00	RIH. Tested MWD on first stand of 5 1/2" drill pipe @ 1160m. Continued to RIH to 2209m.
2,699	INT	TPO	XOT		0.50	Attempted to install new extension sub on hang-off tool. No go due to 6 5/8" FH threads instead of 7 5/8" threads that was expected. Racked back hang-off stand in derrick.
2,699	DRI	P	ATR		2.50	Continued to RIH from 2209m to 2600m. Mounted wear protectors on every joint.
2,699	DRI	P	ATR		0.50	Closed MPR for space out. Opened MPR and performed rotation test.
2,699	DRI	P	ATR		0.50	POOH and racked back 14 stands with wear protectors. Inspected drill pipe and found no visible sign of wear.
2,699	DRI	P	ATR		1.00	Continued to RIH to 2430m. Continued to RIH with wear protector stands to 2688m.
2,699	DRI	P	ATR		0.50	Filled pipe and broke circulation in steps. Took torque readings and up/down weights.
2,699	DRI	P	ATR		0.50	Washed down and tagged bottom @ 2699m. Recorded drilling parametres.
2,726	DRI	P	DRI		4.50	Started drilling with low parametres to drill in bit. Observed slight gain in active, flowchecked OK. Continued to drill 8 1/2" hole to 2726m. Adjusted parametres to optimise torque and ROP response. Drilling parametres: RPM: 80-170, WOB: 3-10 ton, Flow: 2000-2200 lpm, Torque: 1-20 kft#. (Torque respons indicated high stick-slip on bottom) Off bottom torque 4-5 kft#.



PL 270, Well 35/3-6 FINAL WELL REPORT
Appendices



Date : 22 mar, 2002

NOK 1,922,737

Report Number : 48

Depth	Phase	Cls	Op	R.C.	Hrs	Activity
2,779	DRI	P	DRI		6.00	Continued to drill 8 1/2" hole from 2726m to 2779m. Drilling parametres: Rpm: 85, Wob: 4-6 ton, Flow: 2000 lpm, Torque: 5-15 klbs. Torque respons indicated stick-slip on bottom. Off bottom torque 5-6 klbs
2,839	DRI	P	DRI		6.00	Continued drilling from 2779m to 2839m.
2,840	DRI	P	CIR	P	0.50	Continued drilling from 2839m to 2840m. Circulated btm up due to ECD increase from 1.47 to 1.50 Sg during 30 min.
2,886	DRI	P	DRI	P	4.50	Continue drilling from 2840m to 2886m. Flow: 2020 lpm, Press: 166 bar, 80 rpm, torque 4-11 klbs, Rop 10-14 m/hr.
2,886	DRI	TWC	DRI	QTD	1.00	Repaired rig; Replaced broken bearings on Top Drive IBOP actuator arm. Circulated with 1500 lpm during repair.
2,948	DRI	P	DRI	P	6.00	Drilled for corepoint from 2886m to 2948m (2946.8m tvd). Flow: 2000 lpm, Press 166 bar, Rpm: 80, Torque 5-12 klbs, Wob: 8 t, Rop: 9-12 m/hr.

Date : 23 mar, 2002

NOK 1,947,206

Report Number : 49

Depth	Phase	Cls	Op	R.C.	Hrs	Activity
3,009	DRI	P	DRI		6.00	Continued drilling for corepoint from 2948m to 3009 m (3007.8m tvd). Flow checked at 2986m. Reduced flow to 1950 lpm to obtain 1.53 Sg ECD. Press: 169 bar, Rop: 9-15 m/hr, Wob: 8 t, Torque 8-11 klbs.
3,070	DRI	P	DRI		7.00	Continued drilling for corepoint from 3009m to 3070m.
3,070	DRI	TPO	CIR	TPO	1.00	Circulated hole clean with 1940 lpm prior to trip out of hole.
3,070	DRI	TPO	ATR	TPO	3.50	Pooh to 2431m. Had max 30 t o/pull in section 3022m to 2964m. Pumped and work string with 30 spm and 20 rpm and passed ok. Pooh to 2950m. Pumped out to 2825, cont Pooh to 2431m. Racked back 14 stands with protectors.
3,070	DRI	TPO	ATR	TPO	0.50	Installed Dp protectors on 2 stands on way out to 2383m
3,070	DRI	TPO	ATR		0.50	Installed extension sub on Drilquip hang off tool and racked back in derrick.
3,070	DRI	TWC	ATR	QTD	1.00	Repaired rig; Repaired Top drive, IBOP actuator arm.
3,070	DRI	TPO	ATR	TPO	3.00	Rih from 2383m to 3070m. Took 10 t resistance up/down in section 3040-3045m. Broke circ and washed/rotated last 18m to btm. Checked make up torque on Dp protectors. Positioned protectors from BOP and up.
3,082	DRI	P	DRI	P	1.50	Drilled from 3070m to 3082m.



PL 270, Well 35/3-6 FINAL WELL REPORT
Appendices



Date : 24 mar, 2002

NOK 2,107,086

Report Number : 50

Depth	Phase	Cls	Op	R.C.	Hrs	Activity
3,146	DRI	P	DRI		6.00	Continued drilling for corepoint from 3082m to 3146m. Flow: 1910 lpm, Press 168 bar, ECD 1,53 Sg, RPM: 110, Torque: 5-13 klbs, WOB 8 t, ROP average 13-14 m/hr.
3,366	DRI	P	DRI		16.00	Continued drilling for corepoint from 3146m to TD at 3366m (3363.4m tvd). Circulated btms up. Got confirmation from town on sample taken from 3209m, was conclusively of Jurassic age.
3,366	DRI	P	CIR		2.00	Circulated btm up for geological sample and continued circ hole clean, total 2 x btm's up, boosted riser.

Date : 25 mar, 2002

NOK 1,938,877

Report Number : 51

Depth	Phase	Cls	Op	R.C.	Hrs	Activity
3,366	DRI	P	CIR		1.00	Flow checked, well static. Wiper trip from 3366m to 3220m.
3,366	DRI	THO	ATR	QTD	0.50	Made up guide-wire and block to guide Top Drive service loop in order to avoid interference with BX elevator.
3,366	DRI	P	ATR	P	2.50	Continued Wiper Trip. 35 mt o/pull in section from 3132m to 3129m. Reamed section up/down with 1500 lpm, 70 rpm. Confirmed ok, by sliding pass section. Continued Pooh to csg shoe at 2688m. Hole in good condition.
3,366	DRI	P	ATR		2.00	Rih to TD at 3366m. No obstruction observed.
3,366	DRI	P	CIR	P	1.50	Circulated btm's up with 2200 lpm. Boosted riser during periode. Flow checked 20 min, well static.
3,366	DRI	P	ATR	P	4.00	Pumped slug. Pooh to 1130m. Tight spot at 3328m. Worked string through section until no resistance observed. Max o/pull 30 t.
3,366	DRI	P	ATR		2.50	Flow checked, well static. Meanwhile changed to 5" Dp handling gear. Continued Pooh to 28m.
3,366	DRI	P	ATR		1.50	Removed radioactive sources in MWD. Racked back drilling Bha in derrick.
3,366	E1	P	XRU		0.50	Rigged up for Schlumberger wireline logging.
3,366	E1	P	ELO	P	8.00	Schlumberger tested tool stem. Rih 1645hrs to 50m. Pulled back and checked tool. Rih VSP from 1745 hrs. Took 6 check stations. Depth at midnight 2900m with 32 of 77 levels done.



PL 270, Well 35/3-6 FINAL WELL REPORT
Appendices



Date : 26 mar, 2002

NOK 2,168,756

Report Number : 52

Depth	Phase	Cls	Op	R.C.	Hrs	Activity
3,366	E1	P	ELO		6.00	Continued and completed VSP logging. Shot total 76 of 77 levels. Performing check shots.
3,366	E1	P	ELO		1.50	Continued VSP check shots. Pooh. At surface 0730 hrs.
3,366	E1	P	ELO		2.50	Rigged down VSP and rigged up tool string for CST.
3,366	E1	P	ELO		10.00	Rih with CST from 10:10 hrs to TD and checked tie in. Pooh from 17:30 hrs. Shot 30 bullits, lost 12, recovered 18, 1 empty.
3,366	E1	P	ELO		1.00	Rigged down Schlum CST tool and wireline sheaves from derrick.
3,366	E1	P	ELO		3.00	Laid down Anadrill MWD tools, NMDC and Jars from derrick.

Date : 27 mar, 2002

NOK 1,893,952

Report Number : 53

Depth	Phase	Cls	Op	R.C.	Hrs	Activity
3,366	P&A	P	PMP		0.50	Changed elevators and equipment to handle 3 1/2" Dp.
3,366	P&A	P	PMP		5.50	Picked up Diverter sub and 319m 3 1/2" Dp for Cmt stinger. Cont Rih with 870m 5" Dp followed by 5 1/2" Dp.
2,900	P&A	P	PMP		3.00	Continued Rih to 2900m.
2,900	P&A	P	PMP		1.00	Broke circulation and pumped 7,3 m3 Hi-vis Glydril mud. Displaced with 27 m3 mud.
2,800	P&A	P	PMP	P	1.50	Pull back to 2800m. Cirulated Btms up and condition mud. Max rate 2500 lpm- 170 bar.
2,800	P&A	P	PMP		1.00	Made up Cmt stand and pumped 7 m3 FW spacer. Tested cmt line to 100 bar. Mixed and pumped 10 m3 1.90 Sg cmt slurry. Displaced cmt with 2,3 FW spacer followed by 23.5 m3 1,32 sg mud.
2,530	P&A	P	PMP		2.50	Pooh to 2420m. Circulated btm up, no cmt in returns. Dumped 19 m3 mud at shakers. Flow checked. Pumped slug.
2,530	P&A	P	ATR		9.00	Pooh from 2420m. Laid down 48 jt 5 1/2" Dp with Western Well protectors to deck. Continued lay down 90 jt 5" Dp. L/down 3 1/2" stinger.

Date : 28 mar, 2002

NOK 1,791,607

Report Number : 54

Depth	Phase	Cls	Op	R.C.	Hrs	Activity
2,418	P&A	P	ATR		6.00	Made up 8 1/2" Bha with excess Hwdp and Rih to 2418m.
2,530	P&A	P	PMP		1.50	Continued Rih to 2440m. Washed down and tag hard cmt with 10t at 2530m. Pressure tested cmt plug using 760 l mud against UAP to 157 bar, held 10 min, ok.



PL 270, Well 35/3-6 FINAL WELL REPORT
Appendices



2,530	P&A	P	PMP	6.00	Pumped slug. Pooh. Washed wellhead. Racked back 8 1/2" Bha.
596	P&A	P	PCU	3.50	Made up Csg cutter assy with MPT tool at 350 m. Cont Rih and landed MPT in wearbushing. Took 10 t o/pull.
596	P&A	P	PCU	0.50	Closed UAP. Cut 9 5/8" Csg at 596m using 1500 lpm, 62 bar, 5 min cutting time. Flowchecked, ok. Opened UAP. Pulled wear bushing free w/30 t o/pull.
596	P&A	P	PCU	3.00	Pooh with wear bushing and 9 5/8" Csg cutter assy. Laid down wear bushing. WB had no significant wear, slight polished on one side. Cleared rig floor.
596	P&A	P	PER	1.00	Rigged up drill floor to retrieve 9 5/8" Csg. Installed csg modem.
596	P&A	P	PER	2.50	Picked up 9 5/8" Csg spear assy, made up MPT to retrieve seal assy. Rih to 251m.

Date : 29 mar, 2002

NOK 1,891,351

Report Number : 55

Depth	Phase	Cls	Op	R.C.	Hrs	Activity
596	P&A	P	PER		0.50	Closed LAP, recorded stripping friction to 5 t. Opened LAP and landed in wellhead. Closed LAP and pulled seal assy w/20 t o/pull. Engaged csg spear and pulled 1 m. Observed for pressure on choke line, ok. Closed diverter element and open LAP. Flow checked, ok.
596	P&A	P	PER		1.00	Circulated btm's up from 596m, w/2000 lpm, 20 bar. Flow checked, ok. Pumped slug.
596	P&A	P	PER		1.00	Pooh with 9 5/8" csg. Released spear and racked MPT/Seal assy in derrick.
596	P&A	P	PER		0.50	Installed manual 9 5/8" csg elevator. Held pre job safety meeting with involved personnel.
596	P&A	P	PER		3.00	Retrieved 9 5/8" Csg. total 21 jt at report time.
596	P&A	P	PER		1.50	Continued retrieve 9 5/8" Csg cut. L/d total 29 jt and + cutted jt.
596	P&A	P	PER		1.50	Rigged down Csg equipment and cleared rig floor.
590	P&A	P	PEP		4.00	Made up and run 13 3/8" EZSV converted to bridge plug on Dp. Set at 590 m with 40 turns to right. Sheared plug with 23 t o/pull. Load tested with 10 t, ok. Closed UAP, pressure tested plug to 86 bar, 10 min, ok. Open UAP.
590	P&A	P	PEP		1.50	Pooh with mechanical run tool assy. L/down assy. Changed elevator to 3 1/2" Dp.
590	P&A	P	PMP		2.50	Made up cement diverting tool on 3 1/2" Dp and Rih to 530m. Made up cement stand on trip in.



PL 270, Well 35/3-6 FINAL WELL REPORT
Appendices



590	P&A	P	PMP	0.50	Tagged EZSV at 590 m Circulated btm's up prior to cement job w/2500 lpm, 80 bar.
295	P&A	P	PMP	1.00	Pumped 7 m3 FW. Tested cement line to 100 bar, ok. Mixed and pumped 23,5 m3 1.90 sg slurry. Pumped 0.6 m3 FW behind. Displaced with 2.2 m3 1.32 sg mud.
295	P&A	P	PMP	1.00	PooH to 260 m with 1,5 min/stand.
295	P&A	P	PMP	0.50	Circulated long way with 3300 lpm, 100 bar. Dumped 25 m3 slightly cement contaminated mud.
295	P&A	P	PMP	2.00	Continued PooH. L/down 33 jt 3 1/2" Dp
295	P&A	P	ATR	2.00	L/down Csg spear assy and MPT/seal assy, drilling and Cement stands from derrick. continued L/down 25 jt 5 1/2" Dp.

Date : 30 mar, 2002

NOK 1,781,345

Report Number : 56

Depth	Phase	Cl	Op	R.C.	Hrs	Activity
295	P&A	P	ATR		6.00	L/down hang off tool. Continued L/down 5 1/2" Dp. Total 115 jt at report time.
295	P&A	P	ATR		2.50	Continued L/down 5 1/2" Dp to deck.
295	P&A	P	ATR		2.00	Made up 12 1/4" Bit, Rih. Tagged cement at 295m with 10 t.
295	P&A	P	CIR		1.50	Displaced well to SW using 3000 lpm. Flushed kill/choke, Poorboy, k/c Manifold. booster, burner boom lines. Closed diverter. Flushed diverter lines.
295	INT	TWC	XOT	QDV	0.50	Odfjell pressure tested diverter. Rig on "0" rate
295	P&A	P	ATR	P	3.50	PooH, l/down excess tubulars.
295	P&A	P	ATR		1.00	Made up jet sub on Dp and rih to BOP.
295	P&A	P	CIR		1.00	Operated BOP functions and washed in BOP with SW using 3800 lpm. Meanwhile Odfjell pressure tested kill/choke lines to 1035 bar.
295	INT	TWC	XOT	QCF	1.00	Odfjell continued test on Kill/Choke lines to 1035 bar, both failed test. Rig on "0" rate.
295	P&A	P	ATR	P	4.00	Continued l/down Dp from derrick, tot 66 jt.
295	P&A	P	DBO		1.00	Rigged up to handle marine riser on rig floor.



PL 270, Well 35/3-6 FINAL WELL REPORT
Appendices



Date : 31 mar, 2002

NOK 2,300,445

Report Number : 57

Depth	Phase	Cls	Op	R.C.	Hrs	Activity
295	P&A	P	DBO		2.00	Continued rig up to handle marine riser. Held pre job safety meeting with involved personnel. Adjusted time to summertime at 0200 hrs.
295	P&A	P	DBO		4.00	Pulled diverter and l/down to deck. M/up riser running tool on lift pipe. Collapsed inner barrel and lock same. Prep to and disconnected BOP from 0335 hrs. Removed control hose saddles and hung off riser support ring 0420 hrs. L/down slip jt, continued pulling marine riser.
295	P&A	P	DBO		8.50	Continued pulling BOP. Landed BOP on carrier 12:00 hrs. Removed Guide wires, Position beacon. Disconn double riser and skidded BOP to parking position. L/down risers.
295	P&A	P	DBO		1.00	R/down Riser handling equipment. Cleared rig floor.
253	P&A	P	PCU		4.50	Installed BX elevator and Bailes. M/up MOST cutting assy on 8" DC and 5 1/2" Hwdp. Rih to wellhead. R/up and ran guide frame on 2 guide wires. Stabbed into wellhead and landed MOST tool on Wellhead. Started cutting at 253m from 19:50 hrs with 3200 lpm on motor.
253	P&A	P	PCU		1.50	Continued cutting. After 3 times indication of csg cut, press built up to 20-30 bar o/pressure, total cutting time 50 min. Attempt to engage MOST tool onto wellhead with left turn, no success. Engaged MOST tool using manual activators (with ROV). Pulled 150 t o/pull, no movement on PGB. Continued cutting with 3500 lpm, cutter stalled out after additional 10 min cutting time. Pulled PGB/WH above seabed with 10 t overpull.
225	P&A	P	PCU		2.50	Retrieved PGB/30"/WH on Dp. L/down 8" DC as Pooh. Removed guide posts. Land PGB on work skid. Performed Post Sea Bed Survey with ROV using sonar and camera. No objects observed during inspection.

Date : 01 apr, 2002

NOK 1,789,570

Report Number : 58

Depth	Phase	Cls	Op	R.C.	Hrs	Activity
225	P&A	P	PCU		3.00	Secured PGB on skid. Disconnected MOST tool. L/down 3x 8" dc and cut assy. Cut hole in end of 30" csg for handling with crane from cellar deck. Held pre job safety meeting with involved personnel. Moved PGB/30" from well centre to port side of cellar deck.
225	P&A	P	ATR		1.00	Moved PGB/30" to supply boat. Continued l/down excess tubulars from derrick.
225	MOV	P	BAN		2.00	Started deballasting rig to transit draft from 0400 hrs. L/down tubulars from derrick. 27 jt Itag pipe, 21 jt Dp. (Total 2 stands 8" DC remaining at report time).



AKER ENERGY AS

PL 270, Well 35/3-6 FINAL WELL REPORT
Appendices



225	MOV	P	BAN	3.00	Continued Deballast rig to transit draft.
225	MOV	P	BAN	9.50	Started pull anchors: Balder Viking Lifted anchor no 3 at 0938 hrs, in bolster at 1121 hrs Havila Charisma Lift anchor no 7 at 0957 hrs, in bolster at 1139 hrs Balder Viking lifted anchor no 4 at 1150 hrs, in bolster at 1326 hrs Havila Charisma lifted anchor no 8 at 1218 hrs, in bolster at 1407 hrs. Balder Viking lifted anchor no 5 at 1402 hrs, in bolster at 1543 hrs. Havila Charisma lifted anchor no 2 at 1454 hrs, on deck at 1520 hrs, stop at 1639 hrs at 150m. Balder Viking lifted anchor no 9 at 1621 hrs, on deck at 1641 hrs, secured chain to towing line at 1732 hrs. Deepsea Bergen recovered anchor no6 at 1830 hrs. Deepsea Bergen under tow on anchor chains no 9 and 2 and off contract at 1830 hrs.



AKER ENERGY AS

PL 270, Well 35/3-6 FINAL WELL REPORT
Appendices



7.2 Appendix 2: Wireline Witness Reports

Log run: USIT/GR/CCL/AMS Misrun	Logging company: Schlumberger	Date: 19 – 20. Febr. 2002
Location: Måke Nord	Field: Exploration	Country: NORWAY

m RKB: 23	Water depth: 225 m	Last csg.: 13 3/8" / 1294m
-----------	--------------------	----------------------------

Time to drill fm. from height of thermometer to TD: Circulation time after stopped drilling: No circulation Time since last circulation: No circulation Thermometers: USIT Measuring depth of thermometer: log	Hole size: 17.5" Last csg.: 13 3/8" TD: 1300 m MW: Mud type: Seawater	Rm: Ohm-m @ X°C Rmc: Ohm-m @ X°C Rf: Ohm-m @ X°C
--	---	--

Operation Summary: Rigged up to run USIT in 13 3/8" cased hole to investigate water flow outside casing		
Time:	Activity:	
21:20	19.02.02	Rig up
23:45		RIH
--		Tie-in
01:40	20.02.02	At TD
02.40		Start logging
---		Reperat section
04:30		OOH
05:00		Rigged down
Total time: 7 hrs. 40 min		
Lost time: 30 min		

Remarks: The USIT stopped spinning several times and required increasing current. Motor stalling? Pulled out recording temperature only. The tool had a small damage, possible from hitting the wellhead. Changed to backup tool.

Witness: Øivind Eikefet



AKER ENERGY AS

PL 270, Well 35/3-6 FINAL WELL REPORT
Appendices



Log run: 1A USIT/GR/CCL/AMS	Logging company: Schlumberger	Date: 20. Febr. 2002
Location: North Sea	Field: Exploration, (Måke Nord prospect)	Country: NORWAY

m RKB: 23	Water depth: 225 m	Last csg.: 13 3/8"/ 1294m
-----------	--------------------	---------------------------

Time to drill fm. from height of thermometer to TD: Circulation time after stopped drilling: No circulation Time since last circulation: No circulation Thermometers: USIT Measuring depth of thermometer: log	Hole size: 17.5" Last csg.: 13 3/8" TD: 1300 m MW: Mud type: Seawater	Rm: Ohm-m @ X°C Rmc: Ohm-m @ X°C Rf: Ohm-m @ X°C
--	---	--

Operation Summary: Rigged up to run USIT in 13 3/8" cased hole to investigate water flow outside casing	
Time:	Activity:
05:00	20.02.02
06:35	Rig up
--	RIH
09:20	Tie-in
10.15	At TD
--	Start logging
13:35	Repeat section
15:00	OOH
15:15	RIH*
15:20	At TD*
17:35	Start logging*
18:00	OOH*
	Rigged down
	* RIH to log lowest section from tagged cement to previous bottom of log.
Total time: 13 hrs.	
Lost time: 30 min	

Remarks: Running USIT log 1A. Problems to record at 1800 ft/hr. Data acquisition stopped. OK when running at 600 ft/hr and lower resolution (10°/6inch) and RPM=3 - 4. Drilling decided to log bottom of well from tagged cement to 1150m. Operator RIH to 1217 m, pulled out to 1050 and waited. Ran back to TD on geologist request to log interval. Logged temperatur OOH.

Logged interval: 256-1209m

Witness: Øivind Eikefet



AKER ENERGY AS

PL 270, Well 35/3-6 FINAL WELL REPORT
Appendices



Log run 2A: CSAT (CSI)/GR /(LEH-QT)	Logging company: Schlumberger	Date: 25 – 26. Mars 2002
Location: North Sea - Måke Nord Prospect	Field: Exploration	Country: NORWAY

m RKB: 23	Water depth: 225 m	Last csg.: 9 5/8" / 2688m
-----------	--------------------	---------------------------

Time to drill fm. from height of thermometer to TD: Circ. time after stop drilling: 01:5024.3-02:1025.3 = 20min. Time since last circulation: 18:15hrs = 1095min Thermometers: 89°C, 89°C, broken Measuring depth of thermometer: 3356m	Hole size: 8.5" TD: 3366 m MW: 1.32 Mud type: Glydril	Rm: n/a Ohm-m @ X°C Rmc: n/a Ohm-m @ X°C Rf: n/a Ohm-m @ X°C
--	--	--

Operation Summary:

15:15 bit at surface rig crew prepare for logging.
15:35 Schlumb. on floor – start R/U sheaves. 16:40 tool assembled and checked OK. Prepare to set guns in water.
06:55 RIH. Had some trouble with lower sheave – had to pull back to surface and adjust tugger line – only lost a few minutes.
17:30 at 275m - fluctuating tension. Thought at first we were hanging in stack but Maritime winch unit showed steady tension. Conclusion: intermittent problem with Schlumb. cable tension – continued using Maritime tension (no lost time).
17:45 guns in water, waves close to limit. 17:55 tune guns, first check shot @ 900m.
18:50 wait on ROV to be taken out of water. 18:00 restart shooting at 2nd check level 1900m.
19:55 Last check shot RIH to TD. Check GR vs. MWD log at 3150m – on depth.
20:10 at TD. Log to be run with normal Schlumb. depth corrections – log not tied to MWD depth but is on depth with it.
20:30 At TD: Schlum TD 3369m. Shoot at deepest level 3350m, bad signal on first 2 stations – re-booted PC.
21:00
good signal – re-started survey from level 2 3333m. Good signal.
No problems for rest of survey .
Shot 76 levels. Last level at 2210m. Shot 8 check shots from 1900 – 589m. 589m had severe csg. ringing.

Time:	Activity:
15:15 - 06:40	01:25 25.3.02 Rig up
16:40 - 20:10	03:30 RIH
20:10 - 06:40	10:30 Tie-in Check GR vs MWD log at 3150m while RIH – on depth At TD
06:40 - 07:20	00:40 Start logging
07:20 - 07:35	00:15 26.3.02 Repeat section POOH Rigged down

Total time: 16hr 20 min

Lost time: ~45 min (10 min for ROV, rest for re-boot PC + tugger line on sheave.)

Remarks: Borderline weather at start of operations – better later becoming good at end. No major problems.

Witness: Kjøseth /Scholze/Henderson



PL 270, Well 35/3-6 FINAL WELL REPORT
Appendices



Log run 2A: CST-GR-(LEH-QT)	Logging company: Schlumberger	Date: 26. Mars 2002
Location: North Sea - Måke Nord Prospect	Field: Exploration	Country: NORWAY

m RKB: 23	Water depth: 225 m	Last csg.: 9 5/8" / 2688m
-----------	--------------------	---------------------------

Time to drill fm. from height of thermometer to TD: Circ. time after stop drilling: 01:50-02:10 = 20 min. Time since last circulation: 35:05hrs = 2105min Thermometers: 96°C, 96°C, 96°C Measuring depth of thermometer: 3365m	Hole size: 8.5" TD: 3366 m MW: 1.32 Mud type: Glydril Logger's depth: 3369m	Rm: n/a Ohm-m @ X°C Rmc: n/a Ohm-m @ X°C Rf: n/a Ohm-m @ X°C
--	---	--

Operation Summary:		
<p>07:35 start to change head from VSP run. 09:10 new head tested OK. 09:20 called for radio silence – achieved 09:45. 09:55 end of safety meeting – start P/U tool. 10:10 tool below RT. 12:20 check tie in at 2975m, - add 0.7m 12:40 RIH to TD 13:00 Check tie in at TD – add 1m, check again add 1 more m for first 2 samples (on depth higher up) 13:30 start shooting –indications of shooting (voltage drop) but no overpull. 13:35 after second shot subtract 1m. 13:50 started getting overpull from shot No. 9. 14:12 check tie in at 3200m – add 1m. 16:15 check tie in at 2980m – add 1m. 17:30 og out at 2000ft/hr to get correlation log – poor character. 17:35 POOH at 4000ft/hr w/ GR running 17:38 slow to 2000ft/hr to log characterfull interval at 2875m – log 1m deep 17:42 cont. POOH at 4000ft/hr. 19:50 OOH 21:00 Rigged down Schlumberger wireline</p>		
Start Time:	Activity:	
07:35 – 10:10	2:35	26.3.02
10:10 – 13:00	2:50	Rig up
13:00 – 13:30	0:30	RIH
		Tie-in
		At TD
13:30 – 17:30	4:00	Start logging
		Repeat section
17:30 – 19:50	2:20	POOH
19:50 – 21:00	1:10	Rigged down Schlumberger
Total time: 13:25		
Lost time: 0 min		

Remarks: Shot 30 bullets, lost 12 bullets, recovered 17 SWC, 1 empty bullet.
 Schlumberger tension device not working – had to use Maritime Winch tension (analogue system which Schlumberger could not access) so had no visible tension in logging unit – made controlling pulling of CSTs difficult.

Witness: Henderson/Scholze

7.3 Appendix 3: Sidewall Core Descriptions

SIDEWALL CORE DESCRIPTION					Page 1 of 2
Well: 35/3-6		Area: North Sea - Måke Nord Pros.		Country: Norway	Field: Exploration
Shot: 30		Misfired: 0	Lost: 12	Empty: 1	Recovered: 17
Hole 8.5		Service Company: Schlumberger			
Run 2A		Geologist: Scholze, Henderson			Date: 26.03.02
No.	Depth M RKB	LITHOLOGY Rock, mod.lith, colour, grain size, sorting, roundness, surface features, hardness, fissility, matrix, cementation, sed.structures, accessories, fossils, porosity, contam	Rec. mm	REMARK Shows, cavings, mud additives 2-propanol used as cut solvent	
1	3365	Clst grad Slst: olv blk-grysh blk, frm, sblky, crumbly Surf Tex, v micromic, v slty, sli microcarb, sli calc	15	No dir Fluor, v slow blooming dull bl wh cut Fluor, no vis dir Res, fnt yel wh Fluor Res Ring	
2	3352	Slst: olv blk-grysh blk, fri, sblky, sli micromic, loc r micropyr, crumbly Surf Tex, arg, calc (H ₂ S smell when fizz)	20	100% even dull bl wh dir Fluor, fst blooming strmg bl wh cut Fluor, brt bl wh Fluor Res Ring, no vis dir Res	
3	3334	Slst: olv blk, frm, sbfis, crumbly Surf Tex, micromica Lam, arg, v sli carb, sli calc	9	No dir Fluor, v slow blooming v wk bl wh cut Fluor, no vis dir Res, fnt yel wh Fluor Res Ring	
4	3312	Slst grad Clst: brnsh blk, fri-frm, fis, crumbly Surf Tex, sli micromic – occ micromic lam, arg, sli calc	17	No dir Fluor, v slow blooming dull bl wh cut Fluor, no vis dir Res, fnt yel wh Fluor Res Ring	
5	3294	Clst: olv blk-brnsh gry, frm, sbfis, crumbly Surf Tex, micromic, v sli microcarb spkld, slty, non-v sli calc	22	a.a.	
6	3279	Clst: olv blk-brnsh gry, frm, sbfis, crumbly Surf Tex, micromic, r microcarb, slty, non-v sli calc	7	a.a.	
7	3267	Clst: brnsh gry-grysh blk, frm, blk-sbfis, sli micromic, loc r micropyr, r microcarb, slty, mod calc	15	a.a.	
8	3240	Lost in hole.	0	-	
9	3221	Clst: olv blk-grysh blk, frm, blk-sbfis, micromic, slty, non-v sli calc	20	No dir Fluor, v slow blooming wk bl wh cut Fluor, no vis dir Res, fnt yel wh Fluor Res Ring	
10	3203	Lost in hole.	0	-	
11	3195	Clst: olv blk-grysh blk, frm, blk, sli micromic, r carb Plt Rem, sli slty, sli calc	13	a.a.	
12	3174	Clst: olv blk, frm, fis, sli micromic, r carb Plt Rem, sli slty, sli calc	17	a.a.	
13	3160	Clst: a.a.	19	a.a.	
14	3114	Lost in hole.	0	-	
15	3123	Lost in hole.	0	-	



AKER ENERGY AS

PL 270, Well 35/3-6 FINAL WELL REPORT
Appendices



Page 2 of 2

SIDEWALL CORE DESCRIPTION

Well: 35/3-6		Area: North Sea - Måke Nord Prosp.	Country: Norway	Field: Exploration
Shot: 30		Misfired: 0	Lost: 12	Empty: 1
Hole: 8.5 "		Service Company: Schlumberger		
Run: 2A		Geologist: Scholze, Henderson		Date: 26.03.02
No.	Depth m RKB	LITHOLOGY Rock, mod.lith, colour, grain size, sorting, roundness, surface features, hardness, fissility, matrix, cementation, sed.structures, accessories, fossils, porosity, contam	Rec. mm	REMARK Shows, cavings, mud additives 2-propanol used as cut solvent
16	3114	Clst: m gry, frm, sbbly, plas-def, sli slty, r microcarb, loc r micromic lam, calc	15	a.a. but v wk cut Fluor
17	3099	Empty.	0	-
18	3085	Lost in hole.	0	-
19	3062	Lost in hole.	0	-
20	3048	Clst: dk gry, mod hd, blk, sli micromic, r micropyr, sli slty, mod calc	30	a.a. but v fnt bl wh Fluor Res Ring
21	3038	Lost in hole.	0	-
22	3028	Lost in hole.	0	-
23	3013	Lost in hole.	0	-
24	2998	Clst: dk gry, frm, blk, mas, mod micromic, sli slty, sli calc.	26	No dir Fluor, slow blooming dull bl wh cut Fluor, no vis dir Res, v fnt bl wh Fluor Res Ring.
25	2985	Lost in hole.	0	-
26	2973	Lost in hole.	0	-
27	2967	Clst w/ thn Slst Lam Clst: dk gry-grysh blk, mod hd, blk, sli micromic, non-sli calc Slst: m dk gry, fri, sbbly, micromic, sli microcarb, non calc	22	No dir Fluor, v slow blooming v wk bl wh cut Fluor, no vis dir Res, v fnt bl wh Fluor Res Ring
28	2957	Lost in hole.	0	-
29	2948	Clst grad Mrl: dk gry-m dk gry, frm, blk, sli-mod micromic, slty, r micropyr Incl, r Glau, v calc	15	Show a.a.
30	2940	Clst grad Mrl: m gry, frm, sbbly, sli micromic, r Mic, Tr Glau, slty, v calc	14	a.a.

7.4 Appendix 4: Well Site Sample Descriptions

Depth	Description
1300.0 - 1343.0	<p>CLAYSTONE WITH TRACES OF LIMESTONE AND RARE SANDSTONE</p> <p>Clst: olv blk-dk gry, frm-mod hd, fri, def-sbblky, mod-v calc, sli slty, Glau, Tr micromic, Tr micropyr, loc vf sdy.</p> <p>Tr Ls: dk-pl yel brn, hd, brit, sbblky, micro-crpxln, sli arg, dol.</p> <p>r Sst: olv blk, dk gn gry, vf-f, sbang-sbrnd, pr srt, fri-lse, calc, sli-v arg Mtrx pt grad Clst, sli-v Glau, n.v.p., n/s.</p>
1343.0 –1370.0	<p>CLAYSTONE WITH INTERBEDS OF SANDSTONE AND LIMESTONE STRINGERS</p> <p>Clst: olv gry-lt olv gry, frm-mod hd, fri, def-sbblky, v calc grad Ls, glauc, sdy.</p> <p>Sd/Sst: clr Qtz, occ mlky/smky, f-crs-occ v crs, sbang- rnd, occ pol, sb spher, pr srt, pred lse, loc Tr calc arg Mtrx, com Glau.</p> <p>Sst: gn gry-lt gn gry, gry gn, Qtz, f-crs-occ v crs, v arg Mtrx grad Clst, abd Glau, n.v.p., n/s</p>
1370.0 – 1420.0	<p>INTERBEDDED LIMESTONE AND CLAYSTONE WITH OCCASIONAL MARL</p> <p>Ls: wh, sft-frm, amor-def, crp-occ microxln, cln, chky.</p> <p>Clst: m dk gry-olv gry, loc mnr dk gn gry, sft-mod hd, fri-plas-def, v calc, sli slty, loc Glau, loc Tr Pyr</p>
1420.0 – 1483.0	<p>Clst: m dk gry-m gry, frm, blk, sli slty, sli microcarb spkld, loc sli micropyr, non calc</p> <p>Dol: brnsh gry, occ dusky yelsh brn, hd-v hd, blk, ang brk, also yelsh or & crumbly when grad Dol Ls</p>



AKER ENERGY AS

PL 270, Well 35/3-6 FINAL WELL REPORT
Appendices



Depth	Description
1483.0 - 1838.0	<p>CLAYSTONE WITH THIN STRINGERS OF DOLOMITE</p> <p>Clst: m dk-dk gry, loc Tr dk gn gry, frm-occ mod hd, plas-fri, def-blky, non-loc mod calc, sli slty, r-loc mod Glauc, r micropyr, loc Tr Pyr.</p> <p>Tr Dol: dk grysh brn, dk-pl yel brn-occ lt gry, hd-v hd, brit, plty-blky, pt grad Dol Ls, microxln</p> <p>r Sst: dk yel brn, clr-trnsl Qtz Gr, vf-f, sbrnd, sbspher, wl srt, fri, non calc, slty/arg Mtrx, no visible porosity, no show.</p> <p>r Ls: wh, yelsh gry, sft-frm, amor-sbblky, microxln. Tr Pyr, Glauc</p>
1838.0 - 1963.0	<p>CLAYSTONE WITH MINOR DOLOMITE STRINGERS</p> <p>Clst: m dk-dk gry, frm, plas, mas, sbblky-blky, non-sli calc, sli slty, occ sli microcarb spkld, oc sli micromic r Glauc, r micropyr, loc Tr Pyr.</p> <p>Dol: brnsh gry-dk grysh brn-pl yel brn-occ lt gry, hd-v hd, brit, plty-sbblky, pt grad Dol Ls, microxln.</p> <p>r Glauc, r micropyr, r Pyr Nods</p>
1963.0 - 1993.0	<p>CLAYSTONE WITH RARE DOLOMITE AND LIMESTONE</p> <p>Clst: m gry-m dk gry, r dk gry, frm, sbblky, r blky, plty, mas, sli microcarb spkld, sli mcromic, slty, r slty lam, non calc</p> <p>r Dol: dk yel brn, brn gry, mod yelsh brn, hd-v hd, brit, blky-plty, crp-microxln, com grad Dol Ls</p> <p>r Ls: wh-lt gry, frm, sbblky-def, occ sli arg, crp-microxln,</p>
1993.0 - 2369.0	<p>CLAYSTONE, SILTY IN PARTS</p> <p>Clst: lt gry-m gry-m dk gry, v slty I.P. grad to sltst, sft-frm, occ mod hd, blky, occ amor, mod-v calc, Glauc, micropyr I.P.</p> <p>Sltst: m lt gry, lt gn gry I.P., fri-frm, sbblky, arg I.P., mod calc, Glauc-v Glauc I.P., grad to v f Glauc sst.</p> <p>r Dol: dk yel brn, brn gry, mod yelsh brn, hd-v hd, brit, blky-plty, crp-microxln, com grad Dol Ls</p> <p>r Ls: wh-lt gry, frm, sbblky-def, occ sli arg, crp-microxln,</p>



AKER ENERGY AS

PL 270, Well 35/3-6 FINAL WELL REPORT
Appendices



Depth	Description
2369.0 - 2613.0	<p>CLAYSTONE/SILTSTONE INTERBEDDED, OCCASIONALLY WITH SANDSTONE STRINGERS AND LIMESTONE.</p> <p>Clst: lt gry-m gry-m dk gry, v calc grad to Mrl, occ slty grad to Slst, sft-frm, occ mod hd, blk, occ amor, Tr Glauc, micropyr I.P.</p> <p>Slst: m lt gry, lt gn gry I.P., fri-frm, sbblky, arg I.P., mod hd-hd and v calc I.P., glauc-v glauc I.P., grad to v f glauc Sst through interval 2430 - 2500m.</p> <p>Sst: wh-v lt gry, clr-trnsl Qtz Gr, vf, r f, v wl srt, sbang, fri-frm, r mod hd, v wl -abd calc cmt, com Glauc, r Chlor, no vis por, loc Sst grad aren Ls</p> <p>Ls: lt-m gry, arg-slty, mod hd-hd, blk, Glauc I.P., grad to v calc slst and mrl.</p>
2613.0 - 2696.0	<p>CLAYSTONE / SILTSTONE, CALCAREOUS, OCCASIONALLY WITH STRINGERS OF SANDSTONE.</p> <p>Clst: m gry, frm, sbblky, plas, mas, micromic, com glauc, v calc, v slty grad to slst.</p> <p>Slst: v lt gry, m lt gry, sft-frm, sbblky, occ sli amor, r Glauc, v calc occ grad Mrl, loc grad vf calc Sst.</p> <p>Sst: v lt gry, clr-trnsl Qtz Gr, vf, v wl srt, sbang, frm-mod hd, occ hd, abd calc cmt/Mtrx, loc sli Sil cmt, com Glauc, r Chlor, r micropyr, r Mica, no vis por.</p>
2696.0 - 2699.0	<p>CLAYSTONE, TRACE SANDSTONE</p> <p>Clst: dk-m dk gry, mod hd, brit, blk, non clac, sli slty, Tr carb/glauc.</p> <p>Sst: m-lt gry, Qtz, vf-slt, sbrnd-sbang. wl srt, hd, brit, blk, gd calc cmt/Mtrx grad Ls, com Glauc, n.v.p</p>
2699.0 - 2726.0	<p>SILTSTONE/CLAYSTONE, TRACE SANDSTONE.</p> <p>Slst: dk gry, mnr m dk gry-olv gry, frm-mod hd, fri, def-sbblky, v calc, v arg grad Clst, loc Tr v f sdy, pt glauc, Tr carb, r micropyr, r micromic.</p> <p>Clst: dk-m dk gry, mod hd, brit, blk, non-v calc clac, sli-v slty grad Slst, Tr carb/glauc.</p> <p>Sst: gn gry-dk gn gry, m-lt gry, Qtz, vf-slt, sbrnd-sbang. wl srt, frm-hd, fri-brit, blk-pty-def, gd calc cmt/Mtrx grad Ls, com Glauc, n.v.p</p>

Depth	Description
2726.0 - 2948.0	<p>CLAYSTONE COMMONLY GRADING INTO SILTSTONE WITH TRACE OF SANDSTONE AND LIMESTONE</p> <p>Clst com grad Sltst: dk gry-m dk gry also m gry-m lt gry, frm-fri, occ sft, blkly-sbblky, occ amor, sli microcarb spkld, r micromica, calc, occ v calc when m lt gry, grad Mrl</p> <p>Sltst: dk-m dk gry, occ v lt gry, mod hd, fri, def-sbblky, non-calc, var grad Clst, carb, loc Tr Glauc.</p> <p>Tr Ls: wh-v lt gry, lt olv gry, yelsgh gry, frm-mod hd, loc brit, blkly, micro-crpXln, cln, chky.</p> <p>Tr Sst: v lt gry, clr-trnsl Qtz Gr, vf, occ f, v wl-wl srt, sbang, wl calc cmt, r Glauc, r Chlor, loc sli arg Mtrx, no visible porosity.</p>
2948.0 - 2955.0	<p>CLAYSTONE COMMONLY GRADE INTO SILTSTONE</p> <p>dk gry-m dk gry also m gry-m lt gry, frm-fri, occ sft, blkly-sbblky, occ amor, sli microcarb spkld, r micromica, calc, occ v calc when m lt gry, grad Mrl</p>
2955.0 - 2964.0	<p>CLAYSTONE WITH A SAND BED AT ITS TOP</p> <p>Sst: wh - v lt gry, clr-trnsl Qtz Gr, vf-f, v wl srt, sbang, abd calc cmt, r Mica, r Glauc, r Chlor, no visible porosity</p> <p>Clst: dk gry, grysh blk, r dk gnsh gry, frm- mod hd, blkly, sli micromic, r mica, non-sli calc</p>
2964.0 - 2981.0	<p>SILTSTONE AND CLAYSTONE</p> <p>Sltst com grad Clst: m gry, frm, occ fri, sbblky, sli microcarb, sli micromic, v calc grad Mrl.</p> <p>Clst: dk gry-grysh blk, occ olv blk, frm-mod hd, r hd & brit, micromica, sli carb spkld, sli calc</p>
2981.0 - 3082.0	<p>INTERBEDDED CLAYSTONES WITH OCCASIONAL LIMESTONE STRINGERS</p> <p>Clst 1: grysh blk, frm-mod hd, blkly, mas, brit, slty, micromic, microcarb spkld, sli calc</p> <p>Clst 2: med gry-olv gry,m dk gry, sft, amor, def, plas, stky (reacts with the mud and creatinga mixture of mud and this Clst), v slty, mod calc</p> <p>Tr Ls: pale-dk yel brn, pnksh gry, off wh, loc m gry, hd, brit, plty-sbblky, crp-microXln, sli arg.</p> <p>r Dol: grysh brn, blkly, hd, microXln</p> <p>Gd Tr Micropyr Nods</p>



AKER ENERGY AS

PL 270, Well 35/3-6 FINAL WELL REPORT
Appendices



Depth	Description
3082.0 - 3193.0	<p>CLAYSTONE WITH STRINGERS OF LIMESTONE AND TRACE DOLOMITE</p> <p>Clst: olv gry-m dk gry, mnr olv blk, sft & stky, bcm mod hd-sft, fri, def-sbblky, sli-mod calc, slty loc grad Sltst, carb, r micromic, r Pyr.</p> <p>Ls: pale-occ dk yel brn, hd-occ sft, brit-fri, sbblky-plty, crp-microxln, sli arg, pt dol, loc mnr: wh, off wh, pksh gry, lt olv gry, frm, blky, crp-microxln, pt chky/cln.</p> <p>Dol: dk yel brn, grysh brn, hd brit, plty-blky, crp-microxln, r xln, sli arg, loc calc.</p>
3193.0 - 3366.0	<p>SILTSTONE WITH OCCASIONAL LIMESTONE STRINGERS</p> <p>Sltst: brnsh blk-dusky brn, occ grysh blk-olv blk, fri-frm, occ mod hd, blky, occ brit w/ mod hd, mod-v micromic, dissem micropyr, Tr Pyr, crumbly Surf Tex, microcarb spkld, non-occ v sli calc</p> <p>Tr Ls: pale yelsh brn, brnsh gry, frm-mod hd, blky-sbblky brit, crp-microxln, dol</p> <p>Below 3340m: also Tr Sltst: m dk gry, fri, sbblky, sli-mod calc</p> <p>Gd Tr Ls: dk brn (O Stn), brnsh gry, frm-mod hd, sbblky, crpxln</p>

7.5 Appendix 5: Gas Peaks and Chromatography

RWE-DEA
WELL : 35/3-6

GAS SUMMARY

FORMATION	DEPTH (m)	GAS TYPE	Total Gas (%)	C1	C2	C3	(ppm)	nC4	C5
	1343.0 - 1370.0	BG	0.00-0.00						
	1370.0 - 1438.0	BG	0.00-0.00						
	1483.0 - 1838.0	BG	0.00-0.01						
	1816.0	Peak	0.03	310	79	96	28	43	45
	1838.0 - 1963.0	BG	0.00-0.01						
	1847.0	Peak	0.06	424	119	89	64	65	62
	1963.0 - 1993.0	BG	0.00-0.05						
	1987.0	Peak	0.10						
	1993.0 - 2369.0	BG	0.05						
	2203.0	Peak	0.30	3159	24	11			
	2369.0 - 2613.0	BG	0.00-0.05						
	2369.0	Trip	0.60	6017	45	13			
	2468.0	Peak	1.00	5309	75				
	2613.0 - 2696.0	BG	0.02-0.05						
	2696.0 - 2699.0	BG	0.00						
	2699.0 - 2726.0	BG	0.01-0.03						
	2726.0 - 2948.0	BG	0.01-0.09						
	2726.0	WPTG	0.19						
	2948.0 - 3082.0	BG	0.01-0.13	3					
	2956.0	Peak	0.20	545	21	10	7	12	
	3082.0 - 3366.0	BG	0.01-0.40						
	3348.0	Peak	0.60	1300	101	110	8	30	

8 REFERENCES

8.1 References

- End of Well Report / Logs, Schlumberger, Drilling and Measurements
- END OF WELL REPORT Surface Logging Data, Halliburton, Sperry-Sun Drilling Services.
- Well 35/3-6, Biostratigraphy, Main Report, Applied Petroleum Technology AS
- Well 35/3-6, Geochemistry, Main Report, Applied Petroleum Technology AS
- HSE Experience Summary Report (Ref.: PL270/587/6.80)
- Environmental Reporting to SFT (Ref.: PL270-580/1.42)

9 ENCLOSURES

9.1 List of Enclosures

- Composite Well Log 1:500
- ELAN CPI Llog 1:1000