FINAL WELL REPORT
VALHALL WELL 2/8-16 S

May, 1998

Amoco Norway Oil Company

BA 98-1022-1
22 JUNI 1998
REGISTRERT
OLJEDIREKTORATET

OLJEDIREKTORATET
- 4 JUNI 1998
Sak/Dok.nr. 98/2096-1

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TABLE OF CONTENTS

1.1 2/8-16 S Objectives.

The objective of this exploration well was to drill through the Tor Formation on the east flank of Valhall in the Mjød structure. If productive Tor was found the well would be plugged back and a horizontal producing well (2/8-A-20 B) drilled and completed for oil production. Non productive Tor would mean completing the well as a waste injector in the Mjød structure (2/8-A-20 C) and then utilizing the second leg of the Splitter Well housing to drill a production well at a backup location on Valhall (2/8-A20 B).

A successful Mjød well would mean using the second leg of the Splitter housing as the injection leg to a programmed disposal location.

1.1 2/8-16 S Results

Drilling was commenced from the Splitter Housing circa 1409m MD and proceeded without too much trouble to 1662m MD where mud losses were seen. At 1927m MD the losses had become severe and were accompanied by high gas readings. Progress was slow until 2013m MD where losses and gains prompted the setting of three cement plugs which were squeezed. These did not cure the problem and three gunk squeezes were then tried before the well stabilized.

A wellsite geologist was on the rig as part of a well stability team as drilling progressed with minor losses to 2300m MD. From here on the appearance of high connection gases 30% above background, accompanied the continual gains and losses from the wellbore. At 3139m MD a wiper trip was made which experienced some tight hole and this was followed by difficulty getting back to bottom. After holding up at 2133m MD the hole had to be reamed down to 2172m MD. It then became apparent from survey data that the well had accidentally sidetracked from 2133m MD.

At this time it was decided to abandon the welltrack in favour of drilling an oil production well 2/8-A20 B.

Refer to Petrophysical section for details of log data acquired.

1.1 Pertinent Data Sheet

Licence	:	006		
Block	:	2/8		
Well:	:	**2/8-16 S (Mjød)**		
Area	:	Valhall Field		
Classification	:	**Junked and Abandoned**		
Partners	:	Amoco Norway Oil Company	28.1 % (Operator)	
	:	Amerada Hess Norge A/S	28.1 %	
	:	Enterprise Norge A/S	28.1 %	
	:	Elf Petroleum Norge A/S	15.7 %	
Platform Coordinates	:	N 56°16'41.395"	UTM: 6,237,247.84	m N
	:	E 03°23'43.193	524,479.70	m E
Slot 24 Co-ordinates	:		UTM: 6,237,227.74	m N
			524,487.05	m E
Btm Hole	:	3139 m MD, -2057.6 m TVDSS	UTM: 6,237,386.76	m N
		2101.1 m TVDBRT	525,796.01	m E
BHF	:	Tertiary Claystones, Hordaland Group.		
Rig	:	Transocean Borr. Valhall Platform		
RT Elevation	:	43.5 m above MSL		
Water depth	:	69.1m		
Spud Date	:	8th Feb 1997.		
Date reached TD	:	13th Mar 1997.		
Abandoned	:	16th Mar 1997.		
Cores	:	None		

Casing Record	:	20"csg shoe at 376 m MD, 369 m TVDBRT
	:	16"csg shoe at 1429 m MD, 1364 m TVDBRT
Drilling Contractor	:	Transocean Drilling
Directional Drilling	:	Baker Hughes Inteq.
Drilling Fluids	:	M-I Norge.
Casing Contractor	:	Transocean Drilling.
Cement Contractor	:	Halliburton
Wireline Logging	:	Atlas Wireline Services.
MWD/LWD Logging	:	Baker Hughes INTEQ
Mud Logging	:	Baker Hughes INTEQ.
Biostratigraphy	:	None.
Wellsite Geologists	:	Pete Heavey, Sperry Sun Derek Moss, Quad

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VALHALL FIELD

TOP TOR (CHALK) STRUCTURES W/FAULTS
ALL EXISTING DP AND WP WELLS

SCALE 1:20000	DRAWN ELISABETH HEGLE	DATE 11-SEP-97

2/8-16 S. Tops: Prognosis versus Actual Comparison Sheet

Formation / Unit Name	Prognosis		Actual			Prognosis- Actual Difference. m TVD	
	TVD BRT (m)	TVD Thickness (m)	MD BRT (m)	TVD BRT (m)	TVD Thickness (m)	Top: High-Low	Thickness: High-Low
E.Miocene	1463.5	797.0	1548.8	1464.1	bns	0.6 deep	
M. Eocene	2260.5	408.5					
Balder	2669.0	12.0					
Sele	2681.0	18.0					
Lista	2699.0	29.5					
Tor-1	2728.5	25.0					
Tor-2	2753.5	npr					
T.D.	2768.5	na	3138.0	2101.1		-667.4 shallow	

bns= base not seen na= not applicable

npr = not prognosed

np = not present

1.2 Formation Tops and UTM Positions

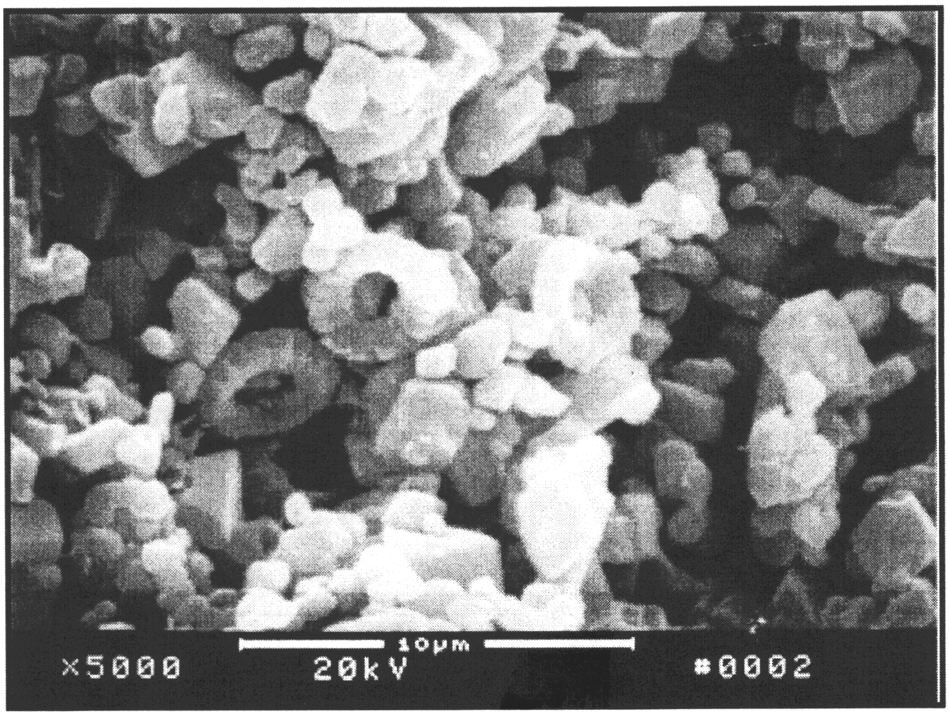
TOP	MEAS.			NORTH	EAST	tvdss	tmp_east	tmp_north
NAME	DEPTH	TVD	VSEC	(-SOUTH)	(-WEST)	m	m UTM	m UTM
SLOT 24	85.3	85.30	14.96	-20.10	7.35	-41.8	524487.17	6237227.78
13 3/8" Shoe	1429.0	1364.2	-148.71	174.88	-84.26	-1320.7	524394.44	6237422.23
L.MIOCENE	1548.8	1464.1	-124.20	220.53	-36.76	-1420.6	524441.67	6237468.16
Loss zone/ low GR	1910.0	1730.7	42.94	307.95	186.02	-1687.2	524663.95	6237556.85
T.D.	3138.0	2101.1	1147.02	131.42	1317.60	-2057.6	525796.52	6237386.82

1.2 2/8-16 S Biostratigraphic Summary.

No Analysis Performed.

2/8-16 S (Mjød) Petrophysical Report

Pete Heavey / Derek Moss/John Hopkins



VALHALL : WELL 2/8-16 S (MJØD)

PETROPHYSICAL REPORT

CONTENTS Page no.

 Prepared by Pete Heavey , Derek Moss&John Hopkins

1. LOG EVALUATION

1.1 MWD / FEMWD, Wireline and Pipe-conveyed Logs run

2/8-16 S (MJØD)

DATE (1997)	RUN #	LOG SUITE & HOLE SIZE	LOGGED INTERVAL m MD (GR)
7-11/Feb	1	INTEQ DIR - 16" HOLE	379-1475
24/Feb-2/Mar	2	INTEQ DGPSF (DIR-GR-PRES) 8.5" HOLE	1429-2013
10-14/Mar	3	INTEQ DGPSF (DIR-GR-PRES) 8.5" HOLE	2013-3125

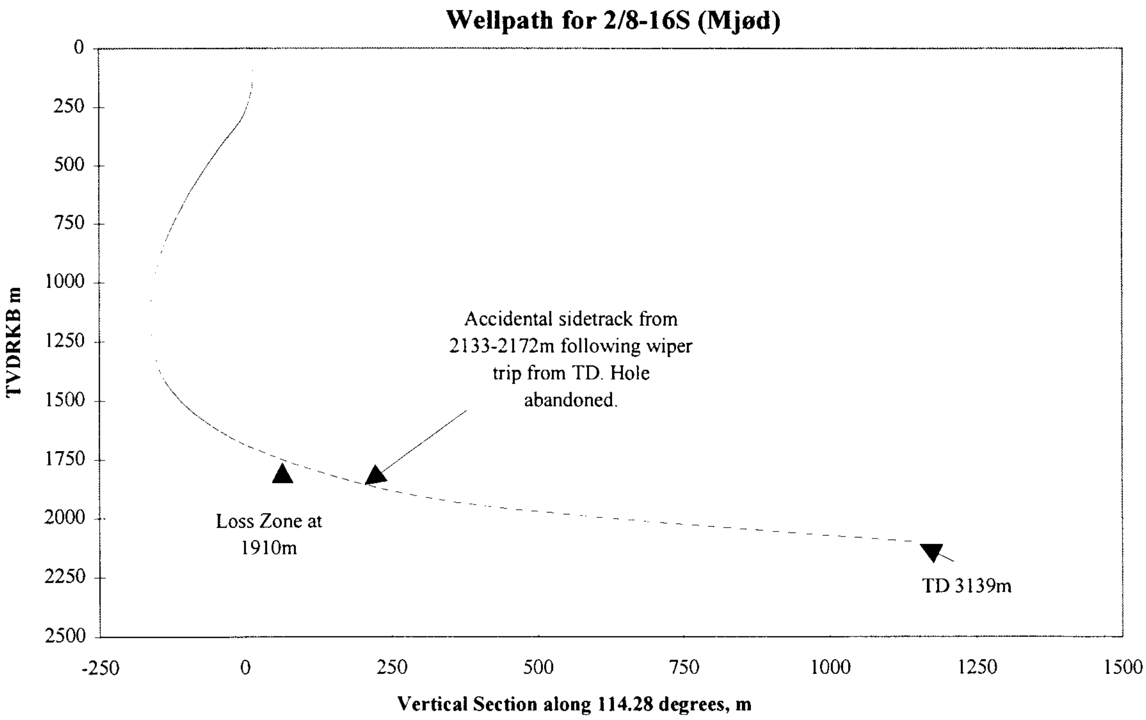
1.2 Depth shifts

None

1.3 Log splicing

None

1.31 Sidetrack Summary



1.4 Environmental corrections

Inteq MWD logs

Gamma Ray

It was not necessary to make any corrections.

*Note that owing to hole stability problems being encountered in the Hordaland Lower Miocene claystones, the reservoir section was not reached, hence no log evaluation.
The status of 2/8-16S was J&A (Junked & Abandoned) and drilling commenced of the "fallback" well, a 850m planned Tor Horizontal well named 2/8-A-20B. (see separate report)

2 ISSUES

2.1 Table of Hole Stability problems

(depth refers to depth at which problem started)

MD	TVD BRT	TVDX	TVDY	DEVI	MW	LITHOSTRAT	Problem
1910	1730.7	524664	6237557	51.47	14.7	Early Miocene	Serious mudlosses, 3 x LCM, 3 x Cement squeeze, 3 x Gunk squeeze.
2133	1857.1	524847	6237571	60.57	14.6	Early Miocene	Hole collapsed - accidentally sidetracked while working back in hole on Wiper Trip

2.2 Log / Palaeontology correlation

No palaeo was run on this well.

3 DATA PROCESSING

Inteq MWD

Only minor editing of spurious spikes on real time GR log made offshore. Memory log did not need editing.

ECD measurement had to be converted from S.G. to PPG units by updating software files prior to producing a real time log.

4 WIRELINE & MWD LOG WITNESS REPORTS

VALHALL : WELL 2/8-16 S (MJØD)

MWD WITNESS REPORT #1

BAKER HUGHES INTEQ

MWD RUN 1 - 17.5" HOLE

8.75" Directional (D-RAW)

The intention of this run was to drill the entire 17.5" section in one run. The only service provided was directional surveying. The section was uneventful and went without any problems.

RUN No 1 379 MD - 1475 MD

Tool run in hole	:	21:00 hrs 7th Feb 1997
Tool out of hole	:	21:00 hrs 11th Feb 1997
Interval drilled	:	369 - 1437 m MD
Interval logged	:	369 - 1423 m MD
Sensor Data	:	
Serial Number	:	976-03
Distance behind bit	:	Directional 14.2 m
Sampling rates	:	Survey only Every Stand
BHA Arrangement	:	

HTC MAX GTI/MOTOR/STB/PP-SUB/MWD/S-SUB/STB/UBHO/XO/3 x 8"DC/JAR/2 x 8"DC/XO/6 x 6.25" HWDP

VALHALL : WELL 2/8-16 S (MJØD)

MWD WITNESS REPORT # 2

BAKER HUGHES INTEQ

MWD RUN 2, 3 - 8.5" HOLE

8.25" Dir-Gr-Press (DGPSF)

The intention of this run was to drill the 8.5" hole section, from the 16" splitter shoe at 1429 m, approximately 4000 m, before adding a MPR sub to the MWD assembly. As this was also planned to be an extremely challenging section (5000 m of 78 degree, 8.5" hole through gas-charged claystones overlying a Shale / Limestone sequence), it was also expected to have an intermediate bit-trip.

RUN No 2 1429 m MD - 2013 m MD

This run was uneventful apart from minor losses, until lost circulation suddenly became serious at 1910 m MD. Problems with losses and associated mud gains were quite severe, which had not been seen so shallow at Valhall before. Examination of a seismic dip-map at approximately 1700 m TVDBRT showed that the welltrack crosses a major fault at about the same depth as the losses became severe. The seismic image is affected by gas-charging, which has a strong effect on local dips, but the zone could be about 75m wide. Three mixed LCM squeezes were performed through this assembly before pulling out to pick up a cementing assembly. Three thixotropic cement squeezes were performed, followed by three gunk squeezes in the lower problematical section. When hole the conditions stabilised, the string was pulled out to pick up a directional drilling assembly.

Tool run in hole	:	19:00 hrs 24th Feb 1997
Drilling commenced	:	12:30 hrs 25th Feb 1997
Drilling ceased	:	10:30 hrs 1st Mar 1997
Tool out of hole	:	12:00 hrs 2nd Mar 1997

Interval drilled	:	1429 - 2013 m MD
Interval logged	:	1475 - 1997 m MD (GR)

Sensor Data

Serial Number	:	MWD	6243-7
		Pressure	6052
		Gamma	6474
Distance behind bit	:	Pressure	17.8 m
		Gamma	15.16 m
		Directional	21.4 m
Sampling rates	:	Survey	Every Stand
		GR	10 seconds
		Temp	30 seconds

Pressure	30 seconds

BHA Arrangement :

FM2745R1/M1XL MOTOR/7.5" S-STAB/MWD/8.25" S-STAB/S-SUB/5" NM HWDP/ S-SUB/S-SUB/5" NM HWDP/ S-SUB/6.375" JAR/3X 5" HWDP

Data quality

Pressure sub -
- Gives only zeroes at surface test - does not provide consistent surface test of reliability.
- On Run 2 - does not switch on before 280-300gpm, supposed to come on at 250gpm.
- On Run 2 - Gives erratic values via Drillbyte data link - software error?

RUN No 3 2013 m MD - 3139 m MD

After curing the losses encountered during the previous run, a new directional tool assembly was picked up. Cement was drilled out from 1938m to approximately 1965m where claystone was seen, indicating the hole had deviated into new formation. Drilling continued to 3139m, where a wiper trip was made back to 2100m MD. On running back in hole an obstruction was hit at 2133m MD. The hole had collapsed and was then accidentally sidetracked while working the string past the obstruction at 2133m MD. Worked string down to 2172m MD, performing MWD check shots at 2129m, 2139m and 2152m MD. The surveys confirmed side-tracking into a new hole. Due to well instability, the decision was made to pump out of hole to the shoe, then POOH to pick up a cementing assembly and to plug back the well from 2172m MD (TD in new hole) to the 16" splitter shoe (at 1429m MD) with three abandonment cement plugs.

Tool run in hole:	21.00 hrs 9th Mar 1997
Drilling commenced:	08.15 hrs 10th Mar 1997
Drilling ceased:	08.00 hrs 13th Mar 1997
Tool out of hole:	20.30 hrs 14th Mar 1997
Interval drilled:	2013.0 - 3139 m MD
Interval logged:	1723.9 - 3125 m MD (GR) [includes overlap with previous run]

Sensor Data

Serial Number	MWD	1660-47
	Pressure	6208
	Gamma	6665
Distance behind bit :	Pressure	16.19 m
	Gamma	14.41 m
	Directional	20.65 m
Sampling rates :	Survey	Every Stand
	GR	10 seconds
	Temp	30 seconds

Pressure 30 seconds

BHA Arrangement
FM2745RR1 BIT/AKO/NMS-STAB/MWD/NM S-STAB/S-SUB/NM HWDP/2 x S-SUBS/NM HWDP/S-SUB/JAR/3 x HWDP.

Data quality

Memory data was successfully downloaded from the MWD tool and gave good quality log data which the engineers delivered in a satisfactory and timely manner.

Pressure sub -

- Gives "good" result at surface test - although just zeroes, however, good reliability was obtained downhole.

Baker Hughes Inteq Engineers

Øyvind Heen
Pete Waldron
Lars Olaf Lien

Report by
Pete Heavey & Derek Moss
Wellsite Geologists

1.3 2/8-16 S DST Pressure.

Did not penetrate reservoir.

1.3 2/8-16 S Reservoir Section Summation.

Did not penetrate reservoir.

APPENDIX

1. MNEMONICS

5. Log curve mnemonics

Realtime MWD/LWD data*

GRAX	MAPI:	BHI Gamma Ray
ROPS	M/HR:	BHI Rate of penetration
TCDX	DEGC:	BHI Downhole Temperature
WBCS	KLB:	BHI Weight on bit
DRHX	G/CC:	BHI Delta-rho
BDC	G/CC:	BHI Bulk density
NPL	PU:	BHI Neutron ls porosity

Memory MWD/LWD data*

GRAM:	MAPI:	BHI Gamma Ray Gamma Ray
ROPS:	M/HR:	BHI Rate of penetration
TCDM:	DEGC:	BHI Downhole Temperature
WBCS:	KLB:	BHI Weight on bit
DRHM:	G/CC:	BHI Delta-rho
BDCM:	G/CC:	BHI Bulk density
NPLM:	PU:	BHI Neutron ls porosity
NPLMDEC:	PU:	BHI Decimal Neutron ls porosity

Wireline data

ZDEN:	G/CC:	AWS Density
ZCOR:	G/CC:	AWS Density Correction
CAL:	INCH:	AWS Caliper
GR:	API:	AWS Gamma Ray
DT24:	US/FT:	AWS Delta T
CZDEN:	G/CC:	AWS Density/Inside casing
CZCOR:	G/CC:	AWS Density Correction/Inside casing
CCAL:	INCH:	AWS Caliper/Inside casing
CGR:	API:	AWS Gamma Ray/Inside casing
CDT24:	US/FT:	AWS Delta T/Inside casing.
FMTFP:	PSIG:	AWS FMT Formation pressure
FMTBP:	PSIG:	AWS FMT hydrostatic before
FMTAP:	PSIG:	AWS FMT hydrostatic after
FMTDDP:	PSIG:	AWS FMT flowing pressure
FMTC:	DEGC:	AWS FMT Temperature
FMTK:	MD:	AWS FMT permeability

Survey data

TVD:	M:	ANOC true vertical depth
TVDS:	M:	ANOC subsea true vertical depth
TVDX:	M:	ANOC UTM east
TVDY:	M:	ANOC UTM North
DEVI:	DEG:	ANOC deviation
AZIM:	DEG:	ANOC azimuth
EW:	M:	ANOC East-west
NS:	M:	ANOC North-south
VSEC:	M:	ANOC Vertical section
VSECDIR:	DEG:	ANOC Vertical section direction

<u>CPI Curves</u>

POR	DECIMAL	ANOC: Porosity from bulk density. Rhom=2.71 g/cc
SW	DECIMAL	ANOC: Archie Sw n= 2.14, Rw=0.0497
SWPOR	DECIMAL	ANOC: Bulk volume water (buckles no.)
F	N/A	ANOC: Formation factor a= 1.0, m=2.08
PAYFLAG	ON/OFF	ANOC: Flag indicating all pay criteria satisfied
PAYH	M	ANOC: Cumulative pay height
RESFLAG	ON/OFF	ANOC: Flag indicating reservoir rock crireria satisfied
RESH	M	ANOC: Cumulative reservoir rock height
PHIH	M	ANOC: Cumulative height of rock satisfying porosity cutoff
RPHIH	M	ANOC: Cumulative height of rock satisfying both porosity & reservoir cutoffs

* Numeric suffixes refer to MWD run numbers

 Prepared by Pete Heavey , Helge Restad & Stuart Robinson

1.3

Geological Sampling 2/8-16 S

Geoquest were responsible for preparation, distribution and storage of samples.

Interval m MD	Sample Frequency	Number of samples
380-1437	10m	1 set of wet unwashed samples marked B
1440-3139	3 m	2 sets of 0.75 kg wet unwashed samples, marked A and B.

Wet Samples:

Set A: Sent to Network Stratigraphic Services for biostratigraphic analysis.

Set B: Stored at Geoquest

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		Name	BILL WENANDE	[illegible]			ALLEN COOK	T.H. Mason
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1. GENERAL INFORMATION

Exploration Well 2/8 - 16 S Project Overview

To optimize slot utilization on the Valhall platform, two wellbores were drilled from a single slot using a downhole splitter system (DHS) marketed by Baker Oil Tools and Kværner National.

Valhall well 2/8A-20A was re-completed as a 10M rated waste disposal injection well in early 1995. During the spring of 1996, it was decided to re-drill the well, utilizing dual well "Splitter Technology", with one leg completed as a producer and the second leg as a waste injection well. In September 1996, the Partnership agreed to drill the production leg of the well as an exploration well (2/8 - 16 S) into the Mjød structure on the eastern flank of the Valhall field. In the event that Mjød proved to be non commercial, contingency plans to re-drill the production leg into the Valhall structure were in-place.

Goals and Objectives

1. Optimize Slot utilization on Valhall
2. Prove up Mjød Reserves
3. Long term Waste Disposal Solution for Valhall
4. No Lost Time Accidents
5. Drill and Complete Well within AFE (+/- 10%)
6. Conduct pre-spud and pre-job meetings
7. Obtain an average of 3000 BOPD first year of production

The specific well objectives were:

1. Drill and evaluate an exploration pilot hole (2/8-16S) through the Tor formation in the Mjød structure. Assuming a productive Tor was found, the pilot hole would be plugged back and a horizontal producing well (2/8A-20B) would be drilled and completed within the Tor. This work would be done from the "producing leg" of the down hole splitter.

2. Drill and complete waste disposal well 2/8A-20C to the programmed disposal location in Valhall from the injection leg of the downhole splitter.

3. If the exploration pilot hole (2/8-16S) proved that the Mjød structure was not commercial, the injection well would be completed in the "dry wellbore" to the Mjød structure. A contingent back-up location within the Valhall structure would then be drilled and completed from the "production leg".

IMPLEMENTATION PHASE

Phase 1: Plug/abandonment and recovery of the A-20 slot

The Valhall platform rig was skidded to the existing waste disposal well on January 12, 1997 and the slot recovery operations began. After retrieving the injection tubing the 9 5/8" casing was milled from 22 m to 426 m RKB. A total of 3 casing mills were required to mill this interval.

The 13 3/8" casing was milled, utilizing 4 casing mills, from 22.5 m RKB to 422.5 m RKB which was 48 m below the 20" shoe. From this depth the new A-20 Splitter well was sidetracked. A 18.936" mill was run 25 m below the top of the 20" casing to ensure API drift. This interval was where the 18 5/8" casing (run on top of the 16" intermediate casing) was positioned. The short adapter spool was installed on the existing 20" casing spool prior to nippling up and testing the 21 1/4" BOP. A total of 26.7 days were spent during the P&A and slot recovery operations.

Phase 2: Installing the 16" casing and down hole splitter

The 17 1/2" hole section was drilled from the 20" shoe at 376 m MD to a depth of 1437 m MD RKB using a steerable assembly. Refer to Appendix tab no. 18 for a schematic of the direction well profile. The hole angle was built from 23 to 32 deg. while turning the azimuth to the right from 260 to 35 deg. Low toxic 12 ppg oil based mud was utilized for this hole section. The open hole was under-reamed from 17 1/2" to 24" prior to running the downhole splitter and 16" intermediate casing. Prior to running the 16" downhole splitter housing, both the 9 5/8" and 5 3/4" legs were extended to a total length of ca. 30 m with the 9 5/8 leg being 1 m longer that the 5 3/4". A blind aluminum guide shoe was installed on the bottom of the 5 3/4" leg while the 9 5/8" leg was fitted with a float shoe and two float collars. Finally the legs were clamped together utilizing 4 special purpose 9 5/8" x 5 3/4" clamps to maintain leg position and orientation when running in the hole. The 16" downhole splitter assembly was run on 16" 109 ppf P-110 H521 casing to a depth of 500 m while filling the casing with mud. The casing was not filled while running from 500 m to 1370 m so that the it was neutrally buoyant to allow rotation of the 16" to orient the lug in the down hole splitter housing. A 9 5/8" survey cam was attached to a north seeking gyro tool, run in the 16" casing and landed on the orientation lug at ca. 1335 m. The 16" casing string was rotated to the right with 3500 ft-lb to position the 9 5/8" leg on the high side of the hole. After pulling the gyro and cam from the casing, it was filled with mud and run to a total setting depth of 1429 m. The 16" casing was crossed over to 18 5/8" .472" wall, 110 ksi yield, H511 casing for the top 20 m below the 18 5/8" casing hanger. This inside diameter was required to allow sufficient tolerance for the tubing hangers in the surface splitter wellhead/tree design. After landing the casing hanger in the short adapter spool, the gyro cam was re-run to confirm the high side orientation of the lug prior to cementing. The 9 5/8" x 5 3/4" downhole splitter housing and 16" x 18 5/8" casing was cemented to surface by running a 9 5/8" latch/seal assembly and 14.375" OD orientation cam on one joint of 9 5/8" casing crossed over to 5" drill pipe. A sub-sea release plug set was installed inside the joint of 9 5/8" casing attached to the crossover to 5" drill pipe. After landing the cam on the orientation lug in the downhole splitter housing, the seal assembly was released from the cam by right hand rotation, lowered ca. 4 m and stung into the 9 5/8" seal bore in the top of the downhole splitter housing. After pumping spacer and the cement slurry, the SSR dart was released and displaced to latch in the 9 5/8" SSR wiper plug and bumped on the top float collar. After the cementing operation, the 9 5/8" seal assembly, cam and 5" drill pipe were retrieved from the well. A total of 17 days were spent on this sequence of operations.

Phase 3: Drilling the well to Mjød - 2/8-16 S

After nippling down the 21 1/4" BOP, the 21 1/4" 5M splitter casing spool and hydraulic tension spool were nippled up on the 21 1/4" short adapter spool. The 9 5/8" latch/seal assembly and cam were run on the 9 5/8" H521 drilling riser. The bottom 200 m of 9 5/8" x 16" annulus was displaced to high viscosity 14.6 ppg oil base mud to prevent barite sag during the drilling operation. The cam was landed on the orientation lug in the downhole splitter housing and the latch/seal assembly released from the cam by right hand rotation. After releasing from the cam, the riser was lowered ca. 4 m and stung into the 9 5/8" seal bore and latch engaged. After performing a 250 klb. overpull test, the 9 5/8" riser, seal assembly and 9 5/8" leg was tested internally to 5000 psi. The slips in the hydraulic tension spool were engaged with 250 klb. surface tension in the riser. The seals in the hydraulic tension spool were activated and tested. While attempting to pressure test the 9 5/8" x 16" annulus to 3500 psi, the hold down bolts for the packoff assembly in the hydraulic tension spool failed at 2100 psi. The packoff assembly was removed and remaining stubs of the hold down bolts were ground off flush to the ID of the hydraulic tension spool. The minimum burst rating of the 18 5/8" x 16" casing (5600 psi for 18 5/8") allowed the use of the intermediate casing for pressure integrity (inplace of the 9 5/8" drilling riser) for the remaining drilling operations through the 9 5/8" leg. A bit guide installed on the two meter long stub of 9 5/8" casing prior to nippling up the 13 5/8" 5M BOP and drilling riser.

It was later determined that due to insufficient QA/QC in the design phase, the hold down bolts in the hydraulic tension spool were under-designed to hold the load created by 3500 psi below the pack-off assembly. This pack-off assembly was not tested in the Bossier City test because the 16" and 18 5/8" casing used was not rated to 3500 psi. A modified hold down ring was designed and fabricated to be ready for drilling the 5" injection hole through the 7" drilling riser.

A 8 1/2" steerable BHA was used to drill out the floats and cement in the 9 5/8" leg. The 8 1/2" hole in well 2/8-16S was directionally drilled towards the Mjød target by building the angle from 32 to 69 deg and continuing to turn the well from 35 to 104 deg azimuth. This hole section was drilling with a 14.6 ppg low viscosity synthetic oil based mud to minimize ECD and surge/swab pressures since there was a very narrow window between pore and fracture pressure in the Miocene, Middle Eocene and Paleocene claystone sections above the productive Cretaceous Tor chalk. While drilling at 1920 m, a faulted zone in the overburden claystone was intersected with resulting abnormal mud losses and wellbore ballooning conditions. The faulted zone could not be confirmed by seismic data due to the fact that this was occurrlng in a seismic blindspot in the area below the platform, but surrounding seismic data supports the likelihood of this. During the next 14 days, 9 plugs (LCM, cement and gunk) were spotted in attempts to stabilize the well and reduce the losses to acceptable levels while drilling continued to a depth of 3081 m. The well bore collapsed during a flow check on a wiper trip and the decision was made to P&A the wellbore to the Mjød structure and sidetrack to a back-up location on the northern flank of the Valhall field. Three 80 bbl cement plugs were set from 2172 m to 1419 m RKB. A total of 19 days were spent on this sequence of operations.

2. LESSONS LEARNED

LESSONS LEARNED SUMMARY - 2/8 - 16 S PROJECT

L/L #	Lesson Learned Description		Recommendations
1	BPV leak during BOP test	1	Better QA/QC of well head/tree service tools.
2	Swetech type 1 and 2 cutter not cutting 5" 18# Q-125 tubing	2	Avoid using these type of cutters in the future.
3	JRC cutter will cut 5" 18# Q-125 tubing. But w/ risk to outter casing.	3	Use JRC cutters for future severing jobs.
4	Top drive repair- Drive pinoin came off shaft.	4	Improve Preventive Maintenance System on Valhall DP. Last inspection was 4 years ago.
5	Repair suction in shaker tank. (gas in Polyvis milling mud)	5	Remove leaky suction hoses and use diaphram pump instead of centrifugal.
6	Gas encapsulated in cement causing foamed Polyvis.	6	Have plenty of fresh mud available. Control ROP in heavy gas intervals to control amount of gas in system
7	Actual RKB/"A" section: 21.48 m vs. original 21.646 m	7	Measure actual distance. Difference is due to platform subsidence.
8	Gas channel in 13 3/8" X 20" has accumulated gas pockets.	8	Circulate with reduced circ rate without shutting in. Control ROP in heavy gas intervals to control amount of gas in system
9	Lost control (viscosity) of mud treatment for open hole milling.	9	Have mud treated prior to milling out in open hole. Be prepared.
10	Drilling Supv. are ordering people to rig too late for service companies to react.	10	Give service companies sufficient lead time to mobilize.
11	Criteria for acceptable leak rate in GDP need clarification. (1 - 5 psi /min.)	11	Clarify acceptable leak rates in DOP.
12	MSD has trouble with slurrifing cement chunks.	12	Drill out casing with water base mud and dump the cement chunks in the returns.
13	Rock bit generates lots more fines than PDC and blinds screens.	13	Be prepared. Evaluate the use of bigger mesh shale shaker screens.
14	Floating 16" reduced rotating torque to orient to 3500 ft-lb. Buoyant plan worked very well.	14	Continue the use of buoyancy in cases where friction is causing limitations.
15	Hydraulic Tension Spool hold down bolts under-designed. QA/QC error.	15	Improve design review activities in the QA/QC of system components.
16	Do not bleed well down for flow checks with ballooning conditions.	16	Avoid performing flow checks while drilling the overburden interval in Valhall.
17	Review overburden seismic data in planning stage. Look for potential fault/trouble zones.	17	Avoid zones if possible. A-20B, 20C and 20D were 170 - 180 m away from 2/8-16S with no indications of faulted zone. Sidetrack around rather than "fight".
18	Was able to run Nova Plus mud with low rheology (600 fan reading under 60)	18	Use this synthetic mud in future hole sections where minimizing ECD/surge/swab is critical.

3. DRILLING COST AND TIME

2/8 - 16 S Project Time & Cost Summary

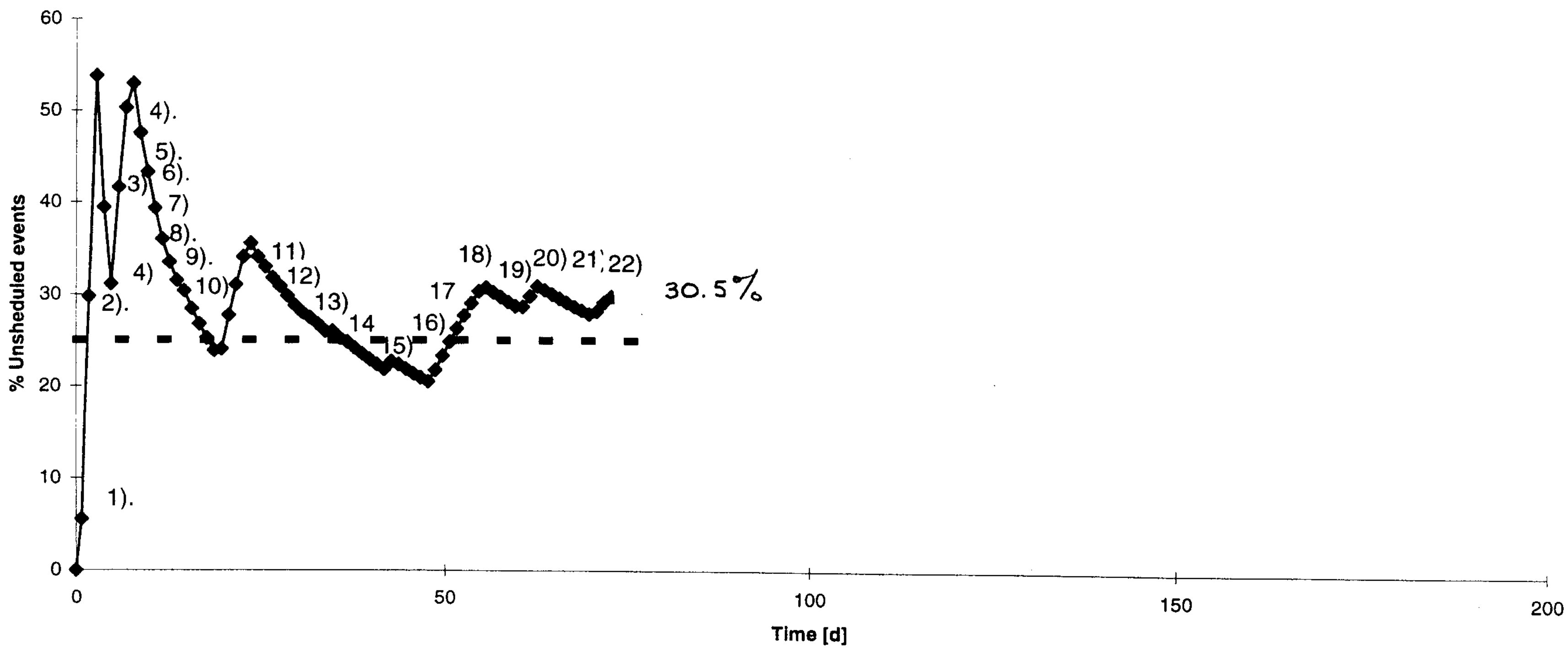
Phase	Total Time, days	Total Cost, MMUSD
P/A + Slot Recovery	26,7	incl. below
2/8 -16S	36,1	2,99
TOTAL	62,8	2,99

2/8 - 16 S ACTUAL ACCOUNTING COST SUMMARY

DESCRIPTION	CODE NO.	P&A A-20A		2/8-16S				TOTAL
DAYS ON WELL		26,7	daily avg.	36,1	daily avg.			62,8
	costs	included in A-20B &20D						
SALARIES EXPAT	1	0	0	34573	958			34573
SALARIES NATIONAL	2	0	0	0	0			0
CONSULTANT SERVICE	99	0	0	80503	2230			80503
AIR TRANSPORT	208	0	0	24623	682			24623
SEA TRANSPORT	209	0	0	202315	5604			202315
ONSHORE TRANSPORT	210	0	0	5148	143			5148
MUD PRODUCTS	303	0	0	970811	26892			970811
BITS	305	0	0	30880	855			30880
CASING AND LINER	306	0	0	0	0			0
CEMENT AND CHEMICALS	307	0	0	52130	1444			52130
VARIATION ORDER	308	0	0	41008	1136			41008
STIMULATION CHEMICALS	309	0	0	0	0			0
DP MAINTENANCE. CAP COST	310	0	0	0	0			0
RIG DAY RATE	501	0	0	171413	4748			171413
CATERING	503	0	0	64131	1776			64131
V/DIVING	504	0	0	0	0			0
) ENGINEERS	505	0	0	0	0			0
CUTTINGS WASH	506	0	0	33113	917			33113
MUD LOGGING	507	0	0	27395	759			27395
MWD PERS. & SERVICE	508	0	0	121950	3378			121950
DIRECTIONAL DRILLING	509	0	0	232399	6438			232399
SURVEYING SERVICE	510	0	0	167205	4632			167205
LOGGING AND PERFORATING	511	0	0	0	0			0
CASING & TUBING SERVICE	512	0	0	562	16			562
CEMENTING SERVICE	513	0	0	103018	2854			103018
PERFORATING	514	0	0	0	0			0
WIRELINE SERVICE	515	0	0	11725	325			11725
SNUBBING SERVICE	519	0	0	0	0			**0** *
FISHING SERVICE	523	0	0	19340	536			19340
CORING SERVICE	525	0	0	0	0			0
DRILLING TOOLS	527	0	0	95972	2659			95972
STIMULATION & GRAVEL PACK	521	0	0	21400	593			**21400** *
AMOCO PRODUCTION SERVICE	529	0	0	5307	147			5307
WELLHEAD/COMPLETION SERVICE	530	0	0	7858	218			7858
NSDG	550	0	0	35410	981			35410
DIRECTIONAL DRILLING EQUIPMENT	701	0	0	0	0			0
DRILLING TOOLS	703	0	0	0	0			0
TANGIBLE EQUIP. ABANDONED	808	0	0	0	0			0
PRE SPUD ACTIVITIES	810	0	0	0	0			0
HER	807	0	0	424398	11756			424398
IERAL EQUIPMENT	814	0	0	0	0			0
ESTIMATED ONSHORE SUPPORT	809	0	0	4262	0			4262
TOTAL INTANGIBLES		**0**		**2988849**				**2988849**
TOTAL INTANGIBLES EXCLUDING STIMULATION & SNUBBING *								
CASING	211	0		0				
CASING AND LINER	306							
TUBING	213	0		0				
TANGIBLE COMPLETION EQUIPMENT	214	0		0				
WELLHEAD	215	0		0				
NON CONTRACTOR	220	0		0				
TOTAL TANGIBLES		**0**		**0**				**0**
TOTAL WELL		**0**		**2988849**				**2988849**

4. UNSCHEDULED EVENTS

Unscheduled Events
2/8 - 16S Splitter Project



Please see additional sheet for comments.

2/8 - 16S Splitter Project UE Comments

1). BPV Leak
2). Swetech Cutter failed to cut tubing
3). Top Drive Repair
4). Repair shaker tank suction (gas in mud)
5). Repair IBOP hydraulic hose
6). Repair shaker tank suction (gas in mud)
7). Repair flow line leak
8). Repair shaker tank suction (gas in mud)
9). Repair shaker tank suction (gas in mud)
10). Leak in 20" casing (locate/Repair)
11) MSD trouble with cement slurrification
12 - 14) Mud pump repair
15) Trouble retrieving KNI 20" wear bushing
16) Weatherford Hi-torque tong failure
17) Modify Gyro/Cam for increased flow-by area
18) Hold down bolts on KNI HTS pack-off failure
19) Change seals in diverter housing
20) Fight fault in 16S
21) Repair leak on SCS outlet valve
22) P&A 2/8-16S. Prep to start A-20 B

5. APPENDICES

BIT RECORD

AMOCO 2/8-A-20 A

BIT DATA TABLE

BIT No	Size (in)	Vendor	Type	Serial No	Jets (x 1/32")	Depth In In	Depth Out	Bit Dist	Bit Hrs	Cum Bit Hrs	Circ Hrs	ROP (m/hr	WOB klb	RPM (bit)	Torque kft-lb	Press psi	Flow gpm	TBR	IADC Grading I O D L B G O R	Comments
1	11 1/16	HTC	MILL	BN32878	---	22	104	82	16	16.0	18.4	5.1	3-15	195-215	3	900	890-915	18.3K	------	MILL 9 5/8 CASING
2	11 1/16	HTC	MILL	BN32878	---	104	282	178	23.5	23.5	26.1	7.6	4-17	210-215	3-7	430-870	880-1107	30.1K	---	MILL 9 5/8 Casing
3	11 1/16	HTC	MILL	BN32878	---	282	426	144	21	21.0	23.5	6.85	4-24	207-214	5.2-8.5	580-810	940-1140	26.7K	---	MILL 9 5/8 CASING
4	14.5	HTC	MILL	TSN 32940	---	22.5	101	78.5	14.3	14.3	18.8	5.5	1.5-22	42-215	3.2-6.4	239-1135	1066-1370	18.2K	---	MILL 13 3/8 CASING
5	14.5	HTC	MILL	TSN 32944	--	101	180	79	13.5	13.5	25.5	5.85	1.3-17	210	3.1-8.5	683-1899	879-1647	15.8K	--	MILL 13 3/8 CASING
5RR	14.5	HTC	MILL	TSN 32944	--	180	242	62	6.9	20.4	13.3	8.9	8.5	210	6-9	1166-1813	1280-1417	8.8K	--	MILL 13 3/8 CASING
6	14.5	HTC	MILL	---	---	242	371	129	8.1	8.1	12	6.5	8-14	200-214	6-10	1200-1440	1400	10.4K	---	MILL 13 3/8 CASING
7	14.5	HTC	MILL	---	---	371	422	51	9.9	9.9	14.4	5.15	5-12	209-212	6-8	1140-1505	1440	12.1K	---	MILL TO TD

AMOCO 2/8-16 S

BIT DATA TABLE

BIT No	Size (in)	Vendor	Type	Serial No	Jets (x 1/32")	Depth In In	Depth Out	Bit Dist	Bit Hrs	Cum Bit Hrs	Circ Hrs	ROP (m/hr	WOB klb	RPM (bit)	Torque kft-lb	Press psi	Flow gpm	TBR	IADC Grading I O D L B G O R	Comments
1	17.5	HTC	MAXGT1	M31DK	3x28,1xopen	369	1437	1068	45.5	45.5	81.8	45.5	4-40	70-170	3-6	2100	780-1220	348k	0-I-WT-GRI-E-1-BT-TD	PILOT HOLE
HO	24	DBS	24" H/O	8007787N!	6X12,1X28	380	1433	1053	42.6	42.6	53.1	24.7	0.1-9	90-106	2.5-4	2340	1560-2580	240K	1-4-BT-S-X-I-NO-TD	OPEN HOLE TO 24"
2	8.5	DBS	FM2745RI	35167	4X20	1437	2013	576	11.5	11.5	95	50.1	1-24	100-160	2.7-3.7	2400	400-486	133K	1-1-NO-A-X-I-PN-HP	DRILL 8.5" HOLE
2RR1	8.5	DBS	FM2745RI	35167	4X20	2013	3139	1126	22.9	34.4	105	49.2	0-10	60-255	3-6	2400	350-455	272K	1-1-PN-N-X-I-NO-HP	DRILL 8.5" HOLE

BOTTOM HOLE ASSEMBLIES

BAKER HUGHES INTEQ

BOTTOM HOLE ASSEMBLY

BHA No. 1 Sidetrack No. ____ Job No. 0940-20117

Company AMOCO NORWAY A/S Rig Contractor & No. ____ Depth In 369 (m)

Well Name & No. VALHALL/2/8-16S Field VALHALL Depth Out 1437 (m)

BIT DATA

Item No.	Bit No.	Size (in)	Mfr.	Type	Serial No.	Nozzles (32nd) or TFA	Gauge Length (in)	Depth In (m)	Depth Out (m)	Bit Length (m)
1	1	17 1/2	HTC	MAXGT1	M310K	2.589		369	1437	0.43

COMPONENT DATA

Item No.	Component Description	Mfr.	Serial No.	Gauge OD (in)	OD (in)	ID (in)	Fishing Neck Length (m)	Component Length (m)	Cumulative Length (m)
2	NAVIDRILL MACH 1P	EC	111496	17.250	11 1/4			9.35	9.8
	DTU - 0.78 dg.								
3	STABILIZER, STRING	BAK	DOTR 21057	15.750	9 1/2	3.000	0.92	2.20	12.0
4	CROSSOVER SUB	BAK	COS6025		9 1/2	2.813		0.72	12.7
5	MWD	BAK	976-3		9 1/2			9.17	21.9
6	SAVER SUB	BAK	COS0224		9 1/2	2.813		1.00	22.9
7	STABILIZER, NM STRING	BAK	ECO 3205	17.000	9 1/2	3.000	0.80	1.51	24.4
8	UBHO SUB	BAK	DOT 21059		9 1/2	3.000		0.90	25.3
9	CROSSOVER SUB		TSN 3502		8 15/16	3.000		0.62	25.9
10	DRILL COLLAR, SPIRAL-3				8	2.875		27.83	53.7
11	JARS	WEIR	411-80314		8	2.875	0.46	6.77	60.5
12	DRILL COLLAR, SPIRAL-2				8	2.875		18.16	78.7
13	CROSSOVER SUB				8	2.875		0.60	79.3
14	HEAVY WT DRILL PIPE-6				6 5/8	5.000		53.68	132.9

STABILIZER DATA

Item No.	Stabilizer Description (Describe UBH Stabilizer for NorTrak Runs!)	Spiral	Blade Length (in)	Blade Width (in)	Gauge Length (in)	Gauge In (in)	Gauge Out (in)
2	UBHS	STR	16.00	3.00	5.50	17 1/4	17 1/4
3	STS14	STR	14.00	3.00	5.00	15 3/4	15 3/4
7	STS14	RWO	13.50	3.00	5.50	17	17

DRILLPIPE DATA

Drillpipe	Grade	OD (in)	ID (in)	Wt/Ft (lbs/ft)	Conn.	Length (m)
Upper	G-105	6 5/8	5.966	25.20	6 5/8FH	
...ver						

WEIGHT DATA

BHA Weight (x1000 lbs)	In Air	In Mud
Total		
Below Jars		

...Sensor to Bit 14.2 (m) Hole Drag: Up ____ (x1000 lbs) Down ____ (x1000 lbs)

Objective For Running BHA Sidetrack below 20" shoe. Build and turn w/1.5deg 30m DLS

BHA Results As expected. 15m oriented gave 1.5deg DLS - 19m gave 2deg DLS - Slight drop in rotary

Reason for POOH Section TD

 BHI Representative

BOTTOM HOLE ASSEMBLY

BAKER HUGHES INTEQ

BHA No. 2 Sidetrack No. ____ Job No. 0940-2011

Company AMOCO NORWAY A/S Rig Contractor & No. ____ Depth In 376 (m)

Well Name & No. VALHALL/2/8-16S Field VALHALL Depth Out 1436 (m)

BIT DATA

Item No.	Bit No.	Size (in)	Mfr.	Type	Serial No.	Nozzles (32nd) or TFA	Gauge Length (in)	Depth In (m)	Depth Out (m)	Bit Length (m)
1	2	9 1/2		BULLNOSE	5360			376	1436	0.94

COMPONENT DATA

Item No.	Component Description	Mfr.	Serial No.	Gauge OD (in)	OD (in)	ID (in)	Fishing Neck Length (m)	Component Length (m)	Cumulative Length (m)
2	STABILIZER, NEAR BIT	BAK	GOT1551	17.000	9 1/2	1.531	0.83	2.19	3.1
	UNDER REAMER	DBS	8007787NS	24.000	9 1/2	3.313	1.16	2.58	5.7
4	CROSSOVER SUB				9	3.000		0.62	6.3
5	DRILL COLLAR				8	2.937	0.54	9.45	15.8
6	CROSSOVER SUB				9 3/8	3.000		0.43	16.2
7	STABILIZER, NM STRING	BAK	ECO3205	17.000	9 1/2	3.000	0.80	1.51	17.7
8	CROSSOVER SUB				9	2.750		0.32	18.0
9	DRILL COLLAR-2				8	2.875		18.38	36.4
10	JARS	WEIR	411-80314		8	2.875	0.46	6.77	43.2
11	DRILL COLLAR-2				8	2.875		18.16	61.3
12	CROSSOVER SUB				8	2.812	0.55	0.60	61.9
13	HEAVY WT DRILL PIPE-6				6 5/8	5.000		53.68	115.6

STABILIZER DATA

Item No.	Stabilizer Description Describe UBH Stabilizer for NorTrak Runs!	Spiral	Blade Length (in)	Blade Width (in)	Gauge Length (in)	Gauge In (in)	Gauge Out (in)
2	IBS	RWM	15.00	3.50	5.00	17	17
7	STS14	RWO	13.50	3.00	5.50	17	17

DRILLPIPE DATA

Drillpipe	Grade	OD (in)	ID (in)	Wt/Ft (lbs/ft)	Conn.	Length (m)
Upper	G-105	6 5/8	5.966	25.20	6 5/8 FH	
er						

WEIGHT DATA

BHA Weight (x1000 lbs)	In Air	In Mud
Total		
Below Jars		

y Sensor to Bit ____ (m) Hole Drag: Up ____ (x1000 lbs) Down ____ (x1000 lbs)

Objective For Running BHA Underream and open hole from 17 1/2" to 24"

BHA Results Underreamed open hole as planned

Reason for POOH POOH to run 16" splitter casing

Page 1 of 1 BHI Representative ____

BAKER HUGHES INTEQ

BOTTOM HOLE ASSEMBLY

BHA No. 3 Sidetrack No. Job No. 0940-20117

Company AMOCO NORWAY A/S Rig Contractor & No. Depth In 1437 (m)

Well Name & No. VALHALL/2/8-16S Field VALHALL Depth Out 2013 (m)

BIT DATA

Item No.	Bit No.	Size (in)	Mfr.	Type	Serial No.	Nozzles (32nd) or TFA	Gauge Length (in)	Depth In (m)	Depth Out (m)	Bit Length (m)
1	3	8 1/2	DBS	FM2745RI	35167	1.227	2.5	1437	2013	0.31

COMPONENT DATA

Item No.	Component Description	Mfr.	Serial No.	Gauge OD (in)	OD (in)	ID (in)	Fishing Neck Length (m)	Component Length (m)	Cumulative Length (m)
2	NAVIDRILL MACH 1 XL	EC	062167	8.250	6 3/4			9.62	9.9
	AKO - 1.00 dg.								
	STABILIZER, STRING	BAK	LIS 11188	7.500	6 11/16	2.250	0.86	1.55	11.5
4	CROSSOVER SUB - NON MAG	BAK			6 3/4	2.750		1.13	12.6
5	MWD	BAK	-		6 3/4			16.68	29.3
6	STABILIZER, NM STRING	BAK	DOT 21601	8.250	6 1/2	2.750	0.83	2.14	31.4
7	DRILL PIPE - COMPR SRV NM	BAK	BHI 675310		5	2.812	0.68	10.45	41.9
8	DRILL PIPE - COMPR SRV NM	BAK	BHI 675301		5	2.812	0.47	10.56	52.4
9	JARS	WEIR	WHC 1128		6 3/8	2.750	0.59	9.40	61.8
10	HEAVY WT DRILL PIPE-3				5	3.000		27.84	89.7

STABILIZER DATA

Item No.	Stabilizer Description (Describe UBH Stabilizer for NorTrak Runs!)	Spiral	Blade Length (in)	Blade Width (in)	Gauge Length (in)	Gauge In (in)	Gauge Out (in)
2	UBHS	STR	6.50	2.00	4.00	8 1/4	8 1/4
3	IBS	RWT	8.50	4.00	3.00	7 1/2	7 1/2
6	IBS	RWM	13.00	3.00	6.00	8 1/4	8 1/4

DRILLPIPE DATA

Drillpipe	Grade	OD (in)	ID (in)	Wt/Ft (lbs/ft)	Conn.	Length (m)
Upper	S-135	5	4.276	19.50	4 1/2 IF	
Lower						

WEIGHT DATA

BHA Weight (x1000 lbs)	In Air	In Mud
Total		
Below Jars		

Survey Sensor to Bit 21.4 (m) Hole Drag: Up (x1000 lbs) Down (x1000 lbs)

Objective For Running BHA Build F/30.5 T/78deg - Turn F/37 T/104deg Az. w/2deg DLS - Tangent to top Tor

BHA Results Good Directional response - Oriented 12-14m per stand to get 2deg/30m DLS

Reason for POOH Problems w/mud losses and ballooning effect f/1915m - POOH to bullhead cement into loss zone

Page 1 of 1 BHI Representative

BAKER HUGHES INTEQ

BOTTOM HOLE ASSEMBLY

BHA No. 4 Sidetrack No. Job No. 0940-20117

Company AMOCO NORWAY A/S Rig Contractor & No. Depth In 2013 (m)

Well Name & No. VALHALL/2/8-16S Field VALHALL Depth Out 2013 (m)

BIT DATA

Item No.	Bit No.	Size (in)	Mfr.	Type	Serial No.	Nozzles (32nd) or TFA	Gauge Length (in)	Depth In (m)	Depth Out (m)	Bit Length (m)
1	4R1	8 1/2	HTC	ATMP11H	V29BB	2.356		2013	2013	0.35

COMPONENT DATA

Item No.	Component Description	Mfr.	Serial No.	Gauge OD (in)	OD (in)	ID (in)	Fishing Neck Length (m)	Component Length (m)	Cumulative Length (m)
2	STABILIZER, NEAR BIT	BAK	SSBH 1679	8.500	6 13/16	2.750	0.90	2.16	2.5

STABILIZER DATA

Item No.	Stabilizer Description Describe UBH Stabilizer for NorTrak Runs!	Spiral	Blade Length (in)	Blade Width (in)	Gauge Length (in)	Gauge In (in)	Gauge Out (in)
2	IBS	RWM	16.00	3.00	6.00	8 1/2	8 1/2

DRILLPIPE DATA

Drillpipe	Grade	OD (in)	ID (in)	Wt/Ft (lbs/ft)	Conn.	Length (m)
Upper	S-135	5	4.276	19.50	4 1/2 IF	
Lower						

WEIGHT DATA

BHA Weight (x1000 lbs)	In Air	In Mud
Total		
Below Jars		

y Sensor to Bit (m) Hole Drag: Up (x1000 lbs) Down (x1000 lbs)

Objective For Running BHA Bullhead cement into loss zone. Drill out cement before it gets firm

BHA Results As expected

Reason for POOH Pick up drilling assy.

Page 1 of 1 BHI Representative

BAKER HUGHES INTEQ

BOTTOM HOLE ASSEMBLY

BHA No. 5 Sidetrack No. ____ Job No. 0940-20117

Company AMOCO NORWAY A/S Rig Contractor & No. ____ Depth In 2013 (m)

Well Name & No. VALHALL/2/8-16S Field VALHALL Depth Out 3139 (m)

BIT DATA

Item No.	Bit No.	Size (in)	Mfr.	Type	Serial No.	Nozzles (32nd) or TFA	Gauge Length (in)	Depth In (m)	Depth Out (m)	Bit Length (m)
1	3R1	8 1/2	DBS	FM2745RI	35167	1.227	2.5	2013	3139	0.31

COMPONENT DATA

Item No.	Component Description	Mfr.	Serial No.	Gauge OD (in)	OD (in)	ID (in)	Fishing Neck Length (m)	Component Length (m)	Cumulative Length (m)
2	NAVIDRILL MACH 1 XL	EC	061838	8.250	6 3/4			9.60	9.9
	AKO - 1.00 dg.								
3	STABILIZER, STRING	BAK	LIS 11188	7.500	6 11/16	2.250	0.86	1.55	11.5
4	CROSSOVER SUB - NON MAG	BAK			6 3/4	2.750		1.13	12.6
5	MWD	BAK			6 3/4			15.82	28.4
6	STABILIZER, NM STRING	BAK	DOT 21601	8.250	6 1/2	2.750	0.83	2.14	30.6
7	DRILL PIPE - COMPR SRV NM	BAK	BHI 675310		5	2.812	0.68	10.45	41.0
8	DRILL PIPE - COMPR SRV NM	BAK	BHI 675301		5	2.812	0.47	10.56	51.6
9	JARS	WEIR	WHC 1128		6 3/8	2.750	0.59	9.40	61.0
10	HEAVY WT DRILL PIPE-3				5	3.000		27.84	88.8

STABILIZER DATA

Item No.	Stabilizer Description (Describe UBH Stabilizer for NorTrak Runs!)	Spiral	Blade Length (in)	Blade Width (in)	Gauge Length (in)	Gauge In (in)	Gauge Out (in)
2	UBHS	STR	6.75	2.00	4.00	8 1/4	8 1/4
3	IBS	RWT	8.50	4.00	3.00	7 1/2	7 1/2
6	IBS	RWM	13.00	3.00	6.00	8 1/4	8 1/4

DRILLPIPE DATA

Drillpipe	Grade	OD (in)	ID (in)	Wt/Ft (lbs/ft)	Conn.	Length (m)
Upper	S-135	5	4.276	19.50	4 1/2 IF	
Lower						

WEIGHT DATA

BHA Weight (x1000 lbs)	In Air	In Mud
Total		
Below Jars		

Sensor to Bit 21.0 (m) Hole Drag: Up 20 (x1000 lbs) Down 15 (x1000 lbs)

Objective For Running BHA Build t/79deg - Turn t/104deg Az. w/2deg 30m DLS

BHA Results Easy to orient - Drop 1deg/30m in rotary when ROP less than 60m/hr.

Reason for POOH After wiper trip to 2100m - Could not RIH - Surveys indicate hole was side tracked

Page 1 of 1 BHI Representative ____

WELL PROFILE / FINAL SURVEY LISTING

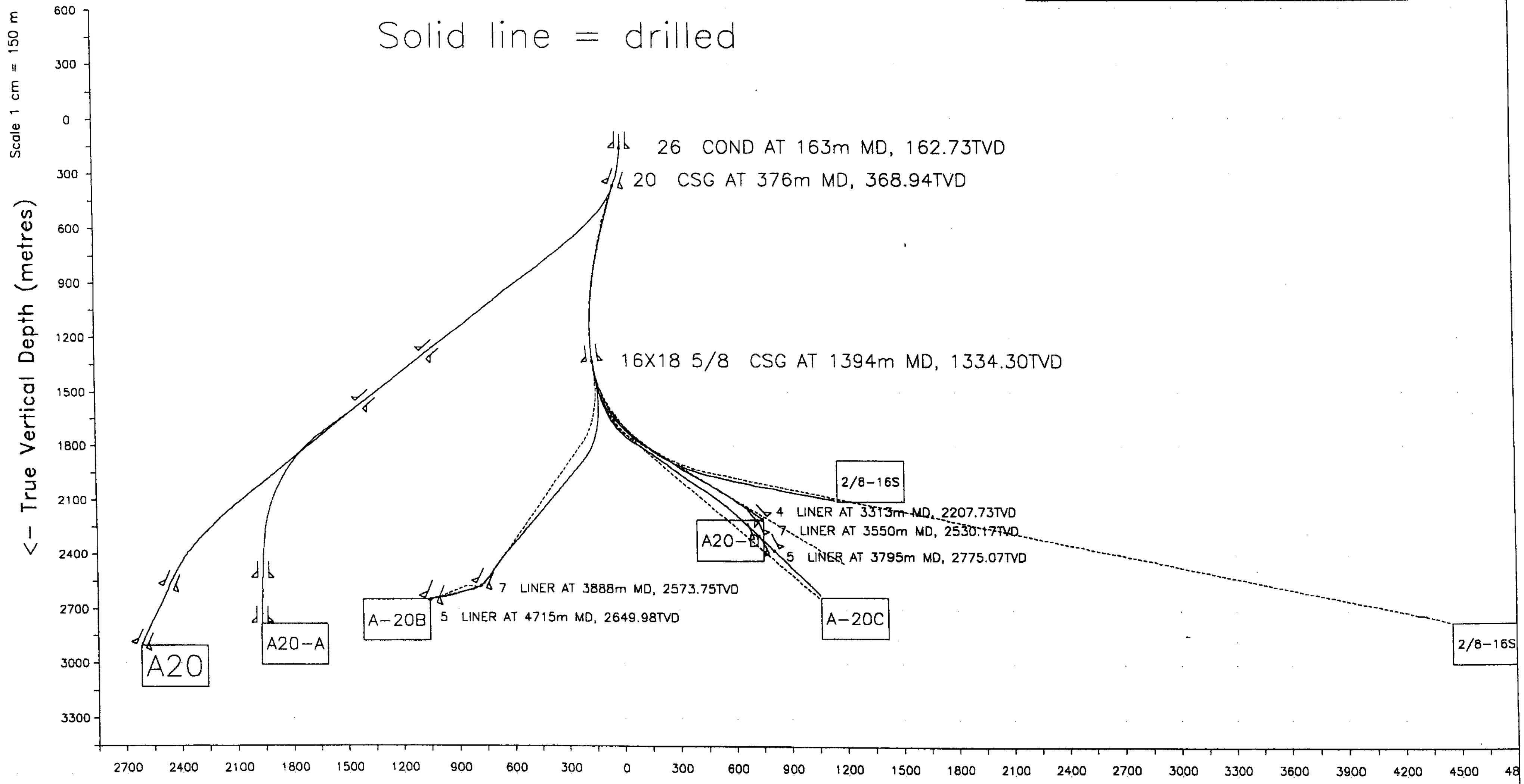
Amoco Norway Oil Company

Structure : Valhall A | Well : 2/8-16S

Field : Valhall Field 2/8 | Location : NORTH SEA, NORWEGIAN SECTOR

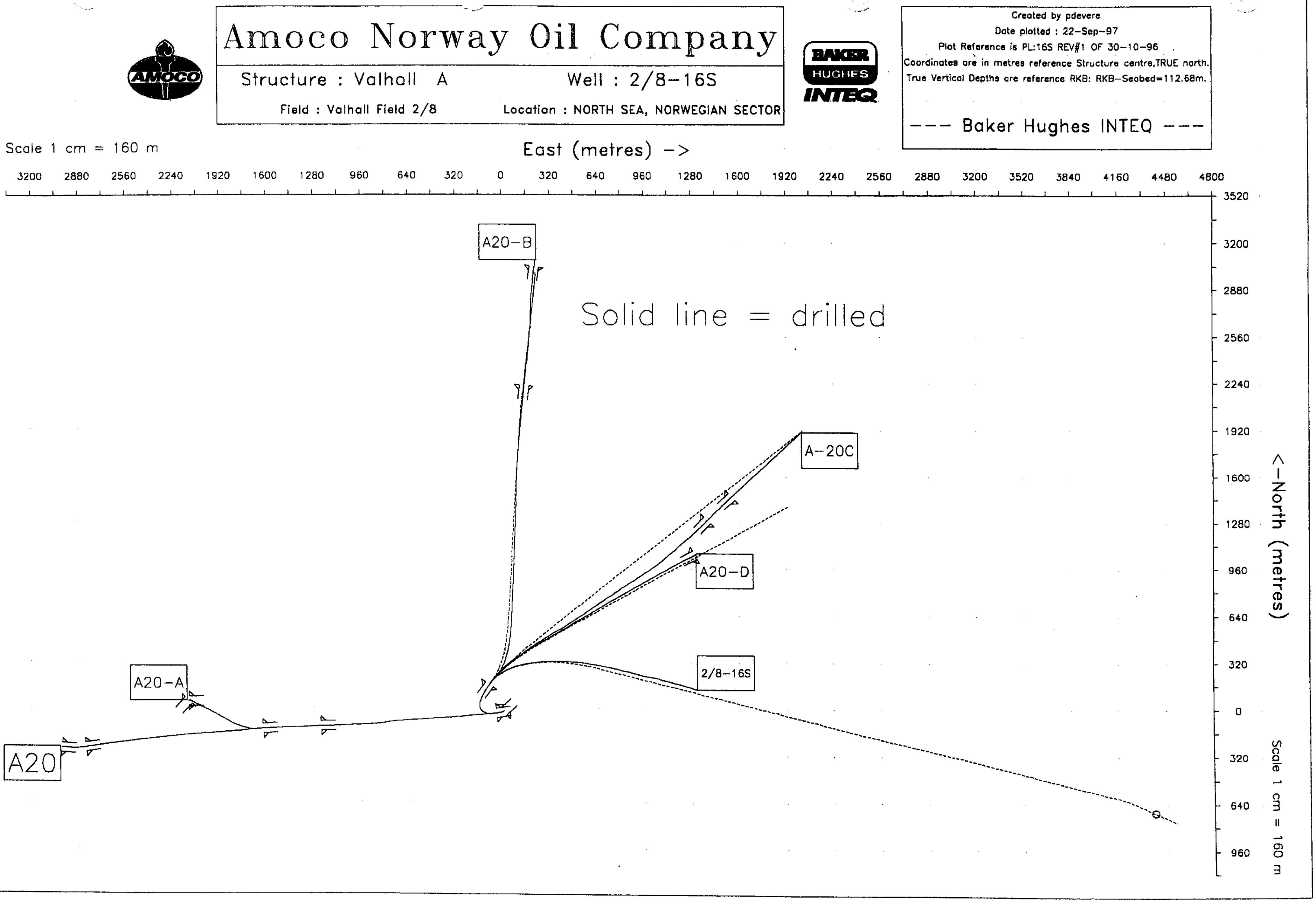
Created by pdevere
Date plotted : 22-Sep-97
Plot Reference is PL:16S REV#1 OF 30-10-96
Coordinates are in metres reference Structure centre,TRUE north.
True Vertical Depths are reference RKB: RKB-Seabed=112.68m.

--- Baker Hughes INTEQ ---



Scale 1 cm = 150 m

Azimuth 114.28 with reference 0.00 N, 0.00 E from Structure centre,TRUE north


Amoco Norway Oil Company
Structure : Valhall A
Well : 2/8-16S
Field : Valhall Field 2/8
Location : NORTH SEA, NORWEGIAN SECTOR
Created by pdevere
Date plotted : 22-Sep-97
Plot Reference is PL:16S REV#1 OF 30-10-96
Coordinates are in metres reference Structure centre,TRUE north.
True Vertical Depths are reference RKB: RKB-Seabed=112.68m.
--- Baker Hughes INTEQ ---
Scale 1 cm = 160 m
East (metres) ->
<-North (metres)
Solid line = drilled
A20-B
A-20C
A20-D
2/8-16S
A20-A
A20
Scale 1 cm = 160 m

Amoco Norway Oil Company
Valhall "A"

2/8-16S
slot #24
Valhall Field 2/8
NORTH SEA, NORWEGIAN SECTOR

S U R V E Y   L I S T I N G

by
Baker Hughes INTEQ

Your ref : Definitive 2/8-16S
Our ref : svy7204
License :

Date printed : 25-Sep-97
Date created : 28-Feb-97
Last revised : 19-Sep-97

Field is centred on 524479.700,6237247.840,3.00000,N
Structure is centred on 524479.700,6237247.840,3.00000,N

Slot location is n56 16 40.745,e3 23 43.620
Slot Grid coordinates are N 6237227.790, E 524487.162
Slot local coordinates are 20.10 S 7.35 E

Projection type: mercator - UTM, Spheroid: Hayford

Reference North is True North

Amoco Norway Oil Company
Valhall "A",2/8-16S
Valhall Field 2/8,NORTH SEA, NORWEGIAN SECTOR

Your ref : Definitive 2/8-16S
Last revised : 19-Sep-97

Measured Depth	Inclin. Degrees	Azimuth Degrees	True Vert Depth	RECTANGULAR	COORDINATES	Dogleg Deg/ 30m	Vert Sect	
85.30	3.27	213.74	85.30	20.10 S	7.35 E	0.00	14.96	23-2-97 RIGS INRUN #216 BHI: 2/8-16S
99.98	3.74	214.43	99.95	20.84 S	6.85 E	0.96	14.81	
109.98	3.97	216.45	109.93	21.39 S	6.46 E	0.80	14.68	
120.00	4.28	217.66	119.92	21.97 S	6.02 E	0.96	14.52	
130.01	4.77	218.61	129.90	22.59 S	5.53 E	1.49	14.33	
140.02	5.33	219.10	139.87	23.27 S	4.98 E	1.68	14.11	
149.98	6.00	220.45	149.79	24.03 S	4.35 E	2.06	13.85	
159.98	6.42	225.36	159.73	24.82 S	3.61 E	2.03	13.50	
163.00	6.60	228.36	162.73	25.05 S	3.36 E	3.81	13.37	26" CONDUCTOR SHOE
169.98	7.07	234.66	169.66	25.57 S	2.71 E	3.81	12.99	
180.00	7.66	241.56	179.59	26.24 S	1.62 E	3.18	12.27	
190.01	8.21	246.18	189.51	26.85 S	0.38 E	2.52	11.39	
200.02	8.62	249.22	199.41	27.40 S	0.97 W	1.81	10.38	
209.98	8.82	250.67	209.26	27.92 S	2.39 W	0.90	9.30	
219.99	9.03	251.94	219.15	28.42 S	3.86 W	0.86	8.17	
230.01	9.22	252.61	229.04	28.90 S	5.37 W	0.65	6.99	
239.97	9.64	253.40	238.86	29.38 S	6.93 W	1.32	5.76	
249.98	10.18	254.50	248.72	29.85 S	8.59 W	1.71	4.45	
260.01	10.95	255.49	258.58	30.33 S	10.37 W	2.37	3.02	
270.01	11.89	257.01	268.39	30.80 S	12.29 W	2.96	1.46	
279.97	13.06	258.60	278.11	31.25 S	14.39 W	3.67	-0.27	
290.01	14.31	259.25	287.87	31.71 S	16.72 W	3.76	-2.21	
300.02	15.51	259.55	297.54	32.18 S	19.26 W	3.60	-4.32	
310.00	16.50	259.63	307.13	32.68 S	21.96 W	2.98	-6.58	
320.02	17.71	260.02	316.71	33.20 S	24.86 W	3.64	-9.01	
329.97	19.24	260.55	326.15	33.73 S	27.97 W	4.64	-11.63	
340.00	20.51	261.31	335.58	34.27 S	31.34 W	3.88	-14.48	
350.02	21.64	261.87	344.93	34.79 S	34.90 W	3.44	-17.51	
359.98	22.63	262.44	354.15	35.31 S	38.62 W	3.05	-20.69	
369.99	22.73	262.49	363.39	35.81 S	42.45 W	0.31	-23.97	
376.00	22.31	262.65	368.94	36.11 S	44.73 W	2.12	-25.92	20" CSG SHOE/START STRACK 2/8-16S
379.98	22.03	262.76	372.63	36.30 S	46.22 W	2.12	-27.20	
390.00	21.08	262.81	381.95	36.76 S	49.87 W	2.84	-30.34	
400.01	20.74	263.09	391.30	37.20 S	53.42 W	1.06	-33.39	
409.98	20.35	263.23	400.63	37.62 S	56.89 W	1.18	-36.39	
419.99	19.81	263.78	410.03	38.01 S	60.30 W	1.71	-39.34	
429.98	19.48	264.14	419.44	38.36 S	63.64 W	1.06	-42.24	
440.00	18.90	264.83	428.91	38.68 S	66.92 W	1.86	-45.10	
449.97	18.39	265.51	438.35	38.95 S	70.10 W	1.67	-47.88	
460.00	17.96	266.25	447.88	39.17 S	73.22 W	1.46	-50.64	
470.02	17.36	267.28	457.43	39.34 S	76.25 W	2.03	-53.33	
479.99	17.18	267.48	466.95	39.48 S	79.21 W	0.57	-55.97	
490.01	17.06	268.03	476.53	39.59 S	82.16 W	0.60	-58.61	
499.97	16.79	268.85	486.05	39.67 S	85.06 W	1.09	-61.22	
509.99	16.41	270.00	495.66	39.70 S	87.92 W	1.50	-63.82	
520.02	16.23	270.74	505.28	39.68 S	90.74 W	0.82	-66.39	
529.97	15.89	272.02	514.84	39.62 S	93.49 W	1.48	-68.93	
540.00	15.62	273.56	524.50	39.49 S	96.21 W	1.49	-71.46	
550.02	15.40	275.09	534.15	39.28 S	98.88 W	1.39	-73.98	
559.97	15.38	275.82	543.75	39.03 S	101.51 W	0.59	-76.48	
569.98	15.29	276.57	553.40	38.75 S	104.14 W	0.65	-79.00	
580.02	15.07	278.44	563.09	38.40 S	106.75 W	1.60	-81.51	
589.98	14.81	280.07	572.71	37.99 S	109.28 W	1.49	-83.99	
600.01	14.46	282.09	582.42	37.51 S	111.77 W	1.85	-86.46	
610.03	14.23	283.55	592.12	36.95 S	114.19 W	1.28	-88.89	

All data is in meters unless otherwise stated.
Coordinates from Structure centre,TRUE north and TVD from RKB: RKB-Seabed=112.68m (43.49 M. above Mean sea level).
Bottom hole distance is 1319.11 on azimuth 83.40 degrees from wellhead.
Vertical section is from Structure centre,TRUE north on azimuth 114.28 degrees.
Calculation uses the minimum curvature method.
Presented by Baker Hughes INTEQ

Measured Depth	Inclin. Degrees	Azimuth Degrees	True Vert Depth	RECTANGULAR COORDINATES		Dogleg Deg/ 30m	Vert Sect
619.98	14.11	284.33	601.77	36.37 S	116.55 W	0.68	-91.29
630.02	13.82	285.73	611.52	35.74 S	118.89 W	1.33	-93.68
639.99	13.42	286.94	621.21	35.08 S	121.15 W	1.48	-96.00
649.97	13.11	288.58	630.92	34.38 S	123.33 W	1.47	-98.28
660.01	12.83	290.12	640.70	33.64 S	125.45 W	1.33	-100.52
670.00	12.57	291.72	650.45	32.85 S	127.50 W	1.31	-102.72
679.99	12.40	293.18	660.20	32.03 S	129.50 W	1.08	-104.88
689.97	12.23	295.77	669.95	31.15 S	131.44 W	1.74	-107.00
699.99	12.14	298.00	679.75	30.19 S	133.32 W	1.43	-109.12
709.99	12.09	300.31	689.52	29.17 S	135.15 W	1.46	-111.21
719.97	11.97	302.47	699.29	28.08 S	136.93 W	1.40	-113.27
730.02	11.97	304.52	709.12	26.93 S	138.67 W	1.27	-115.33
740.00	11.89	306.74	718.88	25.73 S	140.34 W	1.40	-117.35
749.98	11.79	308.96	728.65	24.48 S	141.96 W	1.40	-119.34
760.02	11.73	310.55	738.48	23.17 S	143.53 W	0.98	-121.31
769.99	11.61	312.79	748.24	21.83 S	145.04 W	1.41	-123.24
779.97	11.57	315.12	758.02	20.44 S	146.48 W	1.41	-125.12
789.99	11.48	316.87	767.84	19.00 S	147.87 W	1.08	-126.98
800.01	11.40	319.42	777.66	17.52 S	149.20 W	1.53	-128.80
809.97	11.33	322.28	787.42	16.00 S	150.44 W	1.71	-130.56
819.99	11.27	325.03	797.25	14.41 S	151.60 W	1.62	-132.27
830.00	11.32	328.36	807.06	12.78 S	152.68 W	1.96	-133.92
839.97	11.34	330.51	816.84	11.09 S	153.67 W	1.27	-135.52
849.99	11.43	332.48	826.66	9.35 S	154.62 W	1.20	-137.10
860.01	11.46	335.14	836.48	7.57 S	155.50 W	1.58	-138.63
869.97	11.48	337.62	846.25	5.75 S	156.29 W	1.49	-140.10
880.01	11.57	339.81	856.08	3.89 S	157.02 W	1.33	-141.53
889.98	11.64	342.03	865.85	1.99 S	157.67 W	1.36	-142.91
900.01	11.88	344.96	875.67	0.03 S	158.25 W	1.92	-144.24
909.98	12.06	347.03	885.42	1.97 N	158.75 W	1.40	-145.52
920.01	12.37	349.62	895.22	4.05 N	159.18 W	1.88	-146.77
929.99	12.71	351.77	904.97	6.19 N	159.53 W	1.74	-147.97
940.00	12.93	353.87	914.73	8.39 N	159.81 W	1.54	-149.12
949.98	13.31	356.15	924.45	10.65 N	160.00 W	1.93	-150.23
959.97	13.61	357.80	934.16	12.97 N	160.13 W	1.46	-151.30
970.00	14.01	359.55	943.90	15.37 N	160.18 W	1.73	-152.33
979.98	14.34	1.16	953.58	17.81 N	160.17 W	1.55	-153.32
990.00	14.73	2.41	963.28	20.32 N	160.09 W	1.50	-154.28
999.97	15.04	3.65	972.91	22.88 N	159.95 W	1.34	-155.21
1010.00	15.43	5.00	982.59	25.51 N	159.75 W	1.58	-156.11
1020.02	15.81	6.65	992.24	28.19 N	159.48 W	1.75	-156.96
1030.01	16.06	7.91	1001.85	30.91 N	159.13 W	1.28	-157.77
1039.99	16.34	9.42	1011.43	33.66 N	158.71 W	1.52	-158.52
1049.97	16.64	10.82	1021.00	36.45 N	158.21 W	1.50	-159.21
1060.01	17.03	12.62	1030.61	39.30 N	157.62 W	1.95	-159.84
1069.98	17.41	14.23	1040.13	42.17 N	156.94 W	1.83	-160.39
1080.02	17.75	15.75	1049.70	45.10 N	156.15 W	1.71	-160.88
1089.99	18.18	16.99	1059.19	48.05 N	155.28 W	1.73	-161.31
1100.02	18.64	18.45	1068.71	51.07 N	154.32 W	1.95	-161.67
1109.99	19.11	20.04	1078.14	54.11 N	153.26 W	2.10	-161.95
1120.02	19.62	21.08	1087.60	57.22 N	152.09 W	1.84	-162.17
1129.99	20.12	22.00	1096.98	60.38 N	150.84 W	1.77	-162.33
1140.01	20.60	22.78	1106.37	63.60 N	149.52 W	1.65	-162.44
1149.96	21.21	23.46	1115.67	66.86 N	148.12 W	1.98	-162.51
1160.00	21.50	23.85	1125.02	70.21 N	146.65 W	0.96	-162.55

All data is in meters unless otherwise stated.
Coordinates from Structure centre,TRUE north and TVD from RKB: RKB-Seabed=112.68m (43.49 M. above Mean sea level).
Bottom hole distance is 1319.11 on azimuth 83.40 degrees from wellhead.
Vertical section is from Structure centre,TRUE north on azimuth 114.28 degrees.
Calculation uses the minimum curvature method.
Presented by Baker Hughes INTEQ

Measured Depth	Inclin. Degrees	Azimuth Degrees	True Vert Depth	RECTANGULAR COORDINATES		Dogleg Deg/ 30m	Vert Sect	
1170.01	21.92	24.18	1134.32	73.60 N	145.15 W	1.31	-162.57	
1179.97	22.48	24.70	1143.54	77.02 N	143.59 W	1.79	-162.56	
1189.99	23.00	25.15	1152.78	80.53 N	141.96 W	1.64	-162.52	
1200.01	23.44	25.56	1161.99	84.10 N	140.27 W	1.40	-162.44	
1210.02	24.09	26.35	1171.15	87.73 N	138.50 W	2.17	-162.32	
1220.04	24.38	26.60	1180.29	91.41 N	136.67 W	0.92	-162.17	
1229.99	24.78	26.95	1189.34	95.11 N	134.80 W	1.28	-161.99	
1240.02	25.07	27.33	1198.43	98.87 N	132.87 W	0.99	-161.77	
1250.01	25.33	27.85	1207.47	102.64 N	130.90 W	1.03	-161.53	
1259.99	25.59	28.26	1216.48	106.42 N	128.89 W	0.94	-161.25	
1269.97	25.93	28.91	1225.47	110.23 N	126.81 W	1.33	-160.92	
1280.02	26.34	29.49	1234.49	114.10 N	124.65 W	1.44	-160.54	
1290.02	26.86	30.24	1243.43	117.98 N	122.42 W	1.86	-160.11	
1299.96	27.26	30.54	1252.28	121.88 N	120.13 W	1.28	-159.62	
1310.02	27.65	31.25	1261.21	125.86 N	117.75 W	1.52	-159.09	
1319.99	28.36	32.01	1270.01	129.85 N	115.30 W	2.39	-158.49	
1329.98	28.79	32.65	1278.79	133.88 N	112.74 W	1.59	-157.82	
1340.01	29.01	32.83	1287.57	137.96 N	110.12 W	0.71	-157.11	
1349.99	29.32	33.19	1296.28	142.04 N	107.47 W	1.07	-156.37	
1359.97	29.75	33.76	1304.97	146.14 N	104.76 W	1.54	-155.58	
1370.00	30.07	34.34	1313.66	150.29 N	101.96 W	1.29	-154.73	
1379.98	30.55	35.07	1322.28	154.43 N	99.09 W	1.82	-153.82	
1389.97	31.00	35.20	1330.86	158.61 N	96.15 W	1.37	-152.86	
1394.00	31.56	35.45	1334.30	160.31 N	94.94 W	4.27	-152.46	16 X 18 5/8" CASING SHOE
1394.95	31.69	35.51	1335.11	160.72 N	94.65 W	4.27	-152.36	BHI RIGS MINCURVE TIE ON: 16S
1422.00	30.90	37.00	1358.23	172.05 N	86.34 W	1.23	-149.45	BHI MWD IN 17 1/2" SEC
1445.00	31.80	41.20	1377.87	181.33 N	78.79 W	3.08	-146.38	23-FEB-97 BHI MWD 8.5" SEC 16S
1474.00	33.60	44.90	1402.28	192.76 N	68.09 W	2.78	-141.33	
1503.00	34.30	47.20	1426.33	204.00 N	56.43 W	1.51	-135.33	
1531.00	34.70	50.80	1449.41	214.40 N	44.47 W	2.23	-128.69	
1559.00	34.70	53.90	1472.43	224.13 N	31.85 W	1.89	-121.20	
1588.00	35.40	56.80	1496.18	233.60 N	18.15 W	1.87	-112.60	
1617.00	37.10	59.10	1519.56	242.69 N	3.62 W	2.25	-103.09	
1646.00	38.10	60.90	1542.54	251.53 N	11.71 E	1.54	-92.76	
1675.00	39.10	64.00	1565.21	259.89 N	27.75 E	2.25	-81.57	
1704.00	40.30	66.40	1587.52	267.66 N	44.56 E	2.01	-69.44	
1732.00	42.00	68.20	1608.60	274.76 N	61.56 E	2.22	-56.87	
1761.00	43.70	70.50	1629.86	281.71 N	80.01 E	2.39	-42.90	
1790.00	44.60	73.10	1650.67	288.01 N	99.20 E	2.09	-28.00	
1820.00	46.10	75.00	1671.76	293.87 N	119.72 E	2.02	-11.71	
1848.00	48.10	76.60	1690.82	298.90 N	139.60 E	2.48	4.35	
1877.00	49.90	79.10	1709.84	303.50 N	161.00 E	2.70	21.96	
1906.00	51.30	80.20	1728.25	307.52 N	183.04 E	1.69	40.40	
1934.00	52.50	81.90	1745.53	310.95 N	204.80 E	1.93	58.83	
1963.00	54.30	83.70	1762.82	313.86 N	227.90 E	2.39	78.68	
1992.00	55.90	85.90	1779.41	316.01 N	251.58 E	2.49	99.39	
2025.00	54.70	86.20	1798.20	317.88 N	278.65 E	1.11	123.29	
2054.00	55.50	86.40	1814.79	319.42 N	302.38 E	0.84	144.30	
2081.00	56.20	87.90	1829.95	320.53 N	324.70 E	1.58	164.18	
2108.00	58.70	88.40	1844.47	321.26 N	347.45 E	2.82	184.61	
2140.00	61.10	90.00	1860.52	321.64 N	375.12 E	2.60	209.69	
2168.00	62.50	91.30	1873.75	321.36 N	399.80 E	1.94	232.29	
2197.00	64.00	92.10	1886.81	320.59 N	425.68 E	1.72	256.20	
2226.00	65.10	93.90	1899.27	319.22 N	451.83 E	2.03	280.60	
2255.00	67.00	94.80	1911.04	317.21 N	478.26 E	2.14	305.52	

All data is in meters unless otherwise stated.
Coordinates from Structure centre,TRUE north and TVD from RKB: RKB-Seabed=112.68m (43.49 M. above Mean sea level).
Bottom hole distance is 1319.11 on azimuth 83.40 degrees from wellhead.
Vertical section is from Structure centre,TRUE north on azimuth 114.28 degrees.
Calculation uses the minimum curvature method.
Presented by Baker Hughes INTEQ

Measured Depth	Inclin. Degrees	Azimuth Degrees	True Vert Depth	RECTANGULAR COORDINATES		Dogleg Deg/ 30m	Vert Sect	
2283.00	69.40	95.00	1921.44	314.99 N	504.16 E	2.58	330.04	
2310.00	70.70	96.00	1930.65	312.55 N	529.42 E	1.78	354.07	
2339.00	72.70	96.60	1939.76	309.53 N	556.78 E	2.15	380.26	
2368.00	73.40	97.80	1948.21	306.05 N	584.30 E	1.39	406.77	
2397.00	75.00	98.00	1956.11	302.22 N	611.94 E	1.67	433.54	
2426.00	76.20	100.70	1963.32	297.65 N	639.65 E	2.98	460.68	
2453.00	77.70	101.90	1969.42	292.50 N	665.45 E	2.11	486.31	
2482.00	78.50	101.60	1975.40	286.72 N	693.23 E	0.88	514.01	
2511.00	77.00	102.10	1981.55	280.90 N	720.96 E	1.63	541.69	
2540.00	76.00	102.30	1988.32	274.94 N	748.52 E	1.05	569.26	
2569.00	77.80	104.30	1994.89	268.44 N	776.01 E	2.74	596.99	
2598.00	79.00	103.70	2000.72	261.57 N	803.57 E	1.38	624.94	
2627.00	78.20	103.60	2006.46	254.86 N	831.20 E	0.83	652.88	
2655.00	77.90	102.90	2012.25	248.58 N	857.86 E	0.80	679.76	
2685.00	78.60	103.80	2018.36	241.80 N	886.44 E	1.13	708.60	
2713.00	80.10	104.20	2023.54	235.14 N	913.14 E	1.66	735.68	
2742.00	81.40	102.80	2028.20	228.46 N	940.97 E	1.96	763.79	
2770.00	79.60	102.50	2032.82	222.42 N	967.91 E	1.95	790.84	
2799.00	78.40	102.40	2038.35	216.28 N	995.71 E	1.25	818.70	
2827.00	78.10	101.30	2044.06	210.65 N	1022.54 E	1.20	845.47	
2857.00	79.60	102.70	2049.86	204.53 N	1051.33 E	2.03	874.23	
2884.00	79.90	104.80	2054.66	198.21 N	1077.13 E	2.32	900.35	
2914.00	78.70	104.00	2060.23	190.88 N	1105.68 E	1.43	929.39	
2943.00	79.30	104.70	2065.77	183.83 N	1133.26 E	0.94	957.43	
2972.00	80.00	105.30	2070.98	176.44 N	1160.82 E	0.95	985.59	
3001.00	79.10	105.60	2076.24	168.85 N	1188.31 E	0.98	1013.77	
3030.00	80.10	106.20	2081.47	161.03 N	1215.74 E	1.20	1041.99	
3059.00	79.80	105.30	2086.53	153.28 N	1243.22 E	0.97	1070.23	
3088.00	79.20	106.40	2091.82	145.49 N	1270.65 E	1.28	1098.43	
3116.00	79.30	106.70	2097.04	137.66 N	1297.02 E	0.33	1125.69	
3138.00	79.30	106.70	2101.12	131.45 N	1317.73 E	0.00	1147.12	EXTRAPOLATED TO TD

All data is in meters unless otherwise stated.
Coordinates from Structure centre,TRUE north and TVD from RKB: RKB-Seabed=112.68m (43.49 M. above Mean sea level).
Bottom hole distance is 1319.11 on azimuth 83.40 degrees from wellhead.
Vertical section is from Structure centre,TRUE north on azimuth 114.28 degrees.
Calculation uses the minimum curvature method.
Presented by Baker Hughes INTEQ

Comments in wellpath

MD	TVD	Rectangular Coords.		Comment
85.30	85.30	20.10 S	7.35 E	23-2-97 RIGS INRUN #216 BHI: 2/8-16S
163.00	162.73	25.05 S	3.36 E	26" CONDUCTOR SHOE
376.00	368.94	36.11 S	44.73 W	20" CSG SHOE/START STRACK 2/8-16S
1394.00	1334.30	160.31 N	94.94 W	16 X 18 5/8" CASING SHOE
1394.95	1335.11	160.72 N	94.65 W	BHI RIGS MINCURVE TIE ON: 16S
1422.00	1358.23	172.05 N	86.34 W	BHI MWD IN 17 1/2" SEC
1445.00	1377.87	181.33 N	78.79 W	23-FEB-97 BHI MWD 8.5" SEC 16S
3138.00	2101.12	131.45 N	1317.73 E	EXTRAPOLATED TO TD

Casing positions in string 'C'

Top MD	Top TVD	Rectangular Coords.		Bot MD	Bot TVD	Rectangular Coords.		Casing
n/a	85.30	20.10S	7.35E	1394.00	1334.30	160.31N	94.94W	16X18 5/8" CSG AT 1394m M

Targets associated with this wellpath

Target name	Geographic Location	T.V.D.	Rectangular Coordinates		Revised
Top Chalk 2/8-16S		2728.50	698.05S	4397.69E	13-Aug-96

Amoco Norway Oil Company
Valhall "A"

2/8-16S
slot #24
Valhall Field 2/8
NORTH SEA, NORWEGIAN SECTOR

S U R V E Y   L I S T I N G

by
Baker Hughes INTEQ

Your ref : Definitive 2/8-16S
Our ref : svy7204
License :

Date printed : 25-Sep-97
Date created : 28-Feb-97
Last revised : 19-Sep-97

Field is centred on 524479.700,6237247.840,3.00000,N
Structure is centred on 524479.700,6237247.840,3.00000,N

Slot location is n56 16 40.745,e3 23 43.620
Slot Grid coordinates are N 6237227.790, E 524487.162
Slot local coordinates are 20.10 S 7.35 E

Projection type: mercator - UTM, Spheroid: Hayford

Reference North is True North

Amoco Norway Oil Company
Valhall "A",2/8-16S
Valhall Field 2/8,NORTH SEA, NORWEGIAN SECTOR

SURVEY LISTING Page 1
Your ref : Definitive 2/8-16S
Last revised : 19-Sep-97

Measured Depth	Inclin Degrees	Azimuth Degrees	True Vert Depth	R E C T A N G U L A R	C O O R D I N A T E S	Dogleg Deg/ 30m	Vert Sect	G R I D C O O R D S Easting	Northing
85.30	3.27	213.74	85.30	20.10S	7.35E	0.00	14.96	524487.16	6237227.79
99.98	3.74	214.43	99.95	20.84S	6.85E	0.96	14.81	524486.66	6237227.04
109.98	3.97	216.45	109.93	21.39S	6.46E	0.80	14.68	524486.28	6237226.50
120.00	4.28	217.66	119.92	21.97S	6.02E	0.96	14.52	524485.85	6237225.92
130.01	4.77	218.61	129.90	22.59S	5.53E	1.49	14.33	524485.36	6237225.29
140.02	5.33	219.10	139.87	23.27S	4.98E	1.68	14.11	524484.81	6237224.61
149.98	6.00	220.45	149.79	24.03S	4.35E	2.06	13.85	524484.19	6237223.85
159.98	6.42	225.36	159.73	24.82S	3.61E	2.03	13.50	524483.46	6237223.05
163.00	6.60	228.36	162.73	25.05S	3.36E	3.81	13.37	524483.21	6237222.82
169.98	7.07	234.66	169.66	25.57S	2.71E	3.81	12.99	524482.56	6237222.30
180.00	7.66	241.56	179.59	26.24S	1.62E	3.18	12.27	524481.47	6237221.62
190.01	8.21	246.18	189.51	26.85S	0.38E	2.52	11.39	524480.24	6237221.00
200.02	8.62	249.22	199.41	27.40S	0.97W	1.81	10.38	524478.89	6237220.44
209.98	8.82	250.67	209.26	27.92S	2.39W	0.90	9.30	524477.47	6237219.92
219.99	9.03	251.94	219.15	28.42S	3.86W	0.86	8.17	524476.00	6237219.41
230.01	9.22	252.61	229.04	28.90S	5.37W	0.65	6.99	524474.49	6237218.92
239.97	9.64	253.40	238.86	29.38S	6.93W	1.32	5.76	524472.94	6237218.43
249.98	10.18	254.50	248.72	29.85S	8.59W	1.71	4.45	524471.28	6237217.95
260.01	10.95	255.49	258.58	30.33S	10.37W	2.37	3.02	524469.51	6237217.46
270.01	11.89	257.01	268.39	30.80S	12.29W	2.96	1.46	524467.59	6237216.98
279.97	13.06	258.60	278.11	31.25S	14.39W	3.67	-0.27	524465.49	6237216.52
290.01	14.31	259.25	287.87	31.71S	16.72W	3.76	-2.21	524463.16	6237216.05
300.02	15.51	259.55	297.54	32.18S	19.26W	3.60	-4.32	524460.64	6237215.56
310.00	16.50	259.63	307.13	32.68S	21.96W	2.98	-6.58	524457.93	6237215.05
320.02	17.71	260.02	316.71	33.20S	24.86W	3.64	-9.01	524455.04	6237214.51
329.97	19.24	260.55	326.15	33.73S	27.97W	4.64	-11.63	524451.93	6237213.96
340.00	20.51	261.31	335.58	34.27S	31.34W	3.88	-14.48	524448.57	6237213.41
350.02	21.64	261.87	344.93	34.79S	34.90W	3.44	-17.51	524445.01	6237212.86
359.98	22.63	262.44	354.15	35.31S	38.62W	3.05	-20.69	524441.30	6237212.33
369.99	22.73	262.49	363.39	35.81S	42.45W	0.31	-23.97	524437.48	6237211.80
376.00	22.31	262.65	368.94	36.11S	44.73W	2.12	-25.92	524435.20	6237211.49
379.98	22.03	262.76	372.63	36.30S	46.22W	2.12	-27.20	524433.71	6237211.29
390.00	21.08	262.81	381.95	36.76S	49.87W	2.84	-30.34	524430.06	6237210.81
400.01	20.74	263.09	391.30	37.20S	53.42W	1.06	-33.39	524426.52	6237210.35
409.98	20.35	263.23	400.63	37.62S	56.89W	1.18	-36.39	524423.05	6237209.91
419.99	19.81	263.78	410.03	38.01S	60.30W	1.71	-39.34	524419.64	6237209.50
429.98	19.48	264.14	419.44	38.36S	63.64W	1.06	-42.24	524416.30	6237209.13
440.00	18.90	264.83	428.91	38.68S	66.92W	1.86	-45.10	524413.03	6237208.79
449.97	18.39	265.51	438.35	38.95S	70.10W	1.67	-47.88	524409.85	6237208.51
460.00	17.96	266.25	447.88	39.17S	73.22W	1.46	-50.64	524406.74	6237208.26
470.02	17.36	267.28	457.43	39.34S	76.25W	2.03	-53.33	524403.70	6237208.08
479.99	17.18	267.48	466.95	39.48S	79.21W	0.57	-55.97	524400.75	6237207.92
490.01	17.06	268.03	476.53	39.59S	82.16W	0.60	-58.61	524397.80	6237207.79
499.97	16.79	268.85	486.05	39.67S	85.06W	1.09	-61.22	524394.91	6237207.70
509.99	16.41	270.00	495.66	39.70S	87.92W	1.50	-63.82	524392.04	6237207.65
520.02	16.23	270.74	505.28	39.68S	90.74W	0.82	-66.39	524389.23	6237207.65
529.97	15.89	272.02	514.84	39.62S	93.49W	1.48	-68.93	524386.48	6237207.70
540.00	15.62	273.56	524.50	39.49S	96.21W	1.49	-71.46	524383.76	6237207.82
550.02	15.40	275.09	534.15	39.28S	98.88W	1.39	-73.98	524381.09	6237208.00
559.97	15.38	275.82	543.75	39.03S	101.51W	0.59	-76.48	524378.46	6237208.24
569.98	15.29	276.57	553.40	38.75S	104.14W	0.65	-79.00	524375.82	6237208.51
580.02	15.07	278.44	563.09	38.40S	106.75W	1.60	-81.51	524373.22	6237208.84
589.98	14.81	280.07	572.71	37.99S	109.28W	1.49	-83.99	524370.68	6237209.24
600.01	14.46	282.09	582.42	37.51S	111.77W	1.85	-86.46	524368.19	6237209.71
610.03	14.23	283.55	592.12	36.95S	114.19W	1.28	-88.89	524365.77	6237210.25

All data in meters unless otherwise stated. Calculation uses minimum curvature method.
Coordinates from Structure centre,TRUE north and TVD from RKB: RKB-Seabed=112.68m (43.49 M. above Mean sea level).
Bottom hole distance is 1319.11 on azimuth 83.40 degrees from wellhead.
Vertical section is from Structure centre,TRUE north on azimuth 114.28 degrees.
Grid is mercator - UTM.
Grid coordinates in METERS and computed using the Hayford spheroid
Presented by Baker Hughes INTEQ

Measured Depth	Inclin Degrees	Azimuth Degrees	True Vert Depth	RECTANGULAR COORDINATES		Dogleg Deg/ 30m	Vert Sect	GRID COORDS Easting	Northing
619.98	14.11	284.33	601.77	36.37S	116.55W	0.68	-91.29	524363.40	6237210.82
630.02	13.82	285.73	611.52	35.74S	118.89W	1.33	-93.68	524361.06	6237211.43
639.99	13.42	286.94	621.21	35.08S	121.15W	1.48	-96.00	524358.81	6237212.08
649.97	13.11	288.58	630.92	34.38S	123.33W	1.47	-98.28	524356.62	6237212.76
660.01	12.83	290.12	640.70	33.64S	125.45W	1.33	-100.52	524354.49	6237213.50
670.00	12.57	291.72	650.45	32.85S	127.50W	1.31	-102.72	524352.44	6237214.27
679.99	12.40	293.18	660.20	32.03S	129.50W	1.08	-104.88	524350.44	6237215.08
689.97	12.23	295.77	669.95	31.15S	131.44W	1.74	-107.00	524348.50	6237215.95
699.99	12.14	298.00	679.75	30.19S	133.32W	1.43	-109.12	524346.61	6237216.90
709.99	12.09	300.31	689.52	29.17S	135.15W	1.46	-111.21	524344.77	6237217.91
719.97	11.97	302.47	699.29	28.08S	136.93W	1.40	-113.27	524342.99	6237218.98
730.02	11.97	304.52	709.12	26.93S	138.67W	1.27	-115.33	524341.24	6237220.12
740.00	11.89	306.74	718.88	25.73S	140.34W	1.40	-117.35	524339.56	6237221.31
749.98	11.79	308.96	728.65	24.48S	141.96W	1.40	-119.34	524337.94	6237222.56
760.02	11.73	310.55	738.48	23.17S	143.53W	0.98	-121.31	524336.36	6237223.86
769.99	11.61	312.79	748.24	21.83S	145.04W	1.41	-123.24	524334.84	6237225.19
779.97	11.57	315.12	758.02	20.44S	146.48W	1.41	-125.12	524333.39	6237226.57
789.99	11.48	316.87	767.84	19.00S	147.87W	1.08	-126.98	524331.99	6237228.00
800.01	11.40	319.42	777.66	17.52S	149.20W	1.53	-128.80	524330.66	6237229.47
809.97	11.33	322.28	787.42	16.00S	150.44W	1.71	-130.56	524329.41	6237230.99
819.99	11.27	325.03	797.25	14.41S	151.60W	1.62	-132.27	524328.24	6237232.56
830.00	11.32	328.36	807.06	12.78S	152.68W	1.96	-133.92	524327.16	6237234.19
839.97	11.34	330.51	816.84	11.09S	153.67W	1.27	-135.52	524326.15	6237235.87
849.99	11.43	332.48	826.66	9.35S	154.62W	1.20	-137.10	524325.20	6237237.60
860.01	11.46	335.14	836.48	7.57S	155.50W	1.58	-138.63	524324.31	6237239.38
869.97	11.48	337.62	846.25	5.75S	156.29W	1.49	-140.10	524323.51	6237241.19
880.01	11.57	339.81	856.08	3.89S	157.02W	1.33	-141.53	524322.77	6237243.05
889.98	11.64	342.03	865.85	1.99S	157.67W	1.36	-142.91	524322.10	6237244.95
900.01	11.88	344.96	875.67	0.03S	158.25W	1.92	-144.24	524321.51	6237246.90
909.98	12.06	347.03	885.42	1.97N	158.75W	1.40	-145.52	524321.00	6237248.90
920.01	12.37	349.62	895.22	4.05N	159.18W	1.88	-146.77	524320.56	6237250.98
929.99	12.71	351.77	904.97	6.19N	159.53W	1.74	-147.97	524320.20	6237253.11
940.00	12.93	353.87	914.73	8.39N	159.81W	1.54	-149.12	524319.91	6237255.31
949.98	13.31	356.15	924.45	10.65N	160.00W	1.93	-150.23	524319.70	6237257.57
959.97	13.61	357.80	934.16	12.97N	160.13W	1.46	-151.30	524319.56	6237259.89
970.00	14.01	359.55	943.90	15.37N	160.18W	1.73	-152.33	524319.50	6237262.28
979.98	14.34	1.16	953.58	17.81N	160.17W	1.55	-153.32	524319.50	6237264.72
990.00	14.73	2.41	963.28	20.32N	160.09W	1.50	-154.28	524319.56	6237267.24
999.97	15.04	3.65	972.91	22.88N	159.95W	1.34	-155.21	524319.68	6237269.79
1010.00	15.43	5.00	982.59	25.51N	159.75W	1.58	-156.11	524319.87	6237272.42
1020.02	15.81	6.65	992.24	28.19N	159.48W	1.75	-156.96	524320.13	6237275.11
1030.01	16.06	7.91	1001.85	30.91N	159.13W	1.28	-157.77	524320.46	6237277.83
1039.99	16.34	9.42	1011.43	33.66N	158.71W	1.52	-158.52	524320.86	6237280.58
1049.97	16.64	10.82	1021.00	36.45N	158.21W	1.50	-159.21	524321.34	6237283.37
1060.01	17.03	12.62	1030.61	39.30N	157.62W	1.95	-159.84	524321.92	6237286.22
1069.98	17.41	14.23	1040.13	42.17N	156.94W	1.83	-160.39	524322.59	6237289.09
1080.02	17.75	15.75	1049.70	45.10N	156.15W	1.71	-160.88	524323.35	6237292.02
1089.99	18.18	16.99	1059.19	48.05N	155.28W	1.73	-161.31	524324.20	6237294.98
1100.02	18.64	18.45	1068.71	51.07N	154.32W	1.95	-161.67	524325.15	6237298.00
1109.99	19.11	20.04	1078.14	54.11N	153.26W	2.10	-161.95	524326.20	6237301.05
1120.02	19.62	21.08	1087.60	57.22N	152.09W	1.84	-162.17	524327.35	6237304.17
1129.99	20.12	22.00	1096.98	60.38N	150.84W	1.77	-162.33	524328.57	6237307.33
1140.01	20.60	22.78	1106.37	63.60N	149.52W	1.65	-162.44	524329.88	6237310.56
1149.96	21.21	23.46	1115.67	66.86N	148.12W	1.98	-162.51	524331.26	6237313.83
1160.00	21.50	23.85	1125.02	70.21N	146.65W	0.96	-162.55	524332.70	6237317.18

All data in meters unless otherwise stated. Calculation uses minimum curvature method.
Coordinates from Structure centre,TRUE north and TVD from RKB: RKB-Seabed=112.68m (43.49 M. above Mean sea level).
Bottom hole distance is 1319.11 on azimuth 83.40 degrees from wellhead.
Vertical section is from Structure centre,TRUE north on azimuth 114.28 degrees.
Grid is mercator - UTM.
Grid coordinates in METERS and computed using the Hayford spheroid
Presented by Baker Hughes INTEQ

Measured Depth	Inclin Degrees	Azimuth Degrees	True Vert Depth	RECTANGULAR COORDINATES		Dogleg Deg/ 30m	Vert Sect	GRID COORDS Easting	Northing
1170.01	21.92	24.18	1134.32	73.60N	145.15W	1.31	-162.57	524334.19	6237320.57
1179.97	22.48	24.70	1143.54	77.02N	143.59W	1.79	-162.56	524335.73	6237324.01
1189.99	23.00	25.15	1152.78	80.53N	141.96W	1.64	-162.52	524337.34	6237327.53
1200.01	23.44	25.56	1161.99	84.10N	140.27W	1.40	-162.44	524339.01	6237331.10
1210.02	24.09	26.35	1171.15	87.73N	138.50W	2.17	-162.32	524340.75	6237334.74
1220.04	24.38	26.60	1180.29	91.41N	136.67W	0.92	-162.17	524342.57	6237338.43
1229.99	24.78	26.95	1189.34	95.11N	134.80W	1.28	-161.99	524344.41	6237342.13
1240.02	25.07	27.33	1198.43	98.87N	132.87W	0.99	-161.77	524346.31	6237345.91
1250.01	25.33	27.85	1207.47	102.64N	130.90W	1.03	-161.53	524348.26	6237349.69
1259.99	25.59	28.26	1216.48	106.42N	128.89W	0.94	-161.25	524350.26	6237353.48
1269.97	25.93	28.91	1225.47	110.23N	126.81W	1.33	-160.92	524352.31	6237357.30
1280.02	26.34	29.49	1234.49	114.10N	124.65W	1.44	-160.54	524354.45	6237361.18
1290.02	26.86	30.24	1243.43	117.98N	122.42W	1.86	-160.11	524356.65	6237365.07
1299.96	27.26	30.54	1252.28	121.88N	120.13W	1.28	-159.62	524358.92	6237368.98
1310.02	27.65	31.25	1261.21	125.86N	117.75W	1.52	-159.09	524361.27	6237372.97
1319.99	28.36	32.01	1270.01	129.85N	115.30W	2.39	-158.49	524363.71	6237376.97
1329.98	28.79	32.65	1278.79	133.88N	112.74W	1.59	-157.82	524366.24	6237381.02
1340.01	29.01	32.83	1287.57	137.96N	110.12W	0.71	-157.11	524368.83	6237385.11
1349.99	29.32	33.19	1296.28	142.04N	107.47W	1.07	-156.37	524371.46	6237389.20
1359.97	29.75	33.76	1304.97	146.14N	104.76W	1.54	-155.58	524374.15	6237393.32
1370.00	30.07	34.34	1313.66	150.29N	101.96W	1.29	-154.73	524376.92	6237397.48
1379.98	30.55	35.07	1322.28	154.43N	99.09W	1.82	-153.82	524379.77	6237401.64
1389.97	31.00	35.20	1330.86	158.61N	96.15W	1.37	-152.86	524382.68	6237405.83
1394.00	31.56	35.45	1334.30	160.31N	94.94W	4.27	-152.46	524383.88	6237407.54
1394.95	31.69	35.51	1335.11	160.72N	94.65W	4.27	-152.36	524384.17	6237407.95
1422.00	30.90	37.00	1358.23	172.05N	86.34W	1.23	-149.45	524392.41	6237419.32
1445.00	31.80	41.20	1377.87	181.33N	78.79W	3.08	-146.38	524399.90	6237428.64
1474.00	33.60	44.90	1402.28	192.76N	68.09W	2.78	-141.33	524410.53	6237440.13
1503.00	34.30	47.20	1426.33	204.00N	56.43W	1.51	-135.33	524422.12	6237451.43
1531.00	34.70	50.80	1449.41	214.40N	44.47W	2.23	-128.69	524434.02	6237461.90
1559.00	34.70	53.90	1472.43	224.13N	31.85W	1.89	-121.20	524446.58	6237471.70
1588.00	35.40	56.80	1496.18	233.60N	18.15W	1.87	-112.60	524460.22	6237481.24
1617.00	37.10	59.10	1519.56	242.69N	3.62W	2.25	-103.09	524474.69	6237490.41
1646.00	38.10	60.90	1542.54	251.53N	11.71E	1.54	-92.76	524489.96	6237499.34
1675.00	39.10	64.00	1565.21	259.89N	27.75E	2.25	-81.57	524505.94	6237507.78
1704.00	40.30	66.40	1587.52	267.66N	44.56E	2.01	-69.44	524522.71	6237515.64
1732.00	42.00	68.20	1608.60	274.76N	61.56E	2.22	-56.87	524539.66	6237522.84
1761.00	43.70	70.50	1629.86	281.71N	80.01E	2.39	-42.90	524558.06	6237529.89
1790.00	44.60	73.10	1650.67	288.01N	99.20E	2.09	-28.00	524577.21	6237536.30
1820.00	46.10	75.00	1671.76	293.87N	119.72E	2.02	-11.71	524597.68	6237542.28
1848.00	48.10	76.60	1690.82	298.90N	139.60E	2.48	4.35	524617.53	6237547.42
1877.00	49.90	79.10	1709.84	303.50N	161.00E	2.70	21.96	524638.89	6237552.14
1906.00	51.30	80.20	1728.25	307.52N	183.04E	1.69	40.40	524660.90	6237556.29
1934.00	52.50	81.90	1745.53	310.95N	204.80E	1.93	58.83	524682.64	6237559.84
1963.00	54.30	83.70	1762.82	313.86N	227.90E	2.39	78.68	524705.71	6237562.88
1992.00	55.90	85.90	1779.41	316.01N	251.58E	2.49	99.39	524729.37	6237565.17
2025.00	54.70	86.20	1798.20	317.88N	278.65E	1.11	123.29	524756.41	6237567.19
2054.00	55.50	86.40	1814.79	319.42N	302.38E	0.84	144.30	524780.13	6237568.86
2081.00	56.20	87.90	1829.95	320.53N	324.70E	1.58	164.18	524802.43	6237570.10
2108.00	58.70	88.40	1844.47	321.26N	347.45E	2.82	184.61	524825.16	6237570.96
2140.00	61.10	90.00	1860.52	321.64N	375.12E	2.60	209.69	524852.83	6237571.50
2168.00	62.50	91.30	1873.75	321.36N	399.80E	1.94	232.29	524877.49	6237571.36
2197.00	64.00	92.10	1886.81	320.59N	425.68E	1.72	256.20	524903.37	6237570.74
2226.00	65.10	93.90	1899.27	319.22N	451.83E	2.03	280.60	524929.51	6237569.52
2255.00	67.00	94.80	1911.04	317.21N	478.26E	2.14	305.52	524955.94	6237567.66

All data in meters unless otherwise stated. Calculation uses minimum curvature method.
Coordinates from Structure centre,TRUE north and TVD from RKB: RKB-Seabed=112.68m (43.49 M. above Mean sea level).
Bottom hole distance is 1319.11 on azimuth 83.40 degrees from wellhead.
Vertical section is from Structure centre,TRUE north on azimuth 114.28 degrees.
Grid is mercator - UTM.
Grid coordinates in METERS and computed using the Hayford spheroid
Presented by Baker Hughes INTEQ

Comments in wellpath

MD	TVD	Rectangular Coords.		Comment
85.30	85.30	20.10S	7.35E	23-2-97 RIGS INRUN #216 BHI: 2/8-16S
163.00	162.73	25.05S	3.36E	26" CONDUCTOR SHOE
376.00	368.94	36.11S	44.73W	20" CSG SHOE/START STRACK 2/8-16S
1394.00	1334.30	160.31N	94.94W	16 X 18 5/8" CASING SHOE
1394.95	1335.11	160.72N	94.65W	BHI RIGS MINCURVE TIE ON: 16S
1422.00	1358.23	172.05N	86.34W	BHI MWD IN 17 1/2" SEC
1445.00	1377.87	181.33N	78.79W	23-FEB-97 BHI MWD 8.5" SEC 16S
3138.00	2101.12	131.45N	1317.73E	EXTRAPOLATED TO TD

Casing positions in string 'C'

Top MD	Top TVD	Rectangular Coords.		Bot MD	Bot TVD	Rectangular Coords.		Casing
n/a	85.30	20.10S	7.35E	1394.00	1334.30	160.31N	94.94W	16X18 5/8" CSG AT 1394m M

Targets associated with this wellpath

Target name	Geographic Location	T.V.D.	Rectangular Coordinates		Revised
Top Chalk 2/8-16S		2728.50	698.05S	4397.69E	13-Aug-96

Amoco Norway Oil Company
Valhall "A"

A20-B
slot #24
Valhall Field 2/8
NORTH SEA, NORWEGIAN SECTOR

S U R V E Y L I S T I N G

by
Baker Hughes INTEQ

Your ref : Definitive 2/8 A20-B
Our ref : svy7264
License :

Date printed : 25-Sep-97
Date created : 7-Apr-97
Last revised : 19-Sep-97

Field is centred on 524479.700,6237247.840,3.00000,N
Structure is centred on 524479.700,6237247.840,3.00000,N

Slot location is n56 16 40.745,e3 23 43.620
Slot Grid coordinates are N 6237227.790, E 524487.162
Slot local coordinates are 20.10 S 7.35 E

Projection type: mercator - UTM, Spheroid: Hayford

Reference North is True North

CONTRACTOR LIST

SERVICE	COMPANY
Drilling Contractor	Transocean
Drilling Fluids	MI
Cementing	Halliburton
Mud Logging	Baker Hughes Inteq
MWD / LWD	Baker Hughes Inteq
Directional Drilling	Baker Hughes Inteq
Casing Running	Transocean /Weatherford
Liner Systems	Baker Oil Tools
Fishing / Milling	Baker Fishing Tools
Surveying	Baker Hughes Inteq
Wellhead	Kværner National
Inflatable Plugs	Baker Oil Tools
Perforating	Dowell Schlumberger
Stimulation and Coil Tubing Services	Dowell Schlumberger

L-874

COMPOSITE WELL LOG 1:500

DATUM REFERENCE : Measured Depth

WELL: 2/8-16 S

API NO. : 975770363700

OPERATOR	: AMOCO NORWAY OIL
COUNTRY	: NORWAY
AREA	: Valhall Field
LICENSE	: 006
BLOCK	: 2/8
NPD PERMIT NO	: L-874
GROUP INTEREST: (PERCENT)	Amoco Norway (28.1%) Elf Norge (17.7%) Amerada Hess (28.1%) Enterprise (28.1%)

GEOGRAPHICAL COORDINATES
LAT : 56 16' 41.39" N UTM : 524479.7 X
LONG : 3 23' 43.19" E 6237247.8 Y

TARGET COORDINATES
LAT : 56 16' 40.73" N UTM : 524487.05 X
LONG : 3 23' 43.61" E 6237227.74 Y

BOTTOM HOLE COORDINATES
LAT : 56 16' 45.66" N UTM : 525796.01 X
LONG : 3 24' 59.77" E 6237386.76 Y

K.B. ELEV. : 43.5 m TOTAL DEPTH : 3139 m
WATER DEPTH : 69.1 m BOTTOM HOLE FM : Late Eocene

PRE-SPUD CLASSIFICATION	: Horiz. Oil Prod.
DATE ON LOCATION	: 8th Feb 1997
SPUD DATE	: 8th Feb 1997
DATE T.D. REACHED	: 13th Mar 96
COMPLETION DATE	: 16th Mar 1997
RIG RELEASE DATE	: 16th Mar 1997
WELL STATUS	: Oil Producer
WELL CLASSIFICATION	: Failed Oil Producer

RIG	: Valhall DP
DRILLING CONTRACTOR	: Transocean Drilling
W/L - LOGGING CONTRACTOR	: Atlas Wireline Services
MWD - LOGGING CONTRACTOR	: Baker Huges INTEQ
MUD-LOGGING CONTRACTOR	: Baker Huges INTEQ

WELLSITE GEOLOGISTS : Pete Heavey, Derek Moss

COMPILED BY: Peter Heavey, Elisabeth Hegle

CASING RECORD

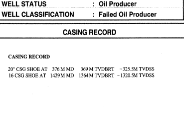
CASING RECORD

20" CSG SHOE AT 376 M MD 369 M TVDBRT -325.5M TVDSS
16 CSG SHOE AT 1429 M MD 1364 M TVDBRT -1320.5M TVDSS

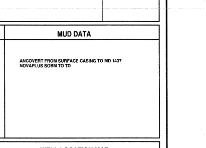
MUD DATA

ANCOVERT FROM SURFACE CASING TO MD 1437
NOVAPLUS SOBM TO TD

WELL PROFILE



WELL LOCATION MAP



LOGS RUN

MWD / FEMWD, Wireline and Pipe-conveyed Logs run

DATE (1997)	RUN #	LOG SUITE & HOLE SIZE	LOGGED INTERVAL M MD (GR)
2/8-16 S (MJØD)			
7-11/Feb	1	INTEQ DIR - 16 HOLE	379-1475
24/Feb-2/Mar	2	INTEQ DGPSF (DIR-GR-PRES) 8.5 HOLE	1429-2013
10-14/Mar	3	INTEQ DGPSF (DIR-GR-PRES) 8.5 HOLE	2013-3125

LITHOLOGICAL SYMBOLS

Conglomerate - general, Halite, Sedimentary breccia, Gypsum, Sandstone, Anhydrite, Siltstone, Coal - general, Claystone, Plutonic rock

ACCESSORY SYMBOLS

OPERATIONAL SYMBOLS

SHOE, TOP OF LINER — CASING
CEMENT PLUG
FLUID, PRESSURE, FAILED — WIRELINE FORMATION TESTS

[redacted]

FORMATION EVALUATION LOG

Company: AMOCO	**Hole Size**	**INTEQ Plot Suite**
Well: 2/8-A-20 & 2/8-16 S	17.5 " pilot hole to 1437.0m (1370.9m TVD)	Formation Eval. Log
Field: VALHALL	24 " hole opener to 1433.0m (1367.4m TVD)	Dxc Pressure Log
Region: NORWEGIAN NORTH SEA	8.5 " to 3139.0m (2101.3m TVD)	Engineering Summary Plot
Coordinates: UTM 6 237 227.790 m N, 524 487.162 m E		Gas Ratio Plot
API Index:	**Casing Size**	**ABBREVIATIONS**
Spud Date: 8th Feb 1997	20 " at 376.0m (369.6m TVD)	NB New Bit; SWG Swab Gas
Elevation: 43.5 m	9 5/8 " DHS Leg at 1429.0m (1364.2m TVD)	RRB Rerun Bit; SVG Survey Gas
Water Depth 69.1 m		CB Core Bit; C Carbide Test
Contractor: Transocean Drilling		WOB Weight On Bit; W Mud Density
Rig: Valhall Drilling Platform		RPM Revs Per Minute; V Funnel Viscosity
Type: Platform	**Mud Types**	FLC Flow Check; WF Filtrate API
Total Measured Depth: 3139.0 m		PR Poor Returns; FC Filter Cake
Total Vertical Depth: 2101.3m	Ancovert OBM to 369.0m - 1437.0m	NR No Returns; PV Plastic Viscosity
Objective:- Explore Mjød Prospect	Novaplus SOBM to 1437.0m - 3139.0m	LAT Logged After Trip; YP Yield Point
Status: P & A		BG Background Gas; SOL Solids %
LOG INTERVAL	**LITHOLOGY SYMBOLS**	TG Trip Gas; SD Sand %
Depth: 376 m to 3139 m	Limestone, Chalk, Dolomite, Tuff, Anhydrite	STG Short Trip Gas; S Salinity ppm Cl
Date: 08.02.97 to 15.03.97	Claystone, Siltstone, Sandstone, Coal, Halite	CG Connection Gas; RM Mud Resistivity
Scale: 1 : 500		RMF Mud Filtrate Res.
INTEQ CREW	**LITHOLOGY QUALIFIERS**	**SYMBOLS**
A. Nygaard, S. Amundrud, M. Hvalsmarken	Dolomitic, Calcareous, Mica, Pyrite, Kaolinitic	Casing Shoe; Wireline Logs
G. Ulfsnes, H. Mæland, F. Altermark, A. Taheri	Glauconitic, Carbon, Shell Debris, Chert, Conglomerate	Cored Interval; Unrecovered; Wireline Test; SideWall Core; Test Interval; SideWall Core No Recovery

FORMATION EVALUATION LOG
2/8-16 S

SCALE: 1 : 500.0

PENETRATION RATE (m/hr) / WEIGHT ON BIT (klb) / DRILL STRING RPM (RPM)	DEPTH (m MD)	CORE	CUTTINGS LITHOLOGY	TOTAL GAS / DITCH GAS (%)	METHANE (ppm) / ETHANE (ppm) / PROPANE (ppm) / I-BUTANE (ppm) / N-BUTANE (ppm)	OIL	CUT FLUORESCENCE	INTERPRETED LITHOLOGY	REMARKS / DESCRIPTIONS

NB#1 HTC MAX-GT1 17 1/2"
JETS 3x28,1xOPEN
In at 369mMD
Drilled 1068m in 45.5hrs
0-1-WT-GRI-E-1-BT-TD

20" CASING SET AT 376m MD

LOGGING COMMENCED AT 376m MD

Samples contaminated w/cement (376-400m MD)

SVY @ 392m MD (384.1m TVD)
Inc 21.6 Az 261.4

FG 0.89%/0.4%

CLST: m gry-m dk gry,occ blk spk, frm-hd,sbblky-blky,non calc,Tr Ls

SVY @ 421m MD (411.2m TVD)
Inc 20.1 Az 263.1

SST: clr-trnsl,trnsp,lse Qtz gr,f-v f, rndd,wl srt,occ pr-mod cmt,Tr Ls

MW	FV	PV	YP	SD
12.00	69	34	28	TR
GELS	SOL	O/W		ESTAB
21/37	21.0	65/35		1030

FG 1.23%/0.4%

SVY @ 450m MD (438.6m TVD)
Inc 18.7 Az 265.4

FG 2.27%/0.4%

CLST: m dk gry-olv gry,occ m lt gry-m gry,sft-frm,sbblky-blky,non-slty calc,grad Slst,Tr Ls

LS:yelsh gry-lt brnsh gry,bd,blky,arg, microxln

FG 2.89%/0.7%

SVY @ 493m MD (479.5m TVD)
Inc 17.0 Az 268.2

SST: clr-trnsl,trnsp,lse Qtz gr,f-v f, rndd,wl srt,occ pr-mod cmt,Tr Ls

FG 3.24%/1.2%

SVY @ 522m MD (507.3m TVD)
Inc 16.2 Az 270.3

MW	FV	PV	YP	SD
12.00	64	34	28	TR
GELS	SOL	O/W		ESTAB
20/29	21.0	65/35		1030

FG 3.70%/2.0%

3. 2/8-16 S CPI logs.

Did not penetrate reservoir.

3. 2/8-16 S Wellbore Schematic.

Did not penetrate reservoir.

COST SUMMARY 30.04.98 FOR WV020C MJØD WASTE LEGG							
DRILLING IN 33,50 DAYS							
		A	**B**	**C**			
Description	**Sub**	**Acc cost**	**Drill cost**	**Dril modl**	**Diff A-B**	**Diff A-B**	**Diff A-C**
TOTAL COST							
3070-064-001	001	2 518 568	0	0		2 518 568	2 518 568
3070-017-001	002	321 305	0	0		321 305	321 305
TOTAL WELL		**2 839 873**	**0**	**0**		**2 839 873**	**2 839 873**

COST SUMMARY 30.04.98 FOR WV020B MJØD - HORIZONTAL WELL						
DRILLING IN DAYS 66,38						
		A	**B**	**C**		
Description	**Sub**	**3071-301**	**3071-501**	**TOTAL**		
SALARIES EXPAT	001	0	191 483	0		
SALARIES NATIONALS	002	0	268 347	0		
CONSULTANT SERV	99	19	233 724	0		
NSDG	550	1 125 048	201 188	0		
EPTG	555	0	3 747			
TOTAL SALARIES		**1 125 067**	**898 488**	**0**		
AIR TRANSPORT	208	0	384 927	0		
SEA TRANSPORT	209	0	611 156	0		
ONSHORE TRANSP.	210	0	67 068	0		
MUD PRODUCT	303	0	1 161 678	0		
BITS	305	0	61 404	0		
CASING & LINER	306	0	1 659 306	0		
CEMENT & CHEMICALS	307	0	235 809	0		
VARIATION ORDER	308	0	190 950	0		
STIM.CHEMICALS	309	0	989			
DP MAIN.CAP. COST	310	0	1 817			
RIG DAYRATE	501	0	2 064 759	0		
CATERING	503	0	249 703	0		
MUD ENGINEERS	505	0	78 420	0		
CUTTING WASH	506	0	185 927	0		
MUD LOGGING	507	0	330 031	0		
MWD PERS & EQUIP	508	0	499 027	0		
DIR. DRILLING	509	0	416 627	0		
SURVEYING SERV	510	0	42 740	0		
LOGGING & PERF	511	0	61 192	0		
CASING & TUBING SERV	512	0	234 775	0		
CEMENTING SERV	513	0	281 949	0		
PERFORATING	514	0	25 289			
WIRELINE SERV.	515	0	64 351	0		
SNUBBING SERVICES	519	0	574 648			
FISHING SERVICE	523	0	125 177	0		
DRILLING TOOLS	527	0	493 193	0		
Stim & gravel	521	0	1 981 744	0		
AMOCO PROD.SERVICES	529	2 587	232 376	0		
WELLH/COMP.SERV.	530	0	445 495	0		
PRE SPUD ACT.	810	0	98 744	0		
OTHER	807	2 154	1 237 037	0		
ESTIMAT/ONS.SUPP.COS	809	0	11 984	0		
TOTAL INTANG.		**1 129 807**	**15 008 781**	**0**		
CASING	211	0	767 752			
TUBING	213	0	18 763	0		
TANG.COMPL EQ	214	0	100 125	0		
WELL HEAD	215	0	1 558	0		
NON CONTR.	220	0	-448	0		
TOTAL TANG.		**0**	**887 750**	**0**		
TOTAL WELL	**USD**	**1 129 807**	**15 896 532**	**0**		