STATOIL

Exploration Department
Statoil Stavanger

PL 116, WELL 15/12-7S

NORTH SEA

COMPLETION REPORT

CONOCO HESS HYDRO

STATOIL

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Wellsite Sample Description

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Grunn gass rapport til OD

ENCLOSURES

Statoil Completion Log
EXLOG formation evaluation log
EXLOG pressure evaluation log

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UND

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Title / Subtitle :

COMPLETION REPORT
WELL 15/12-7S
PL116

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WELL 15/12-7S

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1 GENERAL INFORMATION

1 GENERAL INFORMATION

1.1 Well Data Record.

1.1.1	Well Designation	15/12-7S
1.1.2	Well Classification	Exploration well
1.1.3	Prospect	Theta North
1.1.4	Well Location	
	Country	Norway
	Area	Southern North Sea
	Licence	PL 116 Statoil (Operator) 50 % Conoco 30 % Amerada Hess 10 % Norsk Hydro 10 %
	Geographic coordinates Reference	Latitude N 58 deg 00' 49.93" Longitude E 01 deg 58' 35.54"
	UTM coordinates	UTM zone 31, CM 3° E, ED50 N 6 430 858.7 m E 439 525.9 m
	Seismic location	Line no. ST 8802-775 Shotpoint no. 534
	Water depth	85 m MSL
	TD	3570 m MD RKB 3529 m TVD RKB
	Formation at TD	Triassic

1.2 Rig Data

Rig name	Deepsea Bergen
Rig contractor	Odfjell Drilling
KB elevation	23 m

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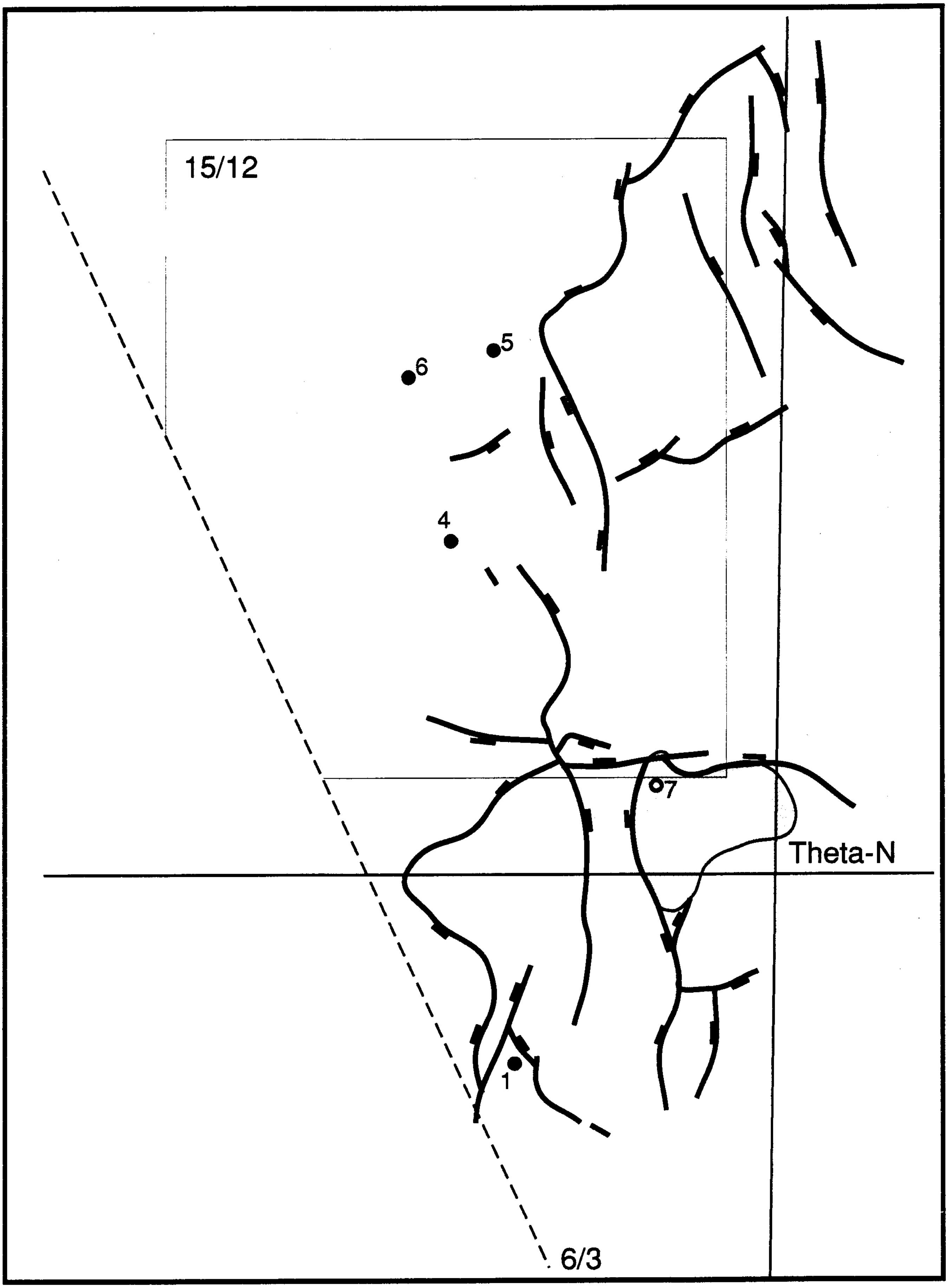

GEO-DIB/A91/0998

WELL SUMMARY 15/12-7S, EXPLORATION WELL **THETA NORTH STRUCTURE**
(All depths in m RKB)

RIG: DEEPSEA BERGEN CONTRACTOR: ODFJELL TYPE: SEMISUBMERSIBLE RKB-MSL: 23m WATER DEPTH: 85 mMSL PROGN. TD: 3429 mTVD FINAL TD: 3529 mTVD FORM. AT TD: TRIASSIC STATUS: P&A; DRY	LICENCE: PL 116 STATOIL, Operator STATOIL 50% CONOCO 30% AMERADA HESS 10% NORSK HYDRO 10% ON LIC.: 04.11.90 SPUD: 06.11.90 ON TD: 23.12.90 RELEASED: 08.01.91	GEOGRAPHICAL/UTM COORDINATES: 58 00'49.93"N,01 58'35.54"E 6 430 858.7 N 439 525.9 E DATUM/ZONE: ED 50 / 31, CM 3	SEISMIC LINE: ST8802 - 775 SHOT POINT: 534
WORK PROGR. STATUS:		OBJECTIVES: TEST LATE JURASSIC SST (OXFORDIAN SST) TEST POSSIBLE TRIASSIC SST STRUCTURE/TRAP: STRUCTURAL	

CASING

Casing	Progn Shoe	Final Shoe	Final Top	LOT
30"	168	168	W.head	
20"	600	604.5	''	2.08
13 3/8"	1800	1797	''	1.85
9 5/8"	2962	3014	(fit)	1.65
7"liner	3426	----		

CORES

No.	Interval	Recovery	Lith./Form.
1	3028-3055	25.5m-94,4%	SST-U.JURA.

SIDEWALL CORES

Interval	Recov.
2A,2B,2C	Misruns
3D: 1827-3020	47 of50
5E: 3025-3502	46 of50

LOGGING Contractors wireline/MWD/VSP: WESTERN-ATLAS, TELECO, SLL

Run	Interval	Log combination	Run	Interval	Log combination
	179 - 3570m	MWD	5E	3010 - 3570.4m	DIFL-AC-GR
1A	168 - 619m	DIFL-ACL-CDL-GR-CAL	5A	3010 - 3569.3m	ZDEN-CNL-SPL-CAL
2B	604,5- 1786.3m	DIFL-ACL-CDL-GR-CAL	5B	3010 - 3570.8m	HRDIP-GR
3C	1797 - 3026.1m	DIFL-ACL-CDL-CNL-GR-CAL	5B	1460 - 3010 m	ACBL-VDL-GR
3A	108 - 1795m	ACBL-VDL-GR	5B	6 pres.points	FMT
3A	2350 - 3025.3m	HRDIP-GR	5C	5 pres.points	FMT

FMT/RFT

Depth	Form. Press.(psia)	Perm.	Depth	Form. Press.(psia)	Perm.

COMMENTS LOGGING/RFT

No SWC in 17 1/2" sect. due to hole problems.
Run 5A: FMT-misrun
Stuck with FMT in run 5B
Stuck with FMT in run 5C
Left the FMT-tool in the hole (5C)

GROUP/FORMATION TOPS (m TVD) (P R E L I M I N A R Y !)

Group/Formation	Progn	Observ	TWT(s)	Group/Formation	Progn	Observ	TWT(s)
NORDLAND GR	108	108		CROMER KNOLL GR	2877	2904	
Utsira Fm	1196	1129		sgard Fm	2877	2904	
HORDALAND GR	1209	1248		VIKING GR	2962	2969	
ROGALAND GR	2348	2341		Draupne Fm	2962	2969	
Balder Fm	2348	2341		VESTLAND GR	3013	2987.5	
Sele Fm	2365	2360		"Oxfordian sst"	3013	2987.5	
Lista Fm	2436	2436.5		"NEAR TOP/INTRA TRIAS"	3184	3452	
V le Fm	2515	2521.5					
SHETLAND GR	2530	2541		TD	3429	3529	
Ekofisk Fm	2530	2541					
Tor Fm	2550	2553.5					
Hod Fm	2756	2753		*=Pot. Reserv.			

COMMENTS Problem to build and drop angle in deviated well section (13 3/8"to 9 5/8")
Pipe stuck at 2703 m and 2720m. Came free (mecanical?,differential stuck?)
Stuck with FMT-tool at 3425m. Tool left in hole.

1.3 Purpose of the Well

The main objective for the well is to test the potential for hydrocarbons in Oxfordian Sandstone (Late Jurassic) in the Theta North structure.

1.4 Results of the Well

No hydrocarbons were encountered in the Jurassic sands.

1.5 Well History

1.5.1 General

On license	4 November 1990 22:10 hrs
On location	5 November 1990 02:45 hrs
Spud date	6 November 1990 05:30 hrs
Finished drilling	23 December 1990 23:00 hrs
Rig release	8 January 1991 09:00 hrs
Status	Plugged and abandoned

1.5.2 Contractors

Drilling contractor	Odfjell Drilling
Cementing	Halliburton
Casing	T.O.S.
Coring	Eastman Christensen Ltd
Core analysis	Geco
Diving	Subsea Dolphin
Electric logging	Atlas Wireline Services
Helicopters	Helikopter Service A.S.
MWD	Teleco
Mud logging	Exlog Norge A/S
Mud	Aker Drilling Fluid
Rig positioning	Racal Surveys
Supply boats	Marine Supporter
Stand-by boats	Strillos
Paleodating	Robertson Group
Site Survey	Racal Surveys
VSP	SSL

1.5.3 Casing

		MMD	MTVD	Leak off tests (eqv. mud weight)
30"	at	168.0	168.0	
20"	at	604.5	604.5	2.08 g/cc
13 3/8"	at	1797.0	1797.0	1.85 g/cc
9 5/8"	at	3014.0	2976.5	1.65 g/cc (FIT)
TD	at	3570.0	3529.0	

1.5.4 Conventional Cores

Core no.	Interval (mRKB)	Corrected core depth interval	Recovery m	%
1	3028 - 3055		25.5	94.4

SHEET 1 OF 2

CORE DESCRIPTION

SEDIMENTOLOGY DATA SHEET

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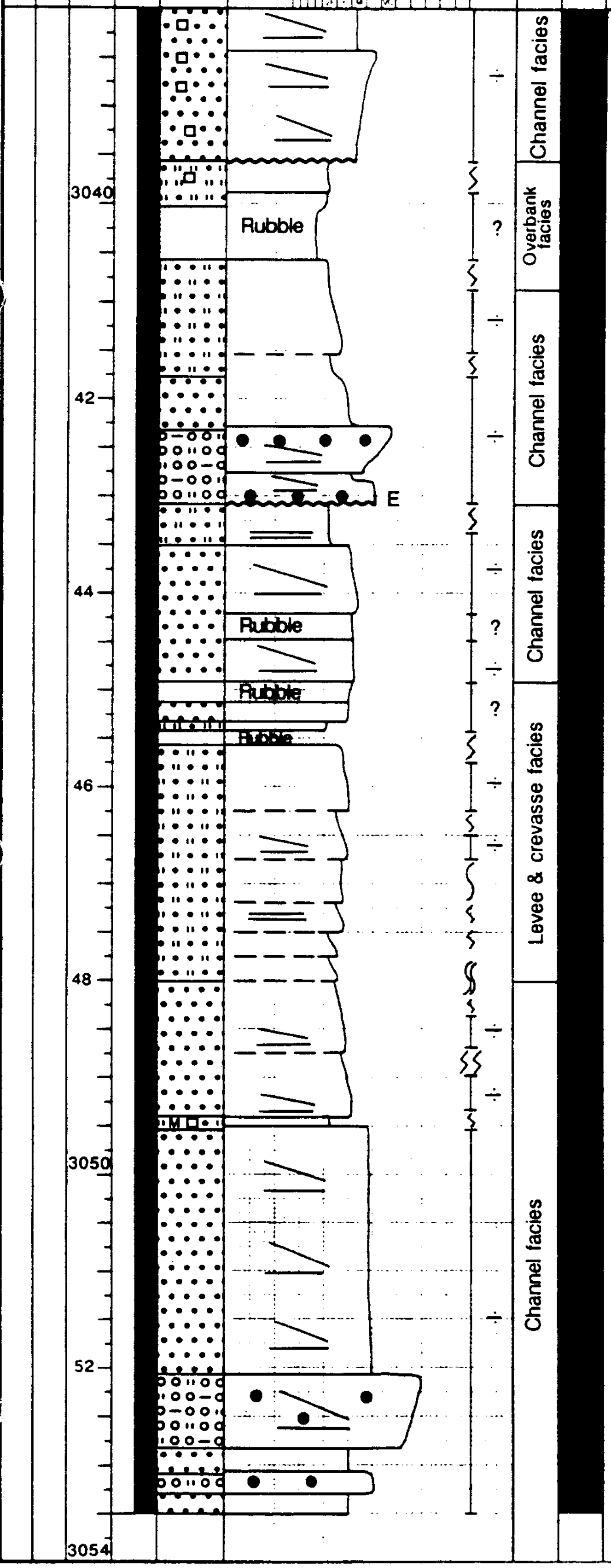
FIELD/AREA: 15/12
UNIT: ?
AGE: Triassic-M. Jurassic?

WELL NO.: 15/12 - 7S
CORE NO.: 1
INTERVAL: 3053.5 - 3038 m RKB

SCALE:
DATE: 03/91
GEOLOGIST: I. Kaas

LITHOSTRATIGR. UNIT	RESERVOIR SUBDIV.	CORE DEPTH (m)	CORE NO.	LITHOLOGY	GRAIN SIZE AND SEDIMENTARY STRUCTURES Ø	BIOTURBATION	FACIES/SUBFACIES	DEPOSITIONAL ENVIRONMENT	DESCRIPTION AND INTERPRETATION	PALYNOFACIES



SHEET 2 OF 2

CORE DESCRIPTION

SEDIMENTOLOGY DATA SHEET

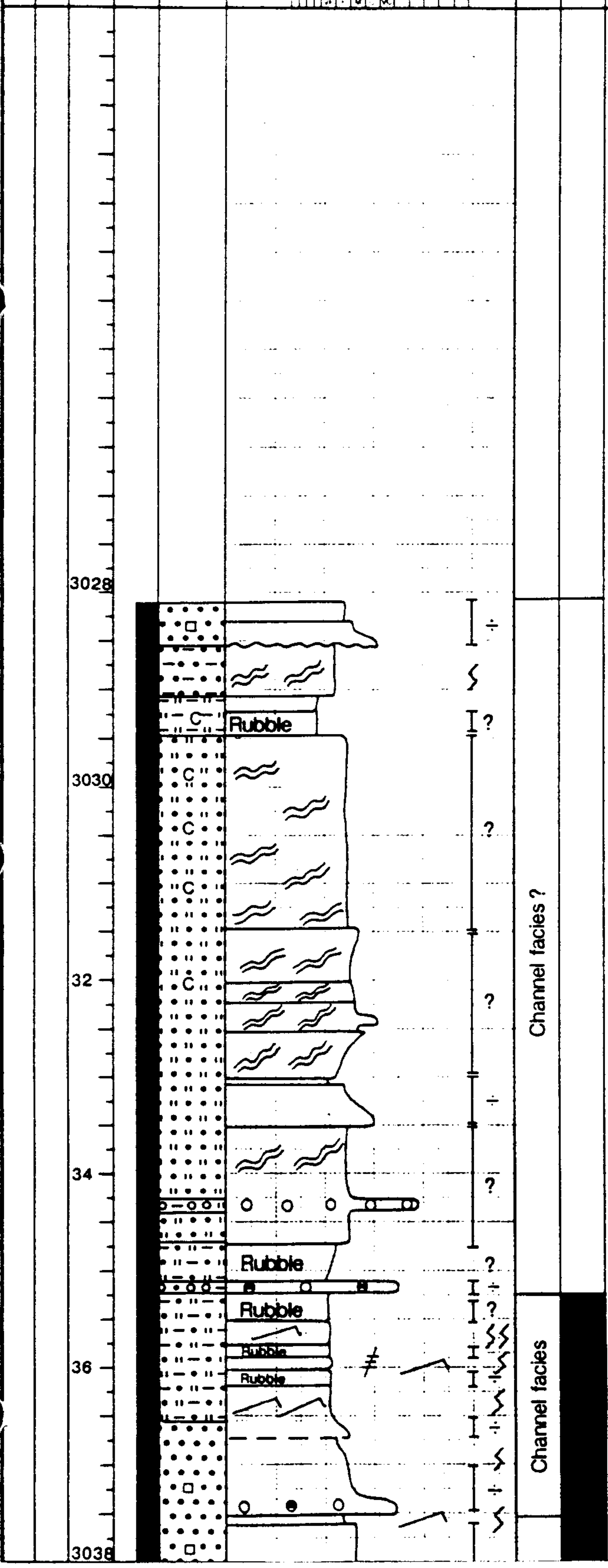
STATOIL

FIELD/AREA: 15/12
UNIT:
AGE: Triassic-Late Jurassic

WELL NO.: 15/12-7S
CORE NO.: 1
INTERVAL: 3028.1-3038 m RKB

SCALE:
DATE: 01/91
GEOLOGIST: I. Kaas

LITHOSTRATIGR. UNIT	RESERVOIR SUBDIV.	CORE DEPTH (m)	CORE NO.	LITHOLOGY	GRAIN SIZE AND SEDIMENTARY STRUCTURES Ø	BIOTURBATION	FACIES/SUBFACIES	DEPOSITIONAL ENVIRONMENT	DESCRIPTION AND INTERPRETATION	PALYNOFACIES



15/12-7s

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1.5.5 Sidewall Cores

Reference log DIFL-ACL-GR-SP Run no. 2B

Run no.	Interval (m RKB)	Shots	Recov.	Lost	Misfire
2A	1125.0 - 1810 m	25			Misrun
Could not pass 518 m, POOH, made a wipertrip					
2B	1125.0 - 1810 m	25			Misrun
Could not pass 1037 m, POOH, incr. the weight of the gun					
2C	1125.0 - 1810 m	25			Misrun
Could not pass 1037 m, POOH, run casing					

Reference log DIFL-ACL-GR-SP Run no. 3C

Run no.	Interval (m RKB)	Shots	Recov.	Lost	Misfire
3D	1797.0 - 3027 M	50	47	2	1

Reference log DIFL-ACL-CDL-GR Run no. 5E

Run no.	Interval (m RKB)	Shots	Recov.	Lost	Misfire
5E	3502.25 - 3025.0	50	46	3	1

Description is attached in Appendix II.

1.5.6 Mud Logging

Exlog's Gemdas unit recorded, among others, following parameters

i) Drilling rate (ROP)
ii) Lithology
iii) Cutting gas
iv) Mud gas
v) Chromatograph reading

For details see a separate report, Exlog End of Well Report

1.5.7 Logging

1.5.7.1 Electric Logging

Type of log	Run no.	Interval (mRKB)	Remarks
DIFL-ACL-GR-SP	1A	168 - 619	GR to sea-floor
	2B	604.5 - 1786.3	
	3C	1797 - 3026.1	
DIFL-AC-GR-SP	4D	3014 - 3181	
	5E	3010 - 3570.4	
CDL-GR-CAL	1A	168 - 619	
	2B	604.5 - 1786.3	
CDL-CNL-GR-CAL	3C	1797 - 3026.1	
ZDEN-CNL-SPL-CAL	5A	3010 - 3569.3	
FMT-GR	5A		Misrun
	5B	3027 - 3203.7	Rec. 6 pres-surepoints. Stuck at 3202 mMD
	5C	3145 - 3425	
HR/DIPLOG-GR	3A	2350 - 3025.3	
	5B	3010 - 3570.8	
CST-GR	2A,B,C		Misrun
	3D	1827 - 3020	
	5E	3025 - 3502.2	
ACBL-VDL-GR 13 3/8"	3A	108 - 1795	
ACBL-VDL-GR 9 5/8"	5B	1460 - 3010	

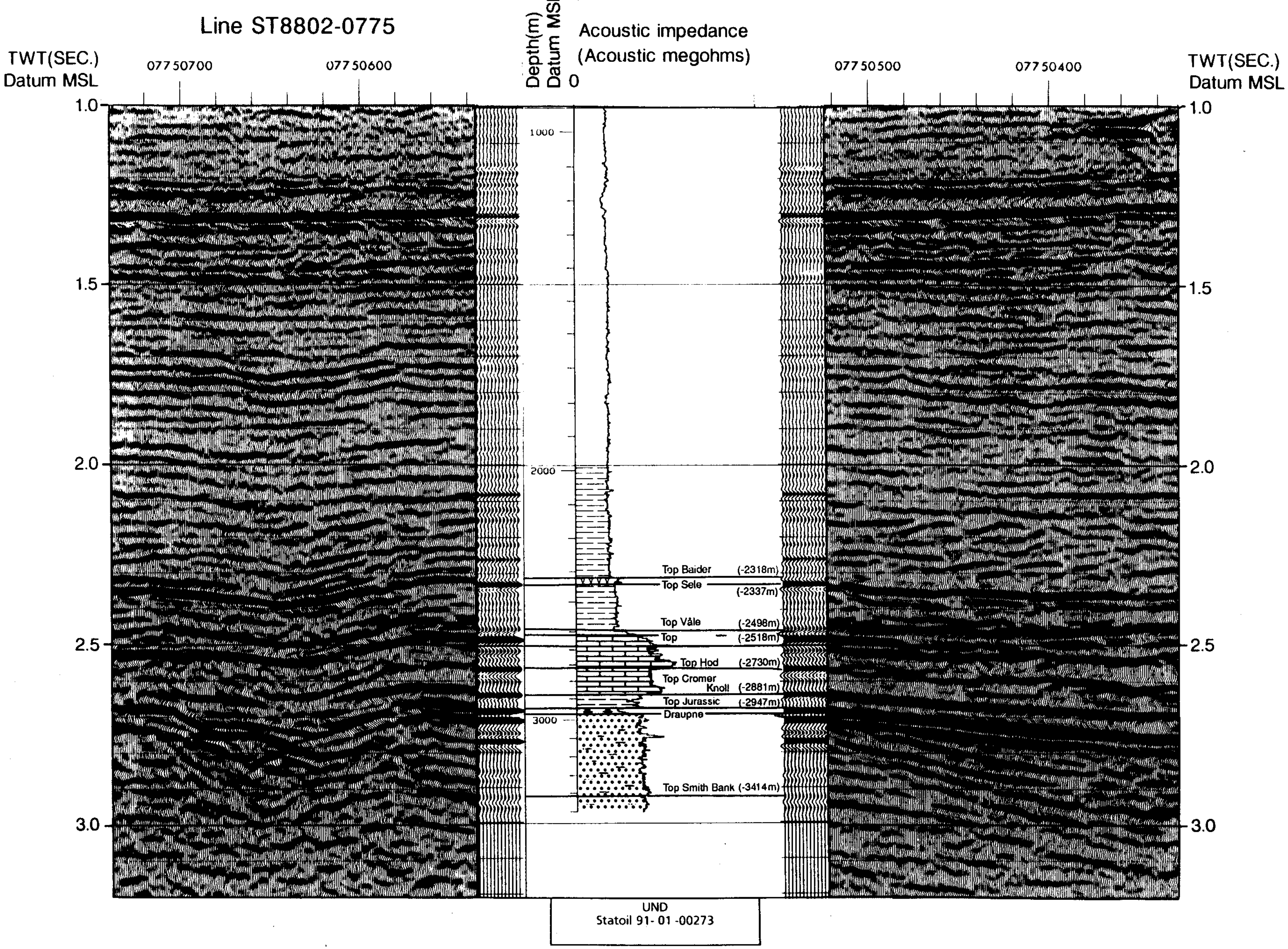
1.5.7.2 MWD Logging

Run no.	Interval (mMD RKB)	Hole size	Comments
1	179 - 620	9 7/8"	Pilot hole
2	179 - 620	26" HO	Only surveys
3	620 - 1820	17 1/2"	Good quality
4	1820 - 2026	12 1/4"	Problems with toolface
5	2026 - 2498	12 1/4"	Good quality
6	2498 - 2563	12 1/4"	Good quality
7	2563 - 2638	12 1/4"	Gamma and resist. failed for 7 m, resumed working Ok.
8	2638 - 2758	12 1/4"	Ok.
9	2758 - 2768	12 1/4"	Ok.
10	2768 - 2835	12 1/4"	Ok.
11	2835 - 2917	12 1/4"	Ok.
12	2917 - 2917	12 1/4"	No formation drilled
13	2917 - 2980	12 1/4"	Ok
14	2980 - 3027	12 1/4"	Ok
15	3027 - 3240	8 1/2"	OK
16	3240 - 3570	8 1/2"	Reamed and logged 3240 - 3475 m MD

1.5.8 Velocity Survey

The VSP was conducted by Seismograph Service Logging Comp. A zero offset VSP was run. 85 levels were checked with minimum 3 shots at each level with 25 m level spacing between 2350 - 3570 mMD and 50 m level spacing between 500 - 2350 mMD.

SEISMIC WELL TIE 15/12-7



1.6 List of additional available reports from the well.

TELECO	: End of well report
AWS	: Diplog results
EXLOG	: End of well report
GECO	: Conventional core analysis
	Core gamma log and core gamma spec. log
	Core photos.
RACAL	: Survey report 15/12H1, vol 1 - 3.
	Positioning report
SSL	: VSP report
STATOIL	: Shallow Gas Assessment Well location 15/12-7.
	Geological prognosis, pressure prognosis, drilling program PL116 well 15/12-7S.
	Site survey supervision report.
	Petrophysical evaluation well 15/12-7S.
RRI	: Well 15/12-7S biostratigraphy.
GeolabNOR	: Geochemical analysis report.

2 GEOLOGICAL REPORT

2 GEOLOGICAL REPORT

2.1 Stratigraphy.

2.1.1 Table of Chronostratigraphy:

The table is based on Robertson Group's biostatigraphic report and Statoil's own interpretation. No samples were collected above 620 m RKB, and tops down to this level are based on MWD-log interpretation and information from adjacent wells.

Interval m MD (TVD) RKB		Age
630 (630)	- 720 (720)	Pleistocene
750 (750)	- 960 (960)	Pliocene
990 (990)	- 1150 (1150)	Upper Miocene
1170 (1170)	- 1250 (1250)	Middle Miocene
---------?stratigraphic break-----------------------		
1260 (1260)	- 1290 (1290)	?Middle Miocene - Lower Miocene
1310 (1310)	- 1370 (1370)	Lower Miocene
1380 (1380)	- 1680 (1680)	Upper Oligocene
1700 (1700)	- 2110 (2109)	Lower Oligocene
----------stratigraphic break-----------------------		
2130 (2129)	- 2140 (2139)	?Upper - Middle Eocene
2160 (2160)	- 2330 (2316)	Middle Eocene
2342 (2327)	- 2354 (2337)(swc)	Lower Eocene
----------stratigraphic break-----------------------		
2360 (2343)	- 2422 (2401)(swc)	Lowermost Eocene
2437 (2415)(swc)	- 2555 (2527)(swc)	Upper Palaeocene
2571 (2542)(swc)	- 2610 (2579)	Lower Palaeocene
----------stratigraphic break-----------------------		
2630 (2598)	- 2670 (2636)	Upper - Lower Maastrichtian
2690 (2656)(swc)	- 2720 (2685)(swc)	Lower Maastrichtian
2730 (2694)	- 2760 (2724)	Upper Campanian
2780 (2743)(swc)	- 2850 (2813)	Lower Campanian - Upper Santonian
2870 (2883)(swc)	- 2916 (2878)	Lower Santonian - Upper Coniacian
2930 (2893)(swc)	- 2931 (2893)	Lower Coniacian - Upper Turonian
-----------stratigraphic break----------------------		
2946 (2909)	- 2961 (2923)	Middle Albian
2976 (2938)		Middle Albian - Lower Aptian
-----------stratigraphic break----------------------		
2979 (2941)	- 3009 (2971)	?Lower Barremian - ?Hauterivian
-----------stratigraphic break----------------------		
3020 (2983)(swc)		Middle Volgian
-----------stratigraphic break----------------------		
3025 (2988)(swc)	- 3028 (2990)	Upper Oxfordian
3028.25 (2990.7)(swc)	- 3028.7 (2991.2)(core)	Middle Oxfordian
-----------stratigraphic break----------------------		
3029.5 (2992)(core)	- 3033 (2995)(core)	?Upper / Middle Jurassic
-----------stratigraphic break--------------------		
3035.6 (2998)(core)	- 3081 (3043)(swc)	?Triassic
3097.25 (3060)(swc)	- 3502.25(3462)(swc)	Triassic (lith criteria)

2.1.2 Table of lithostratigraphy:

Lithostratigraphic tops	Depth MD (m RKB)	Depth TVD (m RKB)	Depth TVD (m MSL)	Thickness (m TVD)
NORDLAND GROUP	108	108	85	1176.0
Utsira Fm	1129	1129	1106	155.0
HORDALAND GROUP	1284	1284	1261	1057.0
ROGALAND GROUP	2358	2341	2318	200.5
Balder Fm	2358	2341	2318	19.0
Sele Fm	2378.5	2360	2337	76.5
Lista Fm	2460	2436.5	2413.5	85.0
Våle Fm	2549	2521.5	2498.5	20.0
SHETLAND GROUP	2570	2541.5	2518.5	362.5
Top chalk	2570	2541.5	2518.5	12.0
Ekofisk Fm	2583	2553.5	2530.5	44.5
Tor Fm	2630	2598	2575	155.0
Hod Fm	2790	2753	2730	151.0
CROMER KNOLL GROUP	2941.5	2904	2881	66.5
VIKING GROUP	3008	2970.5	2947.5	17.0
Draupne Fm	3008	2970.5	2947.5	17.0
VESTLAND GROUP	3025	2987.5	2964.5	10.5
Oxfordian Sst	3025	2987.5	2964.5	10.5
?HEGRE GROUP	3035.6	2998	2975	531.0 *
?Triassic Sand Unit	3035.6	2998	2975	61.6
?Skagerrak Fm	3097.3	3059.6	3036.6	377.4
?Smith bank Fm	3477	3437	3414	92.0 *
TD	3570	3529	3506	

* Not complete section

2.2 Lithological Description

2.2.1 General information

System Partly based on log interpretation,
Series correlation and partly on biostratigraphic
Stage report

Lithology : The description is based on the sample description from the wellsite geologist shown in Appendix I.

Depositional environment : Based on earlier regional interpretation and biostratigraphic report and core analysis.

The depths are in meters with drillfloor as datum unless otherwise else is stated.

2.2.2 Geological summary

NORDLAND GROUP 108 - 1284 m MD, (85 - 1261 m MSL)
Series: Pleistocene - Lower Miocene
Depositional environment: Inner to outer Shelf.

The section was drilled to 620 MMD with all returns to sea floor.

Log interpretation and information from the drilling of the pilot hole confirmed the prognosed lithology stated in the Site Survey Report.

The formation consists of interbedded clay and sand. Three levels with boulders have been recorded at 140 - 145 m,160 - 171 m and 195 - 215 m. Both the MWD and the electric logs confirm an erosion surface at 285 m.

Below the 20" casing shoe at 604.5 m and down to top Hordaland Group the Nordland Group consists mainly of soft clay/claystone which occasionally is quite sandy.

The clay/claystone is mainly light grey to light blueish grey and medium grey to dark greenish grey, soft to firm, rather sticky and soluble in part, micromicaceous, and very to moderately calcareous in upper part, non calcareous in lower part. The clay is silty to sandy, with lithic fragments, traces of fossil fragments, forams, worm tubes and pyrite in part.

The few sand layers seen in this section consists of clear quartz grains, mainly fine, though sometimes medium to coarse and even very coarse. They are fair to poor sorted, angular to subangular, and sometimes subrounded.

HORDALAND GROUP 1284 -2358 m MD, 1284 - 2341 m TVD, (1261 - 2318 m MSL)

Series: Lower Miocene - Lower Eocene
Depositional environment: Inner shelf - Marine, upper bathyal.

The Hordaland Group consists of claystone, occasionally with limestone stringers.

A colour change occurs within the Hordaland Group. The claystone is brownish black to dusky yellow brown and medium dark grey, moderately hard, blocky, micromicaceous, and non to slightly calcareous. Below approx. 2150 m MD, the colour turns to greenish grey and olive grey. At the very base of this group, the claystone is multicolored, slightly tuffaceous and micropyritic in part.

The limestone stringers are rather evenly distributed throughout the group. They are greyish brown to dusky brown, sometimes light grey or red brown or white translucent, hard to very hard, cryptocrystalline, occasionally microcrystal-line, sucrosic or crystalline.

Traces of forameniferas, glauconite, shell fragments, worm tubes and pyrite are common.

ROGALAND GROUP 2358 - 2570 m MD, 2341 - 2541 m TVD, (2318 - 2518 m MSL)

Series: Lowermost Eocene - Upper Palaeocene.
Depositional environment: Marine, outer shelf to upper bathyal.

The Rogaland Group is divided in four formations.

Balder Formation 2358 - 2378 m MD, 2341 - 2360 m TVD, (2318 - 2337 m MSL)

Series: Lowermost Eocene.
Depositional environment: Marine, outer shelf to upper bathyal.

The top of the formation is characterized on the electric logs by a gamma peak, increasing resistivity and a decrease in interval transit time.

The Balder Formation consists of interbedded claystone and tuff with stringers of limestone.

The claystone is multicolored dark green grey, green grey, olive grey and also dusky yellowish brown to brown grey, occasionally banded or mottled, firm to moderately hard, blocky to subfissile, non calcareous, micromicaceous, in part micropyritic and tuffaceous.

The tuff is blue grey, occasionally dark grey with white and black specks, occasionally mottled and micropyritic, soft to firm, silty texture and non calcareous.

The limestone is predominantly grey orange and yellow brown, moderately hard, cryptocrystalline, occasionally dark brown translucent and crystalline.

Sele Formation 2378 - 2460 m MD, 2360 - 2436.5 m TVD,
(2337 - 2413.5 m MSL)
Series: Lowermost Eocene to Upper Palaeocene.
Depositional environment: Marine, outer shelf to upper bathyal.

The top of this formation is recognised on the electric logs by a gamma peak coinciding with a decrease in resistivity and interval transit time.

The formation consists of claystone with minor streaks of limestone and traces of tuff and pyrite.

The claystone is predominantly olive grey to olive black, but also dark green grey to green grey, occasionally brown grey, firm to moderately hard, blocky to subfissile, slightly micromicaceous, in part micropyritic and non calcareous.

The limestone and tuff are similar to those described in the Balder Formation.

Lista Formation 2460 - 2549 m MD, 2436.5 - 2521.5 m TVD,
(2413.5 - 2498.5 m MSL)
Series: Upper Palaeocene.
Depositional environment: Marine, upper bathyal.

The top is characterized on the electric logs by a marked drop in gamma ray and slightly decrease in resistivity and interval transit time values.

The Lista Formation consists of claystone with some limestone laminas.

The claystone is predominantly olive grey to medium dark grey, occasionally greenish grey and moderate brown to dusky yellowish brown, firm, blocky to subfissile, occasionally fissile to platy, micromicaceous and non calcareous.

The limestone is predominantly grey orange, also yellowish white, occasionally white and dark brown translucent, moderately hard, generally cryptocrystalline, but occasionally crystalline and microcrystalline sucrosic.

Traces of pyrite and fossil fragments are recorded throughout the formation.

Våle Formation 2549 - 2570 m MD, 2521.5 - 2541.5 m TVD, (2498.5 - 2518.5 m MSL)

Series: Upper Palaeocene to Lower Palaeocene.
Depositional environment: Marine, outer shelf to upper bathyal.

The top of the formation is characterized on electric logs by decreases in gamma, resistivity and interval transit time values.

The formation consists of green grey to medium grey, brown grey to dark red brown and olive grey claystone. The claystone is moderately hard and micromicaceous, but in parts soft, slightly sticky and calcareous grading to marl.

The marl is light grey, soft, amorphous to blocky, slightly sticky and occasionally grading to calcareous claystone.

Thin streaks of white to light grey limestone is recorded. The limestone is moderately hard, occasionally dolomitic and hard, occasionally argillaceous and chalky in part.

Traces of pyrite occurs.

SHETLAND GROUP 2570 - 2941.5 m MD, 2541 - 2904 m TVD, (2518 - 2881 m MSL)
Stage: Lower Palaeocene - Upper Turonian.
Depositional environment: Marine, outer shelf to upper bathyal.

In this well, the group is divided into three formations.

Ekofisk Formation 2570 - 2583 m MD, 2541 - 2553.5 m TVD, (2518 - 2530.5 m MSL)
Stage: Lower Palaeocene
Depositional environment: Marine, outer shelf to upper bathyal.

The formation top is recognized by a drop in the gamma ray and an increase in the resistivity and the sonic transit time.

The formation comprises white to off white, firm, chalky limestone occasionally grading to very light grey, soft, argillaceous limestone grading to marl. The chalky limestone is predominantly cryptocrystalline.

Tor Formation 2583 - 2790 m MD, 2553.5 - 2753 m TVD,
(2530.5 - 2730 m MSL)
Stage: Upper to lower Maastrichtian to ? Campanian.
Depositional environment: Marine, outer shelf to upper bathyal.

The formation top is defined by a further drop in the gamma ray simultaneously with an increase of resistivity and the sonic transit time.

This formation is composed of chalky limestone which is white, off white to very light grey, moderately hard to firm, blocky, with cryptocrystalline texture.

Minor layers of claystone occur in the limestone. The claystone is olive grey to pale brown, firm, micromicaceous, micropyritic and calcareous.

Hod Formation 2790 - 2941.5 m MD, 2753 - 2904 m TVD,
(2730 - 2881 m MSL)
Stage: ?Campanian- Santonian - Coniacian - Turonian ?
Depositional environment: Marine, outer shelf to upper bathyal.

The formation top is defined on the electric logs by a slight increase in the gamma ray which coincide with a decrease in both the resistivity and the sonic travel time.

This formation is composed of chalky limestone which is white to off white, pale pink to very light grey, moderately hard to firm, blocky and argillaceous with cryptocrystalline texture.

CROMER KNOLL GROUP 2941.5 - 3008 m MD, 2904 - 2970.5 m TVD,
(2881 - 2947.5 m MSL)
Stage: Middle Albian - ?Hauterivian.
Depositional environment: Marine, inner Shelf.

The top of this group is defined on the electric logs by an increase in the gamma ray and decrease in both the resistivity and the sonic travel time.

The group consists of marl, claystone, limestone and minor traces of pyrite.

The marl is light medium grey, in part pink and red brown, soft to firm, sandy, occasionally silty, glauconitic and occasionally micromicaceous.

The claystone is dark olive grey to olive black, becoming predominantly medium grey, brownish grey, greenish grey and greyish red, firm to moderate hard, blocky to subfissile, occasionally fissile, occasionally micromicaceous and mostly non to slightly calcareous, but very calcareous and marly in part.

The limestone is white moderate hard, blocky and crypto-crystalline.

VIKING GROUP 3008 - 3025 m MD, 2970.5 - 2987.5 m TVD,
(2947.5 - 2964.5 m MSL)

Stage: Middle Volgian.
Depositional environment: Marine shelf.

Draupne Formation 3008 - 3025 m MD, 2970.5 - 2987.5 m TVD,
(2947.5 - 2964.5 m MSL)

Stage: Middle Volgian.
Depositional environment: Marine shelf.

The Draupne Formation is recognized on the electrical logs by a very high gamma ray reading.

The formation consists of dark brownish grey, dark olive grey to greyish black claystone, which is firm, subfissile to fissile, carbonaceous, micromicaceous and non calcareous.

VESTLAND GROUP 3025 - 3035.5 m MD, 2987.5 - 2998 m TVD,
(2964.5 - 2975 m MSL)

Stage: Middle - Upper Oxfordian.
Depositional environment: Non-marine, lagoonal.

The lithology consists of interbedded sandstone and claystone.

The sandstone is yellowish to moderate brown, white or greenish grey. The grains are very fine to fine occasionally medium to very coarse and poorly to moderately sorted. They are loose to friable with some white (kaolinite) matrix, micaceous and occasionally carbonaceous. The porosity is fair to good.

The claystone is medium dark brown to dark grey, firm, slightly micaceous, slightly carbonaceous and subfissile.

Some moderate brown, carbonaceous siltstone is recorded in upper part of the section. At 3030 m MD a layer of argillaceous coal is logged.

?HEGRE GROUP 3035.6 - 3570 m MD, 2998 - 3529 m TVD, (2975 - 3506 m MSL)

Stage: ?Triassic.
Depositional environment: Continental, lacustrine/fluviatile.

In this well, the group is divided into three units/formations. The lithology consists of interbedded sandstone and claystone with some thin beds of limestone (?calc cemented sandstone).

?Triassic Sand Unit 3035.6 - 3097.3 m MD, 2998 - 3059.6 m TVD, (2975 - 3036.6 m MSL)

Stage: ?Triassic.
Depositional environment: Continental, lacustrine/fluviatile.

The sandstone is off white to light grey and pale yellowish brown, friable to moderately hard, micaceous and with fair to poor visual porosity. The grains are fine to very coarse, poorly to moderately sorted, with white, argillaceous (kaolinite) matrix and slightly calcareous cement. Loose, coarse to very coarse sand is recorded. The quartz often has red brown or yellowish stain. Some green grey, and very micaceous (green mica) very fine grained sandstone is also recorded.

The claystone is varicoloured, greyish red to dark reddish brown, greenish grey and grey black, firm, subfissile, micaceous and occasionally very silty grading to siltstone or very fine sandstone.

Trace of mica and off white rock flour/kaolinite occur.

?Skagerrak Formation 3097.3 - 3477 m MD, 3059.6 - 3437 m TVD, (3036.6 - 3414 m MSL)

Stage: ?Triassic.
Depositional environment: Continental, lacustrine/fluviatile.

The lithology consists of sandstone with thin beds of claystone.

The sandstone is light yellow grey to pale yellowish brown, very light grey and greenish grey, with fine to medium, moderately to well sorted, clear to translucent quartz grains with some red brown or brown stained quartz, predominantly loose and occasionally with some white or green grey matrix. The sandstone is non to slightly calcareous and micaceous.

The claystone is as described above.

Traces of greenish grey, firm and very micaceous siltstone are recorded.

Traces of rock flour/kaolinite, mica, pyrite and limestone are common.

?Smith Bank Formation 3477 - 3570 m RKB, 3437 - 3529 m TVD, (3414 - 3506 m MSL)

Stage: ?Triassic.
Depositional environment: Continental, lacustrine/fluviatile.

The lithology consists of interbedded claystone, siltstone and sandstone.

The claystone is predominantly greyish red to dark red brown, also moderately brown to grey red, occasionally greenish grey to dark greenish grey, soft to firm, occasionally slightly soluble and sticky, subfissile to blocky, non calcareous to slightly calcareous, slightly micaceous to micaceous, slightly silty to silty and occasionally grading to siltstone.

The siltstone is dark reddish brown to moderate brown, soft to firm, occasionally soluble, blocky, micaceous to very micaceous, non to slightly calcareous and occasionally sandy grading to very fine sandstone.

The sandstone is dark reddish brown to moderate brown and grey red, occasionally very light grey to greenish grey, also brown to brownish red. The grains are fine to medium, occasionally coarse to very coarse, moderately sorted, loose occasionally friable with dark red brown matrix. They are occasionally slightly silica or calcareous cemented. Sometimes the sandstone consists of clear to translucent or milky white quartz with abundant dark red brown and brown stained quartz. The sandstone is in part micaceous to very micaceous and with poor to fair visible porosity.

Traces of pale red brown rock flour/kaolinite, mica and limestone are also recorded.

3 PRESSURES AND TEMPERATURES

3. PRESSURES AND TEMPERATURES

3.1 Pressure plot

The pressure plot for well 15/12-7S is shown in figure 3.1. A normal pore pressure gradient of 1.03 g/cc is estimated down to approximately 1000 m MD RKB. From this depth the pressure is estimated to increase to 1.48 g/cc at 2400 m MD RKB. From this depth a regression zone is encountered and the pore pressure is measured to 1.21 g/cc at 3027 m MD RKB. At 3425 m MD RKB the pressure is measured to 1.21 g/cc. See also FMT pressure plot. The pressure at TD is estimated to be 1.21 g/cc.

3.2 Temperature data

The temperature plot for the well is shown in figure 3.2. Table 3.2.1 shows the observed temperatures from electric logs.

LOG	RUN no.	LOG depth m RKB MD - TVD	Rec. temp. C	Time since end of circ. (hrs)	Circ. time (hrs)
DIFL-BHC	1A	596 - 596	20	3.6	1.0
DIFL-BHC	2B	1764 - 1764	61	15.8	3.5
DIFL-BHC	3C	3001 - 2963	85	9.2	1.5
DIPLOG	3A	3014 - 2976	99	16.5	1.5
DIFL-BHC	5E	3550 - 3509	118	8.4	8.5
ZDEN-CNC	5A	3550 - 3509	126	26.0	8.5
DIPLOG	5B	3550 - 3509	122	18.5	3.0
FMT	5C	3425 - 3386	118	5.0	3.0

Table 3.2.1

3.3 FMT pressures

The FMT-runs 5A, 5B and 5C were performed in 8 1/2" hole. Run 5A was a misrun. Pressure measurements at eight different depths were performed in run 5B. Four measurements were Good / Very Good, two were supercharged and two were tight. Run 5B was aborted after the FMT-tool was stuck at 3203.7 m MD RKB for approx. 5 hours.
Run 5C includes pressure measurements at five different depths, one of which was at the same depth as in run 5B. All measurements were Good / Very Good. Run 5C was aborted after the FMT-tool was stuck and lost in hole at 3425.0 m MD RKB.
The interpretation of the FMT-pressure points indicates two different pressure regimes. The first pressure regime is from the upper part of the Jurassic and down to at least 3145 m MD RKB. The second pressure regime starts somewhere between 3145 m MD RKB and 3269 m MD RKB and continues down to the last pressure point at 3425 m MD RKB.
The four pressure points at 3051.5 -, 3078.0 -, 3085.0 - and 3145.0 m MD RKB were included in the interpretation of the first pressure regime gradient. This gave a pressure gradient of 10.95 Kpa/m (1.117 g/cc).

The pressures at the depth 3269.0 -, 3364.5 - and 3425.0 m MD RKB were included in the calculation of the second pressure regime gradient. This gave a pressure gradient of 11.67 Kpa/m (1.186 g/cc).

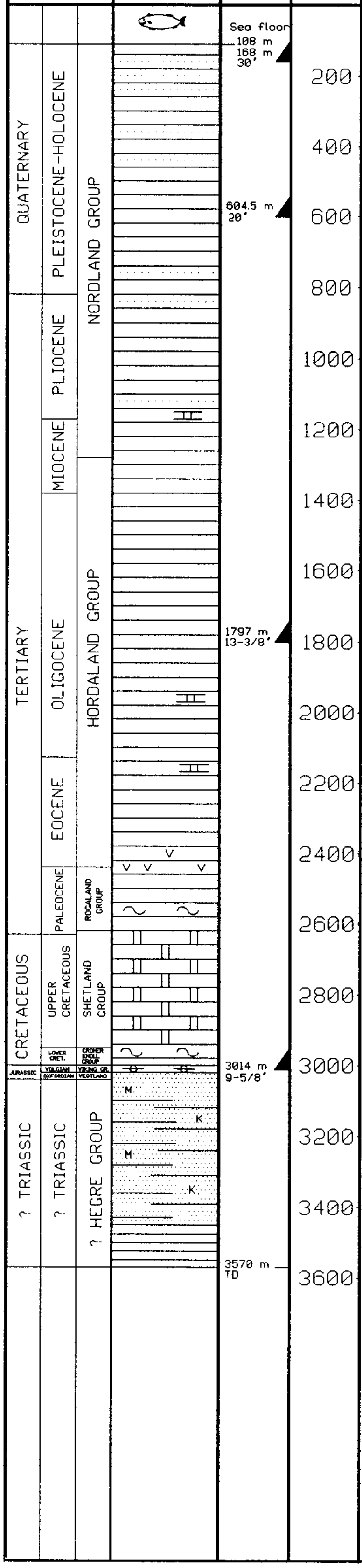
The measured pressure at 3393.5 m MD RKB was not included in the calculation of the second pressure regime gradient as this point do not fit well on the gradient even though it seems to be a very good pressure point. All pressure measurements are summarized on the next page and a graphical presentation with the gradient interpretation are presented in Figure 3.3.

FMT PRESSURES 15/12-7

RUN no.	Depth m MD RKB	Depth m TVD RKB	Hyd. pres. kPa	Form. pres. kPa	Comment
5B	3027.0	2989.5	-	35452	Superch.
5B	3051.5	3014.0	38500	35542	Good
5B	3066.0	3028.5	38666	35925	Superch.
5B	3078.0	3040.5	38817	35807	Very Good
5B	3085.0	3047.5	38906	35867	Very Good
5B	3145.0	3107.4	39659	36556	Very Good
5B	3202.0	3164.3	-	-	Tight
5B	3203.7	3165.9	-	-	Tight
5C	3145.0	3107.4	39583	36548	Very Good
5C	3269.0	3230.9	41121	38376	Very Good /Good
5C	3364.5	3325.3	43312	39493	Good
5C	3393.5	3354.5	42663	39697	Very Good
5C	3425.0	3385.6	43048	40234	Very Good

Well 15/12-7S	LITHOLOGY LITHOSTRATIGRAPHY	Made by : AEy
Depth m RKB : 23 m		Date : 910620
Water depth : 85 m		

STRATI-GRAPHY	LITHOLOGY	CSG	DEPTH m MD RKB



108 m SEA FLOOR

750 m TOP TERTIARY

1129 m TOP UTSIRA FM

1284 m TOP HORDALAND GROUP

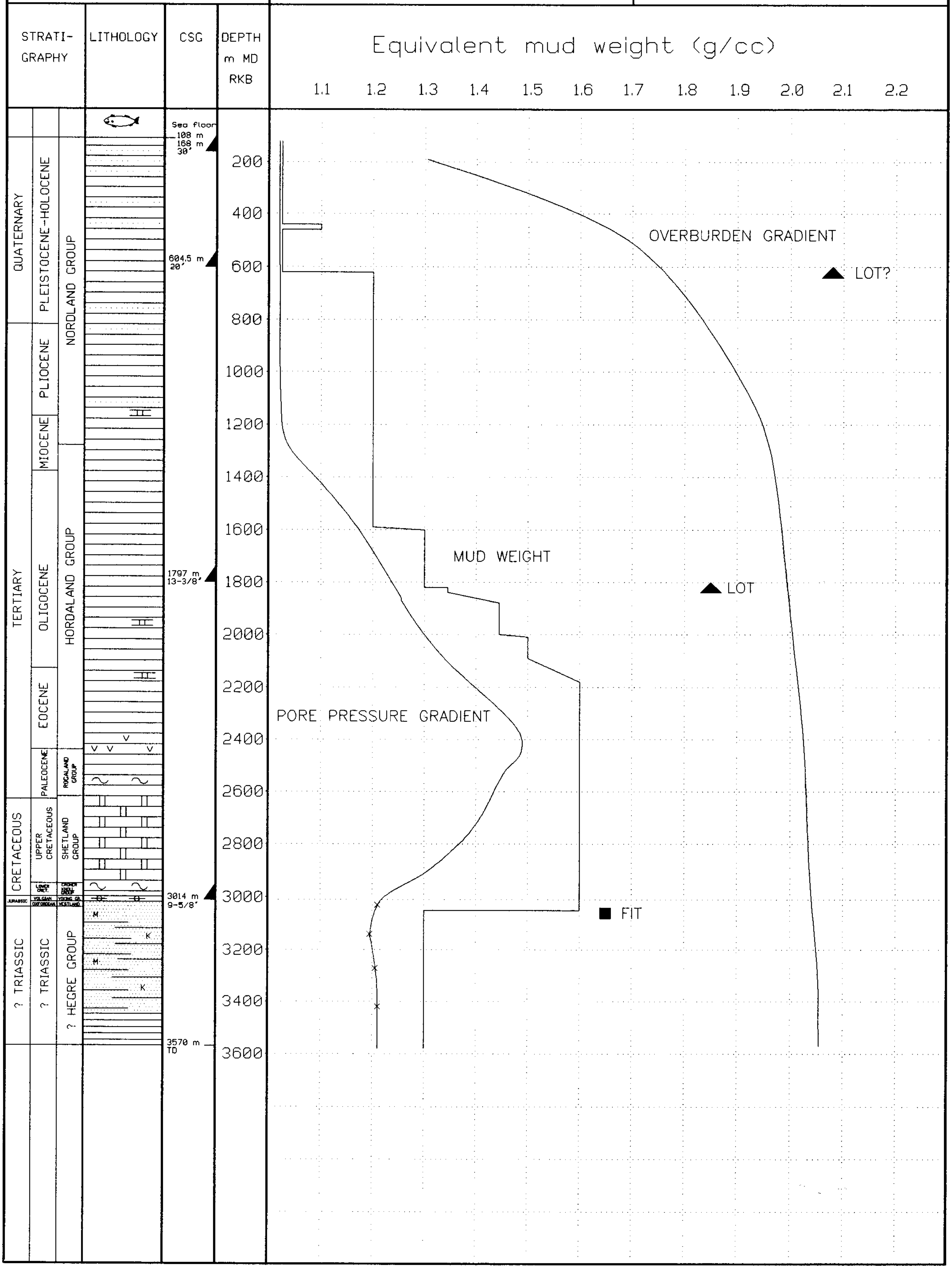
2358 m TOP ROGALAND GROUP
BALDER FM

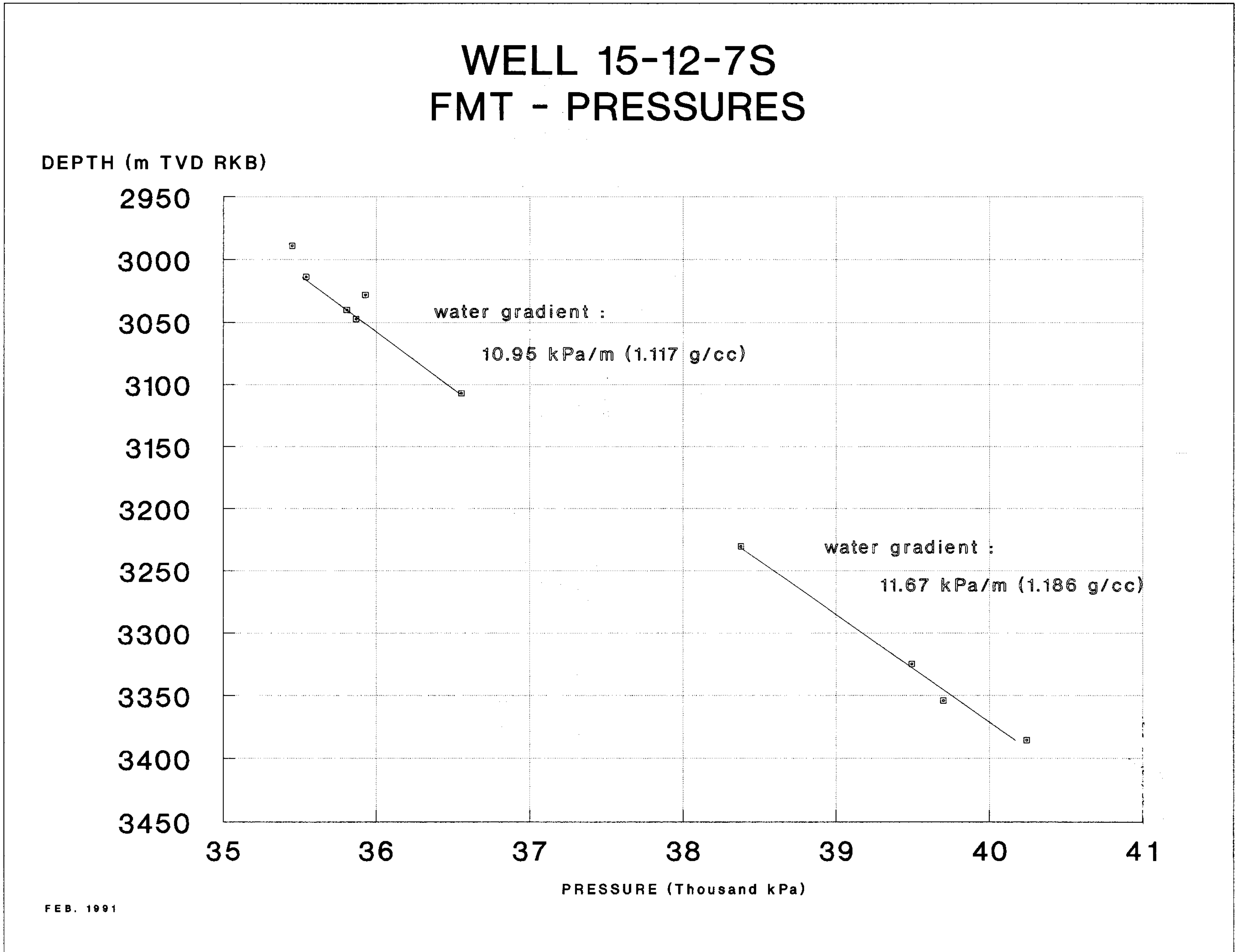
2549 m TOP VÅLE FM
2570 m TOP SHETLAND GROUP
TOP CHALK
2790 m TOP HOD FM

2941.5 m TOP CROMER KNOLL GROUP
3008 m TOP VESTLAND GROUP
3035.6 m TOP ? HEGRE GROUP
3097.5 M TOP ? SKAGERAK FM

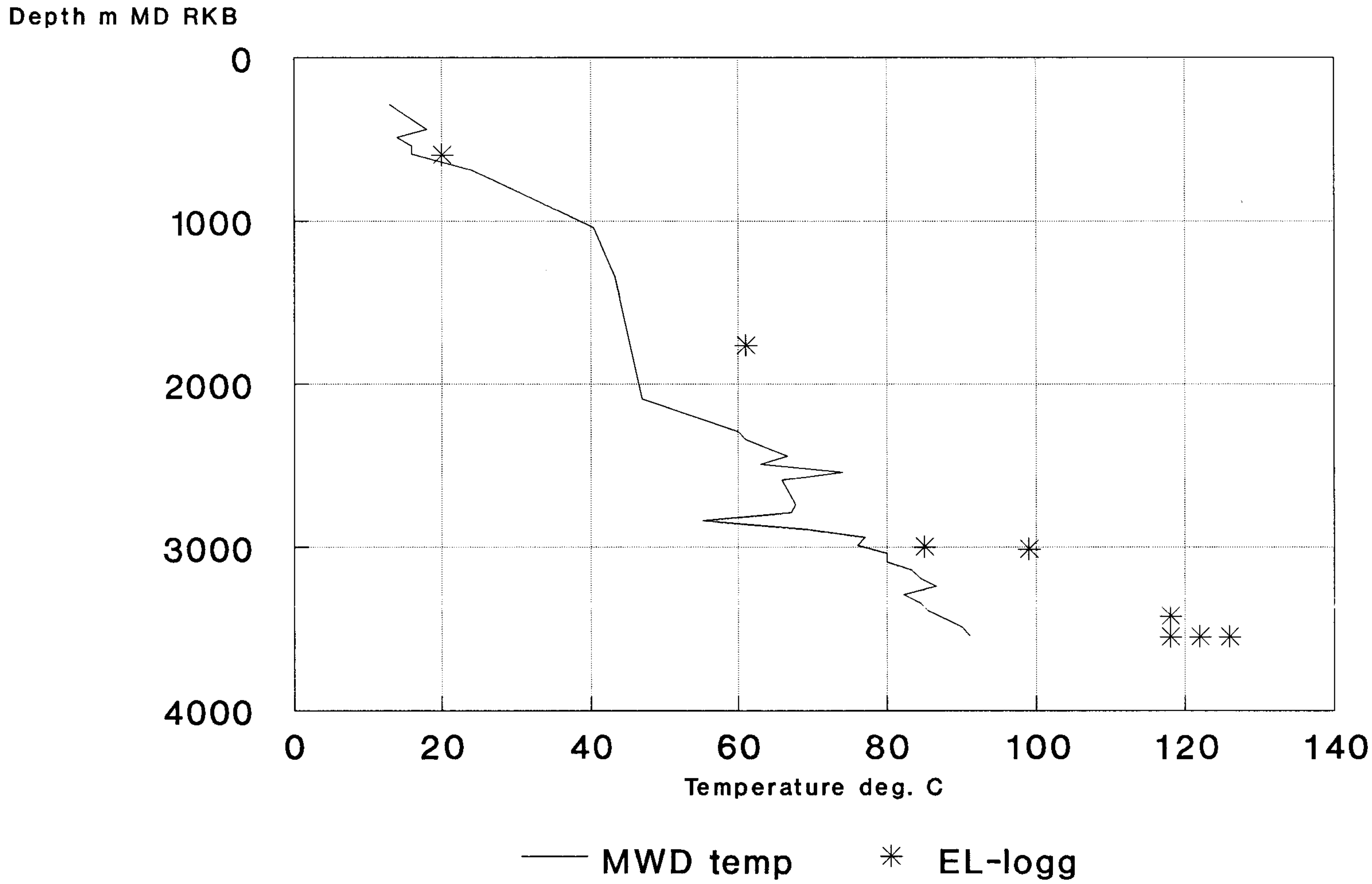
3477 m TOP ? SMITH BANK FM
3570 m TD

Well 15/12-7S	PRESSURE PLOT	Made by : AEy
Depth m RKB : 23 m		Date : 910701
Water depth : 85 m		




WELL 15-12-7S
FMT - PRESSURES
DEPTH (m TVD RKB)
2950
3000
3050
3100
3150
3200
3250
3300
3350
3400
3450
water gradient :
10.95 kPa/m (1.117 g/cc)
water gradient :
11.67 kPa/m (1.186 g/cc)
35
36
37
38
39
40
41
PRESSURE (Thousand kPa)
FEB. 1991

15/12-7S
Temperature data



4 DRILLING REPORT

4.1 Summary

4 DRILLING REPORT

4.1 Summary

Well	:	15/12-7S
Type of well	:	Wild cat
Rig	:	Deepsea Bergen
Start date	:	04.11.90
Finish date	:	08.01.91
Total days	:	64,5
TD	:	3.570 m RKBMD
Main objectives	:	Oxfordian Sandstone (Jurassic)
No. of cores	:	1
Plugging	:	Permanent abandoned

4.2 Drilling Operations in Intervals and Location Survey

4.2 Drilling Operations in Intervals and Location Survey

4.2.1 Drilling Operations in Intervals

Rig Move - Anchor Handling (0.4 days)

The semi-submersible rig "Deepsea Bergen" was towed to well location 15/12-7S and arrived at location the 4th of November 1990. The final position was:

58 deg., 00' 49,93" N
01 deg., 58' 35,54" E.

10 anchors were layed out and tensioned to 130 tons.

36" Hole Section (108 - 173 m RKB, 2.8 days)

Tagged bottom at 108 m RKB and drilled 36" hole with 26" bit and 36" hole opener to 169 m RKB. Seawater and high viscous pills were used as drilling fluid. At bottom the hole was circulated clean with seawater and survey was taken (bullseye). Was unable to pass rotary table with 30" cam-actuated running tool. Grinded down support ring and ran 30" casing. Hit fill with 30" casing when stick-up was 3.5 m - unable to work casing further down. Drilled 36" hole from 169 m to 173 m. The 30" casing was ran to 168 m and cemented to seabed.

26" Hole Section (173 - 620 m RKB, 4.4 days)

Drilled out 30" casing with 9 7/8" bit, 17 1/2" and 26" hole openers. Circulated hole clean and POOH.

Drilled 9 7/8" pilot hole 620 m with seawater and high viscous pills. The potential gas section 420 - 460 m was drilled with 1.10 S.G. mud. Used MWD in the BHA - no shallow gas was encountered. Displaced to 1.10 S.G. mud before the pilot hole was logged (DIFL-ACL-CDL-GR-SP-CAL).

Opened 9 7/8" pilot hole to 26", made wiper trip to 30" shoe. Displaced hole to 1.25 S.G. mud. Ran 20" casing to 605.4 m RKB and cemented to seafloor.

Ran BOP and riser. RIH with 17 1/2" bit and MWD-tool, drilled out the 20" shoe and cleaned the rathole with high viscosity pills. Displaced hole to 1.20 S.G. gyp/polymer mud and performed a leak off test equivalent to 2.05 S.G.

17 1/2" Hole Section (620 - 1820 m RKB, 6.1 days)

The 17 1/2" hole section was drilled with one bit (SMITH MSDGHC), average ROP was 49.6 m/hour.

Had some gumbo problems and lost 4 hours during drilling due to plugged flowline and shale shaker shute.

The mud weight was increased from 1.20 S.G. to 1.30 S.G. at 1559 m and to 1.35 s.g. at 1820 m before back-reaming the hole.

Surveys were taken every third stand throughout the section. Maximum hole angle was 1.3 deg. at 1722 m RKB.

Circulated bottoms up at 20" shoe and POOH. Ran electric log no. 1: DIFL-ACL-CDL-GR-CAL. Had problems to pass tight area at 1059 m - closed caliper to complete the logging run.

Attempted to run log no. 2: SWC-GR. Had three misruns - could not pass tight areas. Reamed the hole after first misrun, but had no success completing the SWC-logging.

Ran 13 3/8" casing and cemented same to 630 m to cover gas that was encountered from MWD at 775 m RKB. RIH w/12 1/4" BHA - drilled out shoe and performed a leak off test equivalent to 1.83 S.G.

12 1/4" Hole Section (1820 - 3027 m RKB, 29.5 days)

Due to shallow gas anomalies at originally planned rig location, the 12 1/4" section was directionally drilled (S-shape) to hit the target approx. 180 m South of surface location.

Started drilling 12 1/4" section with PDC bit (Eastman R426GN), Mach 1 mud motor and DTU.

The mudweight of the gyp/polymer mud was increased from 1.35 S.G. to 1.45 S.G. while drilling from 1825 m to 1851 m. Continued drilling in oriented mode to 2026 m with the same BHA but was unable to build angle. Tried different parameters in order to get toolface readings while drilling without success. POOH, mudweight was increased to 1.50 S.G. from 2022 m.

RIH w/rock bit (Hughes ATMT 11H), Mach 1 mud motor and DTU. This BHA successfully built angle and the hole was drilled to 2498 m. The mudweight was increased to 1.55 S.G. at 2142 m and to 1.60 from 2183 m.

RIH w/PDC bit (LX301QR) on rotary assembly, but this assembly had to be pulled after drilling only 65 m to 2563 m because of low ROP (average 2.5 m/hour).

Picked up the R426GN PDC bit, Mach 1 mud motor and DTU. This BHA drilled only 75 m to 2638 m with an average ROP of 3.1 m/hour due to problems to transfer weight on bit when drilling in orientation mode. Had problems to drop angle (drilled in chalk from 2568 m MD).

Continued drilling with rock bit (SMITH FDGHC), mud motor and 1.5^{o} bent sub. This slick BHA performed well and the angle was dropped as intended, ROP was increased to 7 m/hour.

The next bit (SMITH SMFDS) was run on mud motor and 2.0^{O} bent sub, but was totally worn after drilling 10 m.

The section from 2768 to 2917 m was drilled with two bits (XDV and XGG) on mud motor and 1.5^{O} bent sub (slick BHA) with an average ROP of approx. 4 m/hour.

The angle was now dropped to vertical and the rest of 12 1/4" hole section was drilled on rotary assembly. Went stuck with the pipe at 2785 m while tripping in and reaming tight hole from 2629 m. Jarred pipe free with 50 MT and POOH. The BHA was changed and one of the three stabilizers was taken out. The 12 1/4" section was drilled to 3027 m, had a drilling break and circulated for samples. Had several tight spots while POOH. Went stuck at 2703 m, pipe was jarred free with 50 MT down weight.

Washed and reamed, went stuck again at 2703 m. Jarred on stuck pipe and pumped imco spot pill. Pipe came free after 20 hours and while holding 24.000 ft/lbs right hand torque and set down weight.

Moved and rotated pipe between 2710 and 2730 m, the string was stuck again at 2720 m while slips was set and a single was picked up. Jarred on stuck pipe for 10 hours. Pumped 15% HCL solution. Managed to free pipe with 24.000 ft/lbs right hand torque and 50 MT set down weight. POOH. RIH w/slick BHA, washed and reamed from 2509 m to TD, tight hole at 2720 m and 2990 - 3027 m. Circulated the hole clean before the logging successfully was completed.

The mudweight was decreased from 1.60 S.G. to 1.54 S.G. before the 9 5/8" casing was run. The casing was cemented with the shoe at 3013.7 m RKB MD.

WOW for 35 hours, disconnected Lower Marine Riser Package. Latched L.M.R.P. to BOP. Attempted to test BOP - leak in upper pipe ram. Performed fault finding. Pressure tested 9 5/8" casing. Set a balanced cement plug from 650 m to 500 m, which was tagged and pressure tested before the BOP was pulled. Repaired BOP (pack-box on ram was loose). Ran BOP and riser. Drilled out top cement plug and 9 5/8" casing. Displaced hole to 1.30 S.G. gel/lignosulphonate mud. Drilled 1 m new formation and performed a F.I.T. equivalent to 1.65 S.G.

8 1/2" Hole Section (3027 - 3570 m RKB MD, 12.9 days)

Cut a 27 m core from 3028 m - 94.4% recovery. Drilled 8 1/2" hole w/rock bit to 3240 m. Had stuck pipe both at 3072 and 3147 m, came free w/50 MT overpull. At 3240 m a pressure drop occured. POOH - all cones and legs were left in hole.

RIH w/logging tool (DIFL-AC-GR) - not able to pass 3178 m. RIH w/new BHA, reamed to 3240 m, and cleaned hole due to junk. Decided to continue drilling 8 1/2" hole because Paleo-studies showed that Trias was still not verified. Drilled to 3475 m - POOH to pick up the MWD tool. Changed bit and BHA (near bit stabilizer was taken out). RIH - MWD logging indicated a hole angle of 9.2° at 3451 m MD. Drilled 8 1/2" hole to 3570 m - TD of the well. Took wiper trip to 3400 m and reamed tight spot at 3460 m, M.O.P. 55 tons. Circulated B/U at TD and POOH.

Completed two logging runs. Attempted to run log no. 3 (FMT-GR-HP). Had two misruns due to HP gauge not working and problems to get seal to formation. The logging tools were covered with thick mud when at surface. A wiper trip was made to thin the mud and prevent high temperature gellation. After WOW for about 12 hours the mud was still too viscous and it was decided to add Ancotemp to the mud. A third attempt was made to run log no. 3, but the FMT-GR tool got stuck at 3202 m MD while taking a pressure point. Pulled tool free.

Completed logging runs no. 4 (HR-DIPLOG) and no. 5 (VSP). RIH w/8 1/2" BHA to TD and conditioned mud. A new attempt was made to run FMT-GR-log but the tool became stuck while taking a pressure point at 3425 m. Tried to pull the tool loose without success. Stripped over wireline to 3155 m but did not succeed pulling the FMT tool into the grapple. The FMT tool was pushed to the bottom of the hole and the final logging run (SWC) was run.

Plug and Abandon, (8.4 days)

Sat a balanced cement plug from 3555 m to 2900 m in three steps. Tagged, weight tested and pressure tested the plug with respectively 7 MT and 170 bar. Sat 9 5/8" bridge plug at 2838 m. Cut 9 5/8" casing at 1574 m. Was not able to pull loose 9 5/8" casing. Recut casing at 1326 m and retrieved same. Sat a cement plug from 1376 m to 1250 m.

A 13 3/8" bridge plug was set at 663 m. Cut 13 3/8" casing at 589 m. Attempted to pull casing loose without success. Cut 13 3/8" casing at 489 m and retrieved same. Sat cement plug from 540 m to 150 m in two steps. Pressure tested plug to 35 bar. Pulled riser and BOP. Cut 20" x 30" casing at 114 m and pulled same. Pulled anchors, last anchor on bolster 08.01.91 at 09:00 hours.

4.2.2 Location Survey

Company	:	Racal
Equipment used	:	Side Scan Sonar
	:	Echo Sounder
	:	Deep tow sparker
	:	Air gun with digital recording
Results/problems	:	No problems

Seabed Condition

Actual water depth	:	85 m
Final position	:	58 deg 00' 49.93" N
	:	01 deg 58' 35.54" E
Rig heading	:	330 deg
Deviation from intended position	:	21.7 m - 332.7 deg
Actual seabed dip	:	Sloping 1 : 500 towards NW
Seabed sediment consistence	:	Fine sand with patches of outcropping clay
Seabeds hazards observed	:	None
Shallow gas predicted	:	- Due to anomalies observed on seismic at 441 m RKB on originally planned location, the position of the rig was moved outside the area where anomalies were observed. - Minor seismic anomaly at 792 m RKB.
Shallow gas experienced	:	Gas at 775 m RKB.

4.3 Extract of Daily Activities

90/11/04 - IN TRANSIT TO LOCATION 15/12-7S

90/11/05 - ARRIVED AT LOCATION 15/12-7S.
- ANCHOR HANDLING.
- MAINTENANCE / REPAIR ON RIG.
- SLIP AND CUT DRILLINE.
- P/U HWDP AND RACK SAME IN DERRICK.

90/11/06 - RIH AND TAGGED SEABED AT 108 MRKB.
- DRILLED 36" HOLE FROM 108 M TO 169 MRKB.
- DROPPED SURVEY, WIPERTRIP, RETRIEVED SURVEY.
- RAN 30" CSG, CAM-ACTUATED RUNNING TOOL WOULD NOT PASS ROTARY, HAD TO GRIND DOWN SUPPORT RING.
- LATCHED RUNNING TOOL ONTO BASE PLATE AND RIH.

90/11/07 - RAN 30" CASING, LANDED ON FILL, 3,5 M STICK-UP.
- PULL 30" CASING, HUNG OFF ON TROLLEY.
- PU 36" BHA AND RIH.
- REAMED FROM 135 M TO 169 MRKB.
- DRILLED 36" HOLE FROM 169 M TO 173 MRKB.
- RAN 30" CASING.
- CEMENTED 30" CASING.
- WOC.
- DISCONNECTED RUNNING TOOL, POOH.

90/11/08 - DRILLED CMT AND NEW FORM TO 179 M.
- M/U 9 7/8" BHA, RIH, DRILLED PILOT HOLE FROM 179 M TO 437 M. CHECKED SUSPICIOUS SAND AT 270-280 M. BEFORE CONN. AT 326 M. NEGATIVE. REDUCED ROP AT 425 M TO 25 M/H +/- WHILE DRILLING W/ 1,1 S.G. CMC MUD IN THE POTENTIAL GAS SECTION.

90/11/09 - DRILLED 9 7/8" PILOT HOLE FROM 437 M TO 620 M W/SW AND HIVIS PILLS. DISPLACED HOLE W/1.10 SG.
- RAN WIRELINE LOGS.
- M/U 26" BHA W/MWD TOOL RIH.
- OPENED UP 9 7/8" PILOT HOLE TO 26" FROM 177 M TO 328 M.

90/11/10 - OPENED UP 9 7/8" PILOT HOLE TO 20" F. 328M TO 620 M.
- CIRC'D HOLE CLEAN.
- WIPER TRIP TO 30" CSG SHOE. WORKED PIPE AT 290 - 320 RIH.
- CIRC'D HOLE CLEAN. DISPLACED HOLE W/1.25 MUD.
- PREPARED TO RUN 20" CSG. M/U 20" CMT PLUG ON R-TOOL.
- RAN 20" CSG. 20 JNTS. 5-6 JNTS/HR.

90/11/11 - RAN 20" CSG, LANDED CSG.
- CIRCULATED 1 CSG VOLUME W/SW PRIOR TO CMT.
- MIXED AND PUMPED 121.5 M3 LEAD- AND 15 M3 TAIL- CMT SLURRY.
- DISPLACED CMT W/SW. PLUG BUMPED AT 4514 STKS W/100 BAR.
- PREPARED TO AND RAN BOP. BOP LANDED AT 2023 HRS.
- ATTEMPTED TO TEST BOP. T.TOOL LEAKING, 2 O-RINGS MISSING.

90/11/12 - TESTED BOP TO 300 BAR. CLOSED S R, U/M PIPE RAM W/ACOUSTIC SYSTEM.
- L/D 26" BHA.
- M/U 17-1/2" BHA, RIH TO TAG CMT AT 587,5M.
- DRILLED FLOAT/SHOE CLEANED RAT HOLE + 3M NEW FORM FROM 620 TO 623.
- DISPLACED HOLE W/1,20 GYP/POLYMER MUD.
- PERFORMED LOT. EQUIVALENT TO 2,05 SG.
- DRILLED 17-1/2" HOLE FROM 623 TO 899M.

90/11/13 - DRILLED 17,5" HOLE FROM 899 TO 1530M.
- CIRCULATED SLOWLY WHILE UNPLUG FLOWLINE AND SHALE SHUTE. LOST TIME APPROX. 4 HRS.

90/11/14 - DRILLED 17-1/2" HOLE FROM 1530M TO 1820M.
- CIRC/INCREASED MW 1,35.
- BACKREAMED OUT OF HOLE.

90/11/15 - POOH, L/D MWD.
- RAN LOG NO. 1 DIFL-ACL-CDL-GR-CAL.
- RAN LOG NO. 2 SWC - GR. DID NOT PASS 518M. POOH.
- M/U SEAL ASSY TO HGR AND CMT PLUGS TO HGR R/TOOL. INSTALLED SAME IN HGR JNT AND RACKED BACK IN DERRICK.
- M/U BHA AND RIH TO 1610M. TOOK WEIGHT.
- REAMED FROM 1604M TO 1820M.
- CIRC HOLE CLEAN.

90/11/16 - POOH. WORKED TIGHT SPOTS.
- R/U ATLAS WIRELINE AND RAN SWC-GR. NOT ABLE TO PASS AT 1037M. POOH AND INSTALLED MORE WEIGHT. RIH - UNABLE TO PASS 1037M. POOH AND R/D ATLAS WIRELINE.
- PREP. FOR AND RAN 13-3/8" CSG.

90/11/17 - RAN 13 3/8" CSG. AND LANDED SAME.
- CIRC.
- CEMENTED 13 3/8" CSG.
- TORQUED UP SEAL ASSEMBLY AND PRESS. TESTED SAME.
- TESTED BOP AND UPPER, LOWER KELLY VALVES AND FIRST VALVE ON STANDPIPE MANIFOLD.
- POOH W/LANDING STRING.
- SET 18 3/4" X 13 3/8" WEARBUSHING.
- L/D 17 1/2" BHA.

90/11/18
- CONT. L/D 17-1/2" BHA.
- M/U 12-1/4" BHA. FUNCTION TESTED MUD MOTOR AND MWD. ORIENTATED SAME.
- SERVICE BROKE ALL CONN. ON HWDP.
- P/U 39 JNTS E PIPE AND CONT. RIH TO CMT PLUGS AT 1771M.
- PERFORMED KICK DRILL.
- DRILLED PLUGS, FLOAT COLLAR, CEMENT AND SHOE.
- REAMED AND WASHED RATHOLE AND DRILLED 3M NEW FORMATION.
- CIRC. BTM'S UP AND PERFORMED LOT, EQ. MW 1,83 SG.
- DRILLED 12-1/4" HOLE.

90/11/19
- DRILLED 12-1/4" HOLE IN ORIENTED MODE FROM 1907M TO 1936M. NOT ABLE TO BUILD ANGLE. TRIED DIFFERENT PARAMETERS TO GET TOOLFACE READINGS WHILE DRILLING - NO SUCCESS. GOT GOOD SURVEYS/TOOLFACE SIGNALS OFF BOTTOM.
- CONT. DRILLING IN ORIENTED MODE FROM 1936M TO 2026M. INCR. M.W FROM 1.45 S.G TO 1.5 S.G WHILE DRILLING.
  KEPT LOW FLOWRATE AND MAX WOB. NOT ABLE TO BUILD ANGLE.
- CIRC BTTMS. UP AND POOH.
- CHANGED BIT AND RIH.
- WORKED TIGHT SPOT FROM 1966M TO 1980M.
- TOOK 15 TON WEIGHT AT 2004M. WASHED AND REAMED FROM 2004M TO 2026M.
- CONT DRILLING 12-1/4" HOLE IN ORIENTED MODE FROM 2026M TO 2049M

90/11/20
- DRILLED 12-1/4" HOLE IN ORIENTED MODE FROM 2049M TO 2194M. INCREASED M.W FROM 1.50 S.G TO 1.60 S.G IN TWO STEPS WHILE DRLG.
- CONT. DRILLING 12-1/4" HOLE IN ORIENTATION AND ROTATION MODE FROM 2194M TO 2397M.

90/11/21
- DRILLED 12-1/4" HOLE IN ORIENTATION AND ROTATION MODE FROM 2397M TO 2471M
- CHANGED DISCHARGE MODULE SYL. NO. 1 MUDPUMP NO. 2.
- MADE WIPERTRIP TO 13-3/8" CSG. SHOE WHILE REPAIRED MUDPUMP NO. 2 HOLE IN GOOD CONDITION.
- CONT. DRILLING 12-1/4" HOLE IN ORIENTATION AND ROTATION MODE FROM 2471M TO 2498M. LEAK IN WASHPIPE ON TOPDRIVE.
- PULLED INTO CSG.

90/11/22
- PULLED INTO 13-3/8" CSG.
- CHANGED WASH PIPE AND PRESS. TESTED TO 300 BAR.
- POOH. L/D BIT AND MUDMOTOR.
- M/U BHA AND RIH TO 13-3/8" SHOE.
- SLIPPED AND CUT DRILLING LINE.
- RIH TO 2498M AND DRILLED 12-1/4" HOLE TO 2527M MD.

90/11/23
- DRILLED 12-1/4" HOLE FROM 2527M MD TO 2563M MD.
- POOH. CHANGED BIT.
- M/U MUD MOTOR AND NEW BHA.

90/11/24 - MADE UP BHA W/MWD AND MUD MOTOR.
- RIH, TOOK 20 TON WEIGHT.
- WASHED AND REAMED TIGHT SPOTS TO TD AT 2563M MD.
- DRILLED 12-1/4" HOLE IN ORIENTATION AND ROTATION MODE FROM 2563M TO 2619M MD.

90/11/25 - DRILLED 12-1/4" HOLE IN ORIENTATION MODE FROM 2619M TO 2623M MD. PIPE STUCK AT 2623M, CAME FREE WITH 70 TON OVERPULL. CIRC. AND WORKED PIPE.
- DRILL 12-1/4" HOLE IN ROTATION AND ORIENTATION MODE TO 2628M MD.
- POOH TO CHANGE BIT AND BHA.

90/11/26 - M/U NEW BHA W/BIT, MUD MOTOR, BENT SUB, AND MWD.
- RIH TO 2600 M, WASHED AND REAMED TO 2638 M MD.
- DRILLED 12-1/4" HOLE IN ORIENTATION MODE FROM 2638 M TO 2735 M MD.

90/11/27 - DRILLED 12-1/4" HOLE IN ORIENTATION MODE FORM 2735 M MD TO 2758 M MD
- POOH FOR BIT CHANGE.
- RIH W/NEW BIT AND 2,0 DEG BENT SUB.
- DRILLED 12-1/4" HOLE IN ORIENTATION MODE FROM 2758 M MD TO 2762 M MD

90/11/28 - DRILLED 12-1/4 HOLE FROM 2762 M TO 2768 M MD.
- POOH. CHANGE BIT AND BENT SUB.
- RIH TOOK WEIGHT 2749M WASHED AND REAMED FROM 2737M TO TD.
- DRILLED 12-1/4" HOLE FROM 2768M TO 2781M MD.

90/11/29 - DRILLED 12 1/4" HOLE FROM 2781 M TO 2792 M MD.
- REPAIRED PUMP NO 2.
- DRILLED 12 1/4" HOLE FROM 2792 M TO 2835 M MD.
- P O O H
- RIH W/JET SUB AND BOP TEST TOOL. WASHED WELLHEAD.
- PRESSURE TESTED BOP'S TO 290/241 BAR ON YELLOW POD, FUNCTION TESTED ON BLUE POD.

90/11/30 - PRESSURE TESTED KELLY COCKS AND VALVE ON STANDPIPE TO 345 BAR.
- POOH WITH BOP TEST TOOL AND JET SUB.
- M/U NEW BIT AND BHA.
- CHANGED OUT LEAKING JAR.
- RIH, SLIPS SLIPPED INTO BUSHING WHILE RIH. 3 JOINTS BENT HWDP LAYED OUT
- R.I.H. TO 2835 M MD.
- DRILLED 12-1/4" HOLE FROM 2835 M TO 2857 M MD.
- POOH TO CASING SHOE.

- R/D KELLY COCK TORQUE WRENCH. SPLIT RINGS AND SPIRAL RING MISSING IN UPPER KELLY COCK.

90/12/01 - CONT. WORKING ON TOPDRIVE.
- PRESS. TEST UPPER KELLY COCK TO 345 BAR.
- RIH TO 2845 M, WASHED AND REAMED TO 2857 M MD
- DRILLED 12-1/4" HOLE FROM 2857 M TO 2917 M MD
- P.O.O.H. FOR CHANGING BIT/BHA.

90/12/02 -POOH FOR BIT/BHA CHANGE.
-M/U NEW BHA AND RIH. TO 13-3/8" CSG SHOE. SLIPPED 33M DRILL LINE.
-CONT. RIH. TO 2629 M.
-WASHED AND REAMED TIGHT HOLE FROM 2629 M TO 2785 M.
-WENT STUCK AT 2785 M. MOP: 75 MT. JARRED PIPE FREE.
-POOH. MOP: 60 MT AT 2688 M. BACKREAMED FROM 2688 M TO 2660 M.
- L/D AND M/U NEW BHA.

90/12/03 - M/U BHA AND RIH TO 2870M.
- WASHED AND REAMED TIGHT HOLE FROM 2870M TO 2917M.
- DRILLED 12-1/4" HOLE FROM 2917M TO 2933M.

90/12/04 - DRILLED 12-1/4" HOLE FROM 2933M TO 2980M.
- CIRC/COND MUD.
- POOH.

90/12/05 - POOH
- CHANGED BIT AND RIH TO 1790M
- REPAIRED TOP DRIVE COOLING SYSTEM
- RIH TO 2630M
- WASHED AND REAMED FROM 2630M TO 2667M
- RIH TO 2931M
- WASHED AND REAMED FROM 2931M TO 2980M
- DRILLED 12-1/4" HOLE FROM 2980M TO 3002M
- REPAIRED MUD PUMP
- DRILLED 12-1/4" HOLE FROM 3002M TO 3027M
- CIRC FOR SAMPLES

90/12/06 - CIRC HOLE CLEAN
- POOH TO 2703M
- WENT STUCK AT 2703M. JARRED PIPE FREE.
- WASHED AND REAMED.
- WENT STUCK AT 2703M.
- WORKED AND JARRED ON STUCK PIPE. PUMPED 16 M3 IMCOSPOT.
JARRED AND WORKED STUCK PIPE. CAME LOOSE W/ RIGHT HAND TORQUE
AND JARRING DOWNWARDS.

90/12/07
- PULLED ATLAS W STRING SHOT
- CIRC HOLE CLEAN. WASHED AND REAMED BETWEEN 2710M AND 2730M.
- L/D ONE SINGLE DP W/BIT AT 2720M.
- ATTEMPTED TO P/U STRING. PIPE STUCK AT 2720M.
- SCREWED SINGLE DP ONTO STRING.
- JARRED ON STUCK PIPE.
- PUMPED 5,8 M3 15% HCL SOLUTION AND DISPLACED SAME.
- JARRED ON STUCK PIPE.
- DISPLACED OUT HCL SOLUTION OVER BURNERS.
- CIRC. WHILE HOLDING 24000 FT-LBS TORQUE AND 50 MT DOWNWARDS WEIGHT ON STRING. PIPE CAME FREE.
- POOH TO CSG SHOE.
- INSPECTED DERRICK.
- POOH.
- M/U NEW BHA.

90/12/08
- RIH W/ 12-1/4" BHA
- SLIPPED AND CUT DRLG LINE
- CONT RIH TO 2509M
- WASHED AND REAMED TO 3027M
- POOH
- R/U AND RAN ATLAS W LOGS

90/12/09
- RAN ATLAS W LOGS.
- M/U CMT HEAD AND CSG HANGER.
- RIH W/ 12-1/4" BIT. HIT WELLHEAD AND BENT 3 JNTS HWDP.
- POOH. CHECKED BIT.
- RIH TO 900M.
- REP LEAK ON TOP DRIVE.
- CONT RIH.

90/12/10
- RIH.
- DECREASED MW FROM 1,60 S.G. TO 1,54 S.G.
- WIPERTRIP TO 13 3/8" CASING SHOE.
- POOH.
- PULLED WB.
- R/U AND RAN 9 5/8" CASING.

90/12/11
- RAN 9 5/8" CASING.
- JAMMED ELEVATOR ON ONE CSG COLLAR. L/D ELEVATOR AND CSG JNT. INSTALLED NEW ELEVATOR.
- CON'T RUNNING 9 5/8" CASING AND LANDED SAME IN WELLHEAD.
- TORQUED UP PACK OFF TO 20000 FT-LBS.
- PRESSURE TESTED PACK OFF TO 300 BAR.
- RIH W/WB AND SET SAME.
- WOW.

90/12/12 - WOW. DISPLACED RISER W/S.W. CLOSED SHEAR RAM.
DISCONNECTED LMPR AT 0647 HRS.

90/12/13 - W.O.W.
- POS. RIG, INSPECTED CONNECTOR W/ROV AND LATCHED L.M.R.P. TO BOP. PULL TESTED TO 20 MT. O.P.
- INSTALLED DIVERTER. REPAIRED LEAK ON ACT. PRESS. TO DIVERTER CONTROL PLATE. LATCHED AND PULL TESTED DIVERTER TO 5 MT. O.P.
- DISPLACED RISER TO 1,54 S.G. MUD.
- FUNCTION TESTED BOP ON Y-POD. ATTEMPTED TO PRESS.TEST BOP ON B-POD. HAD LEAK ON TEST NO. 3 - UPPER PIPE RAM, LOWER OUTER KILL. PERFORMED FAULT FINDING ON B-POD FUNCTION.

90/12/14 CONT. PERFORMING FAULT FINDING. PULLED B-POD AND CHANGED OUT TWO SPM VALVES. INSTALLED B-POD AND ATTEMPTED TO PRESS.TEST UPR/LOK - NEG. PRESS.TESTED 9 5/8" CSG. TO 300 BAR. RIH W/ 3 1/2" DP. CMT. STINGER AND SET A BALLANCED CMT. PLUG FROM 650 TO 500 M.
RIH W/ 8 1/2" BIT AND TAGGED CMT PLUG. CLOSED UAP AND PRESS.TESTED CMT. PLUG. PULLED RISER AND BOP.

90/12/15 CONT. PULLING RISER AND BOP. NIPPLED DOWN AND MOVED BOP TO SET BACK. REPAIRED BOP.

90/12/16 - CONT. REP. UPPER PIPE RAM. PRESS.TESTED TO 300 BARS ON BOTH PODS.
- OPENED AND INSPECTED ALL RAMS. PRESS.TESTED HYDRAULIC CONTROL SYSTEM TO 138 BAR BEFORE CLOSING RAM DOORS.
- RE-ADJUSTED POS.LOCK ON UPR.
- PRESS.TESTED BOP ON B-POD TO 690/241 BAR.

90/12/17 - RAN BOP.
- RAN BOP AND RISER. PRESS.TESTED BOP ON Y-POD. FUNCTION TESTED ON B-POD.
- RIH W/ 8 1/2" BIT AND BHA.
- DRILLED CMT PLUG FROM 522 TO 670 M.
- HELD KICK DRILL W/CREW.
- DRILLED PLUG AT 2959M, CMT, FLOAT AT 2990M AND CMT TO SHOE AT 3014M.

90/12/18 - DRLD OUT 9-5/8" CSG SHOE. CLEANED OUT RAT HOLE. WORKED JUNK BASKET AND DISPLACED HOLE W/1,30 SG MUD.
- DRLD 1 M NEW FORMATION AND CIRC. BTTMS UP.
- PERFORMED F.I.T. EQUIV. TO 1,65 SG.
- POOH.
- RIH W/CORE BBL AND CUT CORE FROM 3028 TO 3055M.
- POOH W/CORE.

90/12/19 - CONT. POOH W/CORE BBL. RECOVERED CORE. RACKED CORE BBL IN DERRICK.
- M/U NEW BHA W/8-1/2" BIT AND RIH TO 2920M.
- SLIPPED 30,5M DRLG LINE.
- CONT. RIH. LOGGED W/MWD TOOL FROM CSG SHOE AT 3014M TO TD AT 3055M.
- DRLD 8-1/2" HOLE FROM 3055M TO 3177M.

90/12/20 - DRLD 8-1/2" HOLE FROM 3177M TO 3240M.
- PUMP PRESSURE DROPPED 68 BAR. CHECKED SURFACE EQUIPMENT. CHANGED VALVES AND SEATS, LINER AND PISTON ON MUD PUMP NO. 1. STILL 68 BAR LESS PRESS - INDICATED ONE NOZZLE LOST.
- BACKREAMED TO SHOE, CIRC. BTM'S UP.
- POOH.
- M/U ATLAS WIRELINE AND RIH W/LOG NO. 1.

90/12/21 - ATTEMPTED RIH W/LOG NO. 1. COULD NOT PASS 3178M. R/D WIRELINE.
- M/U NEW BIT AND BHA, RIH TO 3178M.
- REAMED FROM 3178M TO 3240M.
- WASHED/CIRC. AT 3240M.
- DRILLED 8-1/2" HOLE FROM 3240M TO 3397M.

90/12/22 - DRILLED 8-1/2" HOLE FROM 3397M TO 3475M.
- CIRC. B/U, POOH. CHANGED BHA.
- RIH. LOGGED AND SURVEYED W/MWD FROM 3235M TO 3350M.

90/12/23 - LOGGED, SURVEYED AND REAMED FROM 3350M TO 3475M.
- DRILLED 8-1/2" HOLE FROM 3475M TO 3570M.
- REAMED TIGHT SPOT AT 3460M.
- POOH. PREPARED FOR EL. LOGGING.

90/12/24 - R/U WIRELINE.
- RAN LOG NO. 1 : DIFL-AC-GR-ACBL
- RAN LOG NO. 2 : ZDEN-CNL-SPL
- RAN LOG NO. 3 : FMT-GR. PROBLEMS WITH HP-GAUGE. POOH. CHECKED TOOL AT SURFACE. RE-RAN SAME.

90/12/25 - RE-RAN LOG NO. 3 : FMT-GR. NO SUCCESS. POOH
- RIH CIRC. AND COND. MUD.
- PO TO CSG SHOE. HUNG OFF STRING.
- W.O.W.

90/12/26 - WOW
- RI W/LANDING STRING. M/U TO HANG OFF TOOL. PULL SAME.
- B/O HANG OFF TOOL AND GREY VALVE.
- RI TO 3570M
- CIRC. AND COND. MUD. POOH.
- RAN LOG NO. 3: FMT-GR. TOOK 6 P.POINTS TO 3402M
- TOOL STUCK AT 3202M. FREE AFTER 5 HRS.
- POOH W/LOG NO. 3 TO CHECK TOOL.

90/12/27 - RAN LOG NO. 4 : HR-DIPLOG
- RAN LOG NO. 5 : VSP

90/12/28 - RAN LOG NO. 5 :VSP
- RIH W/8-1/2" BHA TO 3000M.
- SLIPPED AND CUT DRLG. LINE.
- CONT. RIH W/8-1/2" BHA TO 3570M.
- CIRC/COND. MUD.
- POOH.
- RIH W/LOG NO. 6: FMT-GR
- WENT STUCK W/FMT-GR WHEN TAKING PRESSURE PKT AT 3425M.
- WORKED ON STUCK FMT.

90/12/29 - WORKED WIRE ON STUCK FMT TOOL. STUCK AT 3425M.
- STRIPPED OVER WIRE W/OVERSHOT-GRAPPLE AND DP.
- CABLE CAME LOOSE WHEN OVERSHOT WAS AT 3155M.
- PULLED WIRE TO 3185M
- CIRC.
- ATTEMPTED TO PULL FMT TOOL INTO GRAPPLE. HAD NO INCREASE IN TENSION.
- PREPARED FOR REWINDING CABLE ON DRUM.

90/12/30 - REWINDED ATLAS W. CABLE ON DRUM. 260M OF CABLE LEFT IN HOLE.
- PUSHED FMT-TOOL TO 3561M W/OVERSHOT
- POOH
- CHANGED OUT ATLAS W. CABLE DRUM
- RAN ATLAS W. LOG NO. 6 : SWC-GR
- RECOVERED MOST OF CABLE LOST IN HOLE FROM FMT-RUN.

90/12/31 - R/D ATLAS W.
- RIH W/OE 3 1/2" / 5" DP TO 3555 M.
- CIRCULATED.
- SET CMT PLUGS FROM 3555M TO 2855M.
- POOH.
- RIH W/ 8 1/2" BIT AND 9 5/8" CSG SCRAPER.

91/01/01 - RIH W/ 8 1/2" BIT AND 9 5/8" CSG SCRAPER.
- WASHED FROM 2840 M TO 2850 M.
- TAGGED TOP CMT AT 2850 M. PRESSED CMT PLUG TO 2855 M.
- PRESSURE TESTED CMT PLUG TO 170 BAR.
- POOH.
- SET 9 5/8" BRIDGE PLUG ON WIRELINE AT 2838 M.
- RIH W/ 9 5/8" CSG CUTTING ASSY.
- CUT 9 5/8" CASING AT 1574 M W/UAP CLOSED.
- CIRC BU.
- POOH W/ 9 5/8" CUTTING ASSY.
- RETRIEVED WB ON SECOND ATTEMPT.
- RIH TO RETRIEVE PACK OFF. M/U CONNECTIONS TO 30000 FT-LBS.

91/01/02 - ENGAGED SA R/R TOOL IN WH. BACKED OUT 13 M BELOW ROTARY W/22000 FT-LBS.
- DRAINED SLIP JNT AND SCREWER INTO CONNECTION. PULLED OUT.
- RIH W/SA R/R TOOL AND 8" DC'S M/U TO 53000 FT-LBS.
- CAME LOOSE W/41000 FT-LBS. RECHECKED CONNECTIONS.
- ATTEMPTED TO RETRIEVE SA. NEG. 4 PINS ON SA R/R TOOL WAS BROKEN.
- ATTEMPTED TO PULL 9 5/8" CSG AND SA W/SPEAR. NEG.
- RIH W/SA R/R TOOL AND RETRIEVED SA.
- RIH W/ 9 5/8" SPEAR AND ATTEMPTED TO PULL CSG LOOSE W/90 MT OVERPULL AND 120 BAR ON PUMPS. NEG.
- PRESSURE TESTED 9 5/8" X 13 3/8" ANNULUS TO 170 BAR. OK.
- RIH W/ 9 5/8" CUTTING ASSY.

91/01/03 - CUT 9 5/8" CSG AT 1326 M. POOH W/ 9 5/8" CUTTING ASSY.
- RIH W/ 9 5/8" SPEAR AND PULLED CSG LOOSE W/115 MT OVERPULL AND 115 BARS ON PUMP.
- CIRC ANNULUS VOLUME.
- ATTEMPTED TO PULL CASING. COULD NOT PASS MPR.
- RELEASED SPEAR AND POOH W/SAME.
- RIH W/ UNIVERSAL CSG HGR RUNNING TOOL.
- SCREWED INTO CSG HGR AND PULLED CSG.
- PULLED OUT AND L/D 9 5/8" CSG.

91/01/04 - RIH W/ 3-1/2" - 5" OE DP.
- SET CMT PLUG FROM 1376 M TO 1250 M.
- SET 39 M3 OF IMCO SPOT PILL ON TOP OF CMT PLUG.
- POOH. L/D PIPE.
- SET A 13-3/8" BRIDGE PLUG AT 663 M.
- RIH W/ 13-3/8" CSG CUTTING ASSY.
- CUT 13-3/8" CSG AT 589 M.
- CIRC BU.
- POOH. L/D 5" DP.

91/01/05 - POOH.
- ATTEMPTED TO PULL 13-3/8" CSG LOOSE W/SPEAR. MOB: 145 MT AND 30 BAR ON PUMP. NEG.
- CUT 13-3/8" CSG AT 479 M.
- CIRC BU UP CHOKE LINE.
- PULLED 13-3/8" CSG LOOSE USING SPEAR. MOP: 45 MT AND 10 BAR ON PUMP.
- CIRC ANNULUS VOLUME UP CHOKE LINE.
- PULLED AND L/D 13-3/8" CSG.
- RIH W/CMT STINGER. HUNG UP IN 13-3/8" CUT AND BENT DP.
- POOH.
- RIH W/5" OE DP.
- PUMPED VISCOUS PILL.

91/01/06 - SET CMT PLUG FROM 540 M TO 355 M.
- WAIT WHILE TRANSFERRING CMT DUE TO PLUGGING OF DISCHARGE LINES.
- SET CMT PLUG FROM 350 M TO 150 M.
- DISPLACED RISER K/C LINES TO SW.
- POOH L/D PIPE.
- WOW. L/D PIPE.
- PULLED BOP AND MARINE RISER.

91/01/07 - PULLED BOP AND RISER
- RIH W/20 X 30" CSG CUTTING ASSY
- CUT 20" X 30" CSG AT 114M
- PULLED 20" X 30" CUT CSG, WELLHEAD AND GUIDEBASE. L/D SAME.
- L/D PIPE FROM DERRICK
- PULLED ANCHORS

91/01/08 - ANCHORHANDLING
- TRANSFERRED FROM PROJECT 15/12-7S TO 6201/11-2 AT 0900 HRS.

4.4 Well and Subsea Schematic

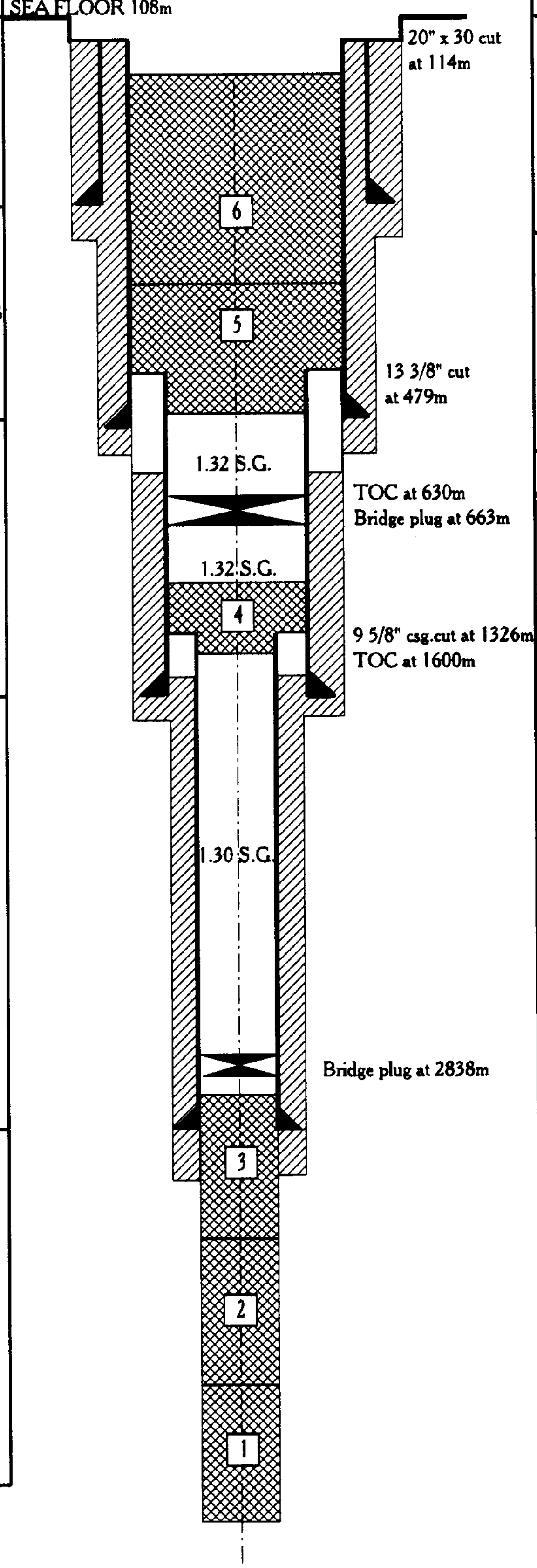
WELLBORE SCHEMATIC: 15/12-7S
(NOT TO SCALE)

WATER DEPTH : 85m

RKB - MSL: 23m

ALL ADDITIVES ARE PER 100KG SEMENT

HOLE	CASING
26" x 36" 173m	30" Grade B Vetco ST - 2, RB 168m
9 7/8" x 17 1/2" x 26" 620m	20" 133 lbs/ft X - 56 Vetco RL4S 605.4m
17 1/2" 1820m	13 3/8" 72 lbs/ft P - 110 Buttress 1797m
12 1/4" 3027m	9 5/8" 53.5 lbs/ft N80 BDS 53.5 lbs/ft 13% Cr BDS 2770.7-2978.4m 3013.7m
8 1/2" 3570m	Not run



CASING CEMENT
Lead Slurry: 1,56 S.G. 12.8 ton "G" +3.55l Econolite +92.49l Seawater Tail Slurry: 1.95 S. G. 20.2 ton "G" +4.35l CaCl₂ 38.27l Seawater
Lead Slurry: 1,56 S.G. 94.4 ton "G" +3.55l Econolite +1.3l HR-4L 92.12l Seawater Tail Slurry: 1.94 S. G. 20.7 ton "G" +40.86 l Seawater
Lead Slurry: 1,60 S.G. 60.4 ton "G" +0.6l HR-4L +2.25kg Bentonite +0.5kg CFR-3 +91.19l Fresh water Tail Slurry: 1.95 S. G. 20.8 ton "G" +1.1l HR-4l +39.21l Fresh water
Slurry: 1.85 S.G. 61 ton "G" +25kg SSA - 1 +0.75kg CFR - 3 +0.5kg SCR 100 +15l Microblock + 5l Halad 361 - A +44.16l Fresh water

PLUGS/SQUEEZ
Plug no.6, 350 - 150m 50.5 ton "G" +4.35l $CaCl_2$ +34.41l Sea water Slurry density: 2.0 S.G.
Plug no. 5, 540 - 355m 38 ton "G" +4.35l $CaCl_2$ +34.41l Sea water Slurry density 2.0 S.G.
Plug no. 4, 1376 - 1250m 10.1 ton "G" +1.1l HR - 4L +39.21l Fresh water Slurry density: 1.95 S.G.
Plug no. 3, 3105 - 2900m 10.6 ton "G" +25kg SSA - 1 +0.5kg CFR - 3 +0.7 kg Halad 344 +0.5kg SCR - 100 +50.91l Fresh water Slurry density: 1.90 S.G
Plug no. 2, 3335 - 3110m 10.7 ton "G" +25kg SSA - 1 +0.5kg CFR - 3 +0.7kg Halad 344 0.5kg SCR - 100 +50.91l Fresh water Slurry density: 1.90 S.G.
Plug: no. 1, 3555 - 3340m 10.7 ton "G" +0.43kg CFR - 3 +0.60kg Halad 344 +0.43kg SCR 100 +43.33l Fresh water Slurry density: 1.90 S.G.

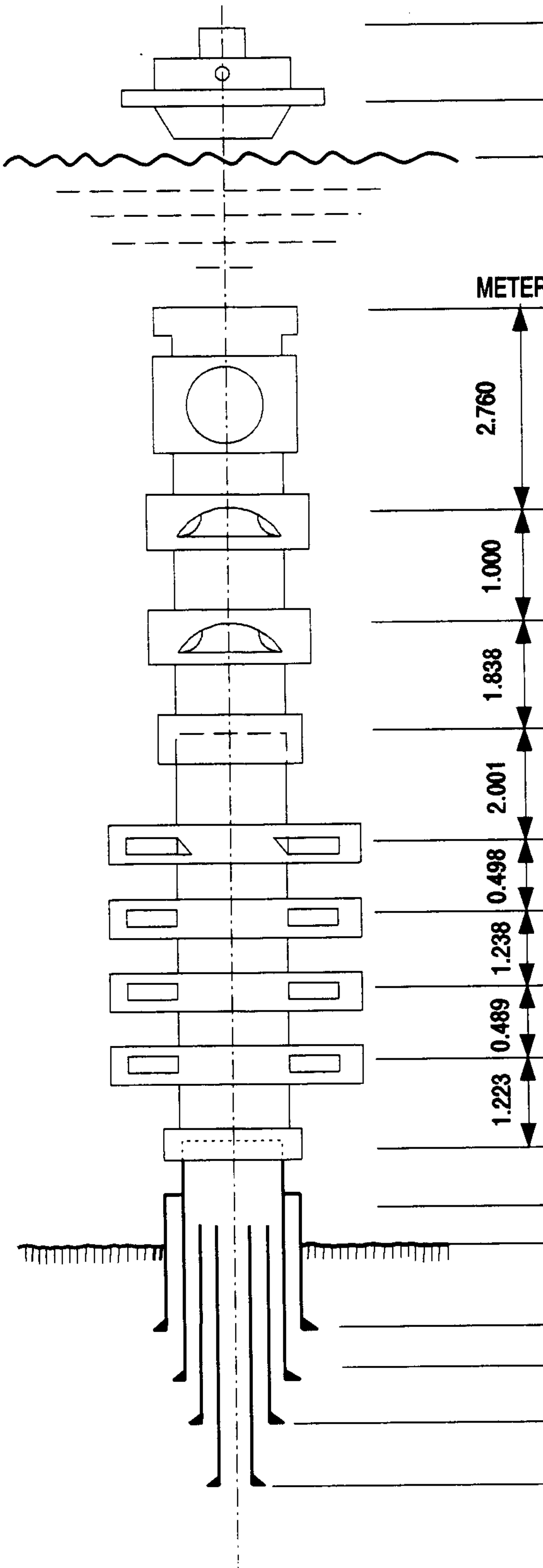
12-7SWSC.DRW

DEEPSEA BERGEN

SUBSEA ASSEMBLY

WELL 15/12-7S

(NOT TO SCALE)



METER	
0	RKB
3.71	DIVERTER RISER CONNECTOR FLANGE
23.0	MEAN SEA LEVEL
94.462	JOINT RISER CONNECTOR FLANGE
97.222	UPPER ANNULAR RUBBER TOP (CLOSED)
98.222	LOWER ANNULAR RUBBER TOP (CLOSED)
100.06	STACK CONNECTOR
102.061	SHEAR RAMS TOP
102.55	U.P. RAMS TOP
103.788	M.P. RAMS TOP
104.277	L.P. RAMS TOP
105.5	18 3/4" WELLHEAD TOP
106.5	30" HOUSING TOP
108.0	MUD LINE
168.0	30" SHOE
605.0	20' SHOE
1797.0	13 3/8" SHOE
3014.0	9 5/8" SHOE

4.5 Formation Integrity Test

STATOIL

FORMASJONSSTYRKETEST

Dato: 12.11.90

Brønn nr.: 15/12-7S **Dybde:** Brønn: 623m Foring: 604.5m Test: 90 bar

Fartøy: "DSB" **Høyde R.K.B.:** Over vannfl.: 23m Over sjøb.: 108m

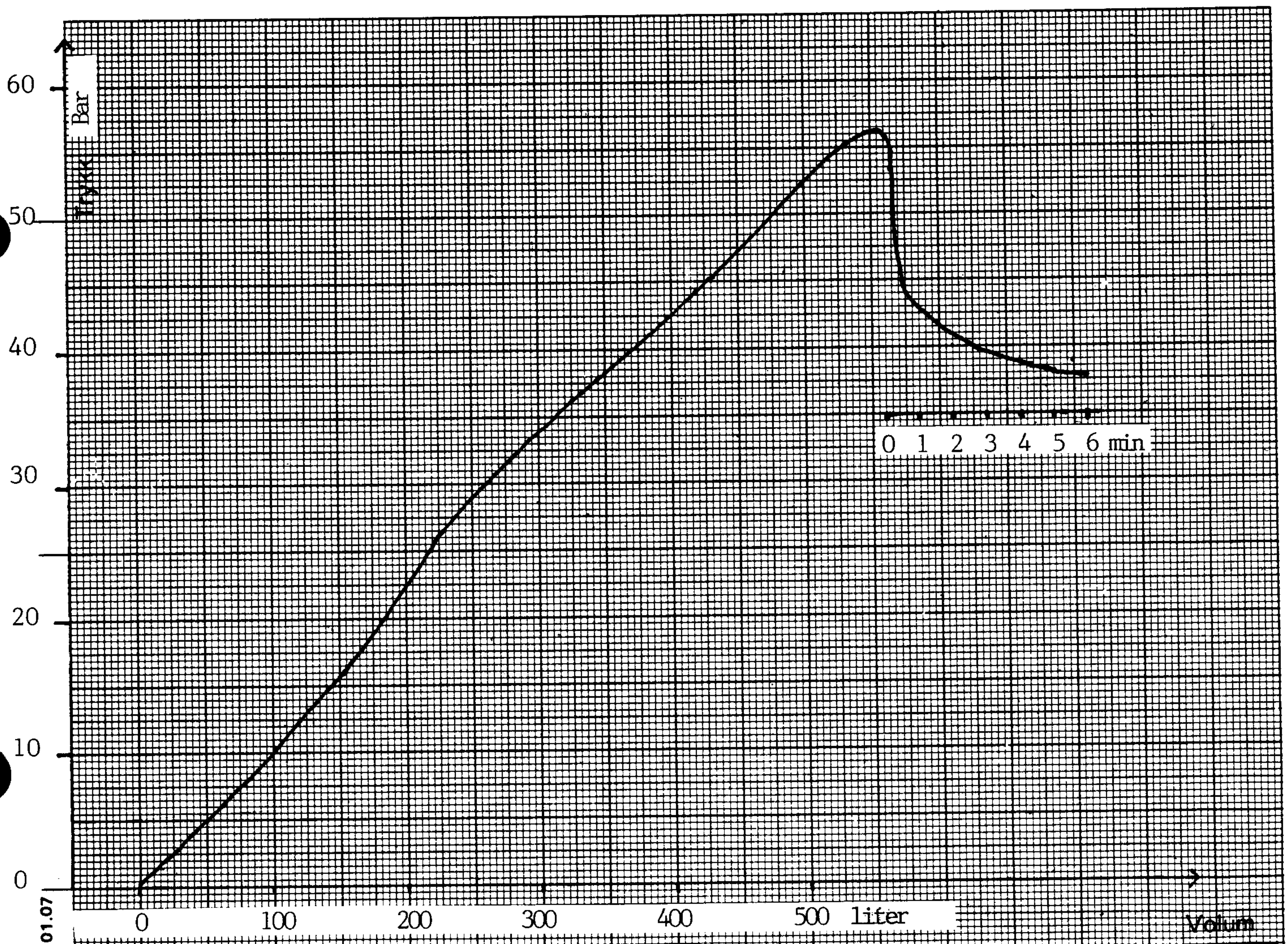
Foring: Diam.: 20" Tyngde: 133 lb/ft Grad: X-56 Maks. trykk: 211 BAR

Boreslam: Tetthet: 1,20 S.G. Vis: 26 P.V.: 19 Y.P.: 7 Filt: 6 Gel.: 1/1.5

Pumpe: Type: Halib. Kapasitet: 6,25 l/st Vol./tidsenh.: 80 l/min Tilb.str.: 413 l

Antatt styrke: 1,5 S.G. Obs. spr. trykk: 52 BAR Ekv. formasj. styrke: 2,05 S.G.

Volum/~~tid~~x	Trykk	Volum/~~tid~~x	Trykk	Volum/~~tid~~x	Trykk	Anmerkninger
0	4,0	250,00	29,0	500,00	53,0	Manometer ble kontrollert
31,25	5,0	281,25	32,0	531,25	55,0	mot et nylig kalibrert
62,50	6,0	312,50	35,0	562,50	56,0	manometer, og trykk-
93,75	8,5	343,75	38,0	1 min	43,0	avlesningene er antagelig
125,00	12,0	375,00	40,0	2 min	40,0	1 BAR for høye.
156,25	16,0	406,25	43,0	3 min	40,0	
187,50	20,0	437,50	45,0	4 min	39,0	Sign.: Truls Brinch
218,75	25,0	468,75	48,0	5 min	38,0	
				6 min	38,0	



01.07

STATOIL

FORMASJONSSTYRKETEST

Dato: 18.11.90

Brønn nr.: 15/12-7S **Dybde:** Brønn: 1823 m Foring: 1797 m Test: 285 bar

Fartøy: DSB **Høyde R.K.B.:** Over vannfl.: 23 m Over sjøb.: 108 m

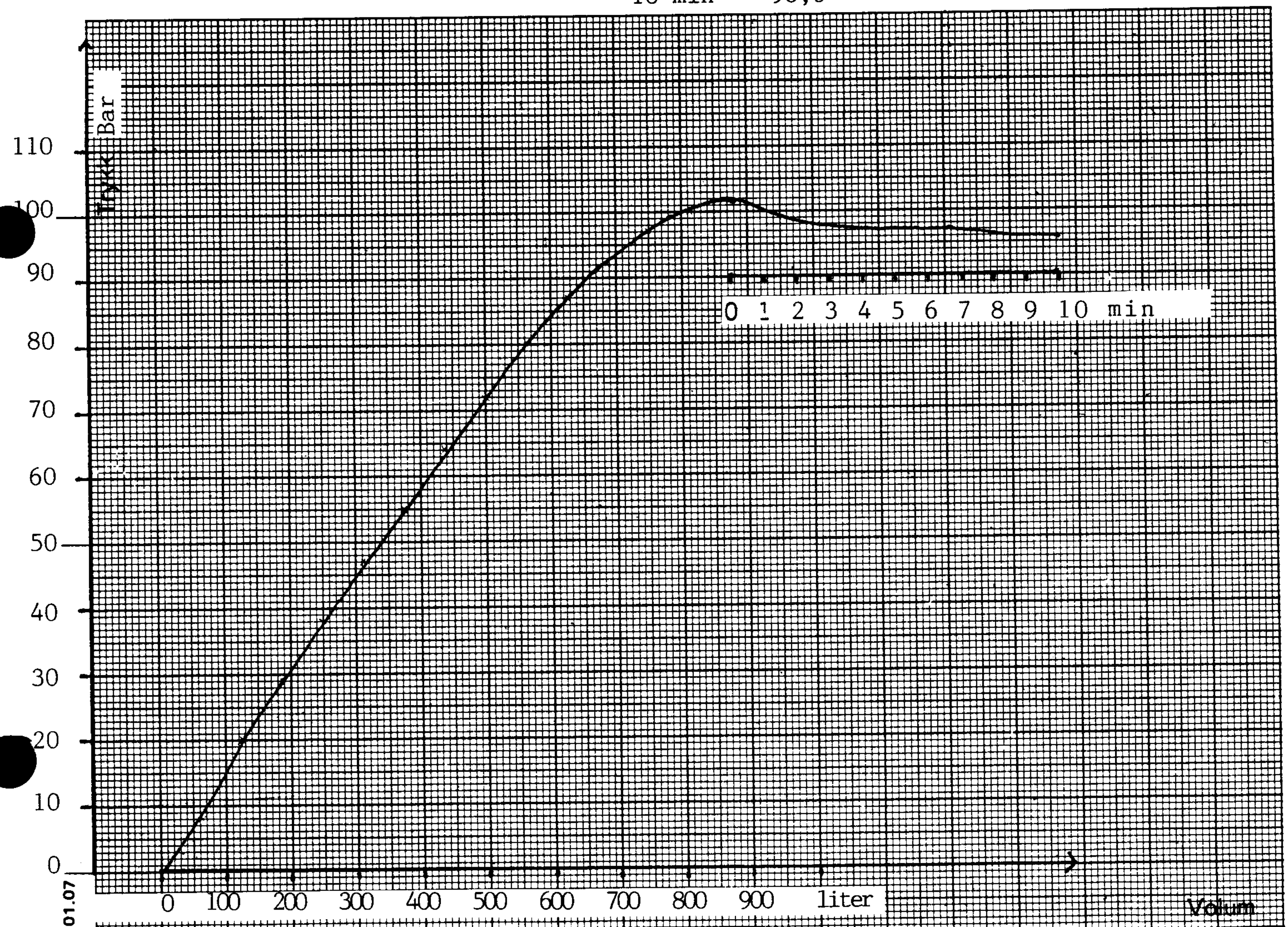
Foring: Diam.: 13 3/8" Tyngde: 72 lbs/ft Grad: P-110 Maks. trykk: 510 bar

Boreslam: Tetthet: 1,35 S.G. Vis: 18 P.V.: 14 Y.P.: 4 Filt: 5,0 Gel.: 1/4

Pumpe: Type: Halib. Kapasitet: 6,25 l/STR Vol./tidsenh.: 80 l/min Tilb.str.: 755 l

Antatt styrke: 1,77 S.G. Obs. spr. trykk: 85 bar Ekv. formasj. styrke: 1.83 S.G.

Volum~~XXX~~	Trykk	Volum~~XXX~~	Trykk	~~XXXXXX~~/tid	Trykk	Anmerkninger
0,0	7	500,0	72	1 min	100,0	
62,5	12	562,5	80	2 min	99,0	
125,0	20	625,0	87	3 min	98,0	
187,5	29	687,5	92	4 min	98,0	
250,0	38	750,0	97	5 min	98,0	
312,5	47	812,5	100	6 min	97,5	
375,0	55	875,0	102	7 min	97,0	Sign.: Truls Brinch
437,5	64			8 min	96,5	
				9 min	96,0	
				10 min	96,0	



01.07

STATOIL

FORMASJONSSTYRKETEST

Dato: 18.12.90

Brønn nr.: 15/12-7S **Dybde:** Brønn: 3.028 m Foring: 3.014 m Test: 300 bar

Fartøy: "DSB" **Høyde R.K.B.:** Over vannfl.: 23 m Over sjøb.: 108 m

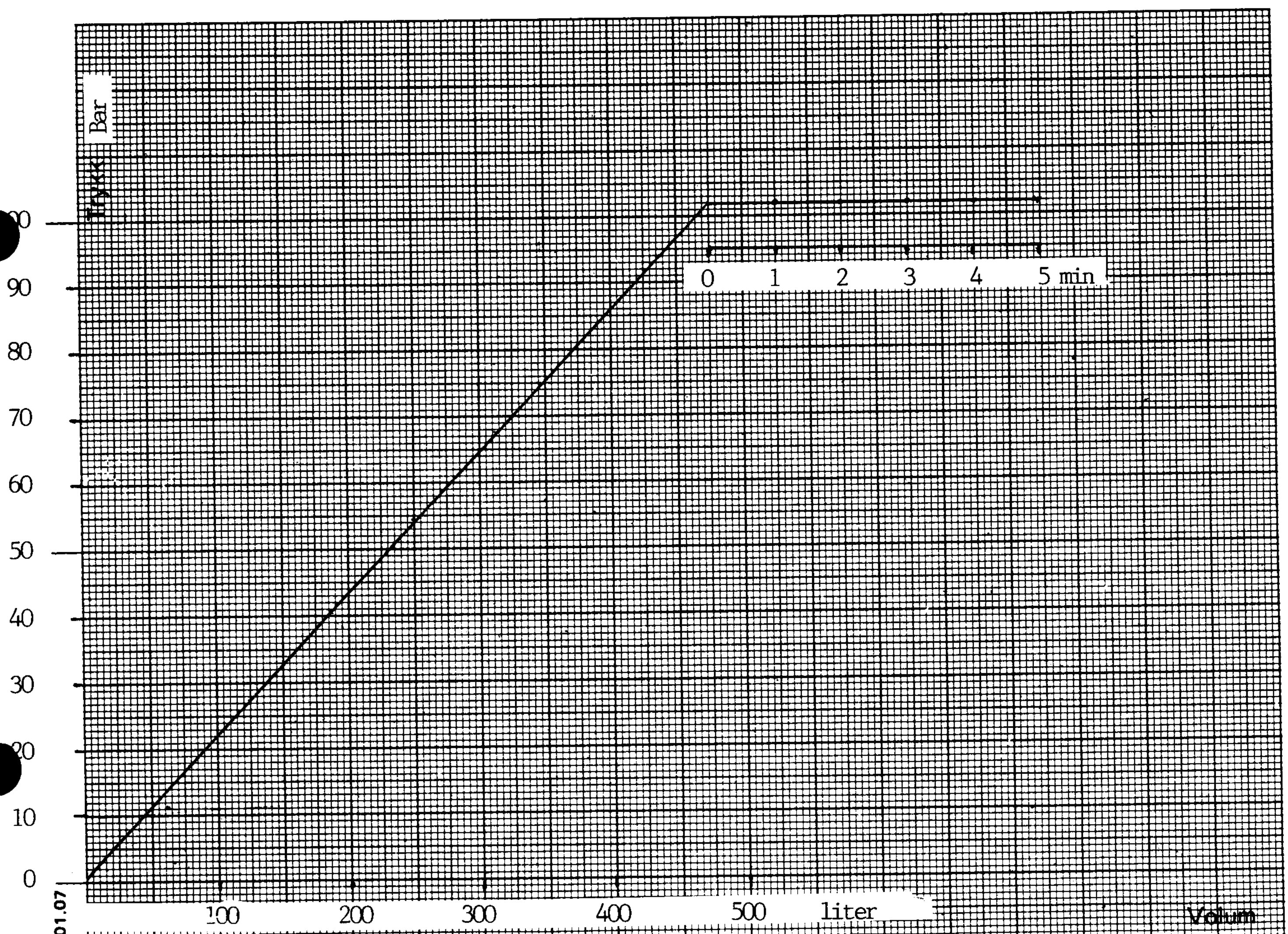
Foring: Diam.: 9 5/8" Tyngde: 53.5 lbs/ft Grad: N-80/CR 13 Maks. trykk: –

Boreslam: Tetthet: 1.30 S.G. Vis: 53 P.V.: 20 Y.P.: 12 Filt: 4 Gel.: 7.5/11.5

Pumpe: Type: Halliburton Kapasitet: 6.25 l/STR Vol./tidsenh.: 40 l/min Tilb.str.: 475 Ltr

Antatt styrke: 1.65 S.G. Obs. spr. trykk: – Ekv. formasj. styrke: 1.65 FIT

Volum/~~tid~~ ltr	Trykk Bar	Volum/tid	Trykk	~~Volum~~/tid min	Trykk Bar	Anmerkninger
62.5	11.0			1 min	102	
125.0	27.5			2 min	102	
187.5	40.5			3 min	102	
250.0	54.5			4 min	102	
312.5	67.5			5 min	102	
375.0	80.5					
437.5	94.0					Sign.: A. Rasmussen
475.0	102.0					



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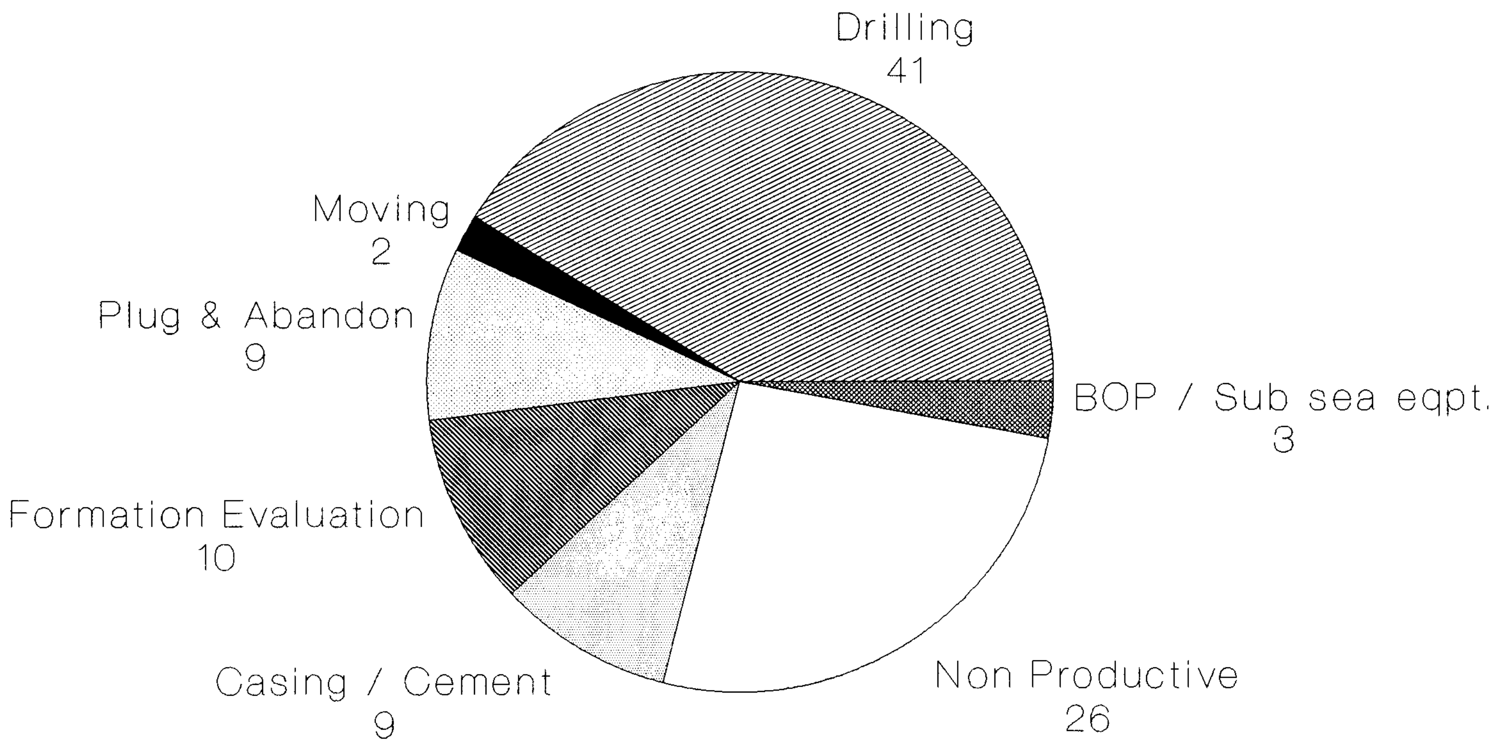
4.6 Rig Time Distribution

15/12-7S
RIG TIME DISTRIBUTION



AEy 910624

STATOIL

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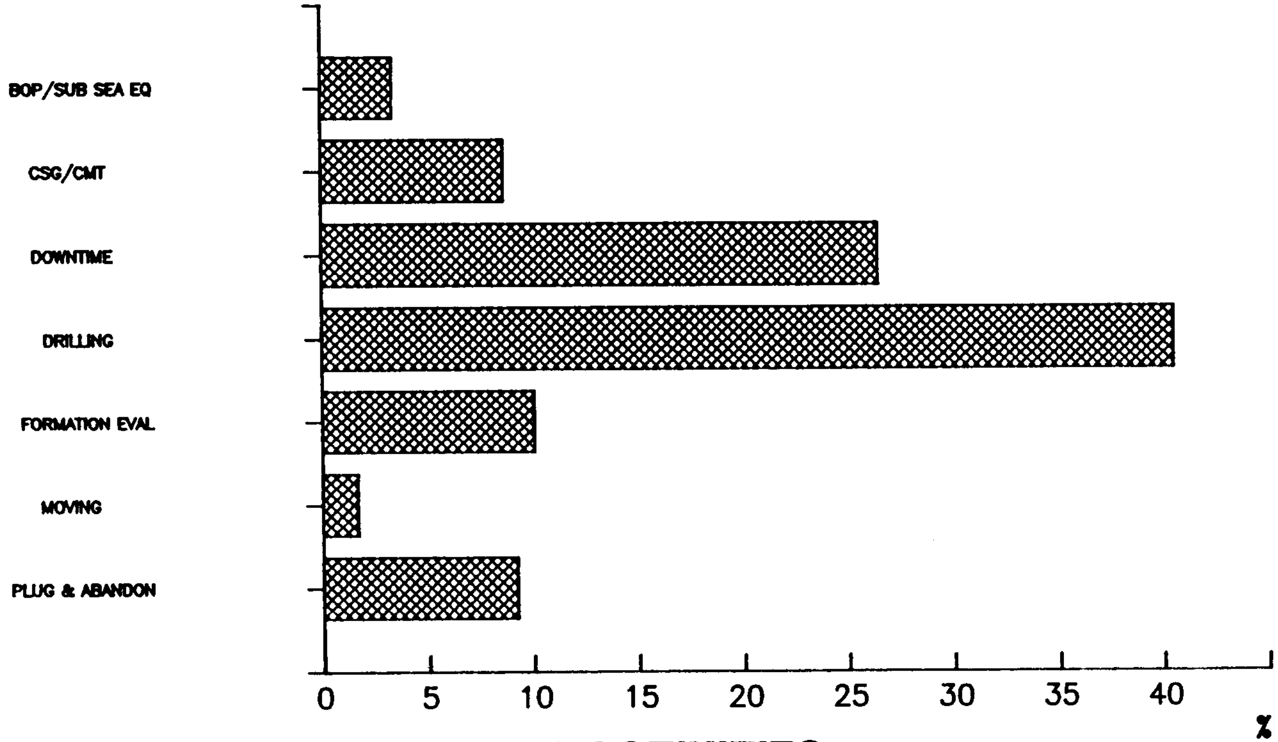
RIG TIME DISTRIBUTION

Well: 0015/12-007S



MAIN ACTIVITIES

R I G T I M E D I S T R I B U T I O N

Well: 0015/12-007S

MAIN-ACTIVITY	SUB-ACTIVITY	HRS.	%
BOP/SUB SEA EQ	BOP	36,0	2,33
	EQUIPMENT	2,0	,13
	OTHER	4,5	,29
	WELLHEAD	9,5	,61
		52,0	3,36
CSG/CMT	CEMENTING	16,0	1,03
	CIRC/COND	32,5	2,10
	DRILL	15,0	,97
	EQUIPMENT	5,5	,36
	OTHER	4,5	,29
	RUN CASING	54,0	3,49
	TEST	,5	,03
	TRIP	2,5	,16
	WELLHEAD	3,5	,23
		134,0	8,66
DRILLING	CIRC/COND	55,5	3,59
	DRILL	373,5	24,15
	OTHER	6,0	,39
	TRIP	192,0	12,42
		627,0	40,54
FORMATION EVAL	CIRC/COND	6,0	,39
	CORE	5,0	,32
	EQUIPMENT	18,5	1,20
	LOG	99,5	6,43
	TEST	3,0	,19
	TRIP	24,0	1,55
		156,0	10,09
MOVING	ANCHOR	20,5	1,33
	TRANSIT	5,0	,32
		25,5	1,65

R I G T I M E D I S T R I B U T I O N

Well: 0015/12-007S

MAIN-ACTIVITY	SUB-ACTIVITY	HRS.	%
PLUG & ABANDON	CEMENT	8,5	,55
	CIRC/COND	15,0	,97
	CUT	32,5	2,10
	MECHANICAL PLUG	7,0	,45
	OTHER	18,0	1,16
	TRIP	62,0	4,01
		143,0	9,25
DOWNTIME	BOP	76,5	4,95
	CIRC/COND	51,5	3,33
	CUT	1,0	,06
	DRILL	44,0	2,85
	EQUIPMENT	26,5	1,71
	FISH	35,0	2,26
	LOG	33,5	2,17
	MAINTAIN/REP	50,0	3,23
	OTHER	26,0	1,68
	SURVEY	1,5	,10
	TRIP	7,5	,48
	WAIT	56,0	3,62
		409,0	26,45
TOTAL		1546,5	100,00

R I G   T I M E   D I S T R I B U T I O N

D O W N T I M E

Well: 0015/12-007S

MAIN-ACTIVITY	SUB-ACTIVITY	HRS.	%
BOP/SUB SEA EQ	BOP	76,5	18,70
	EQUIPMENT	22,0	5,38
CSG/CMT	CIRC/COND	3,0	,73
	EQUIPMENT	4,5	1,10
	OTHER	4,5	1,10
DRILLING	CIRC/COND	1,0	,24
	DRILL	44,0	10,76
	MAINTAIN/REP	50,0	12,22
	OTHER	,5	,12
	SURVEY	1,5	,37
	TRIP	7,5	1,83
	WAIT	43,0	10,51
FISHING	FISH	35,0	8,56
FORMATION EVAL	CIRC/COND	47,5	11,61
	LOG	33,5	8,19
	OTHER	1,5	,37
	WAIT	13,0	3,18
PLUG & ABANDON	CUT	1,0	,24
	OTHER	19,5	4,77
TOTAL		409,0	100,00

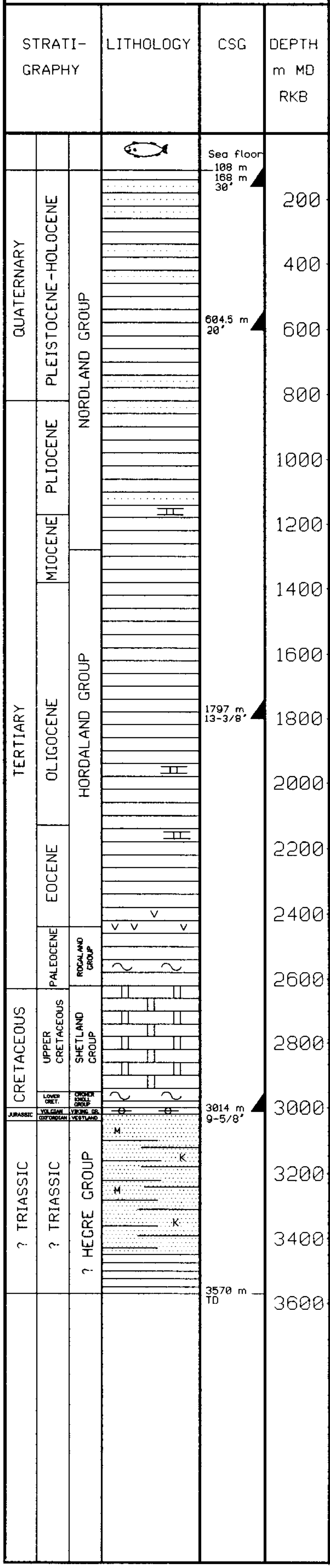
4.7 Bit Record and Lithology Column

Well 15/12-7S

Depth m RKB : 23 m

Water depth : 85 m

BIT RECORD



BIT SIZE	BIT NO	BIT TYPE	DEPTH OUT, M	ROP M/HR	TIME HRS
26"	1	RI	169	17.4	3.5
	1RR	RI	173	4.0	1.0
9 7/8"	3	SD6HC	620	36.5	12.1
17 1/2"	4	MSDGHC	1820	49.6	24.2
12 1/4"	5	R426GN	2026	17.5	11.8
	6	ATMT11H	2498	13.8	34.1
	7	LX301QR	2563	2.5	25.8
	5RR	R426GN	2638	3.1	24.0
	8	FDGHC	2758	7.0	17.2
	9	SMFDS	2768	1.0	9.7
	10	XDV	2835	4.5	14.9
	11	XGG	2917	3.9	21.1
	13	ATM11H	2980	2.3	26.9
	14	ATM22	3027	3.8	12.2
8 1/2"	16RR	X3A	3028	18.0	0.1
	17	SC226	3055	6.1	4.4
	18	HP51AJ	3240	10.2	18.2
	19	F2L	3475	12.4	18.9
	20	ATM22	3570	13.4	7.1

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Print date: 91/02/07

Page: 1

B I T   R E C O R D

Well: 0015/12-007S

Run no.	Bit no.	BHA no.	Bit-Size	UR/ HO	Cutter-type	Bit type	IADC code	Manufacturer	Ser.no.	Nozzle (n/32') n	x no	n	x no	n	x no
1	1	1	26"		MT	R1	1-1-1	HTC	E28BS	20	1	24	2	.	.
			36"	HO	MT			SMITH		16	3	.	.	.	.
2	1RR	2	26"		MT	R1	1-1-1	HTC	E28BS	20	1	24	2	.	.
			36"	HO	MT			SMITH		16	3	.	.	.	.
3	2	3	9 7/8"		MT	SDGHC	1-3-5	SMITH	ME7786	18	3	24	1	.	.
			17 1/2"	HO	MT			SMITH		15	3	21	3	.	.
			26"	HO	MT			SMITH		15	3	.	.	.	.
4	3	4	9 7/8"		MT	SDGHC	1-3-5	SMITH	ME0936	14	4	.	.	.	.
5	3RR	5	9 7/8"		MT	SDGHC	1-3-5	SMITH	ME0936	14	4	.	.	.	.
			17 1/2"	HO	MT			SMITH		15	5	18	1	.	.
			26"	HO	MT			SMITH		15	3	.	.	.	.
6	4	6	17 1/2"		MT	MSDGHC	1-3-5	SMITH	NA8701	16	1	18	2	20	1
7	4RR	7	17 1/2"		MT	MSDGHC	1-3-5	SMITH	NA8701	16	1	18	2	20	1
8	5	8	12 1/4"		PDC	R426GN		EASTMAN	1204421	15	6	.	.	.	.
9	6	9	12 1/4"		TCI	ATMT 11 H	4-3-7	HTC	E03BM	16	1	24	2	.	.
10	7	10	12 1/4"		PDC	LX301QR		D.BOART	7900330	15	5	16	2	.	.
11	5RR	11	12 1/4"		PDC	R426GN		EASTMAN	1204421	20	6	.	.	.	.
12	8	12	12 1/4"		MT	FDGHC	1-3-7	SMITH	XJ 1334	16	1	22	3	.	.

Run no.	Bit no.	Flow-area mm2	Flow-rate l/min	Pump-press bar	----Depth---- In mMD	Out mMD	Made m.	HR. Drlg.	ROP m/hr	--WOB-- Min ton	Max ton	--RPM-- Min	Max	----Condition---- T/8	B/8	Gage red.	Worn %	Remarks
1	1		3700	72	108,0	169,0	61,0	3,5	17,40	2	7	30	117	0	0	0	0	1-1-WT-A-1-1-NO-TD
					108,0	168,0	,0							0	0	0	10	
2	1RR		3700	72	169,0	173,0	4,0	1,0	4,00	2	7	80	117	0	0	0	0	REAMING
					168,0	172,0	,0							0	0	0	0	
3	2		3640	110	173,0	179,0	6,0	2,0	3,00	4	7	60	115	0	0	0	0	PLUGGED WITH CEMENT
							,0							0	0	0	5	
							,0							0	0	0	5	
4	3		2300	120	179,0	620,0	441,0	12,1	36,50	1	6		137	0	0	0	0	2-2-WT-A-1-1-O-TD
5	3RR		3800	125	179,0	620,0	441,0	10,7	41,70	2	8		135	0	0	0	0	OPENED PILOT HOLE
							,0							0	0	0	10	
							,0							0	0	0	10	
6	4		3800	230	620,0	1820,0	1200,0	24,2	49,60	6	35	105	175	2	2	0	0	2-2-WT-A-2-1-NO-TD
7	4RR						,0							2	2	0	0	2-2-WT-A-E-I-NO-TD. WIPERTRIP.
8	5		2750	240	1820,0	2026,0	206,0	11,8	17,50	2	7	120	190	0	0	0	5	2-2-BT-N-X-I-NO-TQ
9	6		2700	290	2026,0	2498,0	472,0	34,1	13,80	10	20	175	270	2	8	0	0	2-2-1BT-H-F-1/32"-WT-RIG
10	7		2960	278	2498,0	2563,0	65,0	25,8	2,50	10	20	90	190	0	0	0	1	1-1-NO-A-X-I-NO-PR
11	5RR		2700	290	2563,0	2638,0	75,0	24,0	3,10	3	31	180	270	0	0	0	60	6-3-RO-N-X-I-BT-PR
12	8		2400	270	2638,0	2758,0	120,0	17,2	7,00	10	14	158	172	2	8	1	0	2-3-SS-A-F-2/16-ST-PR

B I T R E C O R D

Well: 0015/12-007S

Run no.	Bit no.	BHA no.	Bit-Size	UR/ HO	Cutter-type	Bit type	IADC code	Manufacturer	Ser.no.	Nozzle (n/32") n	x no	n	x no
13	9	13	12 1/4"		MT	SMFDS	1-1-6	SMITH	KP5631	22	2	40	1
14	10	14	12 1/4"		MT	XDV	2-1-5	HTC	F-28BM	24	2	28	1
15	11	15	12 1/4"		MT	XGG	1-3-5	HTC	F 74 BA	24	1	28	2
16	12	16	12 1/4"		TCI	ATM 11H	4-3-7	HTC	F04BL	16	3	.	.
17	13	17	12 1/4"		TCI	ATM 11H	4-3-7	HTC	F05BL	16	2	18	1
18	14	18	12 1/4"		TCI	ATM 22	5-1-7	HTC	F16BD	18	3	.	.
19	15	19	12 1/4"		MT	R 7	3-2-1	HTC	E28BB	24	3	.	.
20	15RR	20	12 1/4"		MT	R 7	3-2-1	HTC	E28BB	24	3	.	.
21	16	21	8 1/2"		MT	X3A	1-1-4	HTC	F48BL	16	3	.	.
22	16RR	22	8 1/2"		MT	X3A	1-1-4	HTC	F48BL	16	3	.	.
23	17	23	8 1/2"		TSP	SC-226		CHRISTENSEN	1800490			.	.
24	18	24	8 1/2"		TCI	HP51AJ	5-1-7	REED	MA6247	13	2	16	1

Run no.	Bit no.	Flow-area mm2	Flow-rate l/min	Pump-press bar	----Depth---- In mMD	Out mMD	Made m.	HR. Drlg.	ROP m/hr	--WOB-- Min ton	Max ton	--RPM-- Min	Max	----Condition---- T/8	B/8	Gage red.	Worn %	Remarks
13	9		2400	270	2758,0	2768,0	10,0	9,7	1,03	5	20	175	175	8	8	0	0	8-8-BT-A-F-1/32-SD-PR
14	10		2400	175	2768,0	2835,0	67,0	14,9	4,50	5	20	175	175	4	8	0	0	4-4-CD-M-F-I-WT-TQ
15	11		2600	280	2835,0	2917,0	82,0	21,1	3,89	6	15	150	160	6	8	0	0	7-4-BT,CT-A-F-I-JD,CD-TQ
16	12				2917,0	2917,0	,0							1	1	0	0	1-1-NO-A-E-I-NO-BHA
17	13		2350	265	2917,0	2980,0	63,0	26,9	2,30	10	25	100	180	5	8	0	0	5-5-WT,BT-A-F-1/16-SD,CI-TQ
18	14		2500	265	2980,0	3027,0	47,0	12,2	3,80	20	25	130	150	3	4	0	0	3-3-BT-A-E-I-JD-TD
19	15				3027,0	3027,0	,0							0	0	0	0	
20	15RR				3027,0	3027,0	,0							0	0	0	0	
21	16				522,0	522,0	,0							0	0	0	0	1-1-NO-A-O-I-NO-RIG. TG CMTPLG
22	16RR		2100	249	3027,0	3028,0	1,0	,1	18,00	10	10	108	108	0	0	0	0	3-3-BT-A-4-I-CP
23	17	516,00	1050	110	3028,0	3055,0	27,0	4,4	6,14	7	10	108	108	0	0	0	0	5-6-JD-N-X-I-RO-PR
24	18		1990	300	3055,0	3240,0	185,0	18,2	10,20	5	17	150	155	8	8	0	0	8-8-BC-A-----LN,PP.LOST CONES

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Print date: 91/02/07

B I T   R E C O R D

Well: 0015/12-007S

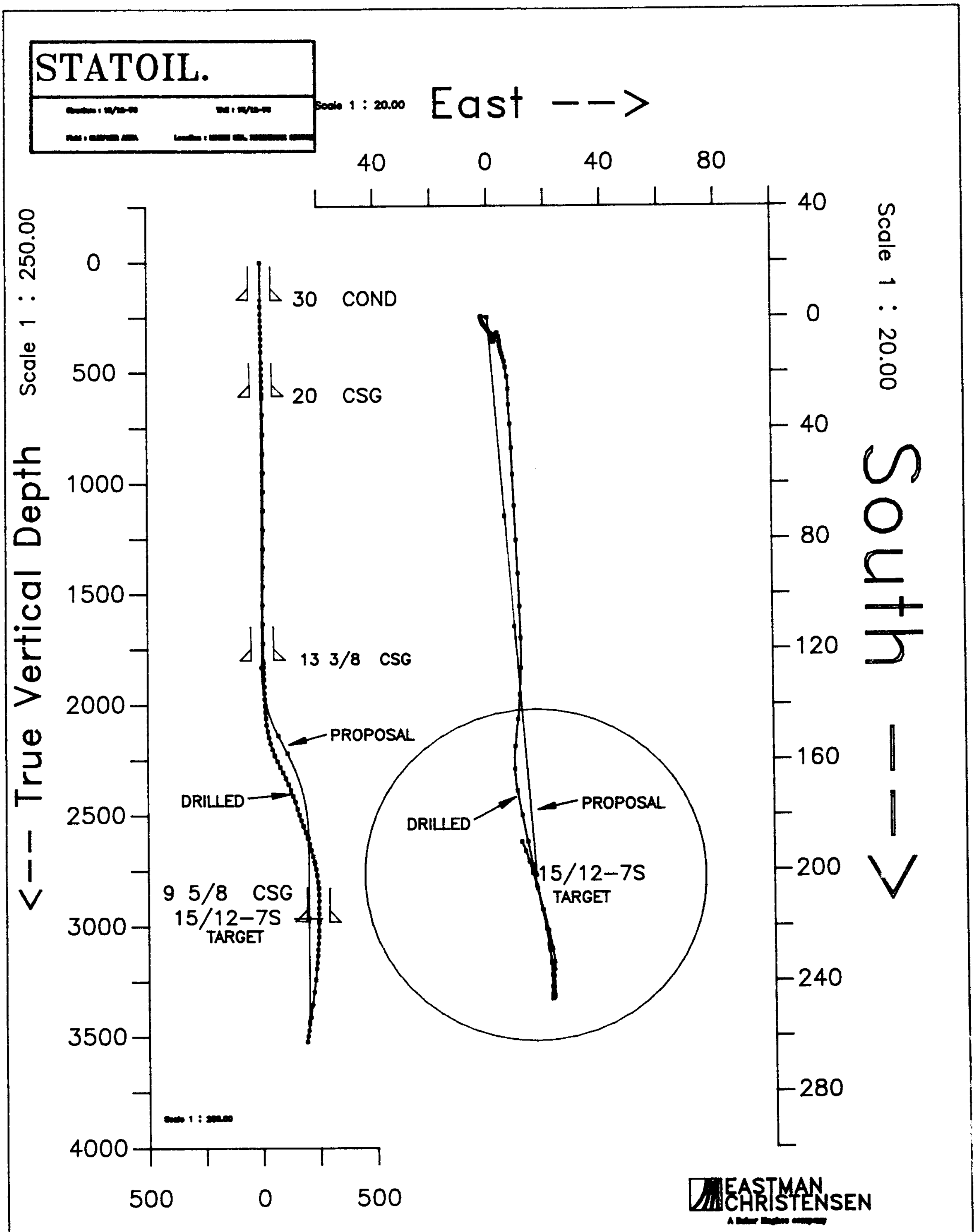
Run no.	Bit no.	BHA no.	Bit-Size	UR/HO	Cutter-type	Bit type	IADC code	Manufacturer	Ser.no.	Nozzle (n/32') n x no		n x no	
25	19	25	8 1/2"		TCI	F2L	5-1-7	SMITH	XJ8192	13	2	16	1
26	20	26	8 1/2"		TCI	ATM-22	5-1-7	HTC	A25PG	14	2	16	1
27	16RR	27	8 1/2"		MT	X3A	1-1-4	HTC	F48BL	16	3	.	.
28	16RR	28	8 1/2"		MT	X3A	1-1-4	HTC	F48L			.	.
29	16RR	30	8 1/2"		MT	X3A	1-1-4	HTC	F48L	16	3	.	.

Run no.	Bit no.	Flow-area mm2	Flow-rate l/min	Pump-press bar	Depth In mMD	Depth Out mMD	Made m.	HR. Drlg.	ROP m/hr	WOB Min ton	WOB Max ton	RPM Min	RPM Max	Condition T/8	Condition B/8	Condition Gage red.	Condition Worn %	Remarks
25	19		2120	299	3240,0	3475,0	235,0	18,9	12,40	14	18	59	64	5	8	0	0	5-5-BT-A-F-0-5-CT-BHA
26	20		1780	255	3475,0	3570,0	95,0	7,1	13,40	12	19	80	98	2	8	0	0	2-3-7BT-H-F-I-NO-TD
27	16RR				3570,0	3570,0	,0							0	0	0	0	3-3-BT-A-4-I-LOG
28	16RR				3570,0	3570,0	,0							0	0	0	0	3-3-BT-A-4-I-NO-LOG
29	16RR						,0							0	0	0	0	TAGGED CMT PLUG

4.8 Pressure and Temperature Profiles

See Pressure and Temperatures in section 3.1

4.9 Directional Survey



Vertical Section on 175.42 azimuth with reference 0.00 N, 0.00 E from structure

STATOIL. DDS
15/12-7S
slot #1
SLEIPNER AREA
NORTH SEA, NORWEGIAN SECTOR

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

Your ref : PMSS <0-3563m.>
Our ref : svy771
Other ref :

Date printed : 7-Feb-91
Date created : 1-Feb-91
Last revised : 4-Feb-91

Field is centred on 439525.900,6430858.700,3.00000,N
Structure is centred on 439525.900,6430858.700,3.00000,N

STATOIL. DDS
15/12-7S15/12,15/12-7S
SLEIPNER AREA,NORTH SEA, NORWEGIAN SECTOR

SURVEY LISTING Page 1
Your ref : PMSS <0-3563m.>
Last revised : 4-Feb-91

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	
0.00	0.00	0.00	0.00	0.00 N	0.00 E	0.00	0.00	
198.00	1.20	279.60	197.98	0.34 N	2.04 W	0.18	-0.51	13-NOV-90 TELECO MWD 17 1/2" HOLE
231.00	1.10	163.20	230.98	0.10 N	2.29 W	1.78	-0.28	
260.00	1.10	163.20	259.98	0.43 S	2.13 W	0.00	0.26	
289.00	1.10	160.40	288.97	0.96 S	1.96 W	0.06	0.80	
317.00	1.00	155.50	316.97	1.44 S	1.77 W	0.14	1.29	
346.00	1.10	154.50	345.96	1.92 S	1.54 W	0.10	1.79	
375.00	1.10	150.60	374.96	2.41 S	1.29 W	0.08	2.30	
404.00	1.10	143.20	403.95	2.88 S	0.98 W	0.15	2.79	
452.00	1.00	140.70	451.94	3.57 S	0.44 W	0.07	3.52	
480.00	1.00	145.00	479.94	3.96 S	0.15 W	0.08	3.94	
509.00	1.10	144.60	508.93	4.39 S	0.16 E	0.10	4.39	
538.00	1.10	146.70	537.93	4.85 S	0.47 E	0.04	4.88	
566.00	1.10	149.90	565.92	5.31 S	0.76 E	0.06	5.35	
595.00	1.30	145.30	594.92	5.82 S	1.08 E	0.23	5.89	
613.00	1.30	145.30	612.91	6.16 S	1.32 E	0.00	6.24	
689.00	0.90	144.30	688.90	7.35 S	2.15 E	0.16	7.50	
776.00	0.20	147.10	775.89	8.03 S	2.64 E	0.24	8.22	
862.00	0.50	200.90	861.89	8.51 S	2.58 E	0.14	8.69	
948.00	0.20	232.90	947.89	8.95 S	2.33 E	0.12	9.11	
1034.00	0.40	314.40	1033.89	8.83 S	2.00 E	0.15	8.96	
1120.00	0.30	239.50	1119.89	8.74 S	1.59 E	0.15	8.84	
1207.00	0.30	47.90	1206.89	8.70 S	1.56 E	0.20	8.80	
1293.00	1.10	29.30	1292.88	7.83 S	2.13 E	0.29	7.97	
1377.00	0.30	13.50	1376.87	6.91 S	2.58 E	0.29	7.10	
1464.00	0.60	37.40	1463.87	6.33 S	2.91 E	0.12	6.54	
1550.00	0.50	36.50	1549.87	5.67 S	3.40 E	0.04	5.92	
1635.00	0.50	169.60	1634.86	5.74 S	3.69 E	0.32	6.01	
1722.00	1.30	157.30	1721.85	7.02 S	4.14 E	0.28	7.33	
1809.00	0.80	182.60	1808.84	8.54 S	4.49 E	0.23	8.87	
1829.00	0.90	191.00	1828.84	8.83 S	4.46 E	0.24	9.16	17-NOV-90 TELECO MWD 12 1/4" HOLE
1855.00	1.50	175.20	1854.83	9.37 S	4.45 E	0.78	9.69	
1884.00	1.90	168.90	1883.82	10.22 S	4.57 E	0.46	10.55	
1916.00	2.00	169.90	1915.80	11.29 S	4.77 E	0.10	11.63	
1946.00	2.20	164.30	1945.78	12.36 S	5.02 E	0.29	12.72	
1973.00	2.50	165.00	1972.76	13.43 S	5.31 E	0.33	13.81	
2002.00	2.60	164.00	2001.73	14.67 S	5.66 E	0.11	15.08	
2031.00	3.20	165.40	2030.69	16.09 S	6.04 E	0.62	16.52	
2060.00	5.40	171.70	2059.61	18.22 S	6.44 E	2.32	18.68	
2089.00	7.50	169.90	2088.42	21.43 S	6.97 E	2.18	21.92	
2118.00	10.10	179.40	2117.08	25.84 S	7.33 E	3.07	26.34	
2147.00	12.70	178.00	2145.51	31.57 S	7.47 E	2.70	32.06	
2175.00	16.30	175.90	2172.61	38.57 S	7.86 E	3.90	39.07	
2204.00	18.30	177.70	2200.30	47.18 S	8.33 E	2.14	47.69	
2232.00	21.50	177.70	2226.62	56.70 S	8.71 E	3.43	57.21	
2261.00	24.40	177.30	2253.32	67.99 S	9.21 E	3.00	68.51	
2290.00	26.60	177.70	2279.50	80.47 S	9.75 E	2.28	80.99	
2318.00	25.00	177.00	2304.70	92.64 S	10.31 E	1.74	93.17	
2347.00	23.60	178.00	2331.14	104.56 S	10.84 E	1.51	105.09	
2376.00	23.20	178.40	2357.75	116.07 S	11.20 E	0.44	116.60	
2405.00	20.30	182.20	2384.68	126.81 S	11.16 E	3.33	127.30	
2433.00	19.50	182.90	2411.01	136.33 S	10.74 E	0.89	136.76	
2461.00	17.90	186.50	2437.53	145.28 S	10.02 E	2.11	145.61	
2494.00	16.80	185.40	2469.03	155.06 S	9.00 E	1.04	155.29	
2522.00	17.20	177.30	2495.81	163.23 S	8.81 E	2.57	163.41	
2548.00	18.50	170.60	2520.56	171.14 S	9.66 E	2.80	171.36	
2576.00	19.10	168.20	2547.07	180.01 S	11.33 E	1.05	180.34	

All data is in metres unless otherwise stated
Coordinates are from structure and TVDs are from rkb.
Vertical section is from wellhead on azimuth 175.42 degrees.
Calculation uses the minimum curvature method.

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
2606.00	19.00	168.50	2575.43	189.60 S	13.30 E	0.14	190.05
2633.00	18.30	169.60	2601.01	198.07 S	14.94 E	0.87	198.63
2662.00	16.50	168.50	2628.68	206.59 S	16.59 E	1.89	207.25
2690.00	15.00	167.80	2655.63	214.03 S	18.15 E	1.62	214.79
2719.00	13.70	169.60	2683.72	221.07 S	19.56 E	1.42	221.93
2743.00	12.70	172.70	2707.09	226.48 S	20.41 E	1.53	227.39
2749.00	12.50	172.00	2712.94	227.78 S	20.58 E	1.26	228.70
2753.00	12.20	172.70	2716.85	228.63 S	20.70 E	2.51	229.55
2777.00	9.90	175.60	2740.40	233.20 S	21.18 E	2.96	234.15
2805.00	8.70	177.20	2768.04	237.72 S	21.46 E	1.32	238.67
2836.00	7.00	181.50	2798.74	241.95 S	21.53 E	1.74	242.90
2864.00	4.50	178.00	2826.60	244.75 S	21.52 E	2.70	245.69
2893.00	1.30	180.80	2855.56	246.22 S	21.56 E	3.31	247.15
2923.00	0.90	37.50	2885.56	246.37 S	21.70 E	2.09	247.32
2953.00	0.90	35.60	2915.56	245.99 S	21.98 E	0.03	246.96
2980.00	0.70	31.80	2942.55	245.68 S	22.19 E	0.23	246.67
3009.00	0.60	1.20	2971.55	245.38 S	22.28 E	0.37	246.37
3020.00	1.20	350.60	2982.55	245.21 S	22.27 E	1.69	246.20
3055.00	1.80	352.00	3017.54	244.30 S	22.13 E	0.52	245.29
3083.00	2.40	357.30	3045.52	243.28 S	22.04 E	0.68	244.26
3113.00	3.10	0.80	3075.48	241.84 S	22.02 E	0.72	242.83
3142.00	3.70	1.90	3104.43	240.12 S	22.07 E	0.62	241.12
3169.00	4.40	3.60	3131.36	238.22 S	22.16 E	0.79	239.23
3200.00	5.20	2.90	3162.26	235.63 S	22.30 E	0.78	236.66
3228.00	5.60	357.30	3190.13	233.00 S	22.30 E	0.71	234.03
3277.00	6.20	348.20	3238.87	228.02 S	21.65 E	0.68	229.02
3335.00	6.90	347.10	3296.49	221.56 S	20.23 E	0.37	222.46
3393.00	8.30	345.70	3353.98	214.10 S	18.42 E	0.73	214.89
3451.00	9.20	345.00	3411.31	205.57 S	16.19 E	0.47	206.20
3481.00	9.00	344.00	3440.93	201.00 S	14.92 E	0.25	201.54
3510.00	8.50	342.50	3469.59	196.77 S	13.65 E	0.57	197.23
3537.00	8.30	340.40	3496.30	193.03 S	12.40 E	0.41	193.40
3563.00	7.60	337.60	3522.05	189.67 S	11.11 E	0.92	189.96

All data is in metres unless otherwise stated
Coordinates are from structure and TVDs are from rkb.
Vertical section is from wellhead on azimuth 175.42 degrees.
Calculation uses the minimum curvature method.

Comments in wellpath

MD	TVD	Rectangular Coords.		Comment
198.00	197.98	0.34 N	2.04 W	13-NOV-90 TELECO MWD 17 1/2" HOLE
1829.00	1828.84	8.83 S	4.46 E	17-NOV-90 TELECO MWD 12 1/4" HOLE

Casing positions in string 'A'

Top MD	Top TVD	Rectangular Coords.		Bot MD	Bot TVD	Rectangular Coords.		Casing
0.00	0.00	0.00N	0.00E	168.00	167.99	0.25N	1.47W	30" COND
0.00	0.00	0.00N	0.00E	605.40	605.31	6.02S	1.22E	20" CSG
0.00	0.00	0.00N	0.00E	1797.00	1796.84	8.36S	4.49E	13 3/8" CSG
0.00	0.00	0.00N	0.00E	3013.70	2976.25	245.32S	22.28E	9 5/8" CSG

All data is in metres unless otherwise stated
Coordinates are from structure and TVDs are from rkb.
Vertical section is from wellhead on azimuth 175.42 degrees.
Calculation uses the minimum curvature method.

4.10 Drilling Fluid Summary

4.10 Drilling Fluid Summary

While drilling the well all the three mud systems spud-mud, gypsum polymer and lignosulphonate mud worked properly.

In the 8 1/2" section it was difficult to complete the logging program due to mud problems. The lignosulphonate mud was gelling up with high temperature and Ancotemp should have been added to the mud earlier.

SUMMARY OF EVENTS
STATOIL - DEEP SEA BERGEN
WELL 15/12-7S- 36" HOLE SECTION

The spud in was done with a 26" bit and a 36" hole opener. The 36" hole was drilled to 173 m, and the conductor was set at 168.

The hole was drilled using seawater, pumprate approximately 4000 l/min, with returns to the seabed. On every connection a hi-vis bentonite pill was pumped (funnel viscosity +- 100 sec). At TD the hole was circulated clean with seawater and displaced to gel mud. A wiper trip to seabed was done and another 40 m^3 gel mud was pumped in the hole.

A total of 224 m^3 mud was mixed, 216 m^3 being gelmud and 8 m3 being barite for killmud.

68 m^3 mud was left over from the previous well. 11 m^3 of this was dumped before weighting up to 1.65 SG with barite (8 m^3 built). Final volume kill mud being 65 m^3 at 1.65 SG.

18 m^3 gelmud was left over to the next section.

Chemical concentrations in the gel mud, calculated as follows:

Bentonite	2900 kg/216 m^3	=	134 kg/m^3
Soda Ash	400 kg/216 m^3	=	1.85 kg/m^3

SUMMARY OF EVENTS

STATOIL - DEEP SEA BERGEN

WELL 15/12-7S - 26" HOLE SECTION

The 26" section was drilled without use of riser. Drilled shoe at 168 m and new formation to 179 m using 9 7/8" bit and 26" hole opener. A 9 7/8" pilot hole was then drilled down to 620 m using seawater. The hole was swept with 2 m^3 hi-vis CMC mud every half stand. A possible shallow gas zone was drilled with 1.1 SG CMC mud from 420 m to 460 m at 20 m/hr, pumprate 2.2 m^3/min. 290 m^3 mud was used for this operation. 260 m^3 was made in advance. The rest needed to be mixed while drilling due to lack of space. Placed 50 m^3 1.1 SG CMC mud at bottom before logging 9 7/8" pilot hole.

The hole was opened to 26" with seawater. Again swept with 2 m^3 CMC mud every half stand. Prior to drilling, 65 m^3 1.65 SG killmud was prepared using mud from the previous well. This mud was diluted back to 1.24 SG with seawater/CMC and placed in the hole before running casing.

<u>Mud Properties/Concentration:</u>

	Mud	Recommended
Weight, SG	1.1	1.1
Viscosity, sec	60	
PV	15-19	
YP, Pa	4.5-6	5-8
pH	9.4-10	7.5-8.5
CMC, kg/m^3	11-12	8
Soda Ash, kg/m^3	0.5	0.5

It was needed to mix 11-12 kg/m^3 CMC to achieve desired viscosity.

83 m^3 gel mud was left from the 36" section. This was used to clean the rathole. 599 m^3 new CMC mud was built. Total losses to seabed was 632 m^3 including 83 m^3 gel mud. The rest, 50 m^3 CMC mud was carried over to the 17 1/2" section for cleaning the rathole.

No problems were encountered during this interval.

SUMMARY OF EVENTS

STATOIL - DEEP SEA BERGEN

WELL 15/12-7S - 17 1/2" HOLE SECTION

GENERAL

The 17 1/2" hole was drilled from 620 m to 1820 m using a gyp/polymer mud with mud weight starting at 1.20 SG and ending up at 1.35 SG. The hole was drilled to TD in 42 hours, which gives an average of 29 m/hr.

Instantaneous ROP was in the range of 50-60 m/hr. The main problem during this section was the shaker performance. This will be discussed later. The gumbotrap worked well, but when gumbo balls came across, the dumping line (same line as for shakers) was blocked a few times. Also the flowline was blocked once.

While drilling from 1550 m to 1600 m the mud weight was increased to 1.30 SG. At TD it was further increased to 1.35 SG. The hole was then backreamed to the shoe. While reaming a 50 % dilution were done to ensure that a good mud was left in the hole. At the shoe the hole was circulated clean at a high pumprate. Lots of gumbo were lifted out of the hole.

The SWC log failed to pass 518 m (87 m above the shoe). A wiper trip was done. Tight spots were back reamed at 1690 m - 1687 m, 1610 m - 1605 m and 1590 m - 1576 m. Another attempt to run SWC was done. Unable to pass 1037 m. The casing was run and cemented without losses. 50 m^3 mud treated with 7 kg/m^3 Ironite Sponge were pumped ahead of the cement. This was a deviation from the mud program since it was mixed in the gyp/polymer mud and not in a bentonite mud. 15 m^3 water and 90 m^3 cement slurry were then pumped and displaced.

MUD HISTORY

A new mud was mixed for this section. During the first 6 to 8 hours the shaker losses were extremely high. Premix was mixed with lower viscosity to reduce the losses. This was done by changing the SL/Reg ratio, but keeping the same total concentration. This ratio was later adjusted to give a 5+ Pa YP. From the start the premix was weighted to 1.20 SG. Later it was added unweighted. Despite of heavy dilution to control the MBT, the weight stayed at 1.20 - 1.22 SG.

The Gyp concentration in the premix was increased from initially 14 kg/m^3 to 16 kg/m^3 to keep the excess gyp around 5.

PROPERTIES

	Recommended	Start	While Drilling
Mud Weight, SG	1.15 - 1.31	1.20	1.20 - 1.30
YP, Pa	5 - 8	5	4.5 - 6
YP/PV	0.45	0.3	0.3 - 0.35
Fluid Loss, ml	4-6	7	4.5 - 6
pH	7.5 - 8.5	8.9	8 - 8.2
MBT, kg/m^3	60	0	50 - 60
Ex Gyp, kg/m^3	5 - 7	6	5 - 7

CONCENTRATIONS

	Start	End	Premix
Barite	253	342	0 - 385
Celpol SL	6.41	7.9	5.5 - 8
Celpol Reg	3.75	2	3.5 - 2
Gyp	13.7	16.3	14 - 16.3
Ancocide	0.37	0.2	0.2 - 0.4
Lime	0.18	0.4	0.4

To minimise heavy losses when starting drilling with fresh mud, we recommend to start off with lower viscosity in future wells (YP 3-4 Pa). After 6 to 8 hours drilling, the YP can be increased to 5 - 8 Pa. It will also help to shear the mud before use. This rig has good shearing equipment.

Regarding to problems with logging it is reasonable to ask if the hole cleaning was good enough. Perhaps it had been better to keep the YP in the range of 6-8 Pa instead of 5 - 6 Pa.

SOLIDS CONTROL

Shaker

We started off with 20/52, 8/52, 8/40 mesh screens, but changed to 3 x 8/40 mesh after a short period of time. The losses were still in the range 20-30 m^3/hr. After 6 hours drilling the shakers losses started to decrease due to sheared polymers and reduced viscosity. The cuttings also became slightly firmer and started to climb up the screens. From this point of, the screens were gradually changed to 20/52. At TD the motor on shaker no 1 broke down. Back reaming and wiper tripping were done with two shakers.

Mud Cleaner

The mud cleaner was run as a desilter until the mud weight was increased to 1.30 SG, then as a mud cleaner. It was dressed with 150 mesh screens from the start, but later changed to 200 mesh.

Centrifuge

The centrifuge was run for two hours before it was plugged up. It was cleaned and made ready for the 12 1/4" section while logging.

VOLUME DISTRIBUTION

50 m^3 CMC mud was carried over from the 26" section and used for rat hole cleaning, and then dumped.

A total of 1516 m^3 new gyp/polymer mud was mixed. 381 m^3 mud was carried over to the 12 1/4" section. 717 m^3 was dumped, 409 m^3 lost on surface and 59 m^3 left in hole between casings.

For this hole drilled from 620 m to 1820 m, m^3 mud mixed pr meter drilled is 1.26.

SUMMARY OF EVENTS

STATOIL - DEEP SEA BERGEN

WELL 15/12-7S - 12 1/4" HOLE SECTION

DRILLING OPERATION

After drilling cement, shoe and three meters of new formation a "leak off test" performed at 1823 m indicated an equivalent mud weight of 1.83 SG. Drilling continued to 1830 m at which point the well was "kicked off". Immediately the mud weight was increased to 1.45 SG by 1907 m. Due to the inability to build the required hole angle a trip became necessary at 2026 m, at this point the mud weight had again been increased to 1.50 SG. On running back in the hole appromixmately 20 m^3 of fill were obtained.

Mud weight was again increased to 1.60 SG by 2235 m whilst drilling with the new bit to 2471 m. At this point replacement of a mud pump fluid end required a trip to the shoe. No fill was observed on running back in the hole. Drilling continued to 2498 m when the pipe was tripped out of the hole to renew the bit.

This bit was pulled at 2563 m and several tight spots were observed. A run bit was run and drilled to 2638 m. ON this tip the hole was in good condition. Drilling continued to 2758 m for a bit change, and another one at 2768 m. The next bit drilled to 2917 m.

A new bit was run and continued drilling to 3027 m where a drilling break was recorded and bottoms ups circulated. While pulling out of hole, the drill string became stuck at 2703 m. An Imco Spot/Pipelax pill was pumped and after working the pipe, the string was free but stuck again at 2720 m. A HCl pill was spotted. The drill string came free with right hand torque and downwards weight and pulled out of hole.

A new BHA, with roller reamers and less drill collars was run, and the hole reamed to TD. The drill string was POOH and logging began.

Logging was successfully completed. A wiper trip to TD was made, and the 9 5/8" casing run and cemented without any problems.

The riser was then displaced to seawater, due to deteriorating weather conditions, and the BOP unlatched and hang off.

MUD PROPERTIES

This interval was drilled with the same Gyp/Polymer system as had been used on the previous 17 1/2" hole. Prior to drilling out the cement the mud system was treated with 2.5 kg/m^3 of Sodium Bicarbonate to minimise the pH effects on the polymer. Drilled cement was fine and of good quality; it had very little effect on the mud properties which remained fairly stable. At one point a maximum pH of 11.4 was observed and a fluid loss check on this sample did, in fact, give a value of 16.0 mls indicating considerable breakdown of the polymer at high alkalinity values (a pilot test was run, prior to drilling the cement, to note the effect of increasing pH, polymer performance; little change in fluid loss was noticed until a pH of above 10.5 was reached, above which the polymers appear to rapidly breakdown with large increase in waterloss).

With the exception of MBT and ten minute gels, the mud properties remained very stable throughout the drilling of the tertiary claystones. Initial concentrations of polymer was +- 10.0 kg/m^3 of mud. As drilling continued and more open hole became exposed , the concentrations of polymers in the premix was increased to +- 12.0 kg/m^3 to maintain properties.

By the time the bottom of the tertiary claystones had been reached (about 2570 m) higher bottom hole temperatures necessitated an increase in the polymer concentration in the premix to +- 15.0 kg/m^3. Even so, the API fluid loss was difficult to get below 5.0 mls. However once out of the claystone and into the cretaceous formations, it came down to between 3 and 4 mls indicating a significant contribution to overall fluid loss from the drilled chalk solids; an even more significant drop in HTHP fluid loss was seen from +- 30 mls down to +- 20 mls.

Gel strengths which were low (4 pascals - 10 mins) at the beginning of this 12 1/4" section soon increased as more of the claystone was drilled reaching a maximum of 20 pascals (10 mins). However, although rather high it was a very fragile gel and not indicative of high solids. At all times the mud "looked" good and fluid. It was probably the initially low 10 minute gel which led to the 20 meters of fill on the first trip out of the hole, since no fill was seen on subsequent trips when 10 minute gels had increased.

MBT values increased from +- 50 kg/m^3 at the beginning of this section to +- 60 kg/m^3 maximum. It was kept at this value by continus use of the centrifuge and by additions of polymer premix. Dilution rates were quite high during drilling of the clays but this was mainly due to replenishing fluid (volume) lost by the centrifuge. Initially dilution rates were +- 3.5 m^3/hr but had decreased to +- 2.5 m^3/hr by the time the bottom of the claystones had been reached. Once out of the claystones and into the limestone use of the centrifuge reduced MBT to +- 50 kg/m^3 at which point it was maintained. It was not considered prudent to reduce MBT further than this since the yield point at this MBT value was only 5 Pascals. Even so some Celpol Regular had to be added to the active system to maintain this value and ensure adequate hole cleaning.

Excess gyp was maintained at between 7 - 9 kg/m^3 until the clays had been drilled after which it was allowed to decrease in value to between 4 - 5 kg/m^3.

All in all this Gyp Polymer mud performed exeptionally well, remained very stable and did not give any major problems.

SUMMARY OF EVENTS

STATOIL - DEEP SEA BERGEN

WELL 15/12-7S - 8 1/2" HOLE SECTION

The old gyp mud was used to drill the cement, shoe and rat hole after which it was displaced by the new gel lignosulphonate mud at 1.30 SG. A formation integrity test was carried out after drilling one meter of new hole, and this gave an equivalent mud density of 1.65 SG. A core (the only one) was immediately cut from 3028 m to 3055 m after which a single bit run was made to the initial TD of 3240 m. No problems were observed during this short interval length, but a subsequent log run was unable to pass 3160 m. A wiper trip was made, but it was decided to drill ahead to 3475 m. at which point a trip out of the hole was made to pick up the MWD logging tool. The hole was logged from 3200 m to 3475 m and a further 95 m of hole drilled to reach a new TD of 3570 m.

Electric logs were run. The caliper log reached bottom and indicated good hole conditions with minimal filter cake build up. However following logging tools would not reach bottom and were found to be covered with thich mud when at surface. It appeared that a mud problem existed under static bottom hole conditions, and xa wiper trip was made. A concentrated premix of thinners was added to the system to prevent high temperature gellation.

Bad weather necessitated "hanging off" for about 12 hours, but highly viscous mud was still evident on going back in the hole and circulating. At this point it was decided to add 1 ppb of Ancotemp to the mud. This improved the mud and so the logging program continued.

The FMT tool become stuck at 3202 m but was worked free after 5 hours. Two more logs were successfully run, the dipmeter and the VSP. Another wiper trip was made and a further 0.5 ppb Ancotemp added to the system. The FMT tool again become stuck. This time at 3425 m, but was unable to be worked free. Drill pipe was stripped into the hole over the wireline in an attempt to retrive the fish, but the wire broke when the drill pipe was 420 m above the fish. The FMT tool plus wire was pushed to the bottom of the hole and the final logging run (side wall cores) made.

It was decided not to test the well but to plug and abandon. Open ended drill pipe was run in the hole and the hole conditioned prior to cementing. Plug no 1 was set from 3550 m to 3340 m, plug no 2 from 3335 m to 3110 m and the final plug from 3105 m to 2900 m. The mud was reverse circulated after the first two plugs and circulated the long way after the third. Some cement was obtained at surface but mostly water (spacers). Some mud contamination was evident and this was treated with Sodium Bicarbonate and Lignosulphonate.

Casing (9 5/8") was then cut at 1575 m and an attempt made to circulate the 13 3/8" x 9 5/8" annulus without success.

MUD

Initial mud was made up as per program with the following concentrations per cubic meter:

Resin	7.54 kg
Lignite	9.50 kg
Desco	0.87 kg
Spercell	4.12 kg
Lime	1.17 kg
Soda Ash	1.88 kg
MBT	57.0 kg

As drilling continued, the mud properties were maintained as per program, with the addition of premix so that by the end of the 8 1/2" section the concentrations were:

Resin	6.84 kg
Lignite	11.63 kg
Desco	1.86 kg
Spercell	14.82 kg
Lime	4.53 kg
Soda Ash	5.37 kg
MBT	65.0 kg

During drilling operations it was noted that fairly high funnel viscosities were obtained, +- 120 secs after trips but as these normally broke back very quickly (in about 2 circulations) not much concern was attached to it, especially as mud properties were good and no hole problems were being experienced. It was realised a mud problem existed under státic bottom hole conditions.

Static high temperature aging tests were carried out on active mud both before and after additions of Ancotemp and following results were obtained:

	Active mud	After aging (A)	After aging (A+1ppb Ancotemp)	After aging (A+1.5ppb Ancotemp)
pH	9.5	6.7	7.1	6.8
API	3.9	6.7	5.2	4.6
600	70	158	105	83
300	39	97	64	49
PV	31	61	41	34
YP, pa	4	18	11.5	7.5
200	29	76	50	36
100	17	52	31	22
6	4	20	5	5
3	3	18	4	4
10" gel,pa	2	11	2.5	3
10' gel,pa	8.5	47	29	27
30' gel,pa	15	55	40	33

As can be seen the addition of 1.5 ppb of Ancotemp considerably helped to reduce high temperature gellation. Based on these results 1.5 ppb was added to the active system during the logging operations to improve mud condition under static bottom hole conditions.

Recommendations for future wells:

1. Addition of 1 ppb of Ancotemp on initial mud "make up" and increasing concentration to between 1.5 ppb and 2 ppb by logging point.

TOTAL MATERIAL COST AND CONSUMPTION

OPERATOR: STATOIL   RIG: DEEPSEA BERGEN   WELL: 15/12-7

PRODUCT	UNIT SIZE	UNIT COST NOK	USED	COST NOK
BARITE	M.T.	645,00	1192	768.840,00
BENTONITE	M.T	1.716,00	65	111.540,00
SODA ASH	KG	2,31	2820	6.514,20
CMC EHV	KG	14,56	6975	101.556,00
LIME	KG	1,56	3460	5.397,60
IRONITE SPONGE	KG	24,77	341	8.446,57
GYPSUM	KG	1,62	33475	54.229,50
ANCOCIDE	KG	16,22	825	13.381,50
CELPOL LV	KG	32,28	22250	718.230,00
CELPOL REG	KG	32,28	6825	220.311,00
SOD. BICARB	KG	3,31	2000	6.620,00
DESCO CF	KG	19,68	806	15.862,08
DRISPAC SLo	KG	35,85	1543	55.316,55
IMCOSPOT	KG	35,44	4560	161.606,40
PIPELAX	LTR	29,18	1600	46.688,00
BENTONITE	KG	2,16	2100	4.536,00
DEFOAMER	KG	15,55	50	777,50
SPERCELL FE	KG	3,77	6975	26.295,75
CAUST. LIGNITE	KG	3,89	4925	19.158,25
ANCORESIN	KG	12,46	3000	37.380,00
ANCOTEMP	KG	90,37	1525	137.814,25
CAUSTIC SODA	KG	3,69	25	92,25
TOTAL COST				2.520.593,40

L MUD VOLUME DISTRIBUTION SUMMARY

All volumes in m^3

Well: 15/12-7 Rig: Deep Sea Bergen

Hole Size	Hole from-to	Hole length	Mud/brine built/RCVO m^3 68 **	Dumped/ sub surface loss m^3	Lost to formation m^3	Lost over solids control equipment m^3	Mud left between csg/csg m^3	Cuttings volume drilled m^3	Mud transf. to next sec	Mud type used for interval
36"	108-173 m	65 m	224	11	198 *	0	0	40	83	Seawater/ Bentonite slugs
26"	173-620 m	447 m	599	0	632 *	0	0	153	50	Seawater/ CMC EHV
17 1/2"	620-1820 m	1200 m	1516	717	0	409	59	186	381	Gyp/PAC
12 1/4"	1820 - 3027 m	1207 m	1164	377	0	891	37	92	240	Gyp/PAC
8 1/2"	3027- 3570 m	543 m	475	289	0	104	0	20	322	Gel/polym Ligno
P & A	-	-	63	283	0	13	89	-	0	Gel/polym Ligno

** Mud left over from previous well * Returns to seabed

Totals: Safemul OBM		m^3
Mud/Brine built/RCVD	4041	m^3
Mud/Brine dumped	1677	m^3
Mud/Brine lost to formation	0	m^3
Mud/Brine lost over solids control equipment	1417	m^3
Mud/Brine left between csg/csg	96	m^3

Total Mud/Brine left in hole/+ between csg/csg:	185	m^3
Total Mud/Brine to sea:	3924	m^3
Total cuttings volume drilled:	491	m^3

STATOIL WELL NO. 15/12-7 DEEPSEA BERGEN

DRILLING MUD PROPERTIES RECORD

MUDSYSTEM: SW/GEL SLUGS SECTION: 36"

DAY No.	DATE 1990	DEPTH mtrs.	HOLE SIZE inch	M.W. S.G.	F.V. s/qt	600	300	200	100	60	30	6	3	A.V. cps	P.V. cps	Y.P. Pa	GELS Pa 10sec	GELS Pa 10min	pH	API mls	Pf/Mf	Cl- mg/l	TOT.H. mg/l	SOLIDS vol%	OIL vol%	SAND vol%	M.B.T. kg/m3	EX.GYP kg/m3
1	11/06/1990	168	36	1.07	110																							
2	11/07/1990	173	36	1.07	110																							

STATOIL WELL NO. 15/12-7 DEEPSEA BERGEN

DRILLING MUD PROPERTIES RECORD

MUDSYSTEM: SW/CMC EHV SECTION: 26"

DAY No.	DATE 1990	DEPTH mtrs.	HOLE SIZE inch	M.W. S.G.	F.V. s/qt	600	300	200	100	60	30	6	3	A.V. cps	P.V. cps	Y.P. Pa	GELS Pa 10sec	GELS Pa 10min	pH	API mls	Pf/Mf	Cl- mg/l	TOT.H. mg/l	SOLIDS vol%	OIL vol%	SAND vol%	M.B.T. kg/m3	EX.GY kg/m3
3	11/08/1990	438	9.875	1.1	60	39	24							19.5	15	4.5			9.4									
4	11/09/1990	321	26	1.1	65	47	29	21	12			1	1	23.5	18	5.5			10									
5	11/10/1990	620	26	1.1	66	50	31	20	13			1	1	25	19	6			9.7									
6	11/11/1990	620	MIXING GYP/PAC MUD FOR 17 1/2" SECTION																									

STATOIL WELL NO: 15/12-7 DEEPSEA BERGEN

DRILLING MUD PROPERTIES RECORD

MUDSYSTEM: GYP/PAC SECTION: 17 1/2"

DAY No.	DATE 1990	DEPTH mtrs.	HOLE SIZE inch	M.W. S.G.	F.V. s/qt	600	300	200	100	60	30	6	3	A.V. cps	P.V. cps	Y.P. Pa	GELS Pa 10sec	GELS Pa 10min	pH	API mls	Pf/Mf	Cl- mg/l	TOT.H. mg/l	SOLIDS vol%	OIL vol%	SAND vol%	M.B.T. kg/m3	EX.GY[illegible] kg/m3
6	11/11/1990	620	17.5	1.2	70	41	25	19	11	8	4	1	1	20.5	16	4.5	1	1	8.9	7.8	.05/.3	21000	5120	6	0	0	0	5.9
7	11/12/1990	895	17.5	1.2	65	39	24	17	10			1	1	19.5	15	4.5	1	1	9.1	5	.04/.32	21500	4440	7.5	0	1.5	3	6.7
8	11/13/1990	1528	17.5	1.22	57	40	25	19	12	9	6	3	2	20	15	5	3	11	8.1	5.5	0/.35	20500	3760	11	0	1	62	7
9	11/14/1990	1820	17.5	1.35	55	48	28	22	13	6	4	3	2	24	20	4	1.5	6	8.4	4.7	.05/.35	21000	4920	14	0	.5	60	4.9
10	11/15/1990	1820	17.5	1.35	49	43	26	19	9	8	4	3	2	21.5	17	4.5	1.5	5	8.1	4.9	.05/.3	21500	4350	14	0	.75	57	5.9
11	11/16/1990	1820	17.5	1.35	51	34	21	13	8	7	3	2	1	17	13	4	1	4	8.2	4.8	.05/.3	21500	4600	14	0	.25	54	6.2
12	11/17/1990	1820	17.5	1.35	49	36	22	13	8	7	3	2	1	18	14	4	1	4	8.1	5	.05/.3	21500	4600	14	0	.5	54	6.2

STATOIL WELL NO: 15/12-7 DEEPSEA BERGEN

DRILLING MUD PROPERTIES RECORD

MUDSYSTEM: GYP/PAC SECTION: 12 1/4

DAY No.	DATE 1990	DEPTH mtrs	HOLE SIZE inch	M.W. S.G.	F.V. s/qt	600	300	200	100	60	30	6	3	A.V. cps	P.V. cps	Y.P. Pa	GELS Pa 10sec	GELS Pa 10min	pH	API mls	HTHP mls	Pf/Mf	Cl- mg/l	TOT.H. mg/l	SOLIDS vol%	OIL vol%	SAND vol%	M.B.T. kg/m3	EX.GYP kg/m3
13	11/18/1990	1907	12.25	1.45	50	46	28	18	10	8	5	2	1	23	18	5	1	5	8.3	4.9		.05/.3	21500	4240	16	0	1	57	7.2
14	11/19/1990	2047	12.25	1.51	47	48	29	19	10	8	4	2	1	24	19	5	1	4	8	5	32	0/.4	22500	4320	20	0	.5	56	5.6
15	11/20/1990	2398	12.25	1.6	47	62	37	25	15	11	7	2	1	31	25	6	1	9	7.9	4.2	26	0/.4	22500	3720	22	0	.25	58	5.4
16	11/21/1990	2498	12.25	1.6	48	61	37	29	19	16	12	5	4	30.5	24	6.5	2	19	7.7	5.2	29	0/.5	22500	4200	22	0	.5	60	4.5
17	11/22/1990	2527	12.25	1.6	48	66	41	32	21	17	13	6	5	33	25	8	3	21	7.7	5.6	27	0/.3	22000	4200	22	0	0	65	4.6
18	11/23/1990	2563	12.25	1.6	52	64	39	30	20			7	6	32	25	7	2	20	7.7	5.4	26	0/.35	22000	4400	22	0	.2	59	5.3
19	11/24/1990	2619	12.25	1.6	46	53	32	24	15			7	5	26.5	21	5.5	1.5	15	7.8	5.7	31	0/.5	23000	4120	22	0	.2	50	5.4
20	11/25/1990	2638	12.25	1.6	47	60	35	25	15	11	7	2	1	30	25	5	1	9	8.2	4.6	20	.05/.6	23000	4280	22	0	.2	51	5.6
21	11/26/1990	2735	12.25	1.6	47	64	38	29	17	12	8	3	2	32	26	6	1	7	7.5	3.4	21	0/.35	23500	4280	22	0	.2	50	5.8
22	11/27/1990	2761	12.25	1.6	47	62	36	25	15	11	7	3	2	31	26	5	1	8.5	7.6	3.5	22	0/.4	23000	4120	22	0	0	50	4.6
23	11/28/1990	2781	12.25	1.6	65	76	45	43	22	18	13	5	4	38	31	7	2	18	7.5	4	22	0/.4	23000	4160	22	0	0	50	4.4
24	11/29/1990	2834	12.25	1.6	55	69	41	30	18	14	9	4	3	34.5	28	6.5	2	9	7.8	3.8	20	0/.35	22500	4200	23	0	TR	55	5.7
25	11/30/1990	2857	12.25	1.6	48	65	38	29	17	12	8	3	2	32.5	27	5.5	1	6	7.3	3.8	18	0/.3	22500	4120	23	0	0	48	5.7
26	12/01/1990	2917	12.25	1.6	47	65	38	27	17	12	8	3	2	32.5	27	5.5	1.5	8	7.6	3.4	16	0/.4	22000	4400	22	0	.25	50	5.3
27	12/02/1990	2917	12.25	1.6	60	69	41	31	19	13	9	3	2	34.5	28	6.5	1.5	9.5	7.7	3.2		0/.4	22000	4360	23	0	TR	45	5.4
28	12/03/1990	2933	12.25	1.6	60	66	39	30	19	14	9	3	3	33	27	6	1.5	8.5	7.7	3.4	14	0/.5	22500	4160	22	0	.25	49	4.7
29	12/04/1990	2980	12.25	1.6	63	75	46	35	23	18	12	6	5	37.5	29	8.5	2.5	19	7.7	3.9	18	0/.5	24000	4160	23	0	.2	51.5	5.5
30	12/05/1990	3027	12.25	1.6	54	64	39	30	20	15	10	4	3	32	25	7	1.5	16	7.4	4.9	18	0/.6	22500	4360	22.5	0	.25	53	5.5
31	12/06/1990	3027	12.25	1.6	60	66	40	30	20	15	10	6	4	33	26	7	2	18	7.5	4.7	18	0/.5	22000	4400	22.5	0	.5	53	5.3
32	12/07/1990	3027	12.25	1.6	51	49	29	23	15	12	9	7	4	24.5	20	4.5	4	22	7	5.4	33	0/1.1	24000	4560	22	TR	.25	49	6.1
33	12/08/1990	3027	12.25	1.6	58	55	32	24	15	12	8	4	3	27.5	23	4.5	1	19	7.7	4.4	21	0/.6	22000	4560	22	0	TR	50	6.1
34	12/09/1990	3027	12.25	1.6	60	61	36	26	17			6	4	30.5	25	5.5	2.5	16	7.6	4.3		0/.6	22000	4320	22	TR	TR	50	5.5
35	12/10/1990	3027	12.25	1.54	58	46	26	19	11	8	6	2	1	23	20	3	1	4	7.9	3.8	15	0/.6	21000	4200	20.5	0	TR	44	5.6
36	12/11/1990	3027	12.25	1.54	59	54	31	21	13	9	6	2	1	27	23	4	1	6	8	4	32	0/.6	20500	4080	20	0	.3	46	2.3

STATOIL WELL NO: 15/12-7 DEEPSEA BERGEN

DRILLING MUD PROPERTIES RECORD

MUDSYSTEM: GEL/LIGNO/LIGNITE/RESIN/DESCO/ANCO TEMP SECTION: 8.5"

DAY No.	DATE 1990	DEPTH mtrs	HOLE SIZE inch	M.W. S.G.	F.V. s/qt	600	300	200	100	60	30	6	3	A.V. cps	P.V. cps	Y.P. Pa	GELS Pa 10sec	GELS Pa 10min	pH	API mls	HTHP mls	Pf/Mf	Cl- mg/l	TOT.H. mg/l	SOLIDS vol%	OIL vol%	SAND vol%	M.B.T. kg/m3	EX.GYP kg/m3
37	12/12/1990	3027	CSG	1.54	61	54	31	21	13	9	6	2	1	27	23	4	1	5	7.9	4.1	29	0/.6	21000	4100	20	TR	.3	45	3
38	12/13/1990	3027	CSG	1.54	62	54	30							27	24	3	1	4	7.8	4.2		0/.6	21000	4100	20	TR	.3	45	3
39	12/14/1990	3027	CSG	1.54	45	36	22	17	11			4	4	18	14	4	1.5	18	9.5	6.2		0/.6	21000	4100	20	TR	.5	45	3
40	12/15/1990	3027	CSG	1.54	45	36	22	17	11	9	7	4	4	18	14	4	1.5	18	9.5	6.2		0/.6	21000	4100	20	TR	.5	45	3
41	12/16/1990	3027	CSG	1.54	43	35	22	16	11	8	7	4	3	17.5	13	4.5	1.5	17	9.3	6.2		0/.6	21000	4100	20	TR	.5	45	3
42	12/17/1990	3027	CSG	1.46	53	40	32	23	18	17	14	9	8	20	8	12	7.5	11.5	12	NC		1.2/1.5	21000	3000	20	TR	1	40	2.2
43	12/18/1990	3055	8.5	1.3	61	62	37	28	17	13	8	3	2	31	25	6	2.5	27	9.2	5	18.8	.15/.8	3500	160	13	0	1.25	57	
44	12/19/1990	3178	8.5	1.31	63	85	50	28	22	17	10	3	2	42.5	35	7.5	2	14	9.5	4.6	17	.25/.85	4500	120	13	0	.5	64	
45	12/20/1990	3240	8.5	1.3	89	94	57	42	25	18	12	5	4	47	37	10	2	13	9.3	3.8	16	.15/.7	4400	120	13	0	.5	60	
46	12/21/1990	3379	8.5	1.31	64	89	51	37	22	15	9	4	3	44.5	38	6.5	2	15	9.8	3.8	17	.25/1.0	4900	140	14	0	.5	65	
47	12/22/1990	3475	8.5	1.31	61	82	47	34	20	15	9	3	2	41	35	6	2	10	9.6	4.4	16	.20/.85	5400	160	16	0	.25	64	
48	12/23/1990	3570	8.5	1.31	94	104	60	42	24	16	10	4	3	52	44	8	2	15	9.4	4.8	16	.20/1.0	5300	120	16	0	.25	64	
49	12/24/1990	3570	8.5	1.3	100	87	49	35	20	14	9	4	3	43.5	38	5.5	2.5	11	9.6	4.5	16	.25/1.4	5850	160	16	0	.25	64	
50	12/25/1990	3570	8.5	1.3	68	70	39	29	17	11	9	4	3	35	31	4	2	9	9.5	3.9	14	.25/1.3	6000	160	14	0	.5	61	
51	12/26/1990	3570	8.5	1.3	60	55	31	22	14	9	6	3	2	27.5	24	3.5	2	5	9.4	3.5	13	.40/2.0	6200	240	15	0	.5	65	
52	12/27/1990	3570	8.5	1.31	75	56	31	23	14	10	6	3	2	28	25	3	1.5	5	9.3	3	13	.25/2.0	6400	240	14	0	.25	64	
53	12/28/1990	3570	8.5	1.3	69	50	28	19	11	9	5	2	1	25	22	3	1	4	9.6	3.6	13	.40/2.2	6400	200	14	0	.25	64	
54	12/29/1990	3570	8.5	1.3	78	40	22	16	10	8	5	2	1	20	18	2	1	4	9.7	3.2	13	.40/2.3	6400	200	14	0	.25	64	
55	12/30/1990	3570	8.5	1.3	93	45	26	18	10	8	5	2	1	22.5	19	3	1.5	5	9.8	3	12	.40/2.4	6500	200	14	0	.25	64	

4.11 Casing and Cement Summary

4.11 Casing and Cement Summary

CASING CONSUMPTION:

Size (in)	Grade	Weight (lbs/ft)	Threads type	Length (m)	Test pressure	Number of joints
30	B	1.5" WT	ST-2, RB	61.5		1
	B	1.0" WT	ST-2, RB			5
20	X-56	133	RL-4S	498.9	90 bar w/1.20S.G mud	42
13 3/8	P-110	72	BUTTRESS	1689.9	285 bar w/1.35S.G. mud	143
9 5/8	N-80	53.5	BDS	2907.6	300 bar w/1.54S.G mud	233
	13% CR	53.5	BDS			17

CEMENT REPORT

Casing size(in)	Slurry volume(m^3)	Slurry dens.SG	Thick time(HR)	BHST (deg C")	Additive name	Comp (1/100kg)	Total used	Losses (m^3)	Pump rate(1/min)	Remarks
30" Lead slurry	16	1.56	+7:00	10	Econolite S.W.	3.55 92.49	457	Partly returns	1100	
Tail slurry	15	1.95	5:30	10	$CaCl_2$ S.W.	4.35 38.27	876		900	
20" Lead slurry	122	1.56	5:28 (30BC)	30	Econolite HR-4L S.W.	3.55 1.30 92.12	3350 1227	Full returns	1400	
Tail slurry	15	1.94	4:18 (30BC)	30	S.W.	40.86			900	
13 3/8" Lead slurry	75	1.60	7:25 (30BC)	48	Bentonite HR-4L CFR-3 F.W.	2.25% 0.60 0.5% 91.19	1596 362 335	Full returns		Spacer H_2O 15 m^3 ahead
Tail slurry	15	1.95	4:18 (30BC)	48	HR-4L F.W.	1.1 39.21	229			
9 5/8" Slurry	70	1.85	4:15 (30BC)	128	SSA-1 Halad361-A CFR-3 SCR-100 Microblock F.W.	25% 5.0 0.75% 0.50% 15 44.16	15.0t 3335 523 354 10500	Full returns	1270	Dual spacer

CEMENT REPORT, PLUGGING

Casing size(in)	Slurry volume(m^3)	Slurry dens.SG	Thick time(HR)	BHST deg C"	Additive name	Comp (1/100kg)	Total used	Losses m^3	Pump rate(l/min)	Remark
Plug 1 3555- 3340 m	9.0	1.90	3:11 (30BC)	110	CFR-3 Halad-344 SCR-100 F.W.	0.43% 0.60% 0.43% 43.30			875	
Plug 2 3335- 3110 m	10.0	1.90	3:11 (30BC)	110	SSA-1 CFR-3 Halad-344 SCR-100 F.W.	25.00% 0.50% 0.70% 0.50% 50.91			715	
Plug 3 3105- 2900 m	10.0	1.90	3:11 (30BC)	110	SSA-1 CFR-3 Halad-344 SCR-100 F.W.	25.00% 0.50% 0.70% 0.50% 50.91			715	
Plug 4 1376- 1250 m	7.2	1.95	3:40 (30BC)	56	HR-4L F.W.	1.1 39.21			900	
Plug 5 540- 355 m	27.9	2.0	2:00 (30BC)	30	$CaCl_2$ S.W.	4.35 34.41			800	
Plug 6 350- 150 m	35.6	2.0	2:00 (30BC)	30	$CaCl_2$ S.W.	4.35 34.41			800	

4.12 Bottom Hole Assemblies

Well: 0015/12-007S

Date	BHA no	BHA component	O.D. (inch)	I.D. (inch)	Length (m)	Akk. length (m)
901106	1	BIT	26,000		,60	,60
		HOLE OPENER	36,000	3,000	2,67	3,27
		BIT SUB	9,500	3,125	,87	4,14
		MONEL	9,500	3,125	8,54	12,68
		DRILL COL	9,500	3,125	18,65	31,33
		XO SUB	9,500	3,000	,67	32,00
		DRILL COL	8,000	2,813	55,62	87,62
		XO SUB	8,000	2,750	,57	88,19
Total length BHA no: 1					88,19	
901107	2	BIT	26,000		,60	,60
		HOLE OPENER	36,000	3,000	2,67	3,27
		BIT SUB	9,500	3,125	,87	4,14
		MONEL	9,500	3,125	8,54	12,68
		DRILL COL	9,500	3,125	18,65	31,33
		XO SUB	9,500	3,000	,67	32,00
		DRILL COL	8,000	2,813	55,62	87,62
		XO SUB	8,000	2,750	,57	88,19
Total length BHA no: 2					88,19	
901108	3	BIT	9,875		,27	,27
		HOLE OPENER	17,500	2,375	,65	,92
		HOLE OPENER	26,000	2,500	2,36	3,28
		BIT SUB	9,500	3,500	,87	4,15
		MONEL	9,500	3,000	8,54	12,69
		DRILL COL	9,500	3,000	18,65	31,34
		XO SUB	9,500	3,000	,67	32,01
		DRILL COL	8,000	2,875	55,62	87,63
		XO SUB	8,000	2,438	,58	88,21
		HW DRILL PIPE	5,000	3,000	54,98	143,19
Total length BHA no: 3					143,19	
901109	4	BIT	9,875		,26	,26
		BIT SUB	8,000		,84	1,10
		MWD TOOL	8,250	2,812	13,34	14,44
		PR-SUB	8,250	2,125	,76	15,20
		MONEL	8,000	2,875	9,17	24,37
		DRILL COL	8,000	2,812	101,60	125,97
		XO SUB	8,000	2,437	,58	126,55
		HW DRILL PIPE	5,000	3,000	54,98	181,53
		DART SUB	6,187	3,125	,41	181,94
Total length BHA no: 4					181,94	

Well: 0015/12-007S

Date	BHA no	BHA component	O.D. (inch)	I.D. (inch)	Length (m)	Akk. length (m)
901110	5	BIT	9,875		,26	,26
		HOLE OPENER	17,500	2,375	1,91	2,17
		HOLE OPENER	26,000	2,500	4,27	6,44
		BIT SUB	9,500	3,500	,87	7,31
		MWD TOOL	9,500		12,40	19,71
		SAVER SUB	9,500		,62	20,33
		MONEL	9,500	3,000	8,54	28,87
		DRILL COL	9,500	3,000	18,65	47,52
		XO SUB	9,000	3,000	,67	48,19
		DRILL COL	8,000	2,813	136,38	184,57
		XO SUB	6,500	2,438	,58	185,15
		HW DRILL PIPE	5,000	3,000	27,48	212,63
		DART SUB	6,188	3,125	,41	213,04
Total length BHA no: 5					213,04	
901113	6	BIT	17,500		,44	,44
		BIT SUB	9,500	3,500	,87	1,31
		MWD TOOL	9,500	3,000	12,40	13,71
		SAVER SUB	9,500	3,000	,62	14,33
		MONEL	9,500	3,000	8,54	22,87
		STABILIZER	17,469	3,000	1,88	24,75
		DRILL COL	9,500	3,000	46,39	71,14
		XO SUB	8,000	3,000	,67	71,81
		DRILL COL	8,000	2,813	110,90	182,71
		XO SUB	8,000	2,438	,58	183,29
		HW DRILL PIPE	5,000	3,000	82,38	265,67
		DART SUB	6,188	8,125	,41	266,08
Total length BHA no: 6					266,08	
901116	7	BIT	17,500		,44	,44
		BIT SUB	9,500	3,500	,87	1,31
		MONEL	9,500	3,000	8,54	9,85
		STABILIZER	17,469	3,000	1,88	11,73
		DRILL COL	9,500	3,000	46,39	58,12
		XO SUB	9,563	3,000	,67	58,79
		DRILL COL	8,000	2,813	110,90	169,69
		XO SUB	8,000	2,438	,58	170,27
		HW DRILL PIPE	5,000	3,000	82,38	252,65
		DART SUB	6,188	3,125	,41	253,06
Total length BHA no: 7					253,06	

Well: 0015/12-007S

Date	BHA no	BHA component	O.D. (inch)	I.D. (inch)	Length (m)	Akk. length (m)
901118	8	BIT	12,250		,49	,49
		MUD MOTOR	12,125		8,02	8,51
		XO SUB	9,375	2,750	,67	9,18
		STABILIZER	11,750	2,938	1,81	10,99
		DRILL COL, NM	8,000	2,938	2,85	13,84
		XO SUB	8,250	2,813	,55	14,39
		MWD TOOL	8,250		11,92	26,31
		SAVER SUB	8,250	2,813	,77	27,08
		STABILIZER	12,000	2,938	1,88	28,96
		DRILL COL, NM	8,000	2,875	17,36	46,32
		DRILL COL	8,000	2,813	110,90	157,22
		JAR	7,875	2,750	10,82	168,04
		DRILL COL	8,000	2,813	18,47	186,51
		XO SUB	8,000	2,938	,58	187,09
		HW DRILL PIPE	5,000	3,000	137,64	324,73
		DART SUB	6,375	2,938	,41	325,14
Total length BHA no: 8					325,14	
901120	9	BIT	12,250		,31	,31
		MUD MOTOR	12,125		8,02	8,33
		XO SUB	9,375	2,750	,67	9,00
		STABILIZER	11,750	2,938	1,81	10,81
		DRILL COL	8,000	2,938	2,85	13,66
		XO SUB	8,250	2,813	,55	14,21
		MWD TOOL	8,250		11,92	26,13
		SAVER SUB	8,250	2,813	,77	26,90
		STABILIZER	12,000	2,938	1,88	28,78
		DRILL COL	8,000	2,875	17,36	46,14
		DRILL COL	8,000	2,813	110,90	157,04
		JAR	7,875	2,750	10,82	167,86
		DRILL COL	8,000	2,813	18,47	186,33
		XO SUB	8,000	2,938	,58	186,91
		HW DRILL PIPE	5,000	3,000	137,75	324,66
		DART SUB	6,275	2,938	,41	325,07
Total length BHA no: 9					325,07	

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Date	BHA no	BHA component	O.D. (inch)	I.D. (inch)	Length (m)	Akk. length (m)
901122	10	BIT	12,250		,40	,40
		BIT SUB	8,000	2,750	,84	1,24
		DRILL COL	8,000	2,813	9,24	10,48
		DRILL COL, NM	8,000	2,813	2,85	13,33
		STABILIZER	12,250	2,938	1,81	15,14
		XO SUB	8,250	2,813	,55	15,69
		MWD TOOL	8,250		11,92	27,61
		SAVER SUB	8,250	2,813	,77	28,38
		STABILIZER	12,125	2,938	1,88	30,26
		DRILL COL, NM	8,000	2,875	17,36	47,62
		STABILIZER	12,218	2,813	1,71	49,33
		DRILL COL	8,000	2,813	83,16	132,49
		JAR	7,875	2,750	10,82	143,31
		DRILL COL	8,000	2,813	18,47	161,78
		XO SUB	8,000	2,938	,58	162,36
		HW DRILL PIPE	5,000	3,000	137,75	300,11
		DART SUB	6,375	2,938	,41	300,52
Total length BHA no: 10					300,52	
901124	11	BIT	12,250		,48	,48
		MUD MOTOR	12,125		7,88	8,36
		XO SUB	9,375	2,750	,67	9,03
		STABILIZER	12,125	2,938	1,88	10,91
		MONEL	8,000	2,938	2,85	13,76
		XO SUB	8,250	2,813	,55	14,31
		MWD TOOL	8,250		11,92	26,23
		SAVER SUB	8,250	2,813	,77	27,00
		STABILIZER	12,000	2,938	1,81	28,81
		MONEL	8,000	2,875	17,36	46,17
		DRILL COL	8,000	2,813	110,90	157,07
		JAR	7,875	2,750	10,82	167,89
		DRILL COL	8,000	2,813	18,47	186,36
		XO SUB	8,000	2,938	,58	186,94
		HW DRILL PIPE	5,000	3,000	137,75	324,69
		DART SUB	6,375	2,938	,41	325,10
Total length BHA no: 11					325,10	

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Date	BHA no	BHA component	O.D. (inch)	I.D. (inch)	Length (m)	Akk. length (m)
901126	12	BIT	12,250		,32	,32
		MUD MOTOR	8,000		6,85	7,17
		BENT SUB, 1.5	7,810	2,250	,73	7,90
		XO SUB	8,000	2,940	,31	8,21
		BIT SUB	8,000	2,940	,86	9,07
		XO SUB	8,250	2,810	,55	9,62
		MWD TOOL	8,250		11,94	21,56
		SAVER SUB	8,250	2,810	,77	22,33
		DRILL COL, NM	8,000	2,880	17,36	39,69
		DRILL COL	8,000	2,810	110,90	150,59
		JAR	7,880	2,750	10,82	161,41
		DRILL COL	8,000	2,810	18,47	179,88
		XO SUB	8,000	2,940	,58	180,46
		HW DRILL PIPE	5,000	3,000	137,75	318,21
		DART SUB	6,380	2,940	,41	318,62
Total length BHA no: 12					318,62	
901128	13	BIT	12,250		,31	,31
		MUD MOTOR	8,000		6,85	7,16
		XO SUB	8,000	2,940	,31	7,47
		BIT SUB	9,500	2,940	1,21	8,68
		BENT SUB, 2.0	9,380	2,630	,71	9,39
		XO SUB	9,380	2,750	,67	10,06
		XO SUB	8,250	2,810	,55	10,61
		MWD TOOL	8,250	,810	11,94	22,55
		SAVER SUB	8,250	2,810	,77	23,32
		DRILL COL, NM	8,000	2,880	17,36	40,68
		DRILL COL	8,000	2,810	110,90	151,58
		JAR	7,880	2,750	10,82	162,40
		DRILL COL	8,000	2,810	18,47	180,87
		XO SUB	8,000	2,940	,58	181,45
		HW DRILL PIPE	5,000	3,000	137,75	319,20
		DART SUB	6,380	2,940	,41	319,61
Total length BHA no: 13					319,61	

Well: 0015/12-007S

Date	BHA no	BHA component	O.D. (inch)	I.D. (inch)	Length (m)	Akk. length (m)
901129	14	BIT	12,250		,32	,32
		MUD MOTOR	8,000		6,85	7,17
		BENT SUB, 1.5	7,810	2,250	,73	7,90
		XO SUB	8,000	2,940	,31	8,21
		BIT SUB	8,000	2,940	,86	9,07
		XO SUB	8,250	2,810	,55	9,62
		MWD TOOL	8,250		11,94	21,56
		SAVER SUB	8,250	2,810	,77	22,33
		DRILL COL, NM	8,000	2,880	17,36	39,69
		DRILL COL	8,000	2,810	110,90	150,59
		JAR	7,880	2,750	10,82	161,41
		DRILL COL	8,000	2,810	18,47	179,88
		XO SUB	8,000	2,940	,58	180,46
		HW DRILL PIPE	5,000	3,000	137,75	318,21
		DART SUB	6,380	2,940	,41	318,62
Total length BHA no: 14					318,62	
901130	15	BIT	12,250		,31	,31
		MUD MOTOR	9,500		7,50	7,81
		BENT SUB, 1.5	9,500	1,940	,46	8,27
		XO SUB	9,500	3,000	,66	8,93
		XO SUB	8,000	2,940	,31	9,24
		BIT SUB	8,000	2,940	,86	10,10
		XO SUB	8,250	2,810	,51	10,61
		MWD TOOL	8,250		11,91	22,52
		SAVER SUB	8,250	2,810	,77	23,29
		DRILL COL, NM	8,000	2,880	17,36	40,65
		DRILL COL	8,000	2,810	110,90	151,55
		JAR	7,880	2,750	10,87	162,42
		DRILL COL	8,000	2,810	18,47	180,89
		XO SUB	8,000	2,940	,58	181,47
		HW DRILL PIPE	5,000	3,000	137,75	319,22
		DART SUB	6,380	2,940	,41	319,63
Total length BHA no: 15					319,63	

Well: 0015/12-007S

Date	BHA no	BHA component	O.D. (inch)	I.D. (inch)	Length (m)	Akk. length (m)
901203	16	BIT	12,250		,31	,31
		BIT SUB	8,000	2,940	,86	1,17
		DRILL COL	8,000	2,810	9,29	10,46
		STABILIZER	12,220	2,810	1,71	12,17
		DRILL COL, NM	8,000	2,940	2,85	15,02
		STABILIZER	12,250	2,940	1,80	16,82
		XO SUB	8,250	2,810	,51	17,33
		MWD TOOL	8,250		11,94	29,27
		SAVER SUB	8,250	2,810	,77	30,04
		STABILIZER	12,120	2,940	1,88	31,92
		DRILL COL, NM	8,000	2,870	17,36	49,28
		DRILL COL	8,000	2,810	110,90	160,18
		JAR	7,870	2,740	10,82	171,00
		DRILL COL	8,000	2,810	18,47	189,47
		XO SUB	8,000	2,940	,58	190,05
		HW DRILL PIPE	5,000	3,000	137,48	327,53
		DART SUB	6,370	2,940	,41	327,94
Total length BHA no: 16					327,94	
	17	BIT	12,250		,31	,31
		BIT SUB	8,000	2,940	,86	1,17
		XO SUB	8,250	2,810	,51	1,68
		MWD TOOL	8,250		11,94	13,62
		SAVER SUB	8,250	2,810	,77	14,39
		MONEL	8,000	2,870	8,68	23,07
		STABILIZER	12,250	2,940	1,80	24,87
		DRILL COL	8,000	2,810	9,29	34,16
		STABILIZER	12,220	2,810	1,71	35,87
		DRILL COL	8,000	2,810	138,36	174,23
		JAR	7,870	2,750	10,82	185,05
		DRILL COL	8,000	2,810	18,47	203,52
		XO SUB	8,000	2,940	,58	204,10
		HW DRILL PIPE	5,000	3,000	137,48	341,58
		DART SUB	6,370	2,940	,41	341,99
Total length BHA no: 17					341,99	

Well: 0015/12-007S

Date	BHA no	BHA component	O.D. (inch)	I.D. (inch)	Length (m)	Akk. length (m)
901205	18	BIT	12,250		,30	,30
		BIT SUB	8,000	2,940	,86	1,16
		XO SUB	8,250	2,810	,51	1,67
		MWD TOOL	8,250		11,94	13,61
		SAVER SUB	8,250	2,810	,77	14,38
		MONEL	8,000	2,870	8,68	23,06
		STABILIZER	12,220	3,000	1,76	24,82
		DRILL COL	8,000	2,810	9,29	34,11
		STABILIZER	12,220	2,810	1,71	35,82
		DRILL COL	8,000	2,810	138,35	174,17
		JAR	7,870	2,750	10,82	184,99
		DRILL COL	8,000	2,810	18,47	203,46
		XO SUB	8,000	2,940	,58	204,04
		HW DRILL PIPE	5,000	3,000	137,48	341,52
		DART SUB	6,370	2,940	,41	341,93
Total length BHA no: 18					341,93	
901208	19	BIT	12,250		,30	,30
		ROLLER REAMER	12,250	2,870	2,81	3,11
		DRILL COL	8,000	2,810	46,12	49,23
		ROLLER REAMER	12,250	2,810	2,39	51,62
		DRILL COL	8,000	2,810	18,44	70,06
		JAR	8,000	3,000	9,77	79,83
		DRILL COL	8,000	2,810	18,47	98,30
		XO SUB	8,000	2,940	,58	98,88
		HW DRILL PIPE	5,000	3,000	137,48	236,36
		DART SUB	6,370	2,940	,41	236,77
Total length BHA no: 19					236,77	
901210	20	BIT	12,250		,30	,30
		JUNK BASKET	7,750	3,500	,81	1,11
		ROLLER REAMER	12,250	2,870	2,81	3,92
		DRILL COL	8,000	2,810	46,12	50,04
		ROLLER REAMER	12,250	2,810	2,39	52,43
		DRILL COL	8,000	2,810	18,44	70,87
		JAR	8,000	3,000	9,77	80,64
		DRILL COL	8,000	2,810	18,47	99,11
		XO SUB	8,000	2,940	,58	99,69
		HW DRILL PIPE	5,000	3,000	109,78	209,47
		DART SUB	6,370	2,940	,41	209,88
Total length BHA no: 20					209,88	

Well: 0015/12-007S

Date	BHA no	BHA component	O.D. (inch)	I.D. (inch)	Length (m)	Akk. length (m)
901215	21	BIT	8,500		,24	,24
		BIT SUB	6,500	2,250	,82	1,06
		MONEL	6,500	2,880	9,17	10,23
		DRILL COL	6,500	2,250	128,97	139,20
		HW DRILL PIPE	5,000	3,000	137,48	276,68
Total length BHA no: 21					276,68	
901218	22	BIT	8,500		,25	,25
		JUNK BASKET	6,500		,68	,93
		BIT SUB	6,500		,82	1,75
		DRILL COL	6,600	2,250	165,51	167,26
		HW DRILL PIPE	5,000	3,000	137,48	304,74
		DART SUB	6,250	2,940	,41	305,15
Total length BHA no: 22					305,15	
901219	23	BIT	8,500	4,000	,30	,30
		CORE BARREL	8,500	5,380	29,87	30,17
		DRILL COL	6,500	2,250	18,52	48,69
		STABILIZER	8,440	2,250	1,74	50,43
		DRILL COL	6,500	2,250	119,76	170,19
		JAR	6,500	2,880	10,12	180,31
		DRILL COL	6,500	2,250	18,41	198,72
		HW DRILL PIPE	5,000	3,000	82,38	281,10
		DART SUB	5,000	3,000	,41	281,51
Total length BHA no: 23					281,51	
	24	BIT	8,500		,25	,25
		STABILIZER	8,470	2,250	1,79	2,04
		MWD TOOL	6,750	2,250	12,83	14,87
		XO SUB	6,750	2,250	,50	15,37
		MONEL	6,500	2,250	9,17	24,54
		STABILIZER	8,470	2,250	1,73	26,27
		DRILL COL	6,500	2,250	18,52	44,79
		STABILIZER	8,440	2,250	1,74	46,53
		DRILL COL	6,500	2,250	174,73	221,26
		JAR	6,500	2,880	10,12	231,38
		DRILL COL	6,500	2,250	18,41	249,79
		HW DRILL PIPE	5,000	3,000	82,38	332,17
		DART SUB	5,000	3,000	,41	332,58
Total length BHA no: 24					332,58	

Well: 0015/12-007S

Date	BHA no	BHA component	O.D. (inch)	I.D. (inch)	Length (m)	Akk. length (m)
901221	25	BIT	8,500		,24	,24
		NEARBIT STAB	8,469	2,250	1,79	2,03
		DRILL COL	6,500	2,250	9,26	11,29
		STABILIZER	8,469	2,250	1,73	13,02
		DRILL COL	6,500	2,250	9,26	22,28
		STABILIZER	8,438	2,250	1,74	24,02
		DRILL COL	6,500	2,250	174,73	198,75
		JAR	6,500	2,875	10,12	208,87
		DRILL COL	6,500	2,250	18,41	227,28
		HW DRILL PIPE	5,000	3,000	82,38	309,66
		DART SUB	5,000	3,000	,41	310,07
Total length BHA no: 25					310,07	
901223	26	BIT	8,500		,24	,24
		BIT SUB	6,500	2,250	,82	1,06
		XO SUB	6,500	2,250	,50	1,56
		MWD TOOL	6,750	2,250	12,85	14,41
		MONEL	6,500	2,250	9,17	23,58
		STABILIZER	8,469	2,250	1,73	25,31
		DRILL COL	6,500	2,250	18,52	43,83
		STABILIZER	8,438	2,250	1,74	45,57
		DRILL COL	6,500	2,250	202,44	248,01
		JAR	6,500	2,875	10,12	258,13
		DRILL COL	6,500	2,250	18,41	276,54
		HW DRILL PIPE	5,000	3,000	219,41	495,95
		DART SUB	5,000		,41	496,36
Total length BHA no: 26					496,36	
901226	27	BIT	8,500		,24	,24
		NEARBIT STAB	8,469	2,250	1,79	2,03
		DRILL COL	6,500	2,250	9,26	11,29
		STABILIZER	8,469	2,250	1,74	13,03
		DRILL COL	6,500	2,250	9,26	22,29
		STABILIZER	8,438	2,250	1,74	24,03
		DRILL COL	6,500	2,250	202,44	226,47
		JAR	6,500	2,875	10,12	236,59
		DRILL COL	6,500	2,250	18,41	255,00
		HW DRILL PIPE	5,000	3,000	219,41	474,41
		DART SUB	6,375	2,938	,41	474,82
Total length BHA no: 27					474,82	

Well: 0015/12-007S

Date	BHA no	BHA component	O.D. (inch)	I.D. (inch)	Length (m)	Akk. length (m)
901228	28	BIT	8,500		,24	,24
		NEARBIT STAB	8,469	2,250	1,79	2,03
		DRILL COL	6,500	2,250	9,26	11,29
		STABILIZER	8,469	2,250	1,74	13,03
		DRILL COL	6,500	2,250	211,70	224,73
		JAR	6,500	2,875	10,12	234,85
		DRILL COL	6,500	2,250	18,41	253,26
		HW DRILL PIPE	5,000	3,000	219,41	472,67
		DART SUB	6,375	2,938	,41	473,08
Total length BHA no: 28					473,08	
901230	29	OVERSHOT	7,190	5,310	,25	,25
		OTHER	4,440	2,370	,63	,88
		XO SUB	6,560	2,000	,85	1,73
		HW DRILL PIPE	5,000	3,000	220,26	221,99
Total length BHA no: 29					221,99	
910101	30	BIT	8,000		,24	,24
		SCRAPER	9,620	2,000	,73	,97
		BIT SUB	6,500	2,250	,82	1,79
		DRILL COL	6,500	2,250	82,81	84,60
		HW DRILL PIPE	5,000	3,000	137,13	221,73
Total length BHA no: 30					221,73	

4.13 Equipment Failure

4.13 Equipment Failure

Date	Problem	Time lost (hrs)	Remarks
06.11.90	Vetco 30" Cam-actuated running tool could not pass rotary table. O.D. on support rings was grinded down 13 mm.	6	Existing support rings and specification has been changed to take care of the problem.
11.11.90	Two O-rings were missing on BOP test tool.	2	Re-installed O-rings.
21.11.90	Mud pump no. 2: Pulled seat on discharge module on cylinder no. 1.	8.5	
21.11.90	Leak in washpipe on topdrive.	2	Changed washpipe.
23.11.90	Changed liner and piston no. 2 on mudpump no. 2.	0.5	
29.11.90	Repaired wash out on pressure gauge on mud pump no. 2.	0.5	
30.11.90	While RIH automatic slips slipped into bushing and top drive block landed on top of HWDP. Changed 3 joints bent HWDP.	1	Original foot pedal must be used.
30.11.90	A point of a safety valve in top drive was found in DP screen during connection. The upper retaining ring from kelly kock was split and the spiral retaining ring was missing.	11.5	Changed upper kelly kock.
01.12.90	Changed valve and seat, suction cylinder no. 1 on pump no. 1.	0.5	
05.12.90	Repaired top drive cooling system.	0.5	
06.12.90	Repaired mud pump.	0.5	
09.12.90	Repaired leak on top drive retracting system	0.5	
11.12.90	Jammed slips segment in one casing collar. Unable to release elevator from casing.	2.5	Installed new 500 MT elevator.

Date	Problem	Time lost (hrs)	Remarks
13.12.90	Leak on flowline seal on act. pressure to diverter control plate.	2.0	Changed hydraulic hose between upper and lower element.
14.12.90	Lower outer kill on upper pipe ram was leaking. Performed fault finding, BOP had to be pulled and repaired.	95.0	Pack-box was loose.
24.12.90	HP-gauge was not waking - on log run no. 3, 8 1/2" hole section (FMT-GR-HP).	5.5	
27.12.90	VSP logging tool hang up due to cable failure. Cut cable and installed weak point.	10.0	Reason for cable failure is assumed to be excessive tension when freeing stuck FMT-tool.
31.12.90	Cut automatic slips hose w/iron roughneck. Repaired same.	0.5	
01.01.91	Failure on swivel sub - could not rotate while cutting 9 5/8" casing.	0.5	
06.01.91	Plugged bulk tank cementing line at PRA top plug job.	3.0	

STATOIL

APPENDIX I

STATOIL

WELLSITE SAMPLE DESCRIPTION			Page 1 of 29
Country: NORWAY	Area: NORTH SEA	Field: THETA NORTH	Well no.: 15/12-7S
Company: STATOIL / AMERADA HESS / CONOCO / NORSK HYDRO		K.B.E. 23 meters	Hole size: 17 1/2"
Geologist: J.M. ØSTBY / S. BJERKENES		Date: 12.11.90	

Depth (mKB)	Lith (%)	Lithological Description Rock name,mod.lith,colour,grain size,sorting,roundness,matrix,cementation, hardness,sed.structures,accessories,fossils,porosity,contamination.	Remarks Shows,cavings, mud additives, etc
630	100	CLYST: LT BL GRY, SFT, STKY, SL SLTY, V CALC	NO SHOWS
	TR	PYR, LITH FRAG	
640	A/A		
650	A/A		
660	A/A		
670	100	CLYST: A/A	
	TR	LITH FRAG, FOSS FRAG, PYR	
680	A/A		
690	100	CLYST: A/A, OCC SL SDY	
	TR	A/A	
700	100	CLYST: A/A	
	TR	LITH FRAG, FOSS FRAG, SHELL FRAG	
710	A/A		
720	A/A		
730	A/A		
740	A/A		
750	100	CLYST: MED - LT GRY, V SDY, ELSE A/A	
	SL TR	LITH FRAG, FOSS FRAG.	
760	A/A		
770	A/A		
780	A/A	BUT LESS CALC	MAX 3.3 % GASS, ALL C1 AT 773 M.
790	100	CLYST: A/A	
	TR	SD: CLR QTZ, FN, OCC V FN, FAIR SRTD, SUBRND, OCC RND OR SUBANG.	
	SL TR	LITH FRAG, FOSS FRAG	
800	A/A		
810	A/A		
820	100	CLYST: MED - LT GRY, SDY, SFT, SOL, MOD CALC.	
	SL TR	SD: A/A	
	SL TR	LITH FRAG, FOSS FRAG.	
830	A/A		
840	A/A		
850	A/A		
860	A/A	CLYST PRTLY MED - DK GRY, ELSE A/A	
870	A/A		
880	A/A		
890	A/A	MAINLY MED GRY CLYST, ELSE A/A	
900	A/A	SL MORE SDY CLYST	

STATOIL

WELLSITE SAMPLE DESCRIPTION			Page 2 of 29
Country: NORWAY	Area: NORTH SEA	Field: THETA NORTH	Well no.: 15/12-7S
Company: STATOIL / AMERADA HESS / CONOCO / NORSK HYDRO		K.B.E. 23 meters	Hole size: 17 1/2"
Geologist: J.M. ØSTBY / S.BJERKENES		Date: 13.11.90	

Depth (mKB)	Lith (%)	Lithological Description: Rock name,mod.lith,colour,grain size,sorting,roundness,matrix,cementation, hardness,sed.structures,accessories,fossils,porosity,contamination.	Remarks: Shows,cavings, mud additives, etc
910	100	CLYST: MED - LT GRY, SDY, SFT, SOL, MOD CALC.	
	SL TR	SD: CLR QTZ, FN, OCC V FN, FAIR SRTD, SUBRND, OCC RND OR SUBANG.	
	SL TR	LITH FRAG, FOSS FRAG.	
920	A/A		
930	A/A		
940	100	CLYST: LT BL GRY - LT GRY - MED GRY, SFT - FRM, SL LESS SOL THAN ABOVE, MICROMIC, SL - NON CALC	
	TR	SD: A/A	
	SL TR	FOSS FRAG	
950	100	CLYST: MED GRY, MOD CALC, ELSE A/A	
	SL TR	FOSS FRAG, PYR, SD A/A	
960	A/A		
970	A/A	SL TR FORAM	
980	A/A		
990	A/A		
1000	A/A		
1010	100	CLYST: MED GRY, SFT - FRM, SL SOL, MICROMIC, SL - NON CALC	
	SL TR	FOSS FRAG, PYR	
1020	A/A		
1030	A/A		
1040	A/A		
1050	A/A		
1060	100	CLYST: SL STKY, OCC V SL CALC, ELSE A/A	
	TR	PYR	
1070	100	CLYST: A/A	
1080	100	CLYST: A/A	
	TR	FOSS FRAG, FORAMS, PYR	
	SL TR	SD: CLR QTZ, MED, ANG - SUBANG, LSE	
1090	100	CLYST: A/A	
	TR	FOSS FRAG, FORAMS, WORM TUBES, PYR	
1100	100	CLYST: OCC MED GRY, SL BLKY, FRM, ELSE A/A	
	TR	FORAMS	
	SL TR	SD: A/A	
1110	100	CLYST: A/A	
	GD TR	FORAMS, FOSS FRAG, WORM TUBES, PYR	
1120	A/A		
1130	A/A		
1140	90	CLYST: MED GRY - DK GN GRY, ELSE A/A	
	10	SD: CLR QTZ, V FN - FN, I/P MED - CRS, OCC V CRS, ANG - SUBANG, OCC SUBRND, LSE, PR - MOD SRTD	
	GD TR	FORAMS	
	TR	SHELL FRAG, PYR	

WELLSITE SAMPLE DESCRIPTION			Page 3 of 29
Country: NORWAY	Area: NORTH SEA	Field: THETA NORTH	Well no.: 15/12-7S
Company: STATOIL / AMERADA HESS / CONOCO / NORSK HYDRO		K.B.E. 23 meters	Hole size: 17 1/2"
Geologist: S. BJERKENES / J.M. ØSTBY		Date: 13.11.90	

Depth (mKB)	Lith (%)	Lithological Description: Rock name,mod.lith,colour,grain size,sorting,roundness,matrix,cementation, hardness,sed.structures,accessories,fossils,porosity,contamination.	Remarks: Shows,cavings, mud additives, etc
1150	100	CLYST: MED GRY - DK GN GRY, SFT - FRM, SL SOL, OCC SL BLKY, NON CALC, OCC V SL CALC, MICROMIC, OCC SL SLTY	
	TR	SD: CLR QTZ, V FN - FN, ANG - SUBANG, OCC SUBRND, LSE, PR - MOD SRTD	
	SL TR	FORAMS	
1160	100	CLYST: A/A	
	TR	SD: V FN - FN, I/P MED - CRS, ELSE A/A	
	TR	FORAMS, SHELL FRAG, PYR	
1170	100	CLYST: A/A	
	SL TR	SD: A/A	
	TR	FORAMS, WORM TUBES, PYR	
1180	100	CLYST: LT - MED GRY, DK GN GRY, SL BLKY, ELSE A/A	
	TR	FORAMS, WORM TUBES, PYR	
1190	100	CLYST: MED MED DK GRY, FRM, BLKY - FLKY, WAXY TXT, OCC SFT, STKY, NON CALC	
	SL TR	SD: V FN - FN, ELSE A/A	
	TR	FORAMS, WORM TUBES, PYR	
1200	A/A		
1210	100	CLYST: OLV GRY, MED - MED DK GRY, ELSE A/A	
1220	100	CLYST: OLV GRY - MED DK GRY, FRM, BLKY, FLKY I/P, WAXY TXT, NON CALC	
	SL TR	SD: CLR QTZ, CRS, ANG, LSE	
	TR	PYR	
1230	100	CLYST: DSKY YEL BRN MED DK GRY, FRM - MOD HD I/P, BLKY, V SL MICROMIC, NON CALC	
	TR	FORAMS	
1240	100	CLYST: BRN BLK, DSKY YEL BRN, MED DK GRY, FRM - MOD HD, BLKY, SL MICROMIC I/P, NON CALC	
	TR	FORAMS	
1250	100	CLYST: OCC SL SUBFISS, OCC SL CALC, ELSE A/A	
1260	100	CLYST: INCR BRN BLK - DSKY YEL BRN, ELSE A/A	
1270	A/A		
1280	100	CLYST: MSTLY BRN BLK - DSKY YEL BRN, OCC MED DK GRY, A/A	
	SL TR	LST: LT GRY, TRNSP, MOD HD, MICROXLN	
	TR	FOSS FRAG	
1290	100	CLYST: MICROMIC, ELSE A/A	
	SL TR	LST: LT BRN, HD, V CRS, BLKY, XLN	
	TR	FORAMS	
1300	100	CLYST: BRN BLK - DSKY YEL BRN, OCC MED DK GRY, MOD HD, BLKY, MICROMIC, NON - OCC SL CALC	
	TR	FOSS FRAG, GLAUC	
1310	100	CLYST: BRN BLK, GRY BRN, MED DK GRY, OCC OLV GRY, FRM - MOD HD, MICROMIC, NON - OCC SL CALC	
	SL TR	LST: YEL BRN, HD, BLKY, DOL	
1320	100	CLYST: A/A	
	TR	LST: LT BRN, TRNSP, MOD HD, MICROXLN	
	TR	FORAMS, PYR, GLAUC	
1330	100	CLYST: A/A	
	TR	FORAMS, PYR	

STATOIL

WELLSITE SAMPLE DESCRIPTION			Page 4 of 29
Country: NORWAY	Area: NORTH SEA	Field: THETA NORTH	Well no.: 15/12-7S
Company: STATOIL / AMERADA HESS / CONOCO / NORSK HYDRO		K.B.E. 23 meters	Hole size: 17 1/2"
Geologist: S. BJERKENES / J.M. ØSTBY		Date: 13.11.90	

Depth (mKB)	Lith (%)	Lithological Description: Rock name, mod.lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, sed.structures, accessories, fossils, porosity, contamination.	Remarks: Shows, cavings, mud additives, etc
1340	100	CLYST: BRN BLK, MED DK GRY, FRM - MOD HD, BLKY, MICROMIC, NON CALC	
	TR	FORAMS, SHELL FRAG	
1350	100	CLYST: A/A	
	TR	LST: GRY WH, MOD HD, DENS, MICR	
	TR	FORAMS	
1360	100	CLYST: A/A	
	SL TR	LST: RD BRN, V HD, CRYPTOXLN	
	TR	FORAMS, GLAUC	
1365	80	CLYST: A/A	
	20	LST: A/A	
	TR	FORAMS	
1370	90	CLYST: A/A	
	10	LST: GRY BRN - DSKY BRN, ELSE A/A	
	TR	GLAUCC	
1380	70	CLYST: A/A	
	30	LST: A/A	
	TR	GLAUCC	
1390	80	CLYST: A/A	
	20	LST: A/A, PRTLY PYR	
	TR	GLAUCC, PYR WORM TUBES	
1400	A/A		
1410	A/A		
1420	80	CLYST: A/A	
	20	LST: GRY BRN - DSKY BRN, V HD, BLKY, CRYPTOXLN, PRTLY PYR	
	TR	GLAUCC, PYR WORM TUBES.	
1430	A/A	W/ TR FORAMS	
1440	A/A		
1450	A/A		
1460	90	CLYST: A/A	
	10	LST: A/A	
	TR	GLAUC, WORM TUBES, FORAMS, PYR	
1470	100	CLYST: A/A	
	TR	LST: A/A	
	TR	GLAUC	
1480	90	CLYST: A/A	
	10	LST: A/A	
	TR	GLAUC	
1490	80	CLYST: A/A	
	20	LST: A/A, PRTLY YEL WH - ORNG WH.	
	TR	GLAUC, PYR	
1500	100	CLYST: A/A	
	TR	LST: A/A	
1510	90	CLYST: A/A	
	10	LST: A/A, PRTLY BUFF	
	TR	FORAMS, WORM TUBES, GLAUC, FOSS FRAG	
1520	A/A	BUT CLYST MED GRY BRN I/P.	

STATOIL

WELLSITE SAMPLE DESCRIPTION			Page 5 of 29
Country: NORWAY	Area: NORTH SEA	Field: THETA NORTH	Well no.: 15/12-7S
Company: STATOIL / AMERADA HESS / CONOCO / NORSK HYDRO		K.B.E. 23 meters	Hole size: 17 1/2"
Geologist: S. BJERKENES / J.M. ØSTBY		Date: 14.11.90	

Depth (mKB)	Lith (%)	Lithological Description Rock name,mod.lith,colour,grain size,sorting,roundness,matrix,cementation, hardness,sed.structures,accessories,fossils,porosity,contamination.	Remarks Shows,cavings, mud additives, etc
1530	90	CLYST: DK GRN GRY, BRN BLK - DSKY BRN, FRM - MOD HD, BLKY, MICROMIC, NON CALC, MOD CALC I/P.	
	10	LST: BRN BLK - MED BRN GRY, BLKY, V HD, CRYPTOXLN.	
	TR	FORAMS, WORMTUBES, GLAUC, FOSS FRAG.	
1540	80	CLYST: A/A	
	20	LST: A/A	
	TR	FORAMS, WORMTUBES, GLAUC, FOSS FRAG	
1550	A/A		
1560	A/A		
1570	90	CLYST: A/A	
	10	LST: A/A	
	TR	FORAMS, WORMTUBES, GLAUC, FOSS FRAG.	
1580	A/A		
1590	70	CLYST: A/A	
	30	LST: A/A	
	TR	FORAMS	
1600	A/A		
1610	80	CLYST: A/A	
	20	LST: PRTLY MED GRY - BUFF, ELSE A/A	
	TR	FORAMS	
1620	90	CLYST: A/A	
	10	LST: A/A	
	ABUN	FORAMS	
	TR	FOSS FRAG, PYR	
1630	A/A		
1640	100	CLYST: A/A	
	TR	LST: A/A	
	ABUN	FORAMS	
1650	100	CLYST: A/A	
	TR	LST: A/A	
	TR	FOSS FRAG, FORAMS	
1660	A/A		
1670	100	CLYST: A/A, OCC MED GRY	
	TR	FOSS FRAG	
1680	A/A		
1690	85	CLYST: A/A	
	15	LST: MED BRN GRY, LT GRY, A/A	
	TR	FOSS FRAG, PYR	
1700	95	CLYST: A/A	
	5	LST: A/A	
	TR	FOSS FRAG	
1710	90	CLYST: DSKY BRN - MED GRY, ELSE A/A	
	10	LST: MED BRN GRY - LT GRY, ELSE A/A	
	TR	FOSS FRAG	

WELLSITE SAMPLE DESCRIPTION			Page 6 of 29
Country: NORWAY	Area: NORTH SEA	Field: THETA NORTH	Well no.: 15/12-7S
Company: STATOIL / AMERADA HESS / CONOCO / NORSK HYDRO		K.B.E. 23 meters	Hole size: 17 1/2"
Geologist: S. BJERKENES / J.M. ØSTBY		Date: 14.11.90	

Depth (mKB)	Lith (%)	Lithological Description: Rock name,mod.lith,colour,grain size,sorting,roundness,matrix,cementation, hardness,sed.structures,accessories,fossils,porosity,contamination.	Remarks: Shows,cavings, mud additives, etc
1720	90	CLYST: MSTLY DSKY BRN, MED GRY, FRM - MOD HD, BLKY, MICROMIC, NON - OCC MOD CALC	
	10	LST: MED BRN GRY - LT GRY, BLKY, V HD, CRYPTOXLN.	
	TR	FOSS FRAG, FORAMS, PYR	
1730	90	CLYST: DSKY YEL BRN - MED GRY, A/A	
	10	LST: A/A	
	TR	FOSS FRAG	
1740	85	CLYST: A/A	
	15	LST: A/A	
	TR	FORAMS, FOSS FRAG, PYR	
1750	A/A		
1760	80	CLYST: A/A	
	20	LST: A/A	
	TR	FOSS FRAG	
1770	75	CLYST: A/A	
	25	LST: A/A	
1780	80	CLYST: A/A	
	20	LST: LT GRY, MED BRN - MED BRN GRY, A/A, OCC MICR, I/P RD BRN, SL TRNSP, HD, BLKY, XLN, SUCR	
1790	85	CLYST: A/A	
	15	LST: A/A	
1800	90	CLYST: A/A	
	10	LST: A/A	
	TR	FOSS FRAG	
1810	85	CLYST: A/A	
	15	LST: A/A	
	TR	FOSS FRAG	
1820	90	CLYST: A/A	TD 17 1/2" SECTION
	10	LST: A/A	
	TR	FOSS FRAG	

STATOIL

WELLSITE SAMPLE DESCRIPTION			Page 7 of 29
Country: NORWAY	Area: NORTH SEA	Field: THETA NORTH	Well no.: 15/12-7S
Company: STATOIL / AMERADA HESS / CONOCO / NORSK HYDRO		K.B.E. 23 meters	Hole size: 12 1/4"
Geologist: S. BJERKENES / P. FURMYR		Date: 18.11.90	

Depth (mKB)	Lith (%)	Lithological Description Rock name,mod.lith,colour,grain size,sorting,roundness,matrix,cementation, hardness,sed.structures,accessories,fossils,porosity,contamination.	Remarks Shows,cavings, mud additives, etc
1830	90	CLYST: DSKY BRN, DK YEL BRN, FRM, BLKY, MICROMIC, NON - OCC SL CALC, I/P SL SLTY	NO SHOWS 30% CMT CONTAM
	10	LST: LT GRY, GRY ORNG, MED BRN, MOD HD - HD, BLKY, CRYPTOXLN, OCC MICR	
	TR	FOSS FRAG	
1840	95	CLYST: A/A	TR CMT
	5	LST: A/A	
	TR	FOSS FRAG	
1850	100	CLYST: A/A	
	TR	LST: A/A	
1860	100	CLYST: A/A	
	GD TR	LST: A/A	
	SL TR	PYR	
1870	95	CLYST: A/A	
	5	LST: A/A	
1880	100	CLYST: A/A	
	GD TR	LST: A/A	
	TR	FOSS FRAG	
1890	A/A		
1900	A/A		
1910	A/A		
1920	A/A		
1930	95	CLYST: A/A	
	5	LST: A/A	
	TR	FOSS FRAG	
1940	A/A		
1950	100	CLYST: A/A	
	TR	LST: A/A	
1960	A/A		
1970	A/A		
1980	A/A		
1990	A/A		
2000	A/A		
2010	A/A		
2020	A/A		
2030	95	CLYST: DK YEL BRN - DSKY YEL BRN, MOD BRN, FRM, BLKY, I/P SFT, AMOR, HYDR, SL MICROMIC, NON - OCC SL CALC, OCC SL SLTY	
	5	LST: GRY ORNG, V PL ORNG, YEL BRN, MOD HD, BLKY, CRYPTOXLN, OCC DOLO AND HD	
	GD TR	FOSS FRAG INCL FORAMS	
	SL TR	PYR	

STATOIL

WELLSITE SAMPLE DESCRIPTION			
Country: NORWAY	Area: NORTH SEA	Field: THETA NORTH	Well no.: 15/12-7S
Company: STATOIL / AMERADA HESS / CONOCO / NORSK HYDRO		K.B.E. 23 meters	Hole size: 12 1/4"
Geologist: S. BJERKENES / P. FURMYR		Date: 20.11.90	

Depth (mKB)	Lith (%)	Lithological Description: Rock name, mod.lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, sed.structures, accessories, fossils, porosity, contamination.	Remarks: Shows, cavings, mud additives, etc
2040	100	CLYST: DK YEL BRN - DSKY YEL BRN, MOD BRN, FRM, BLKY, I/P SFT, AMOR, HYDR, SL MICROMIC, NON - OCC SL CALC, OCC SL SLTY	NO SHOWS
	GD TR	LST: GRY ORNG, V PL ORNG, YEL BRN, MOD HD, BLKY, CRYPTOXLN, OCC DOLO AND HD	
	TR	FOSS FRAG INCL FORAMS	
	SL TR	PYR	
2050	A/A		
2060	A/A		
2070	A/A		
2080	100	CLYST: MORE SFT, HYDR, AMOR, ELSE A/A	
	GD TR	LST: A/A	
	TR	FOSS FRAG	
2090	A/A		
2100	A/A		
2110	A/A		
2120	A/A		
2130	A/A		
2140	100	CLYST: A/A, PRTLY DK GRN GRY.	
	TR	LST: A/A	
2150	100	CLYST: LT - DK GRN GRY, FRM, BLKY, SL FLKY I/P, SL MICROMIC, NONCALC.	
	SL TR	LST: A/A	
2160	100	CLYST: MOSTLY DK GRN GRY, TR LT GRN GRY & DSKY YEL BRN , ELSE A/A	
	SL TR	DOL: GRY ORNG, HD, BLKY, MICROXLN	
2170	100	CLYST: A/A	
	SL TR	DOL: A/A	
	SL TR	LST: LT GRY - BUFF - WH, TRNSP I/P, MOD HD, BLKY, XLN, MICROXLN I/P.	
2180	100	CLYST: A/A	
	GD TR	DOL: A/A	
	TR	LST: A/A	
2190	A/A		
2200	A/A		
2210	100	CLYST: A/A	
	SL TR	LST: A/A	
2220	100	CLYST: MAINLY A/A, SL MORE DK OLV GRY, SUBFISS, MOD HD.	
	SL TR	LST: A/A	
2230	A/A		
2240	A/A		
2250	100	CLYST: A/A	
	TR	LST: WH - BUFF - GRY BRN, MOD HD - HD, BLKY, MICR, MICROXLN - XLN I/P, TRNSP AND LT GRY I/P, DOLOMITIC I/P	
2260	A/A		
2270	A/A		
2280	A/A		

WELLSITE SAMPLE DESCRIPTION			Page 9 of 29
Country: NORWAY	Area: NORTH SEA	Field: THETA NORTH	Well no.: 15/12-7S
Company: STATOIL / AMERADA HESS / CONOCO / NORSK HYDRO		K.B.E. 23 meters	Hole size: 12 1/4"
Geologist: S. BJERKENES / P. FURMYR		Date: 20.11.90	

Depth (mKB)	Lith (%)	Lithological Description Rock name,mod.lith,colour,grain size,sorting,roundness,matrix,cementation, hardness,sed.structures,accessories,fossils,porosity,contamination.	Remarks Shows,cavings, mud additives, etc
2290	100	CLYST: DK GRN GRY - DK OLV GRY, LT GRY I/P, MOD HD, BLKY, SUBFISS I/P, SL MICROMIC, NON CALC.	NO SHOWS
	TR	LST: BUFF - GRY BRN, LT GRY - WH I/P, HD, BLKY, MICR - MICROXLN, XLN AND LT GRY - WH TRNSL I/P, DOL I/P.	
	SL TR PYR		
2300	A/A		
2303	A/A	TR LT - DK GRN CLYST I/P	
2306	A/A		
2309	A/A		
2312	A/A		
2315	A/A		
2318	A/A		
2321	A/A		
2324	95	CLYST: DK GN GRY, GN GRY A/A	
	5	LST: A/A	
	SL TR	PYR	
2327	90	CLYST: DK GN GRY, GN GRY, OLV GRY, OCC BRN BLK, FRM, BLKY - SUBFISS, SL MICROMIC, NON CALC, OCC SL MICROPYR, RRLY SL TUFFACEOUS	
	10	LST: GRY WH - LT GRY, YEL WH - LT BRN, OCC WH TRNSL, MOD HD, GEN CRYPTOXLN, OCC XLN, OCC MICROXLN SUCR	
	TR	PYR	
2330	95	CLYST: A/A	
	5	LST: A/A	
	TR	PYR	
2333	A/A		
2336	95	CLYST: A/A	
	5	LST: A/A	
	TR	PYR	
	TR	FOSS FRAG: PYRITIZED	
2342	A/A		HAD TO INTERMITTENTLY USE 6M SAMPLEINTERVALL DUE TO FAST DRILLING
2348	A/A		
2354	95	CLYST: GETTING MULTICOL, DK GN GRY, GN GRY, OLV GRY, ALSO DSKY YEL BRN, MOD BRN, OCC BANDED DK GN GRY AND OLV GRY, MICROMIC, I/P MICROPYR, FRM, BLKY - SUBFISS, NON CALC, RRLY SL TUFFAC	
	5	LST: A/A	
	TR	PYR	
	TR	VOLC FRAGS: DK GN, HD, XLN, OLIVIN ?	
2360	90	CLYST: MULTICOL A/A, MORE OLV GRY AND DSKY YEL BRN, ALSO OCC MED DK GRY AND BRN GRY, MORE BANDED, OCC MOTTLED/VARIGATED, FRM - MOD HD, BLKY - SUBFISS, NON CALC, MICROMIC, I/P MICROPYR, OCC TUFFAC	
	10	LST: A/A	
	GD TR	TUFF: BL GRY, MED GRY, W/WH AND BLK SPKS, SFT, SLTY TXT, NON CALC, OCC BRN GRY W/WH SPKS, HD	
	TR	PYR	
	TR	VOLC FRAGS: A/A	
2363	A/A		

STATOIL

WELLSITE SAMPLE DESCRIPTION			Page 10 of 29
Country: NORWAY	Area: NORTH SEA	Field: THETA NORTH	Well no.: 15/12-7S
Company: STATOIL / AMERADA HESS / CONOCO / NORSK HYDRO		K.B.E. 23 meters	Hole size: 12 1/4"
Geologist: S. BJERKENES / P. FURMYR		Date: 20.11.90	

Depth (mKB)	Lith (%)	Lithological Description Rock name,mod.lith,colour,grain size,sorting,roundness,matrix,cementation, hardness,sed.structures,accessories,fossils,porosity,contamination.	Remarks Shows,cavings, mud additives, etc
2366	85	CLYST: MULTICOL, MORE OLV GRY AND DSKY YEL BRN, ALSO OCC MED DK GRY AND BRN GRY, MORE BANDED, OCC MOTTLED/VARIGATED, FRM - MOD HD, BLKY - SUBFISS, NON CALC, MICROMIC, I/P MICROPYR, OCC TUFFAC	NO SHOWS
	10	LST: GRY WH - LT GRY, YEL WH - LT BRN, OCC WH TRNSL, MOD HD, GEN CRYPTOXLN, OCC XLN, OCC MICROXLN SUCR	
	5	TUFF: BL GRY, MED GRY, W/WH AND BLK SPKS, SFT, SLTY TXT, NON CALC, OCC BRN GRY W/WH SPKS, HD	
	GD TR	PYR	
	TR	FORAMS	
2369	50	TUFF: BL GRY, MED GRY, OCC DK GRY, W/BLK AND WH SPKS, OCC MOTTLED, OCC MICROPYR, SFT - FRM, SLTY TXT, NON CALC	
	30	CLYST: A/A	
	20	LST: OCC DK BRN, TRNSL, XLN, ELSE A/A	
	GD TR	PYR	
	TR	FORAMS	
2372	60	CLYST: A/A	
	30	TUFF: A/A	
	10	LST: A/A	
	GD TR	PYR	
	SL TR	FORAMS	
2375	65	CLYST: A/A	
	20	TUFF: A/A	
	15	LST: A/A	
	GD TR	PYR	
	SL TR	FORAMS	
2378	A/A		
2381	50	CLYST: A/A	
	30	LST: PREDOM GRY ORNG, ELSE A/A	
	20	TUFF: A/A	
	GD TR	PYR	
2384	70	CLYST: A/A	
	20	LST: A/A	
	10	TUFF: A/A	
	GD TR	PYR	
2387	80	CLYST: A/A	
	15	LST: A/A	
	5	TUFF: A/A	
	GD TR	PYR	
2390	90	CLYST: A/A	
	10	LST: A/A	
	GD TR	TUFF: A/A	
	TR	PYR	
2393	95	CLYST: PREDOM OLV GRY - OLV BLK, ALSO DK GN GRY - GN GRY, OCC BRN GRY, FRM - MOD HD, BLKY - SUBFISS, SL MICROMIC, OCC SL MICROPYR, OCC BANDED/MOTT, OCC SL TUFFAC, NON CALC	
	5	LST: A/A	
	GD TR	TUFF: A/A	
	TR	PYR	
2399	100	CLYST: OCC SFT - FRM, ELSE A/A	
	GD TR	LST: A/A	
	GD TR	TUFF: A/A	
	TR	PYR	
2402	A/A		

STATOIL

WELLSITE SAMPLE DESCRIPTION			Page 11 of 29
Country: NORWAY	Area: NORTH SEA	Field: THETA NORTH	Well no.: 15/12-7S
Company: STATOIL / AMERADA HESS / CONOCO / NORSK HYDRO		K.B.E. 23 meters	Hole size: 12 1/4"
Geologist: S. BJERKENES / P. FURMYR		Date: 21.11.90	

Depth (mKB)	Lith (%)	Lithological Description Rock name, mod.lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, sed.structures, accessories, fossils, porosity, contamination.	Remarks Shows, cavings, mud additives, etc
2405	100	CLYST: PREDOM OLV GRY - OLV BLK, ALSO DK GN GRY - GN GRY, OCC BRN GRY, FRM - MOD HD, BLKY - SUBFISS, SL MICROMIC, OCC SL MICROPYR, OCC BANDED/MOTT, OCC SL TUFFAC, NON CALC	NO SHOWS
	GD TR	LST: PREDOM GRY ORNG, YEL WH - LT BRN, OCC WH TRNSL, MOD HD, GEN CRYPTOXLN, OCC XLN, OCC MICROXLN SUCR, OCC DK BRN TRNSL, XLN	
	GD TR	TUFF: BL GRY, MED GRY, W/WH AND BLK SPKS, SFT, SLTY TXT, NON CALC, OCC BRN GRY W/WH SPKS, HD	
	TR	PYR	
2408	A/A		
2411	100	CLYST: A/A	
	TR	LST: A/A	
	TR	TUFF: A/A	
2417	100	CLYST: A/A	
	GD TR	LST: A/A	
	TR	TUFF: A/A	
	SL TR	PYR	
2420	100	CLYST: GETTING FIRMER, MORE FISSILE AND SPLINTRY, ELSE A/A	CAVINGS STARTING TO APPEAR
	TR	LST: A/A	
	TR	TUFF: A/A	
2423	A/A		INCR CAVINGS
2426	A/A		CAVINGS FROM HERE ON
2429	A/A		
2432	A/A	PLUSS TR PYR	
2435	A/A		
2438	A/A		
2441	A/A		
2444	A/A		
2447	A/A		
2450	A/A		
2453	A/A		
2456	A/A		
2459	A/A		
2462	A/A		
2465	A/A		
2468	A/A		
2471	A/A		LESS CAVINGS
2474	100	CLYST: PREDOM OLV GRY - MED DK GRY, ALSO DK GN GRY - GN GRY AND MOD BRN - DSKY YEL BRN, FRM, BLKY - SUBFISS, OCC FISS - PLTY, SL MICROMIC - MICROMIC, NON CALC	
	GD TR	LST: A/A	
	SL TR	TUFF, PYR, FOSS FRAG	

WELLSITE SAMPLE DESCRIPTION			Page 12 of 29
Country: NORWAY	Area: NORTH SEA	Field: THETA NORTH	Well no.: 15/12-7S
Company: STATOIL / AMERADA HESS / CONOCO / NORSK HYDRO		K.B.E. 23 meters	Hole size: 12 1/4"
Geologist: S. BJERKENES / P. FURMYR		Date: 21.11.90	

Depth (mKB)	Lith (%)	Lithological Description: Rock name, mod.lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, sed.structures, accessories, fossils, porosity, contamination.	Remarks: Shows, cavings, mud additives, etc
2477	100	CLYST: PREDOM OLV GRY - MED DK GRY, ALSO DK GN GRY - GN GRY AND MOD BRN - DSKY YEL BRN, FRM, BLKY - SUBFISS, OCC FISS - PLTY, SL MICROMIC - MICROMIC, NON CALC	NO SHOWS SOME CAVINGS
	GD TR	LST: A/A	
	SL TR	TUFF, PYR, FOSS FRAG	
2480	A/A		
2483	A/A		
2486	95	CLYST: INCR DK YEL BRN, MOD BRN, ELSE A/A	
	5	LST: A/A	
	TR	PYR	
	SL TR	FOSS FRAG	
2489	100	CLYST: A/A	
	GD TR	LST: A/A	
	SL TR	PYR, FOSS FRAG	
2492	A/A		
2495	A/A		
2498	A/A		
2501	100	CLYST: OLV GRY, MED DK GRY, BRN GRY, DK YEL BRN, FRM - MOD HD, SUBFISS OCC FISS, I/P MICROMIC, OCC MICROPYR I/P, NON CALC	MOSTLY CAVINGS
	TR	LST: A/A	
	TR	PYR	
	SL TR	TUFF, FOSS FRAG	
2504	A/A		
2507	A/A		
2510	A/A		
2513	100	CLYST: MORE GRY BRN AND GRN GRY, ELSE A/A	
	TR	LST: A/A	
	SL TR	PYR, FOSS FRAG	
2516	A/A		
2519	A/A		
2522	A/A		
2525	A/A		
2528	100	CLYST: A/A	
	GD TR	LST: WH - LT GRY, WH TRNSL,MOD HD, OCC SFT, OCC XLN, I/P DOL, OCC GRD TO MARL	
	TR	PYR	
2531	A/A		
2534	A/A		
2537	A/A		
2540	A/A		MOSTLY CAVINGS
2543	A/A		

STATOIL

WELLSITE SAMPLE DESCRIPTION			Page 13 of 29
Country: NORWAY	Area: NORTH SEA	Field: THETA NORTH	Well no.: 15/12-7S
Company: STATOIL / AMERADA HESS / CONOCO / NORSK HYDRO		K.B.E. 23 meters	Hole size: 12 1/4"
Geologist: P. FURMYR / M. HELLE		Date: 23.11.90	

Depth (mKB)	Lith (%)	Lithological Description Rock name,mod.lith,colour,grain size,sorting,roundness,matrix,cementation, hardness,sed.structures,accessories,fossils,porosity,contamination.	Remarks Shows,cavings, mud additives, etc
2546	95	CLYST: MULTICOL, OLV GRY, MED DK GRY, DK GN GRY, MOD BRN, MOD RD BRN, FRM - MOD HD, SUBFISS, OCC FISS, PREDOM NON CALC, OCC SFT MRLY	NO SHOWS MOSTLY CAVINGS
	5	MRL: LT GRY, LT RD BRN, SFT, AMOR, SL STKY	
	GD TR	LST: WH, FRM, BLKY, CHKY TXT, ALSO GRY ORNG, MOD HD, CRYPTOXLN	
	TR	PYR	
2549	100	CLYST: A/A	
	TR	LST: A/A	
	TR	DOL: GRY ORNG, HD, ANG, CRYPTOXLN	
	TR	PYR	
2552	100	CLYST: INCR BRN GRY AND ALSO MOD RD BRN - DK RD BRN, ELSE A/A	
	TR	LST: A/A	
	TR	PYR	
2555	A/A		
2558	A/A		
2561	A/A		
2564	85	CLYST: VARICOLOURED, GN GRY, MED GRY, BRN GRY, DK RD BRN, OLV GRY, MOD HD, OCC SFT, OCC CALC GRDG TO MRL, SUBFISS - BLKY, MICROMIC	
	15	MRL: LT GRY, SFT, AMOR - BLKY, SL STKY, OCC GRDG TO CALC CLYST	
	TR	LST: A/A	
	TR	PYR	
2567	70	CLYST: A/A	
	30	MRL: A/A	
	TR	LST: A/A	
2570	70	ARG LST: V LT GRY, LT GRY, GRDG TO MRL, SFT - FRM, BLKY, CRYPTOXLN, OCC CHKY	
	30	CLYST: A/A	
	SL TR	PYR	
2573	80	LST: CHKY TXT, V LT GRY, ALSO LT GRY AND SL ARG - ARG, SFT - FRM, SL STKY, BLKY, CRYPTOXLN	CLYST PROB. MOSTLY CAVINGS
	20	CLYST: A/A	
	SL TR	PYR	
2576	A/A		A/A
2579	60	LST: A/A	A/A
	40	CLYST: A/A	
2582	80	CLYST: A/A	A/A
	20	LST: A/A	
2585	70	CHKY LST: V LT GRY - WH, OCC LT GRY AND SL ARG - ARG, FRM, BLKY, CRYPTOXLN	A/A
	30	CLYST: A/A	
2588	A/A		A/A
2591	90	CHKY LST: GETTING FIRMER, MORE WH AND CHKY, ELSE A/A	A/A
	10	CLYST: A/A	
2600	90	CHKY LST: A/A	A/A
	10	CLYST: A/A	
2610	A/A		A/A
2620	A/A		A/A

STATOIL

WELLSITE SAMPLE DESCRIPTION			Page 14 of 29
Country: NORWAY	Area: NORTH SEA	Field: THETA NORTH	Well no.: 15/12-7S
Company: STATOIL / AMERADA HESS / CONOCO / NORSK HYDRO		K.B.E. 23 meters	Hole size: 12 1/4"
Geologist: P. FURMYR / M. HELLE / J.M. ØSTBY / O. BEYER		Date: 25. - 01.12.90	

Depth (mKB)	Lith (%)	Lithological Description Rock name,mod.lith,colour,grain size,sorting,roundness,matrix,cementation, hardness,sed.structures,accessories,fossils,porosity,contamination.	Remarks Shows,cavings, mud additives, etc
2630	100	CHKY LST: WH - V LT GRY, OCC LT GRY AND SL ARG, FRM, OCC MOD HD, BLKY, CRYPTOXLN	10% CLYST CAVINGS NO SHOWS
	TR	CLYST: OLV GRY, GN GRY, BRN GRY, DK RD BRN, FRM, SUBFISS, MICROMIC	
2640	A/A		A/A
2650	A/A		80% CAVINGS
2660	A/A		50% CAVINGS
2670	A/A		20% CAVINGS
2680	A/A		10% CAVINGS
2690	A/A		5% CAVINGS
2700	A/A		A/A
2710	A/A		A/A
2720	A/A		A/A
2730	A/A		A/A
2740	A/A		A/A
2750	A/A		A/A
2760	100	CHKY LST: WH, OCC V LT GRY, OCC SL ARG, FRM, BLKY, CRYPTOXLN	A/A
2770	A/A		A/A
2780	A/A		
2790	100	CHKY LST: WH - OFF WH, OCC PA PNK, OCC V LT GRY AND SL ARG, FRM, BLKY, CRYPTOXLN	A/A
2800	100	CHKY LST: SL MORE PA PNK, V LT GRY AND ARG, ELSE A/A	A/A
2810	A/A		
2820	A/A		
2830	A/A		
2840	A/A		A/A
2850	A/A		A/A
2860	A/A		A/A
2870	100	CHKY LST: WH - OFF WH, OCC PA PNK, SL ARG I/P, MOD HD, OCC FRM, BLKY, CRYPTOXLN	
2880	A/A		
2890	A/A		
2892	A/A		
2895	A/A		
2898	A/A	INCR PNK	

STATOIL

WELLSITE SAMPLE DESCRIPTION			Page 15 of 29
Country: NORWAY	Area: NORTH SEA	Field: THETA NORTH	Well no.: 15/12-7S
Company: STATOIL / AMERADA HESS / CONOCO / NORSK HYDRO		K.B.E. 23 meters	Hole size: 12 1/4"
Geologist: O. BEYER / J.M. ØSTBY		Date: 01. - 04.12.90	

Depth (mKB)	Lith (%)	Lithological Description Rock name,mod.lith,colour,grain size,sorting,roundness,matrix,cementation, hardness,sed.structures,accessories,fossils,porosity,contamination.	Remarks Shows,cavings, mud additives, etc
2901	100	CHKY LST: WH - OFF WH, PA PNK, SL ARG I/P, FRM - OCC MOD HD, BLKY, CRYPTOXLN	
2904	A/A		
2907	A/A	TR XLN - FIBR CAL, BRN, HD	
2910	A/A	PRED PNK, SL MRLY	
2913	A/A		
2916	A/A		
2919	70	CLYST: MED BL GRY - MED GRY, GRY BRN, MOD HD, BLKY - FLKY, SUBFISS, V MICROMIC, NON - OCC SL CALC	
	30	LST: WH, MOD - HD, V SDY, BLKY, V GLAUC	
	TR	FOSS FRAG	
2922	85	CLYST: A/A	
	15	LST: A/A	
2925	60	LST/MRL: OFF WH - PNK, MOD HD - HD, AREN, PRED BLKY, AMOR - CRYPTOXLN,TR XLN, I/P GLAUC SPKS	
	40	CLYST: BEC LESS BRN, ELSE A/A	
2928	60	MRL: BEC PRED PNK - RD BRN, BLKY, I/P SUCR, I/P ABUN MICROPYR & MICROGLAUC, PRED FRM - MOD HD	
	40	CLYST: BEC V ABUN DISEM MICROPYR, HD - V HD LAMIN	
	TR	PYR	
2931	A/A		
2934	A/A		
2937	60	MRL: A/A	
	40	CLYST: BEC ALSO DK OLV GRY - OLV BLK, PRED BLKY, MOD HD, NON CALC, LESS PYR	
	TR	PYR	
2940	60	MRL: A/A	
	40	CLYST: I/P EARTHY GRY BRN, ELSE A/A	
	TR	PYR	
2943	70	MRL: A/A	
	30	CLYST: A/A	
2946	60	MRL: A/A	
	40	CLYST: A/A	
	TR	GLAUC	
2949	95	MRL: LT GRY, OCC PNK - RD BRN, ELSE A/A	
	5	CLYST: A/A	
	TR	PYR	
2952	95	MRL: LT - LT MED GRY, SFT - FRM, V SLTY, SDY I/P, MICROMIC	
	5	CLYST: A/A	
	TR	MRL: PNK - RD BRN, A/A	
	TR	PYR	
2955	90	MRL: LT - LT MED GRY, LT BL GRY I/P, ELSE A/A	
	5	MRL: PNK - RD BRN, A/A	
	5	CLYST: A/A	
2958	70	MRL: LT - LT MED GRY, A/A	
	30	MRL: PNK - RD BRN, A/A	
	TR	CLYST: A/A	

STATOIL

WELLSITE SAMPLE DESCRIPTION			Page 16 of 29
Country: NORWAY	Area: NORTH SEA	Field: THETA NORTH	Well no.: 15/12-7S
Company: STATOIL / AMERADA HESS / CONOCO / NORSK HYDRO		K.B.E. 23 meters	Hole size: 12 1/4"
Geologist: O. BEYER / J.M. ØSTBY		Date: 04. - 05.12.90	

Depth (mKB)	Lith (%)		Lithological Description Rock name, mod.lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, sed.structures, accessories, fossils, porosity, contamination.	Remarks Shows, cavings, mud additives, etc
2961	60	MRL:	GRYISH RD, SFT - FRM, SLTY - SDY I/P	
	40	CLYST:	MED GRY, BRN GRY, DSKY BRN, GN GRY, FRM, BLKY, OCC SL SUBFISS, SL MICROMIC I/P, NON CALC	
	TR	LST:	WH, MOD HD, CRYPTOXLN	
2964	50	MRL:	A/A	
	45	CLYST:	A/A	
	5	LST:	A/A	
2967	80	MRL:	A/A	
	20	CLYST:	A/A	
	TR	LST:	A/A	
2970	85	MRL:	GLAUC I/P, ELSE A/A	
	15	CLYST:	MED GRY, GN GRY, OCC BRN GRY, ELSE A/A	
	TR	LST:	A/A	
2973	65	MRL:	A/A	
	30	CLYST:	MED DK GRY, GN GRY, BRN GRY, OCC DSKY BRN, ELSE A/A	
	5	LST:	A/A	
2976	70	MRL:	A/A	
	20	CLYST:	A/A	
	10	LST:	A/A	
2979	50	MRL:	A/A	
	40	CLYST:	A/A	
	10	LST:	A/A	
2982	95	CLYST:	OLV GRY - MED DK GRY, GN GRY, BRN GRY - GRYISH RD, OCC DSKY BRN, FRM - MOD HD, BLKY, SL SUBFISS I/P, SL MICROMIC, NON - SL CALC	
	5	LST:	A/A	
	TR	MRL:	A/A	
2985	95	CLYST:	A/A	
	5	LST:	A/A	
2988	90	CLYST:	A/A, BLKY - SUBFISS, FISS I/P	
	10	LST:	A/A	
2991	90	CLYST:	OLV GRY, MED DK GRY, GN GRY, BRN GRY, GRYISH RD, OCC DSKY BRN, FRM - MOD HD, BLKY - SUBFISS, OCC FISS, OCC MICROMIC, NON - SL CALC, OCC V CALC, MRLY I/P	
	10	LST:	WH, FRM - MOD HD, BLKY I/P, CRYPTOXLN - MICR	
	TR	PYR		
2994	85	CLYST:	PREDOM BRN GRY - GRYISH RD, ELSE A/A	
	15	LST:	A/A	
	TR	FOSS FRAG		
2997	60	CLYST:	PREDOM OLV GRY - MED DK GRY, ELSE A/A	
	40	LST:	A/A	
3000	60	CLYST:	PREDOM BRN GRY - GRYISH RD, ELSE A/A	
	40	LST:	A/A	
	TR	PYR		
3003	80	CLYST:	BEC ALSO MOD RD ORNG,ELSE A/A	
	20	LST:	A/A	
	TR	PYR		
3006	A/A			

STATOIL

WELLSITE SAMPLE DESCRIPTION			Page 17 of 29
Country: NORWAY	Area: NORTH SEA	Field: THETA NORTH	Well no.: 15/12-7S
Company: STATOIL / AMERADA HESS / CONOCO / NORSK HYDRO		K.B.E. 23 meters	Hole size: 12 1/4"
Geologist: O. BEYER / J.M. ØSTBY		Date: 05.12.90	

Depth (mKB)	Lith (%)	Lithological Description Rock name,mod.lith,colour,grain size,sorting,roundness,matrix,cementation, hardness,sed.structures,accessories,fossils,porosity,contamination.	Remarks Shows,cavings, mud additives, etc
3009	30	CLYST: DK BRN GRY - DK OLV GRY - GRY BLK, SUBFISS, FRM, CARB MICROSPKS, FLKY - FISS, LOC BRIT, MICROMIC, NON CALC	BEC SPTY WK - MOD BRI YEL - ORNG FLUOR WK SLOW STRM WH - YEL WH CUT FLUOR
	50	CLYST: RD BRN - DSKY RD BRN, PA GN GRY - MED GRY, PRED BLKY, LOC SL SUBFISS, FRM - MOD HD, LOC DISEM MICROPYR, NON - SL CALC	
	20	LST: WH - OFF WH AMOR (MICR), SFT - FRM, ALSO XLN (SPARRY), HD	
	GD TR	PYR AND PYR FOSS FRAG	
	SL TR	COAL	
3012	A/A		
3015	40	CLYST: DK BRN - OLV GRY, A/A	
	40	CLYST: RD BRN - DSKY RD BRN, A/A	
	20	LST: A/A	
	TR	COAL FRAG, PYR	
3018	50	CLYST: DK BRN - OLV GRY, A/A	
	30	CLYST: RD BRN - DSKY RD BRN, A/A	
	20	LST: A/A	
	TR	COAL FRAGS, PYR	
3021	A/A		
3024	A/A		
3027	10	SST: CLR - WH QTZ, FN - MED, RR CRS, MOD SRTD, SUBANG - SUBRND, LSE - FRI, CALC CMT, GD VIS POR	NO FLUOR & CUT REACTION
	50	CLYST: DK OLV GRY - DK BRN GRY, A/A	PREDOMINANT CAVINGS
	20	CLYST: RD BRN SHADES, A/A	
	20	LST: A/A	TD 12 1/4" SECTION
TR	COAL FRAGS, PYR		

STATOIL

WELLSITE SAMPLE DESCRIPTION			Page 18 of 29
Country: NORWAY	Area: NORTH SEA	Field: THETA NORTH	Well no.: 15/12-7S
Company: STATOIL / AMERADA HESS / CONOCO / NORSK HYDRO		K.B.E. 23 meters	Hole size: 8 1/2"
Geologist: P. FURMYR / M. HELLE		Date: 18.12.90	

Depth (mKB)	Lith (%)	Lithological Description Rock name,mod.lith,colour,grain size,sorting,roundness,matrix,cementation, hardness,sed.structures,accessories,fossils,porosity,contamination.	Remarks Shows,cavings, mud additives, etc
3028	10	SST: WH, V LT GRY, MLKY WH AND CLR QTZ, VFN - FN, W SRT, SUBRND, SL SIL CMT, FRI - MOD HD, SL MIC, SL GLAU I/P, SL CARB, NON CALC, PR VIS POR, OCC BRN GRY, V ARG, MICA AND CARB W/DISSEM PYR, OCC CLR, CRS, LSE QTZ	NO FLUOR & CUT CONTAM BY LIGN FROM MUD, CAVINGS AND CMT
	80	CLYST: PREDOM OLV BLK - DSKY YEL BRN, OCC RD BRN, OCC MED GRY - GN GRY, FRM, SUBFISS	
	10	LST: WH - OFF WH, CHKY TXT, ALSO LT BRN - TRANSLUC, XLN, HD	
	TR	PYR	
	3029-3054 mMD: See coredescription		
3057	85	CLYST: MED DK BRN -DK GRY,FRM,SL MIC,CARB,SUBFISS,	
	15	SST: WH, YEL BRN,CLR QTZ, VFN-FN,OCC MED- V CRS, SUBANG-SUBRND,LSE-FRI,MOD SRTD,SL KAOLIN MATR	
	TR	PYR	
3060	A/A		
3063	60	CLYST: A/A	
	40	SST: A/A	
	TR	PYR	
3066	75	SST: A/A	
	25	CLYST: A/A	
	TR	PYR	
3069	90	SST: PA-YEL BRN,CLR-SMKY QTZ,PRED FN-MED,OCC CRS- VCRS, MOD SRTD,SUBANG-SUBRND, I/P RND,LSE,OCC FRI,MIC, SL KAOLIN MATR, SL CARB	
	10	CLYST: A/A	
	TR	PYR	
3072	A/A		
3075	100	SST: A/A	
	TR	CLYST: A/A	
	TR	PYR	
3078	A/A		
3081	90	SST: A/A	
	10	CLYST: A/A	
	TR	PYR	
3084	- 3108:	A/A	
3111	90	SST: LT GRY - PA YEL BRN, CLR - TRANSP QTZ, OCC RD, GRY YEL AND SMKY QTZ, FN - CRS, OCC V CRS, PR - MOD SRT, SUBANG - SUBRND, SL - ABUND WH MTX (KAOL?), SL CALC CMT, FRI, MIC W/MAINLY GN MICA, OCC SL CARB, MOD VIS POR	ABUND METAL SHVGS SST GETTING SL CALC
	10	CLYST: VARICOL, MAINLY DK RD BRN, GN GRY AND DSKY BRN, FRM, SUBFISS, NON CALC, SL MIC - MIC, NON CALC, SLTY I/P	
	TR	ROCKFL: WH, FRM, AMOR	
3114	A/A		
3117	85	SST: A/A	
	15	CLYST: A/A	

STATOIL

WELLSITE SAMPLE DESCRIPTION			Page 19 of 29
Country: NORWAY	Area: NORTH SEA	Field: THETA NORTH	Well no.: 15/12-7S
Company: STATOIL / AMERADA HESS / CONOCO / NORSK HYDRO		K.B.E. 23 meters	Hole size: 8 1/2"
Geologist: P. FURMYR / M. HELLE		Date: 19.12.90	

Depth (mKB)	Lith (%)	Lithological Description Rock name,mod.lith,colour,grain size,sorting,roundness,matrix,cementation, hardness,sed.structures,accessories,fossils,porosity,contamination.	Remarks Shows,cavings, mud additives, etc
3120	85	SST: LT GRY - PA YEL BRN, CLR - TRANSP QTZ, OCC RD, GRY YEL AND SMKY QTZ, FN - CRS, OCC V CRS, PR - MOD SRT, SUBANG - SUBRND, SL - ABUND WH MTX (KAOL?), SL CALC CMT, FRI, MIC W/MAINLY GN MICA, OCC SL CARB, MOD VIS POR	ABUND METAL SHVGS
	15	CLYST: VARICOL, MAINLY DK RD BRN, GN GRY AND DSKY BRN, FRM, SUBFISS, NON CALC, SL MIC - MIC, NON CALC, SLTY I/P	
	TR	ROCKFL: WH, FRM, AMOR, OCC CALC	
3123	50	CLYST: A/A	
	50	SST: INCR GN GRY, VFN -FN I/P GRDG SLTST, GN GRY MTX/CMT, FRI - MOD HD, V MICA, ELSE A/A	
	TR	ROCKFL: A/A	
3126	80	SST: A/A	
	20	CLYST: A/A	
3129	90	SST: LT GRY - PA YEL BRN, CLR - TRANSP QTZ, OCC RD BRN, GRY YEL AND SMKY BRN AND GRY YEL QTZ, FN - CRS, OCC V CRS, PR - MOD SRT, SUBANG - SUBRND, I/P WH ARG MTX, NO - SL CALC CMT, LSE - FRI, MICA, FAIR VIS POR	
	TR	ROCKFL: A/A	
	SLTR	MICA	
3132	90	SST: INCR RD BRN, SMKY BRN QTZ, ELSE A/A	
	10	CLYST: A/A	
	TR	A/A	
3135	100	SST: OFF WH - PA YEL BRN, CLR - TRANSP QTZ, ALSO RD BRN, SMKY BRN QTZ, FN - CRS, OCC V CRS, PR - MOD SRT, SUBRND, NO - OCC, WH, ARG MTX, NO CMT, LSE, SL MICA, FAIR - GOOD VIS POR	
	GDTR	CLYST: A/A	
	TR	ROCKFL: A/A	
	SLTR	MICA	
3138	100	SST: INCR CALC CMT, FRI, ELSE A/A	
	TR	A/A	
3141	90	SST: OFF WH, PA YEL BRN, I/P ABUND WH MTX, CALC CMT, FRI - MOD HD, POOR VIS POR, ELSE A/A	
	10	CLYST: A/A	
	TR	ROCKFL: A/A	
	SLTR	MICA	
3144	A/A		
3147	A/A		
3150	A/A		
3153	95	SST: VFN - VCRS, PR SRT, ELSE A/A	
	5	CLYST: A/A	
	TR	A/A	
3156	A/A		
3159	A/A		
3162	A/A		
3165	80	SST: A/A	
	20	CLYST: A/A	
	TR	A/A	

STATOIL

WELLSITE SAMPLE DESCRIPTION			Page 20 of 29
Country: NORWAY	Area: NORTH SEA	Field: THETA NORTH	Well no.: 15/12-7S
Company: STATOIL / AMERADA HESS / CONOCO / NORSK HYDRO		K.B.E. 23 meters	Hole size: 8 1/2"
Geologist: P. FURMYR / M. HELLE		Date: 20.12.90	

Depth (mKB)	Lith (%)	Lithological Description Rock name,mod.lith,colour,grain size,sorting,roundness,matrix,cementation, hardness,sed.structures,accessories,fossils,porosity,contamination.	Remarks Shows,cavings, mud additives, etc
3168	90	SST: OFF WH, PA YEL BRN, VFN - V CRS, PR SRT, SUBANG - SUBRND, WH MTX, CALC CMT, FRI - MOD HD, MICA, POOR VIS POR	NO SHOWS
	10	CLYST: VARICOL, MAINLY DK RD BRN, GN GRY AND DSKY BRN, FRM, SUBFISS, NON CALC, SL MIC - MIC, NON CALC, SLTY I/P	
	TR	ROCKFL: WH, FRM, AMOR, CALC	
	TR	MICA	
3171	70	SST: A/A	
	30	CLYST: INCR GRY BLK CLYST, CARB/COALY I/P, MICROMIC, MICROPYR I/P, ELSE A/A	
	TR	A/A	
3174	A/A		
3177	A/A		
3180	A/A		
3183	A/A		
3186	80	SST: A/A	
	20	CLYST: A/A	
	TR	A/A	
3189	50	SST: A/A	
	50	CLYST: A/A	
	TR	A/A	
3192	60	SST: A/A	
	40	CLYST: A/A	
	TR	A/A	
3195	80	SST: FN - V CRS, PR SRT, SUBRND, LESS CMT, FRI, ELSE A/A	
	20	CLYST: A/A	
	TR	A/A	
3198	80	SST: PREDOM CRS - V CRS, MOD SRT, SUBRND - RND, LSE - FRI, ELSE A/A	
	20	CLYST: A/A	
	TR	A/A	
3201	80	SST: FN - V CRS, PR SRT, WH MTX, CALC CMT, FRI - MOD HD, OCC LSE, ELSE A/A	
	20	CLYST: A/A	
	TR	A/A	
3204	90	SST: PREDOM FN - MED, OCC CRS - V CRS, MOD SRT, SUBANG - SUBRND, LESS CMT, LSE - FRI	
	10	CLYST: A/A	
	GDTR	MICA	
	TR	ROCKFL: A/A	
3207	A/A		
3210	80	SST: FN - V CRS, PR SRT, SUBANG - SUBRND, WH, ARG MTX, CALC CMT, FRI - MOD HD, ALSO LSE CRS - V CRS GRNS	
	20	CLYST: A/A	
	TR	A/A	
3213	A/A		
3216	70	SST: A/A	
	30	CLYST: A/A	
	TR	A/A	

STATOIL

WELLSITE SAMPLE DESCRIPTION			Page 21 of 29
Country: NORWAY	Area: NORTH SEA	Field: THETA NORTH	Well no.: 15/12-7S
Company: STATOIL / AMERADA HESS / CONOCO / NORSK HYDRO		K.B.E. 23 meters	Hole size: 8 1/2"
Geologist: P. FURMYR / M. HELLE / T. BJØRGEN		Date: 20.12.90	

Depth (mKB)	Lith (%)	Lithological Description Rock name,mod.lith,colour,grain size,sorting,roundness,matrix,cementation, hardness,sed.structures,accessories,fossils,porosity,contamination.		Remarks Shows,cavings, mud additives, etc
3219	80	SST:	OFF WH, PA YEL BRN, FN - V CRS, PR SRT, SUBANG - SUBRND, WH MTX, CALC CMT, FRI - MOD HD, MICA, POOR VIS POR, LSE CRS - V CRS GRNS	NO SHOWS
	20	CLYST:	VARICOL, MAINLY DK RD BRN, GN GRY AND DSKY BRN - GRY BLK, FRM, SUBFISS, NON CALC - OCC CALC, SL MIC - MIC, SLTY I/P - OCC GRDG TO VFN SST	
	TR	ROCKFL:	WH, FRM, AMOR, CALC	
	TR	MICA		
3222	100	SST:	PREDOM FN - MED, W SRT, SUBANG - SUBRND, PREDOM LSE,	
	TR	CLYST:	A/A	
	TR	ROCKFL, MICA		
3225	80	SST:	FN - MED, OCC CRS, MOD SRT, SUBANG - SUBRND, WH ARG MTX, CALC CMT, FRI - MOD HD, MICA, PR VIS POR	
	20	CLYST:	PREDOM RD BRN, GRY BLK, OCC GN GRY, ELSE A/A	
	TR	MICA, ROCKFL A/A		
3228	70	SST:	ABUND WH, ARG (CALC) MTX, ELSE A/A	
	30	CLYST:	GETTING SOFTER AND MORE STICKY, ELSE A/A	
	TR	A/A		
3231	A/A			
3234	60	SST:	A/A	
	40	CLYST:	A/A	
	TR	A/A		
3237	A/A			
3240	95	CLYST:	PREDOM RD BRN, PREDOM V SLTY GRDG TO SLTST AND OCC VFN SST, MIC OCC GN GRY	
	5	SST:	A/A	
	TR	A/A		
3243	40	CLYST:	PREDOM GRY RD - RD BRN, OCC MOD BRN, FRM, SUBFISS, NON CALC - OCC SL CALC, PREDOM MICA, OCC V MICA AND SLTY	
	10	CLYST/SH:	GRY BLK, FRM, SUBFISS - FISS, NON CALC, SL MIC - MIC, SL CARB	
	10	CLYST:	GN GRY, FRM, SUBFISS, MICA - V MICA, OCC W/GN MICA, OCC SLTY V SLTY, NONCALC	
	40	SST:	WH, LT GRY, YEL GRY, CLR - TRANSP QTZ, OCC RD BRN AND BRN STND QTZ, FN - MED, MOD SRT, SUBANG - SUBRND, WH OR GN GRY ARG MTX, (KAOL?), V SL CALC CMT, PREDOM LSE, FRI WHEN SL CALC CMT, SL MIC - MIC, OCC W/GN MICA, PR - MOD VIS POR	
	GDTR	SLTST:	GN GRY, FRM, BLKY, V MICA, OCC W/GN MICA, OCC V SDY GRDG TO VFN SST	
	GDTR	PYR		
	TR	MICA		
	TR	LST:	OLV GRY, BRN GRY, MOD HD - HD, CRYPTOXLN	
3246	90	CLYST:	MULTICOL A/A	
	10	SST:	A/A	
	GDTR	SLTST:	A/A	
	TR	PYR, MICA, LST A/A		
3249	70	CLYST:	INCR GRY BLK, ELSE A/A	
	30	SST:	A/A	
	TR	A/A		
3252	A/A			
3255	A/A			

STATOIL

WELLSITE SAMPLE DESCRIPTION			Page 22 of 29
Country: NORWAY	Area: NORTH SEA	Field: THETA NORTH	Well no.: 15/12-7S
Company: STATOIL / AMERADA HESS / CONOCO / NORSK HYDRO		K.B.E. 23 meters	Hole size: 8 1/2"
Geologist: P. FURMYR / T. BJØRGEN		Date: 21.12.90	

Depth (mKB)	Lith (%)	Lithological Description Rock name,mod.lith,colour,grain size,sorting,roundness,matrix,cementation, hardness,sed.structures,accessories,fossils,porosity,contamination.	Remarks Shows,cavings, mud additives, etc
3258	90	SST: WH, LT GRY, YEL GRY, CLR - TRANSP QTZ, OCC RD BRN AND BRN STND QTZ, FN - MED, MOD SRT, SUBANG - SUBRND, PREDOM LSE, OCC W/WH OR GN GRY ARG MTX, (KAOL?), SL CALC CMT, FRI WHEN SL CALC CMT, I/P V MICA, OCC GN MICA, POR - FAIR POR	NO SHOWS
	10	CLYST: PREDOM GRY RD - RD BRN, OCC MOD BRN, FRM, SUBFISS, NON CALC - OCC SL CALC, PREDOM MICA, OCC V MICA AND SLTY, ALSO GRY BLK, FRM, SUBFISS - FISS, NON CALC, SL MIC - MIC, SL CARB, ALSO GN GRY, FRM, SUBFISS, MICA - V MICA, OCC W/GN MICA, OCC SLTY V SLTY, NONCALC	
	TR	SLTST: GN GRY, FRM, BLKY, V MICA, OCC W/GN MICA, OCC V SDY GRDG TO VFN SST	
	GDTR	MICA	
	GDTR	ROCKFL: WH, SFT - FRM, AMOR - BLKY, KAOL ?	
3261	95	SST: A/A	
	5	CLYST: A/A	
	TR	SLTST: A/A	
	GDTR	MICA, ROCKFL: A/A	
3264	95	SST: INCR RD BRN AND BRN STN QTZ, ELSE A/A	
	5	CLYST: A/A	
	TR	A/A	
3267	60	CLYST: MULTICOL A/A, DOM GRY RD - RD BRN	
	30	SST: INCR WH, ARG MTX (KAOL?), FN - MED, OCC CRS, INCR RD BRN - BRN STN, ELSE A/A	
	10	ROCKFL: WH, SFT - FRM, BLKY - AMOR, KAOLIN?	
	TR	SLTST, MICA	
3270	60	SST: PREDOM LSE, FN - MED, OCC CRS	
	40	CLYST: INCR GRY BLK, ELSE A/A	
	GDTR	ROCKFL: A/A	
	TR	SLTST, MICA	
	TR	LST: OLV GRY, HD - MOD HD, CRYPTOXLN	
3273	70	SST: YEL GRY, LT GRY, GN GRY, FN - MED, MOD SRT, SUBANG - SUBRND, CLR - TRANSP QTZ, OCC RD BRN AND BRN STND QTZ, PREDOM LSE, OCC W/WH, GN GRY OR GRY MTX (KAOL?)	
	30	CLYST: INCR GN GRY, ELSE A/A	
	GDTR	ROCKFL: A/A	
	TR	MICA, SLTST	
3276	85	SST: PREDOM LSE A/A	
	10	CLYST: A/A	
	5	ROCKFL: WH, SFT - FRM, KAOL?, OCC SL CALC	
	TR	MICA, SLTST	
3279	90	SST: A/A	
	5	CLYST: A/A	
	5	ROCKFL: A/A	
	TR	MICA, SLTST	
	SL TR	LST: A/A	
3282	80	SST: A/A	
	10	CLYST: A/A	
	10	ROCKFL: A/A	
	GDTR	SLTST: A/A	
	TR	LST: A/A	
	TR	PYR, MICA	

STATOIL

WELLSITE SAMPLE DESCRIPTION			Page 23 of 29
Country: NORWAY	Area: NORTH SEA	Field: THETA NORTH	Well no.: 15/12-7S
Company: STATOIL / AMERADA HESS / CONOCO / NORSK HYDRO		K.B.E. 23 meters	Hole size: 8 1/2"
Geologist: P. FURMYR / T. BJØRGEN		Date: 21.12.90	

Depth (mKB)	Lith (%)	Lithological Description: Rock name,mod.lith,colour,grain size,sorting,roundness,matrix,cementation, hardness,sed.structures,accessories,fossils,porosity,contamination.	Remarks: Shows,cavings, mud additives, etc
3285	80	SST: YEL GRY, V LT GRY, GN GRY, FN - MED, MOD - WL SRT, SUBANG - SUBRND, CLR - TRANSP QTZ, OCC RD BRN - BRN STN, PREDOM LSE, OCC W/WH OCC GN GRY MTX (KAOLIN?), V SL CALC CMT, I/P MICA - V MICA, FAIR - PR POR	NO SHOWS
	10	CLYST: RD GRY - RD BRN, GN GRY, GRY BLK, PREDOM GN GRY, FRM, SUBFISS, OCC MICA - V MICA, NON CALC - CALC, SL CARB WHEN GRY BLK, OCC SLTY	
	10	ROCKFL: WH, V LT GRY, SFT - FRM, KAOLIN?, OCC SL CALC	
	GDTR	SLTST: PREDOM GN GRY, FRM, MICA - V MICA, PREDOM GN MICA, OCC GRDG TO VFN SST	
	TR	LST: OLV GRY, BRN GRY, HD, CRYPTOXLN	
	TR	PYR	
	TR	MICA	
3288	75	SST: RRLY CRS - V CRS AND RND, ELSE A/A	
	15	CLYST: A/A	
	10	ROCKFL: A/A	
	TR	A/A	
3291	85	SST: A/A	
	10	CLYST: A/A	
	5	ROCKFL: A/A	
	TR	SLTST: A/A	
	TR	MICA	
	SLTR	LST: OLV GRY, LT OLV GRY, HD, CRYPTOXLN	
3294	80	SST: A/A	
	10	CLYST: A/A	
	10	ROCKFL: WH, V LT GRY, OCC V PA RD, SFT - FRM, OCC SL STKY, BLKY - AMOR, (KAOL?)	
	TR	MICA, SLTST	
	SLTR	LST: A/A	
	SLTR	PYR	
3297	95	SST: PREDOM LSE, ABUND RD BRN - BRN STND QTZ, ELSE A/A	
	5	CLYST: A/A	
	GDTR	ROCKFL: A/A	
	TR	SLTST, MICA	
3300	85	SST: A/A LSE	
	10	CLYST: A/A	
	5	ROCKFL: A/A	
3303	95	SST: A/A	
	5	CLYST: A/A	
3306	100	SST: A/A	
3309	100	SST: A/A	
3312	95	SST: A/A	
	5	CLYST: PRED GN GRY, GRDNG TO SLTST, ELSE A/A	
3315	95	SST: A/A	
	5	ROCKFL: A/A	
3318	95	SST: A/A	
	5	ROCKFL: A/A	
3321	95	SST: A/A	
	5	ROCKFL: A/A	
3324	100	SST: A/A	
3327	95	SST: A/A	

WELLSITE SAMPLE DESCRIPTION			Page 24 of 29
Country: NORWAY	Area: NORTH SEA	Field: THETA NORTH	Well no.: 15/12-7S
Company: STATOIL / AMERADA HESS / CONOCO / NORSK HYDRO		K.B.E. 23 meters	Hole size: 8 1/2"
Geologist: P. FURMYR / T. BJØRGEN		Date: 21.12.90	

Depth (mKB)	Lith (%)	Lithological Description: Rock name,mod.lith,colour,grain size,sorting,roundness,matrix,cementation, hardness,sed.structures,accessories,fossils,porosity,contamination.		Remarks: Shows,cavings, mud additives, etc
3330	100	SST:	YEL GRY, V LT GRY, PRED FN, OCC MED, W SRTD, SUBRND - SUBANG, CLR - TRANSP QTZ, LSE, OCC RD BRN - BRN STAIN, OCC W/WH - GN GRY (KAOLIN?) MTX, NON CALC, OCC MIC, FAIR - PR VIS POR, ALSO GN GRY , FRM - FRI	NO SHOWS
3333	95	SST:	A/A	
	5	CLYST:	PRED RD BRN, ALSO RD GRY, GN GRY, FRM, SUBFISS, OCC MIC, NON CALC, OCC SLTY	
3336	95	SST:	A/A	
	5	CLYST:	A/A	
3339	95	SST:	A/A	
	5	ROCKFL:	WH, V LT GRY, SFT - FRM, KAOLIN?	
3342	100	SST:	A/A	
3345	100	SST:	A/A	
3348	100	SST:	A/A	
3351	100	SST:	A/A	
3354	100	SST:	A/A	
3357	80	SST:	SL CALC CMTD, FRM - FRI, ELSE A/A	
	20	ROCKFL:	A/A	
3360	80	SST:	A/A	
	20	ROCKFL:	A/A	
3363	100	SST:	LSE, ELSE A/A	
3366	100	SST:	A/A	
3369	100	SST:	BEC RND, ELSE A/A	
	TR	CLYST:	RD BRN, ELSE A/A	
3372	100	SST:	A/A	
	TR	CLYST:	A/A	
3375	95	SST:	OCC SL CALC CMTD, FRM - FRI, ELSE A/A	
	5	CLYST:	GEN GN GRY, NON CALC	
	TR	LST:	WH, SFT, CRYPTOXLN	
3378	85	SST:	A/A	
	15	CLYST:	A/A	
	TR	LST:	A/A	
3381	60	SST:	A/A	
	30	CLYST:	A/A	
	10	LST:	A/A	
3384	70	SST:	A/A	
	30	CLYST:	A/A	
3387	100	SST:	BEC LSE, ELSE A/A	
3390	95	SST:	A/A	
	5	CLYST:	A/A	
	TR	LST:	A/A	
3393	95	SST:	FN - V CRS, OCC MLKY WH QTZ, GEN W RND - RND (V CRS), ELSE A/A	
	5	CLYST:	A/A	

STATOIL

WELLSITE SAMPLE DESCRIPTION			Page 25 of 29
Country: NORWAY	Area: NORTH SEA	Field: THETA NORTH	Well no.: 15/12-7S
Company: STATOIL / AMERADA HESS / CONOCO / NORSK HYDRO		K.B.E. 23 meters	Hole size: 8 1/2"
Geologist: FURMYR / BJØRGEN		Date: 22.12.90	

Depth (mKB)	Lith (%)	Lithological Description: Rock name, mod.lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, sed.structures, accessories, fossils, porosity, contamination.		Remarks: Shows, cavings, mud additives, etc
3396	95	SST:	YEL GRY, V LT GRY, PRED V CRS, OCC FN, W SRTD, SUBRND - W RND CLR - TRANSP - MLKY WH TRANSL QTZ, LSE, BIMOD SRTD, OCC RD BRN - BRN STAIN, OCC W/WH - GN GRY(KAOLIN?) MTX, NON CALC - SL CALC CMTD, OCC MIC, FAIR - PR VIS POR, ALSO GN GRY , FRM - FRI	NO SHOWS
	5	CLYST:	PRED GN GRY, ALSO RD BRN, RD GRY, FRM, SUBFISS, OCC MIC, NON CALC, OCC SLTY	
3399	90	SST:	A/A, ALSO GN GRY, FN, FRM - FRI	
	10	CLYST:	GN GRY	
	TR	LST:	WH, SFT	
3402	95	SST:	PRED V CRS - CRS, ELSE A/A	
	5	CLYST:	A/A	
	TR	LST:	A/A	
3405	95	SST:	PRED FN, PR SRTD, ELSE A/A	
	5	CLYST:	A/A	
	TR	LST:	A/A	
3408	95	SST:	A/A	
	5	CLYST:	A/A	
3411	100	SST:	PRED CRS - V CRS, ELSE A/A	
	TR	LST:	A/A	
3414	100	SST:	AA	
	TR	LST:	A/A	
3417	95	SST:	A/A	
	5	CLYST:	A/A	
	TR	LST:	A/A	
3420	100	SST:	A/A	
3423	95	SST:	A/A	
	5	CLYST:	A/A	
	TR	LST:	A/A	
3426	95	SST:	PRED FN - MED, ELSE A/A	
	5	CLYST:	A/A	
3429	100	SST:	FN, ELSE A/A	
3432	95	SST:	FN - CRS, PR SRTD, ELSE A/A	
	5	CLYST:	A/A	
	TR	LST:	A/A, ALSO GRY BLK	
3435	90	SST:	A/A	
	10	CLYST:	A/A	
	TR	LST:	A/A	
	TR	PYR:	AS CMT/MTX AND AS AGGR	
3438	90	SST:	BEC SL CMTD, ELSE A/A	
	10	CLYST:	A/A	
	TR	LST:	A/A	
	TR	PYR		
3441	90	SST:	A/A	
	10	CLYST:	A/A	
	TR	LST:	A/A	
	TR	PYR		
3444	95	SST:	A/A	
	5	CLYST:	A/A	

STATOIL

WELLSITE SAMPLE DESCRIPTION			Page 26 of 29
Country: NORWAY	Area: NORTH SEA	Field: THETA NORTH	Well no.: 15/12-7S
Company: STATOIL / AMERADA HESS / CONOCO / NORSK HYDRO		K.B.E. 23 meters	Hole size: 8 1/2"
Geologist: FURMYR / BJØRGEN		Date: 22.12.90	

Depth (mKB)	Lith (%)	Lithological Description: Rock name,mod.lith,colour,grain size,sorting,roundness,matrix,cementation, hardness,sed.structures,accessories,fossils,porosity,contamination.	Remarks: Shows,cavings, mud additives, etc
3447	95	SST: YEL GRY, V LT GRY, FN - CRS, PR SRTD, SUBRND, CLR - TRANSP - MLKY WH TRANSL QTZ, LSE, BIMOD SRTD, OCC RD BRN - BRN STAIN, OCC W/WH - GN GRY(KAOLIN?) MTX, NON CALC - SL CALC CMTD, OCC MIC, FAIR - PR VIS POR, ALSO GN GRY , FRM - FRI	NO SHOWS
	5	CLYST: PRED GN GRY, ALSO RD BRN, RD GRY, FRM, SUBFISS, OCC MIC, NON CALC, OCC SLTY	
	TR	LST	
	TR	PYR	
3450	95	SST: PRED FN, ELSE A/A	
	5	CLYST: A/A	
	TR	A/A	
3453	A/A		
3456	95	SST: FN - V CRS, PR SRT, ELSE A/A	
	5	CLYST: A/A	
3459	A/A		
3462	90	SST: A/A	
	10	CLYST: PRED MOD BRN, ELSE A/A	
3465	A/A		
3468	95	SST: ABUND WH, ARG MTX, ELSE A/a	
	5	CLYST: A/A	
3471	95	SST: A/A	
	5	CLYST: PRED MOD BRN - RD BRN	
3474	85	SST: LT GRY, LT YEL GRY, GN GRY, CLR - TRANSP, MLKY - TRANSLUC, OCC RD RD BRN, YEL OR BRN STND QTZ, BIMODAL FN - MED OR V CRS, MOD - PR SRT, SUBANG - SUBRND, RND WHEN V CRS, PREDOM LSE, OCC WH, ARG MTX (KAOL?), OCC SL SIL CMT, LSE - FRI, OCC SL MICA - MICA, PR - FAIR POR	
	15	CLYST: RD GRY - RD BRN, MOD BRN, GN GRY, OCC GRY BLK, FRM, SUBFISS, OCC MICA AND SLTY, NON CALC, CARB WHEN GRY BLK	OCC V SL STRM, YEL -WH CRUSH CUT FROM GRY BLK CLYST
	GDTR	ROCKFL: WH, V LT GRY, SFT - FRM, OCC SL CALC, KAOL?	
	GDTR	PYR	
	SLTR	LST	
3477	95	CLYST: PRED MOD BRN AND GN GRY - DK GN GRY, FRM, SUBFISS, NON CALC - SL CALC, SL MIC - MIC, SL SLTY - SLTY	
	5	SST: VLT GRY, FN - MED, ALSO GN GRY, LSE - FRI, SUBANG - SUBRND, OCC GN MIC, OCC PYR	
3480	70	CLYST: PREDOM GRY RD - MOD BRN, FRM, SUBFISS, NON CALC, SL MIC, SLTY - GRDG TO SLTST TO VFN SST, OCC GN GRY, FRM, SUBFISS, NON CALC, GN MICA	
	30	SST: DK RD BRN - MOD BRN, ALSO V LT GRY, FN - MED, SUBANG - RND, LSE, CLR - TRANSP QTZ, OCC MLKY WH, OCC RD BRN - BRN STN, MOD - WL SRT	
3483	80	SST: A/A	
	20	SLTST: DK RD BRN - MOD BRN, SFT - FRM, OCC SOL, MIC , NON - SL CALC	
3486	80	SST: A/A	
	20	SLTST: A/A	
3489	60	CLYST: PRED DK RD BRN - MOD BRN, OCC GN GRY, ELSE A/A	
	30	SST: A/A	
	10	CLYST: A/A	

STATOIL

WELLSITE SAMPLE DESCRIPTION			Page 27 of 29
Country: NORWAY	Area: NORTH SEA	Field: THETA NORTH	Well no.: 15/12-7S
Company: STATOIL / AMERADA HESS / CONOCO / NORSK HYDRO		K.B.E. 23 meters	Hole size: 8 1/2"
Geologist: P. FURMYR / T. BJØRGEN		Date: 23.12.90	

Depth (mKB)	Lith (%)	Lithological Description Rock name,mod.lith,colour,grain size,sorting,roundness,matrix,cementation, hardness,sed.structures,accessories,fossils,porosity,contamination.	Remarks Shows,cavings, mud additives, etc
3492	60	SST: DK RD BRN - MOD BRN, ALSO V LT GRY, FN - MED, SUBANG - RND, LSE, CLR - TRANSP QTZ, OCC MLKY WH, OCC RD BRN - BRN STN, MOD - WL SRT	NO SHOWS
	30	SLTST: DK RD BRN - MOD BRN, SFT - FRM, OCC SOL, MIC , NON - SL CALC	
	10	CLYST: PREDOM GRY RD - MOD BRN, FRM, SUBFISS, NON CALC, SL MIC, SLTY - GRDG TO SLTST TO VFN SST, OCC GN GRY, FRM, SUBFISS, NON CALC, GN MICA	
3495	90	SST: A/A	
	10	SLTST: A/A	
3498	70	SST: A/A	
	30	SLTST/SLTY CLYST: SØ CALC I/P, ALSO GRY GN, MINOR GRY BLK, ELSE A/A	
	TR	LST: LT OLV GRY, MOD HD, CRYPTOXLN	
3591	A/A		
3504	70	SST: GRY RD - DK RD BRN, OCC LT YEL GRY AND GN GRY, CLR - TRANSP, TRANSLUC QTZ, ABUND DK RD BRN AND BRN STND QTZ, ALSO RD BRN GRNS, FN - MED, OCC CRS, MOD SRT, SUBANG - SUBRND, PREDOM LSE, ALSO DK RD BRN MTX, OCC V LT GRY OR GN GRY MTX, I/P MICA - V MICA, OCC SL CALC CMT, OCC SL SIL CMT, FRI, PR - FAIR VIS POR	
	15	CLYST: PREDOM GRY RD - DK RD BRN, OCC GN GRY, RRLY GRY BLK, FRM, SUBFISS, I/P MICA	
	15	SLTST: PREDOM DK RD BRN, SFT - FRM, BLKY, MICA - V MICA, OCC SL CALC	
	TR	MICA, ROCKFL, LST	
3507	85	SST: PREDOM LSE, FN - MED, MOD - WL SRT, ELSE A/A	
	10	CLYST: A/A	
	5	SLTST: A/A	
	TR	A/A	
	SLTR	SH: BLK, SHNY, COALY	
3510	45	SST: INCR VFN SLTY SST W/MTX, ELSE A/A	
	25	CLYST: A/A	
	20	SLTST: A/A	
	10	ROCKFL/KAOL: WH, PA RD BRN, SFT - FRM, AMOR - BLKY	
3513	A/A		
3516	60	SST: INCR LSE, FN - MED, OCC CRS, OCC V CRS, MOD - PR SRT, ELSE A/A	
	15	CLYST: A/A	
	15	SLTST: A/A	
	10	ROCKFL/KAOL: A/A	
	TR	LST, MICA, SH A/A	
3519	A/A		
3522	85	SST: PREDOM LSE, FN - MED, MOD SRT, ELSE A/A	
	10	SLTST: A/A	
	5	CLYST: A/A	
3525	50	SST: PREDOM GRY RD - DK RD BRN, SLTY - ARG MTX, ALSO LSE A/A	
	30	SLTST: A/A	
	20	CLYST: A/A	
	GDTR	ROCKFL/KAOL: A/A	
3528	70	SST: MORE LSE, ELSE A/A	
	15	SLTST: A/A	
	15	CLYST: A/A	
	GDTR	ROCKFL/KAOL: A/A	

STATOIL

WELLSITE SAMPLE DESCRIPTION			Page 28 of 29
Country: NORWAY	Area: NORTH SEA	Field: THETA NORTH	Well no.: 15/12-7S
Company: STATOIL / AMERADA HESS / CONOCO / NORSK HYDRO		K.B.E. 23 meters	Hole size: 8 1/2"
Geologist: P. FURMYR / T. BJØRGEN		Date: 23.12.90	

Depth (mKB)	Lith (%)	Lithological Description Rock name,mod.lith,colour,grain size,sorting,roundness,matrix,cementation, hardness,sed.structures,accessories,fossils,porosity,contamination.	Remarks Shows,cavings, mud additives, etc
3531	40	SST: GRY RD - DK RD BRN, OCC LT YEL GRY AND GN GRY, CLR - TRANSP, TRANSLUC QTZ, ABUND DK RD BRN AND BRN STND QTZ, ALSO RD BRN GRNS, FN - MED, OCC CRS, MOD SRT, SUBANG - SUBRND, PREDOM LSE, ALSO DK RD BRN MTX, OCC V LT GRY OR GN GRY MTX, I/P MICA - V MICA, OCC SL CALC CMT, OCC SL SIL CMT, FRI, PR - FAIR VIS POR	NO SHOWS
	30	CLYST: PREDOM GRY RD - DK RD BRN, OCC GN GRY, RRLY GRY BLK, FRM, SUBFISS, I/P MICA	
	30	SLTST: PREDOM DK RD BRN, SFT - FRM, BLKY, MICA - V MICA, OCC SL CALC	
	TR	MICA, ROCKFL, LST	
3534	50	SLTST: DK RD BRN, W/ RD BRN ARG MTX, SFT - FRM, OCC SL STKY, MICA - V MICA, SDY - OCC GRDG TO VFN SST	
	30	SST: PREDOM LSE, ELSE A/A	
	20	CLYST: GRY RD - DK RD BRN, SUBFISS, SFT - FRM, OCC SL STKY, OCC MICA	
	GDTR	ROCKFL: PREDOM PA RD - RD BRN, SFT - FRM	
	SLTR	PYR	
	SLTR	SH: BLK, SHNY, FISS, COALY	
3537	60	SLTST: A/A	
	30	CLYST: A/A	
	10	SST: A/A	
3540	60	SLTST: A/A	
	40	CLYST: A/A	
	GDTR	SST: A/A	
	SLTR	SH: A/A	
3543	40	SLTST: A/A	
	30	CLYST: A/A	
	30	SST: A/A	
3546	60	SLTST: A/A	
	30	CLYST: A/A	
	10	SST: A/A	
3549	70	CLYST: PREDOM SFT, SL STKY, BLKY, ELSE A/A	
	30	SLTST: A/A	
	GDTR	SST: A/A	
3552	60	CLYST: A/A	
	30	SLTST: A/A	
	10	SST: A/A	
	GDTR	ROCKFL/KAOL: A/A	
3555	A/A		
3558	50	CLYST: A/A	
	30	SLTST: A/A	
	20	SST: A/A	
	TR	A/A	
3561	100	SST: CLR - TRANSP, BRN - RD BRN QTZ, FN - MED, MOD - WL SRT, SUBANG - SUBRND, LSE, SL MICA	
	GDTR	CLYST: A/A	
	GDTR	SLTST: A/A	
3564	50	SST: FN - MED, OCC CRS, MOD SRT, ELSE A/A	
	30	CLYST: A/A	
	20	SLTST: A/A	
	TR	ROCKFL/KAOL: A/A	
	SLTR	CLYST: GRY BLK, BLKY	

STATOIL

WELLSITE SAMPLE DESCRIPTION			Page 29 of 29
Country: NORWAY	Area: NORTH SEA	Field: THETA NORTH	Well no.: 15/12-7S
Company: STATOIL / AMERADA HESS / CONOCO / NORSK HYDRO		K.B.E. 23 meters	Hole size: 8 1/2"
Geologist: P. FURMYR / T. BJØRGEN		Date: 23.12.90	

Depth (mKB)	Lith (%)	Lithological Description: Rock name,mod.lith,colour,grain size,sorting,roundness,matrix,cementation, hardness,sed.structures,accessories,fossils,porosity,contamination.	Remarks: Shows,cavings, mud additives, etc
3567	60	SST: CLR - TRANSP, BRN - RD BRN QTZ, FN - MED, OCC CRS, MOD SRT, SUBANG - SUBRND, LSE, SL MICA	NO SHOWS
	30	CLYST: GRY RD - DK RD BRN, SUBFISS, SFT - FRM, OCC SL STKY, OCC MICA	
	10	SLTST: DK RD BRN, W/ RD BRN ARG MTX, SFT - FRM, OCC SL STKY, MICA - V MICA, SDY - OCC GRDG TO VFN SST	
3570	50	CLYST: A/A	
	20	SLTST: A/A	
	GDTR	ROCKFL/KAOL: PREDOM PA RD - RD BRN, SFT - FRM	

TD OF WELL AT 3570 m MD

APPENDIX II

STATOIL

SIDEWALL CORE DESCRIPTION			Page 1 OF 2
Country: NORWAY	Area: NORTH SEA	Field: THETA NORTH	Well no.: 15/12-7S
Company: STATOIL / AMERADA HESS / CONOCO / NORSK HYDRO		K.B.E. 23 meters	Hole size: 12 1/4"
Geologist: L. JENSEN / J.M. ØSTBY		Date: 10.12.90	Run no. 3D
Ref. Log for shot levels: DIFL - ACL - GR - SP, Run no. 3C			

Shot no.	Depth (mKB)	Rec. mm	Lithological Description Rock name, mod. lith., col., grain size, sort., roundn., matr., cemen., Hardness, sed. structures, accessories, fossils, porosity, contamination.	Remarks Shows, factors affect. recovery, etc.
50	1827	25	CLYST: DK YEL BRN, FRM, SL SLTY, MICROPYR, MICROMIC, SL CALC	
49	1858	30	CLYST: DSKY YEL BRN ELSE A/A	
48	1888	27	CLYST: A/A	
47	1915	27	CLYST: A/A	
46	1945	31	CLYST: A/A	
45	1975	32	CLYST: BEC DK YEL BRN, SL CALC I/P	
44	1995	34	CLYST: DSKY YEL BRN ELSE A/A	
43	2020	30	CLYST: SL CALC ELSE A/A	
42	2080	31	CLYST: A/A	
41	2251	28	CLYST: SL CALC - CALC ELSE A/A	
40	2252	29	CLYST: DSKY YEL BRN - DK OLV GN, FRM, SL SLTY, SL MICROPYR, SL CALC - CALC	
39	2275	34	CLYST: DK OLV GN - DK OLV GRY ELSE A/A	
38	2288	21	CLYST: DK GN GRY - GRY, FRM, SL SLTY, MICROPYR, MICROMIC, NON - I/P CALC	
37	2353	34	CLYST: DK GN GRY - OLV GRY, NON CALC, ELSE A/A	
36	2364	36	CLYST: ALSO BRN GRY, MOTTLED, FRM - HD, NON CALC, CALCITE VEINS, MICROPYR, MICROMIC, SL TUFF	
35	2375	30	CLYST: DK MED GRY - OLV GRY - W/GRY BL - MOD BL, TUFF, FRM- MOD HD, GEN NON CALC, SL MICROPYR, SL MICROMIC	
34	2383	11	CLYST: BEC MED GRY - OLV GRY ELSE A/A	
33	2390	30	CLYST: OLV GRY - BRN GRY, W/ CALCITE/LST VEINS, SL TUFF ELSE A/A	
32	2408	30	CLYST: OLV GRY - BRN GRY, W/ INFILL OF V CALC SLTST/V FN SST, GLAUC, ELSE A/A	
31	2422	31	CLYST: OLV GRY - DK BRN GRY W/ LT GRY LST/V CALC SLTST INFILL ELSE A/A	
30	2437	17	CLYST: A/A	
29	2479	LOST		
28	2494	28	CLYST: OLV GRY - DK BRN GRY, W/BL - BL GN TUFF AND W/ LT GRY LST/SLTST, ELSE A/A	
27	2510	29	CLYST: A/A	
26	2527	25	CLYST: A/A	
25	2542	37	CLYST: GRYSH BRN, MOD HD, SL SUBFISS, NON CALC	
24	2555	26	CLYST: MED DK GRY, MOD HD, SUBFISS, SL SLTY, NON CALC	
23	2571	19	SLTST: MED GRY, FRM, V MICROMIC, CALC, ARG	

STATOIL

SIDEWALL CORE DESCRIPTION				Page 2 OF 2
Country: NORWAY	Area: NORTH SEA	Field: THETA NORTH		Well no.: 15/12-7S
Company: STATOIL / AMERADA HESS / CONOCO / NORSK HYDRO			K.B.E. 23 meters	Hole size: 12 1/4"
Geologist: L. JENSEN / J.M. ØSTBY			Date: 10.12.90	Run no. 3D
Ref. Log for shot levels: DIFL - ACL - GR - SP, Run no. 3C				

Shot no.	Depth (mKB)	Rec. mm	Lithological Description: Rock name, mod. lith., col., grain size, sort., roundn., matr., cemen., Hardness, sed.structures, accessories, fossils, porosity, contamination.	Remarks: Shows, factors affect. recovery, etc.
22	2585	23	CLYST: MED BL GRY, MED GRY, MOD HD - HD, MICROPYR I/P, NON CALC, W/LST: WH, MOD HD, XLN, BLKY	
21	2600	22	LST: WH - OFF WH, MOD HD, MICR	
20	2630		LOST	
19	2660	13	LST: WH, CHLKY, MOD HD	
18	2690	21	LST: A/A, W/INTERBEDDED CLYST: PA BRN, FRM, MICROMIC, MICROPYR, CALC	
17	2720	15	LST: A/A, W/CLYST: A/A	
16	2750	27	LST: A/A, W/INTERBEDDED CLYST: OLV BLK, MOD HD, MICROMIC, SL CARB	
15	2780	15	LST: WH - OFF WH, CHLKY, MOD HD, CRYPTOXLN	
14	2810	10	LST: A/A	
13	2840	11	LST: A/A	
12	2870	6	LST: A/A	NOT ACCEPTED
11	2900	14	LST: PNK WH, MOD HD, BLKY, FRACTURED, CRYPTOXLN	
10	2930	7	LST: V SDY, FRM, GRNY TEX, ABUN GLAUC, MRLY	
9	2945	15	CLYST: RD BRN, SFT - FRM, V CALC	
8	2960	25	SLTST: SL GN WH, WH QTZ, FRI, V ARG, V MICROMIC, V CALC, GLAUC	
7	2975	25	CLYST: RD BRN, MOD HD, MICROMIC, MICROPYR, CALC	
6	2983	30	CLYST: A/A, W/PYR LAYER AND DK BRN CLYST, FRM - MOD HD	
5	2990	15	CLYST: DK GRY, SFT - FRM, W/LST LAYERS, WH, MOD HD, MICROXLN	
4	2998	22	LST: GRY WH, SFT, STKY, V ARG	
3	3005	17	LST: WH, SFT, SL GRNY TEX	
2	3015		MISFIRE	
1	3020	28	CLYST: DK GRY, FRM - MOD HD, V CARB, V SL CALC I/P	

STATOIL

SIDEWALL CORE DESCRIPTION			Page 1 OF 3
Country: NORWAY	Area: NORTH SEA	Field: THETA NORTH	Well no.: 15/12-7S
Company: STATOIL / AMERADA HESS / CONOCO / NORSK HYDRO		K.B.E. 23 meters	Hole size: 8 1/2"
Geologist: A. SINGELSTAD / P. FURMYR		Date: 28.12.90	Run no. 5E
Ref. Log for shot levels: DIFL-AC-GR, Run no. 5E			

Shot no.	Depth (mKB)	Rec. mm	Lithological Description — Rock name, mod. lith., col., grain size, sort., roundn., matr., cemen., Hardness, sed.structures, accessories, fossils, porosity, contamination.		Remarks — Shows, factors affect. recovery, etc.
50	3025	25	SST:	LT OLV GRY, VFN - FN, MOD SRT, SUBANG - SUBRND, CLR - TRANSLUC OCC FROS QTZ, LT GRY ARG MTX (KAOL), FRI, NON CALC, SL MIC PR VIS POR	NO SHOWS
49	3025,5	33	SST:	A/A	
48	3059	20	SST:	V ARG, LT OLV GRY - LT BRN GRY, VFN - FN, MOD SRT, SUBANG - SUBRND, CLR - TRANSLUC, FROS/COATED QTZ, ABUND LT GRY ARG MTX, FRI, NON CALC, MICA W/ABUND GN MICA (GLAU?), PR VIS POR	
47	3062	20	SST:	V ARG, LT OLV GRY - LT BRN GRY, VFN - MED, MOD - PR SRT, I/P CARB, ELSE A/A	
46	3065	25	SST:	A/A	
45	3074	25	SST:	A/A	
44	3081	20	SST:	TR YEL BRN QTZ, ELSE A/A	
43	3088	LOST			
42	3097,25	25	SLTST:	GN GRY, SDY, FRM - SFT, SL MIC, NON CALC	
41	3103,5	15	SST:	LT OLV GRY - LT BRN, FN - MED, OCC CRS, MOD - PR SRT, SUBANG - SUBRND, CLR - TRANSLUC, FROS QTZ, OCC BRN OR YEL QTZ, LT GRY ARG MTX, FRI, NON CALC, V MICA W/OCC GN MICA, FAIR VIS POR	
40	3112,5	25	SLTST:	MOD BRN - GRY BRN, FRM, V MICROMIC, NON CALC	
39	3126,75	28	SST:	LT OLV GRY, I/P GRY BRN, VFN - FN, MOD SRT, SUBANG - SUBRND, CLR - TRANSLUC, FROS QTZ, LT GRY ARG MTX, FRI, NON CALC, SL MICA, SL CARB, PR VIS POR	
38	3132,5	25	ARG SST	W/LAM OF CLYST: SST: GN GRY, VFN - FN, MOD SRT, SUBANG - SUBRND, CLR - TRANSLUC, FROS QTZ, OCC BRN AND YEL BRN QTZ, GN GRY ARG MTX, FRI - SFT, NON CALC, PR VIS POR, CLYST: GRY BRN, SFT, MICROMIC, CALC	
37	3134,5	LOST			
36	3142,25	25	SST:	V ARG, PL YEL BRN, VFN - MED, PR - MOD SRT, SUBANG - SUBRND, CLR - TRANSLUC AND BRN FROS QTZ, ABUND PL YEL BRN ARG MTX, CALC CMT, FRI, SL MIC, PR VIS POR	
35	3145	20	SST:	VFN - CRS, PR SRT, ELSE A/A	
34	3156,5	10	SST:	V ARG, YEL GRY, VFN - FN, OCC MED - CRS, MOD SRT, SUBANG - SUBRND, CLR - TRANSLUC FROS QTZ, ABUND YEL GRY ARG MTX, CALC CMT, FRI, SL MIC, PR VIS POR	
33	3159,5	30	SST:	V ARG, GN GRY, VFN - FN, MOD SRT, SUBANG - SUBRND, CLR - TRANSLUC FROS QTZ, OCC BRN - YEL BRN AND RD GRNS, ABUND GN GRY MTX, CALC CMT, FRI, MICA W/OCC RD BRN MICA, PR VIS POR	
32	3163,5	30	SST:	A/A	
31	3172,75	28	CLYST:	GRY BRN - DK RD BRN, FRM, SL MICROMIC, CALC	
30	3174,75	30	SST:	ARG, GN GRY, VFN - FN, OCC MED, MOD SRT, SUBANG - SUBRND, CLR - TRANSLUC FROS QTZ, OCC BRN, YEL AND RD BRN GRNS, GN GRY ARG MTX, CALC CMT, FRI, MICA W/OCC BRN - RD BRN MICA, PR - FAIR VIS POR	

STATOIL

SIDEWALL CORE DESCRIPTION			Page 2 OF 3
Country: NORWAY	Area: NORTH SEA	Field: THETA NORTH	Well no.: 15/12-7S
Company: STATOIL / AMERADA HESS / CONOCO / NORSK HYDRO		K.B.E. 23 meters	Hole size: 8 1/2"
Geologist: A. SINGELSTAD / P. FURMYR		Date: 28.12.90	Run no. 5E
Ref. Log for shot levels: DIFL-AC-GR, Run no. 5E			

Shot no.	Depth (mKB)	Rec. mm	Lithological Description: Rock name, mod. lith., col., grain size, sort., roundn., matr., cemen., Hardness, sed. structures, accessories, fossils, porosity, contamination.		Remarks: Shows, factors affect. recovery, etc.
29	3182	28	SST:	ARG, GN GRY, VFN - FN, OCC MED, MOD SRT, SUBANG - SUBRND, CLR - TRANSLUC FROS QTZ, OCC BRN, YEL AND RD BRN GRNS, GN GRY ARG MTX, CALC CMT, FRI, MICA W/OCC BRN - RD BRN MICA, PR - FAIR VIS POR	NO SHOWS
28	3188,25	25	SLTST:	GRY BRN - MOD BRN, FRM, MICROMIC, CALC	
27	3192,25	25	SST:	ARG, GN GRY - PL YEL BRN, VFN - FN, MOD - WL SRT, SUBRND - SUBANG, CLR - TRANSLUC FROS QTZ, OCC BRN, YEL AND RD BRN GRNS, ABUND GN GRY ARG MTX, CALC CMT, MICA, FAIR - PR VIS POR	
26	3200,75	MISFIRE			
25	3212,5	25	SST:	A/A	
24	3223,5	26	SST:	YEL GRY - GN GRY, ELSE A/A	
23	3243	25	SST:	YEL GRY - LT OLV GRY, NON CALC, FAI VIS POR, ELSE A/A	
22	3264	25	CLYST:	GRY BRN - MOD BRN, FRM, MICROMIC, SL CALC	
21	3285,5	30	SST:	V ARG, LT OLV GRY - PL YEL BRN, VFN - FN, MOD SRT, SUBRND - SUBANG, CLR - TRANSLUC FROS QTZ, OCC BRN, YEL AND RD BRN GRNS, ABUND LT OLV GRY ARG MTX, NON - SL CALC CMT, FRI, SL MICA, PR - FAIR VIS POR	
20	3309	25	SST:	GN GRY, ELSE A/A	
19	3331,5	25	SST:	A/A	
18	3352	20	SST:	LT OLV GRY, ELSE A/A	
17	3375	25	SST:	A/A	
16	3402	20	SLTST:	LT OLV GRY - OLV GRY, GRDG TO VFN SST, FRM, MICROMIC, NON CALC	
15	3410,5	20	SST:	PL YEL BRN - LT OLV GRY, FN - CRS, MOD - PR SRT, SUBANG - SUBRND, CLR - TRANSLUC FROS QTZ, OCC LT BRN QTZ, WH - LT GRY ARG MTX (KAOL), V SL CALC CMT, FRI, MICA, FAIR VIS POR	
14	3431	25	SLTST:	LT OLV GRY - GN GRY, GRDG TO VFN SST, FRM, MICROMIC, NON CALC	
13	3458,5	25	SST:	V ARG, LT OLV GRY - PL YEL BRN, VFN - FN, MOD SRT, SUBANG - SUBRND, CLR - TRANSLUC FROS QTZ, OCC BRN AND YEL BRN QTZ, ABUND LT OLV GRY, MTX, NON - V SL CALC CMT, FRI, SL MICA, PR VIS POR	
12	3462	25	SST:	V ARG, GN GRY - LT OLV GRY, ELSE A/A	
11	3468	25	SST:	V ARG, OLV GRY - LT OLV GRY, VFN - FN, MOD SRT, SUBANG - SUBRND, CLR - TRANSLUC FROS/COATED QTZ, ABUND LT GRY MTX (KAOL), FRI, NON CALC, MICA, I/P W/DISSEM PYR, PR VIS POR	
10	3471,25	25	SST:	A/A	
9	3475,25	27	SST:	V ARG, MOD BRN - DK RD BRN, VFN - FN, MOD SRT, SUBANG, SUBRND, BRN - RD BRN FROS/COATED QTZ, ABUND MOD BRN ARG/SLTY MTX, I/P LT OLV GRY ARG MTX, FRI - SFT, NON CALC, SL MIC, SL CARB I/P, PR VIS POR	

STATOIL

SIDEWALL CORE DESCRIPTION			Page 3 OF 3
Country: NORWAY	Area: NORTH SEA	Field: THETA NORTH	Well no.: 15/12-7S
Company: STATOIL / AMERADA HESS / CONOCO / NORSK HYDRO		K.B.E. 23 meters	Hole size: 8 1/2"
Geologist: A. SINGELSTAD / P. FURMYR		Date: 28.12.90	Run no. 5E
Ref. Log for shot levels: DIFL-AC-GR, Run no. 5E			

Shot no.	Depth (mKB)	Rec. mm	Lithological Description: Rock name, mod. lith., col., grain size, sort., roundn., matr., cemen., Hardness, sed.structures, accessories, fossils, porosity, contamination.	Remarks: Shows, factors affect. recovery, etc.
8	3479	28	SST: V ARG, MOD BRN - DK RD BRN, VFN - FN, MOD SRT, SUBANG, SUBRND, BRN - RD BRN FROS/COATED QTZ, ABUND MOD BRN ARG/SLTY MTX, I/P LT OLV GRY ARG MTX, FRI - SFT, NON CALC, MICA, SL CARB I/P, PR VIS POR	NO SHOWS
7	3480,9	30	SST: A/A	
6	3485,1	27	SST: V ARG, MOD BRN, ELSE A/A	
5	3488	LOST		
4	3491,5	35	SST: A/A	
3	3494,7	40	SST: LESS MICA, ELSE A/A	
2	3500	30	SST: V ARG, MOD BRN - DK RD BRN, VFN, MOD - WL SRT, SUBRND, BRN - RD BRN QTZ, ABUND MOD BRN ARG/SLTY MTX, MOD CALC CMT, FRI - MOD HD, SL MIC, SL CARB I/P, PR VIS POR	
1	3502,25	25	SST: V ARG, MOD BRN, VFN - MED, MOD SRT, SUBANG - SUBRND, BRN - RD BRN QTZ, OCC CLR - TRANSLUC QTZ, ABUND MOD BRN ARG/SLTY MTX, MOD CALC CMT, FRI, PR VIS POR	

APPENDIX III

BOREHULL: 15/12-7S PL: 116 OPERATØR: STATOIL AVSLUTNINGSDATO: 08.02.90

BOREHULLSDATA:

1. Avstand fra boredekk til havnivå: 23m.

2. Vanndyp: 85m.

3a. Settedyp for lederør (mRKB): 168m.

3b. Evt. formasjonsstyrketest (g/cc):----.

4a. Settedyp for foringsrør hvorpå BOP monteres (mRKB): 604m

4b. Formasjonsstyrketest (g/cc): 2.05

5. Dyp (m RKB og toveis gangtid) til formasjons-/ledd-/lag-topper. ...Nordlandgruppen (havbunnen) 108m RKB/0.114s. ....

6. Dybdeintervall (m RKB og TVG) og alder for sandlag grunnere enn 1000 m under havbunnen. Oppgi hvilke lag som evt. inneholder gass: 207m(fra LUB)- 0.210s / 279.5m - 0.300s / 425m - 0475s / 448m - 0.500s / 472m - 0.525s / 774m - 0.882s. Den siste dybden angir dybden til det eneste... gassholdige sandlaget. ....

7. På hvilken måte er gassen påvist? .Først ved LUB, så ved gassavlesninger på riggen og siden... bekreftet ved hjelp av kabellogger (DIFL-ACL-CDL-GR-SP-CAL). ....

8. Sammensetning av og opprinnelse til gassen. Ut fra slamloggernes gasskromatograf består gassen C1; metan. Opprinnelsen til gassen er usikker..

9. Beskriv alle målinger foretatt i gassførende lag. Det gassførende laget er logget med LUB (res.-GR) og med kabellogger (DIFL-ACL-CDL-GR-SP-CAL)..

STATOIL

SEISMISKE DATA:

10. Angi dyp (m RKB og TVG) til inkonformiteter i borehullsposisjonen. ....
....
....

11. Angi utbredelse av sandlagene (kommunikasjon, kontinuitet, trunkering etc.). Sandlagenes utbredelse er usikker. Ut fra seismisk tolkning representerer sandlaget på 774m grensen Pliocen-Pleistocen inkonformitet. I 15/12-4 ble gass registret på tilsvarende nivå. ....

12. Angi utbredelse av evt. gass-skygging ("gas blanking"). .-----.................................
....
....

13. Angi evt. seismiske indikasjoner på at gassen stammer fra dypere nivå. Beskrivelse dersom gassen stammer fra dypere nivå. .-----...
....
....

14. Hvordan samsvarer tolkningen av borestedsundersøkelsen med borehullsdata m.h.t. :

- grunn gass: Mulig grunn gass var prognosert på 792m. Traff grunn gass på 774m. ....
....

- sandlag: Tolkete sandlag på 284m, 409m og 792m kan korreleres med observerte sandlag på henholdsvis 279.5m, 425m og 774m..

- inkonformiteter: ....
....

- korrelasjon til nærliggende borehull .Sandlaget på 774m representerer en øvre Pliocene erosjonsflate. Denne erosjonsflaten finnes i hele 15/12-området...........................

Partners : Conoco / Amerada Hess / Norsk Hydro

STATOIL

Well : 15/12-7S

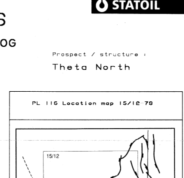
COMPLETION LOG

SCALE 1:500

Prospect / structure : Theta North

COUNTRY	: NORWAY
AREA	: NORTH SEA
LICENCE	: PL 116
COORDINATES	: N 58°00'49.93" ED50 E 01°58'35.54"
UTM	: N 6 430 858.7 M ZONE 31, CM 03°, ED50 E 439 525.9 M ACCURACY ± 5 M
KB	: 23M MSL
WATER DEPTH	: 85 M
TOTAL DEPTH	: 3570.0 M MD RKB, 3529.0 M TVD RKB (DRILLER) 3571.1 M RKB (LOGGER)
DEEPEST FORM.PEN:	TRIASSIC
SPUD DATE	: 90.11.06 05:30 HRS
TD DATE	: 90.12.23 23:00 HRS
RIG RELEASE DATE:	91.01.08 09:00 HRS
WELL STATUS	: PERMANENTLY PLUGGED AND ABANDONED
RIG	: DEEPSEA BERGEN
CONTRACTOR	: ODFJELL DRILLING
PREPARED BY	: S. BJERKENES, T. BJØRGEN, P. FURMYR, L. JENSEN, J.M. ØSTBY
APPROVED BY	: A. ELDØY

PL 116 Location map 15/12-7S



CASING DATA:

		MDRKB	TVDRKB	LEAK OFF TESTS:
30"	AT	168.0M	168.0M	
20"	AT	604.5M	604.5M	2.08 S.G.
13 3/8"	AT	1797.0M	1797.0M	1.85 S.G.
9 5/8"	AT	3015.0M	2976.5M	1.65 S.G.

VELOCITY SURVEY:

A TOTAL OF 85 LEVELS CHECKED
50M LEVEL SPACING: 500 - 2350 M
25M LEVEL SPACING: 2350 - 3570 M

CONTRACTOR : SSL

WIRELINE LOG CONTRACTOR : ATLAS WIRELINE SERVICES

LOGS	RUN	DEPTH (m) MD RKB	
DIFL-ACL-CDL-GR-SP-CAL	1A	168.0 - 619.7	
DIFL-ACL-CDL-GR-SP-CAL	2B	604.5 - 1788.0	
DIFL-ACL-CDL-GR-SP-CAL	3C	1797.0 - 3027.0	
DIFL-ACL-GR	4D	3014.0 - 3181.0	
DIFL-ACL-GR	5E	3010.0 - 3569.3	
ZDEN-CNL-SPL-CAL	5A	3010.0 - 3569.3	
ACBL-VDL-GR	3A	108.0 - 1797.0	
ACBL-VDL-GR	5B	1460.0 - 3010.0	9 5/8"
FMT-GR	5A	- -	Misrun
FMT-GR	5B	3027.0 - 3203.7	
FMT-GR	5C	3145.0 - 3425.0	
HRDIP-GR	3A	2350.0 - 3025.3	
HRDIP-GR	5B	3010.0 - 3570.8	
SWC-GR	2A	1125.0 - 1810.0	Misrun
SWC-GR	2B	1125.0 - 1810.0	Misrun
SWC-GR	2C	1125.0 - 1810.0	Misrun
SWC-GR	3D	1797.0 - 3027.0	47 rec.
SWC-GR	5E	3025.0 - 3502.3	46 rec.

MWD CONTRACTOR : TELECO

Run no.	Interval (mMD RKB)	Hole size	Comments
1	179 - 620	9 7/8"	Pilot hole
2	179 - 620	26" HO	Only surveys
3	620 - 1820	17 1/2"	Good quality
4	1820 - 2026	12 1/4"	Problems with toolface
5	2026 - 2498	12 1/4"	Good quality
6	2498 - 2563	12 1/4"	Good quality
7	2563 - 2638	12 1/4"	Gamma and resist. failed for 7 m, resumed working ok.
8	2638 - 2758	12 1/4"	Ok.
9	2758 - 2768	12 1/4"	Ok.
10	2768 - 2835	12 1/4"	Ok.
11	2835 - 2917	12 1/4"	Ok.
12	2917 - 2917	12 1/4"	No formation drilled
13	2917 - 2980	12 1/4"	Ok
14	2980 - 3027	12 1/4"	Ok
15	3027 - 3240	8 1/2"	OK
16	3240 - 3570	8 1/2"	Reamed and logged 3240 - 3475 m MD

COMMENTS : ALL LOGS SHOWN ARE FILTERED, EDITED AND SPLICED.

Curve		Interval
GR curve	GR RUN 1A	99.5 - 600.2
	GR RUN 2B	600.3 - 616.1
	GRAX (MWD)	616.2 - 1794.9
	GR RUN 3C	1795.0 - 3002.5
	GRAX (MWD)	3002.6 - 3024.5
	GR RUN 5E	3024.6 - 3562.4
BS curve	9 7/8"	168.0 - 619.7
	17 1/2"	619.8 - 1819.9
	12 1/4"	1820.0 - 3026.7
	8 1/2"	3026.8 - 3570.0
CAL curve	CAL RUN 1A	168.0 - 602.9
	CAL RUN 2B	619.8 - 1770.8
	CAL RUN 3C	1800.1 - 3014.9
	CAL RUN 5E	3015.0 - 3569.3
SP curve	SP RUN 1A	168.0 - 617.9
	SP RUN 2B	619.0 - 1765.0
	SP RUN 3C	1795.0 - 3029.4
	SP RUN 5E	3029.5 - 3575.0
RILD curve	RILM RUN 1A	168.0 - 613.5
	RILM RUN 2B	613.6 - 1782.0
	RILM RUN 3C	1795.6 - 3011.9
	RILM RUN 5E	3012.0 - 3573.0
RILM curve	RILD RUN 1A	168.6 - 613.5
	RILD RUN 2B	613.6 - 1784.6
	RILD RUN 3C	1795.0 - 3012.8
	RILD RUN 5E	3012.9 - 3575.6
RFOC curve	RFOC RUN 1A	168.0 - 619.8
	RFOC RUN 2B	619.9 - 1786.0
	RFOC RUN 3C	1795.0 - 3013.7
	RFOC RUN 5E	3013.8 - 3577.5
DEN curve	DEN RUN 1A	168.0 - 605.6
	DEN RUN 2B	605.7 - 1772.4
	DEN RUN 3C	1795.0 - 3014.3
	ZDEN RUN 5E	3014.4 - 3569.8
CNC curve	CNC RUN 3C	1795.0 - 3019.9
	CNC RUN 5E	3020.0 - 3568.0
AC curve	AC RUN 1A	169.5 - 610.0
	AC RUN 2B	610.1 - 1777.2
	AC RUN 3C	1795.7 - 3014.9
	AC RUN 5E	3015.0 - 3568.0

LITHOLOGICAL SYMBOLS

CONGLOMERATE, SHALE, MARL, COAL LIGNITE, FORAMS, MICA
SAND SANDSTONE, LIMESTONE, TUFF, WOOD FRAGS, BURROWS, KAOLINITE
SILT SILTSTONE, CHALK, SALT GEN'L, FOSSILS GEN'L, PYRITE, CHERT
CLAY CLAYSTONE, DOLOMITE, ANHYDRITE, SHELL FRAGS, GLAUCONITE, SIDERITE

STAIN, FLUORESCENCE, CUT FLUOR, GAS SHOWS

SIDEWALL CORES: REC, REC. W/SHOW, NO REC; CORES: CORE NO.; DST; RFT/FMT: UNSUCCESSFUL; CASING SHOE/LINER

JJ102 — 15/12-7

EXLOG

COMPANY: STATOIL

WELL: 15/12-7S
FIELD: WILDCAT
REGION: OFFSHORE NORWAY
COORDINATES: 58deg 00' 49.93" N
01deg 58' 35.54" E
API INDEX:
SPUD DATE: 6th November 1990
ELEVATION: RKB - MSL : 23 m
RKB - SEABED : 108 m
TOTAL DEPTH: 3570 m
CONTRACTOR: ODCC

RIG: DEEPSEA BERGEN
TYPE: Semi - submersible

LOG INTERVAL
108 m TO 3570 m
DATE: 06/11/90 TO 23/12/90
SCALE: 1: 500 UNIT: 251
PREPARED BY: Bratteteig Burniston
Jude Nathan Ryan

HOLE SIZE
36" to 173.0 m
26" to 620.0 m
17.5" to 1820.0 m
12.25" to 3027.0 m
8.5" to 3570.0 m TD

CASING RECORD
30" at 168.5 m
20" at 604.5 m
13-3/8" at 1797.0 m
9-5/8" at 3014.0 m

MUD TYPES
Seawater + hi-vis sweeps to 173 m
CMC Seawater to 620 m
Gypsum-polymer to 3027 m
Gel-lignosulphonate to TD

LITHOLOGY SYMBOLS

EXLOG SUITE
Formation Evaluation Log
Pressure Evaluation Log
Bit Performance Plot

ABBREVIATIONS
NB	NEW BIT	SVG	SURVEY GAS
RRB	RERUN BIT	C	CARBIDE TEST
CB	CORE BIT	W	MUD DENSITY
WOB	WEIGHT ON BIT	V	FUNNEL VIS.
RPM	REVS PER MINUTE	F	FILTRATE - API
FLC	FLOW CHECK	FC	FILTER CAKE
CR	CIRCULATE RETURNS	PV	PLASTIC VIS.
PR	POOR RETURNS	YP	YIELD POINT
NR	NO RETURNS	SOL	SOLIDS - %
LAT	LOGGED AFTER TRIP	SD	SAND - %
BG	BACKGROUND GAS	S	SALINITY- PPM
TG	TRIP GAS	RM	MUD RES.
STG	SHORT TRIP GAS	RMF	FILTRATE RES.
CG	CONNECTION GAS		
SWG	SWAB GAS		

CASING SEAT — WIRELINE LOG RUN
CORED INTERVAL — TEST INTERVAL
UNRECOVERED — WIRELINE TEST
SIDEWALL CORE

FORMATION EVALUATION LOG
STATOIL 15/12-7S
Scale 1 : 500

Statoil

CORE REPORT. Details of cores taken at WELL 15/12-7S

CORE # 1: 3028-3055 CUT 27.0m RECOVERY 94.4%

3028-3030 : SANDSTONE: lt-med dk gry, lt gn gry, vfn-fn, w srt, sbang-sbrnd, trnsp-fros qtz, occ pnk & yel grns, abund wh mtx/cmt, fri-mod hd, mica-v mica, arg, carb, pr vis por
No shows

3030-3031 : ARGILLACEOUS COAL: brn blk, shny, mod hd-hd, lam of vfn sst & wh arg matr
No shows

3031-3032 : SILTSTONE: mod brn, mod hd-hd, v arg, carb, grdg vfn sst i/p, brn qtz in slty-arg mtx
No shows

3032-3036 : SANDSTONE: med brn, yel gry-gn gry, vfn-med, occ crs, pr-mod srt, sbang-sbrnd, abund yel gry mtx, mod hd-hd, abund mica, grdg sltst i/p, pr vis por
No shows

3036-3037 : SILTSTONE: gn gry, mod hd-hd, vmica, grdg vfn sst i/p, abund gn gry mtx/cmt, sl carb
No shows

3037-3040 : SANDSTONE: v lt gry-yel gry, off wh, vfn-fn, occ med-crs, mod-well srt, sbrnd, trnsp-wh coat qtz, wh arg mtx, sl cmt, fri-mod hd, mica, pr vis por
No shows

3040-3041 : SILTSTONE: gn gry, mod hd-hd, grdg vfn sst i/p, abund gn gry mtx/cmt, v pyr w/lge pyr xls
No shows

3041-3053.5 : SANDSTONE: v lt gry-yel gry, fn-med, occ crs, rr vfn, mod-well srt, sbrnd, trnsp-wh coat qtz, wh arg mtx, sl cmt, fri-mod hd, v mica i/p, pr vis por
No shows

A018W

15/12-7

EXLOG

COMPANY: STATOIL

WELL: 15/12-7S
FIELD: WILDCAT
REGION: OFFSHORE NORWAY
COORDINATES: 58deg 00' 49.93" N
01deg 58' 35.54" E
API INDEX:
SPUD DATE: 6th November 1990
ELEVATION: RKB - MSL : 23 m
RKB - SEABED : 108 m
TOTAL DEPTH: 3570 m
CONTRACTOR: ODCC

RIG: DEEPSEA BERGEN
TYPE: Semi - submersible

LOG INTERVAL

108 m TO 3570 m
DATE: 06/11/90 TO 23/12/90
SCALE: 1: 1000 UNIT: 251
PREPARED BY: Fitzpatrick, Lewis, Phillips, Toy

HOLE SIZE

36"	to	173.0 m	
26"	to	620.0 m	
17.5"	to	1820.0 m	
12.25"	to	3027.0 m	
8.5"	to	3570.0 m	TD

CASING RECORD

30"	at	168.5 m
20"	at	604.5 m
13-3/8"	at	1797.0 m
9-5/8"	at	3014.0 m

MUD TYPES

Seawater + hi-vis sweeps	to	173 m
CMC Seawater	to	620 m
Gypsum-polymer	to	3027 m
Gel-lignosulphonate	to	TD

LITHOLOGY SYMBOLS

LIMESTONE, DOLOMITE, ANHYDRITE, HALITE, COAL, MARL, CLAY AND CLAYSTONE, SILT AND SILTSTONE, SAND AND SANDSTONE, CONGLOMERATE, VOLCANICS, CHERT, GLAUCONITE, PYRITE, FOSSILS

EXLOG SUITE

Formation Evaluation Log
Pressure Evaluation Log
Bit Performance Plot

ABBREVIATIONS

NB	NEW BIT	SVG	SURVEY GAS
RRB	RERUN BIT	C	CARBIDE TEST
CB	CORE BIT	W	MUD DENSITY
WOB	WEIGHT ON BIT	V	FUNNEL VIS.
RPM	REVS PER MINUTE	F	FILTRATE - API
FLC	FLOW CHECK	FC	FILTER CAKE
CR	CIRCULATE RETURNS	PV	PLASTIC VIS.
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CASING SEAT
CORED INTERVAL
UNRECOVERED
SIDEWALL CORE
WIRELINE LOG RUN
TEST INTERVAL
WIRELINE TEST

EXLOG

PRESSURE EVALUATION PLOT

STATOIL 15/12-7S

Scale 1 : 1000

Statoil