OFFSHORE NORWAY

PL 256 - BLOCK 6406/1

Report title:

WELL 6406/1-3

FINAL WELL REPORT

Abstract:

This report deals with the geological and drilling results of the well.
In section 1 general information is reported. Section 2 comprises a geological summary and a description of the acquisition of data with their interpretation. Section 3, the drilling report, details all drilling operations and results.
Enclosed are the composite log and the computer processing interpretation of the reservoir section.

Note:

Date: June 2006	**Report no.:**	
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1. GENERAL

1.1 Introduction

Well 6406/1-3 is an appraisal well of the 6406/1-2 discovery drilled in year 2003 on the S Prospect Sklinna South situated on the Sklinna High in Block 6406 /1. This block together with the adjacent block 6506/10 constitutes PL 256. The license was awarded in the 16th round, 12.05.2000.

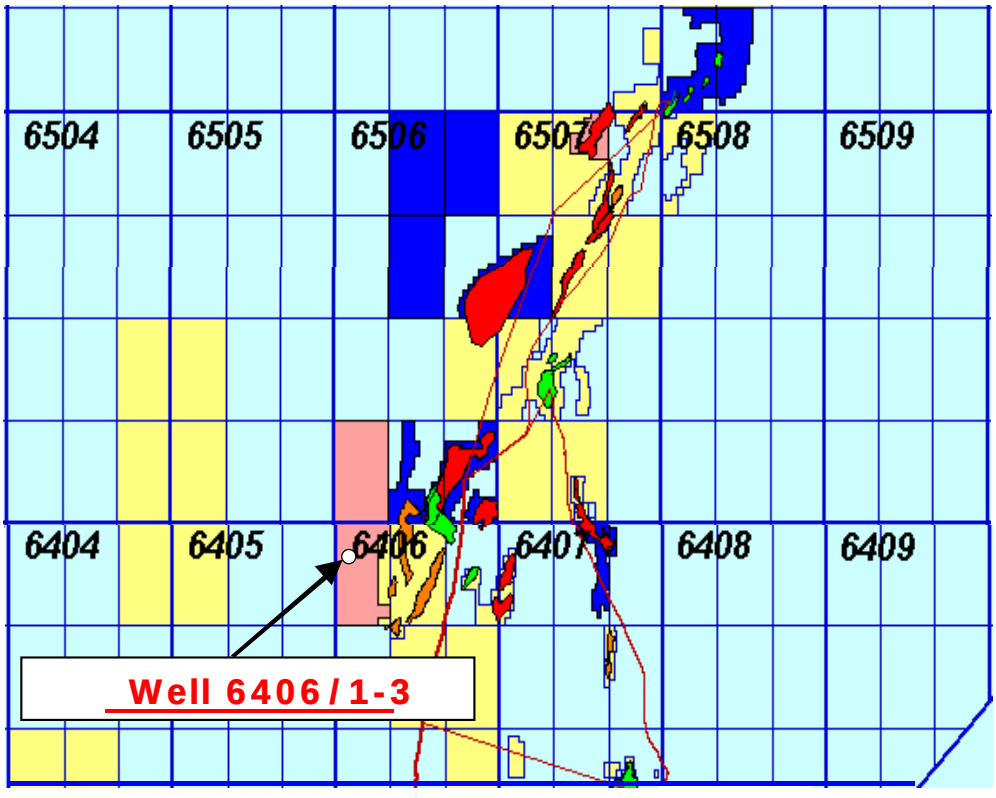
The purpose of drilling the well 6406/1-3 was to test the downflank extention of the gas discovered in Lower Lange Fm sandstones by well 6406/1-2.

Costs of this well were shared in the following percentages:

Eni Norge	55%
Petoro	20%
RWE-Dea	15 %
DONG	10 %

The well 6406/1-3 was drilled to a total depth of 4276m. At this depth the riser was parted and the rig was damaged due to loss of two anchors during a heavy storm. The well head and both 30 and 20" casing was also damaged. Operations could not be continued and the well was plugged and abandoned before reaching the target.

1.2 Map Location



1.3 Basic Well Data

COUNTRY	:	Norway	
AREA	:	Halten, Norwegian Sea	
PRODUCTION LICENCE No.	:	PL 256	
BLOCK	:	6406/1	
WELL NAME	:	6406/1-3	
PROSPECT	:	Sklinna South	
SEISMIC REFERENCE	:	Seismic Survey EN 03M1	
COORDINATES	:	N 64 deg 54 min 24,97 sec	
	:	E 06 deg 08 min 25,34 sec	
	:	UTM X 364 710,96 m E	
		Y 7 201 351,87 m N	
DISTANCE	:	220 km from Kristiansund shore base with helicopter	
SPUDDING CLASSIFICATION	:	Appraisal	
WATER DEPTH	:	361 m	
RT ELEVATION	:	22m	
RT-SEA FLOOR	:	383m	
TOTAL DEPTH	:	4276 m RT	
PRIMARY TARGET	:	Cromer Knoll Group, Intra Lange Sandstone	
DEPTH TO TARGET	:	4300 m TVD RT	
TARGET TOLERANCE	:	Radius of 50 m	
DRILLING RIG	:	Ocean Vanguard	
OPERATOR	:	Eni Norge	55 %
PARTNERS	:	Petoro	20 %
		RWE-Dea	15 %
		DONG	10 %

2. GELOGY AND GEOPHYSICS

2.1 GEOLOGICAL SUMMARY

All depth in the geological part of the final well report is referred to RT if not otherwise is mentioned

The purpose of drilling the well 6406/1-3 was to test the extension of the gas discovery found in Lower Cretaceous Lange Unit 3 sandstones of the Cromer Knoll Group in well 6406/1-2. To test the hydrocarbon potential of the Cretaceous Lange Sequence 1 and 2 was also a target with this well.

The well was drilled to a depth of 4276 mMD. The well had to be plugged and abandoned before the targets were reached.

Well 6406/1-3 prognosis vs actual

Formation Tops	Prog m BRT	Actual m BRT	Prog m TVD MSL	Actual m TVD MSL	High/Low m	Basis of Pick
Nordland	384	383	362	361	-1	Spud
Naust Formation	700	702	678	680	+2	MWD Resistivity
Kai Formation	1585	1590	1563	1568	+5	MWD Resistivity
Hordaland Group (Brygge Formation)	2102	2106	2080	2084	+4	MWD
Rogaland Group (Tare Formation	2478	2485.5	2456	2463	+7	MWD
Shetland Group (Springar Formation)	2600	2600	2578	2577.5	-0.5	MWD
Cromer Knoll Group (Lysing Formation)	3472	3419	3450	3396.2	-53.8	MWD + cuttings
Lange Unit 3	4279		4257			
Lange Seq. 2	4371		4349			
Base Cretaceous	4522		4500			

2.2 MAIN RESULTS

The well was drilled to a depth of 4276 mMD. The well was plugged and abandoned before reaching target due to loss of 2 anchors and the riser. The well was probably abandoned only 30m above the main target (fig 2.2.1).

No hydrocarbons were encountered in the well. The Lysing Formation sandstones found at 3419m was water bearing.

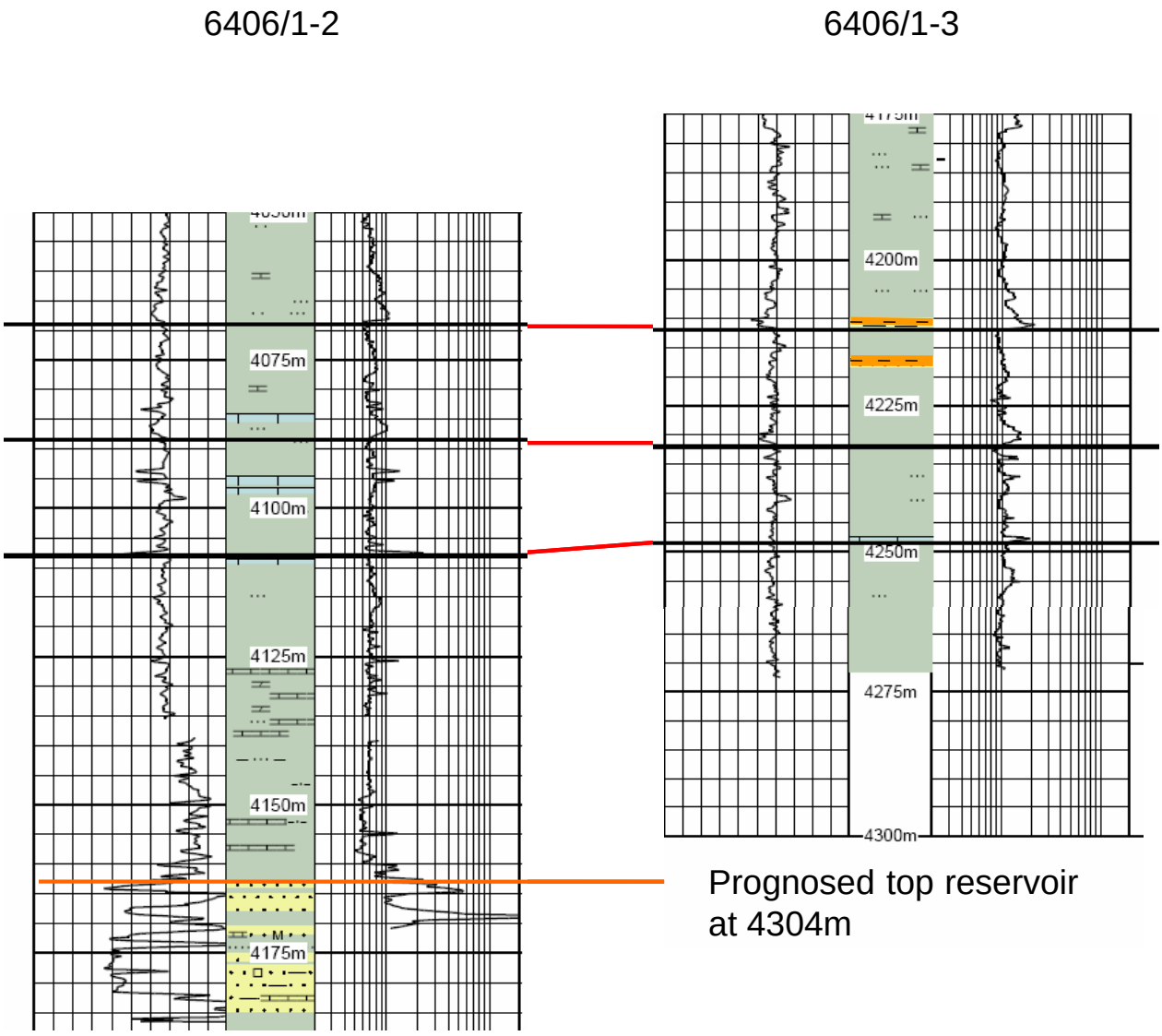


Fig. 2.2.1 Well correlation 6406/1-2 and 1-3

2.3 DATA ACQUISITION

2.3.1 Routine Sampling

Cuttings were collected and described offshore by Geoservices personnel (see Mudlogging Final Well Report) and revised by the Eni's wellsite geologist.

Sampling in the 17 ½" section; 1314m - 2510mMD:
One set of 5kg unwashed wet sample, two sets of washed and dried samples were collected every 10m; one set of 0.5kg unwashed biostratigraphic sample were collected every 50m and one geochemical sample was collected every 100m.

Sampling in the 12¼" and 8½" section; 2510m - 4276mMD:
One 5kg unwashed wet sample and two sets of washed and dried samples were collected every 5m; one 0.5kg set of biostratigraphic unwashed wet sample and one geochemical sample were collected every 50m through most of the section. Towards the deeper part of the section wet and dry samples were collected every 3m.

Mud samples were taken throughout the well in 200m intervals.

2.3.2 Shows

During drilling of the pilot hole section from 460m to 1309m no shallow gas was encountered. Pathfinder CWR, Sonic tools and ROV was run for detection of shallow gas.

The gas monitoring system installed on Ocean Vanguard by Geoservices was a GZG degasser taking suction from the flowline / active pit and a Reserval FID recording the breakdown gases in the Geoservices unit.

Hydrocarbon shows on cuttings were described by Eni's wellsite geologist. Show evaluation on cuttings was difficult due to mineral flourocence from $CaCO_3$ mud additives and cut fluorecence from the oilbased mud.

In the 17 ½" hole section high gas values ranging from 5 to 18 %, mainly C_1 , were recorded from 1400m to 1750m where the mud weight was increased to 1,40. For the rest of the 17 ½" phase the background gas was between 0,5 to 2 %.

The background gas values in the 12 ¼" hole were of the order of 0.9% to 4% throughout the section with occasional peaks due to elevated drilling rates between 5% and 8%. The gas chromotography showed an increased presence of heavier hydrocarbons but still predominately methane.

The 8 ½" section was drilled from 4130 m to 4276m in the Lange formation. Background gas from 0,2 to 0,8% was recorded

No fluorescence was reported from this well

BACKGROUND GAS									
Interval	Min %	Max %	C1ppm	C2	C3	iC4	NC4	iC5	NC5
1309 - 1314		1.2	1.2	0	0	0	0	0	0
1327-1589		8.1	79532	0	0	0	0	0	0
1589-1751		18.2	181562	10	2	0	0	0	0
1751-1894		5.0	47020	10	2	0	0	0	0
1894-2056		0.6	6174	12	2	0	1	0	0
2056-2317		0.8	8923	15	5	3	0	0	0
2317-2373		0.55	5250	25	10	5	7	0	0
2373-2508		0.9	9256	20	20	5	0	0	0
2510-2540	0.90	2.36	6504-19307	35-72	2-7	0	0-2	0-9	0
2540-2827	0.92	3.80	7043-32422	163-248	50-60	12-13	10	6-7	1
2827-3175	2.40	4.60	19722-37877	173-345	35-77	10-16	6-10	5-5	1-0
3175-3323	1.80	2.60	13738-20723	132-164	25-32	9-9	7-6	8-9	1-1
3323-3521	1.37	4.60	9507-38231	119-382	23-84	8-14	5-9	6-5	2-2
3521-3754	0.20	4.52	500-38027	18-450	9-108	4-16	3-18	2-10	0-9
3754-3954	0.86	5.13	5760-42417	111-568	42-196	8-21	10-27	1-11	0-13
4135-4230	0.28	1.72	2200-14000	20-198	6-28	0-2	0-1	0-2	0-1

Table 2.3.2 Background gas while drilling

2.3.3 Measurements while Drilling and Wireline Logs

Pathfinder MWD/LWD was run as per table below.

Run No	Hole Diam	Drilled Intvl.	Tool Type	Comments
1	36”	383 – 460	Directional	
2	9 7/8”	460 - 1309	GR-Res.-Dir.-Sonic	Pilot hole
3	26”	160 -1309	Dir.	Hole opening
4	17 ½”	1314 -2507	GR.-Res.-Dir.-Sonic	Intermittent Sonic failure at end of the run
5	12 ¼”	0	GR-Res-Sonic-Dens-Neu -Dir	Side track
6	12 ¼”	2317 – 2507	Dir	Pathmaker
7	12 ¼”	2512 – 4130	GR-Res-Sonic-Dens-Neu -Dir	Pathmaker
8	8 ½ “	4130 – 4276	GR.-Res.-Dir	

Table 2.3.3 No wireline logging was performed in this well

2.3.4 Formation Pressure

A normal pore pressure gradient of 1.03 g /cm^3 is interpreted from seabed to approximately 1550 m where the pore pressure increase starts. The pressure gradient builds up through the Tertiary to a maximum of 1.55 g /cm^3 at 2600 m just below the top of Cretaceous. From 2700 m the pressure gradient drops rapidly back to 1.45 g /cm^3 at 2800 m. The pressure gradient is then constant through Shetland Group and starts to increase again at 3600m in the Cromer Knoll Group. The gradient is increasing to maximum pore pressure of 1.82 g/cm^3 at the TD of the well. (fig.2.3.1)

2.3.5 Formation Temperature

The downhole circulation temperature was recorded to 108 – 110 C. by the Pathfinder MWD tool close to the TD of 4276m. A typical temperature gradient in this area is 39^0 C/km giving a formation temperature of app. 150^0 C. at 4276m

Based on the observed circulation temperature and the regional temperature gradient in this area, the expected formation temperature at the bottom of well 6406/1-3 should be from 145 – 155 ^{0} C.

2.3.6 Side wall cores

No side wall cores were taken in this well.

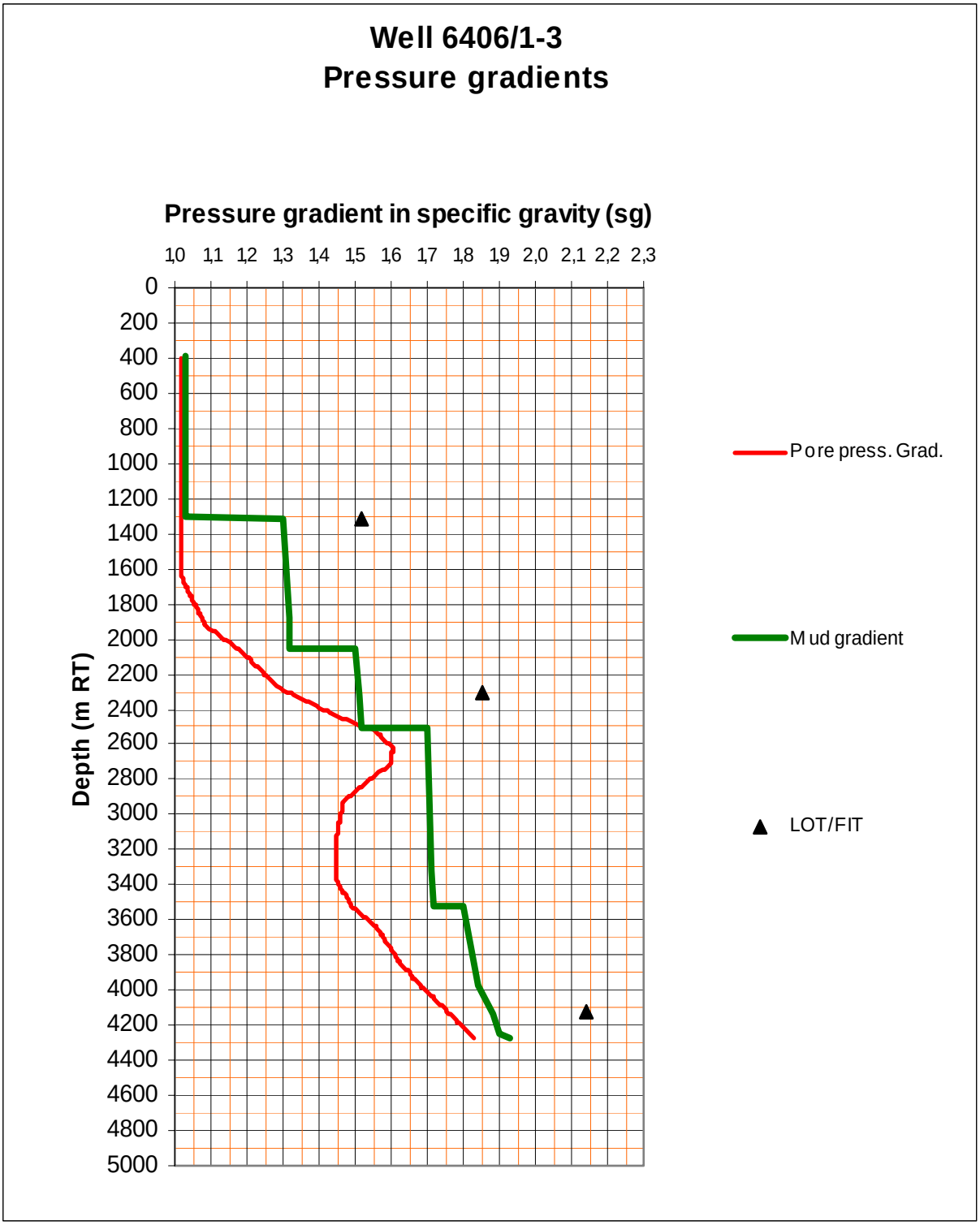


Fig. 2.3.1 Formation Pressure

2.4 STRATIGRAPHY

2.4.1 Biostratigraphy

Routine Biostratigraphical analysis for well 6406/1-3 was performed by APT. For details see report "6406/1-3 (Norwegian sea) Biostratigraphy report." The main stratigraphy is noted in the table 2.4.1

Stratigraphic summary 6406/1-3		
Depths (mRKB)	**Biostratigraphy**	***Lithostratigraphy**
	Cenozoic	
383		Nordland Gp
702		Naust Fm
1310-1510	Pliocene	
1590		Kai Fm
1560-1810	Early Pliocene	
1850-1950	Middle to Late Miocene	
2010	Middle Miocene	
2060-2090	Early Miocene	
	Non-Sequence?	
2106		Hordaland Gp
2110	Oligocene	
2160-2210	Early Oligocene	
2260-2310	Late Eocene? to Early Oligocene	
2360-2410	Middle Eocene	
2460	Early to Middle Eocene	
2470-2480	Early Eocene	
2485.5		Rogaland Gp
2485.5		Tare Fm
2490-2535	Earliest Eocene or Late Paleocene-Early Eocene	
2550-2590/2600	Late Paleocene	
	Late Cretaceous	
2600		Shetland Gp
2600		Springar Fm
	Non-Sequence	
2600-2650	Middle to Late Campanian	
2675-2875	Early Campanian	
2880-3000	Santonian	
3015-3110	Coniacian-?Early Santonian	
3130-3275	Coniacian	
3295-3419/3425	Early Coniacian	
3419		Cromer Knoll
3425-?3609	Turonian	
3650?-4274	Late Cenomanian to Early Turonian	

Table 2.4.1 Biostratigraphical analysis

2.4.2 Lithostratigraphy

The following summary is compiled predominantly from LWD data in the pilot hole from seabed at 383m RT (361m MSL) to 1297m (1275m MSL). This section was drilled with return to seabed and Gamma ray, resistivity, sonic and ROP were used for interpretation.
From 1297m cuttings were used in addition to LWD data for the interpretation.

Nordland Group **383m – 2106m RT.**
(361m – 2084m TVD MSL)

System: Tertiary - Quarternary
Stage: Miocene-Pleistocene

The Nordland group comprises the Naust and Kai Formations.

The well was drilled with returns to seabed down to 1297m. Interpretations from the MWD log suggest mostly clay with some thin stringers/layers of sand and in the uppermost part. No shallow gas was observed.

Quarternary **383m – 702m RT.**
(361m – 680m TVD MSL)

Stage: Pleistocene to Holocene

The formation is interpretated as clay with some thin stringers/layers of sand/gravel. Clay from the 26" bit is firm to stiff medium grey clay with gravel/rockfragment.

Naust Formation **702 – 1590m RT.**
(680 –1568TVD MSL)

Stage: Pliocene

Upper Boundary: The top is picked at a base of a gamma ray peak and a change to a smoother resistivity pattern..

The formation below 1297 m is described from cuttings as claystone with some thin stringer of sand/sandstone. The **claystone** is medium dark – dark grey – olive grey, soft to firm, blocky, very silty grading siltstone – very sandy grading argillaceous sandstone, silghtly – very calcareous, disseminated carbonaceous material,

Kai Formation **1590 – 2106m RT.**
(1568 – 2084m TVD MSL)

System: Tertiary
Stage: Miocene – Pliocene

Upper Boundary: The top is picked from a clearly decrease in the transit time on the sonic log and by a decreace in the resistivity.

The lithology is a massive silty sandy claystone with a few sandstone and limestone stringers.

The **claystone** is medium dark – dark grey – dark olive grey, dark brown, olive - brown black, firm, blocky - subfiss, very silty grading siltstone – very sandy grading argillaceous sandstone, silghtly – very calcareous, traces of carbonaceous material. The **sandstone** is described as olive grey, very fine, sub angular, well sorted, common argillaceous matrix, firm – moderatly hard, disseminated carbonaceous material, occasionally micromicaceous, no visiabl porosity. The **limestone** is very light - light grey, firm – moderatly hard, blocky, argillaceous, micro crystalline

Hordaland Group **2106 - 2485m RT.**
(2084 – 2463 m TVD MSL)

The Brygge Formation is the only stratigraphic unit within the Hordaland Group.

Brygge Formation **2106 – 2485m RT.**
(2084– 2463m TVD MSL)

Stage: Eocene - Miocene

Upper Boundary: Shows a increase in inteval transit time on the sonic log and by a slight decreace in the gamma ray redings.
The lithology is a massive claystone, grading into siltstone and argillaceous sandstone with occasionally thin limestone stringers.

The **claystone** is varying in greyish colour, brownish grey – olive grey, greenish grey – medium dark grey – dark olive grey – dark browninsh grey and brownish black – olive black. Soft to firm, blocky, rarely sub-fissile, occasionally waxy, very silty grading siltstone, traces to common sandy, very fine, in parts grading into argillaceous sandstone, non to very calcareous, rare - trace micromicaceous, trace carbonaceous material, occasionally calcareous with abundant pyrite.
The **sandstone** is dark brown – dark brownish grey, very fine, sub-angular – sub-rounded, moderatly to well calcareous cemented,
Limestone stringers are white – very light grey, occasionally yellowish grey, firm, occasionally moderatly hard, micro – crypto crystalline, argillaceous in parts.

Rogaland Group **2485 - 2600m RT.**
(2463 –2578TVD MSL)

The Rogaland group comprises the Tare and the Tang Formations.
The lithology is a varicoloured claystone, with thin stringers of sandstone, tuff and limestone.

Tare Formation **2485 – 2551m RT.**
(2463 – 2528 m TVD MSL)

Stage: Paleocene - Eocene

Upper Boundary: The top is defined by a decreace in inteval transit time, increase in density and by a slight decrease in the gamma ray redings.

The **claystone** is varicoloured grey – dusky blue green – pale blue – greyish red, waxy, firm to moderatly hard, blocky to sub-fissile, non calcareous, dolomitic in parts, pyrite, non to slight swelling.Traces of **Tuff** , medium to lt. grey, soft, amorphous, ashy texture.

Tang Formation **2551 – 2600m RT.**
2528 – 2578m TVD MSL)

Stage: Paleocene

Upper Boundary: A increace in interval transit time on the sonic log and a decreace in density and resistivity readings

The **claystone** is varicoloured grey – dusky blue green, waxy, firm to soft, sub-blocky – blocky, non – slight calcarous, micro pyritic, tuffaceous grading into tuffaceous claystone. The **tuff** is described as light bluish – light greenish grey, soft, amorphous and with very fine disseminated pyrite. **Limestone** is very light grey, hard and blocky

Shetland Group **2600 - 3419m RT.**
(2578 – 3396m TVD MSL)

System: Cretaceous

The Shetland group comprises the Springar, Nise and Kvitnos Formations.
The lithology consists of claystone with stringers of limestone, dolomite and siltstone

Springar / Nise Formations **2600 - 2748m RT.**
(2578– 2725m TVD MSL)

Stage: Campanian

Upper Boundary: The top is defined by a decrease in inteval transit time and an increasing resistivity trend. .

The **claystone** is medium to dark grey, earthy - waxy, granular, hard occasionally soft, amorpous to blocky, non calcareous to calcareous, slightly swelling, non to very silty, grading to argillaceous **siltstone**, becoming sandy in parts, grading to very argillaceous/silty sandstone in parts, microcarbonaceous. The **limestone** is yellow grey becoming yellow orange to yellow brown, generally cryptocrystalline, rarely crystalline, hard, rarely very hard, crumbly, rarely splintery, occasionally argillaceous, dolomitic grading to dolomite in parts. **Dolomite**, light brown grey, yellow grey to yellow brown, hard, crumbly.

Kvitnos Formation **2748 - 3419m RT.**
(2725 – 3396m TVD MSL)

Stage: Coniacian to Santonian

Upper Boundary: The top is defined mainly based on the biostratigraphy.

The **claystone** in the Kvitnos formation is medium grey earthy, hard to very hard, soft in parts, blocky, amorphous in parts, calcareous, dolomitic, locally very silty, grading to siltstone and very fine sandstone. The **sandstone** is light grey, very fine, sub angular to sub rounded, well sorted, firm with argillaceous cement, grading to sandy claystone. The **limestone** is yellow brown, generally cryptocrystalline, moderatly hard. **The dolomite** is light brown grey, moderately hard, microcrystalline.

Cromer Knoll Group **3419- 4276m RT**
(3396– 4253m TVD MSL)

Stage: Turonian/Cenomanian

The Cromer Knoll group comprises a thin Lysing formation and the Lange formation.

Lysing Formation **3419 –3442RT.**
(3396 – 3419m TVD MSL)

Stage: Turonian

Upper Boundary: The top is defined by a decrease in the gamma ray combine with a decrease in the density.

The lithology consists mainly of siltstone with glauconitic sandstone stringers.

The **sandstone** is very light grey to pale green with dark green mottles, very fine , occationally silt to very fine, poor to medium sorted, sub-round to sub-angular to, soft becoming moderately hard, friable, argillaceous matrix, slightly calcareous, very glauconitic, nil visible porosity.

Lange Formation **3442 – 4276m RT,)**
(3419 – 4253m TVD MSL)

Stage: Cenomanian to Turonian

Upper Boundary: The top of the formation is picked on a two meter thick stringer with a large increase in the gamma ray values.

The Lange formation consists of silty claystone with occasional sandstone and limestone layers. In the upper part the sandstone layers are more frequent.

The **claystone** is light grey – medium dark - dark grey, olive grey – olive black, brown black, earthy, occasionally soft, mainly firm- to hard, sub-blocky to blocky, sub-fissile in parts, occasionally slightly swelling occasionally silty–to very silty grading siltstone, non calcareous, slightly micro carbonaceous, trace of glauconite. The **sandstone** is very fine - fine occasionally medium – coarse, moderately sorted, sub-angular – sub-rounded, slight to well silica cemented, argillaceous, nil to poor visible porosity. **Limestone** is white – very light grey, dark yellowish orange – yellowish white – light brown, moderately hard to hard, occasionally crumbly, blocky, occasionally argillaceous – very argillaceous grading calcareous claystone, micro – crypto crystalline, micritic in parts, dolomitic in parts. Limestone stringers below Upper Lange SandstoneI is light blue green-green grey, pink grey - moderate orange pink - grey orange pink, firm, blocky-amorphous, cryptocrystalline, becoming finely crystalline in argillaceous matrix argillaceous becoming very argillaceous, intergrading to very calcareous claystone

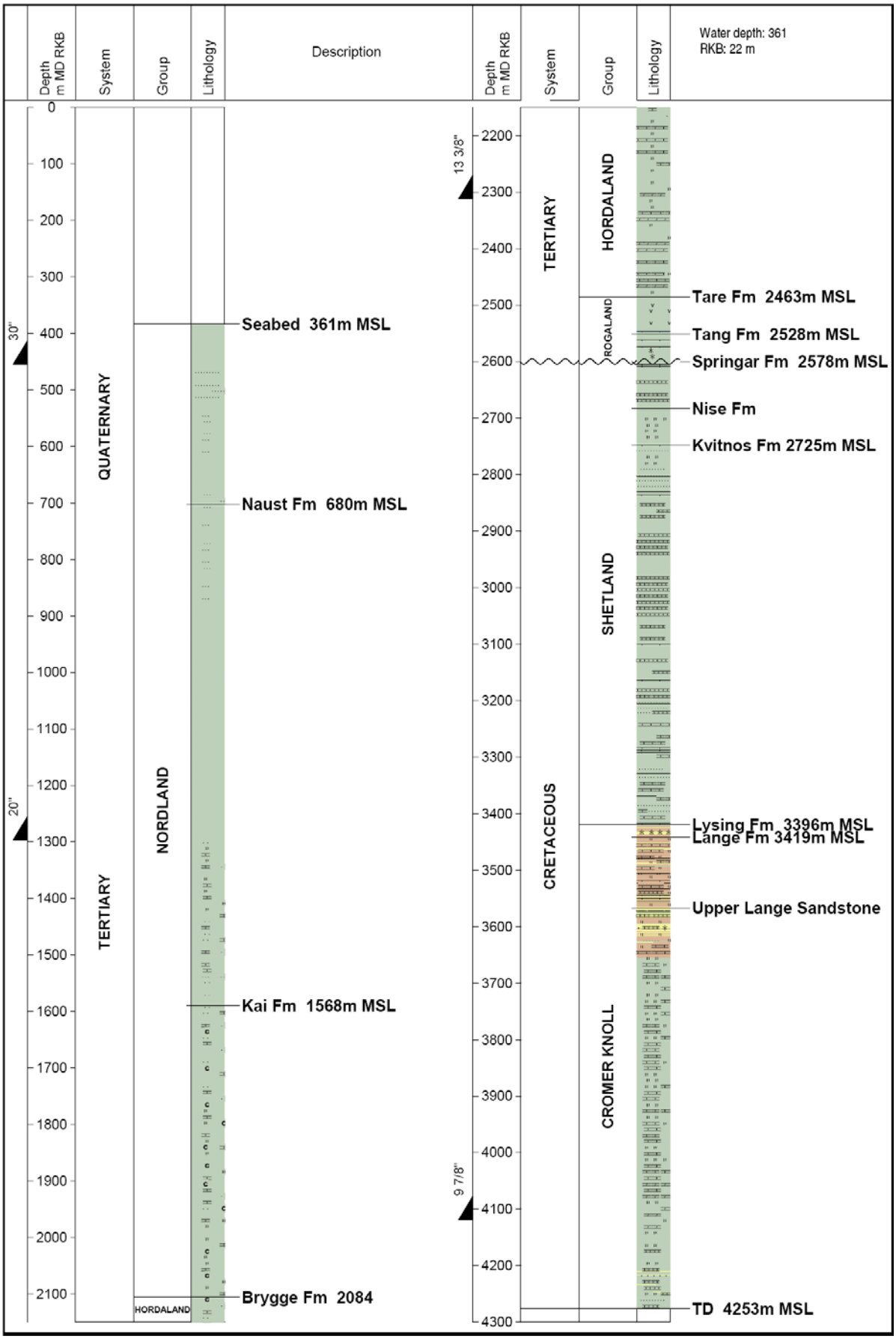

Depth m MD RKB
System
Group
Lithology
Description
Water depth: 361
RKB: 22 m
30"
20"
13 3/8"
9 7/8"
QUATERNARY
TERTIARY
NORDLAND
HORDALAND
Seabed 361m MSL
Naust Fm 680m MSL
Kai Fm 1568m MSL
Brygge Fm 2084
HORDALAND
TERTIARY
ROGALAND
SHETLAND
CRETACEOUS
CROMER KNOLL
Tare Fm 2463m MSL
Tang Fm 2528m MSL
Springar Fm 2578m MSL
Nise Fm
Kvitnos Fm 2725m MSL
Lysing Fm 3396m MSL
Lange Fm 3419m MSL
Upper Lange Sandstone
TD 4253m MSL

Fig.2.8.2

3. DRILLING

3.1 Introduction

Eni Norge A/S drilled the exploration well 6406/1-3 in Block 6406/1 (PL 256) in the Haltenbanken area with the semi-submersible drilling rig "Ocean Vanguard", but the well was abandoned and permanently plugged before the final well target was reached. This was due to the failure of two of the anchor winches. The consequence was an unrepairable damage of the wellhead structure, hence the need to permanently abandon the well .Transocean Arctic, performed the re-entry of the well (re-latched LMRP on BOP and pulled out the 8 ½" BHA left in hole) and filled up the open hole with cement. The abandoning operation was completed by Ocean Vanguard.

The total time spent on well was:

-From moving the rig to the anchors incident 68,7 days.
-Transocean Arctic re-entry and first phase of abandoning 31 days.
-Ocean Vanguard second phase of abandoning 25 days.

The cost for the drilling related operations was NOK 354,9 million (86834 NOK/m).

As % of total well time the distributed between the main operation groups was:

Drilling	29%
BOP	11%
Casing	7%
P&A	16%
Rig move	22%
Other	15%

The unplanned/unproductive time was 32, 8 % of the total time.

The time for well 6406/1-3 started on 11 October 2004 at 00:00 hrs by the rig Ocean Vanguard being taken on contract by Eni Norge. The rig was towed to the 6406/1-3 drilling location where the anchors were set and the rig ballasted down to drilling draft. At drilling draft the distance from the rotary table to the sea surface (RT – MSL) was 22 m.

The well was spudded by a 36" BHA at 23:00, 16th October 2004. The 36" hole was drilled to 460 m. and the 30" Conductor pipe was set at 455 m.

The distance from the rotary table to the seabed (RT – seabed) was 384 m.

Final Position: 64 deg 54' 25,97" N
06 deg 8' 25,34" E

A 9 7/8" pilot hole was drilled to 1309 m, and then re-drilled/opened to 26" down to 1309 m. The 20" casing was set at 1297 m.

17 ½" hole section was drilled to 2507 m. The 13 3/8" casing string was set at 2312 m, 188 above the planned shoe depth due to hole instability.

12 ¼" hole was drilled to 4130 m and 9 7/8" casing set at 4119 m.

8 ½" hole was drilled to 4276 m, due to the weather conditions the drilling was stopped and disconnection procedures was initiated. After displaced the riser with sea water, at 22:40, 14th December 2004 two of the anchor winches failed. The rig moved rapidly off location, parting the riser and the diverter ball joint.

The rig was stabilized, the anchors where retrieved and the rig towed to Kristiansund for repair.

Mobilized DSV Sub Sea Viking and perfomed a preliminary survey around the well location and evaluated the condition of BOP and riser.

Mobilized Boa Deep C and started the recovery of LMRP. The operations were finished by Island Frontier.

Mobilized Transocean Arctic. Re-latched the Ocean Vanguard LMRP on the BOP by the Transocean Arctic riser and performed first step of plugging and abandonment of the well.

Finished repair of Ocean Vanguard and re-mobilized the rig to location.Performed, permanent abandonment of the well. The well operation finished 17th of March 2005.

The rig was then moved to Kristiansund harbour to complete repairing and re-certification of the BOP equipment.

3.1.1 Well Data summary

HOLE SECTION	1	2	3	4	5	6
Hole size & depth	36" hole was drilled to 460 m (seabed at 384 m)	9 7/8" pilot hole was drilled from 30" shoe to 1309 m in order to check for shallow gas	26" hole was drilled to 1309 m	17 1/2" hole was drilled to 2507 m	12 1/4" hole was drilled to 4130 m	8 1/2" hole was drilled to 4276 m
Drilling fluids	Type: Seawater/ High Viscous Sweeps with seawater/PAC spud mud Viscous Sweeps: Density: 1.03 -1.20 sg FV: 110 -120 Pilot hole displaced to 1.2 sg mud prior to POOH	Type: Seawater/ High Viscous Sweeps with seawater/PAC spud mud Viscous Sweeps: Density: 1.03 -1.20 sg FV: 110 -120 Pilot hole displaced to 1.2 sg mud prior to POOH	Type: Seawater/ High Viscous Sweeps with seawater/PAC spud mud Viscous Sweeps: Density: 1.03 -1.20 sg FV: 110 26" hole displaced to 1.2 sg CaCl2 salt mud prior to POOH	Type: Performadrill water based mud Density: 1.30 – 1.53 sg PV: 22 –40 cP YP: 20 – 30 Pa pH: 8-10	Type: XP-07 Oil based mud Density: 1.70– 1.84 sg PV: 23 – 44 cP YP: 9 – 22 Pa Cl-: 190 – 320g/l	Type: XP-07 Oil based mud Density: 1.88– 1.90sg PV: 35- 40 YP: 14 16 Pa Cl-: 200 – 250 g/l
Coring				No coring	No coring	No coring
Logging	Drilling: None Logging in open hole: None	Drilling: MWD-GR-Sonic-Res. -directional Logging in open hole: None	Drilling: MWD- directional Logging in open hole: None	Drilling: MWD-GR-Sonic-Res. -directional Logging in open hole: None	Drilling: MWD-GR-Sonic-Res. -directional -density Logging in open hole: None	Drilling: MWD-GR-Sonic-Res. -directional -density Logging in open hole: None
Casing	30" casing to 455 m.		20" casing to 1297 m. Vetco MS-700 Wellhead System 18 ¾" x 15000 psi	13 3/8" casing to 2312 m	9 7/8" casing to 4119 m.	
Cement	Cement Type : Class G Mixwater: Sea water (lead) Fresh water (tail) Density: 1,56 sg lead 1,96 sg tail Top cement: Lead: Seabed Tail: 435 m		Cement type: Class G Mixwater: Seawater (lead), freshwater (tail) Density: 1.46 sg lead, 1.92 sg tail Top cement: Lead: Seabed Tail: 1100 m	Cement type: Class G Mixwater: Freshwater Density: 1.92 sg Top cement: 1913 m	Cement type: Class G Mixwater: Fresh water Density: 1.92 sg Top cement: 3600 m	

3.1.2 Operational Achievements

The total time planned for “dry hole” scenarious was 73,1 . Actual time used was 124, 7 days.

3.1.3 Operational problems

No particular drilling problems were experienced in the 36” hole from the sea bed and down to the setting depth for the 30” conductor and the 9 7/8” pilot hole from the conductor shoe to 1309 m.

The 20” casing was set at 1297 m and cemented. The plug did not bump when displacing the cement. Had leak on the blue POD while running the BOP and it was necessary to retrieve and re-run two times. The 20” casing was attempted tested by cement unit against shear rams, but the result was negative. A 17 ½” BHA with junk sub was run in hole and at 1265 m tagged the plug. Sat down 5 ton and attempted to test casing by cement unit without success. Worked again on the plug and pushed it down on the float collar at 1268 m and then made another pressure test of casing with success. After the test, drilled the shoe track and washed the rat hole (no cement found). Continued drilling 5 m of new formation and performed LOT with a viscous pill across the 20” casing shoe and sea water above. LOT at 1, 51 sg EMW. Changed the 17 ½” junk BHA, with 17 ½” drilling BHA. Drilled 200 m of 17 ½” phase, performed a FIT to 1, 56 EMW by 1, 45 sg mud.

The 17 ½” hole was drilled with Performadrill water based mud to 2508 m (TD of phase). The BHA was pulled out without any particular over pull encountered only some minor tight spots from TD to 2250 m. The 13 3/8” casing was run in hole without any problems to 2358 m. At this depth encountered tight spot and it was necessary to work on the string to continue the running of the casing. At 2368 m the string went stuck and it was not possible to pass this depth. Started to work on the casing string and after several hours the string came free and was pulled out. During the retrieving of the casing string three centralizers and two stop collars where left in hole. Therefore it was necessary to perform a trip with a clean out BHA, ream and clean the hole. The BHA went stuck twice in the interval 2330-2396 m, but managed to POOH with the BHA. Based on this, it was decided to set the 13 3/8” casing shoe at 2312 m (188 m above the planned depth).

The 12 ¼” hole was displaced and drilled with XP-07 Oil Base Mud due to the instability expereinced. Prior to displacing the hole with OBM, it was decided to set a kick off cement plug and sidetrack the well from the 13 3/8” casing shoe (to prevent potential problems in the original interval drilled by 17 ½” BHA from 2312 m to 2507 m).The attempt to kick off the well failed and the bit re-entered inside the original hole. Drilled 12 ¼” hole to TD of section at 4130 m. Ran and cemented the casing without return. After installation of the 9 7/8”seal assembly a leak was discovered on the kill line connector. Installed a RTTS packer at 405 m, un-latched the BOP from wellhead and pulled out. During the BOP repairing, thread of one bolt of the shear ram bonnet was damaged. The shear ram bonnet thread was repaired and BOP was re-runned. Latched the BOP on well head, displaced the riser with OBM and retrieved RTTS packer.

The 8 ½” hole from 9 7/8” casing shoe to 4276 m, no particular drilling problems were experienced.

At 22:40 of 14th Dectancember 2004 two of the anchor winches failed. The rig moved rapidly off location, parting the riser and the diverter ball joint.

The rig was stabilized 125 m off location. All non essential personnel where evacuated to the Heidrun platform. Performed a preliminary damage assessment and mobilized the DSV Subsea Viking for ROV assistance. ROV located BOP/LMRP and marine riser. The LMRP was attached in unlatched position. The first riser joint bent in 90 deg, and the next 3 joints bent and ruptured. The slip joint with tensioner ring where located at the sea bed.

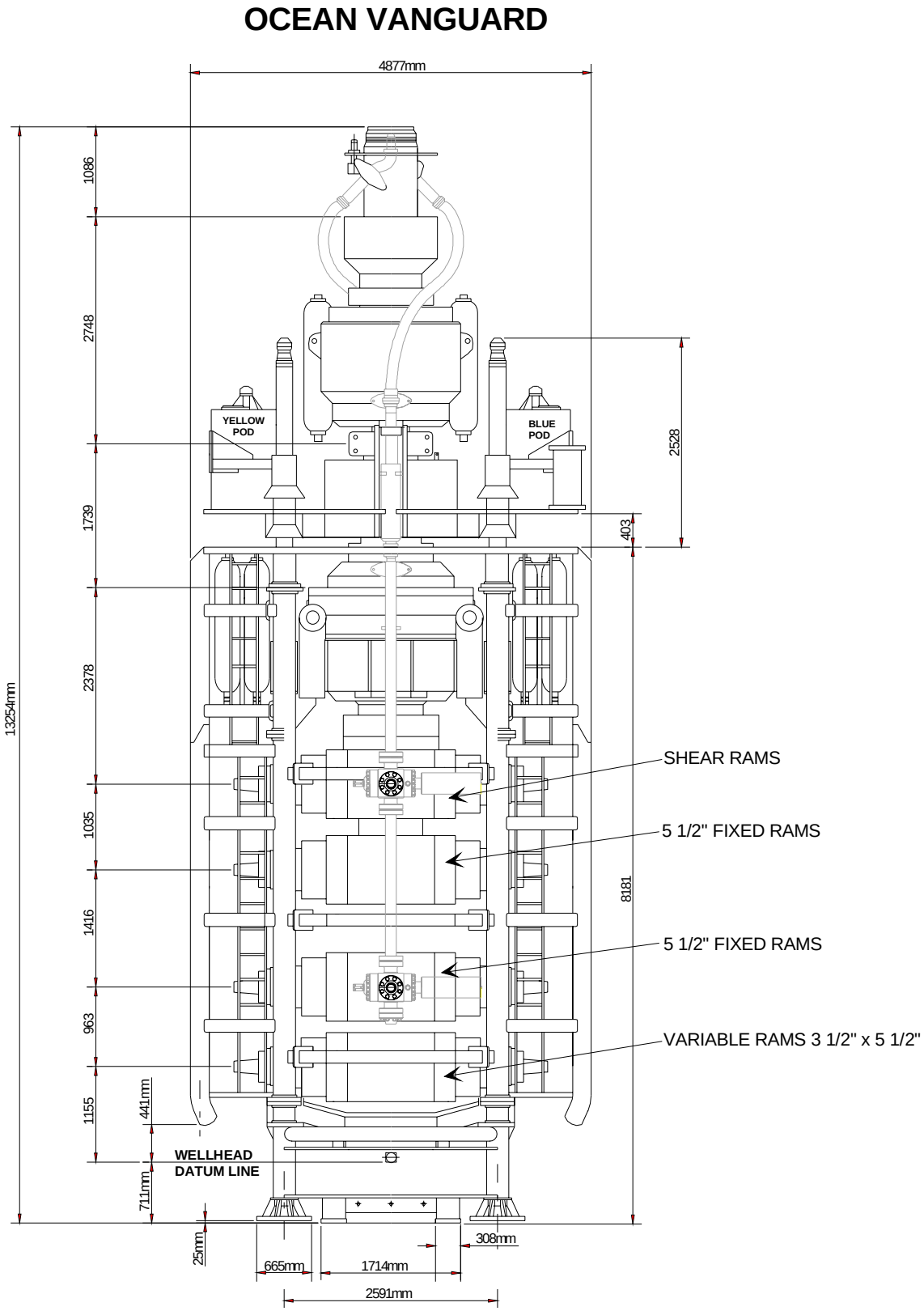
The rig retrieved the remaining anchors and was towed to harbour for repair. The Boa Deep C was mobilized to disconnect the LMRP from the BOP. This operation was completed by the Island Frontier.

No significant problems were encountered in the:

- recovery of LMRP by boat
- re-entry of well by Transocean Arctic
- abandon of well by Ocean Vanguard

3.1.4 BOP Sketch

18 5/8” 15000 psi BOP



Blowout Preventers:

Annular preventers: 1 ea. 18 ¾” Hydrill GX 10K, 1 ea. 18 ¾” Cameron DL 10K
Ram preventers: 4 ea. 18 ¾” Hydrill 15 K

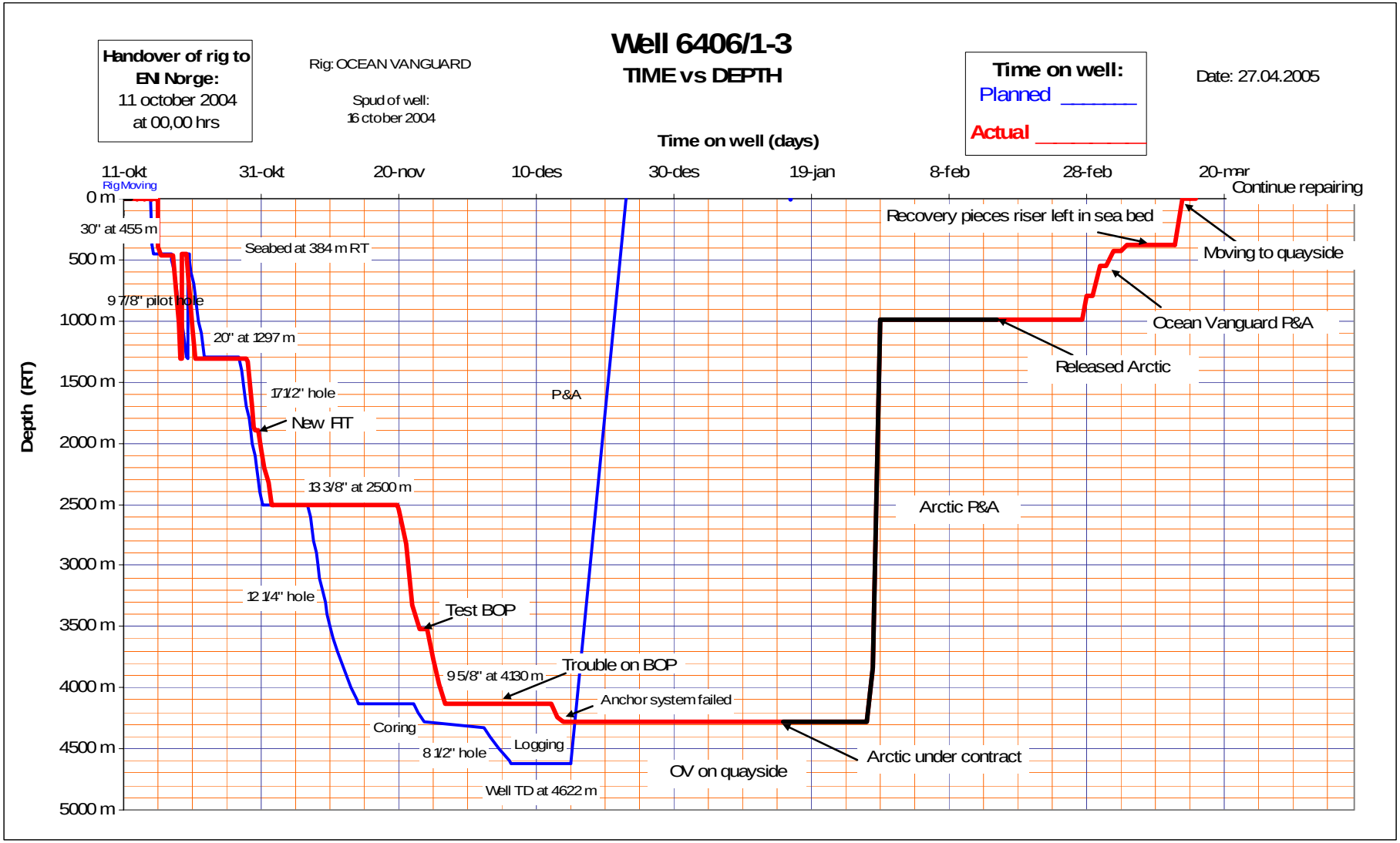
Pressure testing of the BOP stack on Well 6406/1-3

The BOP stack was pressure tested as follows:

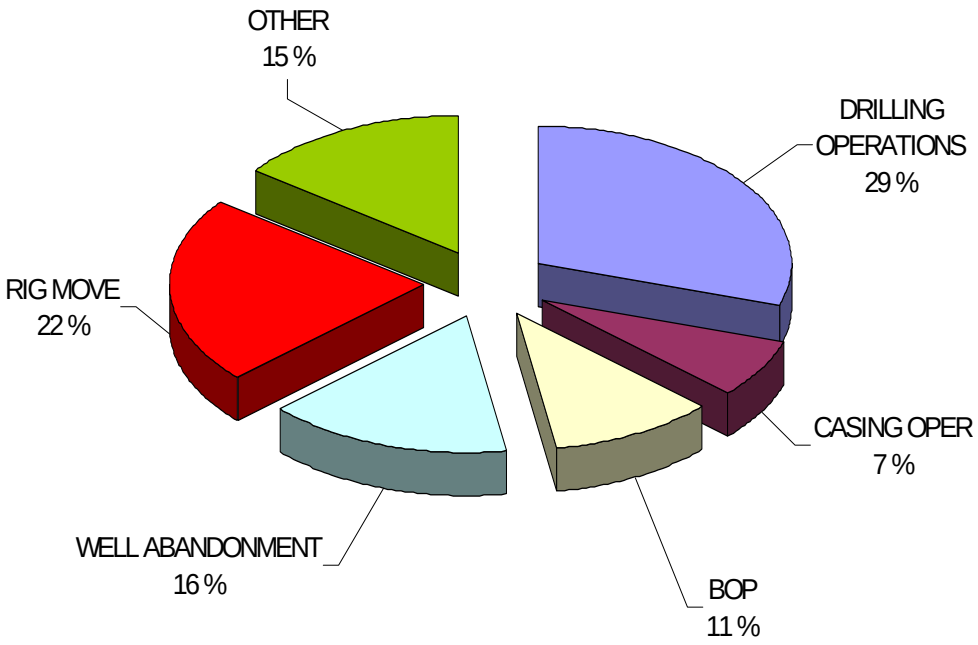
	CASING STRINGS INSTALLED	SHEAR RAMS	BAGS (annular preventer)	PIPE RAMS, FAIL SAFES	WELLHEAD CONNECTION	K/C-LINES, HOSES
Before installation	None	500 psi/ 15000 psi	500 psi/ 7500 psi	500 psi/ 15000 psi	None	None
First test on 18 ¾" wellhead	20" casing	500 psi/ 2100 psi	None	None	500 psi/ 15000 psi	500 psi/ 15000 psi
Bi-weekly in open hole (17 ½")	20" casing				500 psi/ 2100 psi	500 psi/ 2100 psi
Weekly in open hole (17 ½")	20" casing					500 psi/ 2100 psi
Prior to drilling out of 13 3/8" casing	20" casing + 13 3/8 " casing	500 psi/ 5000 psi	500 psi/ 5000 psi	500 psi/ 5000 psi	500 psi/ 5000 psi	500 psi/ 5000 psi
Bi-weekly in open hole (12 ¼")	20" casing + 13 3/8 " casing	None				
Weekly in open hole (12 ¼")	20" casing + 13 3/8 " casing	None				500 psi/ 7000 psi
Prior to drilling out of 9 7/8" casing	20" casing + 13 3/8 " casing + 9 7/8" casing	500 psi/ 9000 psi	500 psi/ 5000 psi	500 psi/ 10000 psi	500 psi/ 10000 psi	500 psi/ 10000 psi
Bi-weekly in open hole (8 ½")	20" casing + 13 3/8 " casing + 9 7/8" casing	None				
Weekly in open hole (8 ½")	20" casing + 13 3/8 " casing + 9 7/8" casing	None				500 psi/ 9200 psi

3.2 Time and Cost Analysis

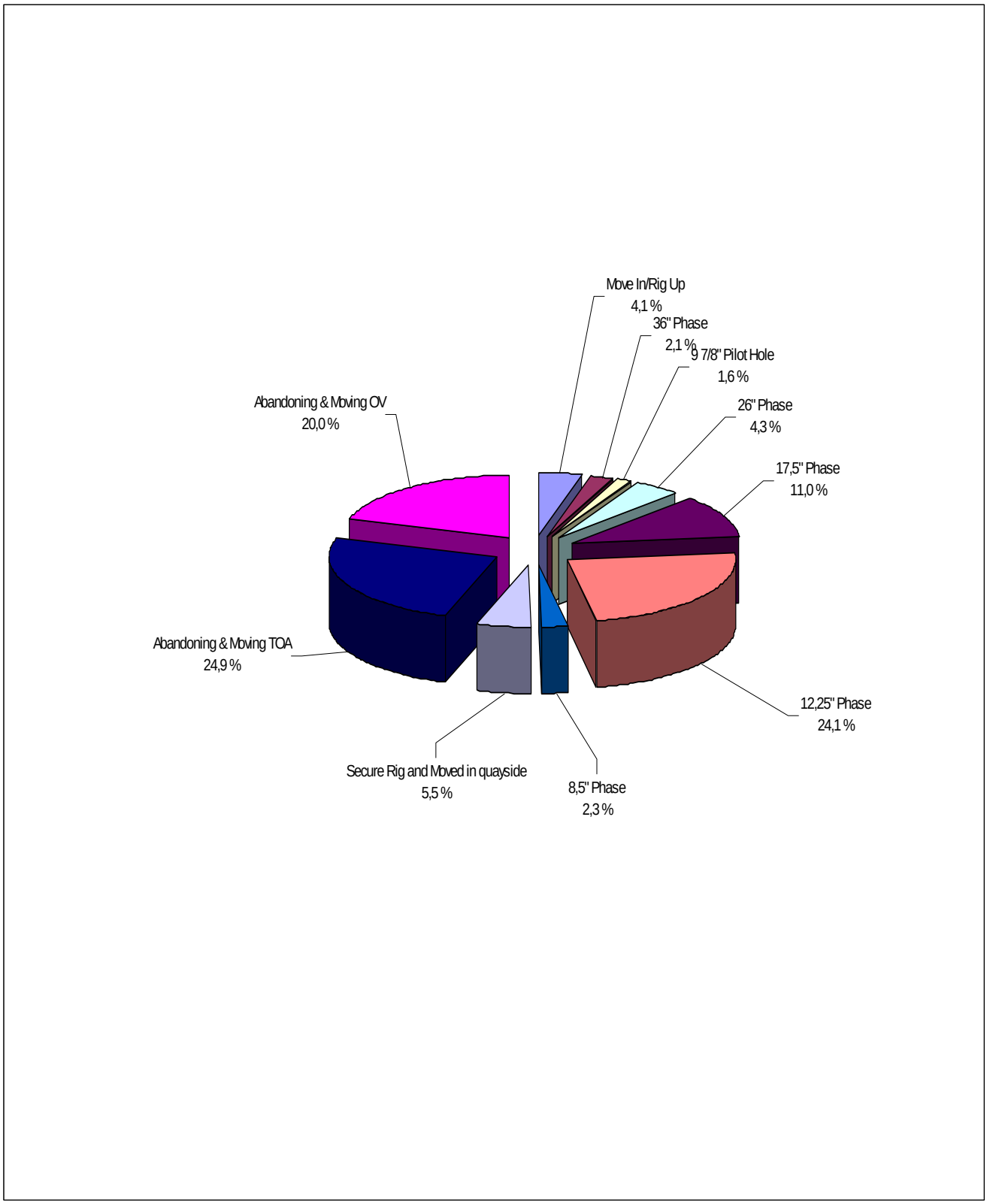
3.2.1 Days vs. Depth



3.2.2 Total Well Time Breakdown by Function



3.2.3 Time by Phase

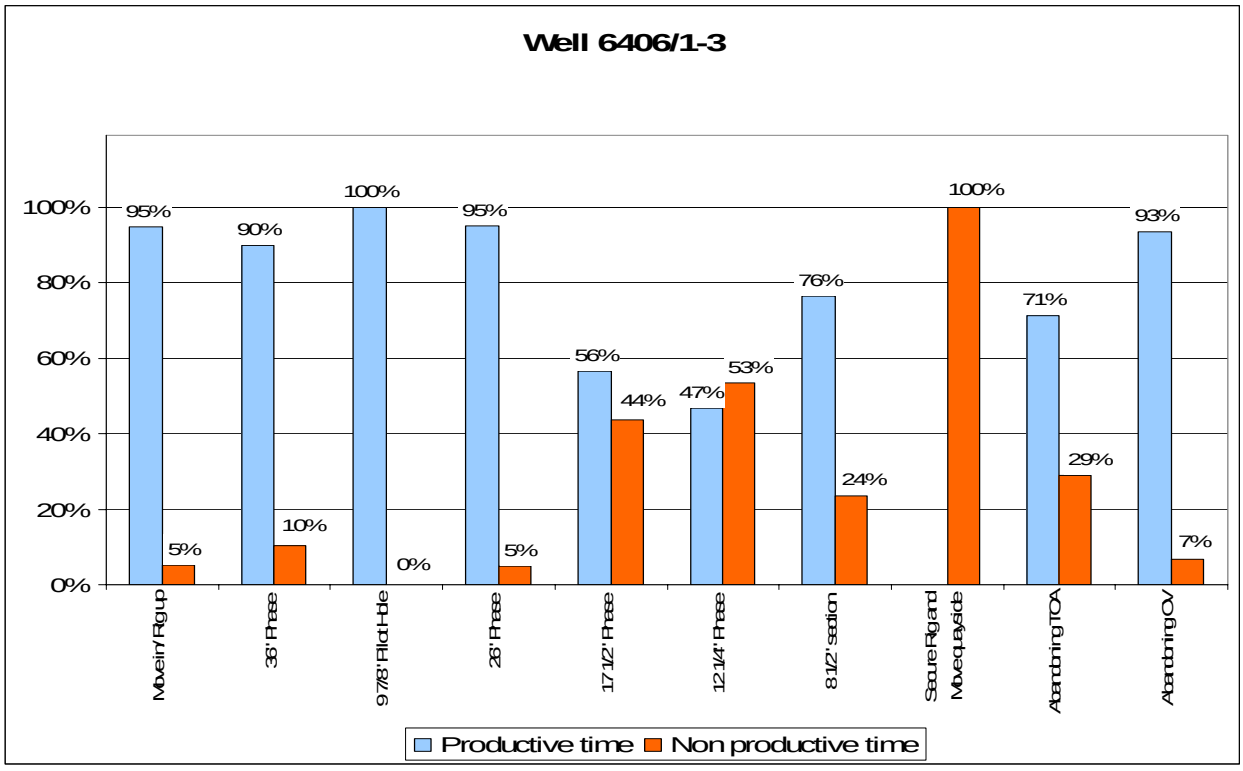


Time Breakdown by Phase

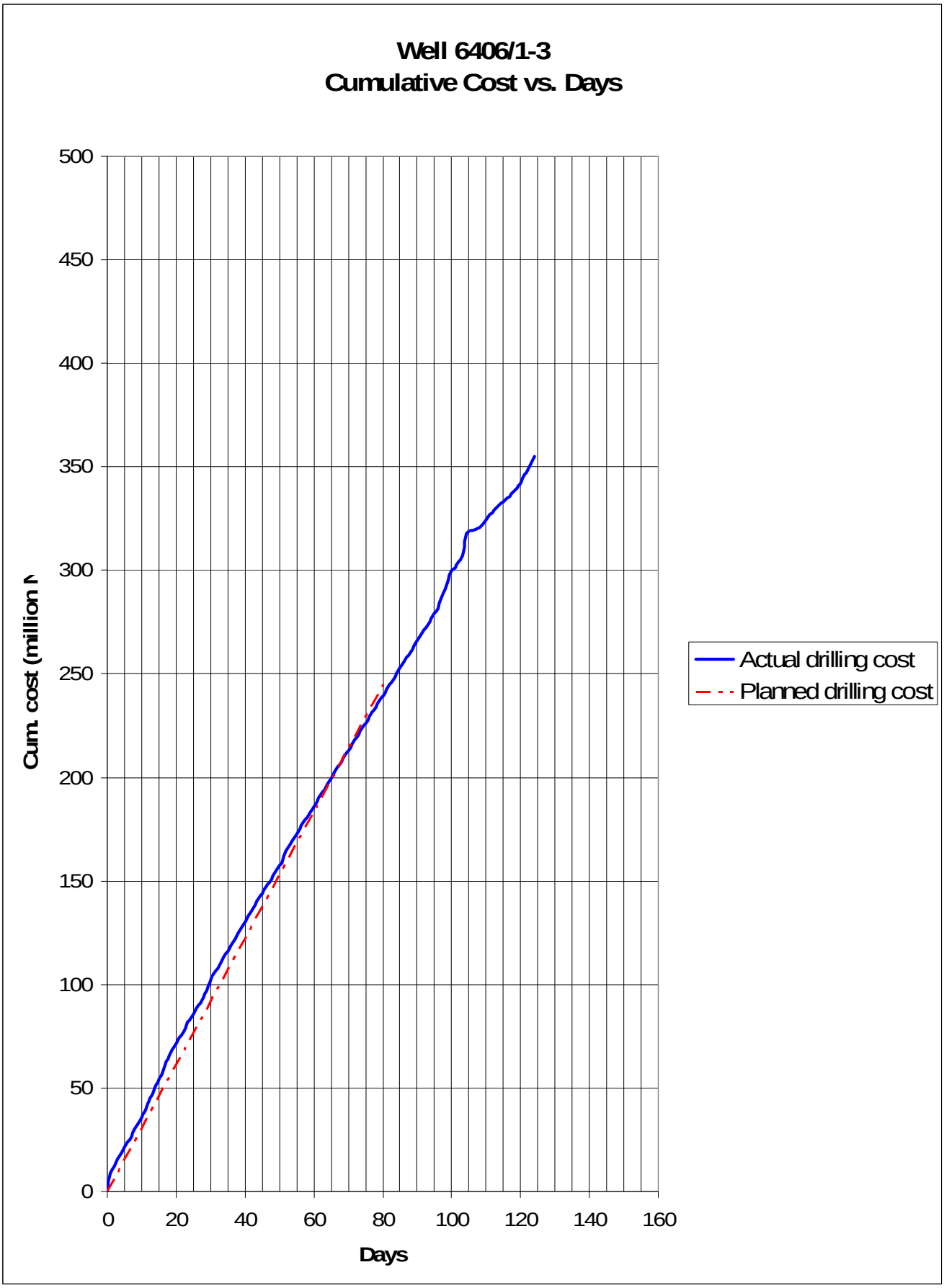
WELL 6406/1-3 TIME BREAKDOWN

	Start	End	Days	Tot. hrs	Tot. m	m/Day
	Year 2004	Year 2004				
Move In/Rig Up	11 Oct 00:00 hrs	16 Oct 04:00 hrs	5.16	123.8	n / a	n / a
36" Phase	16 Oct 04:00 hrs	18 Oct 19:30 hrs	2.64	63,4	76	28.8
9 7/8" Pilot Hole	18 Oct 19:30 hrs	20 Oct 19:30 hrs	2	48	849	424
26" Phase	20 Oct 19:30 hrs	27 Oct 05:30 hrs	5.41	130	849	156.9
17.5" Phase	27 Oct 05:30 hrs	10 Nov 24:00 hrs	13.77	330.5	1198	87
12.25" Phase	11 Nov 00:00 hrs	11 Dec 24:00 hrs	30	720	1818	60.6
8.5" Phase	12 Dec 00:00 hrs	14 Dec 22:00 hrs	2.91	70	146	50.2
Secure Rig and Move in quayside	14 Dec 22:00 hrs	21 Dec 18:00 hrs	6.83	163.9	n / a	n / a
Abandoning & Moving TOA	15 Jan 00:00	15 Feb 00:00	31	744	n / a	n / a
Abandoning & Moving OV	19 Feb 00:00	17 Mar 01:00	25	600	n / a	n / a
Total time Drilling Operations Phases			124.76	2994	4087	n / a
Total time **Not computed 58,2 of OV rig repair in Kristiansund**	00:00 hrs 11 Oct Year 2004	01:00 hrs 17 March Year 2005	124,76	2994	4087	n / a

3.2.4 Non-Productive vs. Productive Time

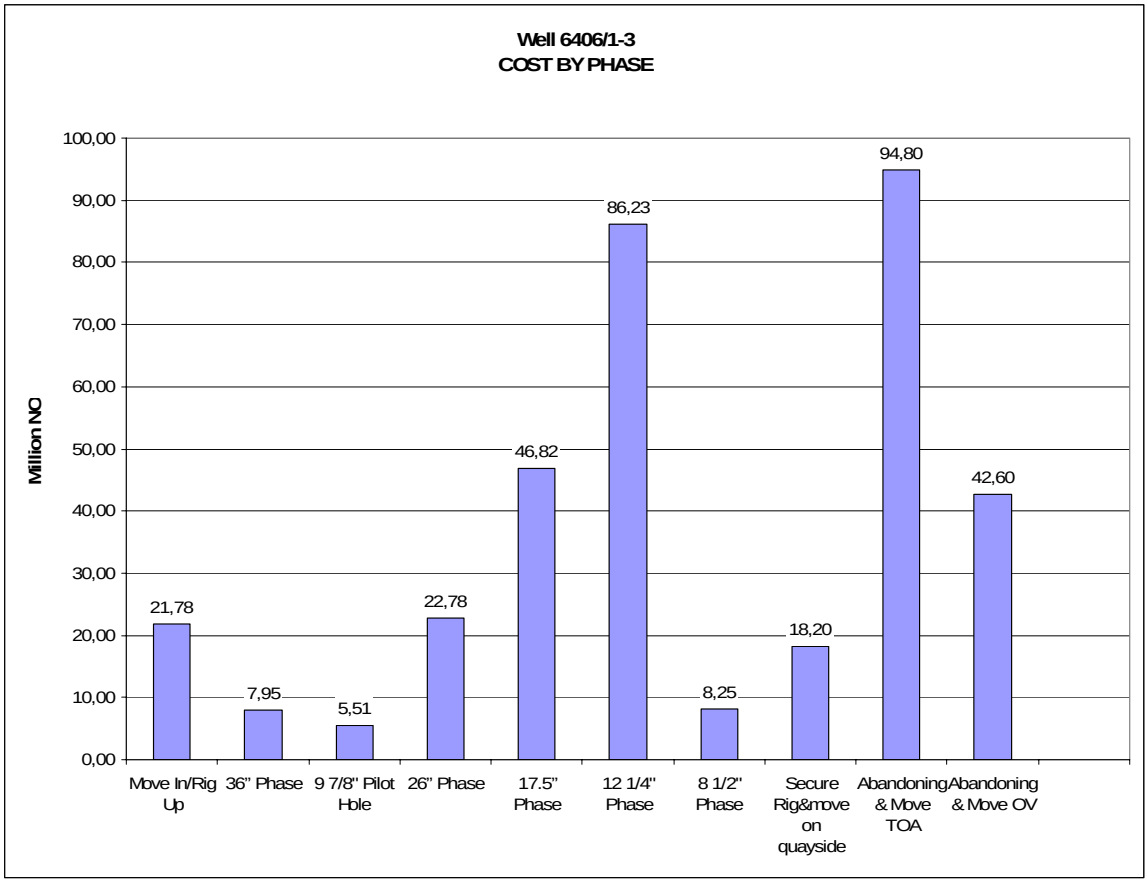


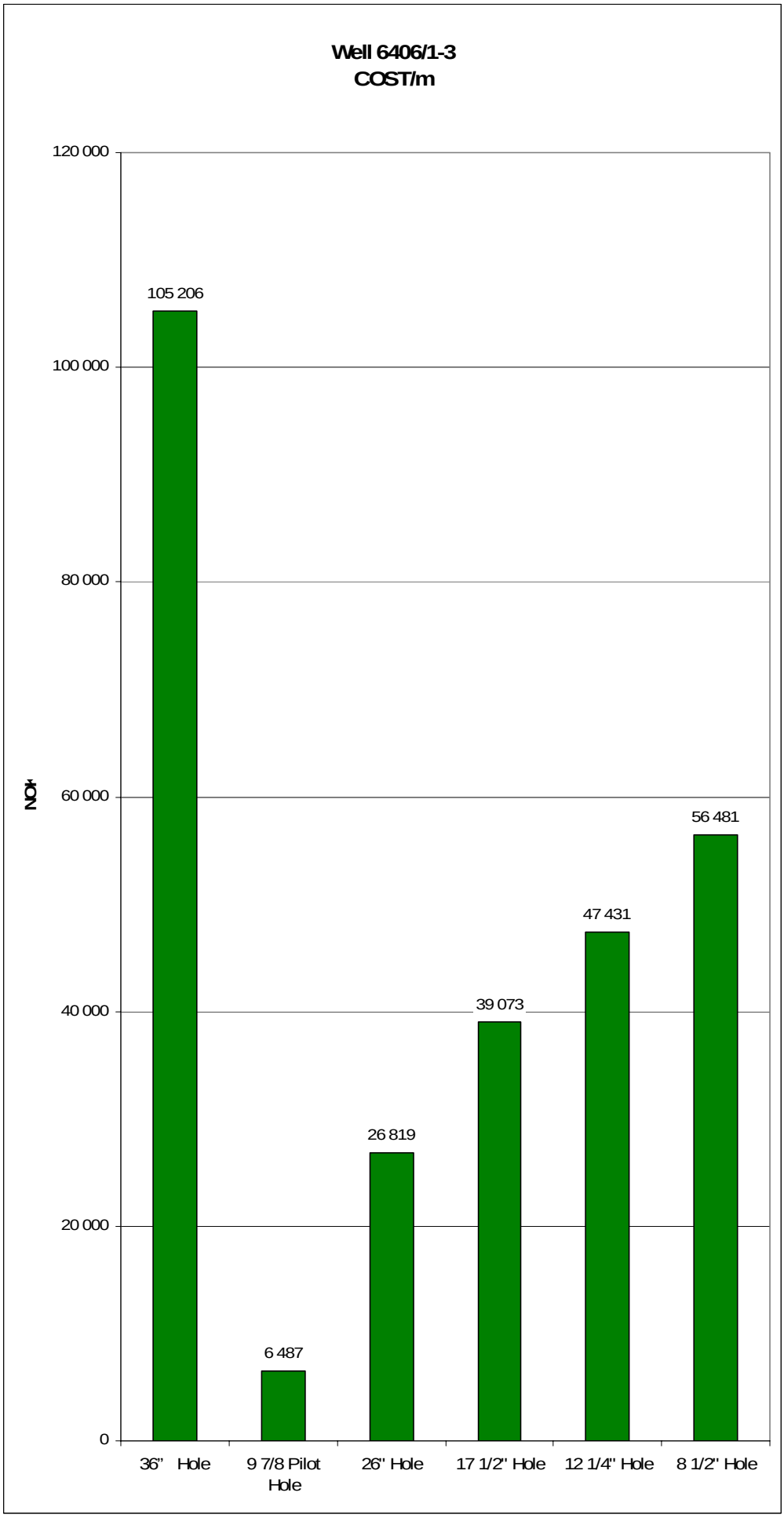
3.2.5 Cost vs. Depth



3.2.6 Cost per Phase

Well 6406/1-3 COST BY PHASE	Start Year 2004	End Year 2005	Days	PHASE Cost MMNOK	Meter	Cost/Meter NOK
Move In/Rig Up	11.okt 00:00 hrs	16.okt 04:00 hrs	5,16	21,8	n / a	n / a
36" Phase	16.okt 04:00	18.okt 19:30 hrs	2,64	7,94	75,6	105 026
9 7/8 Pilot Hole	18.okt 19:30 hrs	20.okt 19:30 hrs	2	5,51	849,4	6 487
26" Phase	20.okt 19:30 hrs	27.okt 05:30 hrs	5,41	22,8	849,4	26 819
17,5" Phase	27.okt 05:30	10.nov 00:00	13,77	46,8	1198	39 073
12 ,25" Phase	11.nov 00:00	11.des 00:00	30	86,2	1818	47 431
8 1/2" Phase **Phase aborted**	12.des 00:00	14.des 22:00	2,91	8,2	146	56 481
Secure Rig&move on quayside	14.des 22:00	21.des 18:00	6,83	18,2	n / a	n / a
Abandoning & Move Transocean Arctic	15. jan. 00:00	15. feb. 00:00	31	94,8	n / a	n/a
Abandoning & Move Ocean Vanguard	19. feb. 00:00	17. mar. 01:00	25,04	42,6	n / a	n / a
Total time Drilling Operations Phases			124,76	354,9	4087	86 834
Total time on well and costs **(not computed 58,2 days of OV rig repair in Kristiansund)**	00:00 hrs 11 Oct Year 2004	01:00 17.mar Year 2005	124,76	354,9		




Well 6406/1-3
COST/m
NOK
120 000
100 000
80 000
60 000
40 000
20 000
0
105 206
6 487
26 819
39 073
47 431
56 481
36" Hole
9 7/8 Pilot Hole
26" Hole
17 1/2" Hole
12 1/4" Hole
8 1/2" Hole

3.3 Operations

3.3.1 Unplanned Events

During the entire well operations the unplanned/ unproductive time amounted to 981,9 hours (32,8% of total time).

3.3.2 Drilling Summary

Rig Move In & Mooring Operations:

The rig "Ocean Vanguard" was taken on contract by Eni Norge on 11 October 2004 at 00:00 hrs after having finished an exploration well for Talisman. The rig was towed to the drilling location where the anchors were set and the rig ballasted down to drilling draft. At drilling draft the distance from the rotary table to the sea surface (RT – MSL) was 22 m.

Total time for the rig move to location, until making the 30" cement stand was 5,16 days. Total cost for this phase was NOK 21, 8 million.

Final rig Geographical Location:

Lat. = 64 deg. 54 min 25.97" N
Long. = 6 deg. 08 min 25.34" E

UTM Location:
X = 364710.96 m Easting
Y = 7201351, 87 m Northing

The co-ordinates above refer to UTM Zone 32, CM 9 deg East, ED-1950
The final rig heading was observed to be 215 deg.

30" Conductor

DEPTH INTERVAL: Seabed (at 384 m RT) – 455 m RT

General - Installation method:
The 36" hole was drilled from sea bed to 460 m. The 30" conductor was set at 455 m and cemented. The total time for the 36" hole was 2,64 days. 6,5 hrs of this time was due to unscheduled events. The cost for the 36" phase was NOK 7,94 million or 105 026 NOK/m.

Drilling:
A 36" hole was drilled from the sea bead and down to 460 m. The hole was swept with high viscosity mud and a wiper trip was made. The hole was circulated clean and displaced to 1.2 sg high viscosity mud prior to pulling out for running 30" conductor.

Bits/BHA:

In this hole section one 17 ½" bit and one 36" hole opener were used.

The 36" hole was drilled with a 17 ½" Hughes MXRT303D insert bit (IADC Code 415)

The drilling assemblies are described in the BHA report section.

Mud/Solids Control:
Seawater was used to drill the 36" hole, together with high viscosity sweeps to help cleanining the hole.

A pre-mixed spud mud made of CaCl2 brine and polymer was used for sweeps. CaCl2 salt mud at 1.20 sg , was used when displacing the 36" hole prior to running the conductor.

Conductor installation:

The 30" conductor was run down to 455 m on 5 1/2" drill pipe. The 30" casing was cemented up to seabed with 35 m^3 of 1.58 sg lead slurry and 13 $m^{3\ of}$ 1, 92 sg tail slurry.

9 7/8" pilot hole

DEPTH INTERVAL: 455 – 1309 m RT

General:
The 9 7/8" pilot hole was drilled to check for shallow gas down to the setting depth for the 20" casing. No shallow gas was observed. Total time for the 9 7/8" pilot hole was 2 days. The cost for the 9 7/8" phase was NOK 5.51 million or 6487 NOK/m.

Drilling:
A 9 7/8" pilot hole with MWD & LWD in the BHA was drilled from the conductor shoe and down to 1309 m to check for shallow gas. A flow check was made at section TD, no shallow gas was observed.

The hole was swept with high viscosity mud and a wiper trip was made. The hole was circulated clean and displaced to 1.2 sg high viscosity mud prior to pulling out.

Bits/BHA:
In this hole section one 9 7/8" bit was used.

The pilot hole was drilled with a 9 7/8" Hughes MX-C1 steel tooth bit (IADC Code 117).

The drilling assemblies are described in the BHA report section.

Mud/Solids Control:
Seawater was used to drill the 9 7/8", together with high viscosity sweeps to help clean the hole.

A pre-mixed spud mud and polymer was used for sweeps, and also for displacement of the pilot hole, prior to pull out the BHA.

26" hole / 20" Casing

DEPTH INTERVAL: 455 – 1309 m RT

General:

The pilot hole was re-drilled/opened to 26" from the 30" conductor shoe to 1309 m. The 20" casing was set at 1297 m. Total time for the 26" interval, the 20" casing and the installation of BOP and riser was 5,41 days. 6,5 hours of this time was due to unscheduled events. The cost for the 26" phase was NOK 22, 8 million or 26819 NOK/m.

Drilling:
A 26" hole with MWD & LWD in the BHA was drilled from the conductor shoe and down to 1309 m. A flow check was made at section TD, no shallow gas was observed.

The hole was swept with high viscosity mud and a wiper trip was made. The hole was circulated clean and again displaced to 1.2 sg CaCl2 salt mud prior to pulling out for running 20" casing.

Bits/BHA:
In this hole section one 26" bit was used.

The 26" Hughes GTX-CMO3 insert bit (IADC Code 415) used for re-drilling/opening the pilot hole.

The drilling assemblies are described in the BHA report section.

Mud/Solids Control:
Seawater was used to drill the 26" hole, together with high viscosity sweeps to help cleaning the hole.
A pre-mixed spud mud made of CaCl2 brine and polymer was used for sweeps. CaCl2 salt mud at 1.20 sg was displaced in the hole, prior to running 20" casing.

Casing/Cementing/ install BOP & riser:
The 20" casing was run on 5 1/2" drill pipe and landed in the 30" conductor housing. The 20" casing was cemented up to seabed with 170 m^3 1.56 sg lead slurry and 26 m^3 1.9 sg tail slurry. Did not observe that plug bumped at the end of theoretical displacement of cement. The ROV, stationed at the seabed during the cementing, observed returns during the entire cement job.

The BOP stack was run on the marine riser and installed on the 18 ¾" wellhead. During the BOP installation it was necessary recover and reinstalled the blue POD two times. The diverter was installed, and the choke and kill line were pressure tested. The BOP test tool was run, and the BOP stack was pressure and function tested. After the pressure test of BOP closed shear rams and attempted to test the 20" casing to 140 bars with negative result.

<u>17 1/2" Hole section / 13 3/8" Casing</u>

DEPTH INTERVAL: 1297 – 2507 m RT

General:
The 17 1/2" hole section was drilled with the intention to set the 13 3/8" casing deep enough to achieve a leak-off sufficient for drilling to the next casing point. The 13 3/8" casing was set at 2312 m, 188 m above the planned shoe depth due to operational problems. Total time for the 17 1/2" interval was 13.77 days. 144 hours of this time was due to unscheduled events, primarily caused by the following reasons:
1) Unable to test the 20" casing at 140 bars due to cement plug not landed in seat
2) Poor LOT just below the 20" casing shoe
3) 13 3/8" casing string stuck
4) 17 ½" clean out assembly stuck in hole

The cost for the 17 1/2" phase was 46,8 million NOK or 39073 NOK/m.

Drilling:

The 17 1/2" junk bit was used to drill out the 20" shoe and some meters of new formation to 1314 m. Below the 20" shoe a leak-off test was performed to an equivalent mud density of 1.52 sg. After change of the BHA the well was displaced to water base mud at 1, 30 sg, and the 17 ½" hole was drilled to 1894 m. At this depth a FIT to 1, 56 sg was performed.

As the drilling of the 17 ½" hole progressed, the mud weight was increased in steps to section TD at 2507 m.

Bits/BHA:

In this hole section one 17 1/2" Hughes MX-T1 steel tooth bit (IADC Code 115) was used for drilling out cement in the 20" shoe and drill 5 m of new formation for the first LOT. Another 17 ½" Hughes MXC303DX insert bit (IADC Code 415) was utilized to drill the 17 ½" hole section to TD and for cleaning the hole when the casing job operation was aborted.

The drilling assembly is described in the BHA report section.

Mud/Solids Control:
The 17 1/2" hole section was drilled with the water based Performadrill mud which is a shale/clay inhibitive KCL type mud. Ilmenite was used as weighting material.

During the drilling of the hole section the mud weight was raised from 1.30 sg to 1.53 sg.

Casing/Cementing:

The 13 3/8" casing was run on drill pipe, the first job was aborted due to the impossibility to pass at 2368 m where the casing string went stuck. After retrieved the entire casing string and verified that three centralizer and two stop collars were left in hole, ran in hole with a 17 ½" clean out assembly to mill the pieces of metal lost in hole and reame the tight spots. The clean out assembly got stuck twice and was not able to reach the TD of the well. Therefore it was decided to set the 13 3/8" casing shoe at 2312 m, 188 m above the planned shoe depth. The second casing job was done without any problem and the hanger was landed in the 18 ¾" wellhead housing, with the shoe set at 2312 m. The 13 3/8" casing was cemented up to 1913 m (calculated) with 35 m^3 of 1.92 sg slurry. During displacement of the cement no losses was registered on the surface.

12 1/4" Hole section / 9 7/8" Casing

DEPTH INTERVAL: 2312 – 4130 m RT

General:

The 12 1/4" hole section was drilled with the intention to set the 9 7/8" casing just above the reservoir and achieve a leak-off sufficient to reach TD of the well. The 9 7/8" casing was set at 4119 m. Total time for the 12 1/4" interval was 30 days. 384 hours of this time was due to unscheduled events, primarily caused by the following reasons:
1) Necessary to perform a trip to clean out the hole due to metal pices left in hole from the casing
2) Tendency to pack off and stuck rotary steerable assy in hole due to hole instability.
3) Setting of kick off plug and attempt to kick off the well with a slant BHA
4) Encountered problems on the cuttings collection system
5) Mud losses into the formation during running of casing
6) Leak on BOP kill line connector, had to pull BOP

7) Damage on the thread of one bolt of the BOP ram bonnet

The cost for the 12 1/2" phase was 86, 2 million NOK or 47431 NOK/m.

Drilling:

The section started with a 12 ¼" clean out assembly, because it was necessary to clean the hole due to the problem encountered during the 13 3/8" casing job (centralizer and stop collars left in hole). Drilled the shoe track and then performed a FIT with 1, 53 sg mud equal EMW 1, 85 sg. Reamed and washed down, had tendency to pack off the BHA. At 2507 m (TD of the original 17 ½" section) circulated, conditioned mud and increased the density to 1, 6 sg. Pulled the bit inside 13 3/8" casing and performed another FIT with 1,6 sg mud equal EMW 1, 87 sg. After that the operation was suspended due to bad weather conditions. The BHA was hung off and the BOP shear rams were closed. When the weather condition improved, re-started the operation, retrieved the BHA and made up new 12 ¼" rotary steerable assembly. Ran in hole but just 80 m below the casing shoe, the BHA packed off with the tendency to go stuck. Due to the instability of the hole, decided to set a cement plug and kick off the well. Attempt to sidetrack the well failed and the BHA re-entered the original hole. The well was displaced to OBM and the BHA was changed, then continued drilling 12 ¼" hole from 2512 m to 4130 m. Encountered several problems related cuttings collection system at the start of the section.

Bits/BHA:
To drill out the cement (and junk) in the 13 3/8" shoe track and wash and ream down the old 17 ½" hole to 2507 a 12 ¼" Hughes steel tooth MXC3 bit (IADC Code 137) was used. The same bit was used also in the failed attempt to kick off the well.

The 12 ¼" Hughes HC606 6-bladed PDC bit (IADC Code M323) was utilized in the rotary steerable assembly in the first attempt to drill the 12 ¼" section with WMB from 2507 m to 2512 and after the failed attempt to kick off the well to drill the 12 ¼" section with OBM from 2512 m to 4130.

The drilling assemblies are described in the BHA report section.

Mud/Solids Control:

At the start of the section it was attempted to use WBM to drill 12 ¼" section but due to the instability of the hole and tendency of BHA to pack off and several stuck in hole situations, it was decided to change the mud program and drill the 12 ¼" section with XP-07 OBM instead of WBM.

Casing/Cementing:

The 9 7/8" casing string was run on drill pipe and the 9 7/8" casing hanger was landed in the 18 ¾" wellhead housing. The casing shoe was set at 4119 m. The 9 7/8" casing string was cemented up to 3600 m with 35.8 m^3 of 1.92 sg slurry. During the run of casing had mud losses to the formation and the casing was cemented without returns. After the seal assembly was installed, pressure testing of the casing failed and a leak on the kill line connector was found. Installed a RTTS packer at 405 m (pressure tested from below and above with 2000 PSI) and displaced the well and riser above RTTS packer with sea water. Disconnected BOP and pulled out. During the BOP repairing damaged the bolt thread of BOP ram bonnet. Several days spent for repair before operation could continue.

8 1/2" Hole section

DEPTH INTERVAL: 4130 – 4272 m RT

General:
Ran BOP and riser. Displaced well with OBM at 1, 90 sg. Retrived RTTS packer and made up 8 ½" bottom hole assembly. Applied HPHT procedures. After drilling out of the 9 7/8" casing shoe, circulated and conditioned OBM to 1, 90 sg. Drilled 5 m of new formation and performed LOT at 1280 psi EMW 2, 17 sg. Drilled 8 1/2" hole from 4130 m to 4276 m. The 8 1/2" section was aborted due to the failure of the two anchor winches.
The total time used for the 8 1/2" phase before the incident was 2,91 days, 16,5 hours of this time was due to unscheduled events, (observed leak in the wash pipe). The interval cost was NOK 8,2 million, or 56481 NOK/m.

Drilling:

While drilling out the cement in the 9 7/8" shoe track and cleaning the rat hole below the shoe, the mud was treated to have a density of 1.90 sg.

At 4135 m a LOT was made to an equivalent mud density of 2.17 sg.

During the drilling of the 8 ½" hole "ballooning/ breathing" effects were experienced repeatedly.

The typical well behavior was:

When the well was flow checked for 30 minutes (as per HPHT procedures) it started to flow back. After a time the flow-back rate decreased and then stopped. Typical flow-back volumes after flow checks before the flow stopped ranged from 0.2 m^3 to 2.6 m^3.

Other than the mud gain from "ballooning effects", no significant hole problems were encountered in the drilling of the 8 ½" hole before the anchor system incident – at 4276 m.

Bits/BHA:

One bit, a Hughes HRC607 7-bladed PDC bit (IADC Code M223) was used to drill the 8 ½" hole section to 4276 m.

The drilling assemblies are described in the BHA report section.

Mud/solids control:

The mud used for the 8 1/2" hole section was the same OBM used for the 12 ¼" section. The mud weight when drilling out of the 9 5/8" casing shoe and rat hole was 1.90 sg.

Due to deteriorating weather conditions pulled the BHA inside the 9 7/8" shoe and hung off the string in the well head. Displaced the well below BOP with 1,93 sg mud, closed the BOP shear rams and displaced marine riser, choke and kill line to sea water.

Recovery LMRP, Re-entry Operation and Plug -Abandonment Summary*:*

At 22:40 of 14th December 2004 the anchors winches failed. The rig moved rapidly off location, parting the riser and the diverter ball joint.
Stabilized the rig 125 m off location. All none essential personnel evacuated to the Heidrun platform. Performed preliminary damage assessment. Mobilized the DSV Subsea Viking and launched ROV. ROV located BOP/LMRP and marine riser. The LMRP was attached in unlatched position. The first riser joint bent in 90 deg, and the next 3 joints bent and ruptured. The slip joint with tensioner ring were located at the sea bed.

Retrieved the remaining anchors and towed the rig to harbour for repair, at the same time mobilized the Boa Deep C and started the LMRP disconnection operation from the BOP. The operation was completed by the Island frontier.

The LMRP recovered was transported to Kristiasund yard to make the necessary work to make it fit with the Transocean Arctic riser.

The Transocean Arctic was taken on hire by ENI Norge at 11:00, 15th January 2005 and moved from the Norne field to Kristiansund to lift the LMRP onboard. Then the rig was towed to well location (arrived on well location at 09:00 of 20th January 2005). Performed anchor handling and then run Ocean Vanguard LMRP on Transocean Arctic marine riser. Latched on BOP and perfomed pressure and pull test. Made up retriving string, run in hole and displaced the riser with OBM at 1, 93 sg. Opened the shear rams of BOP and retrieved the hang off tool with DP and 8 ½" BHA. Laid down the BHA and made up 3 ½" Drill pipe cement stinger. Ran in hole the stinger and filled the open hole pluss 280 m inside the 9 7/8" casing with cement (TOC at 3839 m, depth of cement verified by 10 ton of weight and 185 bar of surface pressure). Installed an EZSV packer at 996 m and pressure tested. Displaced to water above the packer and unlatched the LMRP from BOP. Recovered riser and LMRP on the rig and started anchor handling. The rig moved from location at 08:00 of 6th February 2005 and arrived in Kristiansund at 11:30 of 7th February. After the Offloading operation (Ocean Vanguard LMRP and drill pipes) was completed, the rig was towed to the Norne field. The rig was realeased to Statoil 15th February 2005.

The 19th February 2005 Ocean Vanguard was towed from the quayside in Kristiansund to the well location (Arrived in location at 17:00, 21st of February 2005) and completed the abandoning phase and recovered pieces of risers and wires left on seabed after the incident. The rig moved from the location at 08:00 of 15th March 2005 and arrived in Kristiansund, at quayside 01:00 of 17th March 2005.
At the quayside continued the repair works and BOP certification.

P&A performed by Transocean Arctic

Due to the incident and the damages to the wellhead (BOP tilting 6 deg.) the well needed to be permanently abandoned. The well was abandoned in two stages by two different rigs.

The primary intervention was to secure the well. This job was performed by Transocean Artic, and included the setting of a cement plug from TD and 280 m inside the casing and to set an EZSV packer.

Plug no. 1: Cement from 4276 m up to 3839 m. (Plug, tested with 10 ton of weight and 185 bar of surface pressure)

The EZSV packer was installed at 996 m and tested by 10 ton of weigth and 185 bar.

P&A performed by Ocean Vanguard

The permanent abandonment of the well was completed by Ocean Vanguard after the necessary repair work done to the rig.

9 7/8” casing was cut at 800 m (419 m below seabed) and retrieved.

Plug no. 2: Cement from 850 m up to 568 m. (the plug was verified with 10 ton of weight and with 377 bar of surface pressure).

13 3/8” casing was cut at 550 m (169 m below seabed) and retrieved.

Plug no. 3: Cement from 600 m up to 430 m. (the plug was verified with 10 ton of weight and with 166 bar of surface pressue).

Retrieved BOP on riser

The 20” and 30” casing strings were cut at 387 m (6 m below seabed) and retrieved.

See also the attached figures of well status after the incident and the P & A situation at the end of operation.

3.3.3 Daily Operations Ocean Vanguard

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Operations Summary Report

Well:	**6406/1-3**	Start: 11 October 2004
Rig Contractor	Diamond Offshore	End 17 March 2005
Rig name	Ocean Vanguard	Spud: 16 October 2004

DATE	FROM	TO	HRS	DEPTH	PHASE	DESCRIPTION OF OPERATIONS
11-okt-04	00:00	00:00	24	0	MIRU	Accepted Ocean Vanguard from Talisman at 00:00 on 11 th October 2004. Ocean Vanguard starts to move from: Position N 58 deg 07' 40,39" E 0 deg 21' 33.97". To:Position N 64 deg 54' 26,047" E 06 deg 08' 25,941". Distance to sail 479 nm Speed 7 Knot ETA 13 October at 17:00 GMT
12-okt-04	00:00	00:00	24	0	MIRU	Rig in transit to 6406/1-3
13-okt-04	00:00	20:00	20	0	MIRU	Rig in transit to 6406/1-3
	20:00	21:00	1	0	MIRU	Supply vessel on location,navigation equipment passed to vessel rig
	21:00	00:00	3	0	MIRU	Supply Bourbon Charisma & Mærsk Achiever received anchors number 8 & number 4 respectively. Proceed on run in line location
14-okt-04	00:00	12:00	12	0	MIRU	Run anchors number 4,5,6,7
	12:00	14:00	2	0	MIRU	Cross tension anchors 4-8,1-5,2-6,3-7 to 200 ton
	14:00	18:30	4,5	0	MIRU	Anchor number 8 recovered to Mærsk Achiever. Turned over and repositioned on bottom tension test to 200 ton
	18:30	00:00	5,5	0	MIRU	Rig deballasting to drilling draft
15-okt-04	00:00	00:30	0,5	0	MIRU	Continued to ballast rig to drilling draft. Install new wash pipe
	00:30	11:30	11,5	0	MIRU	Laid down 5 1/2" DP on deck. Prepare decks for receiving cargo from supply vessels commence offloading bulks from boat. Skidded rig onto location. Final location N 64 deg 54' 25,96" E 06 deg 08' 54"
	11:30	20:30	9	0	MIRU	Picked up 5 1/2" DP from deck and rack in derrick, meantime offload spud boat, taking on mud and bulk chemicals
	20:30	22:30	2	0	MIRU	Change out dies on iron roughneck
	22:30	00:00	1,5	0	MIRU	Continued pick up 5 1/2" DP and rack in derrick
16-okt-04	00:00	04:00	4	0	MIRU	Pick up 5 1/2" DP and rack in derrick. Total picked up 1304 m.
	04:00	05:00	1	0	DRLCON	Made up cement stand and rack in derrick
	05:00	13:00	8	210	DRLCON	Picked up 36" BHA from deck. Run to 210 m with same
	13:00	17:30	4,5	210	DRLCON	Troubleshooted leak on DDM gooseneck. Found leak to be at 'O' ring on wire line adaptor inlet. Repaired and pressure tested same-good test
	17:30	20:30	3	380	DRLCON	Continue rih BHA. Shallow test MWD OK
	20:30	22:30	2	380	DRLCON	Troubleshooted low pressure leak on wash pipe upper seal. Changed out wash pipe. Pressute tested same-good test.
	22:30	23:00	0,5	383	DRLCON	Rih with ROV monitoring at sea bed. Tag sea bed at 383 RKB
	23:00	00:00	1	396	DRLCON	Spud well with 40 RPM Q=1000 l/min WOB 0-2 ton. Depth at 00:00 396 m
17-okt-04	00:00	08:30	8,5	459,6	DRLCON	Drilling 36" hole from 396 m to 459,6 m (section TD). Pump and sleep hole with 10 cm Hi Vis pill every 15 m. Take survey every connection
	08:30	09:30	1	459,6	DRLCON	Displace hole with 1,2 sg Hi-Vis Mud 53 mc
	09:30	10:00	0,5	459,6	DRLCON	Performed wiper trip from 459,6 m to 394 m (10 m below sea bed)
	10:00	10:30	0,5	459,6	DRLCON	Rih and tag up at 456 m. Clean out 17 1/2" rat hole to TD. Circulate hole clean
	10:30	11:00	0,5	459,6	DRLCON	Displace hole with 1,2 sg Hi-Vis Mud 53 mc
	11:00	16:00	5	459,6	DRLCON	Pooh with 36" BHA at 394 m (10 m below sea bed). Deployed marker buoys next hole. Continue to pooh BHA and rack back same. Pull probe on MWD
	16:00	17:00	1	459,6	DRLCON	Clear drill floor for BHA equipment and start rig up to rih 30" CP
	17:00	20:30	3,5	459,6	CSGCON	P/u shoe joint and check float.OK. M/u next joint and pull back to above cellar deck. Stand by vessel on location. Install PGB on work trolley and skid to well centre. Install guide lines
	20:30	22:00	1,5	459,6	CSGCON	Rih 30" Conductor Pipe. Latch PGB and continue as per tally. Run shoe joint + 4 csg joints+WH joint
	22:00	00:00	2	459,6	CSGCON	P/u CART. M/up , run and latch into PGB. Disengage CART and layd down to skid ready for cement stinger
18-okt-04	00:00	01:00	1	459,6	CSGCON	M/u 2 stands cmt stinger. Made up CART tool, run down latch in PGB. Remove skid CART and run PGB down to seal level. Fill 30 " CP with sea water. Close ball valve on CART tool
	01:00	02:00	1	459,6	CSGCON	30" Conductor on 5 1/2" DP landing string
	02:00	05:00	3	459,6	CSGCON	30" Conductor at sea bed,skid rig over hole,stab in and enter open hole observing with ROV. Final position: N 64 deg 54' 25,967" E 06 deg 8' 25,339". Continue to run in hole and tag bottom 36" hole at 455 m. ROV loss hydraulic power. Meantime recover to surface,troubleshoot and repair same
	05:00	07:00	2	459,6	CSGCON	Rig up and run sub-sea camera down PGB,checked bullseyes, 0,5 deg reading,install cement hose onto cmt stand. Pump sea water at 500 gpm (2270 l/min) 125 psi,600 gpm (2739 l/min) at 175 psi. Hold PJSM for mix: pump cement while continue to circulate at 200 gpm (909 l/min)
	07:00	07:30	0,5	459,6	CSGCON	Pressure test cement line to 3000 psi
	07:30	09:30	2	459,6	CSGCON	Mix and pump 210 bbls (35 mc) of lead slurry at 13 ppg (1,56 sg). G neat cement forward by 90 bbls (13 mc) tail slurry, at 16 ppg (1,92 sg).Displaced with 57 bbls SW (9 cm9.
	09:30	16:30	7	459,6	CSGCON	Wait on cement . jump ROV,test same:good test. Locate PGB check bullseye 1/4 stab fwd,check PGB space out from sea bed
	16:30	17:30	1	459,6	CSGCON	Slacked off to landing string/cmt stinger weight with ROV observing PGB bullseyes. No movement seen. Released CART with 4 RH turns and pulled clear. Pull string above 30" WH. Stung into PGB frame and lowered stinger into 36"/30" annulus. Tagged cmt 2 m below sea bed
	17:30	19:30	2	459,6	CSGCON	Pull above PGB pump to clean out string:pooh. Clear rig floor.
	19:30	00:00	4,5	459,6	DRLSUR	P/u 9 7/8" pilot BHA. Held TBG on shallow gas procedures

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Operations Summary Report

Well:	**6406/1-3**	Start: 11 October 2004	
Rig Contractor	Diamond Offshore	End 17 March 2005	
Rig name	Ocean Vanguard	Spud: 16 October 2004	

DATE	FROM	TO	HRS	DEPTH	PHASE	DESCRIPTION OF OPERATIONS
19.10.2004	00:00	01:00	1	459,6	DRLSUR	Continue to run 9 7/8" BHA to 350 m (30 m above sea bed)
	01:00	01:30	0,5	459,6	DRLSUR	ROV recovered to surface. T/shoot repair same and jump again. Meantime held safety meeting with drillcrew,deckcrew,loggers
	01:30	02:30	1	459,6	DRLSUR	RIH 9 7/8" BHA. Stab into 30" WH while monitoring with ROV. Tagged shoe at 454 m. No cement inside 30" conductor
	02:30	04:00	1,5	459,6	DRLSUR	Drilled out 30" shoe with 3700 l/min 5-10 ton WOB. Tagged bottom of 17 1/2" hole at 460 m. Clean rat hole . No cement inside .
	04:00	00:00	20	1020	DRLSUR	Drill 9 7/8" hole from 460 m to 1020 m. Take survey and pump 60 bbls of hi-vis sweep at every connection
20-okt-04	00:00	07:30	7,5	1309	DRLSUR	Drilled 9 7/8" pilot hole from 1020 m to 1309 m TD. Survey @ connection, pumped 60 bbls sweep @ half and full stand.
	07:30	08:30	1	1309	DRLSUR	Circulated b/u survey 0,26 deg @ 1300 m
	08:30	09:30	1	1309	DRLSUR	Pump 164 bbls mud @ 1,20 sg at TD.
	09:30	15:00	5,5	1309	DRLSUR	POOH BHA to 30" shoe. Pumped 42 bbls hi-vis pill @ 455 m. Continued POOH and racked back on derrick
	15:00	19:30	4,5	1309	DRLSUR	Laid down 9 7/8" BHA and 36" BHA. Laid down 30" cmt head.
	19:30	00:00	4,5	1309	DRLSUR	Picked up and made up 26" BHA
21.10.2004	00:00	02:30	2,5	1309	DRLSUR	Rih with 36" BHA. Tested MWD @ 1800 l/min . Positive. Stab BHA into PGB washed to bottom last stand
	02:30	03:30	1	1309	DRLSUR	Tagged Shoe @ 454 m. Drilled through shoe from 453,5 m to 455 m with 5-10 ton WOB,50 RPM, 4000 l/min.
	03:30	00:00	20,5	1309	DRLSUR	Drilled from 455 m to 1045 m. Pumped 30 bbls hi-vis sweep @ 1/2 and full stand,surveyed every connection
22-okt-04	00:00	11:30	11,5	1309	DRLSUR	Drilled 26" hole from 1045 m to 1309 m (TD). Pumped 4,7 mc hi-vis sweep @ 1/2 and full stand. Survey every connection
	11:30	13:00	1,5	1309	DRLSUR	Pumped 30 mc sweep, and circulate it out
	13:00	19:00	6	1309	DRLSUR	Performed wiper trip to shoe @ 455 m and re-run in hole. Tagged fill and washed down last 12 m to TD @ 1309 m
	19:00	20:30	1,5	1309	DRLSUR	Pumped 10 cm hi-vis pill, displace from drillstring, pumped 2 nd hivispill of 20 cm and circulated out
	20:30	00:00	3,5	1309	DRLSUR	Displaced hole with 215 cm of CaCl2 mud @ 1,2 sg while offloading from vessel due to lack of pit space for premix
23-okt-04	00:00	07:30	7,5	1309	DRLSUR	Finished to displace 26" hole with CaCl2 mud. Pooh BHA and racked back in derrick
	07:30	10:30	3	1309	CSGSUR	Rigged up 20" casing handling equipment and performed safety meeting before to run 20" casing
	10:30	12:30	2	1309	CSGSUR	Picked up 20" shoe track tested shoe joint and float collar
	12:30	17:00	4,5	1309	CSGSUR	Picked up and run 20" casing filled with sea water, install 2 antirotation tabs on each joint
	17:00	00:00	7	1309	CSGSUR	Stab 20" casing into 30" Well Head Housing and continued to run 20" casing
24-okt-04	00:00	04:30	4,5	1309	CSGSUR	Picked up 18 3/4" casing hanger assembly and installed on the casing string. Changed handling gir and rih on 5 1/2" DP from 915 m to 1286 m. Picked up cmt stand washed to bottom from 1286 m to 1297 m with 1000 l/min
	04:30	05:00	0,5	1309	CSGSUR	Landed 20" casing on Well Head. Performed OP test with 25 ton.OK.
	05:00	09:30	4,5	1309	CSGSUR	Jas for cement job. R/u to cement 20" casing. Pumped slurry as per program
	09:30	12:00	2,5	1309	CSGSUR	Dropped dart and shear with 152 bar. Continue displacement with mud pumps total strokes 8678 equal at 137,1 cm no bump plug. Checked for backflow, ROV check guidebase,no backflow
	12:00	14:00	2	1309	CSGSUR	Pooh landing string. L/out 18 3/4" CART and casing handling eqp from rig floor
	14:00	17:00	3	1309	CSGSUR	R/u BOP and riser eqp on rig floor. Held prejob meeting
	17:00	20:00	3	1309	CSGSUR	Skid BOP under rotary table, install guide lines,m/u dbl riser to BOP. Install POD tuggers wires and clamps
	20:00	00:00	4	1309	CSGSUR	Moved rig 20 m fwd off WH continue to prepare BOP. Run BOP on dbl of marine riser into the water. Filled choke and kill lines with water,install test cap,press test choke and kill to 17 bar for 5 min and to 1035 bar to 10 min. Test positive,bleed off pressure and remove test cap
25-okt-04	00:00	02:00	2	1309	CSGSUR	Continue run BOP
	02:00	04:00	2	1309	CSGSUR	T/shoot on blue POD,launch ROV, confirm that blue POD is unlatched ,recover to surface to investigate problem
	04:00	10:00	6	1309	CSGSUR	Continue to run BOP.
	10:00	11:00	1	1309	CSGSUR	Run BOP & riser slowly while running back blue POD
	11:00	12:00	1	1309	CSGSUR	Latch blue POD. OK. Unlatched again when run on auto hyd winch: Re-latch and run winch on manual OK
	12:00	20:00	8	1309	CSGSUR	Cont run BOP & riser.
	20:00	22:30	2,5	1309	CSGSUR	Installed test cap. Press test choke and kill lines to 17 bar/5 min 1034 bar/10 min. Removed test cap.
	22:30	00:00	1,5	1309	CSGSUR	Picked up slip joint. Made up and run. Install clamps in moon pool

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Operations Summary Report

Well:	**6406/1-3**	Start: 11 October 2004	
Rig Contractor	Diamond Offshore	End 17 March 2005	
Rig name	Ocean Vanguard	Spud: 16 October 2004	

DATE	FROM	TO	HRS	DEPTH	PHASE	DESCRIPTION OF OPERATIONS
26-okt-04	00:00	06:30	6,5	1309	CSGSUR	Picked up load ring,lower to cellar deck,nipple up hoses choke,kill,booster. Tested choke, kill and booster line
	06:30	08:30	2,5	1309	CSGSUR	Leak on choke lines pull and changed out seal re-test OK
	08:30	16:00	7,5	1309	CSGSUR	Install saddles and install POD hoses on slip joint. Skidded rig back over Well Head
	16:00	19:30	3,5	1309	CSGSUR	Landed BOP on WH. Performed OP test 25 ton OK. Unpin inn barrel and lay out the landing joint. P/u and install diverter, lock it and perform 5 ton OP test
	19:30	21:00	1,5	1309	CSGSUR	Close shear rams acousticly and attempt to pressure test casing against rams to 140 bar. Negative test
	21:00	23:00	2	1309	CSGSUR	Rig down riser handling eqp and cleaned rig floor
	23:00	00:00	1	1309	CSGSUR	P/up BOP test tool and set it up on floor.
27-okt-04	00:00	03:00	3	1309	CSGSUR	Rih with BOP test tool. Landed on WH attempt to test negative. Pull and re set test tool. OK. Performed pressure test of BOP and also functionality test
	03:00	04:00	1	1309	CSGSUR	Tested blue & yellow POD from drill floor and office pannel. OK
	04:00	05:30	1,5	1309	CSGSUR	Pooh and laid down test tool
	05:30	11:00	5,5	1309	CSGSUR	P/u from derrick and laid down 20" cmt head ,26" BHA. Cleaned rig floor. Performed maintenance of service rig crown block and travelling block
	11:00	13:30	2	1309	DRLIN1	JSA for 17 1/2" BHA. Started to pick up and made up 17 1/2" BHA.
	13:30	14:00	0,5	1309	DRLIN1	Attempt to test 20 " casing against shear rams negative
	14:00	16:00	2	1309	DRLIN1	Made up 17 1/2" junk BHA and rih
	16:00	00:00	8	1309	DRLIN1	Rih slowly attempting to tag cement plugs on way down to float collar.
28-okt-04	00:00	02:00	1	1309	DRLIN1	Rih with 17 1/2" junk BHA to 1265.2 m. Tagged cmt plug. Set down 5 ton get to 1266.77 m.
	02:00	04:00	2	1309	DRLIN1	Tested casing by cmt unit negative. Work stand on/off plugs to 1267.7 m. Worked to 1268 m retest negative. Work pipe to 1268.5 m. Re-test positive: 140 bar for 15 mim. 1,3 cm pumped 1,27 cm back
	04:00	07:30	3,5	1309	DRLIN1	Og to bottom ream and washed from 1268,5 m. Tagged 2 nd float collar @1283 m. Worked through no cmt under. Tagged shoe @ 1295.5 m. Drilled 20" shoe. Washed to bottom @ 1309 m. No cement in rat hole.
	07:30	08:30	1	1314	DRLIN1	Drilled 17 1/2" hole from 1309 m to 1314 m.
	08:30	11:30	3	1314	DRLIN1	Circ b/u. Pumped 12 cm of 1,28 sg mud and displaced with 11,7 cm of sea water. Pooh 3 stand
	11:30	14:00	2,5	1314	DRLIN1	R/u and performed LOT by cmt unit. 62 bar max pressure achieved equal at 1,53 sg EMW
	14:00	16:00	2	1314	DRLIN1	Circulated hole clean with sea water
	16:00	00:00	8	1314	DRLIN1	POOH 17 1/2" Junk Bit
29-okt-04	00:00	04:30	4,5	1314	DRLIN1	POOH 17 1/2" BHA and laid down
	04:30	08:30	4	1314	DRLIN1	Picked up and made up new 17 1/2" BHA and rih
	08:30	09:00	0,5	1314	DRLIN1	Performed shallow test of MWD. OK
	09:00	13:00	4	1314	DRLIN1	Continued rih meanwhile picked up 30 joints of drill pipes to 1314 mk
	13:00	16:00	3	1314	DRLIN1	At TD circulated bottom up and displace well to 1,3 WBM
	16:00	22:00	6	1314	DRLIN1	Offloaded mud from boat while circulating and conditioned it prior to drill ahead
	22:00	00:00	2	1314	DRLIN1	Drilled from 1314 m to 1327 m. Bit balled,work off bottom to clear it while increase flow rate from 3200 l/min to 3600 l/min. RPM=100,WOB=10-15 ton (stabilizers still inside 20" casing
30-okt-04	00:00	16:00	16	1710	DRLIN1	Drilled 17 1/2" hole from 1327 m to 1710 m. Performed survey every connection.
	16:00	16:30	0,5	1710	DRLIN1	At 1710 m picked up bit from bottom to check Geoservice gas sensor and reboot logging screen
	16:30	00:00	7,5	1843	DRLIN1	Continued drill from 1710 m to 1873 m. Increased MW to 1,45 sg as program
31-okt-04	00:00	01:00	1	1894	DRLIN1	Drilled from 1873 m to 1894 m.
	01:00	02:00	1	1894	DRLIN1	Circulated to raise mud weight to 1,45 sg.
	02:00	04:30	2,5	1894	DRLIN1	POOH from 1894 m to shoe @ 1298 m. Wipe through various tight spots, mas overpull 65 ton
	04:30	08:00	3,5	1894	DRLIN1	Pulled bit inside 20" casing shoe. Circulated bottom up and conditioned mud. Rigged up equipment for FIT test
	08:00	09:00	1	1894	DRLIN1	Performed FIT test: 14,5 bar surface pressure. EMW = 1,56 sg
	09:00	12:00	3	1894	DRLIN1	Rigged down cement hose and rih to 1894 m. Logged interval from 1689 m to 1730 m
	12:00	13:00	1	1894	DRLIN1	Repair Geoservices logging line, while circulate and condition mud on bottom
	13:00	14:00	1	1894	DRLIN1	Repair mud pump while work pipe and unblock cuttings ditch due heavy cuttings and cold mud returns
	14:00	00:00	10	2056	DRLIN1	Drilled 17 1/2" hole from 1894 m to 2056 m. Back reaming stand and take survey across connection
01-nov-04	00:00	00:00	24	2318	DRLIN1	Drilled 17 1/2" hole from 2056 m to 2318 m. Surveyed every connection. Flushed choke, kill & poorboy degasser
02-nov-04	00:00	15:00	15	2507	DRLIN1	Drilled 17 1/2" hole from 2318 m to 2507 m (TD of phase). Backreamed each stand twice and took survey across connections.
	15:00	18:00	3	2507	DRLIN1	Circulated bottom up untill hole clean
	18:00	22:30	4,5	2507	DRLIN1	Flowcheck well static. Pulled out hole BHA in back ream mode from 2420 m to 1900 m. Worked through tight spots-maximum Over Pull 25 ton
	22:30	00:00	1,5	2507	DRLIN1	Pulled out of hole BHA whitout rotating from 1900 m to 1429 m. Max OP 20 ton

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Operations Summary Report

Well:	**6406/1-3**	Start: 11 October 2004
Rig Contractor	Diamond Offshore	End 17 March 2005
Rig name	Ocean Vanguard	Spud: 16 October 2004

DATE	FROM	TO	HRS	DEPTH	PHASE	DESCRIPTION OF OPERATIONS
03-nov-04	00:00	01:00	1	2507	DRLIN1	Continue POOH from 1429 m to 1297 m (shoe depth)
	01:00	02:30	1,5	2507	DRLIN1	Hold kick drill. Flowcheck at shoe 10 min. OK. Circulated bottom up on accumulative strokes. Boost riser and circulate choke and kill line. Continued circulating until shakers clean
	02:30	04:30	2	2507	DRLIN1	Slip and cut drill line. Grease Top Drive.
	04:30	09:00	4,5	2507	DRLIN1	Rih from 1297 m (above shoe) to 2298 m. Worked through tight spots
	09:00	13:00	4	2507	DRLIN1	Washed and ream through tight spots from 2298 m to 2507 m. 150 RPM .3x55 SPM ,241 bar
	13:00	16:00	3	2507	DRLIN1	Circulated bottom up and continued circulating until shakers clean
	16:00	20:30	4,5	2507	DRLIN1	Flowcheck:OK. POOH BHA working tight spots clean to 2310 m. Continue to POOH inside shoe @ 1284 m. Hole in good conditions
	20:30	21:00	0,5	2507	DRLIN1	Flowcheck OK. Pump and displace 25 bbls of 1,78 sg slug
	21:00	00:00	3	2507	DRLIN1	Cont. Pooh and start racking BHA in derrick
04-nov-04	00:00	02:30	2,5	2507	DRLIN1	Continue to pull out and rack back BHA. Break off bit and near bit stab and lid out same
	02:30	04:00	1,5	2507	DRLIN1	P/u cement head. Made up landing string stand of 5 1/2" DP and rack in derrick
	04:00	09:30	4,5	2507	CSGIN1	M/u jet tool below bore protector retrieving tool. Rih same and jet BOP+land out area. Land out on bore protector and mark with index line. Attempt to unseat bore protector no og. Re setting running tool slips in different positions with 45 ton OP. At fourth attempt pulled free with 16 ton OP. Recovered bore protector to surface and laid down. No visible wear
	09:30	11:30	2	2507	CSGIN1	Hold JSA meeting and rig up to run 13 3/8" casing
	11:30	13:30	2	2507	CSGIN1	P/u shoe track and check for debris. Confirm shoe integrity. Rih 13 3/8" csg bakerlock shoe track
	13:30	22:00	8,5	2507	CSGIN1	Continued rih 13 3/8" casing to 1250 m filling every 5 joints with 1,53 sg mud
	22:00	22:30	0,5	2507	CSGIN1	Repair 13 3/8" csg elevator
	22:30	00:00	1,5	2507	CSGIN1	Continued rih 13 3/8" csg from 1250 m to 1490 m.
05-nov-04	00:00	06:00	6	2507	CSGIN1	Hold JSA meeting and continue to run 13 3/8" csg from 1490 m to 2112 m
	06:00	07:30	1,5	2507	CSGIN1	Changed over from csg elevator to 5 1/2" DP elevator. Picked up casing hanger and made up same.
	07:30	08:30	1	2507	CSGIN1	Run 13 3/8" csg on 5 1/2" landing string to 2358 m. HUD 18 ton down weight
	08:30	12:00	3,5	2507	CSGIN1	Worked string down through tight spot from 2358 m to 2368 m and unable to pass. Attempted to pick back up, OP 27 ton observed. Attempted to work casing up/down with no success. Racked stand of drill pipe. P/u single and made up Top-Drive. Broke circulation and confirm good returns at shakers, attempted to work up/down- no success. Increased circulation rates to 1519 l/min, 1000 psi- hole packing off at times, worked string to regain good circulation, large amount of heavy cutting observed at shakers. Slowly worked casing string back up to free depth at 2330 m with full circulation.Worked casing string up/down and confirmed free with good circulation at 2x75 spm,2850 l/min, 800 PSI
	12:00	14:00	2	2507	CSGIN1	POOH 13 3/8" csg assy racking landing string in derrick. No open hole problems from 2330 m back to 20" casing shoe at 1297 m
	14:00	15:00	1	2507	CSGIN1	R/u casing tongs and handling eqp, broke out hanger assy and racked back in derrick
	15:00	00:00	9	2507	CSGIN1	Held PJSM and continue POOH 13 3/8" csg to 1970 m. Pumped 40 bbls of 1,75 sg slug and cont POOH 13 3/8" csg to 1223 m taking extreme care not to damage threads
06-nov-04	00:00	13:30	13,5	2507	CSGIN1	POOH 13 3/8" csg to surface. 3 centralizers and 2 stop collars left in hole.
	13:30	14:00	0,5	2507	CSGIN1	R/d csg handling equipment, cleared and cleaned up rig floor
	14:00	18:30	4,5	2507	CSGIN1	Held PJSM. M/u jetting tool and bore protector retrieving tool and rih same. Washed through BOP's well head and set bore protector with 9 ton weight down. POOH with running tool and laid out same
	18:30	19:30	1	2507	DRLIN1	Serviced Top Drive and carried out maintenance on same
	19:30	20:30	1	2507	DRLIN1	Attempted to move cement head stand in derrick to access BHA: no success. Laid out cement head
	20:30	21:30	1	2507	DRLIN1	Broke down and laid out MWD assy
	21:30	00:00	2,5	2507	DRLIN1	P/u and m/u 17 1/2" clean out BHA and rih to 105 m
07-nov-04	00:00	07:30	7,5	2507	DRLIN1	Continued rih 17 1/2" clean out BHA from 105 m to 1297 m (20" csg shoe) filling string every 25 stands. Broke circulation & observed good returns. Continued rih to 2307 m. At 1400 m took 20 Klbs down weight, continued rih pushing junk downhole
	07:30	09:00	1,5	2507	DRLIN1	M/u Top Drive,broke circulation and worked string through tight spot from 2307 m to 2336 m
	09:00	10:00	1	2507	DRLIN1	Back reamed from 2336 m to 2317 m. String stalled out, observed 25 ton OP,string packed off. Attempted to free pipe by jarring down/up-no success,worked string and restored full circulation:3512 l/min, 3500 psi (241 bars). Worked 30 kft.lbs (4148 kg.m) of torque down string,slumped pipe several times and freed string. Circulated till shakers clean. Observed heavy cuttings over shakers
	10:00	17:30	7,5	2507	DRLIN1	Continued reaming and cleaning out hole,working on junk from 2336 m to 2370 m: torque 8/20 kft lbs. At 2370 m torque seemed to settle at 8/10 kt lbs and continued through to 2392 m
	17:30	20:00	2,5	2507	DRLIN1	At 2392 m. Observed string stalled out and loss of circulation -string packed off. Attempted to work string free down/up. Attempted string free down/up. Attempted to regain circulation/rotation-no success. Continued attempting to work string free jarring down/up with maximum impact-no success. Applied and worked in 30 kft/lbs torque,slumped pipe to free same-no success, still no circulation. Commenced jarring up at maximum impact. Obeserved string coming slowly,continued jarring up untill string free at 2378 m
	20:00	23:00	3	2507	DRLIN1	Commenced rotation and slowly increasing pumps to full circulation rate. Worked string up to 2365 m-OK. Worked string from 2365 m to 2375 m and circulated bottom up till shakers clean. Observed large amount of cutting over shakers. Losses downhole 113 bbls.
	23:00	00:00	1	2507	DRLIN1	Back reamed and POOH with caution from 2307 m to 2220 m.

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Operations Summary Report

Well:	**6406/1-3**	Start: 11 October 2004	
Rig Contractor	Diamond Offshore	End 17 March 2005	
Rig name	Ocean Vanguard	Spud: 16 October 2004	

DATE	FROM	TO	HRS	DEPTH	PHASE	DESCRIPTION OF OPERATIONS
08-nov-04	00:00	08:30	8,5	2507	DRLIN1	Continued POOH 17 1/2" clean out BHA from 2220 m to 1293 m (inside 20" casing shoe). Flow check: OK. Continued POOH 17 1/2" clean out BHA from 1293 m to 663 m. Flowcheck at BOP:OK. Pooh 17 1/2" clean out BHA to surface and rack back same in derrick
	08:30	10:00	1,5	2507	DRLIN1	Broke off bit for inspection. Found two pieces of junk amongst bit cones. Laid out 2x17 1/2" stabs and 2x8" DC
	10:00	11:30	1,5	2507	CSGIN1	Held PJSM and made post jarring inspection of derrick and travelling equipment. Tightened loose bolts and wire locked same on DDM and Travelling Block
	11:30	13:00	1,5	2507	CSGIN1	Picked up and rack back cement head assy in derrick c/w hydraulic and cement hoses attached
	13:00	15:30	2,5	2507	CSGIN1	M/u and rih bore protector running tool. Landed and latched same with 10 klbs down (5 ton)
	15:30	17:30	2	2507	CSGIN1	R/u to run 13 3/8" csg and install hydraulic lines to Top Drive for CSG elevator functions.
	17:30	18:30	1	2507	CSGIN1	P/u and made up 13 3/8" csg shoe and float assy joints. Checked for debris and float integrity-OK.
	18:30	00:00	5,5	2507	CSGIN1	RIH 13 3/8" csg to 963 m filling every 5 joints with 1,53 sg mud.
09-nov-04	00:00	07:00	7	2507	CSGIN1	Continued to run 13 3/8" csg from 963 m to 1930 m.
	07:00	09:00	2	2507	CSGIN1	R/d csg handling eqp and r/u for 5 1/2" DP. P/u and made up hgr assy and rih same
	09:00	10:00	1	2507	CSGIN1	Land csg hanger in WH and r/u surface lines prior to cement 13 3/8" csg (shoe @ 2312 m).
	10:00	11:00	1	2507	CSGIN1	Broke circulation and increased rates in stages to 14 bpm, confirmed good returns at shakers, held PJSM, pumped 85 bbls (13,5 cm) spcer with rig pumps and 10 bbls (1,6 cm) with cmt unit. Pressure tested surface lines @ 4500 psi (310 bar): good test.
	11:00	12:00	1	2507	CSGIN1	Troubleshoot problem with Halliburton chemical mix pump : no success. Hand carried HR-4L chemical for mixing.
	12:00	13:00	1	2507	CSGIN1	Released bottom dart. Mixed and pumped 225 bbls (35,8 cm) of 1,9 sg cmt at 4 bpm.
	13:00	14:30	1,5	2507	CSGIN1	Released top dart and displace cmt with 5 bbls (0,8 cm) of water with cmt unit and 965 bbls (153 cm) of 1,53 sg mud with rig pumps. Bumped plug with 500 psi (34,5 bar) above FC (1050 psi, 70 bar)-holding OK. No losses during cement and displacement.
	14:30	15:00	0,5	2507	CSGIN1	Switched to cement unit and attempted to pressure test 13 3/8" csg to 4100 psi: no success. Observed leak through plugs @ 1750 psi (117 bar) after 2 bbls pumped . Bled off pressure at cement unit immediately (1,5 bbls returned)
	15:00	17:00	2	2507	CSGIN1	Set seal assembly, broke circ with Halliburton unit, pressure tested choke line @ 3000 psi (207 bar).Energised seal assy with 3000 psi, applied 100 klbs (45 ton) OP and pressure tested sela assembly to 500/7000 psi (35/483 bar), 5/10 min: good test.
	17:00	21:30	4,5	2507	CSGIN1	Pressure tested BOP rams/annulus/failsfes, 500/7000 psi (35/483 bar) ,5/10 min: good test. Function test on yellow POD from office: good test.
	21:30	00:00	2,5	2507	CSGIN1	Un-seat BOP test assy, rack cmt stand. POOH landing string and laid out running tool.
10-nov-04	00:00	04:30	4,5	2507	CSGIN1	Re-configured Vetco EDPHOT with test plug assy and run same. M/u top drive and filled DP with 1,53 sg mud. Landed test plug,closed Lower pipe ra,s, disengaged Acme thread on EDHOT. Recovered same to surface.
	04:30	05:00	0,5	2507	CSGIN1	Closed shear rams and attempted to pressure test same to 7000 PSI: no success.
	05:00	09:00	4	2507	CSGIN1	Run EDHOT recovery assy, engaged same and pulled back to surface. Inspected Test plug and observed test plug open bored. Redressed test plug and installed 2 closed TIW valves below. Checked and dressed Acme threads and m/u to test plug assy.
	09:00	11:00	2	2507	CSGIN1	Run with test plug assyt, landed out same,closed LPR and confirmed test plug seated with 500/7000 psi pressure test. Bled off pressure, broke out EDPHOT acme thread, and pulled back to surface
	11:00	12:00	1	2507	CSGIN1	Pressure tested Shear Rams to 500/7000 psi for 5/10 min-good test. Meantime rih to recover test plug assy
	12:00	14:30	2,5	2507	CSGIN1	Engaged test plug assy and recovered to surface. Laid out test plug. Re-configured assy back to EDPHOT and racked in derrick.
	14:30	16:00	1,5	2507	CSGIN1	Laid out cmt head from derrick
	16:00	19:00	3	2507	CSGIN1	R/u for pressure testing surface equipment. Meanwhile pressure tested 13 3/8" casing to 4100 psi for 10 min-good test. Pressure test Lower and upper IBOP to 500/7000 psi: good test. Tested mud hose to 50/5000 psi: good test. R/d surface lines.
	19:00	20:00	1	2507	CSGIN1	M/u 2x TIW and gray valve to pump in sub. Removed from rig floor subsea work shop for pressure testing offline.
	20:00	23:00	3	2507	CSGIN1	M/u WBRRT c/w 13 3/8" wear bushing. Rih and test same. Pooh and laid out WBRRT.
	23:00	00:00	1	2507	CSGIN1	Commenced made up 12 1/4" BHA
11-nov-04	00:00	02:00	2	2507	DRLIN2	Made up 12 1/4" bit and rih
	02:00	03:30	1,5	2507	DRLIN2	Sheared pins out upper racking arm. Changed out same.
	03:30	05:30	2	2507	DRLIN2	Continued rih 12 1/4" BHA to 490 m. Changed out jars and accelerator.
	05:30	07:00	1,5	2507	DRLIN2	Picked up 5 1/2" DP from deck. Broke down TIW valves ,gray valves, test assy.
	07:00	11:00	4	2507	DRLIN2	Continued rih 12 1/4" BHA filling string with 1,53 sg mud every 20 stands. Broke circulation and tagged cmt plug at 2279 m.
	11:30	13:30	2,5	2507	DRLIN2	Drilled out float collars,semi firm to firm cmt and shoe from 2279 m to 2312 m.
	13:30	14:00	0,5	2507	DRLIN2	Worked string through shoe several times. No indication of cement from 2279 m to 2312 m.
	14:00	15:00	1	2507	DRLIN2	Circulated and conditioned mud to 1,53 sg.
	15:00	17:30	2,5	2507	DRLIN2	R/u and performed FIT to 1042 psi,EMW 1,85 sg
	17:30	21:30	4	2507	DRLIN2	Circulated and conditioned mud to 1,6 sg.
	21:30	00:00	2,5	2507	DRLIN2	Washed and reamed from 2312 m to 2414 m. Torque: 0,2 kft.lbs,WOB:0/3 klbs,flow raye :60/1600 l/m.SPP 3950 psi

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Operations Summary Report

Well:	**6406/1-3**	Start: 11 October 2004
Rig Contractor	Diamond Offshore	End 17 March 2005
Rig name	Ocean Vanguard	Spud: 16 October 2004

DATE	FROM	TO	HRS	DEPTH	PHASE	DESCRIPTION OF OPERATIONS
12-nov-04	00:00	00:30	0,5	2507	DRLIN2	Continued wash and ream from 2414 m to 2427 m
	00:30	02:30	2	2507	DRLIN2	Observed string packing off at 2427 m,worked string free back to 2410 m and worked string from 2410 m to 2417 m.
	02:30	04:00	1,5	2507	DRLIN2	Racked drill stand,backreamed to 2383 m, circulated and conditioned mud working through tight spot from 2383 m to 2412 m. Losses observed 30 cm.
	04:00	06:00	2	2507	DRLIN2	Made up drill stand and worked string to 2418 m. Worked string through tight spot from 2418 m to 2420 m. Washed and reamed from 2420 m to 2432 m and observed pack off. Worked free and worked string from 2432 m to 2412 m. Losses observed 20 cm
	06:00	09:00	3	2507	DRLIN2	Washed and reamed from 2432 m to 2507 m.
	09:00	10:00	1	2510	DRLIN2	Drilled new hole from 2507 m to 2510 m.
	10:00	11:30	1,5	2510	DRLIN2	Flowcheck well OK. Pumped/rotated out of hole from 2510 m to 2296 m. No open hole problems,hole slick
	11:30	13:00	1,5	2510	DRLIN2	Flowchecked well at shoe.OK. Circulated bottom up till shakers clean working string from 2296 m to 2306 m
	13:00	15:30	2,5	2510	DRLIN2	Pooh to 1890 m.
	15:30	17:30	2	2510	DRLIN2	R/u and perform FIT with 1,6 sg mud to 890 psi EMW 1,87 sg, 13,5 bbls pumped 9,5 bbls returned
	17:30	23:00	5,5	2510	DRLIN2	Flowckecked well. OK. Slugged pipe and pooh
	23:00	00:00	1	2510	DRLIN2	Pooh 12 1/4" BHA to 250 m
13-nov-04	00:00	03:00	3	2510	DRLIN2	Pooh 12 1/4" BHA with caution due weather condition. Meanwhile displace riser to sea water in preparation for disconnecting. Closed shear rams and retract stringers. Deballasted rig up 1 m
	03:00	16:30	13,5	2510	DRLIN2	Waited on weather
	16:30	19:30	3	2510	DRLIN2	Displaced riser via booster line to 1,6 sg mud. Opened shear rams and displaced choke and kill lines with 1,6 sg mud. Tested same to 1500 psi good test. Laid out 5 1/2" DP on deck ready for picking up
	19:30	21:00	1,5	2510	DRLIN2	Picked up stand of BHA from derrick and broake off bit sub and stab to use in next BHA. Picked up and load MWD collar. Laid out same
	21:00	00:00	3	2510	DRLIN2	Made up new 12 1/4" BHA and rih , shallow test MWD tools, loaded RA sources in density neutron tools
14-nov-04	00:00	08:30	8,5	2510	DRLIN2	Made up and rih 12 1/4" BHA to 1094 m picking up 5 1/2" DP from deck, drifting same and filling drilling every 20 stands with 1,6 sg mud. Total joints picked up 83
	08:30	09:30	1	2510	DRLIN2	Spaced out and function tested BOP on yellow and blue pods.
	09:30	16:00	6,5	2510	DRLIN2	Continued rih 12 1/4" BHA to 2312 m (13 3/8" csg shoe) picking up 5 1/2" DP from deck. Total joints picked up 162
	16:00	19:00	3	2510	DRLIN2	Established circulation and logged down from 2312 m to 2405 m ,3600 l/m, ROP 50 m/h, RPM 80 torque 3-5 kft/lbs
	19:00	21:00	2	2510	DRLIN2	Took weight at 2405 m,worked string down to 2408 m,encountered high torque 10-20 ft/lbs, pulled back up to check free. String stalled out and packed off, no return at shakers. Worked string up/down, jarred up and string became free at 2397 m. Established rotation/circulation but still loosing mud to formation. Noted increase in torque of 10/22 k ft/lbs
	21:00	22:00	1	2510	DRLIN2	Pumped/rotated out of hole 2368 m,established full return. From 2368 m to shoe torque 3-6 ft/lbs. Pulled inside shoe with care, took 35 klbs OP, stacked off and pulled up inside shoe with no OP
	22:00	00:00	2	2510	DRLIN2	Circulated bottom up and untill shakers clean,boostered riser with 3 rd pump
15-nov-04	00:00	01:30	1,5	2510	DRLIN2	Wiper trip to 2372 m. Took 20 ton weight down. Pooh 12 1/4" BHA to 2224 m. Well not taking correct amount of fluids. Monitored well on trip tank.
	01:30	03:30	2	2510	DRLIN2	Circulated bottom up to clean up well. Flowcheck:OK
	03:30	04:30	1	2510	DRLIN2	POOH 12 1/4" BHA to 1992 m. Pumped slug and flowcheck:OK
	04:30	07:00	2,5	2510	DRLIN2	Continued pooh to 823 m. Weather conditions deteriorasting
	07:00	10:30	3,5	2510	DRLIN2	M/u EDPHOT with gray valve/open TIW below & rih same filling string with 1,63 sg mud. Landed out EDPHOT. Closed Lower pipe rams and displaced riser to water. Pulled out EDPHOT RT
	10:30	12:00	1,5	2510	DRLIN2	WOW
	12:00	12:30	0,5	2510	DRLIN2	Displaced riser back to 1,63 sg mud
	12:30	14:00	1,5	2510	DRLIN2	Rih EDPHOT retrieving assy and engaged same with 12 klbs.ft
	14:00	16:30	2,5	2510	DRLIN2	POOH EDPHOT and string. Reconfigured EDPHOT and racked it back in derrick
	16:30	20:30	4	2510	DRLIN2	POOH 12 1/4" BHA
	20:30	22:30	2	2510	DRLIN2	Removed radioactive sources from density neutron tools. Broke off bit and downloaded MWD.
	22:30	23:00	0,5	2510	DRLIN2	Serviced DDM and greased crown
	23:00	00:00	1	2510	DRLIN2	Rih with cementing string to 377 m.
16-nov-04	00:00	02:30	2,5	2510	DRLIN2	Continued rih with 5 1/2" cmt string to 1855m
	02:30	03:30	1	2510	DRLIN2	Secured top drive hoses blowing across derrick and hanging up in derrick beams and figure boards.
	03:30	04:30	1	2510	DRLIN2	Continued rih with 5 1/2" cmt string to 2370 m
	04:30	06:00	1,5	2510	DRLIN2	Circulated bottom up till shakers clean
	06:00	07:00	1	2510	DRLIN2	Spaced out and r/u cmt head,broke circulation, pressure tested lines to 3000 psi.Pumped 50 bbls spacer
	07:00	08:00	1	2510	DRLIN2	Mixed and pumped 75 bbls of 1,9 sg cmt slurry. Displaced with cmt unit 4 bbls of sea water, switched to rig pumps and displaced 4 bbls of spacer and 140 bbls of 1,63 sg mud
	08:00	09:00	1	2510	DRLIN2	Laid out side entry sub. POOH slowly to 2210 m.
	09:00	10:00	1	2510	DRLIN2	Circulated bottom up, flow rate:4200 l/min. Discharged 19 cm of contamined mud
	10:00	11:00	1	2510	DRLIN2	Flowcheck well:OK. Pooh to 2000 m, mud U tubing up pipe.
	11:00	12:00	1	2510	DRLIN2	Circulated while mixing slug. Pumped slug
	12:00	16:00	4	2510	DRLIN2	Flowcheck well:OK. Pooh from 2000 m to surface
	16:00	20:30	4,5	2510	DRLIN2	Cleared rig floor. P/u and m/u 12 1/4" BHA.
	20:30	00:00	3,5	2510	DRLIN2	Rih 12 1/4" BHA to 700 n filling string with 1,63 sg mud

ENI NORGE
Operations Summary Report

Well: **6406/1-3** Start: 11 October 2004
Rig Contractor Diamond Offshore End 17 March 2005
Rig name Ocean Vanguard Spud: 16 October 2004

DATE	FROM	TO	HRS	DEPTH	PHASE	DESCRIPTION OF OPERATIONS
17-nov-04	00:00	03:30	3,5	2510	DRLIN2	Continued rih to 2077 m filling drill string with mud @ 1,63 sg every 20 stands
	03:30	05:30	2	2510	DRLIN2	Slip & cut 40 m of drill line,inspect kick back rollers and adjust brakes
	05:30	08:30	3	2510	DRLIN2	Continued rih, wash and ream from 2150 m. Tagged cement @ 2317 m with 5 ton
	08:00	11:30	3,5	2510	DRLIN2	Pulled back BHA inside the 13 3/8" casing shoe. Cleaning mudpits and prepared them for OBM
	11:30	12:00	0,5	2510	DRLIN2	Run back in hole tagged cement @ 2317 m and started to dress cement to 2330 m with WOB=10 ton,RPM 30, SPP=207 bar,flow=2650 l/min
	12:30	17:00	4,5	2510	DRLIN2	Pull back to inside 13 3/8" casing shoe and circulated well,while continue to clean mud pits
	17:00	22:30	5,5	2510	DRLIN2	Offloaded 277 cm of OBM from Nothern Challenger to mud pits and backloading WBM
	22:30	00:00	1,5	2510	DRLIN2	Pumped 13 cm of hi-vis pill, 6,4 cm hi-vis brine pill, start displacing the well to 1,7 sg OBM (displaced choke,kill,booster lines to OBM). Contiue to backload WBM
18-nov-04	00:00	02:00	2	2510	DRLIN2	Continued to displace the well to OBM until WMB-OBM is at shakers.
	02:00	05:30	3,5	2510	DRLIN2	Offload OBM from supply vessel. While cleaning sand trap
	05:30	06:30	1	2510	DRLIN2	Continue to displace and fill sand traps with OBM
	06:30	11:30	5	2510	DRLIN2	Rih BHA from 13 3/8" casing shoe, set up toolface and start drill in sliding mode from 2331 m to 2342 m to kick off the well
	11:30	12:00	0,5	2510	DRLIN2	Circulated and retirved 12 1/4" BHA in 13 3/8" casing shoe and rack back in derrick stands in order to unplug cutting line
	12:00	22:00	10	2510	DRLIN2	Found cutting lines full of cement & metal hinge plate, reassemble and test it
	22:00	23:00	1	2510	DRLIN2	Break circulation, make connection check MWD wash down and tag bottom @ 2342 m.
	23:00	00:00	1	2510	DRLIN2	Drilling in sliding mode from 2342 m to 2343 m to kick off the well
19-nov-04	00:00	03:00	3	2510	DRLIN2	Continued drill in sliding mode from 2343 m to 2360 m, drop through cement plug
	03:00	06:00	3	2510	DRLIN2	Register survey, wash and ream from 2363 m to 2510 m.
	06:00	08:30	2,5	2510	DRLIN2	Circulated at reduced rate due to cutting recovery eqp problems
	08:30	09:30	1	2510	DRLIN2	Pooh from 2510 m to 2308 m inside casing shoe
	09:30	12:00	2,5	2510	DRLIN2	Repair cutting recovey eqp and clear lines
	12:00	14:00	2	2510	DRLIN2	Circulated hole clean.
	14:00	15:00	1	2510	DRLIN2	Wash and ream down from shoe at 2312 m to bottom at 2510 m
	15:00	17:00	2	2510	DRLIN2	Circulated hole clean
	17:00	17:30	0,5	2512	DRLIN2	Drill 2 m of new formation from 2510 m to 2512 m
	17:30	00:00	6,5	2512	DRLIN2	Flowcheck the well. Pooh from 2512 m to 2312 m, pumped slug, continue to pooh.
20-nov-04	00:00	03:30	3,5	2512	DRLIN2	Finished to pull out of hole BHA from 650 m to surface.
	03:30	04:30	1	2512	DRLIN2	Changed out MWD probe,loaded new one and racked back BHA in derrick
	04:30	08:00	3,5	2512	DRLIN2	Picked up stand from derrick, found MWD plug, laid down it
	08:00	11:00	3	2512	DRLIN2	Picked up and made up new 12 1/4" BHA
	11:00	12:00	1	2512	DRLIN2	Performed shallow test of MWD. Positive. Load LWD sources
	12:00	13:30	1,5	2512	DRLIN2	RIH new 12 1/4" BHA
	13:30	19:00	5,5	2512	DRLIN2	Continued rih with 5 1/2" DP to 2150 m. Fill string every 15 stands.
	19:00	20:00	1	2512	DRLIN2	Maintenance service for top drive and block
	20:00	21:00	1	2512	DRLIN2	Continued rih, washed down lat 7", tagged bottom at 2512 m, 4 m of fill
	21:00	00:00	3	2540	DRLIN2	Drilled 12 1/4" hole from 2512 m to 2540 m.
21-nov-04	00:00	05:00	5	2623	DRLIN2	Drilled 12 1/4" hole from 2540 m to 2623 m
	05:00	08:00	3	2623	DRLIN2	Circulated while working on cuttings system tanks. Unable to offload cutting due to supply boat thrusters problems
	08:00	09:00	1	2623	DRLIN2	Performed wiper trip to shoe at 2312 m, in the meanwhile continue working on cutting system
	09:00	10:00	1	2623	DRLIN2	Functional test of BOP on both blue and yellow pods, blue from drill floor and yellow from rig office
	10:00	11:30	1,5	2623	DRLIN2	Continue working on cutting containment equipment, pumped cuttings to supply boat.
	11:30	12:30	1	2623	DRLIN2	Rih and tagged bottom at 2623 m
	12:30	00:00	11,5	2623	DRLIN2	Drilled 12 1/4" hole from 2623 m to 2827 m.
22-nov-04	00:00	00:00	24	3321	DRLIN2	Drilled 12 1/4" hole from 2827 m to 3321 m. Drilling parameters: RPM=140 m, WOB=10 ton, flow=2700 l/min.
23-nov-04	00:00	11:30	11,5	3521	DRLIN2	Drill 12 1/4" hole from 3321 m to 3521 m. Drilling parameters: RPM=130,WOB=12 ton,flow=2550 l/min
	11:30	13:30	2	3521	DRLIN2	Circulated hole clean and activated riser booster pump
	13:30	16:00	2,5	3521	DRLIN2	Flowcheck the well:OK. Start to pull out the BHA from 3521 m to 3114 m encountered some tight spots maximum OP of 40 ton at 3326 m.
	16:00	21:00	5	3521	DRLIN2	At 3114 m, pumped slug pie and continue pooh BHA inside the casing to 1897 m. Flowcheck:OK. Maximum OP observed 25 ton.
	21:00	22:00	1	3521	DRLIN2	Picked up BOP test tool. Lay out diverter and run the tool through rotary table.
	22:00	23:30	1,5	3521	DRLIN2	Rih with 5 1/2" DP and land BOP test tool on Well Head
	23:30	00:00	0,5	3521	DRLIN2	Start BOP pressure tests on yellow POD from rig floor, 17 bar for 5 minutes and 483 bar for 10 minutes
24-nov-04	00:00	06:00	6	3521	DRLIN2	Continued to pressure test choke & kill manifold and BOP on yellow pod from rig floor, 17 bar for 5 min and 483 bar for 10 min
	06:00	07:30	1,5	3521	DRLIN2	Unseat test plug from well head, pick up 1 m with OP:unable to pass lower pipe rams cavity;check riser-BOP angle. Observed mud losses, fill the riser with 30,2 cm of OBM
	07:30	10:00	2,5	3521	DRLIN2	Moved rig in order to decrease riser angle;attempt to pass test plug through lower ram cavity negative
	10:00	12:00	2	3521	DRLIN2	Set test plug down into well head;close and re-open all rams and annulars with no troubles; refill riser with 6,7 mc of OBM, close upper annular to centralize string, pull test with success through lower ram cavity; pick up 7 m, take over pull from test plug hanging lower annular.
	12:00	13:30	1,5	3521	DRLIN2	Work on string to free test plug annualr, pull successfully with 50 ton overpull after moved rig to centralize flex joint
	13:30	15:30	2	3521	DRLIN2	Pull BOP test tool to surface and laid down it out.
	15:30	17:30	2	3521	DRLIN2	Rig up and start to pressure test upper and lower IBOP with 17 bar for 5 min and 483 bar for 10 min. Test kelly hose to 345 bar. Rig down test hose and clear rig floor from equipment in excess.
	17:30	19:30	2	3521	DRLIN2	Rih from 1897 m to 2402 m filling string every 20 stands.
	19:30	00:00	4,5	3521	DRLIN2	Log the well from 2402 m to 2853 m at 60 m/h
25-nov-04	00:00	03:00	3	3521	DRLIN2	Continue to log down from 2853 m to 3039 m.
	03:00	05:30	2,5	3521	DRLIN2	Rih from 3039 m , tag up at 3515 m, wash and ream to bottom at 3521 m, 6 m of fill. Set up MWD tool
	05:30	00:00	18,5	3765	DRLIN2	Drill 12 1/4" hole from 3521 m to 3765 m, back ream every stand and take survey at connections.

ENI NORGE
Operations Summary Report

Well:	**6406/1-3**	Start: 11 October 2004	
Rig Contractor	Diamond Offshore	End 17 March 2005	
Rig name	Ocean Vanguard	Spud: 16 October 2004	

DATE	FROM	TO	HRS	DEPTH	PHASE	DESCRIPTION OF OPERATIONS
26-nov-04	00:00	04:00	4	3812	DRLIN2	Drilled from 3765 m to 3812 m. Recorded SCR at 3783 m with mud at 1,81 sg
	04:00	05:00	1	3812	DRLIN2	Stop drilling at 3812 m due to failure of air compressor on the cutting removal system:repair it while reciprocating drill string
	05:00	17:00	12	3948	DRLIN2	Drilled 12 1/4" hole from 3812 m to 3948 m; back ream every stand and record survey at connections
	17:00	21:00	4	3948	DRLIN2	Observed pressure loss while drilling due to swivel packing wash out. Pick up drill string from bottom and rack back one stand. Hold job safety meeting and rig up swedge and swivel into cement hose to restablish circulation. Replace swivel and pressure test new one to 345 bar. OK. Make up drilling stand, rih and tag bottom
	21:00	00:00	3	3971	DRLIN2	Drill 12 1/4" hole from 3948 m to 3971 m.
27-nov-04	00:00	12:00	12	4075	DRLIN2	Drilled from 3971 m to 4075 m, back ream every stand and record survey at connections. Recorded SCRs at 4015 m with mud at 1,84 sg. Displace choke and kill lines with 1,84 sg mud
	12:00	18:30	6,5	4130	DRLIN2	Continue to drill 12 1/4" hole from 4075 m to 4130 m (TD); back ream every stand and record survey at connections
	18:30	21:00	2,5	4130	DRLIN2	Circulated bottom up and boost riser until shakers clean. Flowcheck. OK
	21:00	21:30	0,5	4130	DRLIN2	POOH 5 stands (wet) from 4130 m to 3983 m.
	21:30	00:00	2,5	4130	DRLIN2	Pumped 4,8 mc slug and pulled from 3983 m to 3693 m. Tight spot at 3705 m, work through with 20 ton OP.
28-nov-04	00:00	06:30	6,5	4130	DRLIN2	Continue to pooh from 3705 m to 2300 m , encountered some tight spots. Max OP 50 ton at 3616 m
	06:30	08:30	2	4130	DRLIN2	Circulated bottom up at shoe. Meanwhile service rig
	08:30	14:00	5,5	4130	DRLIN2	Rih from 13 3/8" csg shoe to 4130 m filling the string every 15 stands
	14:00	17:00	3	4130	DRLIN2	Circulated hole clean, bottom up gas 13.3% continue to punp until the gas circulate out.
	17:00	18:00	1	4130	DRLIN2	POOH 4 stands (wet) from 4100 m to 3983 m; no swabbing, flowcheck: ok. Pump 4,3 mc slug
	18:00	00:00	6	4130	DRLIN2	POOH from 3983 m to midnight depth of 1781 m. Flowcheck at 2312 m (casing shoe) for 15 min:OK.
29-nov-04	00:00	03:00	3	4130	CSGIN2	Continue POOH from 1781 m to 274 m. Flowcheck at BOP depth for 15 min:ok
	03:00	05:00	2	4130	CSGIN2	POOH to surface and rack back BHA in derrick
	05:00	07:30	2,5	4130	CSGIN2	Removed MWD probe from tool, removed radioactive sources from LWD tools. Laid down pathfinder tools and break off bit
	07:30	08:00	0,5	4130	CSGIN2	Moved casing power tong into the rig floor.
	08:00	10:00	2	4130	CSGIN2	Make up jet sub into 5 1/2" DP stand, run it , pick and make up wear bushing retrieval tool. Rih with landing string
	10:00	11:30	1,5	4130	CSGIN2	Jet WH, land retrieval tool in wear bushing, take measurement with datum line;pull wear bushing free with 40 ton OP, check it. OK
	11:30	13:30	2	4130	CSGIN2	Pull one stand, jet wellhead and pooh with wear bushing tool and jetting sub; service wear bushing tool on surface and lay it out
	13:30	15:00	1,5	4130	CSGIN2	Stop operations due to strong wind:impossible to use cranes. WOW
	15:00	17:00	2	4130	CSGIN2	Make up cmt stand and rack back in derrick.
	17:00	19:00	2	4130	CSGIN2	Rig up to run 9 7/8" casing.
	19:00	20:00	1	4130	CSGIN2	Pick up shoe track and test it:ok. Put backerlock
	20:00	00:00	4	4130	CSGIN2	Start running 9 7/8" casing to midnight depth of 409 m;total 34 joints run. Fill string every 5 joints.
30-nov-04	00:00	00:00	24	4130	CSGIN2	Continue to run 9 7/8" casing from 409 m to midnight depth of 3251 m. Fill every 5 joints; observed mud losses to the formation. Total 264 joints run.
01-des-04	00:00	05:00	5	4130	CSGIN2	Continued to run 9 7/8" csg from 3251 m to 3736 m filling every 5 joints. Total losses during casing run 253 bbls
	05:00	06:00	1	4130	CSGIN2	Rig down csg handling gir and rig up to run csg hanger
	06:00	08:30	2,5	4130	CSGIN2	P/u and made up csg hanger and rih same with 5 1/2" landing string. Landed out casing hanger on well head.
	08:30	10:00	1,5	4130	CSGIN2	Tried to established circulation. Sporadic returns observed. Total losses during circulation:126 bbls.
	10:00	18:00	8	4130	CSGIN2	Offloaded mud from boat, mixed and conditioned 1,84 sg mud. Meanwhile pressure tested cement surface lines to 6000 psi:good test.
	18:00	19:30	1,5	4130	CSGIN2	Attempted to break circulation to surface:no success. Pumped 95 bbls of cmt spacer and released bottom dart
	19:30	22:30	3	4130	CSGIN2	Mixed and pumped 225 bbls of 1,9 cmt slurry. Released upper dart and switched to rig pumps. Displaced cmt with 15 bbls of spacer and 92 bbls of 1,84 sg mud. Bumped plug with 600 psi above FC-holding OK. No return observed during cementing/displacement.
	22:30	23:30	1	4130	CSGIN2	Pressure tested 9 7/8" csg to 6000 psi. Good test.
	23:00	00:00	0,5	4130	CSGIN2	R/d cmt head controls lines, b/out cmt surface line. R/u index lines and prepared to seat sel assy.
02-des-04	00:00	01:00	1	4130	CSGIN2	Set 9 7/8" seal assembly
	01:00	03:00	2	4130	CSGIN2	Attempted to test line against kill fail safe valve-no success:5 bbls pumped. Swapped over choke line & test against choke f/salve to 10000 psi-good test. Closed 5 1/2" pipe rams and energised seal to 3000 psi. Bled off pressure, open MPR's , took OP and checked index marks. Closed MPR's & tested 9 7/8" seal assy to 10000 psi-good test. Bled off pressure.
	03:00	05:30	2,5	4130	CSGIN2	Displaced choke and kill lines to sea water. Observed leak at kill hydraulic mini connector. Unlocked , retracted and extended connector several time, pumped down kill line and attempted to test against fail safe valve-no success due to leak at hydraulic mini connector. Increased operating pressure to 2000 psi and attempt to test again-no success.
	05:30	11:00	5,5	4130	CSGIN2	Released RT, racked back cmt head and slug pipe & pooh. L/out running tool assy. Broke out and laid down cement head assy. Made up landing string to DP singles and racked back same. R/d csg bails & cleared drill floor of csg eqp.
	11:00	13:30	2,5	4130	CSGIN2	Slipped and cut drill line. Calibrated block position and greased top drive.
	13:30	15:00	1,5	4130	CSGIN2	B/out and laid out 8" DC from derrick
	15:00	17:00	2	4130	CSGIN2	M/u and rih wash tool and bore protector assy with 5 1/2" DP.
	17:00	19:30	2,5	4130	CSGIN2	M/u top drove, washed through BOP and well head. Landed bore protector with 20 ton. Function tested UPR, MPR and annulars. Released bore protector running and retrieving tool, pulled back washing through BOP. Laid out BPRRT assy.
	19:30	21:00	1,5	4130	CSGIN2	P/u and made up RTTS packer and storm valve assy.
	21:00	22:00	1	4130	CSGIN2	Rih wash tool and RTTS packer assy to 400 m and wash RTTS setting area from 400 m to 410 m.
	22:00	00:00	2	4130	CSGIN2	Continue rih to 614 m. Made up TD set RTTS packer at 405 m. Pressure tested below same to 2000 psi-good test. Released from RTTS packer assy, pulled back and spaced out 386 m. Broke circulation :OK. Closed LPR 's and pressure tested above RTTS to 2000 psi-good test.

ENI NORGE
Operations Summary Report

Well:	**6406/1-3**					Start: 11 October 2004
Rig Contractor	Diamond Offshore					End 17 March 2005
Rig name	Ocean Vanguard					Spud: 16 October 2004
03-des-04	00:00	01:00	1	4130	CSGIN2	Displaced riser from oil based mud to sea water.
	01:00	02:30	1,5	4130	CSGIN2	Pooh with landing string and laid out RTTS storm valve RT
	02:30	05:00	2,5	4130	CSGIN2	R/u to pull diverter. Installed handling tool, pulled ou and laid down diverter.
	05:00	06:30	1,5	4130	CSGIN2	P/u riser handling joint. Ran down same and pinned onto slip joint. Unlocked BOP connector and pulled BOP clear of WH.
	06:30	08:30	2	4130	CSGIN2	Skid rig 35 m starboard. Meantime removed saddles and clamps from pod line umbilicals.
	08:30	12:00	3,5	4130	CSGIN2	Pulled up on landing joint and engaged rucker load ring into locking dogs under Rotary housing. Slacked back down on slip joint and removed choke and kill line and booster line. Picked up and landed off slip joint on spiders. Observed weather conditions deteriorating
	12:00	15:00	3	4130	CSGIN2	WOW. Meanwhile , b/out and laid down landing joint to pipe deck conveyor skate. L/up and commenced pressure test choke manifold to 500/10000 psi.
	15:00	18:00	3	4130	CSGIN2	Removed landing joint to pipe deck conveyor stake, pulled slip joint and l/out same. Cont to pull and lay out marine riser pup joints.
	18:00	20:30	2,5	4130	CSGIN2	WOW
	20:30	23:30	3	4130	CSGIN2	Cont to pull and l/o marine riser. Total joints laid out :8.
	23:30	00:00	0,5	4130	CSGIN2	WOW
04-des-04	00:00	04:00	4	4130	CSGIN2	Continued to pull riser and BOP.Total joints pulled 15+3 pup joints.
	04:00	08:00	4	4130	CSGIN2	WOW
	08:00	09:00	1	4130	CSGIN2	Continue to pull riser and BOP
	09:00	12:00	3	4130	CSGIN2	WOW
	12:00	14:00	2	4130	CSGIN2	Continued to pull BOP with caution, landed out slick Marine Riser.
	14:00	15:30	1,5	4130	CSGIN2	Tension up on guide lines observing with ROV, prepared moon pool eqp, pulled back BOP into moon pool.
	15:30	16:30	1	4130	CSGIN2	Landed out & secured BOP on carrier
	16:30	18:30	2	4130	CSGIN2	Troubleshoot leak on BOP kill line mini connector. Functioned and checked travel of piston.Unable to identify problem
	18:30	22:00	3,5	4130	CSGIN2	Removed guide lines from BOP, b/out marine riser, prepared and skid BOP clear of moon pool centre.
	22:00	23:30	1,5	4130	CSGIN2	Laid out dbl marine riser and r/d BOP and riser handling equipment.
	23:30	00:00	0,5	4130	CSGIN2	R/u and m/u X/O to pressure test IBOP and mud hose.'
05-des-04	00:00	02:30	2,5	4130	CSGIN2	Continued to rig up and pressure test lower & upper IBOP: 500 psi for 5 min and 10000 psi for 10 min. good tests
	02:30	06:00	3,5	4130	CSGIN2	P/u drilling stand, ran in and changed out top drive saver sub. Re-arranged DP in FWD set back area to enable racking of new 8 1/2" BHA. Made up new HPHT drilling stand and racked back.
	06:00	09:00	3	4130	CSGIN2	Laid out excess 8" DC from derrick plus jars and accelerator.
	09:00	13:00	4	4130	CSGIN2	Picked up 26 joints of HWDP washing and cleaning all threads prior to doping.
	13:00	14:00	1	4130	CSGIN2	Changed out standlift heads & re-arranged tubulars in derrick.
	14:00	17:30	3,5	4130	CSGIN2	P/u and made up 31 joints of 5" DP from deck, cleaning & greasing threads. Drifted same 2 5/8" .
	17:30	00:00	6,5	4130	CSGIN2	Re-built, function & pressure tested mini connector, commenced to install same and continued ram inspection. Pressure tested stand pipe manifold 250/5000 psi,5/10 min.
06-des-04	00:00	12:00	12	4130	CSGIN2	Installed kill line mini connector, function tested same and connected LMPR jumper hose. Cont to close up BOP ram bonnets and torqued up bolts
	12:00	13:30	1,5	4130	CSGIN2	Continue to torque up ram bonnets. One bolt thread on shear ram bonnet damaged. Attempted to dress same
	13:30	18:00	4,5	4130	CSGIN2	Installed BOP test joint and commenced pressure testing BOP to 500/15000 psi for 5/10 min. Between pressure tests worked on retapping/redressing of thread on shear ram bonnet.Meanwhile r/u riser handling eqp on rig floor. P/u and made up double marine riser.
	18:00	00:00	6	4130	CSGIN2	Continued press test lower, middle & upper BOP pipe rams,500/15000 psi,5/10 min, good tests.Continued to dressed damaged thread on shear ram bonnet
07-des-04	00:00	00:00	24	4130	CSGIN2	Continued repairing BOP. Removed test joint and installed test cap. Pressure test kill line mini connector to 500/15000 psi for 5/10 min-good test. Pressure tested choke line to 500/15000 psi for 5/10 min-good test. Fabricated and installed spacer ring for bolt on shear ram bonnet. Torqued up shear ram bolt and made ready for pressure testing. Pressure tested shear ram bonnet. Torqued up shear ram bolt and made ready for pressure testing. Pressure tested shears to 500/15000 psi for 5/10 min-good test.Meanwhile carried out servicing and maintenance of equipment on drill floor, pump room and shaker areas. Carried out inspection of Drawworks.
08-des-04	00:00	02:00	2	4130	CSGIN2	WOW
	02:00	12:00	10	4130	CSGIN2	Removed BOP test cap and installed BOP test joint. Pressure tested lower & upper annulars to 250/7000 psi for 5/10 min. Function tested BOP on both PODs from separate locations. Re-torqued shear bonnet bolts.Function tested BOP with acoustic system. Removed BOP test joint & drifted shear ram bonnet bolts. Function tested BOP with acoustic system. Removed BOP test joint & drifted BOP with test plug.
	12:00	17:00	5	4130	CSGIN2	Prepared BOP for running. Cleaned H4 connector, greased up same. Function tested shear rams with acoustic system
	17:00	20:30	3,5	4130	CSGIN2	Skid BOP under rotary table. Nippled up for running
	20:30	22:30	2	4130	CSGIN2	Installed and ran BOP on double of marine riser. M/u test cap and pressure tested double to 250/15000 psi -good test
	22:30	00:00	1,5	4130	CSGIN2	Broke off test cap and continued to run BOP on riser.

ENI NORGE
Operations Summary Report

Well:	**6406/1-3**					Start: 11 October 2004
Rig Contractor	Diamond Offshore					End 17 March 2005
Rig name	Ocean Vanguard					Spud: 16 October 2004
09-des-04						Cont to run BOP on marine riser pressure testing choke & kill lines to 250/15000 psi at half way point
	00:00	15:00	15	4130	CSGIN2	and prior to picking up slip joint-good tests.
	15:00	17:30	2,5	4130	CSGIN2	P/u and ran slip joint. P/u landing joint,lowered slip joint to worktable height for installing choke/kill lines.
	17:30	20:30	3	4130	CSGIN2	Installed drop hoses, choke/kill lines & booster line, engaged rucker ring to slip joint.
	20:30	21:30	1	4130	CSGIN2	Pressure tested choke/kill lines with cement unit to 250/15000 psi-good test.
	21:30	00:00	2,5	4130	CSGIN2	WOW
10-des-04	00:00	10:30	10,5	4130	CSGIN2	WOW
	10:30	15:30	5	4130	CSGIN2	Secured safety slings.R/u and installed POD saddles and storm loops.Meanwhile skidded rig over well head
	15:30	17:00	1,5	4130	CSGIN2	Landed BOP with 80 ton down,latched BOP. Applied 50 ton over pull and confirmed latched.
	17:00	20:30	3,5	4130	CSGIN2	Laid out landing joint,picked up and nippled up diverter. Performed pressure test on connector between shear rams and RTTS packer to 2000 psi-good test.
	20:30	22:30	2	4130	CSGIN2	Laid out riser handle gir,picked up drill pipe handling equipment
	22:30	00:00	1,5	4130	CSGIN2	P/u BOP test tool. Reconfiguring same. Reconfigured EDPHOT and made up to BOP test tool.
11-des-04	00:00	02:00	2	4130	CSGIN2	Continued made up BOP test plug/EDPHOT assy and ran same with 5 1/2" DP. Made up Top Drive.
	02:00	04:00	2	4130	CSGIN2	Landed out test plug. Closed LPR & pressure tested to 2000 psi to confirm tool set. Released from test plug assy. Recovered landing string to surface and laid out ACME thread.
	04:00	04:30	0,5	4130	CSGIN2	Pressure tested shear rams /well head connector to 500/11000 psi for 5/10 min-good test.
	04:30	08:00	3,5	4130	CSGIN2	Rih EDHOPT retrieving assy on 5 1/2" DP and engaged same. Recovered test plug assy to surface. Reconfigured EDHOPT assy, racked same in derrick.
	08:00	11:00	3	4130	CSGIN2	M/u and rih RTTS packer retrieving assy to 387 m. Spaced out and function tested BOP on both POD
	11:00	12:30	1,5	4130	CSGIN2	Displaced booster line,C/K lines,string and marine riser to 1,84 sg OBM.
	12:30	15:00	2,5	4130	CSGIN2	Continued down and engaged RTTS/storm valve assy at 395 m. No pressure observed under RTTS packer. Unseat RTTS/storm valve with 15 ton OP. Pooh same and laid out storm valve.
	15:00	17:00	2	4130	CSGIN2	Reconfigured RTTS assy and run same to 600 m.
	17:00	18:00	1	4130	CSGIN2	Set RTTS at 600 m and pressure tested 9 7/8" casing to 7800 psi above-good test.
	18.00	23:00	5	4130	CSGIN2	Unseat RTTS with 20 ton OP. Pooh and laid out same. Laid out all tubulars below RTTS.
	23:00	00:00	1	4130	CSGIN2	R/u to run 8 1/2" BHA. P/u MWD and loaded MWD probe.
12-des-04	00:00	03:30	3,5	4130	DRLPRO	P/u and made up 8 1/2" BHA. Function tested MWD and installed dart sub
	03:30	04:30	1	4130	DRLPRO	Cont rih 8 1/2" BHA on 5" DP. R/u to run 5 1/2" DP
	04:30	10:00	5,5	4130	DRLPRO	Cont rih 8 1/2" BHA on 5 1/2" DP to 3500 m filling string every 500 m with 1,84 sg mud.
	10:00	12:00	2	4130	DRLPRO	Performed kicked drill. Carried out finger printing exercises
	12:00	13:30	1,5	4130	DRLPRO	Lined up and performed dynamic stripping drill with both crews as per diamonf dynamic stripping procedure
	13:30	15:00	1,5	4130	DRLPRO	Cont rih from 3500 m to 4085 m filling string every 500 m with 1,84 sg mud.
	15:00	18:00	3	4130	DRLPRO	M/u top drive established circulation. Washed down and tagged plugs at 4087 m. Drilled out shoe track to 4117 m while weighing up mud to 1,9 sg.
	18:00	20:00	2	4130	DRLPRO	Circulated and conditioned mud to 1,9 sg mud
	20:00	22:00	2	4130	DRLPRO	Observed leak in flowline in cellar deck area, stopped circulating and repaired same.
	22:00	23:00	1	4130	DRLPRO	Cont to drill out shoe at 4119 m, contined to drill cement in rathole through to 4130 m.
	23:00	00:00	1	4135	DRLPRO	Drilled 5 m of new formation to 4135 m. Worked string through shoe several times.
13-des-04	00:00	02:30	2,5	4135	DRLPRO	Circulated and conditioned mud to 1,9 sg.
	02:30	04:30	2	4135	DRLPRO	Racked HPHT drilling stand. R/u kill assy & lines, pressure tested surface lines to 1500 psi-good test. Carried out LOT with 1,9 sg mud. Leak off pressure : 1280 PSI, EMW 2,14 sg.
	04:30	06:00	1,5	4135	DRLPRO	Took SCR with cement unit up riser and choke line at 1 BPM,40 psi/140 psi respectively. R/f kill assy. M/u HPHT drilling stand and took SCR at 4115 m up riser and choke line.
	06:00	00:00	18	4247	DRLPRO	Rih to 4135 m and drilled 8 1/2" hole from 4135 m to 4247 m taking survey after every connection.
14-des-04	00:00	05:00	5	4276	DRLPRO	Drilled 8 1/2" hole from 4246 m to 4276 m taking survey after each connection. Max Gas 8,5%.
	05:00	05:30	0,5	4276	DRLPRO	Took SCR at 4276 m with MW 1,9 sg.
	05:30	07:00	1,5	4276	DRLPRO	Observed leak in washpipe. Flowchecked well. Static. Pulled bit inside csg shoe to 4057 m. Flowchecked well-static.
	07:00	09:30	2,5	4276	DRLPRO	Due detiorrating weather conditions continue to POOH to 3593 m.
	09:30	12:30	3	4276	DRLPRO	Made up EDHOPT and rih to 381 m. Bit depth 3970 m. Hung off string in WH,released from EDHOT and recovered running tool to surface.
	12:30	15:00	2,5	4276	DRLPRO	Closed shear rams and displaced the well below BOP to 1,93 sg OBM at 5 bpm,no losses.
	15:00	20:00	5	4276	DRLPRO	WOW
	20:00	21:00	1	4276	DRLPRO	Displaced marine riser,choke,kill and booster lines to SW.
	21:00	00:00	3	4276	DRLPRO	WOW. At 22:40 load bang was heard coming from anchor winch station 1&2.(Both chains/winches failed). Rig moved rapidly off location parting the riser string at the diverter ball joint. Trim rig vessel integrity intact. Rig came to rest approx 165 m off location and stabilized, commenced running propulsion. All personnel accounted for. Barrier off around moonpool,drillfloor and anchor 1&2.

ENI NORGE

Operations Summary Report

Well:	**6406/1-3**					Start: 11 October 2004
Rig Contractor	Diamond Offshore					End 17 March 2005
Rig name	Ocean Vanguard					Spud: 16 October 2004
15-des-04						
	03:00	09:00	6	4276	DRLPRO	Monitored weather and rig movement. Cordon off cellar deck,anchor winches 1&2, and area below drill floor on main deck until inspection of MRT carried out.
	09:00	22:00	13	4276	DRLPRO	Inspected MRT and anchor winches in daylight. DSV Subsea Viking on location at 18:00, set up DP and prepared to launch ROV.
	22:00	00:00	2	4276	DRLPRO	Launched ROV from DSV. ROV loacted BOP/LMRP and marine riser. LMRP attached in unlatched position. First riser joint bent in 90 deg,next 3 joints bent and ruptured. Slip joint with tensioner ring on seabed.
16-des-04	00:00	06:00	6	0	RDMO	Laid out diverter,change out wash pipe,clear irg floor,preparing tools to remove wires from riser tensioners.Service ddm,grease stand pipe manifold.Meanwhile DSV subsea viking mapped riser joint placed at seabed and completed ROV operations.Prepared and put Nother Challenger in bridle.Rig secured.
	06:00	12:00	6	0	RDMO	Work on riser tensioners,remove wire from 1/2/5/6/7/8,remove head from #1 tensioner.
	12:00	20:00	8	0	RDMO	Remove choke and kill co-flex hoses,booster line from moonpool;continued to tidy around ruckers
	20:00	00:00	4	0	RDMO	Lay out 5 1/2" DP from derrick
17-des-04	00:00	13:00	13	0	RDMO	Lay out all tubulars from derrick. (5 1/2" drill pipes and 8" drill collars). Prepared rig for tow.
	13:00	15:00	2	0	RDMO	Back load 254 mc of OBM to supply boat;back load deck cargo.
	15:00	00:00	9	0	RDMO	Back load stopped due to weather conditions deterioratimg fast.
18-des-04	00:00	00:00	24	0	RDMO	Clean and service drill floor eqp,prepare to backload remaining OBM,disconnect iron roughneck for removal,hang off blocks.Start offloading to supply vessel OBM,base oil and deck cargo.Boat depart rig at 18:00. Start to deballast rig at 13:00.Olimpic hercules chased out anchro number 4,then WOW to pull anchors.
19-des-04	00:00	06:30	6,5	0	RDMO	WOW
	06:30	12:00	5,5	0	RDMO	Continued deballast rig:clean and prepare rig for move;remove draworks covers in preparation for work on drum;continue to drain riser tensiones;clean pump room.Resume anchors handling heaving on anchor no.4.
	12:00	00:00	12	0	RDMO	Performed anchor handling. Retrieved anchors no. 3,4,5,6,7,8.
20-des-04	00:00	20:00	20	0	RDMO	Towing rig to Kristainsund
	20:00	00:00	4	0	RDMO	Enter harbour, drop anchor no.7 on sea bed, position next to quay, pass chains no 3 and 4 to quayside, secure them.
21-des-04	00:00	18:00	18	0	RDMO	Continue to run anchors
	18:00	00:00	6	0	RDMO	Commence removing ruckers tensioners, no 5 & 6 removed and transfered to quayside.
22-des-04	00:00	00:00	24	0	RDMO	Rih in shipyard,Kristiansund. Continue to work on ruckers,offload cement to supply boat.
23-des-04	00:00	00:00	24	0	RDMO	Remove ruckers,remove ROV,start working on anchor winches 1 & 2, start offloading barite
24-des-04	00:00	00:00	24	0	RDMO	Offload barite to supply boat. Continue to work on anchor winches 1 & 2. Demobilize ROV
25-des-04	00:00	00:00	24	0	RDMO	Remove damage tensiones wire,remove line from pods,continue to work on anchors winches
26-des-04	00:00	00:00	24	0	RDMO	Worked on mud pump modules and on top drive hydraulic system, continue to work on anchor winches and to remove guide lines tensioner wires
27-des-04	00:00	00:00	24	0	RDMO	Continue to work on anchor winches.Changed out TDS hydraulic supply hose. Built frame on SBT pontoon to house elevator. Re-dressed yellow POD with new seal kit. Loosen upper clamps on jumper hoses to enable flexjoint removal. Commenced installation of valves and seats in mud pumps.
28-des-04	00:00	00:00	24	0	RDMO	Removed blue POD and prepared for shipping. Removed flex joint and laid out same. Dressed # 1&3 mud pumps with valves and seats. Removed sheaves in moonpool. Continue to work on mud pumps. Continue to work on anchor winches. Continue to work on LMRP
29-des-04	00:00	00:00	24	0	RDMO	Continue to work on LMRP. Installed Transocean riser adopter/flexjoint. Serviced flex joint studs and nuts. Backloaded Mæersk eqp. Installed new tugger shaves below rig floor in moonpool area.
30-des-04	00:00	00:00	24	0	RDMO	Continue to carry out work on LMRP, C & L lines jumper hoses. R/u to fuction and pressure mini connector. Continue to wotk on Mud pumps and anchors winches
31-des-04	00:00	00:00	24	0	RDMO	Continue to work on LMRP. Continue to work on anchor winches, on sheaves in moon pool and mud pumps module. Continue to drawworks for removal.
01-jan-05	00:00	00:00	24	0	RDMO	Cont to work on anchor winches and LMRP. Removed drawworks and continue to work on mud pump volumes. Serviced moon pool POD lines sheaves. Carried out monthly PM and housekeeping
02-jan-05	00:00	00:00	24	0	RDMO	Cont to work on LMRP on anchor winches on mud pumps module. Carried out general PM
03-jan-05	00:00	00:00	24	0	RDMO	Cont to work on LMRP and prepared flex joint for backload. Continue to work on anchor winches and drawworks. Carried out inspection on rig tanks. Cont to repair tensioners. Carried out general PM and housekeeping
04-jan-05	00:00	00:00	24	0	RDMO	Worked on guide line tensioners. Cont to work on drawworks and on anchor winches. Cont to carry out inspection on rig tanks and performed general PM. Cont to work on mud pumps module
05-jan-05	00:00	00:00	24	0	RDMO	Cont to work on guide line tensioners and on anchor winches. Troubleshooted DDM fault. Cont repairs on tensioner foundations. Carried out housekeeping and general PM.
06-jan-05	00:00	00:00	24	0	RDMO	Cont work on GLT, anchor winches and mud pumps module
07-jan-05	00:00	00:00	24	0	RDMO	Cont work on GLT, anchor winches, drawwork and mud pumps. Cont to remove degasser. Cont with installation of power supply for new lifeboat

ENI NORGE Operations Summary Report						
Well:	**6406/1-3**					Start: 11 October 2004
Rig Contractor	Diamond Offshore					End 17 March 2005
Rig name	Ocean Vanguard					Spud: 16 October 2004
08-jan-05	00:00	00:00	24	0	RDMO	Cont to work on LMRP and mud pumps. Unable to remove drawworks drum;prepared to cut doghouse wall to to that. Commenced to rebuild degasser. Cont to install power supply for lifeboats. Caarried out general PM, housekeeping and painting
09-jan-05	00:00	00:00	24	0	RDMO	LMRP ready for MPI & NDT inspection. Cont work on tensioners, drawworks, degasser and mud pump volume. Cont to install power supply for new lifeboat. Changed out crane wire, cont with painting , cleaning and general rig maintenance
10-jan-05	00:00	00:00	24	0	RDMO	Cont working on GLT and sheaves. Removed drawworks drum and started to clean parts. Some wear observed on shaft and sprocket. Commenced to remove luff motor for repairs. Carried out cleaning in mud pit room, drill floor and cellar deck. Cont working on mud pumps. Cont to install lifeboat power supply
11-jan-05	00:00	00:00	24	0	RDMO	Confirmation received regarding shipment of the rig LMRP to TOA. Install new wire on blue POD compensating hoist, order two pistons rods for GLT, continue preparing anchor winches for repairs, continue with lifeboat 42V supply installation. Continue to work on guideline tension system
12-jan-05	00:00	00:00	24	0	RDMO	Install choke & kill hoses on LMRP; received slip joint from ROV vessel; continue working on guide lines tensioner system; continue with general housekeeping and clean up around rig floor, continue to work on lifeboat power supply; work on sewage plant and on fule filtering system
13-jan-05	00:00	00:00	24	0	RDMO	Cont maintenance to drawworks, cont working on lifeboat power supply, start changing all four lifeboats; continue inspecting anchor chain no.2. Assemble MRT tunrdown sheaves, install LMRP support flange.
14-jan-05	00:00	00:00	24	0	RDMO	Continue maintenance to drawworks, continue working on lifeboat power supply, start maintenance of watertight doors. Assemble MRT turndown sheaves no 3&4; continue inspecting anchor chain no 2.
15-jan-05	00:00	00:00	24	0	RDMO	Cont maintenancwe to drawworks, cont working on lifeboat power supply, start maintenance of watertight doors. Assemble MRT turndown sheaves no 3 & 4; continue inspecting anchor chain no.2
16-jan-05	00:00	00:00	24	0	RDMO	Cont maintenancwe to drawworks, cont working on lifeboat power supply, start maintenance of watertight doors. Assemble MRT turndown sheaves no 3 & 4; continue inspecting anchor chain no.2
17-jan-05	00:00	00:00	24	0	RDMO	Install 5,6,7,8 turndown sheaves. Continue work on drawworks. Repair ballast tank vent. Inspect anchor winches 3,4,8. Inspect potable water tank
18-jan-05	00:00	00:00	24	0	RDMO	Assist drill crew with turndown sheaves. Service blue POD winch. Continue work on drawworks. Prepare to clean inside potable water tank no 12. Inspected stb,aft,port.fwd and port aft blind dia columns with DNV surveyor. Replaced hatches on blind dia columns
19-jan-05	00:00	00:00	24	0	RDMO	Service yellow pod winch. Continue work on drawworks. Cont to clean inside potable water system. Cont to work on lifeboat modification
20-jan-05	00:00	00:00	24	0	RDMO	Service levahn pod winches. Repair rig lighting. Continue work on drawworks, install new brake bands. Continue to clean inside potable water system. Continue to work on lifeboat modifications
21-jan-05	00:00	00:00	24	0	RDMO	Working on levahn pod winches . Continue work on draworks. Install ruckers cluster on 5 and 6. Building temporary galley, start working on galley and stripping out eqp. Continue to work on lifeboat modification. Working on 5 years cranes inspection.
22-jan-05	00:00	00:00	24	0	RDMO	Measuring up for grease lines on MRT sheaves, torque up bolts on 5 and 6 MRT sheaves assy. Continue work on drawworks. Continue to work in galley. Remove cooling water pipes from mud pump 3. Install rucker cluster 7 and 8, isntall blue and yellow pod lines sheaves. Continue to work on lifeboat modifications. Working on 5 years cranes inspection. Continue cleaning potable water system
23-jan-05	00:00	00:00	24	0	RDMO	Measuring up for grease lines on MRT sheaves, torque up bolts on 7 and 8 MRT sheave assy. Continue work on draworks. Continue to work in galley. Work on BOP capture system. Continue to work on lifeboat modification. Continue cleaning potable water system
24-jan-05	00:00	00:00	24	0	RDMO	Continue to work in galley. Work on BOP capture system. Continue to work on draworks. Restrict block lines from 14 to 12, unspool old wire, stroke open compensator and slip drill line. Working on spools for MRT wire. Repire engine no.4.
25-jan-05	00:00	00:00	24	0	RDMO	Cont to work on BOP capture system. Re-calibrate system. Recalibrate crown compensator, tested winches. Installed marine riser tensioner clusters 1,2,3,4. Commenced to install new ROV unit. Removed bull gir from #3 mud pump. Found fault in sprinker system, troubleshooted same and refilled sprinkler tank with potable water
26-jan-05	00:00	00:00	24	0	RDMO	Torqued bolts on 1,2,3,4 MTR clusters. Built greases lines to turn down sheaves and continue to replace hoses on BOP capture system. Changed out lines on # 1,4 guide line tiggers. Re-assembled driller shack on drill floor. Cont to work on sprinker system. Opened hatch cover chain lockers #1,2 in preparation of loading anchor chain. Cont to work
27-jan-05	00:00	00:00	24	0	RDMO	Torqued bolts on MRT cluster # 1,2.Made grease lines for MRT. Worked on mud pump #3 crankshaft. Finished spooling new wire onto GLT wiches. Cont installation of neutral brake on drawwork. Cont to work on lifeboat. Carried out painting and general housekeeping.

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Operations Summary Report

Well:	**6406/1-3**					Start: 11 October 2004
Rig Contractor	Diamond Offshore					End 17 March 2005
Rig name	Ocean Vanguard					Spud: 16 October 2004
28-jan-05	00:00	00:00	24	0	RDMO	Installed MRT's onto lower clusters,installed neutral brake on drawworks,installed neutral brake on drawworks and lower brake bands on A/winch and winches " 5,6,8.Tested bulk system valves. Cont to work on new lifeboat.Carried out painting and general housekeeping.
29-jan-05	00:00	00:00	24	0	RDMO	Build grease line for MRT turndown sheaves,installed MRT onto lower cluster and installed MRT wire spools on racks. Changed out roughneck tracks,offloaded and bundled 5 1/2" DP to be sent for inspection. Cont to work on lifeboat. Changed out crown block proximity switched in derrick. Installed linkage assembly on A/winches and begun to install conuter with assembly on same. Continue to install neutral brake on drawwork. PM pn fresh water cooling system. Carried out painting and general housekeeping
30-jan-05	00:00	00:00	24	0	RDMO	Cont to assemble MRT and to work on drawworks neutral brake and tested same. Re-routed lines in moonpool for hydraulic tugger. M/u hoses for cooling water connection on bulk air dryer. Carried out training on eqp on new lifeboats. Downloaded DP to quayside. Cont to work on new lifeboat. Carried out painting and general housekeeping
31-jan-05	00:00	00:00	24	0	RDMO	Cont to work on MRT and on drawworks hydraulic brake. Dismantled old water maker, tested quick closing fuel valve, cleaned fuel filters on boiler. Re-routed hydraulic lines for moonpool tuggers. Cont working on anchor winches. Launched and tested #1&2 lifeboats:OK. Carried out PM on deck crane
01-feb-04	00:00	00:00	24	0	RDMO	Cont to work on MRT and on drawworks hydraulic brake. Dismantled old water maker, tested quick closing fuel valve, cleaned fuel filters on boiler. Re-routed hydraulic lines for moonpool tuggers. Cont working on anchor winches. Launched and tested #1&2 lifeboats:OK. Carried out PM on deck crane
02-feb-05	00:00	00:00	24	0	RDMO	Modified top brackets for MRT, torqued up studs on tensioners bases. Set up and function tested crown/floor saver. Changed out starter ring gir assy on #4 main engine. Commenced to change out mech seal for water pump on #3 engine . Cont dismantle old water maker. Cont to work on galley. Cont working on A/winches. Troubleshooted degasser vacum problem,inspected PW tank, worked on new lifeboat. Carried out paintingd and general house keeping
03-feb-05	00:00	00:00	24	0	RDMO	Cont work on MRT installing relief valves and trouble shooted problem with upper sheave cluster on # 1. Rebuilt spare starter ring gir assy for main engine. Completed changeout of mech seal for water pump on #3 main engine. Rebuilt spare water pump for main engine. Cont dismantle old water maker. Cont to work on A/winches, carried out preliminary adjustment on all winches but #1. Troubleshooted de-gasser suction problem. Cont to work on new lifeboat. Carried out painting and general housekeeping
04-feb-05	00:00	00:00	24	0	RDMO	Cont to work on MRT manifold valves, dressed up mounting head on upper sheave cluster for #1 tensioner. Cont dismantle old water maker, cont to work on degasser, installed brake bands on # 1 winch. Took chain from dock into #2 chain locker, cont to work on new lifeboat, cont with installation of new iron roughneck, carried out painting and general housekeeping.
05-feb-05	00:00	00:00	24	0	RDMO	Cont to work on MRT. Installed new POD hose on yellow reel. Cont dismantle old water maker, repaired and rebuilt degasser, adjusted and set up brakes on #1 A/winch, changed out actuator cylinder on #2 A/winch. Cont to work on new lifeboat
06-feb-05	00:00	00:00	24	0	RDMO	Cont to work on MRT installing manifold valves, and installed sheave cluster on #1 MRT. Cont with new POD hose bundle terminations. Cont dismantle old water maker, cont to work mud pumps, carried out PM on iron roughneck. Cont to work on mud pump. Changed out main block on STB crane.Prepared deck for riser. Re-stocked lifeboat equipment, passed messanger line from ponton to dock for taking on #1 anchor chain. Carried out painting.
07-feb-05	00:00	00:00	24	0	RDMO	Cont to work on MRT installing manifold valves. Completed change out of MRT wires. Completed re-termination of new blue POD hose and installed same on blue reel. Cont terminations on blue and yellow hoses. Fitted water pipes and coolers on #3 mud pump, changed out stb disc brake cyl on #1 A/winch. Carried out derrick PM
08-feb-05	00:00	00:00	24	0	RDMO	Cont with terminations on blue and yellow hoses.Replaced broken rocker arm studs on #3 main engine, repaired oil leak on port steering gir, installed main cooling water pipes above DC motors for #3 mud pump,fitted main bearing housing to same. Installed new 2" booster hose in moonpool, hung and set up POD reel shaves,offloaded MR and slip jnt from quayside. Cont to work on new lifboats. Carried out general PM.
09-feb-05	00:00	00:00	24	0	RDMO	Cont to work on terminations on blue hose, flushed and pressure tested pilot lines on yellow umbilical to 4500 psi. Removed test stump and base from BOP carrier, set up and commenced pickling of new 2" ss lines for MRT's, set up PODs on stands and removed covers. Cont to work on #3 mud pump. Carried out general PM:
10-feb-04	00:00	00:00	24	0	RDMO	Completed terminations on blue hose, connected up yellow umbilical pilot lines to RQB. Cont to flush and pressure test pilot lines on umbilicals to 4500 psi, cont picking of new 2" SS pipework for MRT's. Cont to rebuild #3 mud pump, clean and inspected all riser stabs, isntalled line spooler on drill line, commenced to test anchor winches togheter with Psunes service engineer. Carried out painting
11-feb-05	00:00	00:00	24	0	RDMO	Completed pressure tests of pilot and 1" lines on umbilicals to 4500 psi, connected to pressure test 2" SS pipework for MRT's to 500/3600 psi, prepared working skids for LMRP. Transferred same from quayside to stb main deck. Worked on PODs, cont to rebuild #3 mud pump, removed hydraulic pump from #7&8 anchor winches. Commenced modifications to ROV, moonpool hatch. Cont to test anchor winches. Carried out painting and general PM.

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Operations Summary Report

Well:	**6406/1-3**	Start: 11 October 2004
Rig Contractor	Diamond Offshore	End 17 March 2005
Rig name	Ocean Vanguard	Spud: 16 October 2004

12-feb-05	00:00	00:00	24	0	RDMO	Completed pressure test of new 2" SS pipework for MRT's to 500/3600 psi. Worked on POD's installed HP manifold to #2 & 8 MRT's , hooked up both blue and yellow POD hose ends to RBQ and commenced installation of ben restrictors on same. Cont work on mud pumps. Cont to work on anchors winches. Inspected all anchor fairleads, ran out and inspected anchor chain #5. Completed commissioning of drawworks. Carried out painting.
13-feb-05	00:00	00:00	24	0	RDMO	Completed installation of bend restrictors on POD hoses, tied in umbilical at reel end, fitted RBQ's to both reels, checked calibration on LMRP bulleyes, removed TO flex joint from LMRP and installed OV one on it. Finished to fill MRT's with oil and installed RV's. Cont to work on anchor winches, cont to rebuild #3 mud pum, completed modifications on ROV moonpool hatch. Cont with inspections on chains and fairleaders
14-feb-05	00:00	00:00	24	0	RDMO	R/u and connected blue and yellow POD hoses to POD's. Torqued up bolts on flex joint, repaired 2 isolation v/v's on MRT's set correct space out on #3-8 MRT's, m/u dead men on same, commenced installation of LMRP jumper hoses. Completed installation and testing of new hydraulic pump for A/winch #7&8,completed commissioning of #3 mud pump, replaced missing funnel bolt on #4 fairlead, re-torqued all swivel bolts on A/winches #3-8. Removed scaffold from ROV moonpool, repaired C&K line support brackets in moonpool. Performed NDT on rig eqp and HP pipeworks. Installed 6" pistons in all mud pumps. Cont comissioning checks for anchor winches, run out A/chain #2 for changing out worn links
15-feb-05	00:00	00:00	24	0	RDMO	Torqued up bolts on LMRP flex joint, installed LMRP jumper hoses, disc umbilicals from POD's installed blue and yellow POD's on LMRP. Commenced to flush all pilot lines with water/glycol mix. Set up correct space out on MRT's #1,2. Performed test on riser X/o joints, hung off C&K lines at hang off points. Worked on A/winches # 4,6 & 8. Cont to carry out static commissioning od A/winches
16-feb-05	00:00	00:00	24	0	RDMO	Continue to flush yellow pod lines with water/glycol mix, commence pressure testind SDL umbilical line, fit rucker lines to SDL ring, air up all rickers and tensioner. Work on A/winches, fit new motor brake pads to #1 and #2, test ok; modify counterbalance brackets on #2,#4,#6,#8: all brake release counterbalance system now operational and set up. Removed broken shear pin from pawl on #2 and fit a new one;install anchor chain on winch #1. Removed motor on slug pit agitator on #1 guideline winch band brake not holding during load test, start changing it. Complete repairs on stb liferaft davit and load test
17-feb-05	00:00	00:00	24	0	RDMO	fuctions, (stingers and riser connector). Function test both LMRP functions from main unit, annular open & close, miniconnector lock,unlock, mini connector extend/retract. Cont with flushing yellow pod. Start terminating guide wire latches on 1,2&4 guide wires. Clean dummy test stabs and prepare to install. Stb'd Lifeboat Davit, strip & inspect hook, nothing found, clean up parts. Re-build and test OK. #1 Guidelines tugger, nithing found, clean up parts, rebuild and test OK. #1 Guideline tugger, complete fitting new brake band & load testtugger OK. #3 Port Prop Motor, isolate water, remove elbow from suspect valve, fit new valve, inspect strainer and water test OK. Coninue to clean & tidy moonpool area. Assist with installation of new brake bands on guide line tensioner #1, load test same to 5 ton. Stroke out guide line tensioner #3. Cont pressure marine riser tensioner system to 25 ton. Replace 10% of all air winch hold down bolts moonpool. Assist skid LMRP to main deck from BOP transponder. Prepare #1,2&4 guideline tensioners wires for fitting of connectors. Check all safety slings,shackles & p
18-feb-05	00:00	00:00	24	0	RDMO	Remove flex joint kick out subs and oriented so that choke and kill hose would not touch body of flex joint. Installed the choke and kill line mini connector dummy test stabs. Pout the socket fast in all (3) guide wire latch assemblies. Finish testing the hose that will be used on SDL ring, plumb in one end in moon pool piping as required. Boiler fuel pump leaking, remove fuel pump from other boiler and get back operational, tbc. #1 failed torque up missing swivel fastener. Propulsion test run propulsion, thermometer blew out of stb'd prop motor, tap out port on cooler and fit plug, test guideline tensioner lines 1 & 4 , re-align LMRP choke & kill stabs and fit mini connector test plugs, re-terminate guidelines #2. Prepare rig for sailing. Testing anchor winches, tidy up in lifeboats & wich houses, preparing for rig move. Port Crane aircraft warning lights repaired
19-feb-05	00:00	02:00	2	0	MIRU	Prepare for rig move operations
	02:00	12:30	10,5	0	MIRU	Connect Northern Challenger on tow bridle, released rig from quayside berth, make final preparations for tow. In the meanwhile continue repairing operations
	12:30	16:30	4	0	MIRU	Northern Challenger tow rig to Arsundfjorden
	16:30	00:00	7,5	0	MIRU	Prepare and start anchor winches dynamic commissioning procedure as per Pusnes and DNV surveyors
20-feb-05	00:00	19:00	19	0	MIRU	Continue with anchor winch dynamic commissioning procedures as per Pusness rep & DNV surveyor. Make up 1,2,4 guide wire latches and function test same to ensure correct operation.
	19:00	00:00	5	0	MIRU	Commence tow to "Sklinna" 6406/1-3
21-feb-05	00:00	17:00	17	0	MIRU	Continue tow to " Sklinna" 6406/13
	17:00	00:00	7	0	MIRU	Start anchor handling operations

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Well:	**6406/1-3**					Start: 11 October 2004
Rig Contractor	Diamond Offshore					End 17 March 2005
Rig name	Ocean Vanguard					Spud: 16 October 2004
22-feb-05	00:00	08:30	8,5	0	MIRU	Finished anchor handling operation
	08:30	13:00	4,5	0	MIRU	Cross tension anchors to 200 ton, load 600 A and performed load cell calibration.
	13:00	13:30	0,5	0	MIRU	skid rig over location.
	13:30	19:00	5,5	0	MIRU	Ballast rig to drilling draft.
	19:00	00:00	5	0	MIRU	Prepare for running LMRP and riser
23-feb-05	00:00	06:00	6	0	RDMO	Made up double of riser on LMRP, pick up LMRP & remove carrier, run LMRPn on riser, blue and yellow pod unlatches as LMRP went through
	06:00	08:00	2	0	RDMO	Recover and secure pods & guide lines in the moonpool, pull back LMRP & land it out
	08:00	11:30	3,5	0	RDMO	Check & function test pod connectors; checking seals & stabs: OK. Position , lad out & latch up pods, check them:OK
	11:30	13:30	2	0	RDMO	Carry out pull tests and check hydraulic pressure and functions
	13:30	14:00	0,5	0	RDMO	Pick up LMRP, removed moonpool skid & run guide lines
	14:00	21:00	7	0	RDMO	Pick up marine riser & run LMRP, checking seals, dogs & pod lines unspooling: OK.
	21:00	23:30	2,5	0	RDMO	Unable to make up a joint of riser: held safety meeting with drill and deck crew; l/out 2 joints of riser
	23:30	00:00	0,5	0	RDMO	Continue to run marine riser and LMRP
24-feb-05	00:00	04:00	4	0	RDMO	Continuie to run marine riser and LMRP
	04:00	09:30	5,5	0	RDMO	Rig up and test choke and kill lines to 207 bar, observe lean on test cap,pull it , seals and continue with test. Unable to obtain low press test (17 bar), checked high press (207 bar), OK. Rig down test eqp.
	09:30	10:00	0,5	0	RDMO	Pick up and run one joint of Ocean Vanguard riser above cross over and refill choke and kill lines.
	10:00	11:30	1,5	0	RDMO	Inspect and fit riser test cap, rig up and pressure test choke and kill lines, 17 bar/207 bar with cmt unit
	11:30	14:30	3	0	RDMO	Continue to run marine riser and LMRP
	14:30	16:00	1,5	0	RDMO	Carry out rescue exercise with stand by boat, rig crane and rescue Helicopter
	16:00	17:30	1,5	0	RDMO	Re-position rig, observing LMRP/BOP position with ROV
	17:30	18:00	0,5	0	RDMO	Continue to run marine riser and LMRP
	18:00	19:00	1	0	RDMO	Rig up and pressure test choke and kill lines, 17 bar/207 bar with cmt unit good test, r/d test lines
	19:00	20:30	1,5	0	RDMO	Pick up slip joint and make up it, run down
	20:30	22:00	1,5	0	RDMO	Install new latch covers on choke and kill lines on slip joint.
	22:00	23:00	1	0	RDMO	Pick up handling joint, make up it and run down monitoring sea bed with ROV
	23:00	00:00	1	0	RDMO	Commenced install choke & kill lines in moonpool. Adjust clamps on co-flex hoses and torque them up.(ROV remove cover from BOP and instll double resilient AX gasket).
25-feb-05	00:00	06:00	6	0	RDMO	Continue to install choke & kill goosenecks, orientate and nipple up co-flexip hoses.
	06:00	07:30	1,5	0	RDMO	Pressure test choke & kill goosenecks, latch up SDL riser ring.
	07:30	09:30	2	0	RDMO	Install booster line and safety slings to goosenecks, latch up SDL riser ring
	09:30	13:30	4	0	RDMO	Bleed down tensioners pistons and install new droop hose saddles, rig up moon pool droop hoses and slip joint auxiliary lines
	13:30	15:00	1,5	0	RDMO	Unlatch and remove miniconnector test stabs, secure them with ROV, position rig, set tensioners pistons to mid stroke and established guide lines number 1,2,4 with ROV.
	15:00	16:30	1,5	0	RDMO	Run LMRP over guide post 1 m, position rig and land out LMRP with 8 ton weight (Rig final position when landed 20 m port aft, riser bullseye reading 4 degrees)
	16:30	18:00	1,5	0	RDMO	Set down 20 ton weight, latch LMRP check it with 25 ton overpull OK. Transfer hook load to tensioner system and open slip joint
	18:00	19:30	1,5	0	RDMO	Flush choke and kill lines, pressure test 17/483 bar. Lay out landing joint.
	19:30	21:30	2	0	RDMO	Pick up diverter housing onto cart install running tool, clean sealing area for o-rin, pick up and made up to slip joint, troubleshoot one locking dop snap ring
	21:30	23:00	1,5	0	RDMO	Run diverter housing down, hanging up inside rotary table, trim rig work housing dwom lock diverter housing in, take OP install hydraulic block
	23:00	00:00	1	0	RDMO	Rig down riser handling equipment fro rig floor
26-feb-05	00:00	03:00	3	0	RDMO	Rig down riser handling eqp from rig floor
	03:00	04:00	1	0	RDMO	Prepare pick & make up BOP test plug assy
	04:00	05:30	1,5	0	RDMO	Rih 5 1/2" DP cleaning threads & drift DP 3 3/8" while checking trip tank/shaker v/v line up and checking slip joint packers for leak
	05:30	07:00	1,5	0	RDMO	Observe leak at diverter housing. Continue rih 5 1/2" DP while wait on orders
	07:00	07:30	0,5	0	RDMO	Pull test plug assy
	07:30	09:30	2	0	RDMO	Rig uo, unlatch reset and test diverter seal ok, observe leak at slip joint inner barrel cross over to diverter assy
	09:30	12:00	2,5	0	RDMO	Rig up riser spider, pull back diverter
	12:00	13:00	1	0	RDMO	Laid out diverter housing
	13:00	17:00	4	0	RDMO	Rig up and support inner barrel on the rig floor, back out connector on top of inner barrel, serviced it (damaged o-ring) install new o-ring make it up, pick up and install diverter housing. Install hydraulic block . Fill slip joint with sea water check for leaks
	17:00	18:30	1,5	0	RDMO	Laid out riser handling equipment from rig floor
	18:30	19:00	0,5	0	RDMO	Rig accepted back on dayrate @18 ,30 hrs. Rih with test plug and drill pipe from derrick
	19:00	22:00	3	0	RDMO	Pick up 5 1/2" DP from derrick and rih to 381 m and land off BOP test tool
	22:00	00:00	2	0	RDMO	Prepare and flush lines prior to test BOP via blue pod line. Commenced BOP test 21 bar low 5 min and 310 bars 10 min

ENI NORGE Operations Summary Report						
Well:	**6406/1-3**					Start: 11 October 2004
Rig Contractor	Diamond Offshore					End 17 March 2005
Rig name	Ocean Vanguard					Spud: 16 October 2004
27-feb-05	00:00	03:30	3,5	0	RDMO	Continue to test BOP via blue POD line, 21 bar low 2 min and 310 bar 10 min. Perform function test on yellow POD.
	03:00	06:00	2,5	0	RDMO	Attempt to pooh hanging up on MPR, make several attempts , rotate string 180 deg, come free, continue pooh with BOP test tool. Break out and laid out cross over and test tool.
	06:00	07:30	1,5	0	RDMO	Make up 5 1/2" pup joint and pump in sub to top drive.
	07:30	09:00	1,5	0	RDMO	Pressure test top drive IBOP v/v's and kelly hose to 17 bar/344 bar.
	09:00	10:30	1,5	0	RDMO	Rig down test assy from topdrive, make up 2 x TIW v/v's test sub, lay out same. Tidy rig floor install mud guard inside rotary , install div/bag.
	10:30	11:30	1	0	RDMO	Rih with drill pipes from derrick
	11:30	12:00	0,5	0	RDMO	Pick up 5 1/2" DP from deck and RIH. Clean threads
	12:00	17:30	5,5	0	RDMO	Cont to pick up drill pipe from deck and rih. Tagged EZSV BP at 996 m.
	17:30	19:00	1,5	0	RDMO	Displaced well with OBM 1,81 sg
	19:00	22:30	3,5	0	RDMO	Pooh laid out 2 singles of drill pipes.
	22:30	00:00	1,5	0	RDMO	Picked up wear bushing retriving tool. Removed diverter insert bag. Rih with 5 1/2" DP.
28-feb-05	00:00	01:30	1	0	RDMO	Continue to rih up a single of DP for space out, make up top drive and land off in wear bushing
	01:00	02:30	1,5	0	RDMO	Unseat WB with 60 ton OP, pull clear of BOP pooh and lay out wear bushing and running tool
	02:30	04:00	1,5	0	RDMO	Pick up sea assembly and jet sub and rih
	04:00	05:00	1	0	RDMO	Make up top drive engage seal assy after various attempts, pick up no pressure observed open upper annular. Pick up out of BOP. Unseat seal assy with 10 ton OP
	05:00	06:30	1,5	0	RDMO	Break out top drive and pooh. Lay down single. Break out seal assy retrieving tool and seal assy. Laid down same
	06:30	07:30	1	0	RDMO	Pick up and make up 9 7/8" casing assy and pup joint
	07:30	10:30	3	0	RDMO	Rih with 5 1/2" DP pick up marine swivel cont rih with drill pipes, land swivel in well head 5 ton down, cutter at 800 m
	10:30	11:00	0,5	0	RDMO	Cut 9 7/8" casing with 110 rpm, 6/8 k torque, 117 bar at 30 spm
	11:00	16:00	5	0	RDMO	Pooh with 5 1/2" DP wet. Laid out marine swivel, continue to pooh with drill pipes laid out pup joint and cutter assy
	16:00	17:30	1,5	0	RDMO	Clean and tidy rig floor, prepare casing eqp on rig floor pick up and set back casing tong
	17:30	19:00	1,5	0	RDMO	Pick up spear assy, pick up 2 x 8" DC. Rih with same, rih with 5 1/2" DP
	19:00	20:00	1	0	RDMO	Install diverter packer. Take up and down weight, 50 ton. Engaged 9 7/8" casing and pull 83 ton to lift it
	20:00	21:30	1,5	0	RDMO	Circulate bottom up 6000 strokes
	21:30	22:30	1	0	RDMO	Commence pooh required several attempts to pass through BOP catching up on ram cavities open and closed upper & lower annular (21 bar annular pressure) when required to centralize string, applied also very slow rotation with string
	22:30	00:00	1,5	0	RDMO	Continue pooh with 9 7/8" casing, racking back 5 1/2" DP, pick up single from deck to rack back double of drill pipes
01-mar-05	00:00	01:00	1	0	RDMO	Pick up and make up pup joint to spear assy, release spear from 9 7/8" casing and rack back spear assy in derrick
	01:00	03:30	2,5	0	RDMO	Clear rig floor eqp in excess, clean it rig up and prepare eqp for pulling and laiyng down 9 7/8" casing
	03:30	06:30	3	0	RDMO	Break out and lay down casing hanger, brak down and lay down 9 7/8" casing. Total 1 hanger and 33 joints of 9 7/8" casing
	06:30	07:00	0,5	0	RDMO	Lay down casing equipment
	07:00	08:00	1	0	RDMO	Clean and tify rig floor continue remove casing equipment
	08:00	12:00	4	0	RDMO	Rih with open ended drill pipes to 986 m, pump and displacwe 5,8 cm hi-vis pill.
	12:00	13:30	1,5	0	RDMO	Pooh to 850 m, rig up cement assy and hose, break circulation with cement unit, pressure test line to 138 bar
	13:30	15:00	1,5	0	RDMO	Mix and pump 6 cm spacer 14,9 cm of 1,95 sg cement slurry, 1 cm spacer and 5,3 cm of 1,8 sg oil base mud for displacement, break off cement hose
	15:00	16:00	1	0	RDMO	Rack back cmt assy, pooh to 551 m
	16:00	17:30	1,5	0	RDMO	Circulate bottom up from 551 m, check shakers for any cmt return
	17:30	18:30	1	0	RDMO	Pooh to 290 m and rack back drill pipe
	18:30	19:00	0,5	0	RDMO	Laid out drill pipes
	19:00	22:30	3,5	0	RDMO	Clean and tidy rig floor. Continue to laid down 5 1/2" DP, in the meanwhile mixing water base mud for displacement
	22:30	00:00	1,5	0	RDMO	Run 9 7/8" spear assy from derrick, removed handling pup and cross over, pick up and make up one 8" drill collar to string, rack back stand of 8" in derrick

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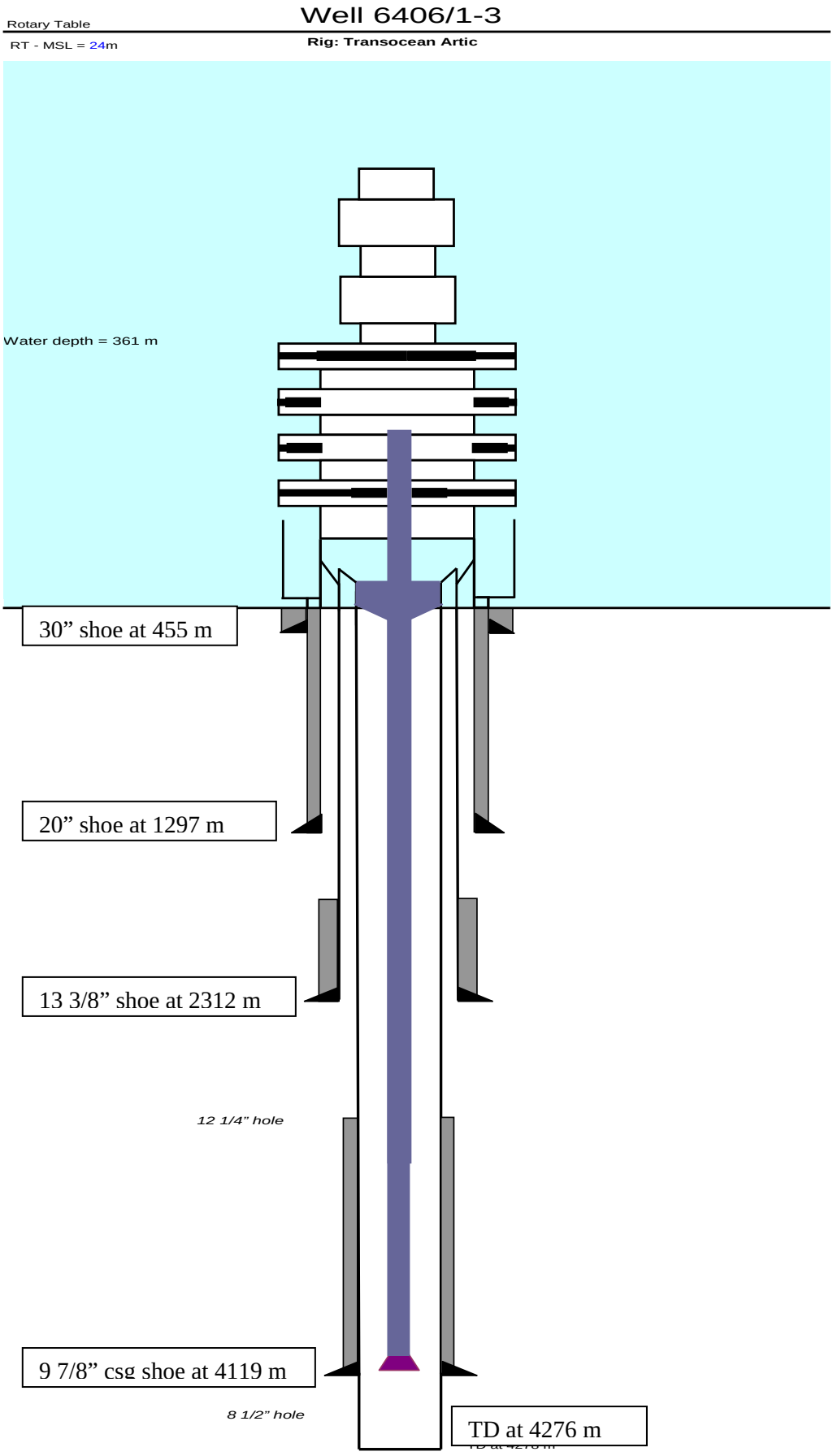
Operations Summary Report

Well:	**6406/1-3**					Start: 11 October 2004
Rig Contractor	Diamond Offshore					End 17 March 2005
Rig name	Ocean Vanguard					Spud: 16 October 2004
02-mar-05	00:00	01:00	1	0	RDMO	Make up cross over and lift sub to jars/spear assy. Laid out it
	01:00	03:00	2	0	RDMO	Pick up and make up mule shoe onto 5 1/2" DP and rih to 551 m
	03:00	04:00	1	0	RDMO	Make up top drive and wash down from 551 m. Tag cmt at 568 m set down 10 ton
	04:00	05:30	1,5	0	RDMO	Rack back 2 stands of 5 1/2" DP, pixk up cmt stand with SES, made up TIW above SES, rig up 10000 psi hose. Start backloading oil base mud
	05:30	06:30	1	0	RDMO	Line up and flush lines from cmt unit, spce out & close upper pipe rams, pressure test cmt plug to 377 bar, pumped 715 l return 636 l.
	06:30	07:00	0,5	0	RDMO	Rig down test eqp
	07:00	07:30	0,5	0	RDMO	Rih and tag cmt at 568 m with 5 ton down pull back 3 m
	07:30	09:30	2	0	RDMO	Continue to mix water base mud
	09:30	11:30	2	0	RDMO	Displaced well with water base mud. Back load oil base mud
	11:30	13:30	2	0	RDMO	POOH DP laid out mule shoe
	13:30	17:30	4	0	RDMO	Pick up seal assy retrieving tool. Rih with DP, land and retrieving tool in WH set 5 ton dwon apply 1/4 turn left close annular, open choke monitor well take OP 30 tom seal assy came free. Check well, pooh with 5 1/2" DP. Laid out seal assy and RT
	17:30	19:00	1,5	0	RDMO	Pick up 13 3/8" casing cutting assy. Rih with DP, pick up marine swivel
	19:00	21:00	2	0	RDMO	Continue to rih to 550 m. Land marine swivel in wellhead
	21:00	21:30	0,5	0	RDMO	Cut 13 3/8" casing at 550 m. Flow check for 15 min.Negative.
	21:30	00:00	2,5	0	RDMO	POOH 13 stands. Break out marine swivel , stop subband cross over.Pick up 5 1/2" singles. Continue POOH
03-mar-05						Break and laid down casing cutter, cross over and pup joint,removed excess equipment from rig floor
	00:00	00:30	0,5	0	RDMO	and clean it
	00:30	03:00	2,5	0	RDMO	Pick up and make up spear assy, rih to 382 m
	03:00	03:30	0,5	0	RDMO	Make up top drive, rih engage spear in casing, set down 5 ton and turn to left to confirm engaging, pull casing but with 95 ton OP, pick up clear of BOP
	03:30	04:30	1	0	RDMO	Circulate bottom up flow check static
	04:30	06:30	2	0	RDMO	Pooh with 13 3/8" cut off casing, racking back 5 1/2" DP, lay down cross over, 8" DC and spear
	06:30	08:00	1,5	0	RDMO	Rig up casing eqp
	08:00	10:30	2,5	0	RDMO	Laid out 13 3/8" casing; 13 joints+stump, rig down casing eqp
	10:30	12:30	2	0	RDMO	Rih with open ended drill pipe, make up cement stand, tag top of cement at 568 m, pull back 1 m
	12:30	14:30	2	0	RDMO	Rig up cement line,break circulation with cement unit test line to 138 bar, mix and pump 6 cm of 1,74 sg spacer, 25,4 cm of 1,95 sg slurry, 0,36 cm of 1,74 spacer and 3,37 cm of water base mud for displacement
	14:30	15:00	0,5	0	RDMO	Pooh from 567 m to 390 m
	15:00	16:00	1	0	RDMO	Circulate bottom up at 190 spm, 34,5 bar, check shakers of cement returns.
	16:00	00:00	8	0	RDMO	Pooh with 5 1/2" DP from 390 m to surface. Rih with 5 stand and cement stand from derrick, circulate through to remove ny cement. Pooh and laid out drill pipe to deck
04-mar-05	00:00	00:30	0,5	0	RDMO	Secure loose wind wall plate
	00:30	01:00	0,5	0	RDMO	Continue rih on 5 1/2" DP to 360 m
	01:00	02:30	1,5	0	RDMO	Wash down from 360 m. Pick up 2 singles from deck. Tag cement at 430 m.
	02:30	03:30	1	0	RDMO	Pull back to 387 m. Rig up and pressure test cement to 166 bar for 10 min
	03:30	05:30	2	0	RDMO	Operate pipe rams and lower annular. Displaced well to sea water.
	05:30	07:00	1,5	0	RDMO	Lay down 2 singles. Wash through BOP. Pooh and laid down mule shoe
	07:00	08:30	1,5	0	RDMO	Clean and tidy rig floor, rig up riser handling equipment.
	08:30	10:00	1,5	0	RDMO	Make up diverter running tool, unlock and pull diverter housing laid out it
	10:00	12:00	2	0	RDMO	Make up landing joint run down close and lock slip joint
	12:00	12:30	0,5	0	RDMO	Prepare to pull BOP, inspect with ROV, unlock connector lift BOP clear of wellhead at 12,30.
	12:30	14:00	1,5	0	RDMO	Rig down pod saddles, recover sdl ring, lock up into housimg below rotary table
	14:00	17:30	3,5	0	RDMO	Unable to release choke and kill lines goosenecks. Rig up additional lifting equipment
	17:30	21:30	4	0	RDMO	Disconnected choke and kill line gooseneck
	21:30	00:00	2,5	0	RDMO	Pick up break out and laid down slip joint. Pull BOP and laid down marine riser.
05-mar-05	00:00	07:30	7,5	0	RDMO	Continue to pull BOP and laid down marine riser
	07:30	09:00	1,5	0	RDMO	Prepare moonpool , pull BOP and land on cart
	09:00	09:30	0,5	0	RDMO	Back out double of riser, remove pod lines , skid back BOP
	09:30	11:00	1,5	0	RDMO	L/out double of riser, rig down riser equipment from rig floor.
	11:00	12:00	1	0	RDMO	Rig down riser equipment. Change bails and elevator
	12:00	15:00	3	0	RDMO	Pick up and make up cut assy and 8" DC. Lower down and established guidelines 1,2 and 4
	15:00	16:00	1	0	RDMO	RIH on 5 1/2" DP. Lay down one single.
	16:00	17:30	1,5	0	RDMO	Attempted to enter 20" casing with 20 success. Re-positioned rig
	17:30	18:00	0,5	0	RDMO	Enter well. Connect MOST tool to wellhead. Pulled 25 ton to verify latch
	18:00	19:00	1	0	RDMO	Cut 20" and 30" casing. Cut through 20" casing and this came free.
	19:00	21:30	1,5	0	RDMO	Pooh with 20" casing stomp and this came free
	21:30	22:30	1	0	RDMO	Re-configure casing cutter to cut 30" casing
	22:30	00:00	1,5	0	RDMO	Rih with 30" cutting assembly
06-mar-05	00:00	02:00	2	0	RDMO	Continue rih with 30" cutting assy. Adjust rig position and stab into housing
	02:00	05:00	3	0	RDMO	Cut 30" conductor at 387 m. Cutter stalling out indications of a full cut
	05:00	06:30	1,5	0	RDMO	Pooh with cutter assy. Lock ring from 30" housing returned jammed on swivel
	06:30	08:00	1,5	0	RDMO	Make up CART and installed guideropes
	08:00	09:00	1	0	RDMO	Rih with CART on 5 1/2" DP
	09:00	13:30	4,5	0	RDMO	Latch CART to 30" housing and attempt to pull. Attempt to work 30" free by pulling and washing up to 170 to OP and washing with 1800 psi without success
	13:30	15:00	1,5	0	RDMO	Released CART, pooh and lay out same
	15:00	18:30	3,5	0	RDMO	Re-configure cutting assy and fit new cutters. Rih with cutting assy
	18:30	21:30	3	0	RDMO	Cut 30" CP at 385 m. Verify cut with ROV, increase tension on guidelines and picked PGB clear of seabed
	21:30	00:00	2,5	0	RDMO	Pooh and laid out cutting assy

ENI NORGE
Operations Summary Report

Well:	**6406/1-3**				Start: 11 October 2004
Rig Contractor	Diamond Offshore				End 17 March 2005
Rig name	Ocean Vanguard				Spud: 16 October 2004
07.03.2005	00:00	01:00	1	0 RDMO	Retrieved 30" houding and RGB, secure on cellar deck beams. Rig returned to zero rate at 01:00.
	01:00	05:30	4,5	0 RDMO	Separate 30" housing from RGB and remove items from cellar deck. ROV completed seabed survey at 03:15. Prepared of bacl load equipment
	05:30	00:00	18,5	0 RDMO	Rig preparation for riser recovery from seabed. Completed backload to Edda Freie at 11:00 hrs.
08.03.2005	00:00	00:00	24	0 RDMO	Started operation recovered pices of Ocean Vanguard damaged marine riser and guidelines from seabed
09.03.2005	00:00	00:00	24	0 RDMO	Continued operation to recover marine riser from seabed
10.03.2004	00:00	00:00	24	0 RDMO	Continued operation to recover marine riser from seabed
11.03.2004	00:00	00:00	24	0 RDMO	Continued operation to recover marine riser from seabed
12.03.2004	00:00	00:00	24	0 RDMO	Continued operation to recover marine riser from seabed
13.03.2004	00:00	00:00	24	0 RDMO	Continued operation to recover marine riser from seabed
14.03.2005	00:00	18:00	18	0 RDMO	Finished riser recovery operation
	18:00	00:00	6	0 RDMO	Started anchor handling
15.03.2005	00:00	08:00	8	0 RDMO	Finished anchor handling operation
	08:00	00:00	16	0 RDMO	Moved rig to Kristiansund
16.03.2005	00:00	04:00	4	0 RDMO	Continue to move rig to pilot position.
	04:00	06:30	2,5	0 RDMO	End of passage,pilot on bridge.
	06:30	14:00	7,5	0 RDMO	Rig waited for Scarabeo 5 to depart from berth. In the meantime,Atlantic Osprey carried out handling operations with Atlantic Hawk
	14:00	18:00	4	0 RDMO	Manovred rig into harbour and drop #7 anchor on seabed
	18:00	00:00	6	0 RDMO	Atlantic Hawk passed # 4,1 and 5 anchor chains to quayside,secured same,dropped #8 anchor on bottom,pulled and positioned rig along quayside
17.03.2005	00:00	01:00	1	0 RDMO	Passed #2, chain to quayside and secure same;completed rig positioning along quayside and finished off anchor handling operations
					START REPAIR and 5 YEARS CERTIFICATION

3.3.4 Status of the Well after the incident



3.3.5 DailyOperationTransoceanArctic

ENI NORGE

Operations Summary Report

Well:	**6406/1-3**	Start: 15 January 2005
Rig Contractor	Transocean	End: 15 February 2005
Rig name	Transocean Arctic	Spud:N/A

DATE	FROM	TO	HRS	DEPTH	PHASE	DESCRIPTION OF OPERATIONS
15-jan-05	00:00	11:00	11	0	RDMO	Rig anchor handling under Statoil contract, at 11:00 rig is ready to start the tow to Kristinasund.
	11:00	00:00	13	0	RDMO	At 11:00 start of ENI contract. Commence tow to Kristiansund.
16-jan-05	00:00	00:00	24	0	RDMO	Towing the rig to Kristiansund
17-jan-05	00:00	00:00	24	0	RDMO	Towing the rig to Kristiansund
18-jan-05	00:00	04:00	4	0	RDMO	Towing the rig to Kristiansund. At 04:00 rig arrived to final destination, Bremsnes fjord Kristinasund
	04:00	07:00	3	0	RDMO	Removed twist in anchor chain no 5 and 7
	07:00	19:00	12	0	RDMO	Backload to supply vessel 32 mc OBM sloop and 34 mc of OBM. Move choke and kill lies up to cellar deck to install blind flanges. Prepared to lift LMRP. Installed blind flanges on choke and kill lines.
	19:00	00:00	5	0	RDMO	Pressure test choke and kill flex hoses 500/15000 psi for 5/15 min good test
19-jan-05	00:00	12:00	12	0	RDMO	Pressure test choke and kill manifold 500/15000 psi for 5/15 min-good test. Terminating hoses on blu and yellow POD's. Change hook block on starboard crane new 100 ton one, in order to lift LMRP.
	12:00	14:00	2	0	RDMO	Lift LMRP and land it on cellar deck; remove lifting tool from LMRP and install test cap on it.
	14:00	00:00	10	0	RDMO	Commence rig moving from Bremsnes fjord to 6406/13 location; Nothern Challenger on towing bridle
20-jan-05	00:00	09:00	9	0	MIRU	Continued rig towing to 6406/1-3 location;Nothern Challenger on towing bridle
	09:00	20:00	11	0	MIRU	At 09:00 rih on location. Start anchor handling. On bottom all anchors
	20:00	00:00	4	0	MIRU	Anchor 5 and 2 are slipping, resetting them with supply boats. In the meanwhile on rig floor laying down drill pipe
21-jan-05	00:00	07:00	7	0	MIRU	Tensioning anchors to 210 tons;negative test on anchors 2,3,5;reset them and tested to 210 ton OK
	07:00	12:00	5	0	MIRU	Install yellow POD on LMRP. Tested lines and LMRP as ENI procedures
	12:00	18:00	6	0	MIRU	Install sloop indicator on LMRP,removed test cap, not able to skid LMRP in place, guides have to be more retracted
	18:00	21:00	3	0	MIRU	Retract BOP guide rollers to allow skidding of LMRP with trolley
	21:00	00:00	3	0	MIRU	Install riser on LMRP, disconnect bottom frame, install beacon guidelines
22-jan-05	00:00	01:00	1	0	MIRU	Install riser on LMRP, disconneted bottom frame, install beacon guidelines.
	01:00	00:00	23	0	MIRU	Waited on weather to run LMRP.
23-jan-05	00:00	00:00	24	0	MIRU	Waited on weather to run LMRP.
24-jan-05	00:00	07:00	7	0	MIRU	Waited on weather to run LMRP.
	07:00	12:00	5	0	MIRU	Run LMRP in water pressure test choke and kill line to 35 bar and 204 bar, continue to run LMRP on riser to 180 m
	12:00	19:00	7	0	MIRU	Pressure test choke and kill lines to 35 bar and 204 bar @ 180 m, continue to run LMRP to 340 m.Pressure test choke and kill lines to 35 bar and 204 bar @ 340 m, pick up and land slip joint, stroke out inner barrel
	19:00	00:00	5	0	MIRU	Install kill and choke lines on support ring
25-jan-05	00:00	04:30	4,5	0	MIRU	Tested kill and choke lines to 35 bar and 207 bar
	04:30	06:00	1,5	0	MIRU	Moved rig on location
	06:00	07:00	1	0	MIRU	Install guide lines check connection
	07:00	09:30	2,5	0	MIRU	Position rig over well, connect guide line no 4; attempt to land LMRP negative. Pull rig 21 m towards port after close LMRP extend stinger and lock in
	09:30	10:00	0,5	0	MIRU	Line up and test kill and choke line against fail safe valve to 35 bar and 1043 bar, rise up pressure to 1043 bar in steps
	10:00	12:00	2	0	MIRU	Activated riser tensioners and install diverter
	12:00	13:00	1	0	MIRU	Rig down riser running equipment
	13:00	13:30	0,5	0	MIRU	Observe with ROV while operating BOP stingers
	13:30	15:30	2	0	MIRU	Open kill valve and observed 40 bar pressure;flowcheck for 15 min;pressure increase from 40 bar to 45 bar;bleed off pressure, close valve and check for pressure increase: negative: Flow check for 15 minutes: negative
	15:30	16:30	1	0	MIRU	Make up EDPHO retrieveing tool. Rih and tag closed shear rams.
	16:30	18:00	1,5	0	MIRU	Line up and displaced choke and kill line to 1,93 sg OBM;displace riser
	18:00	19:00	1	0	MIRU	Line up trip tank and flow check through kill line;meanwhile repair leak on koomey unit
	19:00	19:30	0,5	0	MIRU	Tag shear rams, open them, close and tag them again to verify fuction
	19:30	23:30	4	0	MIRU	Break circulation and circulate 11500 strokes. Hang off tool got stuck in the annular, working til through BOP, move the rig until 5,5 drg riser angle, then hang off tool got free.
	23:30	00:00	0,5	0	MIRU	Flowcheck OK. Slugged pipe

ENI NORGE

Operations Summary Report

Well:	**6406/1-3**	Start: 15 January 2005	
Rig Contractor	Trancocean	End: 15 February 2005	
Rig name	Trancocean Arctic	Spud: N/A	

DATE	FROM	TO	HRS	DEPTH	PHASE	DESCRIPTION OF OPERATIONS
26-jan-05	00:00	01:00	1	0	DRLPRO	Flowcheck OK. Racked drilling stand
	01:00	10:30	9,5	0	DRLPRO	Pooh with 8 1/2" BHA to 1561 m. Flowcheck OK. Cont to POOH to 383 m and flowcheck prior to enter BOP with 8 1/2" BHA.
	10:30	12:30	2	0	DRLPRO	Pooh to surface. L/d accelerator , jar , 5" HWDP. L/d 8 1/2" BHA.
	12:30	13:30	1	0	DRLPRO	Cleaned out rig floor
	13:30	14:30	1	0	DRLPRO	Dressed iron roughneck for 3 1/2" DP and rigged up to run CMT string
	14:30	16:30	2	0	DRLPRO	Run 3 1/2" stinger
	16:30	21:00	4,5	0	DRLPRO	Rigged up and run stinger on 5" DP to 750 m. Changed elevator and slips and cont running stinger on 5 1/2" DP.
	21:00	21:30	0,5	0	DRLPRO	M/u pump in sub assy and racked same in derrick
	21:30	00:00	2,5	0	DRLPRO	Rih CMT stinger to 9 7/8" csg shoe
27-jan-05						
	00:00	05:00	5	0	DRLPRO	Established circulation in steps. Washed down to TD (tagged bottom @ 4728 m). Circulated and conditioned mud. Flow rate: 1100 l/min, pressure 145 bar. Flow check: OK. Max gas 15,6%.
	05:00	06:00	1	0	DRLPRO	Installed cmt stand. Pressure tested cmt hose to 200 bar: good test
	06:00	07:30	1,5	0	DRLPRO	Pumped 8 cm of spacer. Mixed & pumped 11,3 cm of cmt. Pumped 2 cm of spacer and displaced with rig pumps with 37 cm of 1,93 sg mud at 2000 l/min
	07:30	09:00	1,5	0	DRLPRO	Pooh to 3550 m
	09:00	11:00	2,0	0	DRLPRO	Circulated bottom up. Pressure 200 bar Max gas 8,6%
	11:00	16:00	5	0	DRLPRO	Continued POOH to 735 m
	16:00	16:30	0,5	0	DRLPRO	Changed to 5" handling eqp & pulled 10 stands of 5" DP
	16:30	17:00	0,5	0	DRLPRO	Changed 3 1/2" handling eqp
	17:00	18:00	1	0	DRLPRO	Pooh to surface with 3 1/2" cmt stinger
	18:00	18:30	0,5	0	DRLPRO	Cleaned up rig floor l/d 3 1/2" cmt assy
	18:30	19:00	0,5	0	DRLPRO	Made up 7 15/16" bull nose and rih with same to 2809 m.
	19:00	00:00	5	0	DRLPRO	Installed 9 7/8" scraper and continue to RIH.
28-jan-05	00:00	02:00	2	0	DRLPRO	Rih with 9 7/8" csg scraper. Tagged hard cement @ 3839 m with 20 ton weight down
	02:00	04:00	2	0	DRLPRO	Pressure tested cmt plug to 185 bar against UPR. Held pressure for 15 min.
	04:00	04:30	0,5	0	DRLPRO	Worked 9 7/8" casing scraper at +/- 1000 m
	04:30	07:00	2,5	0	DRLPRO	Pooh to 2809 m. Laid down 9 7/8" scraper
	07:00	12:00	5	0	DRLPRO	Pooh to surface. Laid down bull nose
	12:00	12:30	0,5	0	DRLPRO	Cleaned out rig floor
	12:30	15:30	3	0	DRLPRO	M/u EZSV and rih same to 996 m. Used active compensator through BOP
	15:30	16:00	0,5	0	DRLPRO	Set EZSV with 24 tons of OP @ 996 m. Put 10 ton of slack off on EZSV: OK
	16:00	17:30	1,5	0	DRLPRO	Pressure tested against EZSV plug to 185 bar for 15 min:good test. Displaced kill and choke lines to sea water
	17:30	21:00	3,5	0	DRLPRO	Displaced marine riser and hole above cmt plug to sea water. Observed back pressure and unbalance. Pumped extra 47,5 cm
	21:00	23:00	2	0	DRLPRO	Pooh to surface. L/d EZSV running tool
	23:00	00:00	1	0	DRLPRO	Prepared to pull LMRP.
29-jan-05	00:00	02:30	2,5	0	DRLPRO	R/u and disconnected LMRP. Moved rig 40 m off location.
	02:30	05:30	3	0	DRLPRO	Laid down diverter. Removed POD saddles. Hung off supporter ring. Pooh with slip joint.
	05:30	07:00	1,5	0	DRLPRO	Pooh with marine riser
	07:00	13:00	6	0	DRLPRO	Pulled riser to cellar deck
	13:00	21:00	8	0	DRLPRO	Skidded trolls under LMRP and landed LMRP on same. Removed K/C lines and transponder. Secured LMRP to troll, removed POD hoses. Skidded LMRP to XT-elevator. L/d double riser. R/d riser running equipment and cleaned out rig floor
	21:00	00:00	3	0	DRLPRO	R/u and laid doen #36 Ocean Vanguard 5 1/2" DP
30-jan-05	00:00	10:00	10	0	RDMO	Cont l/d Ocean Vanguard 5 1/2" DP. Total joints laid down 260.
	10:00	00:00	14	0	RDMO	Waited on weather
31-jan-05	00:00	00:00	24	0	RDMO	Waited on weather
01-feb-05	00:00	04:00	4	0	RDMO	Waited on weather
	04:00	18:30	14,5	0	RDMO	Laid down remaining 5 1/2" DP and 5" HWDP from derrick
	18:30	00:00	5,5	0	RDMO	Waited on weather
02-feb-05	00:00	00:00	24	0	RDMO	Waited on weather
03-feb-05	00:00	00:00	24	0	RDMO	Waited on weather
04-feb-05	00:00	00:00	24	0	RDMO	Waited on weather
05-feb-04	00:00	16:00	16	0	RDMO	Waited on weather
	16:00	18:30	2,5	0	RDMO	Deballasted rig to 15,3 m
	18:30	00:00	5,5	0	MIRU	Commenced anchor handling
06-feb-05	00:00	08:00	8	0	MIRU	Finished retrieving anchors operations
	08:00	00:00	16	0	MIRU	Commenced tow to Kristiansund
07-feb-05	00:00	11:30	11,5	0	MIRU	Towing rig to Arsunderfjord. Arrived on location at 11,30.
	11:30	16:30	5	0	RDMO	Offloading OV LMRP and drill pipe to Northern Challenger. Retruned Northern Challenger to Kristiansund
	16:30	00:00	7,5	0	RDMO	Continue offloading from rig to Balder Viking

ENI NORGE
Operations Summary Report

Well:	**6406/1-3**	Start: 15 January 2005
Rig Contractor	Trancocean	End: 15 February 2005
Rig name	Trancocean Arctic	Spud: N/A

DATE	FROM	TO	HRS	DEPTH	PHASE	DESCRIPTION OF OPERATIONS
08-feb-05	00:00	13:00	13	0	RDMO	Continue tank cleaning on Norther Challenger. Balder Viking sent to Kristiansund for offloading and returned to location
	13:00	21:00	8	0	RDMO	Balder Viking untwist chaind for TOA
	21:00	00:00	3	0	RDMO	Balder Viking returned to Kristiansund for cargo run
09-feb-05	00:00	09:30	9,5	0	RDMO	Balder Viking returned to Kristiansund for cargo run
	09:30	13:30	4	0	RDMO	Balder Viking contiue untwisting chains for TOA
	13:30	14:00	0,5	0	RDMO	Balder Viking relieves San Frutuoso in bridle
	14:00	22:00	8	0	RDMO	San Frutuoso to Kristiansund for crew change, return to bridle for TOA
	22:00	00:00	2	0	RDMO	Balder Viking to Kristiansund to reel up fiber mooring line for Norne Location
10-feb-05	00:00	15:00	15	0	RDMO	Waited on weather
	15:00	00:00	9	0	RDMO	Rig on towing to Norne
12-feb-05	00:00	00:00	24	0	RDMO	Rig on towing to Norne
13-feb-05	00:00	00:00	24	0	RDMO	Rig on towing to Norne
14-feb-05	00:00	00:00	24	0	RDMO	Rig on Norne
15-feb-05	00:00	00:00	24	0	RDMO	Handover rig from ENI to Statoil

3.4 Technical Information and Reports

3.4.1 Bit Record

Eni Norge

District/Affiliate Company
NORWAY-HALTENBANKEN

BIT RECORD

DATE: 01.05.2005 ARPO-05

WELL NAME 6406/1-3
FIELD NAME SKLINNA SOUTH
Cost center 4C18N100021

Run n°			1		1		1		1		1		2		1		1	
Bit n°			1		2		3		4		5		4		6		7	
Bit size [in]			17 1/2		9 7/8		26		17 1/2		17 1/2		17 1/2		12 1/4		12 1/4	
Bit manufacturer			Hughes		Hughes		Hughes		Hughes		Hughes		Hughes		Hughes		Hughes	
Bit type			Insert bit		Steel tooth		Steel tooth		Steel tooth		Insert Bit		Steel tooth		Steel tooth		PDC	
Special features codes			MXRT303D		MXC1		GTX-CMO3		MX-T1		MXC303DX		MX-T1		MX-3A		HC606	
Serial number			6018462		B18JB		6027679		6012676		6019846		6012676		ZT14DR		1904582	
IADC code			415		117		415		115		415		115		137		M323	
Depth in [m]			383		460		460		1309		1314		2507		2507		2510	
Depth out [m]			460		1309		1309		1314		2507		2507		2510		2510	
Drilled interval [m]			77		849		849		5		1193		0		3		0	
Rotation hrs			8,5		20		33		1		75,5		0		1		0	
Trip hrs			8,5		23,5		22,5		23,5		62		35		51		44,5	
R.O.P. [m/h]			8		31		25,7		5		16		0		3		0	
Average W.O.B. [t]			2		5,5		5,5				15				2			
Average R.P.M.			65		145		135				145				135			
D.H.M. R.P.M.																		
Flow rate [l/min]			1000		3600		5000				3000				3000			
St. pipe pressure [kg/cm^2]																		
D.H.M. Press. drop [kg/cm^2]																		
Bit HHP																		
HSI			0,015		7,468		51,873				63,682				15,282			
Annulus min vel. [m/min]																	16	
J	1	[1/32 in]	22		19		20				20				22		16	
E	2	[1/32 in]	22		19		20				20				22		16	
T	3	[1/32 in]	22		19		20				20				22		16	
S	4	[1/32 in]	24				14				14				14		16	
	5	[1/32 in]															16	
	C	[1/32 in]															16	
	T.F.A.	[in^2]	1,555		0,831		1,071				1,071				1,264		1,178	
B	Inner rows [I]		0		4		1				2				2		0	
I	Outher rows [O]		0		3		1				4				2		0	
T	Dull char. [D]		NO		BT		WT				BT				WT		NO	
	Location [L]		A		C		A				M				M		A	
D	Bearing/Seals [B]		0		E		E				E				E		E	
U	Gauge 1/16 [G]		I		I		I				I				I		I	
L	Other chars [O]		NO		NO		NO				LT				NO		NO	
L	Reason POOH [R]		TD		TD		TD				TD				BHA		HP	
Mud type			Sea Water		Sea Water		Sea Water				WBM				WBM		WBM	
Mud density [kg/l]			1,03		1,03		1,03				1,3				1,6		1,6	
Mud visc.											65						81	
Mud Y.P.											22				11,49		11,97	
Survey depth																		
Survey incl.																		
Bit Cost																		
Li tho lo gy	Type	%													CLAY			
B H A	Stabilizer Diameter [in]	Distance from bit [m]	26	18	26	11,4	26	10,56			17,39	2,81			12	9,9		
				30	26	23	26	22,16			17,39	10,29						
											17,39	20,67						

Currency

Pag.: 1 of: 2

Supervisor

Superintendent

Eni Norge

District/Affiliate Company

NORWAY-HALTENBANKEN

BIT RECORD

DATE: 02.05.2005 ARPO-05

WELL NAME 6406/1-3

FIELD NAME SKLINNA SOUTH

Cost center 4C18N100021

Run n°	2	2	1
Bit n°	6	7	8
Bit size [in]	12 1/4	12 1/4	8 1/2
Bit manufacturer	Hughes	Hughes	Hughes
Bit type	Steel Tooth	PDC	PDC
Special features codes	MX-3A	HC606	HCR607
Serial number	ZT14DR	1904582	1201901
IADC code	137	M323	M223
Depth in [m]	2510	2512	4130
Depth out [m]	2512	4130	4276
Drilled interval [m]	2	1618	146
Rotation hrs	7	111	25
Trip hrs	20,5	99	80
R.O.P. [m/h]	0,3	14,83	5,84
Average W.O.B. [t]	5	5	10
Average R.P.M.	110	130	115
D.H.M. R.P.M.			
Flow rate [l/min]	2100	2500	1700
St. pipe pressure [kg/cm^2]			
D.H.M. Press. drop [kg/cm^2]			
Bit HHP			
HSI	12	37,632	59,991
Annulus min vel. [m/min]			
JETS 1 [1/32 in]	22	16	13
JETS 2 [1/32 in]	22	16	13
JETS 3 [1/32 in]	22	16	13
JETS 4 [1/32 in]	14	16	13
JETS 5 [1/32 in]		16	13
JETS C [1/32 in]		16	13
T.F.A. [in^2]	1,264	1,178	0,907
BIT DULL Inner rows [I]	2	1	
Outher rows [O]	3	2	
Dull char. [D]	RG	WT	
Location [L]	G	A	
Bearing/Seals [B]	E	D	
Gauge 1/16 [G]	I	I	
Other chars [O]	CD	BT	
Reason POOH [R]	BHA	TD	
Mud type	OBM	OBM	OBM
Mud density [kg/l]	1,7	1,7	1,93
Mud visc.	60	57	73
Mud Y.P.	11	13	9,58
Survey depth			
Survey incl.			
Bit Cost			

Lithology Type	%					
		CLAY		Sandstone		Sandstone
				Claystone		Claystone

BHA Stabilizer Diameter [in]	Distance from bit [m]					
		12	8,72	12,25	0,39	8,5	1,15
		12	21,42	12,25	15,38	8,5	70,07
				12,25	32,65		

Currency

Pag.: 2 of: 2

Supervisor

Superintendent

3.4.2 BHA Record

	BHA No	Bit No	Date in	Date out	Depth in	Depth out
Drill 36" hole	**1**	**1**	**16.okt.04**	**17.okt.04**	**383 m**	**459,6 m**
Description	**Number**	**OD** (inches)	**ID** (inches)	**Length** (m)	**Weight** (lbs/ft)	**Connection**
Bit	1	17 1/2"	2,81	0,41		7 5/8 R
Pony Collar	1	9,50	3,00	2,54		7 5/8 R
17 1/2"x36" Dual Stage Hole Opener	1	36,00	3,00	3,96		7 5/8 R
Float sub	1	9,50	3,00	0,81		7 5/8 R
X-O	1	9,50	3,00	0,61		7 5/8 R pin x 6 5/8 R box
LWD	1	9,50	2,81	9,15		6 5/8 R
X-O	1	9,50	3,00	0,80		6 5/8 R pin x 7 5/8 R box
NMS	1	26,00	3,00	2,68		7 5/8 R
NMDC	1	9,50	3,00	8,92		7 5/8 R
String Stab	1	26,00	3,00	2,40		7 5/8 R
DC	3	9,50	3,00	27,79	217,2	7 5/8 R
X-O	1	9,30	3,00	1,28		7 5/8 R pin x 6 5/8 R box
DC	4	7,88	2,81	37,32	139,4	6 5/8 R
DC	8	8,00	3,00	72,86	149,9	6 5/8 R
Jar	1	8,00	2,75	9,58		6 5/8 R
DC	2	8,00	3,00	18,15	149,9	6 5/8 R
Accelerator	1	8,00	2,75	10,93		6 5/8 R
DC	2	8,00	3,00	18,00	149,9	6 5/8 R
X-O	1	7,50	2,75	1,10		6 5/8 R pin x 5 1/2 FH box
HWDP	12	5,50	3,00	115,22		
			Total length	**344,51**		

	BHA No	Bit No	Date in	Date out	Depth in	Depth out
Drill 9 7/8" pilot hole	**2**	**2**	**18.okt.04**	**20.okt.04**	**459,6 m**	**1309 m**
Description	**Number**	**OD** (inches)	**ID** (inches)	**Length** (m)	**Weight** (lbs/ft)	**Connection**
Bit	1	9,88	2,81	0,26		6 5/8 R
Bit Sub	1	8,00	2,81	0,61	149,9	6 5/8 R
XO	1	7,69	2,50	0,44		6 5/8 pin x 5 1/2 box
LWD	3	8,00	2,81	27,04		5 1/2 R
XO	1	7,69	2,50	0,44		5 1/2 R pin x 6 5/8 R box
NMDC	1	8,00	2,81	8,39		6 5/8 R
DC	3	7,87	2,81	28,05		6 5/8 R
DC	2	8,00	3,00	17,75		6 5/8 R
Jar	1	7,87	2,81	9,58		6 5/8 R
DC	2	7,87	2,81	18,15		6 5/8 R
Accelerator	1	7,87	2,81	10,93		6 5/8 R
DC	3	7,87	2,81	27,37		6 5/8 R
XO	1	7,50	2,75	1,11		6 5/8 R pin x 5 1/2 FH box
HWDP	12	5,50	3,00	115,22		5 1/2 FH
		5,00	4,25			
			Total length	**265,34**		

	BHA No	Bit No	Date in	Date out	Depth in	Depth out
Open 9 7/8" pilot hole to 26"	**3**	**3**	**20.okt.04**	**23.okt.04**	**459,6 m**	**1309 m**
Description	**Number**	**OD** (inches)	**ID** (inches)	**Length** (m)	**Weight** (lbs/ft)	**Connection**
Bit	1	26,00	2,81	0,57		7 5/8 R
Bit Sub	1	9,50	3,13	0,81		7 5/8 R
X-O	1	9,50	3,00	0,61	133,6	7 5/8 R pin x 6 5/8 R box
MWD	1	9,50	3,25	9,15	203,6	6 5/8 R pin x 7 5/8 R box
X-O	1	9,50	3,00	0,80		7 5/8 R pin x 6 5/8 R box
NMSTAB	1	26,00	3,00	2,68		7 5/8 R
NMDC	1	9,50	3,00	8,62	217,2	7 5/8 R
SSTAB	1	26,00	3,00	2,40		7 5/8 R
Drill Collar	3	9,50	3,00	27,69	217,2	7 5/8 R
X-O	1	9,50	3,00	1,28		7 5/8 R pin x 6 5/8 R box
DC	2	8,00	3,00	17,75	139,4	6 5/8 R
Jar	1	7,75	3,06	9,58	154,4	6 5/8 R
DC	5	8,00	3,00	46,18	149,9	6 5/8 R
Accelerator	1	7,75	2,81	10,93	149,9	6 5/8 R
DC	6	8,00	3,00	55,48	139,4	6 5/8 R
X-O	1	9,50	3,00	1,10		6 5/8 R pin x 7 5/8 R box
H.W.D.P.	15	5,50	3,00	115,22		5 1/2 IF
			Total length	**310,85**		

	BHA No	Bit No	Date in	Date out	Depth in	Depth out
17 1/2" Junk mill	**4**	**4**	**27.okt.04**	**29.okt.04**	**1309 m**	**1314 m**
Description	**Number**	**OD** (inches)	**ID** (inches)	**Length** (m)	**Weight** (lbs/ft)	**Connection**
Bit	1	17,50	2,81	0,41		7 5/8 R
Bit Sub	1	9,63	3,00	1,62		7 5/8 R
X-O	1	8,00	3,00	1,28		7 5/8 R pin x 6 5/8 R box
DC	8	8,00	3,00	73,15		6 5/8 R
Jar	1	7,75	3,06	9,58		6 5/8 R
DC	2	8,00	3,00	18,15		6 5/8 R
Accelerator	1	7,75	2,81	10,93		6 5/8 R
DC	3	8,00	3,00	28,11		6 5/8 R
X-O	1	8,00	3,00	1,11		6 5/8 pin x 5 1/2 R box
H.W.D.P.	12	5,50	3,00	111,62		5 1/2 R
			Total length	**255,96**		

	BHA No	Bit No	Date in	Date out	Depth in	Depth out
Drill 17 1/2" hole	**5**	**5**	**29.okt.04**	**04.nov.04**	**1314 m**	**2507 m**
Description	**Number**	**OD** (inches)	**ID** (inches)	**Length** (m)	**Weight** (lbs/ft)	**Connection**
Bit	1	17,50	2,81	0,41		7 5/8 R
Stab (NB)	1	9,50	3,00	2,56		7 5/8 R
X-O	1	9,50	3,00	1,00		7 5/8 R pin x 5 1/2 IF box
LWD	1	8,00	3,00	7,70		5 1/2 IF
Stab	1	17,50	3,00	1,57		5 1/2 IF
LWD	1	8,00	3,00	9,00		5 1/2 IF
Stab	1	17,50	3,00	1,57		5 1/2 IF
MWD	1	8,00	3,00	9,14		5 1/2 IF
NM XO	1	8,00	3,00	1,00		5 1/2 IF pin x 6 5/8 R box
NM Stab	1	17,50	3,00	2,40		6 5/8 R
NM DC	1	8,00	2,81	9,50		6 5/8 R
DC	8	8,00	3,00	73,15		6 5/8 R
Jar	1	7,75	3,00	9,58		6 5/8 R
DC	2	8,00	3,00	18,15		6 5/8 R
Accelerator	1	7,75	3,50	10,93		6 5/8 R
DC	3	8,00	3,00	27,11		6 5/8 R
X-O	1	8,00	3,00	1,00		6 5/8 R pin x 5 1/2 FH box
H.W.D.P.	12	115,22	5,50	3,63		5 1/2 FH box
			Total length	**189,40**		

	BHA No	Bit No	Date in	Date out	Depth in	Depth out
17 1/2" Junk mill	**6**	**6**	**06.nov.04**	**08.nov.04**	**2508**	**2508**
Description	**Number**	**OD** (inches)	**ID** (inches)	**Length** (m)	**Weight** (lbs/ft)	**Connection**
Bit	1	17,50	2,81	0,41		7 5/8 R
Bit Sub	1	9,63	313,00	1,62		7 5/8 R
X-O	1	8,00	3,00	1,28		7 5/8 R pin x 6 5/8 R box
DC	1	8,00	3,00	8,50		6 5/8 R
Stab	1	17,50	3,00	1,76		6 5/8 R
DC	8	8,00	3,00	73,15		6 5/8 R
Jar	1	7,75	3,06	9,58		6 5/8 R
DC	2	8,00	3,00	18,15		6 5/8 R
Accelerator	1	7,75	2,81	10,93		6 5/8 R
DC	3	8,00	3,00	28,11		6 5/8 R
X-O	1	8,00	3,00	1,11		6 5/8 pin x 5 1/2 R box
H.W.D.P.	12	5,50	3,00	111,62		5 1/2 R
			Total length	**266,22**		

	BHA No	Bit No	Date in	Date out	Depth in	Depth out
12 1/4" Junk mill	**7**	**7**	**11.nov.04**	**13.nov.04**	**2507**	**2510**
Description	**Number**	**OD** (inches)	**ID** (inches)	**Length** (m)	**Weight** (lbs/ft)	**Connection**
Bit	1	12,25	2,81	0,35		6 5/8 R
Bit Sub	1	8,00	2,81	1,01		6 5/8 R
DC	1	8,00	2,81	8,89		6 5/8 R
Near Bit Stab	1	8,00	3,00	1,89		6 5/8 R
DC	8	8,00	3,00	73,15		6 5/8 R
Jar	1	8,00	2,81	9,78		6 5/8 R
DC	2	8,00	3,00	18,15		6 5/8 R
Accelerator	1	8,00	3,00	10,97		6 5/8 R
DC	3	8,00	3,00	28,11		6 5/8 R
X-O	1	8,00	3,00	1,11		6 5/8 pin x 5 1/2 R box
H.W.D.P.	12	5,50	3,00	115,22		5 1/2 R pin
			Total length	**268,63**		

	BHA No	Bit No	Date in	Date out	Depth in	Depth out
12 1/4" Hole	**8**	**8**	**13.nov.04**	**15.nov.04**	**2510**	**2510**
Description	**Number**	**OD** (inches)	**ID** (inches)	**Length** (m)	**Weight** (lbs/ft)	**Connection**
PDC Bit	1	12,25	2,81	0,39		6 5/8 R
Near Bit Sub	1	12,25	3,00	0,95		6 5/8 R pin x 5 1/2" IF box
CWRG	1	12,25	2,81	7,70		5 1/2 IF
DNSC	1	12,13	2,81	7,20		5 1/2 IF
S Stab	1	12,25	2,81	2,00		5 1/2 IF
LWD	1	8,00	3,00	23,56		5 1/2 IF
MWD	1	8,00	3,00	11,38		5 1/2 IF
NM X-O	1	8,00	3,00	0,50		5 1/2 IF box x 6 5/8 R pin
NM S Stab	1	12 ,25	2,81	1,89		6 5/8 R
DC	5	8,00	3,00	45,48		6 5/8 R
Jar	1	8,00	2,81	9,78		6 5/8 R
DC	2	7,625	2,81	18,15		6 5/8 R
Accelerator	1	7,625	2,81	10,97		6 5/8 R
DC	2	5,50	2,81	18,67		6 5/8 R
			Total length	**158,62**		

Purpose	BHA No	Bit No	Date in	Date out	Depth in	Depth out
12 1/4" Junk mill	**9**	**9**	**16.nov.04**	**19.nov.04**	**2510**	**2512**
Description	**Number**	**OD** (inches)	**ID** (inches)	**Length** (m)	**Weight** (lbs/ft)	**Connection**
Junk Bit	1	12,25	2,81	0,35		6 5/8 R
Bent sub	1	12,00	3,00	8,72		6 5/8 R
NB	1	12,25	3,00	1,98		6 5/8 R
X-O FS	1	8,00	3,00	0,89		6 5/8 R pin x 5 1/2 IF box
MWD	1	8,00	4,25	9,91		5 1/2 IF
NM Stab	1	12,25	3,00	1,89		5 1/2 IF
NMDC	1	8,00	3,00	31,81		5 1/2 IF
NM X-O	1	8,00	3,00	0,89		5 1/2 IF pin x 6 5/8 R box
DC	8	8,00	3,00	73,89		6 5/8 R
Jar	1	8,00	2,81	9,78		6 5/8 R
DC	2	7,63	3,00	18,15		6 5/8 R
Accelerator	1	7,63	3,00	10,97		6 5/8 R
DC	2	5,50	3,00	18,67		6 5/8 R
X-O	1	5,50	2,81	0,81		6 5/8 R pin x 5 1/2 R box
HWDP	12	5,50	2,81	279,60		5 1/2 R box
			Total length	**468,31**		

	BHA No	Bit No	Date in	Date out	Depth in	Depth out
12 1/4" Hole	**10**	**8**	**20.nov.04**	**29.nov.04**	**2512**	**4130**
Description	**Number**	**OD** (inches)	**ID** (inches)	**Length** (m)	**Weight** (lbs/ft)	**Connection**
PDC Bit	1	12,25	2,81	0,39		6 5/8 R
Near Bit Sub	1	12,25	3,00	0,95		6 5/8 R pin x 5 1/2" IF box
CWRG	1	12,25	2,81	7,70		5 1/2 IF
DNSC	1	12,13	2,81	7,20		5 1/2 IF
S Stab	1	12,25	2,81	2,00		5 1/2 IF
LWD	1	8,00	3,00	23,56		5 1/2 IF
MWD	1	8,00	3,00	11,38		5 1/2 IF
NM X-O	1	8,00	3,00	0,50		5 1/2 IF box x 6 5/8 R pin
NM S Stab	1	12 ,25	2,81	1,89		6 5/8 R
DC	5	8,00	3,00	45,48		6 5/8 R
Jar	1	8,00	2,81	9,78		6 5/8 R
DC	2	7,625	2,81	18,15		6 5/8 R
Accelerator	1	7,625	2,81	10,97		6 5/8 R
DC	2	5,50	2,81	18,67		6 5/8 R
			Total length	**158,62**		

Purpose	BHA No	Bit No	Date in	Date out	Depth in	Depth out
Drill 8 1/2" hole	**11**	**10**	**11.des.04**	**26.jan.05**	**4130**	**4276**
Description	**Number**	**OD** (inches)	**ID** (inches)	**Length** (m)	**Weight** (lbs/ft)	**Connection**
PDC bit	1	8,50		0,30		4 1/2 R pin
Stab (NB) 8 1/2" FG w/Float	1	8,50	3,00	1,05		4 1/2 R box x 4 1/2 IFbox
NM Cross Over /Float Sub	1	6,75	3,00	0,50		4 1/2 IF pin x 5 1/2 FHB box
NM Data Link w/String Stab. Sleeve	1	8,50	3,00	1,50		5 1/2 R
MWD	1	6,75	3,00	7,70		5 1/2 R
HDS Directional	1	6,75	3,00	9,50		5 1/2 R
NM XO	1	6,75	3,50	0,50		5 1/2 R pin x 4 1/2 IF box
Non Mag. String Stabilizer (8 1/2")	1	8,50	3,00	1,50		4 1/2 IF
NMDC	1	6,50	3,50	9,50		4 1/2 IF
H.W.D.P.	12	5,00	3,25	112,00		4 1/2 IF
Jar	1	6,75	2,75	9,00		4 1/2 IF
H.W.D.P.	6	5,00	3,00	56,00		4 1/2 IF
Accelerator	1	6,50	2,75	9,00		4 1/2 IF
H.W.D.P.	6	5,00	3,50	56,00		4 1/2 IF
XO	1	5,50	3,50	1,00		4 1/2 IF pin x 5 1/2 FHB box
Drill Pipe		5,50	4,25			
			Total length	**275,05**		

3.4.3 Casing Data Summary

OD	30"	20"	13 3/8”	9 7/8"
WEIGHT (PPF)	310	129,3	72	62.8
GRADE	X-52	X-56	P-110	P-110
CONNECTION	ST-2	RL-4S	Antares MS	Antares MS
PIPE ID (IN)	28	18.73	12.347	8.625
PIPE DRIFT (IN)	27.813	18.543	12.25	8.469
CONN. OD (IN)	33	21.5	14.374	10.827
CONN. ID (IN)	28	18.63	12.559	9.102
BURST (bar)		211	510	994
BURST Design	N/A	125.4	348.8	642.4
BURST SF	N/A	1.68	1.46	1.55
COLLAPSE (bar)	N/A	100	199	709
COLLAPSE Design	N/A	76.5	150.1	372.7
COLLAPSE SF	N/A	1.68	1.25	1.78
TENSION (MT)		964	1036	906
TENSION Design	45	505.2	290.1	346.6
TENSION SF		1.91	3.57	2.61
CASING TOP (m)	2 m above seabed	2.8 m above seabed	Approx. 2 m above seabed	Approx. 2 m above seabed
CASING BTM. (m)	455	1297	2312	4119
CASING LENGTH (m)	76	919	1933	3740

3.4.3.1 30”ConductorPipe

Eni Norge

NORWAY-HALTENBANKEN

CASING REPORT

DATE: 18.10.2004 **4.DRL.FO.03A**

WELL NAME 6406/1-3

FIELD NAME SKLINNA

Cost center 4C18N100021

Operation type	Casing type	Conductor CSG	Ø [in]	30	Top [m]	381	Bottom [m]	455

Well Situation	Ø [in]	Measured Depth Top [m]	Measured Depth Bottom [m]	Vertical depth Top [m]	Vertical depth Bottom [m]	Capacity [l/m]	From log (y/n)
Open Hole	36	455	459,6	455	459,6	656,7	N
Last Casing							

K.O.P. [m]	
Max. Inclination [°]	
at m	
D.O.P. [m]	

Casing Profile

Ø [in]	Weight [lb/ft]	Steel Grade	Thread Type	M.U. Torque	Total Joints	From [m]	To [m]	S.D.	S.C.	Note
30	310	X-52	ST2 SQUNCH		5	381	455	N	N	

Casing Equipment

Type	Manufacturer	Model	at m	Note
Shoe	WEATHERFORD		442,6	
Collar				

Centralizers

Type	Top [m]	Bottom [m]

Centralizers	Manufactured		Type		n°
			Type		n°
Scratchers	Manufactured		Type		n°
Stop collars	Manufactured		Type		n°

Circulation	Flow rate [l/min]	Pressure [kg/cm^2]	Flow rate [l/min]	Pressure [kg/cm^2]	Flow rate [l/min]	Pressure [kg/cm^2]	Flow rate [l/min]	Pressure [kg/cm^2]	Flow rate [l/min]	Pressure [kg/cm^2]
Circulation test (after 6 joints)										
Circulation at bottom										

Casing Reciprocation	Reciprocation:	W.O.H. up [t]		W.O.H. down [t]		
	Rotation:	W.O.H. up [t]		W.O.H. down [t]		Torque

Conductor pipe

Guide Shoe (y/n)	RKB-MudLine/Ground Level dist. [m]	Total Penetration [m]
Connector Type	Free fall [m]	Shoe [m]
Pile Hammer type	Internal Wash. From m to m	Final refusal [Strk/m] [mm/strk]

Soil/Seabed characteristics

Remarks:

Supervisor	Superintendent
G. Jerichevich - J. Hansen	R. Kennedy

Eni Norge

CASING REPORT

WELL NAME 6406/1-3

FIELD NAME SKLINNA

DATE: 18.10.2004 **4.DRL.FO.03B**

Cost center 4C18N100021

Operation type Casing type Conductor CSG Ø [in] 30 Top [m] 381 Bottom [m] 455

Tally N°	Length [m]	Progress. [m]	centr. (N°)	Tally N°	Length [m]	Progress. [m]	centr. (N°)	Tally N°	Length [m]	Progress. [m]	centr. (N°)
WH Joint	13,15	13,15									
4 Joints	48,9	62,05									
Shoe joint	12,39	74,44									

Remarks:

Supervisor: G. Jerichevich - J. Hansen

Superintendent: R. Kennedy

3.4.3.2 20" Casing

Eni Norge

GROUP

NORWAY-HALTENBANKEN

CASING REPORT

DATE: 25.10.2004 **4.DRL.FO.03A**

WELL NAME 6406/1-3

FIELD NAME SKLINNA

Cost center 4C18N100021

Operation type	Casing type	Surface CSG	Ø [in]	20	Top [m]	380	Bottom [m]	1297

Well Situation	Ø [in]	Measured Depth Top [m]	Measured Depth Bottom [m]	Vertical depth Top [m]	Vertical depth Bottom [m]	Capacity [l/m]	From log (y/n)
Open Hole	26	1297	1309	1297	1309	342,5	N
Last Casing	30	381	455	381	455	456	

K.O.P. [m]	
Max. Inclination [°]	
at m	
D.O.P. [m]	

Casing Profile

Ø [in]	Weight [lb/ft]	Steel Grade	Thread Type	M.U. Torque	Total Joints	From [m]	To [m]	S.D.	S.C.	Note
20	133	X-56	RL-4S		78	380	1297	N	N	

Casing Equipment

Type	Manufacturer	Model	at m	Note
Shoe	WEATHERFORD		1297	
Collar	WEATHERFORD		1285	

Centralizers

Type	Top [m]	Bottom [m]
NW-STA4	1249	1297

Centralizers	Manufactured	WEATHERFORD	Type	NW-STA4	n° 5
			Type		n°
Scratchers	Manufactured		Type		n°
Stop collars	Manufactured		Type		n°

Circulation	Flow rate [l/min]	Pressure [kg/cm^2]	Flow rate [l/min]	Pressure [kg/cm^2]	Flow rate [l/min]	Pressure [kg/cm^2]	Flow rate [l/min]	Pressure [kg/cm^2]	Flow rate [l/min]	Pressure [kg/cm^2]
Circulation test (after 6 joints)										
Circulation at bottom										

Casing Reciprocation					
Reciprocation:	W.O.H. up [t]		W.O.H. down [t]		
Rotation:	W.O.H. up [t]		W.O.H. down [t]		Torque

Conductor pipe

Guide Shoe (y/n)	RKB-MudLine/Ground Level dist. [m]	Total Penetration [m]
Connector Type	Free fall [m]	Shoe [m]
Pile Hammer type	Internal Wash. From m to m	Final refusal [Strk/m] [mm/strk]

Soil/Seabed characteristics

Remarks:

Supervisor	Superintendent
D. Ferkinstad - J. Hansen	R. Kennedy

Eni Norge

CASING REPORT

DATE: 25.10.2004 **4.DRL.FO.03B**

WELL NAME 6406/1-3

FIELD NAME SKLINNA

Cost center 4C18N100021

Operation type Casing type Surface CSG Ø [in] 20 Top [m] 380 Bottom [m] 1297

Tally N°	Length [m]	Progress. [m]	centr. (N°)	Tally N°	Length [m]	Progress. [m]	centr. (N°)	Tally N°	Length [m]	Progress. [m]	centr. (N°)
HGR joint	9,45	9,45									
73 joints	879,03	888,48	3								
Float joint	15,02	903,5	1								
Shoe	12,36	915,86	1								

Remarks:

Supervisor: D. Ferkinstad - J. Hansen

Superintendent: R. Kennedy

3.4.3.3 13 3/8" Casing

Eni Norge

GROUP

NORWAY-HALTENBANKEN

CASING REPORT

DATE: 11.09.2004 **4.DRL.FO.03A**

WELL NAME 6406/1-3

FIELD NAME SKLINNA

Cost center 4C18N100021

Operation type	Casing type	Intermediate CSG	Ø [in]	13 3/8	Top [m]	381	Bottom [m]	2312

Well Situation	Ø [in]	Measured Depth Top [m]	Measured Depth Bottom [m]	Vertical depth Top [m]	Vertical depth Bottom [m]	Capacity [l/m]	From log (y/n)	K.O.P. [m]	
Open Hole	17,5	2312	2507	2312	2507	90,64	N	Max. Inclination [°]	
								at m	
Last Casing	20	380	1297	380	1297	202,7		D.O.P. [m]	

Casing Profile

Ø [in]	Weight [lb/ft]	Steel Grade	Thread Type	M.U. Torque	Total Joints	From [m]	To [m]	S.D.	S.C.	Note
13,375	72	P110	ANTARES MS		154	381	2312	N	N	

Casing Equipment

Type	Manufacturer	Model	at m	Note
Shoe	WEATHERFORD		2312	
Collar	WEATHERFORD		2269	

Centralizers

Type	Top [m]	Bottom [m]
NW-PO8	877	916
NW-STA3	2205	2507

Centralizers	Manufactured	WEATHERFORD	Type	NW-STA3	n°	8
		WEATHERFORD	Type	NW-PO8	n°	3
Scratchers	Manufactured		Type		n°	
Stop collars	Manufactured		Type		n°	

Circulation	Flow rate [l/min]	Pressure [kg/cm^2]	Flow rate [l/min]	Pressure [kg/cm^2]	Flow rate [l/min]	Pressure [kg/cm^2]	Flow rate [l/min]	Pressure [kg/cm^2]	Flow rate [l/min]	Pressure [kg/cm^2]
Circulation test (after 6 joints)										
Circulation at bottom										

Casing Reciprocation						
	Reciprocation:	W.O.H. up [t]		W.O.H. down [t]		
	Rotation:	W.O.H. up [t]		W.O.H. down [t]		Torque

Conductor pipe

Guide Shoe (y/n)	RKB-MudLine/Ground Level dist. [m]	Total Penetration [m]
Connector Type	Free fall [m]	Shoe [m]
Pile Hammer type	Internal Wash. From m to m	Final refusal [Strk/m] [mm/strk]

Soil/Seabed characteristics

Remarks:

Supervisor	Superintendent
G. Jerichevich - J. Hansen	R. Kennedy

Eni Norge

CASING REPORT

DATE: 09.11.2004 **4.DRL.FO.03B**

WELL NAME 6406/1-3

FIELD NAME SKLINNA

Cost center 4C18N100021

Operation type | Casing type Intermediate CSG | Ø [in] 13 3/8 | Top [m] 381 | Bottom [m] 2312

Tally N°	Length [m]	Progress. [m]	centr. (N°)	Tally N°	Length [m]	Progress. [m]	centr. (N°)	Tally N°	Length [m]	Progress. [m]	centr. (N°)
HGR Joint	4,34	4,34									
149 Joints	1882,75	1887,09	8								
Float Collar	12,932	1900,022	1								
1 Joint	16,799	1916,821	1								
Shoe	13,58	1930,401	1								

Remarks:

Supervisor: G. Jerichevich - J. Hansen

Superintendent: R. Kennedy

3.4.3.4 97/8”Casing

Eni Norge

NORWAY-HALTENBANKEN

CASING REPORT

DATE: 01.12.2004 **4.DRL.FO.03A**

WELL NAME 6406/1-3

FIELD NAME SKLINNA

Cost center 4C18N100021

Operation type	Casing type	Production CSG	Ø [in]	9 7/8	Top [m]	381	Bottom [m]	4119

Well Situation	Ø [in]	Measured Depth Top [m]	Measured Depth Bottom [m]	Vertical depth Top [m]	Vertical depth Bottom [m]	Capacity [l/m]	From log (y/n)
Open Hole	12,25	4119	4130	4119	4130	76,04	N
Last Casing	13,375	381	2312	381	2312	90,64	

K.O.P.	[m]		
Max. Inclination	[°]		
	at m		
D.O.P.	[m]		

Casing Profile

Ø [in]	Weight [lb/ft]	Steel Grade	Thread Type	M.U. Torque	Total Joints	From [m]	To [m]	S.D.	S.C.	Note
9,875	62,8	P110	ANTARES MS		303	381	4119	N	N	

Casing Equipment

Type	Manufacturer	Model	at m	Note
Shoe	WEATHERFORD		4119	
Collar	WEATHERFORD		4090	

Centralizers

Type	Top [m]	Bottom [m]
NW-STA2	4015	4119
NW-STA2	2274	2312

Centralizers	Manufactured	WEATHERFORD	Type	NW-STA2	n°	11
			Type		n°	
Scratchers	Manufactured		Type		n°	
Stop collars	Manufactured		Type		n°	

Circulation	Flow rate [l/min]	Pressure [kg/cm^2]	Flow rate [l/min]	Pressure [kg/cm^2]	Flow rate [l/min]	Pressure [kg/cm^2]	Flow rate [l/min]	Pressure [kg/cm^2]	Flow rate [l/min]	Pressure [kg/cm^2]
Circulation test (after 6 joints)										
Circulation at bottom										

Casing Reciprocation	Reciprocation:	W.O.H. up [t]		W.O.H. down [t]			
	Rotation:	W.O.H. up [t]		W.O.H. down [t]		Torque	

Conductor pipe

Guide Shoe (y/n)	RKB-MudLine/Ground Level dist. [m]	Total Penetration [m]
Connector Type	Free fall [m]	Shoe [m]
Pile Hammer type	Internal Wash. From m to m	Final refusal [Strk/m] [mm/strk]

Soil/Seabed characteristics

Remarks:

Supervisor	Superintendent
D. Ferkinstad - J. Hansen	R. Kennedy

Eni Norge

CASING REPORT

DATE: 01.12.2005 **4.DRL.FO.03B**

WELL NAME 6406/1-3

FIELD NAME SKLINNA

Cost center 4C18N100021

Operation type Casing type Production CSG Ø [in] 9 7/8 Top [m] 381 Bottom [m] 4119

Tally N°	Length [m]	Progress. [m]	centr. (N°)	Tally N°	Length [m]	Progress. [m]	centr. (N°)	Tally N°	Length [m]	Progress. [m]	centr. (N°)
HGR Joint	3,9	3,9									
298 joints	3692,5	3696,4	8								
Float joint	12,49	3708,89	1								
1 joint	15,85	3724,74	1								
Shoe	12,9	3737,64	1								

Remarks:

Supervisor	Superintendent
D. Ferkinstad - G. Jaffray	R. Kennedy

3.4.4 Leak-Off Test Results

In well 6406/1-3 the following Leak-Off Tests (LOT) and Formation Integrity Tests (FIT) were done:

1. After drilling out of the 20" shoe set at 1297 m a LOT was carried out in the 17 ½" hole below the 20" shoe to an equivalent mud weight of 1.52 sg.
   The test was done with a pill of 12 cm Performadrill water based mud across the shoe at 1,28 sg and sea water above at a drilling depth of 1314 m.

2. 62 hours after the first LOT has been done in the 17 ½" hole a FIT was carried out to an equivalent mud weight of 1.56 sg.
   The test was done with 1.50 sg Performadrill water based mud at a drilled depth of 2056 m.

3. After drilling out of the 13 3/8" shoe set at 2312 m a FIT was carried out in the 12 ¼" hole below the 13 3/8" shoe to an equivalent mud weight of 1.85 sg.
   The test was done with 1.53 sg Performadrill water base mud at a drilled depth of 2312 m.

4. 22 hours after the first FIT has been done in the 12 ¼" hole a FIT was carried out to an equivalent mud weight of 1.87 sg.
   The test was done with 1.60 sg Performadrill water based mud at a drilled depth of 2510 m.

4. After drilling out of the 9 7/8" shoe set at 4119 m a LOT was carried out in the 8 1/2" hole below the 9 7/8" shoe to an equivalent mud weight of 2.14 sg.
   The test was done with 1.90 sg oil based mud at a drilled depth of 4135 m.

3.4.5 Cementing Reports

3.4.5.1 30" Conductor

Eni Norge

GROUP

District/Affiliate Company
NORWAY-HALTENBANKEN

CEMENTING JOB REPORT

DATE: 18.10.2004 ARPO-04 / A

WELL NAME 6406/1-3
FIELD NAME SKLINNA SOUTH
Cost center 4C18N100021

Operation Purpose: CONDUCTOR SUPPORT

Operation Type	Measured Depth Top [m]	Measured Depth Bottom [m]	Vertical Depth Top [m]	Vertical Depth Bottom [m]	Casing Type	Ø [in]	Weight lb/ft	Stage [N°]
Cementing	383	455	383	455	CONDUCTOR CASING	30	310	1
Plug					N°	Of:		
Squeeze					N°			

Well Situation	Ø [in]	Measured Depth Top [m]	Measured Depth Bottom [m]	Vertical depth Top [m]	Vertical depth Bottom [m]	Capacity [lt/m]	From log [y/n]
Open Hole	36	455	460	455	460	656,7	N
Last Casing							

KOP [m]
Max. Inclination [°]
at m
D.O.P. [m]

Perforation Top [m]	Perforation Bottom[m]

Gradient [Kg/cm²/10m]	Below shoe	Bottom hole
Pore Gradient	1,02	1,02
Fracture Gradient	1,18	1,18
Abnormal [kg/cm²/10m]	at m:	
Abnormal [kg/cm²/10m]	at m:	

Pressure [kg/cm²]
Fracture at bottom 54
Hydrostatic increase w/slurry 52
Annular Fracture Margin -2
Margin during W.O.C. 0

B.H.S.T. [°C] 7
at m 460
From log [y/n] n
After [hr]
B.H.C.T. [°C] 7

Mud Type	Density [kg/l]	Visc.[sec]	PV [cP]	Y. P.	Gel 10"/10'[g/100cmq]		Water loss [cc]	pH / ES	Cl- [g/l]
Seawater	1,03	0	0	0	0	0			

Fluid	Type	600	300	200	100	6	3	Density [kg/l]	Vol.[m3]	h annulus [m]	Cont. Time [min]
Lead											
Tail											
Lead Slurry			45	38	35	26	16	1,56	35	Mixing water Cl- [g/l]	
Tail Slurry			63	46	32	14	12	1,92	13	Water Temperature [°C]	

1st Slurry Mixing Date & hour	Preparation Method	Duration [min]	Pumping time [min]	Pumping time at [°C]	w/c ratio	Cement Type	Quantity [t]
18/10/2004 07:30	Batch	55	41	7		G-CEMENT	42

Additives	Quantity	u.m.	%	Additives	Quantity	u.m.	%	Dry blended Type
NF-6	36	L						Density [kg/l]
ECONOLITE-L	1138	L						Quantity [ton]
								Ratio

2nd Slurry Mixing Date & hour	Preparation Method	Duration [min]	Pumping time [min]	Pumping time at [°C]	w/c ratio	Cement Type	Quantity [t]
18/10/2004 08:30		40	10	7		G-CEMENT	

Additives	Quantity	u.m.	%	Additives	Quantity	u.m.	%	Dry blended Type
NF-6	28	L						Density [kg/l]
CaCl2	1215	L						Quantity [ton]
								Ratio

Cementing Company Halliburton Operation Ticket N°

Operation Results Positive
Theoretical TOC 383 [m]
Actual TOC 383 [m]

Plug tested with [t]
Plug milled at [m]
Plug removed [y / n]

Record (y / n)
Volume y Pression y
Flow rate y Density y

Remarks

Supervisor
G. Jerichevich - J. Hansen

Superintendent
R. Kennedy

Eni Norge

District/Affiliate Company
NORWAY-HALTENBANKEN

CEMENTING JOB REPORT

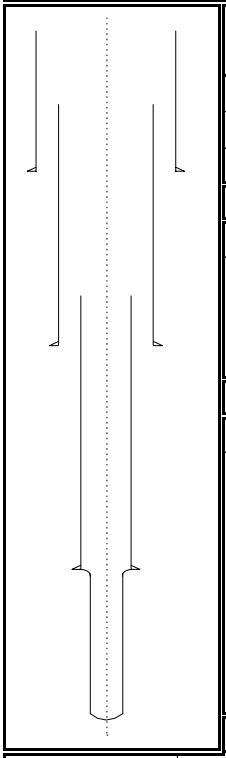
DATE: 18.10.2004 ARPO-04 / B

WELL NAME 6406/1-3
FIELD NAME SKLINNA SOUTH
Cost center 4C18N100021

Operation type: Cementation | Ø [in]: 30 | Stage / No.:

SQUEEZE / PLUG

Type	Ø	Length [m]	Cap.[l/m]	Bottom [m]	Cement retainer / Squeeze packer	Manufacturer	Model / Type	Ø [inch]	Depth [m]



Injectivity Test with:

Test	[kg/cm^2]	[mins]
Stinger Pressure test		
Annular pressure		

Pump Rate [l/min]	Testing Pr. [kg/cm^2]	Tot. Vol. pumped [l]	Final Sqz Pr. [kg/cm^2]	Returns Vol [l]

CEMENTATION

Operation (y/n)			
Casing Reciprocation		Bump Plug	
Casing Rotation		Valve holding	
Inner string	y		

	[kg/cm^2]	[mins]
Casing testing pressure		
Annulus pressurization		

GENERAL DATA

Slurry Displacement

With: Cementing unit pumps
Fluid type: Seawater
Volume: 9 [m^3]
Density: 1,03 [kg/l]
Duration: 13 [mins]
Final pressure: [kg/cm^2]

To Surface

	Density [kg/l]	pH	Dumped [m^3]
Mud			
Spacer			
Slurry			

Losses [m^3]

During csg run
Circulation
Mix/Pump Slurry
Displacement
Opening DV
Circ. through DV
Total

Circulation / Displacement / Squeeze

Time [mins.] Partial	Time [mins.] Progr.	Flow Rate [l/min]	Pressure [kg/cm^2]	Total Volume [l]	Operation Description	Final Press. [kg/cm^2]	Returns Vol. [l]
37	37	950		35000	Pumping lead slurry		
16	53	800		13000	Pumping tail slurry		
8	61	1113		9000	Displacing cement slurries		

Supervisor: G. Jerichevich - J. Hansen

Superintendent: R. Kennedy

3.4.5.2 20” Casing

Eni Norge

GROUP

District/Affiliate Company
NORWAY-HALTENBANKEN

CEMENTING JOB REPORT

DATE: 24.10.2004 ARPO-04 / A

WELL NAME 6406/1-3
FIELD NAME SKLINNA SOUTH
Cost center 4C18N100021

Operation Purpose: SHOE INTEGRITY

Operation Type	Measured Depth Top [m]	Measured Depth Bottom [m]	Vertical Depth Top [m]	Vertical Depth Bottom [m]	Casing Type	Ø [in]	Weight lb/ft	Stage [N°]
Cementing	383	1297	383	1297	SURFACE CASING	20	133	1
Plug					N°	Of:		
Squeeze					N°			

Well Situation	Ø [in]	Measured Depth Top [m]	Measured Depth Bottom [m]	Vertical depth Top [m]	Vertical depth Bottom [m]	Capacity [lt/m]	From log [y/n]
Open Hole	26	1297	1309	1297	1309	342,5	N
Last Casing	30	381	455	381	455	456	

KOP [m]
Max. Inclination [°]
at m
D.O.P. [m]

Perforation Top [m]	Perforation Bottom[m]

Gradient [Kg/cm²/10m]	Below shoe	Bottom hole
Pore Gradient	1,02	1,02
Fracture Gradient	1,59	1,6
Abnormal [kg/cm²/10m]	at m:	
Abnormal [kg/cm²/10m]	at m:	

Pressure [kg/cm²]	
Fracture at bottom	209
Hydrostatic increase w/slurry	194
Annular Fracture Margin	-15
Margin during W.O.C.	2

B.H.S.T. [°C] 40
at m 1309
From log [y/n] n
After [hr]
B.H.C.T. [°C] 31

Mud Type	Density [kg/l]	Visc.[sec]	PV [cP]	Y. P.	Gel 10"/10'[g/100cmq]	Water loss [cc]	pH / ES	Cl- [g/l]
Seawater	1,03							

Fluid	Type	600	300	200	100	6	3	Density [kg/l]	Vol.[m3]	h annulus [m]	Cont. Time [min]
Lead											
Tail											
Lead Slurry			20	18	15	12	11	1,46	170		
Tail Slurry			71	61	50	23	18	1,9	26		

Mixing water Cl- [g/l]
Water Temperature [°C]

1st Slurry Mixing Date & hour	Preparation Method	Duration [min]	Pumping time [min]	Pumping time at [°C]	w/c ratio	Cement Type	Quantity [t]
24/10/2004 06:08	Batch	6	172	40		G-CEMENT	145

Additives	Quantity	u.m.	%	Additives	Quantity	u.m.	%	Dry blended Type
ECONOLITE	4467	L						Density [kg/l]
HR-4L	1616	L						Quantity [ton]
								Ratio

2nd Slurry Mixing Date & hour	Preparation Method	Duration [min]	Pumping time [min]	Pumping time at [°C]	w/c ratio	Cement Type	Quantity [t]
24/10/2004 09:00		6	38	40			

Additives	Quantity	u.m.	%	Additives	Quantity	u.m.	%	Dry blended Type
HR-4L	180	L						Density [kg/l]
								Quantity [ton]
								Ratio

Cementing Company Halliburton Operation Ticket N°

Operation Results Positive
Theoretical TOC 383 [m]
Actual TOC 383 [m]

Plug tested with [t]
Plug milled at [m]
Plug removed [y / n]

Record (y / n)			
Volume	y	Pression	y
Flow rate	y	Density	y

Remarks

Supervisor
D. Ferkinstad - J. Hansen

Superintendent
R. Kennedy

Eni Norge

District/Affiliate Company
NORWAY-HALTENBANKEN

CEMENTING JOB REPORT

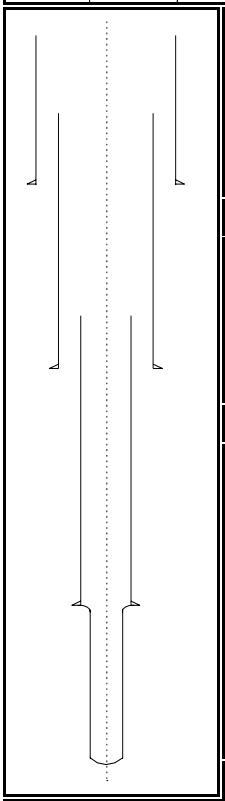
DATE: 24.10.2004 ARPO-04 / B

WELL NAME 6406/1-3
FIELD NAME SKLINNA SOUTH
Cost center 4C18N100021

Operation type Cementation Ø [in] 20 Stage / No.: 1

SQUEEZE / PLUG

Type	Ø	Length [m]	Cap.[l/m]	Bottom [m]	Cement retainer Squeeze packer	Manufacturer	Model / Type	Ø [inch]	Depth [m]



Injectivity Test with:

Test	[kg/cm^2]	[mins]
Stinger Pressure test		
Annular pressure		

Pump Rate [l/min]	Testing Pr. [kg/cm^2]	Tot. Vol. pumped [l]	Final Sqz Pr. [kg/cm^2]	Returns Vol [l]

CEMENTATION

Operation (y/n)			
Casing Reciprocation		Bump Plug	N
Casing Rotation		Valve holding	
Inner string	y		

	[kg/cm^2]	[mins]
Casing testing pressure		
Annulus pressurization		

GENERAL DATA

Slurry Displacement

With Rig pumps
Fluid type: Seawater
Volume 137,1 [m^3]
Density: 1,03 [kg/l]
Duration: 90 [mins]
Final pressure: [kg/cm^2]

To Surface

	Density [kg/l]	pH	Dumped [m^3]
Mud			
Spacer			
Slurry			

Losses [m^3]

During csg run
Circulation
Mix/Pump Slurry
Displacement
Opening DV
Circ. through DV
Total

Circulation / Displacement / Squeeze

Time [mins.] Partial	Time [mins.] Progr.	Flow Rate [l/min]	Pressure [kg/cm^2]	Total Volume [l]	Operation Description	Final Press. [kg/cm^2]	Returns Vol. [l]
180	180	950		170000	Pumping lead slurry		
16	196	800		26000	Pumping tail slurry		
8	204	1113		137000	Displacing cement slurries		

Supervisor
D. Ferkinstad - J. Hansen

Superintendent
R. Kennedy

3.4.5.3 13 3/8" Casing

Eni Norge

District/Affiliate Company: NORWAY-HALTENBANKEN

CEMENTING JOB REPORT

DATE: 09.11.2004 ARPO-04 / A

WELL NAME: 6406/1-3

FIELD NAME: SKLINNA SOUTH

Cost center: 4C18N100021

Operation Purpose: SHOE INTEGRITY

Operation Type	Measured Depth Top [m]	Measured Depth Bottom [m]	Vertical Depth Top [m]	Vertical Depth Bottom [m]	Casing Type	Ø [in]	Weight lb/ft	Stage [N°]
Cementing	1913	2312	1913	2312	Intermediate CSG	13,375	72	1
Plug					N°	Of:		
Squeeze					N°			

Well Situation	Ø [in]	Measured Depth Top [m]	Measured Depth Bottom [m]	Vertical depth Top [m]	Vertical depth Bottom [m]	Capacity [lt/m]	From log [y/n]
Open Hole	17,5	2312	2507	2312	2507	90,64	N
Last Casing	20	380	1297	380	1297	202,7	

KOP [m]

Max. Inclination [°]

at m

D.O.P. [m]

Perforation Top [m]	Perforation Bottom[m]

Gradient [Kg/cm²/10m]	Below shoe	Bottom hole
Pore Gradient	1,41	1,48
Fracture Gradient	1,86	1,88
Abnormal [kg/cm²/10m]	at m:	
Abnormal [kg/cm²/10m]	at m:	

Pressure [kg/cm²]	
Fracture at bottom	471
Hydrostatic increase w/slurry	406
Annular Fracture Margin	-65
Margin during W.O.C.	19

B.H.S.T. [°C]	87
at m	2500
From log [y/n]	n
After [hr]	
B.H.C.T. [°C]	59

Mud Type	Density [kg/l]	Visc.[sec]	PV [cP]	Y. P.	Gel 10"/10'[g/100cmq]		Water loss [cc]	pH / ES	Cl- [g/l]
WBM	1,53		40	13	4	8	0	8,5/	74

Fluid	Type	600	300	200	100	6	3	Density [kg/l]	Vol.[m3]	h annulus [m]	Cont. Time [min]
Lead											
Tail											
Lead Slurry										Mixing water Cl-	[g/l]
Tail Slurry			65	58	52	16	12	1,9	35	Water Temperature	[°C]

1st Slurry Mixing Date & hour	Preparation Method	Duration [min]	Pumping time [min]	Pumping time at [°C]	w/c ratio	Cement Type	Quantity [t]
9/11/2004 11:10	Batch	50	45	87		G-CEMENT	44

Additives	Quantity	u.m.	%	Additives	Quantity	u.m.	%	Dry blended Type	
HR-L4	470	L						Density	[kg/l]
								Quantity	[ton]
								Ratio	

2nd Slurry Mixing Date & hour	Preparation Method	Duration [min]	Pumping time [min]	Pumping time at [°C]	w/c ratio	Cement Type	Quantity [t]

Additives	Quantity	u.m.	%	Additives	Quantity	u.m.	%	Dry blended Type	
								Density	[kg/l]
								Quantity	[ton]
								Ratio	

Cementing Company: Halliburton Operation Ticket N°:

Operation Results: Positive

Theoretical TOC: 1913 [m]

Actual TOC: [m]

Plug tested with [t]

Plug milled at [m]

Plug removed [y / n]

Record (y / n)

Volume y Pression y

Flow rate y Density y

Remarks

Supervisor: G. Jerichevich - J. Hansen

Superintendent: R. Kennedy

Eni Norge

District/Affiliate Company
NORWAY-HALTENBANKEN

CEMENTING JOB REPORT

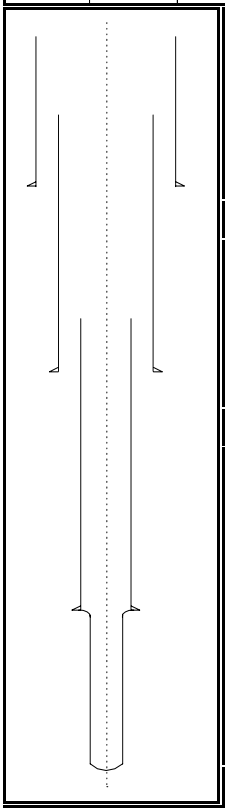
DATE: 09.11.2004 ARPO-04 / B

WELL NAME 6406/1-3
FIELD NAME SKLINNA SOUTH
Cost center 4C18N100021

Operation type: Cementation | Ø [in]: 13 3/8 | Stage / No.: 1

SQUEEZE / PLUG

Type	Ø	Length [m]	Cap.[l/m]	Bottom [m]	Cement retainer / Squeeze packer	Manufacturer	Model / Type	Ø [inch]	Depth [m]



Injectivity Test with:

Test	[kg/cm^2]	[mins]
Stinger Pressure test		
Annular pressure		

Pump Rate [l/min]	Testing Pr. [kg/cm^2]	Tot. Vol. pumped [l]	Final Sqz Pr. [kg/cm^2]	Returns Vol [l]

CEMENTATION

Operation (y/n)			
Casing Reciprocation		Bump Plug	Y
Casing Rotation		Valve holding	
Inner string	y		

	[kg/cm^2]	[mins]
Casing testing pressure	283	10
Annulus pressurization		

GENERAL DATA

Slurry Displacement

With Rig pumps
Fluid type: WBM
Volume 153 [m^3]
Density: 1,53 [kg/l]
Duration: 35 [mins]
Final pressure: [kg/cm^2]

To Surface

	Density [kg/l]	pH	Dumped [m^3]
Mud			
Spacer			
Slurry			

Losses [m^3]

During csg run
Circulation
Mix/Pump Slurry
Displacement
Opening DV
Circ. through DV
Total

Circulation / Displacement / Squeeze

Time [mins.] Partial	Time [mins.] Progr.	Flow Rate [l/min]	Pressure [kg/cm^2]	Total Volume [l]	Operation Description	Final Press. [kg/cm^2]	Returns Vol. [l]
65	65	538		35000	Pumping tail slurry		
90	155	1795		135000	Displacing cement slurry		

Supervisor: G. Jerichevich - J. Hansen

Superintendent: R. Kennedy

3.4.5.4 9 7/8" Casing

Eni Norge

District/Affiliate Company: NORWAY-HALTENBANKEN

CEMENTING JOB REPORT

DATE: 01.12.2004 ARPO-04 / A

WELL NAME: 6406/1-3

FIELD NAME: SKLINNA SOUTH

Cost center: 4C18N100021

Operation Purpose: SHOE INTEGRITY

Operation Type	Measured Depth Top [m]	Measured Depth Bottom [m]	Vertical Depth Top [m]	Vertical Depth Bottom [m]	Casing Type	Ø [in]	Weight lb/ft	Stage [N°]
Cementing	3100	4119	3100	4119	Production Casing	9,875	62,8	1
Plug					N°	Of:		
Squeeze					N°			

Well Situation	Ø [in]	Measured Depth Top [m]	Measured Depth Bottom [m]	Vertical depth Top [m]	Vertical depth Bottom [m]	Capacity [lt/m]	From log [y/n]
Open Hole	12,25	4119	4130	4119	4130	76,04	N
Last Casing	13,375	381	2312	381	2312	90,64	

KOP [m]

Max. Inclination [°]

at m

D.O.P. [m]

Perforation Top [m]	Perforation Bottom[m]

Gradient [Kg/cm²/10m]	Below shoe	Bottom hole
Pore Gradient	1,77	1,78
Fracture Gradient	2,07	2,08
Abnormal [kg/cm²/10m]	at m:	
Abnormal [kg/cm²/10m]	at m:	

Pressure [kg/cm²]	
Fracture at bottom	859
Hydrostatic increase w/slurry	754
Annular Fracture Margin	-105
Margin during W.O.C.	74

B.H.S.T. [°C] 150

at m 4130

From log [y/n] n

After [hr]

B.H.C.T. [°C] 105

Mud Type	Density [kg/l]	Visc.[sec]	PV [cP]	Y. P.	Gel 10"/10'[g/100cmq]		Water loss [cc]	pH / ES	Cl- [g/l]
OBM	1,8		44	11	6	9			

Fluid	Type	600	300	200	100	6	3	Density [kg/l]	Vol.[m3]	h annulus [m]	Cont. Time [min]
Lead											
Tail											
Lead Slurry										Mixing water Cl- [g/l]	
Tail Slurry			65	44	34	3	2	1,9	36	Water Temperature [°C]	

1st Slurry Mixing Date & hour	Preparation Method	Duration [min]	Pumping time [min]	Pumping time at [°C]	w/c ratio	Cement Type	Quantity [t]
01/12/2004 19:42		6	96	150			

Additives	Quantity	u.m.	%	Additives	Quantity	u.m.	%	Dry blended Type	
Microblock	350	L		Musol E	390	L		Density	[kg/l]
SCR-100L	1188	L		NF-6	56	L		Quantity	[ton]
Halad-413L	1317	L		Sem-8	208	l		Ratio	

2nd Slurry Mixing Date & hour	Preparation Method	Duration [min]	Pumping time [min]	Pumping time at [°C]	w/c ratio	Cement Type	Quantity [t]

Additives	Quantity	u.m.	%	Additives	Quantity	u.m.	%

Dry blended Type

Density [kg/l]

Quantity [ton]

Ratio

Cementing Company: Halliburton Operation Ticket N°

Operation Results: Positive

Theoretical TOC: 3100 [m]

Actual TOC: [m]

Plug tested with [t]

Plug milled at [m]

Plug removed [y / n]

Record (y / n)			
Volume	y	Pression	y
Flow rate	y	Density	y

Remarks: No return observed during cementing and displacement

Supervisor: D. Ferkinstad - G. Jaffray

Superintendent: R. Kennedy

Eni Norge

District/Affiliate Company: NORWAY-HALTENBANKEN

CEMENTING JOB REPORT

DATE: 01.12.2004 ARPO-04 / B

WELL NAME: 6406/1-3

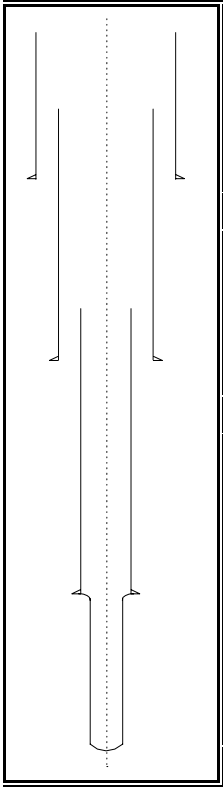
FIELD NAME: SKLINNA SOUTH

Cost center: 4C18N100021

Operation type: Cementation | Ø [in]: 9 7/8 | Stage / No.: 1

SQUEEZE / PLUG

Type	Ø	Length [m]	Cap.[l/m]	Bottom [m]	Cement retainer / Squeeze packer	Manufacturer	Model / Type	Ø [inch]	Depth [m]



Injectivity Test with:

Test	[kg/cm²]	[mins]
Stinger Pressure test		
Annular pressure		

Pump Rate [l/min]	Testing Pr. [kg/cm²]	Tot. Vol. pumped [l]	Final Sqz Pr. [kg/cm²]	Returns Vol [l]

CEMENTATION

Operation (y/n)			
Casing Reciprocation		Bump Plug	Y
Casing Rotation		Valve holding	
Inner string	y		

	[kg/cm²]	[mins]
Casing testing pressure	538	10
Annulus pressurization		

GENERAL DATA

Slurry Displacement

With: Rig pumps

Fluid type: OBM

Volume: 149 [m³]

Density: 1,53 [kg/l]

Duration: 72 [mins]

Final pressure: [kg/cm²]

To Surface

	Density [kg/l]	pH	Dumped [m³]
Mud			
Spacer			
Slurry			

Losses [m³]

During csg run	
Circulation	
Mix/Pump Slurry	
Displacement	
Opening DV	
Circ. through DV	
Total	

Circulation / Displacement / Squeeze

Time [mins.] Partial	Time [mins.] Progr.	Flow Rate [l/min]	Pressure [kg/cm²]	Total Volume [l]	Operation Description	Final Press. [kg/cm²]	Returns Vol. [l]
60	60	600		35000	Pumping tail slurry		
72	132	2070		149000	Displacing cement slurry		

Supervisor: D. Ferkinstad - G. Jaffray

Superintendent: R. Kennedy

3.4.6 Mud Summary by Phase

Mud summary for the 36" hole section

The 36" was drilled from 381 m to 460 m vertically. No problems were encountered to drilling this hole with sea water and hi-vis sweeps. The 30" casing was run and cemented at 455 m. Calcium chloride brine at 1,36 sg was use to weight up the displacement mud to 1,20 sg in order to reduce the amount of barite discharge to the sea. This proved to be a success giving a good smooth mud even at 1,20 sg with was required to stabilize the hole. It also has the advantage environmentally of avoiding dust and also of avoiding plugged hoppers which can occur when mixing barite in viscous bentonite mud.
The prehydrated bentonite was pre-mixed in Kristiansund and taken aboard the rig. This method ensures 100% yield of the bentonite. It also ensured that we were ready to start drilling very quickly after ballasting the rig.
We would advocate using this method where the use of barite is to be avoided on environmental grounds.

Mud summary for the 26" hole section

The 26" section was drilled from 460 m to 1309 m vertically. Iniatially a 9 7/8" pilot hole was drilled in case of shallow gas and this was then opened out to 26". The 20" casing was run and set 1297 m. No problems were encountered on either drilling or setting the casing. Again the 1,20 sg displacement mud was built from a blend of prehydrated bentonite and 1,36 sg calcium chloride. It worked well and we would again endorse its use on future wells. The value of the speed that this system can be built was shown during the displacement. Unfortunately pit space was limited as three pits were filled with PERFORMADRILL kill mud. As a result the displacement mud had to be built in three batches, with the boat being brought in with more pre-hydrated bentonite as required. Minimal rig time was lost despite having to build 170 m3 after initial part of the displacement.

Mud summary for the 17 1/2" hole section

The 17 ½" section was drilled from 1309 m to 2508 m using a PERFORMADRILL water based system. The 13 3/8" casing was run and set at 2312 m. No real problems were encountered with the drilling of the section apart from the loss zone at 1350-1445 m with fortunately did little to effect drilling progress. However when it came to running the casing the hole condition beneath 2350 m had deteriorated badly and the casing had to be set high. An attempt to drill out the section was made after the casing had been set but the hole conditions had futher deteriorating and it proved to be undrilllable with the PERFORMADRILL system due the instability of the hole. From a mud poimt of view the bottom of the section proved to be difficult. The shales proved to be very reactive and as result the MBT content was difficult to control and by the bottom of the section we were unable to build mud fast enough to keep it fully in check. The problem was not helped by the frequent increases in mud weight which used up valuable mixing time. The other problem encountered was with the calcium content which adversely affected the filtrate control. As the calcium contamination was heavier than expected and chemical storage limited on Ocean Vanguard (due to weight and space limitations) we ran out of soda ash and as result were unable to neutralize the calcium. As result the PAC in the system became ineffective and the filtrate loss increased. It is impossible to tell how much these variations from the programmed specifications contribuite to the hole instability. Certainly it is hardly sursprising that the attempt to continue drilling after the casing had been set failed due to the extra time that the time the hole had been open. The instability in the last 200 m of the section could have been insufficient mud weight and the low fracture gradient at the casing shoe prevented a sufficient increase in density to control the hole instability.

Mud summary for the 12 ¼" hole section

The 12 ¼" section was drilled from 2312 m to 4130 m using XP-07 invert emulsion oil-based mud. The 9 7/8" casing was run and cemented at 4120 m. No problems were encountered drilling the section and the mud performed well. Initially the mud was well out of specification as a result of drilling out the open hole (and incorporating PERFORMADRILL) under the 17 ½" shoe but the mud proved to be very tolerant and drilling was not effected. The mud properties were soon treated into line. The only problem encountered was that during the section the aim was to raise the oil/water ratio up to 80/20 to allow for weight additions without having an excessive PV. Unfortunately as a result of the water depth flowline temperatures remained low (reaching a maximum ao about 40 C). As a result there was no evaporation to conteract water entrainment from formation caused by the osmotic action of the calcium chloride in the water phase of the mud. Despite building all new mud it only proved possible to raise the oil/water ratio from 67/33 to 71/29 by the end of the section. The casing & cementing programma proved rather more problematic. As a result of the mud weights required for reaching TD, the leak-off pressure at the 17 ½" was exceeded and losses were taken both running and in an unsuccessful attempt to circulate the casing. The casing was cemented with no returns.

Mud summary for the 8 1/2" hole section

The 8 ½" section was drilled from 4130 m to 4276 m with XP-07 at with point the Ocean Vanguard was blown off location and riser parted. As result the well was abandoned.
Due to the short length of time spent on this there is little to say.

MUD SUMMARY REPORT
Well 6406/1-3

Day no.	Date	Depth	MW	FV	PV	YP	Gel	Gel	Vis	Vis	Vis	API	Cake	Corr	NAP/water	Sand	MBT	PH	ALK Mud	ALK filt	Cl-	Tot.	LGS/HGS	ASG	HPHT
							10 sec	10 min	600	300	3	30,00	API/HPHT	solid								Hardness			
		m	sg	s/qt.	cP	lbs/100 ft2	lbs/100 ft2	lbs/100 ft2	RPM	RPM	RPM	min	32 nd in	% vol	% vol	% vol	kg/m3		Pm	Pf/Mf	mg/l	mg/l	Kg/m3	sg	ml/30 min
	36" Section: SW/Spud Mud.																								
6	16.10.2004	396	1,03	120	0	0	0,0																		
7	17.10.2004	459	1,20	120	0	0	0,0																		
	9 5/8" Pilot" Section: SW/Spud Mud.																								
9	19.10.2004	1020	1,03	120	0	0	0,0																		
10	20.10.2004	1309	1,20	110	0	0	0,0																		
	26" Section: SW/Salt Mud.																								
11	21.10.2004	1045	1,03	120	0	0	0,0																		
12	22.10.2004	1309	1,20	110	0	0	0,0																		
13	23.10.2004	1309	1,20	110	0	0	0,0																		
	17.5" Section: Performadrill WBM																								
15	25.10.2004	1309	1,30	50	22	8	4,0	4,0	52,0	30,0	4,0	1,7	2/0	7,7	0/86			9,6	0,55	0,55/1,90	80	200	2,4/5,3	3,71	
16	26.10.2004	1309	1,30	63	23	19	6,0	6,0	65,0	42,0	5,0	1,7	2/0	7,7	0/86			9,6	1	0,55/1,9	80	200	2,4/5,3	3,71	
17	27.10.2004	1309	1,30	66	23	20	7,0	8,0	66,0	43,0	6,0	2	1/0	7,7	0/86			9,5	0,5	0,4/1,4	80	200	2,4/5,3	3,71	
18	28.10.2004	1314	1,31	64	23	20	6,0	8	66	43,0	7,0	2	1/0	8	0/86			9,5	0,60	0,4/1,2	80	200	2,4/5,3	3,71	
19	29.10.2004	1328	1,30	65	32	22	6,0	8	86	54,0	6,0	2,4	1/0	8,8	0/85			9,5	0,80	0,6/1	80	320	4,4/4,3	3,387	
20	30.10.2004	1876	1,32	69	34	26	9,0	12	94	60,0	7,0	2,5	1/0	9,7	0/84		14	9,0	0,40	0,3/0,8	82	400	5,1/4,6	3,358	
21	31.10.2004	2057	1,50	82	48	39	9,0	14	138	87,0	7,0	4	2/0	15,4	0/79		56	8,5	0,20	0,1/0,6	78	520	4,6/10,7	3,72	
22	01.11.2004	2322	1,51	68	47	33	8,0	16	127	80	6	6	2/0	15,2	0/79		63	8,2	0,10	0,05/0,8	80	320	3,8/11,4	3,8	
23	02.11.2004	2508	1,53	65	43	24	7,0	12	110	67	5	6	2/0	16,9	0/78		84	8,1		0/0,8	72	560	5,3/11,6	3,694	
24	03.11.2004	2508	1,52	68	41	30	9,0	13	112	71	6	5,2	2/0	16,3	0/79	0,5	70	8,3		0/0,8	80	360	5,3/11	3,683	
25	04.11.2004	2508	1,52	67	41	30	9,0	13	111	71	6	5,2	2/0	16,1	0/78	0,5	71	8,3		0/0,8	80	360	5,2/10,8	3,69	
26	05.11.2004	2508	1,52	68	36	28	8,0	15	110	70	7	6	2/0	16,2	0/78	0,5	71	8,5		0/0,8	71	340	5,2/10,8	3,68	
27	06.11.2004	2508	1,52	68	36	28	8,0	15	112	71	7	6	2/0	16,2	0/78	0,5	71	8,5		0/0,8	71	340	5,2/10,8	3,68	
28	07.11.2004	2508	1,53	72	40	30	9,0	16	110	70	7	5,2	2/0	16,9	0/78		98	8,3	0,10	0/0,8	72	440	5,3/11,6	3,69	
29	08.11.2004	2508	1,53	66	40	28	8,0	15	108	68	7	5,4	2/0	15,7	0/79		98	8,4	0,10	0/0,8	74	400	3,1/12,6	3,88	
30	09.11.2004	2508	1,53	67	40	27	8,0	16	107	67	7	5,5	2/0	16,7	0/78		96	8,5	0,10	0/0,8	74	400	5,2/11,6	3,71	
31	10.11.2004	2508	1,53	67	40	27	8,0	16	107	67	7	5,6	2/0	16,7	0/78		96	8,5	0,10	0/0,8	74	400	5,2/11,6	3,71	

	12.25" Section: Performadrill WBM																								
Day no.	Date	Depth	MW	FV	PV	YP	Gel 10 sec	Gel 10 min	Vis 600	Vis 300	Vis 3	NAP/Water 30,00	HTHP	Cake API/HPHT	Corr solid	NAP/water	Sand	Chlorides	Calcium	NaCl	WPS	Excess Lim	Electrical Stability	LGS/HGS	ASG
		m	sg	s/qt.	cP	lbs/100 ft2	lbs/100 ft2	lbs/100 ft2	RPM	RPM	RPM	min	ml/30 min	32 nd in	% vol	% vol	% vol	mg/l	mg/l	kg/mc	ppm	Kg/mc	volt	Kg/m3	sg
32	11.11.2004	2508	1,60	130	41	46	38,0	68	128	87	23	9,5	2/0	18,5	0/77	0,5	84	10,3	1,15	0,1/1	65	400	94,49/24,04	3,886	
33	12.11.2004	2510	1,60	170	33	38	27,0	50	104	58	21	10	2/0	19	0/77	1	95	9,8	0,9	0/0,75	58	600	109,56/621,57	3,84	
34	13.11.2004	2510	1,60		27	24	11,0	25	78	51	7	11,6	3/0	16,8	0/79	1,3	63	9,5	0,58	0,04/0,66	59	700	0,49/706,23	4,198	
35	14.11.2004	2510	1,60		26	25	17,0	28	77	51	13	21,4	4/0	19,8	0/77	0,8	70	8,8	0,48	0,05/0,63	56	720	113,76/620.92	3,83	
36	15.11.2004	2510	1,63	80	28	24	18,0	30	80	52	13	16	3/0	20,3	0/76	0,8	65	8,5	0,3	0/0,6	55	700	120,49/657,21	3,83	
37	16.11.2004	2510	1,66	80	27	24	18,0	30	78	51	13	15	3/0	20,3	0/76	0,8	65	8,5	0,3	0/0,6	55	700	71,74/735,96	3,982	
38	17.11.2004	2510	1,66	75	29	24	17,0	30	82	53	14	14	3/0	20,1	0/76	0,8	65	9,8	0,7	0,05/1	57	800	67,59/736,59	3,99	
	12.25" Section: XP-07 OBM																								
Day no.	Date	Depth	MW	FV	PV	YP	Gel 10 sec	Gel 10 min	Vis 600	Vis 300	Vis 3	NAP/Water 30,00	HTHP	Cake API/HPHT	Corr solid	NAP/water	Sand	Chlorides	Calcium	NaCl	WPS	Excess Lim	Electrical Stability	LGS/HGS	ASG
		m	sg	s/qt.	cP	lbs/100 ft2	lbs/100 ft2	lbs/100 ft2	RPM	RPM	RPM	min	ml/30 min	32 nd in	% vol	% vol	% vol	mg/l	mg/l	kg/mc	ppm	Kg/mc	volt	Kg/m3	sg
39	18.11.2004	2510	1,70	60	23	9	5,0	12	55	32	4	73,2/26,8	4,5	0/2	24,6	54,5/20	0,3	21000	9600	6,62	159		301	38/74*970,27	4,1
40	19.11.2004	2513	1,70	60	24	11	7,0	7	59	35	5	68,5/31,5	4,8	1/0	26,2	50/23	1,8	19000	8400	23,23	126	2,22	262	63,44/996,48	4,051
41	20.11.2004	2540	1,70	57	26	13	6,0	6	65	39	5	68,5/31,5		0/2	26,2	50/23	1	19000	8400	23,23	126	2,22	239	63,44/996,48	4,051
42	21.11.2004	2827	1,70	59	30	22	8,0	9	82	52	8	67,6/32,4	4,8	0/2	26	49/23,5	0,6	31000	11400	17,85	198	8,13	452	82,02/961,16	4
43	22.11.2004	3321	1,71	68	31	22	9,0	11	84	53	7	67,8/32,2	4,4	0/2	25,7	49,5/23,5	0,5	32000	16000	6,09	203	6,28	323	57,53/1000,8	4,086
44	23.11.2004	3521	1,80	90	46	19	13,0	16	111	65	9	68,6/31,4	3,8	0/2	28,7	48/22	0,7	27000	10400	14,17	185	3,69	430	57,27/114,96	4,077
45	24.11.2004	3521	1,80	82	38	19	10,0	14	95	57	7	70,5/29,5	4,2	0/2	29,4	49/20,5	1	25000	10000	12,05	184	2,96	420	81,45/1101,42	4,029
46	25.11.2004	3765	1,80	78	48	30	12,0	17	126	78	9	70,0/30,0	4	0/2	28,6	49,0/21,0	1	29000	10800	16,3	207	4,25	480	50,93/1120,46	4,091
47	26.11.2004	3971	1,84	72	36	27	12,0	18	99	63	7	71/29	3	0/2	29,7	49/20	1	26000	8600	17,77	196	3,33	550	37,37/1188,65	4,123
48	27.11.2004	4130	1,84	68	45	20	12,0	19	110	65	7	70,9/29,1	3	0/2	31,7	47,5/19,5	1	27500	10400	15	211	2,96	760	49,02/1091,1	3,911
49	28.11.2004	4130	1,84	65	45	20	12,0	18	110	65	7	71,5/28,5	3,2	0/2	30,1	49/19,5	0,8	30000	11200	16,79	229	3,33	720	62,88/1161,93	4,07
50	29.11.2004	4130	1,84	67	44	21	12,0	18	109	65	7	71/29	3,4	0/2	29,6	49/20	0,6	29000	10800	16,3	216	3,69	710	37,73/1183,66	4,12
51	30.11.2004	4130	1,84	66	44	22	12,0	18	110	66	7	71/29	3,4	0/2	29,6	49/20	0,8	29000	10000	18,64	217	3,69	710	35,82/1185,46	4,13
52	01.12.2004	4130	1,84	66	44	22	12,0	18	110	66	7	71/23	3,4	0/2	29,2	49/20	0,8	30000		49,44	227	3,69	710	12,11/1206,06	4,17
53	02.12.2004	4130	1,84	66	44	22	12,0	18	110	66	7	71/29	3,4	0/2	29,5	49/20	0,8	30000	10000	20,29	224	3,69	710	34,16/1185,47	4,13
54	03.12.2004	4130	1,84	66	44	22	12,0	18	110	66	7	71/29	3,4	0/2	29,5	49/20	0,8	30000	10000	20,29	224	3,69	710	34,16/1185,47	4,13
55	04.12.2004	4130	1,84	66	44	22	12,0	18	110	66	7	71/29	3,4	0/2	29,5	49/20	0,8	30000	10000	20,29	224	3,69	700	34,16/1185,47	4,129
56	05.12.2004	4130	1,84	70	44	22	12,0	18	110	66	7	71/29	3,4	0/2	29,5	49/20	0,8	30000	10000	20,29	224	3,69	700	34,16/1185,47	4,129
57	06.12.2004	4130	1,84	70	44	22	12,0	18	110	66	7	71/29	3,4	0/2	29,5	49/20	0,8	30000	10000	20,29	224	3,69	700	34,16/1185,47	4,129
58	07.12.2004	4130	1,84	70	44	22	12,0	18	110	66	7	71/29	3,4	0/2	29,5	49/20	0,8	30000	10000	20,29	224		700	34,16/1185,47	4,129
59	08.12.2004	4130	1,84	80	44	22	12,0	18	110	66	7	71/29	3,4	0/2	29,5	49/20	0,8	30000	10000	20,29	224	3,69	700	34,16/1185	4,129
60	09.12.2004	4130	1,84	80	44	22	12,0	18	110	66	7	71/29	3,4	0/2	29,5	49/20	0,8	30000	10000	20,29	224	3,69	700	34,16/1185	4,129
61	10.12.2004	4130	1,84	80	44	22	12,0	18	110	66	7	71/29	3,4	0/2	29,5	49/20	0,8	30000	10000	20,29	224	3,69	700	34,16/1185,47	4,129
62	11.12.2004	4130	1,84	85	44	22	12,0	18	110	66	7	71/29	3,4	0/2	29,5	49/20	0,8	30000	10000	20,29	224	3,69	700	34,16/1185,47	4,129

Day no.	Date	Depth	MW	FV	PV	YP	Gel	Gel	Vis	Vis	Vis	NAP/Water	HTHP	Cake	Corr	NAP/water	Sand	Chloride	Calcium	NaCl	WPS	Excess Lim	Electrical	LGS/HGS	ASG
							10 sec	10 min	600	300	3	30,00		API/HPHT	solid								Stability		
		m	sg	s/qt.	cP	lbs/100 ft2	lbs/100 ft2	lbs/100 ft2	RPM	RPM	RPM	min	ml/30 min	32 nd in	% vol	% vol	% vol	mg/l	mg/l	kg/mc	ppm	Kg/mc	volt	Kg/m3	sg
	8 1/2" Section:XP-07 OBM																								
63	12.12.2004	4135	1,88	80	35	14	9,0	10	84	49	7	74,6/25,4	3,6	0/2	32	50/17	0,5	20000	6000	15,47	178	3,68	500	75,41/1222,52	4,055
64	13.12.2004	4247	1,90	65	40	16	9,0	13	96	56	8	73,1/29,6	4	0/2	31,8	49/18	0,3	25000	8000	22,12	208	3,69	750	43,76/1263,82	4,115
65	14.12.2004	4276	1,93	73	40	10	5,0	7	96	56	8	73,1/29,6	4	0/2	31,8	49/18	0,3	25000	8000	22,12	208	3,69	750	43,76/1263,82	4,115
Day no.	Date	Depth	MW	FV	PV	YP	Gel	Gel	Vis	Vis	Vis	NAP/Water	HTHP	Cake	Corr	NAP/water	Sand	Chloride	Calcium	NaCl	WPS	Excess Lim	Electrical	LGS/HGS	ASG
							10 sec	10 min	600	300	3	30,00		API/HPHT	solid								Stability		
		m	sg	s/qt.	cP	lbs/100 ft2	lbs/100 ft2	lbs/100 ft2	RPM	RPM	RPM	min	ml/30 min	32 nd in	% vol	% vol	% vol	mg/l	mg/l	kg/mc	ppm	Kg/mc	volt	Kg/m3	sg
	P&A																								
107	25.01.2005	4276	1,96	135	82	40	15,0	18	204	122	13	75,4/24,6	4,4	0/2	33,8	49/16	0,1	24000	7200	18,56	205	1,48	477	49,63/1339,48	4,11
108	26.01.2005	4276	1,93	112	58	30	15,0	17	146	88	12	73,8/26,2	4,2	0/2	34,2	48/17	0,25	16000	5400	10,62	201	2,22	450	110,58/1259,05	4
109	27.01.2005	3839	1,93	123	62	35	14,8	8	162	90	14	71,6/26	4,1	0/2	33,8	48/18	0,3	18000	5200	10,9	198	2,15	430	102,85/1295,05	4,13
110	28.01.2005	3839	1,93	120	60	35	15,0	9	163	90	14	71,6/26	4,2	0,/2	34	48/18	0,3	18000	5200	10,9	198	2,15	430	102,85/1295,05	4,13
111	29.01.2005	3839	1,93	125	61	37	15,0	10	169	92	15	71,6/25,8	4,1	0/2	35	49/20	0,3	18000	5150	11	199	2,14	430	102,85/1295,05	4,1
141	28.02.2005	996	1,81	110	55	30	13,0	7	165	88	12	70,6/23	4	0/2	33	47/18	0,2	19000	5000	10,8	195	2,11	400	101/1287	4
142	01.03.2005	568	1,81	110	54	32	14,0	8	164	87	11	70,6/25	4,2	0/2	34	48/19	0,2	18000	5200	11	194	2	410	102/1298	4,2
143	02.03.2005	568	1,81	110	54	32	14,0	8	164	87	11	70,6/25	4,2	0/2	34	48/19	0,2	18000	5200	11	194	2	410	102/1298	4,2
144	03.03.2005	430	1,53	102	47	29	11,0	5	160	82	8	68/23	4	0/2	32	46/15	0,2	18000	5100	10	180	2	380	98/984	3,9

3.4.7 Deviation Summary

Deviation Summary
Well 6406/1-3
Note: Datum (0 depth) is 22 m above MSL (water depth = 381 m)

TMD (m)	Angle (deg.)	Azimuth (deg.)	CMT (Calc./ Misrunn/ Tie-in)	TVD (m)	N/-S (m)	E/-W (m)	Horizontal distance (m)	DLS (deg./30m)	BUR (deg./30m)	TYPE
0,00	0,00	0,00	YNN	0,00	-2,14	-8,01	0,00	0,00	0,00	MWD
399,00	0,35	217,49	YNN	399,00	-3,11	-8,75	-3,11	0,03	0,03	MWD
430,00	0,62	45,93	YNN	430,00	-3,07	-8,69	-3,07	0,94	0,26	MWD
448,00	0,79	56,48	YNN	448,00	-2,93	-8,52	-2,93	0,36	0,28	MWD
478,00	0,97	158,00	YNN	477,99	-3,05	-8,25	-3,05	1,35	0,18	MWD
507,00	0,97	325,00	YNN	506,99	-3,08	-8,30	-3,08	1,99	0,00	MWD
536,00	0,70	108,80	YNN	535,99	-2,93	-8,27	-2,93	1,64	0,28	MWD
565,00	0,44	95,18	YNN	564,99	-3,00	-7,99	-3,00	0,30	-0,27	MWD
594,00	0,26	25,40	YNN	594,99	-2,95	-7,85	-2,95	0,44	-0,19	MWD
623,00	1,76	67,67	YNN	622,98	-2,72	-7,41	-2,72	1,63	1,55	MWD
651,00	2,29	36,29	YNN	650,97	-2,11	-6,68	-2,11	1,29	0,57	MWD
680,00	1,93	37,96	YNN	679,95	-1,26	-6,04	-1,26	0,38	-0,37	MWD
710,00	0,97	34,18	YNN	709,94	-0,65	-5,59	-0,65	0,96	-0,96	MWD
739,00	1,58	54,40	YNN	738,93	-0,21	-5,12	-0,21	0,77	0,63	MWD
767,00	1,58	37,44	YNN	766,92	0,32	-4,57	0,32	0,50	0,00	MWD
796,00	1,14	357,01	YNN	795,91	0,93	-4,35	0,93	1,06	-0,46	MWD
825,00	0,70	44,12	YNN	824,91	1,34	-4,24	1,34	0,87	-0,46	MWD
854,00	1,32	39,81	YNN	853,90	1,72	-3,90	1,72	0,65	0,64	MWD
882,00	0,70	1,05	YNN	881,90	2,14	-3,69	2,14	0,95	-0,66	MWD
911,00	0,88	17,31	YNN	910,90	2,53	-3,62	2,53	0,30	0,19	MWD
941,00	0,62	325,63	YNN	940,89	2,89	-3,65	2,89	0,69	-0,26	MWD
970,00	0,79	351,38	YNN	969,89	3,21	-3,76	3,21	0,37	0,18	MWD
998,00	0,88	262,52	YNN	997,89	3,38	-4,01	3,38	1,25	0,10	MWD
1026,00	0,44	272,02	YNN	1025,89	3,35	-4,33	3,35	0,48	-0,47	MWD
1055,00	0,53	78,00	YNN	1054,89	3,38	-4,31	3,38	1,00	0,09	MWD
1083,00	0,35	357,00	YNN	1082,89	3,50	-4,18	3,50	0,63	-0,19	MWD
1113,00	1,06	349,00	YNN	1112,89	3,86	-4,24	3,86	0,72	0,71	MWD
1142,00	1,32	355,00	YNN	1141,89	4,46	-4,32	4,46	0,30	0,27	MWD
1170,00	1,06	289,00	YNN	1169,87	4,86	-4,60	4,86	1,41	-0,28	MWD
1202,00	0,44	13,00	YNN	1201,87	5,08	-4,85	5,08	1,04	-0,58	MWD
1231,00	0,18	43,00	YNN	1230,87	5,22	-4,79	5,22	0,31	-0,27	MWD
1260,00	0,18	205,00	YNN	1259,87	5,21	-4,78	5,21	0,37	0,00	MWD
1289,00	0,26	31,00	YNN	1288,87	5,23	-4,77	5,23	0,45	0,08	MWD
1299,00	0,70	61,00	YNN	1298,87	5,28	-4,70	5,28	1,48	1,32	MWD
1315,00	0,53	277,00	YNN	1314,87	5,33	-4,69	5,33	2,20	-0,32	MWD
1345,00	0,44	286,00	YNN	1344,87	5,38	-4,94	5,38	0,12	-0,09	MWD
1374,00	0,44	281,00	YNN	1373,87	5,43	-5,15	5,43	0,04	0,00	MWD
1404,00	0,53	119,00	YNN	1403,87	5,39	-5,14	5,39	0,96	0,09	MWD
1434,00	0,44	293,00	YNN	1433,87	5,37	-5,13	5,37	0,97	-0,09	MWD
1460,00	0,44	284,00	YNN	1459,87	5,43	-5,32	0,08	0,08	0,00	MWD
1488,00	0,53	291,00	YNN	1487,87	5,50	-5,54	5,50	0,12	0,10	MWD
1518,00	0,53	290,00	YNN	1517,86	5,60	5,80	5,60	0,01	0,00	MWD
1547,00	0,35	286,00	YNN	1546,00	5,67	-6,01	5,67	0,19	-0,19	MWD
1576,00	0,53	310,00	YNN	1575,86	5,78	-6,20	5,78	0,26	0,19	MWD
1604,00	0,62	322,00	YNN	1603,86	5,98	-6,39	5,98	0,16	0,10	MWD
1634,00	0,70	312,00	YNN	1633,86	6,23	-6,63	6,23	0,14	0,08	MWD
1692,00	0,79	309,00	YNN	1691,85	6,72	-7,20	6,72	0,05	0,05	MWD

TMD (m)	Angle (deg.)	Azimuth (deg.)	CMT (Calc./ Misrunn/ Tie-in)	TVD (m)	N/-S (m)	E/-W (m)	Horizontal distance (m)	DLS (deg./30m)	BUR (deg./30m)	TYPE
1721,00	0,97	308,00	YNN	1720,85	7,00	-7,55	7,00	0,19	0,19	MWD
1751,00	0,97	312,00	YNN	1750,85	7,32	-7,94	7,32	0,07	0,00	MWD
1781,00	0,97	309,00	YNN	1780,84	7,65	8,33	7,65	0,05	0,00	MWD
1809,00	0,88	319,00	YNN	1808,84	7,97	-8,65	7,97	0,20	-0,10	MWD
1838,00	0,79	313,00	YNN	1837,94	8,27	-8,95	8,27	0,13	-0,09	MWD
1866,00	0,79	309,00	YNN	1865,83	8,52	-9,24	8,52	0,06	0,00	MWD
1895,00	0,70	302,00	YNN	1894,83	8,74	-9,54	8,74	0,13	-0,09	MWD
1924,00	0,70	307,00	YNN	1923,83	8,94	-9,83	8,94	0,06	0,00	MWD
1953,00	0,62	307,00	YNN	1952,83	9,14	-10,10	9,14	0,08	-0,08	MWD
1981,00	0,62	302,00	YNN	1980,83	9,32	-10,35	9,32	0,06	0,00	MWD
2011,00	0,62	291,00	YNN	2010,82	9,46	-10,64	9,46	0,12	0,00	MWD
2039,00	0,62	296,00	YNN	2038,82	9,58	-10,92	9,58	0,06	0,00	MWD
2070,00	0,70	298,00	YNN	2069,82	9,74	-11,24	9,74	0,08	0,08	MWD
2098,00	0,62	305,00	YNN	2097,82	9,91	-11,51	9,91	0,12	-0,09	MWD
2128,00	0,53	297,00	YNN	2127,82	10,07	-11,77	10,07	0,12	-0,09	MWD
2157,00	0,79	317,00	YNN	2156,81	10,27	-12,02	10,27	0,36	0,27	MWD
2183,00	1,23	314,00	YNN	2182,81	10,60	-12,35	10,60	0,51	0,51	MWD
2211,00	2,11	311,00	YNN	2210,80	11,15	-12,95	11,15	0,95	0,94	MWD
2240,00	2,73	325,00	YNN	2239,77	12,06	-13,75	12,06	0,88	0,64	MWD
2265,00	2,64	326,00	YNN	2264,00	13,03	-14,41	13,03	0,12	0,11	MWD
2300,00	2,64	325,00	YNN	2299,71	14,35	-15,33	14,35	0,04	0,00	MWD
2329,00	2,90	324,00	YNN	2328,67	15,50	-16,14	15,50	0,27	0,27	MWD
2359,00	2,90	327,00	YNN	2358,64	16,75	-17,00	16,75	0,15	0,00	MWD
2387,00	2,73	330,00	YNN	2386,60	17,92	-17,72	17,92	0,24	-0,18	MWD
2416,00	2,81	330,00	YNN	2415,57	19,13	-18,42	19,13	0,08	0,08	MWD
2445,00	2,81	334,00	YNN	2444,53	20,39	-19,09	20,39	0,20	0,00	MWD
2475,00	2,81	332,00	YNN	2474,50	21,70	-19,75	21,70	0,10	0,00	MWD
2497,00	3,17	331,00	YNN	2496,47	22,70	-20,30	22,70	0,50	0,49	MWD
2524,00	3,08	352,00	YNN	2523,43	24,08	-20,77	24,08	1,27	-0,10	MWD
2553,00	2,81	65,00	YNN	2552,40	25,15	-20,23	25,15	3,63	-0,28	MWD
2640,00	3,78	232,00	YNN	2639,35	24,23	-20,56	24,28	2,26	0,33	MWD
2668,00	3,43	233,00	YNN	2667,29	23,21	-21,95	23,21	0,38	-0,38	MWD
2696,00	2,73	211,00	YNN	2695,25	22,13	-22,97	22,13	1,46	-0,75	MWD
2728,00	2,73	171,00	YNN	2727,22	20,73	-23,24	20,73	1,75	0,00	MWD
2758,00	1,58	146,00	YNN	2757,20	19,68	-22,90	19,68	1,46	-1,15	MWD
2789,00	0,09	223,00	YNN	2788,19	19,31	-22,67	19,31	1,51	-1,44	MWD
2815,00	0,09	246,00	YNN	2814,19	19,28	-22,71	19,28	0,04	0,00	MWD
2845,00	0,09	167,00	YNN	2844,19	19,25	-22,72	19,25	0,11	0,00	MWD
2874,00	0,09	79,00	YNN	2873,19	19,23	-22,70	19,23	0,13	0,00	MWD
2902,00	0,09	201,00	YNN	2901,19	19,22	-22,68	19,22	0,17	0,00	MWD
2930,00	0,88	102,00	YNN	2929,19	19,15	-22,48	19,15	0,96	0,85	MWD
2959,00	0,35	163,00	YNN	2958,19	19,02	-22,24	19,02	0,80	-0,55	MWD
2988,00	0,09	277,00	YNN	2987,19	18,94	-22,23	18,94	0,41	-0,27	MWD
3017,00	0,18	116,00	YNN	3016,19	18,92	-22,21	18,92	0,28	0,09	MWD
3047,00	0,09	85,00	YNN	3046,19	18,90	-22,15	18,90	0,11	-0,09	MWD
3076,00	0,62	300,00	YNN	3075,19	18,98	-22,26	18,98	0,72	0,55	MWD
3105,00	0,61	353,00	YNN	3104,19	19,22	-22,42	19,22	0,57	0,00	MWD
3135,00	0,18	185,00	YNN	3134,19	19,33	-22,44	19,33	0,80	-0,44	MWD

TMD (m)	Angle (deg.)	Azimuth (deg.)	CMT (Calc./ Misrunn/ Tie-in)	TVD (m)	N/-S (m)	E/-W (m)	Horizontal distance (m)	DLS (deg./30m)	BUR (deg./30m)	TYPE
3164,00	0,18	202,00	YNN	3163,19	19,24	-22,46	19,24	0,06	0,00	MWD
3191,00	0,09	5,00	YNN	3190,19	19,23	-22,48	19,23	0,30	-0,10	MWD
3221,00	0,09	48,00	YNN	3220,19	19,27	-22,46	19,27	0,07	0,00	MWD
3250,00	0,09	188,00	YNN	3249,19	19,26	-22,44	19,26	0,17	0,00	MWD
3279,00	0,18	353,00	YNN	3278,19	19,28	-22,45	19,28	0,28	0,09	MWD
3309,00	0,09	294,00	YNN	3308,19	19,34	-22,48	19,34	0,15	-0,09	MWD
3337,00	0,09	142,00	YNN	3336,19	19,33	-22,48	19,33	0,19	0,00	MWD
3365,00	0,09	227,00	YNN	3364,19	19,30	-22,49	19,30	0,13	0,00	MWD
3394,00	0,35	213,00	YNN	3393,19	19,21	-22,55	19,21	0,27	0,27	MWD
3423,00	0,18	200,00	YNN	3422,19	19,09	-22,62	19,09	0,19	-0,18	MWD
3453,00	0,09	253,00	YNN	3452,19	19,04	-22,65	19,04	0,14	-0,09	MWD
3482,00	0,70	233,00	YNN	3481,19	18,93	-22,82	18,93	0,64	0,63	MWD
3510,00	1,14	294,00	YNN	3509,18	18,94	-23,21	18,94	1,08	0,47	MWD
3539,00	0,53	289,00	YNN	3538,00	19,10	-23,60	19,10	0,63	-0,63	MWD
3569,00	0,18	261,00	YNN	3568,00	19,13	-23,78	19,13	0,38	-0,35	MWD
3598,00	0,18	330,00	YNN	3597,00	19,17	-23,48	19,17	0,21	0,00	MWD
3626,00	0,09	149,00	YNN	3625,18	19,19	-23,86	19,19	0,29	-0,10	MWD
3654,00	0,09	339,00	YNN	3653,18	19,19	-23,85	19,19	0,19	0,00	MWD
3683,00	0,53	270,00	YNN	3682,18	19,21	-23,99	19,21	0,52	0,46	MWD
3713,00	0,35	249,00	YNN	3712,18	19,18	-24,22	19,18	0,24	-0,18	MWD
3743,00	0,18	307,00	YNN	3742,18	19,17	-24,34	19,17	0,30	-0,17	MWD
3772,00	0,09	11,00	YNN	3771,00	19,22	-24,37	19,22	0,17	-0,09	MWD
3800,00	0,09	119,00	YNN	3799,18	19,23	-24,35	19,23	0,16	0,00	MWD
3829,00	0,18	279,14	YNN	3828,18	19,23	-24,38	19,23	0,28	0,09	MWD
3859,00	0,18	300,00	YNN	3858,18	19,26	-24,46	19,26	0,07	0,00	MWD
3887,00	0,09	154,00	YNN	3886,18	19,26	-24,49	19,26	0,28	-0,10	MWD
3916,00	0,09	9,00	YNN	3915,18	19,26	-24,48	19,26	0,18	0,00	MWD
3945,00	0,18	130,00	YNN	3944,18	19,26	-24,44	19,26	0,25	0,09	MWD
3975,00	0,18	140,00	YNN	3974,18	19,19	-24,37	19,19	0,03	0,00	MWD
4003,00	0,09	347,00	YNN	4002,18	19,18	-24,35	19,18	0,28	-0,10	MWD
4031,00	0,18	160,00	YNN	4030,18	19,16	-24,34	19,16	0,29	0,10	MWD
4062,00	0,18	194,00	YNN	4061,18	19,07	-24,33	19,07	0,10	0,00	MWD
4090,00	0,18	119,00	YNN	4089,18	19,00	-24,31	19,00	0,23	0,00	MWD
4126,00	0,26	4,36	YNN	4125,00	19,06	-24,25	19,06	0,31	0,07	MWD
4156,00	0,35	5,18	YNN	4155,18	19,21	-24,24	19,21	0,09	0,09	MWD
4186,00	0,26	307,26	YNN	4185,00	19,35	-24,28	19,35	0,31	-0,09	MWD
4214,00	0,62	316,40	YNN	4213,00	19,50	-24,44	19,50	0,39	0,39	MWD
4241,00	0,88	297,51	YNN	4240,17	19,70	-24,72	19,70	0,39	0,29	MWD

3.5 Plug and Abandonment

Found below:
- P&A Program used for well 6406/1-3
- Listing of the actual P&A of the well
- Sketch of actual P&A

3.5.1 P&A Program used for the well

3.5.1.1 OBJECTIVES

The plugging and abandonment program has the following objectives:

1) Isolate the permeable zones with cement plugs to permanently prevent the flow of gas or other formation fluids.

2) Isolate the casing annuli; 30” x 20” x 13 3/8” x 9 7/8”. Then remove casings a minimum of 5 m below the mud line.

3) To ensure that there will be no obstructions of any kind remaining on the seabed at the location site which may cause damage or impediment to fishing, shipping or other activities.

3.5.1.2 DESIGN CRITERIA

Safety: Procedures will be applied to insure the safety of the installation and personnel onboard during the abandonment operation.

Environment: The well will be plugged to insure that no contamination to the environment occurs during plugging or in the future.

Regulatory Requirements: All requirements outlined by the PSA will be implemented as a minimum requirement for permanent plugging.

3.5.1.3 CASING DESIGN

Casing	Weight #	Drift ID	Capacity l/m	Shoe Depth MRDT
30”	310	28”	407.8	455 m
20”	133	18.538”	177.8	1297 m
13 3/8”	72	12.347”	77.24	2312 m
9 7/8”	62.8	8.625”	45.73	4119 m

3.5.1.4 SAFETY

Care is to be taken when handling and laying down casing, especially wellhead and 30” conductor.

Pre-job Safety Meetings to be conducted as required, during these operations.

3.5.1.5 REGULATORY REQUIREMENTS

1. The wellhead installation must be removed to at least 5 m below the seabed.

2. Two barriers are required. A cement plug must be placed in the production and intermediate casing/ liner.

3. A minimum 100 meter cement plug must be set across permeable or potential flowing zones such tat the top of the plug is at least 50 m above the top of the zone.

4. A minimum 200 m cement plug must be set in the top part of the well such that the top of the plug is not more than 50 m below the seabed.

5. Cement plugs acting as barriers between the open hole and annulus require to be tagged with 10 ton set-down weight and to be pressure tested to 70 bar above the measured formation strength at the casing shoe between the open hole and annulus in question.(for a superficial plug is required to be tagged with 10 ton set down and to be pressure tested 35 bar above the measured formation strength at the casing shoe).

6. The ROV will do a final seabed survey to check for any debris at well location.

3.5.1.6 PLUGGING PROGRAM

Plug # 1 will be a cement plug isolating the interval: 4276-4019 m.
The plug will be set in multiple stages as a continuous cement plug.
The plug will be tagged and pressure tested.

The 9 5/8” casing will then be cut at 800 m.

Plug # 2 will be a balanced cement plug set from 850 m to 568 m.
The plug will be tagged and pressure tested.

The 13 3/8” casing will then be cut at 550 m.

Plug # 3 will be a balanced cement plug set from 600 m to 430 m.
The plug will be tagged and pressure tested.

The BOP-stack will then be pulled.

The 30” conductor together with the 20” casing will be cut at 387 m (6 m below seabed).

A seabed survey will be conducted at the conclusion of the well operations.

3.5.1.7 Actual Plugging and Abandonment of well 6406/1-3

Well 6406/1-3 was permanently plugged and abandoned as follows:

Plug no. 1: Cement from 4276 m up to 3839 m.

EZSV packer was installed at 996 m

9 7/8” casing was cut at 800 m (419 m below seabed) and retrieved.

Plug no. 2: Cement from 850 m up to 568 m.

13 3/8” casing was cut at 550 m (169 m below seabed) and retrieved.

Plug no. 3: Cement from 600 m up to 430 m.

Retrived BOP on riser

The 20” and 30” casing strings were cut at 387 m (6 m below seabed) and retrieved.

3.5.1.8 Plug n.1

Eni Norge

District/Affiliate Company
NORWAY-HALTENBANKEN

CEMENTING JOB REPORT

DATE: 27.01.2005 ARPO-04 / A

WELL NAME 6406/1-3
FIELD NAME SKLINNA SOUTH
Cost center 4C18N100021

Operation Purpose: PLUG & ABANDON

Operation Type	Measured Depth Top [m]	Measured Depth Bottom [m]	Vertical Depth Top [m]	Vertical Depth Bottom [m]	Casing Type	Ø [in]	Weight lb/ft	Stage [N°]
Cementing								
Plug	3839	4276	3839	4276	N° 2	Of: CM		
Squeeze					N°			

Well Situation	Ø [in]	Measured Depth Top [m]	Measured Depth Bottom [m]	Vertical depth Top [m]	Vertical depth Bottom [m]	Capacity [lt/m]	From log [y/n]
Open Hole	8,5	4130	4276	4130	4276	36,61	n
Last Casing	9,875	381	4119	381	4119	49,41	

KOP [m]
Max. Inclination [°]
at m
D.O.P. [m]

Perforation Top [m]	Perforation Bottom[m]

Gradient [Kg/cm²/10m]	Below shoe	Bottom hole
Pore Gradient	1,77	1,81
Fracture Gradient	2,07	2,1
Abnormal [kg/cm²/10m]	at m:	
Abnormal [kg/cm²/10m]	at m:	

Pressure [kg/cm²]
Fracture at bottom 885
Hydrostatic increase w/slurry
Annular Fracture Margin
Margin during W.O.C.

B.H.S.T. [°C] 155
at m 4276
From log [y/n] N
After [hr]
B.H.C.T. [°C] 115

Mud Type	Density [kg/l]	Visc.[sec]	PV [cP]	Y. P.	Gel 10"/10'[g/100cmq]		Water loss [cc]	pH / ES	Cl- [g/l]
OBM	1,93		56	14	7	8			

Fluid	Type	600	300	200	100	6	3	Density [kg/l]	Vol.[m3]	h annulus [m]	Cont. Time [min]
Lead											
Tail											
Lead Slurry										Mixing water Cl- [g/l]	
Tail Slurry			148	122	68	6	4	2	11,3	Water Temperature [°C]	

1st Slurry Mixing Date & hour	Preparation Method	Duration [min]	Pumping time [min]	Pumping time at [°C]	w/c ratio	Cement Type	Quantity [t]
21/1/2005 06:00	BATCH	25				G-CEMENT	23

Additives	Quantity	u.m.	%	Additives	Quantity	u.m.	%	Dry blended Type	
SCR-500L	250	L		Microblock	1200	L		Density	[kg/l]
HALAD-413L	560	L		NF-6	30	L		Quantity	[ton]
CFR-3L	170	L		SEM-8	208	L		Ratio	

2nd Slurry Mixing Date & hour	Preparation Method	Duration [min]	Pumping time [min]	Pumping time at [°C]	w/c ratio	Cement Type	Quantity [t]

Additives	Quantity	u.m.	%	Additives	Quantity	u.m.	%	Dry blended Type
								Density [kg/l]
								Quantity [ton]
								Ratio

Cementing Company Halliburton Operation Ticket N°

Operation Results Positive
Theoretical TOC [m]
Actual TOC 3839 [m]

Plug tested with 20 [t]
Plug milled at [m]
Plug removed [y / n]

Record (y / n)			
Volume	y	Pression	y
Flow rate	y	Density	y

Remarks

Supervisor
G. Jaffray

Superintendent
R. Kennedy

Eni Norge

District/Affiliate Company: NORWAY-HALTENBANKEN

CEMENTING JOB REPORT

DATE: 27.01.2005 ARPO-04 / B

WELL NAME: 6406/1-3

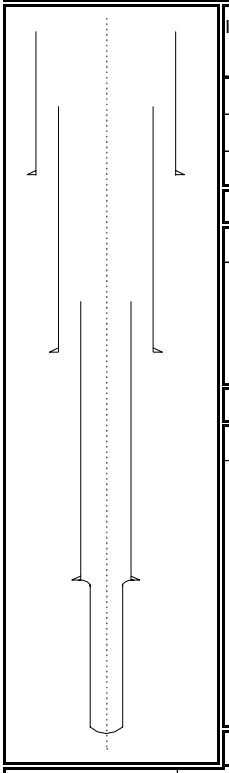
FIELD NAME: SKLINNA SOUTH

Cost center: 4C18N100021

Operation type: Plug | Ø [in]: | Stage / No.: 2

SQUEEZE / PLUG

Type	Ø	Length [m]	Cap.[l/m]	Bottom [m]	Cement retainer	Manufacturer	Model / Type	Ø [inch]	Depth [m]
DP	8,5	157	36,61	4276	Squeeze packer				
DP	9,875	180	49,41	4119					



Injectivity Test with:

Test	[kg/cm^2]	[mins]
Stinger Pressure test		
Annular pressure		

Pump Rate [l/min]	Testing Pr. [kg/cm^2]	Tot. Vol. pumped [l]	Final Sqz Pr. [kg/cm^2]	Returns Vol [l]

CEMENTATION

Operation (y/n)			
Casing Reciprocation		Bump Plug	
Casing Rotation		Valve holding	
Inner string			

	[kg/cm^2]	[mins]
Casing testing pressure		
Annulus pressurization		

GENERAL DATA

Slurry Displacement

With: Rig pumps

Fluid type: OBM

Volume: 12 [m^3]

Density: 2 [kg/l]

Duration: 16 [mins]

Final pressure: [kg/cm^2]

To Surface

	Density [kg/l]	pH	Dumped [m^3]
Mud			
Spacer			
Slurry			

Losses [m^3]

During csg run	
Circulation	
Mix/Pump Slurry	
Displacement	
Opening DV	
Circ. through DV	
Total	

Circulation / Displacement / Squeeze

Time [mins.] Partial	Time [mins.] Progr.	Flow Rate [l/min]	Pressure [kg/cm^2]	Total Volume [l]	Operation Description	Final Press. [kg/cm^2]	Returns Vol. [l]
20		550		12000	Pumping slurry		
45		2000		37000	Displacing cement slurry		

Supervisor: G. Jaffray

Superintendent: R. Kennedy

3.5.1.9 Plug n.2

Eni Norge

District/Affiliate Company
NORWAY-HALTENBANKEN

CEMENTING JOB REPORT

DATE: 01.03.2005 ARPO-04 / A

WELL NAME 6406/1-3
FIELD NAME SKLINNA SOUTH
Cost center 4C18N100021

Operation Purpose: PLUG & ABANDON

Operation Type	Measured Depth Top [m]	Measured Depth Bottom [m]	Vertical Depth Top [m]	Vertical Depth Bottom [m]	Casing Type	Ø [in]	Weight lb/ft	Stage [N°]
Cementing								
Plug	568	850	568	850	N° 3	Of: CM		
Squeeze					N°			

Well Situation	Ø [in]	Measured Depth Top [m]	Measured Depth Bottom [m]	Vertical depth Top [m]	Vertical depth Bottom [m]	Capacity [lt/m]	From log [y/n]
Open Hole							
Last Casing							

KOP [m]
Max. Inclination [°]
at m
D.O.P. [m]

Perforation Top [m]	Perforation Bottom[m]

Gradient [Kg/cm²/10m]	Below shoe	Bottom hole
Pore Gradient		
Fracture Gradient		
Abnormal [kg/cm²/10m]	at m:	
Abnormal [kg/cm²/10m]	at m:	

Pressure [kg/cm²]
Fracture at bottom
Hydrostatic increase w/slurry
Annular Fracture Margin
Margin during W.O.C.

B.H.S.T. [°C] 22
at m 850
From log [y/n] n
After [hr]
B.H.C.T. [°C] 18

Mud Type	Density [kg/l]	Visc.[sec]	PV [cP]	Y. P.	Gel 10"/10'[g/100cmq]		Water loss [cc]	pH / ES	Cl- [g/l]
OBM	1,8		56	14	7	8			

Fluid	Type	600	300	200	100	6	3	Density [kg/l]	Vol.[m3]	h annulus [m]	Cont. Time [min]
Lead											
Tail											
Lead Slurry										Mixing water Cl-	[g/l]
Tail Slurry			101	84	65	25	18	1,95	15	Water Temperature	[°C]

1st Slurry Mixing Date & hour	Preparation Method	Duration [min]	Pumping time [min]	Pumping time at [°C]	w/c ratio	Cement Type	Quantity [t]
01/03/2005 14:10	BATCH	20				G-CEMENT	13

Additives	Quantity	u.m.	%	Additives	Quantity	u.m.	%	Dry blended Type	
NF-6	13	L						Density	[kg/l]
CaCl2	130	L						Quantity	[ton]
								Ratio	

2nd Slurry Mixing Date & hour	Preparation Method	Duration [min]	Pumping time [min]	Pumping time at [°C]	w/c ratio	Cement Type	Quantity [t]

Additives	Quantity	u.m.	%	Additives	Quantity	u.m.	%	Dry blended Type	
								Density	[kg/l]
								Quantity	[ton]
								Ratio	

Cementing Company Halliburton Operation Ticket N°

Operation Results Positive
Theoretical TOC [m]
Actual TOC 568 [m]

Plug tested with [t]
Plug milled at [m]
Plug removed [y / n]

Record (y / n)			
Volume	y	Pression	y
Flow rate	y	Density	y

Remarks

Supervisor
G. Jaffray - J. Hansen

Superintendent
R. Kennedy

Eni Norge

District/Affiliate Company
NORWAY-HALTENBANKEN

CEMENTING JOB REPORT

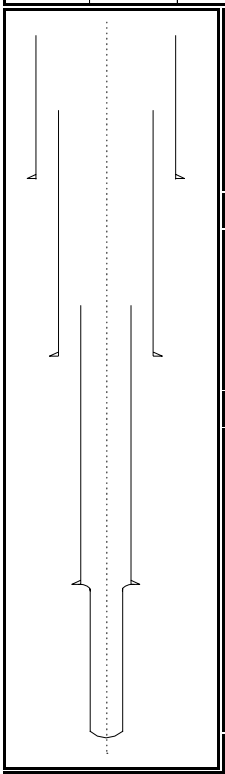
DATE: 01.03.2005 ARPO-04 / B

WELL NAME 6406/1-3
FIELD NAME SKLINNA SOUTH
Cost center 4C18N100021

Operation type Plug Ø [in] Stage / No.: 3

SQUEEZE / PLUG

Type	Ø	Length [m]	Cap.[l/m]	Bottom [m]	Cement retainer Squeeze packer	Manufacturer	Model / Type	Ø [inch]	Depth [m]
DP	13 3/8	368	90,64	800					
DP	9 7/8	50	49,41	850					



Injectivity Test with:

Test	[kg/cm^2]	[mins]
Stinger Pressure test		
Annular pressure		

Pump Rate [l/min]	Testing Pr. [kg/cm^2]	Tot. Vol. pumped [l]	Final Sqz Pr. [kg/cm^2]	Returns Vol [l]

CEMENTATION

Operation (y/n)			
Casing Reciprocation		Bump Plug	
Casing Rotation		Valve holding	
Inner string			

	[kg/cm^2]	[mins]
Casing testing pressure		
Annulus pressurization		

GENERAL DATA

Slurry Displacement
With Rig pumps
Fluid type: OBM
Volume 5,3 [m^3]
Density: 1,8 [kg/l]
Duration: 10 [mins]
Final pressure: [kg/cm^2]

To Surface	Density [kg/l]	pH	Dumped [m^3]
Mud			
Spacer			
Slurry			

Losses [m^3]	
During csg run	
Circulation	
Mix/Pump Slurry	
Displacement	
Opening DV	
Circ. through DV	
Total	

Circulation / Displacement / Squeeze

Time [mins.] Partial	Time [mins.] Progr.	Flow Rate [l/min]	Pressure [kg/cm^2]	Total Volume [l]	Operation Description	Final Press. [kg/cm^2]	Returns Vol. [l]
20	20	750		15000	Pumping slurry		
10	30	530		5300	Displacing cement slurry		

Supervisor
G. Jaffray - J. Hansen

Superintendent
R. Kennedy

3.5.1.10 Plug n.3

Eni Norge

CEMENTING JOB REPORT

District/Affiliate Company: NORWAY-HALTENBANKEN

DATE: 03.03.2005 ARPO-04 / A

WELL NAME 6406/1-3

FIELD NAME SKLINNA SOUTH

Cost center 4C18N100021

Operation Purpose: PLUG & ABANDON

Operation Type	Measured Depth Top [m]	Measured Depth Bottom [m]	Vertical Depth Top [m]	Vertical Depth Bottom [m]	Casing Type	Ø [in]	Weight lb/ft	Stage [N°]
Cementing								
Plug	430	568	430	568	N° 4	Of: CM		
Squeeze					N°			

Well Situation	Ø [in]	Measured Depth Top [m]	Measured Depth Bottom [m]	Vertical depth Top [m]	Vertical depth Bottom [m]	Capacity [lt/m]	From log [y/n]
Open Hole							
Last Casing							

KOP [m]

Max. Inclination [°]

at m

D.O.P. [m]

Perforation Top [m]	Perforation Bottom[m]

Gradient [Kg/cm²/10m]	Below shoe	Bottom hole
Pore Gradient		
Fracture Gradient		

Abnormal [kg/cm²/10m] at m:

Abnormal [kg/cm²/10m] at m:

Pressure [kg/cm²]

Fracture at bottom

Hydrostatic increase w/slurry

Annular Fracture Margin

Margin during W.O.C.

B.H.S.T. [°C] 14

at m 568

From log [y/n] n

After [hr]

B.H.C.T. [°C] 12

Mud Type	Density [kg/l]	Visc.[sec]	PV [cP]	Y. P.	Gel 10"/10'[g/100cmq]		Water loss [cc]	pH / ES	Cl- [g/l]
WBM	1,53		43	49	12	25			

Fluid	Type	600	300	200	100	6	3	Density [kg/l]	Vol.[m3]	h annulus [m]	Cont. Time [min]
Lead											
Tail											
Lead Slurry										Mixing water Cl- [g/l]	
Tail Slurry			117	98	76	32	24	1,95	25,4	Water Temperature [°C]	

1st Slurry Mixing Date & hour	Preparation Method	Duration [min]	Pumping time [min]	Pumping time at [°C]	w/c ratio	Cement Type	Quantity [t]
3/3/2005 13:10	BATCH	25				G-CEMENT	31

Additives	Quantity	u.m.	%	Additives	Quantity	u.m.	%	Dry blended Type	
NF-6	31	L						Density	[kg/l]
CaCl2	775	L						Quantity	[ton]
								Ratio	

2nd Slurry Mixing Date & hour	Preparation Method	Duration [min]	Pumping time [min]	Pumping time at [°C]	w/c ratio	Cement Type	Quantity [t]

Additives	Quantity	u.m.	%	Additives	Quantity	u.m.	%	Dry blended Type	
								Density	[kg/l]
								Quantity	[ton]
								Ratio	

Cementing Company Halliburton Operation Ticket N°

Operation Results Positive

Theoretical TOC [m]

Actual TOC 430 [m]

Plug tested with [t]

Plug milled at [m]

Plug removed [y / n]

Record (y / n)			
Volume	y	Pression	y
Flow rate	y	Density	y

Remarks

Supervisor: G. Jaffray - J. Hansen

Superintendent

Eni Norge

District/Affiliate Company: NORWAY-HALTENBANKEN

CEMENTING JOB REPORT

DATE: 03.03.2005 ARPO-04 / B

WELL NAME: 6406/1-3

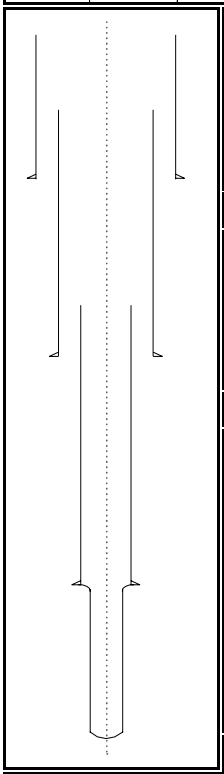
FIELD NAME: SKLINNA SOUTH

Cost center: 4C18N100021

Operation type: Plug Ø [in]: Stage / No.: 4

SQUEEZE / PLUG

Type	Ø	Length [m]	Cap.[l/m]	Bottom [m]	Cement retainer Squeeze packer	Manufacturer	Model / Type	Ø [inch]	Depth [m]
DP	20	120	202,7	550					
DP	13 3/8	18	90,64	568					



Injectivity Test with:

Test	[kg/cm^2]	[mins]
Stinger Pressure test		
Annular pressure		

Pump Rate [l/min]	Testing Pr. [kg/cm^2]	Tot. Vol. pumped [l]	Final Sqz Pr. [kg/cm^2]	Returns Vol [l]

CEMENTATION

Operation (y/n)			
Casing Reciprocation		Bump Plug	
Casing Rotation		Valve holding	
Inner string			

	[kg/cm^2]	[mins]
Casing testing pressure		
Annulus pressurization		

GENERAL DATA

Slurry Displacement

With Rig pumps

Fluid type: WBM

Volume [m^3]

Density: [kg/l]

Duration: [mins]

Final pressure: [kg/cm^2]

To Surface

	Density [kg/l]	pH	Dumped [m^3]
Mud			
Spacer			
Slurry			

Losses [m^3]

During csg run

Circulation

Mix/Pump Slurry

Displacement

Opening DV

Circ. through DV

Total

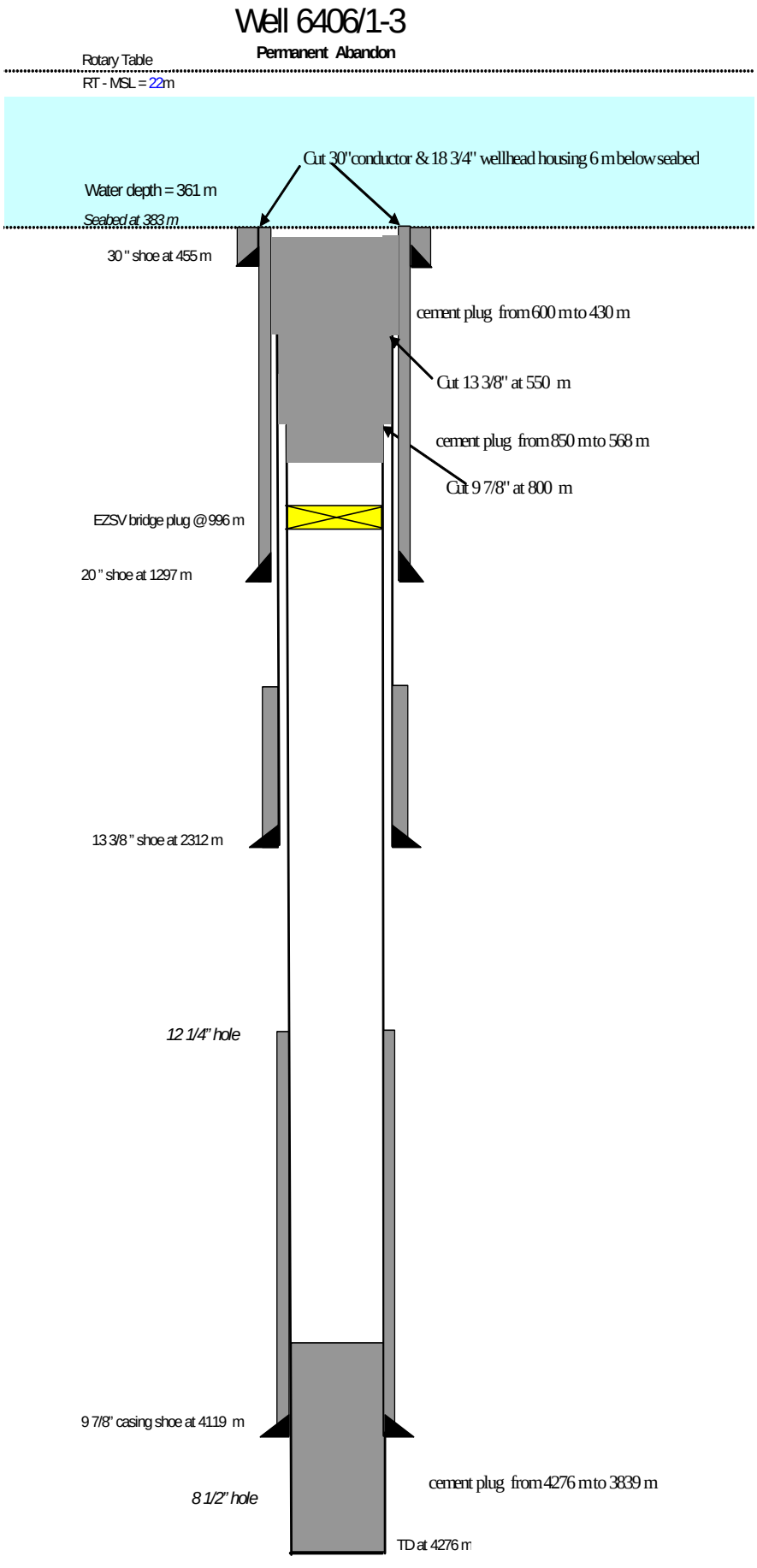
Circulation / Displacement / Squeeze

Time [mins.] Partial	Time [mins.] Progr.	Flow Rate [l/min]	Pressure [kg/cm^2]	Total Volume [l]	Operation Description	Final Press. [kg/cm^2]	Returns Vol. [l]
45	45	564		25400	Pumping slurry		
10	55	337		3370	Displacing cement slurry		

Supervisor: G. Jaffray - J. Hansen

Superintendent: R. Kennedy

3.5.1.11 P & A Sketch



3.6 Logistics

3.6.1 Offices

The drilling operations office was located at Eni Norge offices, Forus. The main logistics coordinator was placed at Vestbase in Kristiansund while a local logistics coordinator was placed at the Aker Base, Tananger. The main logistics coordinator at Vestbase used the local coordinator at the Aker Base to handle shipments of equipment sent from Stavanger to the rig/Vestbase.

3.6.2 Base

The operating base for the rig during the drilling of well 6406/1-3 was Vestbase in Kristiansund. In Stavanger the Aker Base in Tananger was used for shipments of equipment sent from Stavanger to the rig/Vestbase.

3.6.3 Helicopter

The helicopter services were contracted from CHC Helicopter Service. The helicopter base was at Kvernberget Airport at Kristiansund.

3.6.4 Boats

Eni Norge had one supply vessel and one stand-by vessel on permanent hire for the duration of the operations on well 6406/1-3.

3.7 SAFETY AND ENVIRONMENT

3.7.1 Risk Analysis Summary and Implementation

Before starting the drilling operations on the well 6406/1-3 a risk analysis session was carried out and documented in a report. The report was submitted to the rig for follow-up by the drilling supervisors.

During the drilling of the well, various types of safety meetings and drills were held on the rig:

32 Pre-job Meetings, Safety Meetings & Safe Job Analysis
1 Kick Drills
1 Stripping Drill

General Safety Meetings with the various crews were held frequently, and along with the various safety meetings a general operation meeting was held daily on the rig with key personnel to discuss upcoming operations and improvement of communications on the rig site.

3.7.2 Discharges, Emissions and Waste

Regular discharges of chemicals and cuttings from the drilling operation is given in the tables below. Total discharges of chemicals amounted to 868,8 tonnes, while total discharges of cuttings were estimated to be 1 542 tonnes.

Regular discharges to sea

Component	**Discharge in tonnes**
Cementing chemicals	14,6
Mud chemicals	842
Rig chemicals	11,7
Cuttings	1 542
Total discharges	**2 410**

Chemical discharges, categorized using SFT's color categories				
Categories	**Discharges in tonnes**			
	Cement	**Mud**	**Rig**	**Total**
Green	14,6	800	10,5	825,1
Yellow	0,025	42	1,2	43,5
Red	0	0	0,009	0,009
Total	**14,6**	**842**	**11,7**	**868,6**

Two accidental events resulted in minor discharges to sea. Total discharges were estimated to be 8 liters of hydraulic oil and synthetic organic based mud (SBM).

Accidental discharges:

Total amount of accidental discharges:	2 accidental discharges
Total volume discharged:	Approximately 8 liters
Incident 1:	Approximately 5 liters of hydraulic oil
Incident 2:	Approximately 3 liters of SBM

Hydraulic oil is assumed to be red or black, although the substance does not have a SFT colour category. The SBM spilt is assumed to contain less than 1 kg red substances.

A total of 1 527 tonnes of diesel was consumed during the drilling operation. The resulting emissions to air are given below.

Discharges to air from drilling operations:

Component	Emissions from rig (ton)
CO_2	4 887
NO_X	107
VOC	7,6
CO	10,7
SO_2	4,3
Total emissions (ton)	**5 017**

Waste was segregated on the rig and sent to Westbase (Maritime Waste Management, MWM) for further handling, treatment and recovery onshore. Total amounts of waste generated are given in the table below.

Industrial waste Category/fraction	Total (kg)	Recycl. %	Segreg. %	Final treatment
Food contaminated waste	2 575	60,0	100,0	Energy recovery
Paper/Cardboard	4 600	100,0	100,0	Material recovery
Mixed plastic	220	100,0	100,0	Material/Energy rec
Plastic foil	160	100,0	100,0	Material/Energy rec
Wood	14 800	100,0	100,0	Energy recovery
Glass	60	100,0	100,0	Material recovery
EE-waste	610	100,0	100,0	Material recovery
Other sorted fractions*	3 800	73,7	100,0	Segregate - remelt
Unsorted waste	49 365	45,0	0,0	Recovery/Land fill
Total Industrial waste	**76 190**	**61,7**	**35,2**	

* Protectors: 2 800 kg + Ceramic tiles: 1 000 kg

Metal Waste Category/fraction	Total (kg)	Recycl. %	Segreg. %	Final treatment
Metals	47 830	100,0	100,0	Segregate=>remelt
Wire	30 500	100,0	100,0	Segregate=>remelt
Empty barrels	600	100,0	100,0	Segregate=>remelt
Total Metal waste	78 930	100,0	100,0	

Hazardous waste Category/fraction	Total (kg)	Recycl. %	Segreg. %	Final treatment
Batteries	122	95,0	100,0	Material recovery
Fluorescent tubes/lightbulbs	15	95,0	100,0	Material recovery
Paint	1 280	80,0	100,0	Material, energy
Solvents	450	80,0	100,0	Material, energy
Waste oil	47 160	90,0	100,0	Energy recycling
Oily waste	51 085	95,0	100,0	Material, energy
Spray cans	105	97,0	100,0	Material recovery
Drilling waste	1 979 450	35,0	100,0	Material, energy
Chemicals w/o halogen and w/o heavy met.	30	90,0	100,0	Material, energy
Total Hazardous waste	**2 079 697**	**37,8**	**100,0**	

Total waste generated	**2 234 817**	**40,8 %**	**97,8 %**

Estimated recycling rate (material and/or energy recycling) is 40,8 %. Segregation rate for all waste is estimated to 97,8 %.

A summary of all discharges, emissions and wastes deposited onshore are given in the table below.

Total emissions, discharges and non-recycled waste generation

Component	Amount in tonnes
Chemicals used during drilling	868,6
Drill Cuttings	1 542
Emissions to air	5 017
Waste deposited at land fills	27,2

4. ENCLOSURES

ENCLOSURE 1 6406/1-3 Composite Log