

FINAL WELL REPORT

34/10-49 S

34/10-49 ST2

34/10-49 B

34/10-49 A

M-TO RESU 04 00086

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Author(s)/Source(s):
Svein Erik Ingdahl SST GEOP BER, Jogvan Hugo Hansen DWS SSPD SLA

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Responsible (Organisation unit):	Responsible (Name):	Date/Signature:
SST GEOP BER	Ivar Martin Morvik	19.5.09 <i>[Signature]</i>
Recommended (Organisation unit):	Recommended (Name):	Date/Signature:
Leader mobile units, D&W EXNC MO	Thor Emil Bensvik <i>for</i>	19.5.09 <i>[Signature]</i>
Approved by (Organisation unit):	Approved by (Name):	Date/Signature:
Vice President, EPN D&W EXNC	Geir Tungesvik <i>for</i>	19.6.09 <i>[Signature]</i>

Final Well Report (Exploration)
34/10-49 S
34/10-49 S T2
34/10-49 B
34/10-48 A

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1 Introduction

1.1 Well data record

34/10-49 S, 49-S T2, 49 B, 49 A

Licence number:	PL050 / PL050B	
Licences:	Statoil (operator)	61 %
	Petoro:	30 %
	Norsk Hydro	9 %
Block number:	34/10	
Well designation:	34/10-49 S / 49 S T2, 49 B, 49 A	
Classification:	Exploration	
Prospect:	Epidot, Alun, Spinell, Sølvkåpe, Apollo	
Country:	Norway	
Area:	Tampen Spur	
Drilling Unit:	Ocean Vanguard	
Type:	Semi-submersible	
RKB-MSL:	21,5 m	
Water Depth:	159,5 m	
Well Path:	Deviated	
TD well 34/10-49S:	4126 m MD/3079.2 m TVD RKB	
TD well 34/10-49 ST2:	4563 m MD/3159.8 m TVD RKB	
TD well 34/10-49 B:	5480 m MD/3156 m TVD RKB	
TD well 34/10-49 A:	3312 m MD/2471.5 m TVD RKB	

Geographic coordinates:

Geographic coordinates	Latitude:	N 61° 07' 45,06"
(Surface)	Longitude:	E 02° 05' 26,13"
Datum/Spheroid:	ED50 / INT.1924	
UTM coordinates:	N 6 777 678 m	
	E 451 012 m	
Zone:	UTM Zone 31, CM 03° E	

Deviation: 1,2 meter in direction 209,3° from intended position.

Distances: Approx. 193 km NW of Bergen, 4,5 km east of western license boundary (PL050)

All depths in this programme are related to m MD RKB, unless otherwise stated.

	Declination	Htotal	Magnetic Dip
BGGM 2006 (at 2187 mTVD MSL)	-3,019°	50745 nT	73,111°
Local model (IFR)	-0,14°	-197	-0,200°
Total:	-3,16°	50548	72,91°

Magnetic Declination Model used: BGGM 2006, calculated for 03.05.06

To convert a Magnetic direction to a True direction: subtract: 3,053°
 To convert a True direction to a Grid direction: add: 0,804°
 To convert a Magnetic Direction to a Grid Direction: subtract: 2,249°

1.2 Well objectives

The objectives of the well were to explore the Apollo, Epidot, Alun and Spinell prospects. An extension of the well path was done to reach the Sølvkåpe prospect further southeast (Figure 1, 2 and 3).

1.2.1 Primary objective

The main objective of well 34/10-49 A was to test the hydrocarbon potential of the Upper Shetland Group, the Apollo prospect.

1.2.2 Secondary objectives

The secondary objectives were to test the hydrocarbon potential in 3 leads. The secondary prospects were drilled ahead of the main prospect and were successively penetrated from top to bottom.

The objective of the well 34/10-49 S was to test the hydrocarbon potential of the Brent- and Dunlin Groups.

The objective of the well 34/10-49 ST2 was to test the hydrocarbon potential of the Brent and Dunlin Groups.

The objective of well 34/10-49 B was to test the hydrocarbon potential of the Viking Group and the Lower Shetland Group.

1.3 Result of the well

Secondary prospects were drilled ahead of the main prospect. The well 34/10-49 S drilled into hydrocarbon filled sandstones of the Brent Group (the Ness-, Etive- and Rannoch Formations) at 2490 m MD / 2382.3 m TVD. The Cook Formation was penetrated at 2740 m MD / 2556.1 m TVD and found to be water bearing and the Statfjord Formation was penetrated at 3278 m

MD / 2773.8 m TVD showing hydrocarbon bearing sandstones. Commenced drilling to just above the Spinell project where it was decided to pull out of hole and log. Due to restrictions in the hole after logging it was decided to plug back and do a sidetrack from 2846 m MD.

A technical side track had to be done, well 34/10-49 ST2. This well drilled through the Spinell project as planned, but this structure was water filled. After drilling this reservoir, the well path was build to 90 degrees and extended to the Sølvkåpe project (the Svarte Formation). This was not a part of the original plan for the Apollo project, but simulations showed that a 1200 m extension (8 days of drilling) relatively easy could be implemented. This could save a dedicated well to Sølvkåpe in 2007/-08.

The well 34/10-49 B drilled through the Viking Group and into the Cromer Knoll Group without detecting any hydrocarbon bearing sands.

The well 34/10-49 A drilled through the Shetland Group without detecting any sand and the sands in the Brent Group were water bearing.

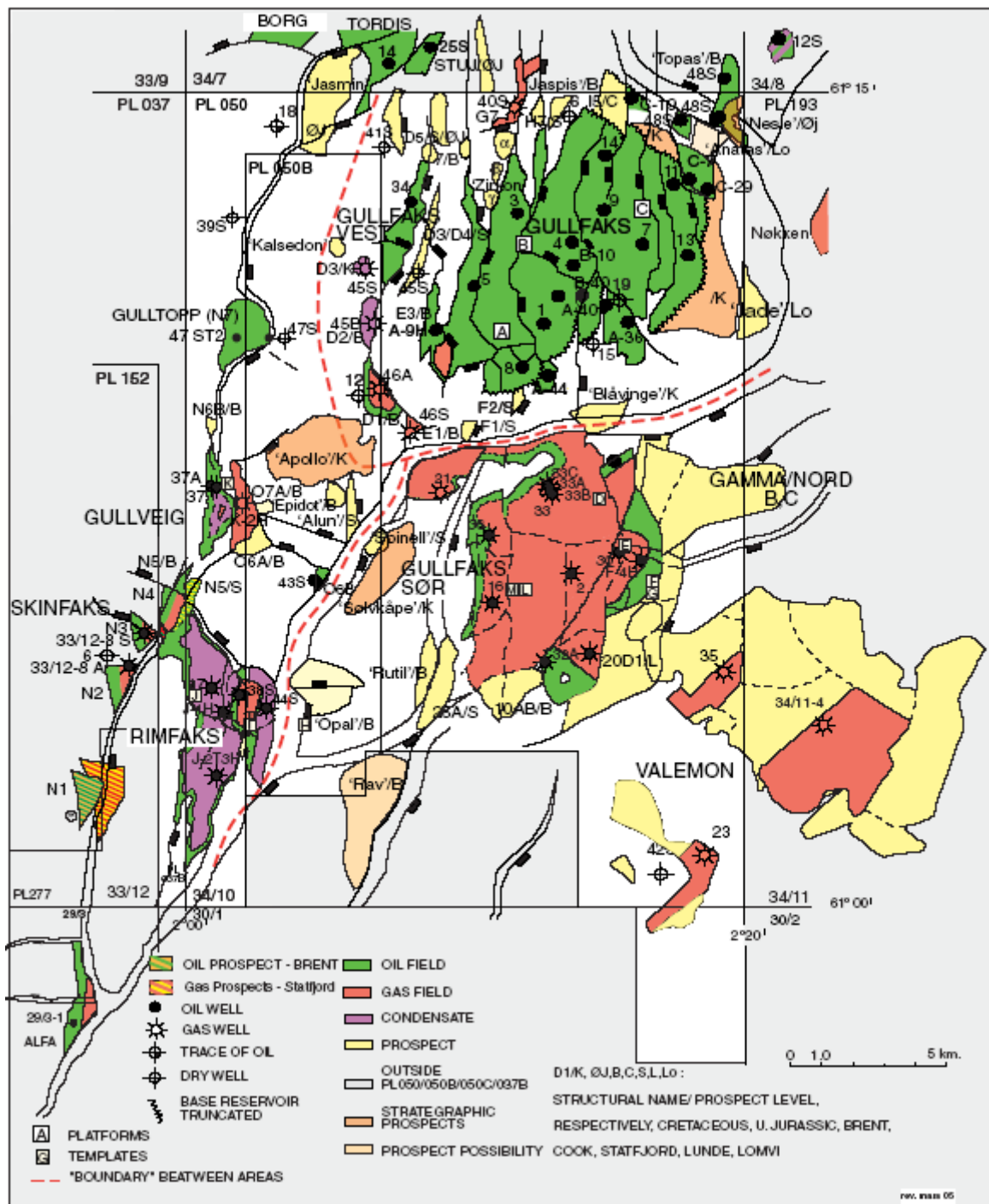


Figure 1 Field and prospects in block 34/10, licences PL050/050B/050C/037B/037E /152/277

Letebrønn 34/10-49 S/A, plassering og potensial

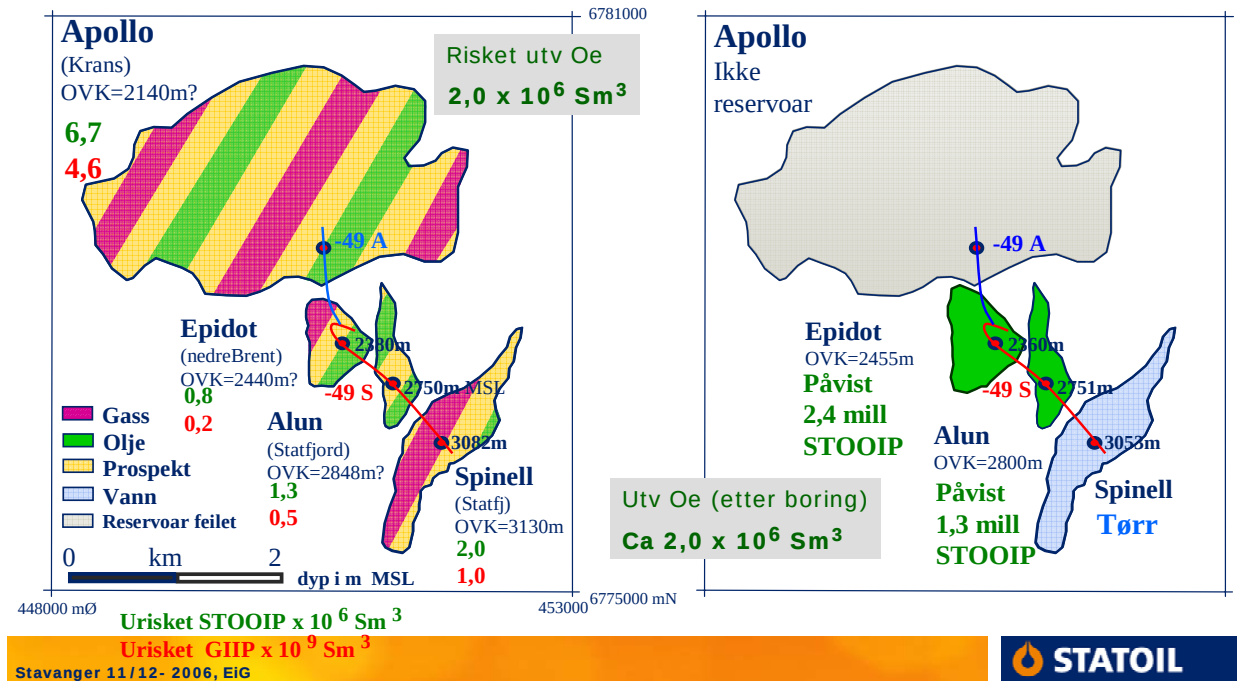
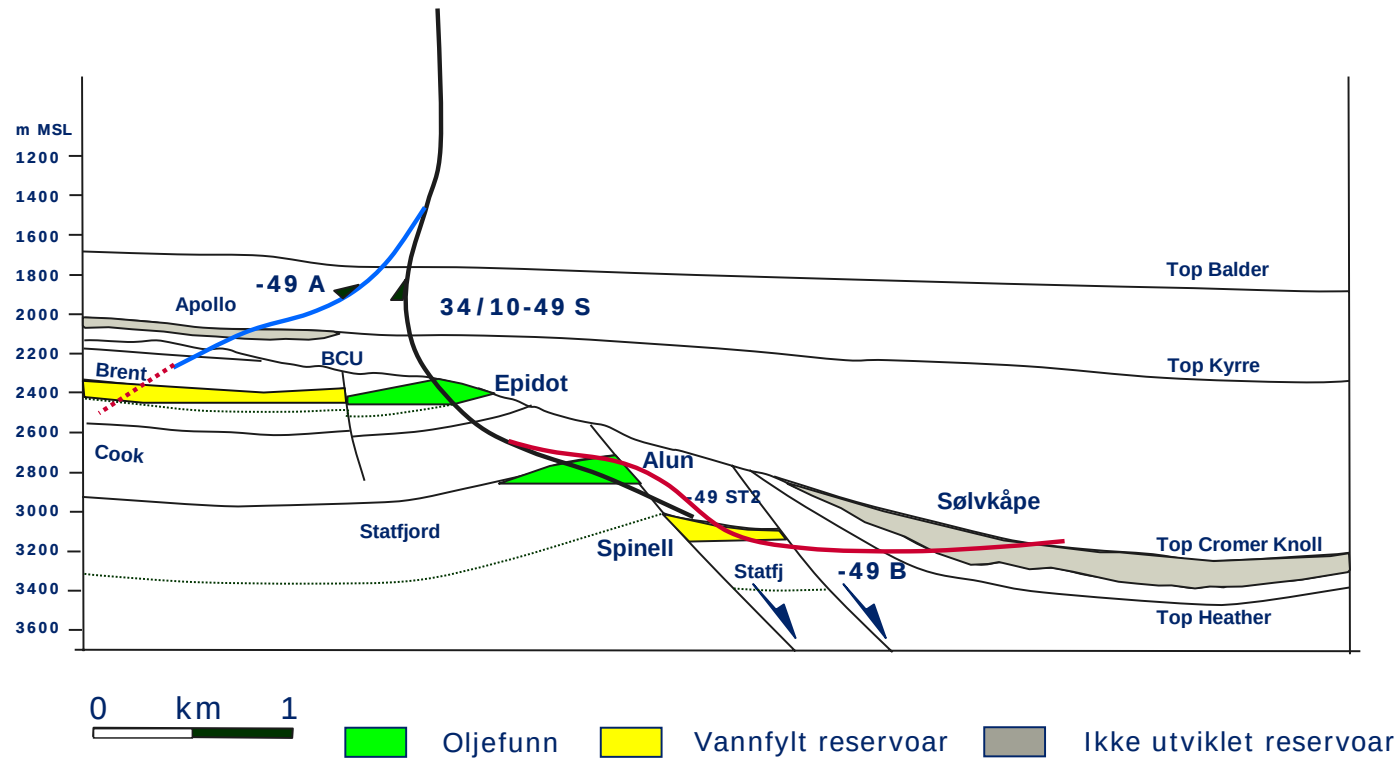


Figure 2 The position of the Apollo prospect and the leads.

Geologisk snitt langs brønn, 34/10-49 S, ST2/B and 49 A



Stavanger 11/12- 2006, EiG



Figure 3 **Profile of the prospect area, southwest of Gullfaks A**

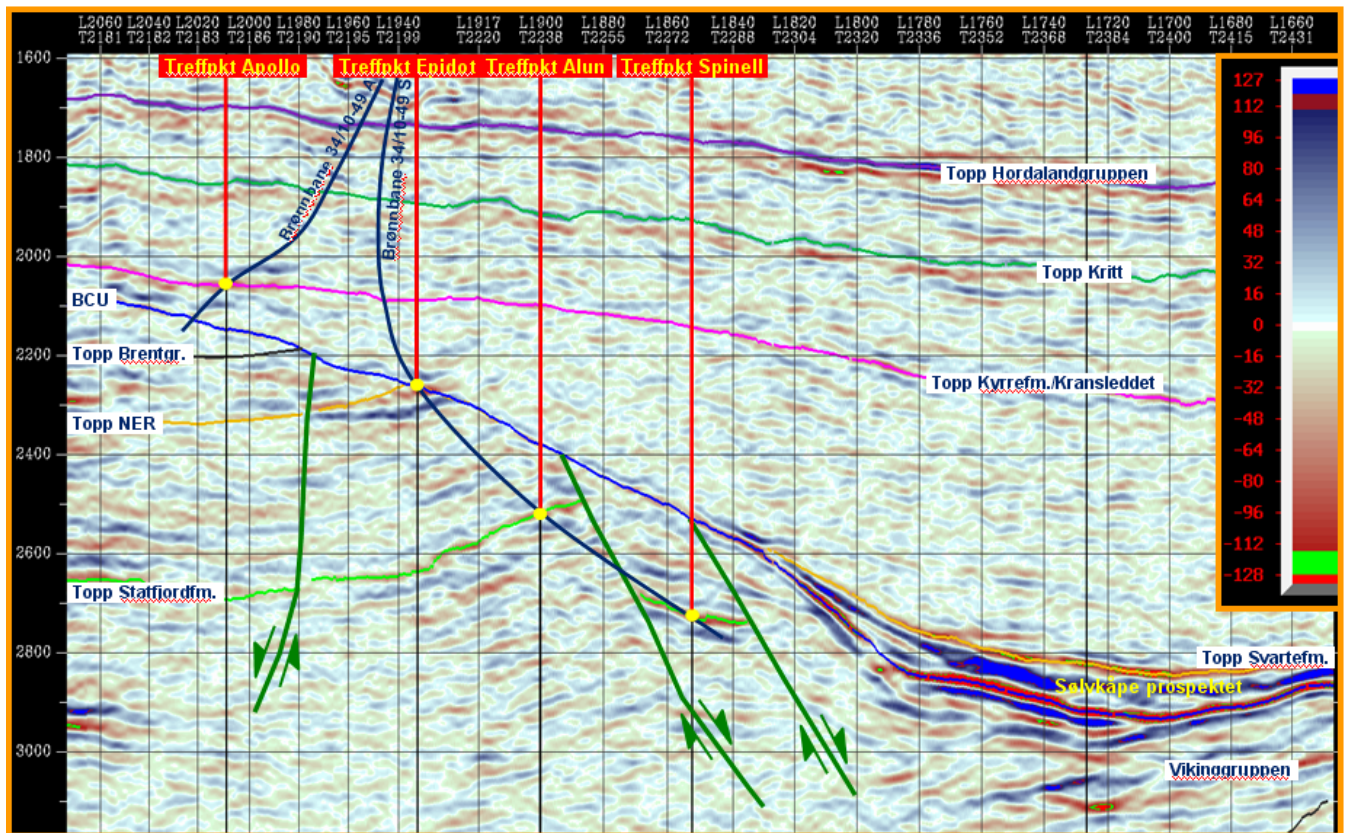


Figure 4 Seismic well tie (ST9607 exploration, time migrated) through: the Apollo (Krans), Epidot (Brent), Alun (Statfjord) & Spinell (Statfjord) prospects

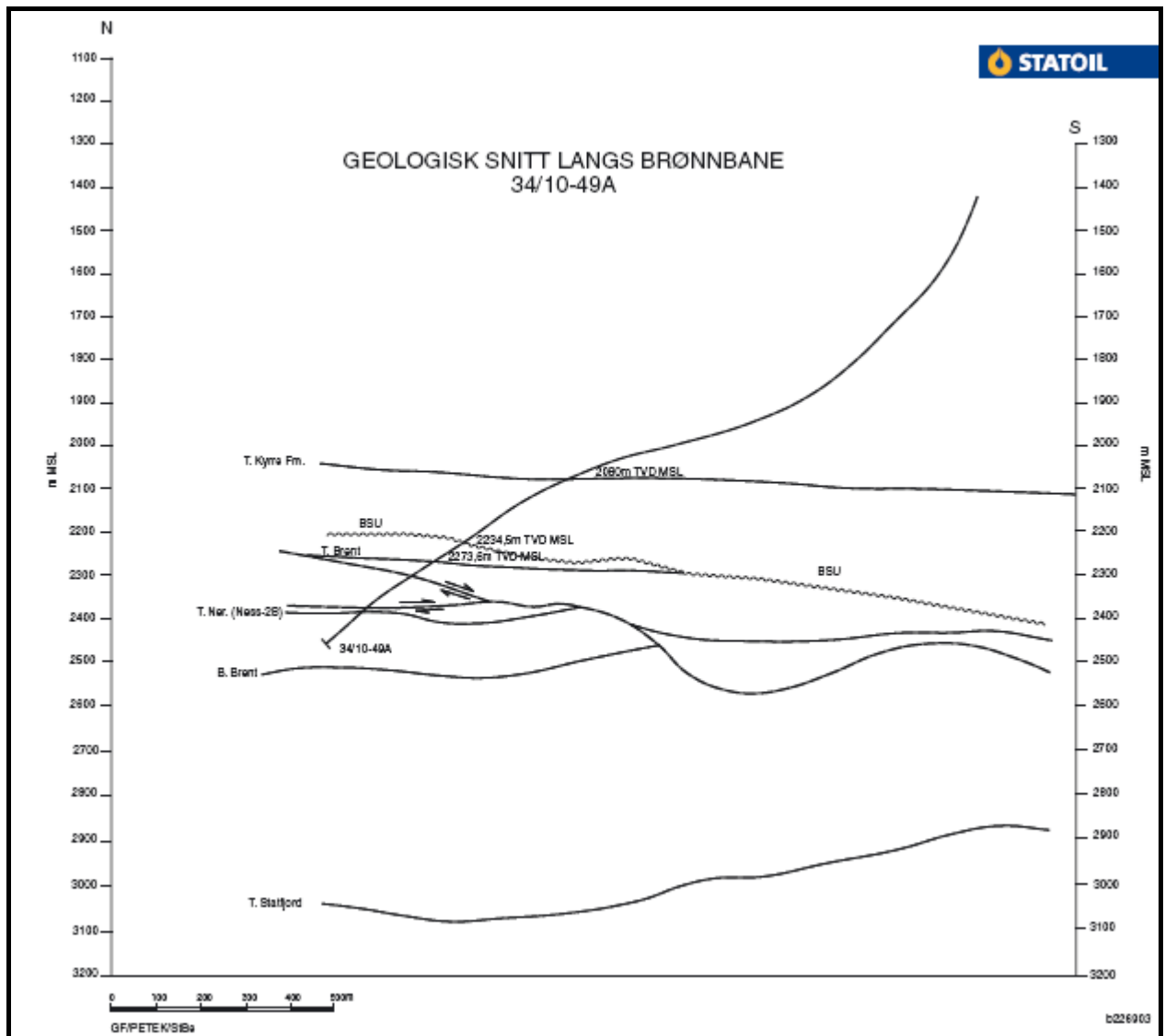


Figure 5 Geological section along the sidetrack 34/10-49 A

1.4 Drilling summary

1.4.1 Casing

Table 1.1.1 Casing programme summary, well 34/10-49 S, -49 ST2, -49 B

Casing	Shoe depth [m MD, drillers depth]	LOT / FIT [Equivalent mud weight]
30"	208	
20"	1045	FIT: 1.50 sg
13 3/8"	2019.5	FIT: 1.82 sg

Table 1.1.2 Casing programme summary, well 34/10-49A

Casing	Shoe depth [m MD, drillers depth]	LOT / FIT [Equivalent mud weight]
30"	208	
20"	1045	FIT: 1.50 sg
17 1/2"	2010	FIT: 1.82 sg
13 3/8"	2117.5	FIT: 1.82 sg

1.4.2 Drilling fluids

Table 1.2 Drilling fluids summary

Section	Section TD [m MD, drillers depth]	Max mud weight [g/cm ³]	Mud type
36"	210	1.03	Seawater / CMC pillsBentonite
26"	1050	1.03	Seawater / CMC pillsBentonite
17 1/2"	2031.5	1.50	Paratherm OBM
8 1/2"x9.05"	4126	1.67	Paratherm OBM
8 1/2"x9.05"	4563	1.60	Paratherm OBM
12 1/4"	2124	1.50	Paratherm OBM
8 1/2"x9.05"	3312	1.67	Paratherm OBM

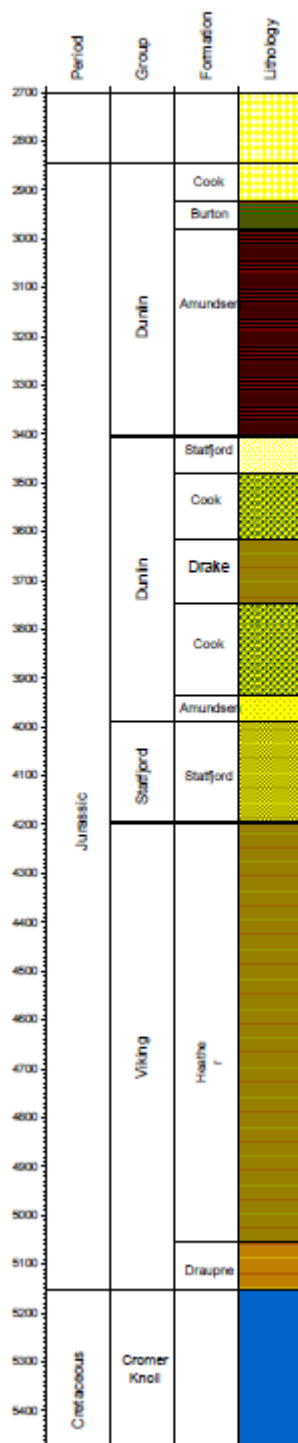
1.5 Data acquisition summary

Licence: PL150	Data Acquisition Summary	
RT-MSL: 21.5	Epidot / Alun	Made by: Svein Erik Ingdahl
Water depth 137.5 m	34/10-49 S	Date: 20.05.2008

Period	Group	Formation	Lithology	Coring	Geological Sampling	Logging Programme for /MWD /LWD and electrical logging
0						
100						
200	Quaternary			3R"		
300						
400						
500						
600						
700						
800						
900						
1000		Utsira				
1100						
1200						
1300						
1400						
1500						
1600						
1700						
1800						
1900						
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2300						
2400						
2500						
2600						
2700						
2800						
2900						
3000						
3100						

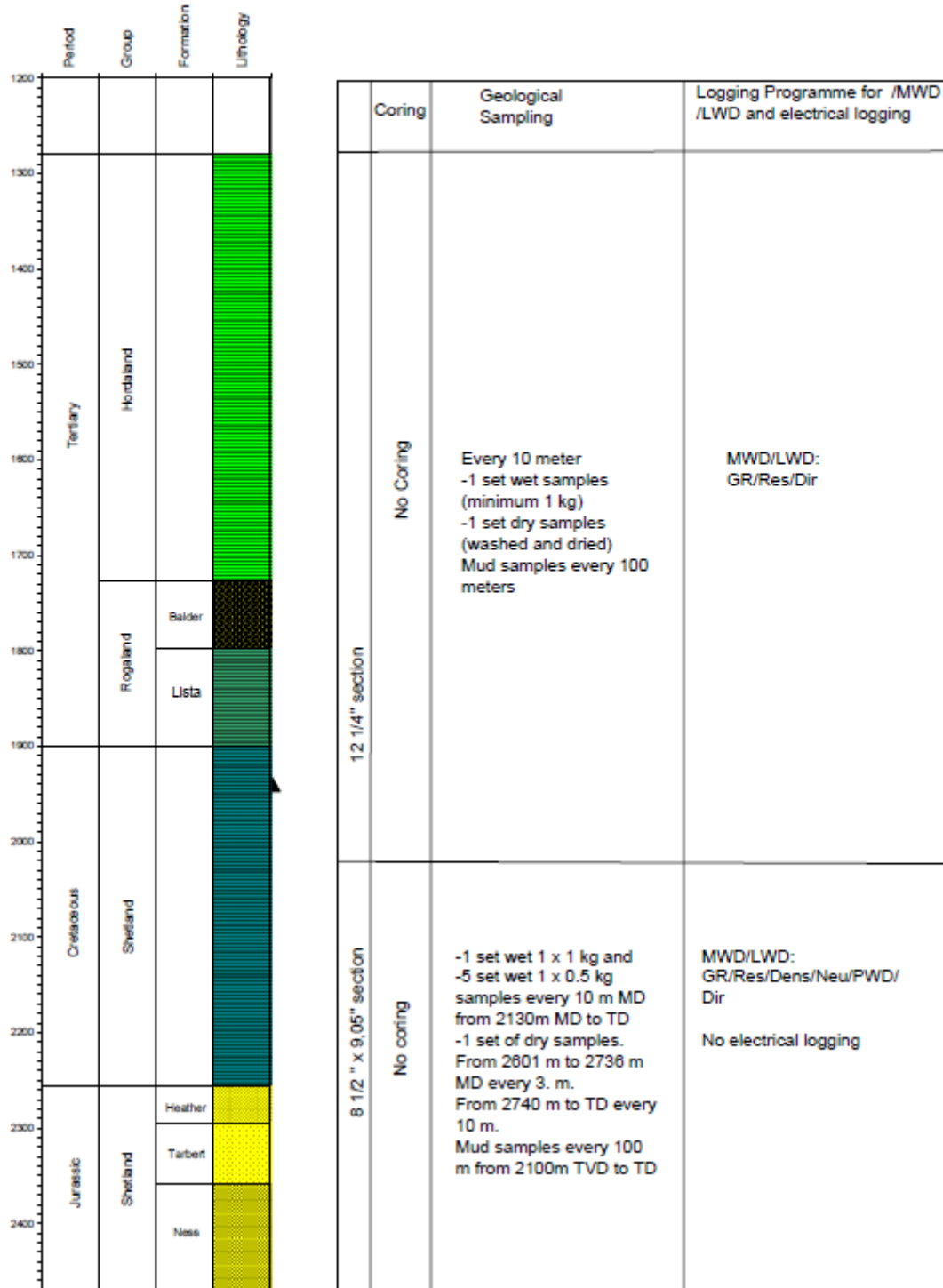
	Coring	Geological Sampling	Logging Programme for /MWD /LWD and electrical logging
3R"			
2 1/4" section	No Coring	No returns	MWD/LWD: GR/RES/Dir
17 1/2" section	No Coring	Every 10 meter -1 set wet samples (minimum 1 kg) -1 set dry samples (washed and dried) Mud samples every 100 m	MWD/LWD: GR/Res/Dir
12 1/4" section	No Coring	Every 10 meter -1 set wet samples (minimum 1 kg) -1 set dry samples (washed and dried) Mud samples every 100 m	MWD: GR/Res/Dir No wireline logging
8 1/2"	No coring	-1 set wet 1 x 1 kg and -2 set wet 1 x 0.5 kg samples every 5 m MD from 50m MD above base Cretaceous to TD. -1 set of dried samples. Mud samples every 100 m above reservoir Mud samples every 20 m in reservoir	MWD/LWD: GR/Res/Dens/Neu/FPWD/Dir Electrical logging: Pressure points (down) Fluid samples GR/PEX (up)

Licence: PL150	Data Acquisition Summary Alun / Spinell / Sølvsåpe 34/10-49 ST2 / B	StatoilHydro Made by: Svein Erik Ingdahl
RT-MSL: 21.5		Date: 20.05.2008
Water depth 137.5 m		



Coring	Geological Sampling	Logging Programme for /MWD /LWD and electrical logging
8 1/2" x 9.05" No Coring	-1 set wet 1 x 1 kg and -4 set wet 1 x 0.5 kg samples every 5 m MD from 50m MD above base Cretaceous to TD. -1 set of dried samples. Mud samples every 100 m Mud samples every 20 m in reservoir	MWD/LWD: GR/Res/Dens/Neu/FPWD/Dir No electrical logging:

Licence: PL150	Data Acquisition Summary Apollo 34/10-49 A	StatoilHydro
RT-MSL: 21.5		Made by: Svein Erik Ingdahl
Water depth 137.5 m		Date: 20.05.2008



2 Exemptions and non-conformances

Exception from	Report no	Date	Title
NPD	None		
AR/WR	DocMap: 36877 DocMap: 37047		
Drilling program	NA		

3 Health, safety, environment and quality (HSE&Q)

3.1 RUH

Type (colour code)	Synergi code	Number of
Undefined		1
Red	2	1
Green	5	29
Green	4	14
Sum		45

3.1.1 RUH details

WELLBORE: NO 34/10-49 A

Synergi no	Hazard	Description
391012	4	Synergi 391012 (Closed) - 22.05.2006 - Accident - Irritation on left eye The person wake up ay 05:50 Monday morning 22.05.06 with pain in the eye. contacted medic. Medic examined the eye and found something on the eye, drogged the eye and contacted doctor ashore, and agreed to send the person ashore.
393970	4	Synergi 393970 (In process) - 08.06.2006 - Accident - Cook Cooking meat in a pan. Lifted the meat up with a small fork when the meat slid off the fork and back into the water, causing some boiling water to splash on the cooks clothes.
391186	5	Synergi 391186 (Closed) - 24.05.2006 - Other non-conformities - Mud skip One mud skip sent out to Ocean Vanguard. On the side it was written: Do not use, damaged lifting equipment. This note was discovered after the skip was filled up. The lifting gear was checked and found ok. Seemed that two shackles had been replaced.
394299		improper shipping of gas cylinders

WELLBORE: NO 34/10-49 B

Synergi no	Hazard	Description
390323	4	Synergi 390323 (In process) - 20.05.2006 - Other non-conformities - Stand falling across derrick While PU whipstock the tugger was used to lift the whipstock through the V-door. The tugger caught a finger on the monkey board and a stand dropped across the derrick
388900	5	Synergi 388900 (Closed) - 10.05.2006 - Accident - Removing bolts from hatch cover of fresh water tank Due to bolts being very tight, IP used a small hammer to tap on spanner to try and break the bolts free. During this process the spanner slipped and IP hit himself with the hammer on his right leg just below the knee.

WELLBORE: NO 34/10-49 S

Synergi no	Hazard	Description
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Synergi no	Hazard	Description
382241	2	Synergi 382241 (Approved) - 07.04.2006 - Near miss - Wooden piece from bumper bar on crane fell to deck. On the main rig cranes there are mounted wooden bumper bars to protect crane structure from main block. They are located underneath the boom and on each crane there are 4 wooden bars, each 4½ x 4½ and up to 4 meters long. From the port crane a piece of approximately 1 meter length and the weight of 1,1 kg fell to the deck. The height from where it fell is approximately 30 meter. There were no people there when it fell and the area had been chained off.
383144	4	Synergi 383144 (In process) - 12.04.2006 - Condition - Found starboard forward lower guide shoe bolt on Crown block loose. During greasing operation it was noticed that starboard fwd lower guide shoe was loose. One bolt had worked itself loose allowing shims to partially come out from between guide and framework. Lockwire on bolt was intact
383302	4	Synergi 383302 (Closed) - 13.04.2006 - Condition - Observed left handle on container open when offloading boat. When offloading Havila Faith, it was observed that left handle on container AMB 1806 was open. The right handle (that locks the doors) was closed/secured.
383476	4	Synergi 383476 (In process) - 15.04.2006 - Other non-conformities - Observed drop in standpipe pressure while drilling and POOH. Observed drop in standpipe pressure and POOH. On surface it was observed that O-ring at mandrell on Andergauge Underreamer was out of place, indicating leakage point. Downtime 32 hrs
383581	4	Synergi 383581 (Closed) - 16.04.2006 - Condition - While backloading container to boat a piece of wood was observed stuck under container. During backloading to Bourbon Tampen the roustabout observed a piece of wood, 60 cm long and 3 kg, stuck under a container. The piece was removed and the container was lifted down to the boat.
384549	4	Synergi 384549 (Closed) - 20.04.2006 - Condition - A bulldog clip was hanging on edge of basket. A bulldog clip was hanging on edge of basket. Could have felt off if basket was lifted.
384557	4	Synergi 384557 (Closed) - 20.04.2006 - Condition - Found the welded frame in slipjoint area broken off at top point. The welded frame on the wall portside besides slip joint area was broken off at top point. The frame was standing but at an angle.
384733	4	Synergi 384733 (Closed) - 20.04.2006 - Condition - Shackel hanging in BOP house without splitpin. Shackel hanging in BOP house without splitpin. Shackel was removed.
385087	4	Synergi 385087 (Closed) - 23.04.2006 - Condition - Found piece of pipe, 2.2m long Ø 1/2" on top of roof. Found piece of pipe, 2.2m long Ø 1/2" on top of roof. Half of piece sticking out in air. Removed same
385090	4	Synergi 385090 (Closed) - 23.04.2006 - Condition - Found pinch bar on walkway at height in moonpool area. Found pinch bar on walkway at height in moonpool area. Removed same.
385287	4	Synergi 385287 (Closed) - 24.04.2006 - Condition - Found unsecured slings on top of BOP carrier. Found unsecured slings on top of BOP carrier.
385289	4	Synergi 385289 (Closed) - 24.04.2006 - Condition - Found 2 pieces of sheet metal, 2 x 1 m, on top of beam on highest level inside BOP house. Found 2 pieces of sheet metal cladding, 2 x 1 m, on top of beam on highest level inside BOP house. Removed same.
379769	5	Synergi 379769 (Closed) - 24.03.2006 - Condition - Found spanner in derrick whilst working. Removed and brought down Found spanner in derrick whilst working. Removed and brought down
379797	5	Synergi 379797 (Closed) - 24.03.2006 - Condition - Loos girder in ROV moon pool Girder to protect fluorescent lamp was loos in the ROV moon pool
379825	5	Synergi 379825 (Closed) - 20.03.2006 - Condition - 3 bolts missing on floodlight Floodlight on top of the lower eracking arm box only had one out of four bolts left in securing bracket. Replaced missing bolts with new ones.
379833	5	Synergi 379833 (Closed) - 22.03.2006 - Accident - Motorman Performing house keeping duties in engine room. Mowed a half 45 gallon drum across the grating when drum caught on the edge of the grating, causing his hands to slip on the drum. The thumb was cut by the edge of the drum. Reported to rig Medic and had the cut cleaned and dressed before returned to his normal duties.
380803	5	Synergi 380803 (Closed) - 30.03.2006 - Condition - Loose pices of wood on top of crane boom. Loose pices of wood on top of crane boom.

Synergi no	Hazard	Description
380823	5	Synergi 380823 (Closed) - 28.03.2006 - Condition - Rusted cable conduit on aluminium roof. Observed rusted cable conduit on aluminium roof. Reported to electrician who secured it until the weather improved to allow basket access
381382	5	Synergi 381382 (Closed) - 03.04.2006 - Other non-conformities - Weatherford feilsending av utstyr til 13 3/8" casing jobb. Weatherford personell ombord på Ocean Vanguard fant mandag ettermiddag 03.04.2006 ut at de manglet Oilwell adapter plate for FMS. Personell kom ombord fredag 31.03.2006. Dette fører igjen til hasteleveranse fra Stavanger for casing jobb.
381487	5	Synergi 381487 (Closed) - 02.04.2006 - Condition - Piece of metal on top of grating at crown. During derrick inspection 02.04.2006 a piece of metal on top of grating at crown was found. Removed same.
381857	5	Synergi 381857 (Approved) - 05.04.2006 - Near miss - 13 3/8" casing joint fell out of grippers on Pipe Deck Running 13 3/8" casing. Pipe Deck Crane with grippers lifts casing joints from pipe deck to catwalk. The crane had just lifted a new joint approximately 1 meter when this fall back on top of the others.
382526	5	Synergi 382526 (In process) - 09.04.2006 - Near miss - 5 1/2" drillpipe stand felled across derrick While pulling out of hole the derrickman was racking pipe back on the forward side. After the forward side was full the derrickman then started to rack pipe back on the aft side. When the derrickman started to rack on the aft side he selected row four and row two opened which already had a stand of 5 1/2" drillpipe in it. This caused the stand of pipe to fall across the derrick.
383480	5	Synergi 383480 (Closed) - 15.04.2006 - Near miss - Let go of rope whilst lowering a battery from radio room roof. Whilst lowering a battery from radio room roof involved person let go of rope an the battery dropped approxematly 1 m to deck below.
384105	5	Synergi 384105 (Closed) - 18.04.2006 - Other non-conformities - Had leakage on MP #2 and MP #3. Experienced problems with mudpumps and had to change out wearplates on MP #2 and MP #3. Changed out liner on MP #2.
384412	5	Synergi 384412 (Closed) - 20.04.2006 - Other non-conformities - Unable to open upper pipe ram after performing function test on same. After completion of function test of BOP the upper pipe ram could not be opened. Troubleshoot problem and rectified problem by resetting of acoustic pod. Function tested the upper ram on both pods to verify problem solved.
384413	5	Synergi 384413 (Closed) - 20.04.2006 - Other non-conformities - Not able to leak test lower safety valve on drilling machine. During leak test of DDM safety valves and mudhose the lower safety valve did not pass the test.
384447	5	Synergi 384447 (Closed) - 21.04.2006 - Other non-conformities - A hydraulic hose on Iron roughneck bursted. While running in hole a hydraulic hose on Iron roughneck bursted.
384468	5	Synergi 384468 (In process) - 19.04.2006 - Condition - Prevention of dropped object from drillfloor. To assist in the prevention of dropped objects from outside drillfloor it would help to have fine grating (mesh) welded in between handrails.
384471	5	Synergi 384471 (Closed) - 19.04.2006 - Condition - Securing lids on plastic drums placed on balcony. The plastic drums with plastic lids that is closed with a clip needs to be checked/locked at all times.
384474	5	Synergi 384474 (Closed) - 19.04.2006 - Condition - Noticed that one lifting point/hole on marine riser landing joint is only 3-4 mm thick. Noticed that one lifting point/hole on marine riser landing joint is only 3-4 mm thick. The other side is 10 - 12 mm thick.
384524	5	Synergi 384524 (Closed) - 20.04.2006 - Condition - Found spanner on roof at aft lifeboat station. A spanner was found on roof at life
384550	5	Synergi 384550 (In process) - 20.04.2006 - Condition - Piece of steel (bar) found on top of beam beside tensioners. Piece of steel (bar) found on top of beam beside tensioners. Removed same.
384553	5	Synergi 384553 (Closed) - 20.04.2006 - Condition - Found one missplaced wrench in a window front / port side pipe deck. Found one missplaced wrench in a window front / port side pipe deck. Removed same.

Synergi no	Hazard	Description
384732	5	Synergi 384732 (Closed) - 21.04.2006 - Condition - Found 2 hose fittings on top of the Halliburton tank. Found 2 hose fittings on top of the Halliburton tank. Throw them into metal skip.
385582	5	Synergi 385582 (Closed) - 26.04.2006 - Near miss - Cover from helideck perimeter light detach itself and blown onto the pipe deck Whilst crew change helicopter was on final approach, personnel observed cover from helideck perimeter light detach itself, and blown onto the pipe deck. No personnel were in the area at this time. The cover is approx. 0.5 m long and weights 0.2 kgs. No previous damage was noted to the cover and light fitting. All remaining lights have been inspected to prevent recurrence.
386130	5	Synergi 386130 (Closed) - 26.04.2006 - Condition - Ratchet strap lying on rack base unattached to anything Changed out acetylene bottles from rack. Found ratchet strap lying on rack base unattached to anything. It could have fallen out of rack when transferred from upper deck to lower deck.
386778	5	Synergi 386778 (Closed) - 27.04.2006 - Condition - Shackles underneath rotary table without securing pins. Observed shackles underneath rotary table without securing pins.

WELLBORE: NO 34/10-49 ST2

Synergi no	Hazard	Description
387147	5	Synergi 387147 (Closed) - 01.05.2006 - Condition - Potential dropped objects in P.C 2 stores Potential dropped objects with boxes on shelves down P.C 2 Stores. Also fire extinguishers not secured with rope. Spoke to area supervisor and agreed.
387916	5	Synergi 387916 (In process) - 07.05.2006 - Other non-conformities - Dirty cuttings skips Cutting skips delivered to Ocean Vanguard were not cleaned and cuttings were still inside. One skip lifted had a weight of 3 ton. Empty skip weight is 1.6 ton.

3.2 Experience listing

Subject:	Drilling Hordaland GP with high overbalance.		
Section:	NO 34/10-49 S, 17 1/2"		
Rep date:	17.07.2006		
Keywords:	DRILLING		
Downtime:		Pot time improvements:	
Comp inv:	Halliburton		
References:			
Synergi no:		Cost:	
Synergi title:			

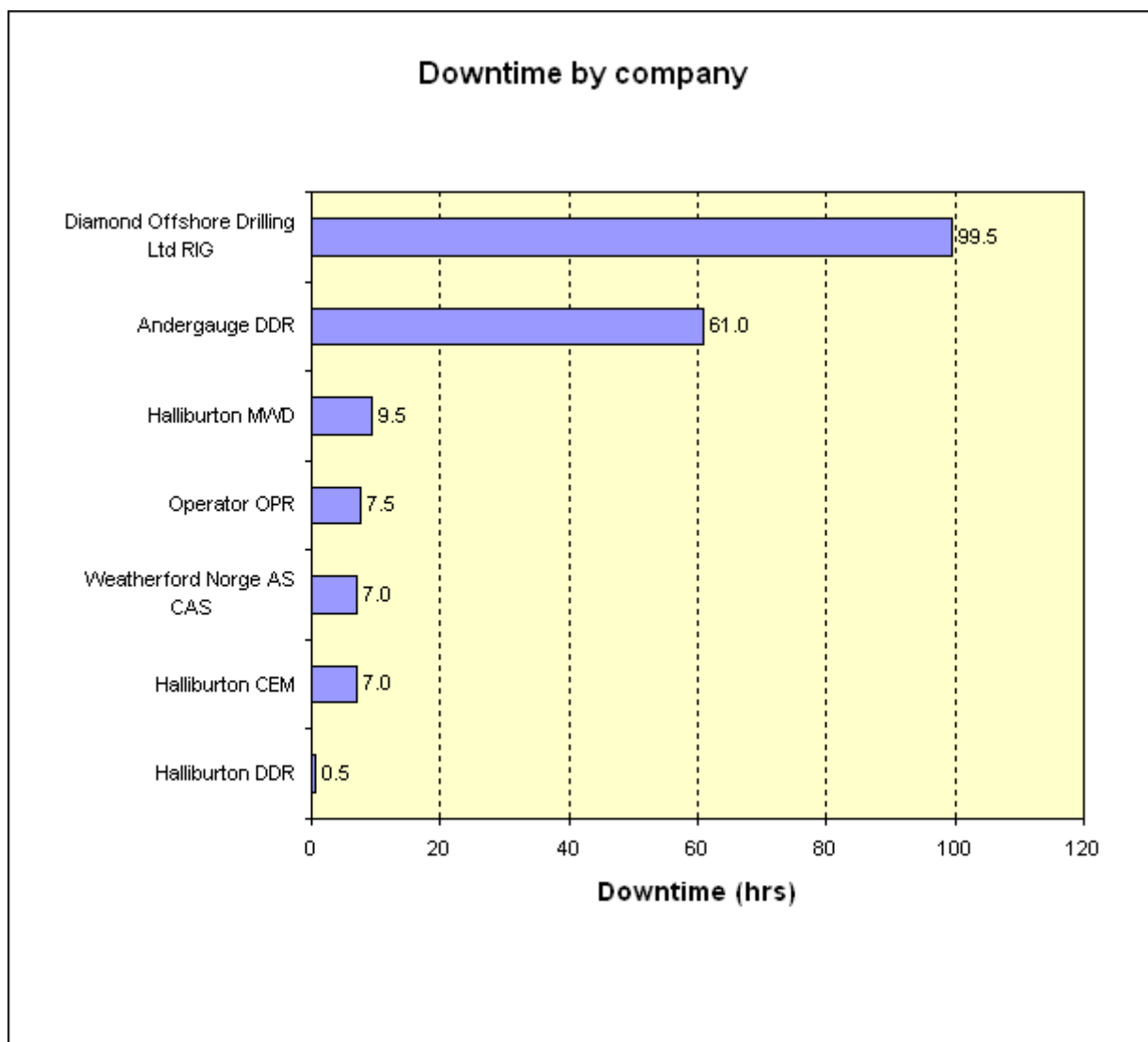
Description:

This section was drilled with Paratherm OBM and 1.40 s.g. MW. The sands in sandy part of Hordaland Gp consisted was not cemented. The fact that we were drilling with OBM could did not cure the problem we had with overbalance. This part is normal pressured so we had roughly 30 points of overbalance. We experienced reverse drilling breaks when drilling into sands, from 35-40 m/hr down to 7-10 m/hr. Slow drilling in general made steering in this part of the well a challenge.

Immediate solution:

Future recommended solution:

3.3 Incidents by service and company



SERVICE COMPANY: Casing Crew Service CAS Weatherford Norge AS

WELLBORE: NO 34/10-49 A

Incident start time	Failure code	Synergi no	Title	Quality cost		Downtime		
				NOK	NOK/d	Total hrs	Comp share %	Comp share hrs
06.06.2006 06:00:00	CAS-E01 Remote oper. tongs w/integrated B-U	393506	Had to use backup casing tong when L/D cut 13 3/8" casing.	159750	1917000	2,0	100	2,0

WELLBORE: NO 34/10-49 S

Incident start time	Failure code	Synergi no	Title	Quality cost		Downtime		
				NOK	NOK/d	Total hrs	Comp share %	Comp share hrs
22.03.2006 00:00:00	CAS-E20 Other equipment	378653	Fault on 30# side door elevator	35500	1704000	0,5	100	0,5
25.03.2006 12:30:00	CAS-E05 BX-elevator supplied by contractor	379439	Poor quality of Weatherford delivery	71000	1704000	1,0	100	1,0
25.03.2006 15:00:00	CAS-E09 Ton positioning equipment	380483	Powerscope tong positioning system failed	71000	1704000	1,0	100	1,0
25.03.2006 19:30:00	CAS-E09 Ton positioning equipment	380481	Problems with powerscope when running 20" casing	106500	1704000	1,5	100	1,5
26.03.2006 06:00:00	CAS-E05 BX-elevator supplied by contractor	379439	Poor quality of Weatherford delivery	71000	1704000	1,0	100	1,0
			Total	514750				7,0

SERVICE COMPANY: Cementing CEM Halliburton

WELLBORE: NO 34/10-49 S

Incident start time	Failure code	Synergi no	Title	Quality cost		Downtime		
				NOK	NOK/d	Total hrs	Comp share %	Comp share hrs
07.04.2006 07:00:00	CEM-E01 Equipment functions	382275	Leak on cement unit	390500	1704000	5,5	100	5,5
30.04.2006 03:00:00	CEM-E01 Equipment functions	386292	Leak on cement unit	71000	1136000	1,5	100	1,5
			Total	461500				7,0

SERVICE COMPANY: Directional Drilling DDR Andergauge

WELLBORE: NO 34/10-49 S

Incident start time	Failure code	Synergi no	Title	Quality cost		Downtime		
				NOK	NOK/d	Total hrs	Comp share %	Comp share hrs
15.04.2006 00:00:00	DDR-E28 Other downhole eq.	383476	Observed drop in standpipe pressure while drilling and POOH.	2272000	1704000	32,0	100	32,0

WELLBORE: NO 34/10-49 ST2

Incident start time	Failure code	Synergi no	Title	Quality cost		Downtime		
				NOK	NOK/d	Total hrs	Comp share %	Comp share hrs
05.05.2006 13:00:00	DDR-E28 Other downhole eq.	387556	Loss of standpipe pressure due to washout in anderreamer.	2059000	1704000	29,0	100	29,0
			Total	4331000				61,0

SERVICE COMPANY: Directional Drilling DDR Halliburton WELLBORE: NO 34/10-49 A

Incident start time	Failure code	Synergi no	Title	Quality cost		Downtime		
				NOK	NOK/d	Total hrs	Comp share %	Comp share hrs
28.05.2006 02:00:00	DDR-E06 Surface equipment	391522	Trouble with Sperry downlink system.	35500	1704000	0,5	100	0,5
			Total	35500				0,5

SERVICE COMPANY: Measurement While Drilling MWD Halliburton WELLBORE: NO 34/10-49 S

Incident start time	Failure code	Synergi no	Title	Quality cost		Downtime		
				NOK	NOK/d	Total hrs	Comp share %	Comp share hrs
09.04.2006 21:00:00	MWD-E30 Other	382603	Bend on pre-assembled MWD module	71000	1704000	1,0	100	1,0
25.04.2006 11:00:00	MWD-E02 Decoding	385391	Wrongly programmed Halliburton Geotap.	603500	1704000	8,5	100	8,5
			Total	674500				9,5

SERVICE COMPANY: Operator OPR Operator WELLBORE: NO 34/10-49 B

Incident start time	Failure code	Synergi no	Title	Quality cost		Downtime		
				NOK	NOK/d	Total hrs	Comp share %	Comp share hrs
20.05.2006 15:00:00	MILWIP-E30 Other	390424	Blockage in Swaco cuttings transfer system	142000	1704000	2,0	100	2,0

WELLBORE: NO 34/10-49 S

Incident start time	Failure code	Synergi no	Title	Quality cost		Downtime		
				NOK	NOK/d	Total hrs	Comp share %	Comp share hrs
29.04.2006 13:00:00	RIG-E014 Other	386218	Unable to get andequate seal to allow pressure testing of the BOP stack	390500	1704000	5,5	100	5,5
			Total	532500				7,5

SERVICE COMPANY: Rig Operations RIG Diamond Offshore Drilling Ltd
WELLBORE: NO 34/10-49 A

Incident start time	Failure code	Synergi no	Title	Quality cost		Downtime		
				NOK	NOK/d	Total hrs	Comp share %	Comp share hrs
24.05.2006 00:00:00	RIG-E328 HP equipment	391086	Leakage on flange in mudline outside mudpump no. 3.	284000	1704000	4,0	100	4,0
24.05.2006 07:30:00	RIG-E328 HP equipment	391152	Leak on bleed of valve bonnet on mudpump no. 3.	284000	1704000	4,0	100	4,0
28.05.2006 03:00:00	RIG-E03 BOP stack/valves	391568	Upper annular leaking	213000	1704000	3,0	100	3,0
03.06.2006 15:30:00	RIG-E347 Pipe handling equ/sys other	392985	Fingers stuck, then unintentionaly opened			9,5	100	9,5

WELLBORE: NO 34/10-49 B

Incident start time	Failure code	Synergi no	Title	Quality cost		Downtime		
				NOK	NOK/d	Total hrs	Comp share %	Comp share hrs
10.05.2006 06:00:00	RIG-E388 General	388647	Main main engines shut down causing blackout	142000	3408000	1,0	100	1,0
10.05.2006 20:00:00	RIG-E388 General	388647	Main main engines shut down causing blackout	142000	6816000	0,5	100	0,5
10.05.2006 21:00:00	RIG-E07 Top drive	388855	Could not break pipe with DDM pipe handler.	35500	243429	3,5	100	3,5
10.05.2006 22:00:00	RIG-E07 Top drive	388648	Washpipe failed	35500	0	0,0	100	0,0
15.05.2006 18:30:00	RIG-E342 Drillfloor tub handl system	389943	Leak on hydraulic pilot hose for remote operation of iron roughneck	106500	5112000	0,5	100	0,5

Incident start time	Failure code	Synergi no	Title	Quality cost		Downtime		
				NOK	NOK/d	Total hrs	Comp share %	Comp share hrs
19.05.2006 14:00:00	RIG-E347 Pipe handling equ/sys other	390322	Unable to open fingers on monkey board	71000	1704000	1,0	100	1,0
20.05.2006 02:30:00	RIG-E342 Drillfloor tub handl system	390323	Stand falling across derrick	35500	1704000	0,5	100	0,5
20.05.2006 08:30:00	RIG-E342 Drillfloor tub handl system	390421	Leak in wash pipe	106500	1704000	1,5	100	1,5

WELLBORE: NO 34/10-49 S

Incident start time	Failure code	Synergi no	Title	Quality cost		Downtime		
				NOK	NOK/d	Total hrs	Comp share %	Comp share hrs
27.03.2006 08:30:00	RIG-E02 BOP control system	380461	Simrad acoustic control system for the BOP stack not functioning.	1810500	1704000	25,5	100	25,5
30.03.2006 06:00:00	RIG-E14 Mud pumps	380666	Debris in valve seats.	106500	1704000	1,5	100	1,5
30.03.2006 10:30:00	RIG-E329 Mud and bulk systems other	380654	Crack in flowline.	71000	1704000	1,0	100	1,0
31.03.2006 00:00:00	RIG-E14 Mud pumps	380653	Mudpumps down	71000	1704000	1,0	100	1,0
02.04.2006 00:00:00	RIG-E14 Mud pumps	381041	Valves and seats washed out on mudpumps #1 and #2.	71000	1704000	1,0	100	1,0
05.04.2006 09:00:00	RIG-E363 Monorail systems	381857	13 3/8" casing joint fell out of grippers on Pipe Deck			0,5	100	0,5
09.04.2006 12:00:00	RIG-E347 Pipe handling equ/sys other	382526	5 1/2" drillpipe stand felled across derrick			3,5	100	3,5
10.04.2006 16:30:00	RIG-E07 Top drive	382890	Repair on top drive	213000	1704000	3,0	100	3,0
12.04.2006 06:00:00	RIG-E302 Crown block	383144	Found starboard forward lower guide shoe bolt on Crown block loose.			1,0	100	1,0
18.04.2006 00:00:00	RIG-E14 Mud pumps	384105	Had leakage on MP #2 and MP #3.	142000	1704000	2,0	100	2,0
20.04.2006 11:00:00	RIG-08 Unscdeduled maintenance	384412	Unable to open upper pipe ram after performing function test on same.	71000	1704000	1,0	100	1,0
20.04.2006 14:00:00	RIG-E358 Drillstring other	384413	Not able to leak test lower safety valve on drilling machine.	71000	1704000	1,0	100	1,0
21.04.2006 00:00:00	RIG-E342 Drillfloor tub handl system	384447	A hydraulic hose on Iron roughneck bursted.	35500	1704000	0,5	100	0,5

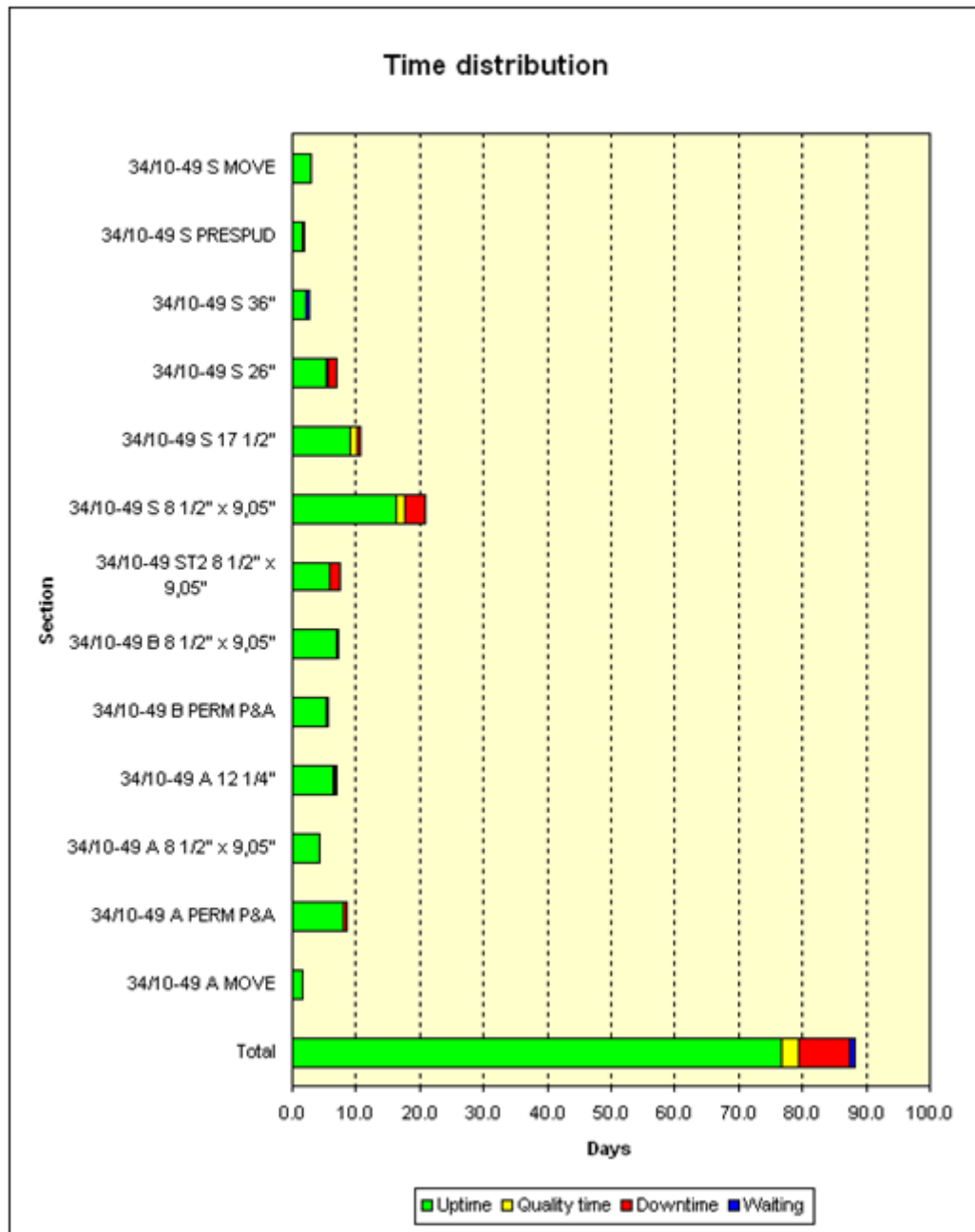
Incident start time	Failure code	Synergi no	Title	Quality cost		Downtime		
				NOK	NOK/d	Total hrs	Comp share %	Comp share hrs
24.04.2006 04:00:00	RIG-E10 Drawwork	385142	Lost lubrication on gear/chains in drawwork	1065000	1704000	15,0	100	15,0
26.04.2006 18:00:00	RIG-E07 Top drive	385666	Serviced DDM and Dolly. Modified actuator shell for upper IBOP.	106500	1704000	1,5	100	1,5
28.04.2006 18:00:00	RIG-E07 Top drive	386140	Unable to open top drive IBOP	284000	1704000	4,0	100	4,0

WELLBORE: NO 34/10-49 ST2

Incident start time	Failure code	Synergi no	Title	Quality cost		Downtime		
				NOK	NOK/d	Total hrs	Comp share %	Comp share hrs
02.05.2006 00:00:00	RIG-E07 Top drive	386601	Washout between saver sub and drilling pup	248500	1704000	3,5	100	3,5
02.05.2006 06:00:00	RIG-E07 Top drive	386861	Failure on washpipe	213000	1704000	3,0	100	3,0
04.05.2006 06:00:00	RIG-E14 Mud pumps	387298	Mudpumps #2 and #3 down	71000	1704000	1,0	100	1,0
			Total	6106000				99,5

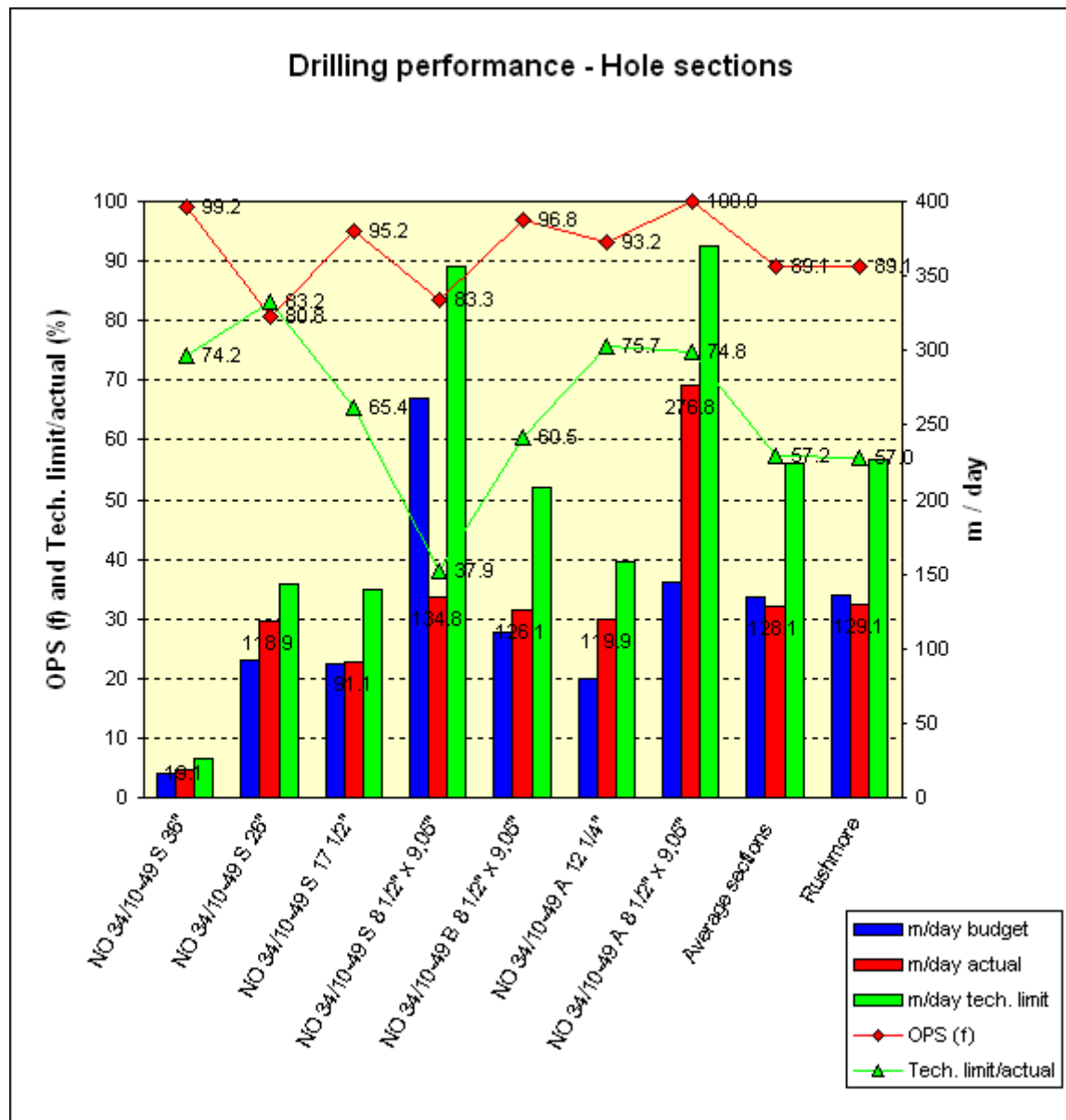
3.4 Time distribution

Section	Start time	Length m	Budget		TL		Actual		Ops (f)
			hrs	days	hrs	days	hrs	days	
NO 34/10-49 S MOVE	15.03.2006 22:00	0,0	100,0	4,2	70,0	2,9	73,5	3,1	100,0
NO 34/10-49 S PRESPUD	18.03.2006 23:30	0,0	43,0	1,8	29,5	1,2	47,5	2,0	100,0
NO 34/10-49 S 36"	20.03.2006 23:00	51,0	76,0	3,2	47,5	2,0	64,0	2,7	99,2
NO 34/10-49 S 26"	23.03.2006 15:00	840,0	218,0	9,1	141,0	5,9	169,5	7,1	80,8
NO 34/10-49 S 17 1/2"	30.03.2006 16:30	981,5	261,0	10,9	169,0	7,0	258,5	10,8	95,2
NO 34/10-49 S 8 1/2" x 9,05"	10.04.2006 11:00	2094,5	299,5	12,5	237,0	9,9	499,0	20,8	84,7
NO 34/10-49 ST2 8 1/2" x 9,05"	01.05.2006 06:00	1717,0	42,0	1,8	20,0	0,8	179,5	7,5	79,7
NO 34/10-49 B 8 1/2" x 9,05"	08.05.2006 17:30	917,0	198,0	8,3	105,5	4,4	174,5	7,3	96,8
NO 34/10-49 B PERM P&A	16.05.2006 00:00	0,0	159,0	6,6	118,0	4,9	137,5	5,7	96,4
NO 34/10-49 A 12 1/4"	21.05.2006 17:30	844,0	253,0	10,5	128,0	5,3	169,0	7,0	93,2
NO 34/10-49 A 8 1/2" x 9,05"	28.05.2006 18:30	1188,0	197,0	8,2	77,0	3,2	103,0	4,3	100,0
NO 34/10-49 A PERM P&A	02.06.2006 01:30	92,0	149,0	6,2	108,0	4,5	204,0	8,5	94,4
NO 34/10-49 A MOVE	10.06.2006 13:30	0,0	35,0	1,5	30,0	1,3	41,0	1,7	100,0
Sum			2030,5	84,8	1280,5	53,3	2120,5	88,5	



The graph above is based on the following details:

Section	Downtime	Uptime	Quality time	Waiting time	Total time
34/10-49 S MOVE	0,0	3,1	0,0	0,0	3,1
34/10-49 S PRESPUD	0,0	1,7	0,0	0,3	2,0
34/10-49 S 36"	0,0	2,1	0,1	0,4	2,7
34/10-49 S 26"	1,4	5,5	0,2	0,0	7,1
34/10-49 S 17 1/2"	0,5	9,2	1,0	0,0	10,8
34/10-49 S 8 1/2" x 9,05"	3,2	16,4	1,2	0,0	20,8
34/10-49 ST2 8 1/2" x 9,05"	1,5	6,0	0,0	0,0	7,5
34/10-49 B 8 1/2" x 9,05"	0,2	7,0	0,0	0,0	7,3
34/10-49 B PERM P&A	0,2	5,3	0,0	0,3	5,7
34/10-49 A 12 1/4"	0,5	6,5	0,0	0,0	7,0
34/10-49 A 8 1/2" x 9,05"	0,0	4,3	0,0	0,0	4,3
34/10-49 A PERM P&A	0,5	8,0	0,0	0,0	8,5
34/10-49 A MOVE	0,0	1,7	0,0	0,0	1,7
Total	8,0	76,9	2,6	0,9	88,4



3.5 Cost

Project kind	WBS	Currency	Budget	Actual cost
Drilling	T.O050A.AP.20246	NOK		181 443 951
Main project	T.O050A.AP.20245_MAIN	NOK	186 000 000	193 387
Mobilize/Demobilize	T.O050A.AP.20247	NOK		24 657 000
Total			186 000 000	206 294 338

4 Geology and formation data report

4.1 Geological setting and results

Well 34/10-49 S was drilled from the semi submersible rig Ocean Vanguard into the licence area PL050. The main objective was to test the hydrocarbon potential in sandstones in the Krans Member of the Shetland Group. Secondary objectives were hydrocarbon potential in the Ness-, Etive- and Rannoch Formations in the Middle Jurassic Brent Group, Epidote prospect and in the Statfjord Formations at two levels, the Alun and Spinell prospects. While drilling the well it was obvious that we could reach a prospect, Sølvkåpe, that had been excluded earlier due to rig operation limitations. Sølvkåpe represented a possible HC bearing sand in Lower Cretaceous. Secondary targets were Heather- and Draupne sands. The Heather Formation contained a thin sand bed with vertical thickness of about 20 m. It was not hydrocarbon bearing. In the Draupne Formation it was only shale. Cretaceous consists mainly of Cromer Knoll Group without sand. The well path was dropping from horizontal at the end of the well implying that we did not penetrate the uppermost 20 m of the Cretaceous sequence and did not drill through the top of the Svarte Formation.

The wells are situated in the southeastern part of the Tampen spur area, a few kilometres southwest of the main Gullfaks Field.

The first prospect drilled was Epidote, representing the lower part of the Brent Group. Bottom Cretaceous/top eroded Brent Group came in 12 m shallower than prognosed. The sandstones were oilfilled and the OWC was found in sandstones in the Rannoch Formation at 2455 m TVD MSL. The discovery has a restricted extension and is found on top of a rotated faulted segment. The bedding is dipping steeply towards west and is cut by a major fault towards east. Towards North the discovery is restricted by a minor fault and/or a minor saddle. No internal faults were seen in the Epidote prospect.

The next defined targets, the Alun and Spinell prospects are both in the Statfjord Formations. The second prospect to be drilled was Alun, oriented southeast of Epidote, subparallel in the same fault block, representing the Statfjord Formation in Segment O7B.

Top Statfjord was hit as prognosed, just 2 m deeper. It was oil bearing and the OWC was 2800 m TVD MSL which is slightly shallower than the mapped spill point. The discovery has limited extension with steeply dipping beds towards West and truncated by a larger fault towards East. No internal faults were seen in Alun. Alun was penetrated twice, first in well 34/10-49 S and thereafter by well 34/10-49 ST2, ref. Figure 3, Figure 4. In the first well the main fault against East was hit below the OWC and further to the East than mapped. In the second track the fault was hit above the OWC more or less as prognosed. Water filled sandstones of the Cook Formation was hit in both tracks, ref Figure 3

The third prospect to be drilled was Spinell, representing the Statfjord Formation in a down faulted block SouthEast of Alun. This structure was water filled.

The fourth prospect to be drilled was Sølvkåpe, representing a stratigraphic trap of Lower Cretaceous age in the Western part of Gullfaks South. As this extension of the well path was not in the Drilling Programme a new programme for drilling to Sølvkåpe had to be made and

the well path to Sølvkåpe was defined as well 34/10-49 B. Cretaceous in this well was dominated by Cromer Knoll Group without sand. The Draupne Formation consisted of shale and the Heather Formation had only minor amount of water filled sand.

The main target of the well was to clarify the reservoir potential in the Apollo prospect of Late Cretaceous age. This clarifying was of practical and secure reasons done in the sidetrack 34/10-49 A. The well was drilled through the Shetland Group without detecting any sand. The well was further drilled into the Brent Group where the sands were water filled, and TD was set in Ness Formation at 3312 m MD / 2469.8 m TVD RKB.

4.2 Shallow gas results

No shallow gas was detected.

4.3 Stratigraphy

The stratigraphic zonation is based on previous logs from near-situated wells and Statoil's own interpretation.

4.3.1 Table of stratigraphy

Table 4.3.1.1: 34/10-49 S, Formation tops

Stratigraphic Tops	DEPTH MD (m RKB)	DEPTH TVD (m RKB)	DEPTH TVD (m MSL)	Deviation from prognosis (m +/-)
Nordland Group	159	159	137,5	-
Utsira Formation	904	904	882,5	-23.5
Hordaland Group	985	985	963,5	-21,5
Rogaland Group	1791.8	1736.9	1715,4	42,4
Balder Formation	1791.8	1736.9	1715,4	42,4
Lista Formation	1871.8	1811,2	1789,7	26,7
Shetland Group	1971.8	1907,3	1885,8	-0.2
Brent Group	2488.2	2380.9	2359.4	-20.6
Ness Formation	2488.2	2380.9	2359,4	-20.6
Ness-1B	2498.6	2388.5	2367	
Ness-1A	2519			
Etive Formation	2530.3	2410.95	2389,5	9.45
Etive-1	2539.5	2417.3	2395,8	
Rannoch Formation	2557	2429,5	2408	13
Rannoch-2B	2572	2439.9	2418,4	
Rannoch-2A	2591.8	2454	2432,5	
Drake Formation	2627.5	2479.55	2458	18.05
Cook Formation	2740	2556,1	2534,6	-0.4
Burton Formation	2925	2652,6	2631,1	
Amundsen Formation	2980	2675,3	2653,8	32.3
Statfjord Formation	3278	2773,7	2752,2	2.2
Fault/Amundsen Formation	4022	3035,4	3008,9	128.9
TD of the 8 1/2" hole section	4126	3077,4	3055.9	-55.1

Table 4.3.1.2: 34/10-49 S T2 & 49 B, Formation tops

Group/ Formation	Encntr depth m MD RKB	Encntr depth m TVD RKB	UTM E	UTM N
9 5/8" casing shoe				
Burton Formation	2925	2655.36	450.990,6	6.777.389.0
Amundsen Formation	2980	2677.43	451.027.0	6.777.354.2
Statfjord Formation	3405	2740.87	451.363.5	6.777.105.9
Cook Formation	3482	2751.12	451.425.2	6.777.060.9
Drake Formation	3618	2784.29	451.525.5	6.776.975.6
Cook Formation	3747	2829.45	451.611.8	6.776.891.2
Burton Formation	3935	2921.15	451.714.6	6.776.763.8
Amundsen Formation	3988	2951.6	451.738.0	6.776.727.3
Statfjord Formation	4196	3075.39	451.821.2	6.776.582.3
Heather Formation	4563	3159.8	452.323.0	6.775.909.8
Draupne Formation	5054	3144.2	452.323.0	6.775.909.8
Cromer Knoll Group	5152	3138.1	452.323.0	6.775.909.8
TD	5480	3156.4		

Table 4.3.1.3: 34/10-49 A, Formation tops

Group/ Formation	Encntr depth m MD RKB	Encntr depth m TVD RKB	UTM E	UTM N
KOP	1280	1280		
Balder Formation	1785	1725.8		
Lista Formation	1882	1796.5		
Shetland Group	2045	1899.6		
Viking Group	2946	2256		
Heather Formation	2946	2256		
Brent Group	3020	2295.12	450.532.7	6.778.879.8
Tarbert Formation T-3	3020	2295.12	450.532.7	6.778.879.8
Tarbert-2B2	3049.6	2310.59	450.530.4	6.778.904.9
Tarbert-2B1	3080.4	2327.09	450.527.6	6.778.930.8
Tarbert-1C	3087.2	2330.78	450.526.9	6.778.936.4
Tarbert-1B	3095	2335.19	450.526.2	6.778.942.8
Tarbert-1A	3126.3	2353.19	450.523.1	6.778.968.2
Ness Formation N-3	3136.7	2359.35	450.522.1	6.778.976.6
Ness-2	3208	2402.76	450.516.2	6.779.032.8
Ness 1	3296.7	2459.91	450.509.8	6.779.100.3
TD	3312	2469.77	450.508.7	6.779.112.0

4.4 Biostratigraphy

The primary well (-49 S) and sidetracks (-49 ST2, -49 B and -49 A) are not ideal for making good biostratigraphic logs. Only ditch cutting was available for biostratigraphic work in these wells. 'Hot shot' samples were, however collected and analyzed in the most uncertain intervals. Three samples were collected from the end of well 34/10-49 S confirming Amundsen Formation. Thirteen samples were taken in 34/10-49 B; samples from the interval 5070-5100 m MD indicate Heather Formation and samples from the interval 5280-5420 m MD indicate Cromer Knoll Group.

4.5 Lithostratigraphic description

General Information

System, Series and Stage: Based on log interpretation and correlation.

Lithology: The lithological description is based on cuttings description.

The well 34/10-49 S with its sidetracks 34/10-49 ST2, -49 B and -49 A was drilled sub-horizontally through the reservoir section. Thus, both the Viking Group and the Brent Group were penetrated several times, ref. table 4.3.1.2. The depth intervals for each group and formation are summed up below, but the lithological description is, however, only presented once for each formation.

Well 34/10-49 S

NORDLAND GROUP

Seabed – 985 m MD (Seabed - 985 m TVD)

The Nordland Group was drilled with returns to seafloor. The sediments are clays with occasional layers of sand.

Utsira Formation

904 – 985 m MD (904 – 985 m TVD)

The formation consists of sand/sandstone.

HORDALAND GROUP

985 – 1792 m MD (985 – 1737 m TVD)

The upper part of the Hordaland Group down to TD of the 26" hole at 1050 m was drilled with returns to seabed.

The Hordaland Group consists of claystone with beds of sandstone. The sandstone/sand is generally grey and consists predominantly of clear to milky white quartz grains, very fine to fine, occasionally medium, sub-angular to sub-rounded, moderate sorted and dominantly loose. Occasionally aggregates, in part calcareous cemented, very hard, glauconitic.

The claystones are medium to dark grey, medium to dark greenish grey, generally soft to firm, amorphous to blocky, friable, occasional silty, micromicaceous, glauconitic and non calcareous.

ROGALAND GROUP **1792 – 1972 m MD (1737 – 1907,5 m TVD)**

Balder Formation **1792 – 1872 m MD (1737 – 1811,4 m TVD)**

The Balder Formation is recognized on the MWD logs by the characteristic gamma ray and resistivity curves.

The Balder Formation consists of interbedded claystones and tuff.

The claystone varies in colour from medium dark grey, medium greenish grey, light grey, med brown, medium dark brown, occasionally dark grey to medium grey. It is soft to firm, occasionally hard, sub-blocky to blocky, non calcareous to calcareous.

The claystone is tuffaceous in parts, and grades from dark greenish grey to medium bluish grey tuff. The tuffaceous claystone is firm and sub-blocky.

Lista Formation **1872 – 1972 m MD (1811,4 – 1907,5 m TVD)**

The Lista Formation consists of claystone with layers of limestone and minor sandstone.

The claystone is dominantly medium dark grey, medium greenish grey, light to medium to medium dark brown, occasionally dark grey to medium grey. The claystone is in places very calcareous, grading to marl.

The limestone is milky white to very light grey, soft-firm, occasionally hard, sub-blocky, microcrystalline.

The sandstone is clear to milky white to light grey, very fine to fine grained, calcerous cemented, predominantly very hard, but occasionally firm, subrounded to subangular and well sorted.

SHETLAND GROUP **1972 – 2488 m MD (1907 – 2381 m TVD)**

The Shetland Group consists of claystone with stringers of limestone.

The claystone is generally medium dark grey, dark grey, occasionally greenish grey, firm to hard, occasionally soft, subblocky, non-very calcareous, occasionally grading marl.

The limestone is grey to white, firm to moderately hard and microcrystalline.

BRENT GROUP **2488 – 2627 m MD (2381 – 2480 m TVD)**

Ness Formation **2488 – 2530 m MD (2381 – 2411 m TVD),**

The Ness Formation is composed of sandstone, claystone and coal.

The sandstones consist of clear to translucent quartz grains, fine to medium grained, occasional coarse, moderate sorted and subrounded. The sand grains are occasionally slightly calcareous cemented.

The claystone are dark grey, occasionally medium greenish grey, blocky, firm to moderately hard, fissible, slightly calcareous, occasionally silty.

The coal is black, brittle and blocky.

Etive Formation **2530 – 2557 m MD (2411 – 2429 m TVD),**

The Etive Formation consists of sandstones with minor amounts of shales.

The sandstones consist of clear to translucent quartz grains, fine to coarse, predominantly medium, well sorted and subrounded. The sand grains are occasionally slightly calcareous cemented.

The claystone are dark grey to greyish black, subblocky to blocky, firm to moderately hard, slightly calcareous.

Rannoch Formation **2557 – 2627 m MD (2429 – 2480 m TVD),**

The Rannoch Formation consists of sandstones with minor amounts of siltstones and shales.

The sandstones consist of clear to translucent quartz grains, fine to coarse, predominantly medium, well sorted and subrounded. The sand grains are occasionally slightly calcareous cemented.

The siltstones are light brownish grey to yellow grey to olive grey, slightly calcareous, firm and occasionally grading to sand.

The claystone are dark grey to greyish black, subblocky to blocky, firm to moderately hard, slightly calcareous.

DUNLIN GROUP **2627 – 3278 m MD (2480 – 2774 m TVD)**

Drake Formation **2627 – 2740 m MD (2480 – 2556 m TVD)**

The Drake Formation consists of shales with siltstones.

The shale is generally medium dark to dark grey, moderate hard, blocky, and non to slightly calcareous.

The siltstones are light brownish grey to yellow grey to olive grey, firm slightly calcareous cemented and sandy or grading to sandstone.

Cook Formation **2740 – 2925 m MD (2556 – 2652 m TVD)**

The Cook Formation consists of sandstones, siltstones and shale beds.

The sandstone is generally clear to translucent, loose quartz. It is dominantly fine to medium but very fine in parts, well sorted, sub-rounded and grading to siltstone in places, very argillitic, calcareous cemented.

The siltstones are light brownish grey to yellow grey to olive grey, firm slightly calcareous cemented and sandy or grading to sandstone.

The shale is generally dark grey to greyish black, firm to moderate hard, moderate hard, subblocky to blocky, and slightly calcareous.

Burton Formation **2925 – 2980 m MD (2652 – 2675 m TVD)**

The Burton Formation consists of shales with minor amounts of sandstone

The shale is olive grey to olive black, soft, very silty, occasionally grading siltstones, occasionally very fine sandy, carbonaceous.

The sandstone is generally clear to translucent, loose quartz. It is dominantly very fine, moderate to well sorted.

Amundsen Formation **2980 – 3278 m MD (2675 – 2774 m TVD)** **4022 – 4126 m MD (3035 – 3077 m TVD)**

The Amundsen Formation consists of shales

The shales are olive grey, generally soft; in part firm, occasionally very silty, grading siltstones, occasionally very fine sandy, calcareous and with traces of mica

Statfjord Formation **3278 – 4022 m MD (2774 – 3035 m TVD)**

The Statfjord Formation consists of interbedded sandstones/siltstones/shales with occasionally coal seams.

The sandstones are clear to translucent loose quartz, but also milky white to yellowish grey, subrounded to subangular, very fine to very coarse grained, poorly sorted, occasionally kaoline cemented, firm to moderate hard.

The siltstones are medium grey to dark grey, occasionally brownish grey, firm to moderate hard.

The coal is black, subblocky to blocky and firm to moderate hard.

The claystones are medium grey to light brownish grey, firm and non calcareous.

Well 34/10-49 ST2 and -49 B

DUNLIN GROUP 2846 – 3405 m MD (2618 – 2741 m TVD)

Cook Formation 2846 – 2925 m MD (2618 – 2655 m TVD),
3482 – 3618 m MD (2752 – 2787 m TVD)
and 3747 – 3935 m MD (2829 – 2921 m TVD)

The Cook Formation is composed of sandstone interbedded with shale and siltstone.

The sandstone consists of clear to translucent quartz grains, very fine to coarse, predominantly fine, well sorted, subrounded, occasionally argillitic, slightly calcareous, loose to friable grains.

The shale is olive grey to olive black, firm to hard, subblocky to blocky, silty and carbonaceous

Burton Formation 2925 – 2980 m MD (2655 – 2677 m TVD)
3935 – 3988 m MD (2921 – 2951,5 m TVD)

The Burton Formation consists of shales with minor amounts of sandstone

The shale is olive grey to olive black, soft, very silty, occasionally grading siltstones, occasionally very fine sandy, carbonaceous.

The sandstone is generally clear to translucent, loose quartz. It is dominantly very fine, moderate to well sorted.

Amundsen Formation 2980 – 3405 m MD (2677 – 2741 m TVD)
3988 – 4146 m MD (2951,5 – 3075 m TVD)

The Amundsen Formation consists of shales

The shales are olive grey, generally soft; in part firm, occasionally very silty, grading siltstones, occasionally very fine sandy, calcareous and with traces of mica

Statfjord Formation 3405 – 3482 m MD (2741 – 2752 m TVD)

4196 – 4563 m MD (3075 –3160 m TVD)

The Statfjord Formation consists of interbedded sandstones/shales with occasionally coal seams

The sandstones are clear to translucent loose quartz, but also milky white to yellowish grey, subangular, very fine to very coarse grained, poorly sorted.

The siltstones are medium grey to dark grey, occasionally brownish grey, firm to moderate hard.

The coal is black, subblocky to blocky and firm to moderate hard.

The claystones are medium grey to light brownish grey, firm and non calcareous.

Drake Formation

3618 – 3747 m MD (2787 – 2829 m TVD)

The Drake Formation consists of shales with siltstones.

The shale is generally medium dark to dark grey, moderate hard, blocky, and non to slightly calcareous.

The siltstones are light brownish grey to yellow grey to olive grey, firm slightly calcareous cemented and sandy or grading to sandstone.

Heather Formation

4563 – 5054 m MD (3160 – 3140 m TVD)

The Heather Formation consists of claystones.

The claystones are dark grey to dark brownish black, moderate hard to hard, occasionally very silty, in part grading siltstone, occasionally calcareous, carbonaceous, subfissile to fissile, occasionally pyretic, trace mica.

Draupne Formation

5054 – 5153 m MD (3140 – 3137 m TVD)

The Draupne Formation consists of claystones with traces of limestones, siltstones and sandstones.

The claystones are greenish grey to dark greenish grey, dark brownish grey, dark olive grey, occasionally medium grey, firm to moderate hard, blocky, slightly to non calcareous.

CROMER KNOLL GROUP

5152 – 5352 m MD (3138 – 3134 m TVD)

The Cromer Knoll Group consists of interbedded limestones, marl and claystones.

The claystones are grading to marl and is medium dark grey to olive black, occasionally olive grey, soft to firm, occasionally moderate hard, subblocky, laminated, slightly to non calcareous.

The limestones/marls are red brown to pale yellowish brown, amorphous, soft to firm, very argillic, silty in parts.

The limestones are greenish grey to pale brownish grey, firm, occasionally moderate hard, subblocky, microcrystalline, argillic in parts, grading dolomite in parts.

WELL 34/10-49 A

The well 34/10-49 S was plugged back and the sidetrack 34/10-49 A was kicked off from 1280 m MD after having milled a window in the 13 3/8" casing.

HORDALAND GROUP

1280 – 1785 m MD (1280 – 1728 m TVD)

The Hordaland Group consists of claystone with beds of sandstone. The sandstone/sand is generally grey and consists predominantly of clear to milky white quartz grains, very fine to fine, occasionally medium, sub-angular to sub-rounded, moderate sorted and dominantly loose. Occasionally aggregates, in part calcareous cemented, very hard, glauconitic.

The claystones are medium to dark grey, medium to dark greenish grey, generally soft to firm, amorphous to blocky, friable, occasional silty, micromicaceous, glauconitic and non calcareous.

ROGALAND GROUP

1785 – 2049 m MD (1728 – 1893 m TVD)

Balder Formation

1785 – 1882 m MD (1728 – 1797 m TVD)

The Balder Formation is recognized on the MWD logs by the characteristic gamma ray and resistivity curves.

The Balder Formation consists of interbedded claystones and tuff.

The claystone varies in colour from medium dark grey, medium greenish grey, light grey, med brown, medium dark brown, occasionally dark grey to medium grey. It is soft to firm, occasionally hard, sub-blocky to blocky, non calcareous to calcareous.

The claystone is tuffaceous in parts, and grades from dark greenish grey to medium bluish grey tuff. The tuffaceous claystone is firm and sub-blocky.

Lista Formation 1882 – 2045 m MD (1797 – 2000 m TVD)

The Lista Formation consists of claystone with layers of limestone and minor sandstone.

The claystone is dominantly medium dark grey, medium greenish grey, light to medium to medium dark brown, occasionally dark grey to medium grey. The claystone is in places very calcareous, grading to marl.

The limestone is milky white to very light grey, soft-firm, occasionally hard, sub-blocky, microcrystalline.

SHETLAND GROUP 2045 – 2946 m MD (2000 – 2256 m TVD)

The Shetland Group consists of claystone with stringers of limestone and marl.

The claystone is generally medium grey to olive black, soft to firm, mod hard in part, non to very calcareous.

The limestone is light grey, tan to white, firm to moderately hard and microcrystalline.

The marl is white to light grey, soft to firm and silty in places.

BRENT GROUP 3020 – 3312 m MD/TD (2295 – 2470 m TVD)

Tarbert Formation 3020 – 3137 m MD (2295 – 2359 m TVD)

The Tarbert Formation is composed of sandstone interbedded with shale and siltstone and stringers of limestone and seams of coal.

The sandstone is yellowish brown to yellowish white and is composed of fine to medium grained, well sorted, well rounded loose quartz grains. The sandstone is occasionally weakly cemented with calcite cement.

The shale is medium dark grey to olive black, firm to moderately hard, sub-blocky, grading to siltstone in places. The coal beds are black, brittle and blocky.

Ness Formation 3137 – 3312 m MD (2359 – 2470 m TVD)

The Ness Formation is composed of sandstone, claystone and coal.

The sandstones consist of clear to translucent quartz grains, fine to medium grained, occasional coarse, moderate sorted and subrounded. The sand grains are occasionally slightly calcareous cemented.

The claystone are dark grey, occasionally medium greenish grey, blocky, firm to moderately hard, fissible, slightly calcareous, occasionally silty.

The coal is black, brittle and blocky.

4.6 Hydrocarbon indications

No hydrocarbon indications were observed when drilling from 30" shoe down to top of the Brent Group. The background gas was high while drilling the Brent Group, and it was relatively low through the Drake, Cook, Amundsen, and Burton Formations. The gas values picked up again when drilling the Statfjord Formation.

In the wells 34/10-49 ST2, -49 B and -49 A the background gas values were low indicating no HC.

The MWD logs indicated that the whole Brent sequence was drilled above the hydrocarbon-water contact in well 34/10-49 S. The resistivity measurements indicated that the sand layers in the Heather Formation were either calcite cemented or contained hydrocarbons. Since there were no density/neutron logs in the well 34/10-48 AT2 it is difficult to decide. However, the sandy interval from 5765 to 5813m MD was drilled fast and gave up to 60 ohmm in resistivity responds.

Gas peaks in the 8 ½" section of the wells 34/10-49 S

Dyp m MD	Dyp m TVD	Gass topp %	BG	C1	C2	C3	iC4	nC4	iC5	nC5	Type gass
2097	2030.5	0.29	0.19	1988	30	5	1		7		FM
2104	2037.5	0.22	0.17	1918	29	4	1		7		FM
2126	2058.7	0.23	0.19	2071	34	5	1	1	7		FM
2150	2082.3	0.34	0.25	3174	54	9	1	1	7		FM
2183	2114.7	0.42	0.29	4070	67	11	1	1	7		FM
2500	2389.5	2.39	2.21	20638	903	265	26	39	10	5	FM
2541	2417.9	4.79	4.10	40548	2394	799	68	132	22	16	FM
2545	2420.6	6.42	6.22	55423	3361	1096	91	178	28	24	FM
2552	2425.2	7.60	7.58	64415	3935	1391	124	247	47	44	FM
2570	2436.8	8.05	7.78	69473	4359	1513	134	274	45	47	FM
2586	2449.8	10.1	9.50	79084	5355	1995	185	401	68	76	FM
2617	2472	3.72	3.2	23912	2134	1030	111	246	50	55	FM
2846	2616	0.40	0.19	3560	67	18	5	9	6	6	FM
2925	2653	0.71	0.48	4432	96	19	4	4	4	3	FM
3130	2725	0.42	0.33	2717	72	19	4	3	2	1	FM
3271	2767	0.21	0.15	1142	37	14	4	3	2	1	FM
3286	2771.4	2.53	2.24	17170	1003	522	124	138	44	33	FM
3293	2773.3	3.29	3.01	23557	1390	732	174	196	62	49	FM
3302	2782.4	4.23	3.58	28260	1683	884	210	240	46	64	FM

Dyp m MD	Dyp m TVD	Gass topp %	BG	C1	C2	C3	iC4	nC4	iC5	nC5	Type gass
3315	2787.1	3.30	3.00	23030	1490	848	212	246	80	66	FM
3328	2789.3	7.97	4.00	30896	1991	1139	287	345	114	99	FM
3365	2806.8	5.11	4.00	31297	2155	1342	364	457	163	149	FM
3397	2812.6	4.21	3.5	23299	1603	1051	299	388	150	140	FM
3479	2842	6.05	0.8	50501	1659	603	119	162	60	59	TG
3496	2848.4	1.62	1.0	12246	496	225	59	87	45	46	FM
3756	2939.1	0.34	0.28	1833	126	24	5	9	8	8	FM
3865	2977.7	0.46	0.3	2448	389	77	3	11	4	4	FM
3886	2985.7	0.47	0.35	2387	516	92	3	13	4	4	FM
3920	2998.4	0.53	0.35	3007	443	94	3	13	3	3	FM
3994	3025.1	0.44	0.30	2015	500	81	3	12	2	5	FM
4015	3032.9	0.39	0.30	1858	385	76	4	12	3	5	FM
Sidetrack, 49ST2- from 2846, and 49B from 4563m											

Gas peaks in the 8 ½" section of the wells 34/10-49 ST2

Dyp m MD	Dyp m TVD	Gass topp %	BG	C1	C2	C3	iC4	nC4	iC5	nC5	Type gass
2924	2654,9	0,51	0,3	3180	70	17	2	2	7	1	FM
3858	2882.5	0.34	0.2	1344	37	18	3	4	4	4	FM
4011	2965.9	0.42	0.3	1804	45	20	3	2	3	2	FM
4063	2996.6	1.38	0.3	11939	258	79	9	8	3	3	FM
4085	3010.1	0.47	0.3	4194	142	56	7	7	3	2	FM
4288	3121	0.54	0.3	3043	336	80	3	7	3	1	FM
4411	3154.6	0.49	0.3	2468	329	81	3	7	4	1	FM
4550	3160.1	0.62	0.4	2268	801	125	3	12	1	1	FM

Gas peaks in the 8 ½" section of the well 34/10-49 B

Dyp m MD	Dyp m TVD	Gass topp %	BG	C1	C2	C3	iC4	nC4	iC5	nC5	Type gass
4637	3157.8	0.31	0.2	1203	250	105	5	11	1	1	FM
4714	3154.4	0.34	0.3	1420	237	92	5	9	2	1	FM
4772	3153.4	0.37	0.3	1955	244	93	5	9	2	1	FM
4907	3145,7	0,44	0,27	2622	126	73	7	7	2	1	FM
4965	3146,8	0,42	0,31	2429	93	72	8	7	2	1	FM
4991	3146,2	0,52	0,3	2934	477	99	5	9	3	1	FM
5003	3146,1	0,64	0,3	4086	249	115	8	10	2	1	FM
5032	3145,9	0,64	0,2	3938	390	143	8	13	2	1	FM
5099	3141,5	0,62	0,2	3932	165	139	12	19	4	2	FM
5136	3139,1	0,71	0,3	2298	121	112	11	18	4	3	FM

Gas peaks in the 8 ½" section of the well 34/10-49 A

Dyp m MD	Dyp m TVD	Gass topp %	BG	C1	C2	C3	iC4	nC4	iC5	nC5	Type gass
2787	2164.9	0.85	0.5	5755	160	28	2	1	3	0	FG
2818	2183,7	3.0	0.8	19961	950	181	11	9	3	1	FG
2823	2186	3.1	0.4	22629	939	117	11	9	3	0	FG
3082	2327.9	0.8	0.25	5509	261	68	4	4	1	0	FG
3128	2354	0.92	0.25	6264	265	68	4	4	2	0	FG
3139	2360.8	0.78	0.25	5296	242	64	3	4	1	0	FG
3162	2375.0	1.65	0.3	11443	492	114	6	5	1	0	FG
3179	2384.9	1.54	0.2	11308	472	106	6	5	1	0	FG

4.7 Geophysical results

The main prospect with the well was to clarify the reservoir potential in the Apollo prospect of Late Cretaceous age. This clarifying was of practical and security reasons done in the sidetrack 34/10-49 A. The first well path 34/10-49 S was planned to test three secondary targets, one in the Brent Group, Epidote and two in the Statfjord Formation, Alun and Spinell. A seismic well line through the prospects are shown in Figure 6, 7 and 8.

The bedding is steeply dipping towards the east. No fault was observed internally within Epidote.

Bottom Cretaceous/top eroded Brent Group came in 12 m shallower than prognosed. The OWC came in on 2455 m MSL in the Rannoch Formation. This depth correspond very well with a flatspot on 2910 ms.

The discovery has a restricted extension and is laying on top of a rotated fault block, figure 7.

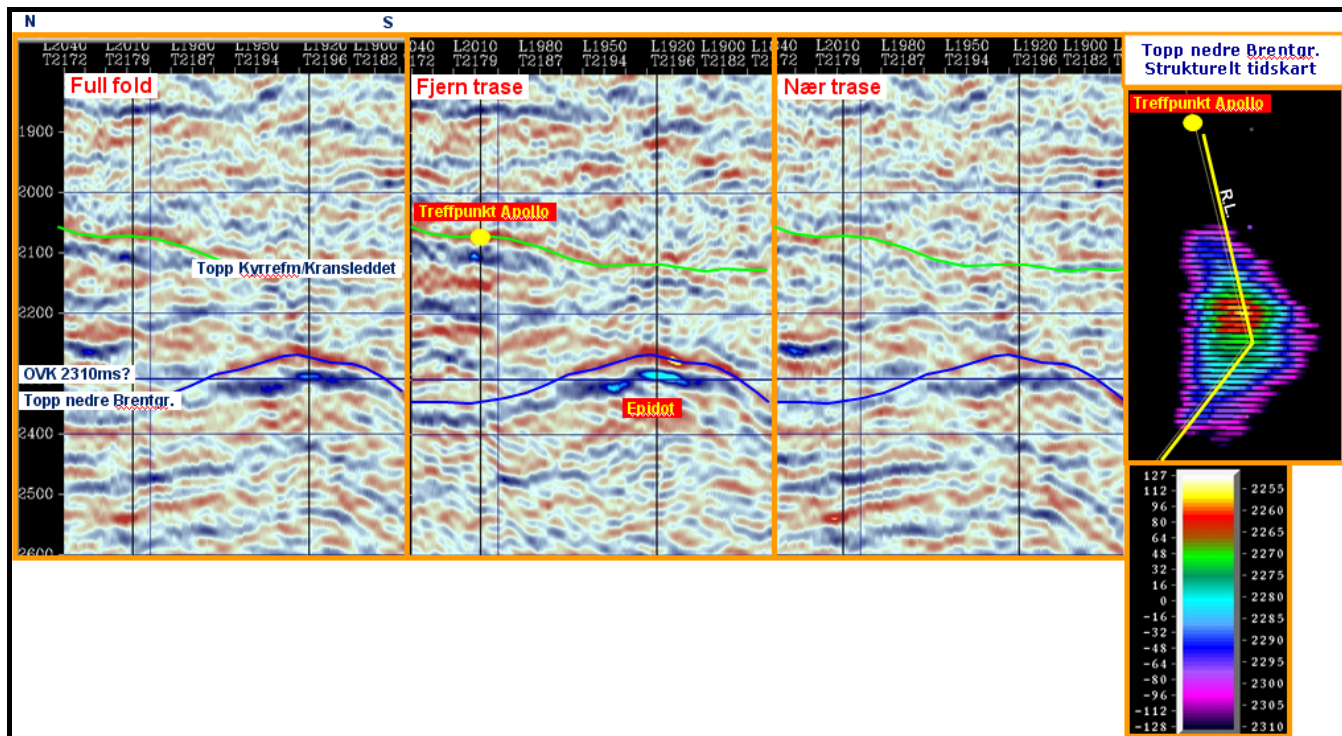


Figure 6 Seismic random line through the Apollo and Epidote prospects (depth migrated-04)

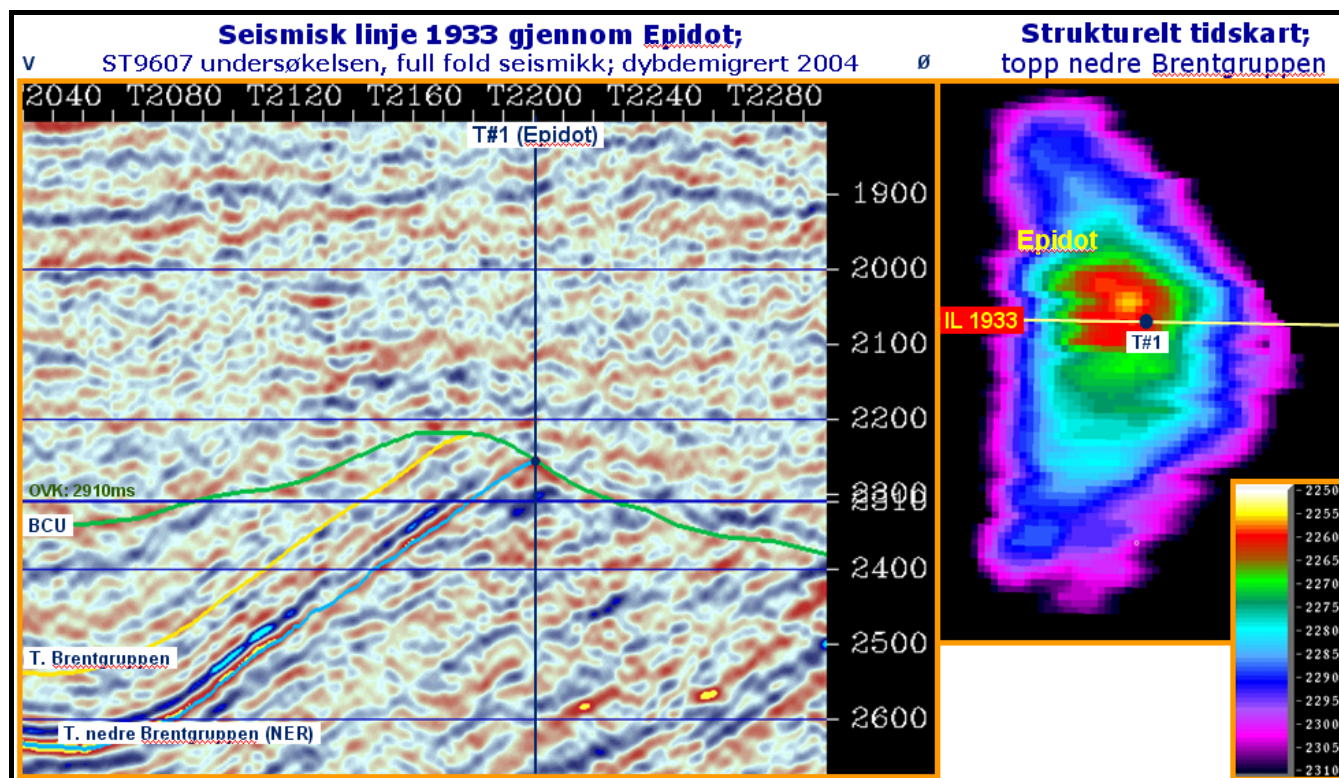


Figure 7 Seismic line through the Epidote prospect. Remark the flatspot representing the OWC (thick line).

4.8 Data acquisition

One set of wet samples (1 kg) and one set of washed and dried sample (100 g) were collected at each sample interval. The samples were collected at 10 m intervals from 20" casing shoe down to 2026 m MD. From 2026 m to 4126 m MD samples were collected at 3 m intervals. In wells 34/10-49 ST2 and 34/10-49 B samples were taken at 3 m intervals from 2846 m to 5480 m MD. In well 34/10-49 A samples were taken every 10 m from 1264 m to 2119 m MD. From 2119 m to 3312 m MD samples were taken at 3 m intervals.

One mud sample (1 litre) was collected from the active pits every 100 m from 2080 m TVD to TD.

4.8.1 Cuttings and mud samples

A standard North Sea Mudlogging unit was used for the well, running geoservices ALS level 5 software and the RESERVAL gas chromatograph.

4.8.2 Conventional coring

No coring.

4.8.3 MWD/LWD in well 34/10-49 S

The LWD logging contractor for the entire well was Halliburton Sperry Drilling Services.

Table 4.6: MWD logging

RUN no.*	Depth interval (m driller depth)	COLLAR DIAM.	TOOL TYPE	COMMENTS
1	159 – 210	36"	DIR	Only survey data
2	203-1050	26"	DGR-EWR-P4D-DDS*	Return to sea bed.
3	1050-1745	17 ½"	DGR-EWR-P4D-DDS	Bit trip due to low ROP. Changed out MWD due to occasionally no responses from DM.
4	1745-2026	17 ½"	DGR-EWR-P4D-DDS	Drilled to TD
5	2031 – 3479	8 ½"x 9.05"	DGR_EWR-P4D-DDS-ALD-CTN	POOH due to washout in the anderreamer
6	3479 – 4126	8 ½"x 9.05"	DGR_EWR-P4D-DDS-ALD-CTN)	POOH due to worn bit

7	4126 – 4126	8 ½"x 9.05"	GABI/ABI-EWR4-DGR-PWD-DM-ALD-CTN-FTWD	Unable to get to bottom. Numerous pack-offs around 3780 m.
8	3420 – 3428	8 ½"x 9.05"	GABI/ABI-EWR4-DGR-PWD-DM-ALD-CTN-FTWD	Attempt to perform open hole sidetrack. No success and decided to set a cement plug.
9	2846 - 4063	8 ½"x 9.05"	GABI/ABI-EWR4-DGR-PWD-DM-ALD-CTN-FTWD	Kicked-off from 2846 m. Drilled to 4063 m. POOH to investigate pressure loss. Anderreamer failed.
10	4063 - 5480	8 ½"x 9.05"	GABI/ABI-EWR4-DGR-PWD-DM-ALD-CTN-FTWD	Drilled to TD.
11	1264 - 1280	8 ½"x 9.05"	GABI/ABI-EWR4-DGR-PWD-DM-ALD-CTN	Milled through casing, set whipstock, and drilled to 1280 m.
12	1280 - 2119	8 ½"x 9.05"	GABI/ABI-EWR4-DGR-PWD-DM-ALD-CTN	Drilled to section TD at 2119 m.
13	2119 - 3312	8 ½"x 9.05"	GABI/ABI-EWR4-DGR-PWD-DM-ALD-CTN	Drilled to TD

*DGR=Gamma Ray. EWR-P4D=Res, DDS=vibrations

Data quality comments:

Run #1: Only survey data..

Run #2: No communication between logging unit and geology office on rig. Insite was not working. Received complete set of logs afterwards.

Run #3: Gap in real time logs in upper part of the section due to start drilling before received downlinked signals. Memory logs ok. No communication between logging unit and geology office on rig at the start of the section.

Run #4: OK.

Run #5: No response on MWD.

Run #6: ALD failed.

Run #7: The density log failed at 3479 m, early in this run both in real time and memory.

Run #8: OK

Run #9: Pressure loss in Anderreamer. Leakage in Anderreamer indicated a gradual decreasing standpipe pressure

Run #10: Good real time and memory data.

Run #11: OK

Run #12: OK

Run #13: OK

LWD Run Summary

LWD Run Summary						
Section: 8 ½" x 9.05"						
Contractor: Halliburton						
Run	Logging Service (tool combination)	Pass	Pass direct.	Log speed	Interval [m MD]	Pass remark
5	DGR/EWR/P4D/ALD/CTN	Drill.	Down	ROP	2031-3479	
Section: 8 ½" x 9.05"						
Contractor: Halliburton						
Run	Logging Service (tool combination)	Pass	Pass direct.	Log speed	Interval [m MD]	Pass remark
6	DGR/EWR/P4D/ALD/CTN	Drill.	Down	ROP	3479 - 4126	Density failed from 3487 m

Two tripple drawdown pressure tests were taken.

Test #1 taken at 3755.50m MD (2832.80m TVD) shows stable buildup pressure for all three pre-tests with low/moderate mobilities.

Test #2 taken at 3508.50m MD (2755.80m TVD) shows a thighter formation test with slow buildup pressures and low mobilities. This test indicates a possible supercharge effect.

Pressure Test Summary													
Test Number	Time dd-mm-yy hh:mm	Measured Depth m	TVD m	Hystatic 1 base	Hystatic 1 EMW g/cc	Hystatic 2 base	DD Pressure base	Buildup Pressure base	Stop Pressure base	Stop EMW g/cc	DD Mobility (mDcP)	Temperature deg C	Remark
900 1.1	05-05-06 23:38	3755.5	2832.8	490.00	1.62	491.19	491.02	491.62	496.84	1.47	75.80	95.8	Good Test
900 1.2							496.07	491.12	496.62	1.47	73.70	95.8	Good Test
900 1.3							496.85	491.18	496.85	1.47	68.40	95.8	Good Test
900 2.1	06-05-06 00:36	3508.5	2755.8	440.00	1.63	439.72	511.52	397.14	412.69	1.53	3.60	88.9	Good Test
900 2.2							412.93	391.30	412.36	1.53	3.40	88.9	Good Test
900 2.3							412.39	390.20	412.11	1.53	3.40	88.9	Good Test

4.8.4 Wireline logging in the 8 ½"x9.05" section- 49 S.

Schlumberger WL Services logged GR/MDT w. samples. GR/PEX was for backup of missing LWD data. Rhob from PEX was merged into LWD data set interval 3487-3788 m MD.

Wireline Logging Summary

Section: 12 ¼"					
Contractor: Schlumberger					
Run	Logging Service (tool combination)	Pass	Pass direct.	Log speed	Interval [m MD]
1A	GR/MDT		Down	N.A.	2440-3843
1A	GR/PEX		Up	N.A.	2440-3843

Run remark: : 35 pressure tests w/MDT . Sampled Oil and water from Epidot/Alun

Time Distribution			
Run	Operation time [Hours]	Lost Time [Hours]	Comments
1A, MDT-GR	83	0	Voltage drop on tool and telemetry problems occurred a couple of times downhole.

4.8.5 Formation Pressures 8 ½" section

Run no.: 1A	Well: 34/10-49 S Date: 24.04.2006 Rig: Ocean Vanguard RKB: 21,5 m.										PORE PRESSURE (s.g ref. RKB) = 10.195*FORM. PRESSURE / mTVD RKB				
ZONE NAME	Log Run No.	Test No.	DEPTH m MD RKB	DEPTH m TVD MSL	FORM. PRESS. (bar)	HYDROSTATIC PRESS. (bar)		TEMP (°C)	GOOD SEAL (Y/N)	REMARKS (Pressure gauge id.)	MOB- ILITY mD/cP	PORE PRESS. s.g ref. RKB (g/cm3)	HYDROST. PRESS. s.g ref. RKB (g/cm3)	INITIAL PRESS. (bar)	DEPLE- TION (bar)
Ness	1A	20	2499,5	2367,8	302,61	366,7	366,7	89,1	Y	PQ, Very Good	1500,7	1,291	1,565	364,2	61,6
Ness	1A	1	2511,0	2376,0	318,28	372,6	372,4	85,8	Y	Q1, Very Good	3013,8	1,353	1,584	364,7	46,5
Ness	1A	21	2513,0	2377,4	318,30	368,4	367,8	90,5	Y	PQ, Very Good	2409,9	1,353	1,566	364,8	46,5
Ness	1A	22	2531,5	2390,3	318,79	370,4	370,4	91,4	Y	Q1, Very Good	671,7	1,348	1,566	365,7	46,9
Etive	1A	2	2543,5	2398,6	318,79	375,8	375,8	85,9	Y	Q1, Very Good	604,7	1,343	1,583	366,3	47,5
Etive	1A	23	2552,0	2404,4	319,06	372,4	372,3	91,1	Y	Q1, Very Good	6189,3	1,341	1,565	366,6	47,6
Rannoch	1A	3	2570,0	2417	320,03	378,3	378,4	87	Y	Q1, Very Good	187,3	1,338	1,582	367,5	47,5
Rannoch	1A	4	2583,5	2426,5	320,70	379,7	379,8	87,5	Y	Q1, Very Good	326,9	1,336	1,581	368,1	47,4
Rannoch	1A	24	2583,5	2426,5	320,37	376,3	375,4	92,4	Y	PQ, Very Good	333,9	1,334	1,567	368,1	47,8
Rannoch	1A	5	2598,0	2436,9	321,47	381,3	381,4	87,9	Y	Q1, Very Good	182,3	1,333	1,581	368,8	47,3
Rannoch	1A	6	2605,0	2442	322,04	382,0	382,1	88,3	Y	Q1, Good	92,2	1,333	1,581	369,2	47,1
Rannoch	1A	25	2613,0	2447,7	322,67	379,6	379,3	93,7	Y	Q1, Good	23	1,332	1,567	369,5	46,9
Rannoch	1A	26	2624,5	2603	333,61	380,4	380,1	93,7	Y	PQ, Good	30	1,373	1,566	379,9	46,3
Cook	1A	27	2745,5	2538	376,91	393,1	393,1	95,5	Y	Q1, Good	22,2	1,501	1,566	380,1	3,2
Cook	1A	28	2761,5	2547,9	377,94	394,6	394,7	96,2	Y	Q1, Good	38	1,500	1,566	380,5	2,6
Statfjord	1A	7	3284,0	2754,3	401,48	426,3	426,2	104,2	Y	Q1, Very Good	390,2	1,475	1,566	405.2	-3,8
Statfjord	1A	8	3303,0	2759,9	401,84	429,0	428,6	103,7	Y	PQ, Very Good	497,6	1,473	1,572	405.6	-3,7
Statfjord	1A	9	3328,5	2768	402,41	428,1	428,0	104,4	Y	Q1, Very Good	2138	1,471	1,564	406	-3,6
Statfjord	1A	10	3366,0	2780,4	403,22	430,1	429,9	104,9	Y	Q1, Very Good	630,7	1,467	1,565	406.7	-3,5
Statfjord	1A	11	3385,0	2786,9	403,67	432,4		104,7	y	Q1, Very Good	1525,4	1,465	1,570	407.1	-3,4
Statfjord	1A	12	3401,5	2792,7	404,06	431,9	431,8	105,4	Y	Q1, Very Good	2055,2	1,464	1,565	407.4	-3,3
Statfjord	1A	18	3416,0	2797,8	404,41	432,7	432,7	105,5	Y	Q1, Very Good	4719,1	1,462	1,565	407.7	-3,3
Statfjord	1A	13	3425,5	2801,1	404,64	433,4	433,3	105,5	Y	PQ, Good	85,9	1,462	1,566	407.9	-3,3
Statfjord	1A	14	3447,7	2809	405,52	435,1	434,6	105,3	Y	PQ, Very Good	242,5	1,461	1,567	408.3	-2,8

StatoilHydro

Run no.: 1A	Well: 34/10-49 S Date: 24.04.2006 Rig: Ocean Vanguard RKB: 21,5 m.										PORE PRESSURE (s.g ref. RKB) = 10.195*FORM. PRESSURE / mTVD RKB				
						HYDROSTATIC PRESS. (bar)									
Statfjord	1A	19	3467,5	2816,3	406,22	435,8	435,9	105,9	Y	Q1, Very Good	399,8	1,459	1,566	408,71	-2,5
Statfjord	1A	17	3566,0	2852,2	409,99	441,8	441,8	106,9	Y	Q1, Very Good	151,2	1,455	1,567	410,91	-0,9
Statfjord	1A	16	3613,0	2868,5	411,71	444,4	444,8	107,1	Y	Q1, Poor	3,7	1,452	1,568	412.56	-0,9
Statfjord	1A	15	3755,0	2917,3	416,70	452,5	452,6	108,2	Y	Q1, Very Good	145,3	1.45	1,570	417.49	-0,8
Total number of tests: 35									No. Successful tests: 28			No. Fluid samples: 13			
Hydrostatic gradient to surface: 1,65 g/cm3 decreasing to 1.63 g/cm3 after finished sampling															
Hydrostatic gradient in logged interval: 1,65 g/cm3 – Minimum/Maximum measured pore pressure (ref RKB): 1,48 / 1,56 g/cm3															
Datum (Initial Pressure): 0,11 x mTVDMSL + 110															
Formation pressure test Quality in OW “PRES_QUAL” 5Lost Seal, 2Tight, 1Poor (<10 mD/cP), 6Good (10-100 mD/cP), 21Very Good (>100 mD/cP)															

The depths are from wire line run GR/MDT.

MDT trykk, Brentgruppen 34/10-49 S, Epidot

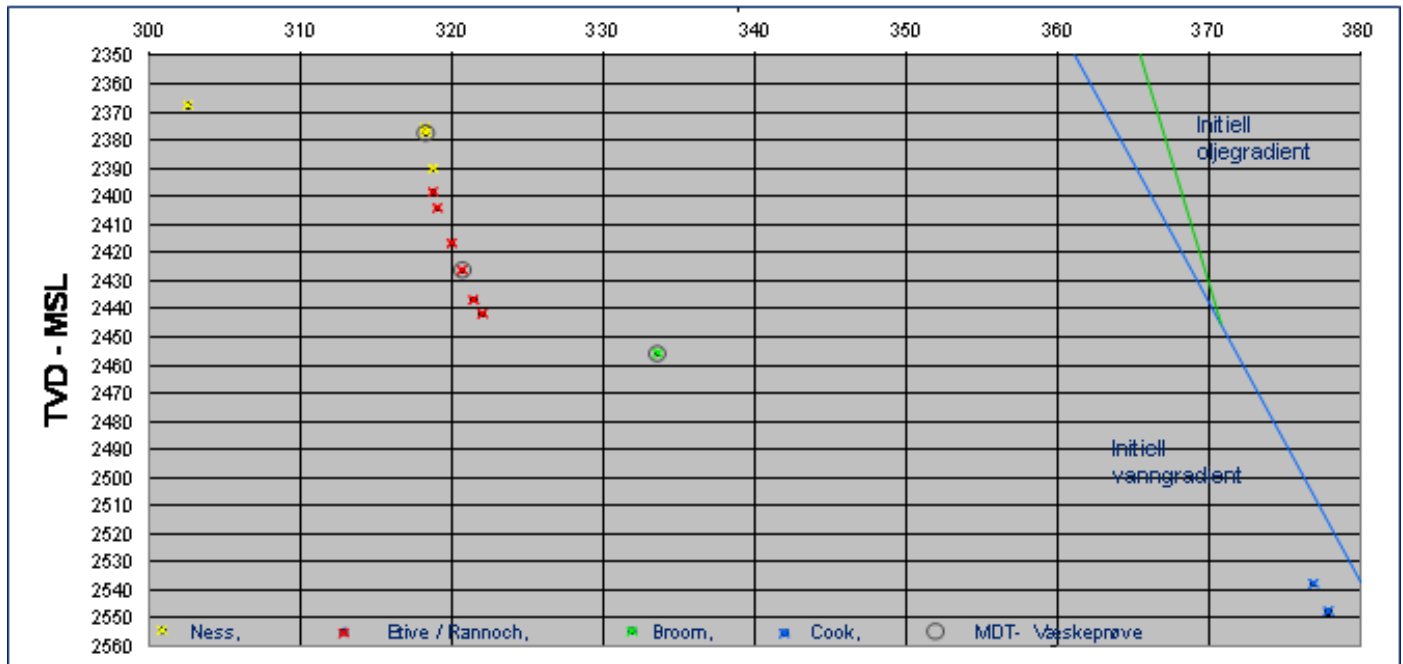


Figure 7 MDT pressure points in the Brent Group, 60 bar pressure depletion in the Brent Group, 60 bar pressure depletion in the uppermost sand in the Ness Formation (N-1C). Etive and Rannoch Formations are 47-49 bar pressure depleted. The thin sand in Broom (30-50 cm) is pressure depleted with 40 bar. The Cook Formation has initial pressure

MDT trykk, Statfjordformasjonen 34/10-49 S, Alun

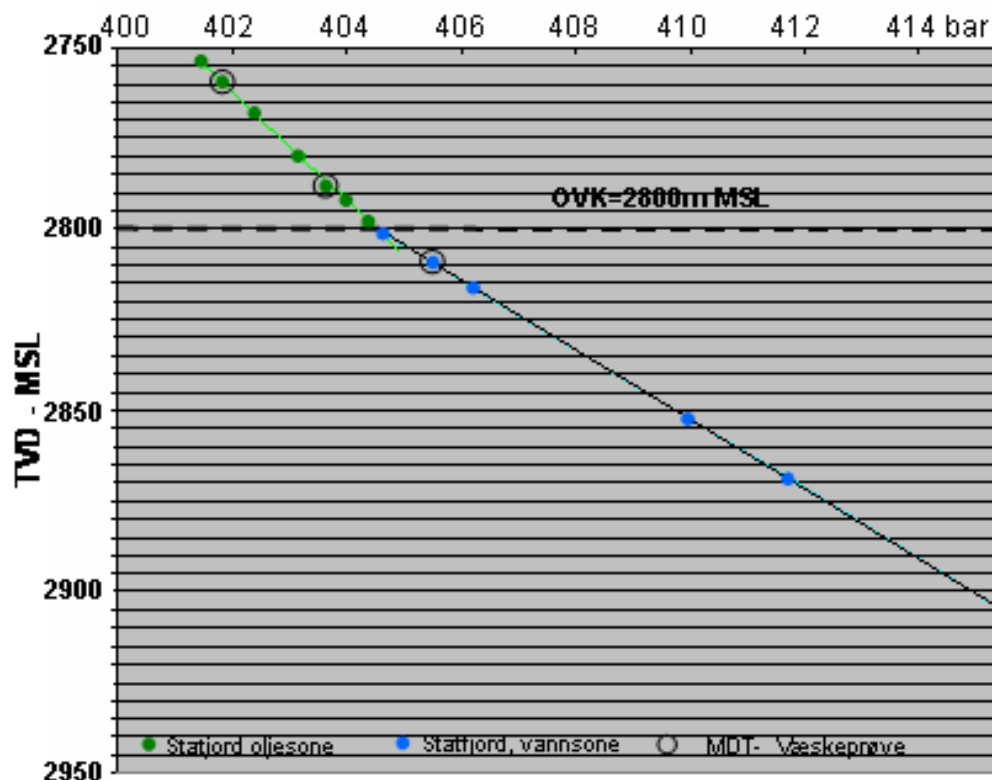


Figure 8 MDT pressure points in the Statfjord Formation. The measurements show initial pressures. The pressure in the water zone is laying on the same gradient as found in the exploration well 34/10-43 S in 2002.

4.8.6 Formation Fluid Sampling – 12.25” section

4.8.7 Sampling Details

Sampling/Scanning Summary

Client:	Statoil	Rig:	Ocean Vanguard
Field:	Gullfaks Sor	Date:	21.apr.06
Well:	Apollo 34/10-49S	Run:	1A

Station	# of bottles filled	DLIS	MD (m)	Formation	Fluid	P(form) (Bar)	P(hyd) (Bar)	Mobility (MD/CP)	Cleanup (L/mns)	Temp(form) (DegC)	Temp(hyd) (DegC)
[1]	2	68	3306.0	Statfjord	Oil	401.84	428.99	498.3	149L / 125	103.7	103.8
[2]	3	73	3384.0	Statfjord	Oil	403.67	432.43	1527.7	54L / 48	104.6	104.7
[3]	3	78	3447.5	Statfjord	Water	405.52	435.07	242.9	142L / 95	105.6	105.7
[4]	Scan	98	3425.5	Statfjord	Water	404.64	433.42	85.9	15L / 17	105.9	106.3
[5]	Scan	111	2613.0	Rannoch	Oil	323.67	379.56	23.2	13L / 19	93.1	93.5
[6]	1	115	2624.5	Broom	Water	333.61	380.43	30.4	42L / 66	93.4	93.5
[7]	2	117-118	2583.5	Rannoch	Oil	320.37	376.27	333.9	147L /	93.2	93.8
[8]	2	123	2513.0	Ness	Oil	318.30	368.43	2421.9	165L / 118	89.8	90.1

Sampling Details

	Open ETIM	Sample Chamber	Chamber Slot	Chamber- Serial(s)	Temp (degC)	Drawdown Pressure (bar)	Max.Shut-in Pressure (bar)	OCM Predicted Contam.(%)	LFA GOR (m3/m3)	CFA GOR (m3/m3)
	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====
[1a]	3480	MRMS1	1	147	104.18	400.945	678.755		0	45 %
[1b]	7500	MRMS1	3	928	104.4	401.222	677.222	7.00 %	0	45 %
[2a]	2880	MRMS2	1	168	104.85	403.21	681.21	could not overpressure bottle		
[2b]	3694	MRMS2	3	650	104.9	403.47	506.47			
[2c]	4607	MRMS1	6	2520	104.95	403.39	682.39			
[3a]	4374	MRMS2	4	695	105.6	404.45	677.45			
[3b]	5499	MRMS1	4	974	105.6	404.41	677.41			
[6a]	3307	MRMS1	5	1011	93.75	88	288.19	could not over pressure bottle		
[7a]	5526	MRMS2	2	644	91.8	319	390.52	3 %	60.6	
[7b]	2178	MRMS1	2	750	91.8	318.76	588.76	3 %	60.6	
							678.755			
[8a]	6400	MRMS2	6	971	90.05	318	677.222	5 %	18 %	
[8b]	6993	MRMS3	5	798	90.09	318		5 %	18 %	
							681.21			

Scanning Details

			C6+	C2-C5	C1	HC Density
	Depth	Fluid Type	wt%	wt%	wt%	G/CC
	=====	=====	=====	=====	=====	=====
[4]	3425.5 m	Water	n/a	n/a	n/a	n/a
[5]	2613.0 m	Oil	82.38	0	5.34	0.8772

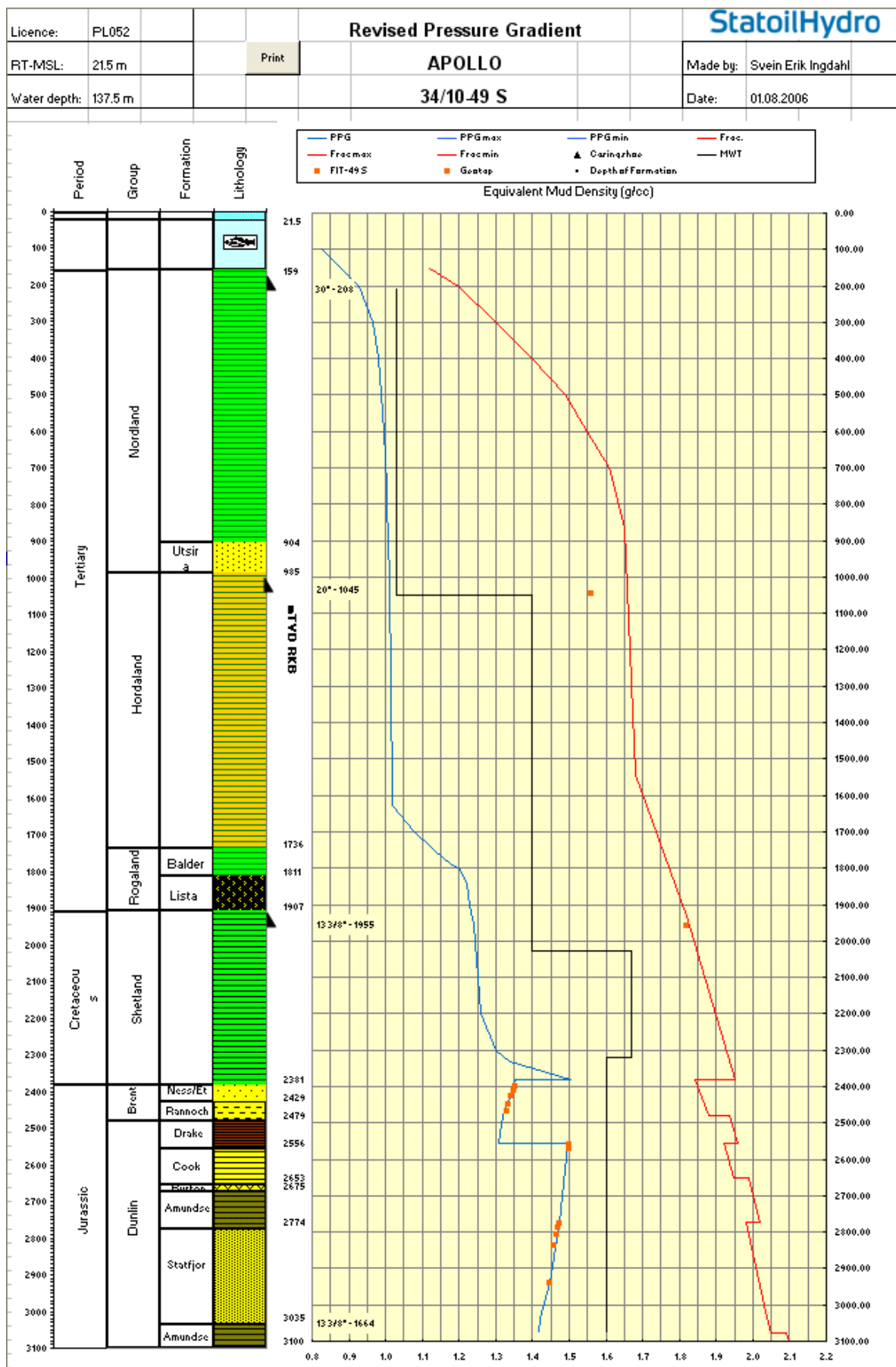
Chamber		Volume		#Strokes		MS Bottle		Dead Vol.
=====		=====		=====		=====		=====
SPMC	(Oilphase)	250 cc		0.43		3		7.2 cc
MPSR	(Standard)	450 cc		0.77		2		10.2 cc
MRSC- GA	(1g)	3.785 l		6.5		6		10.3 cc
MRSC- JA	(2.75g)	0.41 l		17.8		1		11.1 cc
MRSC- EC	(6g)	22.71 l		38.8		5		12 cc
MRSC- ED	(18g)	68.14 l		116.5		4		12.5 cc

* Hydrocarbon Samples - Dead volume filled with Disteilled water
 * Water Samples - Dead volume filled with Disteilled air

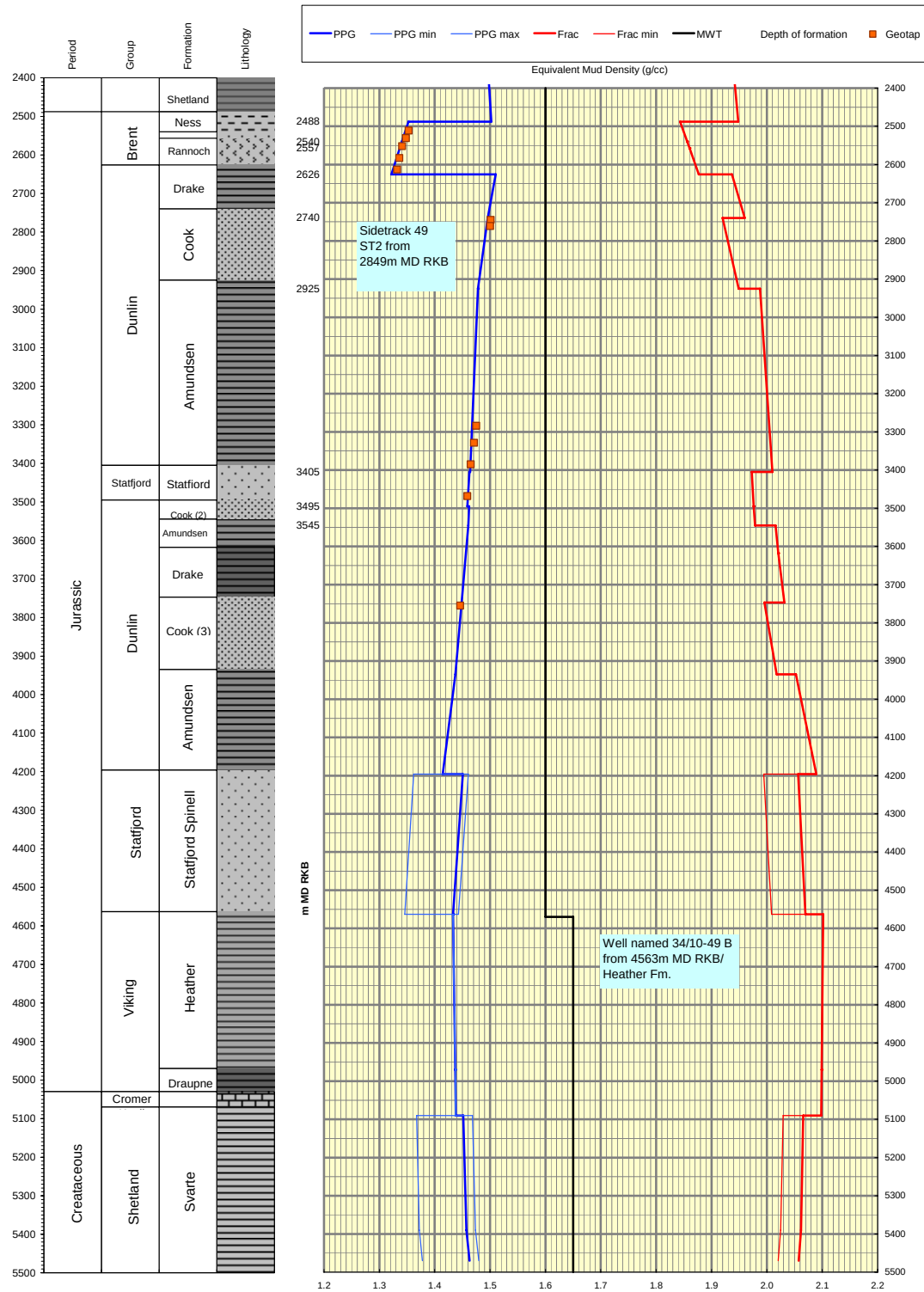
4.8.8 *Formation temperature in - 49 S.*

Based on assumed seabed temperature of 4.0 °C, a temperature gradient of 3.0 ° C/100 m is used from seabed to 1750 m TVD RKB. Further a temperature gradient of 4.8 ° C/100 m is assumed from 1750 m and down to the top Brent Group at 2381 m TVD RKB. From here and to TD of the well a temperature gradient of 3.2 ° C/100 m is used. This gives a temperature of approximately 115 ° C at TD of the well at 3077 m TVD RKB. The estimated formation temperature is in agreements with wireline temperatures in the reservoir section.

4.9 Formation pressure plot, true vertical depth

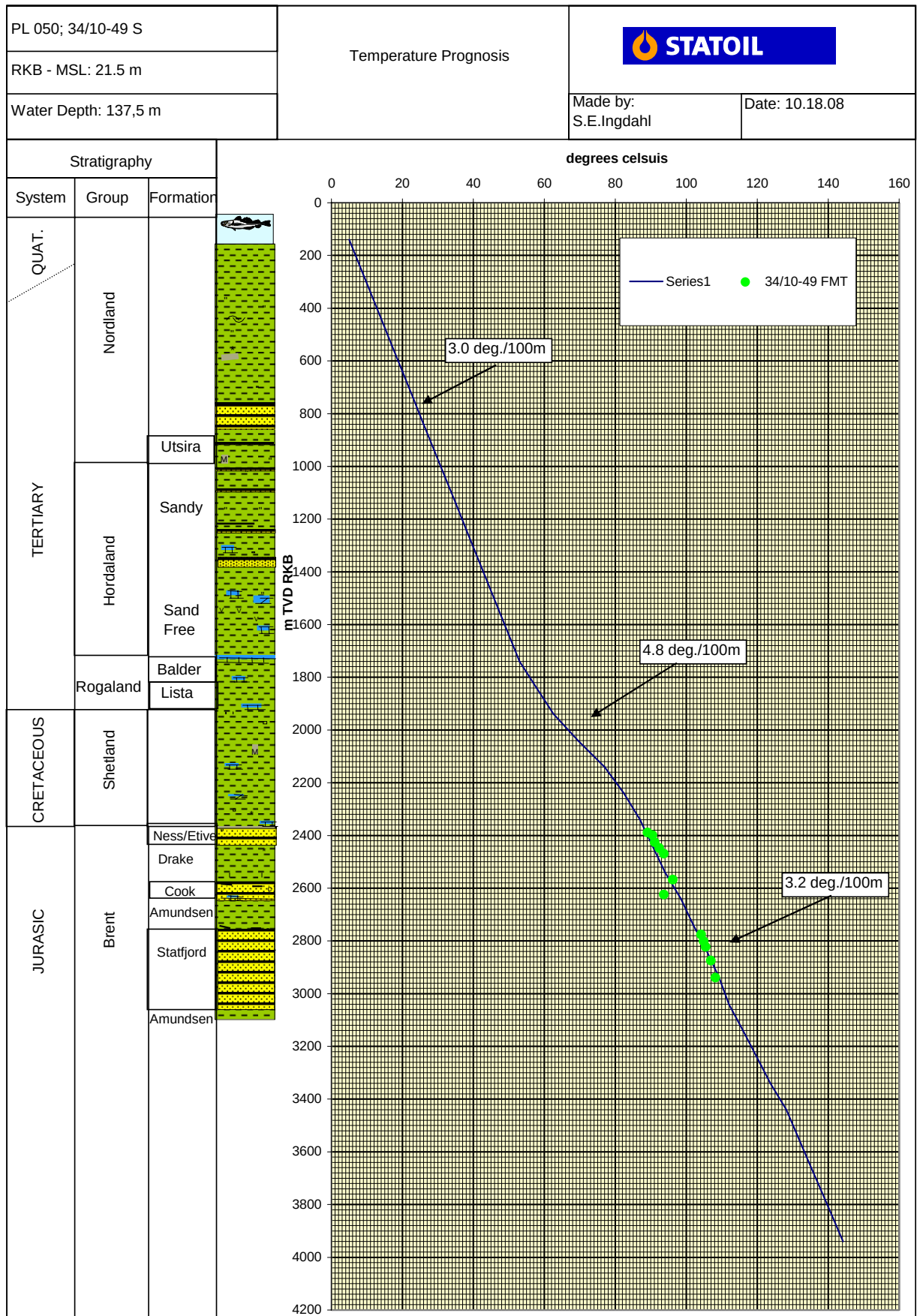


Licence: PL050	Pressure Gradient Plot Reservoir 34/10-49 S, ST2 & B Measured Depth Plot		 Made by: S.E. Ingdahl Date: 26.07.2006
RT-MSL: 21,5m			
Water depth: 137,5m			



4.10 Formation pressure plot, measured depth

4.11 Temperature plot



5 Drilling operations report

5.1 NO 34/10-49 S, MOVE (15.03.2006 22:00)

START: 15.03.2006 22:00 0 mMD

END : 18.03.2006 23:30 0 mMD

OBJECTIVE

The objective was to move rig from Wishbone structure to Apollo surface location.

SUMMARY

The move was done in a safe and fast manor. Two of the anchor chains had inserts installed (done on previous location) and was the first to be laid out. Two anchor chains needed inserts and that was installed on location and those chains was laid out. The last 4 anchors was the laid out without inserts and done without any problem. The anchor handling was performed done in 22.5 hours.

5.2 NO 34/10-49 S, PRESPUD (18.03.2006 23:30)

START: 18.03.2006 23:30 0 mMD

END : 20.03.2006 23:00 0 mMD

OBJECTIVE

The objective was to prepare to drill on new location.

SUMMARY

75 stands of 5 1/2" drillpipe for drilling and 5 stands of 5 1/2" drillpipe for landing string was picked up from deck and racked in derrick. 3 stands of 5 1/2" HW drillpipe and 5 joints of 8" drill collar was also picked up from deck and racked in derrick prior to making up 36" BHA. The 36" BHA was made up and racked in derrick together with cement stand. Started to mix spud mud and RIH with 36" BHA.

BIT RUNS

5.3 NO 34/10-49 S, 36" (20.03.2006 23:00)

START: 20.03.2006 23:00 159 mMD

END : 23.03.2006 15:00 210 mMD

OBJECTIVE

The objective was to install 30" conductor that would act as structure to hold BOP.

SUMMARY

The well was spudded 20 mars 23:00 hrs and waterdepth was 137,5m. The 36" hole was drilled to 210mDF with seawater and CMC pills. The hole was displaced to 1.30 WBM prior to running/cementing 30" conductor with PGB. The conductor was cemented with 200% excess and with visible returns to seabed. The PGB had 2m gap to seafloor.

BIT RUNS

The section was drilled in 1 bitrun. No boulders were experienced.

DRILLING FLUID

The section was drilled with seawater and CMC pills. The open hole was displaced to 1.30 sg WBM prior to run 20" casing.

CASING

20" casing was run and cemented with full returns. Shoe join, intermediate joint and float collar joint was baker locked. the 5 lowermost joints had 1 centralizer installed.

MWD/BHA

The section was drilled with 17 1/2" bit and 26" x 36" HO. The BHA had a MWD installed.

CEMENTING

The 30" conductor with PGB was cemented with full returns. 50 m3 Tune-lite cement was pumped (300 % excess of open hole). Due to bouyancy the conductor was held in place for 10 hrs. The bullseye readings on PGB was 1/2 deg and 3/4 deg.

LOGGING

No logging was performed in this section.

5.4 NO 34/10-49 S, 26" (23.03.2006 15:00)

START: 23.03.2006 15:00 210 mMD

END : 30.03.2006 16:30 1050 mMD

OBJECTIVE

The objective for the section was to get 20" shoe deep enough to get sufficient integrity to drill 17 1/2" hole.

SUMMARY

The section was drilled to below utsira sandstone and TD was set in Hordaland group at 1050m.

BIT RUNS

The section was drilled in 1 bitrun.

DRILLING FLUID

The section was drilled with seawater and CMC pills. The hole was displaced to 1.30 s.g. WBM prior to running casing.

CASING

The 20" casing was installed with shoe at 1044 mDF. The shoe joint, the intermediate joint and the float collar joint was Baker locked. The 5 lowermost joints had 1 centralizer installed.

MWD/BHA

The BHA consisted of motor and MWD/LWD. There were gamma-ray, resistivity, annulus pressure (ECD) and D&I sensors in the BHA.

CEMENTING

The casing was cemented with full returns to seabed. The volume was based on 50 % excess of open hole and with 20 m3 tail slurry. The plug was bumped and no backflow was confirmed before R/T was released.

LOGGING

The LWD provided GR and Res logs from this run.

5.5 NO 34/10-49 S, 17 1/2" (30.03.2006 16:30)

START: 30.03.2006 16:30 1050 mMD

END : 10.04.2006 11:00 2031.5 mMD

OBJECTIVE

The objective for the section was to obtain sufficient formation integrity to drill next section.

SUMMARY

The section was drilled to 50 m TVD into Shetland group as planned. The section was drilled in 2 bitruns due to a 10 m thick limestone stringer in Hordaland group that stopped progress on first bitrun. The second bitrun drilled to TD. The wellpath had build and drop sections and the well followed the plan. The ROP in Hordaland sands were low due to overbalance, although OBM was used.

BIT RUNS

First bitrun stopped on Limestone stringer in Hordaland group not previously detected in any well. Would probably have drilled to TD otherwise.

Second bitrun drilled to TD without any problems.

DRILLING FLUID

The section was drilled with 1.50 s.g. OBM, Paratherm. The same mudweight was used throughout the section. The ROP in Hordaland group sands was slow but high in the claystones.

CASING

13 3/8" casing was set at 2019.5 mDF. The shoe joint, the intermediate joint and the float collar joint was Baker locked. The 5 lowermost joints had 1 centralizer installed.

MWD/BHA

A motor BHA was run in this section. A gamma ray and a resistivity sensor together with D&I sensors was in the string.

CEMENTING

The 13 3/8" casing was cemented with full returns. Estimated top of cement on annulus side was 1100 mDF due to plans of a sidetrack, 34/10-49 A, at approx. 1250 mDF (whipstock installation).

LOGGING

GR and Res logs from LWD in this section.

5.6 NO 34/10-49 S, 8 1/2" x 9,05" (10.04.2006 11:00)

START: 10.04.2006 11:00 2031.5 mMD

END : 01.05.2006 06:00 4126 mMD

OBJECTIVE

The objective for this section was to explore 2 prospect. The Epidot structure in Brent Group and the Alun prospect in Statfjord formation.

SUMMARY

New input from the G&G personnel in Bergen revealed higher possibility of penetrating the Apollo structure in this wellpath, which was not intended. The information led to need for higher MW from start to avoid possible influx when penetrating into the reservoir. The Apollo sandstone was not penetrated but Epidot and Alun prospects were present and HC bearing. The well was sidetracked after intermediate logging due to hole problems in Statfjord formation. The Spinell prospect was not penetrated.

The section was drilled in 2 bitruns (down to intermediate logging depth). The first bitrun was terminated due to washout in underreamer and the second bitrun was terminated due to not able to steer (revealed as badly worn bit).

The MW was lowered on depth after drilling pass possible but not exposed Apollo sst.

The wellplan was changed slightly in the beginning to increase possibility of finding OWC in Brent group sst. The wellpath followed the new plan OK. The target for the Spinell structure was also moved slightly but at that point in the well we were not able to steer.

BIT RUNS

The section was drilled with 2 bitruns. A third bitrun was started but did not drill new formation. The first bitrun drilled from shoe depth down to xxxx mMD. The BHA was pulled due to washout. On surface revealed as washout in the Andergauge underreamer. The underreamer and xxx was changed out and drilling continued. After passing fault between Alun and Spinell structures the progression slowed down and steering problems occurred. Drilling was stopped at secure distance from Spinell target that made it possible to hit with next BHA.

Tight hole was experienced while tripping in with the third BHA. Some pack off tendencies and actual packing off.

Initiating of open hole sidetrack was done but later stopped.

DRILLING FLUID

The section was drilled with Paratherm OBM. The MW was raised to 1.67 sg EMW and when drilled pass possible Apollo sst. lowered to 1.60 sg EMW. No sagging was experienced during trips.

CASING

No casing was run.

MWD/BHA

The BHA consisted of Geopilot and an MWD/LWD package. The BHA behaved well and kept up with the actual plans. Towards the end of bitrun #2 no steering was possible and BHA was pulled. The third BHA was able to start an open hole sidetrack but the plans were changed and the wellpath plugged back.

CEMENTING

The section was plugged back from TD 4124 mMD to 28xx mMD.

LOGGING

Extensive logging was performed. Pressure points and sampling from 3 different reservoirs. No downhole problems while performing pipe conveyed logging.

5.7 NO 34/10-49 ST2, 8 1/2" x 9,05" (01.05.2006 06:00)

START: 01.05.2006 06:00 2846 mMD

END : 08.05.2006 17:30 4563 mMD

OBJECTIVE

To evaluate possible HC in Spinell structure (Statfjord Fm).

SUMMARY

Penetrated Spinell structure and found structure waterbearing. Drilled through Spinell and TD for well is passing fault into Heather Fm.

BIT RUNS

The section was drilled in 2 bitruns. Had to pull to surface due to washout in Anderreamer tool after 1217m drilled. The last run continued into 34/10-49 B (Sølvkåpe). The same Geopilot was used in both runs.

DRILLING FLUID

Paratherm OBM was used in this section. The MW was 1.60 sg when starting section and the same at TD.

CASING

No casing or liner was installed in this section.

MWD/BHA

The BHA consisted of Geopilot and a MWD/LWD package. The BHA had good steerability.

CEMENTING

The section was P&A with a total of 5 OH plugs and last plug set into 13 3/8" casing. The plugs were set as follows:
#1: 4626-4376m and #2: 4346 - 4096m isolating waterwet Spinell structure . Plug #3: 3897 - 3647m isolating waterwet Cook fm. Plug #4: 3555 - 3305m isolating HC bearing Alun structure/waterwet Cook Fm. Plug #5: Isolating HC bearing Epidot structure. and plug #6 into the 13 3/8" casing.

LOGGING

No electric logging was performed in this section. A Geotap tool was included in the BHA and x pressure point were taken.

5.8 NO 34/10-49 A, 12 1/4" (21.05.2006 17:30)

START: 21.05.2006 17:30 1280 mMD

END : 28.05.2006 18:30 2124 mMD

OBJECTIVE

The objective for the section was to set TD approx. 50 mTVD into Shetland group. This to achieve formation integrity high enough to withstand estimated porepressure for the nest (reservoir) section.

SUMMARY

The whistock was installed and window milled without problems. The section was drilled in 1 bitrun and on this track the thick limestone stringer seen in the mother track was not experienced. Logs from LWD worked OK and the objective to set TD 50 MTVD into Shetland group was achieved.

BIT RUNS

The section was drilled with a motor BHA and a PDC bit. The bit was a bit to aggressive in the upper part (Hordaland group) but worked better towards depth. The wellpath was slightly below plan but good enough for the next section.

DRILLING FLUID

Paratherm oil based mud was used to drill this section. The mudweight was 1.50 sg throughout the section. Low torque was seen in track as in the motherwell. No loss to the formation was experienced.

CASING

A 9 5/8" liner was installed to secure the well. The shoetrack consisted of shoe joint , 2 intermediate joints and a float collar joint. The 5 lowermost joints had 2 centralizers each.

MWD/BHA

The BHA consisted of MWD and LWD service from Sperry sun/Haliburton. The service provided was GammaRay, dual resistivity and annulus pressure real time. A survey tool was also included.

CEMENTING

The cement jobb was done with full returns and the plug was bumped during displacement. No hard cement was experienced when drilling out shoe and rathole.

LOGGING

Real time logging while drilling was performed. No wireline logging.

5.9 NO 34/10-49 A, 8 1/2" x 9,05" (28.05.2006 18:30)

START: 28.05.2006 18:30 2124 mMD

END : 02.06.2006 01:30 3312 mMD

OBJECTIVE

Penetrate Apollo structure and possibly prove presens of sandstone with hydrocarbons. Set TD either into top Viking group or into Brent group.

SUMMARY

Drilled through target Apollo but did not prove presens of sandstone. Changed TD criteria to penetrate lower Brent group to possibly verify existens of Epidot 2. Drilled through waterwet upper Brent group . TD was set in waterwet sand either in Lower Brent or intra Ness 1 sands. The vertical depth roled out any prospect anyway.

The drilling was stopped due to washout in BHA. On surface verified to be the Andrereamer.

BIT RUNS

The section was drilled in 1 bitrun.

DRILLING FLUID

Paratherm OBM was used with a mudweight of 1,67 sg.

MWD/BHA

The BHA consisted of a PDC bit, a geopilot and MWD/LWD (DGR/EWR/ADL/CTN/PWD and D/I package).

CEMENTING

After TD the section/well was permanent plugged and abandoned.

LOGGING

The section was logged while drilled with Sperry sun/Haliburton gammaray/dual resistivity and density/neutron porosity tools. Annulus pressure and survey sensors was also included in BHA.

5.10 NO 34/10-49 A, PERM P&A (02.06.2006 01:30)

START: 02.06.2006 01:30 3220 mMD

END : 10.06.2006 13:30 3312 mMD

OBJECTIVE

The objective was permanent plugging and abandonment.

SUMMARY

The well was plugged back with 2 open hole cement plugs, the upper one into 9 5/8" liner. 1 plug was set on top of upper plug due to no good pressure test. Since liner hanger was presure tested OK after installation no cement plug was set across liner hanger area. 1 plug was set across 13 3/8" casing cut and served as surface plug as well. The 20" and 30" casing was cut 5m below seabed.

5.11 NO 34/10-49 A, MOVE (10.06.2006 13:30)

START: 10.06.2006 13:30 0 mMD

END : 12.06.2006 06:30 0 mMD

OBJECTIVE

The objective was to perform anchorhandling and remove inserts from 4 anchorchains with zero philosophy, with focus on personell and no damage to any seabed structure or surface equipment.

SUMMARY

The work was carried out without and HSE incident.

6 **Appendix 1: Directional data**

STATOILHYDRO NORWAY

EXPLORATION - UTM Zone 31

34/10-49

34/10-49

49 S

Design: 34/10-49 S

Standard Survey Report

10 September, 2008

Company:	STATOILHYDRO NORWAY	Local Co-ordinate Reference:	Site 34/10-49
Project:	EXPLORATION - UTM Zone 31	TVD Reference:	WELL @ 25.50m (Original Well Elev)
Site:	34/10-49	MD Reference:	WELL @ 25.50m (Original Well Elev)
Well:	34/10-49	North Reference:	Grid
Wellbore:	49 S	Survey Calculation Method:	Minimum Curvature
Design:	34/10-49 S	Database:	EDM Prod P246N

Project	EXPLORATION - UTM Zone 31		
Map System:	Universal Transverse Mercator	System Datum:	Mean Sea Level
Geo Datum:	Eur. 1950 - W. Europe		
Map Zone:	Zone 31N (0 E to 6 E)		Using geodetic scale factor

Site	34/10-49, 34/10		
Site Position:		Northing:	6 777 678.00 m
From:	Map	Easting:	451 012.00 m
Position Uncertainty:	0.00 m	Slot Radius:	in
		Latitude:	61° 7' 45.062 N
		Longitude:	2° 5' 26.103 E
		Grid Convergence:	-0.80 °

Well	34/10-49		
Well Position	+N/-S	0.00 m	Northing: 6 777 678.00 m
	+E/-W	0.00 m	Easting: 451 012.00 m
Position Uncertainty	0.00 m	Wellhead Depth:	137.50 m
		Water Depth:	137.50 m

Wellbore	49 S				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	GEOMAGNETICRE	11.06.2007	-2.63	73.31	50 918

Design	34/10-49 S			
Audit Notes:				
Version:	1.0	Phase:	ACTUAL	Tie On Depth: 0.00
Vertical Section:	Depth From (TVD) (m)	+N/-S (m)	+E/-W (m)	Direction (°)
	0.00	0.00	0.00	188.78

Survey Program	Date	09.09.2008		
From (m)	To (m)	Survey (Wellbore)	Tool Name	Description
164.62	193.84	49 S 36" MWD (49 S)	Magnetic, IFR, mag-corr	Magnetic Tools (MWD, EMS)
236.69	1 022.24	49 S 26" MWD (49 S)	Magnetic, IFR, mag-corr	Magnetic Tools (MWD, EMS)
1 022.24	1 712.37	49 S 17 1/2" MWD Run #1 (49 S)	Magnetic, IFR, mag-corr	Magnetic Tools (MWD, EMS)
1 712.37	2 001.51	49 S 17 1/2" MWD Run #2 (49 S)	Magnetic, IFR, mag-corr	Magnetic Tools (MWD, EMS)
2 001.51	3 447.01	49 S 8 1/2" MWD Run #1 (49 S)	Magnetic, IFR, mag-corr	Magnetic Tools (MWD, EMS)
3 447.01	4 087.89	49 S 8 1/2" MWR Run #2 (49 S)	Magnetic, IFR, mag-corr	Magnetic Tools (MWD, EMS)

Survey										
Measured Depth (m)	Inclination (°)	Azimuth (°)	Vertical Depth (m)	+N/-S (m)	+E/-W (m)	Vertical Section (m)	Dogleg Rate (°/30m)	Build Rate (°/30m)	Turn Rate (°/30m)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00	0.00	
164.62	1.05	319.52	164.61	1.15	-0.98	-0.98	0.191	0.19	0.00	
181.34	1.76	185.04	181.33	1.01	-1.10	-0.83	4.675	1.27	-241.29	
193.84	1.14	136.70	193.82	0.73	-1.03	-0.56	3.156	-1.49	-116.02	
236.69	0.12	220.07	236.67	0.38	-0.77	-0.26	0.793	-0.71	58.37	
294.26	0.36	230.01	294.24	0.22	-0.95	-0.07	0.126	0.13	5.18	
323.61	0.53	242.81	323.59	0.10	-1.14	0.08	0.200	0.17	13.08	
353.95	0.20	129.78	353.93	0.00	-1.22	0.19	0.628	-0.33	-111.76	

Company:	STATOILHYDRO NORWAY	Local Co-ordinate Reference:	Site 34/10-49
Project:	EXPLORATION - UTM Zone 31	TVD Reference:	WELL @ 25.50m (Original Well Elev)
Site:	34/10-49	MD Reference:	WELL @ 25.50m (Original Well Elev)
Well:	34/10-49	North Reference:	Grid
Wellbore:	49 S	Survey Calculation Method:	Minimum Curvature
Design:	34/10-49 S	Database:	EDM Prod P246N

Survey									
Measured Depth (m)	Inclination (°)	Azimuth (°)	Vertical Depth (m)	+N/-S (m)	+E/-W (m)	Vertical Section (m)	Dogleg Rate (°/30m)	Build Rate (°/30m)	Turn Rate (°/30m)
382.49	0.17	110.38	382.47	-0.05	-1.14	0.22	0.073	-0.03	-20.39
413.15	0.31	30.76	413.13	0.01	-1.06	0.15	0.319	0.14	-77.91
443.01	0.65	332.98	442.99	0.23	-1.09	-0.06	0.554	0.34	-58.05
473.70	0.74	313.63	473.68	0.52	-1.32	-0.31	0.244	0.09	-18.91
502.61	0.80	286.75	502.58	0.71	-1.65	-0.45	0.376	0.06	-27.89
527.69	0.70	242.04	527.66	0.69	-1.95	-0.38	0.691	-0.12	-53.48
557.13	0.59	200.38	557.10	0.46	-2.16	-0.13	0.479	-0.11	-42.45
586.18	0.44	127.42	586.15	0.25	-2.12	0.07	0.645	-0.15	-75.35
617.82	0.44	122.28	617.79	0.11	-1.92	0.18	0.037	0.00	-4.87
645.44	0.44	95.73	645.41	0.05	-1.73	0.22	0.219	0.00	-28.84
674.04	0.50	64.30	674.01	0.09	-1.51	0.14	0.274	0.06	-32.97
699.32	0.20	16.13	699.29	0.18	-1.40	0.04	0.470	-0.36	-57.16
727.88	0.14	319.94	727.85	0.25	-1.40	-0.04	0.177	-0.06	-59.02
788.59	0.81	264.31	788.55	0.27	-1.88	0.02	0.366	0.33	-27.49
817.99	0.49	224.63	817.95	0.16	-2.17	0.18	0.545	-0.33	-40.49
876.59	0.70	228.64	876.55	-0.26	-2.62	0.65	0.110	0.11	2.05
906.76	0.14	244.10	906.72	-0.39	-2.79	0.82	0.563	-0.56	15.37
963.59	0.44	87.56	963.55	-0.42	-2.64	0.81	0.302	0.16	-82.64
992.71	0.17	201.55	992.67	-0.45	-2.54	0.83	0.548	-0.28	117.43
1 022.24	0.26	134.52	1 022.20	-0.54	-2.51	0.91	0.253	0.09	-68.10
1 072.40	0.09	172.97	1 072.36	-0.66	-2.42	1.02	0.118	-0.10	23.00
1 102.92	0.28	296.80	1 102.88	-0.65	-2.49	1.02	0.333	0.19	121.72
1 131.67	1.17	318.11	1 131.62	-0.40	-2.74	0.81	0.955	0.93	22.24
1 160.98	2.91	310.85	1 160.91	0.31	-3.51	0.23	1.797	1.78	-7.43
1 189.92	5.92	307.56	1 189.77	1.70	-5.25	-0.88	3.130	3.12	-3.41
1 218.95	7.82	305.23	1 218.59	3.75	-8.05	-2.48	1.984	1.96	-2.41
1 247.59	9.13	302.20	1 246.91	6.09	-11.56	-4.25	1.449	1.37	-3.17
1 276.38	10.84	298.30	1 275.27	8.59	-15.88	-6.07	1.915	1.78	-4.06
1 305.37	13.08	297.45	1 303.62	11.40	-21.19	-8.03	2.325	2.32	-0.88
1 335.96	15.62	300.00	1 333.26	15.05	-27.83	-10.63	2.566	2.49	2.50
1 365.81	18.00	299.02	1 361.83	19.30	-35.34	-13.68	2.409	2.39	-0.98
1 393.70	19.98	298.74	1 388.20	23.68	-43.29	-16.80	2.132	2.13	-0.30
1 422.22	21.63	298.24	1 414.86	28.51	-52.19	-20.21	1.746	1.74	-0.53
1 451.62	23.64	297.94	1 441.99	33.84	-62.18	-23.95	2.054	2.05	-0.31
1 480.86	25.73	297.81	1 468.56	39.55	-72.97	-27.95	2.145	2.14	-0.13
1 510.34	27.73	297.96	1 494.89	45.75	-84.69	-32.29	2.036	2.04	0.15
1 538.97	29.69	297.88	1 520.00	52.19	-96.84	-36.80	2.054	2.05	-0.08
1 566.83	31.90	297.31	1 543.93	58.79	-109.48	-41.40	2.400	2.38	-0.61
1 595.79	33.50	296.95	1 568.30	65.92	-123.41	-46.32	1.670	1.66	-0.37
1 625.01	33.60	296.63	1 592.65	73.20	-137.82	-51.32	0.209	0.10	-0.33
1 654.01	33.71	296.44	1 616.79	80.38	-152.20	-56.22	0.158	0.11	-0.20
1 683.77	31.54	294.46	1 641.85	87.28	-166.68	-60.83	2.438	-2.19	-2.00
1 712.37	29.65	292.10	1 666.47	93.04	-180.05	-64.48	2.349	-1.98	-2.48
1 740.62	28.74	290.30	1 691.13	98.03	-192.89	-67.45	1.343	-0.97	-1.91
1 769.19	26.76	287.69	1 716.42	102.37	-205.46	-69.82	2.439	-2.08	-2.74
1 798.44	24.29	286.65	1 742.81	106.09	-217.50	-71.67	2.575	-2.53	-1.07
1 827.32	21.43	284.72	1 769.42	109.13	-228.30	-73.03	3.071	-2.97	-2.00
1 856.83	19.66	284.14	1 797.05	111.72	-238.33	-74.05	1.811	-1.80	-0.59
1 885.80	17.94	279.02	1 824.48	113.61	-247.46	-74.52	2.467	-1.78	-5.30
1 914.72	16.35	275.54	1 852.11	114.70	-255.91	-74.31	1.962	-1.65	-3.61
1 971.98	12.90	267.46	1 907.51	115.19	-270.32	-72.60	2.096	-1.81	-4.23
2 001.51	11.48	259.52	1 936.38	114.51	-276.51	-70.99	2.229	-1.44	-8.07
2 023.84	10.11	249.63	1 958.32	113.43	-280.53	-69.30	3.089	-1.84	-13.29
2 052.22	10.56	241.85	1 986.24	111.33	-285.16	-66.52	1.549	0.48	-8.22

Company:	STATOILHYDRO NORWAY	Local Co-ordinate Reference:	Site 34/10-49
Project:	EXPLORATION - UTM Zone 31	TVD Reference:	WELL @ 25.50m (Original Well Elev)
Site:	34/10-49	MD Reference:	WELL @ 25.50m (Original Well Elev)
Well:	34/10-49	North Reference:	Grid
Wellbore:	49 S	Survey Calculation Method:	Minimum Curvature
Design:	34/10-49 S	Database:	EDM Prod P246N

Survey									
Measured Depth (m)	Inclination (°)	Azimuth (°)	Vertical Depth (m)	+N/-S (m)	+E/-W (m)	Vertical Section (m)	Dogleg Rate (°/30m)	Build Rate (°/30m)	Turn Rate (°/30m)
2 080.76	10.06	230.07	2 014.32	108.50	-289.38	-63.08	2.273	-0.53	-12.38
2 115.79	10.24	218.94	2 048.80	104.11	-293.68	-58.09	1.684	0.15	-9.53
2 142.71	11.67	207.06	2 075.24	99.83	-296.42	-53.43	2.970	1.59	-13.24
2 169.59	13.76	193.58	2 101.46	94.30	-298.41	-47.66	4.036	2.33	-15.04
2 199.43	16.51	184.34	2 130.27	86.62	-299.57	-39.90	3.670	2.76	-9.29
2 228.74	19.63	178.86	2 158.13	77.54	-299.78	-30.89	3.633	3.19	-5.61
2 258.31	22.11	172.12	2 185.76	67.06	-298.92	-20.67	3.498	2.52	-6.84
2 287.00	23.53	162.77	2 212.21	56.23	-296.48	-10.34	4.067	1.48	-9.78
2 315.90	24.70	156.08	2 238.60	45.20	-292.33	-0.07	3.084	1.21	-6.94
2 344.30	27.42	155.76	2 264.11	33.81	-287.23	10.41	2.877	2.87	-0.34
2 373.77	30.86	157.71	2 289.84	20.63	-281.58	22.57	3.632	3.50	1.99
2 402.18	34.45	154.85	2 313.76	6.61	-275.40	35.49	4.125	3.79	-3.02
2 431.05	37.20	151.31	2 337.17	-8.44	-267.74	49.19	3.577	2.86	-3.68
2 460.53	40.42	148.12	2 360.14	-24.38	-258.41	63.52	3.856	3.28	-3.25
2 490.12	42.19	143.90	2 382.37	-40.56	-247.48	77.85	3.345	1.79	-4.28
2 519.23	45.87	141.00	2 403.30	-56.59	-235.14	91.80	4.323	3.79	-2.99
2 548.96	46.80	141.12	2 423.83	-73.31	-221.63	106.27	0.943	0.94	0.12
2 576.37	44.69	142.62	2 442.95	-88.75	-209.50	119.68	2.591	-2.31	1.64
2 605.67	43.91	142.79	2 463.92	-105.03	-197.10	133.87	0.808	-0.80	0.17
2 634.97	44.77	141.99	2 484.88	-121.25	-184.61	148.00	1.050	0.88	-0.82
2 663.40	45.92	140.94	2 504.86	-137.07	-172.01	161.71	1.447	1.21	-1.11
2 693.50	47.38	138.15	2 525.52	-153.72	-157.80	175.99	2.491	1.46	-2.78
2 720.20	49.12	136.92	2 543.30	-168.41	-144.35	188.46	2.210	1.96	-1.38
2 749.55	51.52	135.62	2 562.04	-184.73	-128.74	202.21	2.658	2.45	-1.33
2 778.19	54.47	133.10	2 579.28	-200.71	-112.38	215.50	3.740	3.09	-2.64
2 808.02	56.14	132.02	2 596.26	-217.29	-94.32	229.14	1.902	1.68	-1.09
2 837.57	58.94	132.31	2 612.12	-234.03	-75.84	242.86	2.853	2.84	0.29
2 867.29	61.69	131.09	2 626.83	-251.20	-56.56	256.89	2.975	2.78	-1.23
2 896.30	63.32	130.39	2 640.23	-267.99	-37.06	270.51	1.804	1.69	-0.72
2 925.80	65.65	129.56	2 652.93	-285.09	-16.66	284.30	2.489	2.37	-0.84
2 952.50	67.66	128.46	2 663.51	-300.52	2.39	296.64	2.527	2.26	-1.24
2 983.10	69.11	128.51	2 674.79	-318.22	24.66	310.74	1.422	1.42	0.05
3 011.90	69.51	127.16	2 684.96	-334.75	45.93	323.82	1.380	0.42	-1.41
3 040.63	70.02	126.41	2 694.90	-350.89	67.52	336.48	0.907	0.53	-0.78
3 070.04	70.23	126.20	2 704.90	-367.27	89.81	349.27	0.294	0.21	-0.21
3 098.57	70.03	126.12	2 714.59	-383.10	111.48	361.61	0.225	-0.21	-0.08
3 127.62	70.75	125.30	2 724.34	-399.07	133.70	374.00	1.090	0.74	-0.85
3 157.61	70.47	125.31	2 734.30	-415.42	156.78	386.64	0.280	-0.28	0.01
3 185.25	71.22	125.33	2 743.37	-430.52	178.09	398.30	0.814	0.81	0.02
3 213.60	70.74	126.60	2 752.61	-446.26	199.78	410.55	1.368	-0.51	1.34
3 242.20	71.33	127.31	2 761.90	-462.52	221.39	423.32	0.938	0.62	0.74
3 271.30	70.01	126.50	2 771.54	-479.01	243.35	436.27	1.572	-1.36	-0.84
3 300.50	72.53	126.11	2 780.91	-495.38	265.63	449.05	2.617	2.59	-0.40
3 329.10	71.66	127.20	2 789.70	-511.62	287.46	461.77	1.420	-0.91	1.14
3 359.85	70.07	129.68	2 799.79	-529.68	310.22	476.15	2.762	-1.55	2.42
3 387.88	69.75	132.15	2 809.42	-546.92	330.11	490.15	2.506	-0.34	2.64
3 417.63	69.44	135.00	2 819.79	-566.13	350.31	506.06	2.712	-0.31	2.87
3 447.01	68.76	137.05	2 830.27	-585.88	369.36	522.67	2.075	-0.69	2.09
3 475.66	68.10	139.60	2 840.81	-605.78	387.08	539.63	2.577	-0.69	2.67
3 505.96	68.05	142.03	2 852.12	-627.57	404.84	558.45	2.232	-0.05	2.41
3 534.60	69.07	143.71	2 862.59	-648.82	420.93	577.00	1.956	1.07	1.76
3 563.62	69.65	142.69	2 872.82	-670.57	437.19	596.01	1.155	0.60	-1.05
3 593.92	68.98	140.22	2 883.52	-692.73	454.86	615.23	2.382	-0.66	-2.45
3 622.87	69.92	139.26	2 893.69	-713.42	472.37	633.00	1.348	0.97	-0.99

Company:	STATOILHYDRO NORWAY	Local Co-ordinate Reference:	Site 34/10-49
Project:	EXPLORATION - UTM Zone 31	TVD Reference:	WELL @ 25.50m (Original Well Elev)
Site:	34/10-49	MD Reference:	WELL @ 25.50m (Original Well Elev)
Well:	34/10-49	North Reference:	Grid
Wellbore:	49 S	Survey Calculation Method:	Minimum Curvature
Design:	34/10-49 S	Database:	EDM Prod P246N

Survey									
Measured Depth (m)	Inclination (°)	Azimuth (°)	Vertical Depth (m)	+N/-S (m)	+E/-W (m)	Vertical Section (m)	Dogleg Rate (°/30m)	Build Rate (°/30m)	Turn Rate (°/30m)
3 652.14	70.23	139.34	2 903.66	-734.28	490.32	650.88	0.327	0.32	0.08
3 681.52	70.75	139.44	2 913.47	-755.31	508.34	668.91	0.540	0.53	0.10
3 708.37	69.35	139.01	2 922.63	-774.42	524.83	685.28	1.628	-1.56	-0.48
3 737.24	69.92	139.45	2 932.68	-794.92	542.50	702.84	0.731	0.59	0.46
3 766.00	69.98	139.98	2 942.54	-815.53	559.97	720.54	0.523	0.06	0.55
3 796.92	69.45	138.55	2 953.26	-837.50	578.89	739.37	1.399	-0.51	-1.39
3 826.05	68.99	139.12	2 963.60	-858.00	596.82	756.90	0.725	-0.47	0.59
3 855.07	68.33	138.73	2 974.16	-878.38	614.58	774.33	0.779	-0.68	-0.40
3 883.55	68.05	137.26	2 984.74	-898.03	632.27	791.05	1.468	-0.29	-1.55
3 912.90	68.06	137.86	2 995.71	-918.12	650.65	808.10	0.569	0.01	0.61
3 942.03	69.06	137.54	3 006.35	-938.17	668.89	825.14	1.075	1.03	-0.33
3 971.51	68.91	137.56	3 016.93	-958.48	687.47	842.37	0.154	-0.15	0.02
4 000.38	68.59	139.01	3 027.39	-978.56	705.37	859.49	1.443	-0.33	1.51
4 030.03	67.38	139.10	3 038.50	-999.32	723.39	877.26	1.227	-1.22	0.09
4 058.75	65.84	139.86	3 049.91	-1 019.36	740.51	894.45	1.766	-1.61	0.79
4 087.89	64.04	140.69	3 062.25	-1 039.66	757.38	911.94	2.008	-1.85	0.85
4 126.00	64.04	140.69	3 078.93	-1 066.17	779.09	934.83	0.000	0.00	0.00

Checked By: _____ Approved By: _____ Date: _____

STATOILHYDRO NORWAY

EXPLORATION - UTM Zone 31

34/10-49

34/10-49

49 ST2

Design: 49 ST2

Standard Survey Report

12 september, 2008

Company:	STATOILHYDRO NORWAY	Local Co-ordinate Reference:	Site 34/10-49
Project:	EXPLORATION - UTM Zone 31	TVD Reference:	WELL @ 25,50m (Original Well Elev)
Site:	34/10-49	MD Reference:	WELL @ 25,50m (Original Well Elev)
Well:	34/10-49	North Reference:	Grid
Wellbore:	49 ST2	Survey Calculation Method:	Minimum Curvature
Design:	49 ST2	Database:	EDM Prod P246N

Project	EXPLORATION - UTM Zone 31		
Map System:	Universal Transverse Mercator	System Datum:	Mean Sea Level
Geo Datum:	Eur. 1950 - W. Europe		
Map Zone:	Zone 31N (0 E to 6 E)		Using geodetic scale factor

Site	34/10-49, 34/10		
Site Position:		Northing:	6 777 678,00 m
From:	Map	Easting:	451 012,00 m
Position Uncertainty:	0,00 m	Slot Radius:	in
		Latitude:	61° 7' 45,062 N
		Longitude:	2° 5' 26,103 E
		Grid Convergence:	-0,80 °

Well	34/10-49		
Well Position	+N/-S	0,00 m	Northing: 6 777 678,00 m
	+E/-W	0,00 m	Easting: 451 012,00 m
Position Uncertainty	0,00 m	Wellhead Depth:	137,50 m
		Latitude:	61° 7' 45,062 N
		Longitude:	2° 5' 26,103 E
		Water Depth:	137,50 m

Wellbore	49 ST2				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	GEOMAGNETICRE	12.06.2007	-2,63	73,31	50 918

Design	49 ST2				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	2 837,57
Vertical Section:	Depth From (TVD) (m)	+N/-S (m)	+E/-W (m)	Direction (°)	
	0,00	0,00	0,00	134,62	

Survey Program	Date	09.09.2008			
From (m)	To (m)	Survey (Wellbore)	Tool Name	Description	
164,62	193,84	49 S 36" MWD (49 S)	Magnetic, IFR, mag-corr	Magnetic Tools (MWD, EMS)	
236,69	1 022,24	49 S 26" MWD (49 S)	Magnetic, IFR, mag-corr	Magnetic Tools (MWD, EMS)	
1 022,24	1 712,37	49 S 17 1/2" MWD Run #1 (49 S)	Magnetic, IFR, mag-corr	Magnetic Tools (MWD, EMS)	
1 712,37	2 001,51	49 S 17 1/2" MWD Run #2 (49 S)	Magnetic, IFR, mag-corr	Magnetic Tools (MWD, EMS)	
2 001,51	2 840,00	49 S 8 1/2" MWD Run #1 (49 S)	Magnetic, IFR, mag-corr	Magnetic Tools (MWD, EMS)	
2 868,70	4 547,70	49 S T2 8 1/2" MWD (49 ST2)	Magnetic, IFR, mag-corr	Magnetic Tools (MWD, EMS)	

Survey										
Measured Depth (m)	Inclination (°)	Azimuth (°)	Vertical Depth (m)	+N/-S (m)	+E/-W (m)	Vertical Section (m)	Dogleg Rate (°/30m)	Build Rate (°/30m)	Turn Rate (°/30m)	
0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,000	0,00	0,00	
164,62	1,05	319,52	164,61	1,15	-0,98	-1,50	0,191	0,19	0,00	
181,34	1,76	185,04	181,33	1,01	-1,10	-1,49	4,675	1,27	-241,29	
193,84	1,14	136,70	193,82	0,73	-1,03	-1,25	3,156	-1,49	-116,02	
236,69	0,12	220,07	236,67	0,38	-0,77	-0,82	0,793	-0,71	58,37	
294,26	0,36	230,01	294,24	0,22	-0,95	-0,83	0,126	0,13	5,18	
323,61	0,53	242,81	323,59	0,10	-1,14	-0,88	0,200	0,17	13,08	
353,95	0,20	129,78	353,93	0,00	-1,22	-0,87	0,628	-0,33	-111,76	

Company:	STATOILHYDRO NORWAY	Local Co-ordinate Reference:	Site 34/10-49
Project:	EXPLORATION - UTM Zone 31	TVD Reference:	WELL @ 25,50m (Original Well Elev)
Site:	34/10-49	MD Reference:	WELL @ 25,50m (Original Well Elev)
Well:	34/10-49	North Reference:	Grid
Wellbore:	49 ST2	Survey Calculation Method:	Minimum Curvature
Design:	49 ST2	Database:	EDM Prod P246N

Survey									
Measured Depth (m)	Inclination (°)	Azimuth (°)	Vertical Depth (m)	+N/-S (m)	+E/-W (m)	Vertical Section (m)	Dogleg Rate (°/30m)	Build Rate (°/30m)	Turn Rate (°/30m)
382,49	0,17	110,38	382,47	-0,05	-1,14	-0,78	0,073	-0,03	-20,39
413,15	0,31	30,76	413,13	0,01	-1,06	-0,76	0,319	0,14	-77,91
443,01	0,65	332,98	442,99	0,23	-1,09	-0,94	0,554	0,34	-58,05
473,70	0,74	313,63	473,68	0,52	-1,32	-1,30	0,244	0,09	-18,91
502,61	0,80	286,75	502,58	0,71	-1,65	-1,67	0,376	0,06	-27,89
527,69	0,70	242,04	527,66	0,69	-1,95	-1,87	0,691	-0,12	-53,48
557,13	0,59	200,38	557,10	0,46	-2,16	-1,86	0,479	-0,11	-42,45
586,18	0,44	127,42	586,15	0,25	-2,12	-1,69	0,645	-0,15	-75,35
617,82	0,44	122,28	617,79	0,11	-1,92	-1,45	0,037	0,00	-4,87
645,44	0,44	95,73	645,41	0,05	-1,73	-1,26	0,219	0,00	-28,84
674,04	0,50	64,30	674,01	0,09	-1,51	-1,14	0,274	0,06	-32,97
699,32	0,20	16,13	699,29	0,18	-1,40	-1,12	0,470	-0,36	-57,16
727,88	0,14	319,94	727,85	0,25	-1,40	-1,18	0,177	-0,06	-59,02
788,59	0,81	264,31	788,55	0,27	-1,88	-1,53	0,366	0,33	-27,49
817,99	0,49	224,63	817,95	0,16	-2,17	-1,66	0,545	-0,33	-40,49
876,59	0,70	228,64	876,55	-0,26	-2,62	-1,68	0,110	0,11	2,05
906,76	0,14	244,10	906,72	-0,39	-2,79	-1,71	0,563	-0,56	15,37
963,59	0,44	87,56	963,55	-0,42	-2,64	-1,58	0,302	0,16	-82,64
992,71	0,17	201,55	992,67	-0,45	-2,54	-1,49	0,548	-0,28	117,43
1 022,24	0,26	134,52	1 022,20	-0,54	-2,51	-1,41	0,253	0,09	-68,10
1 072,40	0,09	172,97	1 072,36	-0,66	-2,42	-1,26	0,118	-0,10	23,00
1 102,92	0,28	296,80	1 102,88	-0,65	-2,49	-1,31	0,333	0,19	121,72
1 131,67	1,17	318,11	1 131,62	-0,40	-2,74	-1,67	0,955	0,93	22,24
1 160,98	2,91	310,85	1 160,91	0,31	-3,51	-2,72	1,797	1,78	-7,43
1 189,92	5,92	307,56	1 189,77	1,70	-5,25	-4,93	3,130	3,12	-3,41
1 218,95	7,82	305,23	1 218,59	3,75	-8,05	-8,36	1,984	1,96	-2,41
1 247,59	9,13	302,20	1 246,91	6,09	-11,56	-12,51	1,449	1,37	-3,17
1 276,38	10,84	298,30	1 275,27	8,59	-15,88	-17,34	1,915	1,78	-4,06
1 305,37	13,08	297,45	1 303,62	11,40	-21,19	-23,09	2,325	2,32	-0,88
1 335,96	15,62	300,00	1 333,26	15,05	-27,83	-30,38	2,566	2,49	2,50
1 365,81	18,00	299,02	1 361,83	19,30	-35,34	-38,71	2,409	2,39	-0,98
1 393,70	19,98	298,74	1 388,20	23,68	-43,29	-47,45	2,132	2,13	-0,30
1 422,22	21,63	298,24	1 414,86	28,51	-52,19	-57,18	1,746	1,74	-0,53
1 451,62	23,64	297,94	1 441,99	33,84	-62,18	-68,02	2,054	2,05	-0,31
1 480,86	25,73	297,81	1 468,56	39,55	-72,97	-79,72	2,145	2,14	-0,13
1 510,34	27,73	297,96	1 494,89	45,75	-84,69	-92,41	2,036	2,04	0,15
1 538,97	29,69	297,88	1 520,00	52,19	-96,84	-105,59	2,054	2,05	-0,08
1 566,83	31,90	297,31	1 543,93	58,79	-109,48	-119,22	2,400	2,38	-0,61
1 595,79	33,50	296,95	1 568,30	65,92	-123,41	-134,14	1,670	1,66	-0,37
1 625,01	33,60	296,63	1 592,65	73,20	-137,82	-149,52	0,209	0,10	-0,33
1 654,01	33,71	296,44	1 616,79	80,38	-152,20	-164,80	0,158	0,11	-0,20
1 683,77	31,54	294,46	1 641,85	87,28	-166,68	-179,95	2,438	-2,19	-2,00
1 712,37	29,65	292,10	1 666,47	93,04	-180,05	-193,51	2,349	-1,98	-2,48
1 740,62	28,74	290,30	1 691,13	98,03	-192,89	-206,15	1,343	-0,97	-1,91
1 769,19	26,76	287,69	1 716,42	102,37	-205,46	-218,15	2,439	-2,08	-2,74
1 798,44	24,29	286,65	1 742,81	106,09	-217,50	-229,34	2,575	-2,53	-1,07
1 827,32	21,43	284,72	1 769,42	109,13	-228,30	-239,16	3,071	-2,97	-2,00
1 856,83	19,66	284,14	1 797,05	111,72	-238,33	-248,11	1,811	-1,80	-0,59
1 885,80	17,94	279,02	1 824,48	113,61	-247,46	-255,94	2,467	-1,78	-5,30
1 914,72	16,35	275,54	1 852,11	114,70	-255,91	-262,72	1,962	-1,65	-3,61
1 971,98	12,90	267,46	1 907,51	115,19	-270,32	-273,33	2,096	-1,81	-4,23
2 001,51	11,48	259,52	1 936,38	114,51	-276,51	-277,25	2,229	-1,44	-8,07
2 023,84	10,11	249,63	1 958,32	113,43	-280,53	-279,35	3,089	-1,84	-13,29
2 052,22	10,56	241,85	1 986,24	111,33	-285,16	-281,18	1,549	0,48	-8,22

Company: STATOILHYDRO NORWAY
Project: EXPLORATION - UTM Zone 31
Site: 34/10-49
Well: 34/10-49
Wellbore: 49 ST2
Design: 49 ST2

Local Co-ordinate Reference: Site 34/10-49
TVD Reference: WELL @ 25,50m (Original Well Elev)
MD Reference: WELL @ 25,50m (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM Prod P246N

Survey

Measured Depth (m)	Inclination (°)	Azimuth (°)	Vertical Depth (m)	+N/-S (m)	+E/-W (m)	Vertical Section (m)	Dogleg Rate (°/30m)	Build Rate (°/30m)	Turn Rate (°/30m)
2 080,76	10,06	230,07	2 014,32	108,50	-289,38	-282,19	2,273	-0,53	-12,38
2 115,79	10,24	218,94	2 048,80	104,11	-293,68	-282,17	1,684	0,15	-9,53
2 142,71	11,67	207,06	2 075,24	99,83	-296,42	-281,11	2,970	1,59	-13,24
2 169,59	13,76	193,58	2 101,46	94,30	-298,41	-278,64	4,036	2,33	-15,04
2 199,43	16,51	184,34	2 130,27	86,62	-299,57	-274,07	3,670	2,76	-9,29
2 228,74	19,63	178,86	2 158,13	77,54	-299,78	-267,85	3,633	3,19	-5,61
2 258,31	22,11	172,12	2 185,76	67,06	-298,92	-259,87	3,498	2,52	-6,84
2 287,00	23,53	162,77	2 212,21	56,23	-296,48	-250,54	4,067	1,48	-9,78
2 315,90	24,70	156,08	2 238,60	45,20	-292,33	-239,83	3,084	1,21	-6,94
2 344,30	27,42	155,76	2 264,11	33,81	-287,23	-228,20	2,877	2,87	-0,34
2 373,77	30,86	157,71	2 289,84	20,63	-281,58	-214,92	3,632	3,50	1,99
2 402,18	34,45	154,85	2 313,76	6,61	-275,40	-200,67	4,125	3,79	-3,02
2 431,05	37,20	151,31	2 337,17	-8,44	-267,74	-184,64	3,577	2,86	-3,68
2 460,53	40,42	148,12	2 360,14	-24,38	-258,41	-166,81	3,856	3,28	-3,25
2 490,12	42,19	143,90	2 382,37	-40,56	-247,48	-147,67	3,345	1,79	-4,28
2 519,23	45,87	141,00	2 403,30	-56,59	-235,14	-127,63	4,323	3,79	-2,99
2 548,96	46,80	141,12	2 423,83	-73,31	-221,63	-106,26	0,943	0,94	0,12
2 576,37	44,69	142,62	2 442,95	-88,75	-209,50	-86,79	2,591	-2,31	1,64
2 605,67	43,91	142,79	2 463,92	-105,03	-197,10	-66,53	0,808	-0,80	0,17
2 634,97	44,77	141,99	2 484,88	-121,25	-184,61	-46,24	1,050	0,88	-0,82
2 663,40	45,92	140,94	2 504,86	-137,07	-172,01	-26,16	1,447	1,21	-1,11
2 693,50	47,38	138,15	2 525,52	-153,72	-157,80	-4,36	2,491	1,46	-2,78
2 720,20	49,12	136,92	2 543,30	-168,41	-144,35	15,54	2,210	1,96	-1,38
2 749,55	51,52	135,62	2 562,04	-184,73	-128,74	38,11	2,658	2,45	-1,33
2 778,19	54,47	133,10	2 579,28	-200,71	-112,38	60,98	3,740	3,09	-2,64
2 808,02	56,14	132,02	2 596,26	-217,29	-94,32	85,49	1,902	1,68	-1,09
2 837,57	58,94	132,31	2 612,12	-234,03	-75,84	110,40	2,853	2,84	0,29
2 868,70	58,25	135,58	2 628,34	-252,46	-56,71	136,96	2,771	-0,66	3,15
2 897,10	61,18	136,10	2 642,66	-270,05	-39,63	161,47	3,131	3,10	0,55
2 925,70	64,72	135,62	2 655,67	-288,33	-21,89	186,93	3,740	3,71	-0,50
2 954,80	66,23	133,63	2 667,75	-306,92	-3,05	213,41	2,430	1,56	-2,05
2 983,40	68,63	131,82	2 678,72	-324,84	16,35	239,80	3,068	2,52	-1,90
3 012,50	71,60	131,64	2 688,62	-343,05	36,77	267,13	3,067	3,06	-0,19
3 040,00	74,95	130,93	2 696,53	-360,42	56,56	293,41	3,729	3,65	-0,77
3 068,80	77,55	129,83	2 703,38	-378,54	77,87	321,31	2,928	2,71	-1,15
3 098,70	80,45	128,16	2 709,08	-397,01	100,68	350,51	3,342	2,91	-1,68
3 127,50	82,56	126,35	2 713,34	-414,25	123,35	378,76	2,882	2,20	-1,89
3 156,20	84,12	125,72	2 716,67	-431,02	146,40	406,95	1,757	1,63	-0,66
3 185,30	83,93	125,15	2 719,70	-447,80	169,98	435,52	0,616	-0,20	-0,59
3 214,50	84,55	124,21	2 722,63	-464,33	193,87	464,13	1,153	0,64	-0,97
3 241,60	84,55	125,18	2 725,20	-479,68	216,05	490,71	1,069	0,00	1,07
3 272,30	84,98	125,31	2 728,00	-497,32	241,02	520,87	0,439	0,42	0,13
3 301,10	84,99	124,70	2 730,52	-513,78	264,52	549,16	0,633	0,01	-0,64
3 330,20	85,60	123,68	2 732,91	-530,08	288,51	577,68	1,222	0,63	-1,05
3 358,60	84,12	122,87	2 735,45	-545,60	312,16	605,41	1,781	-1,56	-0,86
3 388,30	82,81	123,23	2 738,83	-561,69	336,89	634,32	1,372	-1,32	0,36
3 418,30	83,25	125,19	2 742,47	-578,43	361,51	663,61	1,995	0,44	1,96
3 447,80	82,69	126,36	2 746,08	-595,55	385,27	692,53	1,311	-0,57	1,19
3 475,70	81,19	127,56	2 749,99	-612,15	407,34	719,91	2,058	-1,61	1,29
3 505,60	78,43	128,26	2 755,28	-630,23	430,56	749,14	2,854	-2,77	0,70
3 534,50	76,34	129,05	2 761,59	-647,85	452,58	777,18	2,312	-2,17	0,82
3 563,50	73,92	131,11	2 769,04	-665,89	474,03	805,12	3,242	-2,50	2,13
3 592,70	73,53	132,73	2 777,22	-684,62	494,88	833,12	1,647	-0,40	1,66
3 621,10	74,05	133,79	2 785,15	-703,30	514,74	860,38	1,207	0,55	1,12

Company:	STATOILHYDRO NORWAY	Local Co-ordinate Reference:	Site 34/10-49
Project:	EXPLORATION - UTM Zone 31	TVD Reference:	WELL @ 25,50m (Original Well Elev)
Site:	34/10-49	MD Reference:	WELL @ 25,50m (Original Well Elev)
Well:	34/10-49	North Reference:	Grid
Wellbore:	49 ST2	Survey Calculation Method:	Minimum Curvature
Design:	49 ST2	Database:	EDM Prod P246N

Survey									
Measured Depth (m)	Inclination (°)	Azimuth (°)	Vertical Depth (m)	+N/-S (m)	+E/-W (m)	Vertical Section (m)	Dogleg Rate (°/30m)	Build Rate (°/30m)	Turn Rate (°/30m)
3 650,20	71,85	133,61	2 793,68	-722,52	534,85	888,20	2,275	-2,27	-0,19
3 678,70	69,22	133,64	2 803,18	-741,06	554,30	915,06	2,769	-2,77	0,03
3 707,80	67,68	134,58	2 813,87	-759,90	573,74	942,12	1,826	-1,59	0,97
3 736,70	66,23	135,84	2 825,18	-778,77	592,47	968,72	1,927	-1,51	1,31
3 766,40	64,93	138,87	2 837,46	-798,66	610,79	995,72	3,081	-1,31	3,06
3 796,00	62,24	139,45	2 850,63	-818,71	628,13	1 022,15	2,777	-2,73	0,59
3 824,40	60,39	139,94	2 864,26	-837,71	644,24	1 046,96	2,006	-1,95	0,52
3 853,50	60,32	141,12	2 878,65	-857,23	660,32	1 072,12	1,060	-0,07	1,22
3 882,40	59,18	142,87	2 893,21	-876,90	675,69	1 096,87	1,965	-1,18	1,82
3 910,90	57,94	144,28	2 908,08	-896,46	690,13	1 120,89	1,819	-1,31	1,48
3 939,80	56,42	146,13	2 923,74	-916,40	703,99	1 144,76	2,257	-1,58	1,92
3 968,80	54,38	147,76	2 940,21	-936,41	717,01	1 168,08	2,526	-2,11	1,69
3 998,30	52,91	149,75	2 957,70	-956,71	729,34	1 191,12	2,211	-1,49	2,02
4 027,90	53,36	149,88	2 975,45	-977,18	741,25	1 213,97	0,468	0,46	0,13
4 041,70	52,78	150,01	2 983,75	-986,73	746,77	1 224,61	1,281	-1,26	0,28
4 055,60	52,82	149,67	2 992,15	-996,30	752,33	1 235,30	0,591	0,09	-0,73
4 081,40	53,00	150,55	3 007,71	-1 014,15	762,59	1 255,13	0,843	0,21	1,02
4 113,10	53,29	150,24	3 026,72	-1 036,20	775,12	1 279,54	0,361	0,27	-0,29
4 142,30	53,98	150,38	3 044,04	-1 056,63	786,77	1 302,17	0,718	0,71	0,14
4 170,60	54,01	150,27	3 060,67	-1 076,52	798,10	1 324,21	0,100	0,03	-0,12
4 200,00	55,20	151,01	3 077,70	-1 097,41	809,85	1 347,25	1,361	1,21	0,76
4 228,60	58,55	150,91	3 093,33	-1 118,34	821,47	1 370,23	3,515	3,51	-0,10
4 257,80	62,46	149,75	3 107,70	-1 140,42	834,06	1 394,69	4,149	4,02	-1,19
4 286,80	66,35	148,81	3 120,23	-1 162,90	847,42	1 419,99	4,119	4,02	-0,97
4 316,20	69,49	147,55	3 131,28	-1 186,04	861,78	1 446,47	3,418	3,20	-1,29
4 345,40	73,53	145,33	3 140,54	-1 209,11	877,09	1 473,57	4,680	4,15	-2,28
4 374,30	77,24	143,19	3 147,83	-1 231,80	893,43	1 501,13	4,410	3,85	-2,22
4 402,90	80,26	142,41	3 153,41	-1 254,14	910,38	1 528,89	3,268	3,17	-0,82
4 431,50	83,44	140,93	3 157,46	-1 276,34	927,94	1 556,99	3,673	3,34	-1,55
4 460,90	86,10	140,14	3 160,14	-1 298,94	946,55	1 586,11	2,830	2,71	-0,81
4 489,30	89,50	141,71	3 161,23	-1 320,97	964,43	1 614,31	3,955	3,59	1,66
4 518,60	90,97	142,32	3 161,11	-1 344,06	982,47	1 643,36	1,630	1,51	0,62
4 547,70	92,15	142,29	3 160,32	-1 367,08	1 000,25	1 672,19	1,217	1,22	-0,03

Checked By: _____	Approved By: _____	Date: _____
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STATOILHYDRO NORWAY

EXPLORATION - UTM Zone 31

34/10-49

34/10-49

49 B

Design: 49 B

Standard Survey Report

12 september, 2008

Company:	STATOILHYDRO NORWAY	Local Co-ordinate Reference:	Site 34/10-49
Project:	EXPLORATION - UTM Zone 31	TVD Reference:	WELL @ 25,50m (Original Well Elev)
Site:	34/10-49	MD Reference:	WELL @ 25,50m (Original Well Elev)
Well:	34/10-49	North Reference:	Grid
Wellbore:	49 B	Survey Calculation Method:	Minimum Curvature
Design:	49 B	Database:	EDM Prod P246N

Project	EXPLORATION - UTM Zone 31		
Map System:	Universal Transverse Mercator	System Datum:	Mean Sea Level
Geo Datum:	Eur. 1950 - W. Europe		
Map Zone:	Zone 31N (0 E to 6 E)		Using geodetic scale factor

Site	34/10-49, 34/10		
Site Position:		Northing:	6 777 678,00 m
From:	Map	Easting:	451 012,00 m
Position Uncertainty:	0,00 m	Slot Radius:	in
		Latitude:	61° 7' 45,062 N
		Longitude:	2° 5' 26,103 E
		Grid Convergence:	-0,80 °

Well	34/10-49		
Well Position	+N/-S	0,00 m	Northing: 6 777 678,00 m
	+E/-W	0,00 m	Easting: 451 012,00 m
Position Uncertainty	0,00 m	Wellhead Depth:	137,50 m
		Water Depth:	137,50 m

Wellbore	49 B				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	GEOMAGNETICRE	11.06.2007	-2,63	73,31	50 918

Design	49 B				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	4 547,70
Vertical Section:	Depth From (TVD) (m)	+N/-S (m)	+E/-W (m)	Direction (°)	
	0,00	0,00	0,00	142,17	

Survey Program	Date	09.09.2008			
From (m)	To (m)	Survey (Wellbore)	Tool Name	Description	
164,62	193,84	49 S 36" MWD (49 S)	Magnetic, IFR, mag-corr	Magnetic Tools (MWD, EMS)	
236,69	1 022,24	49 S 26" MWD (49 S)	Magnetic, IFR, mag-corr	Magnetic Tools (MWD, EMS)	
1 022,24	1 712,37	49 S 17 1/2" MWD Run #1 (49 S)	Magnetic, IFR, mag-corr	Magnetic Tools (MWD, EMS)	
1 712,37	2 001,51	49 S 17 1/2" MWD Run #2 (49 S)	Magnetic, IFR, mag-corr	Magnetic Tools (MWD, EMS)	
2 001,51	2 867,00	49 S 8 1/2" MWD Run #1 (49 S)	Magnetic, IFR, mag-corr	Magnetic Tools (MWD, EMS)	
2 868,70	4 547,70	49 S T2 8 1/2" MWD (49 ST2)	Magnetic, IFR, mag-corr	Magnetic Tools (MWD, EMS)	
4 575,60	5 459,80	49 B 8 1/2" MWD (49 B)	Magnetic, IFR, mag-corr	Magnetic Tools (MWD, EMS)	

Survey										
Measured Depth (m)	Inclination (°)	Azimuth (°)	Vertical Depth (m)	+N/-S (m)	+E/-W (m)	Vertical Section (m)	Dogleg Rate (°/30m)	Build Rate (°/30m)	Turn Rate (°/30m)	
0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,000	0,00	0,00	
164,62	1,05	319,52	164,61	1,15	-0,98	-1,51	0,191	0,19	0,00	
181,34	1,76	185,04	181,33	1,01	-1,10	-1,47	4,675	1,27	-241,29	
193,84	1,14	136,70	193,82	0,73	-1,03	-1,21	3,156	-1,49	-116,02	
236,69	0,12	220,07	236,67	0,38	-0,77	-0,77	0,793	-0,71	58,37	
294,26	0,36	230,01	294,24	0,22	-0,95	-0,75	0,126	0,13	5,18	
323,61	0,53	242,81	323,59	0,10	-1,14	-0,78	0,200	0,17	13,08	

Company:	STATOILHYDRO NORWAY	Local Co-ordinate Reference:	Site 34/10-49
Project:	EXPLORATION - UTM Zone 31	TVD Reference:	WELL @ 25,50m (Original Well Elev)
Site:	34/10-49	MD Reference:	WELL @ 25,50m (Original Well Elev)
Well:	34/10-49	North Reference:	Grid
Wellbore:	49 B	Survey Calculation Method:	Minimum Curvature
Design:	49 B	Database:	EDM Prod P246N

Survey									
Measured Depth (m)	Inclination (°)	Azimuth (°)	Vertical Depth (m)	+N/-S (m)	+E/-W (m)	Vertical Section (m)	Dogleg Rate (°/30m)	Build Rate (°/30m)	Turn Rate (°/30m)
353,95	0,20	129,78	353,93	0,00	-1,22	-0,75	0,628	-0,33	-111,76
382,49	0,17	110,38	382,47	-0,05	-1,14	-0,67	0,073	-0,03	-20,39
413,15	0,31	30,76	413,13	0,01	-1,06	-0,66	0,319	0,14	-77,91
443,01	0,65	332,98	442,99	0,23	-1,09	-0,85	0,554	0,34	-58,05
473,70	0,74	313,63	473,68	0,52	-1,32	-1,22	0,244	0,09	-18,91
502,61	0,80	286,75	502,58	0,71	-1,65	-1,57	0,376	0,06	-27,89
527,69	0,70	242,04	527,66	0,69	-1,95	-1,74	0,691	-0,12	-53,48
557,13	0,59	200,38	557,10	0,46	-2,16	-1,69	0,479	-0,11	-42,45
586,18	0,44	127,42	586,15	0,25	-2,12	-1,50	0,645	-0,15	-75,35
617,82	0,44	122,28	617,79	0,11	-1,92	-1,27	0,037	0,00	-4,87
645,44	0,44	95,73	645,41	0,05	-1,73	-1,10	0,219	0,00	-28,84
674,04	0,50	64,30	674,01	0,09	-1,51	-1,00	0,274	0,06	-32,97
699,32	0,20	16,13	699,29	0,18	-1,40	-1,00	0,470	-0,36	-57,16
727,88	0,14	319,94	727,85	0,25	-1,40	-1,06	0,177	-0,06	-59,02
788,59	0,81	264,31	788,55	0,27	-1,88	-1,36	0,366	0,33	-27,49
817,99	0,49	224,63	817,95	0,16	-2,17	-1,46	0,545	-0,33	-40,49
876,59	0,70	228,64	876,55	-0,26	-2,62	-1,40	0,110	0,11	2,05
906,76	0,14	244,10	906,72	-0,39	-2,79	-1,40	0,563	-0,56	15,37
963,59	0,44	87,56	963,55	-0,42	-2,64	-1,29	0,302	0,16	-82,64
992,71	0,17	201,55	992,67	-0,45	-2,54	-1,20	0,548	-0,28	117,43
1 022,24	0,26	134,52	1 022,20	-0,54	-2,51	-1,11	0,253	0,09	-68,10
1 072,40	0,09	172,97	1 072,36	-0,66	-2,42	-0,97	0,118	-0,10	23,00
1 102,92	0,28	296,80	1 102,88	-0,65	-2,49	-1,01	0,333	0,19	121,72
1 131,67	1,17	318,11	1 131,62	-0,40	-2,74	-1,37	0,955	0,93	22,24
1 160,98	2,91	310,85	1 160,91	0,31	-3,51	-2,40	1,797	1,78	-7,43
1 189,92	5,92	307,56	1 189,77	1,70	-5,25	-4,56	3,130	3,12	-3,41
1 218,95	7,82	305,23	1 218,59	3,75	-8,05	-7,90	1,984	1,96	-2,41
1 247,59	9,13	302,20	1 246,91	6,09	-11,56	-11,90	1,449	1,37	-3,17
1 276,38	10,84	298,30	1 275,27	8,59	-15,88	-16,52	1,915	1,78	-4,06
1 305,37	13,08	297,45	1 303,62	11,40	-21,19	-22,00	2,325	2,32	-0,88
1 335,96	15,62	300,00	1 333,26	15,05	-27,83	-28,96	2,566	2,49	2,50
1 365,81	18,00	299,02	1 361,83	19,30	-35,34	-36,92	2,409	2,39	-0,98
1 393,70	19,98	298,74	1 388,20	23,68	-43,29	-45,25	2,132	2,13	-0,30
1 422,22	21,63	298,24	1 414,86	28,51	-52,19	-54,53	1,746	1,74	-0,53
1 451,62	23,64	297,94	1 441,99	33,84	-62,18	-64,86	2,054	2,05	-0,31
1 480,86	25,73	297,81	1 468,56	39,55	-72,97	-75,99	2,145	2,14	-0,13
1 510,34	27,73	297,96	1 494,89	45,75	-84,69	-88,08	2,036	2,04	0,15
1 538,97	29,69	297,88	1 520,00	52,19	-96,84	-100,62	2,054	2,05	-0,08
1 566,83	31,90	297,31	1 543,93	58,79	-109,48	-113,58	2,400	2,38	-0,61
1 595,79	33,50	296,95	1 568,30	65,92	-123,41	-127,76	1,670	1,66	-0,37
1 625,01	33,60	296,63	1 592,65	73,20	-137,82	-142,35	0,209	0,10	-0,33
1 654,01	33,71	296,44	1 616,79	80,38	-152,20	-156,84	0,158	0,11	-0,20
1 683,77	31,54	294,46	1 641,85	87,28	-166,68	-171,17	2,438	-2,19	-2,00
1 712,37	29,65	292,10	1 666,47	93,04	-180,05	-183,92	2,349	-1,98	-2,48
1 740,62	28,74	290,30	1 691,13	98,03	-192,89	-195,73	1,343	-0,97	-1,91
1 769,19	26,76	287,69	1 716,42	102,37	-205,46	-206,87	2,439	-2,08	-2,74
1 798,44	24,29	286,65	1 742,81	106,09	-217,50	-217,20	2,575	-2,53	-1,07
1 827,32	21,43	284,72	1 769,42	109,13	-228,30	-226,22	3,071	-2,97	-2,00
1 856,83	19,66	284,14	1 797,05	111,72	-238,33	-234,41	1,811	-1,80	-0,59
1 885,80	17,94	279,02	1 824,48	113,61	-247,46	-241,51	2,467	-1,78	-5,30
1 914,72	16,35	275,54	1 852,11	114,70	-255,91	-247,55	1,962	-1,65	-3,61
1 971,98	12,90	267,46	1 907,51	115,19	-270,32	-256,79	2,096	-1,81	-4,23
2 001,51	11,48	259,52	1 936,38	114,51	-276,51	-260,04	2,229	-1,44	-8,07
2 023,84	10,11	249,63	1 958,32	113,43	-280,53	-261,65	3,089	-1,84	-13,29

Company: STATOILHYDRO NORWAY
Project: EXPLORATION - UTM Zone 31
Site: 34/10-49
Well: 34/10-49
Wellbore: 49 B
Design: 49 B

Local Co-ordinate Reference: Site 34/10-49
TVD Reference: WELL @ 25,50m (Original Well Elev)
MD Reference: WELL @ 25,50m (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM Prod P246N

Survey

Measured Depth (m)	Inclination (°)	Azimuth (°)	Vertical Depth (m)	+N/-S (m)	+E/-W (m)	Vertical Section (m)	Dogleg Rate (°/30m)	Build Rate (°/30m)	Turn Rate (°/30m)
2 052,22	10,56	241,85	1 986,24	111,33	-285,16	-262,84	1,549	0,48	-8,22
2 080,76	10,06	230,07	2 014,32	108,50	-289,38	-263,18	2,273	-0,53	-12,38
2 115,79	10,24	218,94	2 048,80	104,11	-293,68	-262,36	1,684	0,15	-9,53
2 142,71	11,67	207,06	2 075,24	99,83	-296,42	-260,66	2,970	1,59	-13,24
2 169,59	13,76	193,58	2 101,46	94,30	-298,41	-257,51	4,036	2,33	-15,04
2 199,43	16,51	184,34	2 130,27	86,62	-299,57	-252,15	3,670	2,76	-9,29
2 228,74	19,63	178,86	2 158,13	77,54	-299,78	-245,11	3,633	3,19	-5,61
2 258,31	22,11	172,12	2 185,76	67,06	-298,92	-236,31	3,498	2,52	-6,84
2 287,00	23,53	162,77	2 212,21	56,23	-296,48	-226,26	4,067	1,48	-9,78
2 315,90	24,70	156,08	2 238,60	45,20	-292,33	-215,00	3,084	1,21	-6,94
2 344,30	27,42	155,76	2 264,11	33,81	-287,23	-202,88	2,877	2,87	-0,34
2 373,77	30,86	157,71	2 289,84	20,63	-281,58	-189,00	3,632	3,50	1,99
2 402,18	34,45	154,85	2 313,76	6,61	-275,40	-174,14	4,125	3,79	-3,02
2 431,05	37,20	151,31	2 337,17	-8,44	-267,74	-157,55	3,577	2,86	-3,68
2 460,53	40,42	148,12	2 360,14	-24,38	-258,41	-139,24	3,856	3,28	-3,25
2 490,12	42,19	143,90	2 382,37	-40,56	-247,48	-119,76	3,345	1,79	-4,28
2 519,23	45,87	141,00	2 403,30	-56,59	-235,14	-99,53	4,323	3,79	-2,99
2 548,96	46,80	141,12	2 423,83	-73,31	-221,63	-78,03	0,943	0,94	0,12
2 576,37	44,69	142,62	2 442,95	-88,75	-209,50	-58,40	2,591	-2,31	1,64
2 605,67	43,91	142,79	2 463,92	-105,03	-197,10	-37,94	0,808	-0,80	0,17
2 634,97	44,77	141,99	2 484,88	-121,25	-184,61	-17,46	1,050	0,88	-0,82
2 663,40	45,92	140,94	2 504,86	-137,07	-172,01	2,76	1,447	1,21	-1,11
2 693,50	47,38	138,15	2 525,52	-153,72	-157,80	24,62	2,491	1,46	-2,78
2 720,20	49,12	136,92	2 543,30	-168,41	-144,35	44,47	2,210	1,96	-1,38
2 749,55	51,52	135,62	2 562,04	-184,73	-128,74	66,94	2,658	2,45	-1,33
2 778,19	54,47	133,10	2 579,28	-200,71	-112,38	89,59	3,740	3,09	-2,64
2 808,02	56,14	132,02	2 596,26	-217,29	-94,32	113,77	1,902	1,68	-1,09
2 837,57	58,94	132,31	2 612,12	-234,03	-75,84	138,32	2,853	2,84	0,29
2 868,70	58,25	135,58	2 628,34	-252,46	-56,71	164,61	2,771	-0,66	3,15
2 897,10	61,18	136,10	2 642,66	-270,05	-39,63	188,98	3,131	3,10	0,55
2 925,70	64,72	135,62	2 655,67	-288,33	-21,89	214,30	3,740	3,71	-0,50
2 954,80	66,23	133,63	2 667,75	-306,92	-3,05	240,54	2,430	1,56	-2,05
2 983,40	68,63	131,82	2 678,72	-324,84	16,35	266,59	3,068	2,52	-1,90
3 012,50	71,60	131,64	2 688,62	-343,05	36,77	293,50	3,067	3,06	-0,19
3 040,00	74,95	130,93	2 696,53	-360,42	56,56	319,36	3,729	3,65	-0,77
3 068,80	77,55	129,83	2 703,38	-378,54	77,87	346,74	2,928	2,71	-1,15
3 098,70	80,45	128,16	2 709,08	-397,01	100,68	375,31	3,342	2,91	-1,68
3 127,50	82,56	126,35	2 713,34	-414,25	123,35	402,83	2,882	2,20	-1,89
3 156,20	84,12	125,72	2 716,67	-431,02	146,40	430,22	1,757	1,63	-0,66
3 185,30	83,93	125,15	2 719,70	-447,80	169,98	457,93	0,616	-0,20	-0,59
3 214,50	84,55	124,21	2 722,63	-464,33	193,87	485,64	1,153	0,64	-0,97
3 241,60	84,55	125,18	2 725,20	-479,68	216,05	511,37	1,069	0,00	1,07
3 272,30	84,98	125,31	2 728,00	-497,32	241,02	540,62	0,439	0,42	0,13
3 301,10	84,99	124,70	2 730,52	-513,78	264,52	568,03	0,633	0,01	-0,64
3 330,20	85,60	123,68	2 732,91	-530,08	288,51	595,62	1,222	0,63	-1,05
3 358,60	84,12	122,87	2 735,45	-545,60	312,16	622,38	1,781	-1,56	-0,86
3 388,30	82,81	123,23	2 738,83	-561,69	336,89	650,26	1,372	-1,32	0,36
3 418,30	83,25	125,19	2 742,47	-578,43	361,51	678,59	1,995	0,44	1,96
3 447,80	82,69	126,36	2 746,08	-595,55	385,27	706,67	1,311	-0,57	1,19
3 475,70	81,19	127,56	2 749,99	-612,15	407,34	733,33	2,058	-1,61	1,29
3 505,60	78,43	128,26	2 755,28	-630,23	430,56	761,85	2,854	-2,77	0,70
3 534,50	76,34	129,05	2 761,59	-647,85	452,58	789,27	2,312	-2,17	0,82
3 563,50	73,92	131,11	2 769,04	-665,89	474,03	816,67	3,242	-2,50	2,13
3 592,70	73,53	132,73	2 777,22	-684,62	494,88	844,25	1,647	-0,40	1,66

Company:	STATOILHYDRO NORWAY	Local Co-ordinate Reference:	Site 34/10-49
Project:	EXPLORATION - UTM Zone 31	TVD Reference:	WELL @ 25,50m (Original Well Elev)
Site:	34/10-49	MVD Reference:	WELL @ 25,50m (Original Well Elev)
Well:	34/10-49	North Reference:	Grid
Wellbore:	49 B	Survey Calculation Method:	Minimum Curvature
Design:	49 B	Database:	EDM Prod P246N

Survey									
Measured Depth (m)	Inclination (°)	Azimuth (°)	Vertical Depth (m)	+N/-S (m)	+E/-W (m)	Vertical Section (m)	Dogleg Rate (°/30m)	Build Rate (°/30m)	Turn Rate (°/30m)
3 621,10	74,05	133,79	2 785,15	-703,30	514,74	871,19	1,207	0,55	1,12
3 650,20	71,85	133,61	2 793,68	-722,52	534,85	898,71	2,275	-2,27	-0,19
3 678,70	69,22	133,64	2 803,18	-741,06	554,30	925,28	2,769	-2,77	0,03
3 707,80	67,68	134,58	2 813,87	-759,90	573,74	952,08	1,826	-1,59	0,97
3 736,70	66,23	135,84	2 825,18	-778,77	592,47	978,47	1,927	-1,51	1,31
3 766,40	64,93	138,87	2 837,46	-798,66	610,79	1 005,42	3,081	-1,31	3,06
3 796,00	62,24	139,45	2 850,63	-818,71	628,13	1 031,89	2,777	-2,73	0,59
3 824,40	60,39	139,94	2 864,26	-837,71	644,24	1 056,78	2,006	-1,95	0,52
3 853,50	60,32	141,12	2 878,65	-857,23	660,32	1 082,06	1,060	-0,07	1,22
3 882,40	59,18	142,87	2 893,21	-876,90	675,69	1 107,02	1,965	-1,18	1,82
3 910,90	57,94	144,28	2 908,08	-896,46	690,13	1 131,33	1,819	-1,31	1,48
3 939,80	56,42	146,13	2 923,74	-916,40	703,99	1 155,58	2,257	-1,58	1,92
3 968,80	54,38	147,76	2 940,21	-936,41	717,01	1 179,36	2,526	-2,11	1,69
3 998,30	52,91	149,75	2 957,70	-956,71	729,34	1 202,96	2,211	-1,49	2,02
4 027,90	53,36	149,88	2 975,45	-977,18	741,25	1 226,43	0,468	0,46	0,13
4 041,70	52,78	150,01	2 983,75	-986,73	746,77	1 237,36	1,281	-1,26	0,28
4 055,60	52,82	149,67	2 992,15	-996,30	752,33	1 248,34	0,591	0,09	-0,73
4 081,40	53,00	150,55	3 007,71	-1 014,15	762,59	1 268,72	0,843	0,21	1,02
4 113,10	53,29	150,24	3 026,72	-1 036,20	775,12	1 293,82	0,361	0,27	-0,29
4 142,30	53,98	150,38	3 044,04	-1 056,63	786,77	1 317,10	0,718	0,71	0,14
4 170,60	54,01	150,27	3 060,67	-1 076,52	798,10	1 339,76	0,100	0,03	-0,12
4 200,00	55,20	151,01	3 077,70	-1 097,41	809,85	1 363,46	1,361	1,21	0,76
4 228,60	58,55	150,91	3 093,33	-1 118,34	821,47	1 387,13	3,515	3,51	-0,10
4 257,80	62,46	149,75	3 107,70	-1 140,42	834,06	1 412,28	4,149	4,02	-1,19
4 286,80	66,35	148,81	3 120,23	-1 162,90	847,42	1 438,23	4,119	4,02	-0,97
4 316,20	69,49	147,55	3 131,28	-1 186,04	861,78	1 465,32	3,418	3,20	-1,29
4 345,40	73,53	145,33	3 140,54	-1 209,11	877,09	1 492,93	4,680	4,15	-2,28
4 374,30	77,24	143,19	3 147,83	-1 231,80	893,43	1 520,87	4,410	3,85	-2,22
4 402,90	80,26	142,41	3 153,41	-1 254,14	910,38	1 548,92	3,268	3,17	-0,82
4 431,50	83,44	140,93	3 157,46	-1 276,34	927,94	1 577,22	3,673	3,34	-1,55
4 460,90	86,10	140,14	3 160,14	-1 298,94	946,55	1 606,48	2,830	2,71	-0,81
4 489,30	89,50	141,71	3 161,23	-1 320,97	964,43	1 634,85	3,955	3,59	1,66
4 518,60	90,97	142,32	3 161,11	-1 344,06	982,47	1 664,15	1,630	1,51	0,62
4 547,70	92,15	142,29	3 160,32	-1 367,08	1 000,25	1 693,24	1,217	1,22	-0,03
4 575,60	91,41	141,60	3 159,45	-1 389,04	1 017,44	1 721,13	1,088	-0,80	-0,74
4 606,20	91,22	141,31	3 158,75	-1 412,96	1 036,50	1 751,72	0,340	-0,19	-0,28
4 635,30	92,27	141,20	3 157,87	-1 435,65	1 054,71	1 780,80	1,088	1,08	-0,11
4 663,80	93,01	142,01	3 156,55	-1 457,96	1 072,39	1 809,27	1,154	0,78	0,85
4 692,60	92,52	142,44	3 155,16	-1 480,70	1 090,01	1 838,03	0,679	-0,51	0,45
4 720,80	91,47	142,48	3 154,18	-1 503,05	1 107,18	1 866,21	1,118	-1,12	0,04
4 749,60	90,30	142,38	3 153,74	-1 525,87	1 124,74	1 895,01	1,223	-1,22	-0,10
4 779,50	91,53	142,72	3 153,26	-1 549,60	1 142,92	1 924,90	1,280	1,23	0,34
4 808,50	92,40	141,66	3 152,27	-1 572,50	1 160,69	1 953,89	1,418	0,90	-1,10
4 837,90	92,39	139,71	3 151,04	-1 595,23	1 179,30	1 983,25	1,988	-0,01	-1,99
4 867,70	92,33	137,84	3 149,81	-1 617,62	1 198,92	2 012,97	1,882	-0,06	-1,88
4 895,80	92,33	137,68	3 148,67	-1 638,41	1 217,79	2 040,96	0,171	0,00	-0,17
4 924,50	91,72	138,22	3 147,65	-1 659,70	1 237,00	2 069,57	0,851	-0,64	0,56
4 953,50	91,29	138,91	3 146,89	-1 681,44	1 256,19	2 098,50	0,841	-0,44	0,71
4 981,10	89,44	138,87	3 146,72	-1 702,23	1 274,33	2 126,05	2,011	-2,01	-0,04
5 013,50	92,27	139,66	3 146,23	-1 726,78	1 295,47	2 158,41	2,721	2,62	0,73
5 040,80	93,26	139,54	3 144,92	-1 747,54	1 313,14	2 185,65	1,096	1,09	-0,13
5 069,60	93,44	139,82	3 143,23	-1 769,46	1 331,75	2 214,37	0,346	0,19	0,29
5 099,80	93,88	141,13	3 141,30	-1 792,71	1 350,93	2 244,49	1,370	0,44	1,30
5 129,10	93,43	141,60	3 139,44	-1 815,55	1 369,18	2 273,73	0,666	-0,46	0,48
5 157,30	93,26	141,70	3 137,79	-1 837,63	1 386,65	2 301,88	0,210	-0,18	0,11

Company:	STATOILHYDRO NORWAY	Local Co-ordinate Reference:	Site 34/10-49
Project:	EXPLORATION - UTM Zone 31	TVD Reference:	WELL @ 25,50m (Original Well Elev)
Site:	34/10-49	MD Reference:	WELL @ 25,50m (Original Well Elev)
Well:	34/10-49	North Reference:	Grid
Wellbore:	49 B	Survey Calculation Method:	Minimum Curvature
Design:	49 B	Database:	EDM Prod P246N

Survey									
Measured Depth (m)	Inclination (°)	Azimuth (°)	Vertical Depth (m)	+N/-S (m)	+E/-W (m)	Vertical Section (m)	Dogleg Rate (°/30m)	Build Rate (°/30m)	Turn Rate (°/30m)
5 187,70	92,89	141,67	3 136,16	-1 861,45	1 405,47	2 332,24	0,366	-0,37	-0,03
5 215,10	92,15	142,72	3 134,96	-1 883,07	1 422,25	2 359,61	1,406	-0,81	1,15
5 244,60	91,84	143,94	3 133,93	-1 906,72	1 439,86	2 389,09	1,279	-0,32	1,24
5 272,90	91,22	144,26	3 133,17	-1 929,64	1 456,45	2 417,36	0,740	-0,66	0,34
5 302,20	89,74	144,59	3 132,93	-1 953,47	1 473,49	2 446,64	1,553	-1,52	0,34
5 332,20	87,58	144,95	3 133,63	-1 977,96	1 490,79	2 476,59	2,190	-2,16	0,36
5 360,20	84,37	145,28	3 135,59	-2 000,87	1 506,76	2 504,48	3,457	-3,44	0,35
5 390,20	82,26	144,90	3 139,09	-2 025,31	1 523,81	2 534,24	2,143	-2,11	-0,38
5 418,50	80,06	145,48	3 143,43	-2 048,26	1 539,78	2 562,16	2,410	-2,33	0,61
5 448,50	77,55	145,54	3 149,26	-2 072,52	1 556,44	2 591,54	2,511	-2,51	0,06
5 459,80	76,66	144,59	3 151,78	-2 081,55	1 562,75	2 602,54	3,410	-2,36	-2,52
5 480,00	76,66	144,59	3 156,44	-2 097,57	1 574,14	2 622,18	0,000	0,00	0,00

Checked By: _____ Approved By: _____ Date: _____

STATOILHYDRO NORWAY

EXPLORATION - UTM Zone 31

34/10-49

34/10-49

49 A

Design: 34/10-49 A

Standard Survey Report

12 september, 2008

Company:	STATOILHYDRO NORWAY	Local Co-ordinate Reference:	Site 34/10-49
Project:	EXPLORATION - UTM Zone 31	TVD Reference:	WELL @ 25,50m (Original Well Elev)
Site:	34/10-49	MD Reference:	WELL @ 25,50m (Original Well Elev)
Well:	34/10-49	North Reference:	Grid
Wellbore:	49 A	Survey Calculation Method:	Minimum Curvature
Design:	34/10-49 A	Database:	EDM Prod P246N

Project	EXPLORATION - UTM Zone 31		
Map System:	Universal Transverse Mercator	System Datum:	Mean Sea Level
Geo Datum:	Eur. 1950 - W. Europe		
Map Zone:	Zone 31N (0 E to 6 E)		Using geodetic scale factor

Site	34/10-49, 34/10		
Site Position:		Northing:	6 777 678,00 m
From:	Map	Easting:	451 012,00 m
Position Uncertainty:	0,00 m	Slot Radius:	in
		Latitude:	61° 7' 45,062 N
		Longitude:	2° 5' 26,103 E
		Grid Convergence:	-0,80 °

Well	34/10-49		
Well Position	+N/-S	0,00 m	Northing: 6 777 678,00 m
	+E/-W	0,00 m	Easting: 451 012,00 m
Position Uncertainty	0,00 m	Wellhead Depth:	137,50 m
		Latitude:	61° 7' 45,062 N
		Longitude:	2° 5' 26,103 E
		Water Depth:	137,50 m

Wellbore	49 A				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	GEOMAGNETICRE	11.06.2007	-2,63	73,31	50 918

Design	34/10-49 A			
Audit Notes:				
Version:	1.0	Phase:	ACTUAL	Tie On Depth: 1 247,59
Vertical Section:	Depth From (TVD) (m)	+N/-S (m)	+E/-W (m)	Direction (°)
	0,00	0,00	0,00	329,39

Survey Program	Date	09.09.2008			
From (m)	To (m)	Survey (Wellbore)	Tool Name	Description	
164,62	193,84	49 S 36" MWD (49 S)	Magnetic, IFR, mag-corr	Magnetic Tools (MWD, EMS)	
236,69	1 022,24	49 S 26" MWD (49 S)	Magnetic, IFR, mag-corr	Magnetic Tools (MWD, EMS)	
1 022,24	1 370,00	49 S 17 1/2" MWD Run #1 (49 S)	Magnetic, IFR, mag-corr	Magnetic Tools (MWD, EMS)	
1 370,10	2 094,70	49 A 12 1/4" MWD (49 A)	Magnetic, IFR, mag-corr	Magnetic Tools (MWD, EMS)	
2 094,70	3 262,40	8 1/2" MWD (49 A)	Magnetic, IFR, mag-corr	Magnetic Tools (MWD, EMS)	

Survey										
Measured Depth (m)	Inclination (°)	Azimuth (°)	Vertical Depth (m)	+N/-S (m)	+E/-W (m)	Vertical Section (m)	Dogleg Rate (°/30m)	Build Rate (°/30m)	Turn Rate (°/30m)	
0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,000	0,00	0,00	
164,62	1,05	319,52	164,61	1,15	-0,98	1,49	0,191	0,19	0,00	
181,34	1,76	185,04	181,33	1,01	-1,10	1,43	4,675	1,27	-241,29	
193,84	1,14	136,70	193,82	0,73	-1,03	1,15	3,156	-1,49	-116,02	
236,69	0,12	220,07	236,67	0,38	-0,77	0,72	0,793	-0,71	58,37	
294,26	0,36	230,01	294,24	0,22	-0,95	0,67	0,126	0,13	5,18	
323,61	0,53	242,81	323,59	0,10	-1,14	0,66	0,200	0,17	13,08	
353,95	0,20	129,78	353,93	0,00	-1,22	0,62	0,628	-0,33	-111,76	
382,49	0,17	110,38	382,47	-0,05	-1,14	0,54	0,073	-0,03	-20,39	

Company: STATOILHYDRO NORWAY
Project: EXPLORATION - UTM Zone 31
Site: 34/10-49
Well: 34/10-49
Wellbore: 49 A
Design: 34/10-49 A

Local Co-ordinate Reference: Site 34/10-49
TVD Reference: WELL @ 25,50m (Original Well Elev)
MD Reference: WELL @ 25,50m (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM Prod P246N

Survey									
Measured Depth (m)	Inclination (°)	Azimuth (°)	Vertical Depth (m)	+N/-S (m)	+E/-W (m)	Vertical Section (m)	Dogleg Rate (°/30m)	Build Rate (°/30m)	Turn Rate (°/30m)
413,15	0,31	30,76	413,13	0,01	-1,06	0,55	0,319	0,14	-77,91
443,01	0,65	332,98	442,99	0,23	-1,09	0,75	0,554	0,34	-58,05
473,70	0,74	313,63	473,68	0,52	-1,32	1,12	0,244	0,09	-18,91
502,61	0,80	286,75	502,58	0,71	-1,65	1,45	0,376	0,06	-27,89
527,69	0,70	242,04	527,66	0,69	-1,95	1,58	0,691	-0,12	-53,48
557,13	0,59	200,38	557,10	0,46	-2,16	1,50	0,479	-0,11	-42,45
586,18	0,44	127,42	586,15	0,25	-2,12	1,30	0,645	-0,15	-75,35
617,82	0,44	122,28	617,79	0,11	-1,92	1,08	0,037	0,00	-4,87
645,44	0,44	95,73	645,41	0,05	-1,73	0,92	0,219	0,00	-28,84
674,04	0,50	64,30	674,01	0,09	-1,51	0,84	0,274	0,06	-32,97
699,32	0,20	16,13	699,29	0,18	-1,40	0,87	0,470	-0,36	-57,16
727,88	0,14	319,94	727,85	0,25	-1,40	0,93	0,177	-0,06	-59,02
788,59	0,81	264,31	788,55	0,27	-1,88	1,19	0,366	0,33	-27,49
817,99	0,49	224,63	817,95	0,16	-2,17	1,24	0,545	-0,33	-40,49
876,59	0,70	228,64	876,55	-0,26	-2,62	1,11	0,110	0,11	2,05
906,76	0,14	244,10	906,72	-0,39	-2,79	1,08	0,563	-0,56	15,37
963,59	0,44	87,56	963,55	-0,42	-2,64	0,98	0,302	0,16	-82,64
992,71	0,17	201,55	992,67	-0,45	-2,54	0,91	0,548	-0,28	117,43
1 022,24	0,26	134,52	1 022,20	-0,54	-2,51	0,81	0,253	0,09	-68,10
1 072,40	0,09	172,97	1 072,36	-0,66	-2,42	0,67	0,118	-0,10	23,00
1 102,92	0,28	296,80	1 102,88	-0,65	-2,49	0,71	0,333	0,19	121,72
1 131,67	1,17	318,11	1 131,62	-0,40	-2,74	1,06	0,955	0,93	22,24
1 160,98	2,91	310,85	1 160,91	0,31	-3,51	2,05	1,797	1,78	-7,43
1 189,92	5,92	307,56	1 189,77	1,70	-5,25	4,14	3,130	3,12	-3,41
1 218,95	7,82	305,23	1 218,59	3,75	-8,05	7,33	1,984	1,96	-2,41
1 247,59	9,13	302,20	1 246,91	6,09	-11,56	11,13	1,449	1,37	-3,17
1 370,10	14,61	314,35	1 366,77	22,08	-30,85	34,72	1,468	1,34	2,98
1 408,10	16,29	319,32	1 403,40	29,48	-37,75	44,59	1,688	1,33	3,92
1 427,30	17,20	326,27	1 421,79	33,88	-41,09	50,08	3,434	1,42	10,86
1 457,00	18,75	327,74	1 450,04	41,57	-46,07	59,24	1,631	1,57	1,48
1 486,10	19,65	330,86	1 477,52	49,80	-50,95	68,80	1,407	0,93	3,22
1 515,10	21,82	334,48	1 504,64	58,92	-55,65	79,05	2,606	2,24	3,74
1 543,30	24,66	335,54	1 530,55	69,01	-60,34	90,12	3,054	3,02	1,13
1 572,40	27,11	334,22	1 556,73	80,51	-65,74	102,76	2,595	2,53	-1,36
1 601,70	30,35	335,10	1 582,42	93,24	-71,76	116,79	3,345	3,32	0,90
1 630,40	33,31	335,15	1 606,80	106,97	-78,13	131,84	3,094	3,09	0,05
1 660,50	36,02	335,91	1 631,56	122,55	-85,22	148,86	2,735	2,70	0,76
1 688,50	38,44	336,91	1 653,85	138,07	-91,99	165,68	2,673	2,59	1,07
1 718,50	41,06	337,23	1 676,91	155,74	-99,46	184,68	2,628	2,62	0,32
1 748,00	43,19	337,40	1 698,79	174,00	-107,09	204,28	2,169	2,17	0,17
1 776,00	43,12	337,24	1 719,22	191,67	-114,48	223,25	0,139	-0,07	-0,17
1 805,00	43,04	337,09	1 740,40	209,92	-122,16	242,88	0,134	-0,08	-0,16
1 834,00	43,02	337,18	1 761,60	228,16	-129,85	262,48	0,067	-0,02	0,09
1 863,50	43,06	337,21	1 783,16	246,72	-137,66	282,43	0,046	0,04	0,03
1 891,50	45,75	337,91	1 803,16	264,82	-145,13	301,82	2,929	2,88	0,75
1 920,40	48,21	337,67	1 822,88	284,38	-153,12	322,72	2,560	2,55	-0,25
1 949,70	50,57	337,50	1 841,95	304,94	-161,60	344,74	2,420	2,42	-0,17
1 978,10	52,75	337,50	1 859,56	325,52	-170,13	366,79	2,303	2,30	0,00
2 007,00	54,56	337,42	1 876,69	347,02	-179,05	389,84	1,880	1,88	-0,08
2 035,50	56,68	337,26	1 892,78	368,73	-188,11	413,13	2,236	2,23	-0,17
2 065,90	59,57	337,13	1 908,83	392,52	-198,12	438,70	2,854	2,85	-0,13
2 094,70	62,17	336,32	1 922,85	415,63	-208,06	463,65	2,807	2,71	-0,84
2 132,10	62,65	335,66	1 940,17	445,91	-221,54	496,58	0,607	0,39	-0,53
2 160,60	65,58	336,79	1 952,61	469,37	-231,88	522,04	3,265	3,08	1,19

Company:	STATOILHYDRO NORWAY	Local Co-ordinate Reference:	Site 34/10-49
Project:	EXPLORATION - UTM Zone 31	TVD Reference:	WELL @ 25,50m (Original Well Elev)
Site:	34/10-49	MD Reference:	WELL @ 25,50m (Original Well Elev)
Well:	34/10-49	North Reference:	Grid
Wellbore:	49 A	Survey Calculation Method:	Minimum Curvature
Design:	34/10-49 A	Database:	EDM Prod P246N

Survey									
Measured Depth (m)	Inclination (°)	Azimuth (°)	Vertical Depth (m)	+N/-S (m)	+E/-W (m)	Vertical Section (m)	Dogleg Rate (°/30m)	Build Rate (°/30m)	Turn Rate (°/30m)
2 189,90	67,77	338,09	1 964,21	494,21	-242,20	548,67	2,554	2,24	1,33
2 219,60	70,67	340,32	1 974,75	520,17	-252,05	576,03	3,608	2,93	2,25
2 247,70	73,02	340,26	1 983,51	545,31	-261,05	602,25	2,510	2,51	-0,06
2 276,40	74,54	339,45	1 991,52	571,18	-270,54	629,35	1,785	1,59	-0,85
2 304,90	74,26	339,31	1 999,19	596,87	-280,21	656,38	0,327	-0,29	-0,15
2 333,80	74,84	338,05	2 006,89	622,82	-290,34	683,87	1,397	0,60	-1,31
2 363,40	76,00	335,36	2 014,34	649,12	-301,67	712,28	2,889	1,18	-2,73
2 392,80	75,75	334,29	2 021,51	674,93	-313,80	740,66	1,089	-0,26	-1,09
2 422,20	75,30	334,31	2 028,86	700,58	-326,14	769,02	0,460	-0,46	0,02
2 451,20	75,18	334,09	2 036,25	725,83	-338,35	796,97	0,253	-0,12	-0,23
2 480,30	74,34	335,47	2 043,90	751,22	-350,31	824,92	1,623	-0,87	1,42
2 509,10	73,17	337,92	2 051,96	776,62	-361,25	852,34	2,737	-1,22	2,55
2 538,30	71,82	337,72	2 060,74	802,40	-371,76	879,89	1,401	-1,39	-0,21
2 567,10	70,78	338,18	2 069,97	827,69	-382,00	906,87	1,175	-1,08	0,48
2 596,30	68,37	338,47	2 080,16	853,11	-392,11	933,90	2,492	-2,48	0,30
2 625,70	65,25	337,18	2 091,74	878,14	-402,30	960,62	3,406	-3,18	-1,32
2 655,50	64,45	336,87	2 104,40	902,97	-412,83	987,36	0,853	-0,81	-0,31
2 684,60	63,79	337,29	2 117,11	927,09	-423,03	1 013,31	0,784	-0,68	0,43
2 712,20	63,26	338,13	2 129,41	949,94	-432,40	1 037,75	1,000	-0,58	0,91
2 740,90	62,02	338,66	2 142,60	973,64	-441,79	1 062,93	1,386	-1,30	0,55
2 769,80	58,83	340,72	2 156,86	997,21	-450,52	1 087,65	3,798	-3,31	2,14
2 799,20	56,67	343,48	2 172,55	1 020,86	-458,16	1 111,90	3,245	-2,20	2,82
2 828,90	54,54	346,59	2 189,33	1 044,53	-464,50	1 135,50	3,368	-2,15	3,14
2 857,50	53,35	350,44	2 206,17	1 067,18	-469,11	1 157,34	3,495	-1,25	4,04
2 886,90	54,40	353,76	2 223,51	1 090,69	-472,36	1 179,24	2,938	1,07	3,39
2 914,80	57,42	355,63	2 239,14	1 113,70	-474,49	1 200,12	3,649	3,25	2,01
2 943,00	57,23	356,52	2 254,37	1 137,38	-476,12	1 221,33	0,822	-0,20	0,95
2 972,10	58,05	356,53	2 269,94	1 161,91	-477,61	1 243,20	0,845	0,85	0,01
3 002,20	58,10	355,01	2 285,86	1 187,39	-479,49	1 266,09	1,287	0,05	-1,51
3 031,00	58,97	355,07	2 300,89	1 211,86	-481,62	1 288,24	0,908	0,91	0,06
3 060,40	57,92	353,89	2 316,28	1 236,80	-484,02	1 310,92	1,483	-1,07	-1,20
3 088,50	56,38	353,08	2 331,52	1 260,25	-486,70	1 332,47	1,797	-1,64	-0,86
3 117,90	54,23	352,94	2 348,25	1 284,24	-489,64	1 354,62	2,197	-2,19	-0,14
3 146,90	53,14	353,63	2 365,43	1 307,45	-492,38	1 375,98	1,266	-1,13	0,71
3 176,40	52,63	354,25	2 383,23	1 330,84	-494,86	1 397,38	0,722	-0,52	0,63
3 204,90	51,27	354,54	2 400,80	1 353,18	-497,05	1 417,72	1,452	-1,43	0,31
3 262,40	48,49	354,65	2 437,84	1 396,95	-501,19	1 457,50	1,451	-1,45	0,06
3 312,00	48,49	354,65	2 470,72	1 433,93	-504,66	1 491,09	0,000	0,00	0,00

Checked By: _____ Approved By: _____ Date: _____

7 Appendix 2: Operational experience

7.1 Appendix 2.1: Operational listing (optional)

WELLBORE ID: NO 34/10-49 S
INTERVAL: MOVE
START TIME: 15.03.2006 22:00
END TIME: 18.03.2006 23:30

Report date	Description
16.03.2006	Rig transit
17.03.2006	Rig in transit to the Apollo well.

INTERVAL: PRESPUD
START TIME: 18.03.2006 23:30
END TIME: 20.03.2006 23:00

Report date	Description
19.03.2006	Set anchors on location. Commence ballasting rig to operational draft. Pick up pipe and prepare for spudding well.
20.03.2006	Picked up and racked required 5 1/2" drill pipe to achieve 17 1/2" section TD. Continued to pick up and rack BHA for 36" and 26" sections.

INTERVAL: 36"
START TIME: 20.03.2006 23:00
END TIME: 23.03.2006 15:00

Report date	Description
21.03.2006	Picked up and racked 36" BHA in derrick. Waited on weather to spud well. Ran 36" BHA and spudded well at 2300 hrs 20/03/2006. Drilled 159m to 182m.
22.03.2006	Completed drilling 36" hole section. Displaced well to 1,35sg mud and wiper tripped with no problems. POOH and racked BHA. Rigged up and ran 4 jts of 30" conductor. Ran 4 jts of fibre glass stinger, made up 30" running tool and lowered 30" to engage PGB in moonpool.
23.03.2006	Ran 30" conductor on 5 1/2" drill pipe from 61m to 159m. Stabbed into 36" hole and continued to run from 159m to 208m, the landing depth. Moved rig to improve bullseye readings. Cemented 30" conductor in place with shoe at 208m, wellhead at 157m - 2 m stick-up from seabed. WOC for 10 hrs. Released running tool and POOH and laid out running tool and stinger. Made up 20" cement head and racked back. Began to lay out 36" BHA.

INTERVAL: 26"
START TIME: 23.03.2006 15:00
END TIME: 30.03.2006 16:30

Report date	Description
24.03.2006	Completed laying out 36" BHA. Made up 26" BHA and stabbed into 30" wellhead. Tagged cement at 205m. Drilled cement and shoe at 208m. Cleaned out rathole to 210m. Drilled 26" hole from 210m to 672m.
25.03.2006	Continued to drill 26" hole from 672 m to 1050 m - section TD. Pumped round a 40 m3 hi-vis pill and circulated well clean. Performed short trip. Pumped round a further 40 m3 hi-vis and circulated the well clean once more. Displaced well to 1,35 SG mud.

Report date	Description
26.03.2006	POOH and racked 26" BHA. Ran jet sub and jetted wellhead and guidebase clean. Rigged up and ran 20" casing to 550m.
27.03.2006	Ran and landed off 20" casing with shoe at 1045m. Datum for well at 156,8m. Circulated 2 x casing volumes and proceeded to cement the 20" casing in place. Bumped plug and pressure tested casing to 100 bar. Released running tool. POOH and laid out. Laid out cement head. Jetted guidebase clean. Moved rig off location and laid out 26" BHA.
28.03.2006	Made preparations to run BOP stack. Simrad acoustic BOP control system was found to be non-operational. Troubleshot acoustic control system.
29.03.2006	Troubleshot faulty acoustic BOP control system. Function tested system - o.k. Prepared and ran BOP stack.
30.03.2006	Moved rig over wellhead. Landed and latched the BOP stack. Unpinned slip jt and laid out landing jt. Nipped up diverter system and function tested. Made up and racked cement head. Tested casing against shear rams to 100 bar - good test. Picked up and made up 17 1/2" BHA and ran into well. Tagged cement at 1027m. Dressed off to 1028m. Picked up and displaced well to OBM.

INTERVAL: 17 1/2"

START TIME: 30.03.2006 16:30

END TIME: 10.04.2006 11:00

Report date	Description
31.03.2006	Drilled out cement wiper plugs, float collar and shoe at 1045m. Cleaned out rathole and drilled 5m new hole to 1055m. Circulated clean and performed an FIT to 1,56 SG MWE. Drilled 17 1/2" hole from 1055m to 1220m.
01.04.2006	Drilled 17 1/2" directional hole from 1220m to 1482m
02.04.2006	Drilled 17 1/2" directional hole from 1482m to 1734. Repairs to mud pumps 1 hour. Drilled 17 1/2" directional hole from 1734m to 1740m.
03.04.2006	Drilled 17 1/2" directional hole to 1745m. Circulated hole clean. POOH for bit change. Changed MWD tools, mud motor and bit. RIH. Commenced drilling 17 1/2" directional hole.
04.04.2006	Drilled 17 1/2" directional hole from 1748m to 2003m
05.04.2006	Drilled 17 1/2" directional hole to 2026m section TD. Circulated hole clean. Dropped EMS, POOH. Retrieved EMS. Racked BHA Retrieved nominal bore protector. Rigged up to run 13 3/8" casing.
06.04.2006	Ran 13 3/8" casing to 710m. 0,5hour to investigate failure of grippers arms on pipe deck crane. Continued to run 13 3/8" casing.
07.04.2006	Ran and landed out 13 3/8" casing. Circulated bottoms up. Mixed, pumped and displaced cement. Set and pressure tested seal assy. Pressure and function tested BOPs. Released and retrieved casing hanger running tool. Laid out cement head and casing handling equipment. Installed wear bushing.
08.04.2006	Attempted pressure test to surface equipment - failed due to leaks on cement unit. Laid out 17 1/2" BHA and picked up and racked back 5" HWDP and 5" drill pipe required for next section while Halliburton conducted fault finding and repairs to cement unit.
09.04.2006	Completed casing pressure test. Picked up and RIH with 12 1/4" BHA picking up 5" drill pipe from deck. Conducted stripping and choke drills. Continued to RIH, tagged top of cement, drilled out float and shoe track, increased mud weight to 1,67sg.
10.04.2006	Drilled out shoetrack and rathole. Drilled 5,5m new formation, circulated hole clean. Performed FIT to 1,82sg EMW. POOH with 12 1/4" BHA. Investigate stand of drillpipe releasing from finger board and falling across derrick. Continue POOH with 12 1/4" BHA and laid out same. Picked up 8,1/2" x 9,05" BHA, loaded MWD assembly and RIH.

INTERVAL: 8 1/2" x 9,05"

START TIME: 10.04.2006 11:00

END TIME: 01.05.2006 06:00

Report date	Description
11.04.2006	RIH and commenced drilling 8 1/2" x 9,05" directional hole. 3hrs to pull back into casing shoe, repair Top Drive, RIH. Continued drilling 8 1/2" x 9,05" directional hole.
12.04.2006	Drilled 8 1/2" x 9,05" directional hole from 2222m to 2586m.
13.04.2006	Drilled 8 1/2" x 9,05" directional hole from 2586m to 2888m.

Report date	Description
14.04.2006	Drilled 8 1/2" x 9,05" directional hole from 2888 to 3204m.
15.04.2006	Drilled 8 1/2" x 9,05" directional hole from 3204 m to 3479 m. Evaluated pump pressure decrease.
16.04.2006	Circulated, POOH into shoe, Function tested BOP, Slipped and cut drilling line, POOH, M/U new 8 1/2" x 9,05" BHA, RIH
17.04.2006	RIH w/ 8 1/2" x 9,05" BHA, Drilled 8 1/2" x 9,05" directional hole from 3479 m to 3674 m
18.04.2006	Drilled 8 1/2" x 9,05" directional hole from 3674 m to 3968 m, Repaired mudpumps
19.04.2006	Repaired mudpumps, Drilled 8 1/2" x 9,05" directional hole from 3968 m to 4109 m.
20.04.2006	Drilled 8 1/2" x 9,05" directional hole from 4109 m to 4126 m, Circulated, POOH, RIH w/ BOP test tool.
21.04.2006	Pressure tested BOP, POOH, Pressure tested surface equipment, M/U TLC logging string no 1 and RIH on DP
22.04.2006	RIH w/ TLC logging string no 1 from 1352 m to 2102 m, Installed Side entry sub and ran WL locomotive, Cont RIH from 2102 m to 2521 m, Took pressure points from 2511m to 2605 m, RIH from 2605 m to 3306 m, Took pressure point and MDT sample at 3303 m.
23.04.2006	Ran TLC logs no 1: PEX - MDT - GR downwards from 3303 m to 3843 m and upwards from 3843 m to 2742 m.
24.04.2006	TLC logged up w/ PEX and took pressure points from 2742 m to 2485 m. Took sample at 2624,5 mMD, 2583,5 mMD and 2513 mMD. POOH and laid out logging string.
25.04.2006	Rig repair and maintenance, P/U M/U and RIH w/ 8 1/2" x 9,10" BHA to 364 m
26.04.2006	RIH w/Geopilot assy to 1160 m while P/U 5" DP, Found MWD to have incorrect software uploaded, POOH, Re-uploaded MWD, RIH w/Geopilot assy to 3643 m while P/U 5 1/2" DP. Washed and reamed tight spot at 3643 m.
27.04.2006	Circulated out gas from MDT operation, Washed down from 3643 m to 3830. Hole packed off at 3690 m and 3804 m. Severe hole cleaning problem. POOH from 3804 m to 3420 m. Modified actuator shell for IBOP. Prepared and time drilled for kick off from 3420 m to 3423 m.
28.04.2006	Time drilled and attempted to kick off from 3423 m to 3428 m. POOH from 3428 m to 1994 m. Function tested BOP. POOH from 1994 m. P/U and RIH with 3 1/2" cement stinger to 275 m.
29.04.2006	Continued to RIH with 3 1/2" cmt stinger to 3415 m. Set two balanced cement plugs from 3410 - 3180 m and 3150 - 2900 m. POOH with stinger.
30.04.2006	POOH from 1160m with 3 1/2" cement stinger. Laid out stinger. Picked up pulser sub and underreamer and made up. Serviced assembly and laid out. Ran test plug and tested BOP stack. Lost 5 1/2 hours due to inability to get test plug to seal properly in wellhead. Completed BOP stack test. Changed out faulty iBOP valve. Began pressure test on iBOP valves.
01.05.2006	Completed pressure testing surface BOP equipment. Slipped and cut drilling line. Picked up 8 1/2" x 9,10" BHA and ran into well. Tagged hard cement at 2838 m and dressed off cement plug to 2849m.

WELLBORE ID: NO 34/10-49 ST2

INTERVAL: 8 1/2" x 9,05"

START TIME: 01.05.2006 06:00

END TIME: 08.05.2006 17:30

Report date	Description
02.05.2006	Drilled 8 1/2" x 9,10" hole from 2849 - 3086 m. Stopped drilling to repair washout between drilling pup and saver sub on DDM.
03.05.2006	Drilled from 3086m to 3294m. Washpipe on DDM failed. Changed out washpipe. Drilled from 3294m to 3323m.
04.05.2006	Drilled 8 1/2" x 9,10" hole from 3323m to 3618m.
05.05.2006	Drilled 8 1/2" x 9,10" hole from 3618m to 3906m.
06.05.2006	Drilled 8 1/2" x 9,10" hole from 3906m to 4063m. Circulated well clean and POOH to investigate pressure loss Took 2 x pressure points with GeoTap on trip out of well.
07.05.2006	POOH due to pressure drop. Found washout in Underreamer. Changed out Underreamer. Serviced BHA components. RIH. Did weekly BOP stack function test while RIH. Washed last 50m to bottom and drilled ahead 4063m to 4092m.
08.05.2006	Drilled 8 1/2" x 9,05" hole from 4092m to 4424m.

WELLBORE ID: NO 34/10-49 B

INTERVAL: 8 1/2" x 9,05"

START TIME: 08.05.2006 17:30

END TIME: 16.05.2006 00:00

Report date	Description
09.05.2006	Drilled 8 1/2" x 9,05" hole from 4563 m to 4655 m.
10.05.2006	Drilled 8 1/2" x 9,05" hole from 4655m to 4905m.
11.05.2006	Drilled 8 1/2" x 9,05" hole from 4905m to 5038m.
12.05.2006	Drilled 8 1/2" x 9,05" hole from 5038m to 5216m.
13.05.2006	Drilled 8 1/2" x 9,05" hole from 5216m to 5345m
14.05.2006	Drilled 8 1/2" x 9,05" hole from 5345m to 5478m
15.05.2006	TD well at 5480m. Circulate hole clean. POOH and attempt to take pressure point at 4995m. Worked drill string free after packing off. Continued to POOH, working through tight spots at 4795m and 3542m.

INTERVAL: PERM P&A

START TIME: 16.05.2006 00:00

END TIME: 21.05.2006 17:30

Report date	Description
16.05.2006	Removed RA sources and racked BHA in derrick. Pressure and function tested BOP. Pressure tested surface equipment. Picked up 3 1/2" cement stinger from deck and commenced RIH with same.
17.05.2006	RIH with cement stinger. Circulated bottoms up at 3292m, cont RIH. Circulated bottoms up at 4960. Set cement plug #1, pulled above it and circulated bottoms up. Set cement plug #2, pulled above it and circulated bottoms up.
18.05.2006	Set 4 cement plugs as per P&A programme. Commenced POOH laying out 30jnts excess 5" drill pipe
19.05.2006	Continue POOH with cement singer. LD geopilot drilling assembly and cement stand. MU and RIH with clean out assembly. Tag cement plug with 10 ton and test cement plug to 103 bar.
20.05.2006	Displaced hole to 1,5 sg mud and POOH with clean out assembly. Laid down jars and mill assembly. Set EZSC packer with top at 1274 mMD. Pressure tested packer to 103 bar. POOH with EZSV setting tool. Made up mill and whipstock assembly and commenced RIH.
21.05.2006	RIH with whipstock assembly. Set whipstock at 1274m. Milled window and new formation to 1278mMD

WELLBORE ID: NO 34/10-49 A

INTERVAL: 12 1/4"

START TIME: 21.05.2006 17:30

END TIME: 28.05.2006 18:30

Report date	Description
22.05.2006	RIH with BOP jet tool and jet BOP and riser. Function tested BOP on yellow and blue pod. MU 12 1/4" drilling BHA and RIH to 1278mMD. Start drilling.
23.05.2006	Drilled and oriented 12 1/4" hole from 1285 m to 1557 m.
24.05.2006	Drilled and oriented 12 1/4" hole from 1557 m to 1922 m. Repaired mudline flange on mud pump no 3.
25.05.2006	Repaired mudline flange leakage, Drilled 2 m, Changed bleed off valve on mud pump 3, Drilled and oriented 12 1/4" hole from 1924 m to 2119 m, Circulated well clean.
26.05.2006	Circulated, POOH, R/U casing handling equipment, Ran 9 5/8" liner. Installed 9 5/8" liner hanger
27.05.2006	M/U hanger, Circulated. Ran 9 5/8" landing string. Set liner hanger. Circulated. Perform cementing job. Circulated above liner hanger. POOH w/ landing string. L/D 12 1/4" BHA. RIH washed and pressure tested BOP.
28.05.2006	Pressure and funtion tested BOP, POOH w/ testplug and BOP wash tool, M/U 8 1/2" Geopilot assy, RIH

INTERVAL: 8 1/2" x 9,05"

START TIME: 28.05.2006 18:30

END TIME: 02.06.2006 01:30

Report date	Description
29.05.2006	Investigated upper annular problem, Drilled and reamed shoe track, drilled 5 m hole, Circulated, Performed FIT to 1,82 sg EMW, Drilled 8 1/2" x 9,05" hole from 2124 m to 2250 m.

Report date	Description
30.05.2006	Drilled 8 1/2" x 9.05" hole from 2250 m to 2670 m
31.05.2006	Drilled 8 1/2" x 9.05" hole from 2760 m to 3051 m
01.06.2006	Drilled 8 1/2" x 9.05" hole from 3051 m to 3312 m, Circulated.

INTERVAL: PERM P&A

START TIME: 02.06.2006 01:30

END TIME: 10.06.2006 13:30

Report date	Description
02.06.2006	Circulated, POOH wet while checking for leakage, L/D 8 1/2" BHA, M/U and RIH w/ 3 1/2" cementing stinger.
03.06.2006	RIH, Circulated, Set cement plug 3220 m - 2970 m, Pulled to 2398 m, Circulated, Set high vis pill 2398 m - 2218 m, Set cement plug 2218 m - 1968 m, Pulled to 1500 m, Circulated, POOH while laid down 5" DP.
04.06.2006	POOH w/ 3 1/2" cementing stinger while laying out 5" and 3 1/2" DP, Laid out 5" DP from derrick to deck, M/U 8 1/2" Bit assy and RIH to 1298 m, 3 fingers on fingerboard unintentionally opened, investigated fingerboard problem, Cont RIH from 1298 m to 1820 m. Installed extra security around DP stand in derrick prior to cont RIH
05.06.2006	Ran in hole with 8 1/2" bit from 1820 m to 1936 m, Washed down to 2023 m (no firm cement), Circulated, L/O DP while WOC, Tagged firm cement at 2032 m, Attempted to pressure plug, plug leaking, Set plug from 2029 m to 1829 m, Pulled to 1501 m, Pressure tested plug to 115 bar-OK, POOH from 1501 m to 450 m.
06.06.2006	Scraped 13 3/8" EZSV setting area at 450 m, Displaced well to 1,42 sg mud at 500 m, POOH, RIH and set 13 3/8" EZSV at 450 m, RIH and cut 13 3/8" casing at 402 m, POOH, RIH w/spear assy, POOH and L/O 13 3/8" casing cut.
07.06.2006	L/D 13 3/8" casing cut, RIH to 450 m, Set at plug from 450 m to 180 m, Press tested plug to 100 bar, Displaced well to seawater, POOH, L/D DP from derrick
08.06.2006	Laid out DP and DC from derrick to deck, RIH and tagged top of cement at 189 m w/10 ton, Washed BOP and POOH, Prepared to pull BOP.
09.06.2006	Pulled BOP and skidded same to set back. Cut and pulled wellhead.
10.06.2006	Released MOST tool from wellhead and laid out on deck. Continued to clean surface mud system of OBM residue. Made general preparations for rig move. Engaged and laid out 18 3/4" housing assembly.

INTERVAL: MOVE

START TIME: 10.06.2006 13:30

END TIME: 12.06.2006 06:30

Report date	Description
11.06.2006	Completed tank cleaning and backloaded slops and remaining deck cargo. Deballasted rig to transit draft and commenced pulling anchors at Apollo location.
12.06.2006	Continued anchor handling on Apollo location.

8 Appendix 3: Figures and tables

8.1 Wellbore schematic 34/10-49 S & B

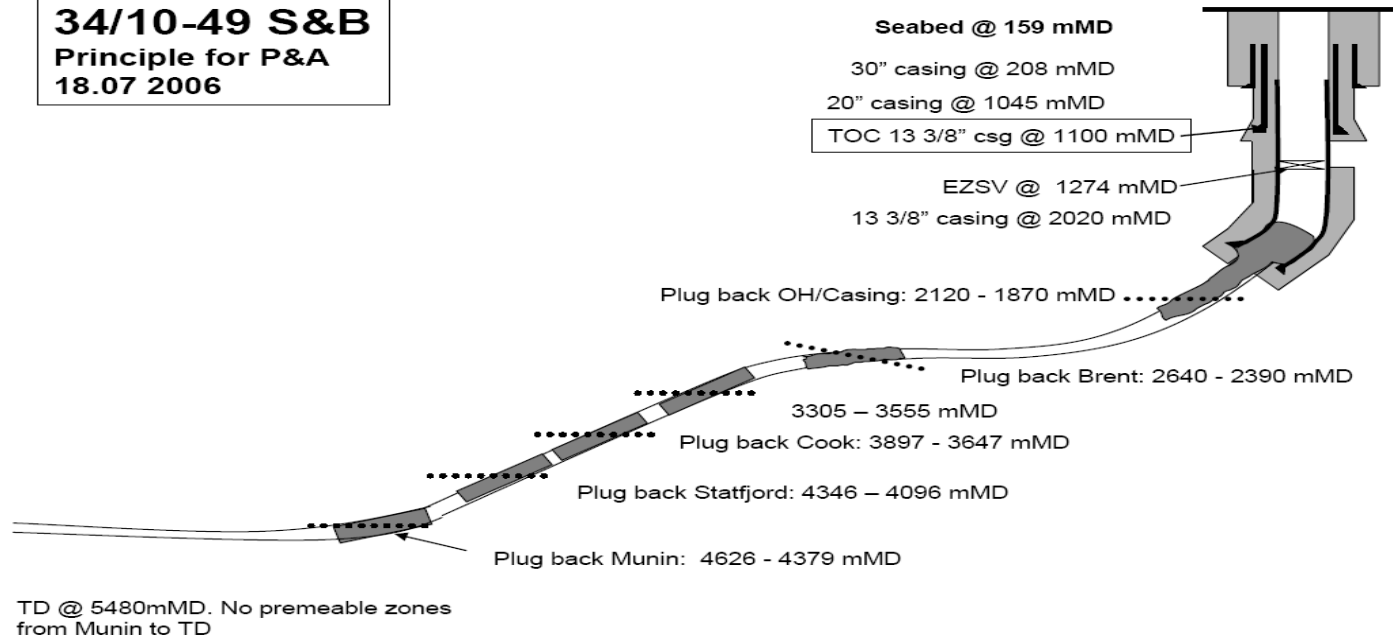
Well: 34/10-49 S Field: Gullfaks Epidott, Alun & Spinell and Sølvkåpe Rig: Ocean Vanguard															
HOLE		CASING				LOT FIT	TOC		CSG. SHOE		RKB	TLC LOGS	LWD LOGS	SURV CSG/ O	
SIZE	MD TVD	SIZE	TYPE / RAD. MARKERS	CENTRALIZERS	TEST PRESS [BAR]		TVD	MD	TVD	MD					
SB	159.5														
36"	210 210	30"	30" conductor housing 309 lb/ft, X-52, SL60 Shoe joint						208	208					
26"	1050 1050	20"	18 3/4" WH housing 20", 133 lb/ft, N-80, Tenares ER Float, 2 x intermediate, Shoe	2 NW-ST-A4 per jt on btm 5 jts	100 with 1.4 mud	FIT 1.56 sg (150 lpm)			1045	1045			Gri/Res Dir	MWD	
17 1/2"	2024 1962	13 3/8"	13 3/8" casing hanger 13 3/8", 72 lb/ft, P-110, Vam Top Float, 2 x intermediate, Shoe 24 m shoetrack	2 NW-ST-A4 per jt on btm 5 jts	345 with 1.4 mud	FIT (150 lpm) 1.82 EMW	1100	1100					Gri/Res Dir	MWD Gyro	
8 1/2" x 9.05"	5480 3139				1.67 mud OBM				1955	2019.5			Option: MDT/Samples PEX A/T-H CMR	Gri/Res/PWD Neut/Dens Dir	MWD
comments: 1) RKB - seabed: 159 m. 2) 13 3/8" TOC at approx. 1100 mMD.								TD	3139	5480					

8.2 Wellbore schematic 34/10-49 A

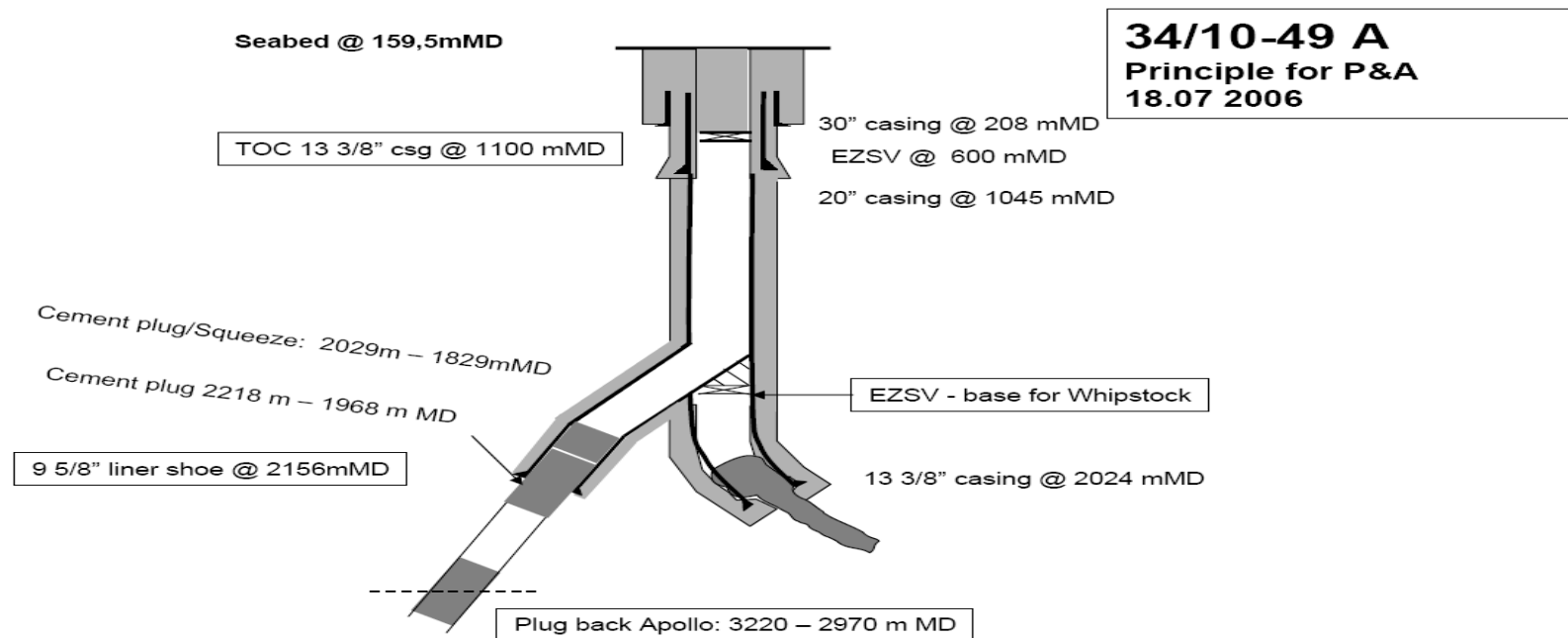
Well: 34/10-49 A Field: Gullfaks Apollo Rig: Ocean Vanguard															
WELL SCHEMATIC															
HOLE		CASING					LOT FIT	TOC		CSG. SHOE		TLC LOGS	LWD LOGS	SURV CSG/ OH	
SIZE	MD TVD	SIZE	TYPE / RAD. MARKERS	CENTRALIZERS	TEST PRESS (BAR)	TVD		MD	TVD	MD	RKB				
SB	159.5														
36"	210 210	30"	30" conductor housing 309 lb/ft. X-52, SL60 Shoe joint							208	208				
26"	1045 1050	20"	18 3/4" WH housing 20", 133 lb/ft. N-80, Antares ER Float, 2 x intermediate, Shoe	2 NW-ST-A4 per jt on btm 5 jts	100 with 1.35 mud	FIT 1.56 sg (150 lpm)							Gr/Res Dir	MWD	
17 1/2"	2024 1962	13 3/8"	13 3/8" casing hanger 13 3/8", 72 lb/ft. P-110, Vam Top Float, 2 x intermediate, Shoe 24 m shoetrack	2 NW-ST-A4 per jt on btm 5 jts	345 with 1.5 OBM	FIT (150 lpm) 1.82 EMW	1100	1100		1045	1045		Gr/Res Dir	MWD Drop Gyro	
12 1/4"	2156 1959		9 5/8" liner hanger 9 5/8", 63.5 lb/ft. L-80, Vam Top Float, 2 x intermediate, Shoe	2 NW-ST-A4 per jt on btm 5 jts	285 with 1.44 OBM	FIT (150 lpm) 1.82 EMW				1956	2019				
8 1/2" x 9.05"	2841 2192				1.67 OBM					1934	2117.5		Option: MDT/Samples PEX AIT-H CMR	Gr/Res/PWD Neut/Dens Dir	MWD
comments: 1) RKB - seabed: 159 m. 2) 13 3/8" TOC at approx. 1100 mMD.								TD		2431	3252				

P&A schematic 34/10-49 S & B

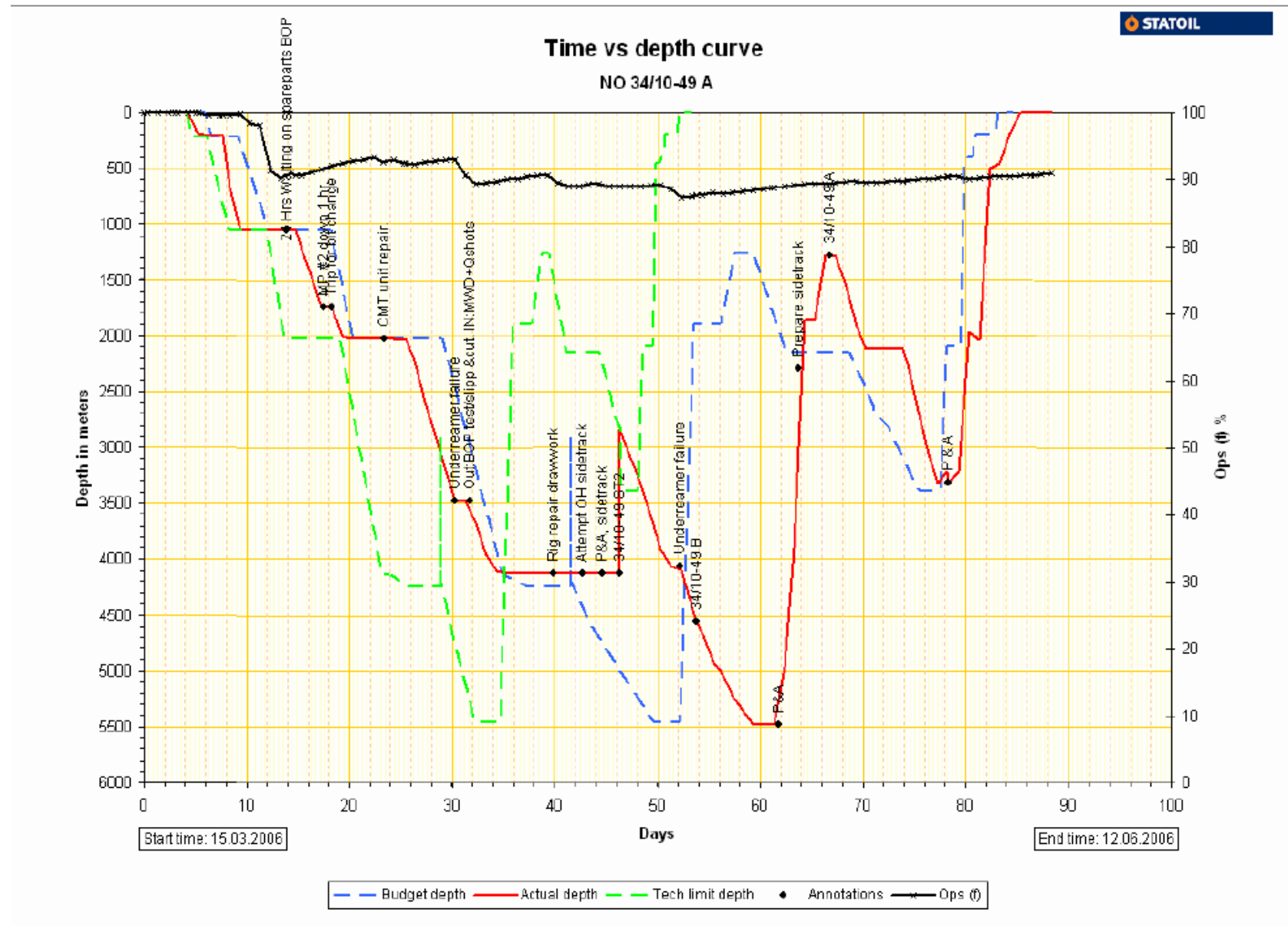
34/10-49 S&B
Principle for P&A
18.07 2006



8.3 P&A schematic 34/10-49 A



8.4 Time/depth curve



8.5 Project planner

PROJECT NAME: Drilling exploration well Apollo

PROJECT NUMBER: T.O050A.AP.20245_MAIN

Start time	End time	Budget time hrs	Acc budget days	Tech limit hrs	Acc tech days	Plan time hrs	Act time hrs	Acc actual days	Down time	Description	Companies
15.03.2006 22:00	17.03.2006 19:00	60,0	2,5	40,0	1,7	40,0	45,0	1,9	0,0	1 Move rig from Wishbone to Apollo	DODI
15.03.2006 22:00	18.03.2006 23:30	100,0	4,2	70,0	2,9	75,0	73,5	3,1	0,0	MOVE [NO 34/10-49 S]	
17.03.2006 19:00	18.03.2006 23:30	40,0	4,2	30,0	2,9	35,0	28,5	3,1	0,0	2 Set anchors and ballast rig to drilling draft. Finalize rig positioning	DODI
18.03.2006 23:30	20.03.2006 23:00	43,0	1,8	29,5	1,2	30,0	47,5	2,0	0,0	PRESPUD [NO 34/10-49 S]	
18.03.2006 23:30	20.03.2006 06:00	30,0	5,4	20,0	3,8	20,0	30,5	4,3	0,0	3 PU and rack back 5 1/2" DP to reach 17 1/2" TD. Mix 70 m3 kill mud	DODI,MI,Ocean
20.03.2006 06:00	20.03.2006 23:00	13,0	6,0	9,5	4,1	10,0	17,0	5,0	0,0	4 M/U cement stand and rack in derrick. M/U 36" BHA and RIH. Pos. rig and placed ROV buoys on seabed	DODI,Geo,Hall,Hall,MI,Ocean
20.03.2006 23:00	23.03.2006 15:00	76,0	3,2	47,5	2,0	52,0	63,5	2,6	0,5	36" [NO 34/10-49 S]	
20.03.2006 23:00	21.03.2006 16:00	15,0	6,6	11,5	4,6	12,0	17,0	5,7	0,0	5 Drill 36" hole to 217 m. Circulate hole clean.	DODI,Geo,Hall,Hall,MI,Ocean
21.03.2006 16:00	21.03.2006 22:30	12,0	7,1	8,5	5,0	9,0	6,5	6,0	0,0	6 Displace to 1.35 sg mud. POOH. L/D 36" BHA	DODI,Geo,Hall,Hall,MI,Ocean
21.03.2006 22:30	22.03.2006 10:30	15,0	7,7	11,5	5,5	12,0	12,0	6,5	0,5	7 Rig up and run 30" conductor, PGB and cement stinger	DODI,DQ,Geo,Hall,MI,Ocean,Weath
22.03.2006 10:30	22.03.2006 22:00	6,0	8,0	2,0	5,5	3,0	11,5	7,0	0,0	8 Pump and displace X-LITE cement.	DODI,DQ,Geo,Hall,MI,Ocean
22.03.2006 22:00	23.03.2006 03:00	6,0	8,2	2,0	5,6	3,0	5,0	7,2	0,0	9 Retrieve running tool and landing string.	DODI,DQ,Geo,MI,Ocean
23.03.2006 03:30	23.03.2006 05:00	4,0	8,4	2,0	5,7	2,0	1,5	7,3	0,0	10 M/U cement stand and rack back	DODI,Hall
23.03.2006 05:00	23.03.2006 14:00	12,0	8,9	8,0	6,0	8,0	9,0	7,6	0,0	11 M/U and RIH with 26" BHA	DODI,Geo,Hall,Hall,MI,Ocean
23.03.2006 14:00	23.03.2006 15:00	6,0	9,1	2,0	6,1	3,0	1,0	7,7	0,0	12 Drill out cement and 30" shoe	DODI,Geo,Hall,Hall,MI,Ocean
23.03.2006 15:00	30.03.2006 16:30	218,0	9,1	141,0	5,9	155,0	169,5	7,1	32,5	26" [NO 34/10-49 S]	
23.03.2006 15:00	24.03.2006 21:30	70,0	12,0	50,0	8,2	50,0	30,5	9,0	0,0	13 Drill 26" hole to 1050 mMD	DODI,Geo,Hall,Hall,MI,Ocean
24.03.2006 21:30	25.03.2006 12:30	18,0	12,8	14,0	8,8	16,0	15,0	9,6	0,0	14 Circulate hole clean, displace to 1.35 sg mud. Wash PGB. POOH.	DODI,Geo,Hall,Hall,MI,Ocean
25.03.2006 12:30	26.03.2006 15:00	28,0	14,0	18,5	9,6	22,0	26,5	10,7	4,5	15 R/U and run 20" casing and 18 3/4" WH housing.	DODI,Geo,Hall,MI,Ocean,DQ,Weath
26.03.2006 15:00	26.03.2006 23:00	14,0	14,5	8,0	9,9	10,0	8,0	11,0	0,0	16 Circulate. Pump and displace cement.	DODI,Geo,Hall,MI,Ocean,DQ
26.03.2006 23:00	27.03.2006 00:30	6,0	14,8	1,5	10,0	3,0	1,5	11,1	0,0	17 Release RT and wash WH area. POOH. L/D RT	DODI,DQ,Geo,Hall,MI,Ocean

StatoilHydro

Start time	End time	Budget time hrs	Acc budget days	Tech limit hrs	Acc tech days	Plan time hrs	Act time hrs	Acc actual days	Down time	Description	Companies
27.03.2006 00:30	27.03.2006 06:00	7,0	15,1	3,0	10,1	4,0	5,5	11,3	0,0	18 L/D cement head and 26" BHA	DODI,DQ,Ocean,Hall
27.03.2006 06:00	29.03.2006 20:00	35,0	16,5	24,0	11,1	24,0	62,0	13,9	25,5	19 Prepare to run BOP. Run BOP/riser. Pressure test BOP, WH conn. and casing	DODI,Hall,Ocean
29.03.2006 20:00	30.03.2006 04:30	15,0	17,2	7,0	11,4	10,0	8,5	14,2	0,0	21 M/U 17 1/2" BHA and RIH. Function test BOP	DODI,Geo,Hall,Hall,MI
30.03.2006 04:29	30.03.2006 04:30	6,0	17,4	3,0	11,5	3,0	0,0	14,3	0,0	20 M/U cement stand and hang off tool	DODI,DQ,Hall
30.03.2006 04:30	30.03.2006 15:00	16,0	18,1	11,0	12,0	12,0	10,5	14,7	2,0	22 Displace to OBM. Drill out shoe track and drill 5 m new formation	DODI,Geo,Hall,Hall,MI
30.03.2006 15:00	30.03.2006 16:30	3,0	18,2	1,0	12,0	1,0	1,5	14,8	0,5	23 Pull into casing shoe, circulate and perform FIT	DODI,Geo,Hall,MI
30.03.2006 16:30	10.04.2006 11:00	261,0	10,9	169,0	7,0	231,0	258,5	10,8	12,5	17 1/2" [NO 34/10-49 S]	
30.03.2006 16:30	02.04.2006 10:30	50,0	20,3	40,0	13,7	50,0	66,0	17,5	2,0	24 Drill 17 1/2" hole to 2105 mMD.	DODI,Geo,Hall,Hall,MI
02.04.2006 10:30	03.04.2006 05:30	0,0	20,3	0,0	13,7	15,0	19,0	18,3	0,0	24a Roundtrip at 1745 mMD due to slow progress	MI,Geo,Hall,Hall,DODI
03.04.2006 05:30	04.04.2006 08:30	20,0	21,1	10,0	14,1	35,0	27,0	19,4	0,0	24b Continue to drill 17 1/2" hole to 2105 mMD	Geo,Hall,DODI,MI,Hall
04.04.2006 08:30	04.04.2006 21:30	25,0	22,2	17,0	14,8	18,0	13,0	20,0	0,0	25 Circulate hole clean, flowcheck, drop EMS and POOH	DODI,DQ,Geo,MI
04.04.2006 21:30	05.04.2006 01:30	6,0	22,4	3,0	14,9	4,0	4,0	20,1	0,0	26 Pull boreprotector	MI,Geo,DODI,DQ
05.04.2006 01:30	06.04.2006 10:00	35,0	23,9	28,0	16,1	30,0	32,5	21,5	0,5	27 RU and run 13 3/8" casing	DODI,DQ,Geo,Hall,MI,Weather
06.04.2006 10:00	06.04.2006 15:30	10,0	24,3	5,5	16,3	7,0	5,5	21,7	0,0	28 Circulate. Pump and displace cement	DODI,DQ,Geo,Hall,MI
06.04.2006 15:30	07.04.2006 04:00	25,0	25,3	15,0	16,9	15,0	12,5	22,2	0,0	29 Set seal assy. Pressure test BOP. Release RT and wash WH area. POOH. L/D RT and cement head	DODI,DQ,Geo,Hall,MI
07.04.2006 04:00	07.04.2006 07:00	5,0	25,5	3,0	17,1	3,0	3,0	22,4	0,0	30 Install wearbushing.	DODI,Hall,Hall
07.04.2006 07:00	08.04.2006 06:30	5,0	25,8	2,0	17,1	2,0	23,5	23,3	5,5	31 Lay down 17 1/2" BHA	DODI,DQ,Geo,Hall,MI
08.04.2006 06:30	08.04.2006 23:00	20,0	26,6	18,0	17,9	18,0	16,5	24,0	0,0	32 M/U and RIH with 12 1/4" BHA. P/U 5" DP.	DODI,Geo,Hall,Hall,MI
08.04.2006 23:00	09.04.2006 09:00	7,0	26,9	6,5	18,2	7,0	10,0	24,4	0,0	33 Drill out shoe track and 5 m new formation. Increase MW.	DODI,Geo,MI,Hall
09.04.2006 09:00	09.04.2006 11:30	3,0	27,0	1,0	18,2	1,0	2,5	24,5	0,0	34 Circulate and perform FIT	DODI,Geo,Hall,MI
09.04.2006 11:30	09.04.2006 21:00	20,0	27,8	7,0	18,5	10,0	9,5	24,9	3,5	35 POOH with 12 1/4" BHA. L/D 12 1/4" BHA	DODI,Geo,Hall,MI
09.04.2006 21:00	10.04.2006 11:00	30,0	29,1	13,0	19,0	16,0	14,0	25,5	1,0	36 M/U and RIH with 8 1/2" geopilot BHA.	DODI,Geo,Hall,Hall,MI,And er
10.04.2006 11:00	01.05.2006 06:00	299,5	12,5	237,0	9,9	349,0	499,0	20,8	76,5	8 1/2" x 9,05" [NO 34/10-49 S]	
10.04.2006 11:00	15.04.2006 06:00	140,0	34,9	98,0	23,1	98,0	115,0	30,3	5,0	37 Drill 8 1/2" x 9.05" hole through Epidott, Alun and Spinell	DODI,Geo,Hall,Hall,MI,And er
15.04.2006 06:00	16.04.2006 17:00	0,0	34,9	20,0	24,0	20,0	35,0	31,8	31,0	37a Roundtrip due to pressuredrop	MI,Geo,Hall,Hall,And er,DO DI
16.04.2006 17:00	20.04.2006 02:30	60,0	37,4	49,0	26,0	49,0	81,5	35,2	2,0	37b Continue to drill 8 1/2" x 9,05" hole to 4250 mMD	And er,DODI,Geo,Hall,Hall,MI
20.04.2006 02:30	20.04.2006 17:00	14,5	38,0	10,0	26,4	12,0	14,5	35,8	2,0	37c Pressure test BOP	MI,Geo,DODI,Hall
20.04.2006 17:00	24.04.2006 05:00	85,0	41,6	60,0	28,9	60,0	84,0	39,3	0,5	37d Perform TLC logging in Epidot and Alun	Geo,DODI,MI,Schlum
24.04.2006 05:00	24.04.2006 20:00	0,0	41,6	0,0	28,9	9,0	15,0	39,9	15,0	37e Rigrepair(drawwork, change IBOP)	DODI
24.04.2006 20:00	26.04.2006 22:00	0,0	41,6	0,0	28,9	25,0	50,0	42,0	10,0	37f M/U and RIH with 8 1/2" geopilot BHA. Unable to come down. Prepare for open hole sidetrack	Geo,Hall,And er,DODI,MI,H all
26.04.2006 22:00	27.04.2006 14:00	0,0	41,6	0,0	28,9	10,0	16,0	42,6	0,0	37g Timedrilling for open hole sidetrack	Geo,Hall,MI,Hall,And er,DO DI

StatoilHydro

Start time	End time	Budget time hrs	Acc budget days	Tech limit hrs	Acc tech days	Plan time hrs	Act time hrs	Acc actual days	Down time	Description	Companies
27.04.2006 14:00	28.04.2006 03:30	0,0	41,6	0,0	28,9	10,0	13,5	43,2	0,0	37h POOH for cement plugs	MI,Geo,Hall,Hall,Ander,DO DI
28.04.2006 03:30	29.04.2006 12:00	0,0	41,6	0,0	28,9	24,0	32,5	44,6	1,0	37i Set 2 cementplugs	Hall,MI,Geo,DODI
29.04.2006 12:00	30.04.2006 12:00	0,0	41,6	0,0	28,9	12,0	24,0	45,6	10,0	37j Pressure test BOP	Hall,MI,Geo,DODI
30.04.2006 12:00	01.05.2006 04:30	0,0	41,6	0,0	28,9	15,0	16,5	46,3	0,0	37k M/U and RIH with 8 1/2" geopilot BHA	Ander,DODI,Geo,Hall,Hall,MI
01.05.2006 04:30	01.05.2006 06:00	0,0	41,6	0,0	28,9	5,0	1,5	46,3	0,0	37l Drilling cement / perform sidetrack	Hall,Geo,MI,DODI,Hall,Ander
01.05.2006 06:00	08.05.2006 17:30	42,0	1,8	20,0	0,8	189,0	179,5	7,5	36,5	8 1/2" x 9,05" [NO 34/10-49 ST2]	
01.05.2006 06:00	05.05.2006 20:00	0,0	41,6	0,0	28,9	100,0	110,0	50,9	7,5	37m Drill 8 1/2" x 9.10" hole to Spinell	Ander,Hall,Hall,MI,Geo,DO DI
05.05.2006 20:00	07.05.2006 03:30	0,0	41,6	0,0	28,9	24,0	31,5	52,2	29,0	37n Roundtrip due to pressure drop	Geo,Hall,Hall,MI,Ander,DO DI
07.05.2006 03:30	07.05.2006 16:30	0,0	41,6	0,0	28,9	25,0	13,0	52,8	0,0	37o Continue to drill 8 1/2" x 9.05" hole to Spinell	Ander,DODI,Geo,Hall,Hall,MI
07.05.2006 16:30	08.05.2006 17:30	42,0	43,3	20,0	29,7	40,0	25,0	53,8	0,0	37p Drill 8 1/2" x 9.05" hole to Sølvkåpe	MI,Geo,Hall,Hall,Ander,DO DI
08.05.2006 17:30	16.05.2006 00:00	198,0	8,2	105,5	4,4	126,0	174,5	7,3	5,5	8 1/2" x 9,05" [NO 34/10-49 B]	
08.05.2006 17:30	14.05.2006 06:30	150,0	49,6	60,0	32,2	80,0	133,0	59,3	5,0	37q Drill 8 1/2" x 9.05" hole to Sølvkåpe	DODI,Ander,Geo,Hall,Hall,MI
14.05.2006 06:30	14.05.2006 11:30	10,0	50,0	8,5	32,6	10,0	5,0	59,5	0,0	38 Circulate hole clean and flowcheck	MI,Geo,Hall,Hall,Ander,DO DI
14.05.2006 11:30	15.05.2006 08:30	20,0	50,8	19,0	33,4	20,0	21,0	60,4	0,0	39 POOH. L/D BHA	Ander,DODI,Geo,Hall,Hall,MI
15.05.2006 08:30	16.05.2006 00:00	18,0	51,6	18,0	34,1	16,0	15,5	61,1	0,5	40 Pressure test BOP, slip & cut drill line	DODI,Geo,MI,Schlum
16.05.2006 00:00	21.05.2006 17:30	159,0	6,6	118,0	4,9	137,0	137,5	5,7	5,0	PERM P&A [NO 34/10-49 B]	
16.05.2006 00:00	16.05.2006 18:30	15,0	52,2	13,0	34,7	14,0	18,5	61,8	0,0	41 RIH with 300 m 3 1/2" cement stinger on DP	DODI,Geo,Hall,MI
16.05.2006 18:30	18.05.2006 04:30	32,0	53,5	29,5	35,9	35,0	34,0	63,3	0,0	42 Set 7 cement plugs in 8 1/2" hole	DODI,Geo,Hall,MI
18.05.2006 04:30	18.05.2006 13:00	12,0	54,0	8,0	36,3	10,0	8,5	63,6	0,0	43 POOH	DODI,Geo,Hall,MI
18.05.2006 13:00	18.05.2006 16:30	8,0	54,4	5,0	36,5	6,0	3,5	63,8	0,0	44 Lay down Geopilot BHA from derrick	DODI,Geo,Hall,MI
18.05.2006 16:30	19.05.2006 14:00	24,0	55,4	19,5	37,3	20,0	21,5	64,6	0,0	45 RIH with 12 1/4" clean out run. Tag and pressure test cement. POOH	DODI,Geo,Hall,MI,BOT
19.05.2006 14:00	20.05.2006 01:30	20,0	56,2	11,0	37,7	12,0	11,5	65,1	1,0	46 RIH and set bridge plug	DODI,Geo,Hall,MI
20.05.2006 01:30	21.05.2006 13:00	33,0	57,6	24,0	38,7	30,0	35,5	66,6	4,0	47 RIH to set whipstock. Mill window. Drill new formation. Perform FIT	DODI,Geo,BOT,Hall,Hall,MI
21.05.2006 13:00	21.05.2006 17:30	15,0	58,2	8,0	39,1	10,0	4,5	66,8	0,0	48 POOH with whipstock BHA	BOT,DODI,Geo,Hall,Hall,MI
21.05.2006 17:30	28.05.2006 18:30	253,0	10,5	128,0	5,3	160,0	169,0	7,0	11,5	12 1/4" [NO 34/10-49 A]	
21.05.2006 17:30	21.05.2006 22:30	6,0	58,4	3,0	39,2	3,0	5,0	67,0	0,0	49 Wash BOP	DODI,DQ,Geo,MI
21.05.2006 22:30	22.05.2006 05:30	20,0	59,3	6,5	39,5	10,0	7,0	67,3	0,0	50 M/U and RIH with 12 1/4" motor BHA	DODI,Geo,Hall,Hall,MI
22.05.2006 05:30	25.05.2006 03:00	76,0	62,4	40,0	41,1	50,0	69,5	70,2	8,0	51 Drill 12 1/4" hole to 2156 mMD (inc. 8hrs Pump Repair)	DODI,Geo,Hall,MI,Hall

StatoilHydro

Start time	End time	Budget time hrs	Acc budget days	Tech limit hrs	Acc tech days	Plan time hrs	Act time hrs	Acc actual days	Down time	Description	Companies
25.05.2006 03:00	25.05.2006 08:00	8,0	62,8	5,0	41,3	6,0	5,0	70,4	0,0	52 Circulate hole clean and flowcheck	DODI,Geo,Hall,Hall,MI
25.05.2006 08:00	25.05.2006 15:30	12,0	63,3	6,0	41,6	10,0	7,5	70,7	0,0	53 POOH. Rack BHA	MI,Hall,Hall,Geo,DODI
25.05.2006 15:30	25.05.2006 18:30	7,0	63,6	3,5	41,7	4,0	3,0	70,8	0,0	54 R/U to run 9 5/8" liner	DODI,Geo,MI,Weath,Weath
25.05.2006 18:30	26.05.2006 04:00	16,0	64,2	11,5	42,2	12,0	9,5	71,2	0,0	55 Run 9 5/8" liner	DODI,Geo,MI,Weath,Weath
26.05.2006 04:00	26.05.2006 08:00	7,0	64,5	4,0	42,4	5,0	4,0	71,4	0,0	56 Install liner hanger	DODI,Geo,MI,Weath,Weath
26.05.2006 08:00	26.05.2006 13:00	14,0	65,1	2,0	42,5	5,0	5,0	71,6	0,0	57 RIH on 5 1/2" HWDP/DP landing string	DODI,Geo,MI,Weath
26.05.2006 13:00	26.05.2006 14:00	3,0	65,2	0,5	42,5	1,0	1,0	71,6	0,0	58 M/U cement stand	DODI,Geo,MI,Weath
26.05.2006 14:00	26.05.2006 14:30	4,0	65,4	0,5	42,5	2,0	0,5	71,7	0,0	59 Circulate and condition mud	DODI,Geo,MI,Weath
26.05.2006 14:30	26.05.2006 15:00	2,0	65,5	1,0	42,5	1,0	0,5	71,7	0,0	60 Set liner hanger	DODI,Geo,MI,Weath
26.05.2006 15:00	26.05.2006 18:00	8,0	65,8	4,0	42,7	4,0	3,0	71,8	0,0	61 Mix and pump cement. Displace cement. Test liner	DODI,Geo,Hall,MI,Weath
26.05.2006 18:00	26.05.2006 20:00	12,0	66,3	2,0	42,8	4,0	2,0	71,9	0,0	62 Release RT. Set packer. Circulate out excess cement	DODI,Geo,Hall,MI,Weath
26.05.2006 20:00	27.05.2006 00:00	15,0	66,9	4,0	43,0	6,0	4,0	72,1	0,0	63 POOH with RT. L/D cement head	DODI,Geo,MI,Weath
27.05.2006 00:00	27.05.2006 01:30	4,0	67,1	2,0	43,0	2,0	1,5	72,1	0,0	64 L/D 12 1/4" BHA	DODI,Hall,Hall
27.05.2006 01:30	27.05.2006 17:00	14,0	67,7	12,0	43,5	12,0	15,5	72,8	0,0	64a Pressure test BOP	DODI,Geo,Hall,MI
27.05.2006 17:00	28.05.2006 09:30	15,0	68,3	13,0	44,1	15,0	16,5	73,5	3,5	65 M/U and RIH with 8 1/2" geopilot BHA	DODI,Ander,Geo,Hall,Hall,MI
28.05.2006 09:30	28.05.2006 17:00	8,0	68,6	6,5	44,4	7,0	7,5	73,8	0,0	66 Drill shoetrack and 5 m new formation	Ander,DODI,Geo,Hall,Hall,MI,Hall
28.05.2006 17:00	28.05.2006 18:30	2,0	68,7	1,0	44,4	1,0	1,5	73,8	0,0	67 Circulate and perform FIT	DODI,Geo,Hall,MI
28.05.2006 18:30	02.06.2006 01:30	197,0	8,2	77,0	3,2	68,0	103,0	4,3	0,0	8 1/2" x 9,05" [NO 34/10-49 A]	
28.05.2006 18:30	30.05.2006 06:00	55,0	71,0	30,0	45,6	25,0	35,5	75,3	0,0	68 Drill 8 1/2" x 9.05" hole to core point	Ander,DODI,Geo,Hall,Hall,MI
30.05.2006 05:59	30.05.2006 06:00	0,0	71,0	0,0	45,6	0,0	0,0	75,3	0,0	69 Circulate hole clean and flowcheck if sand	Ander,DODI,MI,Hall,Geo,Hall
30.05.2006 05:59	30.05.2006 06:00	0,0	71,0	0,0	45,6	0,0	0,0	75,3	0,0	70 POOH and rack BHA if sand	Ander,DODI,Geo,Hall,Hall,MI
30.05.2006 05:59	30.05.2006 06:00	0,0	71,0	0,0	45,6	0,0	0,0	75,3	0,0	71 M/U and RIH with core BHA if sand	DODI,Geo,MI,Hall
30.05.2006 05:59	30.05.2006 06:00	0,0	71,0	0,0	45,6	0,0	0,0	75,3	0,0	72 Cut 27 m core if sand	DODI,Geo,MI,Hall
30.05.2006 05:59	30.05.2006 06:00	0,0	71,0	0,0	45,6	0,0	0,0	75,3	0,0	73 Flowcheck. POOH and L/D core if sand	DODI,Geo,MI,Hall
30.05.2006 05:59	30.05.2006 06:00	0,0	71,0	0,0	45,6	0,0	0,0	75,3	0,0	74 M/U and RIH with 8 1/2" geopilot BHA. If sand	Geo,DODI,MI,Ander,Hall,Hall
30.05.2006 05:59	30.05.2006 06:00	0,0	71,0	0,0	45,6	0,0	0,0	75,3	0,0	75 Relog cored intervall if sand	DODI,Ander,Geo,Hall,Hall,MI
30.05.2006 06:00	01.06.2006 05:00	36,0	72,5	20,0	46,5	15,0	47,0	77,3	0,0	76 Drill 8 1/2" x 9.05" hole to 2841 m MD	Ander,DODI,Geo,Hall,Hall,MI
01.06.2006 04:59	01.06.2006 05:00	72,0	75,5	0,0	46,5	0,0	0,0	77,3	0,0	76a Drill 8 1/2" x 9.05" hole to TD	MI,Geo,Hall,Hall,Ander,DODI
01.06.2006 04:59	01.06.2006 05:00	0,0	75,5	0,0	46,5	0,0	0,0	77,3	0,0	79 Perform TLC logging if HC	DODI,Geo,MI,Schlum
01.06.2006 05:00	01.06.2006 18:00	12,0	76,0	8,0	46,8	8,0	13,0	77,8	0,0	77 Circulate hole clean and flowcheck	Ander,DODI,Geo,Hall,Hall,MI
01.06.2006 18:00	02.06.2006 01:30	22,0	76,9	19,0	47,6	20,0	7,5	78,1	0,0	78 POOH and L/D BHA	Ander,DODI,Geo,Hall,Hall,MI

StatoilHydro

Start time	End time	Budget time hrs	Acc budget days	Tech limit hrs	Acc tech days	Plan time hrs	Act time hrs	Acc actual days	Down time	Description	Companies
02.06.2006 01:30	10.06.2006 13:30	149,0	6,2	108,0	4,5	142,0	204,0	8,5	11,5	PERM P&A [NO 34/10-49 A]	
02.06.2006 01:30	02.06.2006 11:30	15,0	77,6	12,0	48,1	12,0	10,0	78,5	0,0	80 RIH with 3 1/2" cement stinger	DODI,Geo,Hall,MI
02.06.2006 11:30	03.06.2006 00:30	15,0	78,2	12,0	48,6	12,0	13,0	79,1	0,0	81 Set cement plugs in 8 1/2" hole	MI,Hall,Geo,DODI
03.06.2006 00:30	03.06.2006 15:30	15,0	78,8	8,0	48,9	10,0	15,0	79,7	0,0	82 POOH. L/D pipe	DODI,Geo,Hall,MI
03.06.2006 15:30	05.06.2006 11:30	18,0	79,6	15,0	49,6	15,0	44,0	81,5	9,5	83 RIH with 8 1/2" BHA. Tag and pressure test cement. POOH. Decrease MW to 1.40 sg at 500 m.	DODI,Geo,Hall,MI
05.06.2006 11:30	05.06.2006 15:00	8,0	79,9	6,0	49,8	6,0	3,5	81,7	0,0	84 RIH and set 13 3/8" EZSV at 450 m. Pressure test same	DODI,Geo,Hall,MI
05.06.2006 15:00	05.06.2006 16:00	2,0	80,0	8,0	50,1	8,0	1,0	81,7	0,0	85 POOH	DODI,Geo,Hall,MI
05.06.2006 16:00	05.06.2006 21:30	7,0	80,3	5,0	50,4	6,0	5,5	82,0	0,0	86 Cut 13 3/8" casing at 400 m. Pull wearbushing	DODI,Geo,MI,DQ,Weath,W eath
05.06.2006 21:30	06.06.2006 12:00	9,0	80,6	4,0	50,5	5,0	14,5	82,6	2,0	87 Pull 13 3/8" casing	MI,Geo,DODI,Weath,Weath, DQ
06.06.2006 12:00	07.06.2006 00:00	8,0	81,0	6,0	50,8	6,0	12,0	83,1	0,0	88 RIH. Set 250 m cement. POOH	DODI,Geo,Hall,MI
07.06.2006 00:00	08.06.2006 01:30	12,0	81,5	6,0	51,0	30,0	25,5	84,1	0,0	89 L/D pipe. Tag and pressure test cement. Displace to SW	MI,Hall,Geo,DODI
08.06.2006 01:30	08.06.2006 19:00	25,0	82,5	15,0	51,6	20,0	17,5	84,9	0,0	90 Pull BOP	DODI,Geo,MI,Ocean
08.06.2006 19:00	09.06.2006 06:00	8,0	82,9	6,0	51,9	6,0	11,0	85,3	0,0	91 RIH with MOST tool and cut 20" x 30" casing	DODI,Ocean,DQ,Weath
09.06.2006 06:00	10.06.2006 13:30	7,0	83,1	5,0	52,1	6,0	31,5	86,6	0,0	92 Retrieve casing and WH/PGB. Perform survey on seabed	DQ,DODI,Ocean,Weath
10.06.2006 13:30	12.06.2006 06:30	35,0	84,6	30,0	53,4	30,0	41,0	88,3	0,0	93 Pull anchor	DODI,Ocean
10.06.2006 13:30	12.06.2006 06:30	35,0	1,5	30,0	1,2	30,0	41,0	1,7	0,0	MOVE [NO 34/10-49 A]	

8.6 Bit record

WELL: NO 34/10-49 A

Run no	Bit size	Bit no	BHA no	Bit type	IADC code	Bit manufacturer
16	12 1/4"	10	1	DSX227	M432	Reed-Hycalog
17	8 1/2"	11	3	FMF3653	M423	Security DBS
19	8 1/2"	14	5	XS4G	217S	Security DBS

					Nozzles (n/32")				
Run no	Bit size	Bit no	BHA no	Serial no	no x n	no x n	no x n	no x n	Flow area in
16	12 1/4"	10	1	211257	2 x 14	6 x 15	x	x	1,3370
17	8 1/2"	11	3	10816413	6 x 16	x	x	x	1,1790
19	8 1/2"	14	5	10420322	3 x 20	x	x	x	0,9210

Run no	Bit size	Pump rate l/min	Pump press bar	Depth in mMD	Depth out mMD	Form drld m	Total drld m	Drld hrs	Circ hrs	ROP m/hrs
16	12 1/4"			1280,0	2119,0	839,0	839,0	40,5	70,0	20,7
17	8 1/2"			2217,0	3312,0	1095,0	1095,0	58,7	82,8	18,7
19	8 1/2"			1968,0	2034,0	66,0				

Run no	Bit size	Min WOB ton	Max WOB ton	Min RPM	Max RPM	Torque Min Nm	Torque Max Nm	Con drag Min 1000 daN	Con drag Max 1000 daN
16	12 1/4"								
17	8 1/2"								
19	8 1/2"								

Run no	Bit size	I	O	DC	L	B	G	OC	RP
16	12 1/4"	0	0	NO	A	X	I	NO	TD
17	8 1/2"	1	1	BT	N	X	I	NO	TD
19	8 1/2"								

Run no	Bit size	Remarks
16	12 1/4"	
17	8 1/2"	
19	8 1/2"	Dressed off cement plug. Later cemented through same.

WELL: NO 34/10-49 B

Run no	Bit size	Bit no	BHA no	Bit type	IADC code	Bit manufacturer
11	8 1/2"	9	9	FM3755C	M424	Security DBS

					Nozzles (n/32")
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Run no	Bit size	Bit no	BHA no	Serial no	no x n	no x n	no x n	no x n	Flow area in
11	8 1/2"	9	9	10698368	x	x	x	x	

Run no	Bit size	Pump rate l/min	Pump press bar	Depth in mMD	Depth out mMD	Form drld m	Total drld m	Drld hrs	Circ hrs	ROP m/hrs
11	8 1/2"			4063,0	5480,0	1417,0	1417,0		170,2	

Run no	Bit size	Min WOB ton	Max WOB ton	Min RPM	Max RPM	Torque Min Nm	Torque Max Nm	Con drag Min 1000 daN	Con drag Max 1000 daN
11	8 1/2"								

Run no	Bit size	I	O	DC	L	B	G	OC	RP
11	8 1/2"	1	2	WT	A	X	i	CT	TD

Run no	Bit size	Remarks
11	8 1/2"	

WELL: NO 34/10-49 S

Run no	Bit size	Bit no	BHA no	Bit type	IADC code	Bit manufacturer
1	17 1/2"	1	1	DSJ	111	Smith Bits
2	26"	2	2	EMS11	115	REED
3	17 1/2"	3	3	T13CDHTP	135	Reed-Hycalog
3	17 1/2"		2	T13CDHTP	135	Reed-Hycalog
4	17 1/2"	4	4	MXST303DX	415	Hughes Christensen
5	12 1/4"	5	5	MHT13GK	137	REED
6	8 1/2"	6	6	FMF3653	M423	Security DBS
7	8 1/2"	7	1	FMF3731	M442	Security DBS
9	8 1/2"	8	9	FMF3755	M424	Security DBS
10	8 1/2"	8	10	FM3755C	M424	Security DBS

Run no	Bit size	Bit no	BHA no	Serial no	no x n	no x n	no x n	no x n	Flow area in
1	17 1/2"	1	1	4025	3 x 15	x	x	x	0,5180
2	26"	2	2	A45161	3 x 20	1 x 18	x	x	1,1690
3	17 1/2"	3	3	J50121	3 x 22	1 x 16	x	x	1,3110
3	17 1/2"		2		5 x 16	3 x 22	x	x	2,0960
4	17 1/2"	4	4	6036351	3 x 22	1 x 16	x	x	1,3110
5	12 1/4"	5	5	CD7408	3 x 24	x	x	x	1,3260
6	8 1/2"	6	6	10793641	6 x 16	x	x	x	1,1790
7	8 1/2"	7	1	10706067	3 x 22	x	x	x	1,1140
9	8 1/2"	8	9	10779383	3 x 20	1 x 18	x	x	1,1690
10	8 1/2"	8	10	10779383	1 x 18	3 x 20	x	x	1,1690

Run no	Bit size	Pump rate l/min	Pump press bar	Depth in mMD	Depth out mMD	Form drld m	Total drld m	Drld hrs	Circ hrs	ROP m/hrs
1	17 1/2"	1500	9	159,0	210,0	51,0	51,0	12,9	18,0	4,0

Run no	Bit size	Pump rate l/min	Pump press bar	Depth in mMD	Depth out mMD	Form drld m	Total drld m	Drld hrs	Circ hrs	ROP m/hrs
2	26"	4450	186	210,0	1050,0	840,0	840,0	22,8	31,3	36,8
3	17 1/2"	4050	245	1050,0	1745,0	695,0	695,0	50,2	74,7	13,8
3	17 1/2"			1050,0	1745,0	695,0	695,0			
4	17 1/2"			1745,0	2026,0	281,0	281,0	20,1	31,7	14,0
5	12 1/4"			2026,0	2031,5	5,5	50,5	8,9	10,6	0,6
6	8 1/2"	2200	224	2031,0	3479,0	1448,0	1173,0	78,6	105,6	18,4
7	8 1/2"			3479,0	4109,0	630,0	630,0	50,6	65,6	12,5
9	8 1/2"									
10	8 1/2"	2100	275	2846,0	4063,0	1217,0	1217,0	81,2	109,2	15,0

Run no	Bit size	Min WOB ton	Max WOB ton	Min RPM	Max RPM	Torque Min Nm	Torque Max Nm	Con drag Min 1000 daN	Con drag Max 1000 daN
1	17 1/2"	0	10	0	100	3	12	0	0
2	26"	4	10	206	245	4	9	0	0
3	17 1/2"	9	25	78	190	3	9	0	10
3	17 1/2"								
4	17 1/2"	5	23	80	185	5	10		
5	12 1/4"	5	30	40	108	4	8		
6	8 1/2"	4	13	60	165	4	13	2	12
7	8 1/2"								
9	8 1/2"								
10	8 1/2"	10	15	150	160	10	15		

Run no	Bit size	I	O	DC	L	B	G	OC	RP
1	17 1/2"	3	3	NO	A	E	i	NO	TD
2	26"	1	1	WT	A	E	1	NO	TD
3	17 1/2"	6	4	BT	M	E	I	FC	PR
3	17 1/2"								
4	17 1/2"	1	1	WT	A	E	I	NO	TD
5	12 1/4"	1	1	NO	A	E	I	NO	BHA
6	8 1/2"	2	2	BT	A	X	I	NO	WO
7	8 1/2"	8	3	CR	C	X	I	LN	PR
9	8 1/2"	0	0	NO	A	X	I	NO	HP
10	8 1/2"	2	1	CT	A	X	I	NO	WO

Run no	Bit size	Remarks
1	17 1/2"	Used ahead of 26" x 36" hole opener.
2	26"	
3	17 1/2"	
3	17 1/2"	
4	17 1/2"	
5	12 1/4"	
6	8 1/2"	
7	8 1/2"	En plugged nozzle.
9	8 1/2"	
10	8 1/2"	Re-run 1

WELL: NO 34/10-49 ST2

Run no	Bit size	Bit no	BHA no	Bit type	IADC code	Bit manufacturer
10	8 1/2"	8	10	FM3755C	M424	Security DBS

Run no	Bit size	Bit no	BHA no	Bit type	IADC code	Bit manufacturer
11	8 1/2"	9	9	FM3755C	M424	Security DBS

Run no	Bit size	Bit no	BHA no	Serial no	Nozzles (n/32")				Flow area in
					no x n	no x n	no x n	no x n	
10	8 1/2"	8	10	10779383	1 x 18	3 x 20	x	x	1,1690
11	8 1/2"	9	9	10698368	x	x	x	x	

Run no	Bit size	Pump rate l/min	Pump press bar	Depth in mMD	Depth out mMD	Form drld m	Total drld m	Drld hrs	Circ hrs	ROP m/hrs
10	8 1/2"			2846,0	4063,0	1217,0	1217,0	81,2	109,2	15,0
11	8 1/2"			4063,0	5480,0	1417,0	1417,0		170,2	

Run no	Bit size	Min WOB ton	Max WOB ton	Min RPM	Max RPM	Torque Min Nm	Torque Max Nm	Con drag Min 1000 daN	Con drag Max 1000 daN
10	8 1/2"								
11	8 1/2"								

Run no	Bit size	I	O	DC	L	B	G	OC	RP
10	8 1/2"	2	1	CT	A	X	I	NO	WO
11	8 1/2"	1	2	WT	A	X	i	CT	TD

Run no	Bit size	Remarks
10	8 1/2"	Re-run 1
11	8 1/2"	

WELLBORE: NO 34/10-49 A
BHA NO: 1
BHA KIND:
DESCRIPTION: 12 1/4" motor BHA
BHA NAME: 16

String component	OD in	ID in	Length m	Acc length m
DSX227~12 1/4"	12,250	3,000	0,30	0,30
DRILLEX MOTOR, 4 3/4"	9,625	3,000	9,62	9,92
STABILIZER	8,000	3,000	2,01	11,93
NON MAG. X-OVER	8,000	3,000	0,63	12,56
GAMMA-RAY	8,000	3,000	1,54	14,10
RES	8,000	3,000	3,70	17,80
PWD	8,000	3,000	1,33	19,13
LWD/MWD TOOL	8,000	3,000	1,65	20,78
DIR	8,000	3,000	4,67	25,45
NM SUB-STOP	8,000	3,000	2,36	27,81
NM STRING STAB	8,000	3,000	1,88	29,69
NM STAB W/FLOAT	8,000	3,000	0,96	30,65
NM DRILL COLLAR	8,000	3,000	8,40	39,05
JAR	8,000	2,750	9,96	49,01
COLLAR	7,875	2,938	8,90	57,91
X-OVER	7,750	3,000	1,11	59,02
HW DRILL PIPE	5,500	3,000	85,94	144,96

BHA NO: 3
BHA KIND:
DESCRIPTION: 8.5" geopilot assembly
BHA NAME: 17

String component	OD in	ID in	Length m	Acc length m
FMF3653~8 1/2"	8,500	3,000	0,39	0,39
GEO-PILOT 7600	7,000	1,640	6,15	6,54
FLEX COLLAR, NM	5,060	2,860	2,80	9,34
STAB STRAIGHT WB	8,405	2,813	0,67	10,01
EWR-P4	6,750	1,920	3,62	13,63
DGR	6,750	1,920	1,39	15,02
PWD	6,750	1,920	1,31	16,33
DIR	6,750	1,920	2,81	19,14
LWD/MWD TOOL	6,750	1,920	1,66	20,80
ALD	8,250	1,920	3,93	24,73
CTN	6,750	1,920	3,61	28,34
LWD/MWD TOOL	6,750	1,920	1,48	29,82
LWD/MWD TOOL	6,750	1,920	3,03	32,85
NM FLOAT SUB	6,750	2,750	1,03	33,88
SUB	6,750	2,750	2,22	36,10
STABILIZER	6,750	2,813	2,24	38,34
ANDERREAMER	9,050	2,563	4,45	42,79
PONY COLLAR	6,500	2,813	2,87	45,66
STABILIZER	8,250	2,813	2,25	47,91
FLOAT SUB	6,750	2,813	1,09	49,00
HW DRILL PIPE	5,000	3,000	9,82	58,82
HYDRAULIC JAR	6,500	2,750	9,40	68,22
HW DRILL PIPE	5,000	3,000	36,20	104,42
ACCELERATOR	6,500	2,750	10,22	114,64

String component	OD in	ID in	Length m	Acc length m
HW DRILL PIPE	5,000	3,000	18,50	133,14
DP 5"	5,000	4,276	1929,47	2062,61
X-OVER	7,750	3,000	0,61	2063,22

BHA NO: 4
BHA KIND:
DESCRIPTION: Cement stinger for P&A
BHA NAME: 18

String component	OD in	ID in	Length m	Acc length m
DIVERTING SUB	3,500		2,50	2,50
DP 3 1/2"	3,500	2,125	295,00	297,50
X-OVER	6,250	2,750	1,11	298,61
DP 5"	5,000	4,276	1929,47	2228,08
X-OVER	7,750	3,000	0,61	2228,69

BHA NO: 5
BHA KIND:
DESCRIPTION: 8.5" clean out BHA
BHA NAME: 19

String component	OD in	ID in	Length m	Acc length m
XS4G~NA	8,500		0,23	0,23
BIT SUB	6,250	2,750	0,92	1,15
X-OVER	6,250	2,750	1,11	2,26
HW DRILL PIPE	5,000	3,000	27,15	29,41
DP 5"	5,000	4,276	1035,91	1065,32
X-OVER	7,750	3,000	0,61	1065,93

BHA NO: 6
BHA KIND:
DESCRIPTION: 13 3/8" casing cutting run
BHA NAME: 20

String component	OD in	ID in	Length m	Acc length m
BULL NOSE	8,000	1,000	0,34	0,34
CASING CUTTER	12,000	2,000	1,82	2,16
TOP SUB	10,000	3,500	0,92	3,08
X-OVER	7,750	2,500	0,37	3,45
MUD MOTOR	9,250	3,000	7,65	11,10
X-OVER	8,000	3,000	1,00	12,10
DP 5 1/2"	5,500	3,000	232,10	244,20
X-OVER	5,500	2,500	1,20	245,40
X-OVER	6,750	3,000	0,36	245,76
MPT TOOL	18,750	3,000	0,91	246,67
X-OVER	5,500	3,000	8,14	254,81

BHA NO: 7
BHA KIND:
DESCRIPTION: 13 3/8" spear assembly

BHA NAME: 21

String component	OD in	ID in	Length m	Acc length m
PACK OFF TOOL FOR 13 3/8" CSG	12,250	2,625	0,93	0,93
ITCO SPEAR	12,381	2,875	1,33	2,26
SPACER SUB	8,000	2,750	1,50	3,76
STOP SUB	8,000	3,500	0,78	4,54
BUMPER SUB	8,000	3,500	4,41	8,95
DRILL COL	8,250	2,800	28,00	36,95
X-OVER	8,000	3,060	0,80	37,75

WELLBORE: NO 34/10-49 B

BHA NO: 1

BHA KIND:

DESCRIPTION: 3 1/2" cement stinger

BHA NAME: 12

String component	OD in	ID in	Length m	Acc length m
DP 3 1/2"	3,500	2,500	296,09	296,09
DP 5"	5,000	4,276	2995,83	3291,92

BHA NO: 2

BHA KIND:

DESCRIPTION: Clean out assembly

BHA NAME: 13

String component	OD in	ID in	Length m	Acc length m
JUNK MILL	7,750	2,250	1,09	1,09
BIT SUB	8,000	3,000	0,91	2,00
STRING MAGNET	7,938	3,500	2,02	4,02
STRING MILL	8,063	3,000	2,21	6,23
DRILL COLLAR	8,000	3,000	9,32	15,55
STRING MILL	8,031	3,000	2,40	17,95
DRILL COLLAR	8,000	3,000	74,59	92,54
JAR	8,000	3,000	9,96	102,50
DRILL COLLAR	8,000	3,000	28,19	130,69
X-OVER	7,750	3,000	1,11	131,80
HW DRILL PIPE			143,24	275,04

BHA NO: 3

BHA KIND:

DESCRIPTION: Whipstock assembly

BHA NAME: 14

String component	OD in	ID in	Length m	Acc length m
WINDOW MASTER	12,156		8,80	8,80
MILL ASSEMBLY	12,219	3,500	18,49	27,29
MWD	8,000	3,500	9,00	36,29
COLLAR	8,000	3,500	336,00	372,29
X-OVER	7,035	3,500	1,11	373,40

BHA NO: 9
BHA KIND:
DESCRIPTION: 8.5" geopilot assembly
BHA NAME: 11

String component	OD in	ID in	Length m	Acc length m
FM3755C~8 1/2"	8,500	1,000		
GEO-PILOT 7600	7,625	1,640	6,14	6,14
FLEX JOINT	5,060	2,860	2,80	8,94
STABILIZER	6,750	2,130	0,67	9,61
EWR-P4	6,750	1,920	3,68	13,29
GR,	6,750	1,920	2,00	15,29
PWD SUB	6,750	1,920	1,30	16,59
DIRECT 675,	6,750	1,920	2,81	19,40
ACAL	6,750	1,920	1,73	21,13
DENSITY TOOL	6,750	1,920	3,93	25,06
NEUTRON TOOL	6,750	1,920	3,60	28,66

WELLBORE: NO 34/10-49 S
BHA NO: 1
BHA KIND:
DESCRIPTION: 36" Drilling BHA
BHA NAME: 1

String component	OD in	ID in	Length m	Acc length m
BIT, TRI CONE	17,500		0,43	0,43
HO TWO STAGE 26" X 36"	36,000	3,000	3,85	4,28
HOLE OPENER	36,000	3,000	2,58	6,86
FLOAT SUB	9,500	3,000	0,87	7,73
DWD TOOL	9,500	2,000	9,24	16,97
DRILL COLLAR STEEL,	9,500	3,000	37,12	54,09
X-OVER	9,125	3,000	1,22	55,31
DRILL COLLAR STEEL,	8,000	3,000	83,94	139,25
X-OVER	8,000	3,000	1,11	140,36

DESCRIPTION: Geopilot
BHA NAME: 7

String component	OD in	ID in	Length m	Acc length m
FMF3731~8 1/2"	8,500	3,000	0,36	0,36
GEO-PILOT 7600	7,000	1,640	7,08	7,44
FLEX COLLAR, NM	5,060	2,860	2,81	10,25
STAB STRAIGHT WB	8,405	2,813	0,67	10,92
RES	6,750	1,920	3,68	14,60
LWD/MWD TOOL	6,750	1,920	1,39	15,99
PWD	6,750	1,920	1,30	17,29
DIR	6,750	1,920	2,81	20,10
LWD/MWD TOOL	6,750	1,920	1,78	21,88
ALD	6,750	1,920	3,93	25,81
CTN	6,750	1,920	3,61	29,42
LWD/MWD TOOL	6,750	1,920	1,43	30,85
LWD/MWD TOOL	6,750	1,920	4,75	35,60
FLOAT SUB	6,750	2,813	0,78	36,38
SCREEN	6,750	2,813	2,38	38,76
STAB SPIRAL IB	8,375	2,813	2,28	41,04

String component	OD in	ID in	Length m	Acc length m
ANDERREAMER	9,050	2,563	4,38	45,42
PONY COLLAR	6,750	2,813	3,06	48,48
STAB SPIRAL IB	8,250	2,813	2,26	50,74
FLOAT SUB	6,750	2,813	0,68	51,42
HW DRILL PIPE	5,000	3,000	18,19	69,61
JAR	6,500	2,750	9,56	79,17
H W DRILL PIPE	5,000	3,000	36,20	115,37
ACCELERATOR	6,500	2,750	10,03	125,40
H W DRILL PIPE	5,000	3,000	18,50	143,90
DP 5"	5,000	4,260	1845,20	1989,10
X-OVER,	7,750	3,000	0,61	1989,71

BHA NO: 2

BHA KIND:

DESCRIPTION: 17 1/2" Drilling BHA

BHA NAME: 3

String component	OD in	ID in	Length m	Acc length m
T13CDHTP~17 1/2"	17,500	4,000	0,48	0,48
SPERRYDR 6/7L	11,250	6,135	10,46	10,94
FLOAT SUB	9,500	3,000	1,11	12,05
STABILIZER	16,750	3,000	1,81	13,86
X-OVER	9,500	3,000	0,52	14,38
MWD / GAMMA RAY	9,500	3,000	1,47	15,85
MWD, RLL TOOL	9,500	3,000	3,71	19,56
MWD	9,500	3,000	1,65	21,21
MWD, PULSAR	9,500	3,000	4,72	25,93
STAB SPIRAL IB	16,000	3,000	1,81	27,74
SCREEN	9,500	3,000	1,67	29,41
X-OVER	9,500	3,000	1,30	30,71
NON MAG. COLLAR,	8,000	3,000	8,00	38,71
NON MAG. COLLAR,	8,000	3,000	8,38	47,09
NON MAG. COLLAR,	8,000	3,000	8,79	55,88
8" DRILL COLLAR	8,000	2,810	46,54	102,42
JAR	8,000	8,813	9,77	112,19
8" DRILL COLLAR	8,000	2,810	28,05	140,24
X-OVER	7,750	3,000	1,11	141,35

BHA NO: 3

BHA KIND:

DESCRIPTION: 26" drilling BHA

BHA NAME: 2

String component	OD in	ID in	Length m	Acc length m
BIT	26,000	4,000	0,48	0,48
SPERRYDRILL	11,250	6,135	10,14	10,62
PONY COLLAR	9,500	3,000	6,00	16,62
STABILIZER	26,000	3,000	1,11	17,73
STAB SPIRAL IB	16,750	3,000	1,81	19,54
X-OVER	9,500	3,000	0,52	20,06
GAMMA-RAY	9,500	3,000	1,47	21,53
RESISTIVITY TOOL	9,500	3,000	5,36	26,89
MWD, PULSAR	9,500	3,000	5,10	31,99
STABILIZER	26,000	3,000	2,17	34,16

String component	OD in	ID in	Length m	Acc length m
X-OVER,	9,500	3,000	0,69	34,85
SUB	8,000	3,000	2,49	37,34
DRILL COLLAR	8,000	2,810	101,24	138,58
JAR	8,000	2,813	9,85	148,43
DRILL COLLAR	8,000	2,810	27,90	176,33
X-OVER,	7,750	3,000	0,78	177,11
H W DRILL PIPE	5,500	3,375	83,00	260,11

BHA NO: 4

BHA KIND:

DESCRIPTION: 17 1/2" Drilling BHA - second run

BHA NAME: 4

String component	OD in	ID in	Length m	Acc length m
BIT	17,500	4,000	0,48	0,48
SPERRYDR 6/7L	11,250	6,135	10,47	10,95
STABILIZER, NM	16,750	3,000	1,86	12,81
FLOAT SUB,	9,500	3,000	0,70	13,51
X-OVER	9,500	3,000	0,35	13,86
MWD / GAMMA RAY	9,500	3,000	1,60	15,46
MWD, RLL TOOL	9,500	3,000	3,72	19,18
MWD	9,500	3,000	1,50	20,68
MWD, PULSAR	9,500	3,000	4,73	25,41
STAB SPIRAL IB	16,000	3,000	1,81	27,22
SCREEN	9,500	3,000	1,67	28,89
X-OVER	9,500	3,000	1,30	30,19
NON MAG. COLLAR,	8,000	3,000	8,00	38,19
NON MAG. COLLAR,	8,000	3,000	8,38	46,57
NON MAG. COLLAR,	8,000	3,000	8,79	55,36
8" DRILL COLLAR	8,000	2,810	46,54	101,90
JAR	8,000	8,813	9,77	111,67
8" DRILL COLLAR	8,000	2,810	28,05	139,72
X-OVER	7,750	3,000	1,11	140,83

BHA NO: 5

BHA KIND:

DESCRIPTION: 12,25" Drill out assembly

BHA NAME: 5

String component	OD in	ID in	Length m	Acc length m
12-1/4" BIT	12,250	3,000	0,34	0,34
BIT SUB W/FLOAT	8,000	2,813	0,97	1,31
PONY COLLAR	8,000	2,500	1,91	3,22
INTEGRAL BLADE STRING STAB	12,000	2,500	1,99	5,21
DRIL COL	8,000	2,810	74,59	79,80
JAR	8,000	2,750	9,77	89,57
DRIL COL	8,000	2,810	28,19	117,76
X-OVER	7,750	3,000	1,11	118,87
X-OVER	6,500	3,000	0,93	119,80
HWDP 5"	5,000	3,000	82,05	201,85

BHA NO: 6

BHA KIND:

DESCRIPTION: 8,5" GP assembly

BHA NAME: 6

String component	OD in	ID in	Length m	Acc length m
BIT	8,500	3,000	0,39	0,39
GEO-PILOT 7600	7,000	1,640	7,08	7,47
FLEX COLLAR, NM	5,060	2,860	2,81	10,28
STAB STRAIGHT WB	8,405	2,813	0,66	10,94
RESISTIVITY TOOL	6,750	1,920	3,69	14,63
GAMMA-RAY	6,750	1,920	1,39	16,02
PWD	6,750	1,920	1,30	17,32
DIR	6,750	1,920	2,74	20,06
CONNECTOR	6,750	1,920	1,77	21,83
ALD	8,250	1,920	3,93	25,76
CTN	6,750	1,920	3,60	29,36
MWD, COLLAR	6,750	1,920	1,46	30,82
MWD, PULSAR	6,750	1,920	3,04	33,86
FLOAT SUB	6,750	2,813	0,78	34,64
SCREEN	6,750	2,813	2,23	36,87
STAB SPIRAL IB	8,500	3,000	2,26	39,13
ANDERREAMER	9,050	2,563	3,66	42,79
PONY COLLAR	6,750	2,813	3,06	45,85
STAB SPIRAL IB	8,250	2,813	2,26	48,11
FLOAT SUB	6,750	2,813	0,68	48,79
HW DRILL PIPE	5,000	3,000	18,19	66,98
JAR	6,500	2,750	9,56	76,54
HW DRILL PIPE	5,000	3,000	36,20	112,74
ACCELERATOR	6,500	2,750	10,03	122,77
HW DRILL PIPE	5,000	3,000	18,50	141,27
DP 5"	5,000	4,276	1845,20	1986,47
X-OVER	7,750	3,000	0,61	1987,08

BHA NO: 7

BHA KIND:

DESCRIPTION: 8,5" GP assembly

BHA NAME: 7

String component	OD in	ID in	Length m	Acc length m
BIT	8,500	3,000	0,36	0,36
GEO-PILOT 7600	7,000	1,640	7,08	7,44
FLEX COLLAR, NM	5,060	2,860	2,81	10,25
STAB STRAIGHT WB	8,405	2,813	0,67	10,92
RESISTIVITY TOOL	6,750	1,920	3,68	14,60
GAMMA-RAY	6,750	1,920	1,39	15,99
PWD	6,750	1,920	1,30	17,29
DIR	6,750	1,920	2,81	20,10
CONNECTOR	6,750	1,920	1,78	21,88
ALD	8,250	1,920	3,93	25,81
CTN	6,750	1,920	3,61	29,42
MWD, COLLAR	6,750	1,920	1,43	30,85
MWD, PULSAR	6,750	1,920	4,75	35,60
FLOAT SUB	6,750	2,813	0,78	36,38
SCREEN	6,750	2,813	2,38	38,76
STAB SPIRAL IB	8,375	2,813	2,28	41,04
ANDERREAMER	9,050	2,563	4,38	45,42
PONY COLLAR	6,750	2,813	3,06	48,48
STAB SPIRAL IB	8,250	2,813	2,26	50,74
FLOAT SUB	6,750	2,813	0,68	51,42

String component	OD in	ID in	Length m	Acc length m
HW DRILL PIPE	5,000	3,000	18,19	69,61
JAR	6,500	2,750	9,56	79,17
HW DRILL PIPE	5,000	3,000	36,20	115,37
ACCELERATOR	6,500	2,750	10,03	125,40
HW DRILL PIPE	5,000	3,000	18,50	143,90
DP 5"	5,000	4,276	1845,20	1989,10
X-OVER	7,750	3,000	0,61	1989,71

BHA NO: 8

BHA KIND:

DESCRIPTION: Drillpipe conveyed electrical logging

BHA NAME: 8

String component	OD in	ID in	Length m	Acc length m
PEX	4,500		9,71	9,71
MDT	5,000		44,61	54,32
X-OVER	5,000		1,48	55,80
DRILL PIPE	5,000	3,000	2120,00	2175,80
SIDE ENTRY SUB	5,000	3,000	2,00	2177,80
DRILL PIPE	5,000	3,000	29,00	2206,80
FLOAT SUB	6,750	2,813	0,86	2207,66
X-OVER	7,750	3,000	0,61	2208,27

BHA NO: 9

BHA KIND:

DESCRIPTION: Geopilot

BHA NAME: 9

String component	OD in	ID in	Length m	Acc length m
FMF3755~8 1/2"	8,500	3,000	0,44	0,44
GEO-PILOT 7600	7,000	1,640	7,08	7,52
FLEX COLLAR, NM	5,060	2,860	2,81	10,33
STAB STRAIGHT WB	8,405	2,813	0,67	11,00
RES	6,750	1,920	3,68	14,68
GAM	6,750	1,920	1,39	16,07
PWD	6,750	1,920	1,30	17,37
DIR	6,750	1,920	2,81	20,18
LWD/MWD TOOL	6,750	1,920	1,74	21,92
ALD	6,750	1,920	3,93	25,85
CTN	6,750	1,920	3,61	29,46
LWD/MWD TOOL	6,750	1,920	1,45	30,91
GEOTAP	6,750	1,920	8,51	39,42
LWD/MWD TOOL	6,750	1,920	4,75	44,17
FLOAT SUB	6,750	2,813	0,78	44,95
SCREEN	6,750	2,813	2,38	47,33
STAB SPIRAL IB	8,375	2,813	2,28	49,61
ANDERREAMER	9,050	2,563	4,55	54,16
PONY COLLAR	6,750	2,813	3,06	57,22
STAB SPIRAL IB	8,250	2,813	2,26	59,48
FLOAT SUB	6,750	2,813	0,68	60,16
HW DRILL PIPE	5,000	3,000	18,19	78,35
JAR	6,500	2,750	9,56	87,91
H W DRILL PIPE	5,000	3,000	36,20	124,11
ACCELERATOR	6,500	2,750	10,03	134,14

String component	OD in	ID in	Length m	Acc length m
H W DRILL PIPE	5,000	3,000	18,50	152,64
DP 5"	5,000	4,260	2800,00	2952,64
X-OVER,	7,750	3,000	0,61	2953,25

BHA NO: 10

BHA KIND:

DESCRIPTION: 8,5" GP assembly

BHA NAME: 10

String component	OD in	ID in	Length m	Acc length m
FM3755C~8 1/2"	8,500	3,000	0,44	0,44
GEO-PILOT 7600	7,500	1,640	6,14	6,58
FLEX COLLAR, NM	5,060	2,860	2,80	9,38
STAB STRAIGHT WB	6,750	2,813	0,67	10,05
RES	6,750	1,920	3,68	13,73
GAM	6,750	1,920	1,39	15,12
PWD	6,750	1,920	1,30	16,42
DIR	6,750	1,920	2,81	19,23
LWD/MWD TOOL	6,750	1,920	1,73	20,96
ALD	6,750	1,920	3,93	24,89
CTN	6,750	1,920	3,60	28,49
LWD/MWD TOOL	6,750	1,920	1,45	29,94
GEOTAP	6,750	1,920	8,51	38,45
LWD/MWD TOOL	6,750	1,920	3,00	41,45
FLOAT SUB	6,750	1,920	0,78	42,23
SCREEN	6,750	2,813	2,38	44,61
STAB SPIRAL IB	8,375	2,813	2,28	46,89
ANDERREAMER	9,050	2,563	4,55	51,44
PONY COLLAR	6,750	2,813	3,06	54,50
STAB SPIRAL IB	8,250	2,813	2,26	56,76
FLOAT SUB	6,750	2,813	0,68	57,44
HW DRILL PIPE	5,000	3,000	18,19	75,63
JAR	6,500	2,750	9,81	85,44
H W DRILL PIPE	5,000	3,000	36,20	121,64
ACCELERATOR	6,500	2,750	9,92	131,56
HW DRILL PIPE	5,000	3,000	18,50	150,06
DP 5"	5,000	4,260	3015,00	3165,06
X-OVER,	7,750	3,000	0,61	3165,67

WELLBORE: NO 34/10-49 ST2

BHA NO: 9

BHA KIND:

DESCRIPTION: 8.5" geopilot assembly

BHA NAME: 11

String component	OD in	ID in	Length m	Acc length m
FM3755C~8 1/2"	8,500	1,000		
GEO-PILOT 7600	7,625	1,640	6,14	6,14
FLEX JOINT	5,060	2,860	2,80	8,94
STABILIZER	6,750	2,130	0,67	9,61
EWR-P4	6,750	1,920	3,68	13,29
GR,	6,750	1,920	2,00	15,29
PWD SUB	6,750	1,920	1,30	16,59
DIRECT 675,	6,750	1,920	2,81	19,40

String component	OD in	ID in	Length m	Acc length m
ACAL	6,750	1,920	1,73	21,13
DENSITY TOOL	6,750	1,920	3,93	25,06
NEUTRON TOOL	6,750	1,920	3,60	28,66

BHA NO: 10

BHA KIND:

DESCRIPTION: 8,5" GP assembly

BHA NAME: 10

String component	OD in	ID in	Length m	Acc length m
FM3755C~8 1/2"	8,500	3,000	0,44	0,44
GEO-PILOT 7600	7,500	1,640	6,14	6,58
FLEX COLLAR, NM	5,060	2,860	2,80	9,38
STAB STRAIGHT WB	6,750	2,813	0,67	10,05
RES	6,750	1,920	3,68	13,73
GAM	6,750	1,920	1,39	15,12
PWD	6,750	1,920	1,30	16,42
DIR	6,750	1,920	2,81	19,23
LWD/MWD TOOL	6,750	1,920	1,73	20,96
ALD	6,750	1,920	3,93	24,89
CTN	6,750	1,920	3,60	28,49
LWD/MWD TOOL	6,750	1,920	1,45	29,94
GEOTAP	6,750	1,920	8,51	38,45
LWD/MWD TOOL	6,750	1,920	3,00	41,45
FLOAT SUB	6,750	1,920	0,78	42,23
SCREEN	6,750	2,813	2,38	44,61
STAB SPIRAL IB	8,375	2,813	2,28	46,89
ANDERREAMER	9,050	2,563	4,55	51,44
PONY COLLAR	6,750	2,813	3,06	54,50
STAB SPIRAL IB	8,250	2,813	2,26	56,76
FLOAT SUB	6,750	2,813	0,68	57,44
HW DRILL PIPE	5,000	3,000	18,19	75,63
JAR	6,500	2,750	9,81	85,44
H W DRILL PIPE	5,000	3,000	36,20	121,64
ACCELERATOR	6,500	2,750	9,92	131,56
HW DRILL PIPE	5,000	3,000	18,50	150,06
DP 5"	5,000	4,260	3015,00	3165,06
X-OVER,	7,750	3,000	0,61	3165,67

8.7 Drilling fluid

3C" Section: Programmed properties										Volume		Planned	Actual	Material Usage		Actual	Unit	Experience
MW SG	PV dP	Gel Tm	pH	Ast FL						Rec'd shore - new Rec'd shore -recycled Volume Barite Backloaded Transferred Dilution Total volume Usage			Barite CMC EHV	150 3800	MT Kg	Drilled 36" hole with seawater and viscous pills from 160m to 210 m. Mixed CMC EHV /sea water mud for Hi-vis pills. Pumped 5 m³ Hi-Vis per single, and finally displaced the hole with 1.35 sg mud (CMC EHV, Barite, Drill Water). The 30" conductor was ran, landed and cemented without problems.		
Achieved properties																		
1.03	>200		8-9	<15														
1.03	>100																	
Recommended properties for future wells																		
1.03	>100									Mud usage / m Mud usage m³ drilled	2.75 3.90	3.57 5.56						
Recommendations/Property Non-conformities										Section data		Planned	Actual					
The standard use of high viscous CMC EHV sweeps to clean the hole, worked satisfactory for this section. There was no need to use Bentonite. The Funnel Viscosity couldn't been increased higher than 100 sec due to the mixing facilities' efficiency limitation.										Casing set at: Casing size OD Casing size ID Section length: Max. Inclination Max. BHT Start date: End date: Barite price (Swf):	208m 30" 28" 51m 1 N/A 20.03.2006 23.03.2006 4084.61	Section rate Section factor Section meter rate Days - section Contract Spec. Price Gas / Oil Index Fluid rate & FR WT. Material Cost Total sect. fluid cost Recap cost Recap cost / m	2368.00 0.50 93.57 3.20 174.66 174.66 47653.78 88568.00 175109.81 3433.53	2863.24 0.50 93.57 70 174.66 174.66 145820.60 224644.39 175109.81 3433.53				
26" Section: Programmed properties										Volume		Planned	Actual	Material Usage		Actual	Unit	Experience
MW SG	PV dP	Gel Tm	pH	Ast FL						Rec'd shore - new Rec'd shore -recycled Volume Barite Backloaded Transferred Dilution Total volume Usage			Barite CMC EHV	89 7975	MT Kg	The section was drilled from 210 m to 1050 m. Pulled a 6 stands wiper trip to above the Utsira sand at 904 m-- 985 m, and no hole problems were encountered. By running back in hole, took 20 T weight at 1017 m. Engaged ODM and washed through easily. The pipe was pushed down to bottom at 1050 m without further problems. Ran 20" casing to 1045 m and cemented same without problems. The section was drilled with seal water and viscous pills (CMC EHV/SD), 5 m³ of Hi-Vis pill of was pumped per single. At TD, 40 m³ of Hi-Vis pill was pumped before displacing the hole to 1.35 sg mud mixed of CMC EHV, Barite and Drill Water. The 1.35 sg mud was left in hole during running 20" casing and cementing In order to prevent formation collapse.		
1.03	>200		8-9	<15														
1.03	>100																	
Recommended properties for future wells																		
1.03	>100									Mud usage / m Mud usage m³ drilled	2.15 5.7	1.13 3.28						
Recommendations/Property Non-conformities										Section data		Planned	Actual					
The standard use of high viscous CMC EHV sweeps to clean the hole, worked satisfactory for this section. There was no need to use Bentonite. The Funnel Viscosity couldn't been increased higher than 100 sec due to the mixing facilities' efficiency limitation.										Casing set at: Casing size OD Casing size ID Section length: Max. Inclination Max. BHT Start date: End date: Barite price (Swf):	1045m 20" 18 3/4" 640m 0.8 N/A 23.03.2006 30.03.2006 4084.61	Section rate Section factor Section meter rate Days - section Contract Spec. Price Gas / Oil Index Fluid rate & FR WT. Material Cost Total sect. fluid cost Recap cost Recap cost / m	59295.00 0.50 93.57 9.10 174.66 174.66 266269.00 581861.00 298581.20 355.45	50637.10 0.50 93.57 70 174.66 174.66 86593.75 195546.28 298581.20 355.45				
17.5" Section: Programmed properties										Volume		Planned	Actual	Material Usage		Actual	Unit	Experience
MW SG	PV dP	Gel Tm	pH	Ast FL	Flow ratio	ES	LGB	CF		Rec'd shore - new Rec'd shore -recycled Volume Barite Backloaded Transferred Dilution Total volume Usage			Barite Isopent 2H Summit EH Surevet VG Supreme Lime Verastat Calcium Chloride	129 75 5460 2100 2085 4800 2018 3500	MT M3 Kg Kg Kg Kg kg kg	Displaced well to Paratharm CBM during drilling of cement. The entire section was drilled alternating rotary mode with sliding. Drilled to 1745m, POOH, changed mud motor and bit and RH. Resumed drilling and broke through hard limestone formation at 1750m. Prior to POOH, circulated 3 times bottoms up, until the hole was clear; flow checked, static; Pumped 4 m³ slug 1.7 sg. Flow checked prior to pull back through static. Run 13 3/8" casing to 2019.5 m as per program, without any problem. Circulated bottoms up. Pumped 20 m³ of spacer followed by 90 m³ of cement. Displaced cement with mud pumps at 3000 lpm. No losses occurred during the whole cementing job. Drilling of cmt and 5m of new formation was performed with no problems. FIT to 1.82 sg was ok.		
1.40	>5	<15	8-9	<15	<0.88	75-85	>800	<200										
1.40	>5	<15	8-9	<15	<0.88	75-85	>800	<200										
Recommended properties for future wells																		
1.40	>5	<15	8-9	<15	<0.88	75-85	>800	<200		Mud usage / m Mud usage m³ drilled	0.59 3.50	0.162 1.044						
Recommendations/Property Non-conformities										Section data		Planned	Actual					
No hole problems were encountered neither while drilling, nor by running the Casing 13 3/8", nor by cementing job. The Paratharm mud system provided good hole cleaning even when only two mud pumps was used due to breakdown on the third pump in the beginning of the section (3500 vs 4100 lpm). Paratharm can therefore be recommended for similar sections. Small pit capacities and limited deck space restricted our flexibility to a great extend, with the potential risk to run into problems concerning standby volumes and chemicals supply. This was solved by having the stand by boat Havita Faith throughout the entire section. Therefore a dedicated boat is highly recommended when drilling large hole sections like this one.										Casing set at: Casing size OD Casing size ID Section length: Max. Inclination Max. BHT Start date: End date: Barite price (Swf):	2019m 13 3/8" 12.347 981 33.7 85°C 30.06.2006 10.04.2006 4084.61	Section rate Section factor Section meter rate Days - section Contract Spec. Price Gas / Oil Index Fluid rate & FR WT. Material Cost Total sect. fluid cost Recap cost Recap cost / m	84315.00 1.00 93.57 1.60 5485.85 2346.08 7831.93 626262.00 6487273.85 1259838.63 1284.24	82612.95 1.00 93.57 1.60 5485.85 2346.08 7831.93 1253927.85 6487273.85 1259838.63				

8 1/2x9.05" Section: Programmed properties													Volume	Planned	Actual	Material Usage	Actual	Unit	Experience
MW SG	PV cP	Gel 10s Pa	Gel 10m Pa	3 ipm lb/100	Ex time Kgm3	HTHP mPa	Activity	O/W ratio	ES Volts	LGS Kg/m3	Cl- g/l		Rec'd shore - new			Barite		MT	
1.58	ALAP	>5	<15	7	10	<3	0.88	75-85	>800	<200	150		Rec'd shore - recycled			22.2	93	M3	The surface volume was weighted up to 1.67 sg due to an expected high pressure zone in the well path (krans). Displaced in 1.67 sg and circulated until even MW in/out.
				12	15		0.92	25-15			105		Volume Barite	27		301	4680	kg	
													Backloaded	372		413	2400	kg	
													Transferred	557		162	2094	kg	
													Dilution	499		5925	5400	kg	Decrease the MW to 1.60 sg from 2511 m by adding premix to active slowly. This improved the O/W ratio as well.
													Total volume	644		876	2745	kg	
Achieved properties													Usage						
1.80	28	5	7	8	7	2.0	0.85	75-79	860	87	120		Mud usage / m	0.13	0.077	CaCO3 M	5975	kg	Drilling contin. with a constant addition of premix to maintain and improve fluid properties with focus on rheology. Emulsifier, Lime and VG-Supreme were added to active in order to fine-tune the mud properties, thus stabilizing all fluid parameters.
1.87	39	6.5	9	10	11	2.8	0.9	27-21	785	192	143		Mud usage m³ drilled	2.99	1.86	CaCO3 C	5200	kg	From the start off the interval, the concentration of G-Seal and CaCO3 M&C was raised to 20 kg/m3. The concentration was later maintained at this level by means of continuous additions to active while circulating the drilling fluid.
																G-seal	5925	kg	
																G-Seal F	5075	kg	
Recommendations/Property Non-conformities													Section data						
The LGS content increased slowly while drilling so additions of premix at a rate of 1 m3 per hour had to be done to combat rising LGS and rising rheology. The mud from the standby boat had an O/W of 73/27. For this reason the premix were made up based on 100% base oil. After the 5 days TLC logging only small differences in MW were seen as we circulated BU This was probably due to the formation instability in this area (hole packing of) it is an advantage if the oil based mud that is shipped out has a higher O/W ratio than programmed as we normally see significant water contamination before the mud actually end up in the pit on board the rig. However, utilization of used mud volumes from previous wells is prioritized and therefore properties cannot always be fine tuned before shipping out to the rig. Used mud from previous wells is also more stable and should therefore always be a part of the total mud volume.													Casing set at:	Hole plugged back	Section rate	214 494.00	75 219.05		
													Casing size OD	N/A	Section factor	1.10	1.10		
													Casing size ID	N/A	Section meter rate	93.57	93.57		
													Section length:	812	Days - section	7.00	20.80		
													Max. inclination	70	Contract Spec. Price	5485.85	5485.85		
													Max. BHT	88°C	Gas / Oil Index	2346.08	2346.08		
													Start date:	10.04.2006	Fluid rate \$ FR	7831.93	7831.93		
													End date:	01.05.2006	Wt. Material Cost	110 868.00	89 861.44		
													Barite price (\$wt):	4084.61	Total sect. fluid cost	-2 078 138.00	-532 988.67		
													Recap cost			1 617 691.69			
													Recap cost / m		1 992.23				
8 1/2x9.05" Sidetrack: Programmed properties													Volume	Planned	Actual	Material Usage	Actual	Unit	Experience
MW SG	PV cP	Gel 10s Pa	Gel 10m Pa	3 ipm lb/100	Ex time Kgm3	HTHP mPa	Activity	O/W ratio	ES Volts	LGS Kg/m3	Cl- g/l		Rec'd shore - new			Barite		MT	
1.58	ALAP	>5	<15	7	10	<3	0.88	75-85	>800	<200	150		Rec'd shore - recycled			40	212	M3	Ran in hole and kicked off at 2845 meters.
				12	15		0.92	25-15			105		Volume Barite	N/A		51	10140	kg	As drilling proceed, the inclination was gradual built to a ± 80 degree. The first reservoir, Statfjord was reached at 3405 m
													Backloaded	N/A		265	4500	kg	and continued to 3482 meters. Drilling continued to 4063 meters where a trip was made due to washed out downhole tool.
													Transferred	N/A		258	3031	kg	From this point the well was drilled continuously without incident to 5480 meters to investigate the Solvkape prospect which was found to be dry. When pulling out of hole, tight hole was encountered and a total of 10.8 m3 was lost to formation while circulating.
													Dilution	N/A		329	11800	kg	The section was then plugged back with a total of 6 cement plugs. Very little spacer contamination was seen due to good planning when circulating after plugs.
													Total volume	N/A		869	4761	kg	
Achieved properties													Usage						
1.50	23	3	5	7	7	2.0	0.97	75-25	527	185	95		Mud usage / m	N/A	0.125	CaCO3 M	4850	kg	
1.85	42	6	11	9	12	2.4	0.92	83-17	723	285	150		Mud usage m³ drilled	N/A	3.01	CaCO3 C	5225	kg	
																G-seal	3150	kg	
																G-Seal F	400	kg	
Recommended properties for future wells													Section data						
1	Alap	>8	<15	8	10	<3	0.88	75-85	>800	160	105		Section rate	N/A	251 814.50				
				12	15		0.92	25-15		150	150		Section factor	N/A	1.10				
Recommendations/Property Non-conformities													Cost						
Transferred 413 m³ Paratherm mud from the previous section, premix was added to active system at an rate between 1 and 2 m3 per hour and gradually brought up the oil water ratio. All premix was made up with high concentration of emulsifiers, salt and lime. As mentioned above, premix rates were generally held to about 1-2 meters/hr. It was; however, occasionally necessary to increase this to 4-6 m3/hr in order to combat rising rheology due to high solids content (LGS). This treatment was successful and all properties stayed in line despite a somewhat high solids content. Chemicals were also added directly to the active for specific treatments in response to results obtained from mudchecks. The fluid responded quite well to all treatment.													Casing set at:	N/A	Section rate	N/A	251 814.50		
													Casing size OD	N/A	Section factor	N/A	1.10		
													Casing size ID	N/A	Section meter rate	N/A	93.57		
													Section length:	2637 m	Days - section	N/A	20.50		
													Max. inclination	93	Contract Spec. Price	N/A	5 485.85		
													Max. BHT	90°C	Gas / Oil Index	N/A	2 346.08		
													Start date:	01.05.2006	Fluid rate \$ FR	N/A	7 831.93		
													End date:	21.05.2006	Wt. Material Cost	N/A	206 661.30		
													Barite price (\$wt):	4084.61	Total sect. fluid cost	N/A	1 619 830.33		
													Recap cost			3 093 425.84			
													Recap cost / m	N/A	1 173.09				

8.8 Cementing program

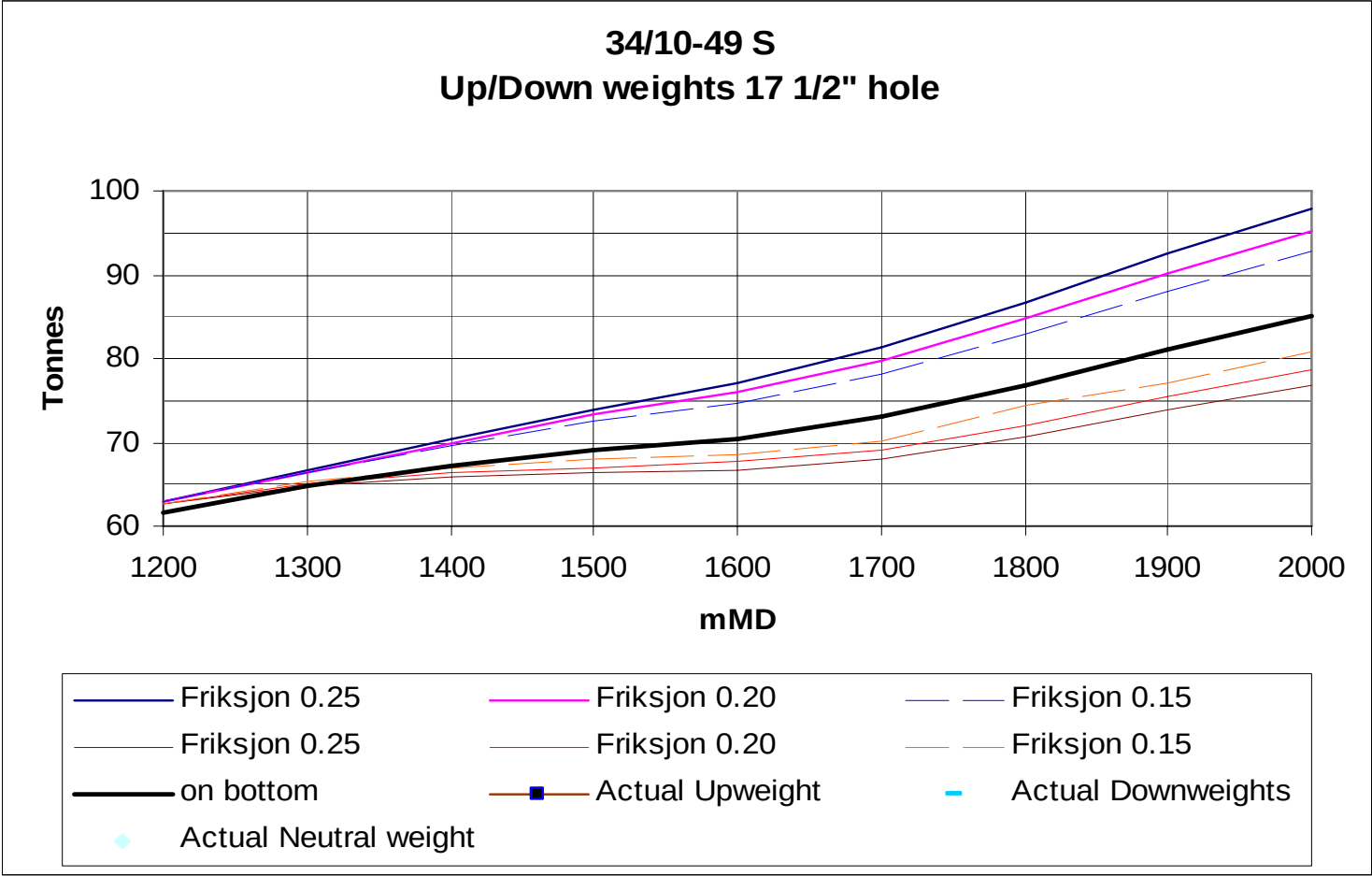
Well: 34/10-49 S Field: Gullfaks Epidott, Alun & Spinell Rig: Ocean Vanguard																	CEMENT SUMMARY									
HOLE		CASING SHOE		TOC	VOLUME/ EXCESS	CEMENT SLURRY DESIGN										SPACER	DISPLACEMENT									
SIZE	TVD MD	SIZE	TVD MD	TVD MD		Components	Lead [lb/100kg]	Tail [lb/100kg]	Density [g/cc]	Yield [lb/100kg]	Stat. / Circ. Temp [°C]	Thickening time [hrs to 30 Bc]	API Free Water [%]	API Fluid loss [cc/30min]	24 hrs C. S. [psi]	Fluids and Rates										
36"	208 208	30"	208 208	208 208	51 m³ incl. 300% OH excess	3-Lite cement NF-6 Sea Water		Slurry 10 DWLSP 0.10 59.95	1.52	106.21	7/7	5.53 (to 70 Bc)	N/A	N/A	700	Sea Water 2.5 B/L 1600 lpm	Sea water ±3500 lpm									
26"	1045 1045	20"	1045 1045	159.5 159.5	Lead: 165 m³ incl. 50% OH excess Tail: 20 m³	Norcem G incl 0.1% EZ-FLO Gascon HR-4L CFR-8L Halad-400L Halad-99LE+ NF-6 Fresh water	Slurry 35 GTLT 10.00 0.50 2.00 6.00 2.00 0.10 75.26	Slurry 24B MPT14 0.50	1.56 - L 1.92 - T	127.04 - L 75.03 - T	45/27	7.30- L 5.05 - T	0.72 - L 1.7 - T	<43 - L N/A - T	523 - L 1500 - T	Sea Water 2 csg volume 2300 lpm	Sea water 3000 lpm									
17 1/2"	1955 2019	13 3/8"	1955 2019	1100 1100	Lead: 60 m³ incl. 30% OH excess Tail: 20 m³	Norcem G incl 0.1% EZ-FLO Gascon HR-4L CFR-8L Halad-400L Halad-99LE+ NF-6 Fresh water	Slurry 35 GTLT 10.00 2.00 1.00 6.00 2.00 0.10 75.24	Slurry 24B MPT14 1.00	1.56 - L 1.92 - T	127.42 - L 75.23 - T	63/48	6.30 - L 4.25 - T	0 - L 0.4 - T	25 - L N/A - T	295 - L 1826 - T	20 m3 Spacer 3T 1.46 SG 2300 lpm	WBM 2000-2500									
Plug # 1 Plug back due to formation problems			Plug depth 2815 3410	2740 3180	12 m³ incl 20% OH excess	Norcem G incl 0.1% EZ-FLO Gascon HR-5L CFR-8L Halad-400L NF-6 Fresh water		Slurry 16B GTT90 3.50 1.20 1.00 2.50 0.10 38.44	1.90	77.82	102/80	4.41	0	50	± 1000	5 m3 Spacer 4T 1.70 SG	OBM									
KOP Plug back due to formation problems			Plug depth 2730 3150	2642 2900	15 m³ incl 20% OH excess	Norcem G incl 0.1% EZ-FLO Gascon HR-5L CFR-8L Halad-400L NF-6 Fresh water		Slurry 40 KOPMP 3.00 1.50 1.50 2.50 0.10 34.12	1.95	73.81	98/75	6.50	0	N/A	3400	7 m3 Spacer 4T 1.70 SG	OBM									
P&A Plug # 1 Plug # 2 Plug # 3 Plug # 4 Plug # 5			Plug depth 3146 4960 4710 3140 4346 2900 3897 2509 2670 2670 3555	3154 3010 4096 2793 3647 2330 2420 2780 3305	11 m³ on each plug incl 20% OH excess	Norcem G incl 0.1% EZ-FLO Gascon HR-5L CFR-8L Halad-400L NF-6 Fresh water		Slurry 16B GTT90 3.50 1.30 1.00 2.50 0.10 38.35	1.90	77.84	112/89	3.56	0	50	2800	6 m3 Spacer 4T on each plug 1.78 SG	OBM									
P&A Plug # 6		OH and into 13 3/8" csg	2050 2120	1820 1870	17 m3 incl 50% OH excess	Norcem G incl 0.1% EZ-FLO Gascon HR-5L CFR-8L Halad-400L NF-6 Fresh water		Slurry 40 KOPMP 3.00 1.30 1.50 2.50 0.10 34.29	1.95	73.77	80/64	4.02	0	32	2400	6 m3 Spacer 4T 1.78 SG	OBM									

Well: 34/10-49 A
Field: Gullfaks Apollo
Rig: Ocean Vanguard

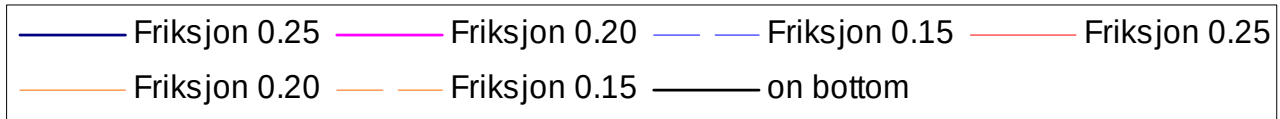
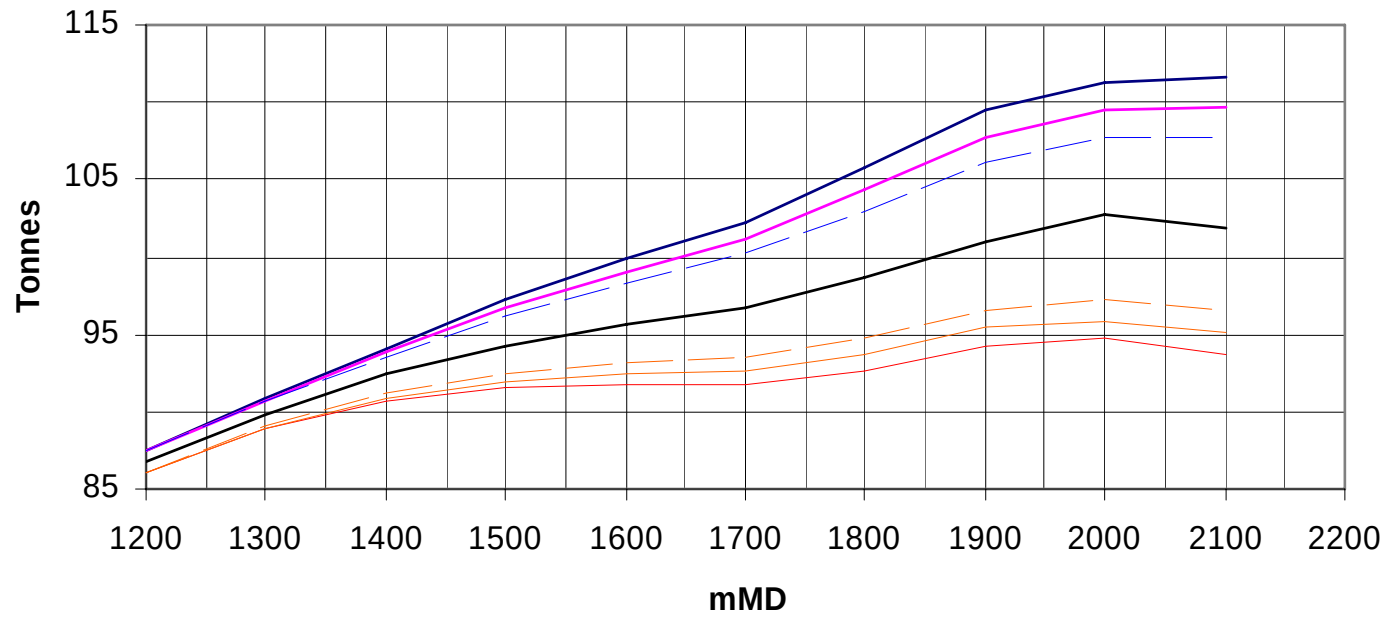
CEMENT SUMMARY

HOLE		CASING SHOE		TOC	VOLUME/ EXCESS	CEMENT SLURRY DESIGN										SPACER	DISPLACEMENT Fluids and Rates
SIZE	TVD MD	SIZE	TVD MD	TVD MD		Components	Lead [ltr/100kg]	Tail [ltr/100kg]	Density [SG]	Yield [ltr/100kg]	Stat. / Circ. Temp [°C]	Thickening time [hrs to 30 Bc]	API Free Water [%]	API Fluid loss [cc/30min]	24 hrs C. S. [psi]		
12 1/4	1934 2118	9 5/8"	1934 2118	1199 1199	37 m3 incl 9 m3 excess	Norcem G incl 0.1% EZ-FLO Gascon HR-5L CFR-8L Halad-400L NF-6 Fresh water		Slurry 16B GTT90 3.50 2.00 1.00 2.50 0.10 37.78	1.90	77.96	63/50	5.40	0	38	2259	20 m3 Spacer 4T 2000 lpm 1.68 SG	OBM 2000 lpm
P&A Plug # 1			Plug depth 2415 3220	 2270 2970	12.5 m3 incl 20% OH excess	Norcem G incl 0.1% EZ-FLO Gascon HR-5L CFR-8L Halad-400L NF-6 Fresh water		Slurry 16B GTT90 3.50 1.90 1.00 2.50 0.10 37.66	1.90	77.84	86/64	7.42	0	50	± 1000	6 m3 Spacer 4T 1.78 SG	OBM
P&A Plug # 2-3		OH and into 9 5/8" liner	1974 2218 1880 2029	1860 1968 1790 1829	12 and 8 m3 incl 50% OH excess	Norcem G incl 0.1% EZ-FLO Gascon HR-5L CFR-8L Halad-400L NF-6 Fresh water		Slurry 40 KOPMP 3.00 1.60 1.50 2.50 0.10 34.04	1.95	73.82	63/50	4.41	0	32	2900	6 m3 Spacer 4T 1.78 SG	OBM
P&A Plug # 4		surface plug	450 450	180 180	43 m3 incl 20% excess	Norcem G incl 0.1% EZ-FLO NF-6 Fresh water		Slurry 4 STTNT 0.10 41.46	1.95	72.64	16/13	3.54	N/A	N/A	NA	Sea Water	Sea water

T&D

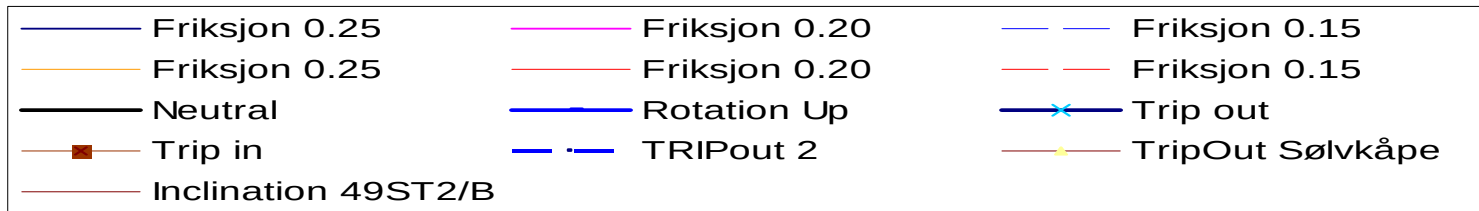
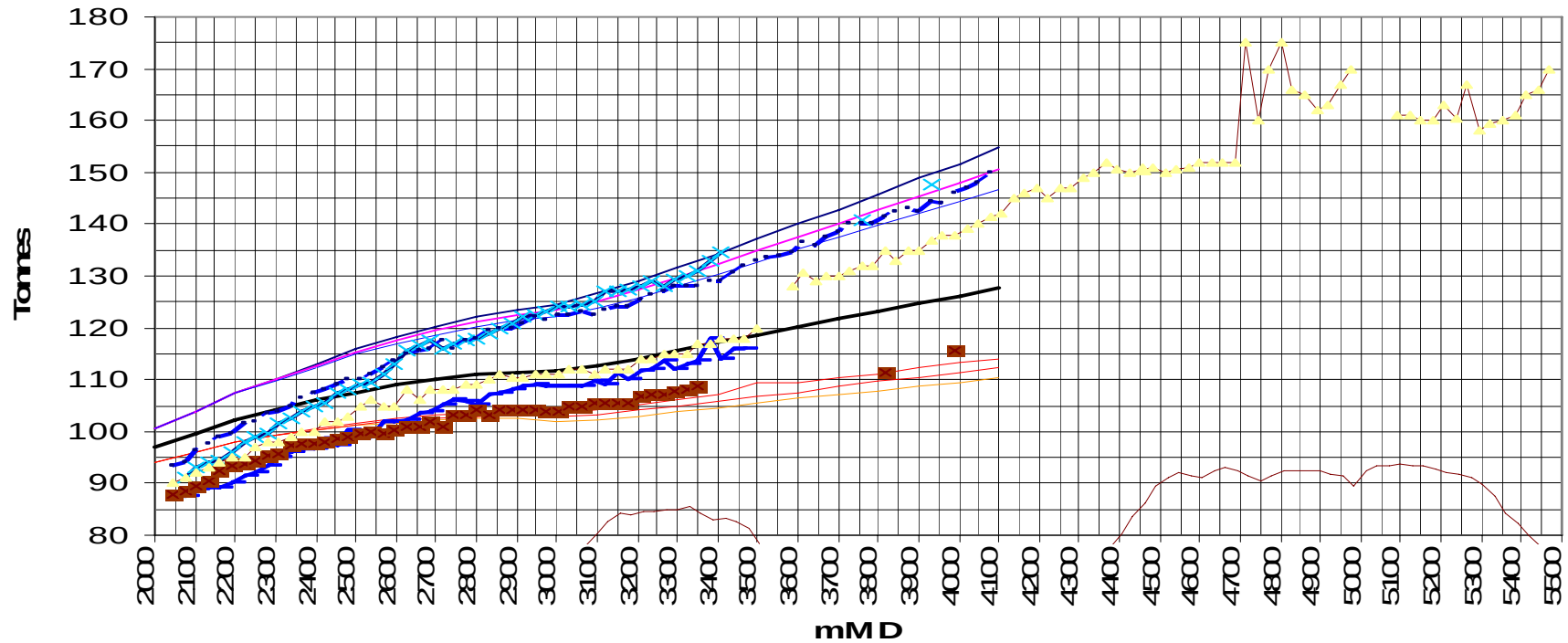


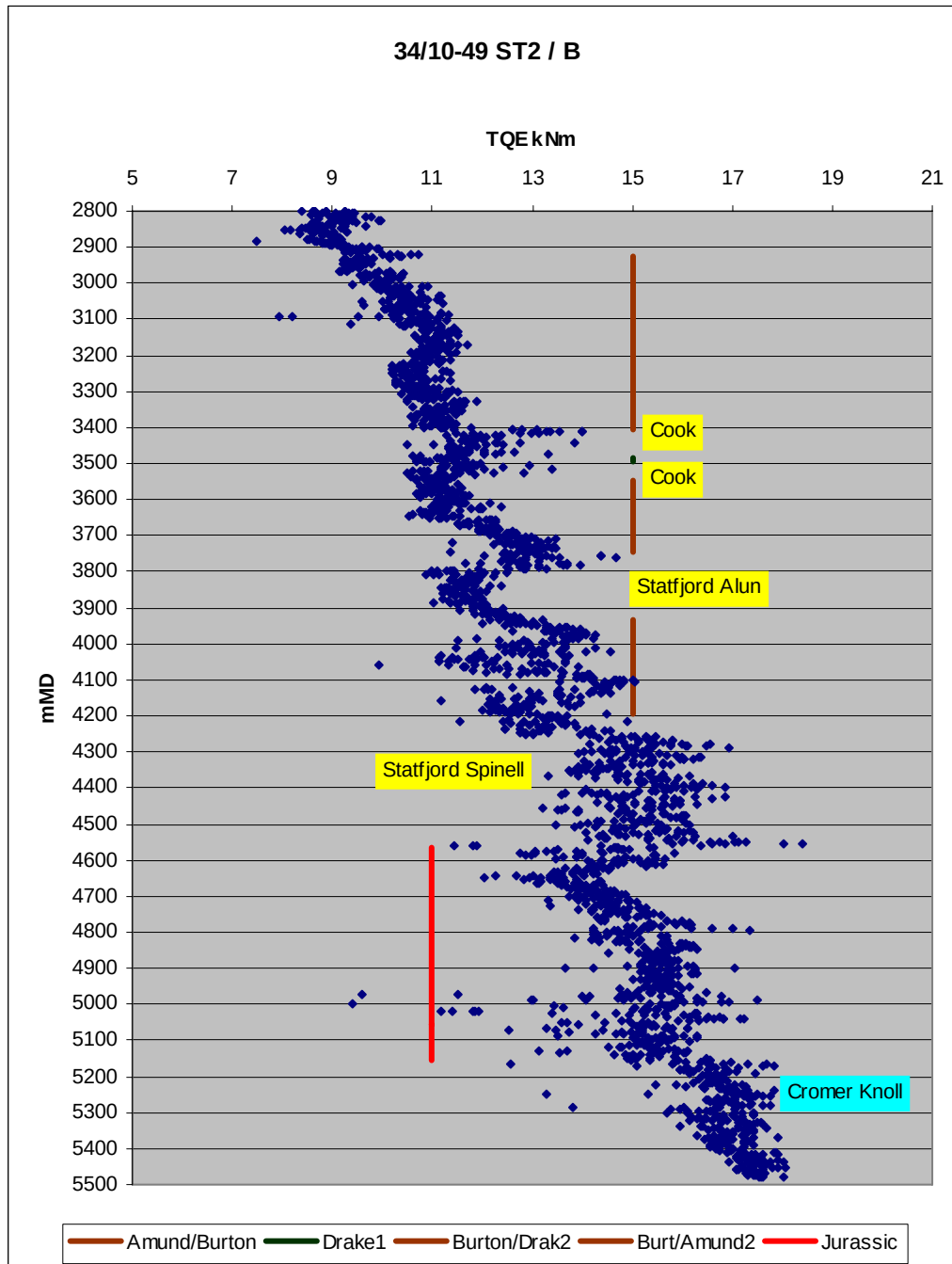
34/10-49 A Up/Down weights 12 1/4" section

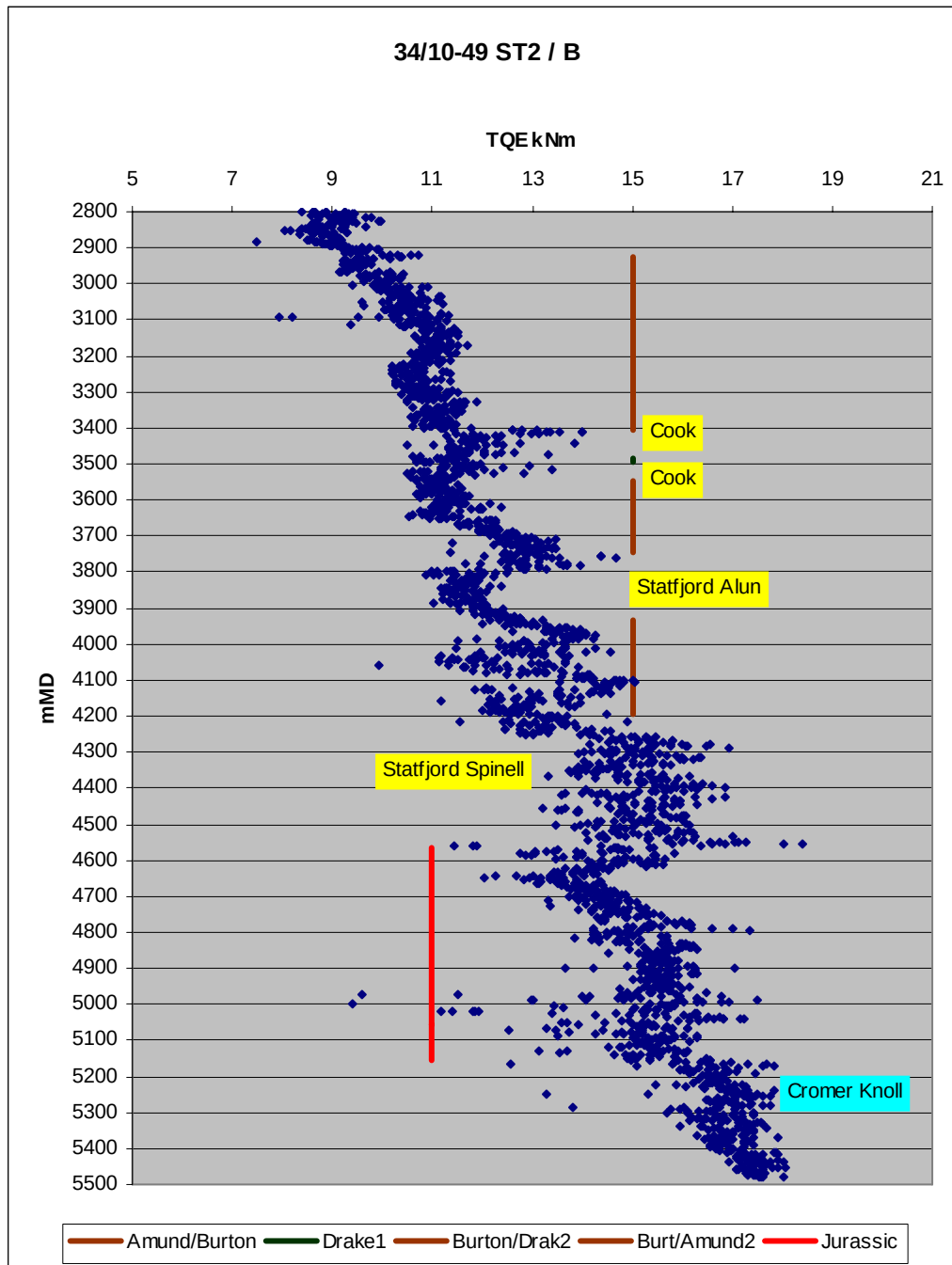


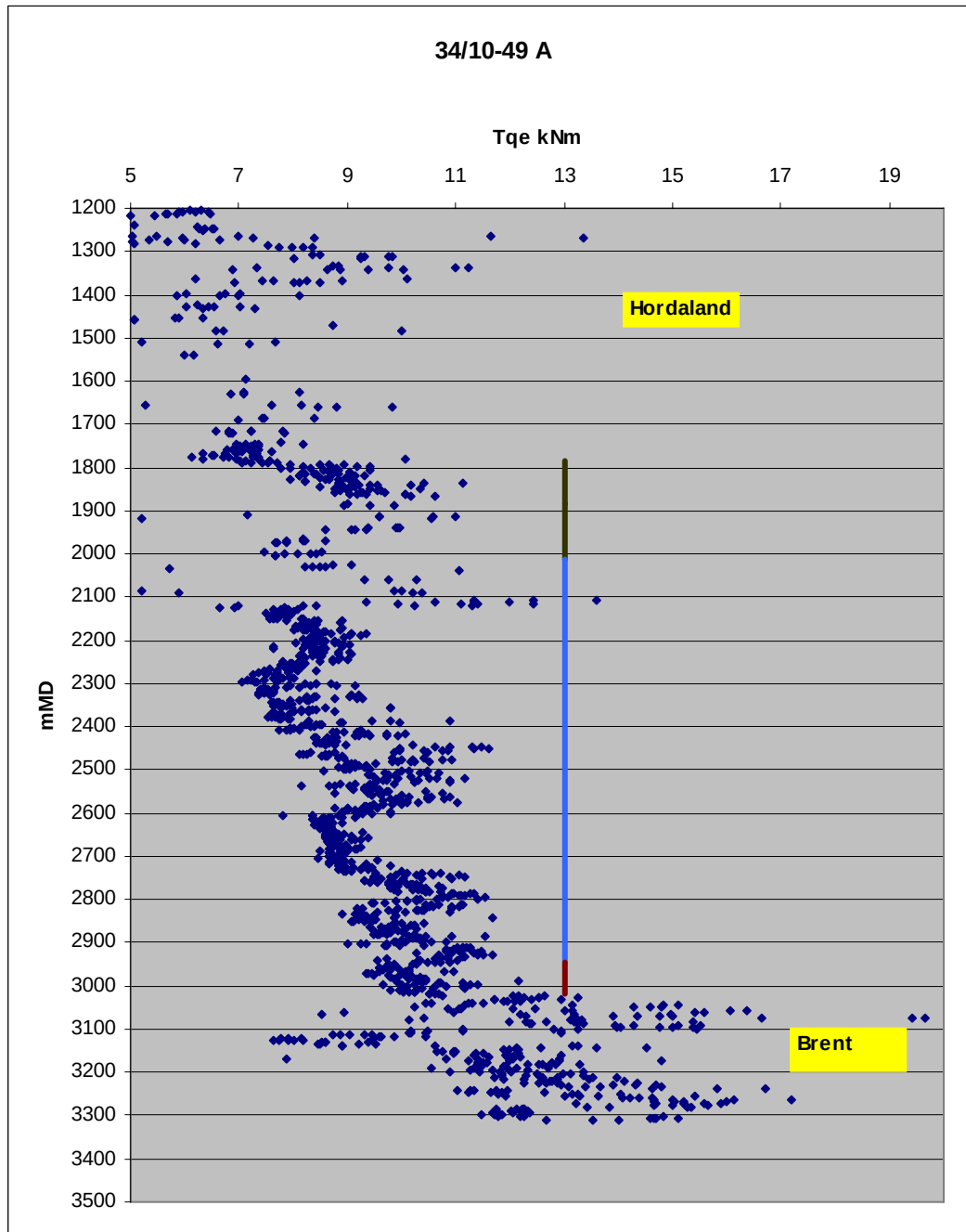
StatoilHydro

34/10-49 S
Up/Down weights 8 1/2"x9.05" hole

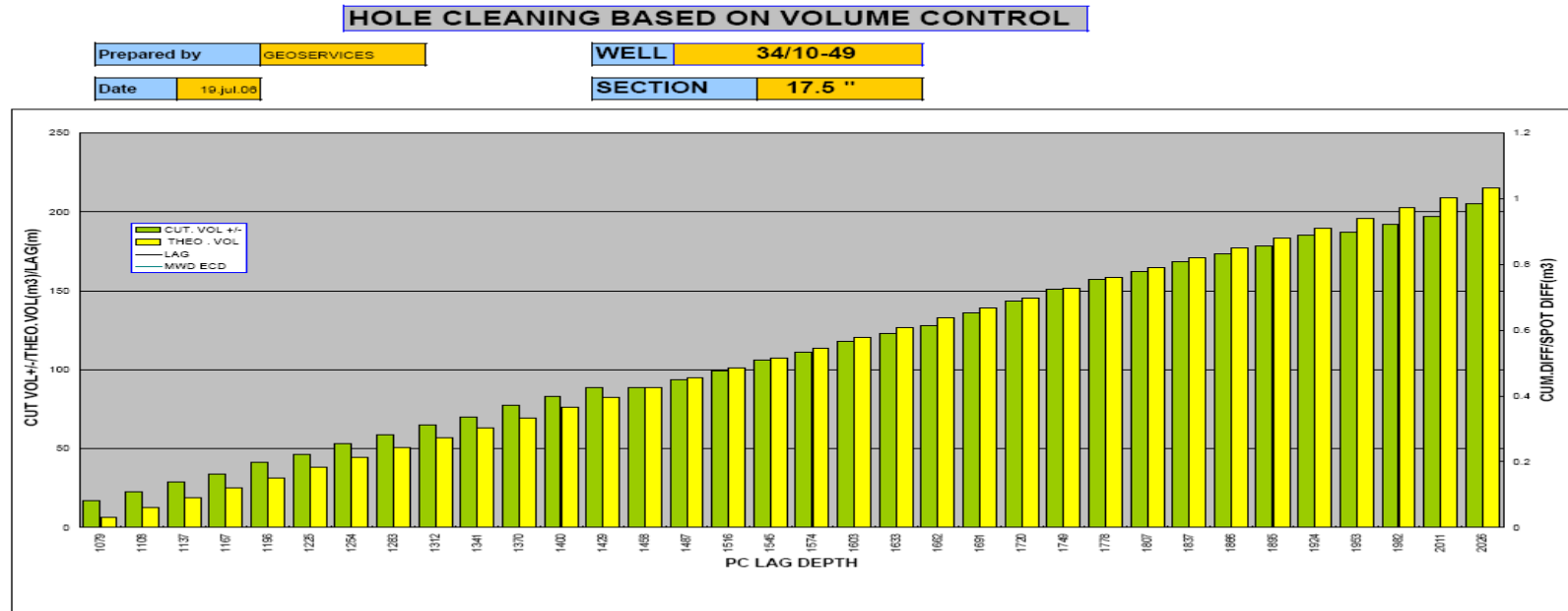








8.9 Hole cleaning



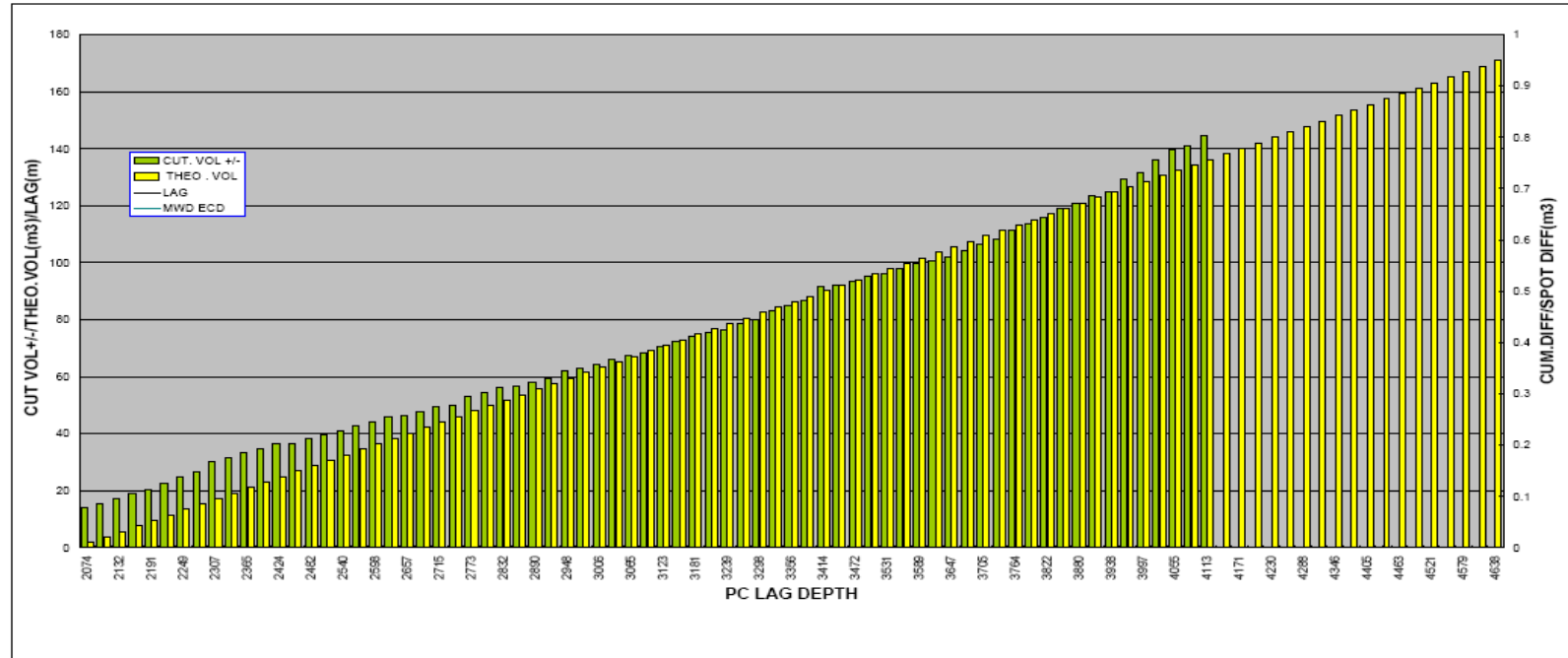
HOLE CLEANING BASED ON VOLUME CONTROL

Prepared by **GEOSERVICES**

WELL **34/10-49 A**

Date **19 Jul.08**

SECTION **8.5 "**



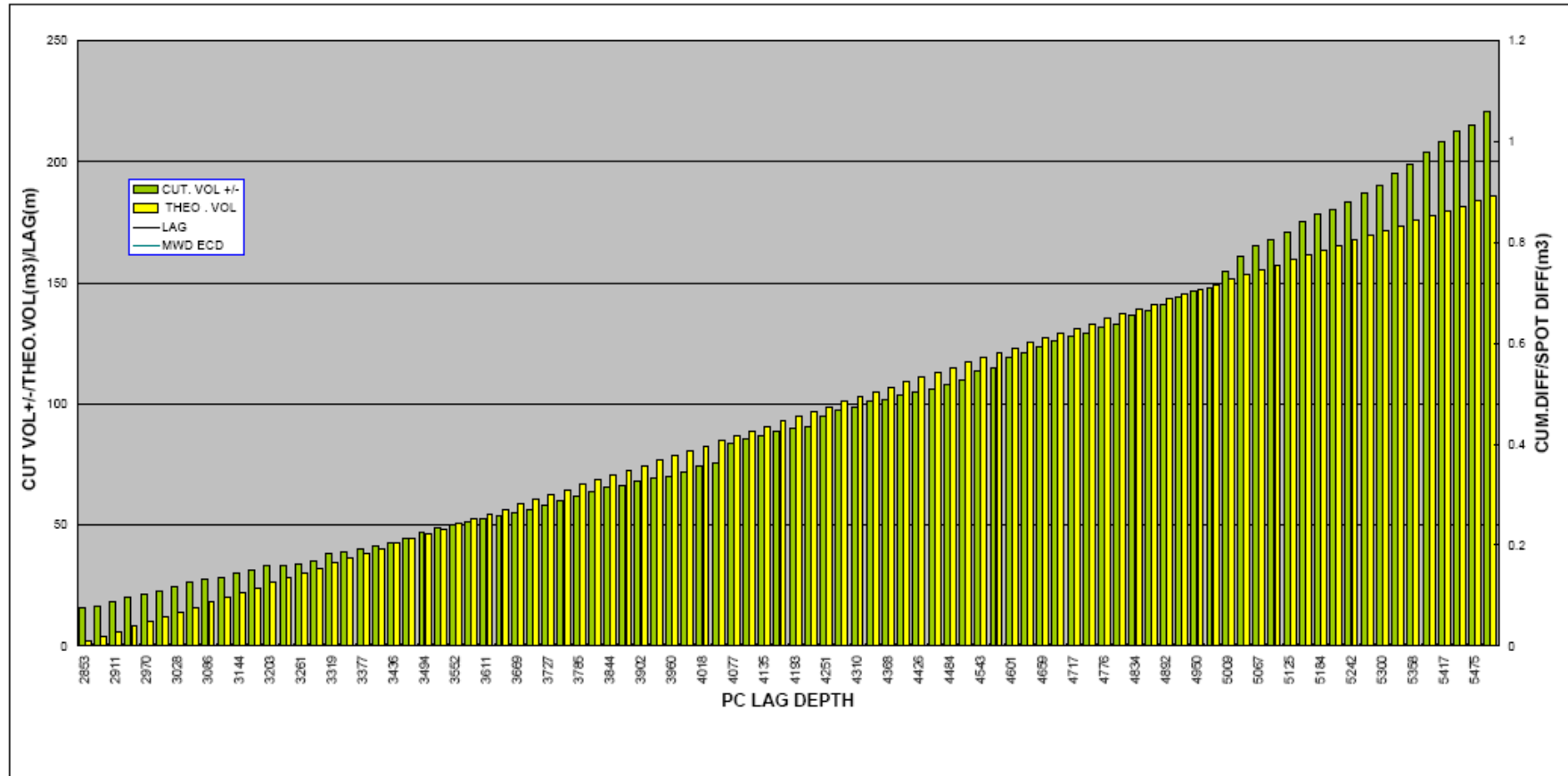
HOLE CLEANING BASED ON VOLUME CONTROL

Prepared by GEOSERVICES

WELL 34/10-49 ST2

Date 19.jul.08

SECTION 9.05 "



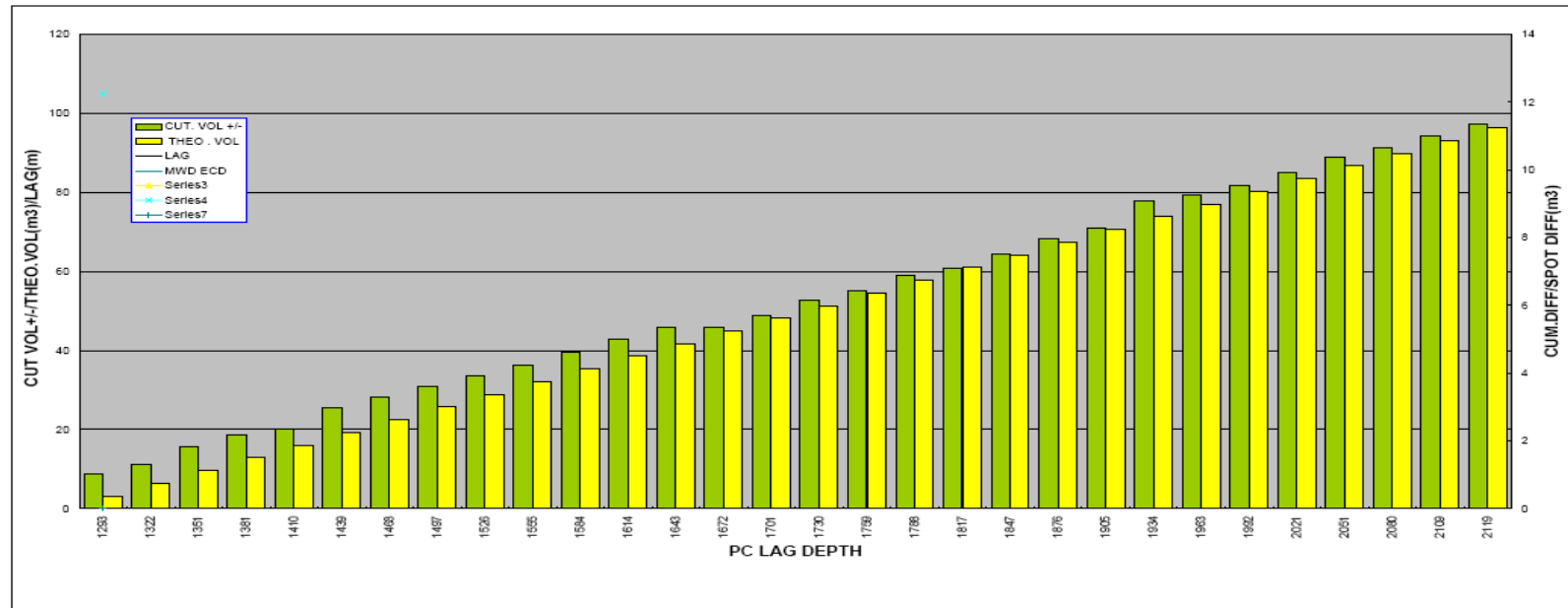
HOLE CLEANING BASED ON VOLUME CONTROL

Prepared by GEOSERVICES

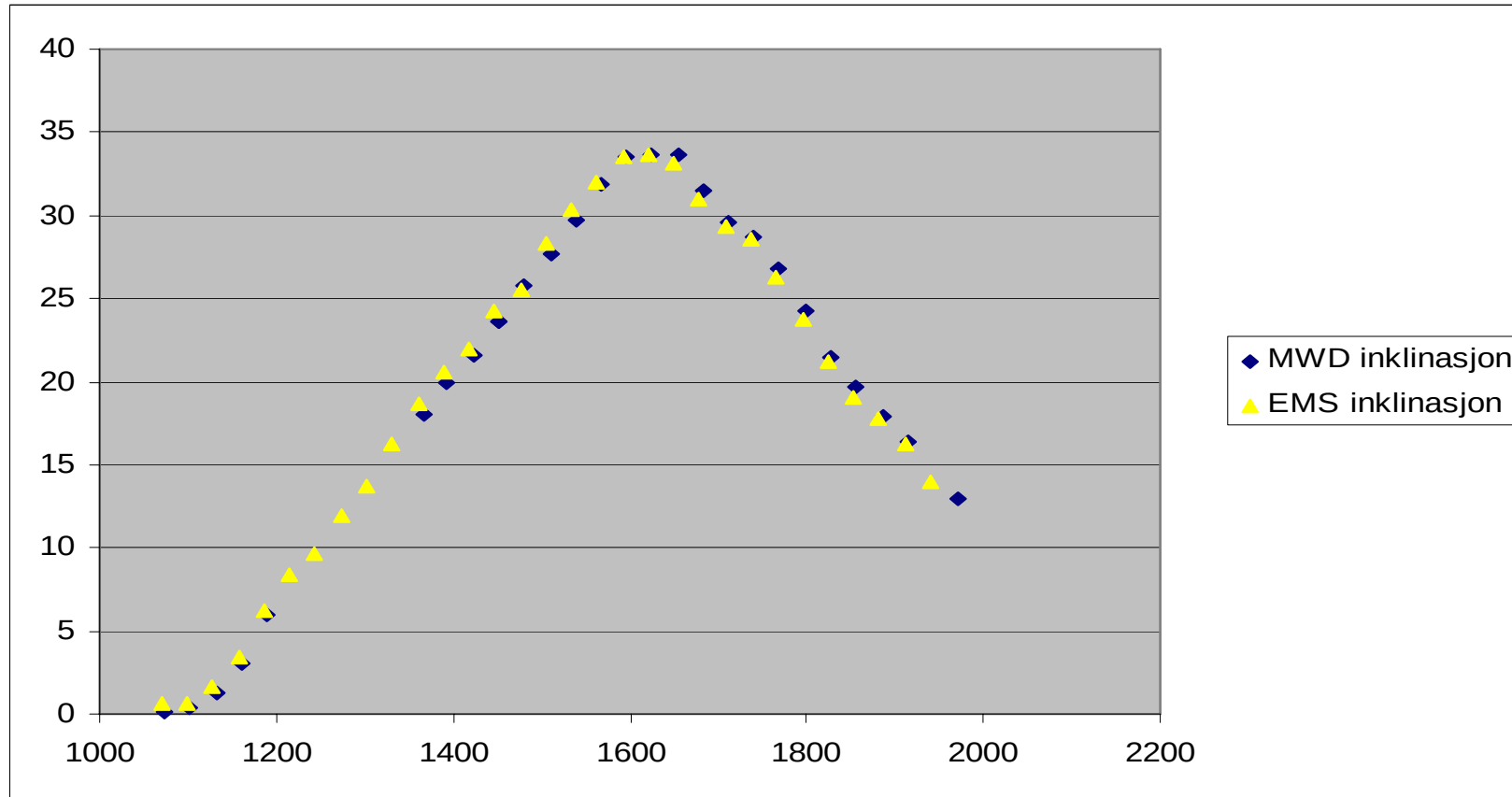
WELL 34/10-49 A

Date 19 Jul.08

SECTION 12.25 "



8.10 Survey verification 34/10 – 49 S



8.11 Budget/Actual cost

36" hole section (49 S):

Subject	Section	Drilling 36" hole	Displacing POOH LD 36" BHA	RU and run 30" conductor	Circulation and cementing	MU cement stand and RIH 26" BHA cement and 30" shoe	MU Drilling	Total
Budget	51 m	0,63 days	0,50 days	0,63 days	0,50 days	0,92 days		3,17 days
Actual	51 m	0,71 days	0,27 days	0,50 days	0,69 days	0,48 days		2,65 days
NPT				0,5 hrs				0,03 days
Comments:				Weatherford				

26" hole section (49 S):

Subject	Section	Drilling 26" hole	Displacing POOH LD 26" BHA	Running 18 3/8" casing	Circulation and cementing	BOP/riser and testing	MU cement stand. and RIH 17,5" BHA. Displace to OBM. Drilling cement, shoe, new formation and FIT.	MU	Total
Budget	840 m	2,92 days	1,04 days	1,17 days	0,83 days	1,46 days	1,67 days		9,08 days
Actual	840 m	1,27 days	0,85 days	1,10 days	0,40 days	2,58 days	0,85 days		7,06 days
NPT				4,5 hrs		25,5 hrs	2,5 hrs		1,35 days
Comments:				Weatherford		Diamond	Diamond		

17 1/2" hole section (49 S):

Subject	Section (m)	Drilling 17 1/2" hole.	Circulate. Drop EMS. POOH Pull boreprotector LD 17 1/2" BHA	Running 13 3/8" casing	Circulation and cementing	Set seal assy. Test BOP Install wearbushing	MU and RIH 12 1/4" BHA. Drilling cement, shoe, new formation and FIT. POOH and LD 12 1/4" BHA. MU and RIH 8 1/2" BHA.	Total
Budget	1055	2,91 days	1,50 days	1,46 days	0,42 days	1,25 days	3,33 days	10,88 days
Actual	976	4,67 days	1,69 days	1,35 days	0,23 days	0,77 days	2,19 days	10,77 days
NPT		2,0 hrs		0,5 hrs		5,5 hrs	3,5 hrs / 1,0 hrs	0,52 days
Comments:		Diamond		Diamond		Halliburton	Diamond / Halliburton	

8 1/2" x 9,05" hole section (49 S):

Subject	Section (m)	Drilling 8 1/2" x 9,05" hole.	Roundtrip due to ROP.	TLC logging i Epidot og Alun.	Rig repair on drawwork and change IBOP. Pressuretest BOP.	MU BHA and RIH. Unable to get to TD - POOH. 2 cementplugs.	MU and RIH 8 1/2" x 9,05" BHA. Drilling sement and performing sidetrack.	Total
Budget	2145	8,33 days	0 days	3,54 days	0,6 days	0 days	0 days	12,48 days
Actual	2094.5	8,19 days	1,46 days	3,5 days	2,23 days	4,67 days	0,75 days	20,79 days
NPT		6,0 hrs / 1,0 hrs		1,5 hrs	19,0 hrs / 1,5 hrs / 5,5 hrs	2,5 hrs / 8,5 hrs		1,90 days
Comments:		Diamond / Andergauge		Diamond	Diamond / Halliburton / Statoil	Diamond / Halliburton		

8 1/2" x 9,05" hole section (49 ST2):

Subject	Section (m)	Drilling 8 1/2" x 9,05" hole to Spinell.	Roundtrip due to pressuredrop.	Cont. drilling 8 1/2" x 9,05" hole to Spinell.	Drilling 8 1/2" x 9,05" hole to Sølvkåpe.			Total
Budget		0,00 days	0,00 days	0,00 days	1,75 days			1,75 days
Actual		4,58 days	1,31 days	0,54 days	1,04 days			7,48 days
NPT		7,5 hrs	29 hrs					1,52 days
Comments:		Diamond	Andergauge					

8 1/2" x 9,05" hole section (49 B):

Subject	Section (m)	Drilling 8 1/2" x 9,05" hole to Sølvkåpe.	Circulate hole clean, POOH and LD BHA.	Pressure test BOP and Slip & Cut				Total
Budget		6,25 days	1,25 days	0,75 days				8,25 days
Actual	825	5,54 days	1,08 days	0,65 days				7,27 days
NPT		5 hrs		0,5 hrs				0,23 days
Comments:		Diamond		Diamond				

StatoilHydro

Permanent P&A (49 B)

Subject	Section (m)	RIH with cement stringer, set 6 cement plus, POOH and LD.	RIH with 12 1/4" clean out run. Tag and pressure test cement. POOH.	RIH and set bridge plug.	RIH to set whipstock. Mill window. Drill new formation. FIT. POOH.		Total
Budget		2,79 days	1,00 days	0,83 days	2,00 days		6,63 days
Actual		2,69 days	0,90 days	0,48 days	1,67 days		5,73 days
NPT				1,0 hrs	2,5 hrs / 2,0 hrs		0,23 days
Comments:				Diamond	Diamond / Statoil		

12 1/4" hole section (49 A):

Subject	Section (m)	MU BHA and RIH. Drilling 12 1/4" hole. Circulate and POOH.	RU and RIH with 9 5/8" casing. Install liner hanger and RIH on 5 1/2" HWDP/DP.	MU cement stand. Circulate. Set liner hanger. Cement liner. Release RT. Set packer and circulate. POOH.	LD 12 1/4" BHA. Pressure test BOP.	MU and RIH with 8 1/2" BHA. Drill shoetrack and 5 m formation. FIT.		Total
Budget		5,08 days	1,83 days	1,83 days	0,75 days	1,04 days		10,54 days
Actual	839	3,92 days	0,90 days	0,46 days	0,71 days	1,06 days		7,05 days
NPT		8,0 hrs				3,0 hrs / 0,5 hrs		0,48 days
Comments:		Diamond				Diamond / Halliburton		

8 1/2" x 9,05" hole section (49 A):

Subject	Section (m)	Drilling 8 1/2" hole.	Circulate hole clean. POOH and LD BHA.					Total
Budget		6,79 days	1,42 days					8,21 days
Actual	1193	3,44 days	0,85 days					4,29 days
NPT								
Comments:								

StatoilHydro

Permanent P&A

Subject	Section (m)	RIH with cement stringer and set cement plugs. Pressure test same.	RIH 13 3/8" EZSV, set and pressure test same.	Cut 13 3/8" casing @ 402 mMD. Pull 13 3/8" casing.	RIH and set a 270 m cement plug and pressure test same.	Pull BOP. Cut 20" x 30" casing. Retrieve casing. Survey on seabed.		Total
Budget		2,63 days	0,42 days	0,67 days	0,83 days	1,67 days		6,21 days
Actual		3,42 days	0,19 days	0,83 days	1,56 days	1,44 days		8,50 days
NPT		9,5 hrs		2,0 hrs				
Comments:		Diamond		Weatherford				

9 Appendix 4 Contractors list

Service	Contract no	Contractor
Milling/Wipstock	SAP4600002226	Baker Oil Tools
Measurement While Drilling	SAP4600005111	Halliburton
Cementing	SAP4600002160	Halliburton
Liner Hanger Equipment	SAP4600002689	Weatherford Norge AS
Milling/Wipstock	SAP4600004878	Weatherford Norge AS
Drilling Fluids	SAP4600002159	M-I Drilling Fluids
Rig Operations	SAP4600006269	Diamond Offshore Drilling Ltd
Core company	SAP4600004967	Halliburton
Directional Drilling	SAP4600005111	Halliburton
Mud Logging	SAP4600002064	Geoservices
Subsea WH/X-mas tree	SAP4600005076	Drill Quip
Casing Crew Service	SAP4600004001	Weatherford Norge AS
Electric Wireline Logging	SAP4600002337	Schlumberger
ROV Systems	SAP4600006702	Oceaneering
Directional Drilling	SAP	Andergauge

10 Appendix 5 Wellsite sample description

BOREKAKSBESKRIVELSE

Land: Norge	Område: Nordsjøen	Felt: Gullfaks Satellitter
Brønn: 34/10-49 S		
MSL-RT: 21,5 m	Selskap: Statoil, Petoro, Hydro	Dato: 30.03.06
Hullstørrelse: 17 ½"	Geolog: A.Nødtvedt, L.Sørensen	Side 3 av 28

LITHOLOGIBESKRIVELSE

Dyp m MD	Litologi (%)	Bergartsnavn, litologi, kornstørrelse, sortering, rundingsgrad, matrix, sementering, hardhet, sedimentære strukturer, fossiler, porøsitet, forurensninger	Spor av hydrocarboner, utvaskinger, slamtilsetninger
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1060	100	CLST: olv gry-m dk gry, sft-frm, amor-sbblky, fri, crmbly,occ stky,	Cement
		Micromic, glauc, slty, occ grad sltst,non-calc	
	Tr	SD: clr, occ grysh or, occ mky wh, ang-rndd, crs-v crs, mod srt, lse	
1070	100	CLST: a/a	Cement
	Tr	SD: a/a	
1080	100	CLST: occ grnsh gry, else a/a	
	Tr	SD: a/a	
1090	100	CLST: a/a	
	Tr	SD: a/a	
1100	20	CLST: a/a	
	80	SST: clr & mky wh Gr, lt gry, frm-crmbly, lse consol, ang-sbrndd,	
		Vf-m, mod srt, glauc, occ lse Gr crs-v crs	
1110	70	CLST: a/a	
	30	SST: a/a, r lse crs-v crs Gr	
1120	90	CLST: a/a	
	10	SST: a/a	
1130	30	CLST: a/a	
	70	SST: a/a	
1140	30	CLST: a/a	
	70	SST: a/a	
1150	Tr	CLST: a/a	
	100	SST: a/a, r Grvl	
1160	Tr	CLST: a/a	
	100	SST: a/a	
1170	Tr	CLST: a/a	
	100	SST: a/a	
1180	30	CLST: a/a	
	70	SST: a/a	

BOREKAKSBESKRIVELSE

Land: Norge	Område: Nordsjøen	Felt: Gullfaks Satellitter
Brønn: 34/10-49 S		
MSL-RT: 21,5 m	Selskap: Statoil, Petoro, Hydro	Dato: 30.03.06
Hullstørrelse: 17 ½"	Geolog: A.Nødtvedt, L.Sørensen	Side 3 av 28

LITHOLOGIBESKRIVELSE

Dyp m MD	Litologi (%)	Bergartsnavn, litologi, kornstørrelse, sortering, rundingsgrad, matrix, sementering, hardhet, sedimentære strukturer, fossiler, porøsitet, forurensninger	Spor av hydrocarboner, utvaskinger, slamtilsetninger
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1190	50	CLST: becoming dom dk gry, else a/a	
	50	SST: a/a	
1200	40	CLST: a/a	
	60	SST: a/a	
1210	80	SST: a/a	
	20	CLST: a/a	
1220	80	SST: pred lse, occ agg, else a/a	
	20	CLST: tr pyr, else a/a	
1230	A/A		
1240	90	SST: a/a	
	10	CLST: a/a	
1250	100	SST: a/a	
	Tr	CLST: a/a	
1260	A/A		
1270	50	SST: a/a	
	50	CLST: a/a	
1280	10	SST: occ crs-vcrs, else a/a	
	90	CLST: pred med gry- med-dk grn gry, else a/a	
1290	A/A		
1300	40	SST: Lt gry, clr-mlky wh vf-f, occ med, r crs-v crs, sbang-sbrnd, Mod srt, fri, pred lse, occ agg	
	60	Med-dk gry, med-dk grn gry, frm, sbblky, fri, occ slty, micromic, Glauc, non calc	
1310	80	SST: a/a	
	20	CLST: a/a	
1320	90	SST: incr agg, else a/a	
	10	CLST: a/a	
1330	A/A		

BOREKAKSBESKRIVELSE

Land: Norge	Område: Nordsjøen	Felt: Gullfaks Satellitter
Brønn: 34/10-49 S		
MSL-RT: 21,5 m	Selskap: Statoil, Petoro, Hydro	Dato: 30.03.06
Hullstørrelse: 17 ½"	Geolog: A.Nødtvedt, L.Sørensen	Side 3 av 28

LITHOLOGIBESKRIVELSE

Dyp m MD	Litologi (%)	Bergartsnavn, litologi, kornstørrelse, sortering, rundingsgrad, matrix, sementering, hardhet, sedimentære strukturer, fossiler, porøsitet, forurensninger	Spor av hydrocarboner, utvaskinger, slamtilsetninger
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1340	A/A		
1350	60	SST: a/a	
	40	CLST: a/a	
1360	70	SST: a/a	
	30	CLST: a/a	
1370	80	SST: a/a	
	20	CLST: a/a	
1380	100	SST: a/a	
	Tr	CLST: a/a	
1390	20	SST: a/a	
	80	CLST: a/a	
1400	70	SST: a/a	
	30	CLST: a/a	
1410	Tr	SST: a/a	
	100	CLST: a/a	
1420	10	SST: a/a	
	90	CLST: a/a	
1430	Tr	SST: lt gry, clr-mky wh Gr, vf-f, occ m, sbang-sbrndd, mod srt, occ	
		Agg, glauc	
	100	CLST: dk gry, olv blk, dk gnsh gry, frm, sbblky, non-calc, glauc, micromic	
1440	Tr	SST: a/a	
	100	CLST: a/a	
1450	100	CLST: dk gnsh gry-gnsh blk, dk gry, olv blk, frm, sbblky, non-calc, micromic	
1460	10	SST: a/a	
	90	CLST: a/a	
1470	90	SST: a/a	

BOREKAKSBESKRIVELSE

Land: Norge	Område: Nordsjøen	Felt: Gullfaks Satellitter
Brønn: 34/10-49 S		
MSL-RT: 21,5 m	Selskap: Statoil, Petoro, Hydro	Dato: 30.03.06
Hullstørrelse: 17 ½"	Geolog: A.Nødtvedt, L.Sørensen	Side 3 av 28

LITHOLOGIBESKRIVELSE

Dyp m MD	Litologi (%)	Bergartsnavn, litologi, kornstørrelse, sortering, rundingsgrad, matrix, sementering, hardhet, sedimentære strukturer, fossiler, porøsitet, forurensninger	Spor av hydrocarboner, utvaskinger, slamtilsetninger
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	10	CLST: a/a	
1480	30	SST: Pred lse, occ agg, else a/a	
	70	CLST: a/a	
1490	60	SST: a/a	
	40	CLST: Pred med grnsh gry, else a/a	
1500	A/A		
1510	10	SST: a/a	
	90	CLST: a/a	
1520	A/A		
1530	Tr	SST: a/a	
	100	CLST: a/a	
1540	10	SST: a/a	
	90	CLST: a/a	
1550	Tr	SST: a/a	
	100	CLST: a/a	
1560	10	SST: clr-mlky wh, lt gry, vf-f, occ med, sbrnd-sbang, wl-mod srt, Lse, occ agg, frm-sft	
	90	CLST: med grnsh gry, dk gry, olv blk, dk grnsh gry, frm-hd, Sbblky-blky, non calc	
1570	60	SST: a/a	
	40	CLST: a/a	
1580	Tr	SST: a/a	
	100	CLST: a/a	
1590	100	CLST: dom dk gnsh gry, occ dk gry, olv blk, m gnsh gry, frm-hd, Sbblky-blky, non-calc	
	Tr	SST: a/a	
1600	100	CLST: a/a	

BOREKAKSBESKRIVELSE

Land: Norge	Område: Nordsjøen	Felt: Gullfaks Satellitter
Brønn: 34/10-49 S		
MSL-RT: 21,5 m	Selskap: Statoil, Petoro, Hydro	Dato: 30.03.06
Hullstørrelse: 17 ½"	Geolog: A.Nødtvedt, L.Sørensen	Side 3 av 28

LITHOLOGIBESKRIVELSE

Dyp m MD	Litologi (%)	Bergartsnavn, litologi, kornstørrelse, sortering, rundingsgrad, matrix, sementering, hardhet, sedimentære strukturer, fossiler, porøsitet, forurensninger	Spor av hydrocarboner, utvaskinger, slamtilsetninger
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	Tr	SST: a/a	
1610	100	CLST: a/a	
	Tr	SST: a/a	
1620	100	CLST: a/a	
	Tr	SST: a/a	
1630		Missing	
1640		Missing	
1650	100	CLST: a/a	
	Tr	SST: a/a	
1660	100	CLST: a/a	
	Tr	SST: a/a	
1670	100	CLST: a/a	
1680	100	CLST: a/a	
	Tr	SST: a/a	
1690	100	CLST: dk gnsh gry, m dk gry, olv blk, frm-hd, sbblky-blky,	
		Non-calc	
1700		Missing	
1710	100	CLST: a/a	
	Tr	SLTST: yelsh gry, frm, sbblky, fri, non-calc	
1720	100	CLST: dom olv blk, & dk gnsh gry, occ m dk gry-dk gry, frm-hd	
		Sbblky-blky, non-calc	
1730	100	CLST: a/a	
	Tr	LST: yelsh gry, sbblky-blky, frm-v hd, microxln, occ aren & slty	
1735	90	CLST: a/a	
	20	LST : a/a	
	Tr	SST: yelsh gry, clr, vf-f, occ m, v hd, sbang, wl srt, calc cmtd	
1738	70	CLST: a/a	

BOREKAKSBESKRIVELSE

Land: Norge	Område: Nordsjøen	Felt: Gullfaks Satellitter
Brønn: 34/10-49 S		
MSL-RT: 21,5 m	Selskap: Statoil, Petoro, Hydro	Dato: 30.03.06
Hullstørrelse: 17 ½"	Geolog: A.Nødtvedt, L.Sørensen	Side 3 av 28

LITHOLOGIBESKRIVELSE

Dyp m MD	Litologi (%)	Bergartsnavn, litologi, kornstørrelse, sortering, rundingsgrad, matrix, sementering, hardhet, sedimentære strukturer, fossiler, porøsitet, forurensninger	Spor av hydrocarboner, utvaskinger, slamtilsetninger
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	10	LST: a/a	
	20	SST:clr-mlky wh, lt gry, vf-f, calc cem, agg, pred v hd, occ frm,	
		Sbrnd-sbang, wl srt.	
1740	60	CLST: a/a	
	10	LST: a/a	
	30	SST: a/a	
1742	A/A		
1744	A/A		
1750	A/A		
1760	80	CLST: med grn gry, med -dk brn, else a/a	
	10	LST: a/a	
	10	SST: a/a	
1770	100	CLST: a/a	
	Tr	LST, SST:a/a	
1780	100	CLST: specks of volc tuff in lt brn clst frags	
1790	100	CLST: incr tuff in clst frags	
1800	100	CLST: a/a	
1810	100	CLST: a/a	
1820	100	CLST: m dk gry-dk gry, occ gnsh gry-m blsh gry, grysh brn, frm,	
		Sbblky, mott, tuff, non-slily calc	
1830	100	CLST: r Pyr agg, else a/a	
	Tr	SST: calc cmtd agg a/a	
1840	100	CLST: r Pyr agg, else a/a	
1850	100	CLST a/a	
1860	100	CLST: a/a	

BOREKAKSBESKRIVELSE

Land: Norge	Område: Nordsjøen	Felt: Gullfaks Satellitter
Brønn: 34/10-49 S		
MSL-RT: 21,5 m	Selskap: Statoil, Petoro, Hydro	Dato: 30.03.06
Hullstørrelse: 17 ½"	Geolog: A.Nødtvedt, L.Sørensen	Side 3 av 28

LITHOLOGIBESKRIVELSE

Dyp m MD	Litologi (%)	Bergartsnavn, litologi, kornstørrelse, sortering, rundingsgrad, matrix, sementering, hardhet, sedimentære strukturer, fossiler, porøsitet, forurensninger	Spor av hydrocarboner, utvaskinger, slamtilsetninger
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1870	100	CLST: a/a	
1880	100	CLST: m dk gry-dk gry, occ gnsh gry, frm-hd, sbblky, occ tuff, Non-slily calc	
	r	SST: calc cmtd agg a/a	
1890	100	CLST: m dk gry-dk gry, occ dk gnsh gry & grysh brn, frm-hd, occ tuff, non-calc	
1900	100	CLST: a/a	
	Tr	SST: calc cmtd agg, pyr	
	Tr	LST: lt gry-wh,frm, amor,microxln, r dol	
1910	100	CLST: a/a	
	Tr	LST: a/a	
	Tr	SST: calc cmtd agg, a/a	
1920	100	CLST: a/a	
	Tr	LST: a/a	
	Tr	SST: calc cmtd agg, a/a	
1930	100	CLST: a/a	
	Tr	LST: a/	
1940		Missing	
1950	100	CLST: m dk gry-dk gry, occ gnsh blk, frm-hd, sbblky-blky, Non-calc, occ tuff	
1960	A/A		
1970	100	CLST: occ calc, r grysh brn, else a/a	
1980	100	CLST: m dk gry-dk gry, occ grnsh blk, frm-hd, sbblky-blky, calc, Occ grd mrl, pyr nod	
	Tr	LST: a/a	
1990	A/A		
2000	A/A		

BOREKAKSBESKRIVELSE

Land: Norge	Område: Nordsjøen	Felt: Gullfaks Satellitter
Brønn: 34/10-49 S		
MSL-RT: 21,5 m	Selskap: Statoil, Petoro, Hydro	Dato: 30.03.06
Hullstørrelse: 17 ½"	Geolog: A.Nødtvedt, L.Sørensen	Side 3 av 28

LITHOLOGIBESKRIVELSE

Dyp m MD	Litologi (%)	Bergartsnavn, litologi, kornstørrelse, sortering, rundingsgrad, matrix, sementering, hardhet, sedimentære strukturer, fossiler, porøsitet, forurensninger	Spor av hydrocarboner, utvaskinger, slamtilsetninger
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2010	100	CLST: m dk gry-dk gry, occ grnsh blk, r m brn, frm-hd, sbblky- Blky, calc	,
	Tr	LST: lt gry-lt yesh brn, fm-hd, amor, microxln	
2020	100	CLST: pred lt-m gry, occ m gn gry, else a/a	
	Tr	LST: a/a	
2026	90	CLST: a/a	TD for 17 ½"
	10	LST: a/a	Section.

BOREKAKSBESKRIVELSE		
Land: Norge	Område: Nordsjøen	Felt: Gullfaks Satellitter
Brønn: 34/10-49 S		
MSL-RT: 21,5 m	Selskap: Statoil, Petoro, Hydro	Dato: 10-16.04.06
Hullstørrelse:8 ½" x 9.05"	Geolog: Arvid Storli, Trine Gjessen, Egil Rundhovde	Side 28 av 28

LITHOLOGIBESKRIVELSE			
Dyp m MD	Litologi (%)	Bergartsnavn, litologi, kornstørrelse, sortering, rundingsgrad, matrix, sementering, hardhet, sedimentære strukturer, fossiler, porøsitet, forurensninger	Spor av hydrocarboner, utvaskinger, slamtilsetninger

b)

2030	80	Clst: med gry – med dk gry, occ lt olv gry, frm – mod hd, blký, calc – v calc	
	20	Ls: v lt gry – yelish gry, sft – mod hd	
2040		Lost due lunch	
2050	90	Clst: a/a	
	10	Ls: a/a	
2060	100	Clst: a/a	
	Tr	Ls: a/a	
2070	90	Clst: a/a	
	10	Ls: a/a	
2080	100	Clst: a/a	
	Tr	Ls: a/a	
2090	90	Clst: a/a	
		Ls: a/a	
2100	90	Clst: a/a r Qtz, wh – rd, c, w rnd	
	10	Last: a/a	
2110	80	Clst: med gry – med dk gry, occ lt olv gry, frm mod hd, blký, calc – v calc	
	20	Ls: a/a blký	
2120	100	Clst: dk gnsh gry – dk gry, frm – mod hd, calc – v calc, Tr Qtz clr – mlký wh, m – c, sbrnd –rnd	
	Tr	Ls: a/a	
2130	A/A		
2140	A/A		
2150	A/A		
2160	A/A		

i)

BOREKAKSBESKRIVELSE

Land: Norge	Område: Nordsjøen	Felt: Gullfaks Satellitter
Brønn: 34/10-49 S		
MSL-RT: 21,5 m	Selskap: Statoil, Petoro, Hydro	Dato: 10- 16.04.06
Hullstørrelse: 8 ½" x 9.05"	Geolog: Arvid Storli, Trine Gjessen, Egil Rundhovde	Side 28 av 28

LITHOLOGIBESKRIVELSE

Dyp m MD	Litologi (%)	Bergartsnavn, litologi, kornstørrelse, sortering, rundingsgrad, matrix, sementering, hardhet, sedimentære strukturer, fossiler, porøsitet, forurensninger	Spor av hydrocarboner, utvaskinger, slamtilsetninger
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b)

2170	100	Clst: gnsh blk, else a/a	
	Tr	Ls: a/a	
2180	90	Clst: olv blk – gnsh blk, else a/a	
		Ls: yel brn, blk, sft	
2190	100	Clst: a/a	
		Ls: a/a	
2200	100	Clst: med gry – med dk gry, occ olv blk, else a/a	
		Ls: a/a	
2210	A/A		
2223	100	Clst: med gry – med dk gry, occ olv blk, frm – mod hd, calc – v calc, Tr Qtz, clr – mlky wh, m – c, sbrnd – rnd	
	Tr	Ls: yel brn – blk sft	
2232	100	Clst: med gry – med dk gry, frm – mod hd. Calc – v calc	
	Tr	Ls: v lt gry – yel brn, else a/a	
2241	A/A		
2250	A/A		
2259	A/A		
2268	A/A		
2272	A/A		
2286	100	Clst: med gry – med dk gry, frm – mod hd, slily calc	
	Tr	a/a	
2295	A/A		
2300	A/A		

i)

BOREKAKSBESKRIVELSE		
Land: Norge	Område: Nordsjøen	Felt: Gullfaks Satellitter
Brønn: 34/10-49 S		
MSL-RT: 21,5 m	Selskap: Statoil, Petoro, Hydro	Dato: 10-16.04.06
Hullstørrelse:8 ½" x 9.05"	Geolog: Arvid Storli, Trine Gjessen, Egil Rundhovde	Side 28 av 28

LITHOLOGIBESKRIVELSE			
Dyp m MD	Litologi (%)	Bergartsnavn, litologi, kornstørrelse, sortering, rundingsgrad, matrix, sementering, hardhet, sedimentære strukturer, fossiler, porøsitet, forurensninger	Spør av hydrocarboner, utvaskinger, slamtilsetninger

b)

2320	100	Clst: med gry – med dk gry, frm – mod hd, slily calc, sbblky – blky	
	Tr	a/a	
2230		Lost due to lunch	
2340	100	Clst: a/a	
	Tr	Ls. a/a	
	Tr	Pyr	
2350	100	Clst: a/a	
	Tr	Ls. a/a	
2360	A/A		
2370	A/A		
2380	A/A		
2390	A/A		
2400	100	Clst: a/a	
	Tr	Ls: v lt gry yelsh gry, mod hd	
2410	100	Clst: a/a	
	Tr	Ls: a/a	
2420	A/A		
2430	90	Clst: med gry – med dk gry, frm – mod hd, slily calc, sbblky – blky	
		Ls: yelsh gry –æ grys hor, occ på yelsh brn, mod hd, blky	
2440	A/A		
2450	A/A		
2460	A/A		
2470	A/A		

BOREKAKSBESKRIVELSE

Land: Norge	Område: Nordsjøen	Felt: Gullfaks Satellitter
Brønn: 34/10-49 S		
MSL-RT: 21,5 m	Selskap: Statoil, Petoro, Hydro	Dato: 10-16.04.06
Hullstørrelse: 8 ½" x 9.05"	Geolog: Arvid Storli, Trine Gjessen, Egil Rundhovde	Side 28 av 28

LITHOLOGIBESKRIVELSE

Dyp m MD	Litologi (%)	Bergartsnavn, litologi, kornstørrelse, sortering, rundingsgrad, matrix, sementering, hardhet, sedimentære strukturer, fossiler, porøsitet, forurensninger	Spor av hydrocarboner, utvaskinger, slamtilsetninger
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b)

2480	A/A		
2490	A/A		
2496	100	Clst: a/a	
	Tr	Ls: a/a	
	Tr	Sd: Qtz, clr, m – c, w srt, w rnd	
2500	80	Clst: a/a	
	20	Sd: Qtz, clr, mlky wh i.p., f – c, m srt, sbrnd – rnd	
2510	80	Sd: Qtz, clr – trnsl, yelsh gry, f – m, w srt, sbang – sbrnd	
	20	Clst: a/a	
	Tr	Ls: a/a	
2520	100	Clst: olv blk – gnsh blk, else a/a	
	Tr	Sd: a/a	
2530	70	Sltst: pa yelsh brn – dk yelsh brn, slily calc cmt, sft, sdy	
	20	Clst. a/a	
	10	Coal: blk brit	
2540	70	Clst: a/a but slty and sdy	
	30	Sltst: a/a but sdy	
2550	80	Sst: clr qtz, f – crs, pred m, w srt, sbrnd, calc cmt	
	20	Clst. Grysh blk – dk gry, else a/a	
	Tr	Ls: v. lt gry – yelsh gry, frm – mod hd	
2560	A/A		
2570	60	Sst: a/a	
	40	Clst: a/a	
	Tr	Ls: a/a	
2580	60	Sltst: lt brnsh gry – yel gry, sl calc cmt, frm, sandy (f sd)	
	40	Clst: med gry – dk gry, blk, non – sl calc	

i)

BOREKAKSBESKRIVELSE		
Land: Norge	Område: Nordsjøen	Felt: Gullfaks Satellitter
Brønn: 34/10-49 S		
MSL-RT: 21,5 m	Selskap: Statoil, Petoro, Hydro	Dato: 10-16.04.06
Hullstørrelse:8 ½" x 9.05"	Geolog: Arvid Storli, Trine Gjessen, Egil Rundhovde	Side 28 av 28

LITHOLOGIBESKRIVELSE			
Dyp m MD	Litologi (%)	Bergartsnavn, litologi, kornstørrelse, sortering, rundingsgrad, matrix, sementering, hardhet, sedimentære strukturer, fossiler, porøsitet, forurensninger	Spor av hydrocarboner, utvaskinger, slamtilsetninger

b)

2590	80	Clst. a/a	
	20	Clst. a/a	
2600	80	Slstst: lt brnsh gry – yelsh gry, calc cmt, frm, grading to v. f – f sd	
	20	Clst: med gry – dk gry, sbblky – blky, non – sl calc	
	Tr	Sd: clr qtz, vf – f	
2610	60	Slstst: a/a	
	40	Clst: a/a	
2620	A/A		
2630	80	Clst: med dk gry, sbblky, mod hd, sl calc – calc	
	20	Slstst: a/a	
	Tr	Sd. v f – f, a/a	
2640	90	Clst: a/a	
	10	Slstst: a/a	
2650	100	Clst: a/a	
	Tr	Slstst: a/a	
2660	A/A		
2670	A/A		
2680	A/A		
2690	A/A		
2700	A/A		
2710	100	Clst.: med dk gry – dk gry, sl calc – calc, mod hd	
	Tr	Ls: a/a	
2720	A/A		
2730	A/A		

i)

BOREKAKSBESKRIVELSE

Land: Norge	Område: Nordsjøen	Felt: Gullfaks Satellitter
Brønn: 34/10-49 S		
MSL-RT: 21,5 m	Selskap: Statoil, Petoro, Hydro	Dato: 10-16.04.06
Hullstørrelse: 8 ½" x 9.05"	Geolog: Arvid Storli, Trine Gjessen, Egil Rundhovde	Side 28 av 28

LITHOLOGIBESKRIVELSE

Dyp m MD	Litologi (%)	Bergartsnavn, litologi, kornstørrelse, sortering, rundingsgrad, matrix, sementering, hardhet, sedimentære strukturer, fossiler, porøsitet, forurensninger	Spor av hydrocarboner, utvaskinger, slamtilsetninger
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b)

2740	A/A		
2750	70	Sltst: sdy sltst, yelsh gry lt olv gry, v calc, sft, abd Qtz, clr, f – m, occ c, sbang – sbrnd	
	30	Clst: a/a, but coal i.p.	
2760	60	Clst: med dk gry, sbblky, mod hd, sl calc, calc	
	40	Sltst: olv gry – grnsh gry, lam calc, sft, Tr f – c Sd	
2770	90	Clst: a/a	
	10	Sltst: a/a, but no Sd	
2780	70	Clst: a/a	
	30	Sltst: a/a but vf – f Sd i.p.	
2790	70	Clst: a/a	
	30	Sltst: a/a, but v sdy, vf Sd	
2800	90	Clst: a/a	
	10	Sst/Sltst: a/a	
2810	100	Sst/Sltst: clr qtz, dk gry – olv gry, vf, mod hd, sl calc	
2820	A/A		
2830	100	Sst/Sltst: a/a	
	Tr	Ls: mk wh – yelsh gry, blky, mod hd	
2840	90	Sst/Sltst: clr qtz, frm mod hd, well srted, calc cmt, v argillaceous	
	10	Ls: lt gry – lt brnsh gry, mod hd	
	Tr	Pyr	
2850	A/A		
2860	80	Sst: sst/sltst a/a	
	10	Ls: a/a	
	10	Clst: md dk gry – olv gry, frm mod hd, sbblky, calc	
2870	90	Sltst: clr qtz, lt brnsh – yelsh gry – olv gry, fri – mod hd, calc cmt	

i)

BOREKAKSBESKRIVELSE

Land: Norge	Område: Nordsjøen	Felt: Gullfaks Satellitter
Brønn: 34/10-49 S		
MSL-RT: 21,5 m	Selskap: Statoil, Petoro, Hydro	Dato: 10- 16.04.06
Hullstørrelse: 8 ½" x 9.05"	Geolog: Arvid Storli, Trine Gjessen, Egil Rundhovde	Side 28 av 28

LITHOLOGIBESKRIVELSE

Dyp m MD	Litologi (%)	Bergartsnavn, litologi, kornstørrelse, sortering, rundingsgrad, matrix, sementering, hardhet, sedimentære strukturer, fossiler, porøsitet, forurensninger	Spor av hydrocarboner, utvaskinger, slamtilsetninger
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b)

	10	Clst: a/a	
2880	90	Sltst: a/a	
	10	Ls: a/a	
	Tr	Clst	
	Tr	Pyr	
2890	60	Sltst: a/a	
	30	Clst: a/a	
	10	Ls: a/a	
2900	90	Clst: a/a	
	10	Sltst: a/a	
2910	80	Clst: a/a	
	20	Sltst: a/a	
2920	90	Clst: a/a	
	10	Ls: yelsh gry – lt brnsh gry, frm mod hd	
2930	90	Clst: a/a	
	10	Ls: a/a	
	Tr	Glauc	
2940	90	Clst: med dk gry – brnsh gry, calc, mod hd	
	10	Ls: a/a	
2950	100	Clst: a/a	
2960	100	Clst: med gry – med dk gry, brnsh gry, frm – hd, sbblky – blky, calc	
	Tr	Ls: a/a	
2970		Lost due to lunch	
2980	100	Clst: a/a	
2990	100	Clst: a/a, mod hd – hd, slily calc – calc	
	Tr	Sd: clr qtz, vf – med	
	Tr	Pyr	

i)

BOREKAKSBESKRIVELSE		
Land: Norge	Område: Nordsjøen	Felt: Gullfaks Satellitter
Brønn: 34/10-49 S		
MSL-RT: 21,5 m	Selskap: Statoil, Petoro, Hydro	Dato: 10-16.04.06
Hullstørrelse:8 ½" x 9.05"	Geolog: Arvid Storli, Trine Gjessen, Egil Rundhovde	Side 28 av 28

LITHOLOGIBESKRIVELSE			
Dyp m MD	Litologi (%)	Bergartsnavn, litologi, kornstørrelse, sortering, rundingsgrad, matrix, sementering, hardhet, sedimentære strukturer, fossiler, porøsitet, forurensninger	Spor av hydrocarboner, utvaskinger, slamtilsetninger

b)

3000	100	Clst: a/a	
3010	100	Clst: a/a	
3020	100	Clst: a/a	
3030	100	Clst: a/a	
3040	100	Clst: a/a	
3050	100	Clst: dk gry – olv blk, frm – hd, sbblk – blk, slily calc – calc	
	Tr	Sd: qtz, mk wh, f	
3060	100	Clst: a/a, but hd	
	Tr	Ls: Yelsh gry – grysh or, sft – frm, occ blk	
3070	A/A		
3080	90	Clst: a/a, hd	
	10	Ls: a/a	,
3090	100	Clst: a/a, but mod hd – hd	
	Tr	Ls: a/a, but mod hd	
3100	100	Clst:a/a	
3110	100	Clst: a/a, hd	
	Tr	Ls: a/a, sft –frm	
3120	100	Clst: a/a, hd	
3130	90	Clst: a/a, hd	
	10	Ls: a/a	
3140	100	Clst: a/a, v hd	
	Tr	Ls: a/a	
3150	100	Clst: a/a, hd, non calc	
	Tr	Ls: a/a	

i)

BOREKAKSBESKRIVELSE

Land: Norge	Område: Nordsjøen	Felt: Gullfaks Satellitter
Brønn: 34/10-49 S		
MSL-RT: 21,5 m	Selskap: Statoil, Petoro, Hydro	Dato: 10- 16.04.06
Hullstørrelse: 8 ½" x 9.05"	Geolog: Arvid Storli, Trine Gjessen, Egil Rundhovde	Side 28 av 28

LITHOLOGIBESKRIVELSE

Dyp m MD	Litologi (%)	Bergartsnavn, litologi, kornstørrelse, sortering, rundingsgrad, matrix, sementering, hardhet, sedimentære strukturer, fossiler, porøsitet, forurensninger	Spor av hydrocarboner, utvaskinger, slamtilsetninger
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b)

	Tr	Pyr	
3160	100	Clst: a/a, hd - v hd	
	Tr	Ls: a/a	
3170	100	Clst: med dk gry – brnsh gry, hd – v hd, non – sl calc	
3180	100	Clst: a/a	
	Tr	Ls: v lt gry – yelsh gry, grnsh gry, mod hd	
3190	80	Clst: a/a	
	20	Sltst: med gry, olv gry, mod hd, v argillaceous, grading into vf sst, calc cmt	
3200	60	Clst: a/a	
	40	Sltst. a/a	
3210	A/A		
3220	A/A		
3230	90	Sltst: a/a	
	10	Clst: a/a	
	Tr	Ls: lt brnsh gry, mod hd	
3240	90	Stst: a/a	
	10	Ls: a/a	
3250	80	Sltst: a/a	
	20	Clst: a/a	
	Tr	Ls: a/a	
3260	60	Sltst: a/a	
	30	Clst: a/a	
3270	60	Sltst: a/a	
	40	Clst: a/a	

i)

BOREKAKSBESKRIVELSE

Land: Norge	Område: Nordsjøen	Felt: Gullfaks Satellitter
Brønn: 34/10-49 S		
MSL-RT: 21,5 m	Selskap: Statoil, Petoro, Hydro	Dato: 10- 16.04.06
Hullstørrelse: 8 ½" x 9.05"	Geolog: Arvid Storli, Trine Gjessen, Egil Rundhovde	Side 28 av 28

LITHOLOGIBESKRIVELSE

Dyp m MD	Litologi (%)	Bergartsnavn, litologi, kornstørrelse, sortering, rundingsgrad, matrix, sementering, hardhet, sedimentære strukturer, fossiler, porøsitet, forurensninger	Spor av hydrocarboner, utvaskinger, slamtilsetninger
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b)

3275	60	Slstst: a/a	
	20	Clst: a/a	
	20	Sst: clr qtz, f- med, pr srtd, ang – sband	
3280	80	Sst: clt qtz, f – v.crs, pred crs, pr srtd, ang – sbang	
	10	Slstst: a/a	
	10	Clst: a/a	
3290	90	Sst: a/a	
	10	Slstst: a/a	
3300	90	Sst: clr qtz, f – v.crs, sbang, pr srtd	
	10	Slstst: a/a	
3310	70	Sst: clr qtz – wh qtz, vf – med, kaol cmtd, frm – mod hd	
	30	Slstst: a/a	
3320	70	Sst: clr qtz – wh qtz, vf – med, occ crs, sbrnd – sbang, pr srtd	
	30	Slstst: a/a	
3330	70	Sst: a/a	
	30	Slstst: a/a	
3340	50	Sst: clr – trns, occ mlky wh qtz, med – crs, occ f, pr srtd, sbang, ls gr	
	50	Slstst: med gry, occ brnsh gry, mod hd	
3350	50	Sst: a/a	
	50	Slstst: a/a	
3360	50	Sst: a/a	
	50	Slstst: med gry – dk gry, frm – mod hd	
3370	40	Sst: a/a	
	50	Slstst: dom dk gry, occ gry, frm mod hd	
	10	Coal: blk, sbblky, frm	
3380	40	Sst: a/a	
	60	Slstst: gry – dk gry, mod hd	

i)

BOREKAKSBESKRIVELSE

Land: Norge	Område: Nordsjøen	Felt: Gullfaks Satellitter
Brønn: 34/10-49 S		
MSL-RT: 21,5 m	Selskap: Statoil, Petoro, Hydro	Dato: 10- 16.04.06
Hullstørrelse: 8 ½" x 9.05"	Geolog: Arvid Storli, Trine Gjessen, Egil Rundhovde	Side 28 av 28

LITHOLOGIBESKRIVELSE

Dyp m MD	Litologi (%)	Bergartsnavn, litologi, kornstørrelse, sortering, rundingsgrad, matrix, sementering, hardhet, sedimentære strukturer, fossiler, porøsitet, forurensninger	Spor av hydrocarboner, utvaskinger, slamtilsetninger
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b)

	Tr	Coal: blk, sbblky, frm	
3390	70	Sst: a/a	
	30	Slstst: a/a	
3400	80	Sst: a/a	
	20	Slstst: dk gry, occ gry, frm –mod hd	
	Tr	Coal	
3410	90	Sst: a/a	
	10	Slstst: a/a	
	Tr	Coal: blk, sbblky, frm	
3420	90	Sst: a/a	
	10	Slstst: a/a	
	Tr	Coal	
3430	90	Sst: a/a	
	10	Slstst: a/a	
	Tr	Coal	
3440	A/A		
3450	90	Sst: clr trns l qtz, also mlky wh – yelsh gry qtz, med – v.crs, pr srtd, sbang	
	10	Clst: med gry – lt brnsh gry, frm, non calc	
	Tr	Slstst: a/a	
3460	80	Sst: f – crs, else a/a	
	20	Clst: a/a, also dk gry	
	Tr	Slstst: a/a	
3470	A/A		
	Tr	Ls: v lt gry – pnksh gry, mod hd	
3480	60	Sst: vf – v.crs, else a/a	
	30	Clst: a/a	
	10	Slstst: med gry – brnsh gry, frm mod hd	

i)

BOREKAKSBESKRIVELSE

Land: Norge	Område: Nordsjøen	Felt: Gullfaks Satellitter
Brønn: 34/10-49 S		
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LITHOLOGIBESKRIVELSE

Dyp m MD	Litologi (%)	Bergartsnavn, litologi, kornstørrelse, sortering, rundingsgrad, matrix, sementering, hardhet, sedimentære strukturer, fossiler, porøsitet, forurensninger	Spor av hydrocarboner, utvaskinger, slamtilsetninger
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b)

3490	60	Sst: a/a	
	30	Clst: a/a	
	10	Sltst: a/a	
3500	70	Sst: clr – trnsl qtz, also mlky wh, f- crs, sbang, pr srtld	Contam.?(Gilsonite?)
	10	Clst: a/a	
	10	Sltst: a/a	
	Tr/10	Coal?	
3510	30	Sst: a/a	Contam,? (Gilsonite?)
	10	Clst: a/a	
	60	Coal?: blk, vit – earthy, mod hd - crumbly	
3520	40	Sst: a/a	
	50	Sltst: a/a	
	10	Clst: a/a	
	Tr	Coal	
3530	20	Sst: clr – trnsl, also mlky wh qtz, vf – crs, occ v.crs	
	30	Sltst: med gry – lt gry, occ brnsh, mod hd	
	50	Clst: brnsh gry – dk gry, frm – mod hd	
3540	70	Sst: clr trnsl, occ mlky wh qtz, vf – crs, occ v.crs, sbrnd, mod srtld	
	10	Sltst: a/a	
	20	Clst: a/a	
3550	60	Sst: clr – trsl – mlky wh qtz, f – crs, sbang – sbrnd	
	10	Sltst: lt gry – brnsh gry, sft – mod hd	
	30	Clst: dk gry – dk grnsh gry, mod hd – hd	
3560	70	Sst: a/a	
	10	Sltst: a/a	
	20	Clst: a/a	
3570	70	Sst: a/a	
	20	Sltst: a/a	
	10	Clst: a/a	
3580	A/A		

i)

BOREKAKSBESKRIVELSE

Land: Norge	Område: Nordsjøen	Felt: Gullfaks Satellitter
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Hullstørrelse: 8 ½" x 9.05"	Geolog: Arvid Storli, Trine Gjessen, Egil Rundhovde	Side 28 av 28

LITHOLOGIBESKRIVELSE

Dyp m MD	Litologi (%)	Bergartsnavn, litologi, kornstørrelse, sortering, rundingsgrad, matrix, sementering, hardhet, sedimentære strukturer, fossiler, porøsitet, forurensninger	Spor av hydrocarboner, utvaskinger, slamtilsetninger
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b)

3590	A/A		
3600	A/A		
3610	A/A		
3620	90	Sst: a/a, f- v. crs	
	10	Clst: a/a	
	Tr	Slstst: a/a	
3640	60	Sst: a/a	
	30	Slstst: a/a	
	10	Clst: a/a	
3650	80	Sst: a/a	
	10	Ls: a/a	
	10	Clst: a/a	
3660	60	Sst: clr mlky wh qtz, vf – med, mod srtd	
	40	Slstst: lt gry – yelish gry, sft – frm, non calc	
	Tr	Clst: a/a	
3670	70	Clst: med dk gry, mod hd – hd, non calc	
	20	Slstst: a/a	
	10	Clst: a/a	
3680	50	Sst: a/a, vf – med	
	40	Slstst: a/a	
	10	Clst: a/a	
	Tr	Pyr	
3690	70	Sst: a/a	
	20	Slstst: a/a	
	10	Clst: a/a, also Tr grysh red clyst	
3700	70	Sst: vf – f, occ crs, frm	
	20	Clst: med dk gry – dk gry, else a/a	
	10	Slstst: lt gry, else a/a	

i)

BOREKAKSBESKRIVELSE

Land: Norge	Område: Nordsjøen	Felt: Gullfaks Satellitter
Brønn: 34/10-49 S		
MSL-RT: 21,5 m	Selskap: Statoil, Petoro, Hydro	Dato: 10- 16.04.06
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LITHOLOGIBESKRIVELSE

Dyp m MD	Litologi (%)	Bergartsnavn, litologi, kornstørrelse, sortering, rundingsgrad, matrix, sementering, hardhet, sedimentære strukturer, fossiler, porøsitet, forurensninger	Spør av hydrocarboner, utvaskinger, slamtilsetninger
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b)

3710	60	Sst: a/a	
	20	Clst. med dk gry, occ Tr grysh red	
	20	Sltst: a/a	
3720	A/A		
3730	70	Sst: a/a	
	20	Sltst: a/a	
	10	Clst: med dk – dk gry a/a	
3740	A/A		
3750	70	Sst: a/a	
	20	Clst: med dk gry, lt brnsh gry, non calc	
	10	Sltst: a/a	
3760	80	Sst: clr – mlky wh, yelsh gry qtz, f- crs, pr srtd, sbang – sbrnd	
	10	Clst: med dk gry – lt brnsh gry, non calc	
	10	Sltst: a/a, non calc	
3770	90	Sst : a/a	
	10	Clst : lt brnsh gry – grad brnsh red, med dk gry, non calc	
	Tr	Sltst : a/a	
	Tr	Coal : blk brittle, hd	
3780	80	Sst : vf – f sst, kaol cmted, f- granules, ls sd, ang – sbang, pr srtd	
	10	Sltst : a/a	
	10	Clst : med gry – med grn gry, occ redish brn	
3790	50	Sst: vf – f, occ crs – grain, a/a	
	30	Clst: a/a	
	20	Sltst: a/a	
3800	60	Clst: mulitcol, med dk gry, mod grn gry, brnsh gry	
	20	Sltst: a/a	
	20	Sst: a/a	
3810	70	Clst: a/a, non calc	

i)

BOREKAKSBESKRIVELSE		
Land: Norge	Område: Nordsjøen	Felt: Gullfaks Satellitter
Brønn: 34/10-49 S		
MSL-RT: 21,5 m	Selskap: Statoil, Petoro, Hydro	Dato: 10-16.04.06
Hullstørrelse:8 ½" x 9.05"	Geolog: Arvid Storli, Trine Gjessen, Egil Rundhovde	Side 28 av 28

LITHOLOGIBESKRIVELSE			
Dyp m MD	Litologi (%)	Bergartsnavn, litologi, kornstørrelse, sortering, rundingsgrad, matrix, sementering, hardhet, sedimentære strukturer, fossiler, porøsitet, forurensninger	Spor av hydrocarboner, utvaskinger, slamtilsetninger

b)

	20	Slstst : a/a	
	10	Sst : a/a	
	Tr	Pyr	
3820	60	Clst : gry- brnsh gry, brnsh rd, blk, mod hd	
	20	Slstst: lt brnsh gry, sft – mod hd	
	20	Sst: a/a, kaol cmt	
	Tr	Coal: blk, brtl, blk	
3830	40	Sst: a/a	
	50	Slstst. a/a	
	10	Clst: a/a	
	Tr	Pyr	
3840	30	Sst: a/a	
	30	Slstst: a/a	
	40	Clst: a/a	
	Tr	Coal	
	Tr	Pyr	
3850	40	Sst: clr – trsl mlky wh qtz, f – crs, sbang – sbrnd	
	40	Slstst: a/a	
	20	Clst: a/a	
3860	A/A		
3870	A/A	Tr Ls: wh – yelsh gry, sft	
3880	A/A	Tr Coal	
3890	70	Clr – trasl – mlky wh qtz, v.f –crs, dom sbang, pr srt	
	30	a/a	
	Tr	Clst: a/a	
	Tr	Coal: a/a	
3900	80	Sst: a/a, occ v.crs qtz	
	20	Slstst: a/a, calc cmt	
	Tr	Clst: dk gry, sbblky, hd – mod hd	
	Tr	Coal: a/a	

i)

BOREKAKSBESKRIVELSE

Land: Norge	Område: Nordsjøen	Felt: Gullfaks Satellitter
Brønn: 34/10-49 S		
MSL-RT: 21,5 m	Selskap: Statoil, Petoro, Hydro	Dato: 10- 16.04.06
Hullstørrelse: 8 ½" x 9.05"	Geolog: Arvid Storli, Trine Gjessen, Egil Rundhovde	Side 28 av 28

LITHOLOGIBESKRIVELSE

Dyp m MD	Litologi (%)	Bergartsnavn, litologi, kornstørrelse, sortering, rundingsgrad, matrix, sementering, hardhet, sedimentære strukturer, fossiler, porøsitet, forurensninger	Spor av hydrocarboner, utvaskinger, slamtilsetninger
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b)

3910	70	Sst: a/a	
	20	Slst: a/a, calc cmt	
	10	Clst: a/a	
	Tr	Coal: a/a	
3920	30	Sst: clr – trsl – mlky wh qtz, f – crs, occ v.crs, pr srtd,	
	40	Lt brn-yesh brn, occ calc cmt	
	20	Clst: dk gry-grnsh gry, sbblky - blky, mod hd – hd	
	10	Coal: blk, vit, blky, brittle, lam	
	Tr	Ls: wh gry- yelsh gry, blky, med hd	
3930	70	Sst: a/a, predom f –med	
	20	Slst: a/a	
	10	Coal: a/a	
3940	80	Sst a/a	
	20	Slst: a/a	
	Tr	Coal	
3950	70	Clyst: brnsh red – brnsh gry, occ grnsh gry, sft – frm, non calc	
	30	Sst: a/a	
3960	80	Clyst: brnsh red, grn gry, a/a	
	10	Ls: lt gry – yelsh gry, frm – mod hd	
	10	Sst: a/a	
3970	60	Clysty a/a	
	30	Slst: lt gry – brnsh gry, frm, non calc	
	10	Sst: a/a	
3980	60	Clyst: a/a	
	30	Slst : a/a	
	10	Ls: a/a	
3990	60	Sst: a/a	
	30	Clyst: a/a	
	10	Slst: a/a	
4000	70	Clyst: brnsh red, med dk gry, grnsh gry, hd, non calc	

i)

BOREKAKSBESKRIVELSE

Land: Norge	Område: Nordsjøen	Felt: Gullfaks Satellitter
Brønn: 34/10-49 S		
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Hullstørrelse: 8 ½" x 9.05"	Geolog: Arvid Storli, Trine Gjessen, Egil Rundhovde	Side 28 av 28

LITHOLOGIBESKRIVELSE

Dyp m MD	Litologi (%)	Bergartsnavn, litologi, kornstørrelse, sortering, rundingsgrad, matrix, sementering, hardhet, sedimentære strukturer, fossiler, porøsitet, forurensninger	Spor av hydrocarboner, utvaskinger, slamtilsetninger
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b)

	20	Slstst: lt gry, lt brnsh gry, frm – mod hd, non calc	
	10	Sst: vf – f, a/a	
4010	60	Sst: clr gtz, mlky , vf – med, also crs – granules, p srtd, sub ang – sub rnd.	
	30	Slstst:: a/a	
	10	Clyst: a/a	
4020	60	Slstst: a/a	
	30	Clyst: a/a	
	10	Sst: vf – f, non calc.	
4030	90	Clst : gry – grnsh gry, occ dk gry, tr of brnsh rd, blkly – sbblkly, grading into sltst, frm – sft, occ mod hd	
	10	Slstst : lt gry – gry, sbrnd, sft – frm	
	Tr	Sd: clr – trsl qtz, dom v.crs, occ f	
4040	90	Clst : a/a, occ tr brnsh rd	
	10	Slstst : a/a	
	Tr	Sd : clr – trsl qtz, f- v.f	
	Tr	Ls : wh – yesh gry, sft – frm, sbblkly	
4050	100	Clst : a/a	
	Tr	Slstst : a/a	
	Tr	Sd : clr – trsl qtz, f – v.crs	
	Tr	Ls : a/a	
4060	A/A		
4070	80	Clst : a/a	
	20	Slstst : a/a	
	Tr	Qtz : a/a	
	Tr	Ls : a/a	
4080	A/A		
4090	A/A		
4100	80	Clst : olv blk, lt olv gry, blkly-sblkly, fm- m hd, dom calc	
	10	Slst : a/a	

i)

BOREKAKSBESKRIVELSE

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LITHOLOGIBESKRIVELSE

Dyp m MD	Litologi (%)	Bergartsnavn, litologi, kornstørrelse, sortering, rundingsgrad, matrix, sementering, hardhet, sedimentære strukturer, fossiler, porøsitet, forurensninger	Spor av hydrocarboner, utvaskinger, slamtilsetninger
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b)

	10	Ls : a/a	
	Tr	SST : clr-transl, f-v crs,	
4110	70	Clst : a/a, dom calc	
	20	Ls : lt brsh gry	
	10	Slst : a/a	
	Tr	Sst : a/a	
4120	90	Clst : a/a, calc	
	10	Slst : a/a	
	Tr	Sst : clr-transl, m –v crs, subang – ang	(avtagende mengde)
	Tr	Ls : yelsh gry, sft-frm, sbblky	
4126		TD of 34/10-49 S reached 20.04.2006	

BOREKAKSBESKRIVELSE

Land: Norge	Område: Nordsjøen	Felt: Gullfaks Satellitter
Brønn: 34/10-49 ST2		
MSL-RT: 21,5 m	Selskap: Statoil, Petoro, Hydro	Dato: 01-xx.05.06
Hullstørrelse: 8 ½" x 9.05"	Geolog: Lars Johan Skjold, Kjetil A. Festervoll, Robert Storemark, Leif Sørensen, Oana Badescu, Jørn Gjerde, Linn Arnesen	Side 1 av

LITHOLOGIBESKRIVELSE

Dyp m MD	Litologi (%)	Bergartsnavn, litologi, kornstørrelse, sortering, rundingsgrad, matrix, sementering, hardhet, sedimentære strukturer, fossiler, porøsitet, forurensninger	Spor av hydrocarboner, utvaskinger, slamtilsetninger
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		Start of 49 ST2, side-tracked from 49 S, 01.05.2006	
2846	100	Clst: olv blk, frm – hd, slty, fn disseminated carb Mat	50% Cmt
2856	100	Clst: thn slty & carb Lam	Abd Cmt
2862	80	SST: clr – trnspl Qtz, f, wl srt, sbrndd, s slty, slily calc, lse – fri	
	20	Clst: a.a.	
2868	50	Sst: bcm v arg, else a.a.	Tr Cmt
	50	Clst: olv blk, sft, I.P. frm, v slty, v f sdy, carb	
2874	80	Clst: a.a.	
	20	Sst: a.a.	
2880	50	Cslst: slily arg, else a.a.	Opened underreamer
	50	Sst: a.a.	Abd Mic, Lime, Barite & G-Seal
2886	80	Clst: olv gry – olv blk, else a.a.	Graphite
	20	Sst: f – m, else a.a.	
2892	80	Clst: a.a.	
	20	Sst: f, else a.a.	
2898	50	Clst: a.a.	
	50	Sst: a.a.	
2904	Lost		
2910	a.a.		
2916	a.a.		
2922	a.a.		
2928	90	Clst: a.a.	
	10	Sst: a.a.	
2934	a.a.		

BOREKAKSBESKRIVELSE

Land: Norge	Område: Nordsjøen	Felt: Gullfaks Satellitter
Brønn: 34/10-49 ST2		
MSL-RT: 21,5 m	Selskap: Statoil, Petoro, Hydro	Dato: 01- xx.05.06
Hullstørrelse: 8 ½" x 9.05"	Geolog: Lars Johan Skjold, Kjetil A. Festervoll, Robert Storemark, Leif Sørensen, Oana Badescu, Jørn Gjerde, Linn Arnesen	Side 1 av

LITHOLOGIBESKRIVELSE

Dyp m MD	Litologi (%)	Bergartsnavn, litologi, kornstørrelse, sortering, rundingsgrad, matrix, sementering, hardhet, sedimentære strukturer, fossiler, porøsitet, forurensninger	Spor av hydrocarboner, utvaskinger, slamtilsetninger
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2940	a.a.		
2946	100	Clst: olv gry – olv blk, sft, vslyt grad Slst, v f sdy, carb, v f sdy	
	Tr	Sst: clr Qtz, v f, mod wl srt,	
2952	100	Clst: frm, else a.a.	
	Tr	Sst: a.a.	
2960	a.a.		
2970	a.a.		
2980	a.a.		
2990	a.a.		
3000	100	Clst: olv gry, else a.a.	
	Tr	Sst: a.a.	
3010	a.a.		
3020	a.a.		
3030	a.a.		
3040	a.a.		
3050	a.a.		
3060	a.a.		
3070	a.a.		
3080	100	Clst: olv gry, gen sft, I.P. frm, v slty I.P. grad Slst, v f sdy,	
		Calc, Tr Mic	
	Tr	Ls: yelsh gry, mod hd, arg, amorph – microxln	
	r	Sst: clr Qtz, f – crs, pr srt, rnd, lse	
3090	a.a.		

BOREKAKSBESKRIVELSE			
Land: Norge		Område: Nordsjøen	Felt: Gullfaks Satellitter
Brønn: 34/10-49 ST2			
MSL-RT: 21,5 m		Selskap: Statoil, Petoro, Hydro	Dato: 01-xx.05.06
Hullstørrelse:8 ½" x 9.05"		Geolog: Lars Johan Skjold, Kjetil A. Festervoll,Robert Storemark, Leif Sørensen, Oana Badescu,Jørn Gjerde,Linn Arnesen	Side 1 av
LITHOLOGIBESKRIVELSE			
Dyp m MD	Litologi (%)	Bergartsnavn, litologi, kornstørrelse, sortering, rundingsgrad, matrix, sementering, hardhet, sedimentære strukturer, fossiler, porøsitet, forurensninger	Spør av hydrocarboner, utvaskinger, slamtilsetninger

3100	a.a.		
3110	100	Clst: olv gry, gen sft, I.P. frm, v slty I.P. grad Slstst, v f sdy, Calc, Tr Mic	
	Tr	Ls: yelsh gry, mod hd, arg, amorph – microxln	
	r	Sst: clr Qtz, f – crs, mod srt, rnd, lse	
3120	a.a.		
3130	a.a.		
3140	100	Clst: r pyr Nod, else a.a.	
3150	a.a.		
3160	a.a.		
3170	a.a.		Tr Cvg: elong & tab 1 – 2 cm
3180	a.a.		
3190	a.a.		”
3200	a.a.		
3210	a.a.		
3220		Clst: i.p mod brn, lam, sli calc, else a.a.	
3230		Clst: sft, else a.a.	
3240	a.a.		
3250		Clst: gen frm, else a.a.	
3260	a.a.		
3270	a.a.		

BOREKAKSBESKRIVELSE

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Brønn: 34/10-49 ST2		
MSL-RT: 21,5 m	Selskap: Statoil, Petoro, Hydro	Dato: 01- xx.05.06
Hullstørrelse: 8 ½" x 9.05"	Geolog: Lars Johan Skjold, Kjetil A. Festervoll, Robert Storemark, Leif Sørensen, Oana Badescu, Jørn Gjerde, Linn Arnesen	Side 1 av

LITHOLOGIBESKRIVELSE

Dyp m MD	Litologi (%)	Bergartsnavn, litologi, kornstørrelse, sortering, rundingsgrad, matrix, sementering, hardhet, sedimentære strukturer, fossiler, porøsitet, forurensninger	Spor av hydrocarboner, utvaskinger, slamtilsetninger
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3280	a.a.		
3290	100	Clst: olv gry, sft-frm, v slty grad sltst, sli calc, tr mic, i.p mod brn, frn, lam, sli calc	r Cvg 1 – 2cm elong, tab
	Tr	Sst: clr qtz, f-m, lse	
3300	a.a.		
3310	100	Clst: a.a.	Sample dominated
	Tr	Sst: f, else a.a.	by fine sand
			sized baryte
3320	100	Clst: a.a.	
	Tr	Sst: a.a.	
	r	Mrl: pl yelsh brn – yelsh gry, frn – hd, amorph	
3330	a.a.		r Cvg: C, blk, brit
3340	a.a.		
3350	100	Clst: slily slty, else a.a.	
3360	80	Clst: v slty grad Slstst, r pyr, else a.a.	
	20	Sst: clr Qtz, v f – f, occ m, mod srt, sbrndd, lse	
	r	Mrl: a.a.	
3370	a.a.		
3380	70	Clst: a.a.	
	30	Sst: a.a.	
	r	Mrl: a.a.	
3390	a.a.		
3400	a.a.		
3410	90	Sst: clr Qtz, f – crs, mod srt, sbrndd, lse, r Glauc, r Pyr	spty hc Cotg
	10	Clst: a.a.	

BOREKAKSBESKRIVELSE

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Hullstørrelse: 8 ½" x 9.05"	Geolog: Lars Johan Skjold, Kjetil A. Festervoll, Robert Storemark, Leif Sørensen, Oana Badescu, Jørn Gjerde, Linn Arnesen	Side 1 av

LITHOLOGIBESKRIVELSE

Dyp m MD	Litologi (%)	Bergartsnavn, litologi, kornstørrelse, sortering, rundingsgrad, matrix, sementering, hardhet, sedimentære strukturer, fossiler, porøsitet, forurensninger	Spor av hydrocarboner, utvaskinger, slamtilsetninger
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3420	90	Sst: pred m – crs, else a.a.	
	10	Clst: a.a.	
3423	90	Sst: clr Qtz,, f – crs, pred crs, mod srt, sbrndd, lse, r Glauc, r Pyr.	
	10	Clst: a.a.	
3429	a.a.		
3435	90	Sst: clr Qtz, f – m, mod srt, lse, sbang – sbrndd, r pyr Nod, r Glauc	
	10	Clst: a.a.	
3441	a.a.		
3447	a.a.		
3450	50	Sst: a.a.	
	50	Clst: a.a.	
3453	90	Sst: a.a.	
	10	Clst: a.a.	
3456	90	Sst: occ calc cmt Agg, else a.a.	
	10	Clst: a.a.	
3459	a.a.		
3462	100	Sst: f-crs, pred m-crs, lse (no calc.cmt)	
3465	a.a.		
3468	N/A		
3471	90	Sst: a.a.	
	10	Clst: a.a.	
3474	100	Sst: a.a.	
3477	100	Sst: a.a.	

BOREKAKSBESKRIVELSE

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LITHOLOGIBESKRIVELSE

Dyp m MD	Litologi (%)	Bergartsnavn, litologi, kornstørrelse, sortering, rundingsgrad, matrix, sementering, hardhet, sedimentære strukturer, fossiler, porøsitet, forurensninger	Spor av hydrocarboner, utvaskinger, slamtilsetninger
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3480	100	Sst: a.a.	
3483	90	Sst: a.a.	
	10	Clst	
3486	70	Sst: clr qtz, vf –crs, pred med, lse, else a.a.	
	30	Clst: olv gry, sft – frm, v slty, slt calc	
3489	70	Sst:, v slty, else a.a.	
	30	Clst: a.a.	
3492	a.a.		
3495	80	Sst: a.a.	
	20	Clst: less slty, else a.a.	
3498	80	Sst: occ calc Cmt, else a.a.	
	20	Clst: a.a.	
3501	a.a.		
3504	a.a.	Sst: vf med, slty, calc Agg, else a.a.	
		Clst: a.a.	
3507	80	Sst: v f-m, pred f, v slty, lse	
	20	Clst: drk gry - olv blk, frm –hd, sbblk, slily calc	
3510	70	Sst: clr-mlky Qtz, v f –m, slty Mtrx	
	30	Clst: a.a.	
3513	a.a.		
3516	60	Sst: v f –crs, pred v f, else a.a.	
	35	Clst: olv gry – brnsh gry, else a.a.	
	5	Mrl: sft, pl yelsh gry, occ blk	
3519	20	Sst: a.a.	
	40	Clst:a.a.	
	40	Mrl:a.a.	

BOREKAKSBESKRIVELSE

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LITHOLOGIBESKRIVELSE

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3522	10	Sst: a.a.	
	40	Clst: a.a.	
	50	Mrl: a.a.	
3525	30	Sst: v f – m, slty, else a.a.	
	70	Clst: gry –olv gry, occ dk gry, frm –mod hd	
	Tr	Mrl: a.a.	
3528	a.a.		
3531	50	Sst: a.a.	
	50	Clst: a.a.	
3534	a.a.		
3537	N/A		
3540	30	Sst: a.a.	
	70	Clst: a.a.	
3543	30	Sst: a.a.	
	60	Clst: a.a.	
	10	Slst: a.a.	
	Tr	Mrl	
3546	10	Sst: v f – crs, pred f, else a.a.	Coalfrag.
	90	Clst: lt olv gry –olv gry, else a.a.	
	Tr	Mrl: pl gry - lt gry	
3549	30	Sst: a.a.	
	70	Clst: a.a.	
3552	60	Sst: a.a.	
	40	Clst: a.a.	
3555	70	Sst: calc Cmt, v f-crs, pred v f, slty, else a.a.	
	30	Clst: occ brnsh gry, else a.a.	

BOREKAKSBESKRIVELSE

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Brønn: 34/10-49 ST2		
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Hullstørrelse: 8 ½" x 9.05"	Geolog: Lars Johan Skjold, Kjetil A. Festervoll, Robert Storemark, Leif Sørensen, Oana Badescu, Jørn Gjerde, Linn Arnesen	Side 1 av

LITHOLOGIBESKRIVELSE

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3558	60	Sst: cl-transl, vf-crs, subang-rnd, por srt	
	40	Clst: olv gry –brsh gry, frm – mod, slty	
	TR	Lt: pl yelsh brn –yelsh brn, frm	
3561	a.a.		
3564	80	Sst: lse, calc cmt Agg, slty, else a.a.	Pyr, coal, siderite
	20	Clst: a.a.	
3570	70	Sst: clr-trnsl, v f-v crs Qtz, sbang-sbrndd , calc, slty	
	30	Clst: a.a.	
3576	10	Sst: v f – m, else a.a.	
	90	Clst: a.a.	
3582	30	Sst: a.a.	
	70	Clst: a.a.	
3588	a.a.		
3594	10	Sst: v f-f, wl srt, occ m, else a.a.	
	90	Clst: lt gry –brn, olv gry, slily calc, mod-frm	
3600	40	Sst: a.a.	
	60	Clst: a.a.	
3606	a.a.		
3612	a.a.		
3618	80	Sst: a.a.	
	20	Clst: a.a.	
3624	60	Clst: olv gry – olv blk, sft – frm, v slty I.P. grad Slstst, micromic, slily calc, r Pyr	
	40	Sst: clr Qtz, v f – f, mod - wl srt, sbrndd, lse	
3630	a.a.		

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Land: Norge	Område: Nordsjøen	Felt: Gullfaks Satellitter
Brønn: 34/10-49 ST2		
MSL-RT: 21,5 m	Selskap: Statoil, Petoro, Hydro	Dato: 01- xx.05.06
Hullstørrelse: 8 ½" x 9.05"	Geolog: Lars Johan Skjold, Kjetil A. Festervoll, Robert Storemark, Leif Sørensen, Oana Badescu, Jørn Gjerde, Linn Arnesen	Side 1 av

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Dyp m MD	Litologi (%)	Bergartsnavn, litologi, kornstørrelse, sortering, rundingsgrad, matrix, sementering, hardhet, sedimentære strukturer, fossiler, porøsitet, forurensninger	Spor av hydrocarboner, utvaskinger, slamtilsetninger
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3636	80	Clst: a.a.	
	20	Sst: a.a.	
3642	a.a.		
3650	60	Clst: olv blk – brnsh blk, else a.a.	
	40	Sst: a.a.	
3660	60	Clst: olv blk – brnsh blk, occ dsky yelsh brn, sft – frm, v slty I.P.	
		grad Sltst, micromic, slily calc, r Pyr	
	40	Sst: clr Qtz, v f – f, occ m – crs, mod - wl srt, sbrndd, lse, r Glauc	
3670	a.a.		
3680	80	Clst: a.a.	
	20	Sst: a.a.	
	Tr	Mrl: lt brnsh gry – brnsh gry, sft - hd	
3690	80	Clst: pred olv blk, occ brnsh blk, else a.a.	
	20	Sst: a.a.	
3700	a.a.		
3710	a.a.		
3720	a.a.		
3730	90	Clst: olv gry – olv blk, else a.a.	
	10	Sst: a.a.	
3740	a.a.		
3750	50	Clst: a.a.	
	50	Sst: clr qtz, v f – crs, por sort, sbang – sbrnd, calc, tr glauc	baryte
3760	70	Sst: slty – calc cmt, else a.a.	baryte
	30	Clst: a.a.	
3770	80	Clst: olv gry – brnsh gry, else a.a.	

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	20	Sst: a.a.	
3780	90	Clst: a.a.	
	10	Sst: a.a.	
3790	60	Sst. Clr lse qtz, v f – crs, sbang – sbrnd, pyr coated grn	
	40	Clst: olv gry – olv blk, occ brnsh gry, sft-frm, slty IP, calc IP, mic pyr.	baryte
3800	90	Clst: a.a.	baryte
	10	Sst: a.a.	
3810	100	Clst: a.a.	
	Tr	Sst: a.a.	
3820	100	Clst: a.a.	baryte
	Tr	Sst: a.a.	
	Tr	Mrl: a.a.	
3830	a.a.		
3840	a.a.		
3850	100	Clst: a.a.	
	Tr	Sst: v f – crs, ang – sbrndd, else a.a.	
3860	a.a.		
3870	80	Clst: a.a.	
	10	Slst: m dk gry – m gry, sft	
	10	Sst: v f – m, occ crs, else a.a.	
3880	100	Clst: olv blk – olv gry, brnsh gry, slily calc	
	Tr	Sst: a.a.	
3890	a.a.		
3900	100	Clst: a.a.	Barite, G-seal
	Tr	Sst: a.a.	

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Brønn: 34/10-49 ST2			
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Hullstørrelse:8 ½" x 9.05"		Geolog: Lars Johan Skjold, Kjetil A. Festervoll,Robert Storemark, Leif Sørensen, Oana Badescu,Jørn Gjerde,Linn Arnesen	Side 1 av
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Dyp m MD	Litologi (%)	Bergartsnavn, litologi, kornstørrelse, sortering, rundingsgrad, matrix, sementering, hardhet, sedimentære strukturer, fossiler, porøsitet, forurensninger	Spor av hydrocarboner, utvaskinger, slamtilsetninger

	Tr	Mrl: lt yel brn- brnsh gry, frm-hd, blky	
3910	A.A.		
3920	A.A.		
3930	A.A.		
3940	A.A.		
3950	100	Clst: lt grysh brn, olv blk – dk gry, sl – non calc, blky, frm	Barite, G-seal
	Tr	Mrl: lt yel brn – brnsh gry, frm – hd, blky	
3960	A.A.		
3970	A.A.		
3980	100	Clst: micropyr, else a.a.	
	Tr	Mrl: a.a.	
3990	A.A.		
4000	100	Clst: lt brn gry, dk gry- olv blk, blky, pred frm, non – sl calc	Barite, G-seal
	Gd Tr	Mrl: lt-yel brn – brnsh gry, frm – hd, blky	
4010	A.A.		
4020	A.A.		
4030	100	Clst: Lt brwn, dkgry olv blk, blky, frm – hrd	
4040	100	Clst: a.a.	
	Tr	Mrl: lt yel – brnsh gry, frm, subblky	
4050	100	Clst: a.a.	
	Tr	Mrl: a.a.	
	Tr	Sst: Clr trns qtz, v f - f, sbrnd	
4060	100	Clst: a.a.	

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	Tr	Sst: a.a., trac pyrite	
4070	100	Clst: a.a.	
	Tr	Mrl: a.a.	
4080	100	Clst: a.a.	
	Tr	Mrl: a.a.	
	Tr	Sst: a.a.	
4090	A.A.		
4100	100	Clst: med- dk gry, lt brn gry, dk grnsh gry, olv blk, blk, frm-hd	Barite, g-seal
	Tr	Mrl: lt yel- gry brn, frm-hd, blk	
	Tr	Sst: clr-trans qtz, vf-f, sbrnd	
4110	A.A.		
4120	100	Clst: a.a.	
	Tr	Mrl: a.a.	
4130	A.A.		
4150	A.A.		
4160	A.A.		
	Tr	Sst: clr qtz, f, sbrnd, r fspr gr	
4170	A.A.		
4180	A.A.		
4190	90	Clst: a.a.	
	10	Mrl: yel-gry-grybrn, frm, blk	
4195	100	Clst: a.a.	
	Tr	Sst: clr qtz, f, sbrnd, r fspr gr	
4198	90	Clst: a.a.	
	10	Trns qtz, pred f, sbrnd	

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4201	90	Sst: clr qtz, f-med, md srted, sbang-sbrndd	
	10	Clst: a.a.	
4204	90	Sst: clr-mky qtz, f-med, mod srted, sbang-sbrndd	
	10	Clst: a.a.	
4207	90	Sst: a.a.	
	10	Clst: a.a.	
4210	50	Sst: a.a.	
	30	a) Clst: a.a.	
	20	Mrls: yel-gry-grybrn, frm, blk	
4213	75	SSt: fspr, qtz, pred m, w srted, sbrndd, ls	
	15	Clst: a.a.	
	10	Mrls: a.a.	
4216	90	Sst: a.a.	
	10	b) Clst: a.a.	
4219	90	Sst: clr-trls qtz, f - crs, pred m, p srt, sbang - sbrndd, ls	
	10	Clst: a.a.	
4222	80	Sst: Calc cmt, else a.a.	
	20	Clst: a.a.	
4225	70	Sst: a.a.	
	30	Clst: a.a.	
	Tr	Calc cmt	
4228	A.A.		
4231	70	Sst: a.a.	
	30	Clst: a.a.	

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4234	80	Sst: a.a.	
	20	c) Clst: a.a.	
4237	50	Sst: a.a.	
	50	Clst: a.a.	
4240	60	Sst: a.a.	
	40	Clst: a.a.	
4243	60	Sst: a.a.	
	40	Clst: a.a.	
4246	50	Sst: a.a.	
	50	d) Clst: a.a.	
4252	50	Sst: Wh cly mtx , else a.a.	
	50	e) Clst: a.a.	
4258	A.A.		
4264	60	Sst: Wh cly mtx , else a.a.	
	40	f) Clst: a.a.	
		g)	
4270	50	Sst: Calc cmt, else a.a.	
	50	h) Clst: a.a.	
	Tr	.	
4276	60	Sst: wh cly mtx, calc cmt, else a.a.	
	40	i) Clst: a.a.	
4282	50	Sst: abn calc cmt, else a.a.	
	50	j) Clst: a.a.	
4288	60	Sst: wh cly mtx, calc cmt, else a.a.	
	40	k) Clst: a.a.	
4294	A.A.		
		l)	

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Dyp m MD	Litologi (%)	Bergartsnavn, litologi, kornstørrelse, sortering, rundingsgrad, matrix, sementering, hardhet, sedimentære strukturer, fossiler, porøsitet, forurensninger	Spør av hydrocarboner, utvaskinger, slamtilsetninger
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4300	60	Sst: a.a.	
	40	m) Clst: a.a.	
4306	60	Sst: a.a.	
	40	n) Clst: a.a.	
4312	60	Sst: abn calc cmt, else a.a.	
	40	o) Clst: a.a.	
4318	50	Sst: a.a.	
	50	p) Clst: a.a.	
	Tr	Calc cmt	
4324	60	Sst: a/a, else wht cly mtx	
	40	Clst: a/a	
	Tr	q) Calc cmt	
		r)	
4330	70	Sst: a/a	
	30	Clst: a/a	
	Tr	s) Calc cmt	
4336	A/A		
4342	80	Sst: a/a else abn calc cmt	
	20	Clst: a/a	
4354	A/A		
		t)	
4360	A/A		
4366	90	Sst: f-med, clr –mlky qtz, ab vf calc/kaol cmt in agg	G-seal
	10	u) Clst: a/a	
	Tr	Lst: lt gry, frm-hd, blk	
4372	A/A		
		v)	
4378	90	Sst: pred vf in calc/kaol cmt agg	
	10	w) Clst: occ, blk, brit, grd coal	

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LITHOLOGIBESKRIVELSE			
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	Tr	Lst: a/a	
4384	80	Sst: clr-mlky wh qtz, vf-med, lse, vf qtz, calc/kaol cmt in agg, hd,	Ab. G-seal
		x) Subrnd-subang, mod srt	Barite
	20	Clst: med-dk gry, med brn gry, occ blk – grd coal, frm-hd, blk	
		Non calc, occ slty	
	Tr	Lst: lt gry, frm-hd, blk	
4390	A/A		
4396	70	Sst: occ crs-vcrs, lse, else a/a	
	30	Clst: a/a	
	Tr	y) Lst: a/a	
		z)	
4402	70	Sst: pred calc/kaol cmt agg, else a/a	
	30	aa) Clst: a/a	
	Tr	Lst: a/a	
4408	A/A		
		bb)	
4414	A/A		
4420	80	Sst: pred f-med, lse, else a/a	barite
	20	cc) Clst: a/a	
	Tr	Lst: a/a	
4432	A/A		
		dd)	
4438	A/A		Barite, G-seal
4444	70	Sst: a/a	
	30	ee) Clst:a/a	
	Tr	Lst: a/a	
		ff)	
4450	A/A		
4456	A/A		
		gg)	

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4462	90	Sst: ab vf qtz in pred calc cem agg, else a/a	Much barite
	10	Clst: a/a	
	Tr	Lst: a/a	
4468	A/A		
4474	A/A		
4480	A/A	hh)	
		ii)	
4486	A/A		
4492	A/A	jj)	
4498	80	kk) Sst: a/a	
	20	Clst: a/a	
	Tr	Lst: a/a	
4510	A/A	ll)	
4516	A7a		
4522	70	mm) Sst: a/a	G-seal, barite
	20	Clst: a/a	
	10	Lst: offwh – lt gry, frm-hd, blk	
4528	A/A	nn)	
4534	70	oo) Sst: a/a	
	10	Clst: a/a	
	20	Lst: a/a	
4540	A/A	pp)	
4546	70	Sst: f-m, occ c, m-w srtd, sbang-sbrndd, calc cem	
	20	Clst: a/a	
	10	cal cem	

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4552	60	Sst: m-c m-w srted, sbang-sbrndd, calc cem	
	30	Clst: a/a	
	10	calc cem	
		qq)	
4556	50	rr) Sst: a/a	
	40	Clst: a/a	
	10	calc cem	
		ss)	
4560	50	Sst: a/a	
	50	Clst: a/a	
4564	90	tt) Clst: dk gry, grsh-blk, firm, blk, ea Lstr, calc mtx	
	10	Sst: a/a	
		uu)	
4570	90	Clst: dkgry-grysh blk, dk gry else a/a	
	10	Sst: a/a	
	Tr	calc Cmt	
		vv)	
4576	100	Clst: grsh blk, dk gry, else a/a	
	Tr	Sst: a/a	
	Tr	calc Cmt	
		ww)	
4580	A/A		
		xx)	
4590	A/A		
4600	A/A		
		yy)	
4610	A/A		
4620	A/A		
4630	100	clst: occ brnsh-blk else a/a	
4640	100	Clyst: med-dk gry brn, dk grngry, olv blk, blk, frm-hd, sl-non calc	
	Tr	Lst: lt gry- lt gry brn, blk, frm-hd	

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		zz)	
4650	A/A	aaa)	
4660	100	Clst: a/a	
	Tr	bbb) Lst: a/a	
	Tr	Sst: med-crs, clr qtz, subrnd, lse	
4670	100	Clst: a/a	
	Tr	ccc) Lst: a/a	
	Tr	Sst: med-crs, clr qtz, subrnd, lse	
4680	A/A		
		ddd)	
4690	A/A		
4700	A/A		
		eee)	
4710	100	Clst: soft-firm else a/a	
	Tr	fff) Lst: a/a	
	Tr	Sst: med-crs, clr qtz, subrnd, lse	
4720	90	Clst: a/a	
	10	ggg) Lst: a/a	
	Tr	Sst: med-crs, clr qtz, subrnd, lse	
4730	A/A	hhh)	
4740	A/A		
4750	100	Clst: a/a	
	Tr	iii) Lst: a/a	
4760	A/A		
4770	A/A	jjj)	
		kkk)	
4780	A/A		

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Hullstørrelse: 8 ½" x 9.05"	Geolog: Lars Johan Skjold, Kjetil A. Festervoll, Robert Storemark, Leif Sørensen, Oana Badescu, Jørn Gjerde, Linn Arnesen	Side 1 av

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Dyp m MD	Litologi (%)	Bergartsnavn, litologi, kornstørrelse, sortering, rundingsgrad, matrix, sementering, hardhet, sedimentære strukturer, fossiler, porøsitet, forurensninger	Spor av hydrocarboner, utvaskinger, slamtilsetninger
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4790	80	lll) Clst: a/a	
	10	Lst: a/a	
	10	Sst: a/a	
4800	A/A	mmm)	
4810	100	Clst: dk gry, grysh-blk, olv blk, blk-elon, f, ea Lstr	
	Tr	Lst: a/a	
	Tr	nnn) Sst: a/a	
4820	A/A		
4830	A/A	ooo)	
4840	A/A		
4850	100	ppp) Clst: a/a	
	Tr	Sst: a/a	
		qqq)	
4860	A/A		
4870	A/A		
		rrr)	
4880	A/A		
4890	100	Clst: a.a	
	TR	calc. cmt a.a	
	TR	Sst: a.a	
4900	100	Clst: brnsh gry, brnsh blk, frm occ. hrd elsa a.a	
	TR	calc.cmt a.a	
	TR	sss) Sst: clr trans qtz, f – m, occ crs, pred f, mod srt, sbang sbrnidd, lse	
		ttr)	
4910	70	Clst: a.a	
	30	Sst: a.a	
		uuu)	
4920	100	Clst: a.a	
	Tr	Sst: a.a	

BOREKAKSBESKRIVELSE

Land: Norge	Område: Nordsjøen	Felt: Gullfaks Satellitter
Brønn: 34/10-49 ST2		
MSL-RT: 21,5 m	Selskap: Statoil, Petoro, Hydro	Dato: 01- xx.05.06
Hullstørrelse: 8 ½" x 9.05"	Geolog: Lars Johan Skjold, Kjetil A. Festervoll, Robert Storemark, Leif Sørensen, Oana Badescu, Jørn Gjerde, Linn Arnesen	Side 1 av

LITHOLOGIBESKRIVELSE

Dyp m MD	Litologi (%)	Bergartsnavn, litologi, kornstørrelse, sortering, rundingsgrad, matrix, sementering, hardhet, sedimentære strukturer, fossiler, porøsitet, forurensninger	Spor av hydrocarboner, utvaskinger, slamtilsetninger
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	Tr	Calc. cem	
		vvv)	
4930	100	Clst: a.a	
	Tr	Sst: a.a	
	Tr	Calc.cmt, pyrite	
		www)	
4940	100	Clst: a.a	
	Tr	Sst: a.a	
	Tr	Calc. cmt	
		xxx)	
4950	a.a		
4960	a.a		
		yyy)	
4970	80	Clst: a.a	
	20	zzz) Lst: lt gry - yel brn, frm - ls, blky	
	Tr	Sst: a.a	
4980	60	Clst: lt gry – drk olv gry, brnsh gry, blky –sbbky, occ fiss, frm – hr	
	40	aaaa) Lst: lt yel brn – lt gry, frm – sft, blky	
	Tr	Carb, pyr	
4990	50	Clst: a.a	
	50	Lst: a.a	
	Tr	Sst: clr- - trsl qtz, f med, sbrndd – rnd, ls	
4995	60	Clst: a.a	
	30	Lst: a.a	
	10	Sst: f – crs, rnd, ls, else a.a	
		bbbb)	
5000	90	cccc) Clst: drk gry – olv gry, brnsh gry, blky – fiss, mod frm – hd, else a.a	
	10	Lst: a.a	
	Tr	Sst: clr qtz, f, else a.a	
	Tr	dddd) Carb, mica, pyr	
5005	90	Clst: a.a	
	10	Lst: a.a	
	Tr	eeee) a.a	

BOREKAKSBESKRIVELSE			
Land: Norge		Område: Nordsjøen	Felt: Gullfaks Satellitter
Brønn: 34/10-49 ST2			
MSL-RT: 21,5 m		Selskap: Statoil, Petoro, Hydro	Dato: 01-xx.05.06
Hullstørrelse:8 ½" x 9.05”		Geolog: Lars Johan Skjold, Kjetil A. Festervoll,Robert Storemark, Leif Sørensen, Oana Badescu,Jørn Gjerde,Linn Arnesen	Side 1 av
LITHOLOGIBESKRIVELSE			
Dyp m MD	Litologi (%)	Bergartsnavn, litologi, kornstørrelse, sortering, rundingsgrad, matrix, sementering, hardhet, sedimentære strukturer, fossiler, porøsitet, forurensninger	Spør av hydrocarboner, utvaskinger, slamtilsetninger

5010	90	Clst: a.a	
	10	Lst: a.a	
	Tr	Sst: Clr qtz, vf – med, sbrndd – rnd, else a.a	
5015	A/A		
5019	60	Clst: dk gry-dk olv gry, dk brn gry, else a/a	
	30	Lst: a/a	
	10	Sst: a/a	
5022	A/A		
5025	50	Clst: a/a	
	40	Lst: a/a	
	10	Sst: a/a	
5028	A/A		
5031	A/A		
5034	60	Clst: a/a	G-seal, barite
	40	Lst: a/a	
	Tr	Sst: a/a	
5037	70	Clst: a/a	
	30	Lst: a/a	
	Tr	Sst: a/a	
5040	90	Clst: a/a	
	10	Lst: a/a	
	Tr	Sst: a/a	
5043	100	Clst: a/a	
	Tr	Lst: a/a	
	Tr	Sst: a/a	
5046	A/A		
5050	A/A		

BOREKAKSBESKRIVELSE			
Land: Norge		Område: Nordsjøen	Felt: Gullfaks Satellitter
Brønn: 34/10-49 ST2			
MSL-RT: 21,5 m		Selskap: Statoil, Petoro, Hydro	Dato: 01-xx.05.06
Hullstørrelse:8 ½" x 9.05"		Geolog: Lars Johan Skjold, Kjetil A. Festervoll,Robert Storemark, Leif Sørensen, Oana Badescu,Jørn Gjerde,Linn Arnesen	Side 1 av
LITHOLOGIBESKRIVELSE			
Dyp m MD	Litologi (%)	Bergartsnavn, litologi, kornstørrelse, sortering, rundingsgrad, matrix, sementering, hardhet, sedimentære strukturer, fossiler, porøsitet, forurensninger	Spor av hydrocarboner, utvaskinger, slamtilsetninger

5060	Lost		
5070	100	Clst: dk gry-dk grnsh gry, dk brnsh gry, dk olv gry, occ med gry,	G-seal, barite
		Frm-mod hd, sl- non calc	
	Tr	Lst: lt gry, occ lt yelsh brn, frm, blk.	
	Tr	Sst: clr-transl qtz, vf-f, subrnd, lse, w srt	
5080	A/A		
5090	A/A		
5100	A/A		
5110	A/A		
5120	A/A		
5130	A/A		
5140	100	Clst: drk fry – brnsh gry, pred. brnsh, blk – sbblk, frm – mod	
	Tr	Lst: a.a	
	Tr	Sst: qtz, v f – f, aggr. else a.a	
5150	A/A		
5160	70	Lst: wh, lt gry – gry, frm – hd, microxlm	
	30	Clst: a.a	
	Tr	Sst: a.a	
5170	90	Lst: wht, lt gry – yel lt brnsh, grnsh, blk – sbblk, sft	g-seal
	10	Clst: olv gry – brnsh gry, sbbly, frm – md hrd	
5180	50	Clst: olv gry, brnsh gry, blk – sbblk, frm – sft	
	50	Lst: wht- lt gry, blk – sbblk, sft – md hrd	
	Tr	Sst: clr – brnsh grn, med crs	
5190	50	Clst: a.a	
	40	Lst: a.a	

BOREKAKSBESKRIVELSE

Land: Norge	Område: Nordsjøen	Felt: Gullfaks Satellitter
Brønn: 34/10-49 ST2		
MSL-RT: 21,5 m	Selskap: Statoil, Petoro, Hydro	Dato: 01- xx.05.06
Hullstørrelse: 8 ½" x 9.05"	Geolog: Lars Johan Skjold, Kjetil A. Festervoll, Robert Storemark, Leif Sørensen, Oana Badescu, Jørn Gjerde, Linn Arnesen	Side 1 av

LITHOLOGIBESKRIVELSE

Dyp m MD	Litologi (%)	Bergartsnavn, litologi, kornstørrelse, sortering, rundingsgrad, matrix, sementering, hardhet, sedimentære strukturer, fossiler, porøsitet, forurensninger	Spor av hydrocarboner, utvaskinger, slamtilsetninger
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	10	Sst: clr – transl, f – crs, sbrnd – rnd	
5200	50	Lst: Lt brn, rd brn, wht, grnsh gry, lt gry, sft – frm	
	50	Clst: a.a	
5210	50	Lst: rd brn, pl ylsh brn, brnsh gry, am-sbblky, sft, arg	
	50	Clst: med-dk gry, sbblky, sft-frm, lam, lsty, i/p non calc	
5220	40	Clst: dk gry . olv blk, sbblky, frm, non calc	
	30	Lst: a/a but v arg grad clst	
	30	Lst: gnsh gry, sbblky, lam, fiss, arg	
5230	60	Clst: a/a	
	20	Lst: gnsh gry a/a	
	10	Lst: rd brn a/a	
	10	Sd: clr-transl qtz, vfn, w srt, sbrnd, lse	
	TR	Glauc	
5240	70	Clst: a/a	
	20	Lst: gnsh gry a/a	
	10	Lst: rd brn a/a	
	TR	Sd	
5250	50	Clst: a/a	
	30	Lst: gnsh gry a/a	
	20	ffff) Lst: rd brn a/a	
5260		a/a	
5270	70	Lst: rd brn a/a	
	20	Lst: gnsh gry a/a	
	10	Clst: a/a	
5280	70	Lst: rd brn a/a	
	20	Clst: a/a	
	10	Lst: gnsh gry a/a	

BOREKAKSBESKRIVELSE

Land: Norge	Område: Nordsjøen	Felt: Gullfaks Satellitter
Brønn: 34/10-49 ST2		
MSL-RT: 21,5 m	Selskap: Statoil, Petoro, Hydro	Dato: 01- xx.05.06
Hullstørrelse: 8 ½" x 9.05"	Geolog: Lars Johan Skjold, Kjetil A. Festervoll, Robert Storemark, Leif Sørensen, Oana Badescu, Jørn Gjerde, Linn Arnesen	Side 1 av

LITHOLOGIBESKRIVELSE

Dyp m MD	Litologi (%)	Bergartsnavn, litologi, kornstørrelse, sortering, rundingsgrad, matrix, sementering, hardhet, sedimentære strukturer, fossiler, porøsitet, forurensninger	Spor av hydrocarboner, utvaskinger, slamtilsetninger
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5290		A/a	
	TR	Glauc	
5300	70	Lst: rd brn, dol, else a/a	
	30	Clst: a/a	
5310	60	Lst: rd brn, dol, else a/a	
	30	Clst: a/a	
	10	Lst gnsh gry a/a	
5320		A/a	
	Tr	Sd, vdn, clr-transl qtz	
5330	50	LST : rd brn, an-sbblky, lse, v arg grad, slty i/p	
	30	CLST : dk gry-olv blk, sbblky, lam, frm-mod hd, lse i/p, non calc	
	20	LST : gnsh gry a/a	
	tr	Glauc : a/a	
5340	a/a		
5350	60	LST : rd brn a/a	
	30	CLST a/a	
	10	LST : gnsh gry a/a	
5360	60	CLST : a/a	
	30	LST/MARL : rd brn a/a	
	10	LST : gnsh gry a/a	
5370	60	CLST : a/a	
	30	LST : gnsh gry a/a	
	10	gggg) LST/MARL : rd brn a/a	
5380		A/a	
5390	90	CLST : a/a	
	10	LST/MARL : rd brn a/a	
	Tr	LST : gnsh gry a/a	

BOREKAKSBESKRIVELSE

Land: Norge	Område: Nordsjøen	Felt: Gullfaks Satellitter
Brønn: 34/10-49 ST2		
MSL-RT: 21,5 m	Selskap: Statoil, Petoro, Hydro	Dato: 01- xx.05.06
Hullstørrelse: 8 ½" x 9.05"	Geolog: Lars Johan Skjold, Kjetil A. Festervoll, Robert Storemark, Leif Sørensen, Oana Badescu, Jørn Gjerde, Linn Arnesen	Side 1 av

LITHOLOGIBESKRIVELSE

Dyp m MD	Litologi (%)	Bergartsnavn, litologi, kornstørrelse, sortering, rundingsgrad, matrix, sementering, hardhet, sedimentære strukturer, fossiler, porøsitet, forurensninger	Spor av hydrocarboner, utvaskinger, slamtilsetninger
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5400		A/a	
5410		A/a	
5420	70	CLST : a/a	
	20	LST/MARL : rd brn a/a	
	10	LST : gnsh gry a/a	
5430	70	CLST : a/a	
	10	LST/MARL : rd brn a/a	
	10	hhhh) LST : gnsh gry a/a	
	10	SD: vfn, clr occ or-wh qtz, w srt	
5440	40	CLST : a/a	Csg wear?
	40	CLST: shny blk, fis, lam, sft, amor-sbblky	
	10	LST/MARL: a/a	
	10	SD: a/a	
	Tr	LST: gnsh gry else a/a	
5450		A/a	
5460	80	CLST: olv blk – bnsh blk, sbblky, lam, fiss, frm, calc, vitr, shny	
	20	LST: gnsh gry a/a	
5470	a/a		
5480	100	CLST: olv blk – bnsh blk, sbblky, lam, fiss, frm, calc, vitr, shny, org rich	

BOREKAKSBESKRIVELSE

Land: Norge	Område: Nordsjøen	Felt: Gullfaks Satellitter
Brønn: 34/10-49 A (Apollo)		
MSL-RT: 21,5 m	Selskap: Statoil, Petoro, Hydro	Dato: 28- 01.06.06
Hullstørrelse: 8 ½" x 9.05"	Geolog: Ståle Hansen, Lars Kristian Strønen	Side 192 av 11

LITHOLOGIBESKRIVELSE

Dyp m MD	Litologi (%)	Bergartsnavn, litologi, kornstørrelse, sortering, rundingsgrad, matrix, sementering, hardhet, sedimentære strukturer, fossiler, porøsitet, forurensninger	Spør av hydrocarboner, utvaskinger, slamtilsetninger
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2130	100	CLST: grysh blk, dk grnsh gry, frm-mod hd, sbblky-blky, calc-v calc, r pyr	
	TR	LST: lt brnsh gry, yelsh gry, sbblky, frm-mod hd, microxln	
2140	A/A		
2150	A/A		
2160	100	CLST: grysh blk, dk grnsh gry, grnsh blk, frm-mod hd, occ sft, sbblky-blky, calc-v calc	
	TR	LST: lt brnsh gry-yelsh gry, frm-mod hd, sbblky, microxln	
2170	A/A		
2180	A/A		
2190	100	CLST: dom olv blk, frm-mod hd, sbblky-blky, calc-v calc, ip grd sltst, occ stky	
2200	A/A		
2210	100	CLST: a/a	
	TR	LST: lt olv gry, yelsh gry, md hd, blk, microxln	
2220	90	CLST: grnsh blk, olv blk, frm-mod hd, sbblky-blky, calc-v calc	
	10	LST: a/a	
2230	A/A		
2240	A/A		
2250	100	CLST: a/a	
	TR	LST: a/a	
2260	100	CLST: grnsh blk - olv blk, frm-mod hd, sbblky-blky, calc-v calc	
	TR	LST: lt olv gry, yelsh gry, md hd, blk, microxln	
2270	A/A		
2280	A/A		

BOREKAKSBESKRIVELSE

Land: Norge	Område: Nordsjøen	Felt: Gullfaks Satellitter
Brønn: 34/10-49 A (Apollo)		
MSL-RT: 21,5 m	Selskap: Statoil, Petoro, Hydro	Dato: 28-01.06.06
Hullstørrelse: 8 ½" x 9.05"	Geolog: Ståle Hansen, Lars Kristian Strønen	Side 193 av 11

LITHOLOGIBESKRIVELSE

Dyp m MD	Litologi (%)	Bergartsnavn, litologi, kornstørrelse, sortering, rundingsgrad, matrix, sementering, hardhet, sedimentære strukturer, fossiler, porøsitet, forurensninger	Spor av hydrocarboner, utvaskinger, slamtilsetninger
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2290	100	CLST: grnsh blk - olv blk, frm-mod hd, sbblky-blky, calc-v calc	
	TR	iiii) LST: lt olv gry, yelsh gry, md hd, blky, microxln	
2300	90	CLST: a/a	
	10	LST: a/a	
2310	100	CLST: a/a	
	TR	LST: a/a	
2320	A/A		
2330	A/A		
2340	A/A		
2350	100	CLST: grnsh blk - olv blk, frm-mod hd, sbblky-blky, calc-v calc	
2360	A/A		
2370	A/A		
2380	100	CLST: grnsh blk - olv blk, frm-mod hd, sbblky-blky, calc-v calc, ip pyr	
	TR	jjjj) LST: lt olv gry, yelsh gry, md hd, blky, microxln	
2390	A/A		
2400	A/A		
2410	A/A		
2420	100	CLST: gnsh blk - olv blk, frm-mod hd, sblky-blky, calc-v calc	
2430	A/A		
2440	A/A		
2450	100	CLST: gnsh blk - olv blk, sft-mod hd, sblky-blky, calc-v calc, ip gr slst	

BOREKAKSBESKRIVELSE

Land: Norge	Område: Nordsjøen	Felt: Gullfaks Satellitter
Brønn: 34/10-49 A (Apollo)		
MSL-RT: 21,5 m	Selskap: Statoil, Petoro, Hydro	Dato: 28- 01.06.06
Hullstørrelse: 8 ½" x 9.05"	Geolog: Ståle Hansen, Lars Kristian Strønen	Side 194 av 11

LITHOLOGIBESKRIVELSE

Dyp m MD	Litologi (%)	Bergartsnavn, litologi, kornstørrelse, sortering, rundingsgrad, matrix, sementering, hardhet, sedimentære strukturer, fossiler, porøsitet, forurensninger	Spor av hydrocarboner, utvaskinger, slamtilsetninger
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2460	90	CLST: A/A	
	10	LS/Marl: lt olv gry – lt bnsh gry, sft – frm, sblky	
2470	100	CLST: A/A + r pyr	
	Tr	Lst/marl: A/A	
2480	100	CLST: A/A	
2490	100	CLST: A/A + r ls	
2500	100	CLST: olv blk-gn blk, frm – md hd, sblky-blky, calc	
2510	A/A		
2520	100	CLST: olv blk-gn blk, olv gry, frm – md hd, sblky-blky, calc, gr slst ip	
2530	A/A		
2540		Missed due to lunch	
2550	100	CLST: A/A	
	Tr	LS: lt olv gry-lt bnsh gry, sft – frm, sblky-blky, microxln	
2560	90	CLS: A/A	
	10	LS: A/A	
2570	100	CLST: A/A	
2580	100	CLST: A/A	
2590	A/A		
2601	100	CLST: olv blk, frm – md hd, sblky-blky, non calc - calc	
2604	100	CLST: A/A + gnsh gry	
2607	A/A		

BOREKAKSBESKRIVELSE

Land: Norge	Område: Nordsjøen	Felt: Gullfaks Satellitter
Brønn: 34/10-49 A (Apollo)		
MSL-RT: 21,5 m	Selskap: Statoil, Petoro, Hydro	Dato: 28- 01.06.06
Hullstørrelse: 8 ½" x 9.05"	Geolog: Ståle Hansen, Lars Kristian Strønen	Side 195 av 11

LITHOLOGIBESKRIVELSE

Dyp m MD	Litologi (%)	Bergartsnavn, litologi, kornstørrelse, sortering, rundingsgrad, matrix, sementering, hardhet, sedimentære strukturer, fossiler, porøsitet, forurensninger	Spør av hydrocarboner, utvaskinger, slamtilsetninger
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2610	100	CLST: olv blk – gnsh gry, occ lt olv, frm- md hd, sblky-blky, sl calc - non calc	
2613	A/A		
2616	A/A		
2619	100	CLST: olv blk-gnsh blk, sblky-blky, frm – md hd, non calc	
2622	A/A		
2625	A/A		
2628	A/A		
2631	A/A		
2634	100	CLST: olv blk-gnsh blk, sblky-blky + 10 % bnsh blk – dusky yelsh brn, frm – md hd, non calc	Innslag av brun leire
2637	50	CLST: olv blk-gnsh blk, mod hd, sbblky-blky, non calc	Økende brunt innhold
	50	CLST: dsky brn, frm-mod hd, non calc	
2640	A/A		
2643	70	CLST: olv blk-gnsh blk, mod hd, sbblky-blky, non calc	
	30	CLST: dsky brn, frm-mod hd, non calc	
	TR	LST: lt olv gry-lt brnsh gry, sft – frm, sblky-blky, microxln	
2646	80	CLST: olv blk-gnsh blk, mod hd, sbblky-blky, non calc	
	20	CLST: dsky brn, frm-mod hd, non calc	
	TR	LST: lt olv gry-lt brnsh gry, sft – frm, sblky-blky, microxln	
2649	A/A		
2652	90	CLST: olv blk-gnsh blk, mod hd, sbblky-blky, non calc	
	10	CLST: dsky brn, frm-mod hd, non calc	
	TR	LST: lt olv gry-lt brnsh gry, sft – frm, sblky-blky, microxln	

BOREKAKSBESKRIVELSE

Land: Norge	Område: Nordsjøen	Felt: Gullfaks Satellitter
Brønn: 34/10-49 A (Apollo)		
MSL-RT: 21,5 m	Selskap: Statoil, Petoro, Hydro	Dato: 28- 01.06.06
Hullstørrelse: 8 ½" x 9.05"	Geolog: Ståle Hansen, Lars Kristian Strønen	Side 196 av 11

LITHOLOGIBESKRIVELSE

Dyp m MD	Litologi (%)	Bergartsnavn, litologi, kornstørrelse, sortering, rundingsgrad, matrix, sementering, hardhet, sedimentære strukturer, fossiler, porøsitet, forurensninger	Spor av hydrocarboner, utvaskinger, slamtilsetninger
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2655	100	CLST: olv blk-grnsh blk, mod hd, sbblky-blky, non calc	
	TR	CLST: dsky brn, frm-mod hd, non calc	
	TR	LST: lt olv gry-lt brnsh gry, sft – frm, sblky-blky, microxln	
2658	A/A		
2661	90	CLST: olv blk-grnsh blk, mod hd, sbblky-blky, non calc	
	TR	CLST: dsky brn, frm-mod hd, non calc	
	10	LST: lt olv gry-lt brnsh gry, sft – frm, sblky-blky, microxln	
2664	A/A		
2667	90	CLST: olv blk-grnsh blk, mod hd, sbblky-blky, non calc	
	TR	CLST: dsky brn, frm-mod hd, non calc	
	10	LST: lt olv gry-lt brnsh gry, sft – frm, sblky-blky, microxln	
2670	100	CLST: olv blk-grnsh blk, mod hd, sbblky-blky, non calc, pyr.	
	TR	CLST: dsky brn, frm-mod hd, non calc	
	TR	LST: lt olv gry-lt brnsh gry, sft – frm, sblky-blky, microxln	
2673	100	CLST: olv blk-grnsh blk, mod hd, sbblky-blky, non calc, pyr.	
	TR	CLST: dsky brn, frm-mod hd, non calc	
	TR	LST: lt olv gry-lt brnsh gry, sft – frm, sblky-blky, microxln	
2676	100	CLST: olv blk-grnsh blk, mod hd, sbblky-blky, non calc, v pyr.	Increasing pyrite
	TR	CLST: dsky brn, frm-mod hd, non calc	
	TR	LST: lt olv gry-lt brnsh gry, sft – frm, sblky-blky, microxln	
2679	A/A		
2682	A/A		
2685	A/A		
2688	A/A		
2691	90	CLST: olv blk-grnsh blk, mod hd, sbblky-blky, non calc, v pyr.	

BOREKAKSBESKRIVELSE

Land: Norge	Område: Nordsjøen	Felt: Gullfaks Satellitter
Brønn: 34/10-49 A (Apollo)		
MSL-RT: 21,5 m	Selskap: Statoil, Petoro, Hydro	Dato: 28- 01.06.06
Hullstørrelse: 8 ½" x 9.05"	Geolog: Ståle Hansen, Lars Kristian Strønen	Side 197 av 11

LITHOLOGIBESKRIVELSE

Dyp m MD	Litologi (%)	Bergartsnavn, litologi, kornstørrelse, sortering, rundingsgrad, matrix, sementering, hardhet, sedimentære strukturer, fossiler, porøsitet, forurensninger	Spor av hydrocarboner, utvaskinger, slamtilsetninger
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	TR	CLST: dsky brn, frm-mod hd, non calc	
	10	LST: lt olv gry-lt brnsh gry, sft – frm, sblky-blky, microxln	
2694	90	CLST: olv blk-grnsh blk, mod hd, sbblky-blky, non calc, v pyr.	
	TR	CLST: dsky brn, frm-mod hd, non calc	
	10	LST: lt olv gry-lt brnsh gry, sft – frm, sblky-blky, microxln	
2697	A/A		
2700	A/A		
2703	100	CLST: olv blk-grysh blk, mod hd, sbblky-blky, non calc, pyr	
	TR	LST: lt olv gry-lt brnsh gry, sft – frm, sblky-blky, microxln	
2706	100	CLST: olv blk-grysh blk, ip grnsh blk, mod hd, sbblky-blky, non calc, pyr	
	TR	LST: lt olv gry-lt brnsh gry, sft – frm, sblky-blky, microxln	
2709	90	CLST: olv blk-grysh blk, ip grnsh blk, mod hd, sbblky-blky, non calc, pyr	
	10	SLTST: dk yelsh brn, mod hd, ip calc cmttd	
	TR	LST: lt olv gry-lt brnsh gry, sft – frm, sblky-blky, microxln	
2712	A/A		
2715	100	CLST: olv blk-grysh blk, ip grnsh blk, mod hd, sbblky-blky, non calc, pyr	
	TR	SLTST: dk yelsh brn, mod hd, ip calc cmttd	
	TR	LST: lt olv gry-lt brnsh gry, sft – frm, sblky-blky, microxln	
2718	A/A		
2721	80	CLST: olv blk-grysh blk, ip grnsh blk, mod hd, sbblky-blky, non calc, pyr	
	10	SLTST: dk yelsh brn, mod hd, ip calc cmttd	
	10	LST: lt olv gry-lt brnsh gry, sft – frm, sblky-blky, microxln	
2724	A/A		
2727	100	CLST: olv blk-grysh blk, ip grnsh blk, mod hd, sbblky-blky, non calc, pyr	

BOREKAKSBESKRIVELSE

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Hullstørrelse: 8 ½" x 9.05"	Geolog: Ståle Hansen, Lars Kristian Strønen	Side 198 av 11

LITHOLOGIBESKRIVELSE

Dyp m MD	Litologi (%)	Bergartsnavn, litologi, kornstørrelse, sortering, rundingsgrad, matrix, sementering, hardhet, sedimentære strukturer, fossiler, porøsitet, forurensninger	Spor av hydrocarboner, utvaskinger, slamtilsetninger
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	TR	SLTST: dk yelsh brn, mod hd, ip calc cmtd	
	TR	LST: lt olv gry-lt brnsh gry, sft – frm, sblky-blky, microxln	
2730	100	CLST: olv blk-grysh blk, ip grnsh blk, mod hd, sbblky-blky, non calc, pyr	
	TR	SLTST: dk yelsh brn, mod hd, ip calc cmtd	
	TR	LST: lt olv gry-lt brnsh gry, sft – frm, sblky-blky, microxln	
2733	A/A		
2736	A/A		
2740	A/A		
2750			LOST
2760	100	CLST: olv blk-grysh blk, ip grnsh blk, mod hd, sbblky-blky, non calc, pyr	
	TR	LST: lt olv gry-lt brnsh gry, sft – frm, sblky-blky, microxln	
2770	A/A		
2780	100	CLST: olv blk-grysh blk, ip grnsh blk, mod hd, sbblky-blky, non calc, pyr	
	TR	SLTST: dk yelsh brn, mod hd, ip calc cmtd	
	TR	LST: lt olv gry-lt brnsh gry, sft – frm, sblky-blky, microxln	
2790	A/A		
2800	A/A		
2810	A/A		
2817	80	CLST: olv blk-grysh blk, ip grnsh blk, mod hd, sbblky-blky, non calc, pyr	SPOT SAMPLE; 3% GAS
	TR	SLTST: dk yelsh brn, mod hd, ip calc cmtd	
	20	LST: lt olv gry-lt brnsh gry, sft – frm, sblky-blky, microxln	
2830	90	CLST: olv blk – grysh blk, sblky-blky, slily – non calc	
	10	LS: lt brnsh gry, frm-md hd, sblky- blky, microxln	

BOREKAKSBESKRIVELSE		
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Hullstørrelse:8 ½" x 9.05"	Geolog: Ståle Hansen, Lars Kristian Strønen	Side 199 av 11

LITHOLOGIBESKRIVELSE			
Dyp m MD	Litologi (%)	Bergartsnavn, litologi, kornstørrelse, sortering, rundingsgrad, matrix, sementering, hardhet, sedimentære strukturer, fossiler, porøsitet, forurensninger	Spor av hydrocarboner, utvaskinger, slamtilsetninger

2840	100	CLST: A/A + occ dk gnsh gry	
2850	100	CLST : A/A	
	Tr	LS: A/A	
	Tr	SLST: dk yelsh brn, md hd, dom calc cem	
2860	A/A		
2870	100	CLST: A/A	
	r	LS: A/A	
2880	100	CLST: gnsh gry, dk gry, else A/A	
	r	LS: A/A	
2890	A/A		
2900	100	CLST: A/A, + r pyr	
	Tr	Lt bnsh gry, hd, blk, microxln	
2910	85	CLST: A/A	
	15	LST: lt brnsh gry, lt olv gry, frm-md hd, sblky-blky, microxln	
2920	90	CLST: A/A	
	10	LS: A/A	
	Tr	DOL: A/A	
2930	100	CLST: olv gry-gnsh blk, frm-md hd, sblky-blky, occ plty, non calc	
	Tr	LS: A/A	
	Tr	DOL: A/A	
2940	A/A		
2950	100	CLST: A/A, + occ bnsh blk, grad sltst, occ calc, r pyr	
2960	A/A		
2970	100	CLST: A/A	
	Tr	LS: v dusk red, else A/A	

BOREKAKSBESKRIVELSE

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MSL-RT: 21,5 m	Selskap: Statoil, Petoro, Hydro	Dato: 28- 01.06.06
Hullstørrelse: 8 ½" x 9.05"	Geolog: Ståle Hansen, Lars Kristian Strønen	Side 200 av 11

LITHOLOGIBESKRIVELSE

Dyp m MD	Litologi (%)	Bergartsnavn, litologi, kornstørrelse, sortering, rundingsgrad, matrix, sementering, hardhet, sedimentære strukturer, fossiler, porøsitet, forurensninger	Spor av hydrocarboner, utvaskinger, slamtilsetninger
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2980	A/A	CLST : + r micropyr	
2990	A/A		
3000	95	CLST: A/A	
	5	LS/Marl: dk yelsh brn, sft – frm, sublky-blky	
3010	90	CLST; A/A	
	10	LS/Marl: A/A	
3020	100	CLST: dk gry-grnsh blk, frm-md hd, sblky-blky, grad slst i.p., non calc	
	Tr	LS: lt brnsh gry, lt olv gry, occ v dusk red, frm-md hd, sblky-blky, microxln	
3030	50	SD: clr-trnsl qtz, crs-v crs, well srted, subang-subrnd, lse	
	50	CLST: a/a	
3040	A/A		
3050	80	SD: clr-trnsl qtz, med-v crs, mod srted, subang-subrnd, lse, occ cmted aggr	
	20	CLST: dk gry-grysh blk, frm-mod hd, sbblky-blky, ip slty, non calc	
3060	90	SD: clr-trnsl qtz, f-v crs, prly srted, pred med, subang-subrnd, lse, occ cmted aggr	
	10	CLST: dk gry-grysh blk, frm-mod hd, sbblky-blky, ip slty, non calc	
3070	70	SD: a/a	
	30	CLST: a/a	
3080	60	SD: clr-trnsl qtz, vf-crs, pred f-med, prly srted, subang-subrnd, pred aggr, occ grd sltst	
	20	SLTST: yelsh gry-brnsh gry, occ lt gry, sft-frm, amor, occ arg	
	20	CLST: grysh blk-blk, sft-frm, sbblky, ip carb, non calc	
3090	A/A		
3100	40	SD: clr-trnsl qtz, vf-med, pred f, mod srted, subang-subrnd, pred aggr, occ grd sltst	

BOREKAKSBESKRIVELSE

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Hullstørrelse: 8 ½" x 9.05"	Geolog: Ståle Hansen, Lars Kristian Strønen	Side 201 av 11

LITHOLOGIBESKRIVELSE

Dyp m MD	Litologi (%)	Bergartsnavn, litologi, kornstørrelse, sortering, rundingsgrad, matrix, sementering, hardhet, sedimentære strukturer, fossiler, porøsitet, forurensninger	Spor av hydrocarboner, utvaskinger, slamtilsetninger
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	30	SLTST: yelsh gry-brnsh gry, occ lt gry, sft-frm, amor, occ arg	
	30	CLST: grysh blk-blk, sft-frm, sbblky, ip carb, non calc	
3110	25	SD: clr-trnsl qtz, vf-med, pred f, mod srtd, subang-subrnd, pred aggr, occ grd sltst	
	50	SLTST: yelsh gry-brnsh gry, occ lt gry, sft-frm, amor, occ arg	
	25	CLST: grysh blk-blk, sft-frm, sbblky, ip carb, non calc	
3120	A/A		
3130	10	SD: a/a	
	50	SLTST: a/a	
	40	CLST: a/a	
3140	A/A		
3150	80	SLTST: yelsh gry-brnsh gry, occ lt gry, frm-mod hd, amor, occ arg	
	20	CLST: grysh blk-olv blk, frm, sbblky-blky, ip carb, non calc, occ slty	
3160	50	SLST: brnsh gry, yeslh gry, frm- md hd, amor, occ arg	
	10	CLST: a/a	
	30	COAL: blk: md hd, subly-blky, way	
		Brnsh blk: dom sft, grd clst, occ ea	
3170	60	CLST: A/A	
	40	SLST: Dom brnsh gry, elsea A/A, grd vf sst	
	Tr	SD: clr-trnsl qtz, med-v crs, dom v crs, md srtd, subang-sbrnd, loose	
3180	70	SLST: yelsh gry-brnsh gry, occ lt gry, frm-mod hd, amor, occ arg	
	25	CLST: grysh blk-olv blk, frm, sbblky-blky, ip carb, non calc, occ slty	
	5	SD: clr-trnsl qtz, occ mlky wh, r rdsh, med – v crs, predom v crs, subang – subrnd, occ ang, loose	
3190	60	SLST: yelsh gry-brnsh gry, occ lt gry, frm-mod hd, amor, occ arg, gr vf sst	
	35	CLST: grysh blk-olv blk, frm, sbblky-blky, ip carb, non calc, occ slty	
	5	SD: clr-trnsl qtz, f-crs, pred f-med, mod srtd, subang-subrnd, loose	

BOREKAKSBESKRIVELSE

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Hullstørrelse: 8 ½" x 9.05"	Geolog: Ståle Hansen, Lars Kristian Strønen	Side 202 av 11

LITHOLOGIBESKRIVELSE

Dyp m MD	Litologi (%)	Bergartsnavn, litologi, kornstørrelse, sortering, rundingsgrad, matrix, sementering, hardhet, sedimentære strukturer, fossiler, porøsitet, forurensninger	Spor av hydrocarboner, utvaskinger, slamtilsetninger
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3200	100	SLST: dom yelsh gry, occ brnsh gry, frm-md hd, sublky, occ amor, grd vf sst.	
	Tr	Coal: blk, md hd, blk, waxy	
3210	95	SLST: : dom yelsh gry, occ brnsh gry, frm-md hd, occ amor, grd vf sst.	
	5	Coal: blk, brit-md hd, blk, waxy	
		Coal 2: brnsh blk, sft, ea, grd carb clst	
3220	80	SD: clr-trnsl qtz, f-m, occ crs, wl-md srted, sbang-subrned, occ calc cem	
	20	SLST: dom yelsh gry, occ brnsh gry, frm-md hd, occ amor, grd vf sst.	
3230	A/A		
3240	90	SLST: lt brn – brsnh gry, sft, amor, grd vf sst	
	10	SD: clr-trnsl qtz, vf-crs, predom fn, md srted, sbang-subrned	
3250	90	SLST: brnsh gry, sft-md hd, amor-sublky, grd vf sst,	
	10	SD: clr-trnsl qtz, vf-crs, predom fn-med, md srted, sbang-subrned	
	Tr	Coal: A/A	
	Tr	CLST: md dk gry, sblky-blky, frm-hd, non calc	
3260	50	SLST: A/A	
	40	CLST: A/A	
	10	SD: A/A	
	Tr	Coal: A/A	
3270	40	CLST: A/A	
	30	SD: A/A	
	30	SLST: A/A	
	Tr	Coal: A/A	
3280	80	SLST: yelsh gry-lt brnsh gry, sft-frm, amor-sblky, grd vf sst,	
	10	CLST:	
	10	SD: A/A, predom fn	

BOREKAKSBESKRIVELSE

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LITHOLOGIBESKRIVELSE

Dyp m MD	Litologi (%)	Bergartsnavn, litologi, kornstørrelse, sortering, rundingsgrad, matrix, sementering, hardhet, sedimentære strukturer, fossiler, porøsitet, forurensninger	Spor av hydrocarboner, utvaskinger, slamtilsetninger
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3290	85	SLST: yelsh gry-lt brnsh gry, sft-frm, amor-sblky, grd vf sst,	
	10	CLST: dk gry – blk, blky, carb, gr coal ip	
	5	SD: vf-med, predom fn, else A/A	
3300	A/A		
3312	60	SLST: A/A	
	30	CLST: dk gry – blk, blky, carb, gr coal ip	
	10	SD: clr-trnsl qtz, vf-f, predom vf, md srtd, sbang-subrnd	

11 Appendix 6 Core descriptions

No cores

12 Appendix 7 Sidewall core descriptions

No sidewall cores

13 **Appendix 8 NPD standard sheet for reporting shallow gas**

INFORMATION TO NPD (NORWEGIAN PETROLEUM DIRECTORATE)

1. Distance from Drill floor to sea (RKB - MSL): 21.5 m
2. Water depth: 159.5 m MSL
- 3a. Setting depth 30" conductor: 208 m MD RKB
- 3b. Formation integrity test (g/cc): Not performed
- 4a. Setting depth for casing where upon BOP is installed: 1045 m MD RKB
6. Depth interval (m RKB and m TVD) and age of sand layers shallower than 1000 m below the seabed. Quote which layers contain gas: ---
 - 218 – 2223 MD/mTVD RKB: Sand – Water filled
 - 308 – 313 m MD/mTVD RKB Sand - Water filled
 - 337 – 344m MD/mTVD RKB Sand - Water filled
 - 425 – 430m MD/mTVD RKB Sand - Water filled
 - 614 – 617m MD/mTVD RKB Sand - Water filled
 - 657 - 663m MD/mTVD RKB Sand - Water filled
 - 687 – 694m MD/mTVD RKB Sand - Water filled
 - 860 - 865m MD/mTVD RKB Sand- Water filled
 - 901 - 1035m MD/mTVD RKB Utsira Fm - Water filled
7. No occurrence of shallow gas accumulations was observed in the well down to TD of PH.
8. Not available.
9. Not available.
10. Point out the depth (m RKB and TVD) to unconformities in the bore hole position: N/A
11. Point out the distribution of the sand layers (communication, continuity, truncation, etc.): N/A
12. Point out the distribution of possible gas blanking: N/A
13. Point out possible seismic indications of the gas coming from a deeper level.
Description if the gas is from a deeper level: N/A
14. How does the interpretation of the well site survey coincide with the bore hole data, regarding:
 - Shallow gas: No shallow gas was encountered, as predicted.
 - Sand layers: Predicted Sand layers at 299, 441, 465, 479, 609, and 711 m MD were encountered as predicted in the site survey, but generally slightly deeper.

Top Utsira Fm. was encountered at 901m MD, 5 m shallower than predicted from the site survey.

Base Quaternary encounter at 425m MD, prognosed in site survey at 441m TVD.

14 Appendix 9 Enclosures

14.1 Composite log

14.2 Formation Evaluation log

14.3 Pressure Evaluation log

Her er liste over figurer og tabeller som skal inngå i sluttrapporten

15 Appendix 10 Figures and tables

Field and prospects in block 34/10 (fig. 1)

The position of the Apollo prospect and the leads (fig. 2)

Profile of the prospect area, southwest of Gullfaks A (fig. 3)

Seismic well tie (fig. 4)

Geological section along the sidetrack 34/10-49 A (fig. 5)

Data Acquisition Summary (fig. 6)

Seismic random line through the Apollo and Epidote prospects (fig. 7)

Seismic line through Epidote (fig. 8)

MDT pressure plot Epidote (fig. 9)

MDT pressure plot, Statfjord Formation (fig. 10)

Formation Pressure Plot (fig. 11)

Formation Pressure Plot, measured depth (fig. 12)

Wellhead system (fig)

Casing programme summary, well 34/10-49 S, -49 ST2, -49 B (table 1.1.1)

Casing programme summary, well 34/10-49 A (table 1.1.2)

Drilling fluids summary (table 1.2)

Formation tops, 34/10-49 S (table 4.3.1.1)

Formation tops, 34/10-49 ST2 & B (table 4.3.1.2)

Formation tops, 34/10-49 A (table 4.3.1.3)

Gas peaks in the 8 ½" section, well 34/10-49 S

Gas peaks in the 8 ½" section, well 34/10-49 ST2

Gas peaks in the 8 ½" section, well 34/10-49 B

Gas peaks in the 8 ½" section, well 34/10-49 A

MWD logging (table 4.6)

LWD run summary (table 4.7)

Pressure test summary (table 4.8)

Wireline Logging Summary (table 4.9)

Formation Pressures (table 4.10)

Sampling/scanning details (table 4.11)

Sampling details (table 4.12)

Sampling details (4.13)