

# Final Well Report (Exploration) 34/10-44S / 34/10-J-4 H

TD , Version 1, Valid from 06.08.2002

Validity area:

UPN GF RESU SRFG / BEV DRB / On- and offshore

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# 1 Introduction

## 1.1 Well data record

License number:	PL050/050B
Area:	Tampen
Prospect / Field:	Rimfaks
Block number:	34/10
Well name:	34/10-44S / 34/10-J-4H
Well type:	Exploration / Gas Injector
Drilling rig:	Transocean Wildcat
Foundation frame:	J
Slot:	4
Well identification:	GIS 21
Water depth / air gap:	137 m MSL / 25 m RKB
TD:	4865m MD RKB (3669.7m TVD RKB)
Drilling 36" section started:	29.05.01 kl. 07:30
Drilling 8 1/2" section completed:	09.07.01 kl. 12:00
Well Status:	Well completed

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

### **J-4 H slot centre co-ordinates (at wellhead level):**

Geographic:	Lat. 61° 03' 50.6468" N	Long. 02° 00' 10.9063" E
UTM:	677 0494.0303 m N	446 185.3982 m E
Rectangular:	0,87 m S	4,90 m E (from structure centre)

## 1.2 Well objectives

In the time from spud of this well to the cementing of the perforations in the Lunde Formation, this was an exploration well 34/10-44S. The well was then re-classified to exploitation (gas injector) well 34/10-J-4H.

Primary objective of this well was gas injection in the Statfjord Formation in segment P3 at the Rimfaks Field. The well penetrated the hole of the Statfjord Formation, and was later completed in the zones of interests.

The secondary objective was to investigate the Lunde Formation at the Rimfaks Field. The well was therefore extended approx. 500m TVD into the Lunde Formation. Hydrocarbons were discovered, and drill stem test performed.

The tertiary objective of this well was gathering additional reservoir data from the Cook Formation. However, this data were not obtained since the Cook Formation is eroded.

## 1.3 Result of the well

Base Cretaceous came in almost 117 m TVD deeper than prognosed. All of the Cook Formation was eroded, and the planned data acquisition on wireline was cancelled in the 12 ¼" section. 9 5/8" casing was set at the top of the Statfjord Formation. The top of the Statfjord Formation, and all the internal tops in the reservoir, came in more or less according to the prognosis, within +/- 10 m TVD. The Lunde Formation came in 40 m TVD shallower than prognosed.

Several of the Statfjord Formation sands show pressure depletion. The depletion was about as expected in the upper part of the Statfjord Formation, 50 bar in the Nansen Member, and 56-60 bar in the Eiriksson Member Unit 2. The lower part of the Statfjord Formation was in general more depleted than prognosed. The Eiriksson Member Unit 1 was 56-76 bar depleted, while the depletion in the Raude Formation ranged from 0-81 bar.

In the Lunde Formation it was discovered light oil and condensate. This resulted in a more extensive data acquisition program, than originally planned. The formation was cored, and the MDT consisted of both pressure points and fluid sampling. The Lunde Formation had initial pressures. At a later stage, a drill stem test (DST) was performed.

## 1.4 Drilling summary

### 1.4.1 Casing

- Well is drilled to TD at 4865 m.
- No HC bearing formation behind the 3 3/8" casing string.
- Max pore pressure is estimated to 1,57 g/cm<sup>3</sup>.
  
- Status of casings:


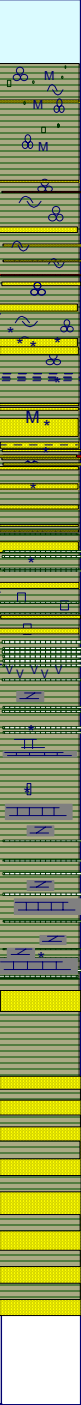
Casing size	Casing depth m MD RKB/ m TVD RKB	Hole depth m MD RKB /m TVD RKB	Test pressure/ mud weight/ mud type	Result g/cm <sup>3</sup>
30"	220/220			
20"	711/701	724/715	90 bar w/ 1,03 sg g/cm <sup>3</sup> SW	1,54 (LOT)
13 3/8"	2305/2004	2315/2016	285 bar w/ 1,44 sg g/cm <sup>3</sup> Glydril mud	1,73 (FIT)
9 5/8"	3752/2859	3762/2866	350 bar w/ 1,60 sg g/cm <sup>3</sup> Versavert mud	1,74 (FIT)
7"	4861/3666	4865/3670	200 bar w/ 1,56 sg g/cm <sup>3</sup> Versavert mud	
7"x 9 5/8" x 10 3/4"	4861/3666	4865/3670	450 bar w/ seawater	

### 1.4.2 Drilling fluids

- The following fluid were present:

Conduit	Fluid present	Fluid properties
13 3/8" x 20" annulus	WBM	1,44 g/cm <sup>3</sup>
13 3/8" annulus	WBM	1,44 g/cm <sup>3</sup>
9 5/8" annulus	OBM	1,60 g/cm <sup>3</sup>

1.5 Data acquisition summary

Well: 34/10-J-4 H			Data Acquisitions Programme 34/10-J-4 H (GIS21) Rimfaks					
RKB - MSL: 25 m							Made by: Laastad/Kalleson	Date:04.04.01 Rev.: 1
Water depth: 137 m								
Stratigraphy			Casing Size	Depth TVD (mRKB)	Coring	Geological Sampling	Logging Programme for MWD/LWD and Electrical Logging	
System	Group	Formation Member						Lithology
Quat.	Nordland	Seabed m TVD RKB 162		0	No Coring	Return to Seabed		
				200	No Coring	Return to Seabed	LWD: Dir only	
Tertiary	Hordaland	Utsira 827		30" 221/ 221	No Coring	Return to Seabed		
		Sandy part 948		20" 707/ 700	No Coring	No Sampling	LWD: GR/Res	
	Rogaland	Balder 1765		13 3/8" 2316/ 2012	Option: 80 m coring in Cook Fm.	1 set wet sample (not washed) 1 set dry sample (washed and dried)	12 1/4" LWD: GR/Res  12 1/4" Electrical Logging (only in the reservoir part of the section): GR/Res*/Neutr/Dens/MDT**/CMR***  * If Res from LWD are of adequate quality, Res on Electrical Logging may be skipped ** Pressure points in Cook Fm. *** Option if oil in Cook Fm.	
		Lista 1840		2000				
Cretaceous	Shetland	Blockks/Kyrre/Jorsalfare 1985		2200				
Jurassic	Dunlin	Drake 2597 Cook Am/Burt		2600				
	Statfjord Fm.	2862 Nansen Mbr. Eiriksson Mbr. Raude Mbr.		2800				
Triassic	Hegre	Lunde 3215		3000				
				3200				
				3400				
				3600				

TD: 3500 m TVD RKB / 4660m MD RKB

Fig. 6.6

## 2 Exemptions and non-conformances

<p>Description of exemptions and non-conformances:</p> <p>Changes from the drilling programme in the 12 1/4" and 8 1/2" sections;</p> <p><b>Revised well path;</b> The well path will be placed 42 m to the east (95,44 degrees) of the original well path at T#1. This is still within the original drillers target.</p> <p>The new well path results in;  <div style="margin-left: 40px;">Estimated top Staffjord will be at 2851 m TVD instead of 2862 m TVD.</div> <div style="margin-left: 40px;">TD for the 12 1/4" section will be at 2824 m TVD instead of 2835 m TVD.</div> </p> <p><b>Pore pressure Prognosis;</b> The pore pressure Prognosis is revised and updated for the 12 1/4" and 8 1/2" sections.</p> <p>The following changes is implemented;  <div style="margin-left: 40px;">Mud weight in the 12 1/4" section ranges from; 1,60 - 1,65 sg (before 1,60 - 1,62 sg).</div> <div style="margin-left: 40px;">Mud weight in the 8 1/2" section ranges from 1,55 - 1,60 sg (before 1,60 - 1,62 sg).</div> </p> <p>Consequences: There are no consequences related to this changes from the drilling programme.</p>
<p><b>SCHEDULE FOR EXEMPTIONS AND NON-CONFORMANCES</b> Until the 7" liner is cemented and tested for well 34/10-J 04 H.</p>
<p><b>ESTIMATED COST OF EXEMPTIONS AND NON-CONFORMANCES</b> Non-additional expenditure related to these changes.</p>
<p><b>COMPENSATING SOLUTION:</b></p>
<p><b>TOTAL ESTIMATION OF EXEMPTIONS AND NON-CONFORMANCES</b> The exemptions and non-conformances are professionally considered as appropriate</p>
<p><b>COMMENTS:</b></p>

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



### **3.1 Experience summary**

### 3.2 Time distribution

Drilling			
Duration (days)	Actual Duration (days)	Cost (NOK Mill)	Effec. Cost (NOK Mill)
57	41.2	107.2	81.3
Completion			
Duration (days)	Actual Duration (days)	Cost (NOK Mill)	Effec. Cost (NOK Mill)
24	13.2	49.3	40.1

See appendix, other reports, for a time distribution plot

## 4 Geology and formation data report

### 4.1 Geological setting and results

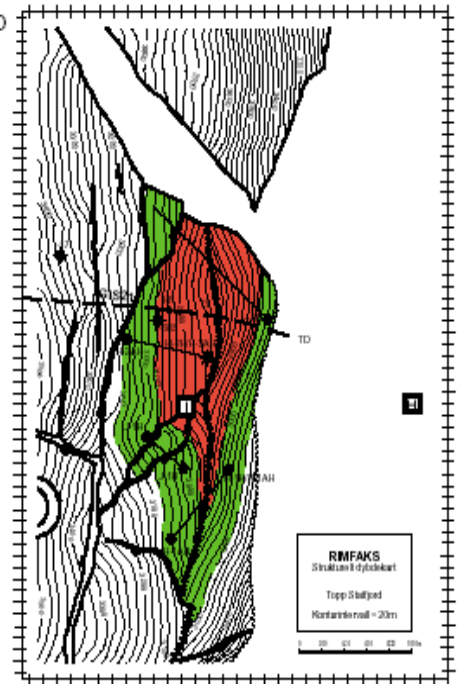
#### Geological summary

#### 34/10-44 S & 34/10-J-4 H

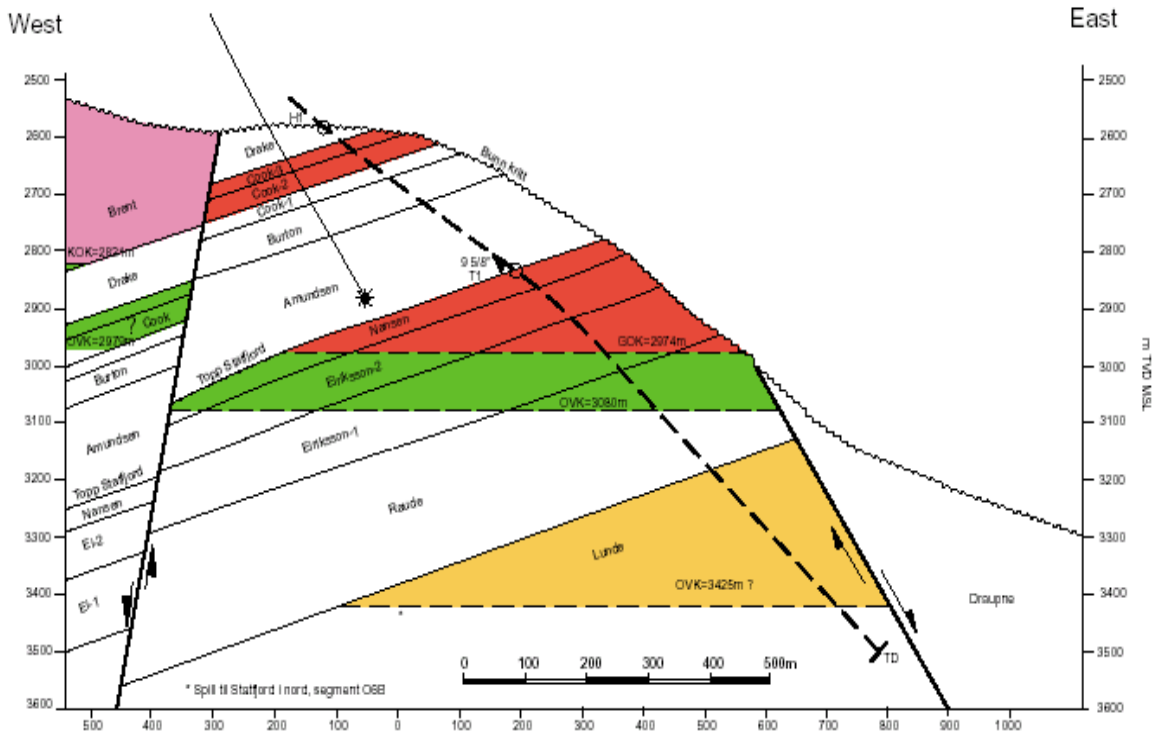
Summary:  
 \*Base Cretaceous: 116 m TVD deep  
 \*Cook Formation: eroded at well position  
 \*Top Stafford Formation: according to prognosis  
 \*Upper Stafford Formation had pressure depletion as expected, lower Stafford Formation was more depleted than expected, up to 75-80 bar  
 \*Discovery of light oil/gas in the Lunde Formation  
 \*46 m core taken in the Lunde Formation  
 \*DST performed in the Lunde Formation  
 \*The well is perforated for gas injection in the Eiriksson Member



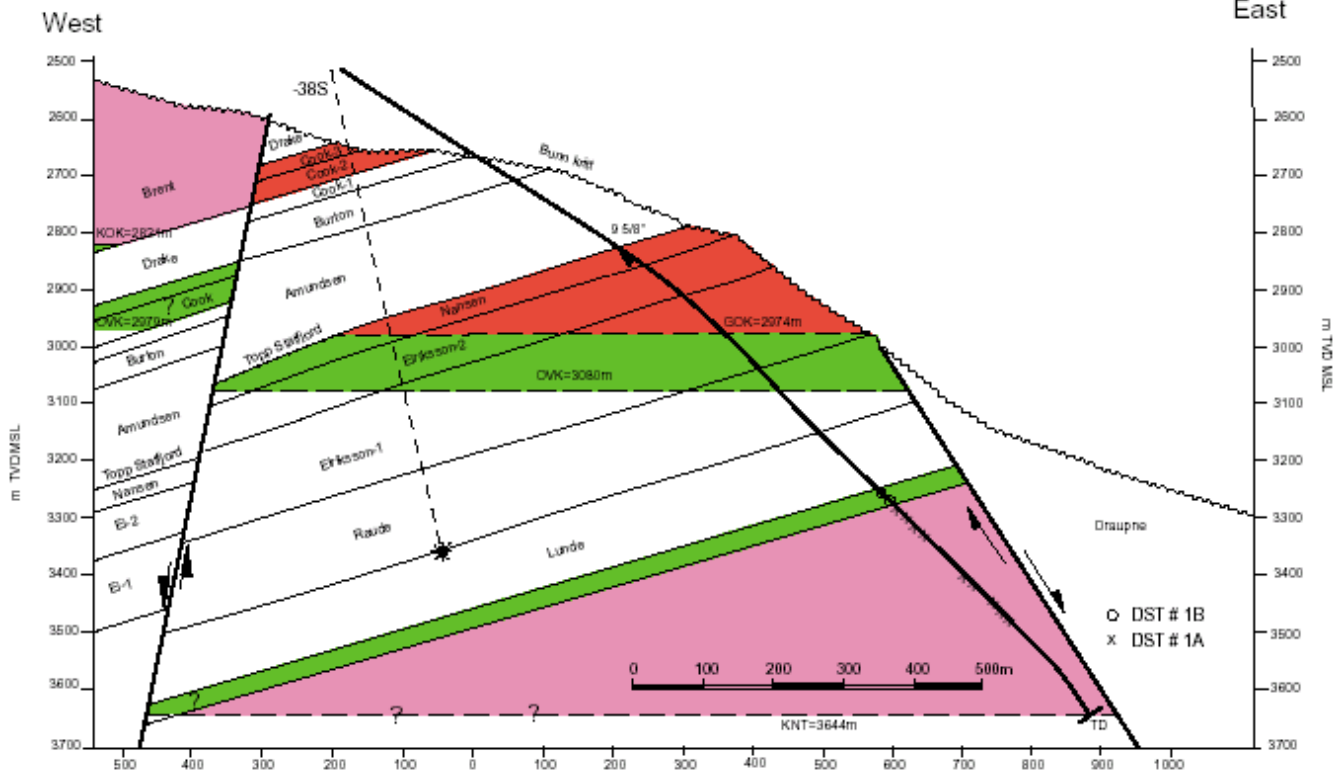
Structural depth map  
 Stafford Formation  
 Rimfaks



Before drilling



After drilling



Base Cretaceous came in almost 117 m TVD deeper than prognosed. All of the Cook Formation was eroded, and the planned data acquisition on wireline was cancelled in the 12 1/4" section. 9 5/8" casing was set at the top of the Statfjord Formation. The top of the Statfjord Formation, and all the internal tops in the reservoir, came in more or less according to the prognosis, within +/- 10 m TVD. The Lunde Formation came in 40 m TVD shallower than prognosed.

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**Final Well Report (Exploration) 34/10-44S / 34/10-J-4 H**

Statoil technical and professional descriptions and guidelines

TD , Version 1, Valid from 06.08.2002

Surface name	MD	TVD	TVDSS	Dip	Azi	Easting	Northing
NORDLAND GP. Top	700.0	691.2	-666.2			446263.552	6770492.427
Utsira Fm. Top	841.0	827.6	-802.6			446299.0016	6770489.432
Utsira Fm. Base	965.0	947.6	-922.6			446330.3056	6770486.787
NORDLAND GP. Base	965.0	947.6	-922.6			446330.3056	6770486.787
HORDALAND GP. Top	965.0	947.6	-922.6			446330.3056	6770486.787
HORDALAND GP. Base	2002.0	1779.1	-1754.1			446915.4579	6770374.591
ROGALAND GP. Top	2002.0	1779.1	-1754.1			446915.4579	6770374.591
Balder Fm. Top	2002.0	1779.1	-1754.1			446915.4579	6770374.591
Balder Fm. Base	2100.0	1852.6	-1827.6			446978.8702	6770361.456
Lista Fm. Top	2100.0	1852.6	-1827.6			446978.8702	6770361.456
Lista Fm. Base	2278.0	1984.7	-1959.7			447096.1945	6770340.016
ROGALAND GP. Base	2278.0	1984.7	-1959.7			447096.1945	6770340.016
SHETLAND GP. Top	2278.0	1984.7	-1959.7			447096.1945	6770340.016
SHETLAND GP. Base	3498.0	2713.7	-2688.7			448064.359	6770242.986
BCU	3498.0	2713.7	-2688.7			448064.359	6770242.986
DUNLIN GP. GF-SAT Top	3498.0	2713.7	-2688.7	17	270	448064.359	6770242.986
Burton Fm. GF-SAT Top	3498.0	2713.7	-2688.7	17	270	448064.359	6770242.986
Amundsen Fm. GF-SAT Top	3535.0	2733.2	-2708.2	17	270	448095.6477	6770240.267
Burton Fm. GF-SAT Base	3535.0	2733.2	-2708.2	17	270	448095.6477	6770240.267
Nansen-1 GF-SAT Top	3744.0	2855.2	-2830.2	17	270	448263.7779	6770220.304
Amundsen Fm. GF-SAT Base	3744.0	2855.2	-2830.2	17	270	448263.7779	6770220.304
DUNLIN GP. GF-SAT Base	3744.0	2855.2	-2830.2	17	270	448263.7779	6770220.304
Statfjord Fm. GF-SAT Top	3744.0	2855.2	-2830.2	17	270	448263.7779	6770220.304
Nansen Mbr. GF-SAT Top	3744.0	2855.2	-2830.2	17	270	448263.7779	6770220.304
Nansen-1B GF-SAT Top	3744.0	2855.2	-2830.2	17	270	448263.7779	6770220.304
Nansen-1B GF-SAT Base	3753.0	2861.0	-2836.0	17	270	448270.5918	6770219.479
Nansen-1A GF-SAT Top	3753.0	2861.0	-2836.0	17	270	448270.5918	6770219.479
Nansen-1A GF-SAT Base	3775.9	2875.9	-2850.9	17	270	448287.9552	6770217.378
Nansen-1 GF-SAT Base	3775.9	2875.9	-2850.9	17	270	448287.9552	6770217.378
Nansen Mbr. GF-SAT Base	3775.9	2875.9	-2850.9	17	270	448287.9552	6770217.378
Eiriksson Mbr. GF-SAT Top	3775.9	2875.9	-2850.9	17	270	448287.9552	6770217.378
Eiriksson-2 GF-SAT Top	3775.9	2875.9	-2850.9	17	270	448287.9552	6770217.378
Eiriksson-2B GF-SAT Top	3775.9	2875.9	-2850.9	17	270	448287.9552	6770217.378
Eiriksson-2B GF-SAT Base	3817.9	2903.9	-2878.9	17	270	448319.0189	6770213.977
Eiriksson-2A GF-SAT Top	3817.9	2903.9	-2878.9	17	270	448319.0189	6770213.977
Eiriksson-2A GF-SAT Base	3873.0	2942.5	-2917.5	17	270	448357.9897	6770209.394
Eiriksson-2 GF-SAT Base	3873.0	2942.5	-2917.5	17	270	448357.9897	6770209.394
Eiriksson-1 GF-SAT Top	3873.0	2942.5	-2917.5	17	270	448357.9897	6770209.394
Eiriksson-1B GF-SAT Top	3873.0	2942.5	-2917.5	17	270	448357.9897	6770209.394
Eiriksson-1B GF-SAT Base	3947.5	2995.2	-2970.2	17	270	448410.4209	6770204.152
Eiriksson-1A GF-SAT Top	3947.5	2995.2	-2970.2	17	270	448410.4209	6770204.152
Eiriksson-1A GF-SAT Base	3982.0	3019.6	-2994.6	17	270	448434.7314	6770201.98
Eiriksson-1 GF-SAT Base	3982.0	3019.6	-2994.6	17	270	448434.7314	6770201.98
Eiriksson Mbr. GF-SAT Base	3982.0	3019.6	-2994.6	17	270	448434.7314	6770201.98
Raude Mbr. GF-SAT Top	3982.0	3019.6	-2994.6	17	270	448434.7314	6770201.98
Raude-2 GF-SAT Top	3982.0	3019.6	-2994.6	17	270	448434.7314	6770201.98
Raude-2B GF-SAT Top	3982.0	3019.6	-2994.6	17	270	448434.7314	6770201.98
Raude-2B GF-SAT Base	4010.0	3039.4	-3014.4	17	270	448454.4756	6770200.314
Raude-2A GF-SAT Top	4010.0	3039.4	-3014.4	17	270	448454.4756	6770200.314
Raude-2A GF-SAT Base	4056.2	3072.0	-3047.0	17	270	448487.0709	6770197.512

Raude-2 GF-SAT Base	4056.2	3072.0	-3047.0	17	270	448487.0709	6770197.512
Raude-1 GF-SAT Top	4056.2	3072.0	-3047.0	17	270	448487.0709	6770197.512
Raude-1B GF-SAT Top	4056.2	3072.0	-3047.0	17	270	448487.0709	6770197.512
Raude-1B GF-SAT Base	4118.0	3115.6	-3090.6	17	270	448530.7423	6770193.929
Raude-1A GF-SAT Top	4118.0	3115.6	-3090.6	17	270	448530.7423	6770193.929
Raude-1A GF-SAT Base	4204.0	3176.5	-3151.5	17	270	448591.2655	6770189.099
Raude-1 GF-SAT Base	4204.0	3176.5	-3151.5	17	270	448591.2655	6770189.099
Raude Mbr. GF-SAT Base	4204.0	3176.5	-3151.5	17	270	448591.2655	6770189.099
Statfjord Fm. GF-SAT Base	4204.0	3176.5	-3151.5	17	270	448591.2655	6770189.099
HEGRE GP. GF-SAT Top	4204.0	3176.5	-3151.5	17	270	448591.2655	6770189.099
Lunde Fm. GF-SAT Top	4204.0	3176.5	-3151.5	17	270	448591.2655	6770189.099
Lunde Fm. GF-SAT Base	4865.0	3671.9	-3646.9	17	270	449022.4581	6770165.389
HEGRE GP. GF-SAT Base	4865.0	3671.9	-3646.9	17	270	449022.4581	6770165.389
Total Depth	4865.0	3671.9	-3646.9			449022.4581	6770165.389

## 4.2 Shallow gas results

There were no indications of shallow gas.

## 4.3 Stratigraphy

The stratigraphic zonation is based on previous logs from near-situated wells.

### 4.3.1 Table of chronostratigraphy

No bio-stratigraphic analyses have been accomplished.

### 4.3.2 Table of lithostratigraphy

See table above.

## 4.4 Lithostratigraphic description

### **Shetland Group 2278 - 3498m MD**

Claystone:

CLST: olv blk, occ med dk gry, sft frm, blk, calc, slty ip, tr micro pyr, tr glau

### **Burton/Amundsen 3498-3744m MD**

Claystone:

CLST: brn blk, occ olv blk, sft frm, occ hd, blk, slty, micro mic, mod calc, tr glau

LST: lt gry, sft, yel brn - mod brn,

### **Statfjord Formation 3744-4204m MD**

The Statfjord Formation is an interbedding of sandstone and shale/claystone.

### **Nansen Member 3744 - 3776m MD**

The bulk of the Nansen Member is made of massive sandstone. The lower part of the Nansen contains a sandstone/siltstone interbedding, and traces of limestone, claystone, coal and pyrite.

SST/SD: olv gry - brn gry, vf - crs, clr transl qtz, mod srted, sub rnd, occ arg

SLTST: olv blk, frm, blk, mic, org frgs, sndy

CLST: mod brn, sft - frm, blk, earthy

COAL: blk, hd - frm, brit

LST: mod brn, hd, xln

### **Eiriksson Member 3776 - 3982m MD**

The Eiriksson Member is an interbedding of sandstone and shale/claystone., with traces of coal and pyrite.

SST/SD: brn gry - dk gry, yel brn - brn gry, vf -f, mod - pr srted, sft -frm, arg, also lse clr trans qtz, occ mlky wh, m -crs, sub rnd - sub ang, occ calc

SLTST: olv blk, mlky wh - lt gry, sft -frm, blk, sub fiss, occ sndy

CLST: mod brn - gry brn, grn blk, olv blk, olv gry, occ dk red brn, sft - mod hd, blk, occ slty

### **Raude Member 3982 - 4204m MD**

The Raude Member is an interbedding of sandstone and shale/claystone.

SST/SD: vf - f, v.lt gry-lt gy,occ yelsh-brn, arg/kaol mtz, calc- occ v calc, clr-trnsl qtz

SLTST: mlky wh, lt gry, red-brn, occ olv gn, sft, mod hd

CLST: red-brn, lt gry, dk - blkgr,occ olv gn, sft occ v hd, blk, sbblk-blky, non calc,occ v calc, tr pyr,tr glauc

### **Lunde Formation 4204 - 4665m MD**

The Lunde Formation is an upward fining sandstone, interbedded with silty sandstone and shale/claystone.

SST: vf - f, mlky wh, red-brn, occ yelsh, occ olv gn, frm, occ clr trans qtz, sil mtz, mica, v calc, non-calc,

grd to sltst

SLTST: mlky wh, lt gry, red-brn, occ olv gn, sft, mod hd

CLST: dk red-brn, lt gry, dk gry, occ grnsh - gry, sft, frm, occ hd, occ grd to sltst, calc, non-calc

## **4.5 Hydrocarbon indications**

DST	Perf. Interval m MD RKB	Formation	Produced fluid
1A	90m perf. in interval 4407-4668m MD RKB	Lunde	Gas & condensate
1B	Additional 21m perf. In interval 4356-4395m MD RKB	Lunde	Oil from add. perf. interval, together with gas & condensate from 1A

The analysed material derives from 1m-interval cutted core from 4447-4493m MD RKB. The first couple of samples from the upper part of the core (4454-4461m) released a distinct-weak odor of petroleum. The same odor occurrence is found between 4485-4486m, which additionally shows a light brown film covering the quartz grains. This occurrence was only observed at this particular interval.

**Gas:**

Bitrun #5 - #X: 3759m MD /2865m TVD - 4447m MD/3347,3m TVD

DEPTH (MD)	DEPTH (TVD)	%	BG	C1	C2	C3	IC4	NC4	TYPE
3764	2867.6	1.16	0.1	7385	310	77			FG
3768	2870.2	3.38	0.1	25785	975	200	40	46	FG
3775	2874.7	3.58	1.5	25396	1090	239	23	32	FG
3781	2878.7	1.57	0.7	12615	511	134	23		FG
3797	2889.2	2.75	1.38	14304	1404	431	74	121	FG
3817	2902.6	2.29	1.19	14802	1269	307	74	123	FG
3850	2925.9	4.44	0.8	31275	2730	890	60	204	FG
3869	2940,0	5.56	0.5	33723	2824	928	64	211	FG
3900	2961,1	3,73	0,6	23416	2502	930	91	247	FG
3911	2968,9	2,71	0,7	16373	1899	753	51	191	FG
3920	2975,2	3,38	1,0	19721	1785	676	43	154	FG
3929	2981,6	5,59	0,6	29082	3023	1050	100	266	FG
3963	3005,6	2,9	1,0	16030	2420	945	82	265	FG
3983	3019,7	2,37	0,6	13496	2025	779	46	188	FG
4070	3081,2	1,53	0,5	6886	1132	553	65	221	FG
4221	3187,9	1,27	0,67	3914	1015	345	-	118	FG
4316	3254,8	0,84	0,4	4000	727	244	-	68	FG
4342	3273,0	1,63	0,76	9251	1064	545	72	159	FG
4360	3285,7	1,87	1,44	10549	1330	663	81	178	FG
4411	3321,7	4,67	0,5	30257	3625	1458	162	300	FG
4425	3336,0	1,97	0,5	12261	1570	630	56	160	FG
4433	3337,3	3,91	0,61	20716		1149	134	250	FG

Bitrun #6 - #X: 4447m MD /3347,3m TVD - 4493m MD/3380,08m TVD

DEPTH (MD)	DEPTH (TVD)	%	BG	C1	C2	C3	IC4	NC4	TYPE
4447,0	3347,3	1,97	0,58	11685	1546	641	23	146	FG
4447,1	3347,4	2,49	0,45	16738	631	249	-	19	FG
4469,0	3362,9	1,91	0,88	11794	1550	547	545	40	FG

Bitrun #7 - #X: 4493m MD /3380,08m TVD - 4660m MD/3499,5m TVD



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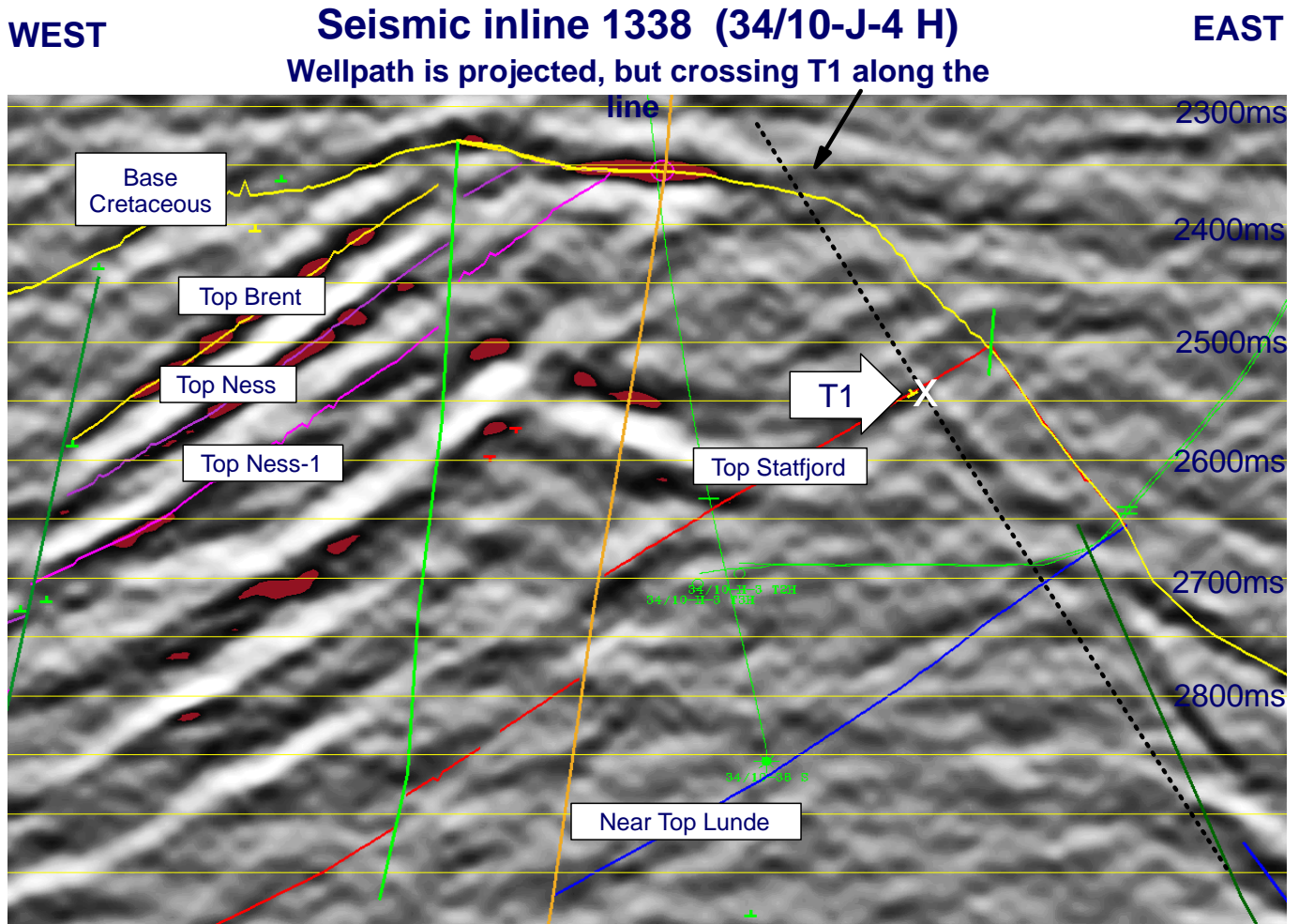
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DEPTH (MD)	DEPTH (TVD)	%	BG	C1	C2	C3	IC4	NC4	TYPE
4493,0	3380,1	4,39	1,20	35438	1911	463	52		FG
4516,0	3396,1	5,14	0,74	28839	2285	713	92	135	FG
4545,0	3416,6	1,71	0,91	12626	1147	338	47	73	FG
4566,0	3431,2	10,67	0,66	83806	6733	1677	193	258	FG
4586,0	3445,4	4,42	0,72	33820	2815	678	76	113	FG
4605,0	3459,1	2,16	0,79	16211	1735	487	103	133	FG
4621,0	3470,7	1,80	0,49	14045	1278	294	58	93	FG
4635,0	3480,9	4,22	0,91	35671	3615	506	58	91	FG
4651,0	3485,3	9,07	2,43	65213	4968	947	107	148	FG

Bitrun #8 : 4660m MD /3499,5m TVD - 4865m MD/3669,7m TVD

DEPTH (MD)	DEPTH (TVD)	%	BG	C1	C2	C3	IC4	NC4	TYPE
4660	3499.3	73.3	15.8	536198	27067	7135	586	1007	TG
4670	3506.8	3.63	2.05	26848	2209	554	63	115	FG
4691	3522.9	1.53	0.93	9425	1024	343	76	118	FG
4705	3533.9	1.71	0.81	10289	1004	318	80	118	FG
4748	3568.8	5.45	0.6	27122	4403	2034	199	286	FG
4767	3584.2	3.2	1.1	22433	1685	298	49	94	FG
4811	3621.9	2.32	1.05	15703	1507	328	64	147	FG
4829	3637.6	1.52	0.64	8411	1042	263		82	FG
4837	3644	2.07	1.07	14152	1545	348	15	92	FG

## 4.6 Geophysical results



The primary objective, Statfjord, was found according to prognosis and, thus no modification is applied to the Top Statfjord.

The secondary objective of penetrating the Lunde to investigate HC potential, is connected with fm. top uncertainty, since the Raude never has been penetrated at Rimfaks before and the thickness of Raude is ambiguous. The drilling showed that Top Lunde was found at 38.5m shallower than expected.

The tertiary objective was to investigate the Cook. The Top Cook turned up 116m deeper according to prognosis. This well reveals that the Cook is totally eroded. Since the velocity control in this area is good, the quality of the seismic definition of BCU is low. The mapping of BCU and Cook has to be modified for this area.

The time-picks where the well penetrated Base Cretaceous have been changed. The other Fm. tops and contacts, the time-picks for Vo1 (Base Cretaceous) have been slightly changed. New velocity maps have been generated during the planning of this well, and there has not been any reason to modify these. Generally, the time-picks were of low quality for the stratigraphical tops, except Top Statfjord (see table, App. B).

## 4.7 Data acquisition

### 4.7.1 Cuttings and mud samples

Evaluated microscope samples were collected by BHI every:

-10m from 720 – 3280m MD RKB and from 3440 – 3760m MD RKB

-3m from 3280 – 3440m MD RKB and from 3760 – 4865m MD RKB (TD)

### 4.7.2 Conventional coring

One core was run in the Lunde Formation.

Core no.	From depth	To depth	Barrel	Core length	Recovery
#1	4447 m MD RKB	4493 m MD RKB	Aluminium	45,8 m MD	99%*

\* When the core was opened on shore, the first 0,5 m consisted of crushed material, probably from the hole before coring started. Consequently, recovery is closer to 98%.

### 4.7.3 MWD/LWD

Hole section/ Run#	Company	Tool	Problems	Date	Lost time	Comments
17 ½" RUN#2	Anadrill	MWD/CDR	None	05.-08.06.01	None	TD
12 ¼" RUN#1	Anadrill	MWD/CDR	None	13.-15.06.01	None	OK!
8 ½" RUN#1	Anadrill	Vision/ADN	Spiky Res.log, And some depth control problems	20.-23.06.01	None	
8 ½" RUN#2	Anadrill	Vision/ADN	Lost RealTime at 4818m	29.06.- 01.07.01	-	TD

### 4.7.4 Wireline logging

#### 12 ¼" section, well 34/10-J-4 H

The logging in this section was cancelled, because the reservoir (Cook Formation) was eroded.

#### 8 ½" section, well 34/10-J-4 H

Schlumberger did the electrical logging. Run 1A was aborted due to MDT failure before getting any data. Run 1B was done with cable, and on this run it was collected 12 pressure points before it was pulled out of hole because the cable got stuck. Run 1C was performed on TLC.

<b>LOGGINGPROGRAM</b>			
<b>#</b>	<b>TOOL COMBINATION</b>	<b>RUN</b>	<b>INTERVAL m MD RKB</b>
1	GR/MDT/CMR+	1A	3765-3765m
2	GR/MDT/CMR+	1B	3730-3853m
3	GR/MDT/CMR+ and MDT samples	1C	3861-4587m

#### 4.7.5 *Data quality*

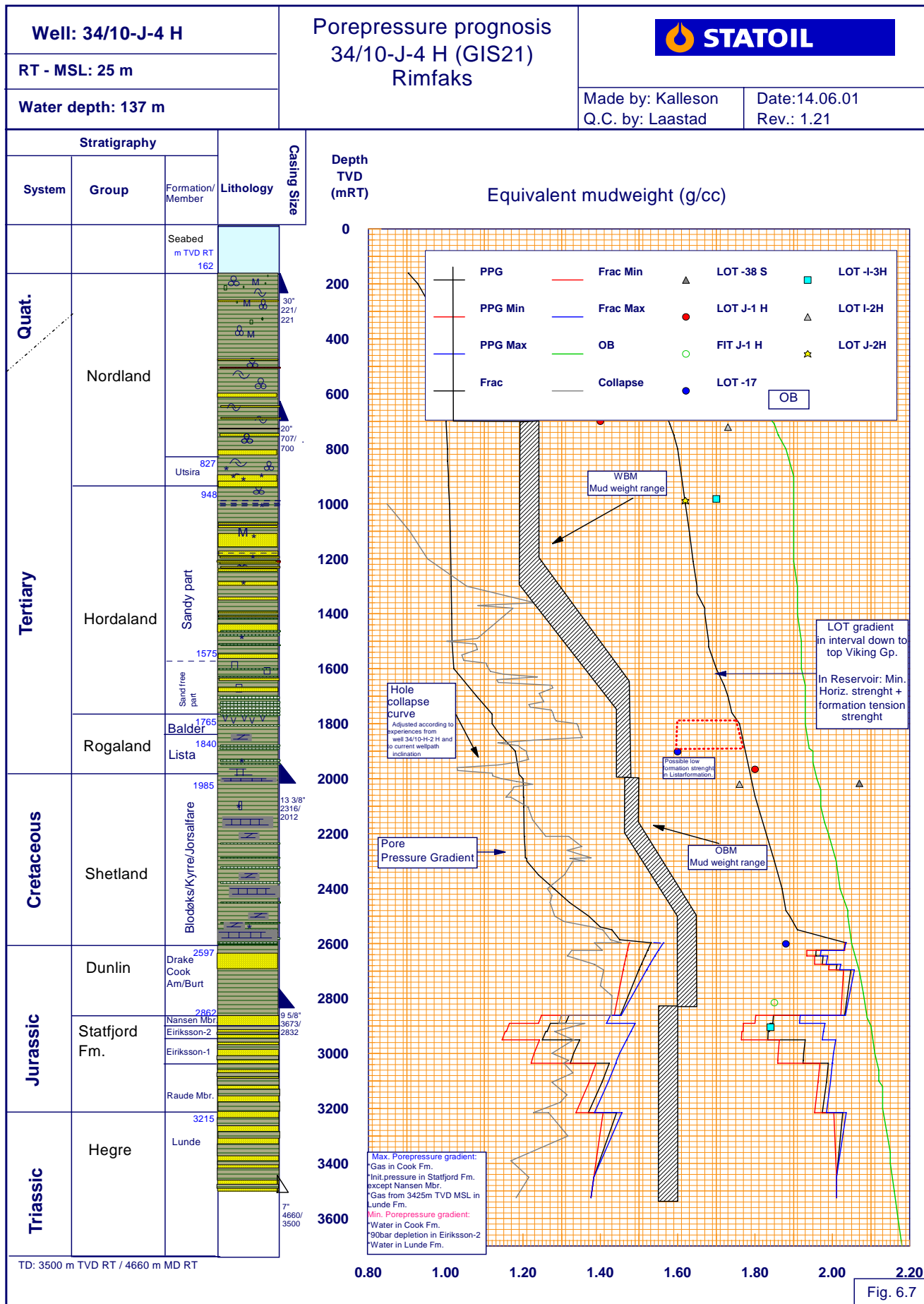
The Vision/ADN tool experienced some problems on both runs in the 8 ½” section. At the first run, the resistivity log is spiky and some depth control problems. At the second run, real time data were lost at 4818m MD RKB.

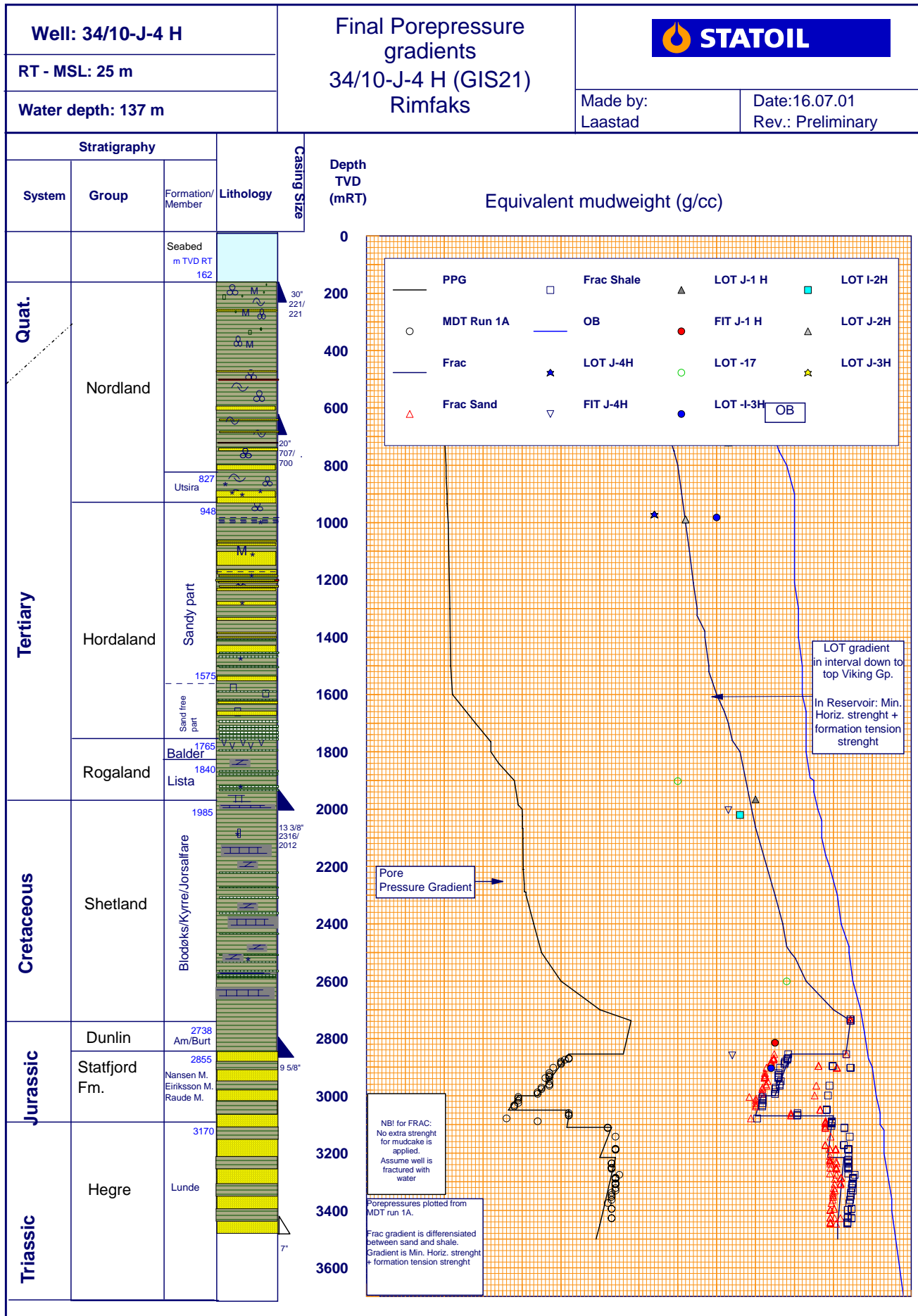
The other data for this well is good, and there have been no other reports on non-conforming measurements that may influence data.

#### 4.8 **Formation pressure**

##### *Pore Pressure above reservoir:*

There was no thorough evaluation (involving calculation of d-exponent, establishing trend lines etc.) of the pore pressure in the top hole sections of this well. There were, however, no signals from the well that conflicted with the prognosis. The top of the “sand free” part of the Hordaland Group is where the pressure build-up starts. This top came in only 7 m deeper than prognosed, and makes little difference to the estimated pore pressure. All depths are updated on the final pressure plot. No other corrections have been applied to the pressure prognosis above the reservoir after drilling this well.





4.8.1 Reservoir pressure summary

Several of the Staffjord Formation sands show pressure depletion. The depletion was about as expected in the upper part of the Staffjord Formation, 50 bar in the Nansen Member, and 56-60 bar in the Eiriksson Member Unit 2. The lower part of the Staffjord Formation was in general more depleted than prognosed. The Eiriksson Member Unit 1 was 56-76 bar depleted, while the depletion in the Raude Formation ranged from 0-81 bar. The Lunde Formation had initial pressures.

96 pressure points were collected; 3 in Nansen, 16 in Eiriksson-2, 14 Eiriksson-1, 18 in Raude og 45 in Lunde. A total of 60 pressure points were successful.

FORMATION PRESSURE -MDT WELL: 34/10-J-4 H				RUN: 1B & 1C RKB = 25 m MSL				DATE: 25.06. – 29.06.2001 Pore pressure ref. RKB = ( x Res. Press.)/( m TVD RKB)				
#	Formation/ zone	Depth m MD RKB	Depth m TVD MSL	Init. press. bar	Res. press. bar	Depl. bar	Res. press. ref. RKB bar	Well press. bar	Press. gauge	KRFT mD-CP	Temp. °C	Comments
1	Nansen	3765.5	2843.30	421.55	370.36	-51.19	1.316	439.88	Q-Gauge	399.4	109.4	20cc. Good Test
2	Nansen	3769.5	2845.91	421.65	370.439	-51.21	1.315	440.42	Q-Gauge	2226.9	109.2	20cc. Good Test
3	Nansen	3775	2849.50	421.79	370.238	-51.55	1.313	440.86	Q-Gauge	4.0	109.3	20cc. Good Test
4	Eiriksson 2B	3784.5	2855.70	422.02	368.169	-53.85	1.303	441.88	Q-Gauge	6.5	109.4	20cc. Good Test
5	Eiriksson 2B	3791.8	2860.50	422.21	368.181	-54.02	1.301	442.62	Q-Gauge	1.7	109.4	11.5cc. Tightish. Good.
6	Eiriksson 2B	3798	2864.60	422.36	368.288	-54.07	1.299	443.17	Q-Gauge	1441.5	109.5	20cc. V Good. Steady
7	Eiriksson 2B	3808	2871.30	422.62	263.476x			444.40	Q-Gauge	31.3	109.7	7.6cc. Tight. Abort.
8	Eiriksson 2B	3807.5	2871.00	422.60	266.392x			444.34	Q-Gauge	3.4	109.7	6.9cc. Tight. Abort.
9	Eiriksson 2B	3807	2870.60	422.59	262.3x			444.34	Q-Gauge	7.3	109.8	6.4cc. Tight. Abort.
10	Eiriksson 2B	3816.5	2877.00	422.83	364.251	-58.58	1.279	445.41	Q-Gauge	5348.1	109.5	20cc. Good Test
11	Eiriksson 2A	3843	2895.60	423.54	363.767	-59.77	1.270	447.95	Q-Gauge	696.9	109.9	20cc. Good Test
12	Eiriksson 2A	3853	2902.70	423.81	363.999	-59.81	1.267	449.04	Q-Gauge	510.7	110.2	19.6cc. Good Test
Start RUN 1C												
13	Eiriksson 2A	3861	2908.3	424.02	364.924	-59.1	1.268	448.01	Q-Gauge	1	108.3	3.5cc. OK. 1st on PCL run 1C
14	Eiriksson 2A	3863	2909.8	424.08	364.258	-59.82	1.265	448.01	Q-Gauge	1040.6	109.1	20cc. Good Test
15	Eiriksson 2A	3867.5	2913	424.2	364.373	-59.83	1.264	118.28	Q-Gauge	1044.1	108.4	20cc. Good Test
16	Eiriksson 1B	3883	2923.9	424.61	368.363	-56.25	1.273	449.67	Q-Gauge	132.3	109.8	20cc. Good Test
17	Eiriksson 1B	3897.5	2935	425.04	367.608	-57.58	1.265	450.95	Q-Gauge	3.7	109.8	20cc. Good Test
18	Eiriksson 1B	3905	2939.4	425.2	247.386x			451.47	Q-Gauge	0.7	109.5	5.5cc. Tight. Abort
19	Eiriksson 1B	3905.3	2939.6	425.21	368.056	-57.17	1.265	451.01	Q-Gauge	0.1	109.6	5.4cc. Tight. Good Test
20	Eiriksson 1B	3915.2	2946.5	425.47	363.925	-61.55	1.248	451.76	Q-Gauge	293.8	109.2	20cc. Good Test
21	Eiriksson 1B	3922.5	2951.8	425.67	363.963	-61.71	1.246	452.57	Q-Gauge	714.9	109.5	20cc. Good Test
22	Eiriksson 1B	3938	2962.8	426.09	364.051	-62.04	1.242	454.28	Q-Gauge	410.4	110.1	20cc. Good Test
23	Eiriksson 1B	3946.5	2968.8	426.32	364.326	-61.99	1.241	455.1	Q-Gauge	2104.5	110.3	20cc. Good Test
24	Eiriksson 1A	3961	2979	426.8	350.54	-76.26	1.19	456.86	Q-Gauge	379.1	111.1	20cc. Good Test
25	Eiriksson 1A	3969	2984.6	427.12	351.199	-75.92	1.19	457.67	Q-Gauge	1237.4	111.4	20cc. Good Test
26	Eiriksson 1A	3979	2991.7	427.53	351.603	-75.92	1.188	458.7	Q-Gauge	93.5	111.7	20cc. Good Test
27	Raude 2B	3991	3000.2	428.01	351.861	-76.15	1.186	460.09	Q-Gauge	559.8	112	20cc. Good Test
28	Raude 2B	4002	3008	428.46	352.333	-76.12	1.184	461.18	Q-Gauge	439.9	112.3	20cc. Good Test
29	Raude 2B	4008	3012.2	428.7	352.557	-76.14	1.183	461.72	Q-Gauge	65.4	112.4	20cc. Good Test
30	Raude 2A	4025	3024.2	429.38	463.0x			463.8	Q-Gauge	1	112.8	No Seal
31	Raude 2A	4023	3022.8	429.3	292x			463.32	Q-Gauge	0.6	113.1	7.7cc. Tight. Abort
32	Raude 2A	4024	3023.5	429.34	276x			463.15	Q-Gauge	1.7	113	6.7cc. Tight. Abort
33	Raude 2A	4040.5	3035.2	430.01	395.85	-34.16	1.319	465.16	Q-Gauge	43	113.1	20cc. Good Test. (higher p regime)
34	Raude 1B	4067	3053.9	431.07	349.182	-81.89	1.156	468.17	Q-Gauge	4.6	114	20cc. Good Test
35	Raude 2A	4049.5	3041.2	430.35	396.305	-34.04	1.318	465.49	Q-Gauge	1	113.9	7.7cc. OK. 1st Check of #33
36	Raude 2A	4053	3044	430.51	396.276	-34.23	1.316	465.87	Q-Gauge	71	113.8	20cc. OK. 2nd Check of #33
37	Raude 1B	4081	3063.7					469.39	Q-Gauge		114.4	No Seal
38	Raude 1B	4083	3065.1					469.39	Q-Gauge		114.6	No Seal
39	Raude 1B	4085	3066.6					469.25	Q-Gauge		114.8	No Seal
40	Raude 1B	4090.5	3070.5					469.87	Q-Gauge		114.8	No Seal. Will change probe.

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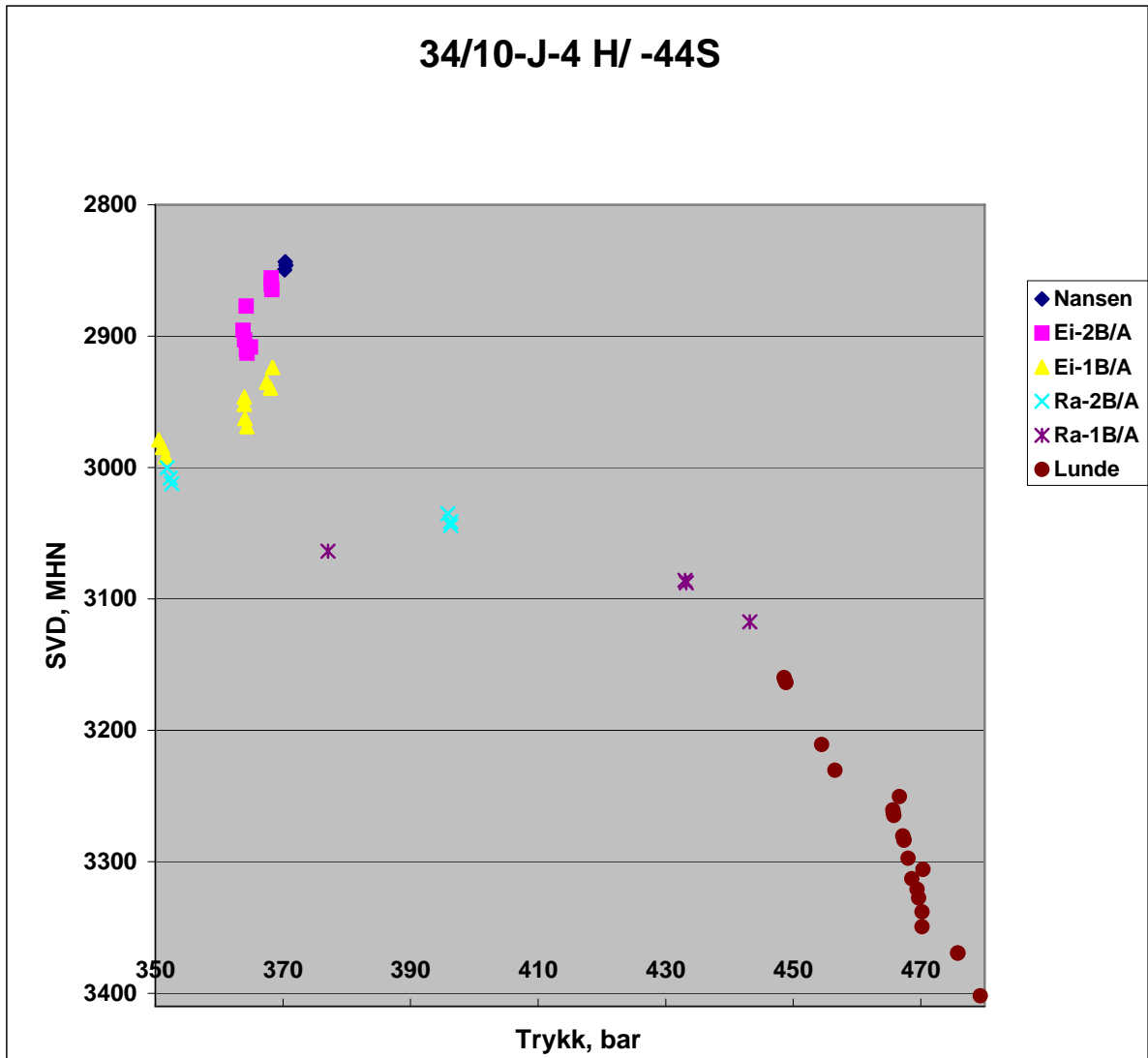
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41	Raude 1B	4090,5	3070,5				469,48	Q-Gauge	0,7	114,7	3.6cc. Tight. Probe #2	
42	Raude 1B	4081	3063,7		377,073		1,244	468,15	Q-Gauge	4,2	114,6	20cc. Good Test. (use P1 Temp)
43	Raude 1B	4112,5	3085,9		433,04		1,419	472,02	Q-Gauge	4,7	115,4	20cc. OK (P2 temp 2° higher)
44	Raude 1B	4115	3087,7		433,243		1,419	471,98	Q-Gauge	27	115,5	20cc. Good Test
45	Raude 1A	4157	3117,4		443,173		1,438	477,32	Q-Gauge	4,2	116,3	20cc. Good Test
46	Raude 1A	4198	3146,5					483,38	Q-Gauge	1	117,1	No Seal. Try again
47	Raude 1A	4199,5	3147,5		263,749x			483,04	Q-Gauge	1,7	117,1	3.9cc. Tight, retry @4217.5m
48	LUNDE	4219	3161,3					484,85	Q-Gauge	1	117,5	No Seal. (Top Lunde 4204mMD)
49	LUNDE	4217,5	3160,3					484,59	Q-Gauge	1	117,1	No Seal
50	LUNDE	4252	3184,7						Q-Gauge		117,8	3.3cc. Tight. Seal OK!
51	LUNDE	4271,5	3198,4		373,57x		1,181	491,06	Q-Gauge	0,1	118,3	3.0cc. Tight.
52	LUNDE	4271,5	3198,4		420,78x		1,331	490,85	Q-Gauge	0,1	118,4	1.8cc. Tight
53	LUNDE	4280	3204,4					491,96	Q-Gauge	1	118,4	No Seal, Poss washout.
54	LUNDE	4290	3211,4		454,633		1,432	493,17	Q-Gauge	2,5	118,5	20cc. OK retry extra
55	LUNDE	4311	3226,2		455,991		1,43	495,23	Q-Gauge	26	119	20cc. Good Test
56	LUNDE	4340	3246,5		365		1,137	499,5	Q-Gauge	0,4	119,5	4.7cc Tight. V. Thin SD
57	LUNDE	4345,5	3250,4		466,626		1,452	499,73	Q-Gauge	0,2	119,7	3.4cc. Tight. Good Test
58	LUNDE	4366	3264,8		465,778		1,443	502,22	Q-Gauge	402,6	119,9	20cc. Good Test. V steady
59	LUNDE	4391,5	3282,7		467,308		1,44	505,5	Q-Gauge	111,4	120,6	20cc. Good Test
60	LUNDE	4412	3297,22		468,009		1,436	508,21	Q-Gauge	7	121,1	20cc. Good Test. Steady
61	LUNDE	4424	3305,72		470,351		1,44	509,62	Q-Gauge	0,2	121,7	2.9cc. Tight. OK. (Sli S.Charge?)
62	LUNDE	4434	3312,81		468,57		1,431	510,99	Q-Gauge	19	121,6	20cc. Good Test
63	LUNDE	4445,5	3320,97		469,411		1,43	512,41	Q-Gauge	0,6	121,8	3.2cc. Tight. OK. steady
64	LUNDE	4454,5	3327,37		469,632		1,428	513,71	Q-Gauge	75	122,1	20cc. Good Test
65	LUNDE	4469,5	3338,04		470,21		1,425	515,85	Q-Gauge	0,2	122,3	3.2cc. Tight. Good Test.
66	LUNDE	4485,5	3349,37		470,201		1,42	517,89	Q-Gauge	2,9	122,7	20cc. Good Test. Steady
67	LUNDE	4514	3369,44		475,765		1,429	521,76	Q-Gauge	1,2	123,5	4.3cc. Tight. Good Test
68	LUNDE	4519	3372,96		522,59x				Q-Gauge		123,7	Lost Seal. X2
69	LUNDE	4514	3369,44		475,83		1,429	522,03	Q-Gauge	0,8	123,8	Checking Seal. OK
70	LUNDE	4519,5	3373,31		522,91		1,569		Q-Gauge		123,9	No Seal.
71	LUNDE	4558	3400,57		344,68x			528,31	Q-Gauge		124,6	2.3cc. V Tight. Abort
72	LUNDE	4558,5	3400,93		350,42x			528,48	Q-Gauge		124,9	2.3cc. V Tight. Abort
73	LUNDE	4560	3401,99		479,316		1,426	528,39	Q-Gauge	0,5	125	3.6cc. Tight. Good Test.
74	LUNDE	4580	3416,24		358,32x			531,97	Q-Gauge	0,6	125,6	2.6cc. V.Tight. new GR corel -3m
75	LUNDE	4584	3419,11		351,584x			532,52	Q-Gauge	0,2	125,8	2.7cc. V.Tight. Abort
76	LUNDE	4585	3419,82		363,42x			532,72	Q-Gauge	0,7	126,1	3.0cc. V.Tight. Abort
77	LUNDE	4587	3421,26		233,056x			533,16	Q-Gauge	1,4	126,1	2.2cc. V.Tight. Abort
78	LUNDE	4560	3401,99		479,362		1,426	528,5	Q-Gauge	140,5	126,1	20cc. Good Test. Sample #1
79	LUNDE	4392,5	3283,5		467,355		1,44		Q-Gauge	88,5		Sample#2
80	LUNDE	4311	3226,15		455,992		1,429		Q-Gauge	5,2		Try Water zone. Tight
81	LUNDE	4310,5	3225,8						Q-Gauge	14,7		Try Water zone. Abort. Tight.
82	LUNDE	4311	3226,1						Q-Gauge	1		w/packer. No Seal.
83	LUNDE	4280	3204,4		452x			491,96	Q-Gauge	0,2	117,6	Tight. Move to 4289m.
84	LUNDE	4289	3210,7		454,46		1,432	492,01	Q-Gauge	7,8	117,7	20cc. Good Test.
85	LUNDE	4317	3230,4		456,543		1,43	495,94	Q-Gauge	6,8	118,6	Abort. Too tight for Water sample.
86	LUNDE	4219,1	3161,4		448,652		1,435	483,49	Q-Gauge	64,9	117,4	20cc. Good Test. depth as #48
87	LUNDE	4217	3159,9		448,579		1,436	482,9	Q-Gauge	10,4	117	20cc. Good Test.
88	LUNDE	4222	3163,5		448,854		1,435	482,44	Q-Gauge	49,2	116,6	20cc. Good Test.
89	LUNDE	4360	3260,6		465,598		1,445	501,14	Q-Gauge	0,7	119,2	3.3cc. Good Test.
90	LUNDE	4363	3262,7		465,695		1,444	501,53	Q-Gauge	5	119,5	20cc. Good Test.
91	LUNDE	4388	3280,3		467,181		1,441	504,92	Q-Gauge	10,4	119,9	20cc. Good Test.
92	LUNDE	4392,5	3283,5		467,353		1,44	505,42	Q-Gauge	13,7	120,2	20cc. Good Test.



93	Eiriksson 2B	3816,5	2877,2		425,798x			425,78	Q-Gauge		110,9	No Seal. Check to WL run 1B
94	Eiriksson 2B	3816,5	2877,2						Q-Gauge			Tight. 2nd probe
95	Eiriksson 2B	3816,5	2877,2						Q-Gauge			
96	Eiriksson 2B	3816,5	2877,2		364,389		1,28		Q-Gauge	1217,4	109,5	20cc Good Test*
Pretests: 96 levels					Good/OK tests: 55				Fluid samples: 6x450cc bottles. 3 at 4560 m and 3 at 4392.5 m.			
Max. Pore pressure gradient in interval ref. RKB : 1.445 g/cm <sup>3</sup>												
Min. pore pressure gradient in interval ref. RKB : 1.156 g/cm <sup>3</sup>												
COMMENTS: Run 1B was on cable, run 1C on TLC.												
* Difference to wireline run at 3816,5 m MD: 0,133 bar.												



*Pore pressure for the well 34/10-J-4 H/44 S*

The pressures in the Statfjord Fm. is severely depleted compared to initial pore pressure. This depletion is caused by production of the reservoir since 1999, and injections have only been done in Nansen. Nansen and Eiriksson-2 sandstones had pore pressures as expected, while Eiriksson-1 and the most upper part of Raude-2 had lower pressures as expected. The Lunde Fm. had initial pore pressure.

**4.9 Reservoir fluid sampling**

Sample #2 @ 4392.5 mMD RKB / 3283.5 MTVD MSL :

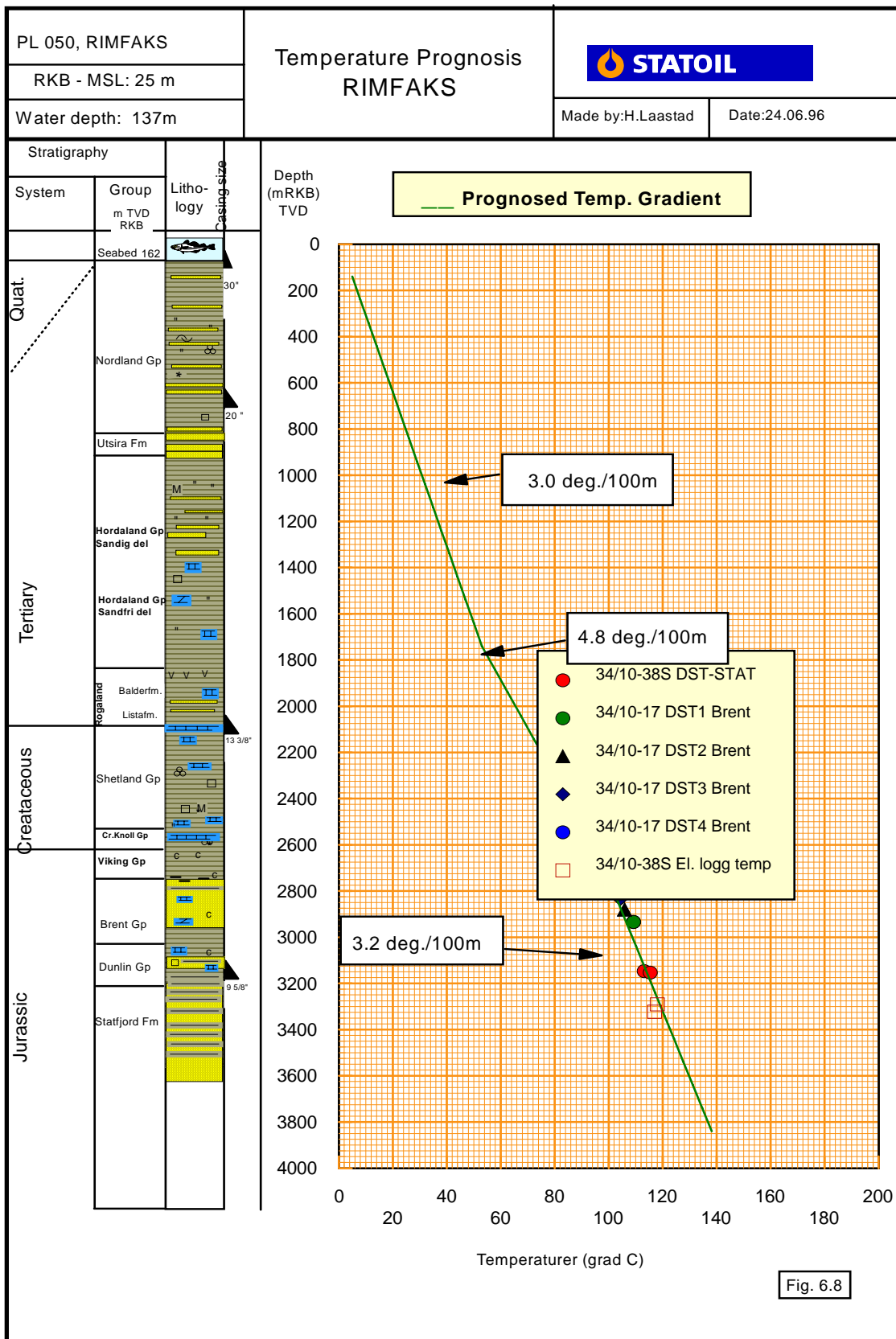
Mobile pre-test : 140.5 md/cp  
 P res : 467.3 bar  
 P sampl : ca 451.5 bar for all 3 bottles  
 OFA indicates : olje / medium gas  
 Sample : Pb = 307.6 bar / rho = 550 kg/m<sup>3</sup> @ 467 bar / 120 degC visc =  
 0.142 cP @ 467 bar / 120 degC  
 GOR (35 bar / 35 degC) 327 Sm<sup>3</sup>/Sm<sup>3</sup>

---

Sample #1 @ 4560 mMD RKB / 3402 MTVD MSL :

Mobile pre-test : 88.5 md/cp  
 P res : 479.4 bar  
 P sampl : 425 - 428 bar for all 3 bottles  
 OFA indicates : olje/high gas/medium gas  
 Sample : Pdugg = 346 bar / rho = 353 kg/m<sup>3</sup> @ 479 bar / 125 degC visc =  
 0.049 cP @ 479bar / 125 degC  
 GOR (35 bar/35 degC) 1780 Sm<sup>3</sup>/Sm<sup>3</sup>

4.10 Formation temperature



Measured temperature:

TST #	SONE NAVN	DYBDE mMD	DYBDE BD	TEMP oC	TST #	SONE NAVN	DYBDE mMD	DYBDE BD	TEMP oC
		MSL					MSL		
1	Nansen	3765.5	2843.3	109.4	47	Raude 1A	4199,5	3147,50	117,1
2	Nansen	3769.5	2845.91	109.2	48	LUNDE	4219,0	3161,30	117,5
3	Nansen	3775	2849.5	109.3	49	LUNDE	4217,5	3160,30	117,1
4	Eiriksson 2B	3784.5	2855.7	109.4	50	LUNDE	4252,0	3184,70	117,8
5	Eiriksson 2B	3791.8	2860.5	109.4	51	LUNDE	4271,5	3198,40	118,3
6	Eiriksson 2B	3798	2864.6	109.5	52	LUNDE	4271,5	3198,40	118,4
7	Eiriksson 2B	3808	2871.3	109.7	53	LUNDE	4280,0	3204,40	118,4
8	Eiriksson 2B	3807.5	2871	109.7	54	LUNDE	4290,0	3211,40	118,5
9	Eiriksson 2B	3807	2870.6	109.8	55	LUNDE	4311,0	3226,20	119,0
10	Eiriksson 2B	3816.5	2877	109.5	56	LUNDE	4340,0	3246,50	119,5
11	Eiriksson 2A	3843	2895.6	109.9	57	LUNDE	4345,5	3250,40	119,7
12	Eiriksson 2A	3853	2902.7	110.2	58	LUNDE	4366,0	3264,80	119,9
13	Eiriksson 2A	3861,0	2908,30	108,3	59	LUNDE	4391,5	3282,70	120,6
14	Eiriksson 2A	3863,0	2909,80	109,1	60	LUNDE	4412,0	3297,22	121,1
15	Eiriksson 2A	3867,5	2913,00	108,4	61	LUNDE	4424,0	3305,72	121,7
16	Eiriksson 1B	3883,0	2923,90	109,8	62	LUNDE	4434,0	3312,81	121,6
17	Eiriksson 1B	3897,5	2935,00	109,8	63	LUNDE	4445,5	3320,97	121,8
18	Eiriksson 1B	3905,0	2939,40	109,5	64	LUNDE	4454,5	3327,37	122,1
19	Eiriksson 1B	3905,3	2939,60	109,6	65	LUNDE	4469,5	3338,04	122,3
20	Eiriksson 1B	3915,2	2946,50	109,2	66	LUNDE	4485,5	3349,37	122,7
21	Eiriksson 1B	3922,5	2951,80	109,5	67	LUNDE	4514,0	3369,44	123,5
22	Eiriksson 1B	3938,0	2962,80	110,1	68	LUNDE	4519,0	3372,96	123,7
23	Eiriksson 1B	3946,5	2968,80	110,3	69	LUNDE	4514,0	3369,44	123,8
24	Eiriksson 1A	3961,0	2979,00	111,1	70	LUNDE	4519,5	3373,31	123,9
25	Eiriksson 1A	3969,0	2984,60	111,4	71	LUNDE	4558,0	3400,57	124,6
26	Eiriksson 1A	3979,0	2991,70	111,7	72	LUNDE	4558,5	3400,93	124,9
27	Raude 2B	3991,0	3000,20	112,0	73	LUNDE	4560,0	3401,99	125,0
28	Raude 2B	4002,0	3008,00	112,3	74	LUNDE	4580,0	3416,24	125,6
29	Raude 2B	4008,0	3012,20	112,4	75	LUNDE	4584,0	3419,11	125,8
30	Raude 2A	4025,0	3024,20	112,8	76	LUNDE	4585,0	3419,82	126,1
31	Raude 2A	4023,0	3022,80	113,1	77	LUNDE	4587,0	3421,26	126,1
32	Raude 2A	4024,0	3023,50	113,0	78	LUNDE	4560,0	3401,99	126,1
33	Raude 2A	4040.5	3035,20	113,1	79	LUNDE	4392,5	3283,50	
34	Raude 1B	4067,0	3053,90	114,0	80	LUNDE	4311,0	3226,15	
35	Raude 2A	4049.5	3041,20	113,9	81	LUNDE	4310,5	3225,80	
36	Raude 2A	4053,0	3044,00	113,8	82	LUNDE	4311,0	3226,10	
37	Raude 1B	4081,0	3063,70	114,4	83	LUNDE	4280,0	3204,40	117,6
38	Raude 1B	4083,0	3065,10	114,6	84	LUNDE	4289,0	3210,70	117,7
39	Raude 1B	4085,0	3066,60	114,8	85	LUNDE	4317,0	3230,40	118,6
40	Raude 1B	4090,5	3070,50	114,8	86	LUNDE	4219,1	3161,40	117,4
41	Raude 1B	4090,5	3070,50	114,7	87	LUNDE	4217,0	3159,90	117
42	Raude 1B	4081,0	3063,70	114,6	88	LUNDE	4222,0	3163,50	116,6
43	Raude 1B	4112,5	3085,90	115,4	89	LUNDE	4360,0	3260,60	119,2
44	Raude 1B	4115,0	3087,70	115,5	90	LUNDE	4363,0	3262,70	119,5
45	Raude 1A	4157,0	3117,40	116,3	91	LUNDE	4388,0	3280,30	119,9
46	Raude 1A	4198,0	3146,50	117,1	92	LUNDE	4392,5	3283,50	120,2

#### 4.11 Experiences/recommendations

There were no particular recommendations for this well.

Primary objective of this well was gas injection in the Statfjord Formation in segment P3 at the Rinfaks Field. The well penetrated the hole of the Statfjord Formation, and was later completed in the zones of interests. The well path was drilled according to programme, though because of HC show in Lunde, the well was extended. The tertiary objective to investigate the Cook reservoir properties was not met, since Cook was eroded.

The cores taken from the Lunde was successful.

The el-logging data acquisition experienced delays as the tool arrived late. Further delay was caused when the MDT/CMR+ tool failed to give response at 3765, 3769 and 3869m MD. POOH and RIH with the back-up MDT tool. Stuck twice (@ 4016 and 3960m MD), but got free and managed to collect 10 pressure points. POOH and RIH with TLC logging downwards, which collected 96 pressure points. Logging with CMR+ upwards.

There was not a possibility to collect fluid samples in water zone of Lunde. While MDT sample catching, a there could not be found alternative "pre-test" areas caused by absent non-permeable lithology. Mud samples were collected.

Total time consumption for this well was 41.2 days, which is 15.8 days ahead of schedule. There were no significant occurrences while drilling that are worth mentioning.

## 5 Drilling operations report

### 5.1 Comparison final / original well design

The original well design compared to the final well design, is shown in the well profile on page 11 and 12.

Initially, TD was planned at 4660 m MD and (3500 m TVD), which is 300 m TVD in to the Lunde Formation. After logging and taking pressure points on TLC, it was decided to drill an exploration part further into the Lunde Formation. Final TD of the well is 4861 m MD (3666 m TVD).

The investigation of hydrocarbons in the Lunde Formation was a secondary objective and the reason for extending the well, which was an option according to the well proposal. Approx. 500m TVD of the Lunde Formation was drilled, to reveal hydrocarbon potential, reservoir properties and OWC contacts.

### 5.2 Rig move and anchor handling

Transocean Wildcat was moved from the G-template to the J-template in 3 ½ hours. The anchor handling was performed without any problems in 7 hours. See operational listing for further details on page xx.

### 5.3 36" hullseksjon (160 m til 226 mMD)

#### Drilling

- Drilled 36" hole from seabed, 161 m MD to 226 m MD, in one run.

#### Bit run

- From 160 m MD to 226 m MD.
- Run #1: 17 ½" x 26" x 36" hole opener assembly. Bit; Smith MGGH+C.
- Comments: The purpose of this hole was to drill 36" hole as vertical as possible to TD of section.

#### MWD/BHA

- Anadrill, MWD.
- Hole opener assembly.

#### MUD

- The section was drilled with seawater from 160 m to 226 m MD. 20 m<sup>3</sup> Hi Vis was swept at TD. The well was displaced to 1,40 sg mud before pulling out of hole.

### **30" Conductor**

- Housing: 0,80 deg.
- Shoe is set at 220 m MD (220 m TVD).

### **Cement job**

- Lead slurry: 19 m<sup>3</sup>, 1,56 sg lead slurry.
- Tail slurry: 19,1 m<sup>3</sup>, 1,95 sg tail slurry.

## **5.4 26" hullseksjon (226 m til 724 mMD)**

### **Drilling**

- Drilled 26" hole from 226 m to 719 m MD, in one run.
- **Well profile;**  
Inclination: Start: 0 End: 14,5  
Azimuth: Start: 0 End: 95

### **Bit run**

- From 226 m to 719 m MD.
- Run # 2: 26" Security DBS SS80.

### **MWD/BHA**

- Anadrill MWD and BHI motor (AKO M1XL 1,2 DEG bend).

### **MUD**

- The section was drilled with seawater from 226 m to 719 m MD. 20 m<sup>3</sup> Hi-Vis was swept at TD. The well was displaced to 1,20 sg mud before pulling out of hole.

### **20" casing**

- Shoe is set at 711 m MD (702 m TVD).

### **Cement job**

- Lead slurry: 73,3 m<sup>3</sup>, 1,56 sg lead slurry.
- Tail slurry: 46,2 m<sup>3</sup>, 1,92 sg tail slurry.

### **LOT**

- Performed LOT equivalent to 1,54 SG.

## 5.5 17 1/2" hullseksjon ( 724m - 2315 mMD)

### **Drilling**

- Drilled 17 1/2" hole from 719 m MD to 2312 m MD, in one run.
- **Well profile;**  
Inclination: Start:14,5 End: 43,7  
Azimuth: Start: 95 End: 100,5

### **Bit run**

- From 719 m MD to 2312 m MD.
- Run # 3: 17 1/2" Smith 10GMODPD.

### **MWD/BHA**

- Anadrill MWD/PWD/CDR and BHI motor (Navidrill M1P/HF 0,64 deg bend).

### **MUD**

- 1,15 SG – 1,44 SG Glydrill mud was used.

### **13 3/8" casing**

- Set shoe at 2305 mMD (2003 m TVD).

### **Cement job**

- Slurry: 67 m<sup>3</sup>, 1,90 sg.
- Estimated top of cement: 1540 m MD (1432 m TVD)

### **FIT**

- Performed FIT equivalent to 1,73 SG.

## 5.6 12 1/4" hullseksjon (2315 m - 3762 mMD)

### **Drilling**

- Drilled 17 1/2" hole from 2312 m MD to 3759 m MD, in one run.
- **Well profile;**  
Inclination: Start: 43,7 End: 49,7



Azimuth: Start: 100,5 End: 96,9

### **Bit run**

- Run # 4: 12 1/4" Hughes Christensen BX536GK. From 2312 m MD to 3759 m MD.

### **MWD/BHA**

- Anadrill MWD and BHI motor (NAVIDRILL, AKO MKI XL).

### **MUD**

- 1,45 SG – 1,60 SG Versavert OBM was used.

### **9 5/8" x 10 3/4" casing**

- Shoe is set at 3752 mMD (2860 m TVD).

### **Cement job**

- Lead slurry: 19,5 m<sup>3</sup>, 1,90 sg.
- Estimated top of cement; 3298 m MD (2603 m TVD).

### **FIT**

- Performed FIT equivalent to 1,74 SG.

## **5.7 8 1/2" hullseksjon ( 3762 m - 4865 mMD)**

### **Drilling**

- Drilled 8 1/2" hole from 3762 m MD to 4865 m MD, in 3 runs.
- **Well profile;**  
Inclination: Start: 49,7 End: 26,8  
Azimuth: Start: 96,9 End: 88,0

### **Bit run**

- Run # 5: 12 1/4" Lyng LD 470 HG. From 3765 m MD to 4447 m MD.
- Run # 6: Coring run. 12,25" Hughes Christensen URC478G58. From 4447 to 4493 MD.
- Run # 7: 12 1/4" Hughes Christensen DP06622. From 4493 m MD to 4660 m MD.

- Run # 8: 12 1/4" Hughes Christensen DP06622. From 4660 m MD to 4865 m MD.

### **MWD/BHA**

- Anadrill MWD and BHI motor (AKO M1 XL), with 1,1 deg bend was used on run # 5 and # 7. On bit run # 8, zero degree bend was used.

### **MUD**

- 1,56 SG Versavert OBM was used.

### **7" Liner**

- Shoe is set at 4861 mMD (3666 m TVD).

### **Logging**

- CMR/PEX/MDT on TLC.
- Took xx pressure points.

### **Cement job**

- Cement slurry: 27 m3, 1,80 sg.
- Top of cement; 3658 m MD (2800 m TVD).

## **5.8 P&A**

RIH with clean out assembly and tested the liner to 200 bar with 1,56 sg mud. Tagged and dressed of PBR at 3658 m MD. Displaced well to seawater. Inflow tested and pressure tested well to 450 bar with seawater.

Thereby, the well was displaced to 1,63 CaBr<sub>2</sub> brine. Finally, a HE-3 plug was set at 635 m MD and tested to 200 bar / 10 min. Before preparing for rig move the BOP was pulled and a dust cap was installed.

See well schematic in appendix X, on page xx for further details.

## **6 Appendices**

## App A Operational listing

Fra DBR.

## App B Directional data, survey listing

### A. Kommentarer til tidsplukk/ dybdekonvertering

The time-picks where the well penetrated Base Cretaceous have been changed. The other Fm. tops and contacts, the time-picks for Vo1 (Base Cretaceous) have been slightly changed. New velocity maps have been generated during the planning of this well, and there has not been any reason to modify these. Generally, the time-picks were of low quality for the stratigraphical tops, except Top Statfjord.

Brønn 34/10 - J-4 H									
12-mar-02									
Topper	MD	MHN	Linje	CDP	Vo1	Vo2	T(ms)	UTM(E)	UTM(N)
B. Kritt/Burton	3498	2689	1339,8	1990,4	1629		2422	448064,4	6770243,0
Amundsen	3535	2708	1339,6	1992,9	1630	-129	2462	448095,6	6770240,3
Statfjord	3744	2830	1338,2	2006,4	1635	-132	2538	448263,8	6770220,3
GOK	3953	2974	1336,7	2018,5	1636	-138	2630	448414,9	6770198,8
OVK	4104	3080	1336,1	2027,0	1637	-143	2695	448521,5	6770189,7
Lunde	4204	3152	1336,1	2032,6	1637	-143	2738	448591,3	6770189,1
KK (kond.kont.)	4357	3259	1335,1	2041,4	1639	-148	2802	448700,2	6770174,9
TD/KNT	4865	3647	1334,7	2067,1	1639	-154	3018	449022,5	6770165,4
Ingen forkastninger								k1	k2
Dårlige seismiske plukk på alle topper bortsett fra t. Statfjord								0,465	1,13

## App C Contractors list

### Statoil Organisation

<b>Contacts for this Project</b>			
<b>Name</b>	<b>Title</b>	<b>Telephone</b>	<b>E-mail</b>
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Hans Jakob Grevstad	Anchor/MI	Drilling Fluids	55 98 60 49
Karl G. Longvastøl	Halliburton	Cement	55 22 66 33
Morten Bertelsen	KOS	Subsea Wellhead & XT	56 32 33 06
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Jim Hope	Scientific Drilling	Gyro	55 98 21 00
Morten Bertelsen	KOS	Subsea Wellhead & XT	55 32 33 06
Gisle Rune Drivenes	Weatherford	Liner hanger	55 14 31 87
Audun Kvinnesland	Baker Hughes Inteq	Coring	91 89 28 66

**App D Wellsite sample description**

3358	100	CLST: olv blk, occ med dk gry, sft-frm, blk, mod calc, slty ip, tr micro pyr	
3364	A/A	tr glau	
3372	100	CLST: a/a	15.06.01
	TR	LST: yel wh - yel brn, frm - mod hd, blk, microxln, arg ip	
3400	100	CLST: a/a	
	GD TR	LST: a/a	
3430	100	CLST: a/a	
	W TR	LST: a/a	
3443	100	CLST: a/a	
	GD TR	LST: a/a	
3451	A/A		
3460	A/A		
3470	100	CLST: a/a but sl darker	
	TR	LST: a/a	
3480	100	CLST: olv blk, sft - frm, occ slty, blk, micro mic, slty v calc	
3490	A/A		
3500	100	CLST: a/a + tr pyr, tr glau	
3510	100	CLST: olv blk, sft - frm, blk v calc, occ slty, tr pyr, tr glau	
	GD TR	LST: yel wh - yel brn, frm - mod hd, blk, microxln, arg ip	
3520	A/A		
3530	100	CLST: olv blk, sft - frm, blk occ slty, tr pyr, tr glau, not calc	
	TR	LST: a/a	
3540	A/A		



3550	A/A		
3358	100	CLST: olv blk, occ med dk gry, sft-frm, blk, mod calc, slty ip, tr micro pyr	
3364	A/A	tr glau	
3372	100	CLST: a/a	15.06.01
	TR	LST: yel wh - yel brn, frm - mod hd, blk, microxln, arg ip	
3400	100	CLST: a/a	
	GD TR	LST: a/a	
3430	100	CLST: a/a	
	W TR	LST: a/a	
3443	100	CLST: a/a	
	GD TR	LST: a/a	
3451	A/A		
3460	A/A		
3470	100	CLST: a/a but sl darker	
	TR	LST: a/a	
3480	100	CLST: olv blk, sft - frm, occ slty, blk, micro mic, slty v calc	
3490	A/A		
3500	100	CLST: a/a + tr pyr, tr glau	
3510	100	CLST: olv blk, sft - frm, blk v calc, occ slty, tr pyr, tr glau	
	GD TR	LST: yel wh - yel brn, frm - mod hd, blk, microxln, arg ip	
3520	A/A		
3530	100	CLST: olv blk, sft - frm, blk occ slty, tr pyr, tr glau, not calc	
	TR	LST: a/a	
3540	A/A		
3550	A/A		
3560	100	CLST: brn blk, occ olv blk, sft - frm, occ hd, blk, mod calc	

		slty ip, tr glau,	
3570	A/A		
3580	A/A		
3590	100	CLST: a/a	
	GD TR	LST: a/a	
3600	100	CLST: a/a	
	GD TR	LST: yel wh - yel brn, frm - mod hd, blk, microxln	
	TR	SST: clr qtz, mlky wh - yel wh, vf-f, occ mod, sub rnd, sub ang	
3610	A/A		
3620	A/A		
3630	100	CLST: olv blk, sft - frm, blk, grad to sltst, mod calc	
3640	A/A		
3650	A/A		
3660	100	CLST: a/a	
	TR	LST: yel wh - yel brn, occ med dk gry, frm, blk, microxln	
3670	A/A		
3680	A/A		
3690	A/A		
3700	100	CLST: olv blk, li olv gry - dk gry, occ dk yelsh brn, sft-frm, occ hd, subblk-blky, slty, sl calc	
3710	A/A		
3720	100	CLST: a/a slightly more calc	
3730	A/A		
3740	100	CLST: a/a, mod calc	
3750	100	CLST: a/a	
	TR	LST: yel wh - yel brn, frm, blk, microxln	
	TR	SST: clr qtz, vf-f, occ mod, sbang,	

3760	100	SD/SST: clr qtz, occ yelsh brn, f-med, mod srt, sbang-sbrnd,	No shows
	20	CLST: a/a	
	TR	pyr agg & micropyr coatings on qtz grn	
3760	70	SLTST: olv blk, frm, blk, mic, org frgm, sndy	20% sement
	30	SST: olv gry-brn gry, v fn, clr-trnsl q, mod srt, sub rnd, occ arg, also SD: lse, v crse-med, pyr coat (xls),ang-sub rnd	
	Tr	LST: mod brn, hd, xln	
	Tr	MUDST: mod brn, sft-frm, blk, earthy, MUDST	
	Tr	COAL: blk., hd-frm, occ brtl	
3763	70	SLTST: a/a	<10% sement
	30	SD/SST: a/a	
	Tr	a/a	
3765	50	SLTST: a/a	
	50	SD/SST: a/a	
	Tr	Pyr (5% !)	
3768	60	SD/SST: a/a	
	40	SLTST: a/a	
	Tr	Pyr	
3771	60	SD/SST: a/a, but occ wh cly mtrx	
	40	SLTST: a/a	
	Tr	Pyr	
3774	a/a	but tr coal	
3777	70	SD/SST: a/a, but pred crs	
	30	SLTST: a/a	
	Tr	Pyr, coal	
3780	50	SLTST: a/a	
	50	SD/SST: a/a, but lse fn-crs, also frm v fn-fn	
	Tr	Pyr, coal	
3783	60	SD/SST: pred brn gry, v fn-fn, frm, mod-pr srtd, arg, occ wh cly mtrx, occ lse med-crs, tr pyr coat & cmt	
	40	SLTST: a/a	
	Tr	Pyr, Coal	
3786	70	SD/SST:brn gry, pred v fn-fn, occ lse crs-med, pr-mod srtd sub ang-sub rnd, arg, pyr cmt	
	30	SLTST: olv blk, frm-sft, mic, blk-sub fiss, sndy	
	Tr	Pyr, coal	
3789	a/a		

3792	a/a		
3795	80	SST/SD: bnr gry - dk gry, vfn-fn, occ lse crs-med, mod srt, sub rnd, sub ang, sft-frm, micro pyr	
	20	SLTST: olv blk, frm-sft, blk, sndy	
	TR	Coal, Pyr	
3798	A/A		
3801	40	SST: brn gry - dk gry, pred vf, srt, subrnd, subang, sft, micro micro pyr, slty	
	60	CLST: olv blk, frm-sft, blk, v slty	
	TR	Coal, Pyr	
3804	A/A		
3807	50	SST: a/a, occ lse qtz, crs - med	
	50	CLST: a/a	
	TR	Coal	
3810	A/A		
3813	30	SST: a/a	
	70	CLST: a/a	
	TR	Coal	
3816	70	SST: a/a	
	30	CLST: a/a	
	TR	Coal, Pyr	
3819	A/A		
3822	A/A		20.06.01
3825	A/A		
3828	30	SST: brn gry - brn blk, vfn-fn, sft-frm, sub rnd, sub ang, mod srt, slty	
	70	CLST: olv blk, frm-sft, blk, v slty	
	TR	Coal	
3831	Mangler		
3834	A/A		
3837	40	SST: brn gry, vf-f, pred vf, sft-frm, mod srt, sub rnd, sub ang, grades to sltst	

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	60	CLST: olv blk, frm-sft, blkly, v slty	
	TR	Coal	
3840	Mangler		
3843	70	SST: a/a	
	30	CLST: a7a	
3849	80	SST: a/a	
	20	CLST: a/a	
3851	A/A		
3855	70	SST: a/a	
	30	CLST: a/a	
3858	A/A		
3861	90	SST: brn gry, vf-f + lse qtz, med-crs, yel brn, occ mlky wh sft-frm, mod srt, sub rnd, sub ang	
	10	CLST: a/a	
	TR	Pyr, Coal	
3864	A/A		
3867	70	SST: a/a	
	30	CLST: a/a	
	TR	Pyr, Coal	
3870	A/A		
3873	80	SST: a/a	
	20	CLST: a/a	
3876	50	SST: a/a	
	50		
	Tr	Coal	
3879	70	SST: a/a	
	30	CLST: a/a	
3882	90	SST: a/a	
	10	CLST: a/a	
3885	90	SST: brn gry, vf-f + lse qtz, med-crs, yel brn, occ mlky wh sft-frm, mod srt, sub rnd, sub ang	
	10	CLST: olv blk, frm-sft, blkly, v slty	

3888	a/a	, but Tr coal	
3891	50	SST: a/a	
	50	CLST: a/a	
	Tr	Coal	
3894		Mangler	
3897	30	SST: a/a	
	40	SLTST: olv blk, frm-sft, blk, sndy	
	30	CLST: olv blk.brn blk, frm-sft, blk, v slty	
3900	80	SST: a/a	
	20	CLST: a/a	
3903	60	SST: a/a	
	40	CLST: a/a + occ blk red	
3906	80	SST: a/a	
	20	CLST: dk red brn, occ olv blk, sft, blk, slty ip,	
3909	80	SST: dk yel brn-brn gry, vf-f, some lse q, med-crs, subang, mod srtd, micro pyr	
	20	CLST: olv blk, sft, blk, slty ip,	
3912	80	SST: a/a	
	20	CLST: a/a	
3915	40	SST: a/a	
	60	CLST: a/a	
3918	80	SST: a/a	
	20	CLST: a/a	
3921	70	SST: a/a	
	30	CLST: a/a	
3924	80	SST: a/a, but 50-50 lse, med-crs and v fn-fn	
	20	CLST: a/a	
3927	80	SST: dk yel brn-brn gry, vf-f, some lse q, med-crs, subang, mod srtd, micro pyr	
	20	CLST: olv blk, sft, blk, slty ip,	
3930	a/a		
3933	a/a		

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3936	70	CLST: gry brn, grn blk, olv blk, olv gry, sft-mod hd, blk, non calc-v weak calc	
	30	SST: a/a	
3939	a/a		
3942	60	CLST: a/a	
	40	SST: a/a	
3945	a/a		
3948	70	CLST: a/a	
	30	SST: a/a	
3951	a/a		
3954	90	CLST: a/a	
	10	SST: a/a, but pred lse med-crs	
3957	90	CLST: a/a, but pred gry brn-mod brn	
	10	SST: a/a	
3960	60	CLST: as 3954, vari col.	
	40	SST: a/a 50-50 vfn-fn and lse, crs-med	
3963	70	CLST: a/a	
	30	SST: dk yel brn-brn gry, sft-frm, pr srt, arg, also: lse, fn-crs pr srt subrnd,	
	Tr	Coal: v hd, blk, blk	
3966	60	SST: a/a, but 70% lse	
	30	CLST: a/a, but only tr mod brn-gry brn	
	10	Coal: a/a	
3969	70	SST: f-vcrs, dom m, clr - mlky wh, subrnd - rnd, pr srt, arg	
	30	CLST: mod brn - gry brn, sft - mod hd,	
	TR	Coal: a/a	
3972	90	SST: vfn, occ f-m, mlky wh, clr, transl else a/a	
	10	Coal: a/a	
3975	A/A		
3978	50	SLTST: mlky wh - lt gry, mtrx	
	40	SST: vf, occ f-m, clr-transl qtz	
	10	CLST: brn, sft	
	TR	Coal: hd, blk	

3981	60	SLTST: a/a	
	30	SST: a/a	
	10	CLST: a/a	
	TR	Coal:a/a	
3984	40	SLTST: a/a	
	40	SST: vf-f, occ m-crs, pr srt, mlky wh, clr transl qtz	
	20	CLST: a/a	
3987	60	SST: a/a	
	30	SLTST: a/a	
	10	CLST: a/a	
3990	80	CLST: brn, brn-red, sft, blk, dk olv grn, mod sft - hd, grd to sltst	
	20	SLTST: a/a	
	TR	clr trans qrz, vf-m	
3993	mangler		
3996	mangler		
3999	80	SLTST: mlky wh, yelsh brn	
	20	CLST: dk gry, olv grn, sk gry, brn-red, sft, occ mod hd	
4002	90	SST: f-vcrs, mlky wh, yelsh, clr trans qtz, m-v crs, pr srtd, sub rnd - sub rnd - rnd	
	10	CLST: a/a	
4005	A/A		
4008	mangler		
4011	mangler		
4014	80	CLST: lt gry, med dk gry, sft, dk gry, blk, hd, occ olv grn, occ grd into sltst occ grd into sltst	
	20	SST: f-m, cl transl qtz	
4017	90	CLST: red - red brn, olv brn, lt gry, sft, occ mod hd	
	10	SST: a/a	
	TR	Chlor	
4020	A/A		



4023	A/A		
4026	50	Clst: a/a	
	50	SST: pr srted, sub rnd -rdn, else a/a	
4029	60	SST: a/a	
	40	CLST: a/a	
4032	70	CLST: lt gry, lt olv grn, sft, occ red-brn, else a/a	
	30	SST: a/a	
4035	80	CLST: gry, lt gry, med dk gry, olv grn, dty, dk gry - blush, hd, mtrx	
	20	SST: f-m, clr trans qtz, pr srted, sub rnd - rnd	
4038	90	CLST: occ red-brn, else a/a	
	10	SST: f, clr transl qtz, srt, rnd	
4041	60	CLST: a/a	
	40	SST: f-m clr trans qtz, pr srted, sub rnd - rnd, occ v crs	
4044	A/A		
4047	50	SLTST: mlky wh, lt gry	
	40	SST: f-m, occ v crs, dom m, clr trans qtz, yelsh	
	10	CLST: blk - dk gry, mod hd - v hd,	
	TR	Pyr	
4050	A/A		
4053	80	SST: f - v crs, dom m, clr trans qtz, occ yelsh, pr srted, rnd - sub rnd	
	20	CLST: lt gry, dk gry, occ red brn, occ olv gry, grd into sltst, hd - sft	
4056	50	SST: f - v crs, dom m, clr trans qtz, occ yelsh, pr srted, rnd - sub rnd	
	59	CLST: lt gry, dk gry, occ red brn, occ olv gry, grd into sltst, hd - sft	
	TR	Coal	
4059	mangler		
4062	90	CLST: brn-red, sft, olv grn, lt gry, occ grd into sltst	
	10	SST: a/a	
4065	100	CLST: dom lt - mod dk gry, else a/a	

4068	70	CLST: a/a	
	30	SST: f-m, clr trans qtz, pr srted, sub rnd - rnd	
	TR	Coal	
4071	70	CLST: lt - med dk gry, occ olv grn, occ red brn, sft	
	30	SST: vf-m, dom f, clr qtz, occ mlky wh, pr srted, rnd	
	TR	Coal	
4074	80	CLST: v mtrx, else a/a	
	20	SST: f-m, else a/a	
4077	60	SST: a/a	
	40	CLST: a/a	
4080	Mangler		
4083	80	CLST: dk red brn, mod brn, occ olv blk, sft, occ frm, blkly	
	20	SST: vf-f, olv gry - brnsh blk, slty ip, 50% lse clr qtz, occ mlky wh, m-crs, pr srted, rnd	
4086	A/A		
4089	Mangler		
4092	Mangler		
4095	A/A		
4098	60	SST: a/a	
	40	CLST: a/a	
4101	80	CLST: dk red brn, mod brn, occ olv blk, sft, occ frm, blkly	
	20	SST: vf-f, olv gry - brnsh blk, slty ip, 50% lse clr qtz, occ mlky wh, m-crs, pr srted, rnd	
4104	60	SST: a/a	
	40	CLST: a/a	
4107	Mangler		
4110	70	CLST: dk red brn - mod brn, occ olv gry, sft, blkly, non calc	
	30	SST: a/a	
4113	A/A		
4116	Mangler		

4119	80	SST: dk yel brn, occ brnsh blk - olv gry, vf-f, calc cem, slty	
		20% lse clr qtz, occ mlky wh, m-crs, rnd, pr srted	
	20	CLST: dk red brn, occ olv blk, sft, blk, non calc,	
		micro mic, slty ip	
4122	A/A		
4125	80	CLST: a/a	
	20	SST: no lse qtz, else a/a	
4128	A/A		
4131	A/A		
4134	90	CLST: a/a	
	10	SST: a/a	
4137	70	CLST: a/a	
	30	SST: a/a	
4140	90	CLST: a/a	
	10	SST: a/a	
4143	A/A		
4146	A/A		
4149	Mangler		
4152	Mangler		
4155	90	CLST: dk red brn, occ olv blk, sft, blk, non calc,	
		micro mic, slty ip	
	10	SST: dk yel brn, occ brnsh blk - olv gry, vf-f, calc cem, slty	
4158	50	SST: a/a	
	50	CLST: a/a	
4161	70	SST: tr glau, else a/a	
	30	CLST: a/a	
4164	80	CLST: dk red brn- very dusky red, sdt - mod frm, blk	
		non calc, slty	
	20	SST: a/a	
4167	60	CLST: a/a	
	40	SST:a/a	

4170	A/A		
4173	90	CLST: v dsky red, grysh brn, blk, sft - frm, non calc	
	10	SST: sk yelsh brn - brnsh gry, predom vf, mod srt, frm, v calc, slty, tr glau	
4176	A/A		
4179	A/A		
4182	90	CLST: occ dk yelsh brn, else a/a	
	10	SST: a/a	
4185	50	CLST: a/a	
	50	SST: a/a	
4188	80	CLST: a/a	
	20	SST: a/a	
4191	80	CLST: a/a	
	20	SST: occ mlky wh, else a/a	
4194	A/A		
4197	50	CLST: a/a	
	50	SST: a/a	
4200	70	SST: a/a	
	30	CLST: a/a	
4203	70	CLST: olv blk-dk gry, occ v dsky red blk sft, non calc	
	30	SST: brn-blk, dk yel brn, vf, mod srt, grd to sltst, mod calc	
4206	80	CLST: dk rash brn, blksh rd, occ olv blk, occ dk yelish brn brn, bl blk sfty	
		brn, blk, sft - frm, non calc	
	20	SST: a/a	
4209	90	CLST: pred dk rdsh brn, els a/a	
	10	SST: a/a	
4212		missing	
4215	80	CLST: dk rdsh brn, v dsky rd, sft, blk, non calc, occ olv blk, frm-hd	
		blk, frm-hd	

	20	SST:brn-blk, dk-yel brn, sft frm, vf mod srted, gr to sltst	
4218	90	CLST: dom gry els a/a	
	10	SST: a/a	
4221	80	CLST: a/a	
	20	SST: a/a	
4224	a/a		
4227	a/a		
4230		no sample	
4233	80	CLST: dk rd-brn, med dk gry-, calc, sft, occ hd	
	20	SST: vf-f, lt milky wt	
4236	90	V dk red- brn, els a/a	
	10	SST: a/a	
4239	a/a		
4242	a/a		
4245	80	CLST: dk red-brn, gry, olv gry, non calc	
	20	SST/SLST	
4248	80	CLST: dom gry, olv gn, gry, els a/a	
	20	SST: vf-f, lt milky wt	
4251	80	CLST: dom gry, olv gnm gry, els a/a	
	20	SST: a/a	
4254	a/a		
4257	a/a		
4260	80	CLST: dk red-brn, gry, els a/a	
	20	SLTS: a/a	
4263	a/a		
4266	80	CLST:v red-brn, sft, frm, occ gry-dk gry, mod hd	
	20	SLTST: mlky wh	
4269	90	CLST: v dom red-brn, stf, med frm	
	10	SLTST	

4275	80	CLST: dom red-brn, gry, sl calc, else a/a	
	20	SST: Mlky wh, lt gry	
4278	70	CLST: red-brn, gry-lt gry, occ olv gn, sl calc	
	30	SST: grd into sltst, mlky wh, lt gry	
4281	a/a		
4284	80	CLST:lt gry-gry, mlky wh, occ red-brn, v calc, grd into sltst.	
	20	SST: vf - f, clr, transl qrz, srted, rndd	
4287	80	SST: vf grd into sltst, cl transl qtz, srted, rndd, v calc	
	20	CLST: red-brn, dk gry	
4290	90	SST:a/a	
	10	CLST: red-brn dk gry, occ olv gn	
4293	90	SST:vf, occ I -M els a/a	
	10	CLST: a/a	
4296	80	CLST: dk red - brn, dk gry, stf, med hd	
	20	SST:vf els a/a	
4299	90	CLST: dk, red.brn, v calc	
	10	SST: vf clr transl qrz, srtd	
4302	a/a		
4305	a/a		
4308	80	CLST: red-brn, lt - med gry, olv gn, v calc	
	20	vf a/a	
4311	a/a		
4314	a/a		
4317	50	CLST: brn, dk gry, blk, olv gn, sft-med hd, v calc	
	50	SST: vf, grd into sltst, cl transl qrz, milky wh, yelsh	
	tr	py	
4320	50	CLST: brn, dk gry, olv gn, blk-lam. calc	
	50	SST: vf, cl transl qrz, red-brn	
4323	60	CLST:a/a, calc	
	40	SST: vf, subrnd, cl - yel qrz, occ red-brn	
4326	80	CLST:brn, gry, blk-lam	

	20	SST: vf, subrnd, cl transl qrz, yel-brn, red-brn	
	tr	mica	
4329	a/a		
4332	60	CLST: brn, gry, blk, sft - med hd, calc	
	40	SST: vf, aot f, subrnd, cl transl qrz, yel-red	
4335	a/a		
4338	a/a		
4341	60	CLST: brn, dk gry, blk, sft, aot calc	
	40	SST: vf -f, rnd-subrnd, cl transl qrz, yel-red	
4344	60	CLST: brn, dk gry, blk - lam, firm-sft, calc	
	40	SST: a/a	
4347	a/a		
4350	50	CLST: brn, dk gry, blk - lam, firm-sft, calc	
	50	SST: vf -f, rnd-subrnd, cl transl qrz, yel-red	
4353	a/a		
4356	a/a		
4359	a/a		
4362	60	CLST: brn, dk gry, occ blk, blk, sft - firm, occ hd, occ calc	
	40	SST: vf, w srted, cl transl qrz, yel-brn, red-brn	
	tr	coal	
4365	70	CLST: brn, gry, occ red, sft - firm, occ hd, non calc	
	30	SST: a/a	
	tr	coal	
4368	a/a		
4371	80	CLST: brn-red, occ gry, olv gn, blk - firm, occ lam, calc	
	20	SST: vf, w srted, cl transl qrz, yel-brn-red	
4374	a/a		
4377	a/a		
4380	90	CLST: red- brn, occ olv gn, blk - lam, sft - firm, calc	
	10	SST: vf, occ f, subrnd, cl transl qrz, yel-brn-red	

	tr	coal	
4383	80	CLST: a/a	
	20	SST: a/a	
4386	90	CLST: a/a	
	10	SST: a/a	
4389	70	CLST: brn, gry olv gn, blk, lam, sft - frm, non calc	
	30	SST: a/a	
	tr	coal	
4392	70	CLST: occ calc els a/a	
	30	SST: a/a	
	tr	coal	
4395	70	CLST:CLST: brn, gry olv gn, blk, lam, sft - frm, calc	
	30	SST: vf, occ f, subrnd, cl transl qrz, yel-brn-red	
	tr	coal	
4398	80	CLST: red-brn, occ dk gry, sft, occ mod hd	
	20	SST/SLTST: vf, v calc	
4401	90	else a/a	
	10	else a/a	
4404	a/a		
4407	80	else a/a	
	20	else a/a	
4410	60	SST: vf, gry, lt gry, calc	
	40	CLST: dk gry, red-brn, mod hd, sft	
4413	a/a		
4416	60	CLST: red- brn, gry	
	40	SST: a/a	
4419	a/a		
4422		no sample	
4425	a/a		
4428	a/a		
4431	60	SLTST: calc else a/a	



	40	CLST: a/a	
4434	80	SLTST: vf, non calc, else a/a	
	20	CLST: eles a/a	
4437		no sample	
4440	70	CLST: occ hd, else a/a	
	30	SLTST: calc	
4443	a/a		
4446	80	SST: vf, lt-med dk gry, occ olv gn, calc	
	20	CLST:	
4447	80	SST: vf, lt-med gry, med dk gry, occ olv gn, v calc	
	20	CLST: red-brn, occ blk	
4449	90	SST: vf - f, lt-med dk gry, yelsh, occ brnsh, vlr trans qrz	Borkaks fra
		srtdd, subrndd, rndd, non-calc	kjernetatt interval
	10	CLST: dk gry, red-brn, frm, sft	4447- 4493m MD
4452	80	SST: vf else a/a	
	20	CLST: else a/a	
4455	80	SST: a/a	
	20	CLST: occ blk, v hd else a/a	
4458	80	SST: vf, dk gry, occ mlky wh	
	20	CLST: blk, red, dk gry, frm, sft	
4461		a/a	
4464		a/a	
4467		a/a	
4470	80	SST: vf, mlky wh, gry	
	20	CLST: a/s	
4473	80	SST: a/a	
	20	CLST: red-brn, sft, blk v hd	
4476	70	SST: vf, v calc, else a/a	
	30	CLST: red-brn, sft, dk gry, v hd	
4479	70	SST: vf, red-brn, mlky-wh, lt gry, v calc	
	30	CLST: red-brn,sft, med hd, dk gry, blk, v hd	

**Final Well Report (Exploration) 34/10-44S / 34/10-J-4 H**

Statoil technical and professional descriptions and guidelines

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			samples lost?
4494	80	CLST: dk gry - blk, mod hd - v hd, red-brn, sft	
	20	SST: vf, lt gry, mlky wh, calc	
4497	70	CLST: dom red-brn else a7a	
	30	SST: non-calc else a/a	
4500	90	CLST: else a/a	
	10	SST: else a/a	
4503	80	CLST: red-brn, sft, occ med dk gry, v hd,	
	20	SST: lt gry, mlky wh, red-brn, mica, non-calc	
4505		a/a	
4509		a/a	
4512	50	CLST: red-brn, lt gry-med dk gry, sft	
	50	SST: vf, lt gry, mlky wh, mica, non-calc	
4515		no sample	
4518	80	SST: else a/a	
	20	CLST: else a/a	
4521	70	SST: else a/a	
	30	CLST: else a/a	
4524	80	SST: red-brn, occ mlky wh, else a/a	
	20	CLST: red-brn, lt - med dk gry, frm, v hd	
4527	90	SST: else a/a	
	10	CLST: else a/a	
4530		no sample	
4533		no sample	
4536		no sample	
4539	90	SST: vf, recd-brn, occ mlky wh	
	10	CLST: red-brn,sft dk gry, v hd	
4542		a/a	
4545		no sample	
4548		no sample	
4551	70	SST: a/a	
	30	CLST: a/a	

4554		a/a	
4557		a/a	
4560		a/a	
4563	80	SST: vf, mlky wh, lt gry, occ yelsh, red-brn, occ trans qrz	
		occ grnsh (glauc)	
	20	CLST: red-brn, gry.sft	
4569	80	SST: vf, occ f, mlky wh, lt gry, calc	
	20	CLST: lt gry, med dk gry, med hd-v hd, red-brnsh sft	
4572	60	CLST: red-brn, sft, dk gry, hd, calc	
	40	SST: vf red-brn, mlky wh	
4578	70	CLST: a/a	
	30	SST: olv gn, v hd, else a/a	
4581	70	SST: vf, mlky wh, lt gry, red-brn, med hd, grd to sltst, v calc	
	30	CLST: red-brn, med dk gry v hd	
4584	70	SST: vf - f, else a/a	
	30	CLST: a/a	
4587	80	SST: a/a	
	20	CLST: a/a	
4590	60	SST: a/a	
	40	CLST: red-brn sft, dk gry hd, else a/a	
4593		a/a	
4596		no sample	
4599	50	CLST: a/a	
	50	SST: vf, grd to sltst else a/a	
4602	60	SST: vf, mlky wh, lt gry, med hd, lse v calc, red-brn, dk gry	
		frm-mod hd	
	40	CLST: red-brn, dk gry, frm - mod hd	
4605		a/a	
4608	60	CLST: else a/a	
	40	SST: else a/a	

4611		a/a	
4614		a/a	
4617	50	CLST: a/a	
	50	SST: a/a	
4620	70	CLST; dk gry, brn-red, grd to sltst, calc, blkly sft - md frm	
	30	SST: vf, mlky wh, red-brn, clr trans qrz, subang, srtd	
	Tr	Py, Karb	
4623		a/a	
4626		a/a	
4629	60	CLST: dk gry, olv gry, brn - red, calc, grd to sltst,	
	40	SST: vf, clr - mlky wh, redsh qrz, subang	
	Tr	Karb	
4632	50	CLST: dk gry, olv gn, blkly-lam, calc	
	50	SST: vf, mlky wh, red-brn, subang	
4635	60	SST: f, mlky wh, res-brn, subang	
	40	CLST: dk gry, occ red - brn, gr to sltst, calc	
4638	70	SST: f - md, mlky wh, clr qrz, occ red - brn, subang	
		-subrndd, calc	
	30	CLST: dk gry, dk brn	
4644	90	SST: f - m, mlky wh, lt brn, clr trans qrz, subang - subrndd,	
		calc	
	10	CLST: dk gry, dk brn - red, sft	
4647		a/a	
4650	90	SST: f - m, mlky wh, lt brn, brn - red, subang, calc	
	10	CLST: a/a	
4653	70	SST: a/a	
	30	CLST: dk brn - red, sft, dk gry, hd	
4656		a/a	
4659	90	SST: f - m, occ cr subang - subrndd, mlky wh, lt gry, lt brn,	
		calc	
	10	CLST: a/a	
4660		a/a	First TD.

4665	80	SST:clr qtz,gy,fn - med,occ crs, lse - mod hd,calc smtd i/p	
	20	SH/CLYST:red brn,dk olv grn, grn gy,md gy,frm-mod hd,fiss,slty i/p	
		i/p,sl calc	
	Tr	Lst/Marl	
4668	60	SST: a/a	
	40	SH:a/a	
4671	60	SH: a/a S	
	40	SST:a/a	
	TR	A/A	
4674	A/A		
4677	80	SH/CLYST:vari col.dom. red brn,grn gy-med,sft-frm,sl calc calc gry,sft-frm,sl slty,	
	20	SST: A/A	
4680	A/A		
4683	70	SH/CLYST: a/a	
	30	SST: A/A	
4686	80	SH/CLYST: brn gry-red brn,grd to sltst i/p, else a/a	
	20	SST: A/A	
4689	50	SH/CLYST: a/a	
	50	SST:clr qtz,gy,vnfn - med, lse - mod hd,calc smtd i/p. kaolin mtz,occ grd to siltst,arg	
4692	60	SST: A/A	
	40	SH/CLYST: a/a	
4695	A/A		
4698	60	SH/CLYST: a/a	
	40	SST:a/a	
4701	50	SH/CLYST: rdsh brn-gnsh gry, occ blsh gry, rr purp, frm, blk, occ swlg, v. calc i.p. mod slty.	
	40	SST: off wh-lt gry, occ med gry, fri, vf-f, occ slty mtz, calc cmt i.p. abnt rk flour.	
	10	LST: wh-off wh, frm, aren, grding vf SST	
4704	20	SH/CLYST: pred gnsh gry, occ rdsh brn, a/a	

	80	SST: lt gry-off wh, fri, vf-f, v. calc, grding LST	
4707	10	SH/CLYST: rdsh brn-gnsh gry,	
	90	SST: lt gry, vf-f, sbrnd, sbsph, abnt rk flour.	
4710	10	SH/CLYST: rdsh brn, gnsh gry, occ med gry, rr purp,	
		frm, blk-y-crmb, mod slty, occ swlg, v. calc i.p.	
	90	SST: lt gry-off wh-med gry, fri, vf-f, occ med, wh slty mtx,	
		occ v.calc cmt, abnt rk flour.	
4713	90	SH/CLYST: rdsh brn, occ gnsh gry, med gry, rr purp, frm,	
		blk-y-crmb, slty, v. calc.	
	10	SST: lt gry, a/a	
4716	80	SH/CLYST: pred rdsh brn, occ gnsh gry, a/a	
	20	SST: off wh-lt gry, fri, vf-f, sbrnd, sbsph, calc cmt	
4719	50	SH/CLYST: rdsh brn, occ gnsh gry a/a	
	50	SST: off wh-lt gry-med gry, fri, vf-f, sbrnd-sbang, sbsph,	
		calc cmt, rk flour	
4722	20	SH/CLYST: rdsh brn a/a	
	80	SST: pred lt-med gry, vf-f, v. calc cmt.	
4725	40	SH/CLYST: rdsh brn a/a	
	60	SST: off wh-lt gry-occ med gry, vf-f, v. calc cmt.	
4731	90	SH/CLYST: rdsh brn, occ med gry, rr yel, sft-frm, amor-	
		blk-y, mod slty, mod calc i.p.	
	10	SST: lt-med gry, occ off wh, v. calc, grding LST	
4734	90	SH/CLYST: pred rdsh brn, occ med gry, a/a	
	10	SST: lt-med gry, a/a	
4737	90	SH/CLYST: rdsh brn a/a v. calc.	
	10	SST: lt-med gry, a/a	
4740	100	SH/CLYST: rdsh brn, occ med gry, sft-frm, blk-y-crmb,	
		mod slty, v. calc.	
	Tr	SST: lt-med gry, fri, vf-f, slty mtx, grding SLTST, v. calc	
4743	50	SH/CLYST: rdsh brn, occ gnsh gry, a/a v. calc	
	50	SST: lt gry, occ med gry, fri, vf-f, v. calc cmt, abnt rk flour.	
4746	20	SH/CLYST: rdsh brn, a/a	
	80	SST: lt-med gry, occ off wh, fri, vf-f, sbrnd-sbang, sbsph,	
		slily calc cmt, slty mtx.	
4749	10	SH/CLYST: rdsh brn-gnsh gry, a/a	

	90	SST: lt gry-off wh, a/a	
4752	80	SH/CLYST: rdsh brn, occ gnsh gry, occ med gry, sft-frm, blkly, slily-mod slty, v. calc	
	10	SST: off wh-lt gry, vf-f, slty mtx, grding SLTST	
4755	90	SH/CLYST: a/a more gnsh gry	
	10	SST: a/a	
4758	80	SH/CLYST: pred gnsh gry, occ rdsh brn, sft-frm, a/a mod calc	
	20	SST: lt-med gry, a/a	
4761	50	SH/CLYST: pred gnsh gry, med gry, occ rdsh brn, v. sft, amor, mod calc, mod slty	
	50	SST: lt gry, fri, vf-f, slty mtx, occ carb.	
4764	40	SH/CLYST: a/a	
	60	SST: lt gry-off wh, vf-f, slty mtx, grding SLTST.	
4767	20	SH/CLYSY: a/a	
	80	SST: off wh-lt gry, occ med gry, fri, vf-f, sbrnd-sbang, slty mtx, grding SLTST, mod calc cmt.	
4770	10	SH/CLYST: gnsh gry, med gry, occ rdsh brn a/a	
	90	SST: off wh-lt gry, fri, pred vf, occ f, slty mtx, grding SLTST, slily calc, tr carb	
4773	10	SH/CLYST: a/a	
	90	SST: a/a	
4776	10	SH/CLYST: rdsh brn, gnsh gry, sft-frm, amor-blky, occ v. calc	
	90	SST: off wh-lt gry, pred vf, occ f, slty mtx, grding SLTST, slily calc,	
	Tr	LST: off wh, frm-mod hd, aren, grding SST.	
4779	A/A		
4782	80	SST:a/a	
	20	SH/CLYST: mainly med grn gry,else a/a	
4785	70	SH/CLYST: vari col, brn red - brn gry,else a/a	
	30	SST:a/a	
4788	90	SH/CLYST:mostly red brn,else a/a	
	10	SST:a/a	

4791	A/A		
4794	95	SH/CLYST: red brn,occ med grn gry,olv gry,sft-frm, gry,sft-frm,amor-blky	No shows
		amor-blky,sl calc-calc	
	5	SST: lt gry,vf-fn,slty mtx,grd to sltst,lse-frm,partly calc cmt snt,sil cmt	
		sil cmt.	
4797	A/A		
4800	90	SH/CLYST: mostly brn gry,med gry,grn gry,less red brn brn,,else a/a	
		,else a/a	
	10	SST: a/a	
4803	70	SH/CLYST:a/a	
	20	SLTST:grd to vfn sst,med gry-grn gry- brn gry,frm,else a/a	
	10	SST: a/a	
4806	A/A		
4809	A/A		
4812	90	SST: lt gry-wh,vfn,grd to sltst,frm,sl arg,calc cmt,sil cmt	
	10	SH/CLYST:a/a	
4815	A/A		
4818	70	SST:a/a	
	30	SH/CLYST: a/a	
4821	50	SST:a/a	
	50	SH/CLYST: a/a	
4824	A/A		
4827	70	SH/CLYST: pred rdsh brn, occ med gry, sft-frm, mod slty, calc-v. calc	
	30	SST: off wh-lt gry, vf-f, slty mtx, calc cmt, grding SLTST	
4830	60	SH/CLYST: a/a	
	40	SST: lt gry-off wh, vf-f, slty mtx, grding SLTST	
4833	60	SH/CLYST: rdsh brn, sft-frm, calc, a/a	
	40	SST: lt gry-off wh, vf-f, slty mtx, grding SLTST, also as lse, clr, sbang, sbsph, occ rd stnd.	
4836	10	SH/CLYST: rdsh brn, a/a	



	90	SST: pred lse, clr-rd stnd, vf-f, occ med, sbang, sbsph, abnt calc cmt.	
4839	10	SH/CLYST: a/a	
	90	SST: pred off wh, fri, vf-f, rr med, kaol, calc cmt.	
4842	30	SH/CLYST: rdsh brn, occ med gry, occ gnsh gry, slty, calc.	
	70	SST: lt gry-off wh, vf-f, slty mtx, grding SLTST, calc cmt	
4845	20	SH/CLYST: a/a more gnsh gry	
	80	SST: lt gry-off wh, vf-f, slty, grding SLTST	
4848	50	SH/CLYST: pred rdsh brn, occ gnsh gry, sft, amor, calc.	
	50	SST: off wh-lt gry, vf-f, slty mtx, rk flour, calc.	
4851	90	SH/CLYST: rdsh brn, rr gnsh gry, sft, slty, calc-v. calc.	
	10	SST: a/a	
4854	70	SH/CLYST: rdsh brn, occ gnsh gry, sft-occ frm, slty-v.slty, calc-v.calc.	
	30	SST: lt gry-occ rdsh brn, vf-f, slty mtx, grding SLTST, rk flour, calc cmt	
4857	70	SH/CLYST: a/a	
	30	SST: lt gry, v. slty, grding SLTST, a/a	
4860	10	SH/CLYST: rdsh brn-gnsh gry, occ blsh gry, sft-frm, calc.	
	90	SST: lt gry-off wh, vf-f, slty mtx, grding SLTST, calc cmt, kaol, abnt rk flour.	
4865	90	SH/CLYST: pred rdsh brn, occ gnsh gry, sft-frm, slty, v. calc.	
	10	SST: lt gry, vf-f, slty, grding SLTST a/a	

App E Core descriptions



CONVENTIONAL CORE DESCRIPTION															
Country: Norway		Area: North Sea			Field: Rimfaks										
Well no: 34/10-J-4 H		Formation: LUNDE													
Core no: 1		Interval: 4447 - 4493m			Cored: 46m Rec: 45.8m (99%)										
Core size: 4"		Geologists: E. Rundhovde			Date: 24.06.01										
Depth (mRKB)	Lithology/Grain size						Shows					Lithological Description	Remarks		
	cly	slt	vf	f	m	c	vc	STAIN	FLUOR	CUT	POOR			FAIR	GOOD
4447														CLST: BRN-RED, DK GRY, FIRM NON CALC	
4448									■			■	■	SST: F, OCC MED, MILKY WH CL TRANSL QRZ, SUBRND BLK MICA. WEAK CALC FRAG. OF CLST. WITHIN SST. CLST: DK GRY-OLV GN LAM.	WEAK ART OD DULL WH FLUOR. SPOTED WH FLUOR
4449									■			■		SST:VF-F, SUBRND, SUBANG, CC TRANSL QRZ-MILKY WH. WH AND BLK MICA. WEAK CALC	MUD BRI WH FLUOR IN A LAM ZONE DULL WH FLUOR
4450									■			■		SST: VF GRAD WTO SILST DULL MILKY WH-LT GRY QRZ, OCC CL QRZ. LT AND DK MICA. CALC.	WEAK SP OF WH FLUOR ON FRESH SURFACE
4451												■		SST: VF, CL-LT GRY SMOKY QTZ, SUBANG, LT MICA. WEAK CALC	NO SHOWS
4452												■		SST: VF. CL-LT GRY SMOKY QTZ, SUBANG, LT MICA AND OCC DK MICA. NON CALC	NO SHOWS
4453												■		SST: VF-F, CL-LT GRY QTZ, SUBANG, WEAK CALC.	DULL SP OF WH FLUOR
4454									■			■		SST: F, SUBANG-SUBRND, WBU, SRTD CL TRANSL QTZ-LT GRY OCC LT BRN..CALC. LT AND DK MICA.F	PBT OD, WEAK DULL WH FLUOR
4455									■			■		SST: F, SUBANG-SUBRND WBIL SRTD, GL-SMOKY-TRANSL QTZ, OCC LT BRN. LT AND DK MICA. F WEAK CALC	PBT OD WEAK WH FLUOR?
4456									■			■		SST: DOM F, OCC VF-MD, SUBANG SUNRND. CL-SMOKY TRANSL QTZ, OCC LT BRN CALC. LT MICA, F	PBT OD WEAK WH ST OF FLUOR
4457									■			■			



CONVENTIONAL CORE DESCRIPTION															
Country: Norway			Area: North Sea				Field: Rinfaks								
Well no: 34/10-J-4 H-			Formation: LUNDE												
Core no: 1			Interval: 4447 - 4493m			Cored: 46m Rec: 45.8m (99%)									
Core size:			Geologists: E. RUNDHOVDE				Date: 24.06.01								
Depth (mRKB)	Lithology/Grain size							Shows						Lithological Description	Remarks
	cly	slt	vf	f	m	c	vc	STAIN	FLUOR	CUT	POOR	FAIR	GOOD		
4457									■			■		SST: DOM F, SUBRND-SUBANG, CL-SMOKY. TRANSL QTZ, WEAK CALC F, DK MICA	SP OF WH FLUOR. WEAK PBT OD
4458												■		SST: F-VF, SUBRND-SUBANG CL-SMOKY TRANSL QTZ VF. DK MICA, CALC	SP OF WH FLUOR WEAK PBT OD
4459												■		SST: VF-F, SUBRND, CL, OCC SMOKY. TRANSL QTZ. VF, LT AND DK MICA. THIN LAM OF SILTY CLST, RED-BRN	NO OD NO FLUOR
4460												■		SST: VF-F SUBRND SUBANG CL-SMOKY TRANSL QTZ. CALC F-MED LT MICA. VF AND DK MICA	WEAK PBT OD
4461								■				■		SST: VF-F, SUBANG, CL-SMOKY TRANSL QTZ. CALC 5% LT MICA, MED-COARS VF, DK MICA	WEAK PBT OD SP OF VIOL FLUOR
4462												■		SLTST: VF INTO SLTST DK REDBRN. VF-F LT MICA. WEAK CALC CF DK MICA	NO PBT OD. NO FLUOR.
4463												■		SST: VF, CL-SMOKY TRANS QTZ. CALC. SUBANG. VF, LT-DK MICA.	(POSSIBLE) WEAK DULL WH FLUOR.
4464												■		SST: VF, CL-LT SMOKY TRANSL QTZ. SUBANG-SUBRND, NON CALC. VF-F LT MICA VF DK MICA	NO PBT OD WEAK SP OF VIOL FLUOR
4465												■		SST: VF, SUBANG, CL TRANSL QTZ OCC LT BRN-RED. CALC F. DK AND LT MICA	NO PBT OD NO FLUOR
4466												■		SST: VF, SUBANG. CL-LT SMOKY TRANSL QTZ, OCC LT RED-BRN, NON CALC. VF-F, LT AND DK MICA	NO FLUOR
4467															



CONVENTIONAL CORE DESCRIPTION															
Country: Norway			Area: North Sea				Field: Rimfaks								
Well no: 34/10-J-4 H			Formation: LUNDE												
Core no: 1			Interval: 4447 - 4493m				Cored: 46m Rec: 45.2m (99%)								
Core size:			Geologists: E. RUNHOVDE				Date: 24.06.01								
Depth (mRKB)	Lithology/Grain size							Shows	Φ	Lithological Description	Remarks				
	cly	slt	vf	f	m	c	vc					STAIN	FLUOR	CUT	POOR
4467											■			SST: VF, SUBANG-SUBRND. CL-LT SMOKY TRANSL QTZ VF-F LT AND DK MICA. WEAK CALC	NO PBT NO FLUOR
4468											■			SST: VF, SUBRND, CL-LT SMOKY TRANSL QTZ. ST CALC. VF-F LT AND DK MICA	NO PBT OD NO SHOWS
4469														SST: VF-F, SUBRND SUBANG CL TRANSL QTZ - LT MILKY WH QTZ. ST CALC 10% F-MED LT DK MICA. DEFINIG LAM. FABRIC	SP OF WEAK WH FLUOR
4470								■			■			SST: VF-F, OCC MED. CALL SUBRND, CL TRANSL QTZ LT BRN COATING OCC. TR. F-MED, LT AND DK MICA	SP OF WEAK WH. FLUOR
4471								■						SST: F-VF, OCO MED, SUBRND-SUBANG, CL TRANS QTZ OCC RED-BRN F-MED LT MICA F, DK MICA. CALC	DULL WH FLUOR V WEAK PBT OD
4472														SST: VF-MED, POORLY SORTED SPOTS OF SLTST. CL-MILKY WH QRZ, OCC RED-BRN. 20% SLST, DK GRY OLVGN	NO FLUOR
4473														CLST: GRAD INTO SLTST, BRN-RED, FIRN-HD. CALC	NO FLUOR
4474														SLTST: GRAD INTO CLST. DK BRN-RED, FIRM CALC.	NO FLUOR
4475														SLTST: DK BRN-RED, FIRM W CALC	NO FLUOR
4476														SLTST: DK RED-RED, FIRM TR OF LT MICA, W CALC.	NO FLUOR



CONVENTIONAL CORE DESCRIPTION															
Country: Norway			Area: North Sea				Field: Rimfaks								
Well no: 34/10-J-4 H			Formation: LUNDE												
Core no: 1			Interval: 4447 - 4493m				Cored: 46m Rec: 45.2m (99%)								
Core size:			Geologists: E. RUNHOVDE				Date: 25.06.01								
Depth (mRKB)	Lithology/Grain size							Shows	Φ	Lithological Description	Remarks				
	cly	slt	vf	f	m	c	vc					STAIN	FLUOR	CUT	POOR
4477														SLTST: DK RED-BRN, FIRM TR OF LT MICA, DK MICA	NO FLUOR
4478														SST: WITH FRAG. OF CLST. SST: F-VF. SUBNAG, CL-LT GRY TRANSL QTZ. TR OF LT AND DK MICA. CLST: GRAD INTO SLTST DK RED-BRN	NO FLUOR
4479								■		■				SST: VF-F. SUBANG, CL-LT SMOKY TRANSL QTZ CALC.	POSSIBLY WEAK WH FLUOR
4480														SST: SLTST: GRAD INTO VF SST. DK RED-BRN, FIRM TR OF LT MICA. W CALC.	NO FLUOR
4481														SLTST: DK RED-BRN FIRM.	NO FLUOR
4482														SLTST: DK RED-BRN MOD SRTD. GRAD INTO VF SST. 5-10% F-COARS LT MICA NON CALC	NO FLUOR
4483														SST: VF-F, SUBANG, LT GRY - TRANSL QTZ, VF-F, LT AN DK MICA. NON CALC.	NO FLUOR
4484														SST: VF-F, SUBANG. CL TRANSL QTZ, OCC SMOKY AND LT RED-BRN QRZ TR LT AND DK MICA. NON CALC.	NO FLUOR
4485														SST: VF-F, SUBANG, CL-SMOKY TRANSL QTZ OCC LT RED-BRN TR MED-COARS LT MICA, VF DK MICA NON CALC.	WEAK PBT OD NO FLUOR
4486								■		■				SST: MED-FN, SUBRND CL-DULL TRANSL QTZ LT BRN TAN ON GRAIN. TR, LT AND DK MICA.	PBT OD WEAK WH FLUOR.



CONVENTIONAL CORE DESCRIPTION																			
Country: Norway			Area: North Sea				Field: Rimfaks												
Well no: 34/10-J-4 H			Formation: LUNDE																
Core no: 1			Interval: 4447 - 4493m				Cored: 46m Rec: 45.2m (99%)												
Core size:			Geologists: E. RUNHOVDE				Date: 25.06.01												
Depth (mRKB)	Lithology/Grain size								Shows	Φ	Lithological Description	Remarks							
	cly	slt	vf	f	m	c	vc	APPEARANT DIP					STAIN	FLUOR	CUT	POOR	FAIR	GOOD	
4487	m																	SST: FN, SUBRND-SUBANG CL-SMOKY TRANSL QTZ TR OF MED-FN LT AND DK MICA. NON CALC	SP OF WEAK WH FLOUR
4488	m																	SST:FN-VF, SUBANG, CL-SMOKY TRANSL QTZ. CALC 10% F-MED LT AND DK MICA. NON CALL	
4489	m																	SLTST: DK BRN-RED, FIRM W CALC	
4490	m																	SLTST: DK BRN-RED, FIRM, CALC	
4491	m																	SLTST: GRD INTO VF SST DK BRN-RED, FIRM W CALC.	NO FLUOR
4492	m																	CLST: GRD INTO SLTST DK RED-BRN FIRM-HD. NON CALC	NO FLUOR
4493																		SST: VF, DK BRN-RED, GRY-DK GRY. TRANSL QRZ TR MICA. CALC	
4494																			
4495																			
4496																			

## **App F Other reports**

### **NPD standard sheet for reporting shallow gas (in Norwegian)**

#### **Listing of other reports**

Liste over andre rapporter som er relatert til brønnen.

**7 Enclosures (OD krav, digitalt, PDF etc)****Composite log****Formation evaluation log****Pressure evaluation log**

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

**Figures and tables****Location map (fig)****Data acquisition summary (fig)****Time distribution (table/fig)****Prognosis vs. observed stratigraphy (fig)****Gas readings and HC shows summary (fig)****Post well interpretation (seis. section or/and geoseis. Cross section (fig)****Coring data summary sheet (fig/table)****Pressure plot (fig)****Pressure composite plots (figs)****Reservoir pressure plot (fig)****Temperature plot (fig)****Wellbore schematic (fig)****P&A wellbore schematic (fig)****Time vs. depth curve (fig)****Wellhead system (fig)****Experience listing (table)****Table of chronostratigraphy (table)****Table of lithostratigraphy (table)****Major gas peaks (table)****Reservoir pressure measurements (table)****Measured and extrapolated temperatures (table)****Sampling overview (table)****Time planner (table)****Bit record (table)****Bottomhole assemblies (table)****Drilling fluids (table) ([RF §24](#) type, kommersielt navn, produsent, base (olje/vann), additiver)****Cementing data (table)**





