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Title GEOCHEMICAL EVALUATION OF WELL 9/2-3		
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Abstract

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I N T R O D U C T I O N

This report presents the the results of a standard geochemical study of the Statoil 9/2-3 well. The analytical work has been performed in accordance with Statoil standard and the guidelines given in "Organic Geochemistry Standard Analytical Procedure Requirement and Reporting Guide" (Kjell Øygard et al., 1988) . Laboratory analyses have mainly been performed at Statoil Geological Laboratories, and project has been carried out at Statoil Geological Laboratories.

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TABLE 1 : GEOCHEMICAL ANALYSIS, WELL 9/2-3

DEPTH (mRKB)	SAMPLE No.	SAMPLETYPE			VR	TOC	RE		KER DES	QUANT PY-GC	LIQU EXTR	TOTEXTR GC	MPLC	GC		GC/MS	ISOTOPES		
		Oil	Cutt	SWC			Core	S1						S2	SAT		ARO	O/e	Fra
3122,00	S4578			X		X	X	X											
3125,00	S4579		X			X	X	X			X		X	X	X		X	X	
3129,00	S4580			X		X	X	X											
3130,00	S4581		X			X	X	X	X		X		X	X	X		X	X	
3131,00	S4582			X	X														
3135,00	S4583		X			X	X	X			X		X	X	X				
3139,00	S4584			X		X	X	X											
3140,00	S4585		X			X	X	X	X		X		X	X	X				
3143,00	S4586			X		X	X	X											
3145,00	S4587		X			X	X	X			X		X	X	X		X	X	
3150,00	S4588		X			X	X	X	X										
3155,00	S4589		X			X	X	X			X	X							
3160,00	S4590		X			X	X	X	X										
3165,00	S4591		X			X	X	X											
3170,00	S4592		X			X	X	X	X		X	X							
3175,00	S4593		X			X	X	X											
3180,00	S4594		X			X	X	X	X		X	X							
3185,00	S4595		X			X	X	X											
3190,00	S4596		X			X	X	X	X		X	X							
3195,00	S4597		X			X	X	X											
3200,00	S4598		X		X	X	X	X	X		X	X							
3205,00	S4599		X			X	X	X											
3210,00	S4600		X			X	X	X	X		X	X							
3252,00	S4601		X		X														
3261,00	S4602		X				X												

TABLE 1 : GEOCHEMICAL ANALYSIS, WELL 9/2-3

DEPTH (mRKB)	SAMPLE No.	SAMPLETYPE				VR	TOC	RE		KER DES	QUANT PY-GC	LIQU EXTR	TOTEXTR GC	MPLC	GC		GC/MS	ISOTOPES		
		Oil	Cutt	SWC	Core			S1	S2						SAT	ARO		O/e	Fra	Ker
1010,00	S4633		X			X														
1030,00	S4634		X			X														
1100,00	S4547		X			X														
2100,00	S4557		X			X														
2200,00	S4558		X			X														
2300,00	S4559		X			X														
2400,00	S4560		X			X														
2500,00	S4561		X			X														
2600,00	S4562		X			X														
2700,00	S4563		X			X														
2800,00	S4564		X			X														
2900,00	S4565		X			X														
3000,00	S4566		X			X														
3060,00	S4567		X			X		X												
3080,00	S4568		X			X		X			X		X	X	X	X			X	
3090,00	S4569		X			X		X			X		X	X	X	X			X	
3100,00	S4570		X			X	X	X	X											
3102,00	S4571			X		X														
3105,00	S4572			X			X	X	X											
3108,00	S4573			X			X	X	X	X	X		X	X	X	X			X	
3115,00	S4574		X				X	X	X		X		X	X	X	X				
3116,50	S4575			X		X														
3118,00	S4576			X			X	X	X											
3120,00	S4577		X				X	X	X	X	X	X								

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TABLE 1 : GEOCHEMICAL ANALYSIS, WELL 9/2-3

DEPTH (mRKB)	SAMPLE No.	SAMPLETYPE				VR	TOC	RE		KER DES	QUANT PY-GC	LIQU EXTR	TOTEXTR GC	MPLC	GC		GC/MS	ISOTOPES		
		Oil	Cutt	SWC	Core			S1	S2						SAT	ARO		O/e	Fra	Ker
3264,00	S4603				X			X												
3266,00	S4604				X			X			X		X	X	X	X		X	X	
3267,90	S4605				X			X												
3269,70	S4606				X	X														
3270,00	S4607				X			X			X		X	X	X	X		X	X	
3271,92	S4608				X			X												
3274,85	S4609				X	X														
3276,00	S4610				X			X			X		X	X	X	X				
3278,00	S4611				X			X												
3280,00	S4612				X			X												
3281,45	S4613				X	X														
3282,02	S4614				X	X		X			X		X	X	X	X				
3284,00	S4615				X			X												
3286,00	S4616				X			X												
3287,86	S4617				X			X			X	X								
3289,90	S4618				X			X												
3290,90	S4619				X	X														
3291,91	S4620				X			X			X	X								
3300,00	S4621		X			X		X												
3312,00	S4622		X					X			X	X								
3324,00	S4623		X					X												
3336,00	S4624		X					X												
3348,00	S4625		X					X												
3360,00	S4626		X					X												

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TABLE 1 : GEOCHEMICAL ANALYSIS, WELL 9/2-3

DEPTH (mRKB)	SAMPLE No.	SAMPLETYPE				VR	TOC	RE		KER DES	QUANT PY-GC	LIQU EXTR	TOTEXTR GC	MPLC	GC		GC/MS	ISOTOPES		
		Oil	Cutt	SWC	Core			S1	S2						SAT	ARO		O/e	Fra	Ker
DST 1	S4494	X											X	X	X	X	X	X		
3372,00	S4627		X			X														
3378,00	S4628		X					X												
3381,00	S4629		X			X														
3399,00	S4630		X					X												
3402,00	S4631		X					X												
3417,00	S4632		X			X														
						3	28	55	28	12		24	10	14	14	14	14	3	9	3

ABBREVIATIONS:

KER.DES. :Kerogen Description
 QUANT.PY-GC :Quantitative Pyrolysis-GC
 LIQU.EXTR :Liquid extract
 TOTEXTR.GC :Total extract GC
 ISOTOPES
 O/e :Oil/extract
 Fra :Fractions
 Ker :Kerogen

TABLE 2
PYROLYSIS DATA

Well: 9/2-3.

DEPTH.	SAMPLE							
mRKB	no.	S1	S2	TOC	HI	PP	PI	TMAX
3060,00	S4567	0,2	1,2			0,4	0,50	435
3080,00	S4568	0,4	3,0			3,5	0,13	436
3090,00	S4569	0,8	5,8			6,6	0,13	434
3100,00	S4570	1,6	13,5	3,3	411	15,1	0,11	433
3105,00	S4572	4,6	32,6	6,2	525	37,2	0,12	431
3108,00	S4573	4,7	33,1	6,2	531	37,8	0,12	435
3115,00	S4574	5,1	41,0	6,6	619	46,1	0,11	435
3118,00	S4576	5,5	34,1	6,8	499	39,6	0,14	438
3120,00	S4577	6,9	46,2	7,8	596	53,1	0,13	437
3122,00	S4578	4,7	21,3	5,3	401	26,0	0,18	431
3125,00	S4579	6,7	41,8	7,0	594	48,5	0,14	436
3129,00	S4580	10,7	59,9	9,5	628	70,6	0,15	436
3130,00	S4581	8,9	46,4	7,6	609	55,4	0,16	437
3135,00	S4583	8,2	42,3	7,3	583	50,4	0,16	435
3139,00	S4584	5,0	26,6	6,5	410	31,6	0,16	437
3140,00	S4585	6,0	33,0	6,5	508	39,0	0,15	436
3143,00	S4586	14,3	91,3	13,1	697	105,6	0,14	442
3145,00	S4587	8,6	53,0	8,4	628	61,6	0,14	436
3150,00	S4588	6,3	37,4	6,5	577	43,8	0,14	433
3155,00	S4589	5,6	44,7	7,3	614	50,2	0,11	436
3160,00	S4590	4,0	30,4	5,7	535	34,3	0,12	437
3165,00	S4591	3,0	23,9	4,8	501	26,8	0,11	433
3170,00	S4592	1,7	15,3	3,7	412	17,0	0,10	438
3175,00	S4593	2,0	18,7	3,9	484	20,8	0,10	435
3180,00	S4594	1,9	16,2	3,8	427	18,1	0,10	435
3185,00	S4595	2,1	17,8	4,1	433	19,9	0,11	433
3190,00	S4596	1,3	11,1	3,1	361	12,3	0,10	435
3195,00	S4597	2,4	11,3	3,2	352	13,7	0,18	436
3200,00	S4598	1,3	8,1	2,6	306	9,4	0,14	436
3205,00	S4599	1,1	6,3	2,4	266	7,4	0,15	436
3210,00	S4600	1,2	7,3	2,4	305	8,5	0,14	436
3261,00	S4602	0,0	0,0			0,1	0,20	
3264,00	S4603	2,5	0,3			2,8	0,89	
3266,00	S4604	7,2	0,4			7,6	0,95	
3266.20	S4461	7,73	0,14					

TABLE 2

Well: 9/2-3. PYROLYSIS DATA

DEPTH	SAMPLE							
mRKB	no.	S1	S2	TOC	HI	PP	PI	TMAX
3267,15	S4462	5,49	1,47					427
3267,90	S4605	0,5	1,2			1,7	0,28	440
3270,00	S4607	2,6	0,3			3,0	0,89	
3271,92	S4608	0,1	0,2			0,4	0,37	
3276,00	S4610	0,4	0,8			1,2	0,32	443
3278,00	S4611	0,0	0,0			0,0	0,33	
3280,00	S4612	0,1	0,2			0,3	0,32	449
3282,02	S4614	46,0	161,7			207,7	0,22	450
3284,00	S4615	0,1	0,3			0,4	0,32	
3286,00	S4616	0,0	0,0			0,0	0,50	
3287,86	S4617	0,0	0,0			0,1	0,50	
3289,90	S4618	0,0	0,0			0,1	0,50	
3291,91	S4620	0,0	0,0			0,1	0,33	
3300,00	S4621	0,2	0,6			0,8	0,26	419
3312,00	S4622	0,0	0,1			0,1	0,38	
3324,00	S4623	0,0	0,1			0,1	0,38	
3336,00	S4624	0,0	0,1			0,1	0,27	
3348,00	S4625	0,1	0,3			0,4	0,34	
3360,00	S4626	0,1	0,1			0,2	0,35	
3378,00	S4628	0,1	0,3			0,4	0,23	
3399,00	S4630	1,1	0,2			1,3	0,83	
3402,00	S4631	0,0	0,1			0,2	0,25	

HI=Hydrogenindex (mgHK/g TOC) // OI=Oksygenindex (mgCO₂/g TOC)
 PP=Produktionpotential (kgHK/ton rock) // PI=Produktionindex

TABLE 3

Well: 9/2-3 QUANTITATIVE PYROLYSIS DATA

DEPTH	SAMPLE				
mRKB	no.	C1	C2-C5	C6-C14	C15+
3120m	S4577	3.28	6.77	37.03	52.93
3130m	S4581	2.52	12.91	32.94	51.64
3140m	S4585	3.06	16.93	31.88	48.14
3150m	S4588	3.25	10.53	35.16	51.06
3160m	S4590	3.95	4.84	34.94	56.28
3170m	S4592	3.78	11.00	39.08	46.16
3180m	S4594	4.09	4.37	42.95	48.59
3190m	S4596	4.38	11.82	55.55	28.25
3200m	S4598	5.21	16.91	49.63	28.25
3210m	S4600	5.00	18.06	50.21	26.73

TABLE 4 : CONCENTRATION OF EXTRACTABLE ORGANIC MATTER (EOM) AND CHROMATOGRAPHICS FRACTIONS (PPM), WELL 9/2-3

DEPTH (mRKB)	SAMPLE No.	TOT EOM	HYDROCARBONS			NON HYDROCARBONS		
			SAT	ARO	TOT	ASPH	NSO	TOT
3080,00	S4568	1478	356	325	681	411	387	798
3090,00	S4569	3257	738	772	1510	942	805	1747
3108,00	S4573	8007	1962	2191	4153	1206	2649	3855
3115,00	S4574	8169	2273	2737	5010	765	2394	3159
3120,00	S4577	462						
3125,00	S4579	10931	3390	3008	6398	881	3652	4533
3130,00	S4581	11923	3942	3192	7134	913	3876	4789
3135,00	S4583	12474	3364	3686	7050	913	4509	5422
3140,00	S4585	10656	2930	3570	6500	790	3366	4156
3145,00	S4587	14134	3323	4233	7556	2343	4233	6576
3155,00	S4589	7583						
3170,00	S4592	4366						
3180,00	S4594	4432						
3190,00	S4596	3642						
3200,00	S4598	3892						
3210,00	S4600	2950						
3266,00	S4604	6947	3467	1896	5363	592	993	1585
3266,20	S4461	8554						
3267,15	S4462	8097						
3270,00	S4607	4485	2057	1340	3397	879	209	1088
3276,00	S4610	666	42	120	162	450	55	505
3282,02	S4614	19945	674	4410	5084	13806	1057	14863
3287,86	S4617	116						
3291,91	S4620	284						
3312,00	S4622	361						

TABLE 5: NORMALISED COMPONENT GROUP COMPOSITION (%) OF TEST OIL
AND EXTRACTED ORGANIC C15+ MATTER, WELL 9/2-3

DEPTH (mRKB)	SAMPLE NO.	HYDROCARBONS			NON HYDROCARBONS		
		SAT	ARO	TOT	ASPH	NSO	TOT
3080,00	S4568	24,06	21,97	46,03	27,81	26,16	53,97
3090,00	S4569	22,67	23,70	46,37	28,91	24,73	53,64
3108,00	S4573	24,50	27,36	51,87	15,06	33,08	48,15
3115,00	S4574	27,82	33,50	61,33	9,36	29,31	38,67
3125,00	S4579	31,01	27,52	58,53	8,06	33,41	41,47
3130,00	S4581	33,06	26,77	59,83	7,66	32,51	40,17
3135,00	S4583	26,97	29,55	56,52	7,32	36,15	43,47
3140,00	S4585	27,50	33,50	61,00	7,41	31,59	39,00
3145,00	S4587	23,51	29,95	53,46	16,58	29,95	46,53
3266,00	S4604	49,90	27,29	77,19	8,52	14,29	22,81
3270,00	S4607	45,86	29,88	75,74	19,60	4,66	24,26
3276,00	S4610	6,31	18,02	24,32	67,57	8,26	75,83
3282,02	S4614	3,38	22,11	25,49	69,22	5,30	74,52
DST 1	S4494	49.63	34.22	83,85	5,54	10,61	16,15

TABLE 6 : GAS CHROMATOGRAPHIC DATA FROM EXTRACT FRACTIONS, WELL 9/2-3

DEPTH (mRKB)	SAMPLE No.	Pr nC17(A)	Ph nC18(B)	A B	Pr Ph	CPI1	CPI2	MPI1	MPI2	Rc
	S4494	0,69	0,56	1,23	1,47	1,02	0,99	0,71	0,87	0,83
3080,00	S4568	0,63	0,48	1,31	1,52	1,11	1,08	0,82	0,83	0,89
3090,00	S4569	0,64	0,51	1,25	1,39	1,10	1,07	0,63	0,64	0,78
3108,00	S4573	0,73	0,61	1,20	1,30	1,04	0,98	0,80	0,87	0,88
3115,00	S4574	0,70	0,59	1,19	1,40	1,02	0,97	0,73	0,67	0,84
3120,00	S4577	0,68	0,52	1,31	1,48	1,17	1,60			
3125,00	S4579	0,84	0,68	1,24	1,42	0,99	0,94	0,82	0,77	0,89
3130,00	S4581	0,93	0,77	1,21	1,32	1,03	0,96	0,88	0,94	0,93
3135,00	S4583	0,90	0,77	1,17	1,31	0,99	0,94	0,87	0,90	0,92
3140,00	S4585	0,85	0,64	1,33	1,55	1,04	1,02	0,77	0,77	0,86
3145,00	S4587	0,77	0,64	1,20	1,34	1,01	0,94	0,70	0,68	0,82
3155,00	S4589	0,75	0,61	1,23	1,68	1,10	1,04			
3170,00	S4592	1,03	0,63	1,63	2,00	1,07	1,04			
3180,00	S4594	0,66	0,47	1,40	1,93	1,09	1,05			
3190,00	S4596	0,90	0,66	1,36	1,65	1,27	1,00			
3200,00	S4598	0,71	0,61	1,16	1,52	1,02	0,94			
3210,00	S4600	0,76	0,62	1,23	1,61	1,25	0,80			
3266,00	S4604	0,76	0,58	1,31	1,48	1,03	0,98	0,91	1,16	0,95
3266,20	S4461	0,71	0,53	1,34	1,50	1,05	0,96			
3267,15	S4462	0,70	0,51	1,37	1,53	1,05	1,03			
3270,00	S4607	0,77	0,60	1,28	1,52	1,05	1,03	0,84	1,12	0,90

TABLE 6 : GAS CHROMATOGRAPHIC DATA FROM EXTRACT FRACTIONS, WELL 9/2-3

DEPTH (mRKB)	SAMPLE No.	<u>Pr</u> nC17(A)	<u>Ph</u> nC18(B)	<u>A</u> B	<u>Pr</u> Ph	CPI1	CPI2	MPI1	MPI2	Rc
3276,00	S4610	0,97	0,50	1,94	2,26	1,11	1,02	0,62	0,72	0,77
3282,02	S4614	1,13	0,33	3,42	3,96	1,20	1,11	0,62	0,68	0,77
3287,86	S4617	0,60	0,73	0,82	0,76					
3291,91	S4620	0,66	0,61	1,08	1,16					
3312,00	S4622	1,29	0,68	1,90	2,40	1,13	0,91			

TABLE 7
VISUAL KEROGEN DESCRIPTION

WELL 9/2-3

Dyp m RKB	Lip %	Vit %	In %	AOM	
				Lip %	Hum %
3100	9	9		82	
3120	6	15		79	
3130	11	7	1	81	
3140	23	2		75	
3150	18	4	1	77	
3160	32	2	2	64	
3170	36	8	1	55	
3180	28	11		61	
3190	24	5	2	69	
3200	25	10	4	61	
3210	32	11	2	55	

TABLE 8

THERMAL MATURITY DATA, WELL 9/2-3

(Geolab Nor report T-181376 #1)

Sample no.	Depth (m)	% Ro (average)
S4633	1011	0.40
S4634	1030	0.43
S4547	1100	0.47
S4548	1200	-
S4557	2100	0.75
S4558	2200	0.64
S4559	2300	0.56
S4560	2400	0.49
S4561	2500	0.50
S4562	2600	0.60
S4563	2700	0.64
S4564	2800	0.61
S4565	2900	0.52
S4566	3000	0.50
S4567	3060	0.58
S4568	3080	0.62
S4570	3100	0.72
S4571	3102	0.74
S4575	3116.5	0.58/0.51
S4582	3131	0.71
S4598	3200	0.67
S4601	3251	0.67
S4606	3269.8	0.66
S4609	3274.8	-
S4613	3281.4	0.62/0.61
S4614	3282	0.59/0.55
S4619	3291.3	0.64/0.56
S4621	3300	0.61
S4627	3372	0.58/0.58
S4629	3381	0.58/0.61
S4632	3417	0.62

TABLE 9: Tabulation of carbon isotope data for EOM/Oil - fractions or Oils for well NOCS 9/2-3

Depth unit of measure: m

Depth	Typ	Lithology	EOM/Oil	Saturated	Aromatic	NSO	Asphaltenes	Kerogen	Sample
3125.00			-	-	-	-	-	-28.19	0046-0
3130.00			-	-	-	-	-	-27.64/ -27.84	0047-0
3145.00			-	-	-	-	-	-27.47	0048-0
OIL DST1			-29.20/ -29.29	-29.53/ -29.56	-28.63	-27.86	-	-	0045-0
3080.0			-	-30.43	-30.09	-29.54	-28.65	-	0037-0
3090.0			-	-31.40	-30.98	-30.10	-29.43	-	0038-0
3108.0			-	-30.97	-30.45	-29.58	-29.44	-	0039-0
3125.0			-	-29.82	-29.44	-28.79	-28.57/ -28.55	-	0040-0
3130.0			-	-29.47	-28.91	-28.24/ -28.20	-28.21	-	0041-0
3145.0			-	-29.58	-28.74	-28.06	-28.12	-	0042-0
3266.0			-28.88	-29.70	-28.66	-27.95	-27.63	-	0043-0
3270.0			-28.15	-29.60	-27.83	-27.27	-26.69	-	0044-0

9h

TABLE 10: Tabulation of cv values from carbon isotope data for well NOCS 9/2-3

Depth unit of measure: m

Depth	Typ	Lithology	Saturated	Aromatic	cv value	Sample
3125.00			-	-	-	0046-0
3130.00			-	-	-	0047-0
3145.00			-	-	-	0048-0
OIL DST1			-29.53	-28.63	-0.50	0045-0
3080.0			-30.43	-30.09	-1.46	0037-0
3090.0			-31.40	-30.98	-0.98	0038-0
3108.0			-30.97	-30.45	-0.89	0039-0
3125.0			-29.82	-29.44	-1.56	0040-0
3130.0			-29.47	-28.91	-1.27	0041-0
3145.0			-29.58	-28.74	-0.62	0042-0
3266.0			-29.70	-28.66	-0.13	0043-0
3270.0			-29.60	-27.83	1.46	0044-0

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TABLE 11

MOLECULAR PARAMETERS FROM TRITERPANE AND STERANE DATA
MATURITY AND SOURCE PARAMETERS.

*** WELL : 9/3-2

DEPTH mRKB	SAMPLE ID	% Ts (1)	29A/30A (2)	%27 : (3)	%28 : (4)	%29 (5)	δ 22S (6)
3080	S4568	52.8	0.46	38.4	33.0	28.7	2.0
3090	S4569	56.5	0.39	37.1	34.0	29.4	2.0
3108	S4573	59.5	0.45	70.7	14.0	15.2	2.0
3115	S4574	59.3	0.46	39.9	32.0	28.2	2.0
3125	S4579	60.1	0.44	39.6	34.0	26.5	2.0
3130	S4581	61.0	0.41	40.2	34.0	25.6	1.0
3135	S4583	61.8	0.45	38.9	34.0	26.7	2.0
3140	S4585	64.8	0.37	40.5	32.0	27.6	2.0
3145	S4587	65.6	0.36	41.2	30.0	29.0	2.0
3266	S4604	57.7	0.42	38.8	34.0	27.2	1.0
3270	S4607	50.8	0.43	39.9	35.0	25.5	1.0
3276	S4610	14.3	0.90	30.8	25.0	44.1	2.0
3282	S4614	12.2	1.17	4.1	16.0	80.3	2.0
3258	OIL DST1	57.4	0.48	39.5	34.0	26.9	2.0

MOLECULAR RATIOS :

(1) % Ts = $Ts / (Ts + Tm)$

(2) 29A/30A = Norhopane (=C29 $\alpha\beta$)/hopan (=C29 $\alpha\beta$)

(3) % 27 = % 27 $\beta\beta$ isosterane =
 $C27\alpha\beta\beta20S+R / (C27+C28+C29)\alpha\beta\beta20S+R$ (m/z 218)

(4) % 28 = % 28 $\beta\beta$ isosterane =
 $C28\alpha\beta\beta20S+R / (C27+C28+C29)\alpha\beta\beta20S+R$ (m/z 218)

(5) % 29 = % 29 $\beta\beta$ isosterane =
 $C29\alpha\beta\beta20S+R / (C27+C28+C29)\alpha\beta\beta20S+R$ (m/z 218)

(6) δ 22S = Triterpane((C31/C32)+(C32/C33)+(C33/C34)) $\alpha\beta$ 22S /3

*** TABLE 12 ***

MOLECULAR RATIOS FROM STERANE AND TRITERPANE DATA.
MATURITY PARAMETERS.

*** WELL : 9/2-3

DEPTH mRKB	SAMPLE ID	$\alpha\beta/\alpha\beta+\beta\alpha$ (7)	%22S (8)	% $\beta\beta$ (9)	%20S (10)	Ttx (11)	%TtC32S (12)	DIA (13)
3080	S4568	84.8	58.3	29.7	39.2	40.1	57.7	45.2
3090	S4569	86.2	58.1	36.3	42.7	48.0	58.2	44.2
3108	S4573	88.6	59.9	46.0	43.7	54.1	58.9	52.4
3115	S4574	88.3	59.1	47.7	44.2	55.3	58.6	51.9
3125	S4579	87.6	58.8	49.7	47.6	56.2	58.1	51.7
3130	S4581	87.3	59.4	49.5	45.0	58.2	59.3	55.2
3135	S4583	88.0	58.7	50.5	47.1	58.2	58.2	55.3
3140	S4585	87.7	59.8	51.9	48.5	64.3	60.5	60.6
3145	S4587	89.2	59.7	56.3	47.9	66.3	58.8	63.6
3266	S4604	87.1	58.6	51.0	49.7	64.0	59.6	60.8
3270	S4607	85.2	58.8	46.1	49.4	60.6	59.9	60.8
3276	S4610	86.1	62.0	59.2	52.8	44.1	61.6	59.1
3282	S4614	82.8	59.2	45.4	48.5	34.7	58.9	-
3258	OIL DST1	90.7	63.4	55.1	52.4	68.0	71.1	59.0

MOLECULAR RATIOS:

(7) % $\alpha\beta/\alpha\beta+\beta\alpha$ = Hopane $\alpha\beta$ /hopane $\alpha\beta$ +moretane $\beta\alpha$ (C30)

(8) % 22S = Triterpane 22S =
((C31+C32+C33)22S/(C31+C32+C33)22S+R)/3

(9) % $\beta\beta$ =
Etylsterane $\alpha\beta\beta$ 20S+R/etylsterane $\alpha\alpha\alpha$ 20S+R + $\alpha\beta\beta$ 20S+R

(10) % 20S = Etylsterane $\alpha\alpha\alpha$ 20S/etylsterane $\alpha\alpha\alpha$ 20S+R

(11) % Ttx = Triterpane X/triterpane X+normoretane (=C29 $\beta\alpha$)

(12) % TtC32S = Triterpane C32 $\alpha\beta$ 22S/C32 $\alpha\beta$ 22S+R

(13) = 100*(C27 R+S $\beta\alpha$ (dia.))/((C27 $\alpha\alpha\alpha$ S+R) + (C27 dia.))

TABLE 13

DEPOSITIONAL ENVIRONMENT INDICATORS

(After Mello et al., 1988)

mRKB	SAMPLE	(1)	(3)	(4)	(5)	(6)
3080	S4568	1.4	2.0	0.1	1.1	1.8
3090	S4569	1.3	2.0	0.0	1.3	1.6
3108	S4573	0.3	5.0	0.1	1.5	1.3
3115	S4574	0.4	4.8	0.1	1.5	1.3
3125	S4579	0.8	11.2	0.0	1.5	1.2
3130	S4581	6.1	4.7	0.1	1.6	1.2
3135	S4583	0.5	4.4	0.0	1.6	1.2
3140	S4585	0.5	4.8	0.0	1.8	1.3
3145	S4587	1.7	3.2	0.0	1.9	1.3
3266	S4604	1.5	15.0	0.0	1.4	1.3
3270	S4607	1.5	4.5	0.1	1.0	1.3
3276	S4610	0.8	28.9	0.1	0.2	1.2
3282	S4614	0.4	3.0	0.1	0.1	1.7
3258	OIL DST1	1.7	3.2	0.1	1.3	0.8

(1)= Sterane ratio = C27 R $\alpha\alpha$ (regular)/C29 R $\alpha\alpha$ (regular)

(3)= Hopane/sterane index = C30 hopane/C27 R+S $\alpha\alpha$

(4)= Bisnorhopane index = C28(bisnorhopane)/C30 hopane

(5)= Ts/Tm

(6)= C34 $\alpha\beta$ R+S hopane/C35 $\alpha\beta$ R+S hopane

TABLE 14

QUALITATIVE DATA, C27-C29 DIASTERANES.

mRKB	SAMPLE	C27 DIA	C28 DIA	C29 DIA
3080	S4568	++	+	+
3090	S4569	++	+	+
3108	S4573	++	+	+
3115	S4574	++	+	+
3125	S4579	++	+	+
3130	S4581	++	+	+
3135	S4583	++	+	+
3140	S4585	++	+	+
3145	S4587	++	+	+
3266	S4604	++	+	+
3270	S4607	++	+	+
3276	S4610	+	+	++
3282	S4614	trace	trace	++
3258	OIL DST1	++	+	+

++ = Predominant

+ = Present

**LITHOLOGICAL DESCRIPTIONS OF
WELLSITE SAMPLES**

WELLSITE SAMPLE DESCRIPTION			Page 1 OF 37
Country: Norway		Area: North Sea	Field: Beta East
Company: Statoil		K.B.E.: 25m	Hole size: 17 1/2"
Geologist: T.F. Kristensen / S.E. Ingdahl		Date: 08.12.89	
Depth (mKB)	Lith (%)	Lithological Description	Remarks
		Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. structures, accessories, fossils, porosity, contamination.	Shows, cavings, mud additives, etc.
380	100 tr tr	Cly: med lt gry, sft, stky, sol, slty, non calc Sd: clr - transl qtz, med, subang Forams, Pyr	No shows Sample contam. w/ cmt
390	100 tr sl tr	Cly: med lt gry - med dk gry, sft, stky, sol, slty, non calc Sd: clr - transl qtz, med - crs, subang Forams, Pyr	a/a
400	100 sl tr	Cly: med dk gry - dk gry, sft, stky, sol, sl slty, non calc Sd: a/a	No Shows
410	100	Cly: a/a	a/a
420	100 tr tr	Cly: lt gry - med gry, olv gry - gry brn, sft, stky, sol, slty, v glau, pyr, micromic, non calc Glau: abundant Pyr	a/a
430		a/a	a/a
440		Gumbo	
450		Gumbo	
460	100 tr tr tr	Cly: olv gry - med gry, a/a Qtz: clr - trnsl, fn - med, wl rnd - ang, vein qtz Glau: abundant Pyr	a/a a/a
470	100 tr tr tr	Cly: olv gry - med gry, olv gry - gry brn, else a/a Glau: abundant Pyr Foss frags	a/a
480	100 tr tr tr tr	Cly: a/a Lst: brn wh - gry, sft - med, blk Glau: a/a Pyr Foss frags	a/a
490	100 tr	Cly: a/a, but also olv blk a/a	a/a
500		a/a	a/a
510		a/a	a/a
520		a/a	a/a
530		a/a	a/a

WELLSITE SAMPLE DESCRIPTION			Page 2 OF 37
Country: Norway		Area: North Sea	Field: Beta East
Company: Statoil		K.B.E.: 25m	Hole size: 17 1/2"
Geologist: T.F. Kristensen / S.E. Ingdahl		Date: 09.12.89	
Depth (mKB)	Lith (%)	Lithological Description	Remarks
		Rock name, mod.lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. structures, accessories, fossils, porosity, contamination.	Shows, cavings, mud additives, etc.
540	100	Cly: olv gry - med gry, olv gry - gry brn, olv blk, sft, stky, sol, slty, v glau, pyr, micromic, non calc tr Lst: brn wh - gry, sft - med, blk tr Glau: a/a tr Pyr tr Foss frags	No shows
550	100	Clyst: olv gry - brn gry, sft, stky, sol, slty, glau, micromic, micropyr, sl sdy, non calc tr Sd: clr qtz, v fn, subrnd tr Glau, Pyr, Shell frags	a/a
560	100	Clyst: a/a sl tr Sd: a/a tr Glau, Pyr	a/a
570	100	Clyst: a/a tr Glau, Pyr	a/a
580	100	Clyst: v sdy i/p, micromic - mic, else a/a gd tr Sd: clr qtz, v fn - fn, subrnd - rnd tr Glau	a/a
590	100	Clyst: sl sdy - sdy, else a/a tr Sd: a/a sl tr Lst: pa yel wh, frm, micr tr Glau	a/a
600	a/a		a/a
610	100	Clyst: olv gry - brn gry, lt gry - gn gry, sft, stky, sol, slty, sl sdy - occ v sdy, micromic, glau, non calc tr Sd: v fn, else a/a tr Lst: yel brn, mod hd, microxln, sl arg tr Glau	a/a
620		a/a	a/a
630		a/a	a/a
640	100	Clyst: olv gry - brn gry, occ gry brn, med lt gry - med gry - gn gry, sft, stky, sol, slty, sl sdy - occ sdy, glau, micromic, non calc sl tr Sd: clr qtz, v fn, subrnd - rnd tr Glau, Pyr	a/a
650	100	Clyst: micropyr, sl sdy - occ v sdy, else a/a tr Sd: a/a tr Glau, Pyr	a/a

WELLSITE SAMPLE DESCRIPTION			Page 3 OF 37
Country: Norway		Area: North Sea	Field: Beta East
Company: Statoil		K.B.E.: 25m	Hole size: 17 1/2"
Geologist: T.F. Kristensen / S.E. Ingdahl		Date: 09.12.89	
Depth (mKB)	Lith (%)	Lithological Description	Remarks
		Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. structures, accessories, fossils, porosity, contamination.	Shows, cavings, mud additives, etc.
660	100	Clyst: brn gry, occ med lt gry, sft, stky, sol, slty, sdy, micromic, micropyr, glau, non calc sl tr Sd: clr qtz, v fn, subrnd - rnd tr Glau, Pyr	No shows
670	100	Clyst: olv gry - brn gry, med lt gry - med gry, sft, stky, sol, sl sdy - sdy, occ v sdy, micromic, micropyr, glau, non calc tr Sd: v fn - fn, else a/a tr Pyr, Glau, Forams	a/a
680	100	Clyst: a/a tr Glau: abund tr Pyr, Forams	a/a
690	100	Clyst: a/a sl tr Lst: cream, mod hd, micr/microxln tr Pyr, Glau sl tr Shell frags, Forams	a/a
700	100	Clyst: sdy - v sdy, micromic - mic, else a/a gd tr Sd: clr - transl qtz, v fn - fn, subrnd - rnd tr Pyr, Glau	a/a
710	100	Clyst: olv gry - brn gry, med lt gry - med gry, sft, stky, sol, slty, sdy, micromic - occ mic, pyr, glau, non calc tr Sd: a/a tr Lst: off wh - cream, mod hd, micr tr Glau, Pyr, Forams	a/a
720	a/a		a/a
730	100	Clyst: a/a tr Sd: a/a tr Lst: a/a tr Glau, Pyr, Forams	a/a
740		a/a	a/a
750		a/a	a/a
760		a/a	a/a
770	100	Clyst: pred brn gry - olv gry, else a/a tr Sd: a/a tr Pyr, Glau	a/a
780	100	Clyst: olv gry - brn gry, med lt gry - med gry, sft, stky, sol, slty, sdy, micromic, occ mic, pyr, glau, non calc tr Sd: a/a tr Glau, Pyr	a/a

WELLSITE SAMPLE DESCRIPTION			Page 4 OF 37
Country: Norway		Area: North Sea	Field: Beta East
Company: Statoil		K.B.E.: 25m	Hole size: 17 1/2"
Geologist: T.F. Kristensen / S.E. Ingdahl		Date: 09.12.89	
Depth (mKB)	Lith (%)	Lithological Description	Remarks
		Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. structures, accessories, fossils, porosity, contamination.	Shows, cavings, mud additives, etc.
790	100	Clyst: olv gry - brn gry, med lt gry - med gry, sft, stky, sol, slty, sdy, micromic, occ mic, pyr, glau, non calc tr Sd: clr - transl qtz, v fn - fn, subrnd - rnd tr Glau, Pyr	a/a
800	100	Clyst: v sdy i/p, else a/a gd tr Sd: clr - transl qtz, v fn - fn, subrnd - rnd tr Pyr, Glau, Microfoss	a/a
810	100	Clyst: a/a gd tr Sd: clr - trnsl qtz, v fn - fn, subang - rnd tr Pyr, Glau, Microfoss, Mica	a/a
820		a/a	a/a
830		a/a	a/a
840		a/a	a/a
850	85 15 tr	Clyst: lt gn gry, else a/a Glau a/a	a/a
860	70 30 tr	Clyst: a/a Glau a/a	a/a
870	90 10 tr	Clyst: a/a Glau a/a	a/a
880		a/a	a/a
890		a/a	a/a
900	100 tr	Clyst: a/a a/a	a/a
910	100 tr	Clyst: a/a, but more varicoloured, also dk gn gry a/a	a/a
920	100 tr	Clyst: a/a, but also brn blk a/a	a/a
930	a/a		a/a
940	100 tr tr tr	Clyst: a/a, but also rd brn-pa brn Tuff: med dk gry w/ blk speks, occ gry pnk, frm Lst: wh, mod hd, micr i/p a/a	a/a

WELLSITE SAMPLE DESCRIPTION			Page 5 OF 37
Country: Norway		Area: North Sea	Field: Beta East
Company: Statoil		K.B.E.: 25m	Hole size: 17 1/2"
Geologist: T.F. Kristensen / S.E. Ingdahl		Date: 09.12.89	
Depth (mKB)	Lith (%)	Lithological Description	Remarks
		Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. structures, accessories, fossils, porosity, contamination.	Shows, cavings, mud additives, etc.
950	90	Clyst: olv gry, dsky yel brn, mod yel brn, sft, amor - blk, occ stky, slty i/p, non calc	No shows
	10	Tuff: med dk gry w/ blk speks, occ gry pnk, frm	
	tr	Lst: wh - olv gry, frm - hd, blk, xln, occ glauc	
	tr	Pyr, Glau, Mica, Foss frags	
960		a/a	a/a
970	90	Clyst: a/a	a/a
	10	Lst: a/a	
	tr	a/a	
980		a/a	a/a
990		a/a	a/a
1000		a/a	a/a
1010	100	Clyst: lt gn gry, dk gn gry, olv gry, dsky yel brn, brn blk, mod yel brn, else a/a	a/a
	tr	Lst: a/a	
	tr	a/a	
1020		a/a	a/a
1030		a/a	a/a
1040	90	Lst: wh - olv gry, frm - mod hd, occ micr, chky, arg i/p, v bryozoic i/p	a/a
	10	Clyst: dk gn gry, lt gn gry, olv gry, rd brn - pa brn, sft, amor - blk, occ stky, non calc	
	tr	Chert: clr - trnsl, sl brn, v hd	
1050		a/a	a/a
1060	90	Lst: a/a	a/a
	10	Clyst: olv gry, lt gn gry, else a/a	
1070	100	Lst: a/a	a/a
	tr	Clyst: a/a	
	tr	Chert: a/a	
1080	100	Lst: a/a	a/a
	tr	Clyst: a/a	
1090	90	Lst: wh - off wh, gn wh, frm - mod hd, micr, chky, arg i/p, foss bryozoic i/p	a/a
	10	Chert: brn transl - wh transl - yel wh, v hd, splintery	
1100		a/a	a/a

WELLSITE SAMPLE DESCRIPTION			Page 6 OF 37	
Country: Norway		Area: North Sea	Field: Beta East	
Company: Statoil		K.B.E.: 25m	Wellno: 9/2-3	
Geologist: T.F. Kristensen / S.E. Ingdahl		Date: 09.12.89		
Depth (mKB)	Lith (%)	Lithological Description		Remarks
		Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. structures, accessories, fossils, porosity, contamination.		Shows, cavings, mud additives, etc.

1110	90	Lst: wh - off wh, gn wh, frm - mod hd, micr, chky, arg i/p, foss bryozoic i/p	a/a
	10	Chert: brn transl - wh transl - yel wh, v hd, splintery	
1120		a/a	a/a

End of 17 1/2" hole

WELLSITE SAMPLE DESCRIPTION			Page 7 OF 37
Country: Norway		Area: North Sea	Field: Beta East
Company: Statoil		K.B.E.: 25m	Hole size: 12 1/4"
Geologist: T.F. Kristensen / S.E. Ingdahl		Date: 12.12.89	
Depth (mKB)	Lith (%)	Lithological Description	Remarks
		Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. structures, accessories, fossils, porosity, contamination.	Shows, cavings, mud additives, etc.
1130	100	Lst: wh - gry wh, sft - mod hd, micr, chky tr Clyst: olv gry, lt gn gry, frm, sl slty i/p, non calc tr Chert: clr - transl, brn - transl, v hd, splintery	No shows
1140	100	Lst: a/a tr Chert: clr-transl, v hd, splintery sl tr Clyst: a/a sl tr Pyr	a/a
1150	100	Lst: a/a tr Chert: a/a sl tr Pyr	a/a
1160	100	Lst: wh - gry wh, frm, occ mod hd, micr, chky text tr Chert: a/a	a/a
1170	100	Lst: a/a gd tr Chert: a/a sl tr Glau, Foss	a/a
1180	90 10	Lst: a/a Chert: a/a	a/a
1190	90 10	Lst: a/a Chert: a/a	a/a
1200	80 20	Lst: a/a Chert: a/a sl tr Pyr	a/a
1210	95 5	Lst: a/a Chert: a/a sl tr Pyr	a/a
1220		a/a	a/a
1230		a/a also sl tr Glau	a/a
1240	100	Lst: a/a tr Chert: a/a sl tr Pyr, Glau	a/a
1250		a/a	a/a
1260		a/a	a/a
1270		a/a	a/a

WELLSITE SAMPLE DESCRIPTION			Page 8 OF 37
Country: Norway		Area: North Sea	Field: Beta East
Company: Statoil		K.B.E.: 25m	Hole size: 12 1/4"
Geologist: T.F. Kristensen / S.E. Ingdahl		Date: 13.12.89	
Depth (mKB)	Lith (%)	Lithological Description	Remarks
		Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. structures, accessories, fossils, porosity, contamination.	Shows, cavings, mud additives, etc.

1280	100	Lst: wh - gry wh, frm - occ mod hd, micr, chky text tr Chert: clr - transl, v hd, splintery	No shows
1290		a/a	a/a
1300		a/a	a/a
1310		a/a	a/a
1320	100	Lst: a/a	a/a
1330	100	Lst: wh - gry wh, frm - occ mod hd, micr, sl tr Chert: transl, v hd, splintery	a/a
1340	100	Lst: a/a tr Chert: transl - opaque, pa brn transl, v hd, splintery	a/a
1350		a/a	a/a
1360	100	Lst: occ v sl arg, else a/a sl tr Chert: a/a sl tr Microfoss	a/a
1370	100	Lst: wh - gry wh, frm - occ mod hd, micr, chky text, occ micropyr	a/a
1380	100	Lst: a/a, no pyr sl tr Chert: transl - pa brn transl, v hd, splintery	a/a
1390		a/a	a/a
1400		a/a	a/a
1410		a/a	a/a
1420	100	Lst: wh - gry wh, frm - occ mod hd, micr, chky text, occ micropyr sl tr Chert: a/a sl tr Pyr	a/a
1430		a/a	a/a
1440		a/a	a/a
1450		a/a	a/a
1460		a/a	a/a
1470		a/a	a/a
1480		a/a	a/a

WELLSITE SAMPLE DESCRIPTION			Page 9 OF 37
Country: Norway		Area: North Sea	Field: Beta East
Company: Statoil		K.B.E.: 25m	Hole size: 12 1/4"
Geologist: T.F. Kristensen / S.E. Ingdahl / P. Furmyr		Date: 14.12.89	
Depth (mKB)	Lith (%)	Lithological Description	Remarks
		Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. structures, accessories, fossils, porosity, contamination.	Shows, cavings, mud additives, etc.
1490	100 sl tr sl tr	Lst: wh - gry wh, frm - occ mod hd, micr, chky txt, occ micropyr Chert: transl - pa brn transl, v hd, splintery Pyr	No shows
1500		a/a	a/a
1510		a/a	a/a
1520		a/a	a/a
1530		a/a	a/a
1540		a/a	a/a
1550	100 tr tr	Lst: a/a Chert: a/a, incr. amount Pyr: a/a, incr. amount	a/a
1560	100 tr sl tr	Lst: a/a Chert: a/a Pyr	a/a
1570		a/a	a/a
1580	100 tr tr sl tr	Lst: a/a Chert: a/a Glau Pyr	a/a
1590	100 tr sl tr	Lst: a/a Chert: a/a Pyr, Glau	a/a
1600		a/a	a/a
1610	100	Lst: a/a	a/a
1618	95 5 sl tr	Lst: a/a Dol: transl-wh gry, v hd, splintery Pyr, Glau	a/a
1620	100 tr sl tr	Lst: a/a Chert: a/a Pyr, Glau	a/a
1630		a/a	a/a
1640		a/a	a/a
1650		a/a	a/a

WELLSITE SAMPLE DESCRIPTION			Page 10 OF 37
Country: Norway		Area: North Sea	Field: Beta East
Company: Statoil		K.B.E.: 25m	Hole size: 12 1/4"
Geologist: S.E. Ingdahl / P. Furmyr		Date: 19.12.89	
Depth (mKB)	Lith (%)	Lithological Description	Remarks
		Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. structures, accessories, fossils, porosity, contamination.	Shows, cavings, mud additives, etc.
1660	100 tr sl tr	Lst: wh - gry wh, frm - occ mod hd, micr, chky txt, occ micropyr Chert: transl - pa brn transl, v hd, splintery, micropyr Pyr, Glau	No shows
1670	100 sl tr tr sl tr	Lst: mod hd - hd, more gry and arg, else a/a Chert: a/a Pyr Glau	a/a
1680		a/a	a/a
1690	100 gd tr sl tr	Lst: a/a Chert: a/a Pyr, Glau	a/a
1700	100 gd tr gd tr sl tr	Lst: a/a Chert: a/a Glau Pyr	a/a
1710	100 tr sl tr	Lst: a/a Chert: a/a Pyr, Glau	a/a
1720		a/a	a/a
1730		a/a	a/a
1740		a/a	a/a
1750	100 tr	Lst: predom gry wh, occ wh, mod hd - frm, micr, chky txt, occ micro- xln, occ v arg, occ microglau Chert: a/a	a/a
1760		a/a	a/a
1770		a/a	a/a
1780		a/a	a/a
1790		a/a	a/a
1800		a/a	a/a
1810		a/a	a/a
1820	100 tr	Lst: gry wh - wh, mod hd - frm, predom microxln, also micr and chky, incr microglau, occ arg/slty Chert: a/a	a/a

WELLSITE SAMPLE DESCRIPTION			Page 11 OF 37
Country: Norway		Area: North Sea	Field: Beta East
Company: Statoil		K.B.E.: 25m	Hole size: 12 1/4"
Geologist: S.E. Ingdahl / P. Furmyr		Date: 21.12.89	
Depth (mKB)	Lith (%)	Lithological Description	Remarks
		Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. structures, accessories, fossils, porosity, contamination.	Shows, cavings, mud additives, etc.
1830	100	Lst: gry - wh, mod hd - frm, predom microxl n wackestone, also micr & chky txt, gen microglau, occ v microglau, occ arg/slty tr Chert: transluc, pa brn transluc, hd, splint tr Clyst: olv gry - gn gry, frm, blk - subfiss, micromic, calc	No shows
1840		a/a	a/a
1850		a/a	a/a
1860	100	Lst: also occ pnk and sl mrlly, else a/a gd tr Mrl: brick rd, sft, amor, sl stky, occ sl slty tr Clyst: a/a tr Chert: a/a	a/a
1870	100	Lst: becoming more mrlly/arg, else a/a gd tr Mrl: also olv gry, else a/a tr Clyst: a/a sl tr Chert: a/a	a/a
1880	70	Mrl: pl rd - pl brn, also brick rd and lt green, sft, amor, sl stky, occ slty, occ glau	a/a
	30	Lst: a/a	
	sl tr	Chert: a/a	
1890	80	Mrl: predom gn gry, olv gry, also pa brn and brick rd, sft - frm, amor, slty - sdy, glau	a/a
	20	Lst: a/a	
1900	90	Mrl: a/a	a/a
	10	Lst: a/a	
1910	95	Mrl: occ dk brn, v slty, micromic and micropyr, else a/a	a/a
	5	Lst: a/a	
	tr	Pyr	
1915	50	Mrl: mod rd orng, mod orng pnk, sl slty, sft, amor, stky, occ glau, occ carb frags	a/a
	50	Slstst: brn gry - lt brn gry, occ sl sdy, sft - frm, sl calc, glau, occ abun carb as small frags	
	tr	Lst: a/a	
1920	80	Mrl: a/a occ pa rd brn, carb frags	a/a
	20	Slstst: a/a	
	tr	Pyr, Lst	
1925	60	Mrl: lt grn gry - blu wh, sft, amor, occ mod rd orng, occ slty, stky	
	35	Slstst: gn gry - med bl gry, occ brn gry, slty, sl calc, glau	a/a
	5	Pyr: as micropyr conc	
	tr	Carb frags	

WELLSITE SAMPLE DESCRIPTION			Page 12 OF 37
Country: Norway		Area: North Sea	Field: Beta East
Company: Statoil		K.B.E.: 25m	Hole size: 12 1/4"
Geologist: P. Furmyr / E. Langset		Date: 22.12.89	
Depth (mKB)	Lith (%)	Lithological Description	Remarks
		Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. structures, accessories, fossils, porosity, contamination.	Shows, cavings, mud additives, etc.
1930	80	Marl: lt grn gry - blu wh, sft, amor, occ mod rd orng, occ slty, stky	No shows
	20	Clyst/Mrl: mod rd brn - mod rd orng, sft, stky	
	tr	Lst: gry - wh, mod hd - frm, predom microxln wackestone, also micr chky, text, gen microglau, occ v microglau, occ arg/slty, also occ pnk and sl mrlly	
	tr	Slstst: gn gry - med bl gry, occ brn gry, slty, sl calc, glau	
	tr	Pyr: as micropyr conc	
1935	60	Marl: mod rd brn - mod rd orng, sft, stky, carb frags, sl calc	a/a
	35	Clyst: olv gry - brn gry, occ v lt gry, sl calc, slty, sft, glau, occ w/ carb frags, v fn gn muscovite	
	5	Lst: wh - v lt gry, frm - mod hd, microxln, occ w/ microglau	
	tr	Pyr: a/a	
1940	70	Clyst: brn gry - med dk gry, sft, stky, sl calc, sl slty, occ v fn gn muscovite, glau	a/a
	30	Marl: wh - lt grn gry, sft, stky, glau, tr carb, amor	
	tr	Slstst, Pyr, Forams	
1945	100	Clyst: a/a	a/a
	tr	Marl, Pyr, Slstst	
1950	100	Clyst: a/a w/ interbed dk gry subfiss sh/slstst	a/a
	tr	Pyr, Lst	
1955	100	Clyst: a/a	a/a
	tr	Pyr, Slstst, Lst	
1960		a/a	a/a
1965		a/a	a/a
1970		a/a	a/a
1975	100	Clyst: med dk gry - dk gry, sft, blk, stky, occ frm subfiss and shaly, slty, occ sdy, micromic, occ w/dissem pyr, sl microcarb, sl - non calc	a/a
	gd tr	Pyr, Glau	
1980		a/a	a/a
1985		a/a	a/a
1990		a/a	a/a
1995		a/a	a/a
2000		a/a	a/a

WELLSITE SAMPLE DESCRIPTION			Page 13 OF 37
Country: Norway		Area: North Sea	Field: Beta East
Company: Statoil		K.B.E.: 25m	Hole size: 12 1/4"
Geologist: P. Furmyr / E. Langset		Date: 22.12.89	
Depth (mKB)	Lith (%)	Lithological Description	Remarks
		Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. structures, accessories, fossils, porosity, contamination.	Shows, cavings, mud additives, etc.
2005	100	Clyst: med dk gry - dk gry, sft, blk, stky, occ frm subfiss and shaly, slty, occ sdy, micromic, occ w/ dissem pyr, sl microcarb, sl - non calc tr Sltst: lt brn - pa brn, sft, amor, micromic tr Pyr, Glau	No shows
2010	100 gd tr	Clyst: a/a Pyr, Glau tr Sltst: a/a tr Lst: lt yel gry, frm	a/a
2015		a/a	a/a
2020	100	Clyst: a/a tr Sltst: gry orng, sft, amor, micromic, sl calc tr Pyr, Glau tr Lst: lt gry, frm, arg	a/a
2025		a/a	a/a
2030	95 5	Clyst: a/a Sltst: a/a tr Pyr, Glau, Lst	a/a
2035		a/a	a/a
2040	100	Clyst: a/a tr Pyr, Glau, Lst, Sltst	a/a
2045		a/a	
2050	100	Clyst: a/a tr Dol: pa yel brn, mod hd, microxln tr Sltst, Pyr	a/a
2055		a/a	a/a
2060	95 5	Clyst: a/a Lst: wh, lt gry, lt olv gry, frm, microxln, occ micr tr Dol, Pyr, Sltst	a/a
2065	100	Clyst: a/a tr Pyr	a/a
2070	100 gd tr	Clyst: a/a Lst: a/a tr Pyr, Microfoss	a/a
2075	100	Clyst: getting more med gry, softer, more hydrated, else a/a tr Lst: a/a	a/a

WELLSITE SAMPLE DESCRIPTION			Page 14 OF 37
Country: Norway	Area: North Sea	Field: Beta East	Wellno: 9/2-3
Company: Statoil		K.B.E.: 25m	Hole size: 12 1/4"
Geologist: P. Furmyr / E. Langset		Date: 22.12.89	
Depth (mKB)	Lith (%)	Lithological Description	Remarks
		Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. structures, accessories, fossils, porosity, contamination.	Shows, cavings, mud additives, etc.

2080	100	Clyst: med dk gry - dk gry, sft, blk, stky, occ frm subfiss and shaly, slty, occ sdy, micromic, occ w/ dissem pyr, sl microcarb, sl - non calc gd tr Pyr tr Sltst: lt brn - pa brn, sft, amor, micromic tr Lst: lt yel gry - lt gry, frm, arg	No shows
2085		a/a	a/a
2090		a/a	a/a
2095	100	Clyst: sl calc, else a/a gd tr Pyr, Lst tr Sltst, Glau	a/a
2100	100	Clyst: a/a tr Sltst: gry orng, sft, amor, micromic, sl calc tr Lst: a/a tr Pyr, Glau	a/a
2105		a/a	a/a
2110	100	Clyst: a/a tr Pyr	a/a
2115		a/a	a/a
2120		a/a	a/a
2125		a/a	a/a
2130		a/a	a/a
2135		a/a	a/a
2140	100	Clyst: sl more calc, else a/a tr Sltst: mod rd brn, occ mod rd orng, non calc, glau, frm, sdy tr Pyr, Glau	a/a
2145	100	Clyst: a/a	a/a
2150	100	Clyst: a/a tr Lst: a/a	a/a
2155		a/a	a/a
2160	100	Clyst: a/a, but sl firmer tr Lst, Glau, Sltst a/a tr Anh	a/a

WELLSITE SAMPLE DESCRIPTION			Page 15 OF 37
Country: Norway		Area: North Sea	Field: Beta East
Company: Statoil		K.B.E.: 25m	Hole size: 12 1/4"
Geologist: P. Furmyr / E. Langset		Date: 22.12.89	
Depth (mKB)	Lith (%)	Lithological Description	Remarks
		Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. structures, accessories, fossils, porosity, contamination.	Shows, cavings, mud additives, etc.
2165	100	Clyst: med dk gry - dk gry, sft, blk, stky, occ frm subfiss and shaly, slty, occ sdy, micromic, occ w/ dissem pyr, sl microcarb, sl - non calc tr Sltst: lt brn - pa brn, sft, amor, micromic tr Lst: lt yel gry - lt gry, frm, arg tr Glau	No shows a/a
2170		a/a	a/a
2175	100	Clyst: a/a tr Glau, Sltst, Lst, Pyr	a/a
2180		a/a	a/a
2185		a/a	a/a
2190		a/a	a/a
2195	100	Clyst: med dk gry - dk gry, sft, blk, stky, occ frm subfiss and shaly, slty, occ sdy, micromic, occ w/ dissem pyr, sl microcarb, sl calc tr Sltst: gry orng, sft, amor, micromic, sl calc tr Pyr, Glau tr Lst: lt gry, frm, arg	a/a
2200		a/a	a/a
2205		a/a	a/a
2210		a/a	a/a
2215		a/a	a/a
2220		a/a	a/a
2225		a/a	a/a
2230		a/a	a/a
2235		a/a	a/a
2240		a/a	a/a
2245		a/a	a/a
2250		a/a	a/a
2255		a/a	a/a
2260		a/a	a/a

WELLSITE SAMPLE DESCRIPTION			Page 16 OF 37
Country: Norway		Area: North Sea	Field: Beta East
Company: Statoil		K.B.E.: 25m	Hole size: 12 1/4"
Geologist: P. Furmyr / E. Langset		Date: 23.12.89	
Depth (mKB)	Lith (%)	Lithological Description	Remarks
		Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. structures, accessories, fossils, porosity, contamination.	Shows, cavings, mud additives, etc.

2265	100	Clyst: med gry - med dk gry, gen sft, blk - amor, sl stky, occ firm subfiss and shaly, slty, occ sdy, micromic, sl microcarb, occ w/ dissem pyr, sl calc-calc	No shows
	tr	Pyr	
2270		a/a	a/a
2275	100	Clyst: a/a	a/a
	tr	Lst, Pyr	
	tr	Dol: gry orng, lt brn, frm-mod hd, microxln	
2280		a/a	a/a
2285		a/a	a/a
2290		a/a	a/a
2295	100	Clyst: a/a	a/a
	gd tr	Lst: yel gry, sft, amor, stky, arg, occ wh, frm, micr	
	tr	Pyr	
	tr	Dol: a/a	
2300		a/a	a/a
2305		a/a	a/a
2310		a/a	a/a
2315		a/a	a/a
2320		a/a	a/a
2325		a/a	a/a
2330		a/a	a/a
2335		a/a	a/a
2340		a/a	a/a
2345		a/a	a/a
2350		a/a	a/a
2355	95	Clyst: a/a	a/a
	5	Lst: a/a	
	tr	Dol, Pyr, Glau	
2360		a/a	a/a

WELLSITE SAMPLE DESCRIPTION			Page 17 OF 37
Country: Norway		Area: North Sea	Field: Beta East
Company: Statoil		K.B.E.: 25m	Hole size: 12 1/4"
Geologist: P. Furmyr / E. Langset		Date: 23.12.89	
Depth (mKB)	Lith (%)	Lithological Description	Remarks
		Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. structures, accessories, fossils, porosity, contamination.	Shows, cavings, mud additives, etc.

2265	90	Clyst: med gry - med dk gry, gen sft, blk - amor, sl stky, occ firm subfiss and shaly, slty, occ sdy, micromic, sl microcarb, occ w/ dissem pyr, sl calc-calc	No shows
	10	Lst: yel gry, sft, amor, stky, arg	
	tr	Dol: gry orng - lt brn, frm - mod hd, microxln	
	tr	Pyr, Glau	
2370	100	Clyst: a/a	a/a
	gd tr	Lst: a/a	
	gd tr	Dol: a/a	
	tr	Pyr	
2375		a/a	a/a
2380		a/a	a/a
2385	100	Clyst: getting firmer, predom med dk gry - dk gry, frm, subfiss grading to shale, micromic, sl microcarb, occ micropyr, sl calc	a/a
	gd tr	Pyr	
	tr	Lst, Dol	
2390		a/a	a/a
2395	80	Clyst: firmer and more shaly, dk gry-med dk gry, frm, subfiss-platy occ grading to shale, micromic, slty, sl microcarb, sl calc	a/a
	20	Sltst: med gry-med lt gry, sft-frm, blk, sl stky, micromic, microcarb, sl sdy, sl calc-calc	
	gd tr	Pyr, incl pyr foss	
	gd tr	Microfoss	
	tr	Lst, dol, Glau, Shell frgs	
2400		a/a	a/a
2405	90	Clyst: a/a	a/a
	10	Sltst: a/a	
	gd tr	Pyr: a/a	
	tr	Microfoss, Lst, Dol, Glau, Shell frags	
2410	95	Clyst: a/a	a/a
	5	Sltst: also lt brn, else a/a	
	tr	Lst, Dol, Pyr, Glau, Microfoss	
2415		a/a	a/a
2420		a/a	a/a
2425		a/a	a/a
2430		a/a	a/a

WELLSITE SAMPLE DESCRIPTION			Page 18 OF 37
Country: Norway		Area: North Sea	Field: Beta East
Company: Statoil		K.B.E.: 25m	Hole size: 12 1/4"
Geologist: P. Furmyr / E. Langset		Date: 23.12.89	
Depth (mKB)	Lith (%)	Lithological Description	Remarks
		Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. structures, accessories, fossils, porosity, contamination.	Shows, cavings, mud additives, etc.
2435	95	Clyst: med gry - med dk gry, firm, subfiss - platy, occ grdg to sh, micromic, slty, sl microcarb, sl calc	No shows
	5	Sltst: med gry - med lt gry, sft - frm, blk, sl stky, micromic, micro - carb, sl sdy, sl calc - calc	
	tr	Lst: yel gry, sft, amor, stky, arg	
	tr	Dol: gry orng - lt brn, frm - mod hd, microxln	
	tr	Pyr, Glau, Fossils	
2440	100	Clyst: a/a	a/a
	tr	a/a	
2445	95	Clyst: a/a	a/a
	5	Sltst: a/a	
	gd tr	Dol: lt brn - mod orng pnk, hd, microxln	
	tr	Pyr	
2450		a/a	a/a
2455	95	Clyst: a/a	a/a
	5	Sltst: a/a, but becom more sdy	
	tr	Dol, Pyr, Fossils, Glau	
2460		a/a	a/a
2465		a/a	a/a
2470		a/a	a/a
2475		a/a	a/a
2480	95	Clyst: firmer and more shaly, dk gry - med dk gry, frm, subfiss - platy occ grading to shale, micromic, slty, sl microcarb, sl calc	a/a
	5	Sltst: med gry - med lt gry, sft - frm, blk, sl stky, micromic, micro - carb, sl sdy, sl calc-calc	
	gd tr	Pyr incl pyr foss	
	tr	Lst, Dol, Glau, Fossils	
2485	90	Clyst: a/a	
	10	Sltst/Sst: lt brn - pale yel brn, frm - hd, fn - v fn sd, w srtd, rnd - w rnd, occ grn gry w/ abun glau	a/a
2490	100	Clyst: a/a	
	tr	Sltst, Pyr, Dol, Lst, Fossils	a/a
2495		a/a	
2500		a/a	
2505	90	Clyst: a/a	
	10	Sltst/Sst: a/a	
	tr	Dol, Pyr	a/a

WELLSITE SAMPLE DESCRIPTION			Page 19 OF 37
Country: Norway		Area: North Sea	Field: Beta East
Company: Statoil		K.B.E.: 25m	Hole size: 12 1/4"
Geologist: P. Furmyr / E. Langset		Date: 24.12.89	
Depth (mKB)	Lith (%)	Lithological Description	Remarks
		Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. structures, accessories, fossils, porosity, contamination.	Shows, cavings, mud additives, etc.
2510	90	Clyst: dk gry - med dk gry, frm, subfiss - plty, occ grd to shale, micromic, slty, sl microcarb, sl calc	No shows
	5	Sltst/sst : lt brn - pale yel brn, frm - hd, fn - v fn sd, wl srt, rnd - w rnd, occ gn gry w/ abun glau	
	5	Dol: lt brn - mod orng pnk, hd, microxln	
	tr	Pyr	
2515	70	Clyst: a/a	a/a
	25	Sltst/ss: a/a	
	5	Dol: a/a	
2520	80	Clyst: a/a	a/a
	20	Sltst/Sst: a/a	
	tr	Pyr, Dol	
2525		a/a	a/a
2530	90	Clyst: a/a	a/a
	10	Sltst/Sst: a/a	
	tr	Pyr, Dol a/a	
2535		a/a	a/a
2540		a/a	a/a
2545	100	Clyst/Sh: a/a, but more shaly	a/a
	tr	Sltst/Sst, Dol, Pyr	
2550		a/a	a/a
2555	70	Clyst: firmer and more shaly, dk gry - med dk gry, frm, subfiss - platy occ grading to shale, micromic, slty, sl microcarb, sl calc	a/a
	30	Sltst/Sst: lt brn - pale yel brn, frm - hd, fn - v fn sd, w srtd, rnd - w rnd, occ grn gry w/ abun glau	
	tr	Dol: lt brn - mod orng pnk, hd, microxln	
2560	90	Clyst: a/a	a/a
	10	Sltst/Sst: a/a	
	tr	Dol: a/a	
2565	80	Clyst: a/a	a/a
	10	Sltst/Sst: a/a	
	10	Dol: a/a	
2570		a/a	a/a

WELLSITE SAMPLE DESCRIPTION			Page 20 OF 37
Country: Norway	Area: North Sea	Field: Beta East	Wellno: 9/2-3
Company: Statoil		K.B.E.: 25m	Hole size: 12 1/4"
Geologist: P. Furmyr / E. Langset		Date: 24.12.89	
Depth (mKB)	Lith (%)	Lithological Description	Remarks
		Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. structures, accessories, fossils, porosity, contamination.	Shows, cavings, mud additives, etc.

2575	70	Clyst: firmer and more shaly, dk gry - med dk gry, frm, subfiss - platy occ grading to shale, micromic, slty, sl microcarb, sl calc	No shows
	20	Sltst/Sst: lt brn - pale yel brn, frm - hd, fn - v fn sd, w srtd, rnd - w rnd, occ grn gry w abund glau	
	10	Dol: lt brn - mod orng pnk, hd, microxln	
	tr	Pyr, Glau	
2580		a/a	a/a
2585		a/a	a/a
2590		a/a	a/a
2595	90	Clyst: a/a	a/a
	10	Sltst/Sst: a/a	
	tr	Dol, Glau, Pyr	
2600		a/a	a/a
2605		a/a	a/a
2610	70	Clyst: a/a	a/a
	15	Dol: a/a	
	10	Sltst: a/a	
	5	Lst: wh, lt gry wh, frm, microxln, occ transluc xln	
	gd tr	Pyr	
	tr	Glau, Microfoss	
2615	60	Clyst: a/a	a/a
	25	Dol: a/a	
	10	Sltst: a/a	
	5	Lst: a/a	
	gd tr	Pyr	
	tr	Glau, Microfoss	
2620	80	Clyst: a/a	a/a
	10	Sltst: a/a	
	10	Dol: a/a	
2625	65	Clyst/sh: predom lt olv gry, sft - frm, amor - blk, hydr, sl stky, slty micromic, sl microcarb, occ sl sdy, occ w/ dissem pyr, sl calc also med dk gry, dk gry, frm, subfiss - plty, non - hydrated	Clyst/sh getting more hydrated and soluble else a/a
	20	Sltst: lt olv gry, occ pa gry brn, frm - sft, blk, micromic, sl microcarb occ w/ dissem pyr, occ sl sdy, sl calc	
	15	Dol: gry orng, pa yel brn, occ mod brn, predom frm - mod hd, occ mod hd - hd, blk, microxln, gen arg, occ hd xln	
	gd tr	Lst: a/a	
	gd tr	Pyr	

WELLSITE SAMPLE DESCRIPTION			Page 21 OF 37
Country: Norway	Area: North Sea	Field: Beta East	Wellno: 9/2-3
Company: Statoil		K.B.E.: 25m	Hole size: 12 1/4"
Geologist: P. Furmyr / E. Langset		Date: 24.12.89	
Depth (mKB)	Lith (%)	Lithological Description	Remarks
		Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. structures, accessories, fossils, porosity, contamination.	Shows, cavings, mud additives, etc.

2630	65	Clyst/sh: predom lt olv gry, sft-frm, amor-blky, hydr, sl stky, slty micromic, sl microcarb, occ sl sdy, occ w/ dissem pyr, sl calc also med dk gry, dk gry, frm, subfiss - plty, non - hydrated	No shows
	20	Sltst: lt olv gry, occ pa gry brn, frm-sft, blky, micromic, sl microcarb occ w/dissem pyr, occ sl sdy, sl calc	
	15	Dol: gry orng, pa yel brn, occ mod brn, predom frm - mod hd, occ hd, blky, microxln, gen arg, occ hd xln	
	gd tr	Lst: wh, lt gry wh, frm, microxln, occ transl xln	
	gd tr	Pyr	
2635	85	Clyst/sh: a/a	a/a
	10	Sltst: a/a	
	5	Dol: a/a	
	tr	Pyr, Lst	
2640	90	Clyst/sh: a/a	a/a
	5	Sltst: a/a	
	5	Dol: a/a	
	tr	Pyr, Lst	
2645		a/a	a/a
2650		a/a	a/a
2655		a/a	a/a
2660		a/a	a/a
2665		a/a	a/a
2670	90	Clyst: a/a	a/a
	5	Lst: wh - yel gry, frm - mod hd, microxln, occ arg	
	5	Dol: a/a	
	gd tr	Sltst: a/a	
	tr	Pyr	
2675	100	Clyst: a/a	a/a
	gd tr	Dol: a/a	
	gd tr	Lst: a/a	a/a
	tr	Sltst, Pyr	
2680		a/a	a/a
2685		a/a	a/a

WELLSITE SAMPLE DESCRIPTION			Page 22 OF 37	
Country: Norway		Area: North Sea	Field: Beta East	Wellno: 9/2-3
Company: Statoil			K.B.E.: 25m	Hole size: 12 1/4"
Geologist: P. Furmyr / E. Langset			Date: 24.12.89	
Depth (mKB)	Lith (%)	Lithological Description		Remarks
		Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. structures, accessories, fossils, porosity, contamination.		Shows, cavings, mud additives, etc.

2690	90	Clyst: lt olv gry - olv gry, med dk gry, occ dk gry, predom sft - frm, blk, occ subfiss - plty and shly, micromic, sl microcarb, occ sl slty, occ w/ micropyr, non - sl calc	No shows
	10	Lst: yel gry - v pl orng, occ wh, sft, arg, earthy, occ frm - mod hd, microxln	
	gd tr	Dol: mod brn, gry orng, v pl orng, mod hd-hd, cryptoxln, occ microxln, occ arg	
	gd tr	Pyr	
	tr	Glau, Microfoss	
2695		a/a	a/a
2700		a/a	a/a
2705		a/a	a/a
2710	85	Clyst: a/a	a/a
	10	Lst: a/a	
	5	Dol: a/a	
	gd tr	Pyr	
	tr	Glau, Microfoss	
2715	100	Clyst: a/a	a/a
	tr	Lst, Dol, Pyr	
2720		a/a	a/a
2725		a/a	a/a
2730	95	Clyst: 90% lt olv gry - olv gry, sft, frm, blk, 10% med dk gry-dk gry frm, subfiss, shaly, slty - v slty, micromic, sl carb, carb - v carb when dk gry, sl calc	a/a
	5	Lst: v pl orng, sft - frm, arg, earthy, also wh, micr, frm and lt brn, olv gry, frm - mod hd, microxln, occ xln and mod hd - hd	
	tr	Dol: pa yel brn, mod hd - hd, ang, cryptoxln	
2735	90	Clyst: a/a	a/a
	5	Lst: a/a	
	5	Dol: a/a	
	tr	Pyr	
2740	75	Clyst: slty - v slty, else a/a	a/a
	10	Slst: gry orng, olv gry, frm, blk, sdy, micromic, sl calc	
	10	Lst: a/a	
	5	Dol: a/a	
	gd tr	Pyr: a/a	
	tr	Glau	
2745		a/a	a/a

WELLSITE SAMPLE DESCRIPTION			Page 23 OF 37
Country: Norway	Area: North Sea	Field: Beta East	Wellno: 9/2-3
Company: Statoil		K.B.E.: 25m	Hole size: 12 1/4"
Geologist: P. Furmyr / E. Langset		Date: 26.12.89	
Depth (mKB)	Lith (%)	Lithological Description	Remarks
		Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. structures, accessories, fossils, porosity, contamination.	Shows, cavings, mud additives, etc.

2750	100	Clyst: 90% lt olv gry - olv gry, sft, frm, blk, 10% med dk gry - dk gry frm, subfiss, shaly, slty - v slty, micromic, sl carb, carb - v carb when dk gry, sl calc	No shows
	gd tr	Lst: v pl orng, sft - frm, arg, earthy, also wh, micr, frm and lt brn, olv gry, frm - mod hd, microxln, occ xln and mod hd - hd	
	gd tr	Dol: pa yel brn, mod hd - hd, ang, cryptoxln	
	gd tr	Slst: gry orng, olv gry, frm, blk, sdy, micromic, sl calc	
	tr	Pyr	
2755		a/a	a/a
2760		a/a	a/a
2765		a/a	a/a
2770		a/a	a/a
2775		a/a	a/a
2780		a/a	a/a
		cuttings getting firmer and more shaly	
2785	100	Clyst: 70% olv gry, brn gry, also med dk gry - dk gry, frm, occ mod hd, blk - subfiss, occ shaly, 30% lt olv gry - olv gry, sft - frm, hydr, stky, blk - amor, all gen slty, occ v slty grd to sltst, micromic, gen micropyr, occ v micropyr, microcarb, non - sl calc	a/a
	gd tr	Lst: wh, gry orng, frm - mod hd, micro - cryptoxln, occ arg and sft	
	gd tr	Pyr	
	tr	Glau	
2790	95	Clyst: 100% predom brn gry, occ olv gry, med dk gry - dk gry, frm, occ mod hd, else a/a	a/a
	5	Lst: a/a	
	gd tr	Dol: pl yel brn, mod brn, mod hd - hd, cryptoxln	
	gd tr	Pyr	
	tr	Glau	
2795	100	Clyst: a/a	a/a
	gd tr	Lst, Pyr	
	tr	Dol, Glau	
2800		a/a	a/a
2805	95	Clyst: a/a	a/a
	5	Lst: a/a	
	gd tr	Dol: a/a	
	gd tr	Pyr	
	tr	Glau	

WELLSITE SAMPLE DESCRIPTION			Page 24 OF 37
Country: Norway		Area: North Sea	Field: Beta East
Company: Statoil		K.B.E.: 25m	Hole size: 12 1/4"
Geologist: P. Furmyr / E. Langset		Date: 26.12.89	
Depth (mKB)	Lith (%)	Lithological Description	Remarks
		Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. structures, accessories, fossils, porosity, contamination.	Shows, cavings, mud additives, etc.

2810	95	Clyst: predom med dk gry, olv gry, also brn gry, frm, occ mod hd, blk - subfiss, occ shaly, slty, occ v slty grdg sltst, micromic, occ micropyr, microcarb, sl calc	No shows
	5	Lst: wh, gry orng, frm - mod hd, micro - cryptoxln, occ arg and sft	
	gd tr	Dol: pl yel brn, mod brn, mod hd-hd, cryptoxln	
	gd trr	Pyr	
	tr	Microfoss, Glau	
2815	95	Clyst: a/a	a/a
	5	Lst: a/a	
	Ttr	Dol, Microfoss	
	gd tr	Pyr	
2820	100	Clyst: a/a	a/a
	gd tr	Lst: a/a	
	gd tr	Pyr	
	tr	Dol, Microfoss, Glau	
2825	95	Clyst: a/a	a/a
	5	Lst: a/a	
	gd tr	Pyr	
	tr	Dol, Glau	
2830		a/a	a/a
2835	95	Clyst: a/a	a/a
	5	Lst: a/a	
	gd tr	Dol, Pyr	
	tr	Glau	
2840	100	Clyst: a/a	a/a
	gd tr	Lst: a/a	
	gd tr	Pyr	
	tr	Dol, Glau	
2845		a/a	a/a
2850		a/a	a/a
2855		a/a	a/a
2860		a/a	a/a
2865		a/a	a/a
2870		a/a	a/a
2875		a/a	a/a
2880		a/a	a/a

WELLSITE SAMPLE DESCRIPTION			Page 25 OF 37
Country: Norway		Area: North Sea	Field: Beta East
Company: Statoil		K.B.E.: 25m	Hole size: 12 1/4"
Geologist: P. Furmyr / E. Langset		Date: 26.12.89	
Depth (mKB)	Lith (%)	Lithological Description	Remarks
		Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. structures, accessories, fossils, porosity, contamination.	Shows, cavings, mud additives, etc.

2885	100	Clyst: predom med dk gry, olv gry, also brn gry, frm, occ mod hd, bkly - subfiss, occ shaly, slty, occ v slty grdg sltst, micromic, occ micropyr, microcarb, sl calc gd tr Lst: wh, gry orng, frm - mod hd, micro - cryptoxln, occ arg and sft gd tr Pyr tr Dol: pl yel brn, mod brn, mod hd - hd, cryptoxln tr Glau	No shows
2890		a/a	a/a
2895		a/a	a/a
2900	100 tr	Clyst: a/a Lst, Dol, Pyr, Glau	a/a
2905		a/a	a/a
2910		a/a	a/a
2915		a/a	a/a
2920		a/a	a/a
2925		a/a	a/a
2930	90 10 tr	Clyst: a/a Lst: wh - gry orng, frm - mod hd, micro - cryptoxln, occ arg and sft Dol, Pyr	a/a
2936	95 5 tr	Clyst: a/a Lst: a/a a/a	a/a
2940	100 tr	Clyst: a/a Lst, Dol, Pyr	a/a
2945	85 15 tr	Clyst: a/a Lst: a/a Dol, Pyr	a/a
2950	100 gd tr tr	Clyst: a/a Lst: a/a Dol, Pyr	a/a
2955	100 tr	Clyst: a/a Lst, Dol, Slstst, Glau	a/a
2960		a/a	a/a
2965		a/a	a/a

WELLSITE SAMPLE DESCRIPTION			Page 26 OF 37
Country: Norway	Area: North Sea	Field: Beta East	Wellno: 9/2-3
Company: Statoil		K.B.E.: 25m	Hole size: 12 1/4"
Geologist: P. Furmyr / E. Langset		Date: 26.12.89	
Depth (mKB)	Lith (%)	Lithological Description	Remarks
		Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. structures, accessories, fossils, porosity, contamination.	Shows, cavings, mud additives, etc.

2970	100	Clyst: predom med dk gry, olv gry, also brn gry, frm, occ mod hd, blk-subfiss, occ shaly, slty, occ v slty grdg sltst, micromic, occ micropyr, microcarb, sl calc tr Lst: wh, gry orng, frm - mod hd, micro - cryptoxln, occ arg and sft tr Dol: pl yel brn, mod brn, mod hd - hd, cryptoxln tr Glau	No shows
2975		a/a	a/a
2980		a/a	a/a
2985	95 5	Clyst: a/a Sltst/Clyst: Pa yel brn - mod yel brn, frm, occ subfiss, non calc, micromic, microcarb tr Dol	a/a a/a
2990	85 15 tr	Clyst: a/a Sltst/Clyst: a/a Lst, Glau	a/a
2995	100 tr	Clyst: a/a a/a	a/a
3000	100 tr	Clyst: a/a Sltst/Clyst: a/a	a/a
3005		a/a	a/a
3010		a/a, also w/ tr of pyr	a/a
3015		a/a, w/ gd tr sltst/clyst a/a	a/a
3020		a/a	a/a
3025		a/a	a/a
3030		a/a	a/a
3035		a/a	a/a
3040		a/a	a/a
3045		a/a	a/a
3050		a/a	a/a
3055		a/a	a/a

WELLSITE SAMPLE DESCRIPTION			Page 27 OF 37
Country: Norway		Area: North Sea	Field: Beta East
Company: Statoil		K.B.E.: 25m	Hole size: 12 1/4"
Geologist: P. Furmyr / E. Langset		Date: 27.12.89	
Depth (mKB)	Lith (%)	Lithological Description	Remarks
		Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. structures, accessories, fossils, porosity, contamination.	Shows, cavings, mud additives, etc.
3060	95	Clyst: predom med dk gry, olv gry, also brn gry, frm, occ mod hd, blk-subfiss, occ shaly, slty, occ v slty grd to sltst, micromic, occ micropyr, microcarb, sl calc	No shows
	5	Lst: gry orng, lt olv gry, frm, occ arg, cryptoxln	
	tr	Dol: pl yel brn, mod brn, mod hd-hd, cryptoxln	
	tr	Sltst: pa yel brn - mod yel brn, frm, occ subfiss, non calc, micromic, microcarb	
	tr	Pyr	
3065		a/a	a/a
3070	100	Clyst: more shaly, sl calc, else a/a	a/a
	gd tr	Lst: a/a	
	tr	Sltst, Dol, Pyr	
3075		a/a	a/a
3080	95	Clyst: olv gry, med dk gry - dk gry, blk - subfiss, occ subfiss - fiss and shaly, sl calc-calc, occ slty, micromic	a/a
	5	Lst: wh, frm, micr, occ gry orng, frm-mod hd, cryptoxln	
	tr	Glau, Microfoss	
3085		a/a	a/a
3090		a/a	a/a
3095	100	Clyst/sh: changing colour to dsky yel brn - bronze brn, incr shaliness, i/p micropyr, else a/a	a/a
	tr	Lst, Glau, Microfoss, Pyr	
3100		a/a	a/a
3105		a/a	a/a
3110	100	Clyst/sh: bronze brn - dsky yel brn, frm, predom subfiss, occ fiss and shaly, micropyr coating, metallic lustre, waxy txt non - sl calc	No fluor, slow strm, weak pale yel wh crush cut
	tr	Lst: a/a	
	tr	Pyr	
3115	100	Clyst/sh: non calc, less pyritic, else a/a	Shows a/a
	tr	Lst, Pyr	
	tr	Lign: brn blk, brit	
3120		a/a	a/a
3125		a/a	a/a
3130		a/a	a/a

WELLSITE SAMPLE DESCRIPTION			Page 28 OF 37
Country: Norway		Area: North Sea	Field: Beta East
Company: Statoil		K.B.E.: 25m	Hole size: 12 1/4"
Geologist: P. Furmyr / E. Langset		Date: 27.12.89	
Depth (mKB)	Lith (%)	Lithological Description	Remarks
		Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. structures, accessories, fossils, porosity, contamination.	Shows, cavings, mud additives, etc.
3135	75	Clyst/sh: bronze brn - dsky yel brn, frm, predom subfiss, occ fiss and shaly, micropyr coating, metallic lustre, waxy txt non - sl calc	No fluor, slow strm, weak pale yel wh crush cut
	25	Lst: predom lt olv gry, frm, blk, arg - v arg, minor wh, micr	
	tr	Pyr, Lign	
3140	100	Clyst/sh: a/a	a/a
	tr	Lst, Pyr, Lign	
3145		a/a	a/a
3150	85	Clyst/sh: more pyritic, occ slty, else a/a	a/a
	15	Lst: a/a	
	tr	Pyr, Lign	
3155	100	Clyst/sh: a/a	a/a
	gd tr	Lst: a/a	
	tr	Pyr, Lign	
3160	100	Clyst/sh: olv gry, med dk gry - dk gry, blk - subfiss, occ subfiss - fiss and shaly, sl calc - calc, occ slty, micromic	No shows
	gd tr	Lst: wh, frm, micr, occ gry orng, frm - mod hd, cryptoxln	
	tr	Pyr, Lign	
3165		a/a	a/a
3170	95	Clyst/sh: more med dk gry-dk gry, more slty, else a/a	a/a
	5	Lst: a/a	
	gd tr	Pyr	
	tr	Lign	
3175		a/a	a/a
3180	90	Clyst/sh: med dk gry - dk gry, brn gry, slty - v slty grd to sltst, v micropyr, sl micromic, microcarb, non - sl calc	a/a
	10	Slstst: med gry-olv gry, frm, micromic, micropyr, glau, carb, sl calc, sdy	
	gd tr	Lst: a/a	
	tr	Pyr, Lign	
3185	100	Clyst/sh: less slty, else a/a	a/a
	gd tr	Slstst, Lst, Pyr	
	tr	Lign	
3190		a/a	a/a
3195	60	Clyst/Sh: med dk gry - dk gry, frm, subfiss, sl micropyr, sl carb, non - sl calc	a/a
	40	Slstst: lt olv gry, sft - frm, blk, glau, carb, calc	
	gd tr	Lst, Pyr	

WELLSITE SAMPLE DESCRIPTION			Page 29 OF 37	
Country: Norway		Area: North Sea	Field: Beta East	
Company: Statoil		K.B.E.: 25m	Wellno: 9/2-3	
Geologist: T.F. Kristensen / E. Langset		Date: 02-03.01.90		
Depth (mKB)	Lith (%)	Lithological Description		Remarks
		Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. structures, accessories, fossils, porosity, contamination.		Shows, cavings, mud additives, etc.

3200	80	Clyst/Sh: med dk gry - dk gry, frm, subfiss, sl micropyr, sl carb, non - sl calc		No fluor, slow strm, weak pale yel wh crush cut
	40	Slstst: lt olv gry, sft - frm, blk, glau, carb, calc		
	10	Lst: lt olv gry - lt gry, sft, arg		
3205	80	Clyst: a/a		a/a
	10	Lst: wh, frm, micr, occ gry orng, frm-mod hd, cryptoxln occ lt olv gry a/a		
	10	Slstst: a/a		
3210		a/a		a/a

End of 12 1/4" section

WELLSITE SAMPLE DESCRIPTION			Page 30 OF 37
Country: Norway		Area: North Sea	Field: Beta East
Company: Statoil		K.B.E.: 25m	Hole size: 12 1/4"
Geologist: T.F. Kristensen / S.E. Langset		Date: 03-04.01.90	
Depth (mKB)	Lith (%)	Lithological Description	Remarks
		Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. structures, accessories, fossils, porosity, contamination.	Shows, cavings, mud additives, etc.
3213	100	Clyst/sh: dk gry - gry blk, olv blk, dsky yel brn, mod hd - hd, subfiss i/p, micromic, pyr, carb, sl slty i/p, non calc tr Dol: mod yel brn - dk yel brn, v hd, microxln, sl pyr tr Pyr	No shows cmt cont in sample
3216	70 30	Clyst/Sh: a/a Dol: mod yel brn - dk yel brn, w/ dsky yel brn spks, v hd v arg, sl micromic, i/p microxln, i/p sl slty, arg gd tr Pyr	No shows
3219		a/a	a/a
3222		a/a w/ tr Lst: wh - mlky wh, med hd - hd, microxln	a/a
3225		a/a w/ tr Slst, Glau, Lign	a/a
3228	70 20 10	Clyst/Sh: a/a Dol: a/a Slst: med brn - lt brn occ dsky yel brn, frm, micromic, calc, i/p grdg to v fn sst, sl calc, wl srtd, wl rnd gd tr Lst, Pyr	a/a a/a
3231		a/a	a/a
3234		a/a	a/a
3237	60 30 10	Clyst/Sh: a/a Slst: a/a Dol: a/a gd tr Lst, Pyr	a/a
3240	50 50	Clyst/Sh: a/a Dol: a/a, but i/p more calc cmtd, sl arg, sl slty gd tr Pyr	a/a
3243	60 20 20	Clyst/Sh: a/a Slst: a/a Dol: a/a tr Lst: a/a	No shows
3246	90 5 5	Clyst/Sh: a/a Slst: a/a Dol: a/a tr Pyr	a/a

WELLSITE SAMPLE DESCRIPTION			Page 31 OF 37
Country: Norway		Area: North Sea	Field: Beta East
Company: Statoil		K.B.E.: 25m	Hole size: 8 1/2"
Geologist: T.F. Kristensen / E. Langset		Date: 03-04.01.90	
Depth (mKB)	Lith (%)	Lithological Description	Remarks
		Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. structures, accessories, fossils, porosity, contamination.	Shows, cavings, mud additives, etc.
3249	60	Clyst/Sh: dk gry - gry blk, olv blk, dsky yel brn, mod hd - hd, subfiss i/p, micromic, pyr, carb, sl slty i/p, non calc	No shows cmt cont in sample
	40	Dol: dk yel brn - dk gry brn, v hd, microxln, sl pyr, arg	
	tr	Slstst: med brn - lt brn occ dsky yel brn, frm, micromic, calc, i/p grdg to v fn sst, sl calc, w srtd, w rnd	
	tr	Pyr	
3252	100	Clyst: a/a	No shows
	tr	Dol: a/a	
	sl tr	Lst: gry wh, mod hd, micr, arg	
	tr	Pyr	
3255	100	Clyst: a/a	a/a
	gd tr	Lst: a/a	
	tr	Pyr	
3258	100	Clyst: med dk gry - dk gry, mod hd, subfiss, slty, sdy - v sdy, occ grdg to v arg sst, pyr, micromic, non - sl calc	a/a
	tr	Lst: gry wh, mod hd, micr, sl arg	
	tr	Pyr	
3261	100	Sst: lt gry, clr - transl qtz, fn - med, mod srtd, ang - subrnd, appears lse - fri, weak silic cmt, kaol, mod - gd vis por	V weak spotty yel fluor, mineral fluor? No cut fluor
	tr	Kaol: gry wh, frm, blk streaks, non calc	
	tr	Pyr	
3264	100	Sst: lt gry, clr - transl qtz, fn, mod srtd, subang - subrnd, fri - mod hd, weak calc/silic cmt, mod vis por	weak dull yel fluor, tr weak bl wh cut fluor
	tr	Kaol: a/a	
	sl tr	Pyr	
3267	70	Sh: dk gry - gry blk, mod hd - hd, micromic, carb, sl pyr, non calc	tr lt brn stain, dull yel fluor, tr bl wh cut fluor
	30	Sst: lt gry, clr - transl qtz, v fn - fn, mod srtd, subang - subrnd, fri - mod hd, calc/silic cmt, occ pyr, arg i/p, poor - mod vis por	
	tr	Kaol: gry wh w/ blk streaks, frm, occ sdy, non calc	
	tr	Mica	
3270	90	Sst: a/a	tr lt brn stain, dull
	10	Sh: a/a	
	tr	Kaol: a/a	
	tr	Mica	

WELLSITE SAMPLE DESCRIPTION			Page 32 OF 37
Country: Norway		Area: North Sea	Field: Beta East
Company: Statoil		K.B.E.: 25m	Hole size: 8 1/2"
Geologist: T.F. Kristensen / S.E. Ingdahl		Date: 03-04.01.90	
Depth (mKB)	Lith (%)	Lithological Description	Remarks
		Rock name, mod.lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. structures, accessories, fossils, porosity, contamination.	Shows, cavings, mud additives, etc.
3273	80	Sst: lt gry, clr - transl qtz, v fn - fn, mod srtd, subang - subrnd, fri - mod hd, calc/silic cmt, occ pyr, arg i/p, poor - mod vis por	tr lt brn stain, dull yel fluor, tr bl wh cut fluor
	10	Sh: dk gry - gry blk, mod hd - hd, micromic, carb, sl pyr, non calc	
	10	Kaol: gry wh w/ blk streaks, frm, occ sdy, non calc	
	tr	Mica	
3276		a/a	a/a
3279	80	Sst: fn - med, else a/a	a/a
	15	Kaol: a/a	
	5	Sh: a/a	
	tr	Mica	
	sl tr	Pyr	
3282	80	Sst: a/a	tr brn stain, tr fluor, no cut fluor
	10	Kaol: a/a	
	10	Sh: med dk gry - dk gry, else a/a	
	tr	Mica	
3285	90	Sst: pred med, fn i/p, else a/a	a/a
	10	Coal: blk hd, brit, occ pyr	
	tr	Kaol: a/a	
	tr	Mica	
3288	80	Sst: fn - med, pred silic cmt, mod vis por, else a/a	a/a
	10	Sh: a/a	
	10	Coal: a/a	
	sl tr	Mica	
3290	90	Sst: a/a	Last sample circ out when cutting core # 1
	10	Sh: a/a	
	gd tr	Kaol: a/a	
	tr	Mica, Coal, Pyr	
3294	60	Sh: dk gry - gry blk, mod hd - hd, sl micromic, carb, slty i/p, non calc	Shows a/a
	40	Sst: lt gry, clr - transl qtz, fn, mod srtd, subang - subrnd, mod hd - hd, silic cmt, sl arg, occ sl kaol, poor - mod vis por	
	sl tr	Kaol: a/a	
	sl tr	Mica, Pyr	
3297	80	Sh:	a/aa/a
	20	Sst: a/a	
	gd tr	Kaol: a/a	
	tr	Mica	

WELLSITE SAMPLE DESCRIPTION			Page 33 OF 37
Country: Norway		Area: North Sea	Field: Beta East
Company: Statoil		K.B.E.: 25m	Hole size: 8 1/2"
Geologist: T.F. Kristensen / S.E. Ingdahl		Date: 05.01.90	
Depth (mKB)	Lith (%)	Lithological Description	Remarks
		Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. structures, accessories, fossils, porosity, contamination.	Shows, cavings, mud additives, etc.
3300	60	Sh: med dk gry - dk gry, mod hd - hd, micromic, sl slty - slty, sdy i/p, occ carb, non calc	Tr brn stain, tr fluor, no cut fluor
	40	Sst: lt gry, occ pa brn, clr - transl qtz, fn, mod srted, subang - subrnd, mod hd - hd, silic cmt, tr calc cmt, occ kaol, poor - mod vis por	
	tr	Kaol: gry wh w/ blk streaks, frm, occ sdy, non calc	
	tr	Mica	
3303	90	Sst: pl brn, else a/a	a/a
	10	Sh: a/a	
	tr	Kaol: a/a	
	tr	Mica	
3306	100	Sst: pa brn, clr - transl qtz, fn, mod - well srted, subang - subrnd, mod hd - hd, silic cmt, occ arg, occ kaol, tr pyr, poor - mod vis por	a/a
	gd tr	Kaol: gry wh w/ blk streaks, frm - mod hd, sdy i/p, non calc	
	sl tr	Mica	
3309	100	Sst: a/a	tr dk brn stain,
	gd tr	Kaol: a/a	
	sl tr	Mica	
3312	80	Sst: a/a	a/a
	20	Sh: med dk gry - dk gry, dk brn gry, mod hd - hd, micromic, sl slty - slty, carb i/p, occ sdy, non calc	
	tr	Kaol: a/a	
	tr	Mica	
3315	90	Sst: pa brn, clr - transl qtz, pred med, mod - w srted, subang - subrnd, fri - mod hd, silic cmt, mod - gd vis por	a/a
	10	Sh: a/a	
	tr	Kaol: a/a	
	sl tr	Mica, Pyr	
3318	100	Sst: a/a	a/a
	tr	Sh: a/a	
	tr	Kaol: a/a	
	sl tr	Mica	
3321	100	Sst: med - fn, else a/a	a/a
	tr	Kaol: a/a	
	tr	Sh: a/a	
3324	100	Sst: pa brn, clr - transl qtz, fn - med, mod srted, subang - subrnd, mod hd - hd, silic cmt, occ sl kaol, poor - mod vis por	a/a
	tr	Kaol: gry wh - lt gry w/ dk streaks, frm - mod hd, sdy i/p, non calc	
	tr	Sh: a/a	
	sl tr	Mica	

WELLSITE SAMPLE DESCRIPTION			Page 34 OF 37
Country: Norway		Area: North Sea	Field: Beta East
Company: Statoil		K.B.E.: 25m	Hole size: 8 1/2"
Geologist: T.F. Kristensen / S.E. Ingdahl		Date: 05.01.90	
Depth (mKB)	Lith (%)	Lithological Description	Remarks
		Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. structures, accessories, fossils, porosity, contamination.	Shows, cavings, mud additives, etc.
3327	100 gd tr tr	Sst: lt gry - pa brn, clr - transl qtz, med - fn, mod srtd, subang - subrnd, fri - mod hd, silic cmt, mod vis por Sh: dk brn gry - blk, mod hd, v carb, micropyr, non calc Kaol: gry wh w/ dk streaks, frm, non calc	Tr dk brn stain
3330	100 tr tr	Sst: pred lt gry, fn - med, else a/a Sh: a/a Kaol: a/a	a/a
3333	100 tr tr	Sst: lt gry, clr - transl qtz, pred med, occ fn, mod srtd, subang - subrnd, fri, silic cmt, mod - gd vis por Sh: a/a Kaol: a/a	a/a
3336	100 tr tr sl tr	Sst: pa brn, clr - transl qtz, med, occ crs, mod srtd, subrnd, fri, silic cmt, gd vis por Sh: a/a Kaol: a/a Mica, Pyr	a/a
3339	100 tr tr sl tr	Sst: pa brn, clr - transl qtz, med, occ crs, mod srtd, subrnd, fri, silic cmt, gd vis por Sh: dk brn gry - blk, mod hd, v carb, micropyr, non calc Kaol: a/a Mica, Pyr	a/a
3342	100 tr tr	Sst: a/a Sh: grdg to blk brit coal i/p, else a/a Kaol: a/a	a/a
3345	90 10 Tr Tr	Sst: lt gry - pa brn, clr - transl qtz, med, occ crs, mod srt, subang, fri, silic cmt, good vis por Sh: a/a Kaol: a/a Mica	a/a
3348	95 5 Tr	Sst: a/a Sh: a/a a/a	a/a
3351	90 10 Tr Sl Tr	Sst: a/a Sh: a/a Kaol: a/a Mica, Pyr	Tr dk brn stain No fluor
3354		a/a	a/a

WELLSITE SAMPLE DESCRIPTION			Page 35 OF 37
Country: Norway	Area: North Sea	Field: Beta East	Wellno: 9/2-3
Company: Statoil		K.B.E.: 25m	Hole size: 8 1/2"
Geologist: T.F. Kristensen / S.E. Ingdahl		Date: 05.01.90	
Depth (mKB)	Lith (%)	Lithological Description	Remarks
		Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. structures, accessories, fossils, porosity, contamination.	Shows, cavings, mud additives, etc.

3357	85	Sst: lt gry - pa brn, clr - transl qtz, med, occ crs, mod srt, subang, fri, silic cmt, good vis por	Tr v weak dull yel fluor, no cut
	15	Sh: dk brn gry - blk, mod hd, v carb, micropyr, non calc, grdg to blk brit coal i/p, else a/a	
	gd tr	Kaol: a/a	
	sl tr	Pyr, Mica	
3360	85	Sst: fn, else a/a	a/a
	15	Sh: a/a	
	gd tr	Kaol: a/a	
3363	100	Sst: a/a	a/a
	gd tr	Sh: a/a	
	tr	Kaol: a/a	
	sl tr	Mica, Pyr	
3366	95	Sst: a/a	a/a
	5	Sh: a/a	
	tr	Kaol: a/a	
	sl tr	Mica, Pyr	
3369	95	Sst: a/a	a/a
	5	Kaol: a/a	
	tr	Sh: a/a	
	sl tr	Mica, Pyr	
3372	80	Coal: blk, hd, brittle	No fluor
	20	Sst: lt gry - pa brn, clr - transl qtz, fn, mod srt, subang, fri, silic cmt, fair - good vis por	
	Tr	Kaol: gry wh w/ dk streaks, frm, non calc	
3375	100	Coal: a/a	a/a
	tr	Sst: a/a	
	tr	Kaol: a/a	
3378	70	Sst: pred med, occ fn, subang - subrnd, mod hd, arg i/p, else a/a	Tr dk brn stain
	20	Coal: a/a	Tr weak dull yel fluor, no cut
	10	Kaol: sdy i/p, else a/a	
	tr	Sh: dk gry - dk brn gry, mod hd, v carb, pyr i/p, non calc	
3381	100	Coal: a/a	No fluor
3384	70	Sh: dsky yel brn - brn blk - gry blk, mod hd, v carb, grdg to v arg coal i/p, non calc	a/a
	30	Coal: arg i/p, occ grdg to v carb sh	
3387	70	Coal: a/a	a/a
	30	Sh: gry blk - brn blk, mod hd - hd, else a/a	

WELLSITE SAMPLE DESCRIPTION			Page 36 OF 37
Country: Norway		Area: North Sea	Field: Beta East
Company: Statoil		K.B.E.: 25m	Hole size: 8 1/2"
Geologist: T.F. Kristensen / S.E. Ingdahl		Date: 05.01.90	
Depth (mKB)	Lith (%)	Lithological Description	Remarks
		Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. structures, accessories, fossils, porosity, contamination.	Shows, cavings, mud additives, etc.
3390	60	Sh: dsky yel brn - brn blk - gry blk, mod hd, v carb, grdg to v arg coal i/p, non calc	Tr dk brn stain Tr weak dull yel fluor, no cut
	40	Coal: blk, hd, brit, arg i/p, occ grdg to v carb sh	
	tr	Sst: lt gry - pa brn, clr - transl qtz, pred med, occ fn, subang - subrnd, mod hd, arg i/p, silic cmt, fair - good vis por	
3393	40	Sh: a/a	a/a
	30	Coal: a/a	
	30	Sltst: mod brn, frm, v arg, sl mic, sl carb, non calc	
3396	30	Sh: a/a	a/a
	30	Coal: a/a	
	30	Sltst: a/a	
	10	Sst: a/a	
3399	60	Sst: a/a	a/a
	20	Sh: mod brn - dsky yel brn - brn blk, hd, carb - v carb, occ sl slty non calc	
	10	Coal: a/a	
	10	Kaol: a/a	
3402	60	Sst: a/a	a/a
	20	Sh: a/a	
	10	Coal: a/a	
	10	Sltst: a/a	
	Gd Tr	Kaol: a/a	
3405	50	Sh: a/a	No shows
	30	Sst: a/a	
	10	Coal: blk, hd, brit, arg i/p, fibrous text i/p	
	10	Sltst: mod brn, frm, v arg, sl mic, sl carb, non calc	
	Gd Tr	Kaol: gry wh, frm, w/ dk streaks, occ sdy, non calc	
3408	80	Sh: a/a	a/a
	10	Coal: a/a	
	10	Sst: a/a	
	Tr	Kaol: a/a	
3411		a/a	a/a
3414		a/a	a/a
3417	100	Sh: a/a	a/a
	tr	Sst: a/a	
	Tr	Coal: a/a	
	Tr	Kaol: a/a	
	Tr	Pyr: a/a	

WELLSITE SAMPLE DESCRIPTION			Page 37 OF 37
Country: Norway	Area: North Sea	Field: Beta East	Wellno: 9/2-3
Company: Statoil		K.B.E.: 25m	Hole size: 8 1/2"
Geologist: T.F. Kristensen / S.E. Ingdahl		Date: 05.01.90	
Depth (mKB)	Lith (%)	Lithological Description	Remarks
		Rock name, mod. lith, colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. structures, accessories, fossils, porosity, contamination.	Shows, cavings, mud additives, etc.

3420	80	Sh: dsky yel brn - brn blk - gry blk, mod hd, v carb, grdg to v arg coal i/p, non calc	No shows
	tr	Sst: lt gry - pa brn, clr - transl qtz, pred med, occ fn, subang- subrnd, mod hd, arg i/p, silic cmt, fair - good vis por	
	tr	Kaol: gry wh, frm, w/ dk streaks, occ sdy, non calc	
	sl tr	Coal: blk, hd, brit, arg i/p, fibrous text i/p	
	sl tr	Pyr	
3422	100	Sh: a/a	a/a
	sl tr	Sst: a/a	
	sl tr	Coal: a/a	
	sl tr	Pyr	
	sl tr	Kaol: a/a	

TD for well: 3422m

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APPENDIX 1

DATA REPORT : ISOTOPE ANALYSIS WELL NOCS 9/2-3

GEO LAB NOR 02.08.90

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REPORT : ISOTOPE ANALYSIS WELL NOCS 9/2-3

CLIENT(S) : STATOIL v/Jorunn Johannesen og Trygve Meyer

RESPONSIBLE SCIENTIST : Rita Løberg

AUTHORS : Rita P. Moe
Eli Hustad

DATE : 02.08.90

GEOLAB PROJECT : 526080

CLIENTS REF : T181376 avrop 2



Statoil Geolab
Postboks 300 Forus
4001 STAVANGER

Hornebergveien 5
P.O.Box 1581 Nidarvoll
7002 Trondheim – Norway
Tlf.: (47-7) 96 40 00
Telefax: (47-7) 96 59 74
Telex: 65706 geono n

Att.: Jorunn Johannesen og
Trygve Meier

Deres ref./Your ref.

Vår ref./Our ref.

RL/SH
B14/71

Trondheim,

02.08.90

ISOTOPANALYSER FOR BRØNN 9/2-3

Hei Trygve,

Vedlagt følger datarapport for ovenfor nevnte brønn.

Rapporten inkluderer rådatatabell og Galimov-plot. Noen av prøvene er kjørt med paralleller.

Vi takker for oppdraget og hjelper dere gjerne igjen ved en senere anledning.

Med hilsen
for GEOLAB NOR A/S

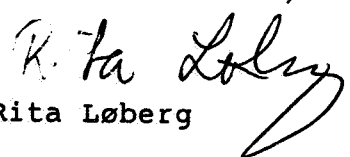

Rita Løberg

Table 1 : Tabulation of carbon isotope data for EOM/Oil - fractions or Oils for well NOCS 9/2-3

Depth unit of measure: m

Depth	Typ	Lithology	EOM/Oil	Saturated	Aromatic	NSO	Asphaltenes	Kerogen	Sample
3125.00			-	-	-	-	-	-28.19	0046-0
3130.00			-	-	-	-	-	-27.64/ -27.84	0047-0
3145.00			-	-	-	-	-	-27.47	0048-0
S-4494			9 -29.20/ -29.29	-29.53/ -29.56	-28.63	-27.86	-	-	0045-0
S-4568			8 -	-30.43	-30.09	-29.54	-28.65	-	0037-0
S-4569			7 -	-31.40	-30.98	-30.10	-29.43	-	0038-0
S-4573			6 -	-30.97	-30.45	-29.58	-29.44	-	0039-0
S-4579			5 -	-29.82	-29.44	-28.79	-28.57/ -28.55	-	0040-0
S-4581			4 -	-29.47	-28.91	-28.24/ -28.20	-28.21	-	0041-0
S-4587			3 -	-29.58	-28.74	-28.06	-28.12	-	0042-0
S-4604			2 -28.88	-29.70	-28.66	-27.95	-27.63	-	0043-0
S-4607			1 -28.15	-29.60	-27.83	-27.27	-26.69	-	0044-0

Table 2 : Tabulation of cv values from carbon isotope data for well NOCS 9/2-3

Depth unit of measure: m

Depth	Typ	Lithology	Saturated	Aromatic	cv value	Sample
3125.00			-	-	-	0046-0
3130.00			-	-	-	0047-0
3145.00			-	-	-	0048-0
S-4494			-29.53	-28.63	-0.50	0045-0
S-4568			-30.43	-30.09	-1.46	0037-0
S-4569			-31.40	-30.98	-0.98	0038-0
S-4573			-30.97	-30.45	-0.89	0039-0
S-4579			-29.82	-29.44	-1.56	0040-0
S-4581			-29.47	-28.91	-1.27	0041-0
S-4587			-29.58	-28.74	-0.62	0042-0
S-4604			-29.70	-28.66	-0.13	0043-0
S-4607			-29.60	-27.83	1.46	0044-0

APPENDIX 2

DATA REPORT : VITRINITE REFLECTANCE ANALYSIS

NOCS WELL 9/2-3

GEOLAB NOR 31.07.90

Hornebergveien 5 - P.O.Box 1581
7001 Trondheim - Norway
Tlf.: (47-7) 96 40 00
Telefax: 96 59 74
Telex: 65706 Geono n

<u>REPORT :</u> VITRINITE REFLECTANCE ANALYSIS NOCS WELL 9/2-3	
<u>CLIENT(S) :</u> STATOIL, T. MEYER	
<u>RESPONSIBLE SCIENTIST :</u> SUNIL BHARATI	
<u>AUTHORS :</u> SUNIL BHARATI	
<u>DATE :</u> 31.07.90	<u>GEOLAB PROJECT :</u> 526076 <u>CLIENTS REF :</u> RAMMEAVTALE T-181376 AVROP NR. 1



Statoil
P.O.Box 300 Forus
4001 STAVANGER

Hornebergveien 5
P.O.Box 1581 Nidarvoll
7002 Trondheim - Norway
Tlf.: (47-7) 96 40 00
Telefax: (47-7) 96 59 74
Telex: 65706 geono n

Att: Trygve Meyer

Deres ref./Your ref. T-181376
AVROP # 1

Vår ref./Our ref. SB/LOH/526076 Trondheim, 05.07.90
B/14/22

Dear Mr. Meyer,

Please find enclosed the preliminary raw results of the Vitrinite Reflectance Analysis of the 36 blocks sent by Kjersti Knudsen from the well 9/2-3. The enclosed results include the average Ro values of the indigenous populations. The histograms and the data tables will follow shortly.

Although you are not keen to have a detailed report (petrographical observations, criteria for populations etc.), I cannot refrain myself from making the following comments.

1. Majority of the samples (especially in the upper half of the well) are mixed, with at least two types of claystones and often with a third silty facies.
2. S4547, S4633, S4634 are similar.
3. Distinct change from S4557
4. Samples S4557 - S4568 can be grouped together. Confidence in results from these samples fair to low.
5. Distinct change from S4570 (Stratigraphic boundary?). Results from S4570, S4571 very reliable.
6. Samples S4575, S4582, heavily stained, should have high S1.
7. Sample S4606 mostly sandstone (?), and S4609 100% sandstone.
8. The duplicate coal samples S4614 are very dissimilar and most probably are not the same sample. This is also true, though to a lesser extent, for S4619.

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9. The duplicate samples of S4679 are almost certainly not representing the same sample.
10. Staining in all coal samples only marginal.

Hopefully this piece-meal information will be useful to you. In my opinion though, keeping in mind some of the unusual behaviour of the well and the detailed petrographic observations made, having a detailed report made is inevitable.

If we can be at any further services, please do not hesitate to contact us.

Your sincerely
for GEOLAB NOR A/S


Sunil Bharati

Encl.

Table 1 : Thermal Maturity Data for well NOCS 9/2-3

Depth unit of measure: m

Depth	Typ Lithology	Vitrinite Reflectance (%)	Number of Readings	Standard Deviation	Spore Fluorescence Colour	SCI	T _{max} (°C)	Sample
4547.00	cut bulk	0.47	8	0.06	-	-	-	0001-0B
4557.00	cut bulk	0.75	15	0.05	-	-	-	0002-0B
4558.00	cut bulk	0.64	16	0.06	-	-	-	0003-0B
4559.00	cut bulk	0.56	12	0.06	-	-	-	0004-0B
4560.00	cut bulk	0.49	12	0.05	-	-	-	0005-0B
4561.00	cut bulk	0.50	4	0.07	-	-	-	0006-0B
4562.00	cut bulk	0.60	8	0.08	-	-	-	0007-0B
4563.00	cut bulk	0.64	3	0.01	-	-	-	0008-0B
4564.00	cut bulk	0.61	7	0.05	-	-	-	0009-0B
4565.00	cut bulk	0.52	11	0.07	-	-	-	0010-0B
4566.00	cut bulk	0.50	8	0.06	-	-	-	0011-0B
4567.00	cut bulk	0.58	8	0.06	-	-	-	0012-0B
4568.00	cut bulk	0.62	12	0.05	-	-	-	0013-0B
4570.00	cut bulk	0.72	16	0.08	-	-	-	0014-0B

Depth unit of measure: m

Depth	Typ Lithology	Vitrinite Reflectance (%)	Number of Readings	Standard Deviation	Spore Fluorescence Colour	SCI	T _{max} (°C)	Sample
4571.00	cut bulk	0.74	7	0.04	-	-	-	0015-0B
4575.00	cut bulk	0.58	3	0.02	-	-	-	0016-0B
4575.75	cut bulk	0.51	5	0.04	-	-	-	0017-0B
4582.00	cut bulk	0.71	5	0.05	-	-	-	0018-0B
4598.00	cut bulk	0.67	12	0.04	-	-	-	0019-0B
4601.00	cut bulk	0.67	9	0.04	-	-	-	0020-0B
4606.00	cut bulk	0.66	5	0.06	-	-	-	0021-0B
4609.00	cut bulk	NDP	-	-	-	-	-	0022-0B
4613.00	cut bulk	0.62	25	0.06	-	-	-	0023-0B
4613.13	cut bulk	0.61	28	0.05	-	-	-	0024-0B
4614.00	cut bulk	0.59	31	0.06	-	-	-	0025-0B
4614.14	cut bulk	0.55	29	0.06	-	-	-	0026-0B
4619.00	cut bulk	0.64	25	0.04	-	-	-	0027-0B
4619.19	cut bulk	0.56	20	0.05	-	-	-	0028-0B

Depth unit of measure: m

Depth	Typ Lithology	Vitrinite Reflectance (%)	Number of Readings	Standard Deviation	Spore Fluorescence Colour	SCI	T _{max} (°C)	Sample
4621.00	cut bulk	0.61	10	0.05	-	-	-	0029-0B
4627.00	cut bulk	0.58	34	0.04	-	-	-	0030-0B
4627.27	cut bulk	0.58	29	0.04	-	-	-	0031-0B
4629.00	cut bulk	0.58	31	0.03	-	-	-	0032-0B
4629.29	cut bulk	0.61	20	0.04	-	-	-	0033-0B
4632.00	cut bulk	0.62	8	0.04	-	-	-	0034-0B
4633.00	cut bulk	0.40	8	0.05	-	-	-	0035-0B
4634.00	cut bulk	0.43	4	0.09	-	-	-	0036-0B