

4. DST No 1. OPERATION AND DISCUSSION OF THE RESULTS.

4.1 Summary.

The Statfjord test interval, 3589.0 - 3598.5m RKB, is on top and bottom limited by a 2 - 3m thick shale. The sand body is rather homogeneous.

The well produced water with traces of oil. Before shut-in during the main flow period, 170 STB/D was produced at a wellhead pressure of 350 psig.

The permeability was estimated to 0.26 mD with a skinfactor of -0.3. A formation pressure of 9607 psia and a temperature of 270°F was estimated at 3594m RKB.

4.2 Operation.

The flowrates and the bottom hole pressures are shown in fig. 4.1. The test was performed with a 1 hour initial flow and a build up for the initial pressure. It was followed by a 20 hours main flow and a build up to evaluate the reservoir properties and to sample formation fluid.

The sequence of events are listed in Attachment B. The main events of the test are shown in table 4.1.

The first attempt to perforate failed because the packer was not properly set. When the guns fired, the SPRO latched off and had to be latched on again. Five minutes of data were lost.

After the perforation, the flow was immediately directed to the tank. During the test, all the rates were measured at the tank or by filling drums. When the mud came to the surface during the main flow, the tank had to be bypassed and no flow-rates were obtained during three hours of clean up.

5. DST No 2. OPERATION AND DISCUSSION OF THE RESULTS.

5.1. Summary.

The Cook test interval, 3462.7 - 3480.7m RKB, is on top and bottom limited by shale. The sand is laminated with silt and shale. 55 per cent of the test interval was assumed open to flow.

The well produced oil with 19 per cent water. Before shut in during the main flow period, 300 STB/D of oil was produced at a wellhead pressure of 1965 psi.

The gas-oil ratio was measured to 1350 SCF/STB at separator conditions of 150 psig and 105°F.

The permeability was estimated to 1.2 mD with a skinfactor of -0.9. A formation pressure of 9123 psia and a temperature of 262°F was estimated at 3472m RKB.

5.2 Operation.

The total sandface oil and water flowrates, and the bottom hole pressures, are shown in fig. 5.2. The test was performed with a 0.6 hours initial flow and a build up for the initial pressure. It was followed by a 22 hours flow with separator sampling and a build-up to evaluate the reservoir properties.

The sequence of events are listed in Attachment C. The main events of the test are shown in table 5.1.

The guns were fired without the SPRO connector latched on. The connector was latched on five minutes after perforation. When the guns had fired, the flow was immediately directed to the tank. Water rates were measured on the tank until the mud reached the surface during the main flow. The well cleaned up for two hours and was taken through the separator after 5 hours of flow. A total of 3 hours of rate measurements were lost. The oil rate was also measured on the tank.

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Tab.4.13

MAIN EVENTS

Well.

34/4-5

DST No. 2

EVENT	DURATION (HOURS)	CHOKESIZE (INCHES)	FLOWRATE STB/D)	WELLHEAD PRESSURE (PSIG)	BOTTOMHOLE PRESSURE (PSIA)	REMARKS
Initial Flow	0.6	8/64	478	1320	6330	Water rate
Initial Build Up	2.3					
Final Flow	10.0	variable	730	1000		Water rate the first hour
	12.0	10/64	300	1965	2470	Oil rate, 19% water.
Final Build Up	24.6					

DATE	20/9/84	AUTH.	RNV
DRAW.BY		SCALE:	
DWG.NO:			



Tab.4.14 BUILD UP No.2

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TIME PRESSURE
(psia)

20/3-84

19.20.00	5435.5	Final flowing pressure.
19.20.05	5482.7	
19.20.20	6001.6	
19.21.00	6530.2	
19.23.00	7068.9	
19.28.00	7457.2	
19.40.00	7805.1	
20.00.00	8057.1	
21.00.00	8324.8	
24.00.00	8565.8	
06.00.00	8732.4	
19.59.00	8870.5	

DATE	20/9/84	AUTH.	RNY
DRAW.BY		SCALE:	
DWG.NO:			

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Tab.4.15
Well.

PVT PROPERTIES OF
COOK OIL FROM DST No.2
34/4-5

Depth	3462.7 - 3480.7m RKB
Reservoir pressure	9116 psia
Reservoir temperature	262°F
Separator pressure	150 psig
Separator temperature	105°F
Field separator GOR	1350 SCF/STB
Field shrinkage factor	0.949 STB/BBL
Field stock tank oil gravity at 60/60°F	0.834
Bubble point pressure of reservoir fluid measured at reservoir temperature	4352 psig

DATE 20/9/84	AUTH. RNy
DRAW.BY	SCALE:
DWG.NO:	

5.2.1. Mud Properties, Daily Report

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DATE	HOLE SIZE INCHES	DEPTH METERS	MUD WEIGHT ppg	P.V.	Y.P.	GEL STRENGTH	n	K	WATER LOSS	pH	ALKALINITY Pf/Mf	Ca+ ppm	CL- ppm	SAND %	SOLIDS %	COMMENTS
13.11		404	Sea water													Prep.spud in
14.11	36"	475	"													Drilling
15.11			"													Prep. spud in
16.11	36"	533	"													Drilling
17.11	36"	533	"													Fishing
18.11	36"	533	"													Pull + GB
19.11	26"	458	"													Drlg. wow
20.11	17 1/2"	470	"													Wow Drlg
21.11	17 1/2"	480	"													Drlg.Trip.wow RIH
22.11	17 1/2"	480	"													Drlg.ream w/26" H.O.
23.11	26"	514	"													Drlg.ream and wash
24.11	36"	514	"													Ream w/36"H.O.Run
25.11	30" csg	504	"													Cm+30" csg. WOC
25.11	30" csg	504	"													Run riser
26.11	30" csg	504	8.7	6	19	5/8	.31	3.6	80+	9.5	.1/.2	1300	14000	0	4	Run riser
27.11	17 1/2"	655	9.0	10	18	5/14	.44	1.8	68	9.5	.1/.15	1350	14000	1/4	5	Displ.hole to mud dr
28.11	17 1/2"	1113	9.4	10	16	5/14	.47	1.4	60	9.5	.1/.15	11000	12000	1/4	5	Drlg.17 1/2" pilot hole
29.11	17 1/2"	1113	9.4	9	15	4/13	.46	1.37	63	9.5	.1/.15	13800	1000	1/4	5	Flow check logging
30.11	26H0	815	9.3	9	20	10/19	.39	2.5	62	9.5	.1/.2	14000	2050	TR	5	Open 26" hole
01.12	26"	1113	12.0	11	19	10/19	.45	1.8	48	9.5	.1/.2	13000	940	TR	17	Circ. WT up
02.12		Mixing	new mud													Pull riser
03.12		"														Run+CMT 20" csg
04.12		"														Run BOP
05.12	17 1/2"	1104	8.8	10	13	5/12	.35	2.9	15	9.5	.1/.2	16000	1160	-	-	Test BOP
06.12	17 1/2"	1080	8.8	8	13	6/14	.46	1.2	15	9.8	.1/.2	13600	17500	TR	2	Milling
07.12	17 1/2"	1089	8.8	9	13	6/15	.49	1.0	15	10.0	.1/.2	1500	17000	.25	3	Milling
08.12	17 1/2"	1085	9	10	15	8/14	.49	1.2	15	11.1	.2/.8	1800	16000	.25	5	CMT plug
09.12	17 1/2"	1085	9	10	14	6/13	.49	1.1	15	11	.2/.7	1900	17000	TR	5	Milling
10.12	17 1/2"	1349	10	16	20	5/12	.51	1.6	15.8	10.6	.2/.4	1680	19000	1	10	Drilling
11.12	17 1/2"	1656	10.5	16	22	14/22	.51	1.6	22.5	9.2	.1/.4	2000	21000	.5	11	Drlg
12.12	17 1/2"	1846	11.5	22	27	16/26	.53	1.8	16	9.5	.1/.4	2000	20000	1	15	Drlg
13.12	17 1/2"	1956	11.8	23	26	13/19	.55	1.6	12.4	9	.1/.4	2000	19500	.75	16	Drlg

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30" csg

5.2.1. Mud Properties, Daily Report

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DATE	HOLE SIZE INCHES	DEPTH METERS	MUD WEIGHT PPG	P. V.	Y. P.	GEL STRENGTH	n	K	WATER LOSS	pH	ALKALINITY PF/MF	Ca+ ppm	CL- ppm	SAND %	SOLIDS %	COMMENTS
14.12	17 1/2	2025	12.5	23	26	13/26	.55	1.6	13.5	9.5	.1/.4	1950	19500	.25	19	Drl
15.12	17 1/2	2025	12.5	27	28	17/26	.58	1.5	13.5	9.5	.1/.4	1950	19500	.25	19	Logging
16.12	.	2011	12.5	25	27	16/26	.60	1.2	13.5	9.4	.1/.4	1900	19500	TR	19	Run 13 3/5 csg
17.12	12 1/4	2000	12.5	25	27	17/28	.57	1.5	15	9.0	.1/.55	1500	19500	TR	19	WOC Drill
18.12	12 1/4	1894	12.5	28	23	18/30	.63	1	25	12	.95/2.0	2500	19500	1/4	19	Drill cmt.
19.12	12 1/4	2172	13.5	21	29	20/35	.50	2.14	27	12	.9/2.0	1800	19000	3/4	22	Drill
20.12	"	2281	14.3	28	30	19/35	.57	1.68	24	11	.4/1.3	800	19000	1/2	22	Drill.trip
21.12	"	2473	14.3	24	20	25/34	.63	.88	16	10.3	.25/1.3	1000	19000	1	24	Drill.
22.12	"	2548	14.3	24	18	25/33	.65	.72	18	10.0	.02/.5	1000	19000	1/4	24	Drill.trip
23.12	"	2614	14.3	22	17	22/31	.64	.70	16	10.0	.01/.35	960	19000	1/4	24	Drill.trip
24.12	"	2625	14.3	23	18	25/35	.64	.75	16	10.3	.1/.2	860	19500	1/4	24	POOH, RIH, Drill
25.12	"	2672	14.3	23	18	22/35	.64	.75	19	10.0	.03/.4	880	19500	1/4	24	Drlg.POOH.RIH.Drill
26.12	"	2741	14.3	23	18	22/34	.64	.75	18	10.0	.15/.45	800	19500	1/4	24	Drlg. POOH
27.12	"	2821	14.3	22	19	23/34	.64	.72	16.5	10.5	.1/.7	760	20000	.75	24	Drlg.
28.12	"	2874	14.3	22	17	21/34	.62	.85	16	10.5	.1/.6	680	19500	.75	24	Drlg.
29.12	"	2928	14.3	18	27	17/30	.48	2.3	16	10.	.1/.7	560	19500	.5	24	Drlg.
30.12	"	2973	14.0	16	18	13/25	.56	1.0	16.5	10.2	.1/.8	560	19000	.25	24	Drl trip
31.12	"	3008	14.0	17	25	16/33	.49	2.0	16.0	10.1	.1/.7	560	19500	.25	24	Drl POOH test BOR
01.01	"	3056	14.0	18	18	15/30	.58	1.0	16	10.2	.1/.5	320	19500	.25	24	RIH DRL
02.01	"	3106	14.0	18	20	17/29	.56	1.2	15	10.1	.1/.6	280	19500	.25	24	Drl survey POOH
03.01	"	3030	14.0	19	21	20/36	.56	1.2	19	11.2	.2/1.0	280	19500	.25	24	Cmt drl cmt
04.01	"	3071	14.0	18	15	13/23	.63	.65	16	10.3	.1/.8	200	19500	.25	24	Drl survey
05.01	"	3107	14.0	19	23	16/35	.54	1.4	14	10.2	.2/.9	200	19500	.25	24	POOH RIH Drl
06.01	"	3146	14.0	17	14	9/22	.63	.6	14	10.1	.2/.9	180	19500	.25	24	POOH RIH drl
07.01	"	3200	14.0	18	19	14/25	.57	1.1	15	9.8	.1/.7	160	19500	.1	24	Drl POOH
08.01	"	3200	14.0	19	25	14/35	.52	1.7	14	9.7	.1/.8	160	19500	TR	24	Logging
09.01	"	3200	14.0	19	26	14/36	.51	1.9	14	9.5	.1/.7	160	19500	TR	24	Run 9 5/8" csg
10.01	"	3200	14.0	19	25	13/34	.51	1.7	14	9.5	.1/.7	160	19500	TR	24	Run BCMT csg
11.01	"	3200	14.0	18	25	14/37	.50	1.9	14	9.4	.1/.7	160	19500	TR	24	Set seal ass.
12.01	12 1/4	3200	14.0	18	25	14/37	.50	1.9	14	9.4	.1/.9	160	19500	TR	24	Fishing
13.01	8 1/2	3200	14.0	18	25	14/37	.50	1.9	14	9.4	.1/.9	160	19500	TR	24	Trip WOW Trip
14.01	11	3204	14.0	17	21	20/38	.53	1.4	19	12.2	.1/1.7	360	19500	TR	24	Drill.cmt.

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DATE	HOLE SIZE INCHES	DEPTH METERS	MUD WEIGHT ppg	P.V.	Y.P.	GEL STRENGTH	n	K	WATER LOSS	pH	ALKALINITY PF/MF	Ca+ ppm	CL- ppm	SAND %	SOLIDS %	COMMENTS
15.01	8½	3240	14.5	19	12	6/16	.69	.42	8.5	11.9	1.1/1.6	120	19500	1/4	26	Drill.trip.drill
16.01	8½	3288	14.5	19	12	6/16	.69	.42	6	11.8	1.1/1.6	120	19500	TR	25	Drill.trip
17.01	"	3345	14.5	23	20	11/33	.62	.91	6.8	11.5	1.1/1.6	160	19500	.2	24	Trip.Ream.Drill
18.01	"	3384	14.5	20	22	16/38	.56	1.27	5.5	11.3	.9/1.4	160	19500	TR	24	Drill.trip.drill
19.01	"	3408	14.5	19	17	14/35	.61	.80	6.5	11.0	.7/1.3	160	19500	TR	24	Drill.trip.drill
20.01	"	3438	13.0	18	11	14/31	.70	.39	10.5	10.5	.12/.8	800	20000	1/4	20	Trip core trip
21.01	"	3438	13	18	11	13/30	.70	.39	10	10.5	.12/.8	800	20000	TR	20	POOH. WOW
22.01	"	3438	13	18	12	13/30	.66	.51	7	10.5	.12/.8	800	20000	TR	20	WOW
23.01	"	3438	13	18	13	13/30	.66	.51	7	10.5	.12/.8	800	20000	TR	20	WOW .Work on plug
24.01	"	3449	13	20	17	12/35	.62	.76	10	10.5	.1/1.1	890	19000	1/4	20	Fishing.Test BOP
25.01	"	3473	14.2	21	15	11/32	.66	.58	8	10.5	.11/.8	960	19000	½	26	Drill.circ.POOH.
26.01	"	3493	15.6	20	16	8/35	.64	.66	8	9.8	.1/.6	600	19000	.5	30	Coring
27.01	"	3509	15.6	20	14	8/32	.67	.54	9	10.2	.1/.7	760	19000	1	29	Coring
28.01	"	3527	15.6	20	13	5/27	.68	.48	9.5	10.0	.1/.7	720	19000	1	29	Coring
29.01	"	3538	15.6	20	13	5/27	.68	.48	9.8	10.0	.1/.7	720	19500	1	29	Ream + core
30.01	"	3564	15.6	21	13	5/21	.69	.46	7	10.2	.1/.7	540	19000	1	29	Drl
31.01	"	3571	15.6	22	13	4/20	.70	.45	7	10.0	.1/.7	520	19000	1	29	Test BOP, core
01.02	"	3589	15.6	21	12	4/20	.71	.39	7.2	10.0	.1/.5	440	19000	1	29	Trip core
02.02	"	3595	15.6	21	12	4/21	.71	.39	7	10.1	.1/.6	400	19000	1	29	Core trip
03.02	"	3606	15.6	19	12	4/17	.69	.42	6.8	10.0	.1/.6	400	19000	1.5	29	WOW core
04.02	"	3610	15.6	20	12	4/18	.70	.41	7.4	9.9	.1/.7	360	19000	1	29	Core trip
05.02	"	3617	15.6	19	13	4/19	.67	.49	7.5	9.9	.1/.7	340	18500	1	29	WOW core
06.02	"	3621	15.6	19	12	4/18	.69	.42	7.6	10.1	.1/.7	320	18500	1	28	Core test BOP
07.02	"	3640	15.6	21	12	4/21	.71	.39	7.8	10.2	.1/.7	300	18000	1	28	Core
08.02	"	3649	15.6	21	12	5/22	.71	.39	8.0	10.0	.1/.7	300	18000	1	29	Core trip ream
09.02	"	3649	15.6	21	12	5/22	.71	.39	8.0	10.0	.1/.7	300	18000	1	29	Core trip ream
09.02	"	3671	15.6	23	12	5/23	.72	.38	7.5	9.9	.1/.7	240	17500	1	29	Ream Drill Trip
10.02	"	3772	"	26	14	9/37	.72	.44	8	9.9	.1/.7	200	13500	1.25	29	Drill
11.02	"	3772	"	28	14	8/35	.74	.43	8	9.8	.1/.6	200	12000	1	30	Drill.POOH.LOGG.
12.02	"	3760	"	32	13	5/20	.77	.34	7	9.8	.1/.6	200	12000	1.5	29	Attempt to log.c
13.02	"	3760	"	30	12	5/16	.78	.33	4.8	9.9	.1/.6	200	12000	1	29	Trip logg trip
14.02	"	3772	"	30	11	5/16	.79	.29	5	9.8	.1/.6	200	12000	1	29	Trip.fishing. trip
15.02	"	3772	"	30	12	5/16	.78	.33	5	9.8	.1/.6	160	12000	1	29	Trip.circ.trip.logg

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DATE	HOLE SIZE INCHES	DEPTH METERS	MUD WEIGHT PPg	P.V.	Y.P.	GEL STRENGTH	n	K	WATER LOSS	pH	ALKALINITY PF/MF	Ca+ ppm	CL- ppm	SAND %	SOLIDS %	COMMENTS
16.02	8 1/2	3772	15.6	30	11	5/14	.79	.29	5	10.5	.1/.6	160	12000	1	29	Logg. RIH. Circ. POH
17.02	"	"	"	31	11	5/15	.80	.29	5	10.5	.1/.6	160	12000	1	29	Logg. RIH. Circ. POH
18.02	"	"	"	30	13	13/22	.76	.37	5	10.8	.3/1.4	TR	12000	1	30	RIH. Fishing. Trip
19.02	"	"	"	30	12	13/21	.78	.33	5	10.1	.2/1.2	TR	13000	1	30	Fish. Trip. Fish. POH
20.02	"	3789	"	30	14	15/23	.75	.41	5.5	10.2	.2/1.2	160	13000	1.5	30	RIH. Drill. Trip. Drill
21.02	"	3828	"	31	15	15/23	.74	.45	4.8	10	.2/.9	200	15000	1.25	30	Drill. Trip. Drill.
22.02	"	3899	"	33	19	14/22	.71	.63	4.1	10.1	.3/.9	80	14000	1.25	30	Drill.
23.02	"	3916	15.6	24	12	10/18	.74	.35	4.0	10.1	.2/.9	40	14000	1	30	Drill. POH LOG
24.02	"	3916	15.6	26	12	10/18	.76	.33	4.2	10.0	.2/.9	40	14000	1	30	Logging
25.02	"	3916	15.6	30	15	11/20	.74	.44	4.2	9.8	.2/1.0	40	14000	.75	30	RIH circ. POH LOG
26.02	"	3916	15.5	28	14	10/18	.74	.42	4.4	11.1	.3/1.0	80	10000	1	30	LOG set cmt plug
27.02	"	3772	15.6	26	13	10/22	.74	.39	4.0	10.4	.3/1.0	160	11000	.75	30	Drl cmt, circ.
28.02	"	3772	15.6	30	20	18/30	.68	.72	5.1	11.8	.5/1.1	200	12000	.75	30	Cmt. liner
29.02	"	3672	15.6	30	15	14/21	.74	.44	4.2	12.3	.6/1.2	200	11000	.75	30	Tag cmt.
01.03	"	3672	15.6	30	15	13/29	.74	.44	4.5	12.4	.7/1.3	280	12000	.75	30	Displace riser WOW
02.03	"	3672	15.6	31	14	13/30	.76	.39	4.5	12.4	.7/1.2	280	12000	.75	30	WOW pull BOP
03.03	"	3672	15.6	30	14	12/25	.75	.41	4.5	12.4	.7/1.3	280	12000	.75	30	Work on BOP
04.03	"	3672	15.6	31	15	14/29	.74	.45	4.5	12.4	.7/1.3	280	12000	.75	30	Work on BOP
05.03	"	3672	15.6	31	15	14/28	.74	.45	4.5	12.4	.7/1.3	280	12000	.75	30	Test BOP
06.03	"	3672	15.6	30	14	11/34	.75	.41	5.0	12.4	.7/1.3	400	12000	.75	30	WOW
07.03	"	3672	15.6	26	11	9/24	.76	.32	5.6	12.2	.6/1.2	280	12000	.75	30	WOW run BOP
08.03	"	3672	15.6	27	12	9/23	.76	.34	5.6	12.0	.6/1.2	280	12000	.75	30	RIH w/csg scroper.
09.03	"	3672	15.6	35	16	10/25	.75	.48	6.5	11.5	.45/1.25	400	11500	1	30	RIH w/test assy
10.03	"	3672	15.6	30	15	10/25	.74	.44	6.5	11.5	.5/1.19	400	11500	.75	30	Set packer
11.03	"	3672	15.6	30	15	10/25	.74	.44	6.5	11.5	.5/1.19	400	11500	.75	30	WOW
12.03	"	3672	15.6	28	16	11/25	.71	.53	6.5	11.5	.5/1.2	400	11500	1	30	Testing
13.03	"	3672	15.6	28	16	11/25	.71	.53	6.5	11.5	.5/1.2	400	11500	1	30	Testing
14.03	"	3672	15.6	32	16	11/25	.74	.47	6.0	11.5	.3/.9	400	12000	1	30	Displac. tes. str.
15.03	"	3672	16.0	32	16	11/25	.74	.47	6.0	10.5	.3/.9	400	12000	1	30	Set cmt retainer
16.03	"	3581	16.4	30	20	15/30	.73	.51	8.0	12.0	.45/1.35	560	14000	1	31	RIH w/test assy
17.03	"	3581	16.4	30	20	15/30	.73	.51	8.0	12.0	.45/1.1	560	14000	1	31	Disp. test. str w seal
18.03	"	3569	16.4	30	18	14/28	.70	.61	8.0	11.5	.40/1.2	560	14000	1	31	RIH

5.2.1. Mud Properties, Daily Report

Well no: 34/4-5

Saga Petroleum a.s.



DATE	HOLE SIZE INCHES	DEPTH METERS	MUD WEIGHT ppg	P.V.	Y.P.	GEL STRENGHT	n	K	WATER LOSS	pH	ALKALINITY Pf/Mf	Ca+ ppm	CL- ppm	SAND %	SOLIDS %	COMMENTS
19.03	7"liner	3569	16.4	25	15	18/30	.73	.41	10	12	.4/1.3	600	14000	1	31	Start testing
20.03	"	3569	16.4	25	15	18/30	.73	.41	10	12	.4/1.3	600	14000	1	31	Testing
21.03	"	3569	16.4	25	15	17/28	.73	.41	10	12	.4/1.3	600	14000	1	31	Testing
22.03	"	3569	16.4	28	14	18/30	.78	.32	10	12	.3/1.2	640	15000	.75	31	Testing
23.03	"	3569	16.4	25	15	18/28	.73	.41	10	12	.3/1.2	600	15000	.75	31	Unplug drill str.
24.03	"	3569	16.4	24	13	20/32	.72	.42	12	12	.2/.9	600	15000	.75	31	Unplug drill str.
25.03	"	3569	16.4	23	12	22/32	.73	.37	12	11.9	.2/.9	600	15000	.75	31	Unplug drill str.
26.03	"	3569	16.4	23	14	22/32	.70	.47	12	11.8	.2/.9	600	15000	.75	31	Unplug drill str.
27.03	"	3569	16.4	25	12	20/31	.74	.37	12	11.5	.2/.9	600	15000	.75	31	Unplug circ. riser
28.03	"	3569	16.4	27	16	20/34	.70	.55	12	11.3	.2/.9	600	14000	.75	31	Circ. riser
29.03	"	3569	16.4	26	13	20/34	.74	.39	12	11.1	.2/.9	600	14000	.75	31	Pull pipe, pump mud
30.03	"	3569	16.4	27	16	20/35	.70	.55	12	10.9	.2/.9	600	14000	.75	31	POH test str.
31.03	"	3569	16.4	26	14	19/30	.72	.45	12	10.9	.2/.9	600	14000	.75	31	Circ.mud
01.04	"	Plugging	16.4	27	16	20/30	.70	.55	12	12	.3/1.1	650	14000	1	31	Plugging well
02.04	Plugging hole		16.3	27	17	20/35	.69	.60	12	12	.3/1.2	650	14000	1	31	"
03.04	"		16.3	27	16	21/36	.70	.55	12	12	.2/1.2	650	14000	1	31	"

5.2.2. Mud Materials used

Well no: 34/4-5



MATERIAL	UNIT	36" HOLE	26" HOLE	17 1/2" HOLE	12 1/4" HOLE	8 1/2" HOLE	5 7/8" HOLE	TOTAL
Barite	MT	72						23247.74
Bentonite	MT	25						
Bentonite	50 kg	47						
Caustic	25 kg	6						
Soda ash	50 kg	4						
Lime	40 kg	1						
Barite	MT		188					54358.14
Bentonite	MT		47					
Caustic	25 kg		37					
Gypsum	40 kg		262					
Barite	MT			407				150573,0
Bentonite	MT			3				
Bentonite	50 kg			30				
Caustic	25 kg			106				
Gypsum	50 kg			380				
Prodefoam	25 l			10				
Milpol 302	25 kg			185				
Permalose	25 kg			168				
Bicarbonat	50 kg			19				
Drispac S/L	50 lb			66				
Lime	40 kg			2				
Unical	25 kg			7				
Kwick seal M.	40 LB			10				
Drispac R	50 LB			3				

5.2.2. Mud Materials used

Well no: 34/4.5

Saga Petroleum a.s.



MATERIAL	UNIT	36" HOLE	26" HOLE	17 1/2" HOLE	12 1/4" HOLE	8 1/2" HOLE	5 7/8" HOLE	TOTAL
Barite	MT				1223			
Bentonite	MT				6			
Caustic	25 kg				200			
Gypsum	50 kg				246			
Pro.defoamer	25L				9			
Mil.Pol. 302	25 kg				42			
Permalose	25 kg				151			
Drispac reg	50 LB				9			
Drispac S/L	50 LB				71			
Bicarb	50 kg				36			
Lime	40 kg				4			
Unical	25 kg				668			
Ligcon	50 LB				220			
Soda ash	50 kg				1			
Sapp	50 kg				10			
Al. stearate	25 kg				2			
M.D.	55 gal				2			268899.05

Amount \$268.899.05 is \$1.25 higher than when one obtains from cum. cost on daily drilling mud add. Reason is that on 21/12 and 22/12 the charge for bent. was \$.50 too low (for 2.5 MT).

5.2.2. Mud Materials used

Well no: 34/4-5

Saga
Petroleum a.s.



MATERIAL	UNIT	36" HOLE	26" HOLE	17 1/2" HOLE	12 1/4" HOLE	8 1/2" HOLE	5 7/8" HOLE	TOTAL
Barite	MT					922	305	
Bentonite	MT					30	1	
Caustic	25 kg					126	1	
Pro.defoam	25 L					12	3	
Drispac S/L	50 LB					55		
Drispac reg.	50 LB						4	
Unical	25 kg					381	441	
Ligcon	50 LB					417	1	
Bicarb	50 kg					14	4	
Al.stear.	25 kg					2		
Propos L.V.	25 kg					36		
Chemtrol X	25 kg					20		
WO 21	25 kg						1	
								51332.42
								205380.24*

* Includes dates 11/1.84 to 26/2.84

GEOCHEMICAL ANALYSES REPORT
WELL NOCS 34/4-5

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INTRODUCTION

Well NOCS 34/4-5 is situated in the Norwegian sector of the North Sea, north of the Snorre oil field. The well is located at 61°41'09.49"N, 02°17'52.00"E and drilled to a total depth of 3917 m in a water depth at 378 m. Elevation of Kelly Bushing (KB) was 26 m and all depths are relative to KB unless otherwise specified.

A total of 250 samples was collected between 520 and 3910 m from the Norwegian Petroleum Directorate (NPD) in Stavanger. The sampling interval for the cuttings was 30 m for the Tertiary Nordland, Hordaland and Rogaland Gps. and the Upper Cretaceous Shetland Gp., 15 m in the Cromer Knoll Gp. and 6 m in the Jurassic and Triassic. The sampling interval for the core-chip samples was 2 m. A careful selection of suitable samples was made for scanning analysis (TOC/Rock-Eval). Forty-five samples were selected for this purpose and from the data obtained, samples were chosen for follow-up analysis. These are:

Thermal extraction - pyrolysis - gas chromatography	18 samples
Extraction, MPLC fractionation, saturated and aromatic hydrocarbon gas chromatography	9 samples
Vitrinite reflectance microscopy	15 samples
Visual kerogen microscopy	5 samples
Isotope analysis of C ₁₅ + fractions	5 samples
Gas chromatography - mass spectrometry	5 samples

Table 1 : Lithology description for well NOCS 34/4-5

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
520.00						0001
			85	Cont : lt gy, dd, cem		0001-1L
			15	S/Sst : w to lt gy to or gy to m or red, crs, l		0001-2L
550.00						0002
			85	Cont : lt gy, cem, dd		0002-1L
			15	S/Sst : w to lt gy to or gy to m or red, crs, l, mic		0002-2L
580.00						0003
			100	S/Sst : w to lt gy to m gy to gy brn, crs, l, mic		0003-1L
			tr	Cont : cem, dd		0003-2L
610.00						0004
			100	S/Sst : w to lt gy to m gy to gy brn, crs, l, mic		0004-1L
640.00						0005
			95	S/Sst : w to lt gy to m gy, crs, l		0005-1L
			5	Cont : cem, dd		0005-2L
670.00						0006
			100	S/Sst : w to lt gy to m gy, crs, l		0006-1L
			tr	Ca : w to lt or		0006-2L
			tr	Cont : cem, dd		0006-3L

Table 1 : Lithology description for well NOCS 34/4-5

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
700.00						0007
			95	S/Sst : w to lt gy to m gy, crs, l		0007-1L
			5	Cont : cem, dd, prp		0007-2L
			tr	Ca : w to lt or, fos		0007-3L
730.00						0008
			90	S/Sst : w to lt gy to m gy to dsk y gn, crs, l, mic, pyr		0008-1L
			5	Ca : w to lt or, fos		0008-2L
			5	Cont : cem, dd		0008-3L
760.00						0009
			100	S/Sst : w to lt gy to m gy to dsk y gn, crs, l, mic		0009-1L
			tr	Ca : w to lt or, fos		0009-2L
			tr	Cont : cem, dd, prp		0009-3L
790.00						0010
			85	S/Sst : w to lt gy to m gy, crs, l, mic		0010-1L
			15	Cont : dd		0010-2L
820.00						0011
			95	S/Sst : w to lt gy to m gy, crs, l		0011-1L
			5	Cont : dd		0011-2L
			tr	Ca : lt or, fos		0011-3L
850.00						0112
			95	S/Sst : w to lt gy to drk gy, crs, l		0112-1L
			5	Ca : lt or, fos		0112-2L
			tr	Sh/Clst: lt brn to m y brn		0112-3L

Table 1 : Lithology description for well NOCS 34/4-5

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
880.00						0113
				90 S/Sst : w to lt gy to drk gy, crs, l		0113-1L
				10 Ca : lt or to drk gy, fos		0113-2L
				tr Sh/Clst: lt brn to m y brn to drk gy		0113-3L
				tr Cont : dd		0113-4L
910.00						0114
				95 S/Sst : w to lt gy to drk gy, crs, l		0114-1L
				5 Ca : lt or to drk gy, fos		0114-2L
				tr Cont : dd		0114-3L
940.00						0115
				100 S/Sst : w to lt gy to drk gy, crs, l		0115-1L
				tr Cont : dd		0115-2L
970.00						0116
				100 S/Sst : w to lt gy to drk gy, crs, l		0116-1L
				tr Ca : lt or to or gy, fos		0116-2L
1000.00						0117
				100 S/Sst : w to lt gy to drk gy, crs, l		0117-1L
				tr Ca : lt or to or gy, fos		0117-2L
				tr Cont : Coal-ad		0117-3L
1030.00						0118
	0.04			90 S/Sst : w to lt gy to drk gy, crs, l		0118-1L
				10 Ca : lt or to or gy to drk gy, fos		0118-2L

Table 1 : Lithology description for well NOCS 34/4-5

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
1060.00						0119
			90	S/Sst : w to lt gy to drk gy, crs, l, mic		0119-1L
			10	Ca : lt or to or gy to drk gy, fos		0119-2L
1090.00						0120
			95	S/Sst : w to lt gy to m gy, crs, l, mic		0120-1L
			5	Ca : lt or to or gy to drk gy, fos		0120-2L
			tr	Sh/Clst: drk gy to brn blk		0120-3L
1120.00						0121
			60	S/Sst : w to lt gy to m gy, crs, l		0121-1L
			35	Cont : dd, prp, Coal-ad		0121-2L
			5	Ca : lt or to or gy, fos		0121-3L
1150.00						0122
			50	S/Sst : w to lt gy to m gy, crs, l		0122-1L
			50	Cont : dd, prp, Coal-ad		0122-2L
			tr	Ca : lt or to or gy, fos		0122-3L
1180.00						0123
			75	S/Sst : w to lt gy to m gy, crs, l, mic		0123-1L
			20	Cont : dd, prp, Mica-ad		0123-2L
			5	Ca : lt or to or gy, fos		0123-3L
1210.00						0124
			80	S/Sst : w to lt gy to m gy, crs, l, mic		0124-1L
			10	Cont : dd, prp, Mica-ad		0124-2L
			10	Ca : lt or to or gy, fos		0124-3L

Table 1 : Lithology description for well NOCS 34/4-5

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
1240.00						0125
				80 Cont : dd		0125-1L
				15 S/Sst : w to lt gy to m gy, crs, l		0125-2L
				5 Ca : lt or to or gy		0125-3L
				tr Sh/Clst: drk gy to brn blk		0125-4L
1270.00						0126
				90 S/Sst : w to lt gy to m gy, crs, l		0126-1L
				10 Ca : lt or to or gy to drk gy, fos		0126-2L
				tr Sh/Clst: drk gy to brn blk		0126-3L
				tr Cont : prp		0126-4L
1300.00						0127
				60 Cont : dd		0127-1L
				35 S/Sst : w to lt gy to m gy, crs, l		0127-2L
				5 Ca : lt or		0127-3L
1330.00						0128
				45 Cont : dd		0128-1L
				45 Sh/Clst: dsk y gn, glauc		0128-2L
				10 S/Sst : lt gy to m gy, crs, l		0128-3L
1360.00						0129
				85 Sh/Clst: lt brn gy to pl y brn		0129-1L
				5 Sh/Clst: dsk y gn, glauc		0129-2L
				5 S/Sst : lt gy to m gy, crs, l		0129-3L
				5 Ca : lt or to lt gy		0129-4L

Table 1 : Lithology description for well NOCS 34/4-5

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample	
Int Cvd	TOC%	%	Lithology description				
1390.00						0130	
	1.06	100	Sh/Clst: lt brn gy to pl y brn			0130-1L	
1420.00						0131	
		100	Sh/Clst: lt brn gy to pl y brn			0131-1L	
1450.00						0132	
		100	Sh/Clst: lt brn gy to pl y brn			0132-1L	
1480.00						0133	
		100	Sh/Clst: lt brn gy to pl y brn			0133-1L	
1510.00						0021	
		60	Sh/Clst: lt gn gy to lt y gn to pl ol			0021-1L	
		30	Sh/Clst: ol gy, slt			0021-2L	
		10	S/Sst : w to lt gy, crs, l			0021-3L	
1540.00						0022	
		90	Sh/Clst: lt gn gy to lt y gn to pl ol to lt brn gy			0022-1L	
		5	Sh/Clst: ol gy, slt			0022-2L	
		5	S/Sst : w to lt gy, crs, l			0022-3L	
1570.00						0023	
		95	Sh/Clst: lt gn gy to lt y gn to pl ol to lt brn gy			0023-1L	
		5	Sh/Clst: ol gy, slt			0023-2L	
		tr	S/Sst : w to lt gy, crs, l			0023-3L	

Table 1 : Lithology description for well NOCS 34/4-5

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample	
Int Cvd	TOC%	%	Lithology description				
1600.00						0024	
		95	Sh/Clst: lt gn gy to lt y gn to pl ol to lt brn gy			0024-1L	
		5	Sh/Clst: ol gy, slt			0024-2L	
			tr S/Sst : w to lt gy, crs, l			0024-3L	
1630.00						0025	
		100	Sh/Clst: lt gn gy to lt y gn to pl ol to lt brn gy			0025-1L	
			tr Sh/Clst: ol gy, slt			0025-2L	
			tr S/Sst : w to lt gy, crs, l			0025-3L	
1660.00						0026	
		100	Sh/Clst: lt gn gy to lt y gn to pl ol to lt brn gy			0026-1L	
			tr Sh/Clst: ol gy, slt			0026-2L	
1690.00						0134	
		100	Sh/Clst: lt ol gy			0134-1L	
1720.00						0027	
	0.18	100	Sh/Clst: y gy to lt ol gy			0027-1L	
1750.00						0028	
		70	Sh/Clst: ol gy to lt brn gy			0028-1L	
		30	Sh/Clst: y gy to lt ol gy			0028-2L	
			tr S/Sst : w to lt gy, crs, l			0028-3L	

Table 1 : Lithology description for well NOCS 34/4-5

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
1780.00						0029
				60 Sh/Clst: ol gy to lt brn gy to m gy		0029-1L
				40 Sh/Clst: y gy to lt ol gy		0029-2L
1810.00						0030
				100 Sh/Clst: y gy to lt ol gy to lt brn gy to m gy		0030-1L
1840.00						0031
				100 Sh/Clst: y gy to lt ol gy to lt brn gy to m gy		0031-1L
1870.00						0032
				80 Sh/Clst: y gy to lt ol gy to lt brn gy to m gy		0032-1L
				20 Cont : dd, prp		0032-2L
				tr Ca : w to lt or		0032-3L
1900.00						0033
				95 Sh/Clst: y gy to lt ol gy to lt brn gy to m gy		0033-1L
				5 Cont : dd, prp		0033-2L
				tr Ca : w to lt or		0033-3L
				tr S/Sst : w to lt gy, crs, l		0033-4L
1930.00						0034
				95 Sh/Clst: lt or to pl ol to pl ol brn		0034-1L
				5 S/Sst : w to lt gy, crs, l, pyr		0034-2L
				tr Cont : prp		0034-3L

Table 1 : Lithology description for well NOCS 34/4-5

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
1960.00						0035
				95 Sh/Clst: lt or to pl ol to lt brn gy to brn gy		0035-1L
				5 S/Sst : w to lt gy, crs, l, pyr		0035-2L
1990.00						0037
				100 Sh/Clst: lt brn gy to brn gy to pl ol to lt ol brn		0037-1L
				tr S/Sst : w to lt gy, crs, l, pyr		0037-2L
				tr Ca : lt or		0037-3L
2020.00						0036
				100 Sh/Clst: lt or to pl ol to lt brn gy to brn gy		0036-1L
				tr S/Sst : w to lt gy, crs, l, pyr		0036-2L
2050.00						0038
	0.53			100 Sh/Clst: lt gy to m gy, calc		0038-1L
2080.00						0039
				90 Sh/Clst: lt gy to m gy to lt brn gy, calc		0039-1L
				5 Other : gy gn		0039-2L
				5 Cont : dd		0039-3L
2110.00						0040
				100 Sh/Clst: lt gy to m gy to lt brn gy, calc		0040-1L
				tr Other : gy gn		0040-2L
				tr Other : w		0040-3L

Table 1 : Lithology description for well NOCS 34/4-5

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
2140.00						0041
				80 Sh/Clst: m or pi, calc, slt		0041-1L
				20 Slstst : lt brn gy to m gy, calc		0041-2L
2170.00						0042
				100 Sh/Clst: lt gy to m gy to lt brn gy, calc, slt		0042-1L
				tr Cont : prp, dd		0042-2L
2200.00						0043
				60 Sh/Clst: lt gy to m gy to lt brn gy, calc, slt		0043-1L
				40 S/Sst : w to lt gy, crs, l, pyr		0043-2L
				tr Cont : prp		0043-3L
2230.00						0044
				90 Sh/Clst: lt gy to m gy to lt brn gy, calc, slt		0044-1L
				10 Cont : dd, prp		0044-2L
2260.00						0045
				100 Sh/Clst: lt gy to m gy to lt brn gy		0045-1L
				tr Cont : dd, prp		0045-2L
2290.00						0046
				90 Sh/Clst: lt gy to m gy to lt brn gy		0046-1L
				5 Ca : lt or to or gy		0046-2L
				5 Cont : dd, prp		0046-3L

Table 1 : Lithology description for well NOCS 34/4-5

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample	
Int Cvd	TOC%	%	Lithology description				
2320.00						0047	
			90	Sh/Clst:	lt gy to m gy to lt brn gy	0047-1L	
			10	Cont	: dd, prp	0047-2L	
2350.00						0048	
			95	Sh/Clst:	lt gy to m gy to lt brn gy, calc	0048-1L	
			5	Cont	: dd, prp, Coal-ad	0048-2L	
2380.00						0049	
	0.38	100		Sh/Clst:	lt gy to m gy to lt brn gy, calc	0049-1L	
2410.00						0050	
			100	Sh/Clst:	lt gy to m gy to lt brn gy, calc	0050-1L	
2440.00						0051	
			70	Sh/Clst:	m gy to lt brn gy	0051-1L	
			30	Sh/Clst:	y gy to m y gy, calc	0051-2L	
2470.00						0052	
			90	Sh/Clst:	m gy to lt brn gy	0052-1L	
			10	Sh/Clst:	y gy to m y gy, calc	0052-2L	
			tr	Cont	: prp	0052-3L	
2500.00						0053	
			90	Sh/Clst:	m gy to lt brn gy, slt, calc	0053-1L	
			10	Cont	: dd, prp	0053-2L	
			tr	Ca	: lt or to or gy	0053-3L	

Table 1 : Lithology description for well NOCS 34/4-5

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
2530.00						0054
				95 Sh/Clst: lt gy to m gy		0054-1L
				5 Cont : dd, prp		0054-2L
2560.00						0055
				90 Sh/Clst: lt gy to m gy		0055-1L
				5 S/Sst : w to lt gy, f		0055-2L
				5 Cont : dd, prp		0055-3L
2590.00						0056
				75 Sh/Clst: lt gy to m gy		0056-1L
				15 S/Sst : w to lt gy, f, calc, mic		0056-2L
				10 Cont : dd, prp		0056-3L
2620.00						0057
				90 Sh/Clst: lt gy to m gy		0057-1L
				10 S/Sst : w to lt gy to m brn, f, calc, mic		0057-2L
				tr Cont : dd, prp		0057-3L
2650.00						0058
				75 Sh/Clst: lt gy to m gy		0058-1L
				25 S/Sst : w to lt gy to m brn, crs, l, pyr		0058-2L
				tr Cont : dd, prp		0058-3L
2680.00						0059
				60 Sh/Clst: lt gy to m gy		0059-1L
				35 Sltst : lt brn to m brn, calc		0059-2L
				5 S/Sst : w to lt gy, f, l		0059-3L

Table 1 : Lithology description for well NOCS 34/4-5

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
2715.00						0060
				50 Sh/Clst: lt gy to m gy		0060-1L
				30 S/Sst : w to lt gy, f, l		0060-2L
				20 Sh/Clst: lt or to lt brn, calc		0060-3L
				tr Cont : dd		0060-4L
2745.00						0061
				95 Sh/Clst: lt gy to m gy		0061-1L
				5 S/Sst : w to lt gy, f, l		0061-2L
				tr Cont : dd		0061-3L
2770.00						0062
				75 Sh/Clst: lt gy to m gy		0062-1L
				20 S/Sst : w to lt gy, f, l		0062-2L
				5 Ca : lt or		0062-3L
				tr Cont : dd, prp		0062-4L
2800.00						0063
				60 Sh/Clst: lt gy to m gy to lt brn gy, slt		0063-1L
				40 S/Sst : w to lt gy, f, crs, l		0063-2L
				tr Cont : dd, prp, Coal-ad		0063-3L
2830.00						0064
				95 Sh/Clst: lt or to pl y brn, calc		0064-1L
				5 Sh/Clst: drk gy to brn blk		0064-2L
2860.00						0065
				60 Sh/Clst: lt or to pl y brn, calc		0065-1L
				20 S/Sst : w to lt gy, crs, l, pyr		0065-2L
				15 Ca : lt or		0065-3L
				5 Cont : dd, prp		0065-4L

Table 1 : Lithology description for well NOCS 34/4-5

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
2890.00						0066
				60 Sh/Clst: lt or to pl y brn, calc		0066-1L
				20 S/Sst : w to lt gy, crs, l, pyr		0066-2L
				15 Ca : lt or		0066-3L
				5 Cont : dd, prp		0066-4L
2920.00						0067
				60 Sh/Clst: lt or to pl y brn, calc		0067-1L
				20 S/Sst : w to lt gy, crs, l		0067-2L
				10 Ca : lt or, fos		0067-3L
				10 Cont : dd, prp		0067-4L
2950.00						0070
				95 Sh/Clst: lt gy to m gy to lt brn gy, mic		0070-1L
				5 S/Sst : w to lt gy, f, pyr		0070-2L
2980.00						0068
				60 Cont : blk, Coal-ad		0068-1L
				20 Sh/Clst: lt gy to m gy		0068-2L
				10 Ca : lt or to lt brn		0068-3L
				10 S/Sst : w to lt gy, crs, l		0068-4L
3010.00						0069
				95 Sh/Clst: lt gy to m gy		0069-1L
				5 S/Sst : w to lt gy, f, pyr		0069-2L
3040.00						0071
	0.62			80 Sh/Clst: lt gy to m gy to lt brn gy, mic		0071-1L
				15 Cont : blk, Coal-ad		0071-2L
				5 S/Sst : w to lt gy, crs, pyr		0071-3L
				tr Cont : prp, dd		0071-4L

Table 1 : Lithology description for well NOCS 34/4-5

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
3070.00						0072
				60 Sh/Clst: lt gy to m gy to lt brn gy, mic		0072-1L
				25 Cont : blk, Coal-ad		0072-2L
				10 Ca : lt or gy to or gy		0072-3L
				5 S/Sst : w to lt gy, f, l, pyr		0072-4L
3100.00						0073
				70 Cont : blk, Coal-ad		0073-1L
				25 Sh/Clst: lt gy to m gy		0073-2L
				5 Ca : or gy to lt or		0073-3L
3130.00						0074
				75 Sh/Clst: lt gy to m gy		0074-1L
				20 Ca : or gy to lt or		0074-2L
				5 S/Sst : lt gy, f, pyr		0074-3L
3160.00						0078
				85 Sh/Clst: lt gy to m gy		0078-1L
				15 Ca : lt or to or gy, fos		0078-2L
3190.00						0079
				70 Sh/Clst: lt gy to m gy		0079-1L
				25 Cont : blk, Coal-ad		0079-2L
				5 S/Sst : lt gy to m brn, crs, l		0079-3L
				tr Cont : dd		0079-4L
3220.00						0080
				70 Sh/Clst: lt gy to m gy		0080-1L
				30 Cont : dd, prp, Coal-ad		0080-2L

Table 1 : Lithology description for well NOCS 34/4-5

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
3238.00						0081
				50 Sh/Clst: lt gy to m gy		0081-1L
				30 Cont : dd, prp, Coal-ad		0081-2L
				20 S/Sst : w to lt gy, f, crs, l		0081-3L
3241.00						0082
				40 Sh/Clst: lt gy to m gy		0082-1L
				30 Sh/Clst: m brn to gy brn		0082-2L
				20 Cont : dd, dd, Coal-ad		0082-3L
				10 S/Sst : w to lt gy, f, l		0082-4L
3250.00						0083
				40 S/Sst : w to lt gy, f, l		0083-1L
				20 Sh/Clst: lt gy to m gy to drk gy		0083-2L
				20 Cont : dd, prp, Coal-ad		0083-3L
				10 Sh/Clst: m brn to gy brn		0083-4L
				10 Ca : lt or to or gy		0083-5L
3256.00						0084
	0.62			45 S/Sst : w to lt gy, f, l		0084-1L
				25 Sh/Clst: lt gy to m gy to drk gy		0084-2L
				10 Cont : dd, prp, Coal-ad		0084-3L
				10 Sh/Clst: m brn to gy brn		0084-4L
				10 Ca : lt or to or gy		0084-5L
3262.00						0085
				45 Sh/Clst: lt gy to m gy to drk gy		0085-1L
				45 Cont : dd, prp, Coal-ad		0085-2L
				5 Sh/Clst: m brn to gy brn		0085-3L
				5 Ca : lt or to or gy		0085-4L

Table 1 : Lithology description for well NOCS 34/4-5

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
3268.00						0086
				60 Cont : dd, prp		0086-1L
				25 Sh/Clst: lt gy to m gy to drk gy		0086-2L
				10 Sh/Clst: m brn to gy brn		0086-3L
				5 S/Sst : w to lt gy, crs, l		0086-4L
				tr Coal : blk		0086-5L
3274.00						0087
				50 Cont : dd, prp		0087-1L
				40 Sh/Clst: m gy to drk gy to brn gy		0087-2L
				5 Sh/Clst: m brn to gy brn		0087-3L
				5 S/Sst : w to lt gy, crs, l		0087-4L
3280.00						0088
				95 Sh/Clst: drk gy to dsk brn to brn blk		0088-1L
				5 Cont : dd, prp		0088-2L
3286.00						0089
				70 Sh/Clst: drk gy to dsk brn to brn blk		0089-1L
				25 Cont : dd, prp		0089-2L
				5 Sh/Clst: gy brn		0089-3L
				tr S/Sst : w to lt gy, f, l		0089-4L
3292.00						0090
	1.66			90 Sh/Clst: drk gy to dsk brn to brn blk		0090-1L
				10 Cont : dd, prp		0090-2L
				tr Sh/Clst: gy brn		0090-3L

Table 1 : Lithology description for well NOCS 34/4-5

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
3298.00						0091
			90	Sh/Clst: drk gy to dsk brn to brn blk, wx		0091-1L
			5	Sh/Clst: gy brn, calc		0091-2L
			5	Cont : dd, prp		0091-3L
3304.00						0092
			80	Sh/Clst: drk gy to dsk brn to brn blk, wx		0092-1L
			15	Cont : dd, prp		0092-2L
			5	Sh/Clst: gy brn, calc		0092-3L
3310.00						0093
	1.69		70	Sh/Clst: drk gy to dsk brn to brn blk, wx		0093-1L
			25	Cont : dd, prp		0093-2L
			5	Sh/Clst: gy brn, calc		0093-3L
3316.00						0094
			60	Sh/Clst: drk gy to dsk brn to brn blk, wx		0094-1L
			40	Cont : dd, prp		0094-2L
3322.00						0095
			85	Cont : dd, prp		0095-1L
			15	Sh/Clst: drk gy to dsk brn to brn blk, wx		0095-2L
3328.00						0096
			55	Cont : dd, prp		0096-1L
			40	Sh/Clst: m gy to drk gy to dsk brn to brn blk, wx		0096-2L
			5	S/Sst : w to lt gy, crs, l		0096-3L

Table 1 : Lithology description for well NOCS 34/4-5

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
3334.00						0097
				60 Cont : dd, prp		0097-1L
				40 Sh/Clst: m gy to drk gy to dsk brn to brn blk, wx		0097-2L
3340.00						0098
				60 Cont : dd, prp		0098-1L
				40 Sh/Clst: m gy to drk gy to dsk brn to brn blk, wx		0098-2L
3346.00						0099
				70 Cont : dd, prp		0099-1L
				30 Sh/Clst: m gy to drk gy to dsk brn to brn blk, wx		0099-2L
3352.00						0100
				90 Cont : dd, prp		0100-1L
				10 Sh/Clst: m gy to drk gy to dsk brn to brn blk, wx		0100-2L
3358.00						0101
				80 Cont : dd, prp		0101-1L
				20 Sh/Clst: m gy to drk gy to dsk brn to brn blk, wx		0101-2L
3364.00						0102
				80 Cont : dd, prp		0102-1L
				20 Sh/Clst: m gy to drk gy to dsk brn to brn blk, wx		0102-2L

Table 1 : Lithology description for well NOCS 34/4-5

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
3370.00						0103
			70	Sh/Clst: m gy to drk gy to dsk brn to brn blk, wx		0103-1L
			30	Cont : dd, prp		0103-2L
3376.00						0104
			70	Sh/Clst: m gy to drk gy to dsk brn to brn blk, wx		0104-1L
			30	Cont : dd, prp		0104-2L
3382.00						0105
	1.26		85	Sh/Clst: m gy to drk gy to dsk brn, wx, calc		0105-1L
			15	Cont : dd, prp		0105-2L
3388.00						0106
			80	Sh/Clst: m gy to drk gy to dsk brn, wx, calc		0106-1L
			20	Cont : dd, prp		0106-2L
3394.00						0107
	1.29		80	Sh/Clst: m gy to drk gy to dsk brn		0107-1L
			20	Cont : dd, prp		0107-2L
			tr	Sh/Clst: brn gy, calc		0107-3L
3400.00						0108
			90	Sh/Clst: m gy to drk gy to dsk brn		0108-1L
			10	Cont : dd, prp		0108-2L
			tr	Sh/Clst: brn gy, calc		0108-3L

Table 1 : Lithology description for well NOCS 34/4-5

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
3409.00						0109
				50 Sh/Clst: m gy to drk gy to dsk brn		0109-1L
				50 Cont : dd, prp		0109-2L
3412.00						0110
				85 Sh/Clst: m gy to drk gy to dsk brn, mic		0110-1L
				15 Cont : dd, prp		0110-2L
				tr Sh/Clst: gy brn		0110-3L
3418.00						0111
				80 Sh/Clst: m gy to drk gy to dsk brn, mic		0111-1L
				20 Cont : dd, prp, fib		0111-2L
				tr Sh/Clst: gy brn		0111-3L
3424.00	ccp					0181
	0.65	100	S/Sst	: m gy to lt brn gy, f, hd		0181-1L
3426.00	ccp					0182
	0.72	100	S/Sst	: m gy to lt brn gy, f, hd, mic		0182-1L
3428.00	ccp					0183
	0.62	100	Sltst	: m gy to brn gy, mic, cly, wx		0183-1L
3430.00	ccp					0184
				80 S/Sst : m gy to lt brn gy, f, mic		0184-1L
				20 Sh/Clst: drk gy to dsk brn		0184-2L

Table 1 : Lithology description for well NOCS 34/4-5

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
3432.00	ccp					0185
	0.53	100	Sltst	: brn gy to m gy, mic, wx		0185-1L
3434.00	ccp					0186
		100	Sltst	: brn gy to m gy, mic, wx, s		0186-1L
3436.00	ccp					0187
		100	Sh/Clst:	m gy to drk gy, lam, mic		0187-1L
3437.70	ccp					0188
	1.09	100	Sh/Clst:	m gy to drk gy, lam, mic, slt		0188-1L
3445.00						0135
		80	Sh/Clst:	m gy to drk gy to brn blk to lt brn gy to brn blk to gy brn, mic, wx		0135-1L
		10	Sh/Clst:	lt brn to m brn, carb		0135-2L
		5	Ca	: lt or to gy pi		0135-3L
		5	Coal	: blk		0135-4L
		tr	S/Sst	: w to lt gy, f, l		0135-5L
3451.00						0136
		60	Sh/Clst:	m gy to drk gy to brn blk to lt brn gy to brn blk to gy brn, mic, wx		0136-1L
		25	Coal	: blk		0136-2L
		10	Cont	: dd		0136-3L
		5	S/Sst	: w to lt gy, crs, l		0136-4L
		tr	Ca	: lt or to gy pu		0136-5L

Table 1 : Lithology description for well NOCS 34/4-5

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample	
Int Cvd	TOC%	%	Lithology description				
3457.00						0137	
		90	S/Sst	: w to lt gy, crs, l		0137-1L	
		10	Coal	: blk, wx		0137-2L	
3463.00						0138	
		80	S/Sst	: w to lt gy, crs, l		0138-1L	
		15	Sh/Clst:	drk gy to brn blk to dsk brn, wx		0138-2L	
		5	Coal	: blk		0138-3L	
3469.00						0139	
		80	S/Sst	: w to lt gy, crs, l		0139-1L	
		20	Sh/Clst:	drk gy to brn blk to dsk brn, wx		0139-2L	
		tr	Coal	: blk		0139-3L	
		tr	Cont	: prp		0139-4L	
3474.00	ccp					0189	
	1.03	90	S/Sst	: lt brn gy to brn gy, hd		0189-1L	
		10	Sh/Clst:	drk gy to brn blk, mic		0189-2L	
3476.00	ccp					0190	
		90	S/Sst	: lt brn gy to brn gy, hd, crs		0190-1L	
		10	Sh/Clst:	drk gy to brn blk, mic		0190-2L	
		tr	Coal	: blk		0190-3L	
3478.00	ccp					0191	
		50	S/Sst	: lt brn gy to brn gy to m gy, hd, crs, mic		0191-1L	
		50	Sh/Clst:	drk gy to brn blk, mic, lam		0191-2L	

Table 1 : Lithology description for well NOCS 34/4-5

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
3480.00	ccp					0192
			95	S/Sst : lt brn gy to brn gy to m gy, hd, crs, mic		0192-1L
			5	Sh/Clst: drk gy to brn blk, mic, wx		0192-2L
3481.67	ccp					0193
		0.67	100	S/Sst : lt brn gy to brn gy to m gy, hd, crs, mic		0193-1L
3484.00	ccp					0194
			100	S/Sst : lt brn gy to pl y brn, hd, crs		0194-1L
			tr	Sh/Clst: drk gy to brn blk, wx		0194-2L
3486.00	ccp					0195
			90	S/Sst : lt brn gy to pl y brn, hd, crs		0195-1L
			10	Sh/Clst: drk gy to brn blk, wx		0195-2L
3488.00	ccp					0196
		1.06	90	S/Sst : lt brn gy to pl y brn, hd, crs		0196-1L
			10	Sh/Clst: drk gy to brn blk, wx		0196-2L
3490.00	ccp					0197
			75	Sh/Clst: drk gy to brn blk, wx		0197-1L
			25	S/Sst : brn gy to pl y brn, crs, hd		0197-2L

Table 1 : Lithology description for well NOCS 34/4-5

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample	
Int Cvd	TOC%	%	Lithology description				
3492.00	ccp					0198	
		100	Sh/Clst: drk gy to brn blk, mic			0198-1L	
3494.00	ccp					0199	
	0.99	100	Sh/Clst: drk gy to brn blk, mic			0199-1L	
3496.00	ccp					0200	
		100	Sh/Clst: drk gy to brn blk, mic			0200-1L	
3498.00	ccp					0201	
		85	Sh/Clst: brn gy to drk gy, mic			0201-1L	
		15	S/Sst : lt gy, f, slt			0201-2L	
3499.90	ccp					0202	
		100	Sh/Clst: dsk brn, lam			0202-1L	
3502.00	ccp					0203	
	0.67	100	Slstst : dsk brn to brn blk, mic, hd, s			0203-1L	
3504.00	ccp					0204	
		50	Sh/Clst: drk gy to brn blk, mic			0204-1L	
		50	S/Sst : lt gy to lt brn gy, f			0204-2L	

Table 1 : Lithology description for well NOCS 34/4-5

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
3506.00	ccp					0205
				85 Sh/Clst: drk gy to brn blk, mic		0205-1L
				15 S/Sst : lt gy to lt brn gy, f		0205-2L
3508.00	ccp					0206
				85 Sh/Clst: drk gy to brn blk, mic		0206-1L
				15 S/Sst : lt gy to lt brn gy, f		0206-2L
3510.00	ccp					0207
				100 S/Sst : lt gy to lt brn gy, f, hd		0207-1L
				tr Sh/Clst: drk gy to brn blk		0207-2L
3512.00	ccp					0208
	0.80			100 S/Sst : m gy to drk gy, f, hd, mic		0208-1L
3514.00	ccp					0209
				100 Sh/Clst: dsk brn to brn blk, lam, slt		0209-1L
3516.00	ccp					0210
				90 S/Sst : lt gy to lt brn gy, f		0210-1L
				10 Sh/Clst: m gy to drk gy		0210-2L
3518.00	ccp					0211
	0.78			100 S/Sst : m gy to drk gy, f, slt		0211-1L

Table 1 : Lithology description for well NOCS 34/4-5

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample	
Int Cvd	TOC%	%	Lithology description				
3520.00	ccp					0212	
		100	Sh/Clst: m gy to drk gy, mic, slt				0212-1L
3522.00	ccp					0213	
	0.95	100	Sh/Clst: dsk brn to dsk y brn to brn blk, wx, slt				0213-1L
3524.00	ccp					0214	
		100	Sh/Clst: dsk brn to dsk y brn to brn blk, wx, slt				0214-1L
3526.00	ccp					0215	
		100	Sh/Clst: m gy to dsk y brn, wx, slt				0215-1L
3528.00	ccp					0216	
		100	Sh/Clst: m gy to brn gy, wx, slt, mic				0216-1L
3530.00	ccp					0217	
	0.72	100	Sh/Clst: m gy to brn gy to dsk y brn, wx, slt, mic				0217-1L
3532.00	ccp					0218	
		100	Sh/Clst: brn gy to dsk y brn, wx, slt, mic				0218-1L

Table 1 : Lithology description for well NOCS 34/4-5

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
3534.00	ccp					0219
			100	Sh/Clst: brn gy to dsk y brn, wx, slt, mic		0219-1L
3536.00	ccp					0220
		0.92	100	Sh/Clst: brn gy to dsk y brn, wx, slt, mic tr Ca : lt gy to lt or, s		0220-1L 0220-2L
3566.00	ccp					0221
			100	Sh/Clst: brn gy to drk gy, wx, slt, mic		0221-1L
3568.00	ccp					0222
		0.59	100	S/Sst : lt brn gy to brn gy, f, hd, mic		0222-1L
3569.50	ccp					0223
			100	Sh/Clst: dsk brn to dsk y brn to drk gy, s, wx, mic tr Coal : blk, wx		0223-1L 0223-2L
3572.00	ccp					0224
			100	S/Sst : lt gy to lt brn gy to pl y brn, f, hd, mic		0224-1L
3574.00	ccp					0225
			100	Sh/Clst: dsk brn to dsk y brn, wx		0225-1L

Table 1 : Lithology description for well NOCS 34/4-5

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
3576.00	ccp					0226
	1.86	100	S/Sst	: lt brn gy to pl y brn, f, hd		0226-1L
			tr Sh/Clst:	drk gy to brn blk, mic		0226-2L
3578.00	ccp					0227
		100	S/Sst	: lt brn gy to pl y brn to drk y		0227-1L
				brn, crs, hd		
3580.00	ccp					0228
		100	Sh/Clst:	drk gy to brn blk, wx, mic		0228-1L
3582.00	ccp					0229
	0.41	100	S/Sst	: lt brn gy to lt or, crs, hd		0229-1L
3584.00	ccp					0230
		85	S/Sst	: lt gy to lt brn gy to pl y brn,		0230-1L
				crs, hd		
		15	Coal	: blk, wx		0230-2L
3586.00	ccp					0231
	0.62	100	S/Sst	: w to lt brn gy to pl y brn, crs,		0231-1L
				hd		
3588.00	ccp					0232
		100	Sh/Clst:	drk gy to brn blk, slt		0232-1L

Table 1 : Lithology description for well NOCS 34/4-5

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology	description	
3590.00	ccp					0233
			100	Sh/Clst: drk gy to brn blk, slt		0233-1L
				tr Coal : blk		0233-2L
3592.00	ccp					0234
		4.94	100	Sh/Clst: drk gy to brn blk, mic		0234-1L
				tr Coal : blk		0234-2L
3594.00	ccp					0235
			95	S/Sst : lt gy to pl y brn, crs, hd, pyr		0235-1L
			5	Sh/Clst: drk gy to brn blk, mic		0235-2L
3596.00	ccp					0236
			95	S/Sst : lt gy to pl y brn, crs, hd		0236-1L
			5	Coal : blk, wx		0236-2L
3598.00	ccp					0237
		0.56	100	S/Sst : lt gy to pl y brn, crs, hd		0237-1L
3600.00	ccp					0238
			100	S/Sst : lt gy to lt brn gy to pl y brn, crs, hd		0238-1L
3602.00	ccp					0239
		1.01	100	S/Sst : lt gy to lt brn gy to pl y brn, crs, hd		0239-1L

Table 1 : Lithology description for well NOCS 34/4-5

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample	
Int Cvd	TOC%	%	Lithology description				
3604.00	ccp					0240	
		100	Sh/Clst: dsk y brn to brn blk, wx				0240-1L
3606.00	ccp					0241	
		100	Sh/Clst: lt bl gy to gn gy, hd, slt, calc, glauc				0241-1L
3608.00	ccp					0242	
	0.11	100	Sh/Clst: gn gy to lt ol gy, hd, slt, calc				0242-1L
3610.00	ccp					0243	
		100	Sh/Clst: gn gy to lt ol gy, hd, slt, calc, glauc, wx				0243-1L
3612.00	ccp					0244	
		100	Sh/Clst: gn gy to lt ol gy, hd, slt, calc, glauc, wx				0244-1L
3614.00	ccp					0245	
		100	Sh/Clst: gn gy to lt ol gy, hd, slt, calc, glauc, wx				0245-1L
3616.00	ccp					0246	
	0.23	100	Sh/Clst: gy brn to lt ol gy, hd, slt, calc, wx				0246-1L

Table 1 : Lithology description for well NOCS 34/4-5

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
3618.00	ccp					0247
			100	Sltst : m gy, s, hd, mic		0247-1L
3620.00	ccp					0248
		0.12	100	Sh/Clst: lt ol gy to gn gy, slt, hd, wx, calc, glauc		0248-1L
3622.00	ccp					0249
			100	Sh/Clst: gy brn, slt, hd, wx, calc		0249-1L
3624.00	ccp					0250
		0.01	100	Sltst : gy brn, mic, hd, calc		0250-1L
3626.00	ccp					0251
			100	S/Sst : lt gy to lt brn gy, f, hd, calc		0251-1L
3628.00	ccp					0252
			100	Sh/Clst: gy brn, hd, calc, slt		0252-1L
3630.00	ccp					0253
		0.50	100	S/Sst : lt gy to lt brn gy to pl y brn, crs, hd, mic		0253-1L

Table 1 : Lithology description for well NOCS 34/4-5

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int Cvd	TOC%	%	Lithology description			
3632.00	ccp					0254
		100	S/Sst	: lt gy to lt brn gy to pl y brn, f, hd, mic		0254-1L
3634.00	ccp					0255
	0.06	100	S/Sst	: w to lt gy, f, hd		0255-1L
			tr Sh/Clst:	m gn gy, glauc		0255-2L
3636.00	ccp					0256
		100	Sh/Clst:	drk ol gy, slt, calc, glauc, wx		0256-1L
3638.00	ccp					0257
	0.03	100	Sltst	: gn gy to lt gy, hd		0257-1L
3640.00	ccp					0258
		100	Sh/Clst:	drk ol gy		0258-1L
3642.00	ccp					0259
	0.02	100	S/Sst	: w to gy pi, f, hd, mic, calc		0259-1L
3644.00	ccp					0260
		100	S/Sst	: w to lt gy to gy pi, f, hd, mic		0260-1L
			tr Ca	: drk gy, s		0260-2L

Table 1 : Lithology description for well NOCS 34/4-5

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
3646.00	ccp					0261
			100	S/Sst : lt gy to lt brn gy to brn gy, f, hd, mic		0261-1L
3648.00	ccp					0262
		0.03	100	S/Sst : lt gy to lt brn gy to pl y brn, f, hd, mic, calc		0262-1L
3652.00						0140
			85	Sh/Clst: lt gy to ol gy to brn blk, wx		0140-1L
			10	S/Sst : w to lt gy, crs, l		0140-2L
			5	Cont : prp, dd		0140-3L
			tr	Ca : w to lt or		0140-4L
3661.00						0141
			50	Sh/Clst: lt gy to ol gy to brn blk, wx		0141-1L
			30	Cont : dd, prp		0141-2L
			15	Sh/Clst: m brn		0141-3L
			5	S/Sst : w to lt gy, crs, l		0141-4L
3667.00						0142
			90	S/Sst : lt brn gy to gy pi to lt gy, f, mic, crs, l		0142-1L
			10	Sh/Clst: drk gy to brn blk		0142-2L
			tr	Cont : dd, prp		0142-3L
3673.00						0143
			95	S/Sst : lt brn gy to gy pi to lt gy, f, mic, crs, l		0143-1L
			5	Sh/Clst: drk gy to brn blk		0143-2L
			tr	Cont : dd, prp		0143-3L

Table 1 : Lithology description for well NOCS 34/4-5

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
3679.00						0144
				90 S/Sst : lt brn gy to gy pi to lt gy, f, mic, crs, l		0144-1L
				10 Sh/Clst: m brn to drk gy to brn blk, calc		0144-2L
3685.00						0145
				90 S/Sst : lt brn gy to gy pi to lt gy, f, mic, crs, l		0145-1L
				10 Sh/Clst: m brn to drk gy to brn blk, calc		0145-2L
3691.00						0146
				70 S/Sst : lt brn gy to gy pi to lt gy, f, mic		0146-1L
				30 Sh/Clst: m brn to drk gy to brn blk, calc		0146-2L
3697.00						0147
				90 S/Sst : lt brn gy to gy pi to lt gy, f, mic, crs		0147-1L
				10 Sh/Clst: m brn to drk gy to brn blk, calc		0147-2L
3706.00						0148
				90 S/Sst : lt brn gy to gy pi to lt gy, f, mic, crs		0148-1L
				10 Sh/Clst: m brn to drk gy to brn blk, calc		0148-2L
				tr Cont : prp		0148-3L
3709.00						0149
	0.09			95 S/Sst : lt brn gy to gy pi to lt gy, f, mic, crs, l		0149-1L
				5 Sh/Clst: m brn to drk gy to brn blk, calc		0149-2L

Table 1 : Lithology description for well NOCS 34/4-5

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
3715.00						0150
			90	S/Sst : lt brn gy to gy pi to lt gy, f, mic, crs, l		0150-1L
			10	Sh/Clst: m brn to drk gy to brn blk		0150-2L
			tr	Cont : prp		0150-3L
3721.00						0151
			85	S/Sst : lt brn gy to gy pi to lt gy, f, mic, crs, l		0151-1L
			10	Sh/Clst: m brn to drk gy to brn blk		0151-2L
			5	Cont : prp, dd		0151-3L
3727.00						0152
			80	S/Sst : pl brn to gy pi to lt gy, f, mic, crs, l		0152-1L
			10	Sh/Clst: m brn to drk gy to brn blk		0152-2L
			10	Coal : blk		0152-3L
			tr	Ca : lt or to or gy		0152-4L
3733.00						0153
			80	S/Sst : pl brn to gy pi to lt gy, f, mic, crs, l		0153-1L
			15	Coal : blk		0153-2L
			5	Sh/Clst: drk gy to brn blk		0153-3L
			tr	Ca : lt or to brn w, fos		0153-4L
3739.00						0154
			60	S/Sst : pl brn to gy pi to lt gy, f, mic, crs, l		0154-1L
			35	Coal : blk		0154-2L
			5	Sh/Clst: drk gy to brn blk		0154-3L
			tr	Ca : lt or to brn w, fos		0154-4L

Table 1 : Lithology description for well NOCS 34/4-5

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
3745.00						0155
			80	S/Sst : pl brn to gy pi to lt gy, f, mic, crs, l		0155-1L
			10	Coal : blk		0155-2L
			10	Sh/Clst: drk gy to brn blk		0155-3L
			tr	Ca : lt or to brn w, fos		0155-4L
3754.00						0156
			95	S/Sst : pl brn to gy pi to lt gy, f, mic, crs, l		0156-1L
			5	Sh/Clst: drk gy to brn blk		0156-2L
			tr	Ca : lt or to brn w, fos		0156-3L
3757.00						0157
			95	S/Sst : pl brn to gy pi to lt gy, f, mic, crs, l		0157-1L
			5	Sh/Clst: drk gy to brn blk		0157-2L
			tr	Ca : lt or to brn w, fos		0157-3L
			tr	Coal : blk, wx		0157-4L
3763.00						0158
			95	S/Sst : pl brn to gy pi to lt gy, f, mic		0158-1L
			5	Sh/Clst: drk gy to brn blk to gy brn to lt brn gn, glauc		0158-2L
			tr	Ca : lt or to brn w, fos		0158-3L
			tr	Coal : blk, wx		0158-4L
3778.00						0159
			80	S/Sst : pl brn to gy pi to lt gy, f, mic		0159-1L
			15	Sh/Clst: drk gy to brn blk to gy brn to lt brn gn, glauc		0159-2L
			5	Cont : prp, dd		0159-3L

Table 1 : Lithology description for well NOCS 34/4-5

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
3790.00						0160
				90 S/Sst : pl brn to gy pi to lt gy, f, mic		0160-1L
				10 Sh/Clst: drk gy to brn blk to gy brn to lt brn gn, glauc		0160-2L
3796.00						0161
				90 S/Sst : pl brn to gy pi to lt gy, f, mic		0161-1L
				10 Sh/Clst: drk gy to brn blk to gy brn to lt ol gy		0161-2L
				tr Cont : prp, dd		0161-3L
3802.00						0162
	0.12			70 S/Sst : pl brn to gy pi to lt gy, f, mic		0162-1L
				30 Sh/Clst: drk gy to brn blk to gy brn to lt ol gy		0162-2L
3808.00						0163
				70 S/Sst : pl brn to gy pi to lt gy, f, mic, crs, l		0163-1L
				30 Sh/Clst: drk gy to brn blk to gy brn to lt ol gy		0163-2L
3814.00						0164
				50 S/Sst : lt gy to gy pi to w, f, crs, l		0164-1L
				50 Sh/Clst: brn blk to pl brn to m brn to m ol brn, glauc		0164-2L

Table 1 : Lithology description for well NOCS 34/4-5

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
3820.00						0165
			40	S/Sst	: lt gy to gy pi to w, f, crs, l	0165-1L
			40	Sh/Clst:	brn blk to pl brn to m brn to m ol brn, glauc	0165-2L
			20	Cont	: dd, prp	0165-3L
3829.00						0166
			95	S/Sst	: lt gy to gy pi to w, f, crs, l, mic	0166-1L
			5	Sh/Clst:	brn blk to pl brn to m brn to m ol brn, glauc	0166-2L
3832.00						0167
			95	S/Sst	: lt gy to gy pi to w, f, crs, l, mic	0167-1L
			5	Sh/Clst:	brn blk to pl brn to m brn to m ol brn, glauc	0167-2L
3841.00						0168
			95	S/Sst	: lt gy to gy pi to w, f, crs, l, mic	0168-1L
			5	Sh/Clst:	brn blk to pl brn to m brn	0168-2L
3844.00						0169
			95	S/Sst	: lt gy to gy pi to w, f, crs, l, mic	0169-1L
			5	Sh/Clst:	brn blk to pl brn to m brn	0169-2L

Table 1 : Lithology description for well NOCS 34/4-5

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
3850.00						0170
			95	S/Sst : lt gy to gy pi to w, f, crs, l, mic		0170-1L
			5	Sh/Clst: brn blk to pl brn to m brn		0170-2L
			tr	Cont : prp		0170-3L
3856.00						0171
			95	S/Sst : lt gy to gy pi to w, f, crs, l, mic		0171-1L
			5	Sh/Clst: brn blk to pl brn to m brn		0171-2L
			tr	Cont : prp		0171-3L
3862.00						0172
			100	S/Sst : lt gy to gy pi to w, crs, l		0172-1L
			tr	Sh/Clst: brn blk to pl brn to m brn		0172-2L
3868.00						0173
			95	S/Sst : lt gy to gy pi to w, crs, l, f		0173-1L
			5	Sh/Clst: brn blk to pl brn to m brn		0173-2L
			tr	Cont : prp		0173-3L
3874.00						0174
			95	S/Sst : lt gy to gy pi to w, crs, l, f		0174-1L
			5	Sh/Clst: brn blk to pl brn to m brn		0174-2L
			tr	Cont : prp		0174-3L
3880.00						0175
			95	S/Sst : lt gy to gy pi to w, crs, l, f		0175-1L
			5	Sh/Clst: drk gy to brn blk to m brn to pl brn, calc		0175-2L
			tr	Cont : prp		0175-3L

Table 1 : Lithology description for well NOCS 34/4-5

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample	
Int Cvd	TOC%	%	Lithology description				
3886.00						0176	
		85	S/Sst	: lt gy to gy pi to w, crs, l, f		0176-1L	
		10	Sh/Clst:	drk gy to brn blk to m brn to pl brn, calc		0176-2L	
		5	Cont	: prp		0176-3L	
3892.00						0177	
		90	S/Sst	: lt gy to gy pi to w, crs, l, f		0177-1L	
		10	Sh/Clst:	drk gy to brn blk to m brn to pl brn, calc		0177-2L	
		tr	Cont	: prp		0177-3L	
3898.00						0178	
	0.22	90	S/Sst	: lt gy to gy pi to w, crs, l, f		0178-1L	
		10	Sh/Clst:	drk gy to brn blk to m brn to pl brn, calc		0178-2L	
		tr	Cont	: prp		0178-3L	
3904.00						0179	
		90	S/Sst	: lt gy to gy pi to w, crs, l, f		0179-1L	
		10	Sh/Clst:	drk gy to brn blk to m brn to pl brn, wx		0179-2L	
		tr	Cont	: prp		0179-3L	
3910.00						0180	
		70	S/Sst	: lt gy to gy pi to w, crs, l, f		0180-1L	
		30	Sh/Clst:	drk gy to brn blk to m brn to pl brn to m ol brn, wx, glauc		0180-2L	
		tr	Cont	: prp		0180-3L	

Table 2 : Rock-Eval table for well NOCS 34/4-5

Depth unit of measure: m

Depth	Typ	Lithology	S1	S2	S3	S2/S3	TOC	HI	OI	PP	PI	Tmax	Sample
1030.00	cut	Ca : lt or to or gy to drk gy	0.05	0.03	1.40	0.02	0.04	75	3500	0.1	0.63	-	0118-2L
1390.00	cut	Sh/Clst: lt brn gy to pl y brn	0.35	1.69	0.94	1.80	1.06	159	89	2.0	0.17	408	0130-1L
1720.00	cut	Sh/Clst: y gy to lt ol gy	0.01	0.07	0.32	0.22	0.18	39	178	0.1	0.13	409	0027-1L
2050.00	cut	Sh/Clst: lt gy to m gy	0.06	0.26	0.91	0.29	0.53	49	172	0.3	0.19	422	0038-1L
2380.00	cut	Sh/Clst: lt gy to m gy to lt brn gy	0.13	0.19	0.22	0.86	0.38	50	58	0.3	0.41	409	0049-1L
3040.00	cut	Sh/Clst: lt gy to m gy to lt brn gy	0.40	0.52	0.21	2.48	0.62	84	34	0.9	0.43	426	0071-1L
3256.00	cut	Sh/Clst: lt gy to m gy to drk gy	0.19	0.58	0.03	19.33	0.62	94	5	0.8	0.25	433	0084-2L
3292.00	cut	Sh/Clst: drk gy to dsk brn to brn blk	0.78	2.23	0.32	6.97	1.66	134	19	3.0	0.26	440	0090-1L
3310.00	cut	Sh/Clst: drk gy to dsk brn to brn blk	0.57	2.54	0.42	6.05	1.69	150	25	3.1	0.18	436	0093-1L
3382.00	cut	Sh/Clst: m gy to drk gy to dsk brn	0.26	1.26	0.44	2.86	1.26	100	35	1.5	0.17	443	0105-1L
3394.00	cut	Sh/Clst: m gy to drk gy to dsk brn	0.37	1.43	0.16	8.94	1.29	111	12	1.8	0.21	443	0107-1L
3424.00	ccp	S/Sst : m gy to lt brn gy	2.02	1.62	0.27	6.00	0.65	249	42	3.6	0.55	438	0181-1L
3426.00	ccp	S/Sst : m gy to lt brn gy	1.92	1.67	0.31	5.39	0.72	232	43	3.6	0.53	440	0182-1L

Table 2 : Rock-Eval table for well NOCS 34/4-5

Depth unit of measure: m

Depth	Typ	Lithology	S1	S2	S3	S2/S3	TOC	HI	OI	PP	PI	Tmax	Sample
3428.00	ccp	Sltst : m gy to brn gy	1.02	1.21	0.25	4.84	0.62	195	40	2.2	0.46	443	0183-1L
3432.00	ccp	Sltst : brn gy to m gy	0.50	0.86	0.12	7.17	0.53	162	23	1.4	0.37	442	0185-1L
3437.70	ccp	Sh/Clst: m gy to drk gy	0.81	2.43	0.22	11.05	1.09	223	20	3.2	0.25	444	0188-1L
3474.00	ccp	S/Sst : lt brn gy to brn gy	3.64	2.41	0.19	12.68	1.03	234	18	6.1	0.60	433	0189-1L
3481.67	ccp	S/Sst : lt brn gy to brn gy to m gy	3.64	1.56	0.23	6.78	0.67	233	34	5.2	0.70	424	0193-1L
3488.00	ccp	S/Sst : lt brn gy to pl y brn	1.11	1.50	0.20	7.50	1.06	142	19	2.6	0.43	442	0196-1L
3494.00	ccp	Sh/Clst: drk gy to brn blk	0.65	2.10	0.29	7.24	0.99	212	29	2.8	0.24	446	0199-1L
3502.00	ccp	Sltst : dsk brn to brn blk	1.58	1.54	0.41	3.76	0.67	230	61	3.1	0.51	445	0203-1L
3512.00	ccp	S/Sst : m gy to drk gy	0.76	1.14	0.15	7.60	0.80	143	19	1.9	0.40	443	0208-1L
3518.00	ccp	S/Sst : m gy to drk gy	0.34	1.59	0.12	13.25	0.78	204	15	1.9	0.18	444	0211-1L
3522.00	ccp	Sh/Clst: dsk brn to dsk y brn to brn blk	0.37	1.79	0.15	11.93	0.95	188	16	2.2	0.17	445	0213-1L
3530.00	ccp	Sh/Clst: m gy to brn gy to dsk y brn	0.21	0.98	0.14	7.00	0.72	136	19	1.2	0.18	446	0217-1L
3536.00	ccp	Sh/Clst: brn gy to dsk y brn	0.36	1.27	0.17	7.47	0.92	138	18	1.6	0.22	445	0220-1L

Depth unit of measure: m

Depth	Typ	Lithology	S1	S2	S3	S2/S3	TOC	HI	OI	PP	PI	Tmax	Sample
3568.00	ccp	S/Sst : lt brn gy to brn gy	3.65	0.91	0.46	1.98	0.59	154	78	4.6	0.80	359	0222-1L
3576.00	ccp	S/Sst : lt brn gy to pl y brn	2.09	3.31	0.54	6.13	1.86	178	29	5.4	0.39	447	0226-1L
3582.00	ccp	S/Sst : lt brn gy to lt or	2.78	1.01	0.19	5.32	0.41	246	46	3.8	0.73	420	0229-1L
3586.00	ccp	S/Sst : w to lt brn gy to pl y brn	4.37	1.44	0.23	6.26	0.62	232	37	5.8	0.75	425	0231-1L
3592.00	ccp	Sh/Clst: drk gy to brn blk	1.98	14.39	0.51	28.22	4.94	291	10	16.4	0.12	445	0234-1L
3598.00	ccp	S/Sst : lt gy to pl y brn	3.11	1.60	0.34	4.71	0.56	286	61	4.7	0.66	428	0237-1L
3602.00	ccp	S/Sst : lt gy to lt brn gy to pl y brn	4.11	2.07	0.44	4.70	1.01	205	44	6.2	0.67	430	0239-1L
3608.00	ccp	Sh/Clst: gn gy to lt ol gy	0.08	0.01	0.70	0.01	0.11	9	636	0.1	0.89	434	0242-1L
3616.00	ccp	Sh/Clst: gy brn to lt ol gy	0.07	0.08	0.58	0.14	0.23	35	252	0.2	0.47	381	0246-1L
3620.00	ccp	Sh/Clst: lt ol gy to gn gy	0.08	0.01	0.60	0.02	0.12	8	500	0.1	0.89	-	0248-1L
3624.00	ccp	Sltst : gy brn	0.03	-	0.15	-	0.01	-	1500	-	1.00	-	0250-1L
3630.00	ccp	S/Sst : lt gy to lt brn gy to pl y brn	2.62	1.32	0.24	5.50	0.50	264	48	3.9	0.66	431	0253-1L
3634.00	ccp	S/Sst : w to lt gy	0.14	0.24	0.25	0.96	0.06	400	417	0.4	0.37	427	0255-1L

Table 2 : Rock-Eval table for well NOCS 34/4-5

Depth unit of measure: m

Depth	Typ	Lithology	S1	S2	S3	S2/S3	TOC	HI	OI	PP	PI	Tmax	Sample
3638.00	ccp	Sltst : gn gy to lt gy	0.05	-	0.59	-	0.03	-	1967	0.1	1.00	-	0257-1L
3642.00	ccp	S/Sst : w to gy pi	0.05	-	-	-	0.02	-	-	0.1	1.00	-	0259-1L
3648.00	ccp	S/Sst : lt gy to lt brn gy to pl y brn	0.04	-	0.07	-	0.03	-	233	-	1.00	-	0262-1L
3709.00	cut	S/Sst : lt brn gy to gy pi to lt gy	0.10	0.05	0.04	1.25	0.09	56	44	0.2	0.67	346	0149-1L
3802.00	cut	S/Sst : pl brn to gy pi to lt gy	0.11	0.05	0.12	0.42	0.12	42	100	0.2	0.69	323	0162-1L
3898.00	cut	S/Sst : lt gy to gy pi to w	0.26	0.21	0.06	3.50	0.22	95	27	0.5	0.55	431	0178-1L

Table 3 : Pyrolysis GC Data (S2 peak) as Percentage of Total Area for Well NOCS 34/4-5

Depth unit of measure: m

Depth	Typ	Lithology	C1	C2-C5	C6-C14	C15+	S2 from Rock-Eval	Sample
1390.00	cut	Sh/Clst: lt brn gy to pl y brn	3.99	35.07	50.46	10.49	1.69	0130-1L
3040.00	cut	Sh/Clst: lt gy to m gy to lt brn gy	6.77	36.29	50.64	6.29	0.52	0071-1L
3256.00	cut	Sh/Clst: lt gy to m gy to drk gy	7.06	33.43	51.37	8.14	0.58	0084-2L
3310.00	cut	Sh/Clst: drk gy to dsk brn to brn blk	5.37	20.30	42.00	32.33	2.54	0093-1L
3424.00	ccp	S/Sst : m gy to lt brn gy	2.94	14.49	32.96	49.61	1.62	0181-1L
3428.00	ccp	Sltst : m gy to brn gy	3.43	8.49	41.98	46.11	1.21	0183-1L
3437.70	ccp	Sh/Clst: m gy to drk gy	5.08	17.33	35.03	42.55	2.43	0188-1L
3474.00	ccp	S/Sst : lt brn gy to brn gy	3.94	14.63	29.86	51.58	2.41	0189-1L
3488.00	ccp	S/Sst : lt brn gy to pl y brn	5.28	20.05	36.54	38.14	1.50	0196-1L
3502.00	ccp	Sltst : dsk brn to brn blk	2.73	12.19	30.88	54.20	1.54	0203-1L
3518.00	ccp	S/Sst : m gy to drk gy	4.27	17.05	40.12	38.57	1.59	0211-1L
3536.00	ccp	Sh/Clst: brn gy to dsk y brn	5.87	20.78	41.65	31.70	1.27	0220-1L
3568.00	ccp	S/Sst : lt brn gy to brn gy	2.12	12.96	35.32	49.60	0.91	0222-1L

Table 3 : Pyrolysis GC Data (S2 peak) as Percentage of Total Area for Well NOCS 34/4-5

Depth unit of measure: m

Depth	Typ	Lithology	C1	C2-C5	C6-C14	C15+	S2 from Rock-Eval	Sample
3582.00	ccp	S/Sst : lt brn gy to lt or	4.37	27.53	48.65	19.45	1.01	0229-1L
3592.00	ccp	Sh/Clst: drk gy to brn blk	12.59	28.82	38.87	19.73	14.39	0234-1L
3602.00	ccp	S/Sst : lt gy to lt brn gy to pl y brn	6.88	29.21	38.12	25.80	2.07	0239-1L
3630.00	ccp	S/Sst : lt gy to lt brn gy to pl y brn	5.24	31.51	48.28	14.97	1.32	0253-1L
3898.00	cut	S/Sst : lt gy to gy pi to w	9.39	29.08	44.43	17.10	0.21	0178-1L

Table 4 a: Weight of EOM and Chromatographic Fraction for well NOCS 34/4-5

Depth unit of measure: m

Depth	Typ	Lithology	Rock Extracted (g)	EOM (mg)	Sat (mg)	Aro (mg)	Asph (mg)	NSO (mg)	HC (mg)	Non-HC (mg)	TOC(e) (%)	Sample
3428.00	com	Composite sample - see table 4 e	10.3	15.7	10.1	2.3	0.4	2.9	12.4	3.3	0.66	0263-0B
3488.00	com	Composite sample - see table 4 e	10.2	29.4	18.0	4.7	1.8	4.9	22.7	6.7	0.92	0264-0B
3518.00	com	Composite sample - see table 4 e	10.8	4.6	2.1	0.7	1.1	0.7	2.8	1.8	0.79	0265-0B
3536.00	com	Composite sample - see table 4 e	9.6	3.8	1.5	0.3	1.1	0.9	1.8	2.0	0.86	0266-0B
3576.00	com	Composite sample - see table 4 e	9.4	24.4	15.7	4.1	1.7	2.9	19.8	4.6	1.22	0267-0B
3586.00	com	Composite sample - see table 4 e	5.9	7.0	4.6	0.8	0.6	1.0	5.4	1.6	0.52	0268-0B
3592.00	ccp	Sh/Clst: drk gy to brn blk	8.9	15.7	2.7	3.1	8.0	1.9	5.8	9.9	4.94	0234-1L
3602.00	com	Composite sample - see table 4 e	10.1	49.7	31.2	8.2	4.4	5.9	39.4	10.3	0.79	0269-0B
3630.00	ccp	S/Sst : lt gy to lt brn gy to pl y brn	10.1	30.5	21.7	4.2	0.4	4.2	25.9	4.6	0.50	0253-1L

Table 4 b: Concentration of EOM and Chromatographic Fraction (wt ppm rock) for well NOCS 34/4-5

Depth unit of measure: m

Depth	Typ	Lithology	EOM	Sat	Aro	Asph	NSO	HC	Non-HC	Sample
3428.00	com	Composite sample - see table 4 e	1522	979	223	38	281	1202	320	0263-0B
3488.00	com	Composite sample - see table 4 e	2885	1766	461	176	480	2227	657	0264-0B
3518.00	com	Composite sample - see table 4 e	424	193	64	101	64	258	166	0265-0B
3536.00	com	Composite sample - see table 4 e	395	156	31	114	93	187	208	0266-0B
3576.00	com	Composite sample - see table 4 e	2604	1675	437	181	309	2113	490	0267-0B
3586.00	com	Composite sample - see table 4 e	1182	777	135	101	168	912	270	0268-0B
3592.00	ccp	Sh/Clst: drk gy to brn blk	1766	303	348	899	213	652	1113	0234-1L
3602.00	com	Composite sample - see table 4 e	4930	3095	813	436	585	3908	1021	0269-0B
3630.00	ccp	S/Sst : lt gy to lt brn gy to pl y brn	3007	2140	414	39	414	2554	453	0253-1L

Table 4 c: Concentration of EOM and Chromatographic Fraction (mg/g TOC(e)) for well NOCS 34/4-5

Depth unit of measure: m

Depth	Typ	Lithology	EOM	Sat	Aro	Asph	NSO	HC	Non-HC	Sample
3428.00	com	Composite sample - see table 4 e	230.73	148.43	33.80	5.88	42.62	182.23	48.50	0263-0B
3488.00	com	Composite sample - see table 4 e	313.61	192.00	50.13	19.20	52.27	242.14	71.47	0264-0B
3518.00	com	Composite sample - see table 4 e	53.77	24.55	8.18	12.86	8.18	32.73	21.04	0265-0B
3536.00	com	Composite sample - see table 4 e	45.98	18.15	3.63	13.31	10.89	21.78	24.20	0266-0B
3576.00	com	Composite sample - see table 4 e	213.45	137.34	35.87	14.87	25.37	173.21	40.24	0267-0B
3586.00	com	Composite sample - see table 4 e	227.39	149.43	25.99	19.49	32.48	175.42	51.98	0268-0B
3592.00	ccp	Sh/Clst: drk gy to brn blk	35.75	6.15	7.06	18.22	4.33	13.21	22.54	0234-1L
3602.00	com	Composite sample - see table 4 e	624.12	391.80	102.97	55.25	74.09	494.78	129.34	0269-0B
3630.00	ccp	S/Sst : lt gy to lt brn gy to pl y brn	601.58	428.01	82.84	7.89	82.84	510.85	90.73	0253-1L

Table 4 d: Composition of material extracted from the rock (%) for well NOCS 34/4-5

Depth unit of measure: m

Depth	Typ	Lithology	Sat	Aro	Asph	NSO	HC	Non-HC	Sat	HC	Sample
			EOM	EOM	EOM	EOM	EOM	EOM	EOM	Aro	
3428.00	com	Composite sample - see table 4 e	64.33	14.65	2.55	18.47	78.98	21.02	439.13	375.76	0263-0B
3488.00	com	Composite sample - see table 4 e	61.22	15.99	6.12	16.67	77.21	22.79	382.98	338.81	0264-0B
3518.00	com	Composite sample - see table 4 e	45.65	15.22	23.91	15.22	60.87	39.13	300.00	155.56	0265-0B
3536.00	com	Composite sample - see table 4 e	39.47	7.89	28.95	23.68	47.37	52.63	500.00	90.00	0266-0B
3576.00	com	Composite sample - see table 4 e	64.34	16.80	6.97	11.89	81.15	18.85	382.93	430.43	0267-0B
3586.00	com	Composite sample - see table 4 e	65.71	11.43	8.57	14.29	77.14	22.86	575.00	337.50	0268-0B
3592.00	ccp	Sh/Clst: drk gy to brn blk	17.20	19.75	50.96	12.10	36.94	63.06	87.10	58.59	0234-1L
3602.00	com	Composite sample - see table 4 e	62.78	16.50	8.85	11.87	79.28	20.72	380.49	382.52	0269-0B
3630.00	ccp	S/Sst : lt gy to lt brn gy to pl y brn	71.15	13.77	1.31	13.77	84.92	15.08	516.67	563.04	0253-1L

Depth unit of measure: m

NOTE: Depths shown in tables 4 a to d correspond to the composite samples' lower depth.

Upper depth	Lower depth	Typ	Sample	Depth	Typ	Lithology	Sample
3424.00	3428.00	com	0263-0B is composed of:	3424.00	ccp	S/Sst : m gy to lt brn gy, f, hd	0181-1L
				3426.00	ccp	S/Sst : m gy to lt brn gy, f, hd, mic	0182-1L
				3428.00	ccp	Sltst : m gy to brn gy, mic, cly, wx	0183-1L
3474.00	3488.00	com	0264-0B is composed of:	3474.00	ccp	S/Sst : lt brn gy to brn gy, hd	0189-1L
				3481.67	ccp	S/Sst : lt brn gy to brn gy to m gy, hd, crs, mic	0193-1L
				3488.00	ccp	S/Sst : lt brn gy to pl y brn, hd, crs	0196-1L
3568.00	3576.00	com	0267-0B is composed of:	3568.00	ccp	S/Sst : lt brn gy to brn gy, f, hd, mic	0222-1L
				3576.00	ccp	S/Sst : lt brn gy to pl y brn, f, hd	0226-1L
3582.00	3586.00	com	0268-0B is composed of:	3582.00	ccp	S/Sst : lt brn gy to lt or, crs, hd	0229-1L
				3586.00	ccp	S/Sst : w to lt brn gy to pl y brn, crs, hd	0231-1L
3512.00	3518.00	com	0265-0B is composed of:	3512.00	ccp	S/Sst : m gy to drk gy, f, hd, mic	0208-1L
				3518.00	ccp	S/Sst : m gy to drk gy, f, slt	0211-1L
3522.00	3536.00	com	0266-0B is composed of:	3522.00	ccp	Sh/Clst: dsk brn to dsk y brn to brn blk, wx, slt	0213-1L
				3530.00	ccp	Sh/Clst: m gy to brn gy to dsk y brn, wx, slt, mic	0217-1L
				3536.00	ccp	Sh/Clst: brn gy to dsk y brn, wx, slt, mic	0220-1L

Depth unit of measure: m

NOTE: Depths shown in tables 4 a to d correspond to the composite samples' lower depth.

<u>Upper depth</u>	<u>Lower depth</u>	<u>Typ</u>	<u>Sample</u>	<u>Depth</u>	<u>Typ</u>	<u>Lithology</u>	<u>Sample</u>
3598.00	3602.00	com	0269-0B is composed of:	3598.00	ccp	S/Sst : lt gy to pl y brn, crs, hd	0237-1L
				3602.00	ccp	S/Sst : lt gy to lt brn gy to pl y brn, crs, hd	0239-1L

Table 5 : Saturated Hydrocarbon Ratios for well NOCS 34/4-5

Depth unit of measure: m

Depth	Typ	Lithology	Pristane	Pristane	Pristane + Phytane	Phytane	CPI	Sample
			nC17	Phytane	nC17 + nC18	nC18		
3428.00	com	bulk	0.72	1.48	0.61	0.50	1.09	0263-0B
3488.00	com	bulk	0.95	1.33	0.79	0.64	1.05	0264-0B
3518.00	com	bulk	0.63	2.02	0.49	0.34	1.22	0265-0B
3536.00	com	bulk	0.54	3.13	0.37	0.19	1.19	0266-0B
3576.00	com	bulk	0.87	1.41	0.73	0.59	1.04	0267-0B
3586.00	com	bulk	0.97	1.27	0.80	0.65	1.07	0268-0B
3592.00	ccp	Sh/Clst: drk gy to brn blk	0.86	2.84	0.62	0.35	1.13	0234-1L
3602.00	com	bulk	0.98	1.37	0.80	0.64	1.03	0269-0B
3630.00	ccp	S/Sst : lt gy to lt brn gy to pl y brn	1.50	1.01	1.19	0.98	1.09	0253-1L

Table 6 : Aromatic Hydrocarbon Ratios for well NOCS 34/4-5

Depth unit of measure: m

Depth	Typ	Lithology	MNR	DMNR	BPhR	2/1MP	MPI1	MPI2	Rc	DBT/P	4/1MDBT	(3+2) /1MDBT	Sample
3428.00	com	bulk	0.96	1.42	0.14	0.80	0.63	0.71	0.78	0.15	9.91	0.92	0263-0B
3488.00	com	bulk	0.81	1.53	0.12	0.74	0.60	0.67	0.76	0.13	9.37	1.12	0264-0B
3518.00	com	bulk	0.63	1.50	0.10	0.82	0.62	0.74	0.77	0.17	6.95	0.94	0265-0B
3536.00	com	bulk	0.92	1.80	0.16	0.96	0.62	0.74	0.77	0.12	2.61	1.02	0266-0B
3576.00	com	bulk	0.97	1.85	0.14	0.77	0.58	0.70	0.75	0.17	7.92	1.01	0267-0B
3586.00	com	bulk	-	0.83	-	0.77	0.61	0.74	0.77	0.16	3.58	0.84	0268-0B
3592.00	ccp	Sh/Clst: drk gy to brn blk	1.00	1.69	0.22	0.78	0.59	0.71	0.75	0.22	9.04	1.07	0234-1L
3602.00	com	bulk	0.81	1.14	0.11	0.85	0.62	0.75	0.77	0.17	3.89	0.75	0269-0B
3630.00	ccp	S/Sst : lt gy to lt brn gy to pl y brn	-	-	-	-	-	-	-	-	-	-	0253-1L

Table 7 : Thermal Maturity Data for well NOCS 34/4-5

Depth unit of measure: m

Depth	Typ	Lithology	Vitrinite Reflectance (%)	Number of Readings	Standard Deviation	Spore Fluorescence Colour	SCI	T _{max} (°C)	Sample
880.00	cut	bulk	NDP	-	-	-	-	-	0113-0B
1060.00	cut	bulk	NDP	-	-	-	-	-	0119-0B
1360.00	cut	bulk	NDP	-	-	-	-	-	0129-0B
1390.00	cut	Sh/Clst: lt brn gy to pl y brn	-	-	-	-	3.5(??)	408	0130-1L
1600.00	cut	bulk	NDP	-	-	-	-	-	0024-0B
1810.00	cut	bulk	0.38	7	0.03	-	-	-	0030-0B
1990.00	cut	bulk	0.30	5	0.03	-	-	-	0037-0B
2290.00	cut	bulk	NDP	-	-	-	-	-	0046-0B
2500.00	cut	bulk	NDP	-	-	-	-	-	0053-0B
2745.00	cut	bulk	0.62	6	0.04	-	-	-	0061-0B
2950.00	cut	bulk	0.62	4	0.05	-	-	-	0070-0B
3190.00	cut	bulk	NDP	-	-	-	-	-	0079-0B
3262.00	cut	bulk	0.62	8	0.06	-	-	-	0085-0B
3310.00	cut	Sh/Clst: drk gy to dsk brn to brn blk	-	-	-	-	6.0-6.5	436	0093-1L

Table 7 : Thermal Maturity Data for well NOCS 34/4-5

Depth unit of measure: m

Depth	Typ	Lithology	Vitrinite Reflectance (%)	Number of Readings	Standard Deviation	Spore Fluorescence Colour	SCI	T _{max} (°C)	Sample
3400.00	cut	bulk	0.70	4	0.06	-	-	-	0108-0B
3437.70	ccp	Sh/Clst: m gy to drk gy	-	-	-	-	6.5	444	0188-1L
3520.00	ccp	bulk	0.70	6	0.07	-	-	-	0212-0B
3522.00	ccp	Sh/Clst: dsk brn to dsk y brn to brn blk	-	-	-	-	6.5	445	0213-1L
3592.00	ccp	Sh/Clst: drk gy to brn blk	-	-	-	-	6.5	445	0234-1L
3904.00	cut	bulk	0.67	5	0.04	-	-	-	0179-0B

Table 8 : Visual Kerogen Composition Data for well NOCS 34/4-5

Depth unit of measure: m

Depth	Typ	Lithology	L I P T %	A m o r %	L t l	S p / D e o l	C t l l n e	D i s s o l v e d	A l t e r a t e d	I n c r e a s e d	I n c r e a s e d	S i m i l a r	M e t a b o l i t e r i t e r i a n	S i m i l a r	V o l u m e	I n c r e a s e d	C o n t e n t	V o l u m e	A s h c o n t e n t	S a m p l e
1390.00	cut	Sh/Clst: lt brn gy to pl y brn	100	**	*	*		*	**		TR	*			TR	*				0130-1L
3310.00	cut	Sh/Clst: drk gy to dsk brn to brn blk	20	*	**	*		*			10	*			70	**	*			0093-1L
3437.70	ccp	Sh/Clst: m gy to drk gy	50		*	**	**	*			5	*			45	**	*			0188-1L
3522.00	ccp	Sh/Clst: dsk brn to dsk y brn to brn blk	70		**	**	*	*			15	*	*		15	**	*	*		0213-1L
3592.00	ccp	Sh/Clst: drk gy to brn blk	50	**	**	**	*	*			TR	*	*		50	**	*	**		0234-1L

Table 9a : Tabulation of carbon isotope data for EOM/EOM - fractions or Oils for well NOCS 34/4-5

Depth unit of measure: m

Depth	Typ	Lithology	EOM/Oil	Saturated	Aromatic	NSO	Asphaltenes	Kerogen	Sample
3488.00	com	Composite sample	-29.14	-29.57	-28.79	-28.81	-28.57	-	0264-0B
3518.00	com	Composite sample	-28.08	-29.51	-27.21	-27.50	-26.20	-	0265-0B
3576.00	com	Composite sample	-29.17	-29.66	-28.71	-28.61	-27.83	-	0267-0B
3592.00	ccp		-27.07	-31.00	-28.47	-27.49	-26.13	-	0234-1L
3630.00	ccp		-29.57	-29.83	-29.17	-29.42	-29.53	-	0253-1L

Depth unit of measure: m

<u>Depth</u>	<u>Typ</u>	<u>Lithology</u>	<u>Saturated</u>	<u>Aromatic</u>	<u>cv value</u>	<u>Interpretation</u>	<u>Sample</u>
3488.00	com	Composite sample	-29.57	-28.79	-0.75	Marine	0264-0B
3518.00	com	Composite sample	-29.51	-27.21	2.60	Terrigenous	0265-0B
3576.00	com	Composite sample	-29.66	-28.71	-0.35	Marine	0267-0B
3592.00	ccp		-31.00	-28.47	3.58	Terrigenous	0234-1L
3630.00	ccp		-29.83	-29.17	-0.94	Marine	0253-1L

Table 10A: Variation in Triterpane Distribution (peak height) for Well NOCS 34/4-5

Depth unit of measure: m

Depth	Lithology	B/A	B/B+A	B		C/E	C/C+E	X/E	Z/E	Z/C	Z/Z+E	Q/E	E/E+F	C+D		J1		Sample
				B+E+F										C+D+E+F	D+F/C+E	J1+J2%		
3488.00	bulk	0.51	0.34	0.09	0.44	0.31	0.11	0.25	0.57	0.20	0.08	0.93	0.32	0.10	62.18	0264-0		
3518.00	bulk	1.12	0.53	0.12	0.51	0.34	0.11	0.07	0.14	0.07	0.04	0.88	0.33	0.12	60.25	0265-0		
3576.00	bulk	0.57	0.36	0.10	0.44	0.31	0.10	0.26	0.59	0.21	0.08	0.93	0.31	0.09	62.72	0267-0		
3592.00	Sh/Clst	4.40	0.81	0.21	0.83	0.45	0.16	0.03	0.04	0.03	0.02	0.88	0.43	0.09	59.13	0234-1		
3630.00	S/Sst	0.15	0.13	0.07	0.59	0.37	0.24	0.11	0.19	0.10	0.23	0.93	0.38	0.08	64.22	0253-1		

Table 10B: Variation in Sterane Distribution (peak height) for Well NOCS 34/4-5

Depth unit of measure: m

Depth	Lithology	Ratio1	Ratio2	Ratio3	Ratio4	Ratio5	Ratio6	Ratio7	Ratio8	Ratio9	Ratio10	Sample
3488.00	bulk	0.82	51.82	79.40	1.13	0.79	0.38	0.27	0.66	1.08	4.00	0264-0
3518.00	bulk	0.80	49.23	72.51	1.07	0.73	0.57	0.45	0.57	0.97	2.60	0265-0
3576.00	bulk	0.82	48.05	80.25	1.06	0.81	0.41	0.29	0.67	0.93	3.91	0267-0
3592.00	Sh/Clst	0.72	36.60	62.83	0.37	0.70	0.36	0.31	0.46	0.58	1.33	0234-1
3630.00	S/Sst	0.94	63.72	79.30	1.44	0.75	0.49	0.36	0.66	1.76	5.28	0253-1

Ratio1: $a / a + j$ Ratio2: $q / q + t * 100\%$ Ratio3: $2(r + s) / (q + t + 2(r + s)) * 100\%$ Ratio4: $a + b + c + d / h + k + l + n$ Ratio5: $r + s / r + s + q$ Ratio6: $u + v / u + v + q + r + s + t$ Ratio7: $u + v / u + v + i + m + n + q + r + s + t$ Ratio8: $r + s / q + r + s + t$ Ratio9: q / t Ratio10: $r + s / t$

Table 10C: Variation in Triaromatic Sterane Distribution for Well NOCS 34/4-5

Depth unit of measure: m

<u>Depth</u>	<u>Lithology</u>	<u>Ratio1</u>	<u>Ratio2</u>	<u>Ratio3</u>	<u>Ratio4</u>	<u>Ratio5</u>	<u>Sample</u>
3488.00	bulk	0.74	0.73	0.50	0.47	0.60	0264-0
3518.00	bulk	0.84	0.82	0.67	0.66	0.76	0265-0
3576.00	bulk	0.79	0.78	0.57	0.54	0.66	0267-0
3592.00	Sh/Clst	1.00	1.00	1.00	1.00	1.00	0234-1
3630.00	S/Sst	0.87	0.78	0.58	0.64	0.71	0253-1

Ratio1: $a1 / a1 + g1$

Ratio2: $b1 / b1 + g1$

Ratio3: $a1 + b1 / a1 + b1 + c1 + d1 + e1 + f1 + g1$

Ratio4: $a1 / a1 + e1 + f1 + g1$

Ratio5: $a1 / a1 + d1$

Table 10D: Variation in Monoaromatic Sterane Distribution for Well NOCS 34/4-5

Depth unit of measure: m

<u>Depth</u>	<u>Lithology</u>	<u>Ratio1</u>	<u>Ratio2</u>	<u>Ratio3</u>	<u>Ratio4</u>	<u>Sample</u>
3488.00	bulk	0.47	0.35	0.32	0.28	0264-0
3518.00	bulk	0.56	0.41	0.36	0.28	0265-0
3576.00	bulk	0.55	0.39	0.38	0.33	0267-0
3592.00	Sh/Clst	0.84	0.60	0.48	0.30	0234-1
3630.00	S/Sst	0.55	0.40	0.41	0.30	0253-1

Ratio1: A1 / A1 + E1
 Ratio2: B1 / B1 + E1

Ratio3: A1 / A1 + E1 + G1
 Ratio4: A1+B1 / A1+B1+C1+D1+E1+F1+G1+H1+I1

Table 10E: Aromatisation of Steranes for Well NOCS 34/4-5

Depth unit of measure: m

Depth	Lithology	Ratio1	Ratio2	Sample
3488.00	bulk	0.43	0.90	0264-0
3518.00	bulk	0.26	1.00	0265-0
3576.00	bulk	0.45	0.91	0267-0
3592.00	Sh/Clst	1.00	-	0234-1
3630.00	S/Sst	0.43	0.93	0253-1

$$\text{Ratio1: } \frac{\text{C1+D1+E1+F1+G1+H1+I1}}{\text{C1+D1+E1+F1+G1+H1+I1} + \text{c1+d1+e1+f1+g1}}$$

$$\text{Ratio2: } \text{g1} / \text{g1} + \text{I1}$$

Depth unit of measure: m

Depth	Lithology	p	q	r	s	t	a	b	z	c	Sample
		x	d	e	f	g	h	i	j1		
		j2	k1	k2	l1	l2	m1	m2			
3488.00	bulk	71.40	45.85	28.52	47.02	17.85	122.50	62.82	140.45	247.87	0264-0
		63.93	32.35	561.40	45.34	212.24	146.03	32.69	156.56		
		95.22	117.28	74.80	61.70	41.85	45.06	25.34			
3518.00	bulk	149.63	65.66	39.75	209.13	6.91	246.77	276.24	134.72	936.28	0265-0
		200.63	81.92	1819.18	239.35	863.17	577.18	151.10	515.35		
		339.94	266.07	175.59	139.38	86.62	49.17	28.45			
3576.00	bulk	83.03	48.89	34.54	51.50	16.43	126.09	71.50	153.73	260.59	0267-0
		58.17	29.45	588.91	44.75	214.75	139.06	30.77	151.90		
		90.27	110.11	69.97	57.36	37.68	41.79	24.12			
3592.00	Sh/Clst	100.40	43.38	17.53	320.87	13.94	168.78	742.41	75.19	1966.98	0234-1
		370.93	76.10	2383.85	331.34	997.95	690.08	167.52	571.38		
		395.01	255.17	171.24	146.72	95.19	33.35	20.53			
3630.00	S/Sst	77.51	51.71	32.22	34.17	20.32	116.83	17.52	25.37	132.89	0253-1
		54.53	12.58	224.47	17.16	95.40	55.21	16.42	61.63		
		34.34	43.59	25.96	21.21	14.51	14.25	8.67			

Table 10G: Raw GCMS sterane data (peak height) for Well NOCS 34/4-5

Depth unit of measure: m

Depth	Lithology	u	v	a	b	c	d	e	f	g	Sample		
		h		i	j		k	l		m		n	o
		p	q	r	s	t							
3488.00	bulk	115.87	55.52	190.59	125.94	47.61	45.88	92.63	53.80	52.74	0264-0		
		164.94	89.67	41.15	100.36	29.46	33.18	67.67	84.22				
		28.86	48.96	103.75	78.33	45.53							
3518.00	bulk	224.43	88.60	137.33	96.90	36.97	30.31	59.36	36.41	43.44	0265-0		
		134.69	73.78	34.35	73.89	21.03	21.85	52.46	60.00				
		18.91	50.70	73.69	62.11	52.28							
3576.00	bulk	133.78	63.59	188.73	126.69	42.38	49.19	95.55	54.91	56.53	0267-0		
		179.07	95.13	42.84	103.50	31.32	31.41	71.45	86.99				
		29.05	45.40	110.34	81.64	49.08							
3592.00	Sh/Clst	111.02	28.18	31.82	25.43	11.56	9.26	27.89	16.83	13.99	0234-1		
		96.25	28.27	12.29	71.78	23.62	13.79	17.72	24.24				
		8.06	48.43	58.65	53.21	83.91							
3630.00	S/Sst	49.89	17.52	128.87	87.36	29.53	31.28	66.54	37.68	19.54	0253-1		
		94.14	28.50	7.72	64.61	18.21	6.14	15.41	25.32				
		3.22	15.42	25.30	21.05	8.78							

Table 10H: Raw GCMS trioaromatic sterane data (peak height) for Well NOCS 34/4-5

Depth unit of measure: m

Depth	Lithology	a1	b1	c1	d1	e1	f1	g1	Sample
3488.00	bulk	720.22	656.81	77.07	475.20	334.60	244.13	246.86	0264-0
3518.00	bulk	673.67	558.72	46.72	216.55	137.13	91.47	126.09	0265-0
3576.00	bulk	817.39	767.30	90.20	412.70	263.73	203.97	221.75	0267-0
3592.00	Sh/Clst	539.04	416.30	0.00	0.00	0.00	0.00	0.00	0234-1
3630.00	S/Sst	466.13	263.54	77.46	187.51	129.91	58.36	72.48	0253-1

Table 10I: Raw GCMS monoaromatic sterane data (peak height) for Well NOCS 34/4-5

Depth unit of measure: m

Depth	Lithology	a1	b1	c1	d1	e1	f1	g1	h1	i1	Sample
3488.00	bulk	261.30	161.06	163.34	125.01	293.39	57.96	272.88	121.91	26.19	0264-0
3518.00	bulk	55.62	30.33	28.87	31.93	43.71	37.92	55.97	21.75	0.00	0265-0
3576.00	bulk	315.77	164.35	150.04	122.92	253.28	57.74	254.50	107.96	21.53	0267-0
3592.00	Sh/Clst	28.59	7.96	4.56	15.11	5.40	22.95	25.14	11.72	0.00	0234-1
3630.00	S/Sst	110.54	59.17	54.05	53.26	89.74	92.46	70.44	26.85	5.71	0253-1