

4.3.3 FMT Results

Test No	Depth MDBRT (m)	Depth TVDSS (m)	Hydrostatic (psig)	Formation (psig)	Remarks
1	2738.5	2694.5	5867.5	5709.9	Good
2	2748.5	2704.5	5889.7	5726.1	Good
3	2758.5	2714.5	5911.5	5742.3	Good
4	2766.5	2722.5	5929.1	5755.4	Good
5	2808.5	2764.5	6018.7	5821.1	Good
6	2828.5	2784.5	6061.1	5852.9	Good
7	2848.5	2804.5	6103.1	5885.9	Good
8	2868.5	2824.5	6146.2	5915.7	Good
9	2875.5	2831.5	6161.1	5926.3	Good
10	2908.5	2864.5	6231.5		No Seal
11	2907.5	2863.5	6229.5		Tight
12	2758.5	2714.5	Fluid Sample#1 / Seal Fail		
13	2758.5	2714.5	Fluid Sample#2 / Seal Fail		
FMT Run 2					
1	2758.5	2714.5	Fill Both Sample Chambers		

SAMPLE ANALYSIS RESULTS

9.4 litres (upper chamber) and 4.1 litres (lower chamber) of formation water were recovered from the FMT sample chambers. Test carried out, at the rigsite, on the water from the lower chamber, indicated that it had a resistivity of 0.0599 ohmm at 14.79 deg C, equivalent to 176,000 ppm NaCl solution. Measured chlorides were 94,000 ppm, or 155,000 ppm NaCl equivalent. No nitrate tracer was detected at the wellsite, indicating the sample to be pure formation water.

Further analysis, on the water from the lower chamber, carried out by Geco-Prakla in Stavanger, found it had a resistivity of 0.0559 ohmm at 20 deg C, total dissolved solids of 159,452 mg/l, a pH of 6.4, and measured chlorides of 95,200 mg/l. These figures closely match those found at the rigsite, but Geco-Prakla also found 29.2 mg/l of nitrates. It's presence, plus an ionic imbalance and the presence of potassium and sulphate indicated that it is not pure formation water, but probably mixed with a little mud filtrate.

Mud Properties, daily record

Well: 3/4-1

Operator: Amoco Norway Oil Company

Anchor Drilling Fluids a/s

FSR no.	Date 1994	Depth m	M.W. ppg	F.Vis s/qt.	VG-meter readings @						A.V. cP	P.V. cP	Y.P. <	Gel 10s lb/100 ft ²	Gel 10m >	pH	API HTHP 110°C		Cl- mg/l	Pf ml	Mf ml	Ca++ mg/l	Solids vol%	Oil vol%	Sand vol%	MBT ppb	KCL ppb	Glycol %	PHPA ppb	LGS ppb
					600 rpm	300 rpm	200 rpm	100 rpm	6 rpm	3 rpm							cc	cc												
36" Hole Section: Seawater - Bentonite Sweeps																														
1	01-10	0	10.1	66	53	44	-	-	-	26.5	9	35	-	-	9.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	01-11	185	10.1	63	55	46	-	-	-	27.5	9	37	-	-	9.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	01-12	185	8.5	164	111	93	-	-	-	55.5	18	75	-	-	9.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
4	01-13	185	8.4	164	70	62	-	-	-	35	8	54	-	-	9.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
5	01-14	185	8.4	195	-	-	-	-	-	0	0	0	-	-	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
26" Hole Section: Prehydrated Bentonite / Seawater - Bentonite Sweeps																														
6	01-15	378	8.9	40	30	25	22	19	12	10	15	5	20	10	23	9.1	-	-	20,000	0.05	0.40	-	4	0	0.5	-	-	-	-	29
7	01-16	254	9.0	38	26	21	20	19	16	14	13	5	16	14	18	9	-	-	21,000	0.05	0.30	-	4.5	0	0.2	-	-	-	-	18
8	01-17	506	9.6	35	28	21	19	16	11	10	14	7	14	10	17	9	-	-	20,000	0.04	0.40	-	2.6	0	0.3	-	-	-	-	24
9	01-18	506	9.6	38	28	21	19	18	16	13	14	7	14	11	19	8.7	-	-	21,000	0.02	0.30	-	5.2	0	0.5	-	-	-	-	23
10	01-19	506	9.5	37	27	21	18	15	13	10	13.5	6	15	10	17	8.6	-	-	20,000	0.02	0.30	-	3.3	0	0.5	-	-	-	-	31
11	01-20	506	9.5	36	26	20	18	16	12	9	13	6	14	12	19	8.6	-	-	20,000	0.02	0.30	-	4.1	0	0.3	-	-	-	-	37
Minimum Property			8.9	35	26	20	18	15	11	9	13	6	14	10	17	8.6	-	-	20,000	0.02	0.30	-	2.6	0	0.2	-	-	-	-	18
Average Property			9.4	37	28	22	19	17	13	11	14	6	16	11	19	8.8	-	-	20,333	0.03	0.33	-	4.0	0	0.4	-	-	-	-	27
Maximum Property			9.6	40	30	25	22	19	16	14	15	5	20	14	23	9.1	-	-	21,000	0.05	0.40	-	5.2	0	0.5	-	-	-	-	37
17 1/2" Hole Section: Anco 2000 Mud System																														
12	01-21	518	10.9	43	32	22	16	12	10	9	16	10	12	2	8	9.0	9.0	-	66,000	0.10	0.40	400	3.2	0	0.10	5	34	3.2	1.5	8
13	01-22	795	11.0	43	49	35	26	17	5	3	24.5	14	21	3	6	8.7	8.0	-	68,000	0.05	0.50	480	14.0	0	0.60	10	34	3.0	1.6	22
14	01-23	1008	11.4	48	64	46	34	24	7	5	32	18	28	4	12	8.7	6.0	-	76,000	0.10	0.80	700	16.0	0	0.70	12	36	3.0	1.9	26
15	01-24	1250	11.6	47	73	53	41	32	9	7	36.5	20	33	5	14	8.7	6.4	-	79,000	0.05	0.80	800	17.5	0	0.60	12	36	2.5	2.0	37
16	01-25	1515	11.6	50	70	48	39	27	7	5	35	22	26	7	14	8.3	5.8	-	75,000	0.02	0.82	840	17.0	0	0.70	18	35	3.0	1.8	32
17	01-26	1515	11.8	51	75	51	41	29	7	3	37.5	24	27	7	15	8.4	5.6	-	75,000	0.04	0.84	890	17.5	0	0.60	15	35	3.0	1.8	27
18	01-27	1515	11.8	52	74	49	41	32	7	5	37	25	24	7	15	8.4	5.4	-	75,000	0.03	0.84	890	17.5	0	0.60	15	35	3.0	1.8	27
19	01-28	1515	11.9	53	75	50	40	33	7	6	37.5	25	25	8	15	8.3	5.6	-	76,000	0.01	0.85	900	18.0	0	0.60	15	35	3.0	1.9	33
20	01-29	1515	11.8	59	78	53	41	28	6	3	39	25	28	5	10	8.1	5.4	-	75,000	0.01	0.86	940	17.8	0	0.65	18	35	3.0	1.8	33
21	01-30	1515	11.8	51	49	32	26	17	4	3	24.5	17	15	3	5	8.0	5.8	-	70,000	0.10	0.98	1100	16.8	0	0.60	15	32	2.7	1.7	22
22	01-31	1515	11.7	50	48	33	26	17	4	3	24	15	18	3	5	8.0	5.8	-	70,000	0.01	0.98	1100	16.8	0	0.60	15	32	2.7	1.7	25
23	02-01	1515	11.8	55	72	51	40	26	6	4	36	21	30	5	13	9.5	6.0	-	69,000	0.05	0.80	1680	17.3	0	0.80	15	31	2.7	1.6	32
24	02-02	1515	11.8	53	69	48	37	25	6	5	34.5	21	27	5	13	9.4	5.0	-	68,000	0.10	0.90	1500	18.3	0	0.70	15	30	2.7	1.6	30
Minimum Property			10.9	43	32	22	16	12	4	3	16	10	12	2	5	8.0	5.0	-	66,000	0.01	0.40	400	3.2	0	0.10	5	30	2.5	1.5	8
Average Property			11.6	50	64	44	34	25	7	5	32	20	24	5	11	8.6	6.1	-	72,462	0.05	0.80	940	16.0	0	0.60	14	34	2.9	1.7	27
Maximum Property			11.9	59	78	53	41	33	10	9	39	25	28	8	15	9.5	9.0	-	79,000	0.10	0.98	1680	18.3	0	0.80	18	36	3.2	2.0	37

Mud Properties, daily record

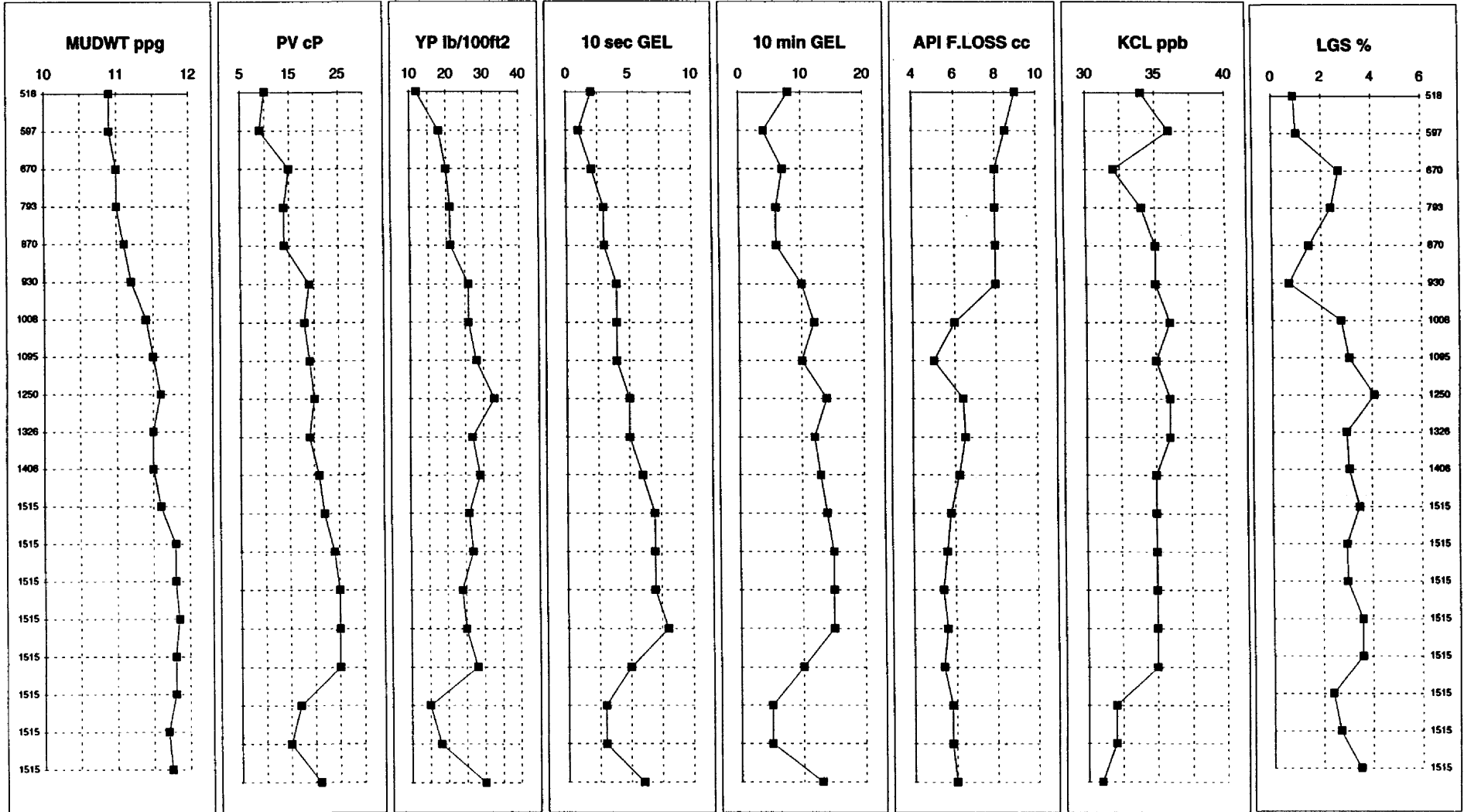
Well: 3/4-1

Operator: Amoco Norway Oil Company

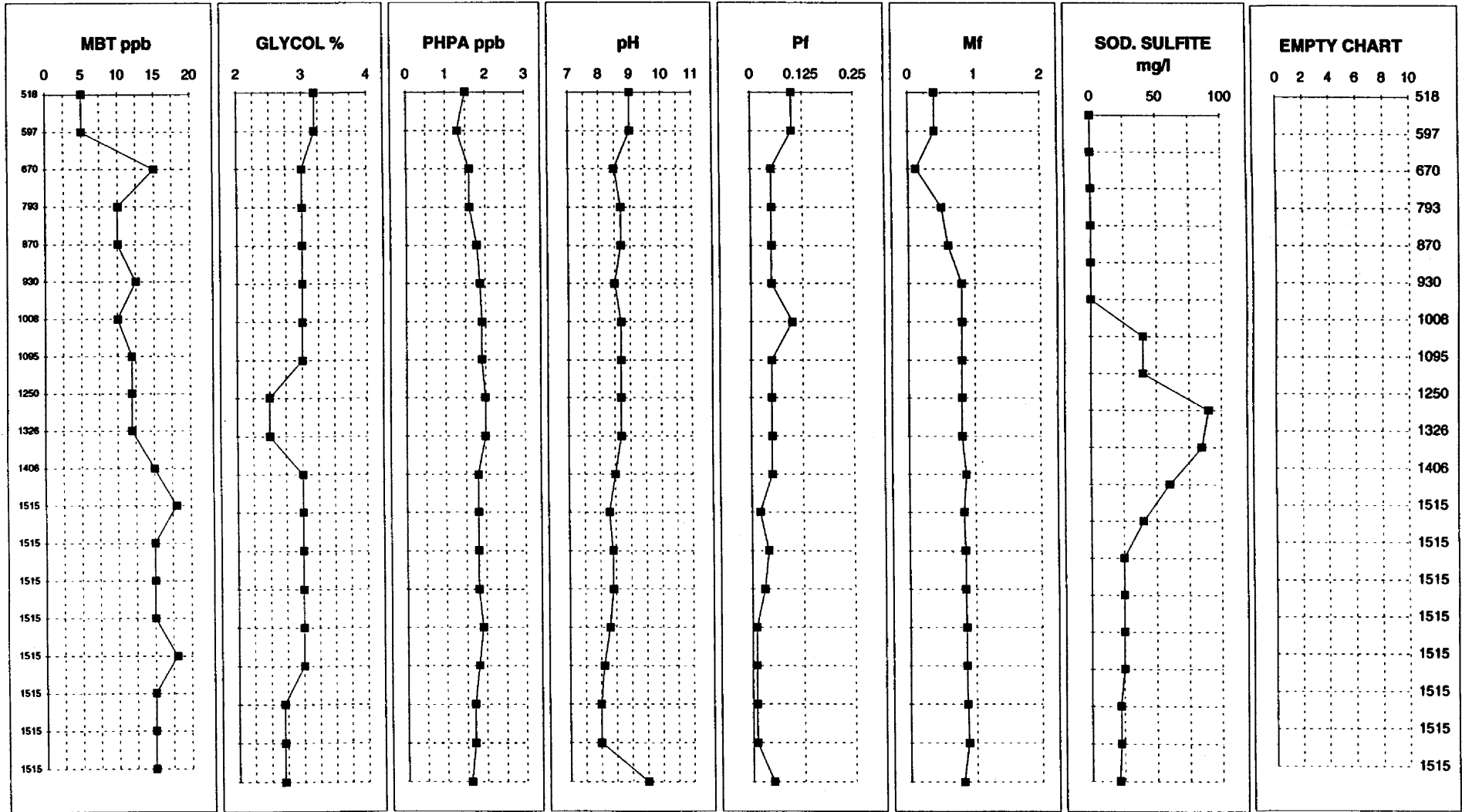
Anchor Drilling Fluids a/s

FSR no.	Date 1994	Depth m	M.W. F.Vis			VG-meter readings @						A.V. cP	P.V. cP	Y.P. <	Gel 10s	Gel 10m	pH	API HTHP 110°C		Cl- mg/l	Pf ml	Mf ml	Ca++ mg/l	Solids vol%	Oil vol%	Sand vol%	MBT ppb	KCL ppb	Glycol %	PHPA ppb	LGS ppb
			ppg	s/qt.	600 rpm	300 rpm	200 rpm	100 rpm	6 rpm	3 rpm	cc							cc													
12 1/4" Hole Section: Anco 2000 Mud System																															
24	02-02	1960	12.1	48	61	41	31	20	4	3	30.5	20	21	4	8	8.3	4.6	-	72,000	0.05	0.94	960	18.6	0	0.6	18	33	3.2	1.8	33	
25	02-03	2297	12.4	48	71	47	37	24	5	4	35.5	24	23	4	8	8.3	4.4	-	73,500	0.06	1.10	1180	20.2	0	0.8	18	31	3.2	1.9	38	
26	02-04	2593	12.6	51	62	41	32	20	4	3	31	21	20	4	7	8.4	4.4	-	73,000	0.03	0.92	980	20.6	0	0.6	18	30	3.0	1.8	36	
27	02-05	2648	12.6	51	68	44	35	22	5	4	34	24	20	4	7	8.4	4.8	-	72,000	0.06	0.97	1220	20.6	0	0.6	16	30	3.0	1.7	37	
28	02-06	2683	12.5	52	74	50	40	28	6	4	37	24	26	4	10	8.5	4.0	-	74,000	0.04	0.94	920	20.2	0	0.6	15	31	3.2	1.8	32	
29	02-07	2692	12.5	51	68	45	36	23	5	3	34	23	22	4	8	8.8	4.4	-	77,000	0.04	0.95	520	20.2	0	0.7	12	31	3.2	1.8	31	
30	02-08	2724	12.5	49	68	45	35	24	5	3	34	23	22	4	8	8.6	4.1	-	82,000	0.01	1.00	380	20.5	0	0.5	12	30	3.0	1.7	31	
31	02-09	2740	12.5	50	67	45	38	21	5	4	33.5	22	23	4	8	8.6	4.2	14.0	82,000	0.03	1.00	400	20.3	0	0.5	12	30	3.1	1.6	30	
32	02-10	2758	12.5	51	55	38	30	18	5	3	27.5	17	21	4	8	8.4	4.3	13.5	82,000	0.00	0.80	480	20.2	0	0.5	12	30	3.0	1.6	30	
33	02-11	2924	12.5	48	57	38	29	18	4	3	28.5	19	19	4	8	8.5	4.2	14.0	83,000	0.02	1.00	460	20.2	0	0.8	12	31	3.1	1.6	24	
34	02-12	2939	12.5	48	58	39	26	20	5	4	29	19	20	4	8	8.8	3.8	14.0	82,000	0.04	1.20	300	21.0	0	0.5	12	30	3.0	1.7	40	
35	02-13	2959	12.5	49	66	44	34	22	5	3	33	22	22	4	8	8.6	3.8	13.0	83,000	0.02	1.20	420	20.5	0	0.5	12	30	3.0	1.6	30	
36	02-14	3007	12.5	48	66	44	34	23	5	3	33	22	22	4	7	8.5	3.6	14.0	83,000	0.01	1.10	260	20.5	0	0.5	12	30	3.0	1.7	30	
37	02-15	3067	12.5	48	66	43	33	22	4	3	33	23	20	4	7	8.5	3.4	14.0	84,000	0.02	1.42	320	20.1	0	0.5	12	31	3.4	1.7	22	
38	02-16	3107	12.5	48	63	41	31	20	4	3	31.5	22	19	4	7	7.5	3.7	14.0	115,000	0.00	0.08	460	21.6	0	0.5	12	31	3.2	1.7	23	
39	02-17	3107	12.5	58	66	44	32	23	5	4	33	22	22	4	8	8.7	3.6	14.0	107,000	0.10	1.25	320	21.6	0	0.5	12	31	3.2	1.6	30	
40	02-18	3107	12.5	58	64	42	31	19	4	3	32	22	20	4	7	8.5	3.6	-	105,000	0.10	1.30	340	21.7	0	0.5	12	31	3.2	1.6	34	
41	02-19	3107	12.5	60	65	42	28	20	5	3	32.5	23	19	4	8	8.5	3.8	-	105,000	0.10	1.32	320	21.8	0	0.5	12	31	3.1	1.6	36	
42	02-20	2482	12.5	70	82	53	49	33	10	5	41	29	24	6	14	11.0	4.8	-	112,000	1.60	3.20	720	22.5	0	0.5	12	30	3.0	-	36	
43	02-21	1490	12.6	78	72	46	32	26	17	12	36	26	20	8	15	11.2	5.0	-	118,000	1.50	3.70	790	22.5	0	0.5	12	-	3.0	-	31	
44	02-22	300	12.5	72	69	46	34	27	15	10	34.5	23	23	7	16	11.5	7.6	-	116,000	1.76	4.42	1100	22.4	0	0.5	-	-	3.0	-	37	
Minimum Property			12.1	48	55	38	26	18	4	3	27.5	17	21	4	7	7.5	3.4	13.0	72,000	0.00	0.08	260	18.6	0	0.5	12	30	3.0	1.6	22	
Average Property			12.5	54	66	44	34	23	6	4	33	22	21	4	9	8.9	4.3	13.8	89,548	0.27	1.42	612	20.8	0	0.6	13	31	3.1	1.7	32	
Maximum Property			12.6	78	82	53	49	33	17	12	41	29	24	8	16	11.5	7.6	14.0	118,000	1.76	4.42	1220	22.5	0	0.8	18	33	3.4	1.9	40	

**AMOCO NORWAY - WELL: 3/4-1
17 1/2" HOLE SECTION MUD PROPERTIES**

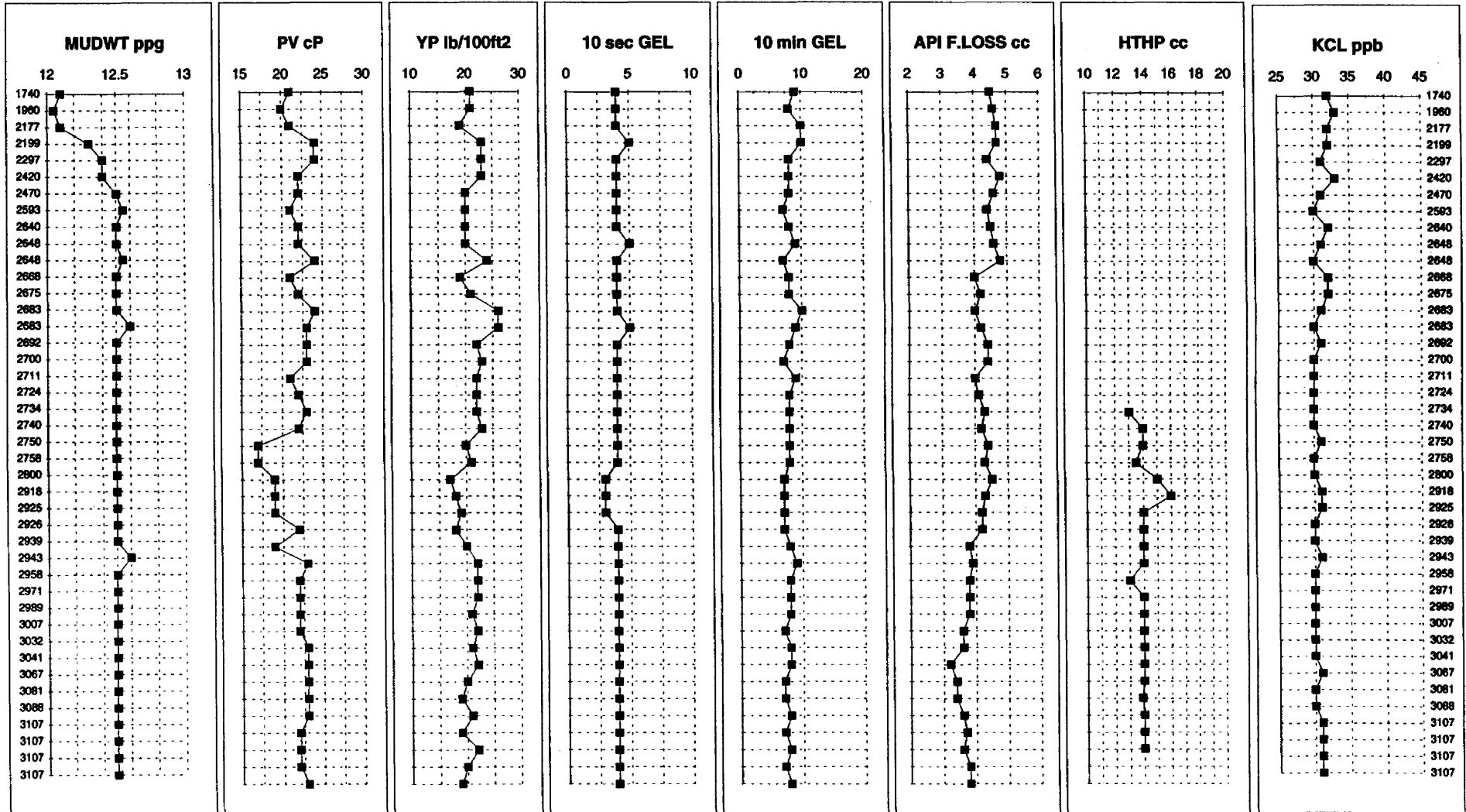


**AMOCO NORWAY - WELL: 3/4-1
17 1/2" HOLE SECTION MUD PROPERTIES**



**AMOCO NORWAY - WELL: 3/4-1
12 1/4" HOLE SECTION MUD PROPERTIES**

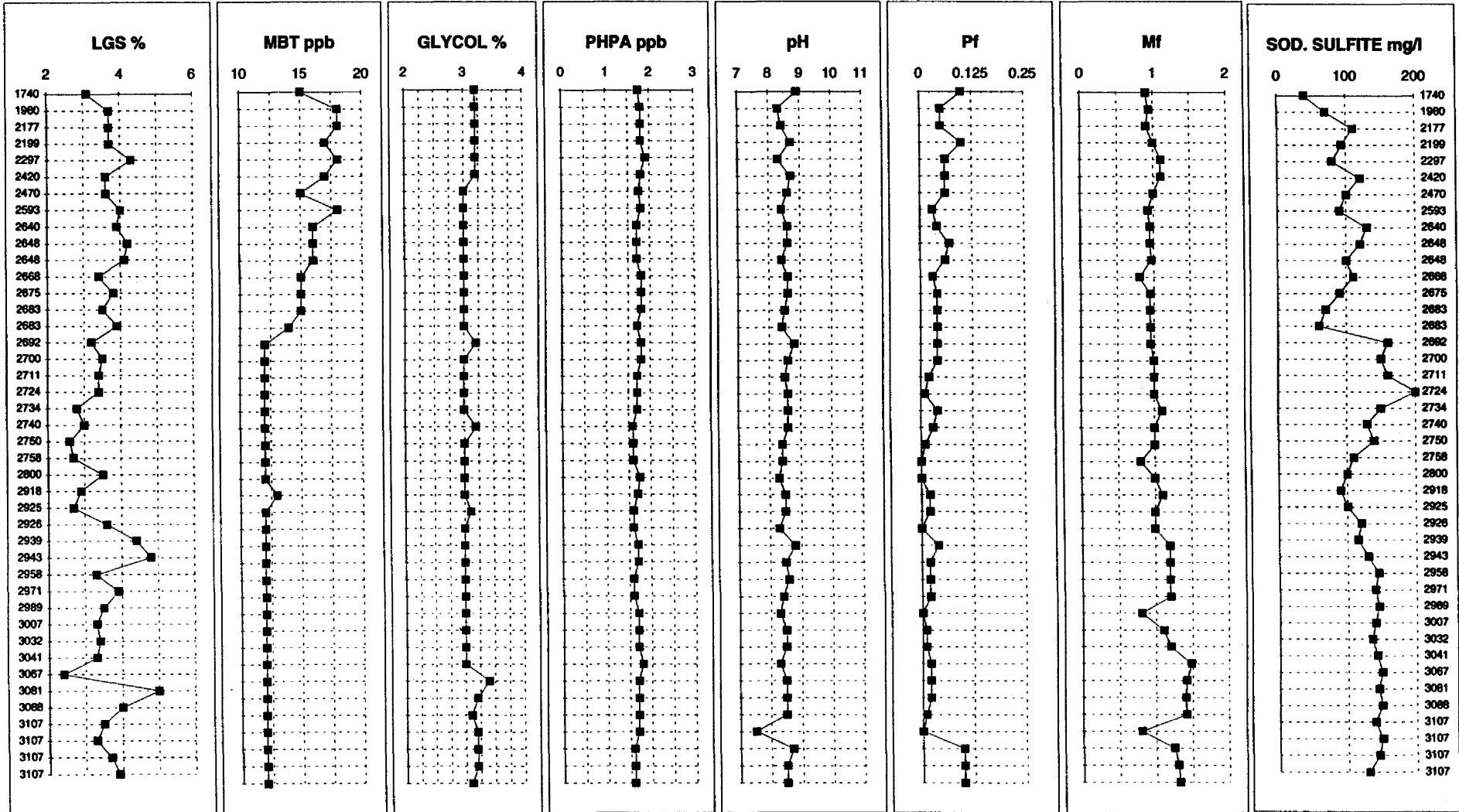
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Anchor Drilling Fluids s/s

**AMOCO NORWAY - WELL: 3/4-1
12 1/4" HOLE SECTION MUD PROPERTIES**

Page 1 of 1



Anchor Drilling Fluids a/s

Cost and Product Additions, 36"/26" Hole Sections

Operator: Amoco Norway Oil Company

Rig: Maersk Gallant

Well: 3/4-1

Drive From/To m: 92 187 36"
 Drive From/To m: 187 506 26"

Product	Unit	Unit Price USD*	Quantity	Total Cost USD*
Barite	mt	81.43	119	9,690.17
Bentonite (Wyo)	mt	232.86	87	20,258.82
Soda Ash	25kg	8.57	41	351.37
Anco Defoamer	20kg	29.71	2	59.42
XCD Polymer	25kg	250.00	19	4,750.00
Total Cost:				35,109.78
Days on Section:				10
Cost per day:				3,510.98
Section Length m:				414
Cost per m:				84.81
Volume Mixed bbl:				8814
Cost per bbl:				3.98
Volume transf. in (bbl):				0
Volume built during the hole section (bbl):				8814
Volume used during the hole section (bbl):				8814
Volume transf. to the 17 1/2" section (bbl):				0

* - Exchange Rate Used, 1 USD = 7.0 NOK

Cost and Product Additions, 17 1/2" Hole Section

Operator: Amoco Norway Oil Company Rig: Maersk Gallant

Well: 3/4-1

Drive From/To: 506 1515

Product	Unit	Unit Price USD*	Quantity	Total Cost USD*
Barite	mt	81.43	421	34,282.03
Soda Ash	25kg	8.57	79	677.03
KCL Brine	20kg	9.57	2161	20,680.77
Anco Defoamer	20kg	29.71	3	89.13
XCD Polymer	25kg	250.00	122	30,500.00
KCL Powder	mt	200.00	29	5,800.00
Celpol	25kg	80.71	254	20,500.34
Anco PHPA	25kg	71.43	234	16,714.62
Ancocide	25L	71.43	2	142.86
Sod. Sulfite	25kg	17.14	18	308.52
Anco 208	200L	400.00	197	78,800.00
Sod. Bicarb.	25kg	10.71	19	203.49
Citric Acid	25kg	39.29	15	589.35
Corrosion Rings	-	57.14	4	228.56
Mixing Charge	bbbl	5.14	2012	10,341.68
Total Cost:				219,858.38
Days on Section:				13
Cost per day:				16,912.18
Section Length m:				1009
Cost per m:				217.90
Total Mud Dilution Used (bbbl):				6767
Section Dilution Rate (bbbl/m):				6.71
Volume Mixed bbbl:				7184
Cost per bbbl:				30.60
Volume transf. in (bbbl):				0
Volume built during the hole section (bbbl):				7184
Volume used during the hole section (bbbl):				4108
Volume transf. to the 12 1/4" section (bbbl):				3076
<p>Note: The 3,076 bbbl volume transferred to the 12 1/4" hole section consisted of; 717 bbbl newly fabricated Anco 2000 in reserve. 2,359 bbbl active system Anco 2000 mud.</p>				

* - Exchange Rate Used, 1 USD = 7.0 NOK

Cost and Product Additions, 12 1/4" Hole Section

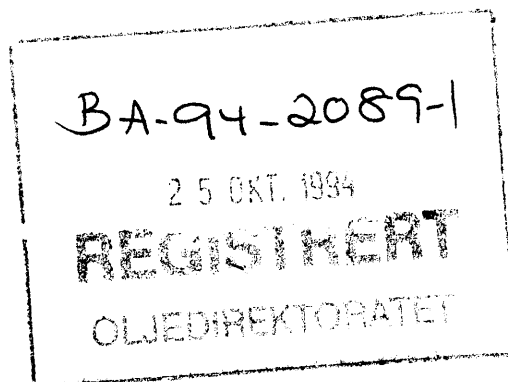
Operator: Amoco Norway Oil Company Rig: Maersk Gallant

Well: 3/4-1

Drive From/To: 1515 3107

Product	Unit	Unit Price USD*	Quantity	Total Cost USD*
Barite	mt	81.43	327	26,627.61
Soda Ash	25kg	8.57	163	1,396.91
KCL Brine	20kg	9.57	2630	25,169.10
Anco Defoamer	20kg	29.71	2	59.42
XCD Polymer	25kg	250.00	44	11,000.00
Celpol	25kg	80.71	152	12,267.92
Anco PHPA	25kg	71.43	103	7,357.29
Sod. Sulfite	25kg	17.14	67	1,148.38
Anco 208	200L	400.00	111	44,400.00
Pot. Nitrate	25kg	48.57	65	3,157.05
Desco	25lb	31.43	61	1,917.23
Corrosion Rings	-	57.14	4	228.56
Total Cost:				134,729.47
Days on Section:				22
Cost per day:				6,124.07
Section Length m:				1592
Cost per m:				84.63
Total Mud Dilution Used (bbl):				6896
Section Dilution Rate (bbl/m):				4.33
Volume Mixed bbl:				3820
Cost per bbl:				35.27
Volume transf. in (bbl):				3076
Volume built during the hole section (bbl):				3820
Volume used during the hole section (bbl):				6896
Volume transf. out from section (bbl):				0
<p>Note: The 3,076 bbl volume transferred to the 12 1/4" hole section consisted of; 717 bbl newly fabricated Anco 2000 in reserve. 2,359 bbl active system Anco 2000 mud.</p>				

* - Exchange Rate Used, 1 USD = 7.0 NOK



Geochemical Report for

Well NOCS 3/4-1

Authors: Henning Jensen
Ian L. Ferriday
Sunil Bharati

Geolab Nor AS
Hornebergveien 5
P.O. Box 5740 Fossegrenda
7002 Trondheim
Norway

Date : 19.09.94

Chapter 1

INTRODUCTION

1.1 General Comments

The NOCS 3/4-1 well (Figure 1) was drilled north of the Trym Field, which is located across the Norwegian - Danish border in the Central Graben area.

Geolab Nor received canned samples and wet bag samples from Amoco Norway, covering the interval 2000 m - 3105 m, of which 34 samples were selected for analysis in accordance with the program set up by Amoco Norway. The selected samples cover the entire sample range. The analytical program has included screening analysis and follow-up analyses, the samples being selected on basis of the screening results and in agreement with Amoco.

1.2 Analytical Program

The analytical program is presented below, with the number of samples for each analysis type. The samples used for the analyses are shown in Figure 2, including types of samples and the depth interval.

<u>Analysis type</u>	<u>No of samples</u>	<u>Figures</u>	<u>Tables</u>
Lithology description	33	2	1
TOC	33	3	1,2
Rock-Eval pyrolysis	33	4-9	2
Thermal extraction GC (GHM, S ₁)	6	10a-c	
Pyrolysis GC (GHM, S ₂)	6	11a-c,12	3
Soxtec Extraction of organic matter	11		
MPLC/HPLC separation	11	13	4a-d
Saturated hydrocarbon GC	11	14a-d	5
Aromatic hydrocarbon GC	11	15a-c	6a-b
Vitrinite reflectance	18	16	7
Visual kerogen microscopy	5	17	7,8
Isotope composition C ₁₅ + fractions	7	18,19	9a-b
GC - MS of saturated and aromatic HC	7	20a-o	10a-k

Table 1 : Lithology description for well NOCS 3/4-1 (AMOCO)

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
2000.00						0001
	1.07	100		Sh/Clst: m gy to lt gy tr Sh/Clst: ol gy, calc		0001-1L 0001-2L
2100.00						0002
	1.61	100		Sh/Clst: m gy to lt gy tr Sh/Clst: ol gy, calc		0002-1L 0002-2L
2200.00						0003
	0.51	75		Sh/Clst: m gy to lt gy 25 Sh/Clst: lt pu to gy brn, slt		0003-1L 0003-2L
2320.00						0004
	1.68	100		Sh/Clst: m gy, slt		0004-1L
2350.00						0005
	0.40	100		Sh/Clst: m gy to brn gy, slt tr Marl : ol gy		0005-1L 0005-2L
2390.00						0006
	0.39	100		Sh/Clst: lt gy to m gy, calc, slt		0006-1L
2440.00						0007
	0.13	95	Ca	: gy w to w, f 5 Sh/Clst: lt gy to m gy, calc, slt		0007-1L 0007-2L

Table 1 : Lithology description for well NOCS 3/4-1 (AMOCO)

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
2480.00						0008
	0.11	95	Ca	: gy w to w, f, trbofgs		0008-1L
		5	Sh/Clst:	lt gy to m gy, calc, slt		0008-2L
2525.00						0009
	0.09	95	Ca	: gy w to w, f, trbofgs		0009-1L
		5	Sh/Clst:	drk gy, calc, slt		0009-2L
2575.00						0010
	0.11	100	Ca	: gy w to w, f, trbofgs		0010-1L
			tr Sh/Clst:	drk gy, calc, slt		0010-2L
2615.00						0011
	0.10	100	Ca	: gy w to w, f, trbofgs		0011-1L
			tr Sh/Clst:	drk gy, calc, slt		0011-2L
2645.00						0012
	0.12	50	Ca	: gy w to w, f, trbofgs		0012-1L
		50	Sh/Clst:	m gy to drk gy to brn gy, slt		0012-2L
2660.00						0013
	0.38	50	Sltst	: lt gy to gy w, calc, glauc		0013-1L
		45	Ca	: w to gy w, cly, f, trbofgs		0013-2L
		5	Sh/Clst:	lt gy to m gy, slt		0013-3L

Table 1 : Lithology description for well NOCS 3/4-1 (AMOCO)

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
2694.00						0014
	0.53	75	Sh/Clst:	m gy to drk gy, calc, slt		0014-1L
		15	Sh/Clst:	gy brn to m brn, slt		0014-2L
		10	Sltst	: m gy to brn gy		0014-3L
2718.00						0015
	0.52	95	Sh/Clst:	m gy to drk gy, calc, slt		0015-1L
		5	Sltst	: brn gy to m gy		0015-2L
2724.00						0016
	0.56	90	Sh/Clst:	drk gy to m gy, calc, slt		0016-1L
		5	Sltst	: brn gy to ol gy		0016-2L
		5	Sh/Clst:	m brn to gy brn, slt		0016-3L
2730.00						0017
	0.48	90	Sh/Clst:	drk gy to m gy, calc, slt		0017-1L
		5	Sh/Clst:	m brn to gy brn, slt		0017-2L
		5	Cont	: prp		0017-3L
2736.00						0018
	0.61	90	Sh/Clst:	drk gy to m gy, calc, slt, pyr		0018-1L
		5	Sh/Clst:	gy brn to dsk brn, slt		0018-2L
		5	Cont	: dd		0018-3L
2760.00						0019
	0.55	40	Sh/Clst:	drk gy to m gy, calc, slt, pyr		0019-1L
		35	Sh/Clst:	gy brn to dsk brn, slt		0019-2L
		15	S/Sst	: w, f, l		0019-3L
		10	Cont	: dd, prp		0019-4L

Table 1 : Lithology description for well NOCS 3/4-1 (AMOCO)

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
2775.00						0020
	0.32	55	S/Sst	: w, f, l		0020-3L
		25	Sh/Clst:	drk gy to m gy, calc, slt, pyr		0020-1L
		20	Sh/Clst:	gy brn to dsk brn, slt		0020-2L
			tr Cont	: dd, prp		0020-4L
2793.00						0021
	0.42	45	Sh/Clst:	drk gy to m gy, calc, slt, pyr		0021-1L
		45	S/Sst	: w, f, l		0021-3L
		10	Sh/Clst:	gy brn to dsk brn, slt		0021-2L
			tr Sh/Clst:	m brn, slt		0021-4L
2810.00						0022
	0.54	55	S/Sst	: w, f, l		0022-3L
		30	Sh/Clst:	drk gy to m gy, calc, slt, pyr		0022-1L
		15	Sh/Clst:	gy brn to dsk brn, slt		0022-2L
			tr Sh/Clst:	m brn, slt		0022-4L
2850.00						0023
	0.23	90	S/Sst	: w, f, l		0023-1L
		5	Sh/Clst:	gy brn to dsk brn, slt		0023-2L
		5	Sh/Clst:	lt gy to m gy, slt		0023-3L
2890.00						0024
	0.12	90	S/Sst	: w, f, l		0024-1L
		5	Sh/Clst:	gy brn to dsk brn, slt		0024-2L
		5	Sh/Clst:	lt gy to m gy, slt		0024-3L

Table 1 : Lithology description for well NOCS 3/4-1 (AMOCO)

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
2913.00						0025
	0.19	85	S/Sst	: w, f, l		0025-1L
		10	Sh/Clst:	lt gy to m gy, slt		0025-3L
		5	Sh/Clst:	gy brn to dsk brn, slt		0025-2L
2928.00						0026
	1.69	55	Sh/Clst:	gy brn to dsk brn, slt		0026-1L
		40	Sh/Clst:	lt gy to m gy, slt		0026-2L
		5	Sh/Clst:	m brn to brn gy, slt		0026-3L
			tr Cont	: dd		0026-4L
2946.00						0027
	1.28	75	Sh/Clst:	m gy to drk gy, slt		0027-1L
		25	Sltst	: lt gy to m gy, cly		0027-2L
			tr Cont	: dd		0027-3L
2964.00						0028
	1.70	75	Sh/Clst:	m gy to drk gy, slt		0028-1L
		25	Sltst	: lt gy to m gy, cly		0028-2L
2979.00						0029
	0.92	70	Sh/Clst:	m gy to drk gy, slt		0029-1L
		25	Sltst	: lt gy to m gy, cly		0029-2L
		5	Cont	: dd		0029-3L
2994.00						0030
		55	Cont	: bar, dd		0030-3L
	1.19	35	Sh/Clst:	m gy to drk gy, slt		0030-1L
		10	Sltst	: lt gy to m gy, cly		0030-2L

Table 1 : Lithology description for well NOCS 3/4-1 (AMOCO)

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
3012.00						0031
	0.23	85	S/Sst	: lt gy to m gy, slt, glauc, f, l		0031-2L
		15	Sh/Clst:	m gy to drk gy, slt		0031-1L
3033.00						0032
	0.11	80	Sh/Clst:	red brn to brn red, slt		0032-1L
		15	Sltst	: gy gn to red brn, cly		0032-3L
		5	Sh/Clst:	dsk y gn		0032-2L
3057.00						0033
	0.15	70	Sh/Clst:	red brn to brn red, slt		0033-1L
		25	Sltst	: gy gn to red brn, s		0033-3L
		5	Sh/Clst:	dsk y gn		0033-2L
3087.00						0034
		55	Sh/Clst:	lt pu to gy brn to drk gy, slt		0034-1L
		35	Cont	: dd		0034-3L
		10	Other	: w, f, evap		0034-2L

Table 2 : Rock-Eval table for well NOCS 3/4-1 (AMOCO)

Depth unit of measure: m

Depth	Typ	Lithology	S1	S2	S3	S2/S3	TOC	HI	OI	PP	PI	Tmax	Sample
2000.00	cut	Sh/Clst: m gy to lt gy	2.38	3.77	1.95	1.93	1.07	352	182	6.2	0.39	341	0001-1L
2100.00	cut	Sh/Clst: m gy to lt gy	3.13	4.36	2.11	2.07	1.61	271	131	7.5	0.42	340	0002-1L
2200.00	cut	Sh/Clst: m gy to lt gy	2.27	2.28	2.20	1.04	0.51	447	431	4.6	0.50	338	0003-1L
2320.00	cut	Sh/Clst: m gy	4.19	6.52	1.90	3.43	1.68	388	113	10.7	0.39	418	0004-1L
2350.00	cut	Sh/Clst: m gy to brn gy	2.03	2.40	1.73	1.39	0.40	600	432	4.4	0.46	343	0005-1L
2390.00	cut	Sh/Clst: lt gy to m gy	1.36	1.37	1.68	0.82	0.39	351	431	2.7	0.50	342	0006-1L
2440.00	cut	Ca : gy w to w	0.55	0.55	1.39	0.40	0.13	423	1069	1.1	0.50	343	0007-1L
2480.00	cut	Ca : gy w to w	0.15	0.27	0.99	0.27	0.11	245	900	0.4	0.36	421	0008-1L
2525.00	cut	Ca : gy w to w	0.15	0.26	0.91	0.29	0.09	289	1011	0.4	0.37	350	0009-1L
2575.00	cut	Ca : gy w to w	0.16	0.31	1.06	0.29	0.11	282	964	0.5	0.34	351	0010-1L
2615.00	cut	Ca : gy w to w	0.16	0.14	0.91	0.15	0.10	140	910	0.3	0.53	347	0011-1L
2645.00	cut	Ca : gy w to w	0.51	0.44	1.17	0.38	0.12	367	975	0.9	0.54	350	0012-1L
2660.00	cut	Sltst : lt gy to gy w	0.47	0.95	1.22	0.78	0.38	250	321	1.4	0.33	355	0013-1L
2694.00	cut	Sh/Clst: m gy to drk gy	1.02	2.25	1.32	1.70	0.53	425	249	3.3	0.31	351	0014-1L
2718.00	cut	Sh/Clst: m gy to drk gy	0.87	1.91	1.29	1.48	0.52	367	248	2.8	0.31	348	0015-1L

Table 2 : Rock-Eval table for well NOCS 3/4-1 (AMOCO)

Depth unit of measure: m

Depth	Typ	Lithology	S1	S2	S3	S2/S3	TOC	HI	OI	PP	PI	Tmax	Sample
2724.00	cut	Sh/Clst: drk gy to m gy	0.72	1.88	1.23	1.53	0.56	336	220	2.6	0.28	349	0016-1L
2730.00	cut	Sh/Clst: drk gy to m gy	0.89	1.78	1.45	1.23	0.48	371	302	2.7	0.33	350	0017-1L
2736.00	cut	Sh/Clst: drk gy to m gy	1.13	2.91	1.86	1.56	0.61	477	305	4.0	0.28	350	0018-1L
2760.00	cut	Sh/Clst: drk gy to m gy	0.79	2.22	1.42	1.56	0.55	404	258	3.0	0.26	353	0019-1L
2775.00	cut	S/Sst : w	0.35	0.91	0.97	0.94	0.32	284	303	1.3	0.28	368	0020-3L
2793.00	cut	S/Sst : w	0.44	1.24	0.83	1.49	0.42	295	198	1.7	0.26	414	0021-3L
2810.00	cut	S/Sst : w	0.45	2.43	1.53	1.59	0.54	450	283	2.9	0.16	368	0022-3L
2850.00	cut	S/Sst : w	0.89	1.02	1.07	0.95	0.23	443	465	1.9	0.47	357	0023-1L
2890.00	cut	S/Sst : w	0.36	0.43	0.83	0.52	0.12	358	692	0.8	0.46	360	0024-1L
2913.00	cut	S/Sst : w	0.48	0.56	0.75	0.75	0.19	295	395	1.0	0.46	365	0025-1L
2928.00	cut	Sh/Clst: gy brn to dsk brn	1.69	4.49	1.64	2.74	1.69	266	97	6.2	0.27	427	0026-1L
2946.00	cut	Sh/Clst: m gy to drk gy	2.14	4.72	1.62	2.91	1.28	369	127	6.9	0.31	352	0027-1L
2964.00	cut	Sh/Clst: m gy to drk gy	1.78	7.39	1.18	6.26	1.70	435	69	9.2	0.19	424	0028-1L
2979.00	cut	Sh/Clst: m gy to drk gy	0.75	2.20	1.03	2.14	0.92	239	112	3.0	0.25	424	0029-1L
2994.00	cut	Sh/Clst: m gy to drk gy	1.04	4.14	1.37	3.02	1.19	348	115	5.2	0.20	429	0030-1L

Table 2 : Rock-Eval table for well NOCS 3/4-1 (AMOCO)

Depth unit of measure: m

Depth	Typ	Lithology	S1	S2	S3	S2/S3	TOC	HI	OI	PP	PI	Tmax	Sample
3012.00	cut	S/Sst : lt gy to m gy	0.04	0.24	0.46	0.52	0.23	104	200	0.3	0.14	391	0031-2L
3033.00	cut	Sh/Clst: red brn to brn red	0.53	0.73	0.98	0.74	0.11	664	891	1.3	0.42	349	0032-1L
3057.00	cut	Sh/Clst: red brn to brn red	1.01	1.45	1.62	0.90	0.15	967	1080	2.5	0.41	349	0033-1L

Table 2b: Values for Rock-Eval standard BLACK VEN MARL
Well NOCS 3/4-1

TMax	S1	S2	S3
422	0.48	19.45	2.31
419	0.47	19.77	2.31

Table 3 : Pyrolysis GC Data (S2 peak) as Percentage of Total Area for Well NOCS 3/4-1 (AMOCO)

Depth unit of measure: m

Depth	Typ	Lithology	C1	C2-C5	C6-C14	C15+	S2 from Rock-Eval	Sample
2320.00	cut	Sh/Clst: m gy	10.07	27.66	46.24	16.02	6.52	0004-1L
2440.00	cut	Ca : gy w to w	15.05	45.94	37.71	1.30	0.55	0007-1L
2736.00	cut	Sh/Clst: drk gy to m gy	10.10	53.14	35.17	1.59	2.91	0018-1L
2850.00	cut	S/Sst : w	14.28	41.88	40.89	2.94	1.02	0023-1L
2913.00	cut	S/Sst : w	11.62	30.73	53.17	4.48	0.56	0025-1L
2964.00	cut	Sh/Clst: m gy to drk gy	15.15	24.21	49.02	11.62	7.39	0028-1L

Table 4 a: Weight of EOM and Chromatographic Fraction for well NOCS 3/4-1 (AMOCO)

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
2100.00	cut	Sh/Clst: m gy to lt gy	10.4	20.6	1.5	1.0	0.7	17.5	2.5	18.1	1.60	0002-1L
2320.00	cut	Sh/Clst: m gy	10.8	29.8	2.3	2.0	1.6	23.9	4.3	25.5	2.00	0004-1L
2440.00	cut	Ca : gy w to w	10.1	10.3	0.2	0.6	0.1	9.5	0.8	9.6	0.08	0007-1L
2645.00	cut	Ca : gy w to w	9.8	10.6	0.5	0.6	0.1	9.4	1.1	9.5	0.09	0012-1L
2694.00	cut	Sh/Clst: m gy to drk gy	9.2	8.6	0.2	0.2	-	8.3	0.3	8.3	0.66	0014-1L
2736.00	cut	Sh/Clst: drk gy to m gy	11.6	13.7	0.5	0.5	0.3	12.4	1.0	12.7	0.65	0018-1L
2850.00	cut	S/Sst : w	3.6	5.4	0.2	0.2	-	5.1	0.3	5.1	0.31	0023-1L
2913.00	cut	S/Sst : w	5.2	8.3	2.3	0.3	0.3	5.4	2.5	5.7	0.25	0025-1L
2946.00	cut	Sh/Clst: m gy to drk gy	10.0	12.3	0.5	0.3	0.6	10.9	0.8	11.6	1.24	0027-1L
2964.00	cut	Sh/Clst: m gy to drk gy	8.4	11.3	0.9	0.9	0.6	8.8	1.9	9.4	1.48	0028-1L
3057.00	cut	Sh/Clst: red brn to brn red	10.1	7.4	0.6	0.4	0.1	6.3	1.1	6.4	0.12	0033-1L

Table 4 b: Concentration of EOM and Chromatographic Fraction (wt ppm rock) for well NOCS 3/4-1 (AMOCO)

Depth unit of measure: m

Depth	Typ	Lithology	EOM	Sat	Aro	Asph	NSO	HC	Non-HC	Sample
2100.00	cut	Sh/Clst: m gy to lt gy	1987	144	96	64	1682	240	1746	0002-1L
2320.00	cut	Sh/Clst: m gy	2773	214	184	153	2220	399	2373	0004-1L
2440.00	cut	Ca : gy w to w	1024	14	59	9	940	74	950	0007-1L
2645.00	cut	Ca : gy w to w	1088	48	64	10	965	112	975	0012-1L
2694.00	cut	Sh/Clst: m gy to drk gy	938	18	18	-	901	37	901	0014-1L
2736.00	cut	Sh/Clst: drk gy to m gy	1175	41	41	27	1065	82	1092	0018-1L
2850.00	cut	S/Sst : w	1483	41	41	-	1401	82	1401	0023-1L
2913.00	cut	S/Sst : w	1598	436	58	58	1046	494	1104	0025-1L
2946.00	cut	Sh/Clst: m gy to drk gy	1233	47	31	62	1093	78	1155	0027-1L
2964.00	cut	Sh/Clst: m gy to drk gy	1346	112	112	75	1047	224	1122	0028-1L
3057.00	cut	Sh/Clst: red brn to brn red	737	59	44	9	623	103	633	0033-1L

Table 4 c: Concentration of EOM and Chromatographic Fraction (mg/g TOC(e)) for well NOCS 3/4-1 (AMOCO)

Depth unit of measure: m

Depth	Typ	Lithology	EOM	Sat	Aro	Asph	NSO	HC	Non-HC	Sample
2100.00	cut	Sh/Clst: m gy to lt gy	124.22	9.03	6.02	4.03	105.13	15.05	109.16	0002-1L
2320.00	cut	Sh/Clst: m gy	138.65	10.74	9.21	7.67	111.02	19.95	118.70	0004-1L
2440.00	cut	Ca : gy w to w	1281.09	18.66	74.63	12.44	1175.37	93.28	1187.81	0007-1L
2645.00	cut	Ca : gy w to w	1208.92	53.45	71.65	11.37	1072.44	125.10	1083.82	0012-1L
2694.00	cut	Sh/Clst: m gy to drk gy	142.27	2.81	2.81	-	136.66	5.61	136.66	0014-1L
2736.00	cut	Sh/Clst: drk gy to m gy	180.81	6.34	6.34	4.23	163.89	12.69	168.12	0018-1L
2850.00	cut	S/Sst : w	478.55	13.29	13.29	-	451.97	26.59	451.97	0023-1L
2913.00	cut	S/Sst : w	639.53	174.42	23.26	23.26	418.60	197.67	441.86	0025-1L
2946.00	cut	Sh/Clst: m gy to drk gy	99.44	3.79	2.50	5.00	88.15	6.29	93.15	0027-1L
2964.00	cut	Sh/Clst: m gy to drk gy	91.00	7.57	7.57	5.07	70.79	15.14	75.86	0028-1L
3057.00	cut	Sh/Clst: red brn to brn red	614.69	49.50	37.13	8.25	519.80	86.63	528.05	0033-1L

Table 4 d: Composition of material extracted from the rock (%) for well NOCS 3/4-1 (AMOCO)

Depth unit of measure: m

Depth	Typ	Lithology	Sat	Aro	Asph	NSO	HC	Non-HC	Sat	HC	Sample
			EOM	EOM	EOM	EOM	EOM	EOM	Aro	Non-HC	
2100.00	cut	Sh/Clst: m gy to lt gy	7.27	4.85	3.25	84.63	12.12	87.88	150.00	13.79	0002-1L
2320.00	cut	Sh/Clst: m gy	7.75	6.64	5.54	80.07	14.39	85.61	116.67	16.81	0004-1L
2440.00	cut	Ca : gy w to w	1.46	5.83	0.97	91.75	7.28	92.72	25.00	7.85	0007-1L
2645.00	cut	Ca : gy w to w	4.42	5.93	0.94	88.71	10.35	89.65	74.60	11.54	0012-1L
2694.00	cut	Sh/Clst: m gy to drk gy	1.97	1.97	-	96.06	3.94	96.06	100.00	4.11	0014-1L
2736.00	cut	Sh/Clst: drk gy to m gy	3.51	3.51	2.34	90.64	7.02	92.98	100.00	7.55	0018-1L
2850.00	cut	S/Sst : w	2.78	2.78	-	94.44	5.56	94.44	100.00	5.88	0023-1L
2913.00	cut	S/Sst : w	27.27	3.64	3.64	65.45	30.91	69.09	750.00	44.74	0025-1L
2946.00	cut	Sh/Clst: m gy to drk gy	3.81	2.51	5.03	88.65	6.33	93.67	151.61	6.75	0027-1L
2964.00	cut	Sh/Clst: m gy to drk gy	8.32	8.32	5.58	77.79	16.64	83.36	100.00	19.96	0028-1L
3057.00	cut	Sh/Clst: red brn to brn red	8.05	6.04	1.34	84.56	14.09	85.91	133.33	16.41	0033-1L

Table 5: Saturated Hydrocarbon Ratios for well NOCS 3/4-1 (AMOCO)

Depth unit of measure: m

Depth	Typ	Lithology	<u>Pristane</u>	<u>Pristane</u>	<u>Pristane/nC17</u>	<u>Phytane</u>	CPI1	<u>nC17</u>	Sample
			nC17	Phytane	Phytane/nC18	nC18		nC17+nC27	
2100.00	cut	Sh/Clst: m gy to lt gy	6.16	6.84	6.64	0.93	1.95	0.40	0002-1L
2320.00	cut	Sh/Clst: m gy	1.73	1.20	1.45	1.20	1.45	0.71	0004-1L
2440.00	cut	Ca : gy w to w	1.75	1.03	1.52	1.15	1.38	0.53	0007-1L
2645.00	cut	Ca : gy w to w	0.98	1.31	1.93	0.51	0.98	0.69	0012-1L
2694.00	cut	Sh/Clst: m gy to drk gy	3.10	3.13	4.57	0.68	1.80	0.23	0014-1L
2736.00	cut	Sh/Clst: drk gy to m gy	1.53	2.70	2.44	0.63	1.73	0.58	0018-1L
2850.00	cut	S/Sst : w	2.01	2.06	2.51	0.80	1.25	0.53	0023-1L
2913.00	cut	S/Sst : w	1.28	2.06	2.37	0.54	1.35	0.68	0025-1L
2946.00	cut	Sh/Clst: m gy to drk gy	1.63	3.63	2.85	0.57	1.91	0.63	0027-1L
2964.00	cut	Sh/Clst: m gy to drk gy	1.67	2.98	2.15	0.78	1.74	0.68	0028-1L
3057.00	cut	Sh/Clst: red brn to brn red	-	-	-	-	-	-	0033-1L

Table 6a: Aromatic Hydrocarbon Ratios for well NOCS 3/4-1 (AMOCO)

Depth unit of measure: m

Depth	Typ	Lithology	MNR	DMNR	BPhR	2/1MP	MPI1	MPI2	Rc	DBT/P	4/1MDBT	(3+2) /1MDBT	Sample
2100.00	cut	Sh/Clst: m gy to lt gy	0.61	-	-	-	-	-	-	-	-	-	0002-1L
2320.00	cut	Sh/Clst: m gy	1.24	1.96	-	1.19	0.74	0.84	0.84	-	0.67	0.38	0004-1L
2440.00	cut	Ca : gy w to w	-	-	-	-	-	-	-	-	-	-	0007-1L
2645.00	cut	Ca : gy w to w	-	-	-	-	-	-	-	-	-	-	0012-1L
2694.00	cut	Sh/Clst: m gy to drk gy	-	1.03	-	-	-	-	-	-	-	-	0014-1L
2736.00	cut	Sh/Clst: drk gy to m gy	0.59	0.77	-	0.77	0.48	0.58	0.69	-	-	-	0018-1L
2850.00	cut	S/Sst : w	-	-	-	0.88	0.48	0.48	0.69	-	-	-	0023-1L
2913.00	cut	S/Sst : w	-	-	-	-	-	-	-	-	-	-	0025-1L
2946.00	cut	Sh/Clst: m gy to drk gy	0.83	1.56	0.08	0.63	0.35	0.38	0.61	-	-	-	0027-1L
2964.00	cut	Sh/Clst: m gy to drk gy	0.88	1.41	0.09	0.75	0.52	0.53	0.71	0.31	-	-	0028-1L
3057.00	cut	Sh/Clst: red brn to brn red	-	-	-	-	-	-	-	-	-	-	0033-1L