

Company: BP Norge
 Well Name: 8305/7-1
 Contractor: Diamond Offshore
 Rig: Ocean Alliance

Country: NORWAY
 Geo Area: MØRE BASIN
 Field: BARDEN PL208
 Region: Mid-Norway



Total Material Consumption

Material	Unit size	Quantity	Total Cost (Kr)
BARAPLUG	25 KG. BAG	200	22,356.00
BARAPLUG FINE	25 KG. BAG	179	20,008.62
BARAZAN-D PLUS	25 KG. BAG	109	168,623.00
Barite	1000 KG. TON	307.000	240,536.00
BAROFIBRE COARSE	40 LB. BAG	12	4,080.00
Bentonite	1000 KG. TON	50.000	107,260.00
Brine	42 GAL. BBL	794	47,052.44
CONDET	55 GAL. DRUM	1	1,857.00
DRIL-N-SLIDE	800 KG. TANK	12	257,591.04
Mono Ethylene Glycol	1000 L. BULK	14.000	108,702.30
N-DRIL HT	50 LB. BAG	15	8,883.75
N-VIS HI	50 LB. BAG	11	31,671.75
Nacl brine	1000 L. BULK	569.040	300,453.12
PAC-L	25 KG. BAG	409	259,022.00
potassium chloride	1000 KG. BAG	10	15,000.00
potassium chloride	25 KG. BAG	160	7,840.00
potassium chloride brine	1000 L.	270.960	152,821.44
Salt	25 KG. BAG	405	19,683.00
Salt	1000 KG. BAG	4	4,920.00
soda ash	25 KG. BAG	6	492.00
Tetra Defoam Green	25 L. CAN	4	6,318.00
Tetraclean 105	1000 L. DRUM	1	57,375.00
Tetraclean 106	1000 L. DRUM	1	38,250.00
Miscellaneous Items			
BAROFIBRE C			3,060.00
BAROFIBRE F			1,108.00
Barite			19,545.59
Bentonite			14,136.45
Citric Acid			600.00
Guar Gum			1,875.00
Ironite Sponge			3,080.00
Lime			414.00
MEG			72,250.41
Mica			950.00
STEELSEAL			2,860.00
Walnut C			430.00
Walnut F			-86.00

Total mud cost	Kr 1,880,796.46
Total miscellaneous cost	Kr 120,223.45
Total cost	Kr 2,001,019.91
Programmed mud cost	Kr 2,150,041.00
Variance	Kr -269,244.54

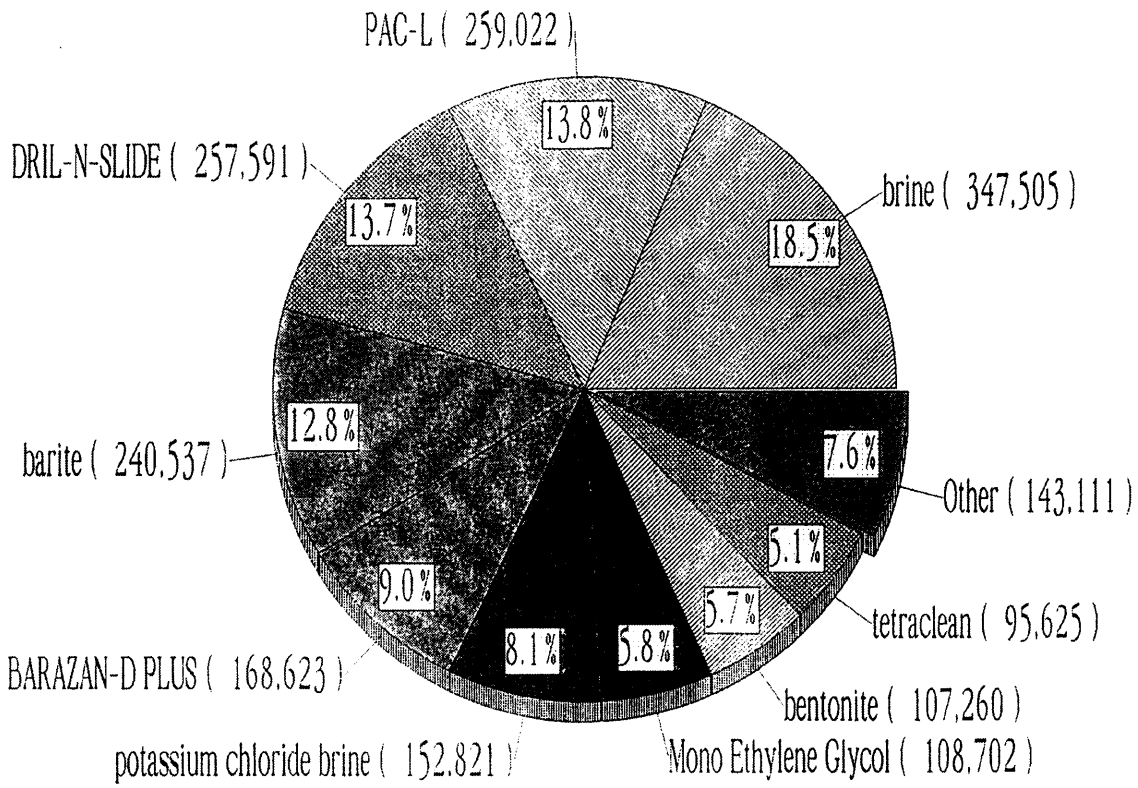
Company: BP Norge
Well Name: 6305/7-1
Contractor: Diamond Offshore
Rig: Ocean Alliance

Country: NORWAY
Geo. Area: MRE BASIN
Field: BARDEN PL208
Region: Mid-Norway



Usage by Product

KRONE



Total Mud Cost: 1,880,797

Company: BP Norge
Well Name: 6305/7-1
Contractor: Diamond Offshore
Rig: Ocean Alliance

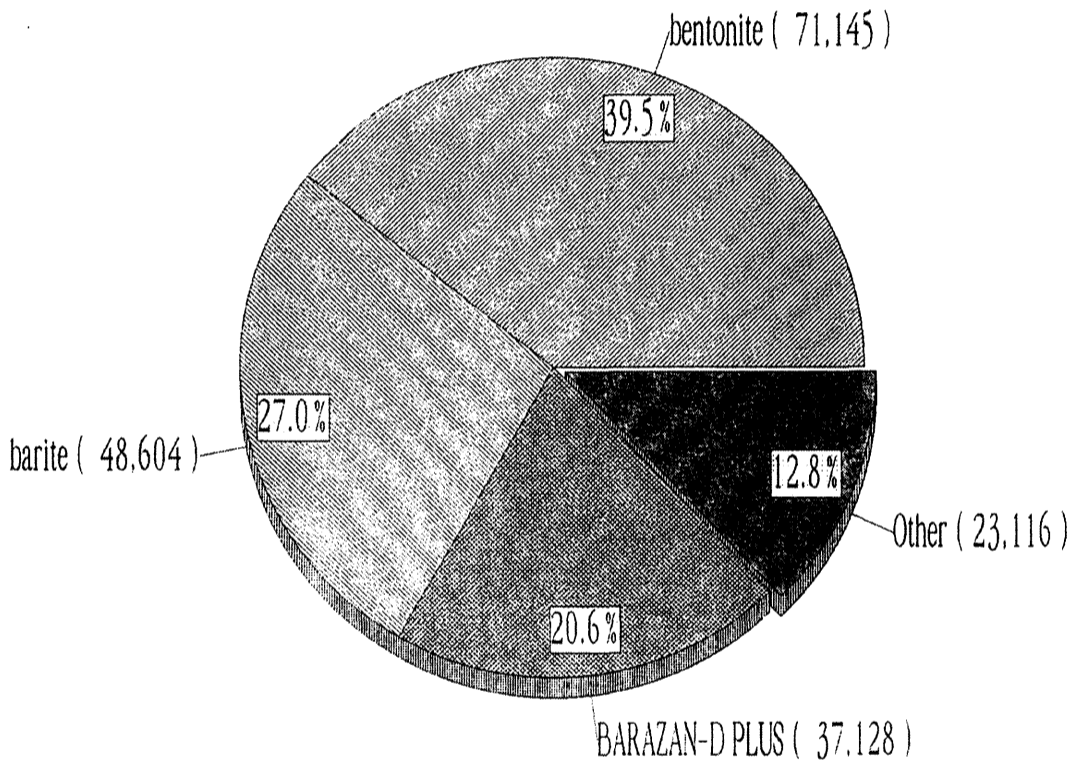
Country: NORWAY
Geo. Area: MRE BASIN
Field: BARDEN PL208
Region: Mid-Norway



Usage by Product

Interval # 01 42x36x26 in. Hole Section

KRONE



Interval Mud Cost: 179,993

Company: BP Norge
Well Name: 6305/7-1
Contractor: Diamond Offshore
Rig: Ocean Alliance

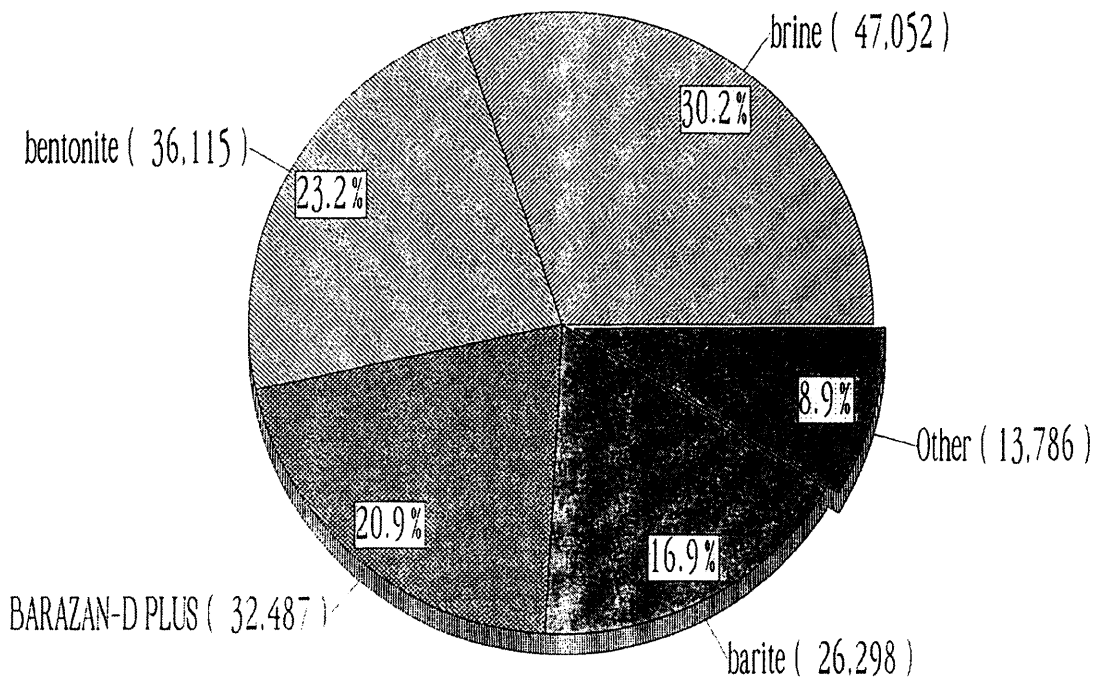
Country: NORWAY
Geo. Area: MRE BASIN
Field: BARDEN PL208
Region: Mid-Norway



Usage by Product

Interval # 02 17.5 in. Hole Section

KRONE



Interval Mud Cost: 155,738

Company: BP Norge
Well Name: 6305/7-1
Contractor: Diamond Offshore
Rig: Ocean Alliance

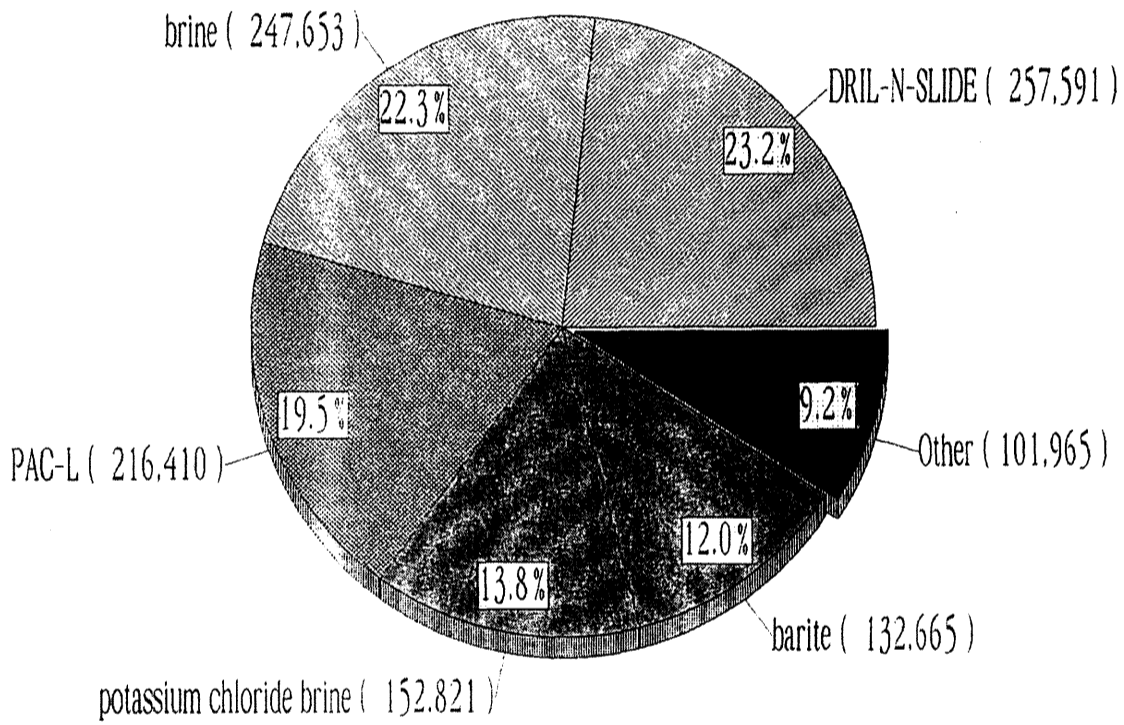
Country: NORWAY
Geo. Area: MRE BASIN
Field: BARDEN PL208
Region: Mid-Norway



Usage by Product

Interval # 03 12.25 in. Hole Section

KRONE



Interval Mud Cost: 1,109,105

Company: BP Norge
Well Name: 6305/7-1
Contractor: Diamond Offshore
Rig: Ocean Alliance

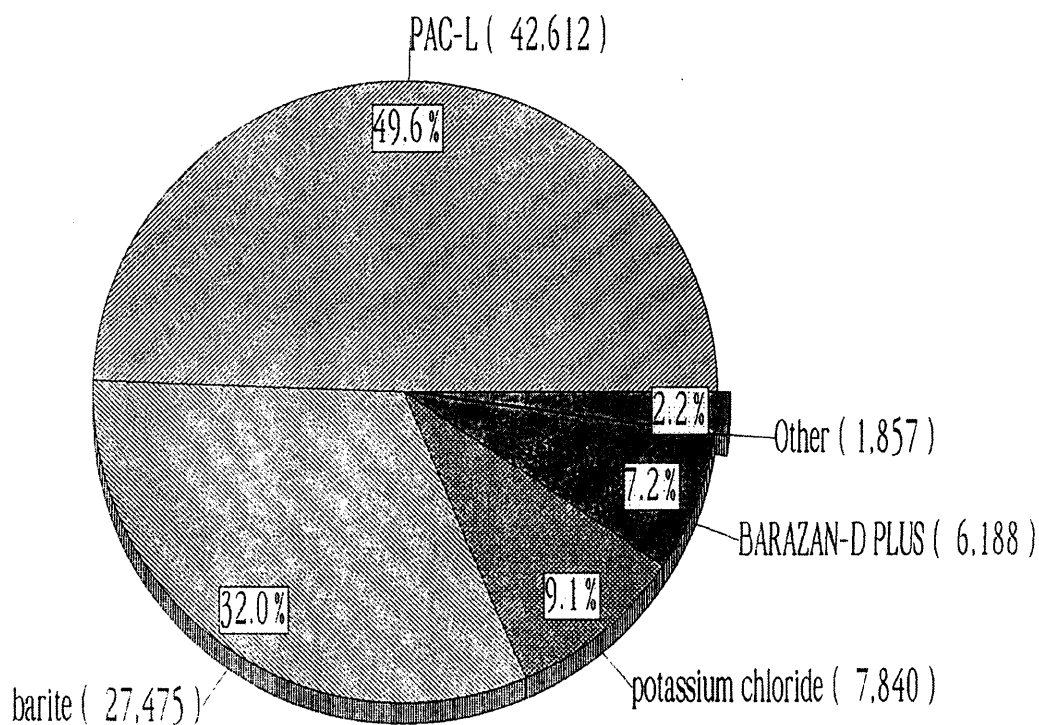
Country: NORWAY
Geo. Area: MRE BASIN
Field: BARDEN PL208
Region: Mid-Norway



Usage by Product

Interval # 04 8.5 in. Hole Section

KRONE



Interval Mud Cost: 85,972

Company: BP Norge
Well Name: 6305/7-1
Contractor: Diamond Offshore
Rig: Ocean Alliance

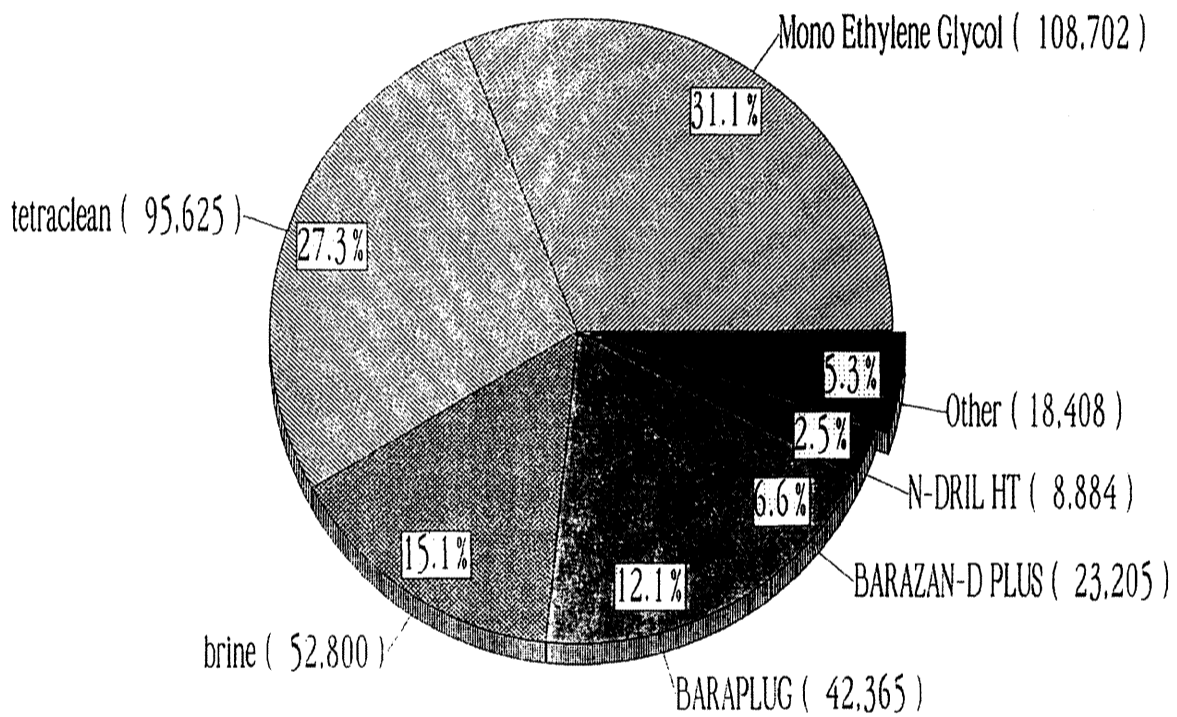
Country: NORWAY
Geo. Area: MRE BASIN
Field: BARDEN PL208
Region: Mid-Norway



Usage by Product

Interval # 05 in. Hole Section

KRONE



Interval Mud Cost: 349,989



WIRELINER FLUID SAMPLES

- The table below lists the sample levels and types:

Depth (BRT)	Depth (TVDBRT)	Chamber Code	Chamber Size	Content	Comments
2937.0	2937.0	MPSR BA-926	450 cc	Gas	Sample leaked onshore
2937.0	2937.0	MPSR BA-927	450 cc	Gas	
2947.6	2947.6	MPSR BA-928	450 cc	Water	
2947.6	2947.6	MRSC BA-047	1 gall	Water	
2921.0	2921.0	MPSR BA-929	450 cc	Gas	
2921.0	2921.0	MPSR BA-930	450 cc	Water	sample leaked down hole
2921.0	2921.0	MRSC BA-045	1 gall	Gas	
2942.0	2942.0	MPSR BA-931	450 cc	Water	

Table 4.4 MDT Fluid Sample Details

- The water sample from 2942 mbrt was taken in what appeared to be a zone with low gas saturation, to prove that the moveable fluid was water, rather than gas.



DRILL STEM TEST

- The well was drill-stem tested with the primary objective of obtaining representative fluid samples. A secondary objective was to measure well deliverability.
- The test was designed to achieve the objectives whilst minimising emissions and mitigating the key operational risks, considered to be hydrate formation in the string and sand production.
- The interval from 2915 mbrt to 2931 mbrt was perforated and a multi-rate test was performed after a clean-up flow and shut-in. A sand screen was run in the test string to prevent sand production, which had been considered a risk based on the 6305/5-1 offset well in PL209.
- The flow-rates were minimised to reduce emissions and the likelihood of sand production. The minimum rate was determined by that required to give wellhead pressures and temperatures outside the hydrate formation region. This was particularly critical as no hydrate inhibition (methanol) could be used during sampling as this would have contaminated the samples.
- Figure 4.7 overleaf shows the wellhead conditions and flowrates during the test. The test sequence and initial results are summarised below:

Flow Period		Clean-up	Main Flow 1	Main Flow 2	Max Flow
Duration	hrs	8.5	9.0	6.0	4.0
WHP	psia	2426.89	3074.90	2763.22	1875.78
WHT	degC	30.23	30.48	35.23	27.94
OILQ	bbls/d	343.91	331.29	368.93	575.16
GASQ	Mmscf/d	26.36	17.49	22.86	32.91
CGR	bbls/Mmscf	13.06	18.93	15.93	17.47
CHOKE	/64"	44.00	32.00	40.00	60.00
BSW in	%	8.60	25.67	14.89	19.67
H2O/Liq *	bbl/d	31.43	114.00	63.75	141.88
LGR *	bbl/Mmscf	1.19	6.52	2.79	4.31
Sep Pressure	[Psia]	875.44	778.17	797.81	450.23
Sep Temp	[degC]	28.95	27.64	26.89	23.82
Gas Gravity	[air=1]	0.64	0.61	0.62	0.61
Oil Grav	[Water=1]	0.77	0.77	0.77	0.77
(60degF)					
BSW out	%	0.10	0.10	0.02	0.00

Table 4.5. Drill Stem Test Flowing Data at Surface



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- An extensive sampling programme was planned and achieved. Samples were taken at the wellhead using the Petrotech ISOSPLIT system which optimises the measurement of low liquid rates and at the separator. Isokinetic samples were taken from the separator gas line to measure liquid carry-over.
 - Downhole pressure gauges (memory only) were placed in the test string close to the perforated interval. Gauges were also placed either side of the wire-wrapped sand screen to evaluate the pressure drop across the screen to aid assessment of any sand production. A real-time read-out pressure and temperature gauge was also placed in the subsea test tree to provide flow information, primarily to enable trouble-shooting in the event of hydrates or a sand blockage. These gauge data were also used for post-test well performance evaluation.



DST SAMPLES

- The well was tested to obtain PVT samples critical for subsequent field development planning. The well was flowed for a clean-up period then shut-in, followed by a two-rate flow period then shut-in (as described in the earlier *Drill Stem Test* section). A final high-rate flow period was performed at the end of the test; this was contingent on seeing no sand production during the main test. The test sequence was as follows:
 - Well clean-up at 26.4 mmscf/d for 8.5 hours (748000 Sm³/d)
 - Shut-in for 8.5 hrs
 - 9 hours flow at 17 mmscf/d (481000 Sm³/d)
 - 6 hours flow at 23 mmscf/d (651000 Sm³/d)
 - 15 hours shut-in
 - 4 hours flow at 33 mmscf/d (934000 Sm³/d)
 - 4 hours shut-in
- Separator and wellhead samples were taken during all the flow periods. The wellhead samples were taken using the Petrotech ISOSPLIT system which optimises the measurement of low liquid rates. In addition, isokinetic samples were taken from the separator gas line to measure liquid carry-over. Several large condensate samples (atmospheric) were taken from the separator.
- The samples taken are listed opposite in Table 4.6.



Table 4.6 DST Samples

Sample No.	Date	Time	Flow period	Sample Point	Sample Nature	Bottle No.	Volume	Press.	Comments
1.01	21.08.98	20:05	Clean up	Test Sep.	Cond.	-	18 L	Atmos.	
1.02	"	20:12	"	"	"	-	18 L	"	
1.03	"	20:23	"	"	"	-	18 L	"	
1.04	"	20:27	"	"	"	-	10 L	"	
1.05	"	20:32	"	"	"	-	10 L	"	
1.06	"	20:34	"	"	"	-	1 L	"	
1.07	"	20:36	"	"	"	-	1 L	"	
1.08	"	20:38	"	"	"	-	1 L	"	Al. bottle
1.09	"	21:15	"	"	"	A-1964	20 L	62 bar	TBP1
1.10	"	22:08	"	"	Gas	A-2122	20 L	60.5 barg	PVT1 Dry gas
1.11	"	22:14	"	"	Gas	5387-A	20 L	50 bara	PVT1 Iso gas
1.12	"	22:08	"	"	Cond.	TS-11514	550 ml	50 barg	PVT1 Cond.
1.13	"	22:58	"	"	Gas	A-2219	20 L	60.5 barg	PVT2 Dry gas
1.14	"	23:04	"	"	Gas	A-2326	20 L	50 bara	PVT2 Iso gas
1.15	"	22:58	"	"	Cond.	TS-11518	550 ml	52.5 barg	PVT2 Cond.
1.16	"	21:40	"	"	Gas	-	300 ml	61 bar	Geo. chem.1
1.17	"	22:20	"	"	Gas	-	300 ml	61 bar	Geo. chem.2
1.18	22.08.98	13:30	Main flow 1	"	Gas	A-1796	20 L	53.5 barg	PVT3 Dry gas
1.19	"	13:30	"	"	Gas	A-2332	20 L	41 bar	PVT3 Iso gas
1.20	"	13:30	"	"	Cond.	TS-11019	550 ml	47.5 barg	PVT3 Cond.
1.21	"	14:15	"	"	Gas	A-2324	20 L	53.5 barg	PVT4 Dry gas
1.22	"	14:15	"	"	Gas	A-2328	20 L	41 bar	PVT4 Iso gas
1.23	"	14:15	"	"	Cond.	TS-10919	550 ml	47 barg	PVT4 Cond.
1.24	"	15:05	"	"	Gas	A-2139	20 L	53.5 barg	PVT5 Dry gas
1.25	"	15:05	"	"	Cond.	TS-2910	550 ml	47 barg	PVT5 Cond.
1.26	"	16:05	"	"	Cond.	A-2120	20 L	53.5	TBP 2
1.27	"	16:20	"	"	Cond.	-	18 L	Atmos.	
1.28	"	16:30	"	"	Cond.	-	18 L	"	
1.29	"	16:40	"	"	Cond.	-	18 L	"	
1.30	"	16:50	"	"	Cond.	-	10 L	"	
1.31	"	16:53	"	"	Cond.	-	10 L	"	
1.32	"	17:00	"	"	Cond.	-	1 L	"	
1.33	"	17:05	"	"	Cond.	-	1 L	"	
1.34	"	17:10	"	"	Cond.	-	1 L	"	Al. bottle
1.35	"	17:20	"	"	Gas	PT 226	150 ml	53.5	Geo. chem.3
1.36	"	19:17	"	MiniLab	Gas	A2121	20 L	54 barg	PVT6 Gas
1.37	"	19:17	"	"	Cond.	TS10910	550 ml	48 barg	PVT6 Cond.
1.38	"	19:17	"	"	Gas/Cond.	-	-	Atmos.	Recom1 set
1.39	22.08.98	20:30	Main flow 2	Test sep	Gas	A-0138	20 L	54.5 barg	PVT7 Dry gas
1.40	"	20:30	"	"	Gas	A-2119	20 L	44 bar	PVT7 Iso gas
1.41	"	20:30	"	"	Cond.	TS-10516	550 ml	47 barg	PVT7 Cond.
1.42	"	21:10	"	"	Gas	A-1798	20 L	54.5 barg	PVT8 Dry gas
1.43	"	21:10	"	"	Gas	A-1797	20L	44 bar	PVT8 Iso gas
1.44	"	21:10	"	"	Cond.	TS-10912	550 ml	47 barg	PVT8 Cond.
1.45	"	21:50	"	"	Gas	A-1794	20 L	54.5 barg	PVT9 Dry gas
1.46	"	21:50	"	"	Cond.	TS-11515	550 ml	47 barg	PVT9 Cond.
1.47	"	22:35	"	"	Gas	PT 227	150 ml	54.5 barg	Geo. chem.4
1.48	"	22:40	"	"	Gas	P 100	500 ml	54.5 barg	Geo. chem.5
1.49	"	22:45	"	"	Cond.	-	1 L	Atmos.	
1.50	"	22:48	"	"	Cond.	-	1 L	"	
1.51	"	22:50	"	"	Cond.	-	1L	"	Al
1.52	"	23:05	"	"	Cond.	A-1801	20 L	54.5 barg	TBP 3
1.53	"	23:20	"	"	Cond.	-	18 L	Atmos.	
1.54	"	23:30	"	"	Cond.	-	18 L	"	
1.55	"	23:35	"	"	Cond.	-	18 L	"	
1.56	"	23:40	"	"	Cond.	-	10 L	"	
1.57	"	23:45	"	"	Cond.	-	10 L	"	
1.58	23/08/98	01:07	"	MiniLab	Gas	A-1799	20 L	55.5 barg	PVT 10 Gas
1.59	"	01:07	"	"	Cond.	TS- 10615	550 ml	47 barg	PVT 10 Cond.
1.60	"	01:07	"	"	Gas/Cond.	-	-	Atmos.	Recom 2 set
1.61	"	19:25	Max flow	Test sep	Gas	A-2117	20 L	31 barg	PVT11 Dry gas
1.62	"	19:25	"	"	Gas	A-2118	20 L	25 bara	PVT11 Iso gas
1.63	"	19:25	"	"	Cond.	TS-4417	550 ml	27 barg	PVT11 Cond.
1.64	"	20:00	"	"	Gas	5309-A	20 L	31 barg	Geo.chem.6
1.65	"	20:11	"	"	Gas/filter	-	-	atm. 20 C	Hg meas.on filter
1.66	"	21:43	"	"	Water	-	-	Atmos.	Bottom of Test sep.
1.67	"	21:45	"	"	Water	-	-	Atmos.	Bottom of Test sep.



B200-1166-1

Geochemical Evaluation

Well 6305/7-1

March 1999

by
Rune R. Olsen, BP Norge

APPENDIX - A

SAMPLE LIST

Sediment Extract and Hydrocarbon Fluids Sample List

Sample List		
Batch Code	Depth (m)	Type
9809SED006S001	2917.5	Core Chip
9809SED006S009	2925.2	Core Chip
9809SED006S018	2934.55	Core Chip
9809SED006S032	2948.45	Core Chip
9809SED006S033	2949.6	Core Chip
9812SED011S001	2850	Sidewall Core
9812SED011S005	2910	Sidewall Core
9812SED011S007	3024.5	Sidewall Core
9812SED011S009	3041	Sidewall Core
9809OIL010S001		DST1
9812OIL003S001	2921	MDT
9812OIL003S002	2937	MDT
9811OIL001S001	3000	Drilling Mud



MDT LIQUID SAMPLES

Two samples of condensate from the wireline MDT at 2921 mbrt and 2937 mbrt were analysed by GC and GCMS.

Due to the very low quantity of condensate in the MDT vessels and the extremely low concentration of heavy compounds like steranes and triterpanes in the condensates, the MDT samples are very sensitive to contamination. There are indications of contamination in the samples, something which especially has effected the biomarker distributions and their maturity signature. The MDT sample from 2921 mbrt seems to be the most affected of the two with different biomarker distribution and maturity ratios

compared to the DST#1 condensate. This result combined with a possibility of biomarker leaching from immature shales (as explained in section above) makes the MDT condensate biomarker data (steranes and hopanes) less reliable.

OIL SHOW SAMPLES

A total of five core samples and four sidewall core (SWC) samples were extracted to analyse hydrocarbons by GC, GCMS and stable carbon isotope analysis.

Two core samples (2948.45 and 2949.6 mbrt) were picked from the bitumen stained interval around 2948-2950 mbrt. In addition three randomly picked samples, 2917.5, 2925.2 and 2934.55 mbrt was analysed to check whether they contained enough extractable organic material for the analysis.

A number of trace to fair shows were reported from the SWCs in shale lithology above and below the gas accumulation. The four SWC samples from 2850, 2910, 3024.5 and 3041 mbrt were selected to check the validity of the shows reported and if possible characterise them.



Depth (m)	Sample type	Yield EOM mg/g	%Sats	%Arom	%Res
2850	SWC	0.57	5.9	9.9	84.2
2910	SWC	0.78	9.8	61.9	28.3
2917.5	Core Chip	0.10	36.6	12.3	51.1
2925.2	Core Chip	0.19	59.0	16.7	24.3
2934.55	Core Chip	0.16	56.4	20.5	23.1
2948.45	Core Chip	4.13	81.7	15.9	2.4
2949.6	Core Chip	7.85	85.6	12.5	1.9
3024.5*	SWC	8.32	2.1	75.9	22.1
3041	SWC	0.51	20.6	33.7	45.8

* Severely contaminated by mud additives



C26 STERANES - AGE SPECIFIC BIOMARKERS

Two bitumen stained samples (2948.45 and 2949.6 mbrt) and one DST condensate sample were analysed for their C26 Sterane distribution, which is reported to be indicative of the source age (Holba et al., 1998). The age relationship is at present believed to be linked to the evolution of diatoms.

Saturate alkane fractions from the three samples were analysed by GCMS-MRM, and C26 sterane isomers identified by comparison with previous data (examples in Appendix J). Parameter D, representing the ratio of 24-Nor/(24+27-Nor) Diacholestanes, which from the LGC study was shown to be the most robust, was calculated and compared with our previous results and published data (Figure 9, modified from Holba et al. 1998) The C26 sterane parameters are given in the table below.

SAMPLE	PARAMETER D	SOURCE
BARDEN 6305/7-1 DST	0.57	Tert/Cretaceous
BARDEN 6305/7-1 2948.45m	0.48	Cretaceous likely
BARDEN 6305/7-1 2949.6m	0.48	Cretaceous likely

APPENDIX - B
SOURCE ROCK SCREENING

TABLE 1

LITHOLOGY AND STRATIGRAPHY

COUNTRY: Norway
WELL: 6305/7-1

DEPTH (m)	DEPTH RANGE (m)	FORMATION	AGE	LITHOLOGY	PICKED LITHOLOGY	SAMPLE TYPE
1720				SLTST-Sandy lt brn 100%, Qtz tr	Siltstone	Cutting
1750				SLTST-Sandy lt brn 100%,	Siltstone	Cutting
1790				SLTST-Sandy lt brn 100%,	Siltstone	Cutting
1810				SLTST-Sandy lt brn 100%,	Siltstone	Cutting
1810				SLTST-Sandy lt brn 100%,	Siltstone	Cutting
1830				SLTST-Sandy lt brn 100%,	Siltstone	Cutting
1850				SLTST-Sandy lt brn 100%,	Siltstone	Cutting
1870				SLTST-Sandy lt brn 100%,	Siltstone	Cutting
1890				SLTST-Sandy lt brn 100%,	Siltstone	Cutting
1910				SLTST-Sandy lt brn 100%,	Siltstone	Cutting
1930				SLTST-Sandy lt brn 100%,	Siltstone	Cutting
1950				SLTST-Sandy lt brn 100%,	Siltstone	Cutting
1970				SLTST-Sandy lt brn 100%, MDST brn tr	Siltstone	Cutting
1990				SLTST-Sandy lt brn 100%, MDST brn tr	Siltstone	Cutting
2010				MDST-silty med-dk brn 70%; SLTST lt brn 30%; LST med grey tr	Bulked	Cutting
2030				MDST-brown-grey 100%; SLTST lt brn tr	Mudstone	Cutting
2060				MDST-brown-grey 100%; SLTST lt brn tr	Mudstone	Cutting
2080				MDST-dk brn/gry 50%; MDST dk gry micaceous 50%	Mudstone	Cutting
2100				MDST-dk brn/gry 50%; MDST dk gry micaceous 50%; SST tr	Mudstone	Cutting
2120				MDST-dk brn/gry 30%; MDST dk gry micaceous 70%; SST tr: Anhydrite tr	Mudstone	Cutting
2140				MDST dk gy 20%; SLTST lt gy 80%; Anhydrite tr	Bulked	Cutting
2150				MDST dk gy 30%; SLTST lt gy 70%; Anhydrite tr	Bulked	Cutting
2160				MDST med-lt gy 100%; Anhydrite tr	Mudstone	Cutting
2180				MDST silty lt-med brn 70% MDST med gy 30%; Anhydrite tr	Mudstone	Cutting
2210				MDST lt gy 100%	Mudstone	Cutting
2250				MDST lt gy 100%	Mudstone	Cutting
2270				SILTST med brn 20%; SST lt gy 80%	Bulked	Cutting
2330				SLTST med brn 20%; SST lt gy 80% (tr coal, removed)	Bulked	Cutting
2350				SLTST med brn 20%; SST lt gy 80%	Bulked	Cutting

TABLE 1 cont.

LITHOLOGY AND STRATIGRAPHY

COUNTRY: Norway
WELL: 6305/7-1

DEPTH (m)	DEPTHRANGE (m)	FORMATION	AGE	LITHOLOGY	PICKED LITHOLOGY	SAMPLE TYPE
2370				SLTST med brn 40%: SST lt gy 60%	Bulked	Cutting
2390				SLTST med brn 40%: SST lt gy 60%	Bulked	Cutting
2410				SLTST med brn 40%: SST lt gy 60%	Bulked	Cutting
2440				SLTST med brn 40%: SST lt gy 60%	Bulked	Cutting
2480				SLTST lt-med gy 100%, occasionally muddy	Siltstone	Cutting
2520				MDST lt brn-gy 100%	Mudstone	Cutting
2550				MDST lt brn-gy 100%	Mudstone	Cutting
2570				MDST lt brn-gy 100%	Mudstone	Cutting
2591				MDST lt gy occ silty 60%: SST lt gy 40%	Bulked	Cutting
2609				MDST lt-med brn/gy 80%. occ silty: SST med gy 20%	Bulked	Cutting
2630				SLTST lt-med gy 60%: MDST lt-med gy 20%: SST lt-med gy 20%	Bulked	Cutting
2648				SLTST lt-med gy 80%: SST lt-med gy 20%	Bulked	Cutting
2651				SLTST lt-med gy 70%: SST lt-med gy 30%	Bulked	Cutting
2672				SLTST lt-med brn/gy 65%: SST med gy 30%: MDST dk brn 5%	Bulked	Cutting
2696				SLTST med gy 80%: SST lt brn 30%	Bulked	Cutting
2717				SLTST lt-med gy/brn 60%: MDST lt-dk gy 20%: SST med gy 20%	Bulked	Cutting
2735				MDST lt-dk gy. occ silty 80%: SST lt-med gy 30%: Anhydrite tr	Bulked	Cutting
2750				MDST lt-dk gy 90%: SST lt-med gy 10%	Bulked	Cutting
2756				MDST lt-dk gy 90%: SST lt-med gy 10%	Bulked	Cutting
2777				MDST lt-dk gy 90%: SST lt-med gy 10%	Bulked	Cutting
2796				MDST lt-med gy brn 100%	Mudstone	Cutting
2816				MDST lt-med gy brn 100%: QTZ tr: SST med brn tr	Mudstone	Cutting
2837				MDST lt-med gy occ silty 80%: SILTST lt gy 15%: SST lt gy 5%	Bulked	Cutting
2849				MDST lt-med gy occ silty 80%: SILTST lt gy 15%: SST lt gy 5%	Bulked	Cutting
2850				SLTST-m gy	Siltstone	SWC
2861				MDST lt-med gy occ silty 80%: SILTST lt gy 15%: LST lt gy 5%	Bulked	Cutting
2870				MDST lt-med gy 90%: SILTST lt gy 15%: SST lt gy 5%	Bulked	Cutting
2870				MDST-m-dk gy	Mudstone	SWC
2879				MDST lt-med gy occ silty 95%: LST 5%	Bulked	Cutting

TABLE 1 cont.

LITHOLOGY AND STRATIGRAPHY

COUNTRY: Norway
WELL: 6305/7-1

DEPTH (m)	DEPTHRANGE (m)	FORMATION	AGE	LITHOLOGY	PICKED LITHOLOGY	SAMPLE TYPE
2888				MDST lt-med gy 100%: LST tr: SST tr	Mudstone	Cutting
2888				SLTST-m gy	Siltstone	SWC
2900				MDST lt-med gy 60%: SILTST lt gy 30%: LST 10%	Bulked	Cutting
2906				MDST lt-med gy 65%: SILTST lt gy 25%: LST 10%	Bulked	Cutting
2910				SLTST-m gy	Siltstone	SWC
2912				MDST lt-med gy 70%: SILTST lt gy 10%: LST 10%: SST lt gy 10%	Bulked	Cutting
2920.85				MDST med-dk gy	Mudstone	Core
2959.65				MDST med-dk gy	Mudstone	Core
2968.6				MDST med gy with black crystals	Mudstone	Core
2976.2				MDST med-dkgy	Mudstone	Core
2980.3				MDST dk gy	Mudstone	Core
2988.2				MDST dk gy oxidised	Mudstone	Core
2992.5				MDST med gy, shaley, oxidised with black crystals	Mudstone	Core
2995.5				MDST med gy	Mudstone	Core
2998.5				MDST med gy	Mudstone	Core
3010.5				MDST med gy with black crystals and sandy bands	Mudstone	Core
3014				MDST med-dk gy 45%: SILTST lt gy 10%: Anhydrite 15%: SST lt gy 5%:QTZ 25%	Bulked	Cutting
3022				SLTST-m gy	Siltstone	SWC
3024.5				SLTST-m gy/bn	Siltstone	SWC
3029				MDST med gy 15%: Granite 5%: QTZ 80%	Bulked	Cutting
3030.5				SLTST-lt bn/gy	Siltstone	SWC
3038				MDST med-dk gy 25%: QTZ 75%: Granite 5%: pyrite tr	Bulked	Cutting
3041				SLTST-m-dk gy	Siltstone	SWC
3050				MDST med-dk gy 30%: QTZ 70%	Bulked	Cutting
3053				MDST med-dk gy 30%: QTZ 70%	Bulked	Cutting
3065				MDST red 20%: MDST lt-med gy 40%: QTZ 40%: SST lt gy tr	Bulked	Cutting
3080				MDST lt-med gy 15%: MDST res tr: SST lt gy 85%: Granite tr	Bulked	Cutting
3095				MDST lt-med gy 10%: SST lt gy 30%: QTZ 60%	Bulked	Cutting

TABLE 1 cont.

LITHOLOGY AND STRATIGRAPHY

COUNTRY: Norway
WELL: 6305/7-1

DEPTH (m)	DEPTHRANGE (m)	FORMATION	AGE	LITHOLOGY	PICKED LITHOLOGY	SAMPLE TYPE
3119				SLTST lt-med gy. occ muddy 30%: SST lt gy 50%: QTZ 20%	Bulked	Cutting
3134				SLTST lt-med gy 50%	Bulked	Cutting
3149				SLTST lt-med gy 30%: SST lt gy occ brn 70%: Anhydrite tr	Bulked	Cutting
3155				SLTST lt-med gy 40%: SST lt gy occ brn 60%	Bulked	Cutting
3161				SLTST lt gy 50%: MDST med gy 5%: SST lt gy 30%: QTZ 15%	Bulked	Cutting
3185				SLTST lt-med gy 30%: MDST med gy 10%: SST lt gy 50%: QTZ 10%	Bulked	Cutting
3194				SLTST lt-med gy 30%: MDST med gy 10%: SST lt gy 50%: QTZ 10%	Bulked	Cutting
3209				SLTST lt-med gy 15%: MDST med gy 5%: SST lt gy 50%: QTZ 30%	Bulked	Cutting
3224				SST lt gy 85%: SLTST lt-med gy 15%: MDST med gy tr	Bulked	Cutting
3239				SLTST lt-med gy 45%: MDST med-gy 5%: SST lt gy 50%	Bulked	Cutting
3254				SLTST lt-med gy 45%: MDST med-gy 5%: SST lt gy 50%	Bulked	Cutting
3260				MDST med- gy 50%: SLTST lt-med gy 20%: SST lt gy 30%: MDST lt brn-or tr	Bulked	Cutting
3269				MDST med- gy 50%: SLTST lt-med gy 20%: SST lt gy 30%: MDST lt brn-or tr	Bulked	Cutting
3284				MDST med- gy 30%: SLTST lt-med gy 20%: SST lt gy 50%: MDST lt brn-or tr	Bulked	Cutting
3299				MDST med- gy 20%: SLTST lt-med gy 30%: SST lt gy 50%: MDST lt brn-or tr	Bulked	Cutting
3314				MDST med- gy 10%: SLTST lt-med gy 50%: SST lt gy 40%: MDST lt brn-or tr	Bulked	Cutting
3329				MDST med- gy 67%: SLTST lt-med gy 30%: SST lt gy 15%: Anhydrite 3%	Bulked	Cutting
3344				MDST med- gy 10%: SLTST lt-med gy 30%: SST lt gy 60%: Anhydrite tr	Bulked	Cutting
3350				MDST med- gy 10%: SLTST lt-med gy 30%: SST lt gy 60%: Anhydrite tr	Bulked	Cutting
3359				MDST med- gy 15%: SLTST lt-med gy 40%: SST lt gy 40%: MDST lt brn-or 5%	Bulked	Cutting
3377				MDST med- gy 15%: SLTST lt-med gy 40%: SST lt gy 40%: MDST lt brn-or 5%	Bulked	Cutting

TABLE 2

OPTICAL SOURCE ROCK MATURITY INDICATORS

COUNTRY: Norway
WELL: 6305/7-1

DEPTH (m)	VITRINITE (%Ro)	NO. of READINGS	CONFIDENCE	COMMENTS
1750	0.28	20	B	VERY L PHY; V PAR 100%+W PAR; STR BS; TR DINO Y, ALG TR Y-Y/O, SP TR Y+Y/O
1850	0.29	20	B	VERY L PHY; V PAR+V W 100%, I PAR TR; MOD-STR BS, MOD BW; SP TR Y+Y/O
1950	0.3	20	C	L PHY; V PAR+W PAR 100%; MOD BS, L/MOD BW; SP L Y/O
2060	0.34	20	C	L PHY; V PAR+W PAR 70%, I PAR 30%; MOD/STR BS, MOD BW; SP L Y+Y/O
2150	0.33	20	C	L PHY; V PAR+ W PAR 90%; I PAR 10% ; STR BS; SP L Y/O
2250	0.38	20	C	L PHY; V PAR+W PAR 80%, I PAR 20%; VARIABLE BS LT-STR, MOD-RI BW+BLEBS; ALG TR Y, SP TR Y+Y/O
2350	0.39	20	C	L PHY; V PAR+W PAR 70%, I PAR 30%; MOD BS, MOD BW+BLEBS; SP TR Y+Y/O
2440	0.43	20	C	L PHY V PAR+ W PAR 80%, I PAR 20%; LT/MOD BS, MOD/RI BW+BLEBS; RESIN TR G/Y, SP L Y-LO
2550	0.45	5	E	TR PHY; I PAR TR, V PAR TR; BS VARIABLE-L, TR BW; ALG TR Y, SP TR Y-LO
2648	0.44	20	D	VERY L PHY; V PAR+W PAR 50%, I PAR 50%; LT-MOD BS, L/MOD BW; SP TR Y/O
2750	0.48	20	D	L-MOD PHY; I PAR 80%, V PAR+ W PAR 20%; LT BS, L BW; ALG TR Y/O, SP L Y/O
2849	0.48	1	E	L PHY; I PAR 100%, V PAR ONE; LT BS, TR BW; SP TR L-O
2906	0.52	20	D	L-MOD PHY; I PAR 100%, V W PAR TR; BS VARIABLE-MOD, L BW; AMORPHINITE L M-O, SP TR Y/O-LO
2920.85	0.46	10	E	L-MOD PHY; I PAR 100%, V PAR+W PAR TR; MOD-STR BS, MOD-RI BW; ALG L Y-Y/O, DINO TR Y-Y/O, SP TR Y/O
2959.65	0.55	4	E	L PHY; I PAR 100%, V PAR TR; VARIABLE-LT BS, L BW; SP TR Y/O-MO
3053	0.55	11	E	L-MOD PHY; I PAR 100% V PAR+W PAR TR; LT-MOD BS, L/MOD BW; ALG TR Y, SP TR Y/O-LO
3155	0.5	12	D	MOD PHY; I PAR 100%, V PAR+W PAR TR; LT-MOD BS; MOD BW; SP TR Y/O-LO, ALG TR Y-Y/O

TABLE 2 cont.

OPTICAL SOURCE ROCK MATURITY INDICATORS

COUNTRY: Norway
WELL: 6305/7-1

DEPTH (m)	VITRINITE (%Ro)	NO. of READINGS	CONFIDENCE	COMMENTS
3260	0.53	9	D	L-MOD PHY; I PAR 100%, V PAR+W PAR TR, LT-MOD BS, L BW; ALG L Y-Y/O, SP TR Y/O-LO, AMORPHINITE L YO+DO
3350	0.51	15	D	MOD PHY; I PAR 100%, V PAR+W PAR TR; MOD BS, L BW; ALG TR Y-Y/O, AMORPHINITE L Y/O-MO, SP TR Y/O-LO
3377	0.51	14	D	L PHY; I PAR 100%; V PAR+ W PAR TR; LT-MOD BS, L BW; CARBONATE TR Y/O, SP TR L+MO, H/C SPECKS TR Y

Confidence A=Excellent B=Good C=Average D=Poor E=Unreliable

TABLE 3

SOURCE ROCK QUALITY INDICATORS

COUNTRY: Norway
WELL: 6305/7-1

DEPTH (m)	DEPTRANGE (m)	FORMATION	PICKED LITHOLOGY	S1 (kg/t)	S1 (mg/gC)	S2 (kg/t)	TOC (%)	TMAX deg C	HI	GOGI	CARBT (%)	S (%)
1720			Siltstone	0.8	31.2	4.8	2.56	432	187		17.86	1.68
1750			Siltstone	0.9	39.7	4.3	2.27	428	190		16.67	1.61
1790			Siltstone	0.7	32.2	4.7	2.17	429	216		6.38	1.44
1810 (a)			Siltstone	1.1	52.2	5.5	2.11	425	261		9.55	1.37
1810 (b)			Siltstone	1.1	50.8	5.8	2.17	429	268		7.77	1.46
1830			Siltstone	1.3	56.4	7.1	2.30	433	308		7.84	1.69
1850			Siltstone	0.8	38.4	3.3	2.08	425	158		7.36	1.64
1870			Siltstone	1	47.5	5	2.10	428	238		6.93	1.54
1890			Siltstone	0.7	45.3	3	1.55	423	194		7.48	1.40
1910			Siltstone	0.7	47.2	2.8	1.48	422	189		6.80	1.29
1930			Siltstone	1	59.2	4.6	1.69	427	272		9.60	2.09
1950			Siltstone	0.9	56.5	3.9	1.59	426	245		9.56	1.48
1970			Siltstone	0.6	43.8	1.5	1.37	414	109		12.66	4.82
1990			Siltstone	0.6	44.0	1.8	1.37	425	132		10.19	4.37
2010			Bulked	0.5	26.6	2	1.88	421	106		15.22	6.62
2030			Mudstone	0.7	19.9	4.8	3.51	430	137		9.51	3.48
2060			Mudstone	1	29.1	4.7	3.44	429	137		11.56	2.42
2080			Mudstone	1.2	33.7	4.5	3.56	428	127		9.75	2.18
2100			Mudstone	0.7	27.3	3.3	2.57	427	128		10.18	1.86
2120			Mudstone	0.8	40.3	3.6	1.98	429	182		10.28	1.96
2140			Bulked	0.9	53.9	2.8	1.67	424	168		7.31	2.47
2150			Bulked	0.7	41.5	2.2	1.69	427	130		8.36	3.41
2160			Mudstone	1	55.5	2.8	1.80	429	155		8.04	3.91

TABLE 3 cont.

SOURCE ROCK QUALITY INDICATORS

COUNTRY: Norway
WELL: 6305/7-1

DEPTH (m)	DEPTHRANGE (ft)	FORMATION	PICKED LITHOLOGY	S1 (kg/t)	S1 (mg/gC)	S2 (kg/t)	TOC (%)	TMAX deg C	HI	GOGI	CARB (%)	S (%)
2180			Mudstone	0.7	48.7	1.7	1.44	425	118		9.00	4.33
2210			Mudstone	0.7	55.7	1.7	1.26	419	135		9.01	5.00
2250			Mudstone	0.6	51.8	1.5	1.16	429	130		12.95	1.35
2270			Bulked				0.70				19.01	5.01
2330			Bulked				0.84				11.36	2.03
2350			Bulked				0.86				12.01	1.58
2370			Bulked	0.6	49.3	1.4	1.22	422	115		16.60	1.45
2390			Bulked	0.6	44.8	1.5	1.34	432	112		12.54	1.62
2410			Bulked	0.6	37.1	2	1.62	434	124		16.71	2.45
2440			Bulked	0.6	47.8	1.8	1.26	430	143		14.54	1.34
2480			Siltstone				0.49				22.06	0.81
2520			Mudstone				0.28				14.16	0.46
2550			Mudstone				0.26				18.23	0.98
2570			Mudstone				0.45				16.44	2.20
2591			Bulked	0.5	43.5	1.4	1.15	432	122		26.24	2.64
2609			Bulked	0.5	46.9	1.1	1.07	426	103		22.11	2.02
2630			Bulked				0.98				29.79	1.86
2648			Bulked				0.88				32.57	1.98
2651			Bulked				0.85				31.82	1.70
2672			Bulked	0.7	62.1	1.2	1.13	432	106		21.16	2.49
2696			Bulked	0.6	35.2	2	1.71	430	117		10.65	2.55
2717			Bulked	0.7	45.1	1.7	1.55	433	110		10.78	2.65
2735			Bulked	0.8	59.1	1.2	1.35	430	89		12.60	2.70

TABLE 3 cont.

SOURCE ROCK QUALITY INDICATORS

COUNTRY: Norway
WELL: 6305/7-1

DEPTH (m)	DEPTHRANGE (ft)	FORMATION	PICKED LITHOLOGY	S1 (kg/t)	S1 (mg/gC)	S2 (kg/t)	TOC (%)	TMAX deg C	HI	GOGI	CARB (%)	S (%)
2750			Bulked				0.75				15.11	0.98
2756			Bulked				0.72				12.12	1.16
2777			Bulked				0.44				10.95	0.55
2796			Mudstone				0.51				11.39	0.8
2816			Mudstone				0.4				12.49	0.29
2837			Bulked				0.43				25.9	0.46
2849			Bulked				0.49				26.19	0.41
2850			Siltstone	0.55		0.71		429				
2861			Bulked				0.42				26.96	0.44
2870			Bulked				0.55				19.72	0.59
2870			Mudstone	0.56		0.94		413				
2879			Bulked				0.65				20.19	0.65
2880			Siltstone	0.58		1.23		422				
2888			Mudstone				0.84				15.64	1.09
2888			Siltstone	0.52		0.58		419				
2900			Bulked				0.89				20.23	1.05
2906			Bulked				0.9				17.94	1.01
2910			Siltstone	0.5		0.8		426				
2912			Bulked				0.74				22.52	2.04
2920.85			Mudstone				0.96				17.2	1.55
2959.65			Mudstone				0.52				9.73	0.02
2968.6			Mudstone				0.21				15.93	0.01
2976.2			Mudstone				0.74				11.54	0.52

TABLE 3 cont.

SOURCE ROCK QUALITY INDICATORS

COUNTRY: Norway
WELL: 6305/7-1

DEPTH (m)	DEPTHRANGE (ft)	FORMATION	PICKED LITHOLOGY	S1 (kg/t)	S1 (mg/gC)	S2 (kg/t)	TOC (%)	TMAX deg C	HI	GOGI	CARB (%)	S (%)
2980.3			Mudstone				0.84				9.93	0.75
2988.2			Mudstone				0.62				15.2	0.81
2992.5			Mudstone				0.73				15.59	0.89
2995.5			Mudstone				0.68				17.52	0.78
2998.5			Mudstone				0.5				24.12	0.64
3010.5			Mudstone				0.51				19.21	0.73
3014			Bulked				0.46				16.23	0.71
3022			Siltstone	0.76		3.35		448				
3024.5			Siltstone	2.29		8.35		424				
3029			Bulked				0.09				6.43	0.7
3030.5			Siltstone	0.54		1.4		427				
3038			Bulked				0.21				13.35	1.21
3041			Siltstone	0.5		0.76		429				
3050			Bulked				0.36				10	0.42
3053			Bulked				0.38				13.86	0.58
3065			Bulked				0.27				19.12	1.88
3080			Bulked				0.29				20.78	2.94
3095			Bulked				0.27				10.88	2.88
3119			Bulked				0.41				14.73	0.98
3134			Bulked				0.49				12.56	1.19
3149			Bulked				0.33				26.27	0.49
3155			Bulked				0.41				23.2	0.35
3161			Bulked				0.45				20.48	0.44

TABLE 3 cont.

SOURCE ROCK QUALITY INDICATORS

COUNTRY: Norway
WELL: 6305/7-1

DEPTH (m)	DEPTHRANGE (ft)	FORMATION	PICKED LITHOLOGY	S1 (kg/t)	S1 (mg/gC)	S2 (kg/t)	TOC (%)	TMAX deg C	HI	GOGI	CARBT (%)	S (%)
3185			Bulked				0.45				17.92	0.36
3194			Bulked				0.39				19.58	0.52
3209			Bulked				0.36				22.18	0.41
3224			Bulked				0.26				16.47	0.19
3239			Bulked				0.4				10.5	0.3
3254			Bulked				0.35				18.33	0.46
3260			Bulked				0.5				16.79	0.58
3269			Bulked				0.53				11.78	0.98
3284			Bulked				0.34				9.83	0.41
3299			Bulked				0.47				10.47	1.23
3314			Bulked				0.64				13.93	0.87
3329			Bulked				0.55				16.19	1.14
3344			Bulked				0.44				18.73	0.88
3350			Bulked				0.45				16.86	0.82
3359			Bulked				0.4				19.1	0.61
3377			Bulked				0.42				22.61	0.63

APPENDIX - C

IATROSCAN

IATROSCAN DATA

Study **63057-1 NOCS**

Batch **9809SED006**

Sample No	S001	S002	S003	S004	S005	S006	S007	S008
Depth (m)	2917.5	2918.35	2919.5	2920.5	2921.5	2922.5	2923.5	2924.5
Saturates mg/gm	0.01	0.02	0.03	0.02	0.02	0.02	0.02	0.03
Aromatics mg/gm	0.01	0.02	0.02	0.02	0.01	0.01	0.02	0.01
Resin A mg/gm	0.02	0.01	0.03	0.02	0.02	0.01	0.02	0.03
Resin B mg/gm	0.02	0.01	0.01	0.01	0.02	0.02	0.01	0.02
Total Extract mg/gm	0.06	0.05	0.09	0.07	0.07	0.06	0.06	0.09
Saturates %wt	22.57	29.73	37.05	36.10	21.04	29.09	30.05	33.65
Aromatics %wt	22.53	30.62	19.26	24.95	20.38	20.15	27.81	11.81
Resin A %wt	27.45	24.44	27.85	28.56	29.87	23.96	25.55	34.97
Resin B %wt	27.45	15.22	15.83	10.39	28.71	26.80	16.59	19.57

Sample No	S009	S010	S011	S012	S013	S014	S015	S016
Depth (m)	2925.2	2926.5	2927.4	2928.5	2929.5	2930.5	2931.5	2932.6
Saturates mg/gm	0.02	0.02	0.01	0.02	0.02	0.01	0.01	0.01
Aromatics mg/gm	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.01
Resin A mg/gm	0.02	0.01	0.02	0.02	0.02	0.01	0.00	0.00
Resin B mg/gm	0.01	0.02	0.01	0.01	0.02	0.01	0.01	0.00
Total Extract mg/gm	0.05	0.06	0.05	0.05	0.06	0.03	0.03	0.02
Saturates %wt	32.83	36.06	17.24	30.40	32.92	24.28	35.93	37.64
Aromatics %wt	15.12	13.43	24.20	23.51	15.85	19.24	16.64	50.10
Resin A %wt	30.32	15.27	39.90	34.99	27.05	39.92	8.21	7.36
Resin B %wt	21.73	35.24	18.66	11.11	24.18	16.57	39.22	4.90

Sample No	S017	S018	S019	S020	S021	S022	S023	S024
Depth (m)	2933.5	2934.55	2935.8	2936.5	2937.5	2938.5	2939.5	2940.5
Saturates mg/gm	0.01	0.01	0.01	0.01	0.02	0.02	0.01	0.01
Aromatics mg/gm	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Resin A mg/gm	0.00	0.01	0.01	0.01	0.01	0.03	0.01	0.01
Resin B mg/gm	0.01	0.01	0.01	0.01	0.01	0.04	0.01	0.00
Total Extract mg/gm	0.03	0.04	0.04	0.04	0.05	0.10	0.04	0.04
Saturates %wt	31.80	23.60	35.71	27.08	34.26	19.26	27.36	38.48
Aromatics %wt	14.65	17.10	26.86	15.00	13.61	13.26	26.19	33.32
Resin A %wt	16.25	27.82	13.96	29.27	25.43	28.03	29.56	21.49
Resin B %wt	37.29	31.48	23.48	28.65	26.70	39.45	16.89	6.71

Table 4