

### 5.3 Formation Pressure Measurements

A Dresser Atlas Formation Multitester (FMT) was used to obtain reservoir pressures.

A total of five runs with the FMT-tool were made including the intermediate logging run. This was due to tool failures and lost seal problems while sampling.

One sample was taken at 2110.5 m RKB containing mud filtrate. The pressure measurements are listed in table 5.3.

The formation pressures are plotted in fig. 5.1. The pressure in the Statfjord Formation was found to be 342.46 bar at 2205 m RKB. The pressure depth relation of the Lunde Formation is 1.6 bar higher than that of the Statfjord Formation. The pressure gradient for both formations is 0.101 bar/m.

Saga Petroleum a.s.



TABLE 5.3 A  
FORMATION PRESSURE MEASUREMENTS  
WELL 34/7-2

DEPTH (mRKB)	HYDROSTATIC MUD PRESSURE (psia)	MEASURED FORMATION PRESSURE (psia)	TEMPERATURE CORRECTED FORMATION PRESSURE		EQUIVALENT PRESSURE GRADIENT(MSL) (g/cm <sup>3</sup> )	PRETEST PERMEABILITY (md)
			(psia)	(bar)		
RUN 4A						
2152.8	5516	5000	4884	336.74	1.614	0.3
2171.0	5563	4957	4941	340.67	1.619	3.0
2156.0	5528	4905	4889	337.08	1.613	0.4
RUN 5B						
2152.5	5315	Tight	-	-	-	-
2170.5	5362	4967	4949	341.22	1.622	10
2205.0	5448	4985	4967	342.46	1.602	30
2211.0	5457	4993	4975	343.01	1.660	150
2237.0	5528	5031	5013	345.63	1.593	1000
2256.5	5575	5060	5042	347.63	1.589	1000
2260.5	5582	5066	5048	348.05	1.588	5
2367.5	5843	5238	5220	359.91	1.567	50
2384.0	5884	5270	5253	362.18	1.566	15
2396.0	5913	5288	5271	363.42	1.563	30
2425.0	5996	5329	5312	366.25	1.556	0.15
2436.0	6013	5344	5327	367.28	1.553	1000
2453.0	6058	5371	5354	369.14	1.550	70
2458.0	6067	5379	5362	369.70	1.549	400
2153.0	5317	Tight	-	-	-	-
2162.0	5314	Tight	-	-	-	-
2161.0	5347	Tight	-	-	-	-
2162.0	5347	4946	4928	339.77	1.621	0.6
2180.5	5397	4988	4970	342.67	1.621	5
RUN 5C						
2138.0	5246	5016	5000	344.74	1.664	0.01
2141.0	5253	5062	5046	347.91	1.677	0.3
2156.0	5296	Tool failure				
2159.0	5298	" "				
2161.0	5305	" "				
2169.0	5330	" "				
2191.0	5415	" "				
2156.5	5293	" "				
2159.5	5299	" "				
2169.5	5322	" "				
2170.5	5328	" "				

CONVERSIONS

1 bar 14.5038 psi  
1 g/cc 8.34523 ppg  
1 kg/cm<sup>2</sup> 14.2233 psi

DATE 20.3.85	AUTH JB
DRAW BY ASa	APPR HHO
REF	



**TABLE 5.3 B**  
**FORMATION PRESSURE**  
**MEASUREMENTS**  
**WELL 34/7-2**

DEPTH (mRKB)	HYDROSTATIC MUD PRESSURE (psia)	MEASURED FORMATION PRESSURE (psia)	TEMPERATURE CORRECTED FORMATION PRESSURE		EQUIVALENT PRESSURE GRADIENT(MSL) (g/cm <sup>3</sup> )	PRETEST PERMEABILITY (md)
			(psia)	(bar)		
RUN 5C	cont.					
2211.0	5440	Tool failure				
2205.0	5420	" "				
RUN 5D						
2199.0	5393	4990	4974	342.94	1.609	0.3
2201.0	5407	4987	4971	342.74	1.606	1.5
2205.0	5416	4989	4973	342.88	1.604	200
2205.5	5419	4989	4973	342.88	1.603	40
2191.0	5382	Tight	-	-	-	-
2190.0	5379	Tight	-	-	-	-
2184.5	5365	Tight	-	-	-	-
2179.8	5354	4991	4975	343.01	1.623	0.4
2176.4	5347	4954	4938	340.46	1.614	5
2171.0	5334	4967	4951	341.36	1.619	0.9
2169.5	5332	4958	4942	340.74	1.620	3
2156.0	5303	Tight	-	-	-	-
RUN 5E						
2211	5433	5005	4989	343.89	1.605	50
<b>CONVERSIONS</b> 1 bar 14.5038 psi 1 g/cc 8.34523 ppg 1 kg/cm <sup>2</sup> 14.2233 psi						

DATE	20.3.85	AUTH	JB
DRAWN BY	Asa	APPR	H110
REF			

## 6.2.1. Mud Properties, Daily Report

Well no: 34/7-2Saga  
Petroleum a.s.

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
2/9	36	331														Spud in
3/9	36	394														Set CSG
4/9	36	411														Run riser
5/9	17½	685	9,2	10	25	20/30	.36	3,7		9,5	.1/.2	100	4700	.5		Dr1 17½"
6/9	"	861	9,4	10	35	20/30	.29	7,4		9,5	.05/.15	200	7500	.25		Dr1 log
7/9	26 H.O.	804	9,7	10	40	20/30	.26	9,9		9,2	.01/.1	360	9000	TR		Log Ream 26"
8/9	26 "	861	10.0	15	30	20/30	.41	3,5		9,2	.05/.1	400	10000	TR		Ream, pull riser
9/9		848	MIXING NEW MUD													Run and Cmt 20" Csg
10/9		848	8,9	10	15	3/4	.33	3,6		8	-	220	40000	-	-	KCL-POL MUD
11/9		848	8,9	10	15	3/4	.33	3,6		8	-	220	40000	-	-	Run and test BOP
12/9	17½	952	9,4	15	17	4/5	.55	1,0	9	10,5	.2/.5	320	35000	.5	7	Dr1
13/9	17½	1267	9,5	14	19	6/12	.51	1,4	8	9,5	.2/.4	280	38000	.5	7	Dr1
14/9	17½	1565	10,2	16	21	6/12	.52	1,4	13	8,8	.1/.2	320	38000	1	9	Dr1
15/9	17½	1565	11,1	16	21	6/15	.52	1,4	15	8	.1/.1	320	35000	1	12	Log circ.
16/9	17½	1565	11,4	20	23	7/16	.55	1,4	15	8	.1/.2	320	34000	1	14	Log RIH. circ.
17/9	17½	1565	11,4	20	21	7/13	.57	1,2	12	8	.05/.1	320	37000	1	14	Log circ.
18/9	12 1/4	1549	11,4	18	20	6/12	.56	1,2	13	8	.05/.1	480	35000	1	14	Run 13 3/8 CSG
19/9	12 1/4	1570	12,0	24	24	8/16	.58	1,3	16	11,9	.2/.4	600	33000	1	17	Dr1 Cmt
20/9	"	1766	12,5	29	17	6/21	.7	.56	10	10,3	.2/.4	900	38000	1	16,5	Dr1g 12 1/4 hole
21/9	"	2025	13,3	31	20	7/22	.68	.71	10	9,6	.15/.8	1450	55000	1	20	"
22/9	"	2042	13,3	31	20	7/22	.68	.71	15	9,4	.15/.9	1200	52000	1	20	Dr1g. circ. logg
23/9	"	2042	13,3	26	16	12/37	.69	.55	17	9,3	.15/.9	1200	52000	½	20	Log.circ.run 9 5/8
24/9	9 5/8	2042	13,3	27	16	6/25	.70	.54	6,5	9,1	.05/.8	1200	53000	½	20	Run CSG. Pull BOP
25/9	"	2042	14,5	28	13	5/35	.80	.34	9	9,5	.1/.35	1400	44000	TR	25	Work on BOP.WOW
26/9	8½	2022	15,0	38	17	5/35	.76	.49	11	9,0	.1/.35	1400	44000	1/4	25	Run BOP, Dr1g Cmt.
27/9	8½	2147	15,0	38	12	4/25	.81	.32	9,5	9,4	.1/.6	1200	35000	½	26	Dr1g. Cmt. Leakoff. Test
28/9	8½	2169	15,0	37	18	5/25	.74	.55	6	9,5	.1/.7	960	30000	½	26	Trip, Core, Trip, Core
29/9	"	2177	15,0	38	17	5/25	.39	4,8	5,5	9,5	.1/.8	920	30000	½	26	Core, Logg, RIH, Drill
30/9	"	2242	14,3	38	14	4/24	.79	.37	6,0	9,6	.1/.6	400	34000	½	24	Dr1g.
1/10	"	2314	14,3	38	16	5/32	.77	.44	6,0	9,6	.1/.75	360	30000	½	24	Dr1g.
2/10	"	2412	14,3	36	14	7/39	.78	.39	7,5	9,7	.1/.9	320	26000	½	24	Dr1g.
3/10	"	2475	14,3	35	15	6/34	.77	.41	8,0	10,6	.1/.1,5	200	24000	.25	23	Logging



6.2.2. Mud Materials used

Well no: 34/7-2



MATERIAL	UNIT	36" HOLE	26" HOLE	17 1/2" HOLE	12 1/4" HOLE	8 1/2" HOLE	5 7/8" HOLE	TOTAL
Bentonite	MT	20	16			6		42
Bentonite	50 kg			29				29
Barite	MT		29	201	197	381		808
Caustic Soda	25 kg	4	34			86		124
Soda Ash	50 kg	1	2	2				5
Bicarbonate of Soda	50 kg				6	12		18
Milpolymer 302	25 kg			177	9	5		191
KGL	50 kg			100	287			387
KCL Brine	bbls			700				700
KOH	25 kg			18		2		20
Permalose	25 kg			214	121	40		375
Defoamer	25 l		7	3	1	1		12
Unical	25 kg		34	1		214		249
Drispac S/L	25 kg			25	40	25		90
Lime	40 kg	4						4
Al Stearate	25 kg		1					1
Lubrisal	55 gal		4					4
WOZI	25 kg		7					7
Prosalt	50 kg		2					2
Drillam Reg	25 kg			83	5	13		101
MD	55 gal			1	1	1		3
Drillam L/V	25 kg				14	26		40
LD 8	5 gal				1	3		4
Kwickseal F	4016					4		4