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HYDRO

FORMATION PRESSURE WORKSHEET

Well No. : 25/8-4

Rig : Vildkat Explorer

Date : 08.08.92

Pressure Units : bar

RKB-MSL : 25m

Witnessed by : N.Bang/F.Sollie

Run No. 1A	Depth (MD)	Depth TVD(RKB)	Initial Hydrostatic Press		Formation Pressure		Final Hydrostatic Press		Time		Remarks	
			Strain	HP	Strain	HP	Strain	HP	Set	Retract	SG temp.:	Mobility:
1	1385.0	*	179.0	178.70	138.5	138.16	179.0	178.72	15:05	15:07	47.1 DC	116.3 mD/cp
2	1387.5		179.3	179.11	138.7	138.47	179.3	179.08	15:13	15:17	54.2	144.0
3	1705.5		219.7	219.45	-	-	219.6	219.50	15:40	15:42	54.2	Tight
4	1709.5		220.1	220.04	172.0	171.83	220.1	220.03	15:49	15:50	58.7	14.7
5	1711.8		220.4	220.29	-	-	220.3	220.33	15:55	15:56	59.6	Tight
6	1733.2		223.1	222.92	173.9	173.62	223.1	222.97	16:02	16:04	60.2	44.0
7	1743.7		224.4	224.28	-	-	224.4	224.35	16:09	16:11	60.7	Tight
8	1743.2		224.3	224.23	174.7	174.52	224.3	224.26	16:17	16:19	61.4	43.8
9	1745.8		224.7	224.57	174.9	174.72	224.7	224.59	16:25	16:27	61.8	101.9
10	1750.7		225.3	225.18	175.3	175.11	225.3	225.21	16:32	16:33	62.1	664.0
11	1767.3		227.3	227.27	-	-	227.3	227.34	16:39	16:40	62.3	Tight
12	1766.9		227.2	227.24	-	-	227.2	227.24	16:44	16:45	62.7	Seal failure
13	1767.5		227.3	227.32	-	-	227.3	227.32	16:49	16:50	63.1	Seal failure
14	1778.0		228.7	228.58	-	-	228.7	228.65	17:00	17:01	63.8	Tight

* TVD correction < 0.30 m at TD

Page : 1 of 2

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Witnessed by : N.Bang/F.Sollie

Run No. 1A	Depth (MD)	Depth TVD(RKB)	Initial Hydrostatic Press		Formation Pressure		Final Hydrostatic Press		Time		Remarks	
			Strain	HP	Strain	HP	Strain	HP	Set	Retract	SG temp.:	Mobility:
15	1780.7	*	229.1	229.00	177.8	177.60	229.1	229.01	17:05	17:07	64.0 °C	138.0 mD/cp
16	1781.2		229.1	229.04	177.9	177.67	229.1	229.06	17:11	17:14	64.5	218.3
17	1781.8		229.2	229.11	177.9	177.71	229.2	229.11	17:18	17:21	65.0	320.2
18	1783.0		229.3	229.26	178.0	177.83	229.3	229.27	17:25	17:27	65.4	207.6
19	1785.0		229.6	229.53	178.2	178.02	229.6	229.54	17:31	17:32	65.7	3262.3
20	1795.0		230.9	230.80	179.2	179.00	230.9	230.84	17:36	17:38	66.0	2204.4
21	1805.0		232.1	232.10	180.2	180.02	232.1	232.11	17:43	17:45	66.4	1648.7
22	1815.0		233.4	233.37	181.2	181.02	233.4	233.38	17:50	17:52	66.9	1260.7
23	1825.0		234.7	234.64	182.2	182.02	234.7	234.65	17:58	18:01	67.5	1998.7
24	1842.5		236.9	236.83	-	-	236.8	236.88	18:07	18:08	68.1	Tight
25	1844.5		237.1	237.07	-	-	237.1	237.14	18:12	18:13	68.1	Tight
26	1847.5		237.5	237.47	-	-	237.5	237.47	18:17	18:19	69.0	Seal failure
27	1750.7		225.2	225.29	175.2	175.15	225.1	225.10	18:35	19:49	65.6	Sampling

* TVD correction < 0.30 m at TD

Page : 2 of 2

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HYDRO

FORMATION FLUID SAMPLING

Well : 25/8-4

Rig : Vildkat Explorer

Pretest No. : 27		Sample Depth : 1750.7 m		Witnesses : N.Bang/F.Sollie	
Run No. : 1A	Sample No. : 1	1st Chamber	2nd Chamber	3rd Chamber	
Chamber volume (gals/litres)		2 3/4 Gal.	1 Gal.		
Chamber No.		drained on rig	RFS.AC SN1094		
Filling time (mins.)		39	28		
Shut in press. (bar)/T deg C		169 / 65.6	170 / 65.6	/	
Chamber press. (surf bar)/T		98 / 17	Sealed	/	
Gas volume (SCF/Sm3)		4.55 / 0.13			
Oil volume (litres)		4.75			
Oil gravity (API/gm/cc)		23 API			
Water / Filtrate (litres)		4.75			
Water / Filtrate PPM CL-		144000			
Water filtrate pH/pF/mf/Ca++		6-6.5/0/0.5/30	/ /	/ /	
Mud filtrate PPM CL-		170000			
Mud filtrate pH/pF/mf/Ca++		8 / 0.1/0.9/120	/ /	/ /	
Gas composition ppm Cl		101091 - 94742			
C2		20495 - 15730			
C3		1101 - 821			
iC4		1718 - 1299			
nC4		125 - 58			
nC5		tr - 21			
CO ₂ , H ₂ S		None			

Remarks :

Standard probe used. Choke size: 4 x 0.020".
 Opened 1st chamber 18:35 pressure dropped to 4 bars, retracted at 18:41.
 Reset tool at 18:42 (same depth), opened 1st chamber again, flowing
 pressure 40-50 bars, pressure built up slowly to 169 bars, chamber closed
 at 19:21. 2nd chamber opened at 19:21, flowing pressure approx 50 bars,
 building up to 170 bars, chamber closed at 19:21.

Norsk Hydro

DAILY MUD PROPERTIES : RHEOLOGY PARAMETERS FOR WELL 25/8-4

Hole section: 36"

WATER BASED SYSTEM

Date	Depth		Mud Type	Funnel Visc [sec]	Dens [rd]	Mudtmp Out [DegC]	Fann Readings								Rheo Test [DegC]	PV [mPas]	YP [Pa]	Gel0 [Pa]	Gel10 [Pa]
	MD	TVD					600	300	200	100	60	30	6	3					
25-jul-1992 23:59	241	241	SPUD MUD	100.0	1.05	0.0									0.0	0.0	0.0	0.0	0.0
26-jul-1992	241	241	SPUD MUD	100.0	1.05	0.0									0.0	0.0	0.0	0.0	0.0

Hole section: 12 1/4"

WATER BASED SYSTEM

Date	Depth		Mud Type	Funnel Visc [sec]	Dens [rd]	Mudtmp Out [DegC]	Fann Readings								Rheo Test [DegC]	PV [mPas]	YP [Pa]	Gel0 [Pa]	Gel10 [Pa]
	MD	TVD					600	300	200	100	60	30	6	3					
27-jul-1992	241	241	SPUD MUD	100.0	1.05	0.0									0.0	0.0	0.0	0.0	0.0
28-jul-1992	241	241	SPUD MUD	80.0	1.28	0.0	52	31	23	4				1	50.0	21.0	10.0	2.0	2.0
29-jul-1992 23:59	241	241	SPUD MUD	80.0	1.28	0.0	50	30	19	12				1	50.0	20.0	10.0	2.0	2.0
30-jul-1992	241	241	SPUD MUD	59.0	1.28	0.0	56	36	28	16				2	50.0	20.0	8.0	1.0	2.0

Hole section: 8 1/2"

WATER BASED SYSTEM

Date	Depth		Mud Type	Funnel Visc [sec]	Dens [rd]	Mudtmp Out [DegC]	Fann Readings								Rheo Test [DegC]	PV [mPas]	YP [Pa]	Gel0 [Pa]	Gel10 [Pa]
	MD	TVD					600	300	200	100	60	30	6	3					
30-jul-1992 23:59	241	241	POLYMER MU	59.0	1.28	27.0									50.0	20.0	8.0	1.0	2.0
31-jul-1992 23:59	1673	1673	POLYMER MU	59.0	1.29	21.0	49	31	24	14				2	50.0	18.0	6.5	1.0	2.0
01-aug-1992 23:59	1723	1723	POLYMER MU	57.0	1.30	18.0	46	29	19	13				2	50.0	17.0	6.0	1.0	2.0
02-aug-1992 21:00	1759	1759	POLYMER MU	57.0	1.30	18.3	44	28	19	12				2	50.0	16.0	6.0	1.0	2.0
03-aug-1992	1812	1812	POLYMER MU	56.0	1.29	14.1	44	28	18	13				2	50.0	16.0	6.0	1.0	2.0
04-aug-1992	1837	1837	POLYMER MU	57.0	1.30	0.0	44	28	17	13				2	50.0	16.0	6.0	1.0	2.0
05-aug-1992	1840	1840	POLYMER MU	59.0	1.30	19.0	48	31	19	15				3	50.0	17.0	7.0	1.0	2.0
06-aug-1992	1891	1891	POLYMER MU	5.0	1.30	37.1	51	35	26	18				3	50.0	19.0	8.0	1.5	4.0
07-aug-1992 23:59	1891	1891	POLYMER MU	6.0	1.30	0.0									50.0	19.0	8.0	1.5	4.0
08-aug-1992 23:59	1891	1891	POLYMER MU	5.8	1.30	0.0									50.0	18.0	7.0	1.0	3.5

See also the report 'DAILY MUD PROPERTIES : OTHER PARAMETERS'

DAILY MUD PROPERTIES : OTHER PARAMETERS FOR WELL 25/8-4

Hole section: 36" WATER BASED SYSTEM

Date	Depth		Mud Type	Dens [rd]	Filtrate		Filt. cake API (mm)	Filt. cake (mm)	HEMT Press/Temp [psi/DegC]	pH	Alcalinity			Inhib Chem [Kg/m3]	K+ [mg/l]	CL- [mg/l]	Ca++ [mg/l]	Mg++ [mg/l]	Total hardness	Percentage			CBC [Kg/m3]	ASG	LGS
	MD	TVD			API [ml]	HEMT [ml]					Em	Pf	ME							Solid [%]	Oil [%]	Sand [%]			
25-Jul-1992 23:59	241	241	STUD MUD	1.05	0.0	0.0	0	0	0/0	8.0	0.0	0.0	0.0	0	0	0	0	0	0	0.0	0.0	0.0	0	0.0	0
26-Jul-1992	241	241	STUD MUD	1.05	0.0	0.0	0	0	0/0	8.0	0.0	0.0	0.0	0	0	0	0	0	0	0.0	0.0	0.0	0	0.0	0

Hole section: 12 1/4" WATER BASED SYSTEM

Date	Depth		Mud Type	Dens [rd]	Filtrate		Filt. cake API (mm)	Filt. cake (mm)	HEMT Press/Temp [psi/DegC]	pH	Alcalinity			Inhib Chem [Kg/m3]	K+ [mg/l]	CL- [mg/l]	Ca++ [mg/l]	Mg++ [mg/l]	Total hardness	Percentage			CBC [Kg/m3]	ASG	LGS	
	MD	TVD			API [ml]	HEMT [ml]					Em	Pf	ME							Solid [%]	Oil [%]	Sand [%]				
27-Jul-1992	241	241	STUD MUD	1.05	0.0	0.0	0	0	0/0	8.0	0.0	0.0	0.0	0	0	0	0	0	0	0.0	0.0	0.0	0	0.0	0	
28-Jul-1992	241	241	STUD MUD	1.28	1.5	12.5	0	0	300/70	8.0	0.0	0.4	1.5	0	0	189000	320	0	0	0	16.0	0.0	0.0	0	0.0	0
29-Jul-1992 23:59	241	241	STUD MUD	1.28	1.5	12.6	0	0	300/70	8.0	0.0	0.4	1.5	0	0	189000	320	0	0	16.0	0.0	0.0	0	0.0	0	
30-Jul-1992	241	241	STUD MUD	1.28	1.2	12.2	0	0	300/70	8.0	2.0	0.2	0.9	0	0	178000	100	0	200	17.0	0.0	0.0	12	0.0	0	

Hole section: 8 1/2" WATER BASED SYSTEM

Date	Depth		Mud Type	Dens [rd]	Filtrate		Filt. cake API (mm)	Filt. cake (mm)	HEMT Press/Temp [psi/DegC]	pH	Alcalinity			Inhib Chem [Kg/m3]	K+ [mg/l]	CL- [mg/l]	Ca++ [mg/l]	Mg++ [mg/l]	Total hardness	Percentage			CBC [Kg/m3]	ASG	LGS
	MD	TVD			API [ml]	HEMT [ml]					Em	Pf	ME							Solid [%]	Oil [%]	Sand [%]			
30-Jul-1992 23:59	1837	1837	POLYMER MU	1.28	1.2	12.2	1	0	300/70	8.0	2.0	0.2	0.9	0	0	178000	100	0	200	17.0	0.0	0.0	12	0.0	0
31-Jul-1992 23:59	1840	1840	POLYMER MU	1.30	1.4	13.6	1	0	300/70	8.0	1.4	0.3	0.9	0	0	178000	100	0	160	18.0	0.0	0.0	13	0.0	0
01-Aug-1992 23:59	1840	1840	POLYMER MU	1.30	1.4	13.6	1	0	300/70	8.0	1.4	0.3	0.9	0	0	175000	100	0	160	18.0	0.0	0.0	13	0.0	0
02-Aug-1992 21:00	1840	1840	POLYMER MU	1.30	1.4	13.6	1	0	300/70	8.0	1.4	0.3	0.9	0	0	175000	100	0	160	18.0	0.0	0.0	13	0.0	0
03-Aug-1992	1812	1812	POLYMER MU	1.29	1.6	13.3	1	0	300/70	8.0	1.2	0.1	0.6	0	0	175000	250	0	320	17.5	0.0	0.0	40	0.0	0
04-Aug-1992	1837	1837	POLYMER MU	1.30	1.8	13.7	1	0	300/70	8.0	1.0	0.1	0.6	0	0	175000	270	0	380	18.0	0.0	0.0	40	0.0	0
05-Aug-1992	1840	1840	POLYMER MU	1.30	1.9	14.0	1	0	300/70	8.0	1.0	0.1	0.6	0	0	175000	270	0	380	18.0	0.0	0.0	40	0.0	0
06-Aug-1992	1840	1840	POLYMER MU	1.30	1.9	14.0	1	0	300/70	8.0	1.0	0.1	0.6	0	0	170000	120	0	200	18.0	0.0	0.0	40	0.0	0
07-Aug-1992	1840	1840	POLYMER MU	1.30	1.9	14.0	1	0	300/70	8.0	1.0	0.1	0.6	0	0	170000	120	0	200	18.0	0.0	0.0	40	0.0	0
08-Aug-1992 23:59	1891	1891	POLYMER MU	1.30	1.7	13.0	1	0	0/0	8.0	1.5	0.2	0.9	0	0	170000	120	0	200	18.5	0.0	0.0	40	0.0	0

See also the report 'DAILY MUD PROPERTIES : RHEOLOGY PARAMETERS'

Norsk Hydro

TOTAL CONSUMPTION OF MUD ADDITIVES ON WELL 25/8-4

Section Size	Product/Additive	Total Amount Planned	Total Amount Used	Unit	Difference		Difference in cost	
					Amount	%	%	[kNOK]
36"	BARITE		81000.0	kg				
	BENIONITE		16000.0	kg				
	SODA ASH		100.0	kg				
	XCD-POLYMER		200.0	kg				
12 1/4"	BARITE		24000.0	kg				
	BENIONITE		21000.0	kg				
	CMC-EHV		2000.0	kg				
	SODA ASH		175.0	kg				
8 1/2"	BICARBONATE		75.0	kg				
	BRIDGIT FINE		12400.0	kg				
	BRIDGIT MICRO		9350.0	kg				
	BRIDGIT X-FINE		20000.0	kg				
	CACO3 / CALSIUM CARBONATE		2800.0	kg				
	DEFOAMER		60.0	l				
	FL-7 PLUS		1875.0	kg				
	NACL BRINE		198000.0	l				
	PACSEAL SL		150.0	kg				
	PREMIXED MUD		200000.0	l				
	SHALETROL		25.0	kg				
	SODA ASH		425.0	kg				
XCD-POLYMER		700.0	kg					