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HYDRO

FORMATION PRESSURE WORKSHEET

Well No. : 30/9-11A

Rig : Vildkat Explorer

Date : 16/17 December 1990

Pressure Units : Bar

RKB-MSL : 25 m

Witnessed by : Gundesoe/Skjold

Run No.	Depth (MD)	Depth TVD (RKB)	Initial Hydrostatic Press		Formation Pressure		Final Hydrostatic Press		Time		Remarks
			Strain	HP	Strain	HP	Strain	HP	Set	Retract	
18	2551.5	2345.7	299.73	299.98	240.41	240.65	299.76	300.15			7 mD/cp
1	2551.6	2345.8	300.21	300.94	240.48	240.90	300.21	300.70	22:35	22:39	18 mD/cp
2	2558.2	2351.3	300.81	301.34	239.71	239.98	300.83	301.26	22:48	22:51	131 mD/cp
3	2560.0	2352.8	301.02	301.42	239.84	240.11	301.00	301.43	22:56	23:00	150 mD/cp
4	2564.8	2356.8	301.51	301.94	240.21	240.46	301.48	301.90	23:06	23:10	187 mD/cp
5	2568.0	2359.5	301.84	302.29	240.48	240.77	301.83	302.28	23:16	23:20	24 mD/cp
6	2571.4	2362.3	302.19	302.65	240.76	241.01	302.17	302.60	23:26	23:29	357 mD/cp
7	2580.4	2369.7	303.13	303.58	242.00	242.27	303.11	303.54	23:37	23:40	28 mD/cp
10	2593.3	2380.4	304.59	304.90					00:18	00:23	Seal failure
11	2593.5	2380.5	304.53	304.90	243.11	243.70	304.51	304.94	00:27	00:35	6 mD/cp
8	2593.8	2380.8	304.56	305.00	243.28	243.58	304.55	304.99	23:47	00:01	3 mD/cp
9	2601.0	2386.7	305.34	305.78	245.77	246.04	305.32	305.74	00:09	00:11	34 mD/cp
12	2610.8	2394.9	306.39	306.85	243.83	244.08	306.32	306.74	00:42	00:51	40 mD/cp
13	2614.2	2397.7	306.70	307.16	244.17	244.40	307.72	307.16	00:58	01:05	911 mD/cp

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Witnessed by : Gundesoe/Skjold

Run No.	Depth (MD)	Depth TVD (RKB)	Initial Hydrostatic Press		Formation Pressure		Final Hydrostatic Press		Time		Remarks
			Strain	HP	Strain	HP	Strain	HP	Set	Retract	
14	2619.2	2401.9	307.26	307.69	244.54	244.80	307.23	307.67	01:10	01:14	1108 mD/cp
15	2643.9	2422.3	309.83	310.21					01:28	01:30	Seal failure
16	2644.2	2422.6	309.84	310.25							Seal failure
19	2652.5	2429.5	310.75	311.12	246.60	246.85	310.74	311.10	01:53	01:57	1844 mD/cp
20	2655.5	2432.0	310.97	311.19	246.82	247.15	310.99	311.48	02:02	02:09	118 mD/cp
21	2658.5	2434.5	311.30	311.54	247.07	247.40	311.26	311.78	02:17	02:23	135 mD/cp
22	2660.5	2436.3	311.48	311.95	247.21	247.67	311.47	312.11	02:29	02:35	185 mD/cp
17	2645.9	2424.0	310.01	310.45	246.44	246.74	309.99	310.47	01:45	01:48	62 mD/cp
23	2558.2	2351.3	300.48	300.88	239.69	240.08			03:25	03:42	Sample 1, 2-3/4 gal
									03:43	03:52	Sample 2, 1 gal

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FORMATION FLUID SAMPLING

Well : 30/9-11A

Rig : VILDKAT EXPLORER

Pretest No. : 1		Sample Depth : 2551.6m MD (2345.8m TVD)		Witnesses : Gundesoe/Tammemagi	
Run No : 2B	Sample No. : 1	1st Chamber	2nd Chamber	3rd Chamber	
Chamber volume (gals/litres)		2- 3/4 gal	1 gal		
Chamber No.		RFS-BC 1056	RFS-AD 1236		
Filling time (mins.)		25	11		
Shut in press. (bar)/T deg C		240.7 / 82	240.5 / 82	/	
Chamber press. (surf bar)/T		3 / 15	3 / 15	/	
Gas volume (SCF/Sm3)		0	0		
Oil volume (litres)		0	0		
Oil gravity (API/gm/cc)		-	-		
Water / Filtrate (litres)		10.5	3.8		
Water / Filtrate PPM CL-		52000	52000		
Water filtrate pH/pF/Ca++		6.60 / 0 / 572	6.55 / 0 / 640	/ /	
Mud filtrate PPM CL-		59000	59000		
Mud filtrate pH/pF/Ca++		8.1 / 0 / 320	8.1 / 0 / 320	/ /	
Gas composition %	C1	-	-		
	C2				
	C3				
	IC4				
	NC4				
	H2S				
	CO2				

Remarks :

Both chambers opened at surface. Recovered water and mud filtrate, light greyish brown colour and strong acrid smell. Slight greasy film on surface of water. Bright yellowish-blue flu.

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FORMATION FLUID SAMPLING

Well : 30/9-11A
Rig : Vildkat Explorer

Pretest No. : 23		Sample Depth : 2558.m MD (2351.3m TVD)		Witnesses : Gundesø / Skjold	
Run No. :2A	Sample No. : 1	1st Chamber	2nd Chamber	3rd Chamber	
Chamber volume (gals/litres)		2-3/4 gal	1 gal		
Chamber No.		RFS-BC 1056	RFS-AD 1236		
Filling time (mins.)		17	9		
Shut in press. (bar)/T deg C		239.78 / 81.1	239.78 / 81.1	/	
Chamber press. (surf bar)/T		3 / 14°C	3 / 14°C	/	
Gas volume (SCF/Sm ³)		0.751	0		
Oil volume (litres)		0	0		
Oil gravity (API/gm/cc)		-	-		
Water / Filtrate (litres)		10.3	3.9		
Water / Filtrate PPM CL-		54 000 @ 14°C	48 000 @ 10°C		
Water filtrate pH/pF/Ca ⁺⁺		6.1 / 0 / 570	6.6 / 0 / 620	/ /	
Mud filtrate PPM CL-		57 000 @ 14°C	57 000 @ 14°C		
Mud filtrate pH/pF/Ca ⁺⁺		8.1 / 0 / 320	8.6 / 0 / 580	/ /	
Gas composition ppm C1		74799	-		
C2		2426	-		
C3		542	-		
IC4		38	-		
NC4		7	-		
H2S		-	-		
CO2		-	-		

Remarks : Gas values diluted 10 times in order to avoid saturating system. Four gas samples taken, three of which agree to within 0.003%.
2-3/4 gal chamber recovered mud filtrate, medium brown colour with greasy scum floating on surface. Strong acrid smell generated by this fluid. No direct fluorescence observed.

1 gal chamber recovered water and mud filtrate, light greyish brown colour with greasy scum floating on surface. Strong smell, pale yellowish blue fluorescence.
KCl = 75.61 kg/m³ (compared with 92 kg/m³ in the mud).

6.1

MUD REPORT

12 1/4" Hole section

Well 30/9-11A was sidetracked from 30/9-11 and 337 m³ mud was transferred from 30/9-11.

Prior to drilling the cement the mud was pretreated with 2 kg/m³ of Sodium Bicarbonate.

A mud weight of 1.42 SG was used down to 1631 m where it was raised to 1.45 SG and finally increased to 1.47 SG at 1760 m. High MBT was a constant problem during the drilling of this section, especially after back reaming.

8 1/2" Hole section

After drilling the cement with the 1.47 SG mud from the previous section, the hole was displaced to a new 1.27 SG mud which was held to TD at 3002 m. The 1.47 SG mud was stored on the rig to be used as spudmud on the next well.

The hole cleaning of this section was inadequate indicated by the hole packing off while attempting to pump the slug at TD. It was also indications of cutting beds had formed.

Daily mud properties																				Date					
																				6/6-1991					
System : BORE																									
Well: 30/9-11A																									
Norsk Mud Contractor: NL-BAROID																									
Hydro Data: "Mid depth" from table 3, otherwise from table																				14.					
Date	m,MD	(SG)	cp	Pa	Pa	Pa	pH	(cc)	(cc)	mg/l	Pf	Pm	Mf	mg/l	Ca++	inn/out	Oil	Sol	H2O	V.G. meter at 115 gr. F:	6	3	Mud		
																									Type
:901119:	850:	1.42:	13:	7:	3:	4:	8.2:	3.9:	13.0:	58000/58000:	0.10:	0.10:	0.90:	240/240:	0:	10:90	39:	26:	19:	13:	4:	3:	KCL		
:901120:	1037:	1.42:	20:	9:	3:	7:	9.9:	4.5:	13.5:	54000/54000:	0.20:	1.50:	1.30:	480/480:	0:	11:89	58:	38:	29:	20:	6:	5:	KCL		
:901121:	1341:	1.43:	21:	11:	3:	7:	8.0:	3.9:	12.0:	54000/54000:	0.80:	0.80:	390/390:	0:	10:90	63:	42:	34:	24:	7:	6:	KCL			
:901122:	1705:	1.46:	22:	10:	2:	8:	8.0:	3.9:	10.0:	62000/62000:				0.80:	300/300:	0:	12:88	63:	41:	32:	21:	5:	4:	KCL	
:901123:	2070:	1.46:	19:	9:	2:	11:	8.0:	4.1:	11.0:	60000/60000:				0.80:	360/360:	0:	16:84	56:	37:	29:	20:	6:	4:	KCL	
:901124:	2205:	1.48:	19:	9:	2:	9:	8.1:	3.9:	10.5:	62000/62000:				0.80:	240/240:	0:	19:81	56:	37:	26:	18:	7:	4:	KCL	
:901125:	2239:	1.48:	23:	10:	4:	15:	8.3:	0.7:	10.0:	63000/63000:				1.00:	380/380:	0:	14:86	65:	42:	34:	25:	10:	9:	KCL	
:901126:	2321:	1.48:	24:	8:	4:	10:	8.4:	4.0:	11.0:	68000/68000:				1.90:	300/300:	0:	20:80	64:	40:	30:	21:	8:	8:	KCL	
:901127:	2379:	1.48:	23:	10:	4:	18:	8.3:	3.6:	10.0:	69000/69000:	0.10:			1.70:	360/360:	0:	18:82	65:	42:	32:	20:	9:	8:	KCL	
:901128:	2419:	1.48:	24:	11:	7:	25:	8.5:	3.6:	10.0:	62000/62000:	0.30:	0.10:	2.70:	180/180:	0:	14:86	69:	45:	38:	28:	14:	14:	KCL		
:901129:	2419:	1.47:	20:	8:	6:	20:	8.4:	3.7:	10.0:	64000/64000:	0.30:	0.40:	2.80:	200/200:	0:	14:86	56:	36:	29:	21:	8:	7:	KCL		
:901130:	2419:	1.47:	18:	9:	6:	20:	8.4:	3.4:	10.0:	64000/64000:	0.30:	0.40:		200/200:	0:	14:86	54:	36:	28:	20:	9:	8:	KCL		
:901201:	2422:	1.44:	18:	9:	6:	18:	8.3:	3.3:		64000/64000:	0.40:	0.40:	2.80:	260/260:	0:	14:86	54:	36:	28:	20:	9:	8:	KCL		
:901202:	2422:	1.47:	19:	11:	10:	57:	11.3:	6.6:		64000/64000:	0.50:	3.00:	2.80:	240/240:	0:	17:83	60:	41:	34:	27:	17:	17:	KCL		
:901203:	2425:	1.47:	21:	9:	5:	40:	11.6:	6.3:		64000/64000:	1.20:	4.70:	2.70:	600/600:	0:	17:83	60:	39:	28:	19:	8:	8:	KCL		
:901204:	2480:	1.27:	17:	6:	3:	4:	9.4:	2.4:		60000/60000:	0.10:	0.30:	0.20:	200/200:	0:	8:92	46:	29:	22:	13:	3:	2:	KCL		
:901205:	2553:	1.27:	18:	9:	2:	4:	9.0:	2.1:		55000/55000:	0.10:	0.30:	0.20:	200/200:	0:	8:92	53:	35:	26:	17:	3:	2:	KCL		
:901206:	2582:	1.27:	17:	7:	2:	3:	9.0:	2.0:		59000/59000:	0.10:	0.20:	0.10:	240/240:	0:	8:92	46:	29:	23:	14:	3:	2:	KCL		
:901207:	2652:	1.27:	17:	7:	2:	3:	9.0:	2.1:	8.0:	60000/60000:	0.10:	0.20:	0.10:	240/240:	0:	8:92	42:	28:	22:	13:	3:	2:	KCL		
:901208:	2665:	1.27:	14:	8:	3:	5:	8.8:	2.2:	8.0:	56000/56000:				320/320:	0:	9:91	44:	30:	24:	16:	4:	3:	KCL		
:901209:	2671:	1.27:	14:	0:	3:	4:	8.8:	2.4:	8.2:	56000/56000:				0.10:	280/280:	0:	10:90	42:	28:	22:	16:	3:	2:	KCL	
:901210:	2973:	1.27:	14:	6:	2:	3:	8.5:	2.4:	8.2:	56000/56000:				0.10:	280/280:	0:	9:91	40:	26:	21:	14:	4:	3:	KCL	
:901211:	3002:	1.27:	14:	6:	2:	3:	8.3:	2.4:	8.2:	56000/56000:					240/240:	0:	9:91	40:	26:	21:	14:	4:	3:	KCL	
:901212:	3002:	1.27:	14:	6:	2:	3:	8.3:	2.4:	8.2:	56000/56000:					240/240:	0:	9:91	40:	26:	21:	14:	4:	3:	KCL	
:901213:	3002:	1.33:	15:	10:	4:	10:	8.2:	2.3:	8.5:	58000/58000:					320/320:	0:	13:87	51:	36:	29:	22:	10:	7:	KCL	
:901214:	3002:	1.33:	15:	10:	4:	12:	8.2:	2.4:	8.0:	58000/58000:					240/240:	0:	13:87	51:	36:	29:	22:	10:	6:	KCL	
:901215:	3002:	1.33:	15:	11:	4:	13:	8.2:	2.4:	8.6:	57000/57000:					280/280:	0:	13:87	52:	37:	29:	22:	11:	7:	KCL	
:901216:	3002:	1.27:	12:	9:	4:	7:	8.1:	3.2:	9.4:	59000/59000:					320/320:	0:	9:91	42:	30:	23:	18:	8:	5:	KCL	
:901217:	3002:	1.27:	11:	9:	2:	5:	8.3:	3.6:	10.0:	55000/55000:	0.10:	0.10:	1.00:	300/300:	0:	10:90	40:	29:	22:	15:	6:	5:	KCL		
:901218:	3002:	1.27:	10:	9:	2:	4:	8.3:	3.6:	10.0:	55000/55000:	0.10:	0.10:	1.00:	300/300:	0:	10:90	38:	28:	23:	16:	5:	4:	KCL		
:901219:	3002:	1.27:	11:	10:	2:	4:	8.3:	3.6:	10.0:	55000/55000:				0.90:	300/300:	0:	10:90	42:	31:	25:	17:	5:	4:	KCL	
:901220:	3002:	1.27:	11:	10:	2:	5:	8.3:	3.8:	12.0:	55000/55000:	0.10:	0.10:	1.00:	380/380:	0:	10:90	42:	31:	26:	18:	6:	5:	KCL		
:901221:	3002:	1.27:	12:	9:	4:	6:	9.7:	4.8:		55000/55000:	0.10:	0.30:	1.20:	580/580:	0:	11:89	42:	30:	26:	19:	7:	6:	KCL		

Table B-11: MUD MATERIALS CONSUMPTIONS

		M u d c o n s u m p t i o n	Date
(((6/6-1991
(ooo)		System : BORE	
Norsk	Well: 30/9-11A		
Hydro	Mud company: NL-BAROID		13:
		Actual	
		used	

Drilling of 12 1/4" hole

BARASCAV-D	Kg	450
BARITE	Kg	192000
CITRIC ACID	Kg	925
DEXTRID	Kg	8946
EZ-MUD	Kg	1908
KCL	Kg	10000
PAC-L	Kg	1928
PAC-R	Kg	350
POT HYDROXIDE	Kg	250
SOD BICARB	Kg	2900
SODA ASH	Kg	2200
THERMA THIN	Kg	1000
XCD-POLYMER	Kg	925
KCL BRINE	l	141000

Drilling of 8 1/2" hole

BARASCAV-D	Kg	450
BARITE	Kg	124000
CITRIC ACID	Kg	775
DEXTRID	Kg	5195
EZ-MUD	Kg	610
KCL	Kg	2000
PAC-L	Kg	1475
PAC-R	Kg	800
SOD BICARB	Kg	950
SODA ASH	Kg	375
XCD-POLYMER	Kg	1675
KCL BRINE	l	185000