

Formation Pressure



1

ERFT Formation test run in: 930325 DE: ERF
 Well: NOR 34/7-21A 930301
 Run: 1A Date: 930202 Tool: FMT QC:
 Depth Ref: Loggers md.rkb(26.0) Deviat.ref.

# pts:13	Meas. Fm. press. (bara)	Fm. Pres. (barg)	Fm. Pres. (bara)	Test (1)			Hyd.pr. (bara)	PRETEST (bar) (sec) (mD)			Depth (m)	(2)	Comment
Depth (m)	Crystal	Strain	T/P Corr.	Temp.	type	Qua	Before	Drawdown	Dur.	Perm.	Depth (m)	(2)	Comment
2871.00	0.00	0.00	0.00	83.00	FMT	n	411.66				2871.00		DRY TEST
2872.50	338.81	339.15	338.81	83.10	FMT	e	412.80				2872.50		NORMAL TEST
2873.50	338.77	339.08	338.77	83.20	FMT	e	412.17				2873.50		NORMAL TEST
2876.00	0.00	0.00	0.00	83.20	FMT	n	412.86				2876.00		DRY TEST
2875.50	339.02	339.29	339.02	83.30	FMT	e	412.42				2875.50		NORMAL TEST
2875.50	339.02	339.29	339.02	83.30	FMT	e	412.44				2875.50		NORMAL TEST
2877.00	0.00	0.00	0.00	83.50	FMT	n	412.44				2877.00		DRY TEST
2889.50	0.00	0.00	0.00	83.60	FMT	n	413.29				2889.50		DRY TEST
2889.00	339.98	340.12	339.98	83.80	FMT	d	412.95				2889.00		NORMAL TEST
2891.50	0.00	0.00	0.00	84.00	FMT	n	413.51				2891.50		DRY TEST
3033.50	0.00	0.00	0.00	86.10	FMT	n	425.91				3033.50		DRY TEST
3034.50	0.00	0.00	0.00	86.40	FMT	n	426.21				3034.50		DRY TEST
3035.50	369.49	369.56	369.49	86.50	FMT	e	426.26				3035.50		SEGREGATED SAMPLE

1) Data quality: e=excellent, m=medium, d=doubtful, p=poor, n=none, or combination (e-m or m-e)
 Test type: RFT, FIT

1

ERFT Formation test run in: 930325 DE: ERF
 Well: NOR 34/7-21A 930301
 Run: 1B Date: 930204 Tool: FMT QC:
 Depth Ref: Loggers md.rkb(26.0) Deviat.ref.

# pts:17	Meas. Fm. press. (bara)	Fm. Pres. (barg)	Fm. Pres. (bara)	Test (1)			Hyd.pr. (bara)	PRETEST (bar) (sec) (mD)			Depth (m)	(2)	Comment
Depth (m)	Crystal	Strain	T/P Corr.	Temp.	type	Qua	Before	Drawdown	Dur.	Perm.	Depth (m)	(2)	Comment
2873.50	338.88	338.74	338.88	85.00	FMT	d	411.29				2873.50		NORMAL TEST
2872.50	339.10	338.81	339.10	85.10	FMT	e	410.59				2872.50		SEGREGATED SAMPLE
2960.50	377.38	377.49	377.38	86.20	FMT	e	419.05				2960.50		NORMAL TEST
2897.50	379.32	379.56	379.32	85.80	FMT	e	413.52				2897.50		NORMAL TEST
2894.50	366.89	367.15	366.89	85.80	FMT	e	412.73				2894.50		NORMAL TEST
2891.00	365.53	365.77	365.53	85.80	FMT	e	412.30				2891.00		NORMAL TEST
2889.00	350.27	350.60	350.27	85.90	FMT	e	412.20				2889.00		NORMAL TEST
2884.50	347.08	347.43	347.08	85.70	FMT	e	412.07				2884.50		NORMAL TEST
2845.50	327.47	327.85	327.47	85.30	FMT	e	408.88				2845.50		NORMAL TEST
3317.00	410.58	411.07	410.58	98.30	FMT	p	452.43				3317.00		SUPERCHARGED
3325.00	399.28	399.41	399.28	99.90	FMT	m	452.76				3325.00		NORMAL TEST
3329.00	394.66	394.86	394.66	100.20	FMT	e	457.23				3329.00		NORMAL TEST
3335.00	395.28	395.41	395.28	100.30	FMT	e	459.23				3335.00		NORMAL TEST
3326.00	394.64	394.79	394.64	100.50	FMT	e	454.92				3326.00		NORMAL TEST
2845.50	0.00	0.00	0.00	86.80	FMT	n	409.53				2845.50		DRY TEST
2844.50	0.00	0.00	0.00	86.30	FMT	n	409.00				2844.50		NO SEAL
2845.00	0.00	0.00	0.00	85.80	FMT	n	408.65				2845.00		DRY TEST

1) Data quality: e=excellent, m=medium, d=doubtful, p=poor, n=none, or combination (e-m or m-e)
 Test type: RFT, FIT

Table 5.3 Formation pressure, well 34/7-21A

25.3.93 ToR/ERF

Formation Pressure



1

BRFT Formation test run in: 930325 DE: ERF
 Well: NOR 34/7-21A 930301
 Run: 1C Date: 930207 Tool: FMT QC:
 Depth Ref: Loggers md.rkb(26.0) Deviat.ref.

# pts:6	Meas. Fm. press.		Fm. Pres.	Test (1)	Hyd.pr. (bara)	PRETEST			Depth (m)	(2)	Comment		
	(bara)	(barg)	(bara)			(bar)	(sec)	(mD)					
Depth (m)	Crystal	Strain	T/P Corr.	Temp.	type	Qua	Before	Drawdown	Dur.	Perm.	Depth (m)	(2)	Comment
2873.50	338.74	338.46	338.74	85.50	FMT	m	408.96				2873.50		NORMAL TEST
2872.50	338.67	338.46	338.67	85.70	FMT	d	408.75				2872.50		NORMAL TEST
2873.00	338.72	338.60	338.72	85.80	FMT	m	409.02				2873.00		NORMAL TEST
2874.00	338.74	338.67	338.74	85.90	FMT	m	409.05				2874.00		SEGREGATED SAMPLE
2876.00	338.76	339.29	338.76	86.60	FMT	m	408.82				2876.00		NORMAL TEST
2871.00	0.00	0.00	0.00	86.60	FMT	n	408.80				2871.00		DRY TEST

1) Data quality: e=excellent, m=medium, d=doubtful, p=poor, n=none, or combination (e-m or m-e)
 Test type: RFT, FIT

1

BRFT Formation test run in: 930325 DE: ERF
 Well: NOR 34/7-21A 930301
 Run: 1D Date: 930208 Tool: FMT QC:
 Depth Ref: Loggers md.rkb(26.0) Deviat.ref.

# pts:3	Meas. Fm. press.		Fm. Pres.	Test (1)	Hyd.pr. (bara)	PRETEST			Depth (m)	(2)	Comment		
	(bara)	(barg)	(bara)			(bar)	(sec)	(mD)					
Depth (m)	Crystal	Strain	T/P Corr.	Temp.	type	Qua	Before	Drawdown	Dur.	Perm.	Depth (m)	(2)	Comment
2872.50	338.62	337.29	338.62	85.30	FMT	m	407.69				2872.50		NORMAL TEST
2871.50	338.64	338.26	338.64	85.50	FMT	m	407.44				2871.50		NORMAL TEST
2873.50	338.77	338.33	338.77	85.70	FMT	m	408.17				2873.50		SEGREGATED SAMPLE

1) Data quality: e=excellent, m=medium, d=doubtful, p=poor, n=none, or combination (e-m or m-e)
 Test type: RFT, FIT

FMT Samples



FMT-SAMPLING

Run 1A: mRKB MD 3035,5 mRKB TVD 2670,4	Lower: (1x6gal + 3x2 3/4gal)	Gas: 356,8 1 Oil: 15,0 1 Filtrate: - 1
	Upper: (1 gal)	Gas: 22,5 1 Oil: 2,8 1
Run 1B: mRKB MD 2872,5 mRKB TVD 2577,0	Lower: (1x6gal + 3x2 3/4gal)	Gas: - 1 Oil: - 1 Filtrate/ Fm. water 5,0 1
	Upper: (1 gal)	Gas: - 1 Oil: - 1 Filtrate: 3,5 1
Run 1C: mRKB MD 2874,0 mRKB TVD 2577,7	Lower: (2x10l)	Gas: 14,2 1 Oil: - 1 Filtrate: 19,8 1
	Upper: (1 gal)	Gas: - 1 Oil: - 1 Filtrate: 3,5 1
Run 1D: mRKB MD 2873,5 mRKB TVD 2577,3	Lower: (1x6 + 3x2 3/4gal)	Gas: 821,2 1 Oil: 5,0 1 Filtrate: 43,2 1
	Upper: (1 gal)	Gas: 5,5 1 Oil: -

Remarks:

Opening pressure PVT-chamber, Run 1A: 15 bar
 PVT-chamber, Run 1B, opened on drill floor.
 PVT-chamber, Run 1C, opened on drill floor.
 Opening pressure PVT-chamber, Run 1D: atm.

6. DRILLING DATA

If not otherwise mentioned, all depths in this chapter refer to mRKB (Rotary Kelly Bushing).

Date	Hole size	Hole depth	Mud weight	PV	YP	Gel strength	pH	Alkalinity Pf /Mf	Ca++ mg/l	Cl- mg/l	Sand %	Solids %	Mudtype
921212	12 1/4"	2510.0	1.61	43.0	28.0	9/29	8.7	/1.0	600	92000	.1	24.0	KCL MUD
921213	12 1/4"	2510.0	1.61	43.0	28.0	9/29	8.7	.1/1.0	600	92000	.1	24.0	KCL MUD
921214	12 1/4"	2510.0	1.61	38.0	24.0	7/24	10.2	.2/1.3	820	91000	.1	24.5	KCL MUD
921215	12 1/4"	1800.0	1.55	29.0	12.0	3/14	10.9	.3/2.1	320	92000	.1	22.5	KCL MUD
921216	12 1/4"	1873.0	1.52	30.0	17.0	4/16	8.8	/2.7	440	90000	.1	21.5	KCL MUD
921217	12 1/4"	2155.0	1.54	36.0	28.0	6/23	8.4	/2.6	440	93000	.1	23.0	KCL MUD
921218	12 1/4"	2155.0	1.54	32.0	22.0	5/17	8.5	/2.0	520	92000	.2	24.0	KCL MUD
921219	12 1/4"	2260.0	1.56	44.0	38.0	7/20	8.5	/2.2	440	94000	.3	24.0	KCL MUD
921220	12 1/4"	2309.0	1.56	42.0	36.0	7/19	8.3	/1.7	440	92000	.2	24.0	KCL MUD
921221	12 1/4"	2465.0	1.60	58.0	44.0	10/32	8.3	/1.8	560	92000	.3	25.0	KCL MUD
921222	12 1/4"	2580.0	1.60	48.0	37.0	7/32	8.1	/1.6	520	92000	.2	25.0	KCL MUD
921223	12 1/4"	2580.0	1.60	46.0	35.0	7/22	7.9	/1.4	520	92000	.2	25.0	KCL MUD
921224	12 1/4"	2774.0	1.60	46.0	30.0	7/28	8.3	/2.0	520	92000	.3	25.0	KCL MUD
921225	12 1/4"	2847.0	1.60	51.0	31.0	7/32	8.6	/1.8	860	92000	.3	25.0	KCL MUD
921226	12 1/4"	2864.0	1.60	44.0	31.0	7/28	8.5	/1.7	860	91000	.2	25.0	KCL MUD
921227	12 1/4"	2878.0	1.60	42.0	30.0	7/26	8.3	/1.7	1120	92000	.2	25.0	KCL MUD
921228	12 1/4"	2899.0	1.60	41.0	31.0	7/29	8.3	/1.6	800	92000	.2	25.0	KCL MUD
921229	12 1/4"	2847.0	1.60	40.0	27.0	7/26	8.2	/1.6	720	92000	.1	25.0	KCL MUD
921230	12 1/4"	2934.0	1.60	43.0	29.0	7/32	8.3	/1.8	440	92000	.1	25.0	KCL MUD
921231	12 1/4"	2934.0	1.60	42.0	34.0	7/29	8.8	/1.4	400	91000	.1	25.0	KCL MUD
930101	12 1/4"	2973.0	1.60	43.0	33.0	8/33	8.8	/1.3	400	90000	.1	25.0	KCL MUD
930102	12 1/4"	2998.0	1.60	39.0	28.0	7/31	8.7	/1.2	400	90000	.1	25.0	KCL MUD
930103	12 1/4"	3033.0	1.60	39.0	28.0	6/28	8.8	/1.2	440	90000		25.0	KCL MUD
930104	12 1/4"	3033.0	1.60	39.0	28.0	6/28	8.8	/1.2	440	90000		25.0	KCL MUD
930105	12 1/4"	3033.0	1.60	39.0	28.0	6/28	8.8	/1.2	440	90000		25.0	KCL MUD
930106	12 1/4"	3033.0	1.60	39.0	28.0	6/28	8.8	/1.2	440	90000		25.0	KCL MUD
930107	12 1/4"	3033.0	1.60	39.0	28.0	6/28	8.8	/1.2	440	90000		25.0	KCL MUD

Well: 34/7-21A

Date	Hole size	Hole depth	Mud weight	PV	YP	Gel strength	pH	Alkalinity Pf /Mf	Ca++ mg/l	Cl- mg/l	Sand %	Solids %	Mudtype
930108	12 1/4"	3033.0	1.60	39.0	28.0	6/28	8.8	/1.2	440	90000		25.0	KCL MUD
930109	12 1/4"	3033.0	1.60	39.0	28.0	6/28	8.8	/1.2	440	90000		25.0	KCL MUD
930110	12 1/4"	3033.0	1.60	39.0	28.0	6/28	8.8	/1.2	440	90000		25.0	KCL MUD
930111	12 1/4"	3033.0	1.60	39.0	28.0	6/28	8.8	/1.2	440	90000		25.0	KCL MUD
930112	12 1/4"	3033.0	1.60	39.0	28.0	6/28	8.8	/1.2	440	90000		25.0	KCL MUD
930113	12 1/4"	3033.0	1.60	42.0	28.0	7/32	8.9	/1.2	440	90000		25.0	KCL MUD
930114	12 1/4"	3056.0	1.60	54.0	40.0	9/27	8.5	/1.3	560	90000	.3	25.0	KCL MUD
930115	12 1/4"	3122.0	1.60	54.0	32.0	7/24	8.2	/1.5	600	92000	.0	25.0	KCL MUD
930116	12 1/4"	3122.0	1.60	42.0	33.0	7/22	8.1	/1.5	600	91000	.1	25.0	KCL MUD
930117	12 1/4"	3122.0	1.60	42.0	33.0	7/22	8.1	/1.5	600	91000	.1	25.0	KCL MUD
930118	12 1/4"	3137.0	1.60	45.0	31.0	7/25	8.3	/1.5	600	90000	.1	25.0	KCL MUD
930119	12 1/4"	3145.0	1.60	45.0	31.0	7/25	8.3	/1.5	600	90000	.1	75.0	KCL MUD
930120	12 1/4"	3221.0	1.60	50.0	31.0	8/35	8.2	/1.6	520	90000	.1	25.0	KCL MUD
930121	12 1/4"	3228.0	1.60	49.0	35.0	8/38	8.2	/1.6	580	87000	.1	25.0	KCL MUD
930122	12 1/4"	3241.0	1.63	46.0	34.0	7/26	8.2	/1.6	520	88000	.2	25.0	KCL MUD
930123	12 1/4"	3302.0	1.60	44.0	36.0	8/26	7.9	/1.0	600	88000	.1	24.0	KCL MUD
930124	12 1/4"	3360.0	1.60	46.0	36.0	9/28	7.9	/1.0	600	90000	.1	24.0	KCL MUD
930125	12 1/4"	3360.0	1.60	39.0	34.0	8/24	8.2	/1.2	600	90000	.2	24.0	KCL MUD
930126	12 1/4"	3360.0	1.60	40.0	35.0	8/26	8.2	/1.2	600	90000	.2	24.0	KCL MUD
930127	12 1/4"	3360.0	1.60	37.0	23.0	7/23	8.2	/1.4	600	87000	.1	24.0	KCL MUD
930128	12 1/4"	3360.0	1.60	35.0	23.0	6/20	8.2	/1.4	600	86000	.1	24.0	KCL MUD
930129	12 1/4"	3360.0	1.60	33.0	20.0	5/18	8.2	/1.4	600	86000	.1	24.0	KCL MUD
930130	12 1/4"	3360.0	1.60	36.0	26.0	7/26	8.3	/1.7	620	84000	.1	24.0	KCL MUD
930131	12 1/4"	3360.0	1.60	35.0	25.0	7/24	8.3	/1.7	620	84000	.1	24.0	KCL MUD
930201	12 1/4"	3360.0	1.60	35.0	25.0	7/24	8.3	/1.7	620	84000	.1	24.0	KCL MUD
930202	12 1/4"	3360.0	1.60	35.0	23.0	6/22	8.3	/1.4	620	84000	.1	24.0	KCL MUD
930203	12 1/4"	3360.0	1.60	35.0	23.0	6/22	8.3	/1.4	620	84000	.1	24.0	KCL MUD

Date	Hole size	Hole depth	Mud weight	PV	YP	Gel strength	pH	Alkalinity Pf /Mf	Ca++ mg/l	Cl- mg/l	Sand %	Solids %	Mudtype
930204	12 1/4"	3360.0	1.60	35.0	26.0	8/28	8.3	/1.7	620	82000	.1	24.0	KCL MUD
930205	12 1/4"	3360.0	1.60	35.0	26.0	8/28	8.3	/1.7	620	82000	.1	24.0	KCL MUD
930206	12 1/4"	3360.0	1.60	35.0	26.0	8/28	8.3	/1.7	620	82000	.1	24.0	KCL MUD
930207	12 1/4"	3360.0	1.60	35.0	28.0	7/26	8.3	/1.8	620	82000	.1	24.0	KCL MUD
930208	12 1/4"	3360.0	1.60	35.0	28.0	7/26	8.3	/1.8	620	82000	.1	24.0	KCL MUD
930209	P&A	3360.0	1.60	43.0	39.0	12/45	10.9	.6/3.3	600	83000	.1	24.0	KCL MUD
930210	P&A	3360.0	1.60	43.0	39.0	12/45	10.9	.6/3.3	600	83000	.1	24.0	KCL MUD
930211	P&A	3360.0	1.60	43.0	39.0	12/45	10.9	.6/3.3	600	83000	.1	24.0	KCL MUD
930212	P&A	3360.0	1.60	43.0	39.0	12/45	10.9	.6/3.3	600	83000	.1	24.0	KCL MUD
930213	P&A	3360.0	1.60	43.0	39.0	12/45	10.9	.6/3.3	600	83000	.1	24.0	KCL MUD

Final Well Report 34/7-21A



Material	Unit	12 1/4" hole
Barite	MT	598
Bentonite	MT	1
Bacban III	Kg	10
Caustic	Kg	25
Citric Acid	Kg	1625
Defoamer	Ltr	625
Glycol	Ltr	18752
KCl	MT	61
KCl Brine	M3	292
M-I Lube	Ltr	6037
M.I.B.S	Ltr	1250
Prempac EX	Kg	5900
Prempac LV	Kg	10400
Poly-Plus	Kg	1025
Pipe Lax	Ltr	1250
Pot Bicarb	Kg	2725
Sod. ash	Kg	725
Sod. Bicarb	Kg	400
Sil. Defoam	Ltr	75
Xanvis	Kg	525
XC Polymer	Kg	150

Table 6.2.2 Mud Materials Used