

4.7 Formation Temperature

The maximum recorded temperatures (BHT) obtained during logging have been converted to static formation temperatures (T_f) using a Horner plot technique. The recorded BHTs and the estimated static formation temperatures are listed in table 4.5. The data used for the calculations are listed in table 4.6.

The data have been plotted in fig. 4.3, and include a maximum BHT measurement of 91° C at 2454 mRKB MD, recorded during the well test.

Table 4.6: Temperature Data, wells 34/7-17 and 17A*

Log	Date	Run No.	Temp. meas. point mRKB MD/ TVD	Average recorded temp. °C	Time since circ. Δt, hrs	Total circ. time at meas. point t, hrs
DIL-LSS-LDL-GR-SP	12.03.91	1A	1920.5	46	9.92	2.50
RFT-GR	13.03.91	1A	1914	46	7.75	2.45
DITE-MSFL-LDL-CNL-GR	03.04.91	2B	3097.5	72	8.08	2.75
DSI-GR	04.04.91	2A	3099	83	17.50	2.75
SHDT-GR (DIPMETER)	04.04.91	2A	3107.5	91	27.00	2.75
RFT-GR	05.04.91	2B	3074	87	7.50	3.00
DITE-MSFL-SDT-GR-SP*	18.04.91	1A	2620/ 2535.5	66	8.33	2.58
LDL-CNL-GR*	18.04.91	1A	2639/ 2550	73	12.00	2.58
SHDT-GR* (DIPMETER)	18.04.91	1A	2640/ 2550.5	76	18.75	2.58
RFT-GR*	19.04.91	1A	2614/ 2531	74	13.00	1.66

*34/7-17A

Formation Pressures 34/7-17



DEPTH		HYDROSTATIC MUD PRESSURES		FORMATION PRESSURES		COMMENTS
mRKB	TVDmMSL	(before)	(after)	(HP-gauge)		
		psia	psia	psia	bara	
RUN 1A						
1879.0	1852.0	4027.2	4026.4	3726.8	257.0	TIGHT FORM.
1881.5	1854.5	4030.7	4030.6	3721.2	256.6	V.GOOD PERM.
1884.5	1857.5	4036.8	4036.6	3737.6	257.7	GOOD PERM.
1888.5	1861.5					DRY TEST
1911.0	1884.0					DRY TEST
1914.0	1887.0					DRY TEST
Segregated sample attempted at 1881.5. Flowline plugged. Cable stuck.						
RUN 2B						
2462.0	2433.0	5782.9	5782.9	5219.3	359.9	GOOD PERM.
2472.0	2443.0	5807.4	5807.0	5233.6	360.8	GOOD PERM.
2487.0	2458.0	5842.2	5841.8	5254.5	362.3	GOOD PERM.
2507.0	2478.0	5883.3	5888.4	5282.7	364.2	GOOD PERM.
2554.0	2525.5	5996.9	5993.3	5419.7	373.7	V.GOOD PERM.
2568.0	2538.5	6026.3	6029.6	5440.4	375.1	V.GOOD PERM.
2599.5	2570.0	6101.8	6102.3	5485.3	378.2	GOOD PERM.
2608.5	2579.0	6120.5	6123.1	5498.3	379.1	V.GOOD PERM.
2630.0	2600.5	6170.5	6172.4	5528.8	381.2	V.GOOD PERM.
2652.0	2622.5	6221.6	6222.1	5560.1	383.4	GOOD PERM.
2946.0	2916.0	6899.0	6899.5	6041.5	416.5	GOOD PERM.
2958.5	2928.5	6931.0	6933.2	6058.4	417.7	GOOD PERM.
2998.5	2968.5	7020.6	7023.9	6116.5	421.7	DOUBTFUL
3020.5	2990.5	7078.1		6152.4	424.2	SUPERCHARGED
3033.5	3003.0	7104.6	7106.4	6166.2	425.1	GOOD PERM.
3062.0	3032.0	7167.4	7174.0	6208.2	428.0	SUPERCHARGED
3074.0	3044.0	7197.3	7200.4	6223.4	429.1	GOOD PERM.

REMARKS:

The pressures are temperature corrected

RKB: 26 m

Formation Pressures 34/7-17A



DEPTH		HYDROSTATIC MUD PRESSURES		FORMATION PRESSURES		COMMENTS
mRKB	TVDmMSL	(before) psia	(after) psia	(HP-gauge) psia	bara	
RUN 1A						
2495.5	2414.3	5898.8	5898.3	5192.0	358.0	NORMAL TEST
2498.0	2416.3					DRY TEST
2498.5	2416.7	5903.7	5903.5	5194.6	358.2	NORMAL TEST
2500.5	2418.2	5907.0	5907.0	5196.4	358.3	NORMAL TEST
2502.0	2419.4	5910.3	5910.0	5198.0	358.4	NORMAL TEST
2507.0	2423.3	5919.3	5919.4	5202.6	358.7	NORMAL TEST
2511.0	2426.5	5926.4	5926.9	5206.7	359.0	NORMAL TEST
2514.5	2429.2	5932.8	5932.1	5210.6	359.3	NORMAL TEST
2518.0	2431.9	5938.9	5938.8	5214.4	359.5	NORMAL TEST
2520.0	2433.6	5941.0	5941.2	5216.0	359.6	V.GOOD PERM.
2528.0	2439.8	5955.3	5955.4	5955.4	410.6	SEAL FAILURE
2528.5	2440.2	5957.3	5956.3	5266.3	363.1	V.GOOD PERM.
2538.0	2447.5	5974.5	5973.7	5290.0	364.7	V.GOOD PERM.
2547.0	2455.9	5991.9	5990.9	5314.1	366.4	V.GOOD PERM.
2568.0	2471.7	6031.3	6029.6	5341.7	368.3	V.GOOD PERM.
2581.0	2481.3	6053.9	6053.2	5356.1	369.3	V.GOOD PERM.
2600.0	2495.4	6089.7	6088.5	5377.3	370.8	V.GOOD PERM.
2614.0	2505.6	6115.8	6113.9	5392.1	371.8	

Segregated sample attempted at 2495.5, 2495.7 and 2495.9 m. Lost seal.

RUN 1B

Segregated sample attempted at 2495.7, 2498.5, 2498.7, 2498.3, 2498.0, 2499.0, 2496.5, 2495.0 and 2499.5 m. Probe and flowline to 2 3/4 gal chamber plugging.

REMARKS:

The pressures are temperature corrected.

RKB: 26 m

Formation Fluid Samples 34/7-17



RUN NO.	DEPTH mRKB		2 3/4 gal chamber	1 gal chamber
1A	1881.5	Opening pressure	: 0	-
		Gas	: 0 cuft	
		Oil	: 0 cc	
		Mud/Water	: 9500 cc	

Remarks: Cable got stuck during sampling at 1881.5 m.
2 3/4 gal chamber opened at rig floor.

RKB: 26 m

Formation Fluid Samples 34/7-17A



RUN NO.	DEPTH mRKB		2 3/4 gal chamber	1 gal chamber
1A	2495.5	Opening pressure	: 50 psia	0
		Gas	:	
		Oil	: Film	Film
		Mud/Water	: 13250 cc	1750 cc
1B	2495.7	Opening pressure	:	150 psia
		Gas	:	
		Oil	:	Film
		Mud/Water	:	1800 cc

Remarks: RKB: 26 m

RUN 1A: Lost seal on the 2 3/4 gal chamber

RUN 1B: Probe and flowline to 2 3/4 gal chamber plugging

Well test 34/7-17A



Formation	Tarbert
Fluid	oil/water
Perforation interval (mRKB MD)	2495 - 2499
Last flowing rate (Sm ³ /D)	700
Last flowing water-cut (fraction)	0.7
Last flowing wellhead pressure (bar)	49
Last flowing bottom-hole pressure at 2454.7 mRKB (bar)	252.7
Choke size (mm)	15.9
Dead oil density (kg/m ³)	850
Gas gravity (air = 1)	0.8
GOR (Sm ³ /Sm ³)	115
- at separator pressure (bar)	40
- at separator temperature (DegC)	7

Well: 34/7-17

Date	Hole size	Hole depth	Mud weight	PV	YP	Gel strength	pH	Alkalinity Pf /Mf	Ca++ mg/l	Cl- mg/l	Sand %	Solids %	Mudtype
910222						/		/					SPUD MUD
910223						/		/					SPUD MUD
910224			1.05			/		/					SPUD MUD
910225	36"		1.05			/		/					SPUD MUD
910226	36"	390.0	1.20			/		/					SPUD MUD
910227	36"	390.0	1.20			/		/					SPUD MUD
910228	36"	390.0	1.20			/	10.0	/					SPUD MUD
910301	26"	390.0	1.04			/	10.0	/					SPUD MUD
910302	9 7/8"	815.0	1.04			/	10.0	/					SPUD MUD
910303	26"	897.0	1.04			/	10.0	/	60	800			SPUD MUD
910304	26"	897.0	1.04			/	10.0	/	60	800			SPUD MUD
910305	26"	897.0	1.04			/	10.0	/	60	800			WATER BASED
910306	26"	897.0	1.30	20.0	17.0	2/8	8.0	/		45000			WATER BASED
910307	17 1/2"	897.0	1.30	20.0	16.0	2/7	8.0	/		45000		13.0	WATER BASED
910308	17 1/2"	1268.0	1.30	25.0	23.0	2/4	7.9	/1.2	320	51000	1.0	13.0	KCL MUD
910309	17 1/2"	1509.0	1.40	31.0	25.0	2/4	7.8	/1.1	440	54000	1.5	17.0	KCL MUD
910310	17 1/2"	1807.0	1.49	36.0	24.0	2/3	8.2	/1.2	680	60000	1.5	20.0	KCL MUD
910311	17 1/2"	1969.0	1.49	34.0	18.0	2/7	8.0	/1.3	720	56000	1.2	20.0	KCL MUD
910312	17 1/2"	1969.0	1.49	32.0	17.0	2/6	8.1	/1.4	720	57000	1.2	20.0	KCL MUD
910313	17 1/2"	1879.0	1.49	33.0	18.0	2/7	8.0	/1.5	680	58000	1.2	20.0	KCL MUD
910314	17 1/2"	1879.0	1.49	32.0	16.0	2/6	7.9	/1.4	720	57000	1.2	20.0	KCL MUD
910315	17 1/2"	1879.0	1.49	33.0	15.0	2/6	7.9	/1.4	720	57000	1.2	20.0	KCL MUD
910316	12 1/4"	1974.0	1.49	27.0	16.0	3/10	8.0	/2.4	420	57000	1.2	20.0	KCL MUD
910317	12 1/4"	2036.0	1.51	31.0	14.0	3/7	8.4	.2/4.3	280	54000	.4	20.0	KCL MUD
910318	12 1/4"	2272.0	1.60	34.0	15.0	3/12	8.2	/2.9	360	51000	.3	22.0	KCL MUD
910319	12 1/4"	2460.0	1.65	36.0	16.0	3/13	8.1	/2.4	400	43000	.3	24.0	KCL MUD
910320	12 1/4"	2460.0	1.65	40.0	15.0	2/9	8.2	/2.2	360	43000	.5	24.0	KCL MUD

Well: 34/7-17

Date	Hole size	Hole depth	Mud weight	PV	YP	Gel strength	pH	Alkalinity Pf /Mf	Ca++ mg/l	Cl- mg/l	Sand %	Solids %	Mudtype
910321	12 1/4"	2460.0	1.65	39.0	14.0	2/8	8.3	.1/2.2	340	43000	.5	24.0	KCL MUD
910322	12 1/4"	2460.0	1.65	37.0	15.0	2/8	8.3	.1/2.2	360	45000	.5	24.0	KCL MUD
910323	12 1/4"	2460.0	1.65	39.0	16.0	2/8	8.3	.1/2.3	380	45000	.5	24.0	KCL MUD
910324	12 1/4"	2460.0	1.65	42.0	20.0	3/8	8.4	.1/2.4	360	45000	.5	24.0	KCL MUD
910325	12 1/4"	2460.0	1.65	43.0	22.0	3/8	8.4	.1/2.4	360	45000	.5	24.0	KCL MUD
910326	12 1/4"	2460.0	1.65	36.0	14.0	2/7	8.4	.1/2.1	360	44000	.5	24.0	KCL MUD
910327	12 1/4"	2460.0	1.65	41.0	24.0	3/11	8.3	.1/2.1	360	44000	.5	24.0	KCL MUD
910328	12 1/4"	2460.0	1.65	40.0	22.0	3/12	8.3	.1/2.2	360	42000	.5	24.0	KCL MUD
910329	12 1/4"	2460.0	1.65	30.0	14.0	3/10	8.3	.1/3.0	400	44000	.5	38.0	KCL MUD
910330	12 1/4"	2460.0	1.65	32.0	14.0	3/14	8.3	.1/1.8	400	44000	.5	24.0	KCL MUD
910331	12 1/4"	2460.0	1.65	29.0	13.0	3/22	8.3	.1/1.7	400	47000	.5	24.0	KCL MUD
910401	12 1/4"	2460.0	1.65	27.0	13.0	3/24	8.2	.1/1.6	480	48000		24.0	KCL MUD
910402	12 1/4"	2460.0	1.65	30.0	16.0	4/29	8.2	/1.7	440	49000		24.0	KCL MUD
910403	12 1/4"	2460.0	1.65	25.0	13.0	4/36	8.5	/1.6	520	49000		24.0	KCL MUD
910404	12 1/4"	2460.0	1.65	25.0	14.0	4/32	8.3	/1.6	520	49000		24.0	KCL MUD
910405	12 1/4"	2460.0	1.65	25.0	18.0	4/24	8.1	/1.6	520	49000		24.0	KCL MUD
910406	12 1/4"	2460.0	1.65	26.0	16.0	4/19	8.1	/1.6	520	49000		24.0	KCL MUD
910407	12 1/4"	2460.0	1.65	27.0	15.0	4/28	8.1	.1/3.8	360	48000		24.0	KCL MUD

Well: 34/7-17A

Date	Hole size	Hole depth	Mud weight	PV	YP	Gel strength	pH	Alkalinity Pf /Mf	Ca++ mg/l	Cl- mg/l	Sand %	Solids %	Mudtype
910407	12 1/4"	2460.0	1.65	27.0	15.0	4/28	8.1	.1/3.8	360	48000		24.0	KCL MUD
910408	12 1/4"	2460.0	1.65	28.0	19.0	5/45	8.0	/4.2	320	47000	.2	24.0	KCL MUD
910409	12 1/4"	2072.0	1.65	27.0	15.0	3/24	10.8	1.4/5.8	320	48000	.2	24.0	KCL MUD
910410	12 1/4"	2072.0	1.68	31.0	20.0	4/25	8.7	.3/5.0	320	49000	.3	24.0	KCL MUD
910411	12 1/4"	2072.0	1.68	32.0	20.0	4/20	8.8	.2/5.7	280	50000	.3	24.0	KCL MUD
910412	12 1/4"	2440.0	1.70	36.0	21.0	3/15	8.8	.2/3.5	320	53000	.3	39.0	KCL MUD
910413	12 1/4"	2493.0	1.70	32.0	21.0	4/20	8.9	.1/2.7	320	52000	.3	26.0	KCL MUD
910414	12 1/4"	2493.0	1.70	33.0	21.0	5/20	8.9	.1/2.7	320	52000	.3	26.0	KCL MUD
910415	12 1/4"	2493.0	1.70	36.0	18.0	4/14	8.9	.1/2.3	280	52000	.1	26.0	KCL MUD
910416	12 1/4"	2493.0	1.70	35.0	19.0	4/15	8.9	.1/2.4	280	52000	.1	26.0	KCL MUD
910417	12 1/4"	2493.0	1.70	35.0	18.0	4/16	8.9	.1/2.3	280	52000	.1	26.0	KCL MUD
910418	12 1/4"	2493.0	1.70	42.0	18.0	4/13	9.0	.1/2.3	280	52000	.1	26.0	KCL MUD
910419	12 1/4"	2493.0	1.70	41.0	19.0	4/14	8.9	.1/2.3	280	52000	.1	39.0	KCL MUD
910420	12 1/4"	2493.0	1.70	41.0	19.0	4/14	8.9	.1/2.3	280	52000	.1	26.0	KCL MUD
910421	12 1/4"	2493.0	1.70	35.0	22.0	3/12	9.0	.1/2.3	280	52000	.1	26.0	KCL MUD
910422	12 1/4"	2493.0	1.70	35.0	19.0	3/13	9.3	.1/2.0	400	52000	.1	26.0	KCL MUD
910423	12 1/4"	2493.0	1.70	36.0	19.0	4/13	9.4	.1/2.0	400	52000	.1	26.0	KCL MUD
910424	12 1/4"	2493.0	1.70	36.0	19.0	4/13	9.4	.1/2.0	400	52000	.1	26.0	KCL MUD
910425	12 1/4"	2493.0	1.70	33.0	19.0	3/16	9.6	.3/2.8	180	50000	.3	26.0	KCL MUD
910426	12 1/4"	2493.0	1.70	36.0	15.0	3/16	9.4	.3/3.0	180	50000	.3	26.0	KCL MUD
910427	12 1/4"	2493.0	1.70	36.0	15.0	3/16	9.4	.3/3.0	180	50000	.3	26.0	KCL MUD
910428	12 1/4"	2493.0	1.70	34.0	18.0	3/14	9.4	.3/2.8	200	49000		26.0	KCL MUD
910429	12 1/4"	2493.0	1.70	34.0	18.0	3/13	9.4	.3/2.8	200	50000		26.0	KCL MUD
910430	12 1/4"	2493.0	1.70	34.0	18.0	4/15		/					KCL MUD
910501	12 1/4"	2493.0	1.70			/		/					KCL MUD
910502	12 1/4"	2493.0	1.70			/		/					KCL MUD

Materials	Unit	36" hole	26" hole	17 1/2" hole	12 1/4" hole	Total
AGIPACK LV	Kg			12,000	6,850	18,850
AGIPACK REG.	Kg			4,950	150	5.100
ALCOMER 75L	Kg			425		425
BACBAN 3	Kg				75	75
BARITE	MT		72	428	446	946
BENTONITE	MT	32	59	1		92
CAUSTIC SODA	Kg	75	202		125	402
CITRIC ACID	Kg			100	675	775
KCL (BRINE)	BBL			2,659	905	3,564
KCL (POWDER)	Kg			2,500		2,500
LAMPAC LV	Kg			125	2,925	3,050
LIME	Kg	40	415		80	535
MAGCO POLYSAL	Kg				4,775	4,775
POLYDRILL	Kg				1,225	1,225
POLYPLUS	Kg			1,400	575	1,975
POT. BICARB	Kg			475	1,000	1,475
SIL. DEFOAM	Kg				200	200
SODA ASH	Kg	50	202	525		777
SOD. BICARB	Kg				1,950	1,950
XANTHAN GUM	Kg	150		325	350	825

MATERIALS	UNIT	12 1/4" HOLE	TESTING	TOTAL
AGIPACK LV	Kg	7,275		7,275
AGIPACK REG.	Kg	50		50
BACBAN 3	Kg	40		40
BARITE	MT	355	56	411
CITRIC ACID	Kg	4,775	1,400	6,175
D.D. 208	LIT.	832		832
DESCO	Kg	136		136
HEC	Kg		50	50
GYPSUM	Kg	400		400
KCL (BRINE)	BBL	643		643
KCL (POWDER)	Kg	5,000		5,000
MAGCO POLYSAL	Kg	2,575		2,575
POLYPLUS	Kg	1,075		1,075
POT. BICARB	Kg	2,250	1,525	3,775
SIL. DEFOAMER	Kg	200		200
SOD. BICARB	Kg	6,125		6,125
XANTHAN GUM	Kg	350		350
XANVIS	Kg	325	175	500