

N.E.B. COPY

Ranger Oil Limited

Static Gradient
Ranger Fort Liard P-66A
P-66A

Feb 14, 99

**MICROFILMED
SUR MICROFILM:****Service Company Contact Info**

Report Writer	Vio Tandara, 1-403-347-2524(309-7913)	Service Company	Lee Tool, Div. of Schlumberger
Operator	Don Hunt, 1-780-778-2362	Job ID	p-66agrad
		Test Date	Feb 14, 99

Gauge: Lee Memory Recorder Model 3000s (Quartz)
Manufacturer: Lee Tool, Division of Schlumberger Canada Limited

Static Gradient

Ranger Oil Limited
Alberta, Canada

Feb 14, 99

Ranger Fort Liard P-66A

P-66A

Liard, Nikanni

Well			
Client Ranger Oil Limited		Province Alberta	Country Canada
Well Name Ranger Fort Liard P-66A		Deviated Well No	Well Status Gas
Well No. P-66A		KB Elevation 459.89 m	CF Elevation 449.49 m
Field Liard	Pool Nikanni	Pool Datum	

Test						
Test Type Static Gradient				Atmospheric 101.30 KPa A		
Test Start (mm/dd/yy) 02/14/99		01:23 PM		Test Finish 02/14/99		09:45 PM
On Bottom 02/14/99				04:39 PM		Off Bottom 02/14/99
Shut In 02/13/99				ETO 02/14/99		01:25 PM
		Meas. Depth [mCF]		TVD [mCF]		Est. Pressure [KPa G]
						Est. Gradient [KPa/m]
						Est. Temperature [DegC]
Well Datum						Grad. Threshold 2.00 KPa/m
Run Depth		3050.00		3050.00		26328.16
Avg. MPP Depth		3225.15		3225.15		27461.10
Operator Don Hunt, 1-780-778-2362				Service Company Lee Tool, Div. of Schlumberger		
Remarks 9501q-16e bottom rec. & 9505q-16e top rec.						

Depth References		
Depth Reference	Offset [m]	Elevation [mMSL]
Casing Flange (CF)		449.49
Kelly Bushing (KB)	CF + 10.40	459.89

Perforations				
Perf Top MD, [mCF]	Perf Bottom MD, [mCF]	MPP TVD, [mCF]	Pressure [KPa G]	Gradient [KPa/m]
3104.65	3345.65	3225.15	27461.10	6.47

Top Recorder

Model LMR-3000S	Serial 9505Q-16E	Latest Calibration 05/20/98	
Max. Rated Press. 110210.66 KPa G	Max. Rated Temp. 174.92 DegC		

Gradient Stops

Depth		Sample R/T [mmm dd, 24hr]	Pressure [KPa G]	Gradient [KPa/m]	Temperature [DegC]
Tool String MD, [mCF]	Recorder MD, [mCF]				
0.00	-1.50	Feb 14, 99 14:12:00	13486.51		-12.79
500.00	498.50	14:35:00	14443.79	1.91	22.01
1000.00	998.50	14:53:00	15327.20	1.77	56.29
1500.00	1498.50	15:10:00	16162.83	1.67	85.76
2000.00	1998.50	15:28:00	19601.59	6.88	108.26
2500.00	2498.50	15:47:00	22758.06	6.31	125.79
2700.00	2698.50	16:00:00	24036.66	6.39	134.48
2800.00	2798.50	16:12:00	24692.06	6.55	140.03
2900.00	2898.50	16:24:00	25351.00	6.59	144.02
3000.00	2998.50	16:36:00	25988.56	6.38	147.08
3050.00	3048.50	16:49:00	26318.12	6.59	148.98
Fluid Interface	Depth TVD, [mCF]	Gradient Before [KPa/m]	Gradient After [KPa/m]		
Interface 1	1507.85	1.77	6.88		

Bottom Hole Pressure

	Tool String MD, [mCF]	Sample R/T [mmm dd, yy 24 hr.]	Pressure [KPa G]	Build Up Rate 0.65 KPa/Hr.
Sample 1	3050.00	Feb 14, 99 16:59:40	26325.33	
Sample 2		20:51:40	26327.84	
Difference:		03:52:00	2.50	

Bottom Recorder

Model LMR-3000S	Serial 9501Q-16E	Latest Calibration 05/20/98	
Max. Rated Press. 110210.66 KPa G	Max. Rated Temp. 174.92 DegC		

Gradient Stops

Depth		Sample R/T [mmm dd, 24hr]	Pressure [KPa G]	Gradient [KPa/m]	Temperature [DegC]
Tool String MD, [mCF]	Recorder MD, [mCF]				
0.00	0.00	Feb 14, 99 14:12:00	13504.83		-13.30
500.00	500.00	14:35:00	14454.61	1.90	22.97
1000.00	1000.00	14:53:00	15332.98	1.76	57.53
1500.00	1500.00	15:10:00	16182.01	1.70	86.40
2000.00	2000.00	15:28:00	19614.63	6.87	108.63
2500.00	2500.00	15:47:00	22771.18	6.31	126.07
2700.00	2700.00	16:00:00	24049.31	6.39	134.73
2800.00	2800.00	16:12:00	24708.17	6.59	140.21
2900.00	2900.00	16:24:00	25368.46	6.60	144.13
3000.00	3000.00	16:36:00	26004.74	6.36	147.18
3050.00	3050.00	16:49:00	26328.16	6.47	149.04
Fluid Interface	Depth TVD, [mCF]	Gradient Before [KPa/m]	Gradient After [KPa/m]		
Interface 1	1505.74	1.76	6.87		

Bottom Hole Pressure

	Tool String MD, [mCF]	Sample R/T [mmm dd, yy 24 hr.]	Pressure [KPa G]	Build Up Rate 0.08 KPa/Hr.
Sample 1	3050.00	Feb 14, 99 17:00:00	26345.88	
Sample 2		20:51:30	26346.18	
Difference:		03:51:30	0.30	

Calibration Summary

Ranger Oil Limited
Alberta, Canada

Feb 14, 99

Ranger Fort Liard P-66A

P-66A

Liard, Nikanni

Top Recorder

Tool	Serial	Latest Calibration	Battery Serial
LMR-3000S	9505Q-16E	05/20/98	
Landed Depth	Depth Offset	Min. Battery	
	-1.50 m	20.77 V	

Equations

FP = Pres Freq (Hz)

FT = Temp Freq (Hz)

$XP = 1.866400e+004 + (1.000000e-002) FP$

$XT = 4.924200e+004 + (1.000000e-002) FT$

$P_0 = 1.936513e+001 + (-1.714123e+000) XT + (-2.262890e-002) XT^2 + (-3.275274e-006) XT^3 + (-2.048157e-008) XT^4$

$P_1 = 4.245641e+001 + (-2.079295e-002) XT + (3.963275e-005) XT^2 + (4.812623e-008) XT^3 + (2.138480e-010) XT^4$

$P_2 = -1.742961e-003 + (8.580555e-006) XT + (-8.255788e-008) XT^2 + (-3.112277e-010) XT^3 + (-7.631776e-013) XT^4$

$P_3 = 5.357535e-007 + (-3.513717e-010) XT + (1.048347e-010) XT^2 + (5.290096e-013) XT^3 + (1.094640e-015) XT^4$

Pressure (psiA) = $P_0 + P_1 XP + P_2 XP^2 + P_3 XP^3$

$T_0 = 2.536848e+001$

$T_1 = -7.367358e-001$

$T_2 = -7.876411e-004$

$T_3 = -4.044080e-007$

Temperature (degC) = $T_0 + T_1 XT + T_2 XT^2 + T_3 XT^3$

Bottom Recorder

Tool	Serial	Latest Calibration	Battery Serial
LMR-3000S	9501Q-16E	05/20/98	
Landed Depth	Depth Offset	Min. Battery	
	0.00 m	20.97 V	

Equations

FP = Pres Freq (Hz)

FT = Temp Freq (Hz)

$XP = 2.021700e+004 + (1.000000e-002) FP$

$XT = 4.404500e+004 + (1.000000e-002) FT$

$P_0 = 1.953652e+001 + (-1.398162e+000) XT + (-2.261735e-002) XT^2 + (-4.257821e-006) XT^3 + (-2.244771e-008) XT^4$

$P_1 = 4.157305e+001 + (-2.084275e-002) XT + (3.598379e-005) XT^2 + (2.848362e-008) XT^3 + (1.764987e-010) XT^4$

$P_2 = -1.764766e-003 + (1.041122e-005) XT + (-5.717207e-008) XT^2 + (-2.005331e-010) XT^3 + (-5.887638e-013) XT^4$

$P_3 = 4.798491e-007 + (-3.590927e-009) XT + (6.006125e-011) XT^2 + (3.389536e-013) XT^3 + (8.149256e-016) XT^4$

Pressure (psiA) = $P_0 + P_1 XP + P_2 XP^2 + P_3 XP^3$

$T_0 = 2.537126e+001$

$T_1 = -7.405879e-001$

$T_2 = -7.987619e-004$

$T_3 = -4.174395e-007$

Temperature (degC) = $T_0 + T_1 XT + T_2 XT^2 + T_3 XT^3$

Tool Summary

Ranger Oil Limited
Alberta, Canada

Feb 14, 99

Ranger Fort Liard P-66A

P-66A

Liard, Nikanni

Top Recorder			
Tool	Serial	Latest Calibration	Battery Serial
LMR-3000S	9505Q-16E	05/20/98	
Landed Depth	Depth Offset	Min. Battery	
	-1.50 m	20.77 V	

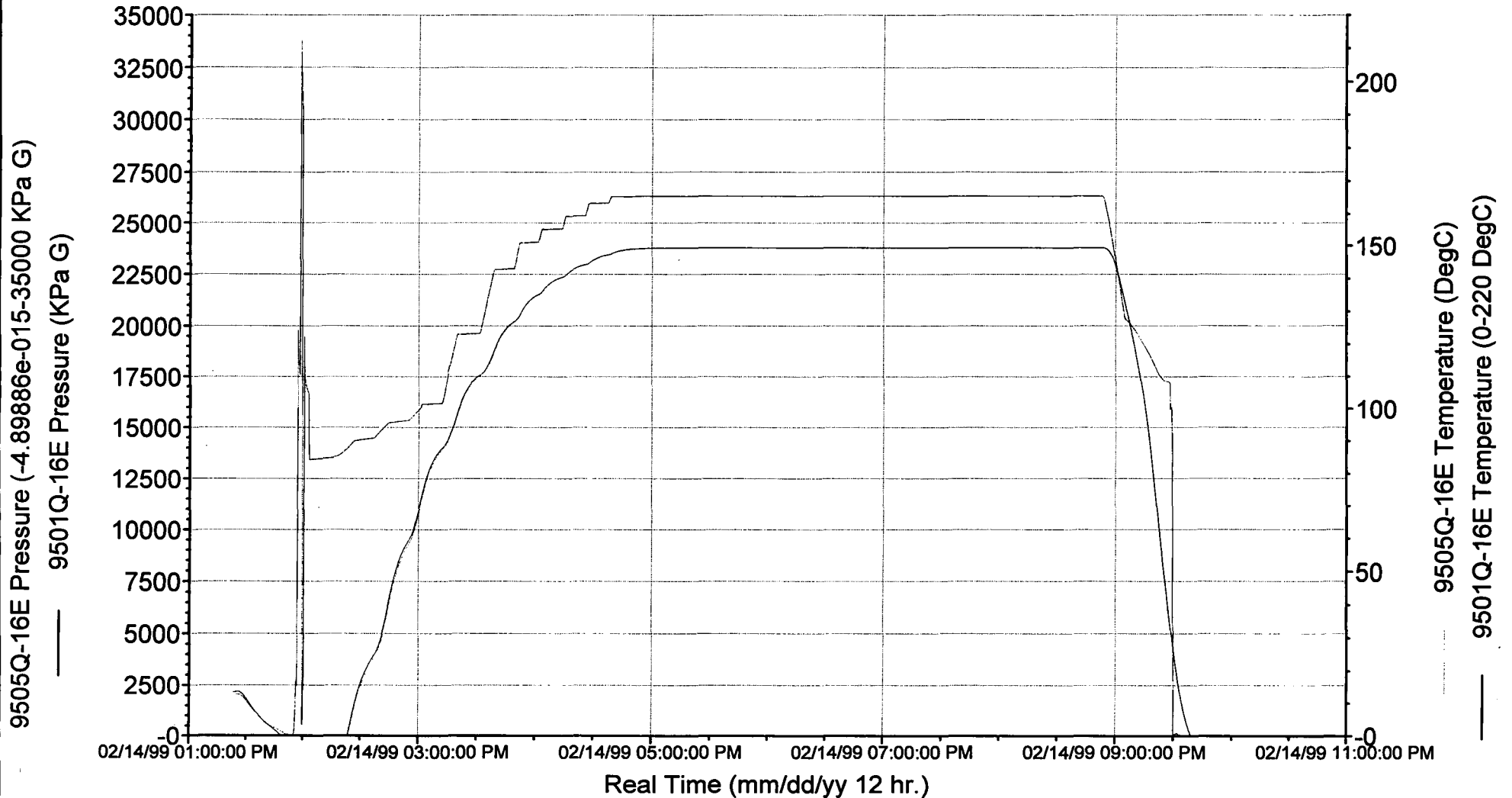
Program: st. grad. for 512 kb												
Intervals					Expected Samples			Actual Samples				
Mode	Interval [d hh:mm:ss]	Rate [hh:mm:ss]	Delta [KPa]	Periodic [hh:mm:ss]	Regular Samples	Percent Storage	Energy [Ahr]	Regular Samples	Delta Samples	Percent Storage	Energy [Ahr]	Duration [d hh:mm:ss]
HB	10:00	1			600	0.2%	0.0022	600		0.2%	0.0022	10:00
HB	10	10			86400	24.7%	1.8249	2927		0.8%	0.0618	8:07:50
Totals:	10 10:00				87000	24.9%	1.8271	3527		1.0%	0.0640	8:17:50

Bottom Recorder			
Tool	Serial	Latest Calibration	Battery Serial
LMR-3000S	9501Q-16E	05/20/98	
Landed Depth	Depth Offset	Min. Battery	
	0.00 m	20.97 V	

Program: st. grad. for 512 kb												
Intervals					Expected Samples			Actual Samples				
Mode	Interval [d hh:mm:ss]	Rate [hh:mm:ss]	Delta [KPa]	Periodic [hh:mm:ss]	Regular Samples	Percent Storage	Energy [Ahr]	Regular Samples	Delta Samples	Percent Storage	Energy [Ahr]	Duration [d hh:mm:ss]
HB	10:00	1			600	0.2%	0.0022	600		0.2%	0.0022	10:00
HB	10	10			86400	24.7%	1.8249	2921		0.8%	0.0617	8:06:50
Totals:	10 10:00				87000	24.9%	1.8271	3521		1.0%	0.0639	8:16:50

Pressure & Temperature vs. Elapsed Time

Company:	Lee Tool, Div. of Schlumberger	Field:	Liard
Client:	Ranger Oil Limited	Well Name:	Ranger Fort Liard P-66A
Remarks:	9501q-16e bot. rec. & 9505q-16e top rec.	Well Number:	P-66A



Pressure vs. Depth

Company: Lee Tool, Div. of Schlumberger
Client: Ranger Oil Limited
Remarks: 9501q-16e bot. rec. & 9505q-16e top rec.

Field: Liard
Well Name: Ranger Fort Liard P-66A
Well Number: P-66A

