

Company: Noble Energy

Well: Remora LC34-715

Field: Wildcat

County: Weld

State: Colorado

Country: USA

SlimPulse-Gamma Ray

1 in./ 100 ft Measured Depth

Recorded Mode, Composite Log

Schlumberger

Company: Noble Energy

Well: Remora LC34-715

Field: Wildcat

County: Weld

State: Colorado

Country: USA

Section: 34

Township: 09N

Range: 59W

FL: NAD83 Colorado State Plane, Northern Zone, US Feet

FL1: Latitude: 40° 42' 43.416" N Northing: .1505969, 197 ftUS

FL2: Longitude: 103° 57' 24.984" W Easting 3427758, 297 ftUS


APIN: 05-123-40592

Rig Name: H&P 273


Rig Type: Top Drive

Log Measured From: - Drill Floor: 4838.00 ft

Ground Level: 4814.00 ft



Permanent Datum: - Mean Sea Level



Acquisition Dates: 11-Jan-2016 -- 16-Jan-2016

Log Interval: 573(ft) -- 10017(ft)

Index Types: Measured Depth

Index Scales: 1:1200 1" / 100'

Depth Source: Driller's Depth

Depth Sensor: PASON

Print Type: Final


Spud Date: 10-Jan-2016

Other Services: Surveys / Continuous D&I

Downhole Temperature

Downhole Shocks

Directional Drilling



Disclaimer

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Borehole Size/Casing Record						
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Bit						
Bit Size (in)	12.25	8.75	6.125			
Top Driller (ft)	0	643	6195			
Bottom Driller (ft)	643	6195	10017			
Casing						
Size (in)	9.625	7				
Weight (lbm/ft)	32	32				
Inner Diameter (in)	9.001	6.094				
Grade	J55	P110				
Top Driller (ft)	0	0				
Bottom Driller (ft)	633	6183				

Operational Run Summary						
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Parameter (unit)	Run01	Run03				
Date Log Started	11-Jan-2016	14-Jan-2016				
Time Log Started	01:02:29	00:18:56				
Date Log Finished	12-Jan-2016	16-Jan-2016				
Time Log Finished	11:10:15	15:17:53				
Bit Size (in)	8.750	6.125				
Bit Start Depth (ft)	643.00	6195.00				
Bit Stop Depth (ft)	6195.00	10017.00				
Top Log Interval (ft)	593.00	6145.00				
Bottom Log Interval (ft)	6145.00	9964.00				
Max Hole Deviation (deg)	71.18	91.55				
Azimuth of Max Deviation (deg)	177.11	176.57				
Logging Unit Number	Command Center	Command Center				
Logging Unit Location	Zone 3	Zone 3				
Recorded By	M. Wilson	E. Sloyer				
Witnessed By	S. Kingrey	S. Kingrey				
Service Order Number	15CCO0839	15CCO0839				

Borehole Fluids						
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Parameter(unit)	Run01	Run03				
Fluid Type	Water	Water				
Max Recorded Temperatures (degF)	168.8	212				

Source of Sample	Active Tank	Active Tank				
Salinity (ppm)	1300	34972.17				
Density (lbm/gal)	Zoned	10.3				
Funnel Viscosity (s)	34	35				
Fluid Loss (cm3)						
PH	9.8	9.2				
Source RMF						
RMC	Pressed	Pressed				
RM @ Meas Temp (ohm.m@degF)	0.2 @ 68	0.2 @ 68				
RMF @ Meas Temp (ohm.m@degF)	0.15 @ 68	0.15 @ 68				
RMC @ Meas Temp (ohm.m@degF)						
RM @ BHT (ohm.m@degF)	0.07 @ 212	0.07 @ 213				
RMF @ BHT (ohm.m@degF)	0.05 @ 212	0.05 @ 213				
RMC @ BHT (ohm.m@degF)	NaN @ 212	NaN @ 213				
Total Solid (%)	9.5	8.2				
High Gravity Solids (%)						

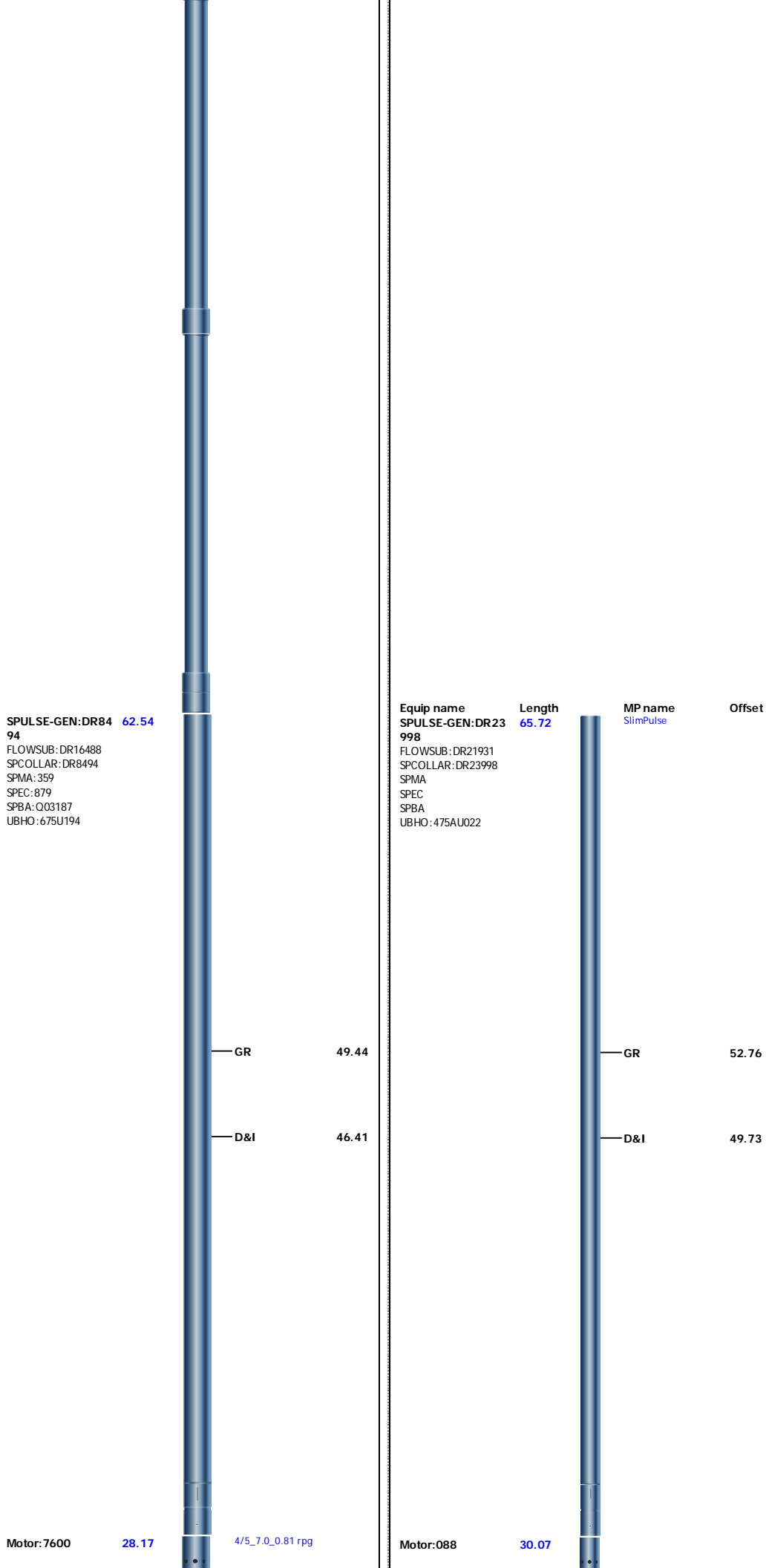
Run01

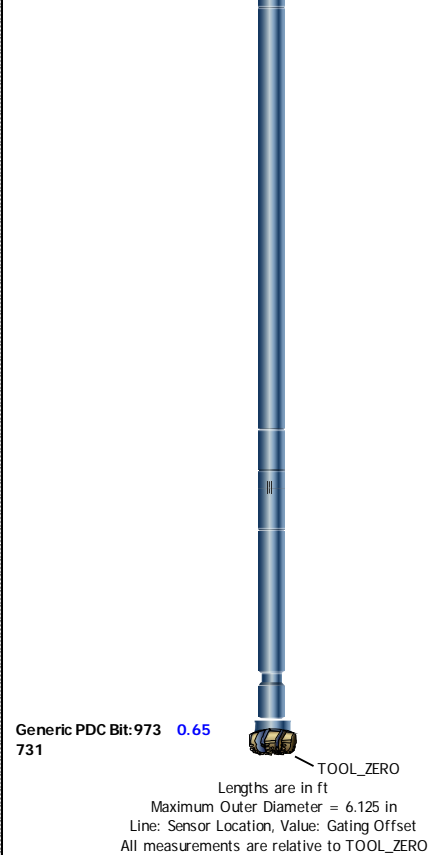
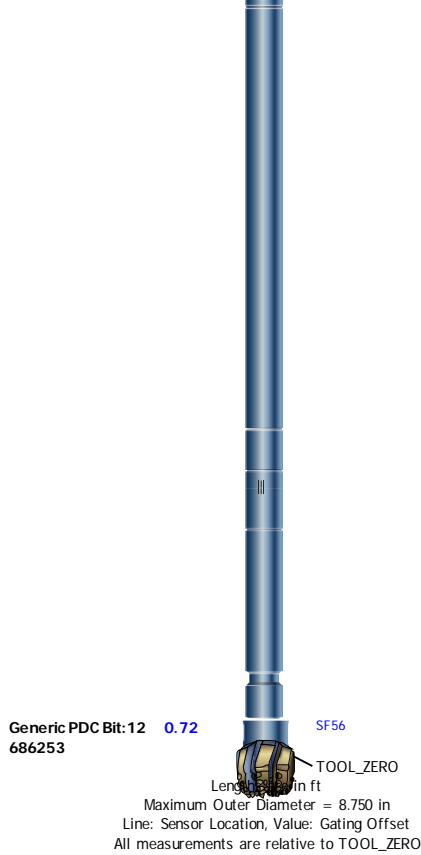
Parameter	Value	Start
Density	8.4	1/11/2016 1:02:29 AM
Density	8.5	1/11/2016 9:53:22 PM
Density	10.6	1/12/2016 5:35:07 AM

Data presented is from tool memory and acquired while drilling from 643 ft MD to 10017 ft MD.	
Depth Reference: Driller's Depth	
Environmental Corrections: Gamma Ray is corrected for bit size, mud weight, and tool collar thickness. Barite and potassium in the mud affect Gamma Ray readings.	
Run01: Remarks	Run03: Remarks
Run Objective: Drill vertical and curve section.	Run Objective: Drill curve and lateral section.
Bit to GR: 49.44 ft Bit to D&I: 46.41 ft	Bit to GR: 52.76 ft Bit to DNI: 49.73 ft
Drilled from: 643 ft to 6195 ft Logged from: 593 ft to 6145 ft	Drilled from: 6195 ft to 10017 ft Logged from: 6145 ft to 9964 ft
SlimPulse Software Version 11 SlimPulse UDI Calibrated: Jul. 23, 2015 SlimPulse UGR Calibrated: Oct. 30, 2015	SlimPulse Software Version 11 SlimPulse UDI Calibrated: Jun. 5, 2015 SlimPulse UGR Calibrated: Nov. 20, 2015
Schlumberger Personnel: DD: Charles Mitchell, Chris Sisseck MWD: Scott Kingrey, Mark Wilson, Eric Sloyer	Schlumberger Personnel: DD: Charles Mitchell, Chris Sisseck MWD: Scott Kingrey, Mark Wilson, Eric Sloyer
Reason for POOH: Section TD	Reason for POOH: Well TD

Equip name	Length	MP name	Offset
X/O: 6 3/4":DR111 08	101.96		
Flt Sub: 6 3/4":DR 10902	98.93		
Filtr Sub: 6 3/4":DR 19577	96.37		
Flex DC: 6 3/4":DR 28051	93.57		

[illegible]





Well Composite

Software Version

Acquisition System	Version
Maxwell 2014 SP3	5.3.47551.3100

Composite Summary

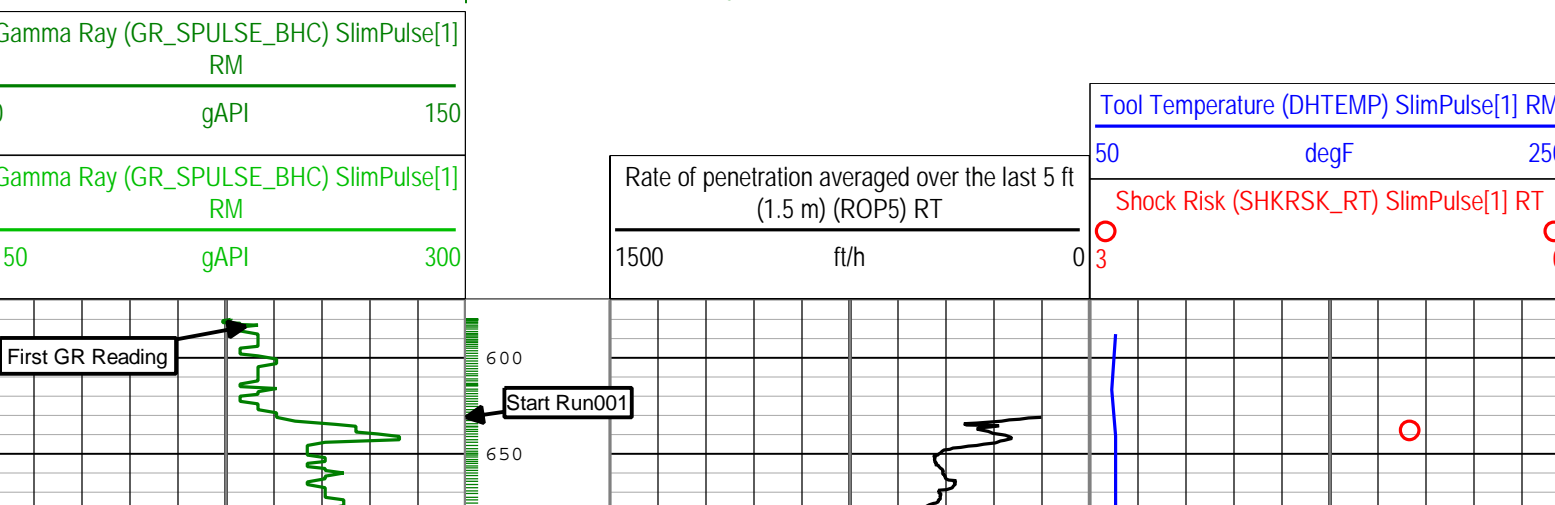
Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	Include Parallel Data
Run01	Drilling	Down	629.08 ft	6191.00 ft	11-Jan-2016 1:02:29 AM	12-Jan-2016 11:10:15 AM	Yes
Run03	Drilling	Down	6190.00 ft	10018.83 ft	14-Jan-2016 5:46:02 AM	16-Jan-2016 3:17:53 PM	Yes

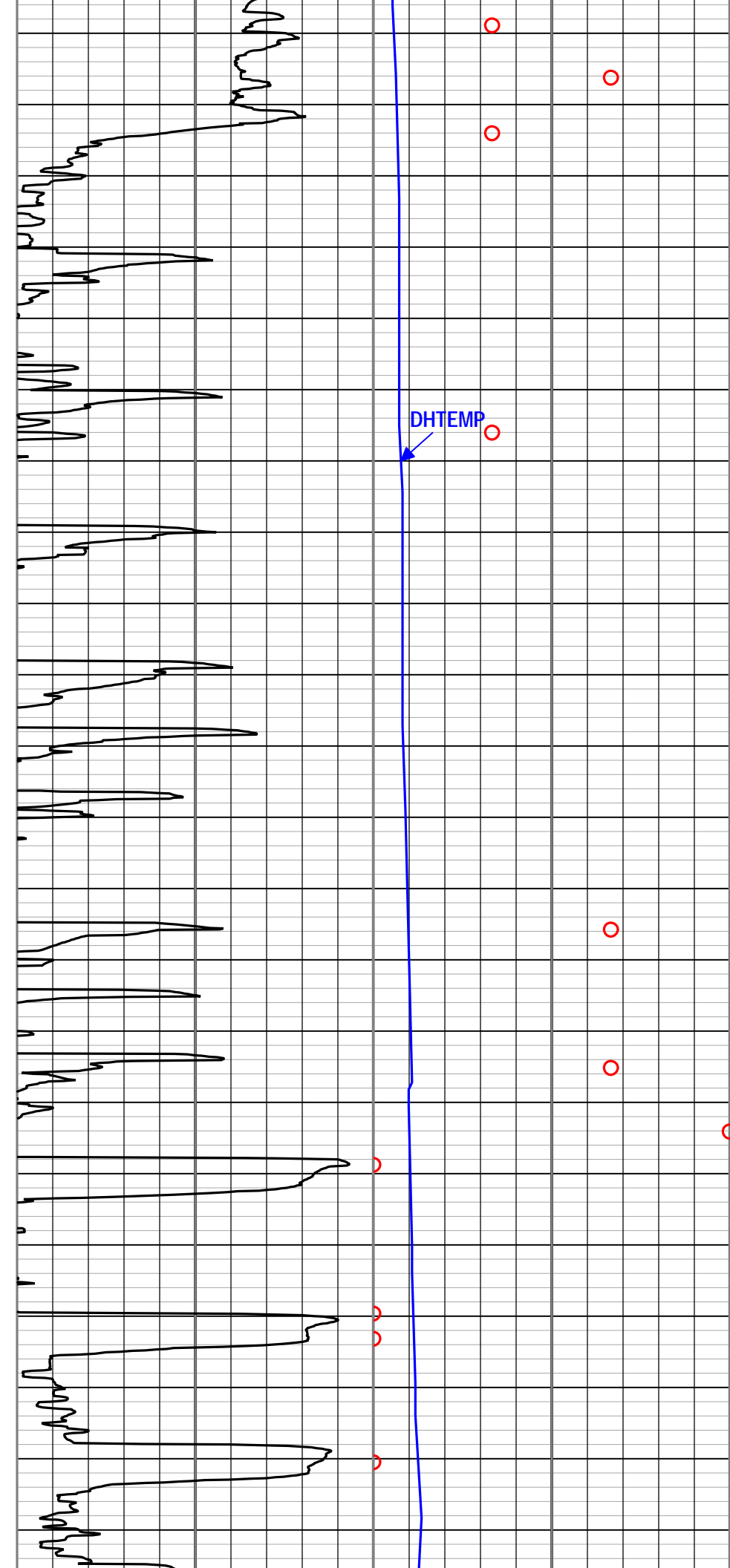
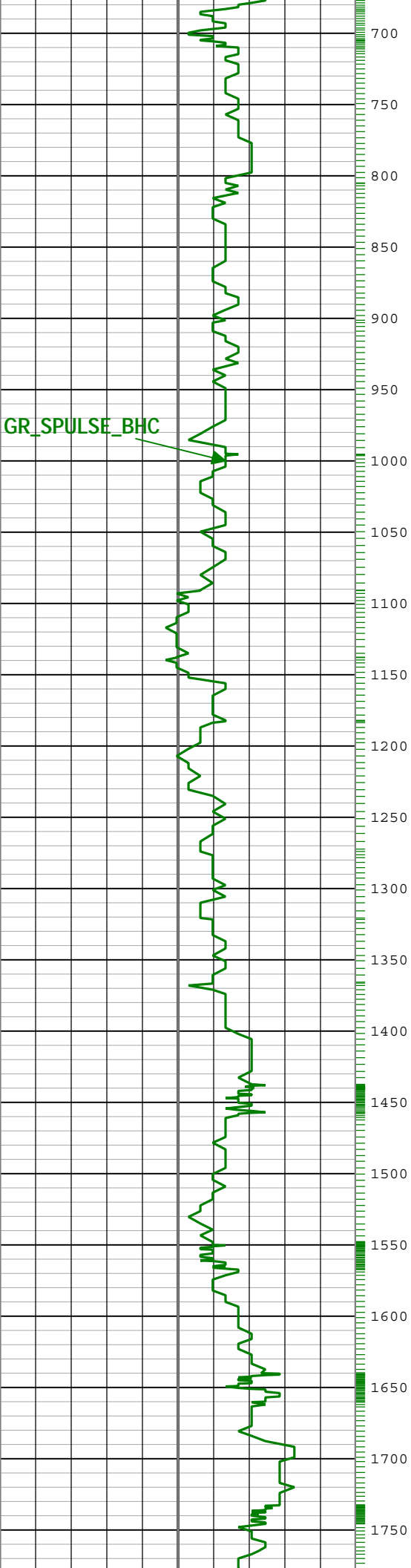
All depths are referenced to toolstring zero

Log	Company:Noble Energy	Well:Remora LC34-715
		Well Composite:S107

Description: Format: Log (SlimPulse EOW MD) Index Scale: 1 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 10-Feb-2016 17:00:28

TICKS_GR - Gamma Ray Tick Marks SlimPulse[1] RM





GR_SPULSE_BHC

Depth Tracking Error

ROP5

DHTEMP

1800
1850
1900
1950
2000
2050
2100
2150
2200
2250
2300
2350
2400
2450
2500
2550
2600
2650
2700
2750
2800
2850

GR_\$PULSE_BHC

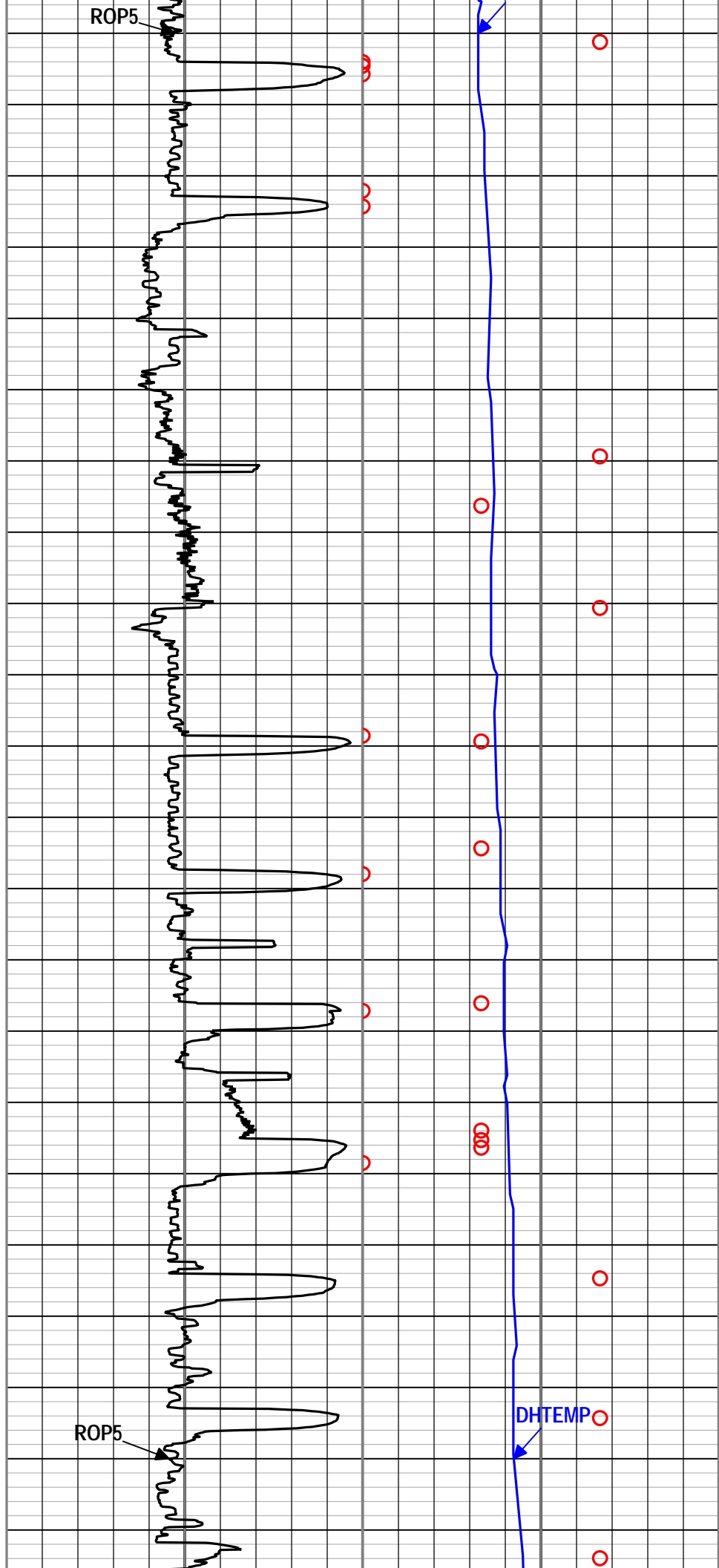
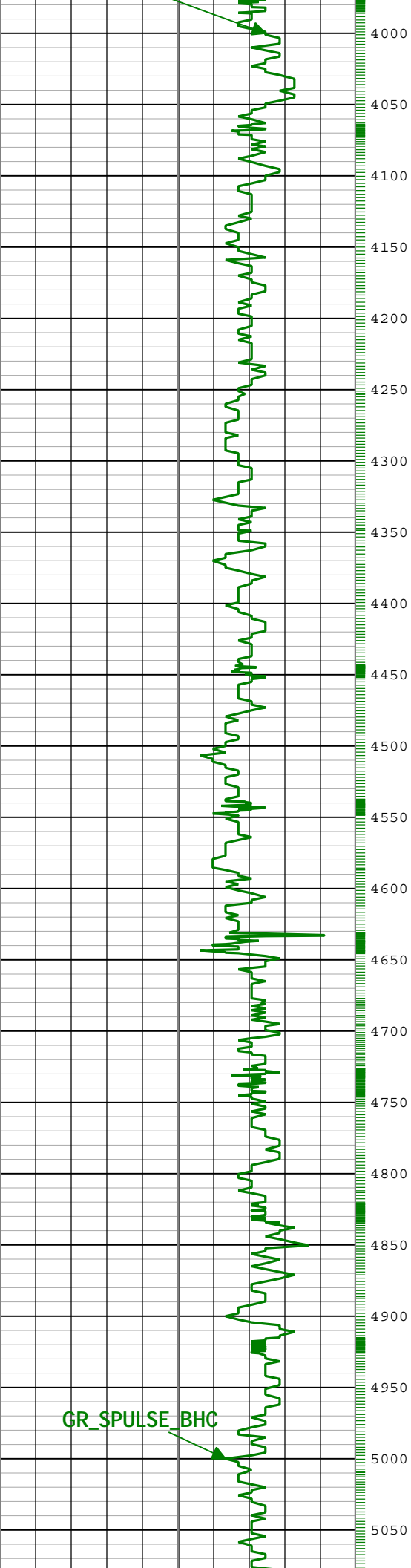
GR_\$PULSE_BHC

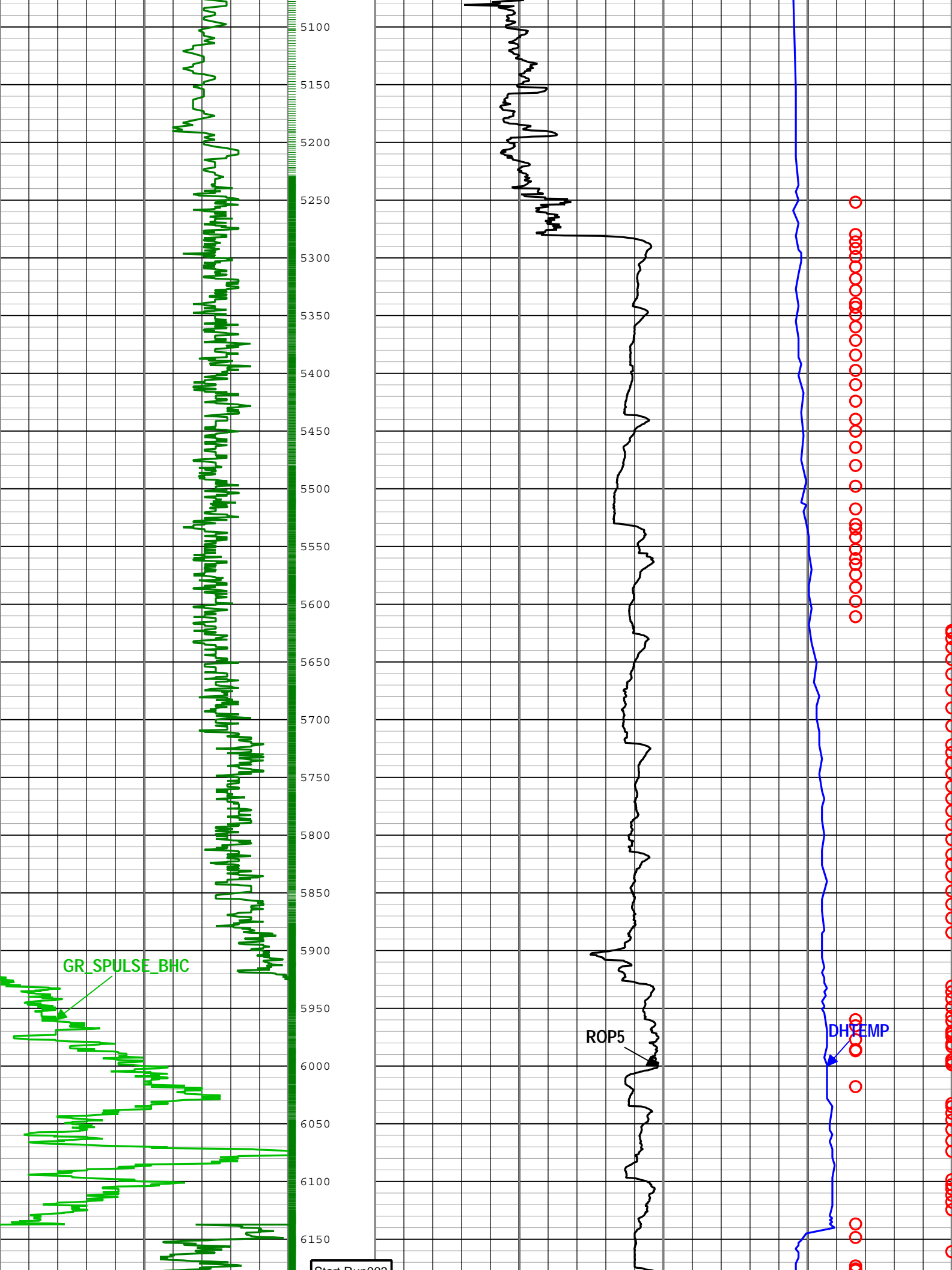
2900
2950
3000
3050
3100
3150
3200
3250
3300
3350
3400
3450
3500
3550
3600
3650
3700
3750
3800
3850
3900
3950

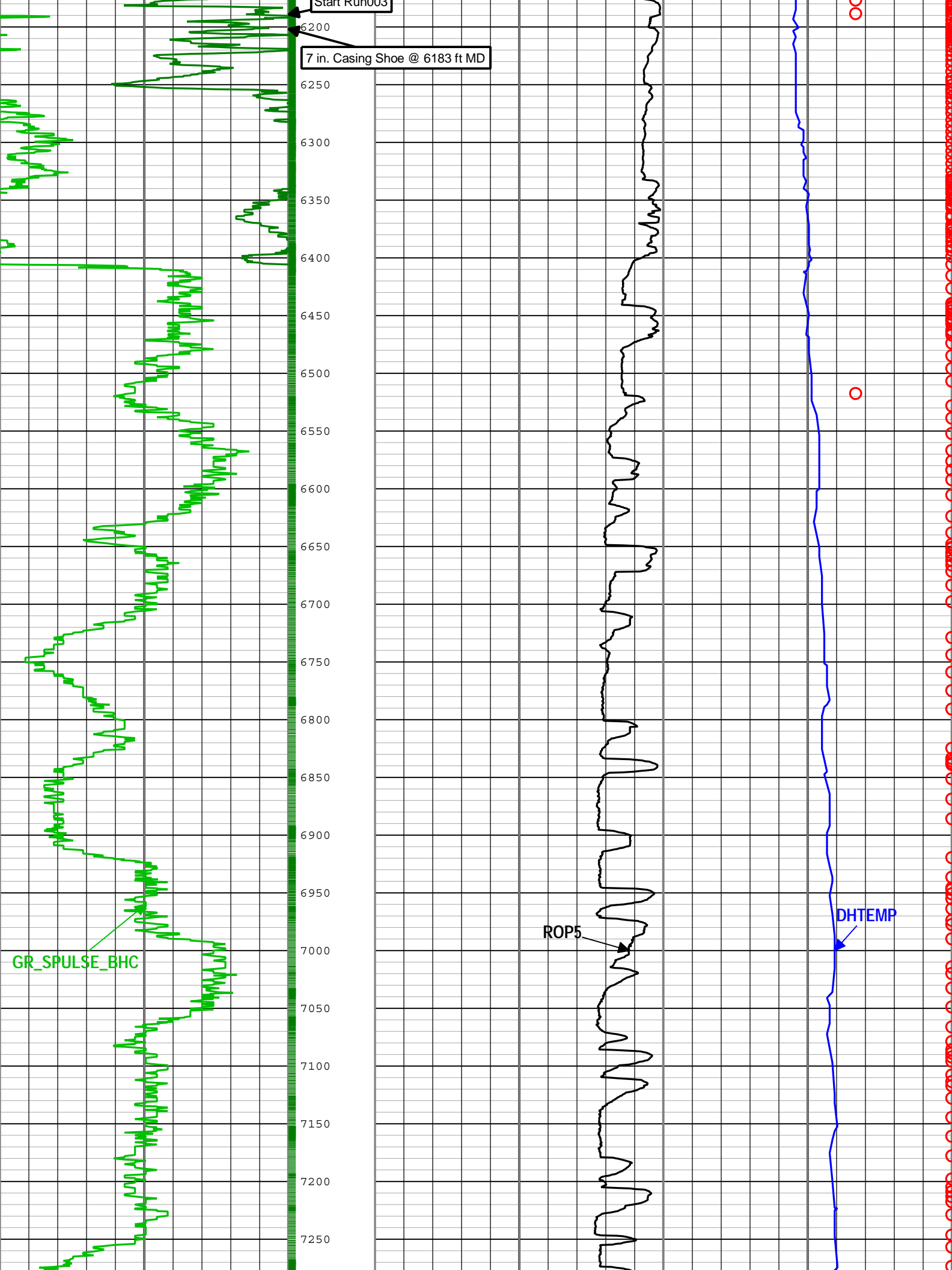
ROP5

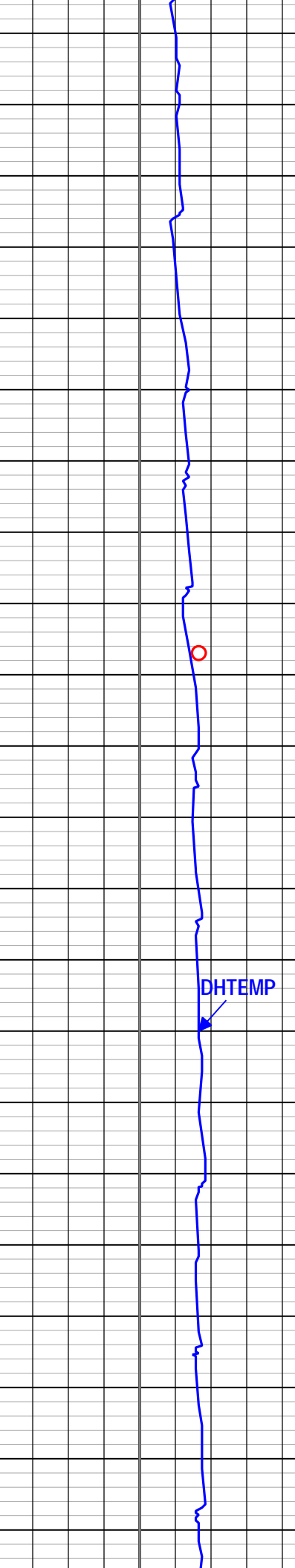
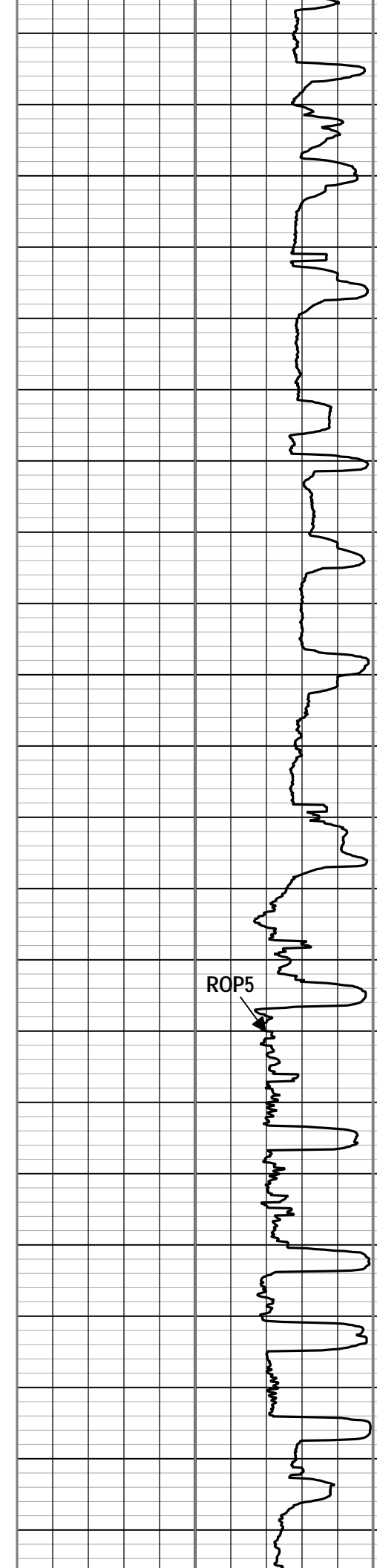
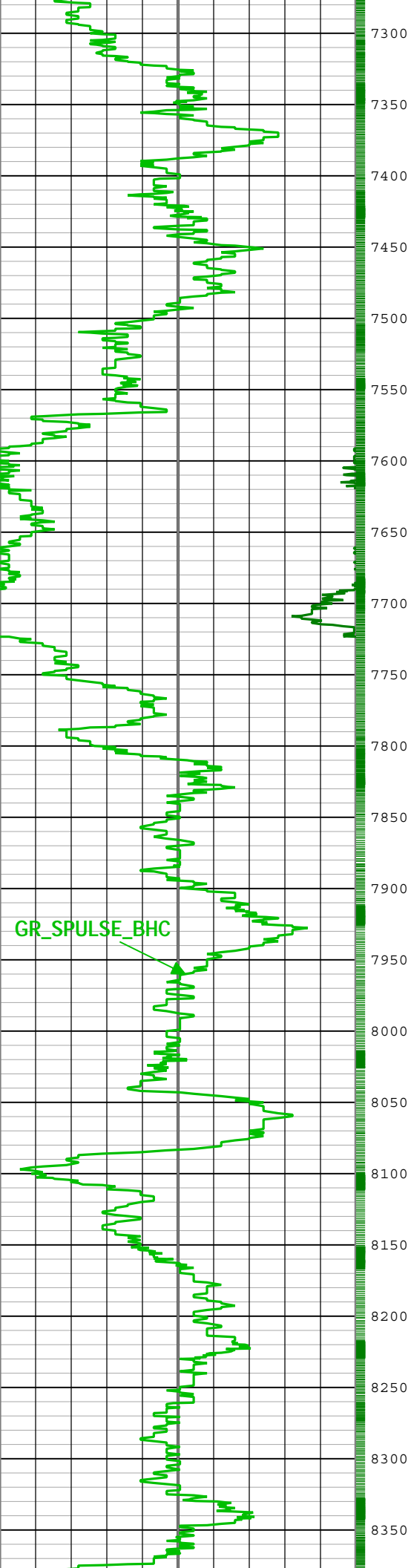
DHTEMP

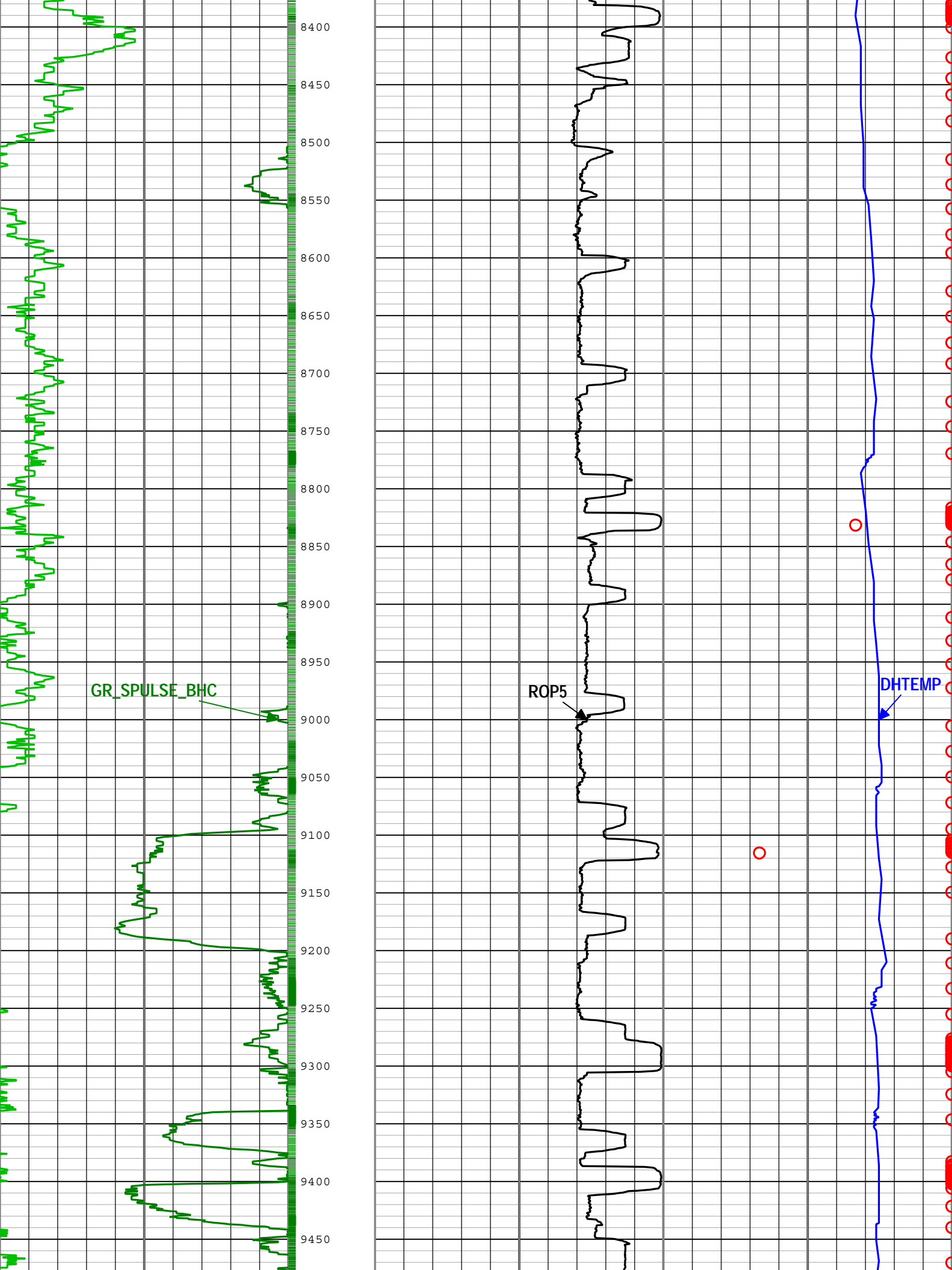
DHTEMP

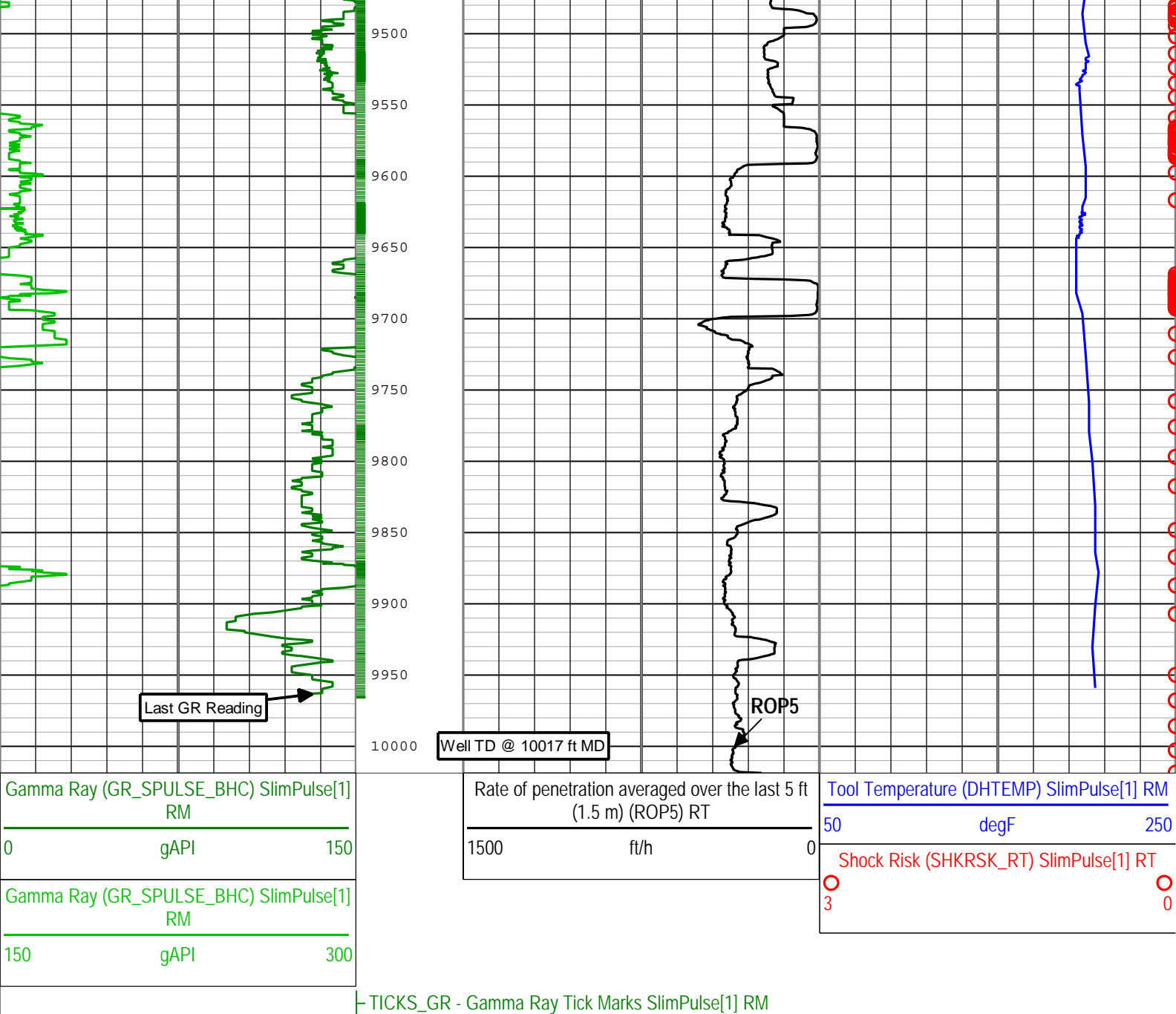












Description: Format: Log (SlimPulse EOW MD) Index Scale: 1 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 10-Feb-2016 17:00:28

Channel Processing Parameters				
Run01: Parameters				
Parameter	Description	Tool	Value	Unit
BS	Bit Size	DNMSESSION	Depth Zoned	in
DFD	Drilling Fluid Density	Borehole	Time Zoned	lbm/gal
GR_SRC	GR Source Selection	SPULSE-GEN	GAMMA_EXT	
Run01Depth Zoned Parameters				
Parameter	Value	Start (ft)	Stop (ft)	
BS	12.25	570	643	
BS	8.75	643	6191	
All depth are actual.				
Run01Time Zoned Parameters				
Pass Drilling				
Parameter	Value	Start Time	Stop Time	Start Depth (ft)
				Stop Depth (ft)

DFD	8.4	11-Jan-2016 01:02:29	11-Jan-2016 21:53:22	629.08	5435
DFD	8.5	11-Jan-2016 21:53:22	12-Jan-2016 05:35:07	5435	6034.42
DFD	10.6	12-Jan-2016 05:35:07	12-Jan-2016 11:10:15	6034.42	6191

All depth are at tool zero.

Run03: Parameters

Parameter	Description	Tool	Value	Unit
BS	Bit Size	DNMSESSION	Depth Zoned	in
DFD	Drilling Fluid Density	Borehole	10.3	lbm/gal
GR_SRC	GR Source Selection	SPULSE-GEN	GAMMA_EXT	

Run03Depth Zoned Parameters

Parameter	Value	Start (ft)	Stop (ft)
BS	8.75	6124.28	6195
BS	6.125	6195	10017

All depth are actual.

Tool Control Parameters

Calibration Report

SPULSE-GEN (SlimPulse with Generic Collar) Calibration - Run Run01

Primary Equipment :	Elec. cartridge, 150C max with GR	SPEC	879
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GRGain - Gamma Ray: Blanket

Master (Time Frame File): 12:00:00 30-Oct-2015

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Gamma Ray Calibration Gain		Master	1.0000	0.9000	1.0983	1.1000	

SPULSE-GEN (SlimPulse with Generic Collar) Calibration - Run Run03

Primary Equipment :	Elec. cartridge, 150C max with GR	SPEC
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GRGain - Gamma Ray: Blanket

Master (Time Frame File): 12:00:00 20-Nov-2015

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Gamma Ray Calibration Gain		Master	1.0000	0.9000	1.0258	1.1000	

Company: Noble Energy

Well: Remora LC34-715

Field: Wildcat

County: Weld

State: Colorado

Country: USA



SlimPulse-Gamma Ray
1 in./ 100 ft Measured Depth
Recorded Mode, Composite Log