

**COMPENSATED DENSITY  
NEUTRON  
LOG**

Company	Pioneer Natural Resources	Company	Pioneer Natural Resources
Well	Cave Canyon 23-4 Tr	Well	Cave Canyon 23-4 Tr
Field	Purgatoire River	Field	Purgatoire River
County	Las Animas	County	Las Animas
State	Colorado	State	Colorado
Location:	API #: 05 071 09665 00	Other Services	SIL
Permanent Datum	1792' FSL & 2216' FWL	Elevation	
Log Measured From	SEC 4 TWP 33S RGE 67W	K.B. 7714'	
Drilling Measured From	Ground Level	D.F. -----	
	Kelly Bushing 4' AGL	G.L. 7710'	
	Kelly Bushing		
Date	6-14-11		
Run Number	One		
Depth Driller	1820'		
Depth Logger	1814'		
Bottom Logged Interval	1798'		
Top Log Interval	Surface Casing		
Casing Driller	8 5/8" @ 829'		
Casing Logger	828'		
Bit Size	7 7/8"		
Type Fluid in Hole	Airated Water		
Density / Viscosity	///		
pH / Fluid Loss	///		
Source of Sample	///		
Rm @ Meas. Temp	///		
Rmf @ Meas. Temp	///		
Rmc @ Meas. Temp	///		
Source of Rmf / Rmc	///		
Rm @ BHT	///		
Time Circulation Stopped	2:00 P.M.		
Time Logger on Bottom	5:45 P.M.		
Maximum Recorded Temperature	91 DEG F		
Equipment Number	T590		
Location	Trinidad		
Recorded By	C. Sisneros		
Witnessed By	Mr. Derrick Berry		

<<< Fold Here >>>

All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, damages, or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to our general terms and conditions set out in our current Price Schedule.

**Comments**

Density Porosity Presented On Sandstone Matrix.  
ABHV Calculated For 5.5" Casing.

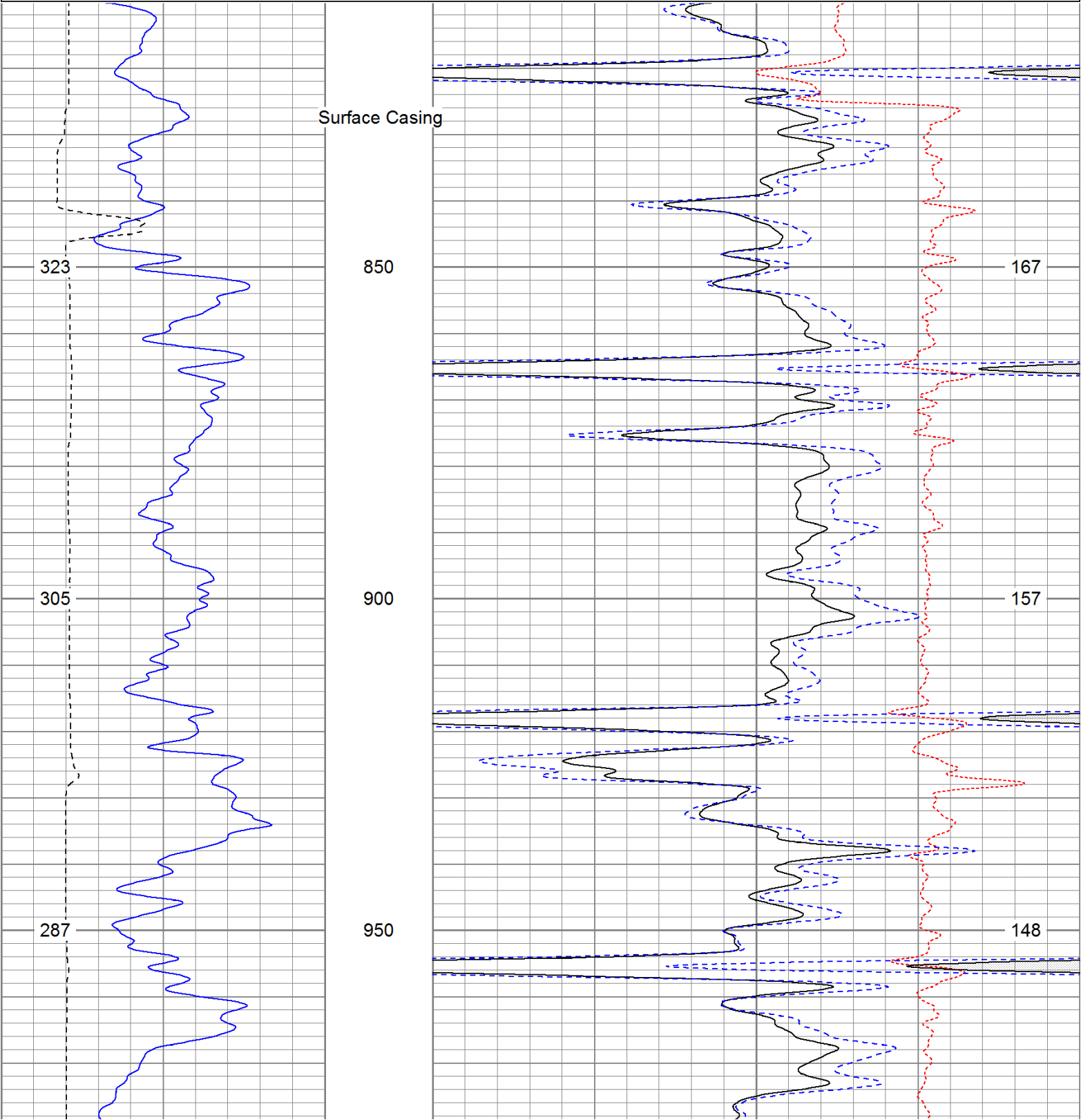
**Directions:**

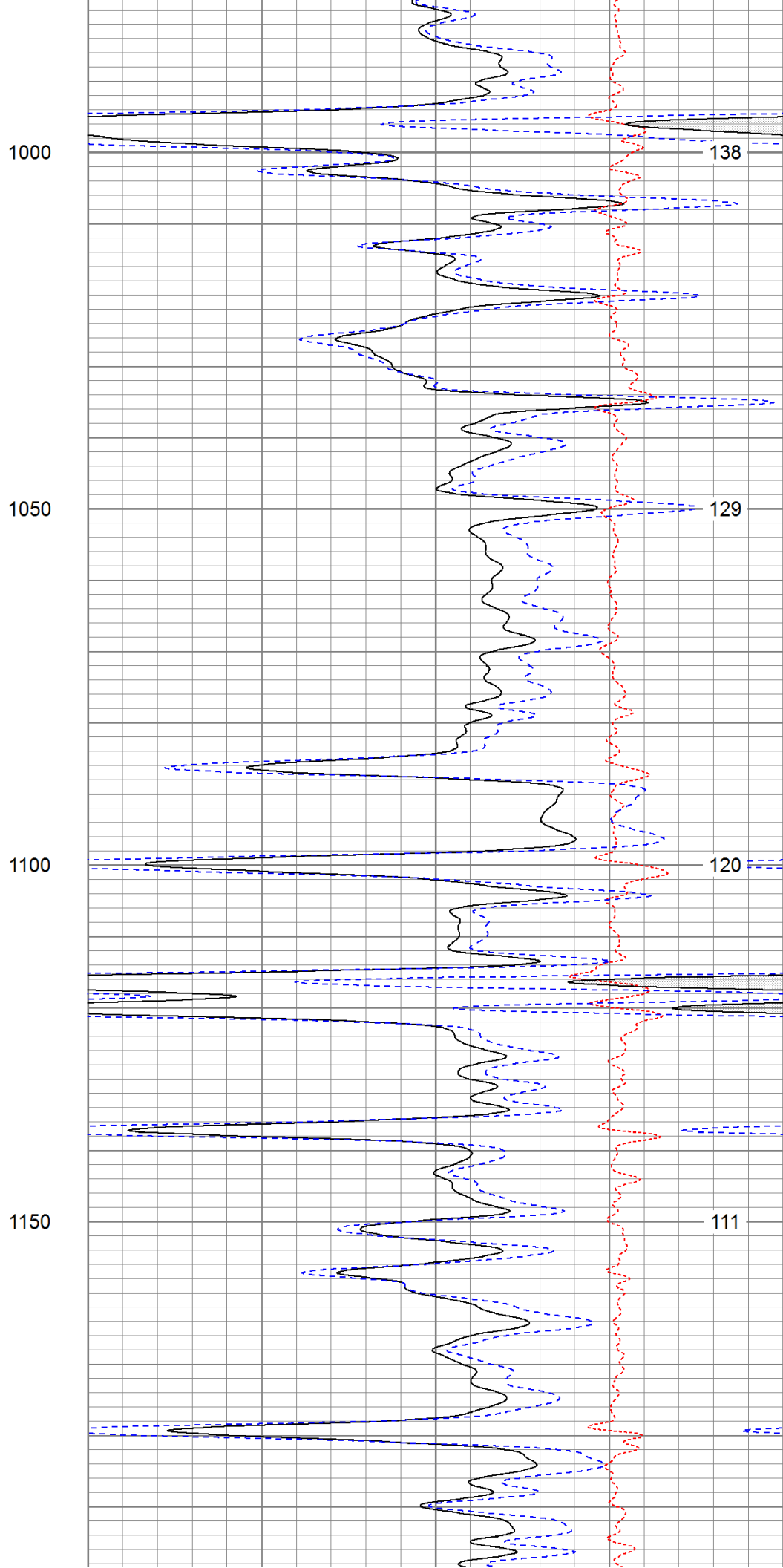
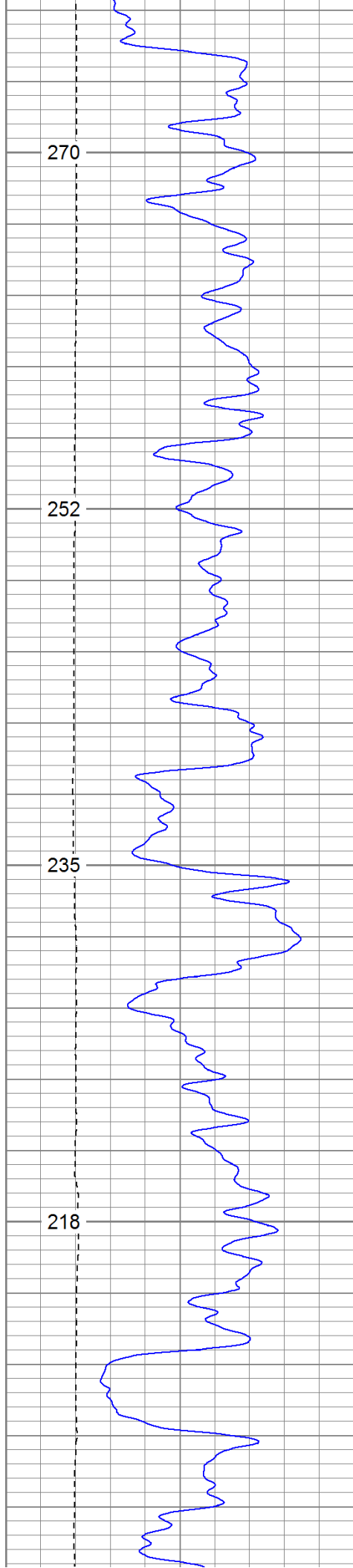
Wet Canyon, turn left up Cougar Ridge, at y go right,  
stay straight around horse corrals and next left to location.

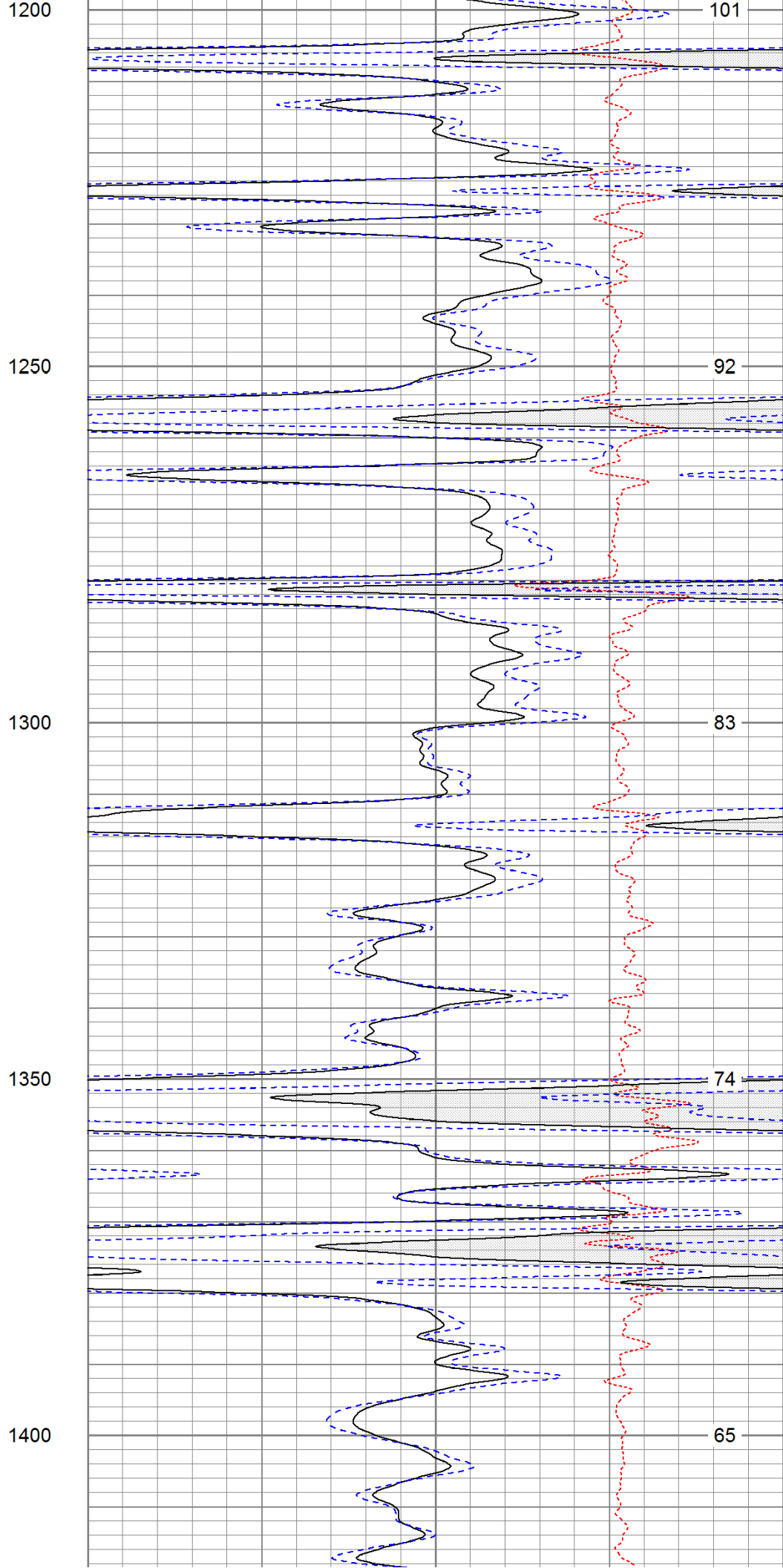
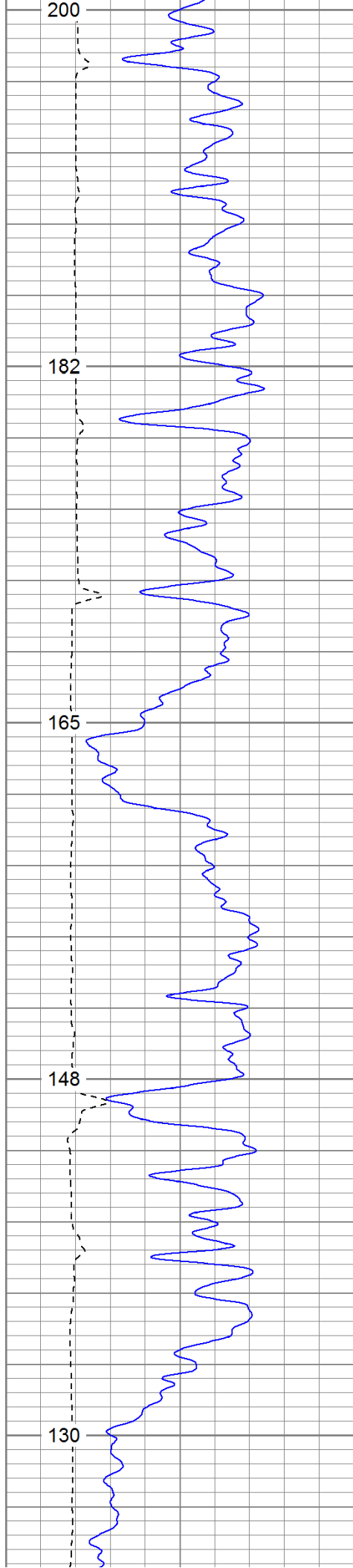
Database File: cavecanyontr.db  
Dataset Pathname: pass3.1  
Presentation Format: cdl  
Dataset Creation: Fri Jun 17 16:01:46 2011 by Calc Open-Cased 110302  
Charted by: Depth in Feet scaled 1:240

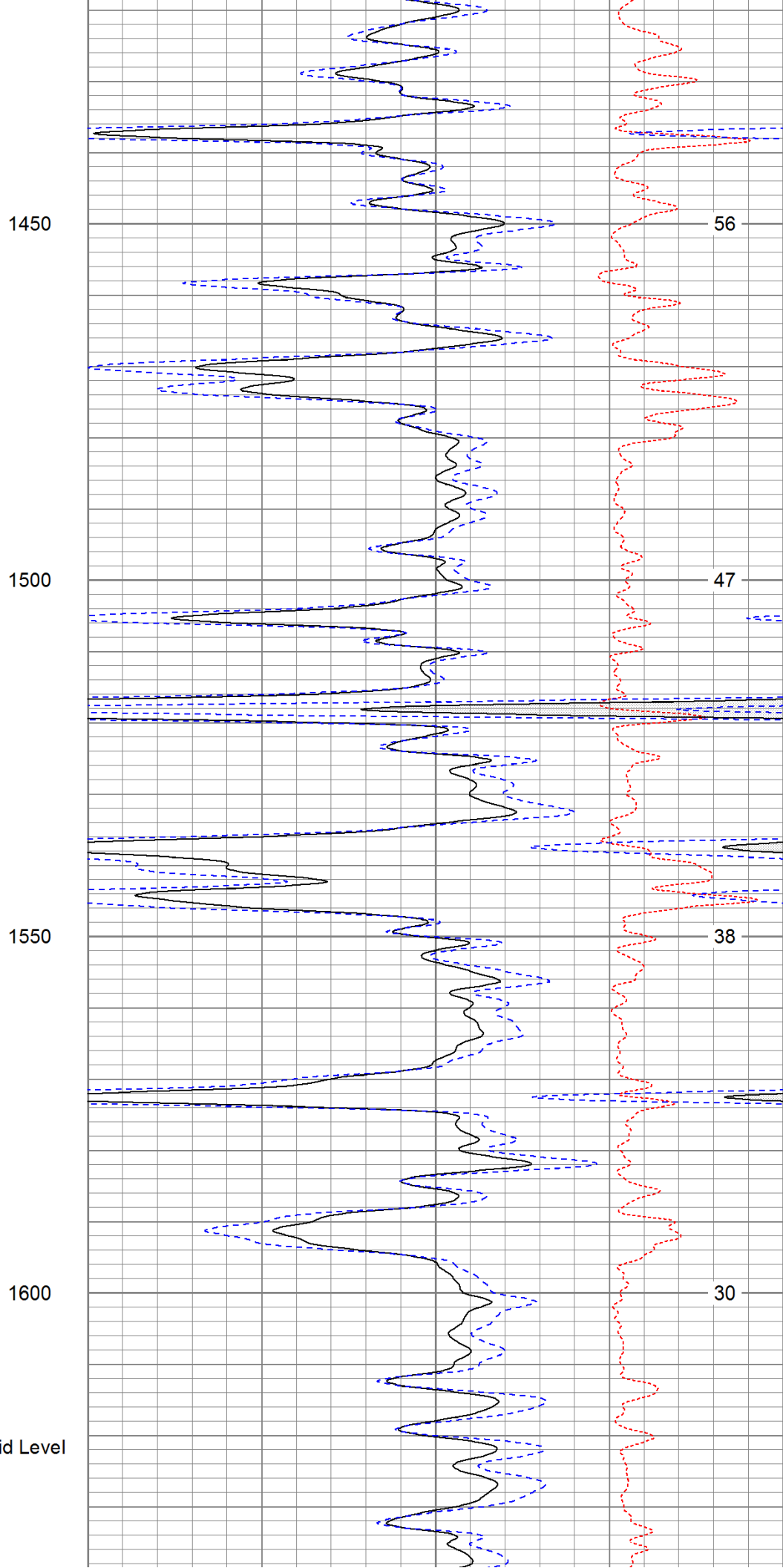
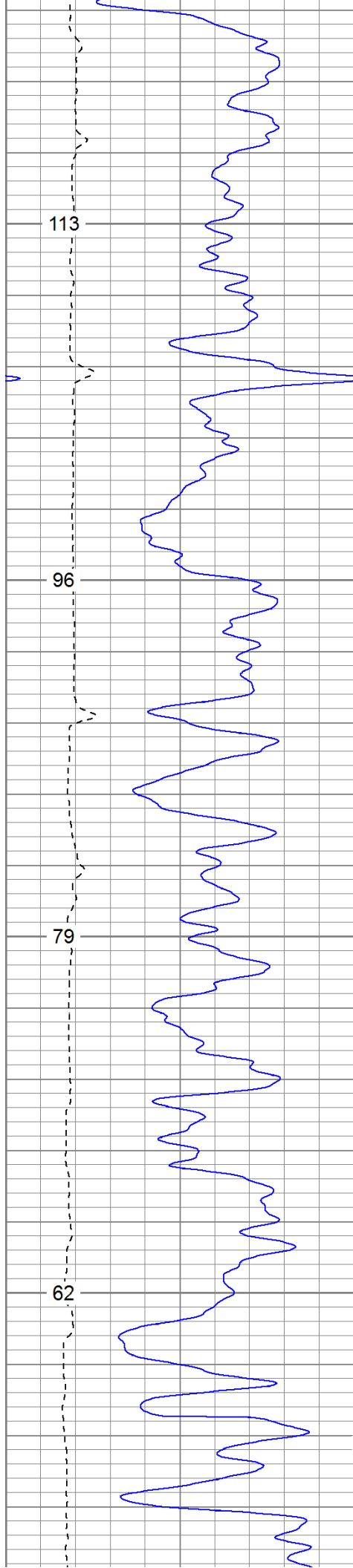
0	GR (GAPI)	200
6	DCAL (in)	16
TBHV (ft3)		

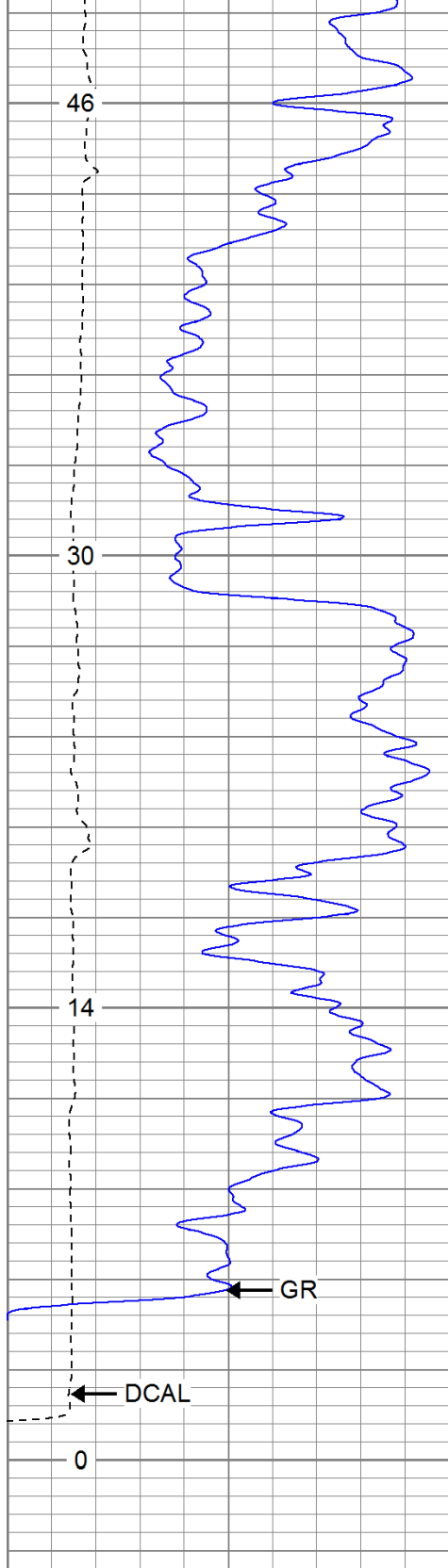
2	RHOB (g/cc)		3
1	RHOB (g/cc)		2
30	DPOR (pu)		-10
-0.5		RHOC (g/cc)	0.5
7000		LTEN (lb)	0
ABHV (ft3)			



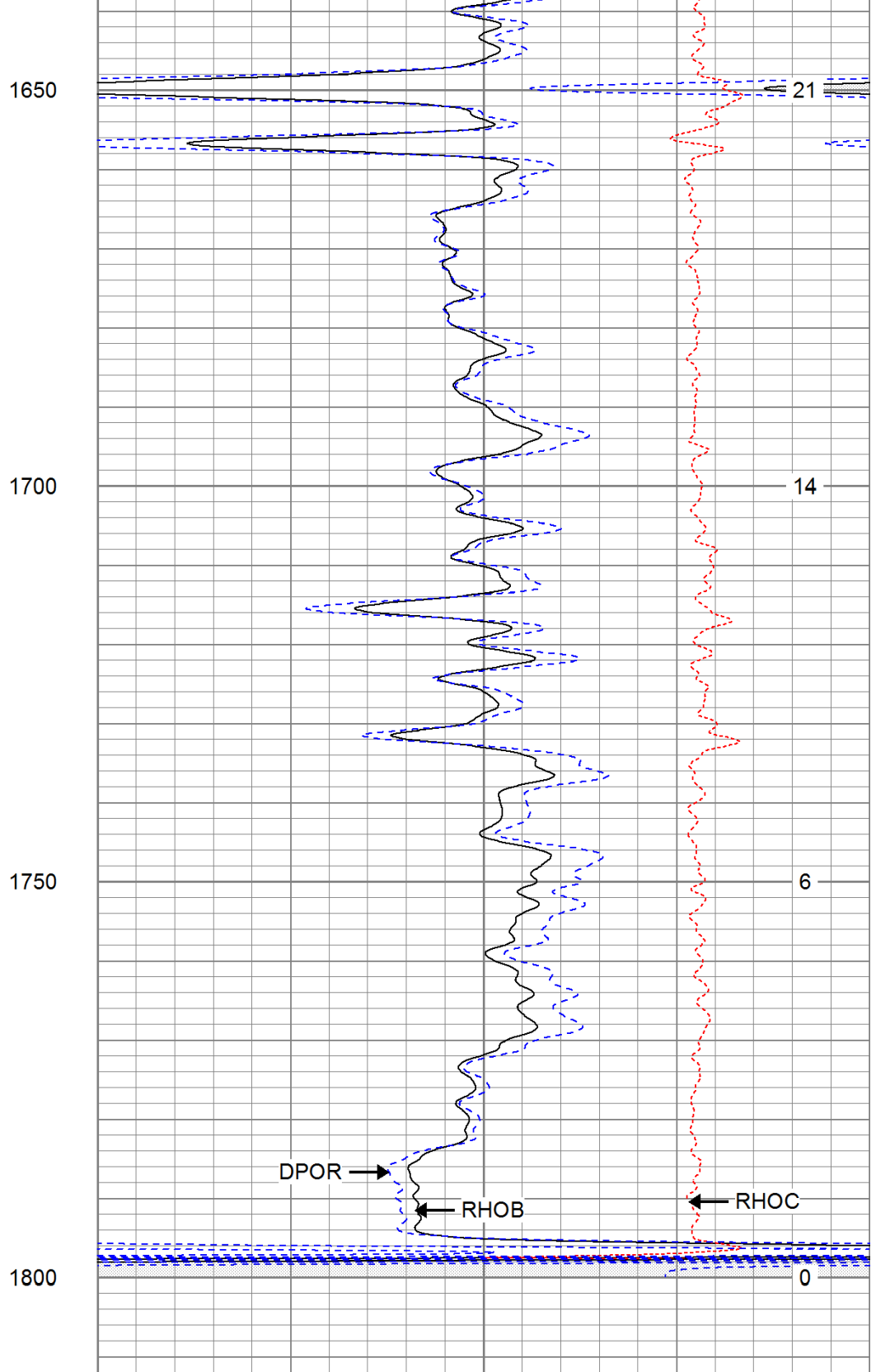








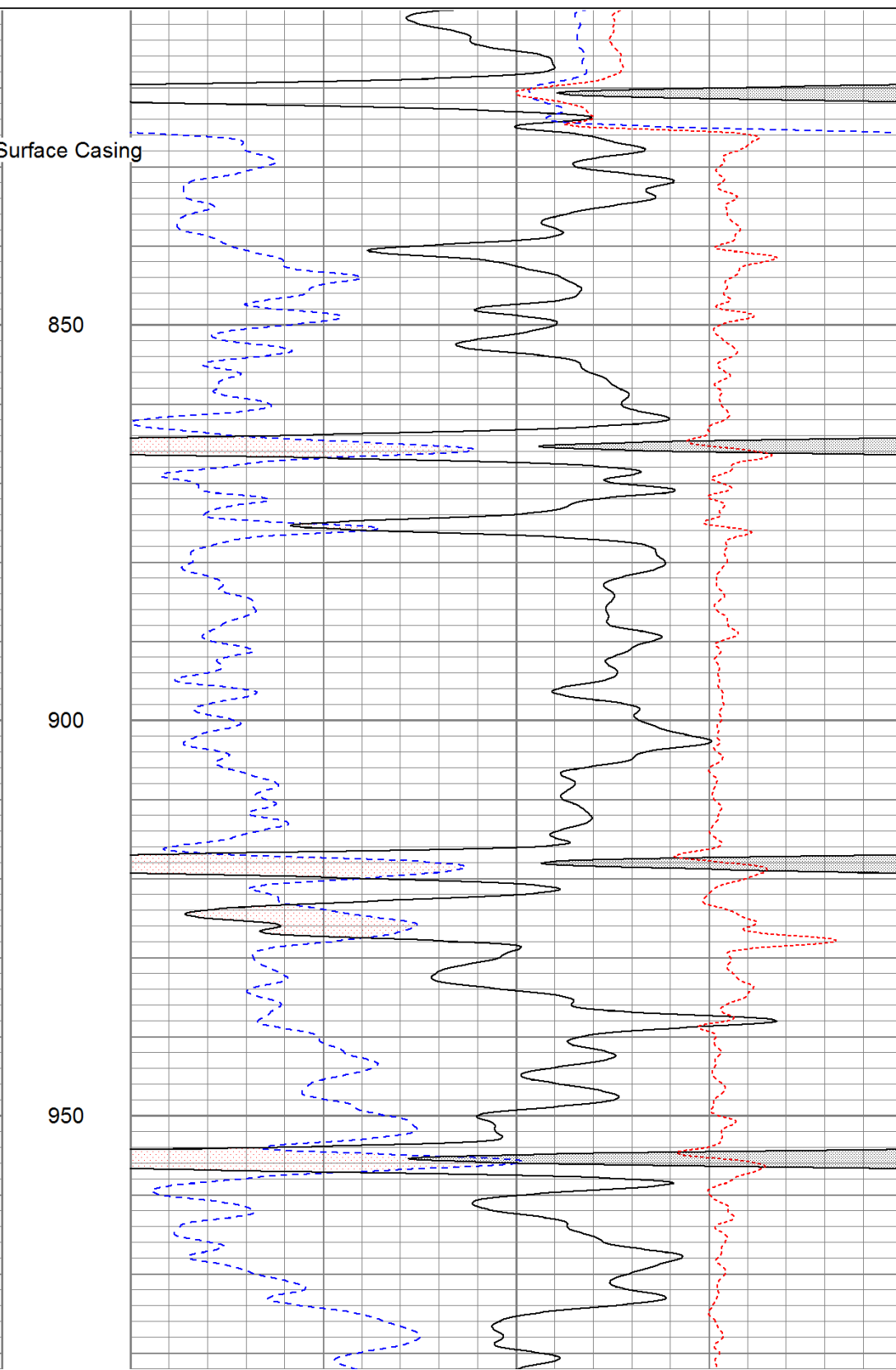
0	GR (GAPI)	200
6	DCAL (in)	16
TBHV (ft3)		

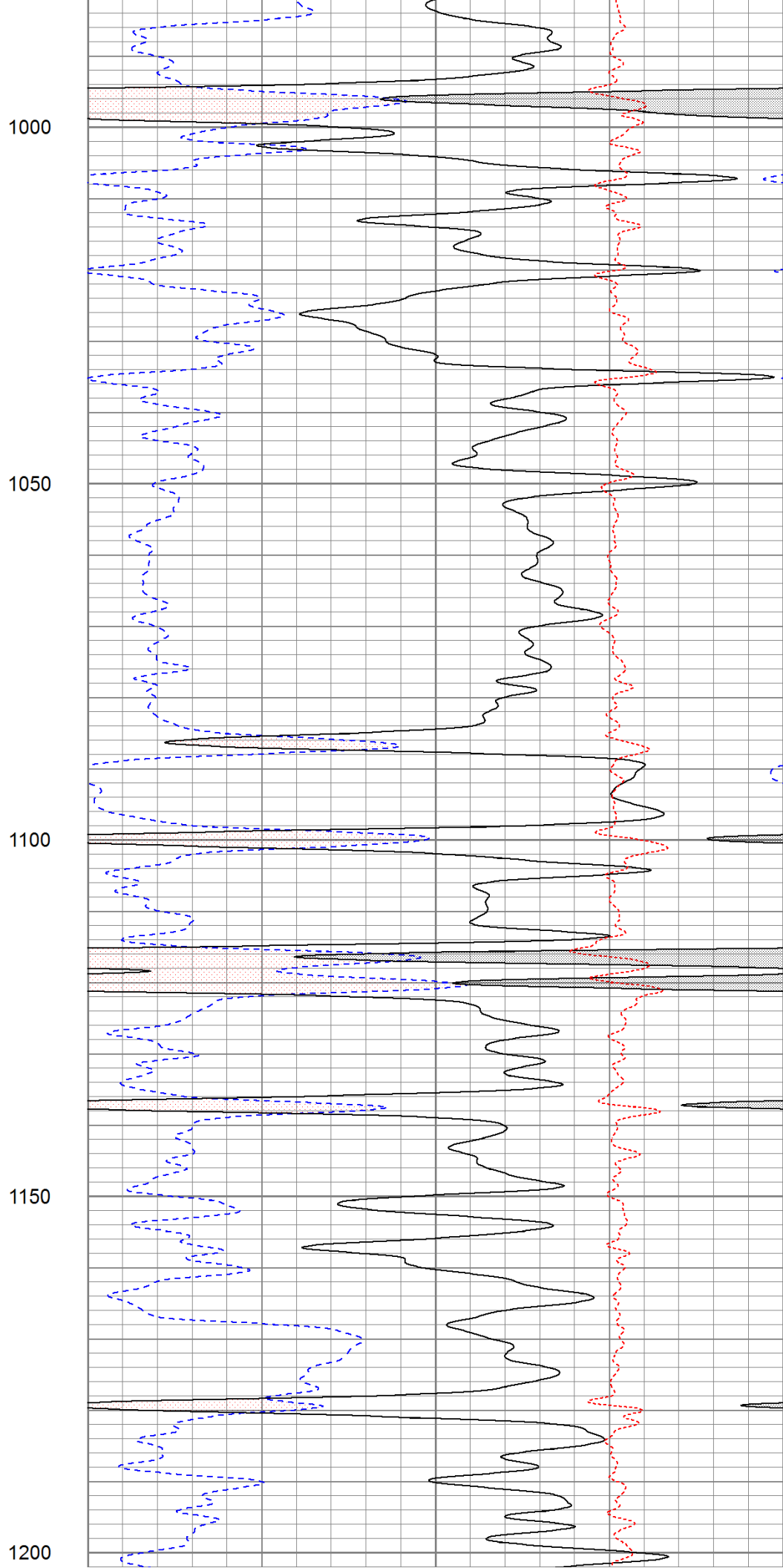
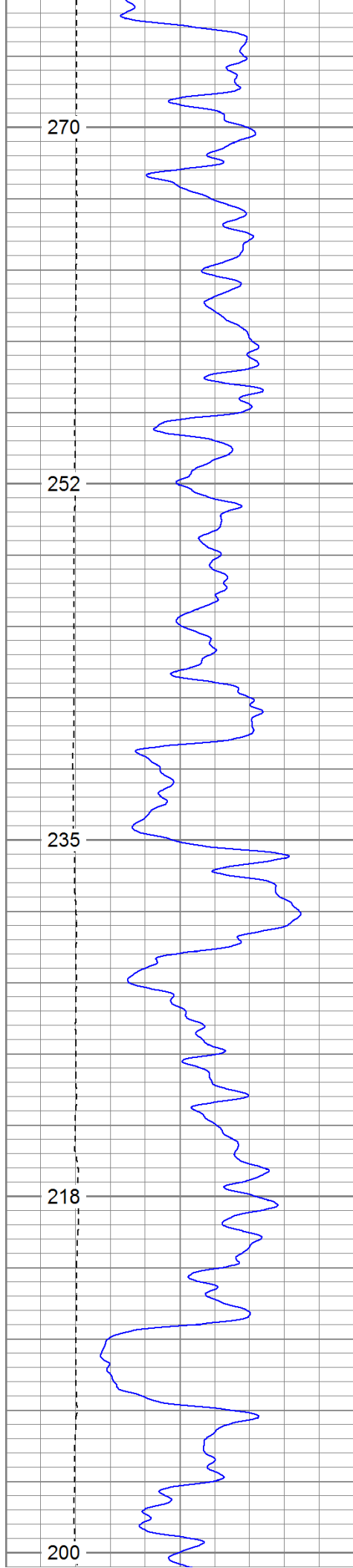


2	RHOB (g/cc)	3
1	RHOB (g/cc)	2
30	DPOR (pu)	-10
-0.5	RHOC (g/cc)	0.5
7000	LTEN (lb)	0
ABHV (ft3)		

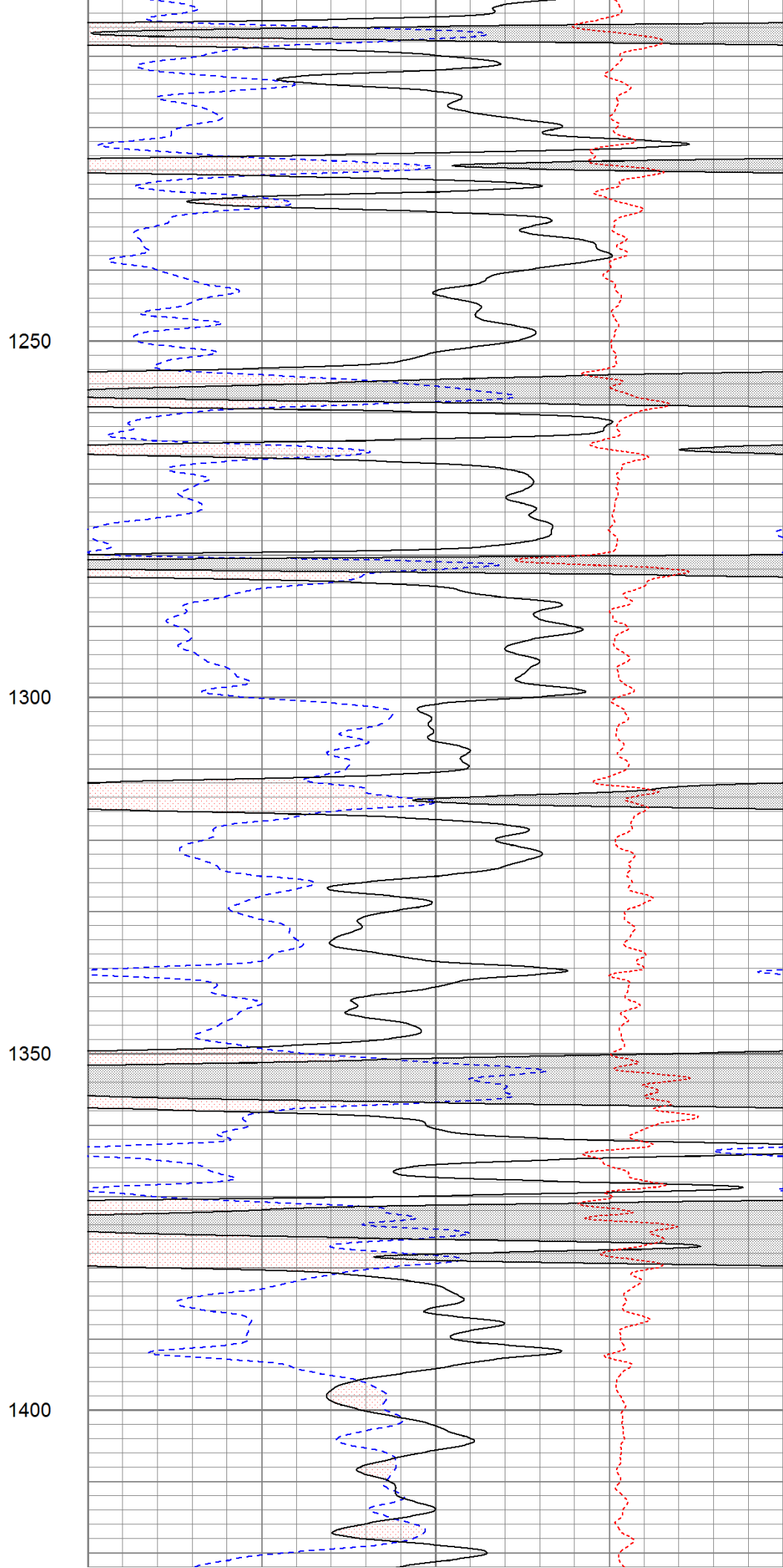
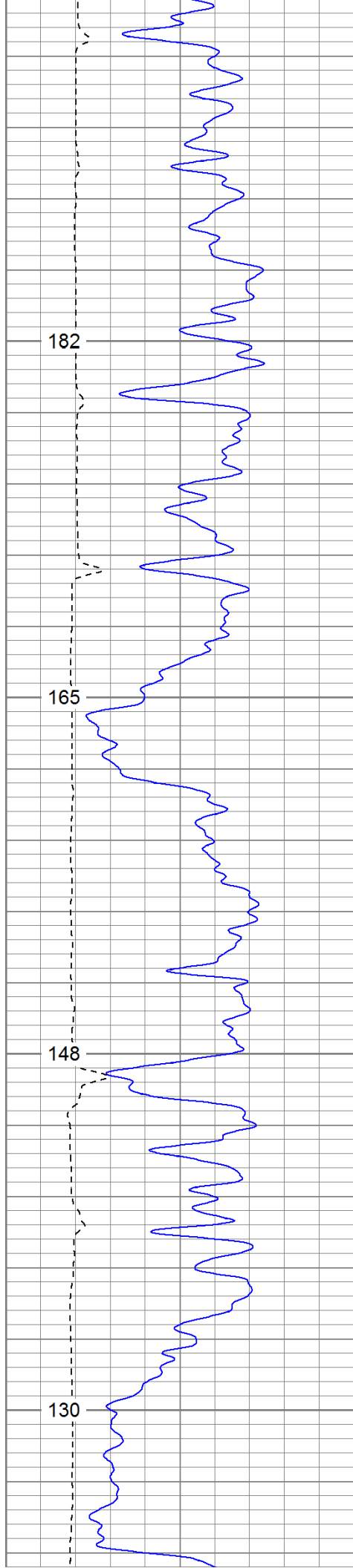
Depth in Feet scaled 1:240

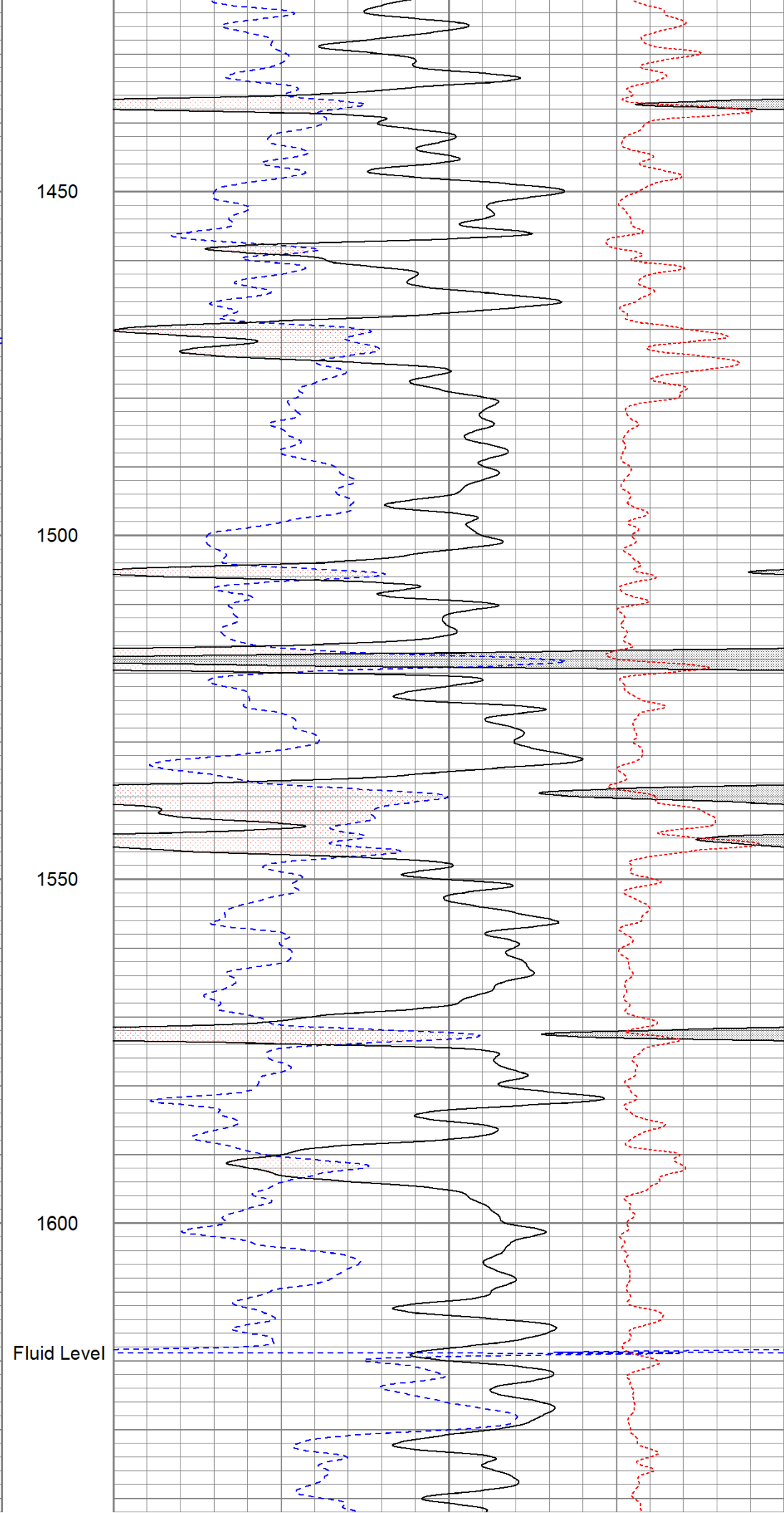
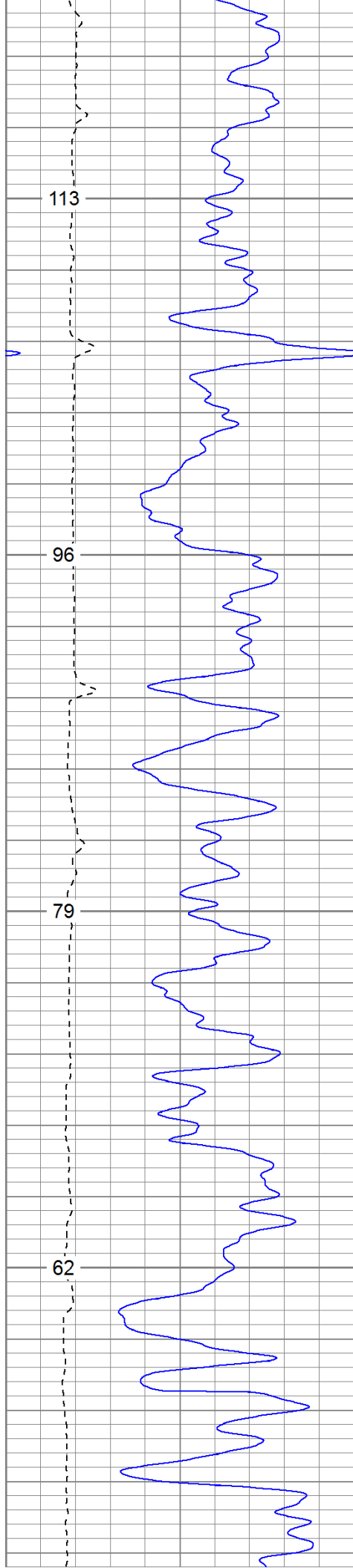
	-0.5	RHOC (g/cc)	0.5
--	------	-------------	-----

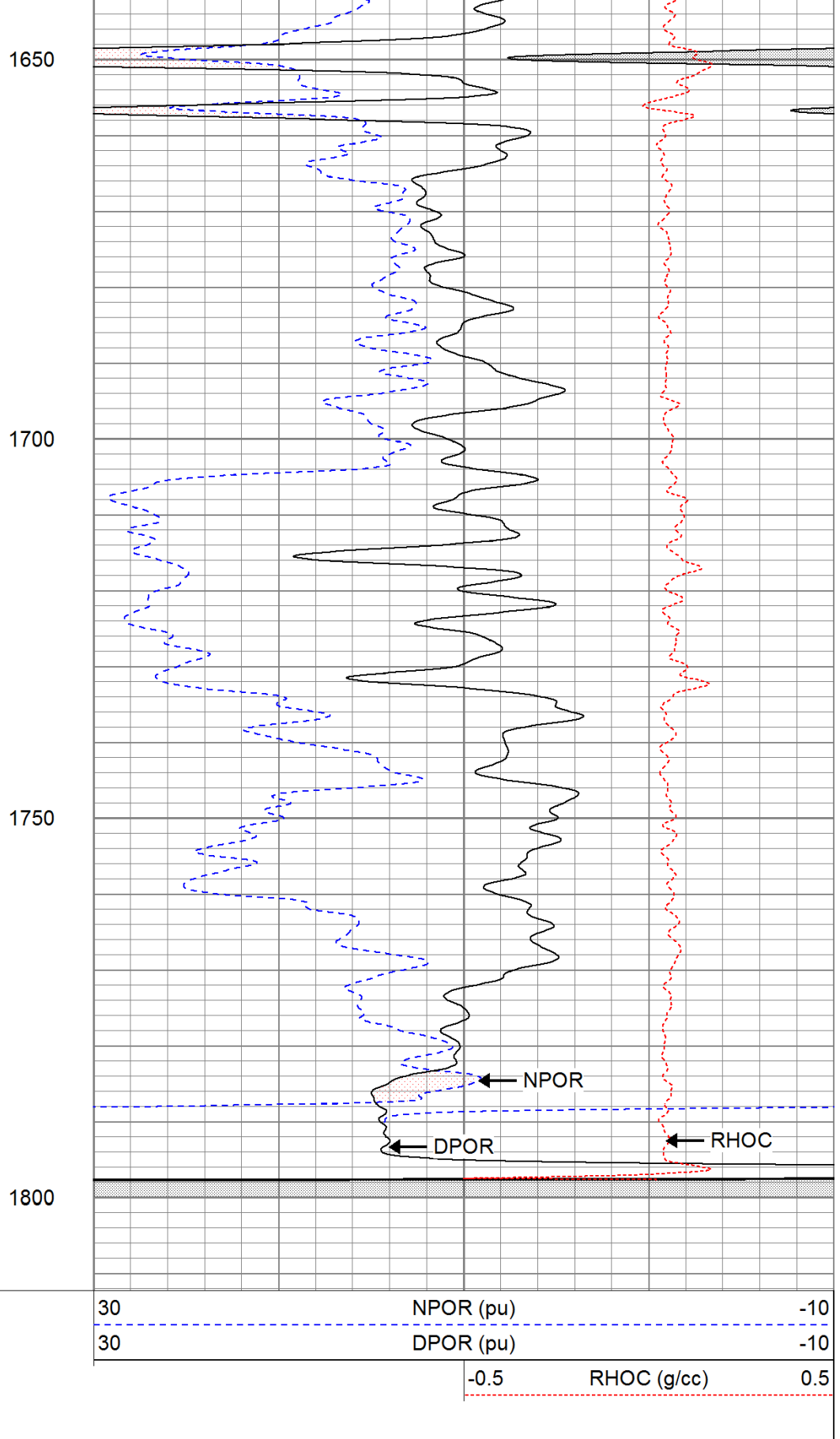
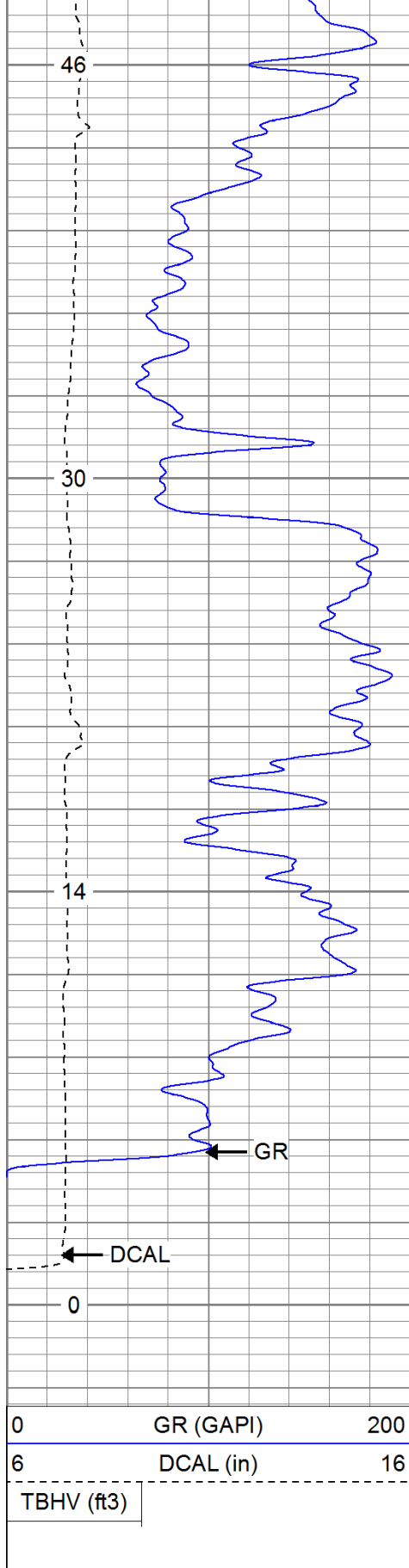








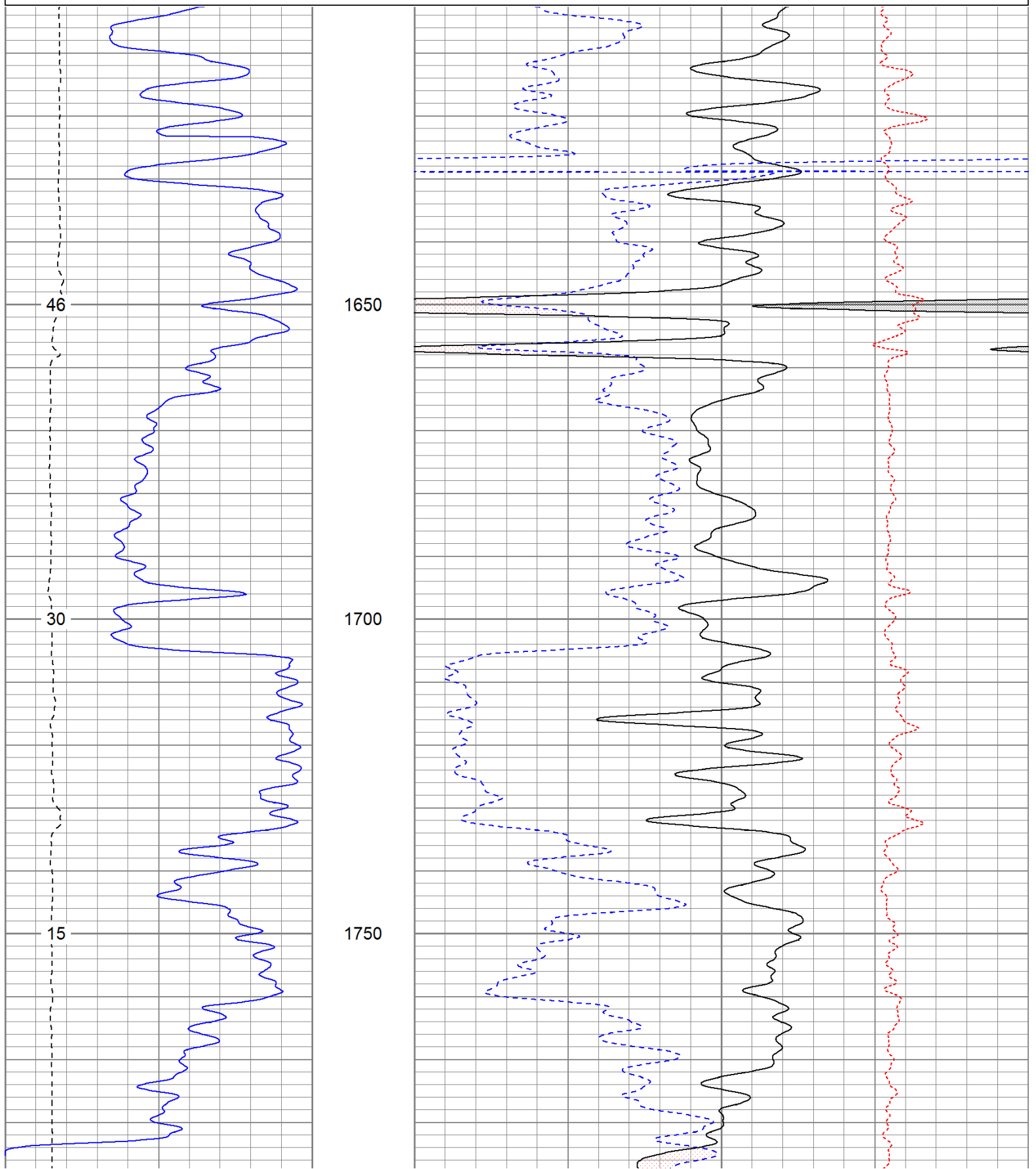


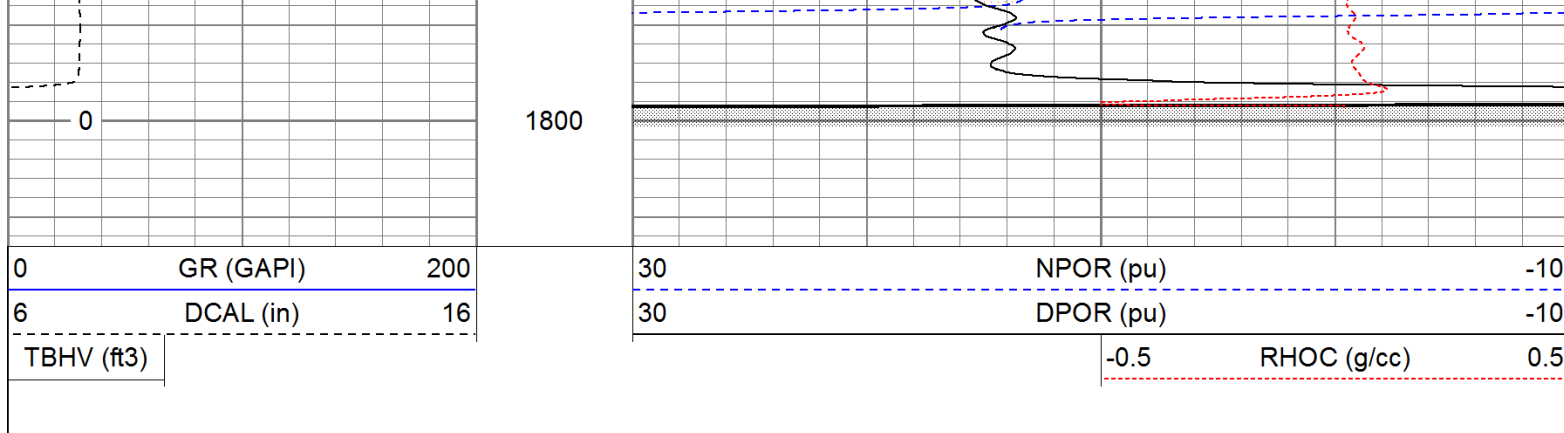


Dataset Pathname: pass2.1  
Presentation Format: cdnl  
Dataset Creation: Fri Jun 17 16:07:41 2011 by Calc Open-Cased 110302  
Charted by: Depth in Feet scaled 1:240

0	GR (GAPI)	200
6	DCAL (in)	16
TBHV (ft3)		

30	NPOR (pu)	-10
30	DPOR (pu)	-10
-0.5	RHOC (g/cc)	0.5

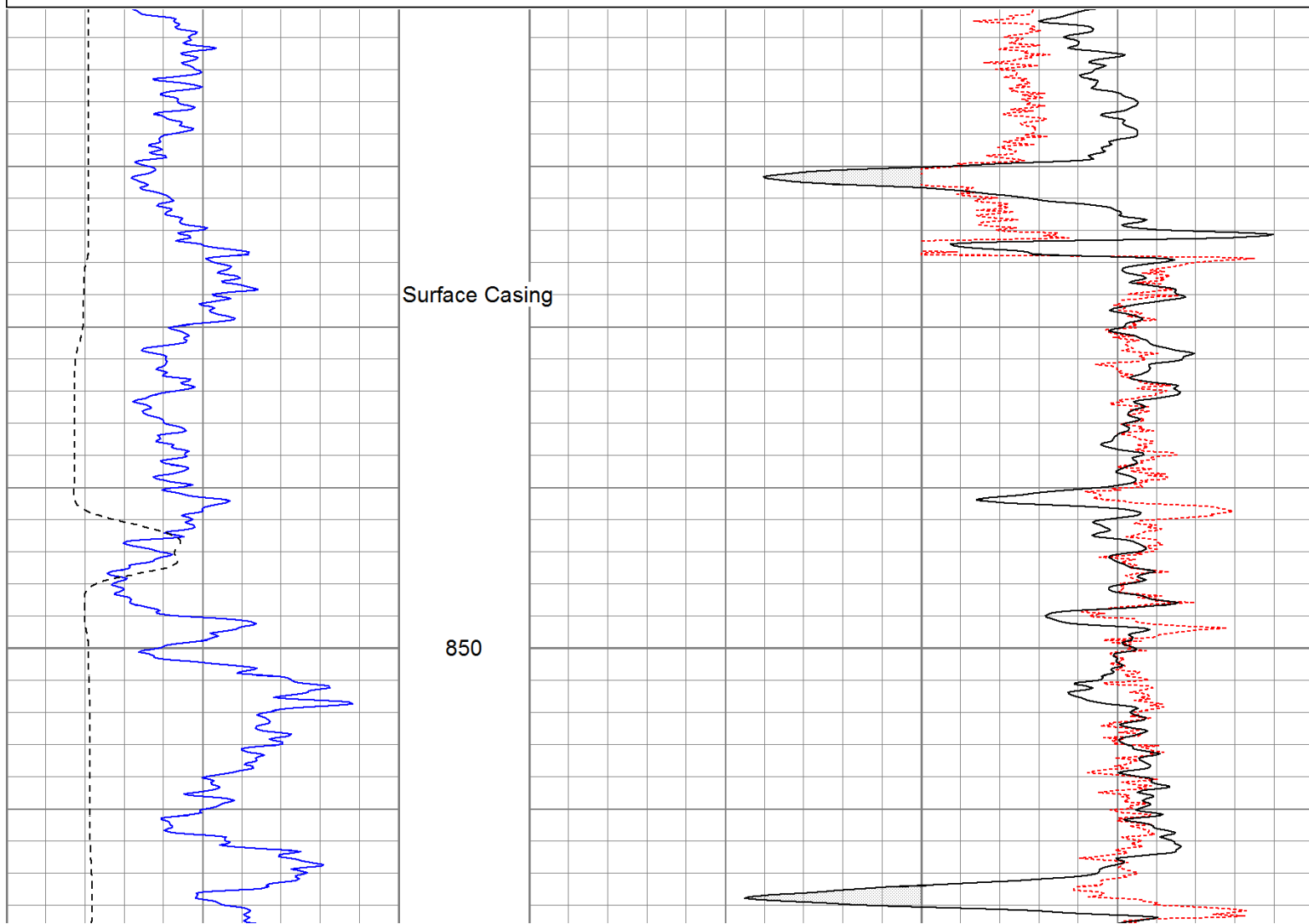


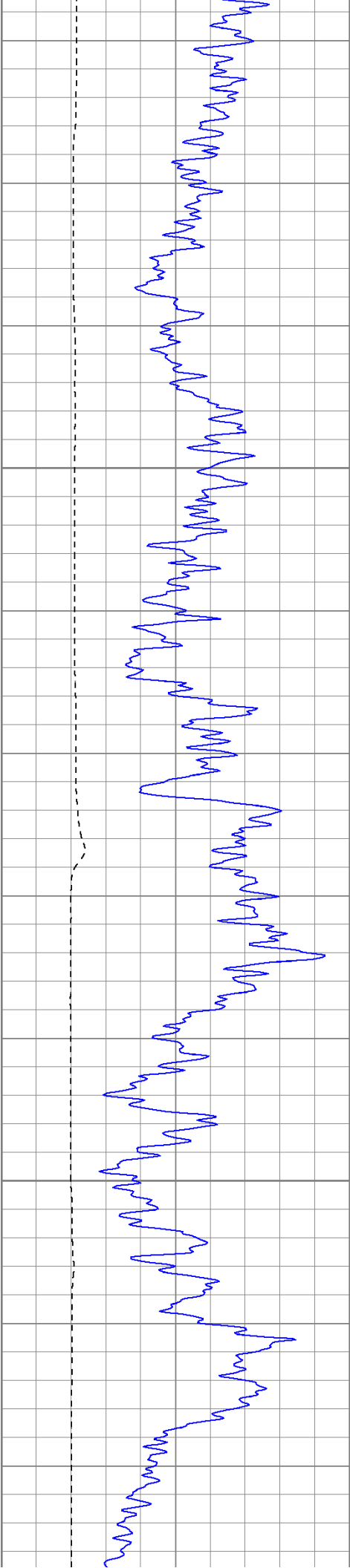


# High Resolution Pass

Database File: cavecanyontr.db  
Dataset Pathname: pass3.2  
Presentation Format: cdlhr  
Dataset Creation: Fri Jun 17 16:11:24 2011 by Calc Open-Cased 110302  
Charted by: Depth in Feet scaled 1:120

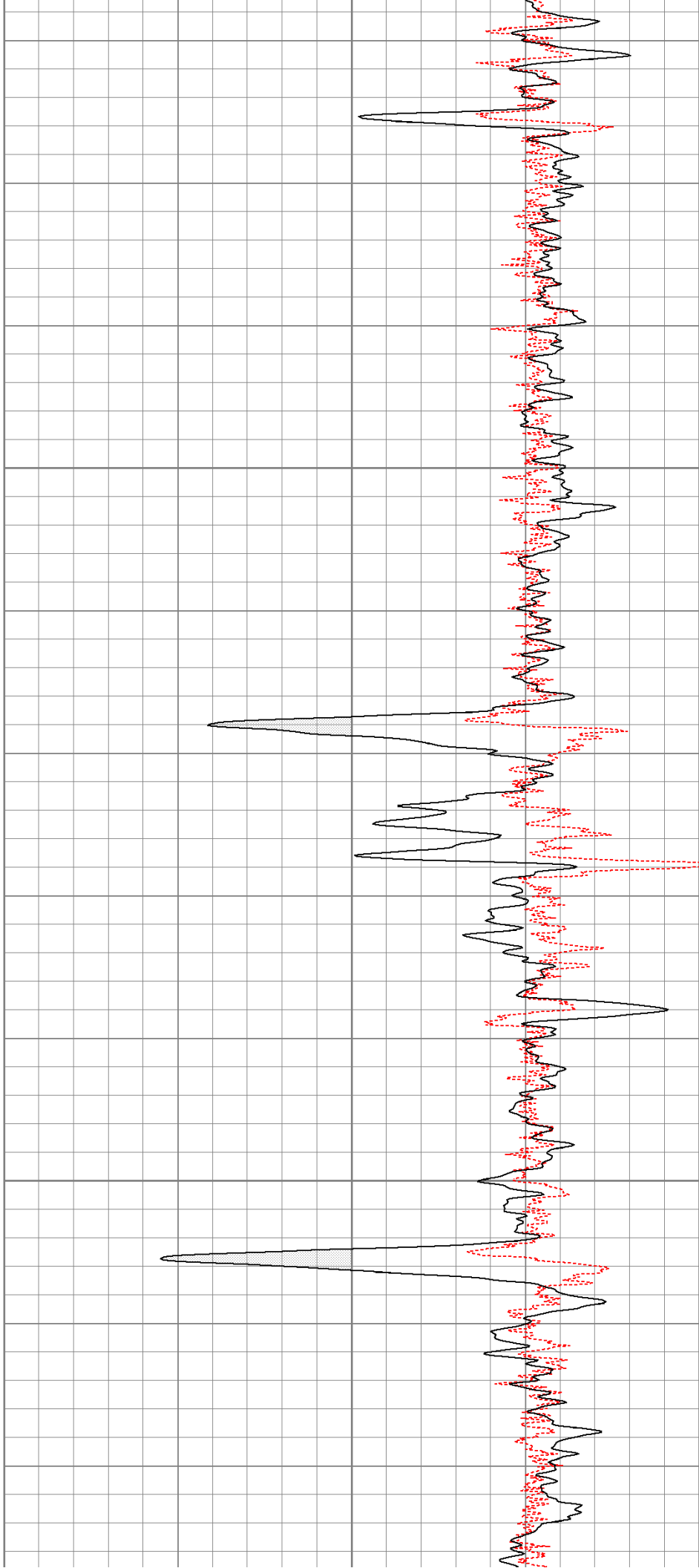
0	GR (GAPI)	200	1	RHOB (g/cc)	3
6	DCAL (in)	16	-0.5	RHOC (g/cc)	0.5

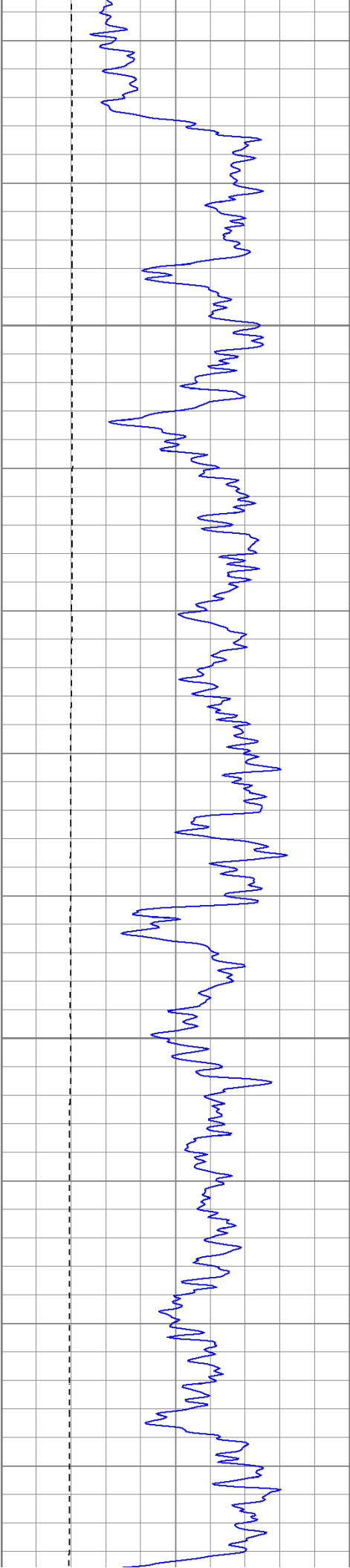




900

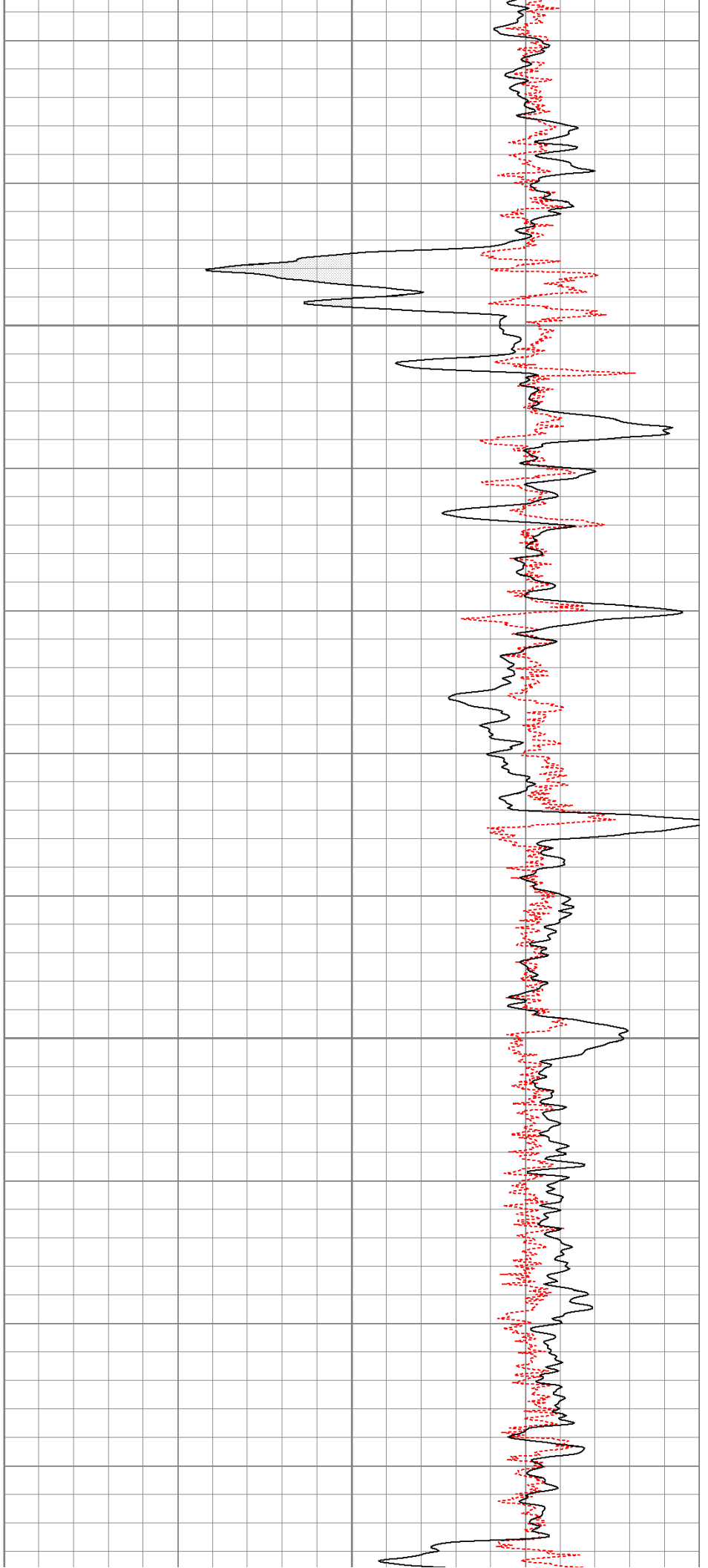
950





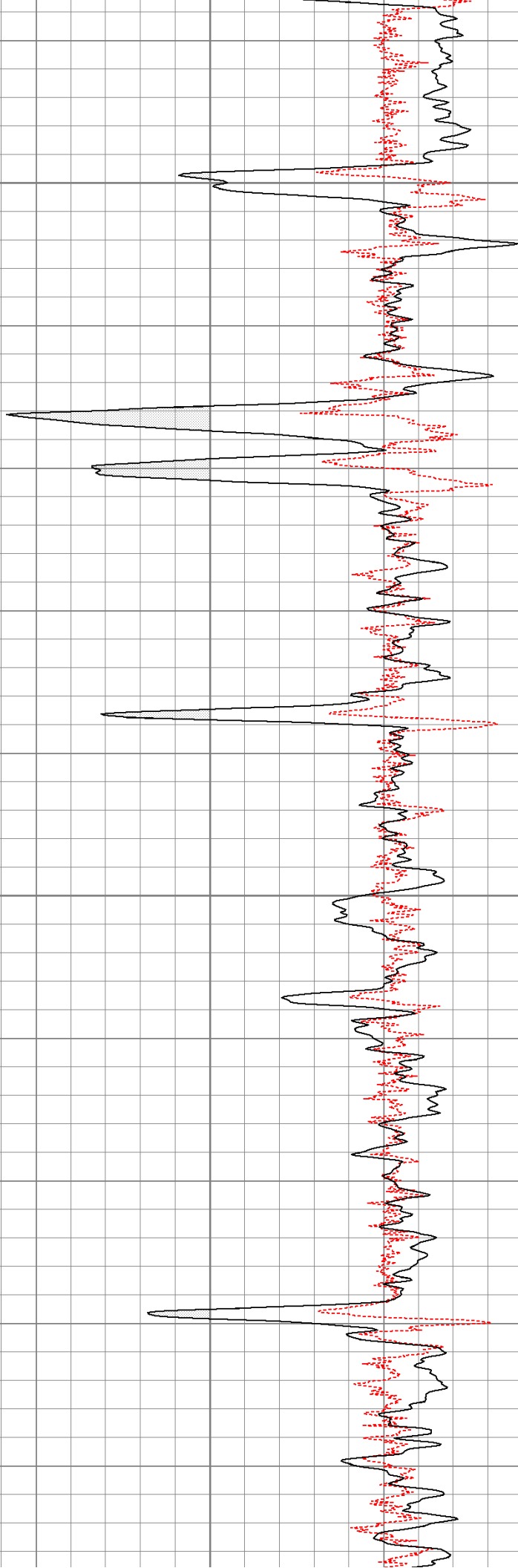
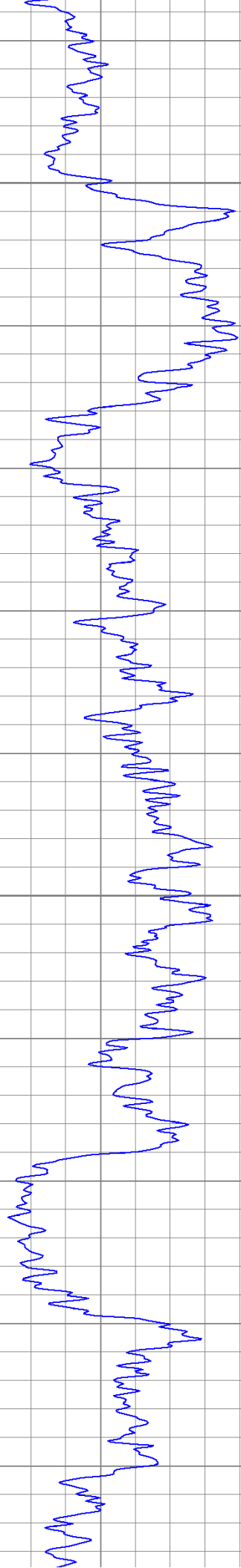
1000

1050

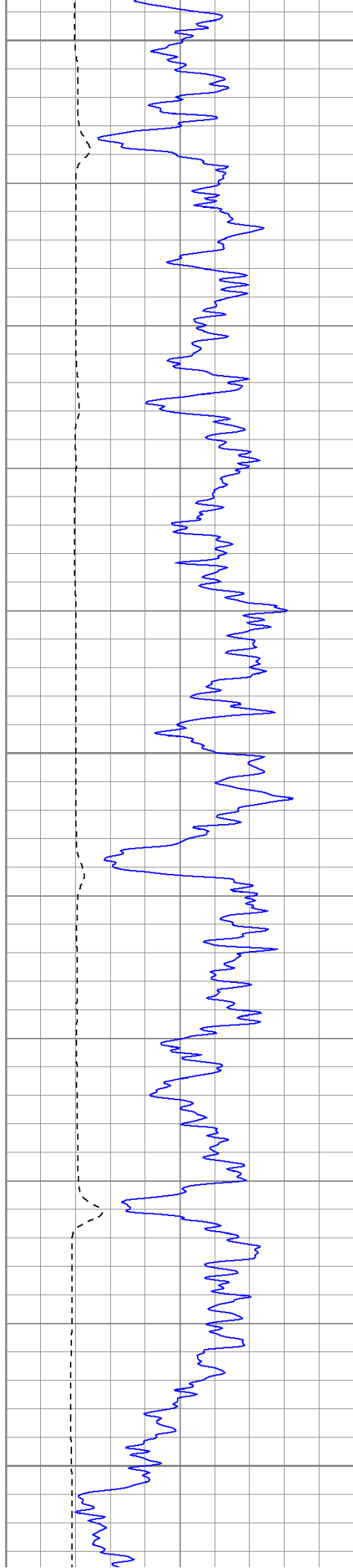


1100

1150



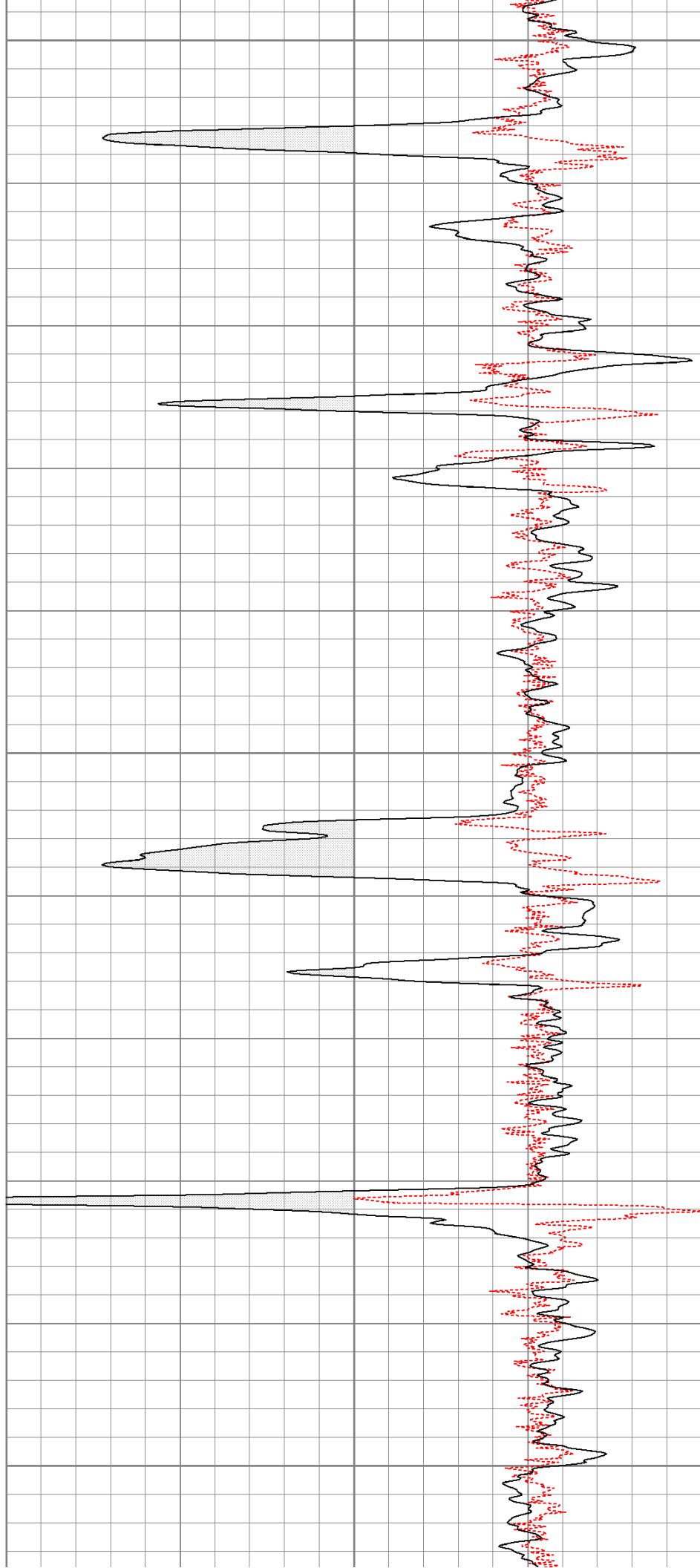


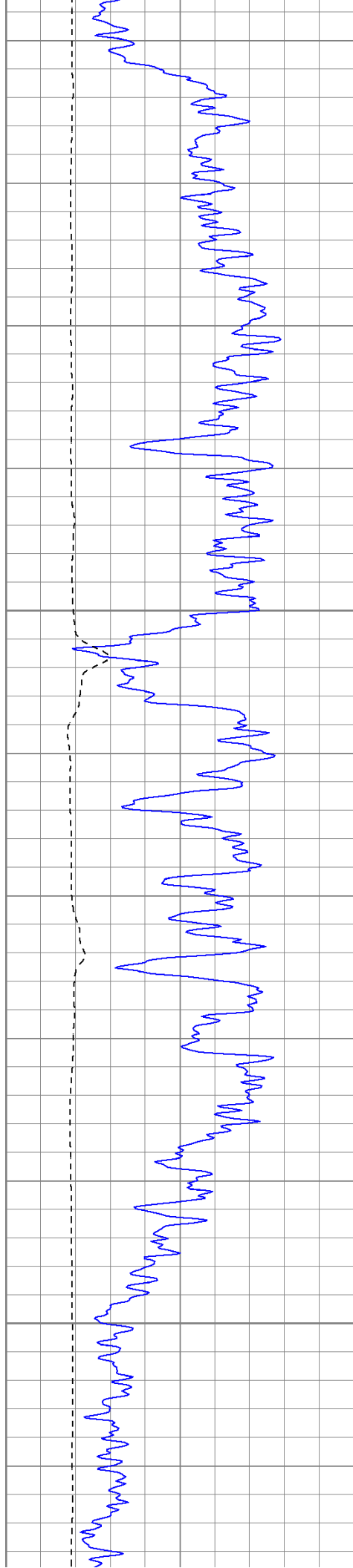


1200

1250

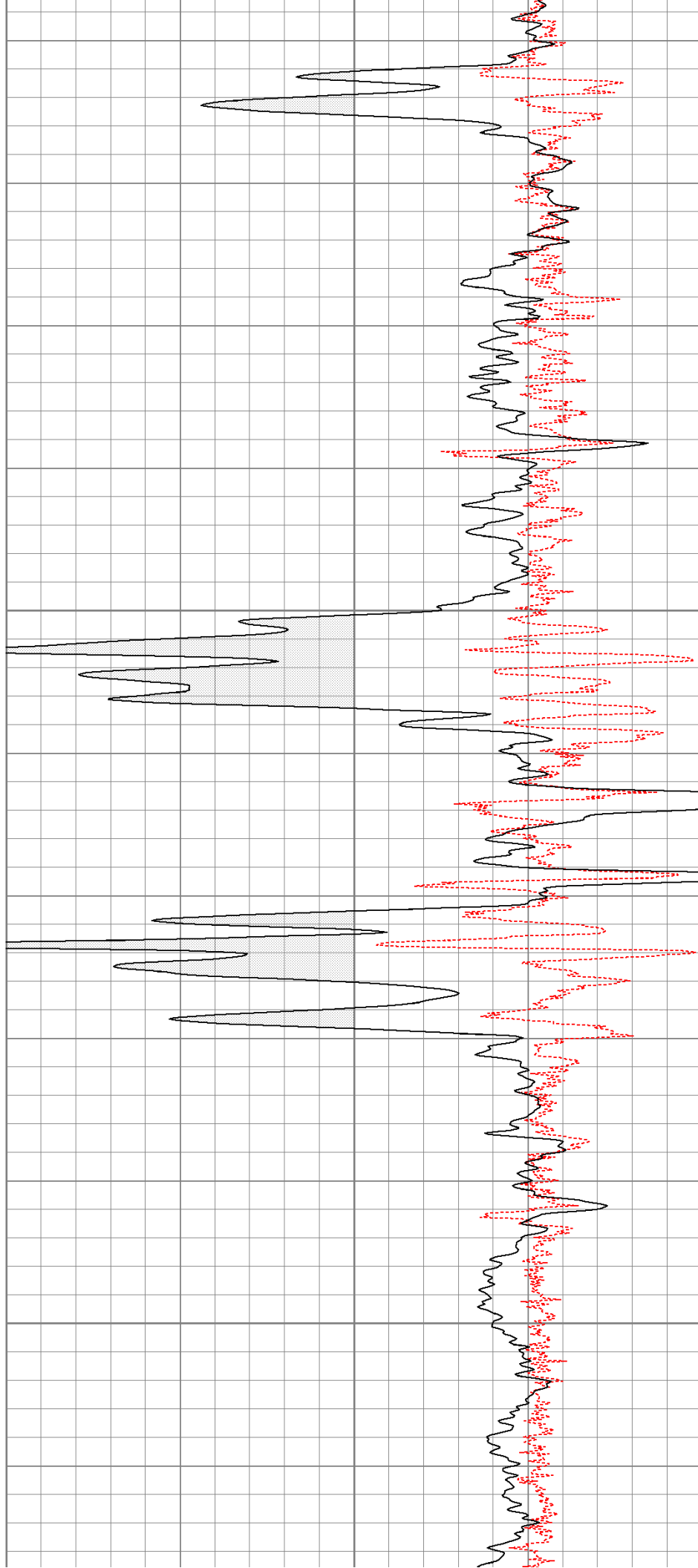
1300

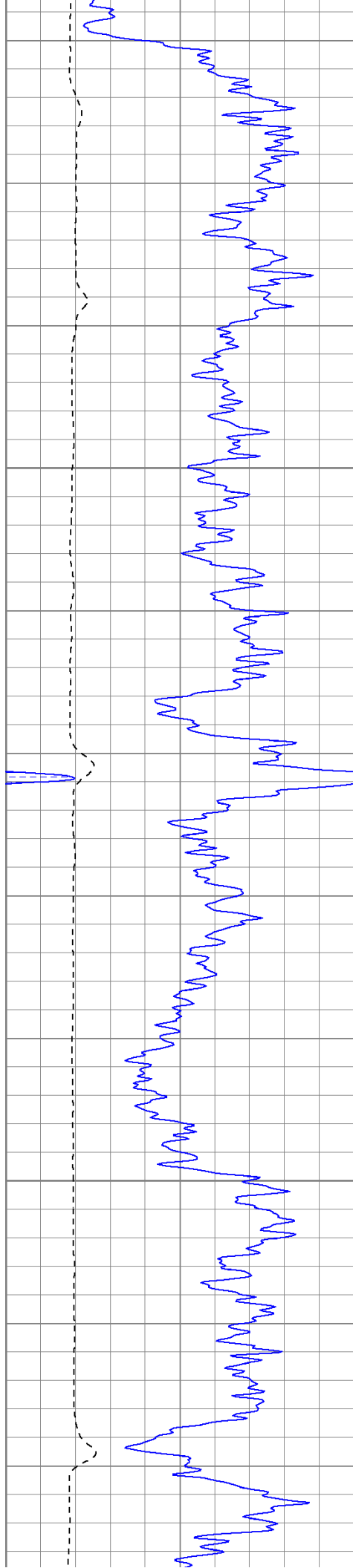




1350

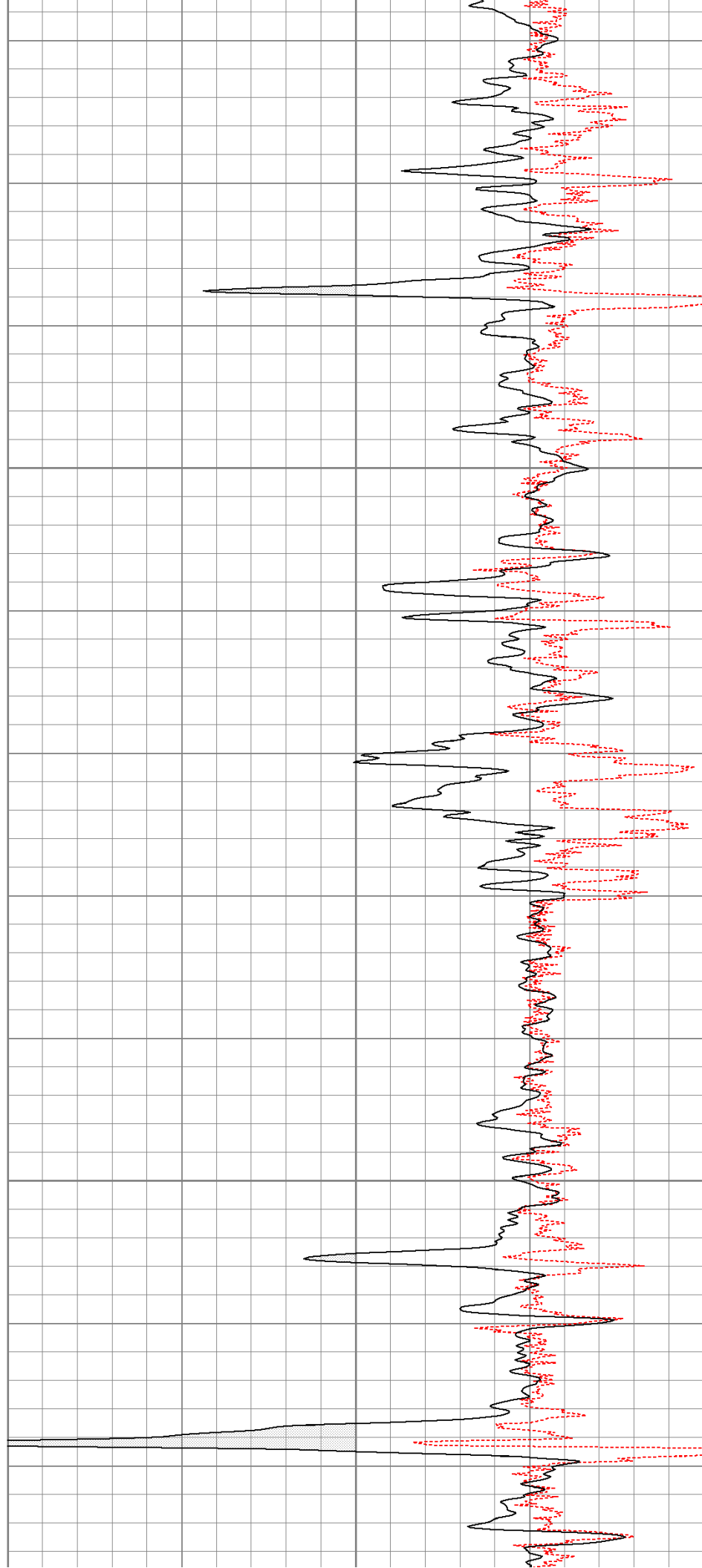
1400

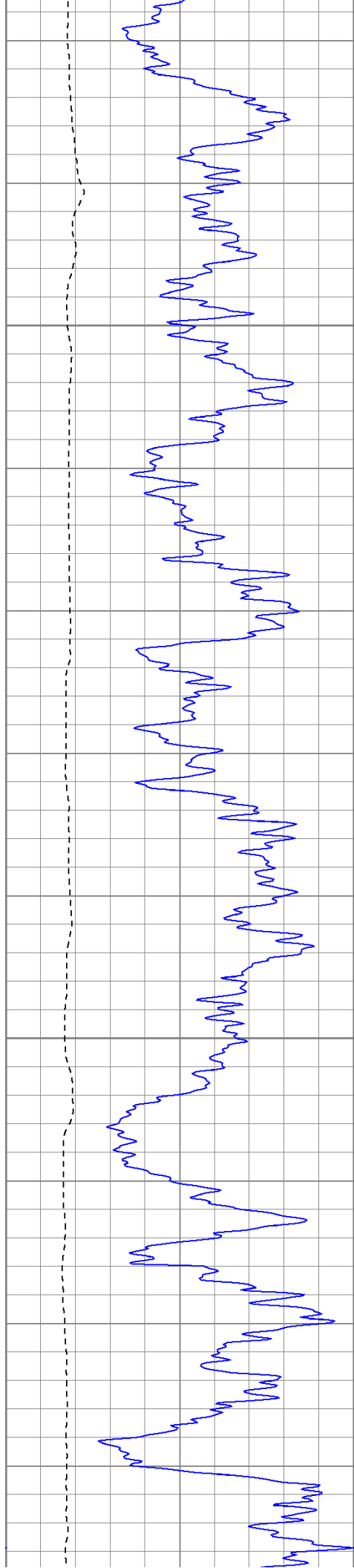




1450

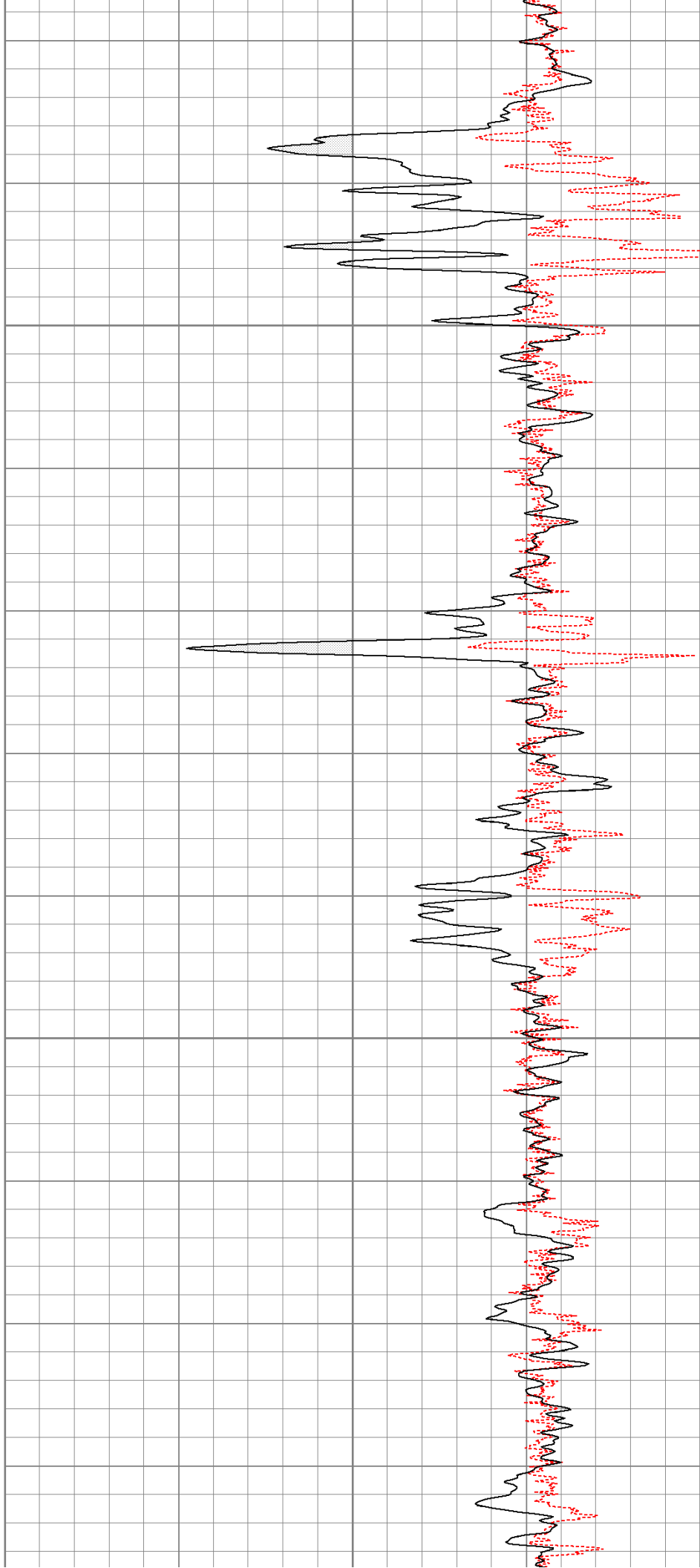
1500

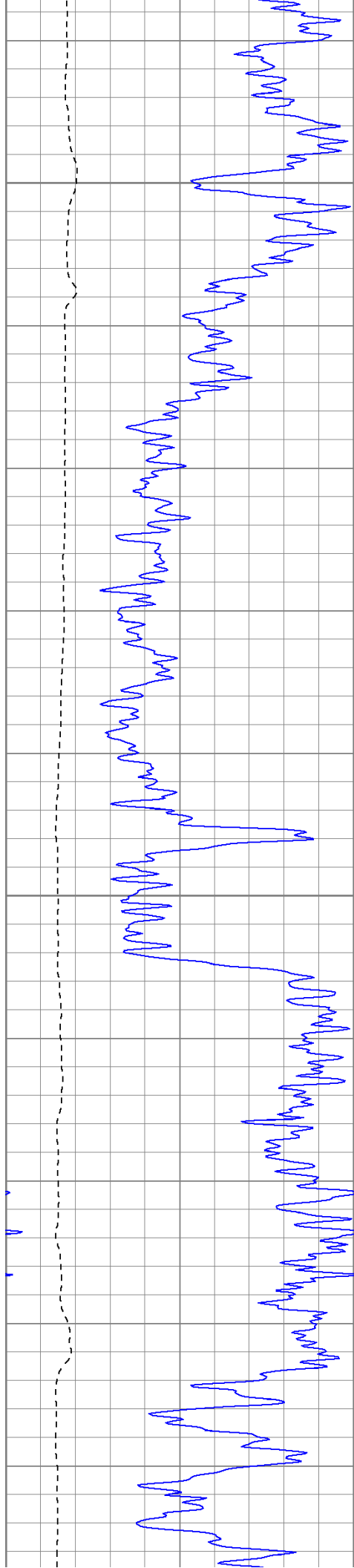




1550

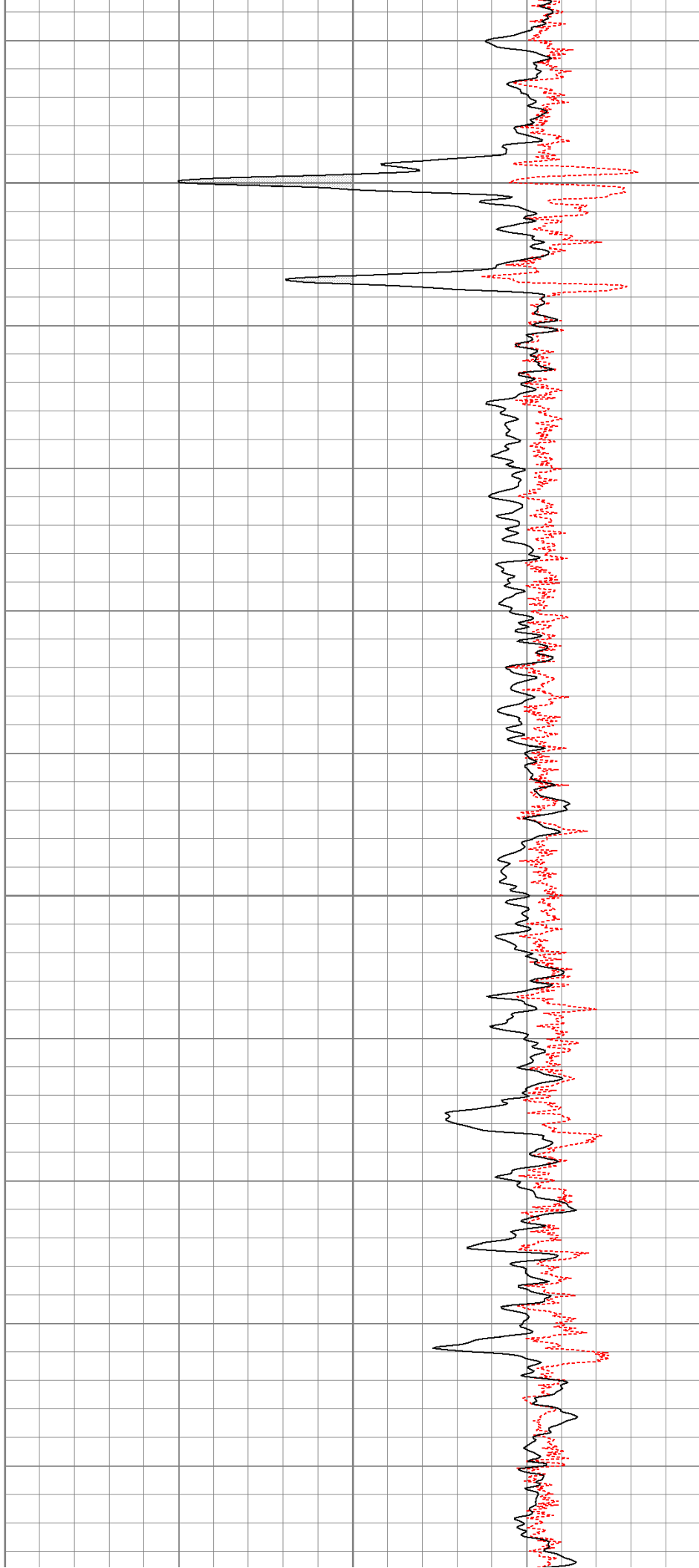
1600

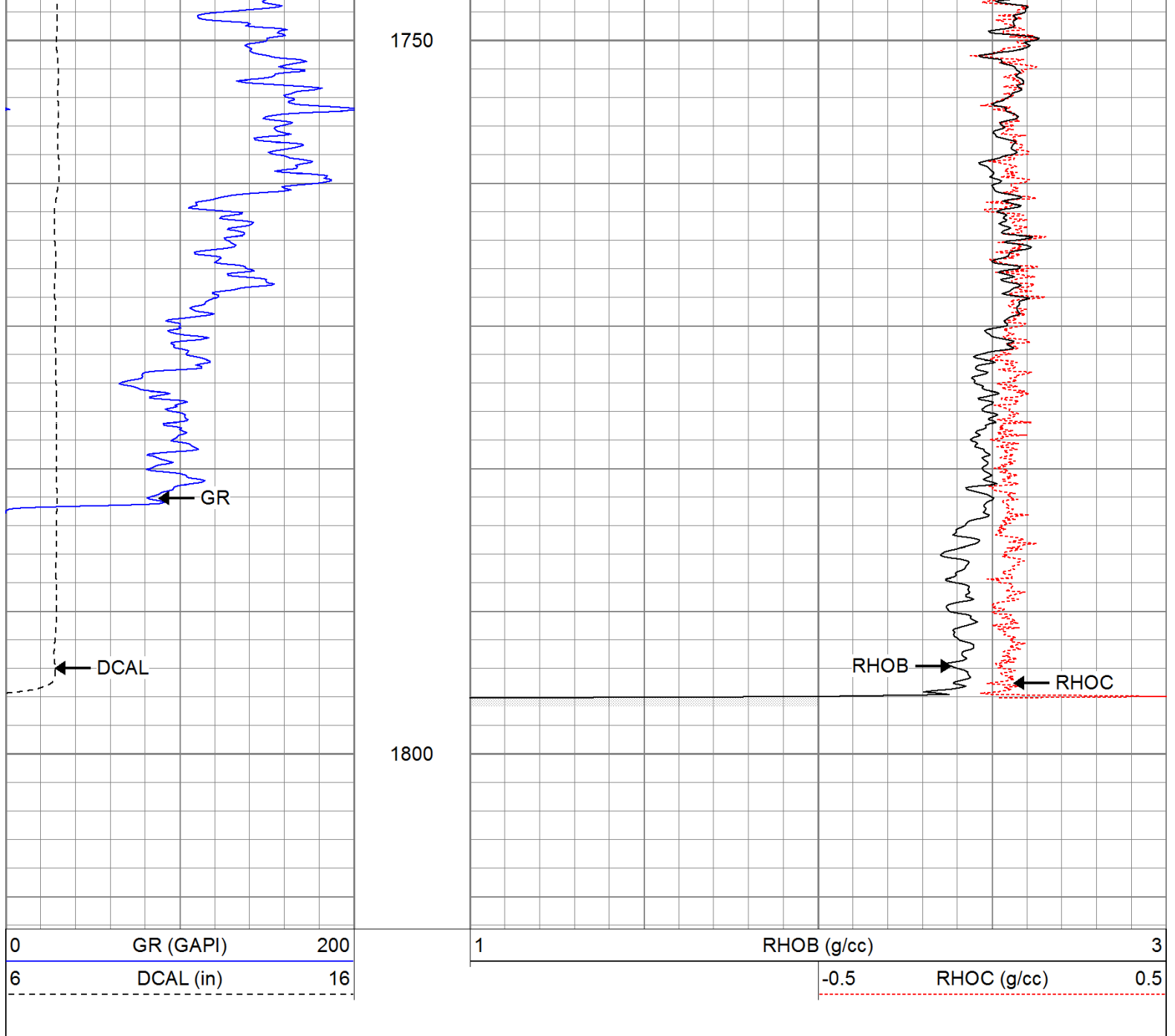




1650

1700





### Calibration Report

Database File: cavecanyontr.db  
Dataset Pathname: pass2  
Dataset Creation: Tue Jun 14 18:11:16 2011 by Log Open-Cased 110302

### Induction Tool Calibration Report






Serial Number: 903  
Tool Model: Probe  
Downhole Cal Performed: Wed Apr 13 02:24:40 2011  
Surface Cal Performed: Mon Jan 17 12:47:16 2011  
After Survey Verification Performed:

Surface Calibration:	Air	Loop	
Conductivity Reference:	0.000	500.000	mmho
Conductivity Reading:	-0.045	0.642	V
Internal Reference:	Zero	Cal	
Conductivity Reference:	0.000	500.000	mmho
Conductivity Reading:	0.006	0.641	V

Downhole Calibration:	Internal Zero	Internal Cal
-----------------------	---------------	--------------

Conductivity Reference:		-0.702	499.904	mmho
Conductivity Reading:		-0.082	503.319	V
Short Normal Reference:		0.000	20.000	Ohm-m
Short Normal Reading:		0.006	0.233	V
Results:	Gain		Offset	
	Loop Conductivity:		32.770	
	Downhole Correction:		-0.621	
	Short Normal Resistivity:		-0.569	
After Survey Verification		Internal Zero	Internal Cal	
Conductivity Reading:		0.000	0.000	V
Conductivity Result:		0.000	0.000	mmho
Short Normal Reading:		0.000	0.000	V
Short Normal Result:		0.000	0.000	Ohm-m
Compensated Density Calibration Report				
Serial-Model:		901-2.75POH		
Source / Verifier:		/		
Master Calibration Performed:		Wed Jun 08 09:11:26 2011		
Before Survey Verification Performed:				
After Survey Verification Performed:				
Master Calibration				
	Density		Far Detector	Near Detector
Magnesium	1.710 g/cc		1001.79	578.48 cps
Aluminum	2.590 g/cc		180.36	300.39 cps
	Spine Angle = 69.08		Density/Spine Ratio = 0.479	
	Size		Reading	
Small Ring	8.00 in		2.50	V
Large Ring	16.00 in		4.57	V
Before Survey Verification				
	Target		Measured	
		g/cc		g/cc
		g/cc		g/cc
		g/cc		g/cc
After Survey Verification				
	Target		Measured	
		g/cc		g/cc
		g/cc		g/cc
		g/cc		g/cc
Neutron Calibration Report				
Serial Number:		803		
Tool Model:		2.75POH		
Performed:		Wed Jun 08 13:12:55 2011		
Calibrator Value:		1	NAPI	
Calibrator Reading:		1	cps	
Sensitivity:		1	NAPI/cps	
Gamma Ray Calibration Report				
Serial Number:		804		

Tool Model:	2.75POH	
Performed:	Tue Jun 14 18:09:29 2011	
Calibrator Value:	1.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	1.0	cps
Sensitivity:	0.6000	GAPI/cps

Sensor	Offset (ft)	Schematic	Description	Len (ft)	OD (in)	Wt (lb)
GR	29.58		None	0.75	1.50	5.00
			GR-2.75POH (804) Probe 2.75" Probe Open Hole Gamma Ray	3.73	2.75	43.00
NEU	24.04		NEU-2.75POH (803) Probe Epithermal	4.75	2.75	58.00
			CDL-2.75POH (901) Probe	8.43	2.75	106.00
LSD	16.21					
DCAL	15.94					
SSD	15.69					
DIC	6.24		IEL-Probe (903)	13.46	2.75	93.00
SP	2.25					
SN	1.71					

Dataset:	cavecanyontr.db: field/well/run1/pass2
Total Length:	31.11 ft
Total Weight:	305.00 lb
O.D.	2.75 in