

Company: LARAMIE ENERGY LLC

Well: CC 0697-04-08E

Field: GRAND VALLEY

County: GARFIELD State: Colorado

County: GARFIELD
Field: GRAND VALLEY
Location: 4-6S-97W
Well: CC 0697-04-08E
Company: LARAMIE ENERGY LLC

ThruBit
Nuclear

4-6S-97W	Elev.:	K.B.	8632.00 ft
		G.L.	8602.00 ft
		D.F.	8632.00 ft
Permanent Datum:	Ground Level	Elev.:	8602.00 f
Log Measured From:	Kelly Bushing	30.00 ft	above Perm.Datum
Drilling Measured From:	Kelly Bushing		
API Serial No.	Section:	Township:	Range:
05-045-23987	4	6S	97W

Logging Date 19-May-2019

Run Number ThruBit

Depth Driller 9953.00 ft

Schlumberger Depth 9953.00 ft

Bottom Log Interval 9890.00 ft

Top Log Interval 2568.00 ft

Casing Driller Size @ Depth 9.625 in @ 2568.00 ft

Casing Schlumberger 2568 ft

Bit Size 8.75 in

Type Fluid In Hole Water

Density 8.8 lbm/gal

Viscosity 56 s

PH 9.9

Fluid Loss

Source of Sample Flowline

RM @ Meas Temp 2.54 ohm.m @ 92 degF

RMF @ Meas Temp 2.16 ohm.m @ 92 degF

RMC @ Meas Temp 2.92 ohm.m @ 92 degF

Source RMF RMC

RM @ BHT RMF @ BHT 1.15 @ 212 0.98 @ 212

Max Recorded Temperatures 174 degF

Circulation Stopped 19-May-2019 02:30:00

Logger on Bottom 19-May-2019 05:30:00

Unit Number MSLC-AR2 2161 FtMorgan

Recorded By L. Awalt

Witnessed By Aaron Duncan

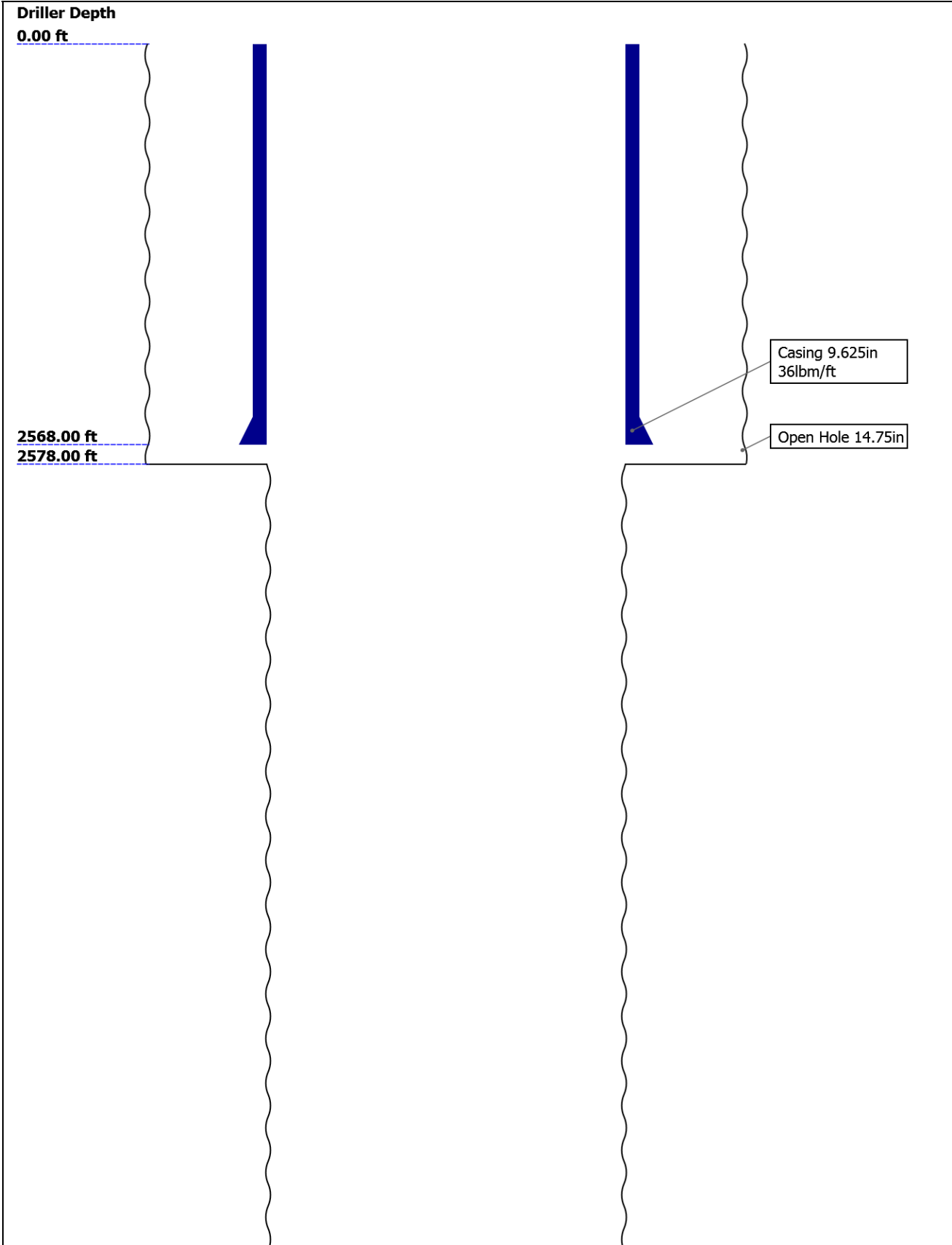
Disclaimer

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Contents

- 1. Header
- 2. Disclaimer
- 3. Contents
- 4. Well Sketch
- 5. Borehole Size/Casing/Tubing Record
- 6. Remarks and Equipment Summary
- 7. Depth Summary
- 8. ThruBit
 - 8.1 Integration Summary
 - 8.2 Software Version
 - 8.3 Composite Summary
 - 8.4 Log (ThruBit_Nuclear_RM)
 - 8.5 Parameter Listing
- 9. Tail

Well Sketch





Borehole Size/Casing/Tubing Record

Bit						
Bit Size (in)	14.75	8.75				
Top Driller (ft)	0	2578				
Top Logger (ft)	0	2578				
Bottom Driller (ft)	2578	9953				
Bottom Logger (ft)	2578	9953				
Casing						
Size (in)	9.625					
Weight (lbm/ft)	36					
Inner Diameter (in)	8.921					
Grade	N/A					
Top Driller (ft)	0					
Top Logger (ft)	0					
Bottom Driller (ft)	2568					
Bottom Logger (ft)	2568					

Remarks and Equipment Summary

ThruBit: Toolstring				ThruBit: Remarks	
Equip name	Length	MP name	Offset	Thank you for choosing Schlumberger	
PEH-EFA	67.02			Log run for formation evaluation	
				Tools run as per tool sketch	
AH-317-TB	64.66			Matrix: LimeStone 2.71 g/cc	
TBCCL-A	63.59			Client choice to run at higher speeds than recommended for certian intervals of log, shown below	
TBCCL-A				TD-6000' @ 30ft/min	
TBDOT-BA	61.88	CCL	61.88	6000'-5100' @ 60 ft/min	
				5100-4300 @ 30 ft/min	
				4300-Casing @ 90 ft/min	
TBHO-BA	58.4			Log correlated to Casing Shoe @ 2568ft	
				Rig lost connection to Pason during trip out from 8240ft-8160ft	
				Crew: Tyler Mozena, Jake Quinn	

SAH-TB 52.45

TBSB-BA:1 50.12
TBSB-BA:1

TMG-A:106 43.99
TMG-A:106

Status 43.99
Gamma-Ray 43.19

TILE-AB 37.86

Status 37.86

TBN-B:58 33.36
TBN-B:58
NNLS-EWA:5975

Neutron Porosity 31.05

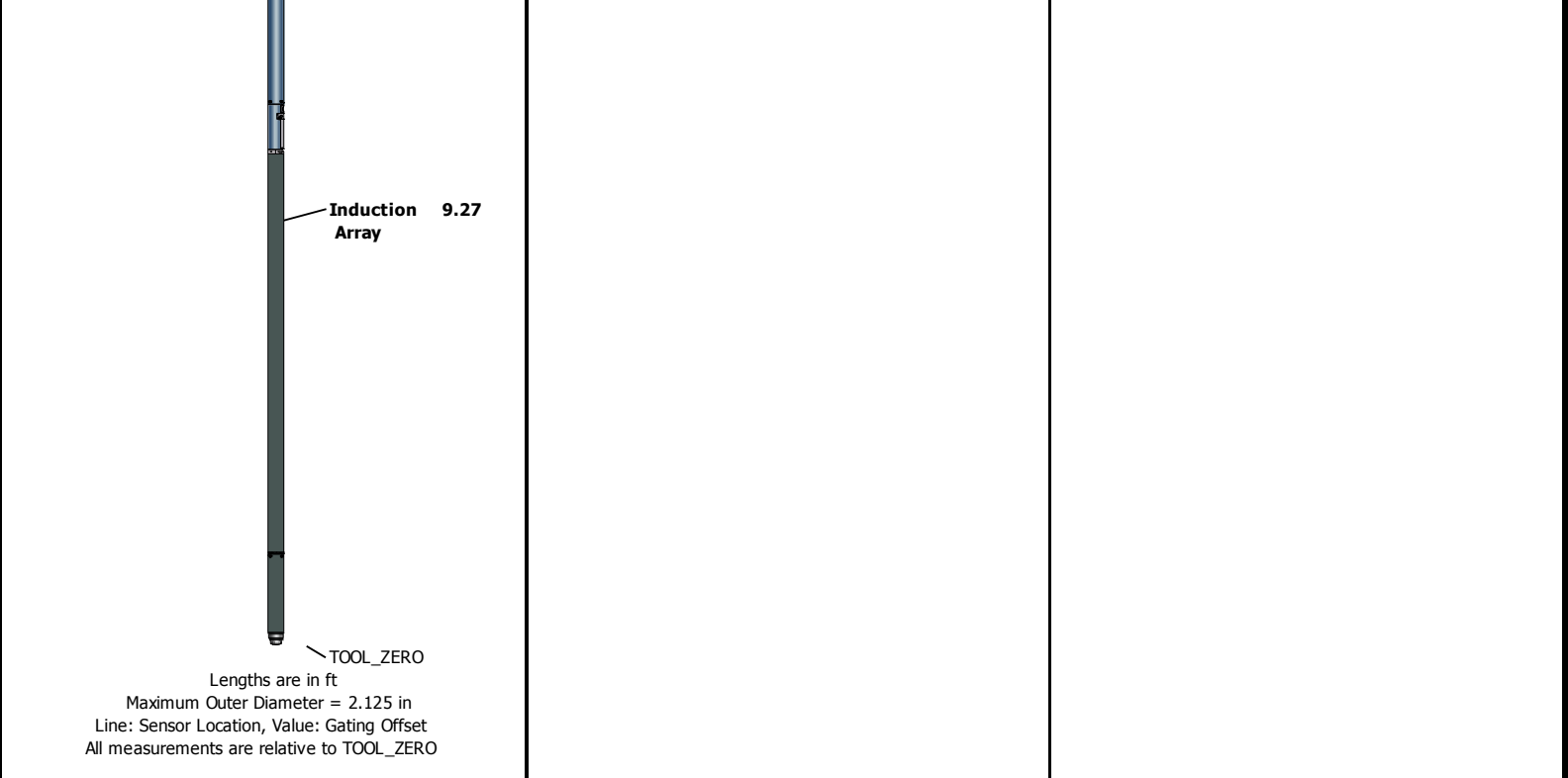
TBD-B:43 28.59
TBD-B:43
GGLS-FZ:3398

Density Log 20.07
Caliper 19.94
Density Sensor 19.68

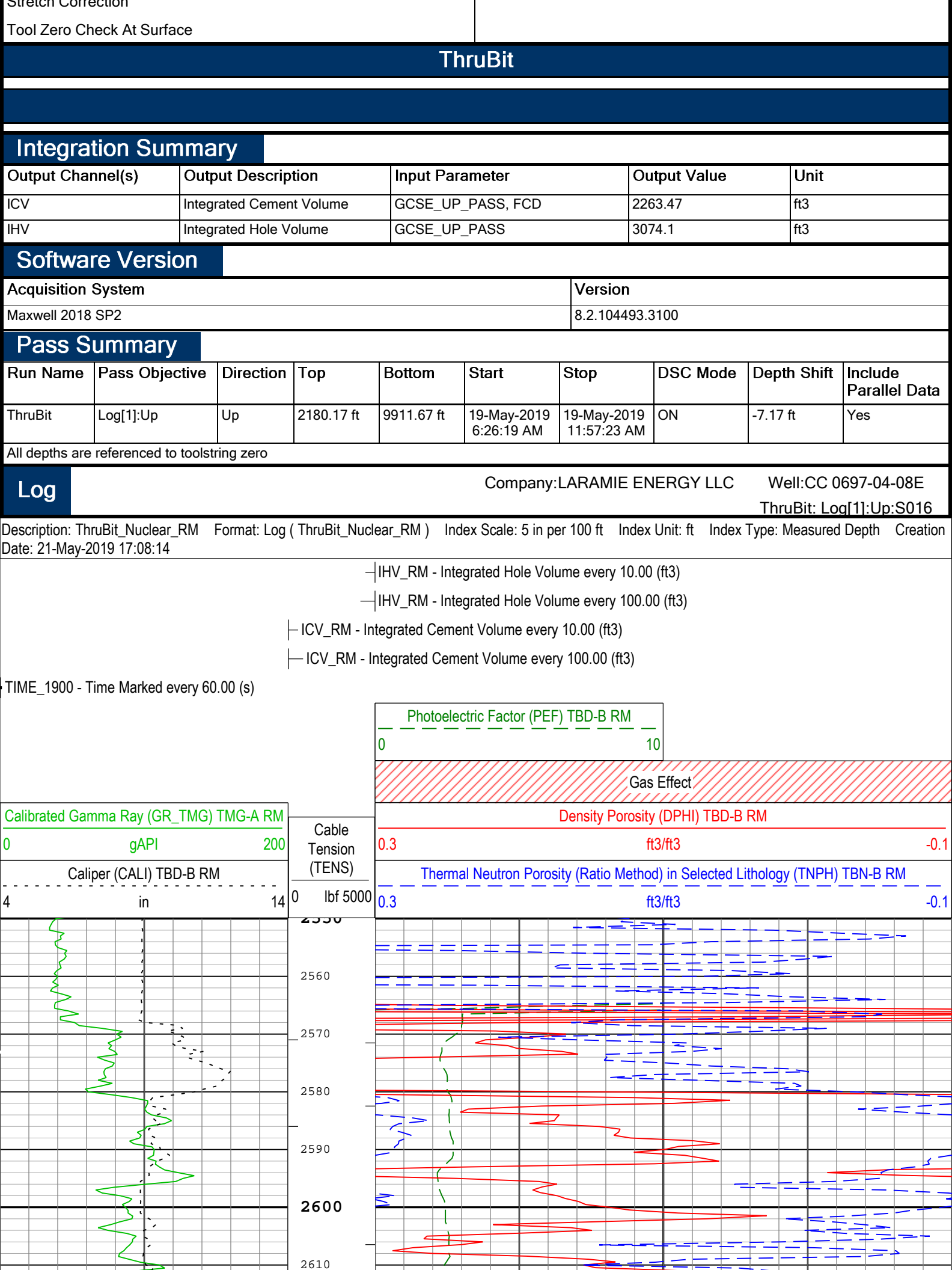
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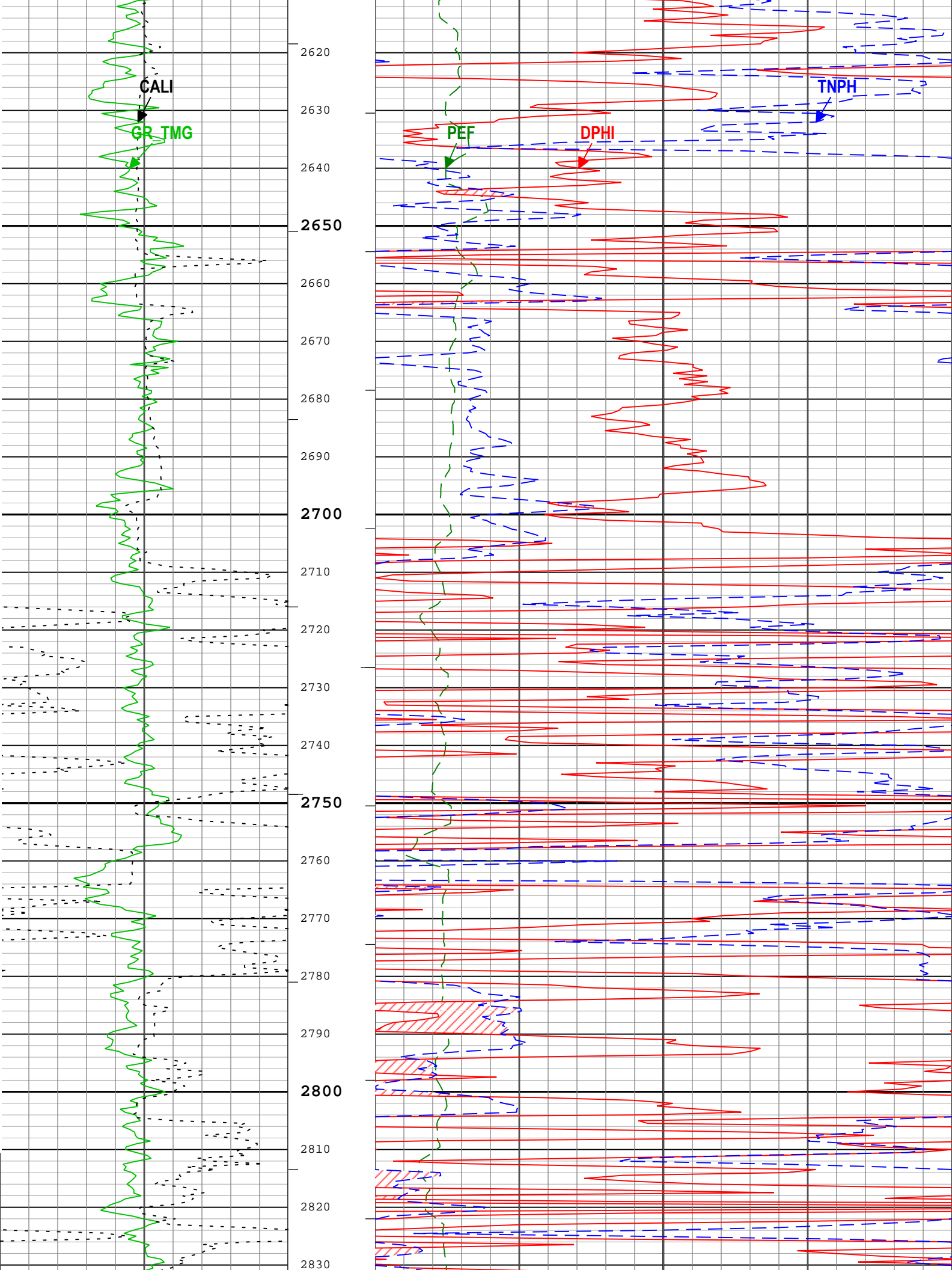
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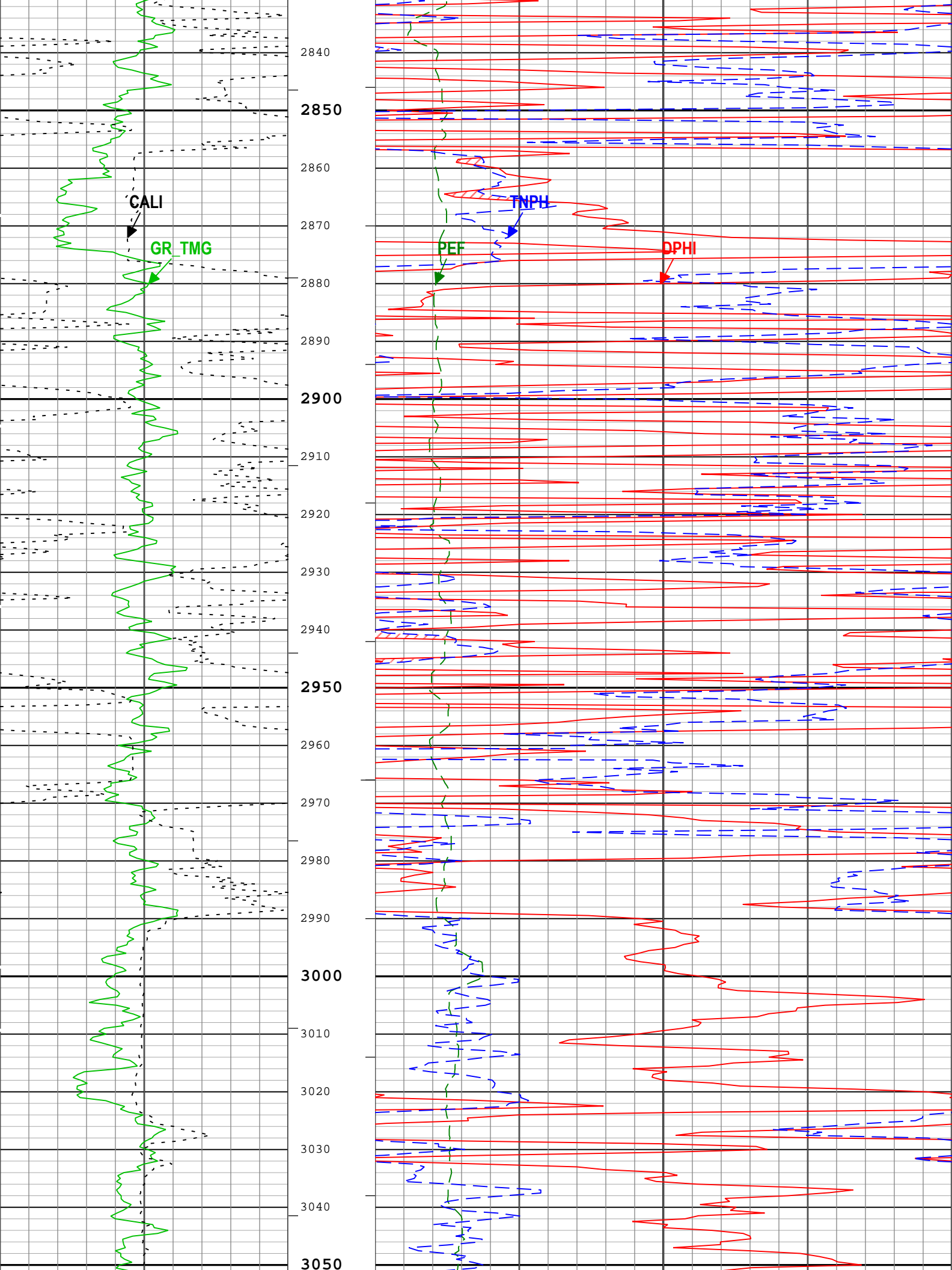
TBIT-A:47 15.28
TBIT-A:47

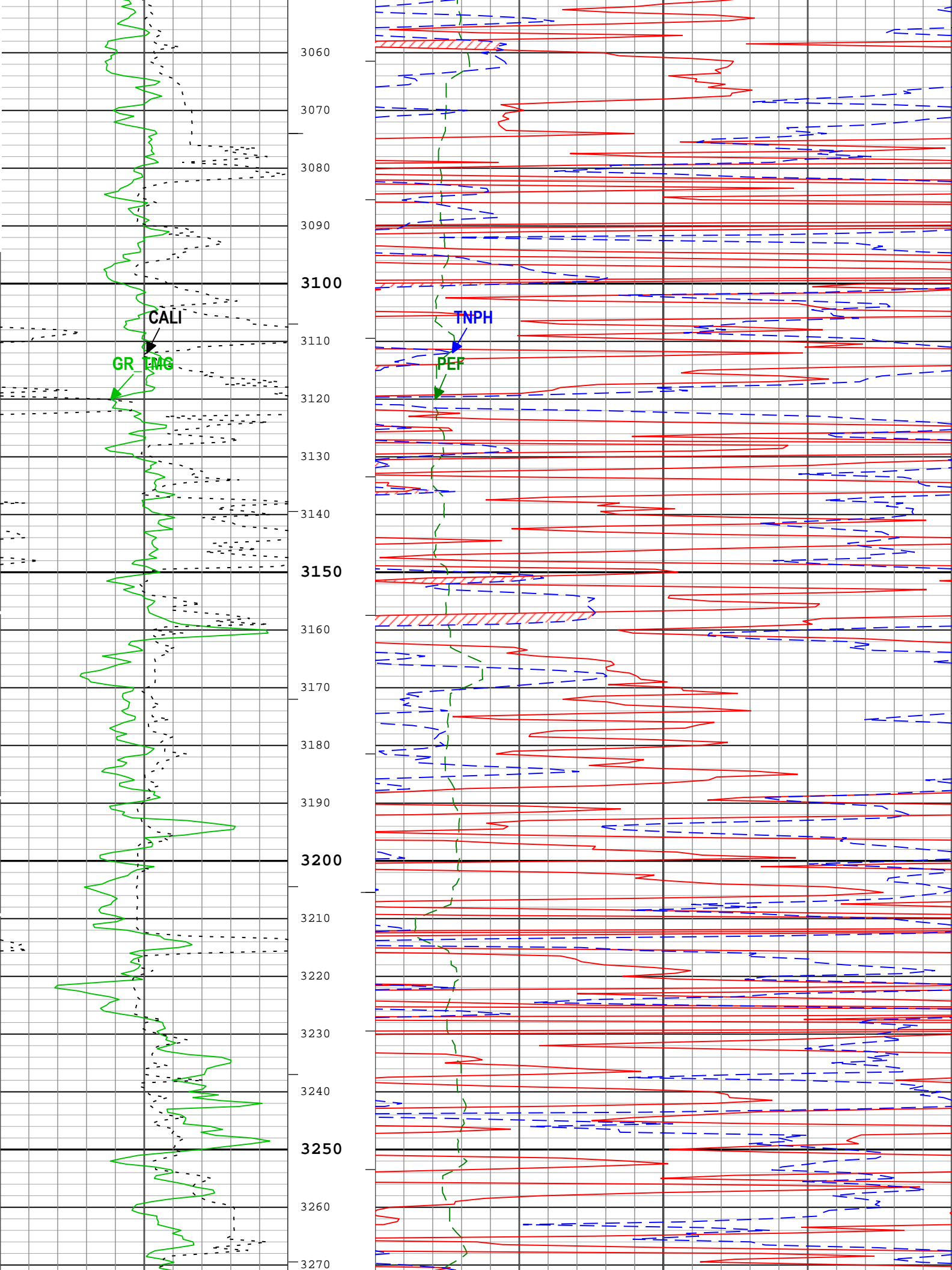


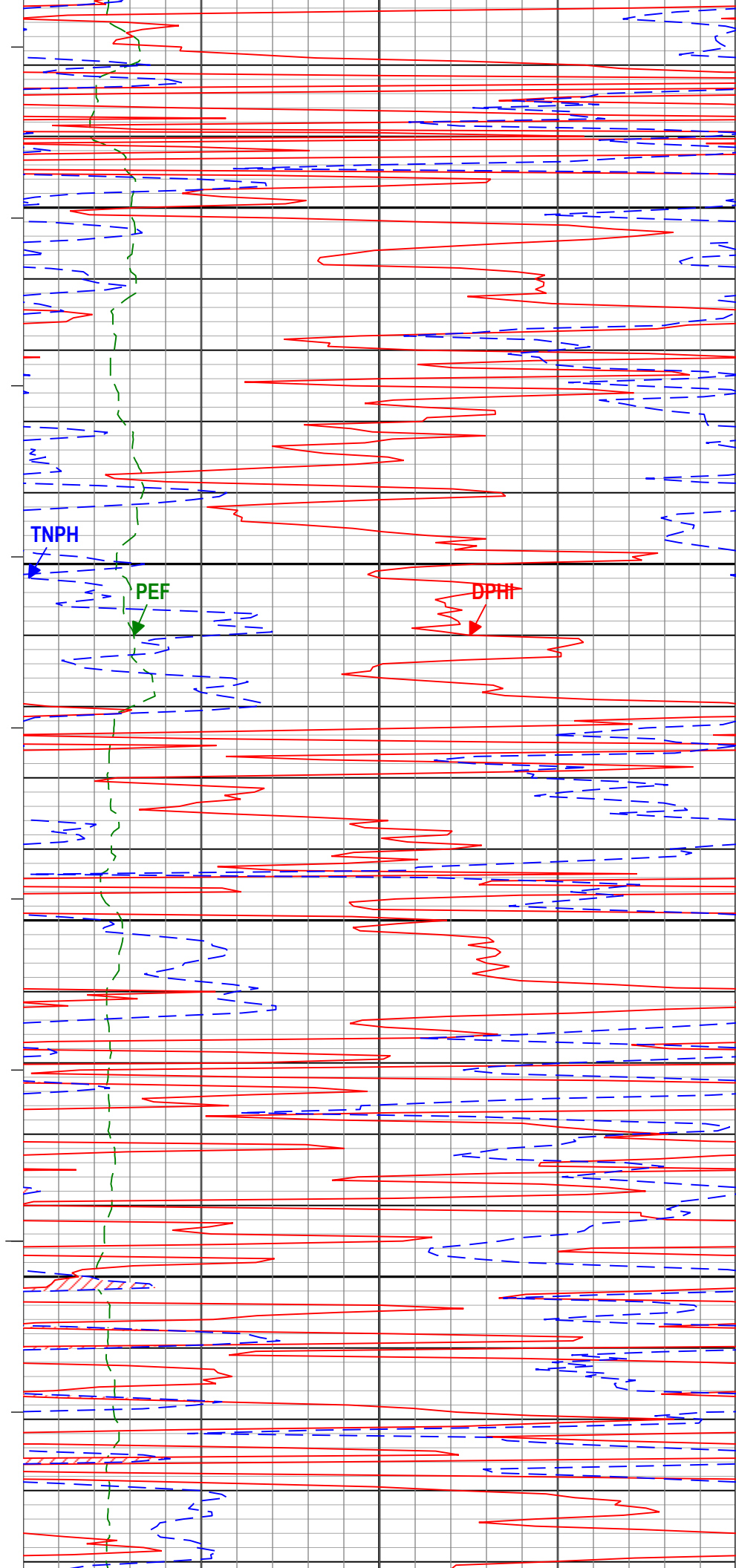
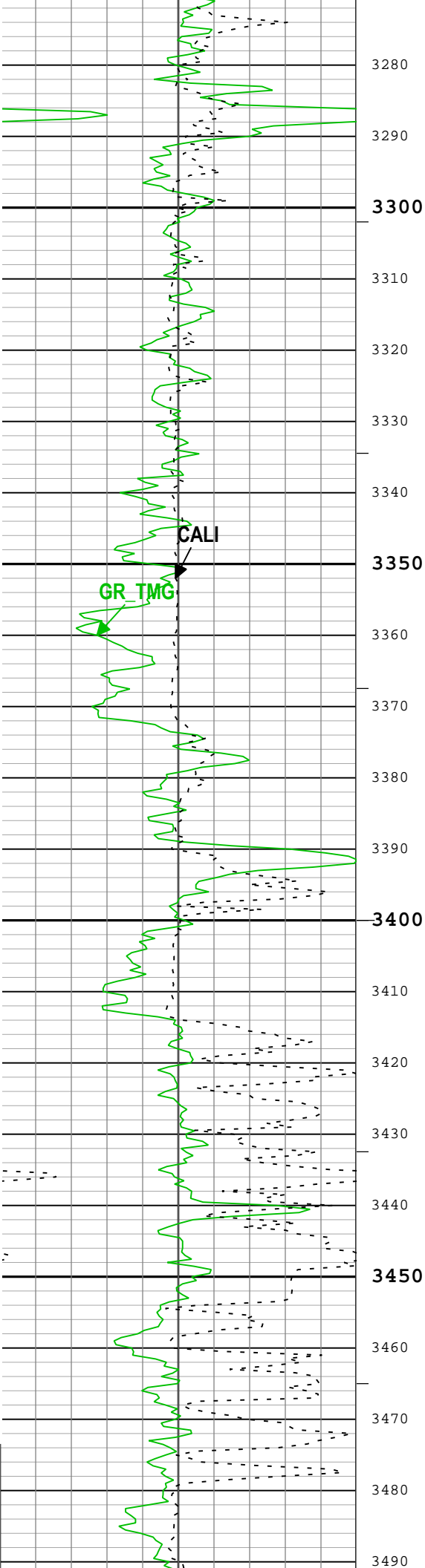
Depth Summary			
	ThruBit		
Depth Measuring Device			
Type	IDW-B		
Serial Number			
Calibration Date			
Calibrator Serial Number			
Calibration Cable Type			
Wheel Correction 1	0		
Wheel Correction 2	0		
Tension Device			
Type	CMTD-B/A		
Serial Number			
Calibration Date			
Calibrator Serial Number			
Number of Calibration Points	0		
Logging Cable			
Type	7-39AI-XS		
Serial Number			
Length	15000.00 ft		
Conveyance Type	Wireline		
Rig Type			
ThruBit:Depth Control Parameters		Depth Control Remarks	
Log Sequence	First Log In the Well		
Rig Up Length At Surface			
Rig Up Length At Bottom			
Rig Up Length Correction			
Stretch Correction			

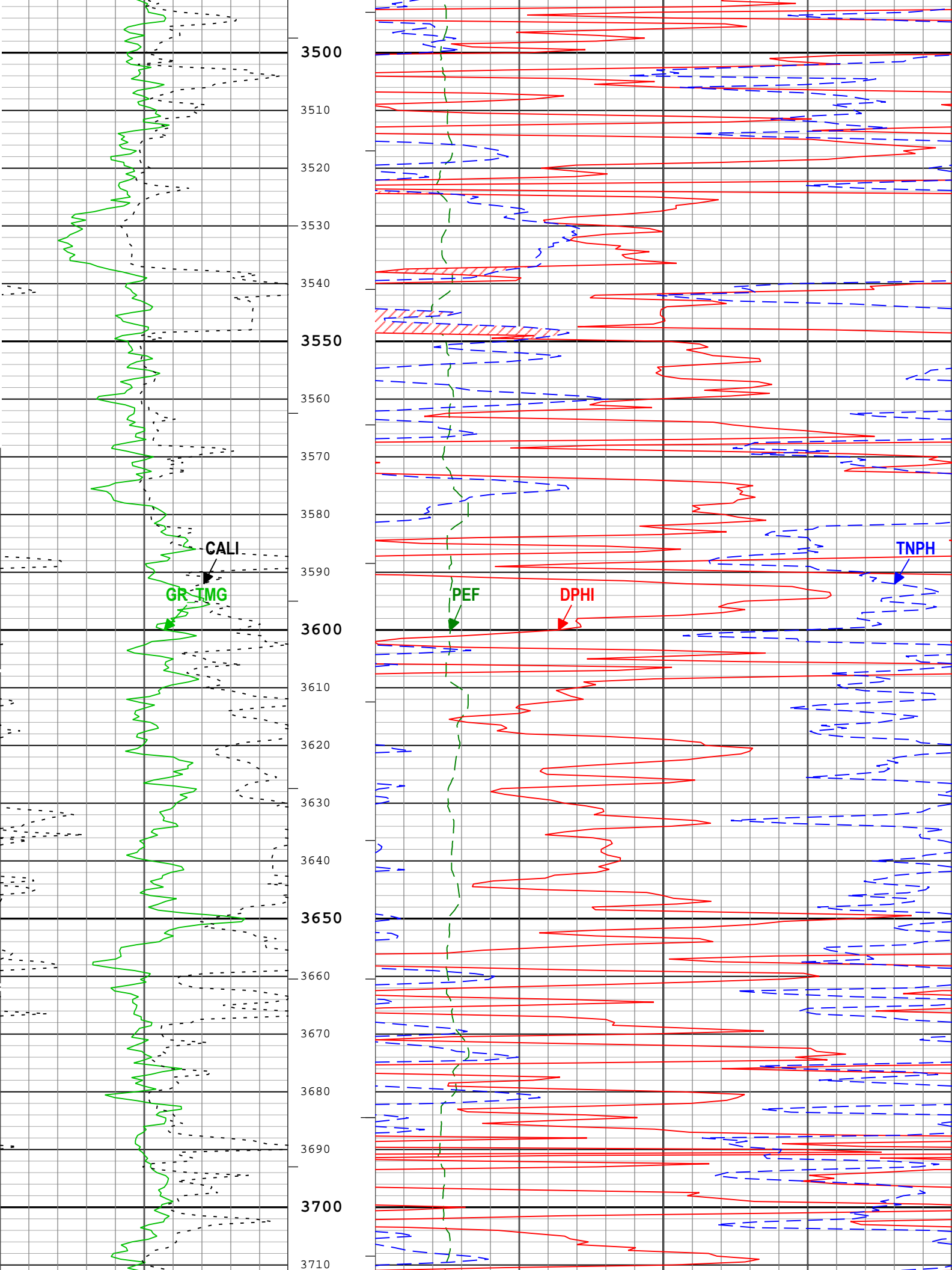


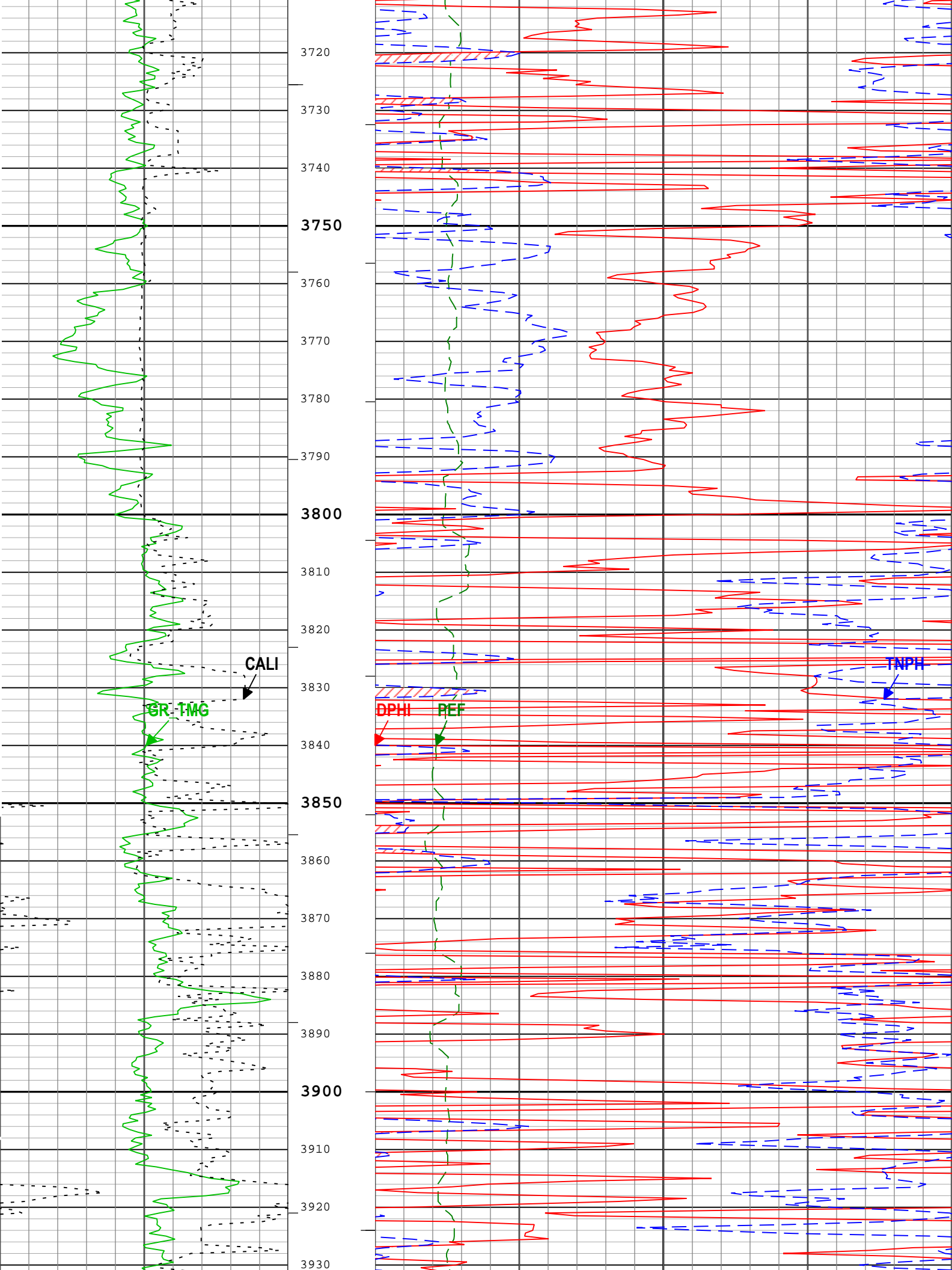


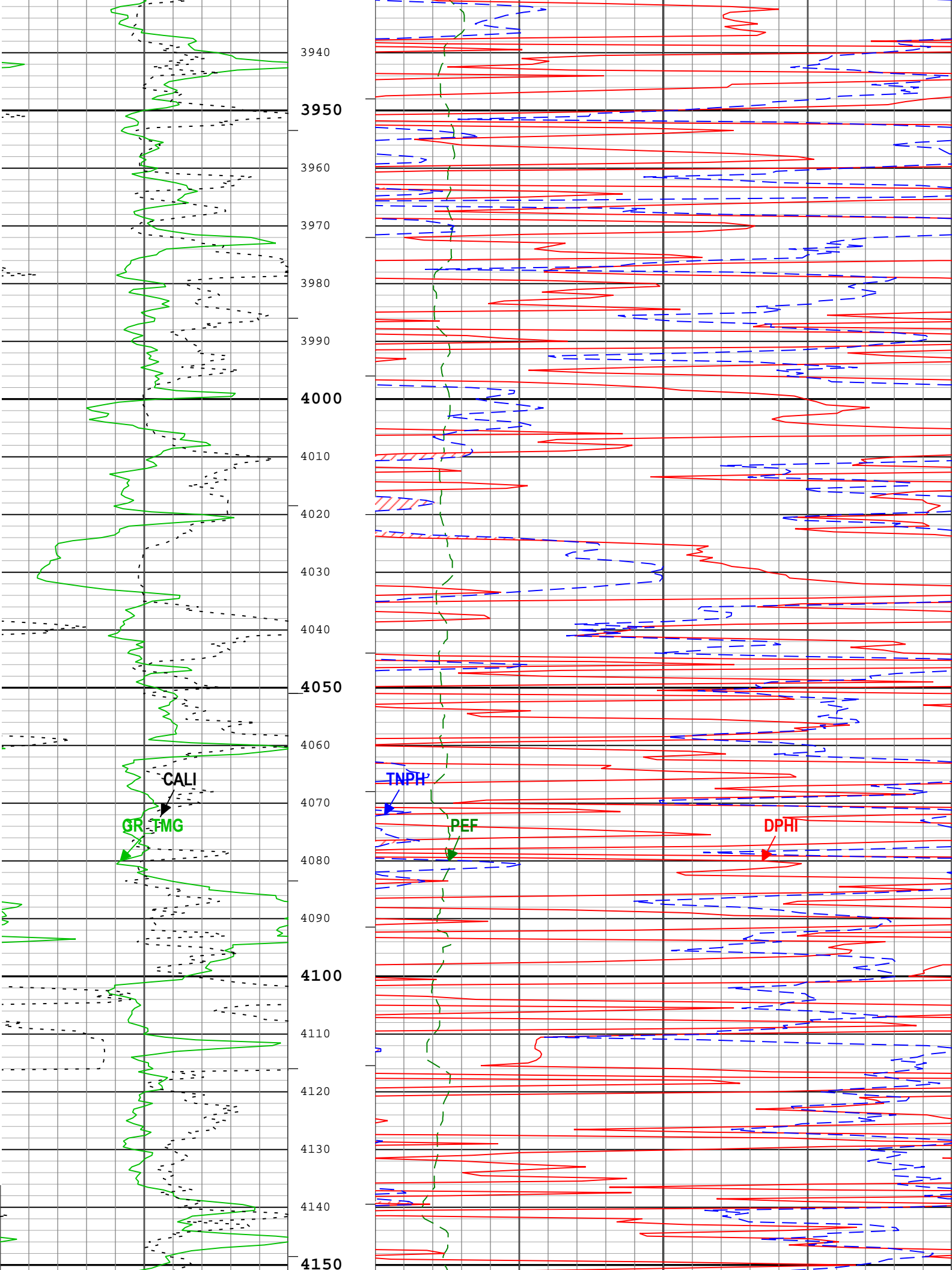


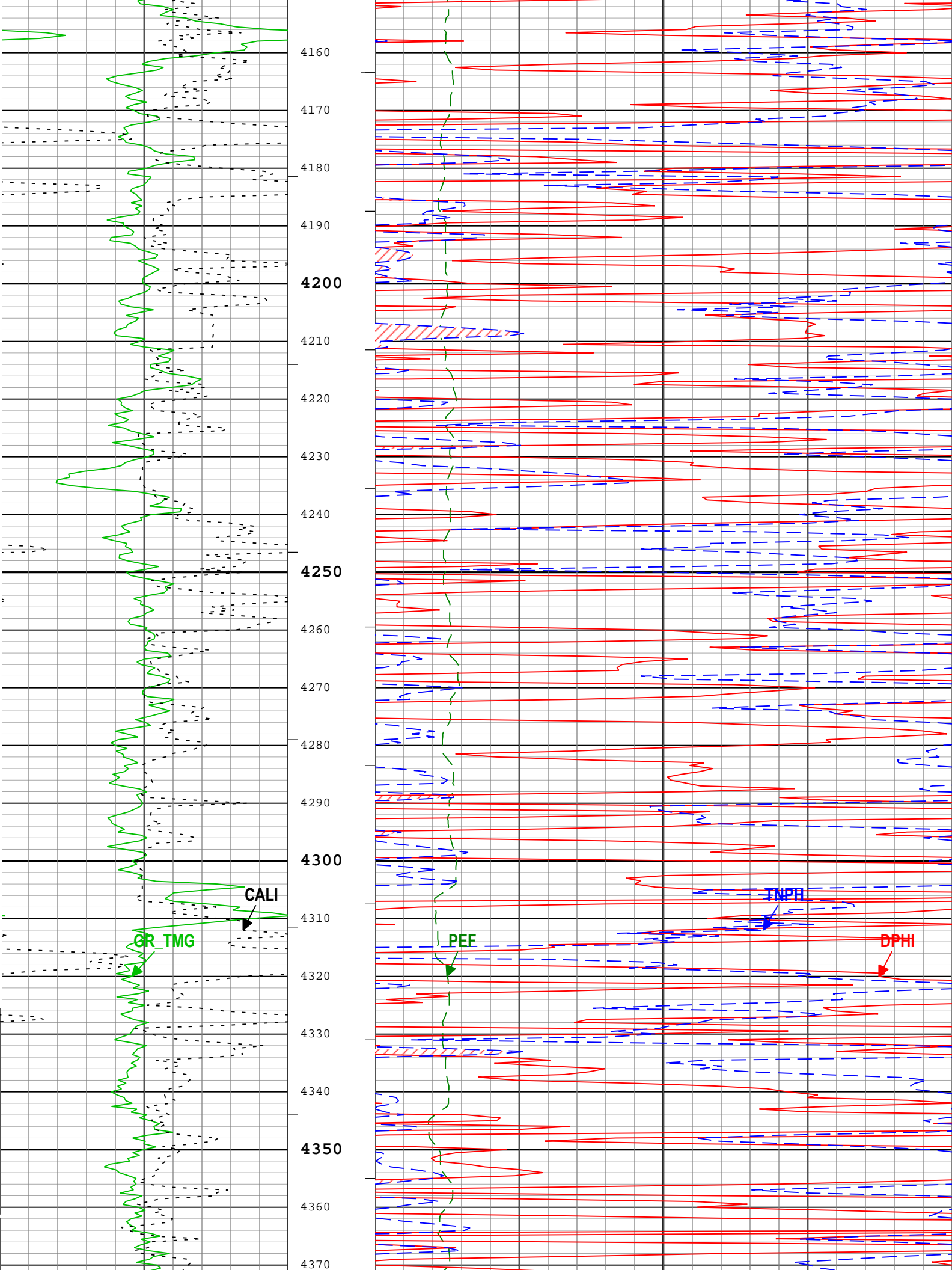


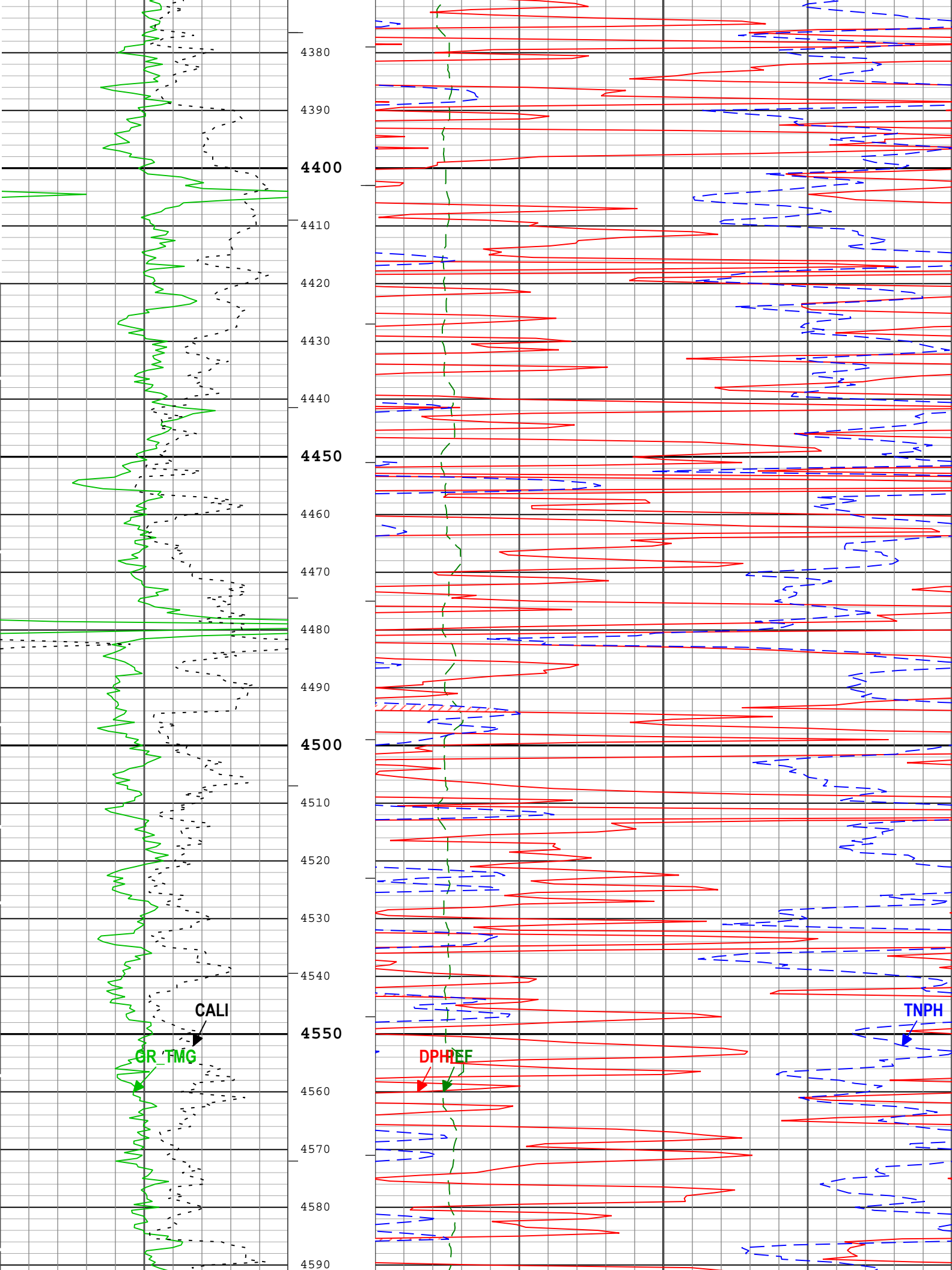


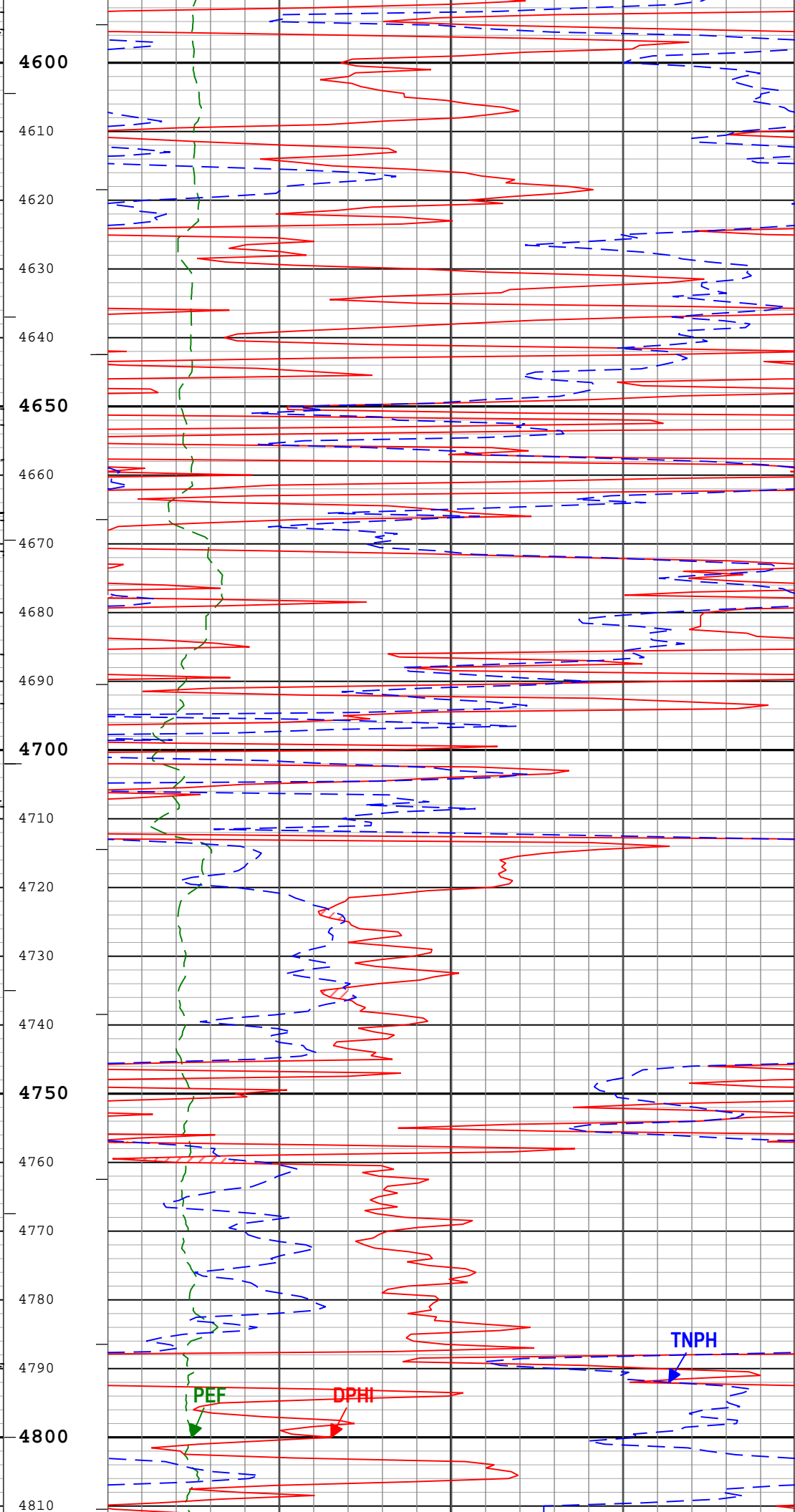
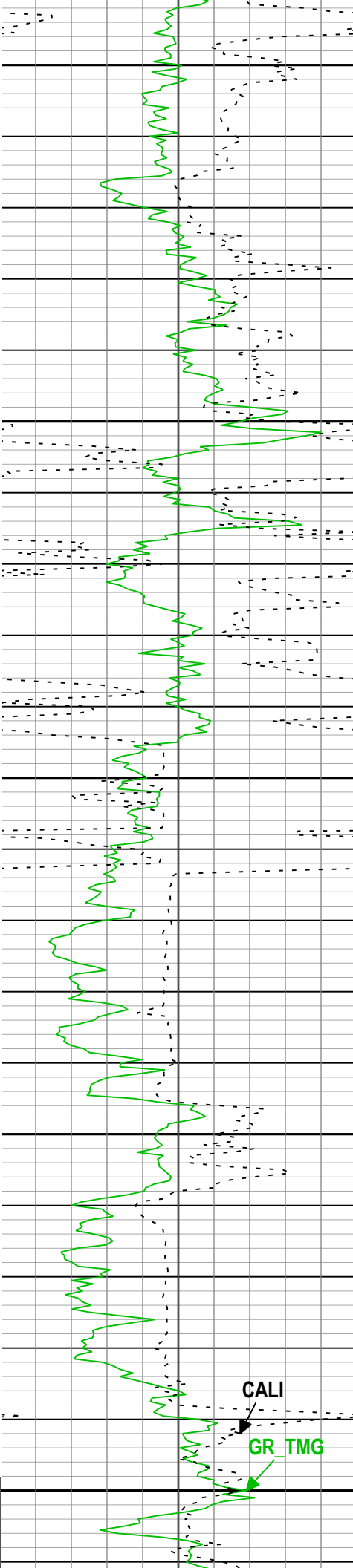


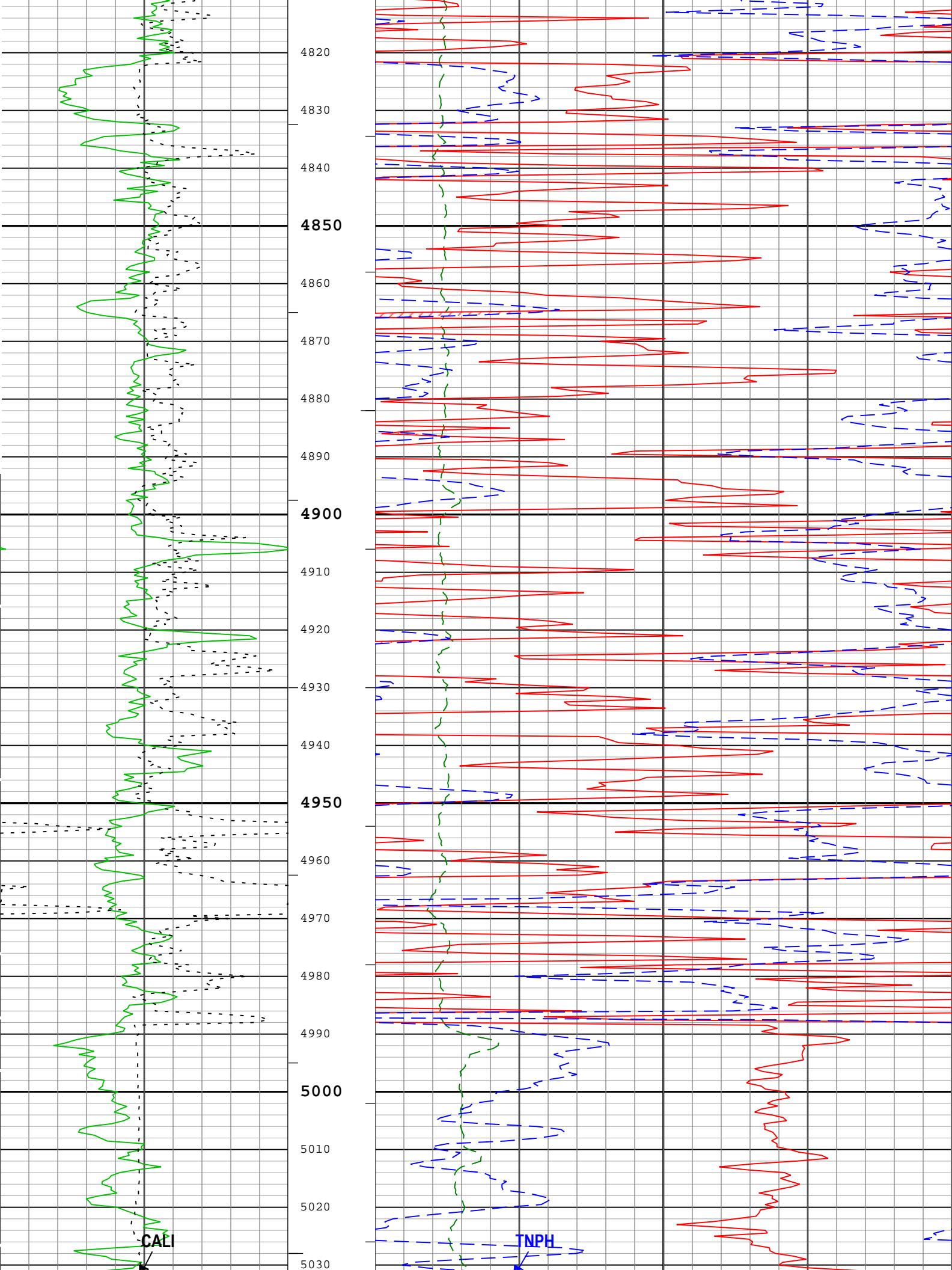


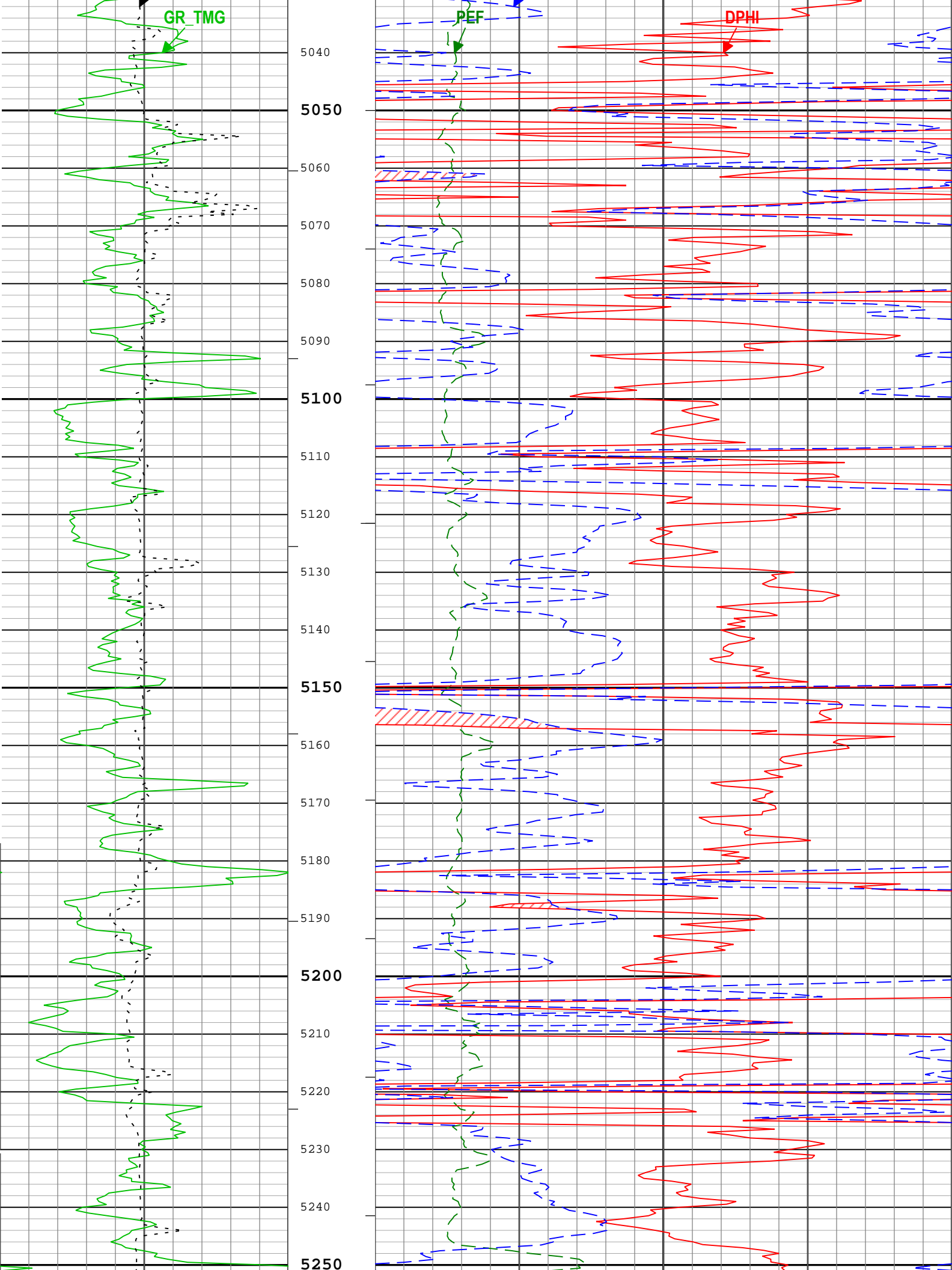


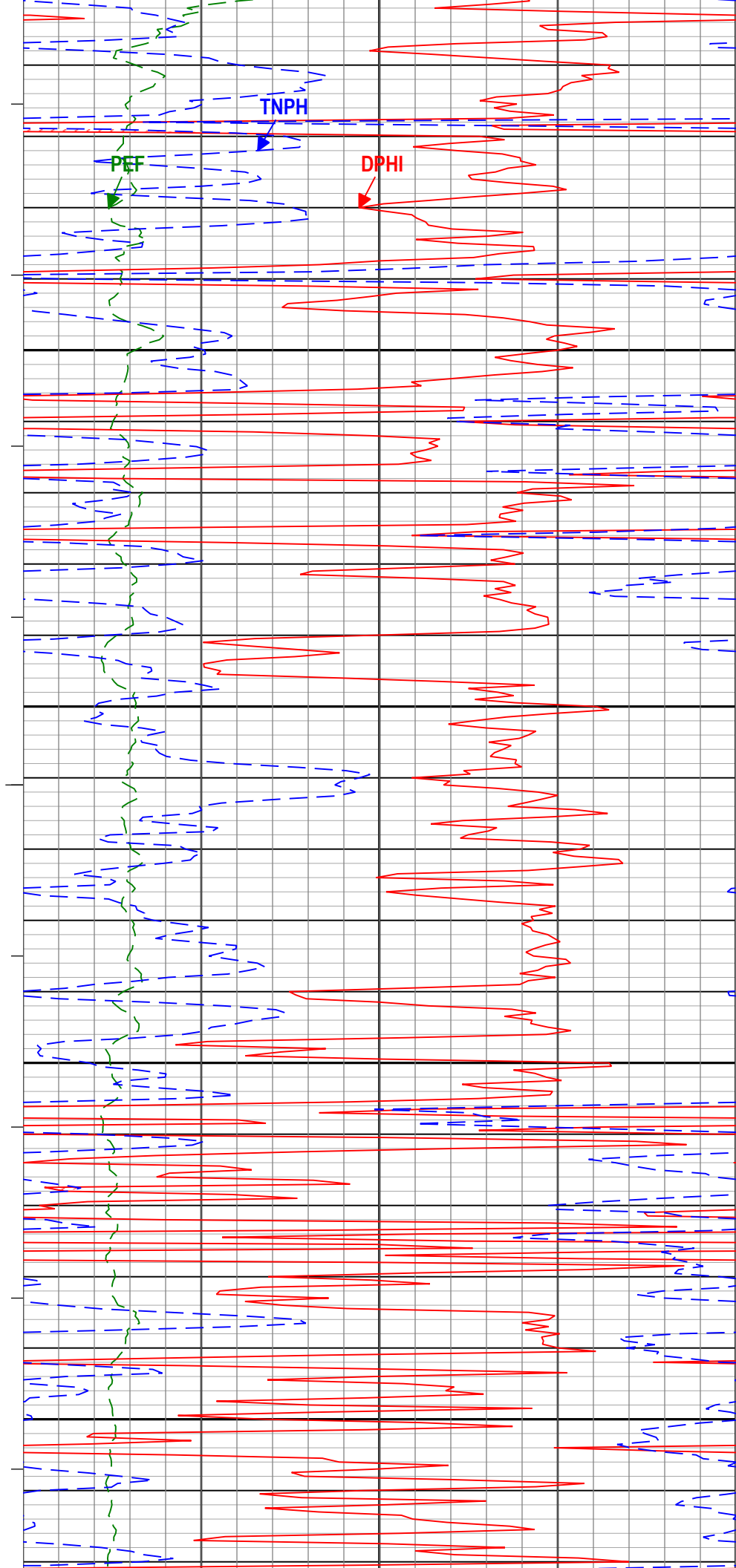
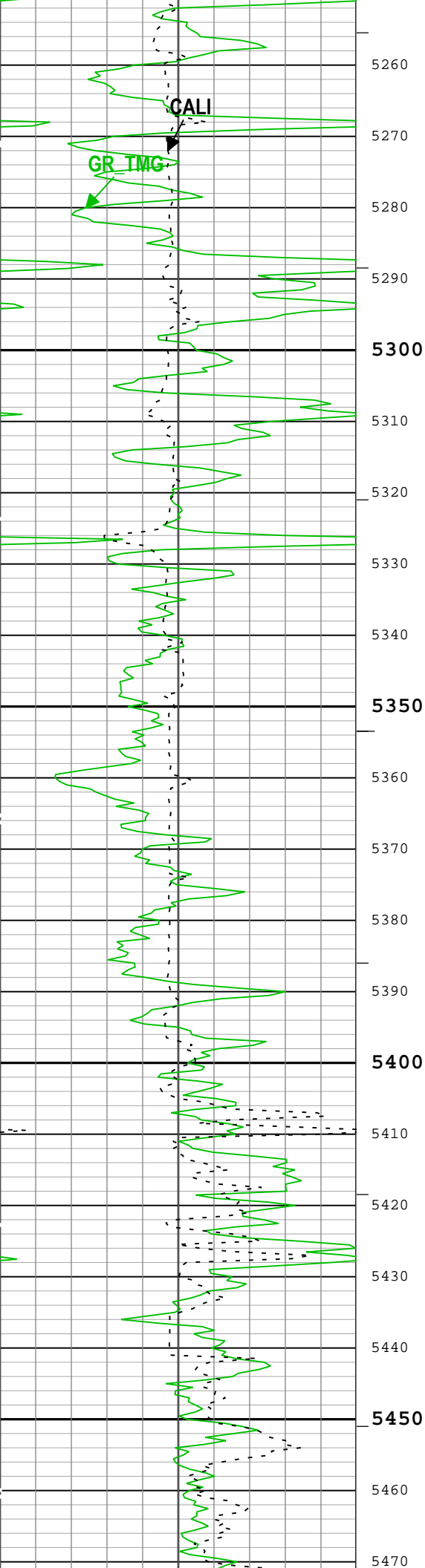


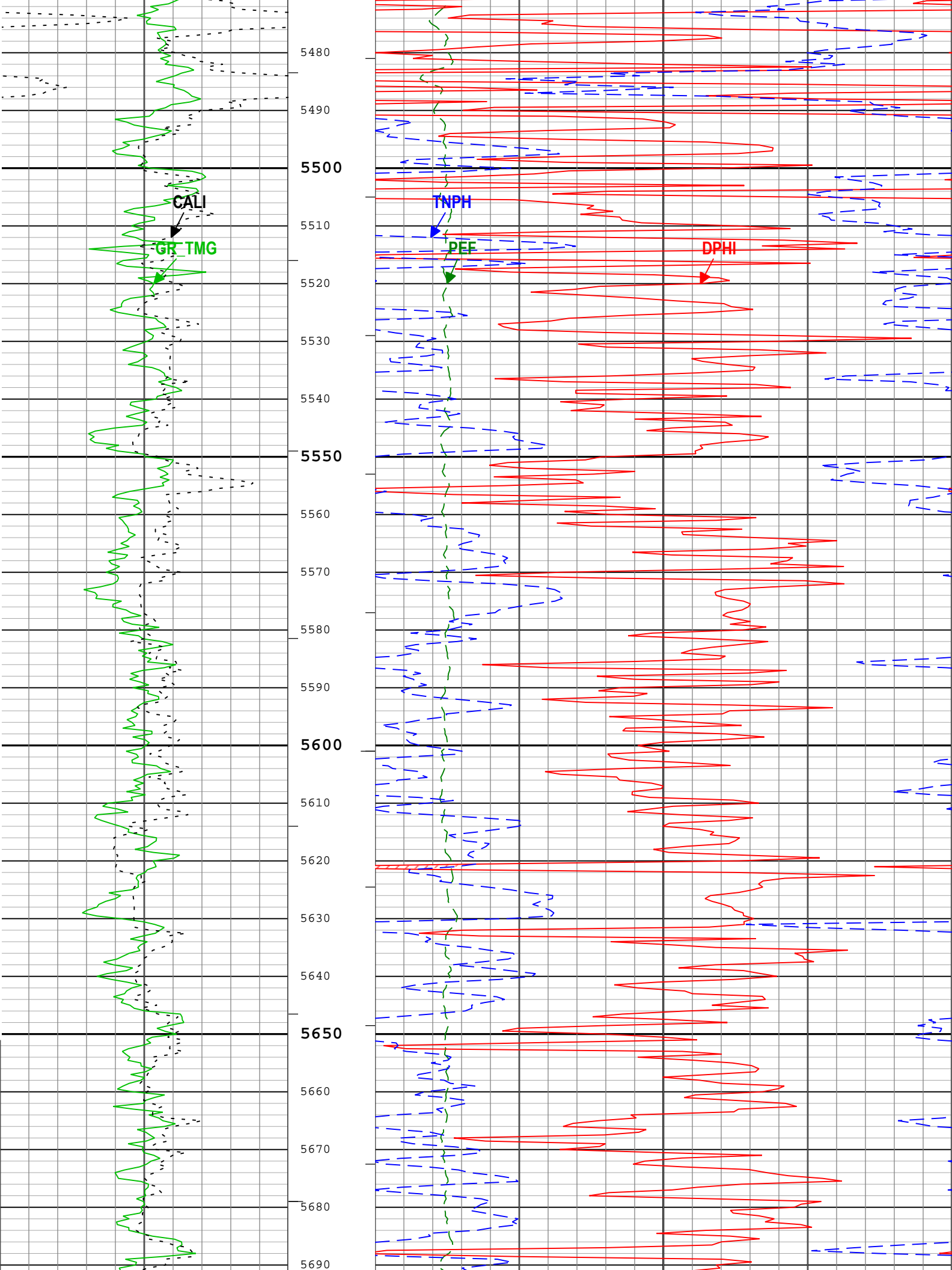


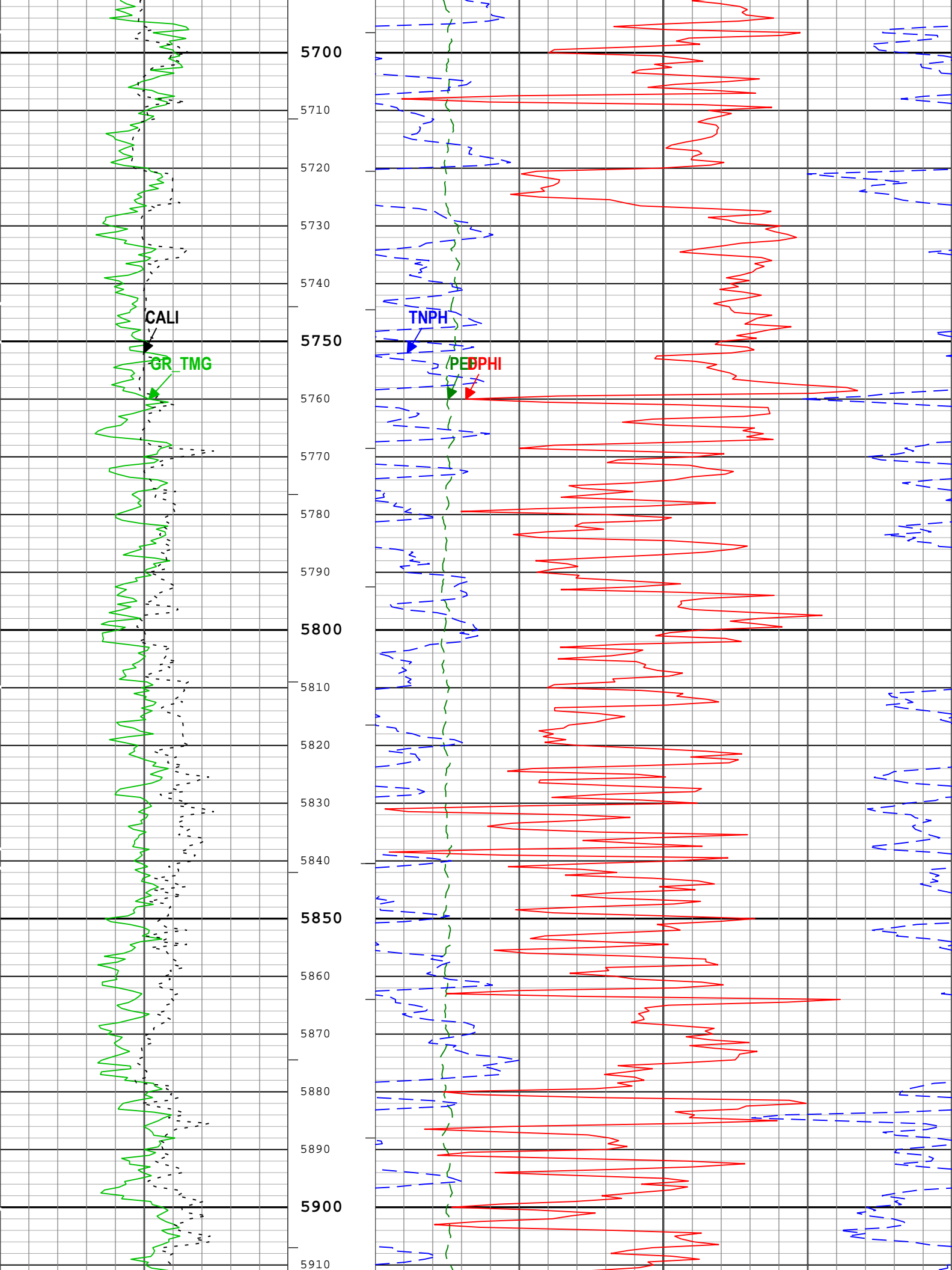


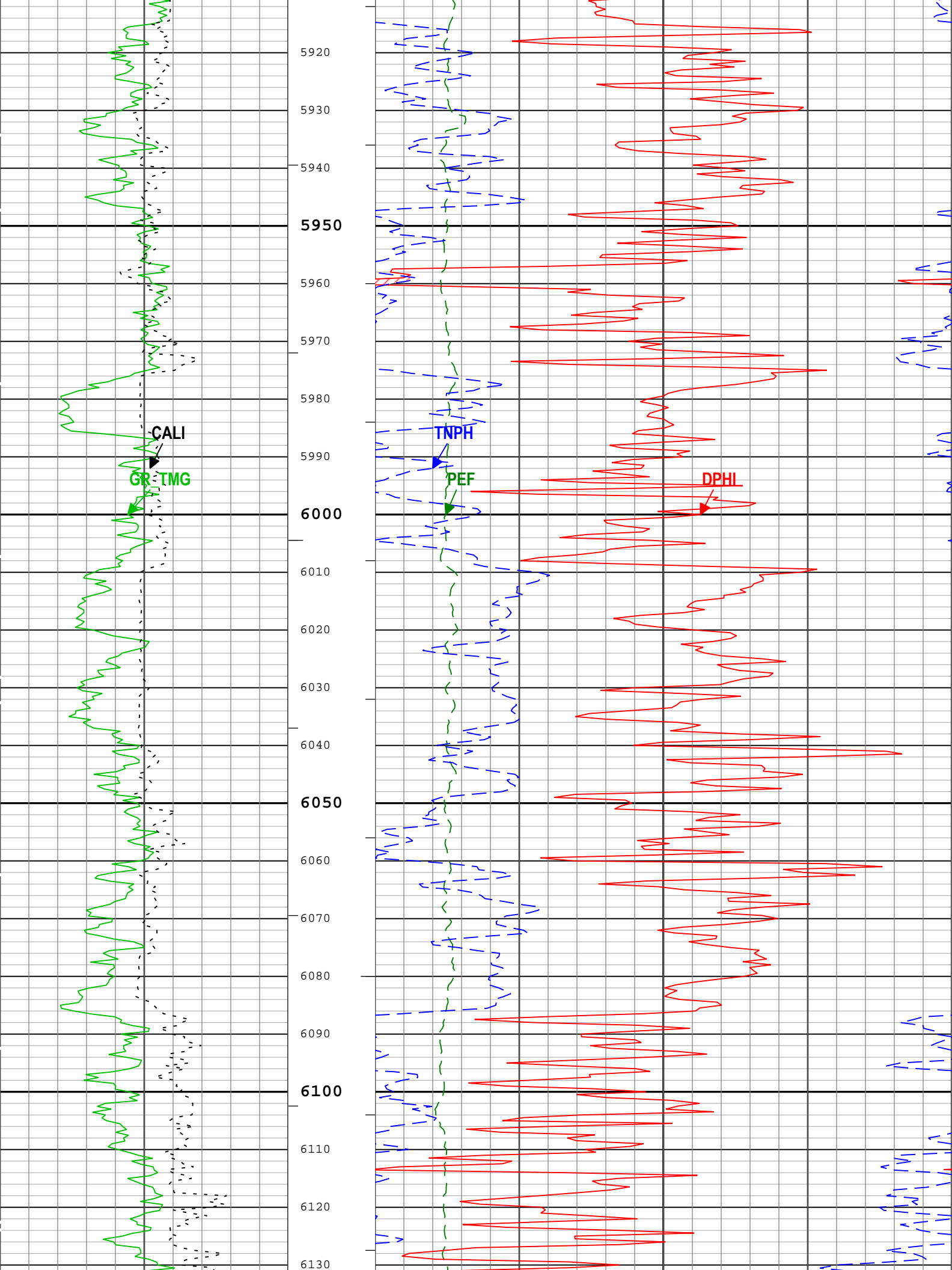


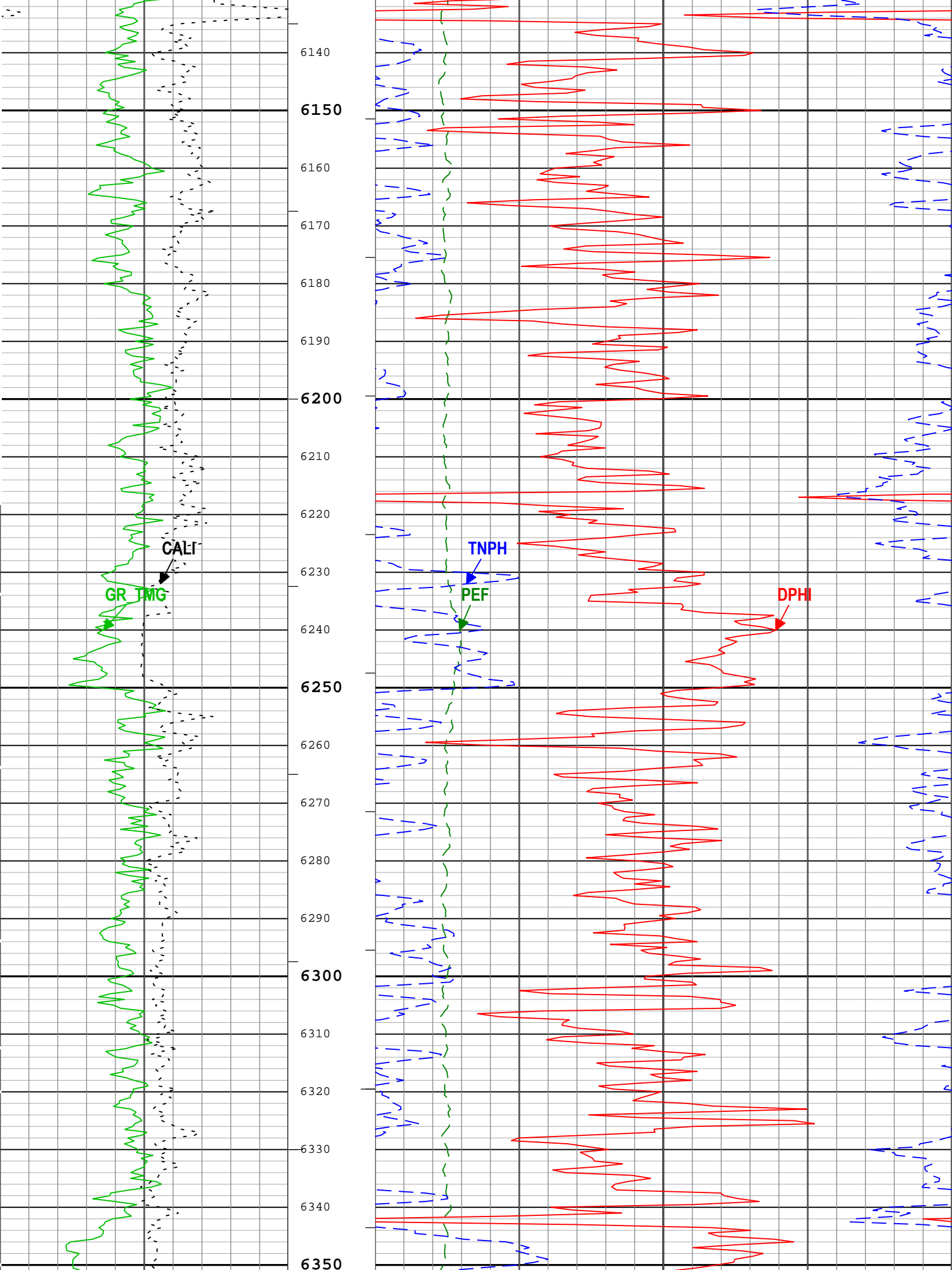


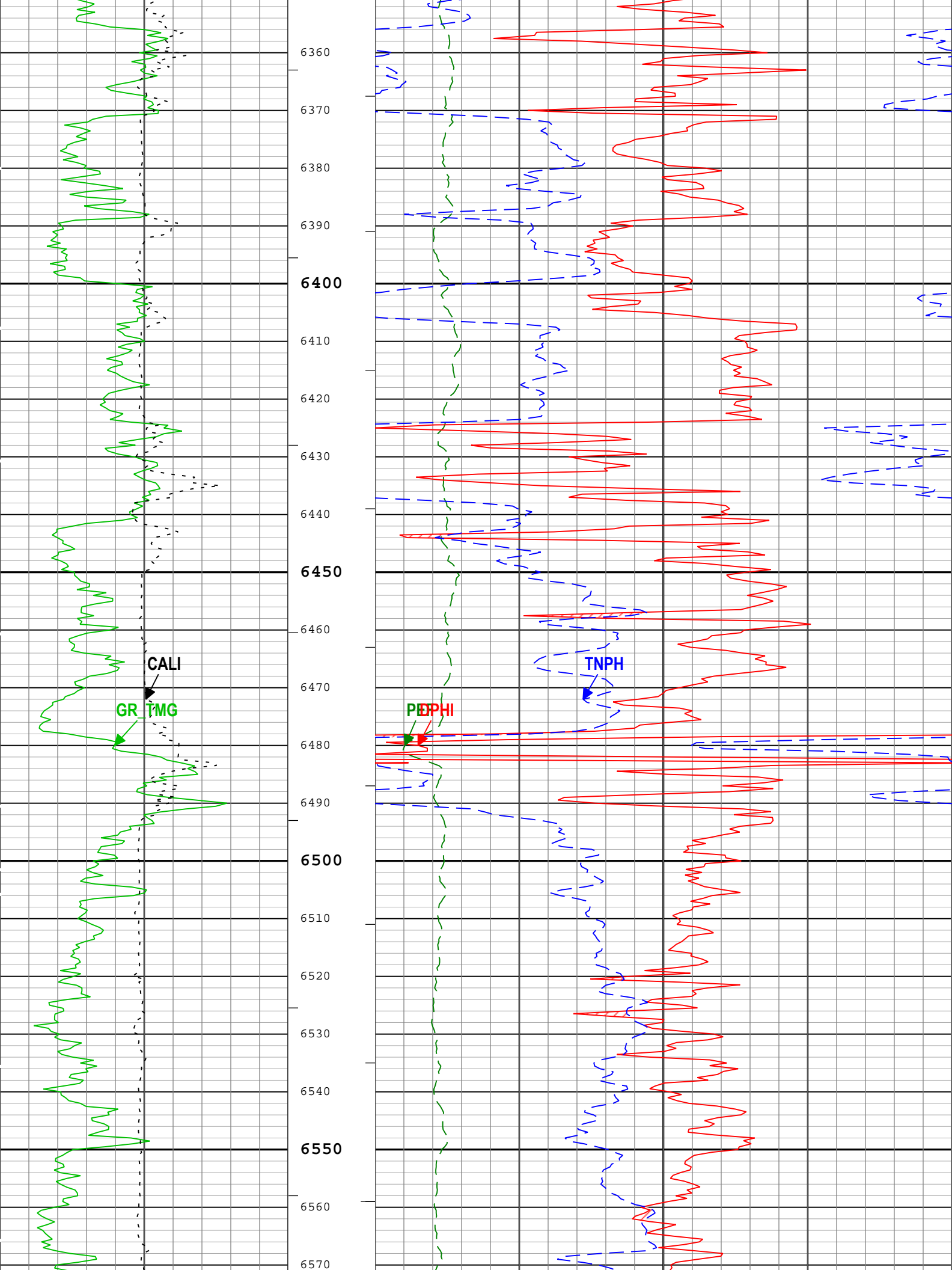


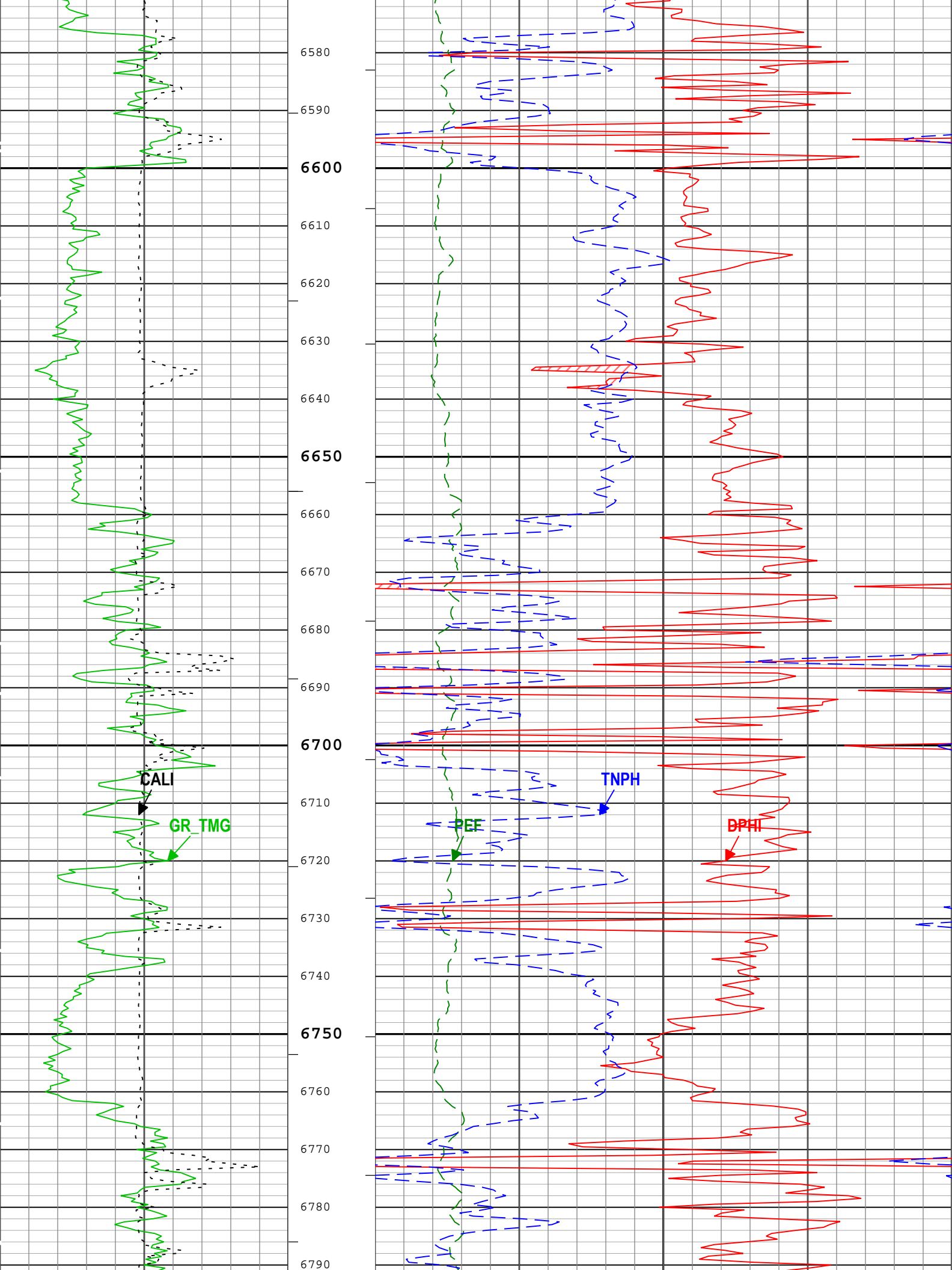


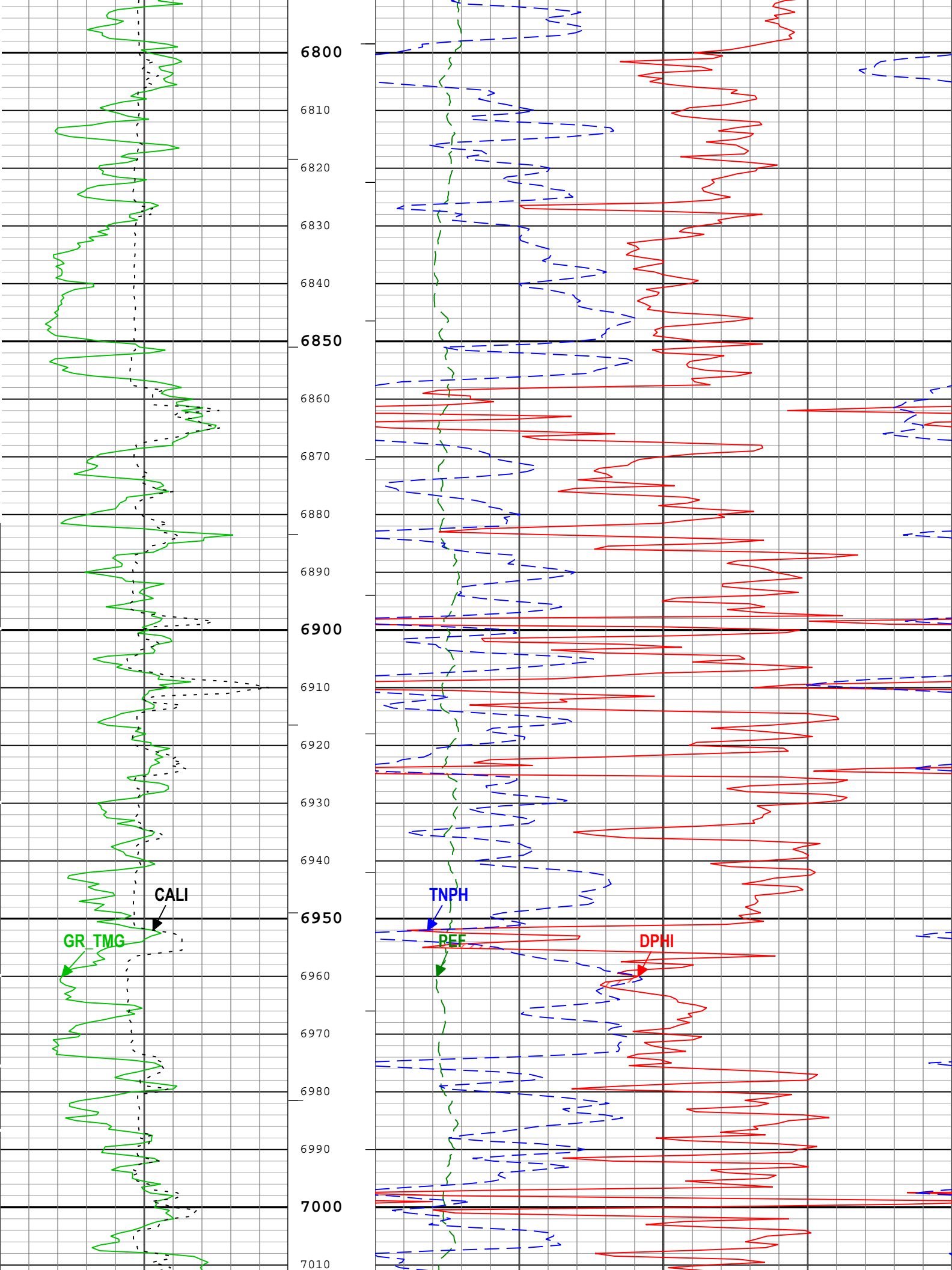


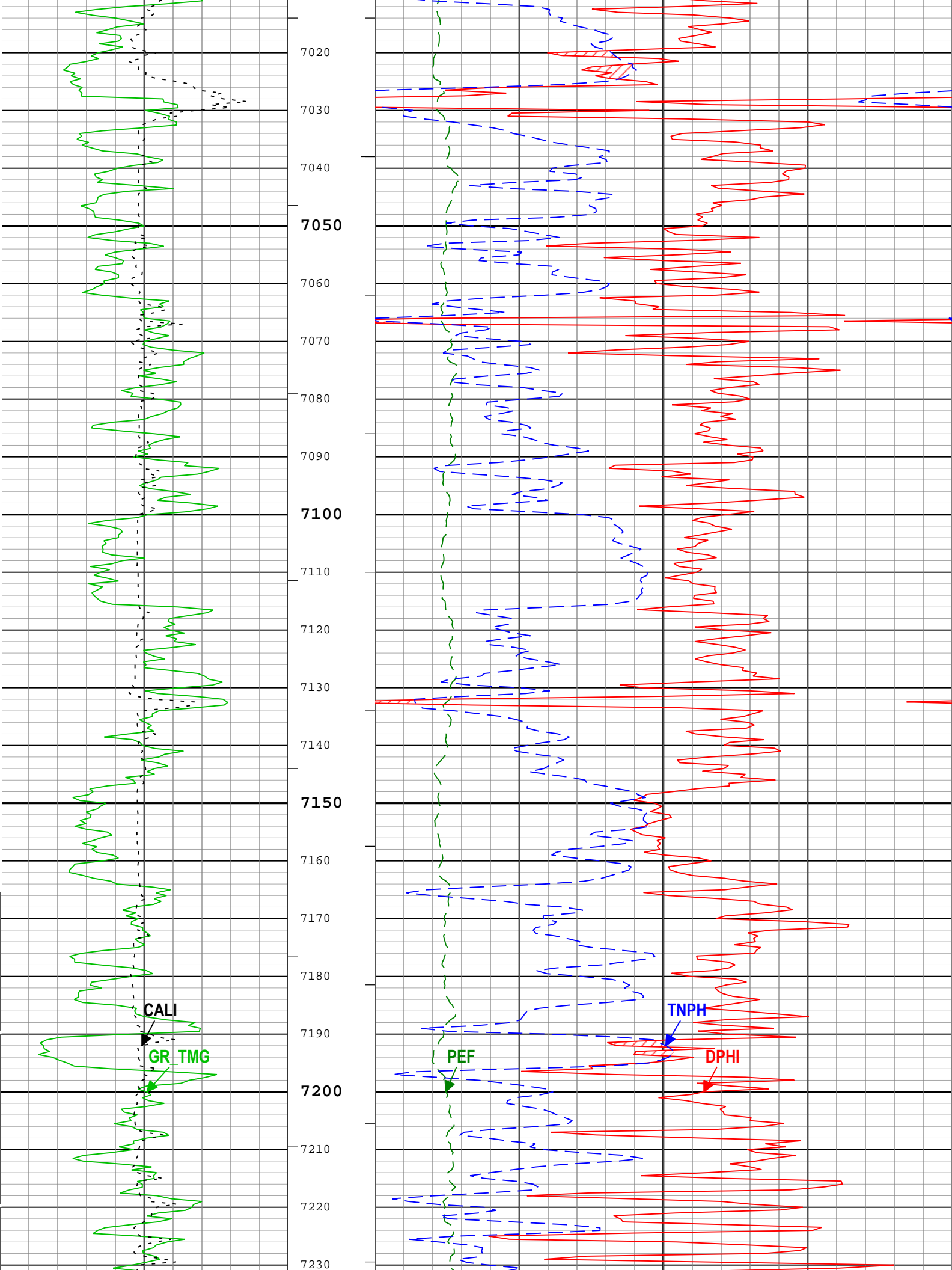


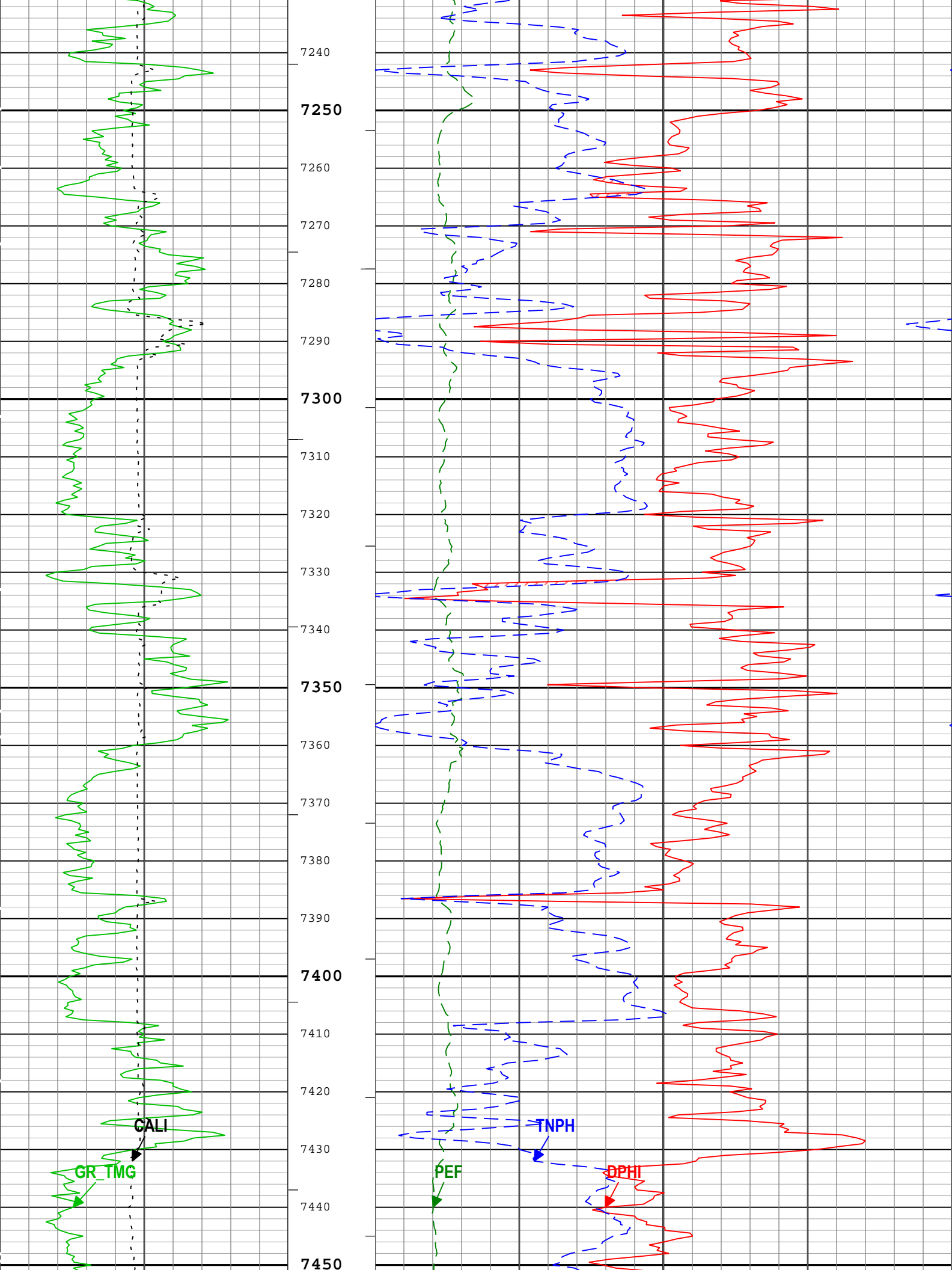


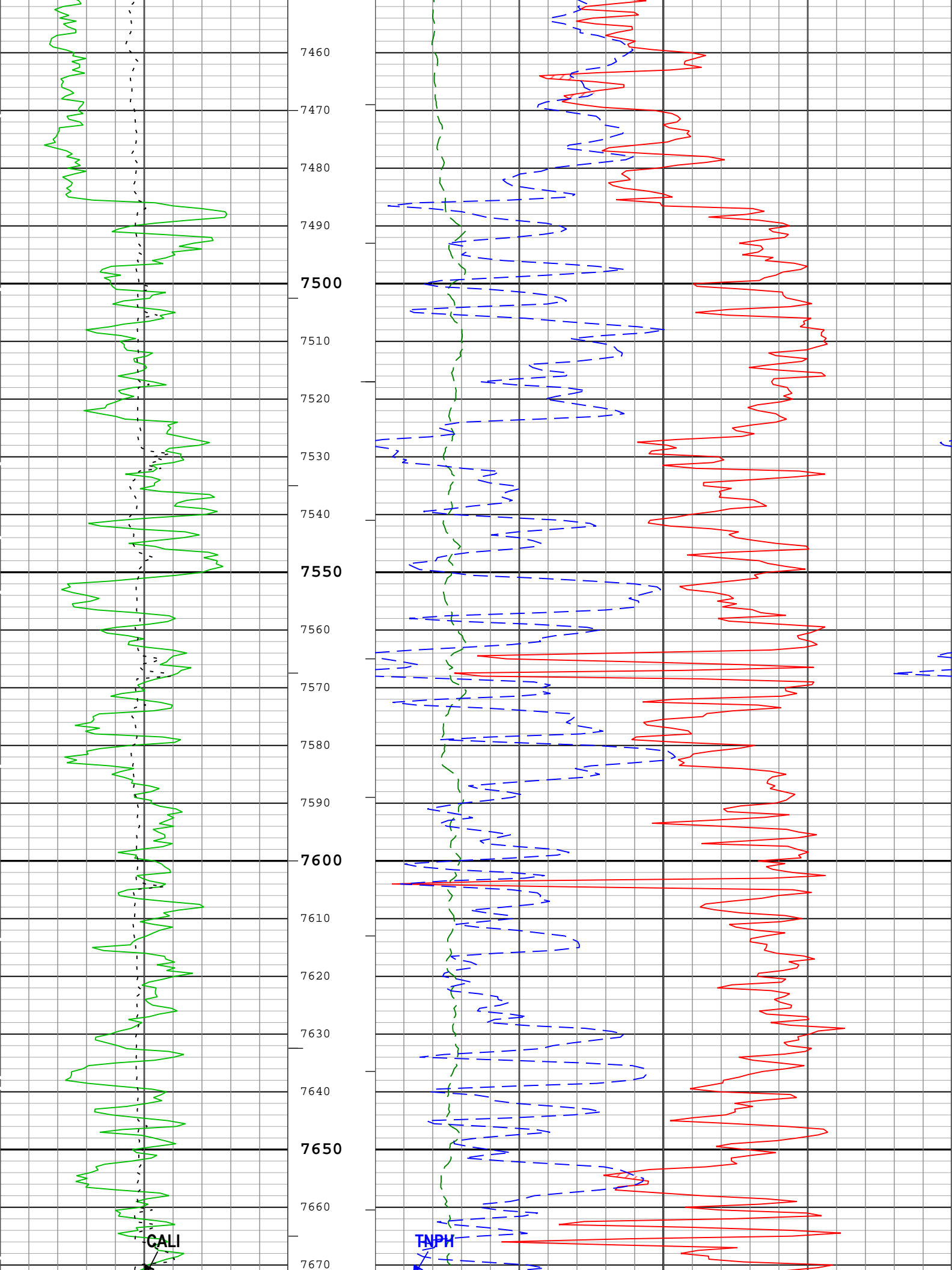


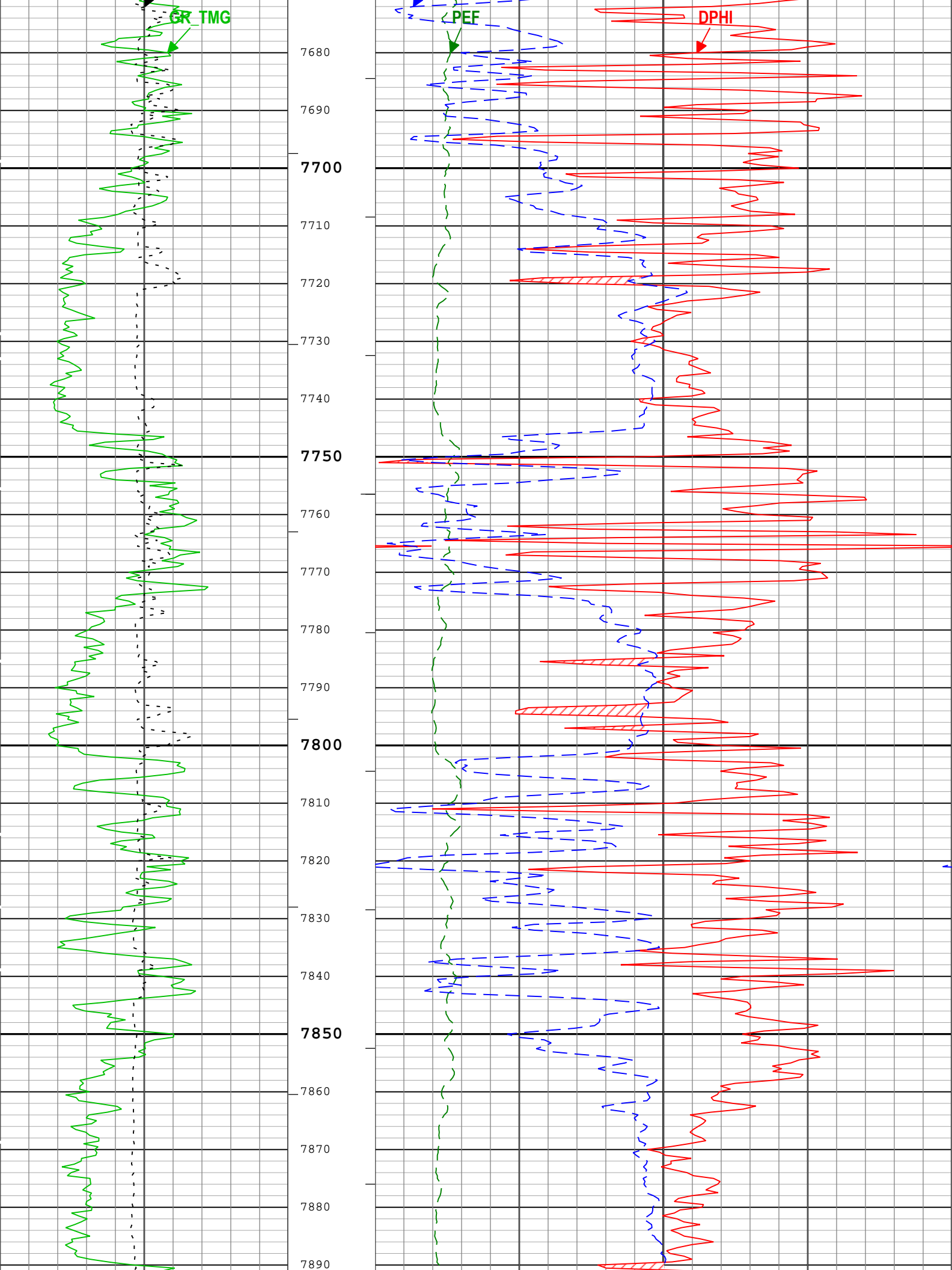


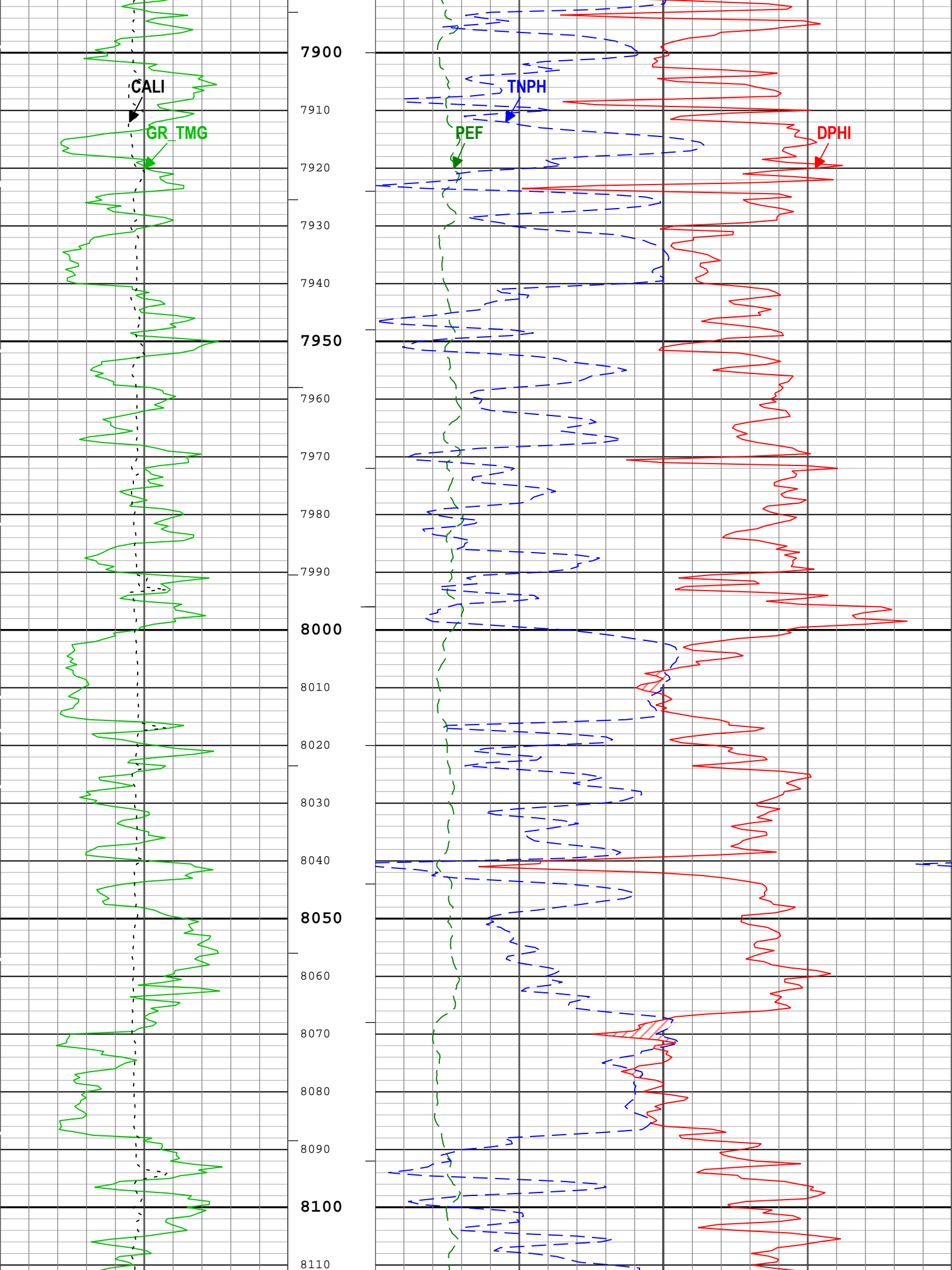


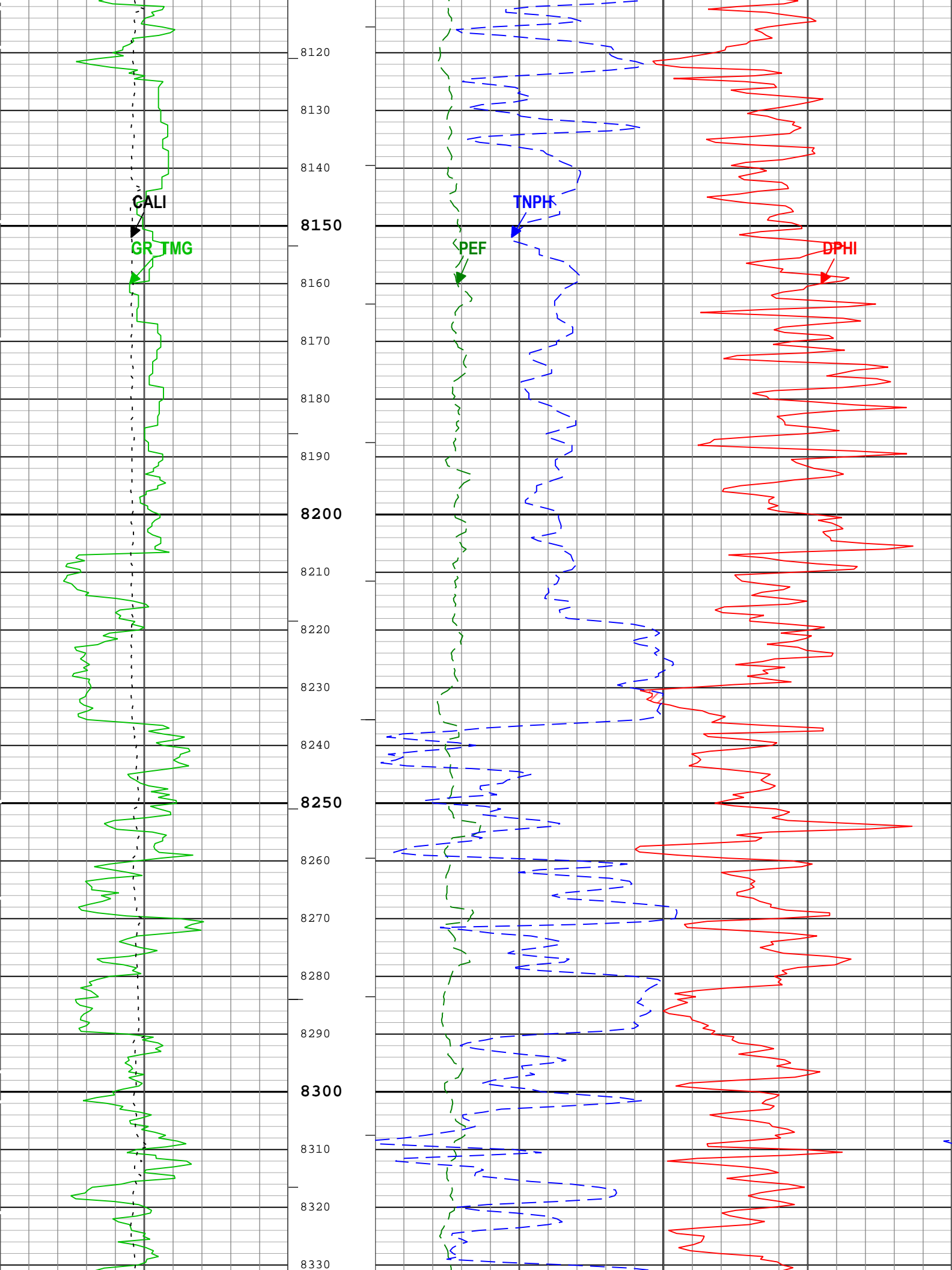


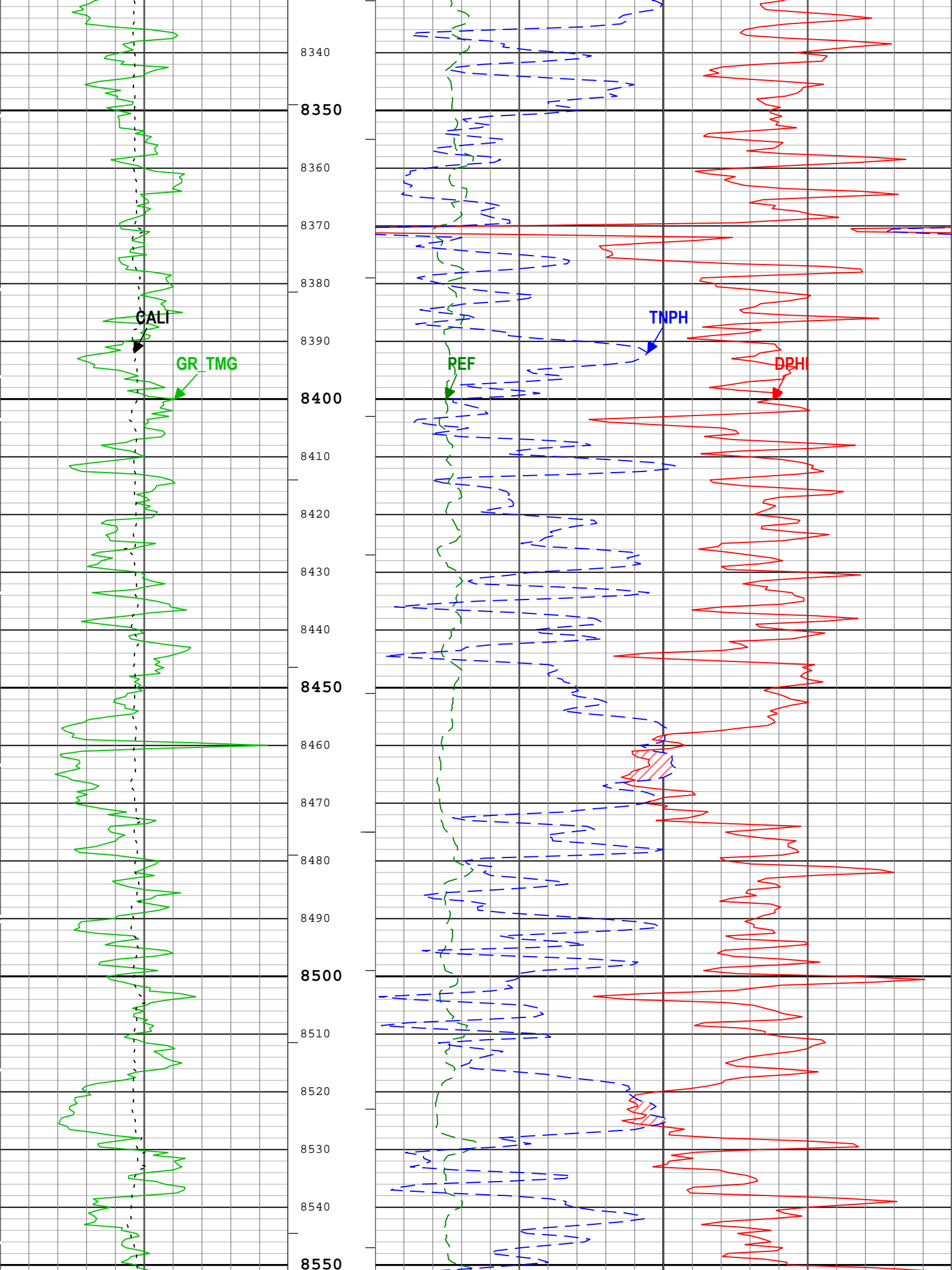


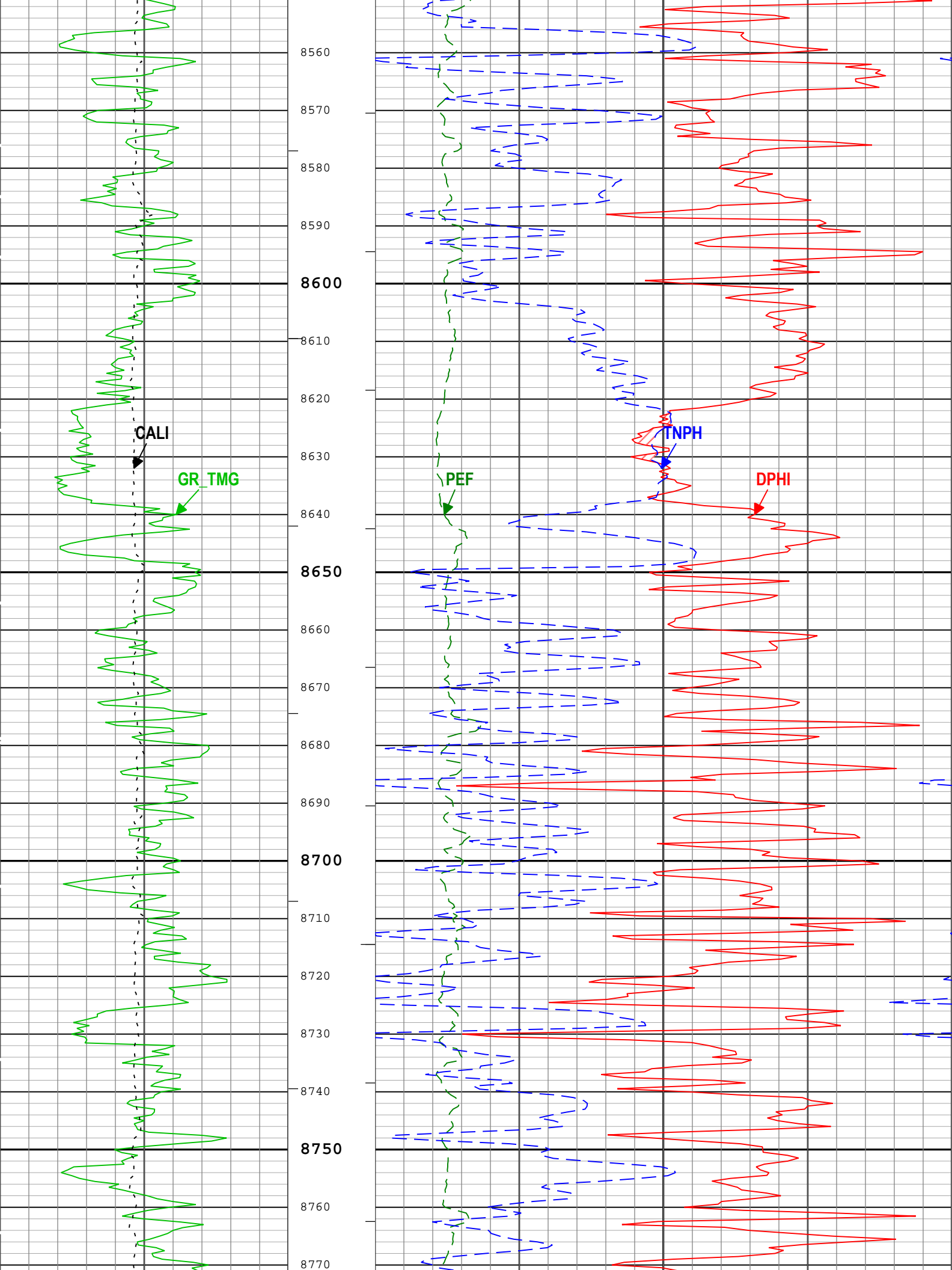


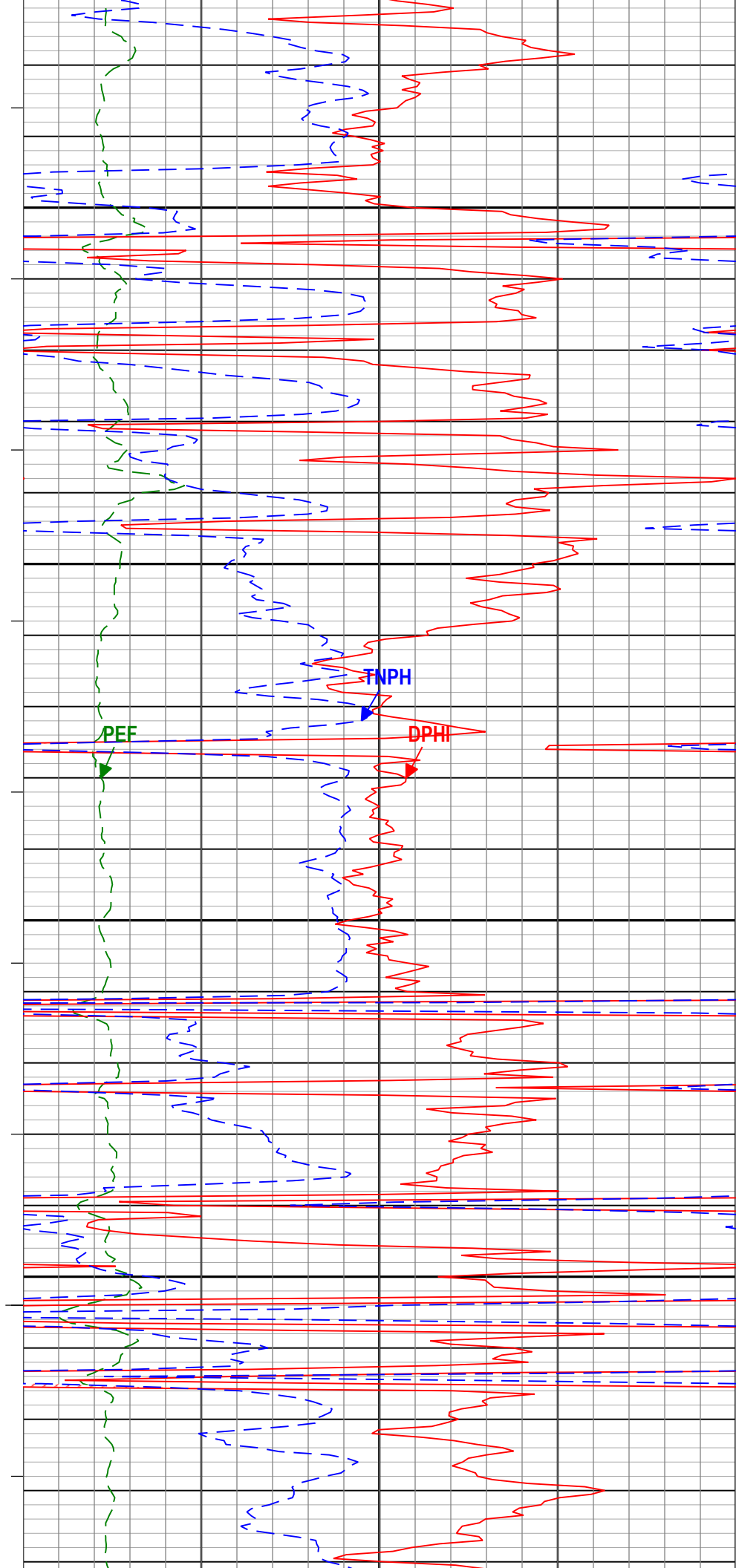
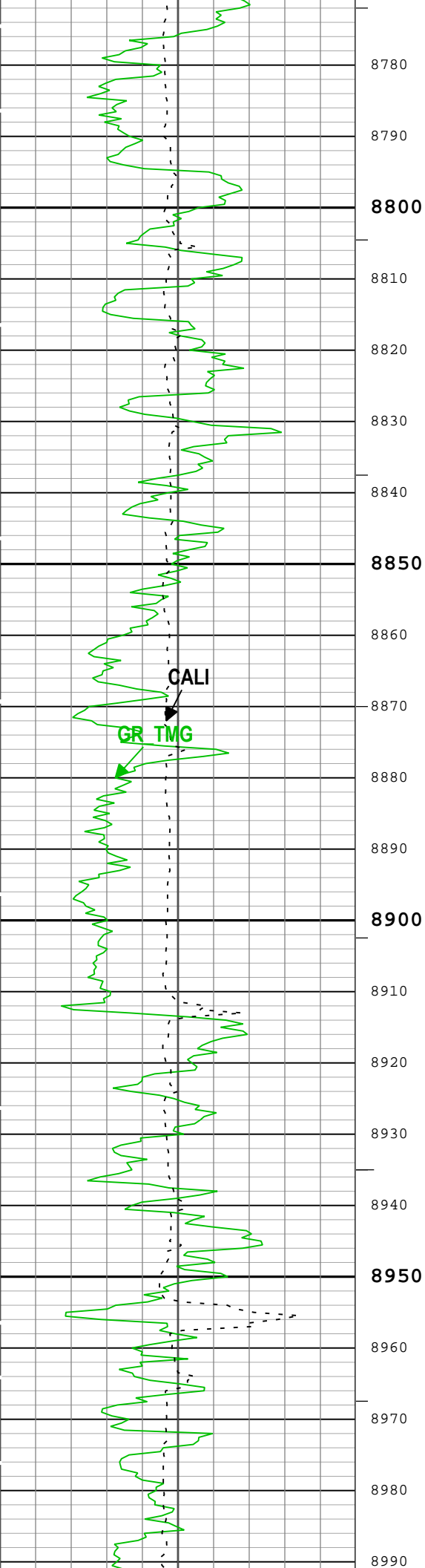


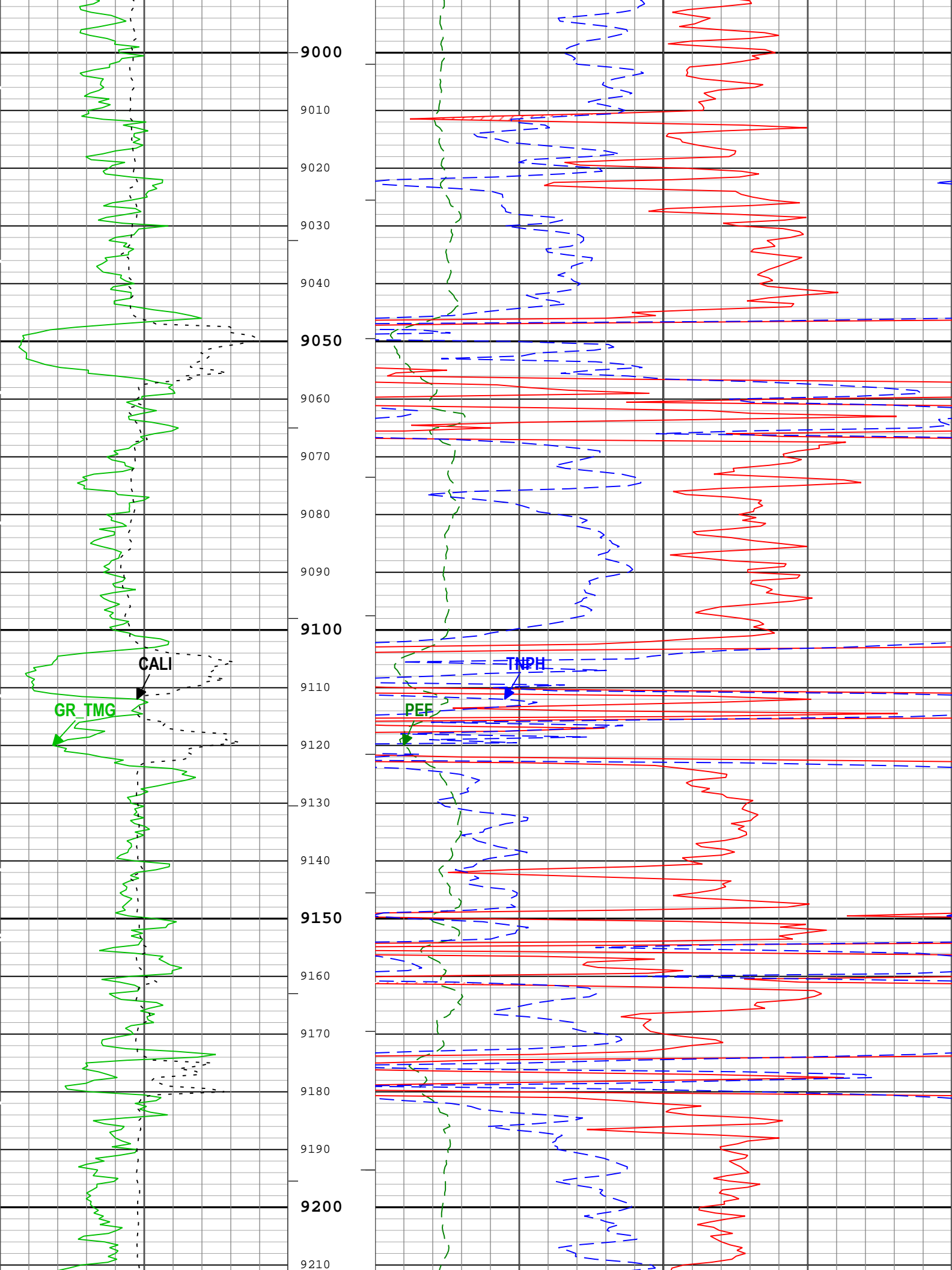


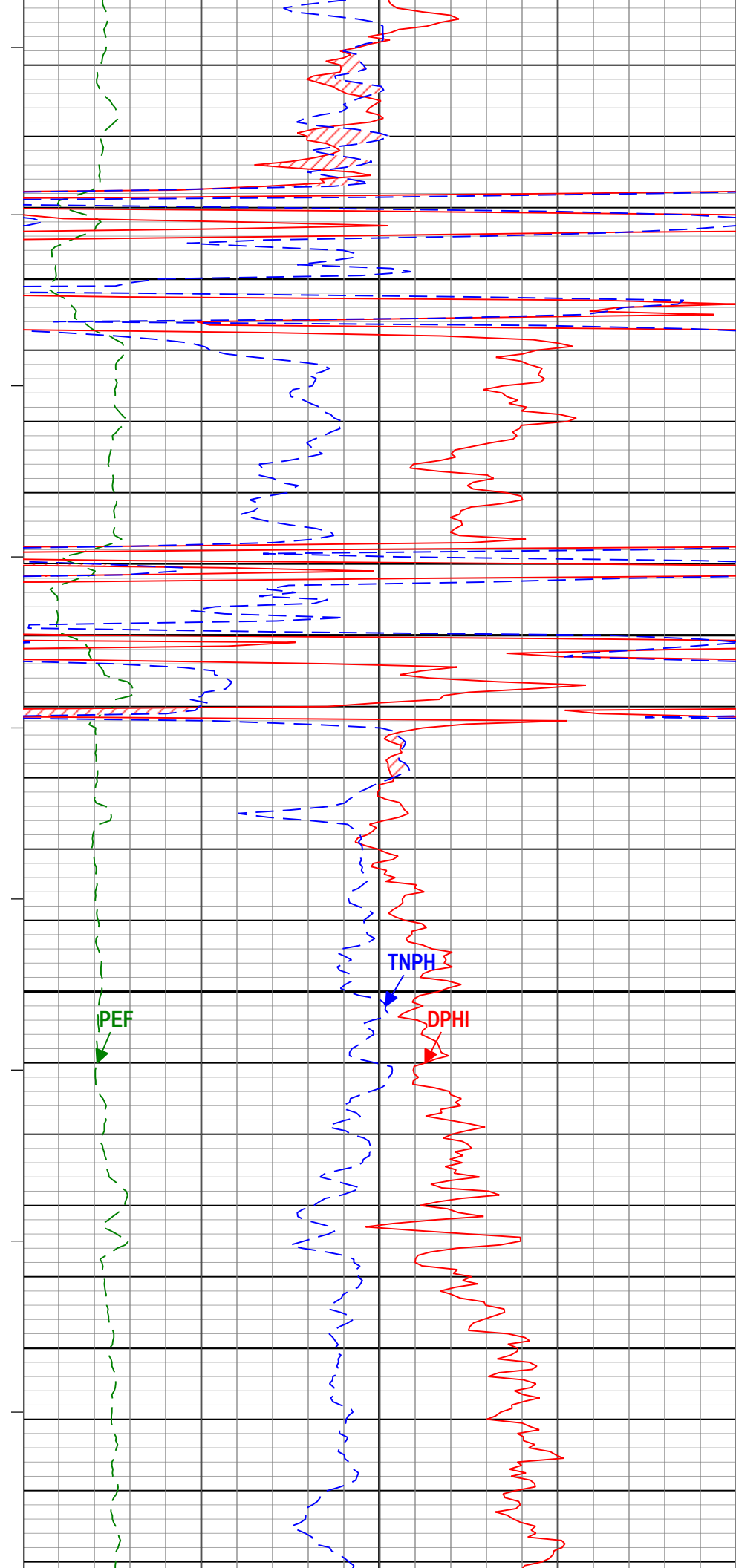
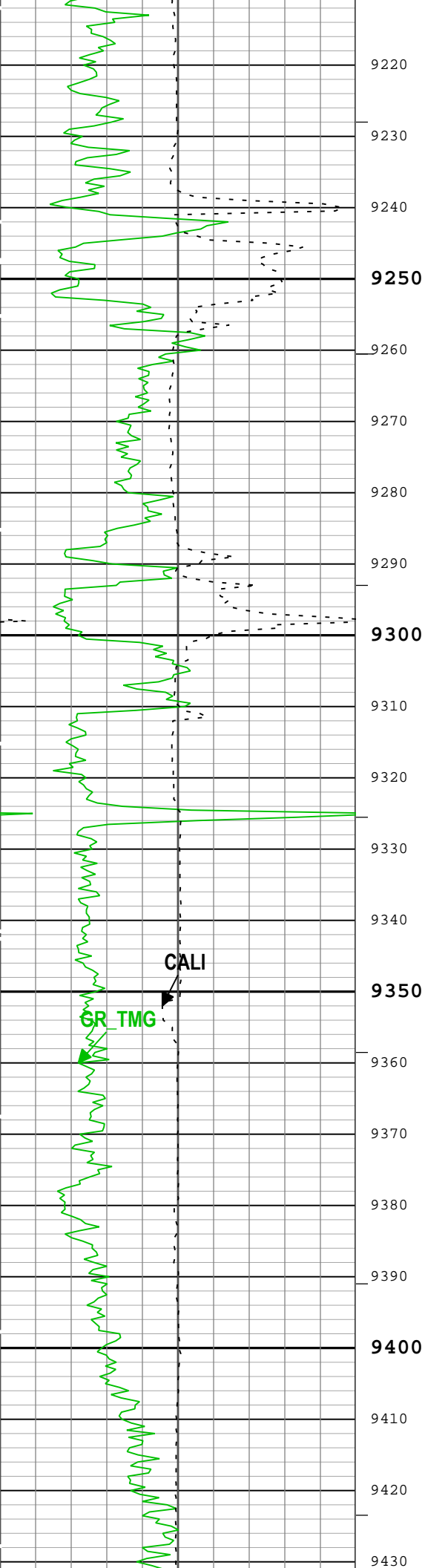


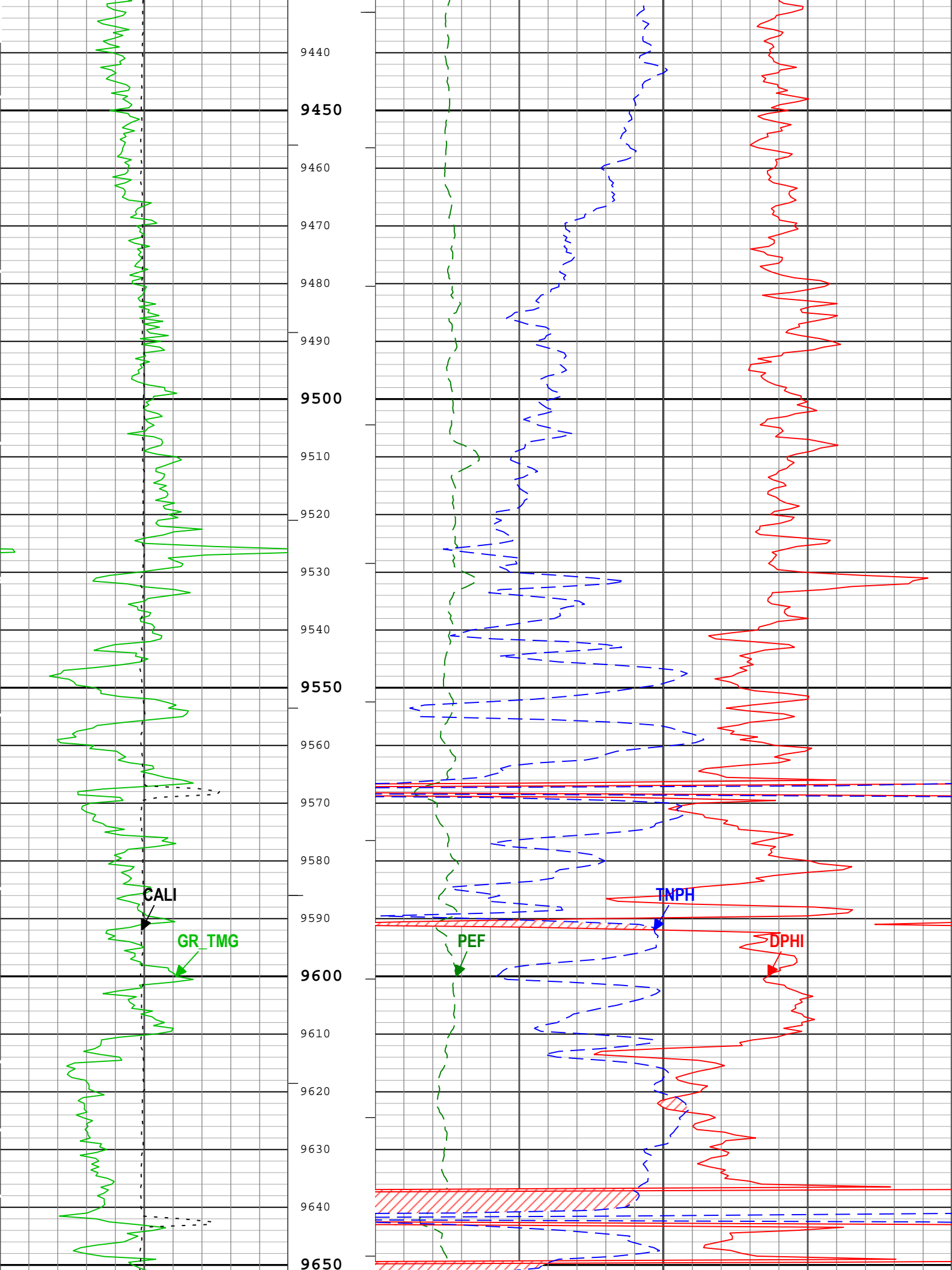


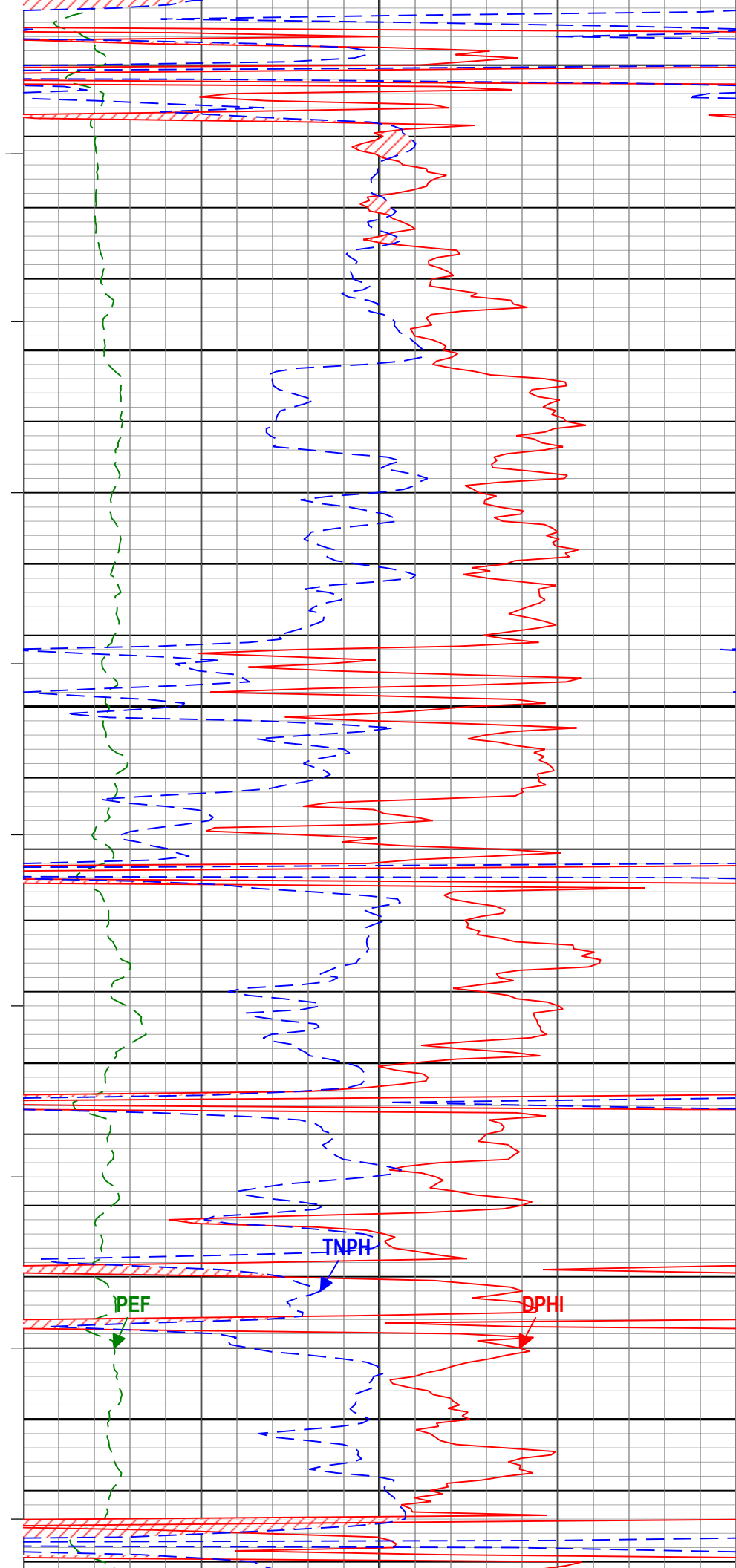
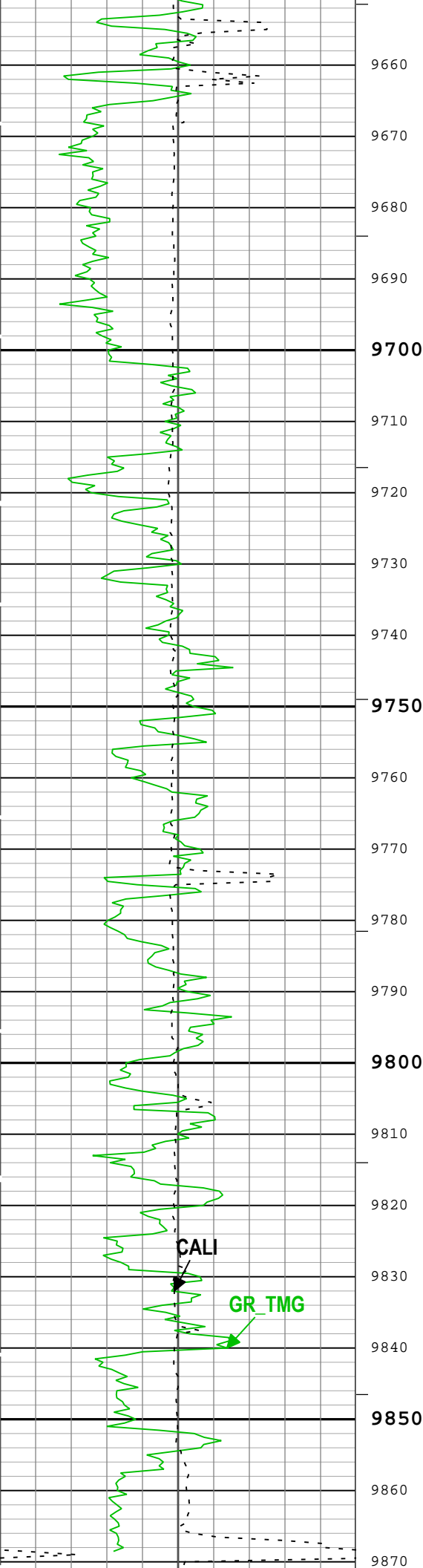


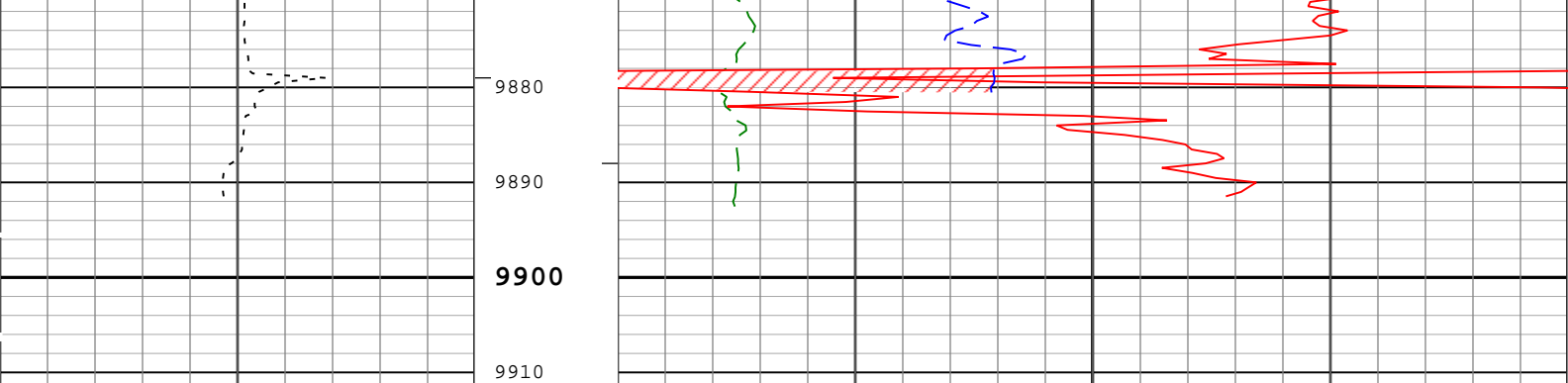












Calibrated Gamma Ray (GR_TMG) TMG-A RM		
0	gAPI	200
Caliper (CALI) TBD-B RM		
4	in	14

Cable Tension (TENS)
0 lbf 5000

Gas Effect		
Density Porosity (DPHI) TBD-B RM		
0.3	ft3/ft3	-0.1
Thermal Neutron Porosity (Ratio Method) in Selected Lithology (TNPH) TBN-B RM		
0.3	ft3/ft3	-0.1
Photoelectric Factor (PEF) TBD-B RM		
0		10

TIME_1900 - Time Marked every 60.00 (s)

— ICV_RM - Integrated Cement Volume every 100.00 (ft3)

— ICV_RM - Integrated Cement Volume every 10.00 (ft3)

— IHV_RM - Integrated Hole Volume every 100.00 (ft3)

— IHV_RM - Integrated Hole Volume every 10.00 (ft3)

Description: ThruBit_Nuclear_RM Format: Log (ThruBit_Nuclear_RM) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 21-May-2019 17:08:14

Channel Processing Parameters				
ThruBit: Parameters				
Parameter	Description	Tool	Value	Unit
BHS	Borehole Status (Open or Cased Hole)	Borehole	Open	
BS	Bit Size	WLSESSION	Depth Zoned	in
BSAL	Borehole Salinity	Borehole	600	ppm
BSCO	Borehole Salinity Correction Option	TBN-B	No	
CALI_SHIFT	CALI Supplementary Offset	TBD-B	-0.379	in
CBLO	Casing Bottom (Logger)	WLSESSION	2568	ft
CQCO	Cement Quality Correction Option	TBN-B	No	
CSAL	Cement Salinity	TBN-B	0	ppm
CSCOR	Cement Salinity Correction Option	TBN-B	No	
CSODDRL	Casing Outer Diameter - Zoned along driller depths	WLSESSION	9.625	in
DC_MODE	Depth Correction Mode	DepthCorrection	Real-time	
DFD	Drilling Fluid Density	Borehole	8.8	lbm/gal
DFT_CATEGORY	Drilling Fluid Type	Borehole	Water	
DHC	Density Hole Correction	TBD-B	Bit Size	
ECCO	Eccentricity Coorection Option	TBN-B	No	
FCD	Future Casing (Outer) Diameter	WLSESSION	4.5	in
FD	Fluid Density	Borehole	1	g/cm3
FSAL	Formation Salinity	Borehole	0	ppm
FSCO	Formation Salinity Correction Option	TBN-B	No	
HSCOT	Hole Size Correction Option (None, Bit Size, Density Caliper, GCSE)	TBN-B	GCSE	
TBN_WPRE	Well Pressure for Horizontal Section	TBN-B	0	psi

MATR	Rock Matrix for Neutron Porosity Corrections	Borehole	SANDSTONE	
MDEN	Matrix Density for Density Porosity	Borehole	2.68	g/cm3
MWCO	Mud Weight Correction Option	TBN-B	No	
PTCO	Pressure Temperature Correction Option	TBN-B	No	
SOCN	Standoff Distance	TBN-B	0.125	in
SOCO	Standoff Correction Option	TBN-B	No	
TBD_SPIKE_REJECT	Spike Detection Option	TBD-B	Correct	
TBD_SPIKE_THRESHOLD	Attenuation Change Threshold for Spike Detection	TBD-B	5	%
TBN_ALGO	TBN Porosity Algorithm Option	TBN-B	Schmid_McKeon	

Depth Zone Parameters			
Parameter	Value	Start (ft)	Stop (ft)
BS	14.75	2550	2578
BS	8.75	2578	9911.5
All depth are actual.			

Tool Control Parameters	
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Company:	LARAMIE ENERGY LLC	Schlumberger
Well:	CC 0697-04-08E	
Field:	GRAND VALLEY	
County:	GARFIELD	
State:	Colorado	
ThruBit		
Nuclear		