

Company: LARAMIE ENERGY LLC

Well: CC 0697-04-08E

Field: GRAND VALLEY

County: GARFIELD State: Colorado

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

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

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
Fluid Loss	PH
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	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

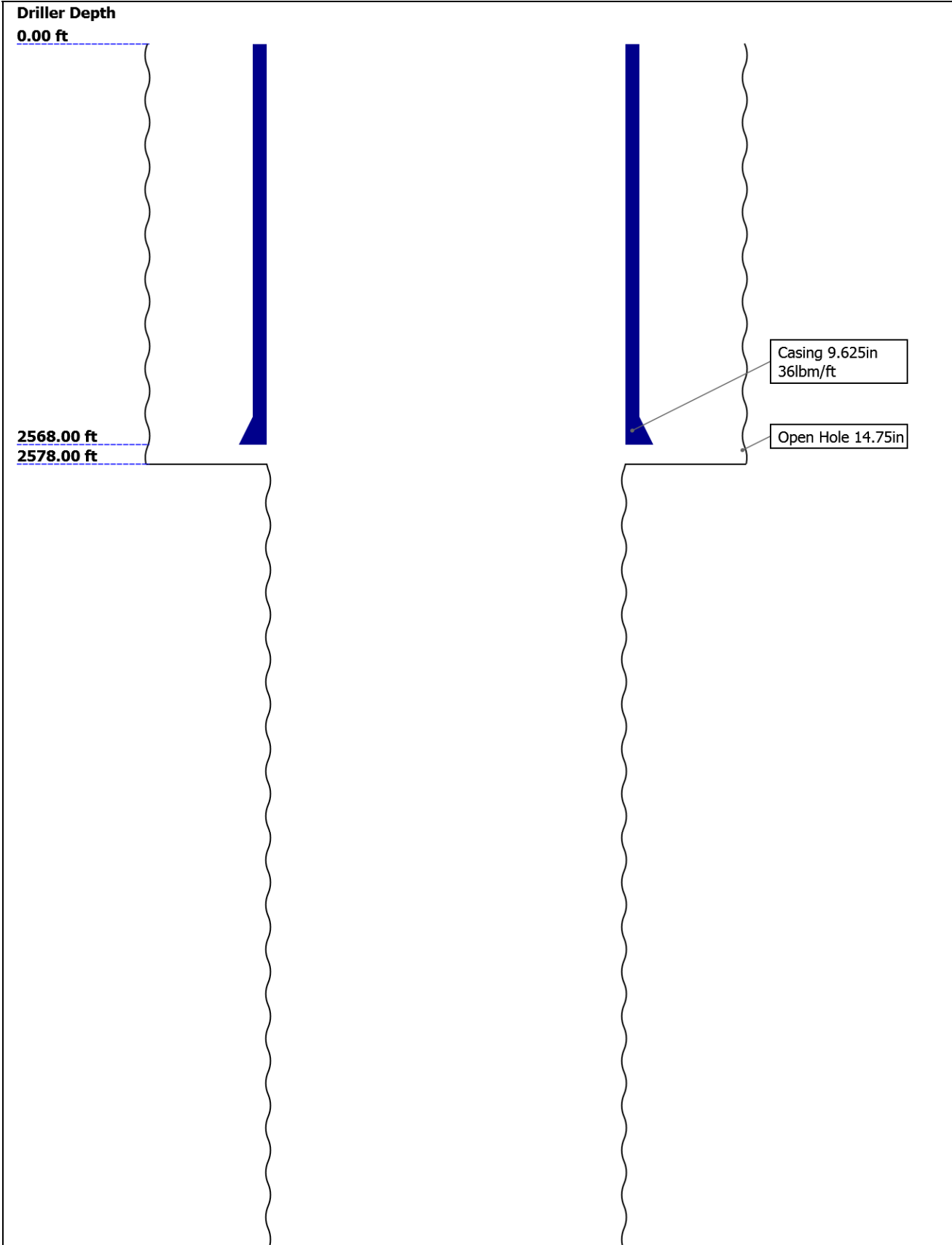
Disclaimer

THE USE OF AND RELIANCE UPON THIS RECORDED-DATA BY THE HEREIN NAMED COMPANY (AND ANY OF ITS AFFILIATES, PARTNERS, REPRESENTATIVES, AGENTS, CONSULTANTS AND EMPLOYEES) IS SUBJECT TO THE TERMS AND CONDITIONS AGREED UPON BETWEEN SCHLUMBERGER AND THE COMPANY, INCLUDING: (a) RESTRICTIONS ON USE OF THE RECORDED-DATA; (b) DISCLAIMERS AND WAIVERS OF WARRANTIES AND REPRESENTATIONS REGARDING COMPANY'S USE AND RELIANCE UPON THE RECORDED-DATA; AND (c) CUSTOMER'S FULL AND SOLE RESPONSIBILITY FOR ANY INFERENCE DRAWN OR DECISION MADE IN CONNECTION WITH THE USE OF THIS RECORDED-DATA.

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_TCOM_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

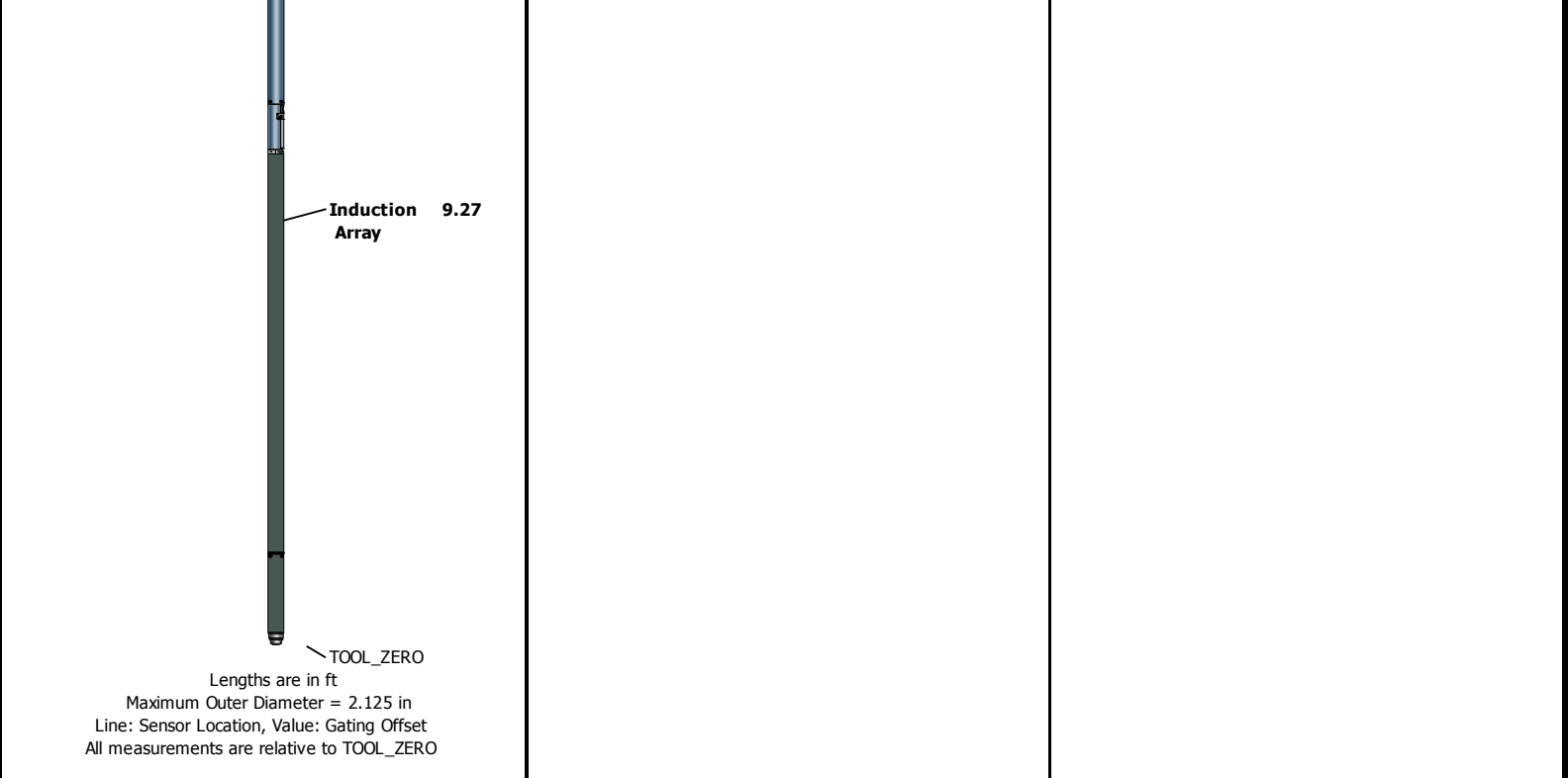
TBD-B:43 28.59
TBD-B:43
GGLS-FZ:3398

Density Log 20.07
Caliper 19.94
Density Sensor 19.68

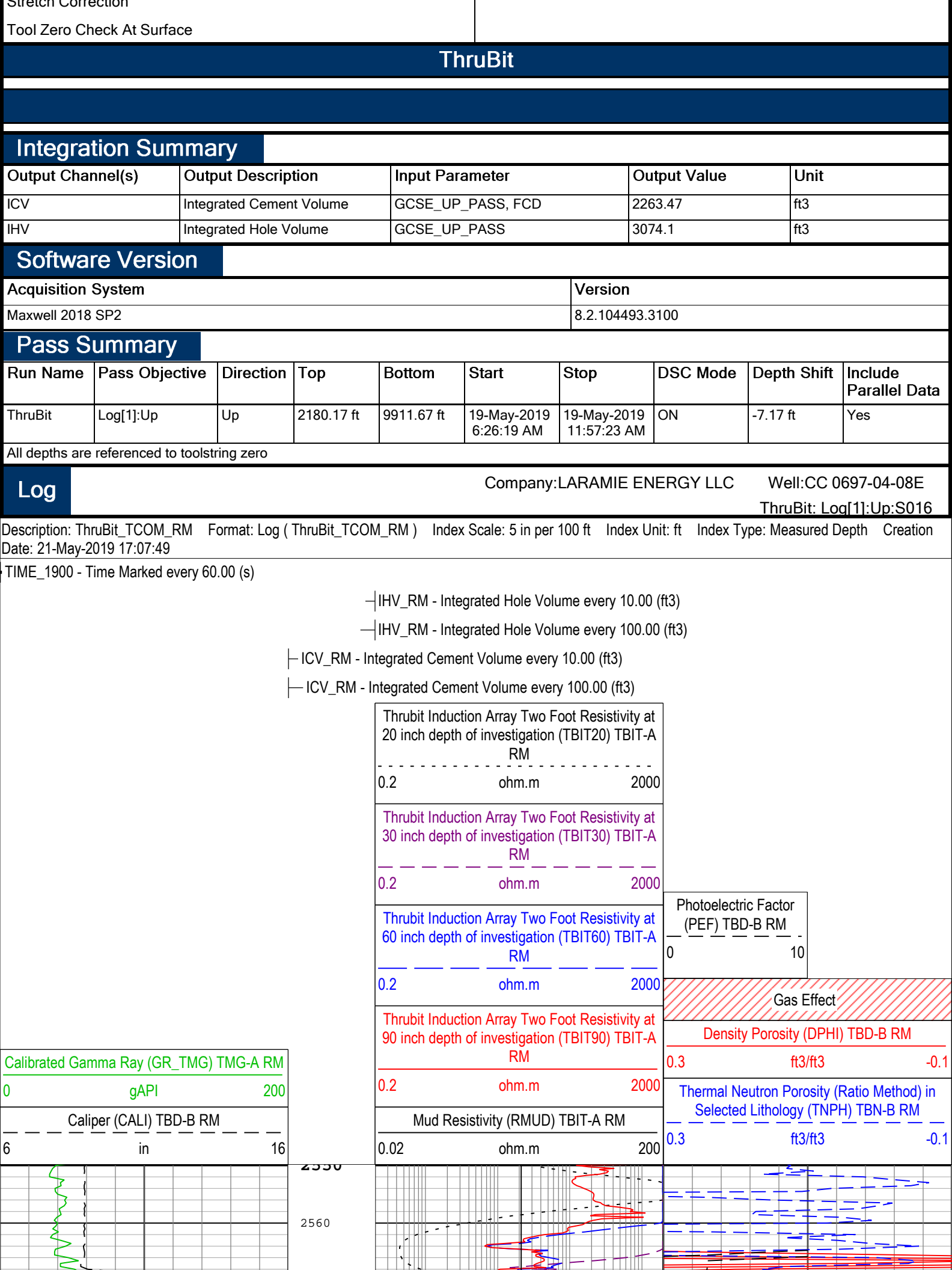
KAH-TB[2] 18.11

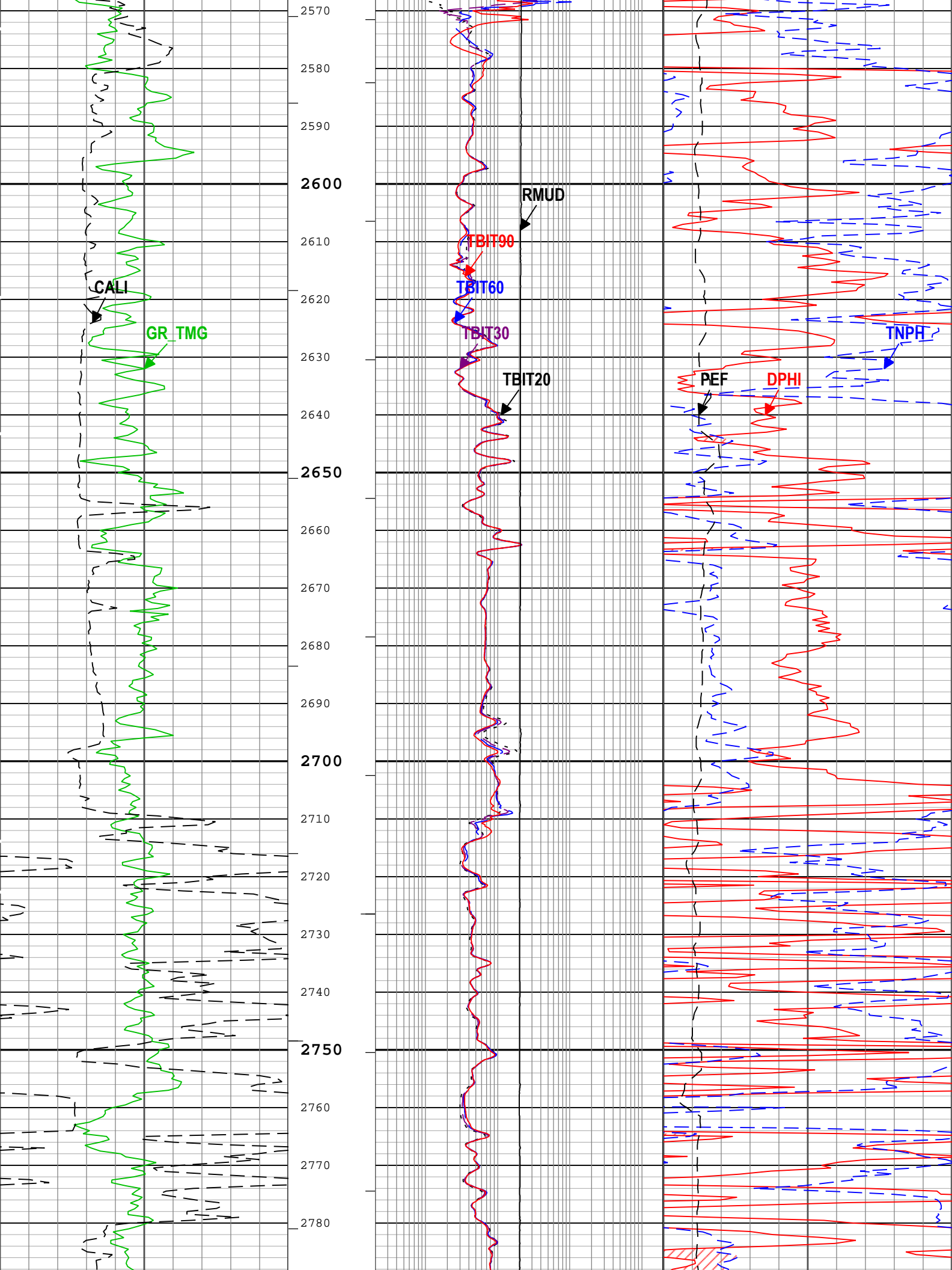
KAH-TB[1] 16.7

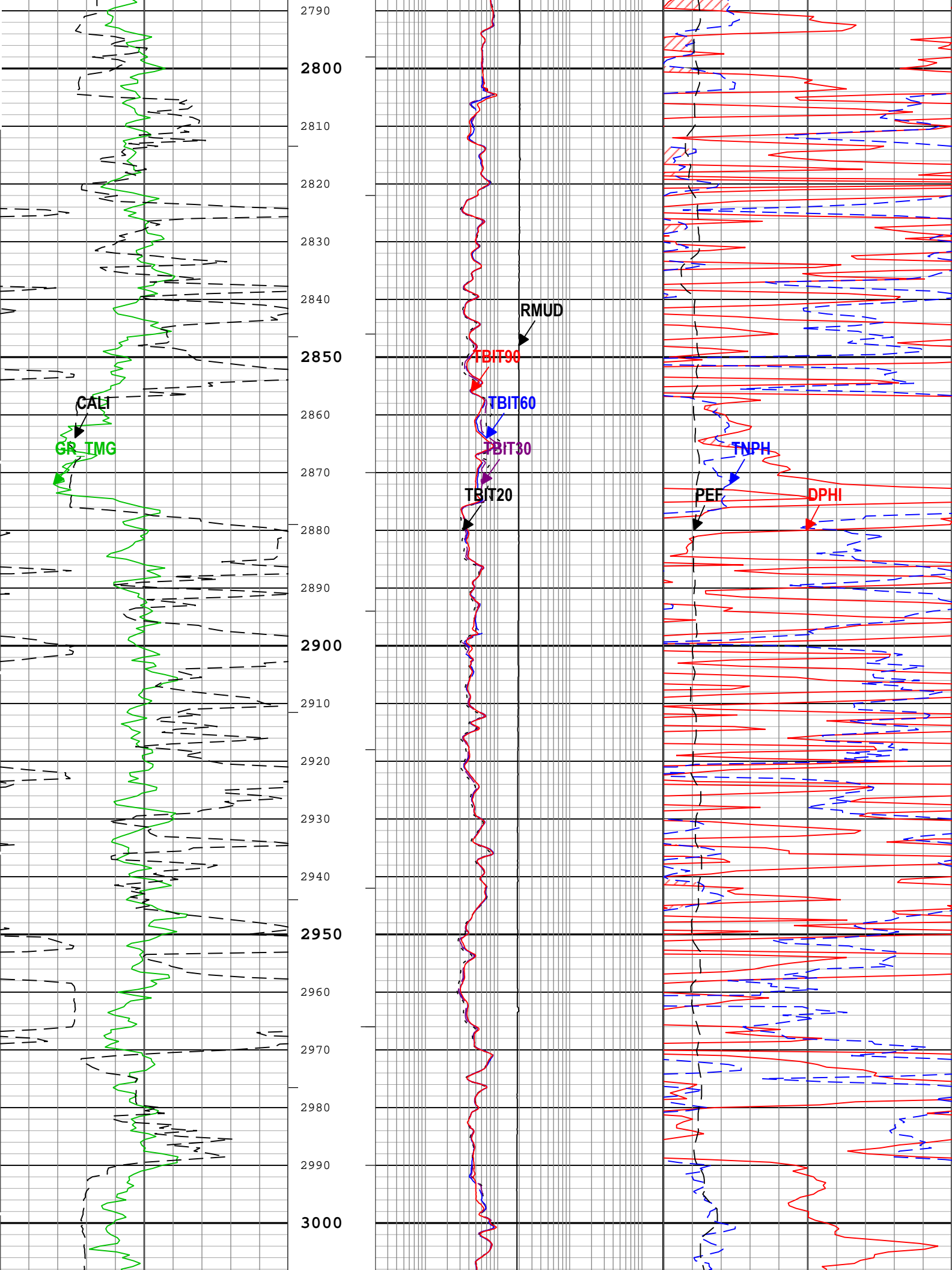
TBIT-A:47 15.28
TBIT-A:47

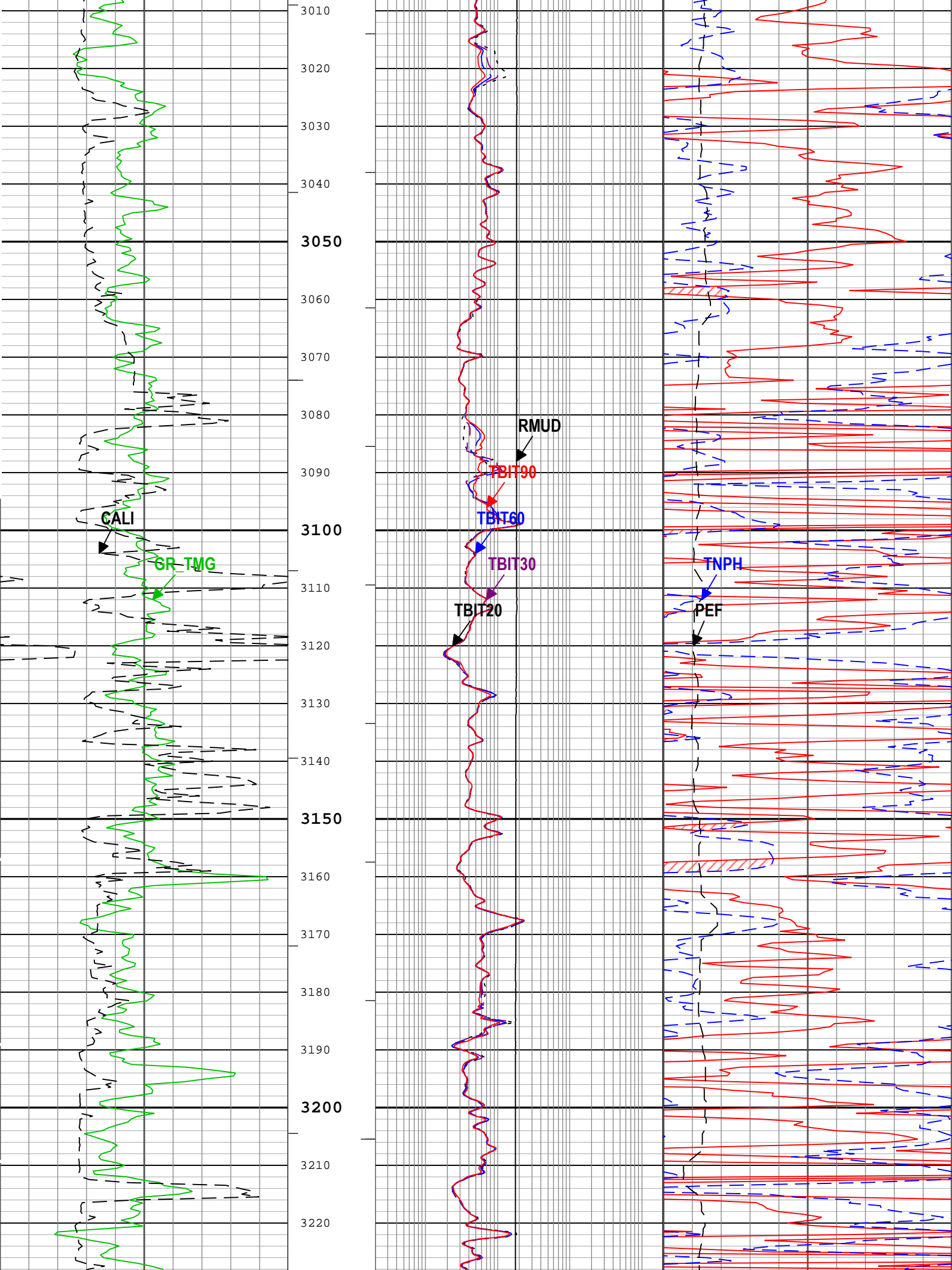


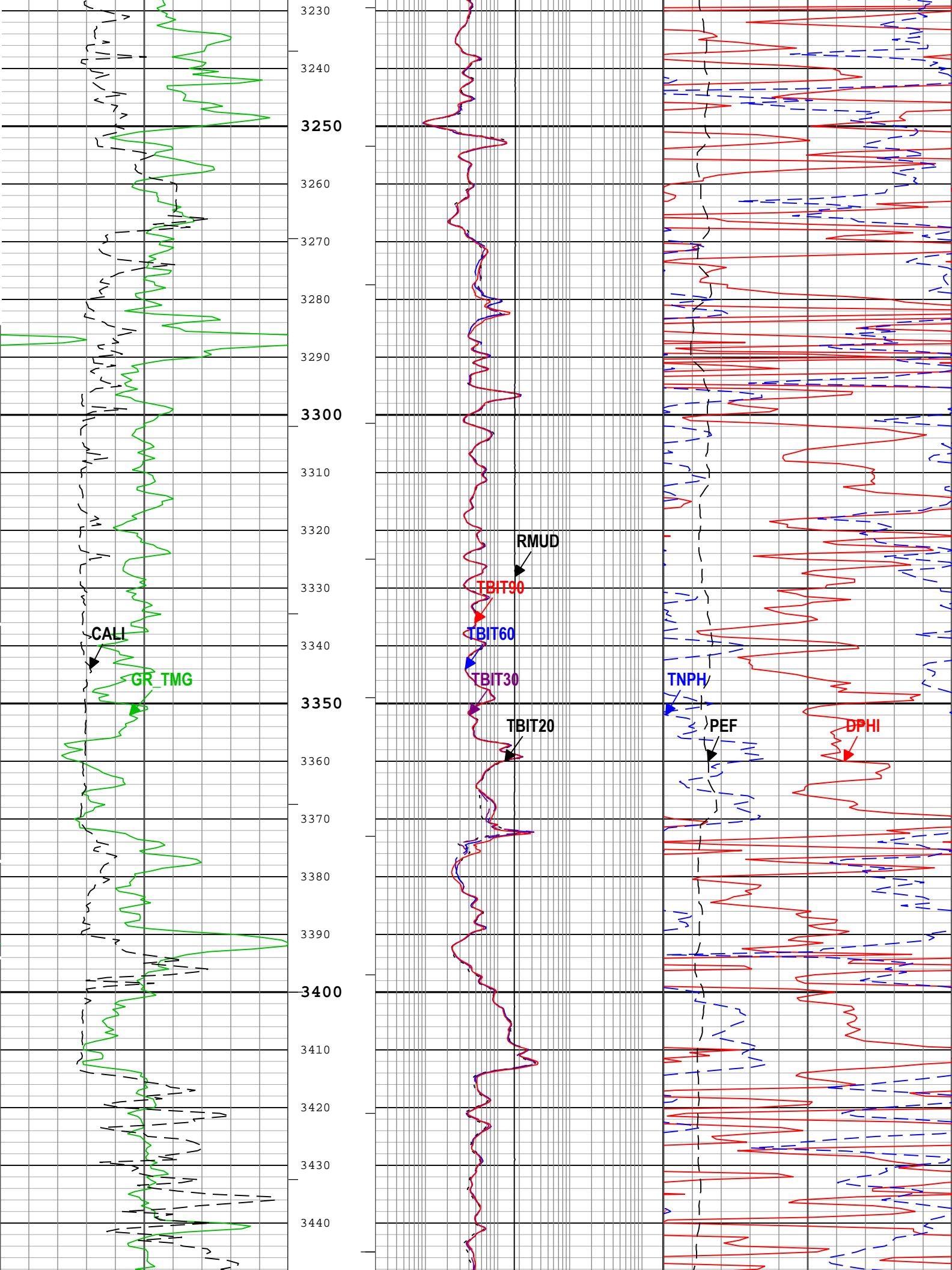
Depth Summary			
	ThruBit		
Depth Measuring Device			
Type	IDW-B		
Serial Number			
Calibration Date			
Calibrator Serial Number			
Calibration Cable Type			
Wheel Correction 1	0		
Wheel Correction 2	0		
Tension Device			
Type	CMTD-B/A		
Serial Number			
Calibration Date			
Calibrator Serial Number			
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			

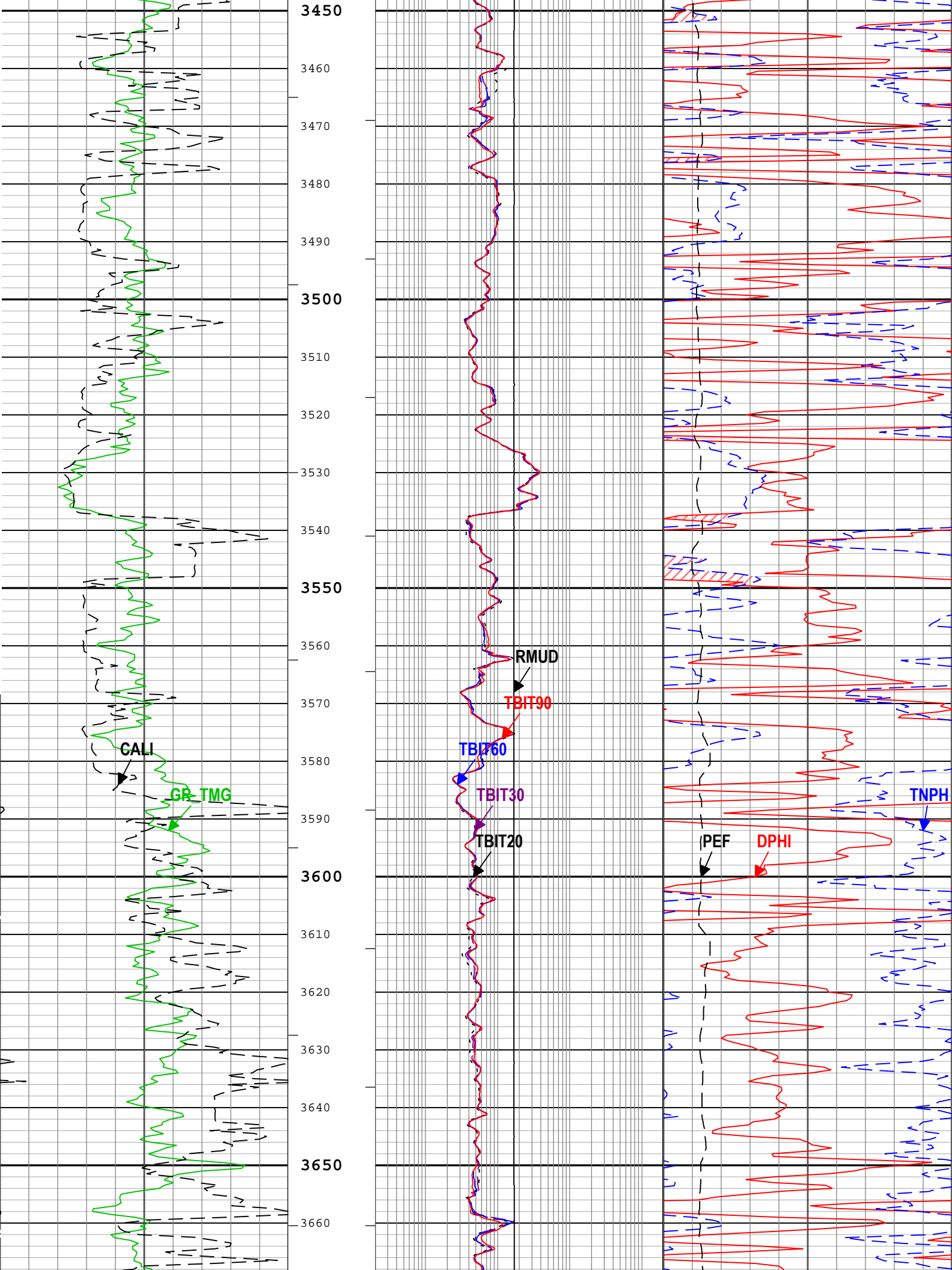


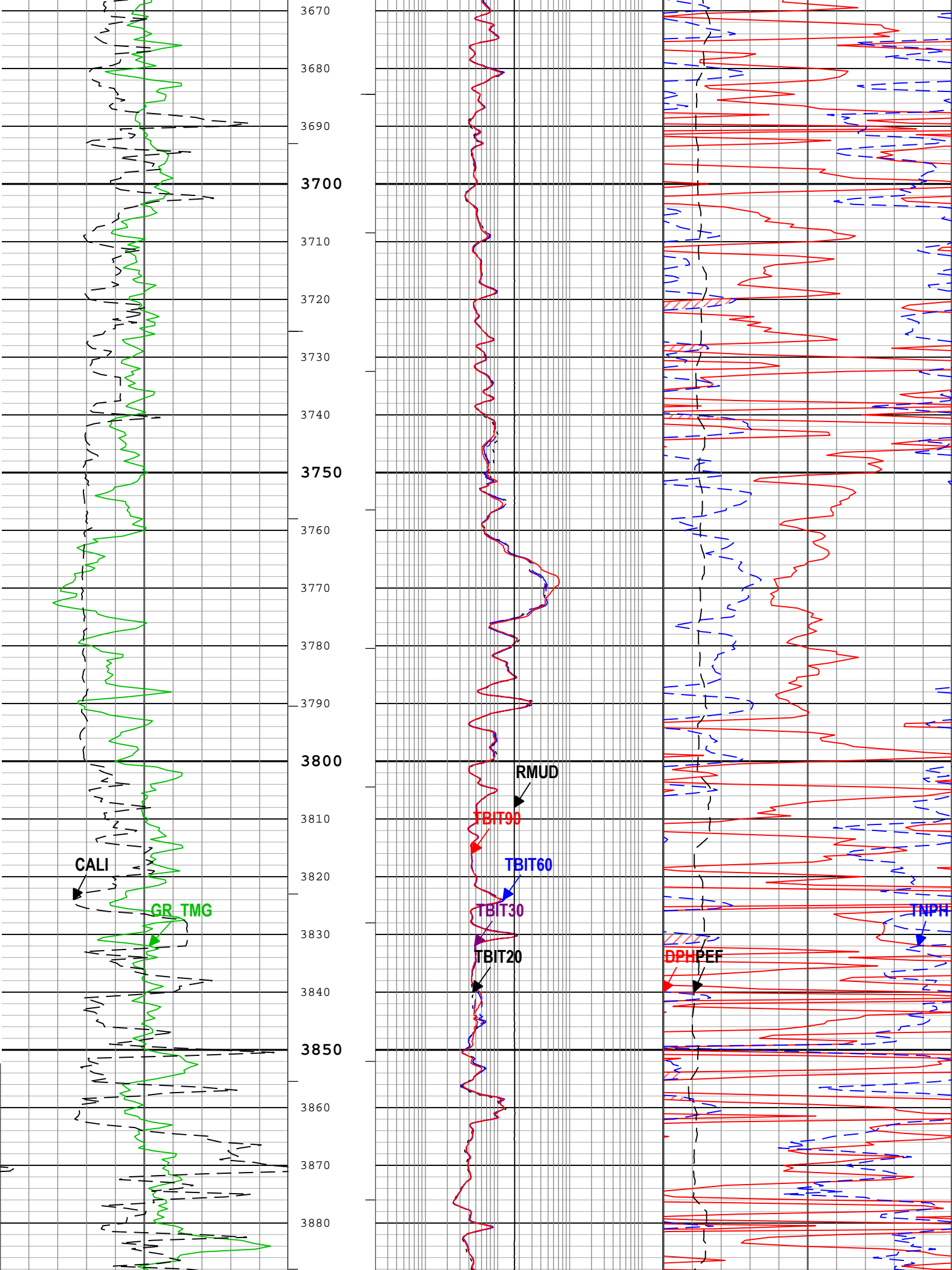


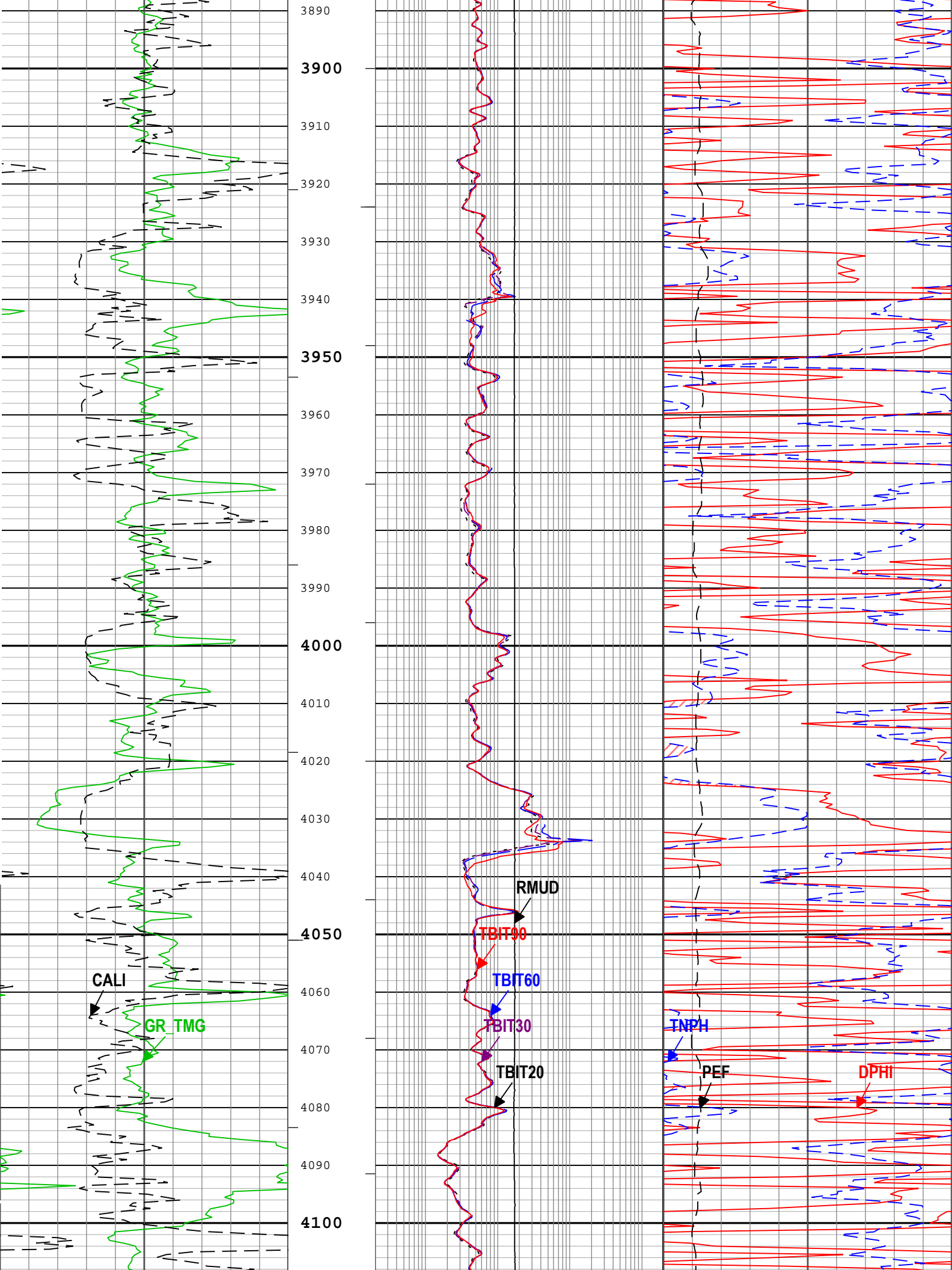


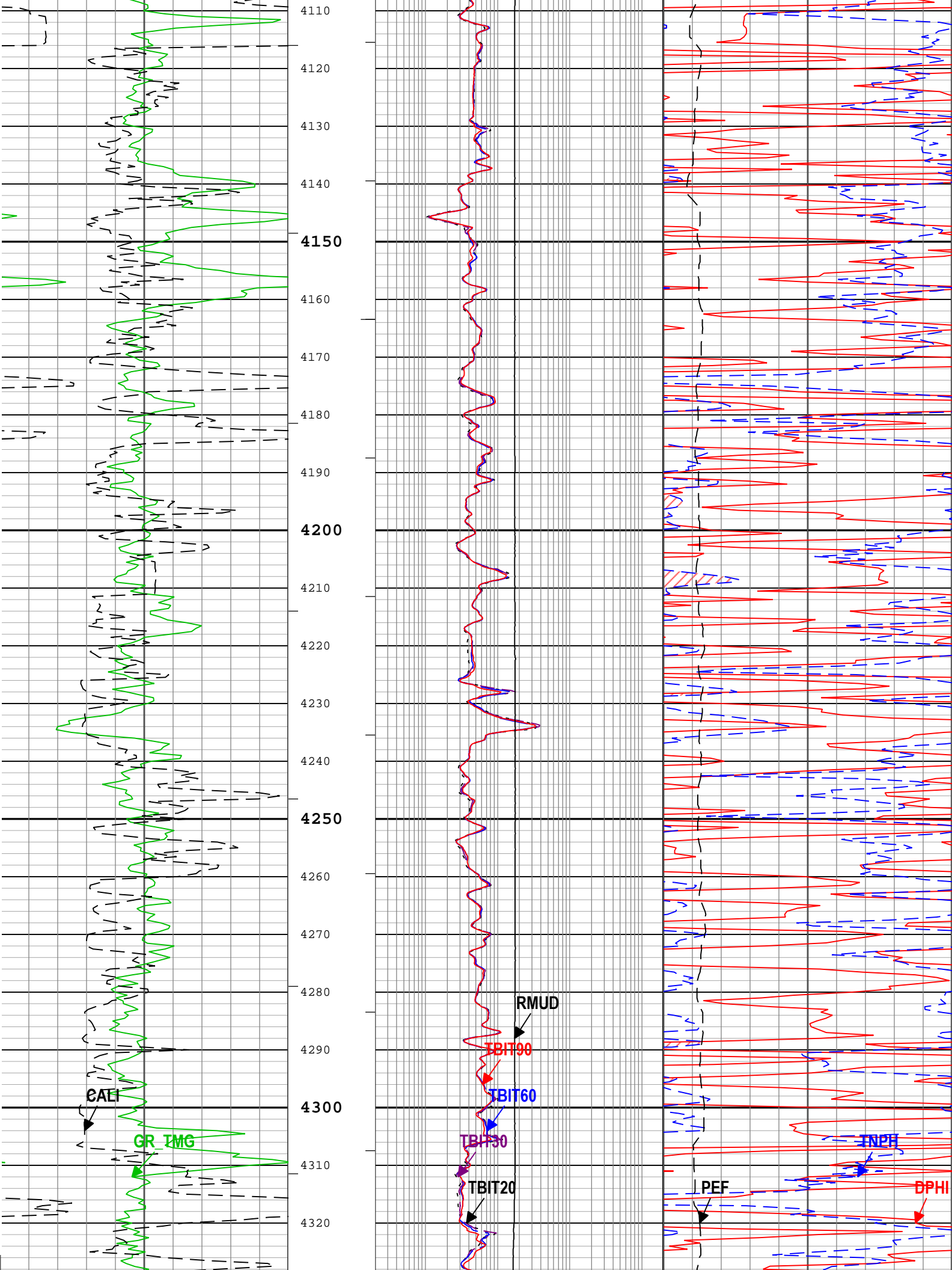


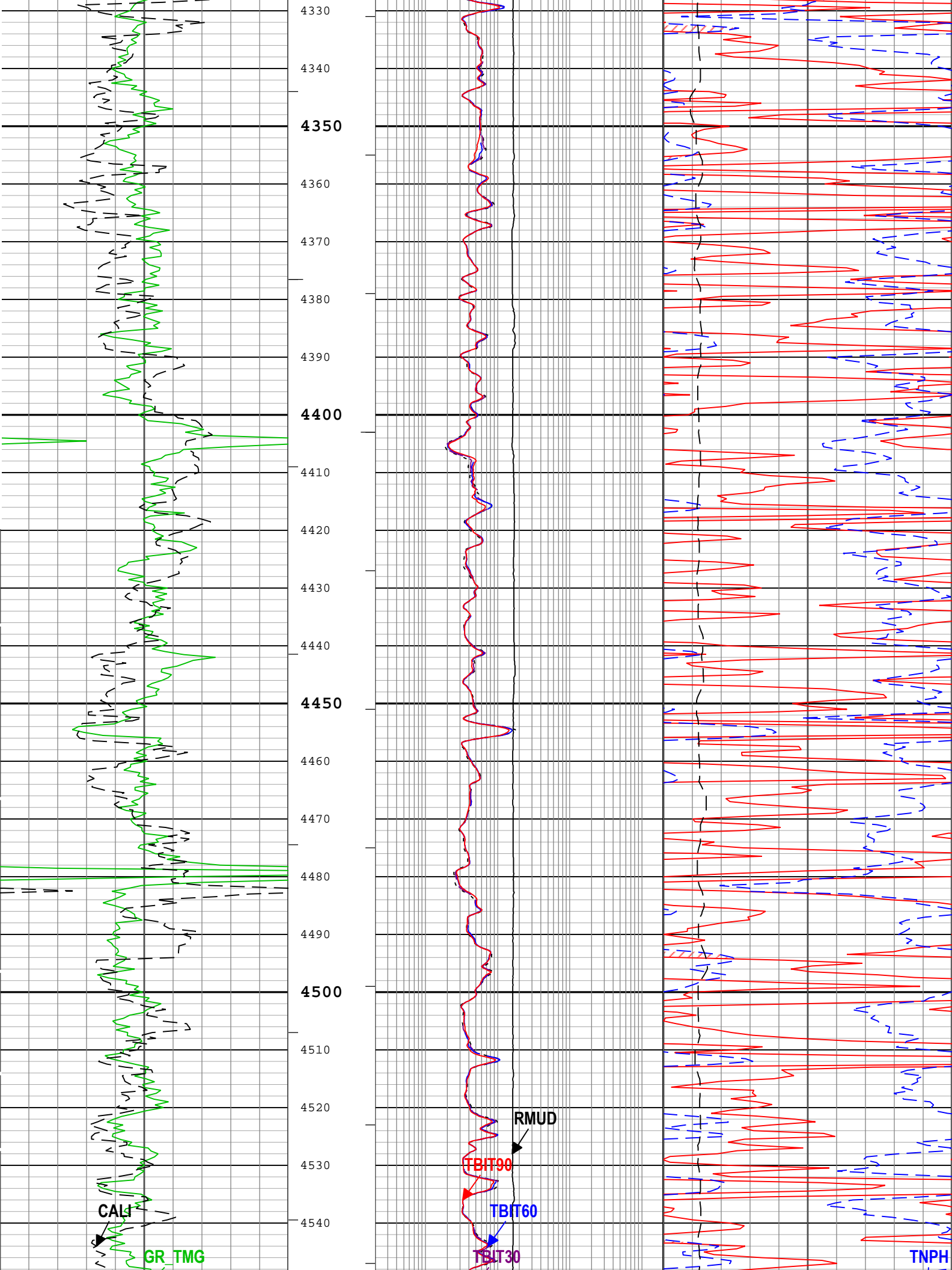


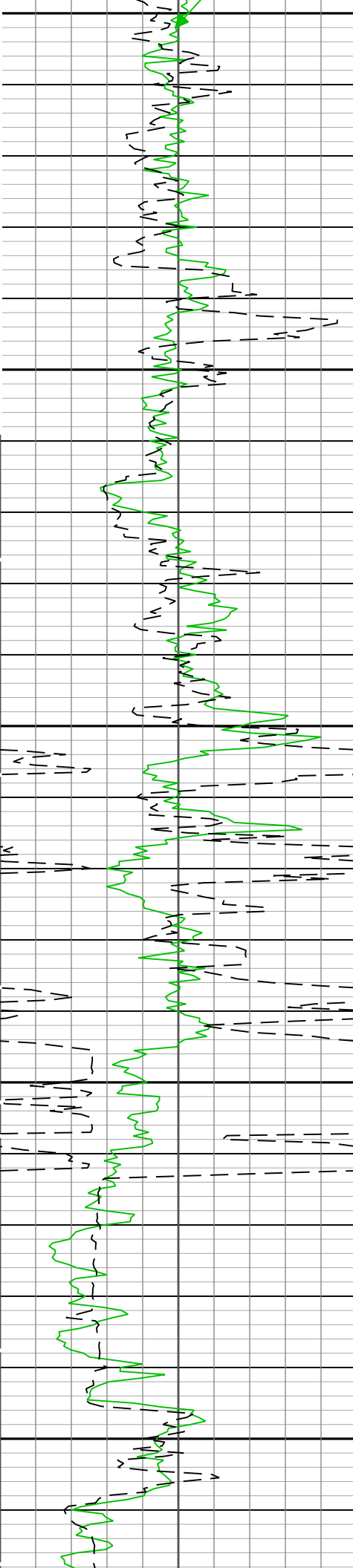




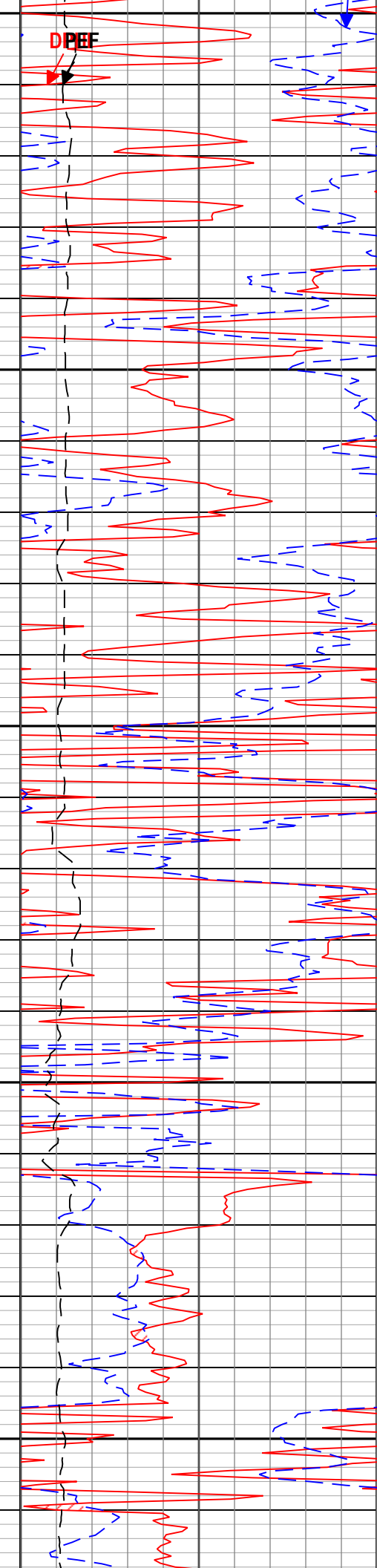
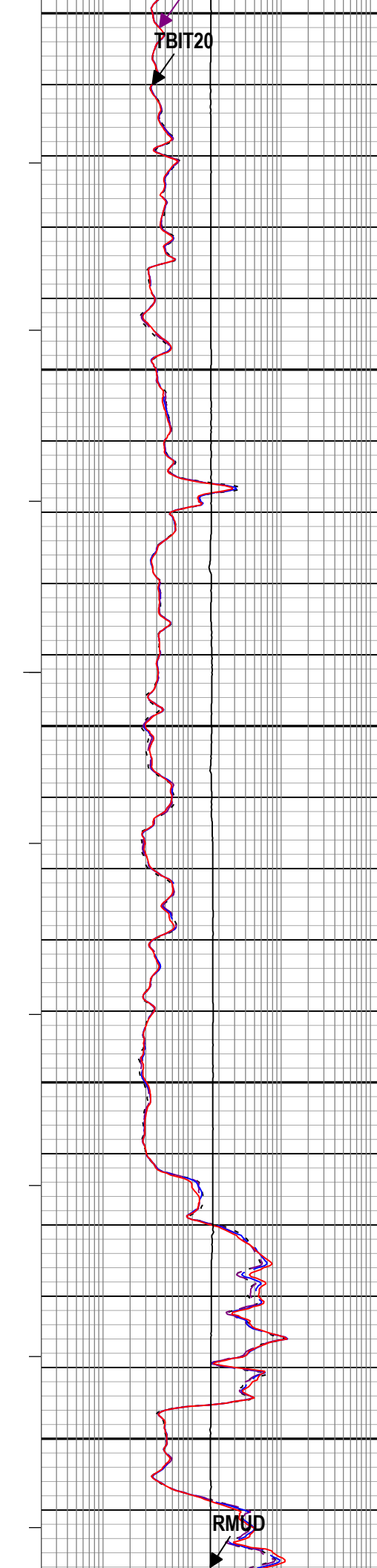


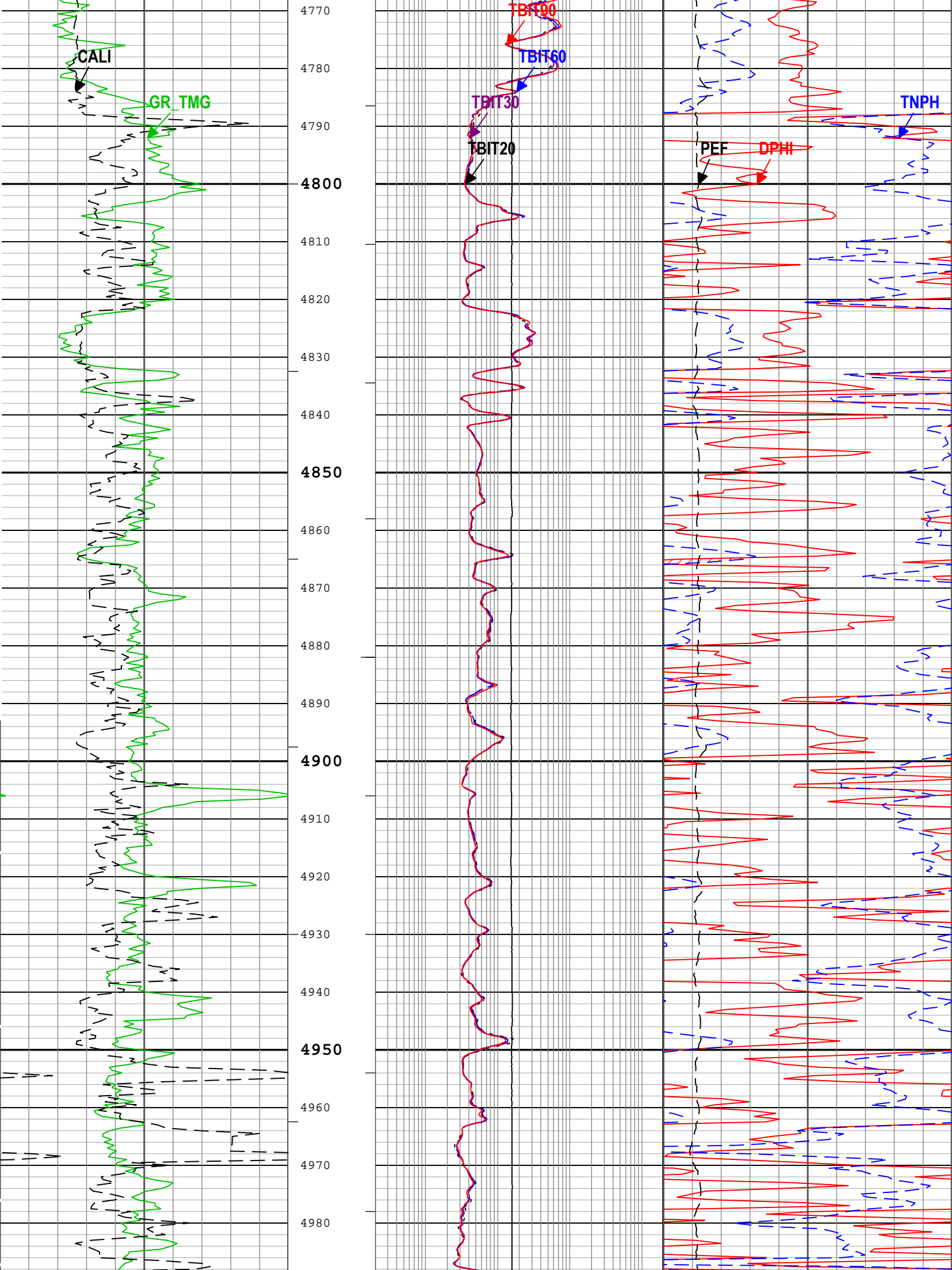


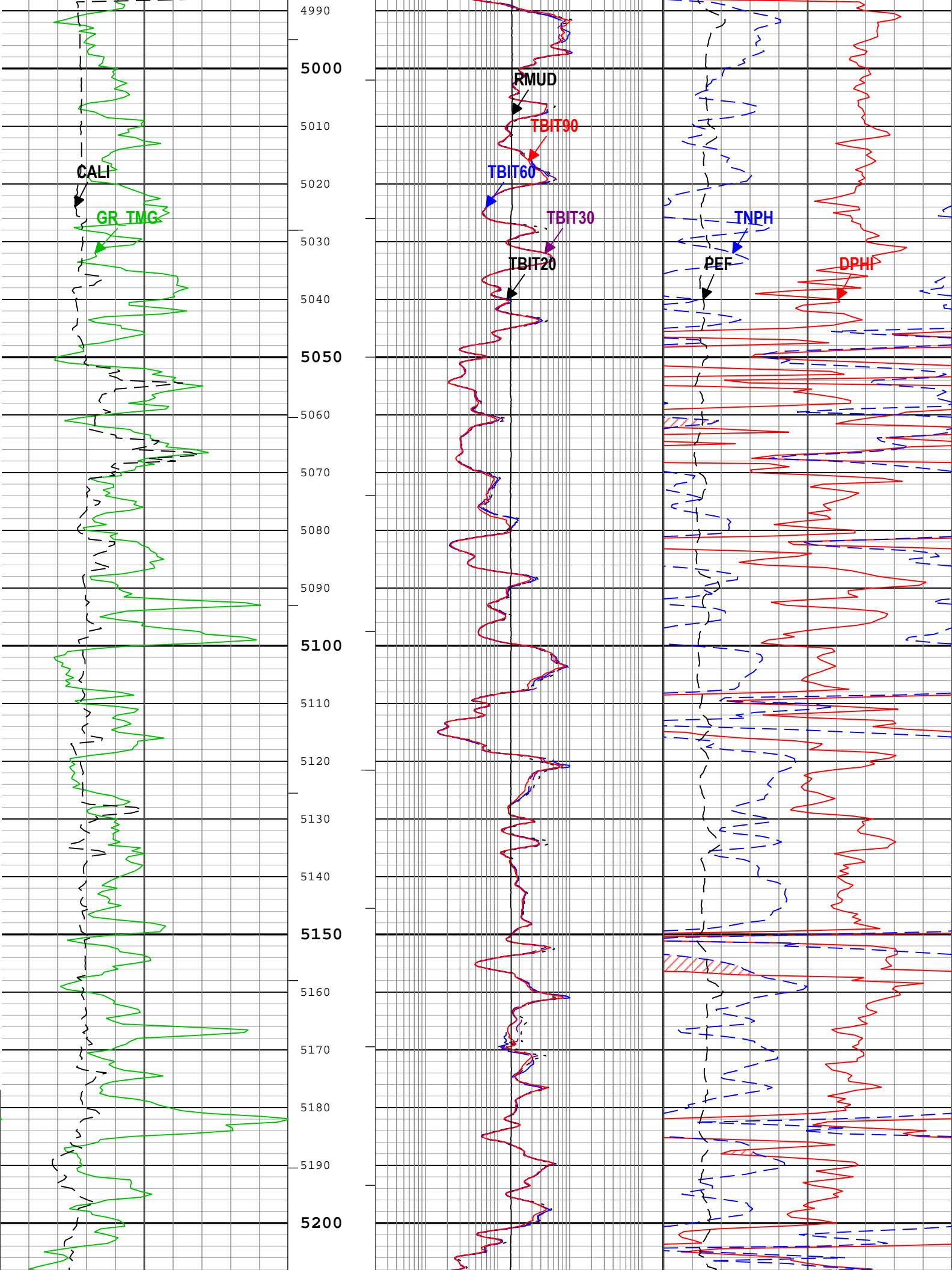


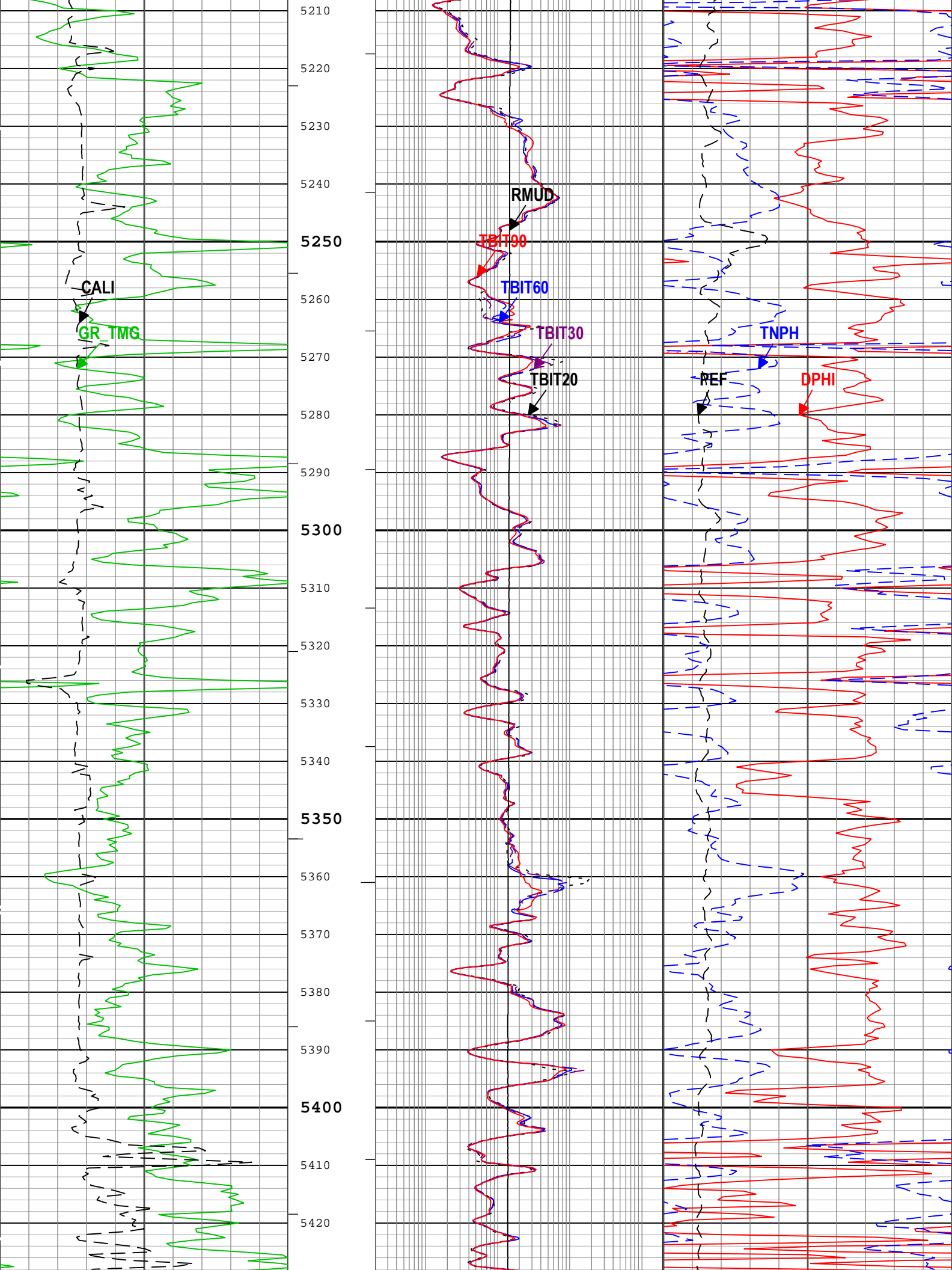


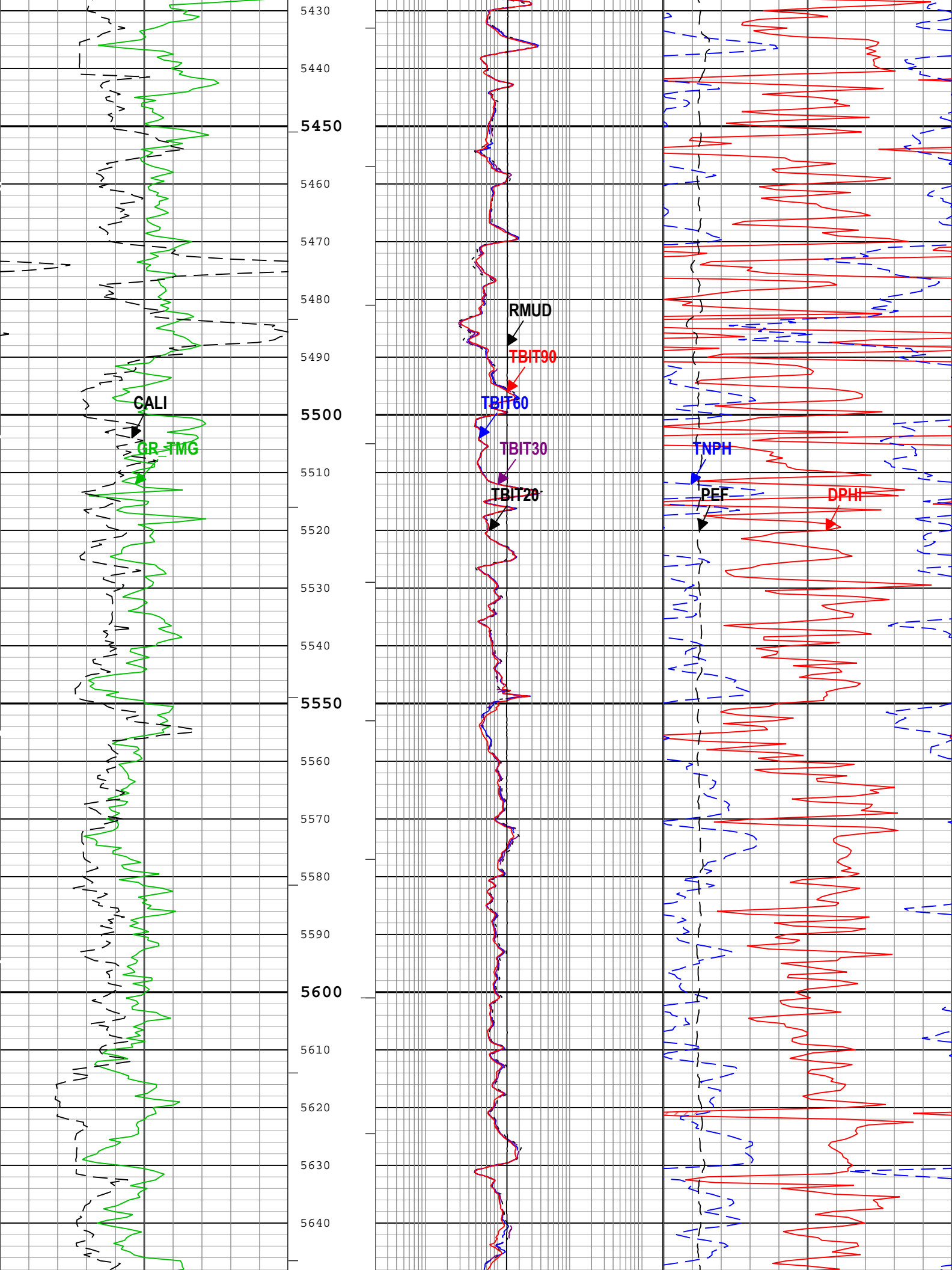
4550
4560
4570
4580
4590
4600
4610
4620
4630
4640
4650
4660
4670
4680
4690
4700
4710
4720
4730
4740
4750
4760

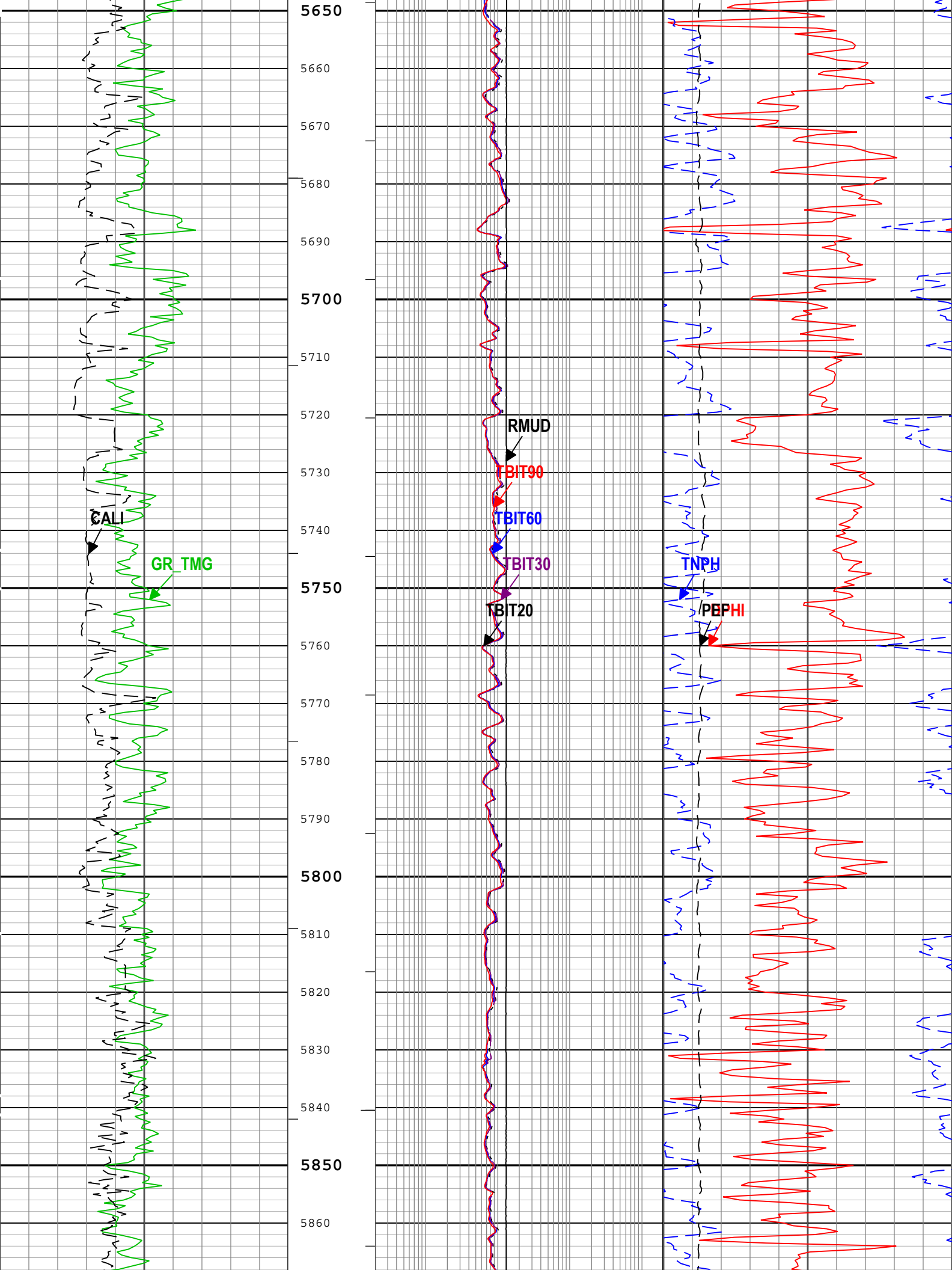


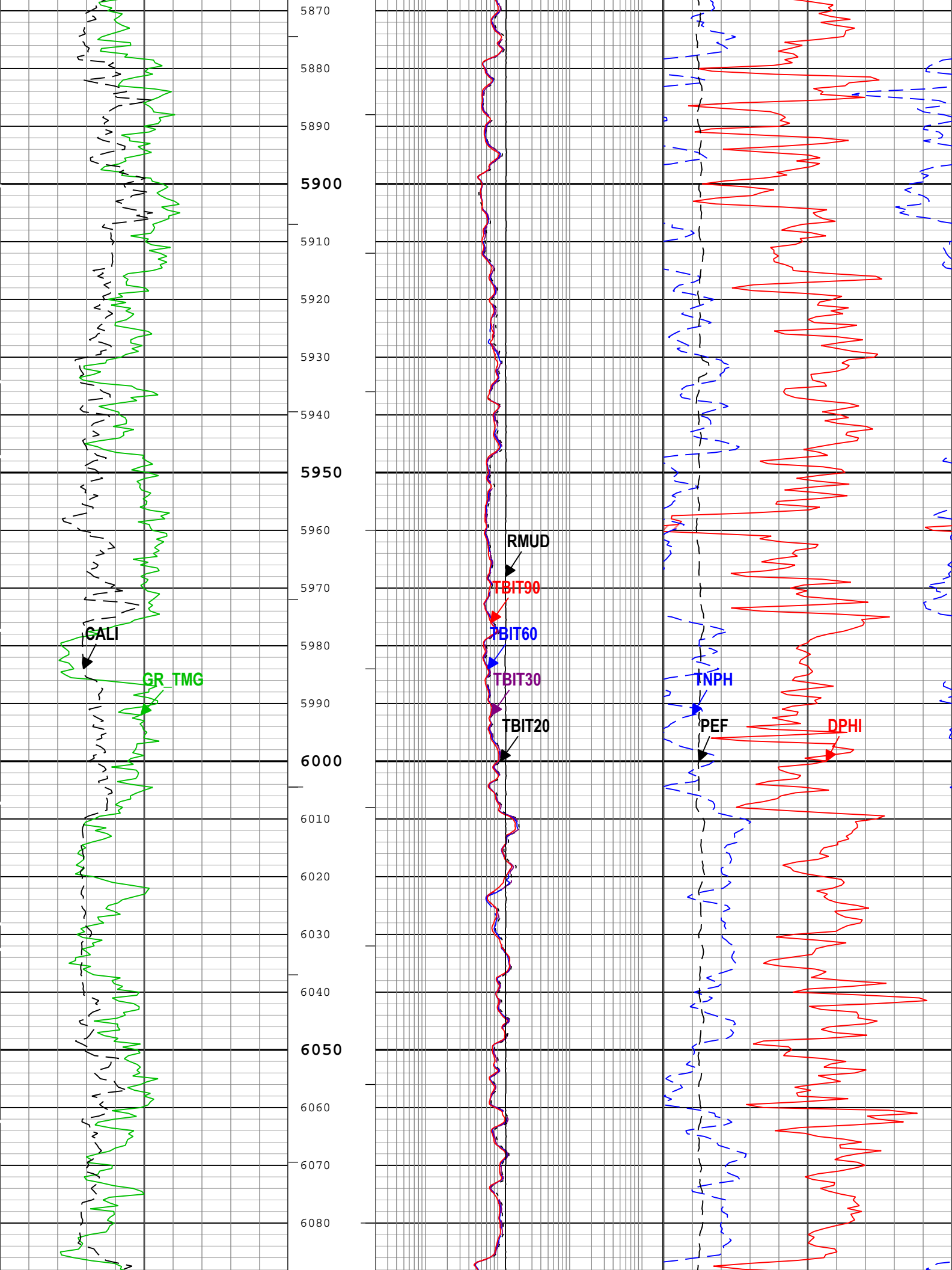


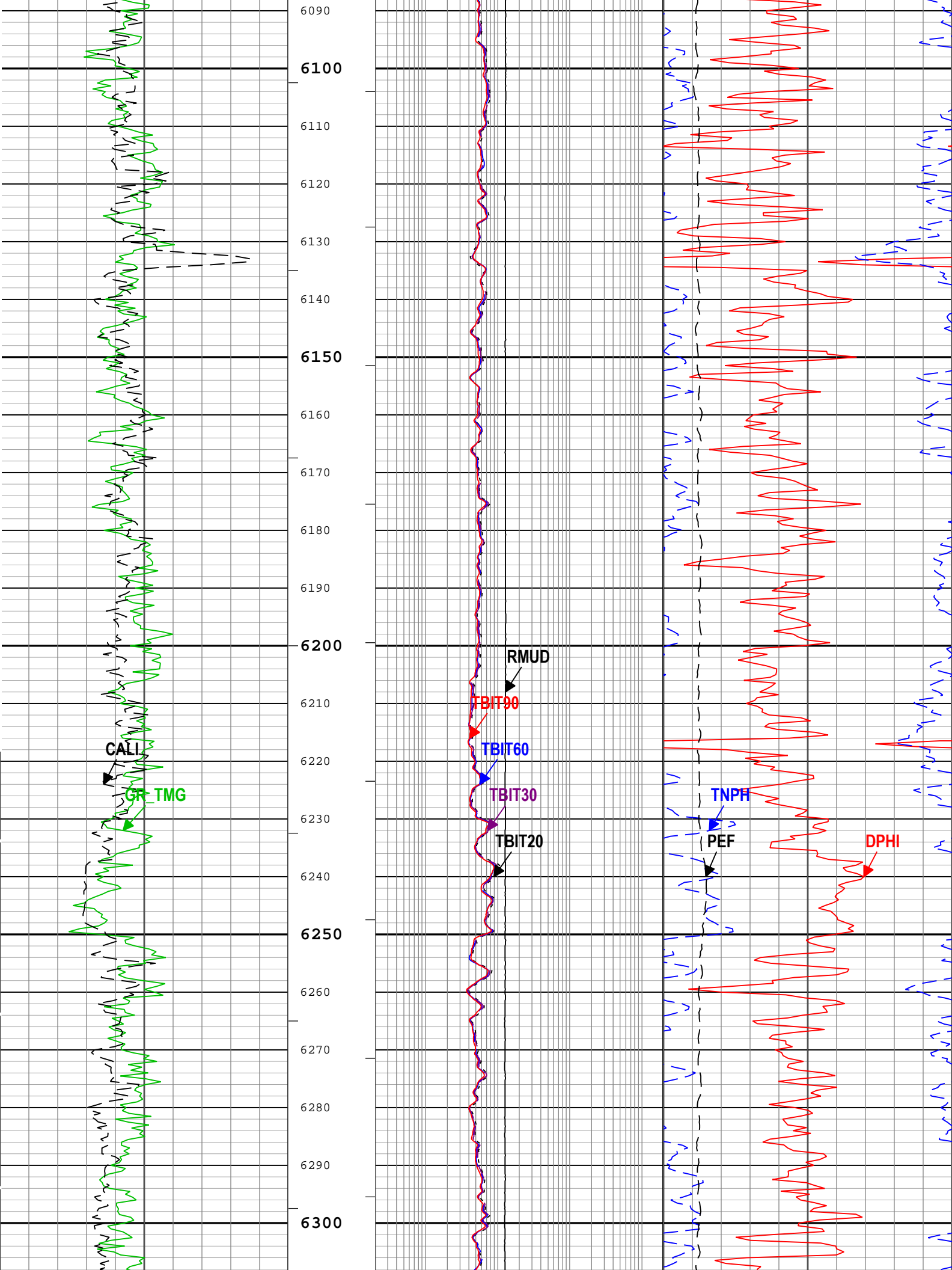


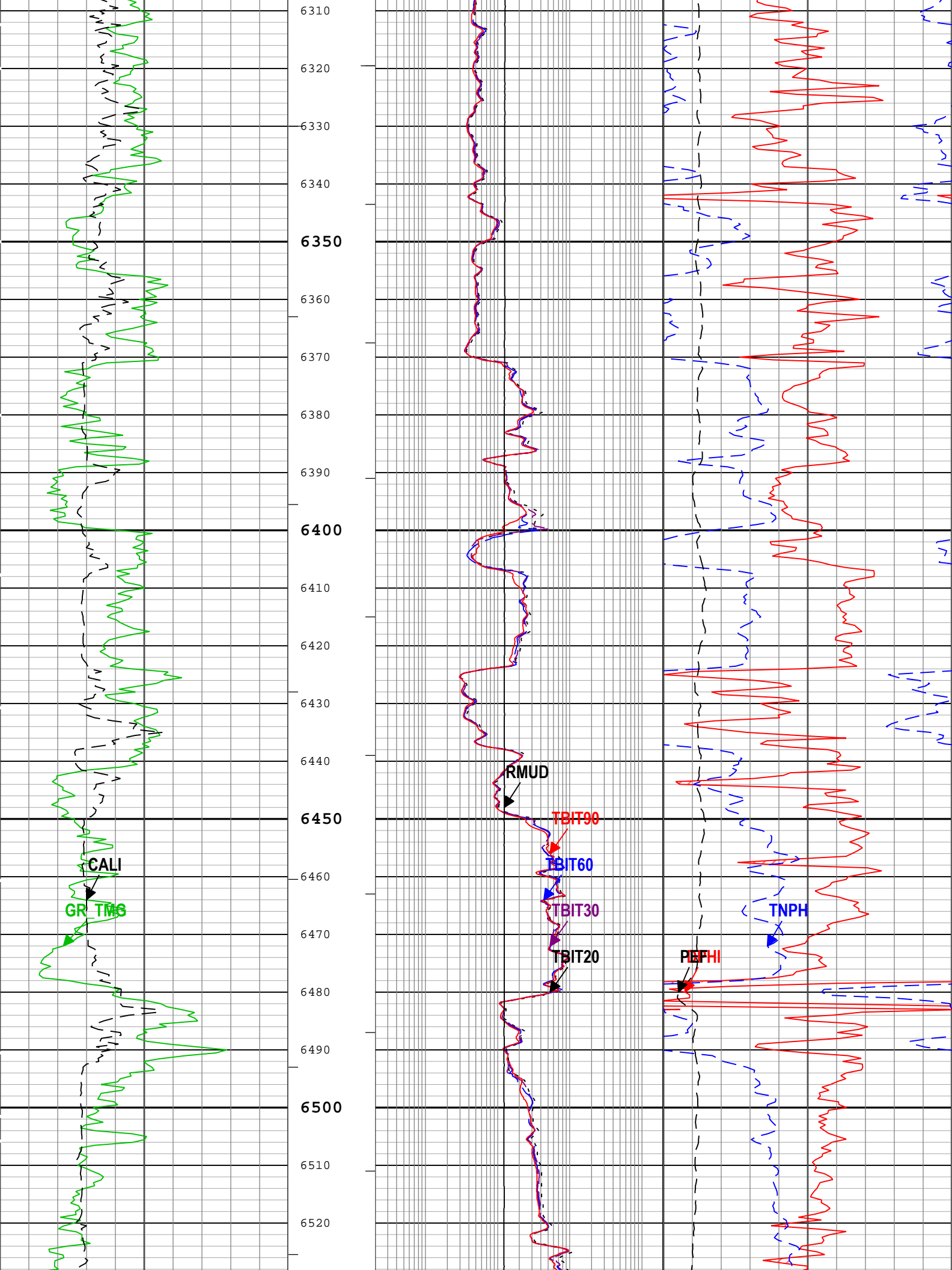


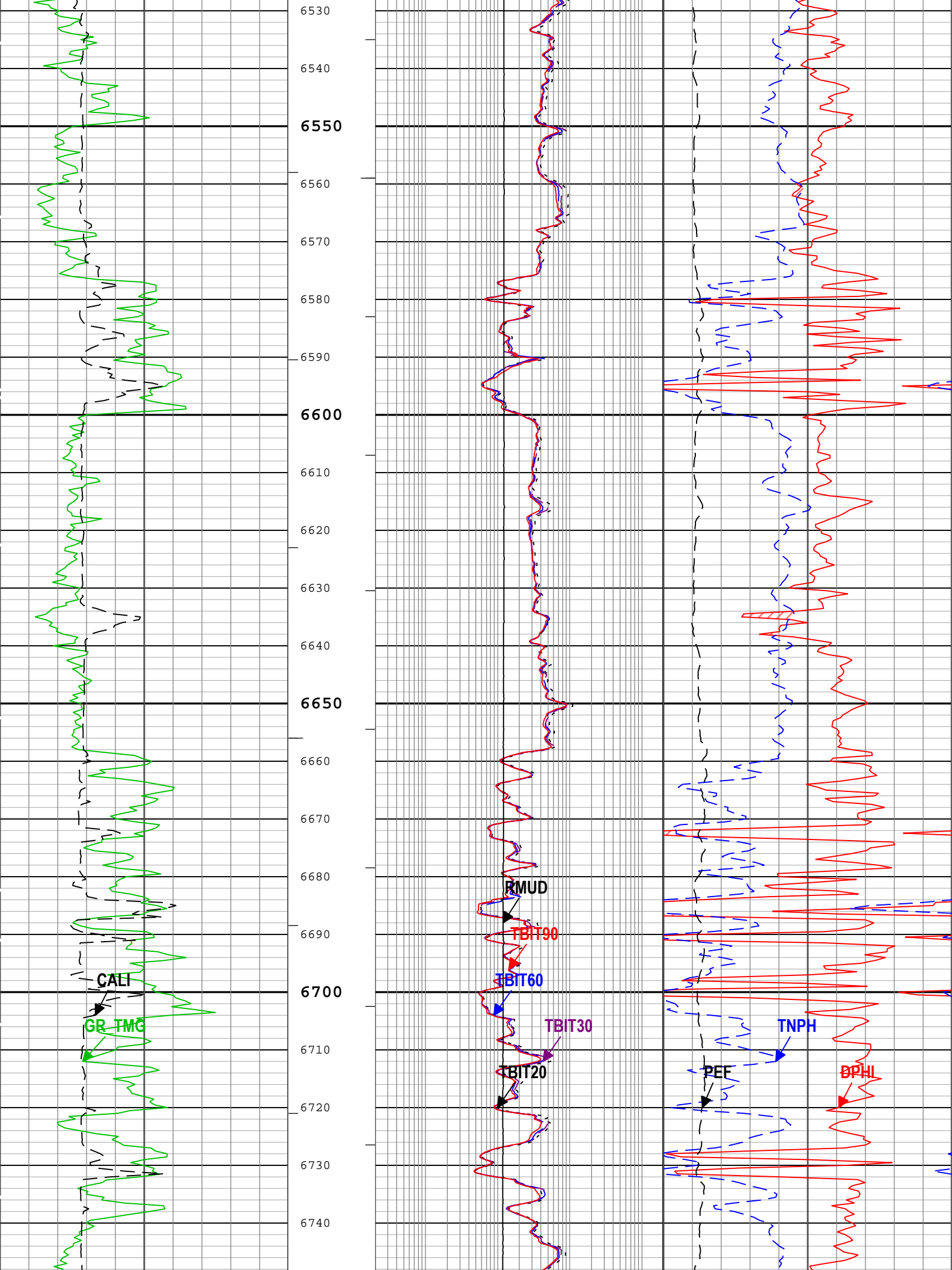


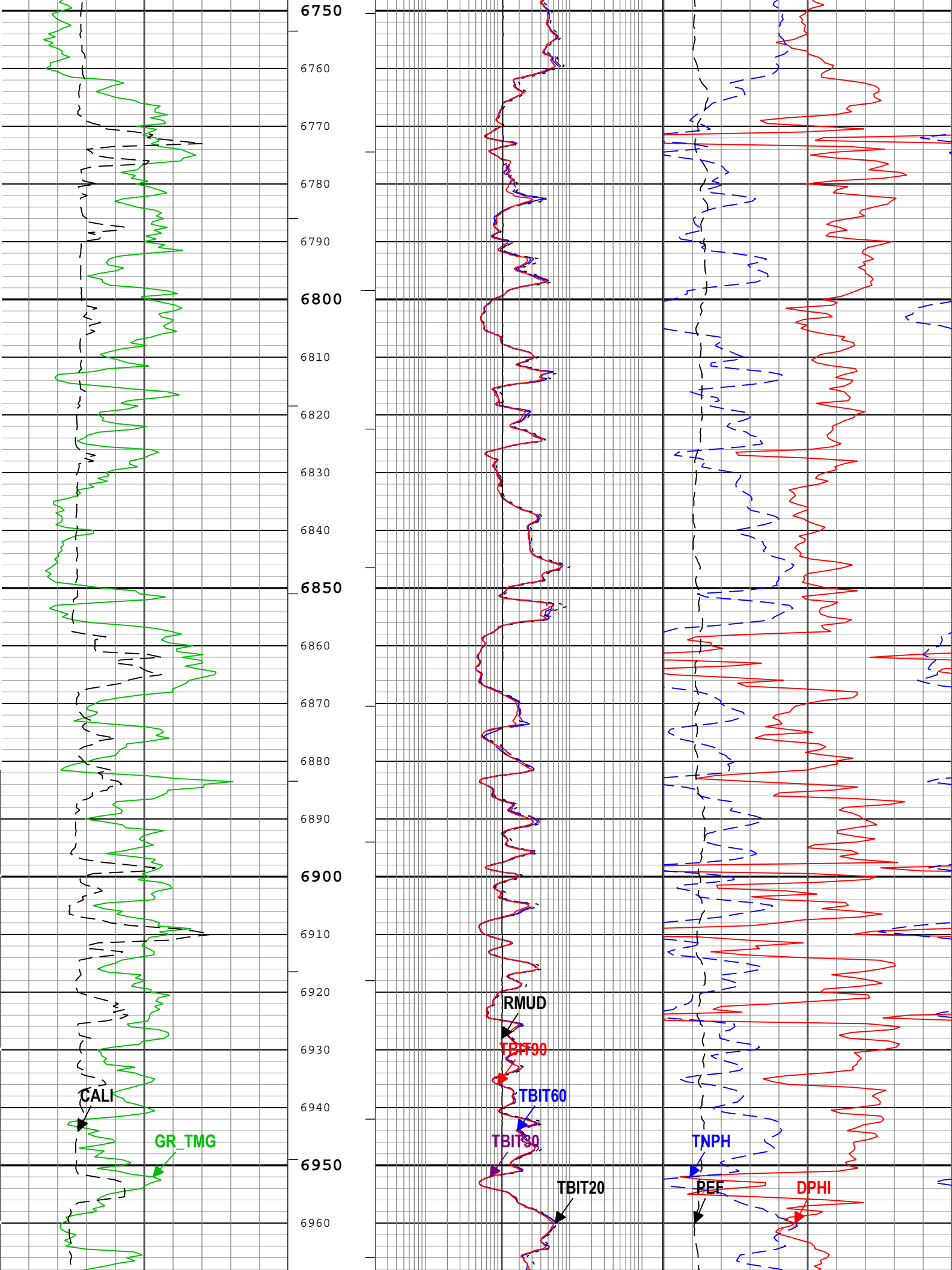


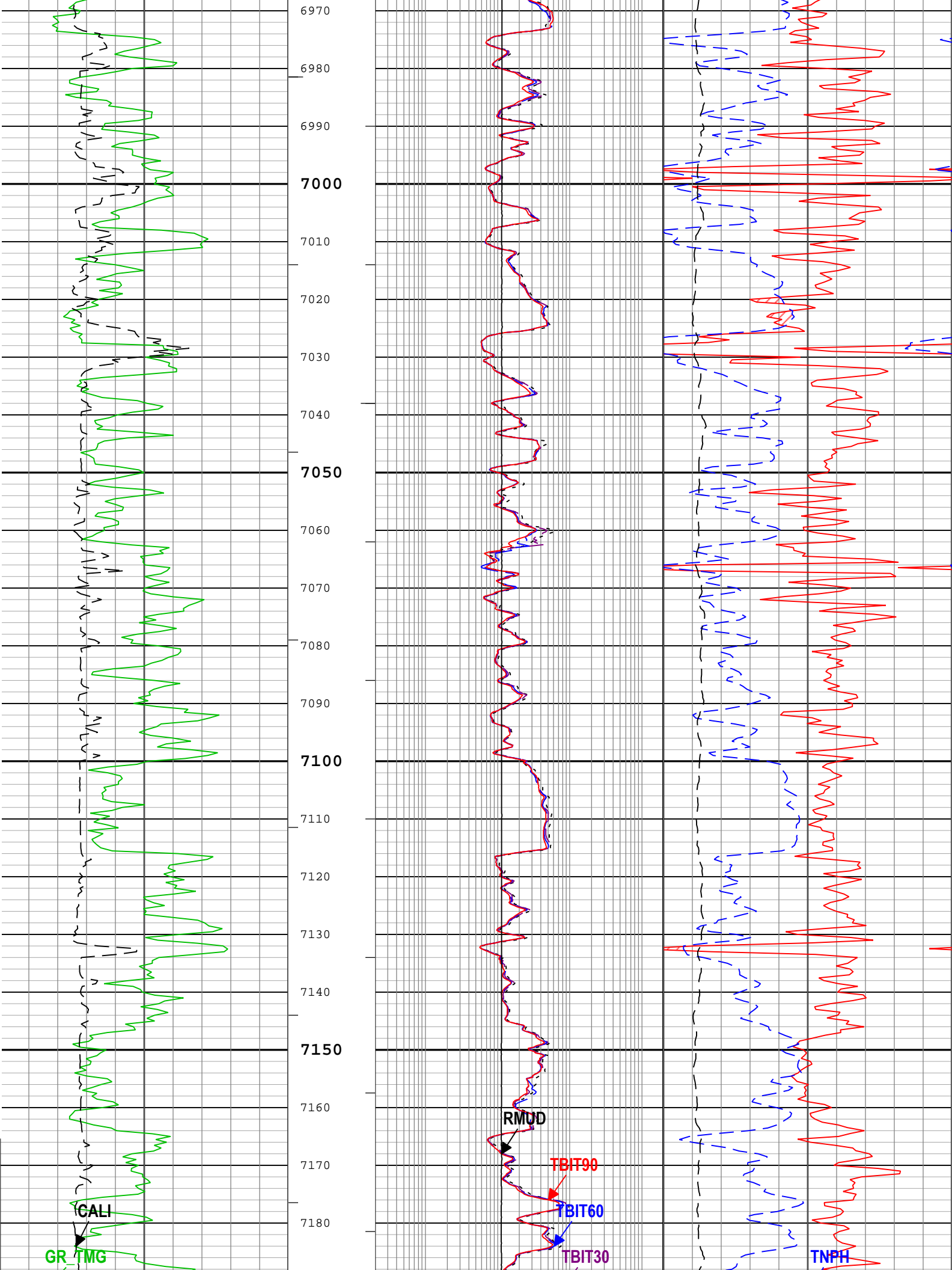


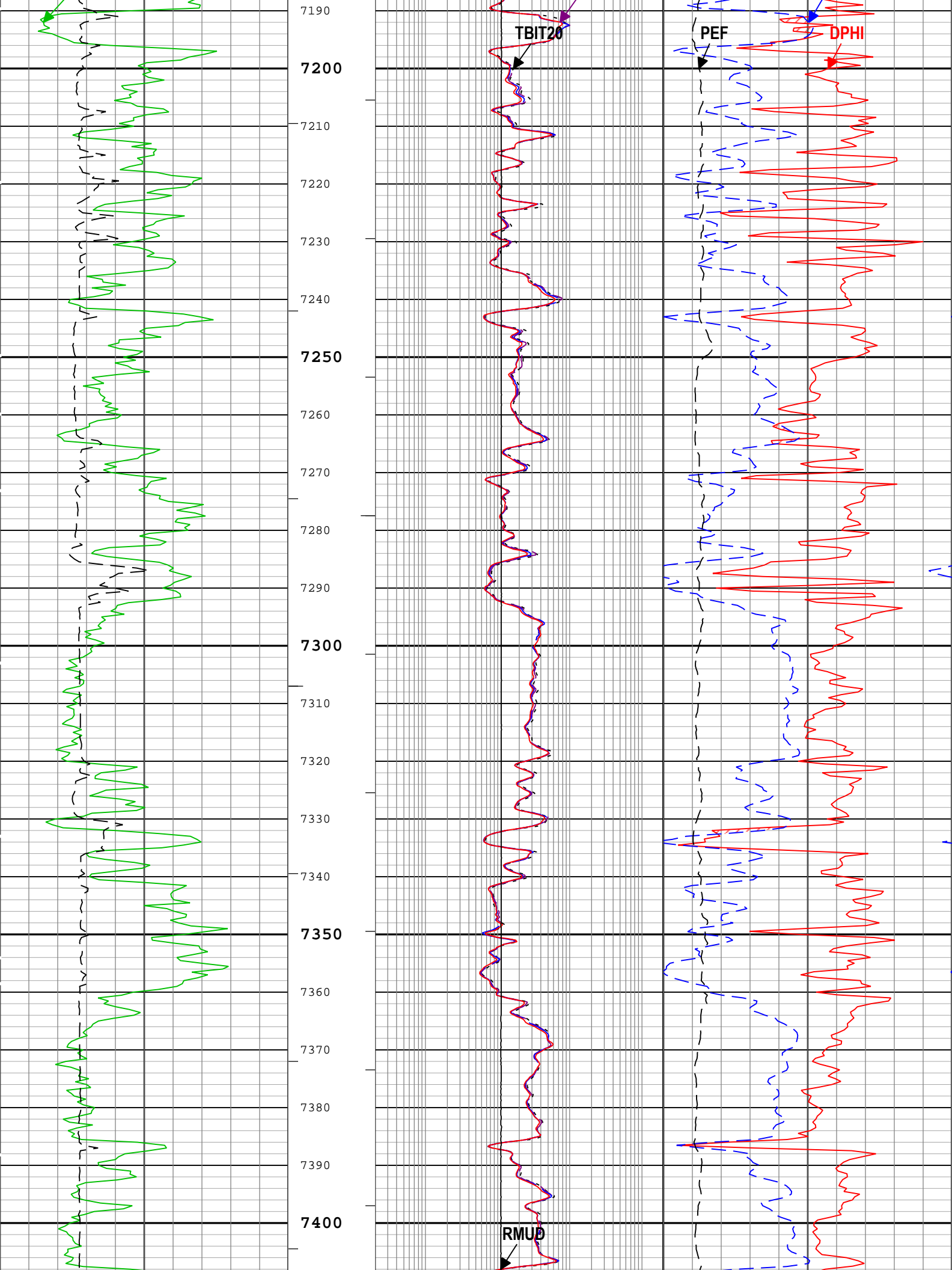


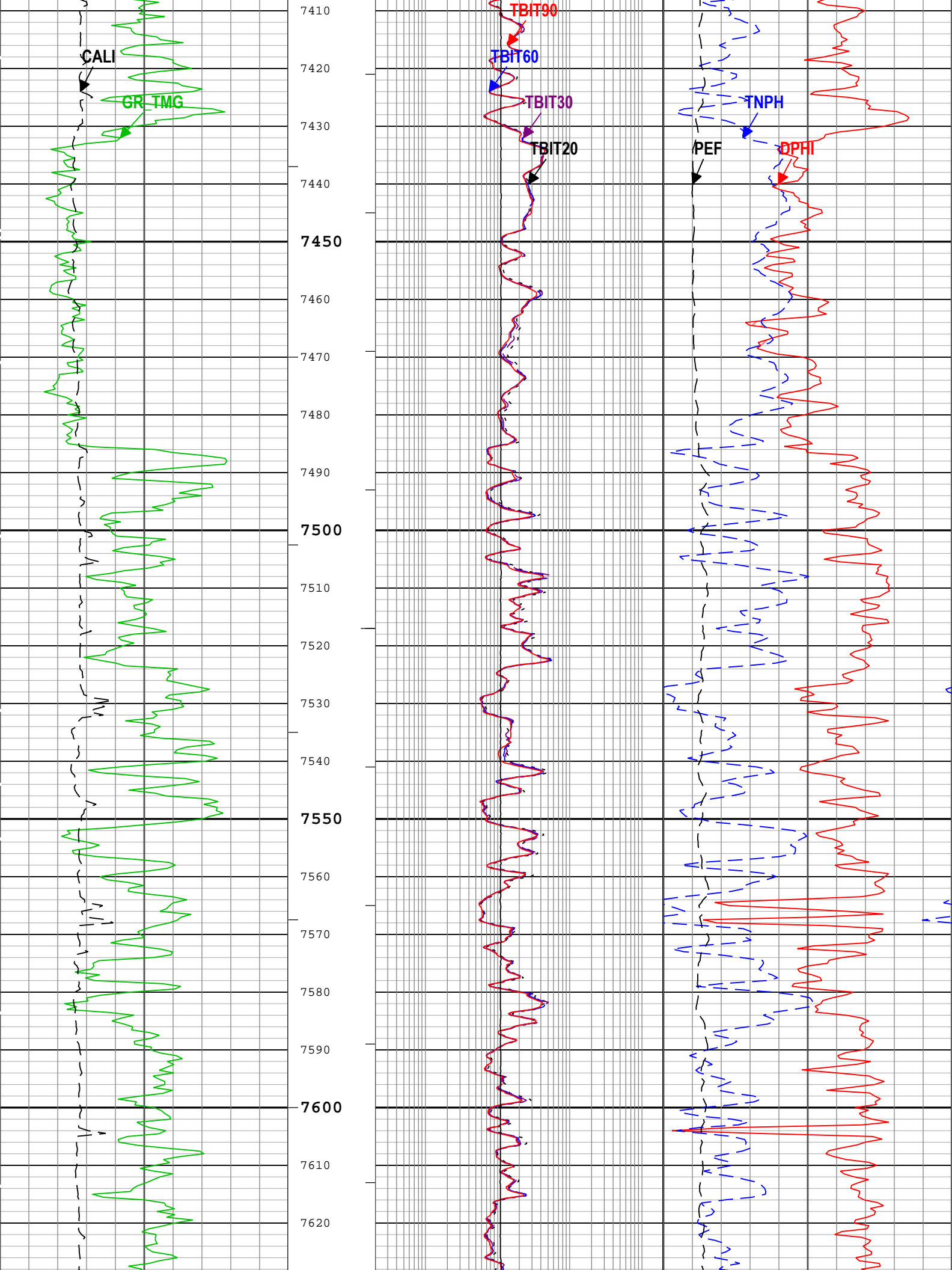


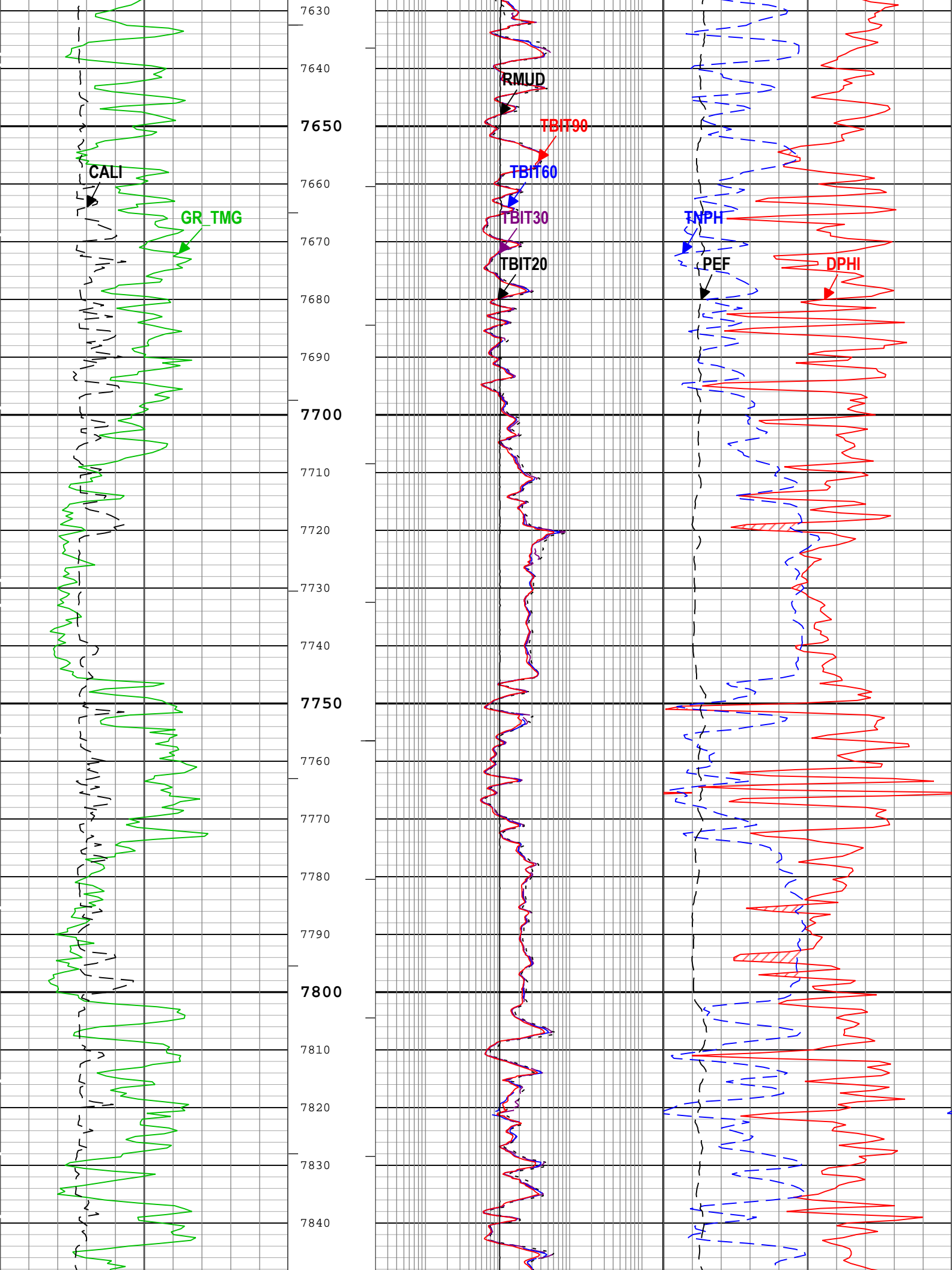


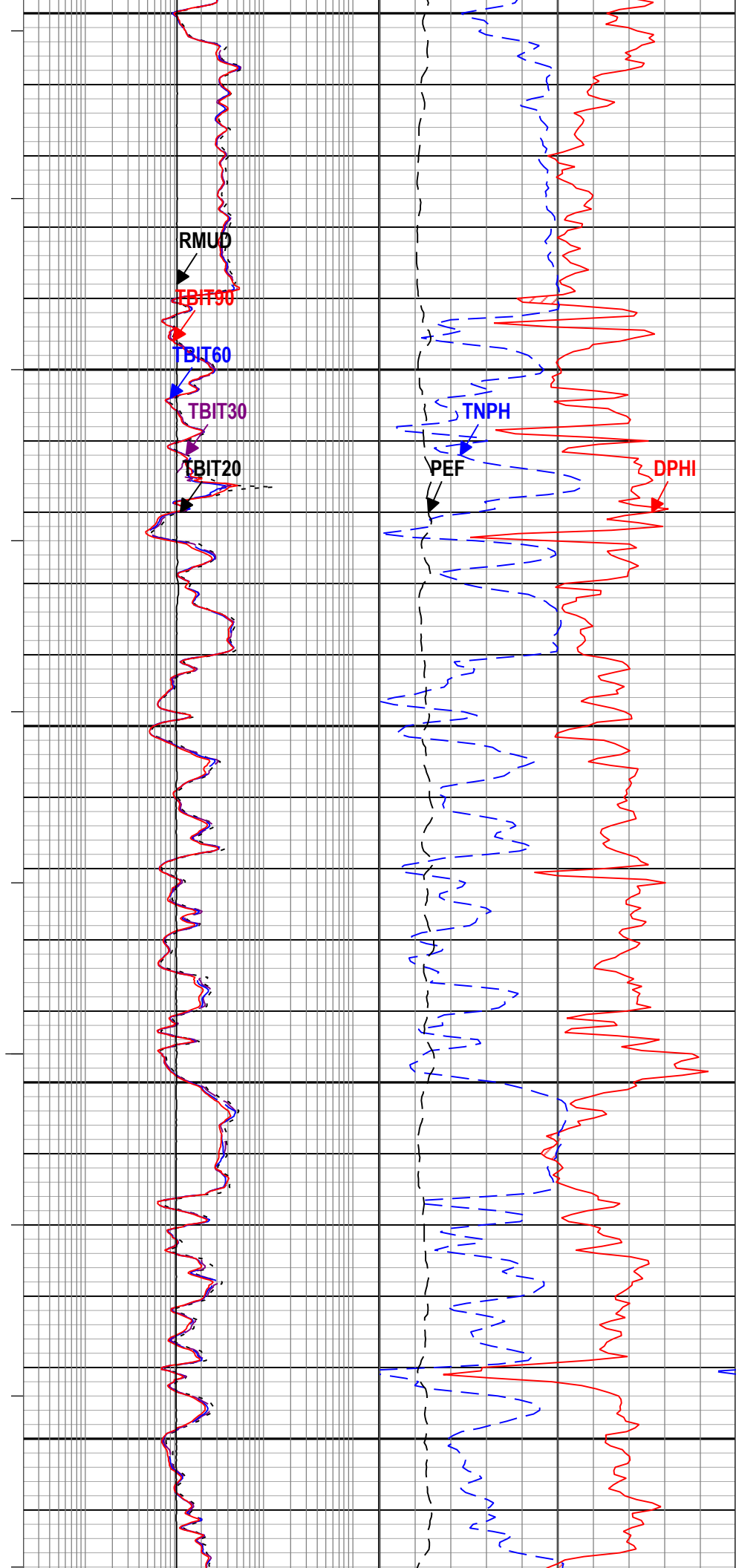
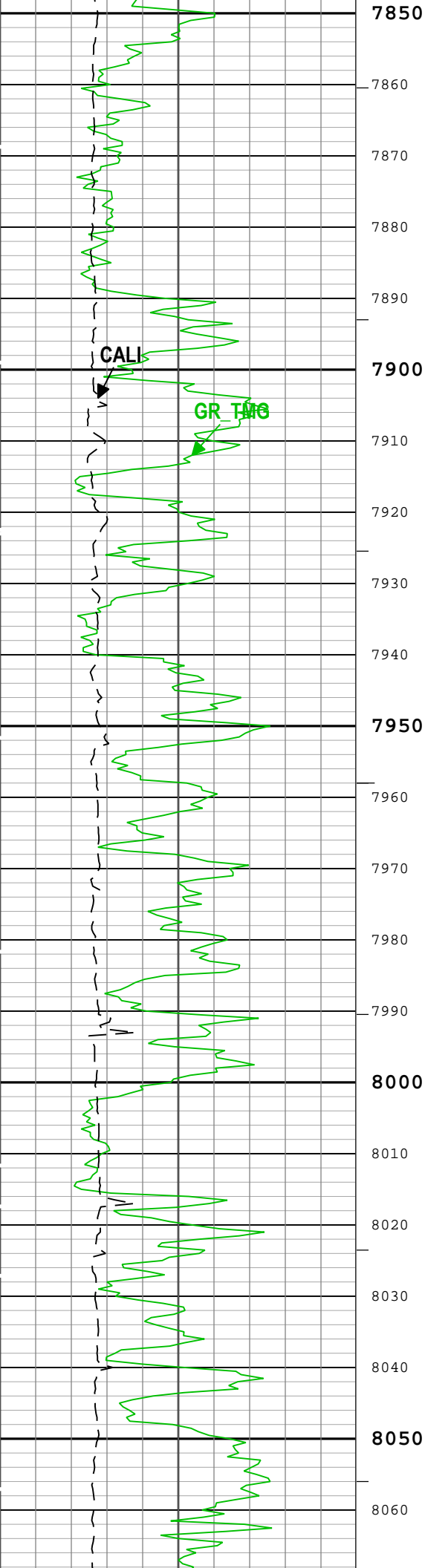


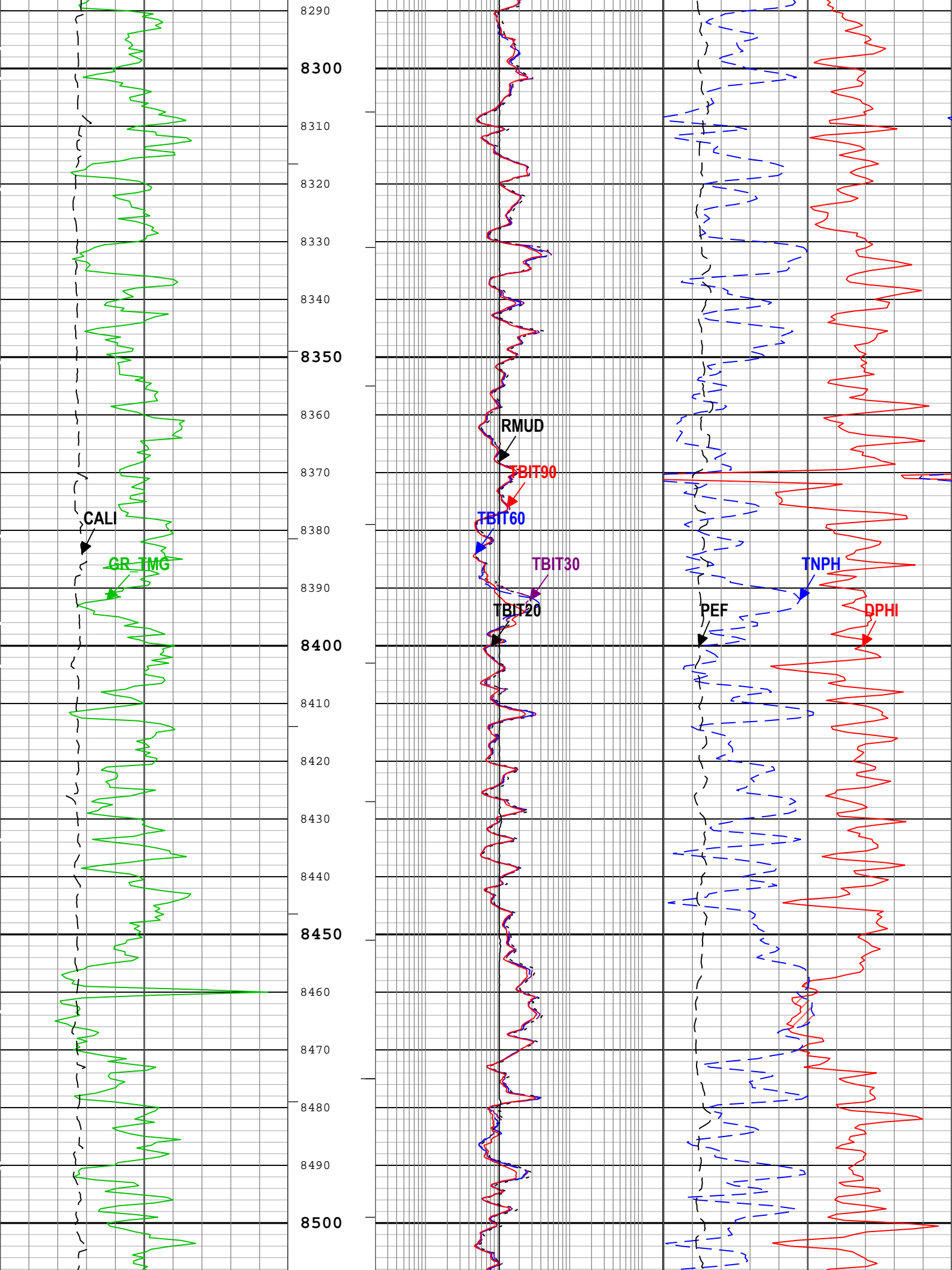


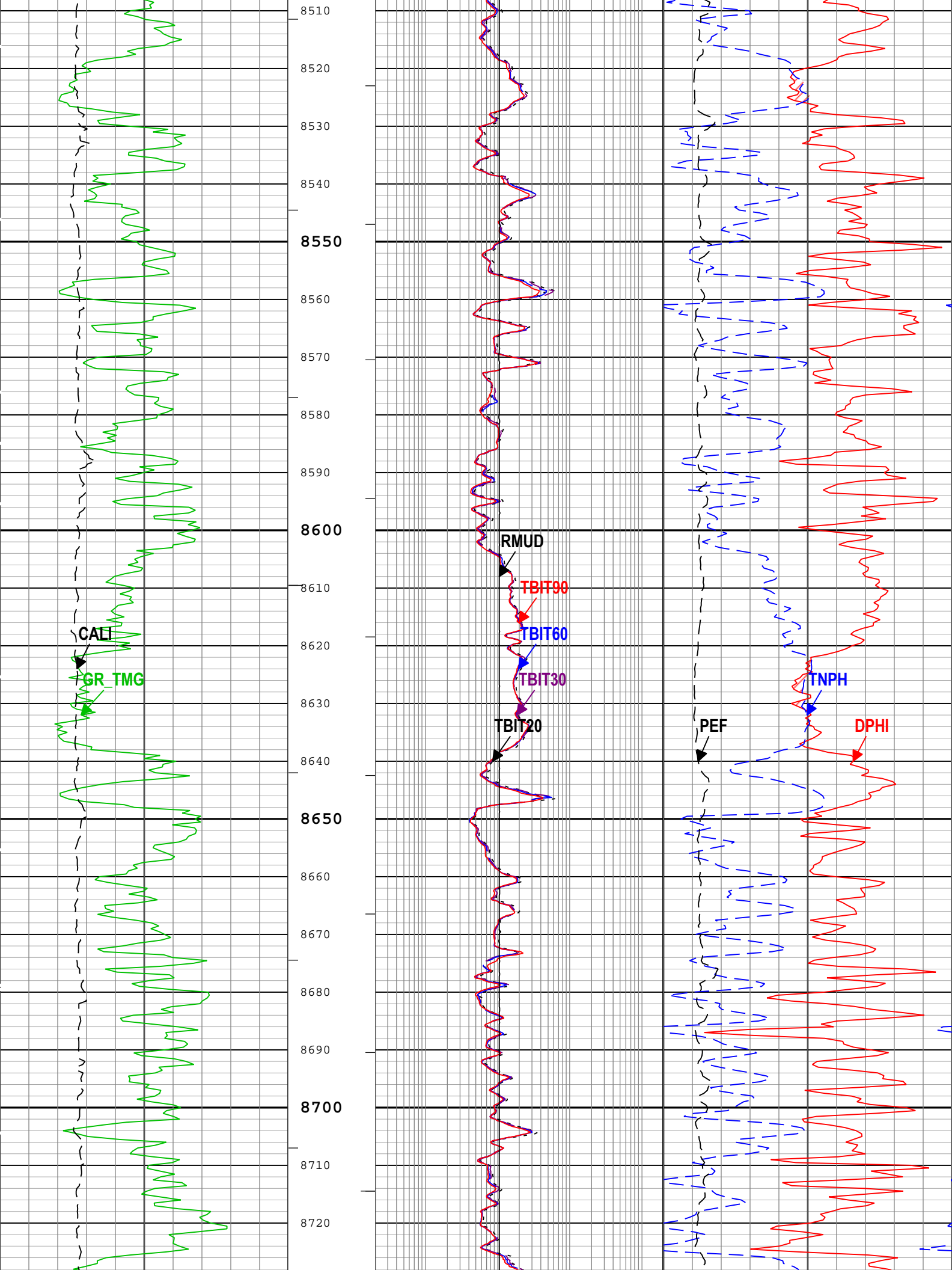


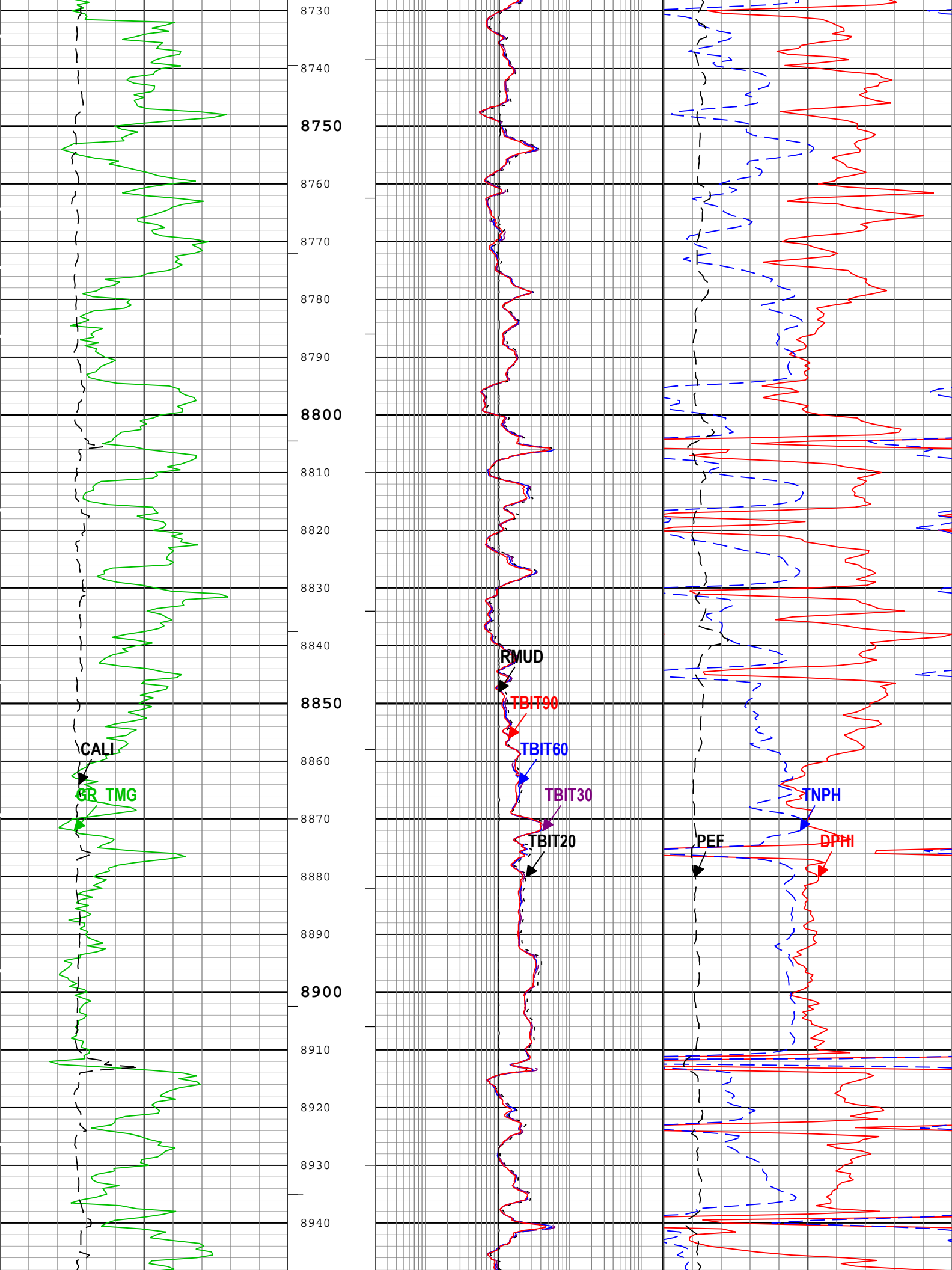


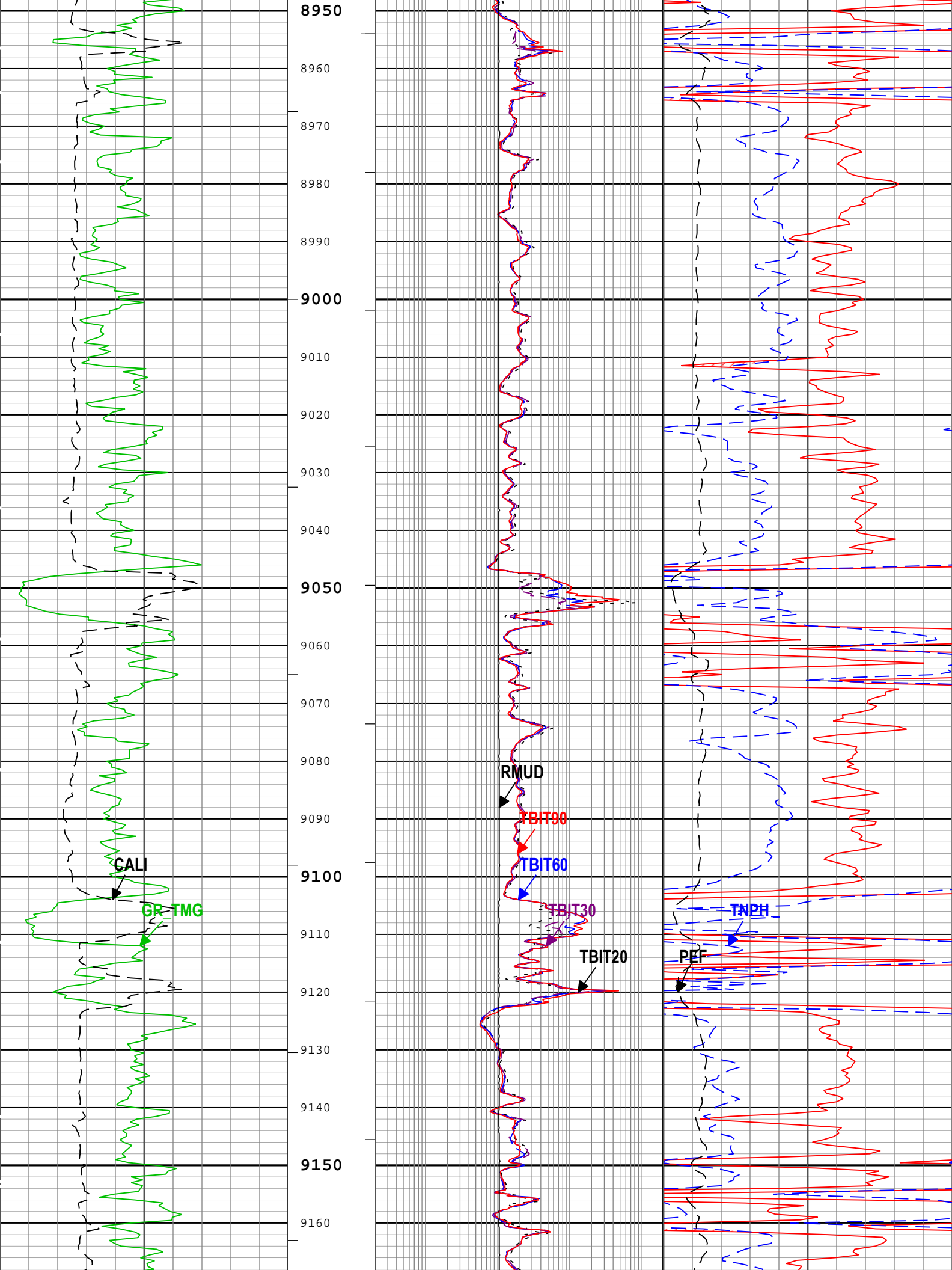


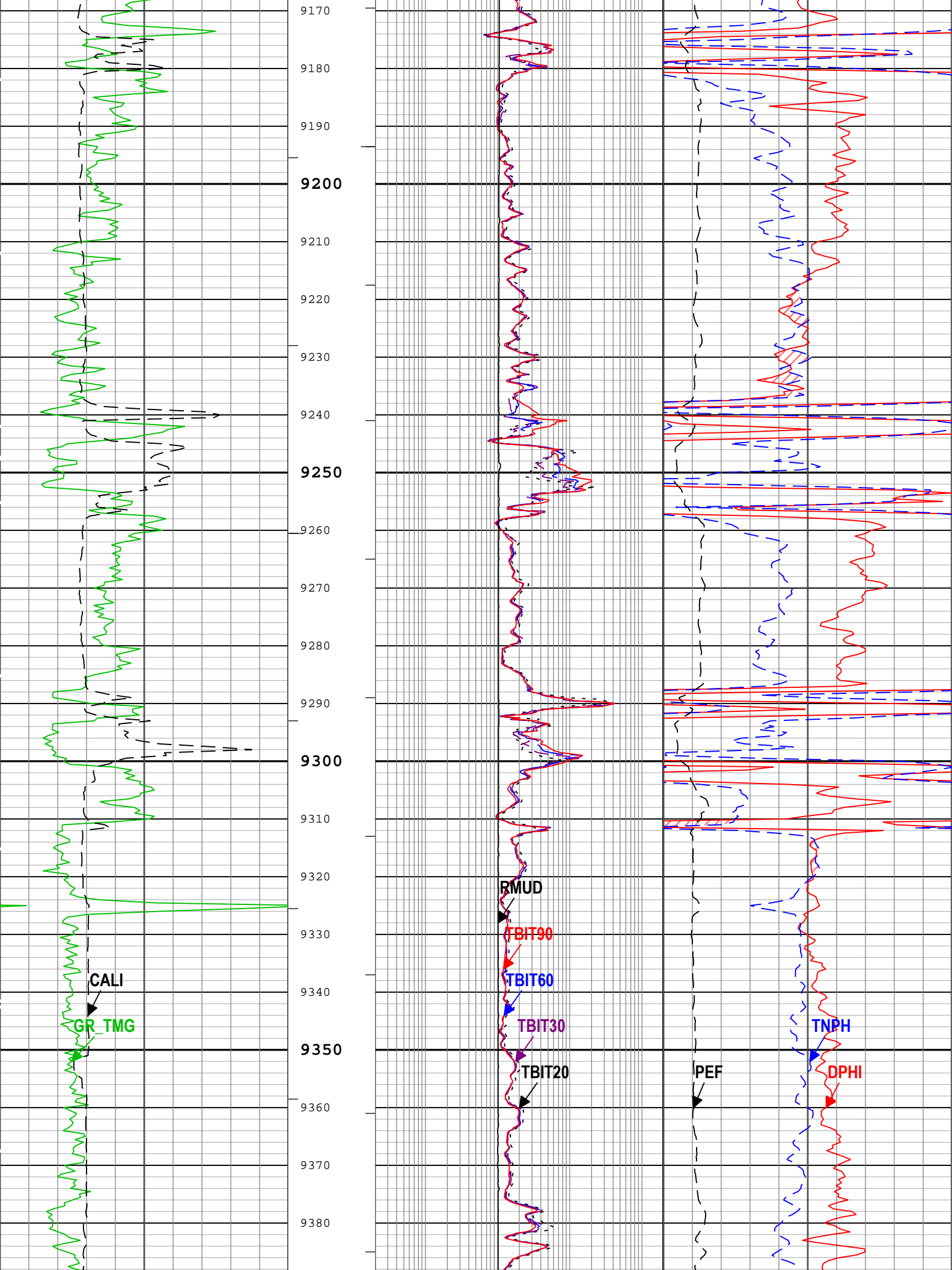


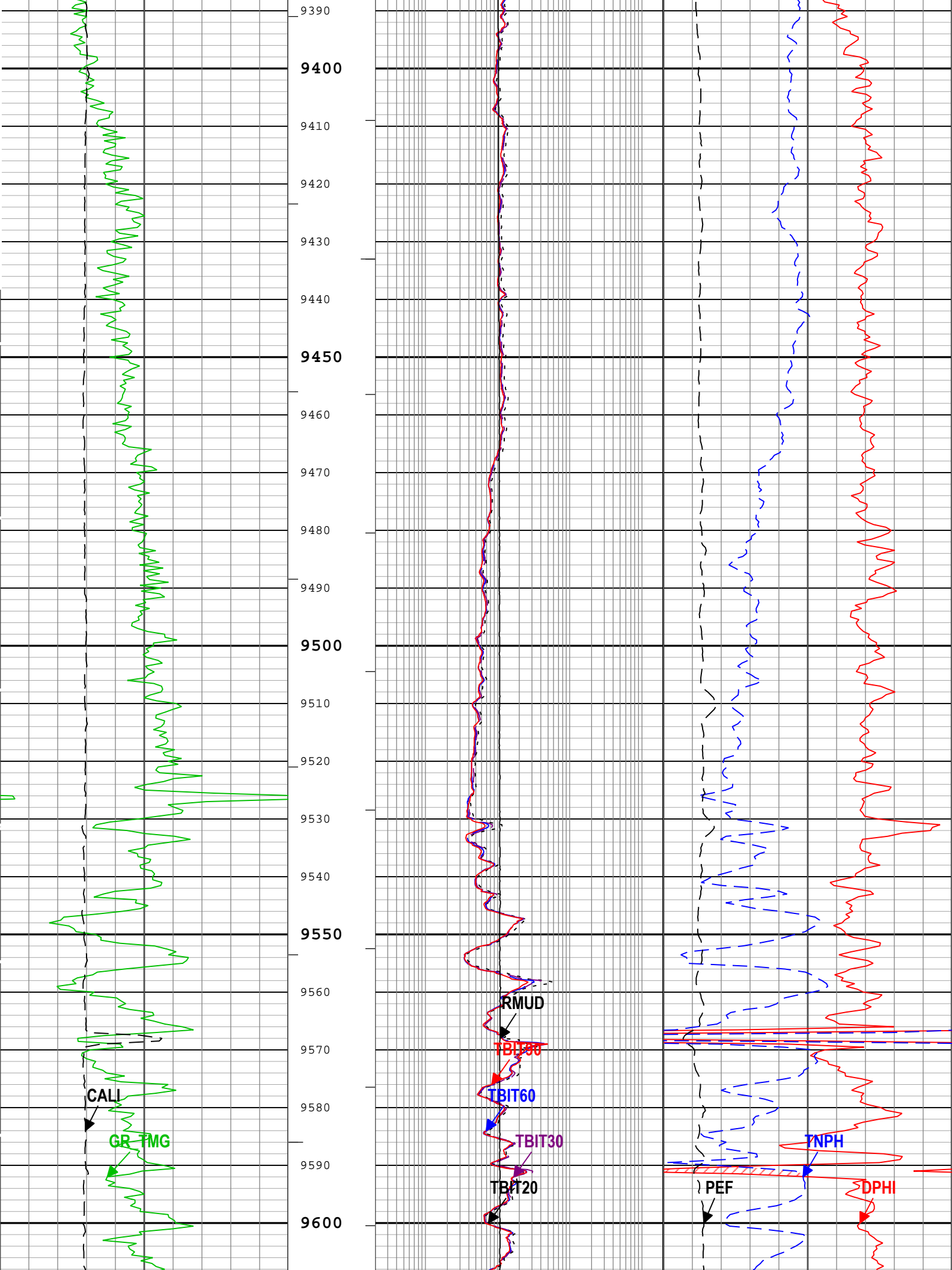


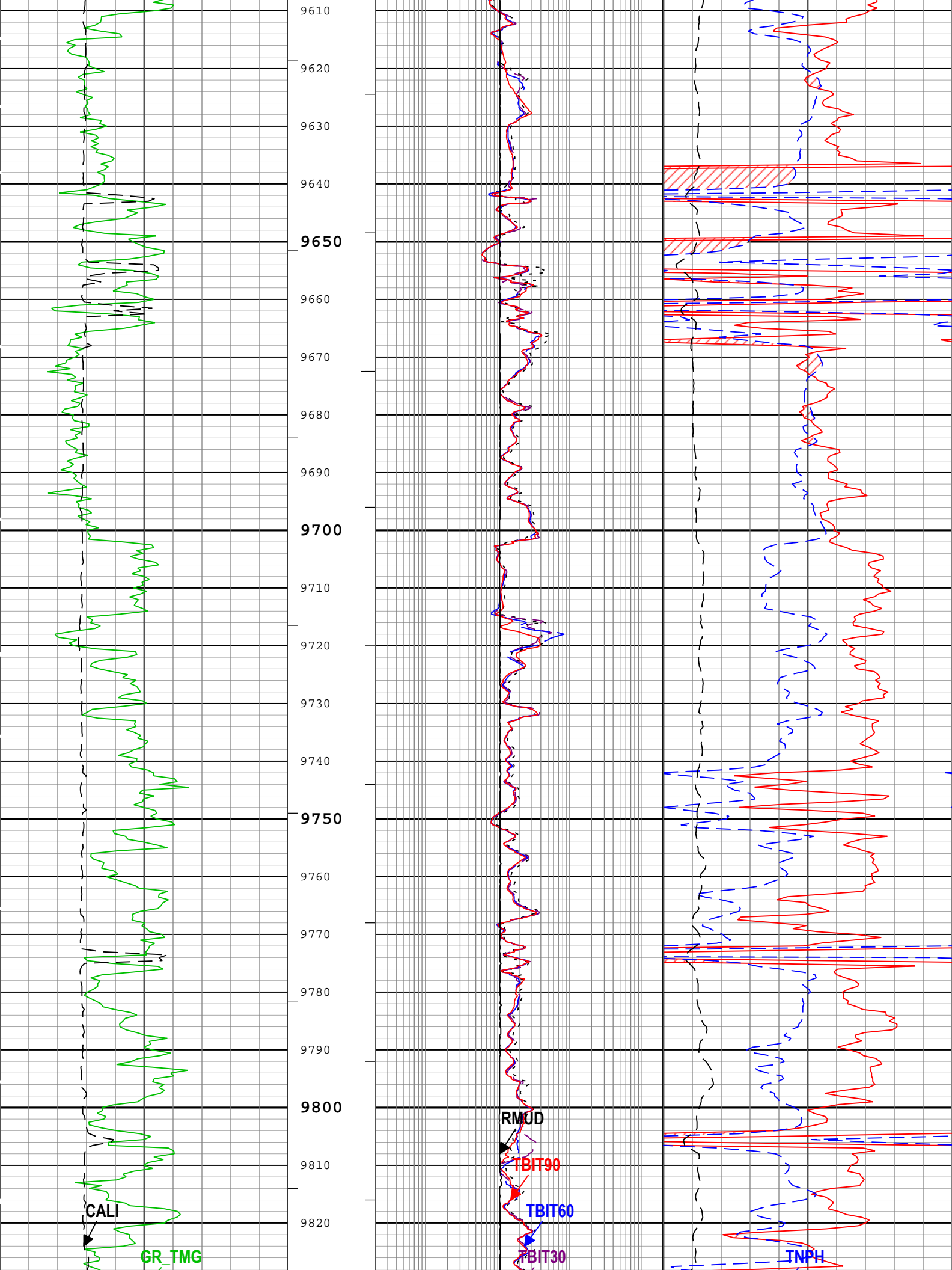


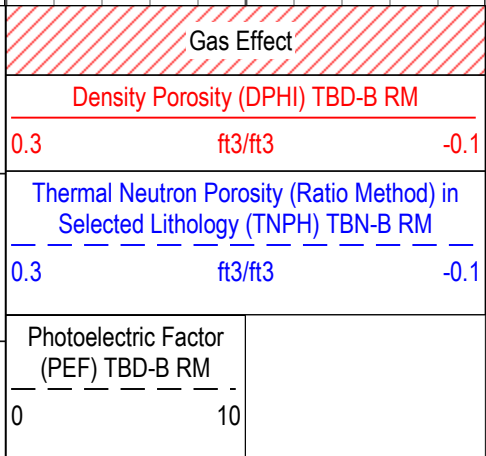
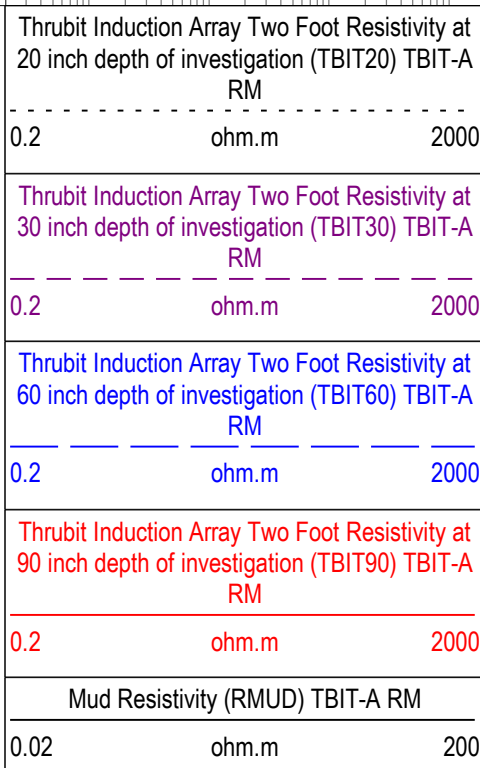
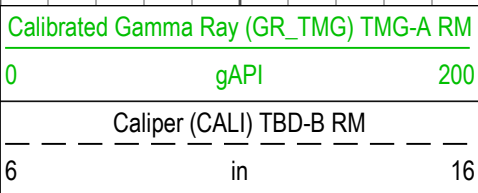
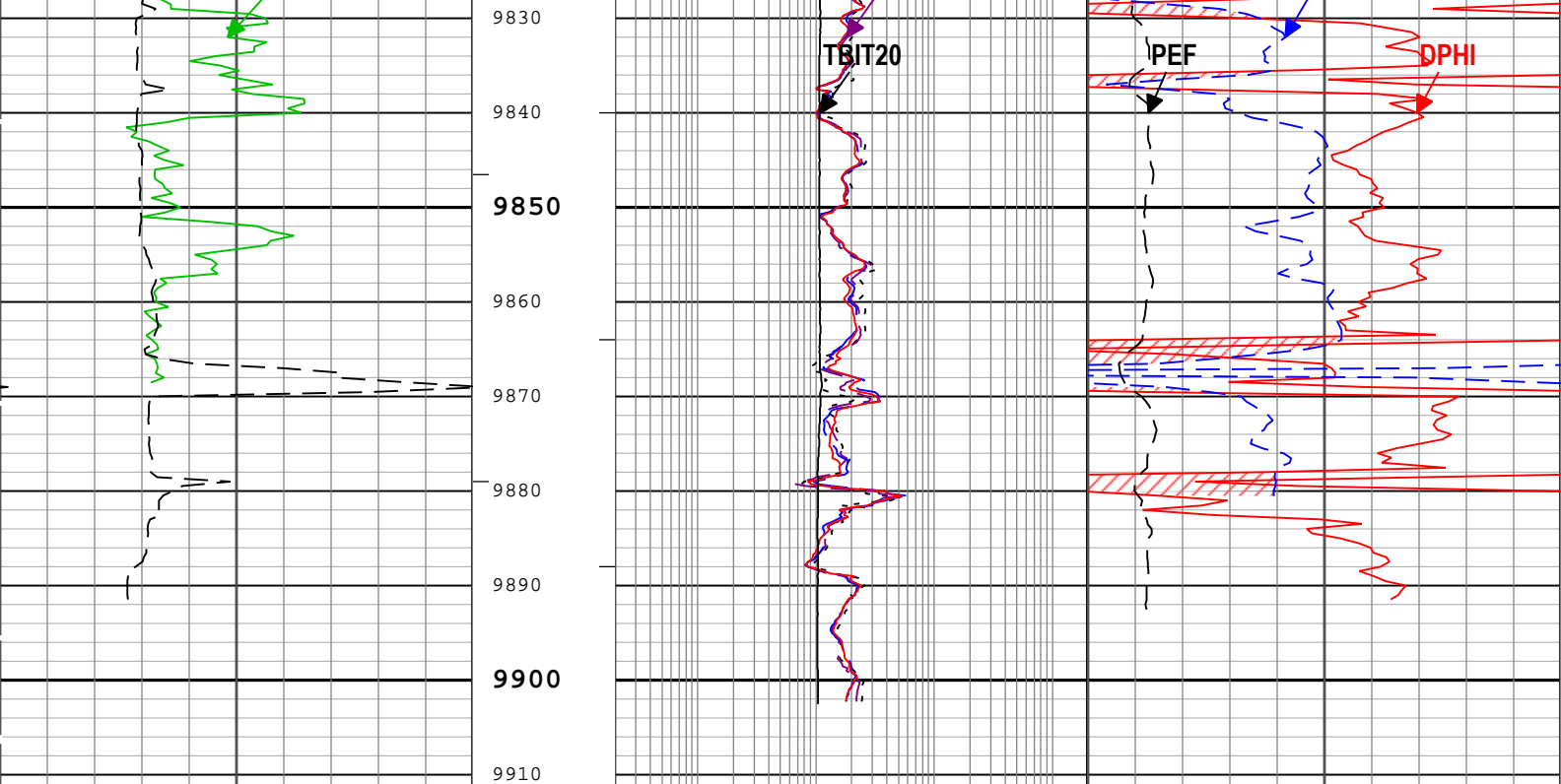












- ICV_RM - Integrated Cement Volume every 100.00 (ft3)
- ICV_RM - Integrated Cement Volume every 10.00 (ft3)
- IHV_RM - Integrated Hole Volume every 100.00 (ft3)
- IHV_RM - Integrated Hole Volume every 10.00 (ft3)

TIME_1900 - Time Marked every 60.00 (s)

Description: ThruBit_TCOM_RM Format: Log (ThruBit_TCOM_RM) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 21-May-2019 17:07:49

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)	TBIT-A	GCSE	
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
TBI_TC_OP	Induction Temperature Correction Option	TBIT-A	Lower	
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	%
TBI_REPL_ARRAY_DEST	Thrubit Induction Array to Replace	TBIT-A	None	
TBI_REPL_ARRAY_SOURCE	Thrubit Induction Array to Replace with	TBIT-A	None	
TBI_RMUD_SRC	TBI Mud Resistivity Source for Borehole Correction	TBIT-A	Data_Channel_RMUD	
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	
-------------------------	--

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

ThruBit
Triple Combo

