

Company: Nighthawk Production LLC

Well: Knoss 9-20

Field: Wildcat

County: Lincoln State: Colorado

Platform Express
Triple Combo

County:	Lincoln
Field:	Wildcat
Location:	SHL: 1852' FSL & 694' FEL
Well:	Knoss 9-20
Company:	Nighthawk Production LLC
Location:	
SHL: 1852' FSL & 694' FEL	Elev.: K.B. 5421.00 ft G.L. 5406.00 ft D.F. 5420.00 ft
Permanent Datum:	Ground Level
Log Measured From:	Kelly Bushing
Drilling Measured From:	Kelly Bushing
API Serial No.	Section: 20
05-073-06569-00	Township: 12S
	Range: 56W

Logging Date	22-Jun-2014
Run Number	ONE
Depth Driller	8632.00 ft
Schlumberger Depth	8635.00 ft
Bottom Log Interval	8635.00 ft
Top Log Interval	367.00 ft
Casing Driller Size @ Depth	8.625 in @ 367.00 ft
Casing Schlumberger	367 ft
Bit Size	7.875 in
Type Fluid In Hole	Water
Density	9.05 lbm/gal
Fluid Loss	PH 6.4 cm3
Source of Sample	Active Tank
RM @ Meas Temp	1.76 ohm.m @ 75 degF
RMF @ Meas Temp	1.32 ohm.m @ 75 degF
RMC @ Meas Temp	2.21 ohm.m @ 75 degF
Source RMF	Calculated
RM @ BHT	0.73 @ 191.36
Max Recorded Temperatures	191.36 degF
Circulation Stopped	21-Jun-2014 17:15:00
Logger on Bottom	22-Jun-2014 04:26:00
Unit Number	2135
Recorded By	Kevin Crow
Witnessed By	Alan Seeling

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. Operational Run Summary
- 5. Borehole Fluids
- 6. Remarks and Equipment Summary
- 7. Depth Summary
- 8. Composite 3 5" Triple Combo Linear
 - 8.1 Integration Summary
 - 8.2 Software Version
 - 8.3 Composite Summary
 - 8.4 Log (EMD 5in Triple Combo Linear)
 - 8.5 Parameter Listing
- 9. Calibration Report
- 10. Tail

Operational Run Summary

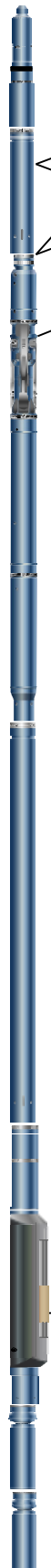
Parameter (unit)	ONE					
Date Log Started	22-Jun-2014					
Time Log Started	03:36:39					
Date Log Finished	22-Jun-2014					
Time Log Finished	12:28:52					
Top Log Interval (ft)	367.00					
Bottom Log Interval (ft)	8635.00					
Total Depth (ft)	8635.00					
Max Hole Deviation (deg)	0.00					
Azimuth of Max Deviation (deg)	0.00					
Bit Size (in)	7.875					
Logging Unit Number	2135					
Logging Unit Location	Fort Morgan					
Recorded By	Kevin Crow					
Witnessed By	Alan Seeling					
Service Order Number	CAU6-00107					

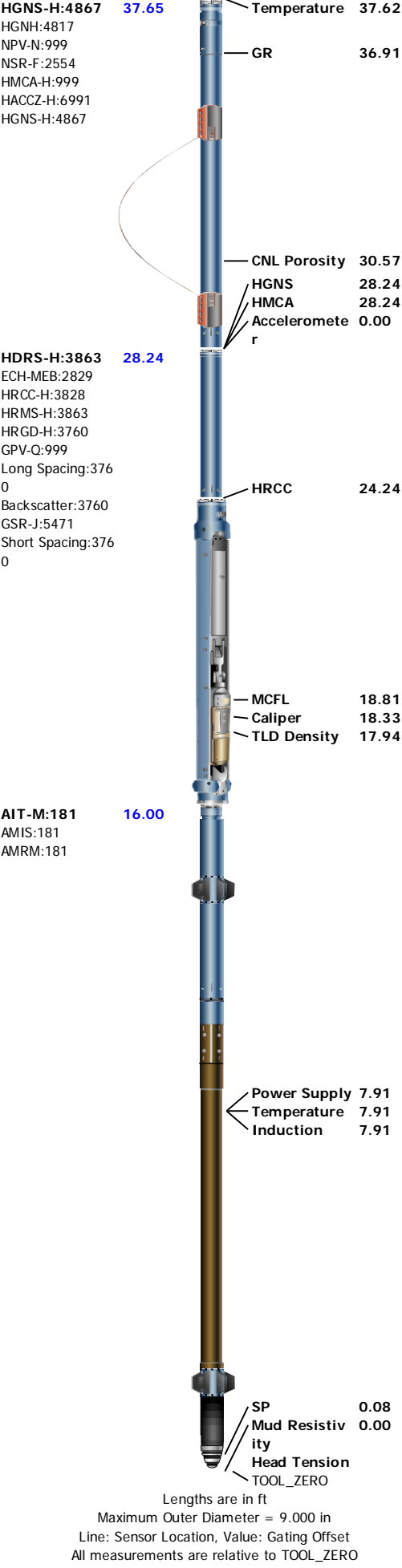
Borehole Fluids

Parameter(unit)	ONE					
Fluid Type	Water					
Max Recorded Temperatures (degF)	191.36					
Source of Sample	Active Tank					
Salinity (ppm)	0					
Density (lbm/gal)	9.05					
Funnel Viscosity (s)	80					
Fluid Loss (cm3)	6.4					
PH	8.66					
Date/Time Circulation Stopped	21-Jun-2014 17:15:00					
Date Logger on Bottom	22-Jun-2014					
Time Logger on Bottom	04:26:00					
Source RMF	Calculated					
RMC	Calculated					
RM @ Meas Temp (ohm.m@degF)	1.76 @ 75					
RMF @ Meas Temp (ohm.m@degF)	1.32 @ 75					
RMC @ Meas Temp (ohm.m@degF)	2.21 @ 75					

RM @ BHT (ohm.m@degF)	0.73 @ 191.36				
RMF @ BHT (ohm.m@degF)	0.55 @ 191.36				
RMC @ BHT (ohm.m@degF)	0.91 @ 191.36				
Total Solid (%)					
High Gravity Solids (%)					

Remarks and Equipment Summary

ONE: Toolstring				ONE: Remarks
Equip name LEH-QT:2552 LEH-QT:2552	Length 69.67	MP name	Offset	Thank you for choosing Schlumberger
				All Tools ran as per tool sketch
				Rig: Extreme 11
				TD not tagged as per Jim Weir's request
				Data quality adversely affected by washouts and borehole rugosity
				Casing Shoe found at 367.00 ft.
				AIT ran in compute standoff mode with 1" standoffs
				HGNS and CMR ran eccentered using bowspring and eccentered ppc caliper
				Matrix=Limestone, MDen=2.71 g/cc
DTC-H:8906 ECH-KC:9984 DTC-H:8906	66.75	CTEM HV	65.85 0.00	
PPC-B:8437 PPC-B:8437	63.75	ToolStatus TelStatus	63.75 63.75	
		PPC-B Caliper s	62.61	
CMRT-B:202 CMRC:78 CMRH:78 CMRS:202	57.24			
		CMRT	43.59	
AH-107	41.65			
AH-184	39.65			



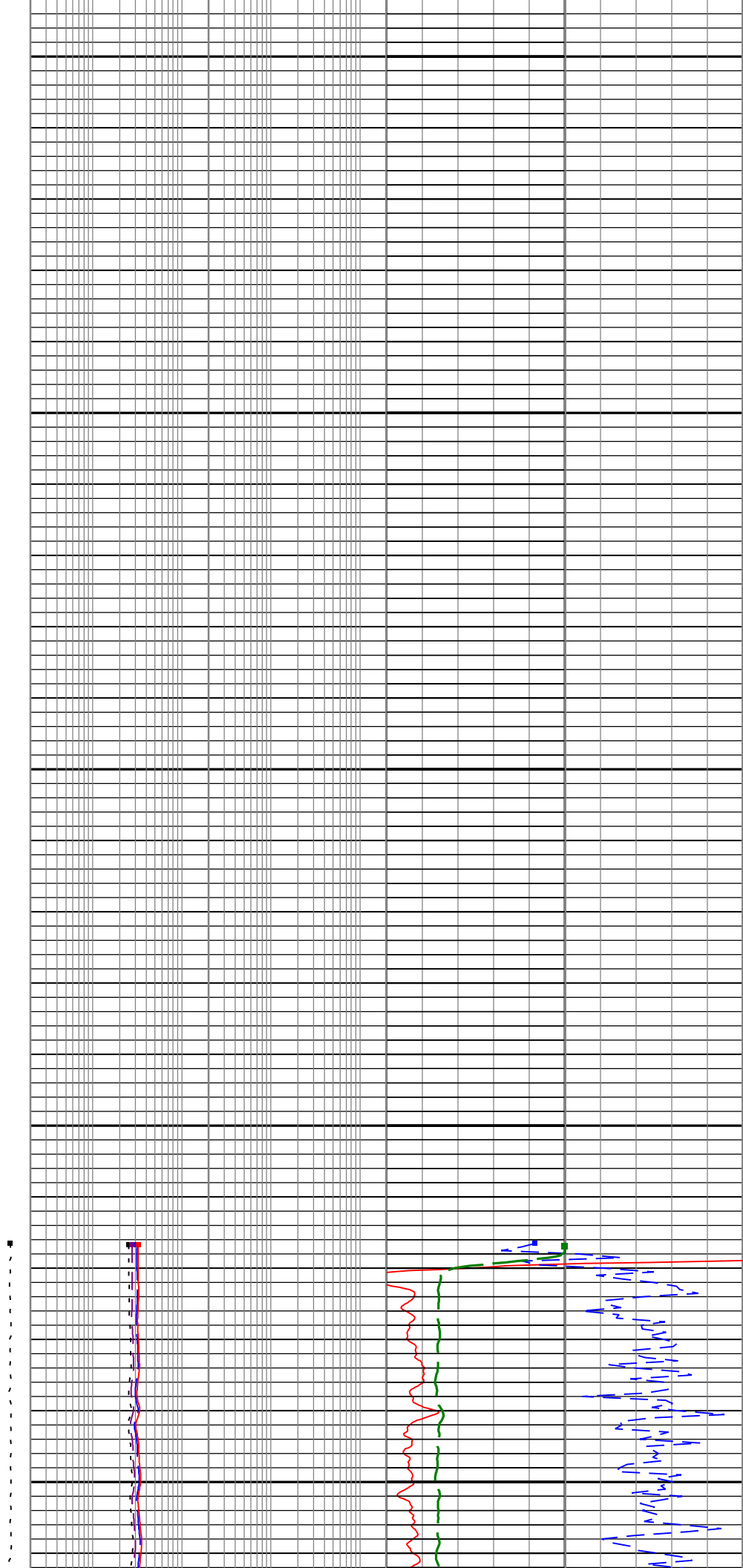
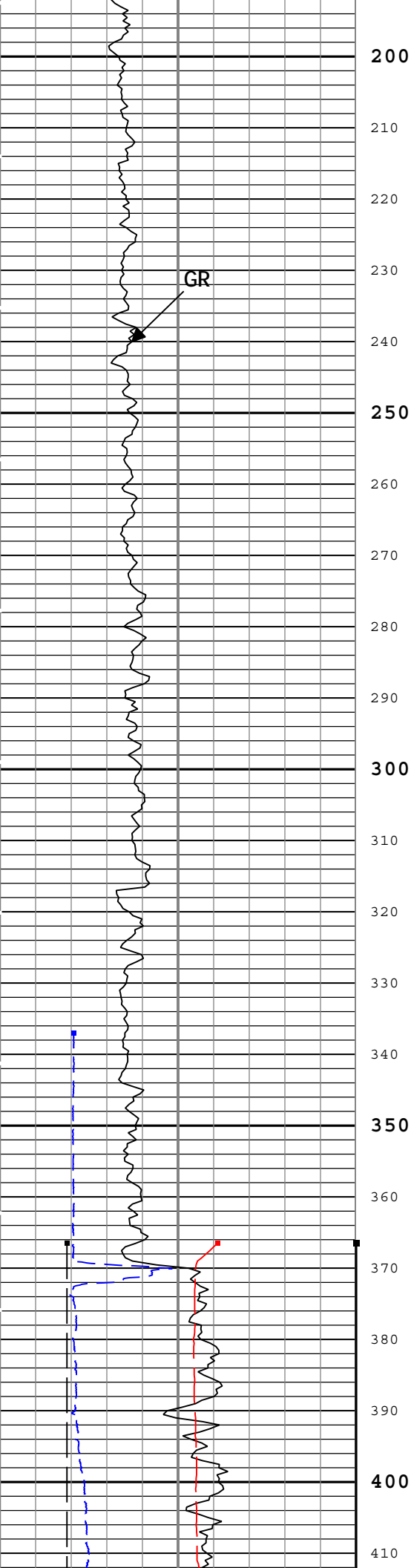
Depth Summary			
---------------	--	--	--

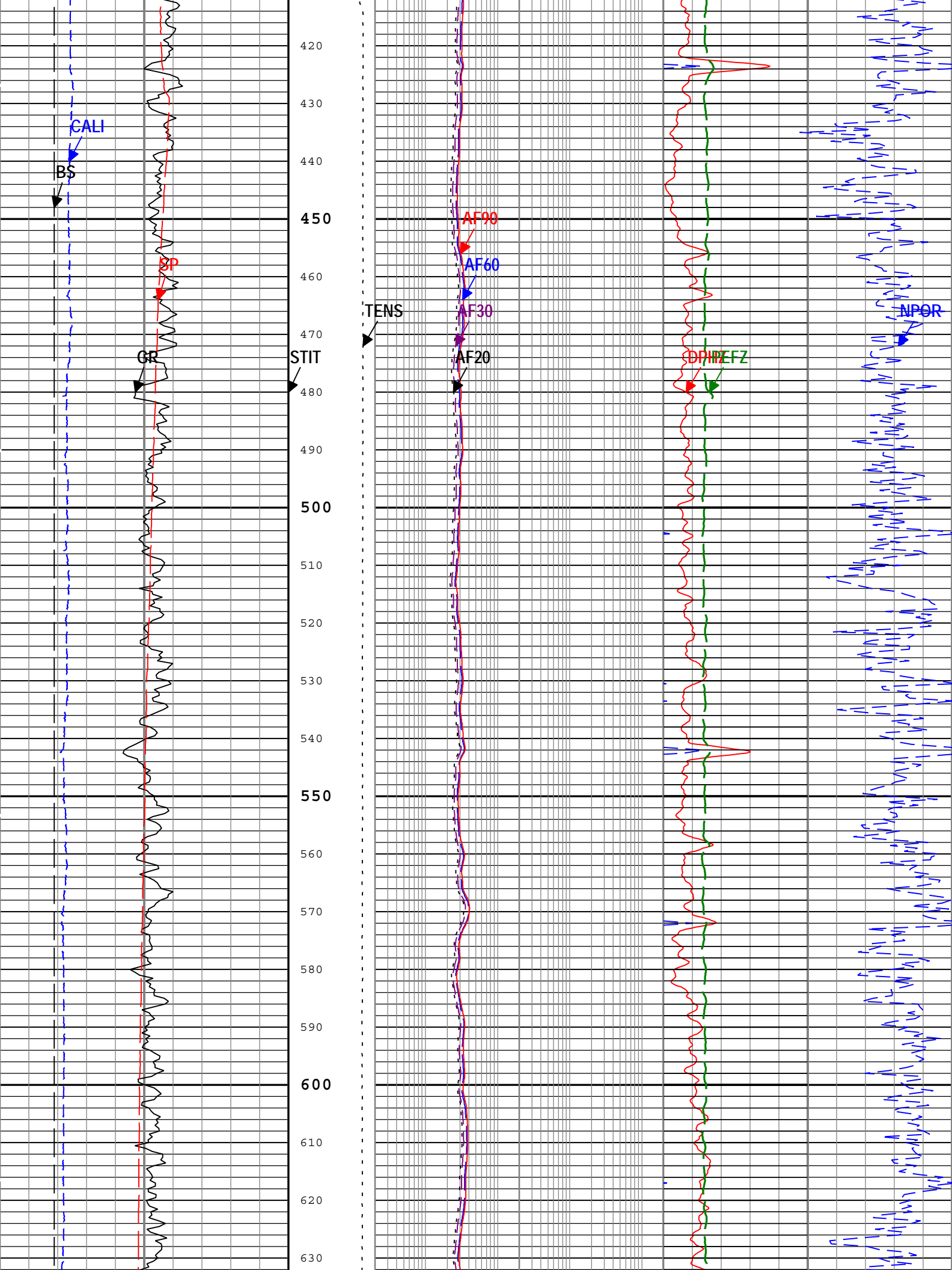
	ONE		
--	-----	--	--

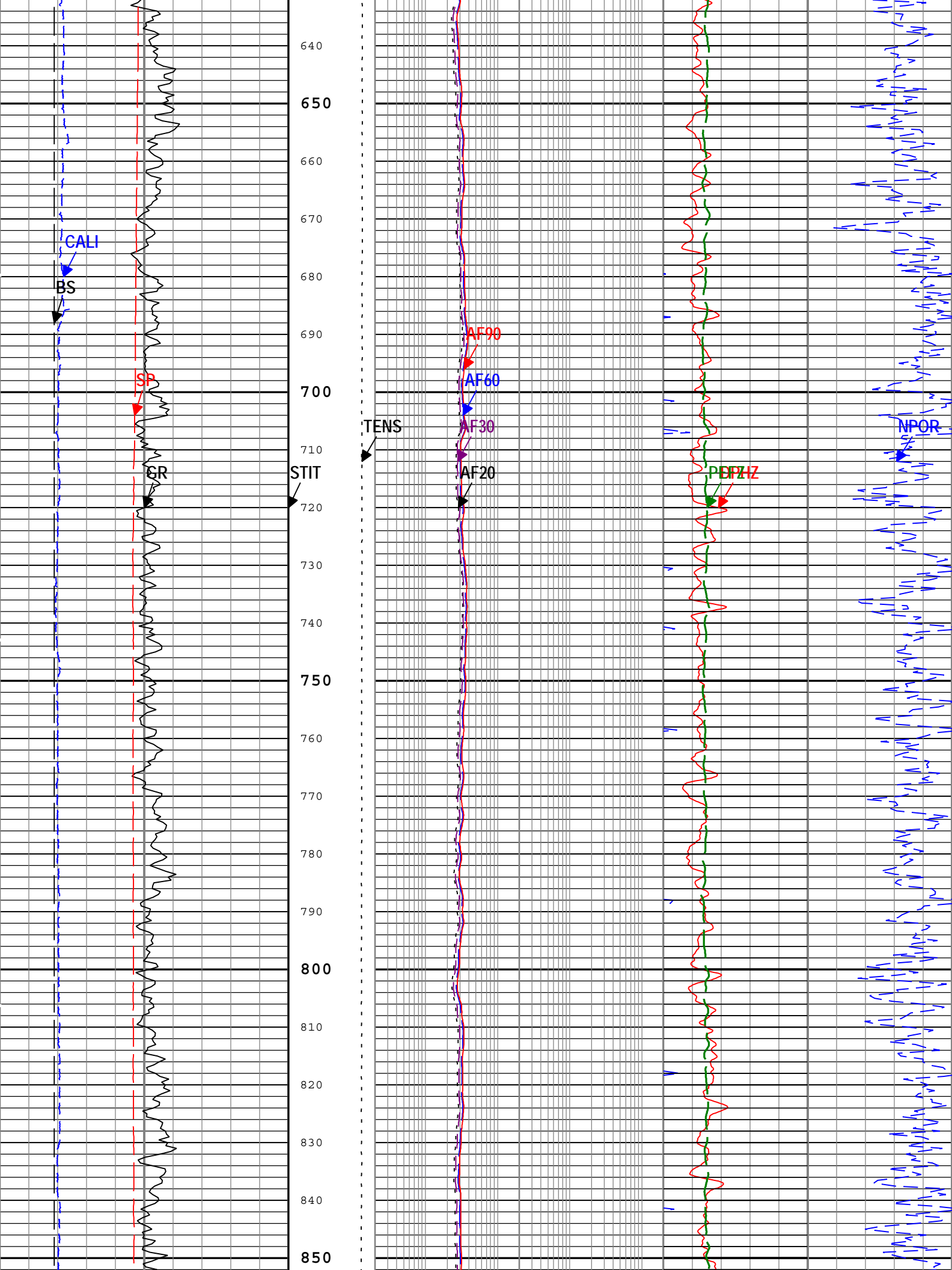
Depth Measuring Device

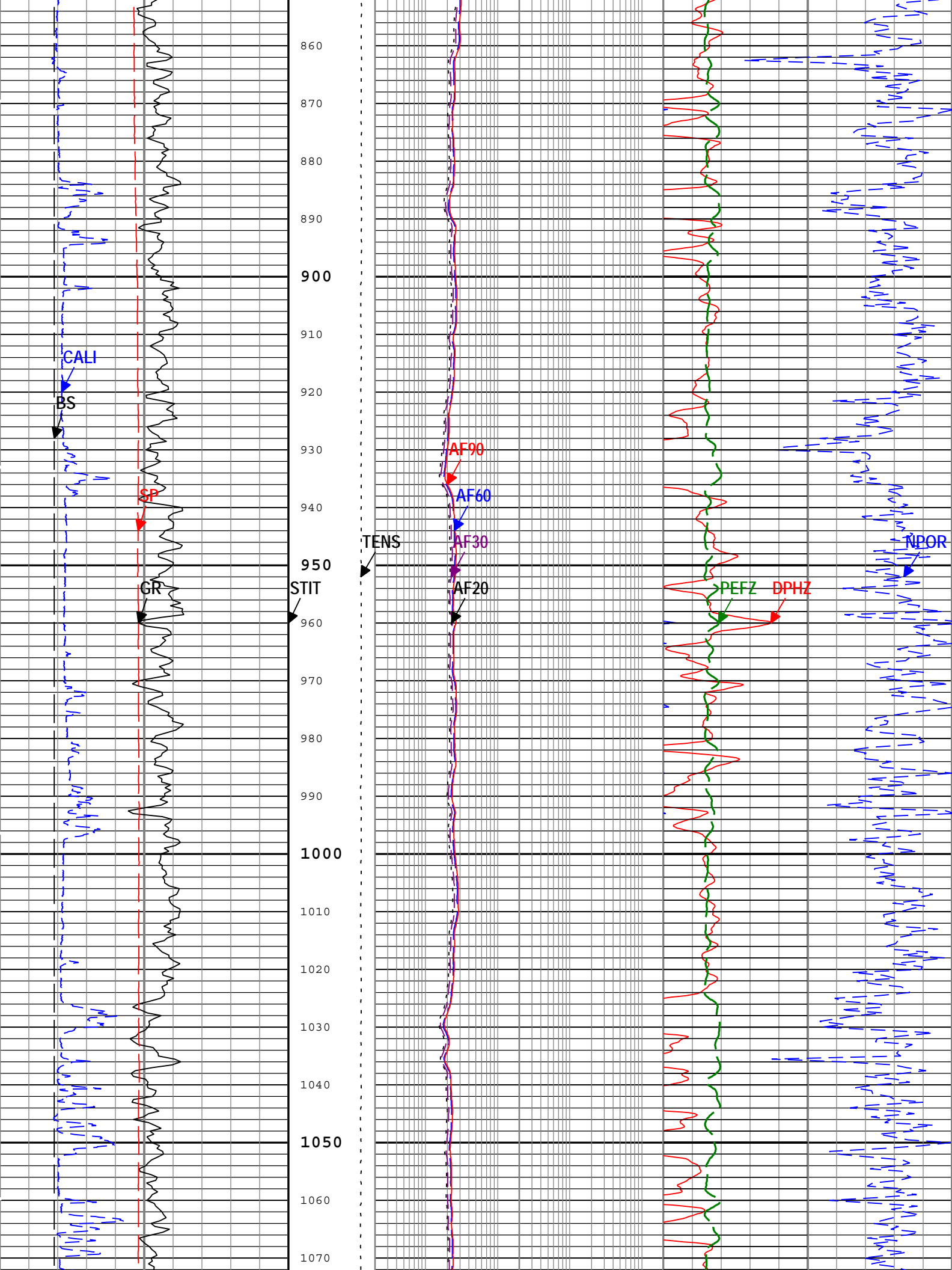
Type	IDW-JA								
Serial Number	5916								
Calibration Date	24-Mar-2014								
Calibrator Serial Number									
Calibration Cable Type	7-46 PXS								
Wheel Correction 1	-6								
Wheel Correction 2	-3								
Tension Device									
Type	CMTD-B/A								
Serial Number	1919								
Calibration Date	06-Jun-2014								
Calibrator Serial Number	78135A								
Number of Calibration Points	10								
Calibration Root Mean Square Error	15								
Calibration Peak Error	22								
Logging Cable									
Type	7-46P-XS								
Serial Number	U71148A								
Length	18800.00 ft								
Conveyance Type	Wireline								
Rig Type	Land								
ONE:Depth Control Parameters		Depth Control Remarks							
Log Sequence	First Log In the Well	All Schlumberger Depth control procedures followed							
Rig Up Length At Surface		IDW used as primary depth control device							
Rig Up Length At Bottom		Z-Chart Used as secondary depth control							
Rig Up Length Correction									
Stretch Correction									
Tool Zero Check At Surface									
Composite 3									
5" Triple Combo Linear									
Software Version									
Acquisition System		Version							
MaxWell		4.0.9163.3000							
Application Patch		Patch-SP-10767_18214-4.0.9163.3001							
		Patch-Hotfix_Task_Tree_GDI_SP2-20806-4.0.9434.3002							
Computation	Description		Version						
Borehole	Borehole Ensemble provides common Borehole Parameters and Channels		4.0.9433.3000						
HENVIR	Computation Ensemble for the HGNS Neutron environmental corrections		4.0.9360.3000						
DepthCorrection	DepthCorrection		4.0.9433.3000						
Tool Elements	Description	Software Version	Firmware Version						
HRCC-H	HILT High-Resolution Control Cartridge, 150 degC	4.0.9385.3000	2.0						
HGNS-H	HILT Gamma-Ray and Neutron Sonde, 150 degC	4.0.9385.3000	2.0						
HRGD-H	HILT Resistivity Gamma-Ray Density Device, 150 degC	4.0.9385.3000	3.0						
AMIS	Array Induction Sonde - M	4.0.9427.3000	1						
Composite Summary									
Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
ONE	Log[7]:Up	Up	7998.89 ft	8640.74 ft	22-Jun-2014 6:40:31 AM	22-Jun-2014 7:37:02 AM	ON	18.06 ft	No
ONE	Log[8]:Up	Up	3774.74 ft	8110.45 ft	22-Jun-2014 7:55:06 AM	22-Jun-2014 11:04:23 AM	ON	18.26 ft	No
ONE	Log[9]:Up	Up	167.65 ft	3916.01 ft	22-Jun-2014	22-Jun-2014	ON	18.28 ft	No

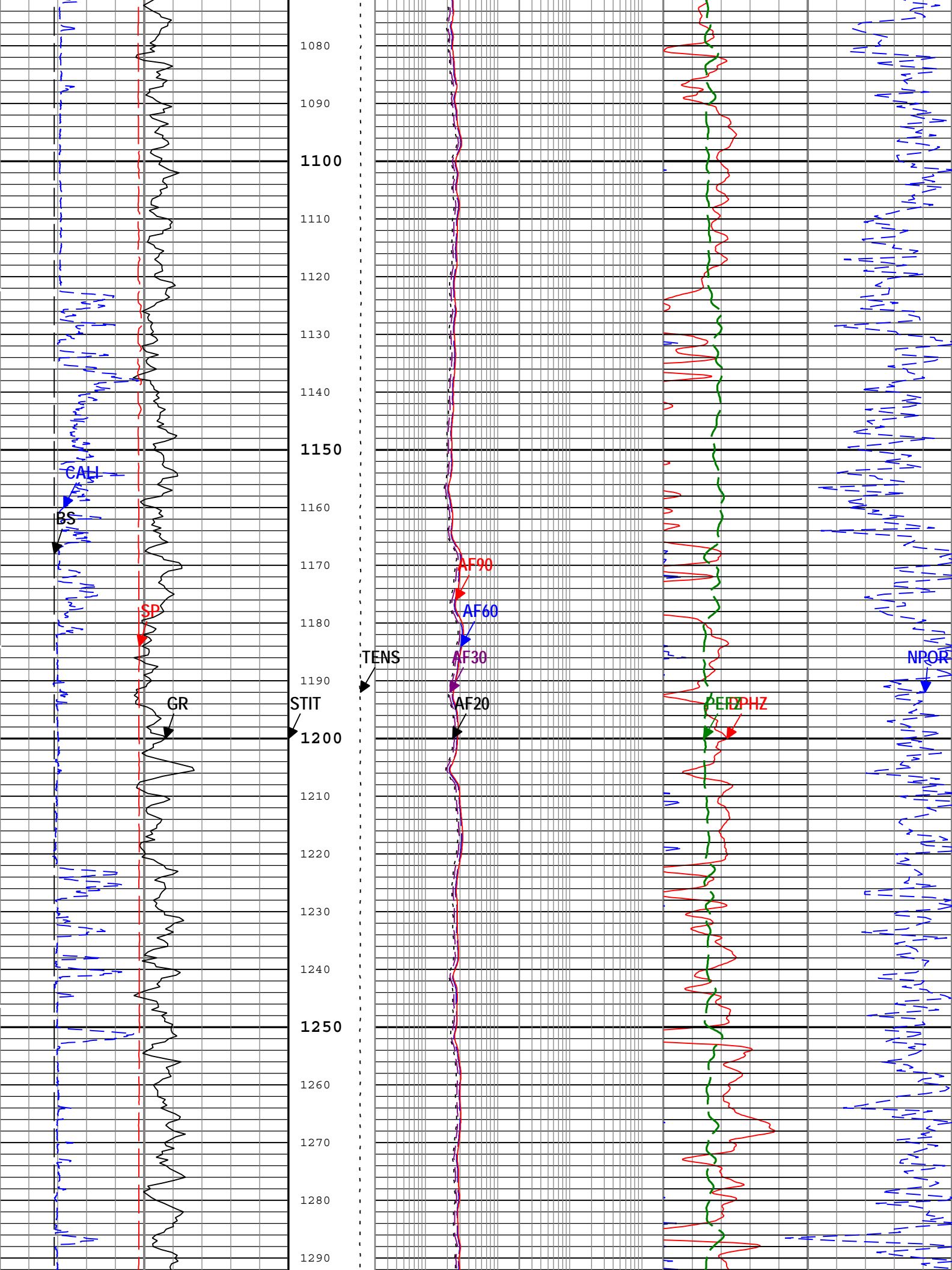
	Log[1].log	SP	10100.0	00100.0	11:19:39 AM	12:28:17 PM	0.0	10100.0	0.0	
All depths are referenced to toolstring zero										
Log	Company:Nighthawk Production LLC							Well:Knoss 9-20		
	Composite 3:S005									
Description: HGNS standard resolution porosities for Platform Express Format: Log (EMD 5in Triple Combo Linear) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 22-Jun-2014 23:59:59										
Channel	Source			Sampling						
AF20	AIT_SpliceGroup[1]:AMIS[1]:AMIS[1]			3in						
AF30	AIT_SpliceGroup[1]:AMIS[1]:AMIS[1]			3in						
AF60	AIT_SpliceGroup[1]:AMIS[1]:AMIS[1]			3in						
AF90	AIT_SpliceGroup[1]:AMIS[1]:AMIS[1]			3in						
BS	Borehole			6in						
CALI	HDRS[1]:HRCC-H[1]:HRCC-H[1]			1in						
DPHZ	HDRS[1]:HRMS-H[1]:HRGD-H[1]			2in						
GR	HGNS[1]:HGNS-H[1]:HGNS-H[1]			6in						
NPOR	HGNS[1]:HGNS-H[1]:HGNS-H[1]			6in						
PEFZ	HDRS[1]:HRMS-H[1]:HRGD-H[1]			2in						
SP	AIT_SpliceGroup[1]:AMIS[1]:AMIS[1]			6in						
STIT	DepthCorrection			6in						
TENS	WLWorkflow			6in						
TIME_1900	WLWorkflow			0.1in						
TIME_1900 - Time Marked every 60.00 (s)										
<div><div>Gamma Ray Back up</div><div>Gamma Ray (GR) HGNS[1]</div><div>0gAPI200</div></div>			<div><div>Array Induction Four Foot Resistivity A20 (AF20) AIT_SpliceGroup[1]</div><div>0.2ohm.m2000</div></div>			<div><div>Standard Resolution Formation Photoelectric Factor (PEFZ) HDRS[1]</div><div>010</div></div>				
			<div><div>Array Induction Four Foot Resistivity A30 (AF30) AIT_SpliceGroup[1]</div><div>0.2ohm.m2000</div></div>			<div><div>Gas Effect</div><div>NPOR Backup</div></div>				
<div><div>Spontaneous Potential (SP) AIT_SpliceGroup[1]</div><div>-100mV200</div></div>			<div><div>Stuck Tool Indicator, Total (STIT)</div><div>0ft50</div></div>	<div><div>Array Induction Four Foot Resistivity A60 (AF60) AIT_SpliceGroup[1]</div><div>0.2ohm.m2000</div></div>			<div><div>Standard Resolution Density Porosity (DPHZ) HDRS[1]</div><div>0.3ft3/ft3-0.1</div></div>			
<div><div>Bit Size (BS)</div><div>6in16</div></div>			<div><div>Cable Tension (TENS)</div><div>10000lbf0</div></div>	<div><div>Array Induction Four Foot Resistivity A90 (AF90) AIT_SpliceGroup[1]</div><div>0.2ohm.m2000</div></div>			<div><div>Enhanced Thermal Neutron Porosity in Selected Lithology (NPOR) HGNS[1]</div><div>0.3m3/m3-0.1</div></div>			
<div><div>Caliper (CALI) HDRS[1]</div><div>6in16</div></div>										
			140							
			150							
			160							
			170							
			180							
			190							

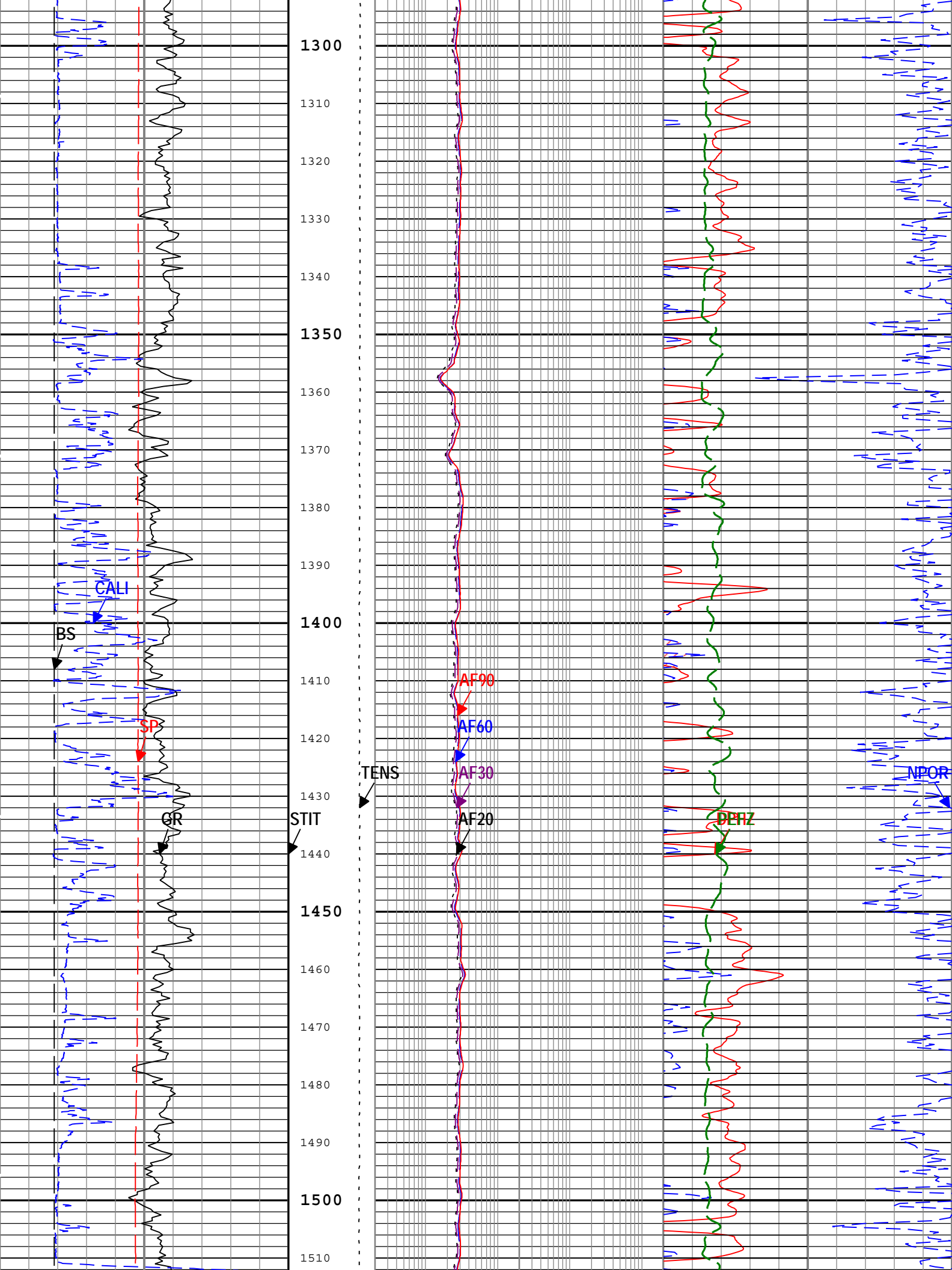


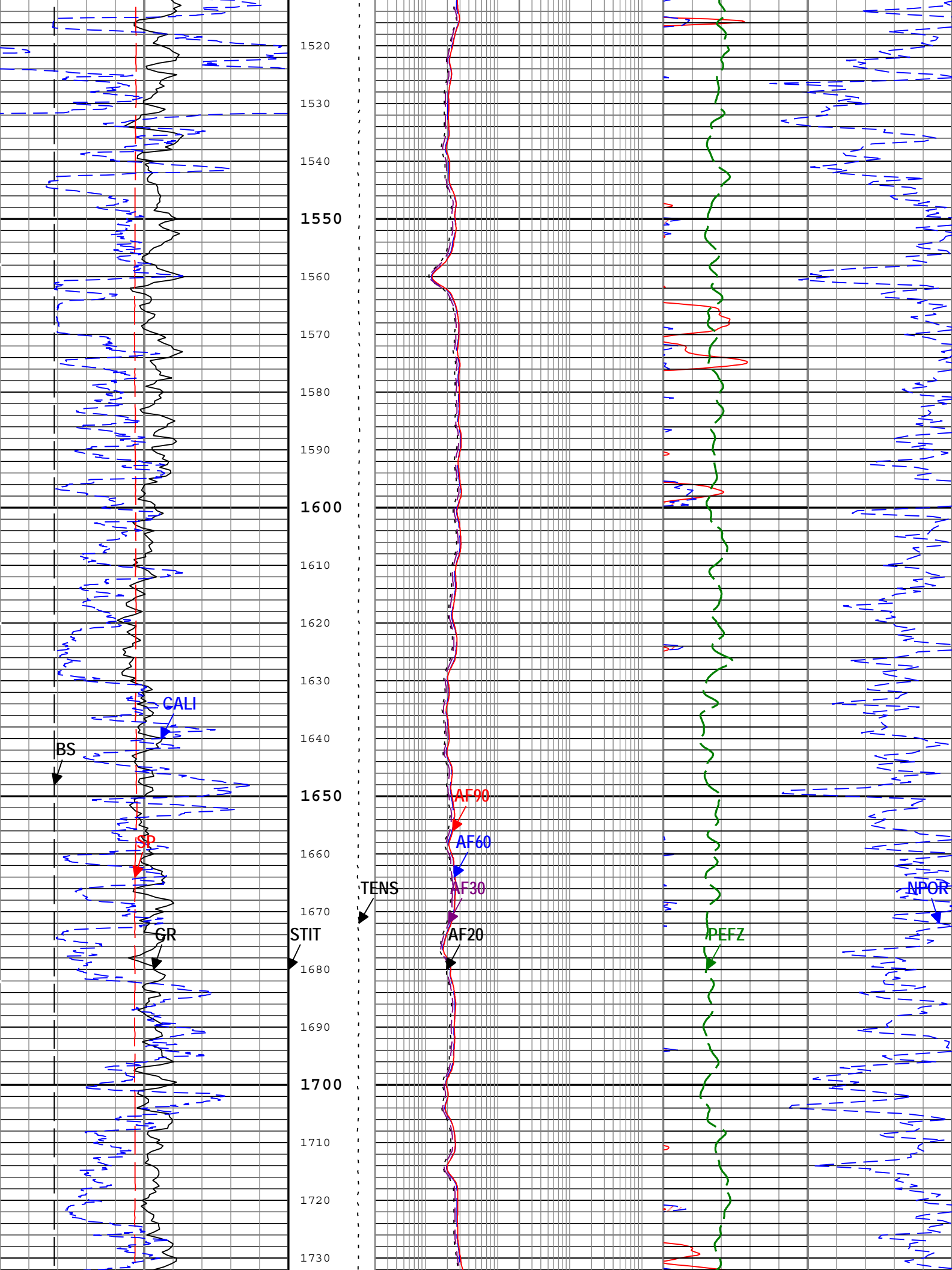


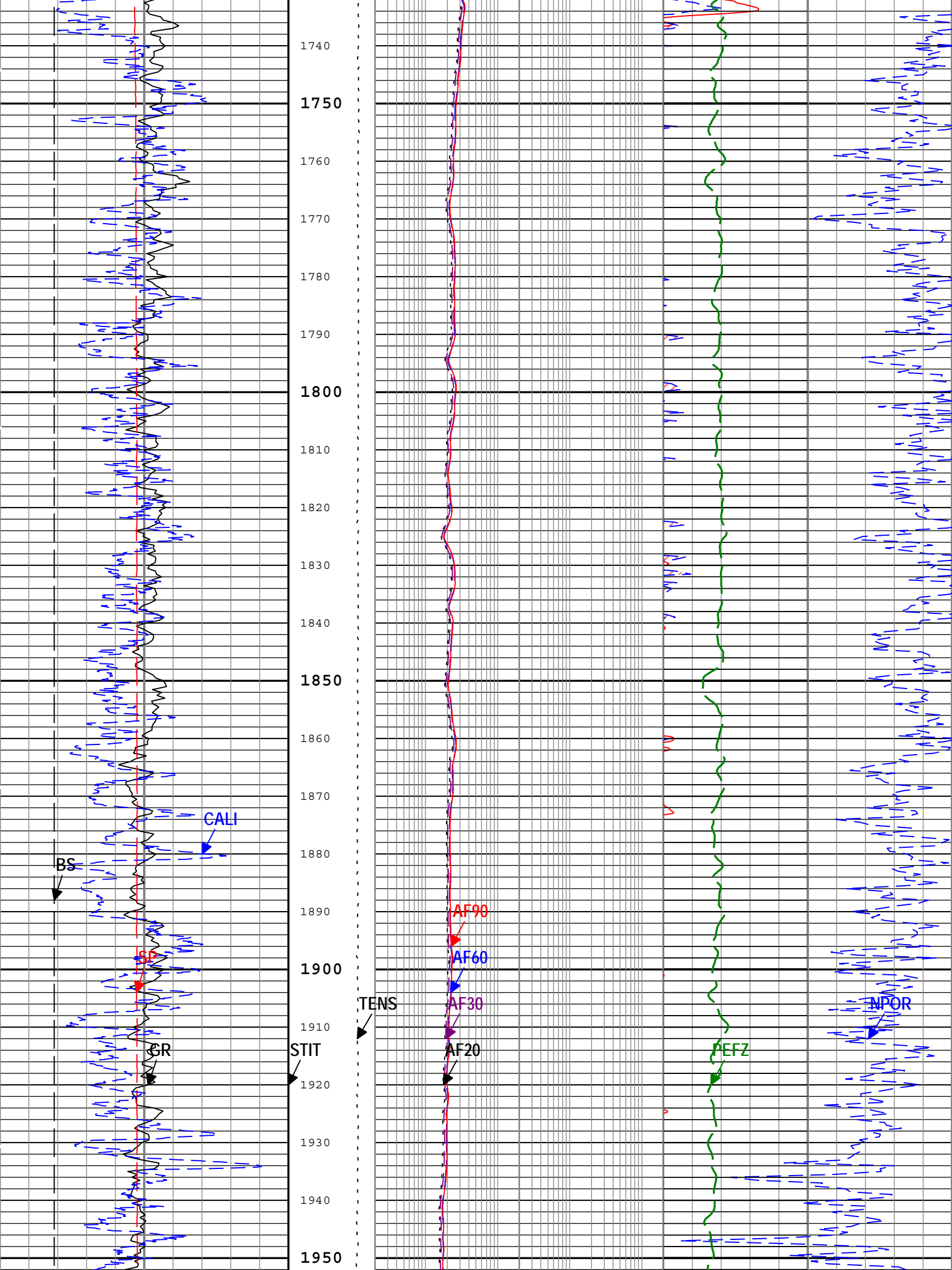


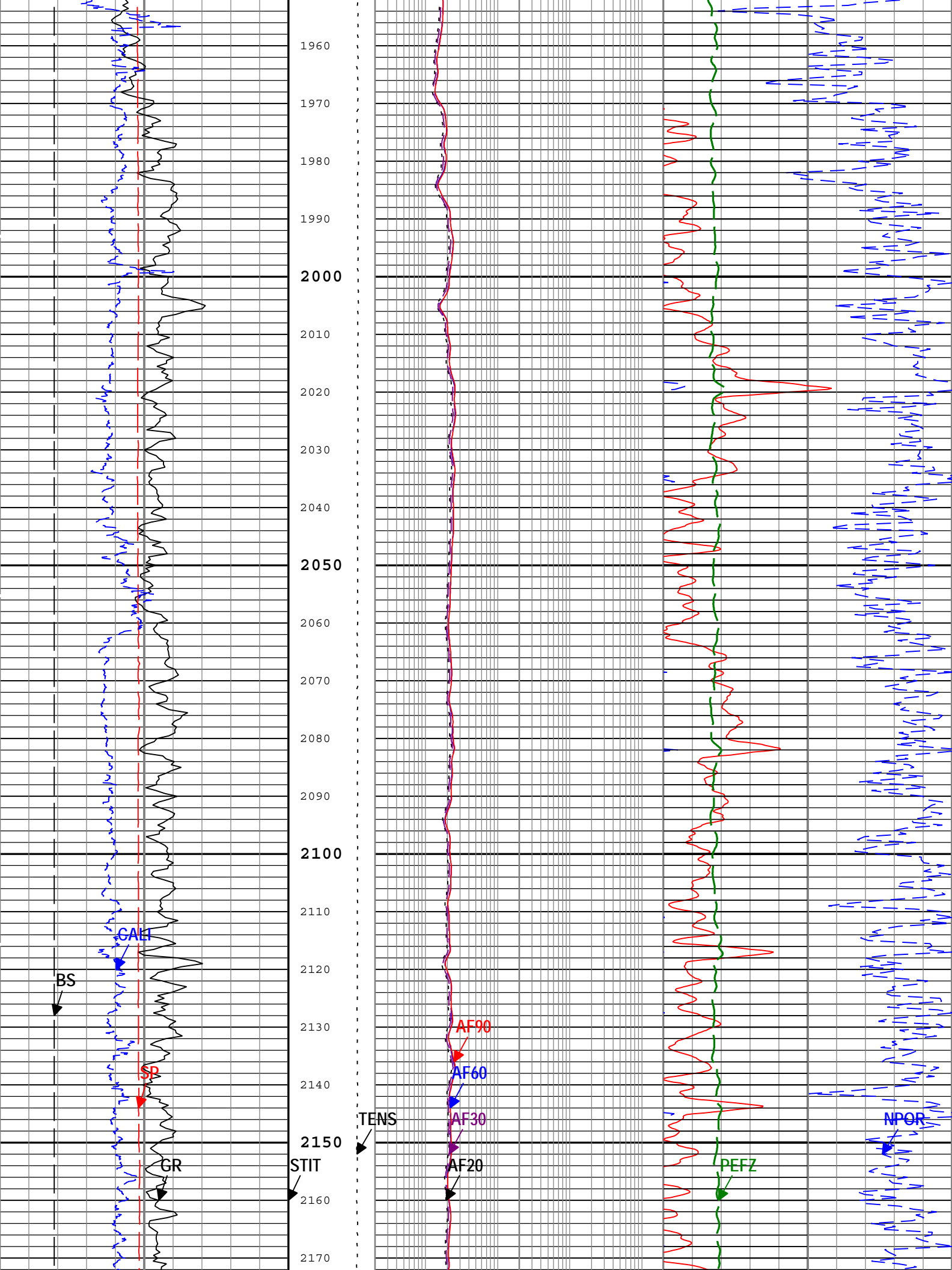


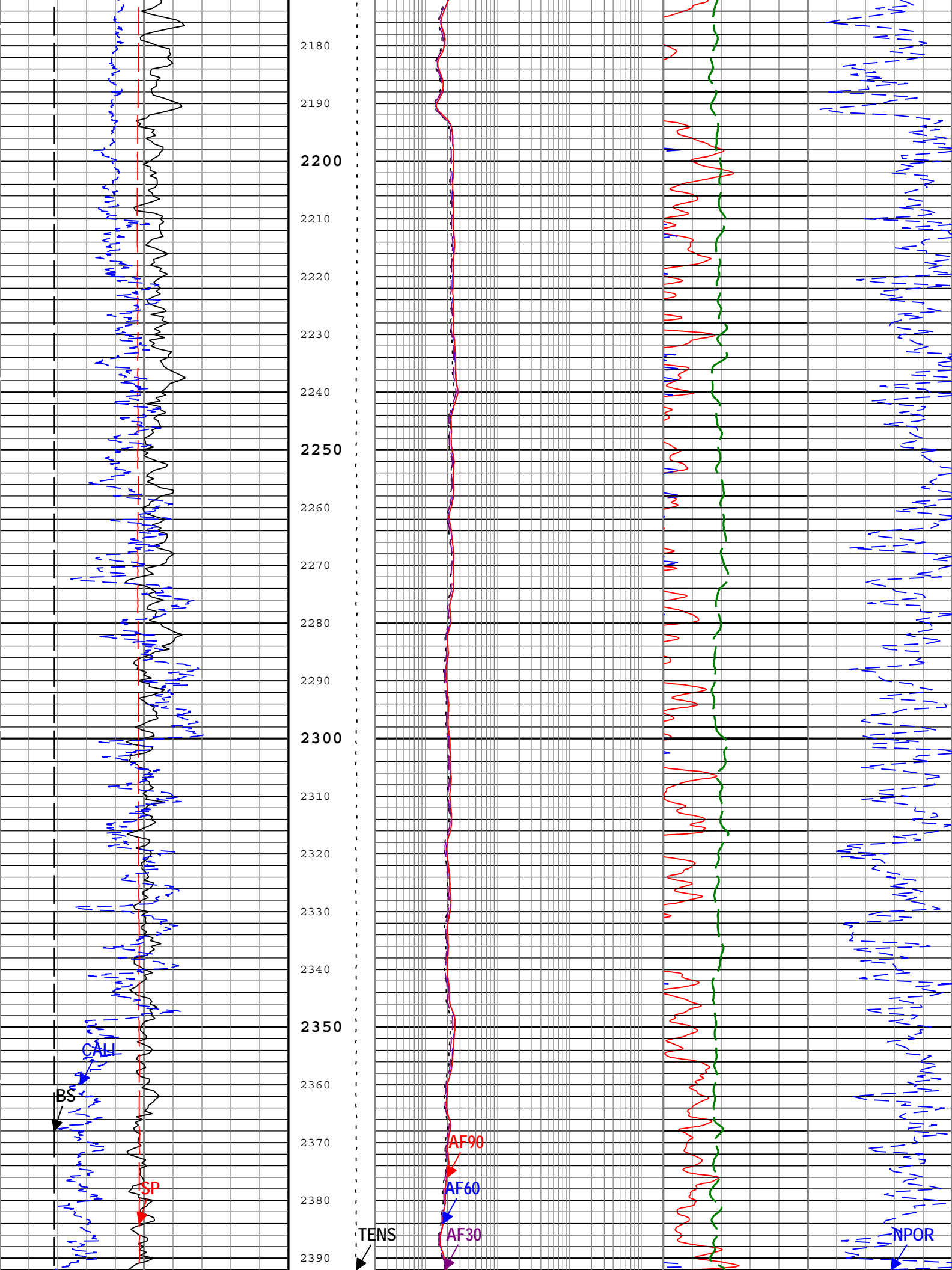


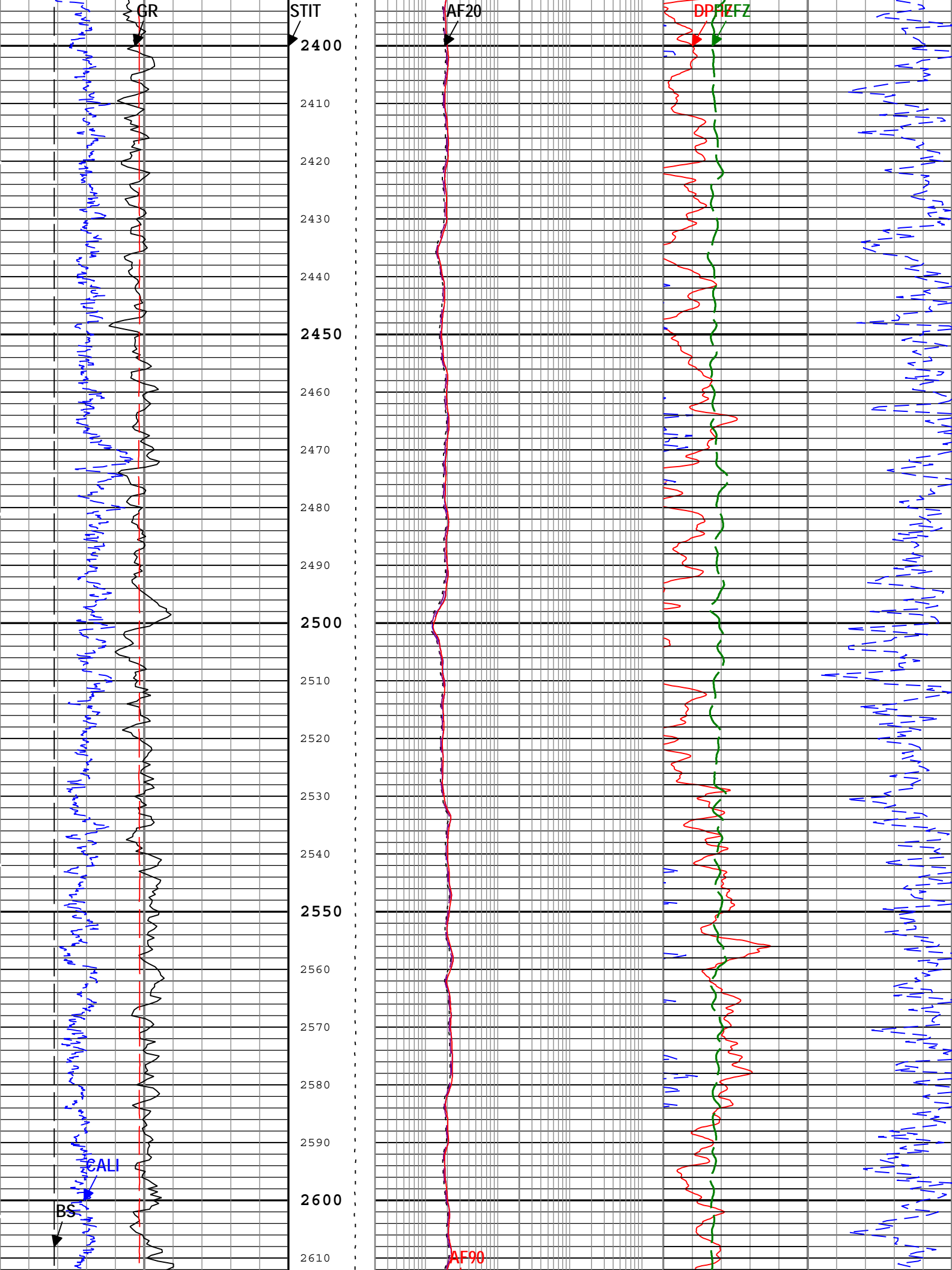


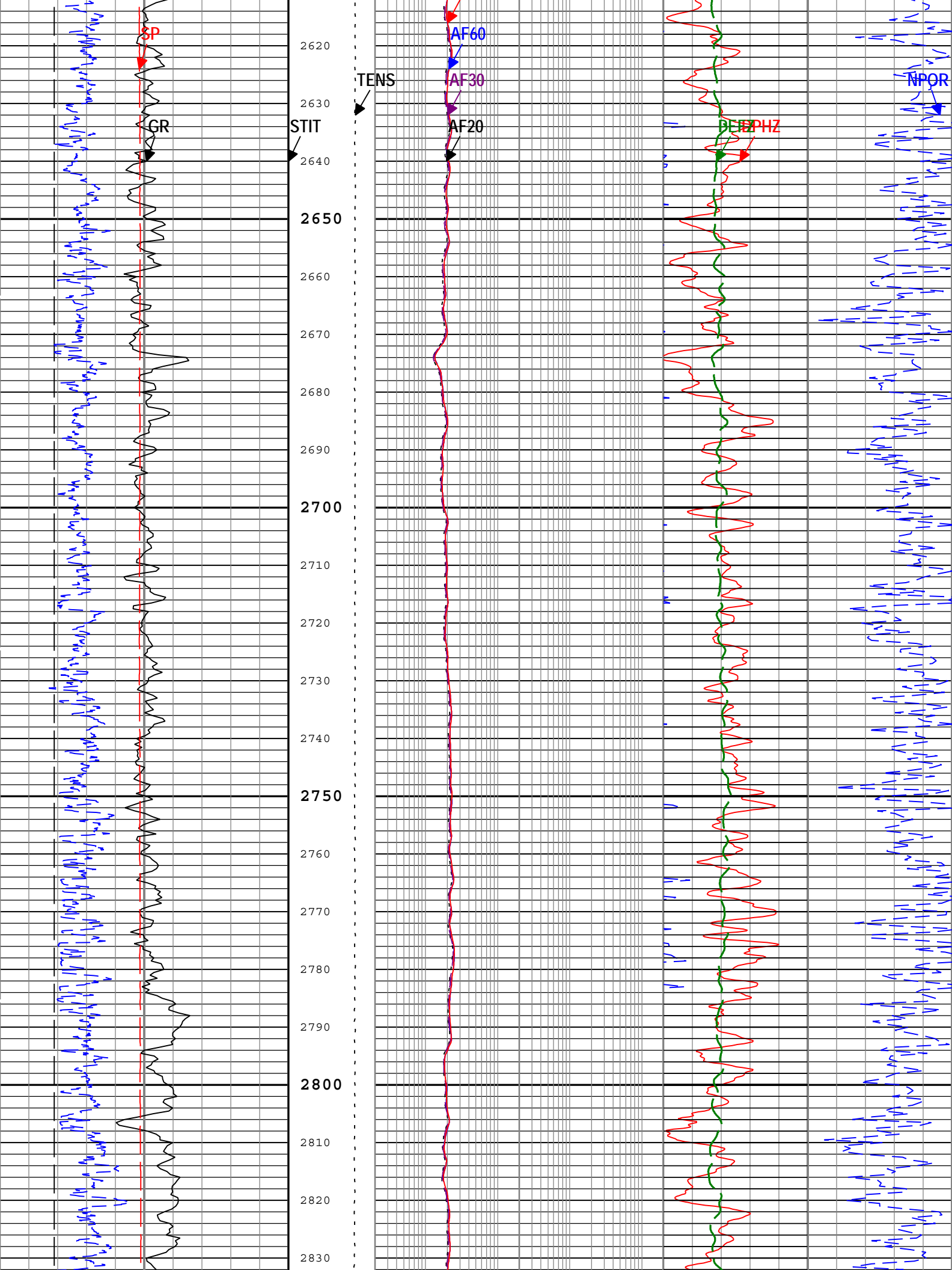


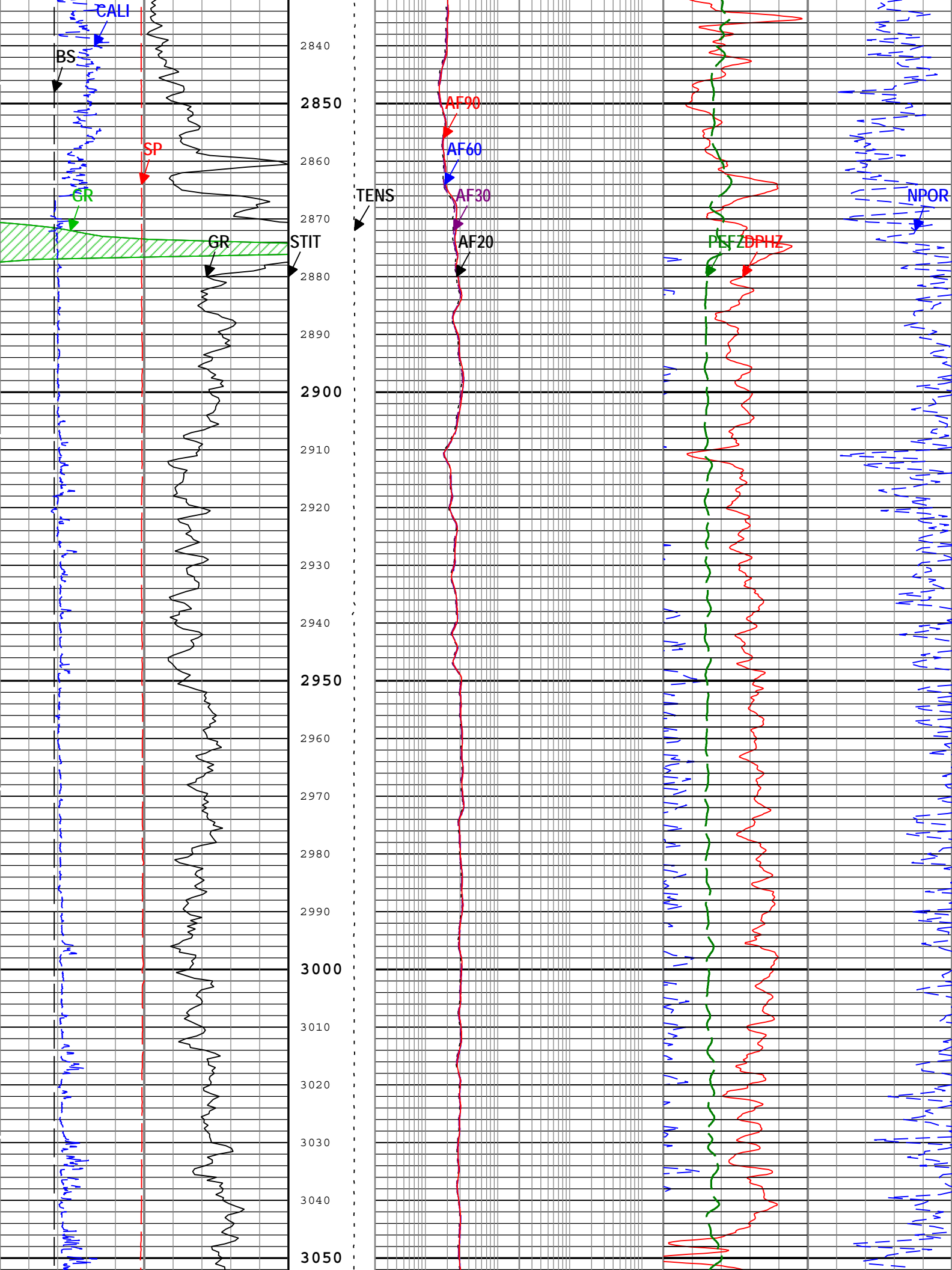


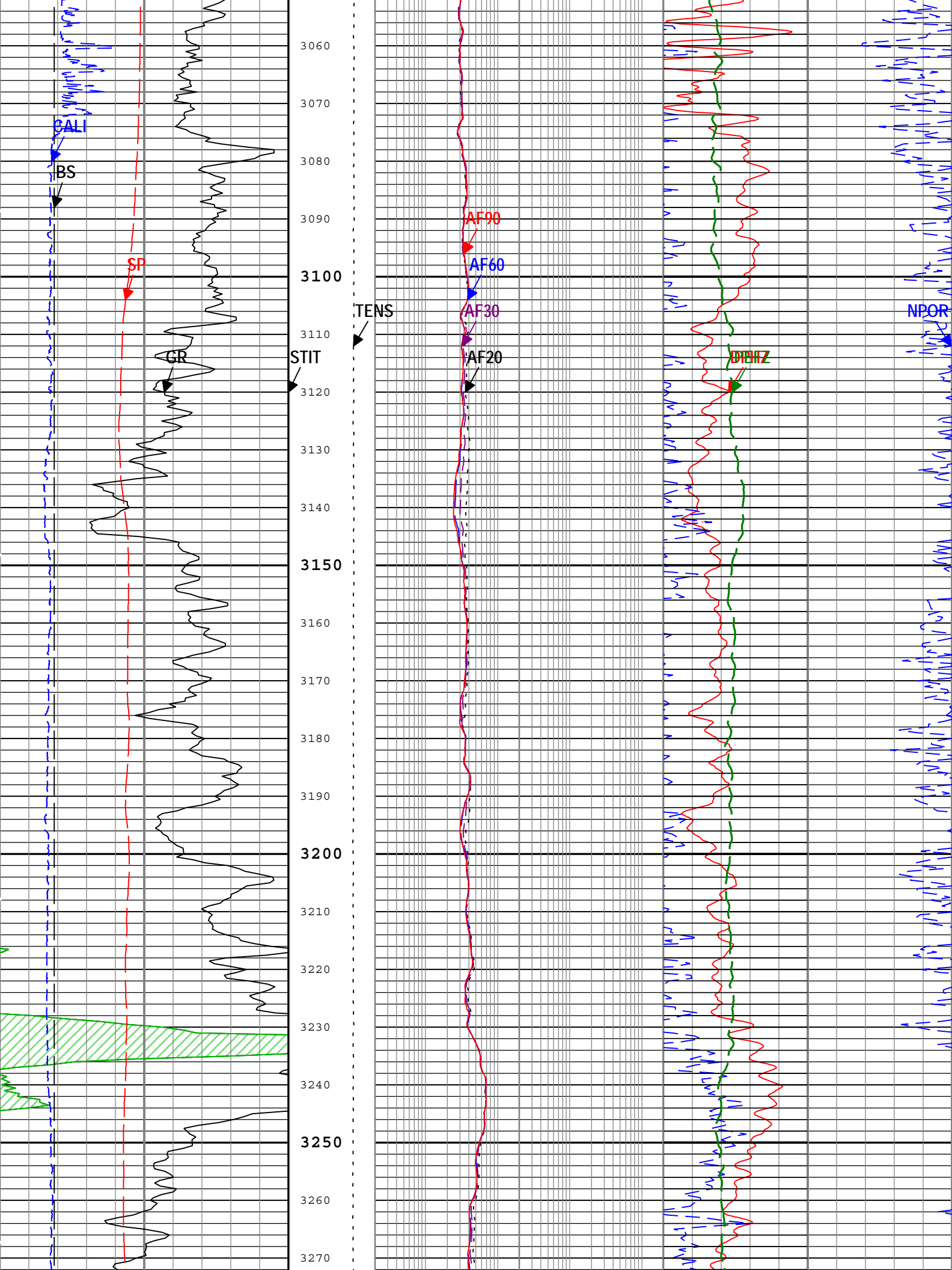


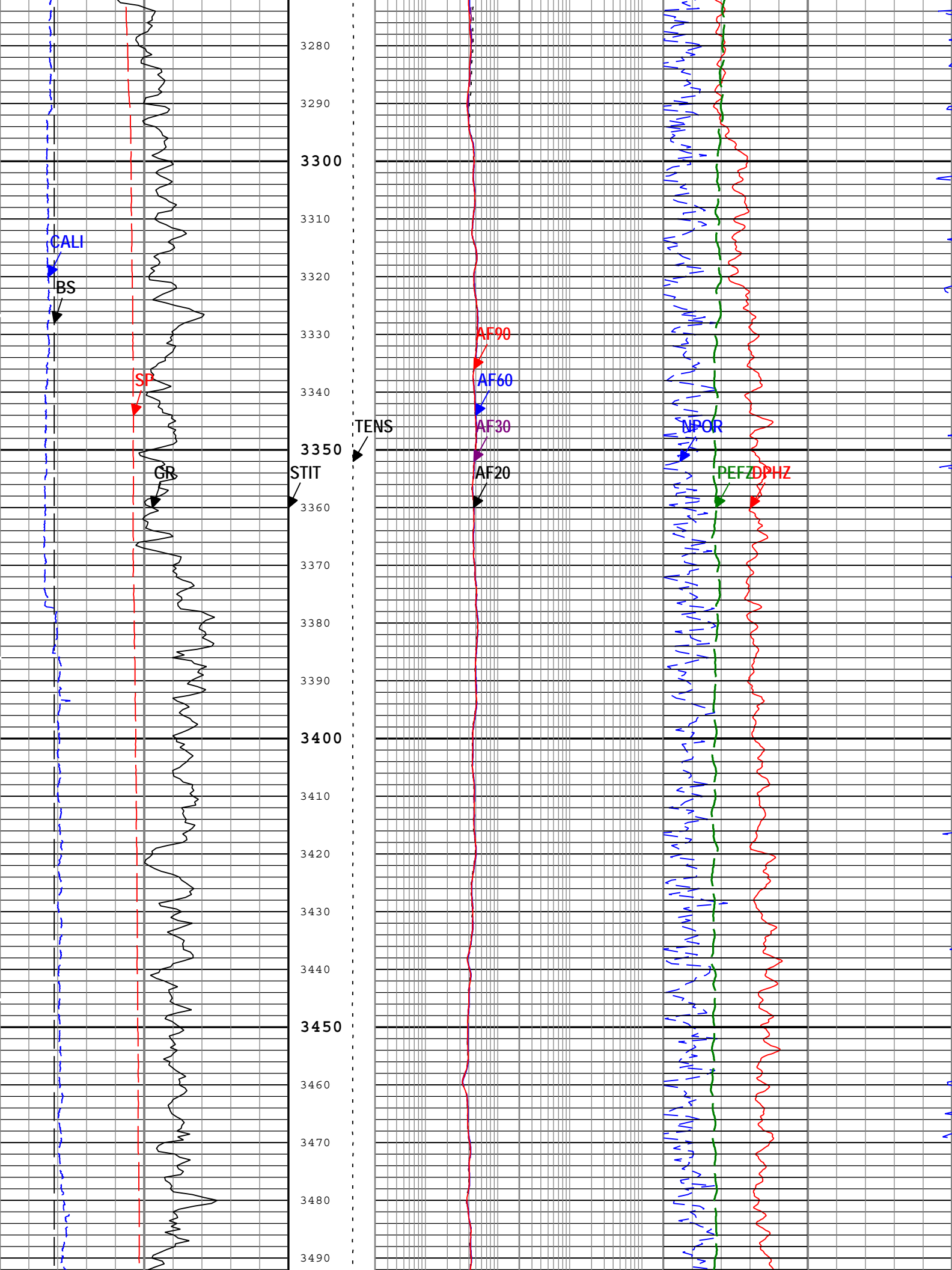


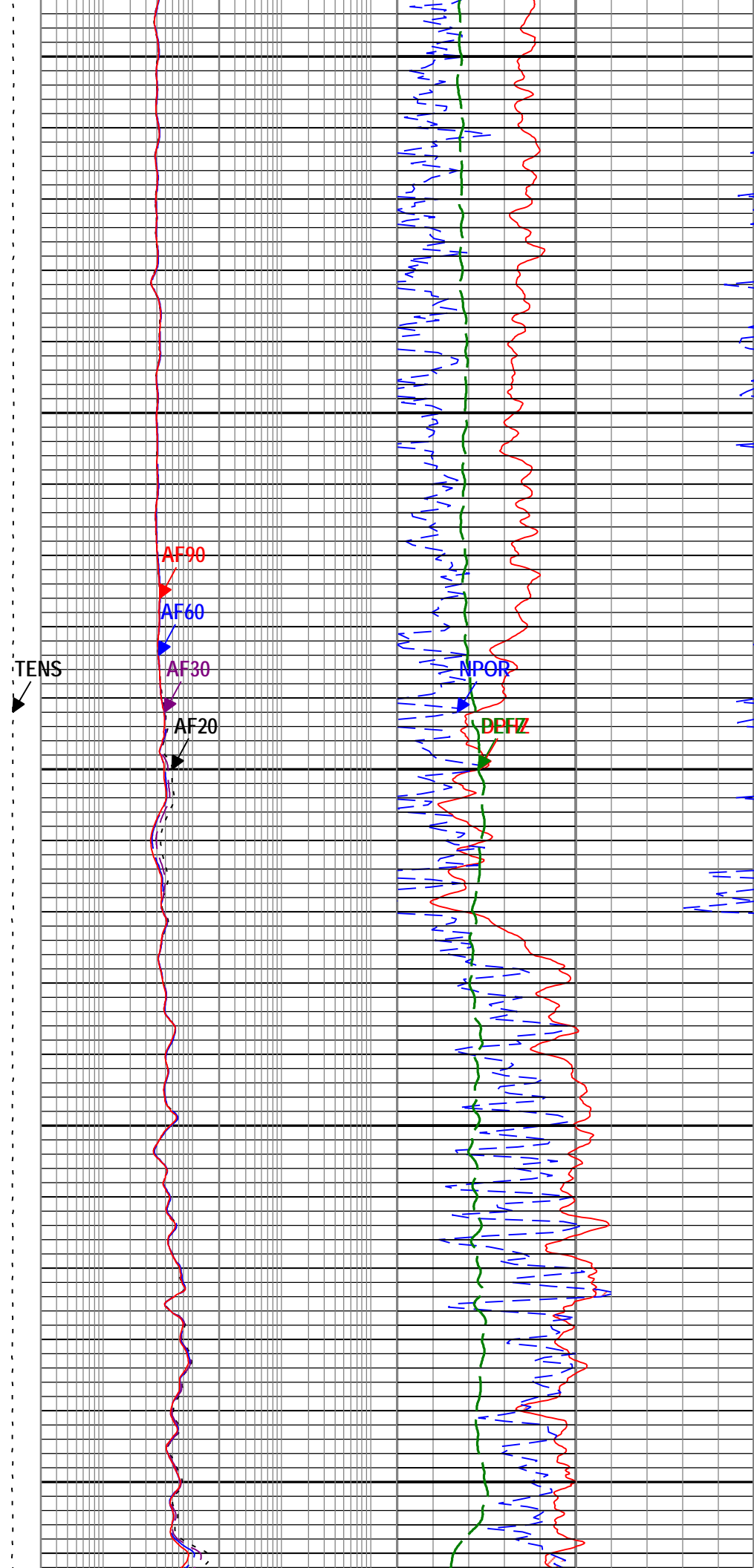
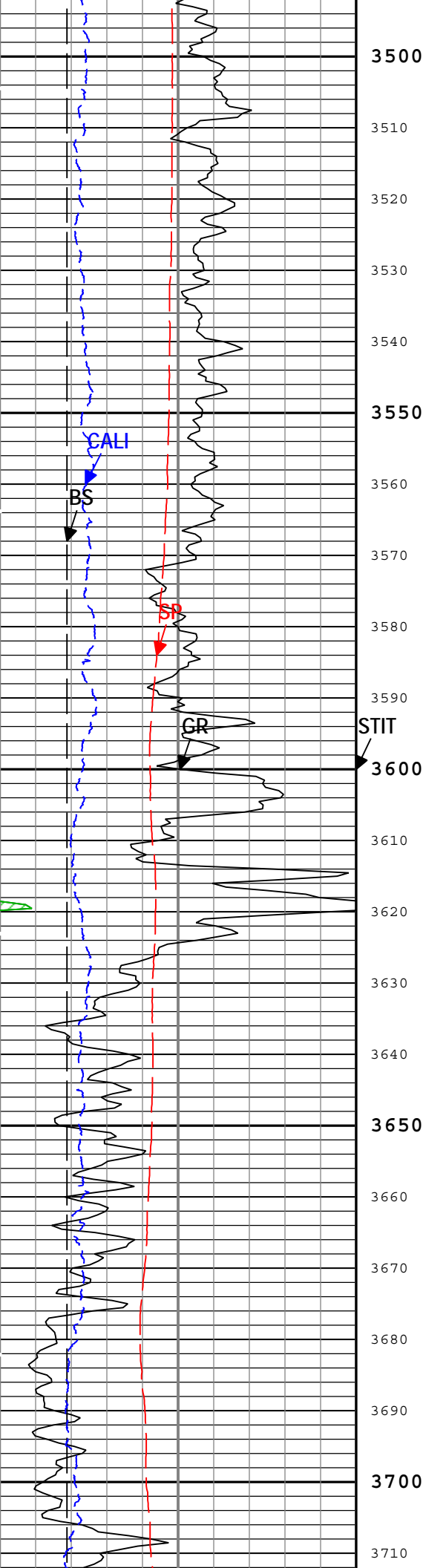


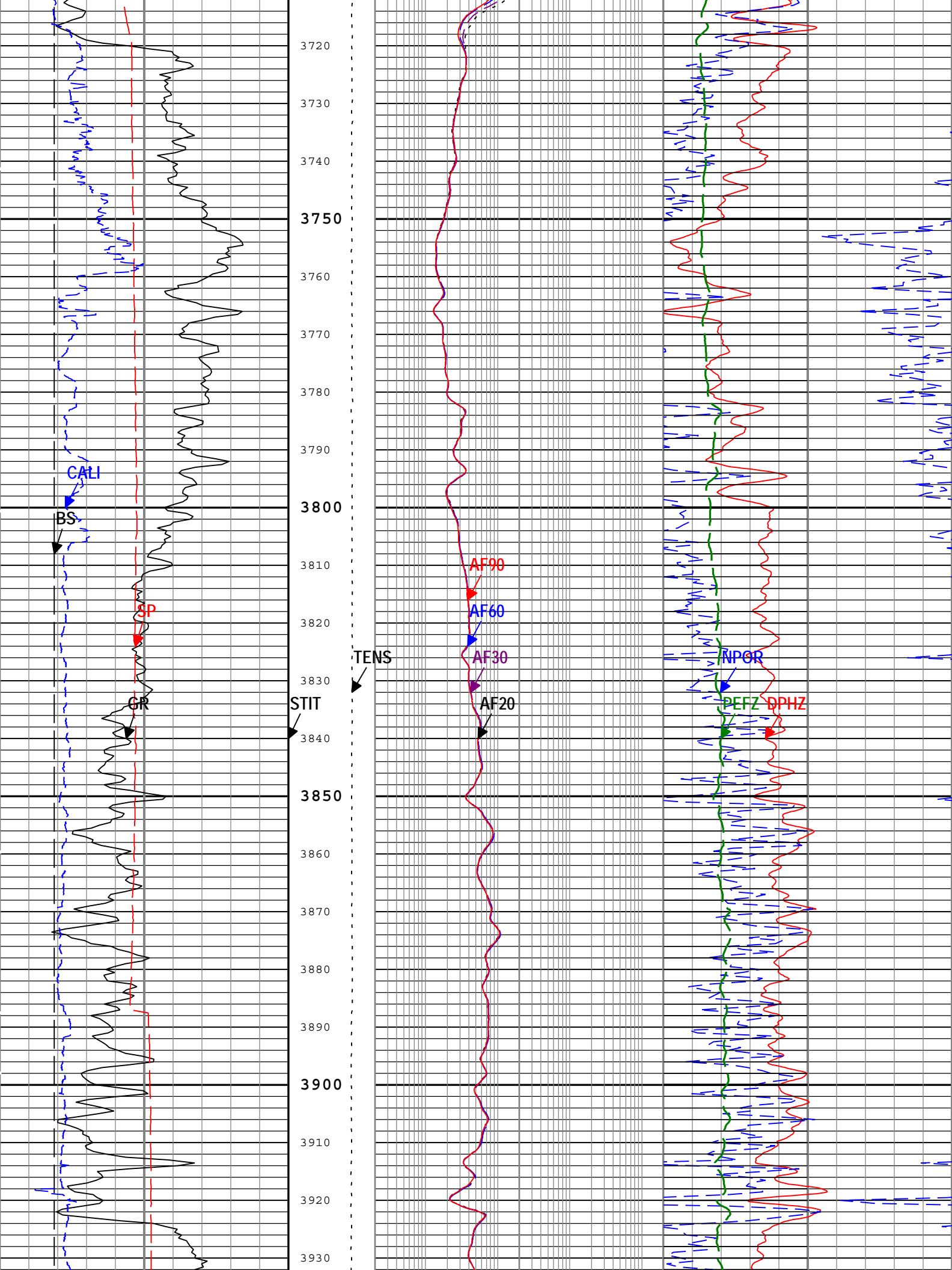


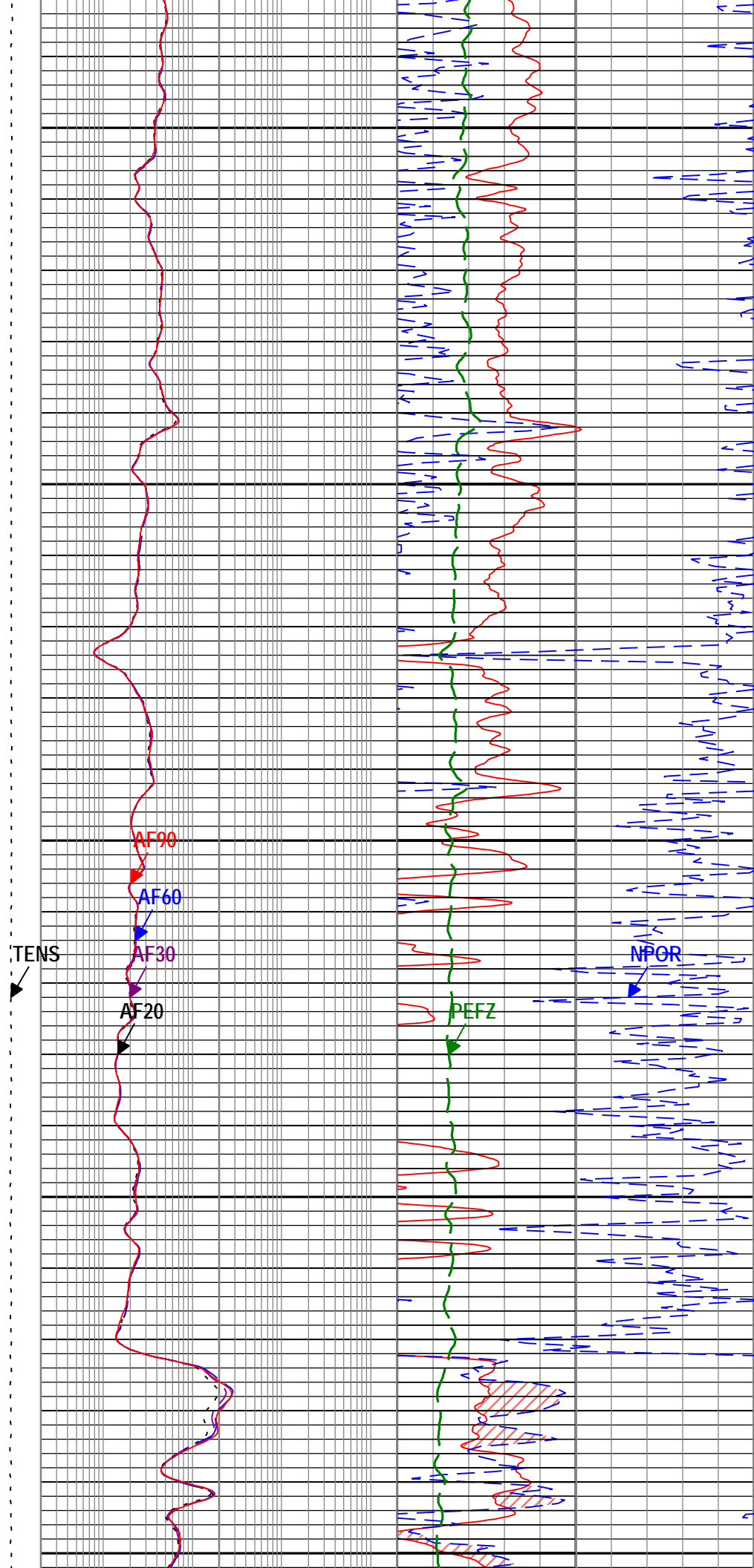
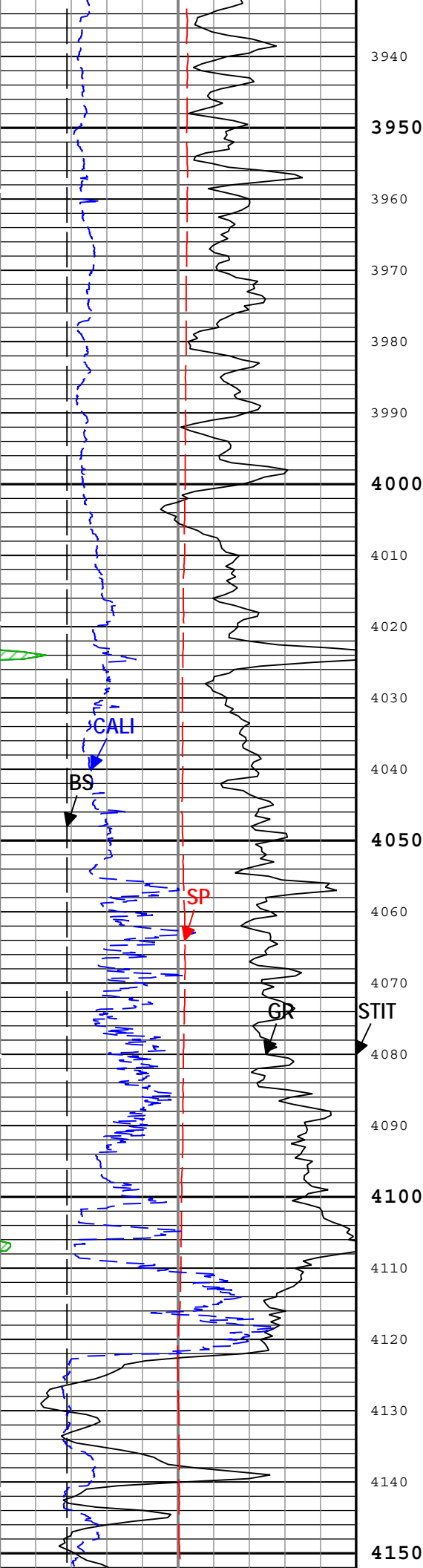


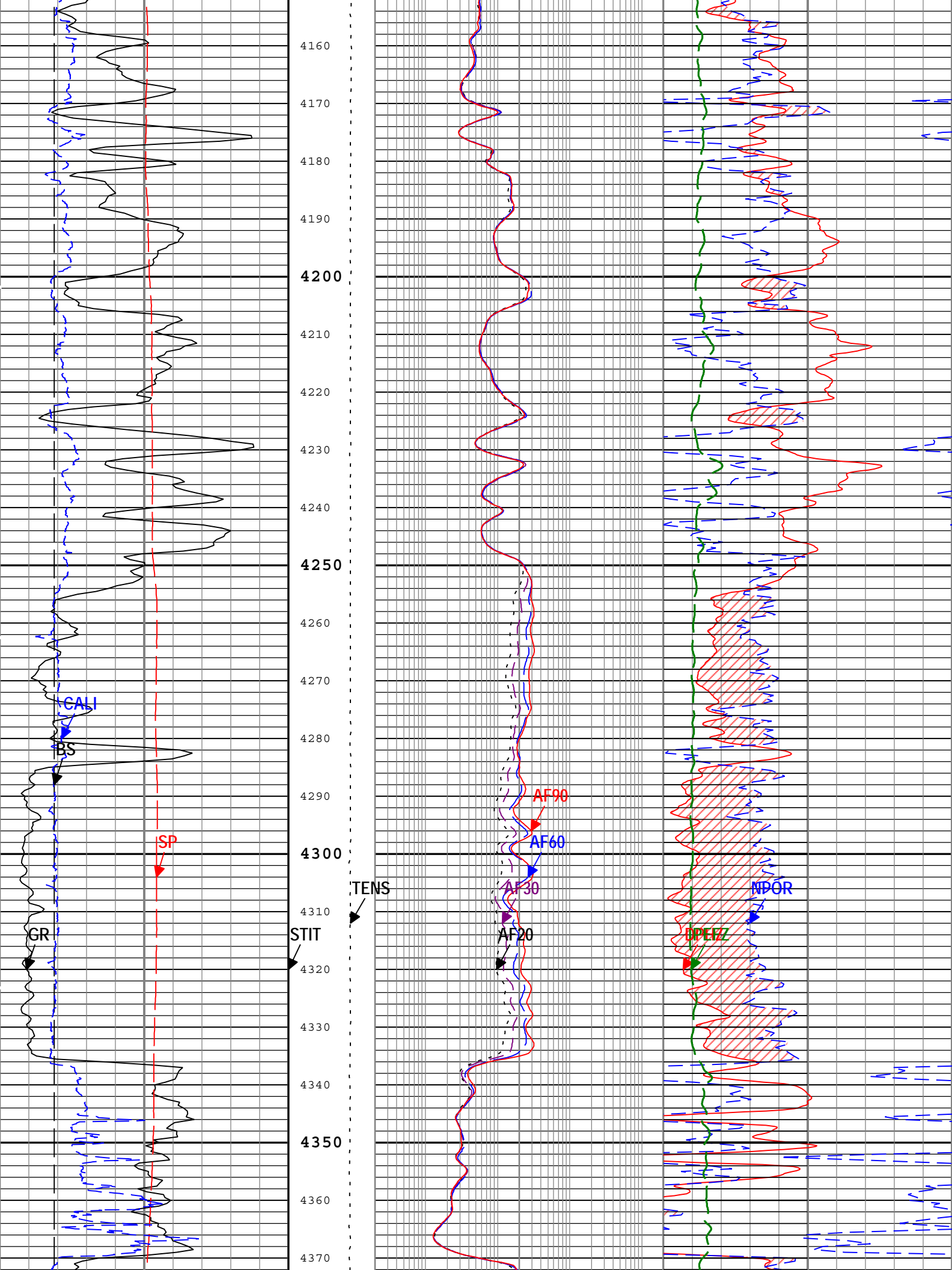


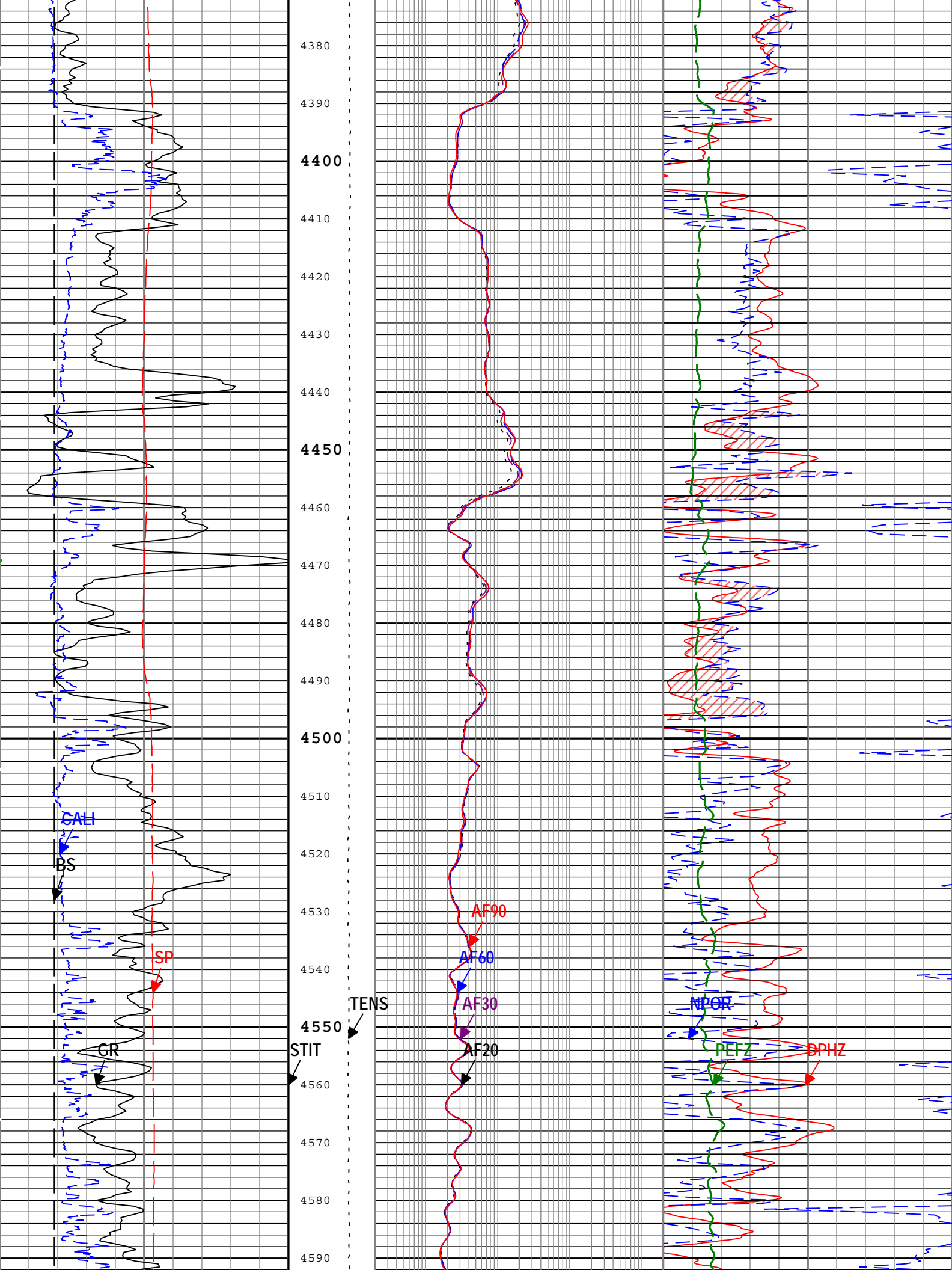


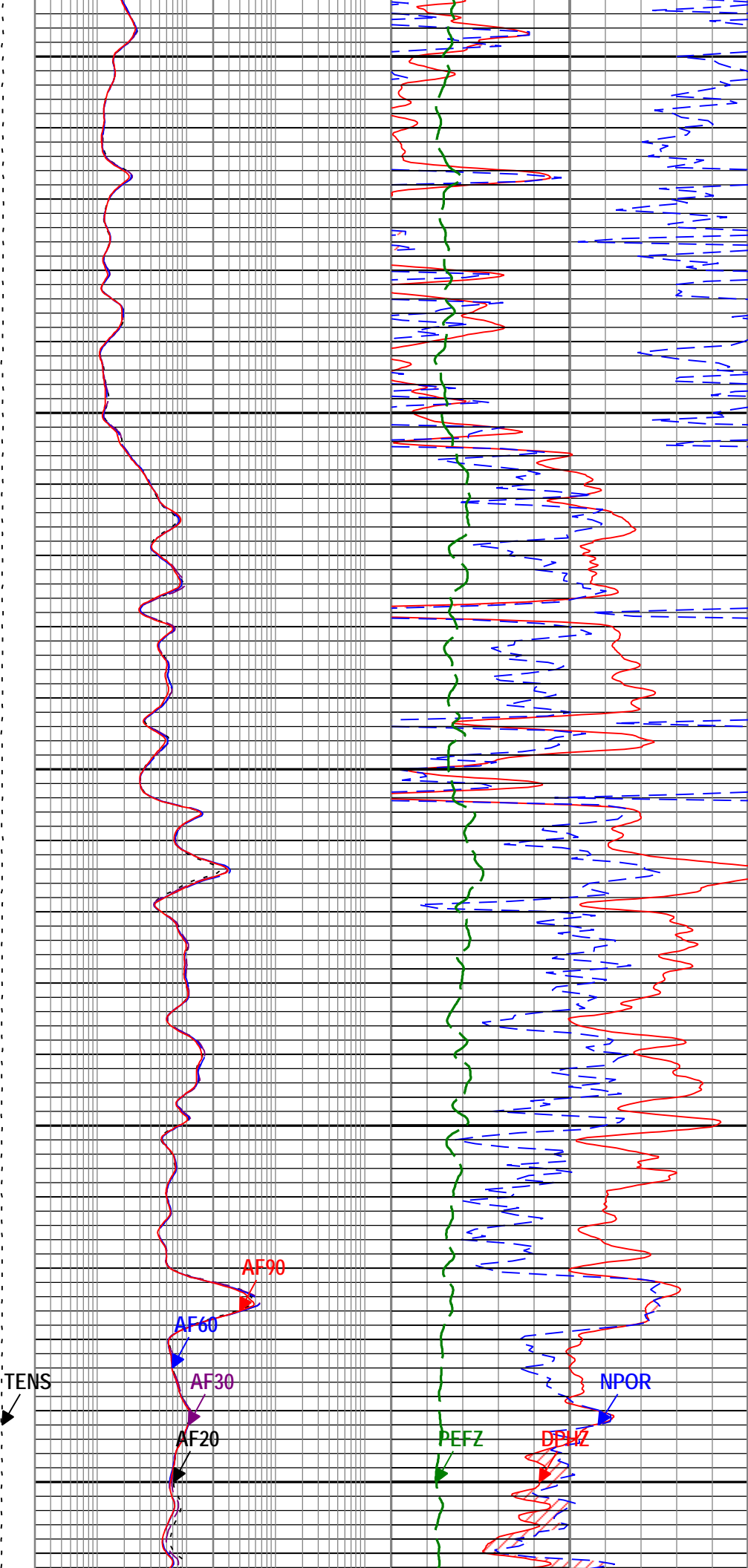
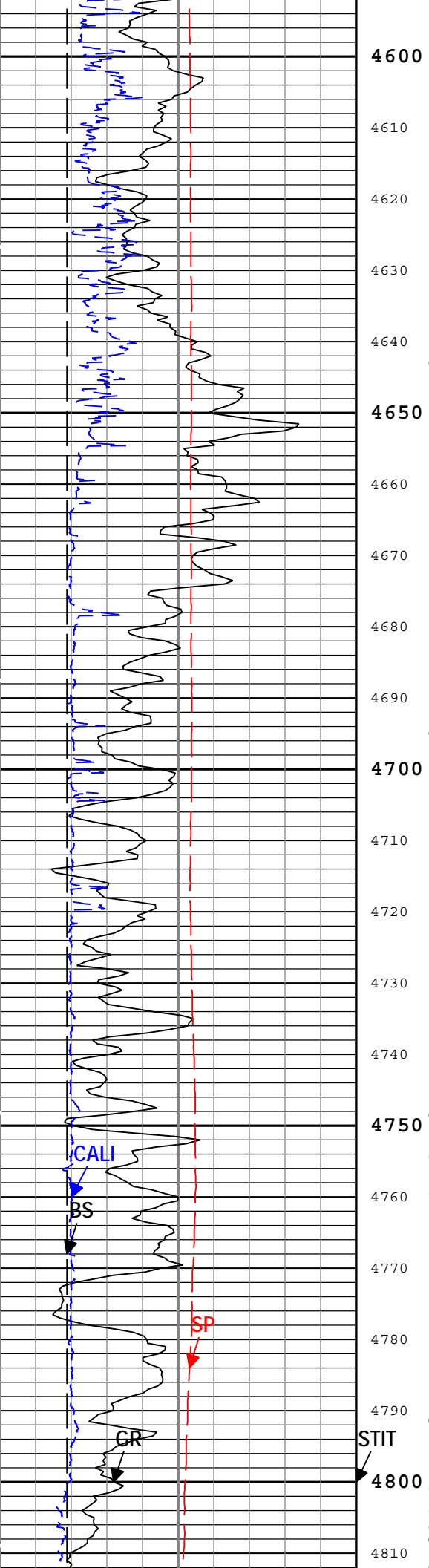


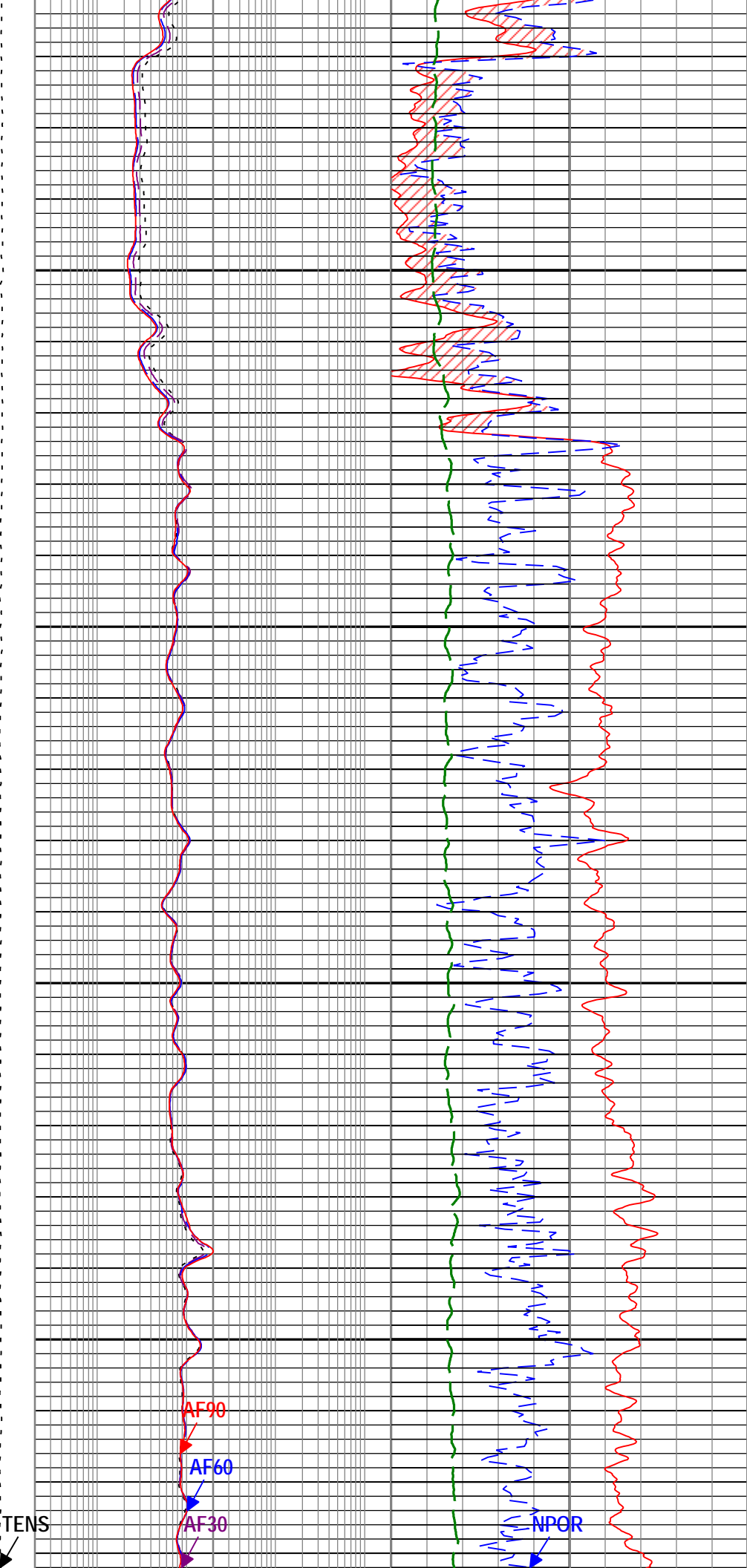
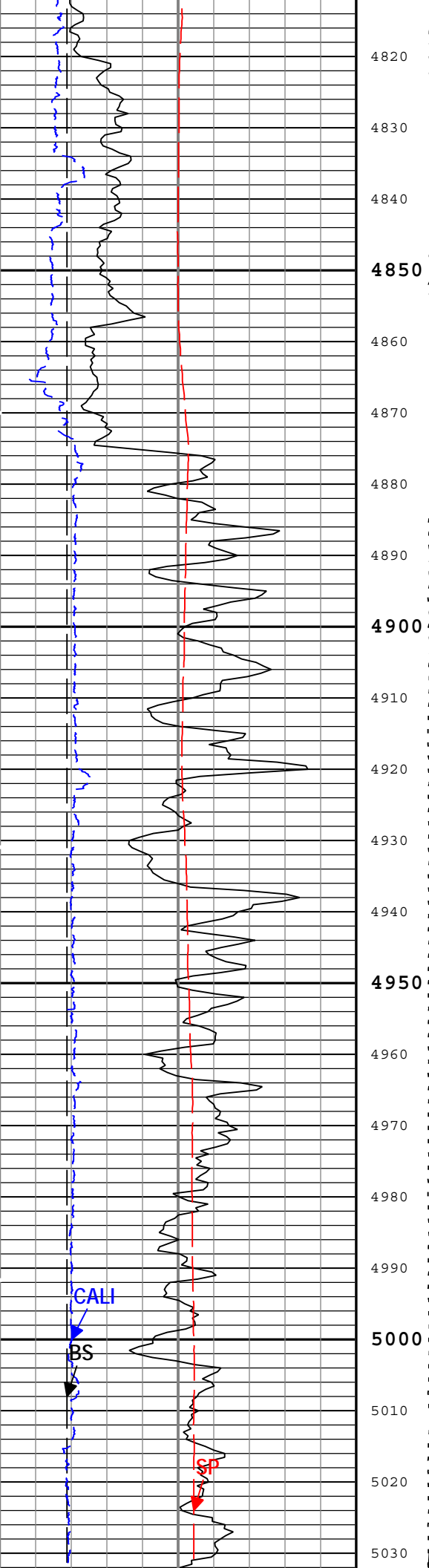


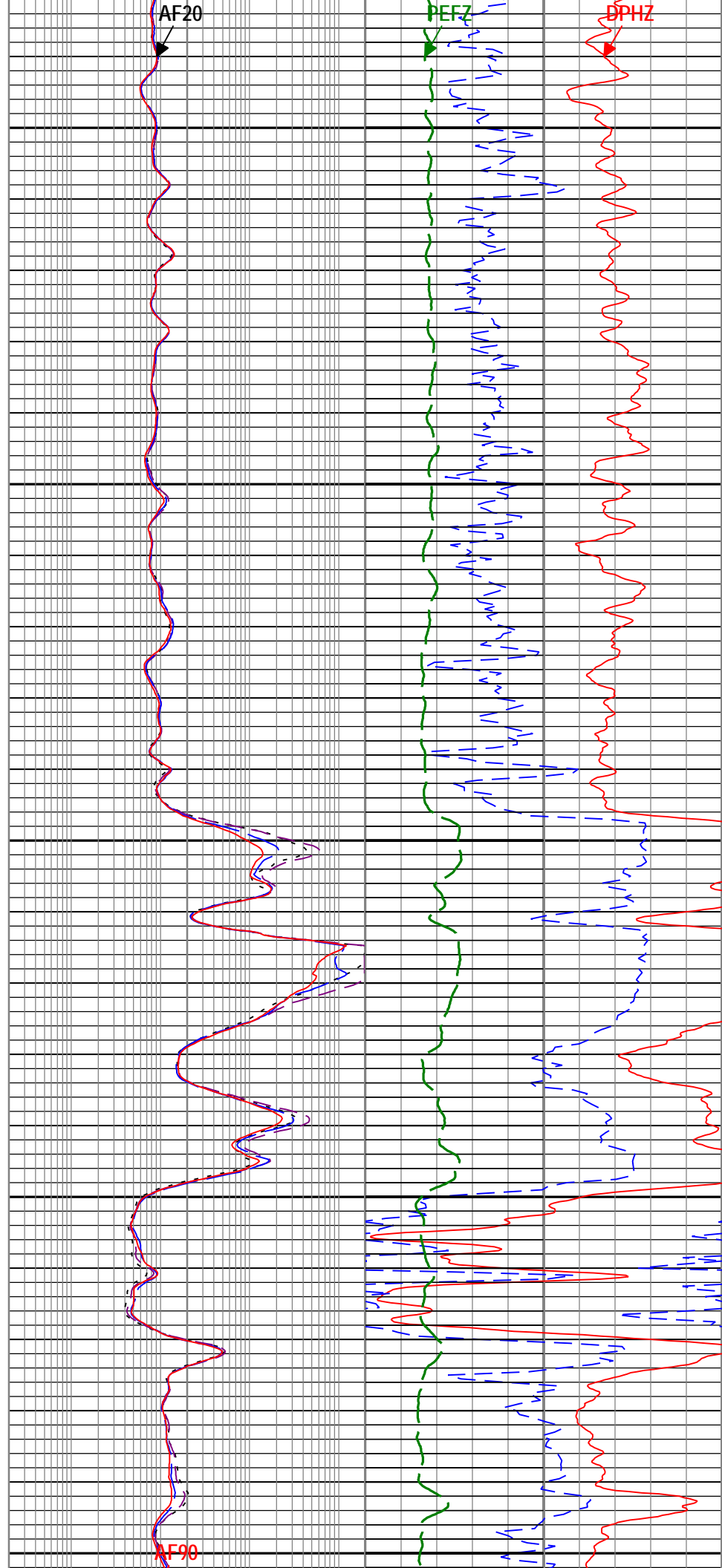
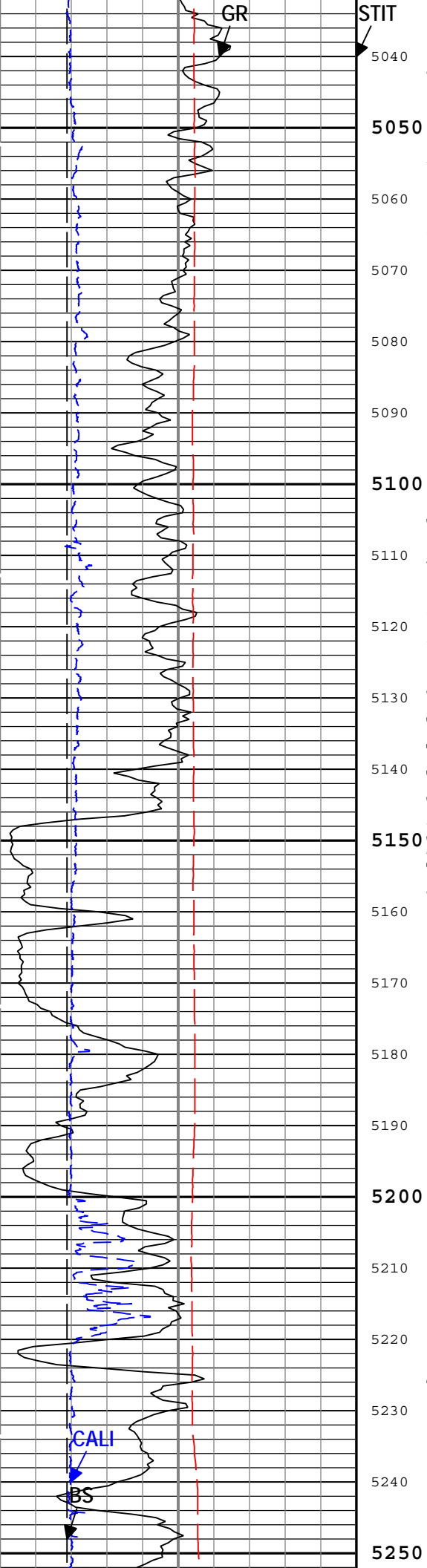


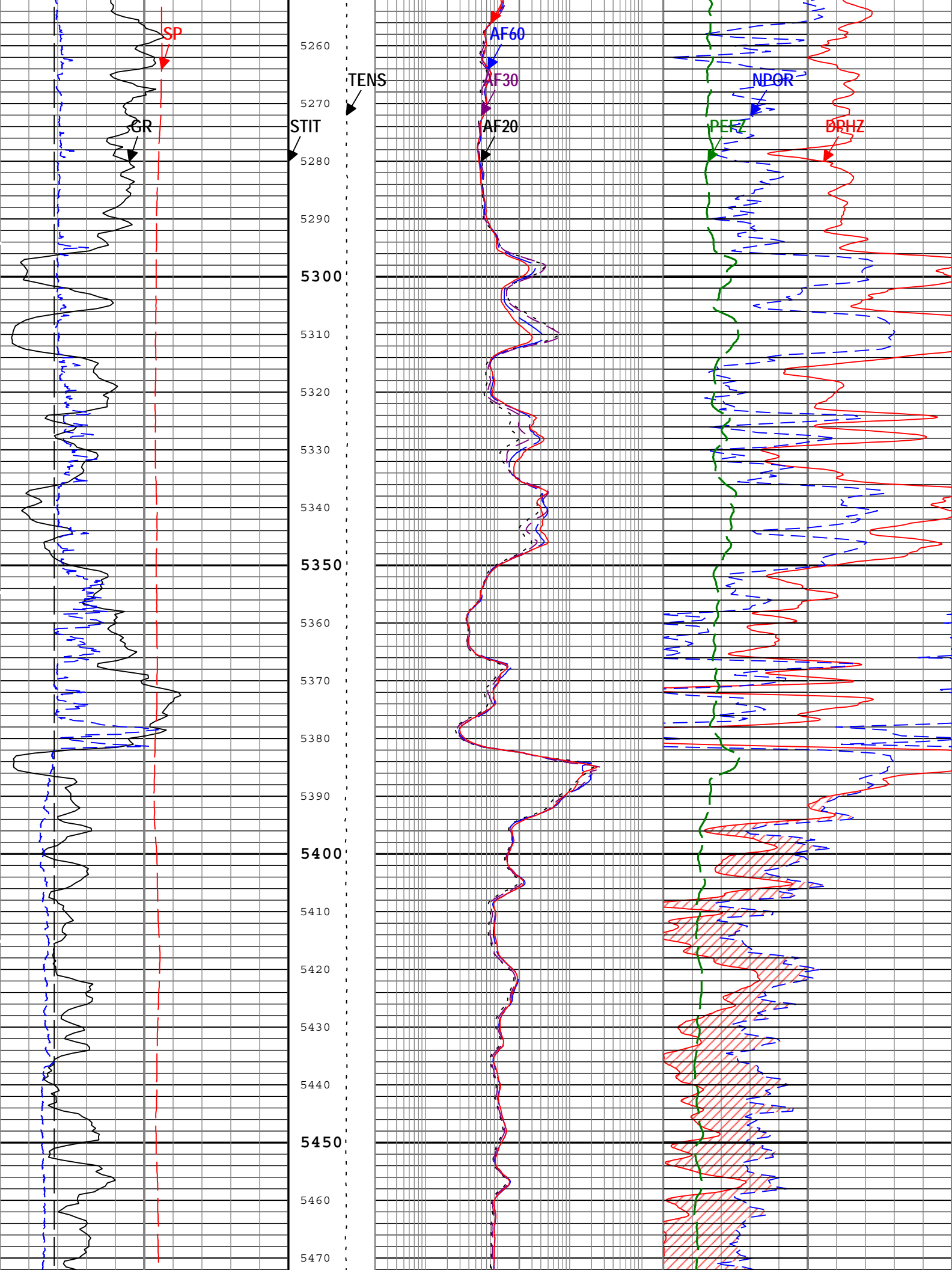


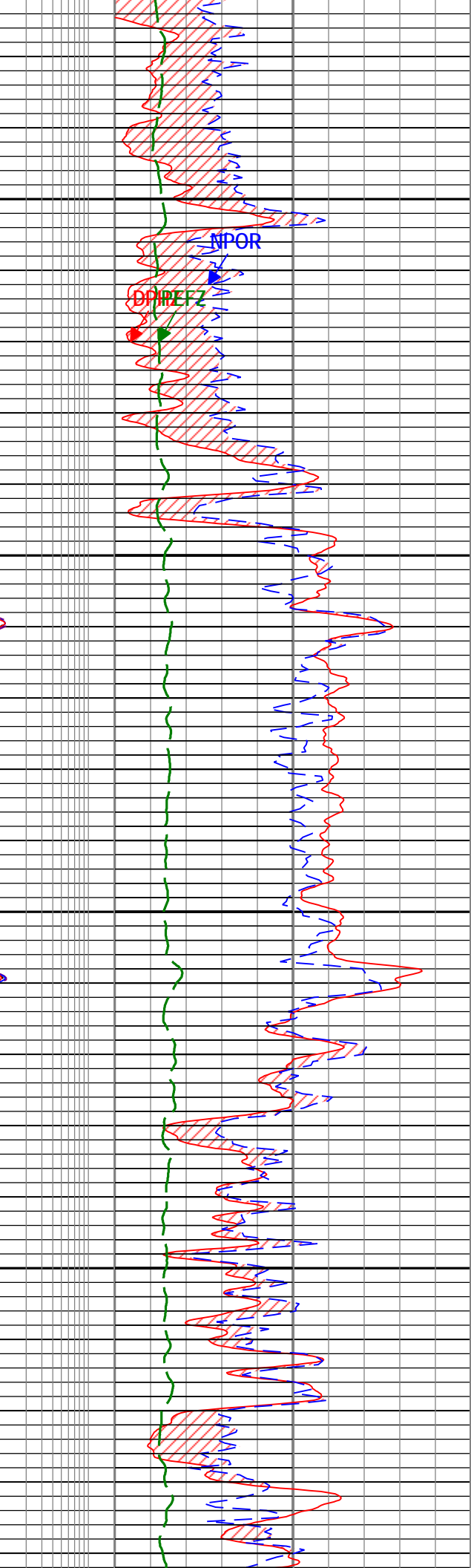
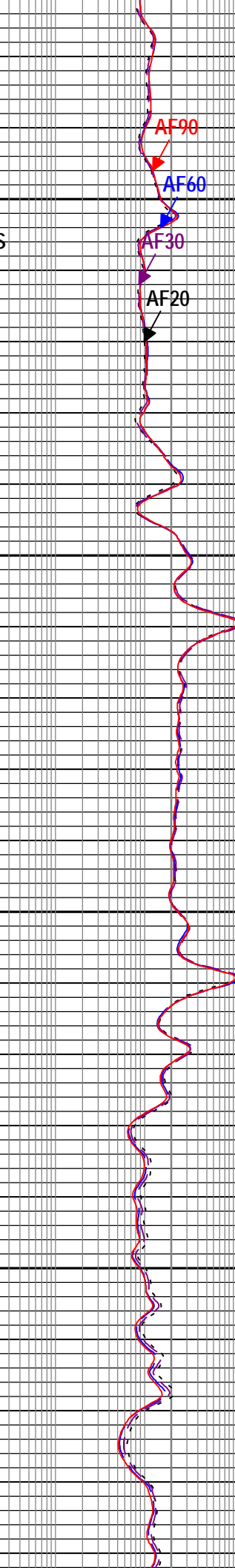
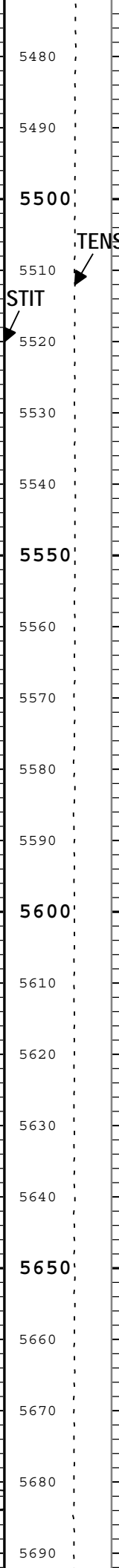
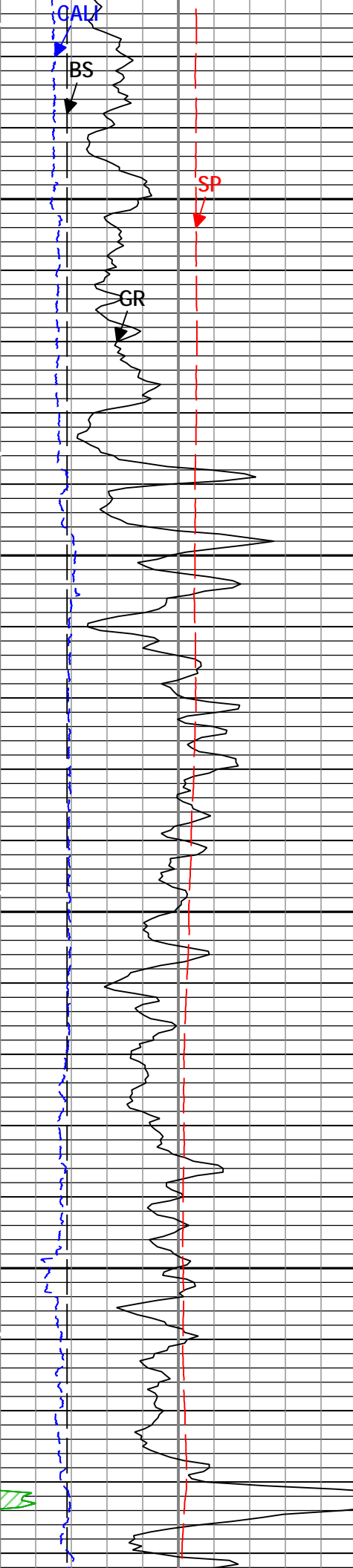


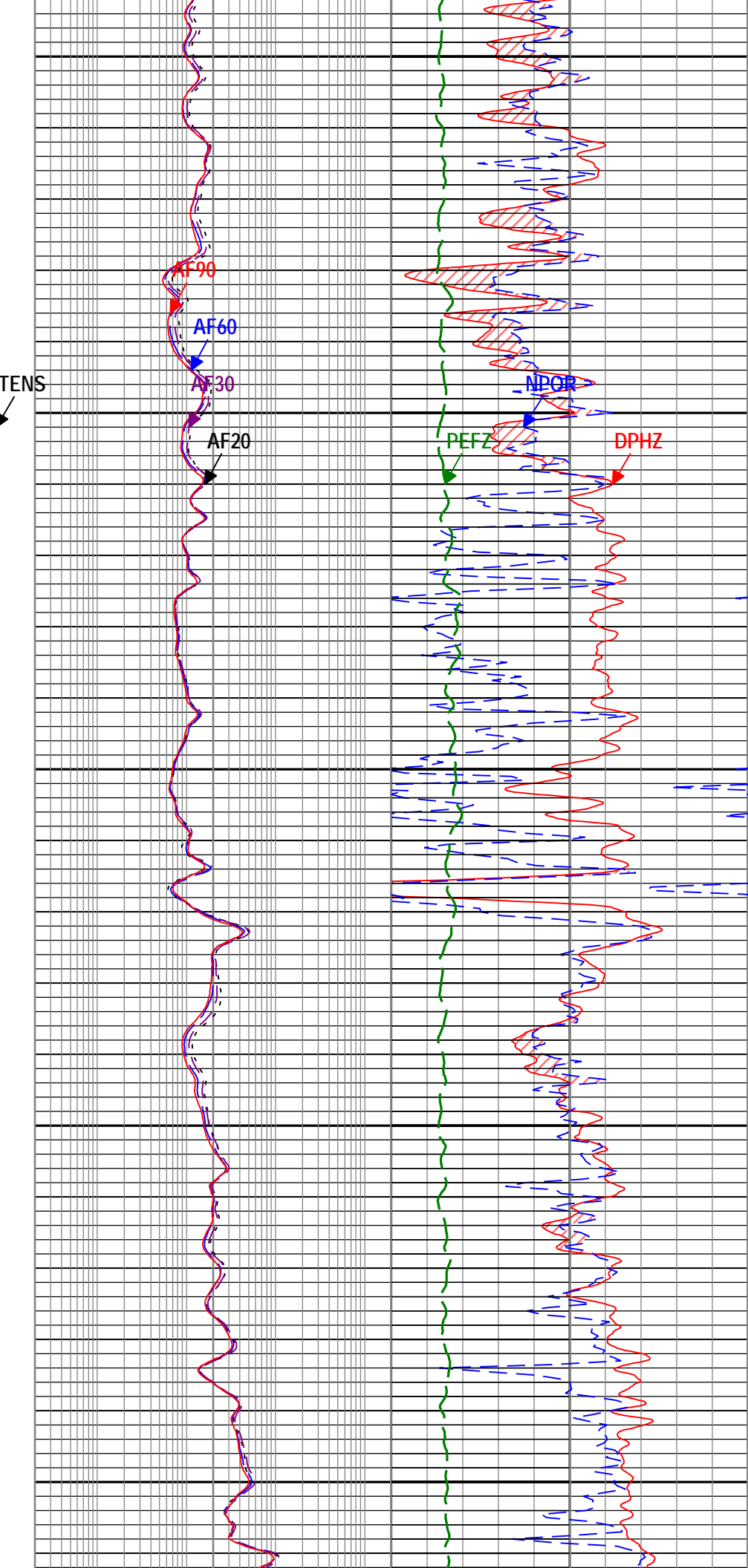
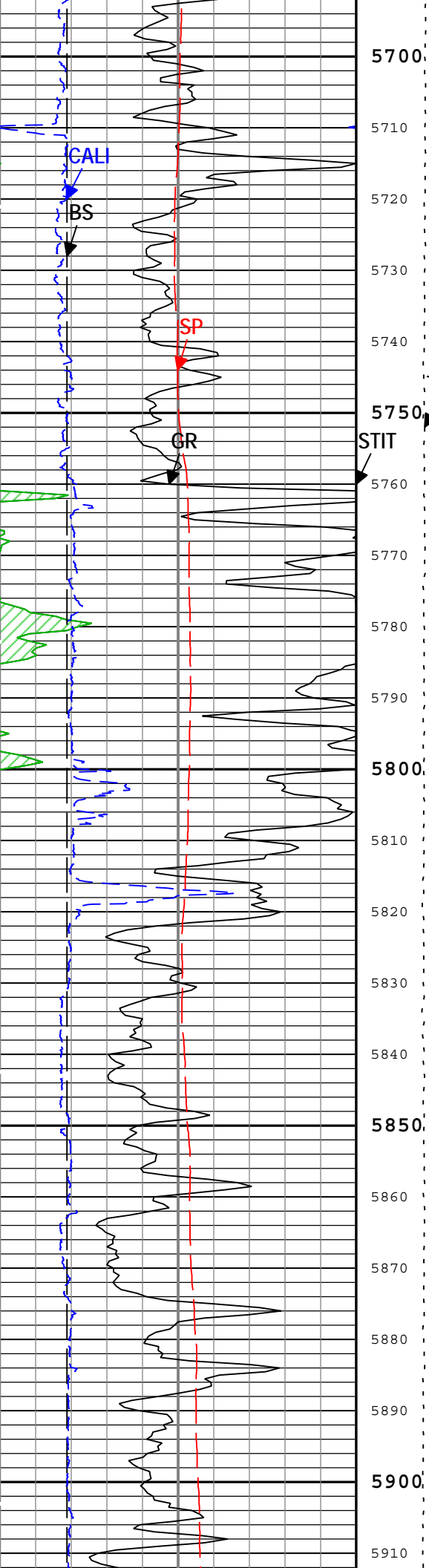


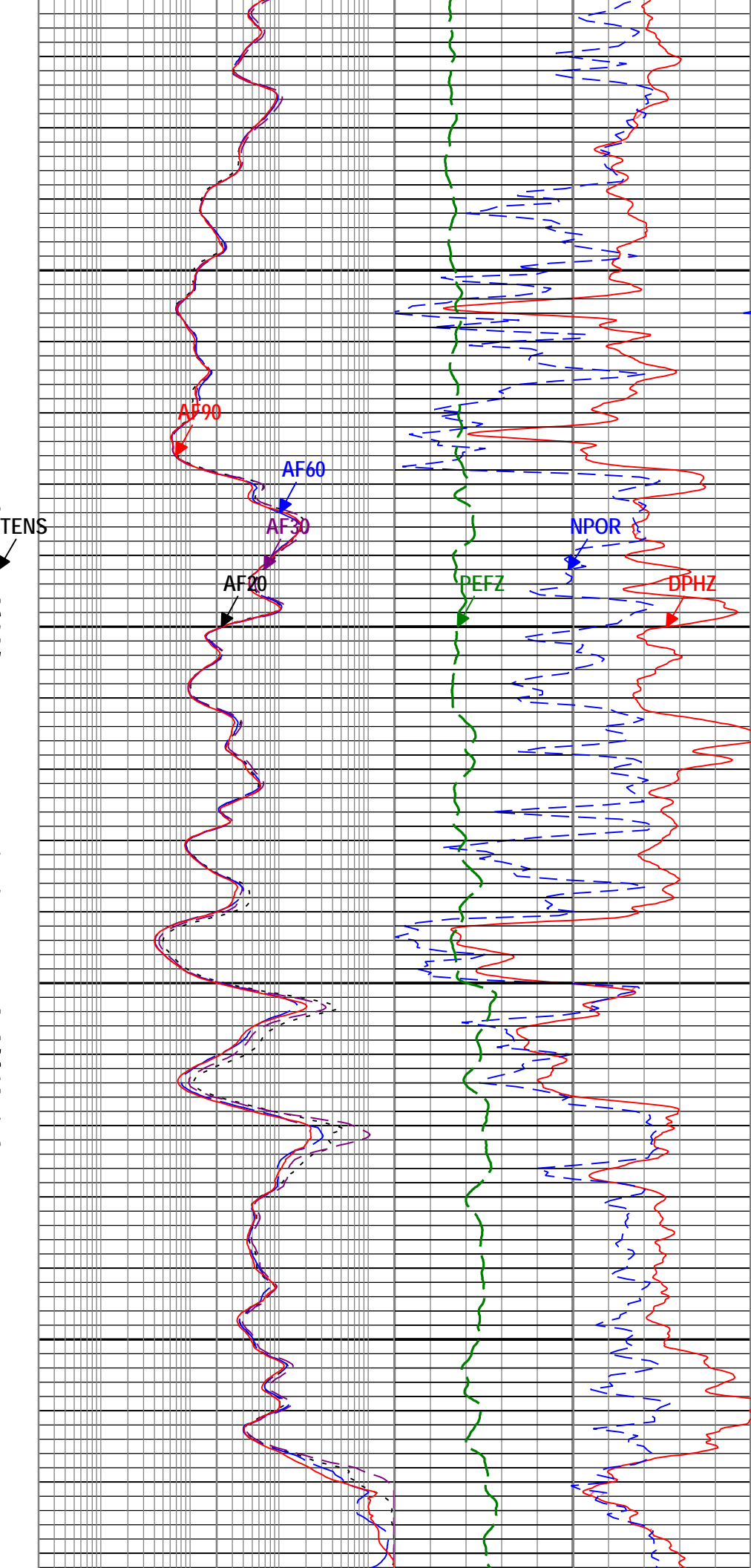
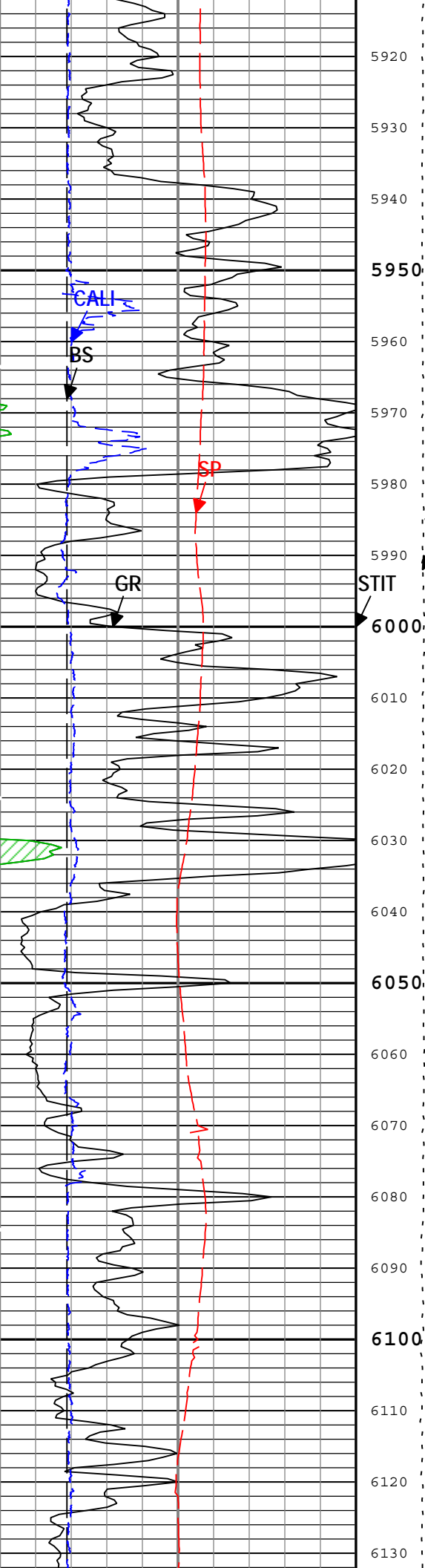


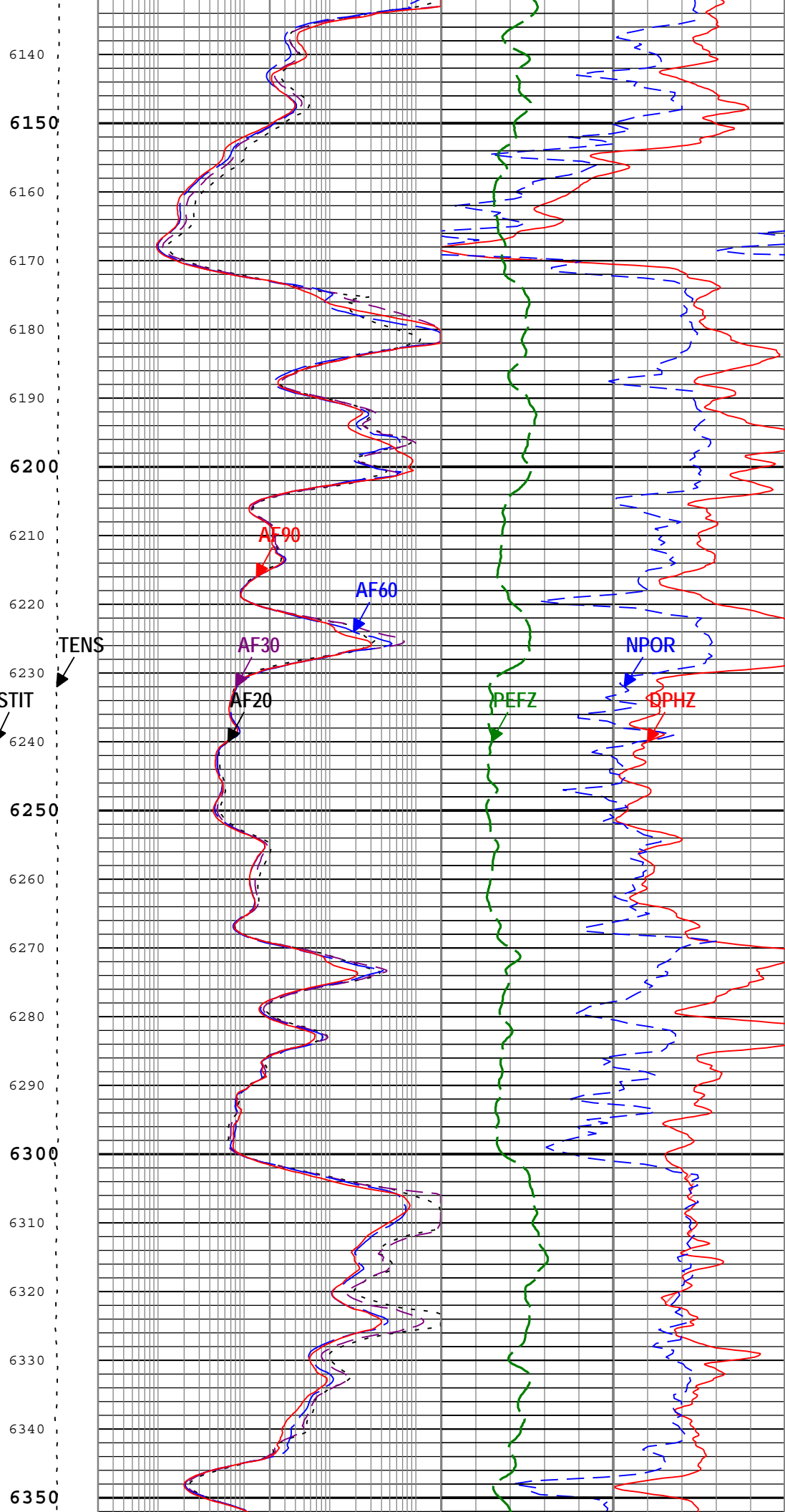
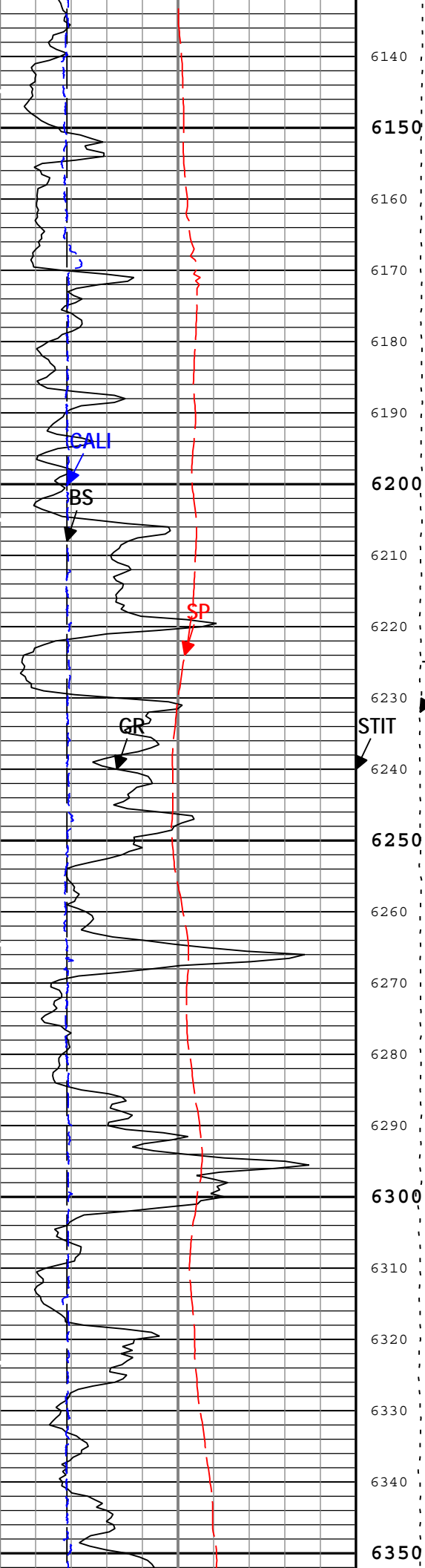


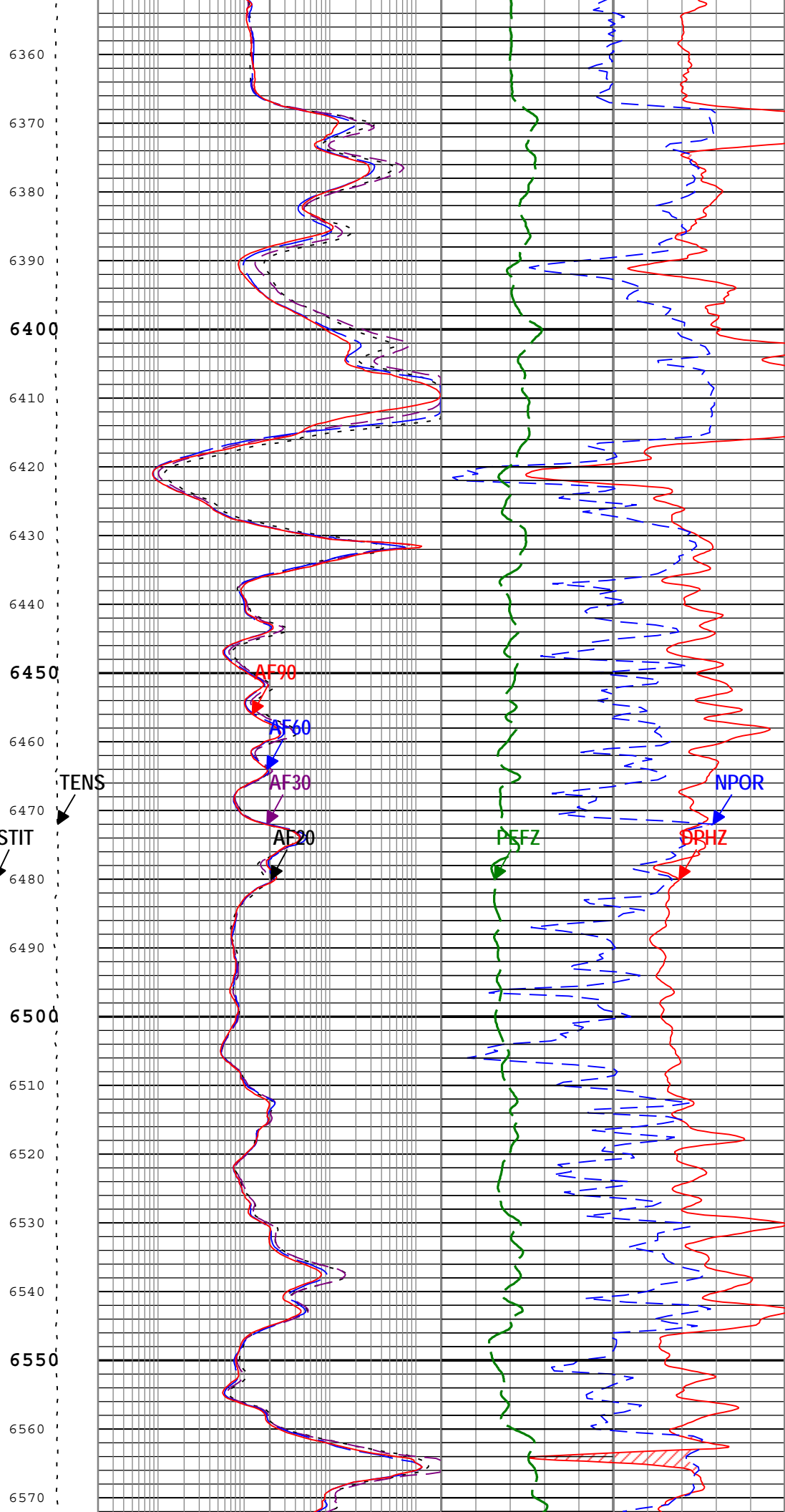
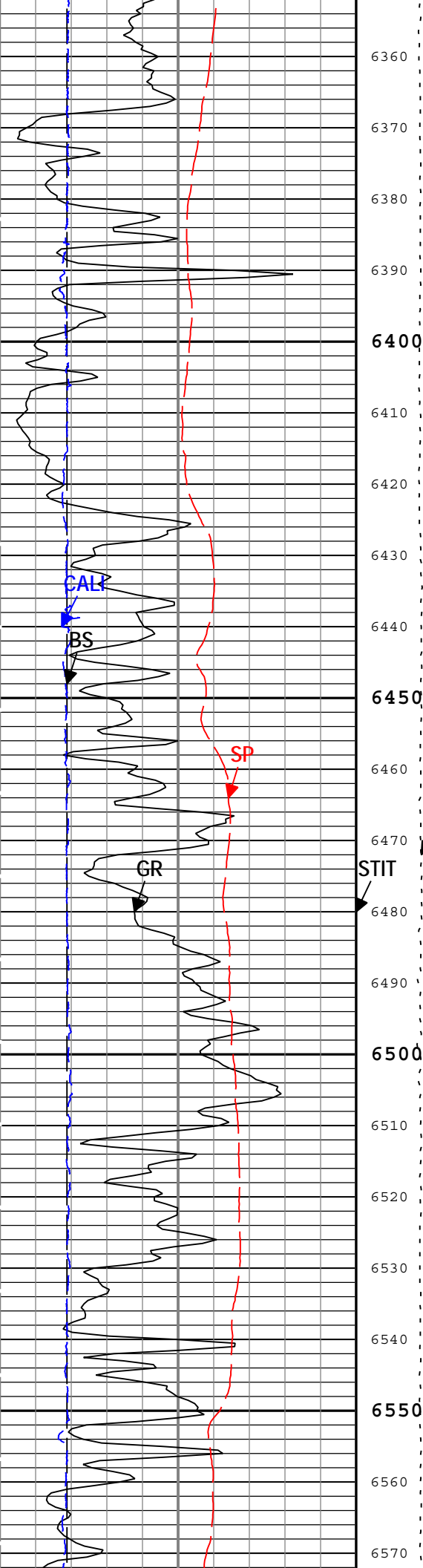


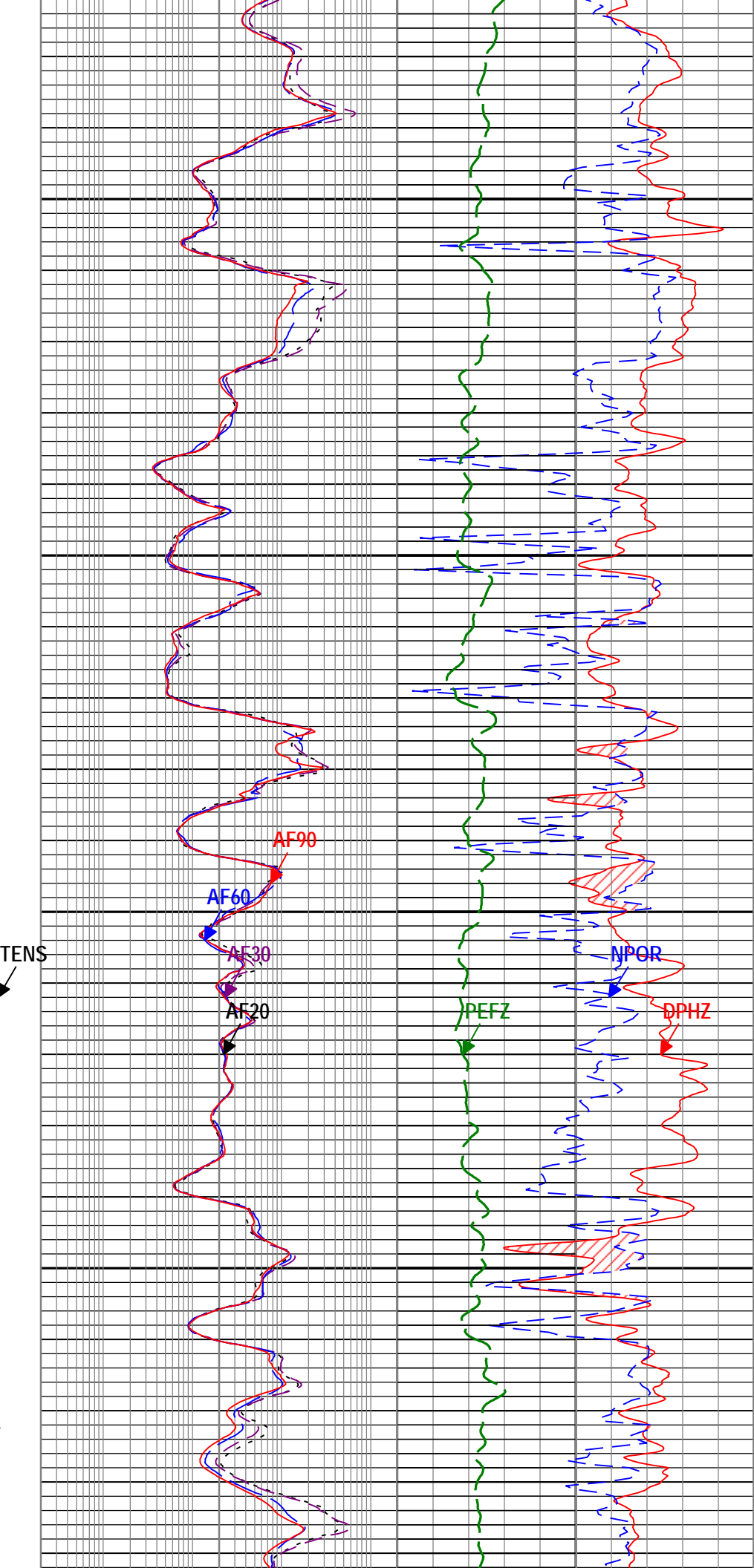
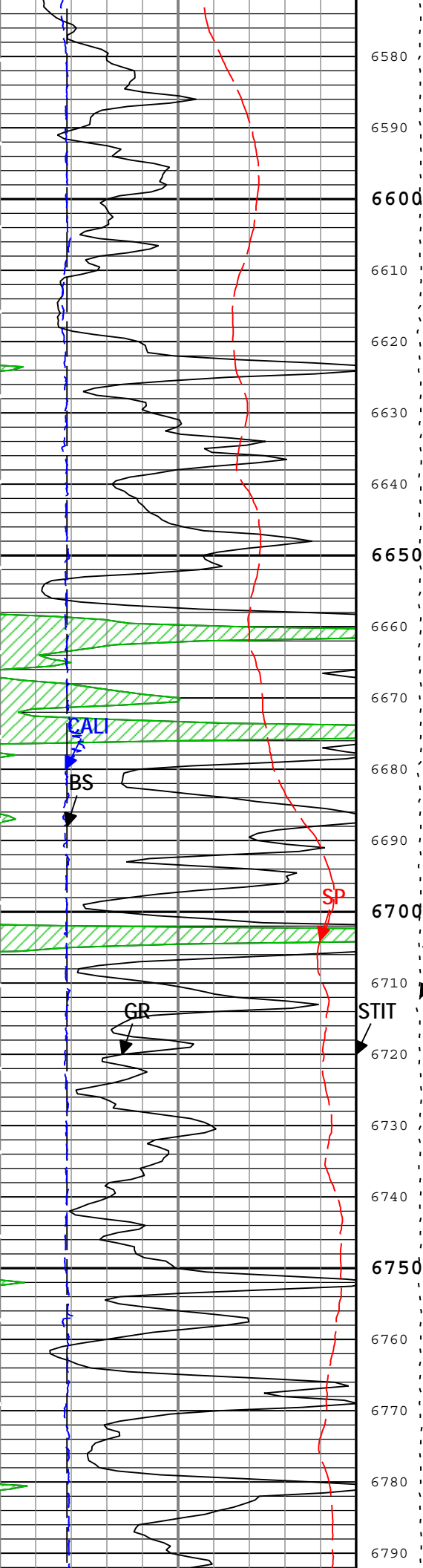


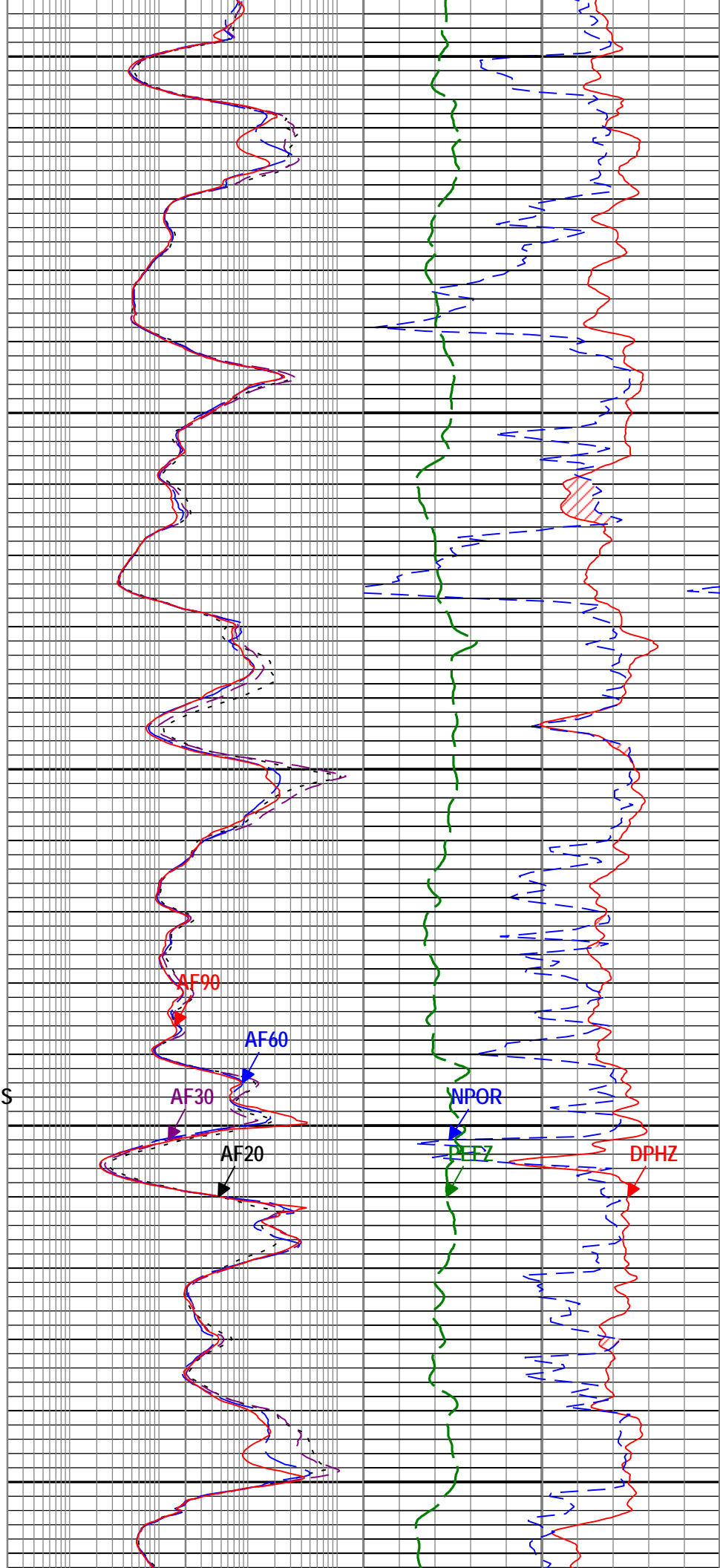
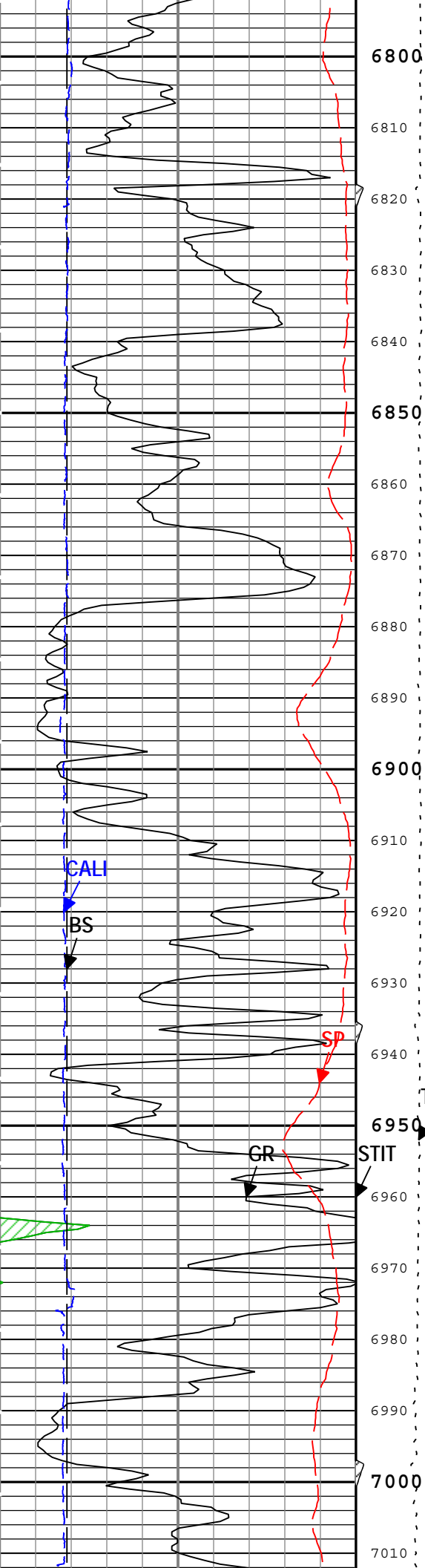


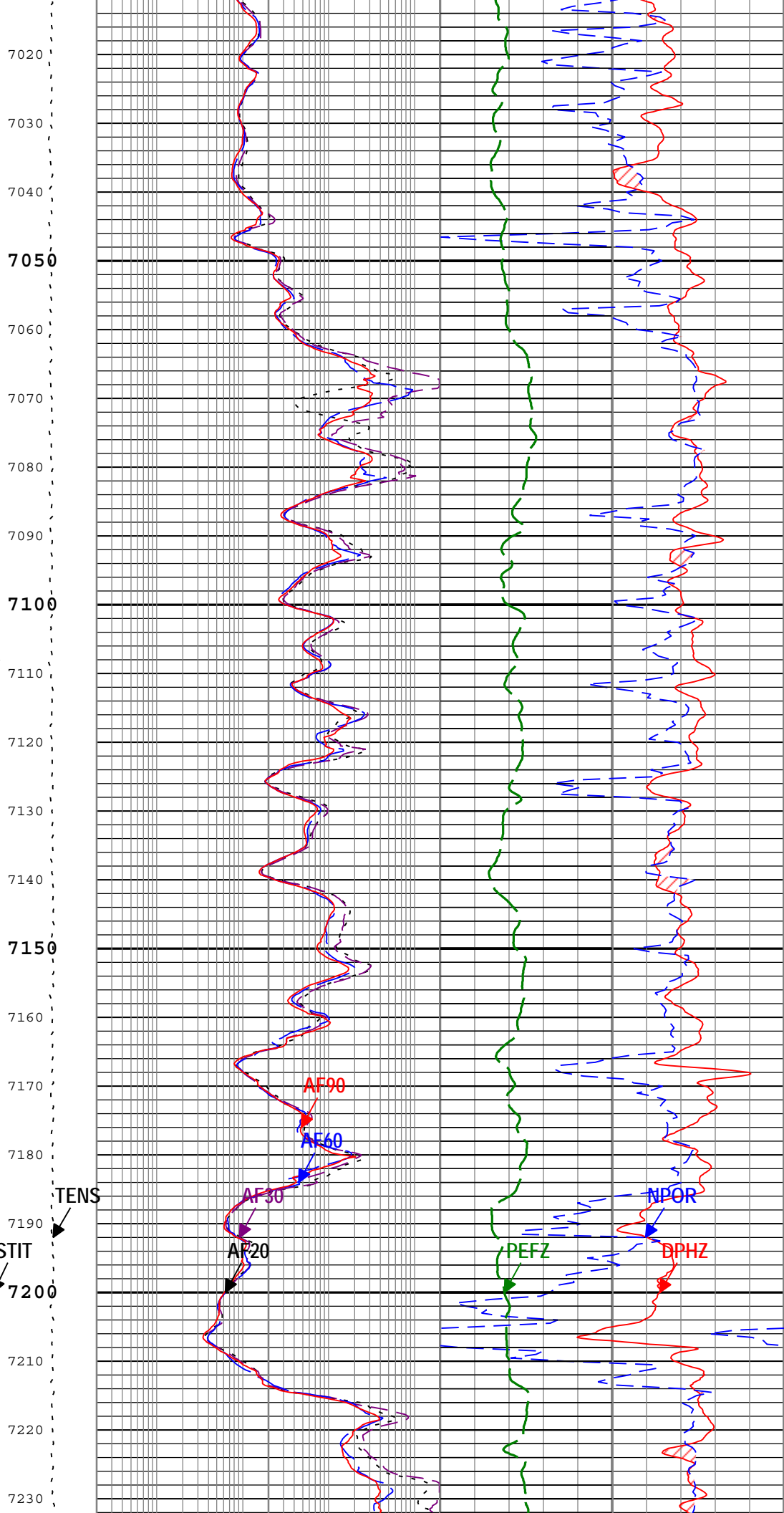
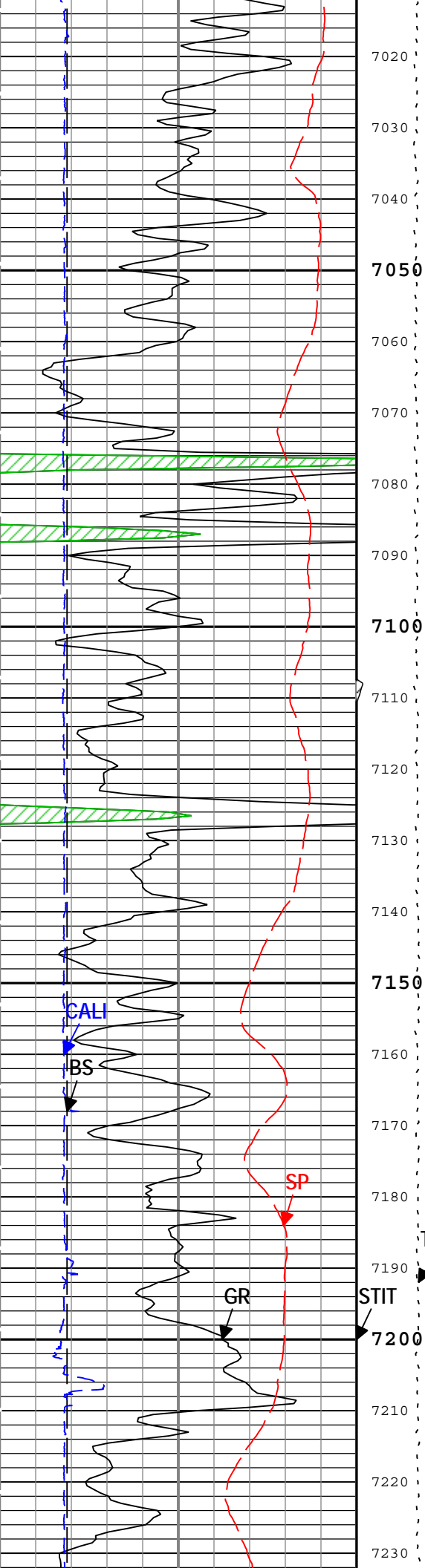


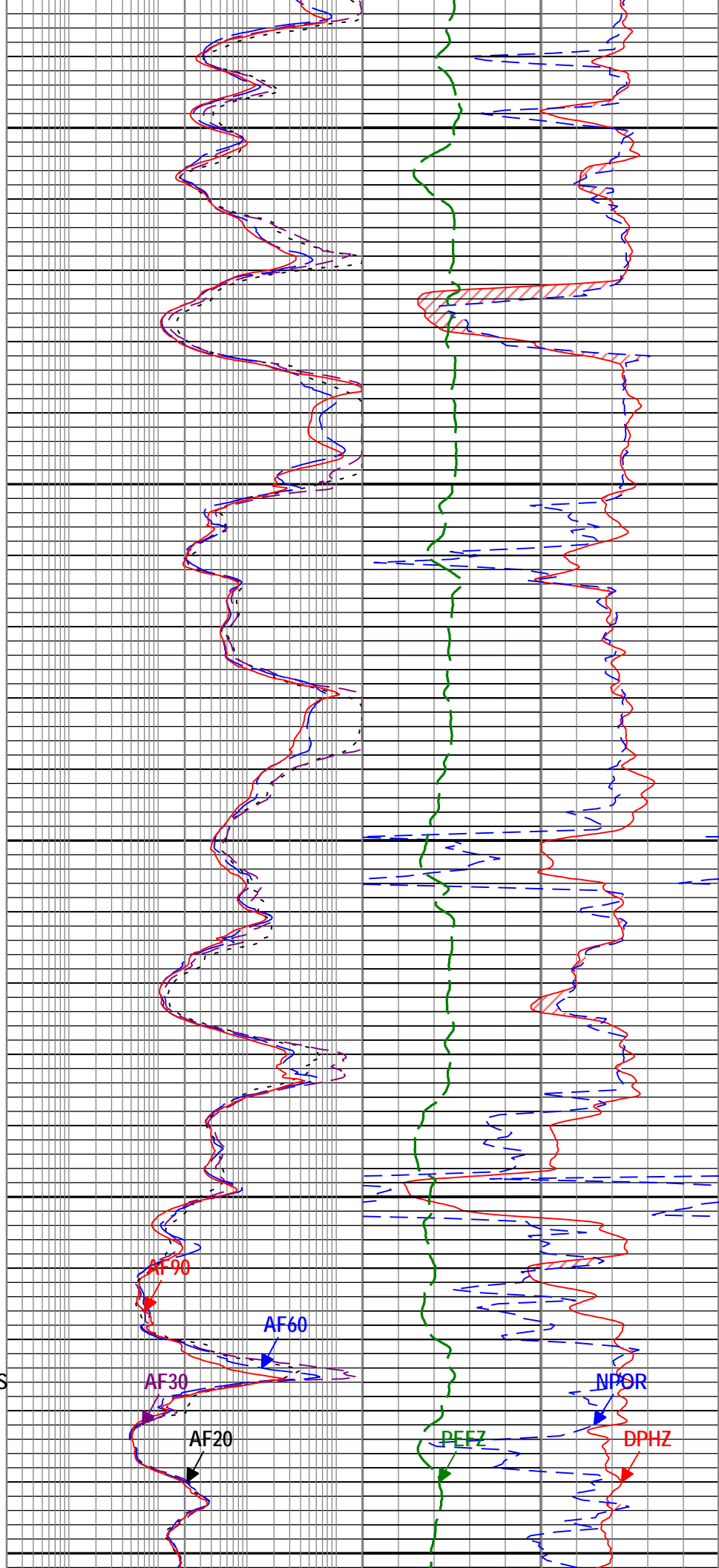
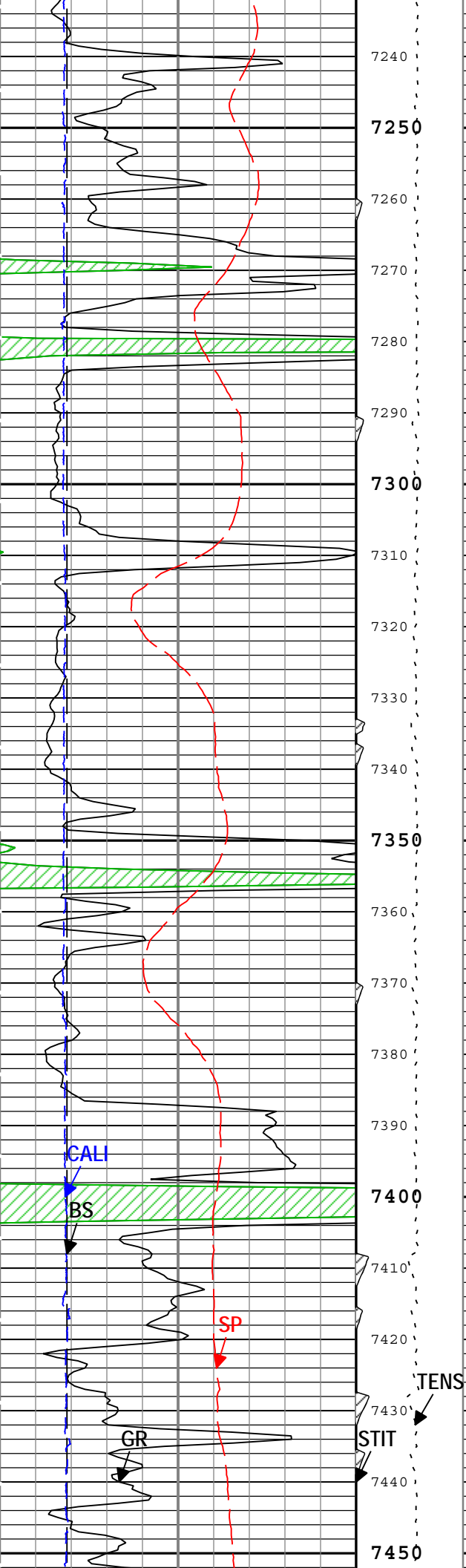


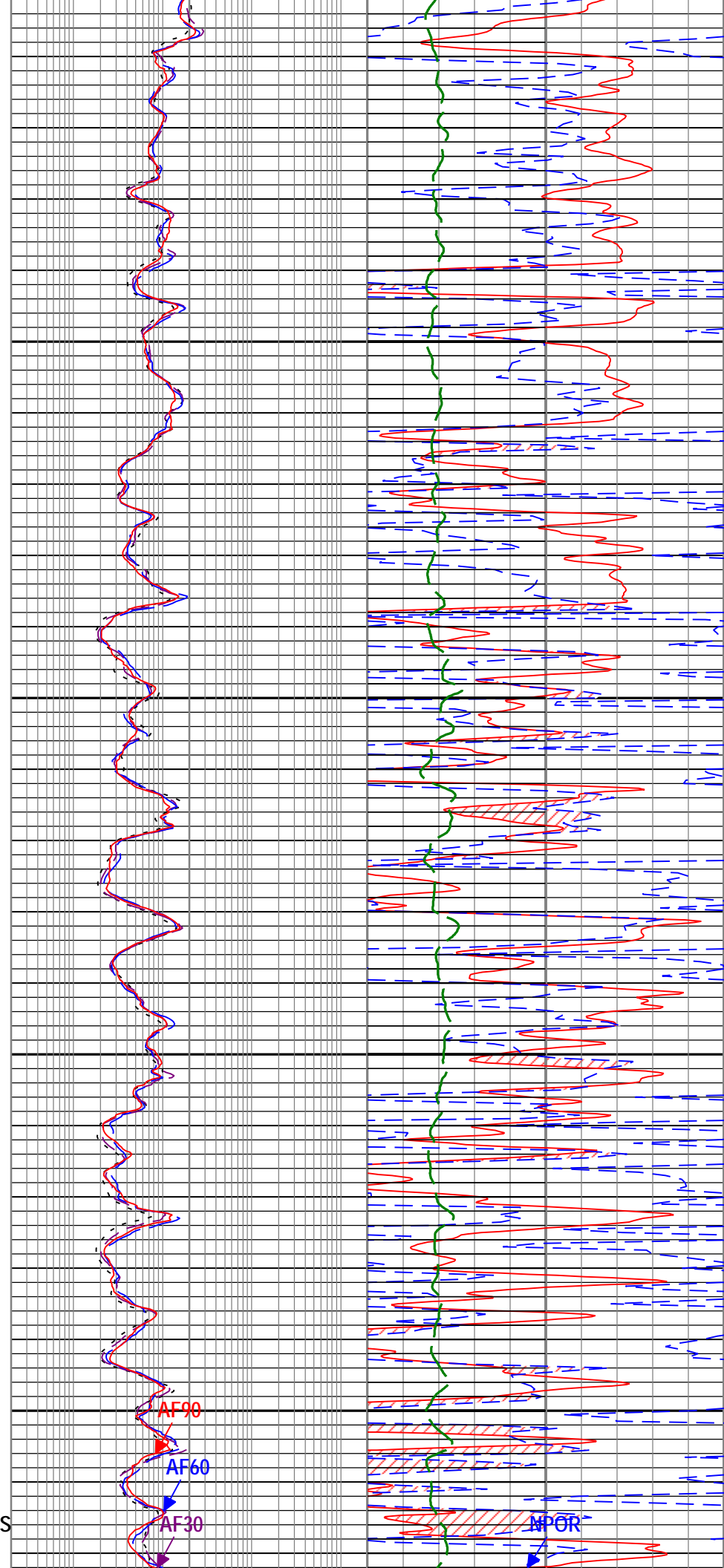
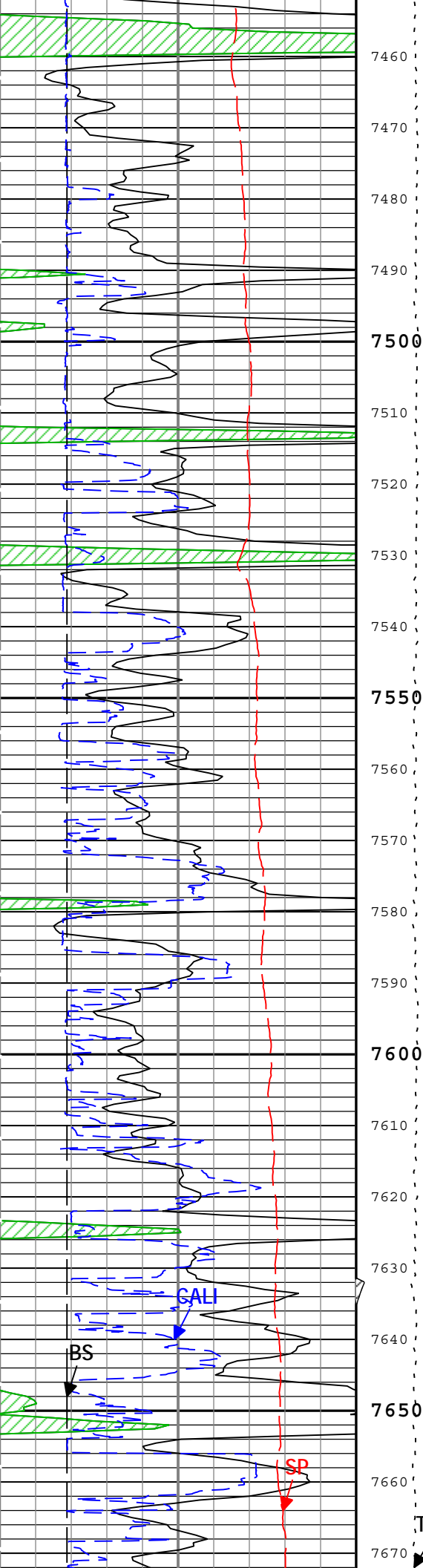


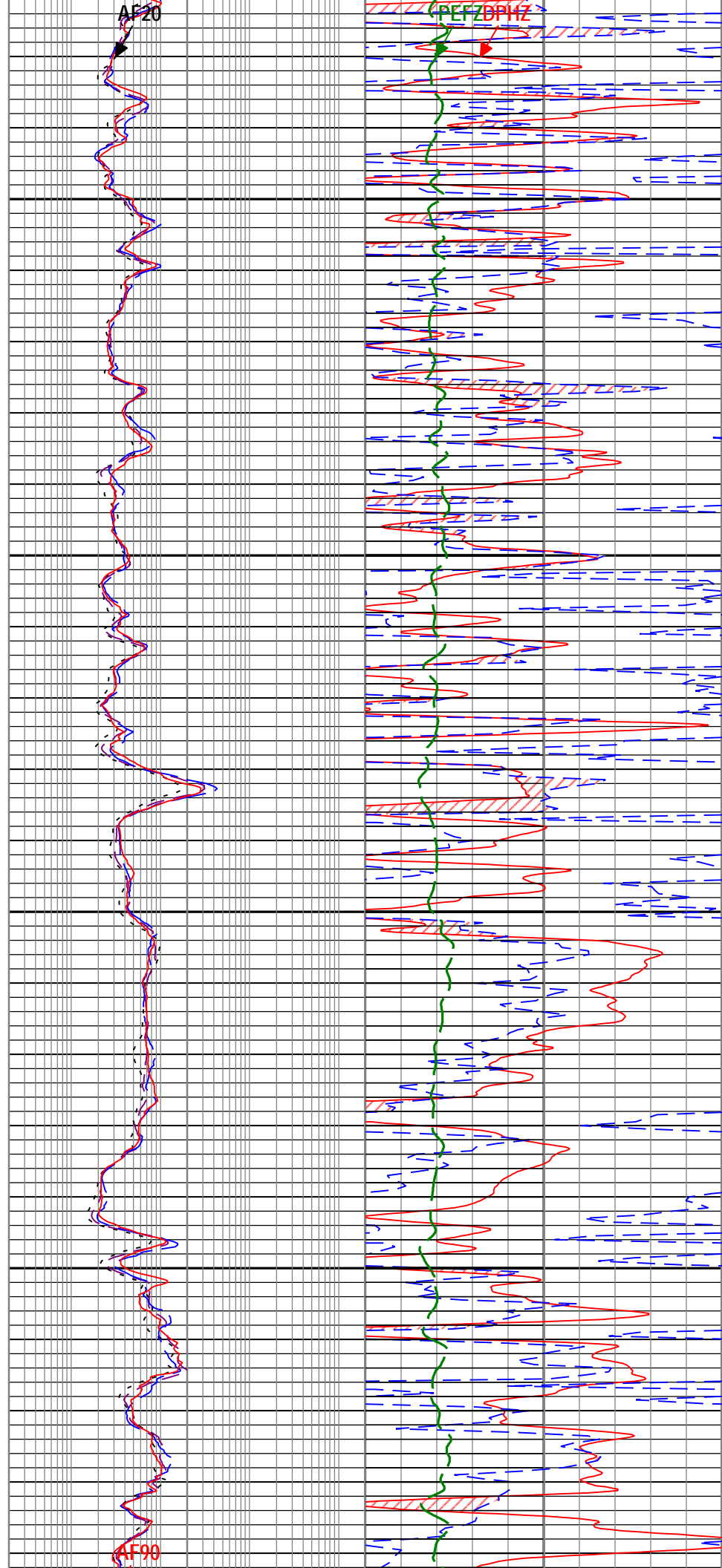
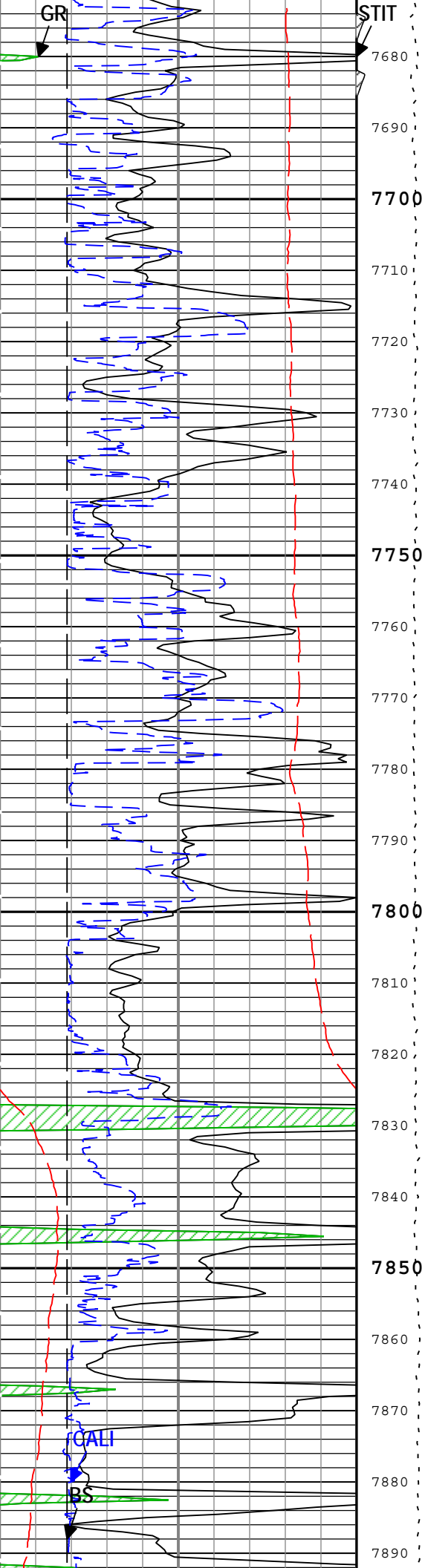


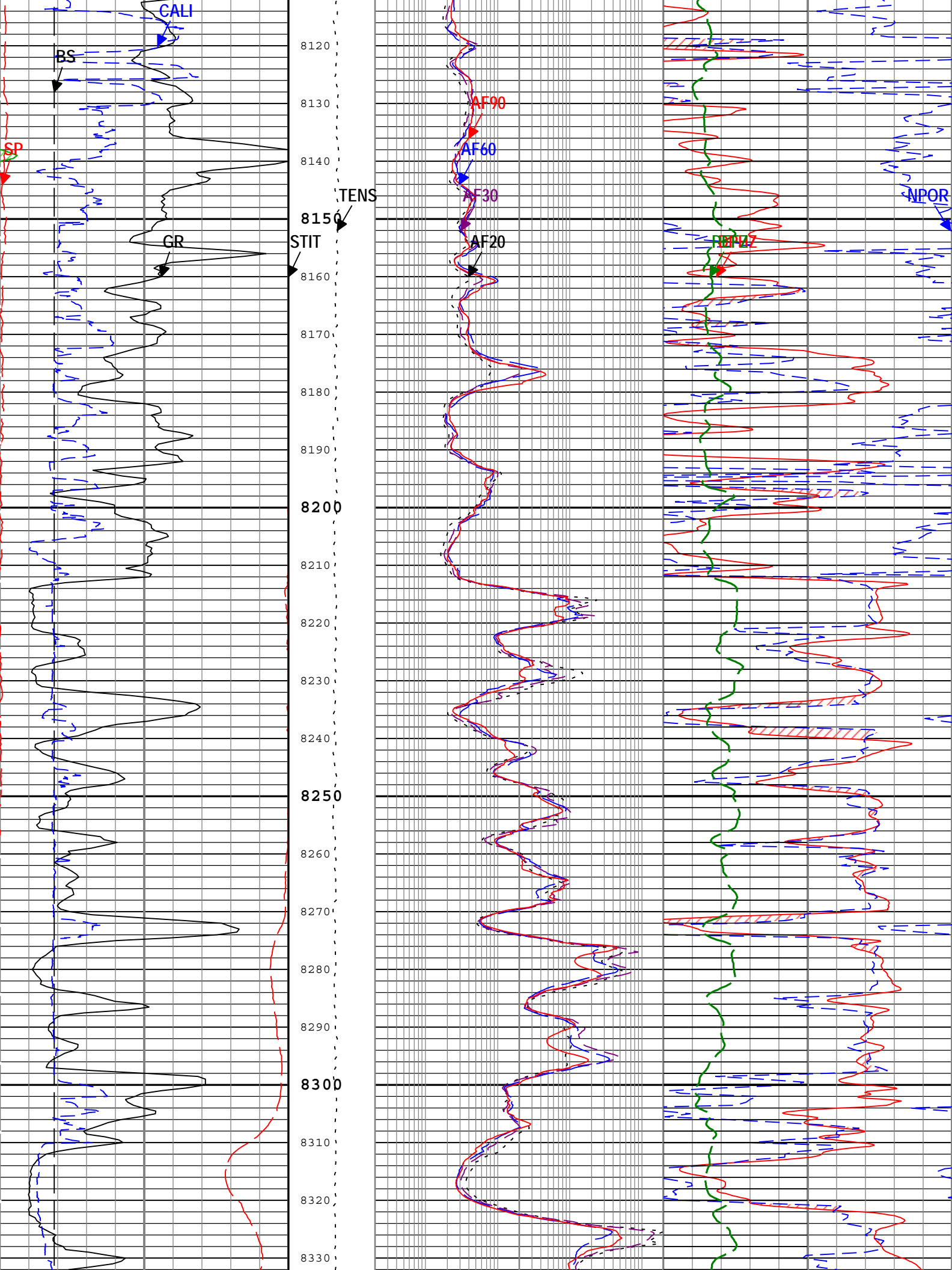


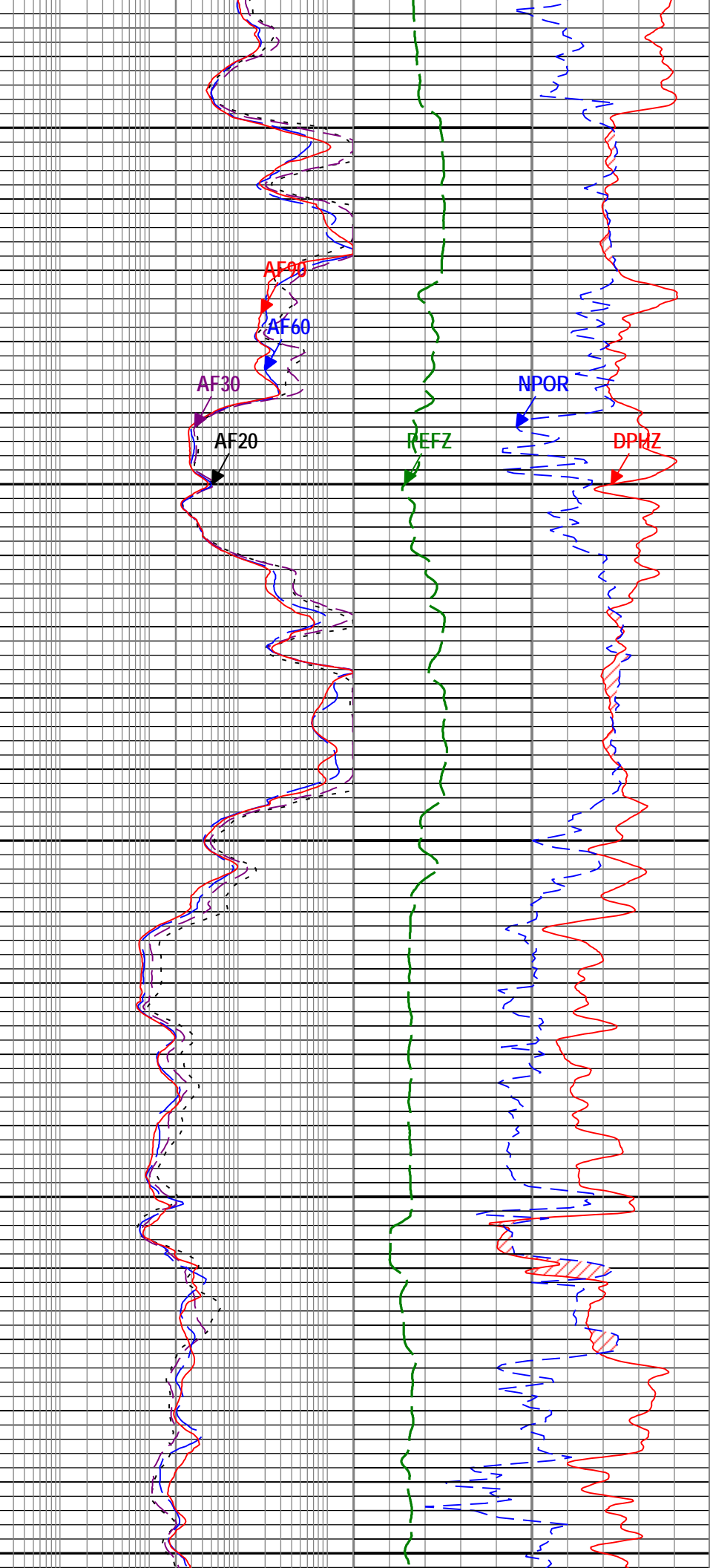
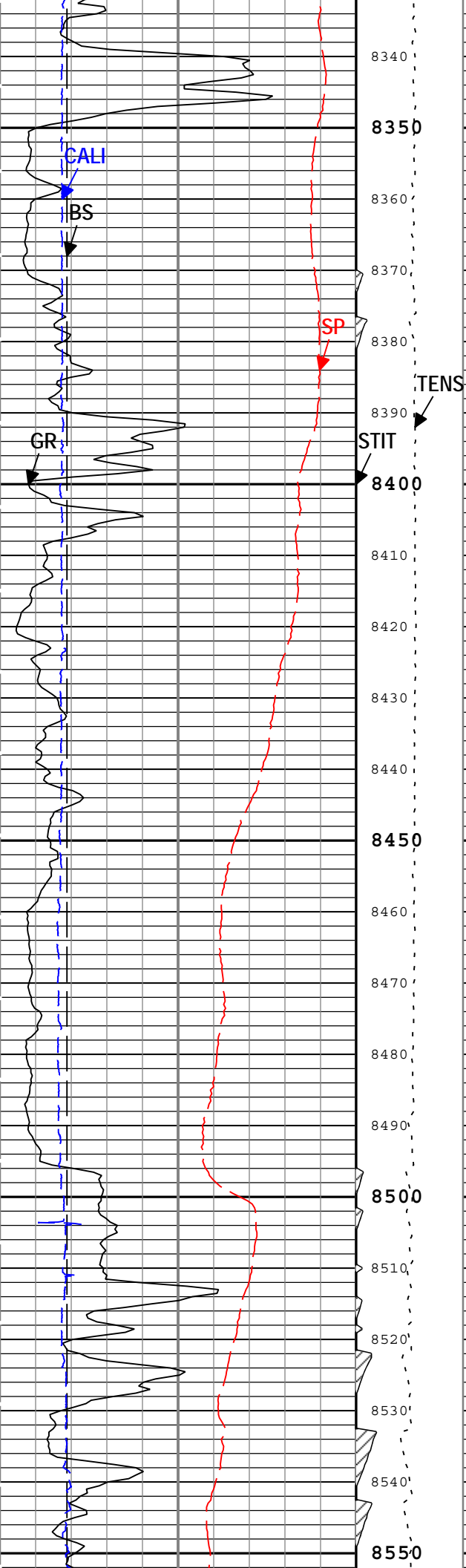


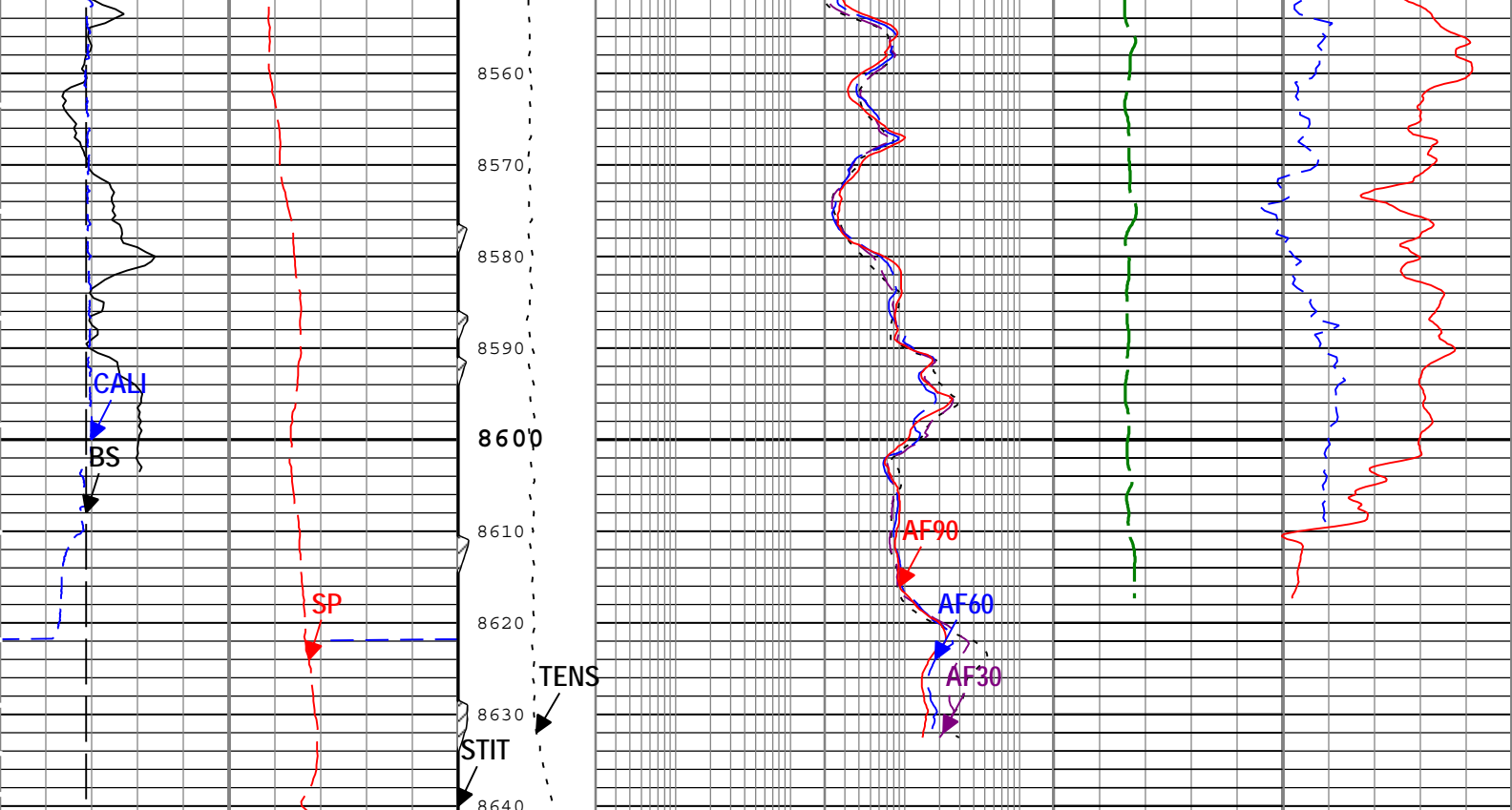












Gamma Ray Back up			Stuck Tool Indicator, Total (STIT)	Array Induction Four Foot Resistivity A20 (AF20) AIT_SpliceGroup[1]			Gas Effect	
Gamma Ray (GR) HGNS[1]				0.2 ohm.m 2000			NPOR Backup	
0	gAPI 200		0 ft 50	Array Induction Four Foot Resistivity A30 (AF30) AIT_SpliceGroup[1]			Standard Resolution Density Porosity (DPHZ) HDRS[1]	
Spontaneous Potential (SP) AIT_SpliceGroup[1]			Cable Tension (TENS)	0.2 ohm.m 2000			0.3 ft3/ft3 -0.1	
-100	mV 200			Array Induction Four Foot Resistivity A60 (AF60) AIT_SpliceGroup[1]			Enhanced Thermal Neutron Porosity in Selected Lithology (NPOR) HGNS[1]	
Bit Size (BS)			10000 lbf	0.2 ohm.m 2000			0.3 m3/m3 -0.1	
6	in 16			Array Induction Four Foot Resistivity A90 (AF90) AIT_SpliceGroup[1]			Standard Resolution Formation Photoelectric Factor (PEFZ) HDRS[1]	
Caliper (CALI) HDRS[1]				0.2 ohm.m 2000			0 10	
6	in 16							

TIME_1900 - Time Marked every 60.00 (s)

Description: HGNS standard resolution porosities for Platform Express Format: Log (EMD 5in Triple Combo Linear) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 22-Jun-2014 23:59:59

Channel Processing Parameters

ONE: Parameters

Parameter	Description	Tool	Value	Unit
ABHM	Array Induction Borehole Correction Mode	AIT-M	Compute Standoff	
ACDE	Array Induction Casing Detection Enable	AIT-M	Yes	
ASTA	Array Induction Tool Standoff	AIT-M	1	in
BARI	Barite Mud Presence Flag	Borehole	No	
BHS	Borehole Status (Open or Cased Hole)	Borehole	Open	
BHT	Bottom Hole Temperature	Borehole	191.36	degF
BS	Bit Size	WLSESSION	7.875	in
BSAL	Borehole Salinity	Borehole	0	ppm
CALI_SHIFT	CALI Supplementary Offset	HDRS-H	0.1	in

CBLO	Casing Bottom (Logger)	WLSESSION	367	ft
CDEN	Cement Density	HGNS-H	2	g/cm3
DC_MODE	Depth Correction Mode	DepthCorrection	Real-time	
DFD	Drilling Fluid Density	Borehole	9.05	lbm/gal
DFT	Drilling Fluid Type	Borehole	Water	
DHC	Density Hole Correction	HDRS-H	Bit Size	
FD	Fluid Density	Borehole	1	g/cm3
FSAL	Formation Salinity	Borehole	0	ppm
GCSE_DOWN_PASS	Generalized Caliper Selection for WL Log Down Passes	Borehole	BS	
GCSE_UP_PASS	Generalized Caliper Selection for WL Log Up Passes	Borehole	CALI	
GRSE	Generalized Mud Resistivity Selection, from Measured or Computed Mud Resistivity	Borehole	AMF	
GTSE	Generalized Temperature Selection, from Measured or Computed Temperature	Borehole	CTEM	
HSCO	Hole Size Correction Option	HGNS-H	Yes	
MATR	Rock Matrix for Neutron Porosity Corrections	Borehole	LIMESTONE	
MDEN	Matrix Density for Density Porosity	Borehole	2.71	g/cm3
MFST	Mud Filtrate Sample Temperature	Borehole	75	degF
RMFS	Resistivity of Mud Filtrate Sample	Borehole	1.32	ohm.m
SOCO	Standoff Correction Option	HGNS-H	Yes	
SPDR	SP Drift Per Foot	AIT-M	0	mV/ft
TD	Total Measured Depth	Borehole	8635	ft

Tool Control Parameters

ONE: Parameters

Parameter	Description	Tool	Value	Unit
HMCA_BRD_TYPE	HMCA Board Type	HGNS-H	1	
HRGD_BRD_TYPE	HRGD Board Type	HDRS-H	WITH_HET	
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	Time Zoned	ft/h

ONETime Zoned Parameters

Pass Log[7]:Up

Parameter	Value	Start Time	Stop Time	Start Depth (ft)	Stop Depth (ft)
MAX_LOG_SPEED	840	22-Jun-2014 06:40:40	22-Jun-2014 07:37:02	8640.41	8075.61

Pass Log[8]:Up

MAX_LOG_SPEED	840	22-Jun-2014 07:58:09	22-Jun-2014 11:04:23	8076.09	3887.58
---------------	-----	----------------------	----------------------	---------	---------

Pass Log[9]:Up

MAX_LOG_SPEED	1680	22-Jun-2014 11:20:31	22-Jun-2014 12:28:17	3887.82	167.91
---------------	------	----------------------	----------------------	---------	--------

All depth are at tool zero.

Calibration Report

AIT-M (Array Induction Tool - M) Calibration - Run ONE

Primary Equipment :			
File code for AIT-MA Sonde Tool Element	AMIS	181	
Auxiliary Equipment :			
File code for AIT Bottom Nose Tool Element	AMRM	181	

AIT Sonde Calibration - Test Loop Gain

Master (EEPROM): 15:52:07 18-Jun-2014

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit		
Test Loop Gain - 0		Master	1.000	0.950	1.016	1.050		
Test Loop Phase - 0	deg	Master	0	-3.000	-0.873	3.000		
Test Loop Gain - 1		Master	1.000	0.950	1.016	1.050		

Test Loop Phase - 1	deg	Master	0	-3.000	-0.523	3.000	
Test Loop Gain - 2		Master	1.000	0.950	1.020	1.050	
Test Loop Phase - 2	deg	Master	0	-3.000	-0.285	3.000	
Test Loop Gain - 3		Master	1.000	0.950	1.017	1.050	
Test Loop Phase - 3	deg	Master	0	-3.000	-0.364	3.000	
Test Loop Gain - 4		Master	1.000	0.950	0.996	1.050	
Test Loop Phase - 4	deg	Master	0	-3.000	0.047	3.000	
Test Loop Gain - 5		Master	1.000	0.950	0.992	1.050	
Test Loop Phase - 5	deg	Master	0	-3.000	-0.306	3.000	
Test Loop Gain - 6		Master	1.000	0.950	0.998	1.050	
Test Loop Phase - 6	deg	Master	0	-3.000	-0.014	3.000	
Test Loop Gain - 7		Master	1.000	0.950	1.012	1.050	
Test Loop Phase - 7	deg	Master	0	-3.000	0.171	3.000	

Alt. Source Calibration	Source Error
M : (55BROM)	15.50 07.10.1 001

Sonde Error Correction Quad - 7		Ma
---------------------------------	--	----

Master (EEPROM): 15:52:07 18-Jun-2014

Fine Gain		Master
-----------	--	--------

M	15	50	27	10	1	201
---	----	----	----	----	---	-----

Measurement	Unit	Phase	Normal	Low Limit	Actual	High Limit	Visual
Thru Cal Mag - 0	V	Master	----	0.366	0.576	0.854	
		Before	----	0.366	0.575	0.854	
		Before-Master	----	----	-0.001	----	
Thru Cal Phase - 0	deg	Master	----	137.000	-169.574	-103.000	
		Before	----	137.000	-169.066	-103.000	
		Before-Master	----	----	0.508	----	
Thru Cal Mag - 1	V	Master	----	0.762	1.179	1.778	
		Before	----	0.762	1.178	1.778	
		Before-Master	----	----	-0.001	----	
Thru Cal Phase - 1	deg	Master	----	136.000	-170.676	-104.000	
		Before	----	136.000	-170.166	-104.000	
		Before-Master	----	----	0.510	----	
Thru Cal Mag - 2	V	Master	----	0.372	0.585	0.868	
		Before	----	0.372	0.585	0.868	
		Before-Master	----	----	0.000	----	
Thru Cal Phase - 2	deg	Master	----	132.000	-174.320	-108.000	
		Before	----	132.000	-173.810	-108.000	
		Before-Master	----	----	0.510	----	
Thru Cal Mag - 3	V	Master	----	0.420	0.661	0.980	
		Before	----	0.420	0.660	0.980	
		Before-Master	----	----	-0.001	----	
Thru Cal Phase - 3	deg	Master	----	131.000	-175.098	-109.000	
		Before	----	131.000	-174.588	-109.000	
		Before-Master	----	----	0.510	----	

Rho Magnesium		Master	1.686	1.676	1.687	1.696	
Pe Aluminum		Master	2.570	2.470	2.558	2.670	
Pe Magnesium		Master	2.650	2.550	2.620	2.750	

HDRS Density Calibration - Deviation Summary

Master (EEPROM):		15:00:08 14-Jun-2014					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
BS Average Deviation	%	Master	0	-0.6000	0.2662	0.6000	
BS Max Deviation	%	Master	0	-1.6000	0.7159	1.6000	
SS Average Deviation	%	Master	0	-1.0000	0.2405	1.0000	
SS Max Deviation	%	Master	0	-2.5000	0.6835	2.5000	
LS Average Deviation	%	Master	0	-1.5000	0.5577	1.5000	
LS Max Deviation	%	Master	0	-3.5000	1.7509	3.5000	

HDRS Density Calibration - Background Summary

Master (EEPROM):		15:00:08 14-Jun-2014		Before (Measured):		17:28:07 20-Jun-2014		Expired by 1 days
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit		
BS Window Ratio		Master	1.0000		0.7349			
		Before	0.7349	0.6981	0.7331	0.7716		
		Before-Master	-----	-----	-0.0018	-----		
BS Window Sum	1/s	Master	1		23968			
		Before	23968	22769	23986	25166		
		Before-Master	-----	-----	18	-----		
SS Window Ratio		Master	1.0000		0.4831			
		Before	0.4831	0.4590	0.4863	0.5073		
		Before-Master	-----	-----	0.0032	-----		
SS Window Sum	1/s	Master	1		9818			
		Before	9818	9327	9806	10309		
		Before-Master	-----	-----	-12	-----		
LS Window Ratio		Master	1.0000		0.3020			
		Before	0.3020	0.2869	0.2978	0.3171		
		Before-Master	-----	-----	-0.0042	-----		
LS Window Sum	1/s	Master	1		1182			
		Before	1182	1123	1183	1241		
		Before-Master	-----	-----	1	-----		

HDRS Density Calibration - Photo-multiplier High Voltages

Master (EEPROM):		15:00:08 14-Jun-2014		Before (Measured):		17:28:07 20-Jun-2014		Expired by 1 days
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit		
BS PM High Voltage	V	Master		1000	1340	2400		
		Before		1000	1355	2400		
		Before-Master	-----	-100	15	100		
SS PM High Voltage	V	Master		1000	1616	2400		
		Before		1000	1611	2400		
		Before-Master	-----	-100	-5	100		
LS PM High Voltage	V	Master		1000	1199	2400		
		Before		1000	1193	2400		
		Before-Master	-----	-100	-6	100		

HDRS Density Calibration - Crystal Quality Resolutions

Master (EEPROM):		15:00:08 14-Jun-2014		Before (Measured):		17:28:07 20-Jun-2014		Expired by 1 days
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit		
BS Crystal Resolution	%	Master		5.00	10.60	25.00		
		Before		5.00	10.72	25.00		
		Before-Master	-----	-1.00	0.12	1.00		
SS Crystal Resolution	%	Master		5.00	9.34	20.00		
		Before		5.00	9.34	20.00		
		Before-Master	-----	-1.00	0.00	1.00		
LS Crystal Resolution	%	Master		5.00	8.61	20.00		
		Before		5.00	8.56	20.00		
		Before-Master	-----	-1.00	-0.05	1.00		

HDRS MCFL Calibration - MCFL Accumulations

Before (Measured):		03:40:22 22-Jun-2014					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Main Resistivity	ohm.m	Before	3875	3565	3860	4185	
Deep Resistivity	ohm.m	Before	3830	3524	3794	4136	
Shallow Resistivity	ohm.m	Before	3830	3524	3814	4136	

HGNS-H (HILT Gamma-Ray and Neutron Sonde, 150 degC) Calibration - Run ONE

Primary Equipment :	HILT Gamma-Ray and Neutron Sonde, 150 degC	HGNS-H	4867
Auxiliary Equipment :	HGNS Accelerometer, 150 degC	HACCZ-H	6991
	AmBe Neutron Logging Source	NSR-F	2554
Calibration Parameter :	Water Temperature		
	Housing Size		
	JIG-BKG (Jig minus background reference)	165	

HGNS Accelerometer Calibration - Accelerometer Accumulations

Before (Measured):	03:40:00 22-Jun-2014						
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
AZ Vertical Measurement	ft/s2	Before	32.2	31.5	32.1	32.8	

HGNS Accelerometer EEPROM - Accelerometer EEPROM Read

Master (EEPROM):	00:00:00 15-May-2007						
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Accelerometer Manufacturer		Master			QAT_160		
Accelerometer Reference Temperature	degF	Master		30.2	77.0	122.0	
Accelerometer Coefficients - 0		Master	----	----	-4298.000	----	
Accelerometer Coefficients - 1		Master	----	----	50.180	----	
Accelerometer Coefficients - 2		Master	----	----	-0.002	----	
Accelerometer Coefficients - 3		Master	----	----	0.000	----	
Accelerometer Coefficients - 4		Master	----	----	2.754	----	
Accelerometer Coefficients - 5		Master	----	----	0.000	----	
Accelerometer Coefficients - 6		Master	----	----	0.000	----	
Accelerometer Coefficients - 7		Master	----	----	0.000	----	
Accelerometer Coefficients - 8		Master	----	----	300.500	----	
Accelerometer Coefficients - 9		Master	----	----	0.994	----	

HGNS Neutron Calibration - HGNS Neutron Accumulations

Master (EEPROM):	16:12:40 06-May-2014	Before (Measured):	17:26:06 20-Jun-2014 Expired by 1 days				
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Near Zero Measurement	1/s	Master	0	5.0	27.1	40.0	
		Before	0	5.0	27.9	40.0	
		Before-Master	----	-4.1	0.8	4.1	
Far Zero Measurement	1/s	Master	0	5.0	28.3	40.0	
		Before	0	5.0	27.9	40.0	
		Before-Master	----	-4.2	-0.4	4.2	
Near Plus Measurement	1/s	Master	6031.0	4700.0	5701.0	6900.0	
		Before	----	----	----	----	
		Before-Master	----	----	----	----	
Far Plus Measurement	1/s	Master	2793.0	1900.0	2321.0	2900.0	
		Before	----	----	----	----	
		Before-Master	----	----	----	----	
Near Corrected Plus Measurement	1/s	Master		4700.0	5693.0	6900.0	
		Before	----	----	----	----	
		Before-Master	----	----	----	----	
Far Corrected Plus Measurement	1/s	Master		1900.0	2303.0	2900.0	
		Before	----	----	----	----	
		Before-Master	----	----	----	----	

HGNS Gamma-Ray Calibration - Gamma-Ray Accumulations

Before (Measured):	17:25:37 20-Jun-2014 Expired by 1 days						
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
RGR Zero Measurement	gAPI	Before	30.0	0	79.8	120.0	
RGR Plus Measurement	gAPI	Before	185.4	157.1	171.6	206.3	
GR Calibration Gain		Before	0.89	0.80	0.96	1.05	

Company:	Nighthawk Production LLC	Schlumberger
Well:	Knoss 9-20	
Field:	Wildcat	
County:	Lincoln	
Operator:	Continental Resources	

Platform Express

Triple Combo