

Company: Cascade Petroleum

Well: Gaede 9S-55W-08-12

Field: Wildcat

County: Lincoln State: Colorado

Platform Express  
Triple Combo  
with InductionCounty: Lincoln  
Field: Wildcat  
Location: NENW Sec.8, T9S, R55W  
Well: Gaede 9S-55W-08-12  
Company: Cascade Petroleum

Location:		Elev.:	
NENW Sec.8, T9S, R55W		K.B. 5566.00 ft	
SHL: 660' FNL & 1980' FWL		G.L. 5551.00 ft	
Lat/Long: 39.285870/-103.577820		D.F. 5565.00 ft	
Permanent Datum:	Ground Level	Elev.:	5551.00 f
Log Measured From:	Kelly Bushing	15.00 ft	above Perm.Datum
Drilling Measured From:	Kelly Bushing		
API Serial No.	Section:	Township:	Range:
05-073-06604-0000	8	9S	55W

Logging Date 07-Dec-2014

Run Number ONE

Depth Driller 7990.00 ft

Schlumberger Depth 7998.00 ft

Bottom Log Interval 7998.00 ft

Top Log Interval 3000.00 ft

Casing Driller Size @ Depth 8.625 in @ 543.00 ft

Casing Schlumberger 544.75 ft

Bit Size 7.875 in

Type Fluid In Hole WBM

Density Viscosity 9 lbm/gal 63 s

Fluid Loss PH 4 cm3 9

Source of Sample Active Tank

RM @ Meas Temp 0.81 ohm.m @ 86.16 degF

RMF @ Meas Temp 0.69 ohm.m @ 75 degF

RMC @ Meas Temp 1.38 ohm.m @ 75 degF

Source RMF RMC Calculated

RM @ BHT RMF @ BHT 0.42 @ 174.4 0.31 @ 174.4

Max Recorded Temperatures 178.27 degF

Circulation Stopped 08-Dec-2014 06:00:00

Logger on Bottom 08-Dec-2014 23:52:16

Unit Number Location: 9108 Fort Morgan

Recorded By Nolan Welsh

Witnessed By Jim Weir

## 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.

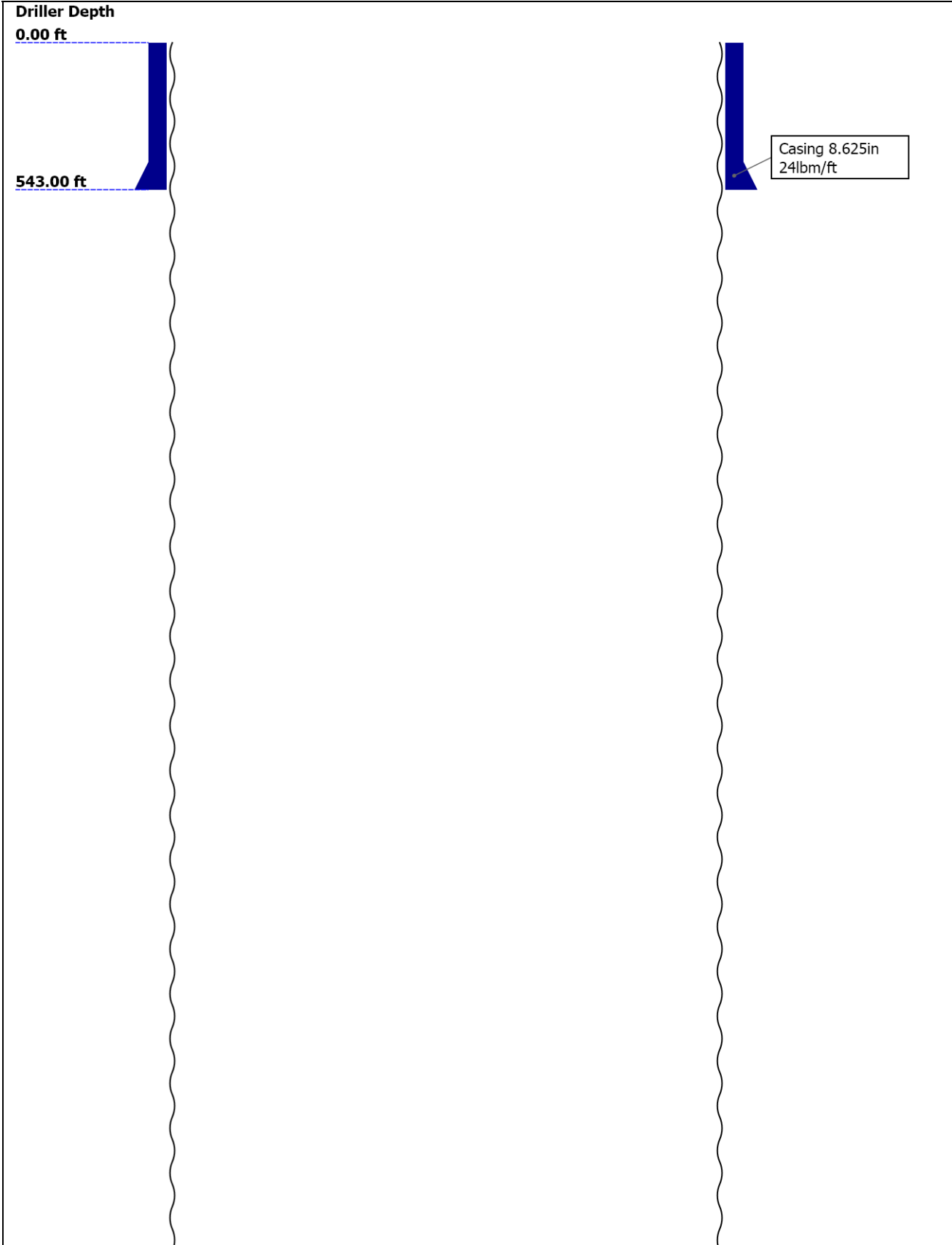
## Contents

- Header
- Disclaimer
- Contents
- Well Sketch
- Borehole Size/Casing/Tubing Record
- Borehole Fluids
- Remarks and Equipment Summary
- Depth Summary
- ONE 2" Induction
  - Integration Summary
  - Software Version
  - Composite Summary
  - Log ( EMD 2in Induction )
  - Parameter Listing
- ONE 5" Induction
  - Integration Summary
  - Software Version

- 11.4 Log ( EMD 5in Triple Combo )
- 11.5 Parameter Listing
12. ONE 5" Triple Combo
  - Composite Summary
  - Log ( EMD 5in Triple Combo RA )
13. Calibration Report
14. Tail

- 10.3 Composite Summary
- 10.4 Log ( Import of EMD 5in Induction )
- 10.5 Parameter Listing
- 11. ONE 5" Triple Combo
  - 11.1 Integration Summary
  - 11.2 Software Version
  - 11.3 Composite Summary

Well Sketch



7990.00 ft

Open Hole 7.875in

## Borehole Size/Casing/Tubing Record

Bit						
Bit Size ( in )	7.875					
Top Driller ( ft )	0					
Top Logger ( ft )	0					
Bottom Driller ( ft )	7990					
Bottom Logger ( ft )	7998					
Casing						
Size ( in )	8.625					
Weight ( lbm/ft )	24					
Inner Diameter ( in )	8.097					
Grade	J55					
Top Driller ( ft )	0					
Top Logger ( ft )	0					
Bottom Driller ( ft )	543					
Bottom Logger ( ft )	544.75					

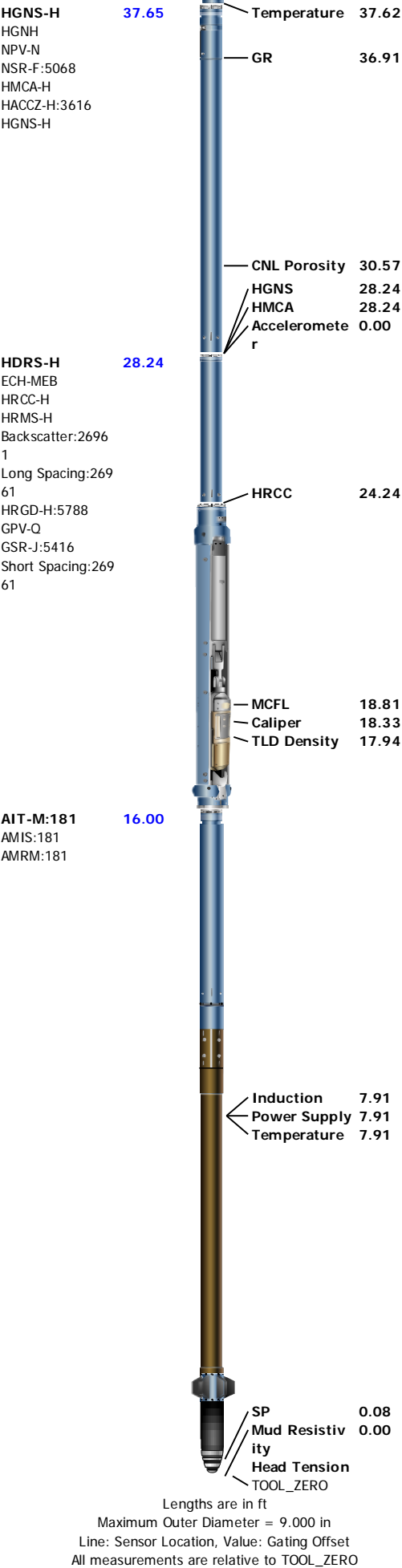
## Borehole Fluids

Parameter( unit )	ONE					
Fluid Type	Water					
Fluid Name	WBM					
Max Recorded Temperatures ( degF )	178.27					
Source of Sample	Active Tank					
Salinity ( ppm )	1700					
Density ( lbm/gal )	9					
Funnel Viscosity ( s )	63					
Fluid Loss ( cm3 )	4					
PH	9					
Date/Time Circulation Stopped	08-Dec-2014 06:00:00					
Date Logger on Bottom	08-Dec-2014					
Time Logger on Bottom	23:52:16					
Source RMF	Calculated					
RMC	Calculated					
RM @ Meas Temp ( ohm.m@degF )	0.81 @ 86.16					
RMF @ Meas Temp ( ohm.m@degF )	0.69 @ 75					

RMC @ Meas Temp ( ohm.m@degF )	1.38 @ 75					
RM @ BHT ( ohm.m@degF )	0.42 @ 174.4					
RMF @ BHT ( ohm.m@degF )	0.31 @ 174.4					
RMC @ BHT ( ohm.m@degF )	0.62 @ 174.4					
Total Solid ( % )						
High Gravity Solids ( % )						

## Remarks and Equipment Summary

ONE: Toolstring					ONE: Remarks
Equip name	Length	MP name	Offset		This is the first run in the well
LEH-QT LEH-QT	69.67				Toolstring run withould bowspring and AIT top standoff as per client request.
					Matrix: Limestone MDEN:2.71 g/cm3
DTC-H ECH-KC DTC-H	66.75	CTEM HV	65.85 0.00		Logging interval from TD to 3000' , GR logged to surface.
		ToolStatus TelStatus	63.75 63.75		Tool stuck for 2.5 hours at 3950', cailper closed from 3950 to top of logging interval due to client request.
PPC-B:8352 PPC-B:8352	63.75				Crew: Troy Ocanus, Jeffery Schossow
		PPC-B Caliper s	62.61		Rig: Extreme #11
CMRT-B:2 CMRC:156 CMRH:156 CMRS:2	57.24				
		CMRT	43.59		
AH-184[2]	41.65				
AH-184[1]	39.65				



## Depth Summary

ONE

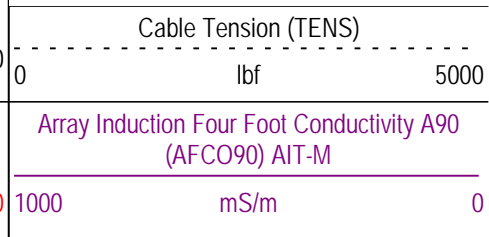
Log

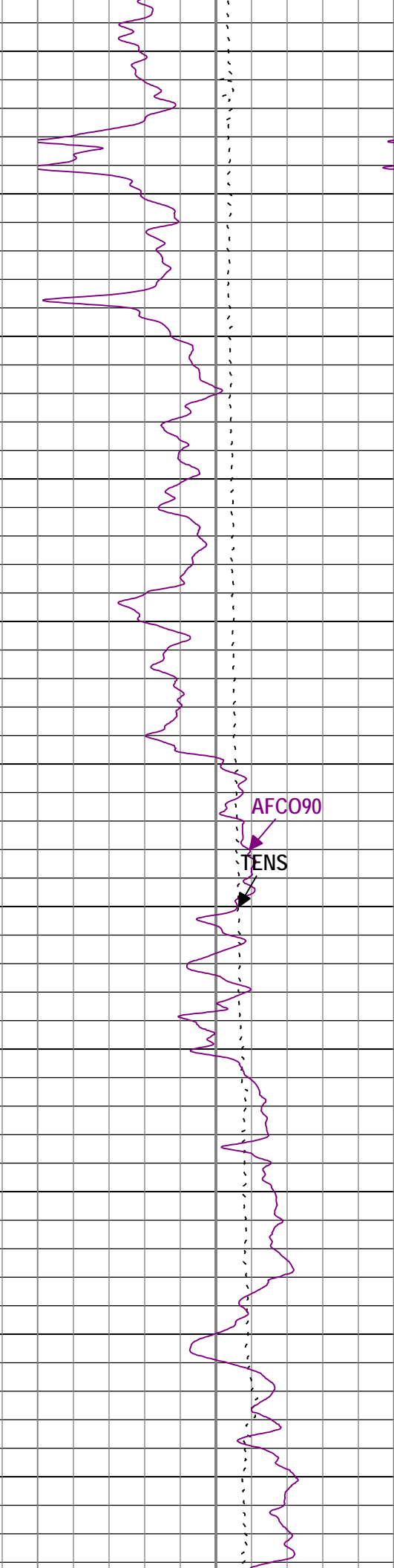
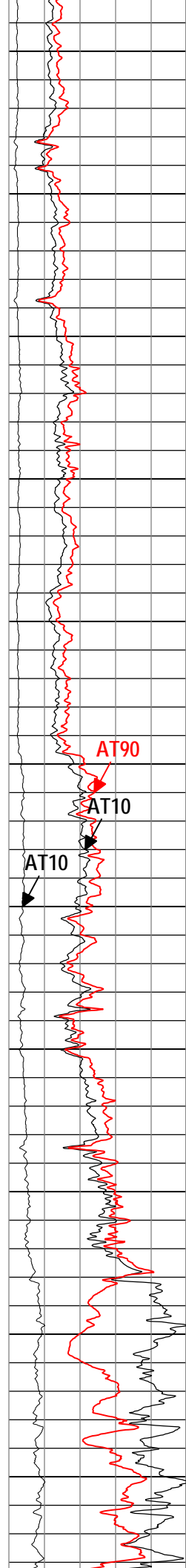
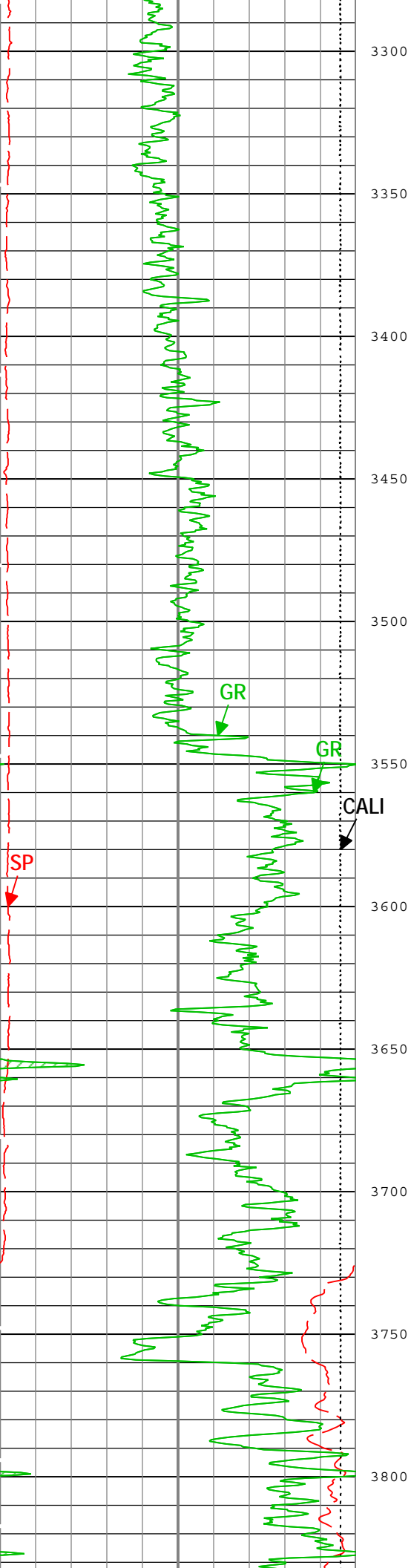
Company: Cascade Petroleum

Well: Gaede 9S-55W-08-12

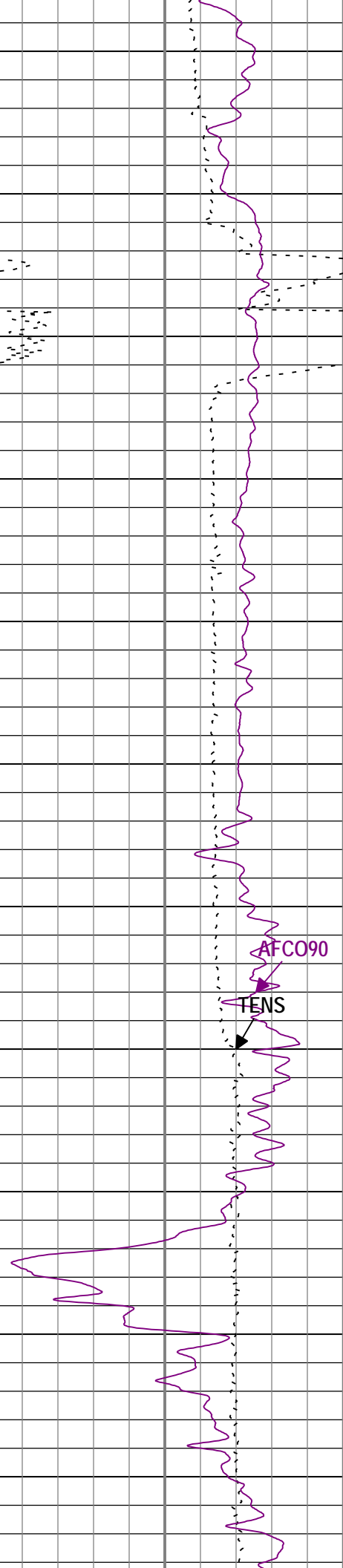
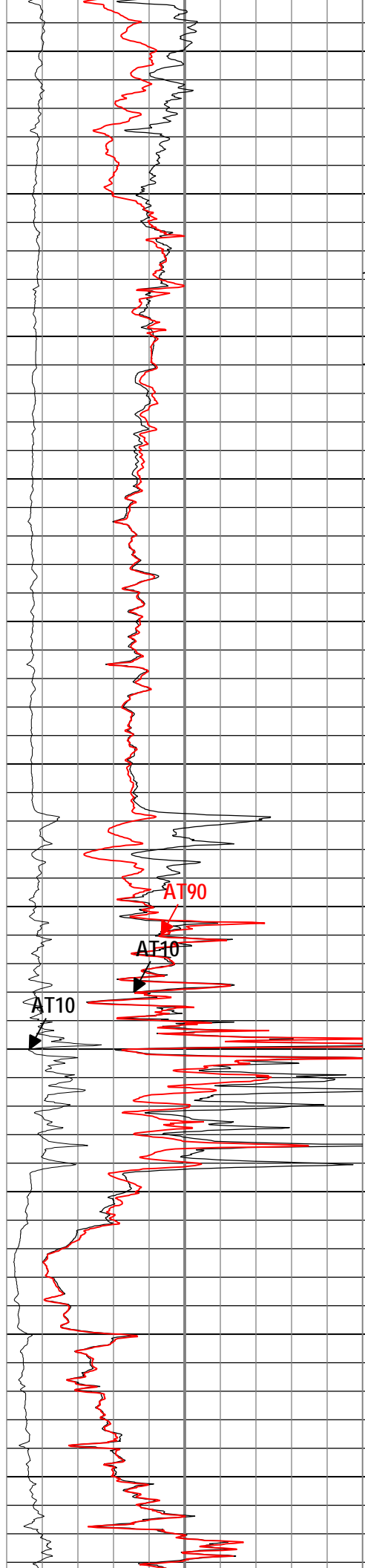
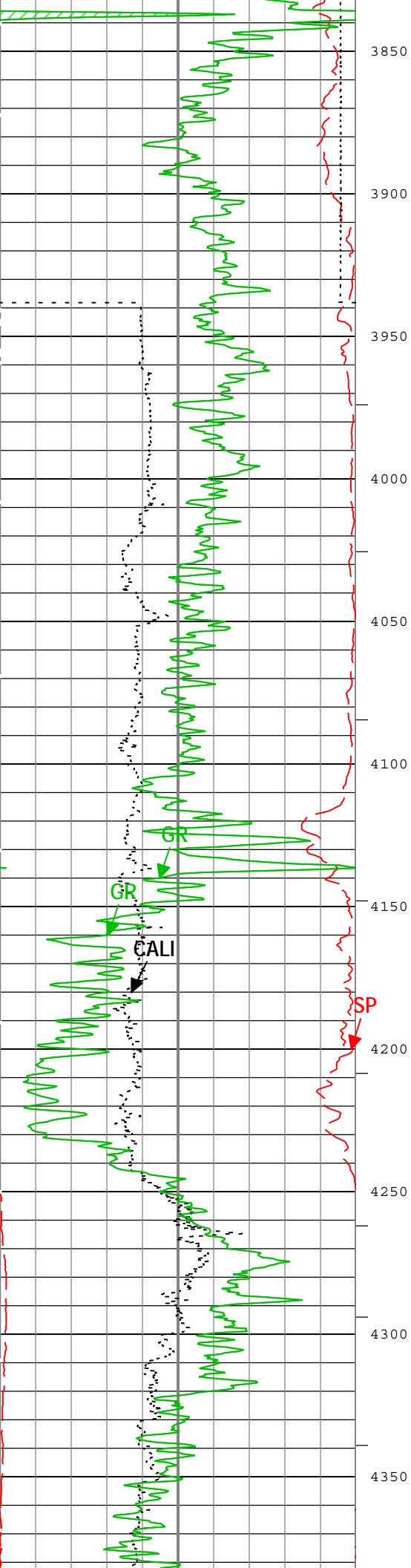
ONE: Main[4]:Up:S006

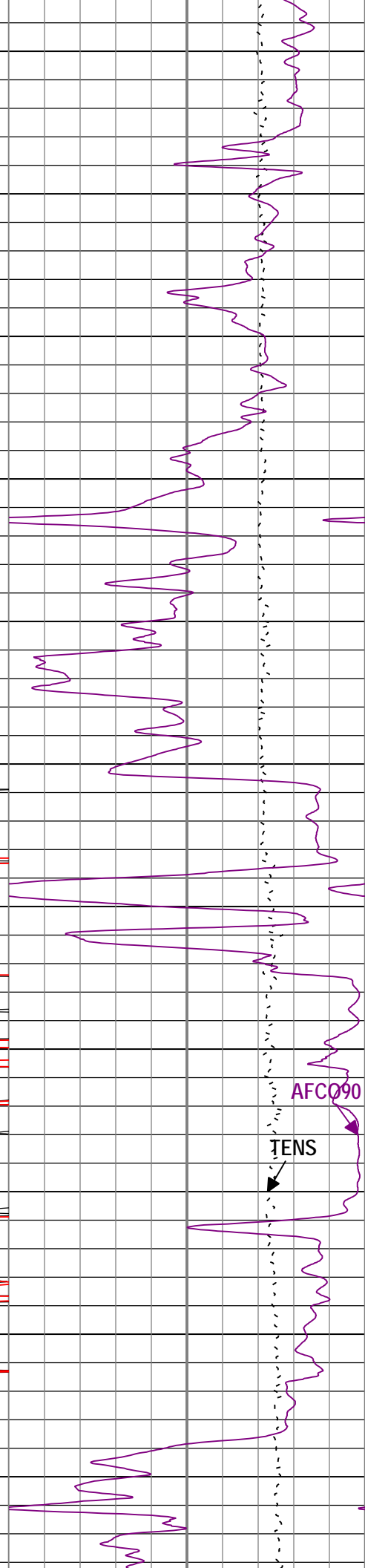
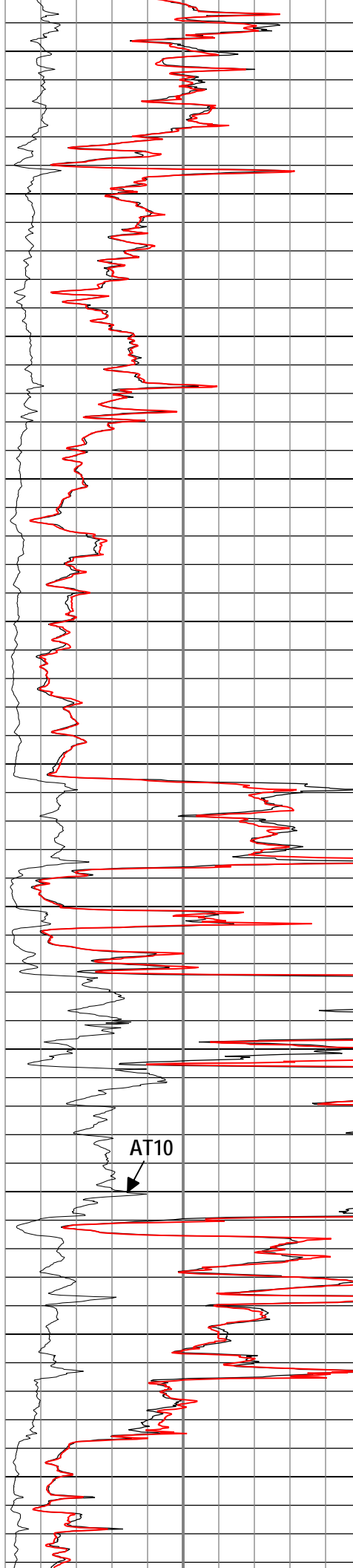
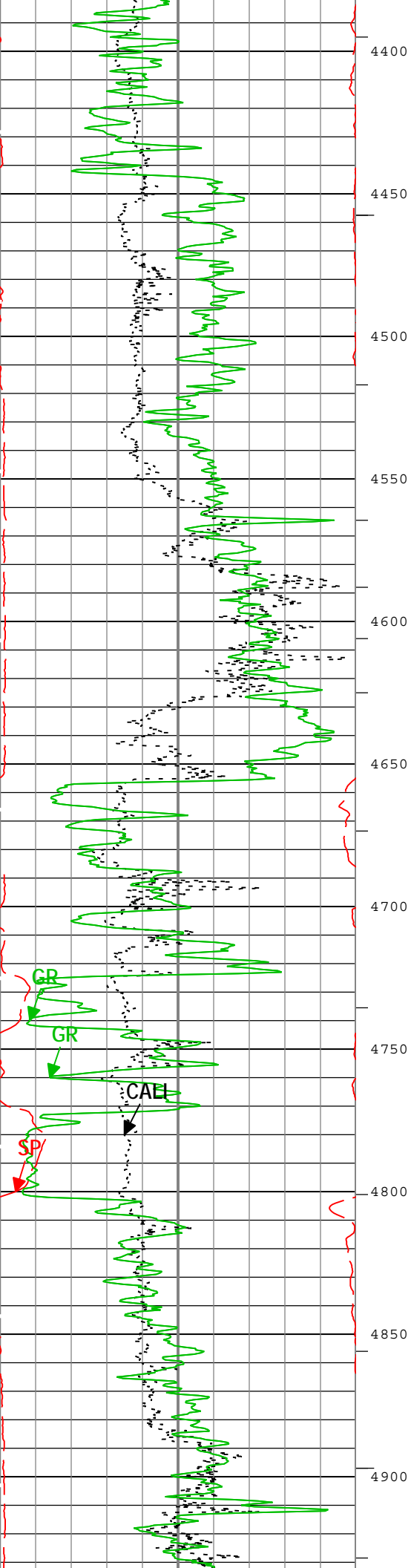
— ICV - Integrated Cement Volume every 100.00 (ft3)

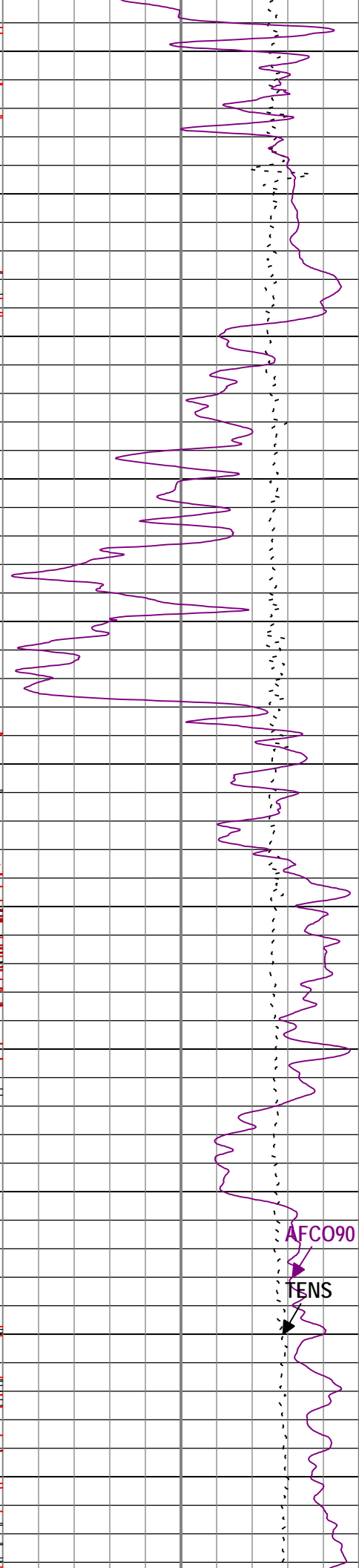
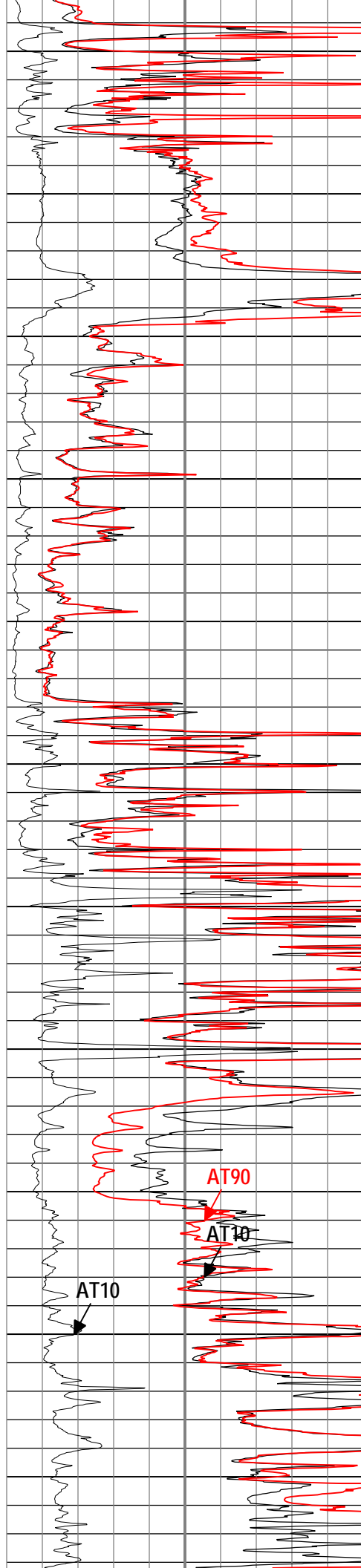
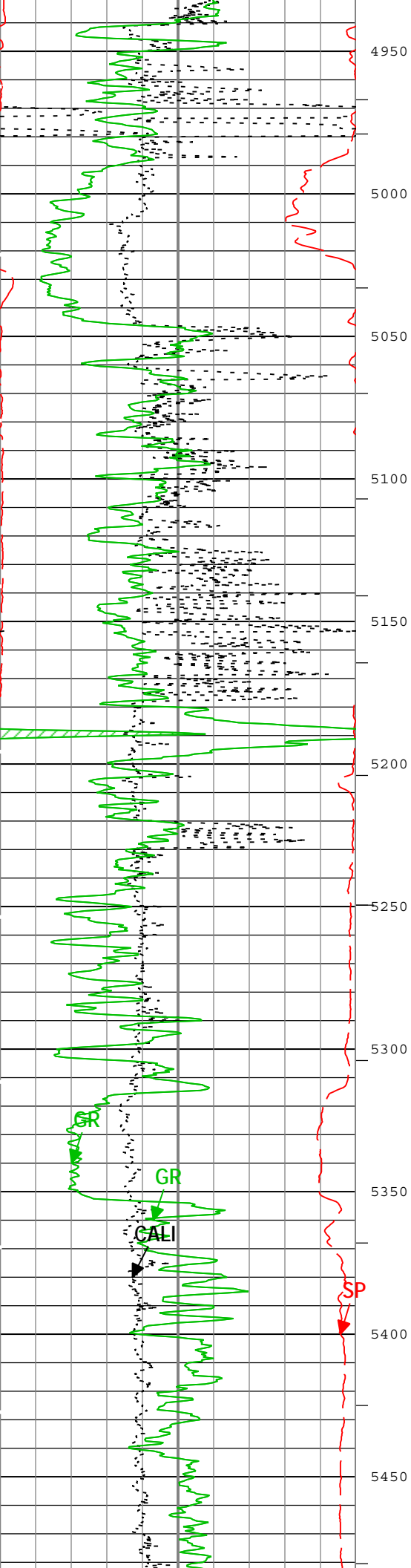


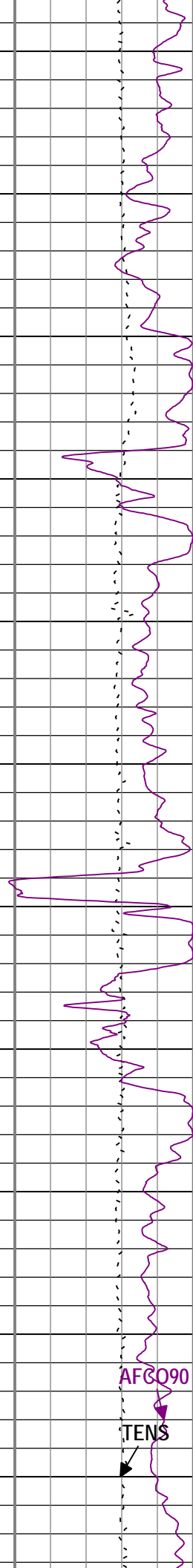
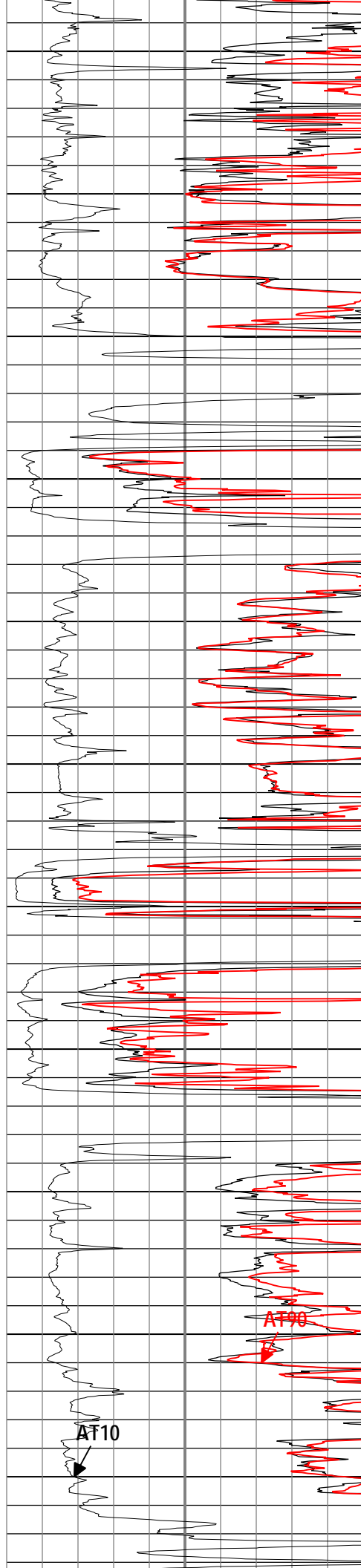
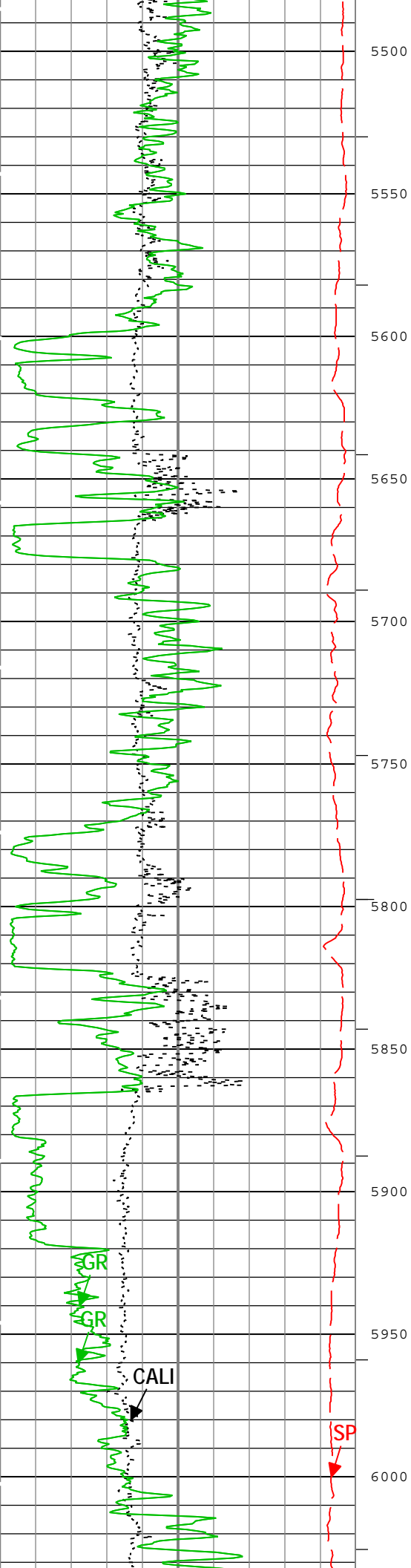


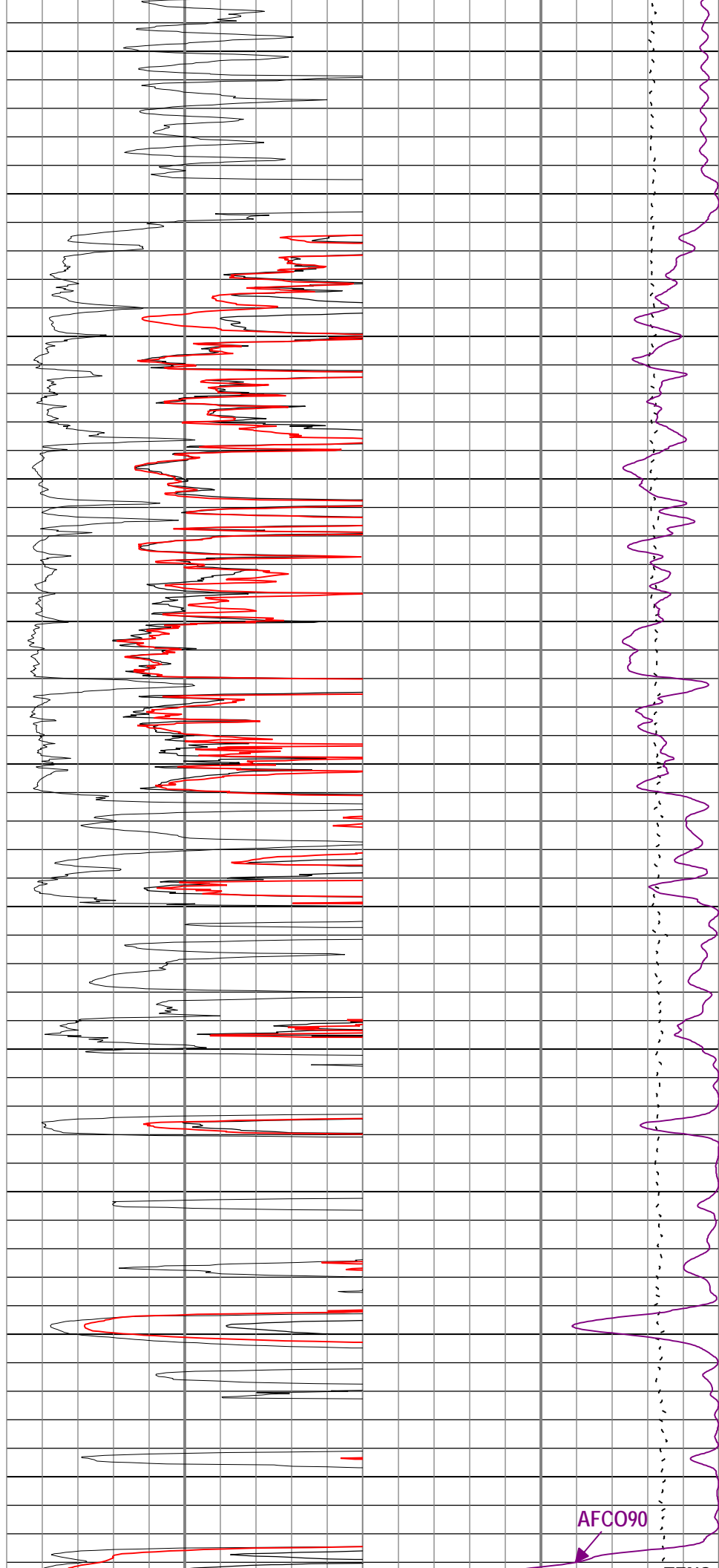
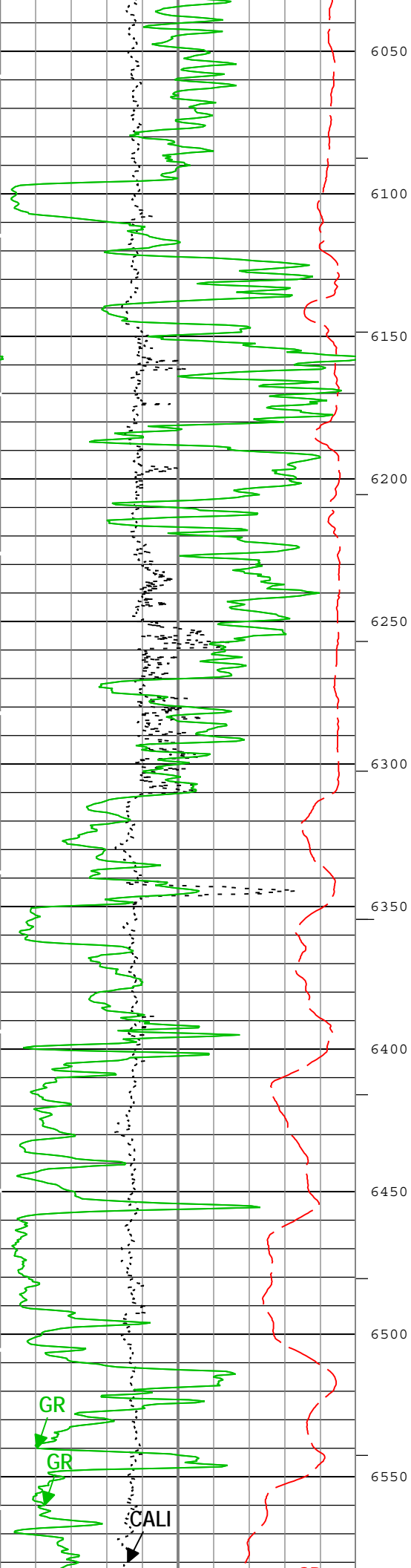


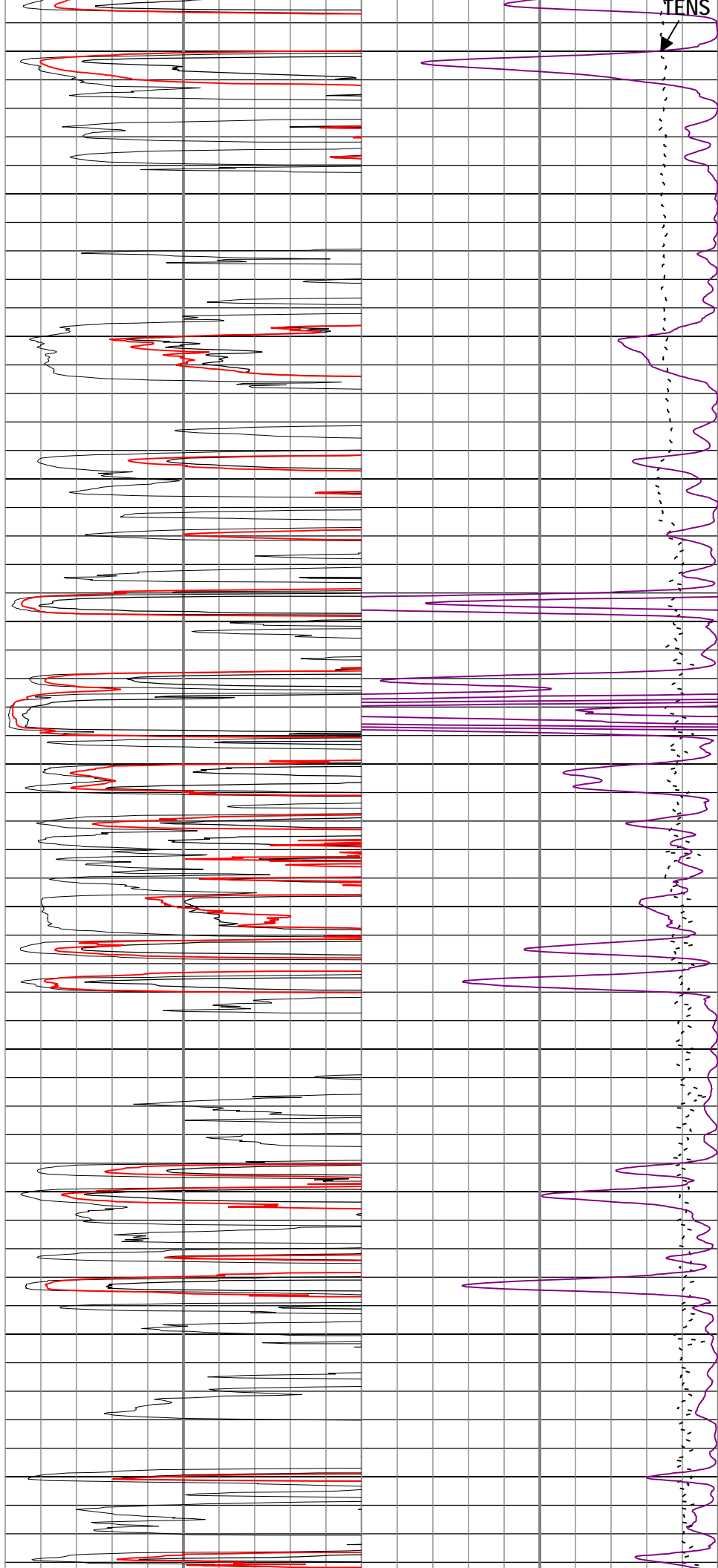
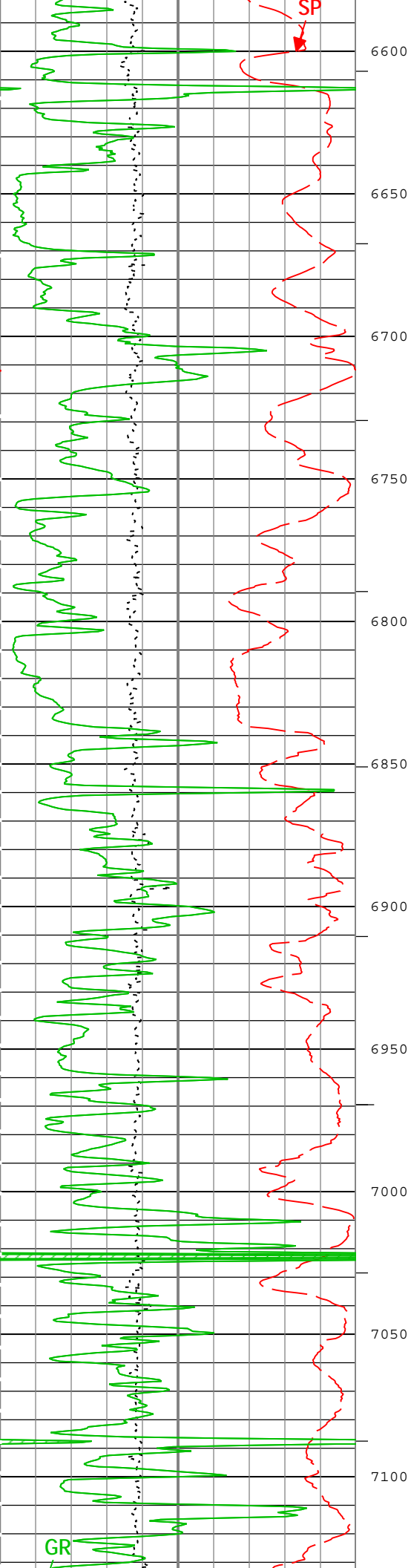


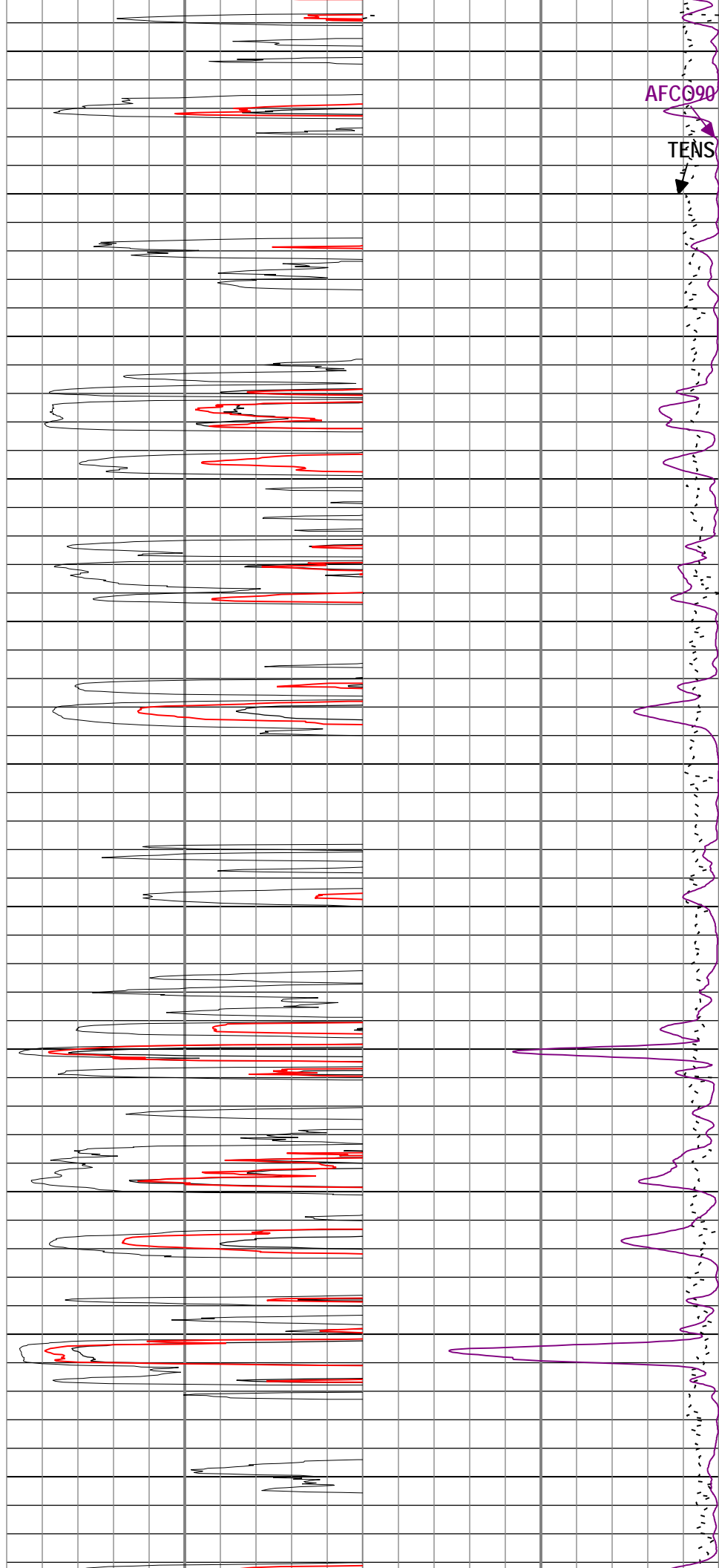
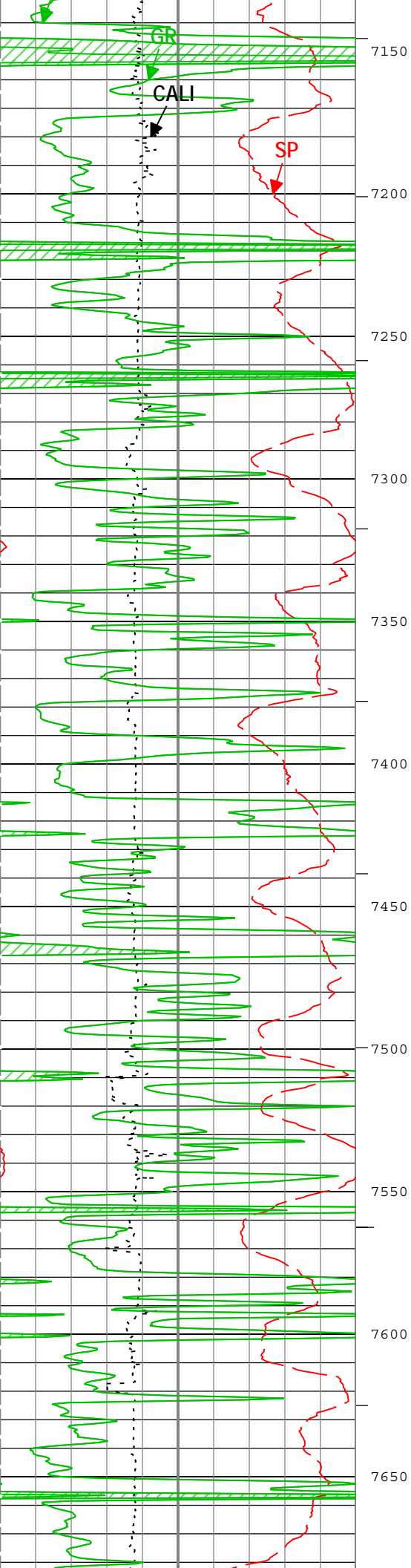


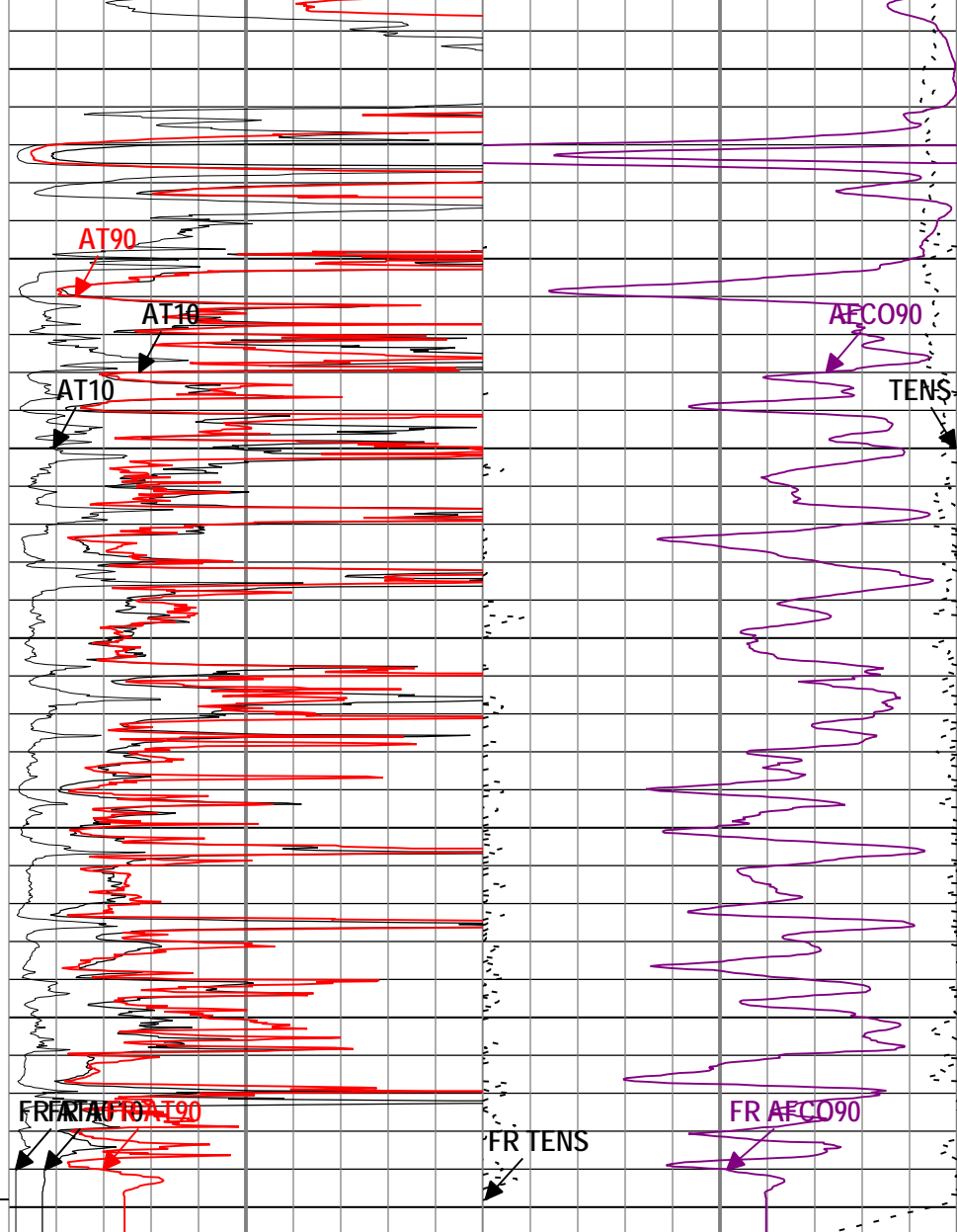












Cable Tension (TENS)	
0	5000
lbf	
Array Induction Four Foot Conductivity A90 (AFCO90) AIT-M	
1000	0
mS/m	

└ ICV - Integrated Cement Volume every 10.00 (ft3)

Description: AIT Basic Log Two    Format: Log ( EMD 2in Induction )    Index Scale: 2 in per 100 ft    Index Unit: ft    Index Type: Measured Depth    Creation Date: 09-Dec-2014 08:01:41

Parameter	Description	Tool	Value	Unit
ABHM	Array Induction Borehole Correction Mode	AIT-M	Compute Standoff	
ACDE	Array Induction Casing Detection Enable	AIT-M	Yes	



ATA	Array Induction Tool Standoff	AIT-M	1.125	in
BARI	Barite Mud Presence Flag	Borehole	No	
BHS	Borehole Status (Open or Cased Hole)	Borehole	Open	
BS	Bit Size	WLSESSION	7.875	in
CALI_SHIFT	CALI Supplementary Offset	HDRS-H	0	in
CBLO	Casing Bottom (Logger)	WLSESSION	544.75	ft
CDEN	Cement Density	HGNS-H	2	g/cm3
DFD	Drilling Fluid Density	Borehole	9	lbm/gal
FCD	Future Casing (Outer) Diameter	WLSESSION	5.5	in
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	
SPDR	SP Drift Per Foot	AIT-M	0	mV/ft

Tool Control Parameters				
Parameter	Description	Tool	Value	Unit
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	840	ft/h
ONE				
5" Induction				

Integration Summary				
Output Channel(s)	Output Description	Input Parameter	Output Value	Unit
ICV	Integrated Cement Volume	GCSE_UP_PASS, FCD	796.55	ft3
IHV	Integrated Hole Volume	GCSE_UP_PASS	1534.59	ft3

Software Version			
Acquisition System		Version	
MaxWell		4.0.9163.3000	
Application Patch		Patch-SP-10767_26570-4.0.9163.3001	
Computation	Description		Version
Borehole	Borehole Ensemble provides common Borehole Parameters and Channels		4.0.9469.3000
Tool Elements	Description	Software Version	Firmware Version
HRCC-H	HILT High-Resolution Control Cartridge, 150 degC	4.0.9575.3000	2.0
HGNS-H	HILT Gamma-Ray and Neutron Sonde, 150 degC	4.0.9575.3000	2.0
AMIS	Array Induction Sonde - M	4.0.9535.3000	1

Pass Summary									
Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
ONE	Main[4]:Up	Up	66.10 ft	8019.08 ft	09-Dec-2014 12:26:30 AM	09-Dec-2014 6:56:36 AM	ON	0.97 ft	No
All depths are referenced to toolstring zero									

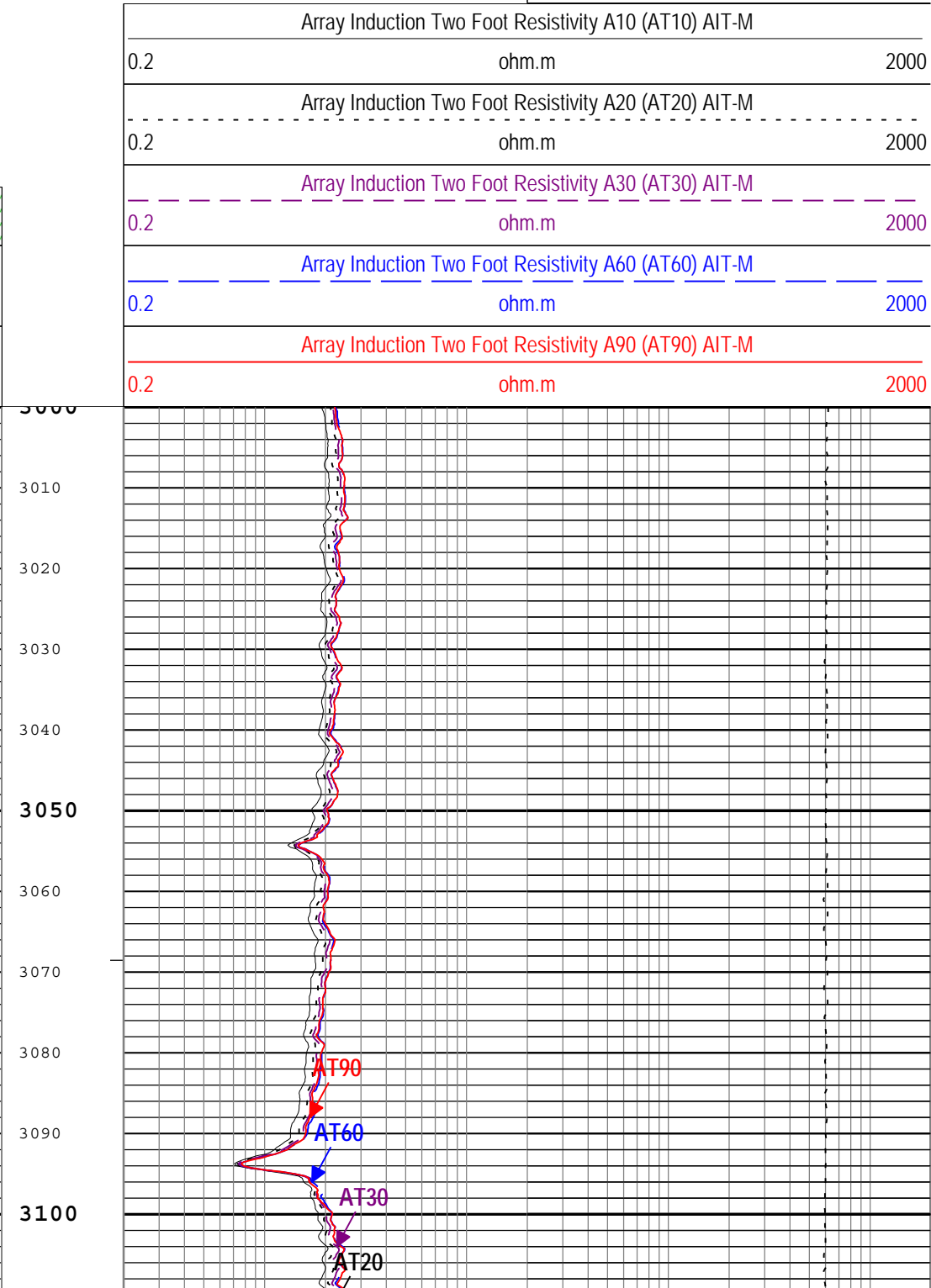
Log	Company:Cascade Petroleum      Well:Gaede 9S-55W-08-12 ONE: Main[4]:Up:S006
-----	--

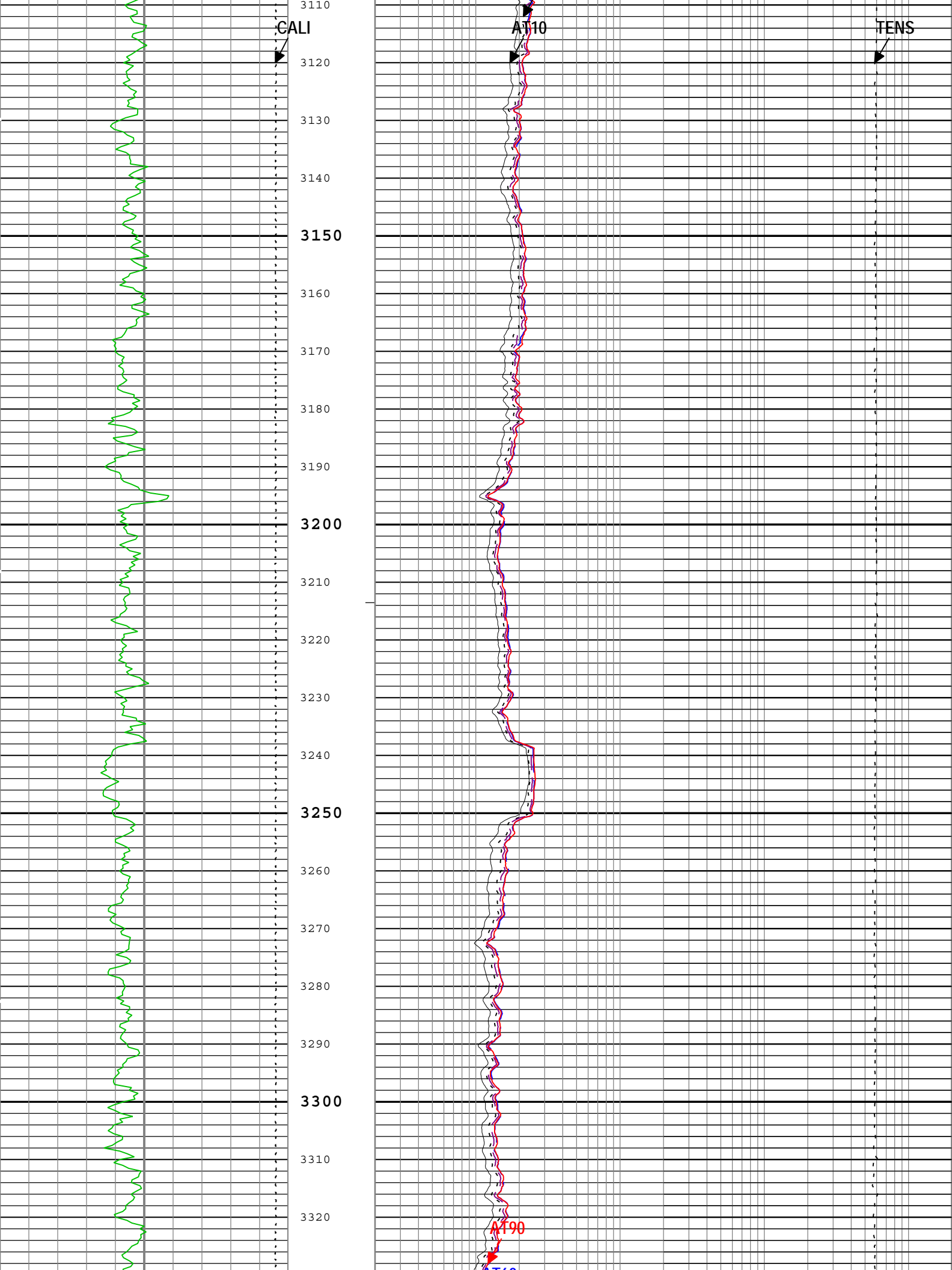
Description: AIT Basic Log Two    Format: Log ( Import of EMD 5in Induction )    Index Scale: 5 in per 100 ft    Index Unit: ft    Index Type: Measured Depth  
Creation Date: 09-Dec-2014 08:01:42

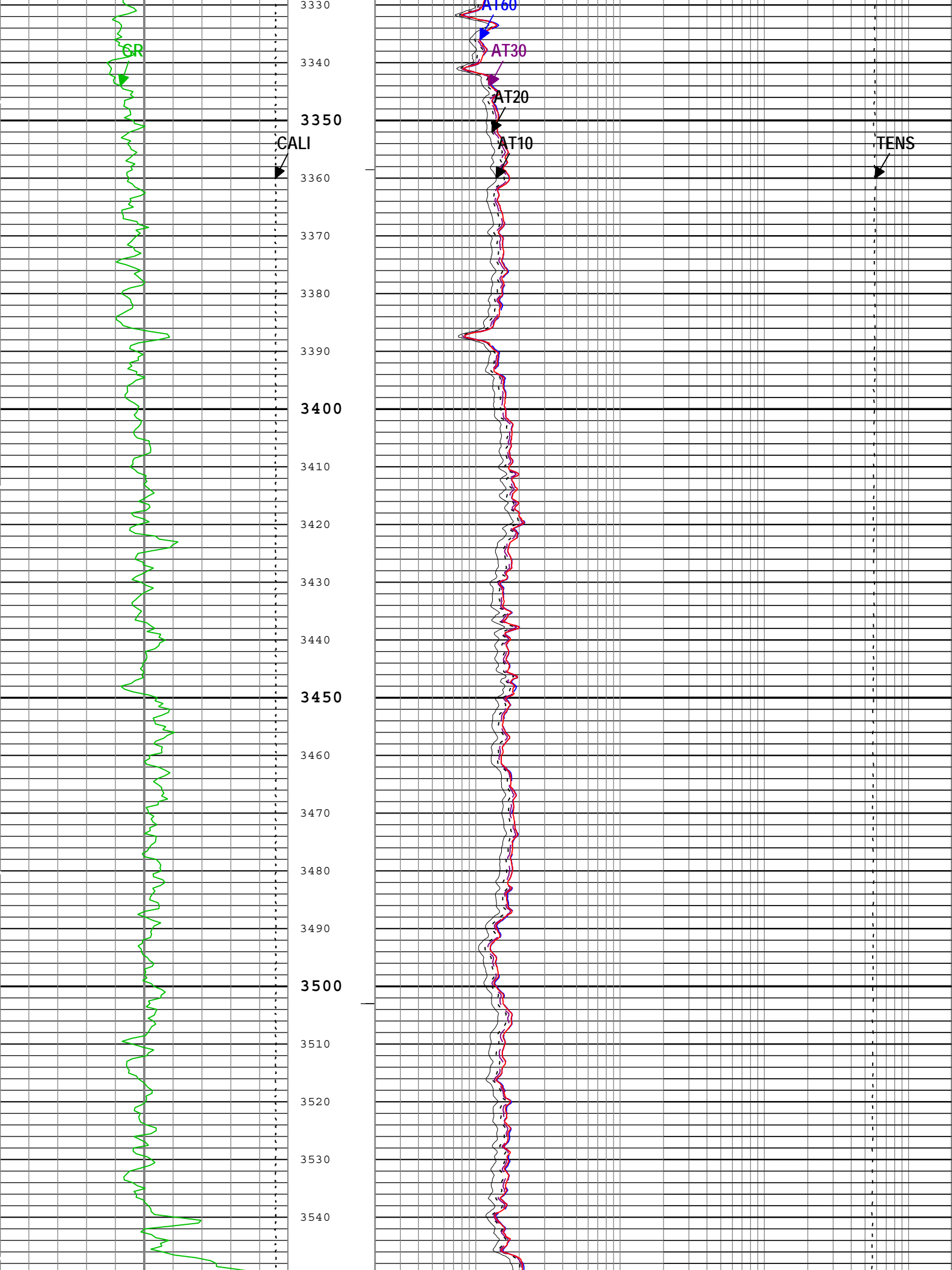
Channel	Source	Sampling
AT10	AIT-M:AMIS:AMIS	3in
AT20	AIT-M:AMIS:AMIS	3in
AT30	AIT-M:AMIS:AMIS	3in
AT60	AIT-M:AMIS:AMIS	3in
AT90	AIT-M:AMIS:AMIS	3in

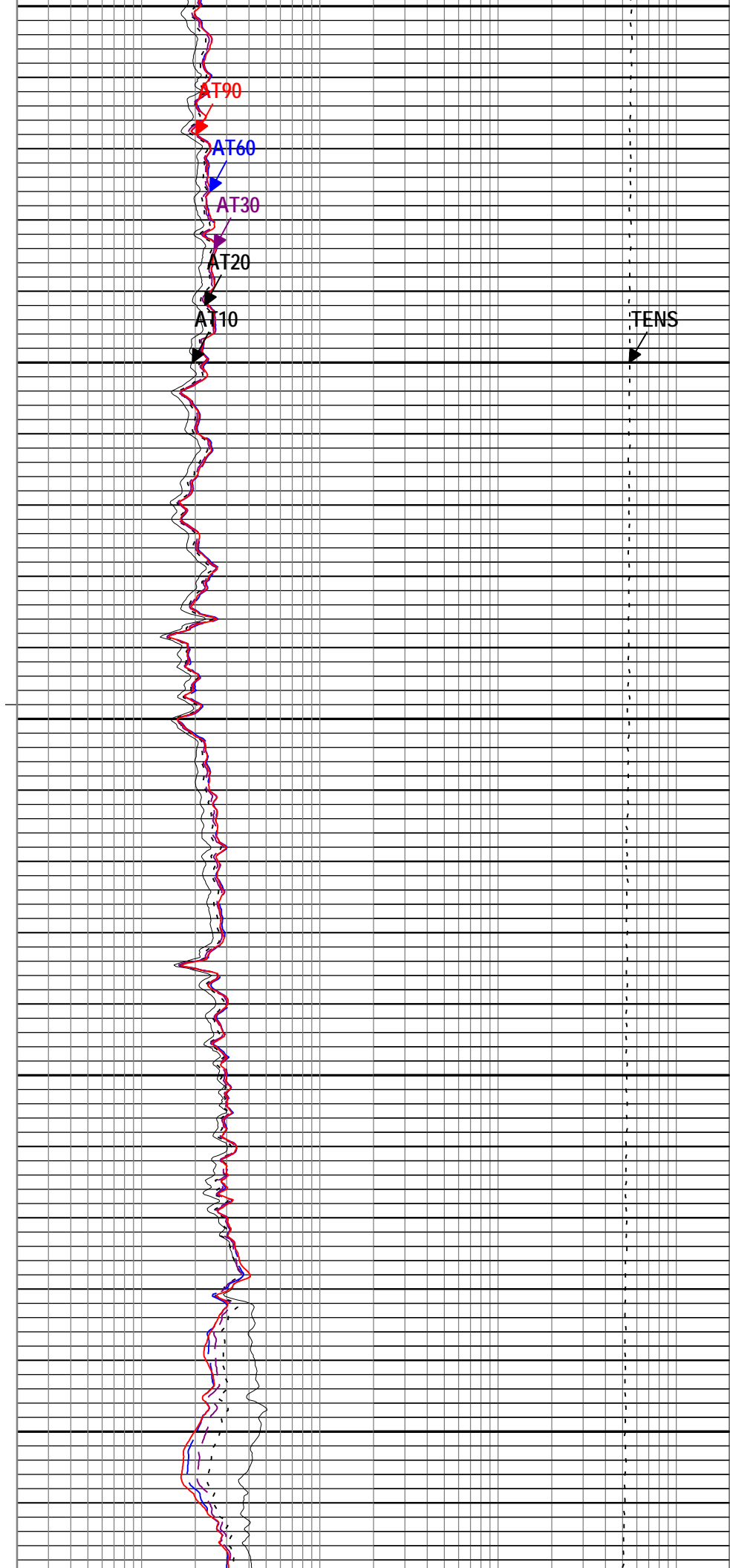
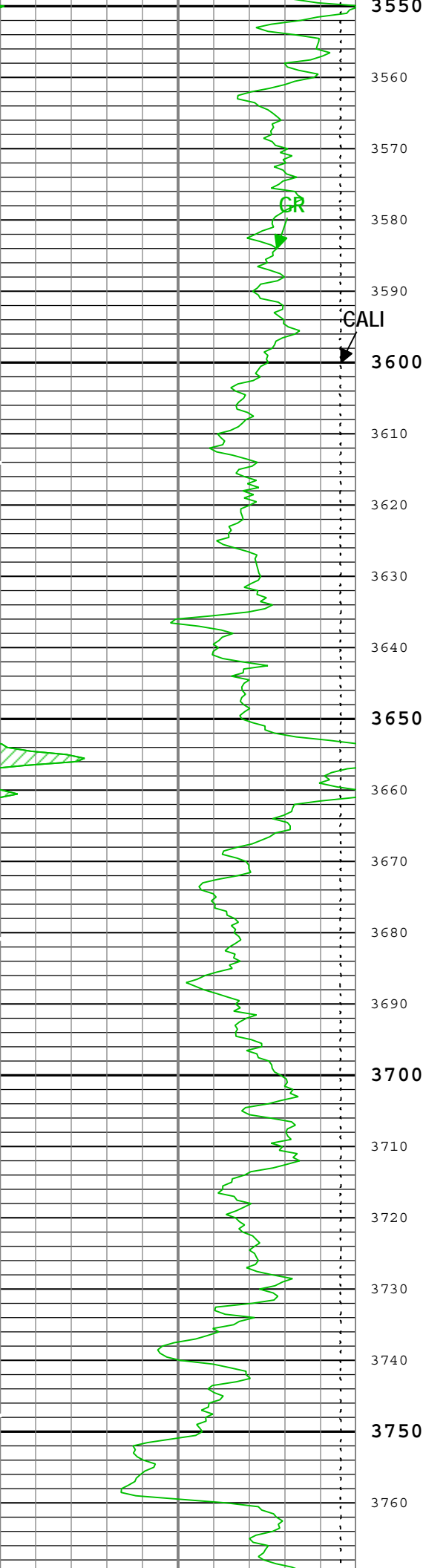
Legend:

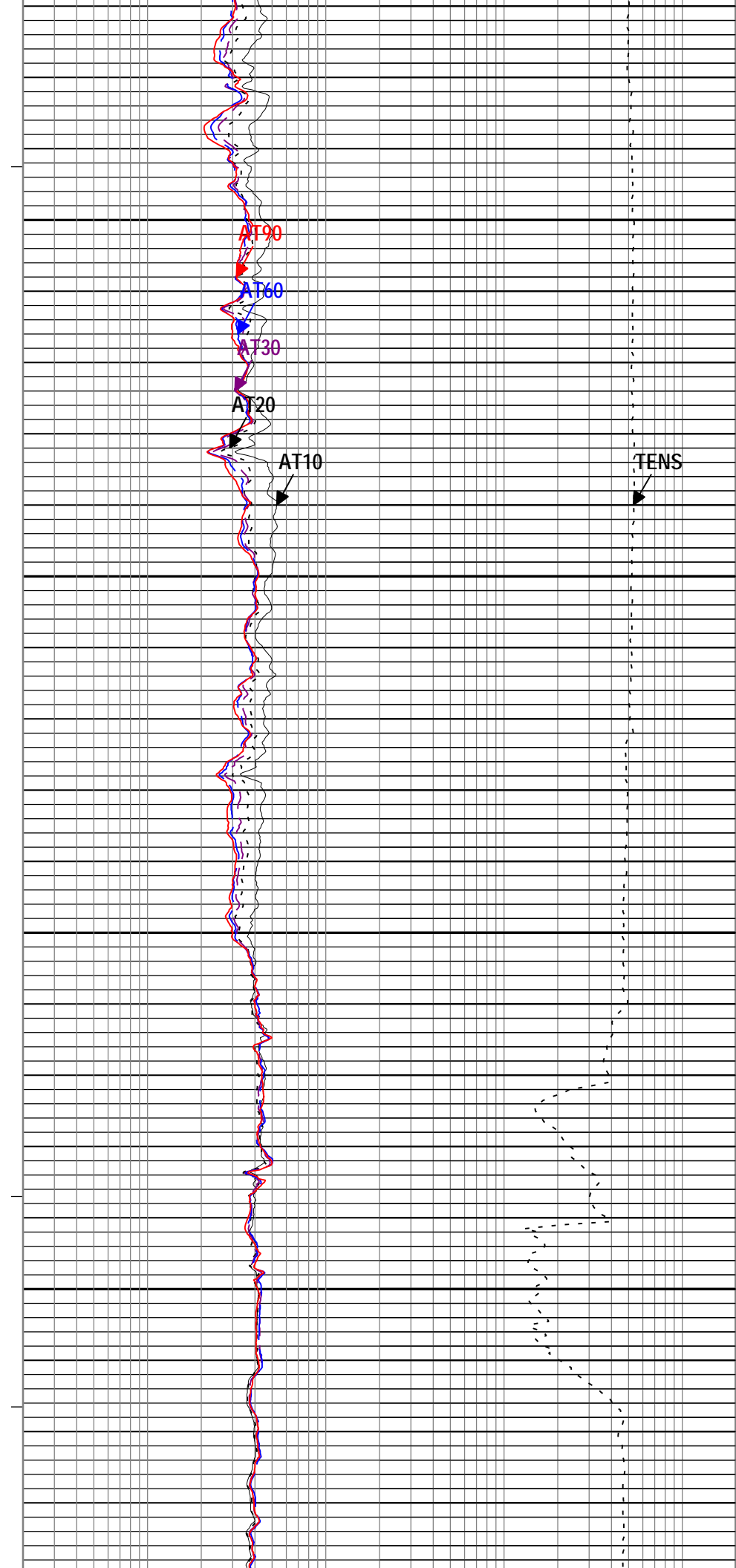
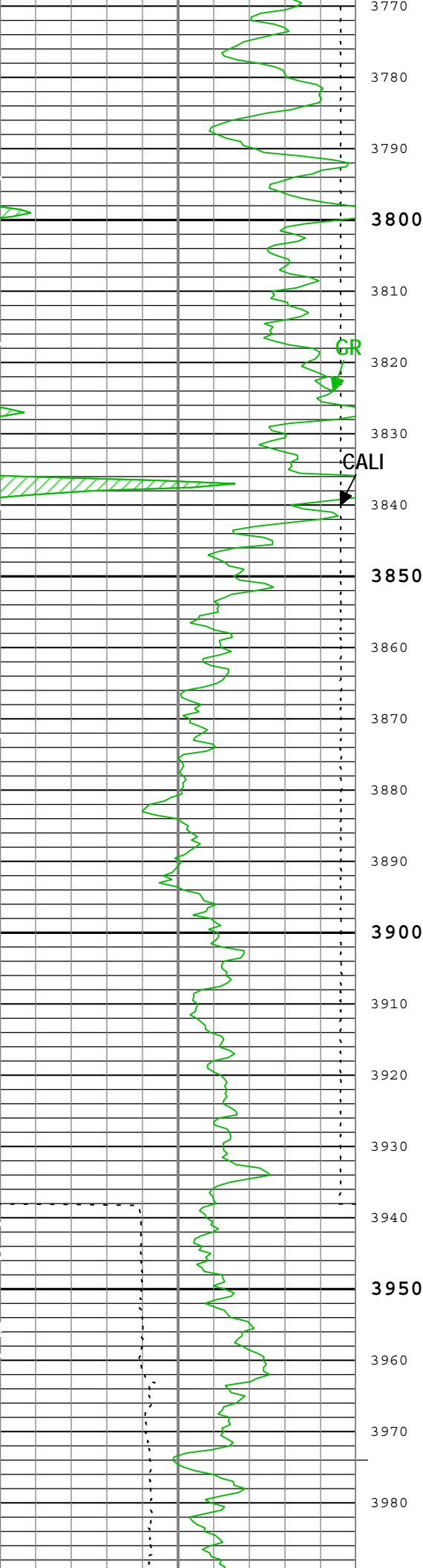
- IHV - Integrated Hole Volume every 10.00 (ft3)
- IHV - Integrated Hole Volume every 100.00 (ft3)
- ICV - Integrated Cement Volume every 10.00 (ft3)
- ICV - Integrated Cement Volume every 100.00 (ft3)
- TIME\_1900 - Time Marked every 60.00 (s)

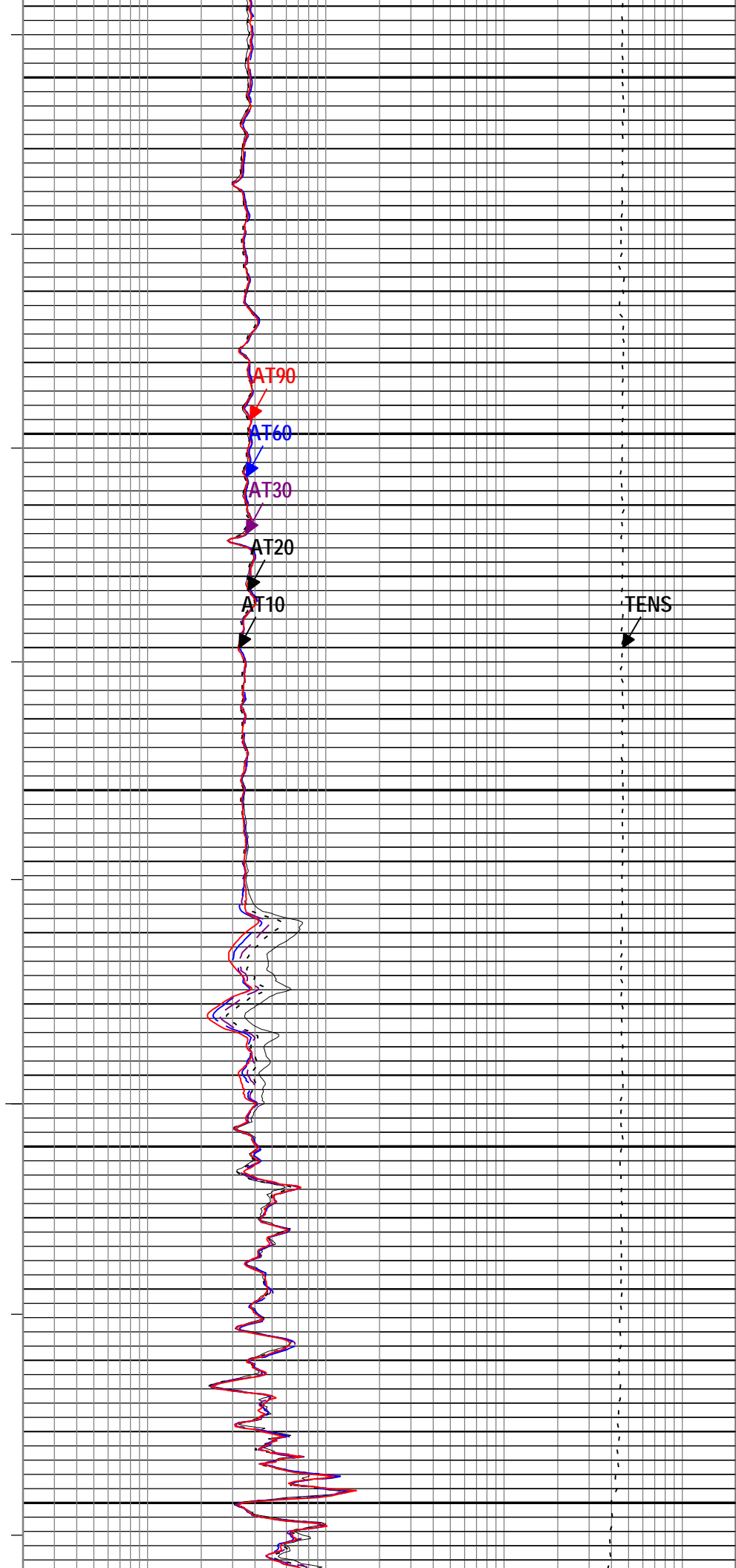
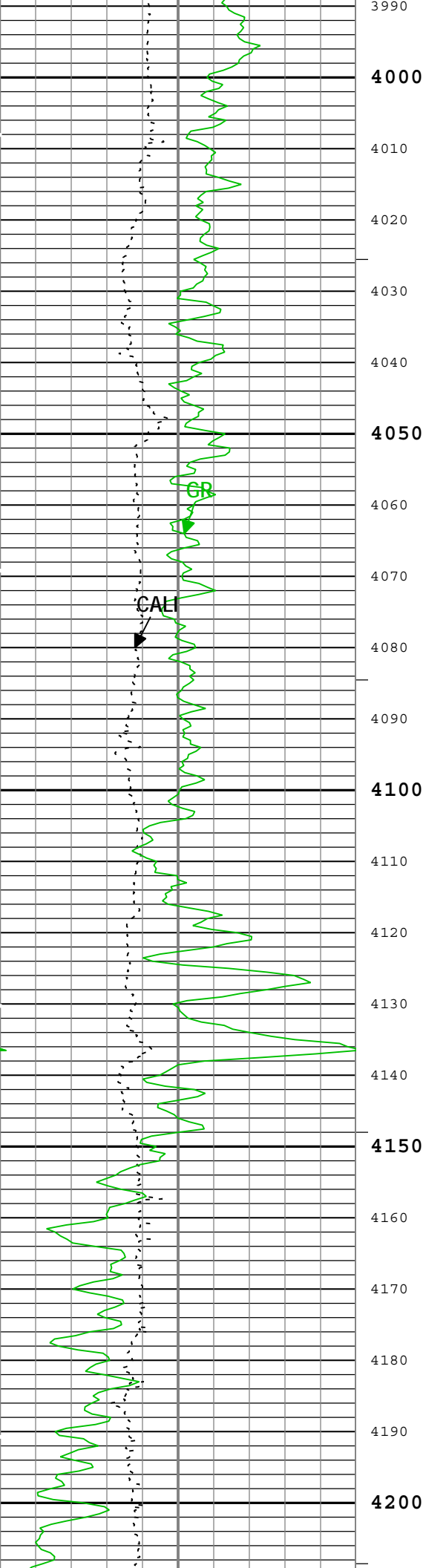


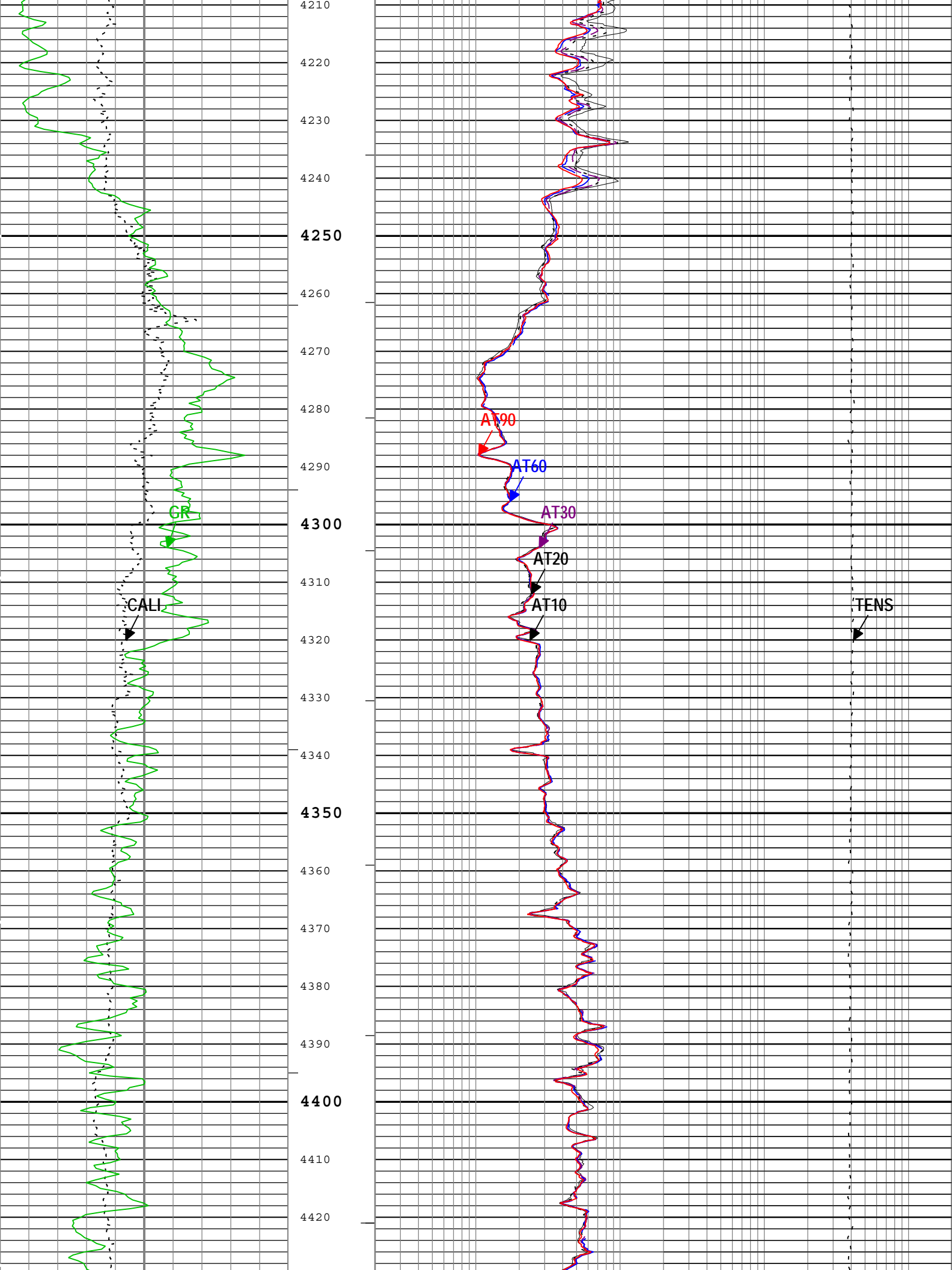




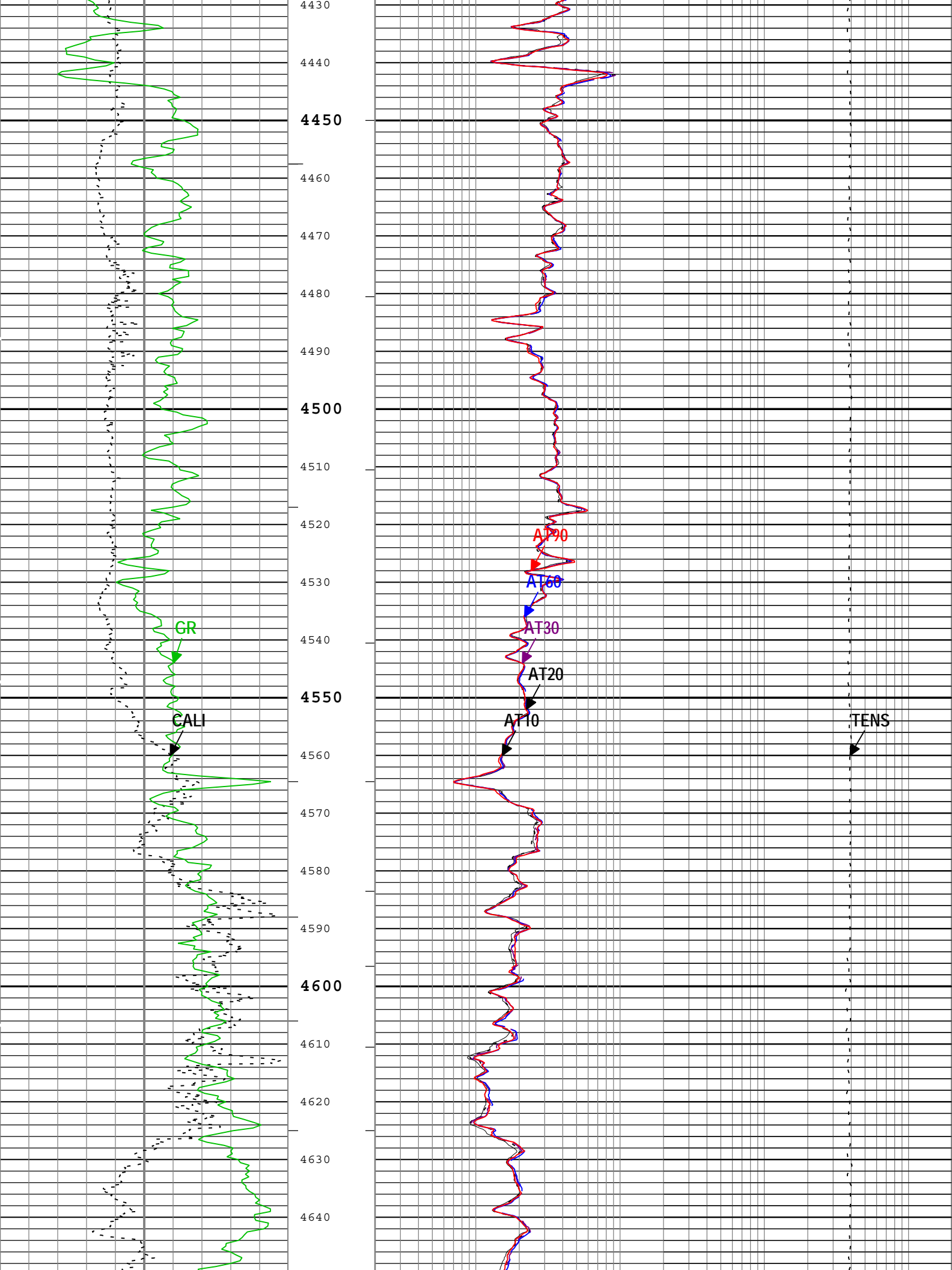


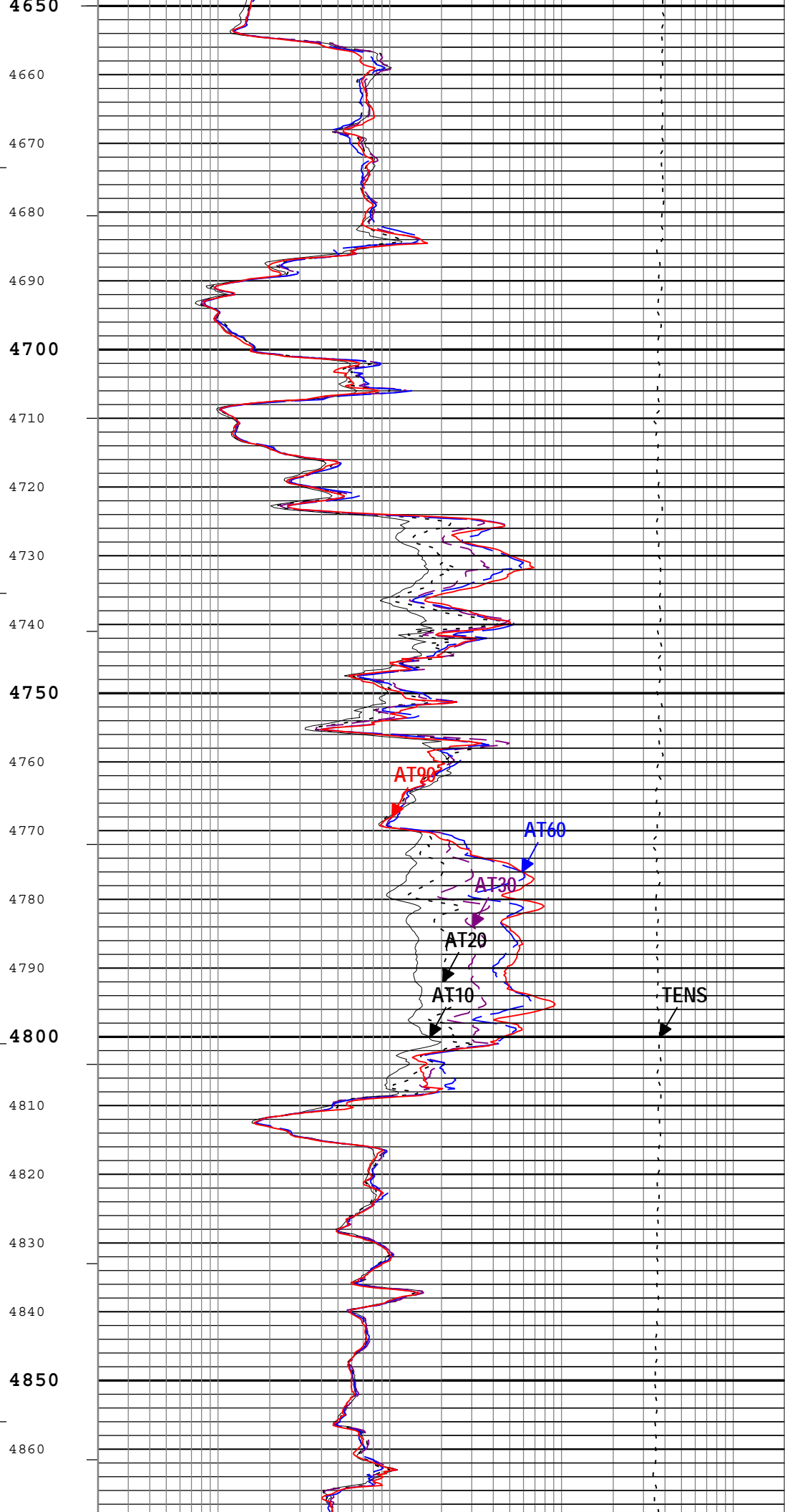
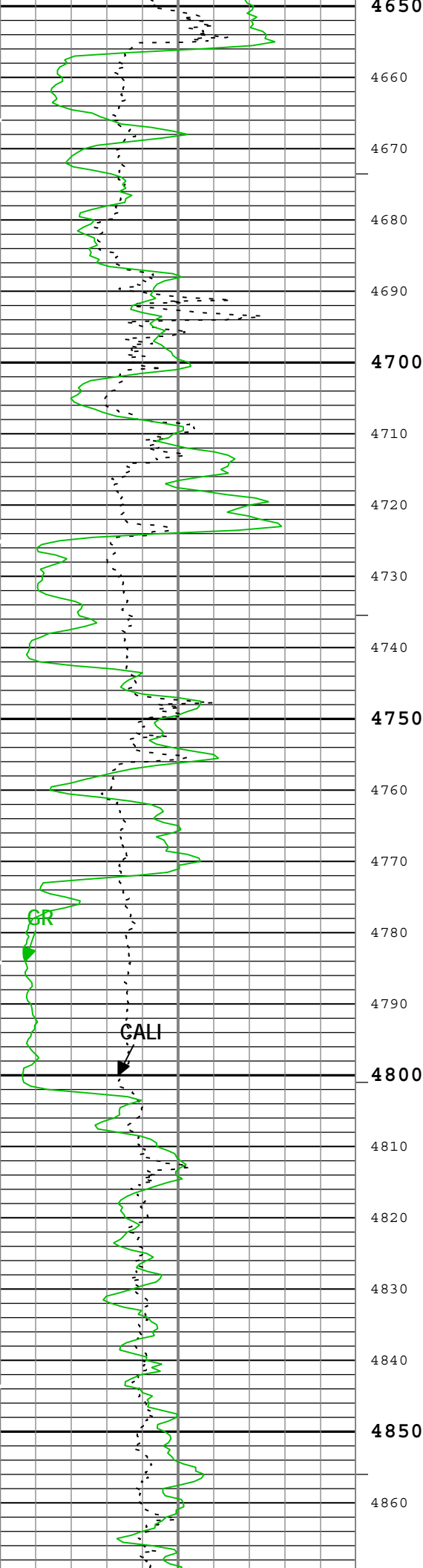


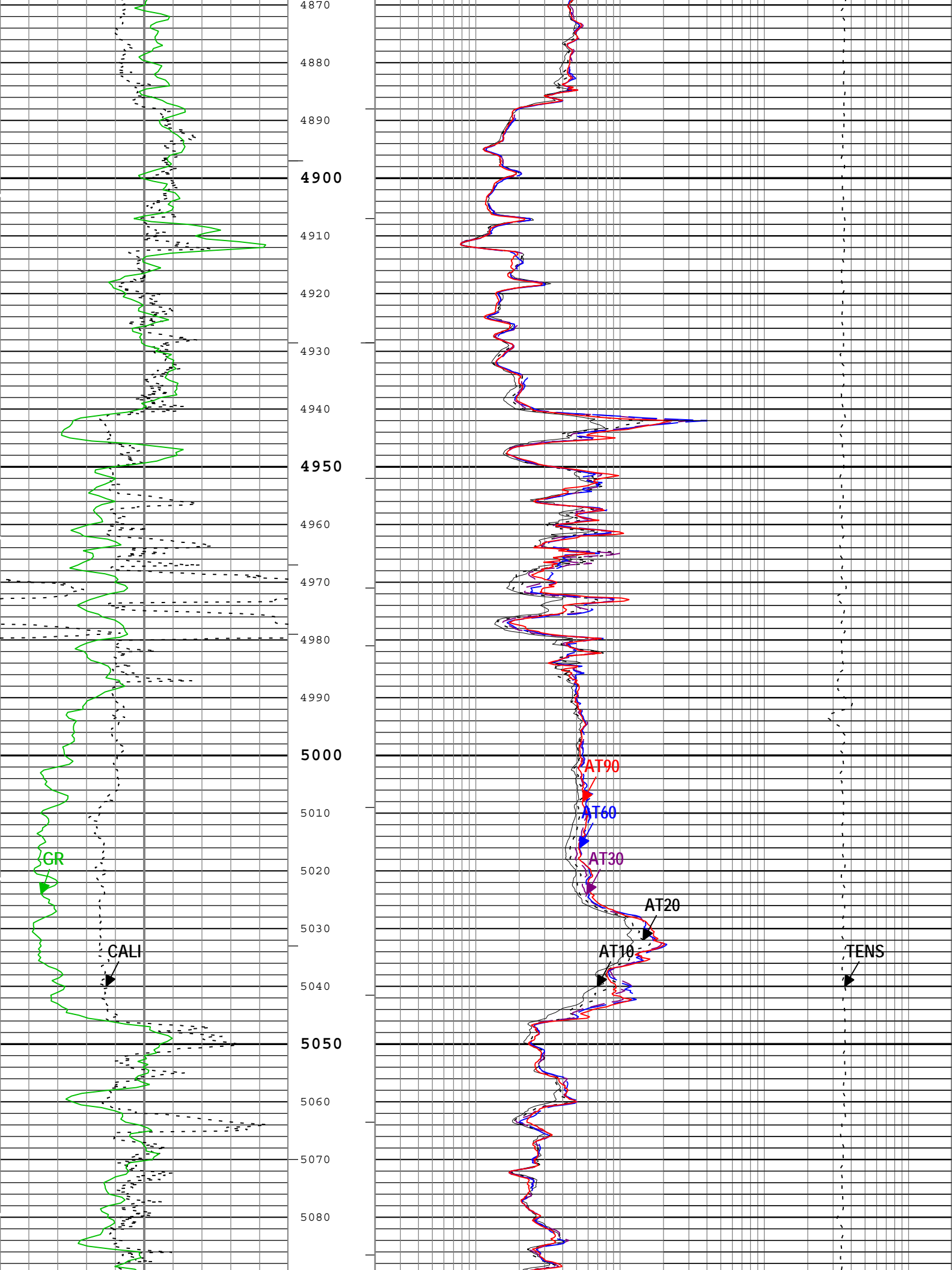


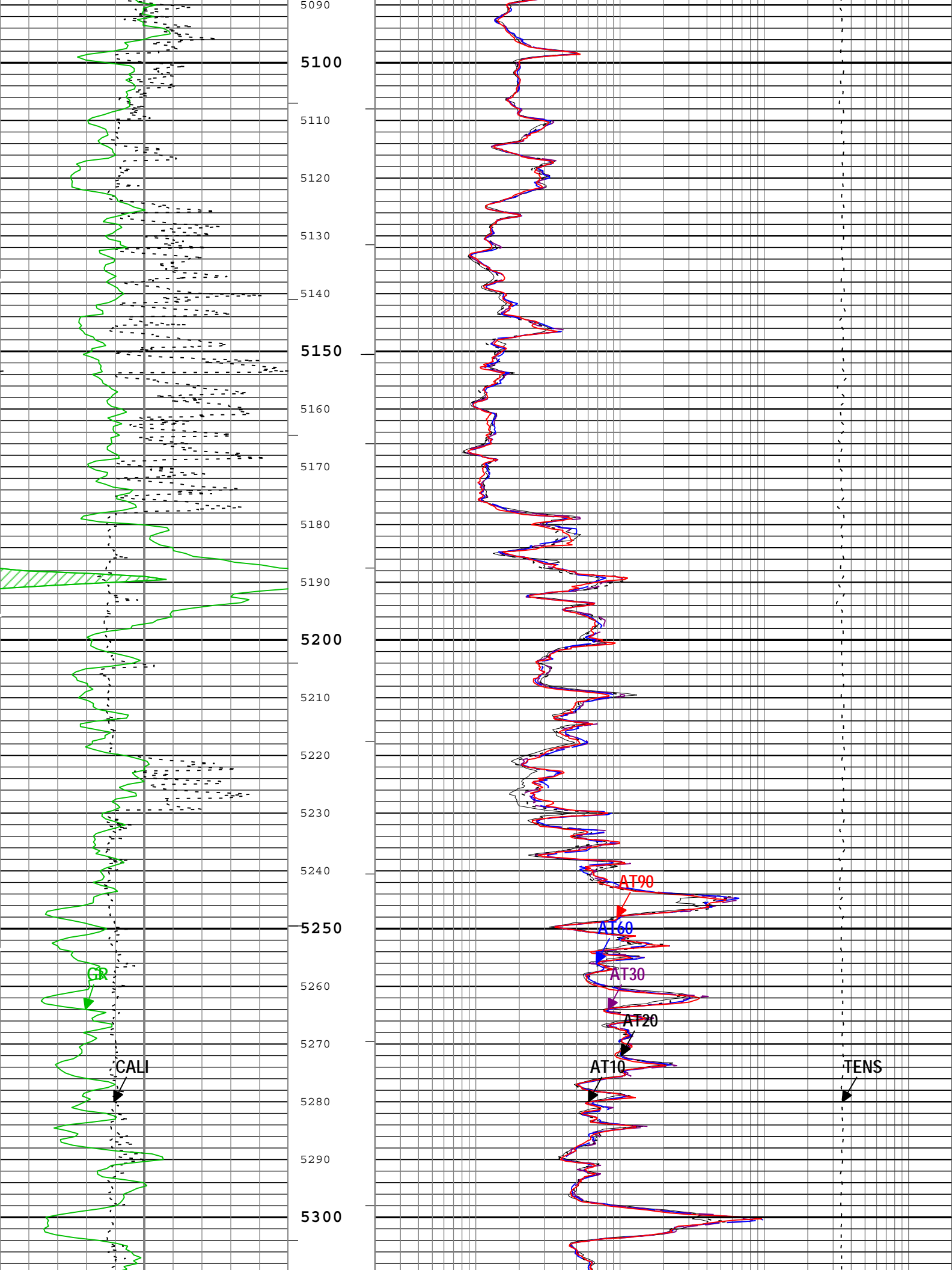


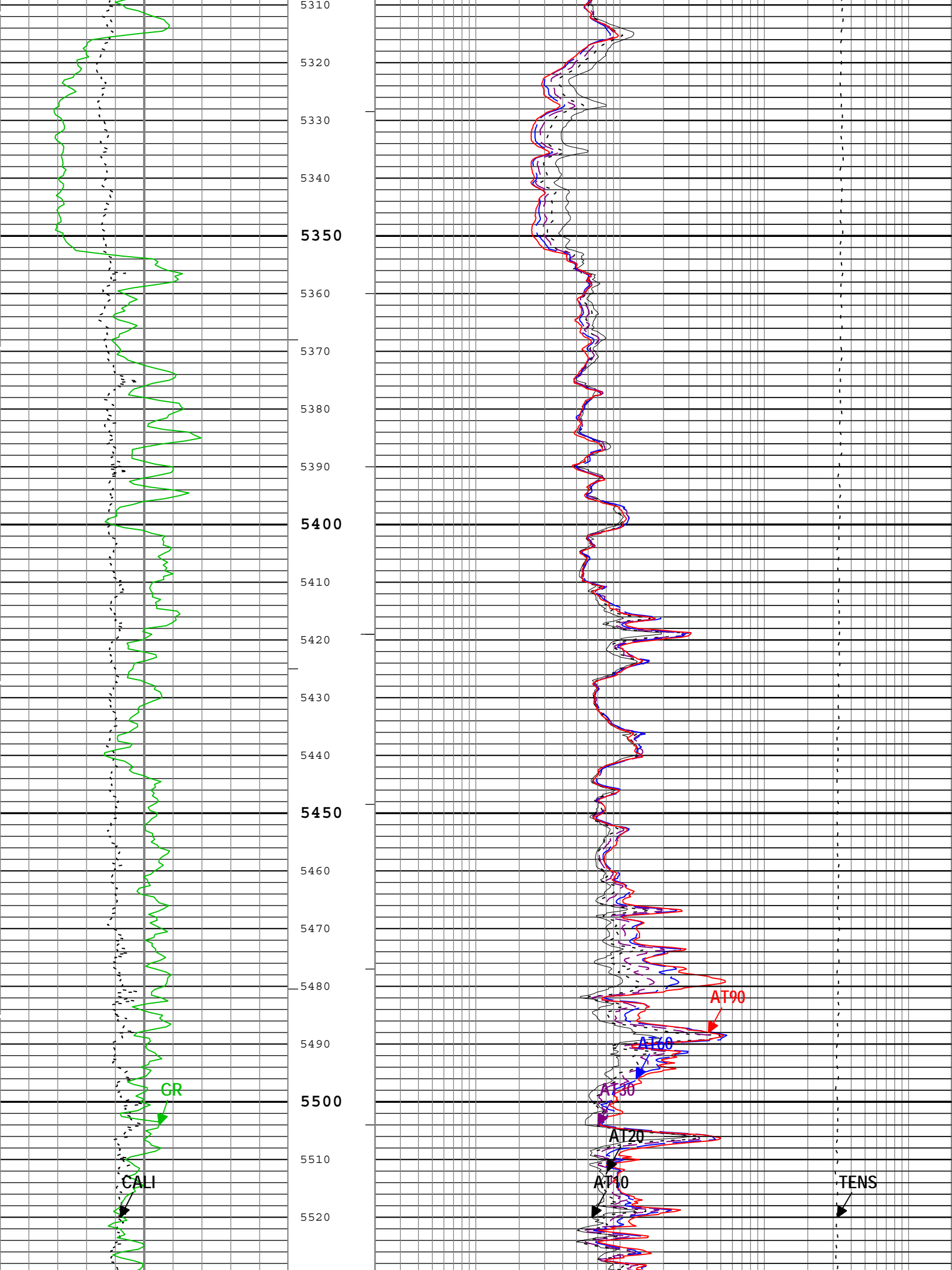


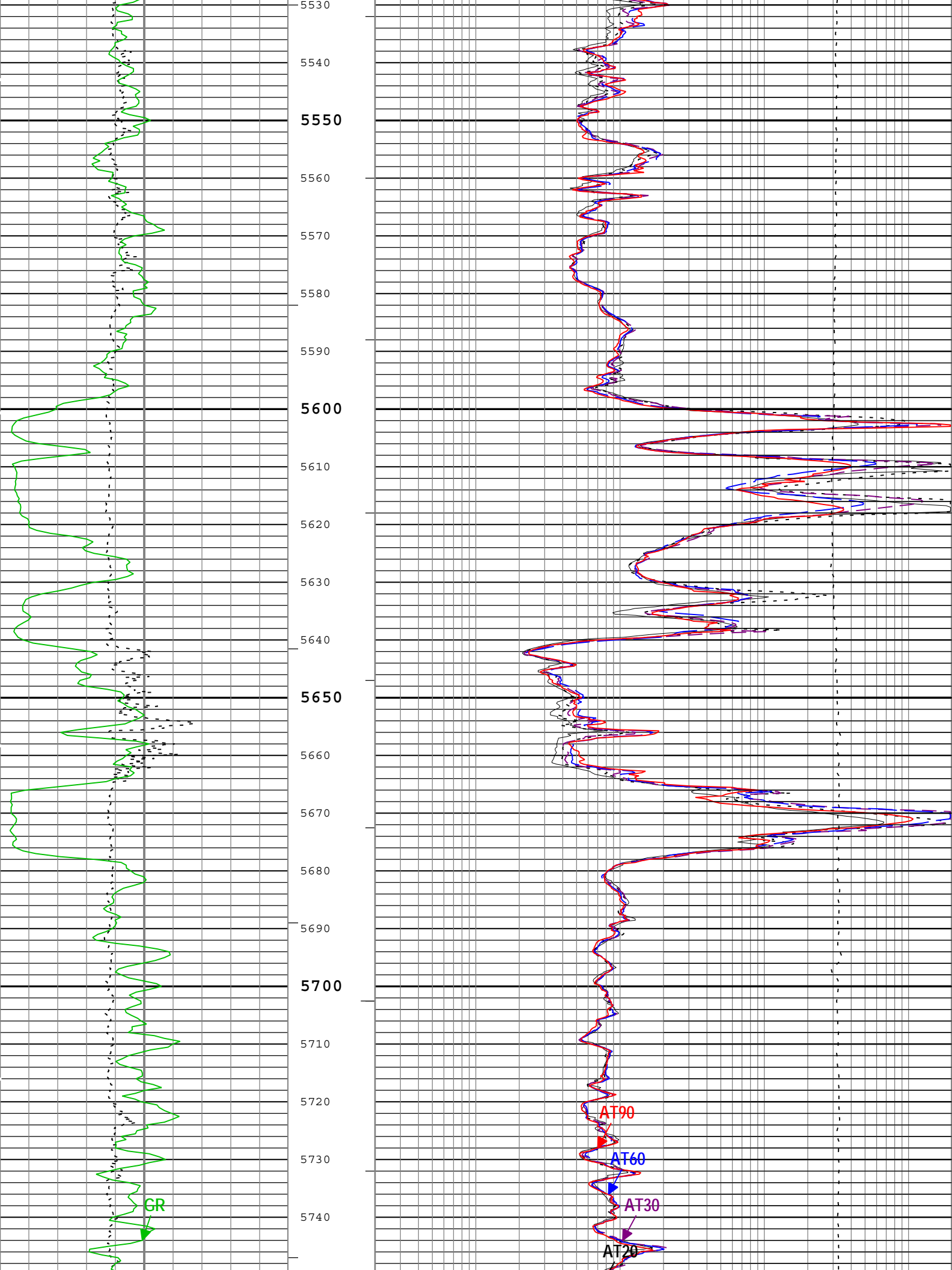


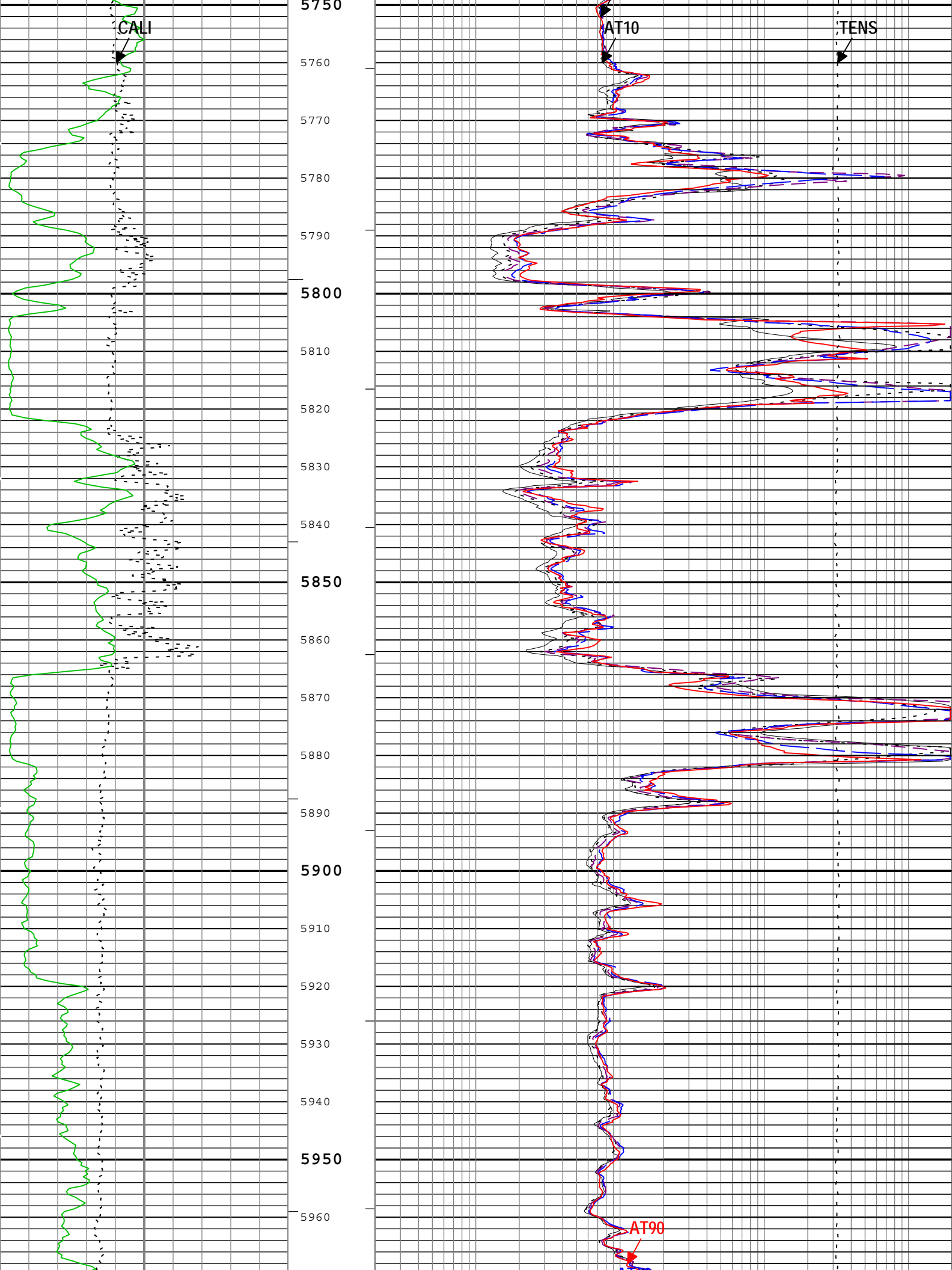


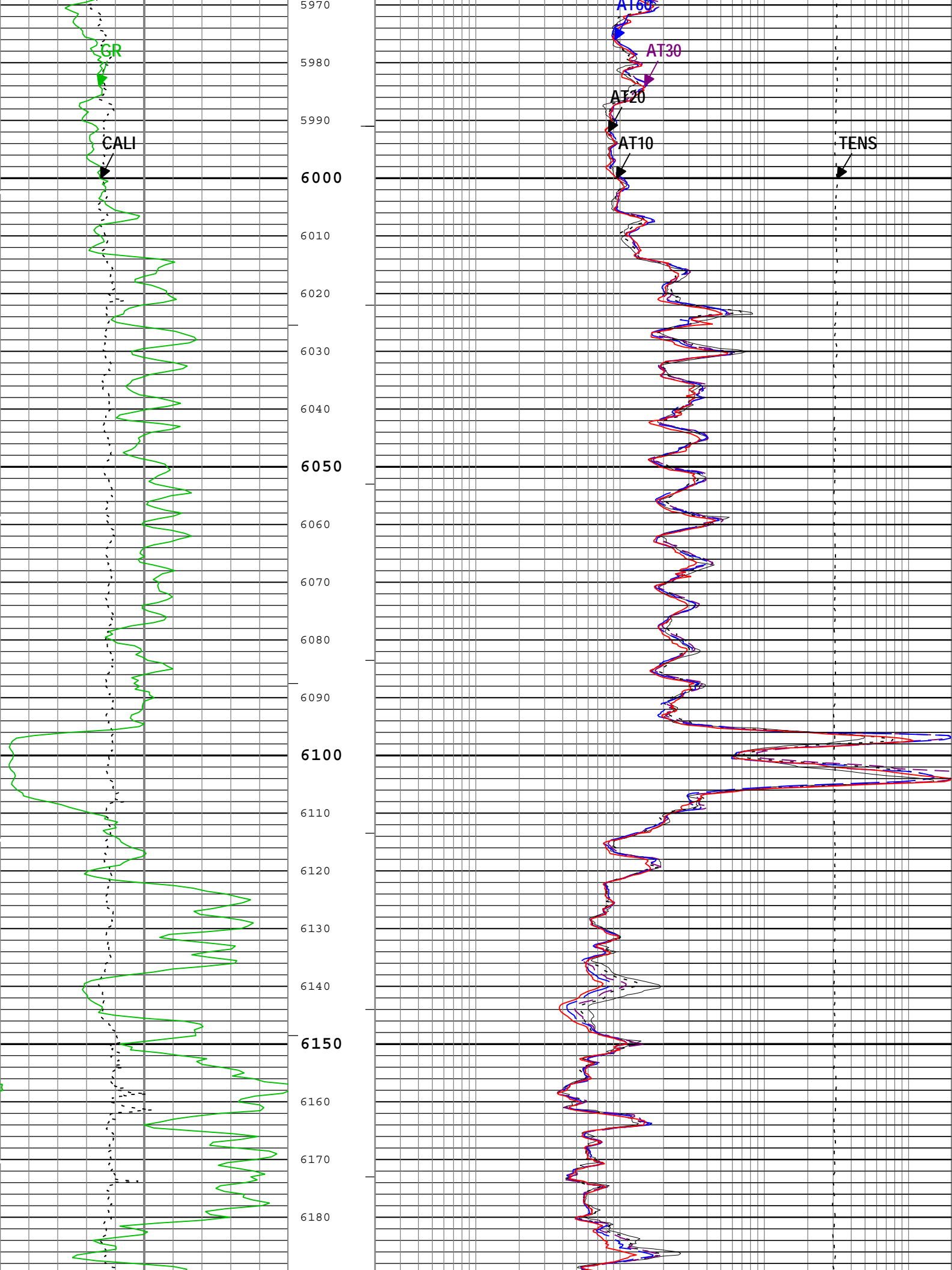




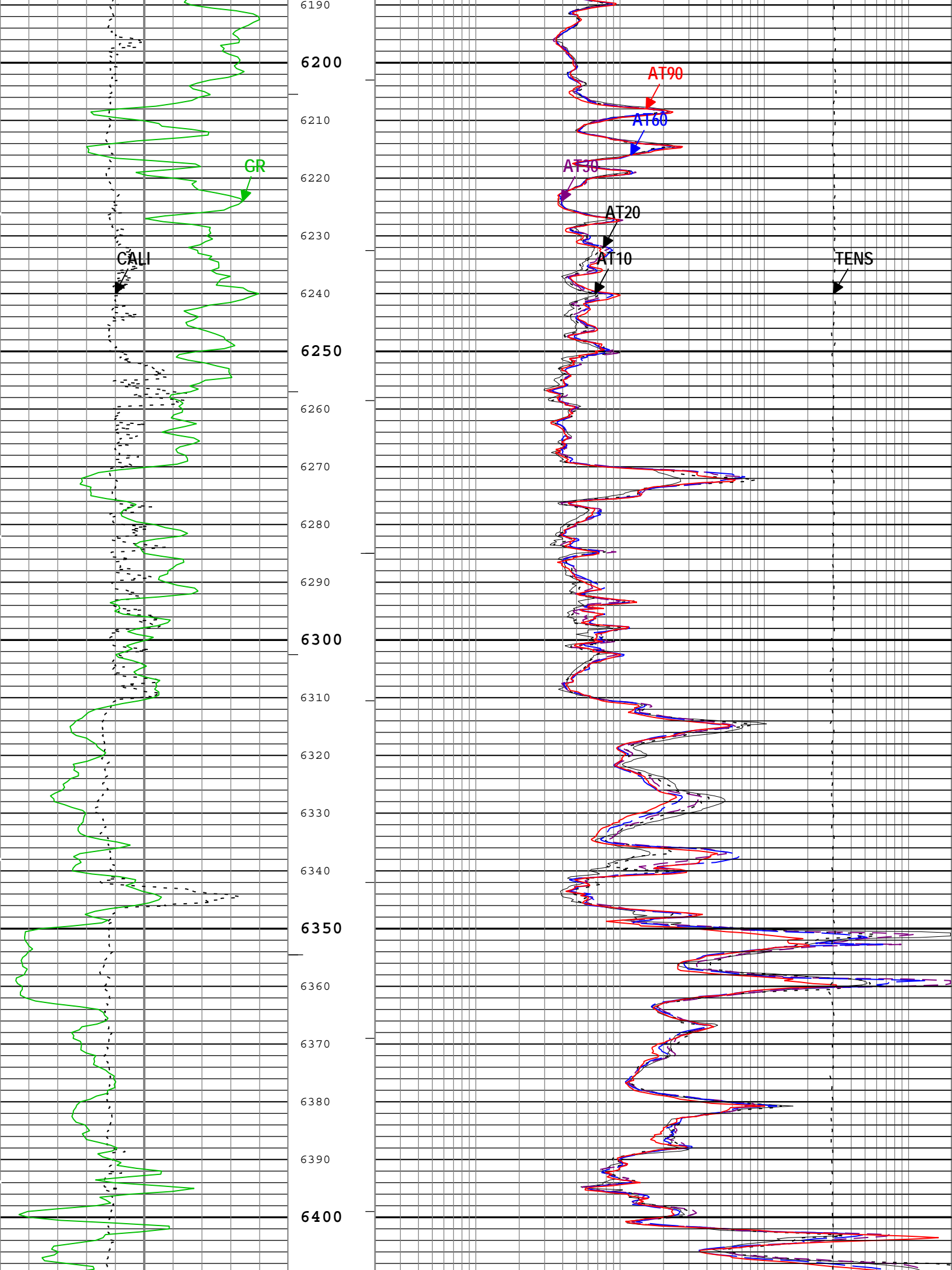


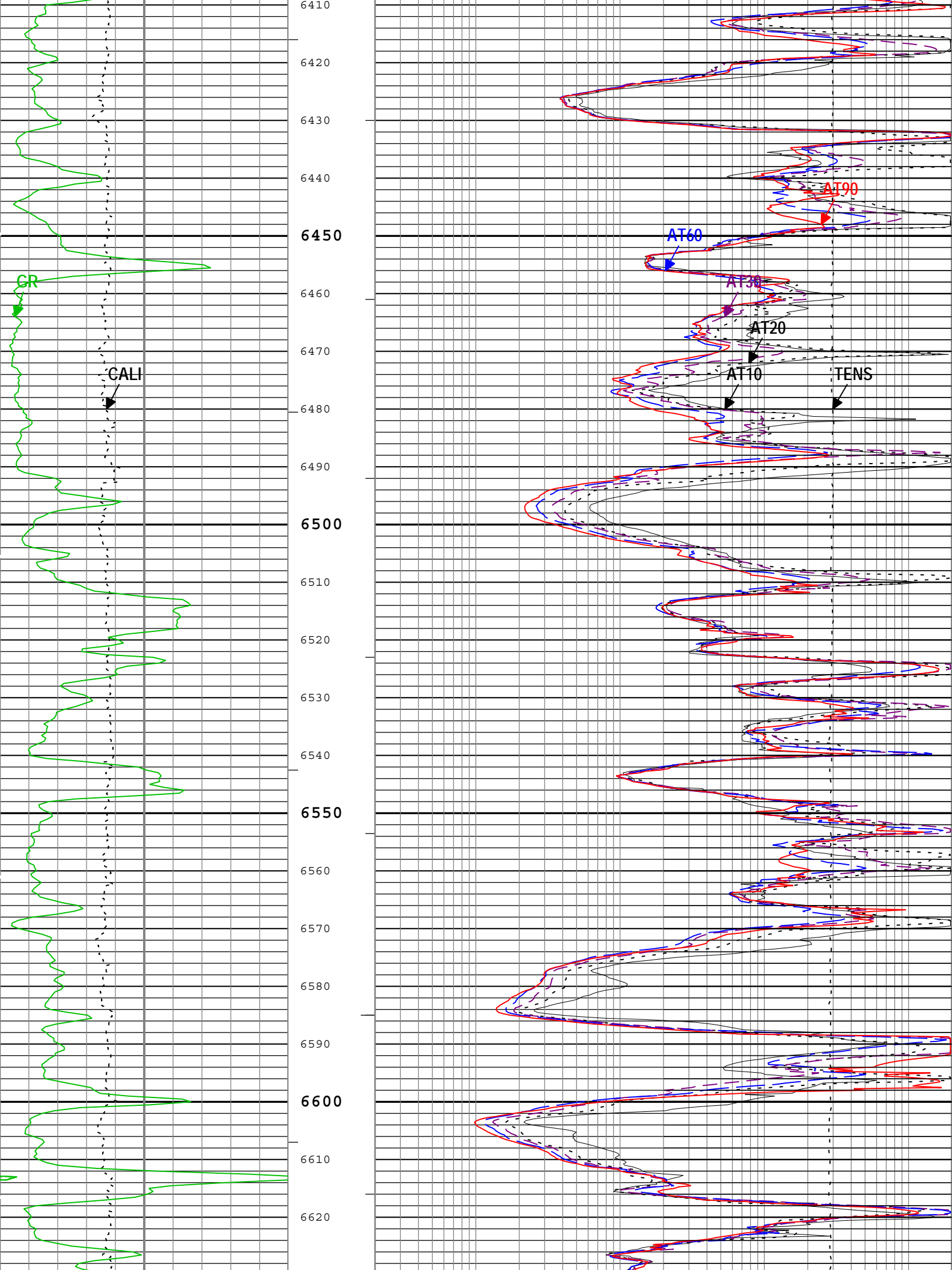


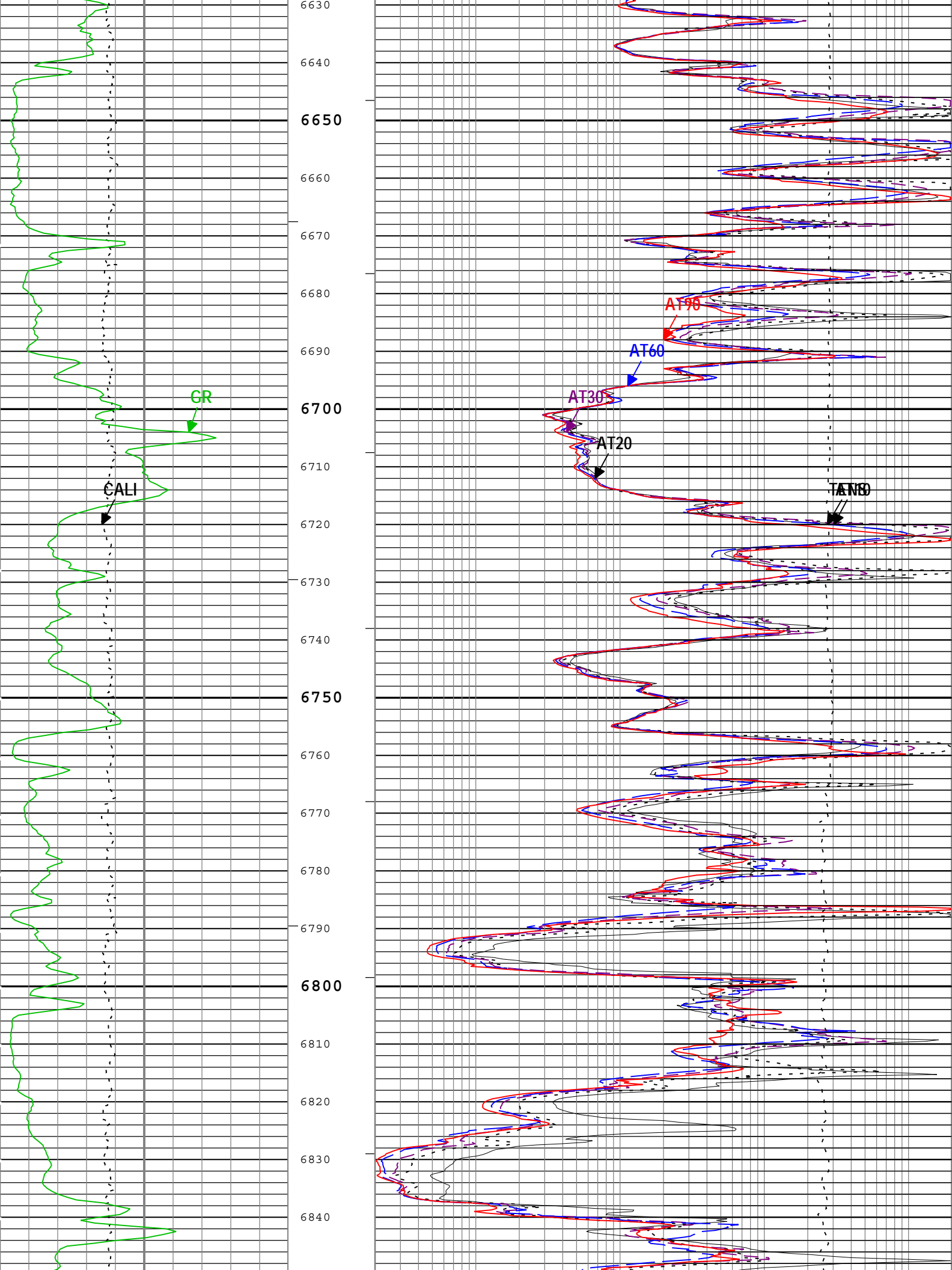


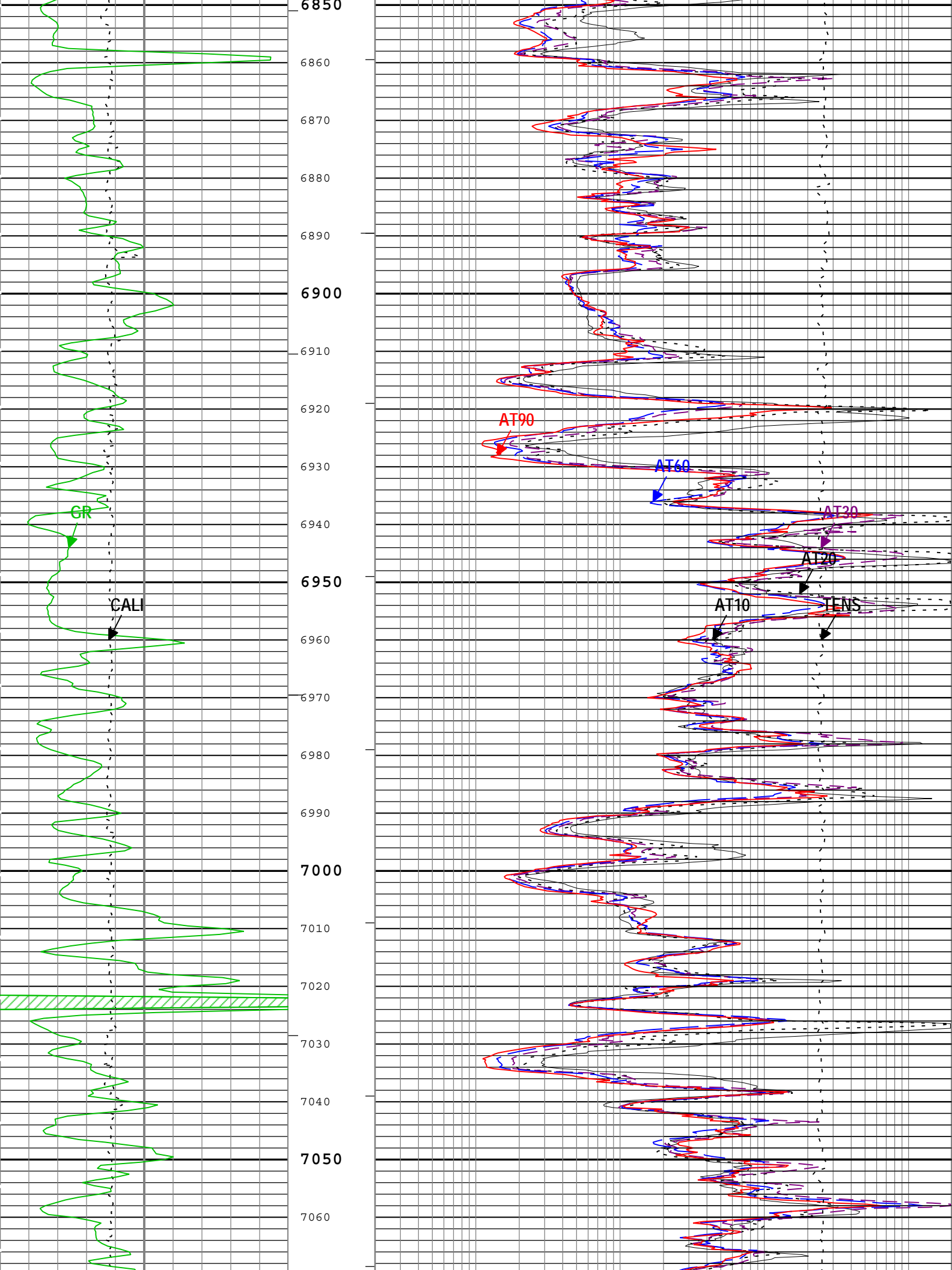


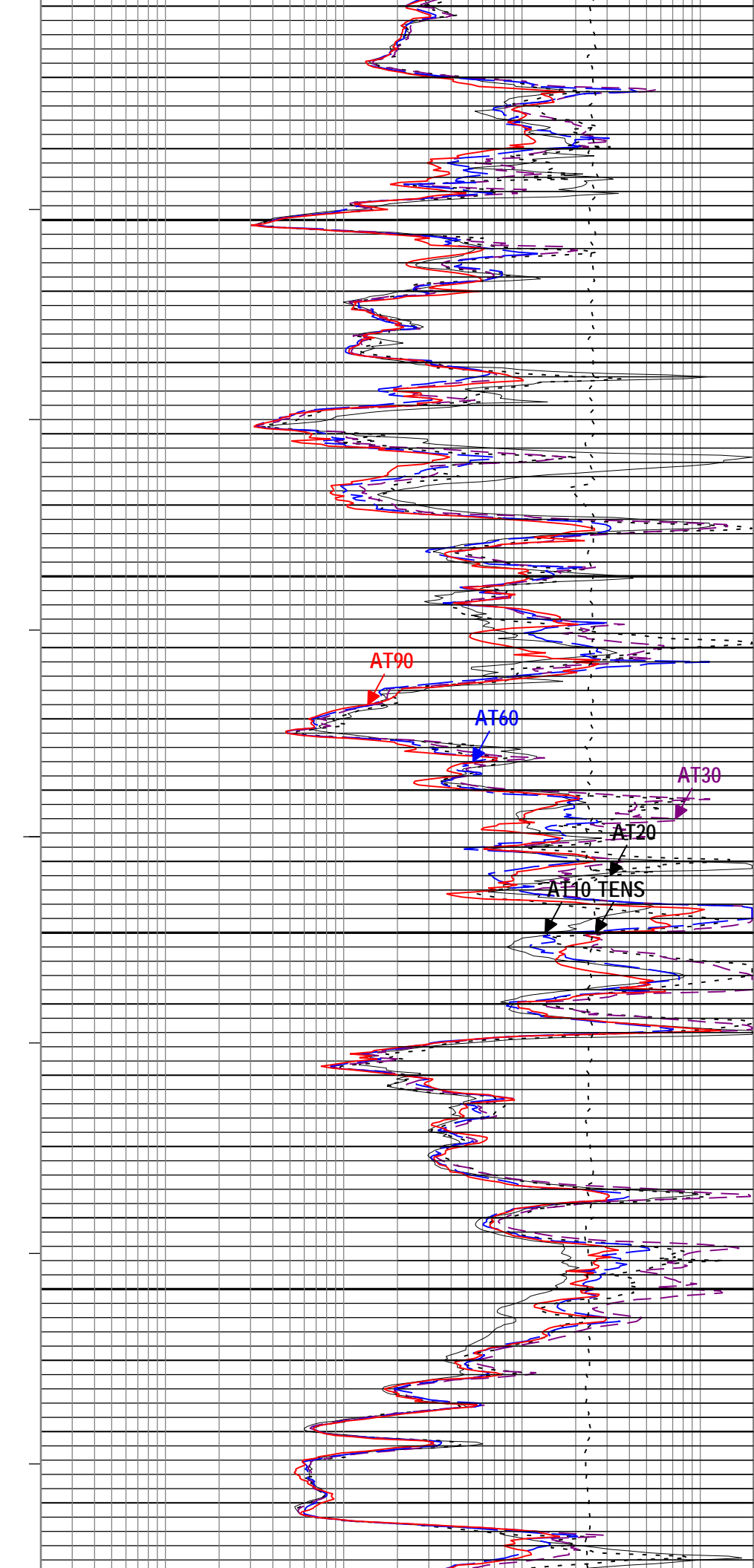
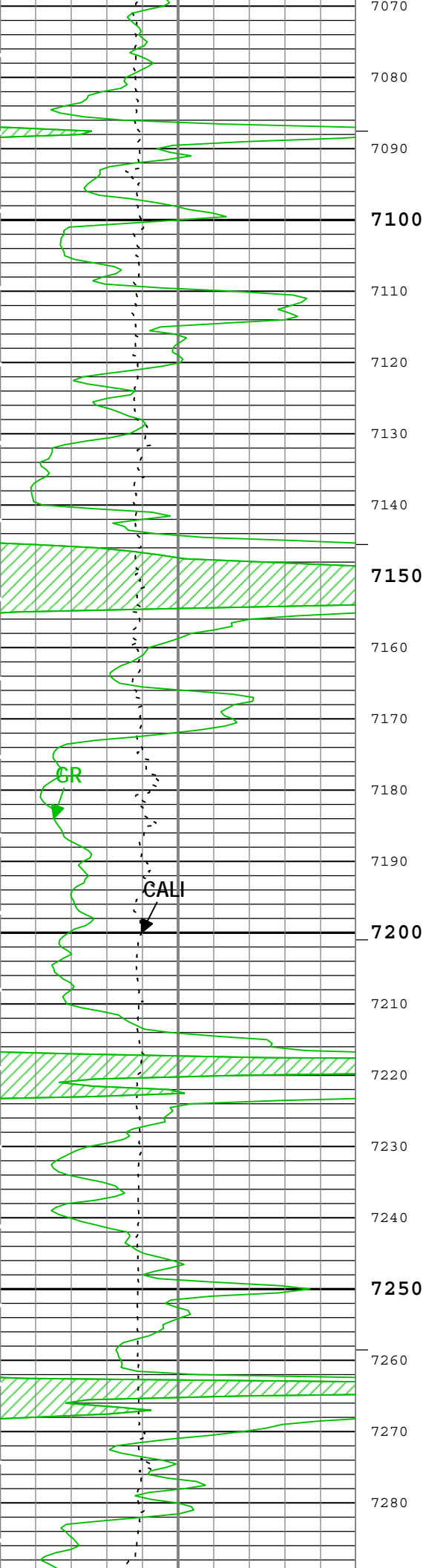


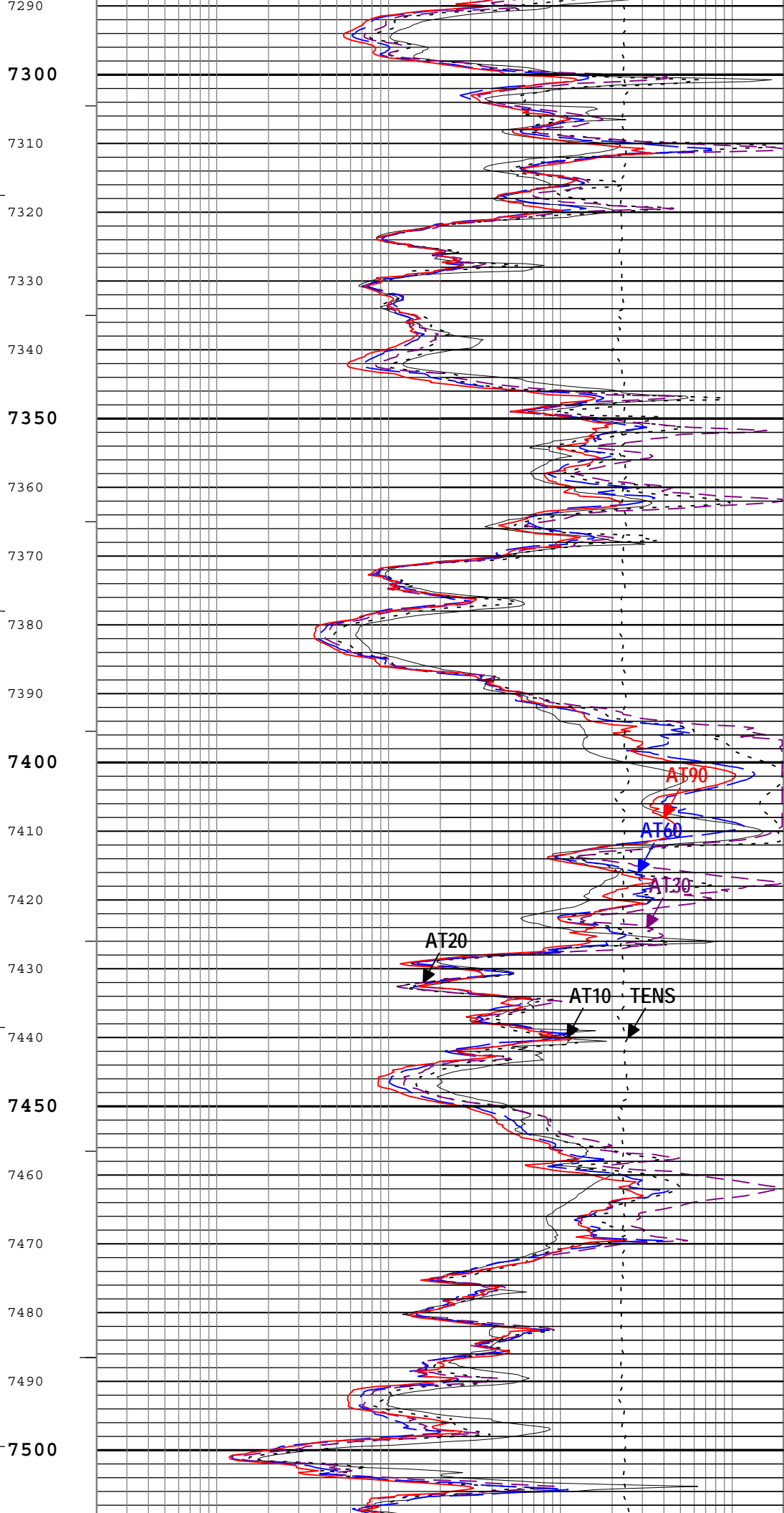
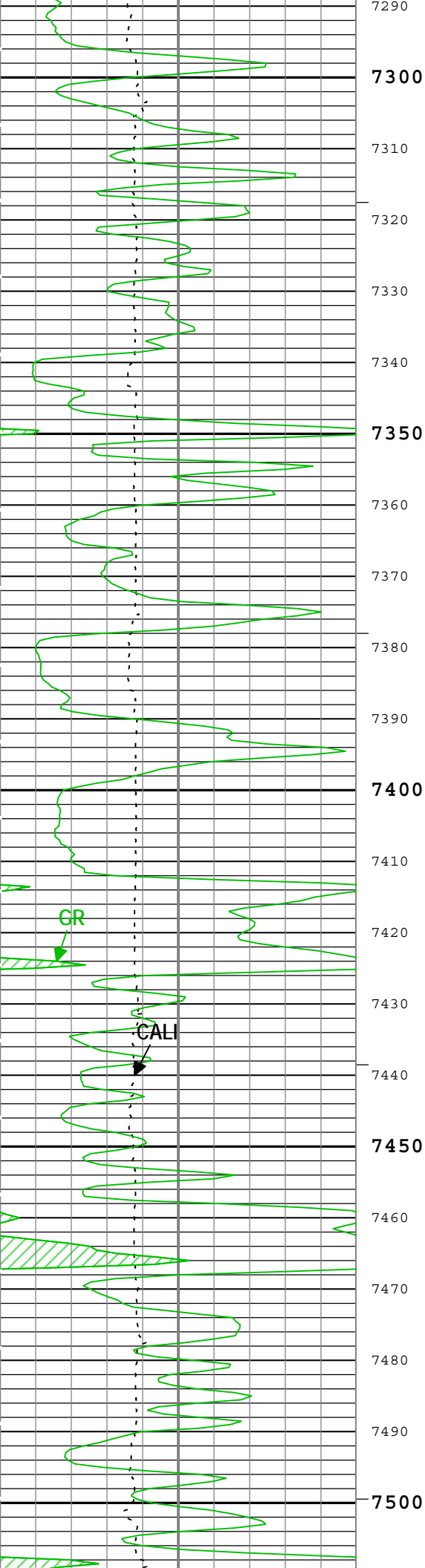


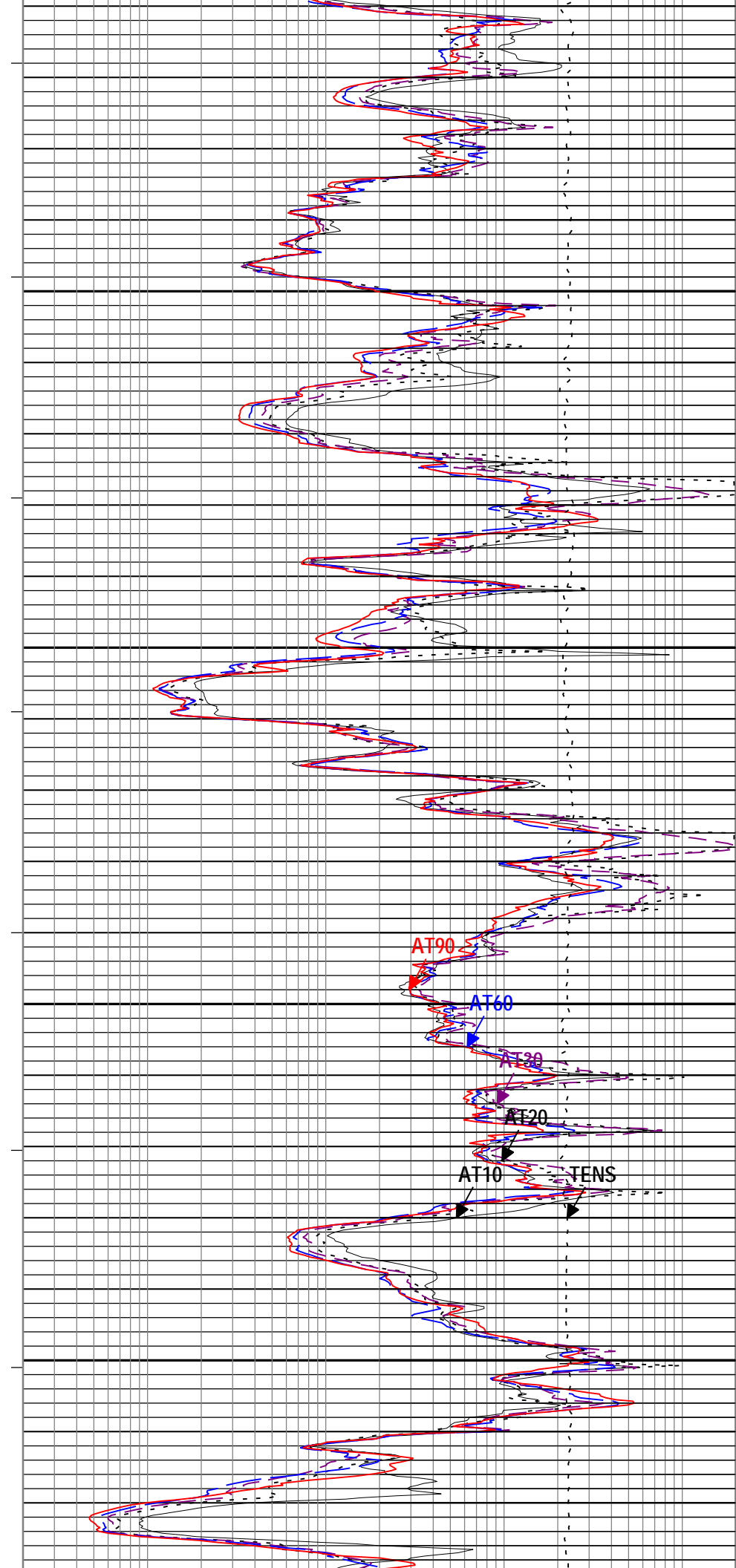
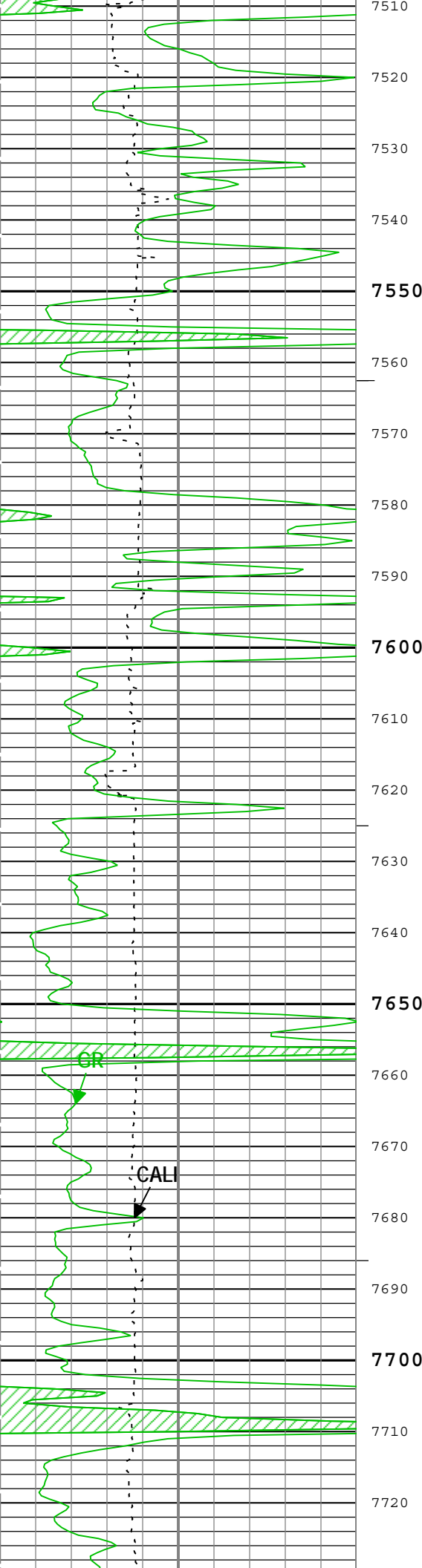




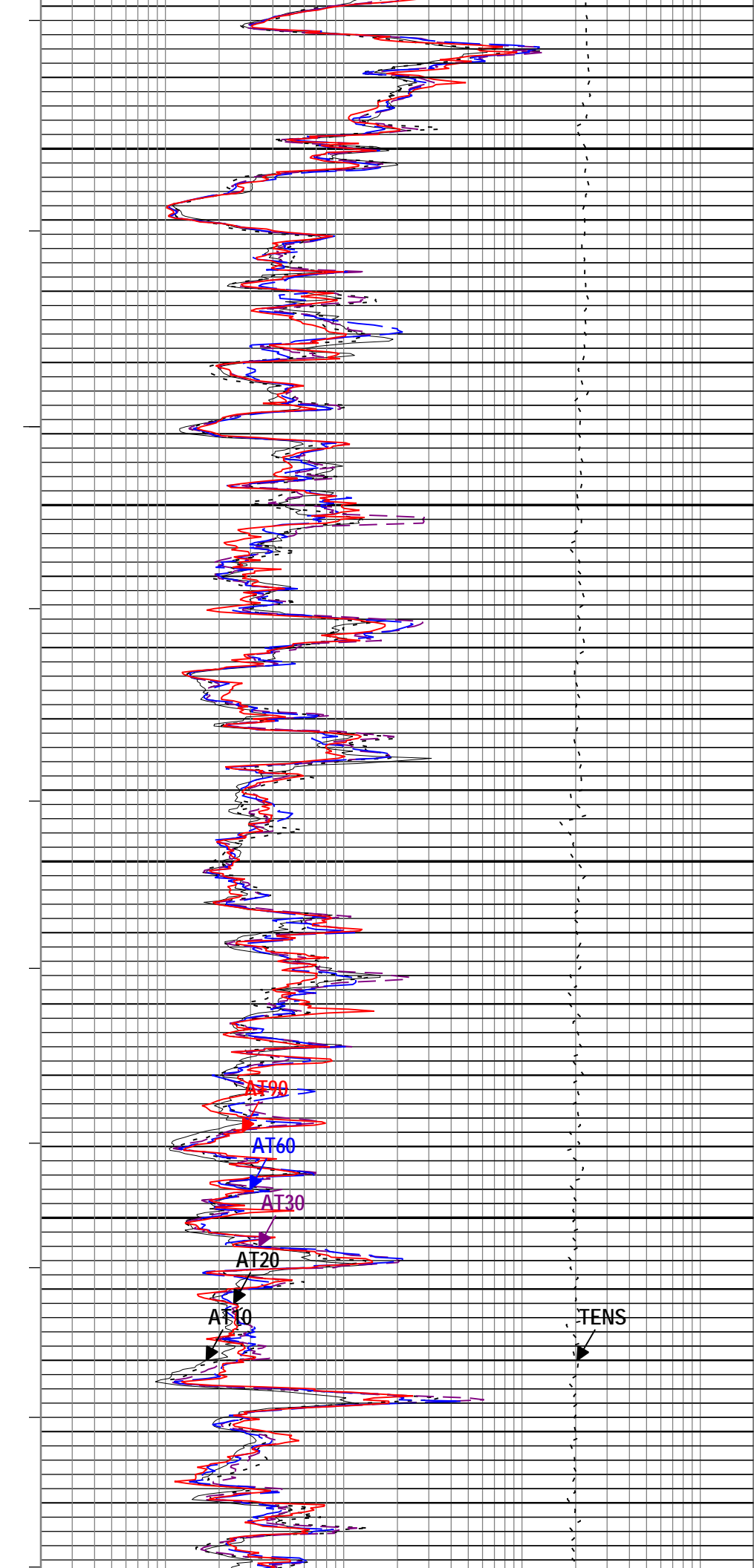
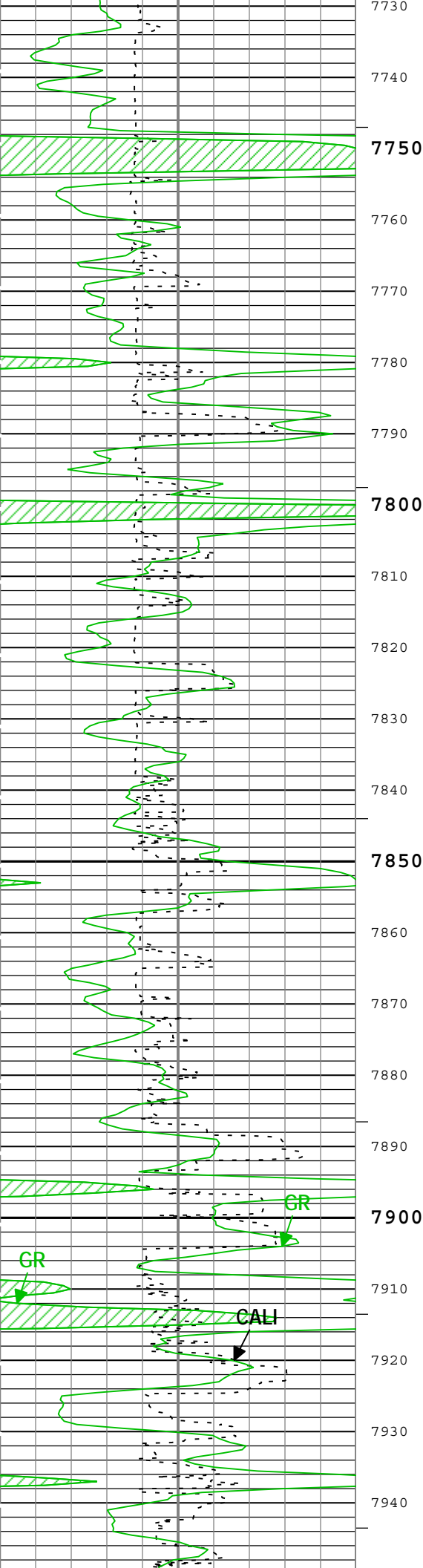




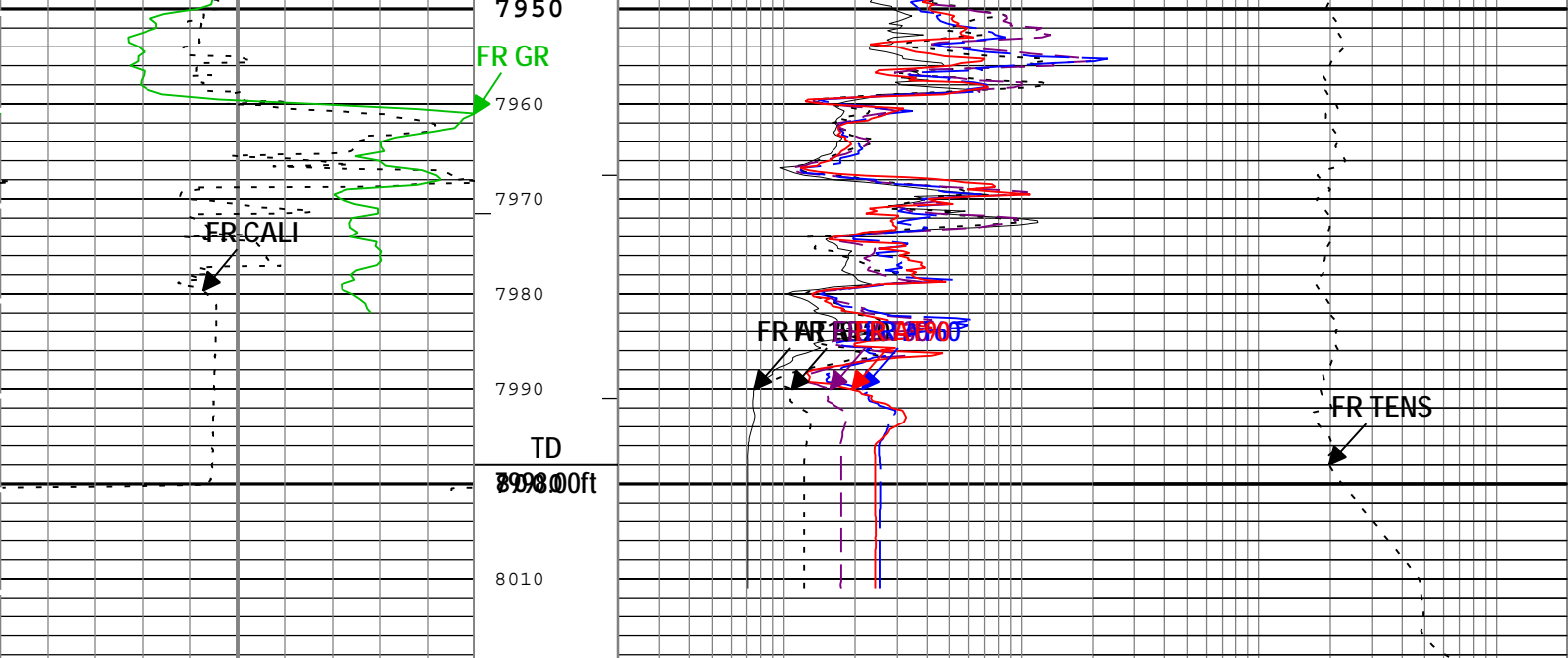












Gamma Ray Backup		
Caliper (CALI) HDRS-H		
4	in	14
Gamma Ray (GR) HGNS-H		
0	gAPI	200

Array Induction Two Foot Resistivity A10 (AT10) AIT-M		
0.2	ohm.m	2000
Array Induction Two Foot Resistivity A20 (AT20) AIT-M		
0.2	ohm.m	2000
Array Induction Two Foot Resistivity A30 (AT30) AIT-M		
0.2	ohm.m	2000
Array Induction Two Foot Resistivity A60 (AT60) AIT-M		
0.2	ohm.m	2000
Array Induction Two Foot Resistivity A90 (AT90) AIT-M		
0.2	ohm.m	2000

Cable Tension (TENS)		
10000	lbf	0

TIME\_1900 - Time Marked every 60.00 (s)

— ICV - Integrated Cement Volume every 100.00 (ft3)

— ICV - Integrated Cement Volume every 10.00 (ft3)

— IHV - Integrated Hole Volume every 100.00 (ft3)

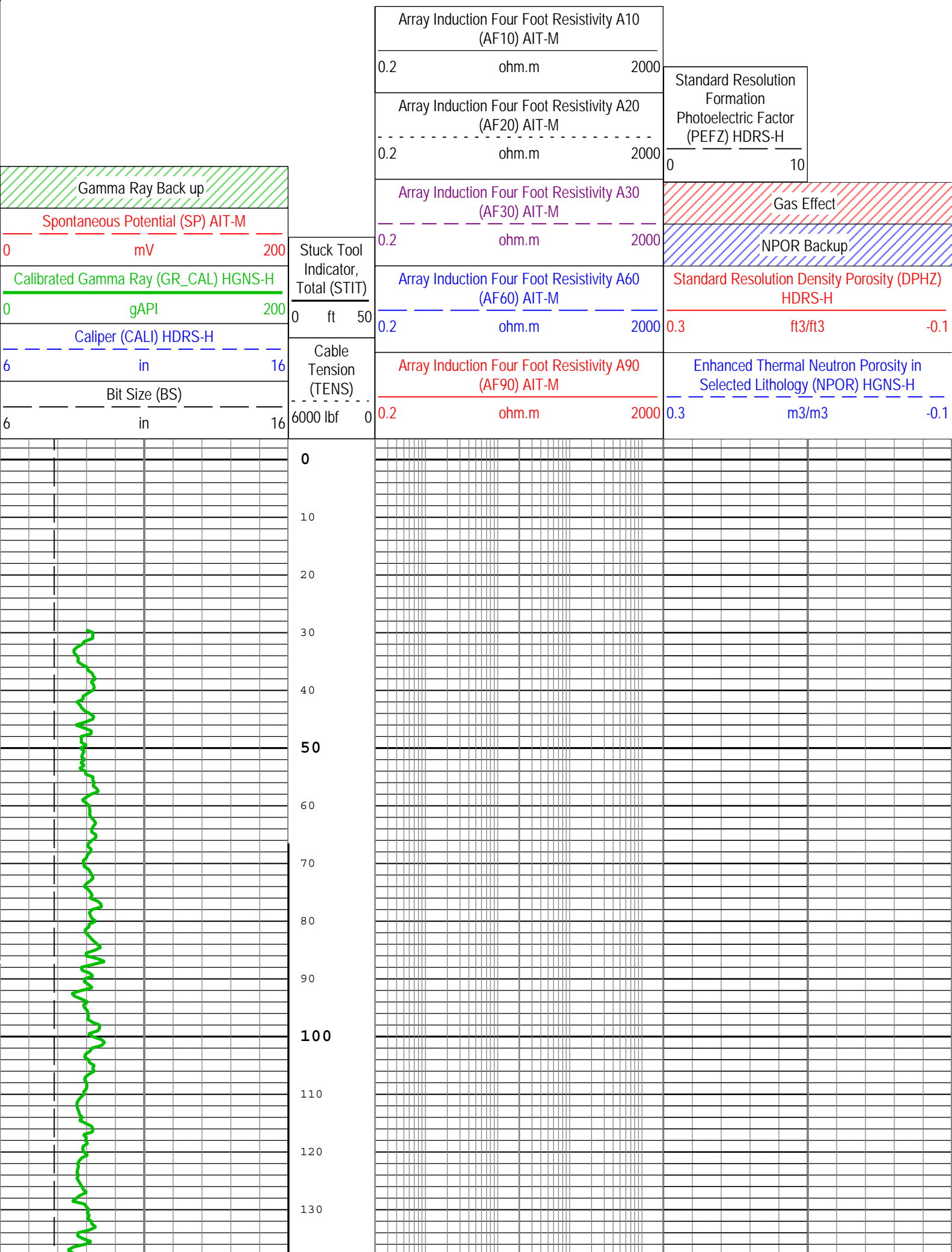
— IHV - Integrated Hole Volume every 10.00 (ft3)

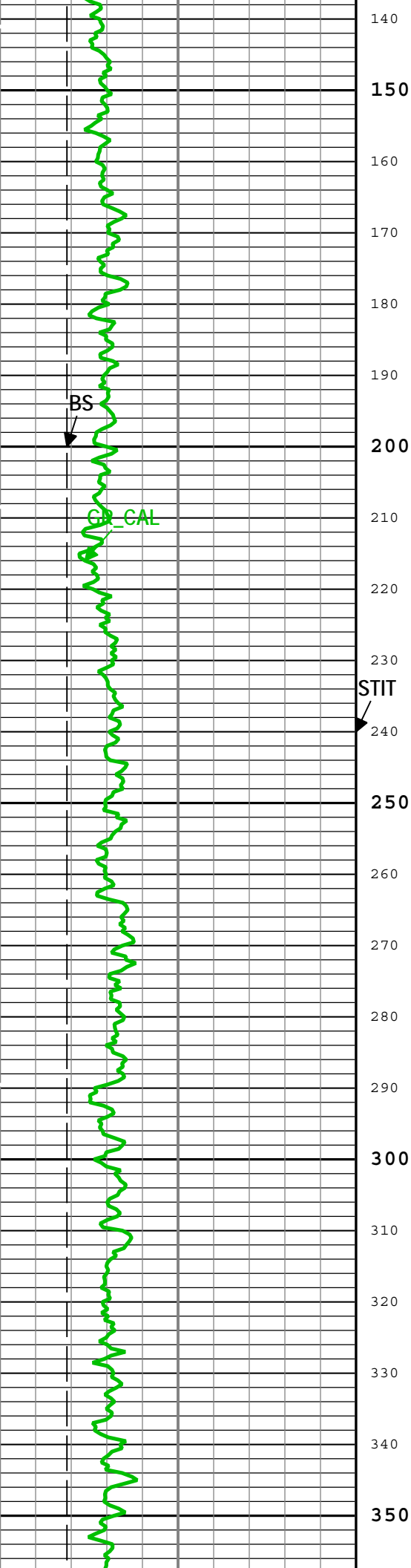
Description: AIT Basic Log Two Format: Log ( Import of EMD 5in Induction ) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth  
Creation Date: 09-Dec-2014 08:01:42

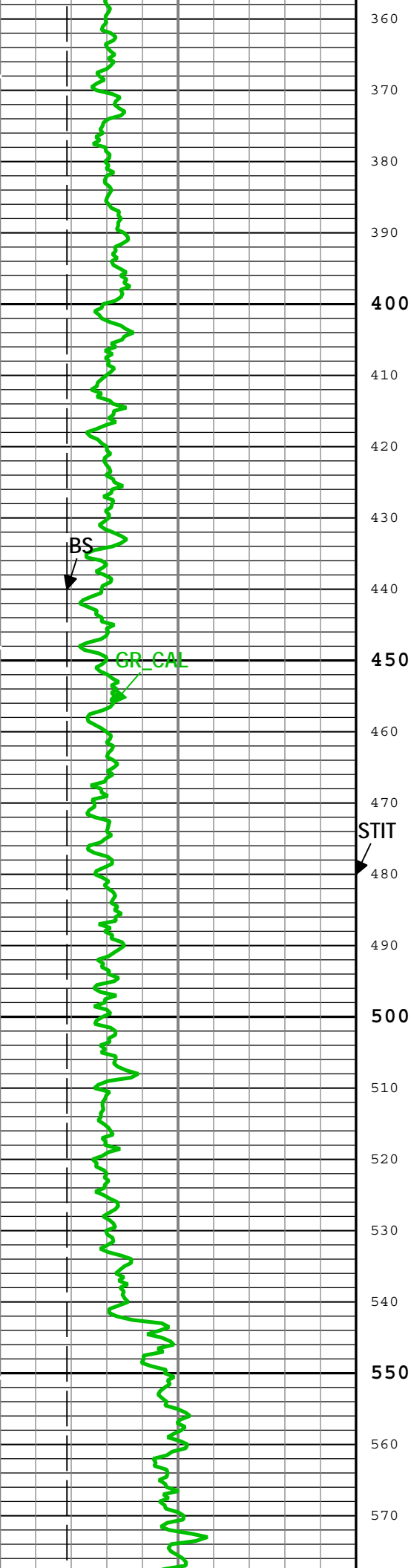
Channel Processing Parameters				
Parameter	Description	Tool	Value	Unit
ABHM	Array Induction Borehole Correction Mode	AIT-M	Compute Standoff	
ACDE	Array Induction Casing Detection Enable	AIT-M	Yes	
ASTA	Array Induction Tool Standoff	AIT-M	1.125	in
BARI	Barite Mud Presence Flag	Borehole	No	
BHS	Borehole Status (Open or Cased Hole)	Borehole	Open	
BS	Bit Size	WLSESSION	7.875	in
CALI_SHIFT	CALI Supplementary Offset	HDRS-H	0	in
CBLO	Casing Bottom (Logger)	WLSESSION	544.75	ft
CDEN	Cement Density	HGNS-H	2	g/cm3
DFD	Drilling Fluid Density	Borehole	9	lbm/gal
FCD	Future Casing (Outer) Diameter	WLSESSION	5.5	in

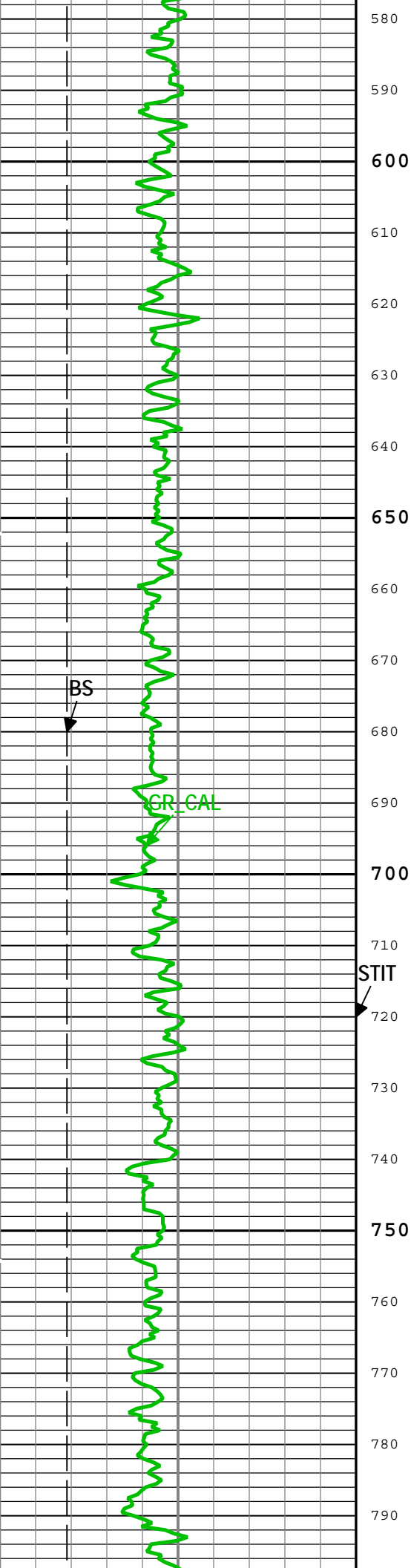
Tool Control Parameters										
Parameter		Description			Tool		Value		Unit	
MAX_LOG_SPEED		Toolstring Maximum Logging Speed			WLSESSION		840		ft/h	
ONE										
5" Triple Combo										
Software Version										
Acquisition System						Version				
MaxWell						4.0.9163.3000				
Application Patch						Patch-SP-10767_26570-4.0.9163.3001				
Computation		Description						Version		
Borehole		Borehole Ensemble provides common Borehole Parameters and Channels						4.0.9469.3000		
HENVIR		Computation Ensemble for the HGNS Neutron environmental corrections						4.0.9469.3000		
DepthCorrection		DepthCorrection						4.0.9469.3000		
Tool Elements		Description				Software Version		Firmware Version		
HRCC-H		HILT High-Resolution Control Cartridge, 150 degC				4.0.9575.3000		2.0		
HGNS-H		HILT Gamma-Ray and Neutron Sonde, 150 degC				4.0.9575.3000		2.0		
HRGD-H		HILT Resistivity Gamma-Ray Density Device, 150 degC				4.0.9575.3000		3.0		
AMIS		Array Induction Sonde - M				4.0.9535.3000		1		
Pass Summary										
Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data	
ONE	Main[4]:Up	Up	66.10 ft	8019.08 ft	09-Dec-2014 12:26:30 AM	09-Dec-2014 6:56:36 AM	ON	0.97 ft	No	
All depths are referenced to toolstring zero										
Log					Company: Cascade Petroleum		Well: Gaede 9S-55W-08-12			
ONE: Main[4]:Up:S006										
Description: HGNS standard resolution porosities for Platform Express    Format: Log ( EMD 5in Triple Combo )    Index Scale: 5 in per 100 ft    Index Unit: ft										
Index Type: Measured Depth    Creation Date: 09-Dec-2014 08:01:45										
Channel	Source			Sampling						
AF10	AIT-M:AMIS:AMIS			3in						
AF20	AIT-M:AMIS:AMIS			3in						
AF30	AIT-M:AMIS:AMIS			3in						
AF60	AIT-M:AMIS:AMIS			3in						
AF90	AIT-M:AMIS:AMIS			3in						
BS	Borehole			6in						
CALI	HDRS-H:HRCC-H:HRCC-H			1in						
DPHZ	HDRS-H:HRMS-H:HRGD-H			2in						
GR	HGNS-H:HGNS-H:HGNS-H			6in						
GR_CAL	HGNS-H:HGNS-H:HGNS-H			6in						
NPOR	HGNS-H:HGNS-H:HGNS-H			6in						
PEFZ	HDRS-H:HRMS-H:HRGD-H			2in						
SP	AIT-M:AMIS:AMIS			6in						
STIT	DepthCorrection			6in						
TENS	WLWorkflow			6in						
TIME_1900	WLWorkflow			0.1in						

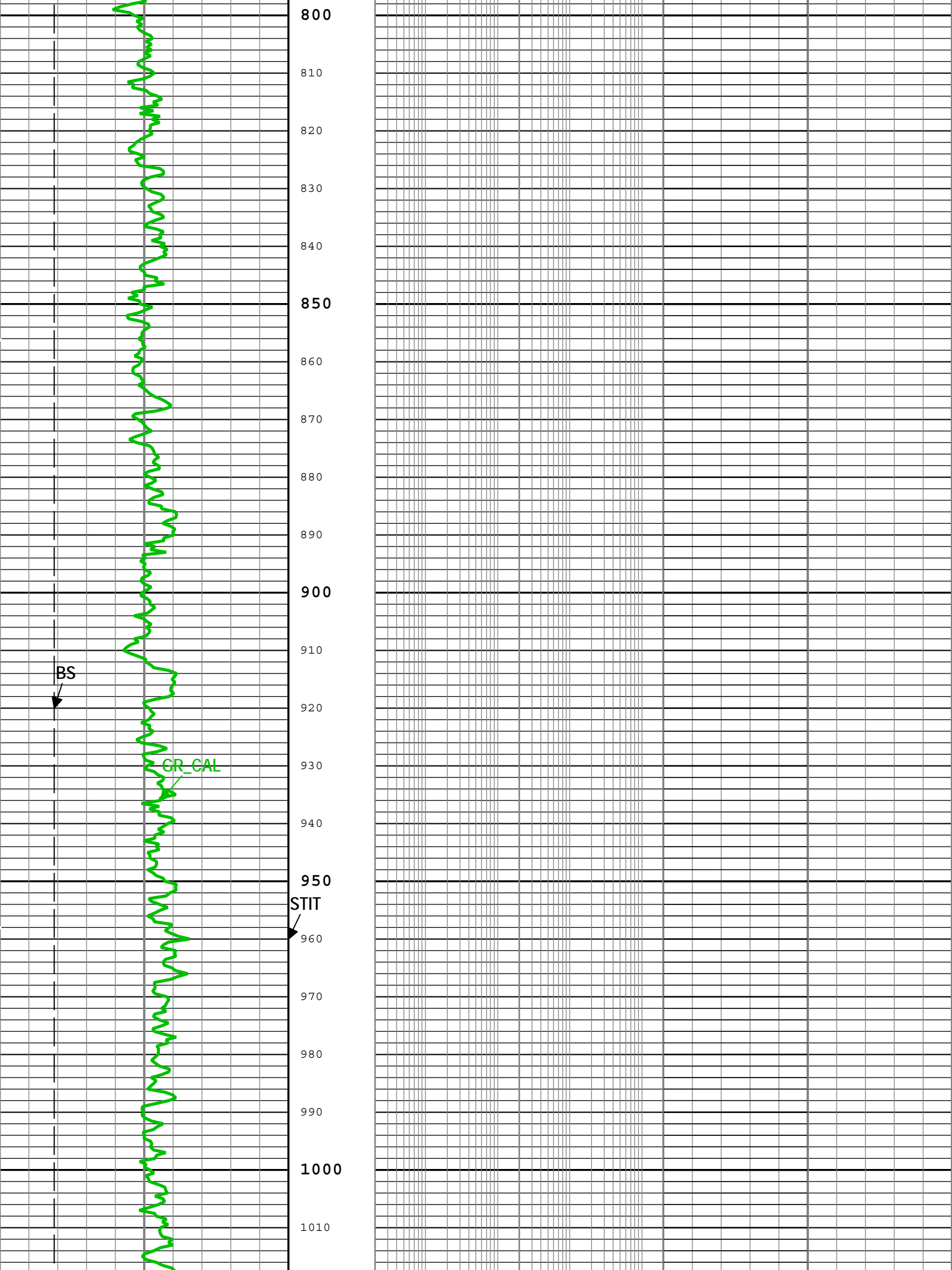
TIME\_1900 - Time Marked every 60.00 (s)

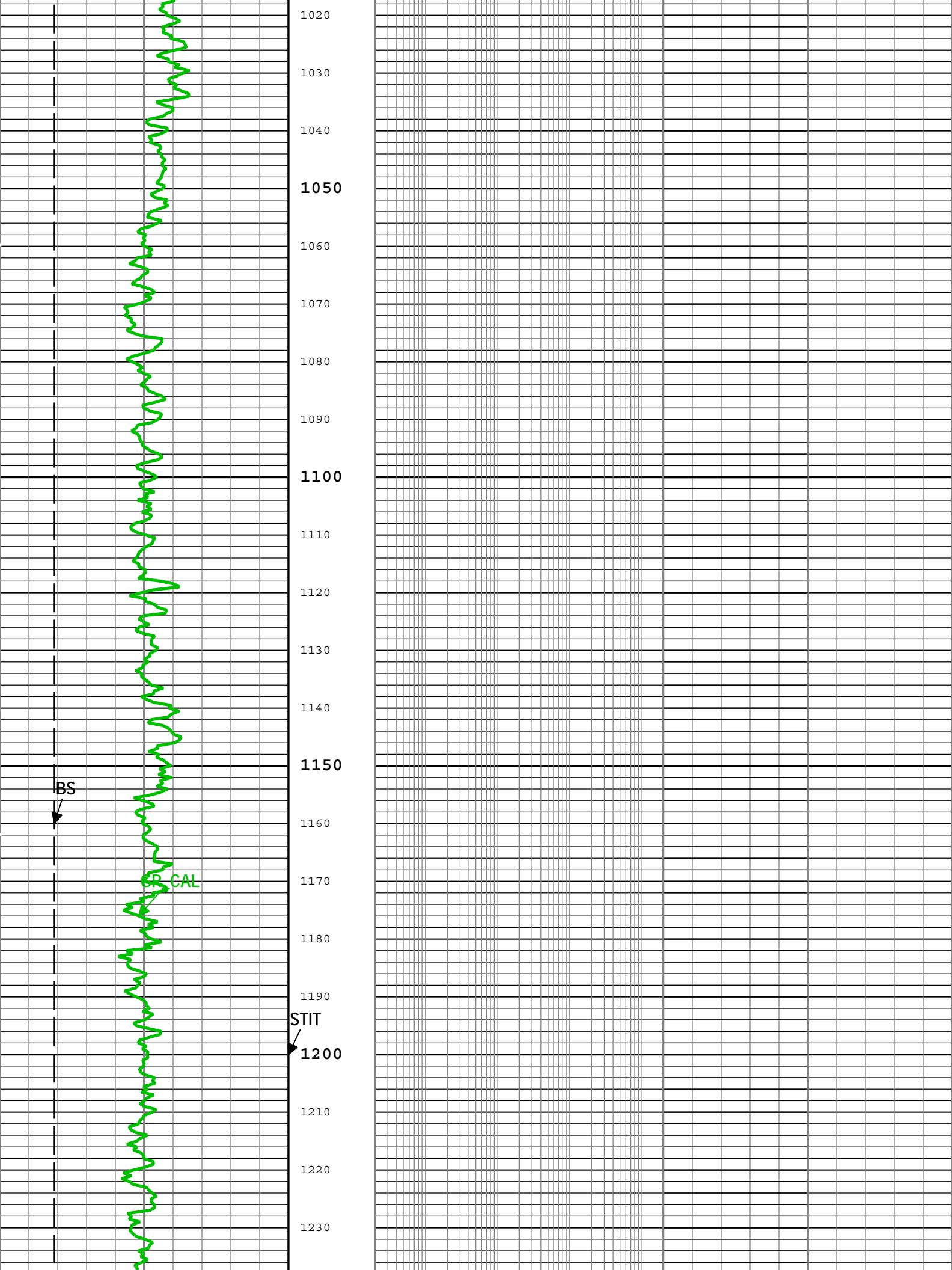




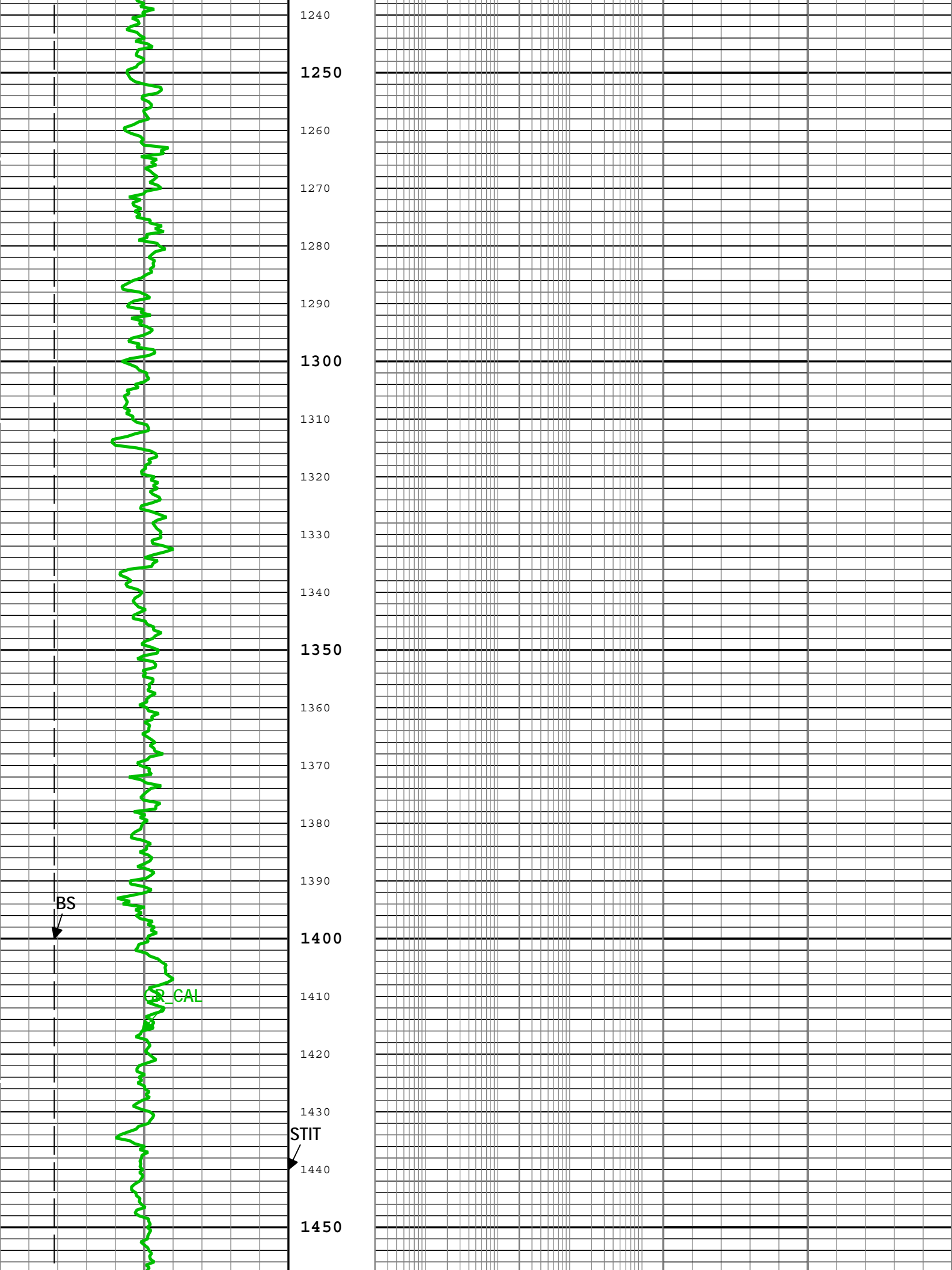


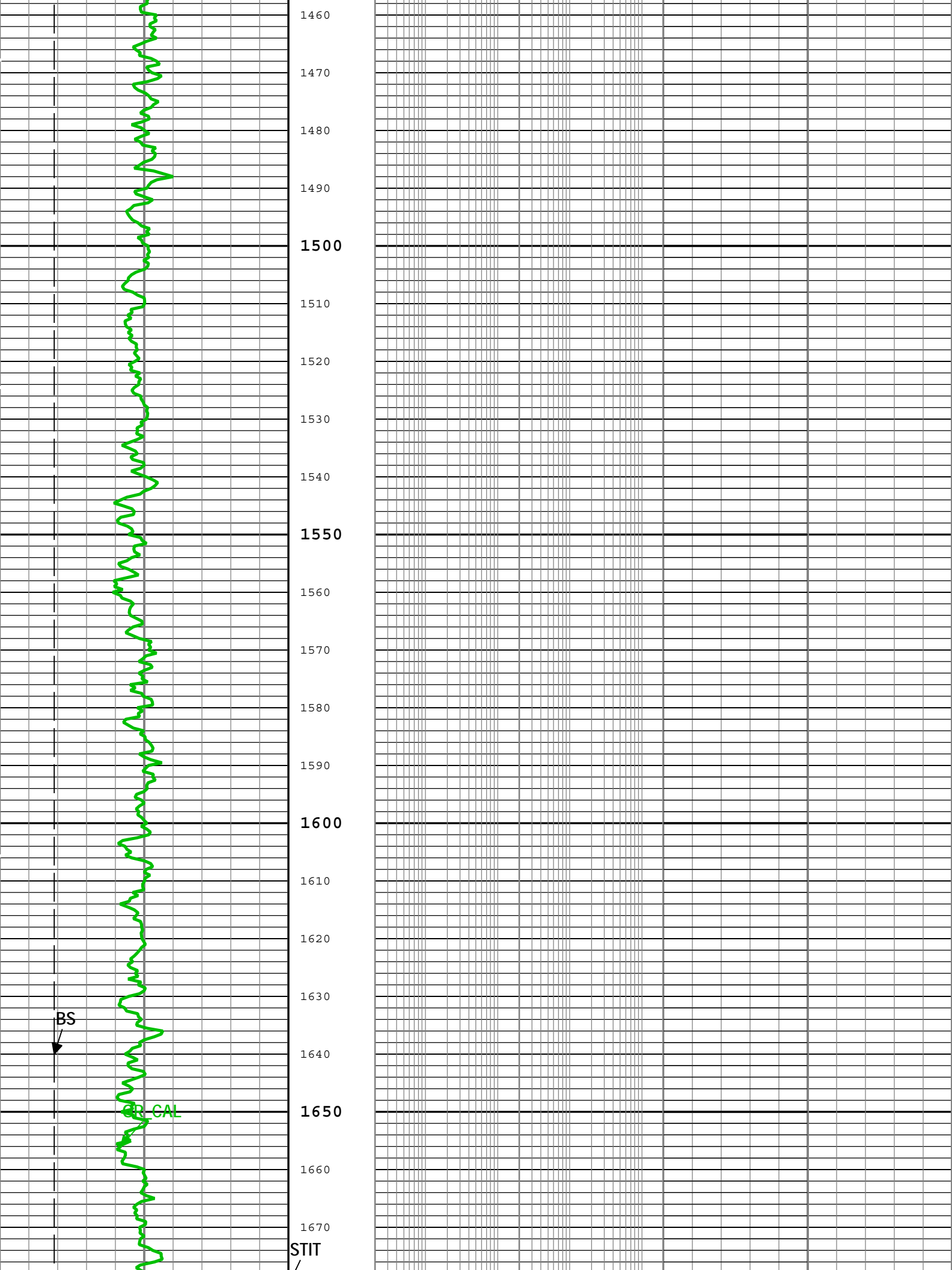


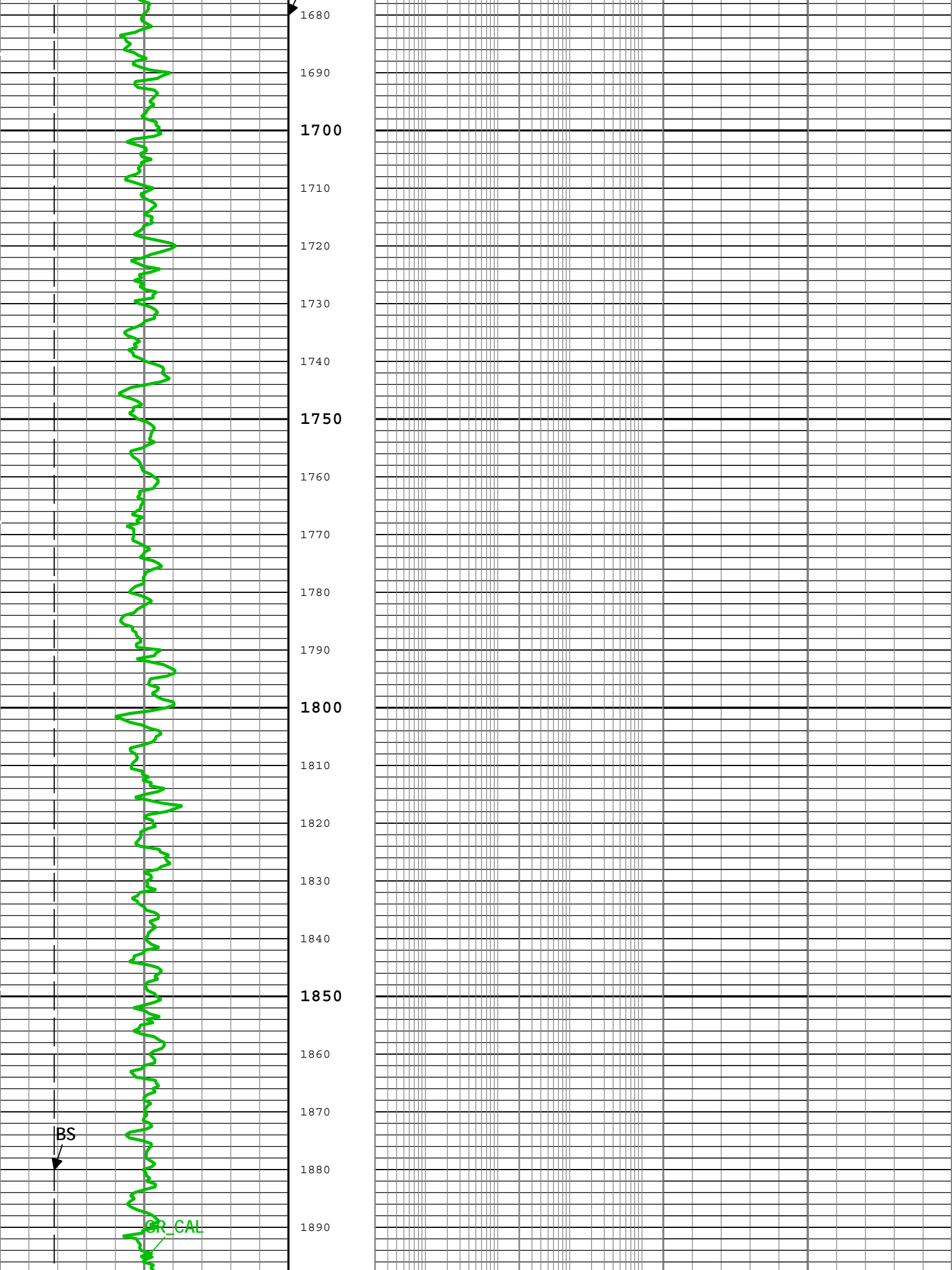


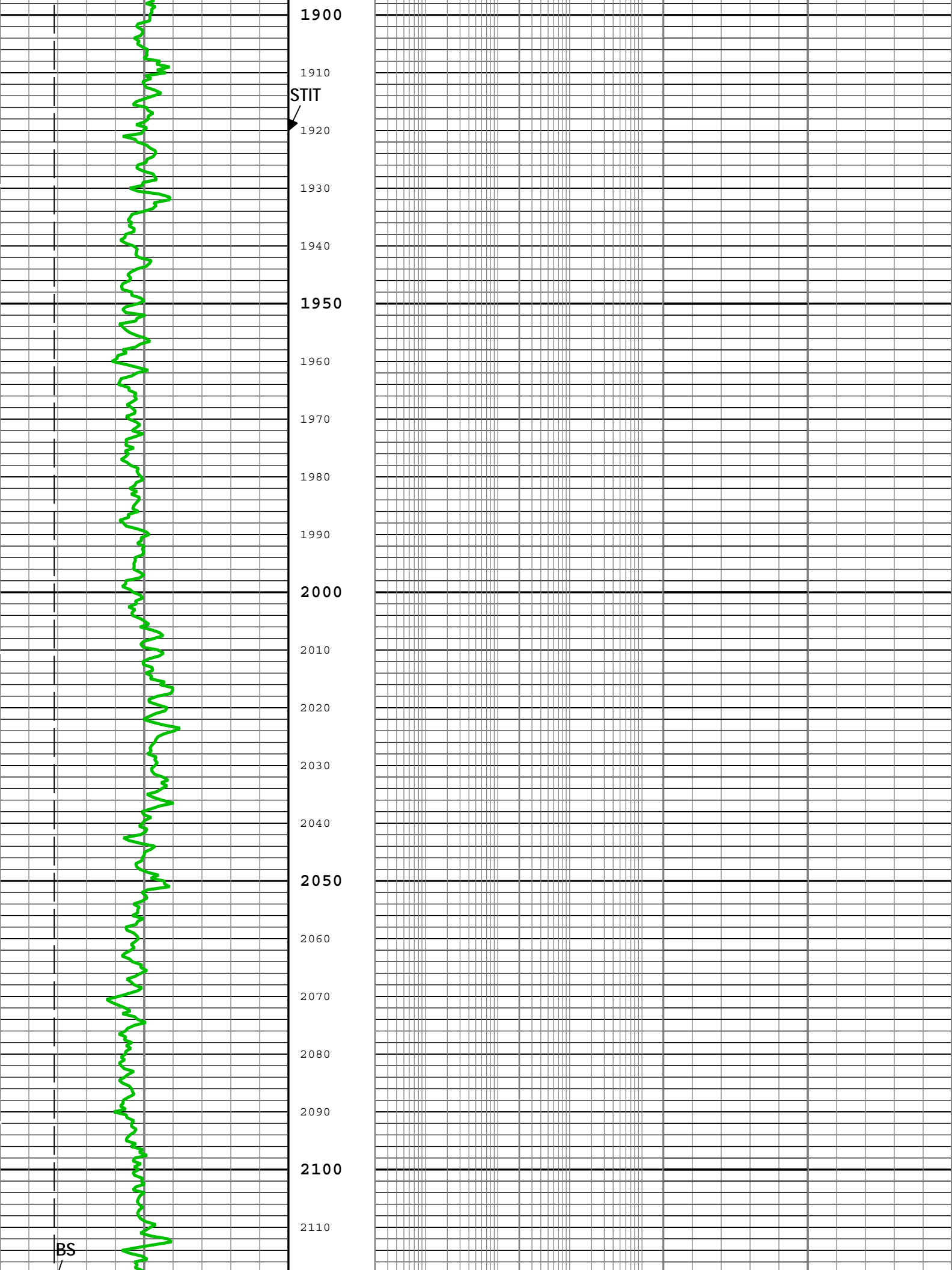


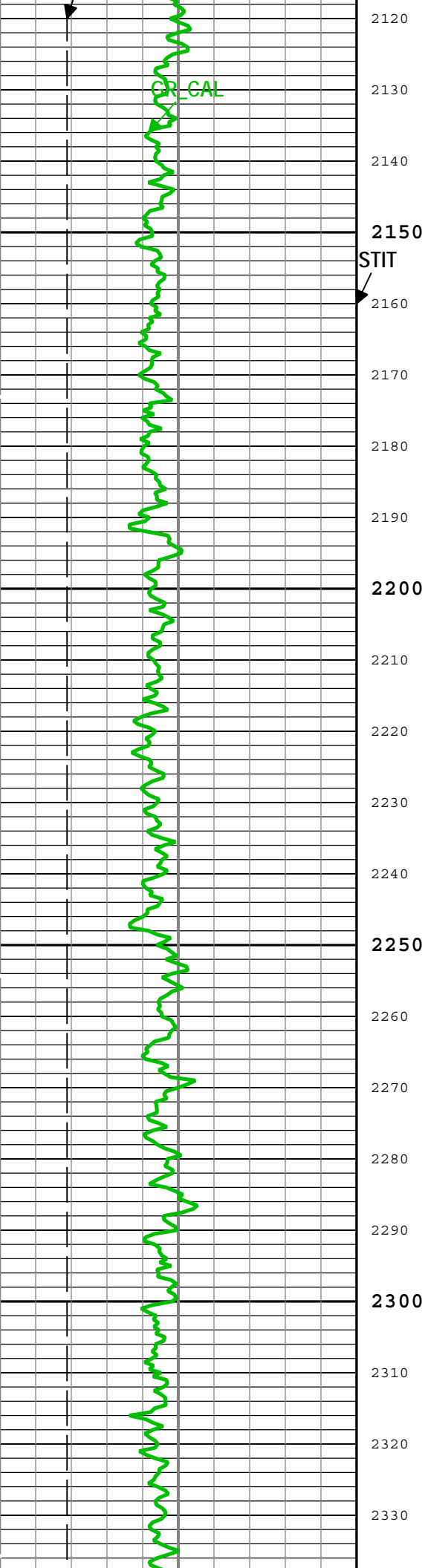


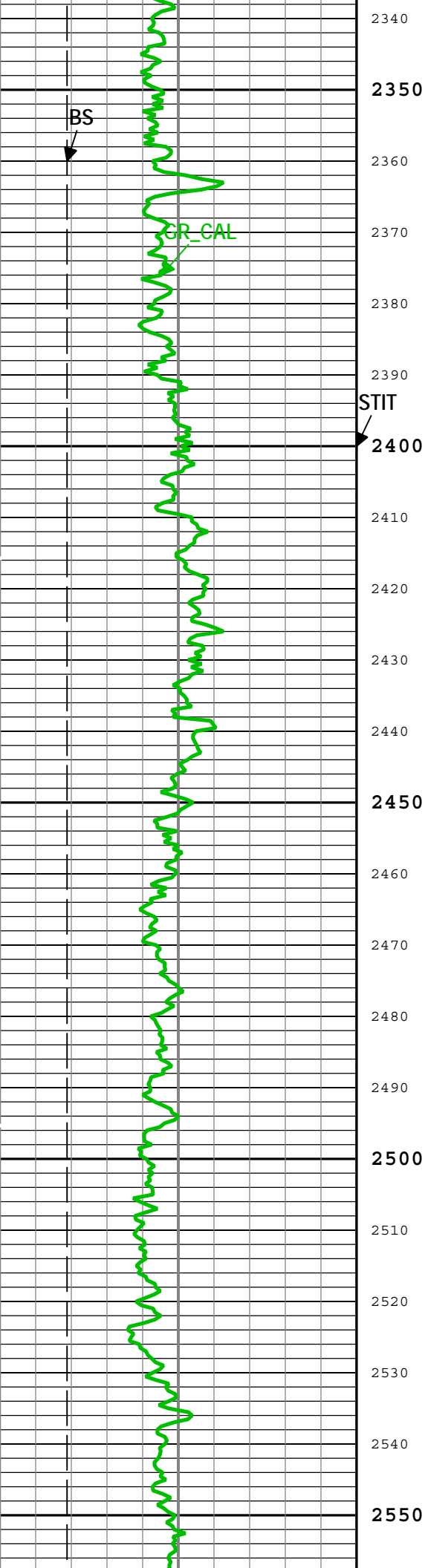


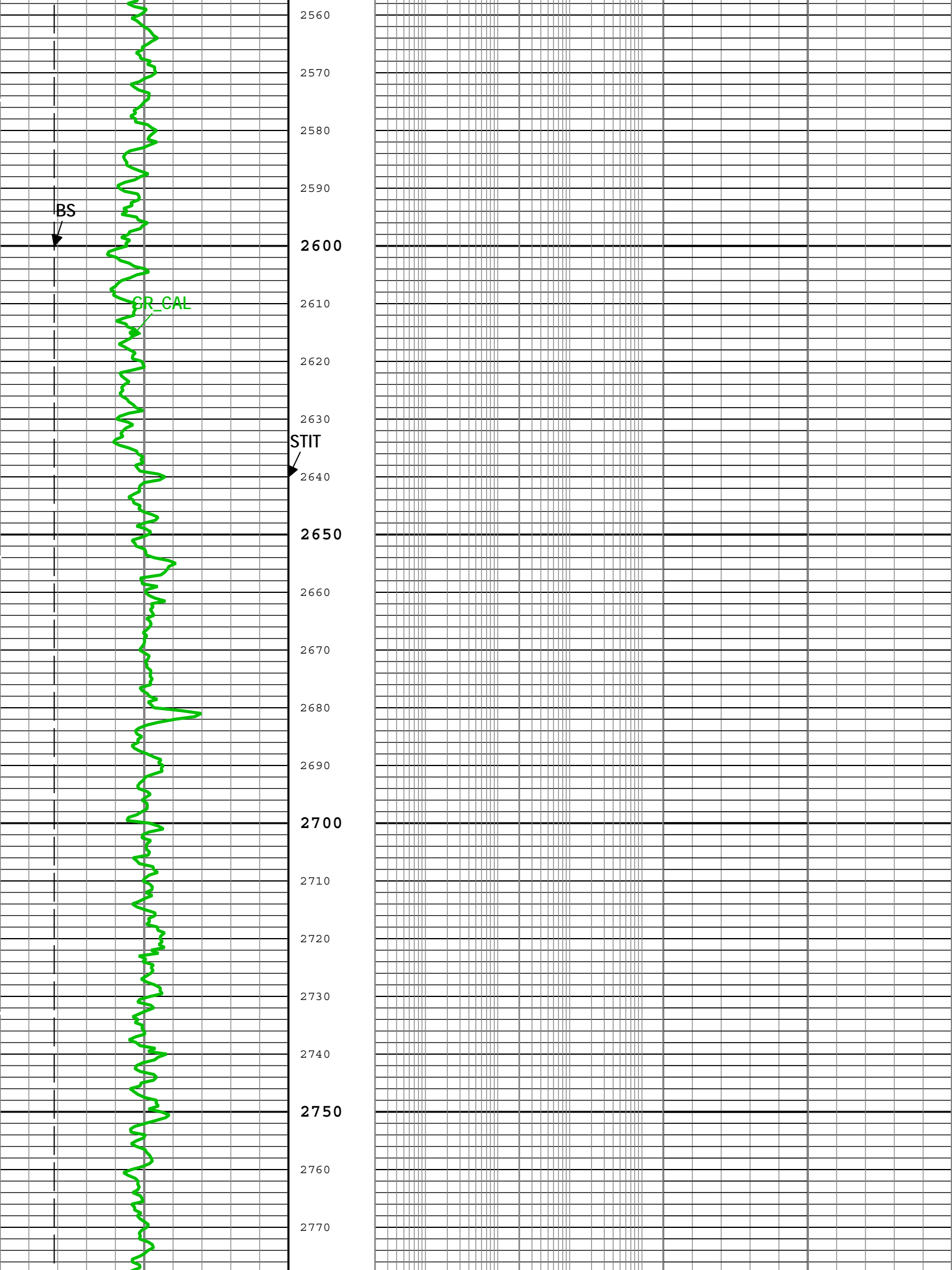


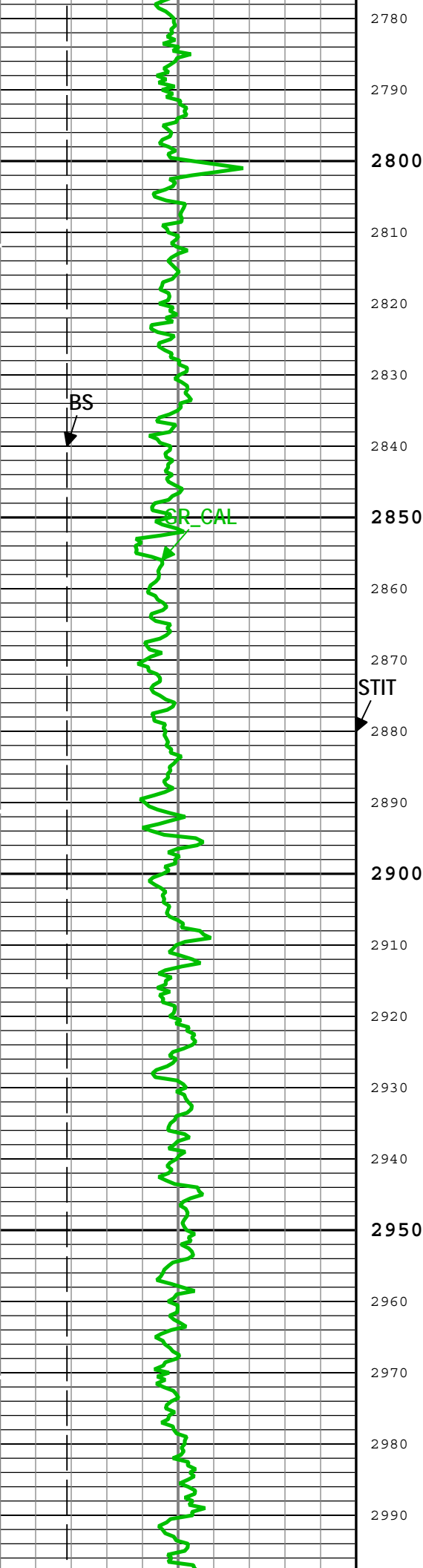




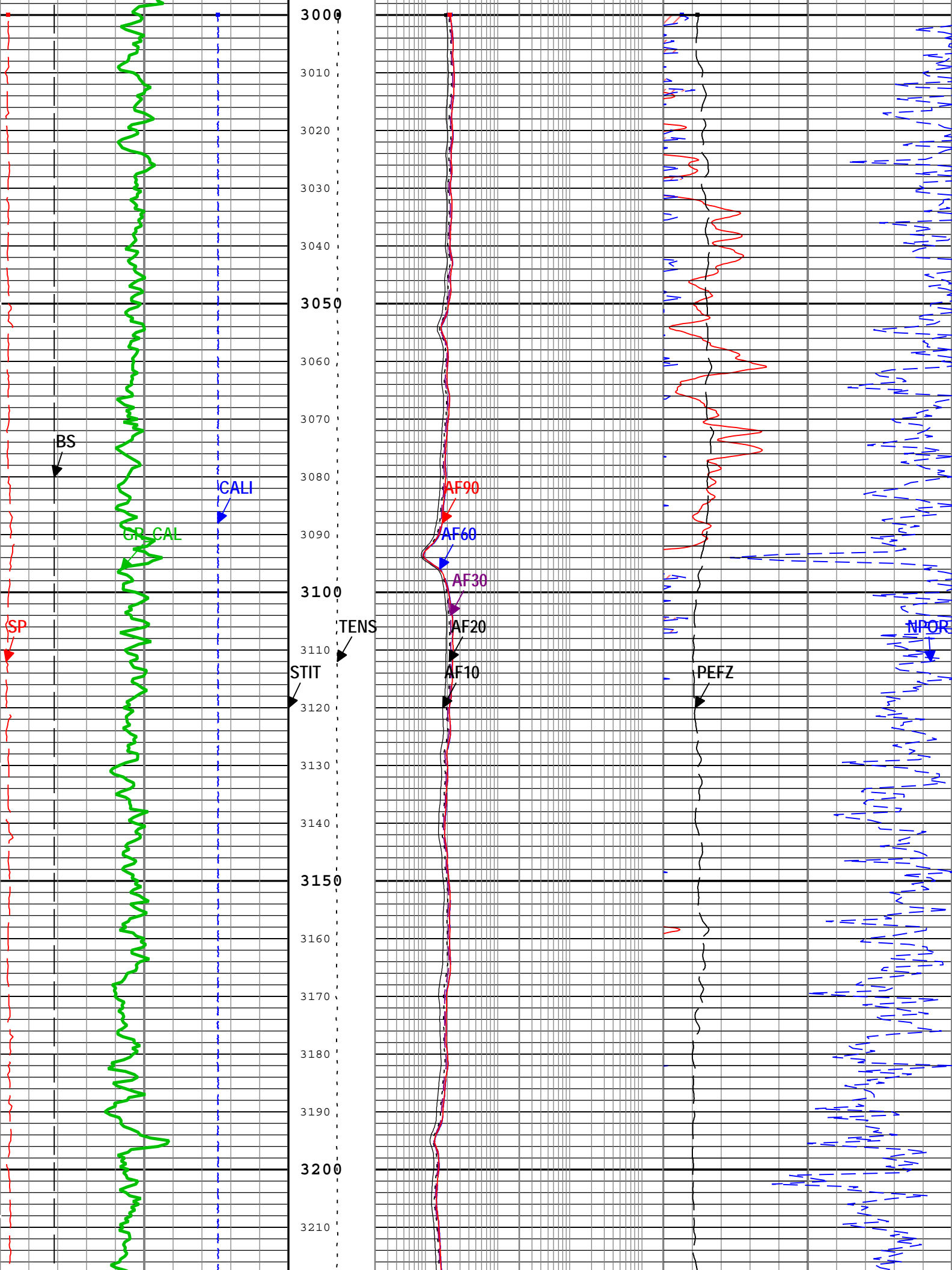


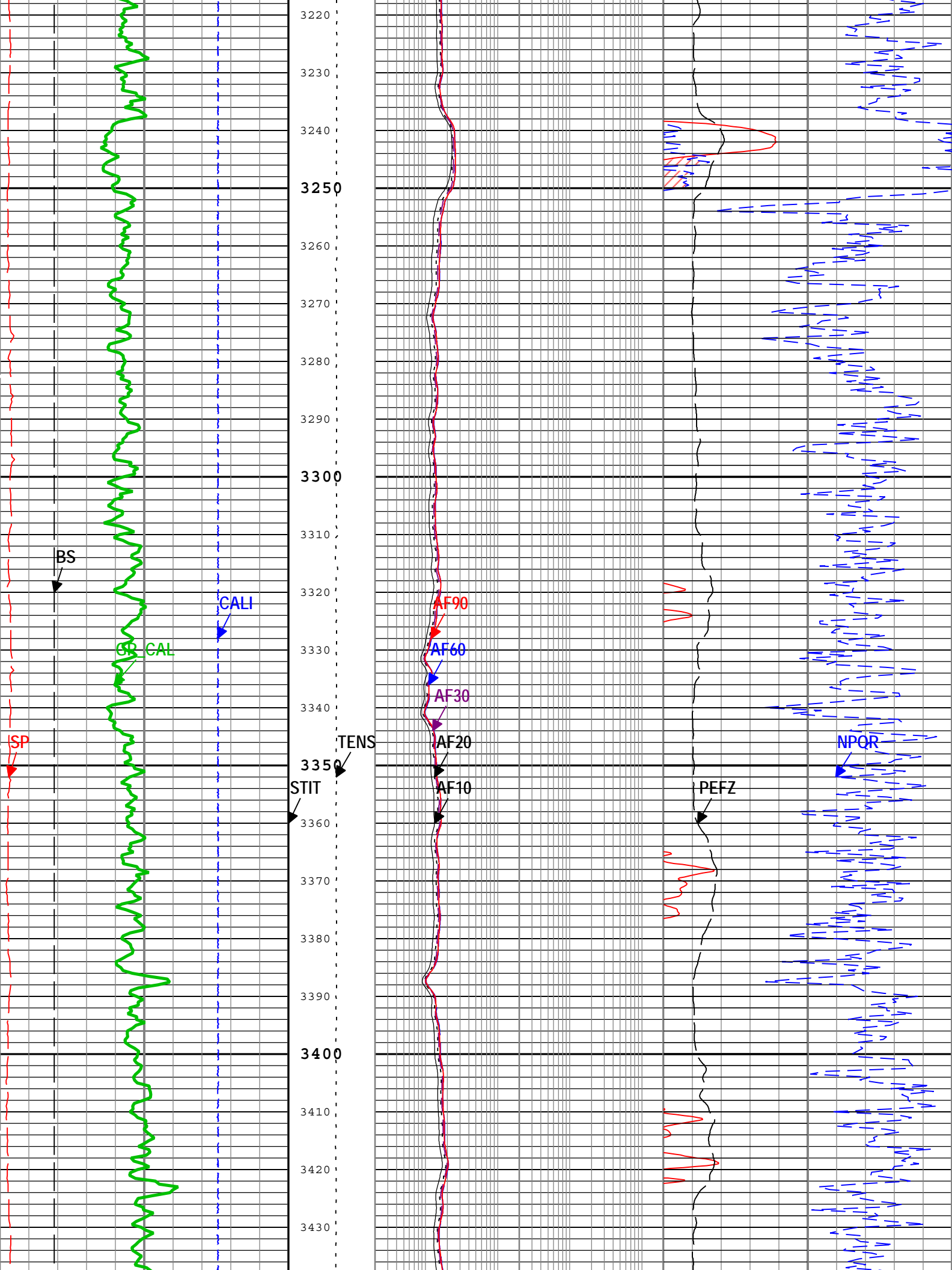


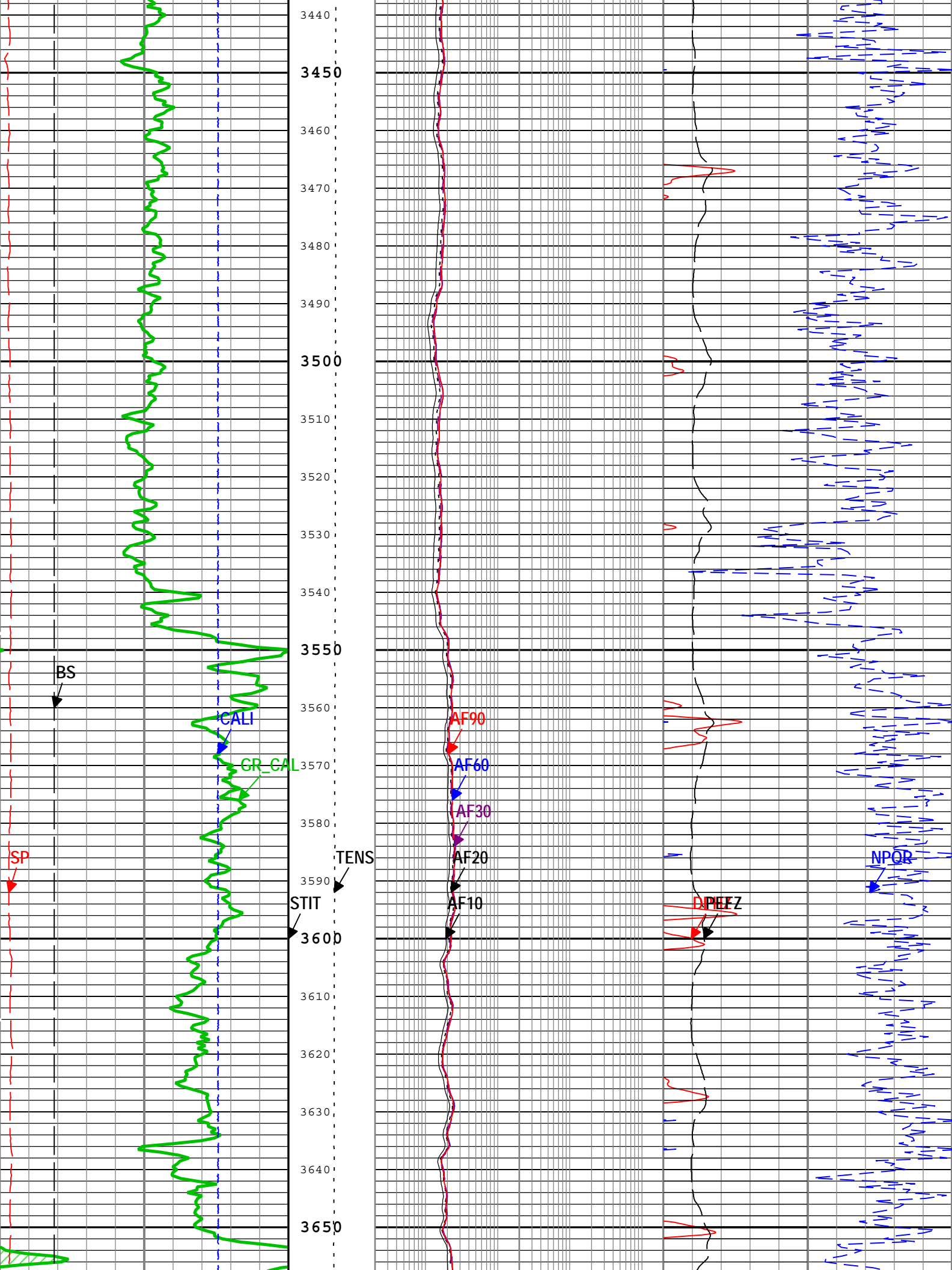


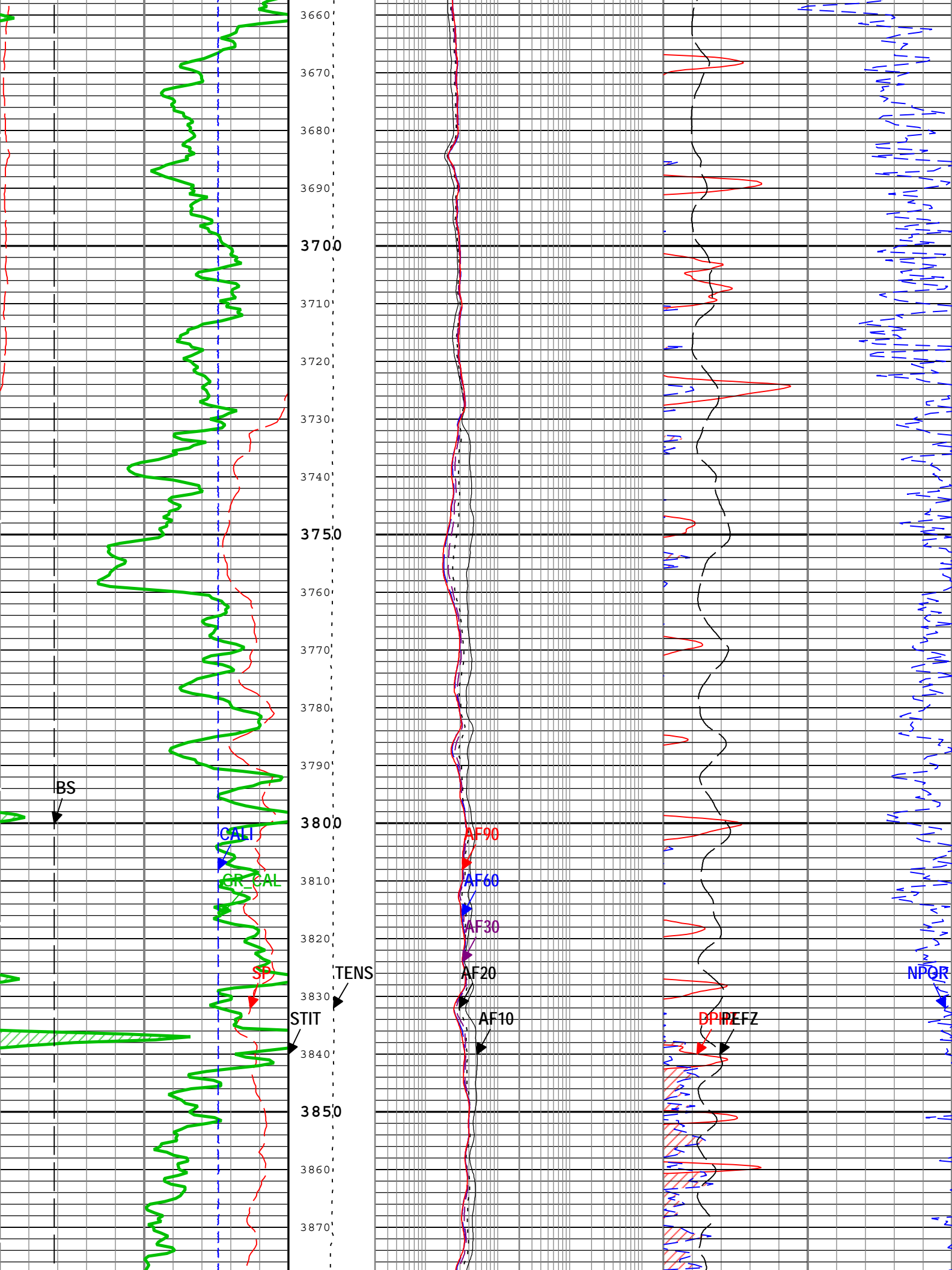




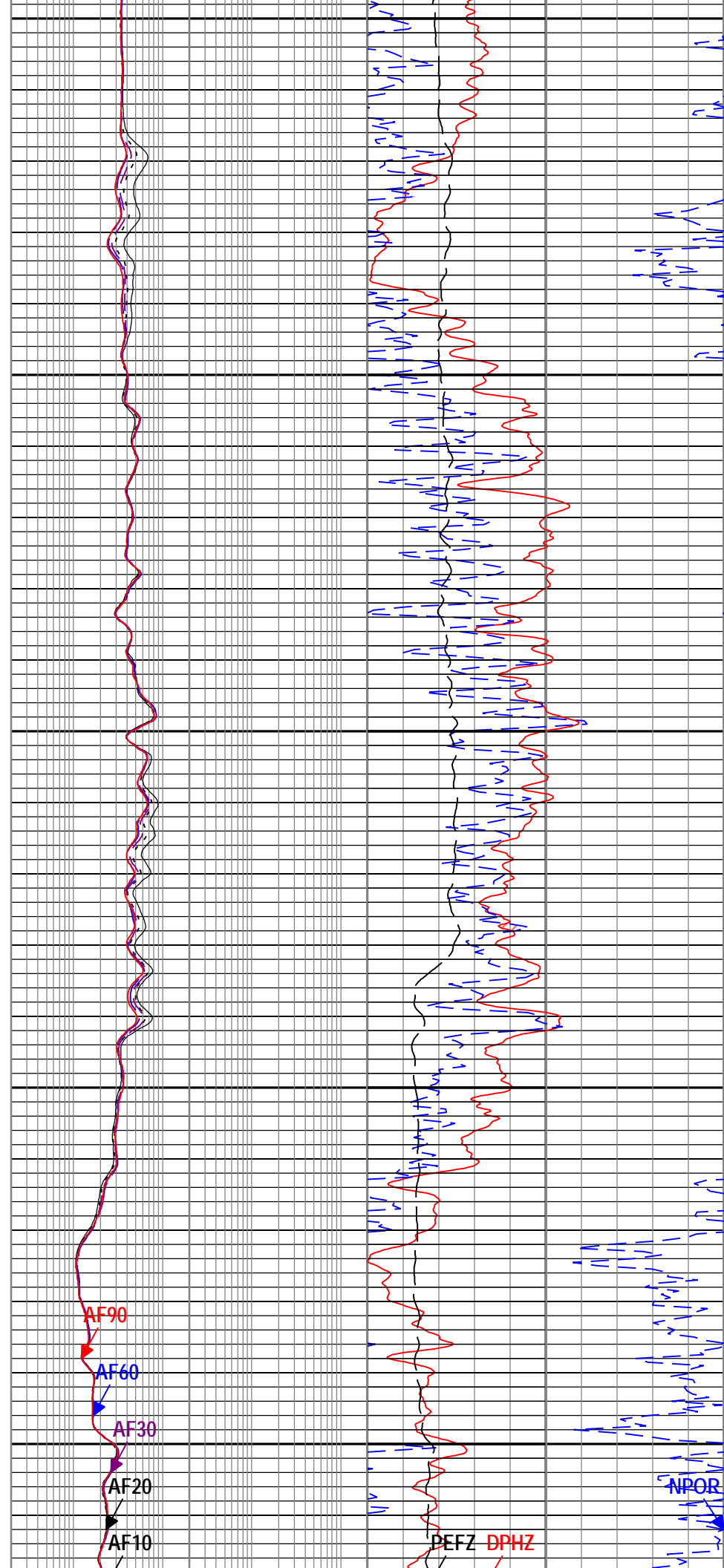
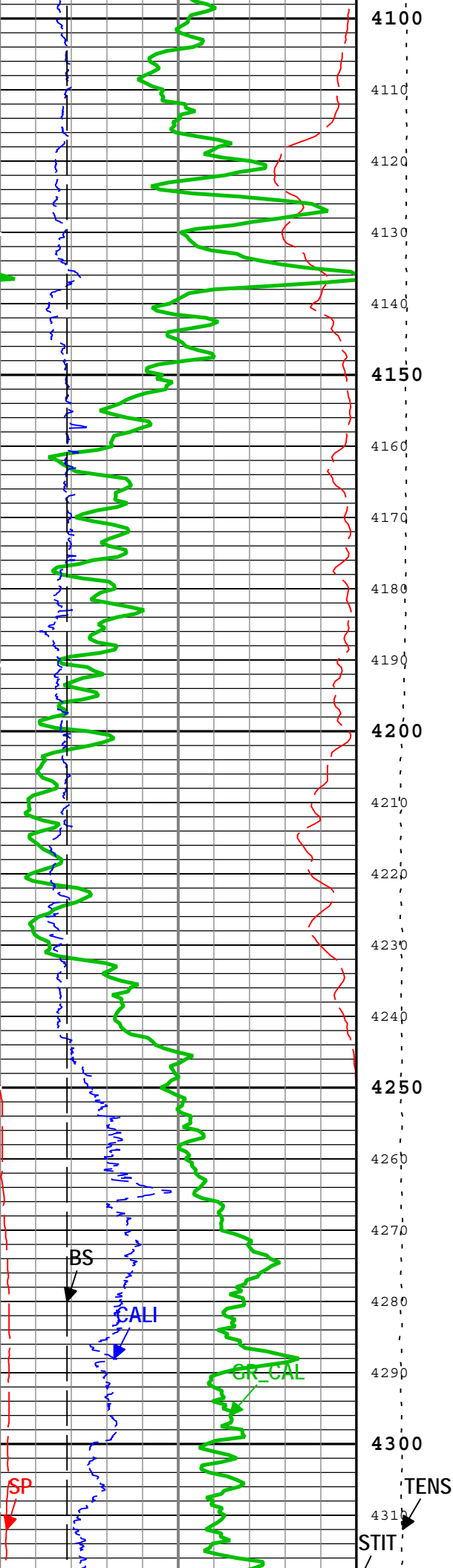


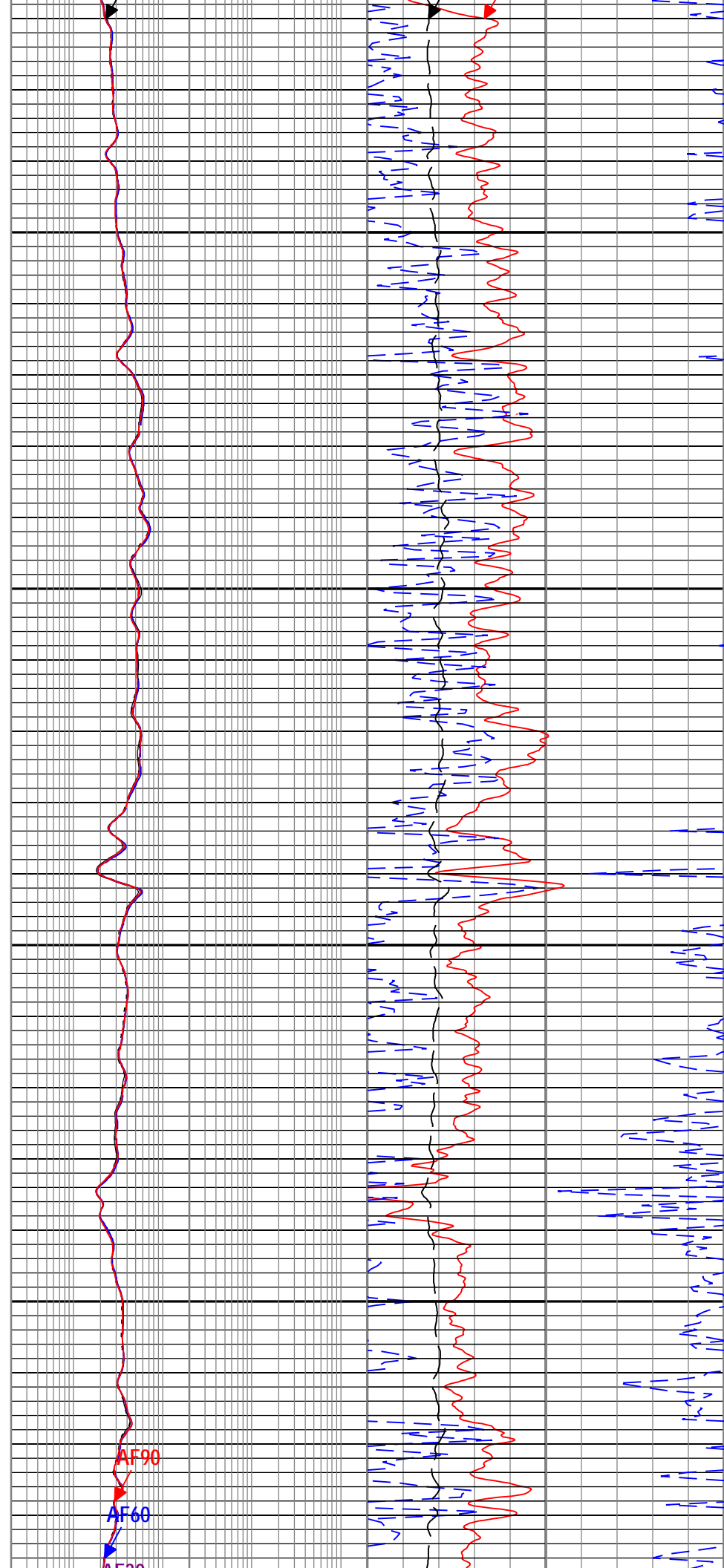
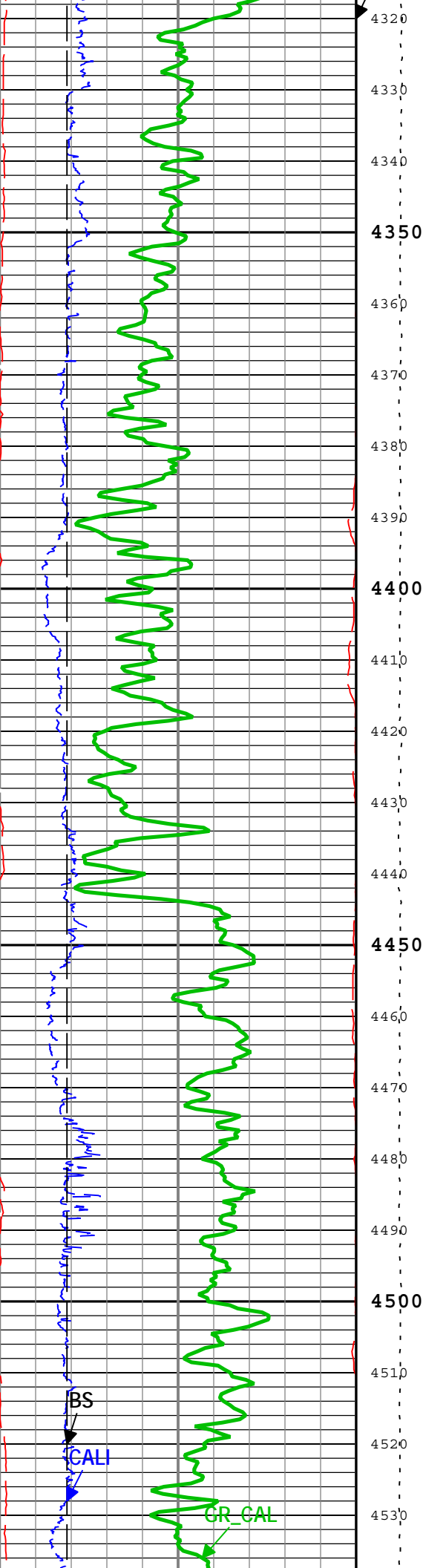


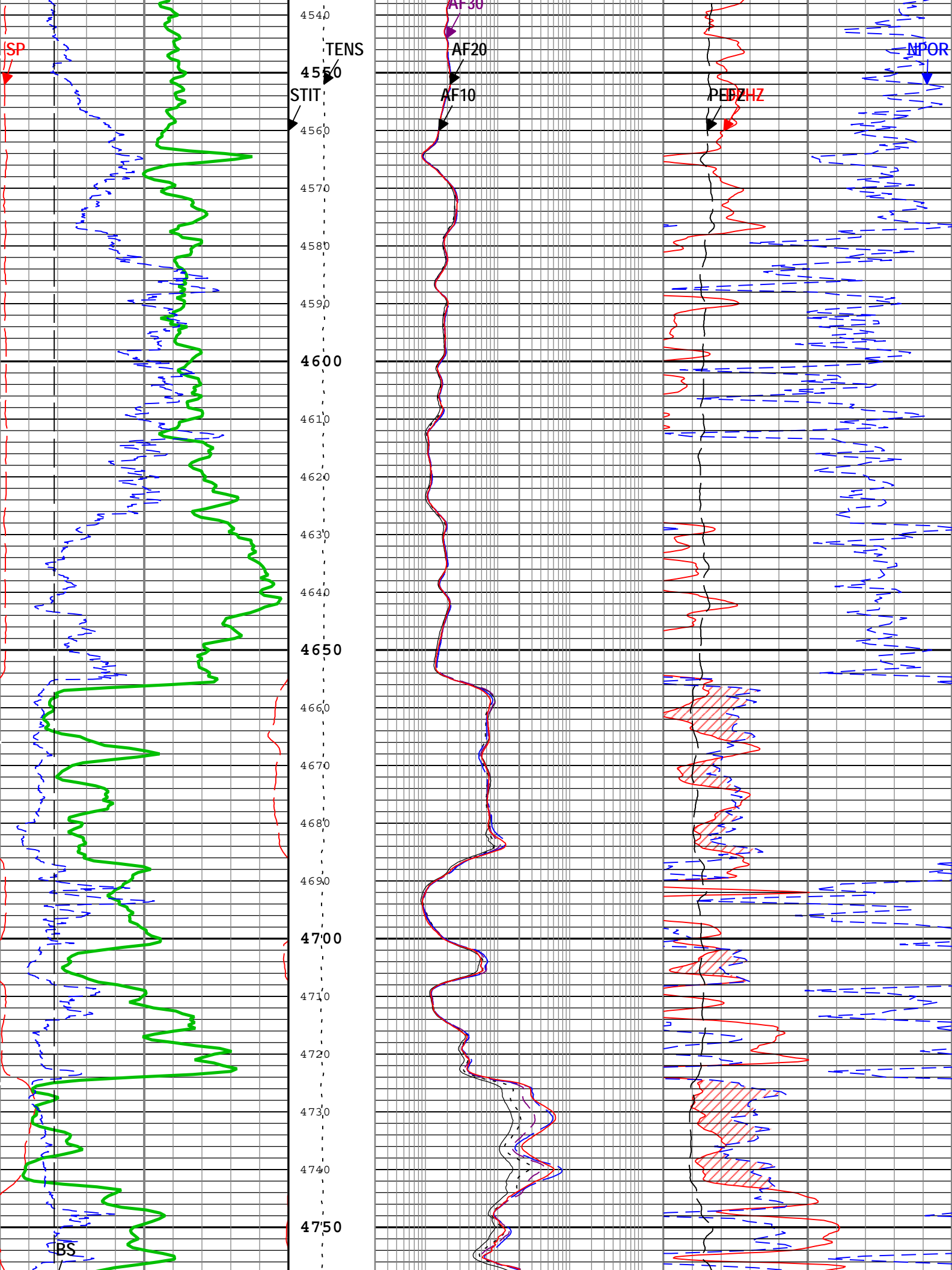




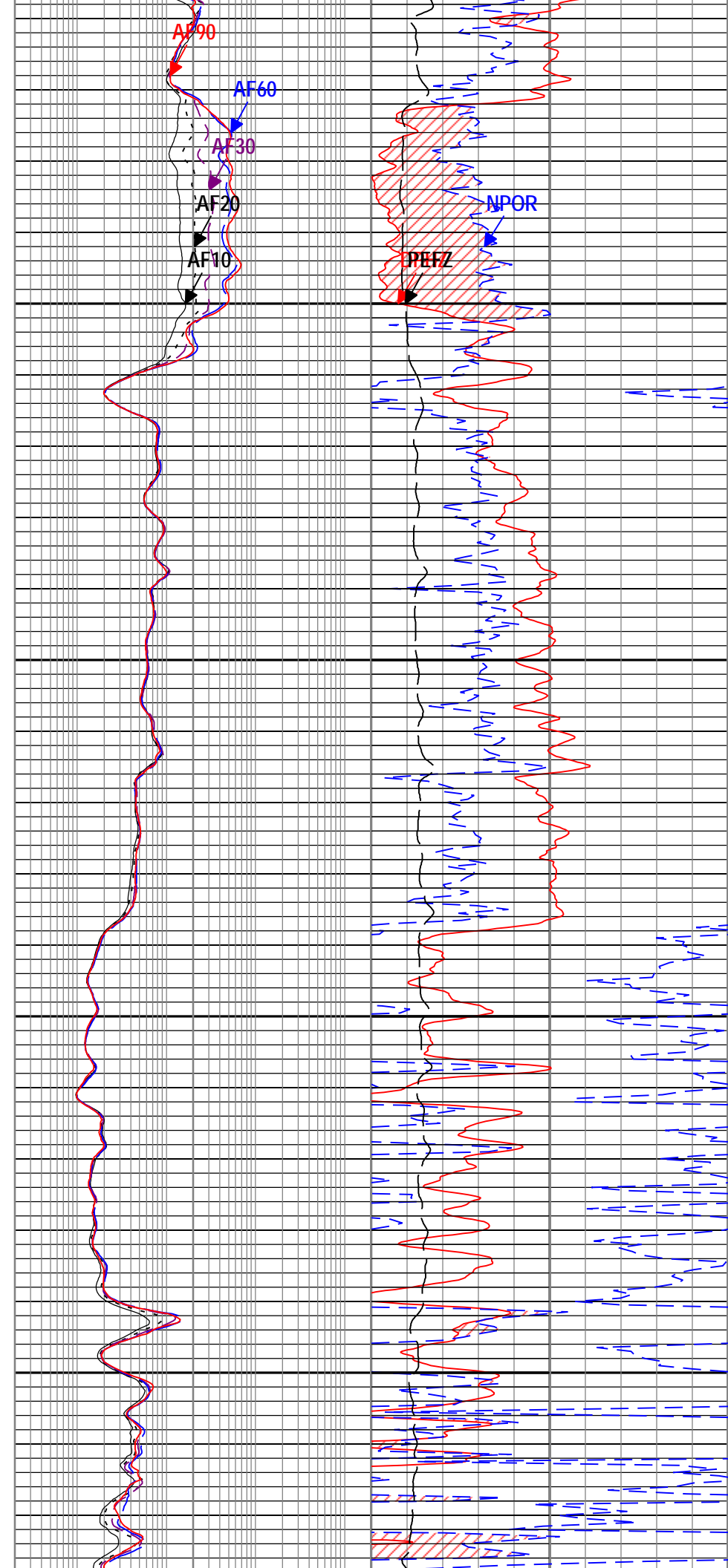
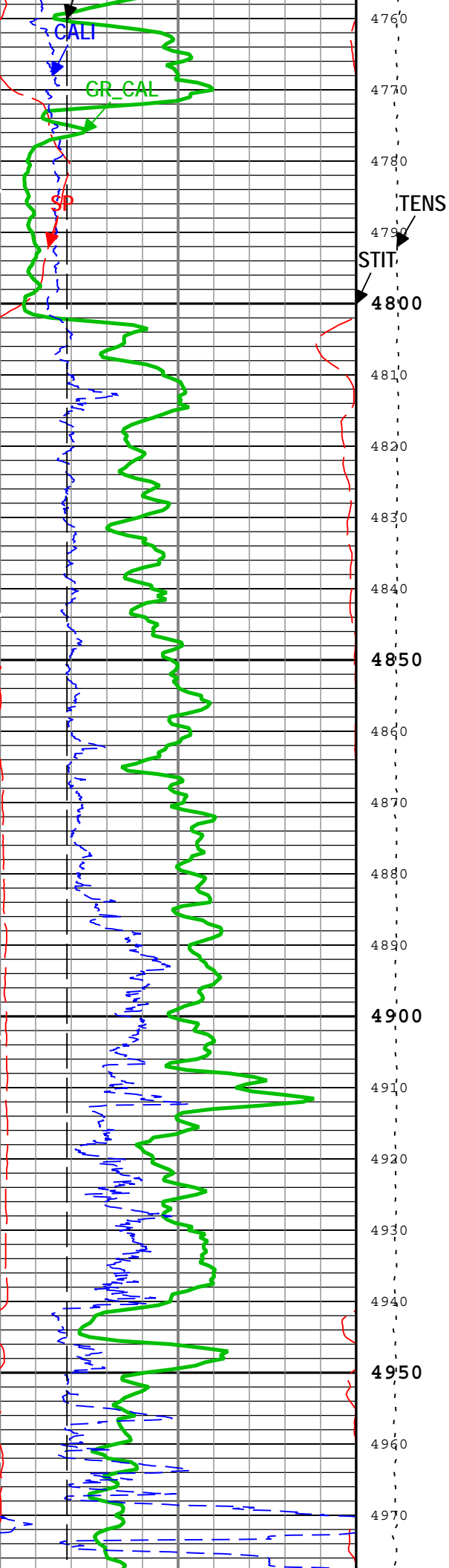


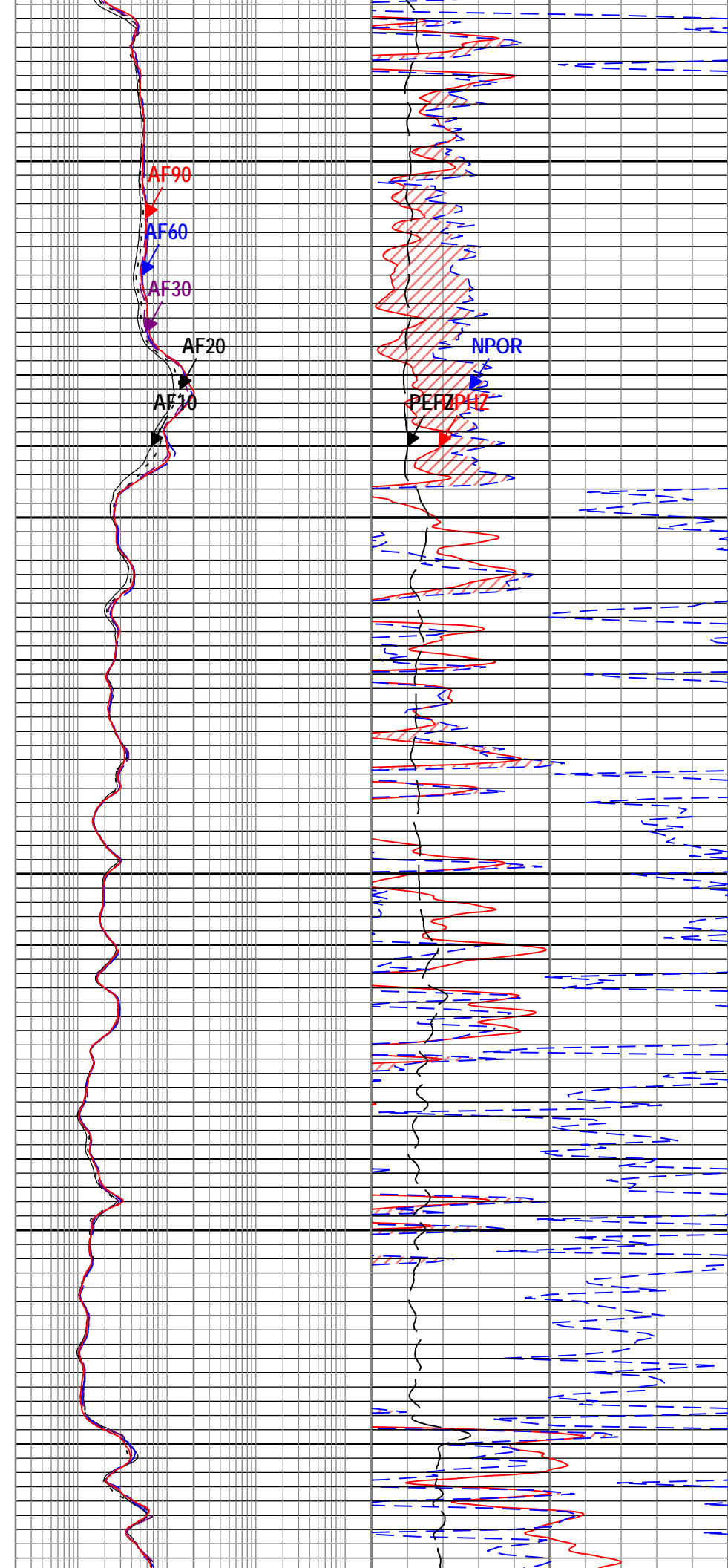
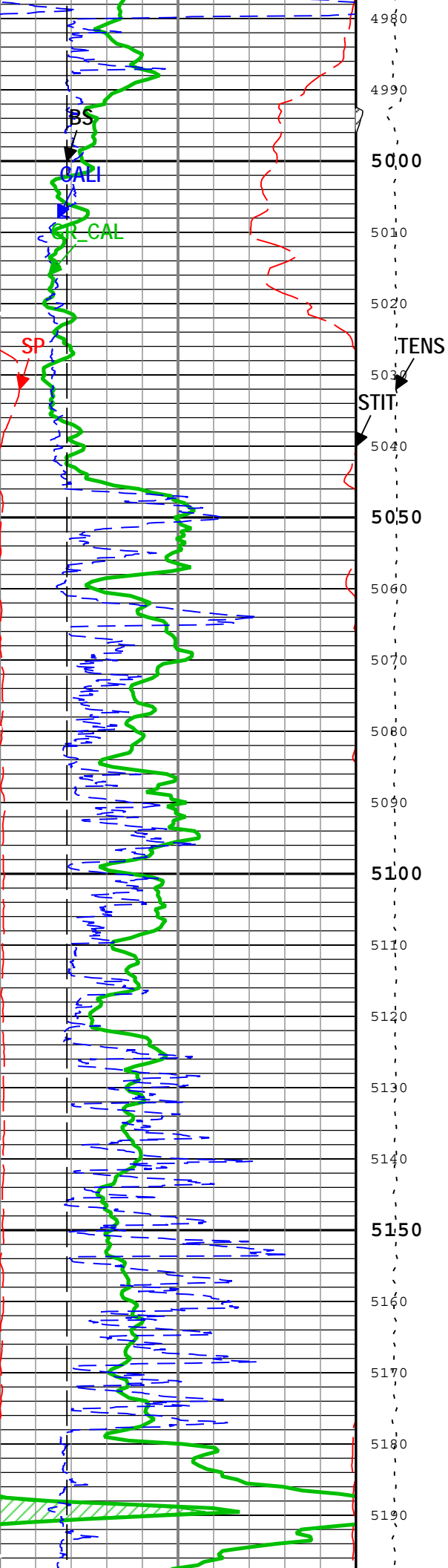


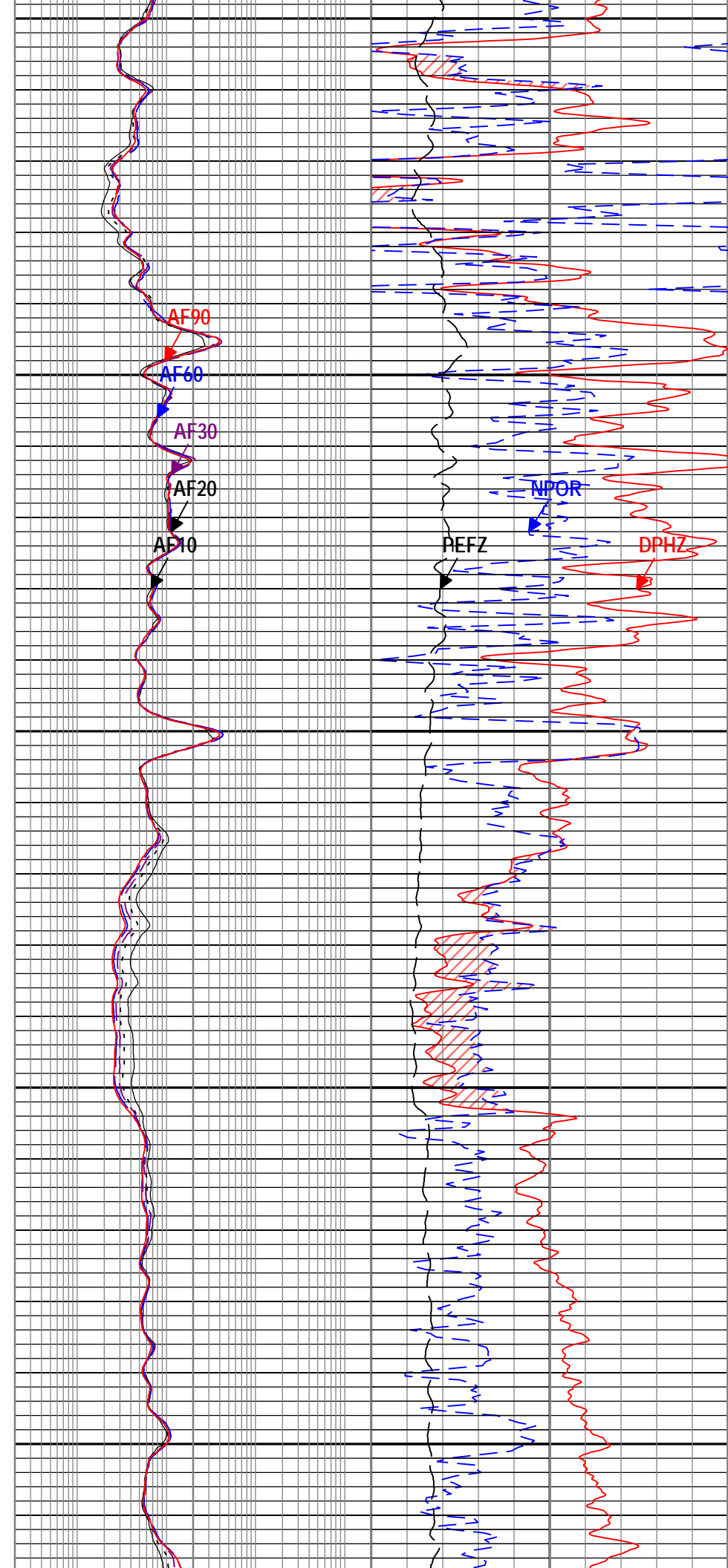
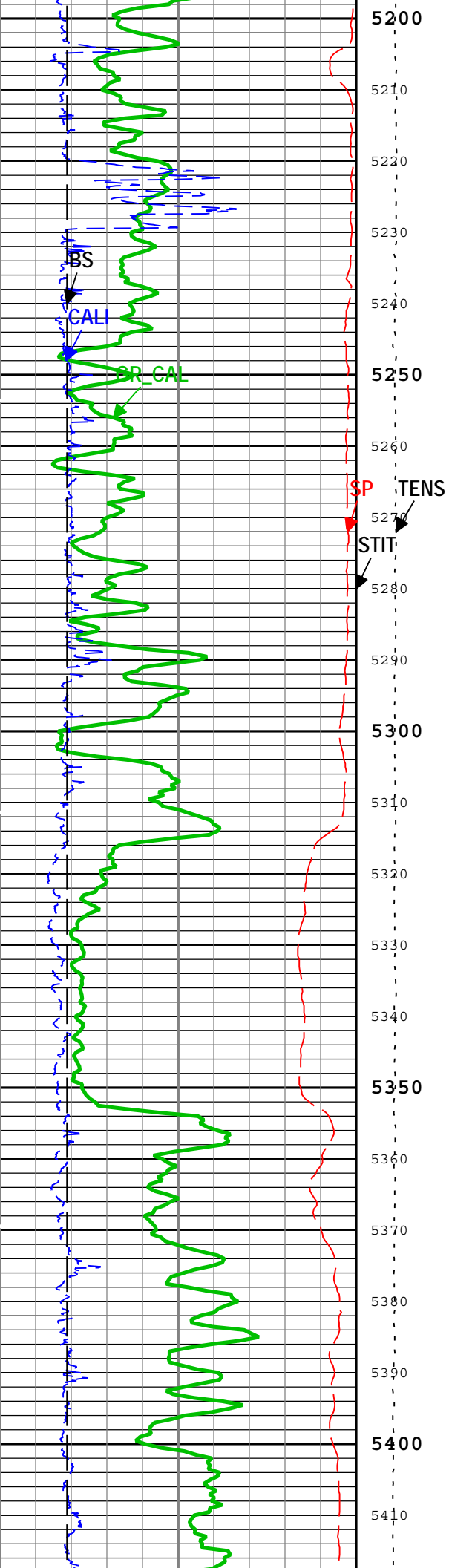


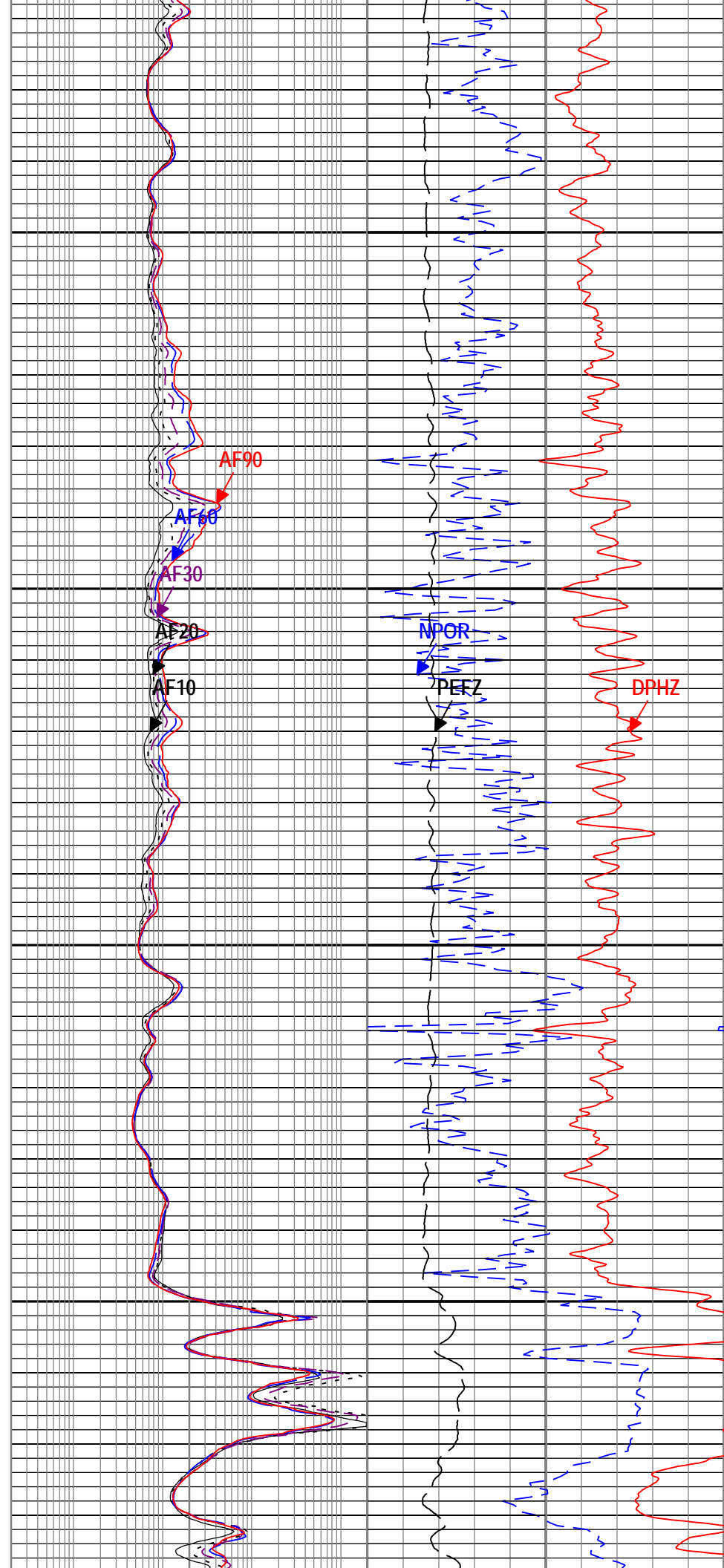
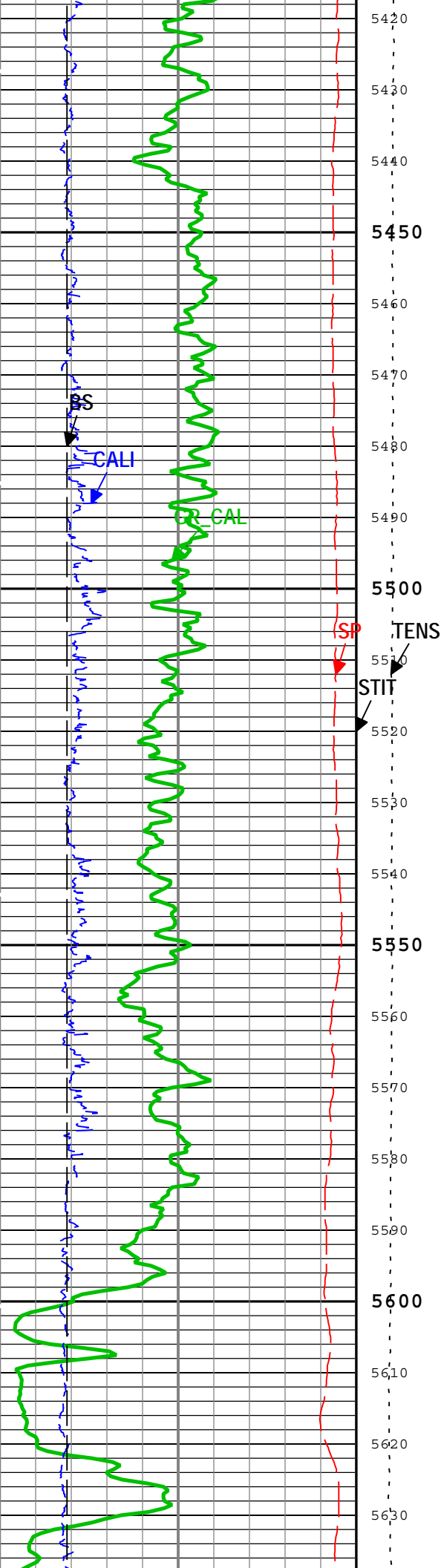


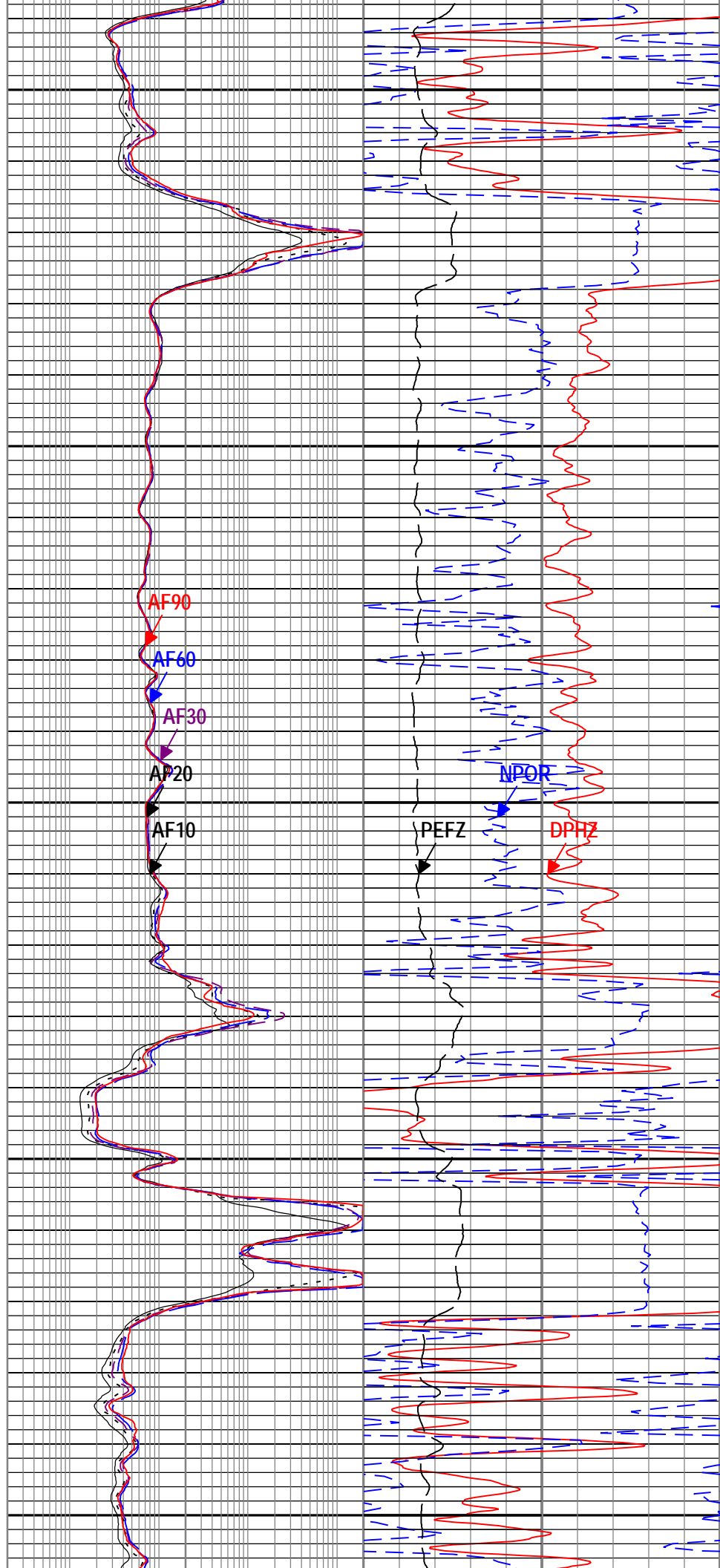
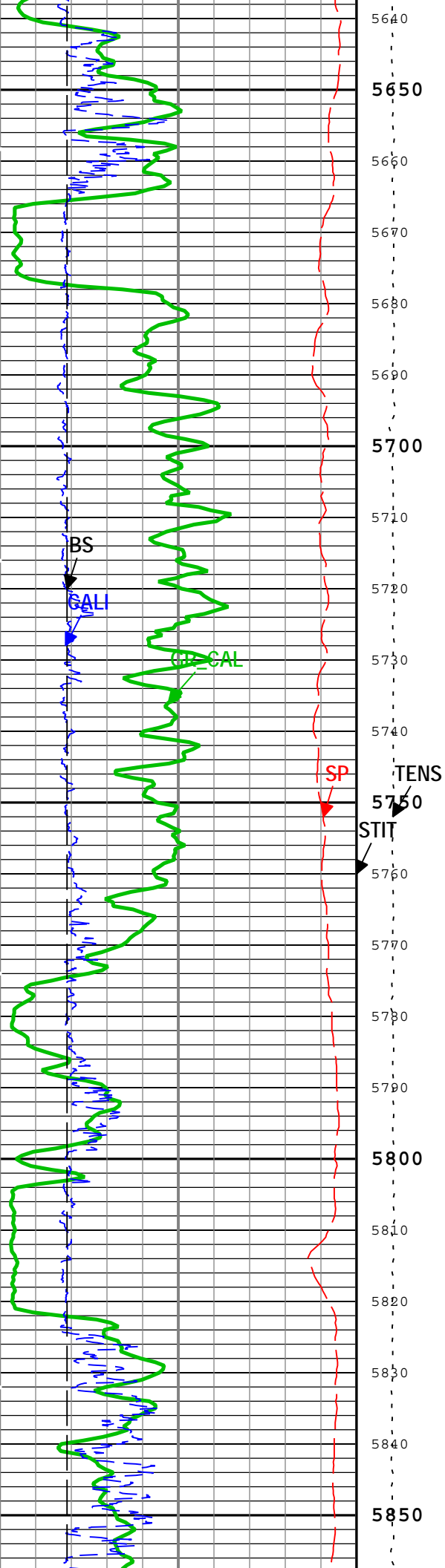


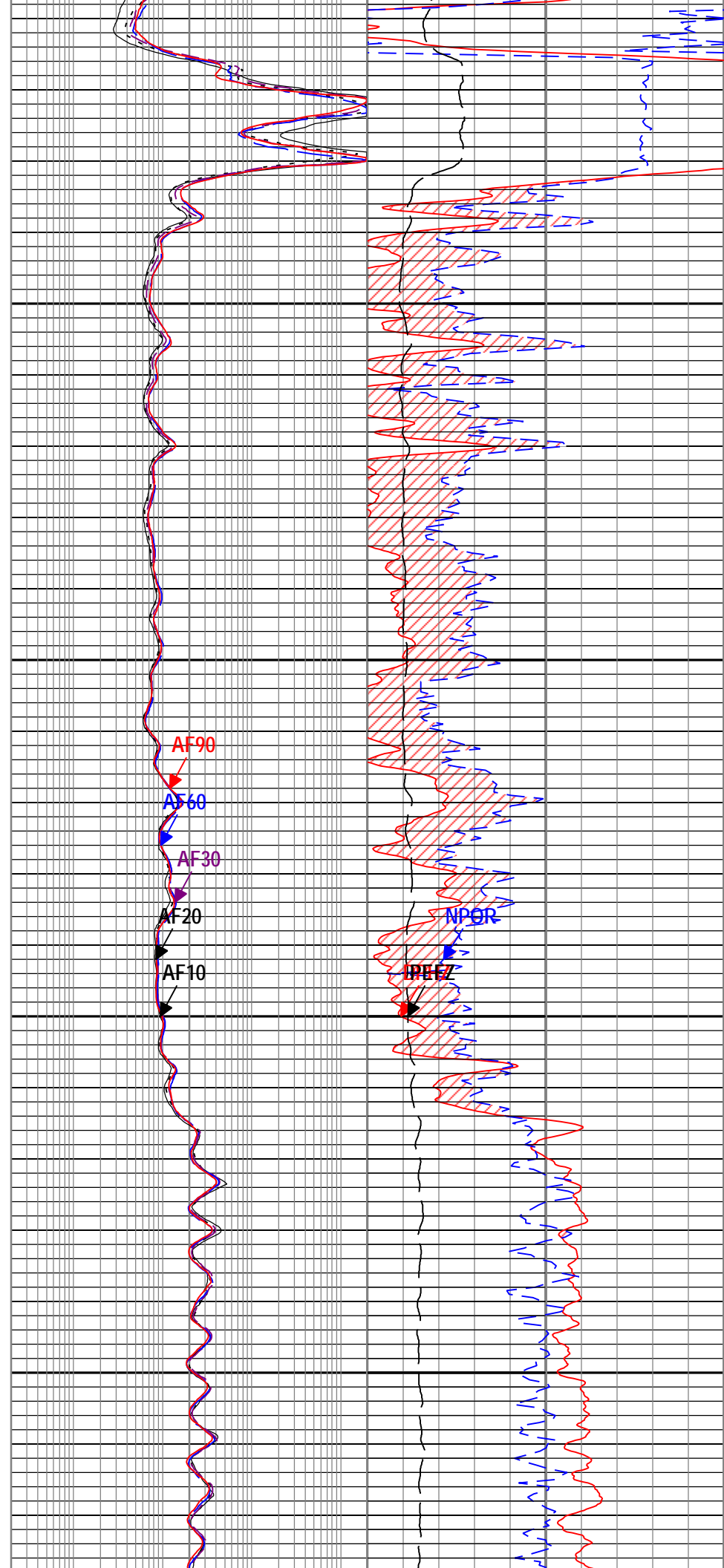
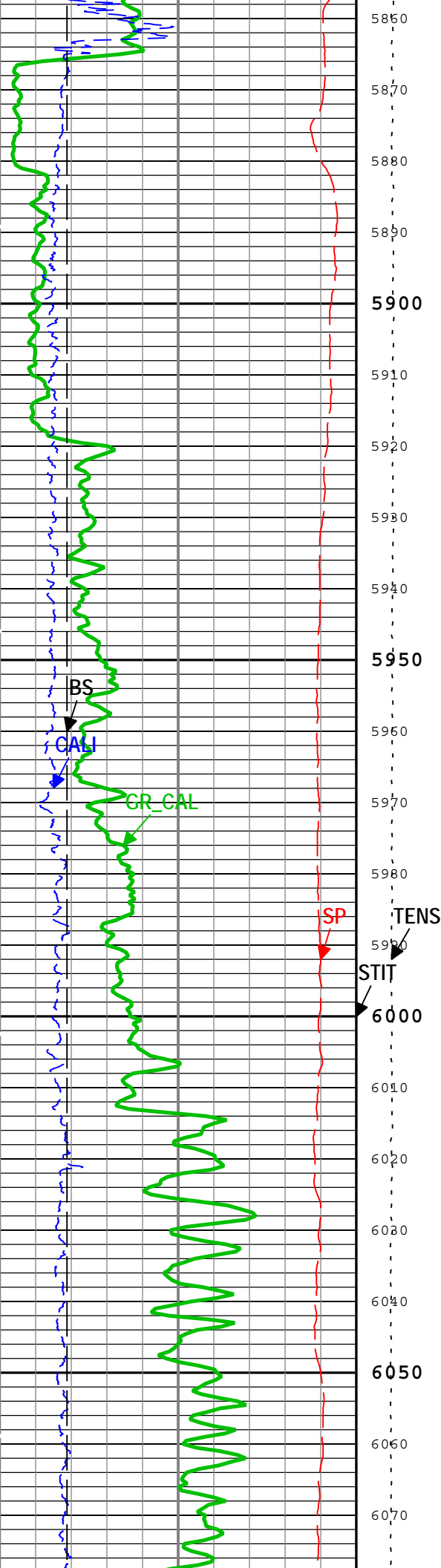


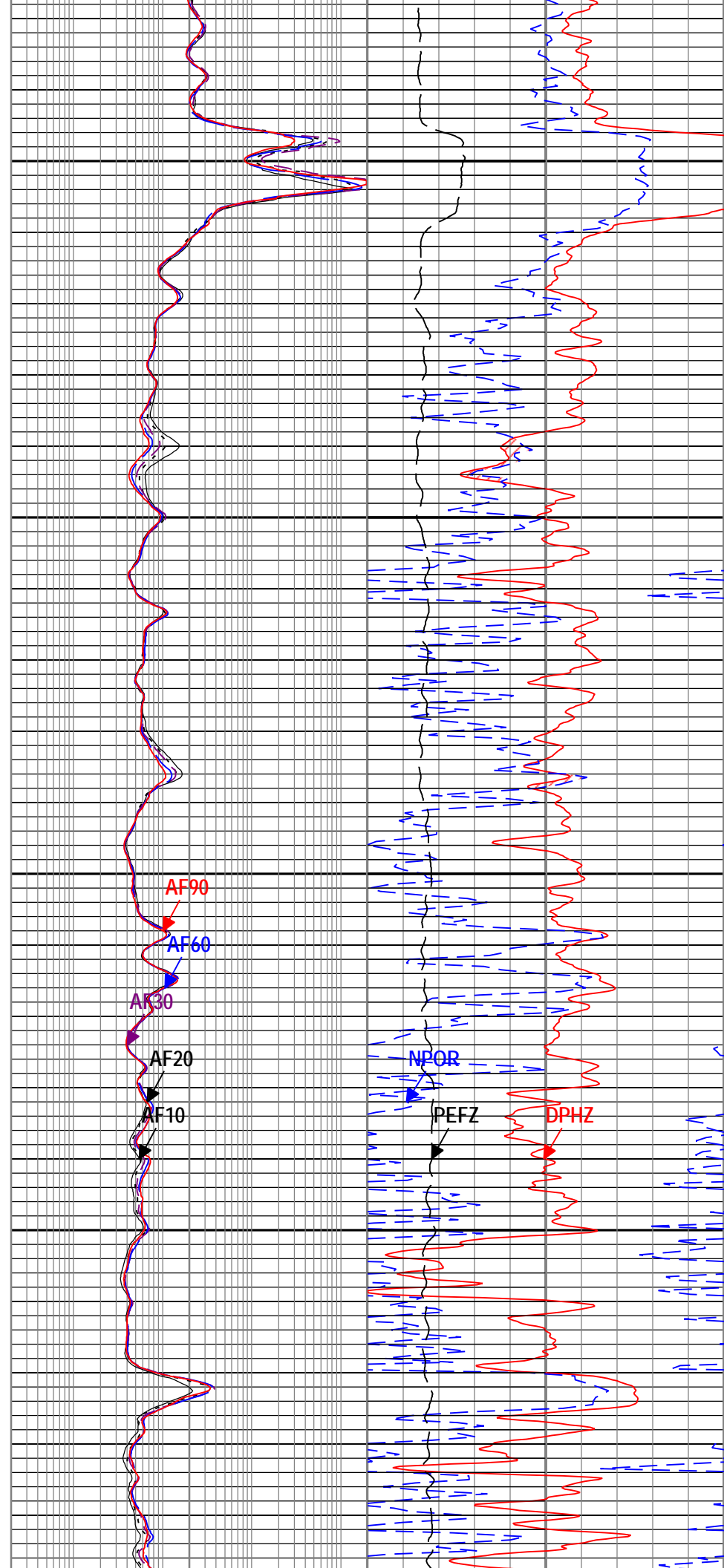
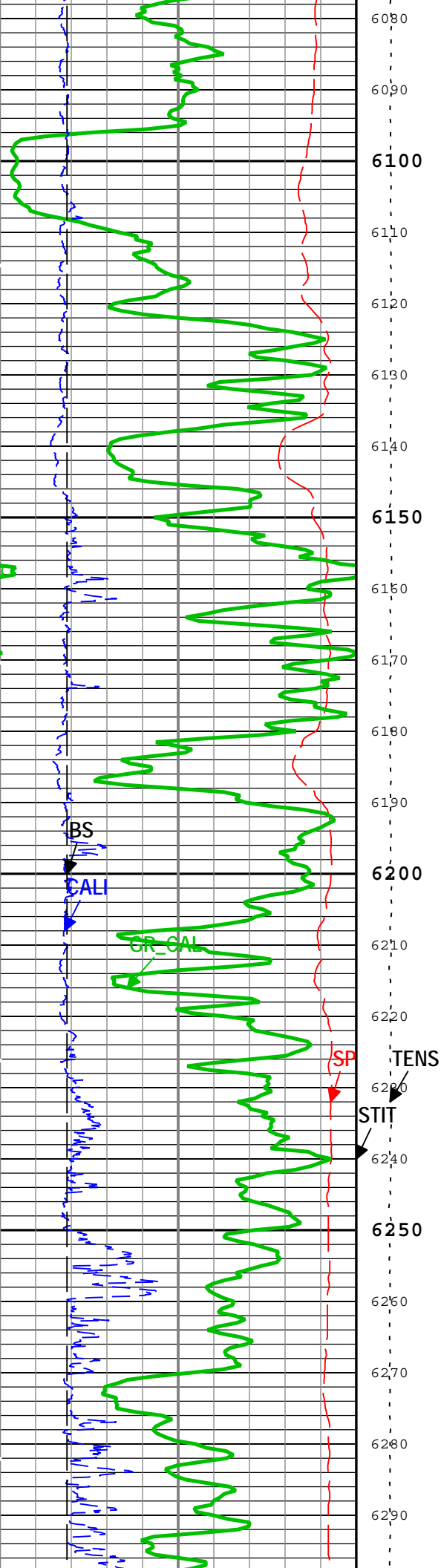




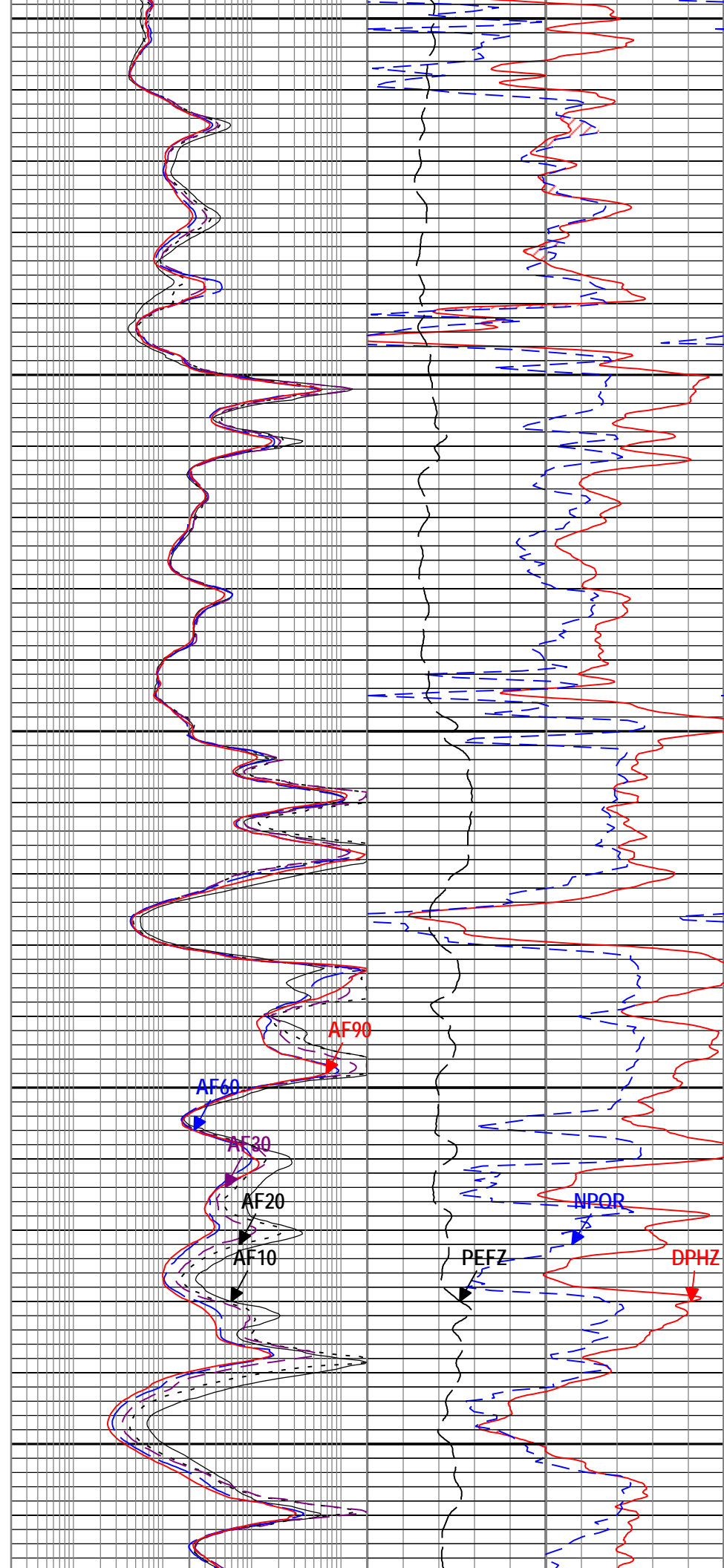
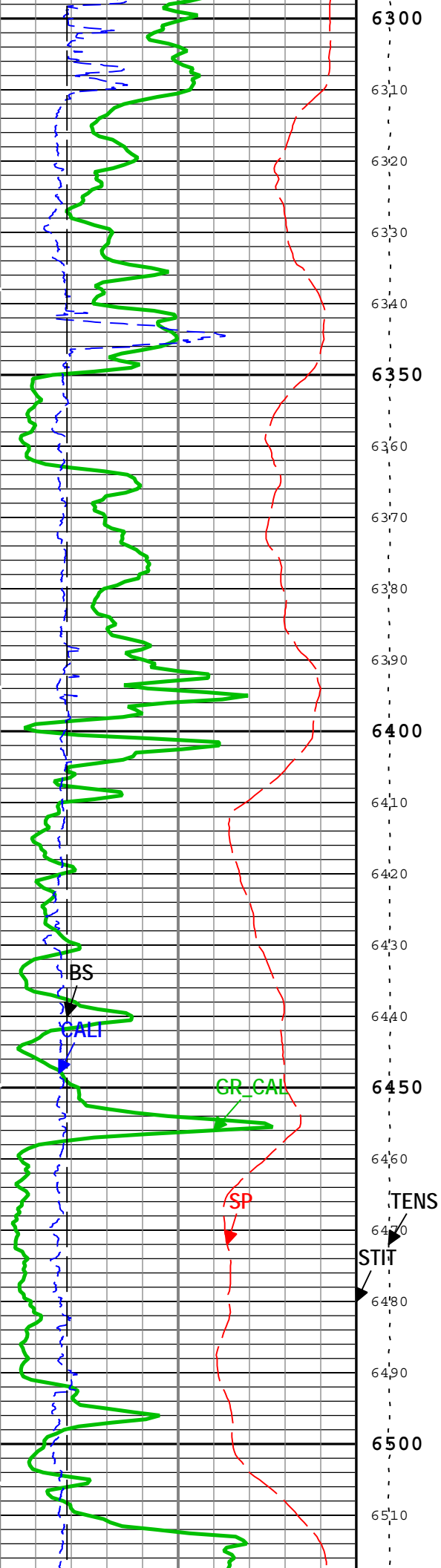




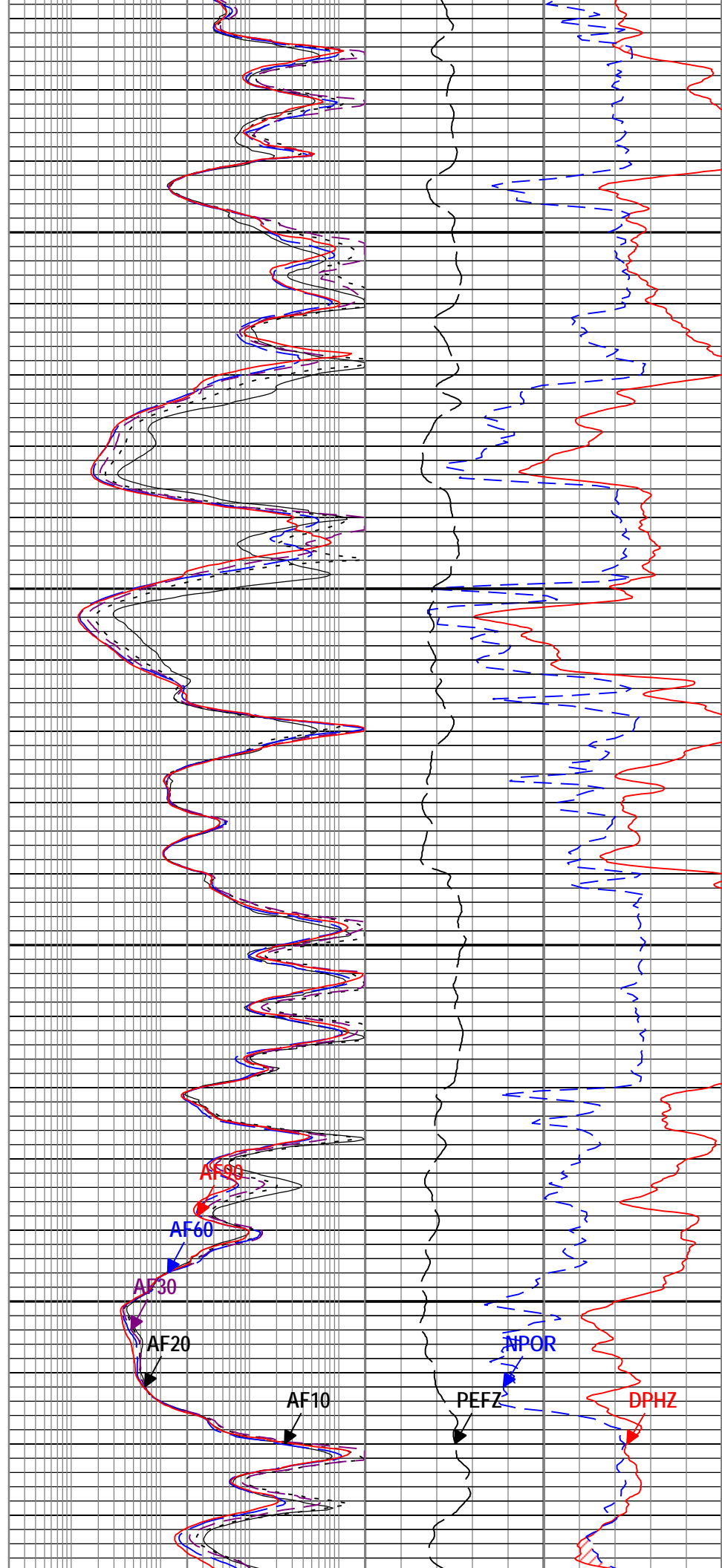
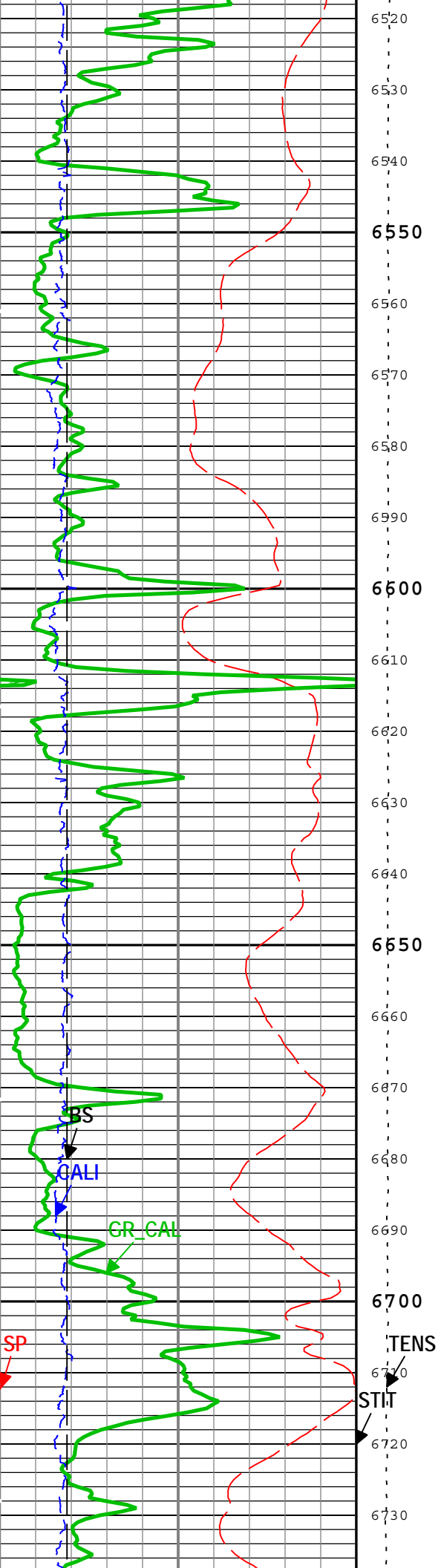


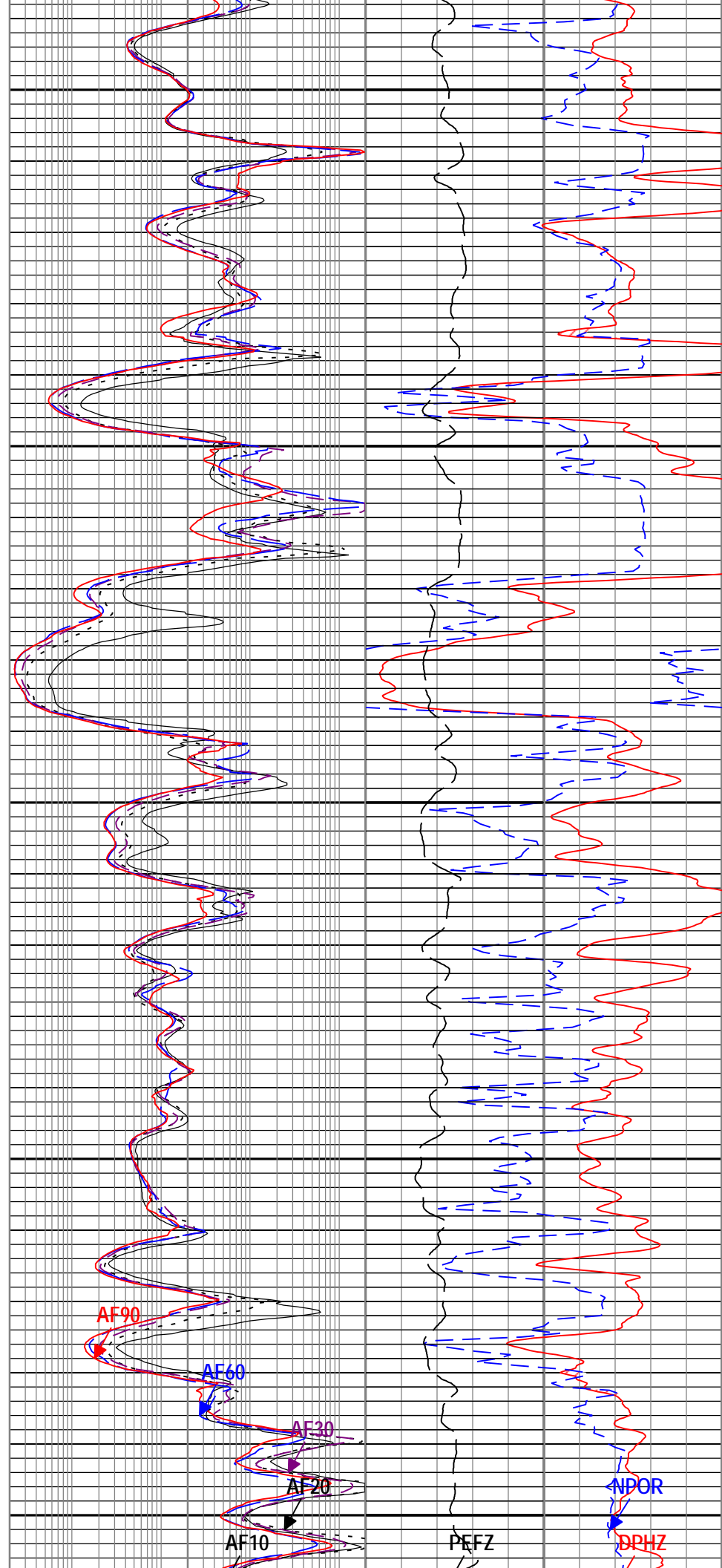
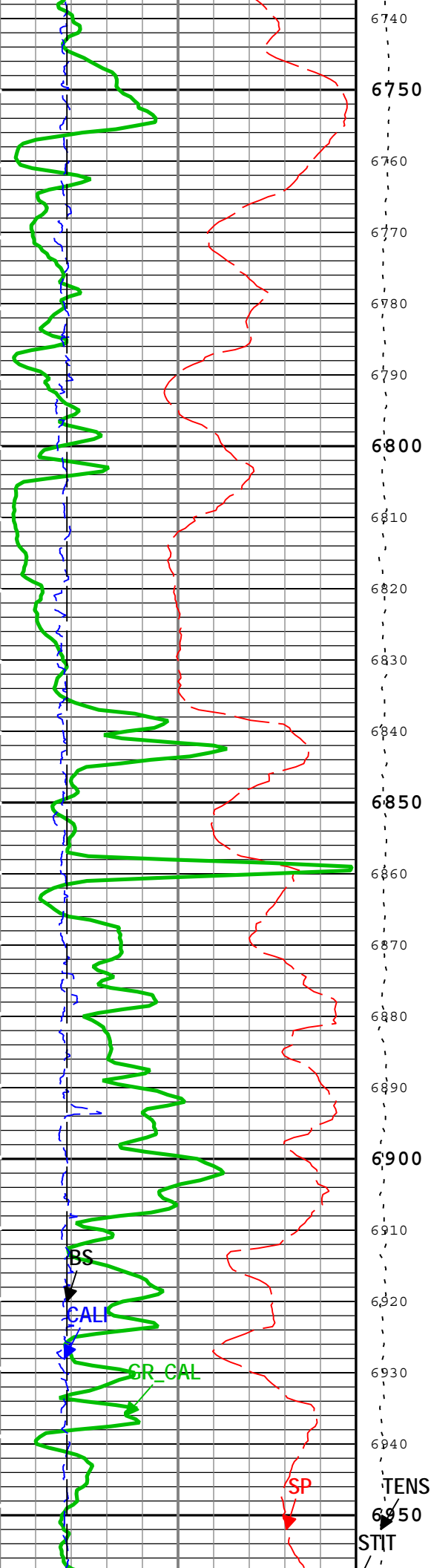


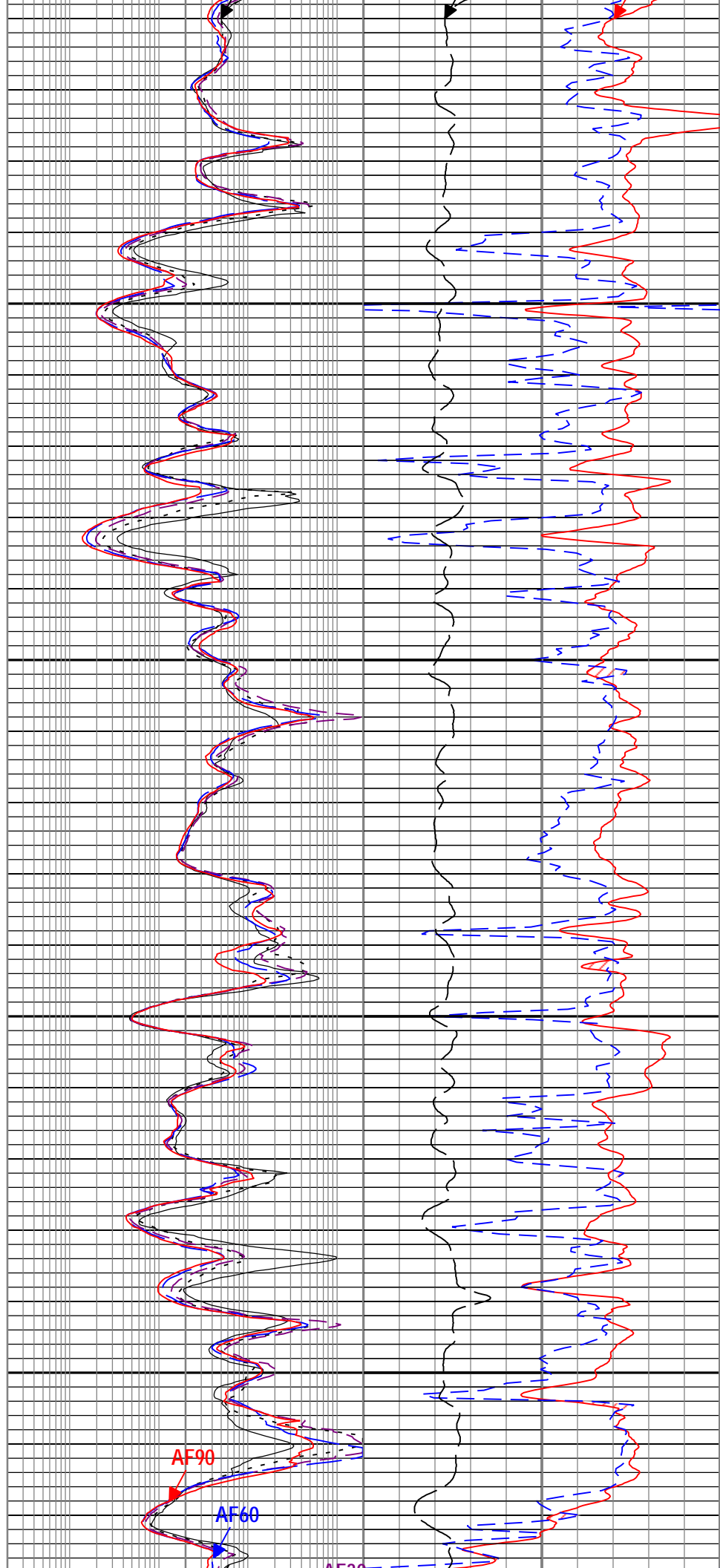
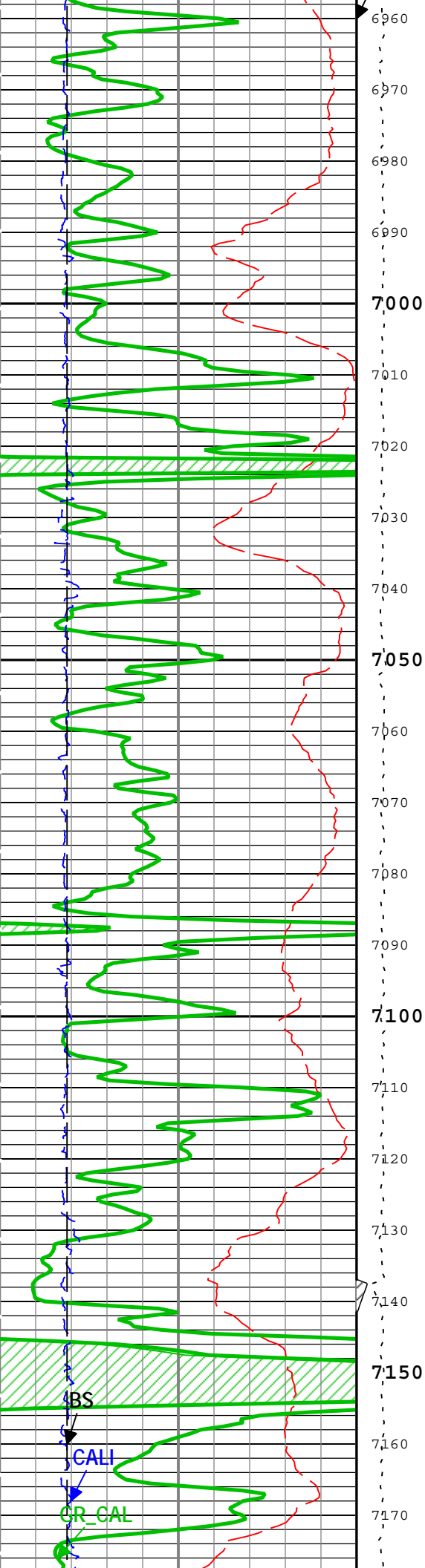


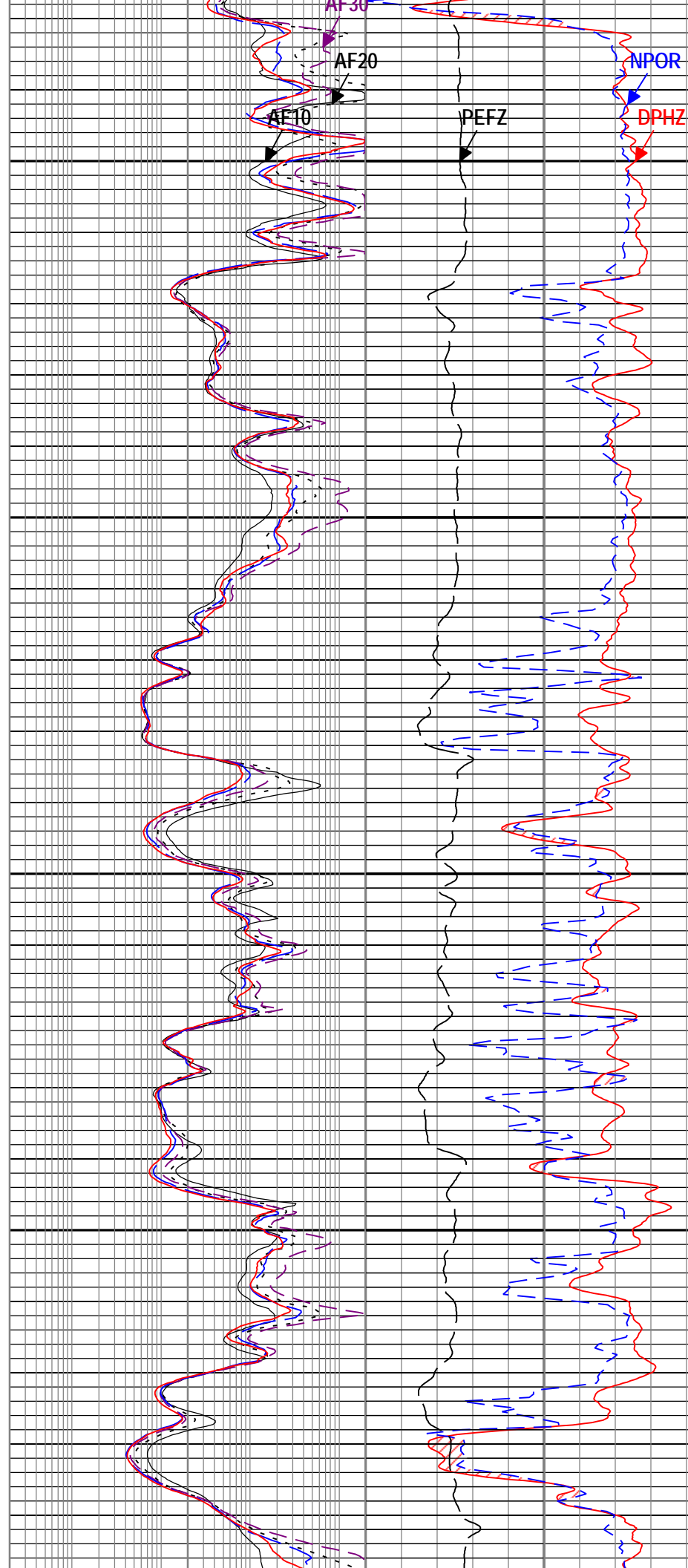
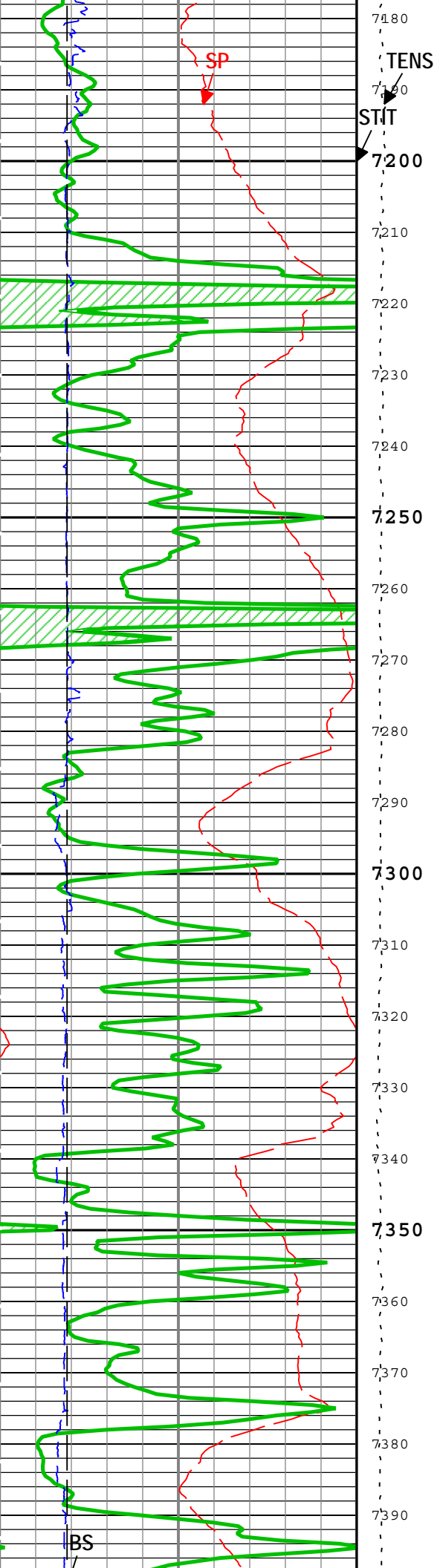


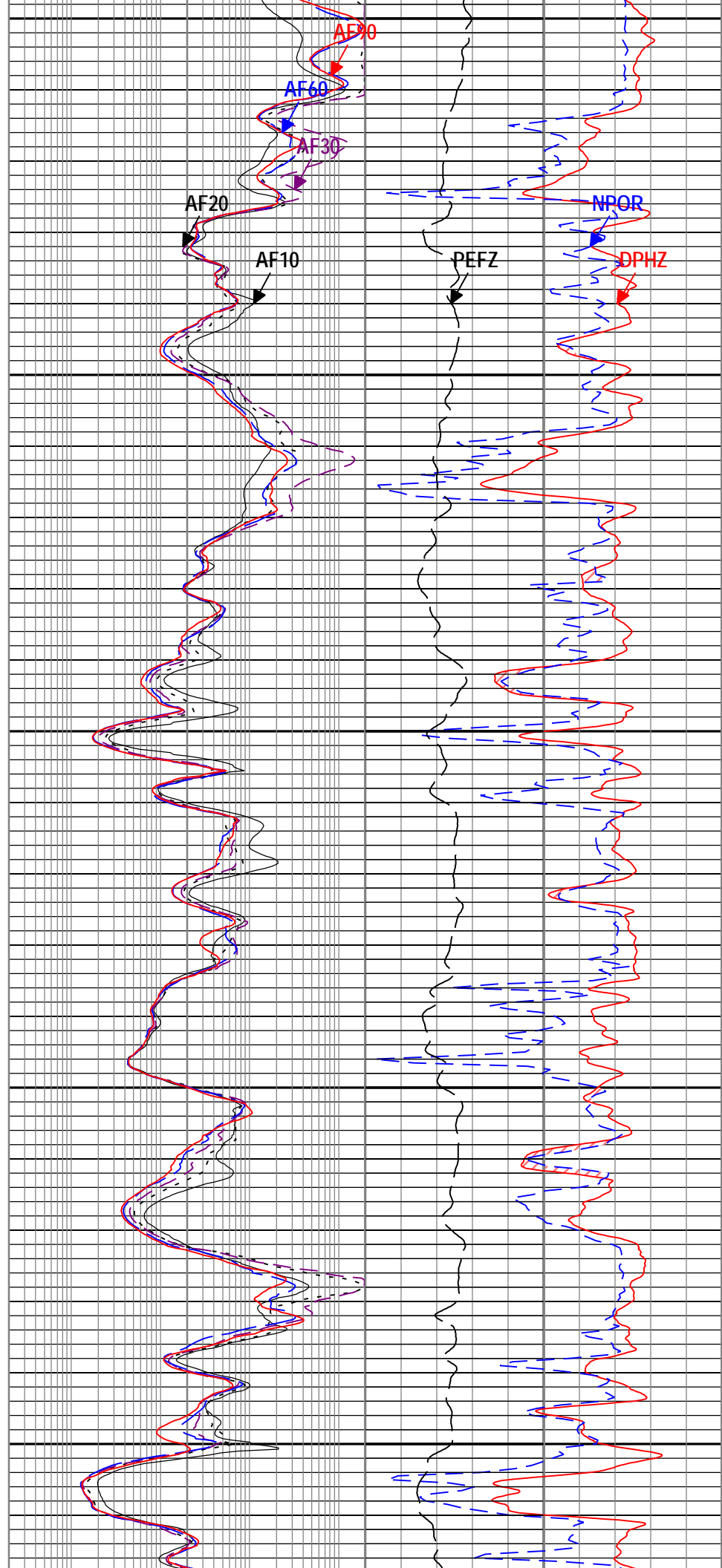
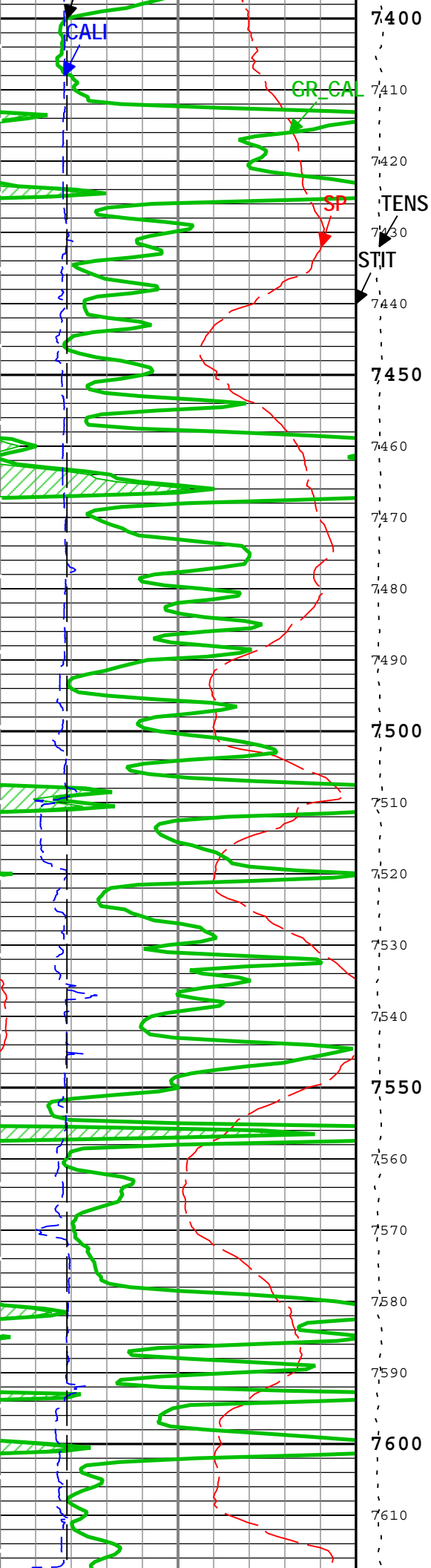


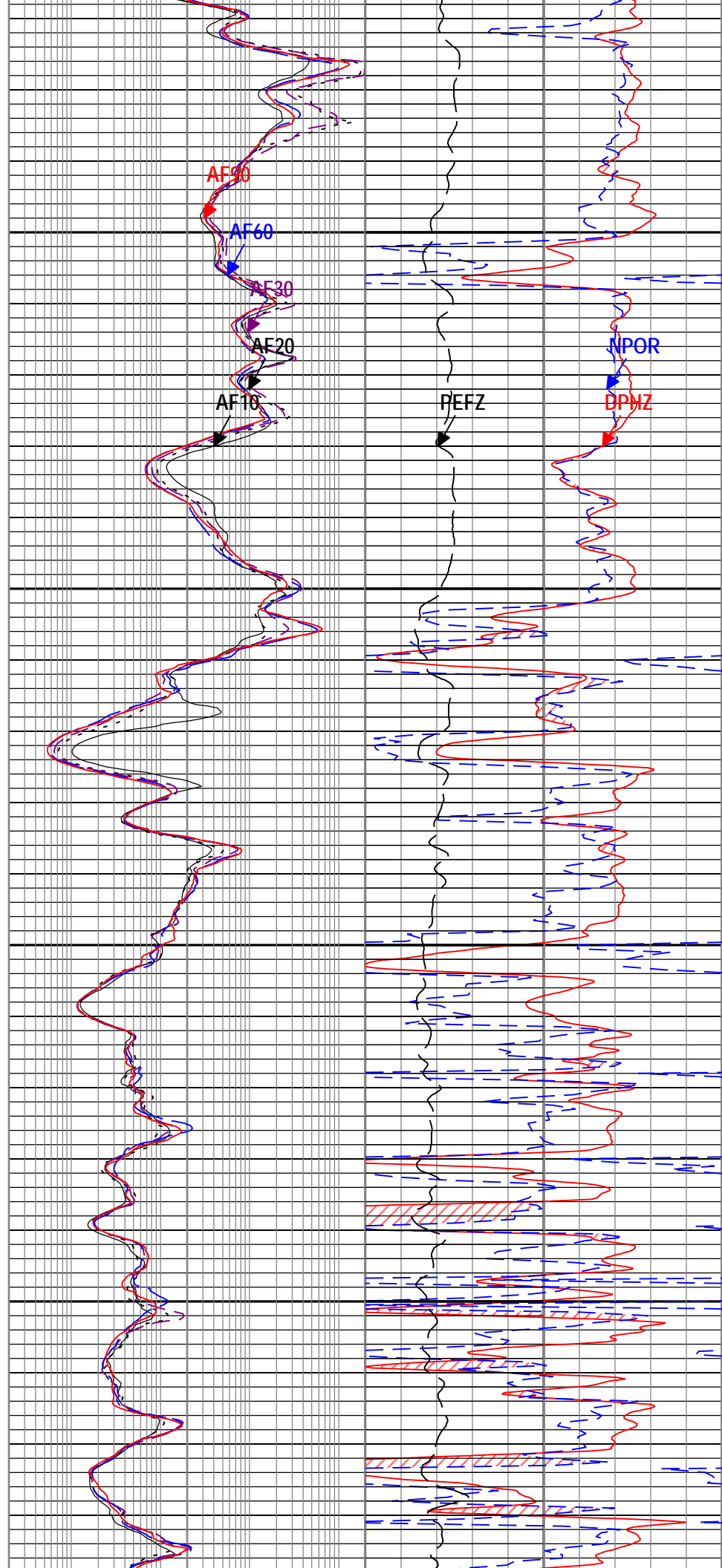
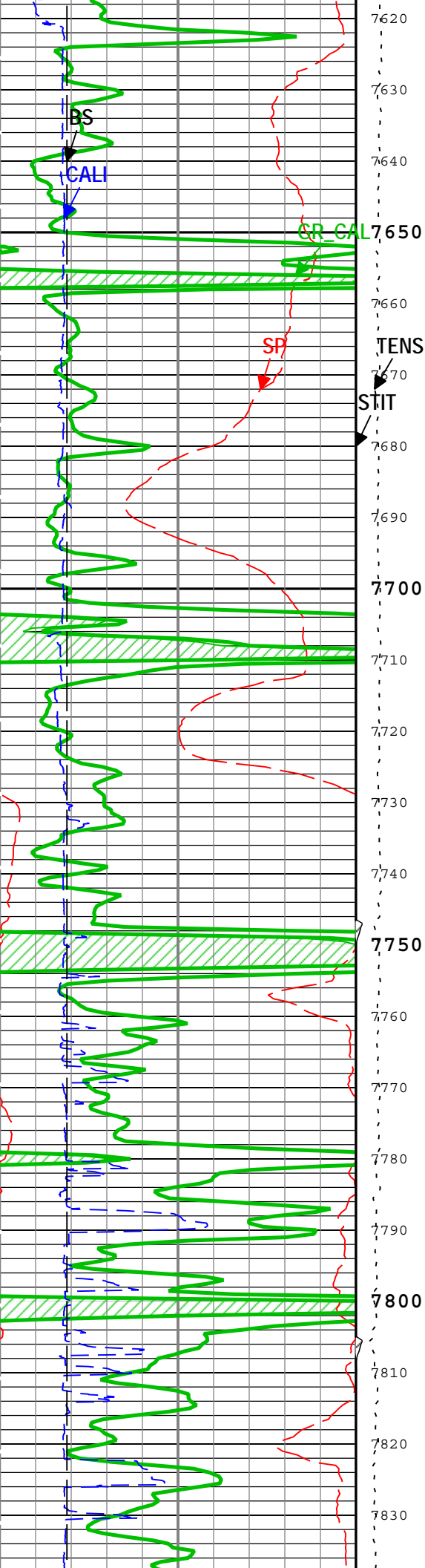




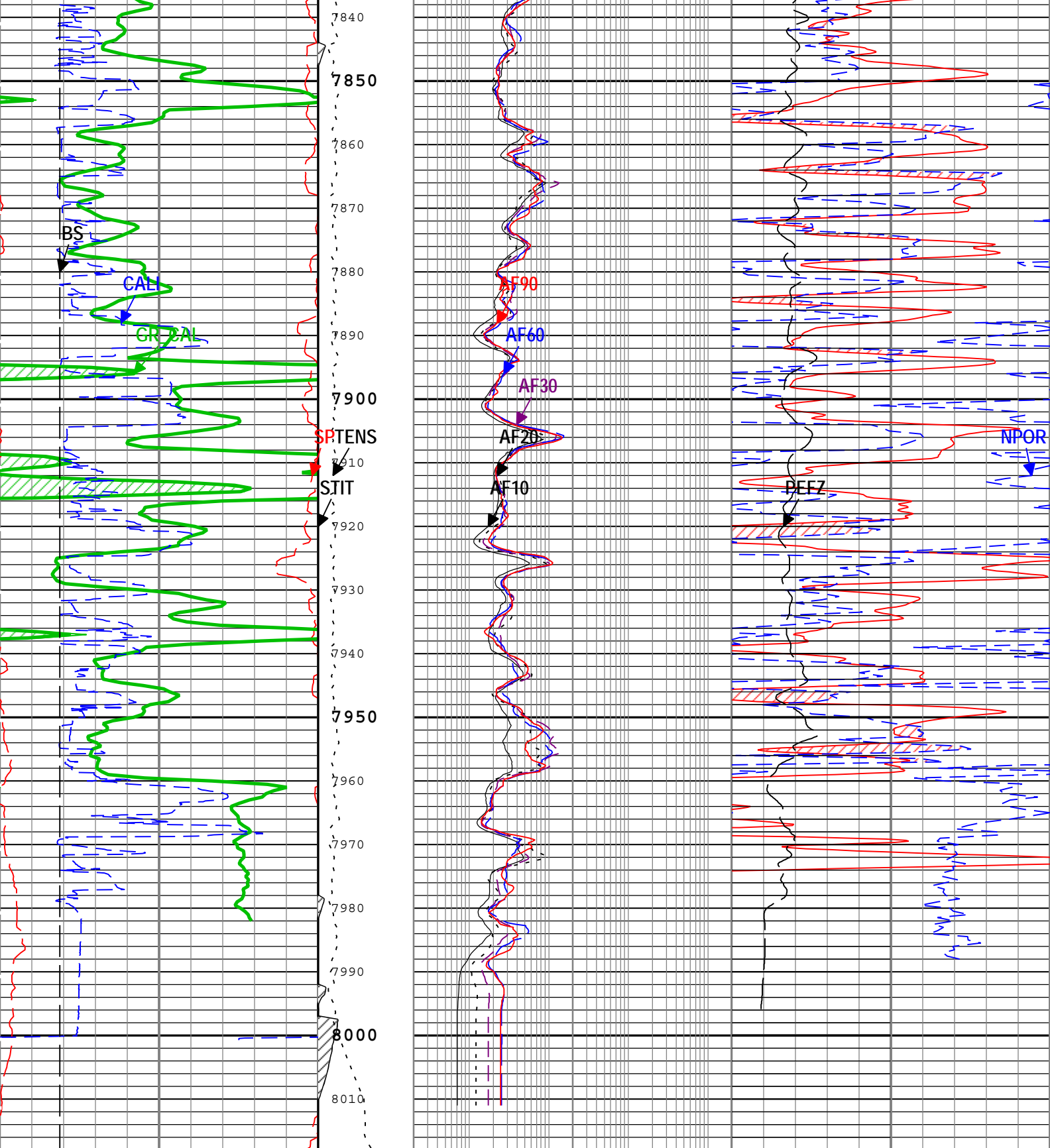












Gamma Ray Back up			Stuck Tool Indicator, Total (STIT)	Array Induction Four Foot Resistivity A10 (AF10) AIT-M			Gas Effect			
Spontaneous Potential (SP) AIT-M				ohm.m			NPOR Backup			
0	mV		200	0	ft	50	0.2	2000		
Calibrated Gamma Ray (GR_CAL) HGNS-H			Cable Tension (TENS)	Array Induction Four Foot Resistivity A20 (AF20) AIT-M			Standard Resolution Density Porosity (DPHZ) HDRS-H			
0	gAPI			200	ohm.m			0.3		
Caliper (CALI) HDRS-H			6000 lbf	0	Array Induction Four Foot Resistivity A30 (AF30) AIT-M			Enhanced Thermal Neutron Porosity in Selected Lithology (NPOR) HGNS-H		
6	in						ft3/ft3			-0.1

Bit Size (BS)			0.2	ohm.m	2000	0.3	m3/m3	-0.1
6	in		16	Array Induction Four Foot Resistivity A60 (AF60) AIT-M			Standard Resolution Formation Photoelectric Factor (PEFZ) HDRS-H	
			0.2	ohm.m	2000	010		
			Array Induction Four Foot Resistivity A90 (AF90) AIT-M					
			0.2	ohm.m	2000			

TIME\_1900 - Time Marked every 60.00 (s)

Description: HGNS standard resolution porosities for Platform Express

Format: Log ( EMD 5in Triple Combo )

Index Scale: 5 in per 100 ft

Index Unit: ft

Index Type: Measured Depth

Creation Date: 09-Dec-2014 08:01:45

Channel Processing 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	1.125	in
BARI	Barite Mud Presence Flag	Borehole	No	
BHS	Borehole Status (Open or Cased Hole)	Borehole	Open	
BHT	Bottom Hole Temperature	Borehole	174.4	degF
BS	Bit Size	WLSESSION	7.875	in
BSAL	Borehole Salinity	Borehole	1700	ppm
CALI_SHIFT	CALI Supplementary Offset	HDRS-H	0	in
CBLO	Casing Bottom (Logger)	WLSESSION	544.75	ft
CDEN	Cement Density	HGNS-H	2	g/cm3
DC_MODE	Depth Correction Mode	DepthCorrection	Real-time	
DFD	Drilling Fluid Density	Borehole	9	lbm/gal
DFT	Drilling Fluid Type	Borehole	Water	
DFT_WATER	Drilling Fluid Water Type	Borehole	WBM	
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	0.69	ohm.m
SPDR	SP Drift Per Foot	AIT-M	0	mV/ft
TD	Total Measured Depth	Borehole	7998	ft
Tool Control 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	840	ft/h
ONE				



5" Triple Combo

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
ONE	Repeat[3]:Up	Up	7468.04 ft	8016.60 ft	08-Dec-2014 11:41:56 PM	08-Dec-2014 11:53:37 PM	ON	7.48 ft	No
ONE	Main[4]:Up	Up	66.10 ft	8019.08 ft	09-Dec-2014 12:26:30 AM	09-Dec-2014 6:56:36 AM	ON	0.97 ft	No

All depths are referenced to toolstring zero

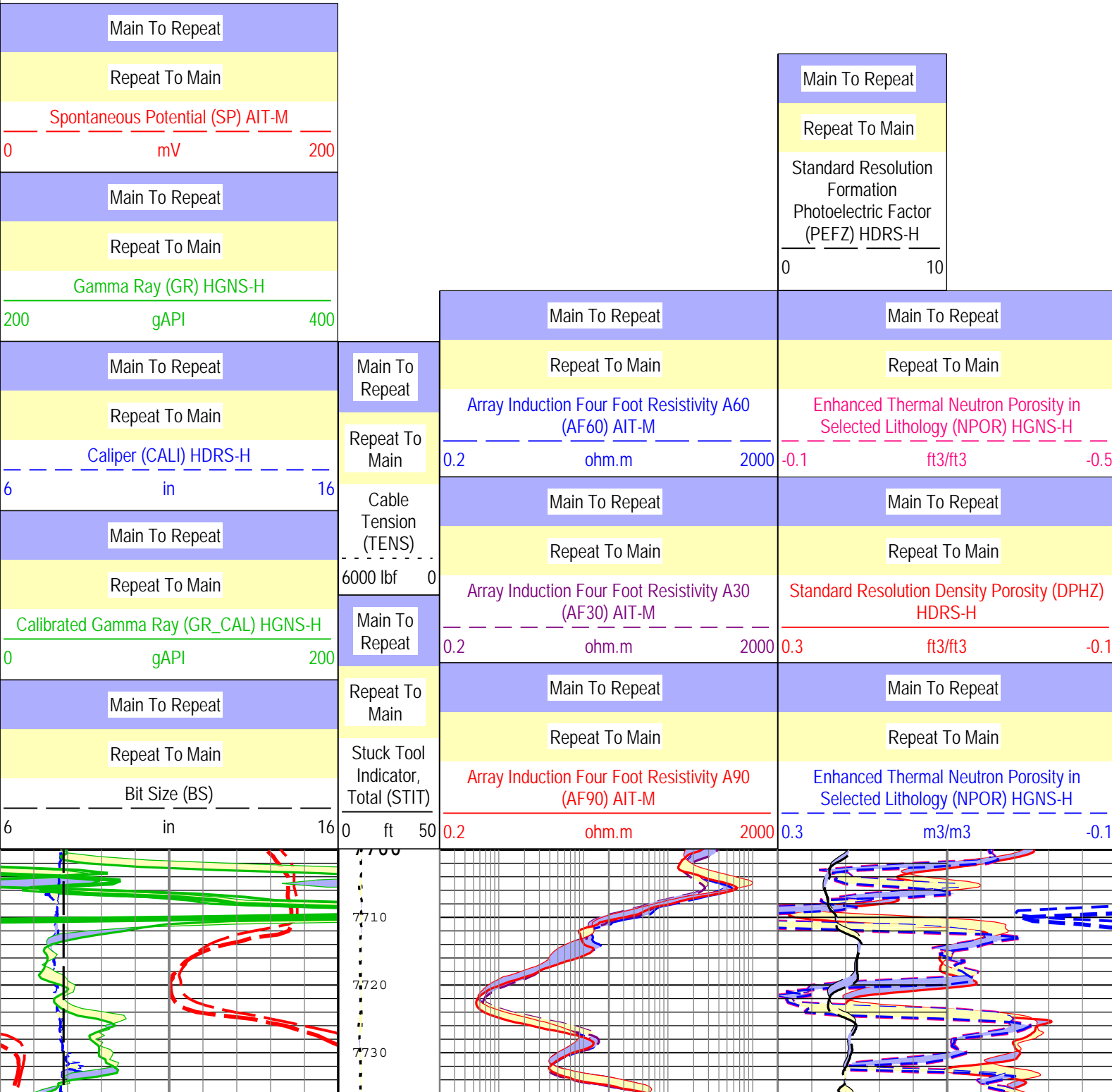
Log

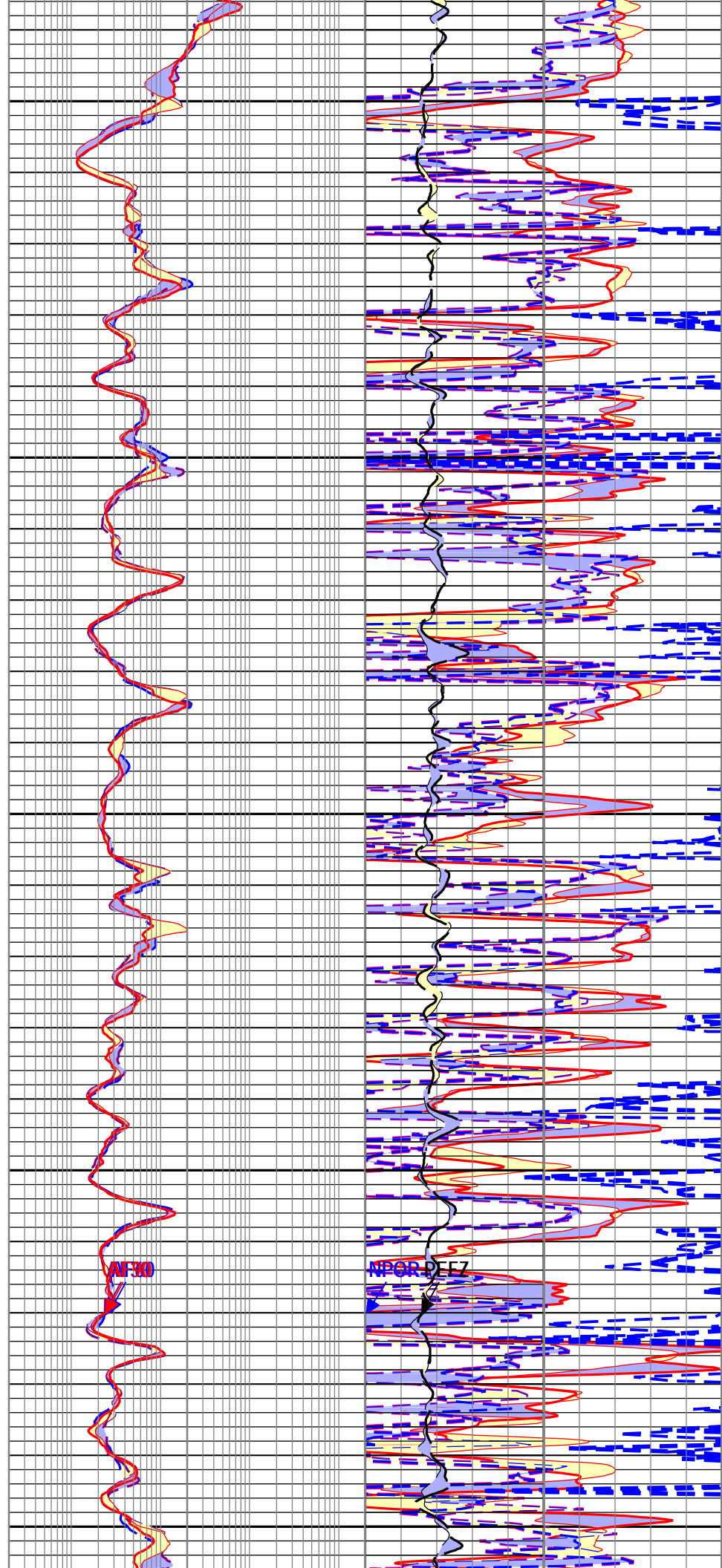
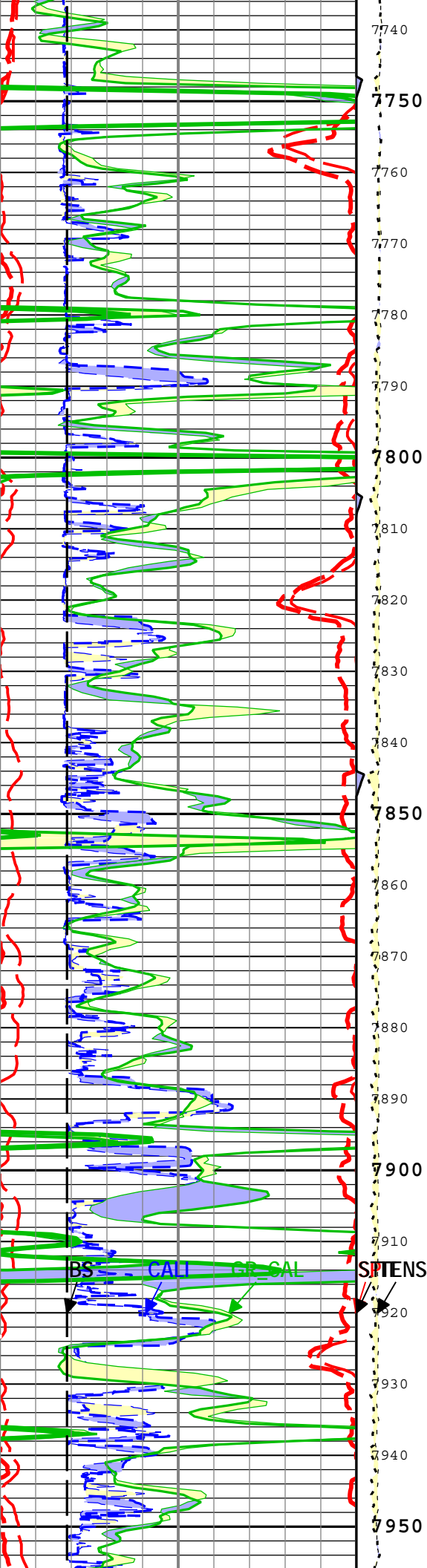
Company:Cascade Petroleum      Well:Gaede 9S-55W-08-12

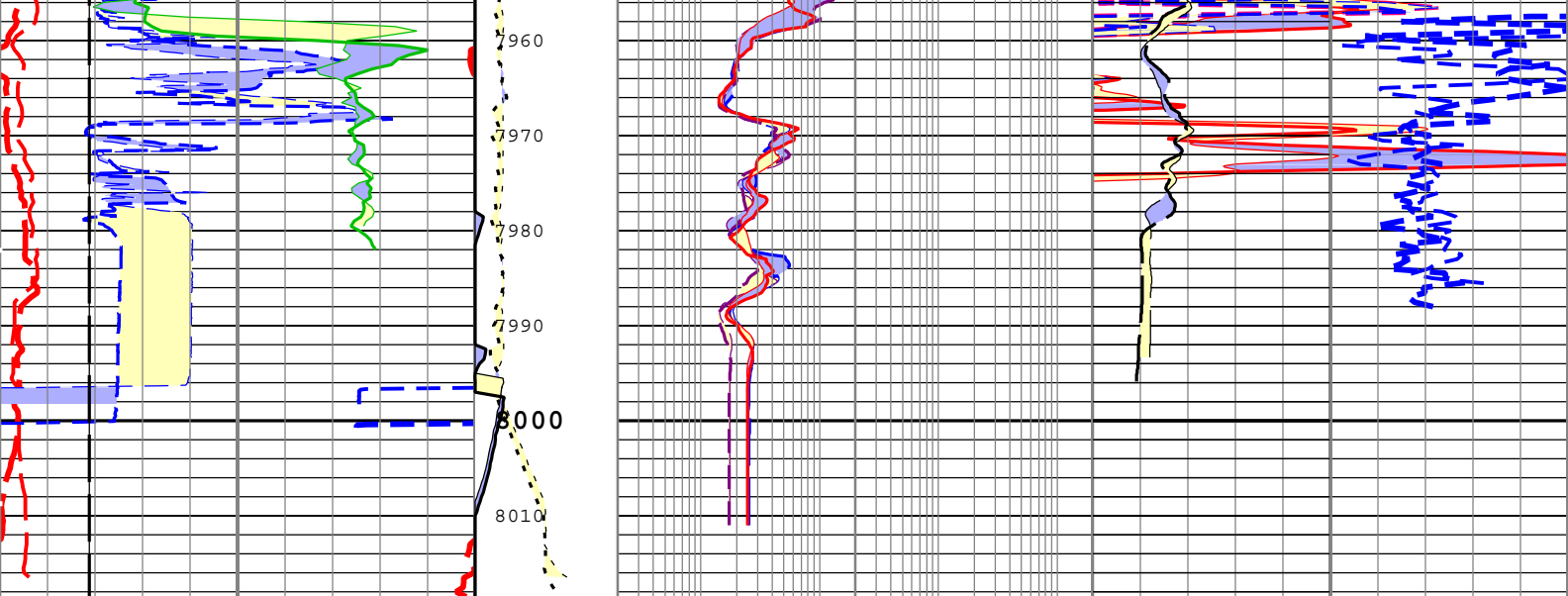
ONE: Repeat[3]:Up:S006

Description: HGNS standard resolution porosities for Platform Express    Format: Log ( EMD 5in Triple Combo RA )    Index Scale: 5 in per 100 ft    Index Unit: ft  
Index Type: Measured Depth    Creation Date: 09-Dec-2014 08:01:48

TIME\_1900 - Time Marked every 60.00 (s)







Main To Repeat	Main To Repeat	Main To Repeat	Main To Repeat
Repeat To Main	Repeat To Main	Repeat To Main	Repeat To Main
Spontaneous Potential (SP) AIT-M	Array Induction Four Foot Resistivity A60 (AF60) AIT-M	Enhanced Thermal Neutron Porosity in Selected Lithology (NPOR) HGNS-H	
0 mV 200	0.2 ohm.m 2000	-0.1 ft3/ft3 -0.5	
Main To Repeat	Main To Repeat	Main To Repeat	
Repeat To Main	Repeat To Main	Repeat To Main	
Gamma Ray (GR) HGNS-H	Array Induction Four Foot Resistivity A30 (AF30) AIT-M	Standard Resolution Density Porosity (DPHZ) HDRS-H	
200 gAPI 400	0.2 ohm.m 2000	0.3 ft3/ft3 -0.1	
Main To Repeat	Main To Repeat	Main To Repeat	
Repeat To Main	Repeat To Main	Repeat To Main	
Caliper (CALI) HDRS-H	Array Induction Four Foot Resistivity A90 (AF90) AIT-M	Enhanced Thermal Neutron Porosity in Selected Lithology (NPOR) HGNS-H	
6 in 16	0.2 ohm.m 2000	0.3 m3/m3 -0.1	
Main To Repeat		Main To Repeat	
Repeat To Main		Repeat To Main	
Calibrated Gamma Ray (GR_CAL) HGNS-H		Standard Resolution Formation Photoelectric Factor (PEFZ) HDRS-H	
0 gAPI 200		0 10	
Main To Repeat			
Repeat To Main			
Bit Size (BS)			
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 RA ) Index Scale: 5 in per 100 ft Index Unit: ft  
Index Type: Measured Depth Creation Date: 09-Dec-2014 08:01:48

## 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):		23:01:59 22-Sep-2014							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div></div>		
Test Loop Gain - 0		Master	1.000	0.950	1.041	1.050	<div></div>		
Test Loop Phase - 0	deg	Master	0	-3.000	1.805	3.000	<div></div>		
Test Loop Gain - 1		Master	1.000	0.950	1.017	1.050	<div></div>		
Test Loop Phase - 1	deg	Master	0	-3.000	0.902	3.000	<div></div>		
Test Loop Gain - 2		Master	1.000	0.950	1.017	1.050	<div></div>		
Test Loop Phase - 2	deg	Master	0	-3.000	0.392	3.000	<div></div>		
Test Loop Gain - 3		Master	1.000	0.950	1.016	1.050	<div></div>		
Test Loop Phase - 3	deg	Master	0	-3.000	0.089	3.000	<div></div>		
Test Loop Gain - 4		Master	1.000	0.950	1.009	1.050	<div></div>		
Test Loop Phase - 4	deg	Master	0	-3.000	0.141	3.000	<div></div>		
Test Loop Gain - 5		Master	1.000	0.950	0.991	1.050	<div></div>		
Test Loop Phase - 5	deg	Master	0	-3.000	-0.110	3.000	<div></div>		
Test Loop Gain - 6		Master	1.000	0.950	0.998	1.050	<div></div>		
Test Loop Phase - 6	deg	Master	0	-3.000	0.235	3.000	<div></div>		
Test Loop Gain - 7		Master	1.000	0.950	1.010	1.050	<div></div>		
Test Loop Phase - 7	deg	Master	0	-3.000	-0.080	3.000	<div></div>		
AIT Sonde Calibration - Sonde Error Correction									
Master (EEPROM):		23:01:59 22-Sep-2014							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div></div>		
Sonde Error Correction Real - 0	mS/m	Master	----	-231.000	-113.093	119.000	<div></div>		
Sonde Error Correction Quad - 0		Master	----	-2250.000	114.931	2250.000	<div></div>		
Sonde Error Correction Real - 1	mS/m	Master	----	114.000	157.599	204.000	<div></div>		
Sonde Error Correction Quad - 1		Master	----	-625.000	-170.942	625.000	<div></div>		
Sonde Error Correction Real - 2	mS/m	Master	----	66.000	115.105	156.000	<div></div>		
Sonde Error Correction Quad - 2		Master	----	-350.000	-99.364	350.000	<div></div>		
Sonde Error Correction Real - 3	mS/m	Master	----	39.000	49.447	89.000	<div></div>		
Sonde Error Correction Quad - 3		Master	----	-250.000	2.279	250.000	<div></div>		
Sonde Error Correction Real - 4	mS/m	Master	----	15.000	26.217	35.000	<div></div>		
Sonde Error Correction Quad - 4		Master	----	-63.000	-3.708	63.000	<div></div>		
Sonde Error Correction Real - 5	mS/m	Master	----	4.000	10.870	24.000	<div></div>		
Sonde Error Correction Quad - 5		Master	----	-50.000	21.802	50.000	<div></div>		
Sonde Error Correction Real - 6	mS/m	Master	----	5.000	9.914	15.000	<div></div>		
Sonde Error Correction Quad - 6		Master	----	-30.000	2.857	30.000	<div></div>		
Sonde Error Correction Real - 7	mS/m	Master	----	-5.000	-1.286	5.000	<div></div>		
Sonde Error Correction Quad - 7		Master	----	-30.000	1.530	30.000	<div></div>		
AIT Mud Calibration - Mud Calibration Gain									
Master (EEPROM):		23:01:59 22-Sep-2014							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div></div>		
Coarse Gain		Master	1.000	0.800	0.914	1.200	<div></div>		
Fine Gain		Master	1.000	0.800	0.910	1.200	<div></div>		
AIT Electronics Check - Thru Calibration Check									
Master (EEPROM):		23:01:59 22-Sep-2014			Before (Measured):		14:31:11 07-Dec-2014		
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div></div>		
Thru Cal Mag - 0	V	Master	----	0.366	0.575	0.854	<div></div>		
		Before	----	0.366	0.575	0.854	<div></div>		
		Before-Master	----	----	0.000	----	<div></div>		
Thru Cal Phase - 0	deg	Master	----	137.000	-168.869	-103.000	<div></div>		
		Before	----	137.000	-166.517	-103.000	<div></div>		
		Before-Master	----	----	2.352	----	<div></div>		
Thru Cal Mag - 1	V	Master	----	0.762	1.178	1.778	<div></div>		
		Before	----	0.762	1.178	1.778	<div></div>		
		Before-Master	----	----	0.000	----	<div></div>		
Thru Cal Phase - 1	deg	Master	----	136.000	-169.968	-104.000	<div></div>		
		Before	----	136.000	-167.617	-104.000	<div></div>		
		Before-Master	----	----	2.351	----	<div></div>		
Thru Cal Mag - 2	V	Master	----	0.372	0.585	0.868	<div></div>		
		Before	----	0.372	0.585	0.868	<div></div>		
		Before-Master	----	----	0.000	----	<div></div>		

Thru Cal Phase - 2	deg	Master Before Before-Master	----- ----- -----	132.000 132.000 -----	-173.610 -171.264 2.346	-108.000 -108.000 -----	
Thru Cal Mag - 3	V	Master Before Before-Master	----- ----- -----	0.420 0.420 -----	0.660 0.660 0.000	0.980 0.980 -----	
Thru Cal Phase - 3	deg	Master Before Before-Master	----- ----- -----	131.000 131.000 -----	-174.388 -172.041 2.347	-109.000 -109.000 -----	
Thru Cal Mag - 4	V	Master Before Before-Master	----- ----- -----	0.804 0.804 -----	1.233 1.233 0.000	1.876 1.876 -----	
Thru Cal Phase - 4	deg	Master Before Before-Master	----- ----- -----	125.000 125.000 -----	179.345 -178.308 -357.653	-115.000 -115.000 -----	
Thru Cal Mag - 5	V	Master Before Before-Master	----- ----- -----	1.176 1.176 -----	1.795 1.795 0.000	2.744 2.744 -----	
Thru Cal Phase - 5	deg	Master Before Before-Master	----- ----- -----	122.000 122.000 -----	177.695 -179.958 -357.653	-118.000 -118.000 -----	
Thru Cal Mag - 6	V	Master Before Before-Master	----- ----- -----	1.176 1.176 -----	1.794 1.794 0.000	2.744 2.744 -----	
Thru Cal Phase - 6	deg	Master Before Before-Master	----- ----- -----	121.000 121.000 -----	177.703 -179.949 -357.652	-119.000 -119.000 -----	
Thru Cal Mag - 7	V	Master Before Before-Master	----- ----- -----	0.846 0.846 -----	1.294 1.295 0.001	1.974 1.974 -----	
Thru Cal Phase - 7	deg	Master Before Before-Master	----- ----- -----	115.000 115.000 -----	176.991 179.334 2.343	-125.000 -125.000 -----	
SPA Zero	mV	Master Before Before-Master	----- ----- -----	-50.000 -50.000 -----	0.139 0.129 -0.010	50.000 50.000 -----	
SPA Plus	mV	Master Before Before-Master	----- ----- -----	941.000 941.000 -----	992.344 992.288 -0.056	1040.000 1040.000 -----	
Temperature Zero	V	Master Before Before-Master	----- ----- -----	-0.050 -0.050 -----	0.000 0.000 0.000	0.050 0.050 -----	
Temperature Plus	V	Master Before Before-Master	----- ----- -----	0.870 0.870 -----	0.919 0.919 0.000	0.960 0.960 -----	

## HDRS-H (HILT Density and Rxo Sonde, 150 degC) Calibration - Run ONE

Primary Equipment :		
HILT High-Resolution Control Cartridge, 150 degC	HRCC-H	
HILT Resistivity Gamma-Ray Density Device, 150 degC	HRGD-H	5788
Auxiliary Equipment :		
HRDD Backscatter Detector	Backscatter	26961
HRDD Long Spacing Detector	Long Spacing	26961
HRDD Short Spacing Detector	Short Spacing	26961
Cesium 137 Gamma-Ray Logging Source	GSR-J	5416
HILT High-Resolution Control Cartridge, 150 degC	HRCC-H	
HILT High-Resolution Mechanical Sonde, 150 degC	HRMS-H	
Calibration Parameter :		
Small Ring Size (Caliper Calibration Small Ring)	8.00	
Large Ring Size (Caliper Calibration Large Ring)	12.00	

## HDRS Caliper Calibration - Caliper Accumulations

Before (Measured):		14:33:14 07-Dec-2014					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div><div></div><div></div></div>
Small Ring	in	Before	8.00	6.00	7.51	10.00	<div><div></div><div></div><div></div></div>
Large Ring	in	Before	12.00	9.00	11.76	15.00	<div><div></div><div></div><div></div></div>
HDRS Density Calibration - Inversion Results							
Master (EEPROM):		20:27:56 23-Nov-2014					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div><div></div><div></div></div>
Rho Aluminum	g/cm3	Master	2.596	2.586	2.601	2.606	<div><div></div><div></div><div></div></div>
Rho Magnesium	g/cm3	Master	1.686	1.676	1.687	1.696	<div><div></div><div></div><div></div></div>
Pe Aluminum		Master	2.570	2.470	2.551	2.670	<div><div></div><div></div><div></div></div>
Pe Magnesium		Master	2.650	2.550	2.618	2.750	<div><div></div><div></div><div></div></div>
HDRS Density Calibration - Deviation Summary							
Master (EEPROM):		20:27:56 23-Nov-2014					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div><div></div><div></div></div>
BS Average Deviation	%	Master	0	-0.6000	0.5423	0.6000	<div><div></div><div></div><div></div></div>
BS Max Deviation	%	Master	0	-1.6000	1.2077	1.6000	<div><div></div><div></div><div></div></div>
SS Average Deviation	%	Master	0	-1.0000	0.3823	1.0000	<div><div></div><div></div><div></div></div>
SS Max Deviation	%	Master	0	-2.5000	1.8875	2.5000	<div><div></div><div></div><div></div></div>
LS Average Deviation	%	Master	0	-1.5000	0.6426	1.5000	<div><div></div><div></div><div></div></div>
LS Max Deviation	%	Master	0	-3.5000	1.9918	3.5000	<div><div></div><div></div><div></div></div>
HDRS Density Calibration - Background Summary							
Master (EEPROM):		20:27:56 23-Nov-2014		Before (Measured):		14:39:03 07-Dec-2014	
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div><div></div><div></div></div>
BS Window Ratio		Master	1.0000		0.7470		<div><div></div><div></div></div>
		Before	0.7470	0.7097	0.7478	0.7844	<div><div></div><div></div><div></div></div>
		Before-Master	-----	-----	0.0008	-----	<div><div></div><div></div><div></div></div>
BS Window Sum	1/s	Master	1		24968		<div><div></div><div></div></div>
		Before	24968	23719	24944	26216	<div><div></div><div></div><div></div></div>
		Before-Master	-----	-----	-24	-----	<div><div></div><div></div><div></div></div>
SS Window Ratio		Master	1.0000		0.4888		<div><div></div><div></div></div>
		Before	0.4888	0.4644	0.4906	0.5133	<div><div></div><div></div><div></div></div>
		Before-Master	-----	-----	0.0018	-----	<div><div></div><div></div><div></div></div>
SS Window Sum	1/s	Master	1		11963		<div><div></div><div></div></div>
		Before	11963	11365	11907	12562	<div><div></div><div></div><div></div></div>
		Before-Master	-----	-----	-56	-----	<div><div></div><div></div><div></div></div>
LS Window Ratio		Master	1.0000		0.2999		<div><div></div><div></div></div>
		Before	0.2999	0.2850	0.3017	0.3149	<div><div></div><div></div><div></div></div>
		Before-Master	-----	-----	0.0018	-----	<div><div></div><div></div><div></div></div>
LS Window Sum	1/s	Master	1		1352		<div><div></div><div></div></div>
		Before	1352	1285	1342	1420	<div><div></div><div></div><div></div></div>
		Before-Master	-----	-----	-10	-----	<div><div></div><div></div><div></div></div>
HDRS Density Calibration - Photo-multiplier High Voltages							
Master (EEPROM):		20:27:56 23-Nov-2014		Before (Measured):		14:39:03 07-Dec-2014	
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div><div></div><div></div></div>
BS PM High Voltage	V	Master		1000	1521	2400	<div><div></div><div></div><div></div></div>
		Before		1000	1514	2400	<div><div></div><div></div><div></div></div>
		Before-Master	-----	-100	-7	100	<div><div></div><div></div><div></div></div>
SS PM High Voltage	V	Master		1000	1897	2400	<div><div></div><div></div><div></div></div>
		Before		1000	1896	2400	<div><div></div><div></div><div></div></div>
		Before-Master	-----	-100	-1	100	<div><div></div><div></div><div></div></div>
LS PM High Voltage	V	Master		1000	1263	2400	<div><div></div><div></div><div></div></div>
		Before		1000	1266	2400	<div><div></div><div></div><div></div></div>
		Before-Master	-----	-100	3	100	<div><div></div><div></div><div></div></div>
HDRS Density Calibration - Crystal Quality Resolutions							
Master (EEPROM):		20:27:56 23-Nov-2014		Before (Measured):		14:39:03 07-Dec-2014	
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div><div></div><div></div></div>
BS Crystal Resolution	%	Master		5.00	10.97	25.00	<div><div></div><div></div><div></div></div>
		Before		5.00	10.87	25.00	<div><div></div><div></div><div></div></div>
		Before-Master	-----	-1.00	-0.10	1.00	<div><div></div><div></div><div></div></div>
SS Crystal Resolution	%	Master		5.00	9.79	20.00	<div><div></div><div></div><div></div></div>
		Before		5.00	9.82	20.00	<div><div></div><div></div><div></div></div>
		Before-Master	-----	-1.00	0.03	1.00	<div><div></div><div></div><div></div></div>
LS Crystal Resolution	%	Master		5.00	8.36	20.00	<div><div></div><div></div><div></div></div>



		Before		5.00	8.34	20.00	
		Before-Master	-----	-1.00	-0.02	1.00	

## HDRS MCFL Calibration - MCFL Accumulations

Before (Measured):		14:26:09 07-Dec-2014					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Main Resistivity	ohm.m	Before	3875	3565	3889	4185	
Deep Resistivity	ohm.m	Before	3830	3524	3824	4136	
Shallow Resistivity	ohm.m	Before	3830	3524	3849	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					
Auxiliary Equipment :		HGNS Accelerometer, 150 degC					
		HACCZ-H					
		3616					
		AmBe Neutron Logging Source					
		NSR-F					
		5068					
Calibration Parameter :		Water Temperature					
		Housing Size					
		JIG-BKG (Jig minus background reference)					
		165					

## HGNS Accelerometer Calibration - Accelerometer Accumulations

Before (Measured):		19:27:46 07-Dec-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-Feb-2005					
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	-----	-----	-2323.000	-----	
Accelerometer Coefficients - 1		Master	-----	-----	2.895	-----	
Accelerometer Coefficients - 2		Master	-----	-----	0.001	-----	
Accelerometer Coefficients - 3		Master	-----	-----	0.000	-----	
Accelerometer Coefficients - 4		Master	-----	-----	2.764	-----	
Accelerometer Coefficients - 5		Master	-----	-----	0.000	-----	
Accelerometer Coefficients - 6		Master	-----	-----	0.000	-----	
Accelerometer Coefficients - 7		Master	-----	-----	0.000	-----	
Accelerometer Coefficients - 8		Master	-----	-----	298.500	-----	
Accelerometer Coefficients - 9		Master	-----	-----	1.009	-----	

## HGNS Neutron Calibration - HGNS Neutron Accumulations

Master (EEPROM):		11:12:08 15-Sep-2014		Before (Measured):		14:32:11 07-Dec-2014	
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Near Zero Measurement	1/s	Master	0	5.0	27.2	40.0	
		Before	0	5.0	27.2	40.0	
		Before-Master	-----	-4.1	0.0	4.1	
Far Zero Measurement	1/s	Master	0	5.0	28.9	40.0	
		Before	0	5.0	26.9	40.0	
		Before-Master	-----	-4.3	-2.0	4.3	
Near Plus Measurement	1/s	Master	6031.0	4700.0	5322.0	6900.0	
		Before	-----	-----	-----	-----	
		Before-Master	-----	-----	-----	-----	
Far Plus Measurement	1/s	Master	2793.0	1900.0	2280.0	2900.0	
		Before	-----	-----	-----	-----	
		Before-Master	-----	-----	-----	-----	
Near Corrected Plus Measurement	1/s	Master		4700.0	5351.0	6900.0	
		Before	-----	-----	-----	-----	
		Before-Master	-----	-----	-----	-----	
Far Corrected Plus Measurement	1/s	Master		1900.0	2289.0	2900.0	
		Before	-----	-----	-----	-----	
		Before-Master	-----	-----	-----	-----	

HGNS Gamma-Ray Calibration - Gamma-Ray Accumulations							
Before (Measured):		14:31:24 07-Dec-2014					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
RGR Zero Measurement	gAPI	Before	30.0	0	74.4	120.0	
RGR Plus Measurement	gAPI	Before	185.4	157.1	174.3	206.3	
GR Calibration Gain		Before	0.89	0.80	0.95	1.05	
CMRT-B (Combinable Magnetic Resonance Tool - BA/BB/VA/BAH) Calibration - Run ONE							
Primary Equipment :							
CMRT Normal Pressure Sonde		CMRS		2			
Auxiliary Equipment :							
CMRT Cartridge Element 30kpsi		CMRC		156			
CMRT Water Bottle Calibration - Water Bottle Calibration							
Master (EEPROM):		12:30:00 07-Dec-2014		Before (Measured):		21:29:48 02-Dec-2014	
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Reciprocal of the MC Amplitude Corrected to 25 degC		Master	0.030	0.020	0.032	0.040	
		Before	0.030	0.020	0.031	0.040	
		Before-Master	----	----	-0.001	----	
Test Loop Amplitude During MC		Master	2350.000	1500.000	2529.760	3200.000	
		Before	2350.000	1500.000	2520.324	3200.000	
		Before-Master	----	----	-9.436	----	
Oper Freq During MC	kHz	Master	2240.000	2130.000	2163.000	2350.000	
		Before	2240.000	2130.000	2173.241	2350.000	
		Before-Master	----	----	10.241	----	
Sonde Temp During MC	degF	Master	80.600	50.000	60.940	111.200	
		Before	80.600	50.000	65.100	111.200	
		Before-Master	----	----	4.160	----	
Noise Per Echo - 0	ft3/ft3	Master	----	----	----	----	
		Before	0.100	0	0.045	0.200	
		Before-Master	----	----	----	----	
Signal-to-Noise Ratio for MC - 0		Master	----	----	----	----	
		Before	675.000	350.000	709.566	1000.000	
		Before-Master	----	----	----	----	
Log Mean of the T2 Dist - 0	ms	Master	----	----	----	----	
		Before	52.500	45.000	59.925	60.000	
		Before-Master	----	----	----	----	



Company:	Cascade Petroleum	Schlumberger
Well:	Gaede 9S-55W-08-12	
Field:	Wildcat	
County:	Lincoln	
State:	Colorado	
Platform Express		
Triple Combo		
with Induction		