

Company: Cascade Petroleum LLC

Well: Gaede A9S-55W-05-85

Field: Wildcat

County: Lincoln State: Colorado

Platform Express

Triple Combo

County:	Lincoln
Field:	Wildcat
Location:	SHL: 197' FSL & 1773' FWL
Well:	Gaede A9S-55W-05-85
Company:	Cascade Petroleum LLC
Location:	
SHL: 197' FSL & 1773' FWL	Elev.: K.B. 5606.00 ft G.L. 5591.00 ft D.F. 5605.00 ft
Permanent Datum:	Ground Level
Log Measured From:	Kelly Bushing
Drilling Measured From:	Kelly Bushing
API Serial No. 05-073-06669	Section: 5
	Township: 9S
	Range: 55W

Logging Date	24-Nov-2014
Run Number	One
Depth Driller	7990.00 ft
Schlumberger Depth	7999.00 ft
Bottom Log Interval	7990.00 ft
Top Log Interval	545.00 ft
Casing Driller Size @ Depth	8.625 in @ 544.00 ft
Casing Schlumberger	545 ft
Bit Size	7.875 in
Type Fluid In Hole	LSND
Density	8.9 lbm/gal
Fluid Loss	PH 5.2 cm3 77 s 8.7
Source of Sample	Active Tank
RM @ Meas Temp	0.91 ohm.m @ 75 degF
RMF @ Meas Temp	0.69 ohm.m @ 75 degF
RMC @ Meas Temp	1.14 ohm.m @ 75 degF
Source RMF	RMC Calculated
RM @ BHT	0.38 @ 190 0.29 @ 190
Max Recorded Temperatures	190 degF
Circulation Stopped	24-Nov-2014 02:00:00
Logger on Bottom	24-Nov-2014 16:00:00
Unit Number	2135
Recorded By	Kevin Crow
Witnessed By	Jim Weir

Disclaimer

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Operational Run Summary

Parameter (unit)	One					
Date Log Started	24-Nov-2014					
Time Log Started	14:53:18					
Date Log Finished	24-Nov-2014					
Time Log Finished	19:32:45					
Top Log Interval (ft)	545.00					
Bottom Log Interval (ft)	7990.00					
Total Depth (ft)	7999.00					
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	Jim Weir					
Service Order Number	CAU6-00135					

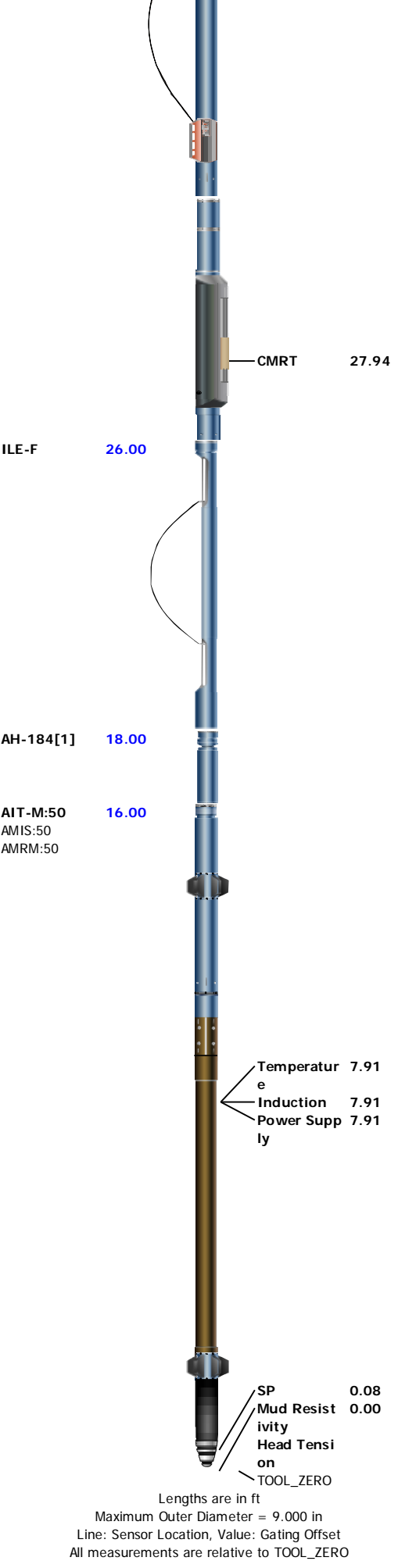
Borehole Fluids

Parameter(unit)	One					
Fluid Type	Water					
Fluid Name	LSND					
Max Recorded Temperatures (degF)	190					
Source of Sample	Active Tank					
Salinity (ppm)	0					
Density (lbm/gal)	8.9					
Funnel Viscosity (s)	77					
Fluid Loss (cm3)	5.2					
PH	8.7					
Date/Time Circulation Stopped	24-Nov-2014 02:00:00					
Date Logger on Bottom	24-Nov-2014					
Time Logger on Bottom	16:00:00					
Source RMF	Calculated					
RMC	Calculated					
RM @ Meas Temp (ohm.m@degF)	0.91 @ 75					
RMF @ Meas Temp (ohm.m@degF)	0.69 @ 75					

RMC @ Meas Temp (ohm.m@degF)	1.14 @ 75					
RM @ BHT (ohm.m@degF)	0.38 @ 190					
RMF @ BHT (ohm.m@degF)	0.29 @ 190					
RMC @ BHT (ohm.m@degF)	0.47 @ 190					
Total Solid (%)						
High Gravity Solids (%)						

Remarks and Equipment Summary

One: Toolstring				One: Remarks
Equip name	Length	MP name	Offset	Toolstring ran as per tool sketch
LEH-QT	74.65			Rig: Extreme 11
LEH-QT				AIT ran in compute standoff mode with 2 1" standoffs
EDTC-B	71.74			HGNS ran eccentered using 3 bowsprings
EDTH-B				Matrix=Limestone, MDen=2.71 g/cc
EDTG-B				CMR ran to 7100 ft as per client request
EDTC-B				Max recorded temperature taken from HGNS tool= 190 F
		CTEM	68.24	
		ACCZ	0.00	
		HV	0.00	
		Gamma Ray	66.37	
		TelStatus	65.24	
		Temperatur	65.21	
		e		
		GR	64.49	
HGNS-H:4810	65.24			
HGNH:3912				
NPV-N				
NSR-F:5215				
HACCZ-H:5955				
HGNS-H:4810				
HMCA-H				
		CNL Porosi	58.16	
		ty		
		HGNS	55.83	
		HMCA	55.83	
		Accelerome	0.00	
		ter		
HDRS-H:3911	55.83			
ECH-MEB:3949				
HRCC-H:4923				
HRMS-H:3911				
HRGD-H:3933				
GSR-J:5094				
Long Spacing:2				
8736				
GPV-Q				
Backscatter				
Short Spacing				
		HRCC	51.83	
		MCFL	46.4	
		Caliper	45.91	
		TLD Densit	45.52	
		y		
AH-184[2]	43.59			
CMRT-B:2	41.59			
CMRC:156				
CMRH:156				
CMRS:2				

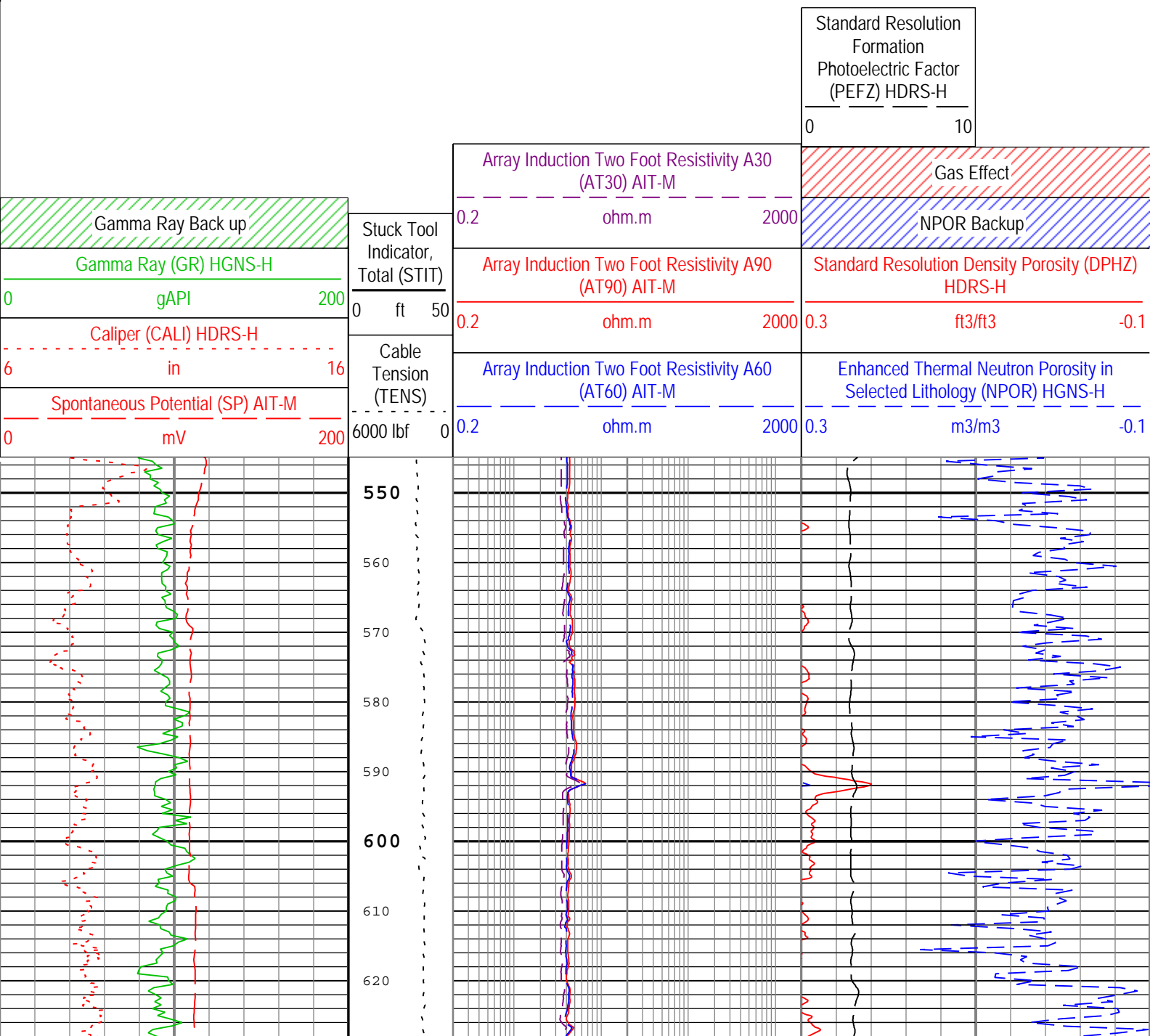


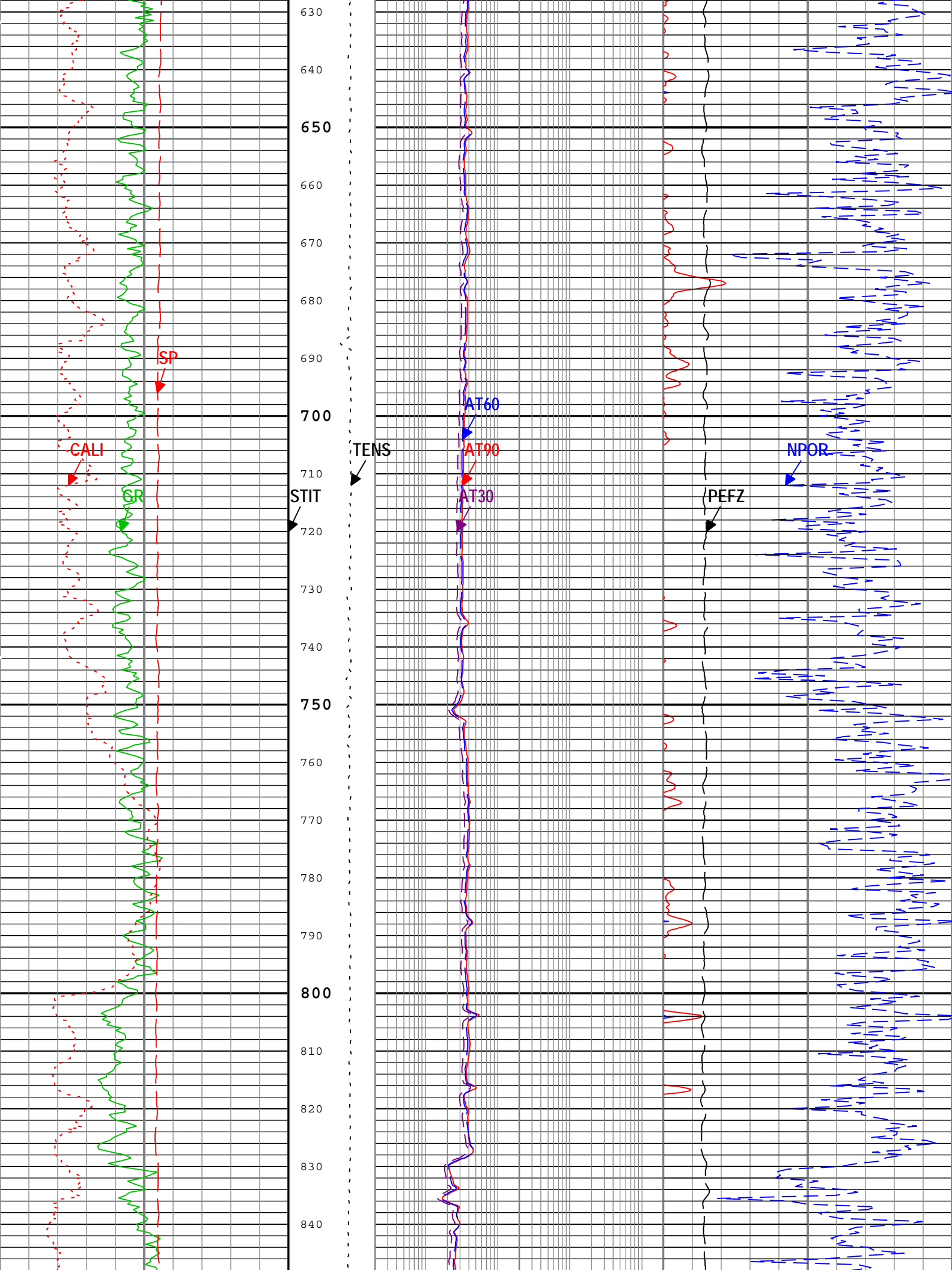
Depth Summary			
	One		

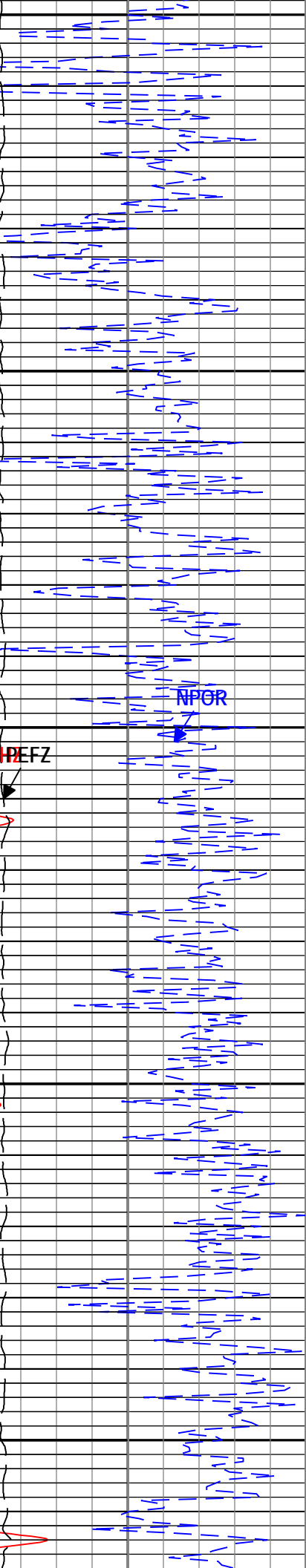
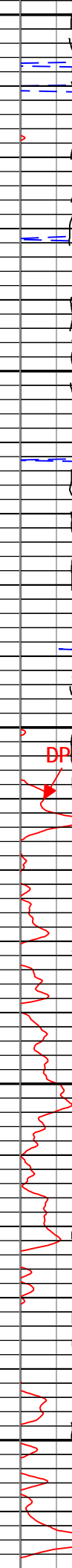
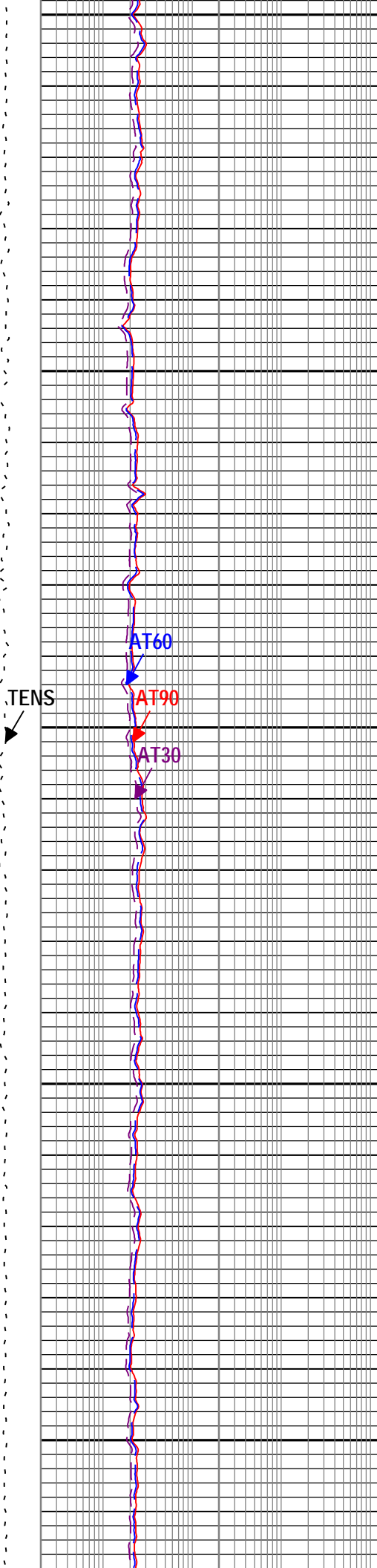
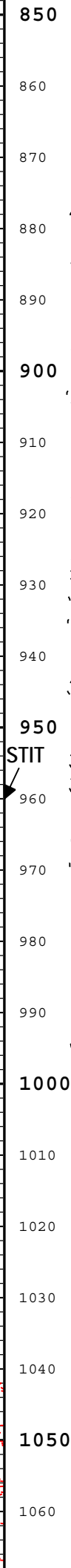
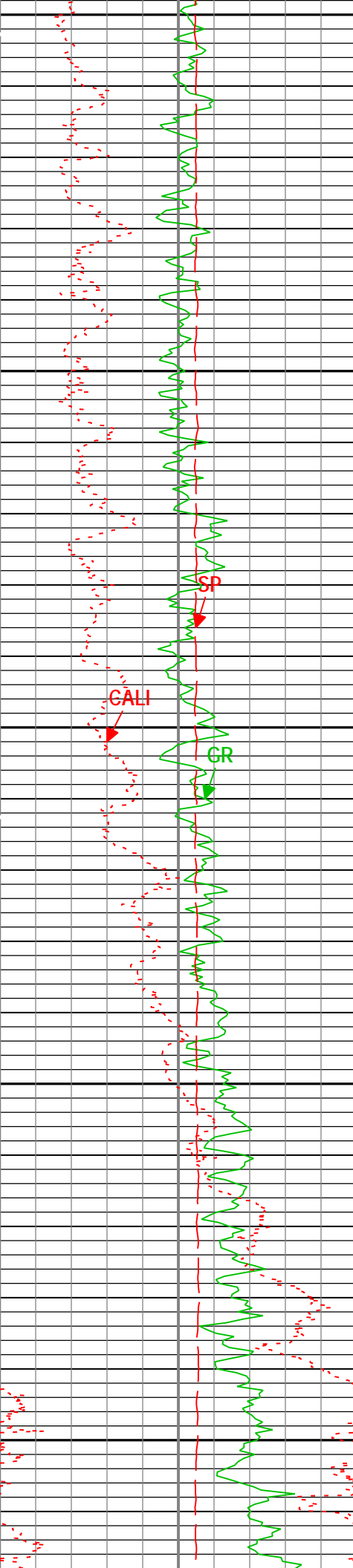
Depth Measuring Device									
Type	IDW-JA								
Serial Number	6433								
Calibration Date	23-Sep-2014								
Calibrator Serial Number									
Calibration Cable Type	7-46 AXS								
Wheel Correction 1	-3								
Wheel Correction 2	-2								
Tension Device									
Type	CMTD-B/A								
Serial Number	1919								
Calibration Date	07-Nov-2014								
Calibrator Serial Number	441345A								
Number of Calibration Points	10								
Calibration Root Mean Square Error	13								
Calibration Peak Error	24								
Logging Cable									
Type	7-46A-XS								
Serial Number									
Length	21000.00 ft								
Conveyance Type	Wireline								
Rig Type									
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									
One									
5" Triple Combo									
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		
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	
Pass Summary									
Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
One	Log[4]:Up	Up	212.90 ft	8025.49 ft	24-Nov-2014 4:33:19 PM	24-Nov-2014 7:29:38 PM	ON	12.63 ft	No
All depths are referenced to toolstring zero									
Log					Company:Cascade Petroleum LLC			Well:Gaede A9S-55W-05-85	

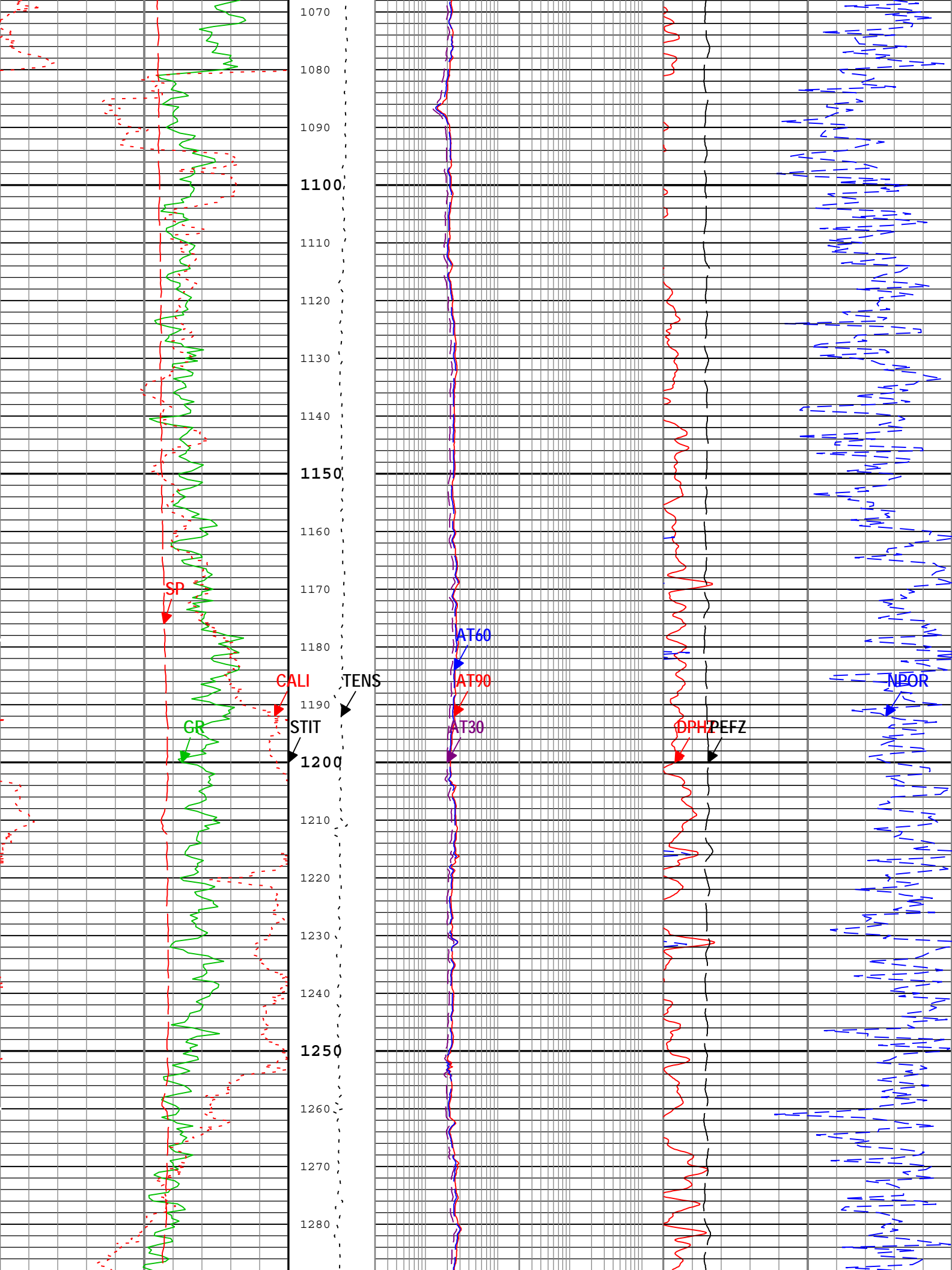
Description: HGNS standard resolution porosities for Platform Express			Format: Log (KM 5in Triple Combo)	Index Scale: 5 in per 100 ft	Index Unit: ft
Index Type: Measured Depth			Creation Date: 24-Nov-2014 19:50:03		
Channel	Source	Sampling			
AT30	AIT-M:AMIS:AMIS	3in			
AT60	AIT-M:AMIS:AMIS	3in			
AT90	AIT-M:AMIS:AMIS	3in			
CALI	HDRS-H:HRCC-H:HRCC-H	1in			
DPHZ	HDRS-H:HRMS-H:HRGD-H	2in			
GR	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			

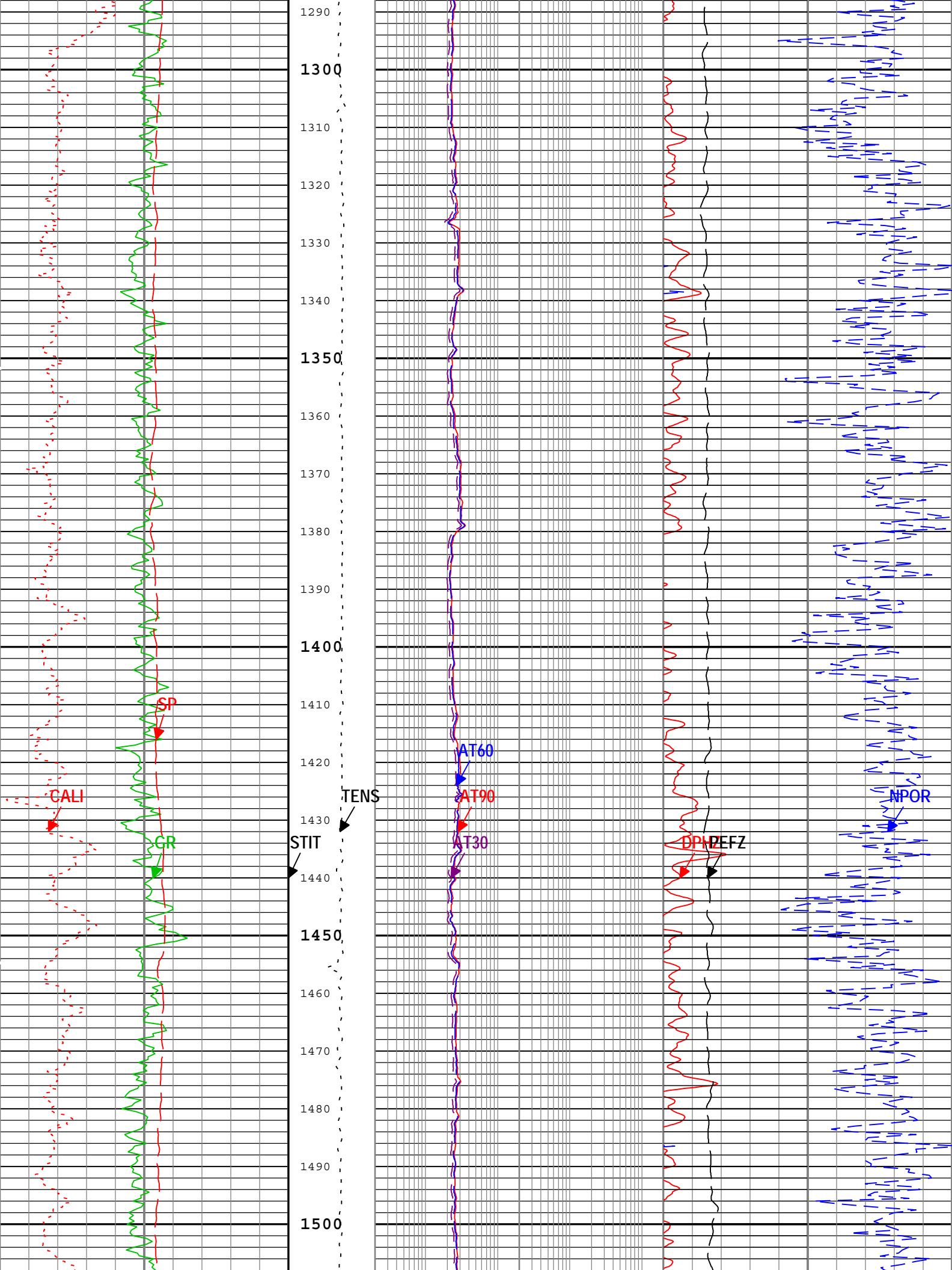
TIME_1900 - Time Marked every 60.00 (s)

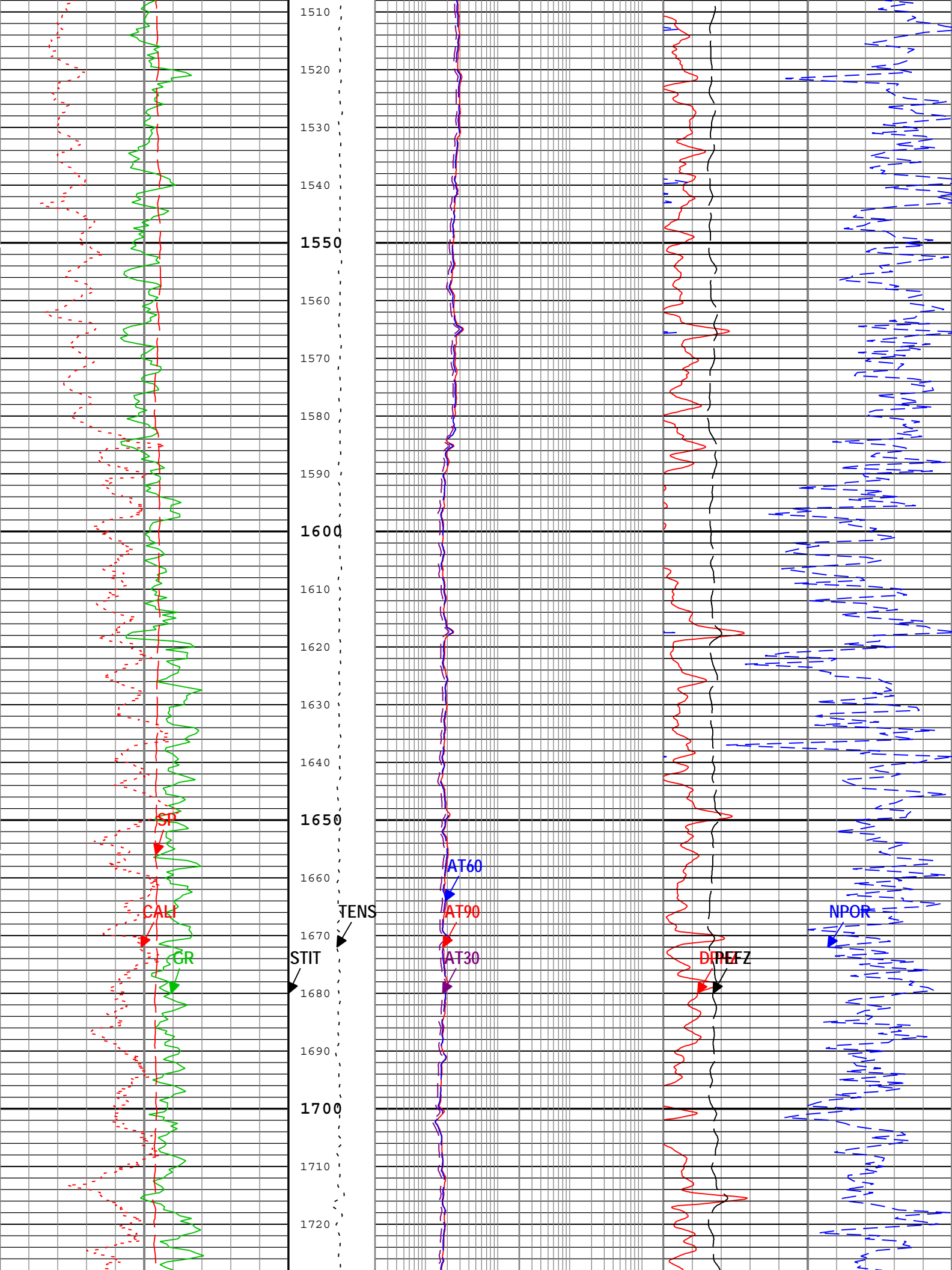


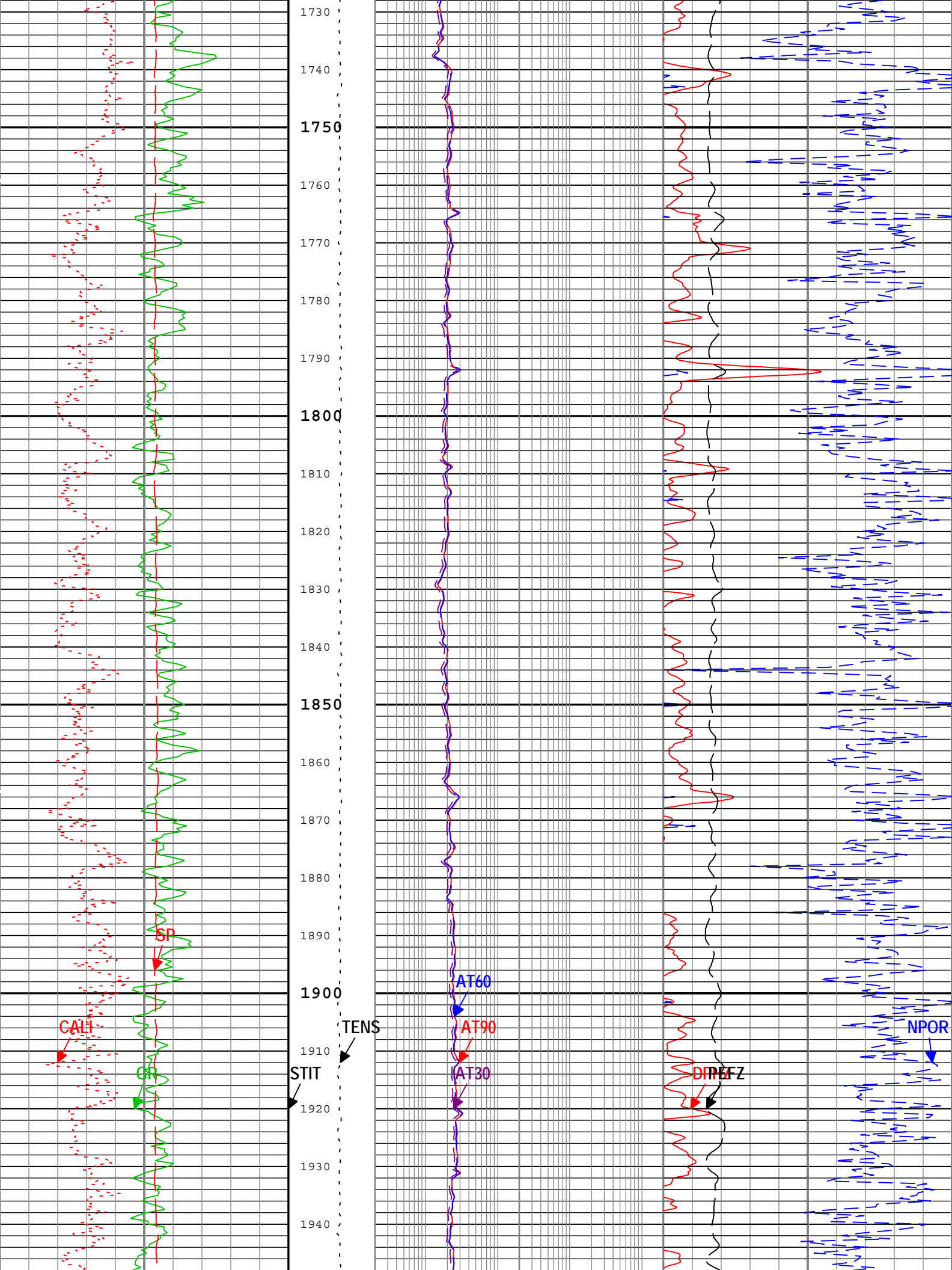


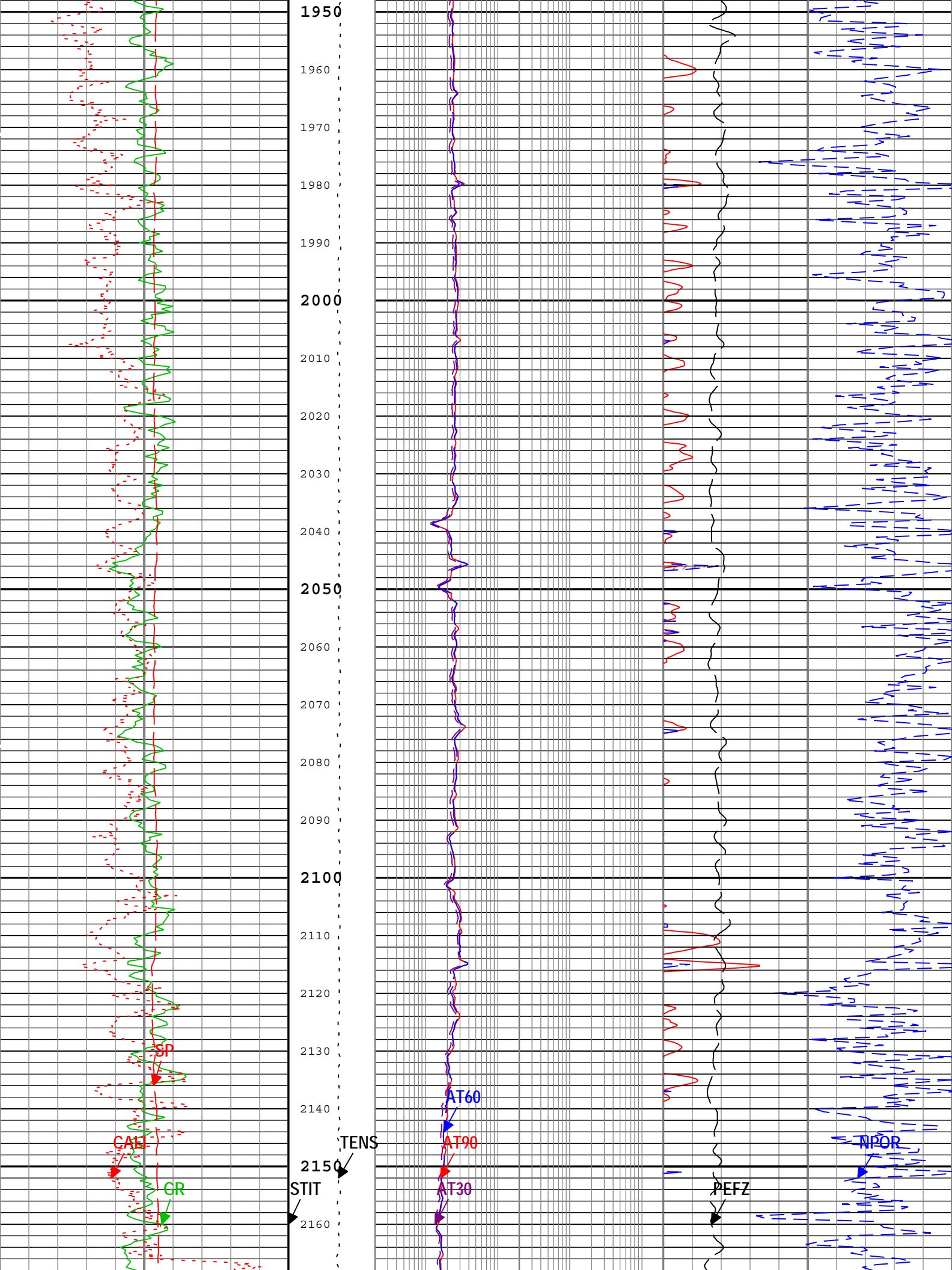


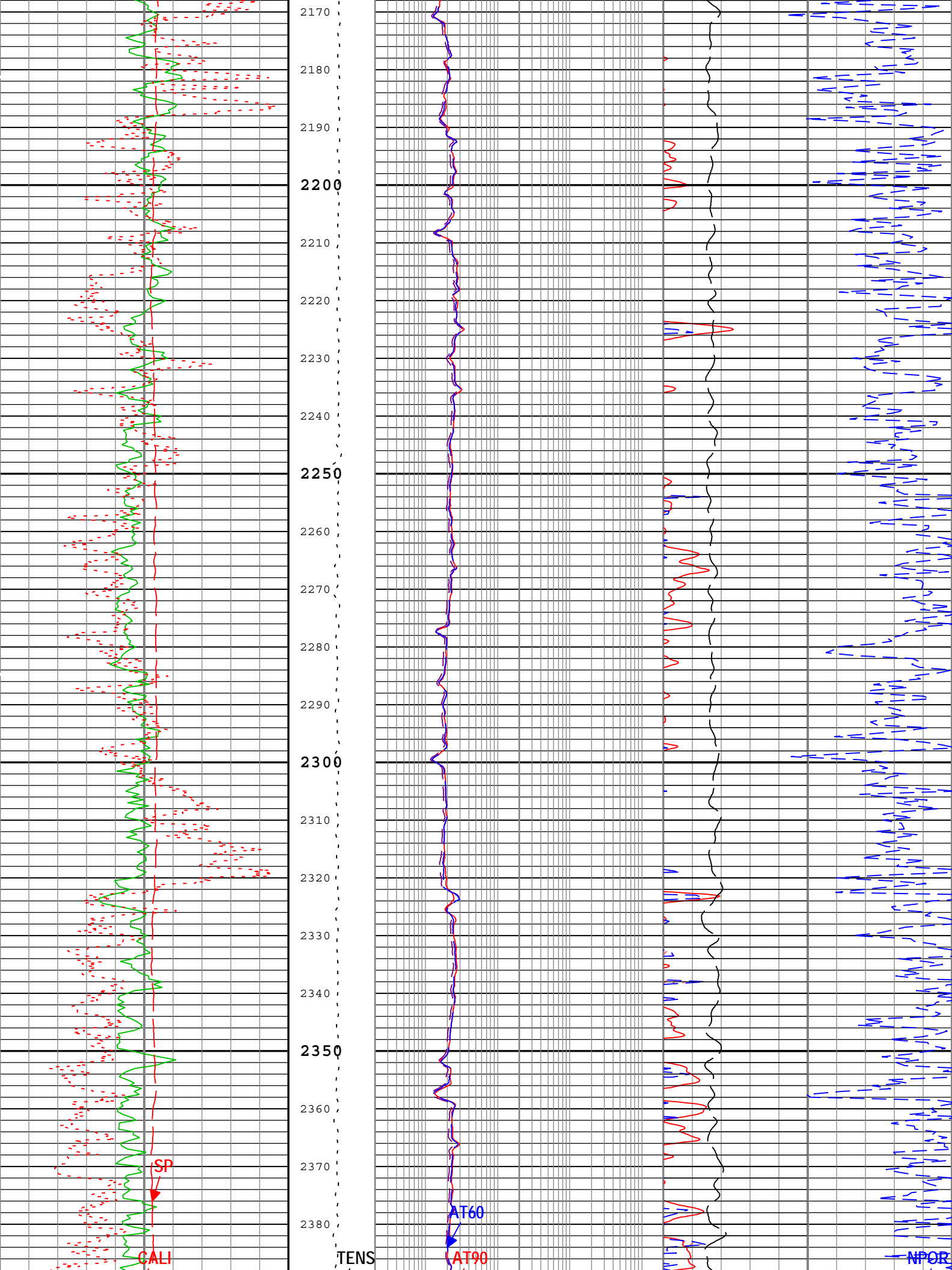


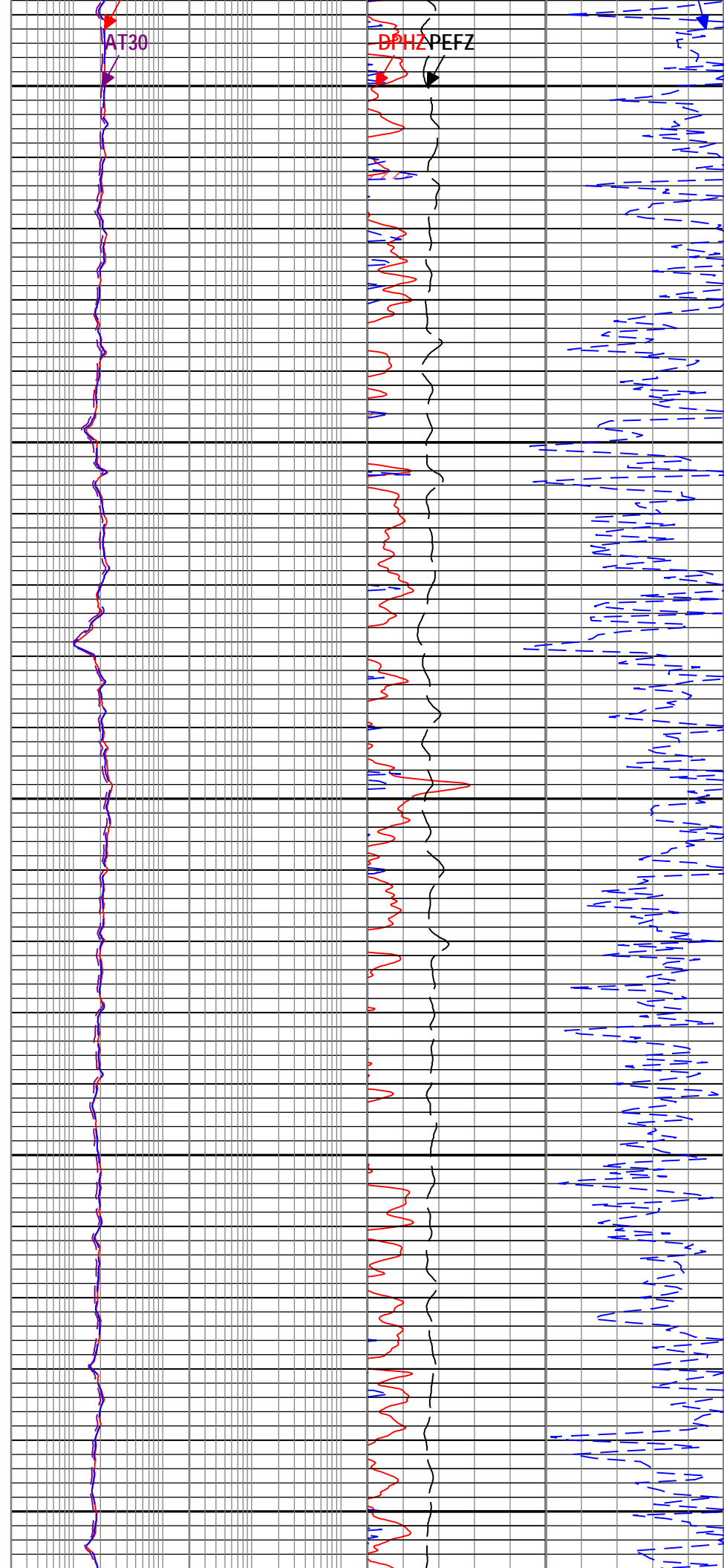
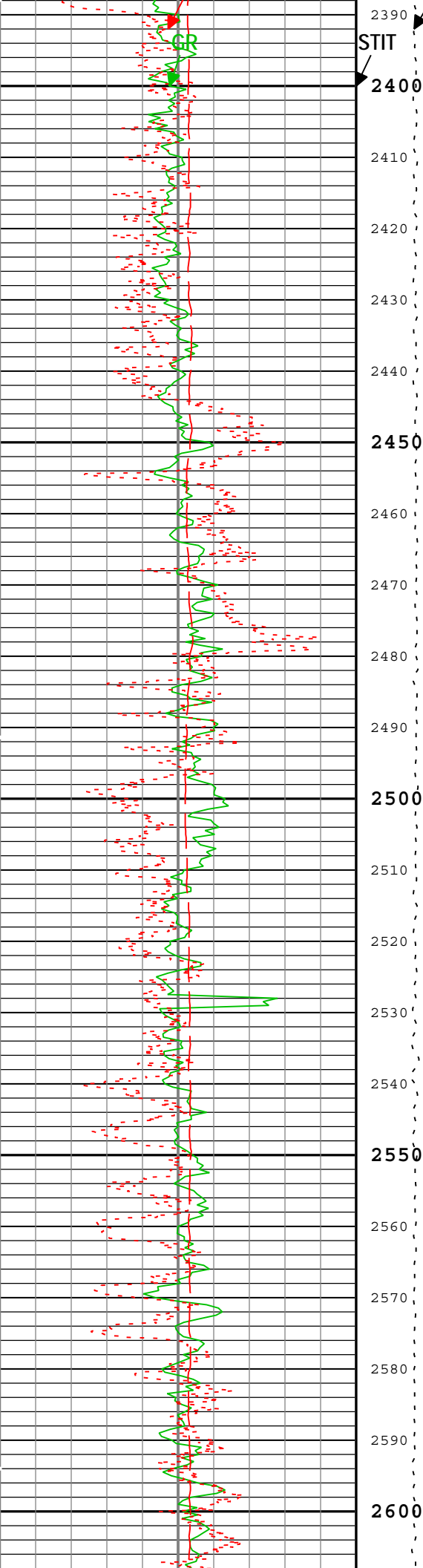


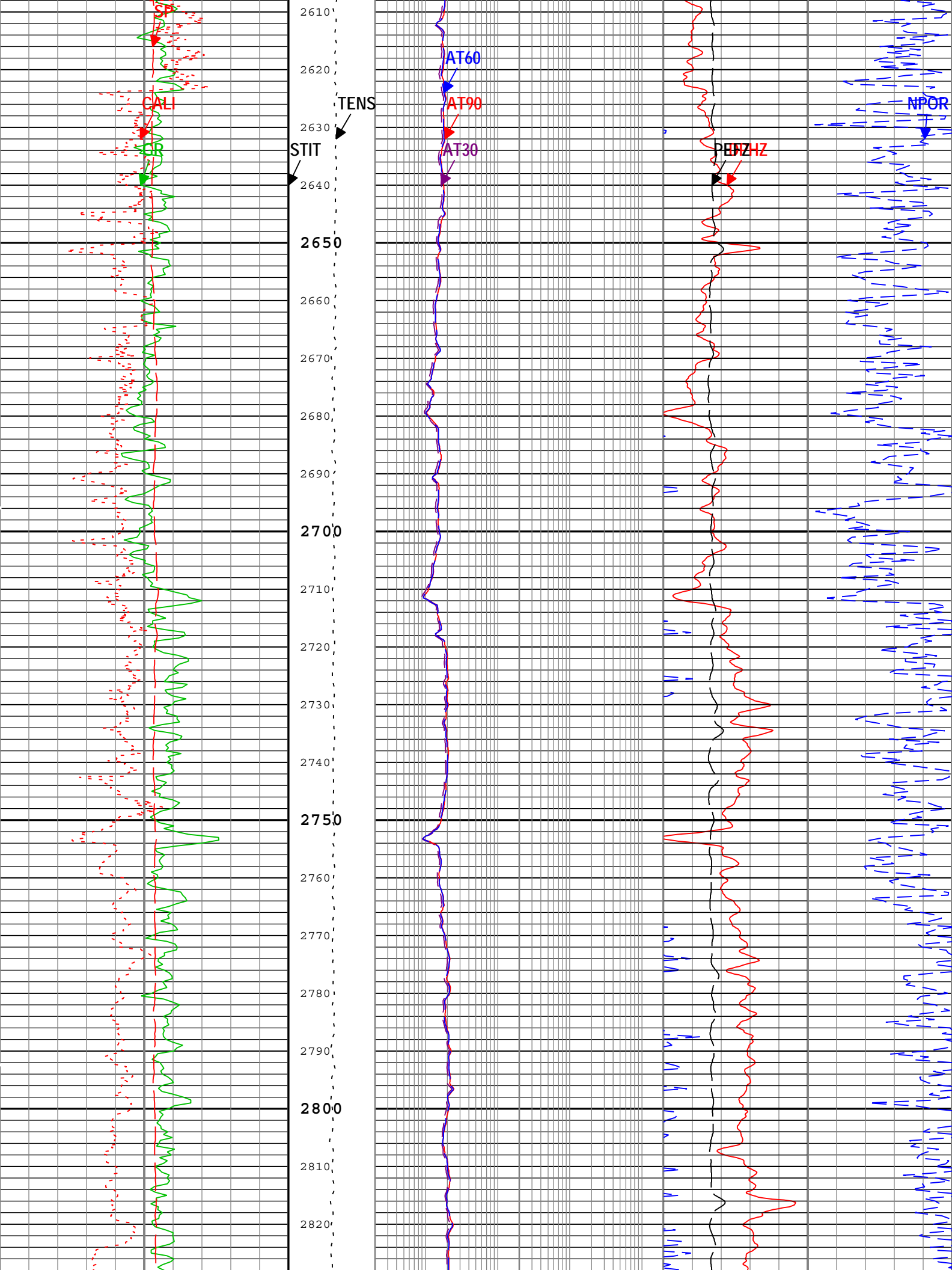


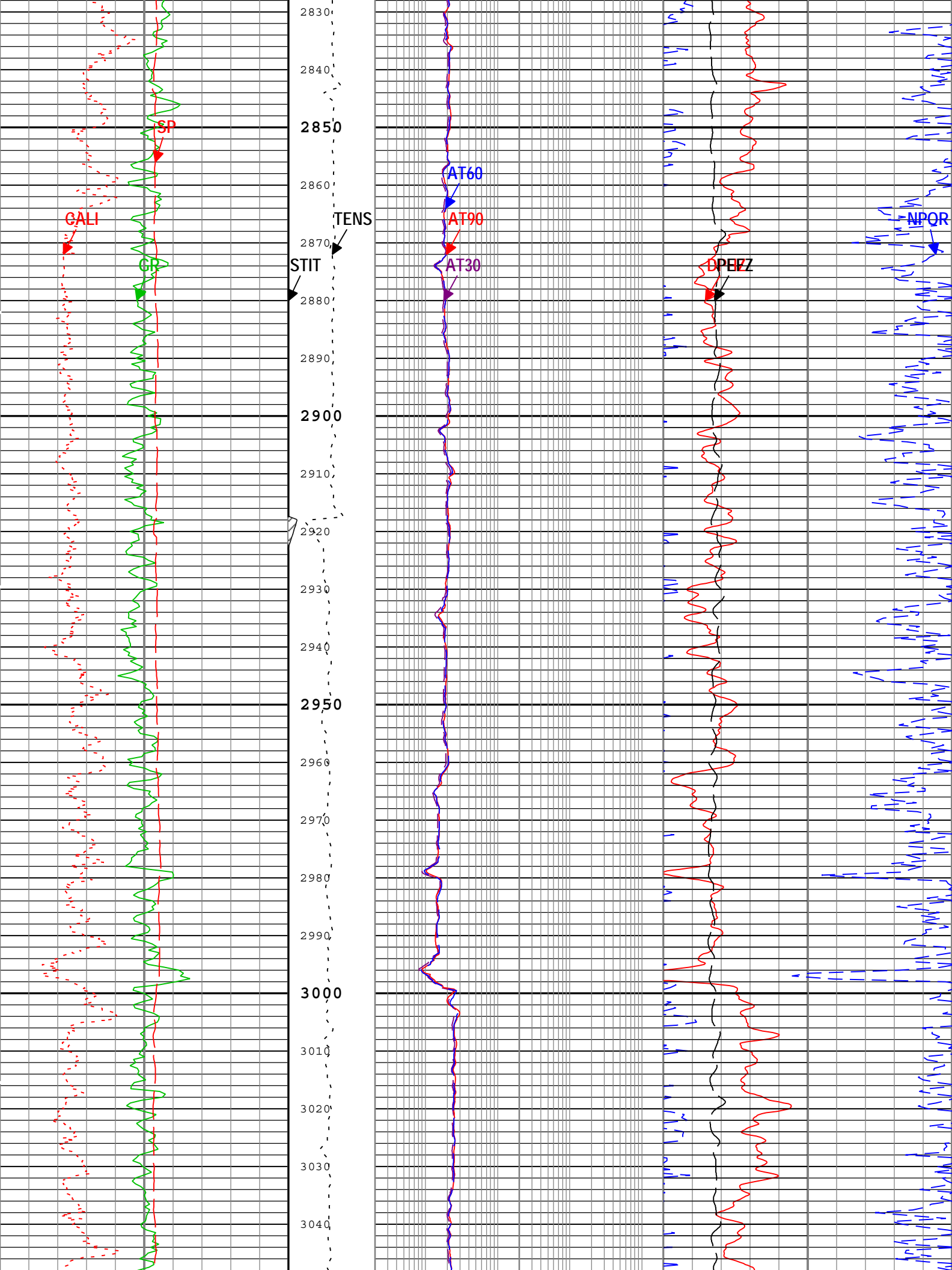


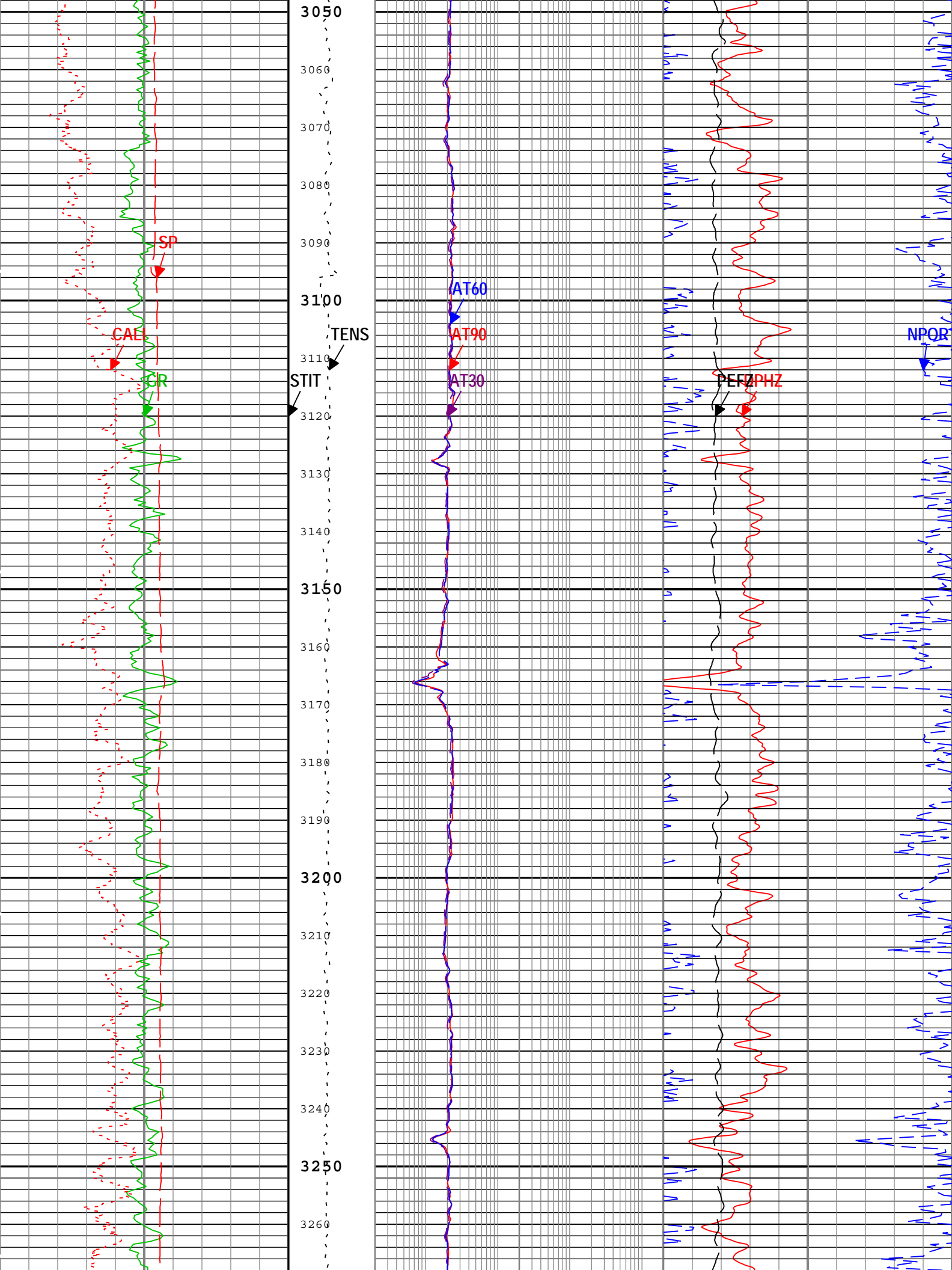


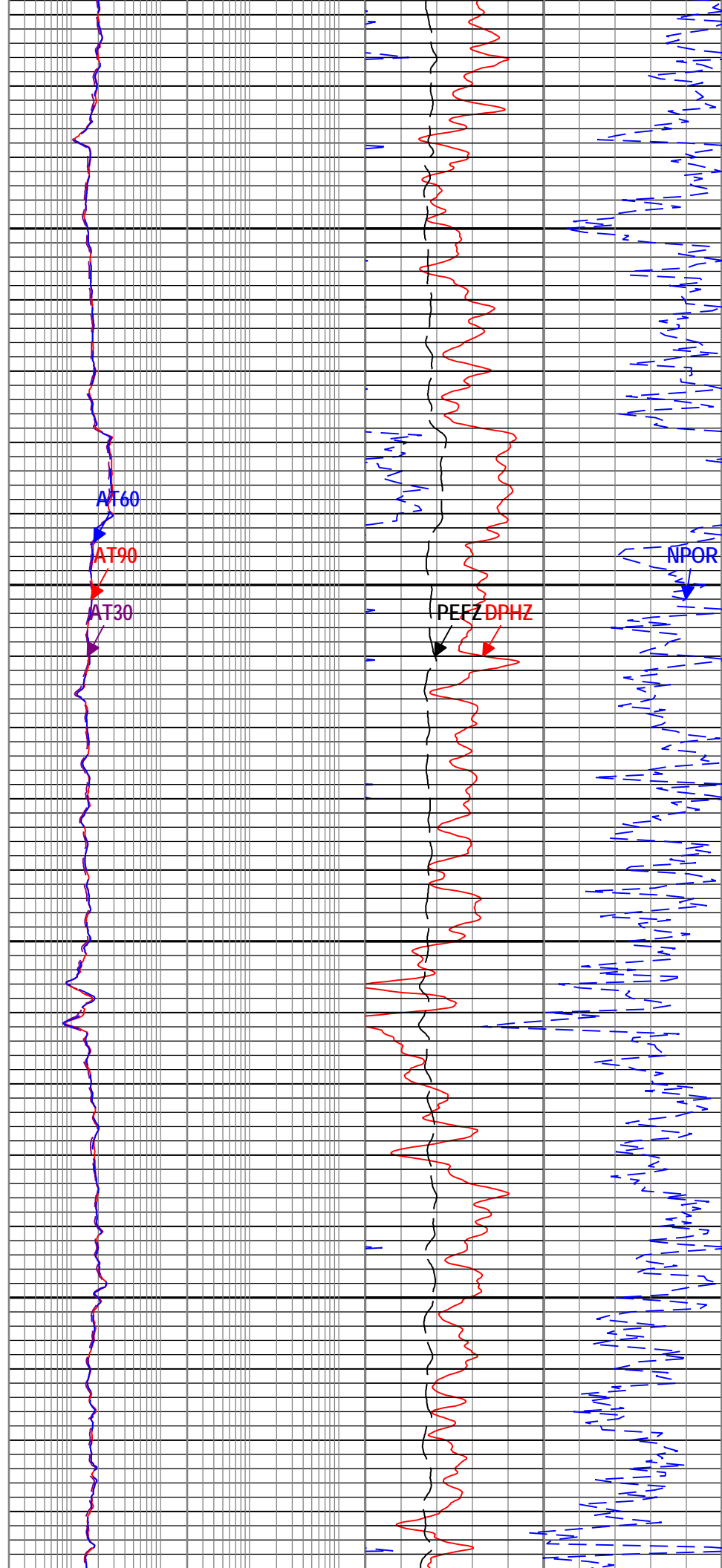
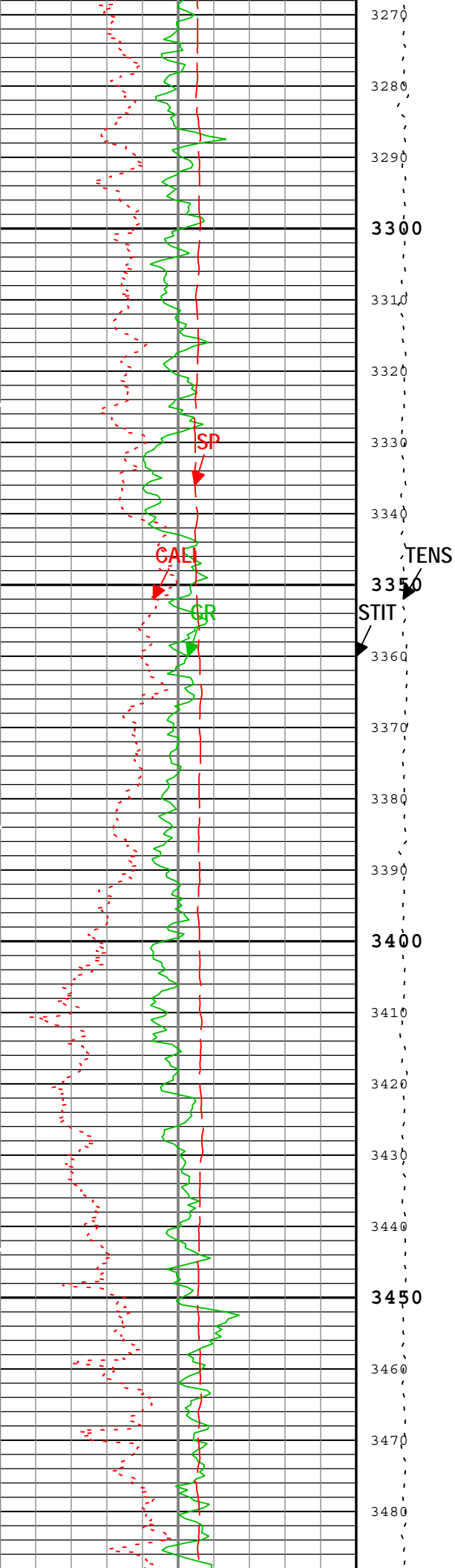


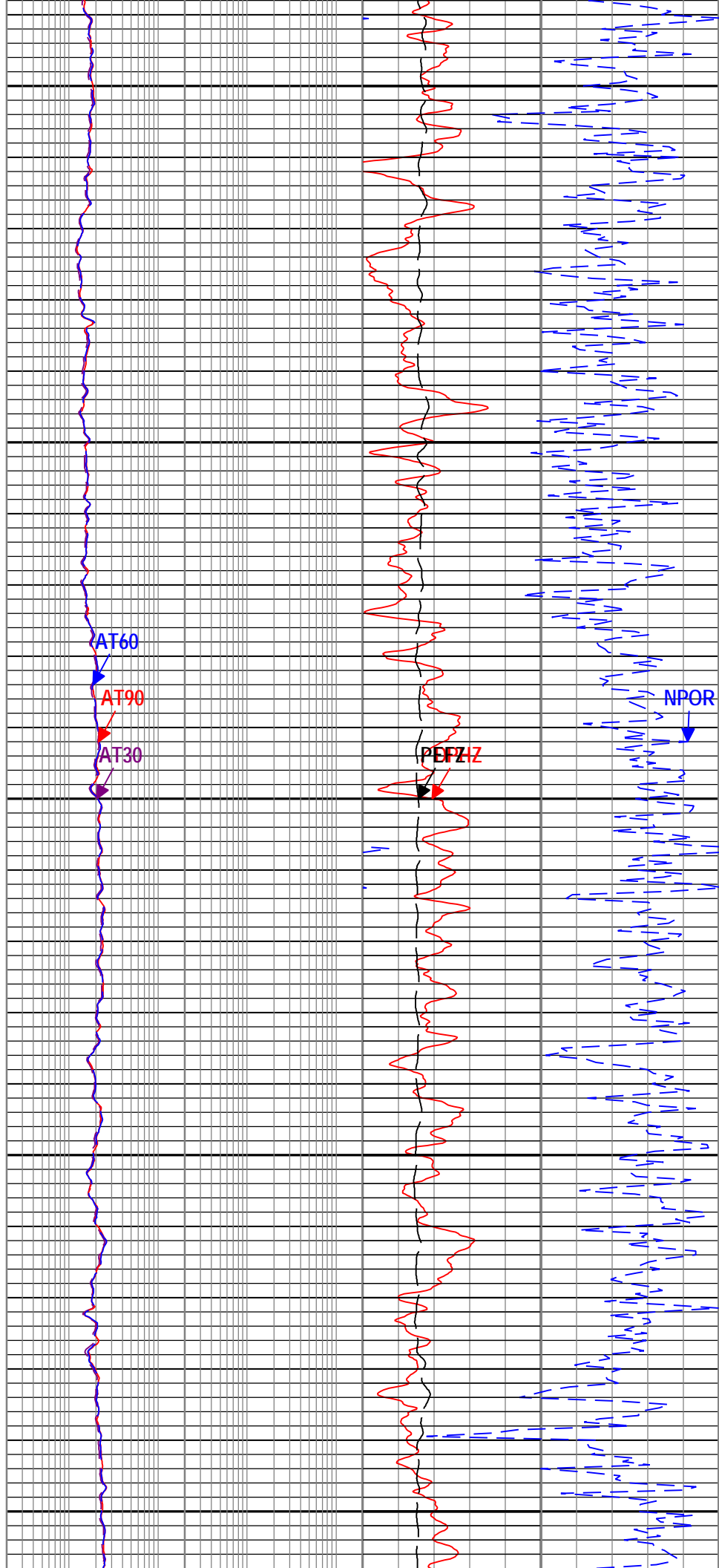
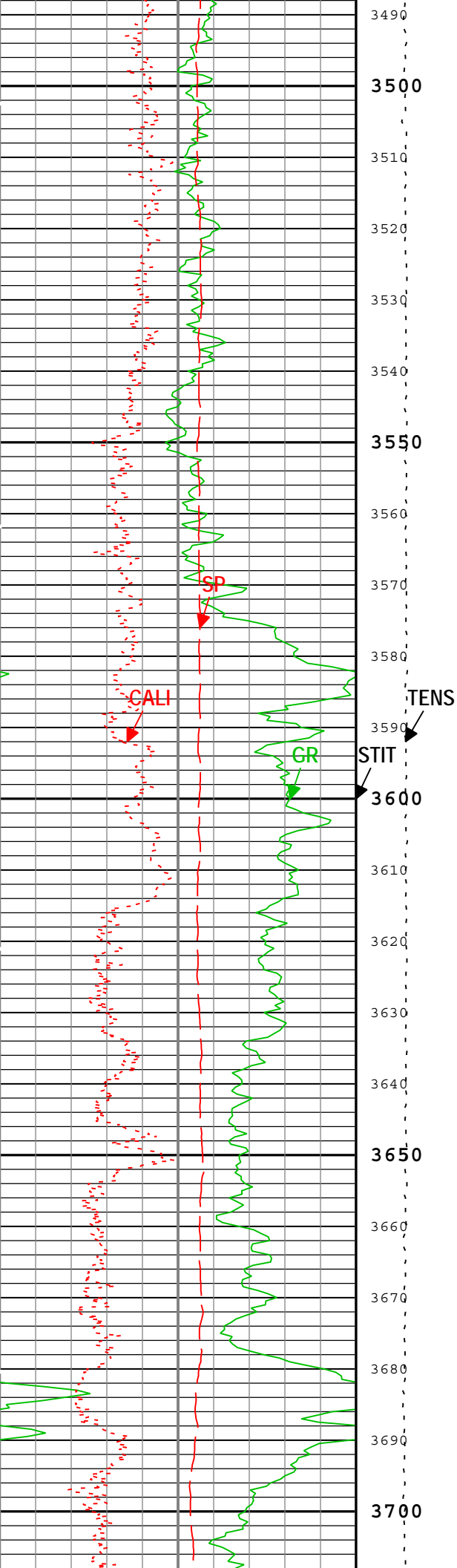


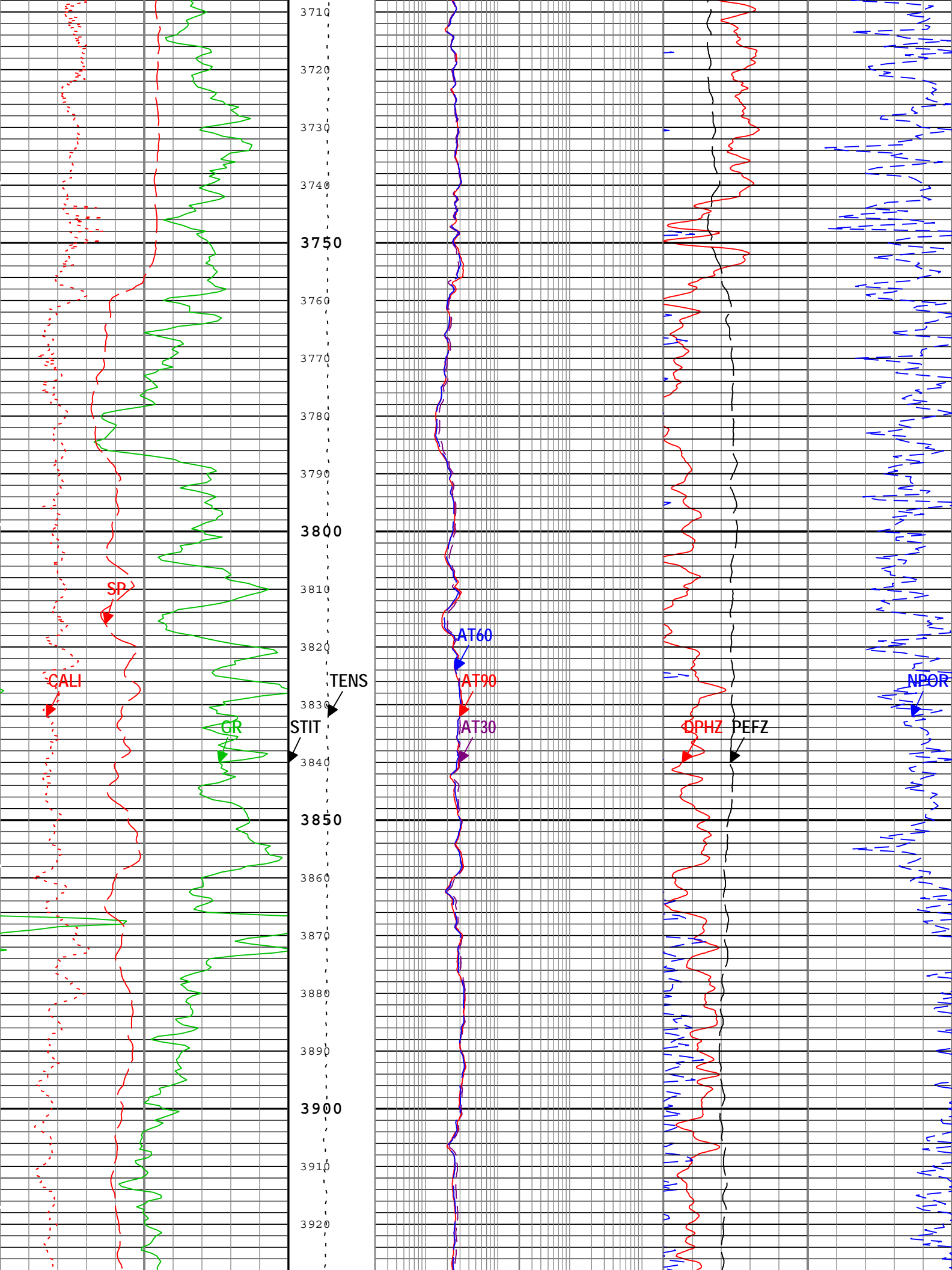


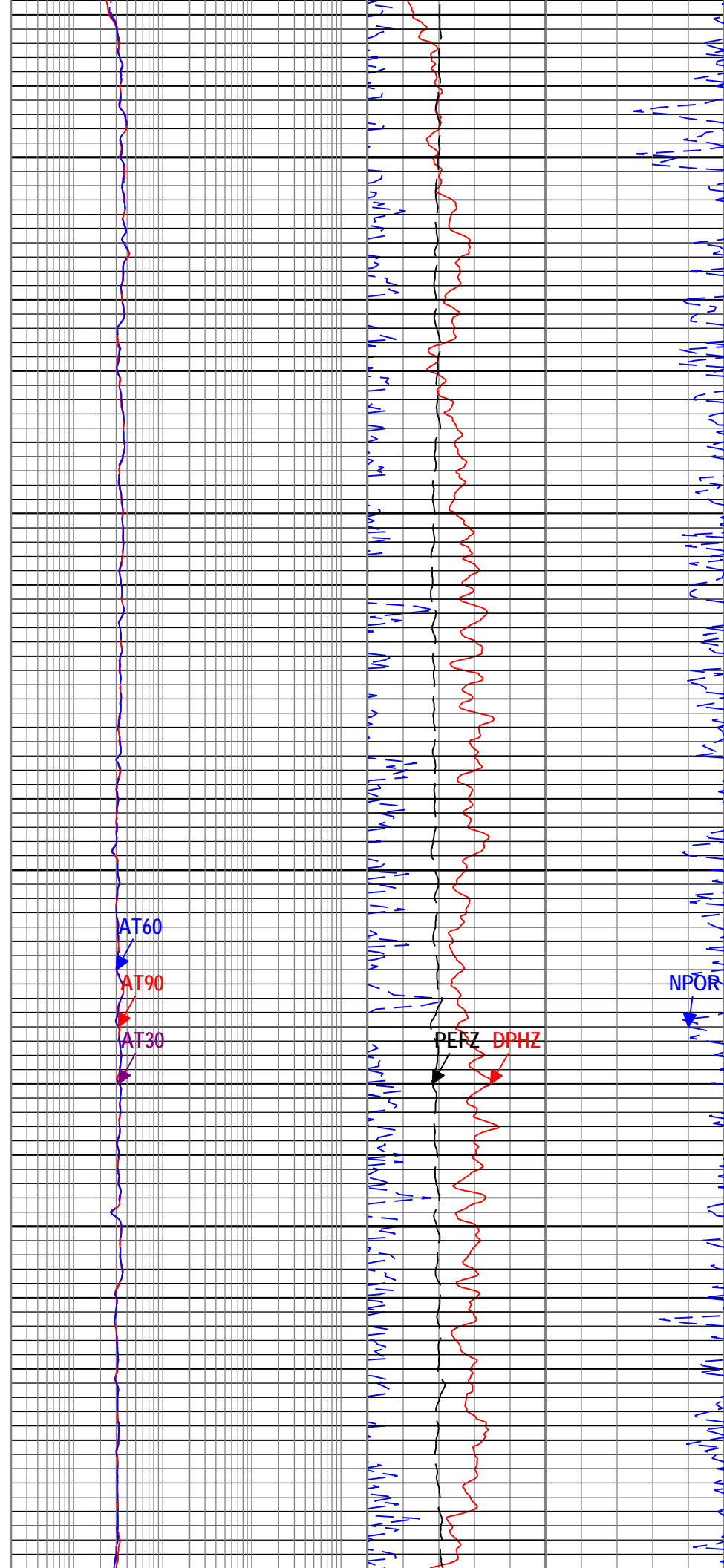
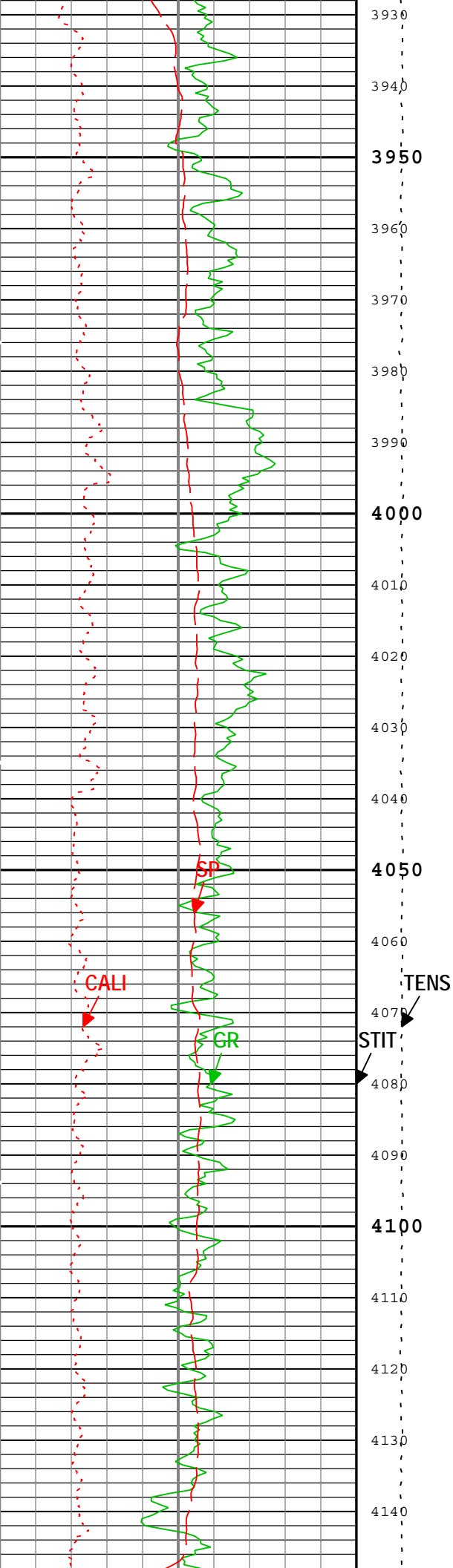


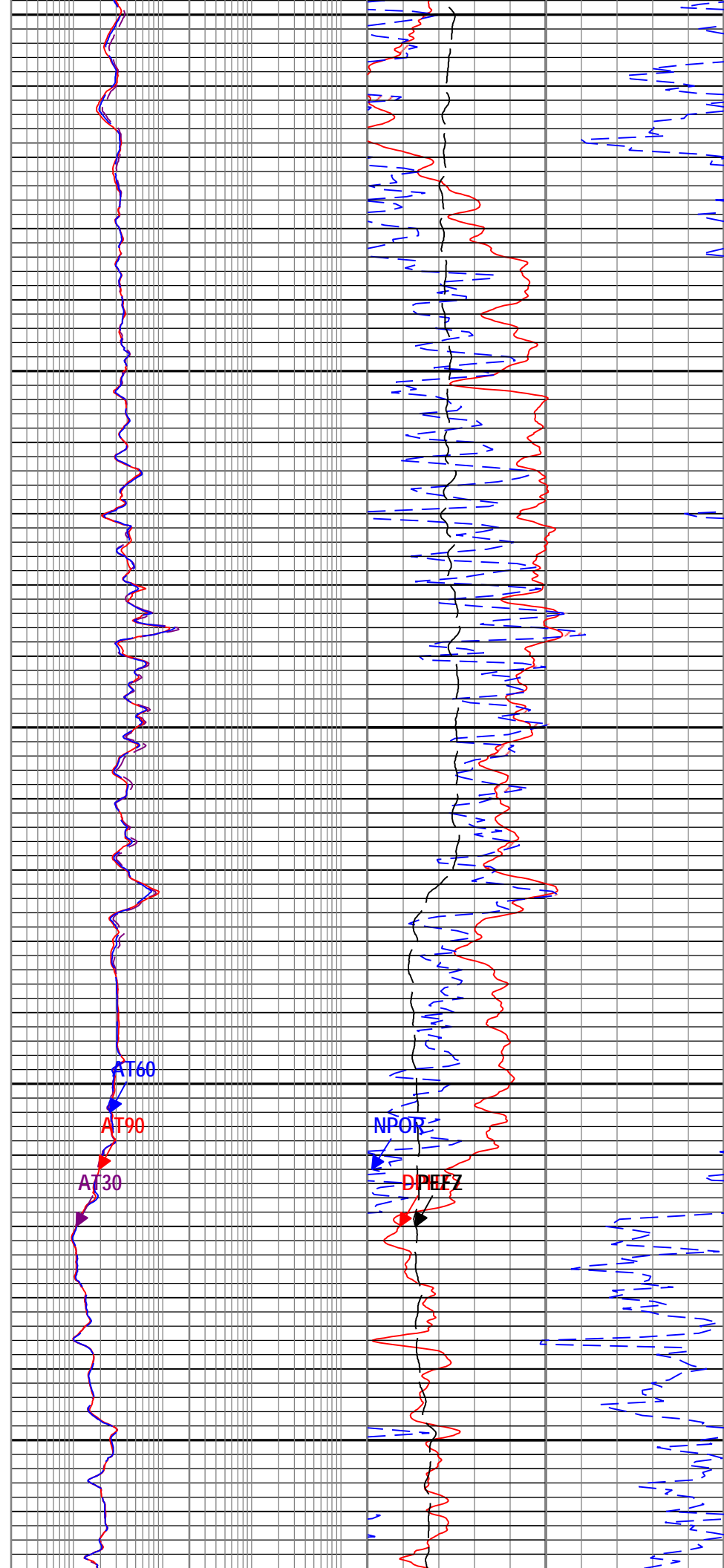
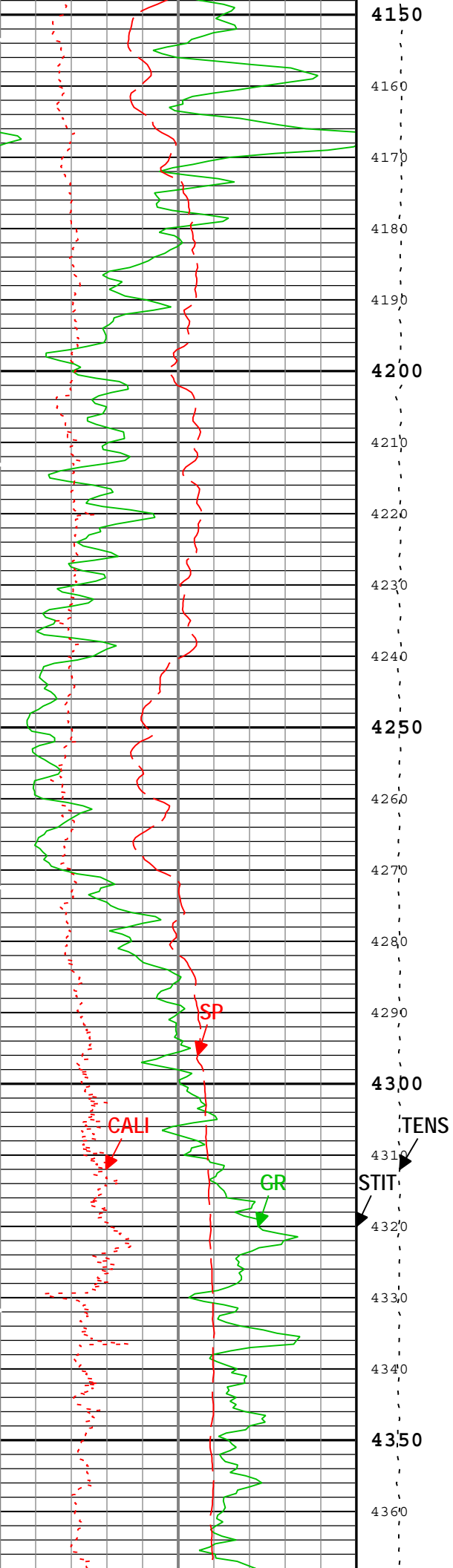


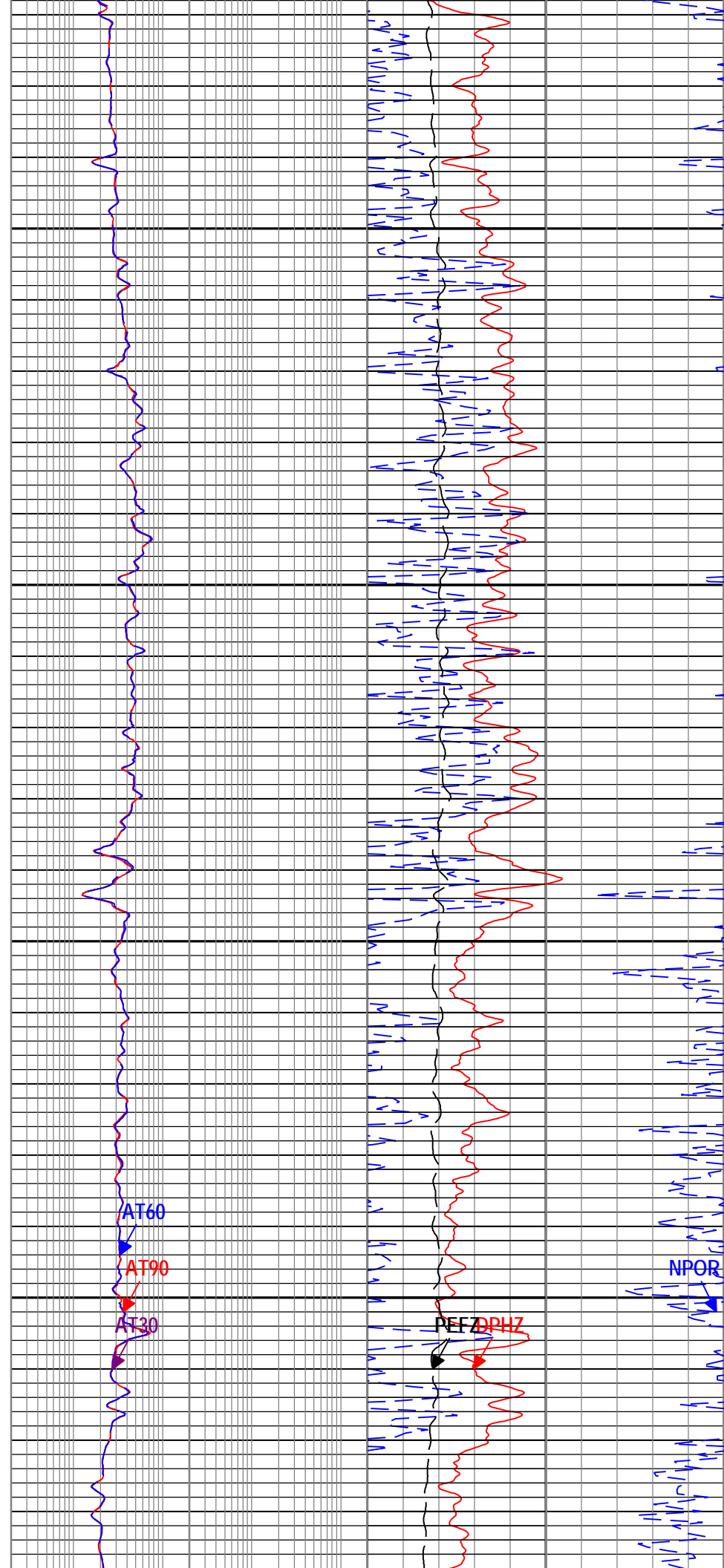
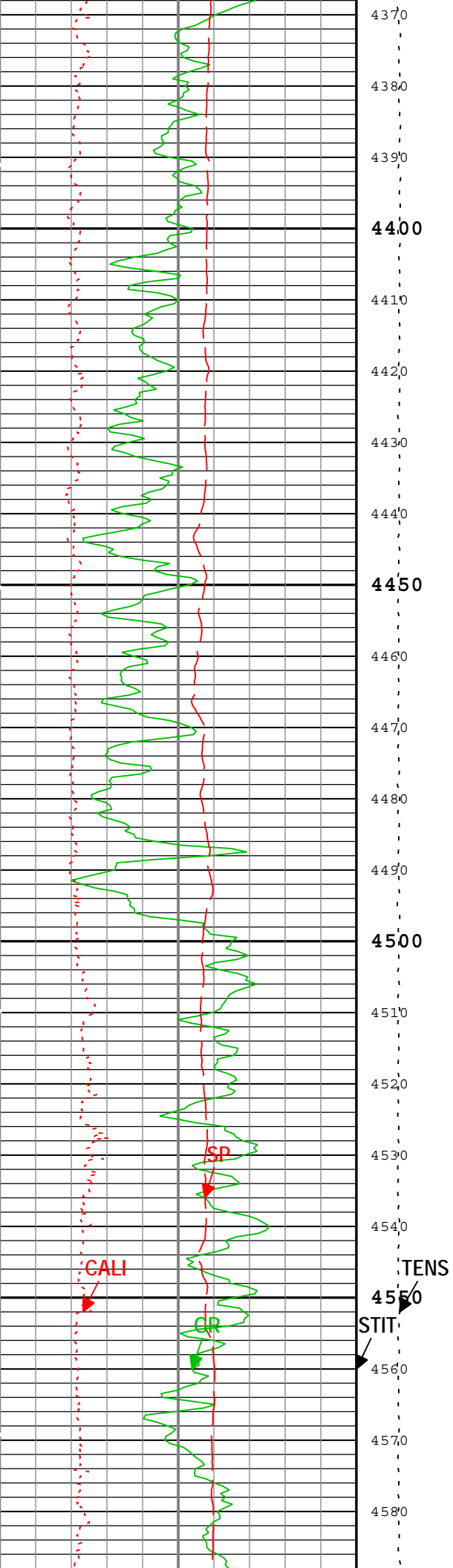


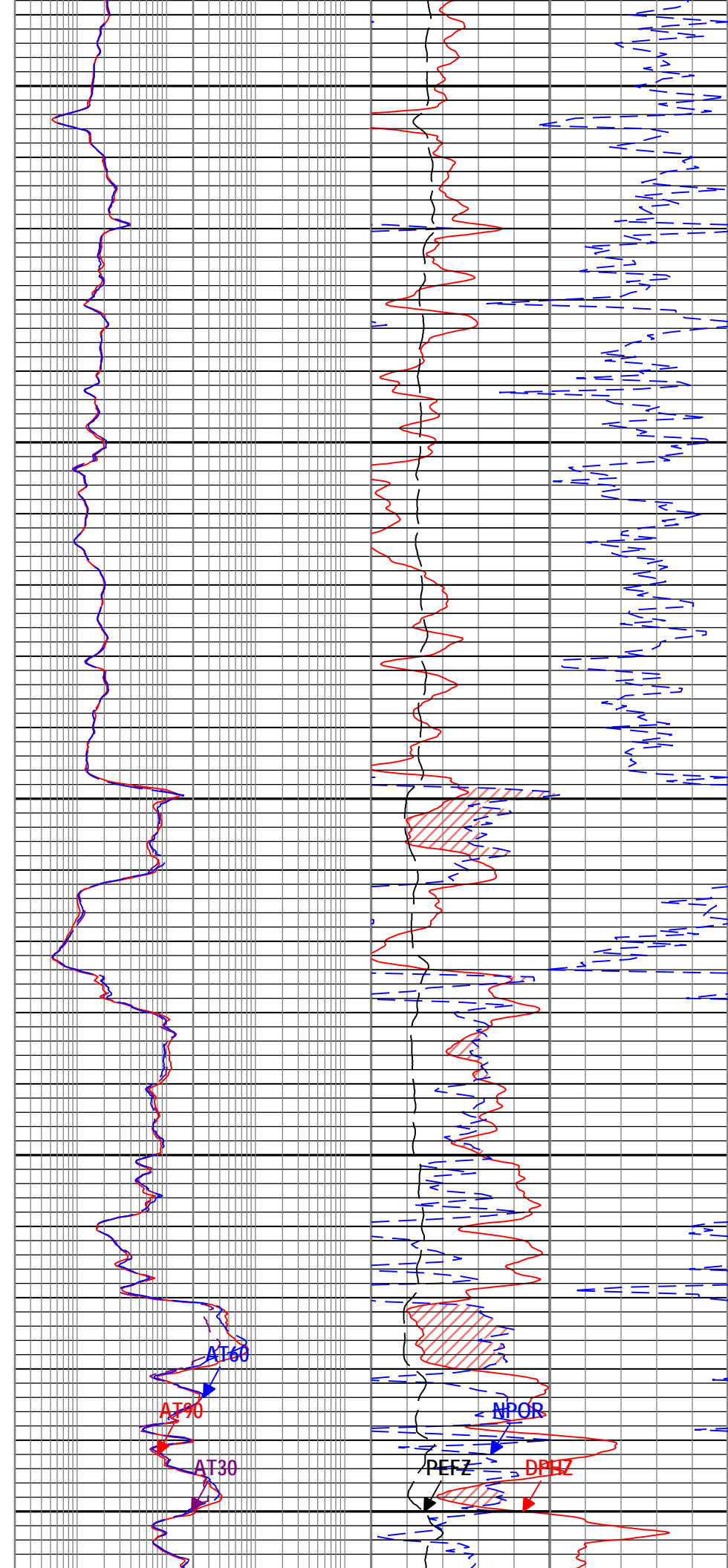
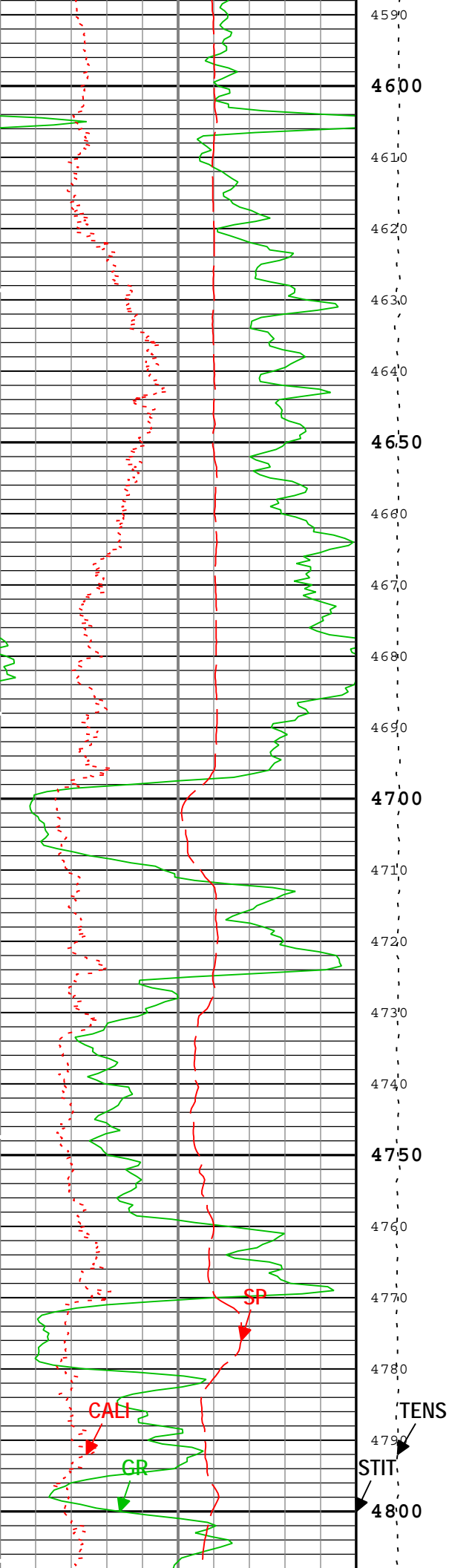


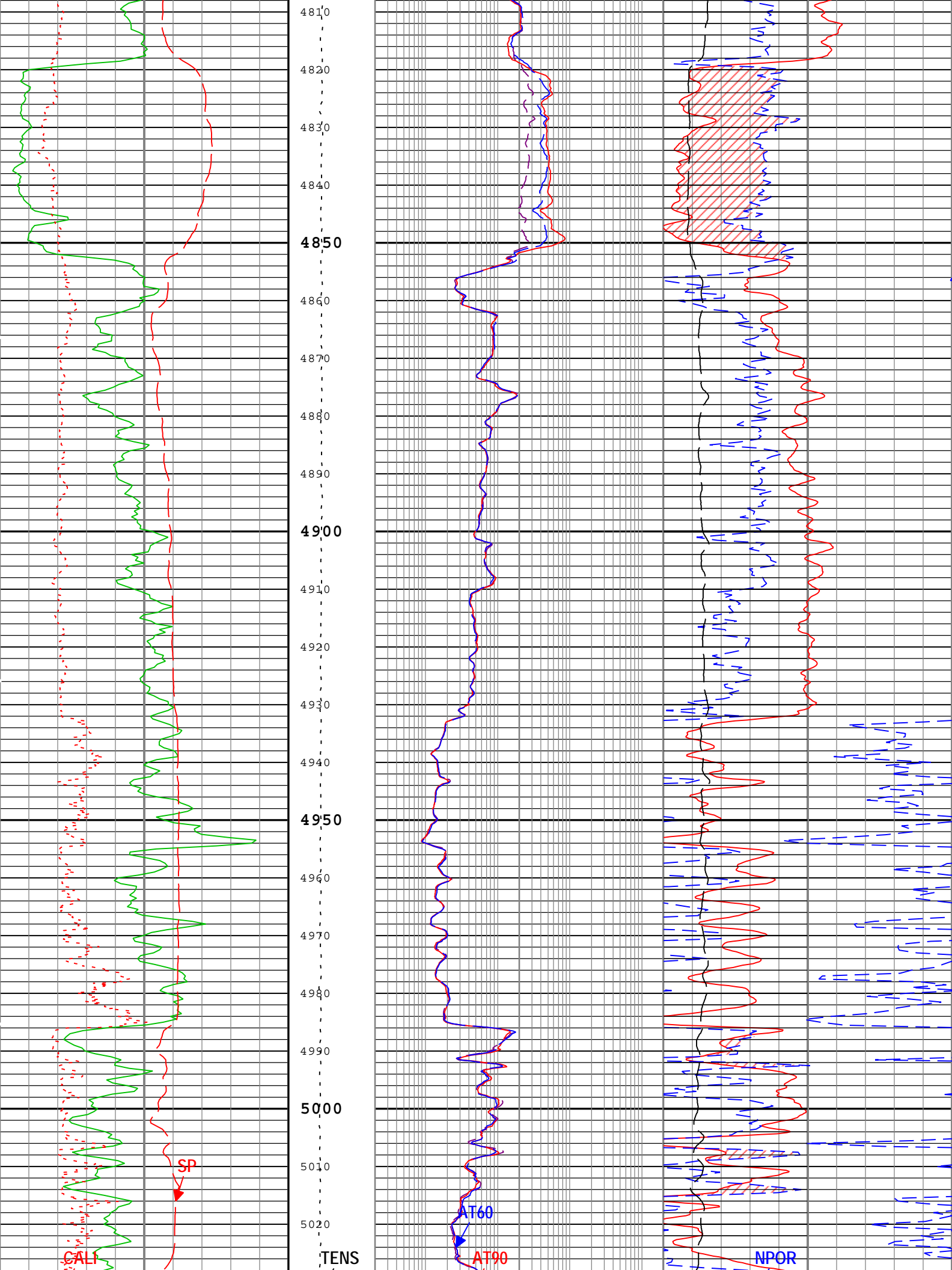


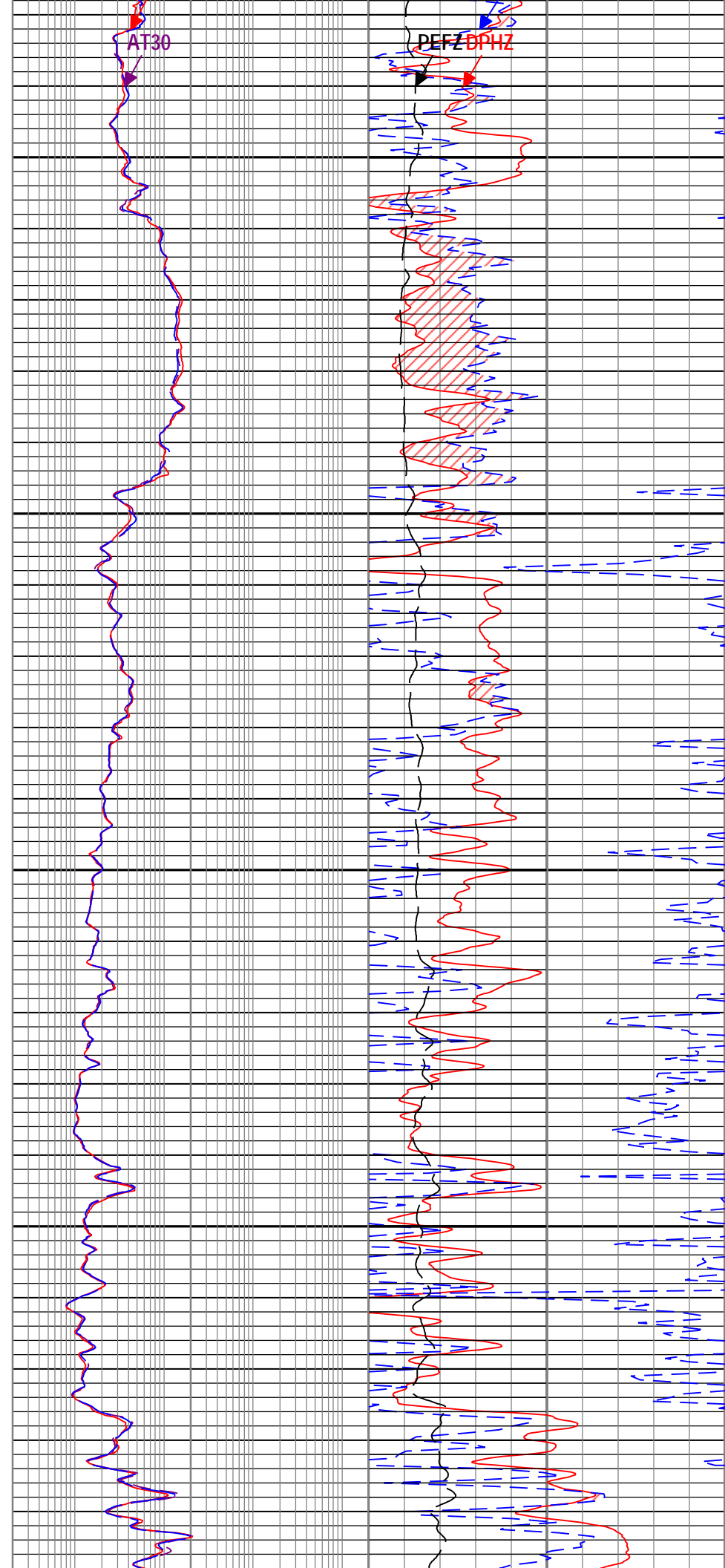
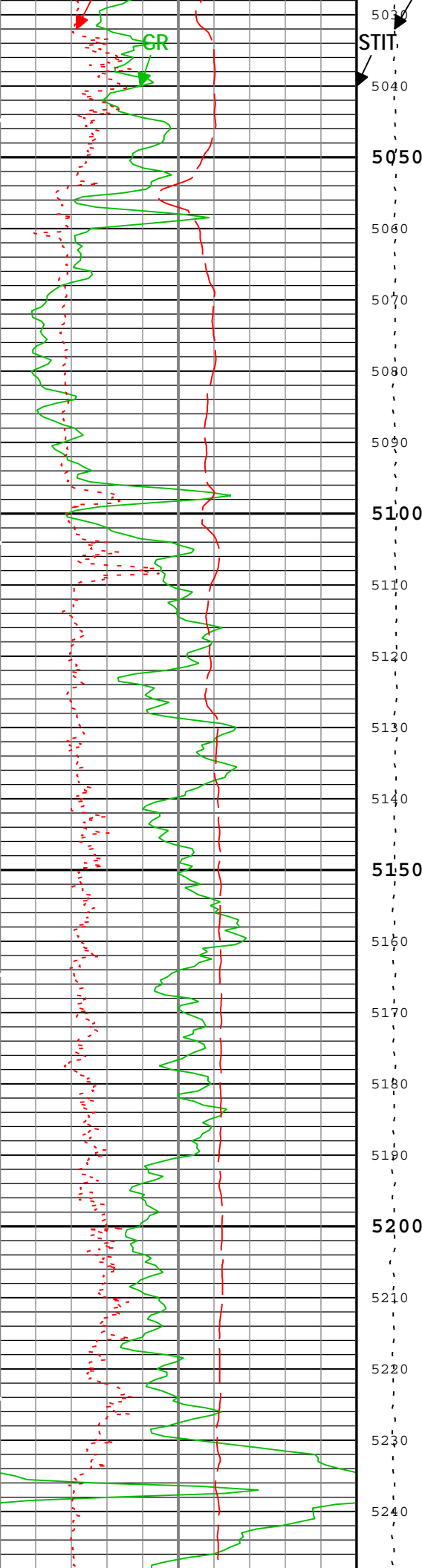


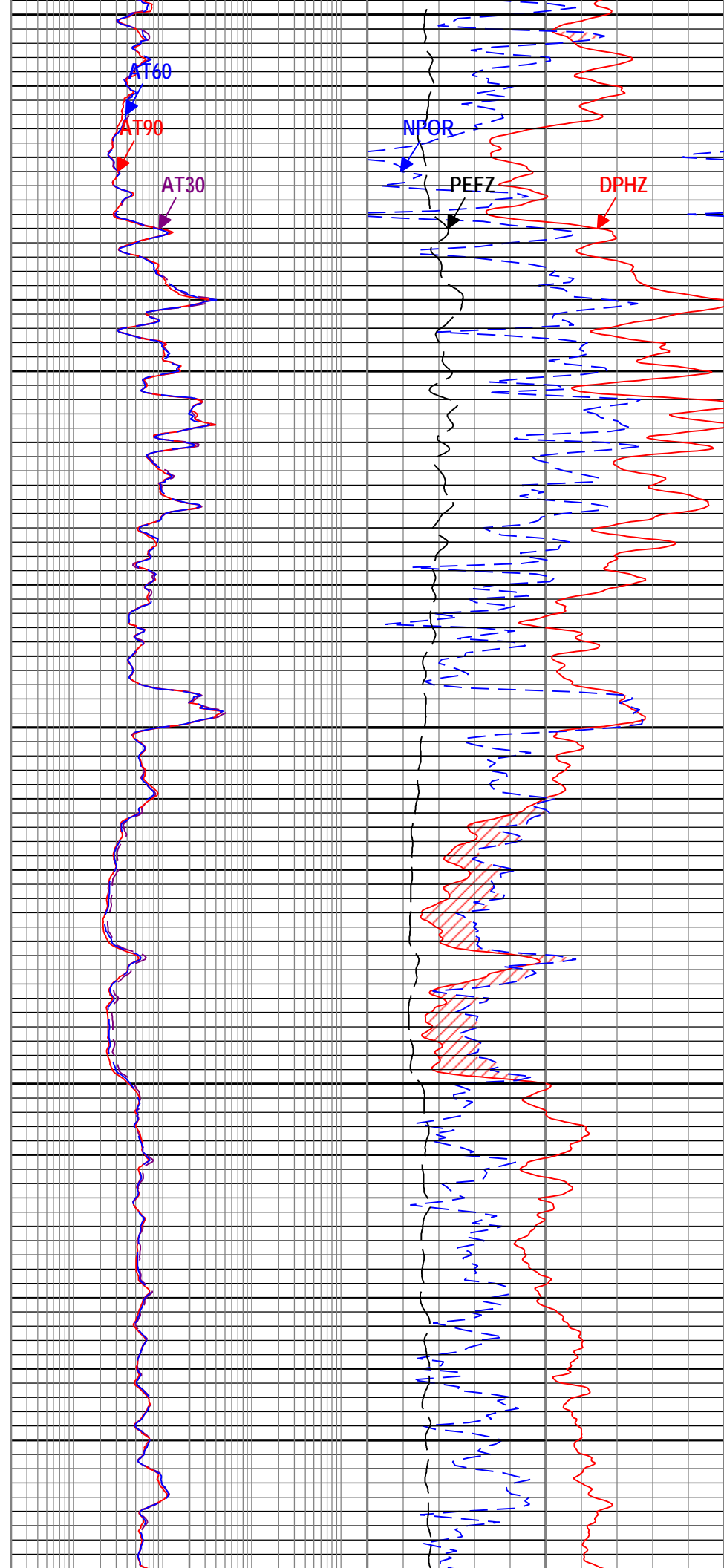
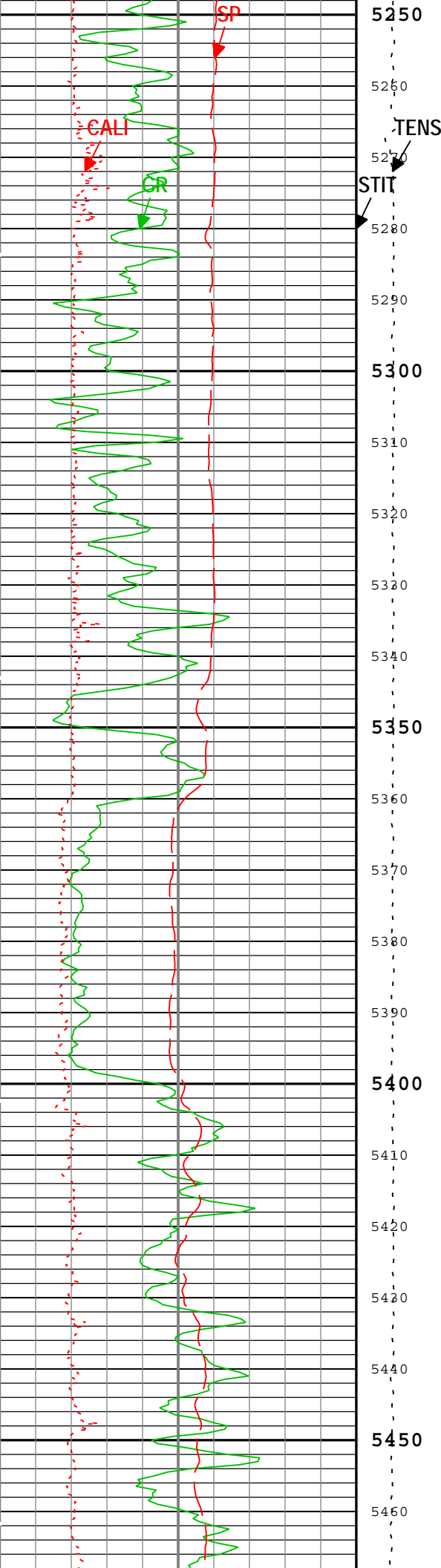


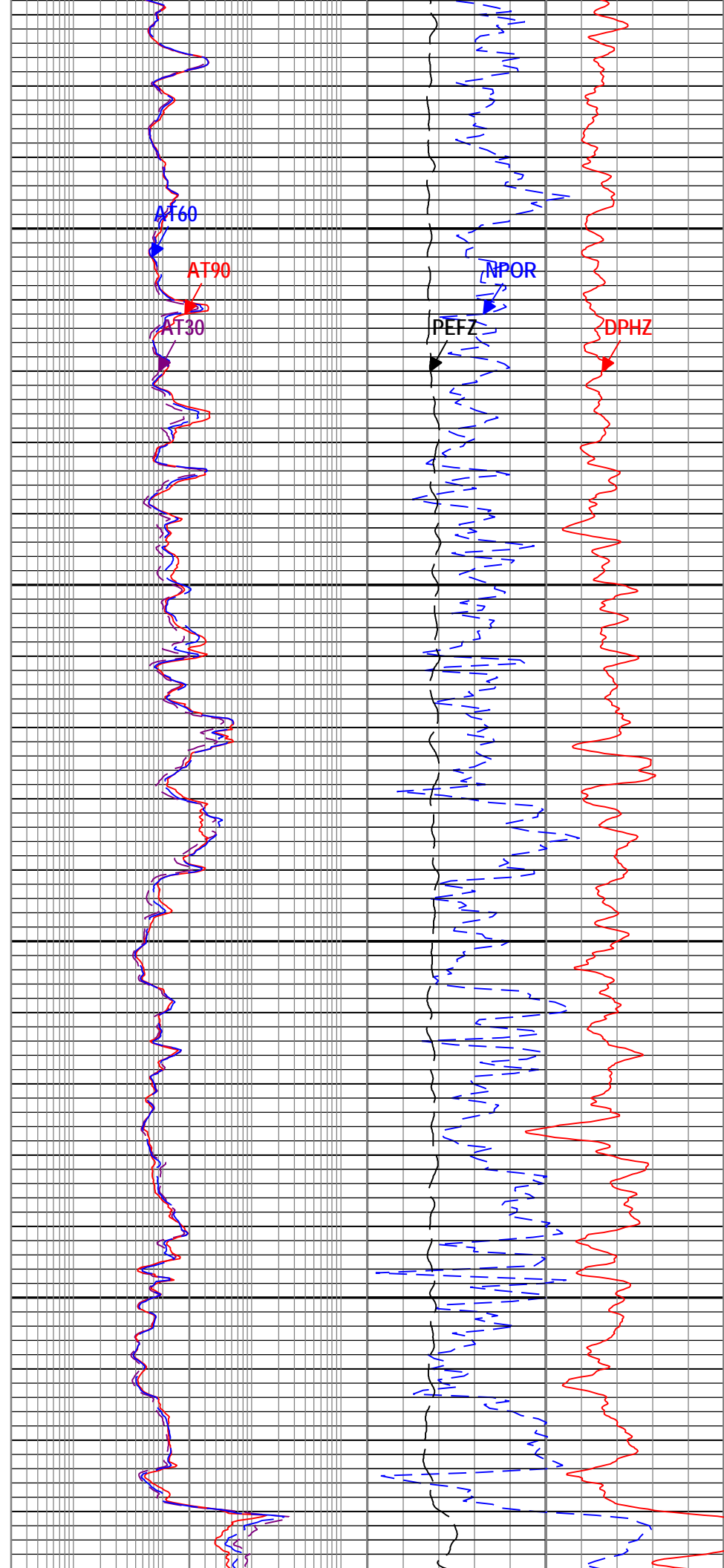
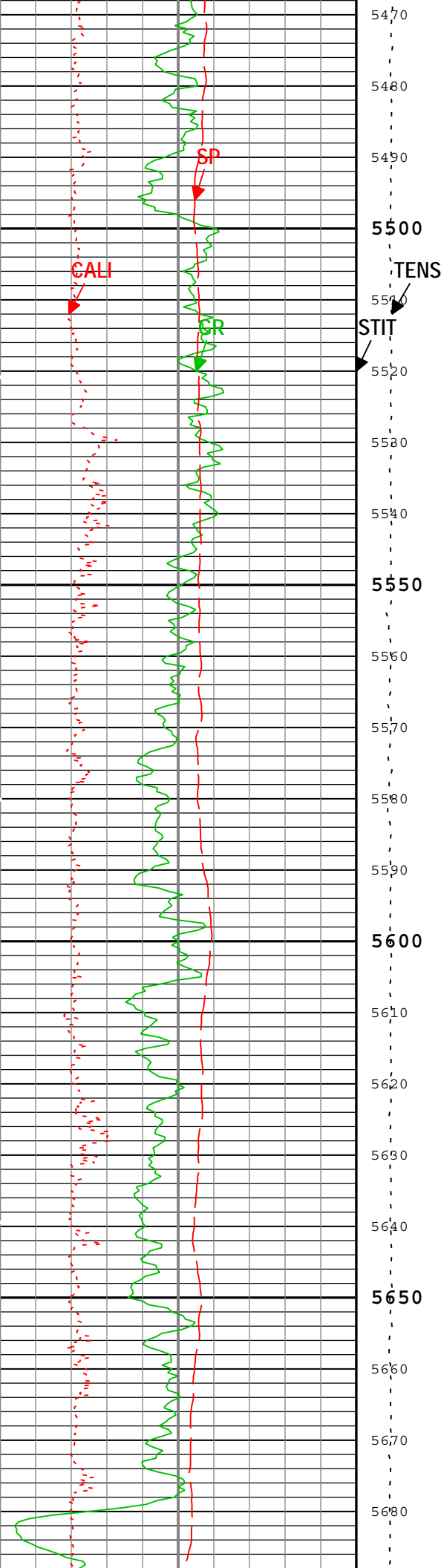


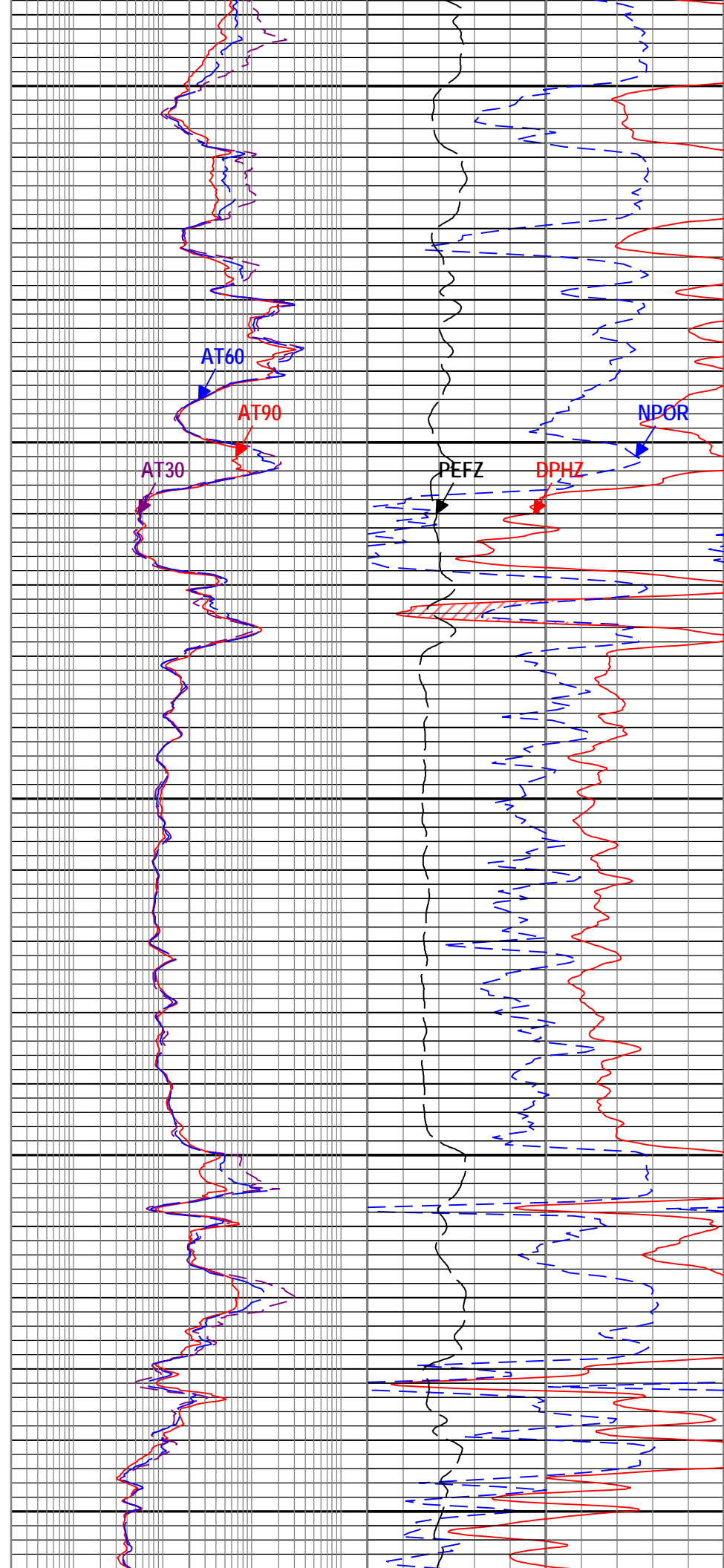
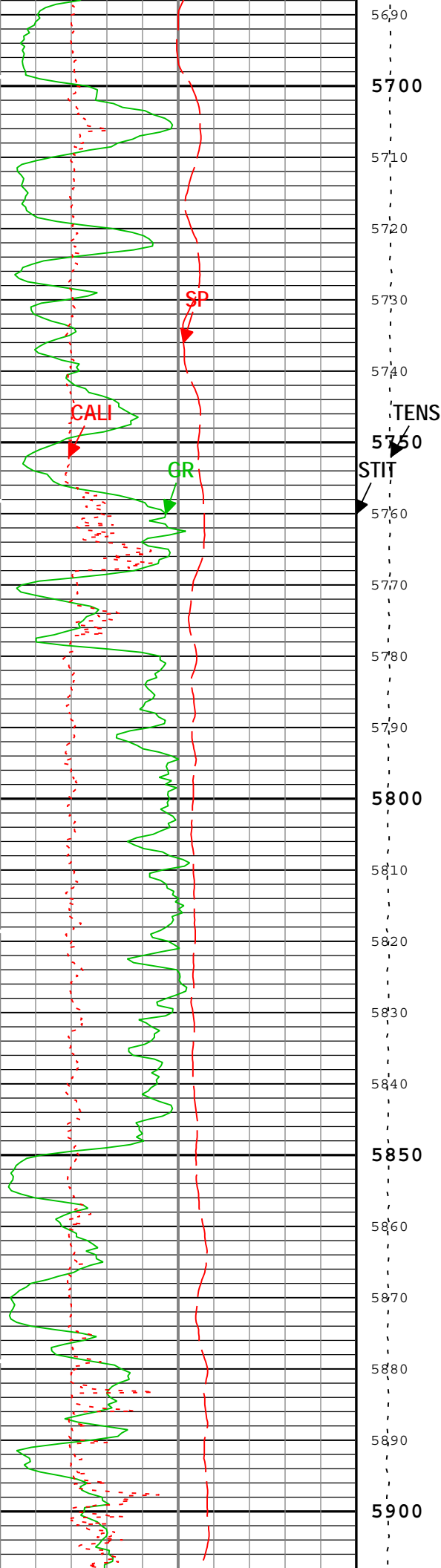


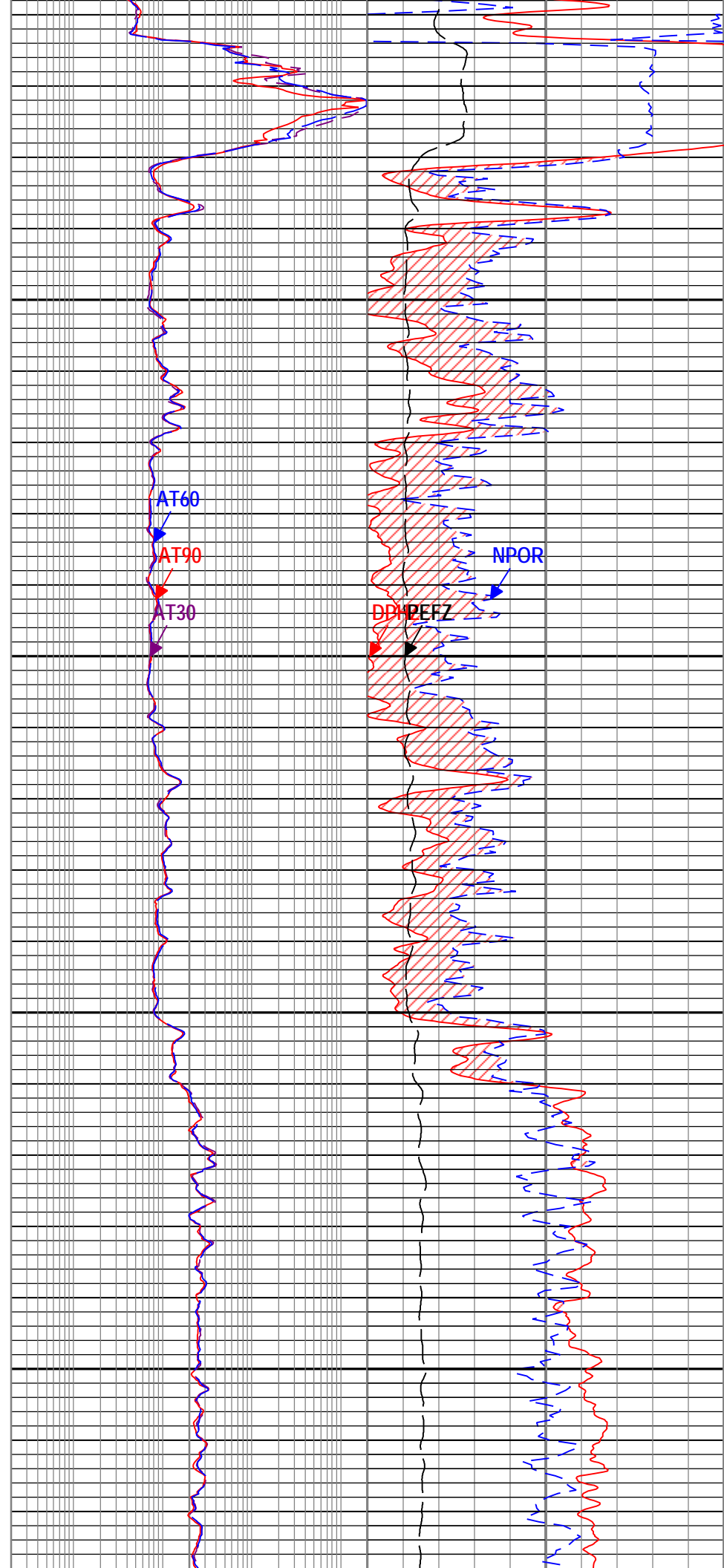
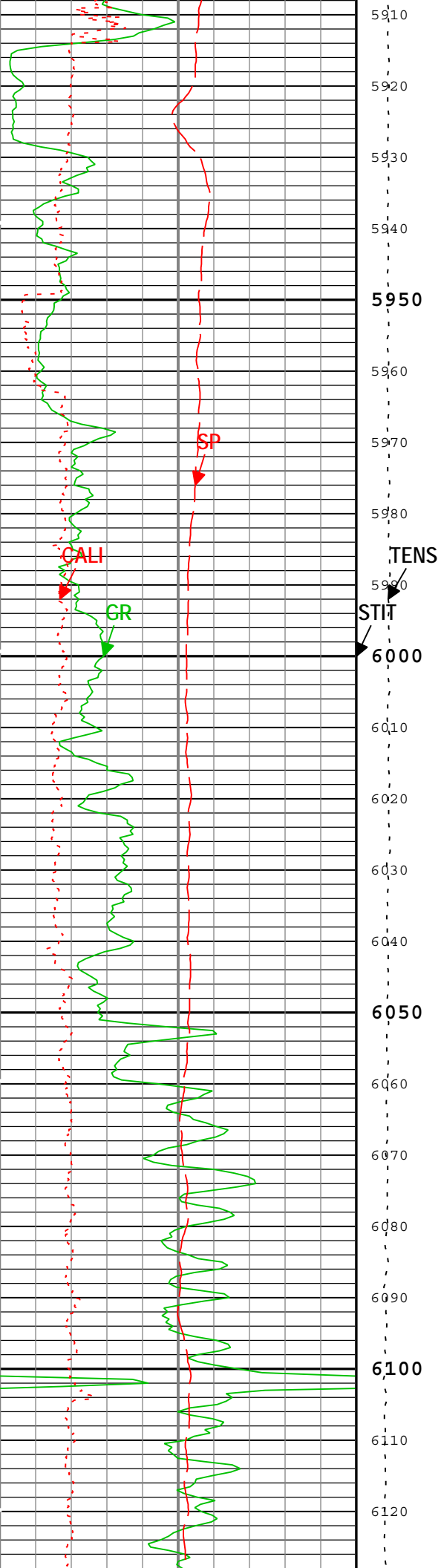


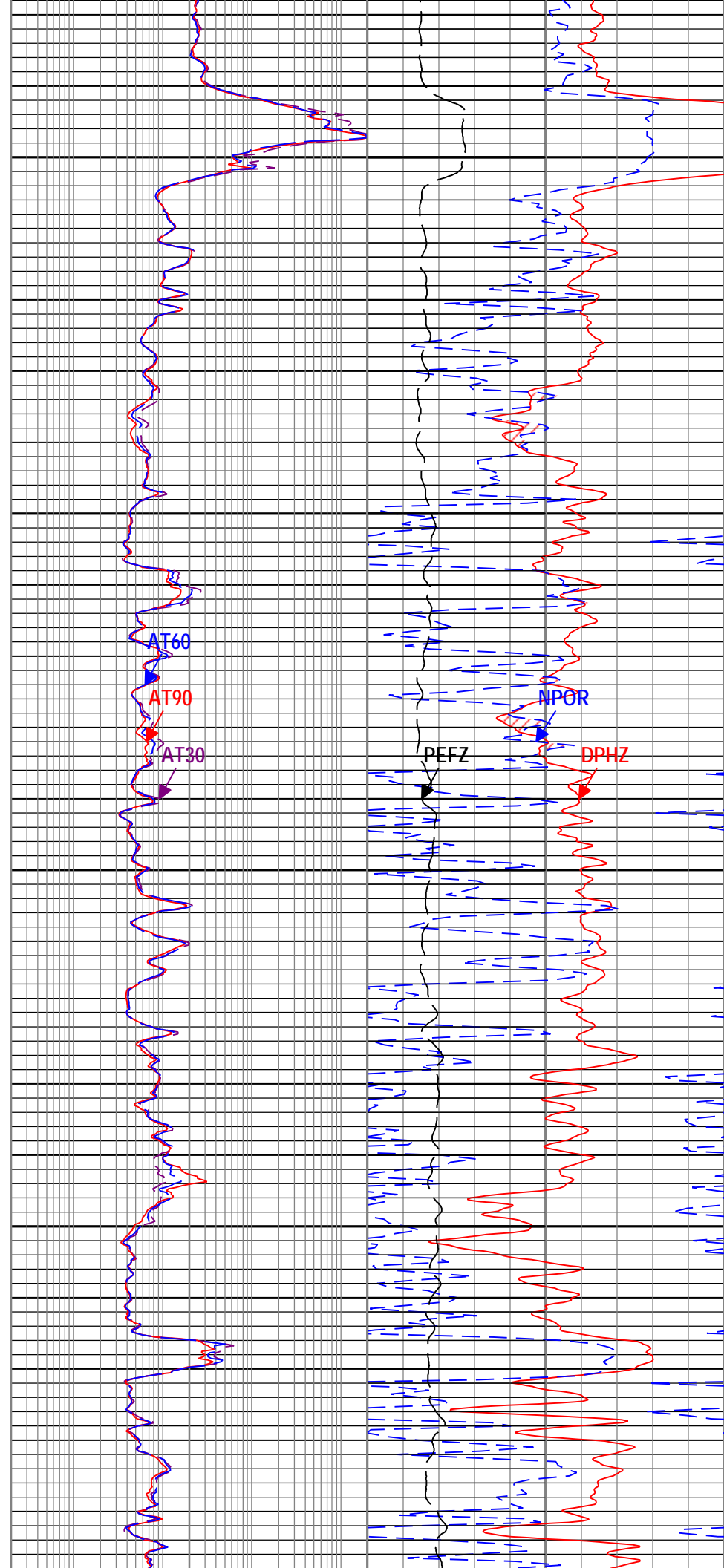
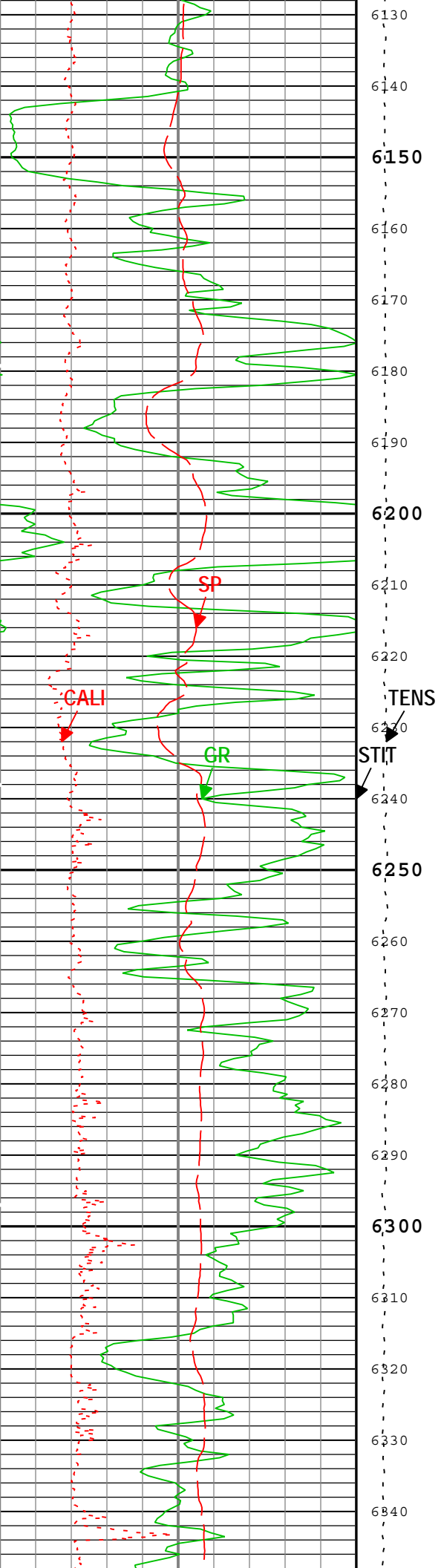


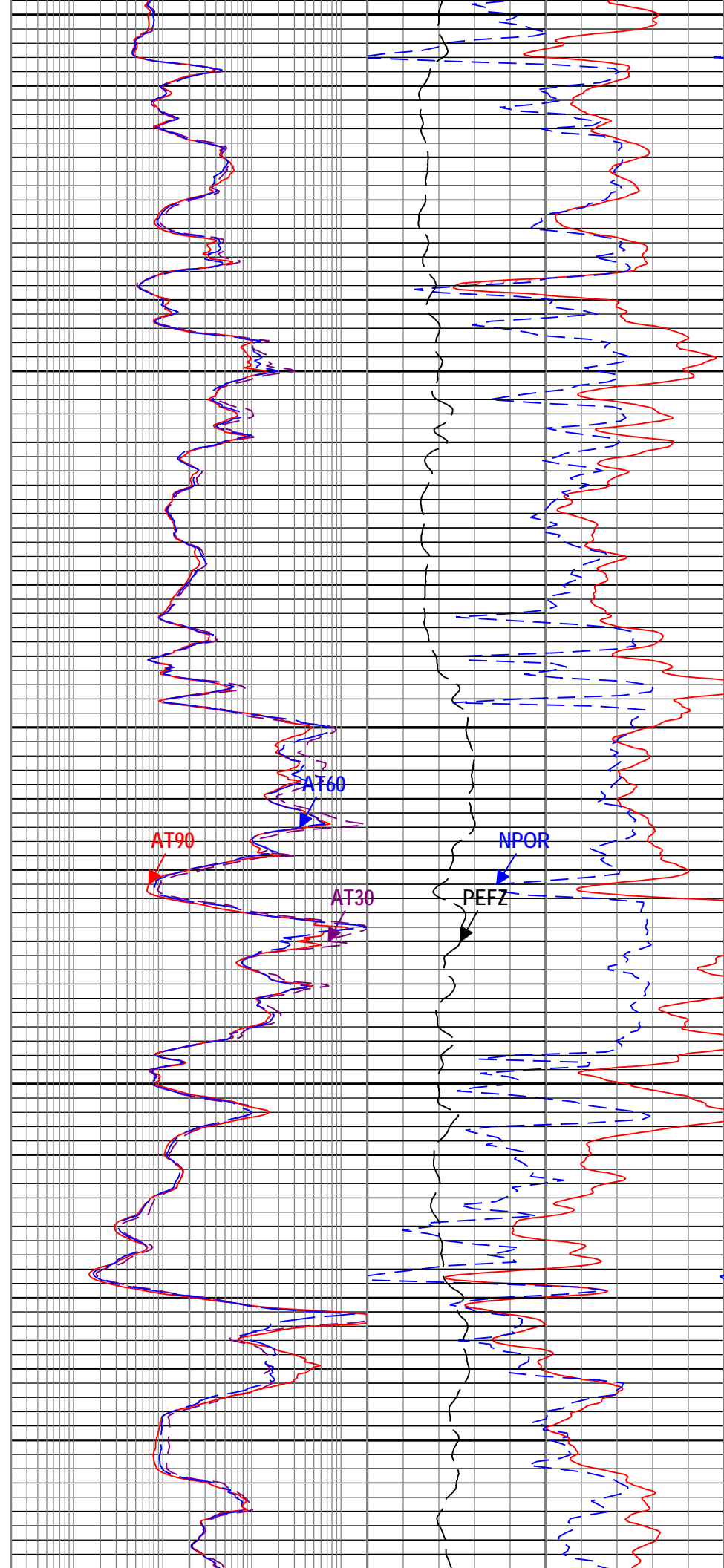
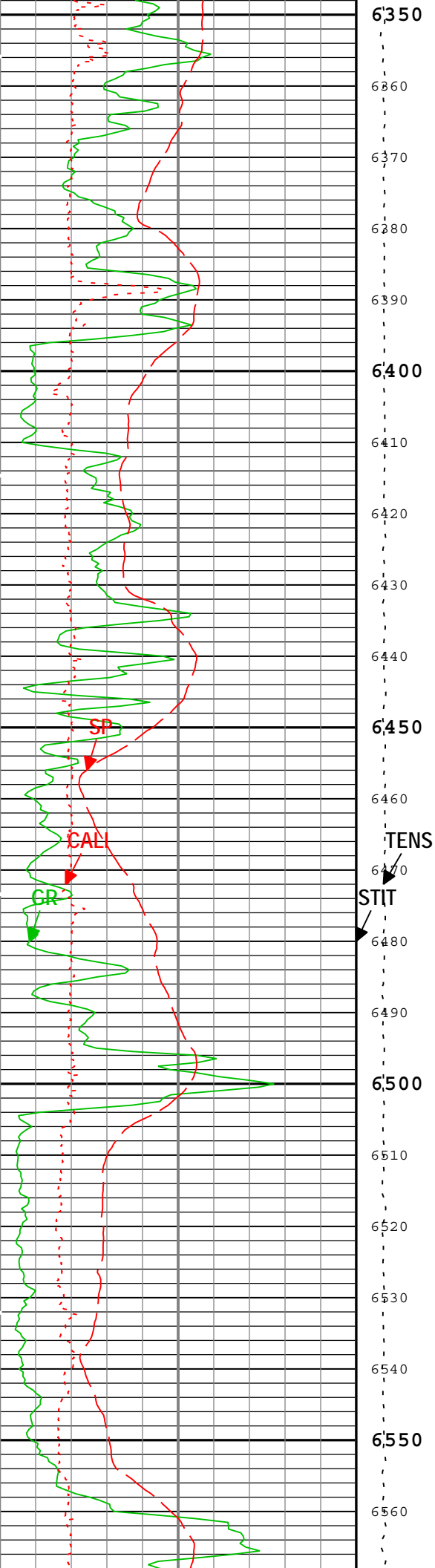


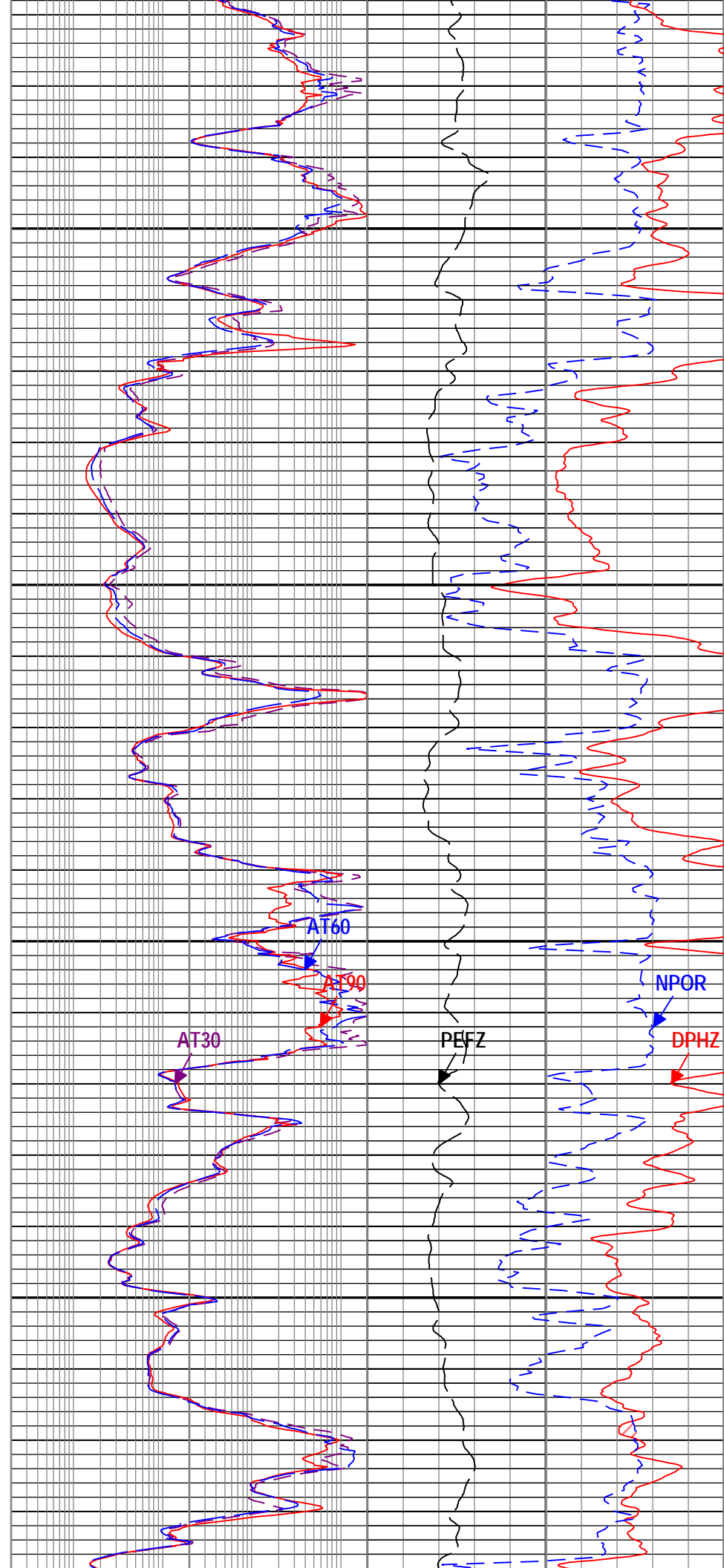
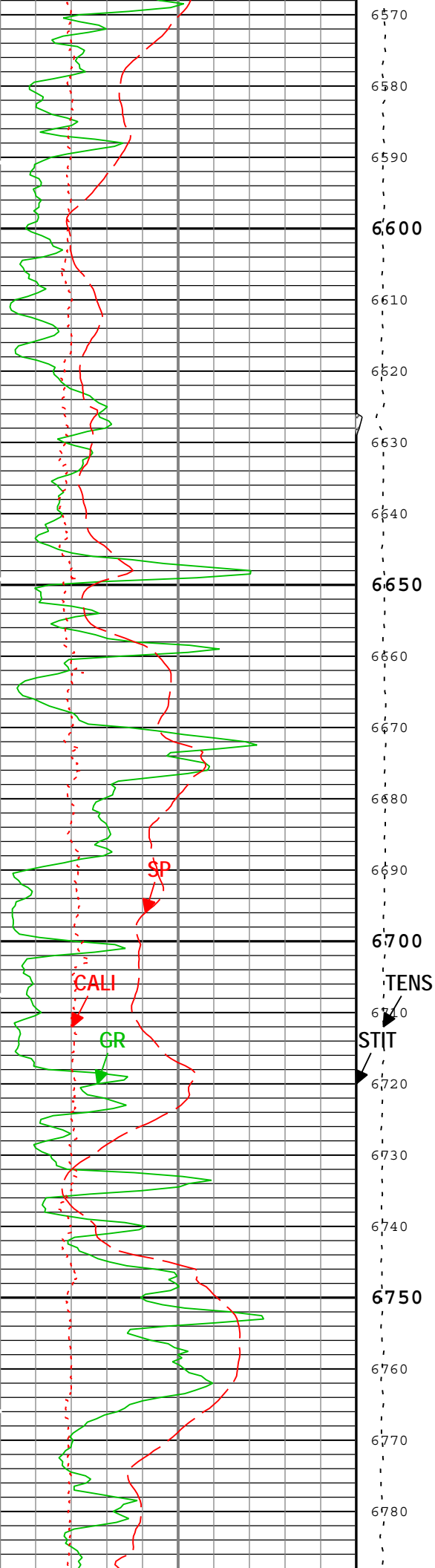


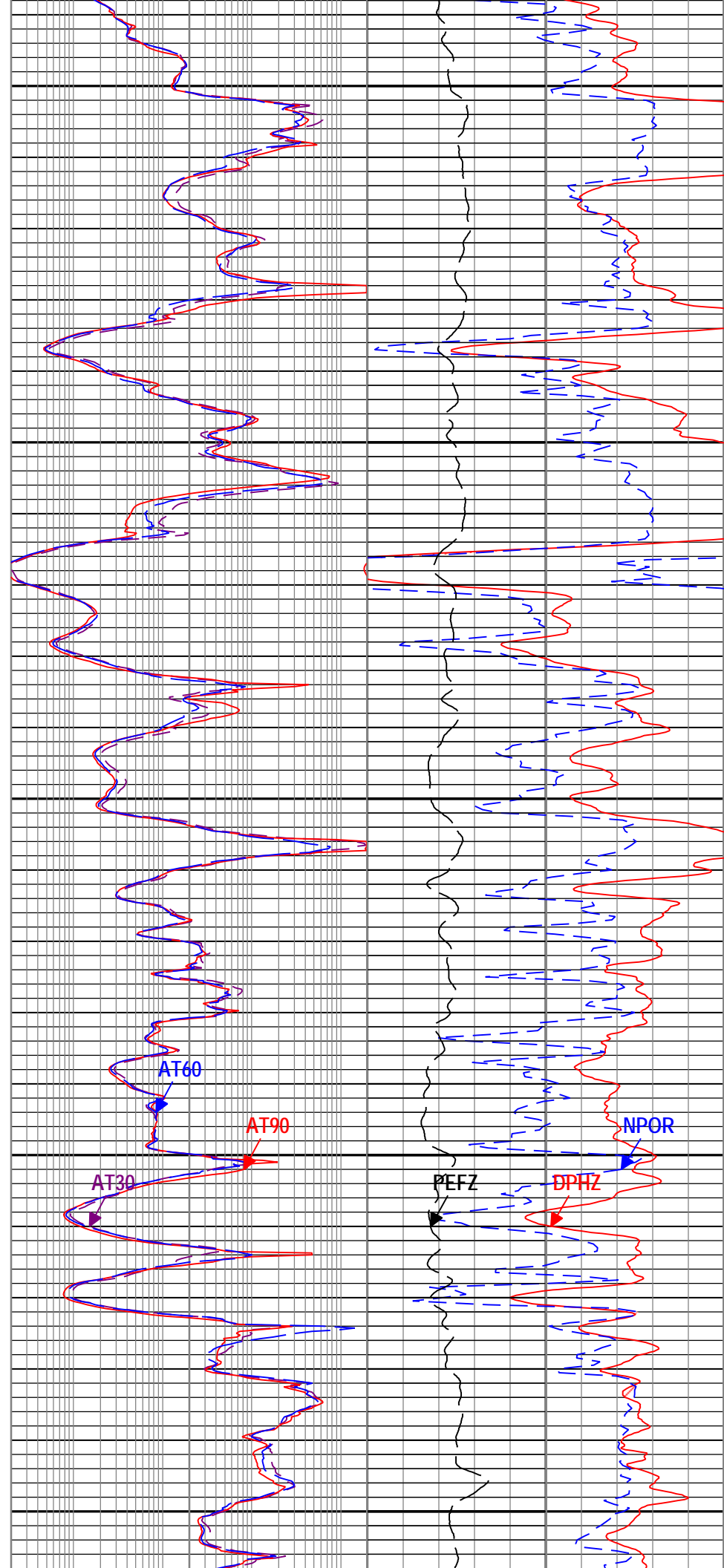
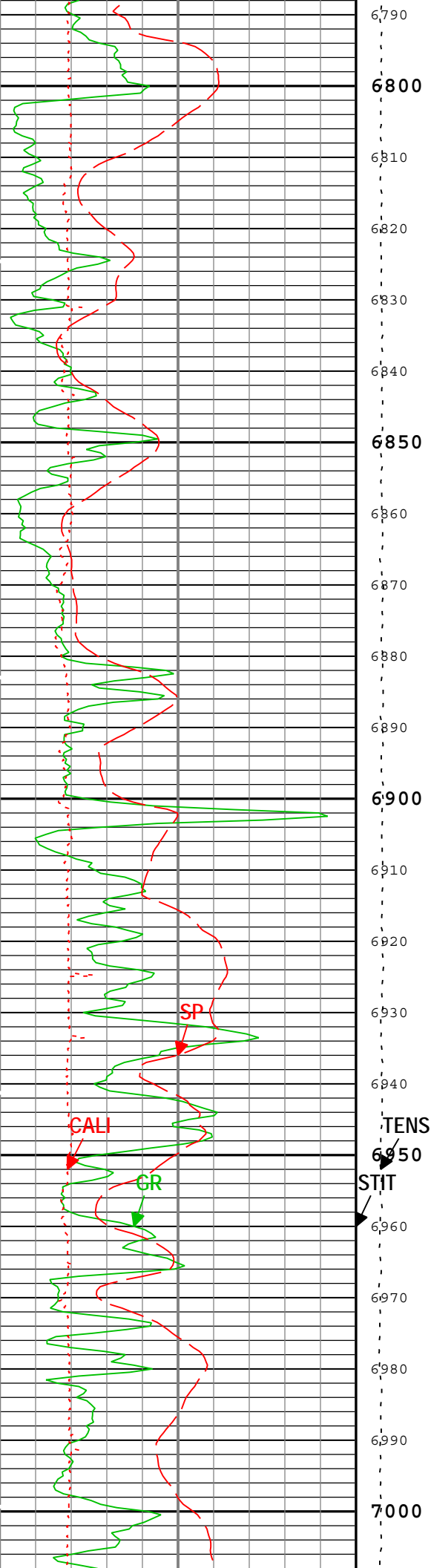


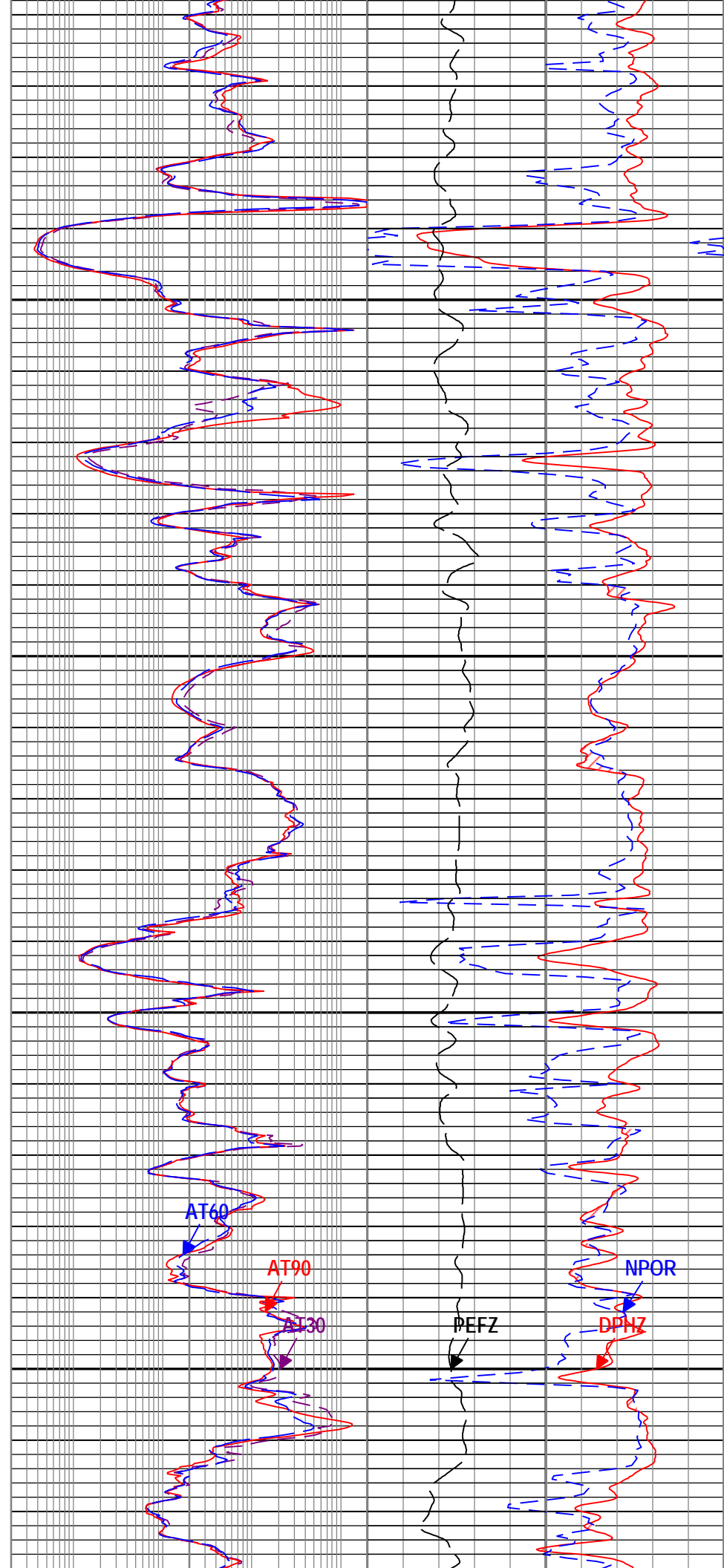
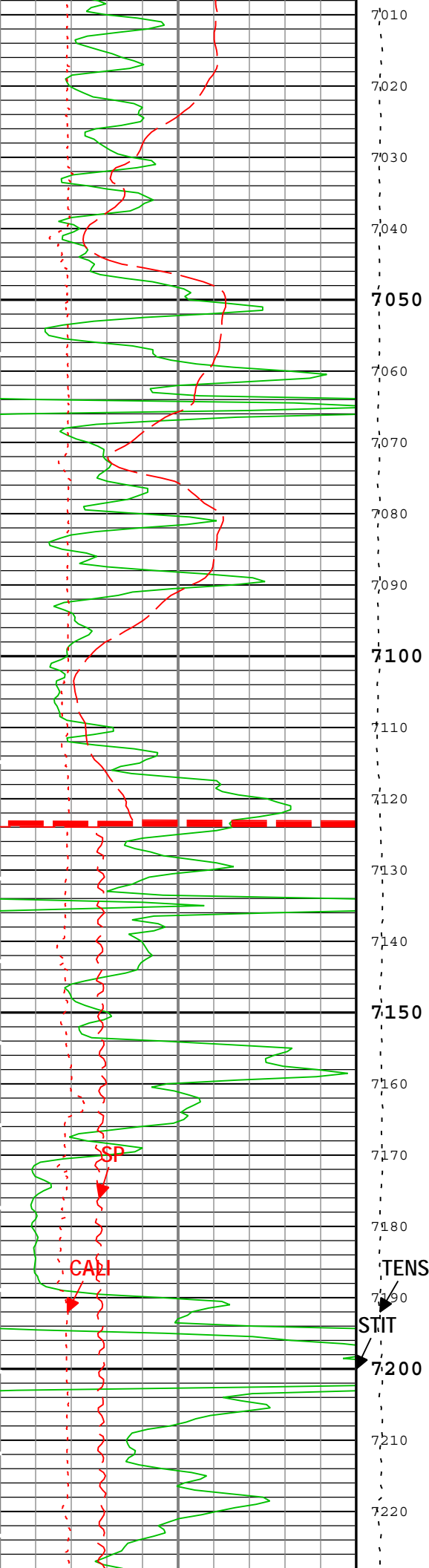


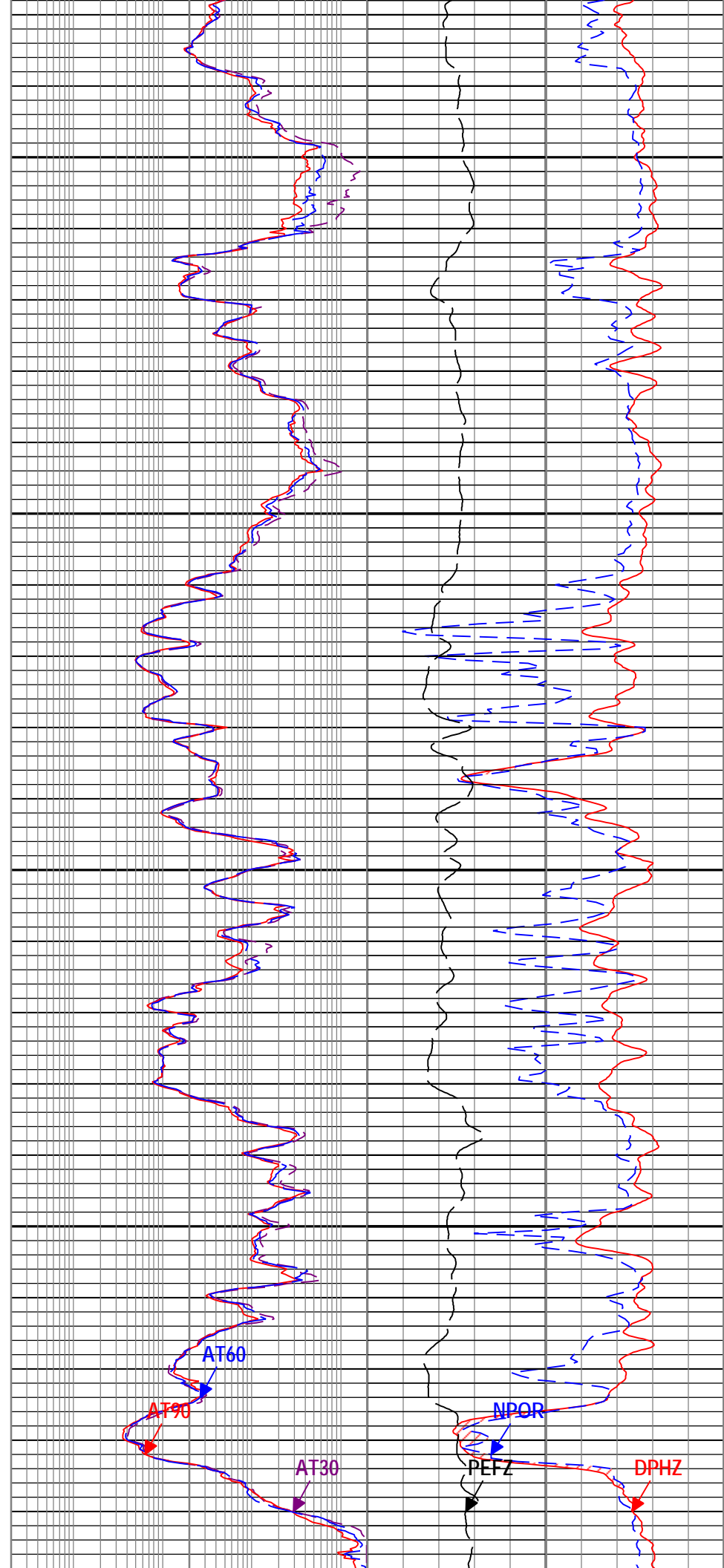
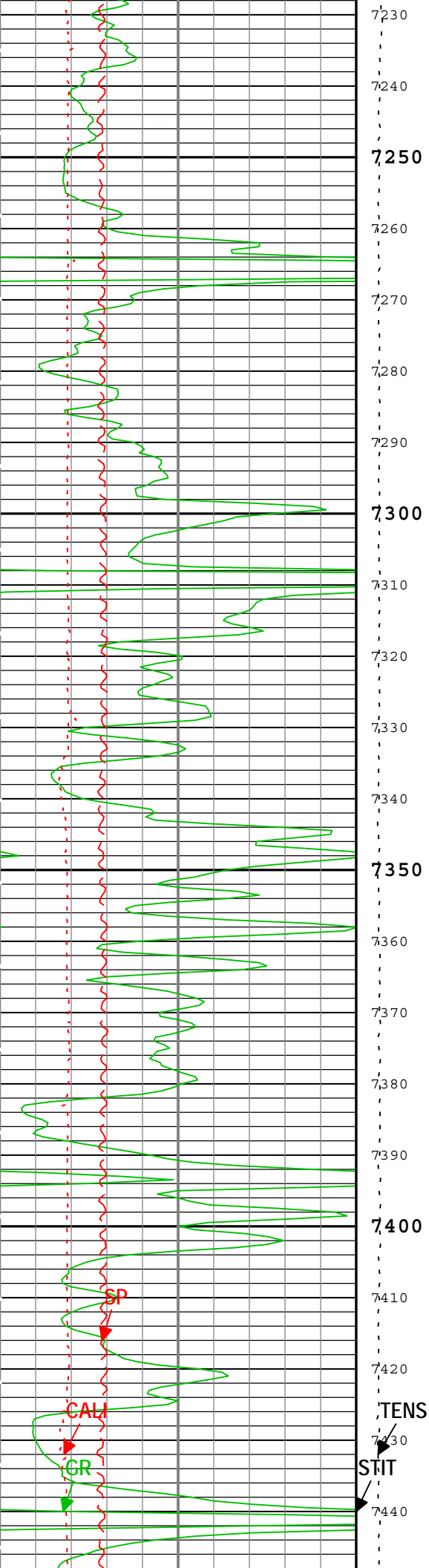


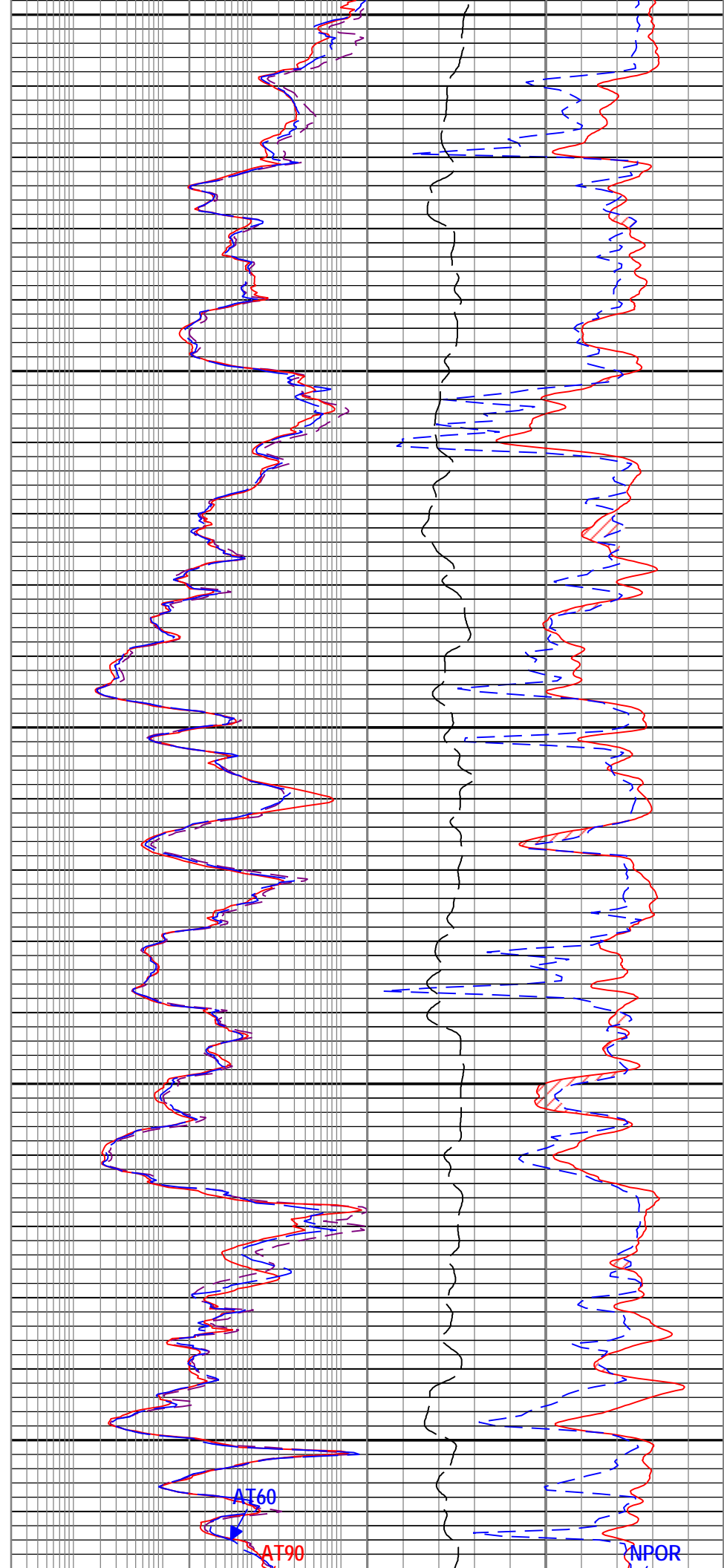
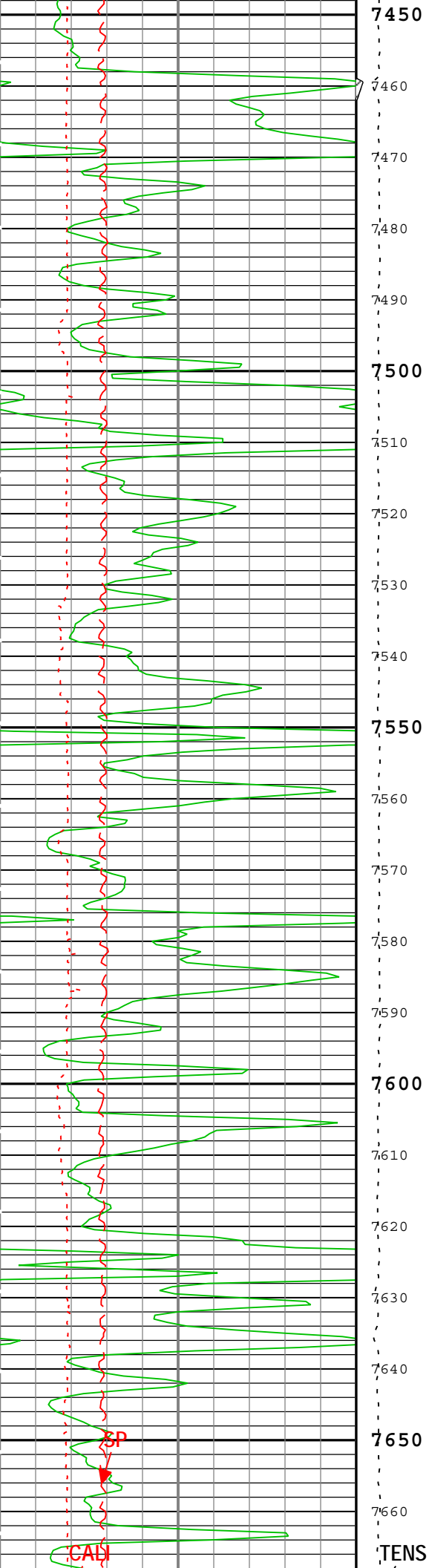


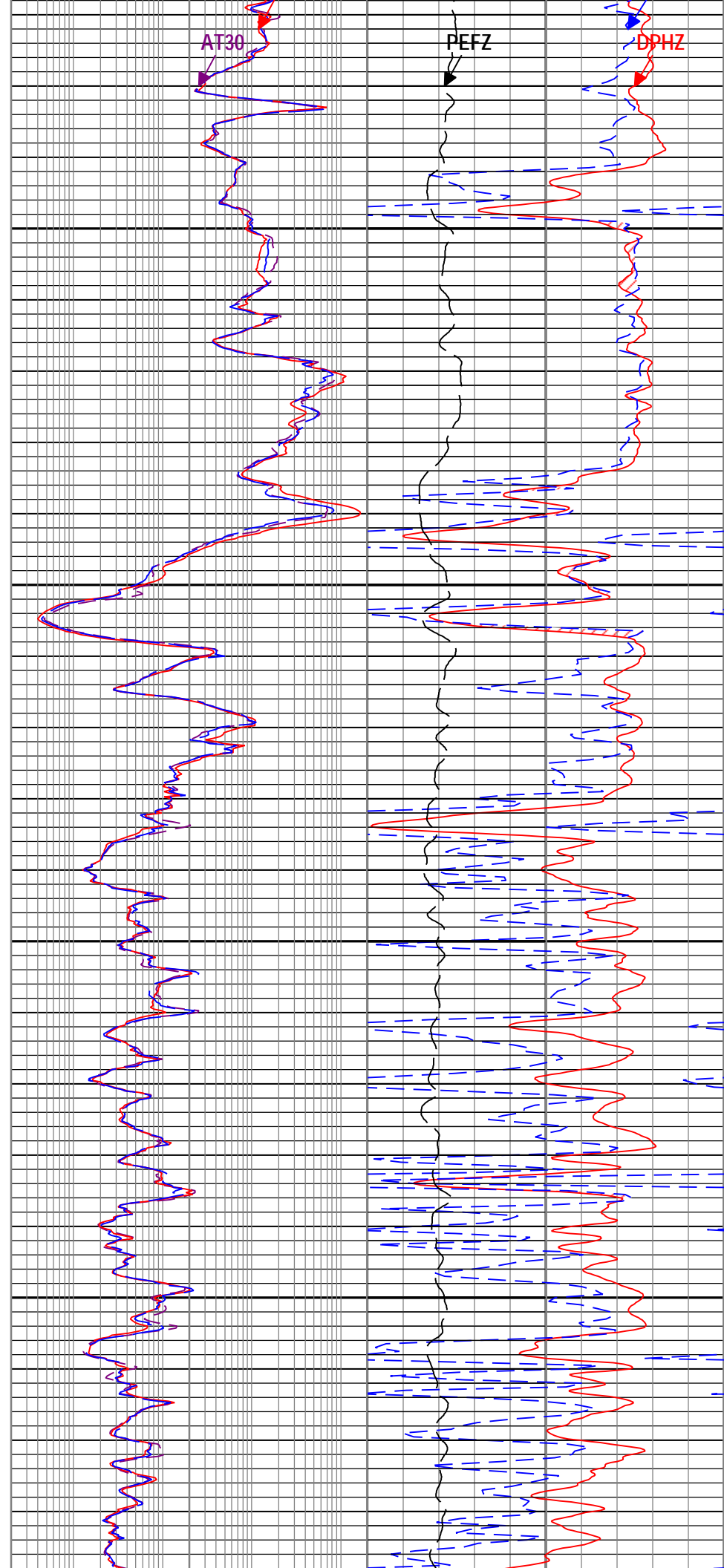
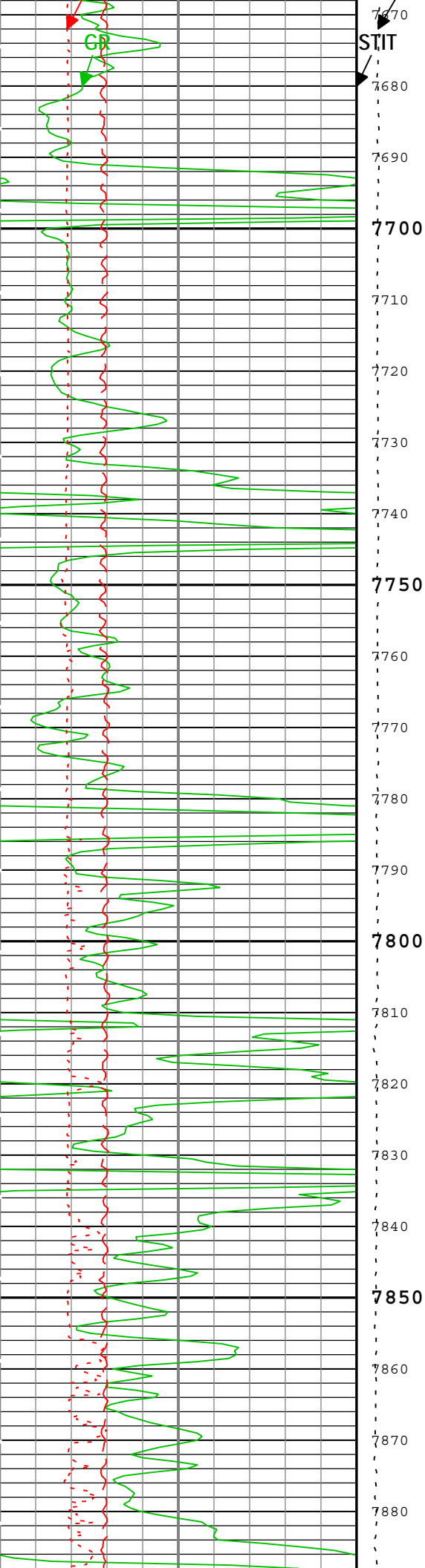


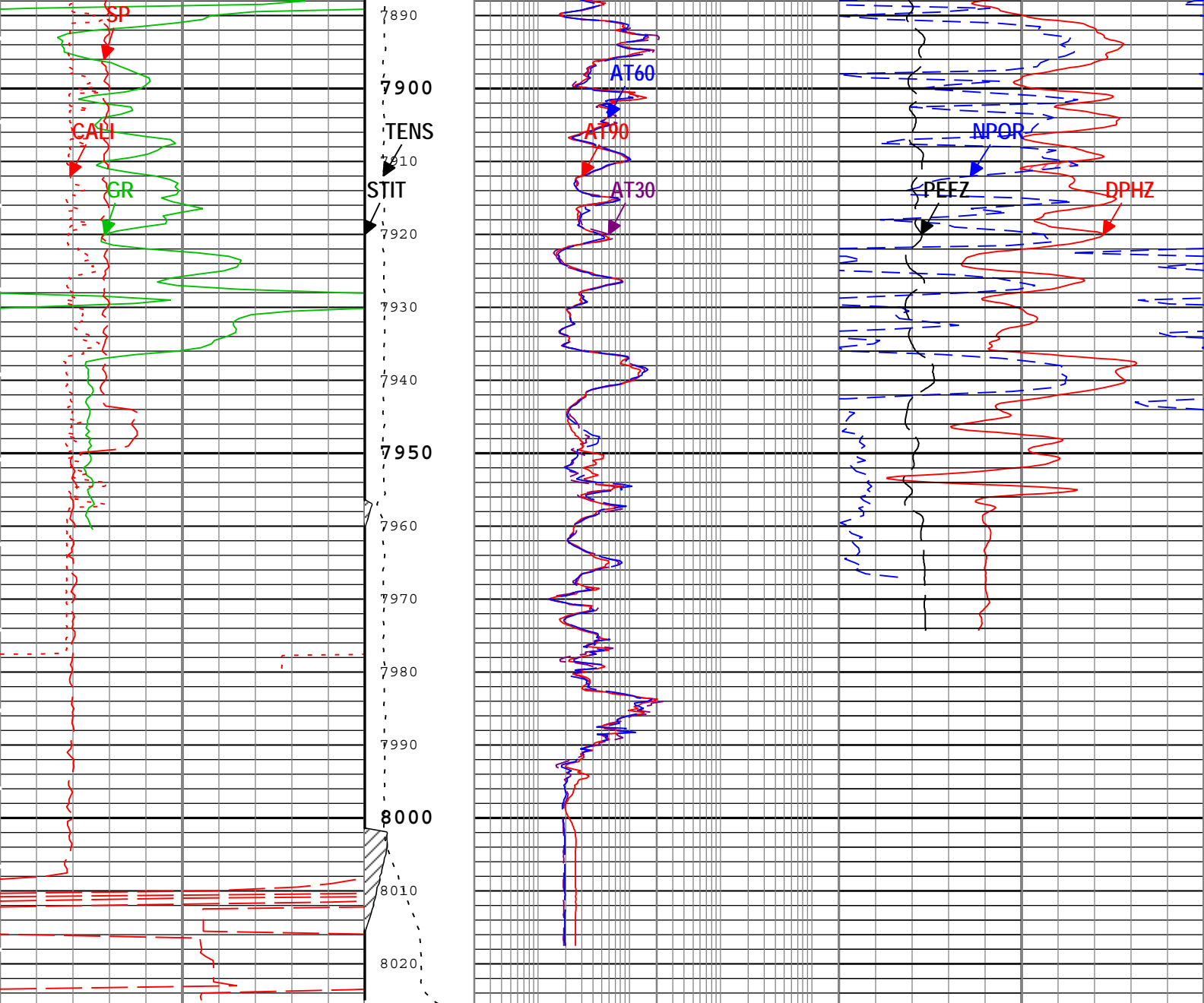












Gamma Ray Back up		
Gamma Ray (GR) HGNS-H		
0	gAPI	200
Caliper (CALI) HDRS-H		
6	in	16
Spontaneous Potential (SP) AIT-M		
0	mV	200

Stuck Tool Indicator, Total (STIT)	0	ft	50
Cable Tension (TENS)	6000 lbf	0	

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

Gas Effect		
NPOR Backup		
Standard Resolution Density Porosity (DPHZ) HDRS-H		
0.3	ft3/ft3	-0.1
Enhanced Thermal Neutron Porosity in Selected Lithology (NPOR) HGNS-H		
0.3	m3/m3	-0.1
Standard Resolution Formation Photoelectric Factor (PEFZ) HDRS-H		
0		10

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	190	degF
BS	Bit Size	WLSESSION	7.875	in
BSAL	Borehole Salinity	Borehole	0	ppm
CALI_SHIFT	CALI Supplementary Offset	HDRS-H	0.32	in
CBLO	Casing Bottom (Logger)	WLSESSION	545	ft
CDEN	Cement Density	HGNS-H	2	g/cm3
DFD	Drilling Fluid Density	Borehole	8.9	lbm/gal
DFT	Drilling Fluid Type	Borehole	Water	
DFT_WATER	Drilling Fluid Water Type	Borehole	LSND	
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
SOCO	Standoff Correction Option	HGNS-H	Yes	
SPDR	SP Drift Per Foot	AIT-M	0	mV/ft
TD	Total Measured Depth	Borehole	7999	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

Calibration Report				
AIT-M (Array Induction Tool - M) Calibration - Run One				
Primary Equipment :				
File code for AIT-MA Sonde Tool Element		AMIS	50	
Auxiliary Equipment :				
File code for AIT Bottom Nose Tool Element		AMRM	50	

AIT Sonde Calibration - Test Loop Gain							
Master (EEPROM):		12:18:07 04-Sep-2014					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Test Loop Gain - 0		Master	1.000	0.950	1.014	1.050	
Test Loop Phase - 0	deg	Master	0	-3.000	0.539	3.000	
Test Loop Gain - 1		Master	1.000	0.950	1.014	1.050	
Test Loop Phase - 1	deg	Master	0	-3.000	0.663	3.000	
Test Loop Gain - 2		Master	1.000	0.950	1.022	1.050	
Test Loop Phase - 2	deg	Master	0	-3.000	0.148	3.000	
Test Loop Gain - 3		Master	1.000	0.950	1.014	1.050	

Test Loop Gain - 3		Master	1.000	0.950	1.014	1.050	
Test Loop Phase - 3	deg	Master	0	-3.000	0.172	3.000	
Test Loop Gain - 4		Master	1.000	0.950	0.996	1.050	
Test Loop Phase - 4	deg	Master	0	-3.000	0.160	3.000	
Test Loop Gain - 5		Master	1.000	0.950	0.987	1.050	
Test Loop Phase - 5	deg	Master	0	-3.000	-0.133	3.000	
Test Loop Gain - 6		Master	1.000	0.950	0.998	1.050	
Test Loop Phase - 6	deg	Master	0	-3.000	0.192	3.000	
Test Loop Gain - 7		Master	1.000	0.950	1.007	1.050	
Test Loop Phase - 7	deg	Master	0	-3.000	-0.097	3.000	

AIT Sonde Calibration - Sonde Error Correction

Master (EEPROM):		12:18:07 04-Sep-2014					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Sonde Error Correction Real - 0	mS/m	Master	-----	-231.000	-109.513	119.000	
Sonde Error Correction Quad - 0		Master	-----	-2250.000	-462.503	2250.000	
Sonde Error Correction Real - 1	mS/m	Master	-----	114.000	159.810	204.000	
Sonde Error Correction Quad - 1		Master	-----	-625.000	-127.134	625.000	
Sonde Error Correction Real - 2	mS/m	Master	-----	66.000	114.073	156.000	
Sonde Error Correction Quad - 2		Master	-----	-350.000	102.792	350.000	
Sonde Error Correction Real - 3	mS/m	Master	-----	39.000	68.619	89.000	
Sonde Error Correction Quad - 3		Master	-----	-250.000	-156.455	250.000	
Sonde Error Correction Real - 4	mS/m	Master	-----	15.000	24.694	35.000	
Sonde Error Correction Quad - 4		Master	-----	-63.000	3.677	63.000	
Sonde Error Correction Real - 5	mS/m	Master	-----	4.000	15.085	24.000	
Sonde Error Correction Quad - 5		Master	-----	-50.000	-26.597	50.000	
Sonde Error Correction Real - 6	mS/m	Master	-----	5.000	10.310	15.000	
Sonde Error Correction Quad - 6		Master	-----	-30.000	-5.646	30.000	
Sonde Error Correction Real - 7	mS/m	Master	-----	-5.000	-1.623	5.000	
Sonde Error Correction Quad - 7		Master	-----	-30.000	-4.661	30.000	

AIT Mud Calibration - Mud Calibration Gain

Master (EEPROM):		12:18:07 04-Sep-2014					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Coarse Gain		Master	1.000	0.800	0.831	1.200	
Fine Gain		Master	1.000	0.800	0.833	1.200	

AIT Electronics Check - Thru Calibration Check

Master (EEPROM):		12:18:07 04-Sep-2014		Before (Measured):		16:40:28 23-Nov-2014	
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Thru Cal Mag - 0	V	Master	-----	0.366	0.603	0.854	
		Before	-----	0.366	0.603	0.854	
		Before-Master	-----	-----	0.000	-----	
Thru Cal Phase - 0	deg	Master	-----	137.000	-165.073	-103.000	
		Before	-----	137.000	-164.165	-103.000	
		Before-Master	-----	-----	0.908	-----	
Thru Cal Mag - 1	V	Master	-----	0.762	1.237	1.778	
		Before	-----	0.762	1.236	1.778	
		Before-Master	-----	-----	-0.001	-----	
Thru Cal Phase - 1	deg	Master	-----	136.000	-166.020	-104.000	
		Before	-----	136.000	-165.112	-104.000	
		Before-Master	-----	-----	0.908	-----	
Thru Cal Mag - 2	V	Master	-----	0.372	0.613	0.868	
		Before	-----	0.372	0.613	0.868	
		Before-Master	-----	-----	0.000	-----	
Thru Cal Phase - 2	deg	Master	-----	132.000	-169.506	-108.000	
		Before	-----	132.000	-168.599	-108.000	
		Before-Master	-----	-----	0.907	-----	
Thru Cal Mag - 3	V	Master	-----	0.420	0.691	0.980	
		Before	-----	0.420	0.691	0.980	
		Before-Master	-----	-----	0.000	-----	
Thru Cal Phase - 3	deg	Master	-----	131.000	-170.241	-109.000	
		Before	-----	131.000	-169.336	-109.000	
		Before-Master	-----	-----	0.905	-----	
Thru Cal Mag - 4	V	Master	-----	0.804	1.297	1.876	
		Before	-----	0.804	1.297	1.876	
		Before-Master	-----	-----	0.000	-----	
Thru Cal Phase - 4	deg	Master	-----	125.000	-176.203	-115.000	

Thru Cal Phase - 4	deg	Master Before Before-Master	----- ----- -----	125.000 ----- -----	175.293 0.910 -----	-115.000 ----- -----	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Thru Cal Mag - 5	V	Master Before Before-Master	----- ----- -----	1.176 1.176 -----	1.887 1.886 -0.001	2.744 2.744 -----	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Thru Cal Phase - 5	deg	Master Before Before-Master	----- ----- -----	122.000 122.000 -----	-177.732 -176.816 0.916	-118.000 -118.000 -----	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Thru Cal Mag - 6	V	Master Before Before-Master	----- ----- -----	1.176 1.176 -----	1.886 1.885 -0.001	2.744 2.744 -----	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Thru Cal Phase - 6	deg	Master Before Before-Master	----- ----- -----	121.000 121.000 -----	-177.711 -176.794 0.917	-119.000 -119.000 -----	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Thru Cal Mag - 7	V	Master Before Before-Master	----- ----- -----	0.846 0.846 -----	1.357 1.357 0.000	1.974 1.974 -----	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Thru Cal Phase - 7	deg	Master Before Before-Master	----- ----- -----	115.000 115.000 -----	-178.471 -177.522 0.949	-125.000 -125.000 -----	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
SPA Zero	mV	Master Before Before-Master	----- ----- -----	-50.000 -50.000 -----	0.156 0.217 0.061	50.000 50.000 -----	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
SPA Plus	mV	Master Before Before-Master	----- ----- -----	941.000 941.000 -----	987.998 987.995 -0.003	1040.000 1040.000 -----	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Temperature Zero	V	Master Before Before-Master	----- ----- -----	-0.050 -0.050 -----	0.000 0.000 0.000	0.050 0.050 -----	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Temperature Plus	V	Master Before Before-Master	----- ----- -----	0.870 0.870 -----	0.915 0.915 0.000	0.960 0.960 -----	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>

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

Primary Equipment :		
HILT High-Resolution Control Cartridge, 150 degC	HRCC-H	4923
HILT Resistivity Gamma-Ray Density Device, 150 degC	HRGD-H	3933
Auxiliary Equipment :		
HRDD Backscatter Detector	Backscatter	
HRDD Long Spacing Detector	Long Spacing	28736
HRDD Short Spacing Detector	Short Spacing	
Cesium 137 Gamma-Ray Logging Source	GSR-J	5094
HILT High-Resolution Control Cartridge, 150 degC	HRCC-H	4923
HILT High-Resolution Mechanical Sonde, 150 degC	HRMS-H	3911
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):	14:46:46 23-Nov-2014						
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Small Ring	in	Before	8.00	6.00	7.61	10.00	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Large Ring	in	Before	12.00	9.00	11.80	15.00	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>

HDRS Density Calibration - Inversion Results

Master (EEPROM):	12:46:24 19-Nov-2014						
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Rho Aluminum	g/cm3	Master	2.596	2.586	2.593	2.606	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Rho Magnesium	g/cm3	Master	1.686	1.676	1.690	1.696	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Pe Aluminum		Master	2.570	2.470	2.570	2.670	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Pe Magnesium		Master	2.650	2.550	2.591	2.750	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>

HDRS Density Calibration - Deviation Summary

HDRS Density Calibration - Deviation Summary

Master (EEPROM):		12:46:24 19-Nov-2014					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
BS Average Deviation	%	Master	0	-0.6000	0.4612	0.6000	
BS Max Deviation	%	Master	0	-1.6000	1.0740	1.6000	
SS Average Deviation	%	Master	0	-1.0000	0.2751	1.0000	
SS Max Deviation	%	Master	0	-2.5000	0.7133	2.5000	
LS Average Deviation	%	Master	0	-1.5000	1.0852	1.5000	
LS Max Deviation	%	Master	0	-3.5000	3.1061	3.5000	

HDRS Density Calibration - Background Summary

Master (EEPROM):		12:46:24 19-Nov-2014		Before (Measured):		14:48:03 23-Nov-2014	
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
BS Window Ratio		Master	1.0000		0.7489		
		Before	0.7489	0.7114	0.7485	0.7863	
		Before-Master	-----	-----	-0.0004	-----	
BS Window Sum	1/s	Master	1		23293		
		Before	23293	22128	23295	24458	
		Before-Master	-----	-----	2	-----	
SS Window Ratio		Master	1.0000		0.4872		
		Before	0.4872	0.4628	0.4869	0.5116	
		Before-Master	-----	-----	-0.0003	-----	
SS Window Sum	1/s	Master	1		10907		
		Before	10907	10361	10909	11452	
		Before-Master	-----	-----	2	-----	
LS Window Ratio		Master	1.0000		0.3004		
		Before	0.3004	0.2854	0.2978	0.3154	
		Before-Master	-----	-----	-0.0026	-----	
LS Window Sum	1/s	Master	1		1191		
		Before	1191	1131	1190	1250	
		Before-Master	-----	-----	-1	-----	

HDRS Density Calibration - Photo-multiplier High Voltages

Master (EEPROM):		12:46:24 19-Nov-2014		Before (Measured):		14:48:03 23-Nov-2014	
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
BS PM High Voltage	V	Master		1000	1635	2400	
		Before		1000	1617	2400	
		Before-Master	-----	-100	-18	100	
SS PM High Voltage	V	Master		1000	1496	2400	
		Before		1000	1512	2400	
		Before-Master	-----	-100	16	100	
LS PM High Voltage	V	Master		1000	1283	2400	
		Before		1000	1281	2400	
		Before-Master	-----	-100	-2	100	

HDRS Density Calibration - Crystal Quality Resolutions

Master (EEPROM):		12:46:24 19-Nov-2014		Before (Measured):		14:48:03 23-Nov-2014	
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
BS Crystal Resolution	%	Master		5.00	10.91	25.00	
		Before		5.00	10.82	25.00	
		Before-Master	-----	-1.00	-0.09	1.00	
SS Crystal Resolution	%	Master		5.00	9.66	20.00	
		Before		5.00	9.80	20.00	
		Before-Master	-----	-1.00	0.14	1.00	
LS Crystal Resolution	%	Master		5.00	8.11	20.00	
		Before		5.00	8.40	20.00	
		Before-Master	-----	-1.00	0.29	1.00	

HDRS MCFL Calibration - MCFL Accumulations

Before:							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Main Resistivity - 0	ohm.m	Before	-----	-----	-----	-----	
Deep Resistivity - 0	ohm.m	Before	-----	-----	-----	-----	
Shallow Resistivity - 0	ohm.m	Before	-----	-----	-----	-----	

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

Primary Equipment :

Auxiliary Equipment :

HGNS Accelerometer, 150 degC

HACCZ-H

5955

AmBe Neutron Logging Source

NSR-F

5215

Calibration Parameter :

Water Temperature

Housing Size

JIG-BKG (Jig minus background reference)

165

HGNS Accelerometer Calibration - Accelerometer Accumulations

Before (Measured): 12:41:31 24-Nov-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-Jan-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	----	----	1155.700	----	
Accelerometer Coefficients - 1		Master	----	----	26.890	----	
Accelerometer Coefficients - 2		Master	----	----	-0.008	----	
Accelerometer Coefficients - 3		Master	----	----	0.000	----	
Accelerometer Coefficients - 4		Master	----	----	2.748	----	
Accelerometer Coefficients - 5		Master	----	----	0.000	----	
Accelerometer Coefficients - 6		Master	----	----	0.000	----	
Accelerometer Coefficients - 7		Master	----	----	0.000	----	
Accelerometer Coefficients - 8		Master	----	----	298.600	----	
Accelerometer Coefficients - 9		Master	----	----	0.983	----	

HGNS Neutron Calibration - HGNS Neutron Accumulations

Master (EEPROM): 10:43:32 31-Oct-2014

Before (Measured):

14:44:57 23-Nov-2014

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Near Zero Measurement	1/s	Master	0	5.0	24.4	40.0	
		Before	0	5.0	25.5	40.0	
		Before-Master	----	-3.7	1.1	3.7	
Far Zero Measurement	1/s	Master	0	5.0	28.7	40.0	
		Before	0	5.0	28.6	40.0	
		Before-Master	----	-4.3	-0.1	4.3	
Near Plus Measurement	1/s	Master	6031.0	4700.0	5257.0	6900.0	
		Before	----	----	----	----	
		Before-Master	----	----	----	----	
Far Plus Measurement	1/s	Master	2793.0	1900.0	2224.0	2900.0	
		Before	----	----	----	----	
		Before-Master	----	----	----	----	
Near Corrected Plus Measurement	1/s	Master		4700.0	5330.0	6900.0	
		Before	----	----	----	----	
		Before-Master	----	----	----	----	
Far Corrected Plus Measurement	1/s	Master		1900.0	2259.0	2900.0	
		Before	----	----	----	----	
		Before-Master	----	----	----	----	

HGNS Gamma-Ray Calibration - Gamma-Ray Accumulations

Before (Measured): 14:52:10 23-Nov-2014

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
RGR Zero Measurement	gAPI	Before	30.0	0	72.6	120.0	
RGR Plus Measurement	gAPI	Before	185.4	157.1	169.7	206.3	
GR Calibration Gain		Before	0.89	0.80	0.97	1.05	

Company:	Cascade Petroleum LLC	Schlumberger
Well:	Gaede A9S-55W-05-85	
Field:	Wildcat	
County:	Lincoln	
State:	Colorado	
Platform Express		
Triple Combo		