

Company: Triton Energy Services LLC

Well: Triton 2

Field: Wattenberg

County: Weld State: Colorado

Platform Express  
Triple Combo  
Linear

County: Weld  
Field: Wattenberg  
Location: Sec. 35, T6N, R65W  
Well: Triton 2  
Company: Triton Energy Services LLC

Location:		Sec. 35, T6N, R65W SWSE SHL: 1164 FSL X 2044 FEL Lat: 40.438300 Long: -104.628000	Elev.: K.B. 4671.00 ft G.L. 4654.00 ft D.F. 4670.00 ft
Permanent Datum:	Ground Level	Kelly Bushing	17.00 ft above Perm.Datum
Log Measured From:	Kelly Bushing		
Drilling Measured From:	Kelly Bushing		
API Serial No.	Section:	Township:	Range:
05123378080000	35	6N	65W

Logging Date 23-Mar-2014

Run Number Run 1

Depth Driller 8685.00 ft

Schlumberger Depth 8692.00 ft

Bottom Log Interval 8692.00 ft

Top Log Interval 726.00 ft

Casing Driller Size @ Depth 9.625 in @ 712.00 ft

Casing Schlumberger 726 ft

Bit Size 8.75 in

Type Fluid In Hole Chemical Gel

Density 9.8 lbm/gal 60 s

Fluid Loss PH 10.6 cm3 9.5

MUD Source of Sample Active Tank

RM @ Meas Temp 0.56 ohm.m @ 72 degF

RMF @ Meas Temp 0.42 ohm.m @ 72 degF

RMC @ Meas Temp 0.7 ohm.m @ 72 degF

Source RMF RMC Calculated

RM @ BHT RMF @ BHT 0.18 @ 232 0.14 @ 232

Max Recorded Temperatures 232 degF

Circulation Stopped 23-Mar-2014 14:30:00

Logger on Bottom 23-Mar-1930 22:30:46

Unit Number 9108 Fort Morgan

Recorded By Max Pace / Elizabeth Wilson

Witnessed By Scott Osborn

Disclaimer

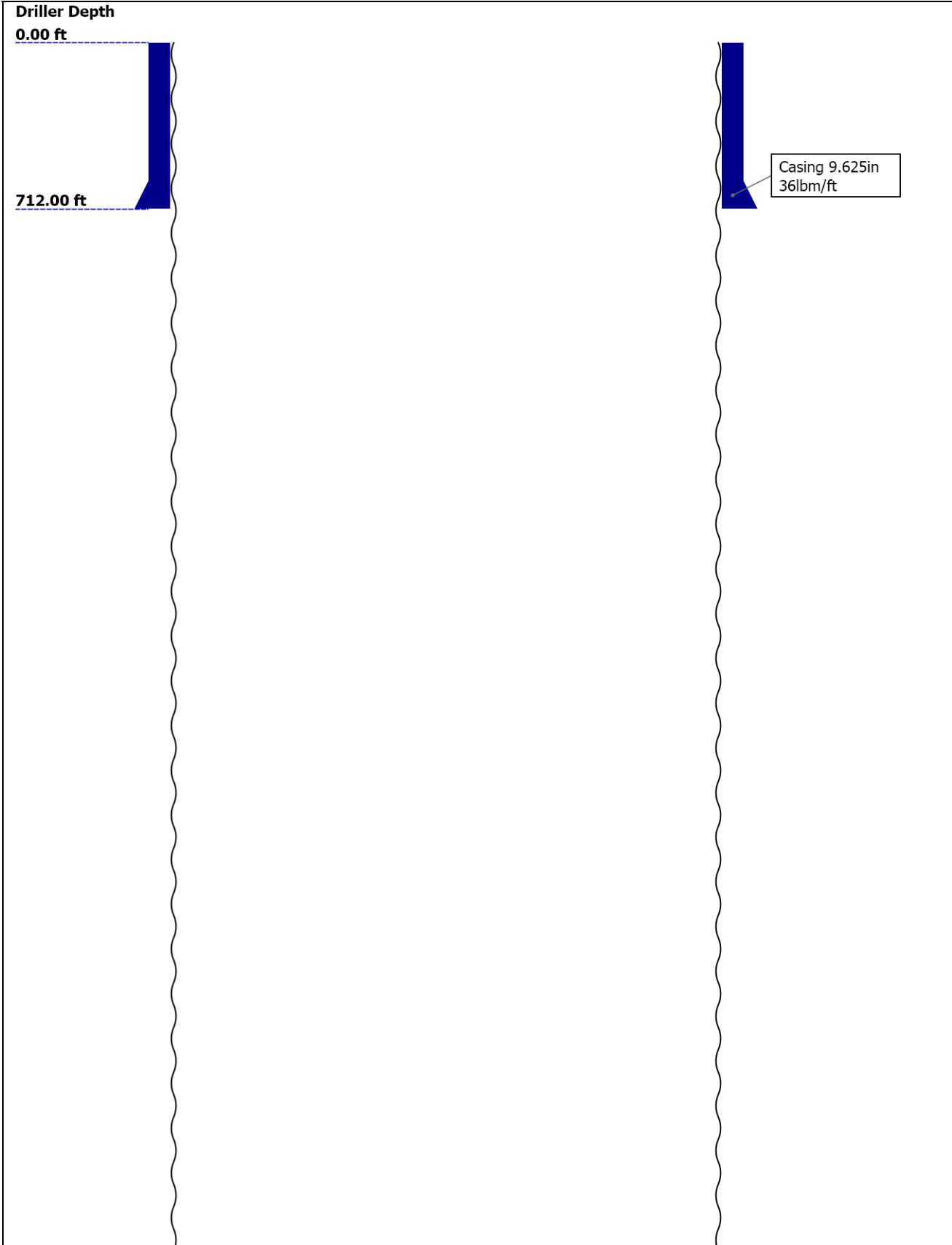
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Well Sketch



8685.00 ft

Open Hole 8.75in

## Borehole Size/Casing/Tubing Record

Bit						
Bit Size ( in )	8.75					
Top Driller ( ft )	0					
Top Logger ( ft )	0					
Bottom Driller ( ft )	8685					
Bottom Logger ( ft )	8692					
Casing						
Size ( in )	9.625					
Weight ( lbm/ft )	36					
Inner Diameter ( in )	8.921					
Grade	J55					
Top Driller ( ft )	0					
Top Logger ( ft )	0					
Bottom Driller ( ft )	712					
Bottom Logger ( ft )	726					

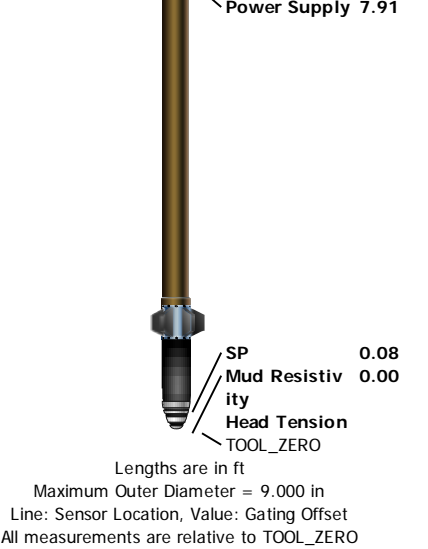
## Borehole Fluids

Parameter( unit )	Run 1					
Fluid Type	Water					
Fluid Name	Chemical Gel					
Max Recorded Temperatures ( degF )	232					
Source of Sample	Active Tank					
Salinity ( ppm )	2000					
Density ( lbm/gal )	9.8					
Funnel Viscosity ( s )	60					
Fluid Loss ( cm3 )	10.6					
PH	9.5					
Date/Time Circulation Stopped	23-Mar-2014 14:30:00					
Date Logger on Bottom	23-Mar-1930					
Time Logger on Bottom	22:30:46					
Source RMF	Calculated					
RMC	Calculated					
RM @ Meas Temp ( ohm.m@degF )	0.56 @ 72					
RMF @ Meas Temp ( ohm.m@degF )	0.42 @ 72					

RMC @ Meas Temp ( ohm.m@degF )	0.7 @ 72					
RM @ BHT ( ohm.m@degF )	0.18 @ 232					
RMF @ BHT ( ohm.m@degF )	0.14 @ 232					
RMC @ BHT ( ohm.m@degF )	0.23 @ 232					
Total Solid ( % )						
High Gravity Solids ( % )						

## Remarks and Equipment Summary

Run 1: Toolstring				Run 1: Remarks	
Equip name	Length	MP name	Offset	All Schlumberger depth control procedures followed	
LEH-QT LEH-QT	43.57			IDW used as primary depth reference	
				Z-chart used as secondary depth reference	
DTC-H ECH-KC DTC-H	40.65	CTEM HV	39.75 0.00	Tool run as per toolsketch	
		ToolStatus TelStatus Temperature	37.65 37.65 37.62	Sandstone matrix (2.68) run as per client request	
HGNS-H HGNH NPV-N NSR-F:2554 HGNS-H HMCA-H HACCZ-H:6991	37.65	GR	36.91	Crew: Max Pace, Gary Lapp, Elizabeth Wilson	
		CNL Porosity HMCA HGNS Acceleromete r	30.57 28.24 28.24 0.00		
HDRS-H ECH-MEB HRCC-H HRMS-H Short Spacing HRGD-H:3760 GSR-J:5471 GPV-Q Long Spacing Backscatter	28.24	HRCC	24.24		
		MCFL Caliper TLD Density	18.81 18.33 17.94		
AIT-M:181 AMIS:181 AMRM:181	16.00				
		Induction Temperature	7.91 7.91		

			
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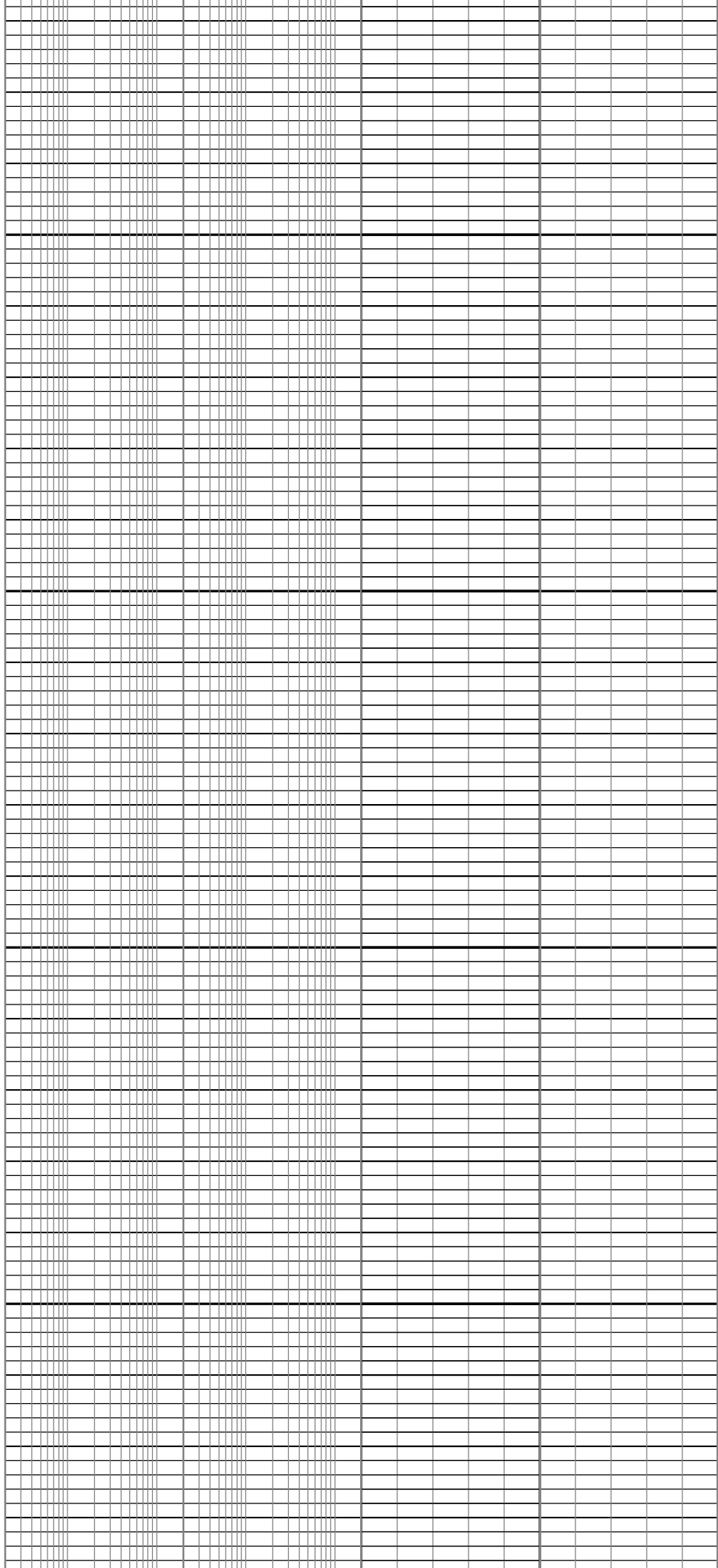
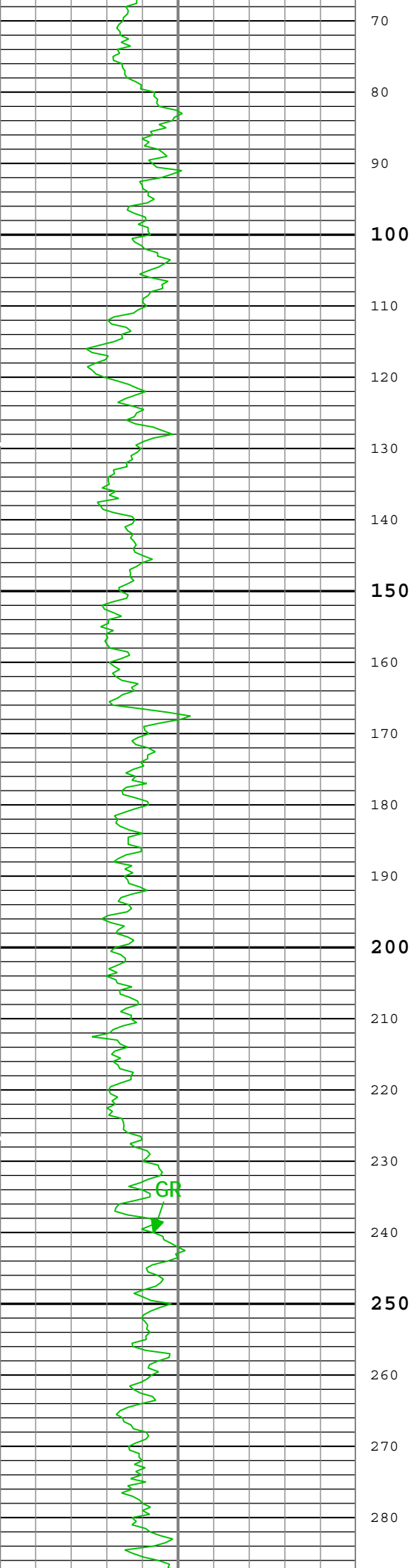
Depth Summary

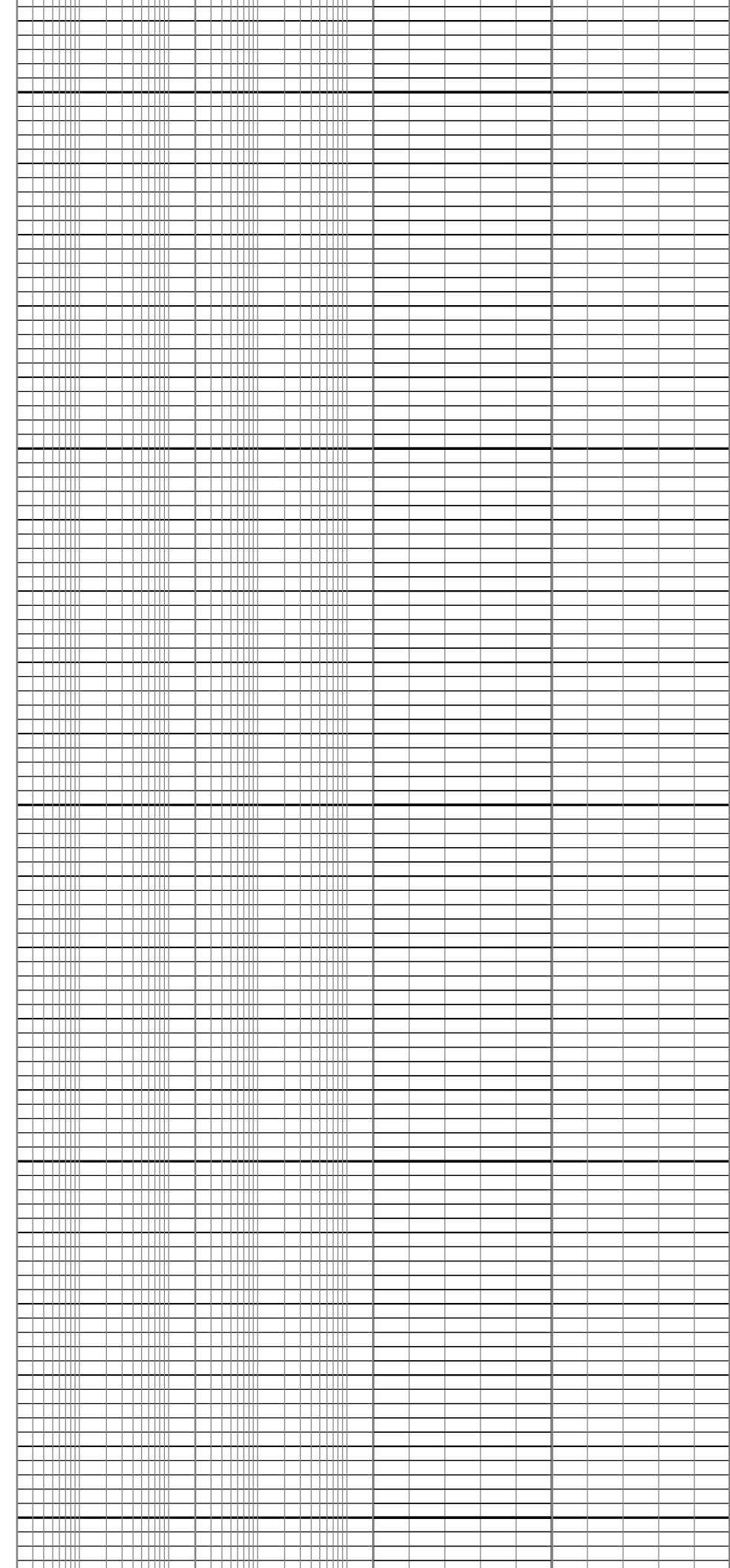
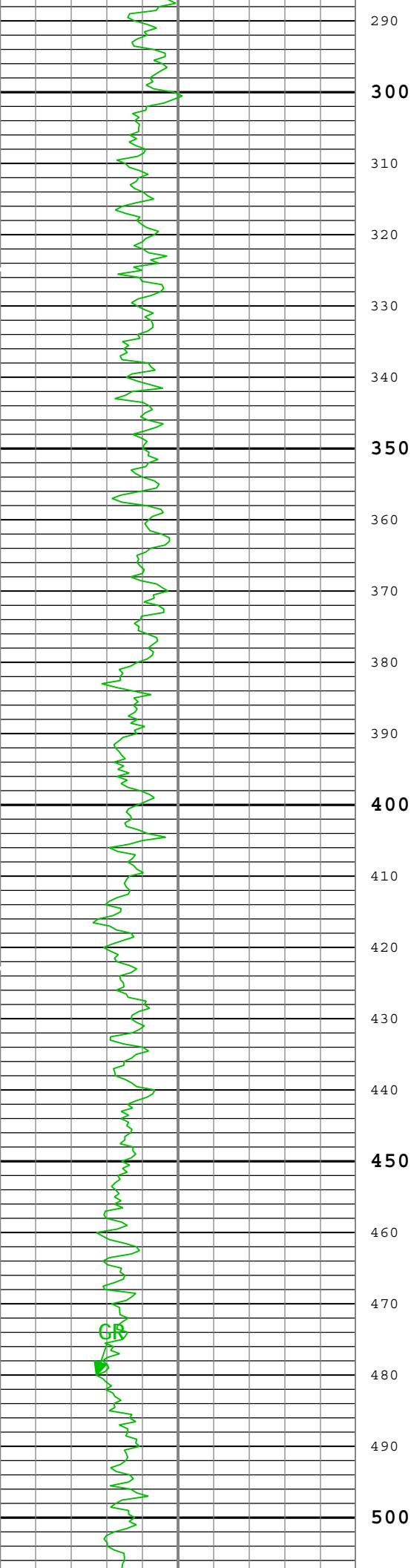
	Run 1		
Depth Measuring Device			
Type	IDW-B		
Serial Number			
Calibration Date			
Calibrator Serial Number			
Calibration Cable Type			
Wheel Correction 1	-3		
Wheel Correction 2	-5		
Tension Device			
Type	CMTD-B/A		
Serial Number	147		
Calibration Date	04-Mar-2014		
Calibrator Serial Number	78135A		
Number of Calibration Points	10		
Calibration Root Mean Square Error	4		
Calibration Peak Error	8		
Logging Cable			
Type	7-46A-XS		
Serial Number	471127-AXS		
Length	20000.00 ft		
Conveyance Type	Wireline		
Rig Type	Land		
Run 1:Depth Control Parameters		Depth Control Remarks	
Log Sequence	First Log In the Well		
Rig Up Length At Surface			
Rig Up Length At Bottom			
Rig Up Length Correction			
Stretch Correction			
Tool Zero Check At Surface			
Run 1			

Software Version

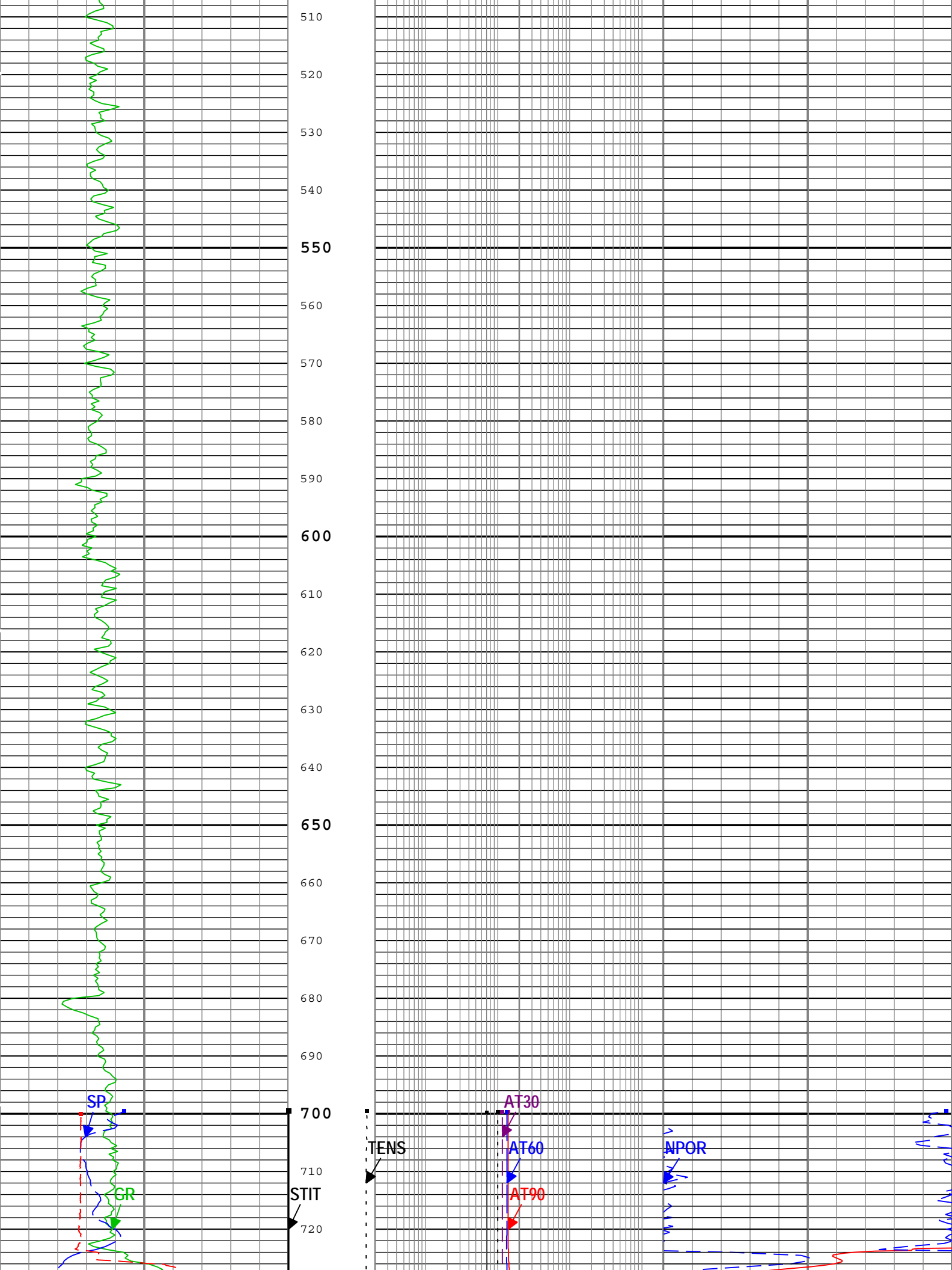
Acquisition System		Version
MaxWell		4.0.9163.3000
Application Patch		Patch-SP-10767_13393-4.0.9163.3001

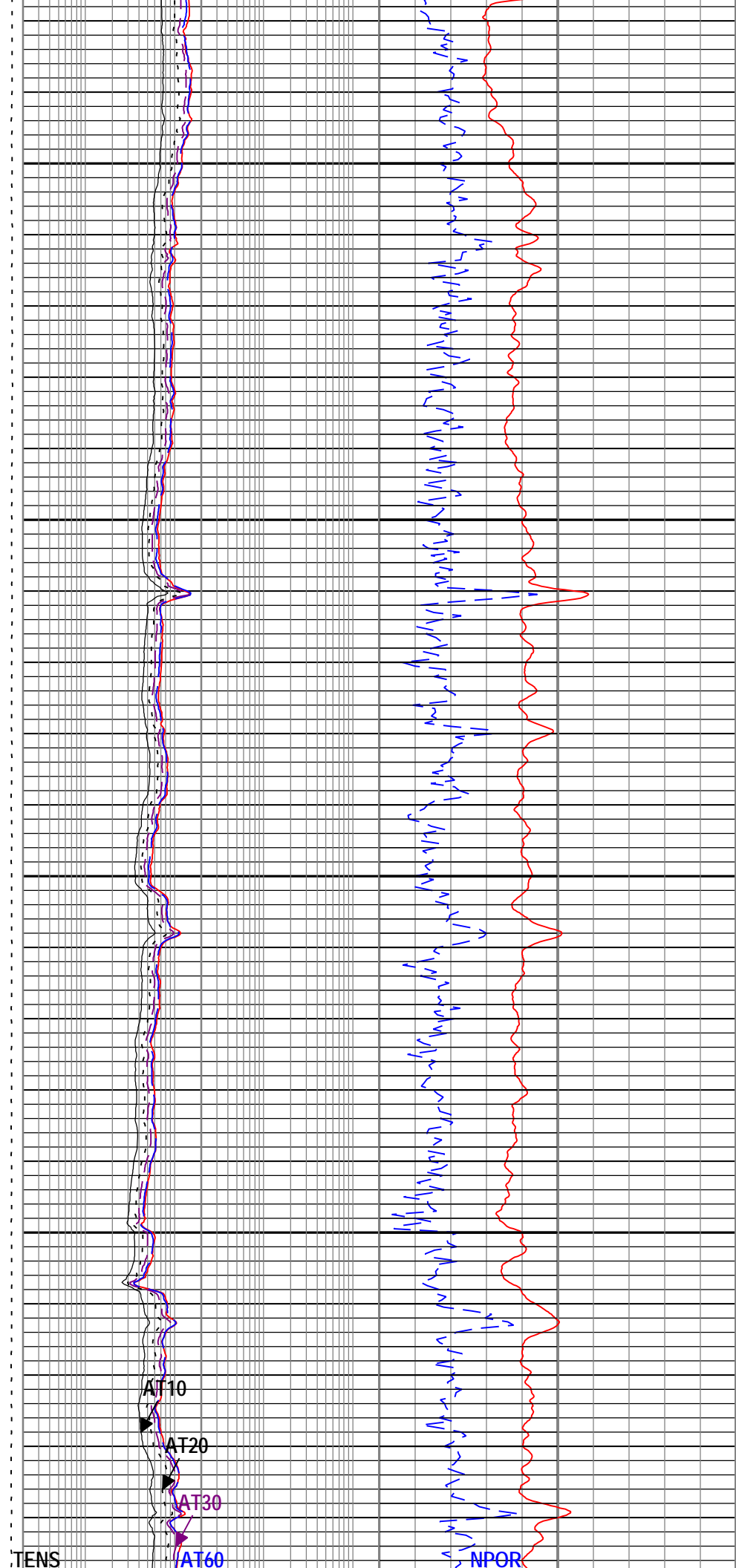
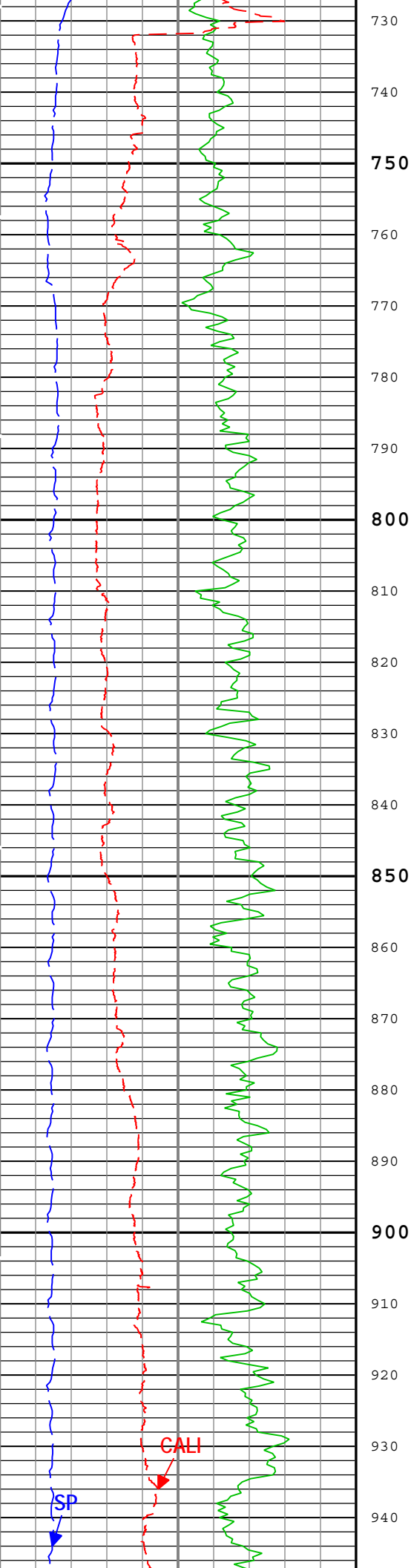
Computation		Description						Version			
HENVIR		Computation Ensemble for the HGNS Neutron environmental corrections						4.0.9033.3000			
DepthCorrection		DepthCorrection						4.0.9213.3000			
Tool Elements		Description				Software Version		Firmware Version			
HRCC-H		HILT High-Resolution Control Cartridge, 150 degC				4.0.9231.3000					
HGNS-H		HILT Gamma-Ray and Neutron Sonde, 150 degC				4.0.9231.3000					
HRGD-H		HILT Resistivity Gamma-Ray Density Device, 150 degC				4.0.9231.3000					
AMIS		Array Induction Sonde - M				4.0.9247.3000					
Pass Summary											
Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data		
Run 1	Log[3]:Up	Up	99.96 ft	8711.86 ft	23-Mar-2014 10:59:06 PM	24-Mar-2014 1:27:26 AM	ON	0.00 ft	No		
All depths are referenced to toolstring zero											
Log	Company:Triton Energy Services LLC      Well:Triton 2 Run 1: Log[3]:Up:S006										
Description: HGNS standard resolution porosities for Platform Express    Format: Log ( EMD 5in Triple Combo Linear )    Index Scale: 5 in per 100 ft    Index Unit: ft    Index Type: Measured Depth    Creation Date: 24-Mar-2014 10:51:02											
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								
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								
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)											
<div>Gamma Ray Back up</div> <div>Gamma Ray (GR) HGNS-H</div> <div>0gAPI150</div> <div>Spontaneous Potential (SP) AIT-M</div> <div>-160mV40</div> <div>Caliper (CALI) HDRS-H</div> <div>6in16</div>			Stuck Tool Indicator, Total (STIT)			Array Induction Two Foot Resistivity A90 (AT90) AIT-M					
						0.2ohm.m2000					
			Cable Tension (TENS)			Array Induction Two Foot Resistivity A60 (AT60) AIT-M					
						0.2ohm.m2000					
<div>Gas Effect</div> <div>NPOR Backup</div> <div>Standard Resolution Density Porosity (DPHZ) HDRS-H</div> <div>Enhanced Thermal Neutron Porosity in Selected Lithology (NPOR) HGNS-H</div>			0ft50			Array Induction Two Foot Resistivity A30 (AT30) AIT-M					
						0.2ohm.m2000					
			10000lbf0			Array Induction Two Foot Resistivity A20 (AT20) AIT-M					
						0.2ohm.m2000		0.45ft3/ft3-0.15			
						Array Induction Two Foot Resistivity A10 (AT10) AIT-M					
						0.2ohm.m2000		0.45m3/m3-0.15			



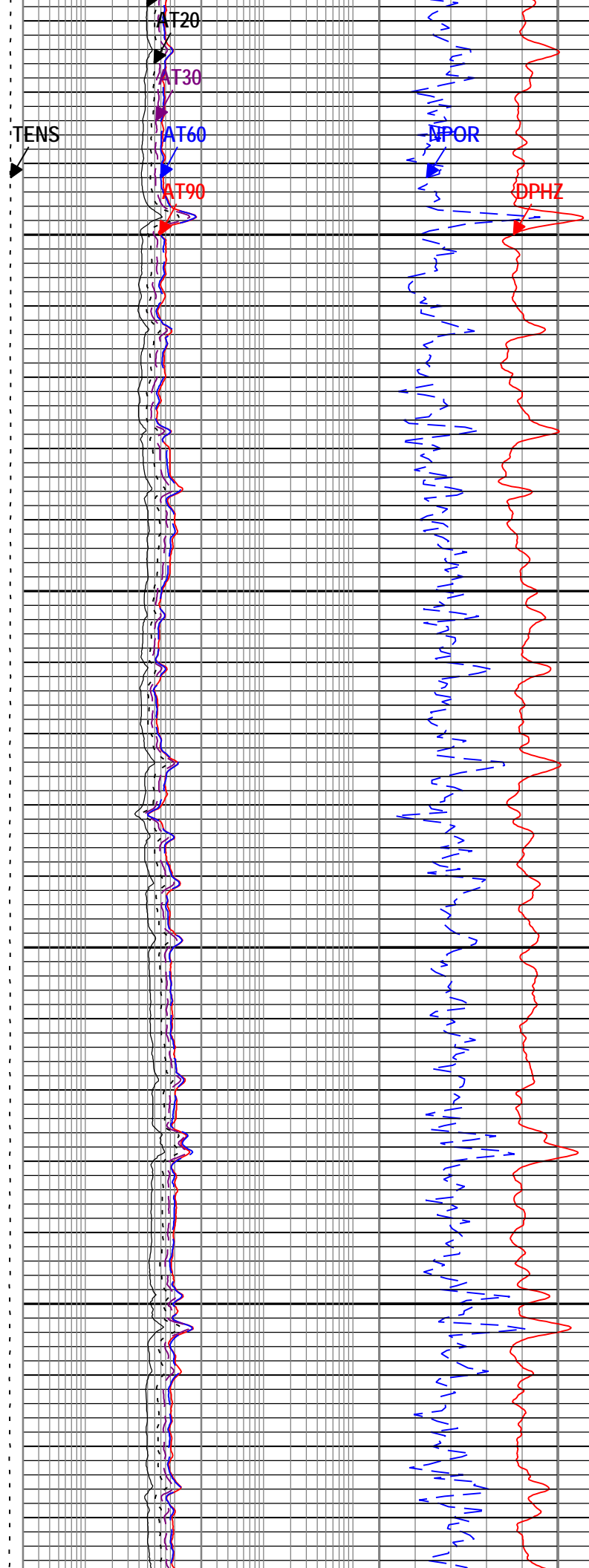
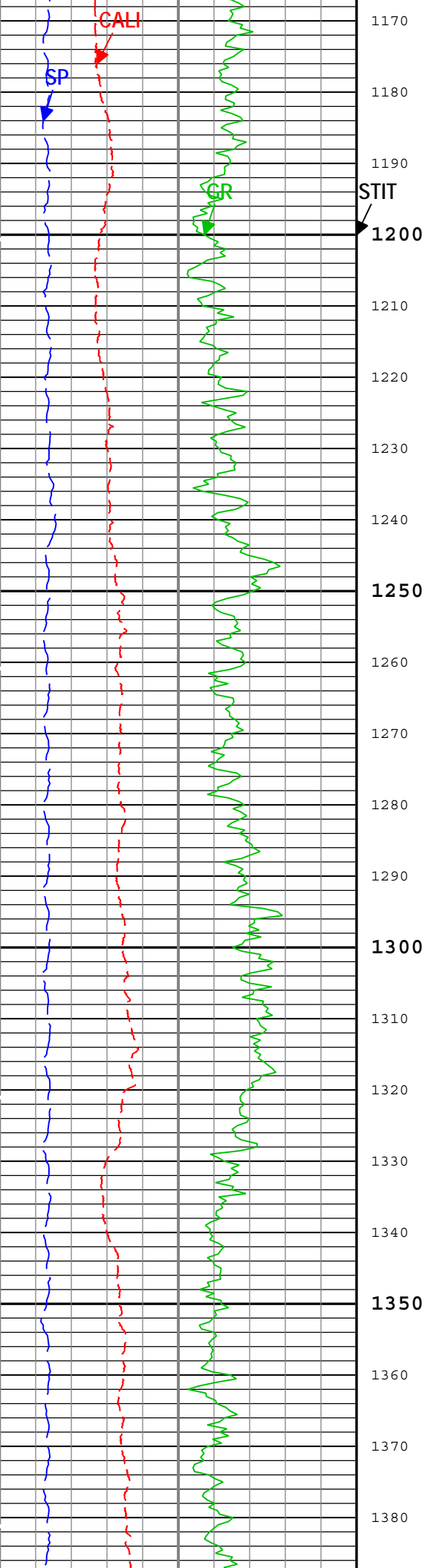


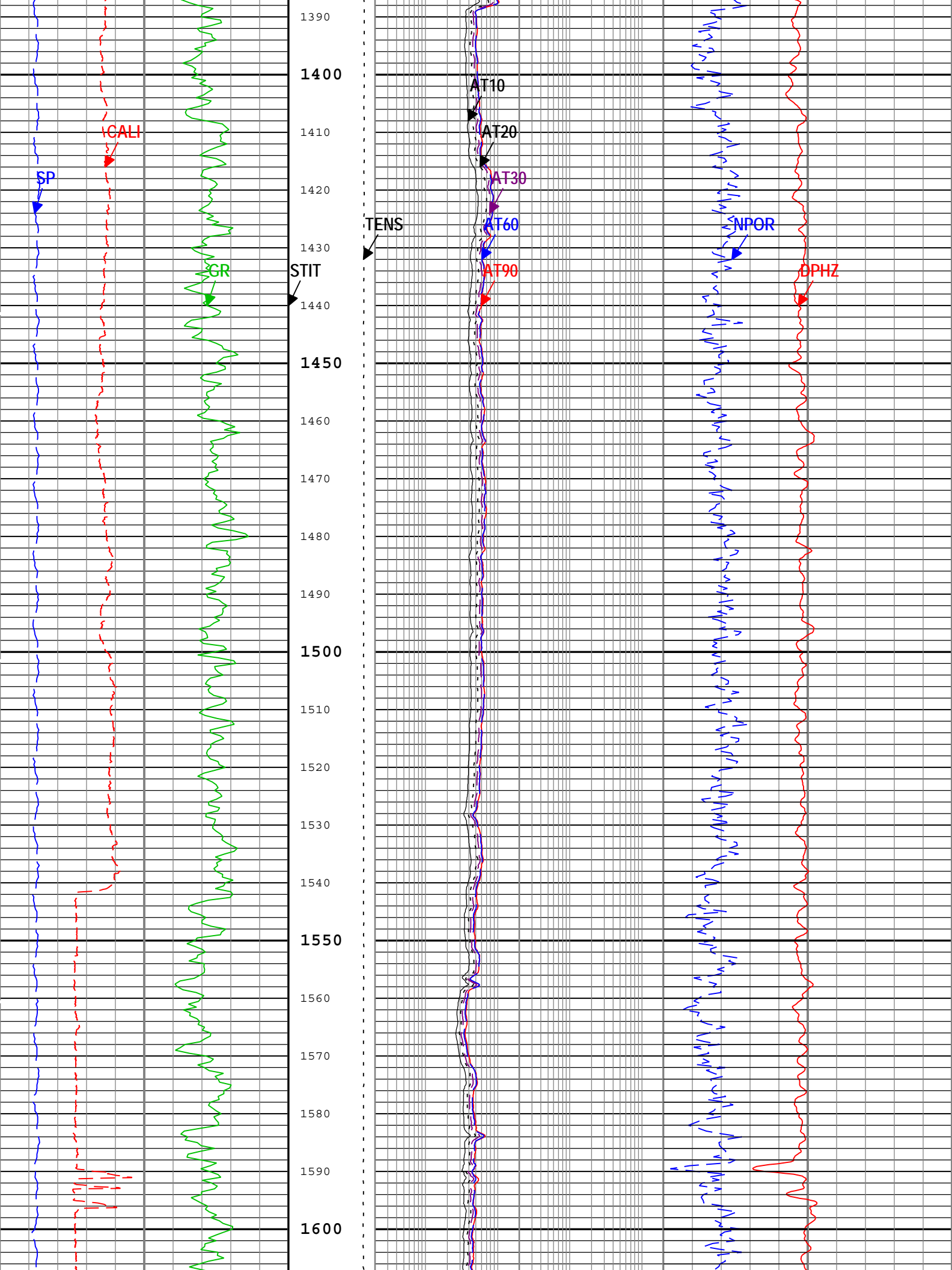


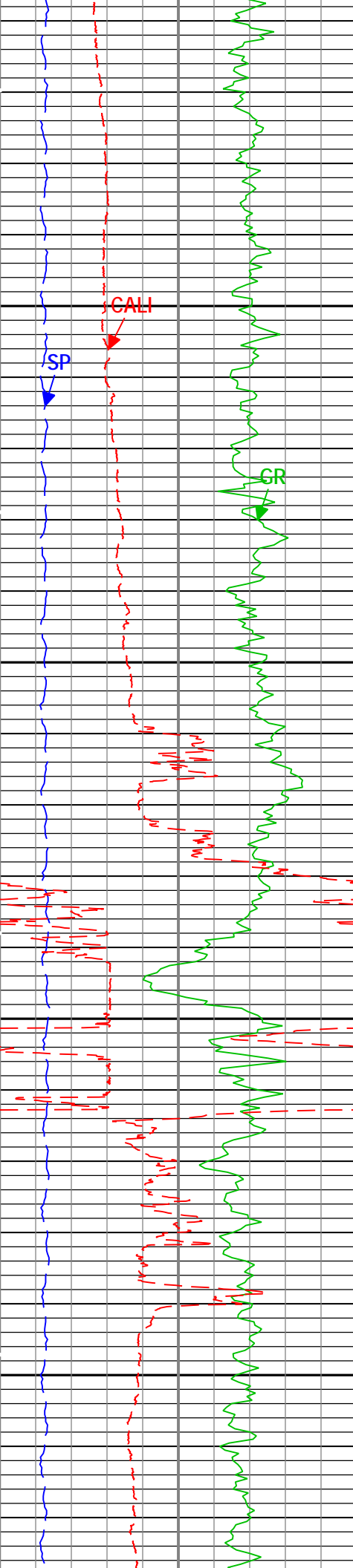




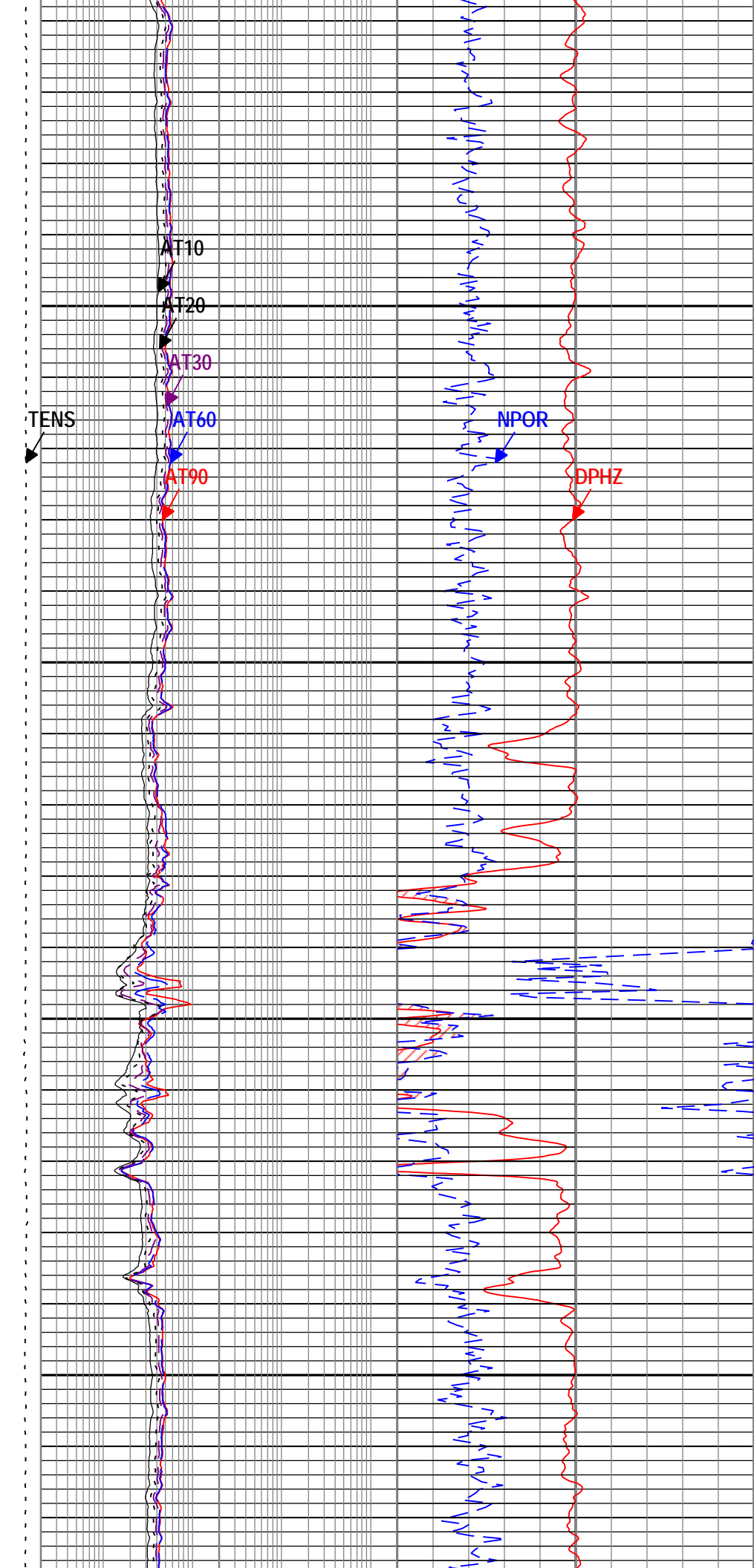


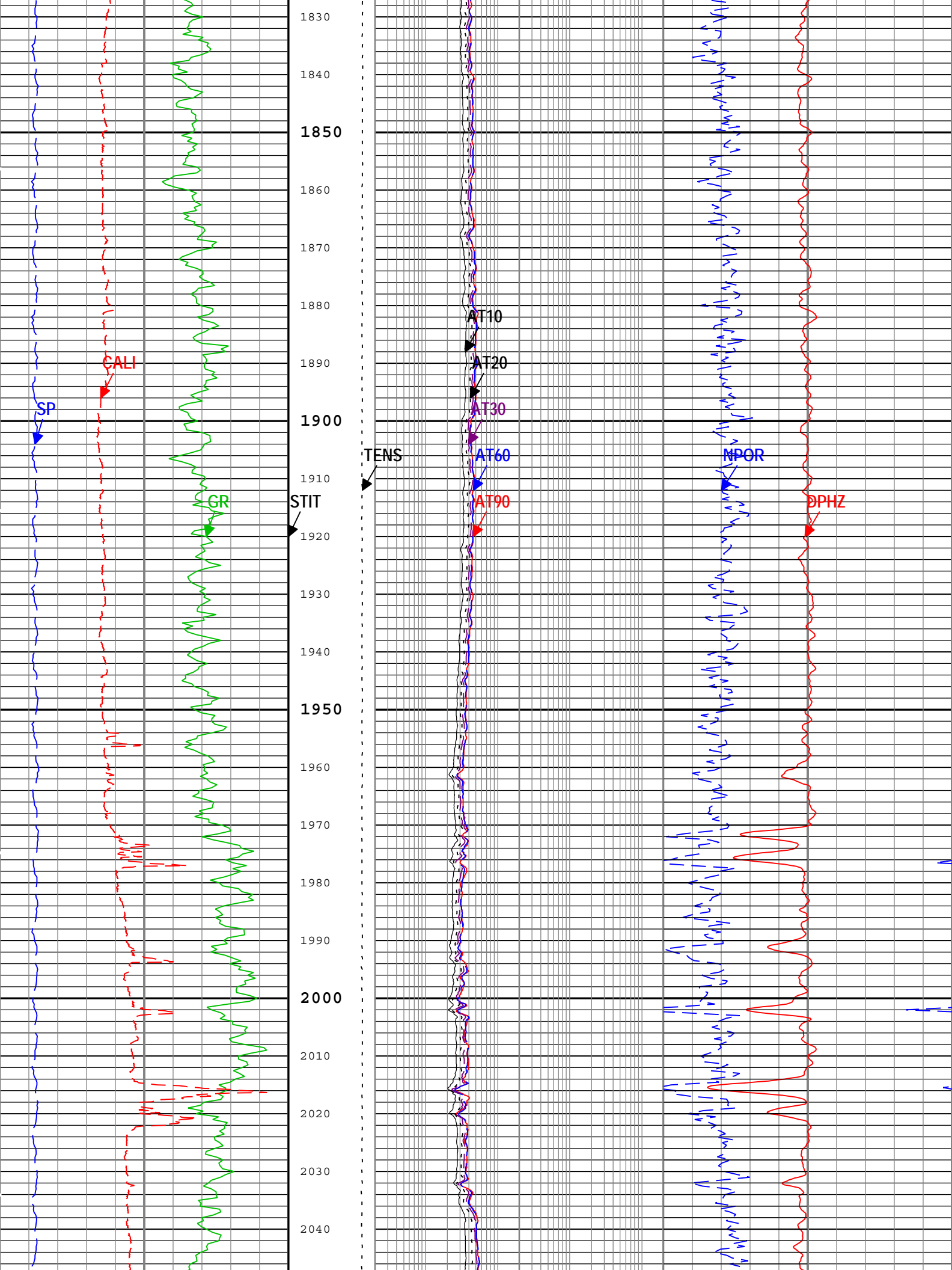


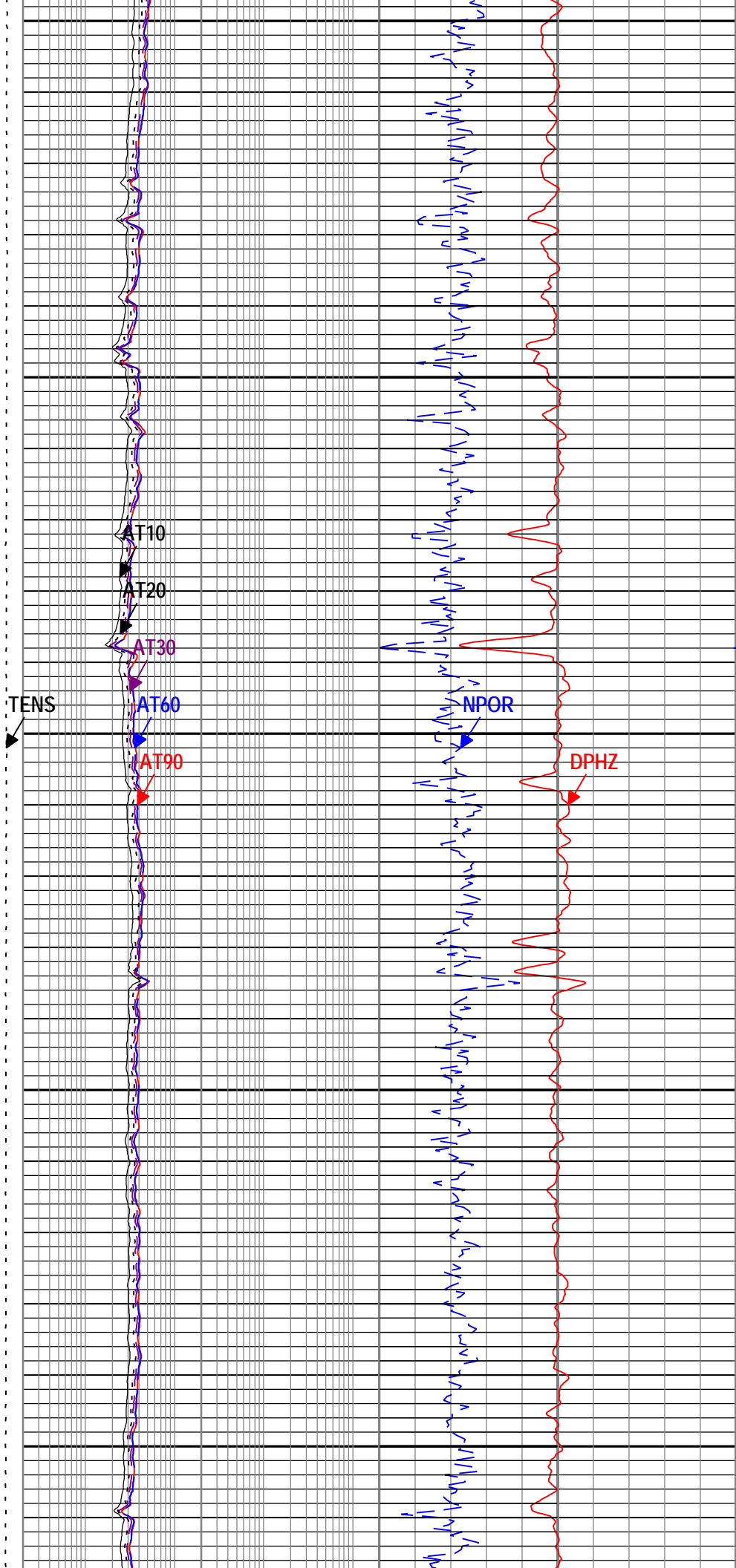
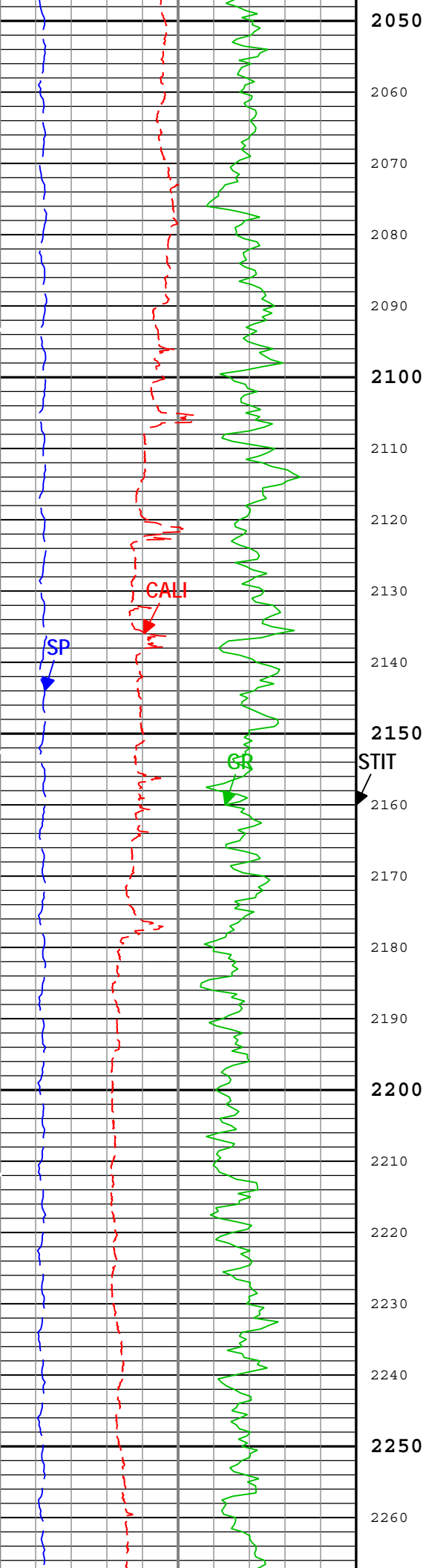




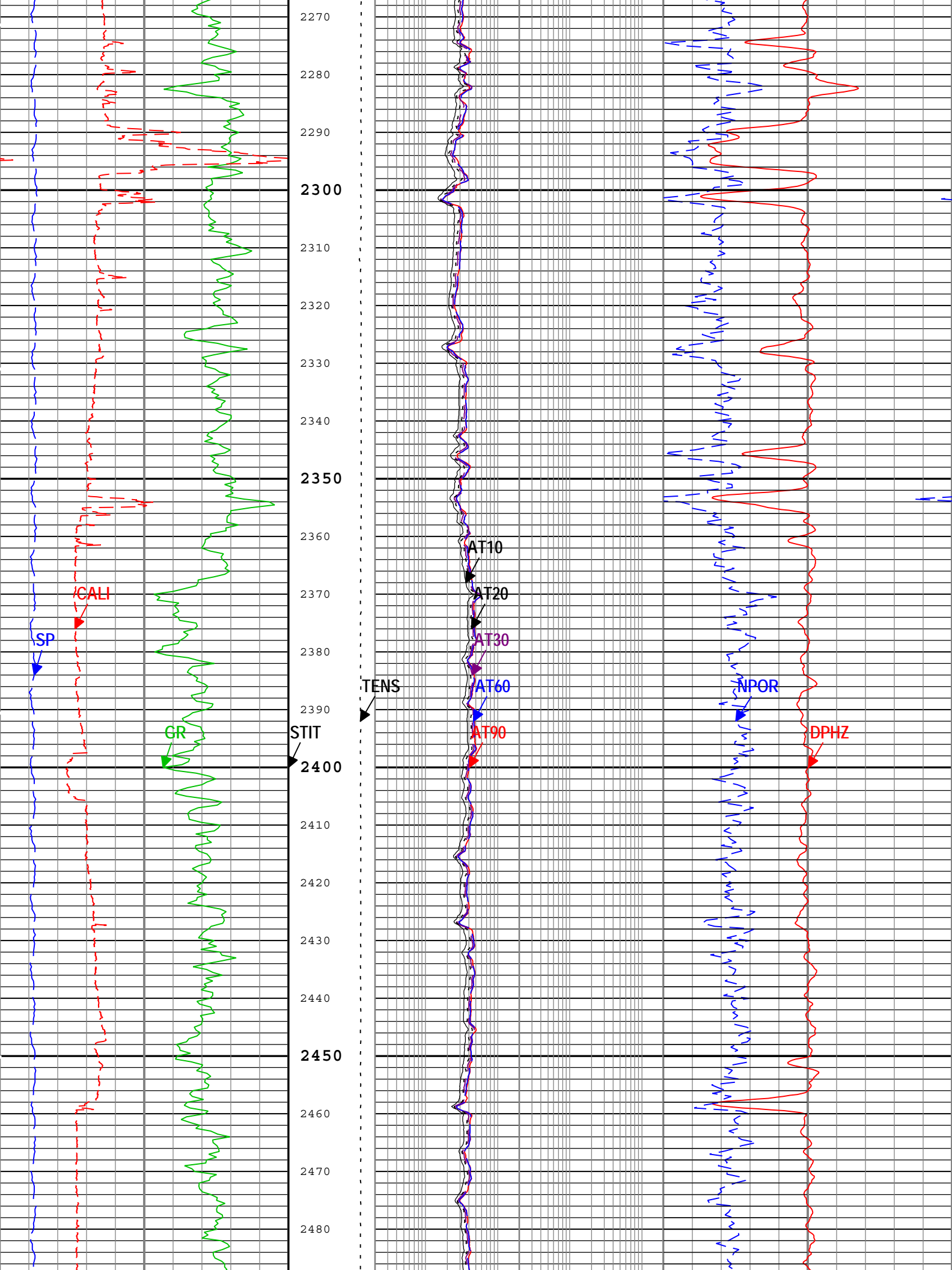
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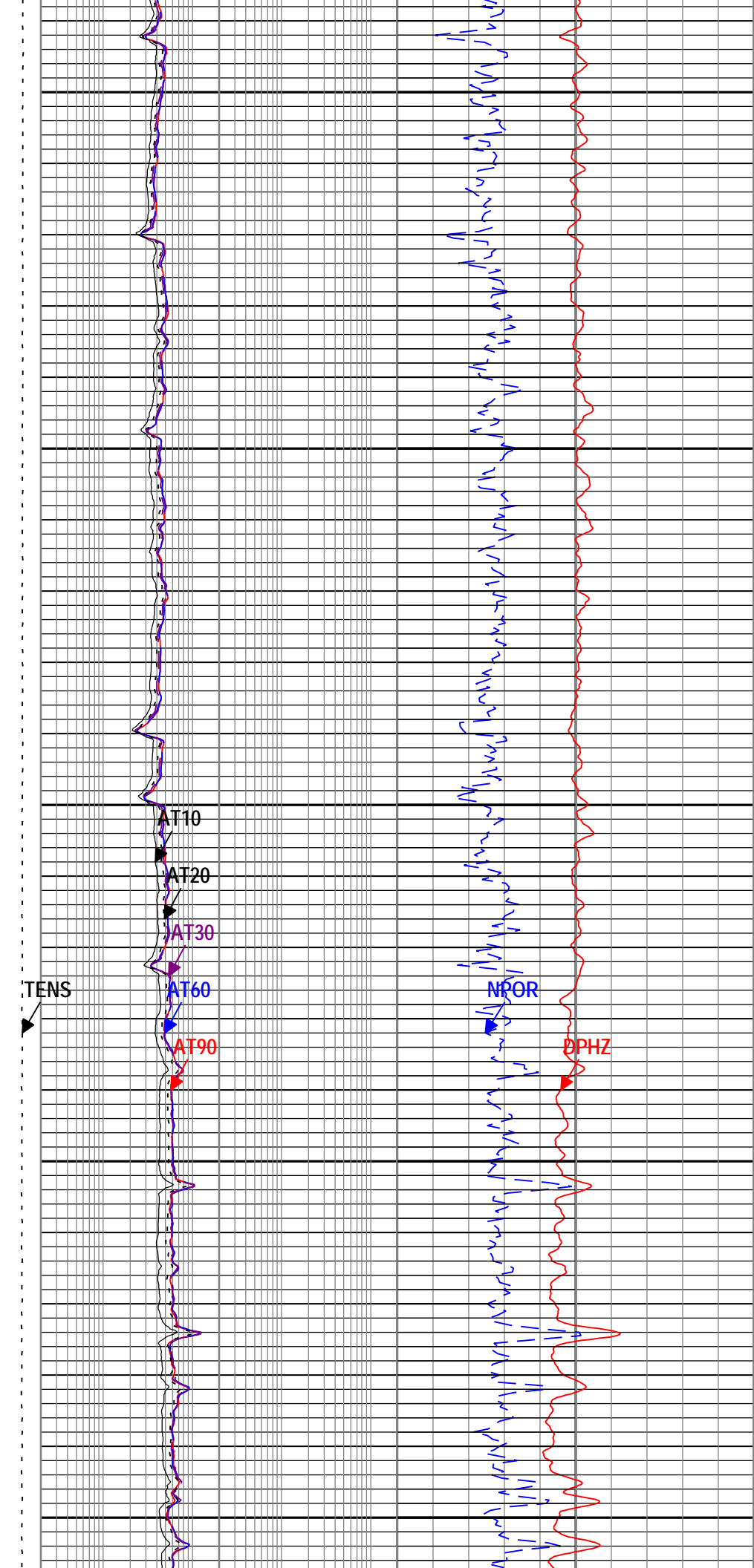
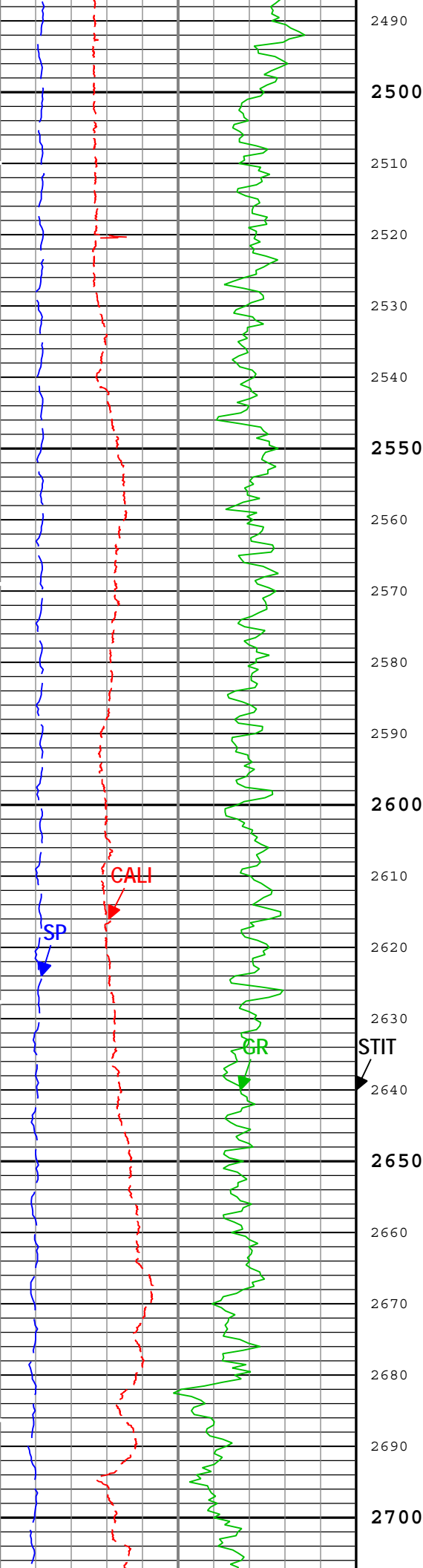


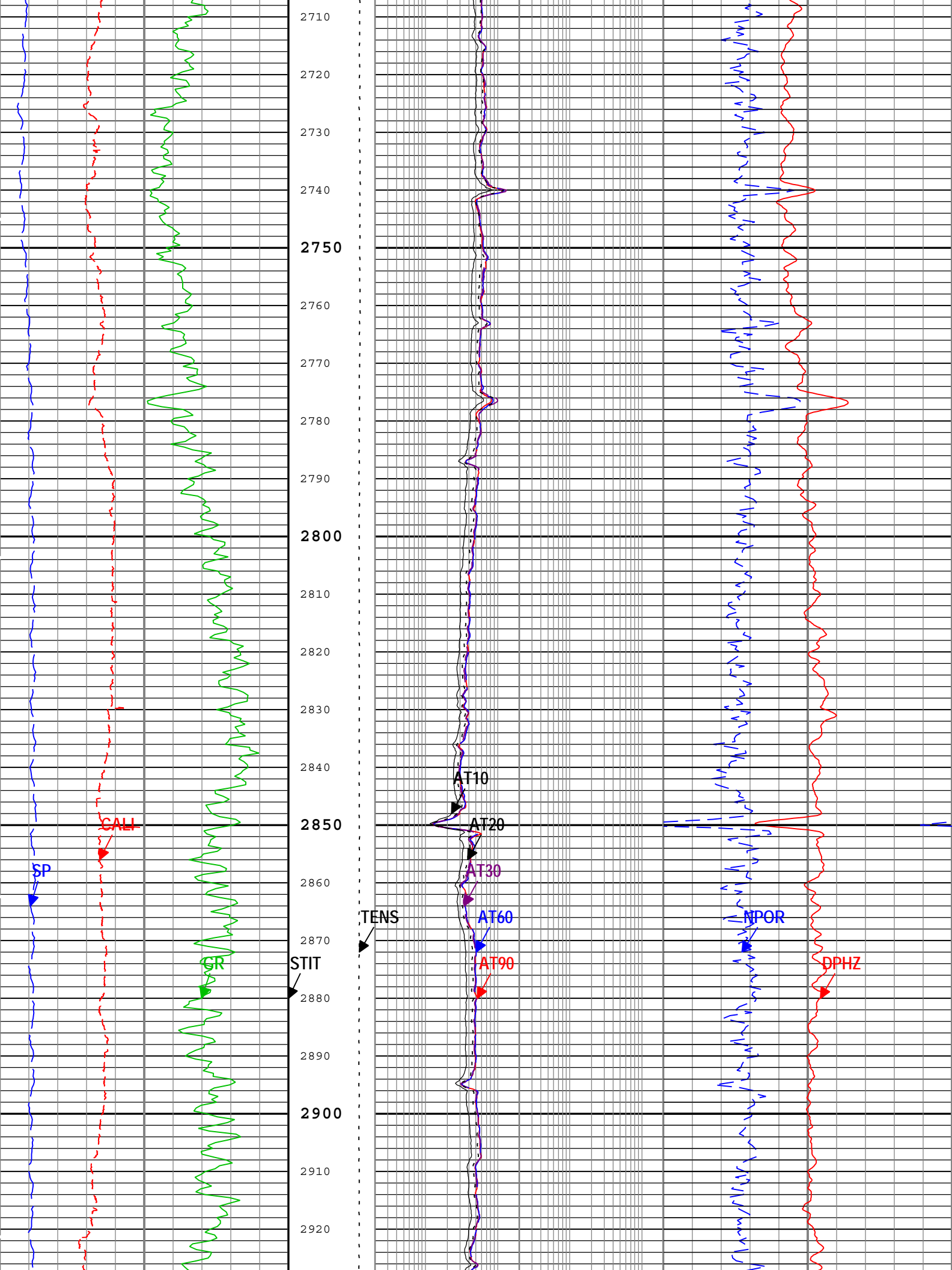


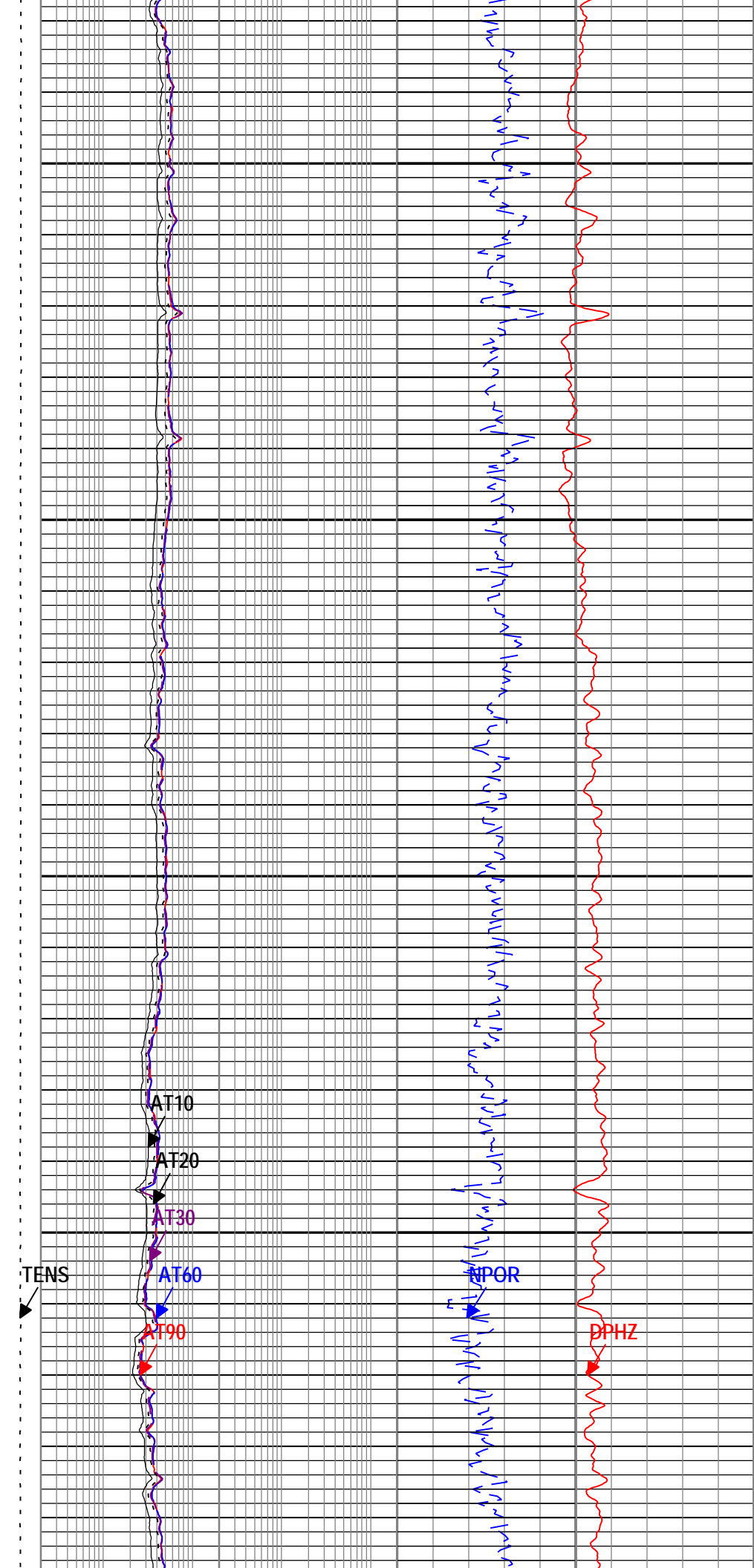
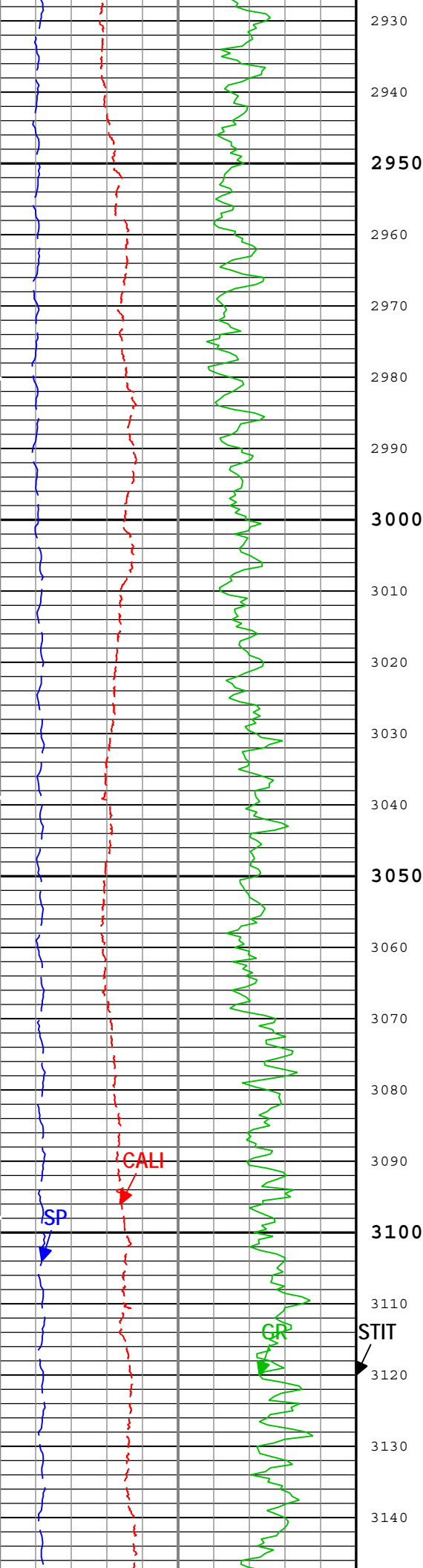


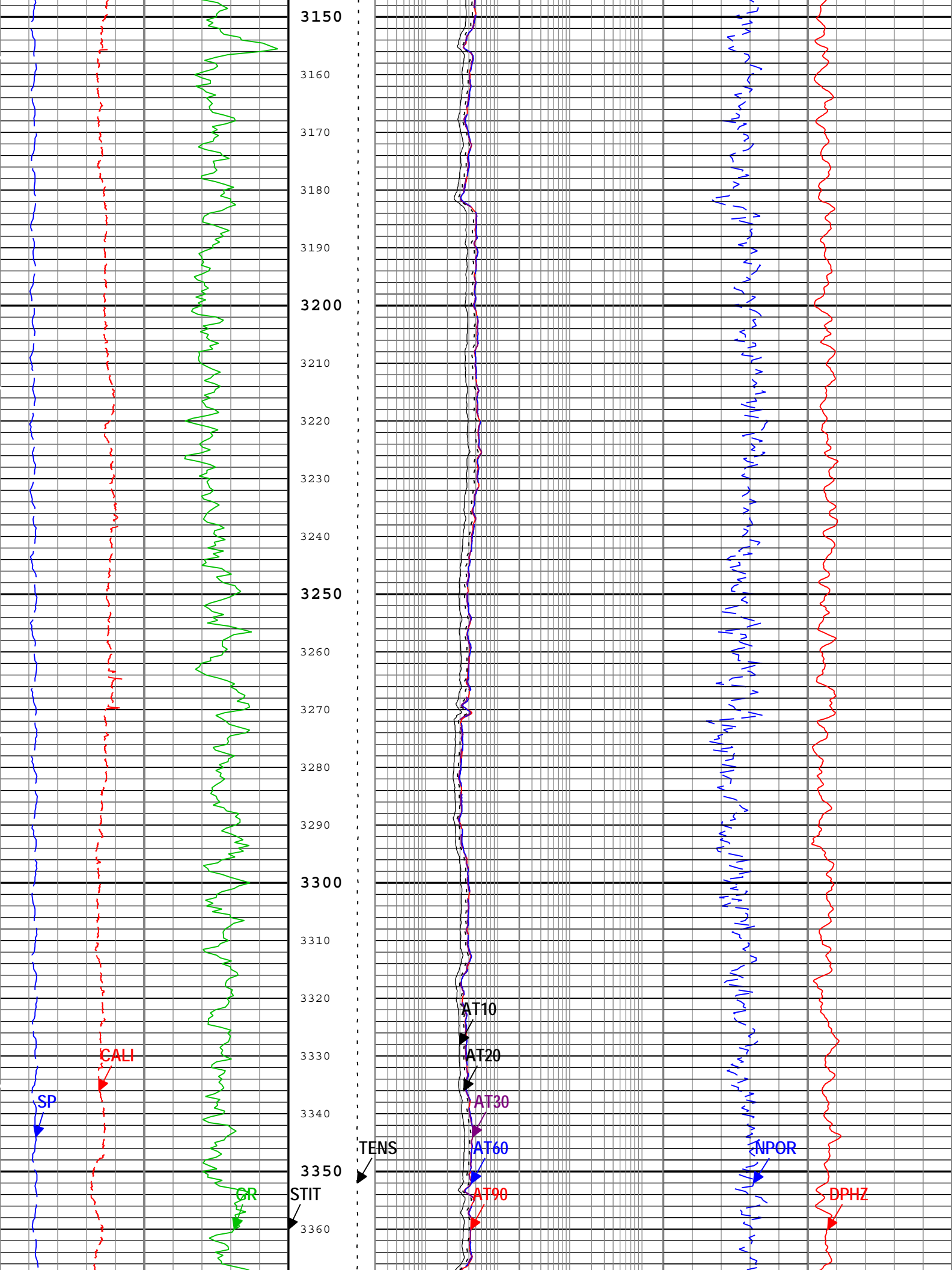


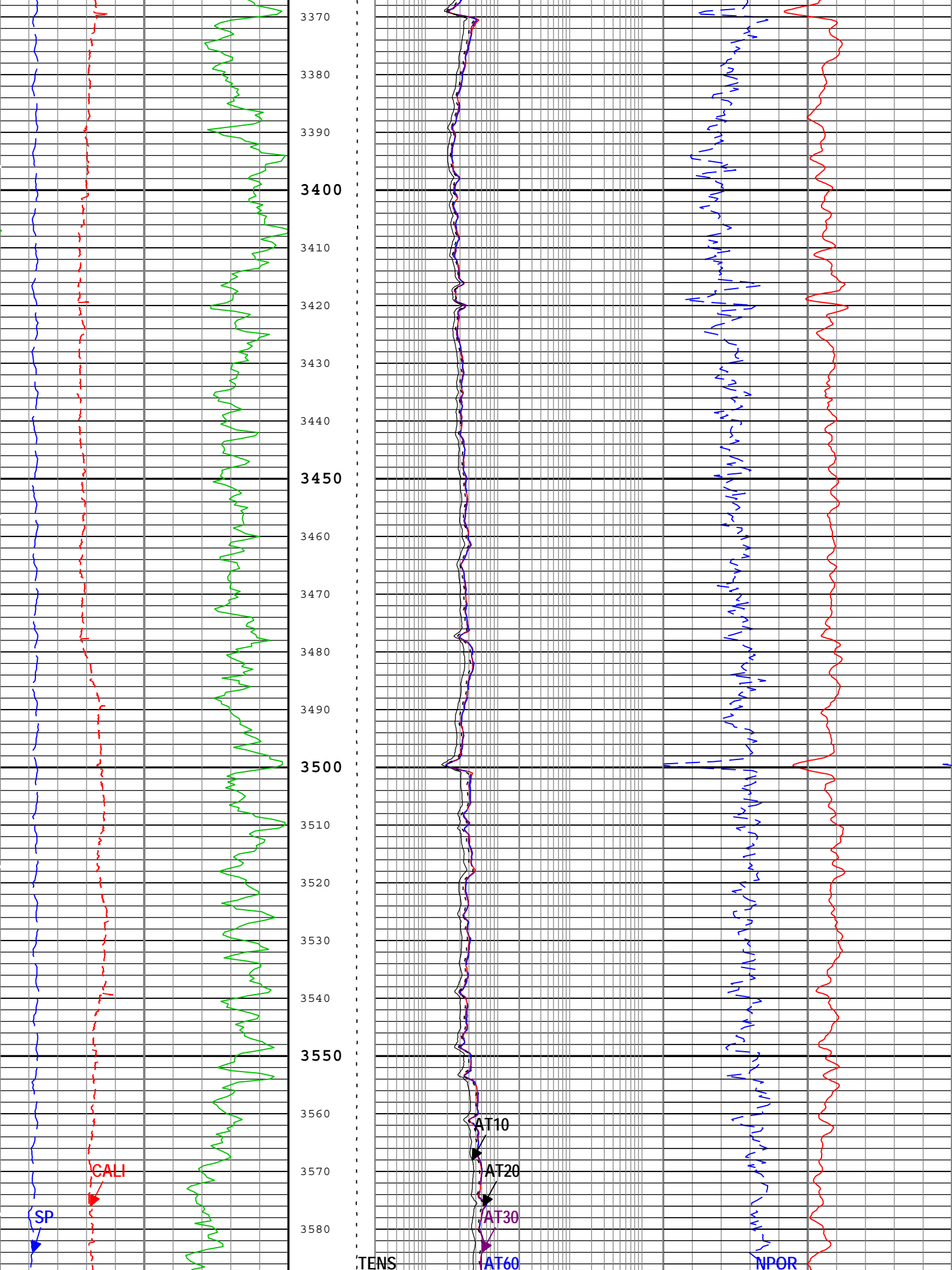


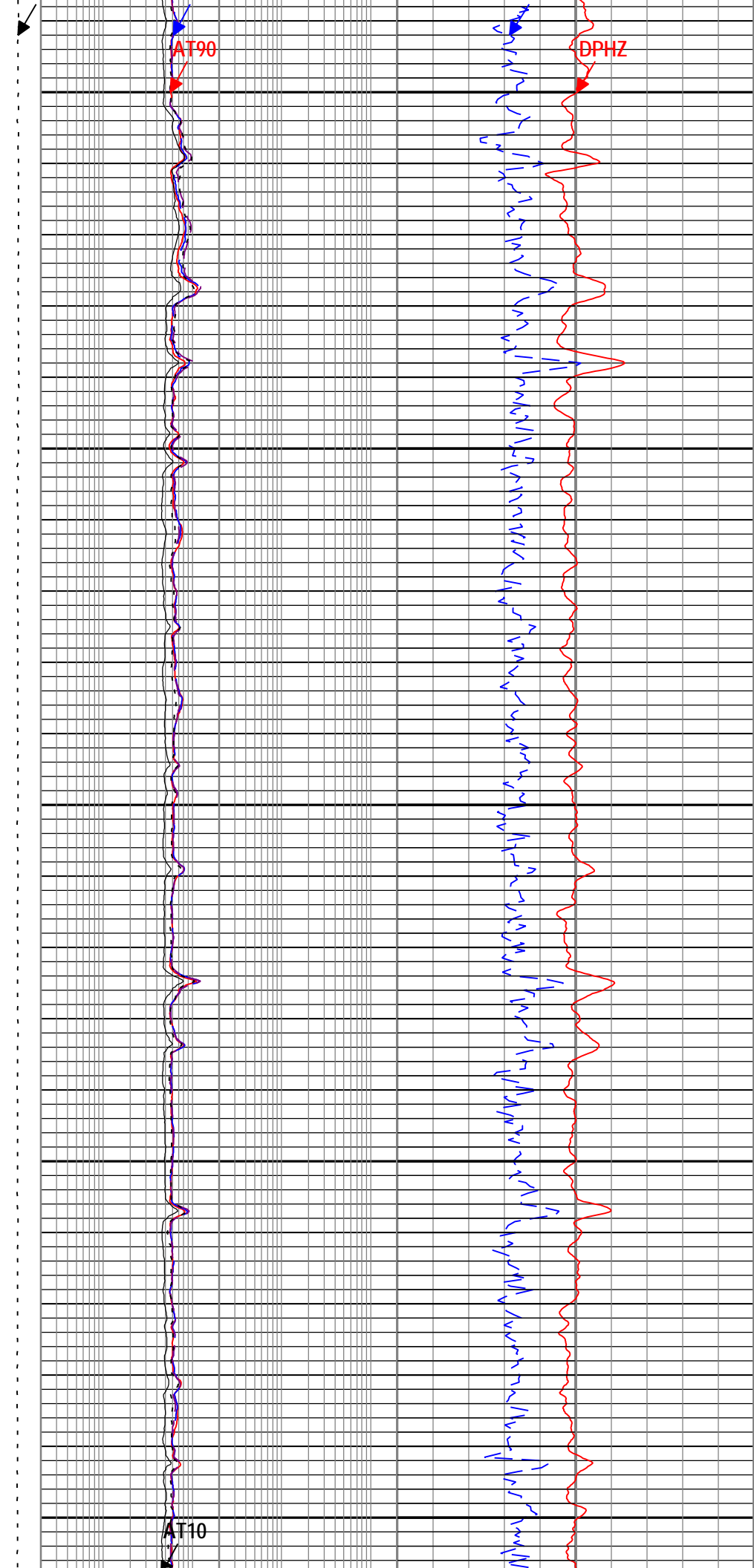
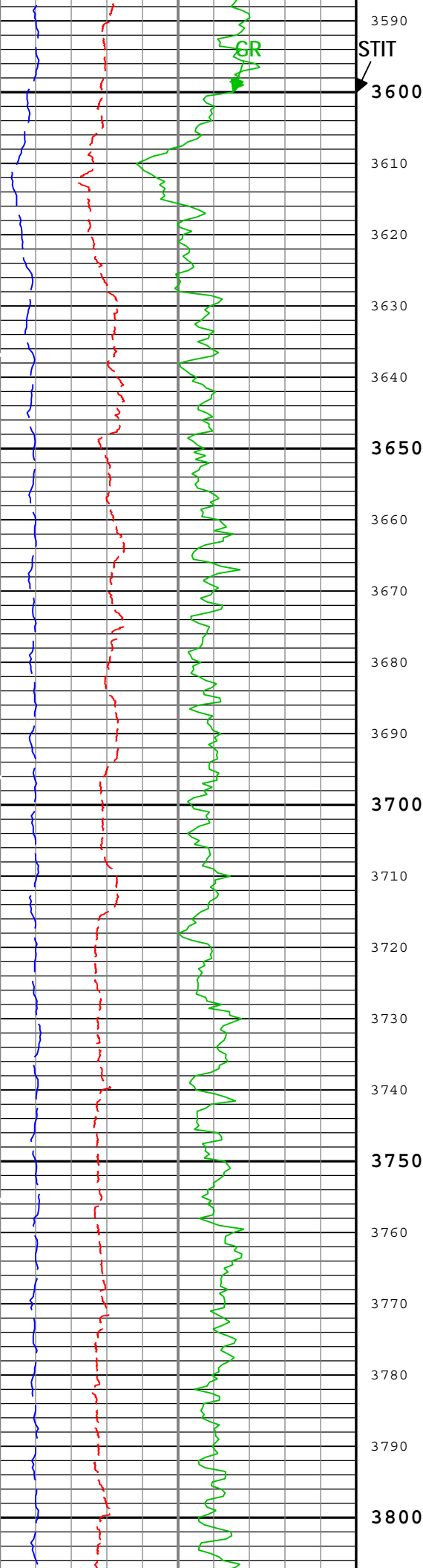


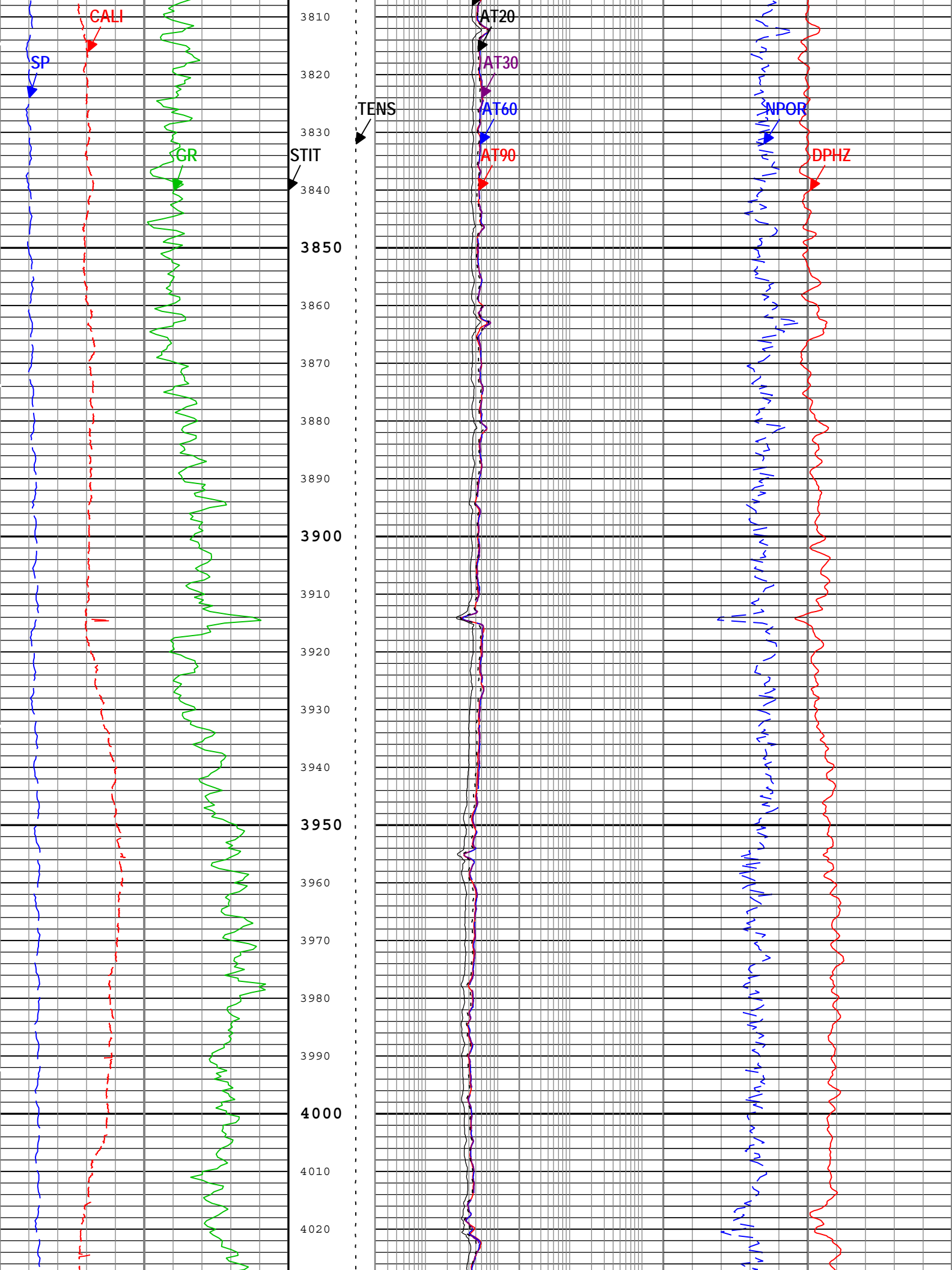




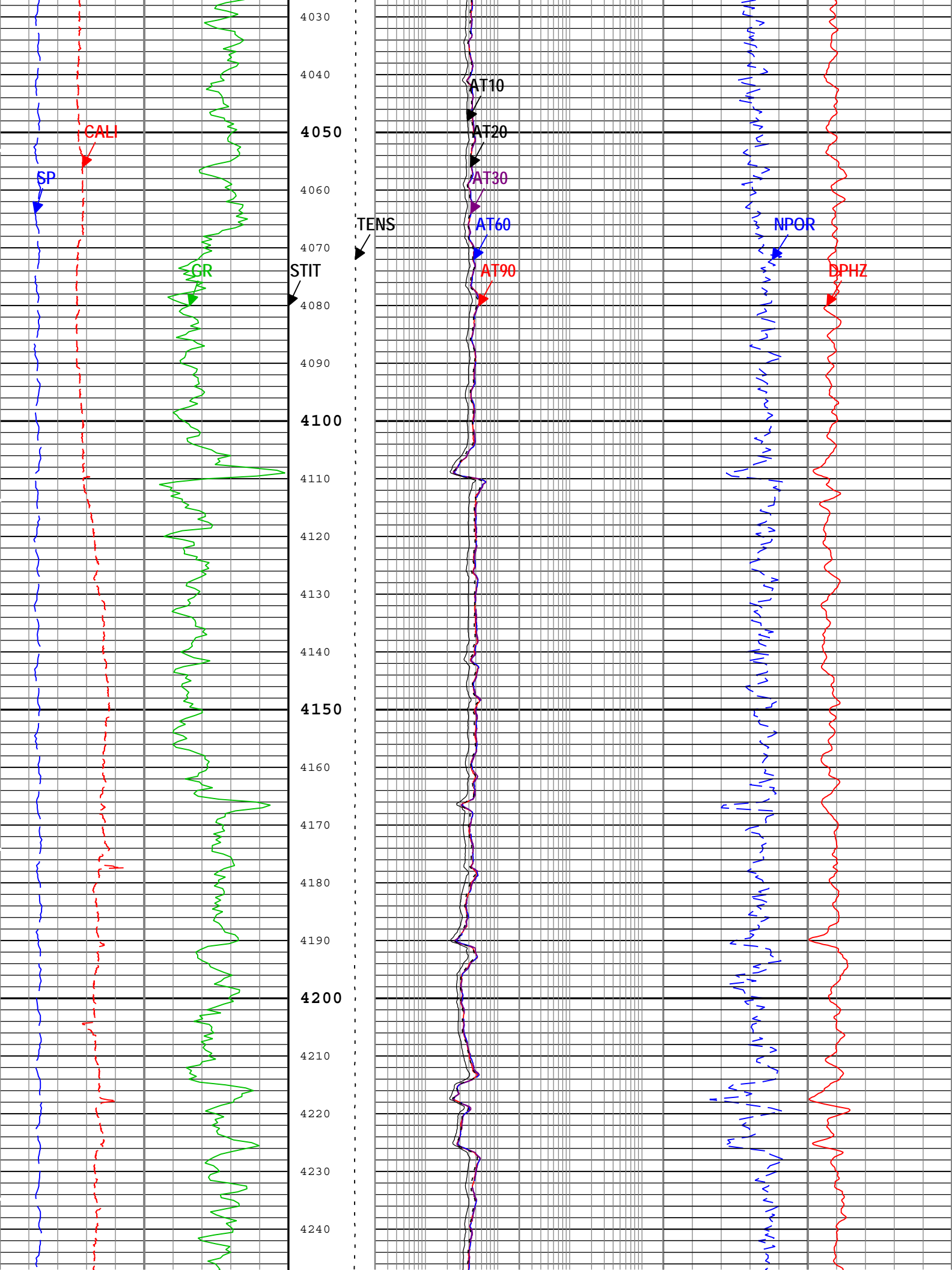


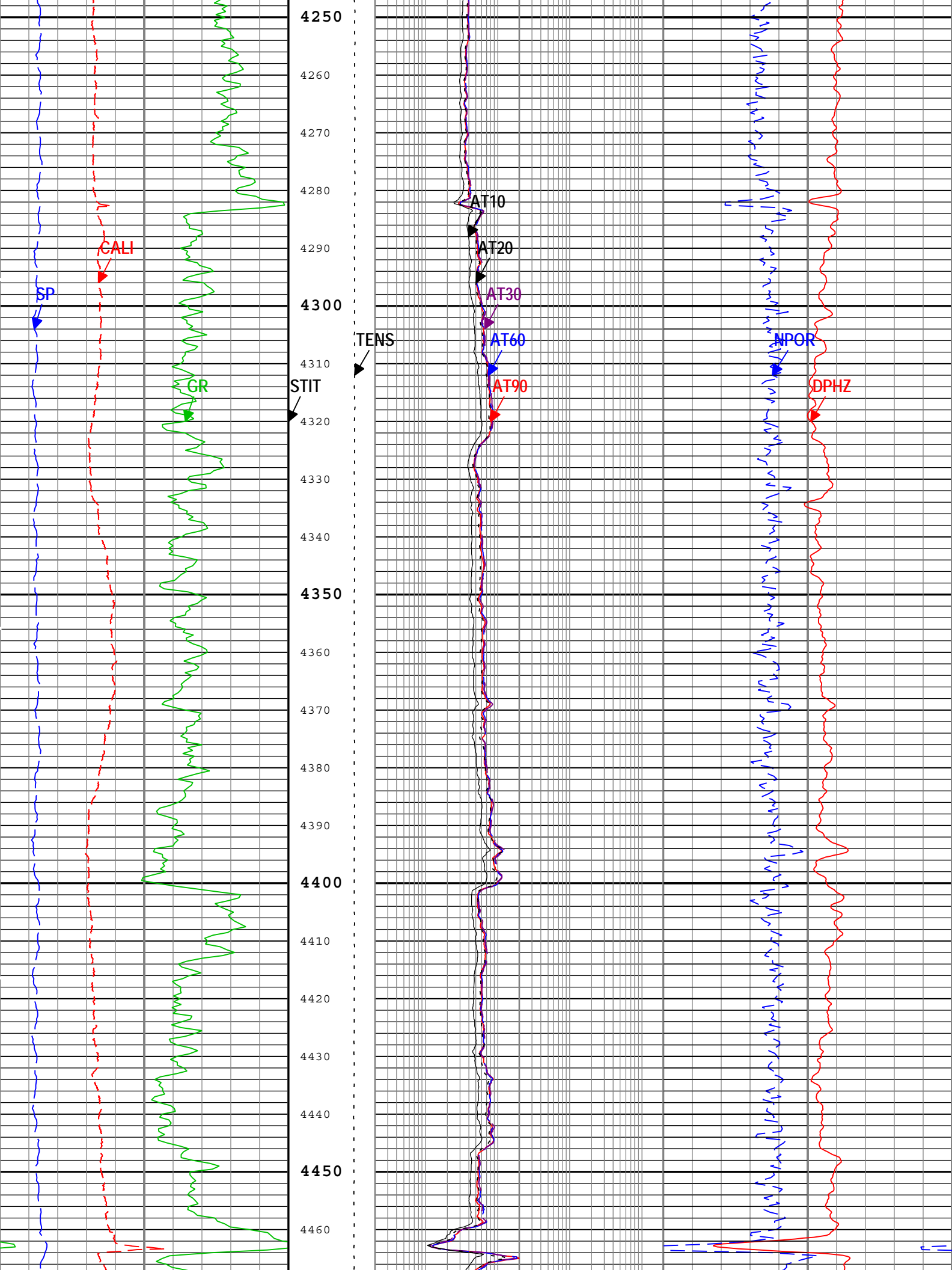


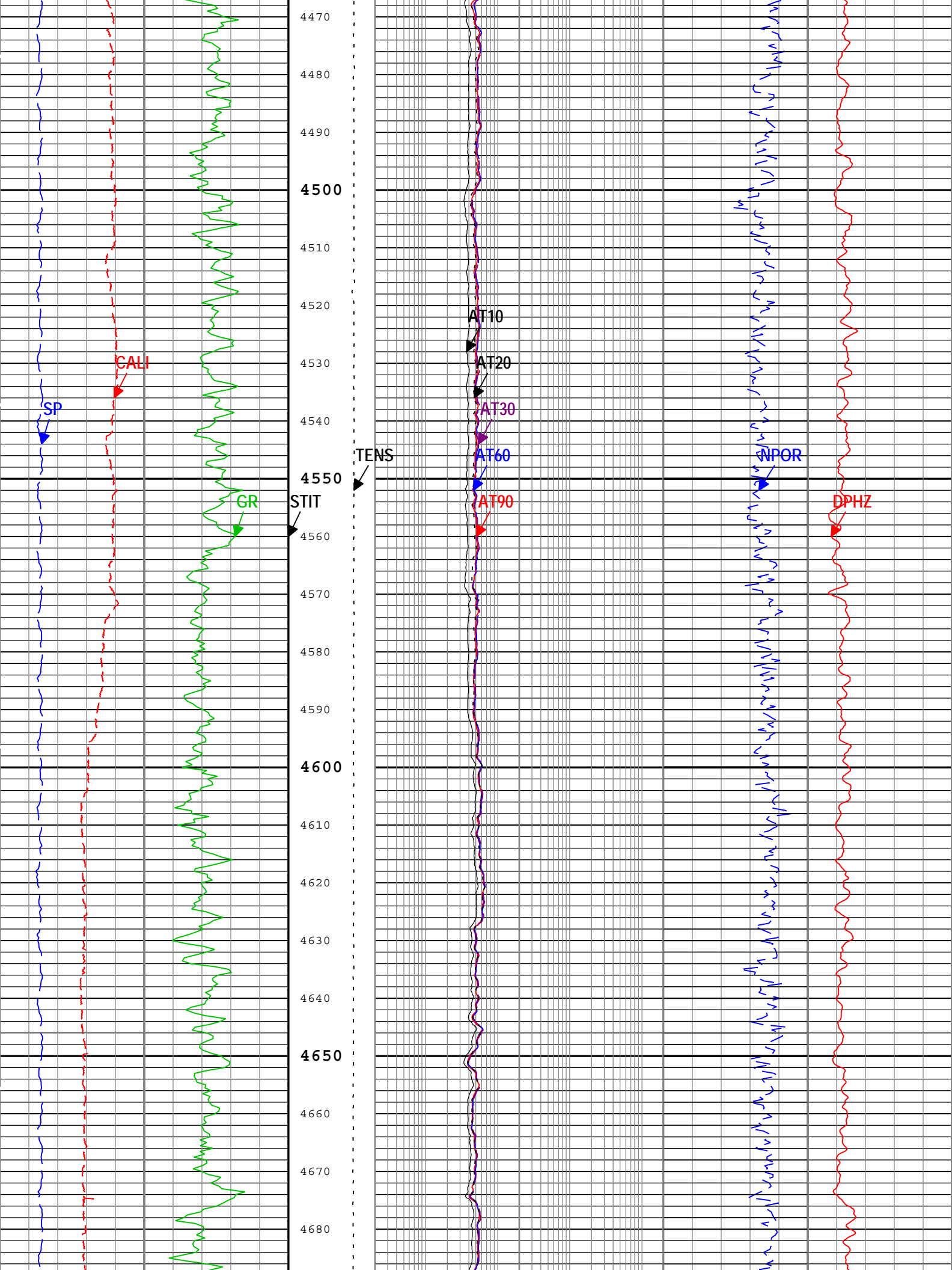


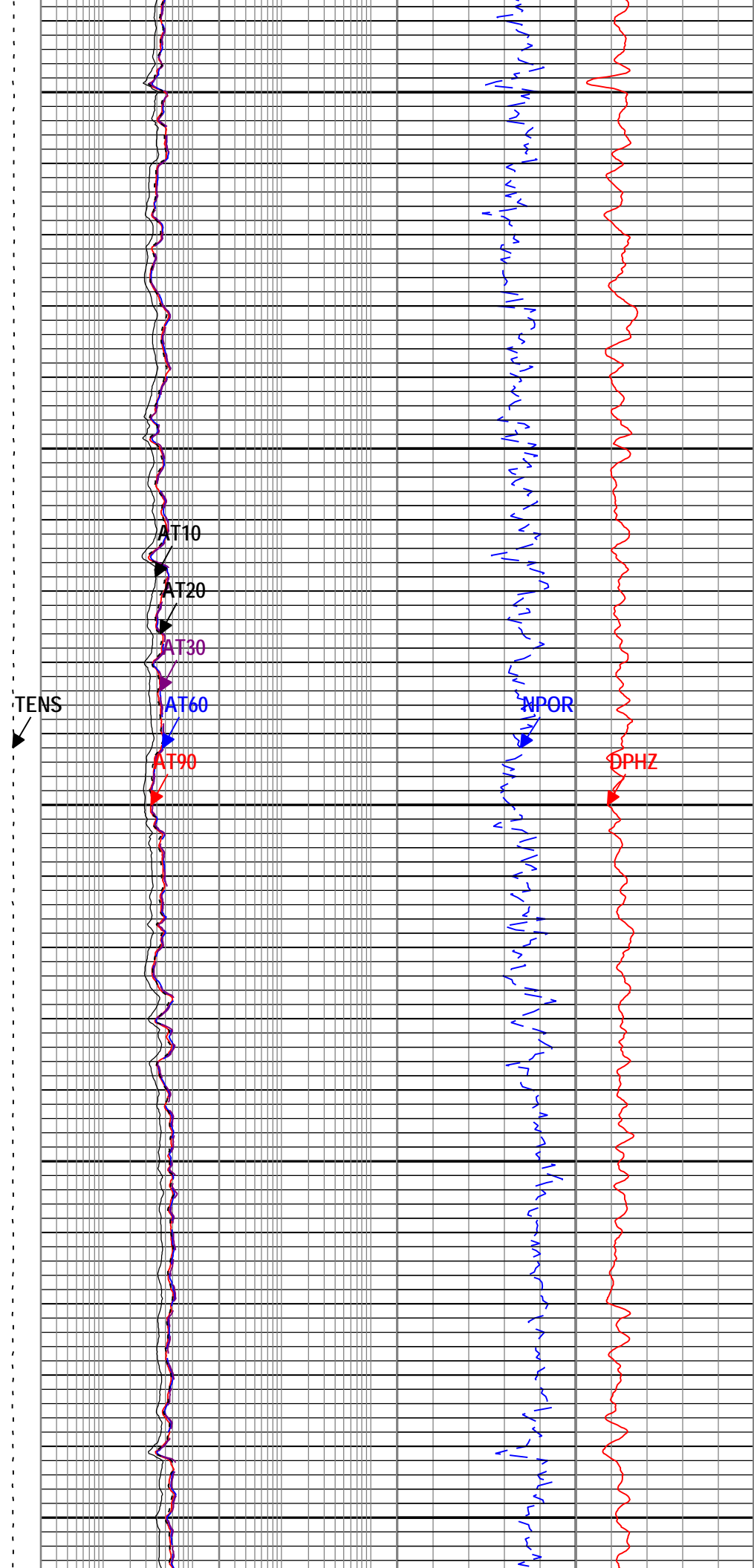
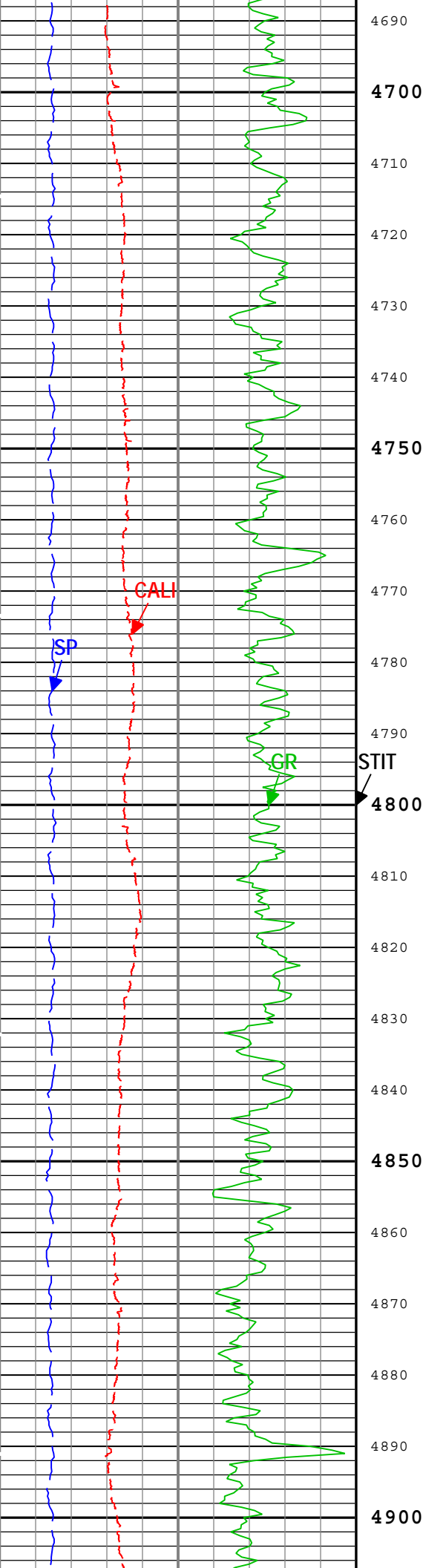


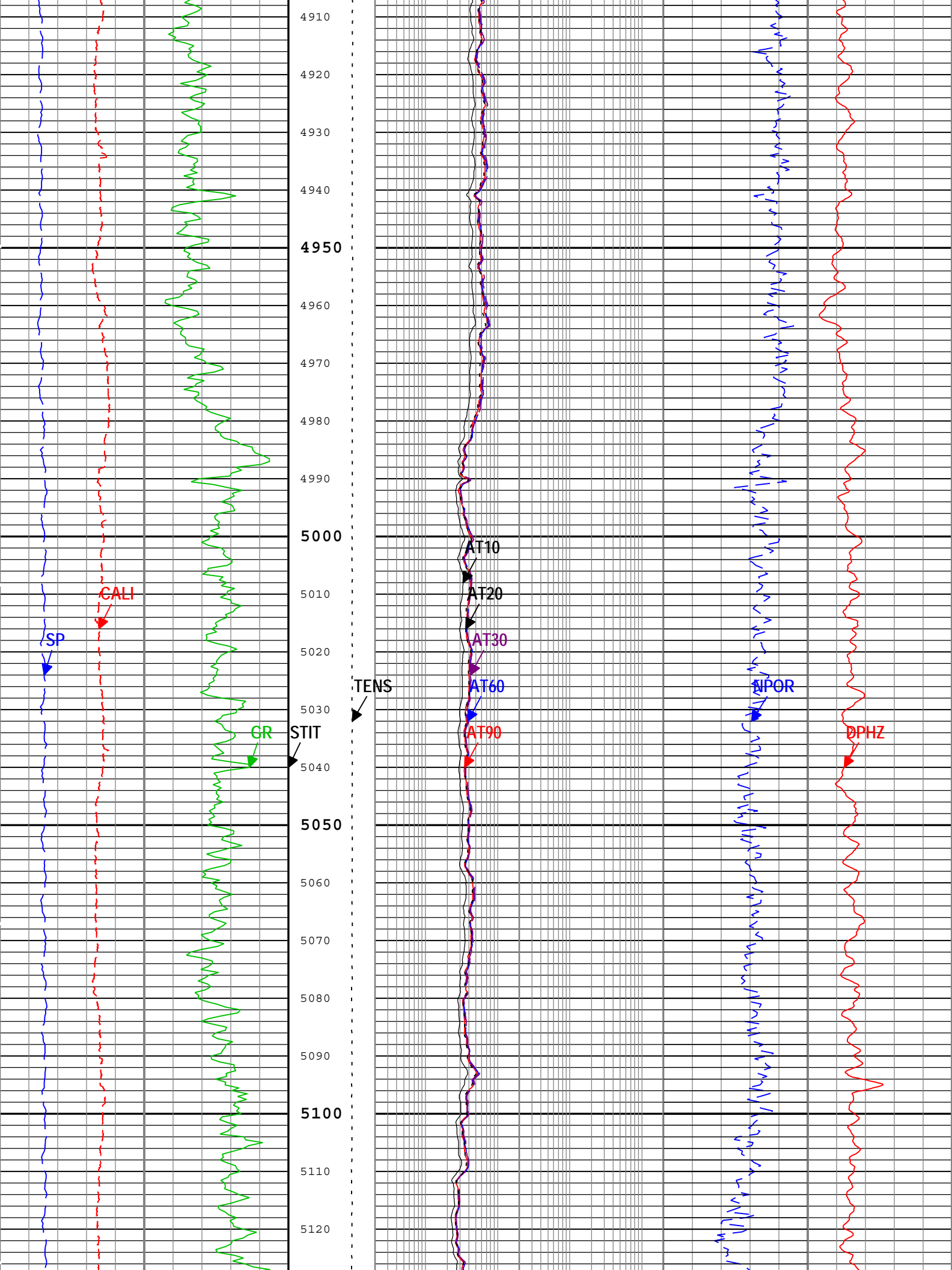


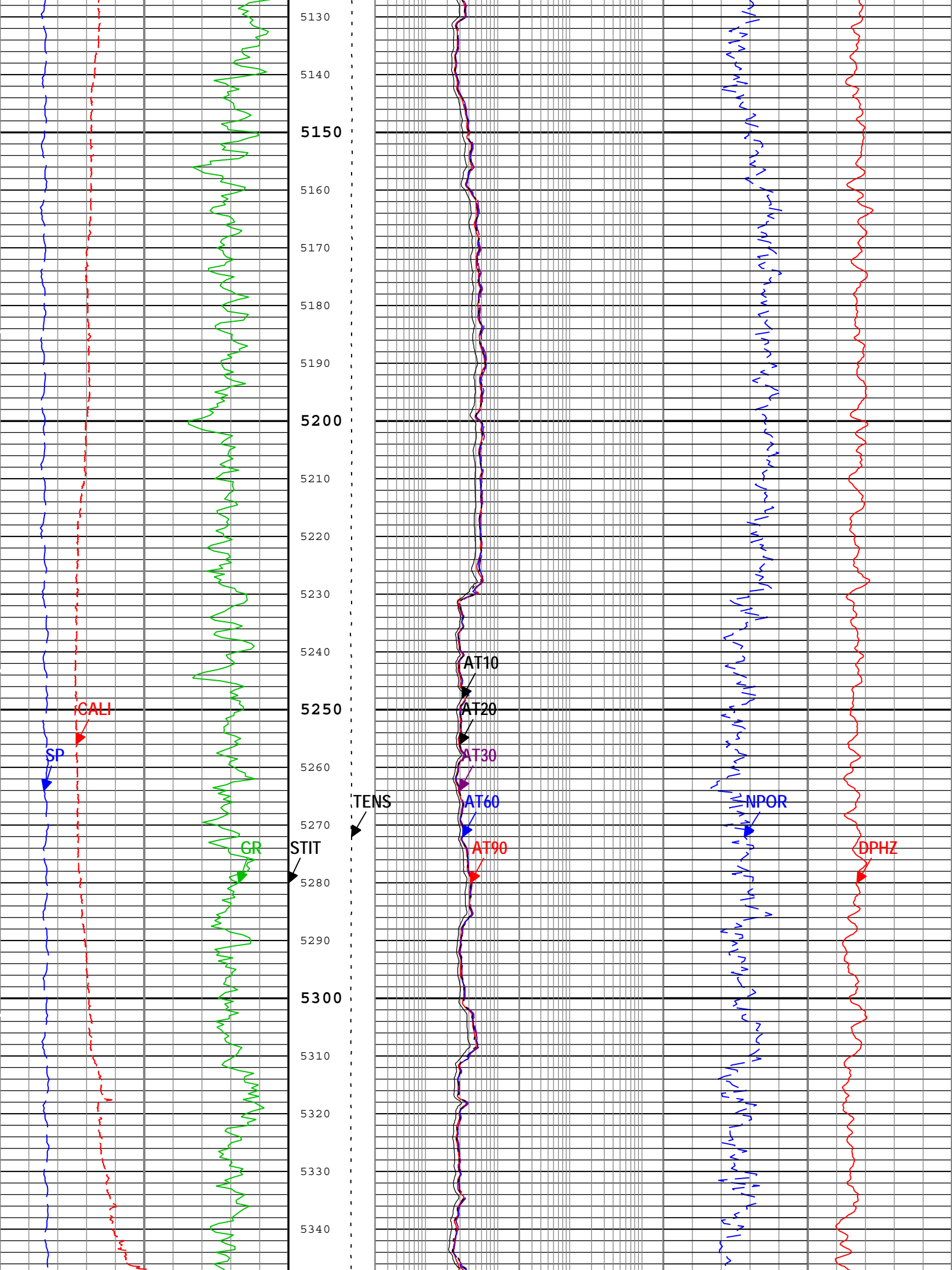


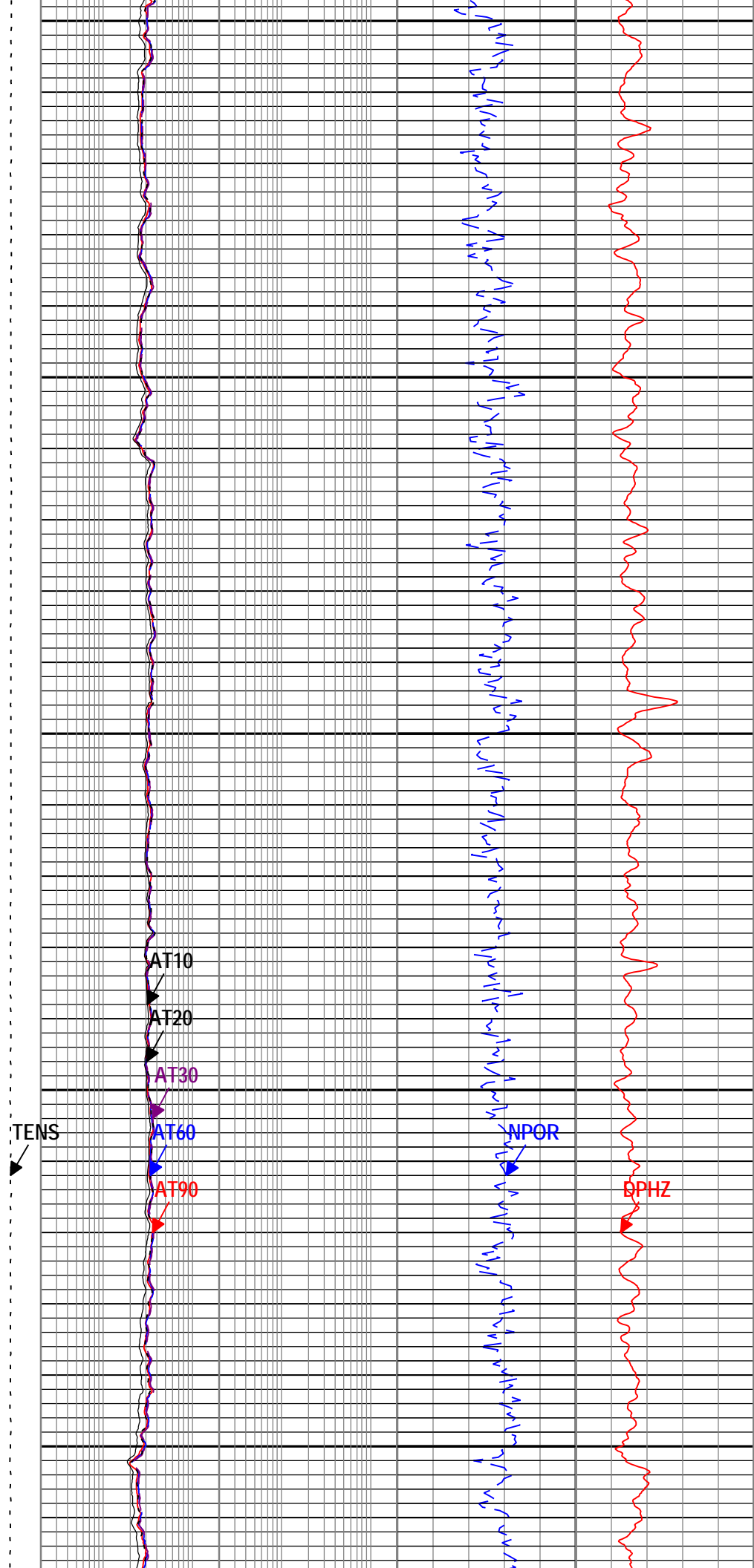
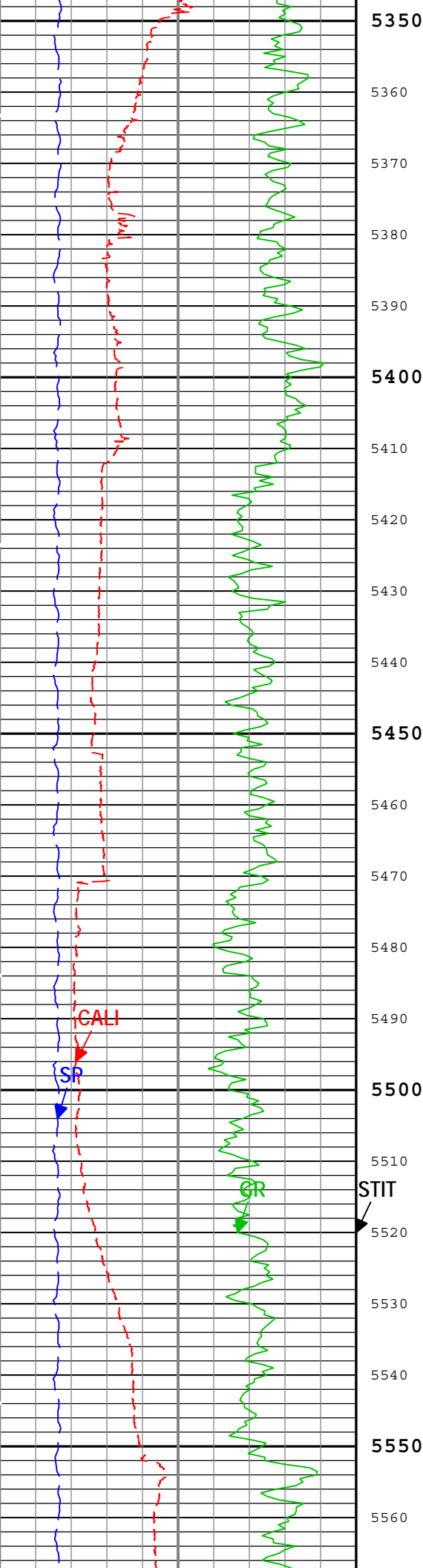


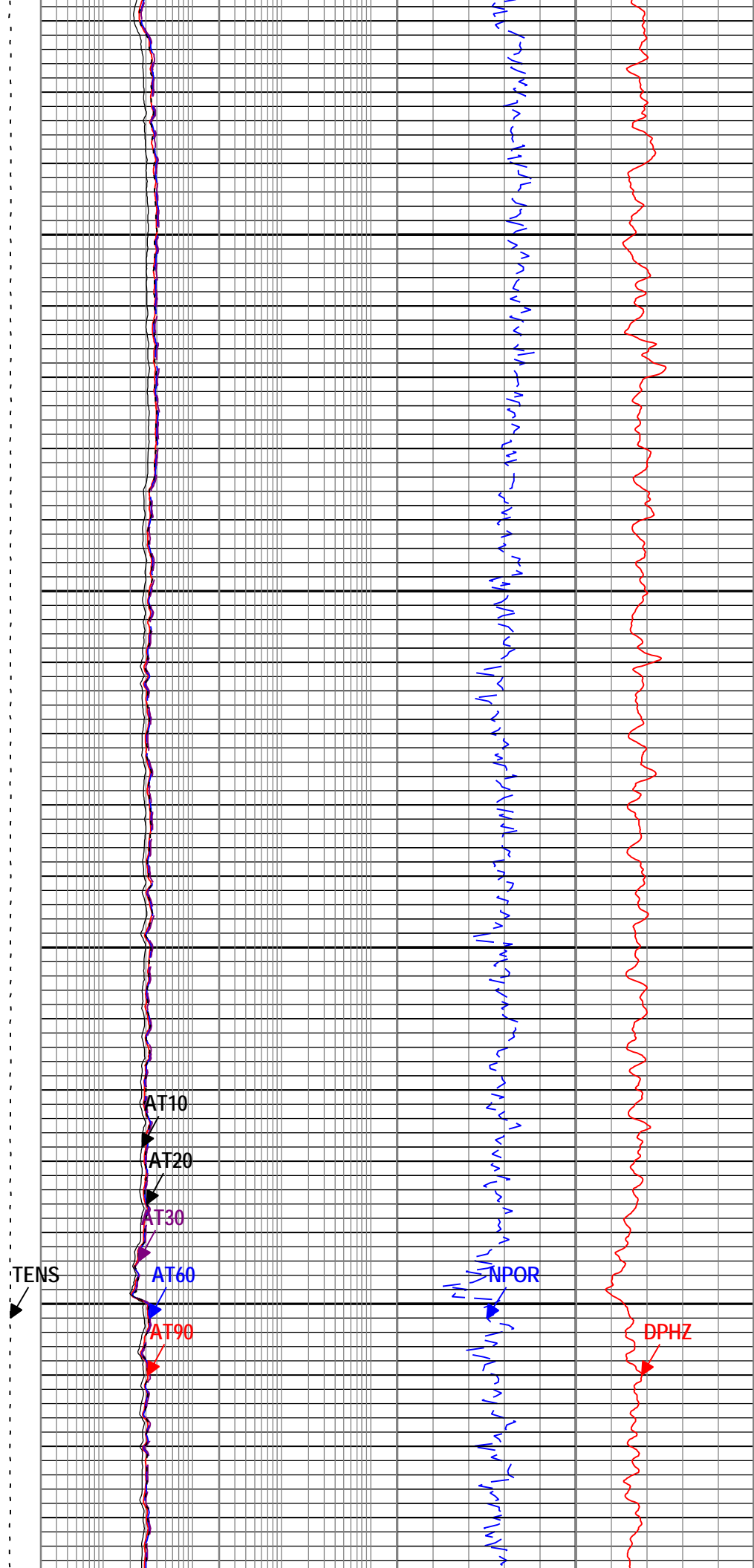
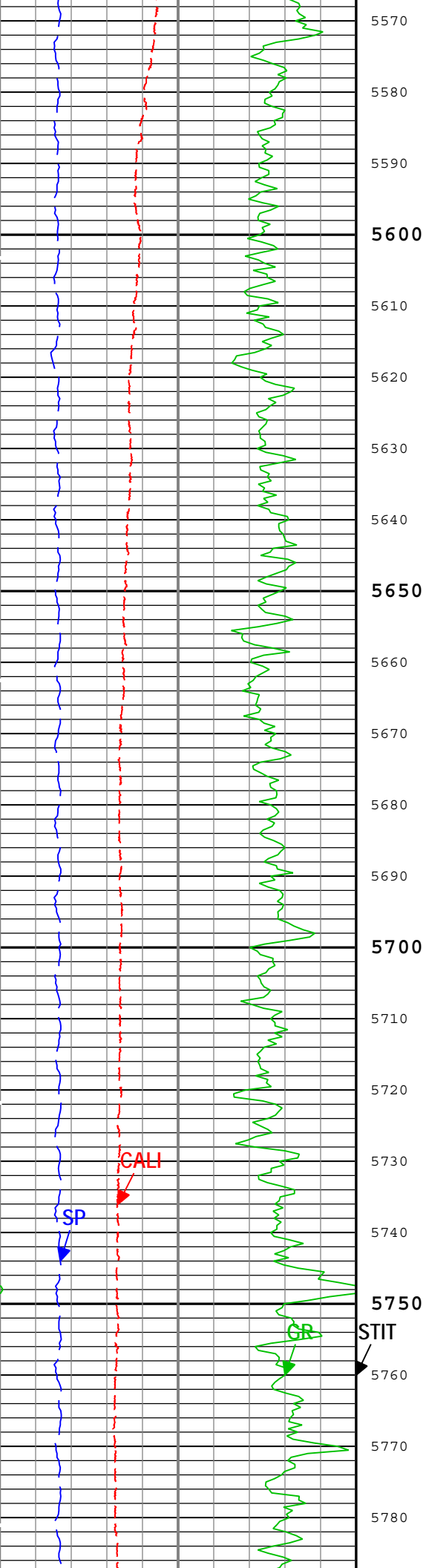




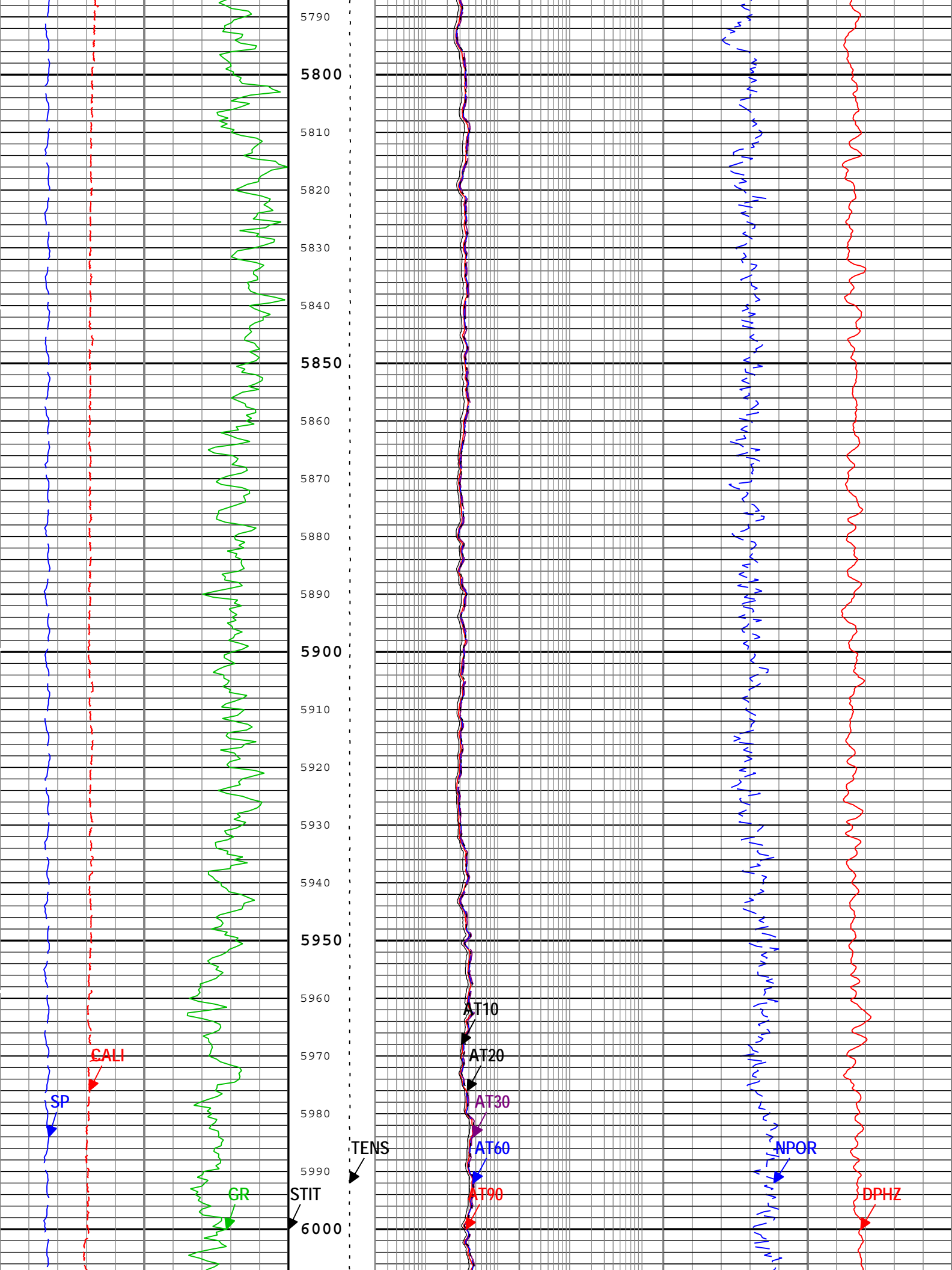


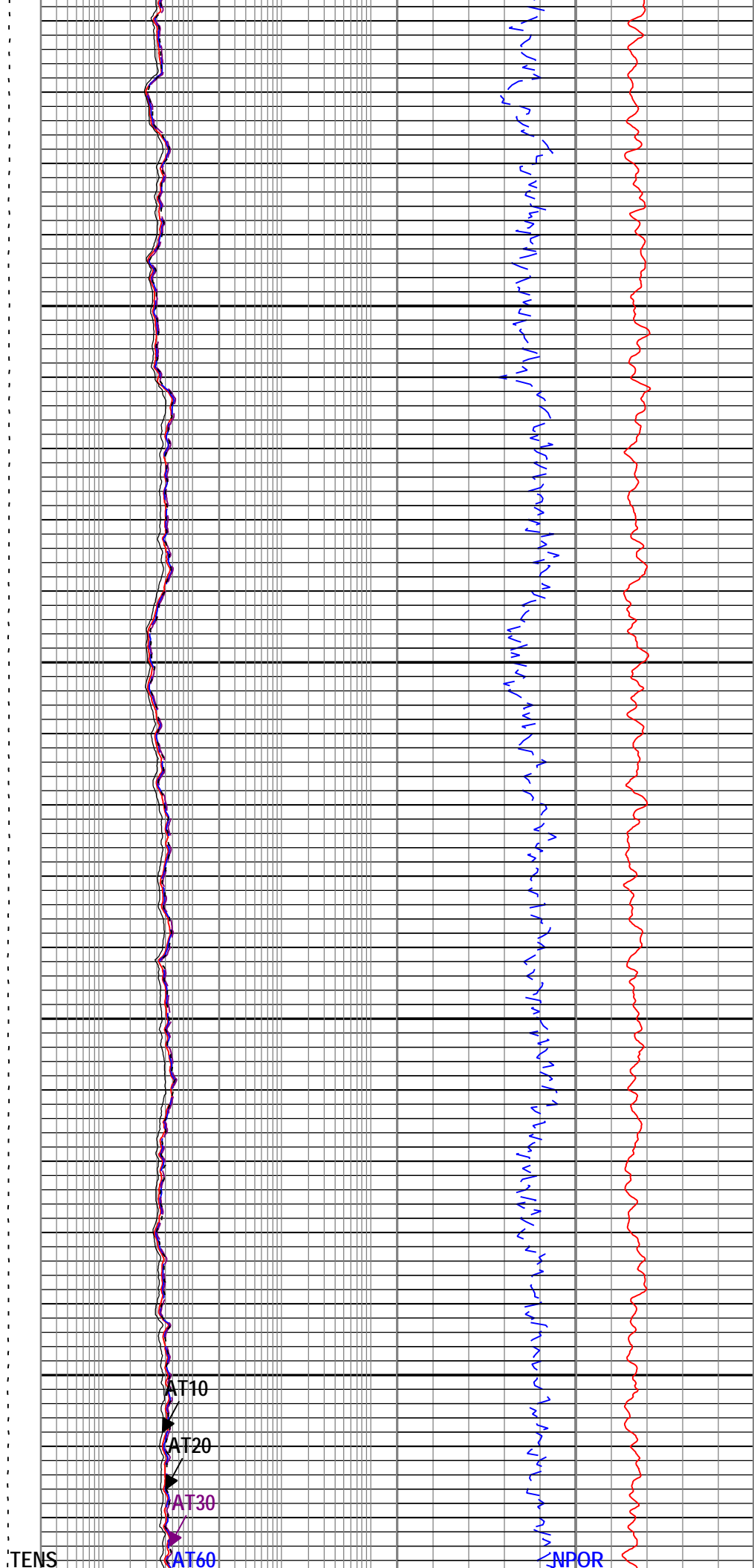
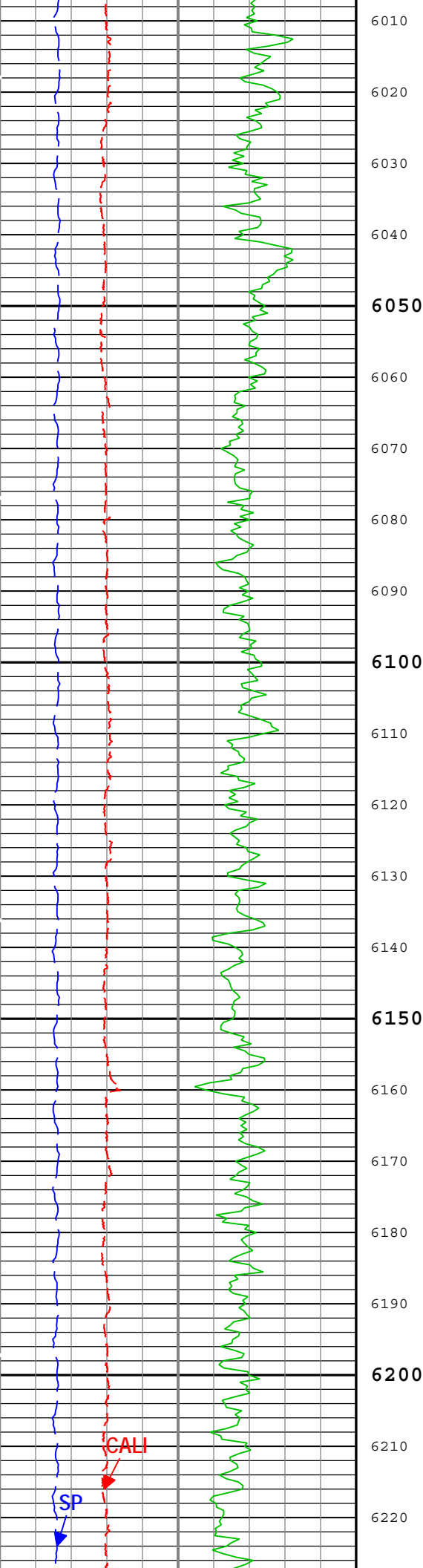


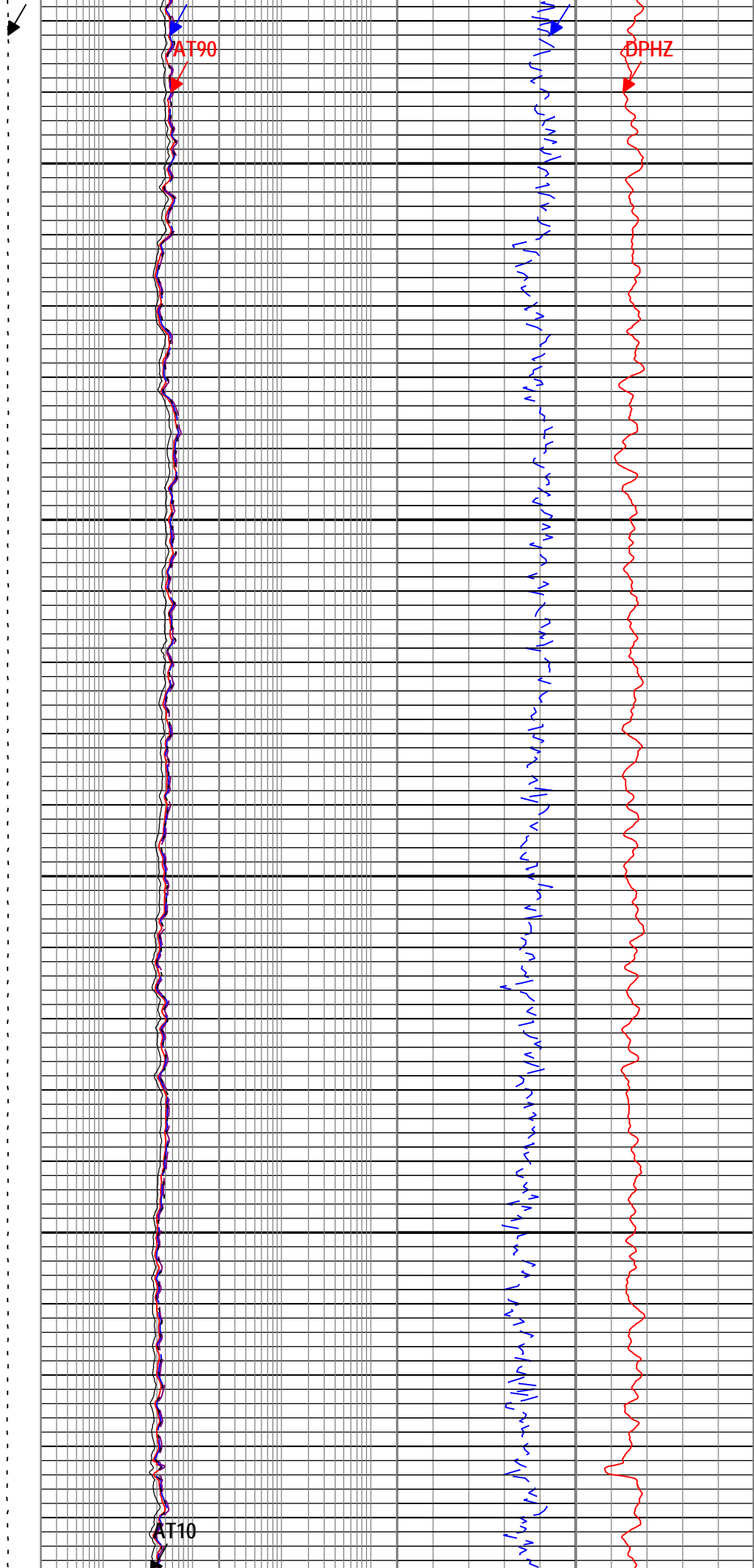
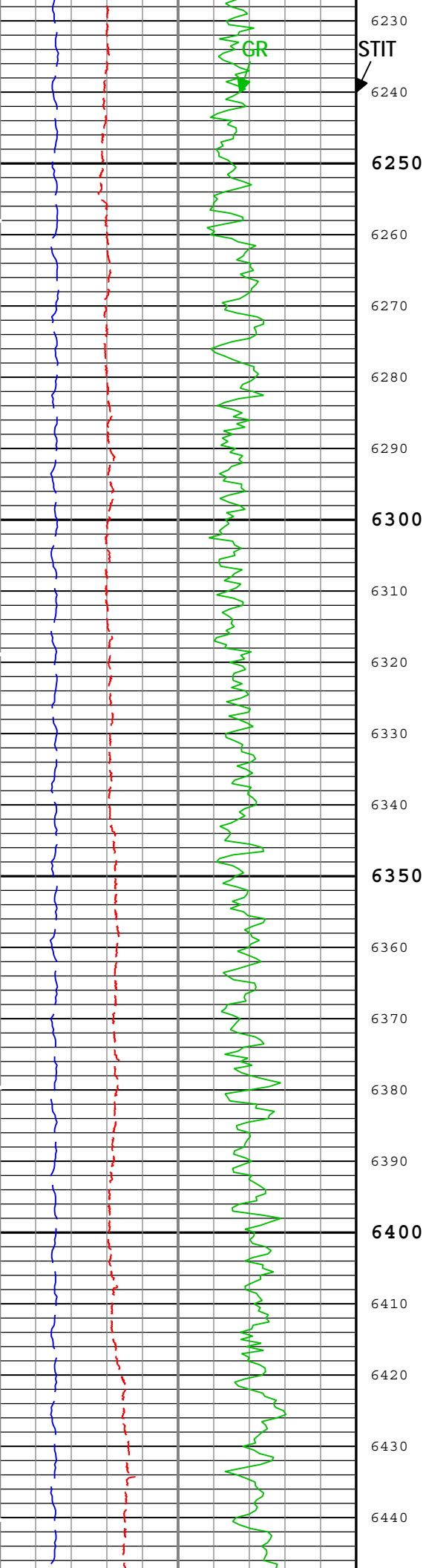


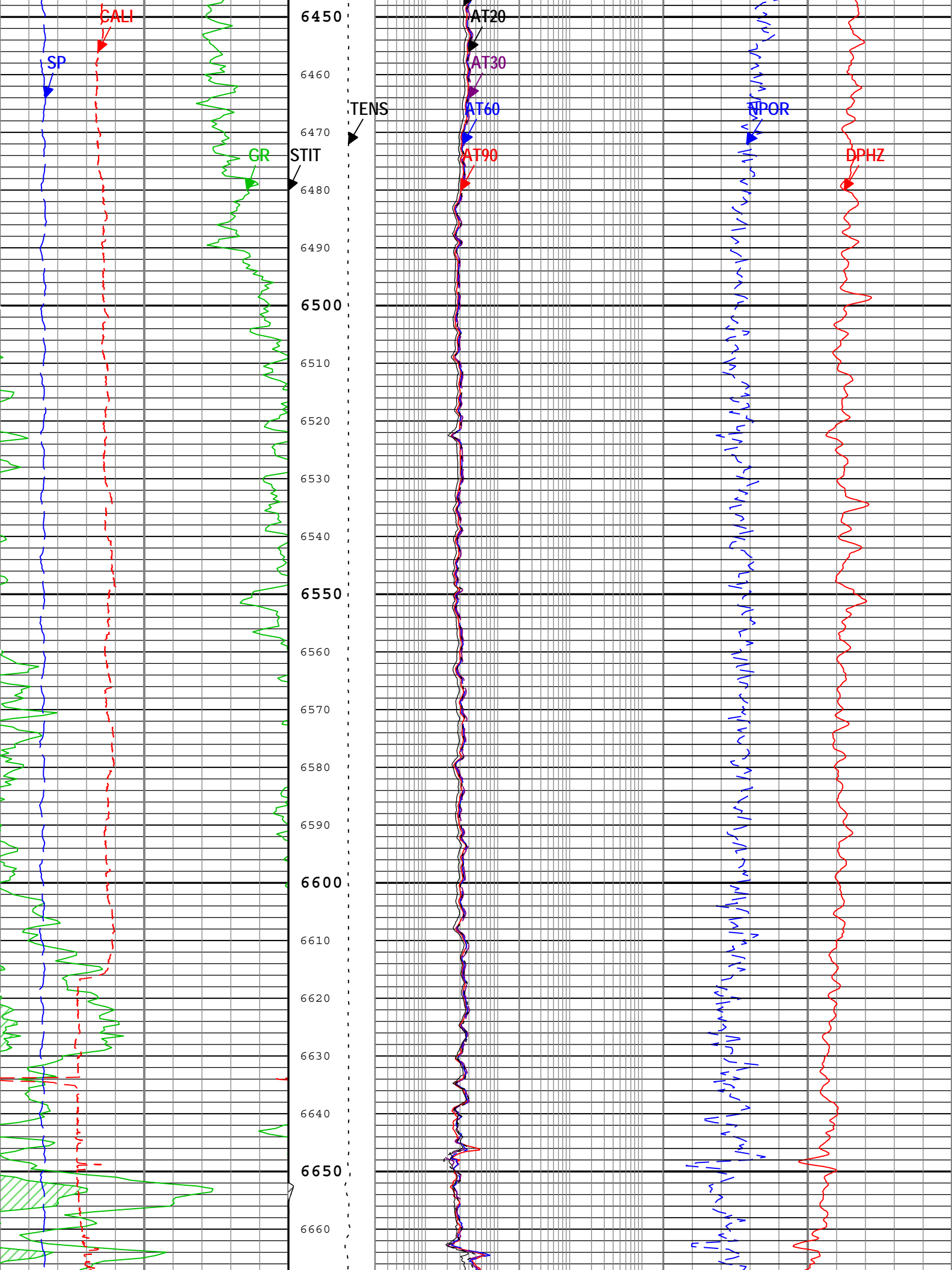


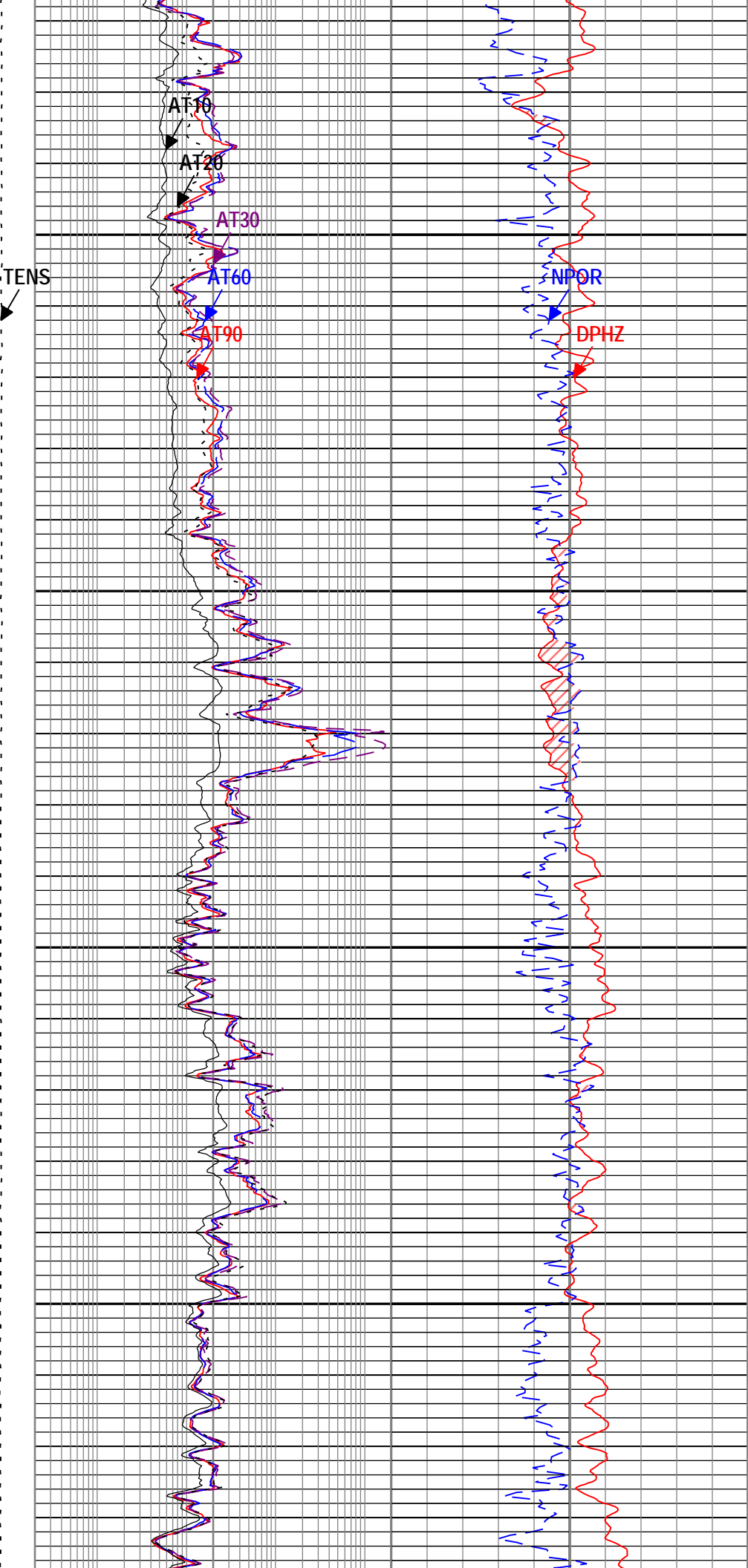
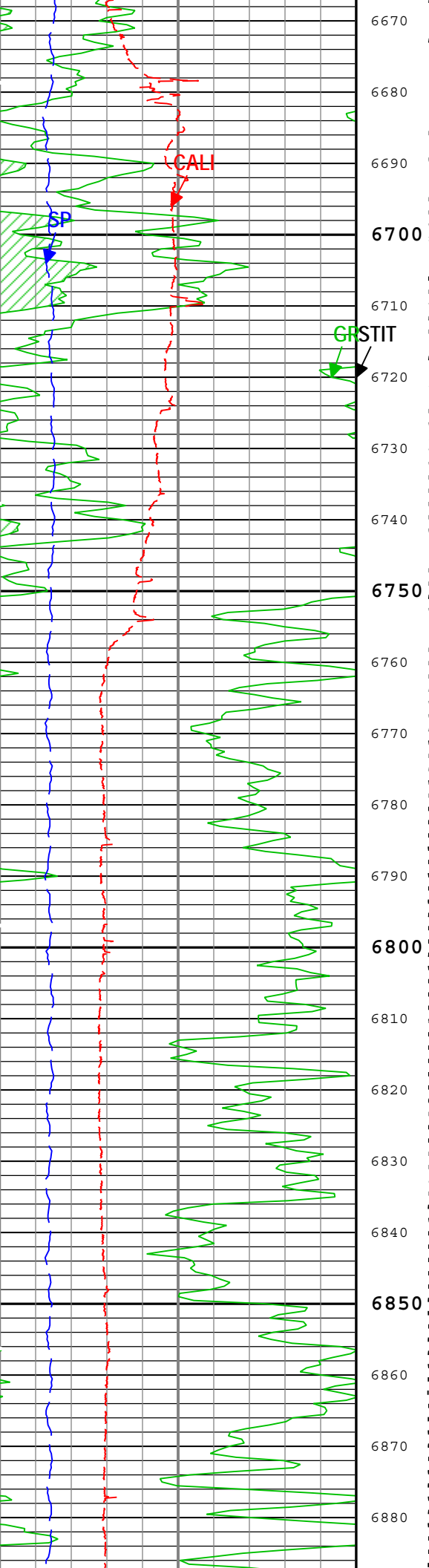


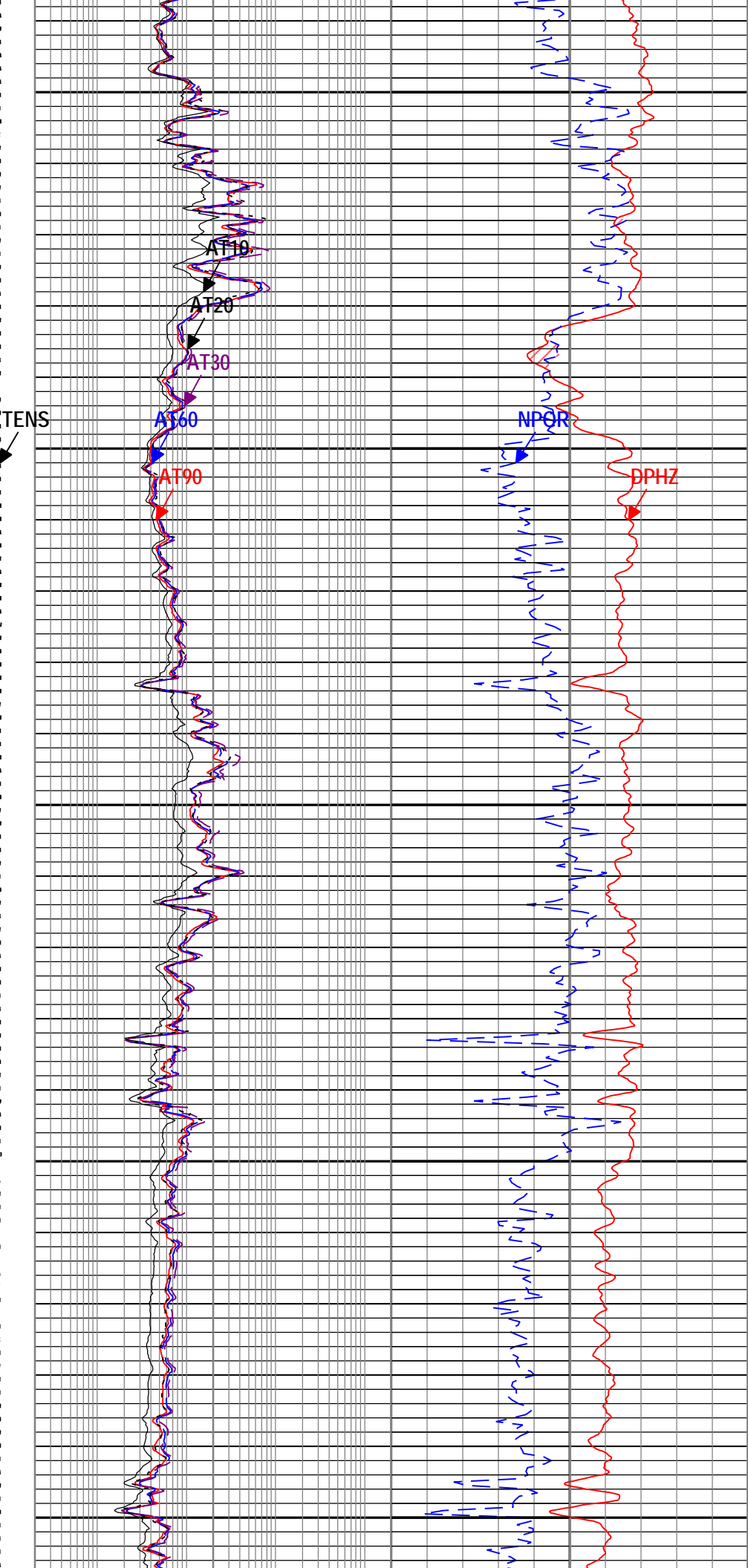
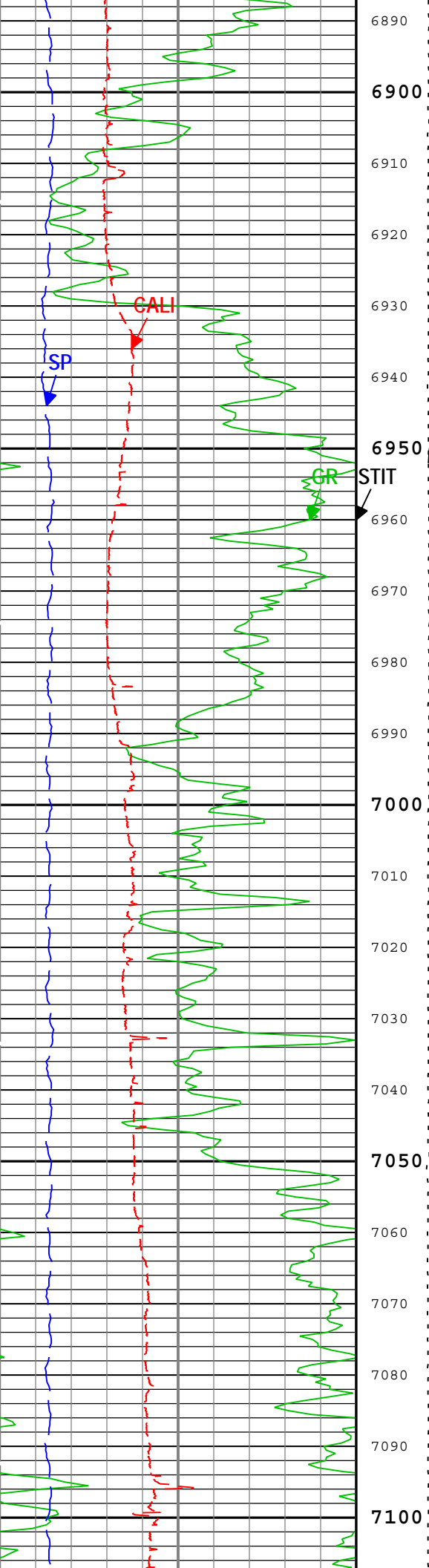


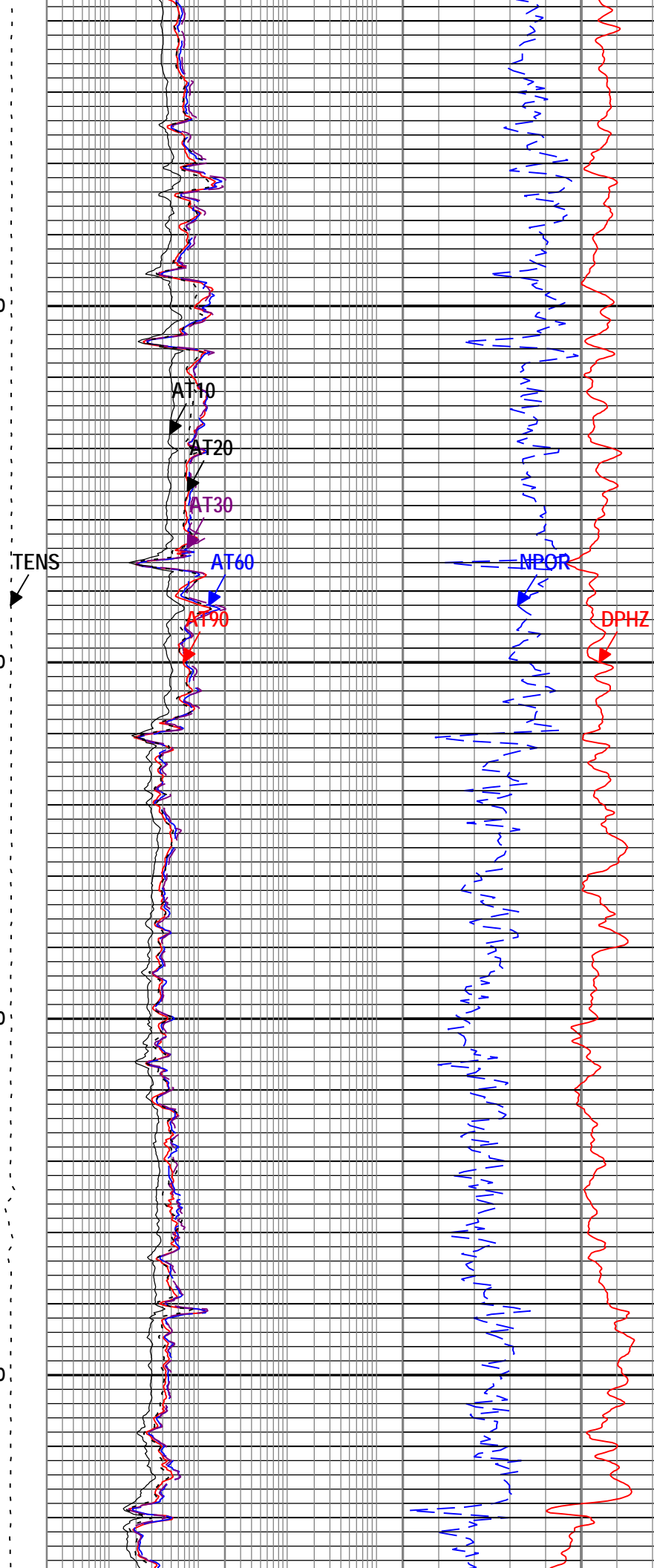
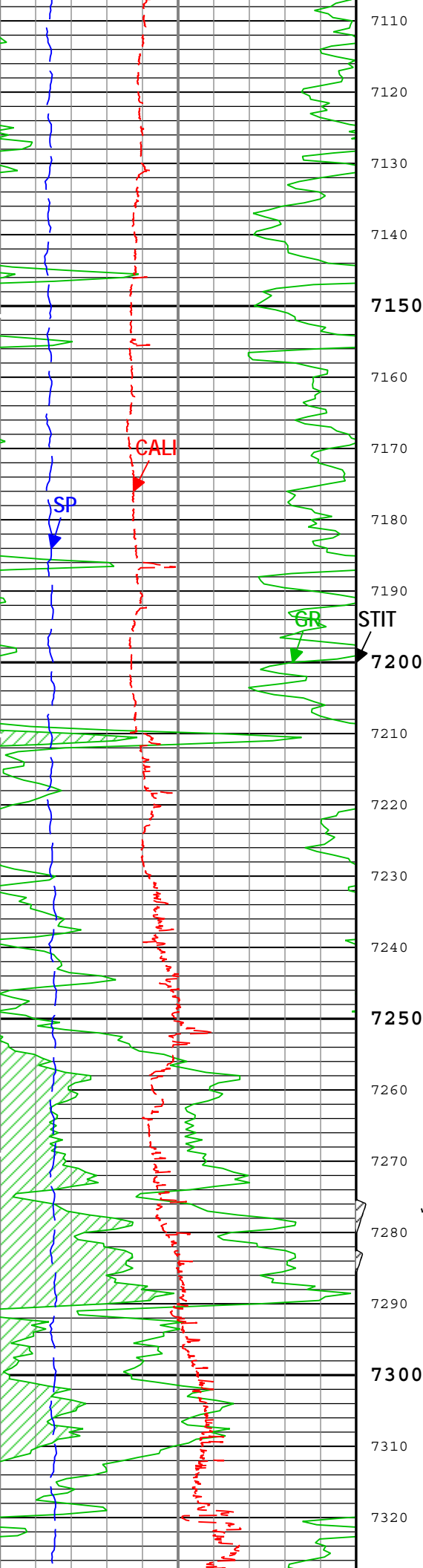


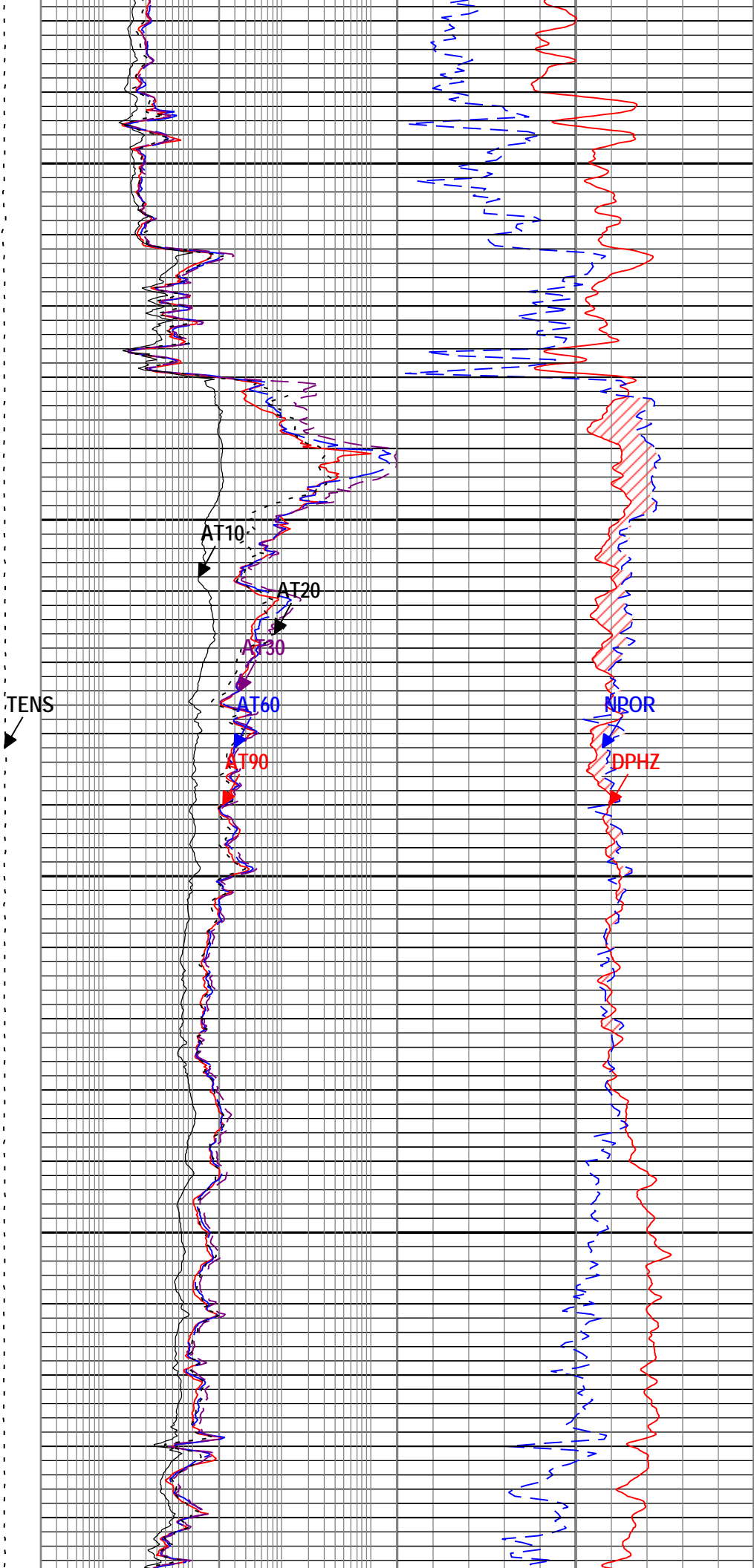
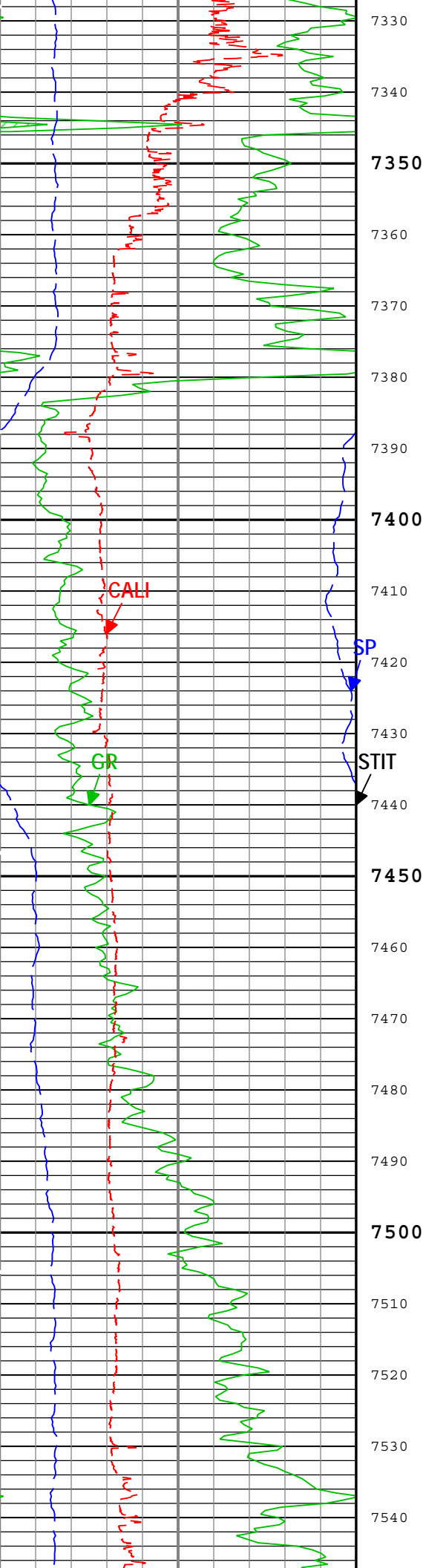




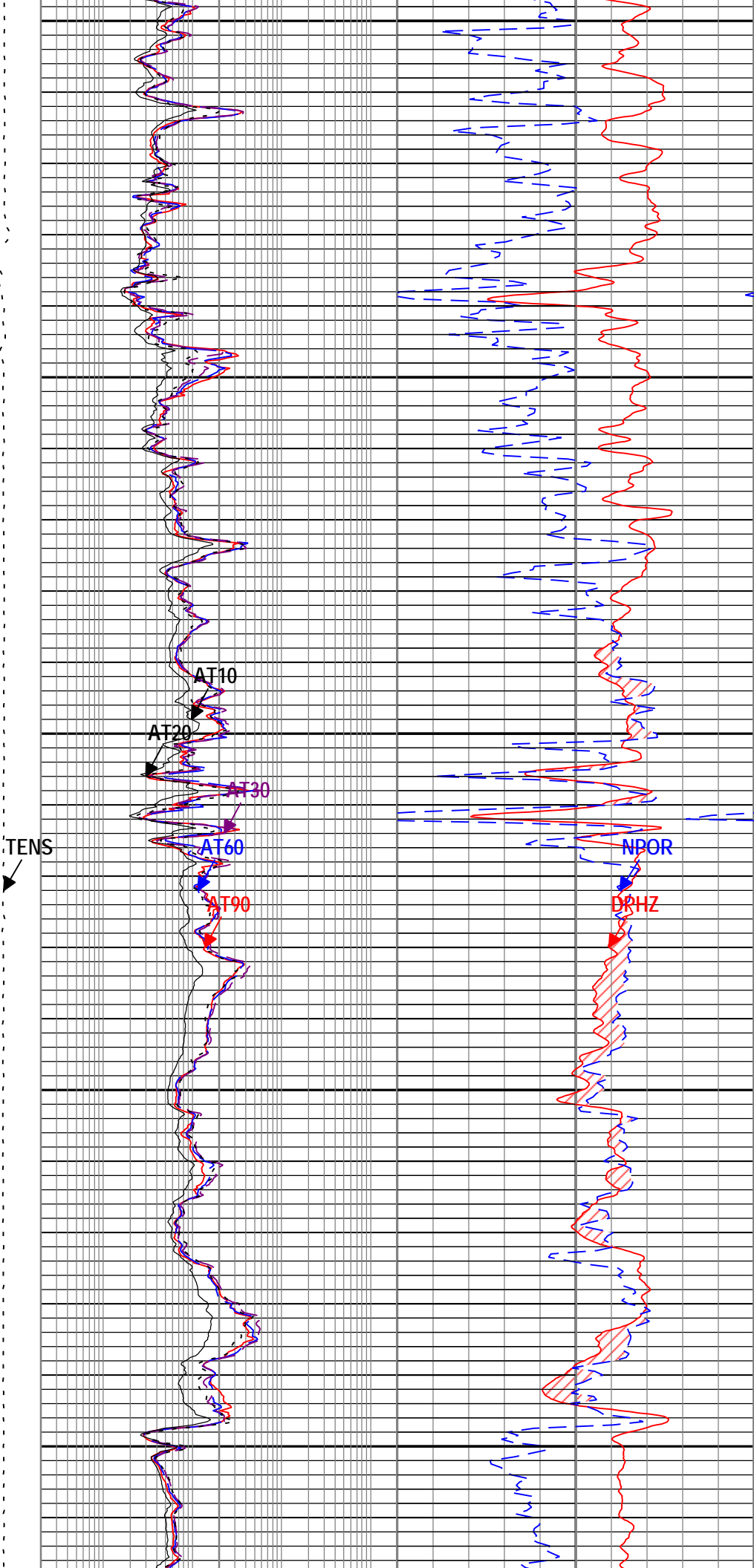
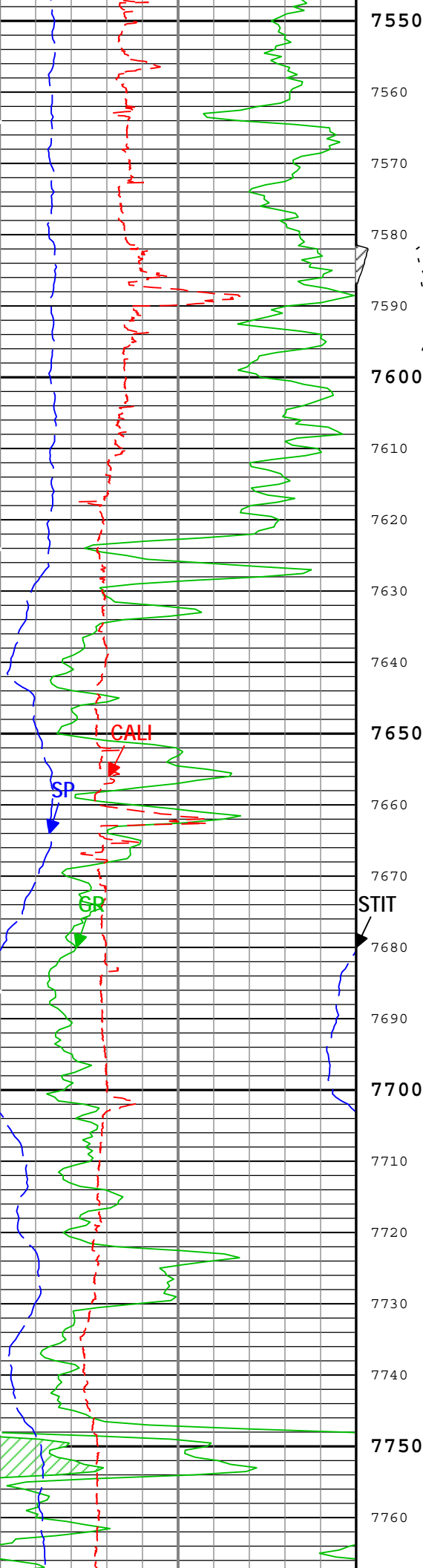




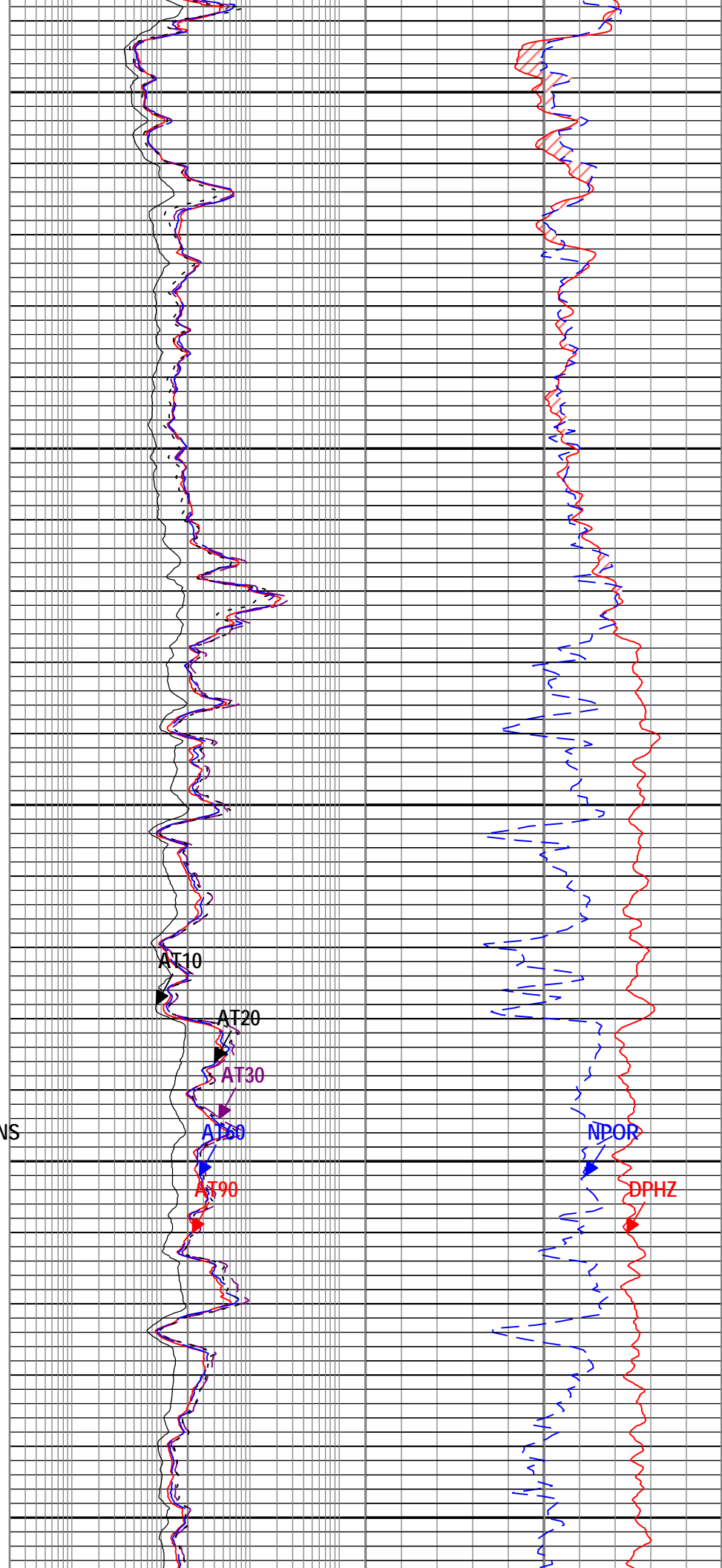
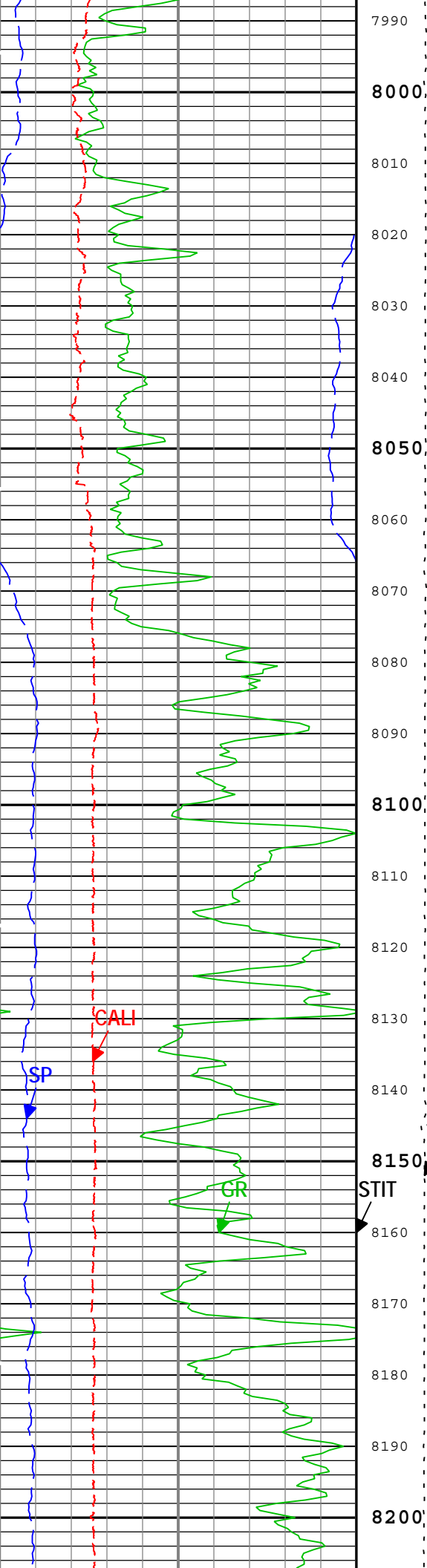


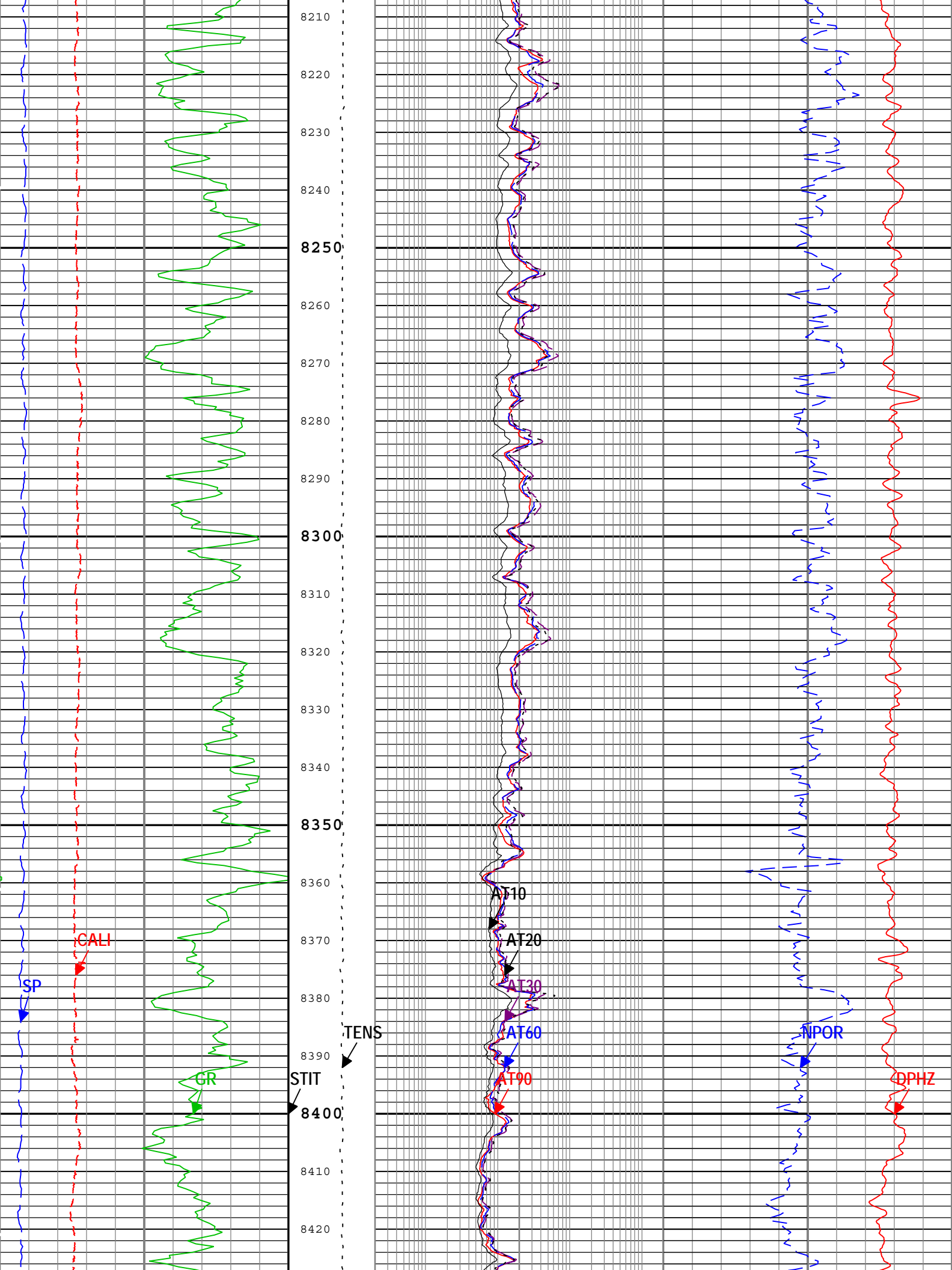


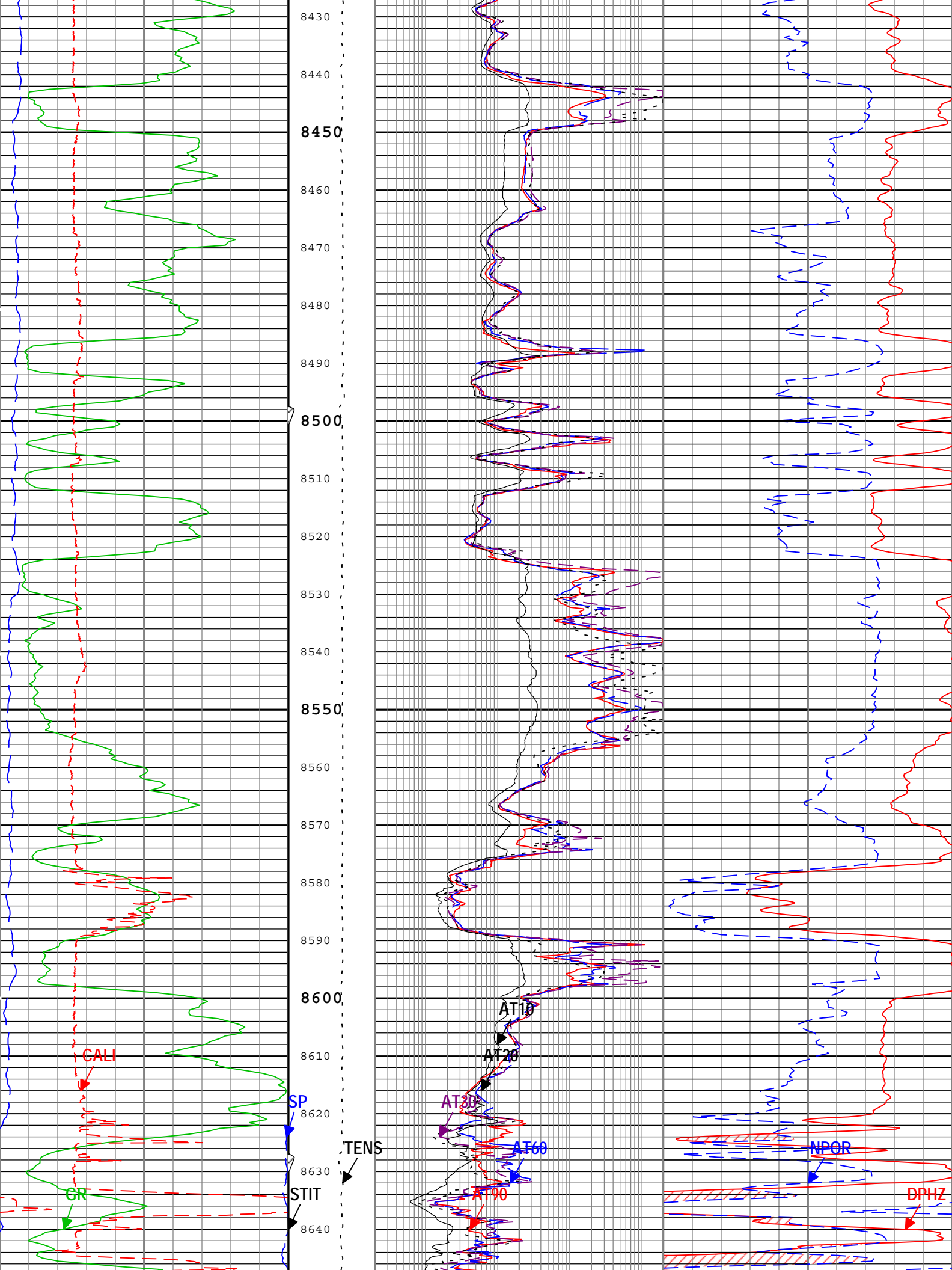


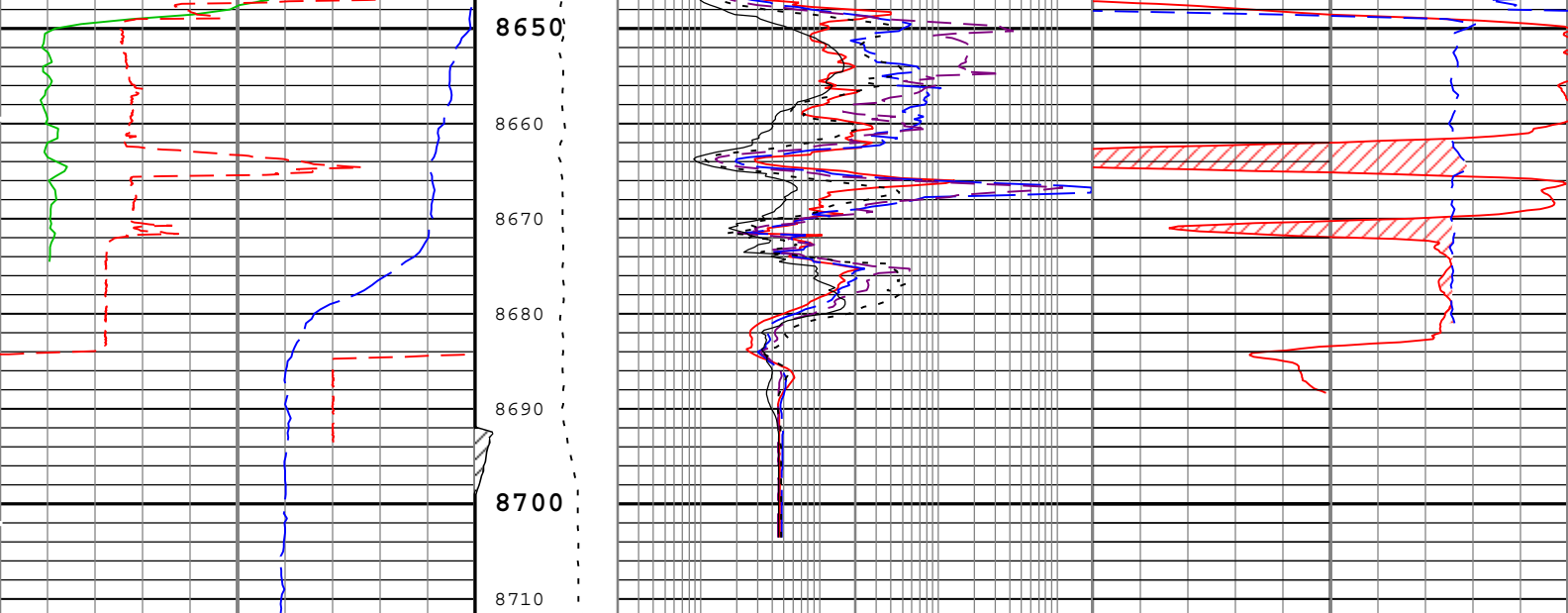












Gamma Ray Back up		Stuck Tool Indicator, Total (STIT)	Array Induction Two Foot Resistivity A90 (AT90) AIT-M			Gas Effect			
Gamma Ray (GR) HGNS-H			0.2 ohm.m 2000			NPOR Backup			
0	gAPI	150	0	ft	50	Standard Resolution Density Porosity (DPHZ) HDRS-H			
Spontaneous Potential (SP) AIT-M			Cable Tension (TENS)	Array Induction Two Foot Resistivity A60 (AT60) AIT-M			0.45 ft3/ft3 -0.15		
-160	mV	40		0.2 ohm.m 2000					
Caliper (CALI) HDRS-H			10000 lbf	Array Induction Two Foot Resistivity A30 (AT30) AIT-M			Enhanced Thermal Neutron Porosity in Selected Lithology (NPOR) HGNS-H		
6	in	16		0.2 ohm.m 2000			0.45 m3/m3 -0.15		
				Array Induction Two Foot Resistivity A20 (AT20) AIT-M					
				0.2 ohm.m 2000					
				Array Induction Two Foot Resistivity A10 (AT10) 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 Linear ) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 24-Mar-2014 10:51:02

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	
BARI	Barite Mud Presence Flag	Borehole	Yes	
BHS	Borehole Status (Open or Cased Hole)	Borehole	Open	
BHT	Bottom Hole Temperature	Borehole	232	degF
BS	Bit Size	WLSESSION	8.75	in
BSAL	Borehole Salinity	Borehole	2000	ppm
CALI_SHIFT	CALI Supplementary Offset	HDRS-H	0	in
CBLO	Casing Bottom (Logger)	WLSESSION	726	ft
CDEN	Cement Density	HGNS-H	2	g/cm3
DFD	Drilling Fluid Density	Borehole	9.8	lbm/gal
DFT	Drilling Fluid Type	Borehole	Water	
DFT_WATER	Drilling Fluid Water Type	Borehole	Chemical Gel	

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	SANDSTONE	
MDEN	Matrix Density for Density Porosity	Borehole	2.68	g/cm3
MFST	Mud Filtrate Sample Temperature	Borehole	72	degF
RMFS	Resistivity of Mud Filtrate Sample	Borehole	0.42	ohm.m
SOCO	Standoff Correction Option	HGNS-H	Yes	
SPDR	SP Drift Per Foot	AIT-M	0	mV/ft
TD	Total Measured Depth	Borehole	8685	ft

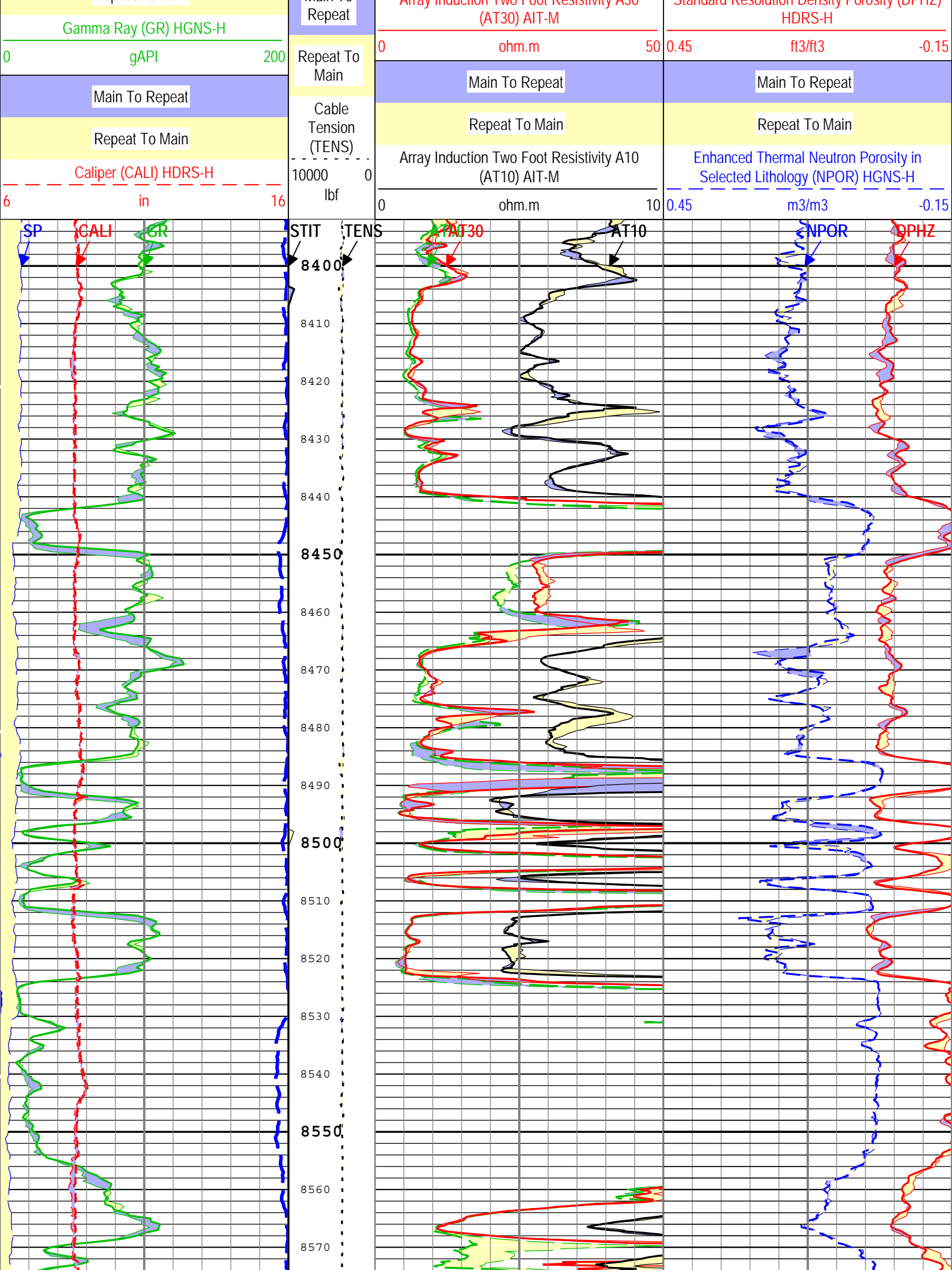
Tool Control Parameters				
Parameter	Description	Tool	Value	Unit
HMCA_BRD_TYPE	HMCA Board Type	HGNS-H	1	
HRGD_BRD_TYPE	HRGD Board Type	HDRS-H	WITH_HET	
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	3600	ft/h
Run 1				

Pass Summary									
Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
Run 1	Log[2]:Up	Up	8101.74 ft	8709.89 ft	23-Mar-2014 10:46:06 PM	23-Mar-2014 10:57:35 PM	ON	5.73 ft	No
Run 1	Log[3]:Up	Up	99.96 ft	8711.86 ft	23-Mar-2014 10:59:06 PM	24-Mar-2014 1:27:26 AM	ON	0.00 ft	No
All depths are referenced to toolstring zero									

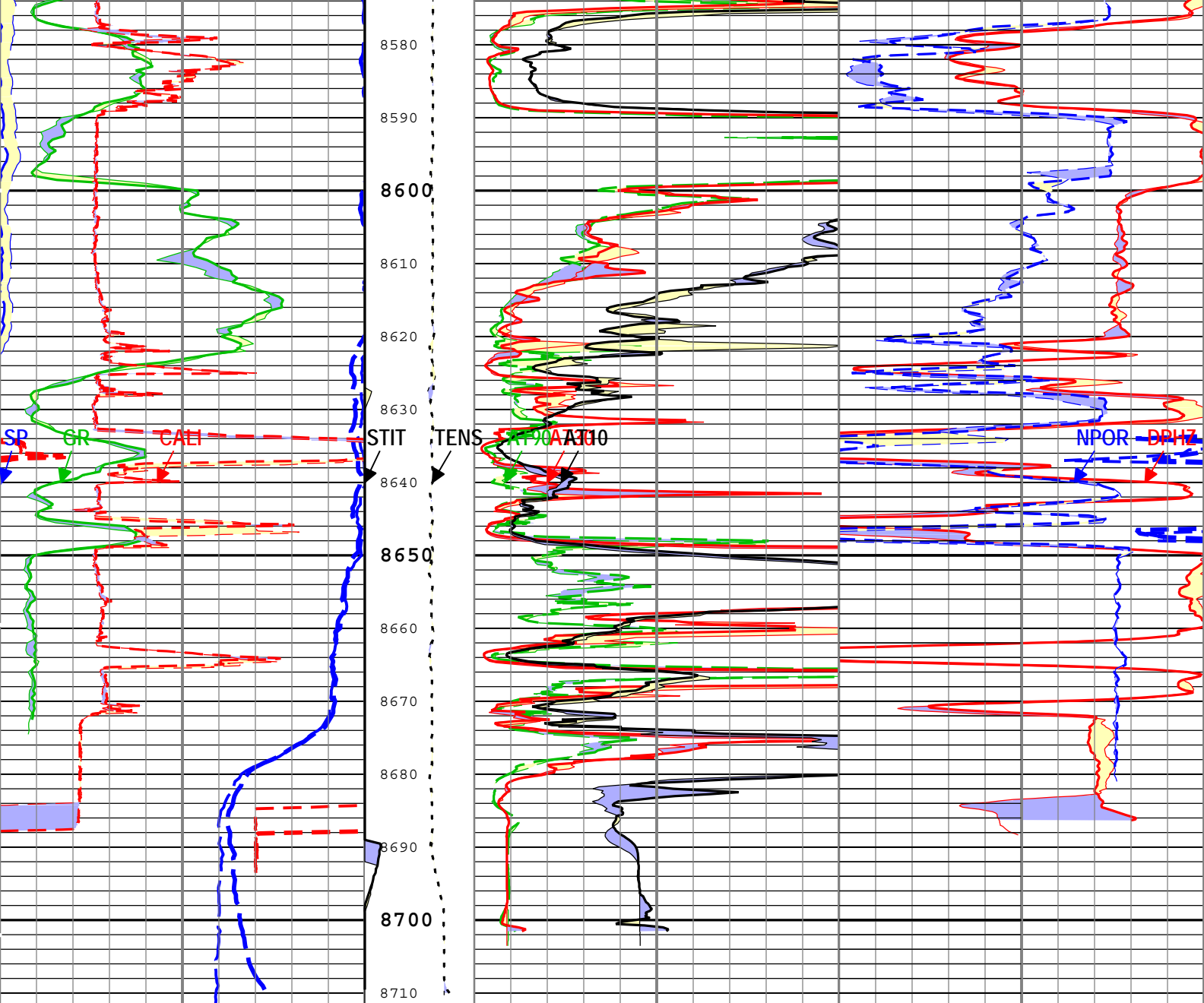
Log	<div>Company:Triton Energy Services LLC      Well:Triton 2</div> <div>Run 1: Log[3]:Up:S006</div>								
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Description: HGNS standard resolution porosities for Platform Express    Format: Log ( EMD 5in Triple Combo Linear RA )    Index Scale: 5 in per 100 ft    Index Unit: ft    Index Type: Measured Depth    Creation Date: 24-Mar-2014 10:51:05

TIME_1900 - Time Marked every 60.00 (s)									
Main To Repeat			Main To Repeat	Main To Repeat					
Repeat To Main				Repeat To Main					
Spontaneous Potential (SP) AIT-M				Array Induction Two Foot Resistivity A90 (AT90) AIT-M					
-160	mV			40	ohm.m		50		
Main To Repeat			Repeat To Main	Main To Repeat					
Repeat To Main			Stuck Tool Indicator, Total (STIT)	Main To Repeat			Main To Repeat		
Gamma Ray (GR) HGNS-H			0 ft 50	Repeat To Main			Repeat To Main		
200	gAPI			400	Array Induction Two Foot Resistivity A30			Standard Resolution Density Porosity (DPH7)	
Main To Repeat			Main To						
Repeat To Main									







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	Stuck Tool Indicator, Total (STIT)	Array Induction Two Foot Resistivity A90 (AT90) AIT-M	Standard Resolution Density Porosity (DPHZ) HDRS-H
-160 mV 40	0 ft 50	0 ohm.m 50	0.45 ft3/ft3 -0.15
Main To Repeat	Main To Repeat	Main To Repeat	Main To Repeat
Repeat To Main	Repeat To Main	Repeat To Main	Repeat To Main
Gamma Ray (GR) HGNS-H	Cable Tension (TENS)	Array Induction Two Foot Resistivity A30 (AT30) AIT-M	Enhanced Thermal Neutron Porosity in Selected Lithology (NPOR) HGNS-H
200 gAPI 400	10000 lbf 0	0 ohm.m 50	0.45 m3/m3 -0.15
Main To Repeat		Main To Repeat	
Repeat To Main		Repeat To Main	
Gamma Ray (GR) HGNS-H		Array Induction Two Foot Resistivity A10 (AT10) AIT-M	
0 gAPI 200		0 ohm.m 10	
Main To Repeat			

Repeat To Main

Caliper (CALI) HDRS-H

6 in 16

TIME\_1900 - Time Marked every 60.00 (s)

Description: HGNS standard resolution porosities for Platform Express    Format: Log ( EMD 5in Triple Combo Linear RA )    Index Scale: 5 in per 100 ft    Index Unit: ft    Index Type: Measured Depth    Creation Date: 24-Mar-2014 10:51:05

## Calibration Report

### AIT-M (Array Induction Tool - M) Calibration - Run 1

#### Primary Equipment :

File code for AIT-MA Sonde Tool Element

AMIS

181

#### Auxiliary Equipment :

AITM Rm/SP Bottom Nose

AMRM

181

### AIT Sonde Calibration - Test Loop Gain

Master (EEPROM): 14:33:17 20-Mar-2014

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit		
Test Loop Gain - 0		Master	1.000	0.950	1.016	1.050		
Test Loop Phase - 0	deg	Master	0	-3.000	0.495	3.000		
Test Loop Gain - 1		Master	1.000	0.950	1.017	1.050		
Test Loop Phase - 1	deg	Master	0	-3.000	0.643	3.000		
Test Loop Gain - 2		Master	1.000	0.950	1.018	1.050		
Test Loop Phase - 2	deg	Master	0	-3.000	0.087	3.000		
Test Loop Gain - 3		Master	1.000	0.950	1.017	1.050		
Test Loop Phase - 3	deg	Master	0	-3.000	0.145	3.000		
Test Loop Gain - 4		Master	1.000	0.950	0.997	1.050		
Test Loop Phase - 4	deg	Master	0	-3.000	0.094	3.000		
Test Loop Gain - 5		Master	1.000	0.950	0.992	1.050		
Test Loop Phase - 5	deg	Master	0	-3.000	-0.159	3.000		
Test Loop Gain - 6		Master	1.000	0.950	0.999	1.050		
Test Loop Phase - 6	deg	Master	0	-3.000	0.205	3.000		
Test Loop Gain - 7		Master	1.000	0.950	1.011	1.050		
Test Loop Phase - 7	deg	Master	0	-3.000	-0.094	3.000		

### AIT Sonde Calibration - Sonde Error Correction

Master (EEPROM): 14:33:17 20-Mar-2014

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit		
Sonde Error Correction Real - 0	mS/m	Master	-----	-231.000	-102.955	119.000		
Sonde Error Correction Quad - 0		Master	-----	-2250.000	102.357	2250.000		
Sonde Error Correction Real - 1	mS/m	Master	-----	114.000	159.656	204.000		
Sonde Error Correction Quad - 1		Master	-----	-625.000	-157.628	625.000		
Sonde Error Correction Real - 2	mS/m	Master	-----	66.000	115.718	156.000		
Sonde Error Correction Quad - 2		Master	-----	-350.000	-102.814	350.000		
Sonde Error Correction Real - 3	mS/m	Master	-----	39.000	51.233	89.000		
Sonde Error Correction Quad - 3		Master	-----	-250.000	5.344	250.000		
Sonde Error Correction Real - 4	mS/m	Master	-----	15.000	26.452	35.000		
Sonde Error Correction Quad - 4		Master	-----	-63.000	-4.814	63.000		
Sonde Error Correction Real - 5	mS/m	Master	-----	4.000	11.507	24.000		
Sonde Error Correction Quad - 5		Master	-----	-50.000	20.881	50.000		
Sonde Error Correction Real - 6	mS/m	Master	-----	5.000	10.309	15.000		
Sonde Error Correction Quad - 6		Master	-----	-30.000	1.576	30.000		
Sonde Error Correction Real - 7	mS/m	Master	-----	-5.000	-1.361	5.000		
Sonde Error Correction Quad - 7		Master	-----	-30.000	1.574	30.000		

### AIT Mud Calibration - Mud Calibration Gain

Master (EEPROM): 14:33:17 20-Mar-2014

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit		
Coarse Gain		Master	1.000	0.800	0.813	1.200		
Fine Gain		Master	1.000	0.800	0.814	1.200		

### AIT Electronics Check - Thru Calibration Check

Master (EEPROM): 14:33:17 20-Mar-2014

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit		
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Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Thru Cal Mag - 0	V	Master	-----	0.366	0.575	0.854	
Thru Cal Phase - 0	deg	Master	-----	137.000	-168.771	-103.000	
Thru Cal Mag - 1	V	Master	-----	0.762	1.178	1.778	
Thru Cal Phase - 1	deg	Master	-----	136.000	-169.870	-104.000	
Thru Cal Mag - 2	V	Master	-----	0.372	0.585	0.868	
Thru Cal Phase - 2	deg	Master	-----	132.000	-173.511	-108.000	
Thru Cal Mag - 3	V	Master	-----	0.420	0.660	0.980	
Thru Cal Phase - 3	deg	Master	-----	131.000	-174.289	-109.000	
Thru Cal Mag - 4	V	Master	-----	0.804	1.233	1.876	
Thru Cal Phase - 4	deg	Master	-----	125.000	179.445	-115.000	
Thru Cal Mag - 5	V	Master	-----	1.176	1.795	2.744	
Thru Cal Phase - 5	deg	Master	-----	122.000	177.791	-118.000	
Thru Cal Mag - 6	V	Master	-----	1.176	1.795	2.744	
Thru Cal Phase - 6	deg	Master	-----	121.000	177.797	-119.000	
Thru Cal Mag - 7	V	Master	-----	0.846	1.295	1.974	
Thru Cal Phase - 7	deg	Master	-----	115.000	177.075	-125.000	
SPA Zero	mV	Master		-50.000	0.130	50.000	
SPA Plus	mV	Master		941.000	992.434	1040.000	
Temperature Zero	V	Master		-0.050	0.000	0.050	
Temperature Plus	V	Master		0.870	0.919	0.960	

## HDRS-H (HILT Density and Rxo Sonde, 150 degC) Calibration - Run 1

### Primary Equipment :

HILT High-Resolution Control Cartridge, 150 degC	HRCC-H	
HILT Resistivity Gamma-Ray Density Device, 150 degC	HRGD-H	3760

### Auxiliary Equipment :

HRDD Backscatter Detector	Backscatter	
HRDD Long Spacing Detector	Long Spacing	
HRDD Short Spacing Detector	Short Spacing	
Cesium 137 Gamma-Ray Logging Source	GSR-J	5471
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 Density Calibration - Inversion Results

Master (EEPROM): 11:35:40 19-Mar-2014

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Rho Aluminum	g/cm3	Master	2.596	2.586	2.600	2.606	
Rho Magnesium	g/cm3	Master	1.686	1.676	1.686	1.696	
Pe Aluminum		Master	2.570	2.470	2.554	2.670	
Pe Magnesium		Master	2.650	2.550	2.623	2.750	

## HDRS Density Calibration - Deviation Summary

Master (EEPROM): 11:35:40 19-Mar-2014

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
BS Average Deviation	%	Master	0	-0.6000	0.2428	0.6000	
BS Max Deviation	%	Master	0	-1.6000	0.7293	1.6000	
SS Average Deviation	%	Master	0	-1.0000	0.2370	1.0000	
SS Max Deviation	%	Master	0	-2.5000	0.6812	2.5000	
LS Average Deviation	%	Master	0	-1.5000	0.4080	1.5000	
LS Max Deviation	%	Master	0	-3.5000	1.3151	3.5000	

## HDRS Density Calibration - Background Summary

Master (EEPROM): 11:35:40 19-Mar-2014

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
BS Window Ratio		Master	1.0000		0.7326		
BS Window Sum	1/s	Master	1		24168		
SS Window Ratio		Master	1.0000		0.4857		
SS Window Sum	1/s	Master	1		9862		

LS Window Ratio		Master	1.0000		0.2961		
LS Window Sum	1/s	Master	1		1195		

## HDRS Density Calibration - Photo-multiplier High Voltages

Master (EEPROM): 11:35:40 19-Mar-2014

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
BS PM High Voltage	V	Master		1000	1300	2400	
SS PM High Voltage	V	Master		1000	1596	2400	
LS PM High Voltage	V	Master		1000	1192	2400	

## HDRS Density Calibration - Crystal Quality Resolutions

Master (EEPROM): 11:35:40 19-Mar-2014

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
BS Crystal Resolution	%	Master		5.00	10.56	25.00	
SS Crystal Resolution	%	Master		5.00	9.48	20.00	
LS Crystal Resolution	%	Master		5.00	8.50	20.00	

## HGNS-H (HILT Gamma-Ray and Neutron Sonde, 150 degC) Calibration - Run 1

### Primary Equipment :

HILT Gamma-Ray and Neutron Sonde, 150 degC HGNS-H

### Auxiliary Equipment :

HGNS Accelerometer, 150 degC HACCZ-H 6991  
AmBe Neutron Logging Source NSR-F 2554

### Calibration Parameter :

Water Temperature (Calibration Tank Water Temperature) 47.3  
Housing Size (Thermal Housing Size) 3.37  
JIG-BKG (Jig minus background reference) 165

## HGNS Accelerometer EEPROM - Accelerometer EEPROM Read

Master (EEPROM): 00:00:00 15-May-2007

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

## HGNS Neutron Calibration - HGNS Neutron Accumulations

Master (EEPROM): 11:01:24 05-Feb-2014

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Near Zero Measurement	1/s	Master	0	5.0	26.8	40.0	
Far Zero Measurement	1/s	Master	0	5.0	26.6	40.0	
Near Plus Measurement	1/s	Master	6031.0	4700.0	5597.0	6900.0	
Far Plus Measurement	1/s	Master	2793.0	1900.0	2307.0	2900.0	
Near Corrected Plus Measurement	1/s	Master		4700.0	5699.0	6900.0	
Far Corrected Plus Measurement	1/s	Master		1900.0	2361.0	2900.0	

Well:	Triton 2
Field:	Wattenberg
County:	Weld
State:	Colorado

Platform Express
Triple Combo
Linear