

Company: Nighthawk Production LLC

Well: John Craig 1-2

Field: Old Homestead

County: Lincoln State: Colorado

Platform Express
Triple Combo

County:	Lincoln		
Field:	Old Homestead		
Location:	Lat/Long : 39.2117/-103.6234		
Well:	John Craig 1-2		
Company:	Nighthawk Production LLC		
		Location:	Lat/Long : 39.2117/-103.6234 SHL : 1222' FNL X 665' FEL NENE
		Permanent Datum:	Ground Level
		Log Measured From:	Kelly Bushing
		Drilling Measured From:	Kelly Bushing
		API Serial No.	Section: 2
		05-073-06549-00	Township: 10S
			Range: 56W
Logging Date	10-Nov-2013		

Run Number	Run 1		
Depth Driller	8450.00 ft		
Schlumberger Depth	8468.00 ft		
Bottom Log Interval	8468.00 ft		
Top Log Interval	352.00 ft		
Casing Driller Size @ Depth	8.625 in @ 353.00 ft		
Casing Schlumberger	352 ft		
Bit Size	7.875 in		
Type Fluid In Hole	Chemical Gel		
Density	9 lbm/gal	68 s	
Fluid Loss	PH 7.2 cm3		
MUD			
Source of Sample			
RM @ Meas Temp	1.1 ohm.m @ 63 degF		
RMF @ Meas Temp	0.82 ohm.m @ 63 degF		
RMC @ Meas Temp	1.38 ohm.m @ 63 degF		
Source RMF	Calculated	Calculated	
RM @ BHT	0.39 @ 192	0.29 @ 192	
Max Recorded Temperatures	192 degF	192	192
Circulation Stopped	10-Nov-2013	11:00:00	
Logger on Bottom	11-Nov-2013	00:42:27	
Unit Number	Location: 2135	Fort Morgan	
Recorded By	Arvin Shi		
Witnessed By	Allan Seeling		

Disclaimer

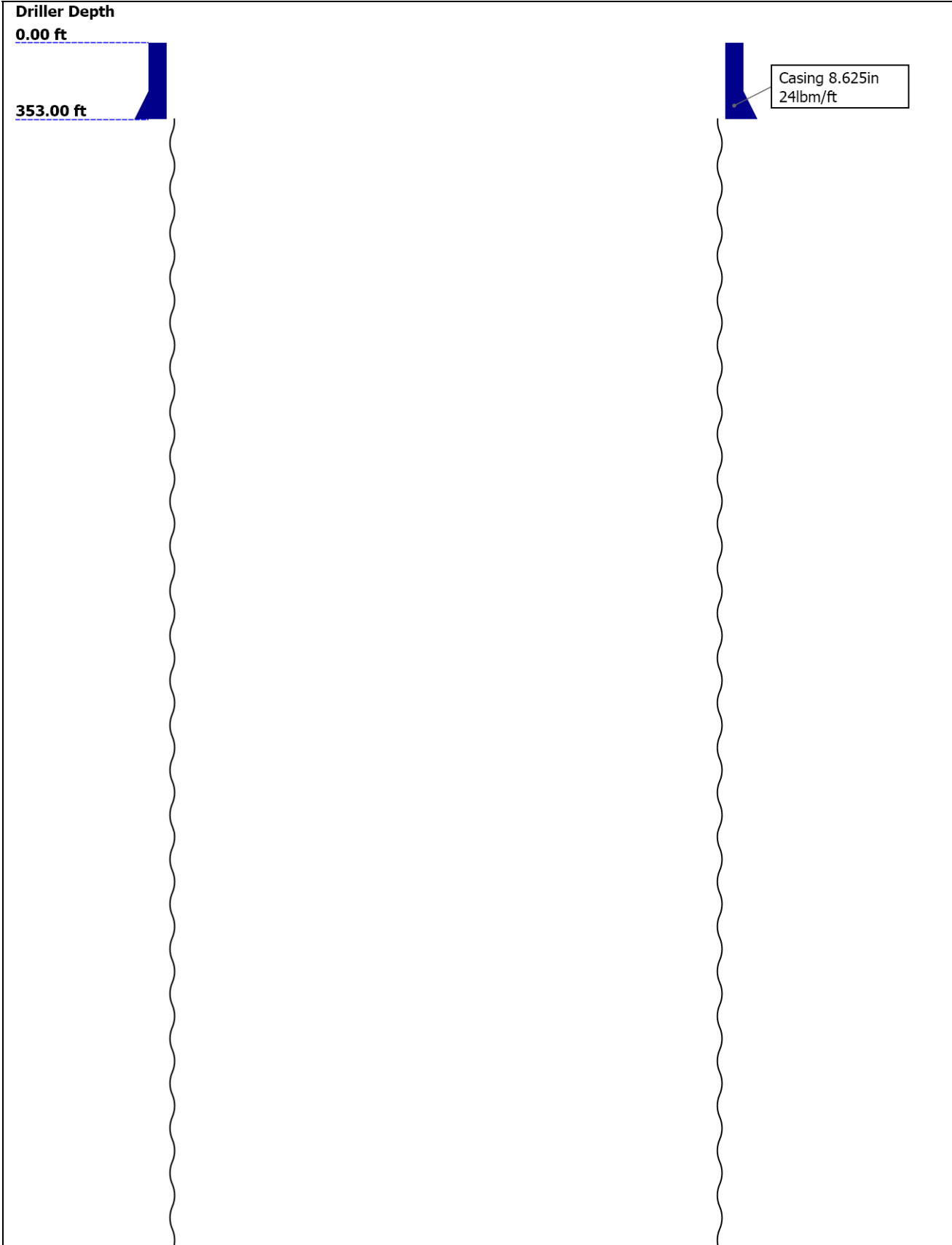
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Well Sketch





Borehole Size/Casing/Tubing Record

Bit						
Bit Size (in)	7.875					
Top Driller (ft)	353					
Top Logger (ft)	352					
Bottom Driller (ft)	8450					
Bottom Logger (ft)	8468					
Casing						
Size (in)	8.625					
Weight (lbm/ft)	24					
Inner Diameter (in)	8.097					
Grade	N/A					
Top Driller (ft)	0					
Top Logger (ft)	0					
Bottom Driller (ft)	353					
Bottom Logger (ft)	352					

Operational Run Summary

Parameter (unit)	Run 1					
Date Log Started	10-Nov-2013					
Time Log Started	23:22:47					
Date Log Finished	11-Nov-2013					
Time Log Finished	02:07:33					
Top Log Interval (ft)	352.00					
Bottom Log Interval (ft)	8468.00					
Total Depth (ft)	8450.00					
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	Arvin Shi					
Witnessed By	Allan Seeling					
Service Order Number	C6V L00090					

Remarks and Equipment Summary

Run 1: Toolstring

Run 1: Remarks

Equip name	Length	MP name	Offset
LEH-QT LEH-QT	91.83		
AH-369	88.91		
DTC-H ECH-KC DTC-H	87.49	CTEM HV	86.59 0.00
HGNS-H HGNH NPV-N NSR-F:2554 HMCA-H HAC CZ-H:6991 HGNS-H	84.49	TelStatus ToolStatus Temperature GR	84.49 84.49 84.46 83.75
HDRS-H ECH-MEB HRCC-H HRMS-H GSR-J:5471 Long Spacing:287 96 GPV-Q Short Spacing Backscatter HRGD-H:3989	75.08	CNL Porosity HGNS HMCA Acceleromete r HRCC	77.41 75.08 75.08 0.00 71.08
HRLT-B HRUH-B HRUC-B HRLS-B HRLH-B HRLC-B AH-270	62.84	MCFL Caliper TLD Density	65.65 65.16 64.77
		Resistivity	51.07

AH-184 38.64

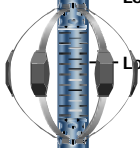
DSLT-H 36.64
ECH-KH
DSLCH
SLS-E:1294



CBL 3ft 24.17
Upper-Near 24.17
VDL 5ft 23.17
Upper-Far 23.17

Delta-T 21.79

Lower-Far 20.42



Lower-Near 19.42

AIT-M:208 16.00
AMIS:208
AMRM

SLS-E 16.00

Power Supply 7.91
Temperature 7.91
Induction 7.91

 <p>Lengths are in ft Maximum Outer Diameter = 9.000 in Line: Sensor Location, Value: Gating Offset All measurements are relative to TOOL_ZERO</p>			
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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	0		
Wheel Correction 2	0		

Tension Device			
Type	CMTD-B/A		
Serial Number			
Calibration Date			
Calibrator Serial Number			
Number of Calibration Points	0		

Logging Cable			
Type	7-46NT-XS		
Serial Number			
Length	24000.00 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

5" Triple Combo

Software Version

Acquisition System		Version	
MaxWell		4.0.9163.3000	
Computation	Description	Version	
HENVIR	Computation Ensemble for the HGNS Neutron environmental corrections	4.0.9033.3000	
DepthCorrection	DepthCorrection	4.0.9125.3000	
Tool Elements	Description	Software Version	Firmware Version
HRCC-H	HILT High-Resolution Control Cartridge, 150 degC	4.0.9033.3000	2.0

HGNS-H	HILT Gamma-Ray and Neutron Sonde, 150 degC	4.0.9033.3000	2.0
HRGD-H	HILT Resistivity Gamma-Ray Density Device, 150 degC	4.0.9033.3000	3.0
AMIS	Array Induction Sonde - M	4.0.9163.3000	1

Pass Summary									
Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
Run 1	Log[3]:Up	Up	345.01 ft	8496.03 ft	10-Nov-2013 11:47:33 PM	11-Nov-2013 2:06:28 AM	ON	0.00 ft	No

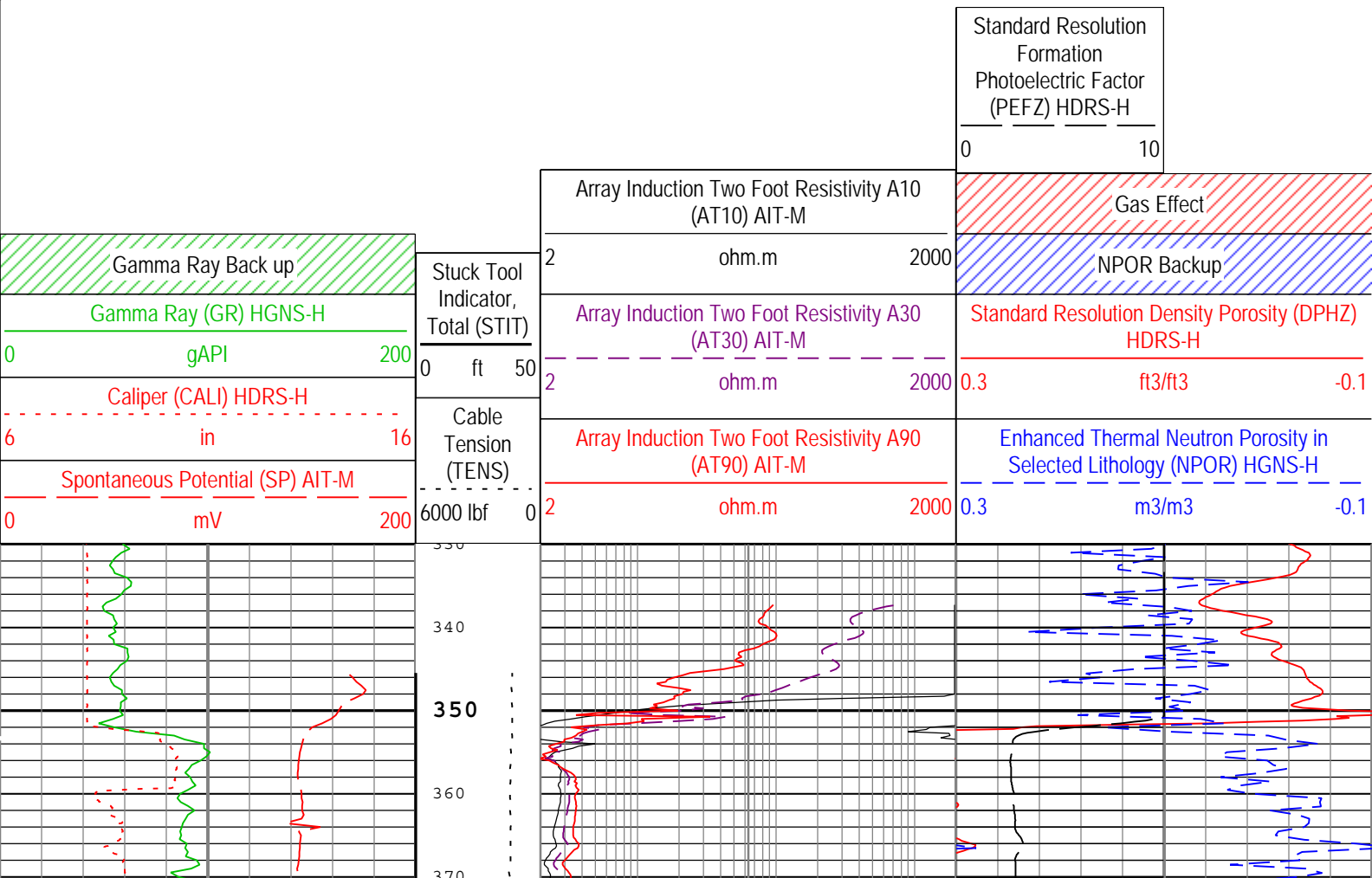
All depths are referenced to toolstring zero

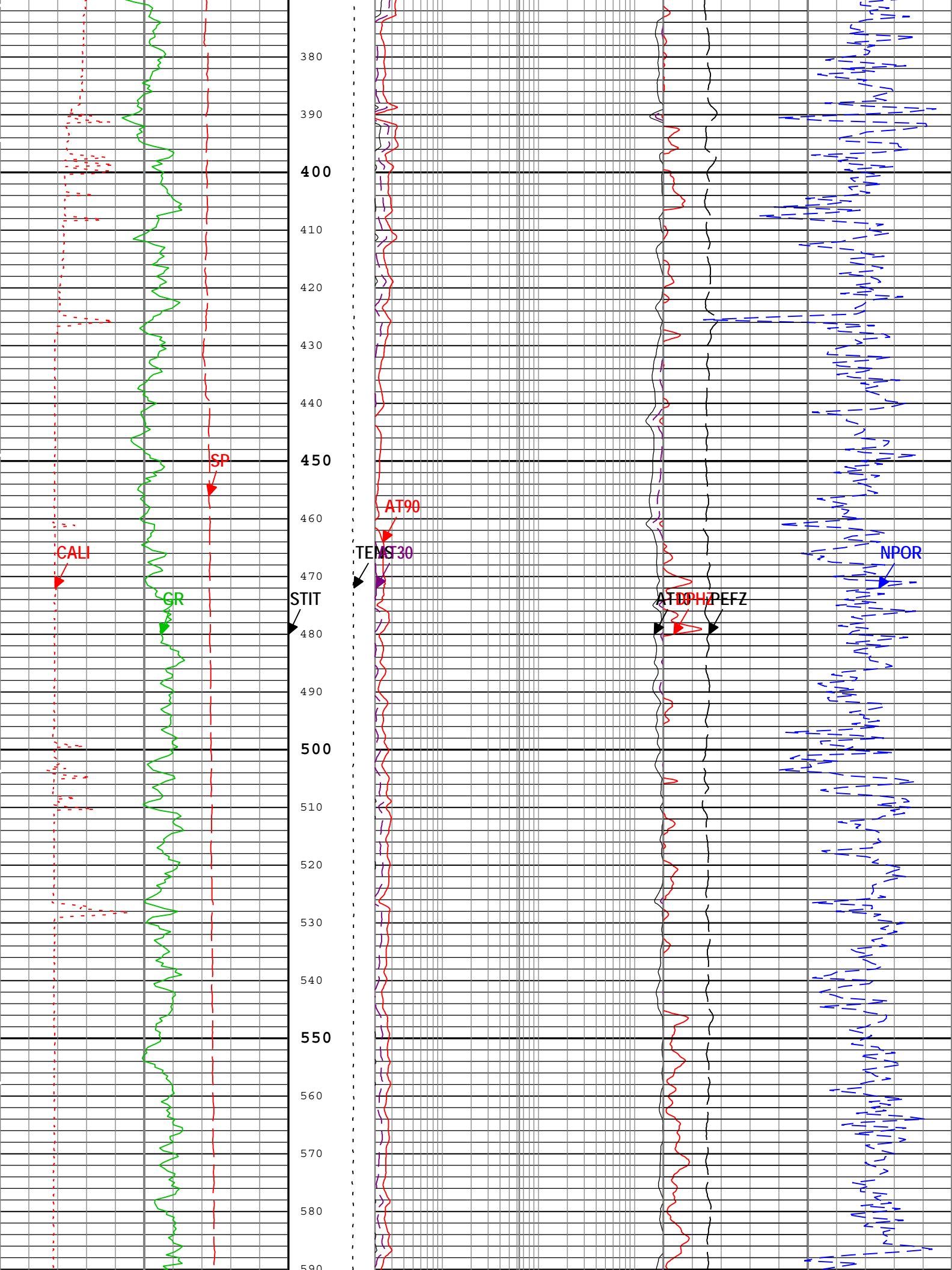
Log	Company:Nighthawk Production LLC Well:John Craig 1-2 Run 1: Log[3]:Up:S008								
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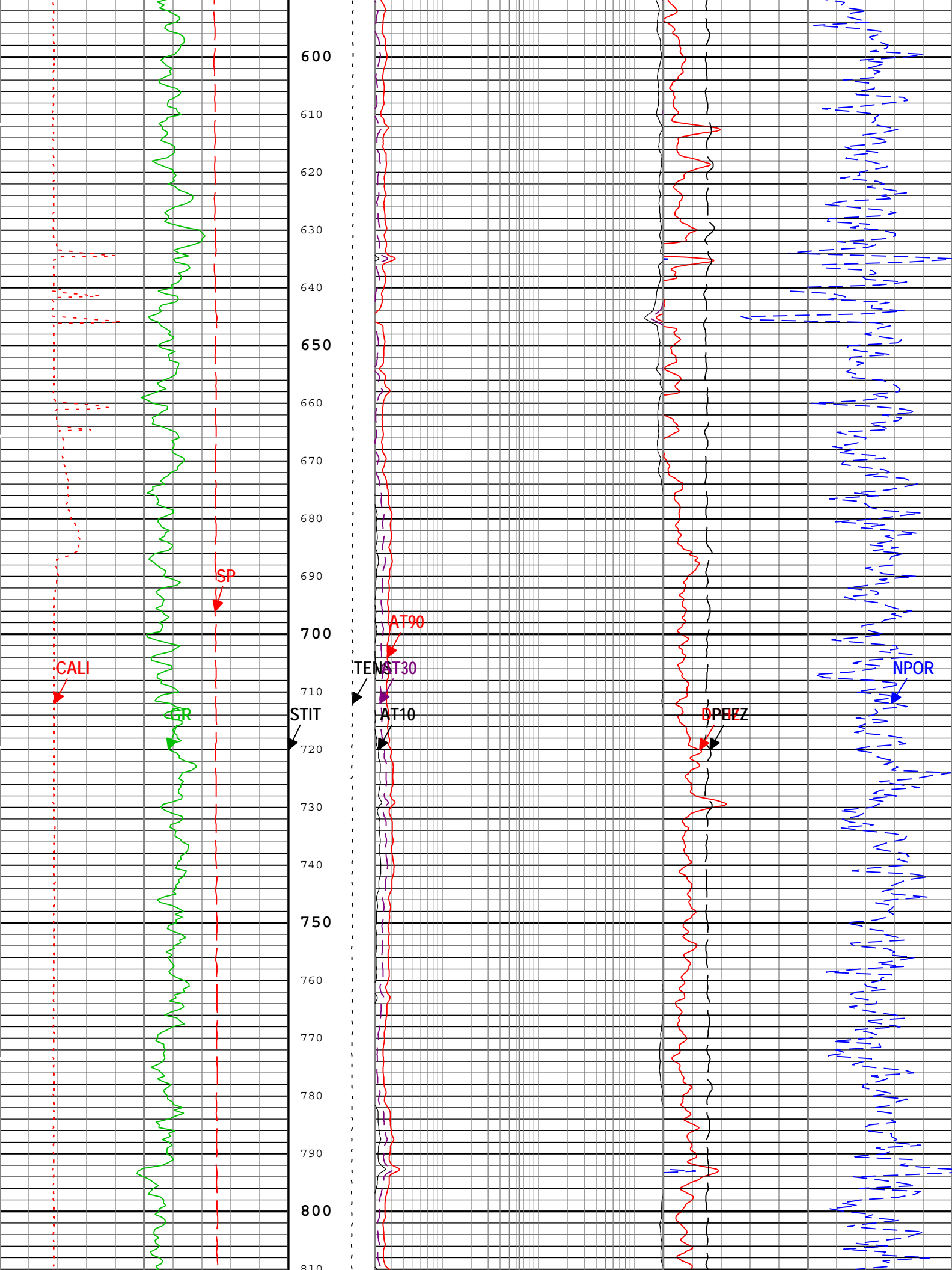
Description: HGNS standard resolution porosities for Platform Express Format: Log (KM 5in Triple Combo) Index Scale: 5 in per 100 ft Index Unit: ft
Index Type: Measured Depth Creation Date: 11-Nov-2013 02:11:52

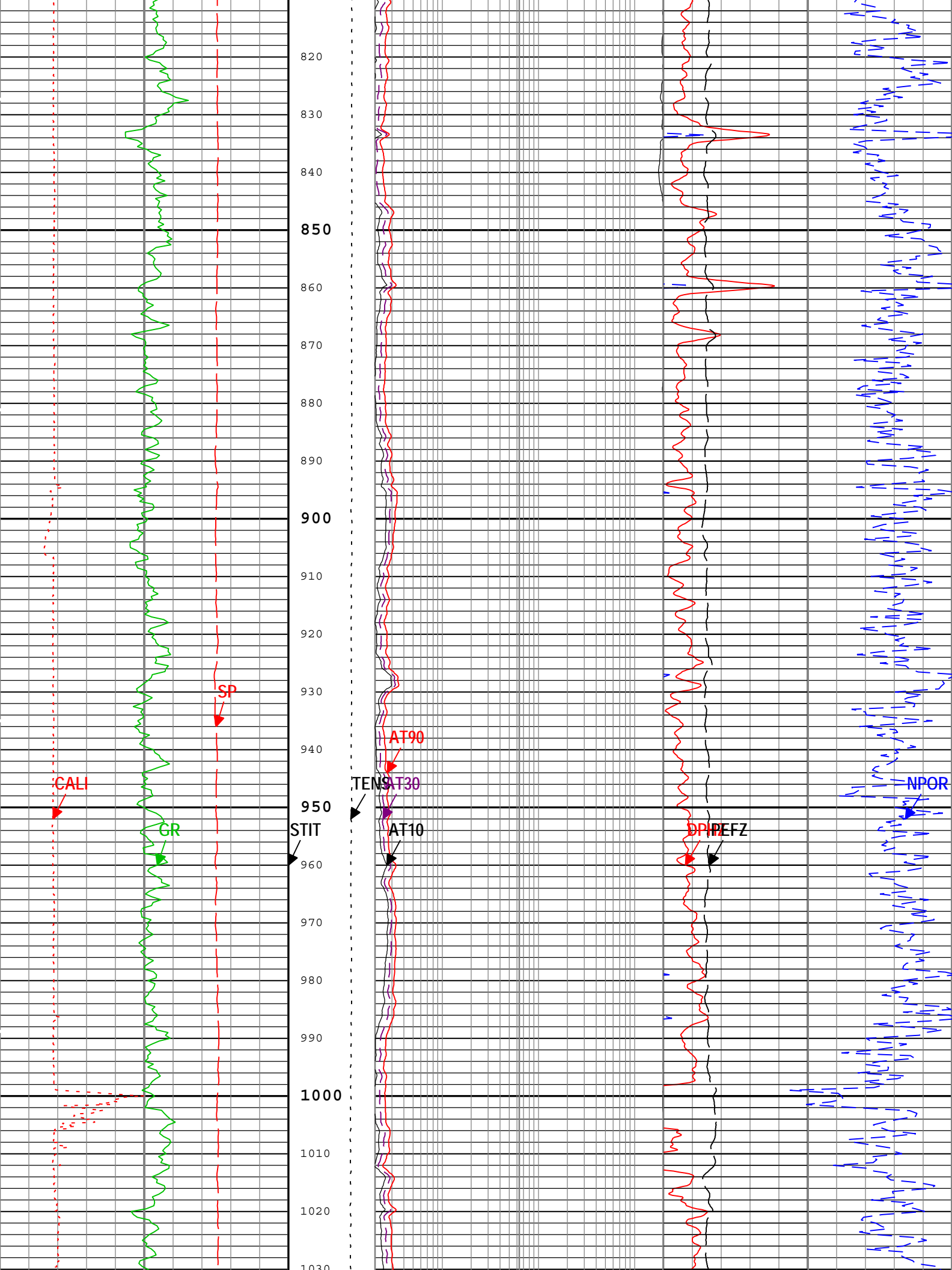
Channel	Source	Sampling
AT10	AIT-M:AMIS:AMIS	3in
AT30	AIT-M:AMIS:AMIS	3in
AT90	AIT-M:AMIS:AMIS	3in
CALI	HDRS-H:HRCC-H:HRCC-H	1in
DPHZ	HDRS-H:HRMS-H:HRGD-H	2in
GR	HGNS-H:HGNS-H:HGNS-H	6in
NPOR	HGNS-H:HGNS-H:HGNS-H	6in
PEFZ	HDRS-H:HRMS-H:HRGD-H	2in
SP	AIT-M:AMIS:AMIS	6in
STIT	DepthCorrection	6in
TENS	WLWorkflow	6in
TIME_1900	WLWorkflow	0.1in

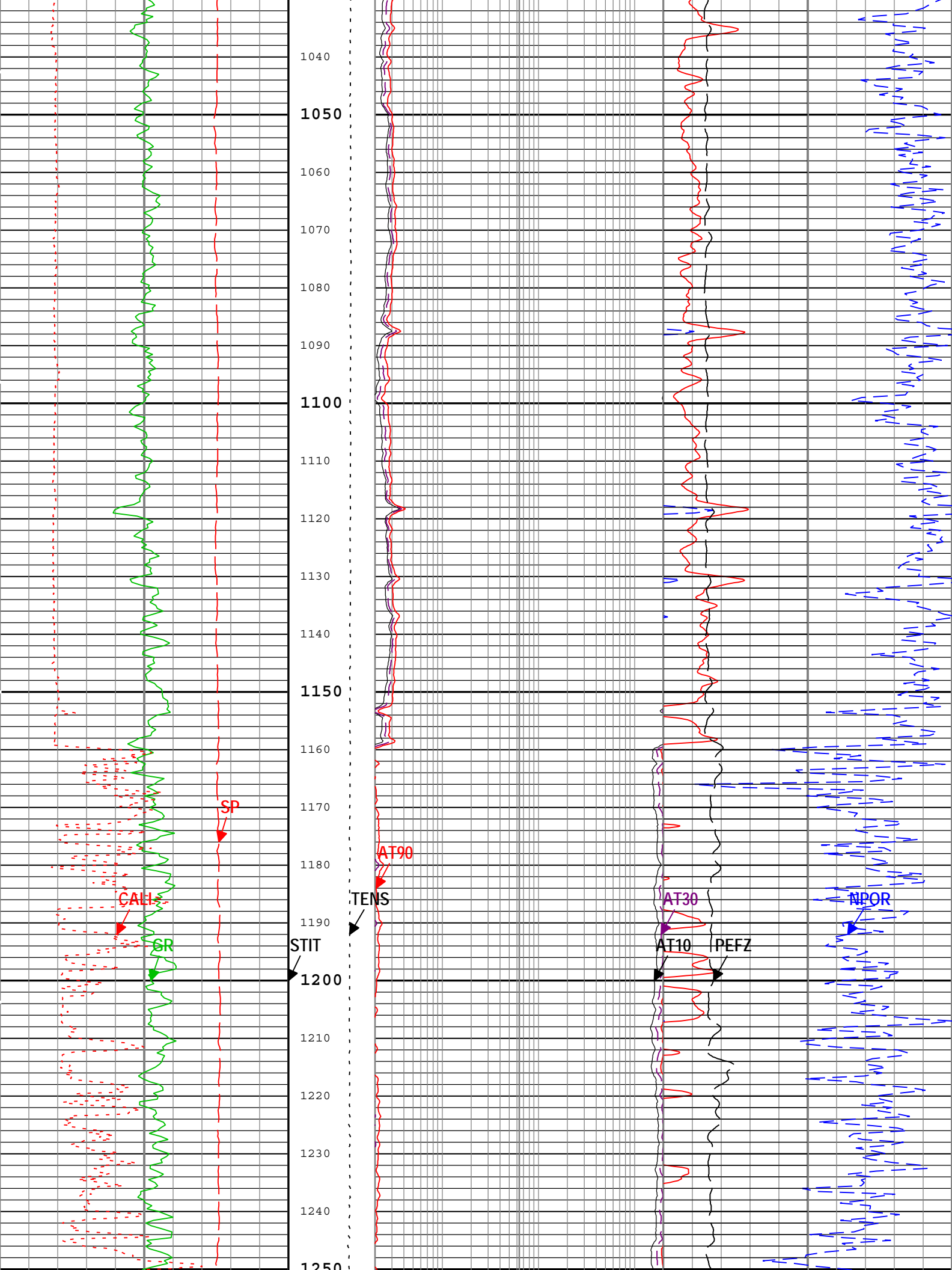
TIME_1900 - Time Marked every 60.00 (s)

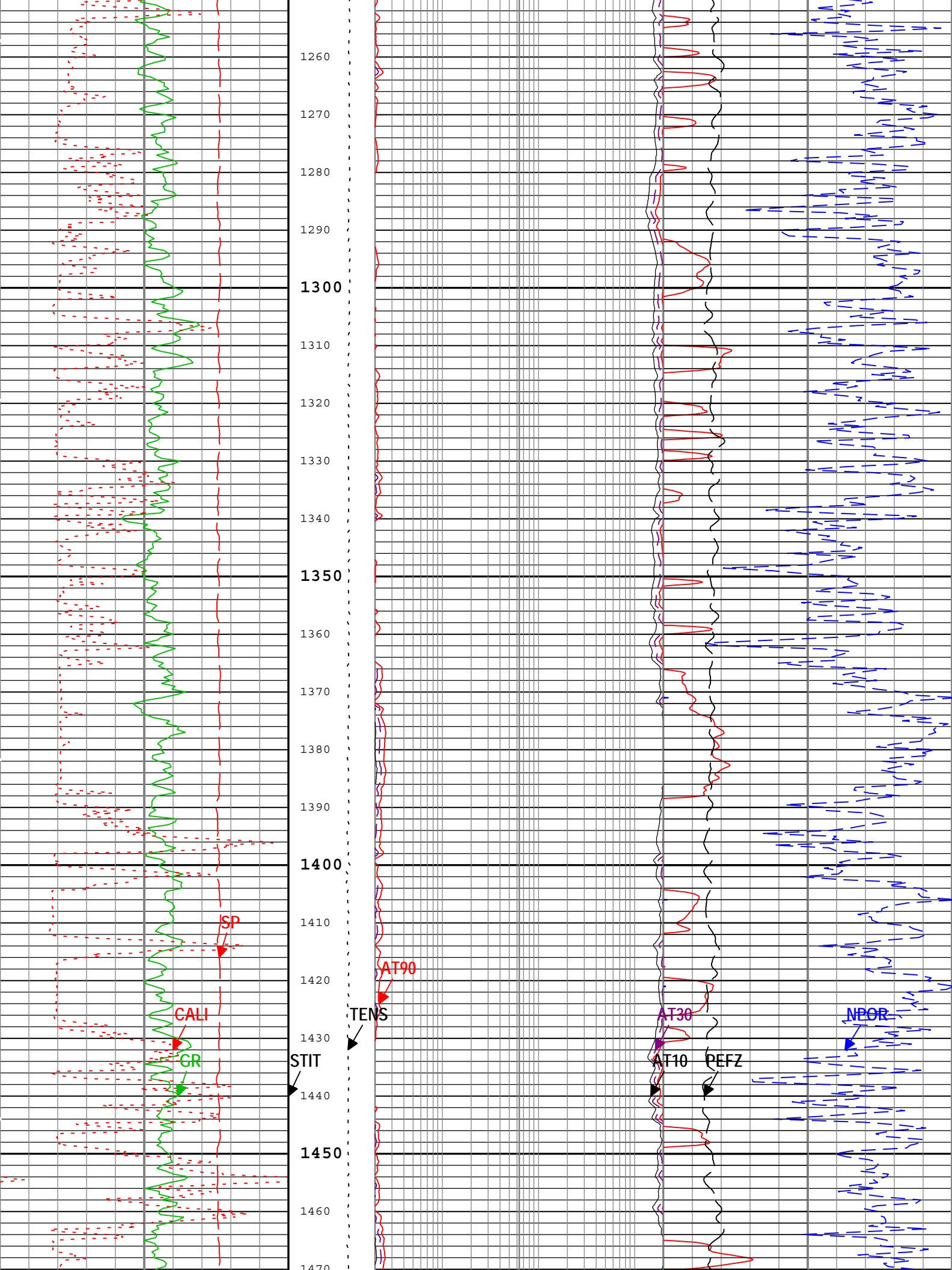


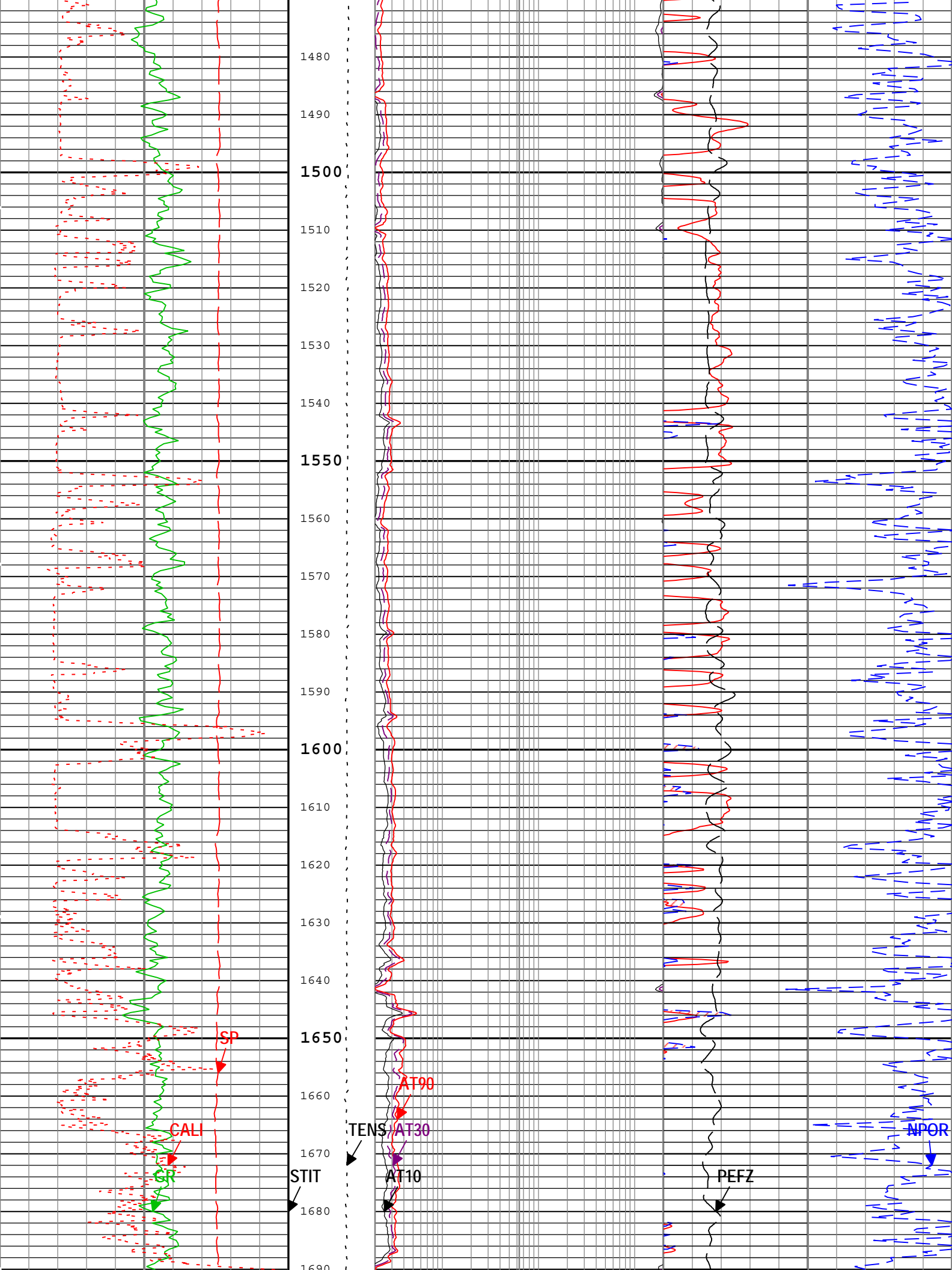


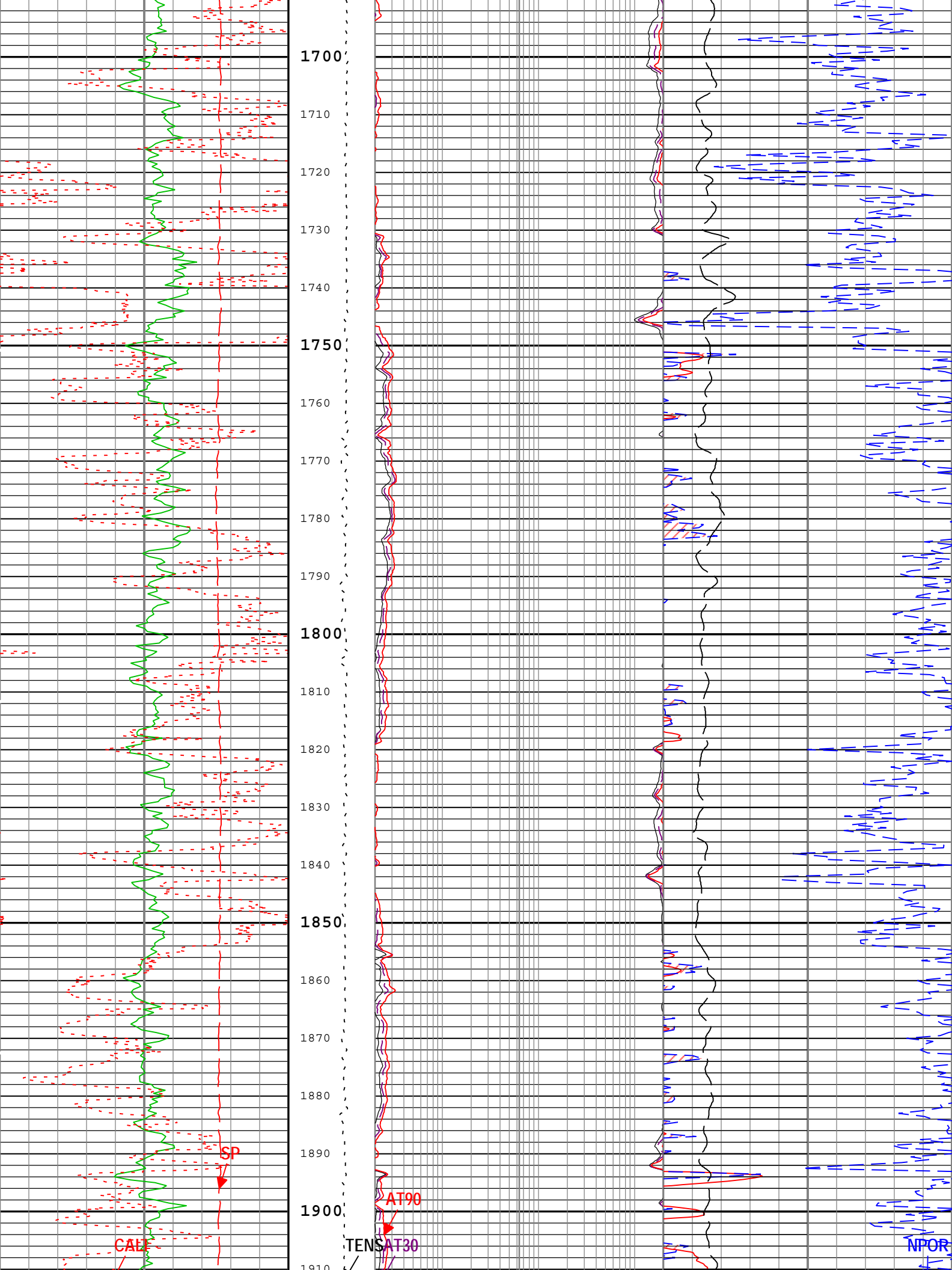


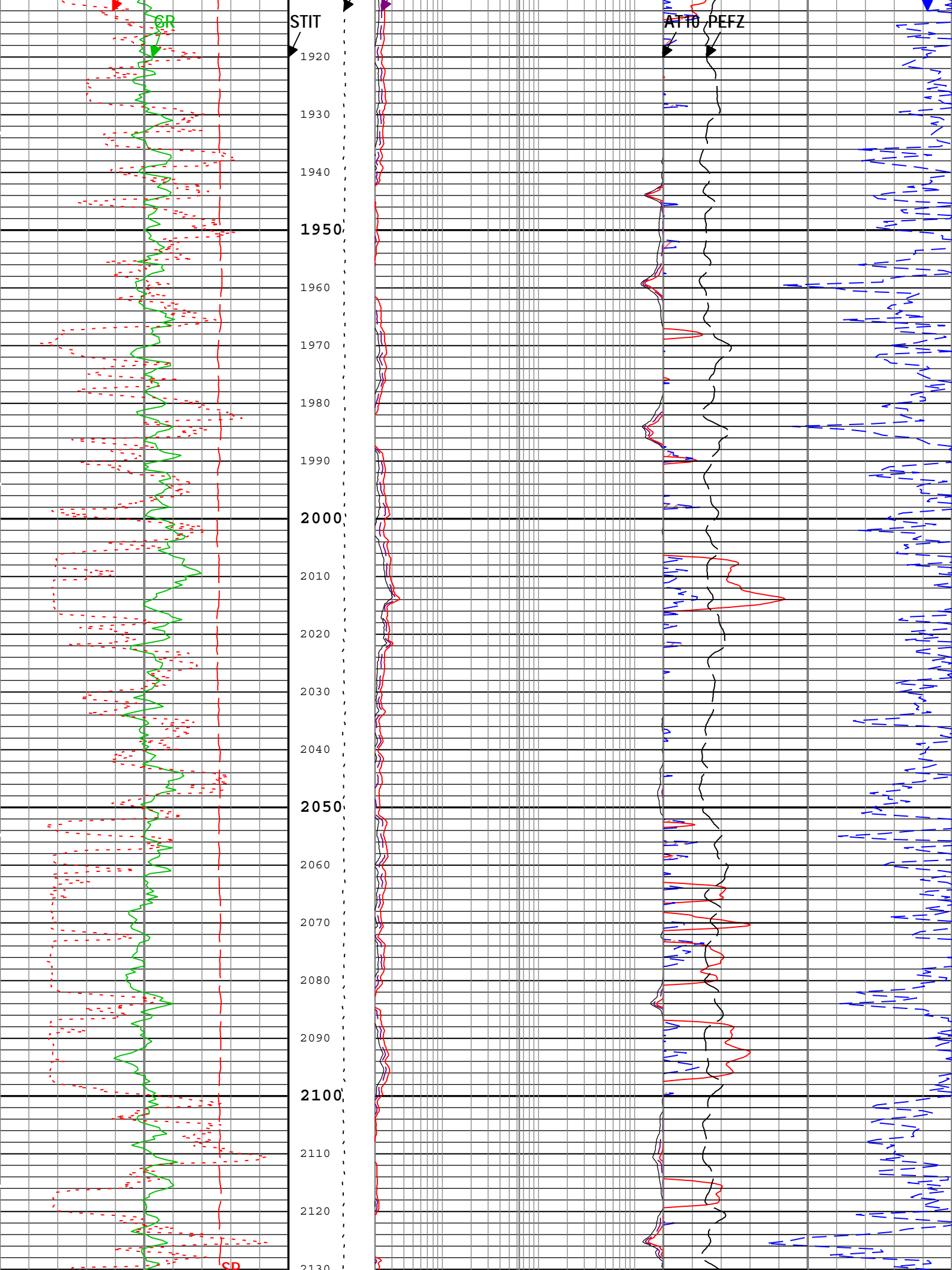


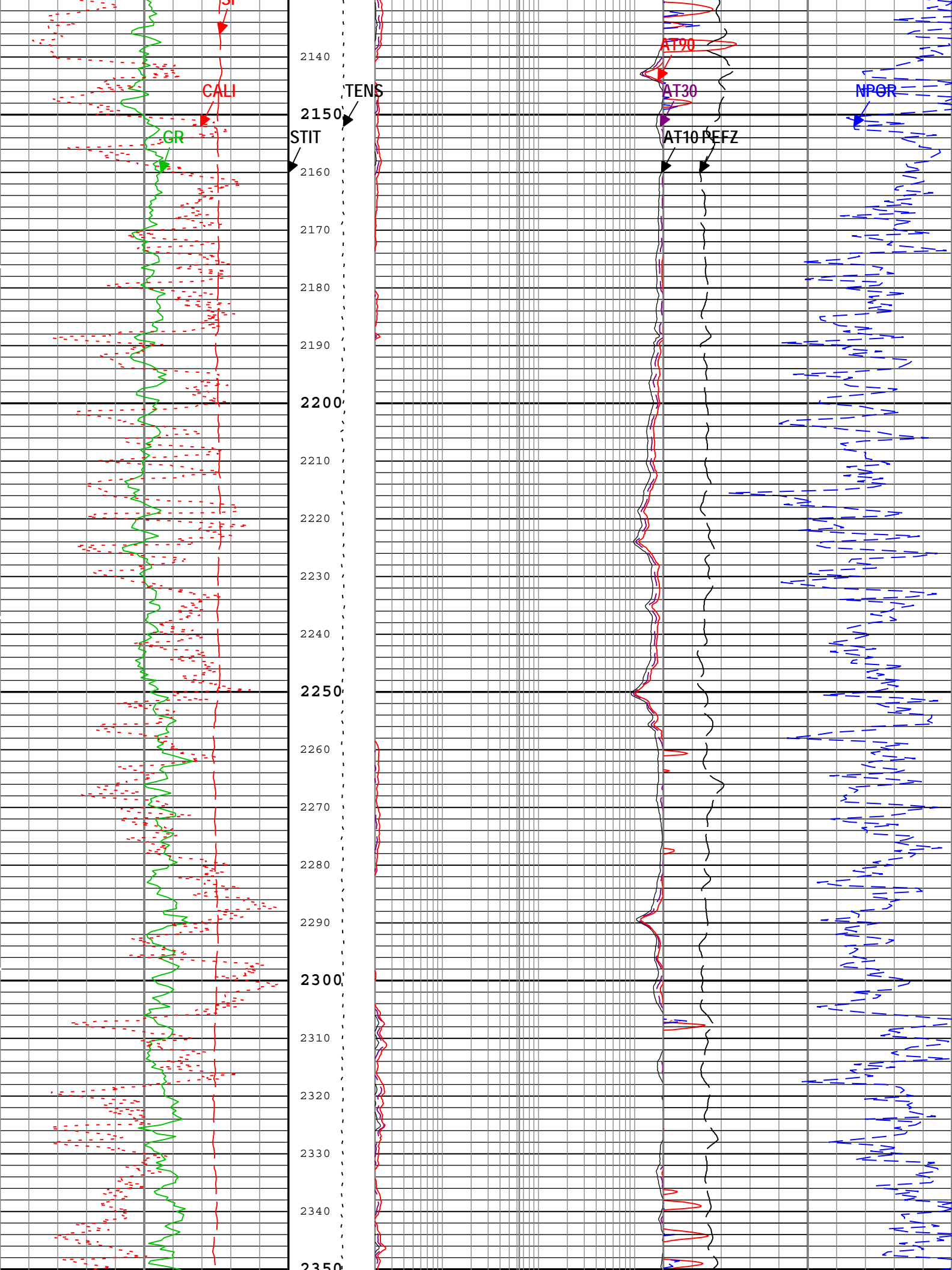


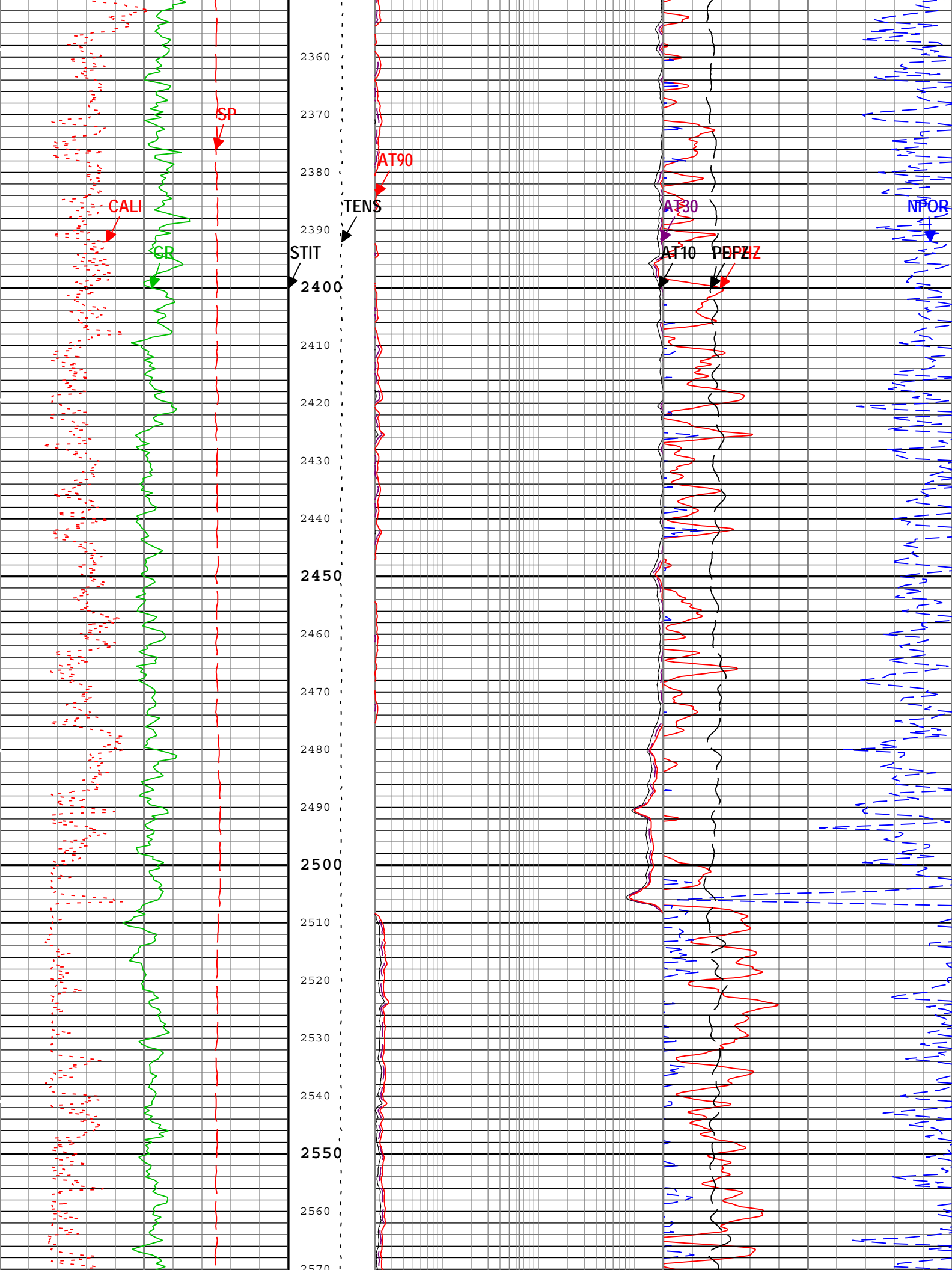


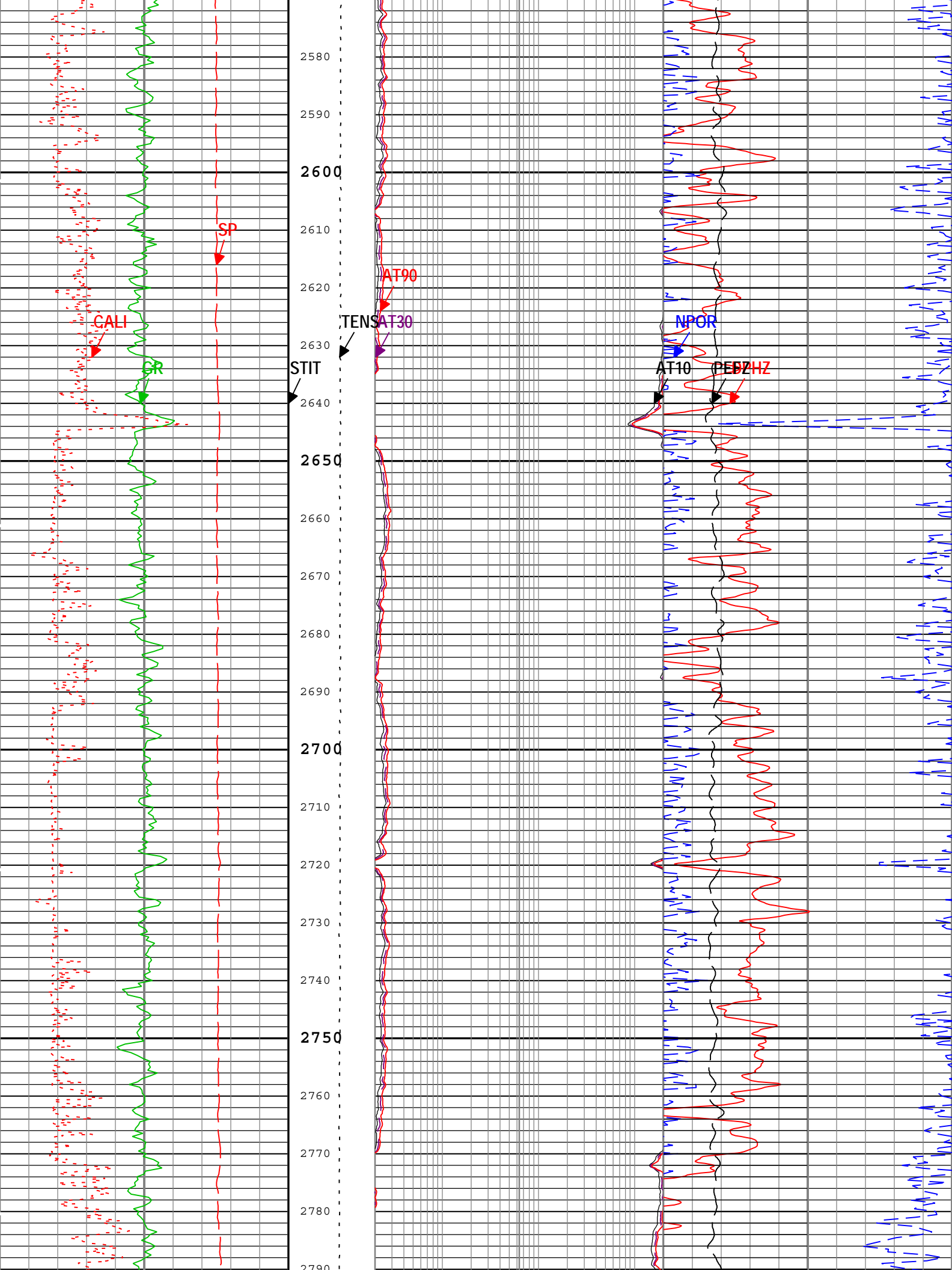


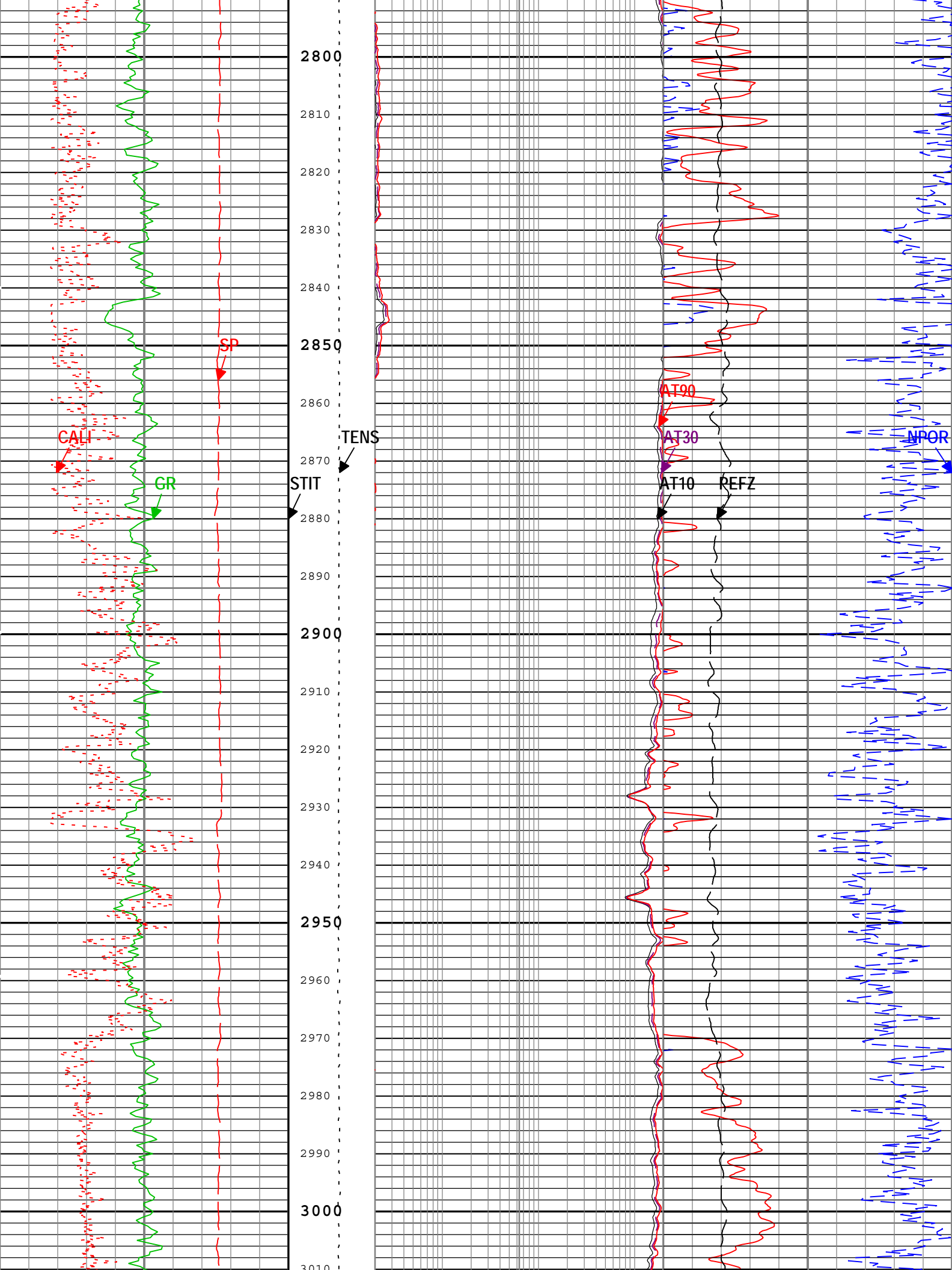


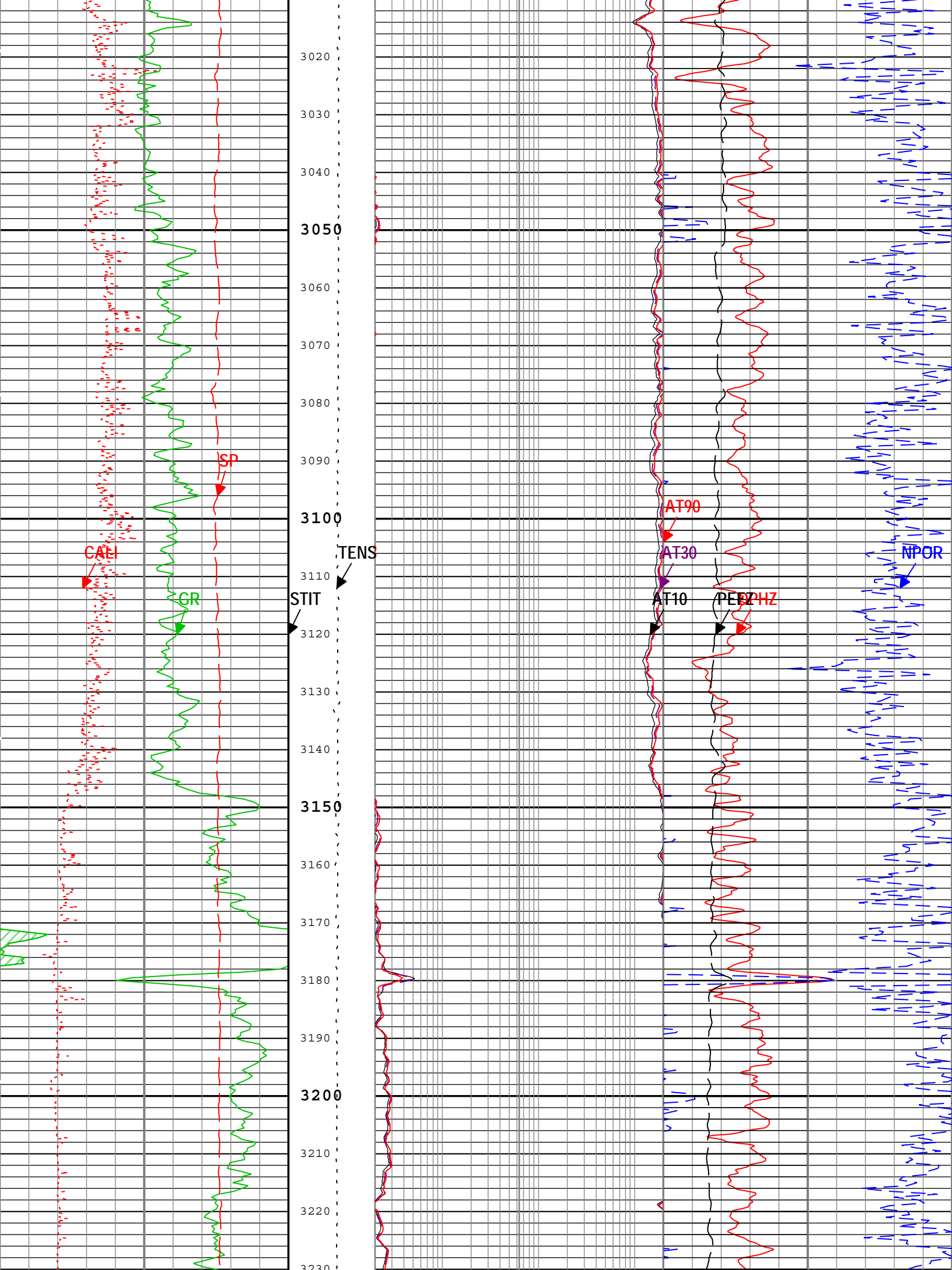


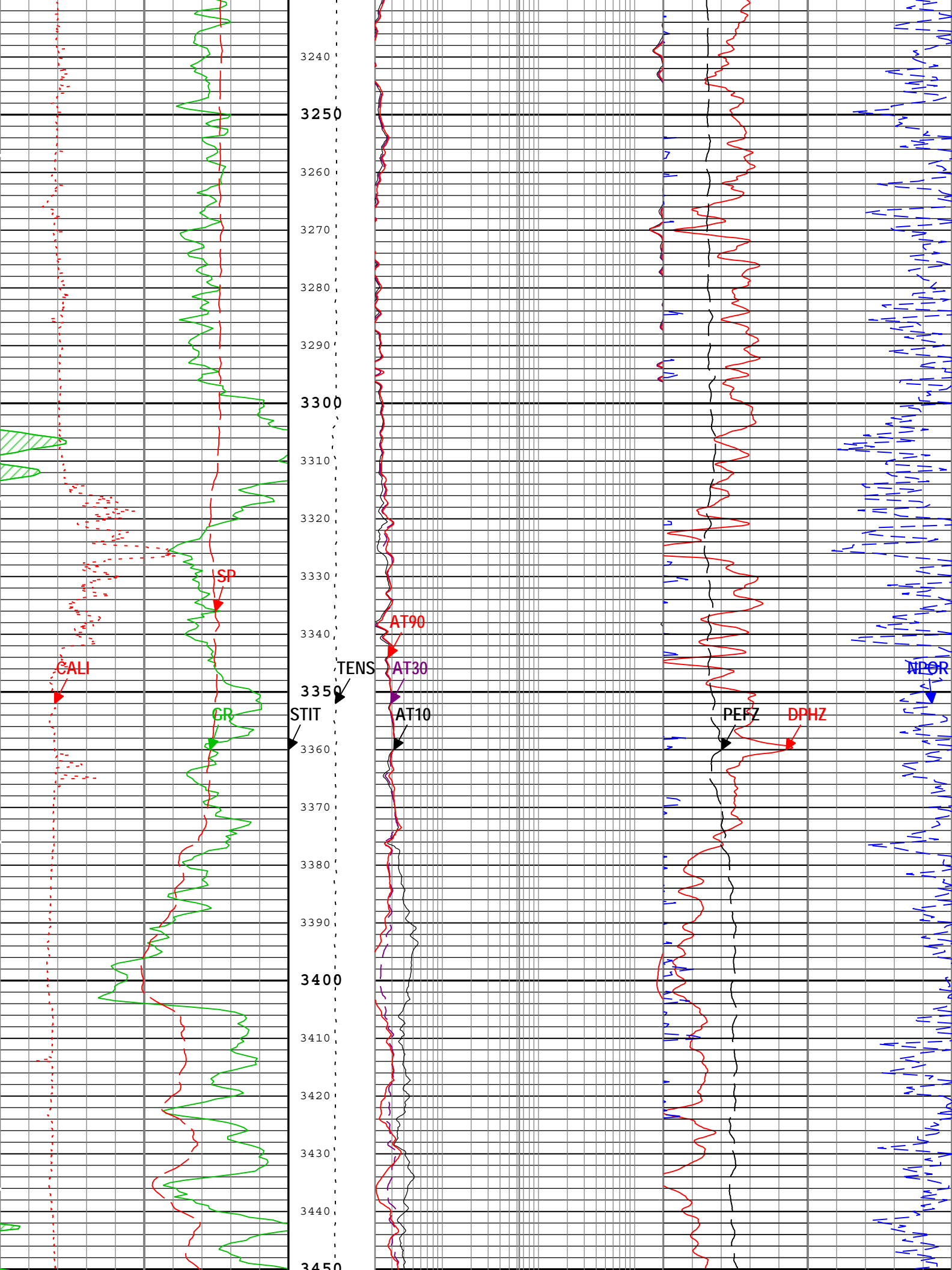


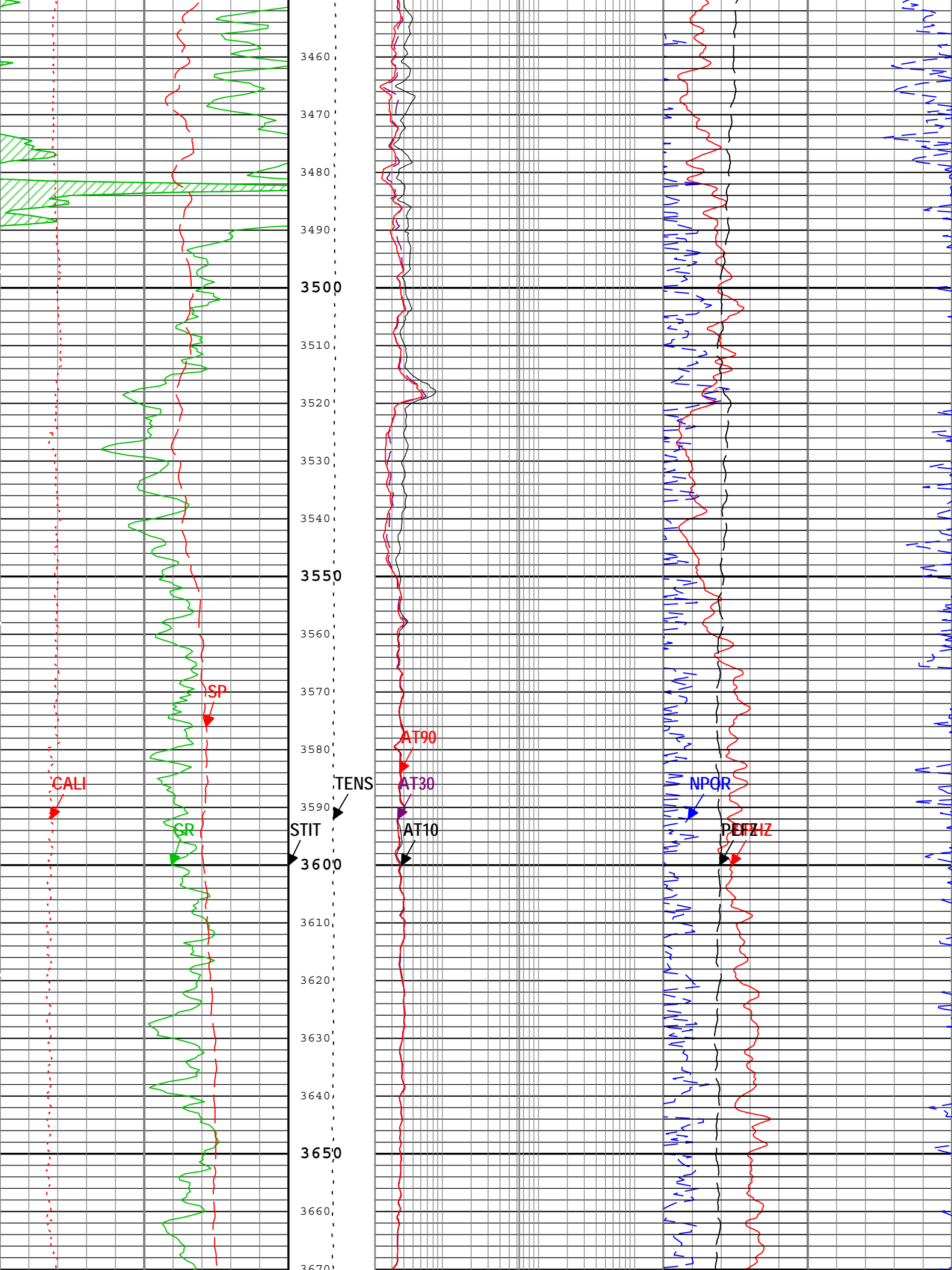


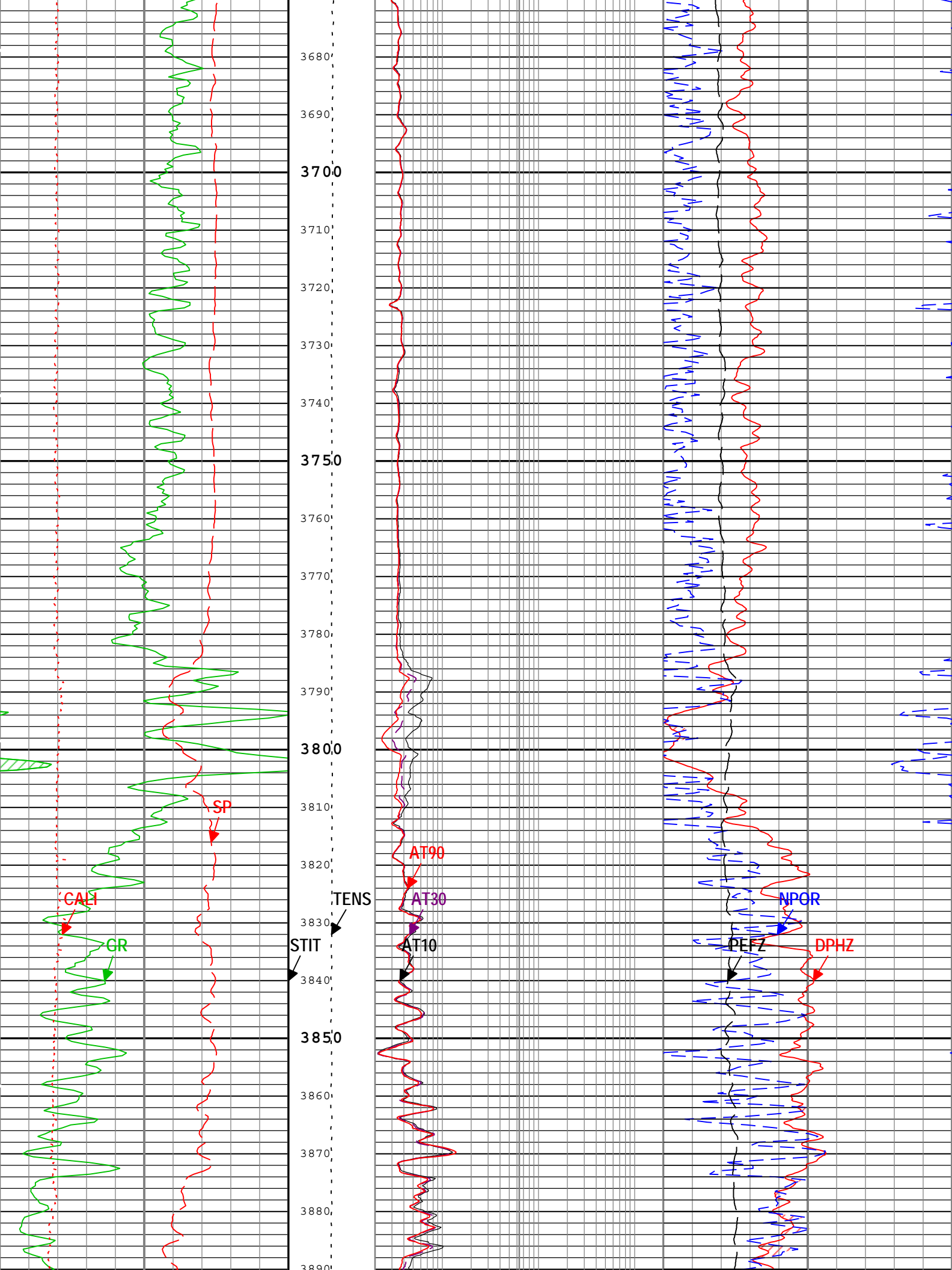


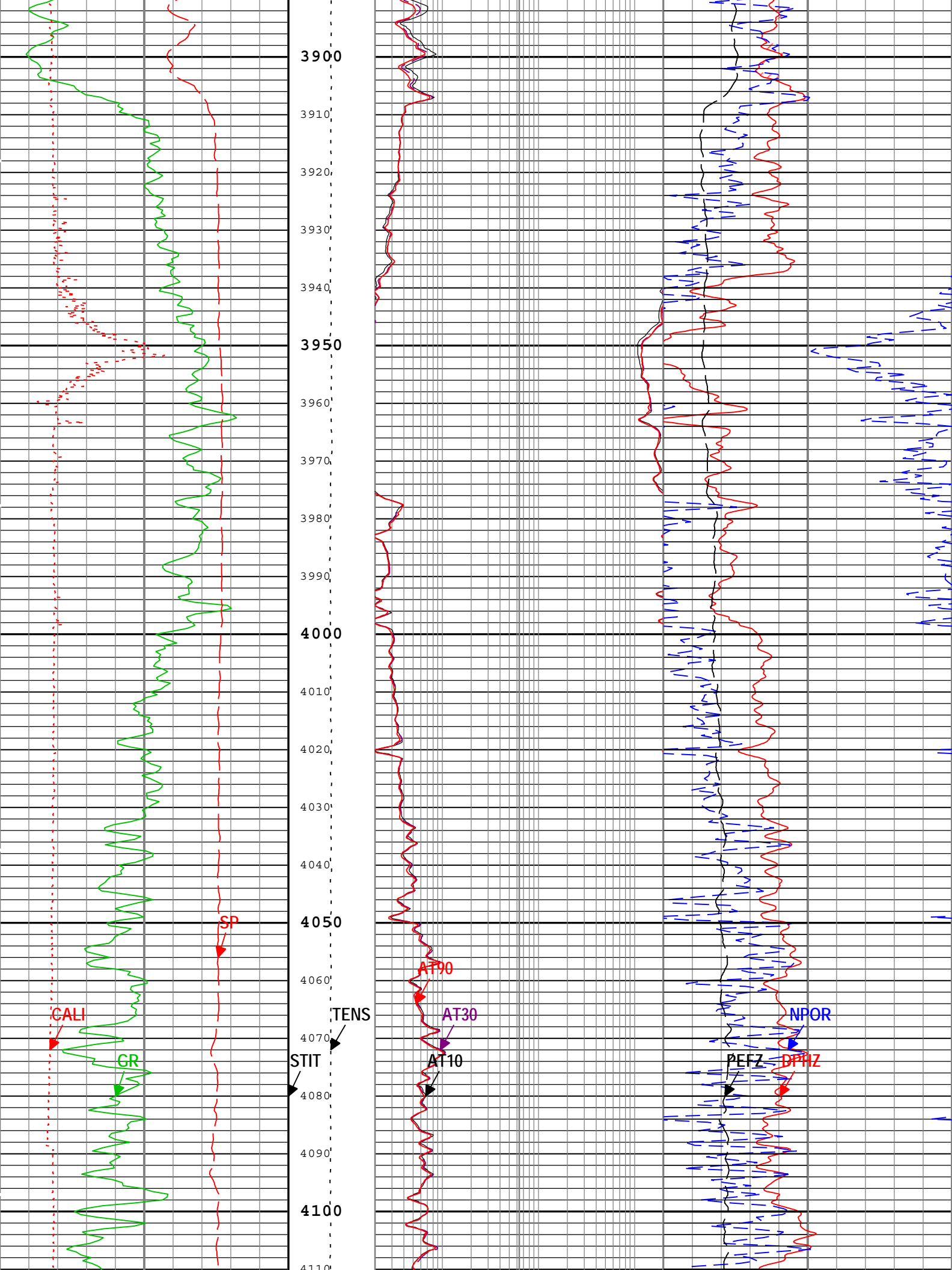


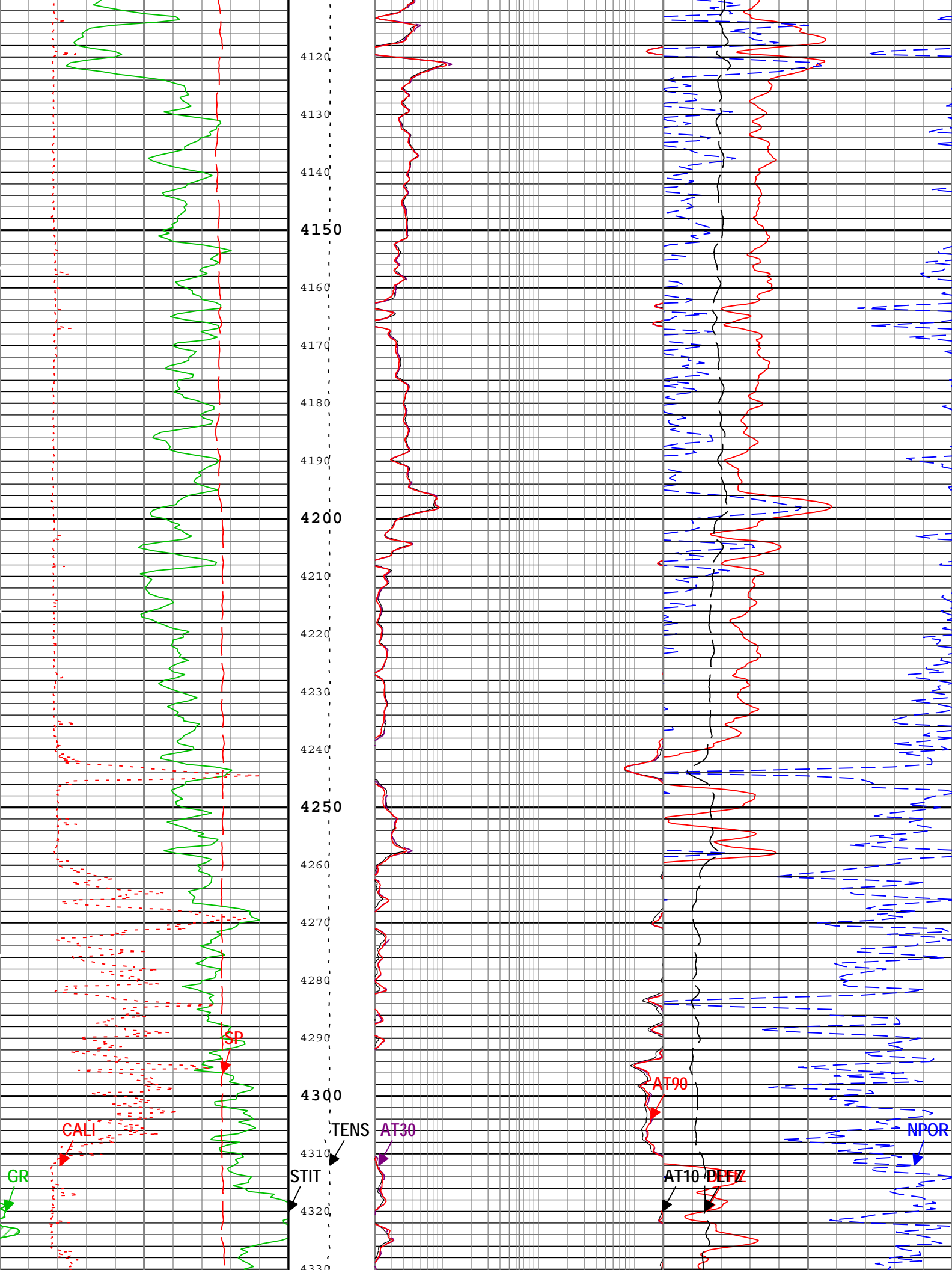


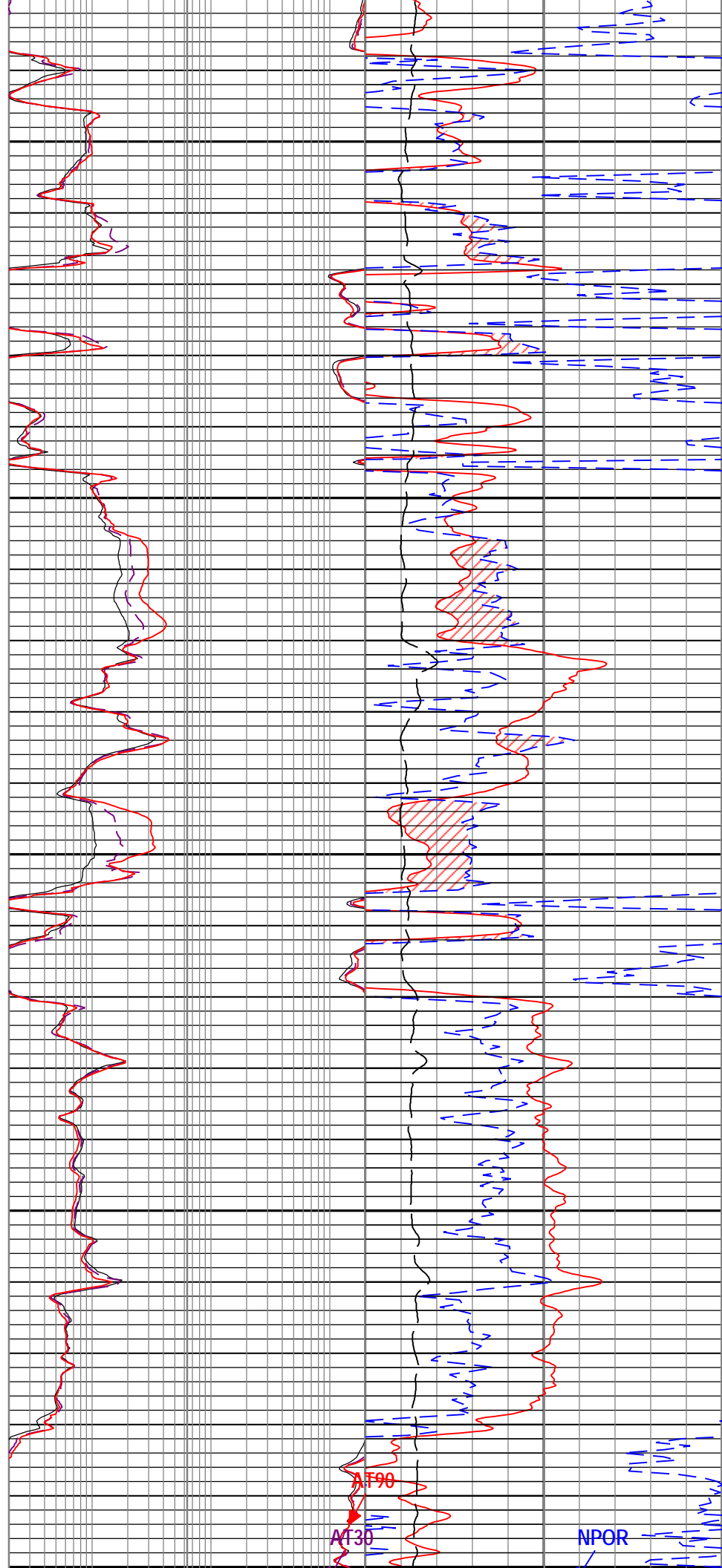
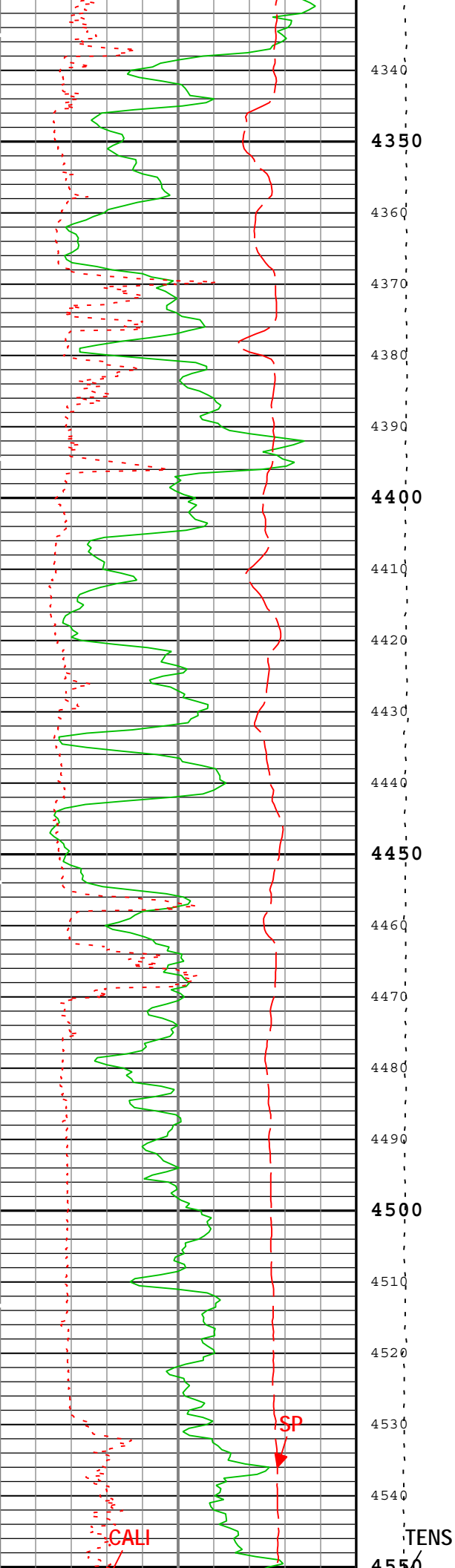


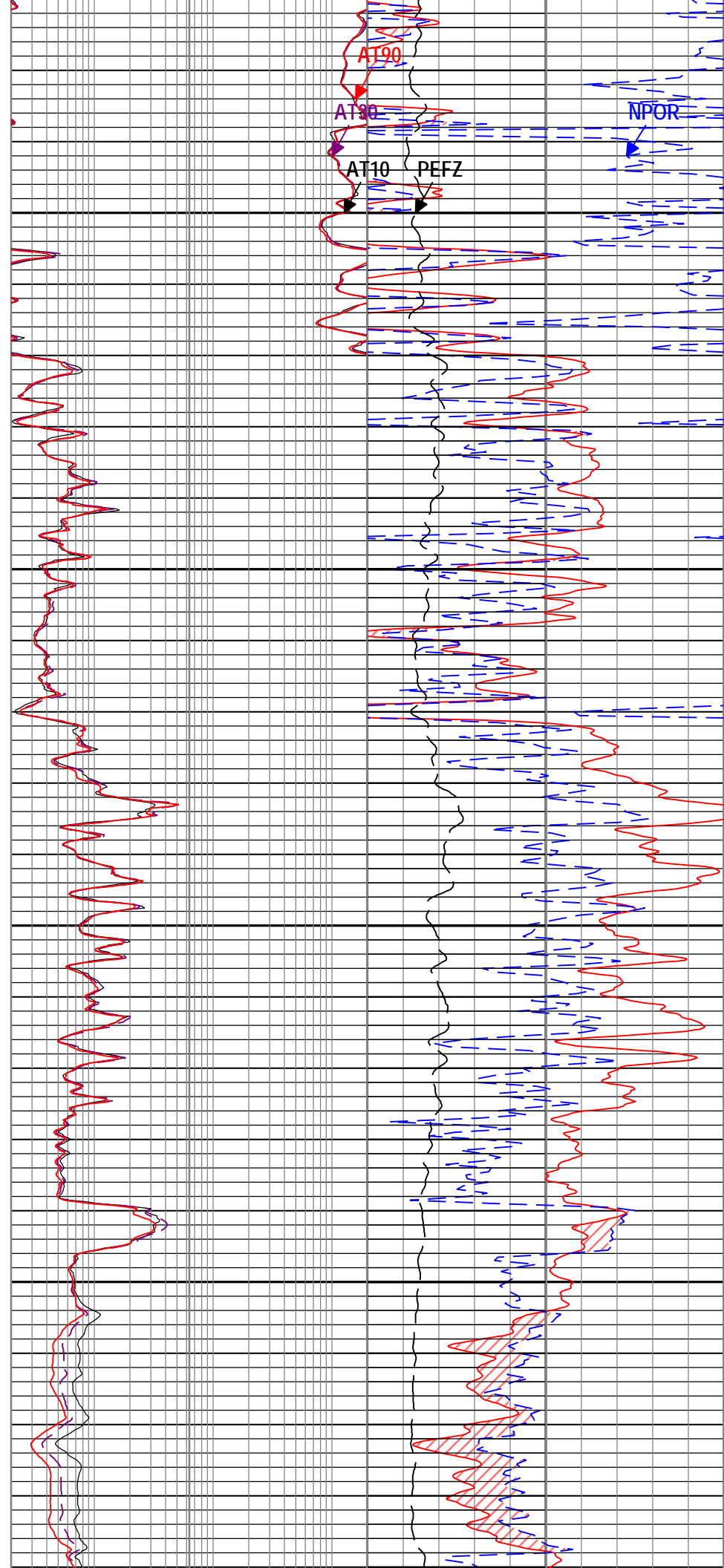
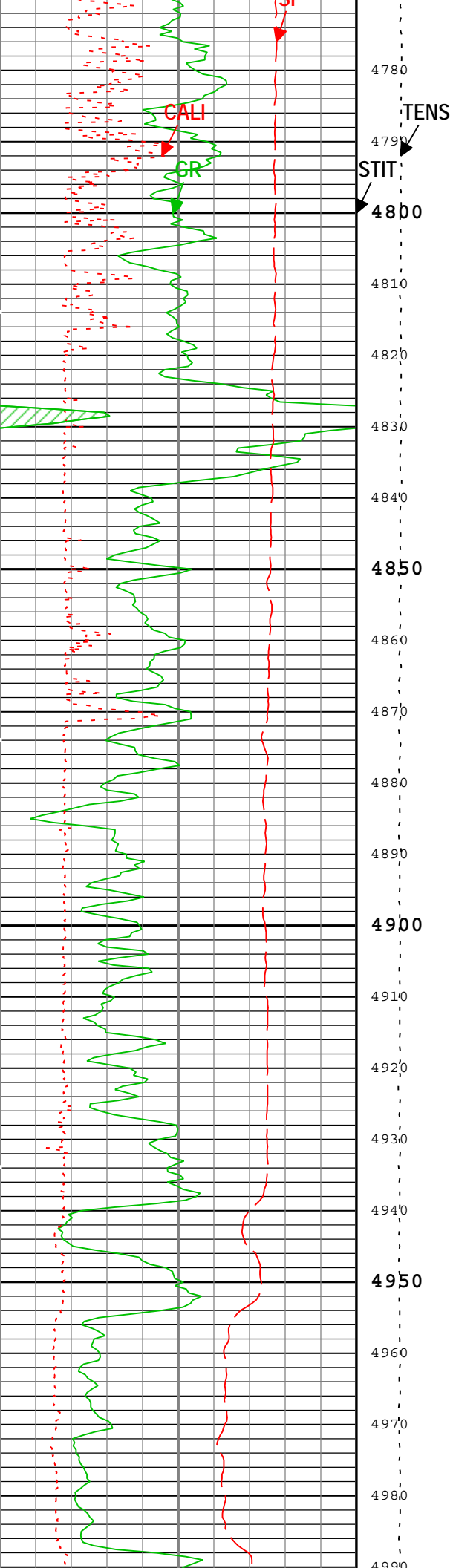


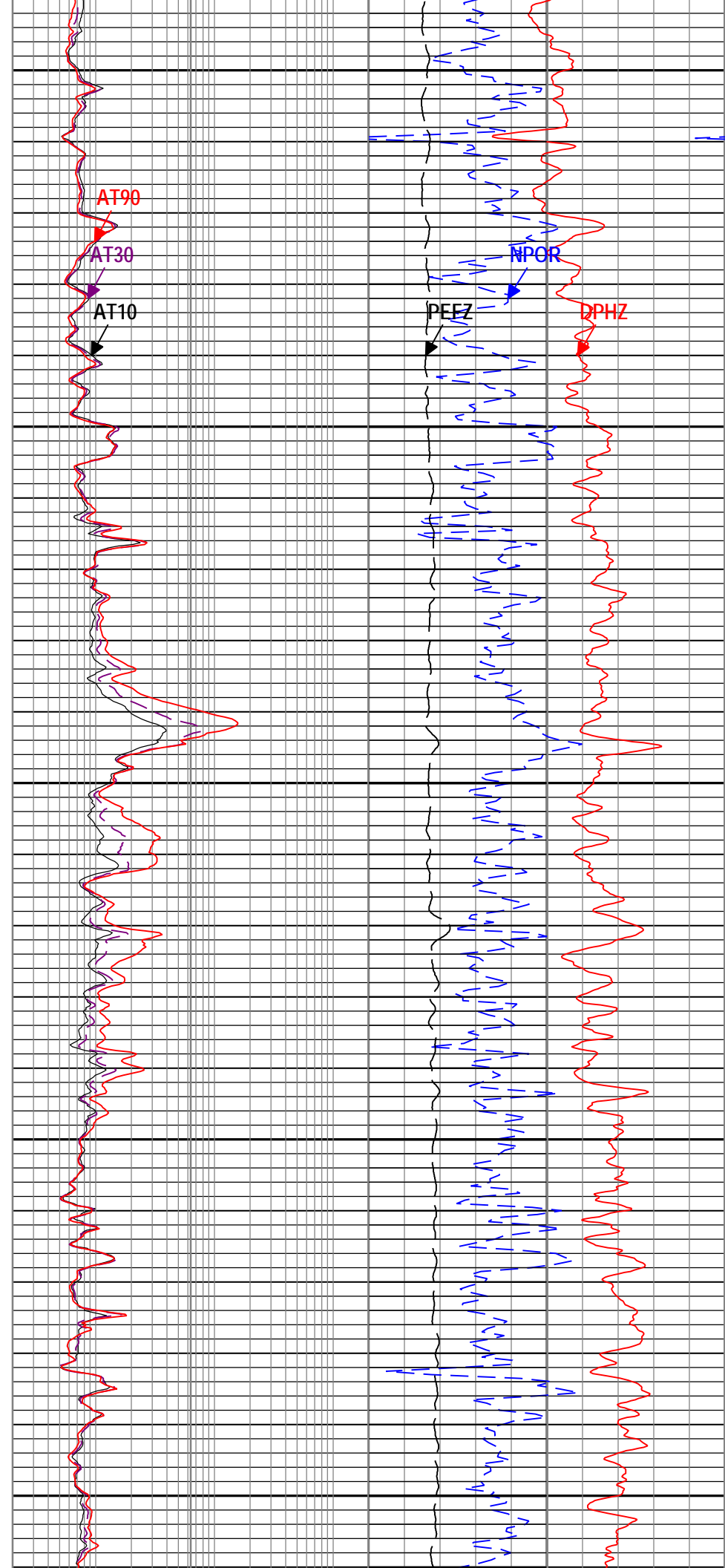
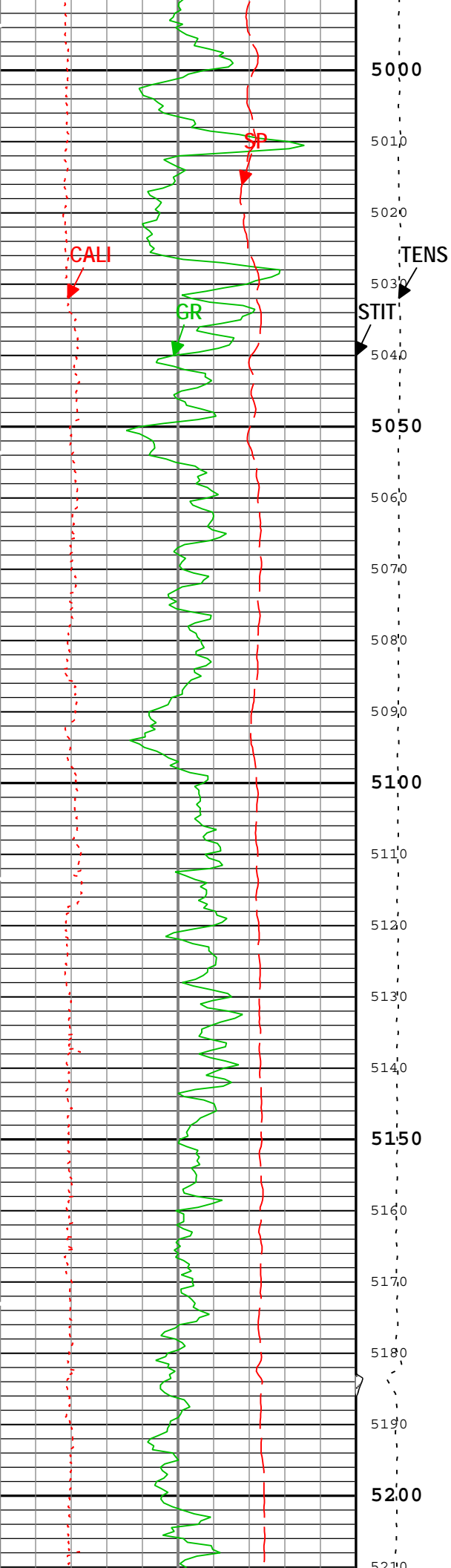


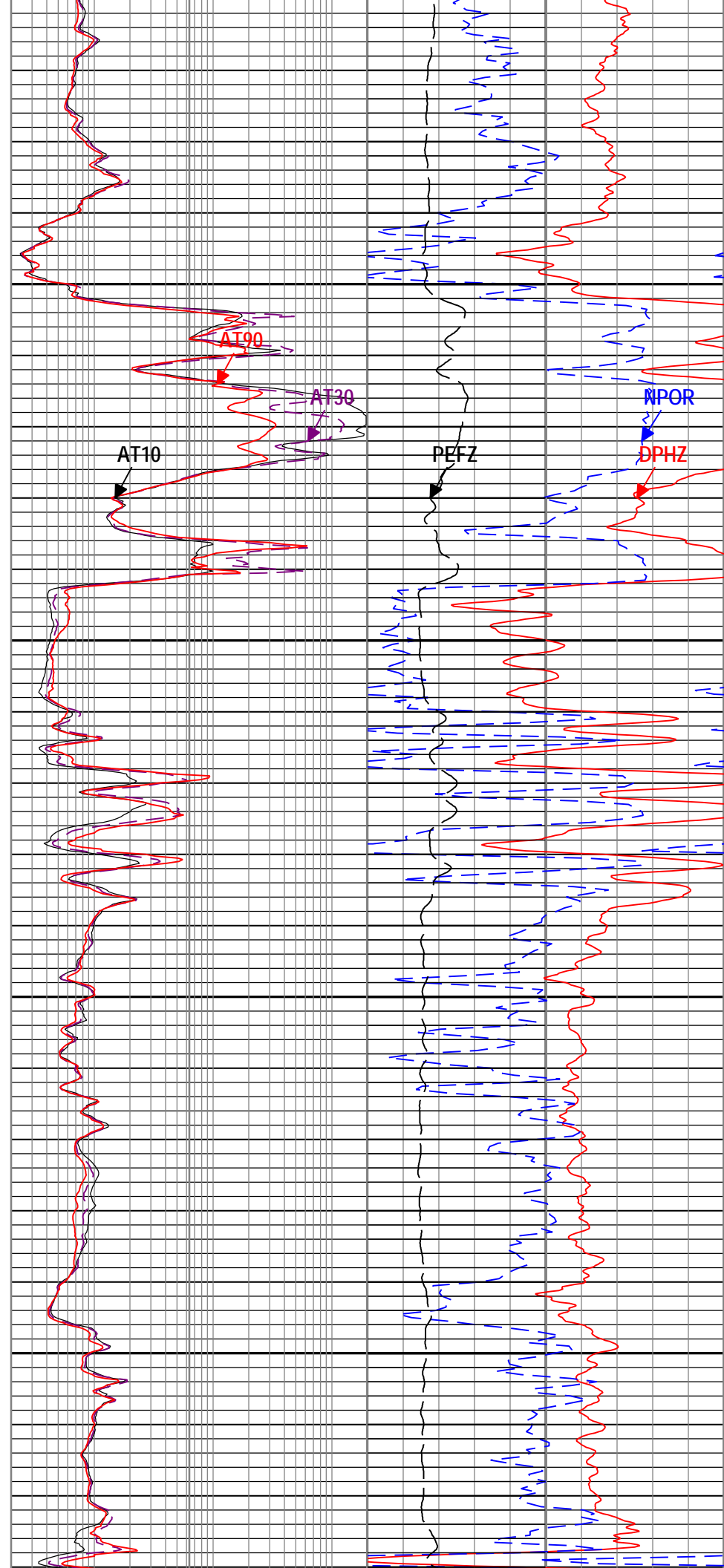
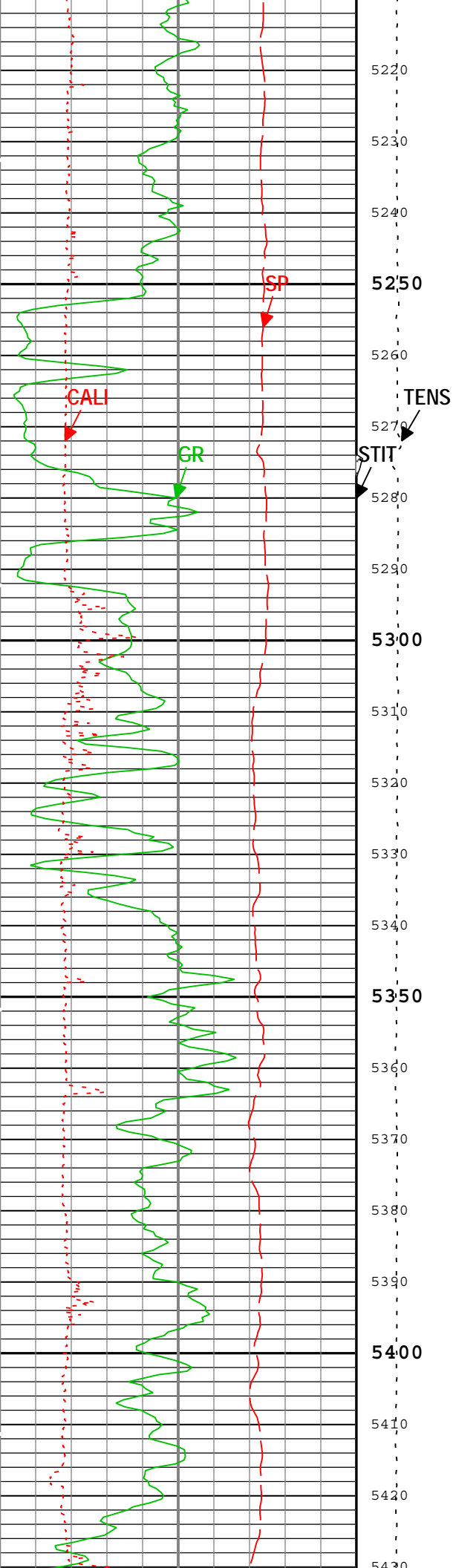


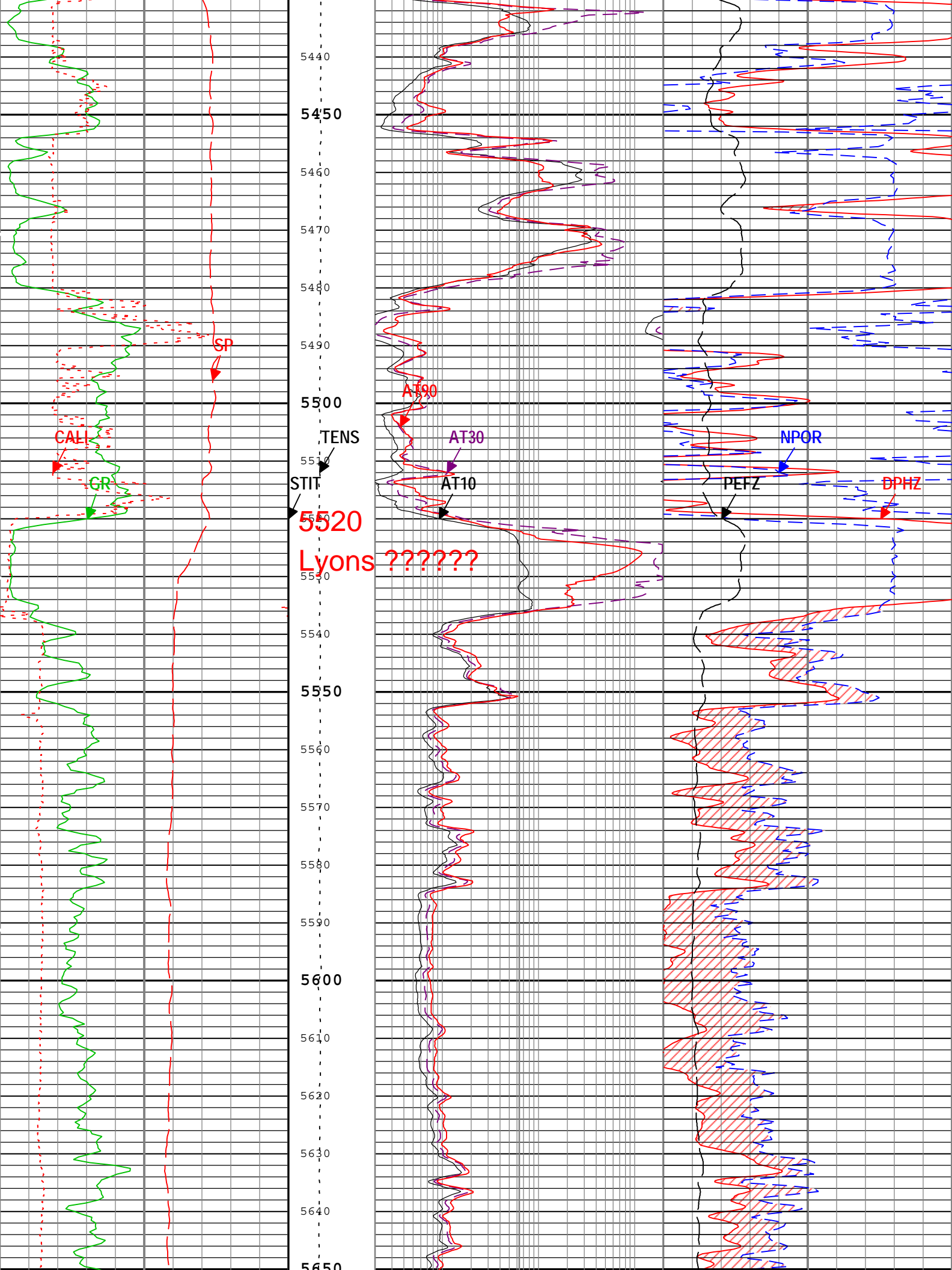


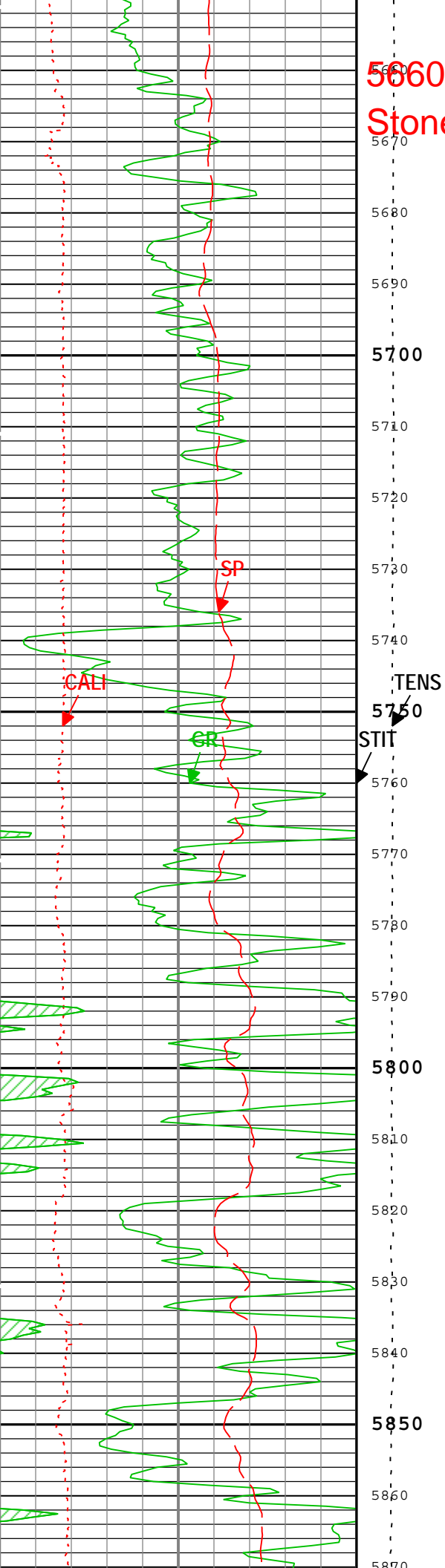




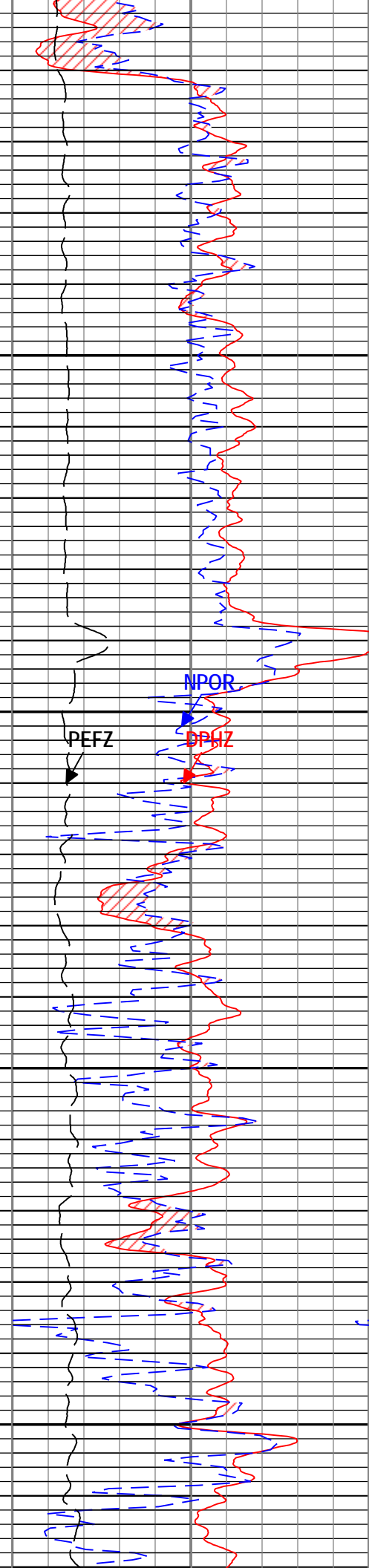
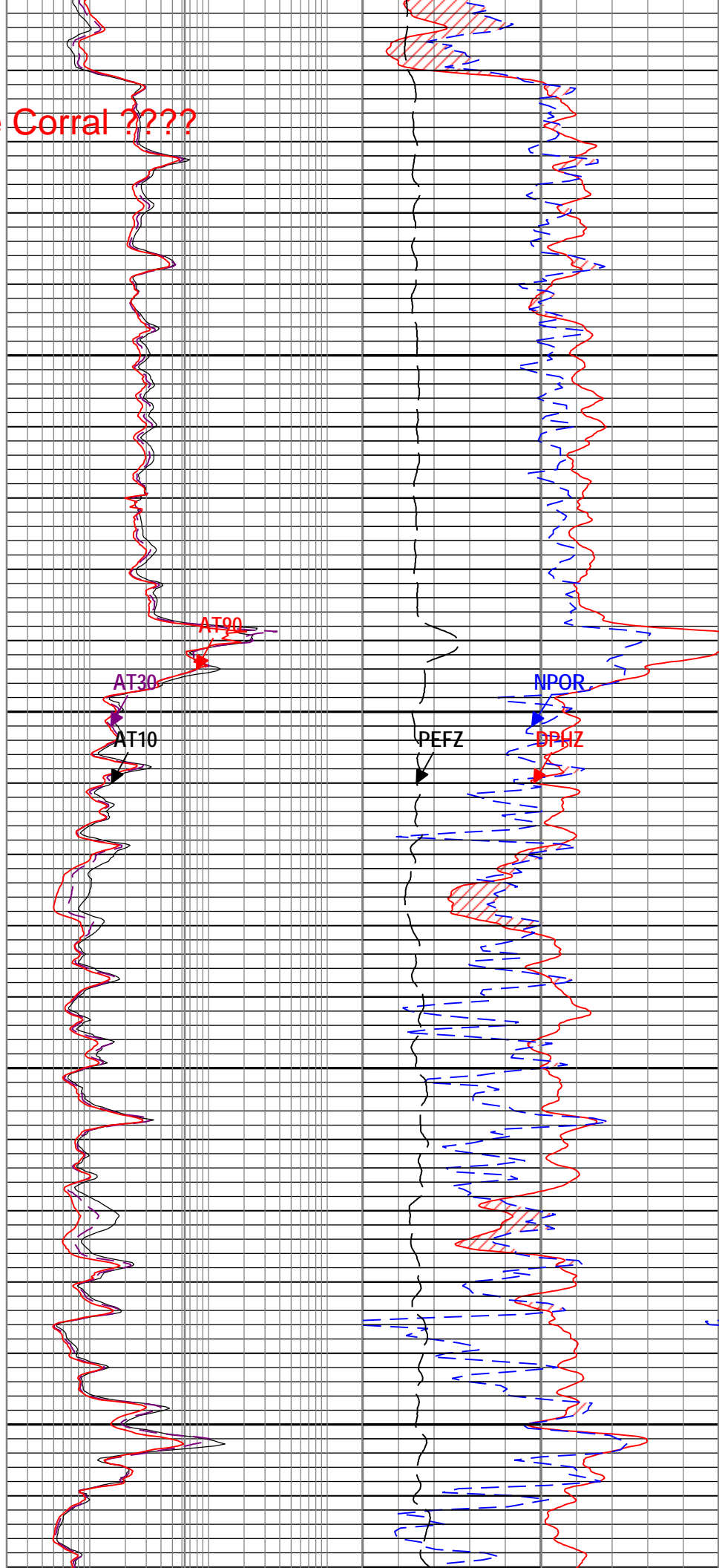


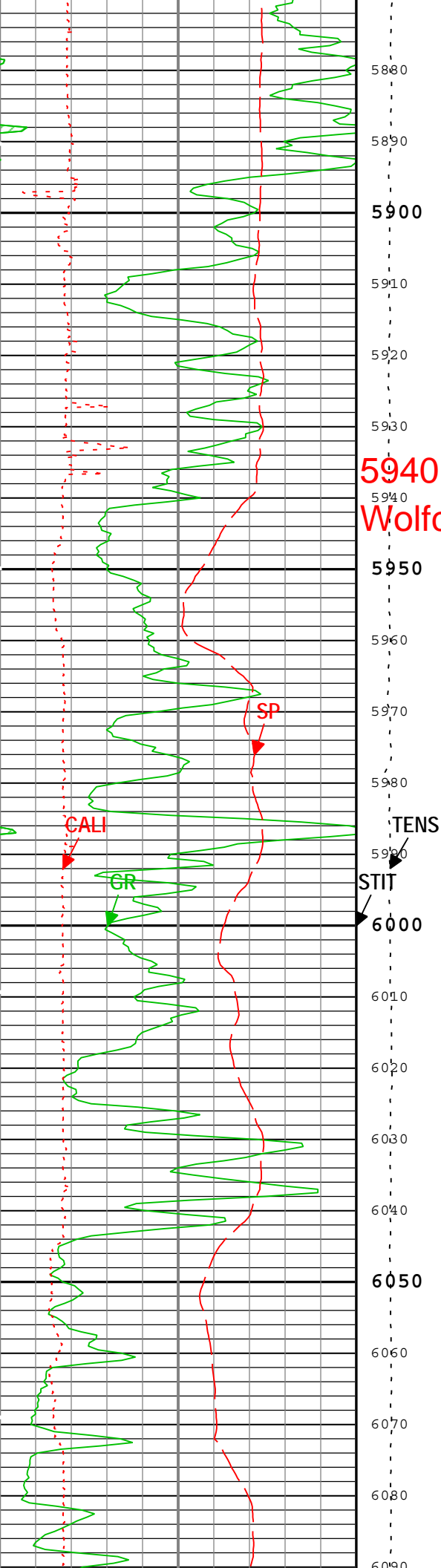




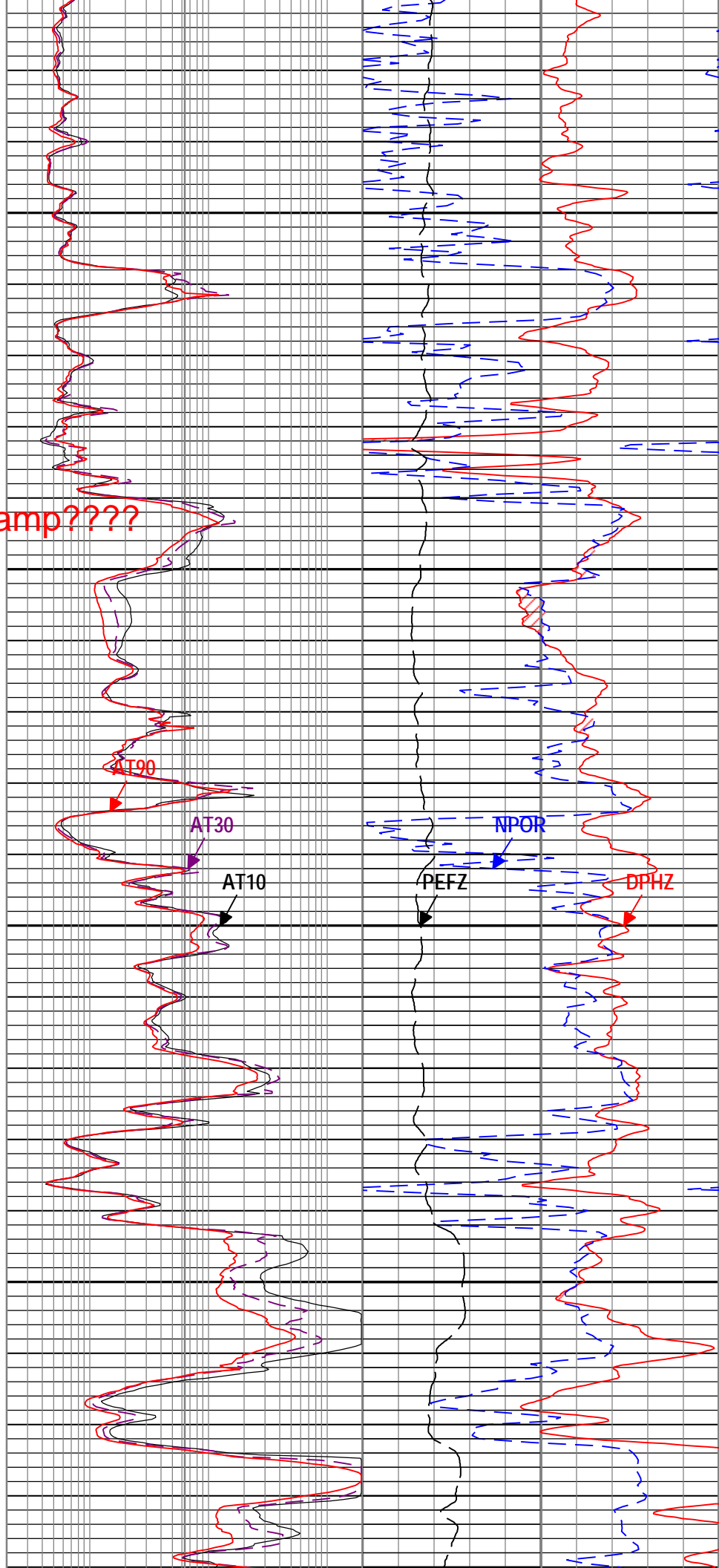


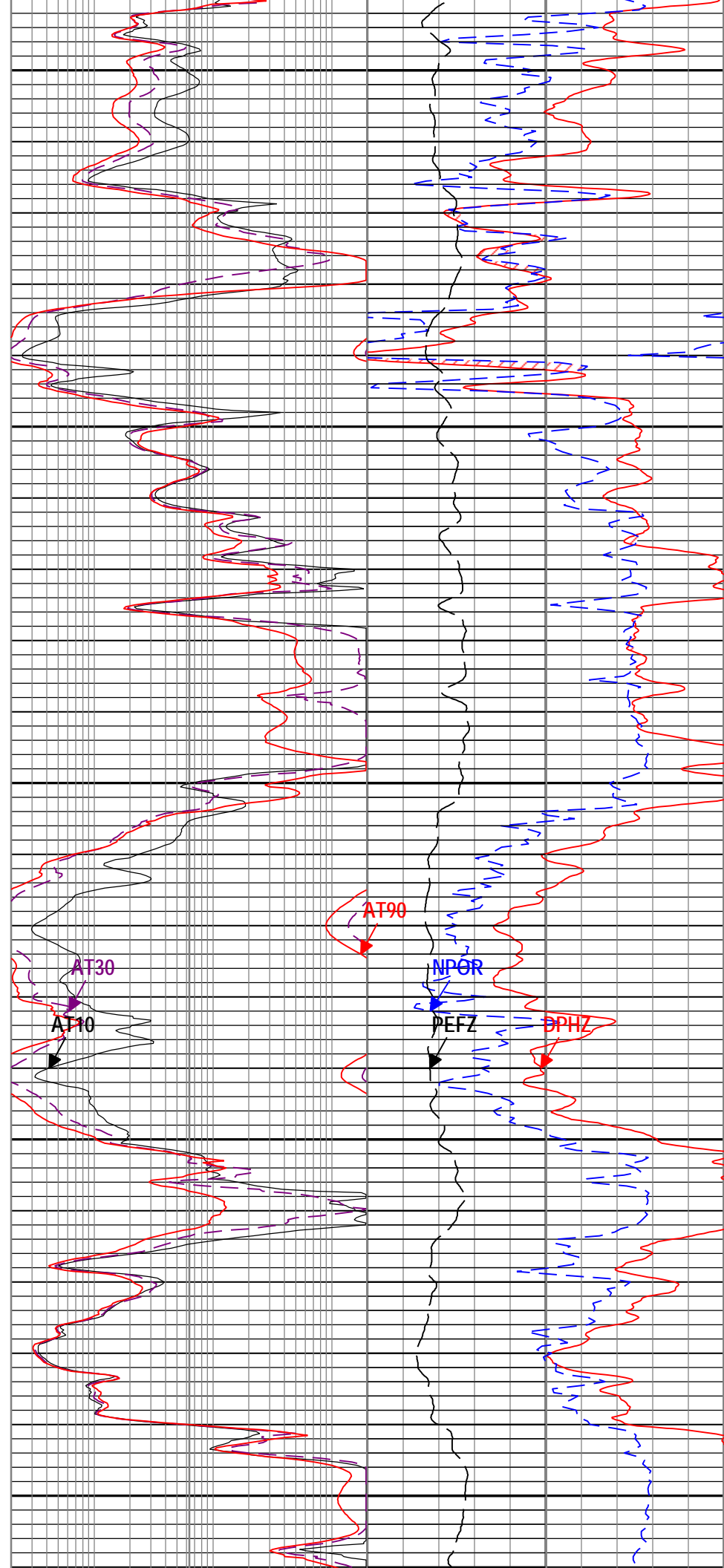
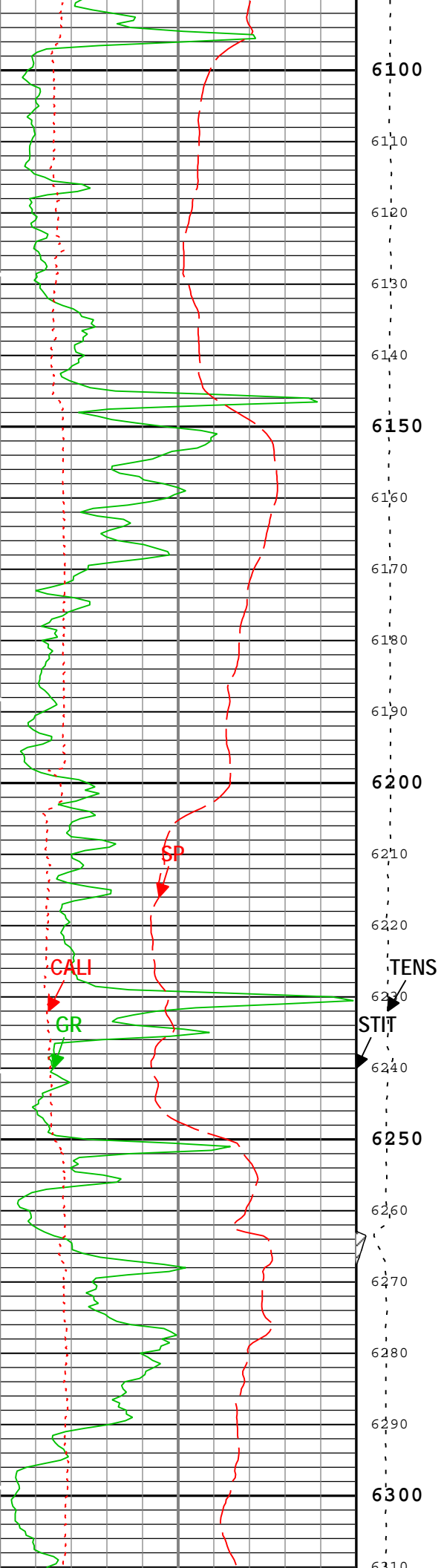
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Stone Corral ????

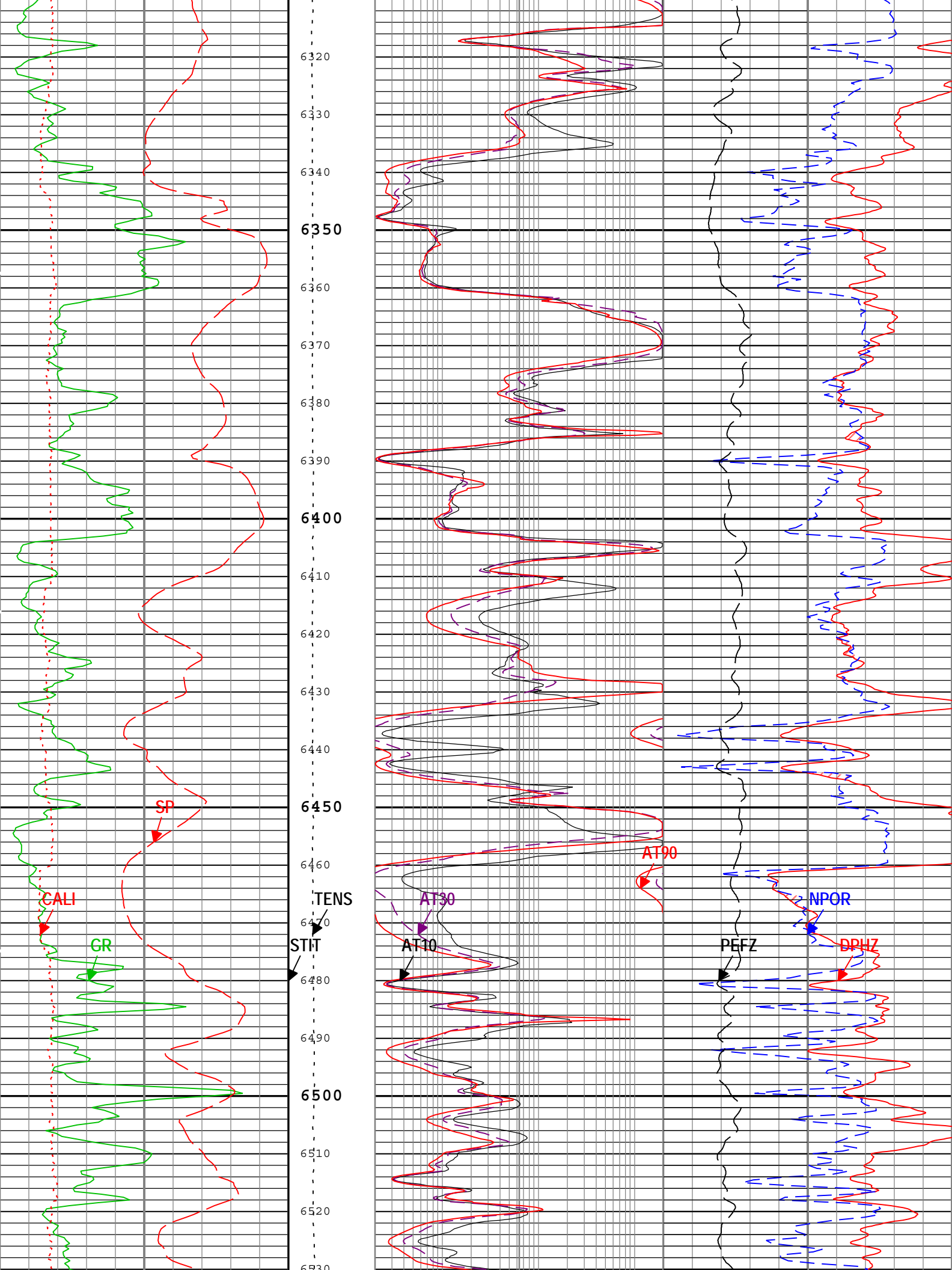


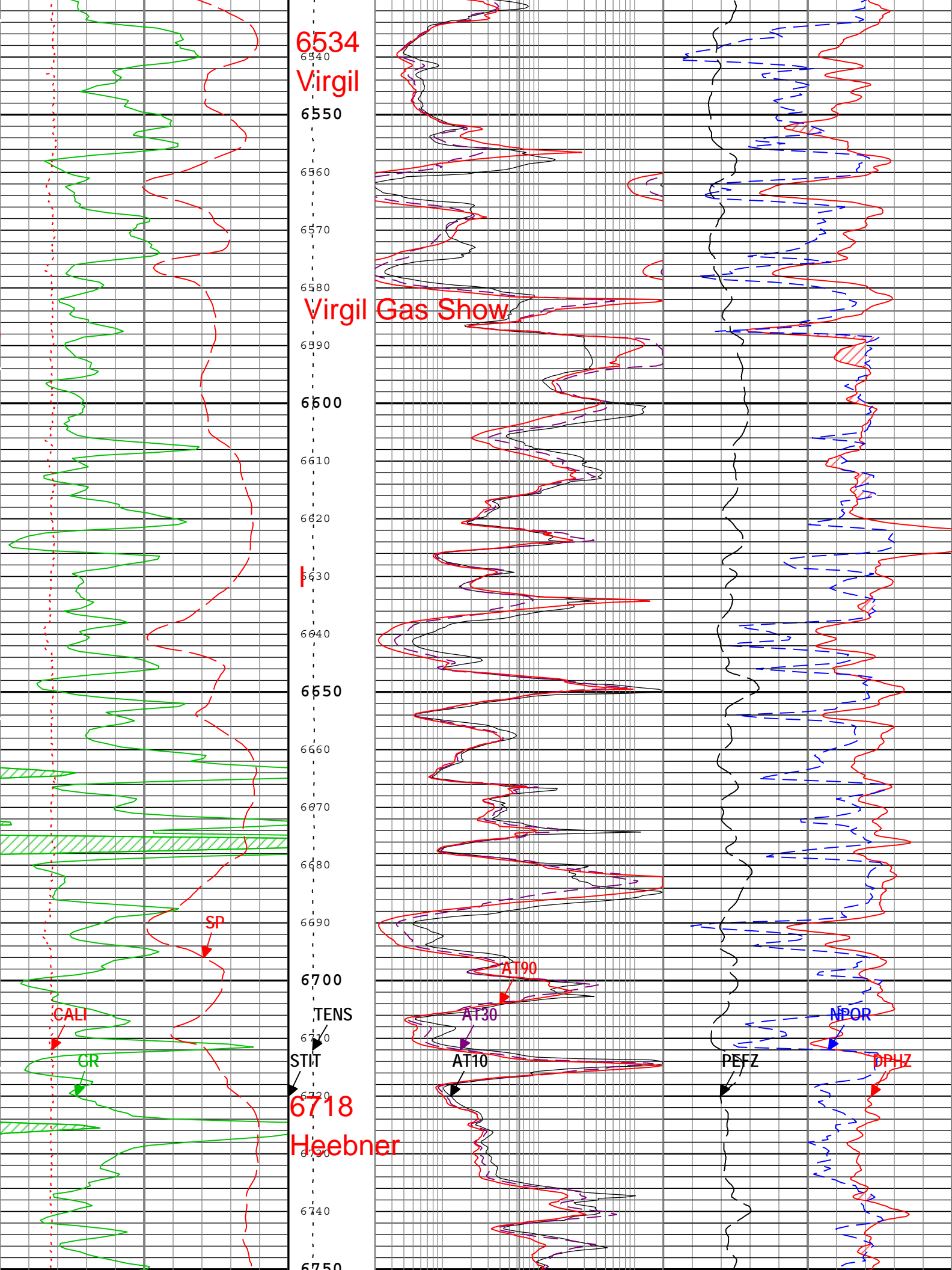


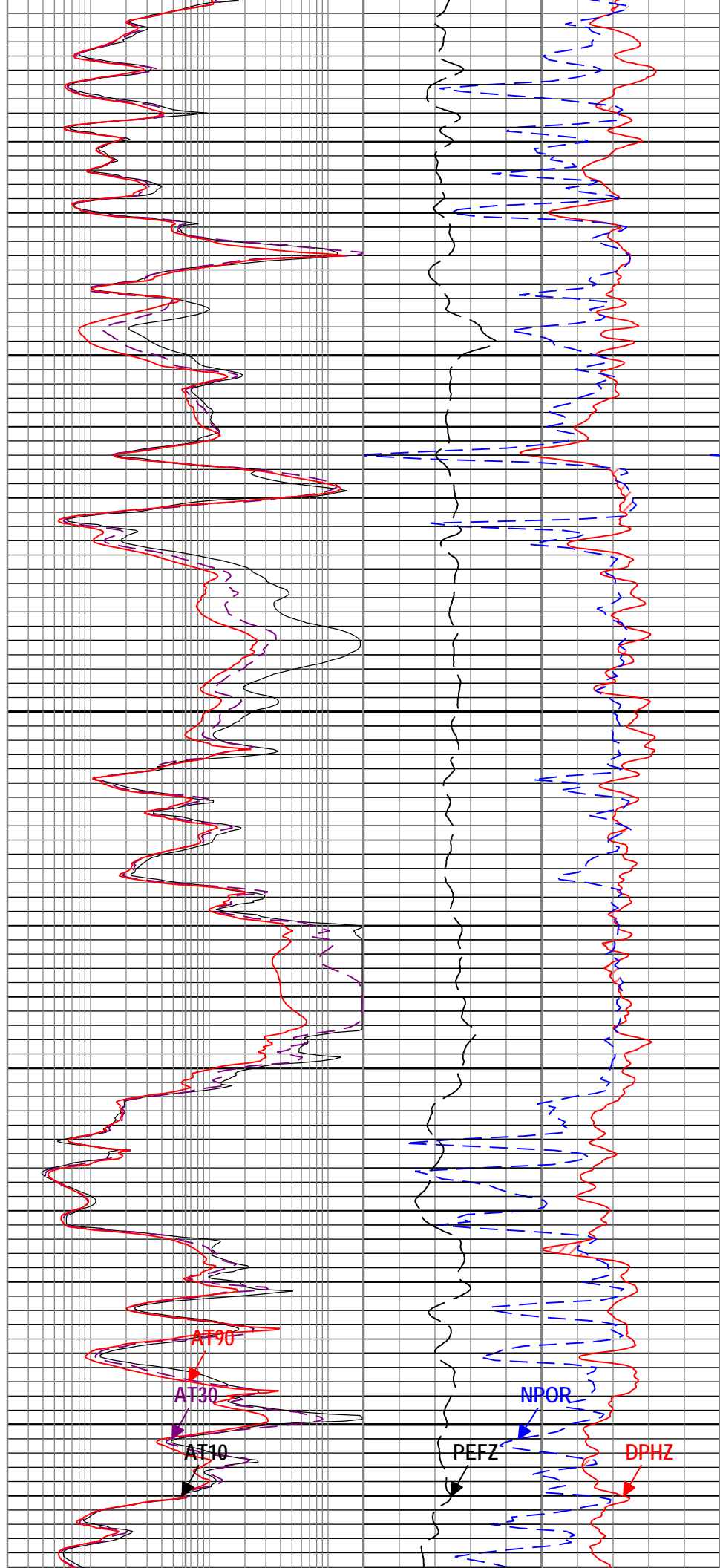
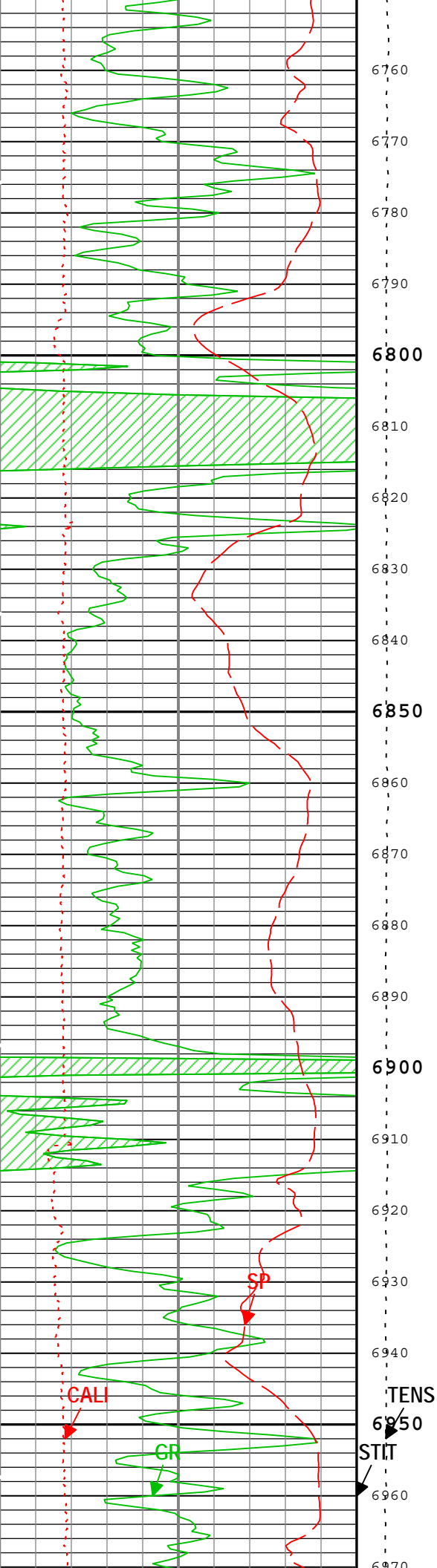
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Wolfcamp????

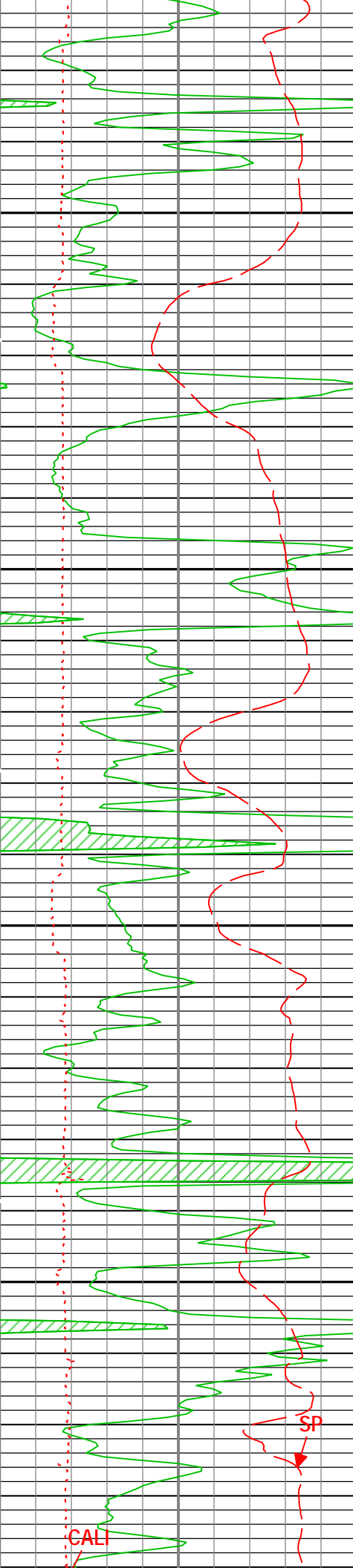






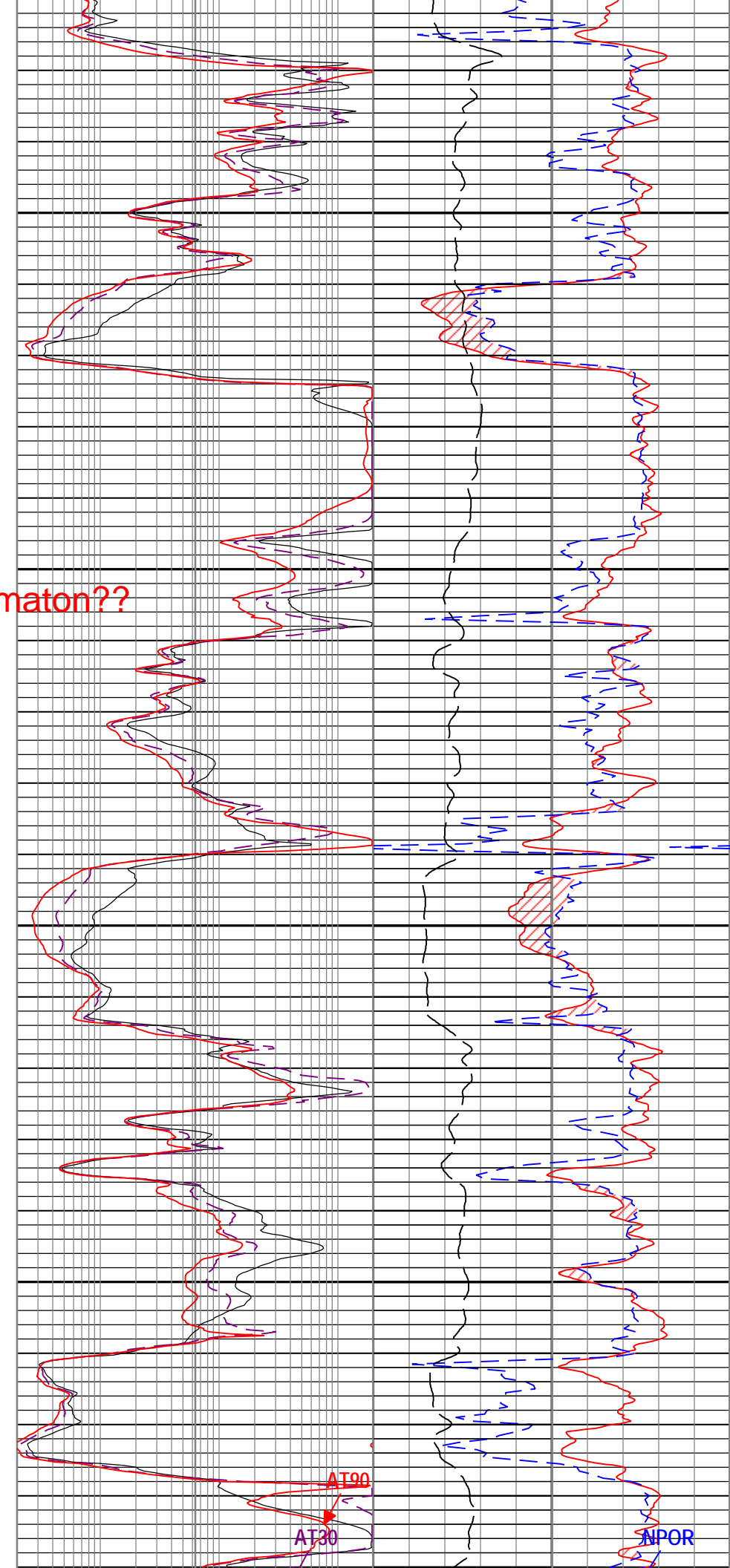


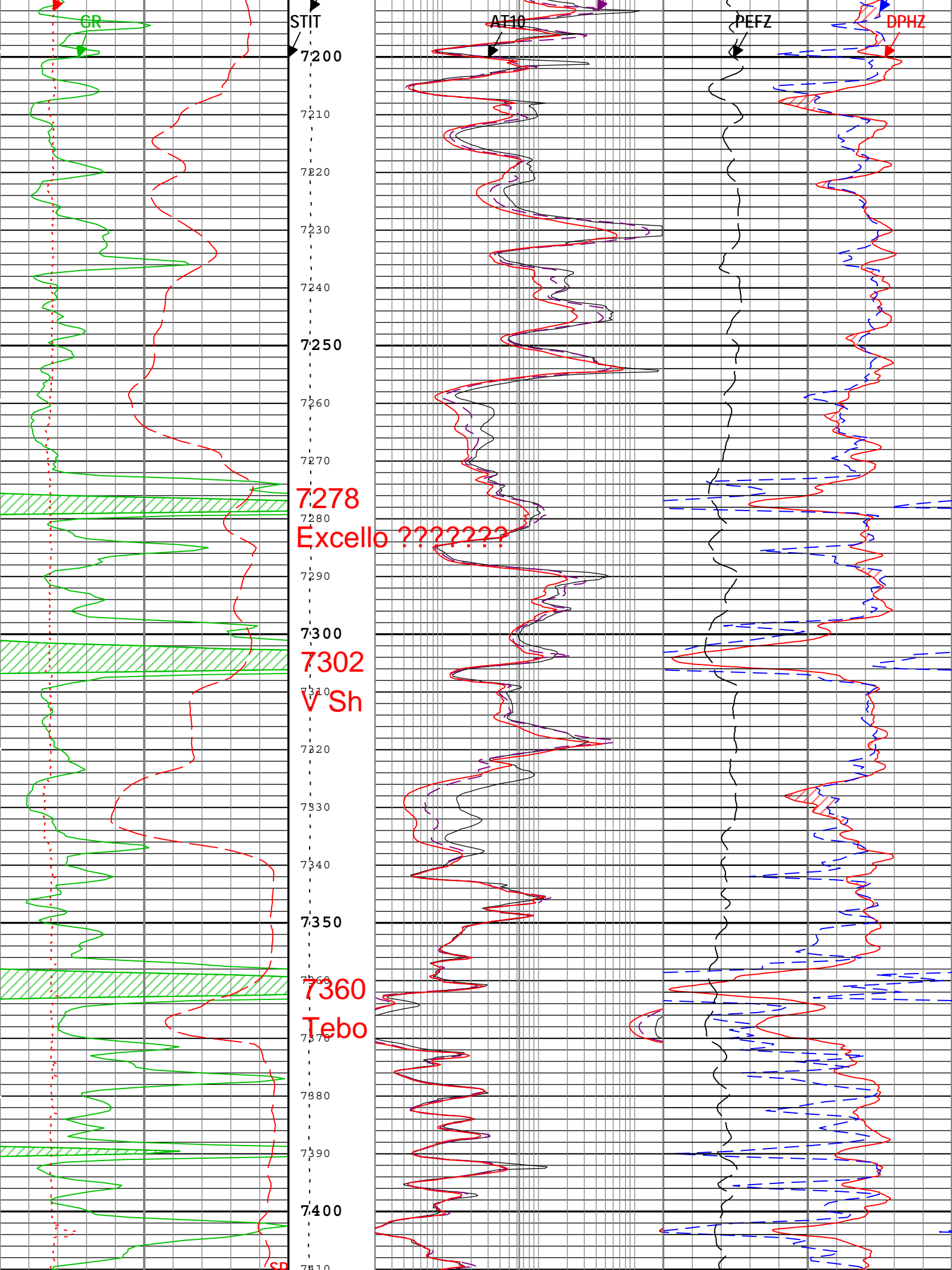


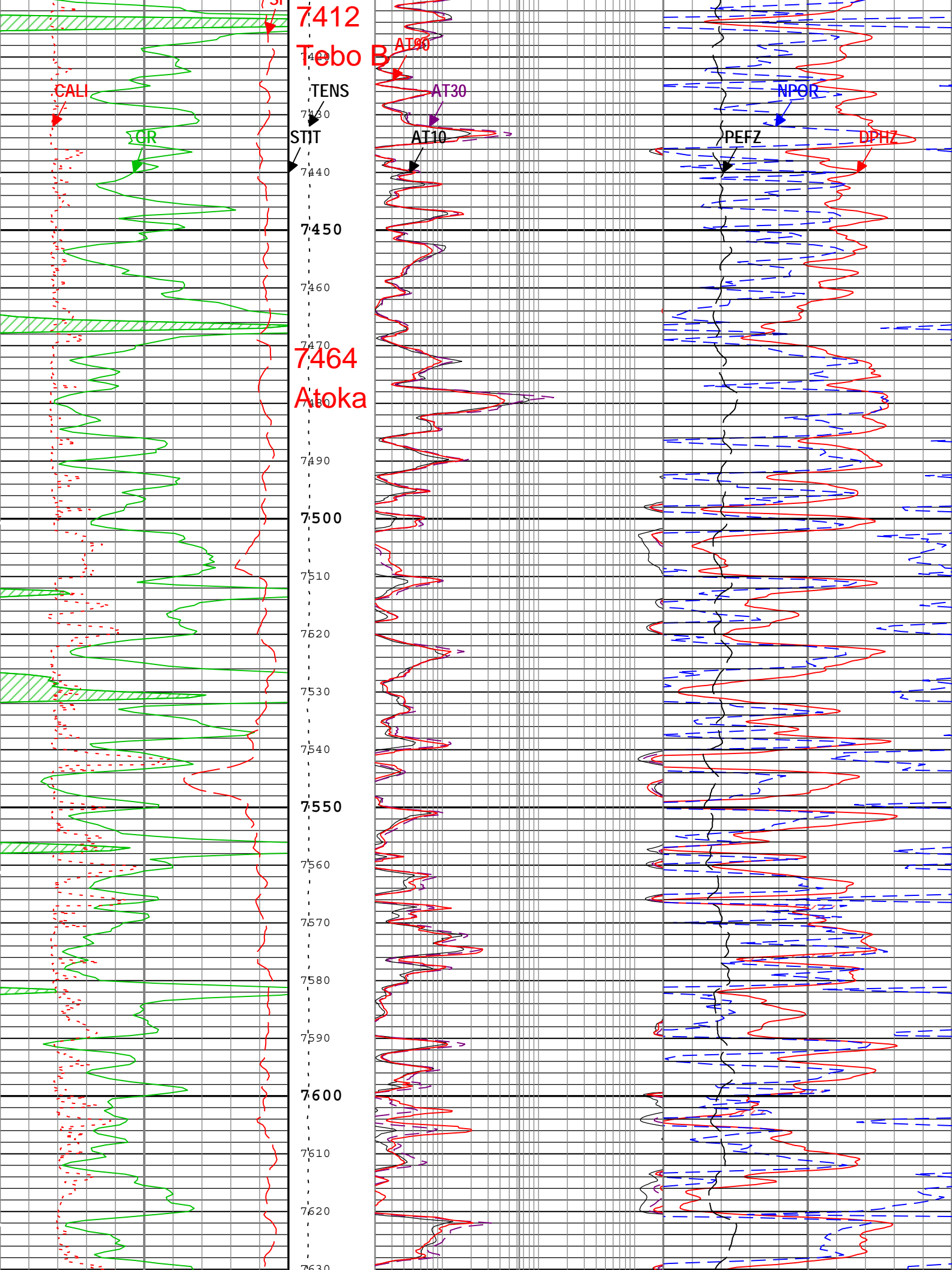


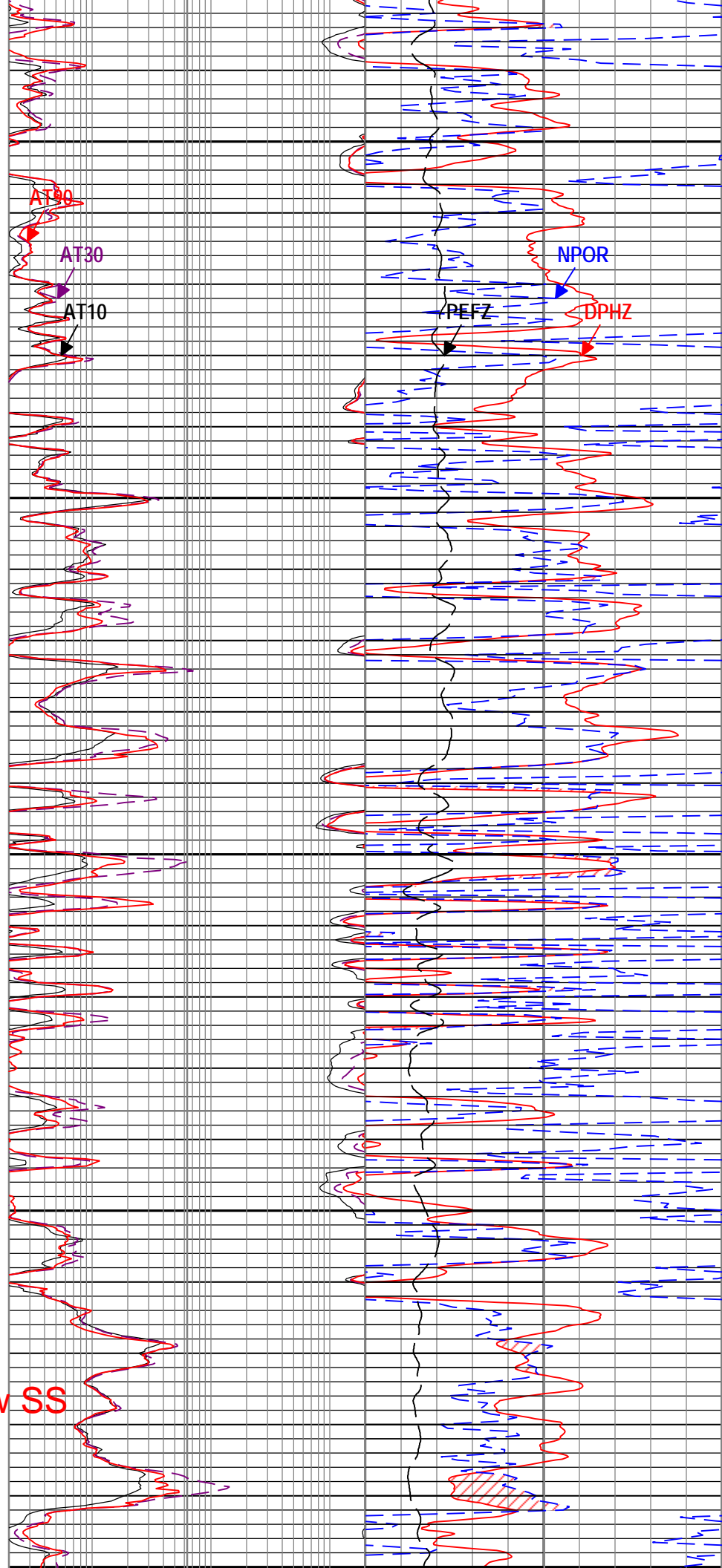
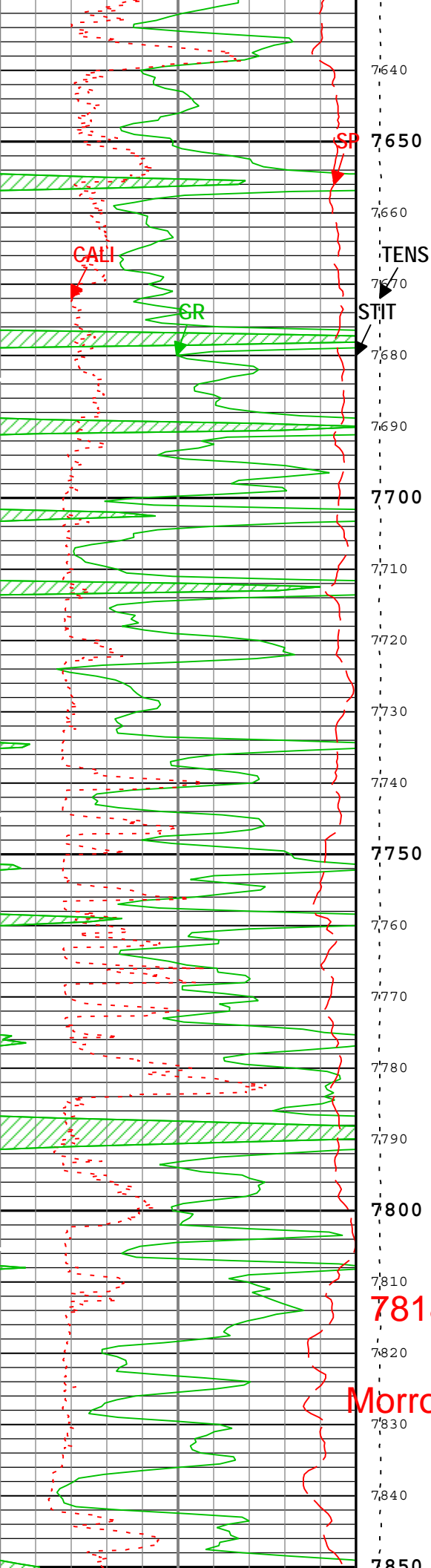
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TENS

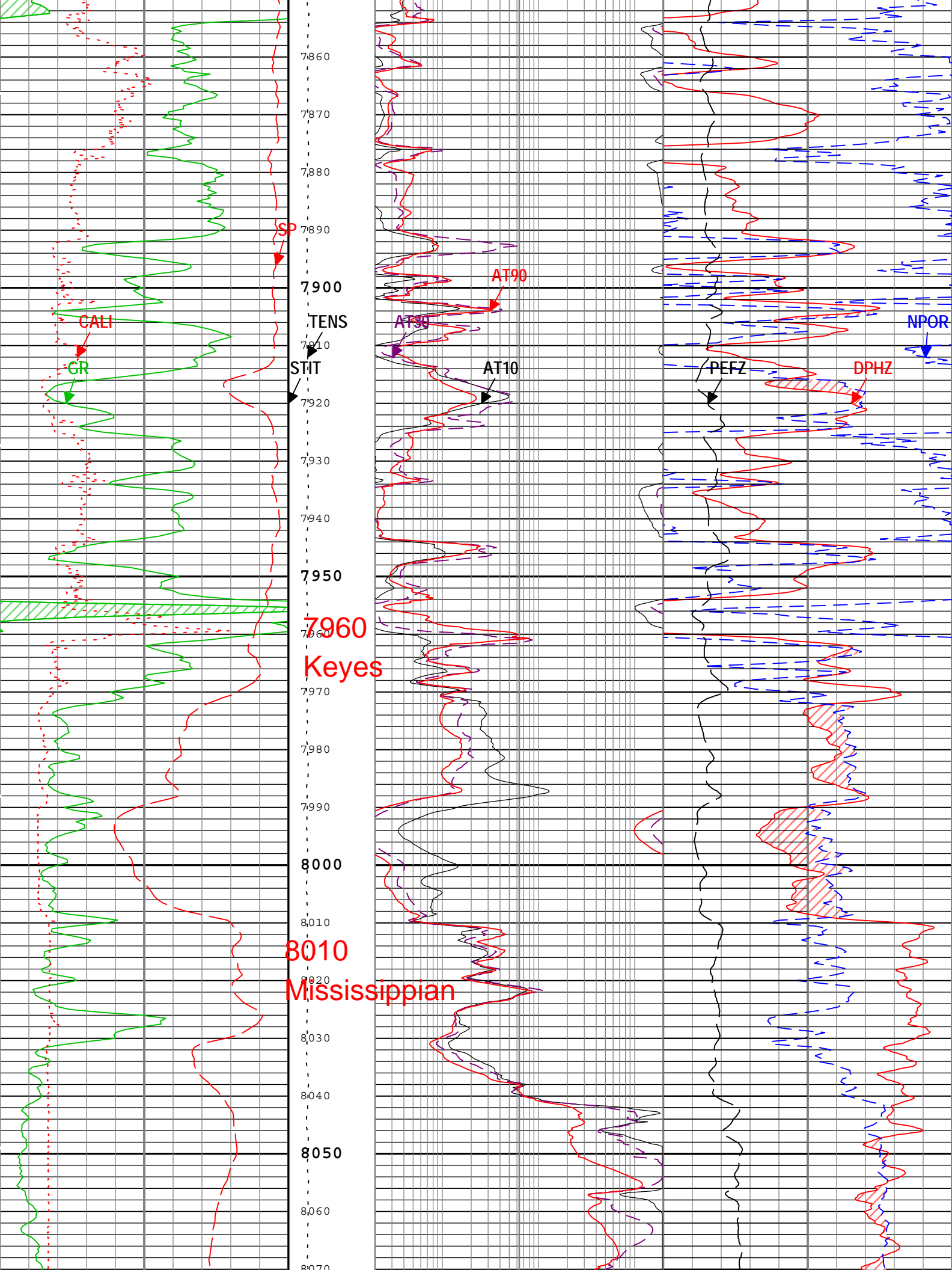
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Matrmaton??

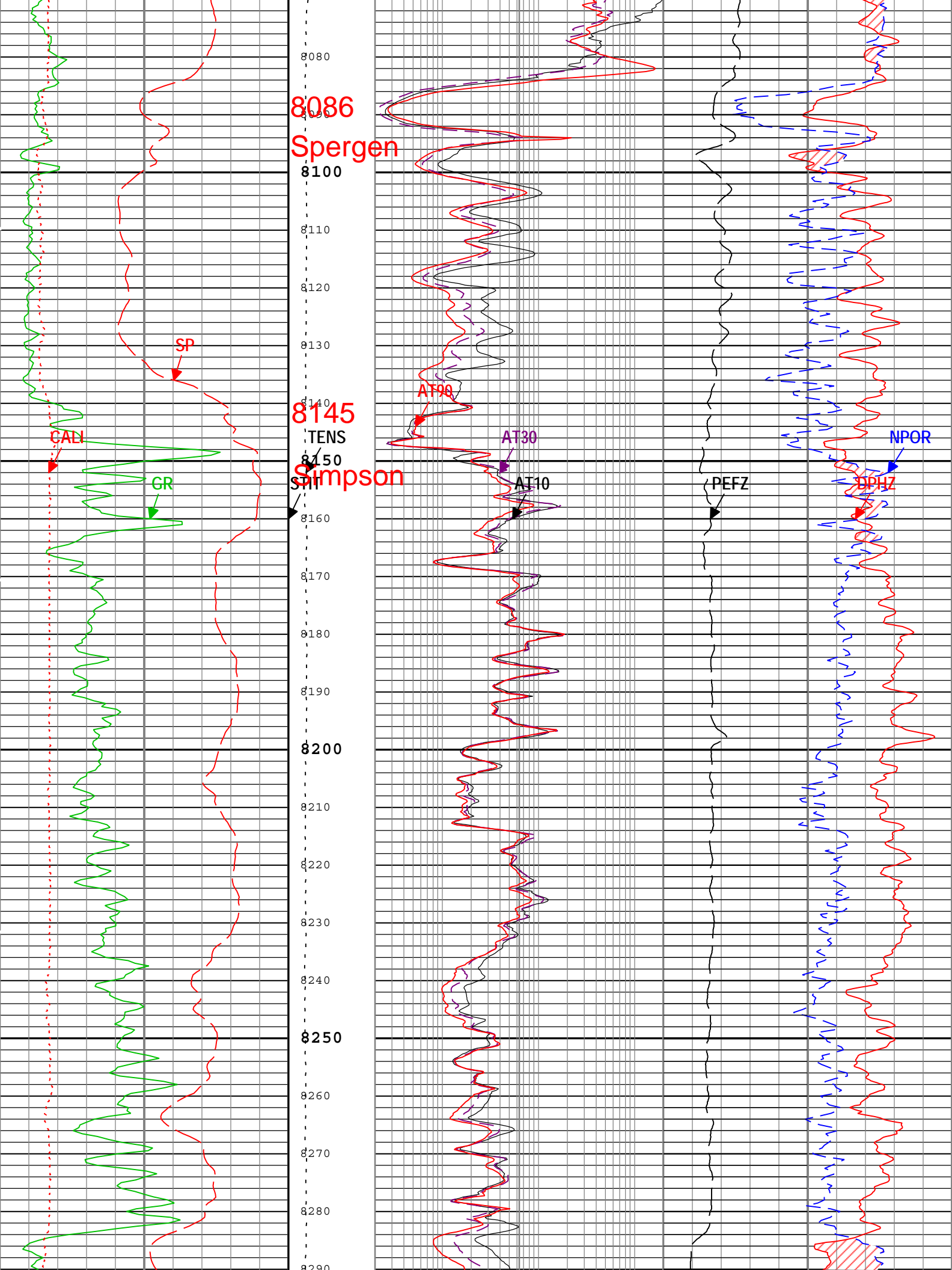


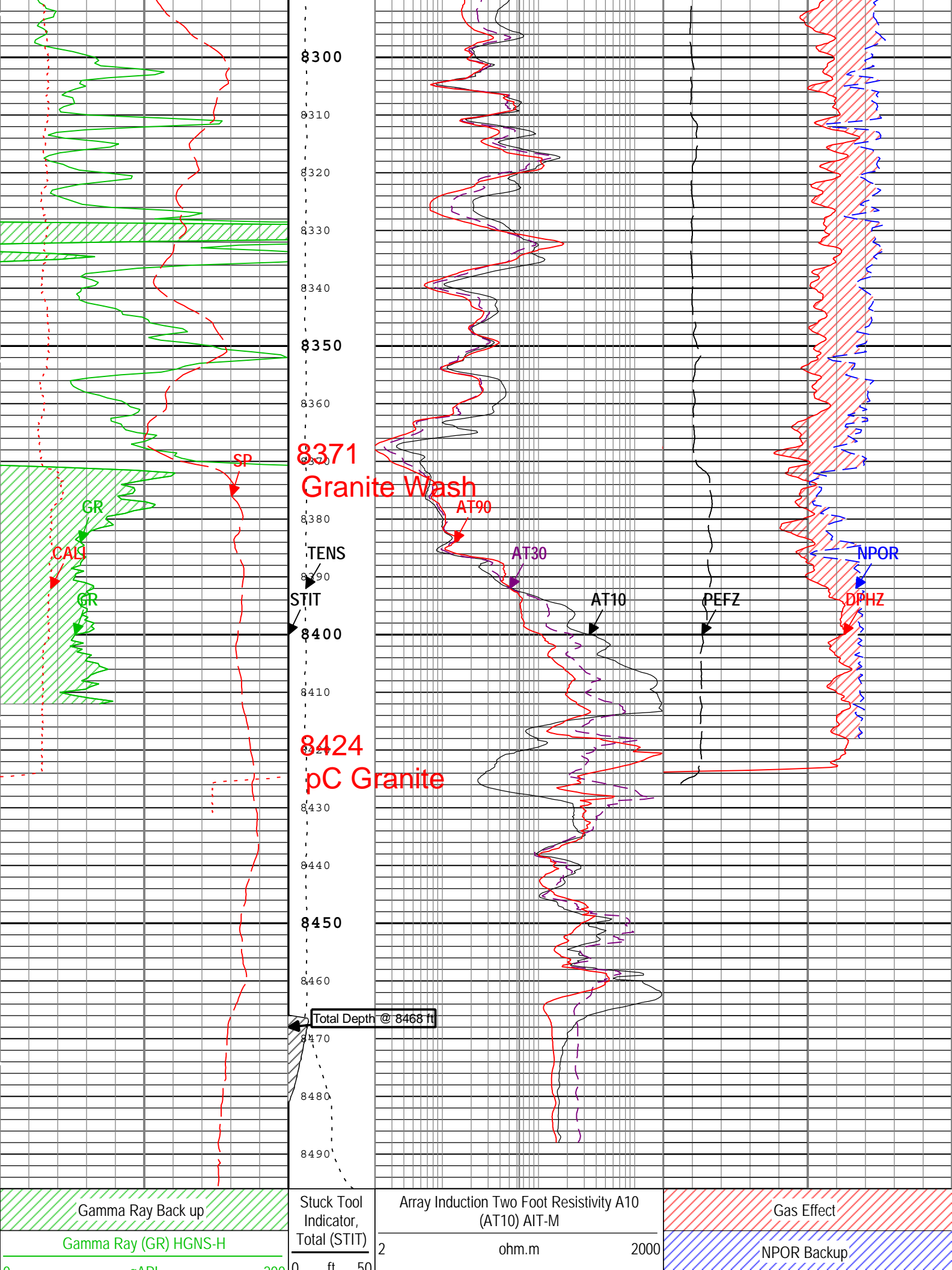




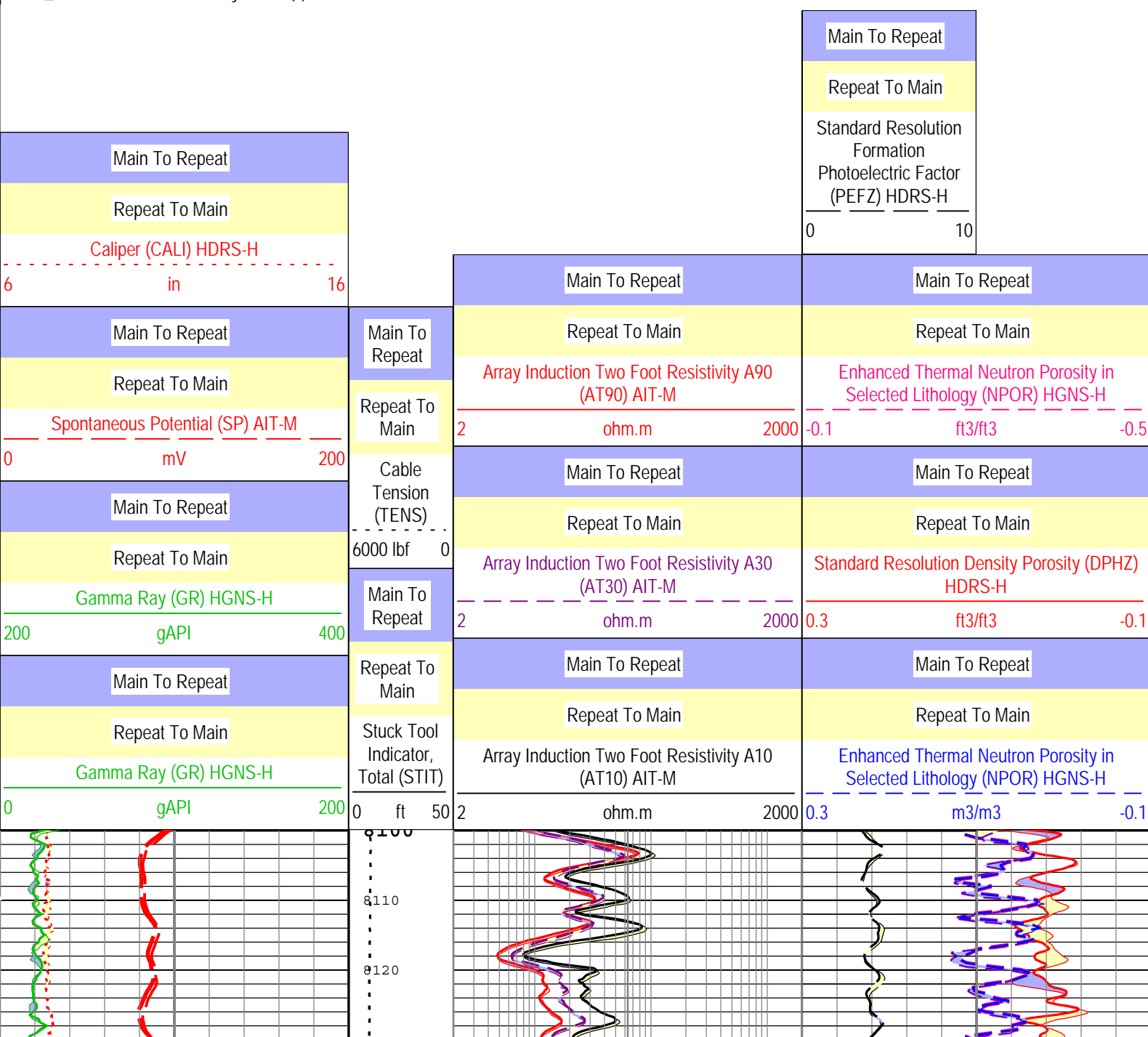


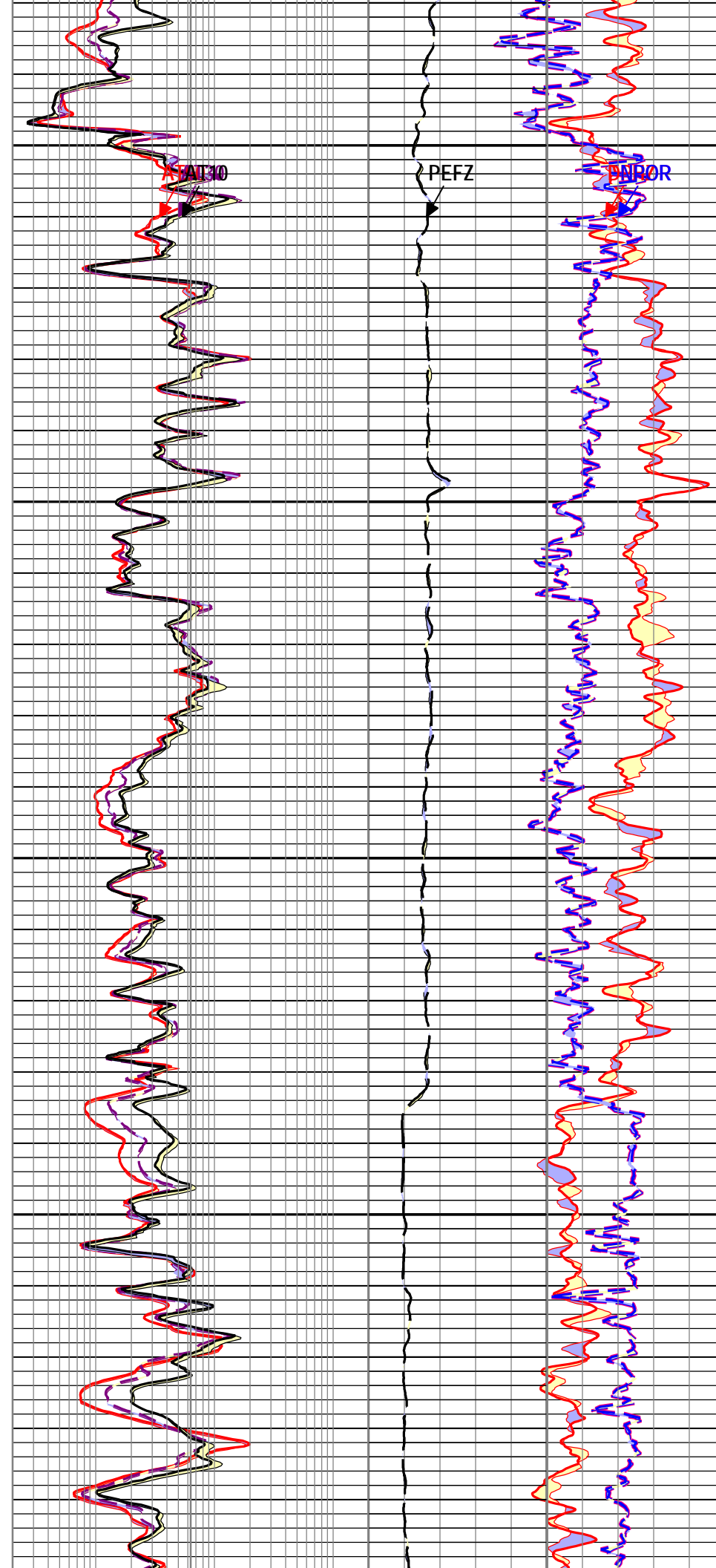
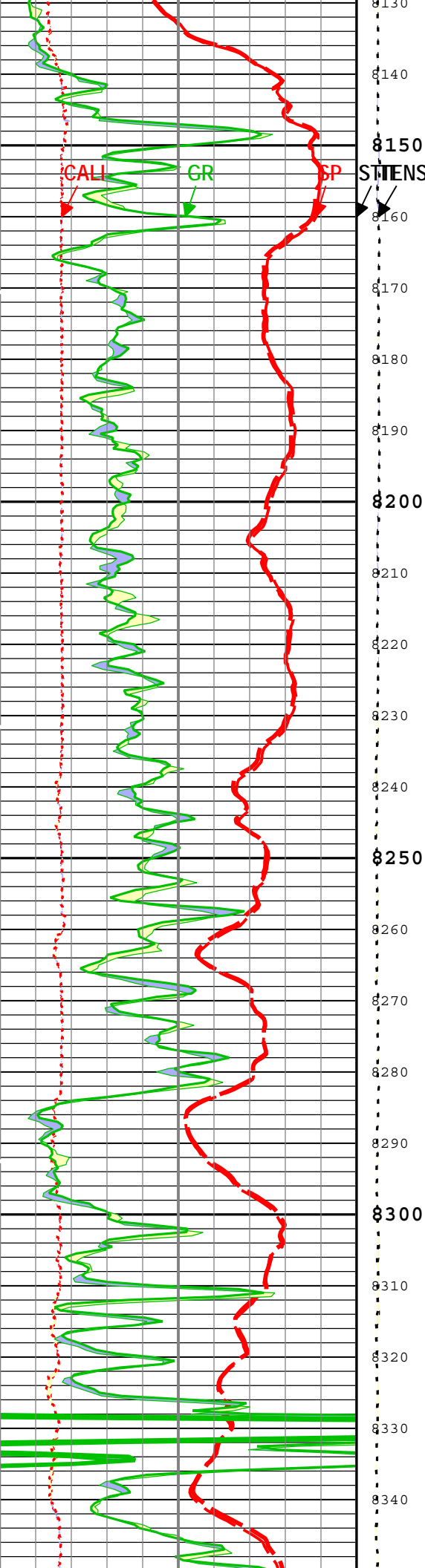






Tool Control Parameters				
Parameter	Description	Tool	Value	Unit
HMCA_BRD_TYPE	HMCA Board Type	HGNS-H	1	
HRGD_BRD_TYPE	HRGD Board Type	HDRS-H	WITH_HET	





Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Sonde Error Correction Real - 0	mS/m	Master	----	-231.000	-59.254	119.000	
Sonde Error Correction Quad - 0		Master	----	-2250.000	-59.772	2250.000	
Sonde Error Correction Real - 1	mS/m	Master	----	114.000	151.006	204.000	
Sonde Error Correction Quad - 1		Master	----	-625.000	-99.133	625.000	
Sonde Error Correction Real - 2	mS/m	Master	----	66.000	118.101	156.000	
Sonde Error Correction Quad - 2		Master	----	-350.000	-74.984	350.000	
Sonde Error Correction Real - 3	mS/m	Master	----	39.000	51.184	89.000	
Sonde Error Correction Quad - 3		Master	----	-250.000	-8.868	250.000	
Sonde Error Correction Real - 4	mS/m	Master	----	15.000	26.303	35.000	
Sonde Error Correction Quad - 4		Master	----	-63.000	7.747	63.000	
Sonde Error Correction Real - 5	mS/m	Master	----	4.000	12.283	24.000	
Sonde Error Correction Quad - 5		Master	----	-50.000	-7.300	50.000	
Sonde Error Correction Real - 6	mS/m	Master	----	5.000	9.849	15.000	
Sonde Error Correction Quad - 6		Master	----	-30.000	8.224	30.000	
Sonde Error Correction Real - 7	mS/m	Master	----	-5.000	-1.764	5.000	
Sonde Error Correction Quad - 7		Master	----	20.000	1.014	20.000	

		Before-Master After-Before	----- -----	----- -----	-5.850 -----	----- -----	<div></div>
Thru Cal Mag - 6	V	Master Before After Before-Master After-Before	----- ----- ----- ----- -----	1.176 1.176 ----- ----- -----	1.932 1.906 ----- -0.026 -----	2.744 2.744 ----- ----- -----	<div><div></div></div>
Thru Cal Phase - 6	deg	Master Before After Before-Master After-Before	----- ----- ----- ----- -----	121.000 121.000 ----- ----- -----	-171.716 -177.578 ----- -5.862 -----	-119.000 -119.000 ----- ----- -----	<div><div></div></div>
Thru Cal Mag - 7	V	Master Before After Before-Master After-Before	----- ----- ----- ----- -----	0.846 0.846 ----- ----- -----	1.378 1.360 ----- -0.018 -----	1.974 1.974 ----- ----- -----	<div><div></div></div>
Thru Cal Phase - 7	deg	Master Before After Before-Master After-Before	----- ----- ----- ----- -----	115.000 115.000 ----- ----- -----	-173.828 -178.661 ----- -4.833 -----	-125.000 -125.000 ----- ----- -----	<div><div></div></div>
SPA Zero	mV	Master Before After Before-Master After-Before	 ----- -----	-50.000 -50.000 ----- ----- -----	-0.015 -0.030 ----- -0.015 -----	50.000 50.000 ----- ----- -----	<div><div></div></div>
SPA Plus	mV	Master Before After Before-Master After-Before	 ----- -----	941.000 941.000 ----- ----- -----	992.571 992.615 ----- 0.044 -----	1040.000 1040.000 ----- ----- -----	<div><div></div></div>
Temperature Zero	V	Master Before After Before-Master After-Before	 ----- -----	-0.050 -0.050 ----- ----- -----	0.000 0.000 ----- 0.000 -----	0.050 0.050 ----- ----- -----	<div><div></div></div>
Temperature Plus	V	Master Before After Before-Master After-Before	 ----- -----	0.870 0.870 ----- ----- -----	0.919 0.919 ----- 0.000 -----	0.960 0.960 ----- ----- -----	<div><div></div></div>

DSLT-H (Digitizing Sonic Logging Tool - H) Calibration - Run 1

Primary Equipment :	Sonic Logging Sonde E supports 3'-5'BHC DT and CBL/VDL	SLS-E	1294
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CBL Normalization - CBL Accumulations

Master:							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div></div>
Upper Far Amplitude - 0		Master	-----	-----	-----	-----	<div></div>
Upper Near Raw Amplitude - 0	mV	Master	-----	-----	-----	-----	<div></div>
Lower Far Amplitude - 0		Master	-----	-----	-----	-----	<div></div>
Lower Near Raw Amplitude - 0	mV	Master	-----	-----	-----	-----	<div></div>

CBL Normalization - CBL/VDL Coefficients

Master:							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div></div>
CBL Correction Factor for UT		Master	3.500	2.700	NOT DONE	4.300	<div></div>
CBL Correction Factor for LT		Master	2.500	1.700	NOT DONE	4.300	<div></div>
VDL Ratio between UT and LT for CBLB Mode		Master	1.000		NOT DONE		<div></div>

CBL Free Pipe Adjustment - Free Pipe Measurement

Before:							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div></div>
CBL Amplitude - 0	mV	Before	-----	-----	-----	-----	<div></div>
CBL Reference Amplitude (CBRA) - 0	mV	Before	-----	-----	-----	-----	<div></div>

CBL Reference Amplitude (CBRA) - 0	mV	Before	-----	-----	-----	-----	
Measurement Depth - 0	ft	Before	-----	-----	-----	-----	
CBL Free Pipe Adjustment - CBL Amplitude Coefficient							
Before:							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
CBL Adjustment Factor		Before	1.000	0.200	NOT DONE	5.000	
Depth of Before Calibration	ft	Before			NOT DONE		

HRLT-B (High Resolution Laterolog Array) Calibration - Run 1

Primary Equipment :
HRLS-B
HRLS-B

HRLT-B Calibration - HRLT M0-M1 Voltage Plus

Before (Measured):		23:27:43 10-Nov-2013		After:			
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
HRLT M01 - 0	uV	Before	-322.7	-379.6	-318.3	-280.6	
		After	----	----	----	----	
		After-Before	----	----	----	----	
HRLT M01 - 1	uV	Before	-322.7	-379.6	-340.6	-280.6	
		After	----	----	----	----	
		After-Before	----	----	----	----	
HRLT M01 - 2	uV	Before	-322.7	-379.6	-359.1	-280.6	
		After	----	----	----	----	
		After-Before	----	----	----	----	
HRLT M01 - 3	uV	Before	-322.7	-379.6	-343.2	-280.6	
		After	----	----	----	----	
		After-Before	----	----	----	----	
HRLT M01 - 4	uV	Before	-322.7	-379.6	-315.6	-280.6	
		After	----	----	----	----	
		After-Before	----	----	----	----	
HRLT M01 - 5	uV	Before	-322.7	-379.6	-331.0	-280.6	
		After	----	----	----	----	
		After-Before	----	----	----	----	
HRLT M01 - 6	uV	Before	322.7	280.6	346.6	379.6	
		After	----	----	----	----	
		After-Before	----	----	----	----	

HRLT-B Calibration - HRLT M1-M2 Voltage Plus

Before (Measured):		23:27:43 10-Nov-2013		After:			
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
HRLT M12 - 0	uV	Before	1781.0	1548.7	1768.1	2095.3	
		After	----	----	----	----	
		After-Before	----	----	----	----	
HRLT M12 - 1	uV	Before	1781.0	1548.7	1894.0	2095.3	
		After	----	----	----	----	
		After-Before	----	----	----	----	
HRLT M12 - 2	uV	Before	1781.0	1548.7	1991.0	2095.3	
		After	----	----	----	----	
		After-Before	----	----	----	----	
HRLT M12 - 3	uV	Before	1781.0	1548.7	1902.6	2095.3	
		After	----	----	----	----	
		After-Before	----	----	----	----	
HRLT M12 - 4	uV	Before	1781.0	1548.7	1750.3	2095.3	
		After	----	----	----	----	
		After-Before	----	----	----	----	
HRLT M12 - 5	uV	Before	1781.0	1548.7	1836.5	2095.3	
		After	----	----	----	----	
		After-Before	----	----	----	----	
HRLT M12 - 6	uV	Before	-1781.0	-2095.3	-1935.9	-1548.7	
		After	----	----	----	----	
		After-Before	----	----	----	----	

HRLT-B Calibration - HRLT M2-M3 Voltage Plus

Before (Measured):		23:27:43 10-Nov-2013		After:			
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
HRLT M23 - 0	uV	Before	1781.0	1548.7	1745.9	2095.3	

		After	-----	-----	-----	-----	
		After-Before	-----	-----	-----	-----	
HRLT M23 - 1	uV	Before	1781.0	1548.7	1881.9	2095.3	
		After	-----	-----	-----	-----	
		After-Before	-----	-----	-----	-----	
HRLT M23 - 2	uV	Before	1781.0	1548.7	1979.9	2095.3	
		After	-----	-----	-----	-----	
		After-Before	-----	-----	-----	-----	
HRLT M23 - 3	uV	Before	1781.0	1548.7	1895.0	2095.3	
		After	-----	-----	-----	-----	
		After-Before	-----	-----	-----	-----	
HRLT M23 - 4	uV	Before	1781.0	1548.7	1737.5	2095.3	
		After	-----	-----	-----	-----	
		After-Before	-----	-----	-----	-----	
HRLT M23 - 5	uV	Before	1781.0	1548.7	1824.4	2095.3	
		After	-----	-----	-----	-----	
		After-Before	-----	-----	-----	-----	
HRLT M23 - 6	uV	Before	-1781.0	-2095.3	-1911.3	-1548.7	
		After	-----	-----	-----	-----	
		After-Before	-----	-----	-----	-----	

HRLT-B Calibration - HRLT A3-A4 Voltage Plus

Before (Measured):		23:27:43 10-Nov-2013		After:			
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
HRLT V34 - 0	uV	Before	70000.0	60869.6	68951.3	82352.9	
		After	-----	-----	-----	-----	
		After-Before	-----	-----	-----	-----	
HRLT V34 - 1	uV	Before	70000.0	60869.6	74354.7	82352.9	
		After	-----	-----	-----	-----	
		After-Before	-----	-----	-----	-----	
HRLT V34 - 2	uV	Before	70000.0	60869.6	78508.0	82352.9	
		After	-----	-----	-----	-----	
		After-Before	-----	-----	-----	-----	
HRLT V34 - 3	uV	Before	70000.0	60869.6	75341.1	82352.9	
		After	-----	-----	-----	-----	
		After-Before	-----	-----	-----	-----	
HRLT V34 - 4	uV	Before	70000.0	60869.6	68955.6	82352.9	
		After	-----	-----	-----	-----	
		After-Before	-----	-----	-----	-----	
HRLT V34 - 5	uV	Before	70000.0	60869.6	72376.3	82352.9	
		After	-----	-----	-----	-----	
		After-Before	-----	-----	-----	-----	
HRLT V34 - 6	uV	Before	-70000.0	-82352.9	-74409.1	-60869.6	
		After	-----	-----	-----	-----	
		After-Before	-----	-----	-----	-----	

HRLT-B Calibration - HRLT A4-A5 Voltage Plus

Before (Measured):		23:27:43 10-Nov-2013		After:			
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
HRLT V45 - 0	uV	Before	70000.0	60869.6	68898.0	82352.9	
		After	-----	-----	-----	-----	
		After-Before	-----	-----	-----	-----	
HRLT V45 - 1	uV	Before	70000.0	60869.6	74433.2	82352.9	
		After	-----	-----	-----	-----	
		After-Before	-----	-----	-----	-----	
HRLT V45 - 2	uV	Before	70000.0	60869.6	78568.0	82352.9	
		After	-----	-----	-----	-----	
		After-Before	-----	-----	-----	-----	
HRLT V45 - 3	uV	Before	70000.0	60869.6	75347.1	82352.9	
		After	-----	-----	-----	-----	
		After-Before	-----	-----	-----	-----	
HRLT V45 - 4	uV	Before	70000.0	60869.6	68909.4	82352.9	
		After	-----	-----	-----	-----	
		After-Before	-----	-----	-----	-----	
HRLT V45 - 5	uV	Before	70000.0	60869.6	72316.9	82352.9	
		After	-----	-----	-----	-----	
		After-Before	-----	-----	-----	-----	
HRLT V45 - 6	uV	Before	-70000.0	-82352.9	-74525.4	-60869.6	

		After	-----	-----	-----	-----	
		After-Before	-----	-----	-----	-----	

HRLT-B Calibration - HRLT A5-A6 Voltage Plus

Before (Measured):		23:27:43 10-Nov-2013		After:			
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
HRLT V56 - 0	uV	Before	70000.0	60869.6	68868.9	82352.9	
		After	-----	-----	-----	-----	
		After-Before	-----	-----	-----	-----	
HRLT V56 - 1	uV	Before	70000.0	60869.6	74411.5	82352.9	
		After	-----	-----	-----	-----	
		After-Before	-----	-----	-----	-----	
HRLT V56 - 2	uV	Before	70000.0	60869.6	78522.6	82352.9	
		After	-----	-----	-----	-----	
		After-Before	-----	-----	-----	-----	
HRLT V56 - 3	uV	Before	70000.0	60869.6	75323.2	82352.9	
		After	-----	-----	-----	-----	
		After-Before	-----	-----	-----	-----	
HRLT V56 - 4	uV	Before	70000.0	60869.6	68887.0	82352.9	
		After	-----	-----	-----	-----	
		After-Before	-----	-----	-----	-----	
HRLT V56 - 5	uV	Before	70000.0	60869.6	72284.3	82352.9	
		After	-----	-----	-----	-----	
		After-Before	-----	-----	-----	-----	
HRLT V56 - 6	uV	Before	-70000.0	-82352.9	-74479.2	-60869.6	
		After	-----	-----	-----	-----	
		After-Before	-----	-----	-----	-----	

HRLT-B Calibration - HRLT Torpedo-M0 Voltage

Before (Measured):		23:27:43 10-Nov-2013		After:			
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
HRLT VTP - 0	uV	Before	-70000.0	-82352.9	-68463.3	-60869.6	
		After	-----	-----	-----	-----	
		After-Before	-----	-----	-----	-----	
HRLT VTP - 1	uV	Before	-70000.0	-82352.9	-74222.5	-60869.6	
		After	-----	-----	-----	-----	
		After-Before	-----	-----	-----	-----	
HRLT VTP - 2	uV	Before	-70000.0	-82352.9	-78363.1	-60869.6	
		After	-----	-----	-----	-----	
		After-Before	-----	-----	-----	-----	
HRLT VTP - 3	uV	Before	-70000.0	-82352.9	-75235.6	-60869.6	
		After	-----	-----	-----	-----	
		After-Before	-----	-----	-----	-----	
HRLT VTP - 4	uV	Before	-70000.0	-82352.9	-68882.8	-60869.6	
		After	-----	-----	-----	-----	
		After-Before	-----	-----	-----	-----	
HRLT VTP - 5	uV	Before	-70000.0	-82352.9	-72315.4	-60869.6	
		After	-----	-----	-----	-----	
		After-Before	-----	-----	-----	-----	
HRLT VTP - 6	uV	Before	70000.0	60869.6	74242.2	82352.9	
		After	-----	-----	-----	-----	
		After-Before	-----	-----	-----	-----	

HRLT-B Calibration - HRLT Bridle#9-M0 Voltage

Before (Measured):		23:27:43 10-Nov-2013		After:			
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
HRLT VBD - 0	uV	Before	-70000.0	-82352.9	-68528.3	-60869.6	
		After	-----	-----	-----	-----	
		After-Before	-----	-----	-----	-----	
HRLT VBD - 1	uV	Before	-70000.0	-82352.9	-74488.5	-60869.6	
		After	-----	-----	-----	-----	
		After-Before	-----	-----	-----	-----	
HRLT VBD - 2	uV	Before	-70000.0	-82352.9	-78614.0	-60869.6	
		After	-----	-----	-----	-----	
		After-Before	-----	-----	-----	-----	
HRLT VBD - 3	uV	Before	-70000.0	-82352.9	-75436.9	-60869.6	
		After	-----	-----	-----	-----	
		After-Before	-----	-----	-----	-----	
HRLT VBD - 4	uV	Before	70000.0	82352.9	60000.0	60869.6	
		After	-----	-----	-----	-----	
		After-Before	-----	-----	-----	-----	

Primary Equipment :			
	HILT High-Resolution Control Cartridge, 150 degC	HRCC-H	
	HILT Resistivity Gamma-Ray Density Device, 150 degC	HRGD-H	3989
Auxiliary Equipment :			
	HRDD Backscatter Detector	Backscatter	
	HRDD Long Spacing Detector	Long Spacing	28796
	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 Caliper Calibration - Caliper Accumulations

Before (Measured):		11:19:42 08-Nov-2013 Expired by 1 days					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Small Ring	in	Before	8.00	6.00	7.86	10.00	
Large Ring	in	Before	12.00	9.00	12.22	15.00	

HDRS Density Calibration - Inversion Results

Master (EEPROM):		11:38:32 22-Oct-2013					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Rho Aluminum	g/cm3	Master	2.596	2.586	2.602	2.606	
Rho Magnesium	g/cm3	Master	1.686	1.676	1.684	1.696	
Pe Aluminum		Master	2.570	2.470	2.554	2.670	
Pe Magnesium		Master	2.650	2.550	2.637	2.750	

HDRS Density Calibration - Deviation Summary

Master (EEPROM):		11:38:32 22-Oct-2013					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
BS Average Deviation	%	Master	0	-0.6000	0.2898	0.6000	
BS Max Deviation	%	Master	0	-1.6000	1.1004	1.6000	
SS Average Deviation	%	Master	0	-1.0000	0.2716	1.0000	
SS Max Deviation	%	Master	0	-2.5000	0.7502	2.5000	
LS Average Deviation	%	Master	0	-1.5000	0.6408	1.5000	
LS Max Deviation	%	Master	0	-3.5000	1.2429	3.5000	

HDRS Density Calibration - Background Summary

Master (EEPROM):		11:38:32 22-Oct-2013		Before (Measured): 11:18:42 08-Nov-2013 Expired by 1 days			
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
BS Window Ratio		Master	1.0000		0.7424		
		Before	0.7424	0.7053	0.7376	0.7796	
		Before-Master	-----	-----	-0.0048	-----	
BS Window Sum	1/s	Master	1		26414		
		Before	26414	25093	26260	27734	
		Before-Master	-----	-----	-154	-----	
SS Window Ratio		Master	1.0000		0.4834		
		Before	0.4834	0.4592	0.4835	0.5076	
		Before-Master	-----	-----	0.0001	-----	
SS Window Sum	1/s	Master	1		10683		
		Before	10683	10149	10658	11217	
		Before-Master	-----	-----	-25	-----	
LS Window Ratio		Master	1.0000		0.3054		
		Before	0.3054	0.2901	0.3025	0.3207	
		Before-Master	-----	-----	-0.0029	-----	
LS Window Sum	1/s	Master	1		1313		
		Before	1313	1248	1303	1379	
		Before-Master	-----	-----	-10	-----	

HDRS Density Calibration - Photo-multiplier High Voltages

Master (EEPROM):		11:38:32 22-Oct-2013		Before (Measured): 11:18:42 08-Nov-2013 Expired by 1 days			
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
BS PM High Voltage	V	Master		1000	1328	2400	

PM High Voltage	V	Master Before	-----	1000 1000 -100	1820 1362 34	2400 2400 100	
SS PM High Voltage	V	Master Before Before-Master	-----	1000 1000 -100	1810 1844 34	2400 2400 100	
LS PM High Voltage	V	Master Before Before-Master	-----	1000 1000 -100	1375 1378 3	2400 2400 100	

HDRS Density Calibration - Crystal Quality Resolutions

Master (EEPROM): 11:38:32 22-Oct-2013		Before (Measured): 11:18:42 08-Nov-2013 Expired by 1 days					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
BS Crystal Resolution	%	Master		5.00	10.57	25.00	
		Before		5.00	10.60	25.00	
		Before-Master	-----	-1.00	0.03	1.00	
SS Crystal Resolution	%	Master		5.00	10.24	20.00	
		Before		5.00	10.26	20.00	
		Before-Master	-----	-1.00	0.02	1.00	
LS Crystal Resolution	%	Master		5.00	9.60	20.00	
		Before		5.00	9.68	20.00	
		Before-Master	-----	-1.00	0.08	1.00	

HDRS MCFL Calibration - MCFL Accumulations

Before (Measured): 11:15:10 08-Nov-2013 Expired by 1 days							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Main Resistivity	ohm.m	Before	3875	3565	3858	4185	
Deep Resistivity	ohm.m	Before	3830	3524	3799	4136	
Shallow Resistivity	ohm.m	Before	3830	3524	3819	4136	

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						
	Housing Size						
	JIG-BKG (Jig minus background reference)			165			

HGNS Accelerometer Calibration - Accelerometer Accumulations

Before (Measured): 22:27:42 10-Nov-2013							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
AZ Vertical Measurement	ft/s2	Before	32.2	31.5	32.1	32.8	

HGNS Accelerometer EEPROM - Accelerometer EEPROM Read

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

HGNS Neutron Calibration - HGNS Neutron Accumulations

Master (EEPROM): 13:21:40 07-Nov-2013	Before (Measured): 11:14:53 08-Nov-2013	After:
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Expired by 1 days

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Near Zero Measurement	1/s	Master	0	5.0	26.9	40.0	
		Before	0	5.0	27.4	40.0	
		After	----	----	----	----	
		Before-Master	----	-4.0	0.5	4.0	
		After-Before	----	----	----	----	
Far Zero Measurement	1/s	Master	0	5.0	28.4	40.0	
		Before	0	5.0	27.0	40.0	
		After	----	----	----	----	
		Before-Master	----	-4.3	-1.4	4.3	
		After-Before	----	----	----	----	
Near Plus Measurement	1/s	Master	6031.0	4700.0	5635.0	6900.0	
		Before	----	----	----	----	
		After	----	----	----	----	
		Before-Master	----	----	----	----	
		After-Before	----	----	----	----	
Far Plus Measurement	1/s	Master	2793.0	1900.0	2285.0	2900.0	
		Before	----	----	----	----	
		After	----	----	----	----	
		Before-Master	----	----	----	----	
		After-Before	----	----	----	----	
Near Corrected Plus Measurement	1/s	Master		4700.0	5713.0	6900.0	
		Before	----	----	----	----	
		After	----	----	----	----	
		Before-Master	----	----	----	----	
		After-Before	----	----	----	----	
Far Corrected Plus Measurement	1/s	Master		1900.0	2322.0	2900.0	
		Before	----	----	----	----	
		After	----	----	----	----	
		Before-Master	----	----	----	----	
		After-Before	----	----	----	----	

HGNS Gamma-Ray Calibration - Gamma-Ray Accumulations

Before (Measured): 11:19:03 08-Nov-2013 Expired by 1 days After:							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
RGR Zero Measurement	gAPI	Before	30.0	0	81.7	120.0	
		After	----	----	----	----	
		After-Before	----	----	----	----	
RGR Plus Measurement	gAPI	Before	185.4	157.1	170.5	206.3	
		After	----	----	NOT DONE	----	
		After-Before	----	----	----	----	
GR Calibration Gain		Before	0.89	0.80	0.97	1.05	
		After	----	----	----	----	
		After-Before	----	----	----	----	

LEH-QT (Logging Equipment Head - QT, 3-3/8 inch 31 pin HPHT with Tension Sensor) Calibration - Run 1

Primary Equipment : <div> <div>Logging Equipment Head - QT, 3-3/8 inch 31 pin HPHT with Tension Sensor</div> <div>LEH-QT</div> </div>							
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HTEN Master Calibration - HTEN Master Calibration

Master:							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
HTEN Shop Gain		Master	1.000	0.800	NOT DONE	4.500	
HTEN Shop Offset	lbf	Master	0	-1000.000	NOT DONE	1000.000	

HTEN Before Calibration - HTEN Before Calibration

Before:							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
RHTE Zero Measurement - 0	lbf	Before	----	----	----	----	
RHTE Plus Measurement - 0	lbf	Before	----	----	----	----	
HTEN Gain - 0		Before	----	----	----	----	
HTEN Offset - 0	lbf	Before	----	----	----	----	

Company:	Nighthawk Production LLC	Schlumberger
Well:	John Craig 1-2	
Field:	Old Homestead	
County:	Lincoln	
State:	Colorado	

Platform Express

National Express

Triple Combo