

Company: Noble Energy Inc

Well: Shable Federal LB 33 78HN

Field: Wildcat

County: Weld State: Colorado

Platform Express			
Triple Combo			
Standard Resolution			
County: Weld	Field: Wildcat	Location: NWNW	Well: Shable Federal LB 33 78HN
Company: Noble Energy Inc			
Location:			
NWNW		Elev. K.B. 4956.00 ft	
FNL 288' X FWL 400'		G.L. 4940.00 ft	
D.F. 4955.00 ft			
Permanent Datum:	Ground Level	Elev.:	4940.00 f
Log Measured From:	Kelly Bushing	16.00 ft	above Perm.Datum
Drilling Measured From:	Kelly Bushing		
API Serial No.	Section: 33	Township: 9N	Range: 60W
05-123-36799-0000			
Logging Date	03-Apr-2013		

Run Number	1		
Depth Driller	6716.00 ft		
Schlumberger Depth	6716.00 ft		
Bottom Log Interval	6713.00 ft		
Top Log Interval	624.00 ft		
Casing Driller Size @ Depth	9.625 in @ 622.00 ft		
Casing Schlumberger	624 ft		
Bit Size	8.75 in		
Type Fluid In Hole	LSND		
Density	9.7 lbm/gal	43 s	
Fluid Loss	PH 7.6 cm3	7.9	
Source of Sample	Active Tank		
RM @ Meas Temp	1.07 ohm.m @ 64.9 degF		
RMF @ Meas Temp	0.8 ohm.m @ 68 degF		
RMC @ Meas Temp	1.6 ohm.m @ 68 degF		
Source RMF	RMC	Pressed	
RM @ BHT	0.35 @ 212 0.27 @ 212		
Max Recorded Temperatures	196 degF		
Circulation Stopped	02-Apr-2013 23:00:00		
Logger on Bottom	03-Apr-2013 06:30:00		
Unit Number	9108	Fort Morgan, CO	
Recorded By	Philip Grant/ Danil Kholin		
Witnessed By	Cliff Kestler, Devin Melder		

Disclaimer

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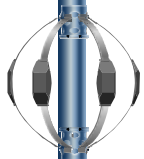
Borehole Size/Casing/Tubing Record

Bit						
Bit Size (in)	8.75					
Top Driller (ft)	0					
Top Logger (ft)	0					
Bottom Driller (ft)	6716					
Bottom Logger (ft)	6716					
Casing						
Size (in)	9.625					
Weight (lbm/ft)	36					
Inner Diameter (in)	8.914					
Grade	N80					
Top Driller (ft)	0					
Top Logger (ft)	0					
Bottom Driller (ft)	622					
Bottom Logger (ft)	624					

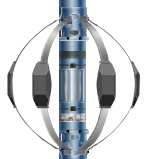
Remarks and Equipment Summary

1: Toolstring				1: Remarks	
Equip name	Length	MP name	Offset	Toolstring run as per toolsketch.	
LEH-QT:2459	145.11			Crew: David Marquez	
LEH-QT:2459					
EDTC-B:8593	142.19				
EDTH-B:8625					
EDTG-A					
EDTC-B:8593					
		CTEM	138.69		
		ACCZ	0.00		
		HV	0.00		
		Gamma Ray	136.82		
		TelStatus	135.69		
PPC-B[2]:8192	135.69				
2					
PPC-B:8192		PPC-B Calipers	134.55		

MAPC-BA :8023
MAMS-BA :8181
MASS-BA :8073
MAXS-BA :8078



MAMS 113.73



PPC-B[1]:819 5 87.89
PPC-B:8195
MAXS 87.89
PPC-B Calipers 86.75



A daptor_Head 81.37
[2]:85

GPIT-F:770 76.87
GPIH-B
GPIC-F:770
DHRU-F

GPIT-F Incl 75.46
inometer

A daptor_Head 72.87
[1]:84

GPIT 0.00

A H-120[2]:76 64.87
6

HNGS-BA:152 62.87
HEH-K:149
HNGS-BA:152

GR 59.89

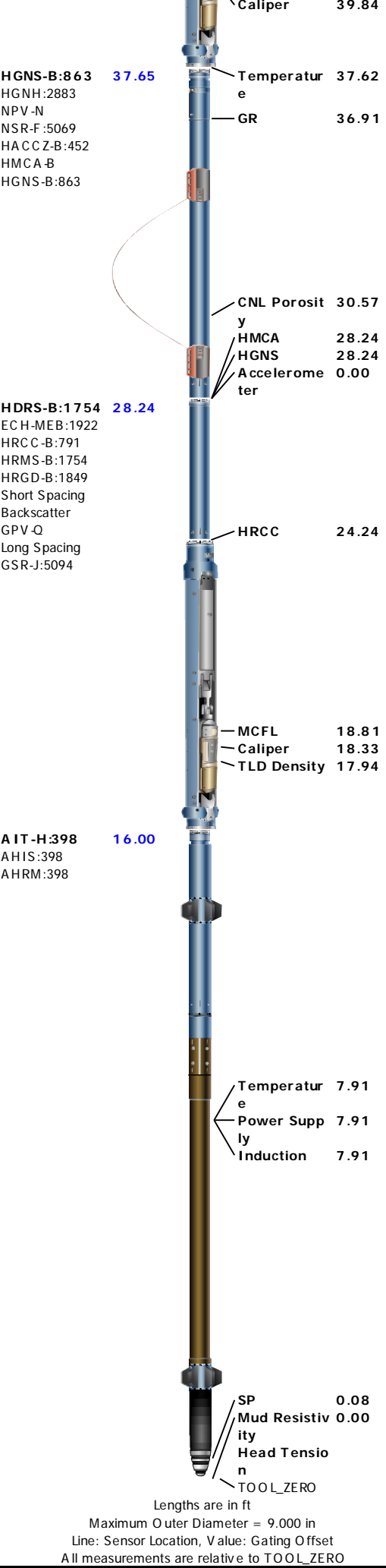
HNGC-B:250 54.68
HNGH-A:87
HNGC-B:250

Tel Status 52.93

A H-120[1]:76 51.18
5

ADT-C:746 49.18
HECH-KDB:756
ADC-C:740
ADS-C:746
ADP-C:738

S11 Probe 40.32
Pad 40.22



Depth Summary

Depth Control Parameters	1		
Conveyance Type	Wireline		
Log Sequence	First run in hole.		
Stretch Correction (ft)	11.00		
Rig Type	Land		
Depth Remark Parameters	1		
Depth Remark 1	All Schlumberger Depth Control Procedures followed.		
Depth Remark 2	IDW used as Primary Control device..		
Depth Remark 3	Z-chart used as Secondary Control device.		
Depth Measuring Device	1		
Type	IDW-JA		
Serial Number	7232		
Calibration Date	30-Jan-2013		
Calibrator Serial Number	1153		
Calibration Cable Type	7-46A-XS		
Wheel Correction 1	-7		
Wheel Correction 2	-6		
Tension Device	1		
Type	CMTD-B/A		
Serial Number	147		
Calibration Date	30-Jan-2013		
Calibrator Serial Number	1153		
Calibration Points	10		
Calibration RMS	33		
Calibration Peak Error	19		
Logging Cable	1		
Type	7-46A-XS		
Serial Number	U711127		
Logging Cable Length (ft)	24000.00		

1

5" Triple Combo

Integration Summary

Output Channel(s)	Output Description	Input Parameter	Output Value	Unit
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Software Version

Acquisition System	Version
MaxWell	3.1.9755.0
Application Patch	SP-20121102-3.1.9755.1422
	EXP_APL-AIT-3.1.9755.1746
	EXP_APL-MAST-3.1.9755.1443

Computation	Description	Version
HENVIR	Computation Ensemble for the HGNS Neutron environmental corrections	3.1.9755.0
DepthCorrection	DepthCorrection	3.1.9755.0

Tool Elements	Description	Software Version	Firmware Version
HRGD-B	HILT Resistivity Gamma-Ray Density Device, 125 degC	3.1.9755.0	3.0
AHIS	Array Induction Sonde - H	3.1.9755.1746	
UNGG-B	UNGG Sonde Element	3.1.9755.1422	3.0

HNGS-BA	HNGS Sonde Element	3.1.9755.1422	2.0
HGNS-B	HILT Gamma-Ray and Neutron Sonde, 125 degC	3.1.9755.0	2.0
HRCC-B	HILT High-Resolution Control Cartridge, 125 degC	3.1.9755.0	2.0

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	Depth Shift	Include Parallel Data
1	Log[8]:Up	Up	436.49 ft	6735.17 ft	03-Apr-2013 8:33:44 AM	03-Apr-2013 1:13:46 PM	0.00 ft	

All depths are referenced to toolstring zero

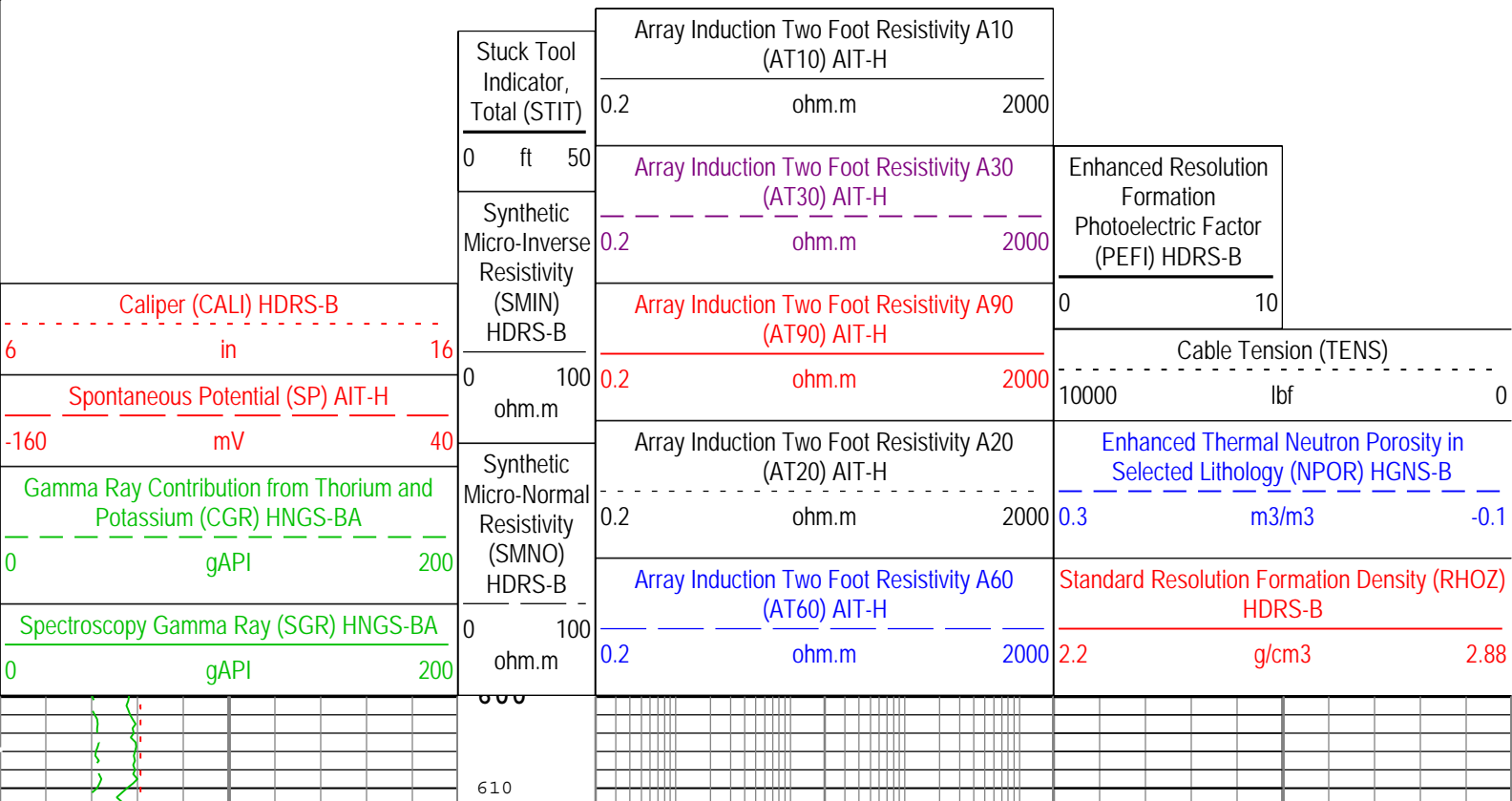
Log

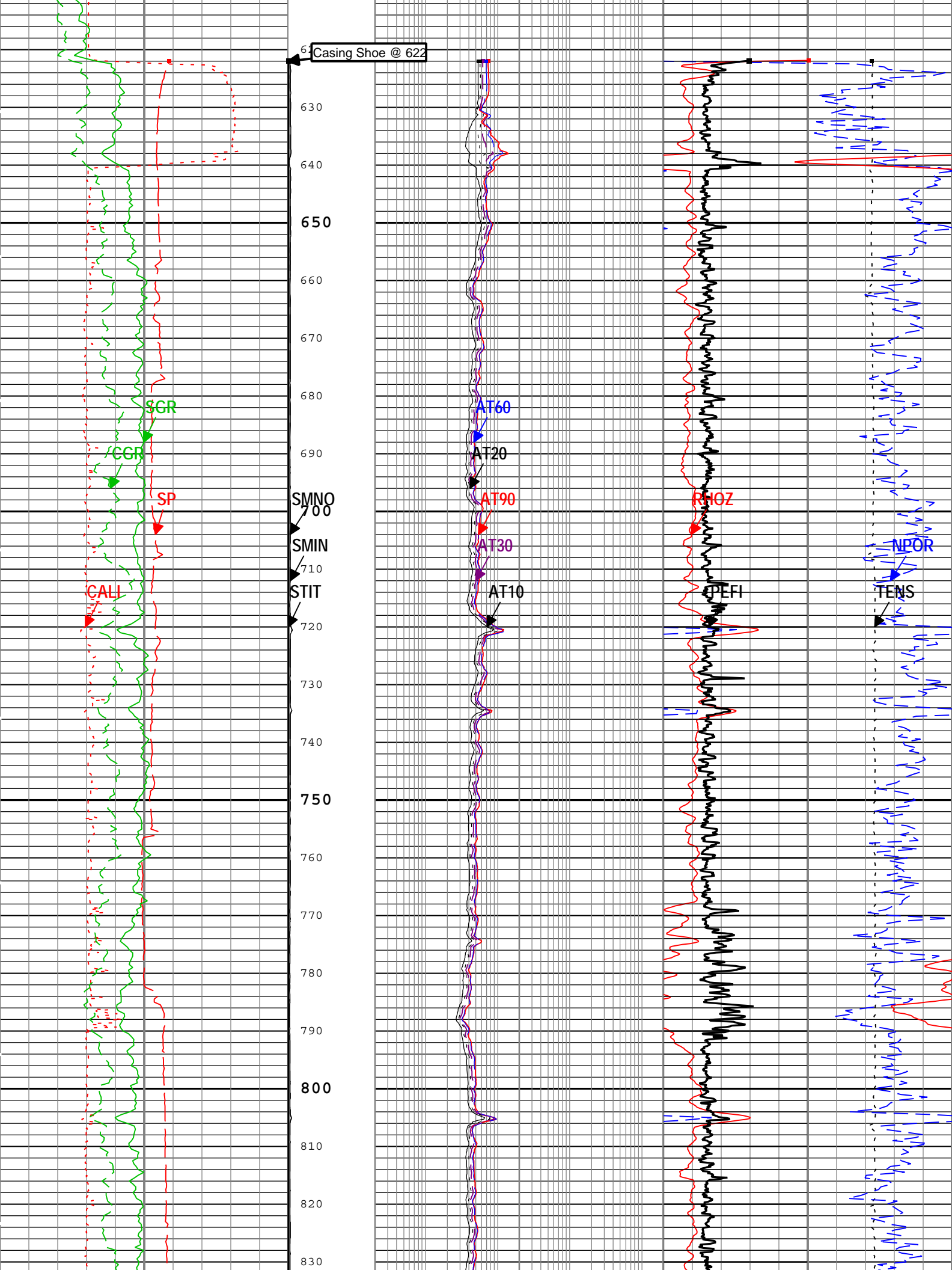
1: Log[8]:Up

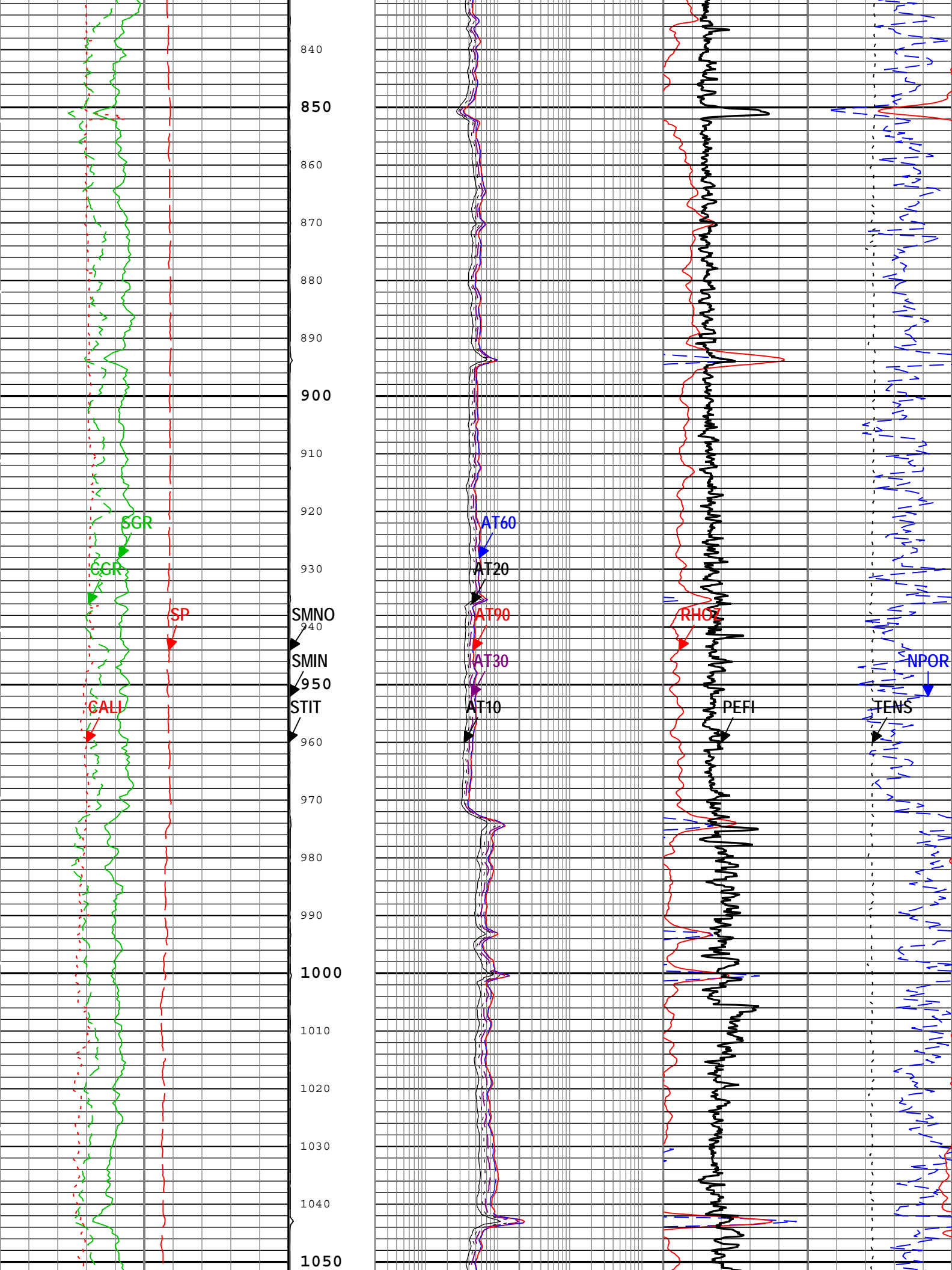
Description: HGNS standard resolution porosities for Platform Express Format: Log (KM 5in Triple Combo) Index Scale: 5 in per 100 ft Index Unit: ft
Index Type: Measured Depth Creation Date: 03-Apr-2013 14:56:39

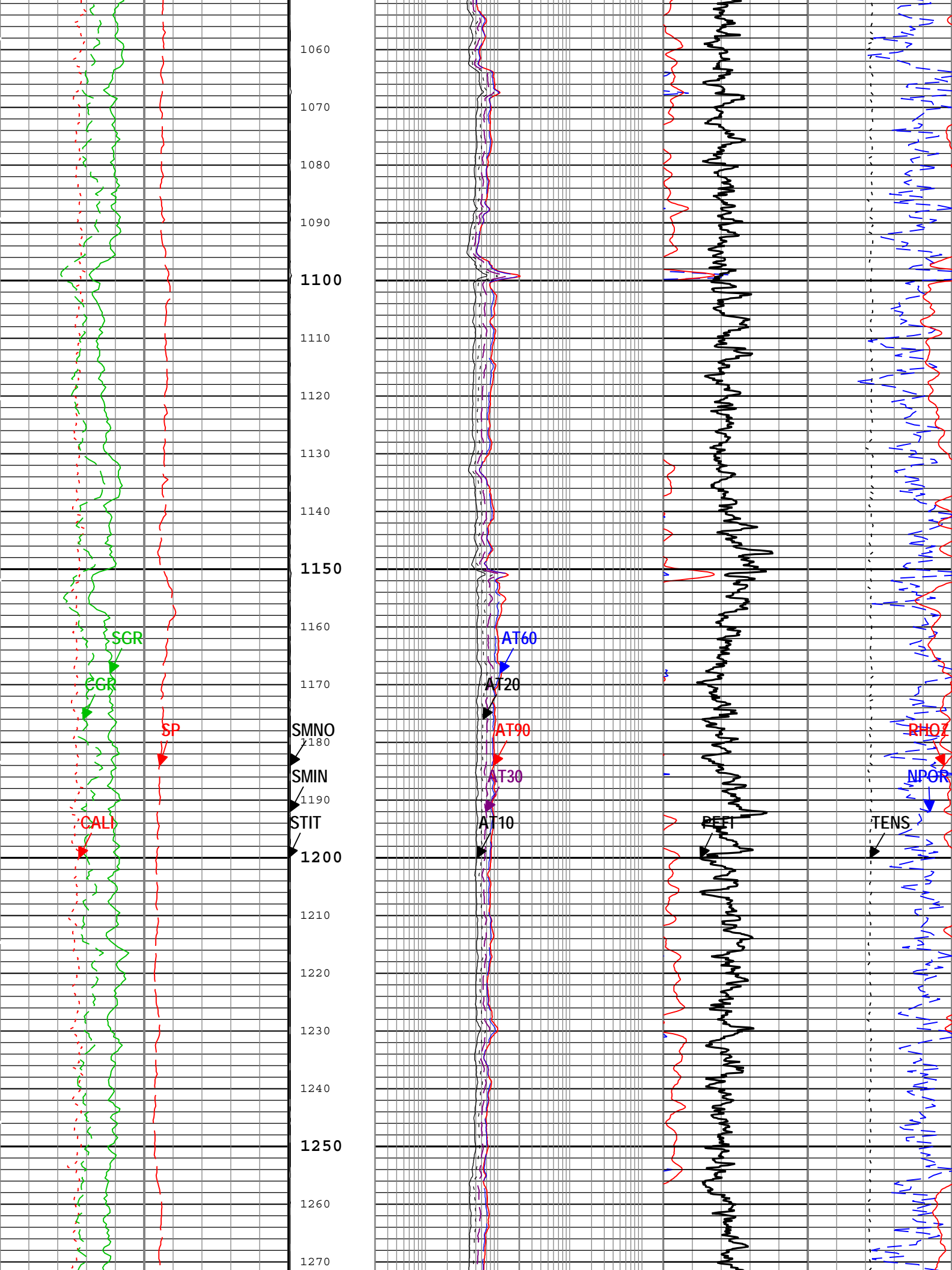
Channel	Source	Sampling
AT10	AIT-H:AHIS:AHIS	3in
AT20	AIT-H:AHIS:AHIS	3in
AT30	AIT-H:AHIS:AHIS	3in
AT60	AIT-H:AHIS:AHIS	3in
AT90	AIT-H:AHIS:AHIS	3in
CALI	HDRS-B:HRCC-B:HRCC-B	1in
CGR	HNGS-BA:HNGS-BA:HNGS-BA	6in
NPOR	HGNS-B:HGNS-B:HGNS-B	6in
PEFI	HDRS-B:HRMS-B:HRGD-B	1in
RHOZ	HDRS-B:HRMS-B:HRGD-B	2in
SGR	HNGS-BA:HNGS-BA:HNGS-BA	6in
SMIN	HDRS-B:HRMS-B:HRGD-B	2in
SMNO	HDRS-B:HRMS-B:HRGD-B	2in
SP	AIT-H:AHIS:AHIS	6in
STIT	DepthCorrection	6in
TENS	WLWorkflow	6in
TIME_1900	WLWorkflow	0.1in

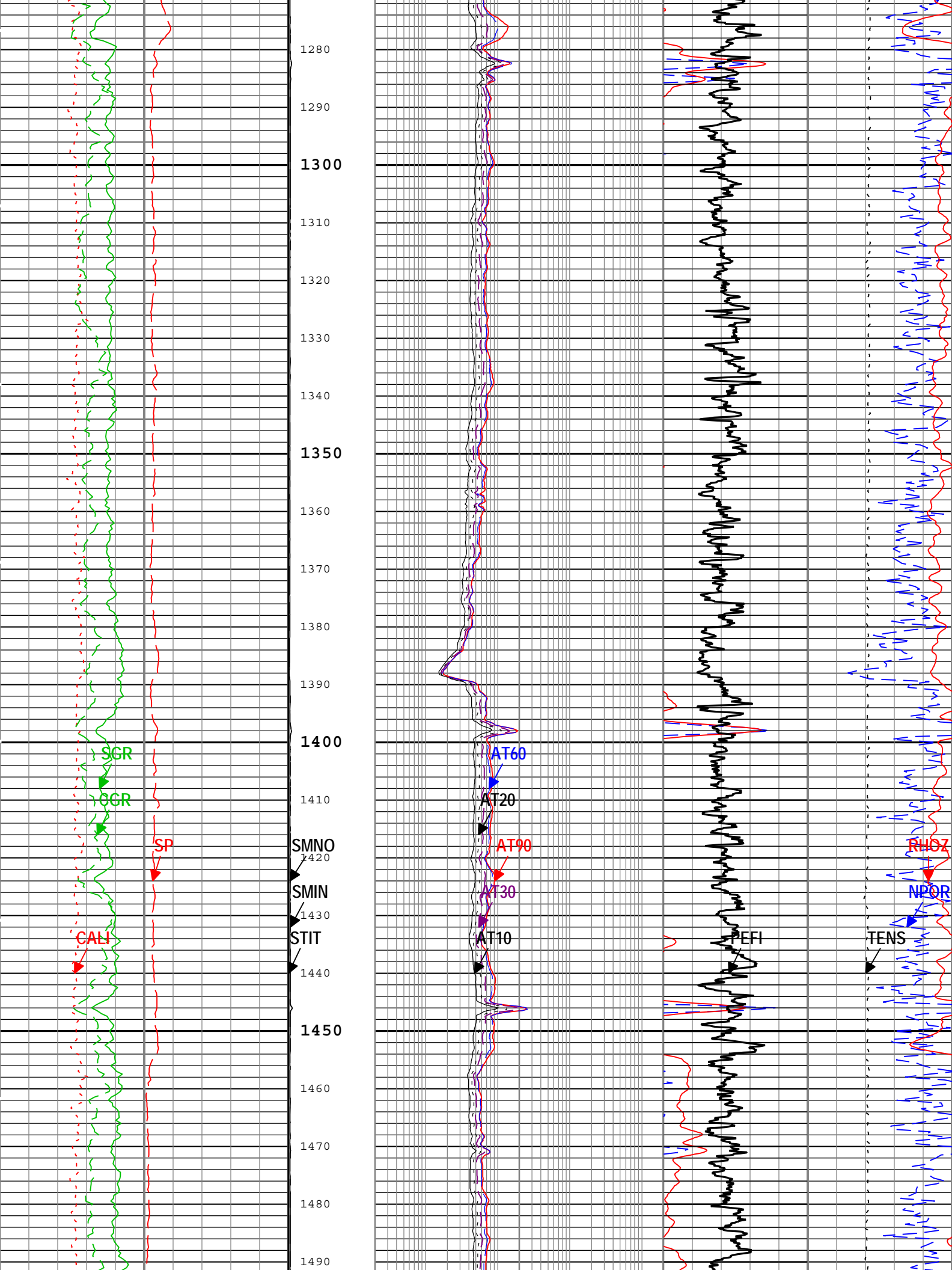
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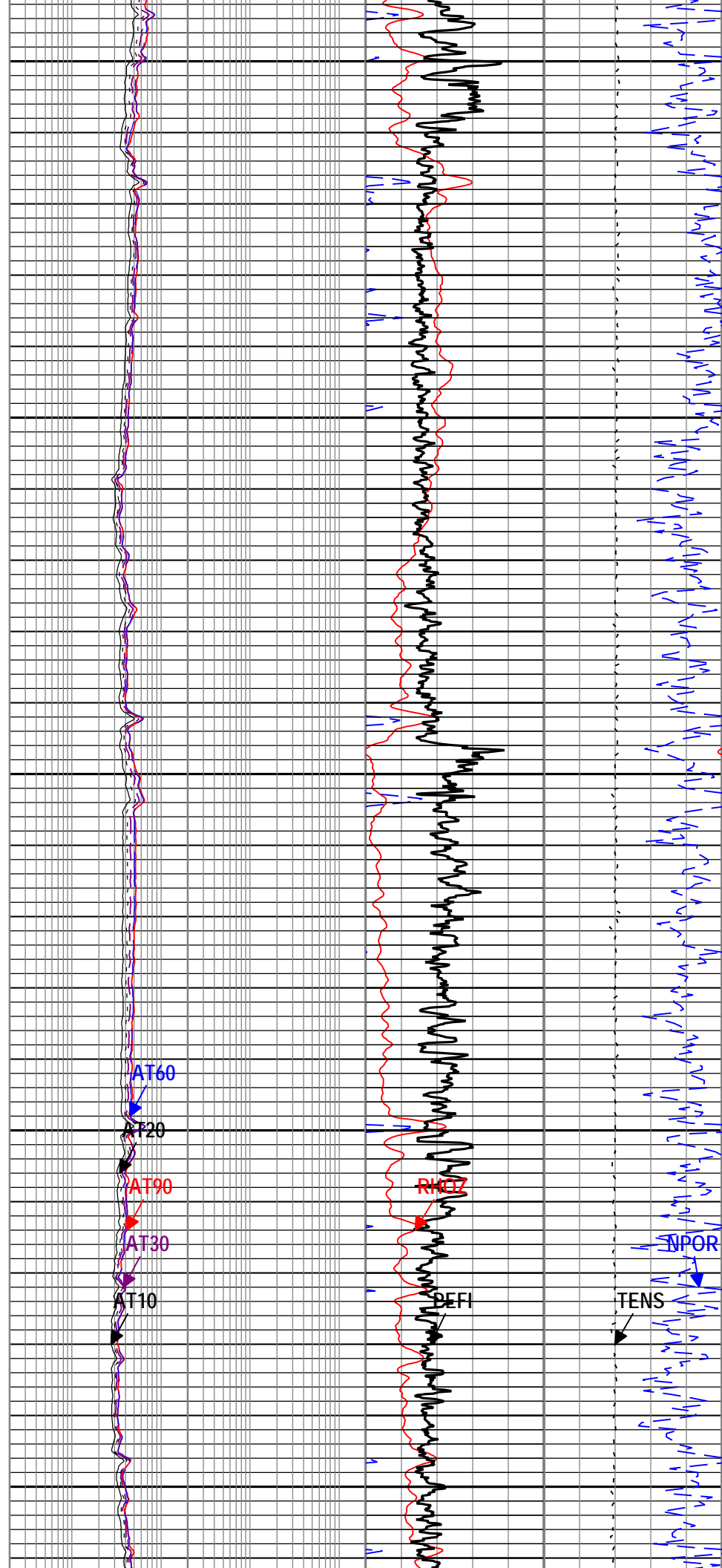
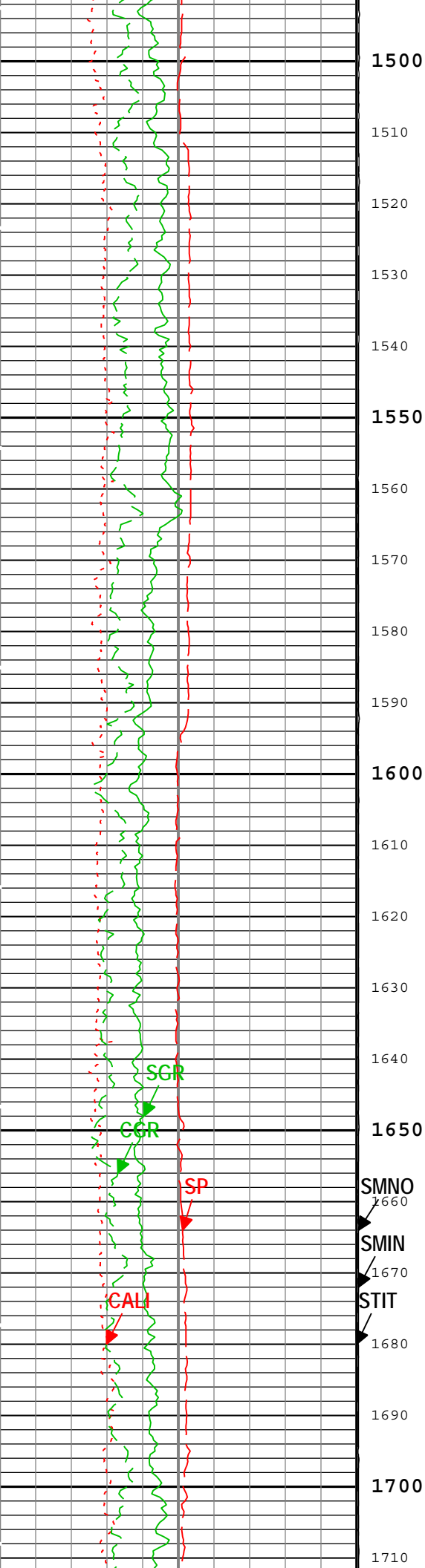


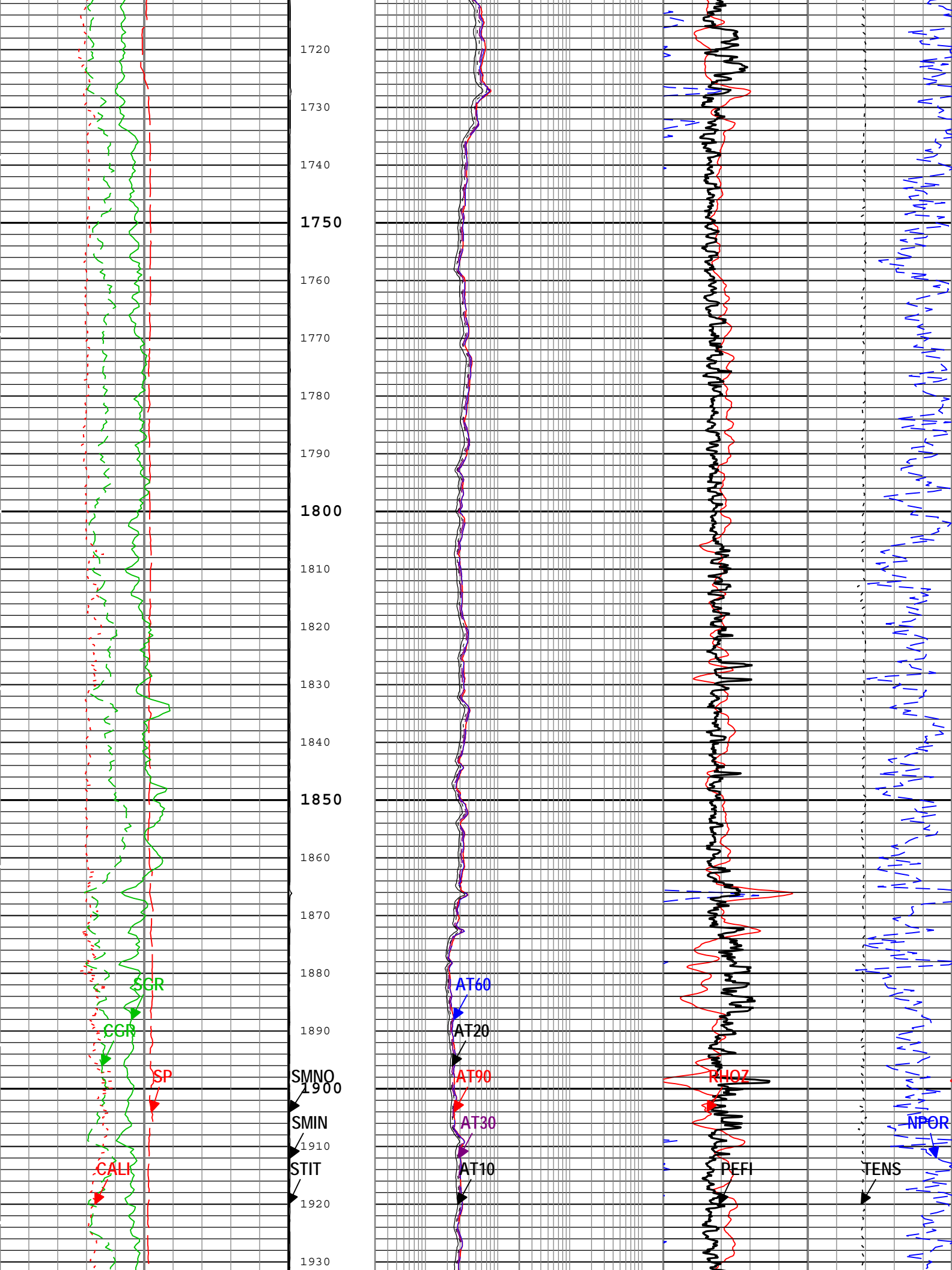


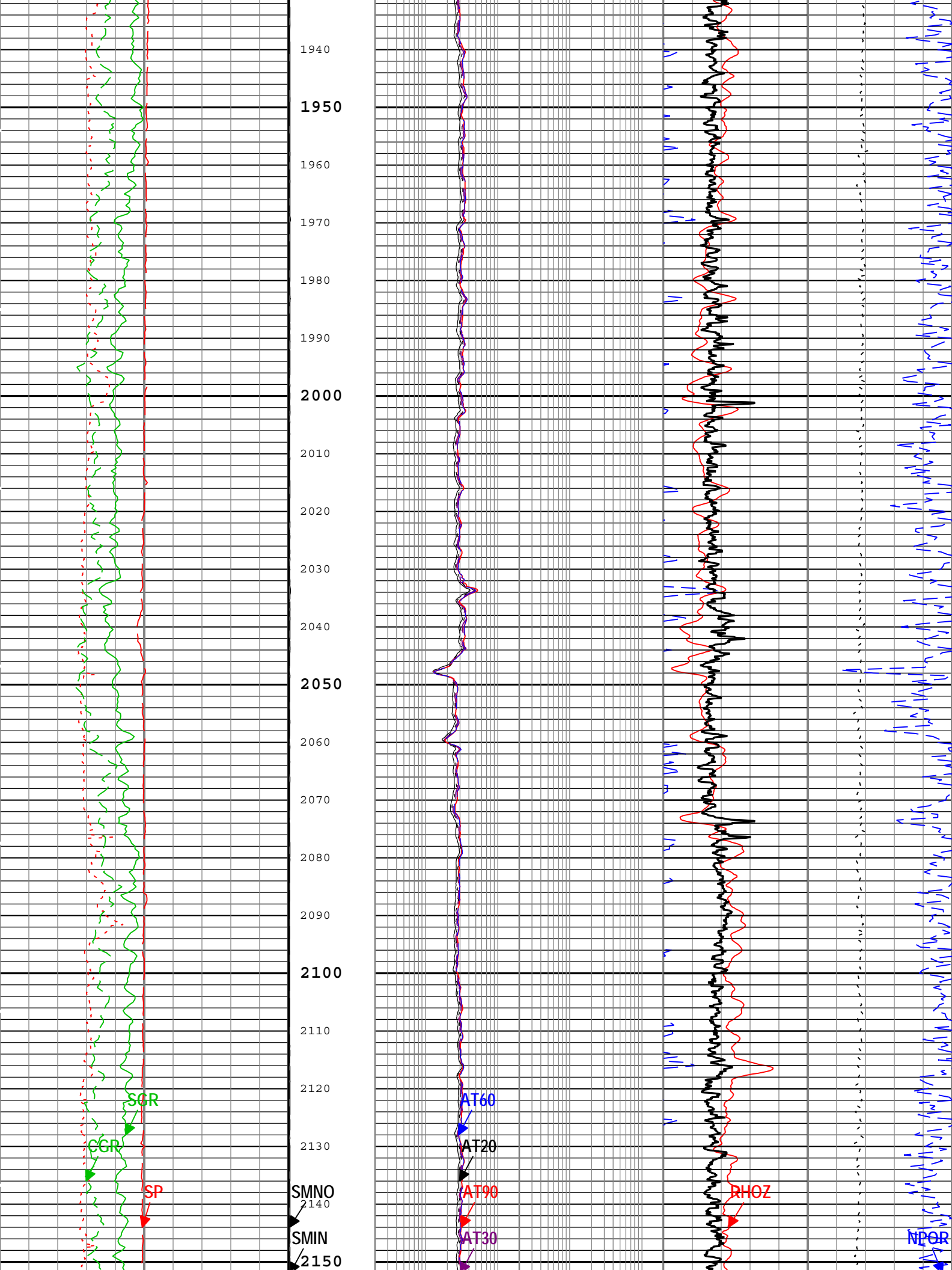


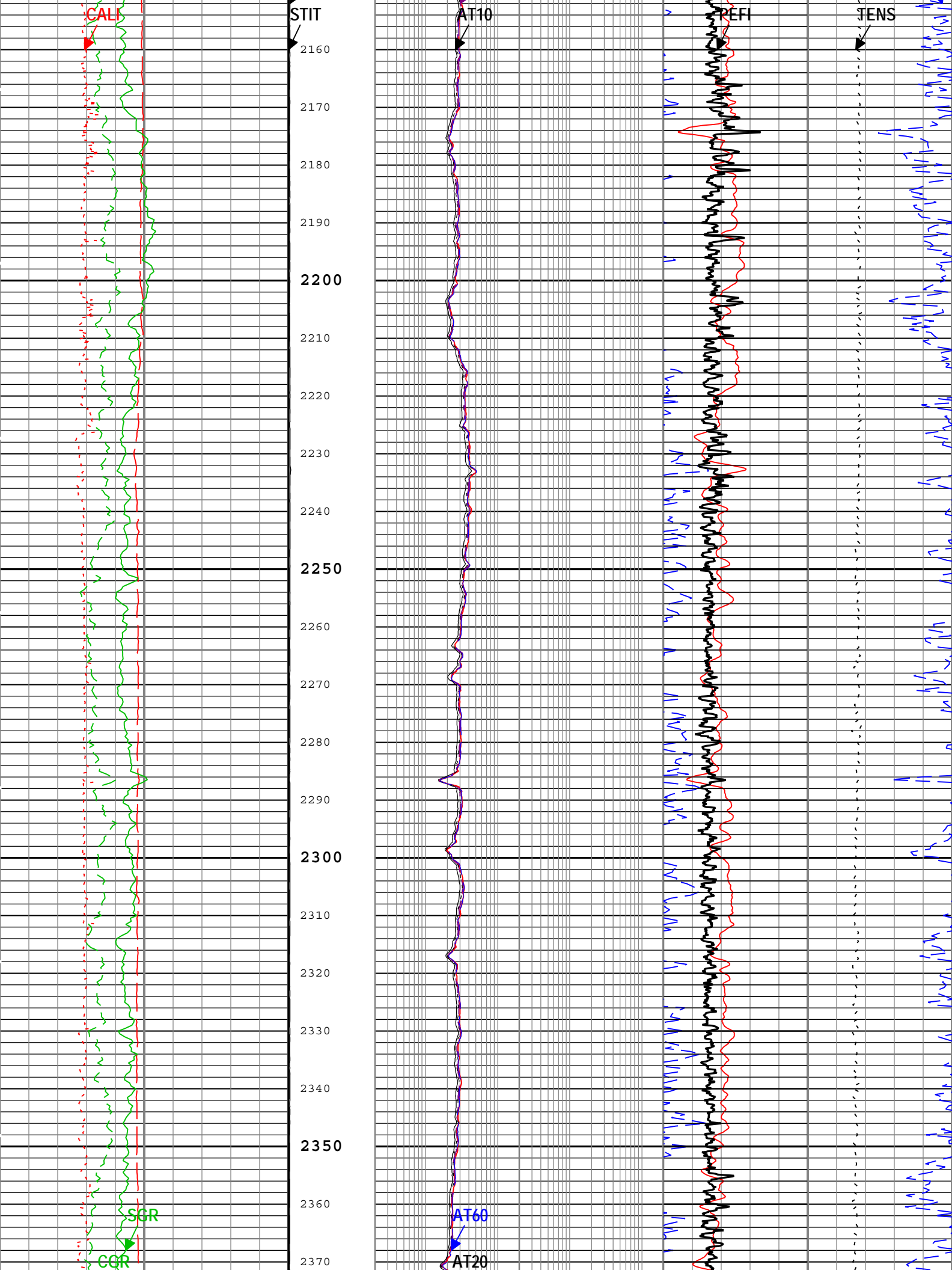


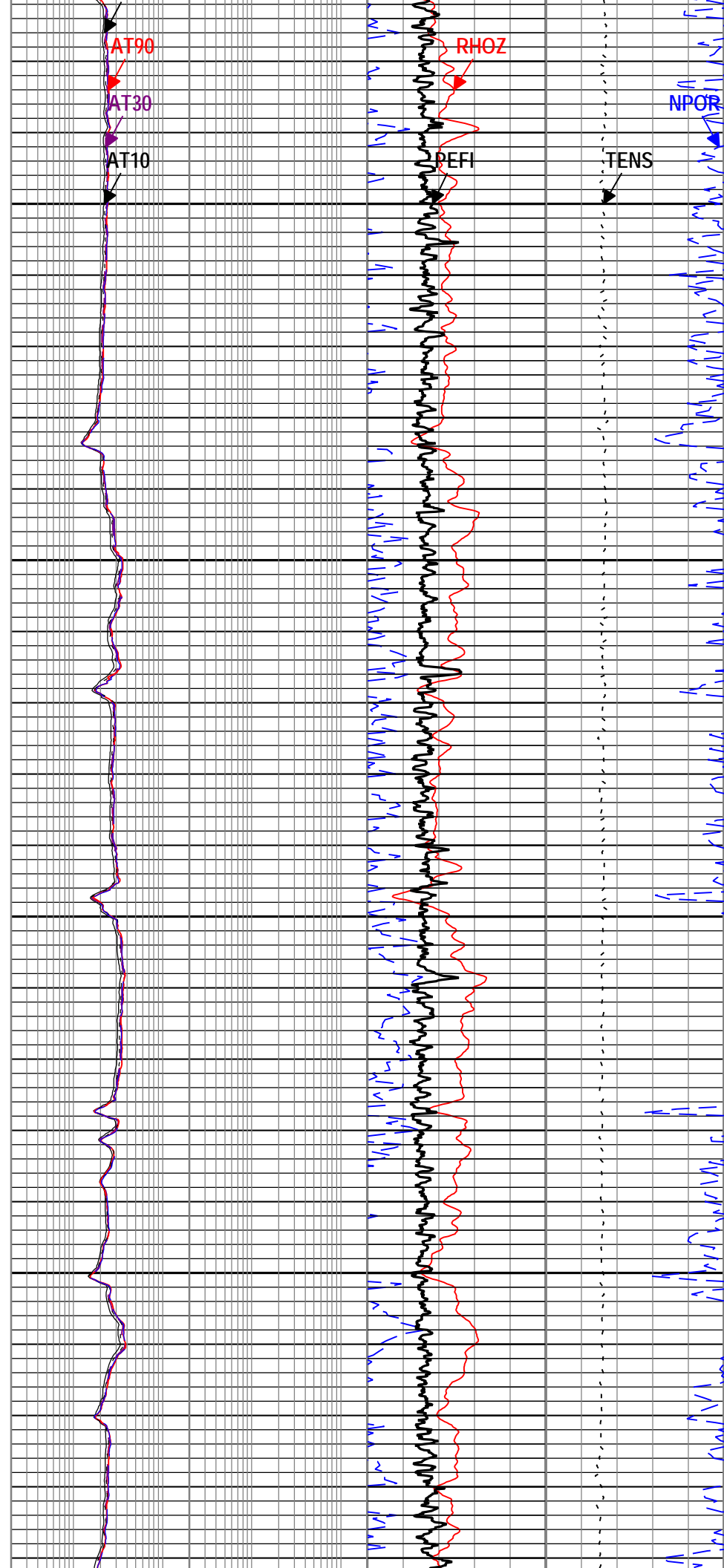
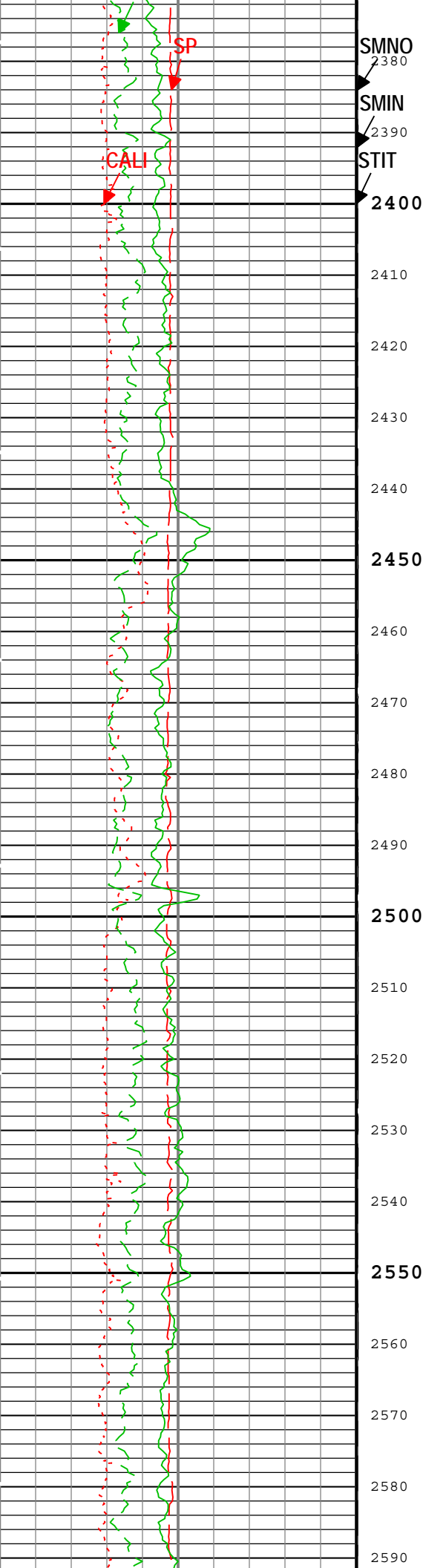


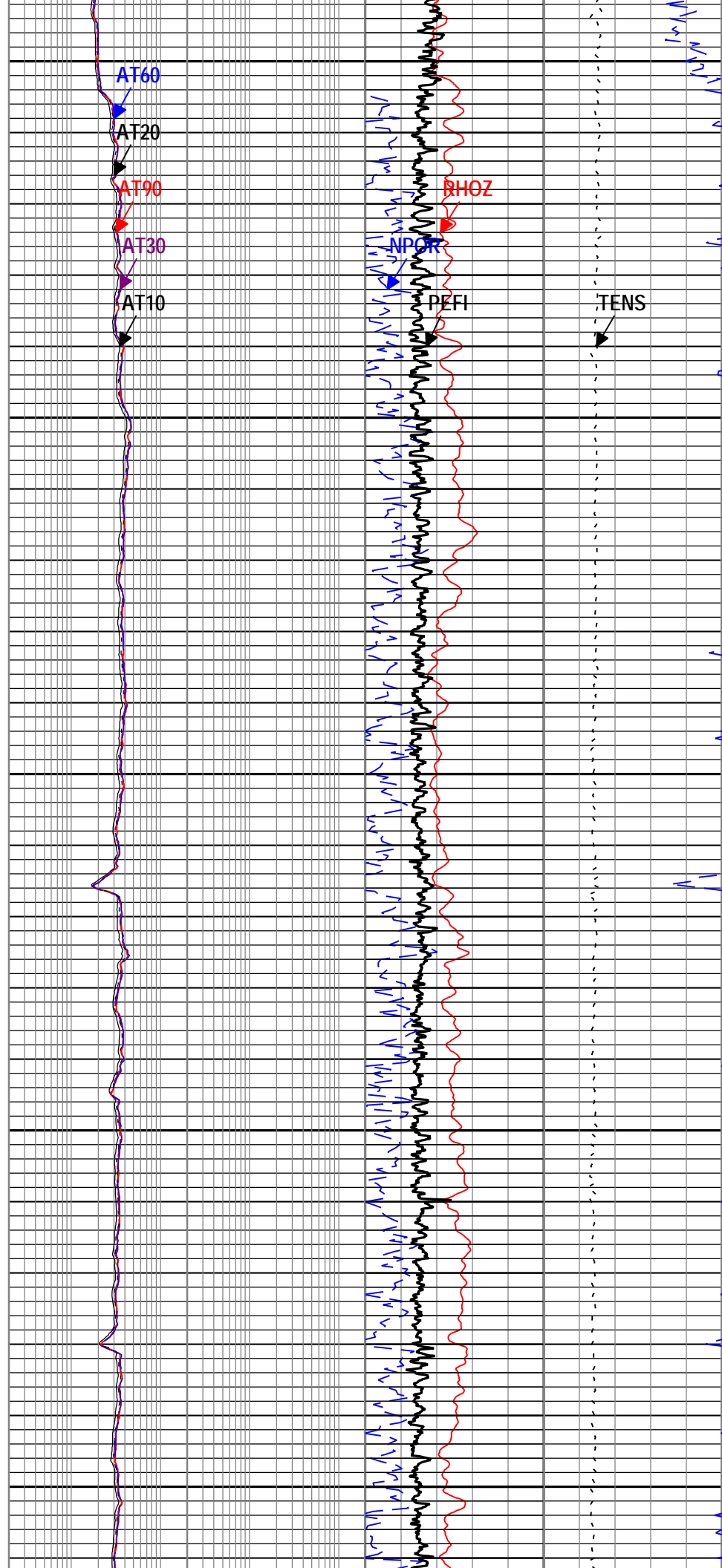
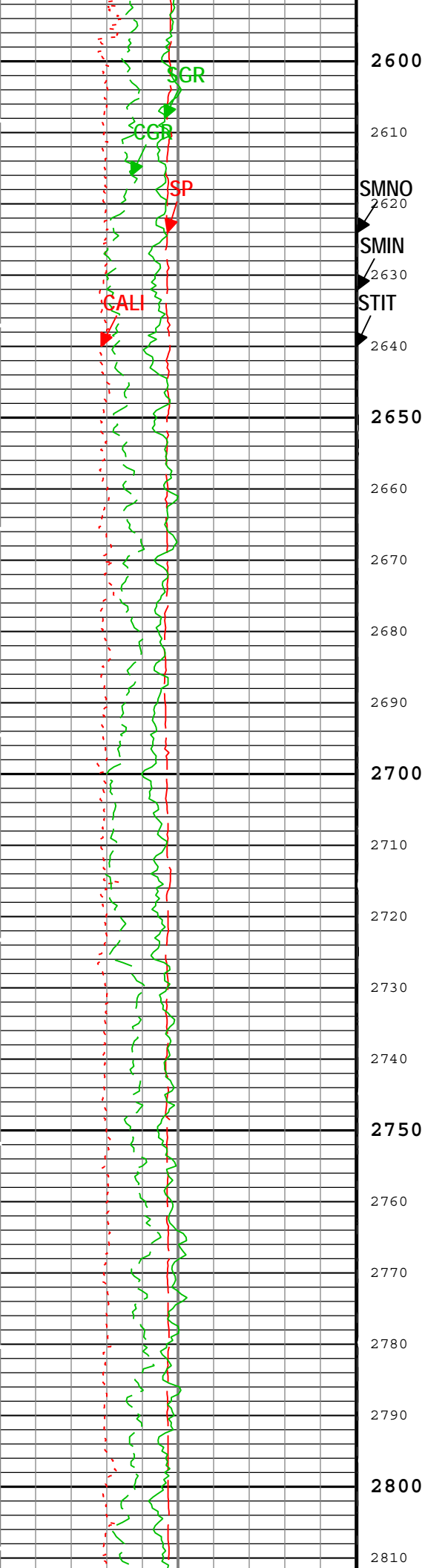


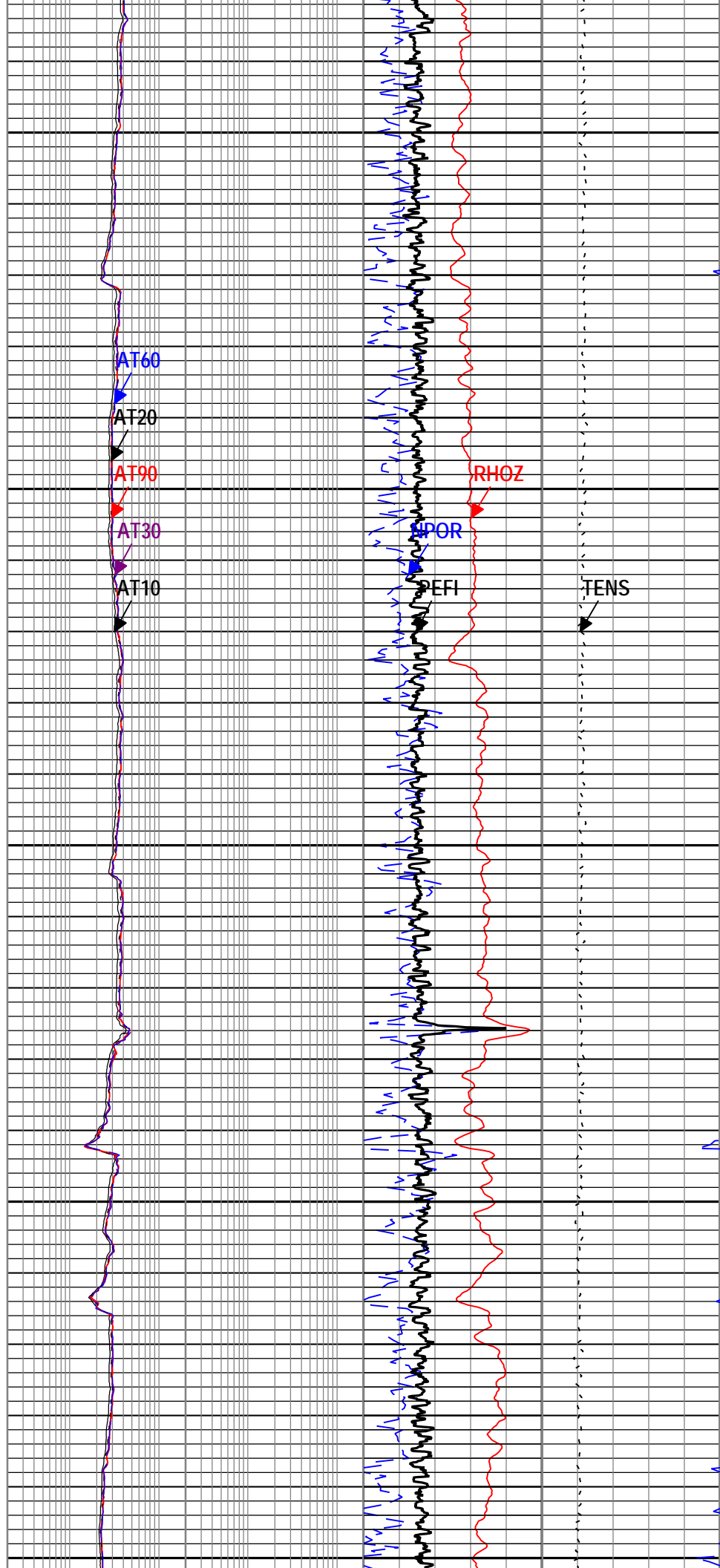
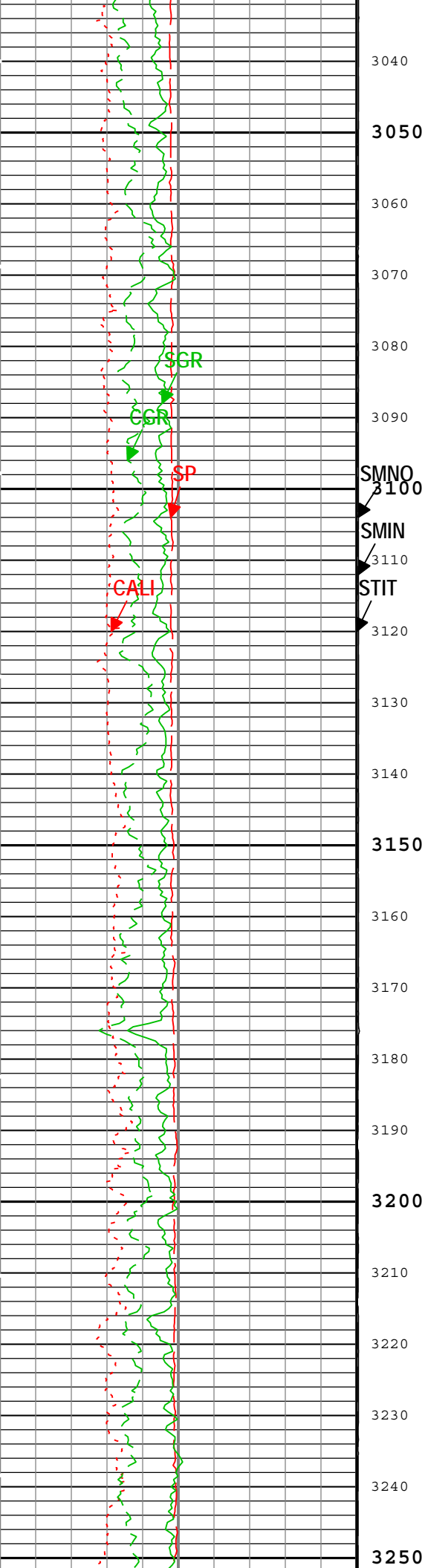


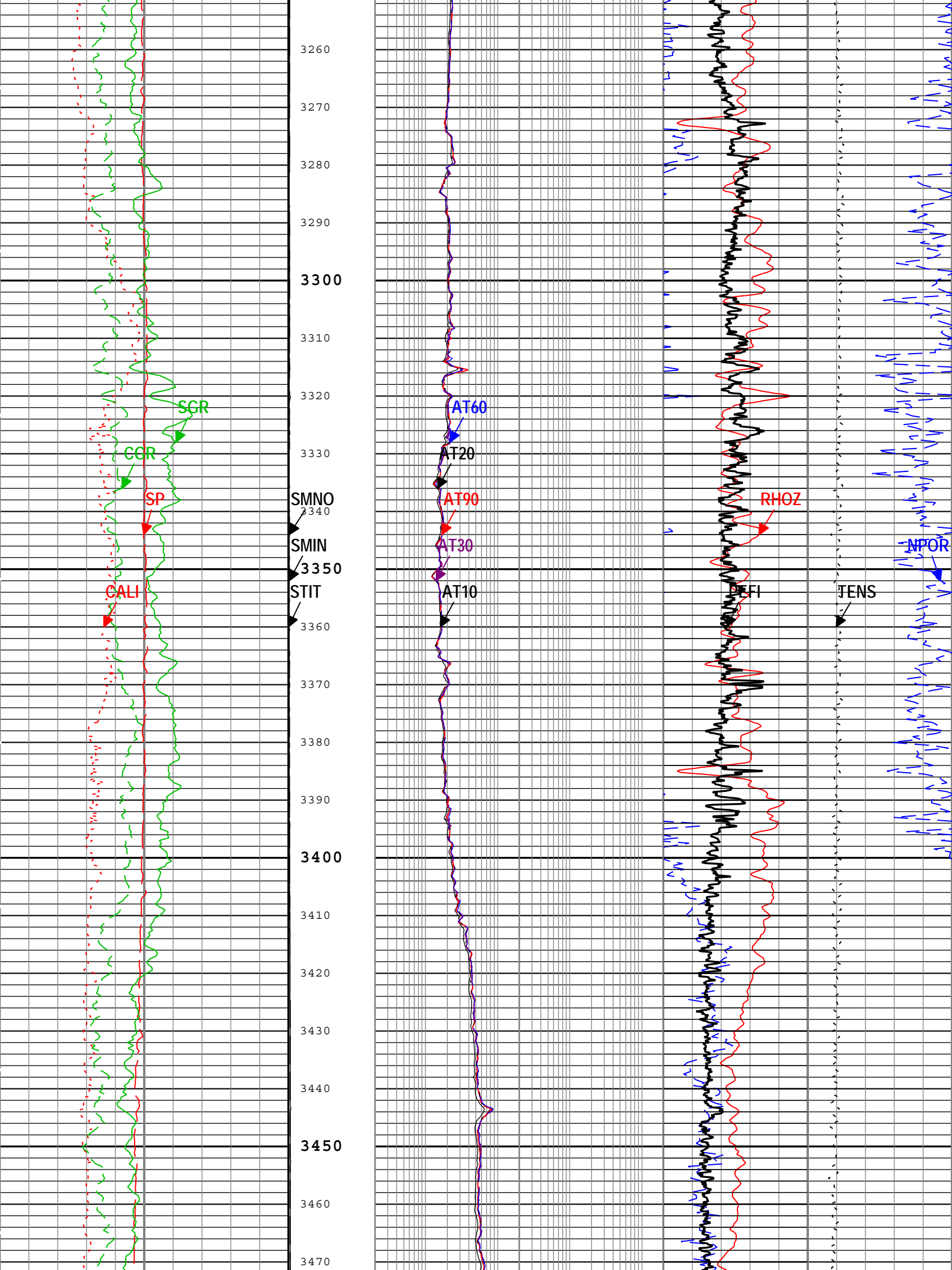


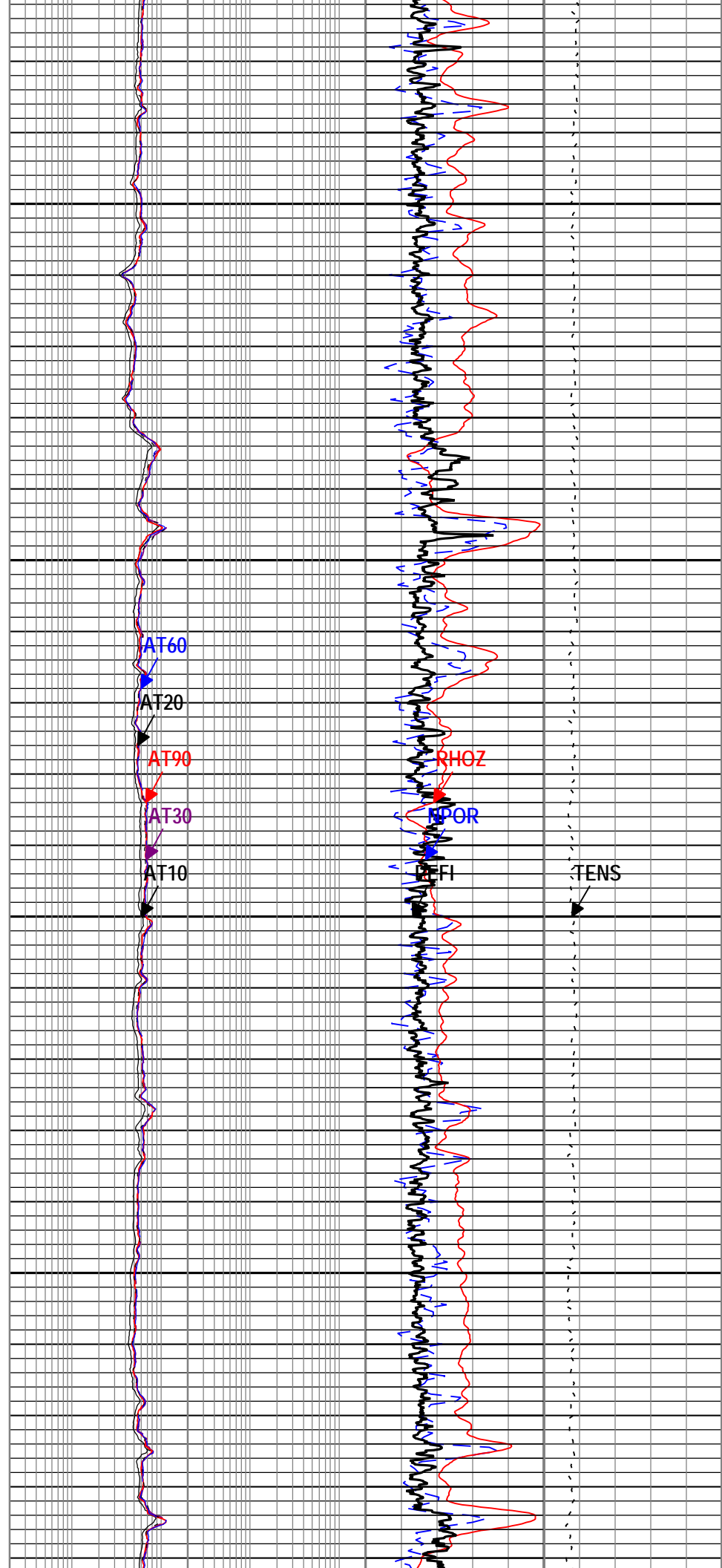
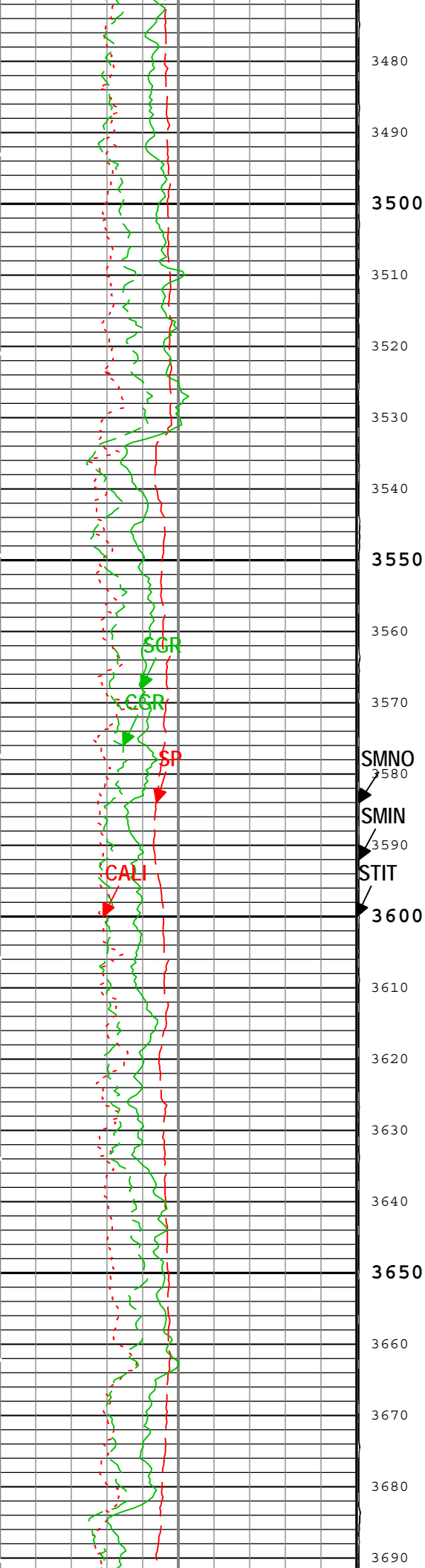


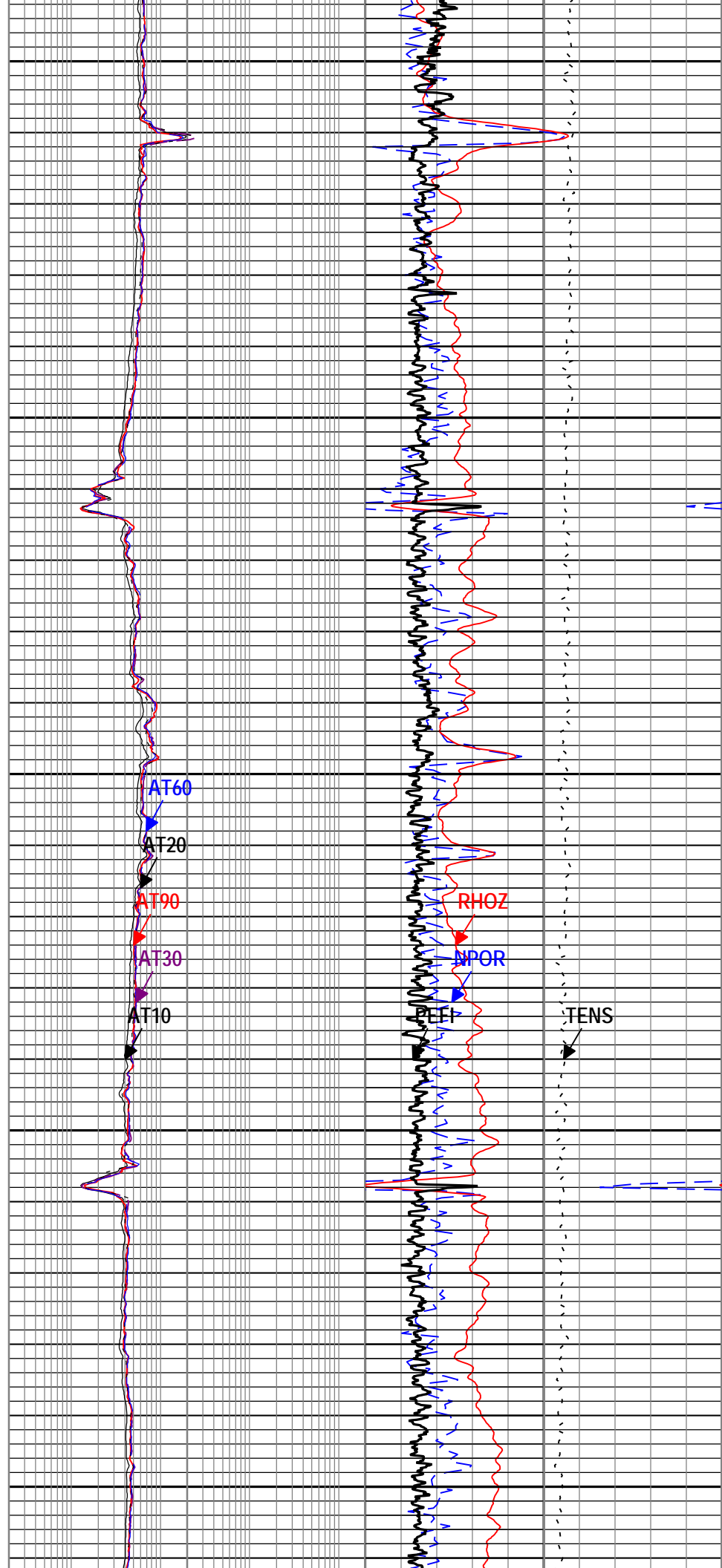
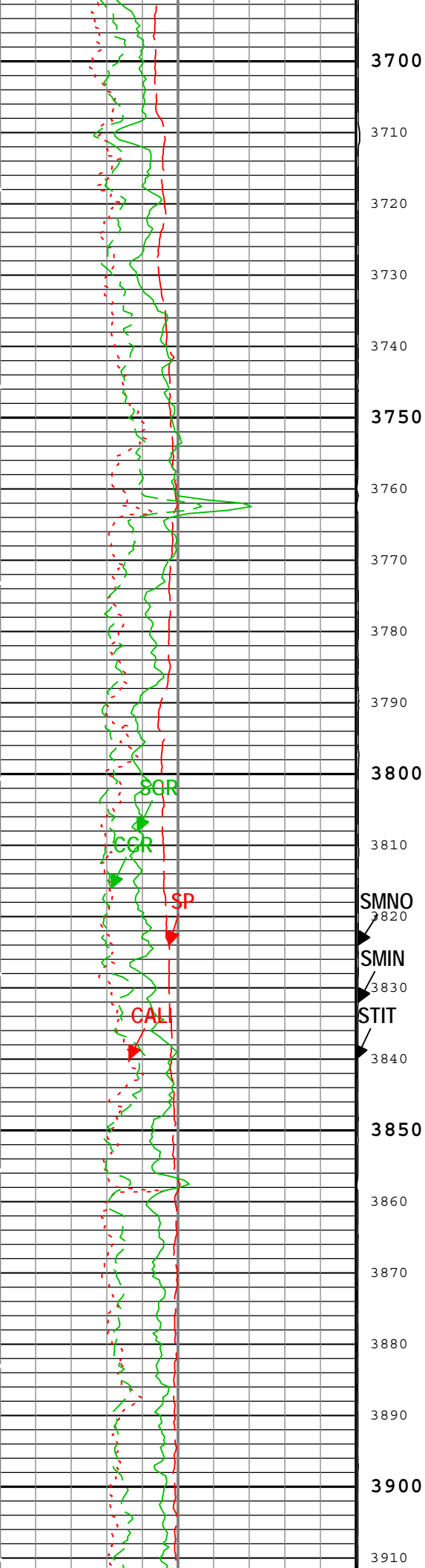


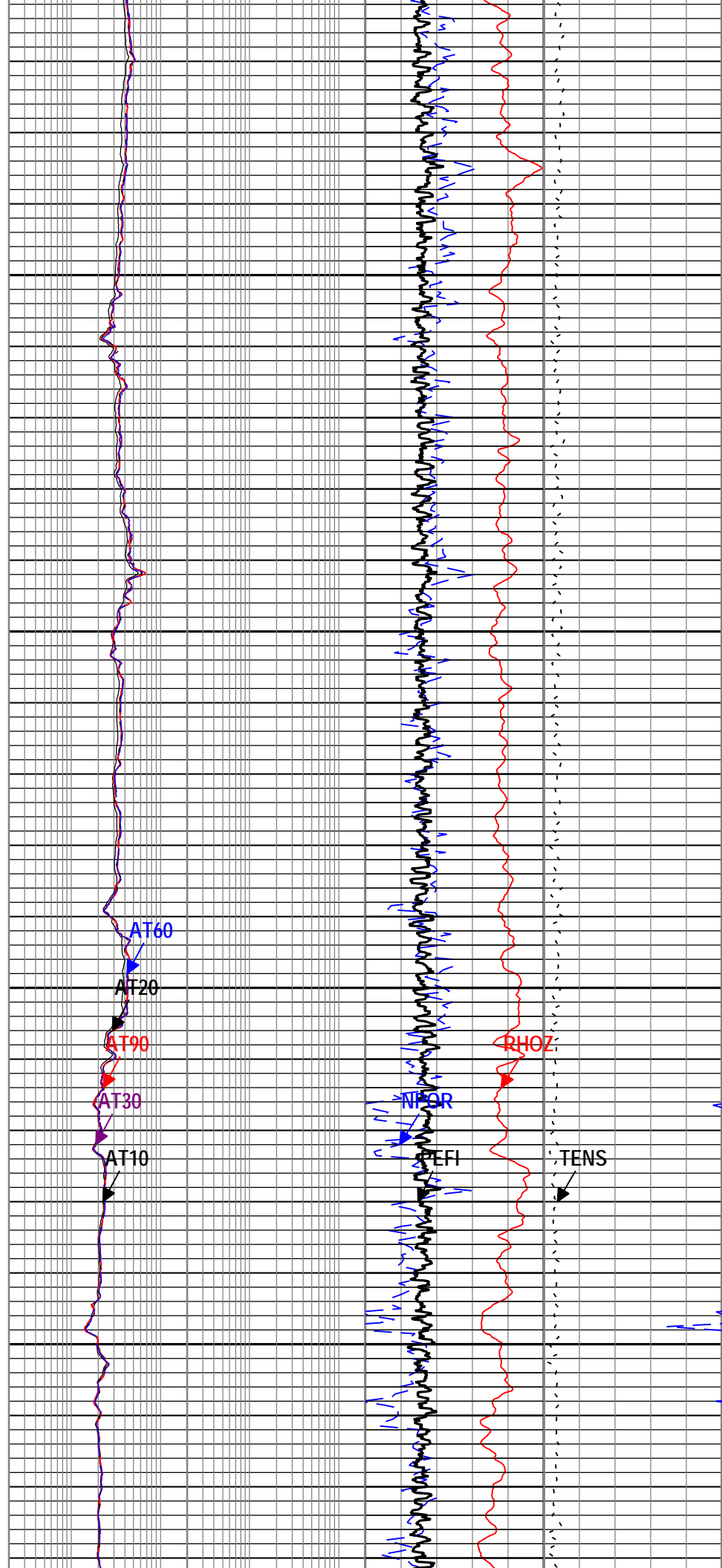
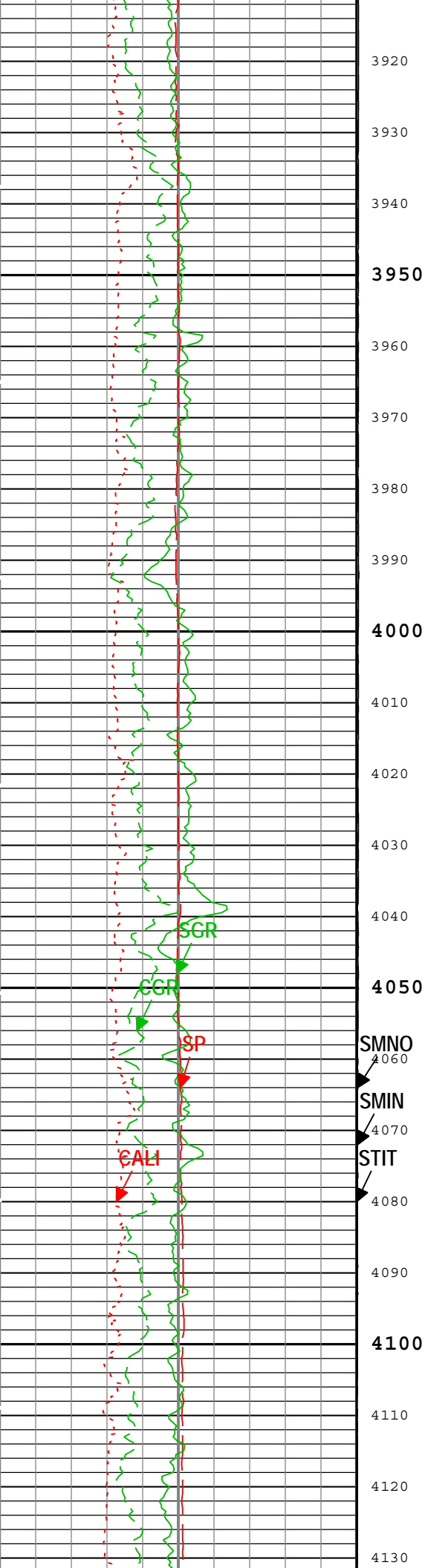


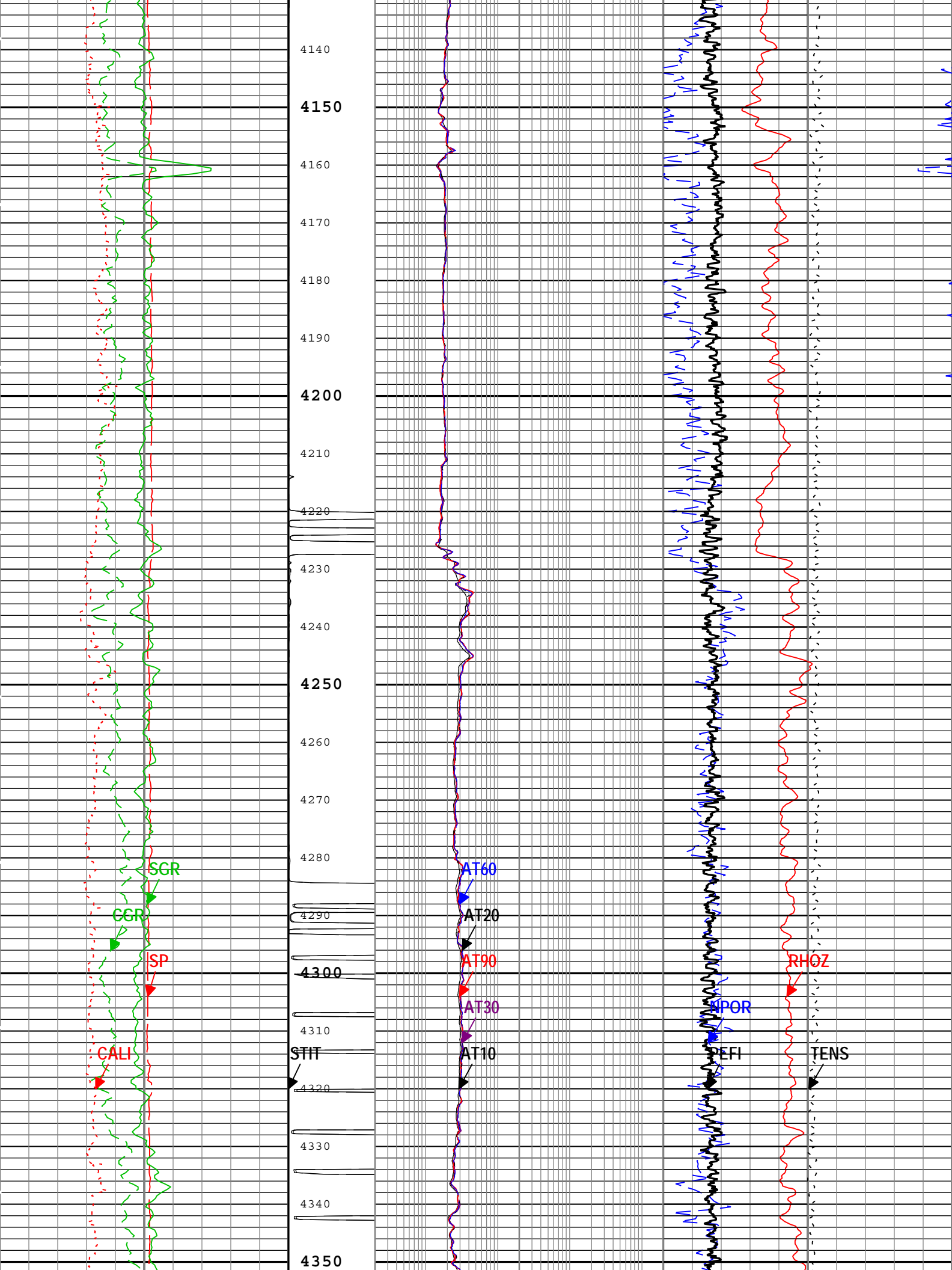


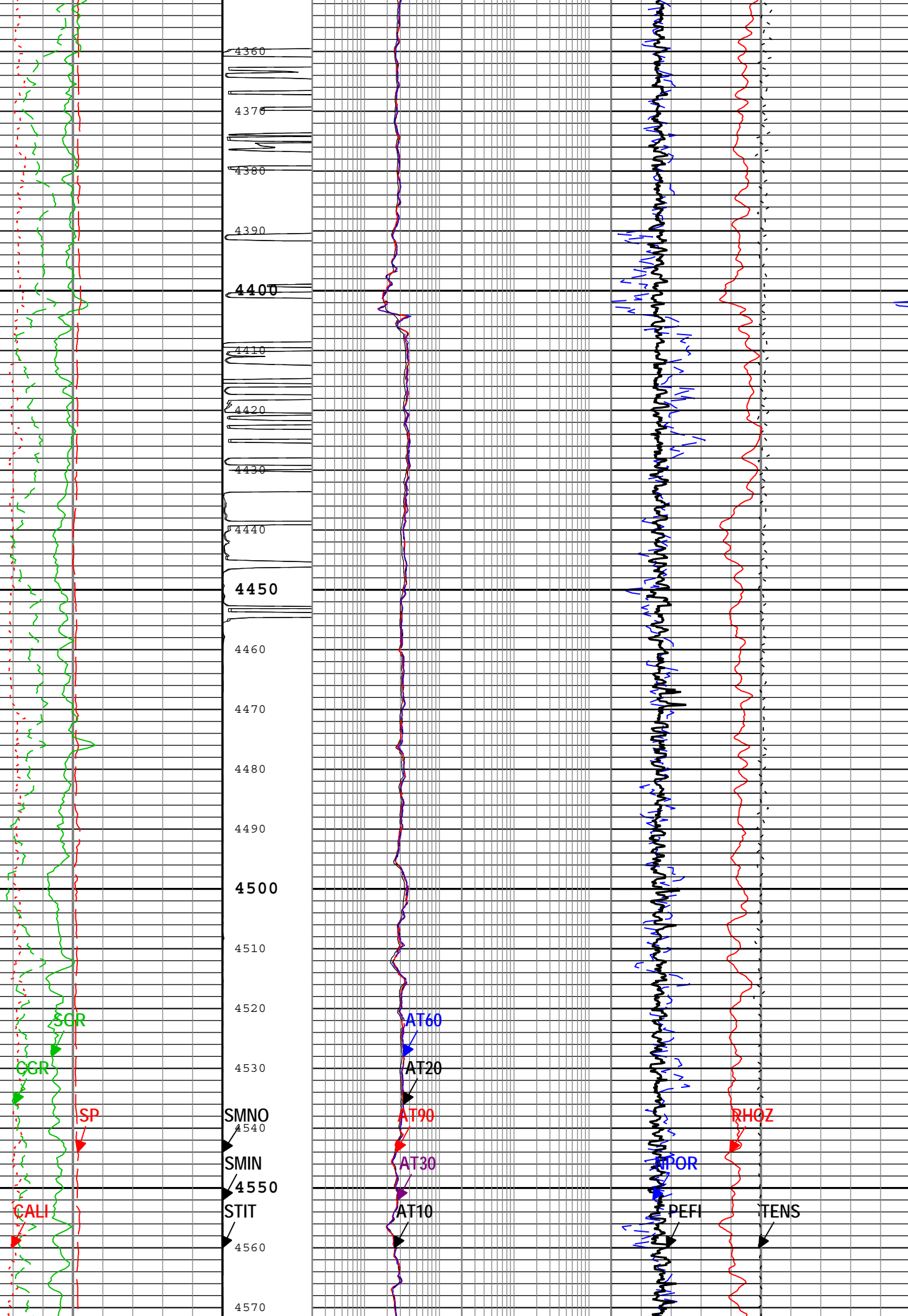


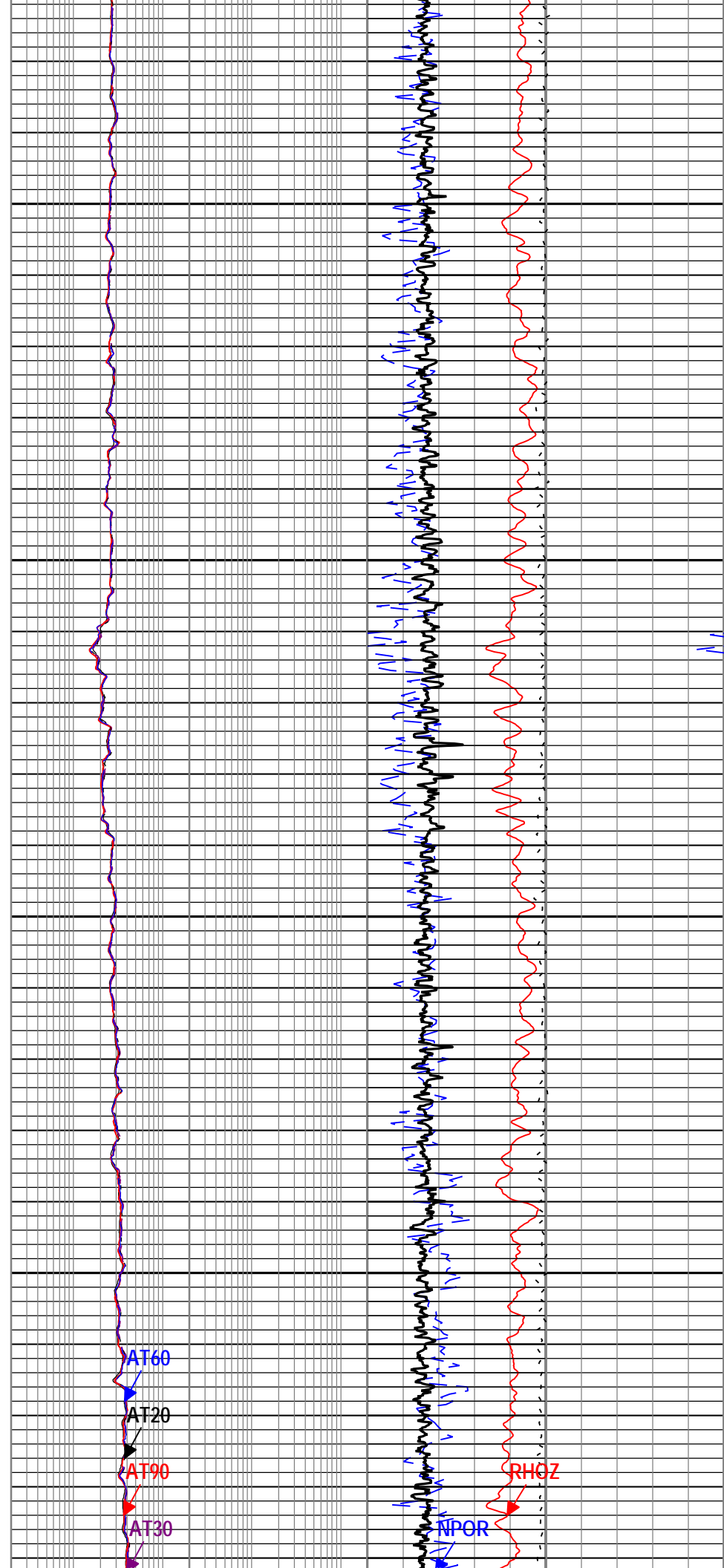
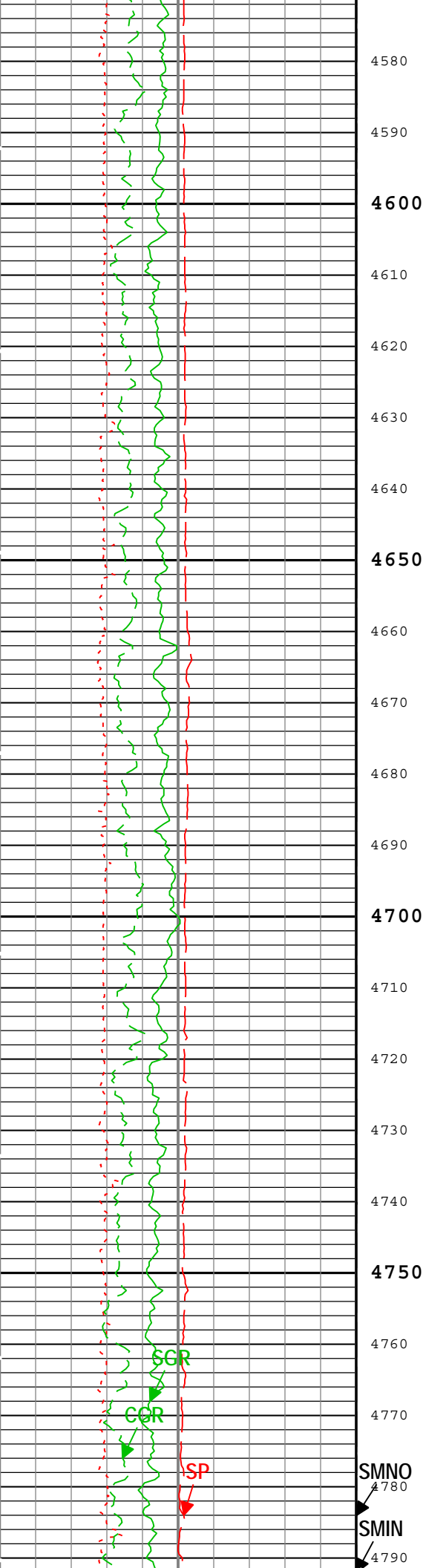


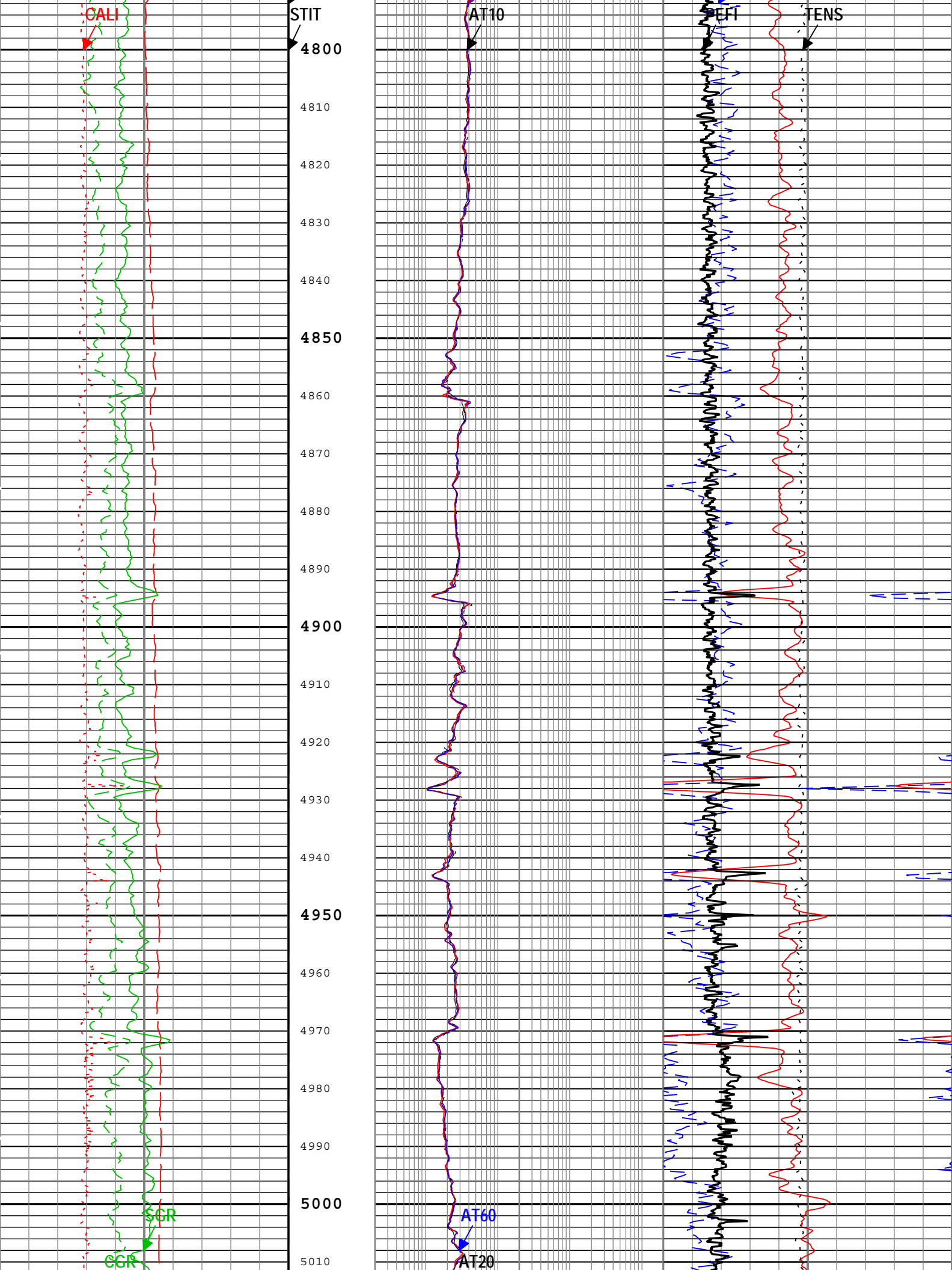


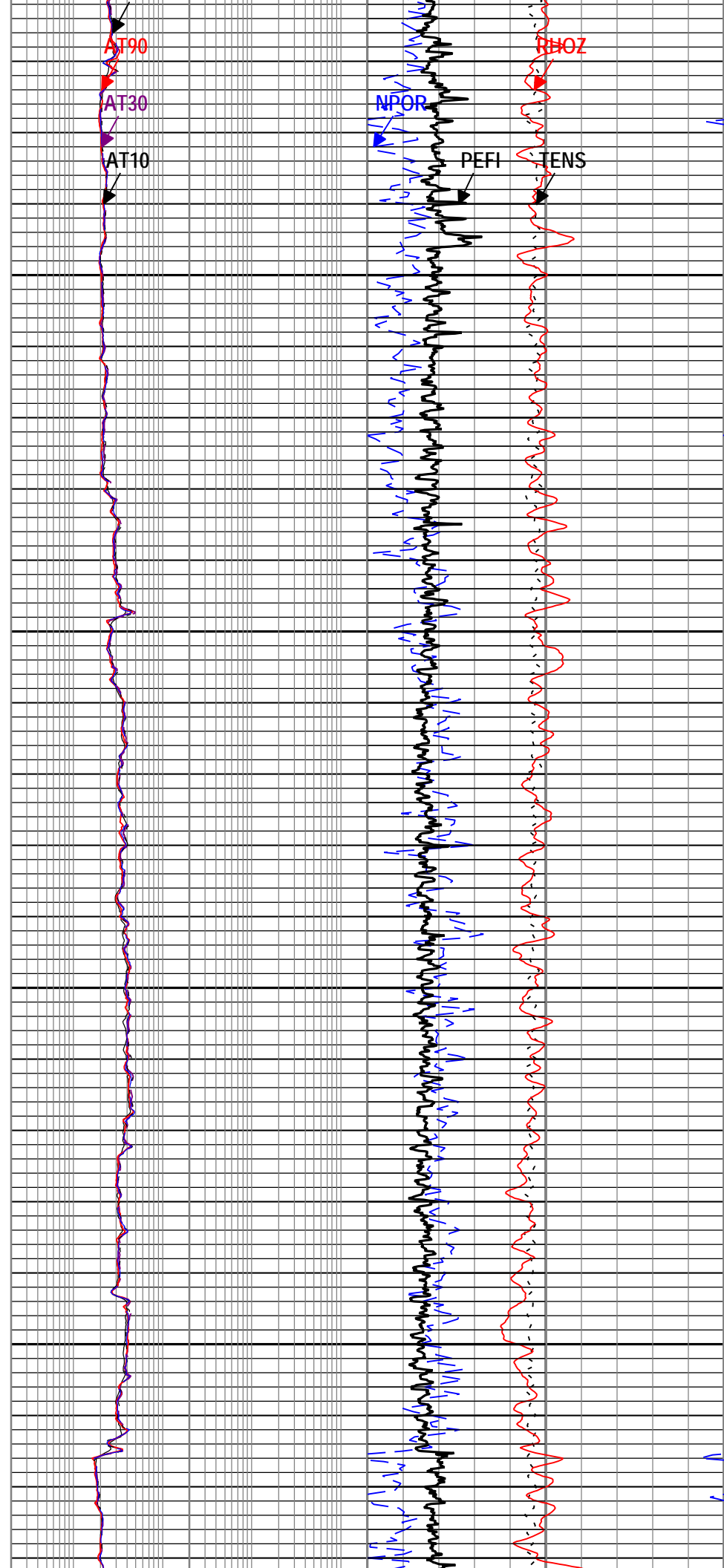
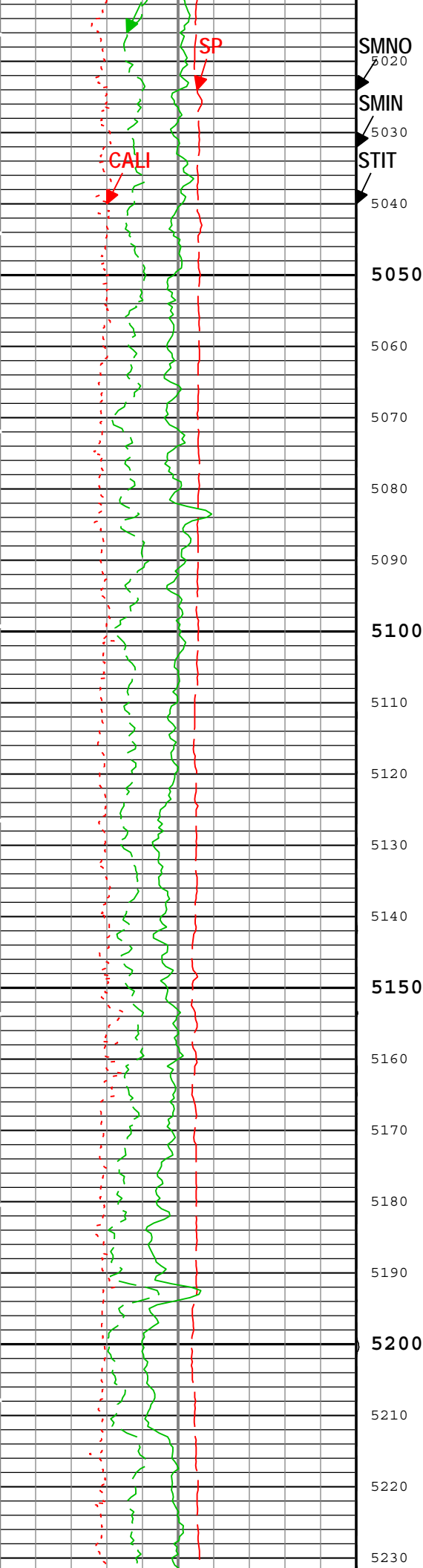


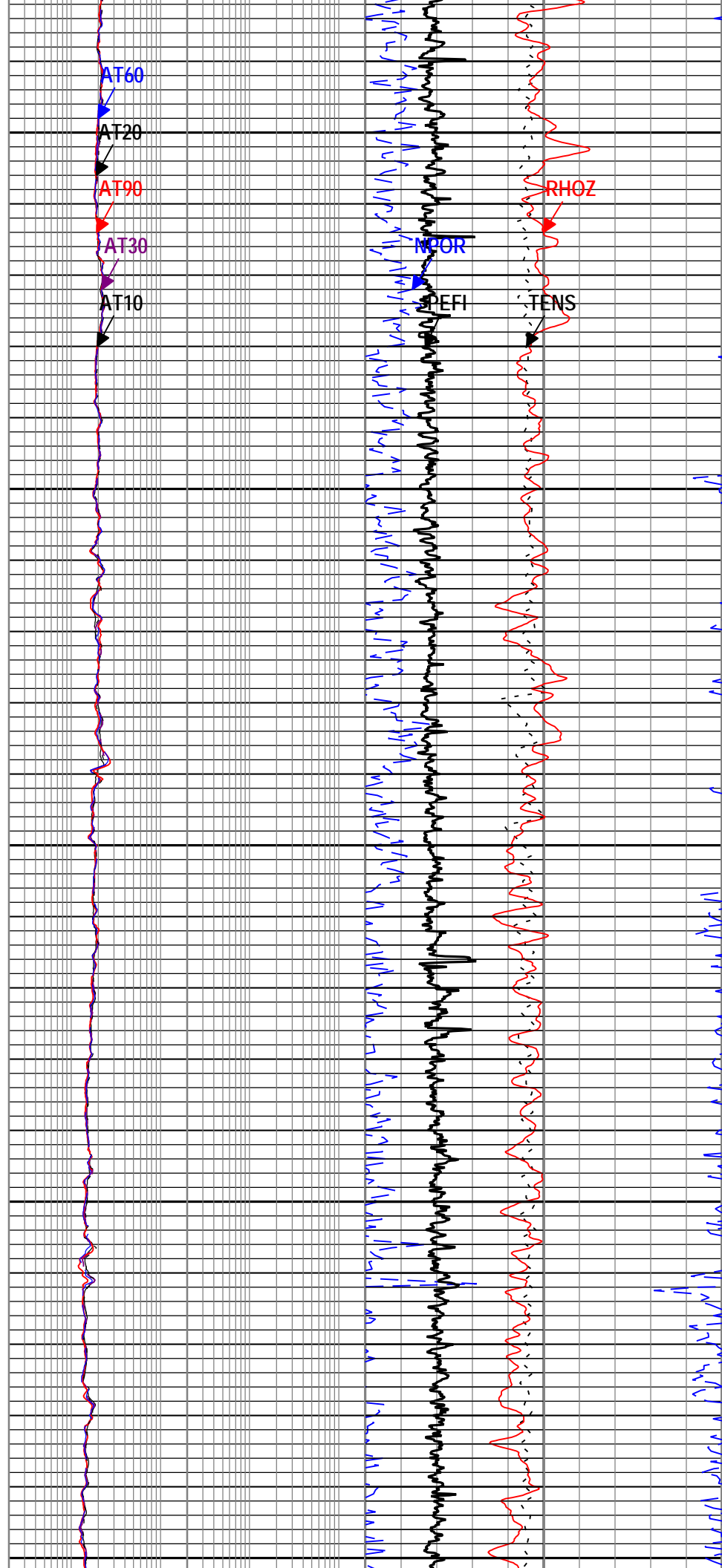
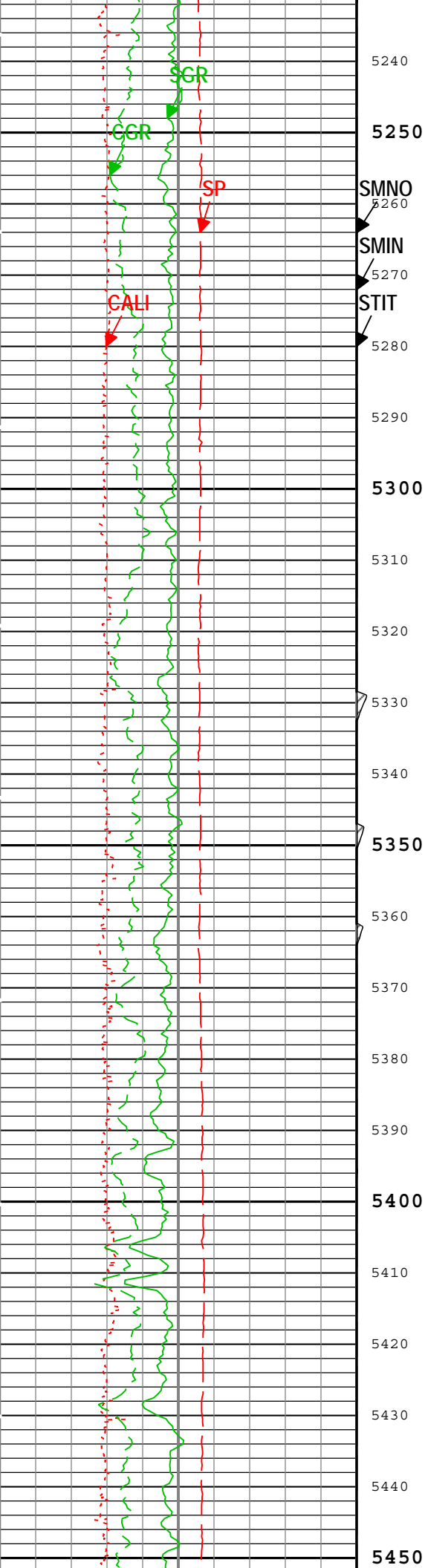


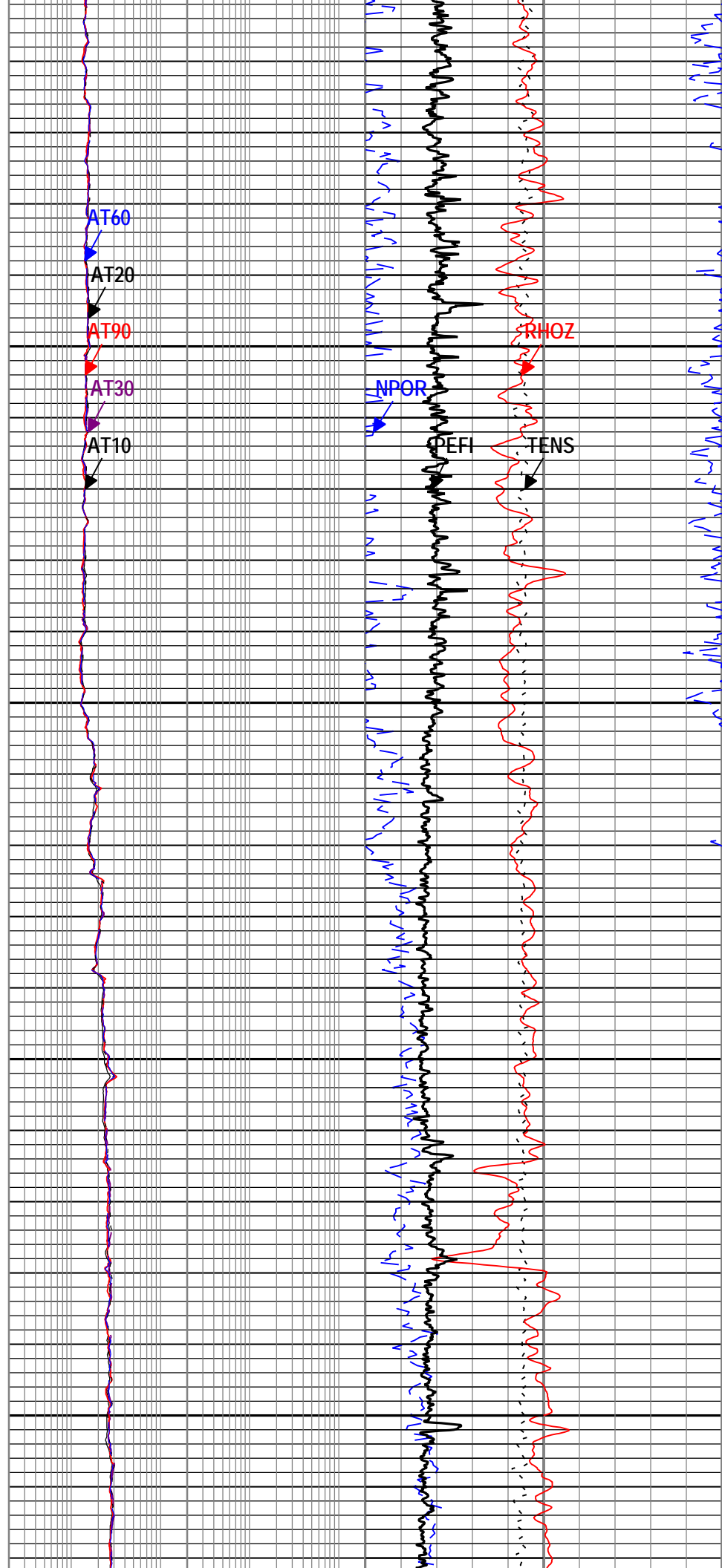
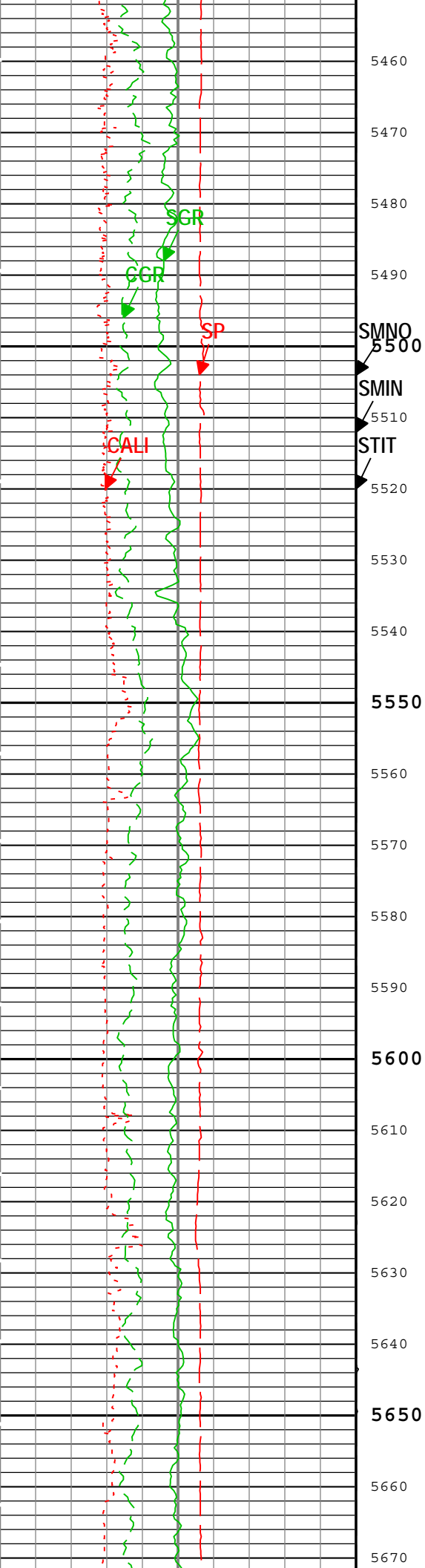


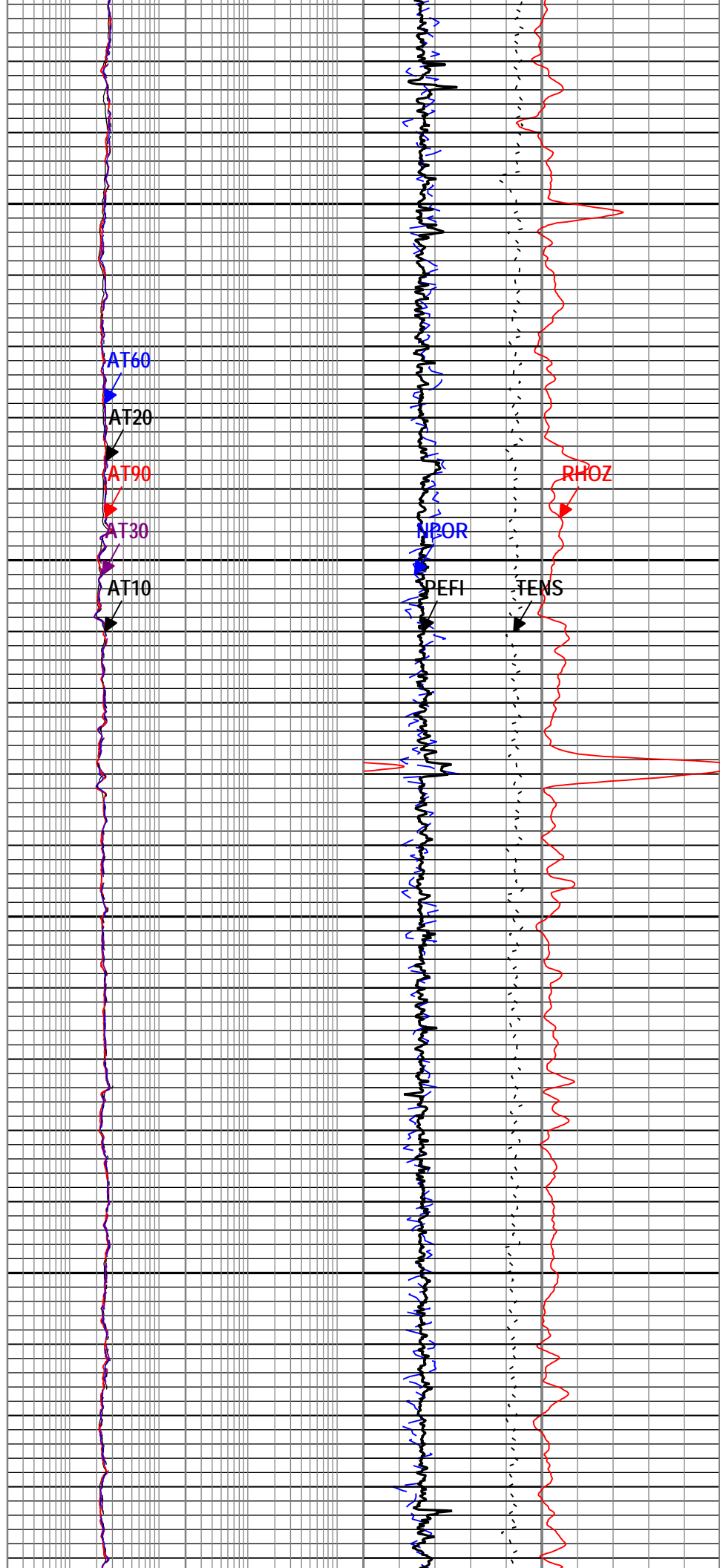
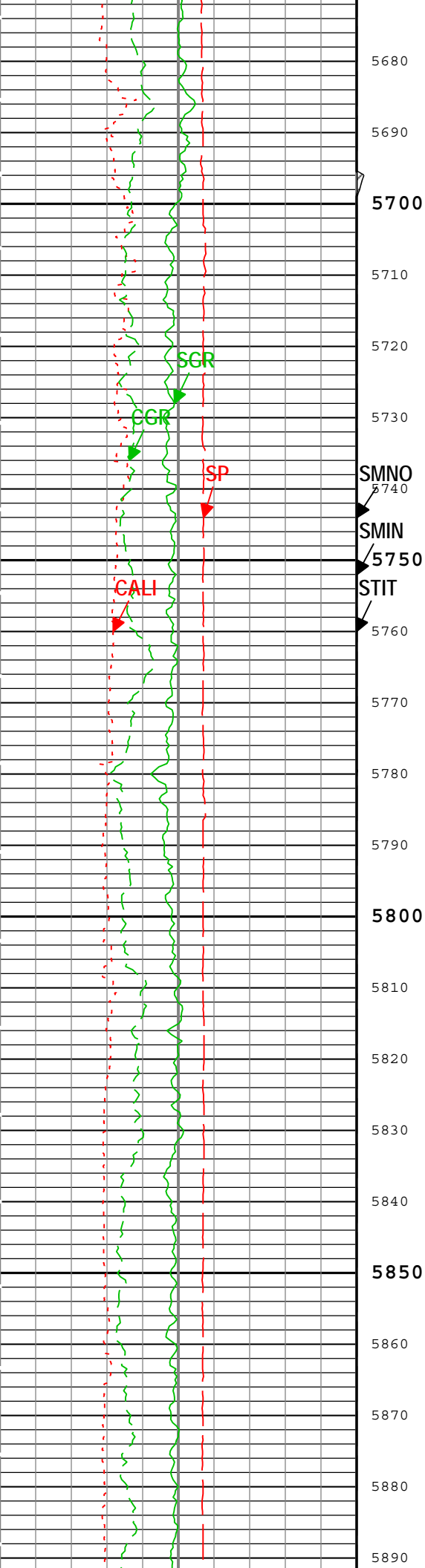


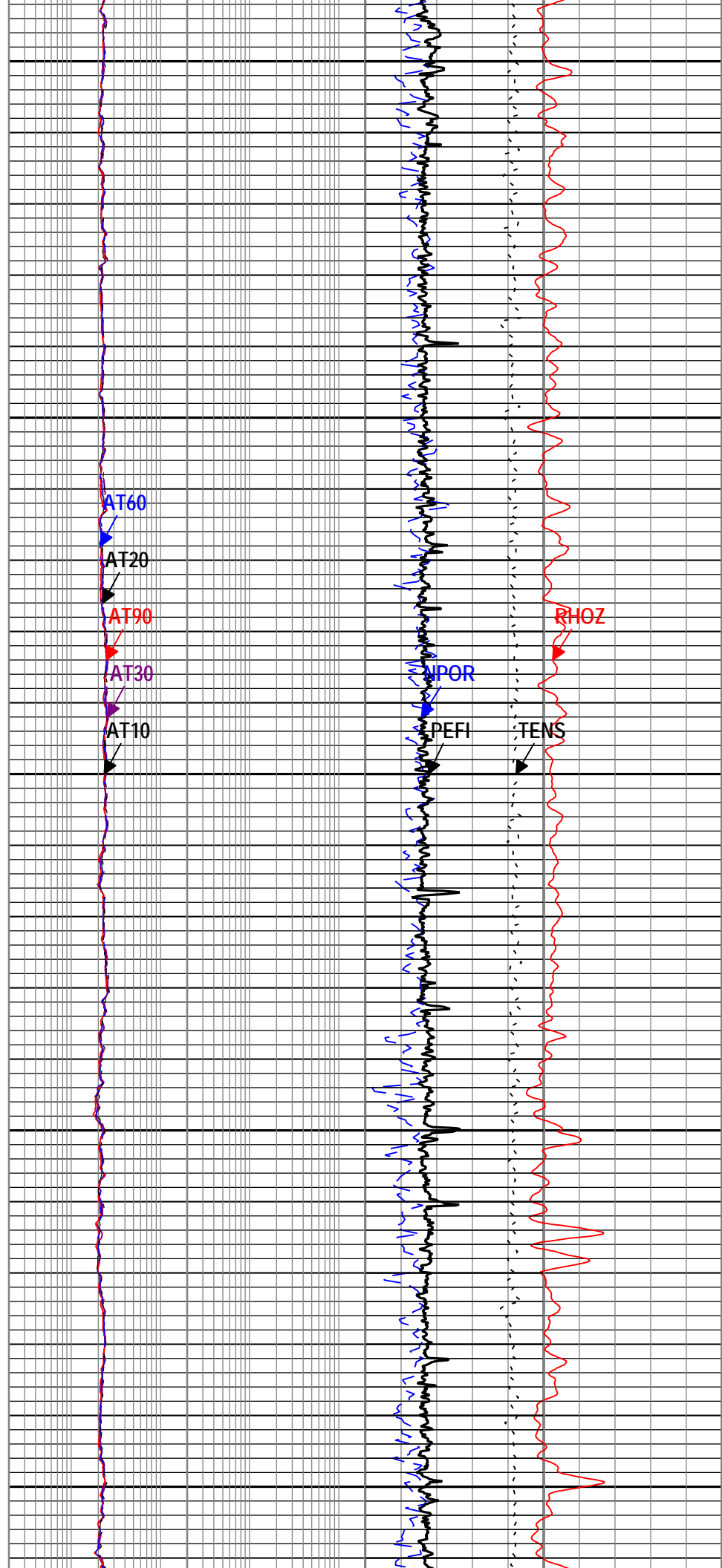
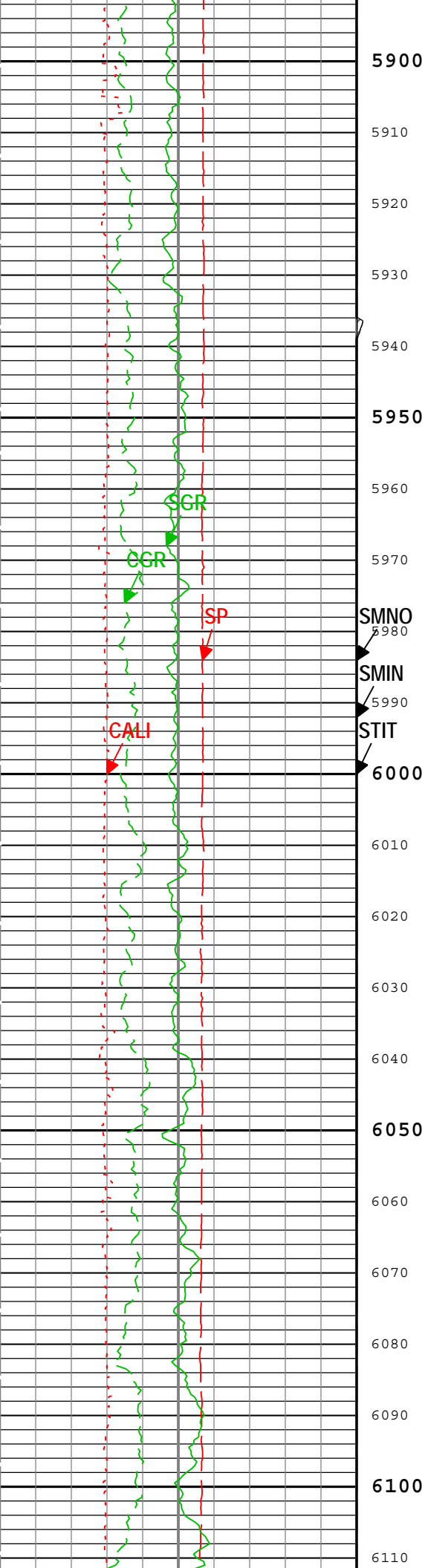


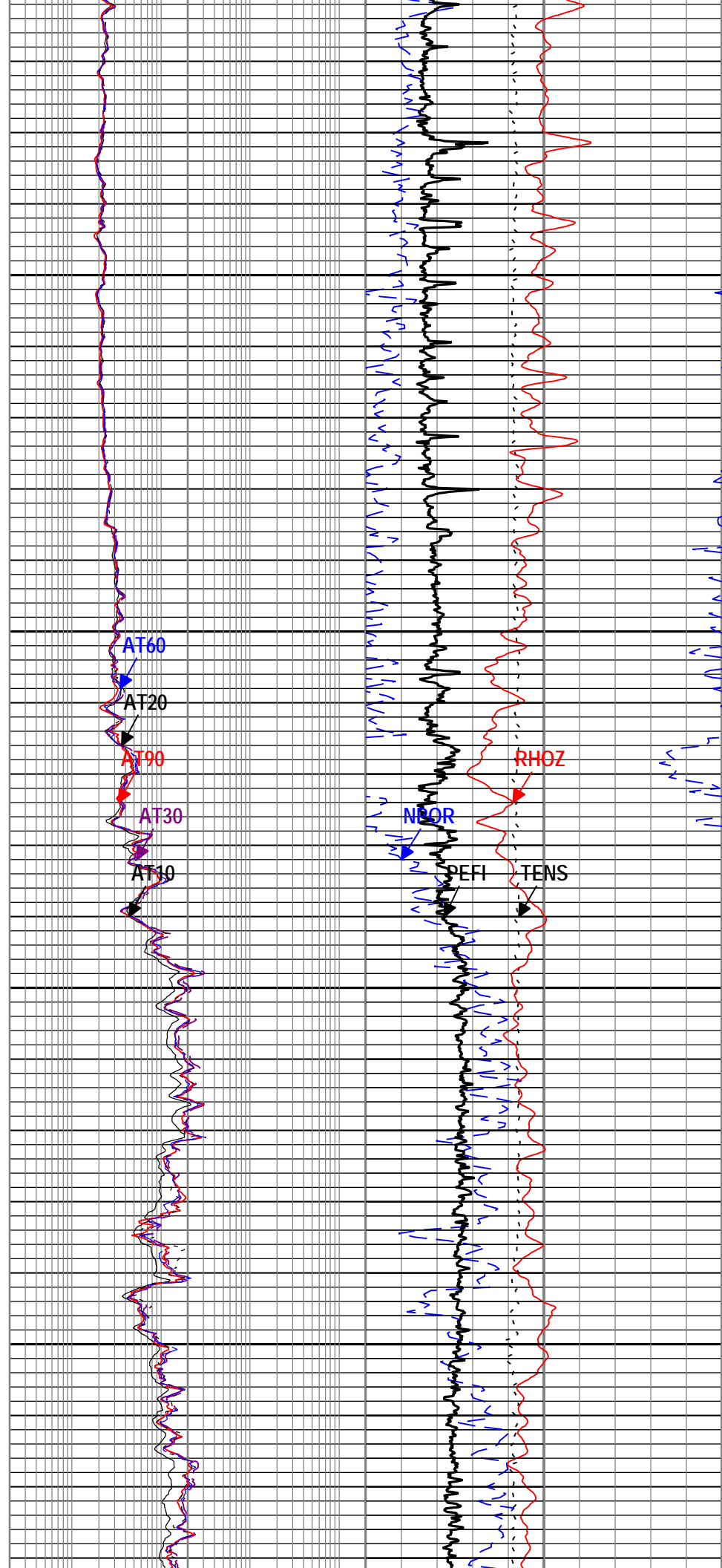
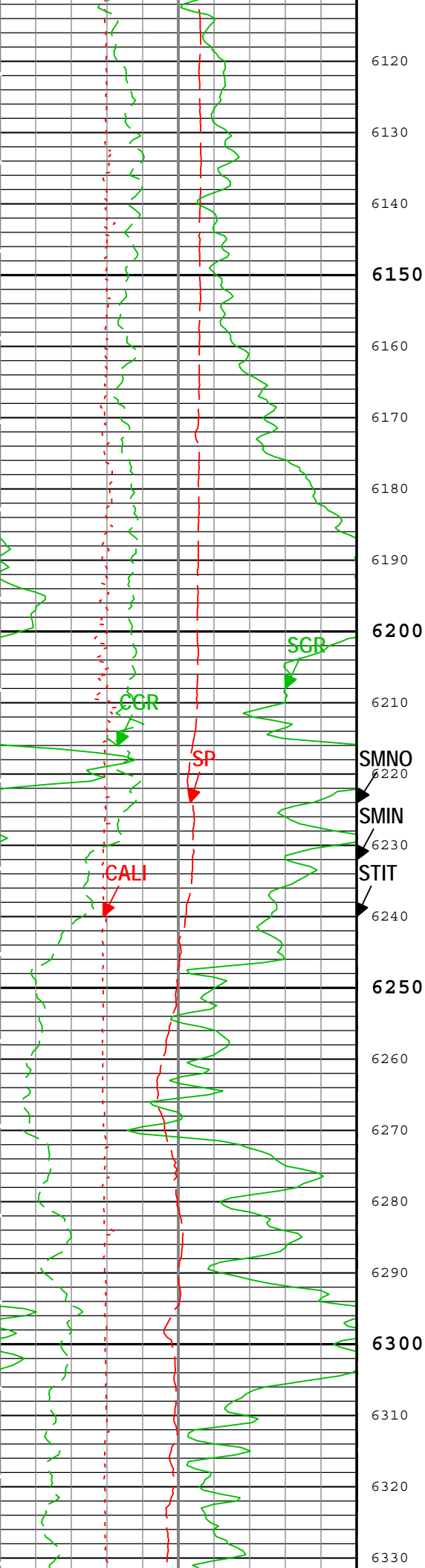


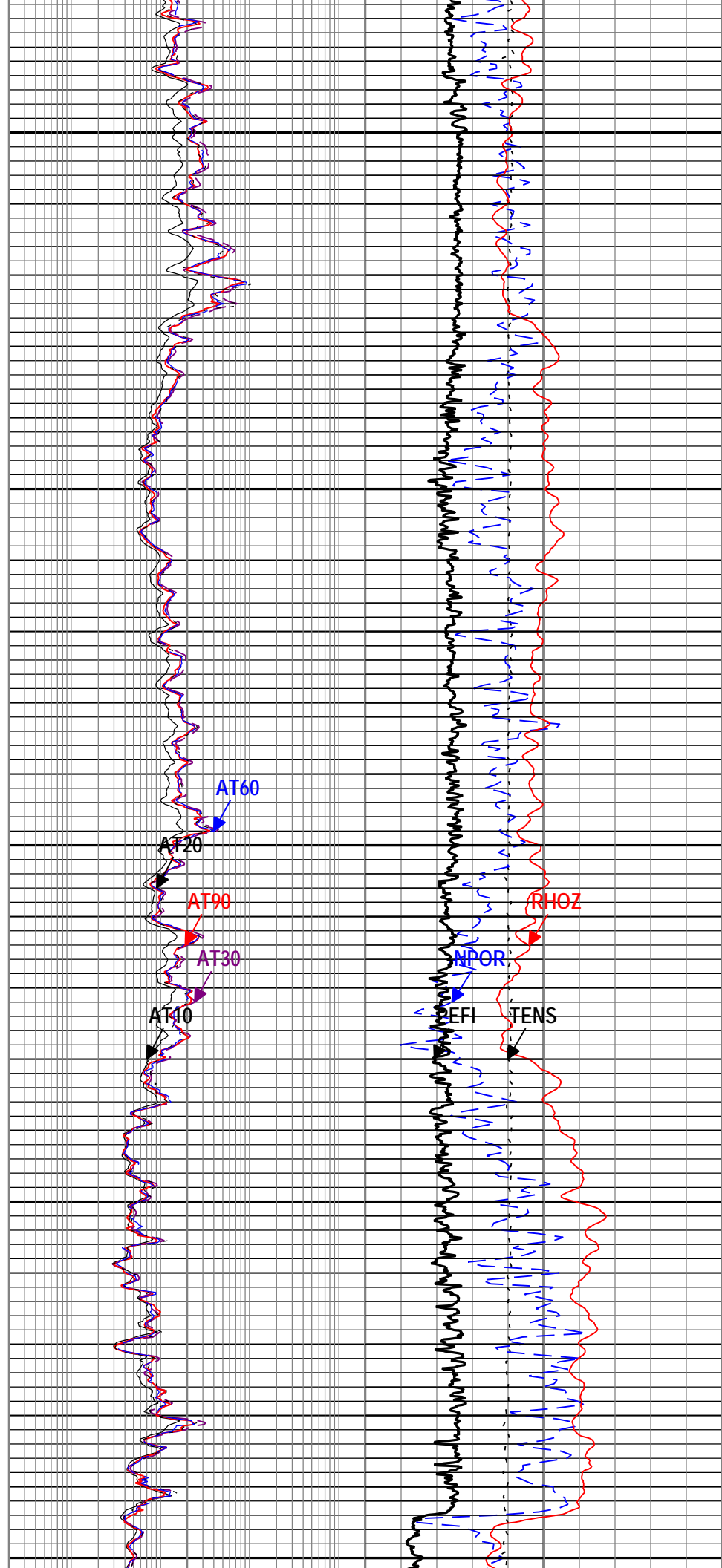
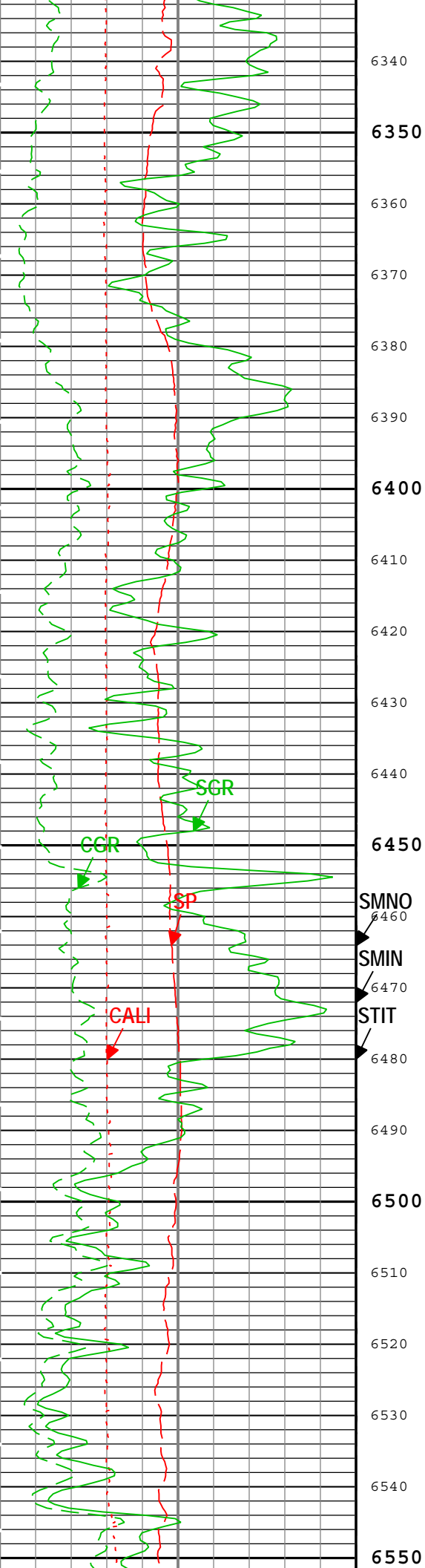


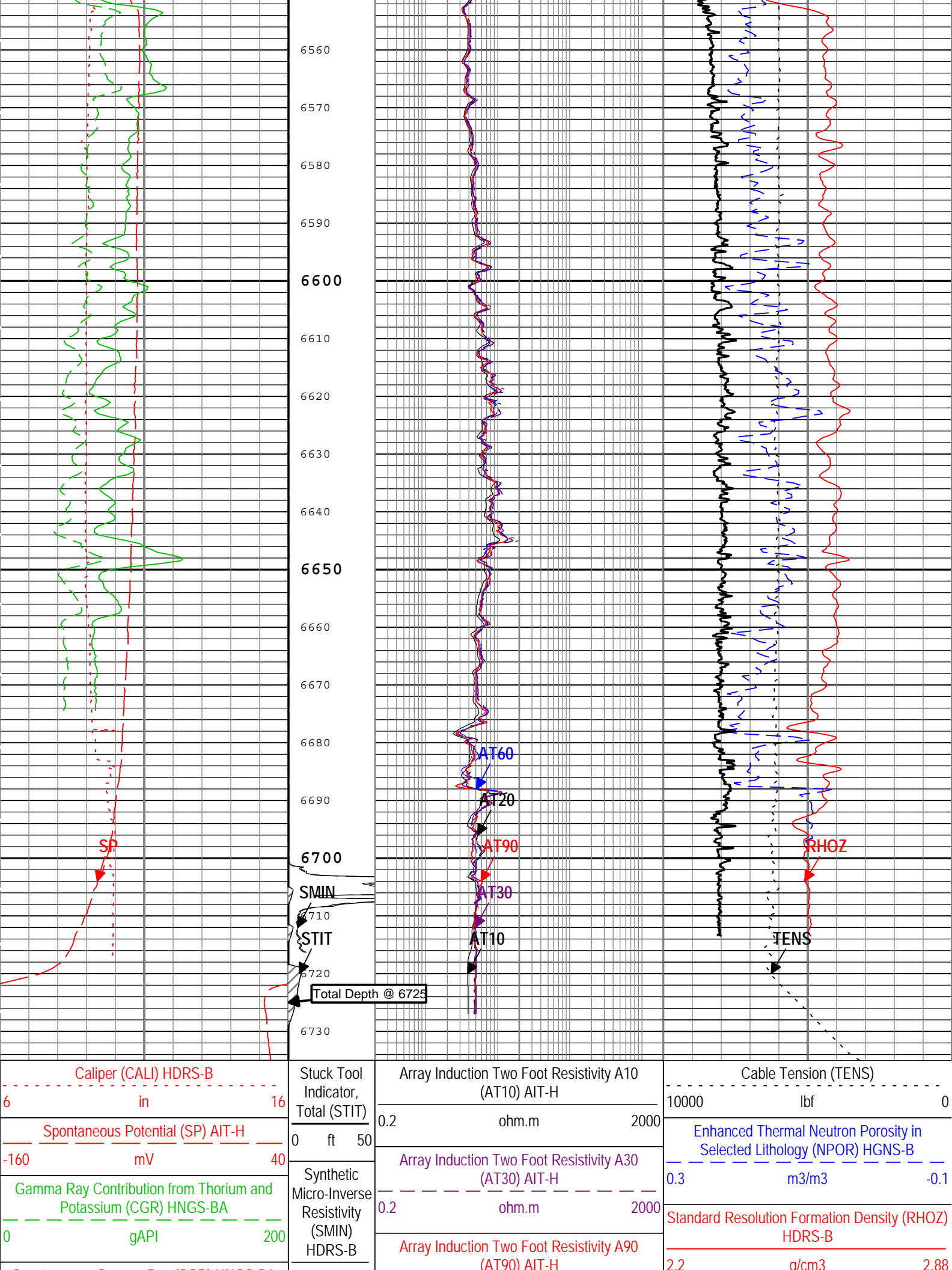












Spectroscopy Gamma Ray (SGR) HNGS-BA			0	100	0.2 ohm.m 2000			Enhanced Resolution Formation Photoelectric Factor (PEFI) HDRS-B	0	10	
gAPI			200	ohm.m							
			Synthetic Micro-Normal Resistivity (SMNO) HDRS-B		Array Induction Two Foot Resistivity A20 (AT20) AIT-H						
			0	100	0.2	ohm.m	2000	0			10
					Array Induction Two Foot Resistivity A60 (AT60) AIT-H						
			0	100	0.2	ohm.m	2000				

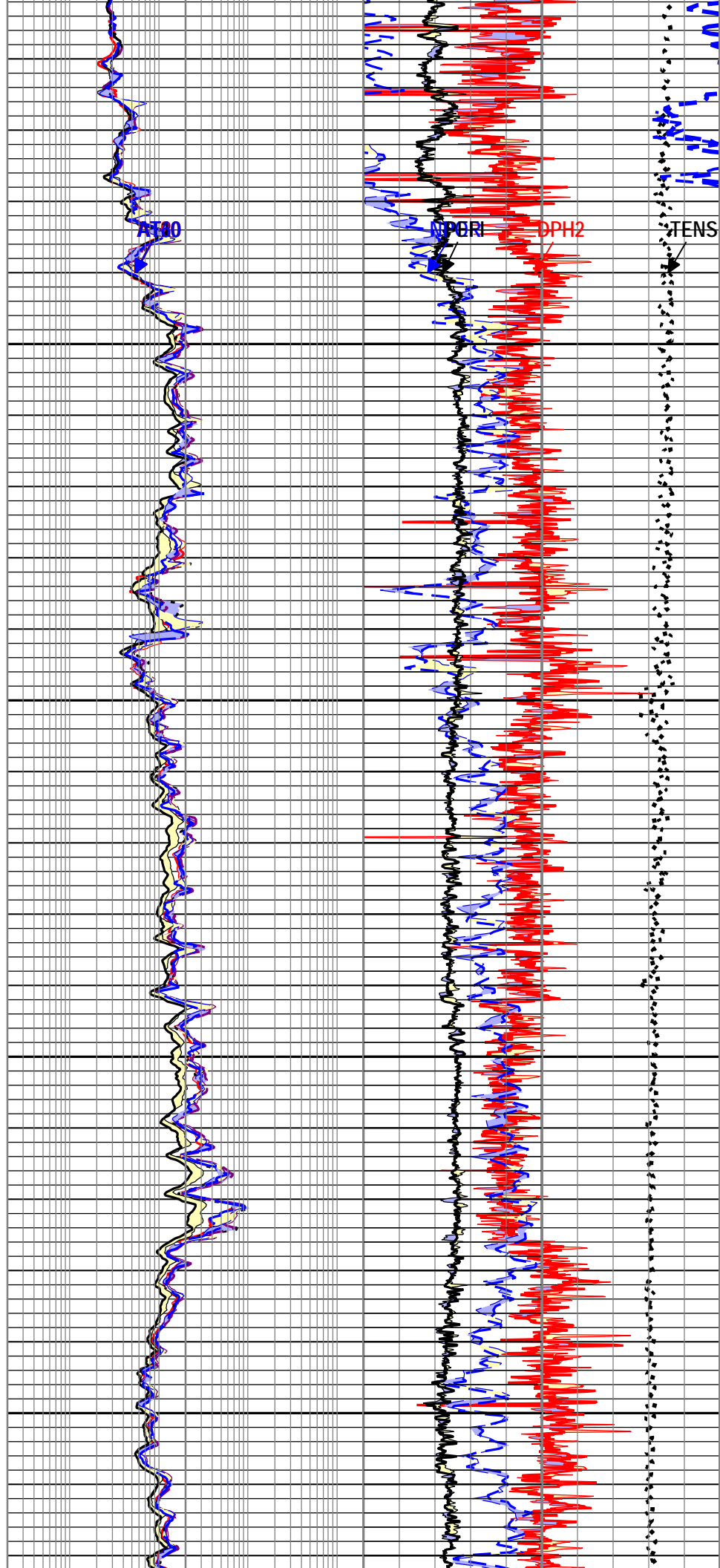
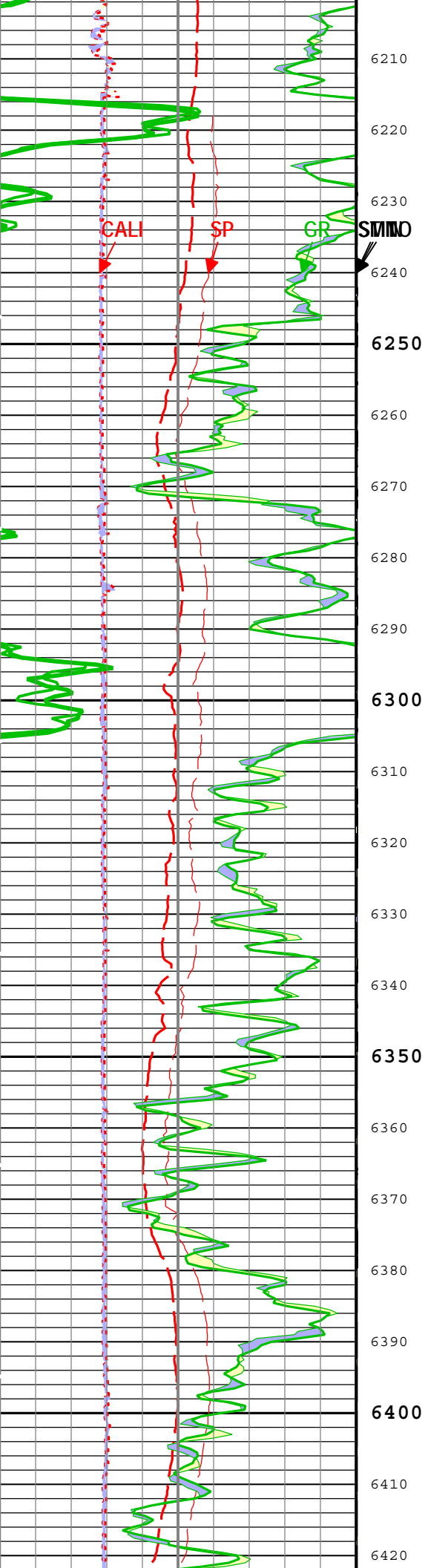
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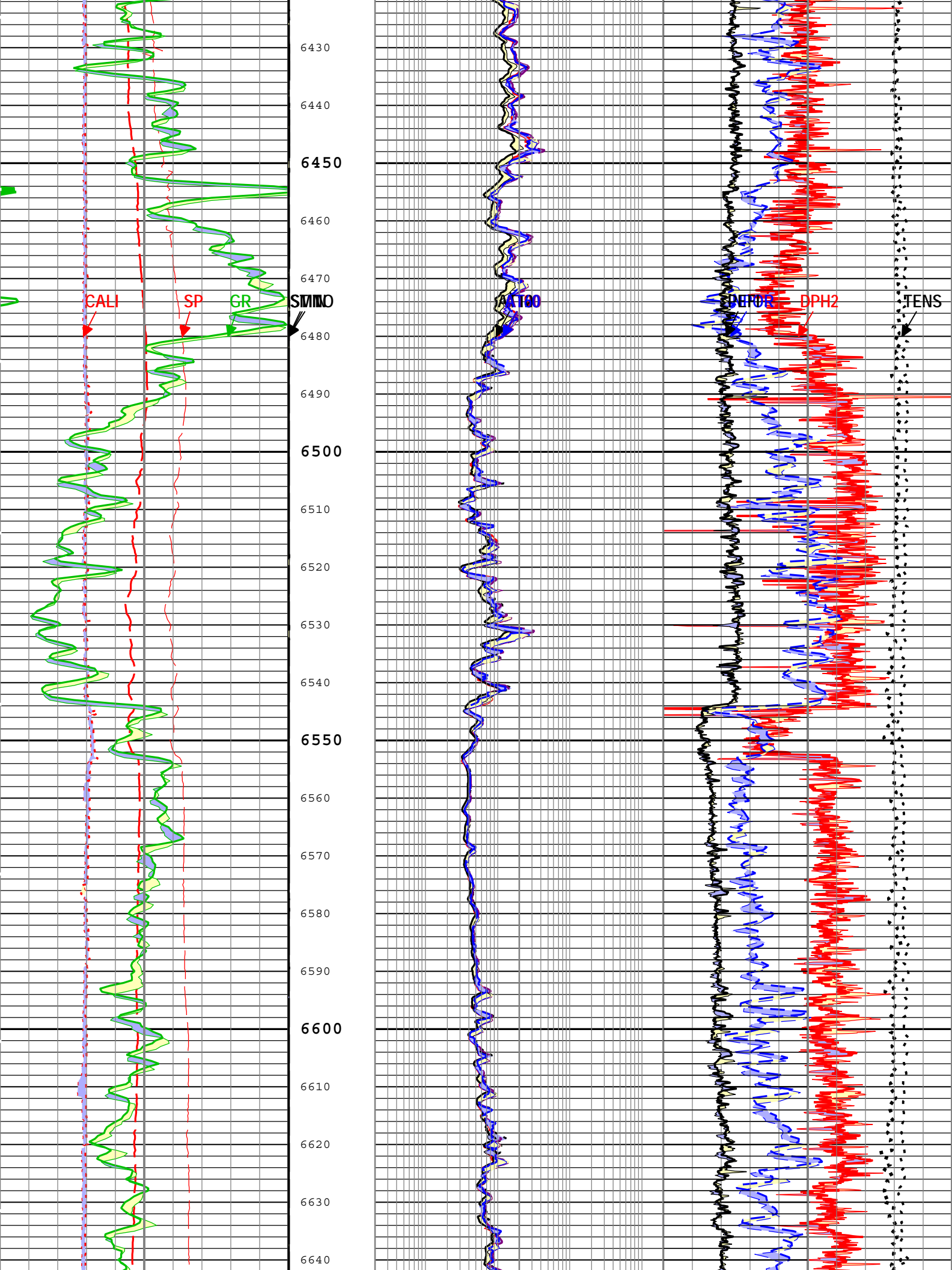
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Index Type: Measured Depth Creation Date: 03-Apr-2013 14:56:39

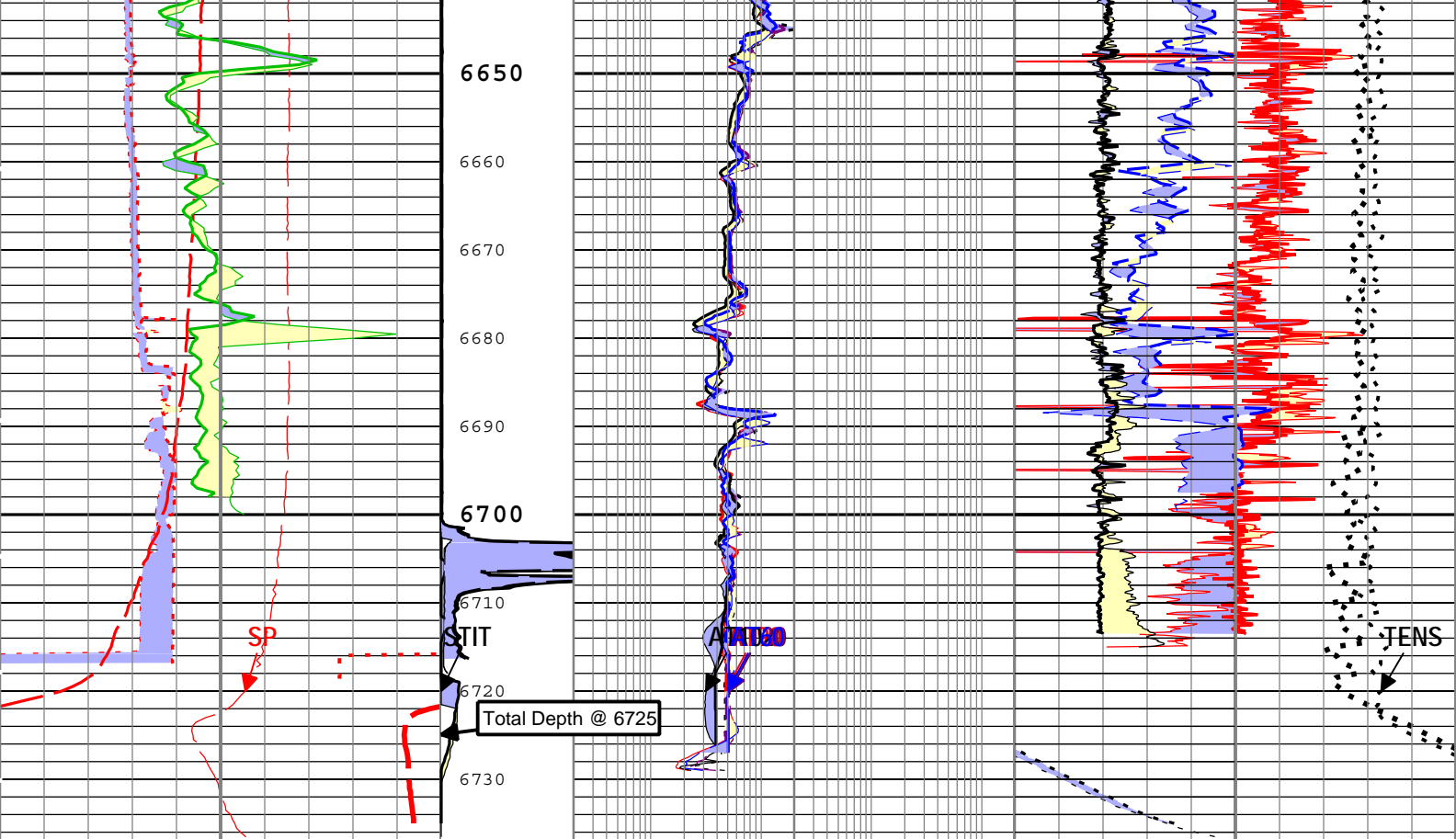
Channel Processing Parameters				
Parameter	Description	Tool	Value	Unit
ABHM	Array Induction Borehole Correction Mode	AIT-H	Compute Standoff	
ABLM	Array Induction Basic Logs Mode	AIT-H	Normal	
ACDE	Array Induction Casing Detection Enable	AIT-H	Yes	
BARI	Barite Mud Presence Flag	Borehole	No	
BHK	Drilling Fluid Potassium Concentration	Borehole	0	%
BHS	Borehole Status (Open or Cased Hole)	Borehole	Open	
BS	Bit Size	WLSESSION	8.75	in
BSAL	Borehole Salinity	Borehole	5951.9	ppm
CALI_SHIFT	CALI Supplementary Offset	HDRS-B	0.13	in
CBLO	Casing Bottom (Logger)	WLSESSION	624	ft
DBCC	Barite Constant Correction Flag	HNGS-BA	None	
DC_MODE	Depth Correction Mode	DepthCorrection	Real-time	
DFD	Drilling Fluid Density	Borehole	9.7	lbm/gal
DFT	Drilling Fluid Type	Borehole	Water	
DFT_WATER	Drilling Fluid Water Type	Borehole	LSND	
DHC	Density Hole Correction	HDRS-B	Bit Size	
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	
HCRB	Apply Borehole Potassium Correction	HNGS-BA	None	
HEMA	Hematite Presence Flag	Borehole	No	
HSCO	Hole Size Correction Option	HGNS-B	Yes	
MATR	Rock Matrix for Neutron Porosity Corrections	Borehole	LIMESTONE	
MFST	Mud Filtrate Sample Temperature	Borehole	68	degF
NPRM	HRDD Nuclear Processing Mode	HDRS-B	Very High Resolution	
RMFS	Resistivity of Mud Filtrate Sample	Borehole	0.8	ohm.m
SGRC	Standard Gamma Ray Correction Flag	HNGS-BA	Yes	
SPDR	SP Drift Per Foot	AIT-H	0	mV/ft
TD	Total Measured Depth	Borehole	6725	ft

Tool Control Parameters				
Parameter	Description	Tool	Value	Unit
HMCA_BRD_TYPE	HMCA Board Type	HGNS-B	0	
HRGD_BRD_TYPE	HRGD Board Type	HDRS-B	WITHOUT_HET	

			Main To Repeat		
	Main To Repeat		Repeat To Main		
	Repeat To Main	Array Induction Two Foot Resistivity A90 (AT90) AIT-H			
	Stuck Tool Indicator, Total (STIT)	0.2 ohm.m 2000	Main To Repeat	Main To Repeat	
	0 ft 50		Repeat To Main	Repeat To Main	
	Main To Repeat	Array Induction Two Foot Resistivity A20 (AT20) AIT-H		Enhanced Resolution Formation Photoelectric Factor (PEFI) HDRS-B	
	Repeat To Main	0.2 ohm.m 2000		0 10	
	Synthetic Micro-Inverse Resistivity (SMIN) HDRS-B	Main To Repeat	Main To Repeat		
	Repeat To Main	Repeat To Main		Repeat To Main	
	Caliper (CALI) HDRS-B	Array Induction Two Foot Resistivity A30 (AT30) AIT-H		Cable Tension (TENS)	
-6 in 16	0 100 ohm.m	0.2 ohm.m 2000		5000 lbf 0	
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-H	Main To Repeat	Array Induction Two Foot Resistivity A10 (AT10) AIT-H		Enhanced Resolution Density Porosity (DPH2) HDRS-B	
-160 mV 40	Repeat To Main	0.2 ohm.m 2000		0.3 ft3/ft3 -0.1	
Main To Repeat	Synthetic Micro-Normal Resistivity (SMNO) HDRS-B	Main To Repeat		Main To Repeat	
Repeat To Main	Repeat To Main	Repeat To Main		Repeat To Main	
Gamma Ray (GR) HGNS-B		Array Induction Two Foot Resistivity A60 (AT60) AIT-H		Enhanced Thermal Neutron Porosity in Selected Lithology (NPOR) HGNS-B	
0 gAPI 200	0 100 ohm.m	0.2 ohm.m 2000		0.3 m3/m3 -0.1	







Main To Repeat		Main To Repeat		Main To Repeat	
Repeat To Main		Repeat To Main		Repeat To Main	
Caliper (CALI) HDRS-B		Array Induction Two Foot Resistivity A90 (AT90) AIT-H		Cable Tension (TENS)	
6 in 16		0.2 ohm.m 2000		5000 lbf 0	
Main To Repeat		Main To Repeat		Main To Repeat	
Repeat To Main		Repeat To Main		Repeat To Main	
Spontaneous Potential (SP) AIT-H		Array Induction Two Foot Resistivity A20 (AT20) AIT-H		Enhanced Resolution Density Porosity (DPH2) HDRS-B	
-160 mV 40		0.2 ohm.m 2000		0.3 ft3/ft3 -0.1	
Main To Repeat		Main To Repeat		Main To Repeat	
Repeat To Main		Repeat To Main		Repeat To Main	
Gamma Ray (GR) HGNS-B		Array Induction Two Foot Resistivity A30 (AT30) AIT-H		Enhanced Thermal Neutron Porosity in Selected Lithology (NPOR) HGNS-B	
0 gAPI 200		0.2 ohm.m 2000		0.3 m3/m3 -0.1	
		Main To Repeat		Main To Repeat	
		Repeat To Main		Repeat To Main	
		Array Induction Two Foot Resistivity A10 (AT10) AIT-H		Enhanced Resolution Formation Photoelectric Factor (PEFI) HDRS-B	
		0.2 ohm.m 2000		0 10	
		Main To Repeat			
		Repeat To Main			

Calibration Report							
AIT-H (Array Induction Tool - H) Calibration - Run 1							
Primary Equipment :							
Array Induction Sonde - H		AHIS		398			
Auxiliary Equipment :							
AITH Rm/SP Bottom Nose		AHRM		398			
AIT Sonde Calibration - Test Loop Gain							
Master (EEPROM):		11:33:25 08-Mar-2013					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div><div></div><div></div><div></div><div></div><div></div></div>
Test Loop Gain - 0		Master	1.000	0.950	1.016	1.050	<div><div></div><div></div><div></div><div></div><div></div></div>
Test Loop Phase - 0	deg	Master	0	-3.000	0.420	3.000	<div><div></div><div></div><div></div><div></div><div></div></div>
Test Loop Gain - 1		Master	1.000	0.950	1.015	1.050	<div><div></div><div></div><div></div><div></div><div></div></div>
Test Loop Phase - 1	deg	Master	0	-3.000	0.591	3.000	<div><div></div><div></div><div></div><div></div><div></div></div>
Test Loop Gain - 2		Master	1.000	0.950	1.018	1.050	<div><div></div><div></div><div></div><div></div><div></div></div>
Test Loop Phase - 2	deg	Master	0	-3.000	0.001	3.000	<div><div></div><div></div><div></div><div></div><div></div></div>
Test Loop Gain - 3		Master	1.000	0.950	1.016	1.050	<div><div></div><div></div><div></div><div></div><div></div></div>
Test Loop Phase - 3	deg	Master	0	-3.000	0.047	3.000	<div><div></div><div></div><div></div><div></div><div></div></div>
Test Loop Gain - 4		Master	1.000	0.950	0.998	1.050	<div><div></div><div></div><div></div><div></div><div></div></div>
Test Loop Phase - 4	deg	Master	0	-3.000	-0.017	3.000	<div><div></div><div></div><div></div><div></div><div></div></div>
Test Loop Gain - 5		Master	1.000	0.950	0.992	1.050	<div><div></div><div></div><div></div><div></div><div></div></div>
Test Loop Phase - 5	deg	Master	0	-3.000	-0.183	3.000	<div><div></div><div></div><div></div><div></div><div></div></div>
Test Loop Gain - 6		Master	1.000	0.950	1.000	1.050	<div><div></div><div></div><div></div><div></div><div></div></div>
Test Loop Phase - 6	deg	Master	0	-3.000	0.156	3.000	<div><div></div><div></div><div></div><div></div><div></div></div>
Test Loop Gain - 7		Master	1.000	0.950	1.014	1.050	<div><div></div><div></div><div></div><div></div><div></div></div>
Test Loop Phase - 7	deg	Master	0	-3.000	-0.218	3.000	<div><div></div><div></div><div></div><div></div><div></div></div>
AIT Sonde Calibration - Sonde Error Correction							
Master (EEPROM):		11:33:25 08-Mar-2013					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div><div></div><div></div><div></div><div></div><div></div></div>
Sonde Error Correction Real - 0	mS/m	Master	-----	-231.000	-84.646	119.000	<div><div></div><div></div><div></div><div></div><div></div></div>
Sonde Error Correction Quad - 0		Master	-----	-2250.000	116.355	2250.000	<div><div></div><div></div><div></div><div></div><div></div></div>
Sonde Error Correction Real - 1	mS/m	Master	-----	114.000	169.146	204.000	<div><div></div><div></div><div></div><div></div><div></div></div>
Sonde Error Correction Quad - 1		Master	-----	-625.000	151.070	625.000	<div><div></div><div></div><div></div><div></div><div></div></div>
Sonde Error Correction Real - 2	mS/m	Master	-----	66.000	112.979	156.000	<div><div></div><div></div><div></div><div></div><div></div></div>
Sonde Error Correction Quad - 2		Master	-----	-350.000	30.139	350.000	<div><div></div><div></div><div></div><div></div><div></div></div>
Sonde Error Correction Real - 3	mS/m	Master	-----	39.000	59.570	89.000	<div><div></div><div></div><div></div><div></div><div></div></div>
Sonde Error Correction Quad - 3		Master	-----	-250.000	41.303	250.000	<div><div></div><div></div><div></div><div></div><div></div></div>
Sonde Error Correction Real - 4	mS/m	Master	-----	15.000	23.093	35.000	<div><div></div><div></div><div></div><div></div><div></div></div>
Sonde Error Correction Quad - 4		Master	-----	-63.000	-12.430	63.000	<div><div></div><div></div><div></div><div></div><div></div></div>
Sonde Error Correction Real - 5	mS/m	Master	-----	4.000	13.930	24.000	<div><div></div><div></div><div></div><div></div><div></div></div>
Sonde Error Correction Quad - 5		Master	-----	-50.000	1.759	50.000	<div><div></div><div></div><div></div><div></div><div></div></div>
Sonde Error Correction Real - 6	mS/m	Master	-----	5.000	9.620	15.000	<div><div></div><div></div><div></div><div></div><div></div></div>
Sonde Error Correction Quad - 6		Master	-----	-30.000	5.363	30.000	<div><div></div><div></div><div></div><div></div><div></div></div>
Sonde Error Correction Real - 7	mS/m	Master	-----	-5.000	-0.801	5.000	<div><div></div><div></div><div></div><div></div><div></div></div>
Sonde Error Correction Quad - 7		Master	-----	-30.000	3.431	30.000	<div><div></div><div></div><div></div><div></div><div></div></div>
AIT Mud Calibration - Mud Calibration Gain							
Master (EEPROM):		11:33:25 08-Mar-2013					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div><div></div><div></div><div></div><div></div><div></div></div>
Coarse Gain		Master	1.000	0.800	0.826	1.200	<div><div></div><div></div><div></div><div></div><div></div></div>
Fine Gain		Master	1.000	0.800	0.823	1.200	<div><div></div><div></div><div></div><div></div><div></div></div>

		Before	----	0.363	0.627	0.847	<div><div></div></div>
		After	----	----	----	----	<div><div></div></div>
		Before-Master	----	----	0.000	----	<div><div></div></div>
		After-Before	----	----	----	----	<div><div></div></div>
Thru Cal Phase - 0	deg	Master	----	11.000	74.092	131.000	<div><div></div></div>
		Before	----	11.000	74.729	131.000	<div><div></div></div>
		After	----	----	----	----	<div><div></div></div>
		Before-Master	----	----	0.637	----	<div><div></div></div>
		After-Before	----	----	----	----	<div><div></div></div>
Thru Cal Mag - 1	V	Master	----	0.762	1.284	1.778	<div><div></div></div>
		Before	----	0.762	1.285	1.778	<div><div></div></div>
		After	----	----	----	----	<div><div></div></div>
		Before-Master	----	----	0.001	----	<div><div></div></div>
		After-Before	----	----	----	----	<div><div></div></div>
Thru Cal Phase - 1	deg	Master	----	10.000	73.071	130.000	<div><div></div></div>
		Before	----	10.000	73.714	130.000	<div><div></div></div>
		After	----	----	----	----	<div><div></div></div>
		Before-Master	----	----	0.643	----	<div><div></div></div>
		After-Before	----	----	----	----	<div><div></div></div>
Thru Cal Mag - 2	V	Master	----	0.374	0.637	0.872	<div><div></div></div>
		Before	----	0.374	0.637	0.872	<div><div></div></div>
		After	----	----	----	----	<div><div></div></div>
		Before-Master	----	----	0.000	----	<div><div></div></div>
		After-Before	----	----	----	----	<div><div></div></div>
Thru Cal Phase - 2	deg	Master	----	6.000	68.875	126.000	<div><div></div></div>
		Before	----	6.000	69.533	126.000	<div><div></div></div>
		After	----	----	----	----	<div><div></div></div>
		Before-Master	----	----	0.658	----	<div><div></div></div>
		After-Before	----	----	----	----	<div><div></div></div>
Thru Cal Mag - 3	V	Master	----	0.422	0.723	0.986	<div><div></div></div>
		Before	----	0.422	0.723	0.986	<div><div></div></div>
		After	----	----	----	----	<div><div></div></div>
		Before-Master	----	----	0.000	----	<div><div></div></div>
		After-Before	----	----	----	----	<div><div></div></div>
Thru Cal Phase - 3	deg	Master	----	5.000	67.972	125.000	<div><div></div></div>
		Before	----	5.000	68.632	125.000	<div><div></div></div>
		After	----	----	----	----	<div><div></div></div>
		Before-Master	----	----	0.660	----	<div><div></div></div>
		After-Before	----	----	----	----	<div><div></div></div>
Thru Cal Mag - 4	V	Master	----	0.802	1.347	1.872	<div><div></div></div>
		Before	----	0.802	1.348	1.872	<div><div></div></div>
		After	----	----	----	----	<div><div></div></div>
		Before-Master	----	----	0.001	----	<div><div></div></div>
		After-Before	----	----	----	----	<div><div></div></div>
Thru Cal Phase - 4	deg	Master	----	-1.000	60.999	119.000	<div><div></div></div>
		Before	----	-1.000	61.677	119.000	<div><div></div></div>
		After	----	----	----	----	<div><div></div></div>
		Before-Master	----	----	0.678	----	<div><div></div></div>
		After-Before	----	----	----	----	<div><div></div></div>
Thru Cal Mag - 5	V	Master	----	1.173	1.946	2.737	<div><div></div></div>
		Before	----	1.173	1.946	2.737	<div><div></div></div>
		After	----	----	----	----	<div><div></div></div>
		Before-Master	----	----	0.000	----	<div><div></div></div>
		After-Before	----	----	----	----	<div><div></div></div>
Thru Cal Phase - 5	deg	Master	----	-3.000	58.812	117.000	<div><div></div></div>
		Before	----	-3.000	59.516	117.000	<div><div></div></div>
		After	----	----	----	----	<div><div></div></div>
		Before-Master	----	----	0.704	----	<div><div></div></div>
		After-Before	----	----	----	----	<div><div></div></div>
Thru Cal Mag - 6	V	Master	----	1.173	1.941	2.737	<div><div></div></div>
		Before	----	1.173	1.942	2.737	<div><div></div></div>
		After	----	----	----	----	<div><div></div></div>
		Before-Master	----	----	0.001	----	<div><div></div></div>
		After-Before	----	----	----	----	<div><div></div></div>
Thru Cal Phase - 6	deg	Master	----	-3.000	58.874	117.000	<div><div></div></div>
		Before	----	-3.000	59.579	117.000	<div><div></div></div>
		After	----	----	----	----	<div><div></div></div>
		Before-Master	----	----	0.705	----	<div><div></div></div>

		After-Before	----	----			
Thru Cal Mag - 7	V	Master	----	0.849	1.378	1.981	
		Before	----	0.849	1.381	1.981	
		After	----	----	----	----	
		Before-Master	----	----	0.003	----	
		After-Before	----	----	----	----	
Thru Cal Phase - 7	deg	Master	----	-7.000	53.154	113.000	
		Before	----	-7.000	54.042	113.000	
		After	----	----	----	----	
		Before-Master	----	----	0.888	----	
		After-Before	----	----	----	----	
SPA Zero	mV	Master		-50.000	-0.032	50.000	
		Before		-50.000	-0.043	50.000	
		After	----	----	----	----	
		Before-Master	----	----	-0.011	----	
		After-Before	----	----	----	----	
SPA Plus	mV	Master		941.000	992.378	1040.000	
		Before		941.000	993.267	1040.000	
		After	----	----	----	----	
		Before-Master	----	----	0.889	----	
		After-Before	----	----	----	----	
Temperature Zero	V	Master		-0.050	0.000	0.050	
		Before		-0.050	0.000	0.050	
		After	----	----	----	----	
		Before-Master	----	----	0.000	----	
		After-Before	----	----	----	----	
Temperature Plus	V	Master		0.870	0.919	0.960	
		Before		0.870	0.920	0.960	
		After	----	----	----	----	
		Before-Master	----	----	0.001	----	
		After-Before	----	----	----	----	

HDRS-B (HILT Density and Rxo Sonde, 125 degC) Calibration - Run 1

Primary Equipment :

HILT High-Resolution Control Cartridge, 125 degC	HRCC-B	791
HILT Resistivity Gamma-Ray Density Device, 125 degC	HRGD-B	1849

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	5094
HILT High-Resolution Control Cartridge, 125 degC	HRCC-B	791
HILT High-Resolution Mechanical Sonde, 125 degC	HRMS-B	1754

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): 22:57:01 31-Mar-2013

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Small Ring	in	Before	8.00	6.00	8.01	10.00	
Large Ring	in	Before	12.00	9.00	12.21	15.00	

HDRS Density Calibration - Inversion Results

Master (EEPROM): 12:27:08 26-Mar-2013

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	1.687	1.696	
Pe Aluminum		Master	2.570	2.470	2.548	2.670	
Pe Magnesium		Master	2.650	2.550	2.624	2.750	

HDRS Density Calibration - Deviation Summary

Master (EEPROM): 12:27:08 26-Mar-2013

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
BS Average Deviation	%	Master	0	-0.6000	0.5105	0.6000	
BS Max Deviation	%	Master	0	-1.6000	1.0204	1.6000	
SS Average Deviation	%	Master	0	-1.0000	0.3297	1.0000	
SS Max Deviation	%	Master	0	-2.5000	1.4755	2.5000	
LS Average Deviation	%	Master	0	-1.5000	0.3430	1.5000	
LS Max Deviation	%	Master	0	-3.5000	0.7854	3.5000	

HDRS Density Calibration - Background Summary

Master (EEPROM):		12:27:08 26-Mar-2013		Before (Measured):		22:58:20 31-Mar-2013	
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
BS Window Ratio		Master	1.0000		0.7337		
		Before	0.7337	0.6970	0.7389	0.7704	
		Before-Master	-----	-----	0.0052	-----	
BS Window Sum	1/s	Master	1		9471		
		Before	9471	8998	9486	9945	
		Before-Master	-----	-----	15	-----	
SS Window Ratio		Master	1.0000		0.4949		
		Before	0.4949	0.4701	0.4933	0.5196	
		Before-Master	-----	-----	-0.0016	-----	
SS Window Sum	1/s	Master	1		9122		
		Before	9122	8666	9102	9578	
		Before-Master	-----	-----	-20	-----	
LS Window Ratio		Master	1.0000		0.2973		
		Before	0.2973	0.2825	0.2935	0.3122	
		Before-Master	-----	-----	-0.0038	-----	
LS Window Sum	1/s	Master	1		1064		
		Before	1064	1010	1063	1117	
		Before-Master	-----	-----	-1	-----	

HDRS Density Calibration - Photo-multiplier High Voltages

Master (EEPROM):		12:27:08 26-Mar-2013		Before (Measured):		22:58:20 31-Mar-2013	
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
BS PM High Voltage	V	Master		1000	1613	2400	
		Before		1000	1609	2400	
		Before-Master	-----	-100	-4	100	
SS PM High Voltage	V	Master		1000	1636	2400	
		Before		1000	1671	2400	
		Before-Master	-----	-100	35	100	
LS PM High Voltage	V	Master		1000	1577	2400	
		Before		1000	1582	2400	
		Before-Master	-----	-100	5	100	

HDRS Density Calibration - Crystal Quality Resolutions

Master (EEPROM):		12:27:08 26-Mar-2013		Before (Measured):		22:58:20 31-Mar-2013	
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
BS Crystal Resolution	%	Master		5.00	11.98	25.00	
		Before		5.00	11.92	25.00	
		Before-Master	-----	-1.00	-0.06	1.00	
SS Crystal Resolution	%	Master		5.00	9.64	20.00	
		Before		5.00	10.31	20.00	
		Before-Master	-----	-1.00	0.67	1.00	
LS Crystal Resolution	%	Master		5.00	9.66	20.00	
		Before		5.00	9.51	20.00	
		Before-Master	-----	-1.00	-0.15	1.00	

HDRS MCFL Calibration - MCFL Accumulations

Before (Measured):		22:54:52 31-Mar-2013					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Main Resistivity	ohm.m	Before	3875	3565	3831	4185	
Deep Resistivity	ohm.m	Before	3830	3524	3793	4136	
Shallow Resistivity	ohm.m	Before	3830	3524	3818	4136	

HGNS-B (HILT Gamma-Ray and Neutron Sonde, 125 degC) Calibration - Run 1

Primary Equipment :							
HILT Gamma-Ray and Neutron Sonde, 125 degC			HGNS-B		863		

Auxiliary Equipment :

HGNS Accelerometer, 125 degC

HACCZ-B

452

AmBe Neutron Logging Source

NSR-F

5069

Calibration Parameter :

Water Temperature

Housing Size

JIG-BKG (Jig minus background reference)

165

HGNS Accelerometer Calibration - Accelerometer Accumulations

Before (Measured): 22:22:52 01-Apr-2013

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
AZ Vertical Measurement	ft/s2	Before	32.2	31.5	31.8	32.8	

HGNS Accelerometer EEPROM - Accelerometer EEPROM Read

Master (EEPROM): 00:00:00 15-Dec-1996

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Accelerometer Manufacturer		Master			Sunstrand		
Accelerometer Reference Temperature	degF	Master		30.2	68.0	122.0	
Accelerometer Coefficients - 0		Master	----	----	51.000	----	
Accelerometer Coefficients - 1		Master	----	----	11.800	----	
Accelerometer Coefficients - 2		Master	----	----	0.011	----	
Accelerometer Coefficients - 3		Master	----	----	0.000	----	
Accelerometer Coefficients - 4		Master	----	----	2.182	----	
Accelerometer Coefficients - 5		Master	----	----	0.000	----	
Accelerometer Coefficients - 6		Master	----	----	0.000	----	
Accelerometer Coefficients - 7		Master	----	----	0.000	----	
Accelerometer Coefficients - 8		Master	----	----	293.400	----	
Accelerometer Coefficients - 9		Master	----	----	0.997	----	

HGNS Neutron Calibration - HGNS Neutron Accumulations

Master (EEPROM): 10:38:08 25-Feb-2013 Before (Measured): 22:42:39 31-Mar-2013 After:

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Near Zero Measurement	1/s	Master	0	5.0	27.8	40.0	
		Before	0	5.0	28.1	40.0	
		After	----	----	----	----	
		Before-Master	----	-4.2	0.3	4.2	
		After-Before	----	----	----	----	
Far Zero Measurement	1/s	Master	0	5.0	31.8	40.0	
		Before	0	5.0	30.9	40.0	
		After	----	----	----	----	
		Before-Master	----	-4.8	-0.9	4.8	
		After-Before	----	----	----	----	
Near Plus Measurement - 0	1/s	Master	6031.0	4700.0	4914.0	6900.0	
		Before	----	----	----	----	
		After	----	----	----	----	
		Before-Master	----	----	----	----	
		After-Before	----	----	----	----	
Far Plus Measurement - 0	1/s	Master	2793.0	1900.0	2076.0	2900.0	
		Before	----	----	----	----	
		After	----	----	----	----	
		Before-Master	----	----	----	----	
		After-Before	----	----	----	----	
Near Corrected Plus Measurement - 0	1/s	Master		4700.0	4881.0	6900.0	
		Before	----	----	----	----	
		After	----	----	----	----	
		Before-Master	----	----	----	----	
		After-Before	----	----	----	----	
Far Corrected Plus Measurement - 0	1/s	Master		1900.0	2041.0	2900.0	
		Before	----	----	----	----	
		After	----	----	----	----	
		Before-Master	----	----	----	----	
		After-Before	----	----	----	----	

HGNS Gamma-Ray Calibration - Gamma-Ray Accumulations

Before (Measured): 22:54:20 31-Mar-2013

After:

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
RGR Zero Measurement	gAPI	Before	30.0	0	86.2	120.0	
		After	----	----	----	----	
		After-Before	----	----	----	----	
RGR Plus Measurement	gAPI	Before	185.4	157.1	168.9	206.3	
		After	----	----	NOT DONE	----	
		After-Before	----	----	----	----	
GR Calibration Gain		Before	0.89	0.80	0.98	1.05	
		After	----	----	----	----	
		After-Before	----	----	----	----	

Company:

Noble Energy Inc

Schlumberger

Well:

Shable Federal LB 33 78HN

Field:

Wildcat

County:

Weld

State:

Colorado

Platform Express

Triple Combo

Standard Resolution