

Company: Encana Oil & Gas

Well: State 23-16

Field: Wattenberg

County: Weld State: Colorado

County: Weld

Field: Wattenberg

Well: State 23-16

Company: Encana Oil & Gas

PLATFORM EXPRESS

COMPENSATED NEUTRON, LITHO

INDUCTION RESISTIVITY, GR, SP

Location:

SHL: SENW 2441' FNL & 1461' FWL

Sec: 16, T:3N, R:68W

Lat: 40.226410, Long: -105.012120

Permanent Datum:

Log Measured From:

Drilling Measured From:

API Serial No.

051233680600

Ground Level

Kelly Bushing

Kelly Bushing

Section:

16

Elev.:

13.00 ft

Township:

3N

K.B.

G.L.

D.F.

5086.00 ft

5073.00 ft

5085.00 ft

5073.00 f

above Perm.Datum

Range:

68W

Logging Date 08-Apr-2013

Run Number Run One

Depth Driller 8028.00 ft

Schlumberger Depth 8032.50 ft

Bottom Log Interval 8032.50 ft

Top Log Interval 632.00 ft

Casing Driller Size @ Depth 8.625 in @ 633.50 ft

Casing Schlumberger 632 ft

Bit Size 7.875 in

Type Fluid In Hole Water

Density 9.7 lbm/gal

Viscosity 50 s

Fluid Loss PH 8

MUD

Source of Sample Active Tank

RM @ Meas Temp 0.25 ohm.m @ 53.4 degF

RMF @ Meas Temp 0.19 ohm.m @ 53.4 degF

RMC @ Meas Temp 0.31 ohm.m @ 53.4 degF

Source RMF RMC Calculated

RM @ BHT RMF @ BHT 0.07 @ 204 0.05 @ 204

Max Recorded Temperatures 204 degF

Circulation Stopped 08-Apr-2013 18:00:00

Logger on Bottom 09-Apr-2013 01:45:58

Unit Number 3030 Location: Fort Morgan, CO

Recorded By Max Pace

Witnessed By Roy Hunt/Wess Harrison

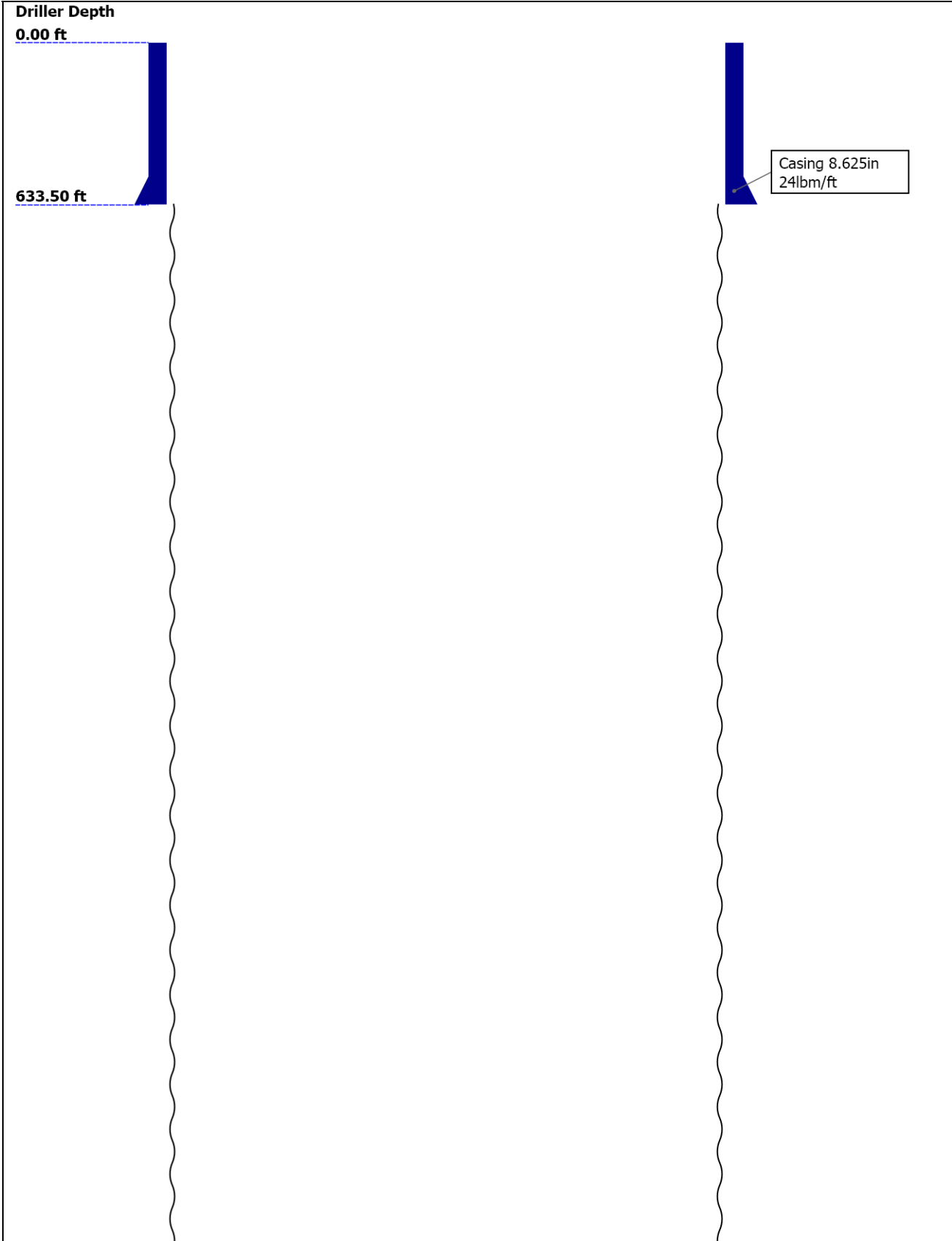
Disclaimer

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Well Sketch



8028.00 ft

Open Hole 7.875in

Borehole Size/Casing/Tubing Record

Bit						
Bit Size (in)	7.875					
Top Driller (ft)	633.5					
Top Logger (ft)	633.5					
Bottom Driller (ft)	8028					
Bottom Logger (ft)	8032.5					
Casing						
Size (in)	8.625					
Weight (lbm/ft)	24					
Inner Diameter (in)	8.099					
Grade	N/A					
Top Driller (ft)	0					
Top Logger (ft)	0					
Bottom Driller (ft)	633.5					
Bottom Logger (ft)	632					

Borehole Fluids

Parameter(unit)	Run One					
Fluid Type	Water					
Max Recorded Temperatures (degF)	204					
Source of Sample	Active Tank					
Salinity (ppm)	34058.5					
Density (lbm/gal)	9.7					
Funnel Viscosity (s)	50					
Fluid Loss (cm3)						
PH	8					
Date/Time Circulation Stopped	08-Apr-2013 18:00:00					
Date Logger on Bottom	09-Apr-2013					
Time Logger on Bottom	01:45:58					
Source RMF	Calculated					
RMC	Calculated					
RM @ Meas Temp (ohm.m@degF)	0.25 @ 53.4					
RMF @ Meas Temp (ohm.m@degF)	0.19 @ 53.4					
RMC @ Meas Temp (ohm.m@degF)	0.31 @ 53.4					

RM @ BHT (ohm.m@degF)	0.07 @ 204					
RMF @ BHT (ohm.m@degF)	0.05 @ 204					
RMC @ BHT (ohm.m@degF)	0.09 @ 204					
Total Solid (%)	10.3					
High Gravity Solids (%)						

Remarks and Equipment Summary

Run One: Toolstring				Run One: Remarks
Equip name	Length	MP name	Offset	All Schlumberger depth control procedures followed.
LEH-QT	43.57			
LEH-QT				
DTC-H:9469	40.65			IDW used as primary depth reference.
ECH-KC:10530				Z Chart used as secondarty depth reference.
DTC-H:9469				Crew: Derrick Hunter, Tyler Riter, Max Pace
		CTEM	39.75	Repeatability of Neutron Tool is +/- @0-20 pu, +/- 2@30 pu, +/- 6 above 45 pu @1800 ft/hr
		HV	0.00	Repeatability of Density tool is 0.04 g/cc@3600 ft/hr
		TeIStatus	37.65	Repeatability of SP is 2mV.
		ToolStatus	37.65	Repeatability of Induction Tool is +/- 2%.
		Temperature	37.62	Repeatability of GR is 7% @ 1800 ft/hr.
HGNS-B:863	37.65			Repeatability of MCFL is 20% @ 0.2-2 ohmm and 200-2000 ohmm, 5% @ 2-200 ohmm
HGNH:2883				Formation Matrix is set to Sandstone with a density of 2.65 g/cc as per client's request.
NPV-N				Applied Neutron tool correction as per client's request is Hole size.
NSR-F:5069		GR	36.91	
HACCZ-B:452				
HGNS-B:863				
HMCA-B				
		CNL Porosity	30.57	
		HGNS	28.24	
		HMCA	28.24	
		Accelerometer	0.00	
HDRS-B:1754	28.24			
ECH-MEB				
HRCC-B:791				
HRMS-B:1754				
Backscatter				
Long Spacing				
Short Spacing				
HRGD-B:1849				
GPV-Q				
GSR-J:5094				
		HRCC	24.24	
		MCFL	18.81	
		Caliper	18.33	
		TLD Density	17.94	
AIT-H:398	16.00			
AHIS:398				
AHRM:398				
		Power Supply	7.91	
		Induction	7.91	
		Temperature	7.91	



SP 0.08
Mud Resistivity 0.00
Head Tension
TOOL_ZERO

Lengths are in ft

Maximum Outer Diameter = 5.000 in

Line: Sensor Location, V value: Gating Offset

All measurements are relative to TOOL_ZERO

Depth Summary

Depth Control Parameters			
Conveyance Type	Run One		
Rig Type	Wireline		
Depth Measuring Device	Land		
Type	Run One		
Calibration Cable Type	IDW-B		
Wheel Correction 1	7-39PLXS		
Wheel Correction 2	1		
Tension Device	0		
Type	Run One		
Serial Number	CMTD-B/A		
Calibration Date	2858		
Calibrator Serial Number	01-Apr-2013		
Calibration Points	78135A		
Calibration RMS	10		
Calibration Peak Error	8		
Logging Cable	17		
Type	Run One		
Serial Number	7-39P-LXS		
Logging Cable Length (ft)	U710242		
	16200.00		

Run One

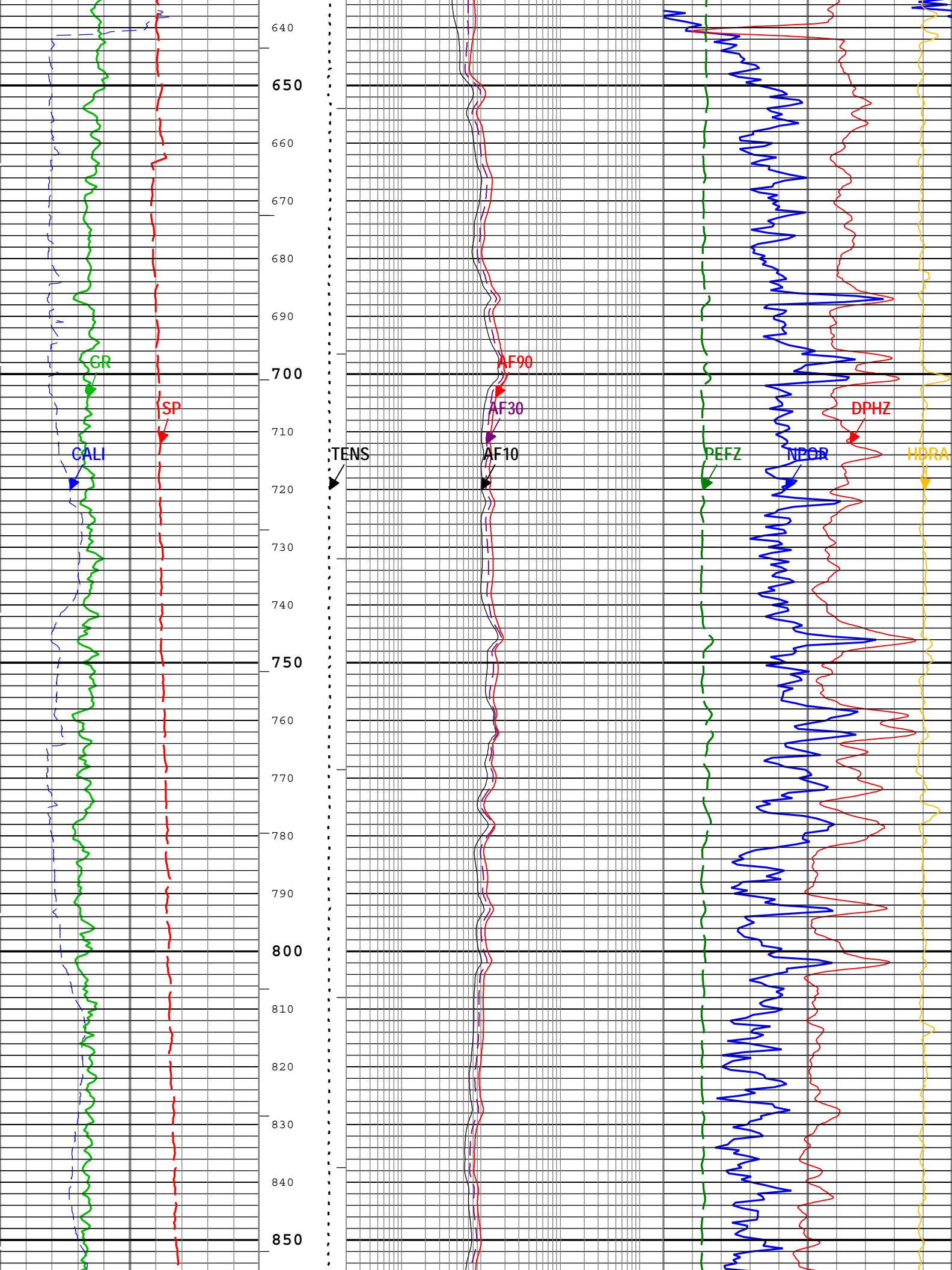
MAIN PASS 5"=100'

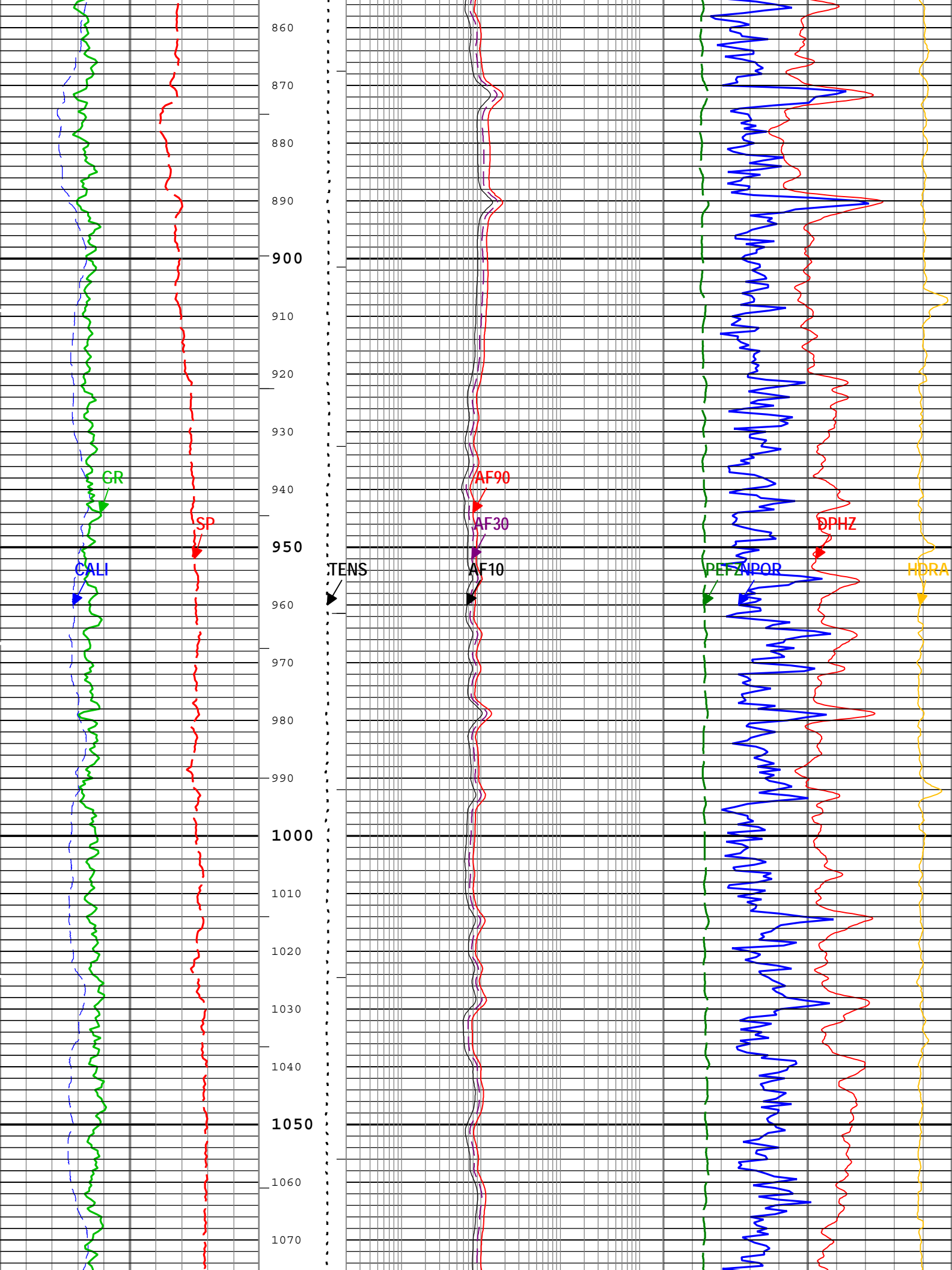
Integration Summary

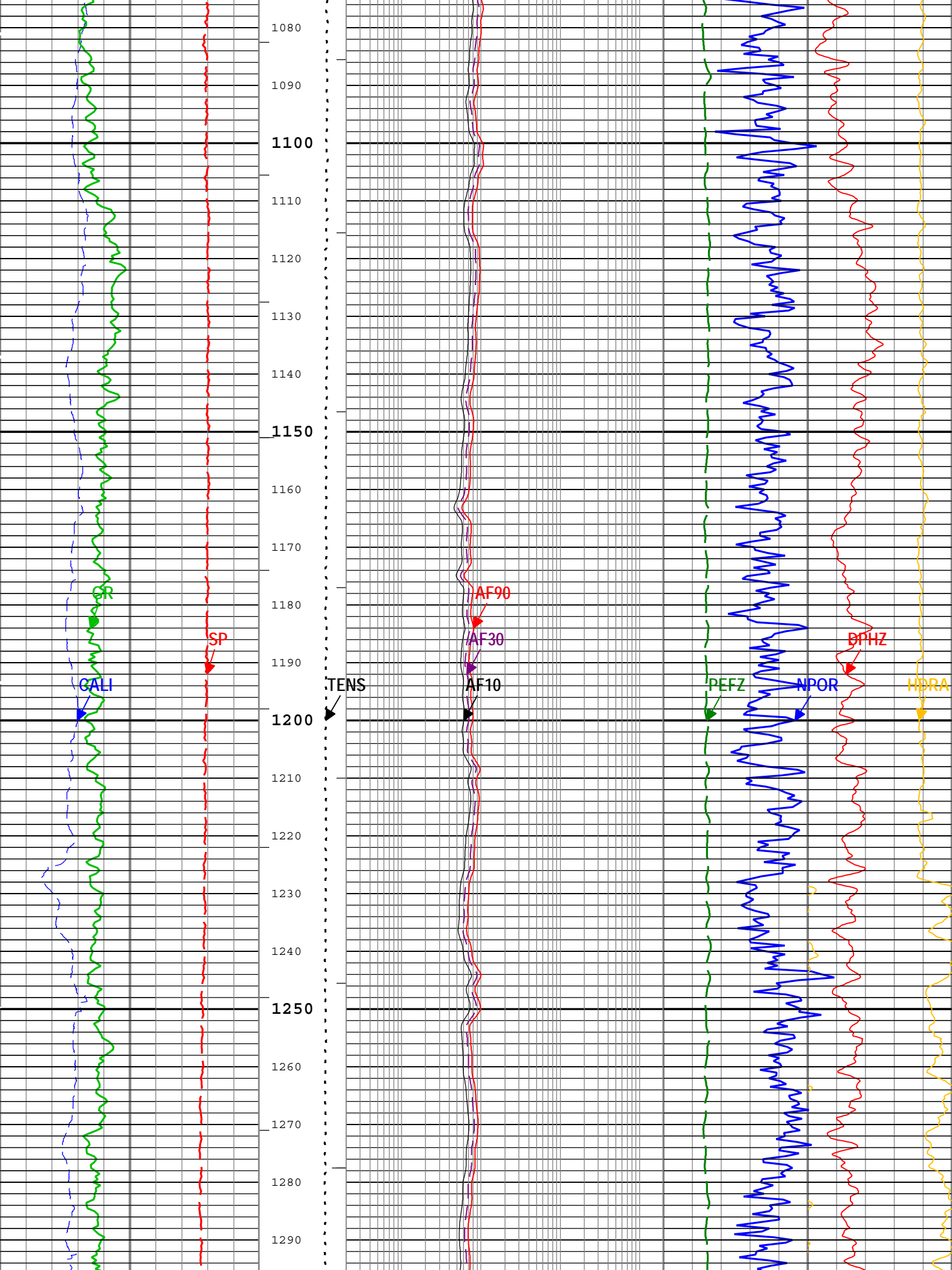
Output Channel(s)	Output Description	Input Parameter	Output Value	Unit
IHV	Integrated Hole Volume	GCSE_UP_PASS	2717.3	ft3
ICV	Integrated Cement Volume	GCSE_UP_PASS, FCD	1898.51	ft3

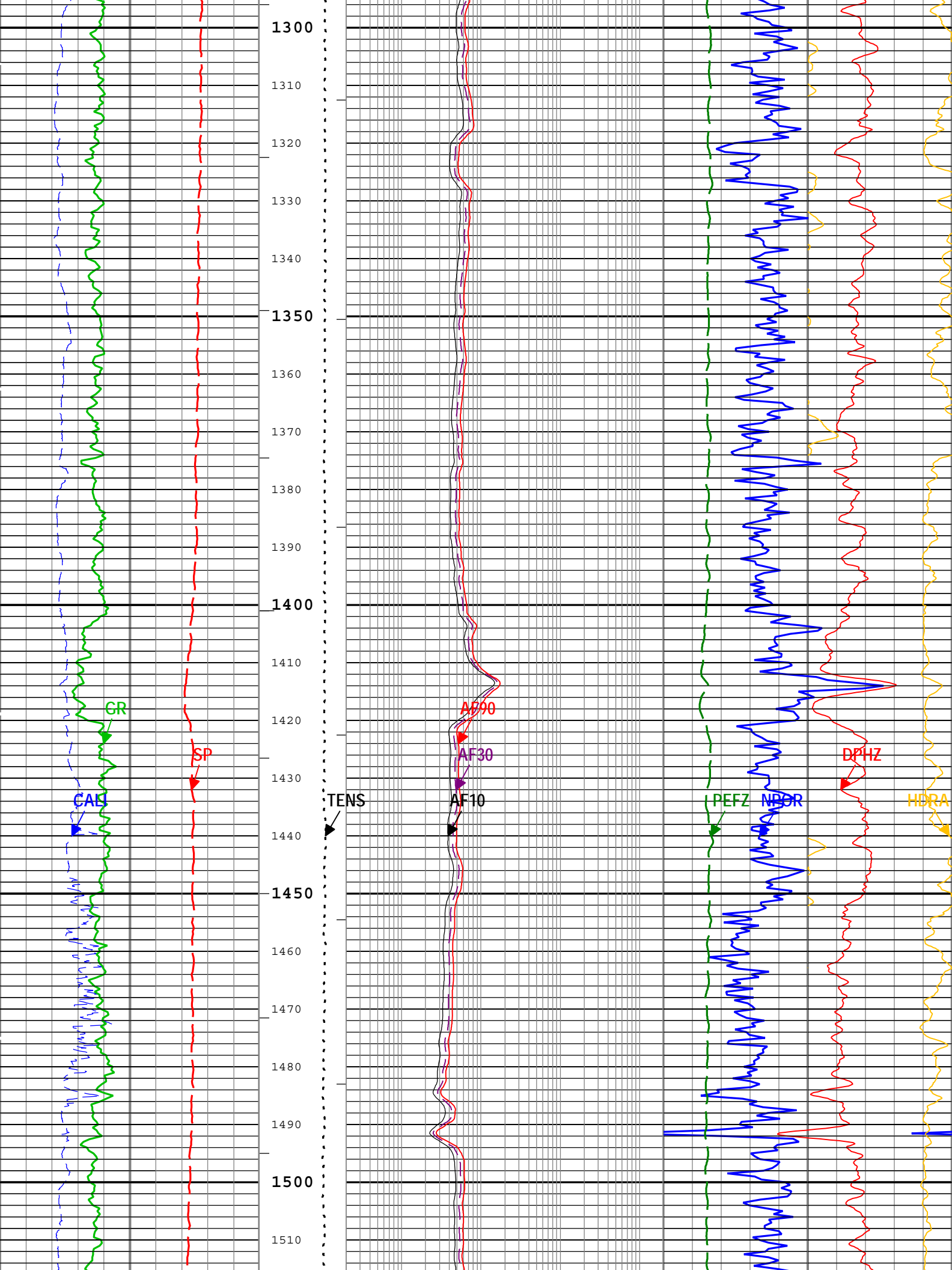
Software Version

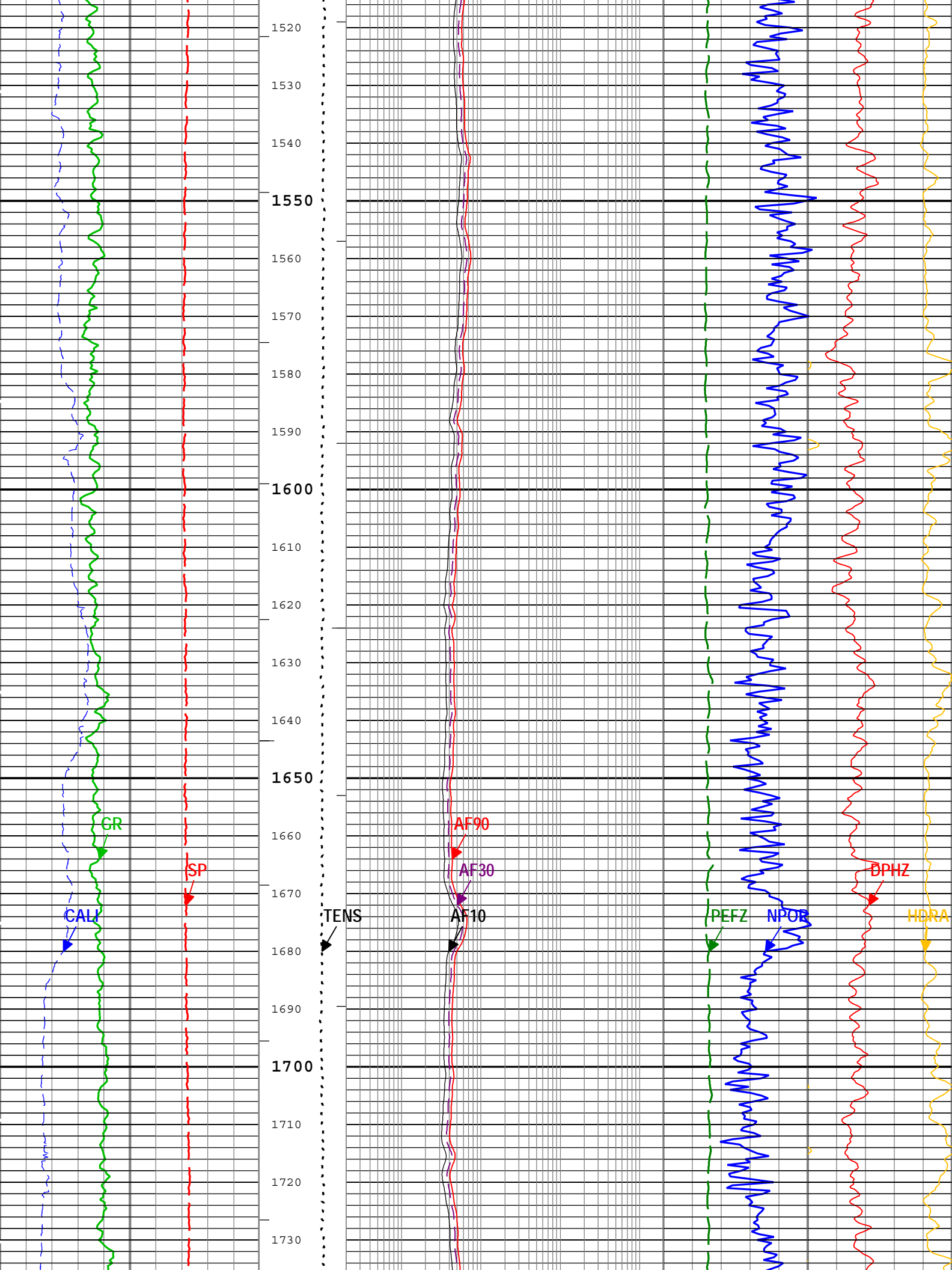
Acquisition System		Version
MaxWell		3.1.9755.0
Application Patch		SP-20120723-3.1.9755.1112
		EXP_APL-MASTAXIS-3.1.9755.1221
Computation	Description	Version
Borehole	Borehole Ensemble provides common Borehole Parameters and Channels	3.1.9755.0
MEASURE	Computation Ensemble provides common Measure Parameters and Channels	3.1.9755.0

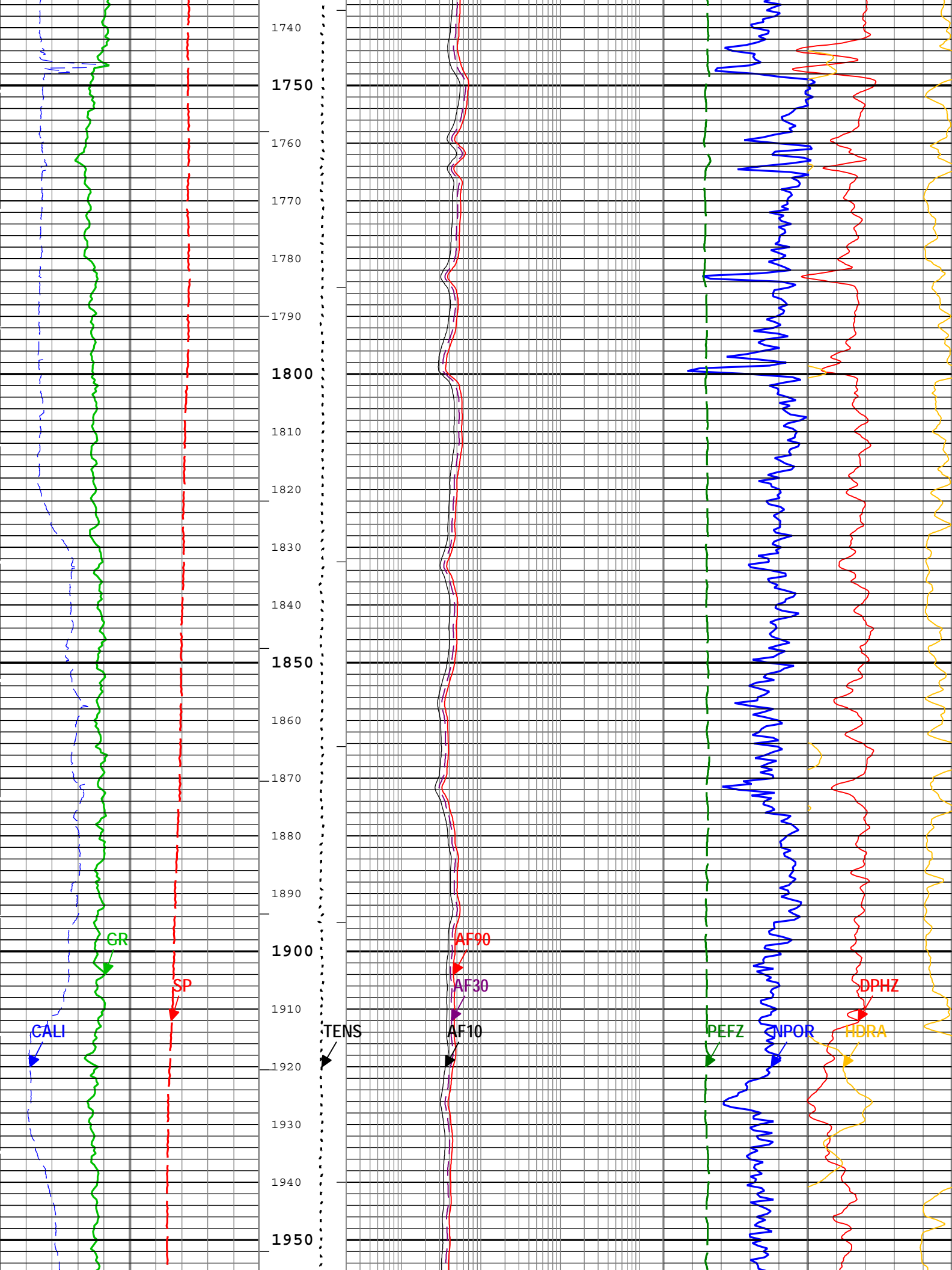


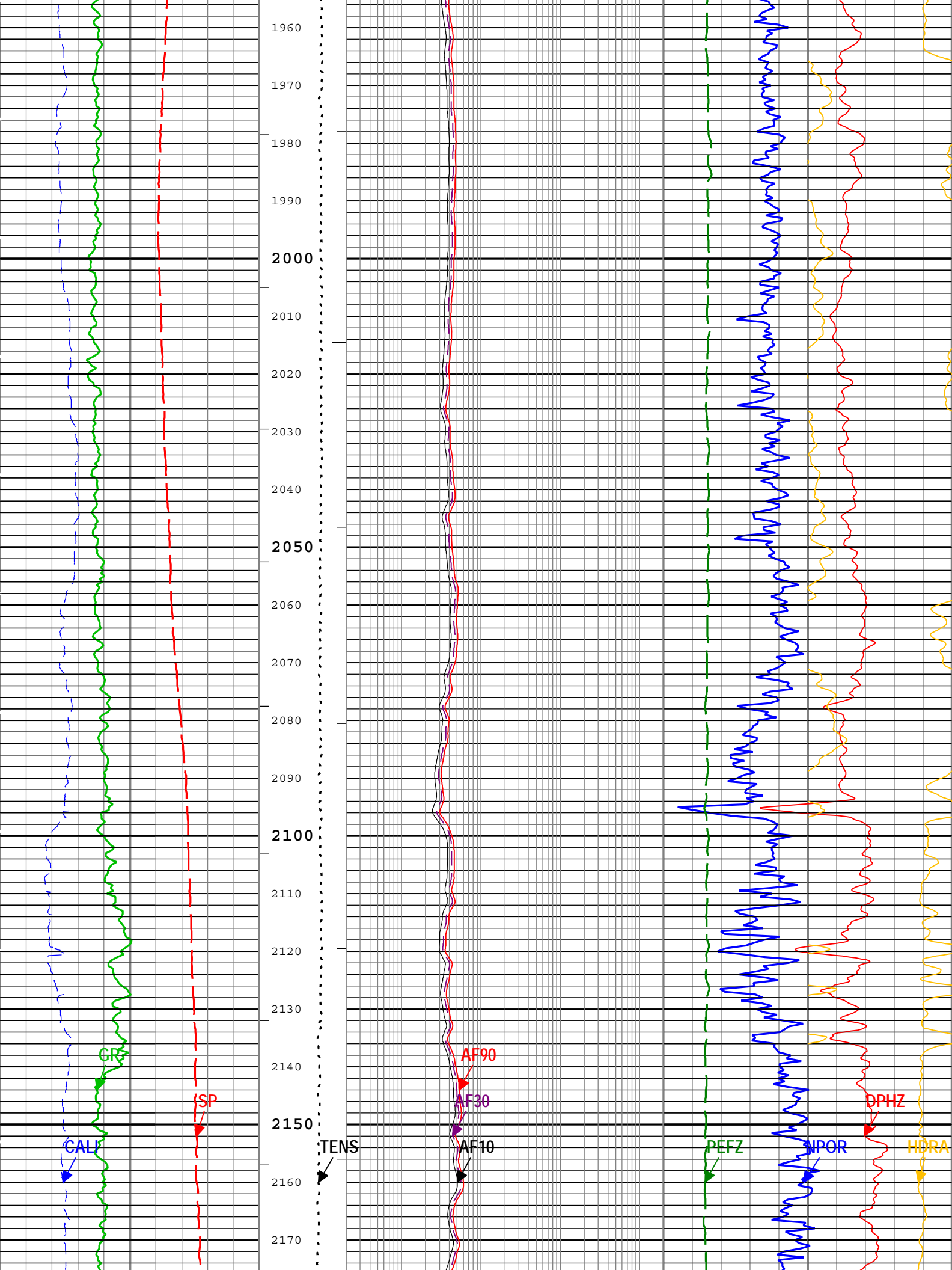


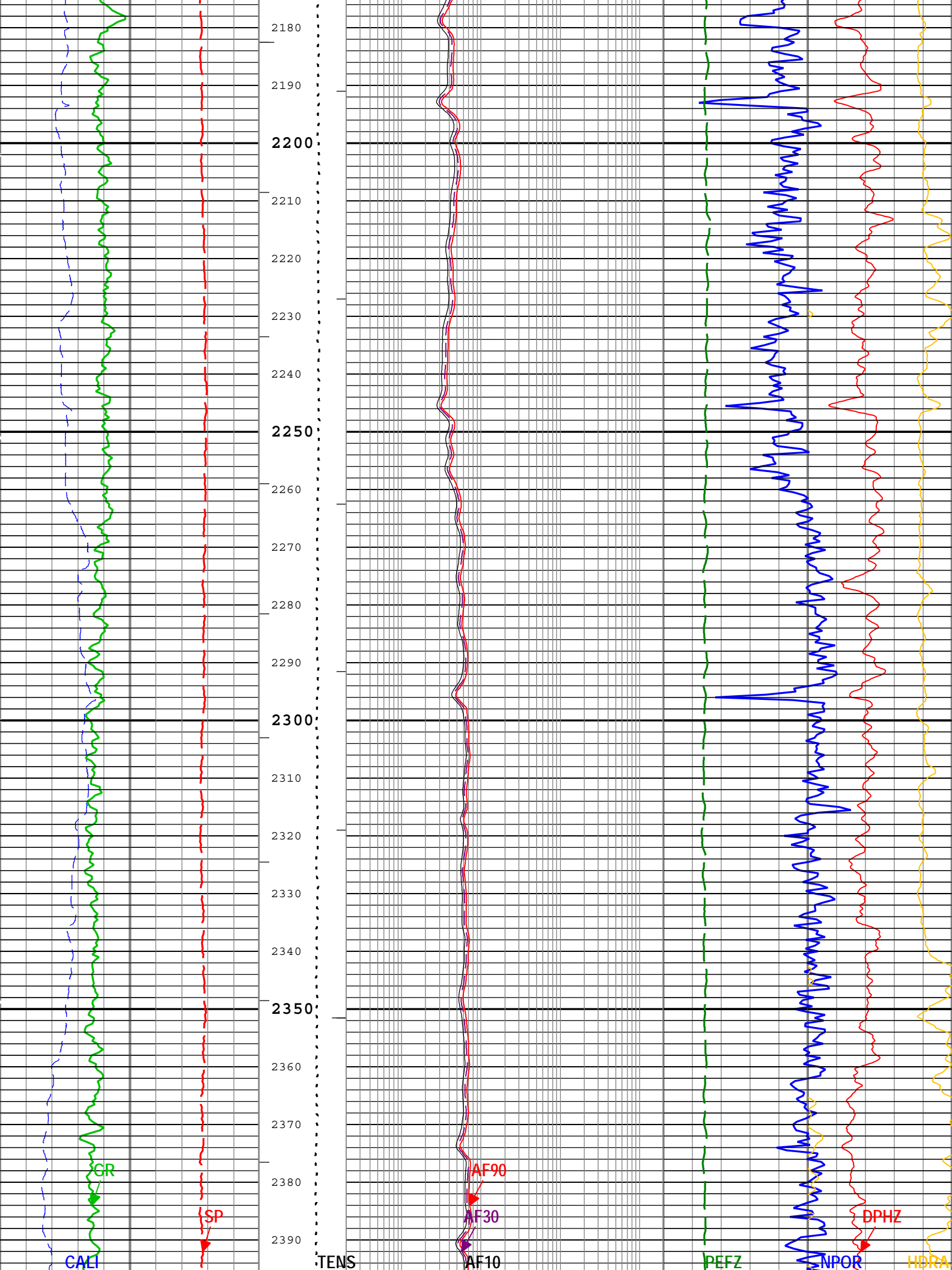


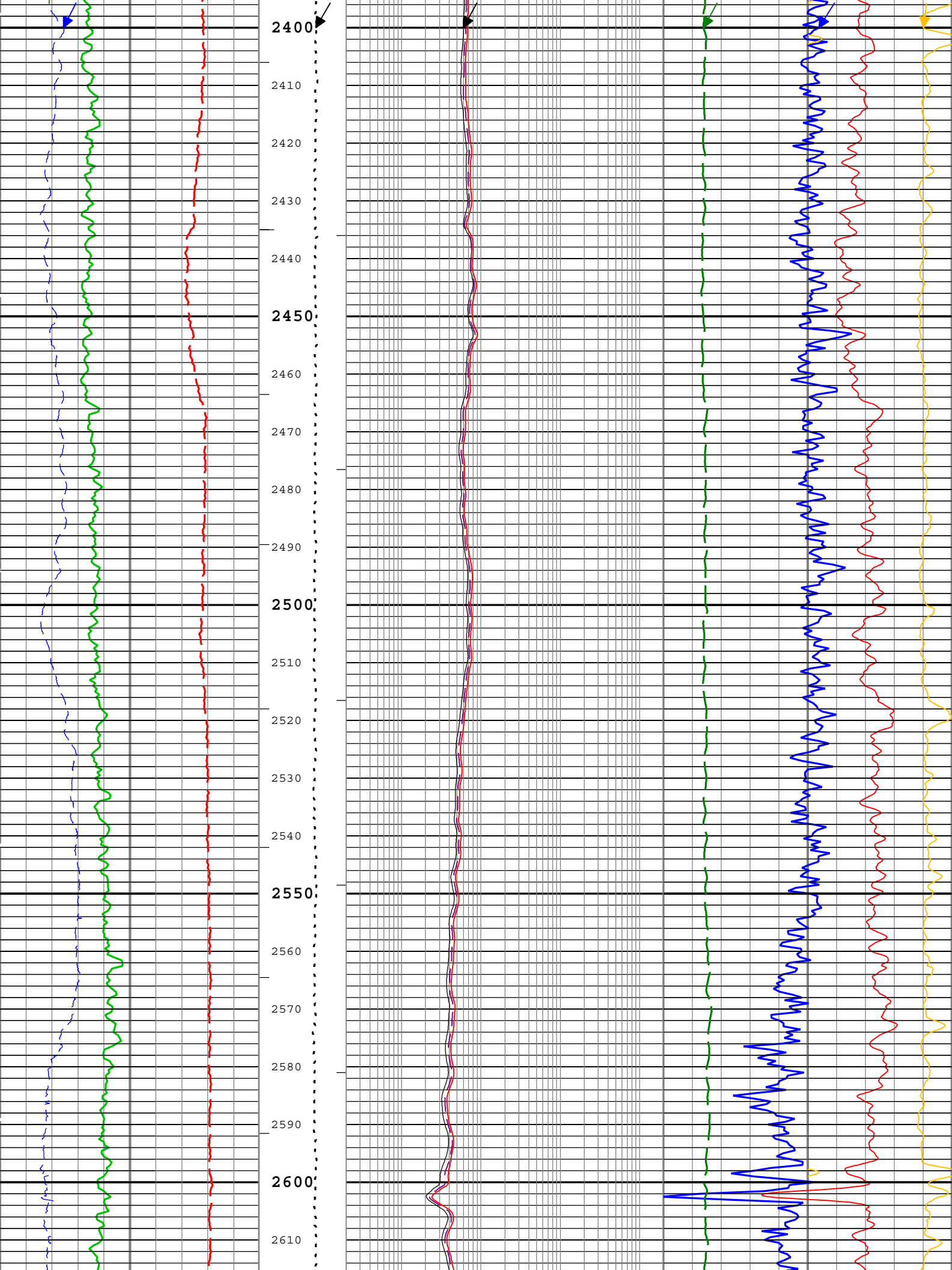


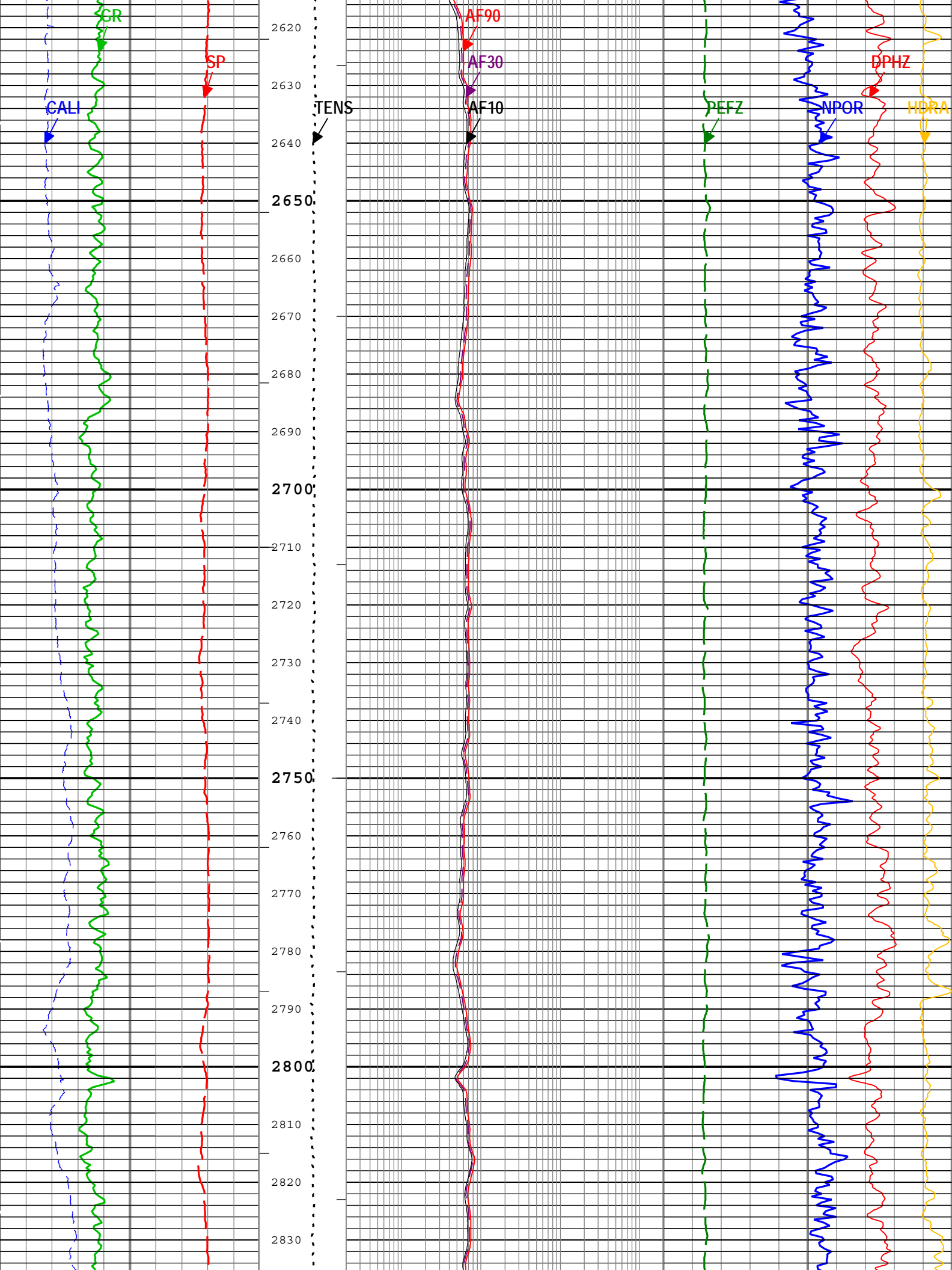


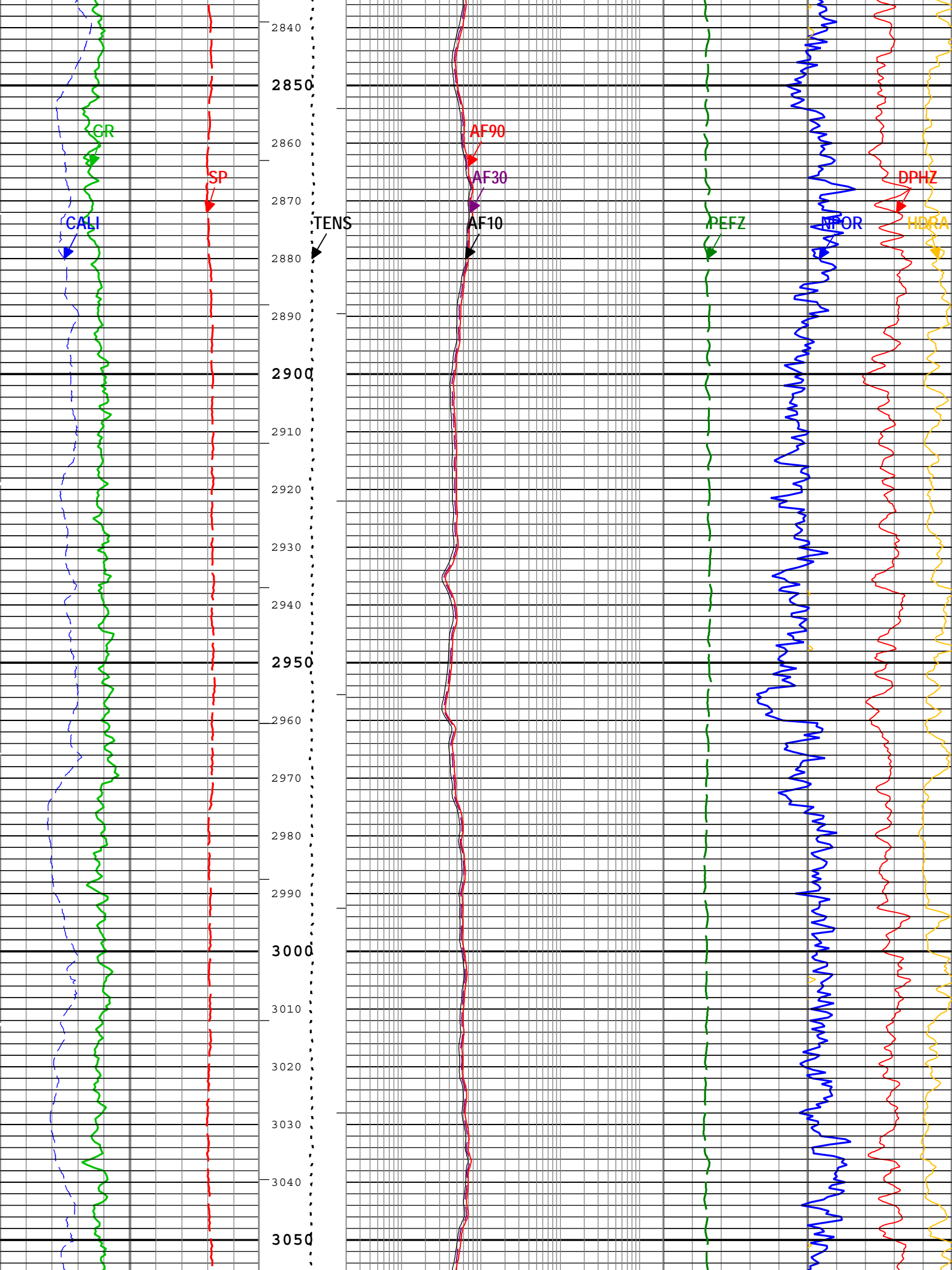


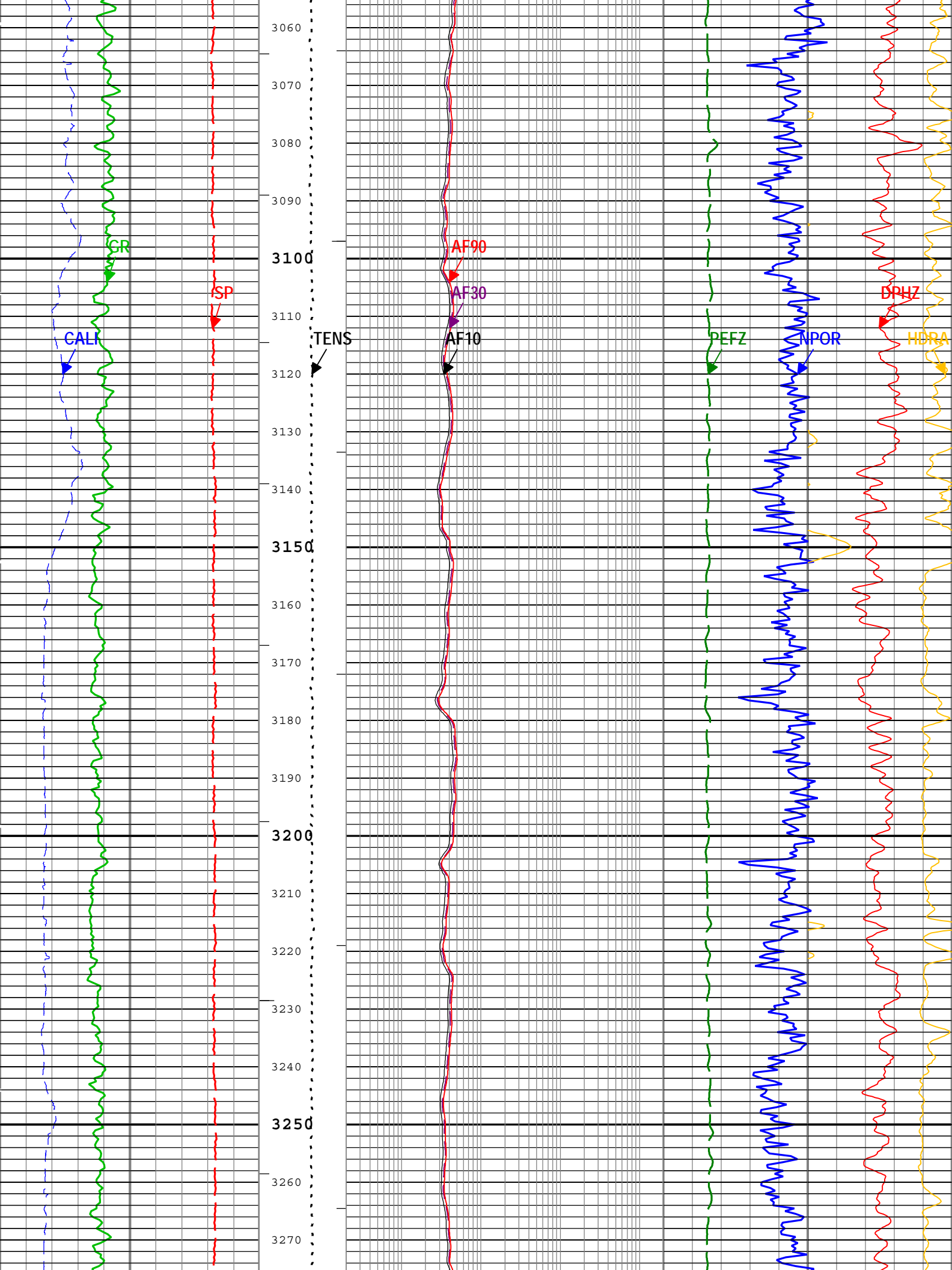


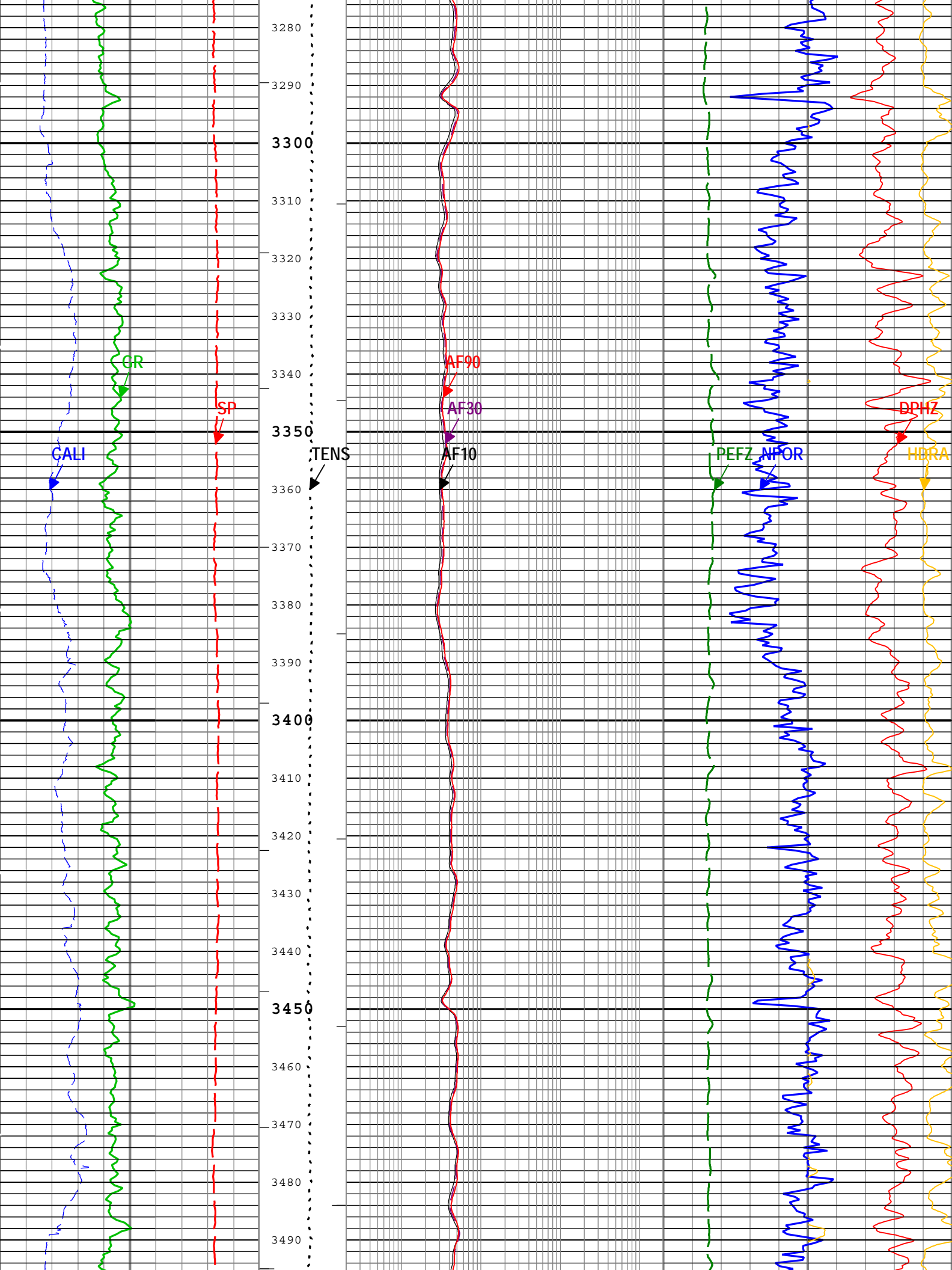


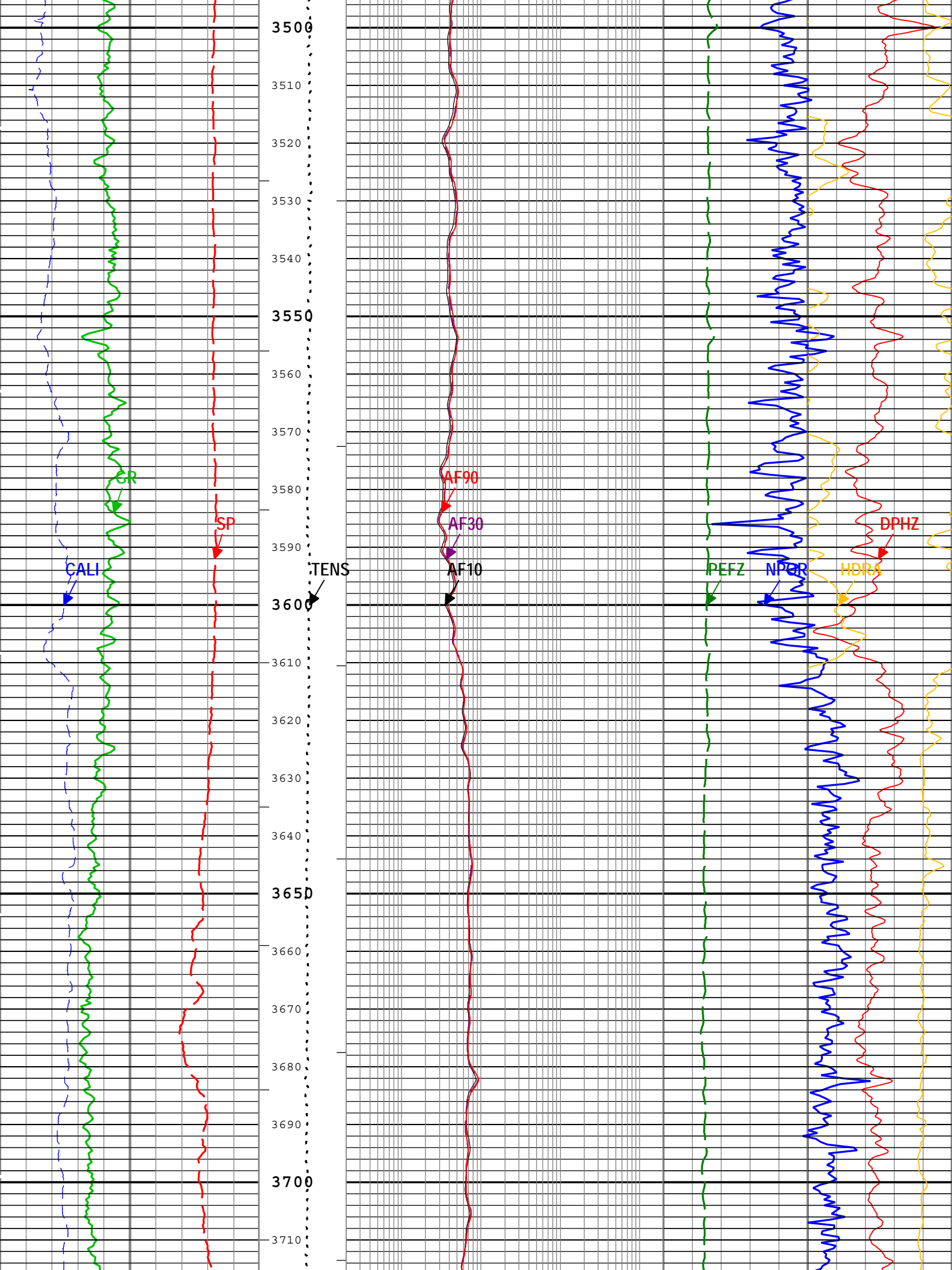


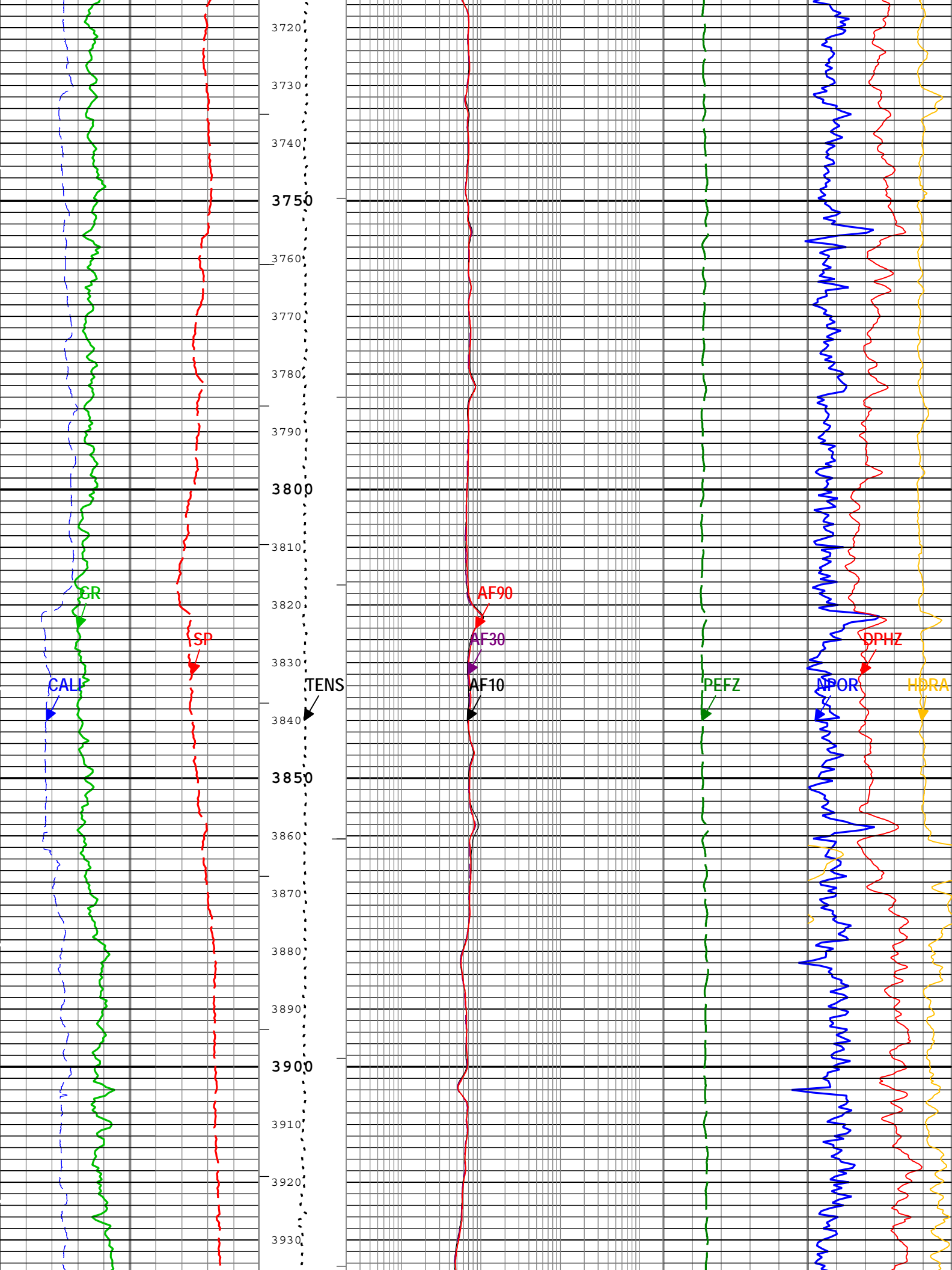


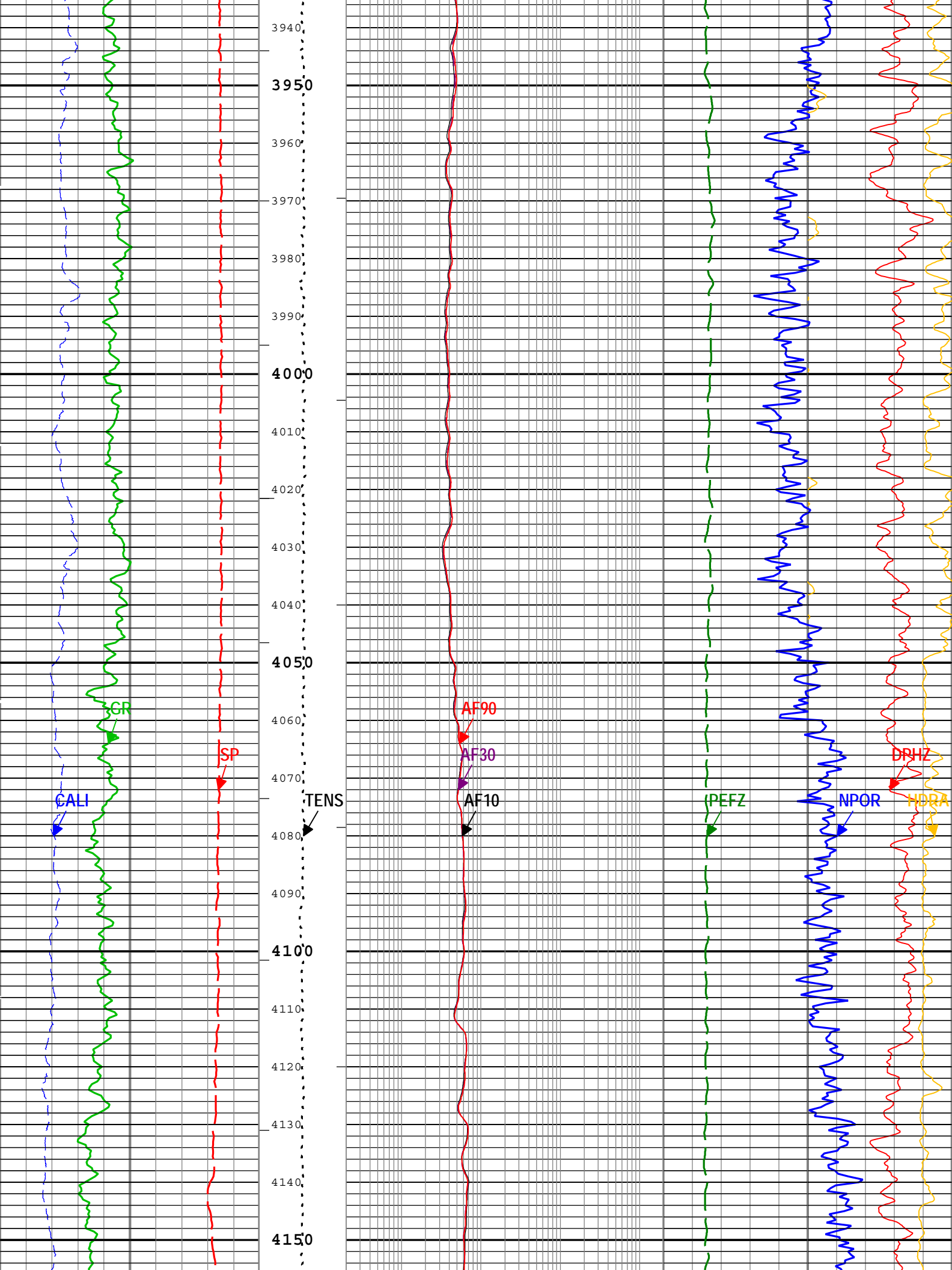


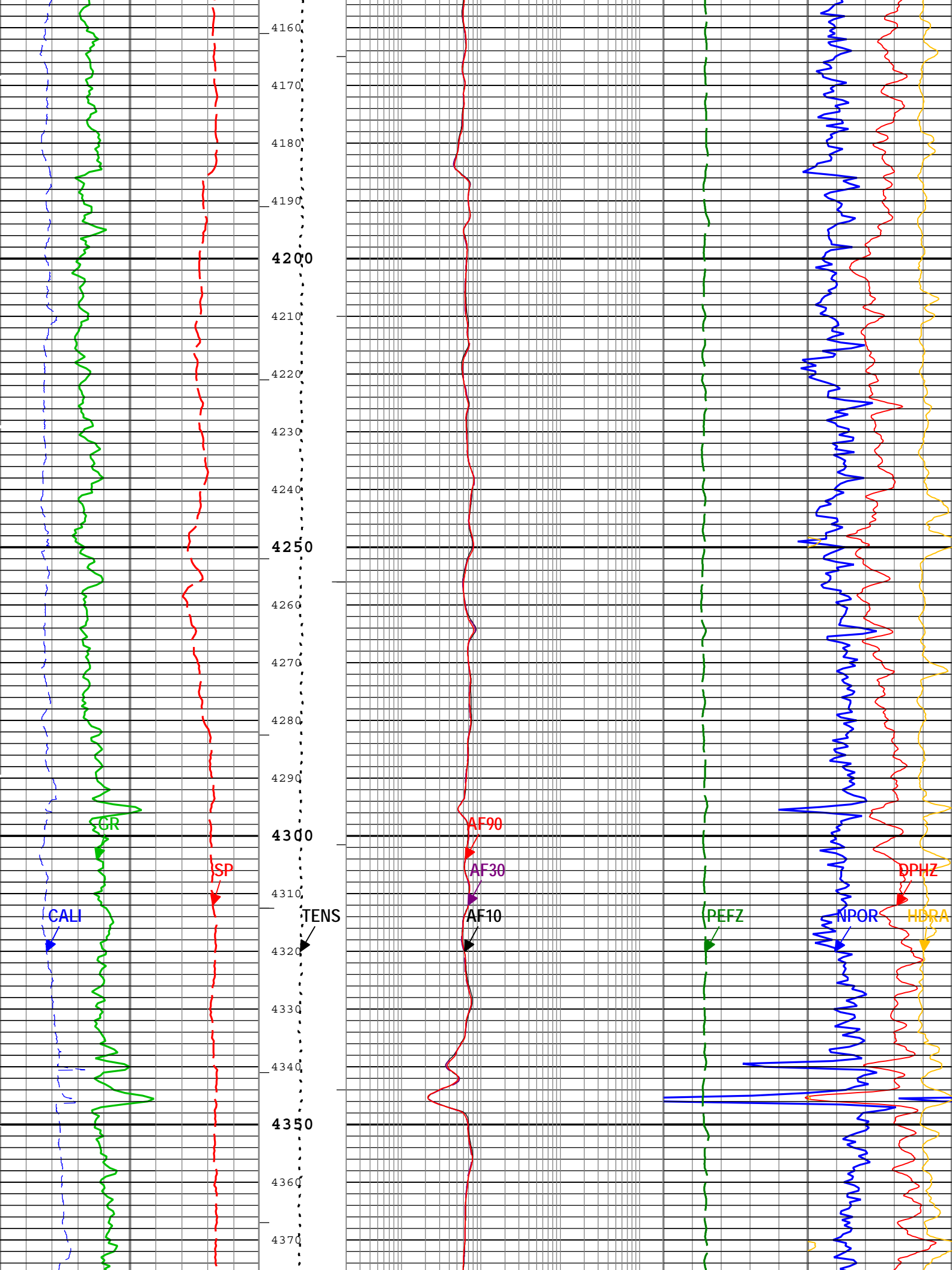


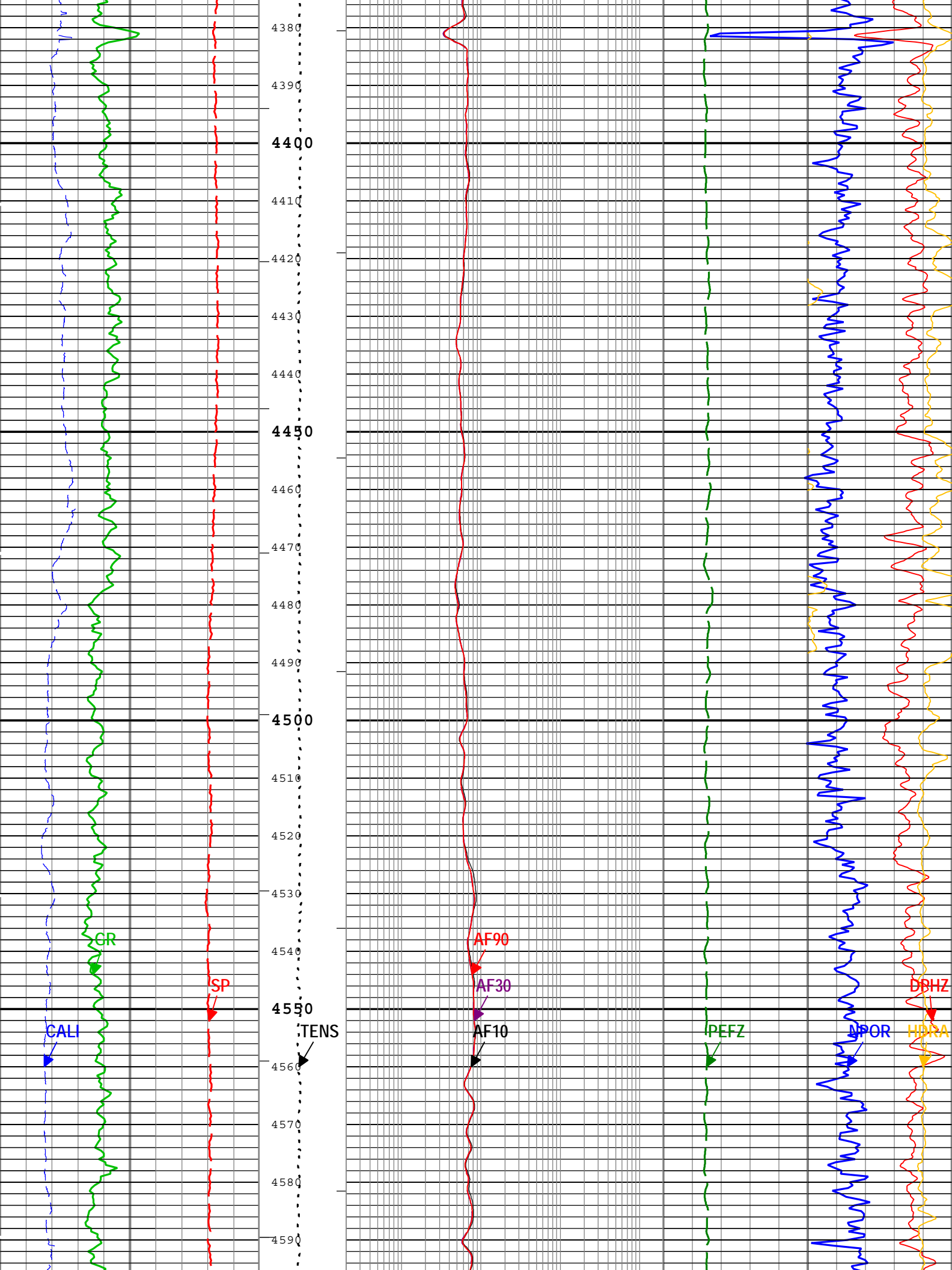


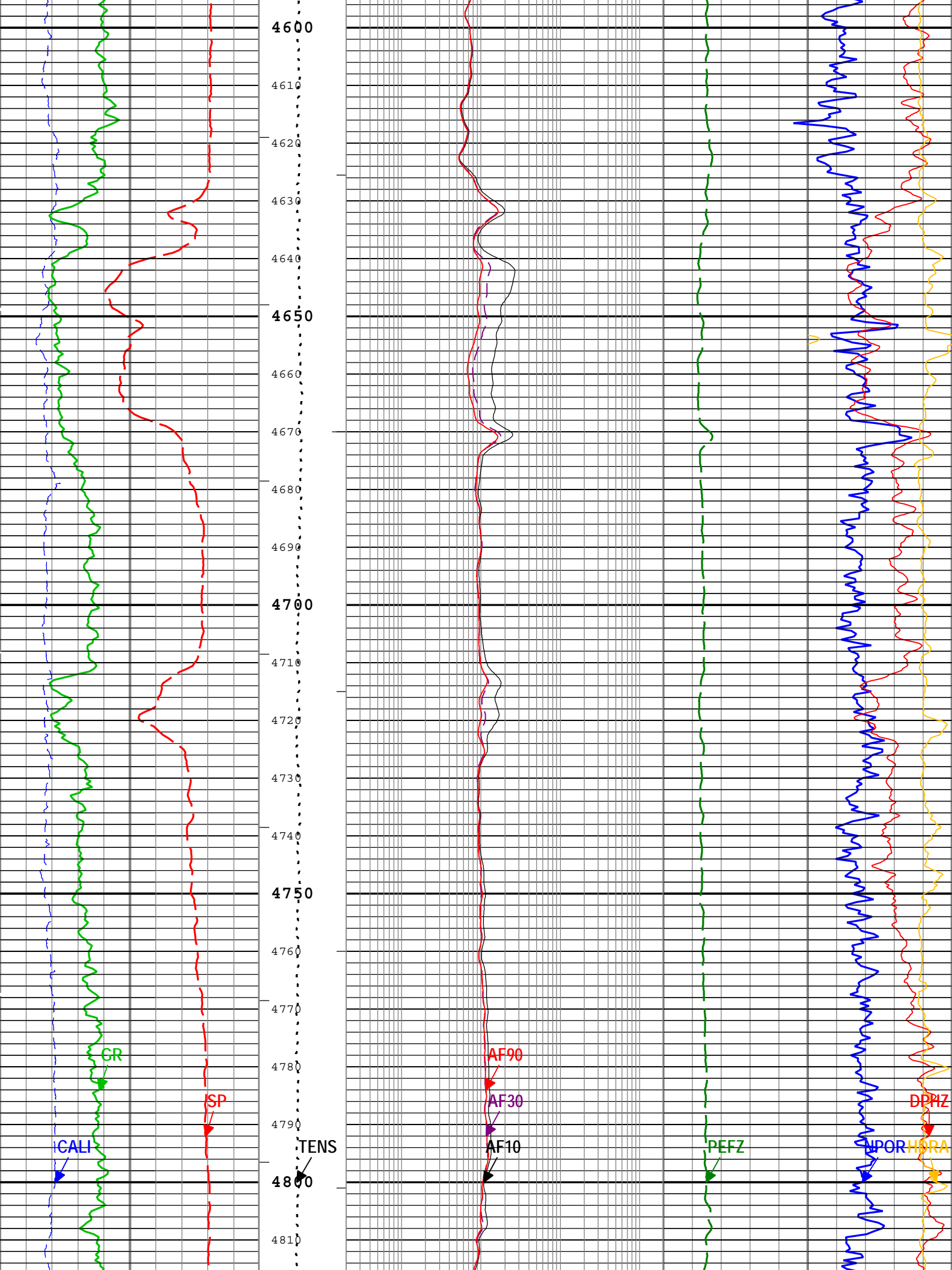


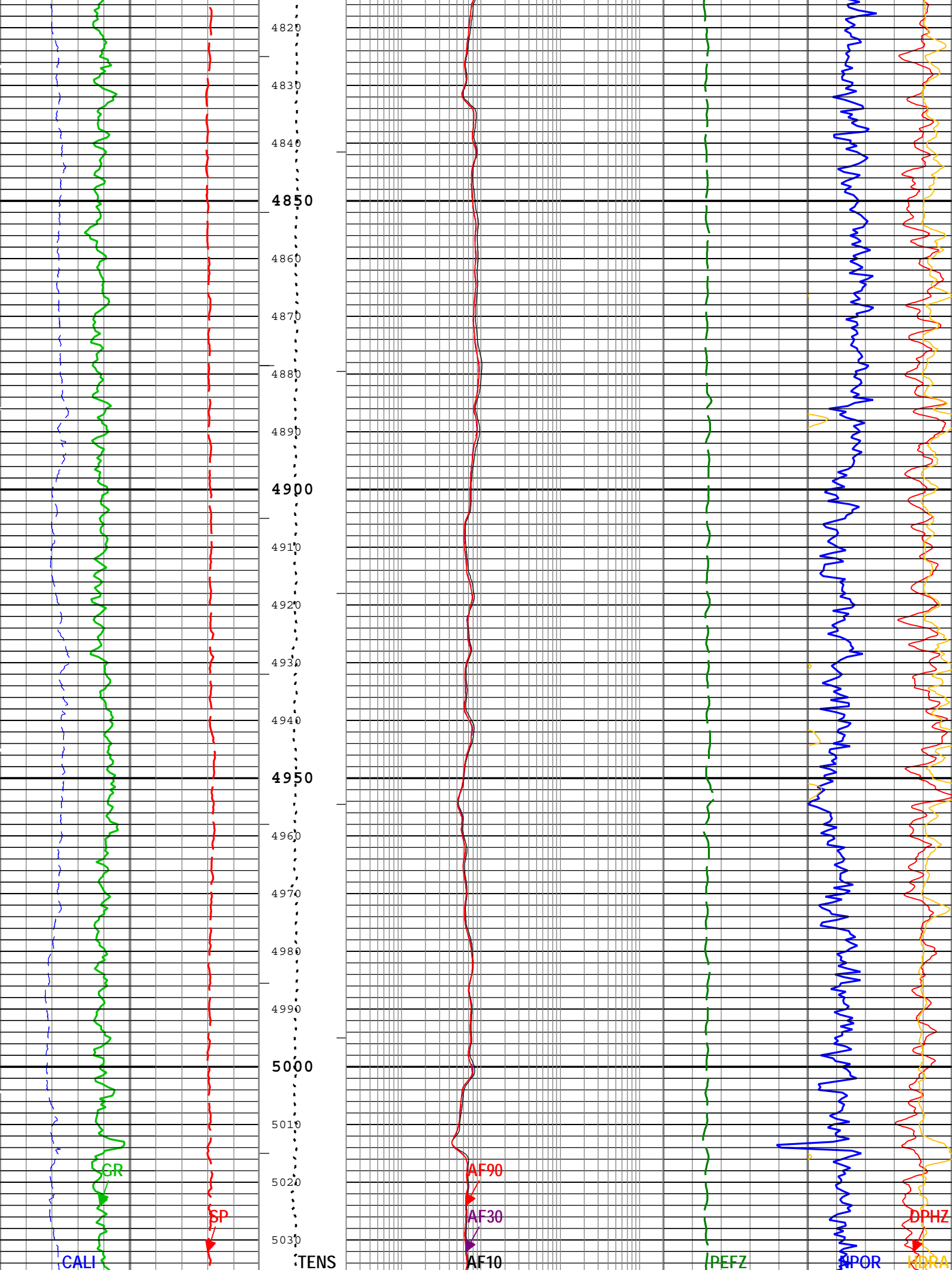


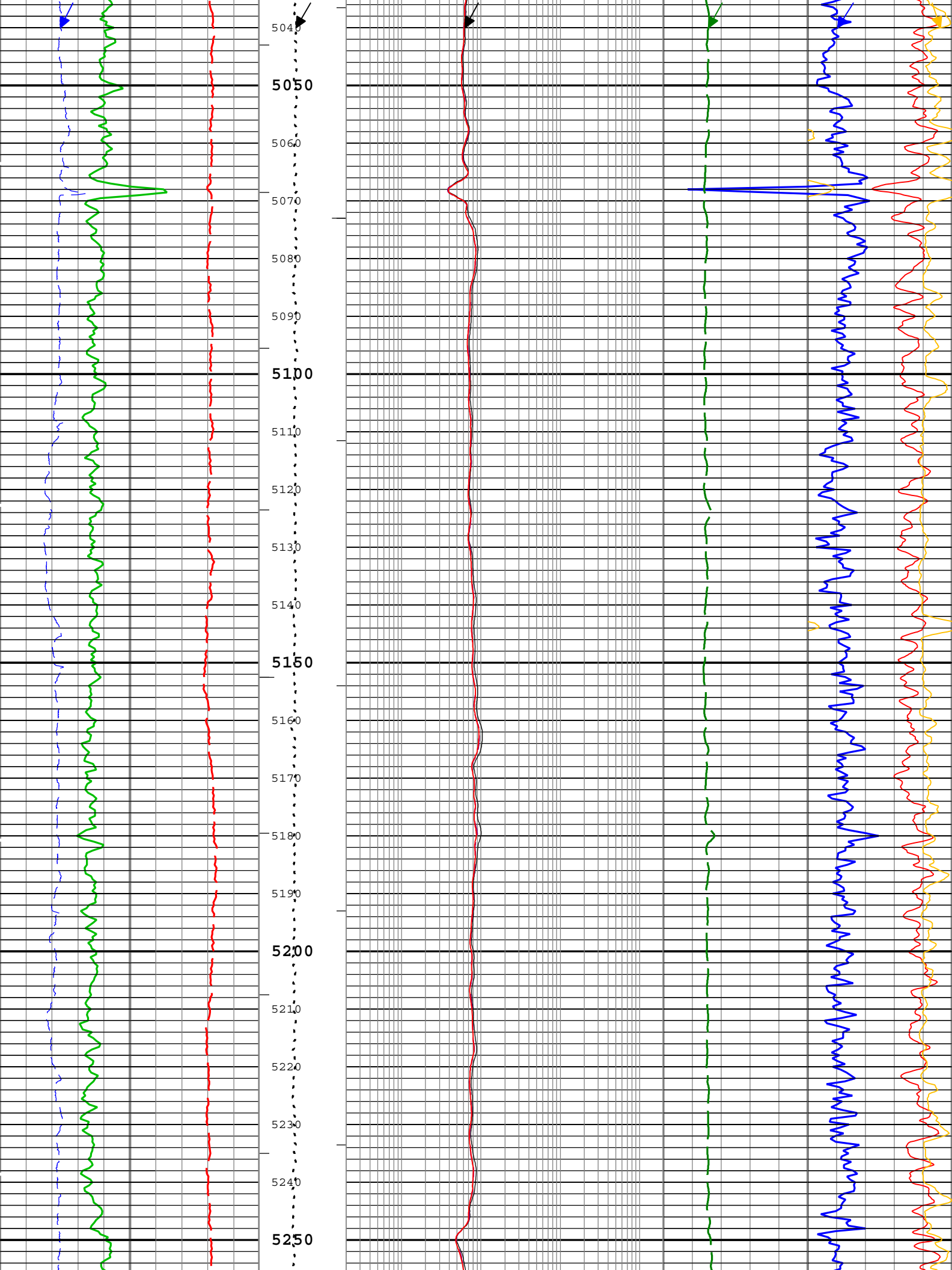


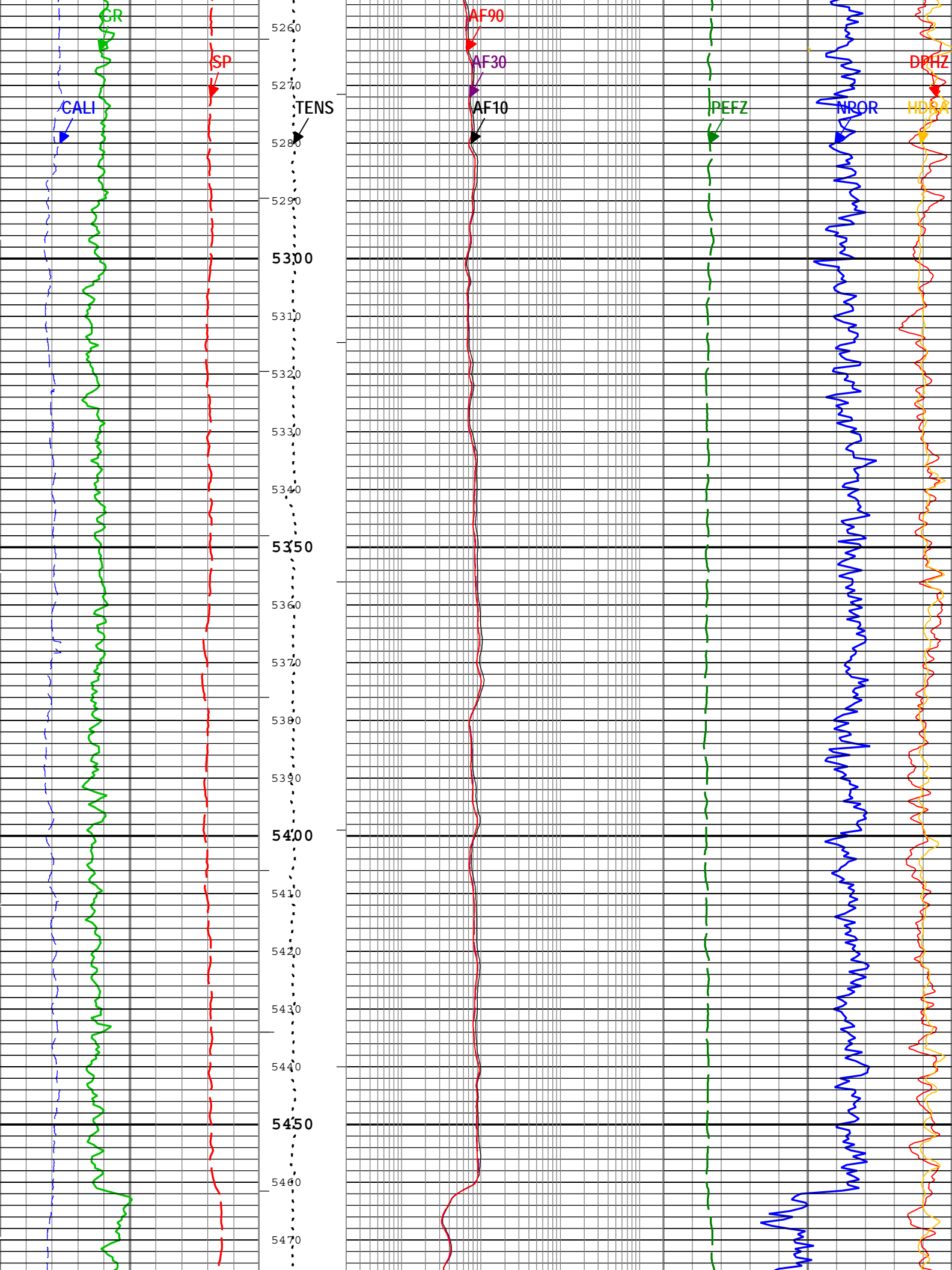


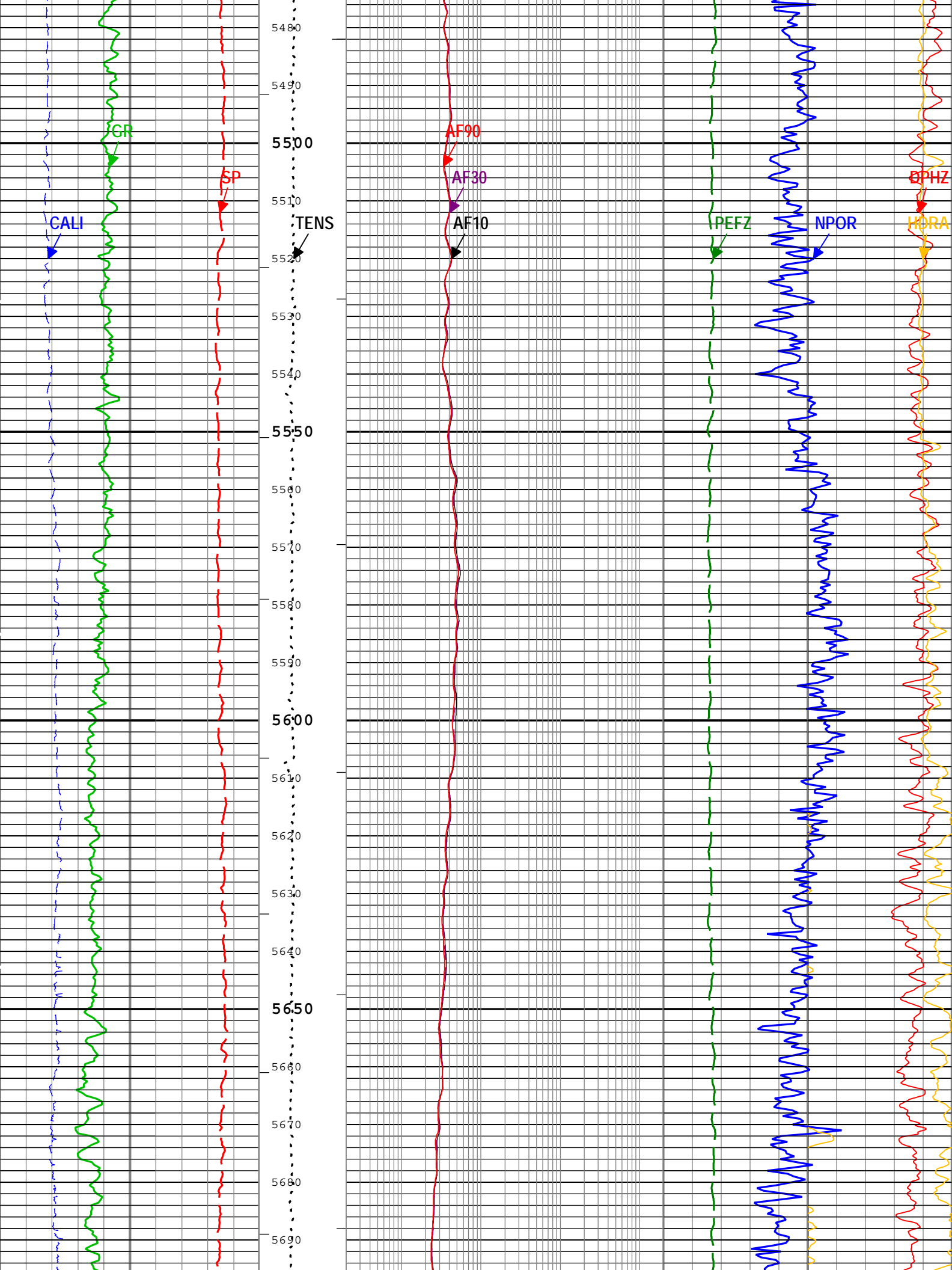


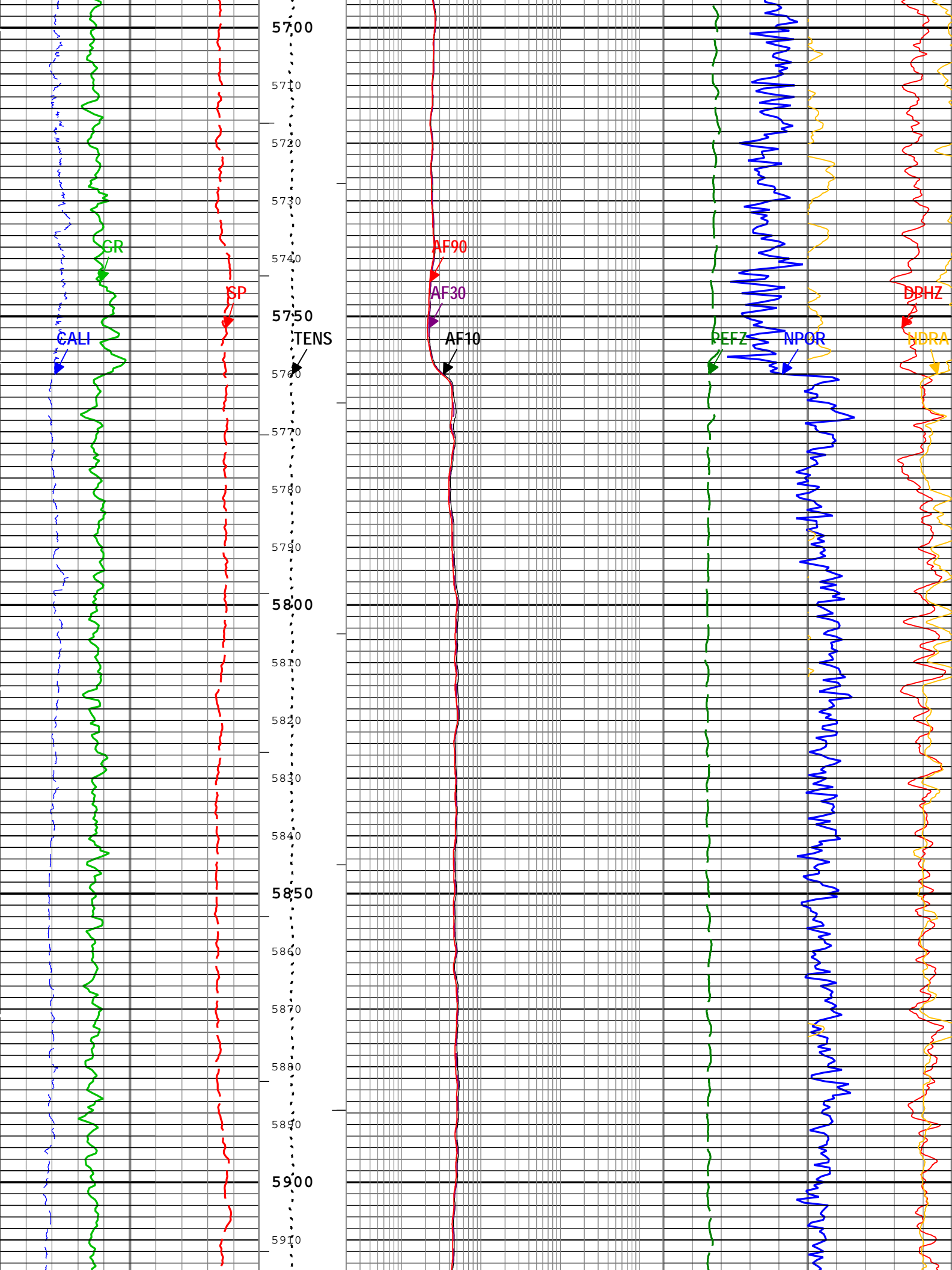


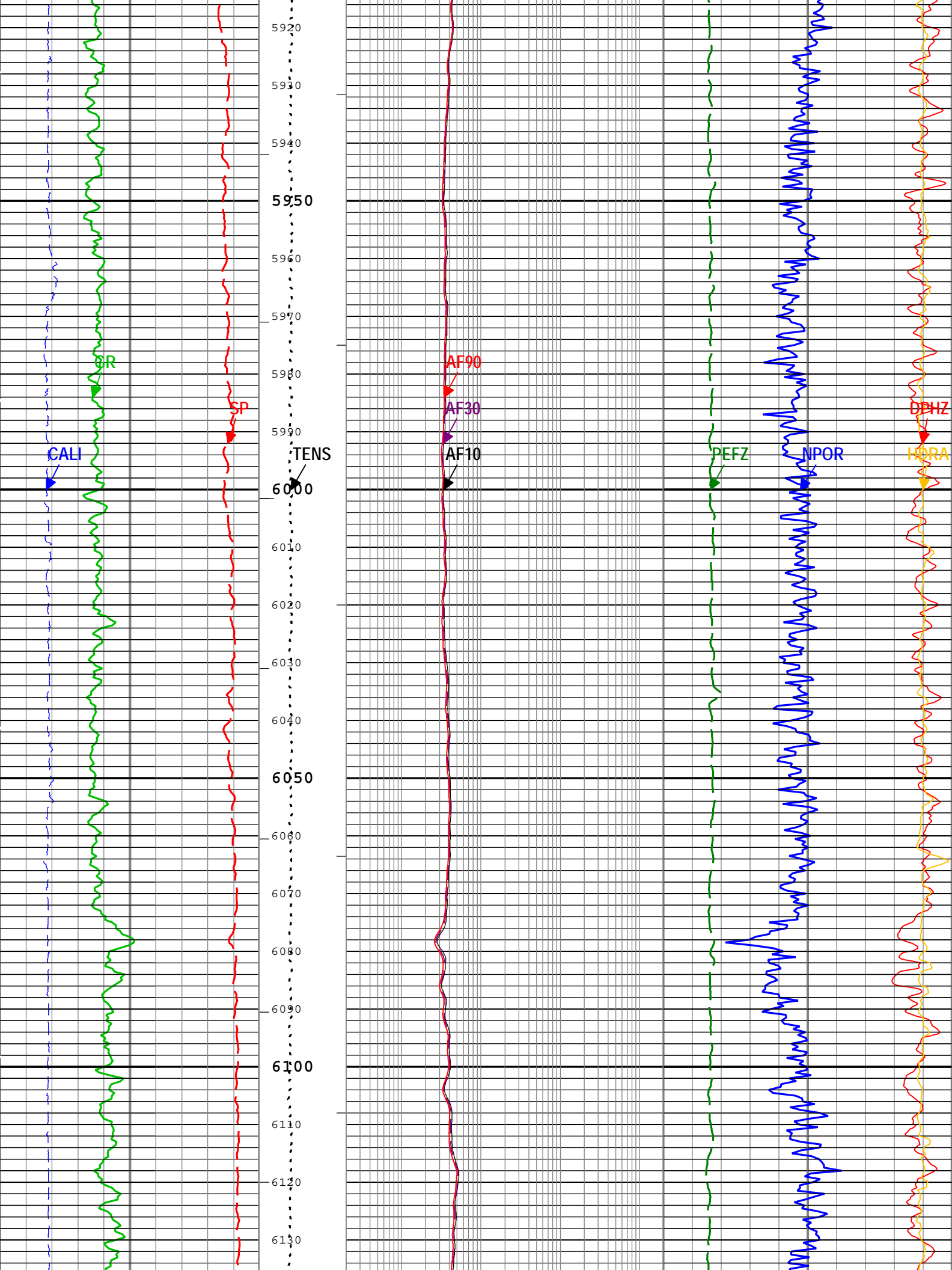


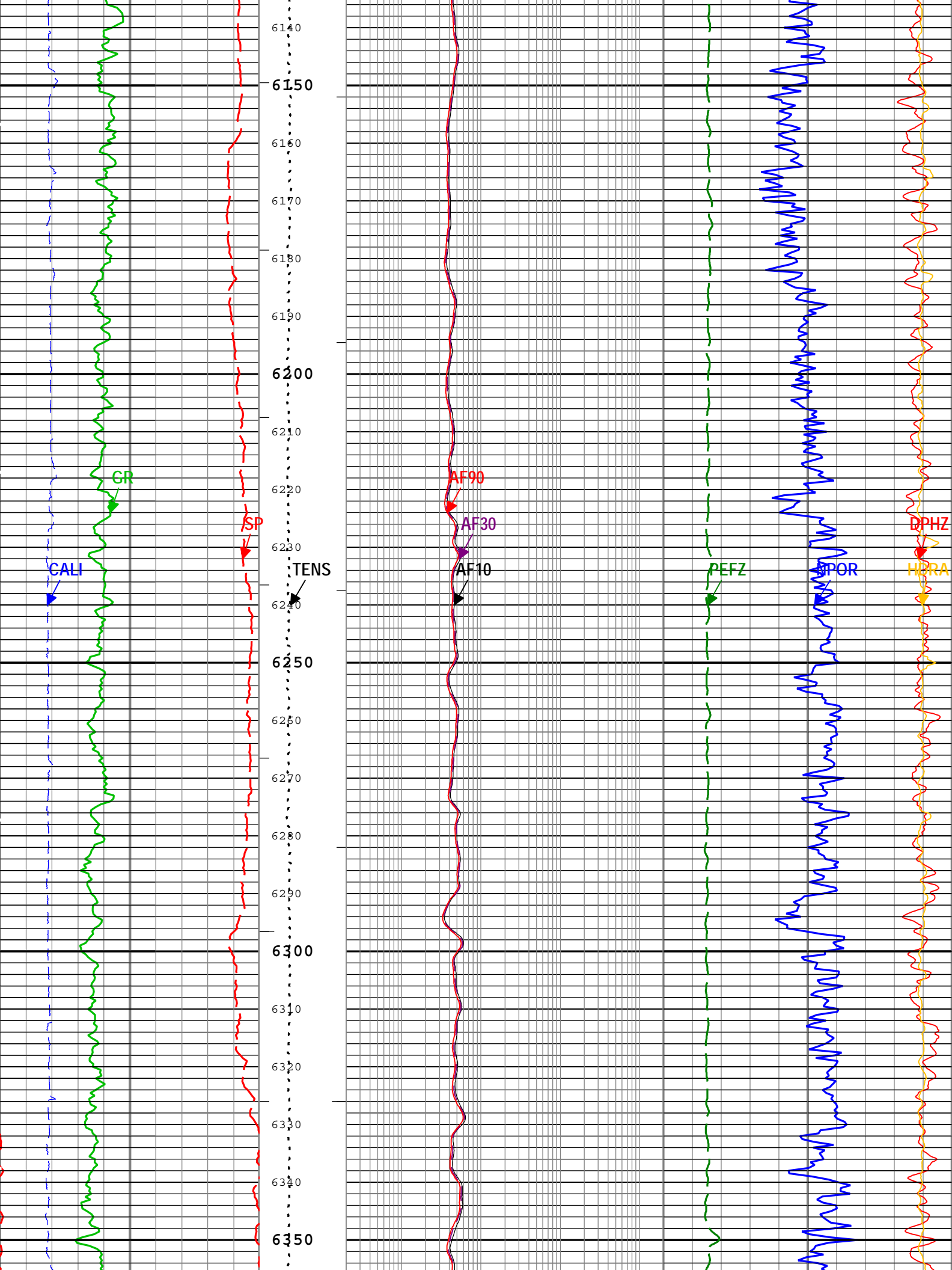


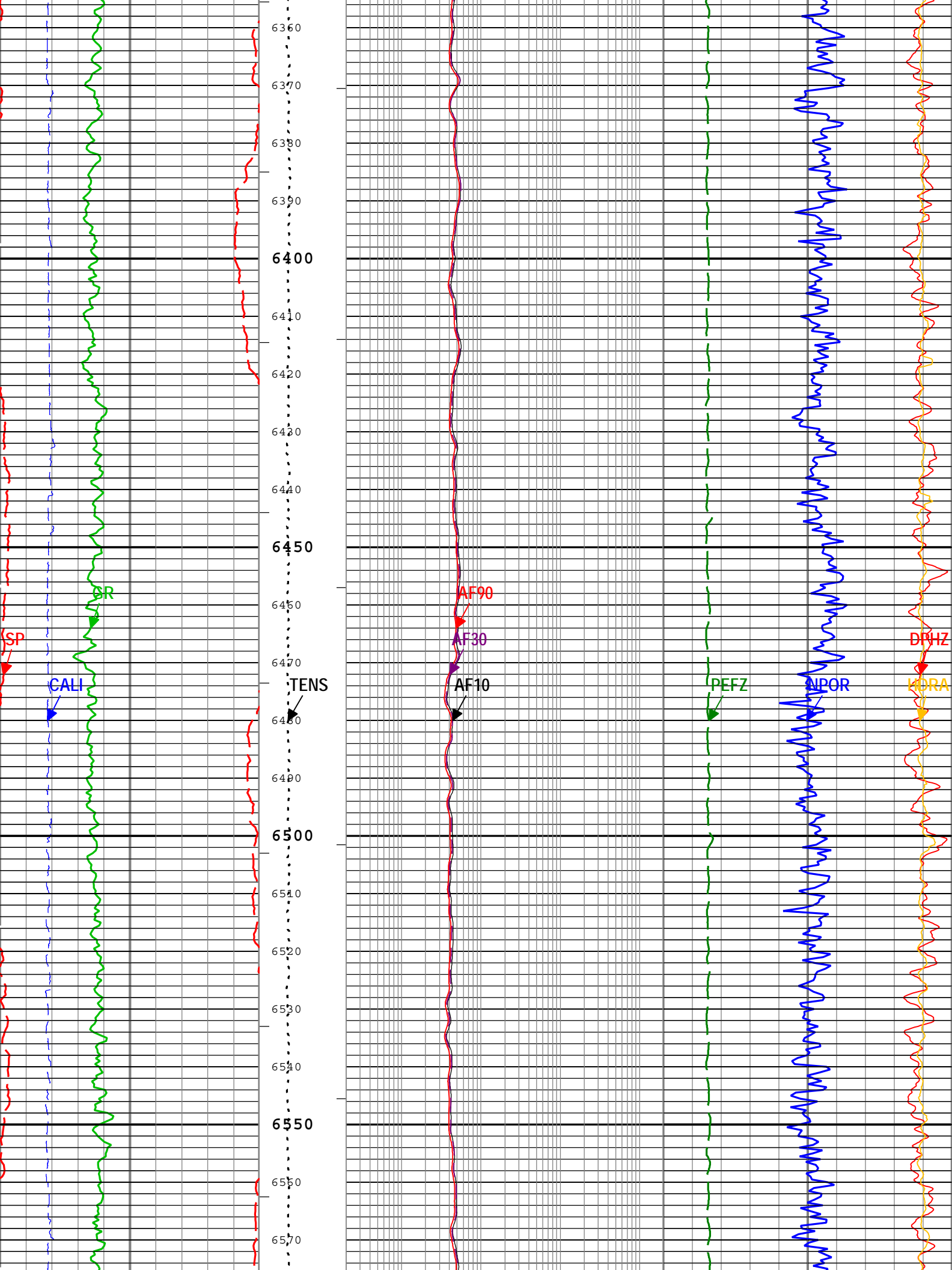


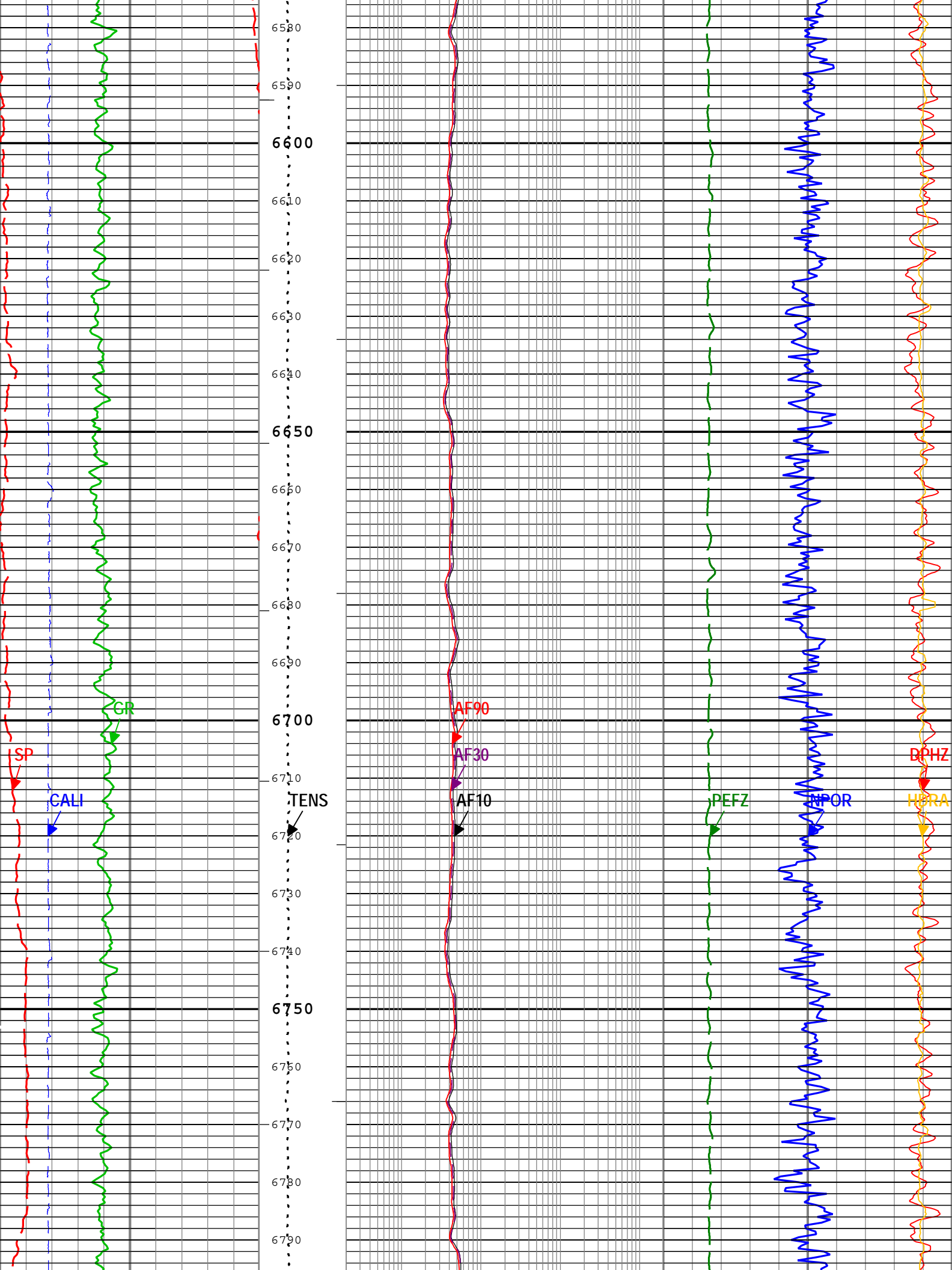


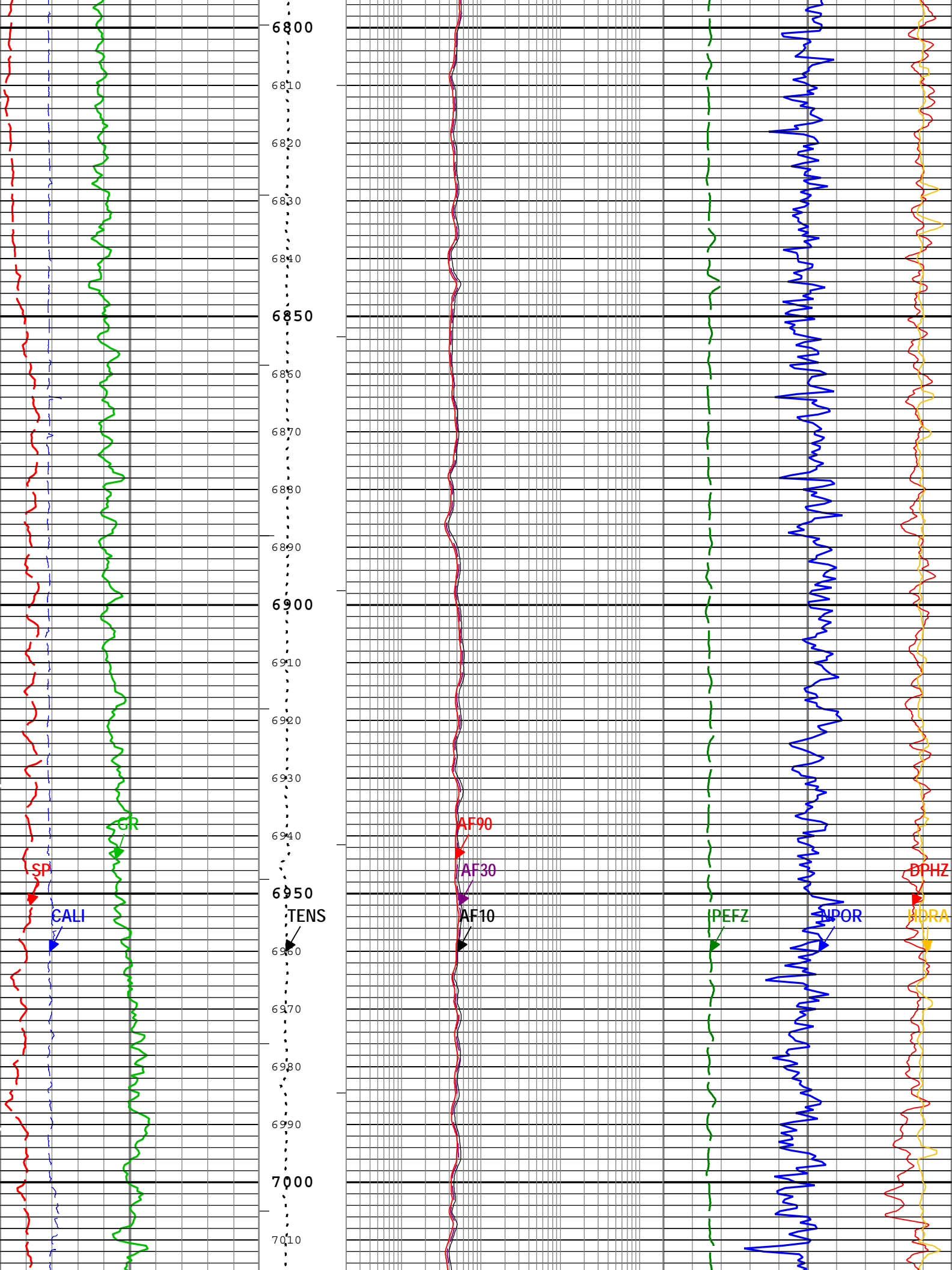


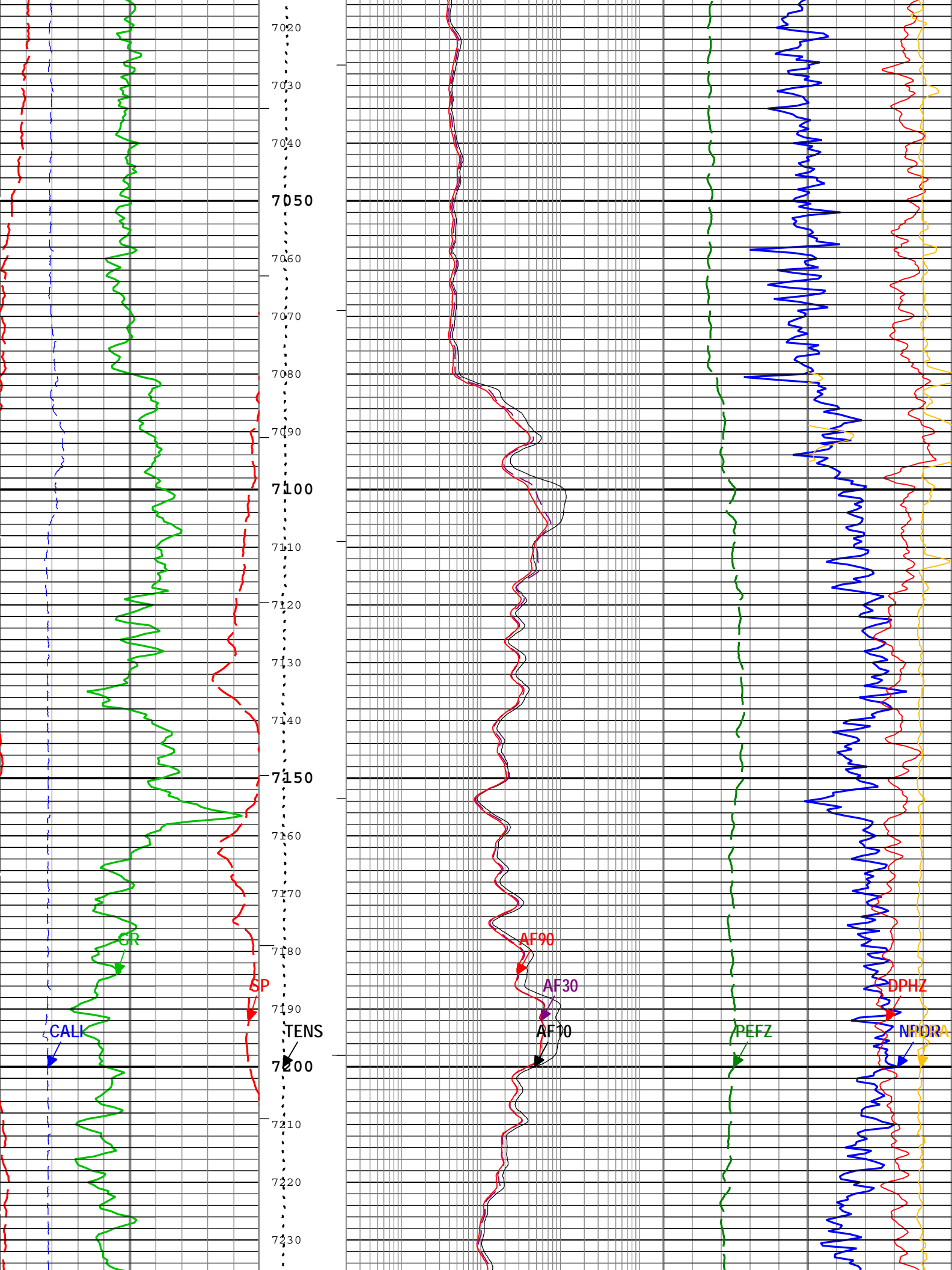


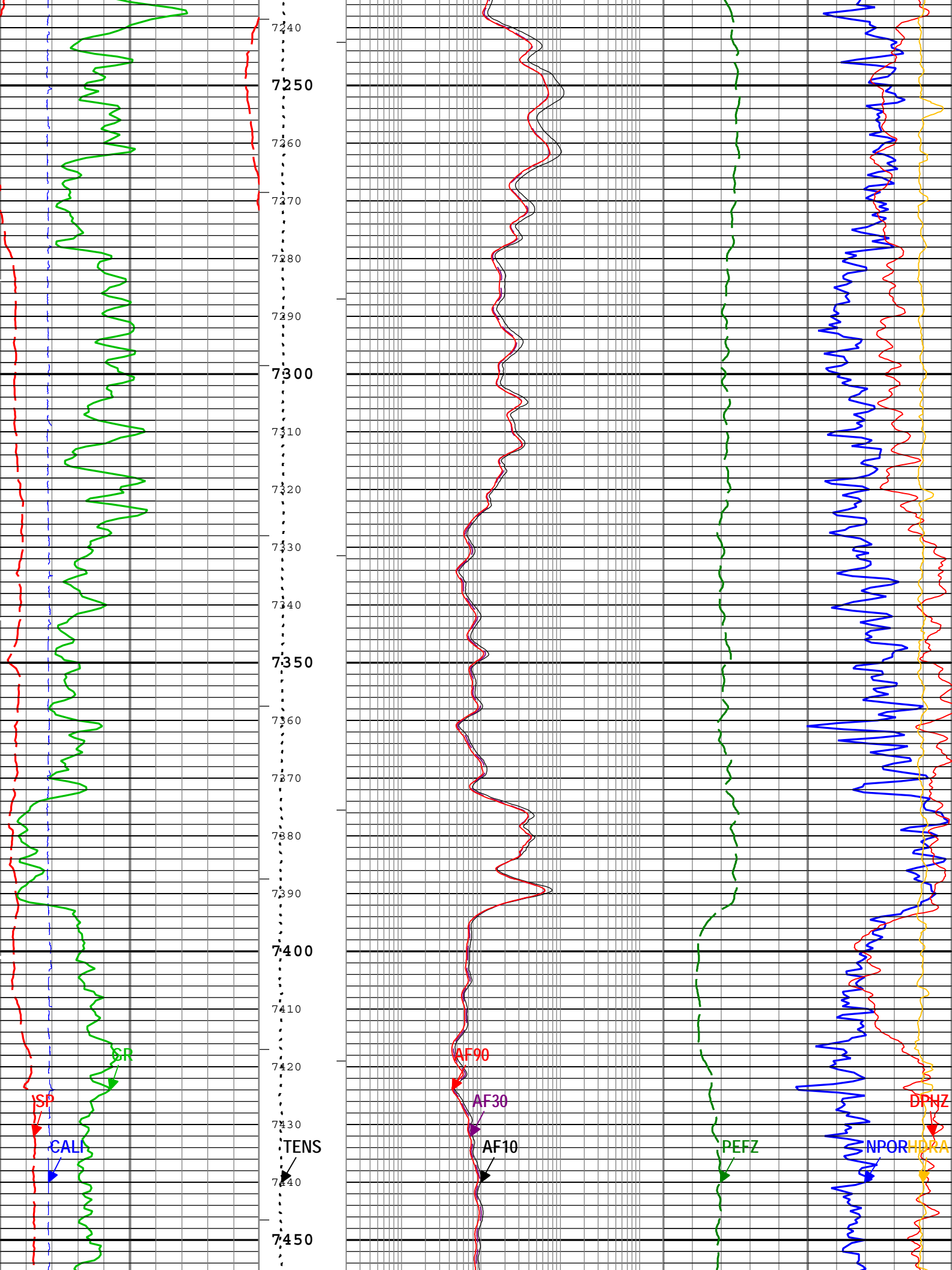


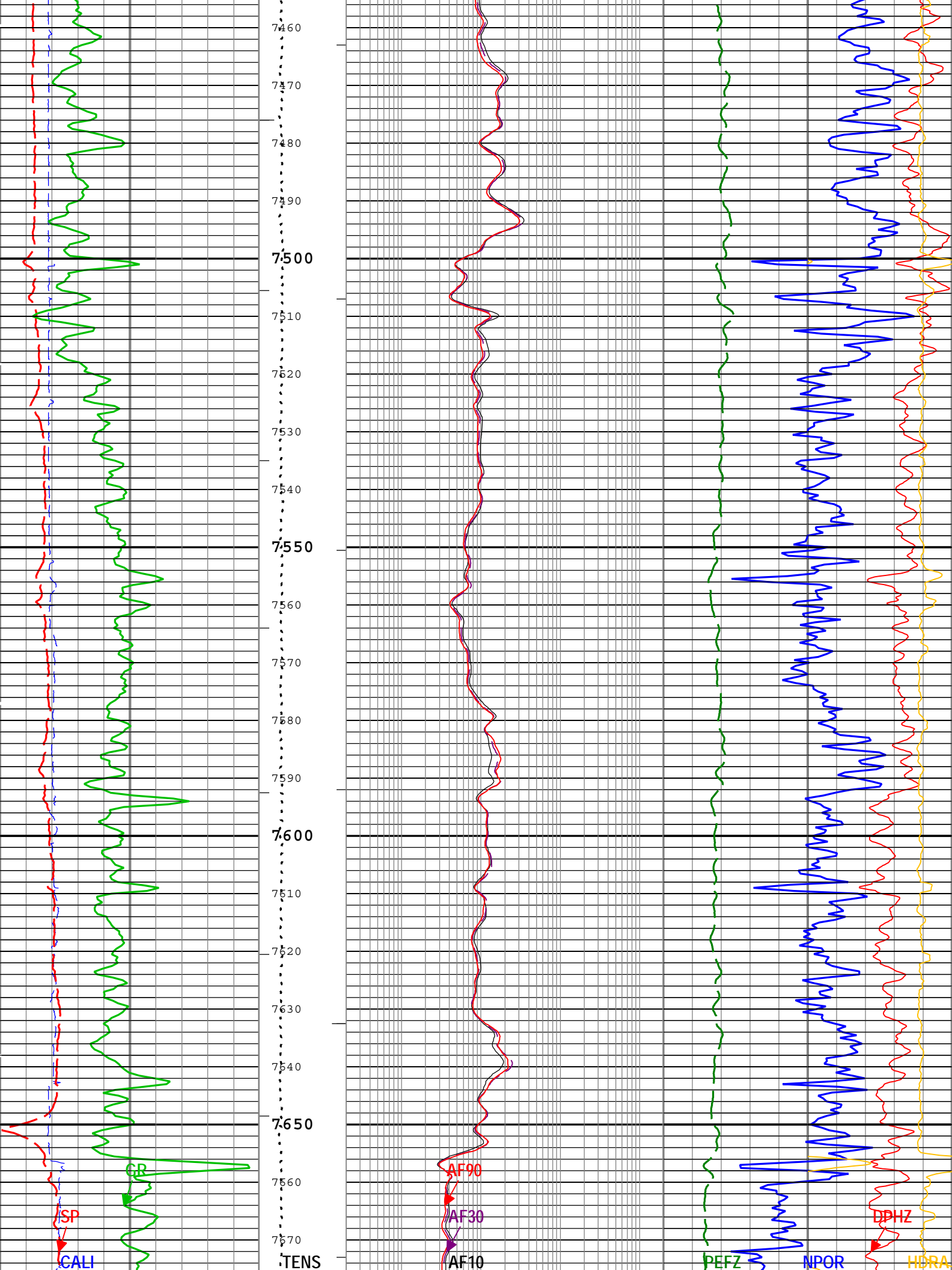


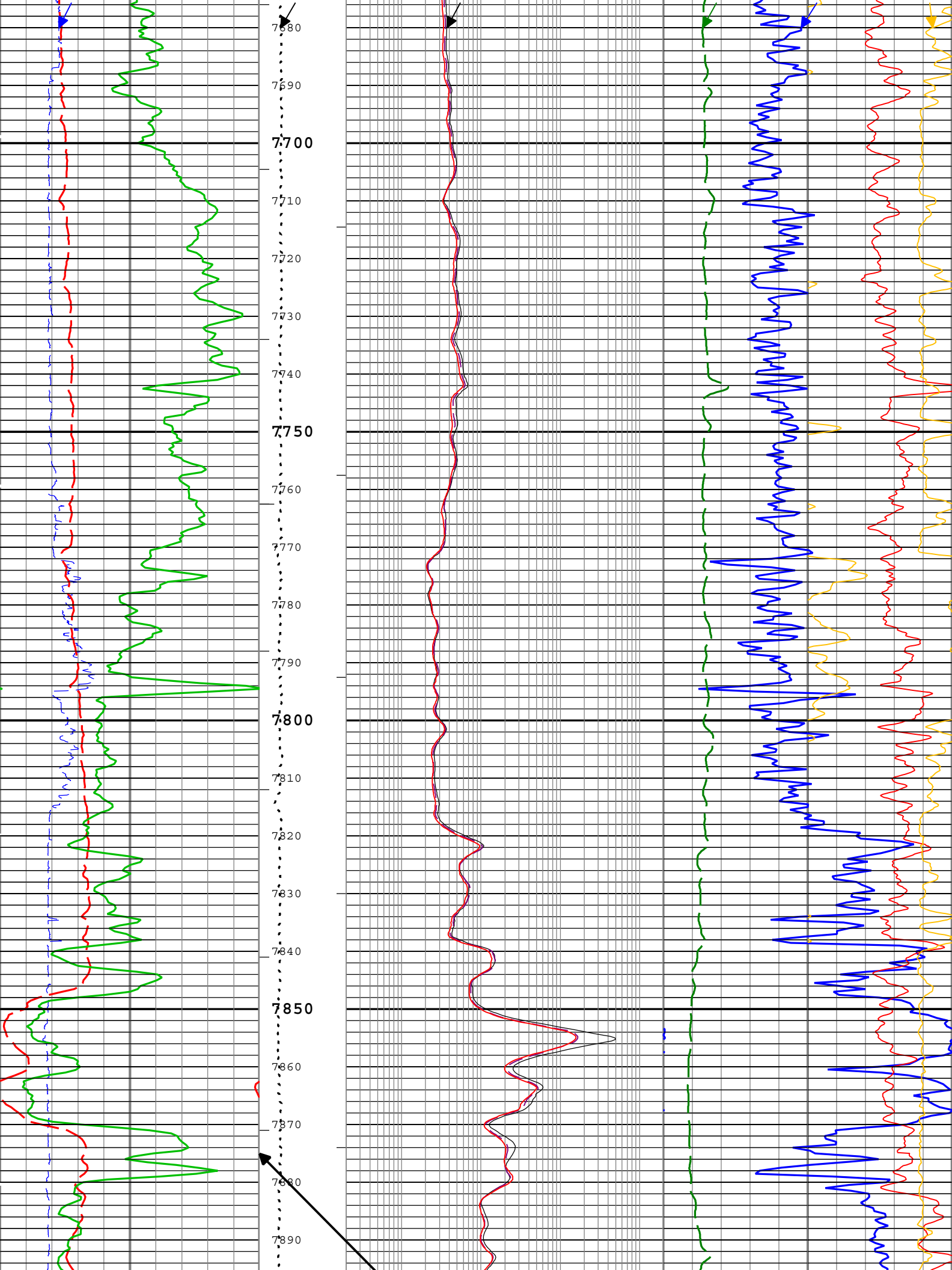


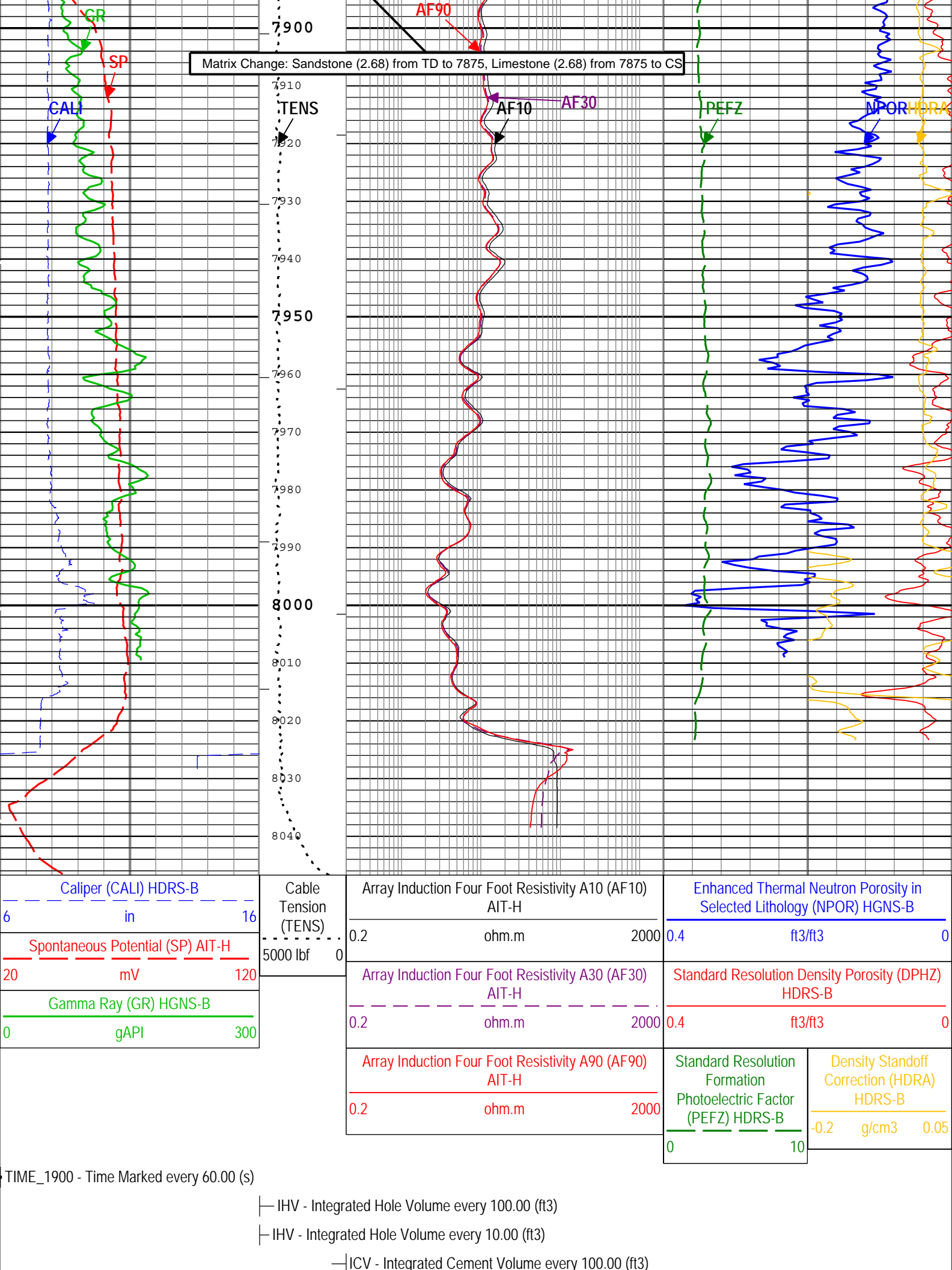












Channel Processing Parameters				
Parameter	Description	Tool	Value	Unit
AAPL	Array Induction Answer Product Level(Depth Log/View only)	AIT-H	Basic	
ABHM	Array Induction Borehole Correction Mode	AIT-H	Compute Mud Resistivity	
ABLM	Array Induction Basic Logs Mode	AIT-H	Normal	
ACDE	Array Induction Casing Detection Enable	AIT-H	Yes	
ACEN	Array Induction Tool Centering Flag (in Borehole)	AIT-H	Eccentered	
AMRF	Array Induction Mud Resistivity Factor	AIT-H	1	
ASTA	Array Induction Tool Standoff	AIT-H	1	in
ATSE	Array Induction Temperature Selection(Sonde Error Correction)	AIT-H	Internal	
AZ_ENABLE	Z-Axis Acceleration Channel Enabled for Real-Time Depth Correction	DepthCorrection	No	
BARI	Barite Mud Presence Flag	Borehole	No	
BHS	Borehole Status (Open or Cased Hole)	Borehole	Open	
BS	Bit Size	WLSESSION	Depth Zoned	in
BSAL	Borehole Salinity	Borehole	34058.5	ppm
BSCO	Borehole Salinity Correction Option	HGNS-B	No	
CALI_SHIFT	CALI Supplementary Offset	HDRS-B	0	in
CBLO	Casing Bottom (Logger)	WLSESSION	632	ft
CCCO	Casing & Cement Thickness Correction Option	HGNS-B	No	
CDEN	Cement Density	HGNS-B	2	g/cm3
CSODDRL	Casing Outer Diameter - Zoned along driller depths	WLSESSION	8.625	in
DC_MODE	Depth Correction Mode	DepthCorrection	Real-time	
DC_RT_ENABLE	Depth Correction Real-Time Enabled	DepthCorrection	No	
DFD	Drilling Fluid Density	Borehole	9.7	lbm/gal
DFT	Drilling Fluid Type	Borehole	Water	
DHC	Density Hole Correction	HDRS-B	Bit Size	
FCD	Future Casing (Outer) Diameter	WLSESSION	4.5	in
FD	Fluid Density	Borehole	1	g/cm3
FSAL	Formation Salinity	Borehole	0	ppm
FSCO	Formation Salinity Correction Option	HGNS-B	No	
GCLF	Coal-Like Formation	HDRS-B	No	
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	
GR_MULTIPLIER	Gamma Ray Multiplier	HGNS-B	1	
GRSE	Generalized Mud Resistivity Selection, from Measured or Computed Mud Resistivity	Borehole	REMS	
GTSE	Generalized Temperature Selection, from Measured or Computed Temperature	Borehole	CTEM	
HSCO	Hole Size Correction Option	HGNS-B	Yes	
HVCS	Integrated Hole Volume Caliper Selection	Borehole	Compute Area from GHD	
IHVC	Integrated Hole Volume Control	Borehole	Start	
MATR	Rock Matrix for Neutron Porosity Corrections	Borehole	Depth Zoned	
MCCO	Mud Cake Correction Option	HGNS-B	No	
MDEN	Matrix Density for Density Porosity	Borehole	Depth Zoned	g/cm3
MFST	Mud Filtrate Sample Temperature	Borehole	53.4	degF
MST	Mud Sample Temperature	Borehole	53.4	degF
MWCO	Mud Weight Correction Option	HGNS-B	No	
NAAC	Switch for the correction of formation activation by the APS	HDRS-B	Off	

Depth Zone Parameters			
Parameter	Value	Start (ft)	Stop (ft)
BS	0	620	633.5
BS	7.875	633.5	8046.75
MATR	LIMESTONE	620	7875
MATR	SANDSTONE	7875	8046.75
MDEN	2.68	620	7875
MDEN	2.65	7875	8046.75

Tool Control Parameters	
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Calibration Report			
AIT-H (Array Induction Tool - H) Calibration - Run Run One			
Primary Equipment :			
Array Induction Sonde - H	AHIS	398	
Auxiliary Equipment :			
AITH Rm/SP Bottom Nose	AHRM	398	

Master (EEPROM): 21:33:25 07-Mar-2013

AIT Sonde Calibration - Sonde Error Correction

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Sonde Error Correction Real - 0	mS/m	Master	-----	-231.000	-84.646	119.000	
Sonde Error Correction Quad - 0		Master	-----	-2250.000	116.355	2250.000	
Sonde Error Correction Real - 1	mS/m	Master	-----	114.000	169.146	204.000	
Sonde Error Correction Quad - 1		Master	-----	-625.000	151.070	625.000	
Sonde Error Correction Real - 2	mS/m	Master	-----	66.000	112.979	156.000	
Sonde Error Correction Quad - 2		Master	-----	-350.000	30.139	350.000	
Sonde Error Correction Real - 3	mS/m	Master	-----	39.000	59.570	89.000	
Sonde Error Correction Quad - 3		Master	-----	-250.000	41.303	250.000	
Sonde Error Correction Real - 4	mS/m	Master	-----	15.000	23.093	35.000	
Sonde Error Correction Quad - 4		Master	-----	-63.000	-12.430	63.000	
Sonde Error Correction Real - 5	mS/m	Master	-----	4.000	13.930	24.000	
Sonde Error Correction Quad - 5		Master	-----	-50.000	1.759	50.000	
Sonde Error Correction Real - 6	mS/m	Master	-----	5.000	9.620	15.000	
Sonde Error Correction Quad - 6		Master	-----	-30.000	5.363	30.000	
Sonde Error Correction Real - 7	mS/m	Master	-----	-5.000	-0.801	5.000	
Sonde Error Correction Quad - 7		Master	-----	-30.000	3.431	30.000	
AIT Mud Calibration - Mud Calibration Gain							

Master (EEPROM): 21:33:25 07-Mar-2013

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Coarse Gain		Master	1.000	0.800	0.826	1.200	
Fine Gain		Master	1.000	0.800	0.823	1.200	

AIT Electronics Check - Thru Calibration Check

Master (EEPROM): 21:33:25 07-Mar-2013 Before (Measured): 10:49:51 07-Apr-2013 After:

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Thru Cal Mag - 0	V	Master	-----	0.363	0.627	0.847	
		Before	-----	0.363	0.626	0.847	
		After	-----	-----	-----	-----	
		Before-Master	-----	-----	-0.001	-----	
		After-Before	-----	-----	-----	-----	
Thru Cal Phase - 0	deg	Master	-----	11.000	74.092	131.000	
		Before	-----	11.000	74.564	131.000	
		After	-----	-----	-----	-----	
		Before-Master	-----	-----	0.472	-----	
		After-Before	-----	-----	-----	-----	
Thru Cal Mag - 1	V	Master	-----	0.762	1.284	1.778	
		Before	-----	0.762	1.284	1.778	
		After	-----	-----	-----	-----	
		Before-Master	-----	-----	0.000	-----	
		After-Before	-----	-----	-----	-----	
Thru Cal Phase - 1	deg	Master	-----	10.000	73.071	130.000	
		Before	-----	10.000	73.550	130.000	
		After	-----	-----	-----	-----	
		Before-Master	-----	-----	0.479	-----	
		After-Before	-----	-----	-----	-----	
Thru Cal Mag - 2	V	Master	-----	0.374	0.637	0.872	
		Before	-----	0.374	0.636	0.872	
		After	-----	-----	-----	-----	
		Before-Master	-----	-----	-0.001	-----	
		After-Before	-----	-----	-----	-----	
Thru Cal Phase - 2	deg	Master	-----	6.000	68.875	126.000	
		Before	-----	6.000	69.369	126.000	
		After	-----	-----	-----	-----	
		Before-Master	-----	-----	0.494	-----	
		After-Before	-----	-----	-----	-----	
Thru Cal Mag - 3	V	Master	-----	0.422	0.723	0.986	
		Before	-----	0.422	0.722	0.986	
		After	-----	-----	-----	-----	
		Before-Master	-----	-----	-0.001	-----	
		After-Before	-----	-----	-----	-----	
Thru Cal Phase - 3	deg	Master	-----	5.000	67.972	125.000	
		Before	-----	5.000	68.467	125.000	
		After	-----	-----	-----	-----	
		Before-Master	-----	-----	0.495	-----	
		After-Before	-----	-----	-----	-----	

Thru Cal Mag - 4	V	Master Before After Before-Master After-Before	----- ----- ----- ----- -----	0.802 0.802 ----- ----- -----	1.347 1.347 ----- 0.000 -----	1.872 1.872 ----- ----- -----	<div><div></div><div></div><div></div><div></div><div></div></div>
Thru Cal Phase - 4	deg	Master Before After Before-Master After-Before	----- ----- ----- ----- -----	-1.000 -1.000 ----- ----- -----	60.999 61.511 ----- 0.512 -----	119.000 119.000 ----- ----- -----	<div><div></div><div></div><div></div><div></div><div></div></div>
Thru Cal Mag - 5	V	Master Before After Before-Master After-Before	----- ----- ----- ----- -----	1.173 1.173 ----- ----- -----	1.946 1.945 ----- -0.001 -----	2.737 2.737 ----- ----- -----	<div><div></div><div></div><div></div><div></div><div></div></div>
Thru Cal Phase - 5	deg	Master Before After Before-Master After-Before	----- ----- ----- ----- -----	-3.000 -3.000 ----- ----- -----	58.812 59.350 ----- 0.538 -----	117.000 117.000 ----- ----- -----	<div><div></div><div></div><div></div><div></div><div></div></div>
Thru Cal Mag - 6	V	Master Before After Before-Master After-Before	----- ----- ----- ----- -----	1.173 1.173 ----- ----- -----	1.941 1.940 ----- -0.001 -----	2.737 2.737 ----- ----- -----	<div><div></div><div></div><div></div><div></div><div></div></div>
Thru Cal Phase - 6	deg	Master Before After Before-Master After-Before	----- ----- ----- ----- -----	-3.000 -3.000 ----- ----- -----	58.874 59.413 ----- 0.539 -----	117.000 117.000 ----- ----- -----	<div><div></div><div></div><div></div><div></div><div></div></div>
Thru Cal Mag - 7	V	Master Before After Before-Master After-Before	----- ----- ----- ----- -----	0.849 0.849 ----- ----- -----	1.378 1.380 ----- 0.002 -----	1.981 1.981 ----- ----- -----	<div><div></div><div></div><div></div><div></div><div></div></div>
Thru Cal Phase - 7	deg	Master Before After Before-Master After-Before	----- ----- ----- ----- -----	-7.000 -7.000 ----- ----- -----	53.154 53.850 ----- 0.696 -----	113.000 113.000 ----- ----- -----	<div><div></div><div></div><div></div><div></div><div></div></div>
SPA Zero	mV	Master Before After Before-Master After-Before	----- ----- ----- ----- -----	-50.000 -50.000 ----- ----- -----	-0.032 -0.042 ----- -0.010 -----	50.000 50.000 ----- ----- -----	<div><div></div><div></div><div></div><div></div><div></div></div>
SPA Plus	mV	Master Before After Before-Master After-Before	----- ----- ----- ----- -----	941.000 941.000 ----- ----- -----	992.378 993.211 ----- 0.833 -----	1040.000 1040.000 ----- ----- -----	<div><div></div><div></div><div></div><div></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></div><div></div><div></div><div></div></div>
Temperature Plus	V	Master Before After Before-Master After-Before	----- ----- ----- ----- -----	0.870 0.870 ----- ----- -----	0.919 0.920 ----- 0.001 -----	0.960 0.960 ----- ----- -----	<div><div></div><div></div><div></div><div></div><div></div></div>

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

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

Additional Equipment :

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): 10:49:20 07-Apr-2013

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Small Ring	in	Before	8.00	6.00	7.95	10.00	
Large Ring	in	Before	12.00	9.00	12.15	15.00	

HDRS Density Calibration - Inversion Results

Master (EEPROM): 13:27:08 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): 13:27:08 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): 13:27:08 26-Mar-2013 Before (Measured): 10:52:16 07-Apr-2013

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
BS Window Ratio		Master	1.0000		0.7337		
		Before	0.7337	0.6970	0.7378	0.7704	
		Before-Master	-----	-----	0.0041	-----	
BS Window Sum	1/s	Master	1		9471		
		Before	9471	8998	9489	9945	
		Before-Master	-----	-----	18	-----	
SS Window Ratio		Master	1.0000		0.4949		
		Before	0.4949	0.4701	0.4942	0.5196	
		Before-Master	-----	-----	-0.0007	-----	
SS Window Sum	1/s	Master	1		9122		
		Before	9122	8666	9090	9578	
		Before-Master	-----	-----	-32	-----	
LS Window Ratio		Master	1.0000		0.2973		
		Before	0.2973	0.2825	0.2927	0.3122	
		Before-Master	-----	-----	-0.0046	-----	
LS Window Sum	1/s	Master	1		1064		
		Before	1064	1010	1062	1117	
		Before-Master	-----	-----	-2	-----	

HDRS Density Calibration - Photo-multiplier High Voltages

Master (EEPROM): 13:27:08 26-Mar-2013 Before (Measured): 10:52:16 07-Apr-2013

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
BS PM High Voltage	V	Master		1000	1613	2400	
		Before		1000	1608	2400	
		Before-Master	-----	-100	-5	100	
SS PM High Voltage	V	Master		1000	1636	2400	
		Before		1000	1675	2400	
		Before-Master		100	20	100	

		Before-Master	-----	-100	39	100	
LS PM High Voltage	V	Master		1000	1577	2400	
		Before		1000	1585	2400	
		Before-Master	-----	-100	8	100	

HDRS Density Calibration - Crystal Quality Resolutions

Master (EEPROM):		13:27:08 26-Mar-2013		Before (Measured):		10:52:16 07-Apr-2013	
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
BS Crystal Resolution	%	Master		5.00	11.98	25.00	
		Before		5.00	11.98	25.00	
		Before-Master	-----	-1.00	0.00	1.00	
SS Crystal Resolution	%	Master		5.00	9.64	20.00	
		Before		5.00	10.28	20.00	
		Before-Master	-----	-1.00	0.64	1.00	
LS Crystal Resolution	%	Master		5.00	9.66	20.00	
		Before		5.00	9.46	20.00	
		Before-Master	-----	-1.00	-0.20	1.00	

HDRS MCFL Calibration - MCFL Accumulations

Before (Measured):		10:52:41 07-Apr-2013					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Main Resistivity	ohm.m	Before	3875	3565	3830	4185	
Deep Resistivity	ohm.m	Before	3830	3524	3793	4136	
Shallow Resistivity	ohm.m	Before	3830	3524	3817	4136	

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

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):		00:53:15 08-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):		17:00:00 14-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):		03:38:08 25-Feb-2013		Before (Measured):		10:48:13 07-Apr-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	27.6	40.0			
		After	-----	-----	-----	-----			
		Before-Master	-----	-1.0	0.0	1.0			

		Before-Master After-Before	----- -----	----- -----	-4.2 -0.2	4.2 -----	<div><div></div></div>
Far Zero Measurement	1/s	Master	0	5.0	31.8	40.0	<div><div></div></div>
		Before	0	5.0	30.4	40.0	<div><div></div></div>
		After	-----	-----	-----	-----	<div><div></div></div>
		Before-Master	-----	-4.8	-1.4	4.8	<div><div></div></div>
		After-Before	-----	-----	-----	-----	<div><div></div></div>
Near Plus Measurement - 0	1/s	Master	6031.0	4700.0	4914.0	6900.0	<div><div></div></div>
		Before	-----	-----	-----	-----	<div><div></div></div>
		After	-----	-----	-----	-----	<div><div></div></div>
		Before-Master	-----	-----	-----	-----	<div><div></div></div>
		After-Before	-----	-----	-----	-----	<div><div></div></div>
Far Plus Measurement - 0	1/s	Master	2793.0	1900.0	2076.0	2900.0	<div><div></div></div>
		Before	-----	-----	-----	-----	<div><div></div></div>
		After	-----	-----	-----	-----	<div><div></div></div>
		Before-Master	-----	-----	-----	-----	<div><div></div></div>
		After-Before	-----	-----	-----	-----	<div><div></div></div>
Near Corrected Plus Measurement - 0	1/s	Master		4700.0	4881.0	6900.0	<div><div></div></div>
		Before	-----	-----	-----	-----	<div><div></div></div>
		After	-----	-----	-----	-----	<div><div></div></div>
		Before-Master	-----	-----	-----	-----	<div><div></div></div>
		After-Before	-----	-----	-----	-----	<div><div></div></div>
Far Corrected Plus Measurement - 0	1/s	Master		1900.0	2041.0	2900.0	<div><div></div></div>
		Before	-----	-----	-----	-----	<div><div></div></div>
		After	-----	-----	-----	-----	<div><div></div></div>
		Before-Master	-----	-----	-----	-----	<div><div></div></div>
		After-Before	-----	-----	-----	-----	<div><div></div></div>

HGNS Gamma-Ray Calibration - Gamma-Ray Accumulations

Before (Measured): 10:49:56 07-Apr-2013		After:					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div><div></div></div>
RGR Zero Measurement	gAPI	Before	30.0	0	71.8	120.0	<div><div></div></div>
		After	-----	-----	-----	-----	<div><div></div></div>
		After-Before	-----	-----	-----	-----	<div><div></div></div>
RGR Plus Measurement	gAPI	Before	185.4	157.1	171.0	206.3	<div><div></div></div>
		After	-----	-----	NOT DONE	-----	<div><div></div></div>
		After-Before	-----	-----	-----	-----	<div><div></div></div>
GR Calibration Gain		Before	0.89	0.80	0.97	1.05	<div><div></div></div>
		After	-----	-----	-----	-----	<div><div></div></div>
		After-Before	-----	-----	-----	-----	<div><div></div></div>

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

Primary Equipment :							
Logging Equipment Head - QT, 3-3/8 inch 31 pin HPHT with Tension Sensor				LEH-QT			

HTEN Master Calibration - HTEN Master Calibration

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

HTEN Before Calibration - HTEN Before Calibration

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

Well: State 2010
Field: Wattenberg
County: Weld
State: Colorado

****PLATFORM EXPRESS****

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INDUCTION RESISTIVITY, GR, SP