Schlumberger

Company: Nighthawk Production LLC

Well: Whistler 6-22

Field: Wildcat

County: Lincoln State: Colorado

County: Lincoln
Field: Wildcat
Location: SENW Sec 22, Twp 6S, Rng 54
Well: Whistler 6-22
Company: Nighthawk Production LLC

Platform Express

Compensated Neutron Log

LithoDensity

Location:				
SENW Sec 22, Twp 6S, Rng 54	Elev.	K.B.	5264.00	ft
SHL: 1668' FNL, 1951' FWL		G.L.	5252.00	ft
Lat 39.516583, Long -103.42763		D.F.	5263.00	ft

Permanent Datum:	Ground Level	Elev.:	5252.00 f
Log Measured From:	Kelly Bushing	12.00 ft	above Perm.Datum
Drilling Measured From:	Kelly Bushing		

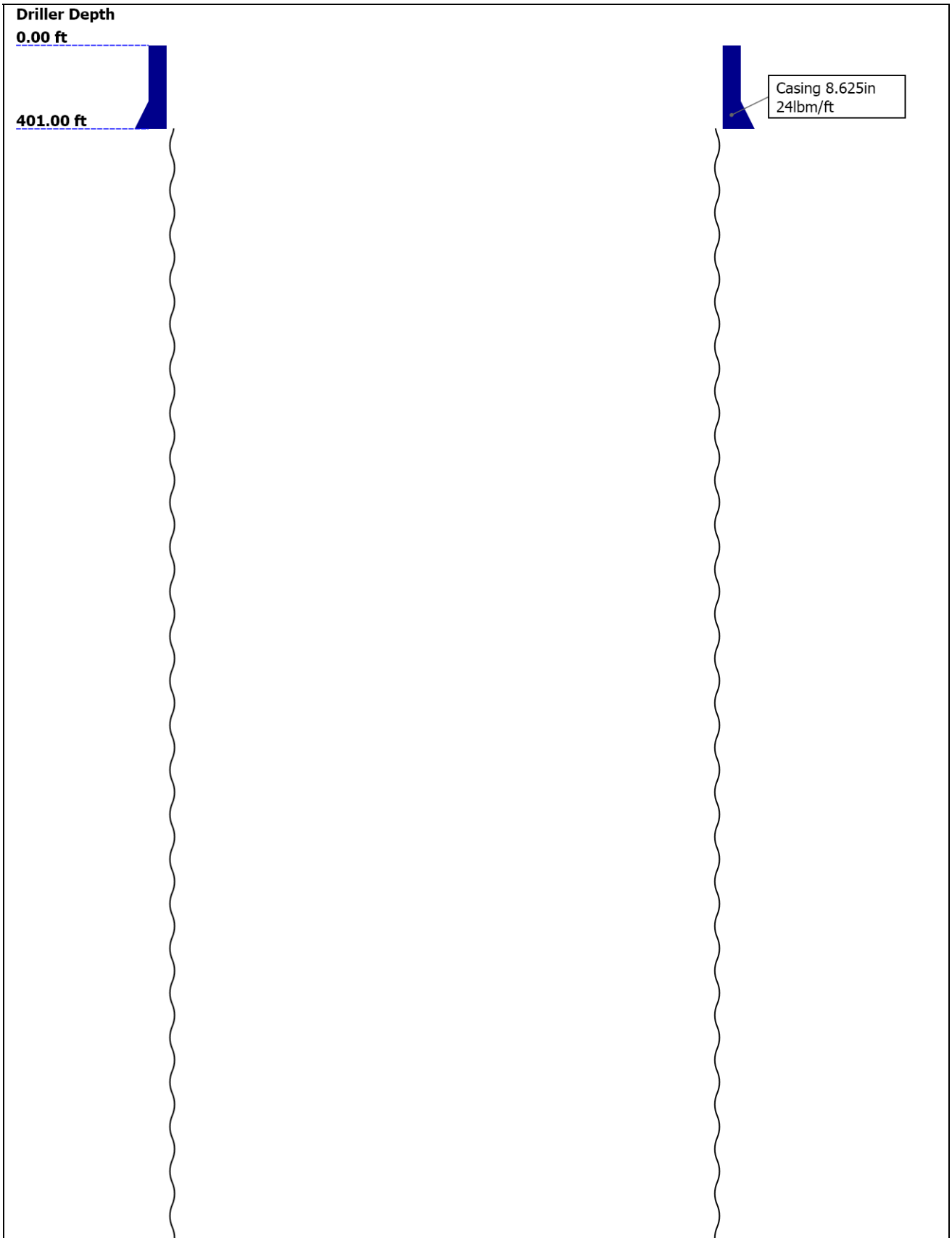
API Serial No.	Section:	Township:	Range:
05-073-06481-0000	22	6S	54W

Logging Date			06-Nov-2012			
Run Number			Run1			
Depth Driller			8500.00 ft			
Schlumberger Depth			8507.00 ft			
Bottom Log Interval			8499.00 ft			
Top Log Interval			410.00 ft			
Casing Driller Size @ Depth			8.625 in @ 401.00 ft			
Casing Schlumberger			410 ft			
Bit Size			7.875 in			
Type Fluid In Hole			Chemical Gel			
MUD	Density	Viscosity	9.2 lbm/gal	75 s		
	Fluid Loss	PH	11.6 cm3	7.4		
	Source of Sample		Active Tank			
RM @ Meas Temp			0.2 ohm.m @ 85.66 degF			
RMF @ Meas Temp			0.15 ohm.m @ 85.66 degF			
RMC @ Meas Temp			0.52 ohm.m @ 85.66 degF			
Source RMF	RMC		Calculated	Calculated		
RM @ BHT	RMF @ BHT		0.09 @ 210.25	0.06 @ 210.25		
Max Recorded Temperatures			210.25 degF			
Circulation Stopped	Time		06-Nov-2012	16:30:00		
Logger on Bottom	Time		06-Nov-2012	03:15:26		
Unit Number	Location:		2135	Fort Morgan		
Recorded By			Megan Leone			
Witnessed By			Jerry Hedrick			

Disclaimer

Contents

Well Sketch



Borehole Size/Casing/Tubing Record

Bit						
Bit Size (in)	7.875					
Top Driller (ft)	401					
Top Logger (ft)	410					
Bottom Driller (ft)	8500					
Bottom Logger (ft)	8507					
Casing						
Size (in)	8.625					
Weight (lbm/ft)	24					
Inner Diameter (in)	8.099					
Top Driller (ft)	0					
Top Logger (ft)	0					
Bottom Driller (ft)	401					
Bottom Logger (ft)	410					

Remarks and Equipment Summary

Run1: Toolstring

Equip name	Length	MP name	Offset
LEH-QT	**65.83**		
LEH-QT			
DTC-H	**62.91**		
ECH-KC		**CTEM**	**62.01**
DTC-H		**HV**	**0.00**
		TelStatus	**59.91**
		ToolStatus	**59.91**
HGNS-H	**59.91**	**Temperature**	**59.89**
HGNH:3823			
NSR-F:5215		**GR**	**59.17**
NPV-N			
HMCA-H			
HACCZ-H:5736			
HGNS-H			
		CNL Porosity	**52.84**
		HGNS	**50.51**
		HMCA	**50.51**
		Accelerometer	**0.00**
HDRS-H	**50.51**		
ECH-MEB			
HRCC-H			
HRMS-H			

Run1: Remarks

This is the first run in hole
Toolstring run as per toolsketch
Limestone Matrix 2.71
Replaced AIT bottom nose with hole finder

GSR-J:5240
Long Spacing:28
732
HRGD-H:3816
GPV-Q
Backscatter
Short Spacing:27
634

HRCC 46.5

MCFL 41.07
Caliper 40.59
TLD Density 40.2

DSLT-H:3823 **38.26**
ECH-KH
DSLC-H:3823
SLS-E

CBL 3ft 25.79
Upper-Near 25.79

VDL 5ft 24.79
Upper-Far 24.79

Delta-T 23.42

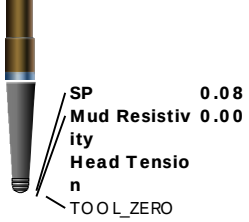
Lower-Far 22.04

Lower-Near 21.04

SLS-E 17.62

AIT-H:392 **17.62**
AHIS:392
AHHF

Induction 9.54
Temperatur 9.54
e
Power Supp 9.54
ly



Lengths are in ft
Maximum Outer Diameter = 4.625 in
Line: Sensor Location, Value: Gating Offset
All measurements are relative to TOOL_ZERO

Depth Summary

Depth Control Parameters	Run1		
Conveyance Type	Wireline		
Log Sequence	This is the first run in hole		
Stretch Correction (ft)	8.00		
Rig Type	Land		
Depth Remark Parameters	**Run1**		
Depth Remark 1	All Schlumberger depth procedures followed		
Depth Remark 2	IDW used as primary depth device. Z-chart used as secondary depth device.		
Depth Measuring Device	**Run1**		
Type	IDW-B		
Wheel Correction 1	1		
Wheel Correction 2	0		
Tension Device	**Run1**		
Type	CMTD-B/A		
Calibration Points	0		
Logging Cable	**Run1**		
Type	7-46NT-XS		
Logging Cable Length (ft)	24000.00		

Run1

Integration Summary

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

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
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
HRCC-H	HILT High-Resolution Control Cartridge, 150 degC	3.1.9755.0	2.0
HGNS-H	HILT Gamma-Ray and Neutron Sonde, 150 degC	3.1.9755.0	2.0
HRGD-H	HILT Resistivity Gamma-Ray Density Device, 150 degC	3.1.9755.0	3.0

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	Depth Shift	Include Parallel

								Data
Run1	Log[4]:Up	Up	166.47 ft	8504.24 ft	06-Nov-2012 3:30:47 AM	06-Nov-2012 5:24:04 AM	0.00 ft	

All depths are referenced to toolstring zero

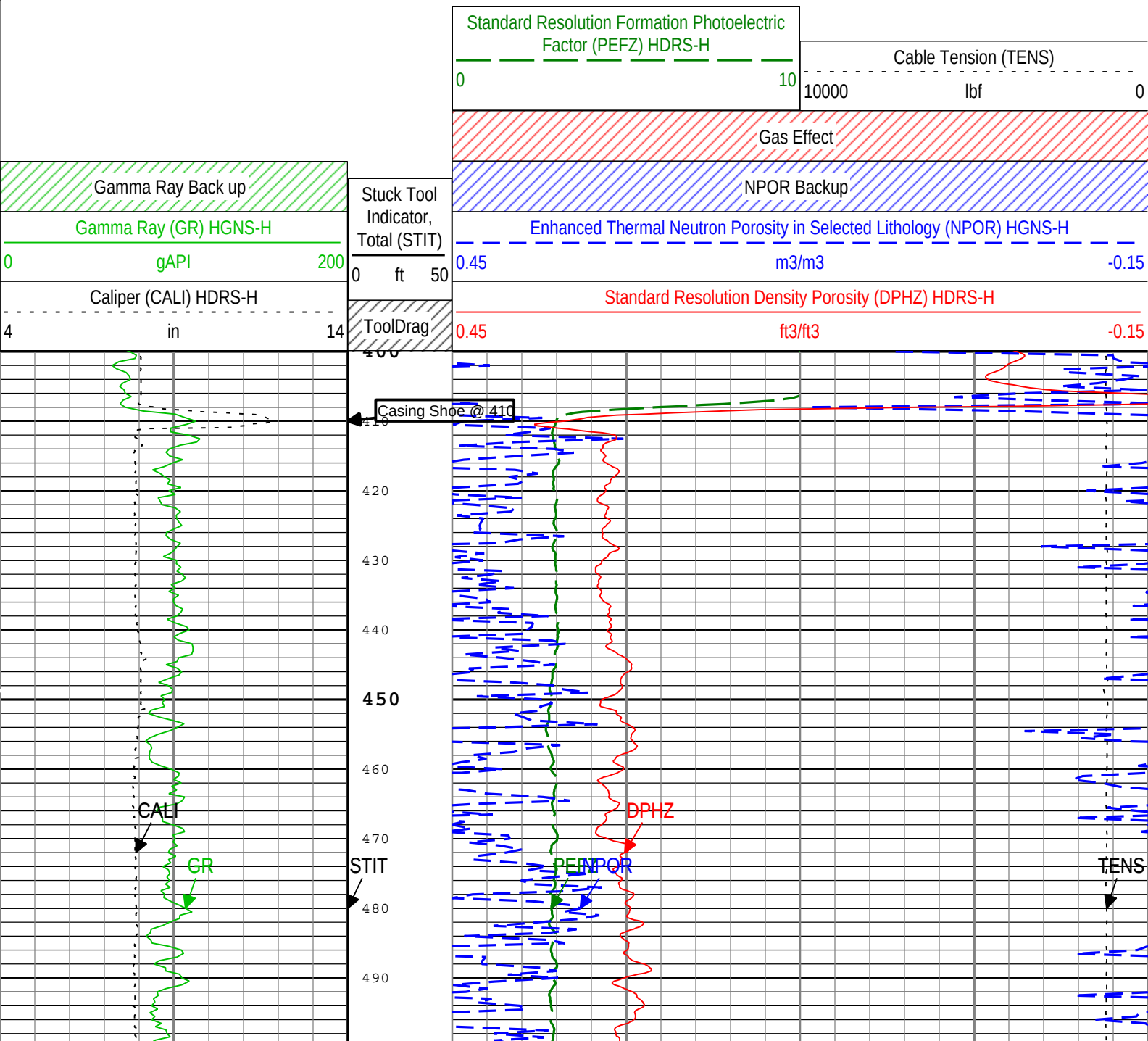
Log

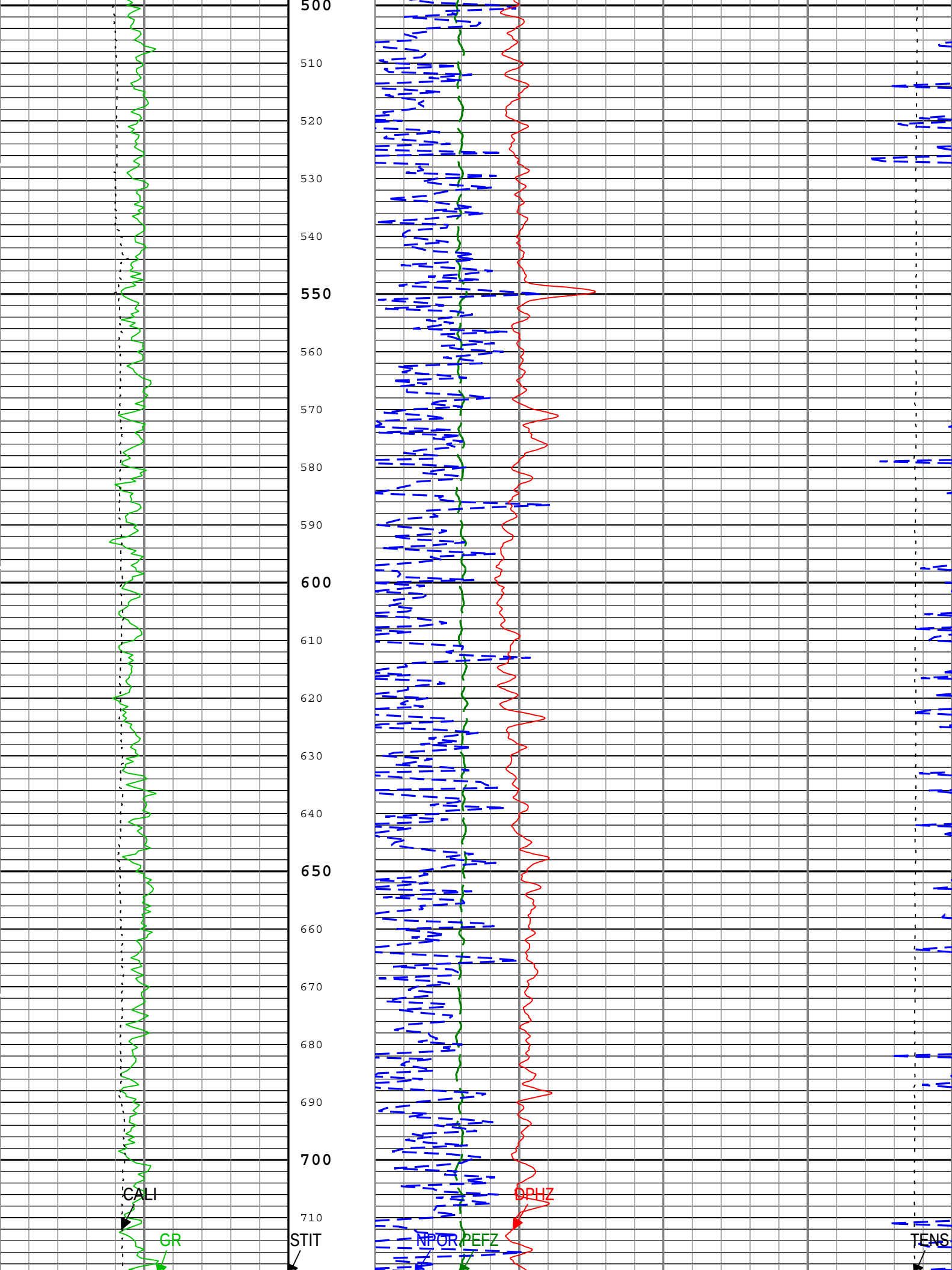
Run1: Log[4]:Up

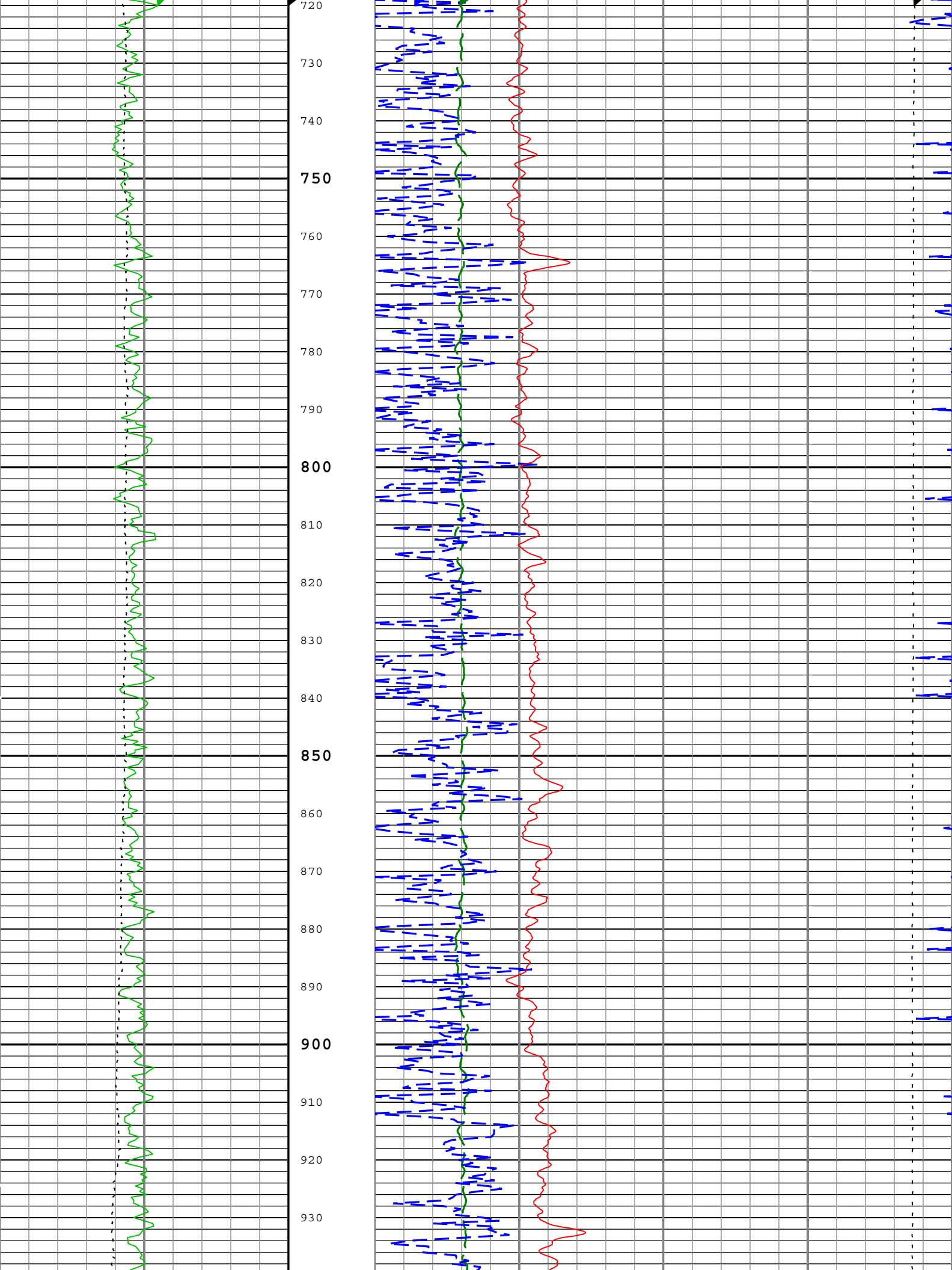
Description: HGNS standard resolution porosities for Platform Express Format: Log (EMD 5in Porosity) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 06-Nov-2012 06:21:14

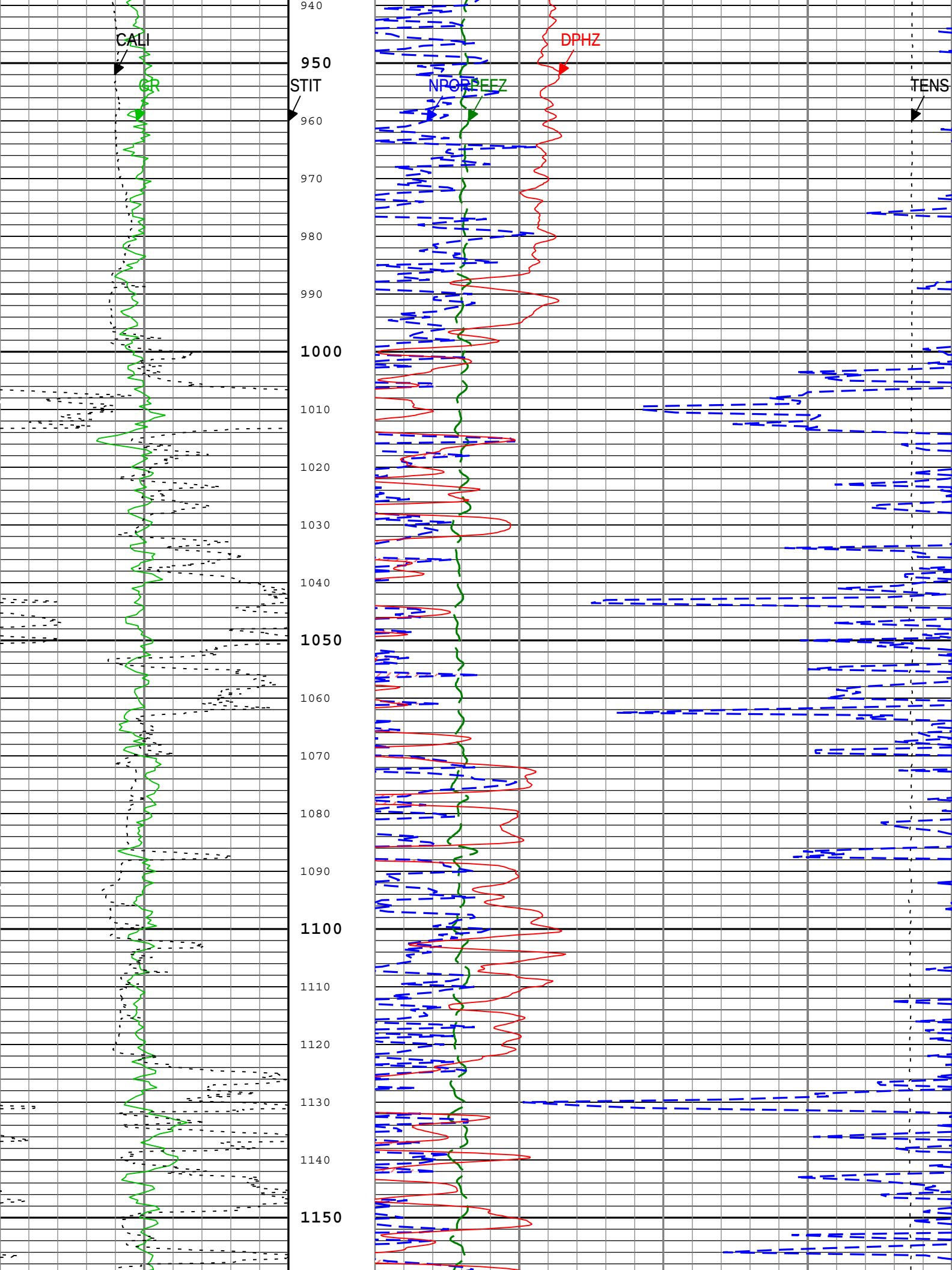
Channel	Source	Sampling
CALI	HDRS-H:HRCC-H:HRCC-H	1in
DPHZ	HDRS-H:HRMS-H:HRGD-H	2in
GR	HGNS-H:HGNS-H:HGNS-H	6in
NPOR	HGNS-H:HGNS-H:HGNS-H	6in
PEFZ	HDRS-H:HRMS-H:HRGD-H	2in
STIT	DepthCorrection	6in
TENS	WLWorkflow	6in
TIME_1900	WLWorkflow	0.1in

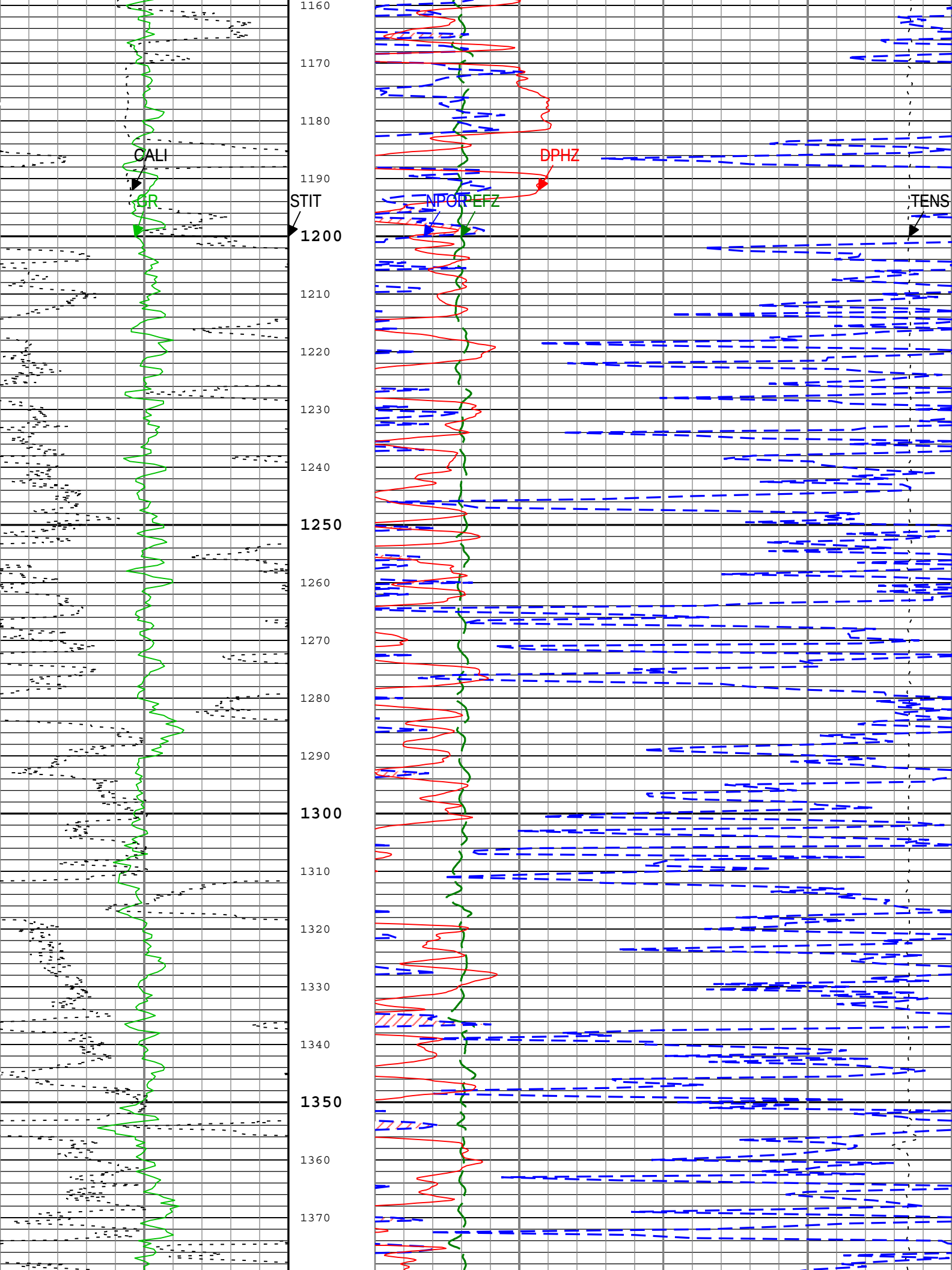
TIME_1900 - Time Marked every 60.00 (s)

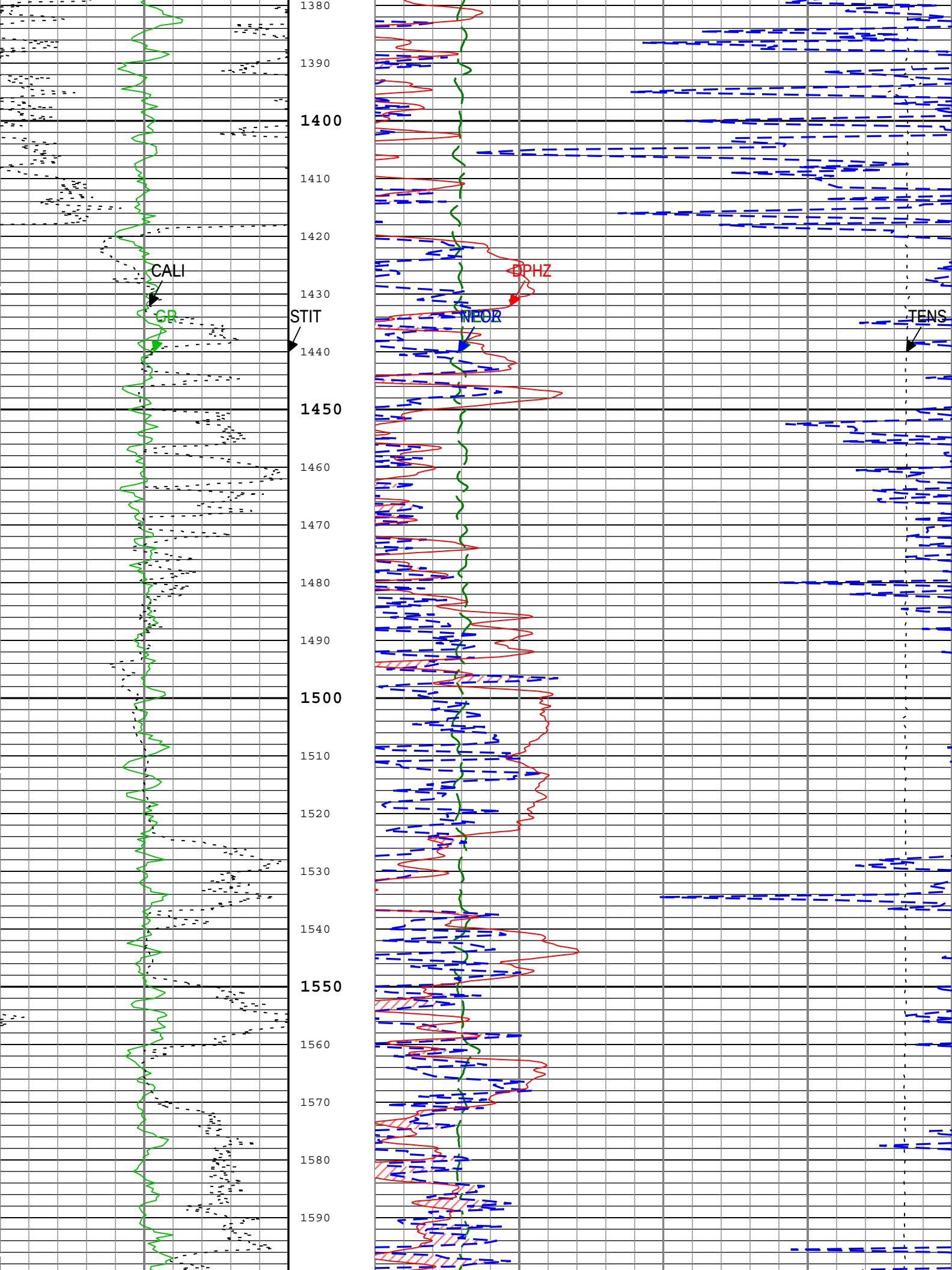


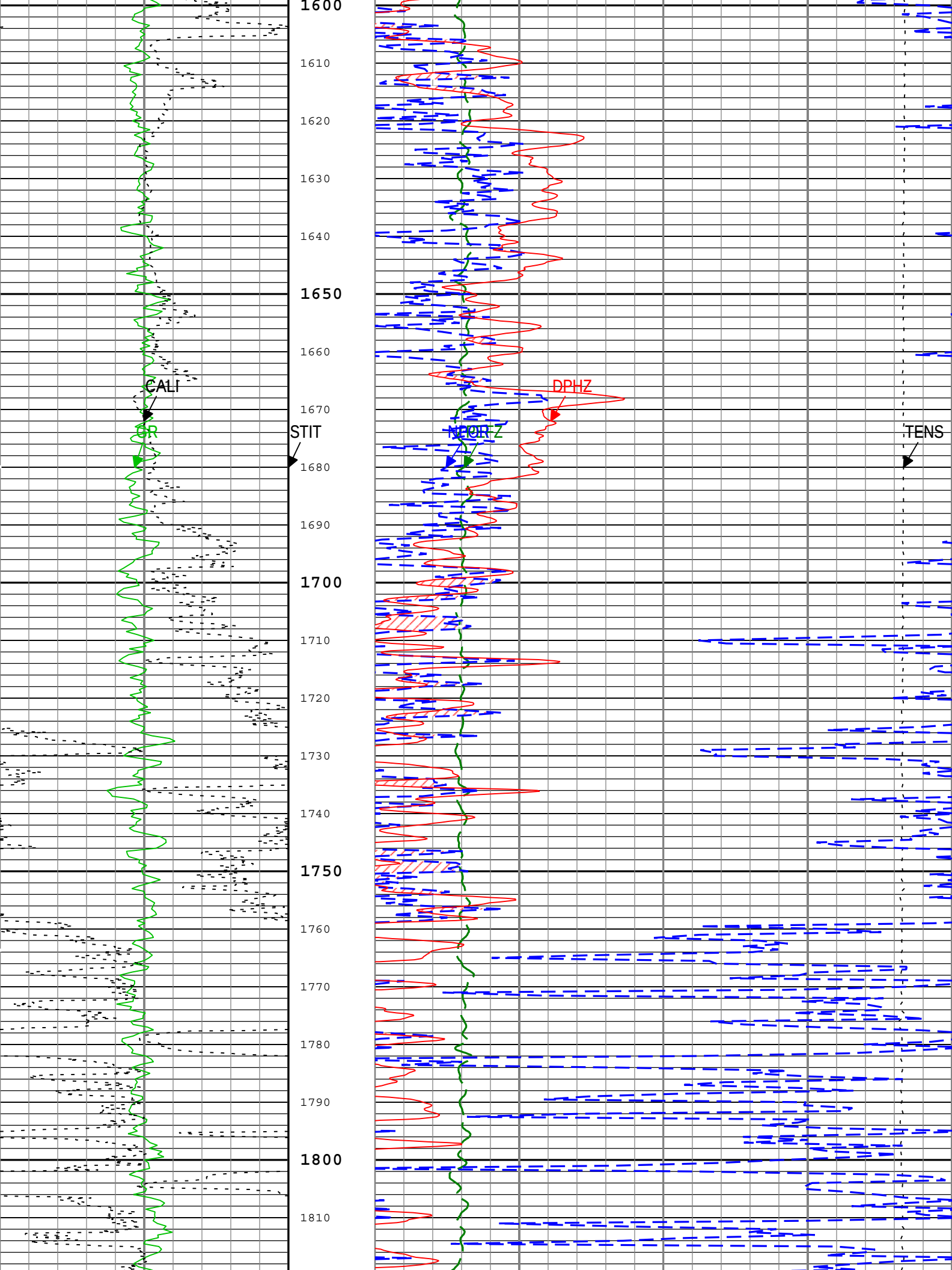

500
510
520
530
540
550
560
570
580
590
600
610
620
630
640
650
660
670
680
690
700
710
CALI
GR
STIT
NPOR
PEFZ
DPHZ
TENS

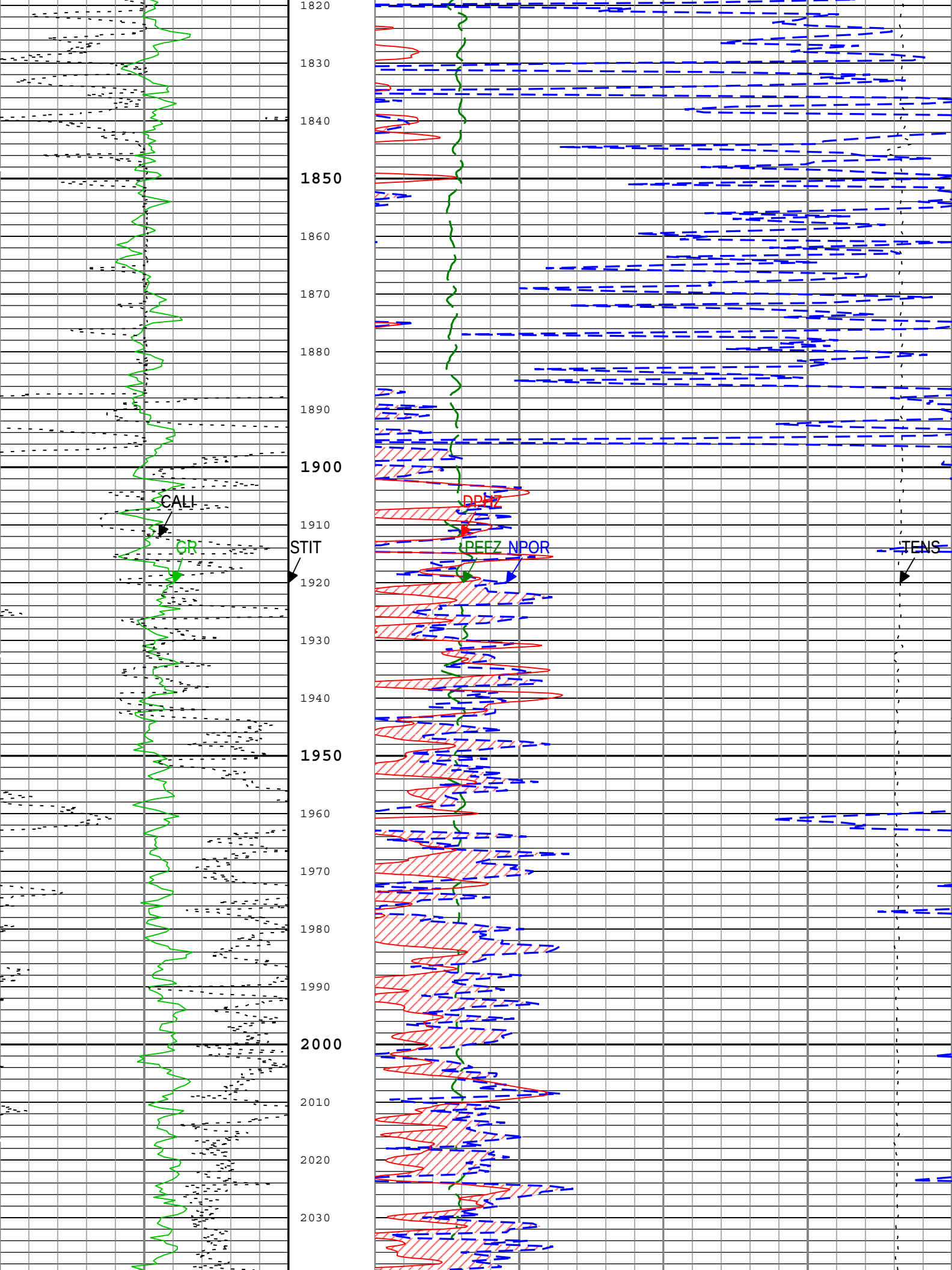

720
730
740
750
760
770
780
790
800
810
820
830
840
850
860
870
880
890
900
910
920
930

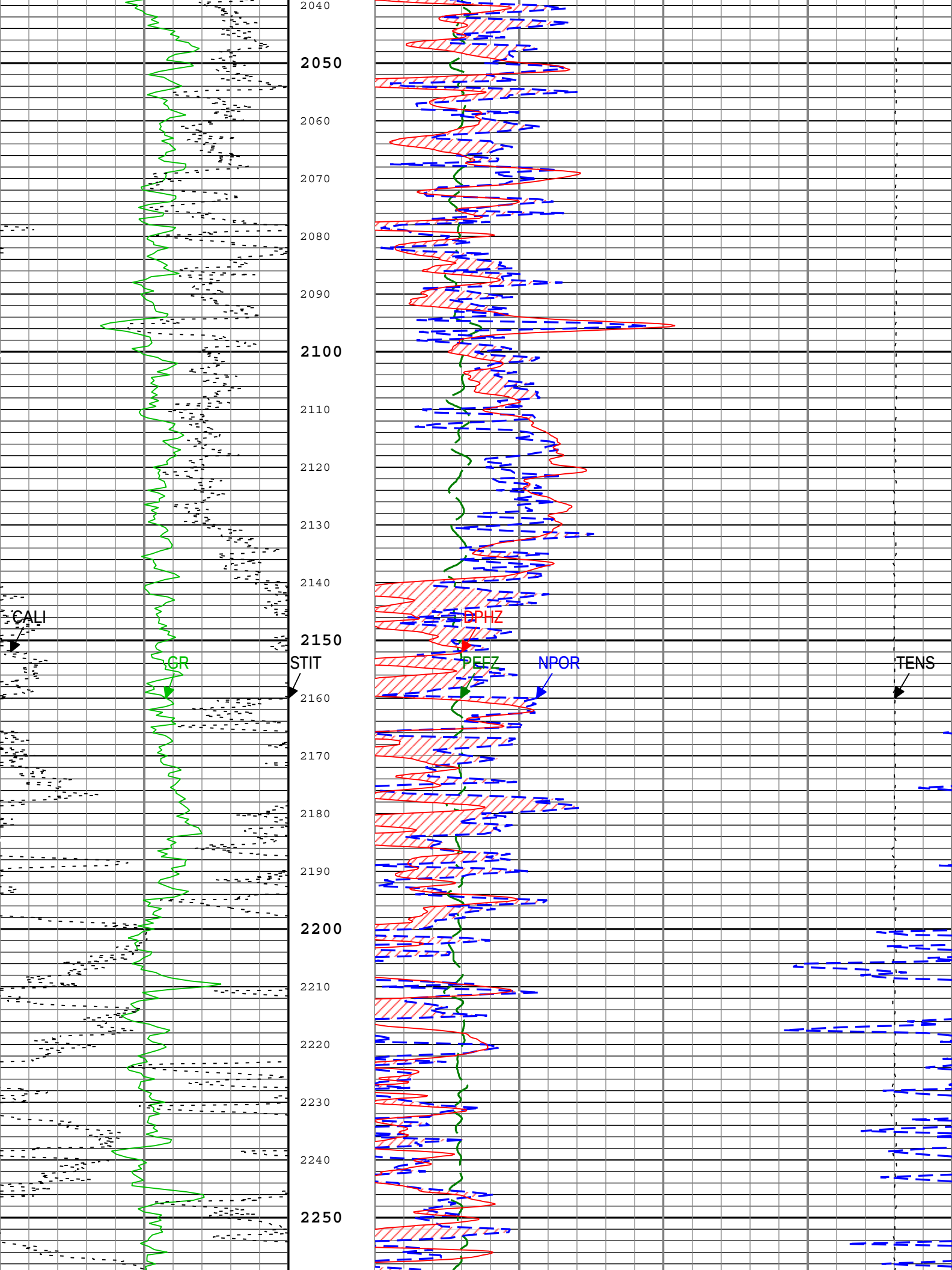

CALI
STIT
DPHZ
NPOR
EFZ
TENS
940
950
960
970
980
990
1000
1010
1020
1030
1040
1050
1060
1070
1080
1090
1100
1110
1120
1130
1140
1150

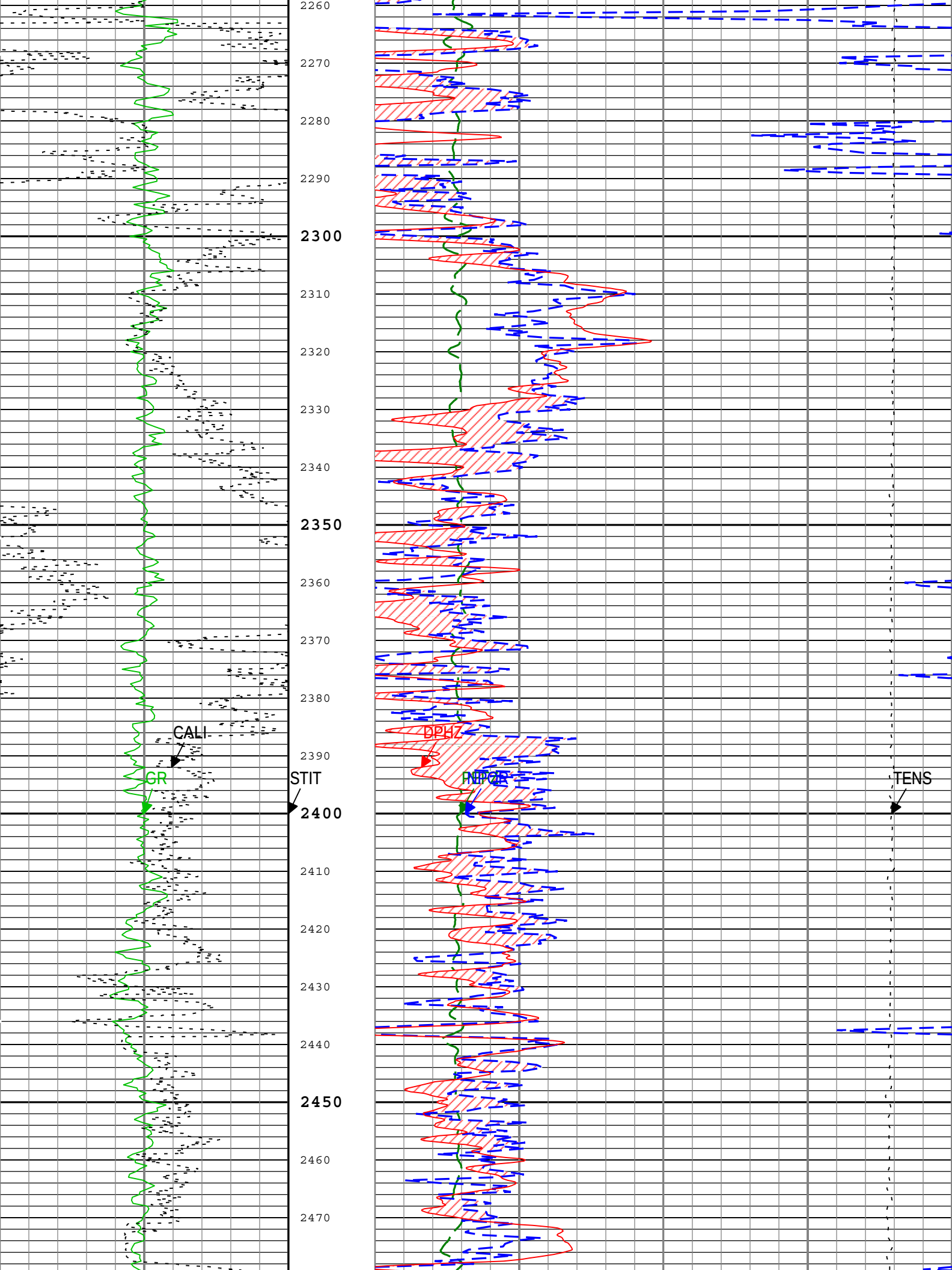

CALI
GR
STIT
DPHZ
NPOR
EFZ
TENS
1160
1170
1180
1190
1200
1210
1220
1230
1240
1250
1260
1270
1280
1290
1300
1310
1320
1330
1340
1350
1360
1370

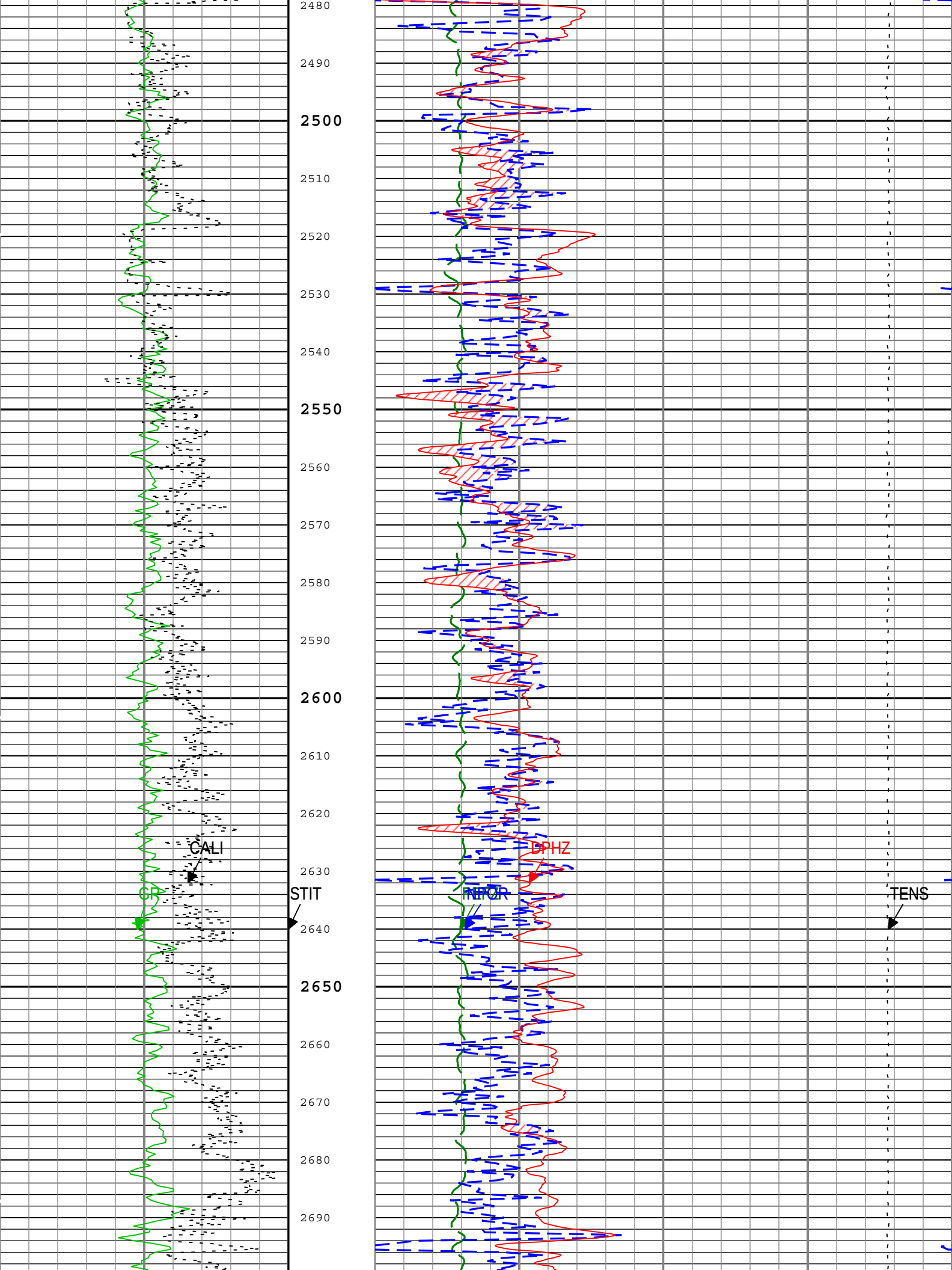

CALI
GR
STIT
DPHZ
NPOR
TENS
1380
1390
1400
1410
1420
1430
1440
1450
1460
1470
1480
1490
1500
1510
1520
1530
1540
1550
1560
1570
1580
1590

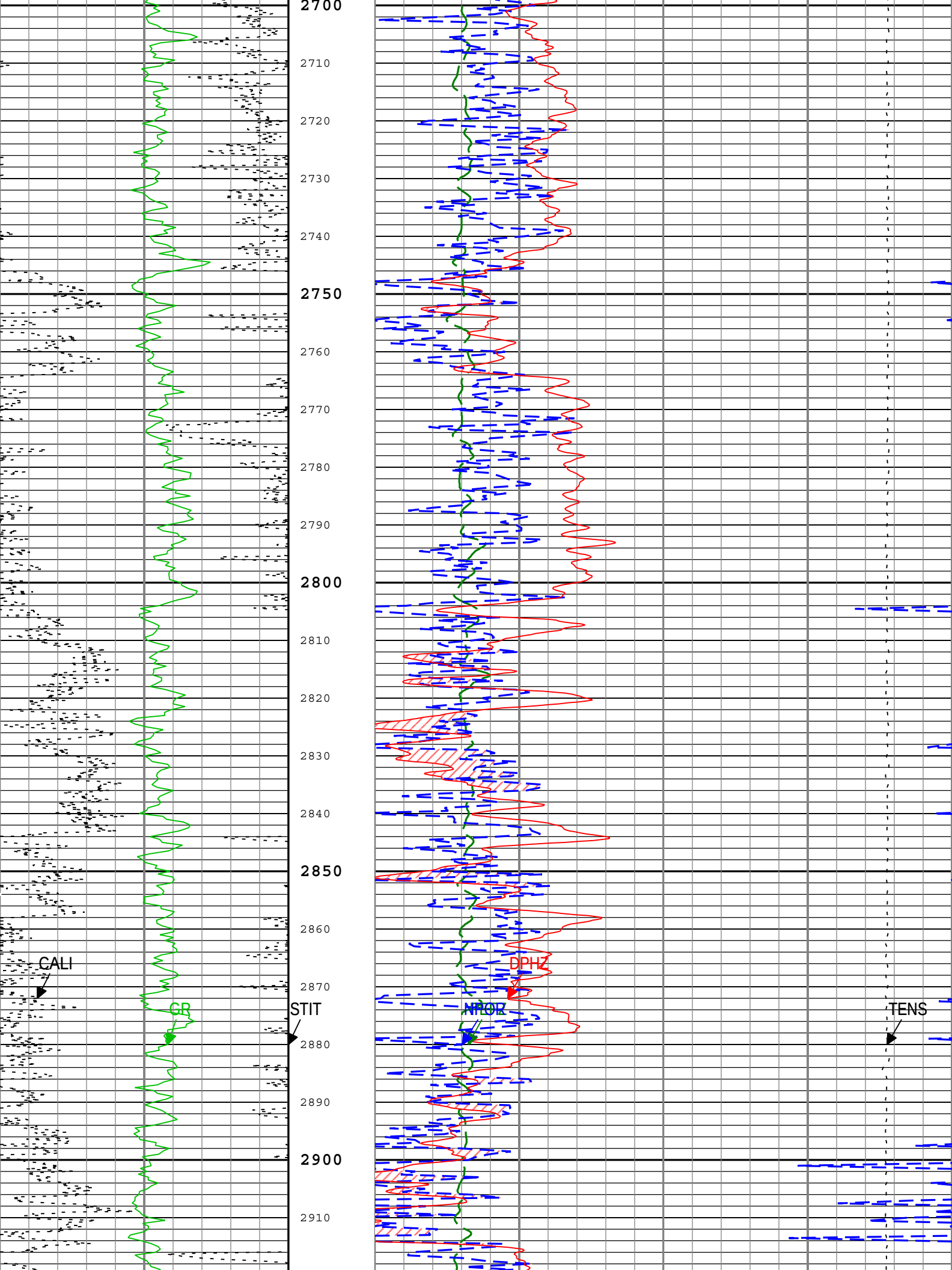

1600
1610
1620
1630
1640
1650
1660
1670
1680
1690
1700
1710
1720
1730
1740
1750
1760
1770
1780
1790
1800
1810
CALI
GR
STIT
DPHZ
TENS

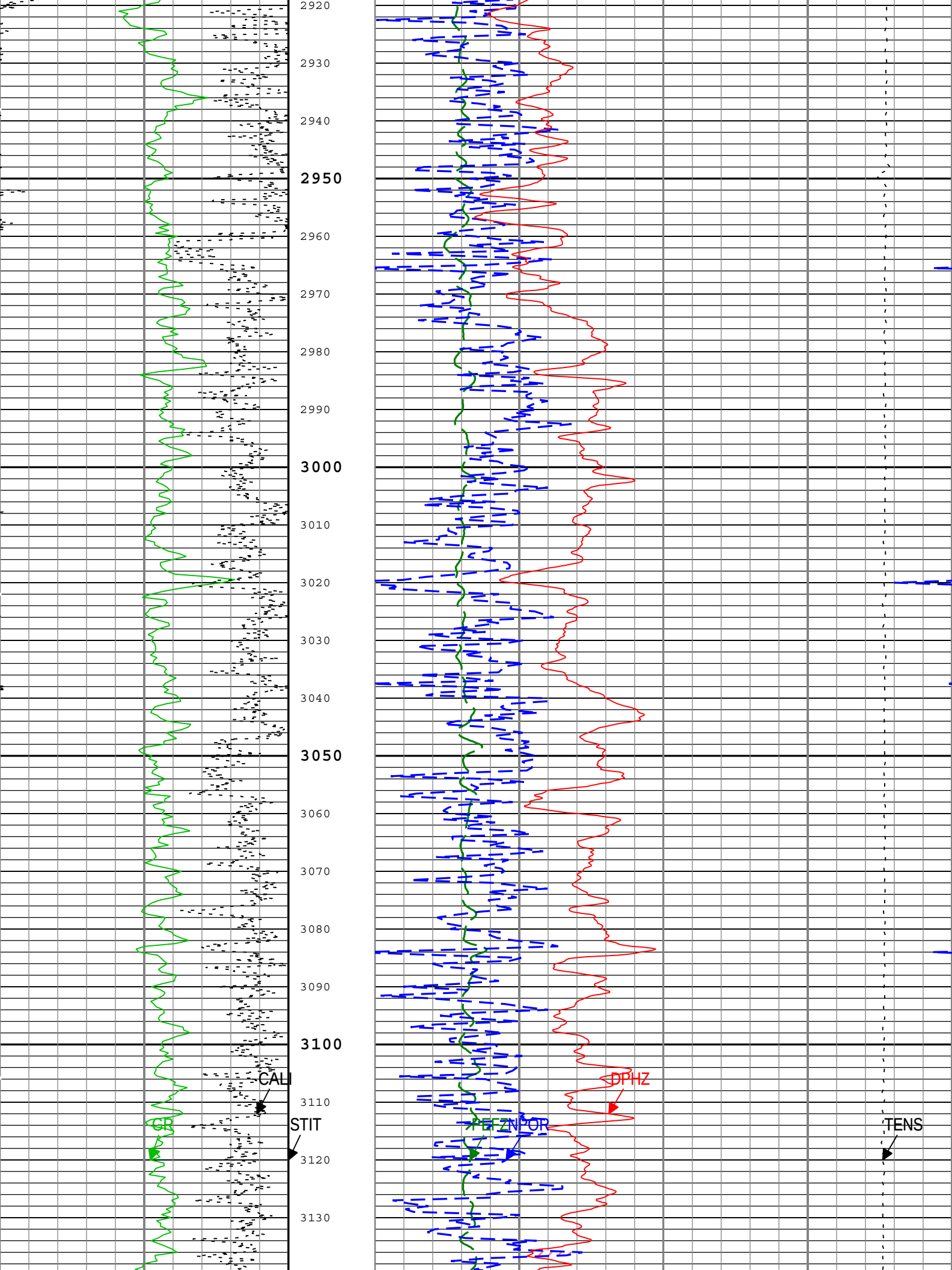

1820
1830
1840
1850
1860
1870
1880
1890
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
2000
2010
2020
2030
CALI
CR
STIT
DPHZ
PEFZ
NPOR
TENS

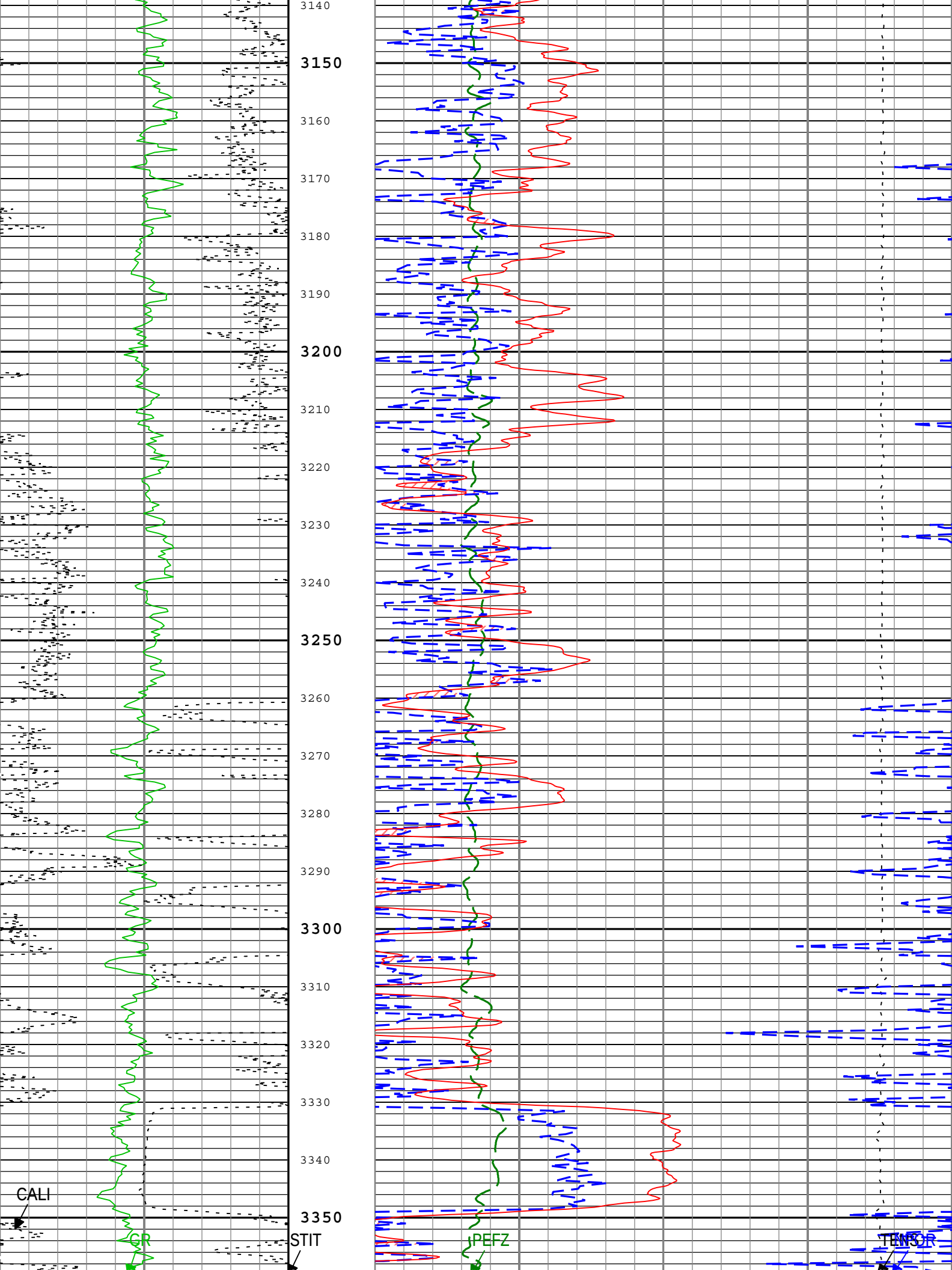

2040
2050
2060
2070
2080
2090
2100
2110
2120
2130
2140
2150
2160
2170
2180
2190
2200
2210
2220
2230
2240
2250
CALI
GR
STIT
DPHZ
PEFZ
NPOR
TENS

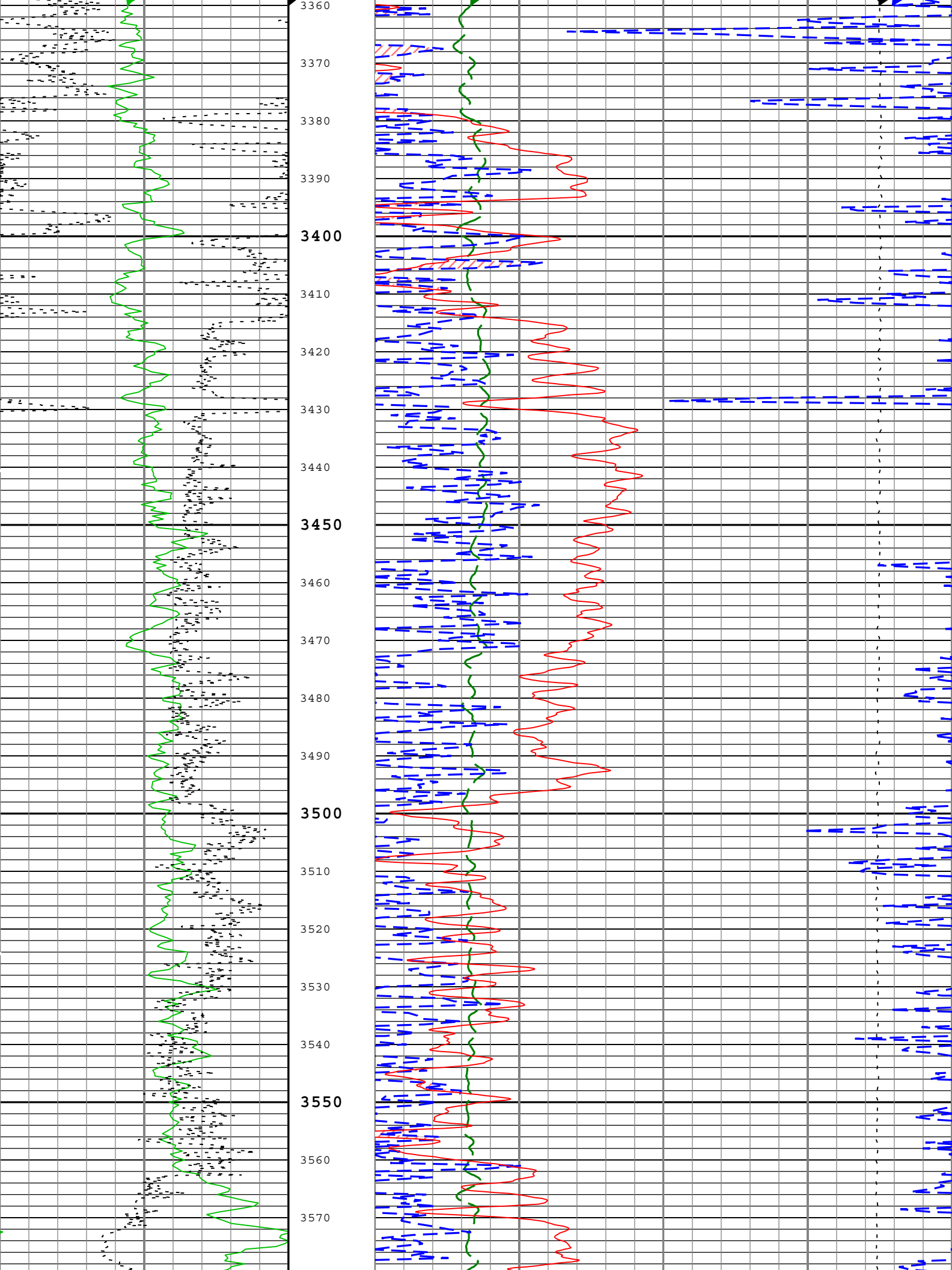

2260
2270
2280
2290
2300
2310
2320
2330
2340
2350
2360
2370
2380
2390
2400
2410
2420
2430
2440
2450
2460
2470
CALI
GR
STIT
DPHZ
NPOR
TENS

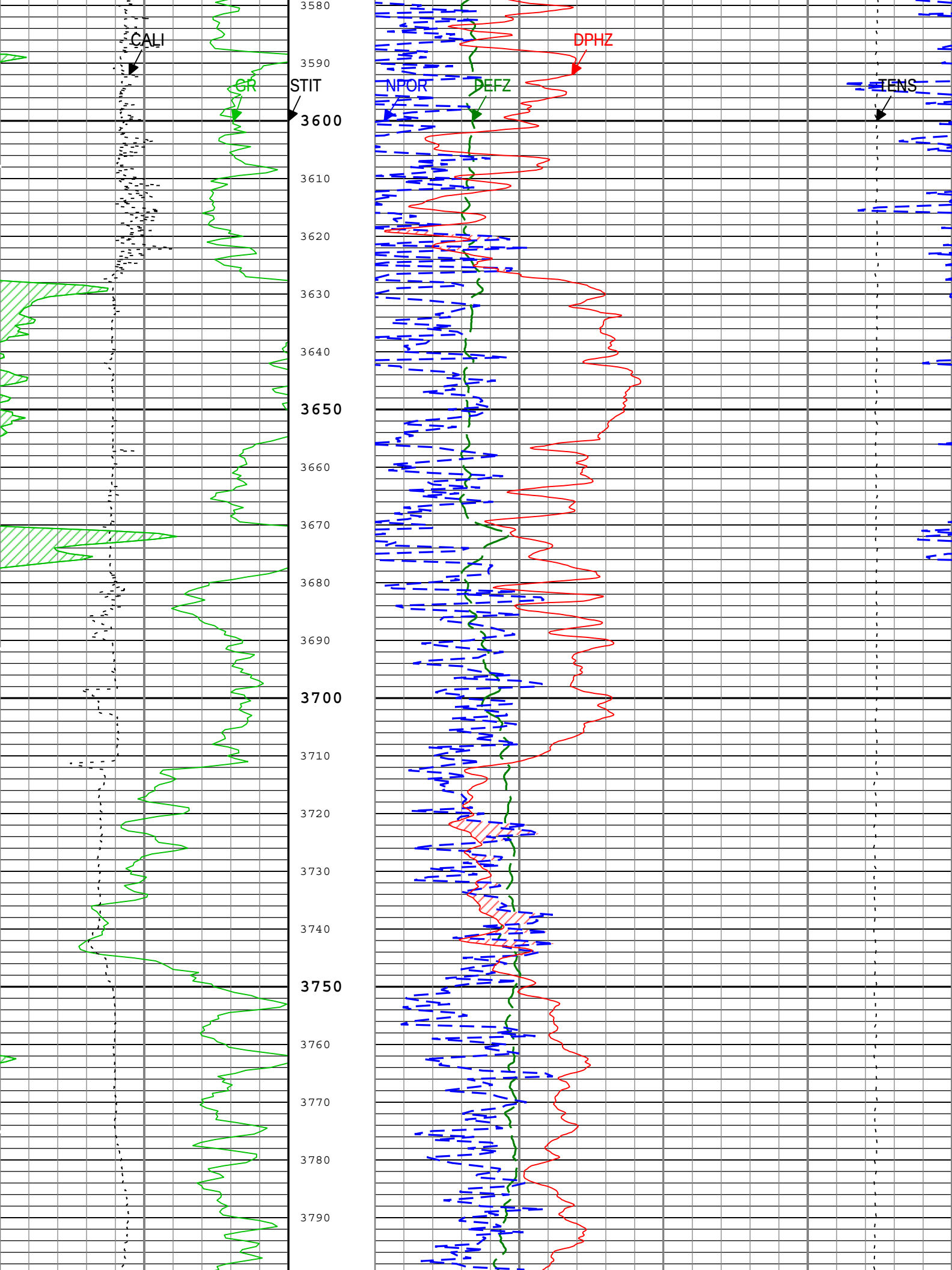

2480
2490
2500
2510
2520
2530
2540
2550
2560
2570
2580
2590
2600
2610
2620
2630
2640
2650
2660
2670
2680
2690
CALI
GR
STIT
DPHZ
TENS

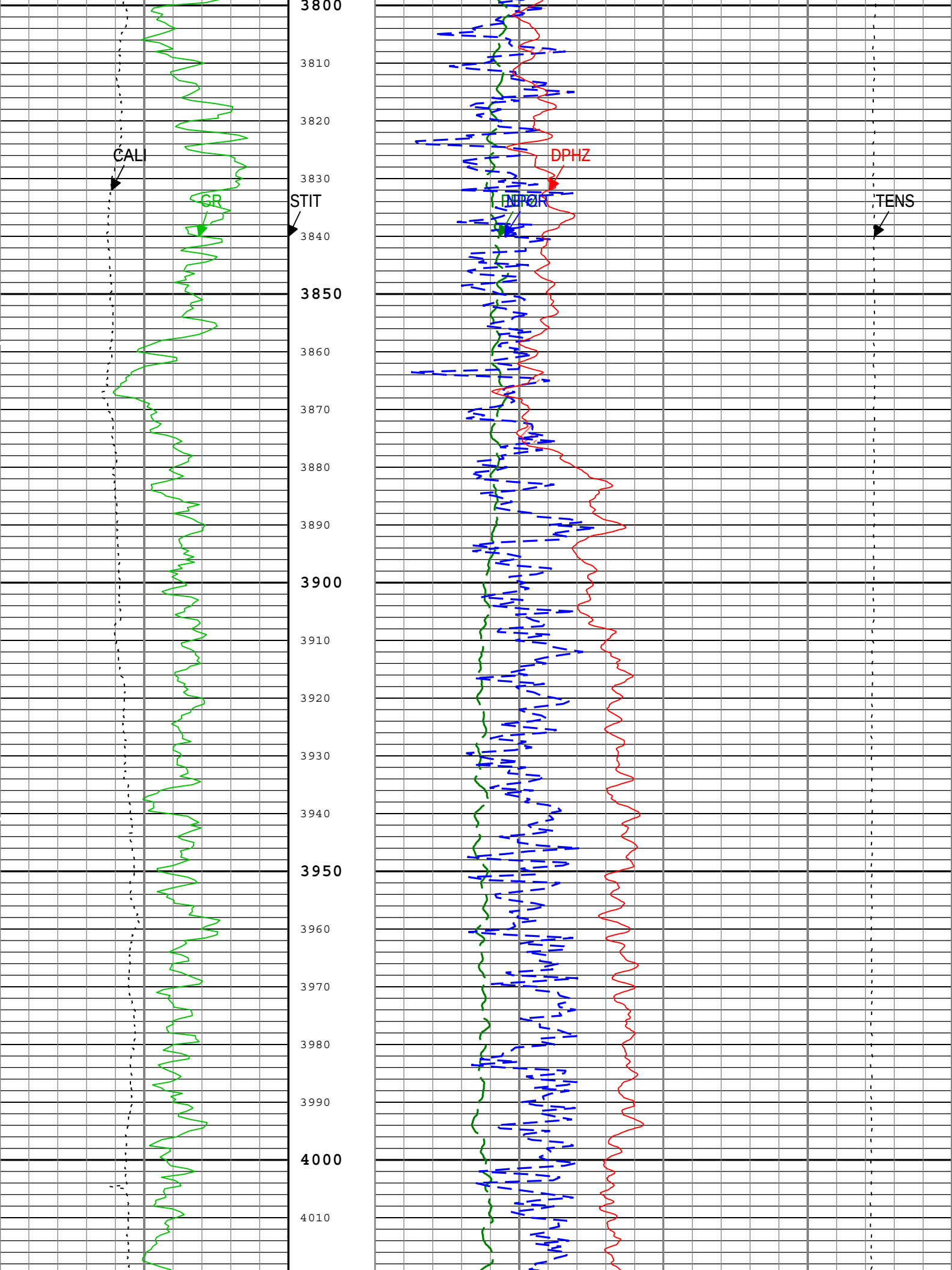

2700
2710
2720
2730
2740
2750
2760
2770
2780
2790
2800
2810
2820
2830
2840
2850
2860
2870
2880
2890
2900
2910
CALI
GR
STIT
DPHZ
NPLOR
TENS

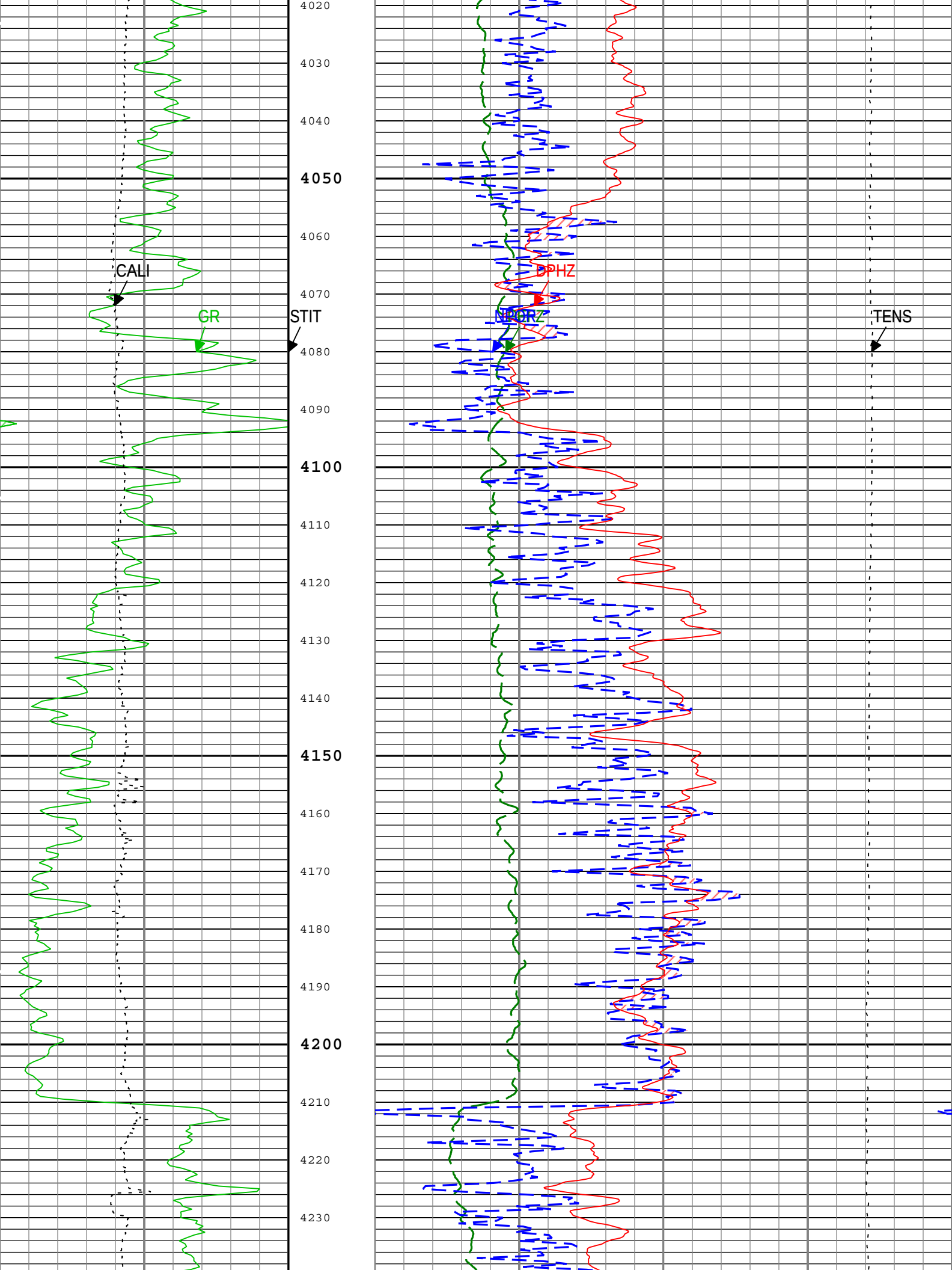

2920
2930
2940
2950
2960
2970
2980
2990
3000
3010
3020
3030
3040
3050
3060
3070
3080
3090
3100
3110
3120
3130
CALI
GR
STIT
PEFZ
NPOR
DPHZ
TENS

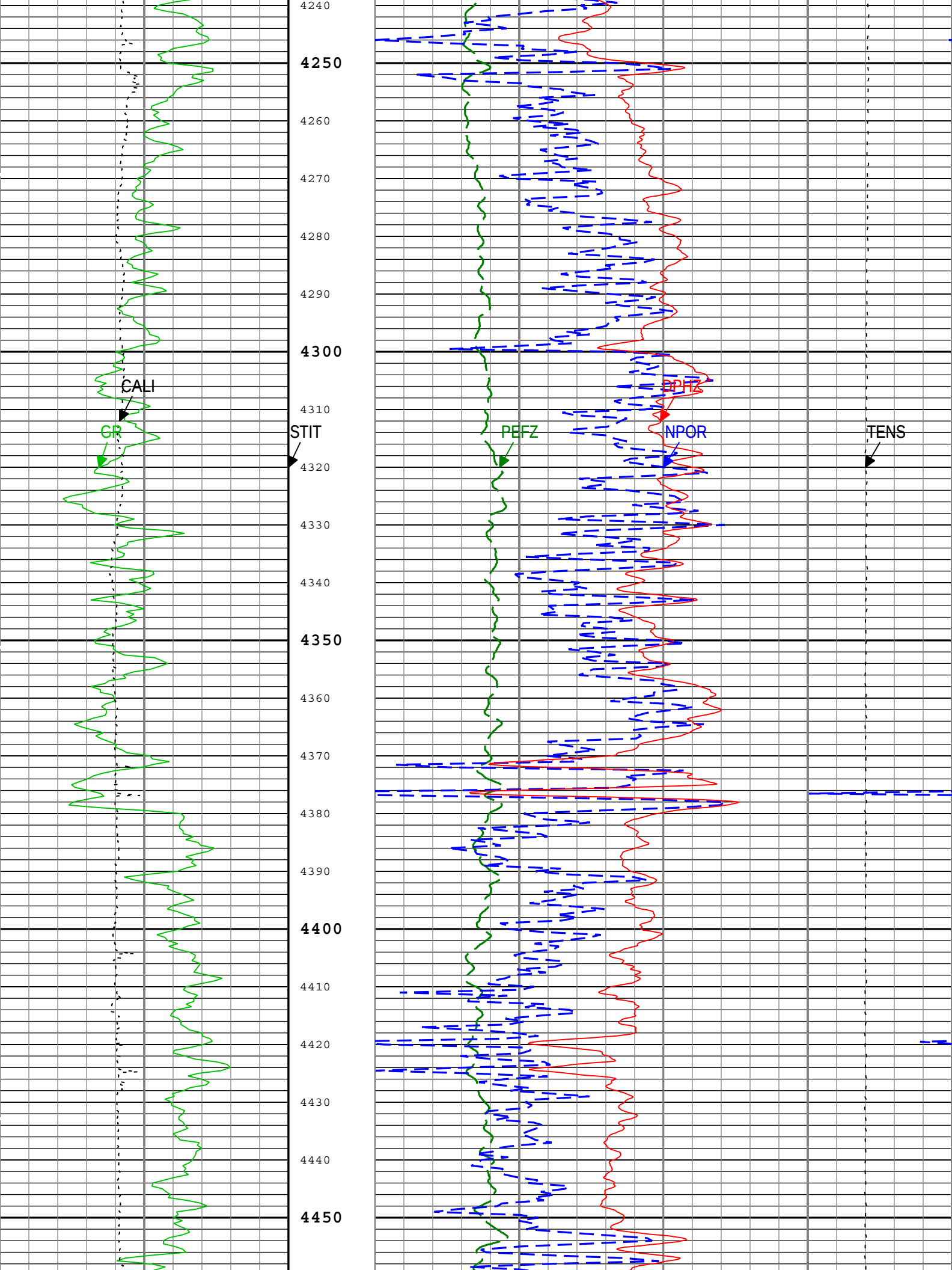

3140
3150
3160
3170
3180
3190
3200
3210
3220
3230
3240
3250
3260
3270
3280
3290
3300
3310
3320
3330
3340
3350
CALI
GR
STIT
PEFZ
TENSOR

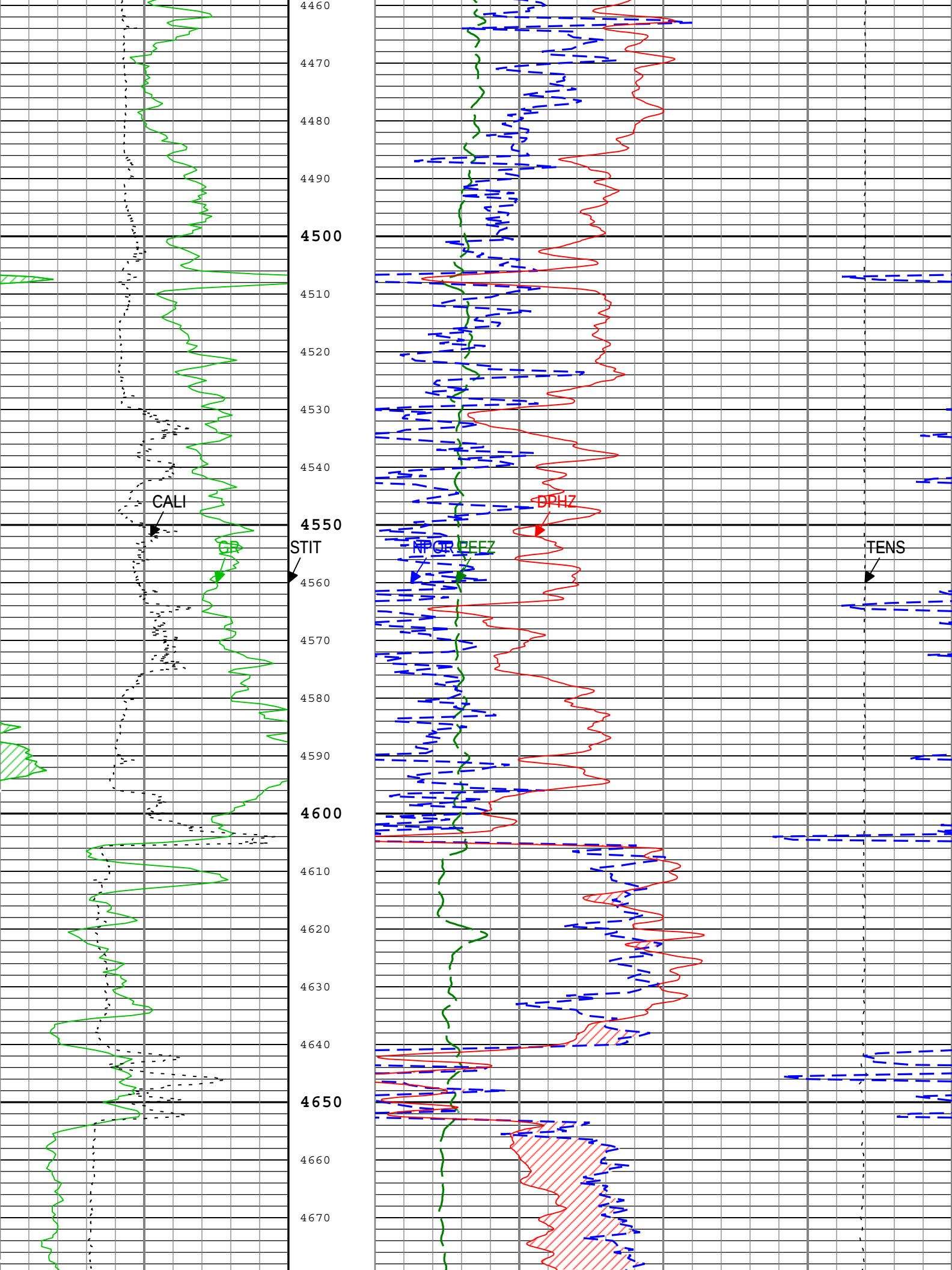

3360
3370
3380
3390
3400
3410
3420
3430
3440
3450
3460
3470
3480
3490
3500
3510
3520
3530
3540
3550
3560
3570

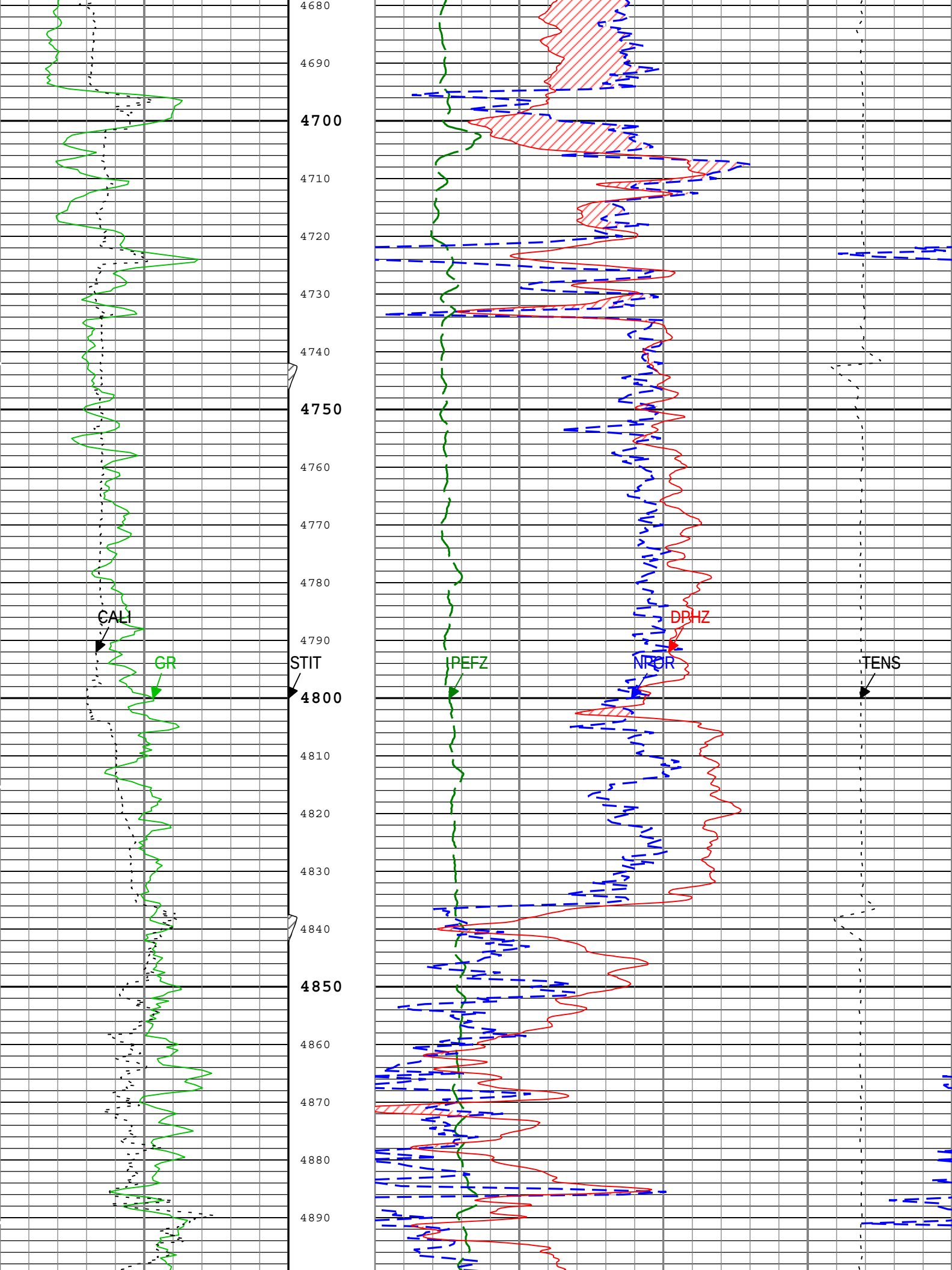

CALI
GR
STIT
DPHZ
NPOR
DEFZ
TENS
3580
3590
3600
3610
3620
3630
3640
3650
3660
3670
3680
3690
3700
3710
3720
3730
3740
3750
3760
3770
3780
3790

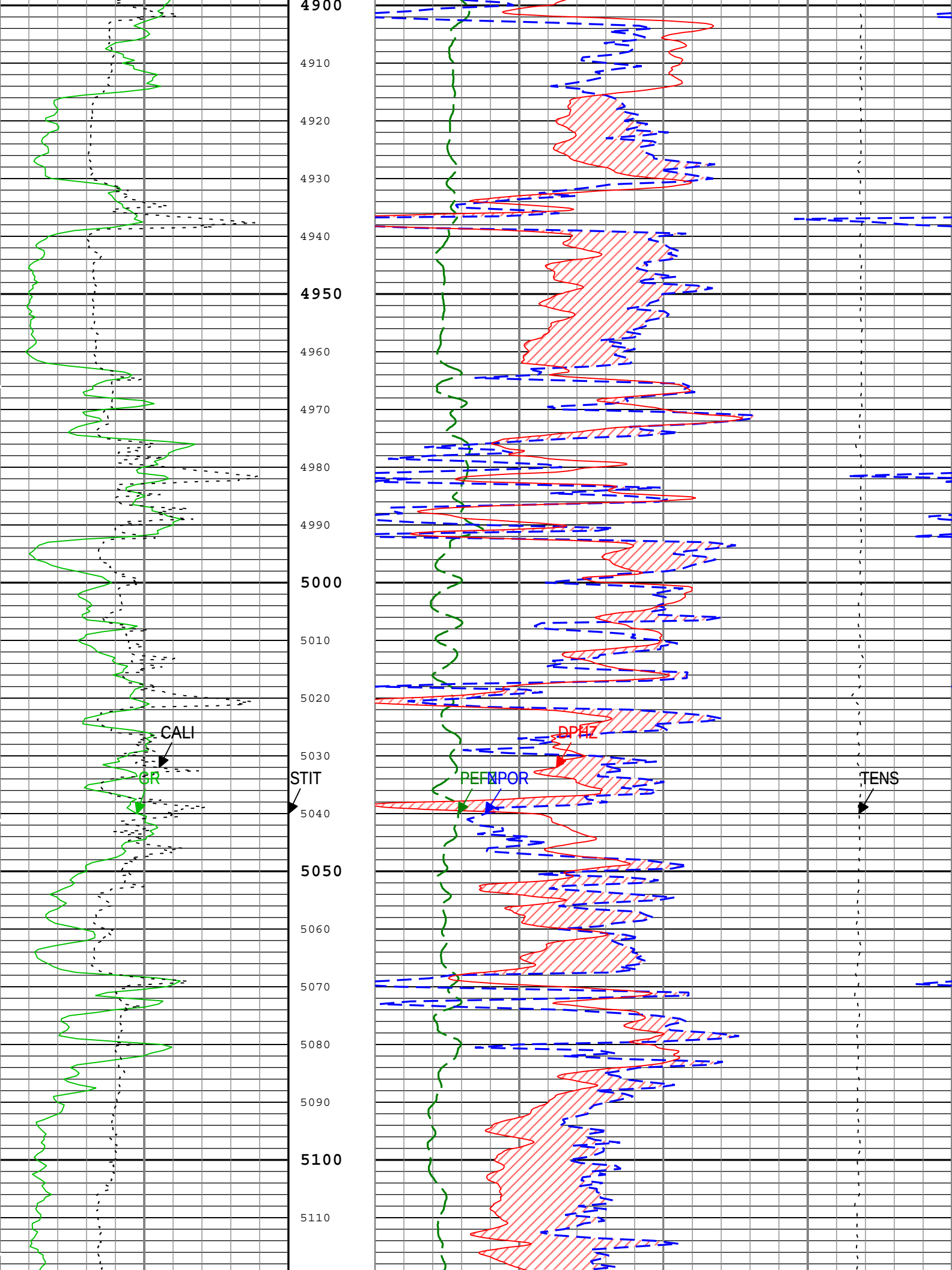

CALI
GR
STIT
DPHZ
NPOR
TENS
3800
3810
3820
3830
3840
3850
3860
3870
3880
3890
3900
3910
3920
3930
3940
3950
3960
3970
3980
3990
4000
4010

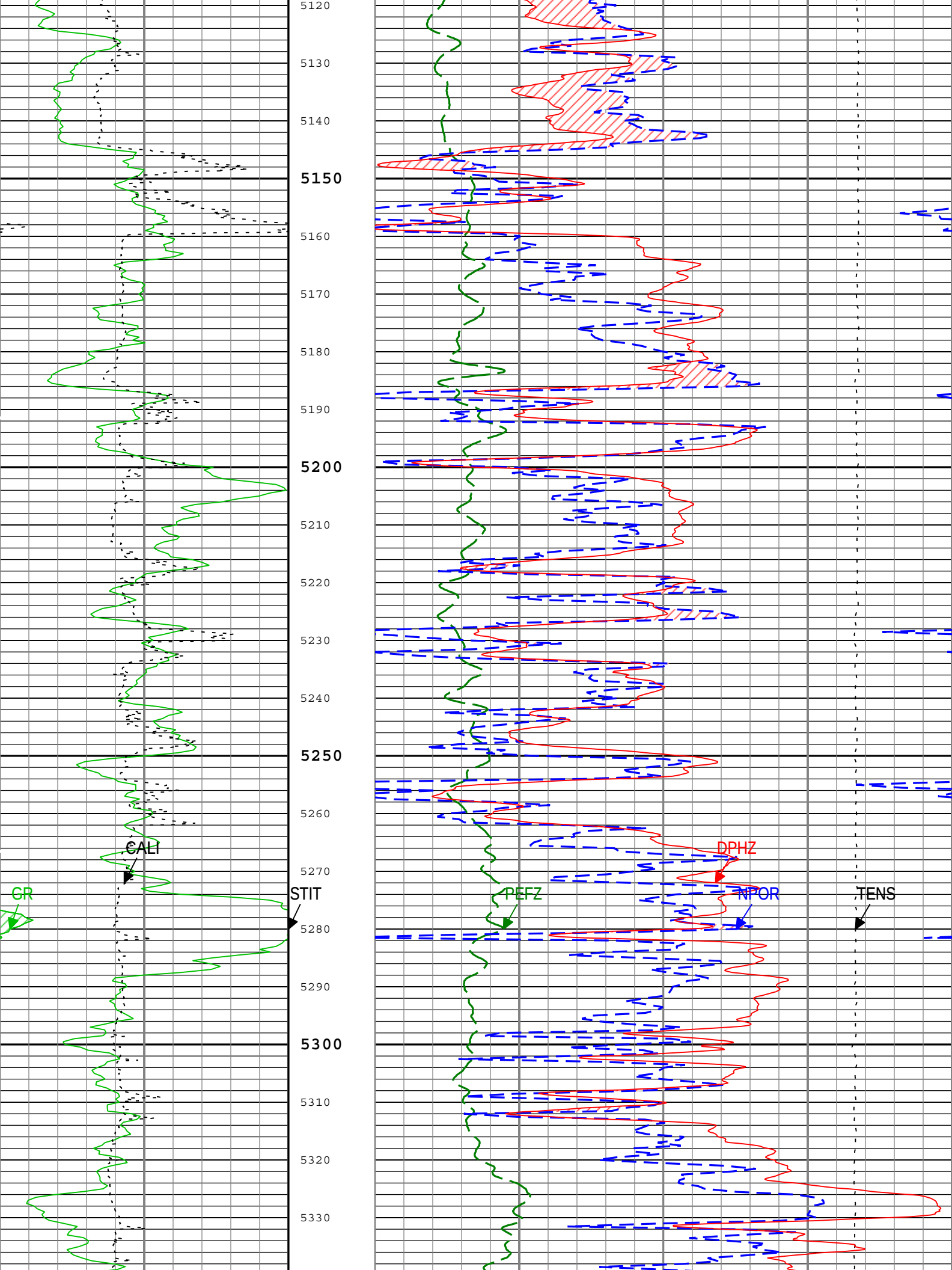

CALI
GR
STIT
DPHZ
NPORZ
TENS
4020
4030
4040
4050
4060
4070
4080
4090
4100
4110
4120
4130
4140
4150
4160
4170
4180
4190
4200
4210
4220
4230

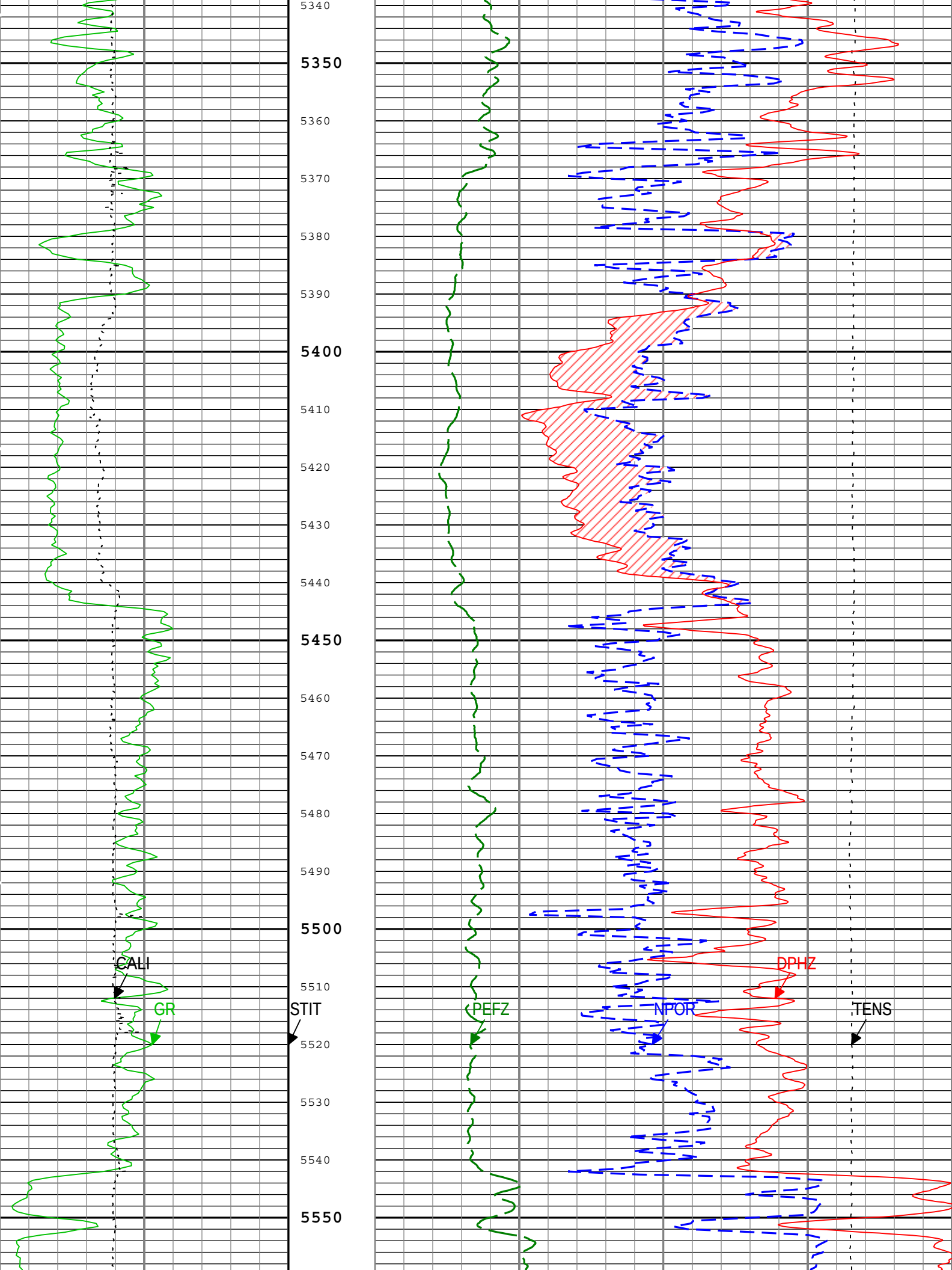

4240
4250
4260
4270
4280
4290
4300
4310
4320
4330
4340
4350
4360
4370
4380
4390
4400
4410
4420
4430
4440
4450
CALI
GR
STIT
PEFZ
DPHZ
NPOR
TENS

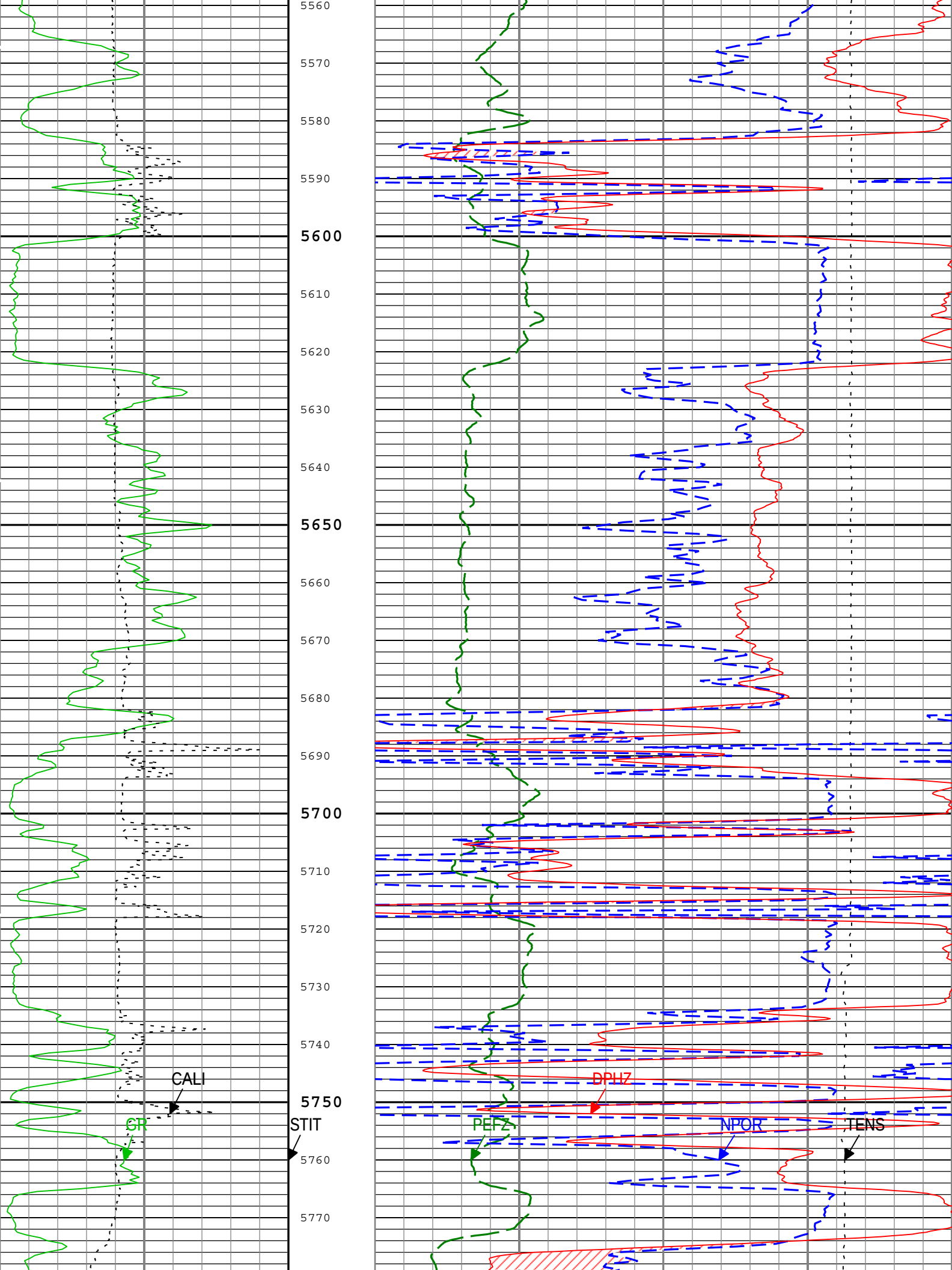

4460
4470
4480
4490
4500
4510
4520
4530
4540
4550
4560
4570
4580
4590
4600
4610
4620
4630
4640
4650
4660
4670
CALI
CB
STIT
DPHZ
NPGR
PEFZ
TENS

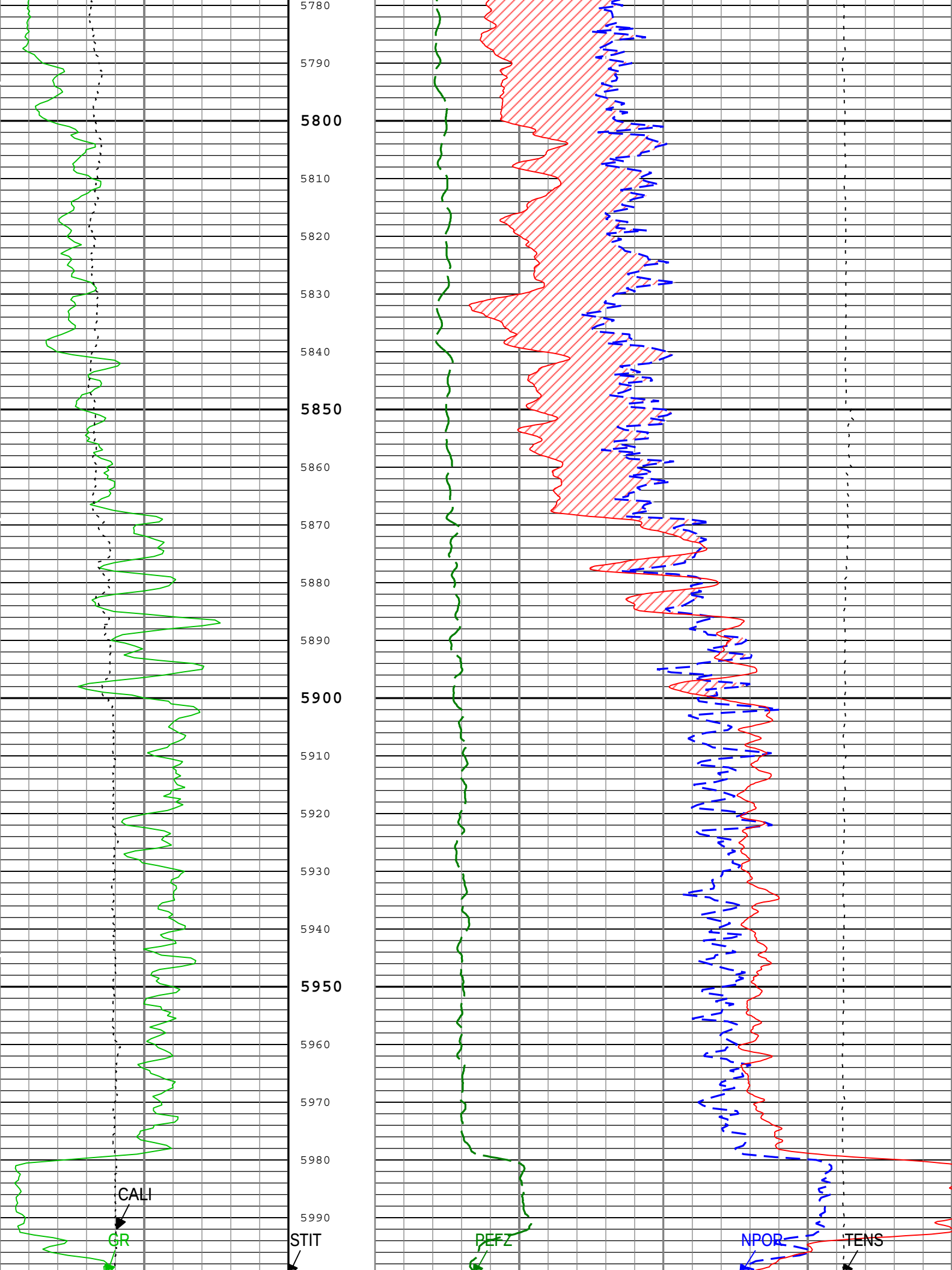

4680
4690
4700
4710
4720
4730
4740
4750
4760
4770
4780
4790
4800
4810
4820
4830
4840
4850
4860
4870
4880
4890
CALI
GR
STIT
PEFZ
DPHZ
NPOR
TENS

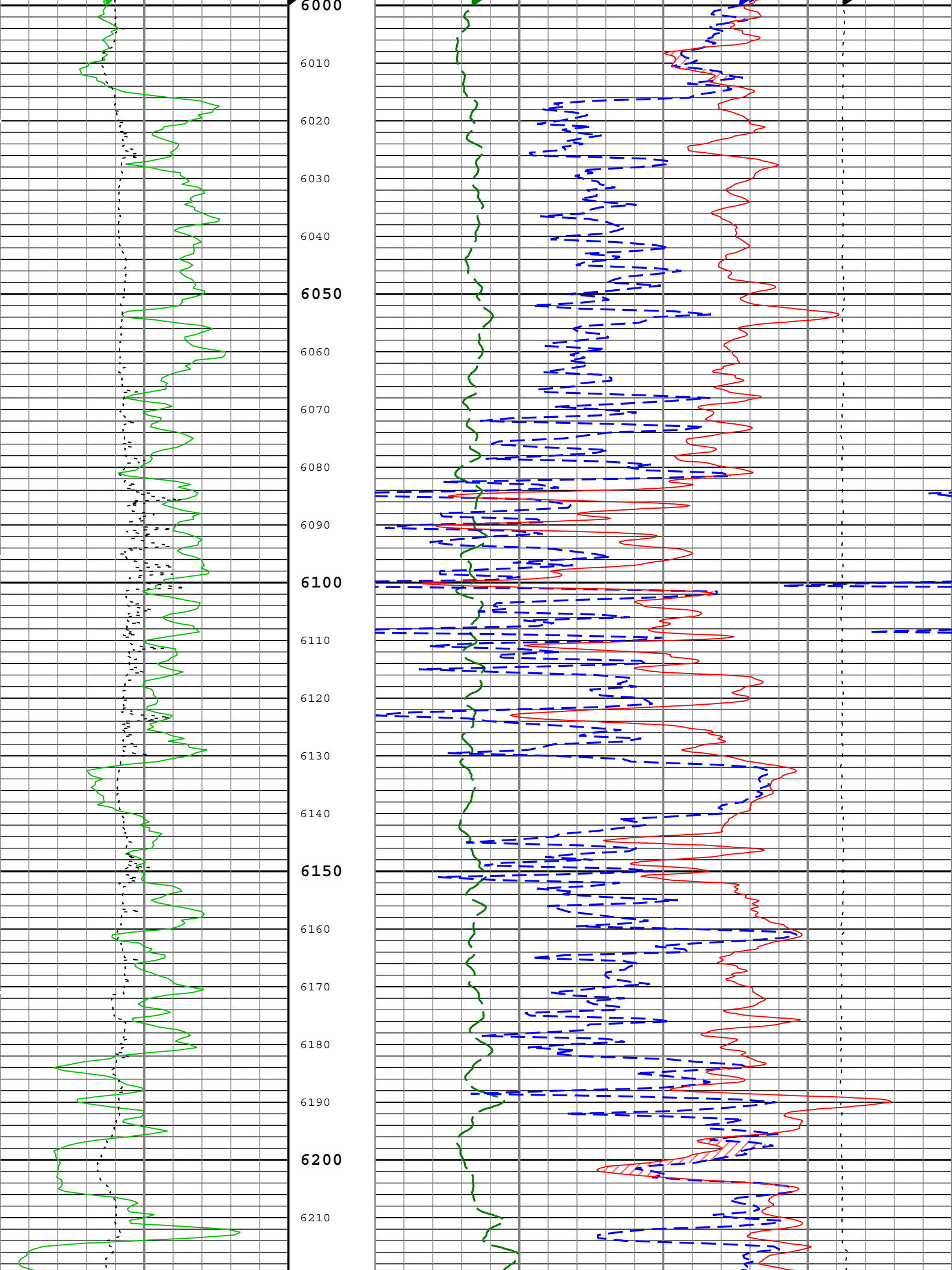

4900
4910
4920
4930
4940
4950
4960
4970
4980
4990
5000
5010
5020
5030
5040
5050
5060
5070
5080
5090
5100
5110
CALI
GR
STIT
DPHZ
PEFZ
MPOR
TENS

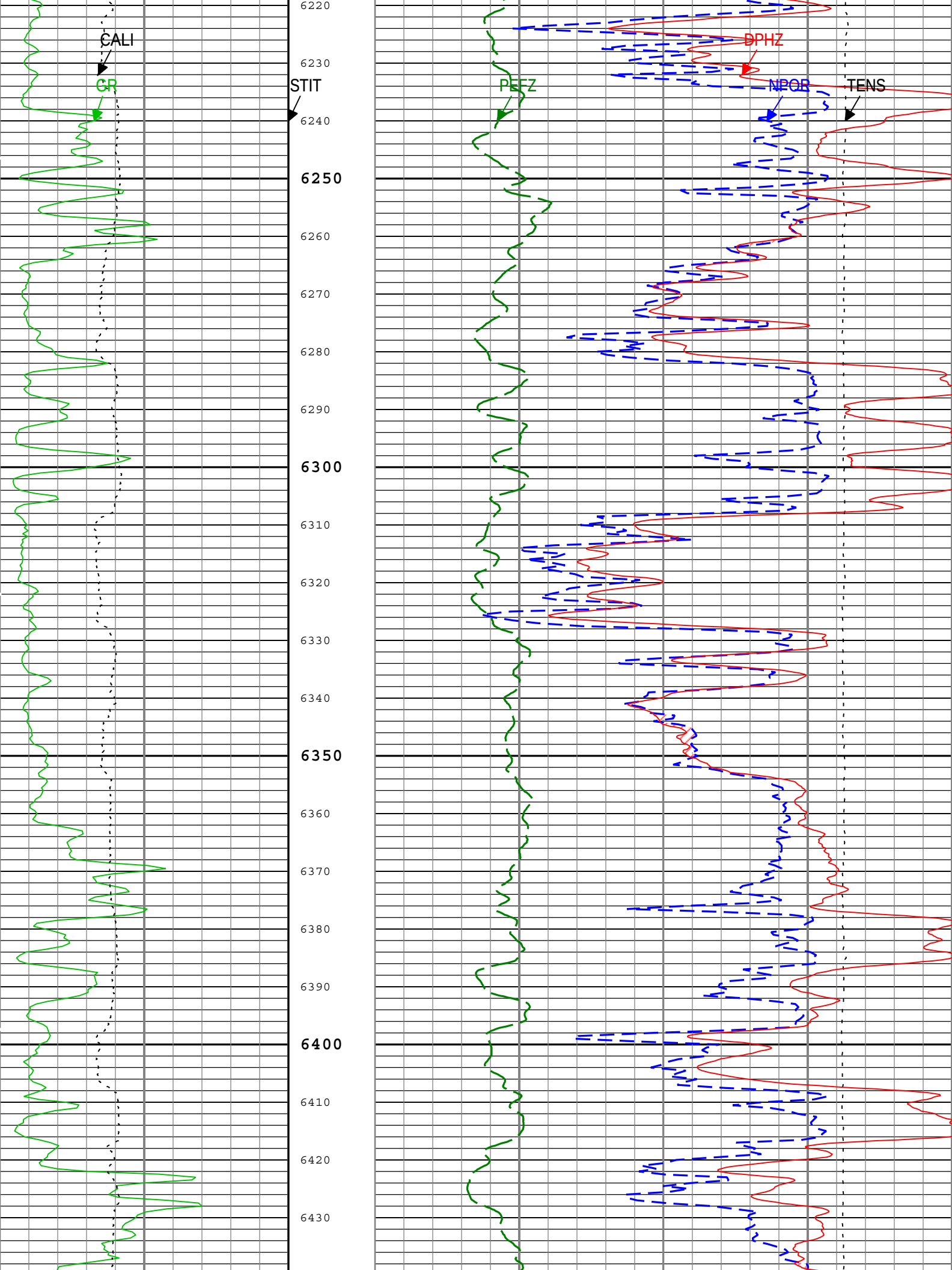

5120
5130
5140
5150
5160
5170
5180
5190
5200
5210
5220
5230
5240
5250
5260
5270
5280
5290
5300
5310
5320
5330
CALI
GR
STIT
PEFZ
DPHZ
NPOR
TENS

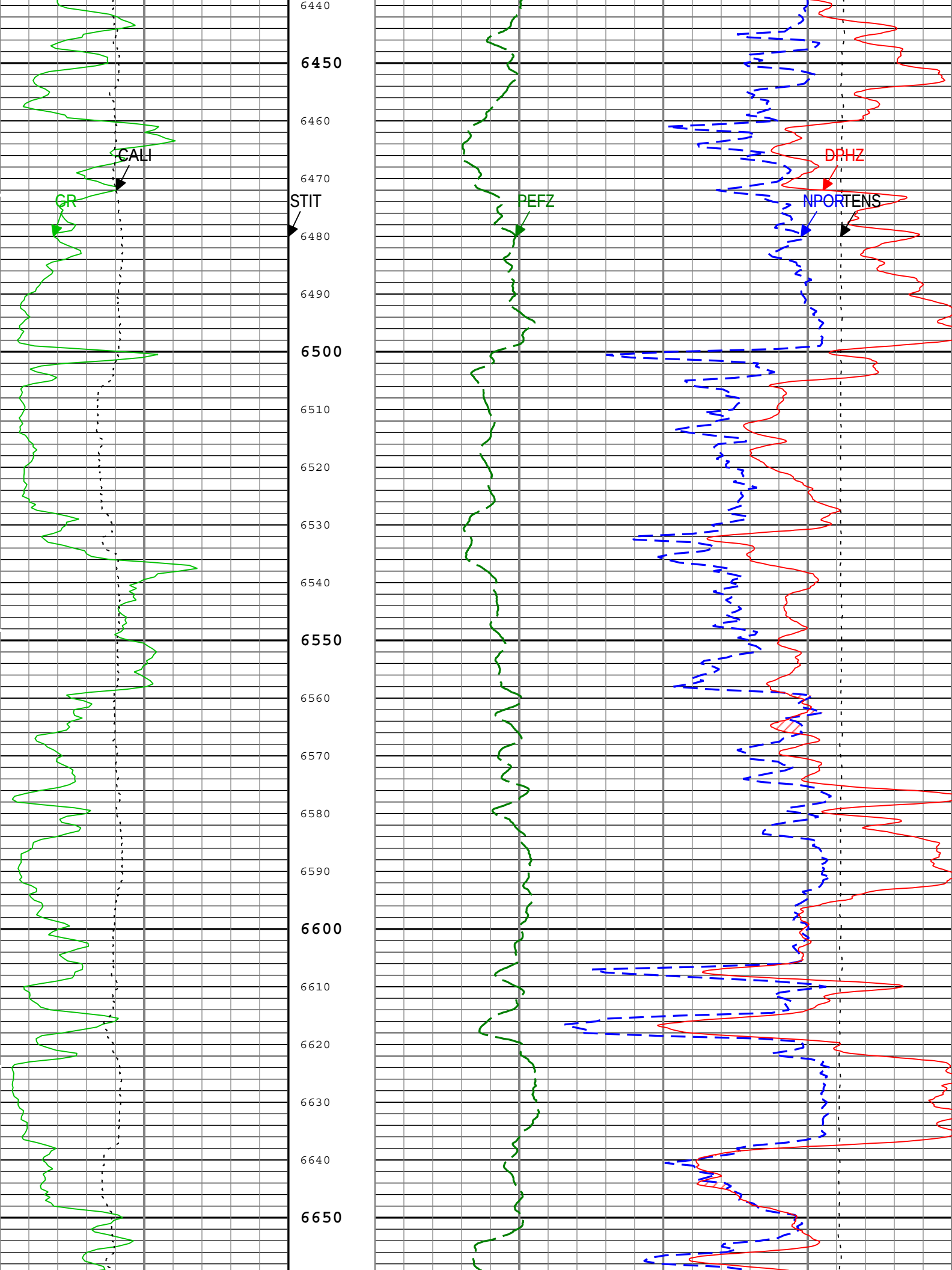

5340
5350
5360
5370
5380
5390
5400
5410
5420
5430
5440
5450
5460
5470
5480
5490
5500
5510
5520
5530
5540
5550
CALI
GR
STIT
PEFZ
DPHZ
NPOR
TENS

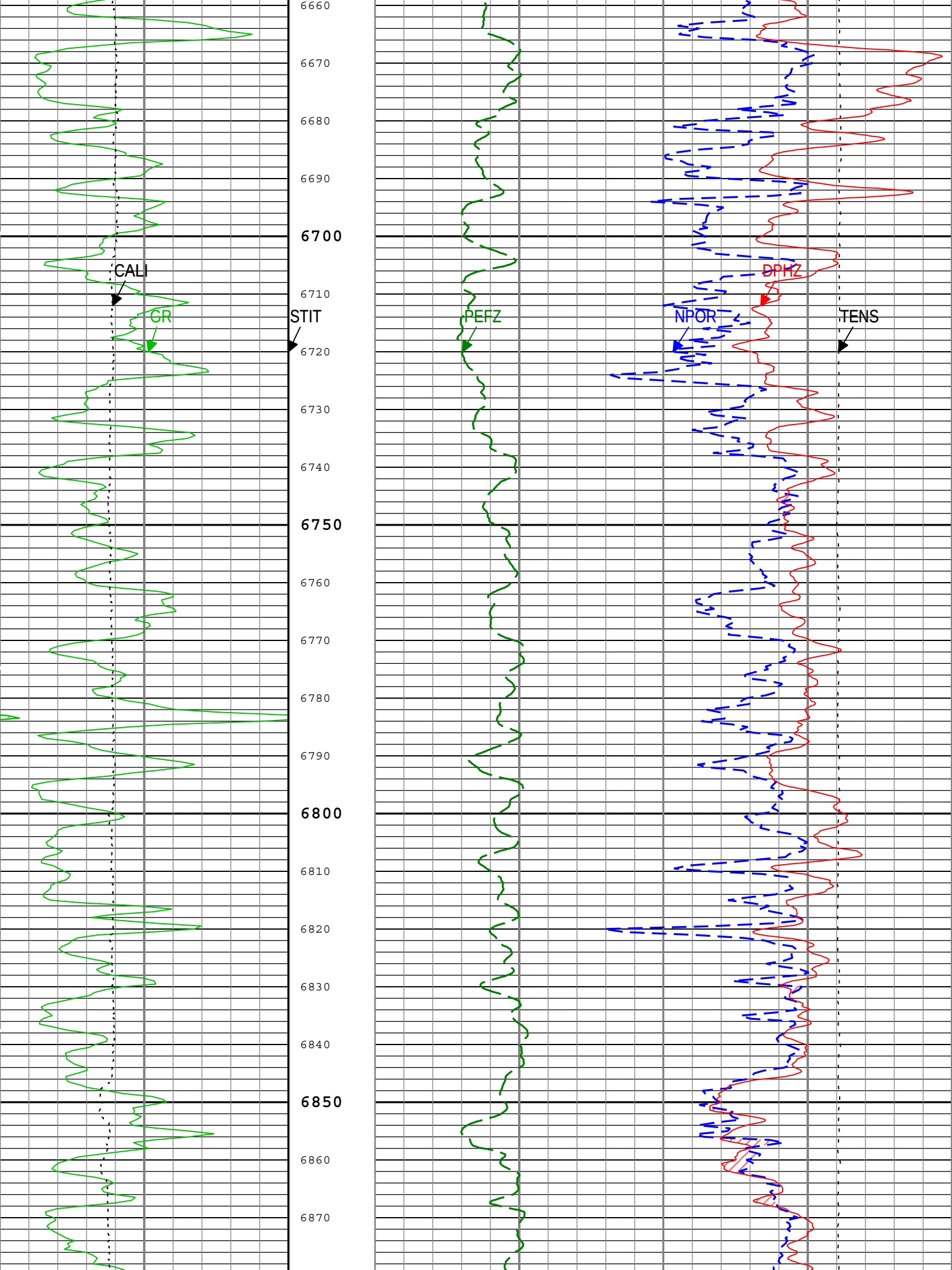

5560
5570
5580
5590
5600
5610
5620
5630
5640
5650
5660
5670
5680
5690
5700
5710
5720
5730
5740
5750
5760
5770
CALI
GR
STIT
PEFZ
DPHZ
NPOR
TENS

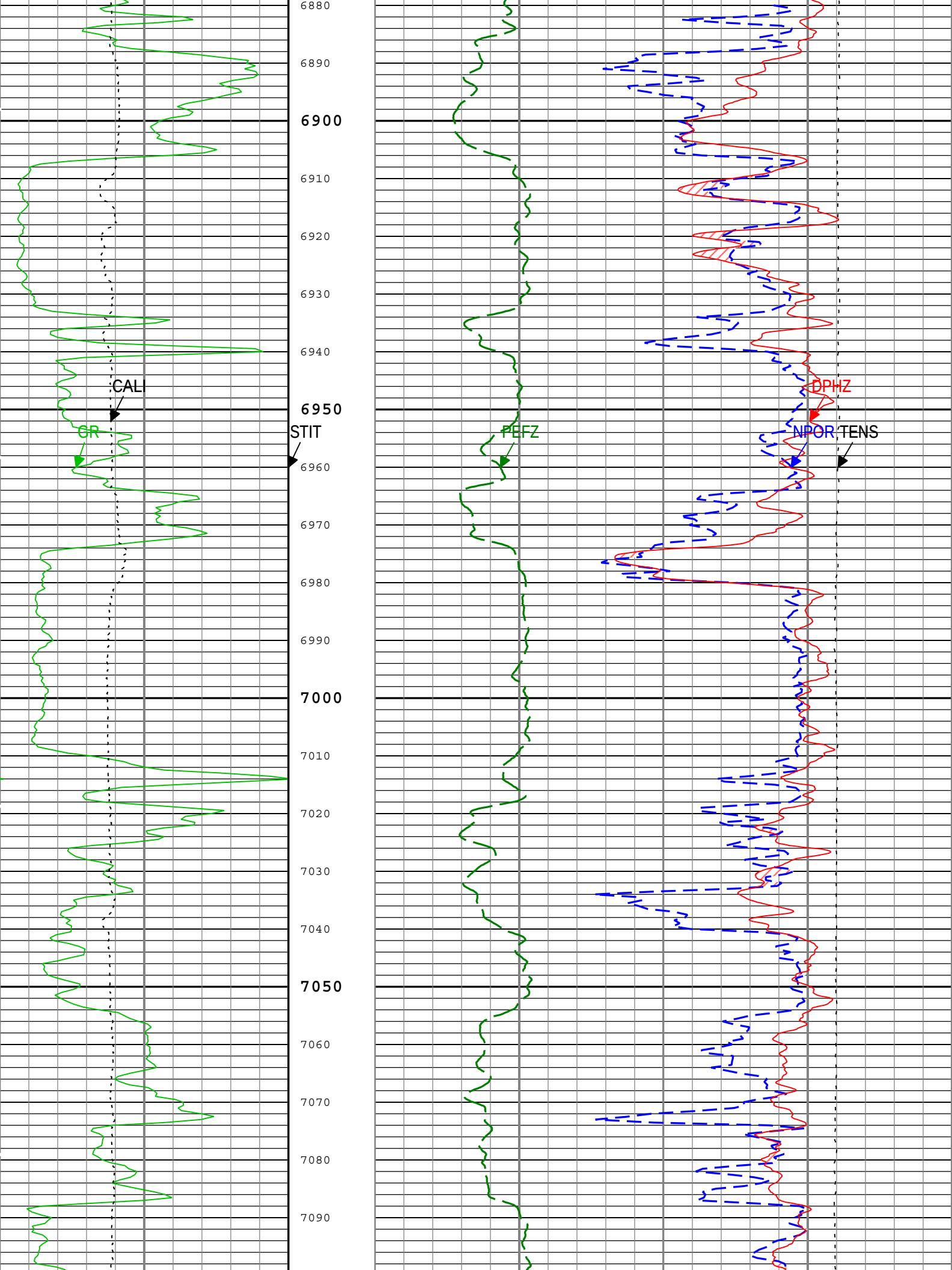

5780
5790
5800
5810
5820
5830
5840
5850
5860
5870
5880
5890
5900
5910
5920
5930
5940
5950
5960
5970
5980
5990
CALI
GR
STIT
PEFZ
NPOR
TENS

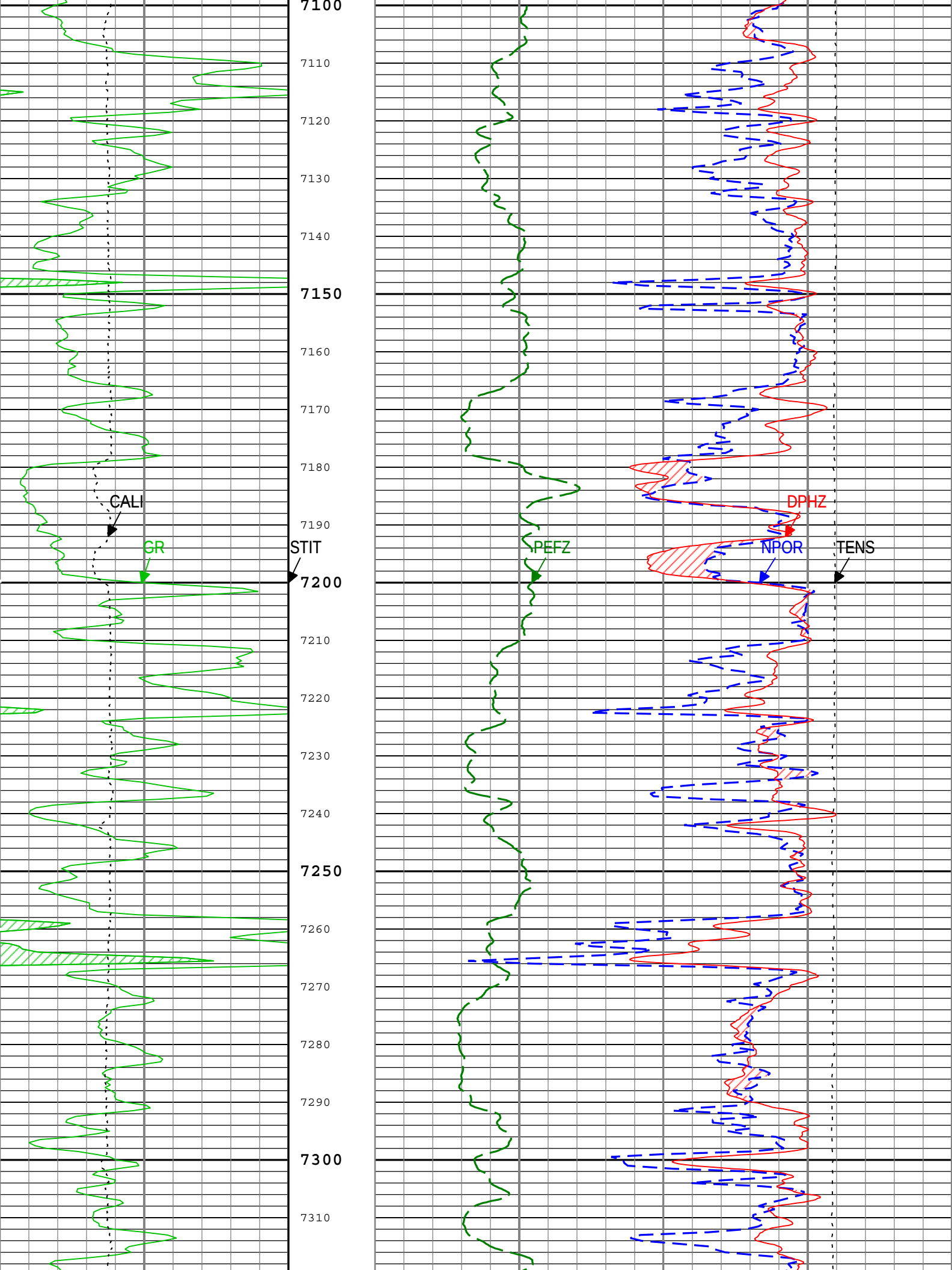

6000
6010
6020
6030
6040
6050
6060
6070
6080
6090
6100
6110
6120
6130
6140
6150
6160
6170
6180
6190
6200
6210

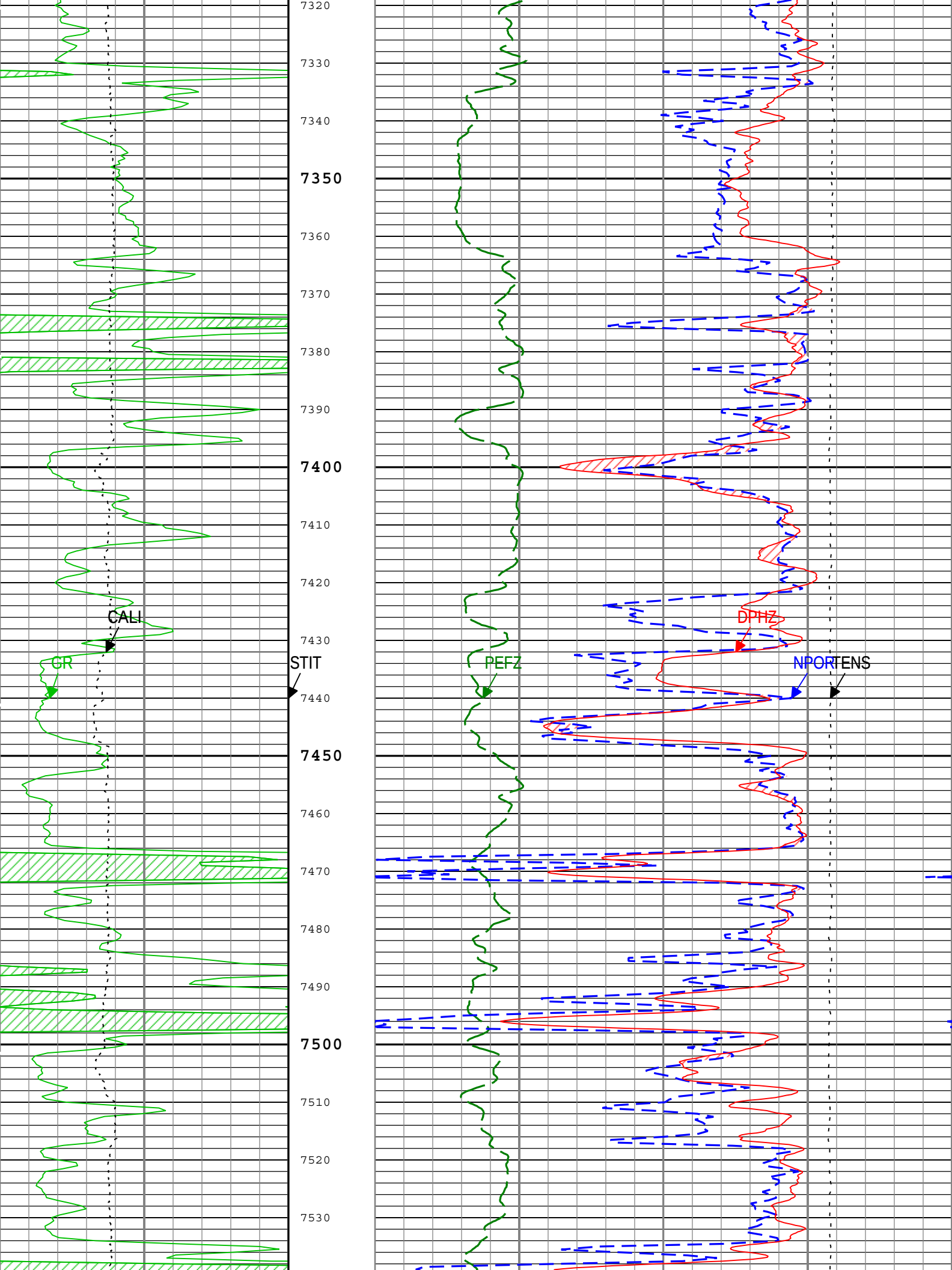

CALI
CR
STIT
PEFZ
DPHZ
NPOR
TENS
6220
6230
6240
6250
6260
6270
6280
6290
6300
6310
6320
6330
6340
6350
6360
6370
6380
6390
6400
6410
6420
6430

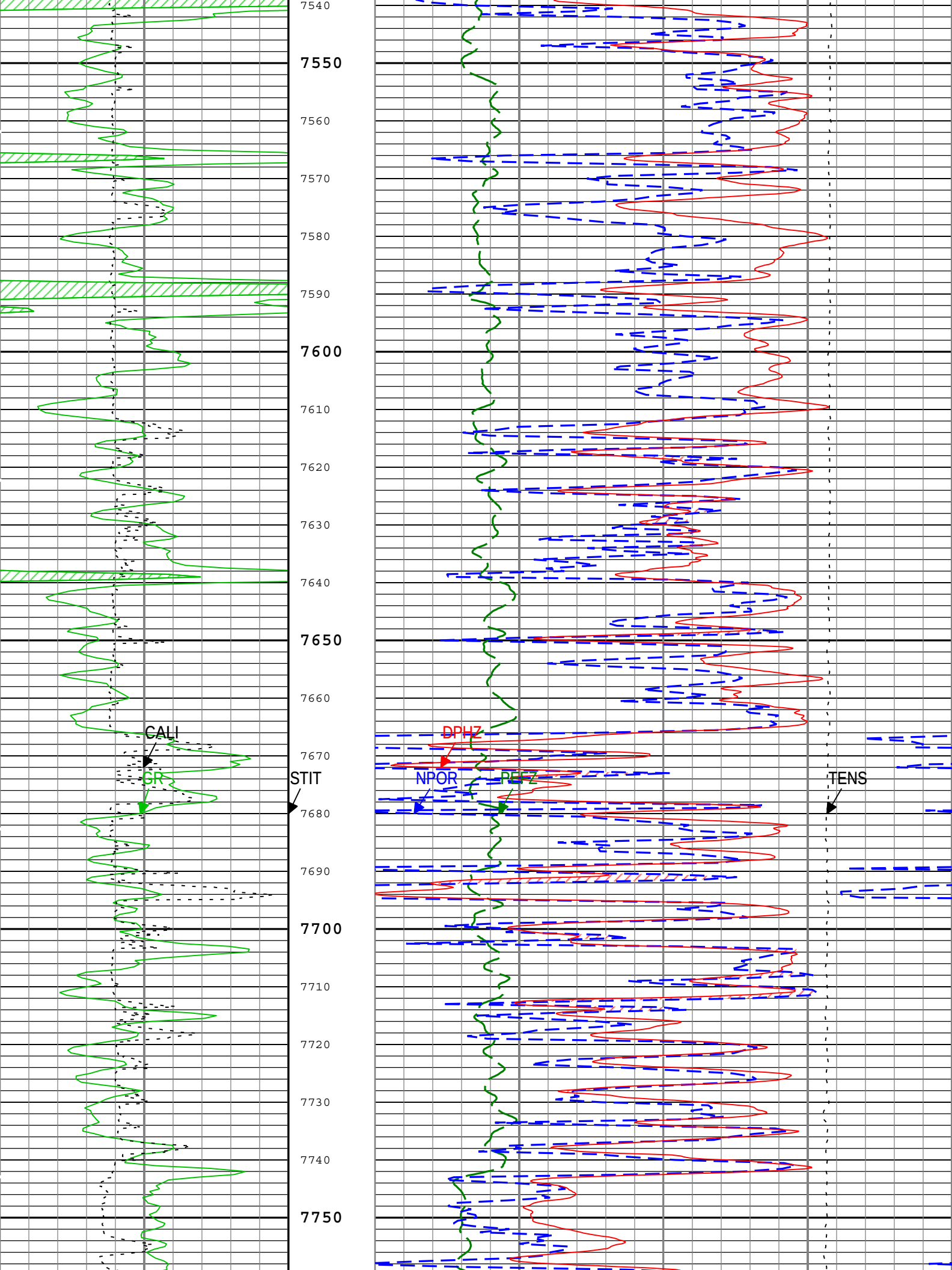

6440
6450
6460
6470
6480
6490
6500
6510
6520
6530
6540
6550
6560
6570
6580
6590
6600
6610
6620
6630
6640
6650
CALI
GR
STIT
PEFZ
DPHZ
NPOR
TENS

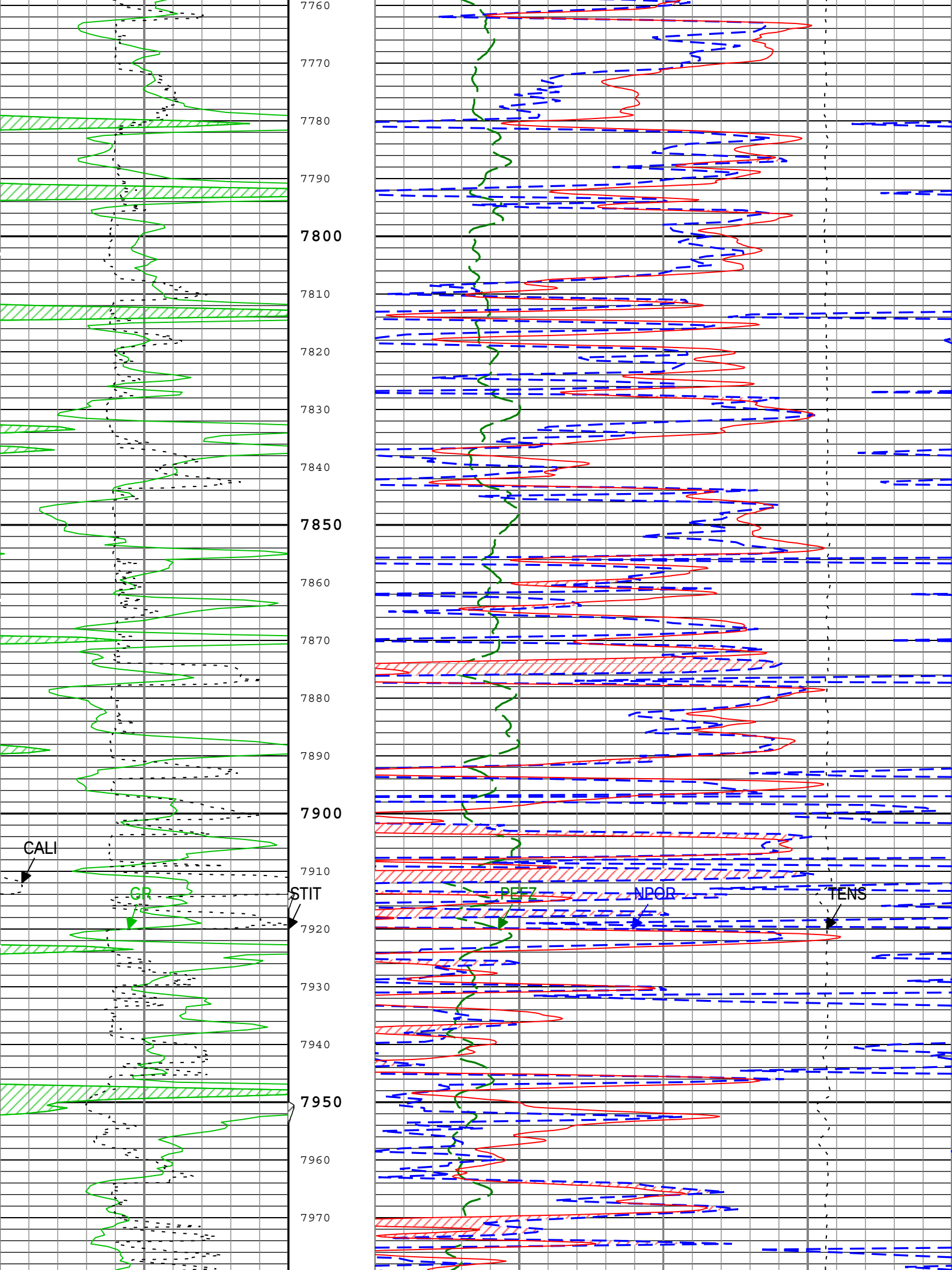

6660
6670
6680
6690
6700
6710
6720
6730
6740
6750
6760
6770
6780
6790
6800
6810
6820
6830
6840
6850
6860
6870
CALI
GR
STIT
PEFZ
DPHZ
NPOR
TENS

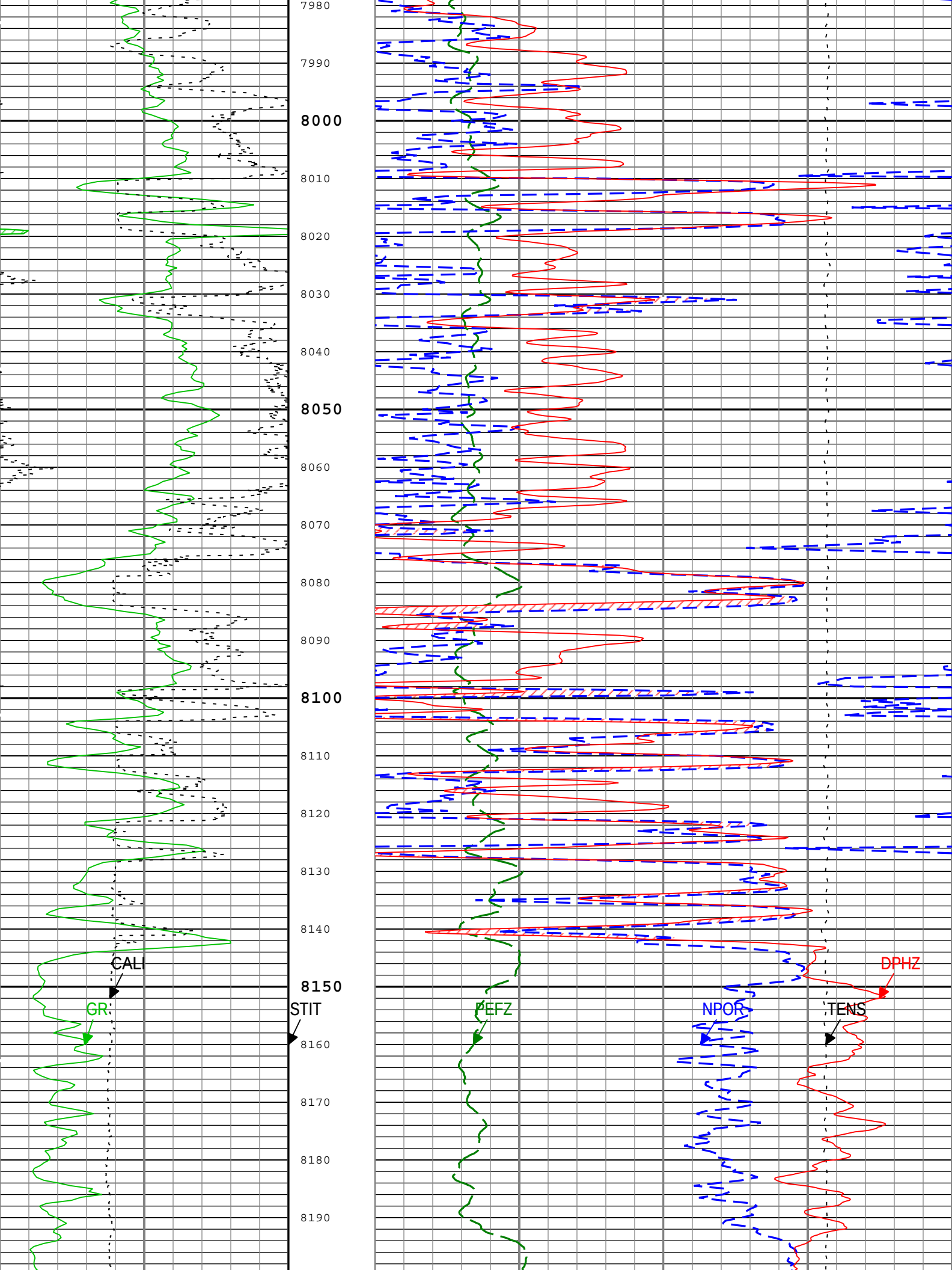

6880
6890
6900
6910
6920
6930
6940
6950
6960
6970
6980
6990
7000
7010
7020
7030
7040
7050
7060
7070
7080
7090
CALI
GR
STIT
PEFZ
DPHZ
NPOR
TENS

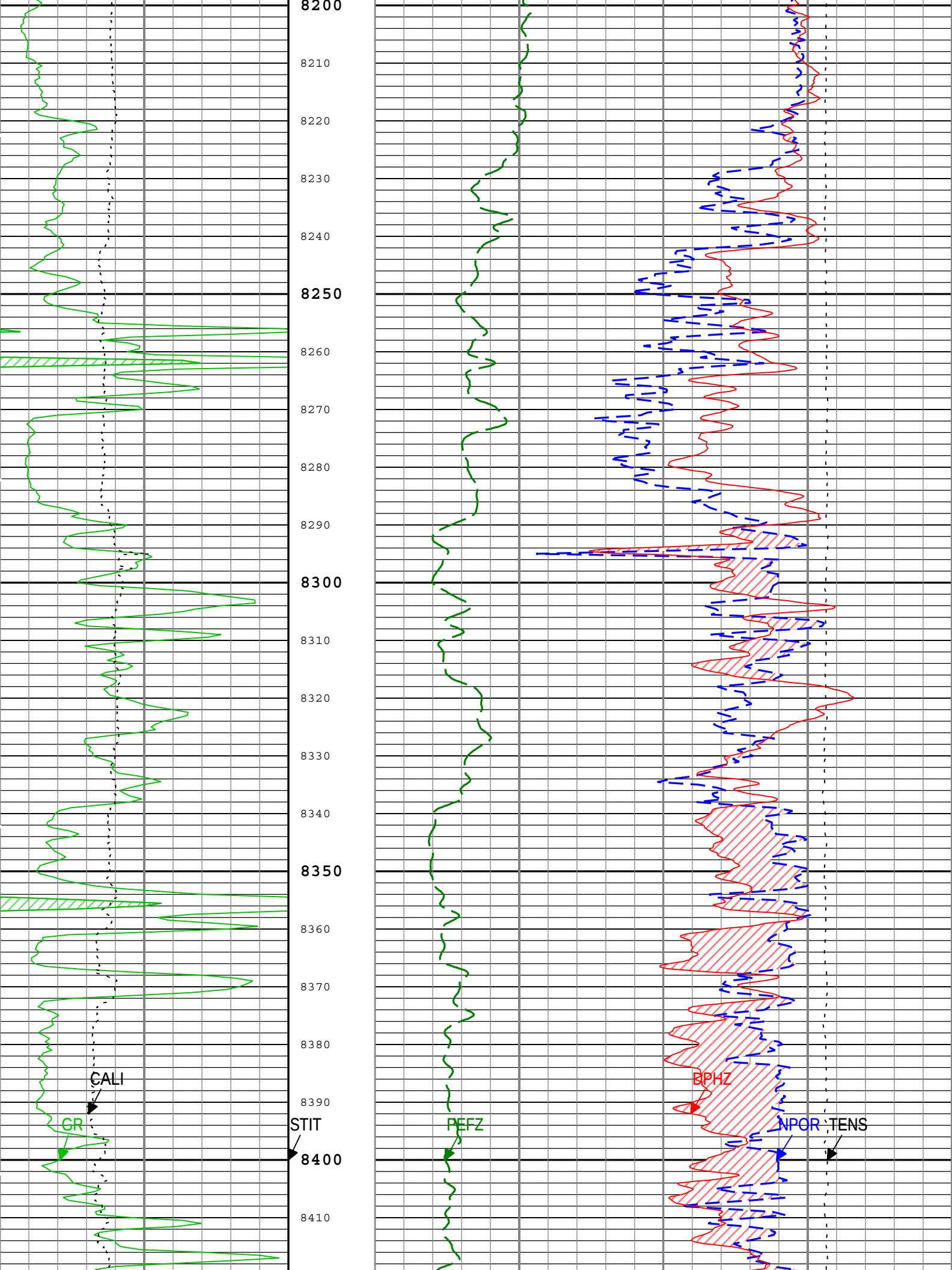

7100
7110
7120
7130
7140
7150
7160
7170
7180
7190
7200
7210
7220
7230
7240
7250
7260
7270
7280
7290
7300
7310
CALI
GR
STIT
PEFZ
DPHZ
NPOR
TENS

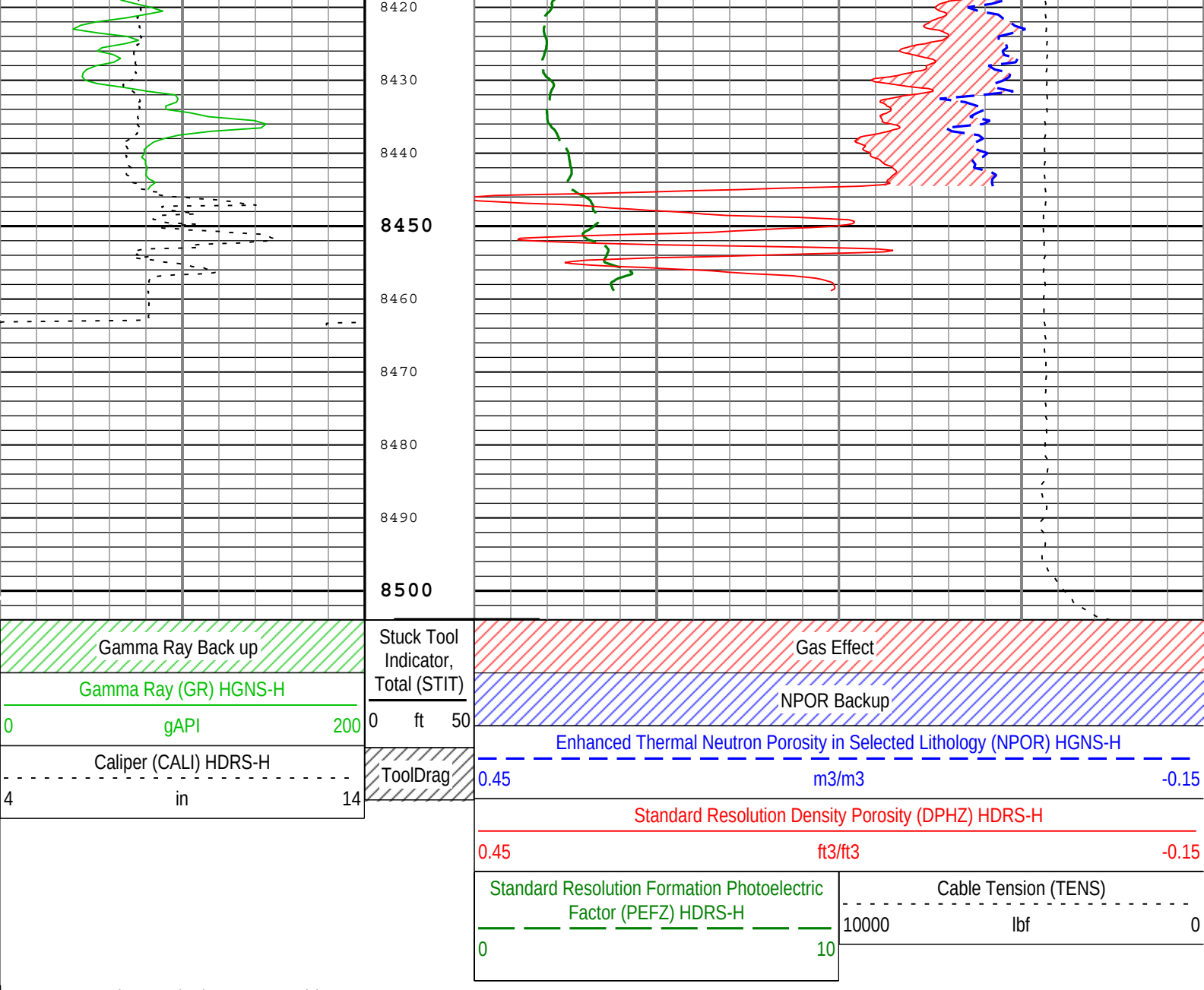

7320
7330
7340
7350
7360
7370
7380
7390
7400
7410
7420
7430
7440
7450
7460
7470
7480
7490
7500
7510
7520
7530
CALI
GR
STIT
PEFZ
DPHZ
NPOR
TENS


7540
7550
7560
7570
7580
7590
7600
7610
7620
7630
7640
7650
7660
7670
7680
7690
7700
7710
7720
7730
7740
7750
CALI
GR
STIT
DPHZ
NPOR
PEFZ
TENS


7760
7770
7780
7790
7800
7810
7820
7830
7840
7850
7860
7870
7880
7890
7900
7910
7920
7930
7940
7950
7960
7970
CALI
GR
STIT
PEFZ
NPOR
TENS


7980
7990
8000
8010
8020
8030
8040
8050
8060
8070
8080
8090
8100
8110
8120
8130
8140
8150
8160
8170
8180
8190
CALI
GR
STIT
PEFZ
NPOR
DPHZ
TENS


8200
8210
8220
8230
8240
8250
8260
8270
8280
8290
8300
8310
8320
8330
8340
8350
8360
8370
8380
8390
8400
8410
CALI
GR
STIT
PEFZ
BPHZ
NPOR
TENS



TIME_1900 - Time Marked every 60.00 (s)

Description: HGNS standard resolution porosities for Platform Express Format: Log (EMD 5in Porosity) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 06-Nov-2012 06:21:14

Channel Processing Parameters

Parameter	Description	Tool	Value	Unit
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	27672.44	ppm
CALI_SHIFT	CALI Supplementary Offset	HDRS-H	0	in
CBLO	Casing Bottom (Logger)	WLSESSION	410	ft
CDEN	Cement Density	HGNS-H	2	g/cm3
DC_MODE	Depth Correction Mode	DepthCorrection	Real-time	
DFD	Drilling Fluid Density	Borehole	9.2	lbm/gal
DFT	Drilling Fluid Type	Borehole	Water	
DFT_WATER	Drilling Fluid Water Type	Borehole	Chemical Gel	
DHC	Density Hole Correction	HDRS-H	Bit Size	
FD	Fluid Density	Borehole	1	g/cm3
FSAL	Formation Salinity	Borehole	0	ppm

GCSE_DOWN_PASS	Generalized Caliper Selection for WL Log Down Passes	Borehole	BS	
GCSE_UP_PASS	Generalized Caliper Selection for WL Log Up Passes	Borehole	CALI	
GRSE	Generalized Mud Resistivity Selection, from Measured or Computed Mud Resistivity	Borehole	AMF	
GTSE	Generalized Temperature Selection, from Measured or Computed Temperature	Borehole	CTEM	
HSCO	Hole Size Correction Option	HGNS-H	Yes	
MATR	Rock Matrix for Neutron Porosity Corrections	Borehole	LIMESTONE	
MDEN	Matrix Density for Density Porosity	Borehole	2.71	g/cm3
MFST	Mud Filtrate Sample Temperature	Borehole	85.66	degF
RMFS	Resistivity of Mud Filtrate Sample	Borehole	0.15	ohm.m
SOCO	Standoff Correction Option	HGNS-H	Yes	
TD	Total Measured Depth	Borehole	8507	ft

Depth Zone Parameters

Parameter	Value	Start (ft)	Stop (ft)
BS	0	400	410
BS	7.875	410	8504

All depth are actual.

Tool Control Parameters

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

Run1

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	Depth Shift	Include Parallel Data
Run1	Log[3]:Up	Up	8067.37 ft	8515.82 ft	06-Nov-2012 3:18:09 AM	06-Nov-2012 3:27:19 AM	8.07 ft	
Run1	Log[4]:Up	Up	166.47 ft	8504.24 ft	06-Nov-2012 3:30:47 AM	06-Nov-2012 5:24:04 AM	0.00 ft	

All depths are referenced to toolstring zero

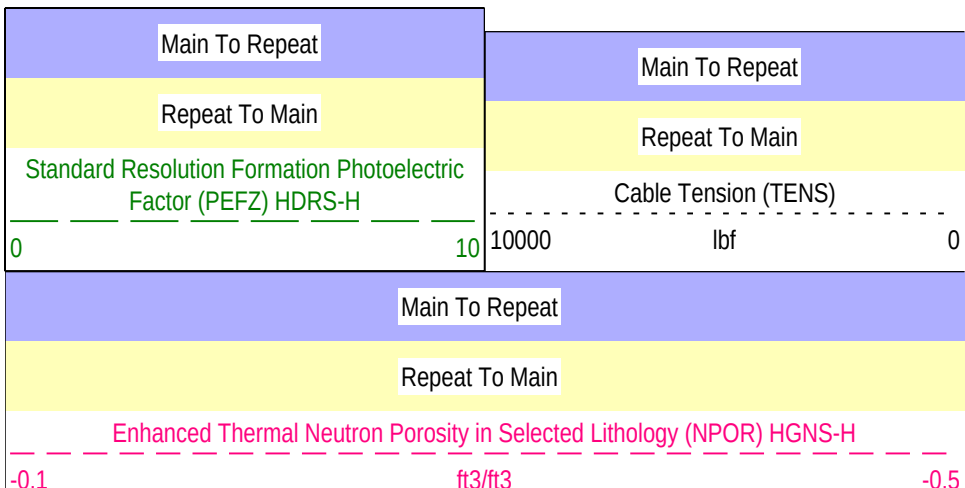
Log

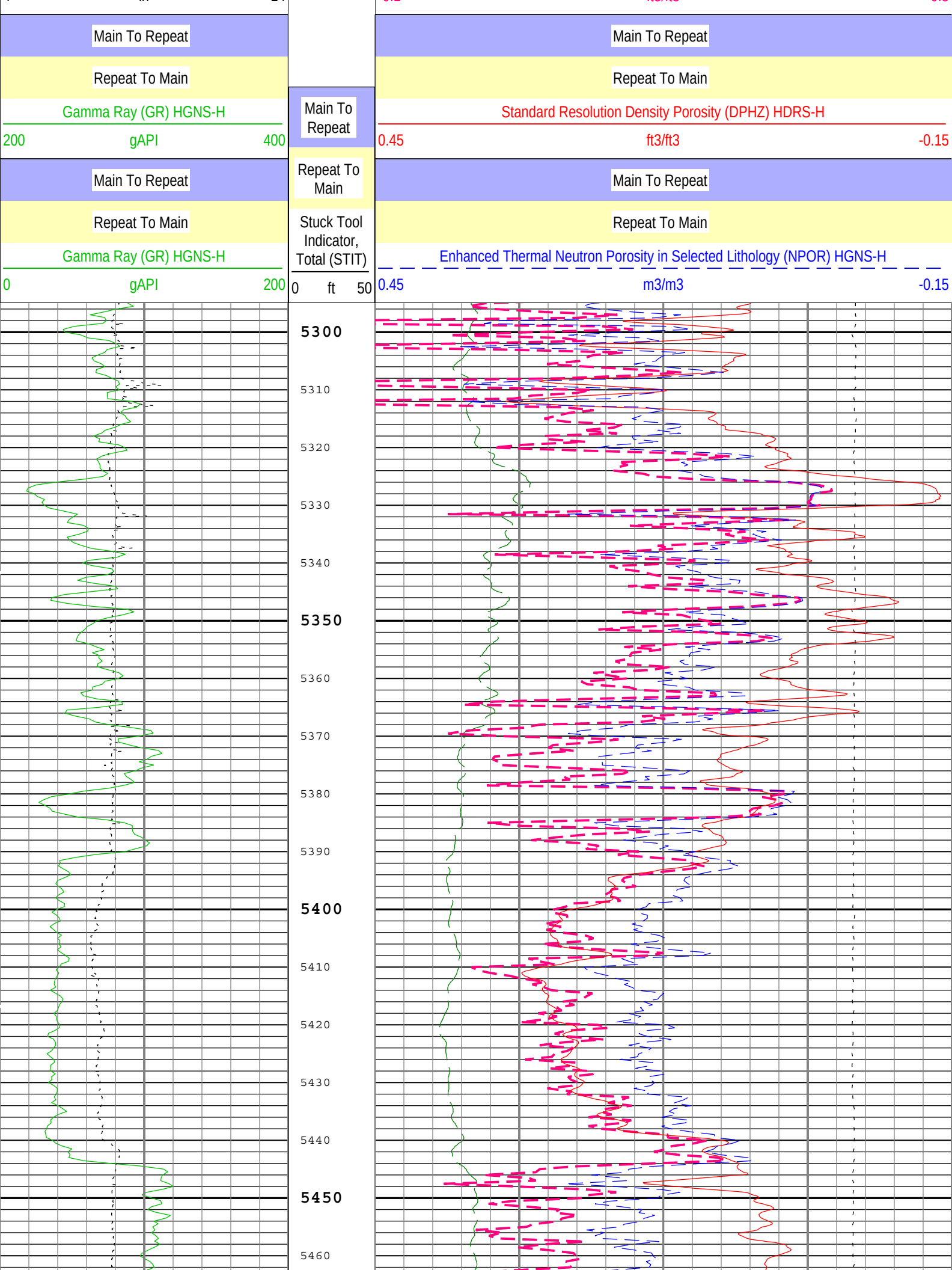
Run1: Log[4]:Up

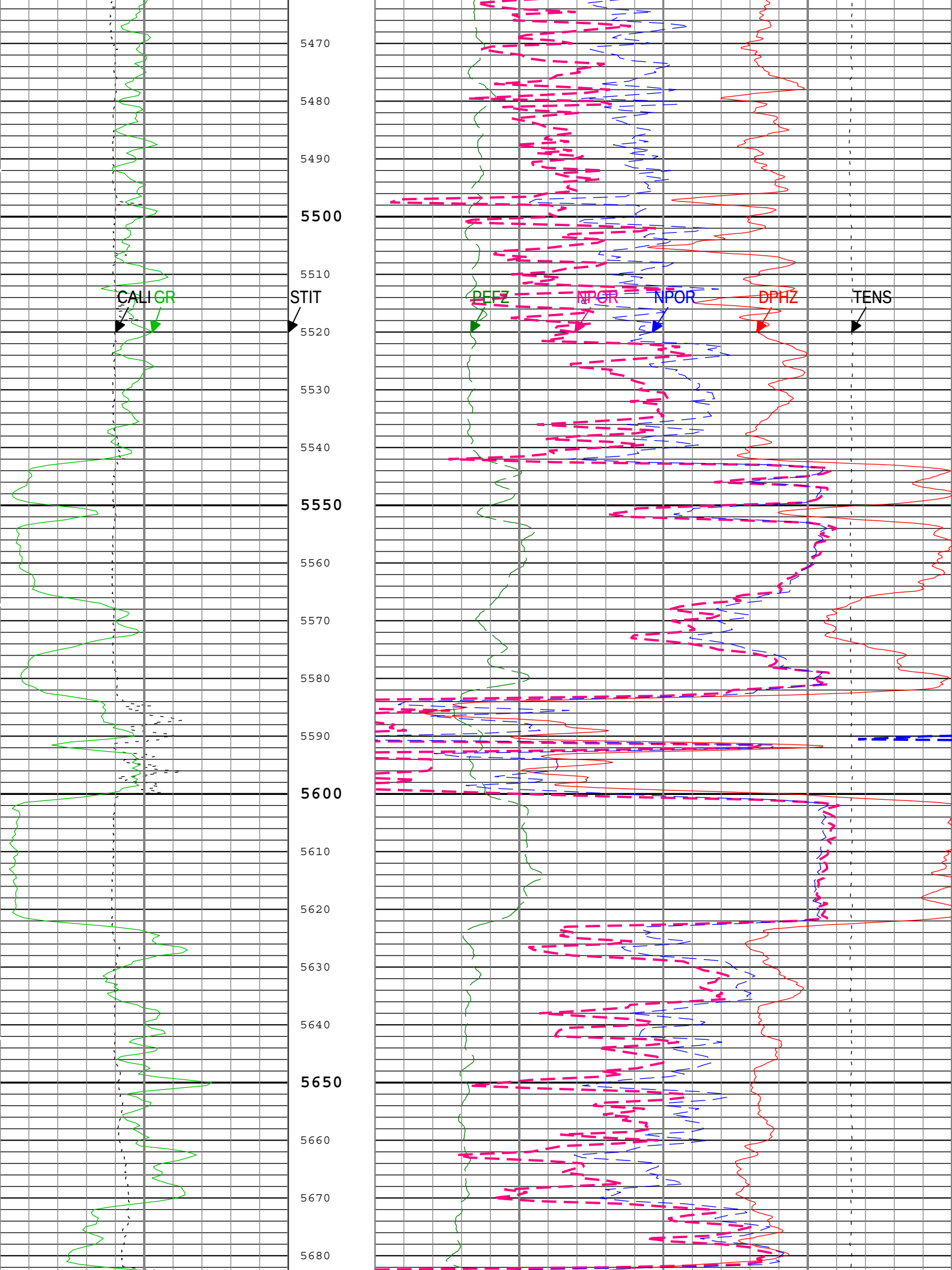
Description: HGNS standard resolution porosities for Platform Express Format: EMD 5in Porosity RA Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 06-Nov-2012 06:21:19

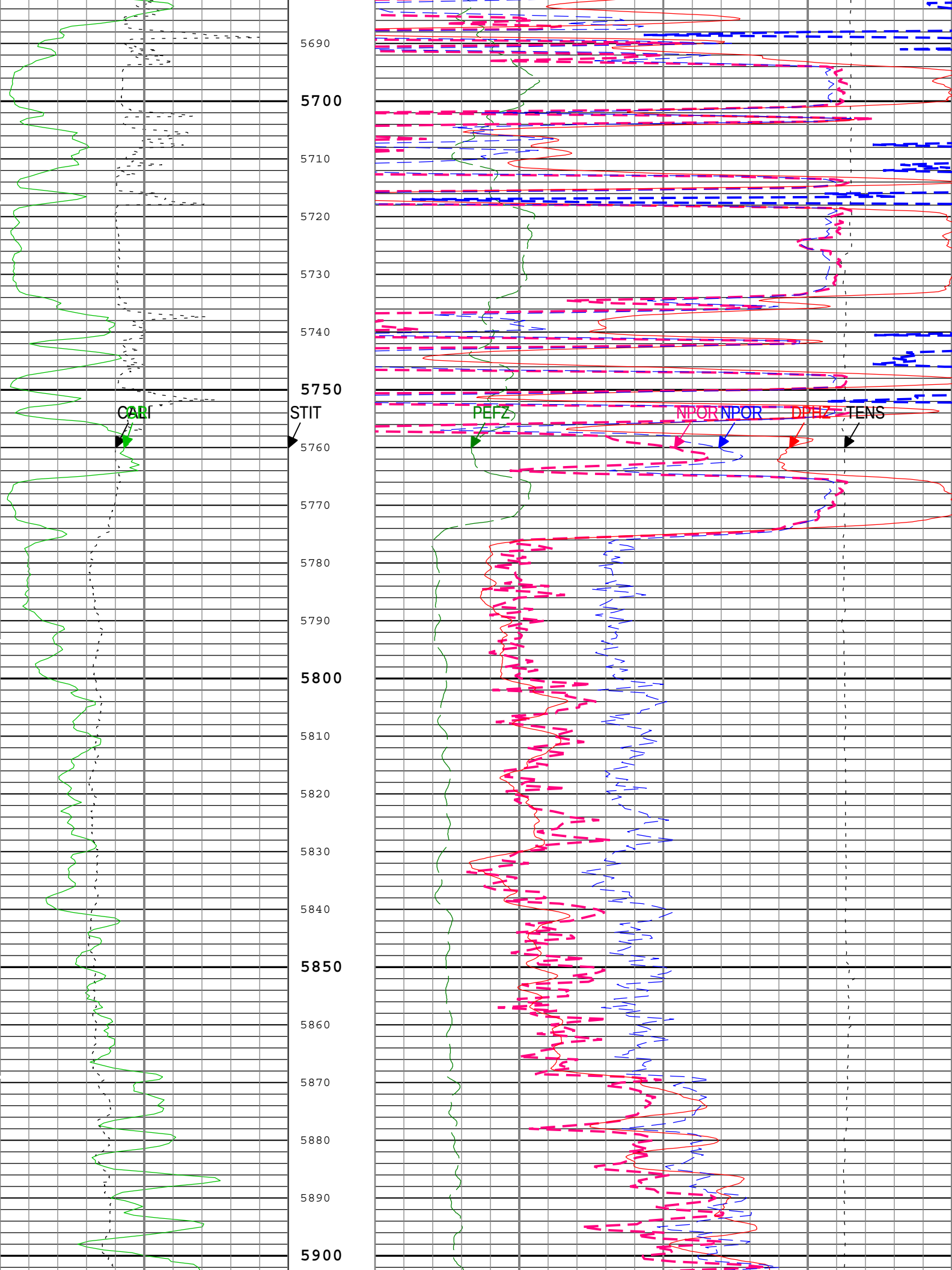
Channel	Source	Sampling
TIME_1900	WLWorkflow	0.1in

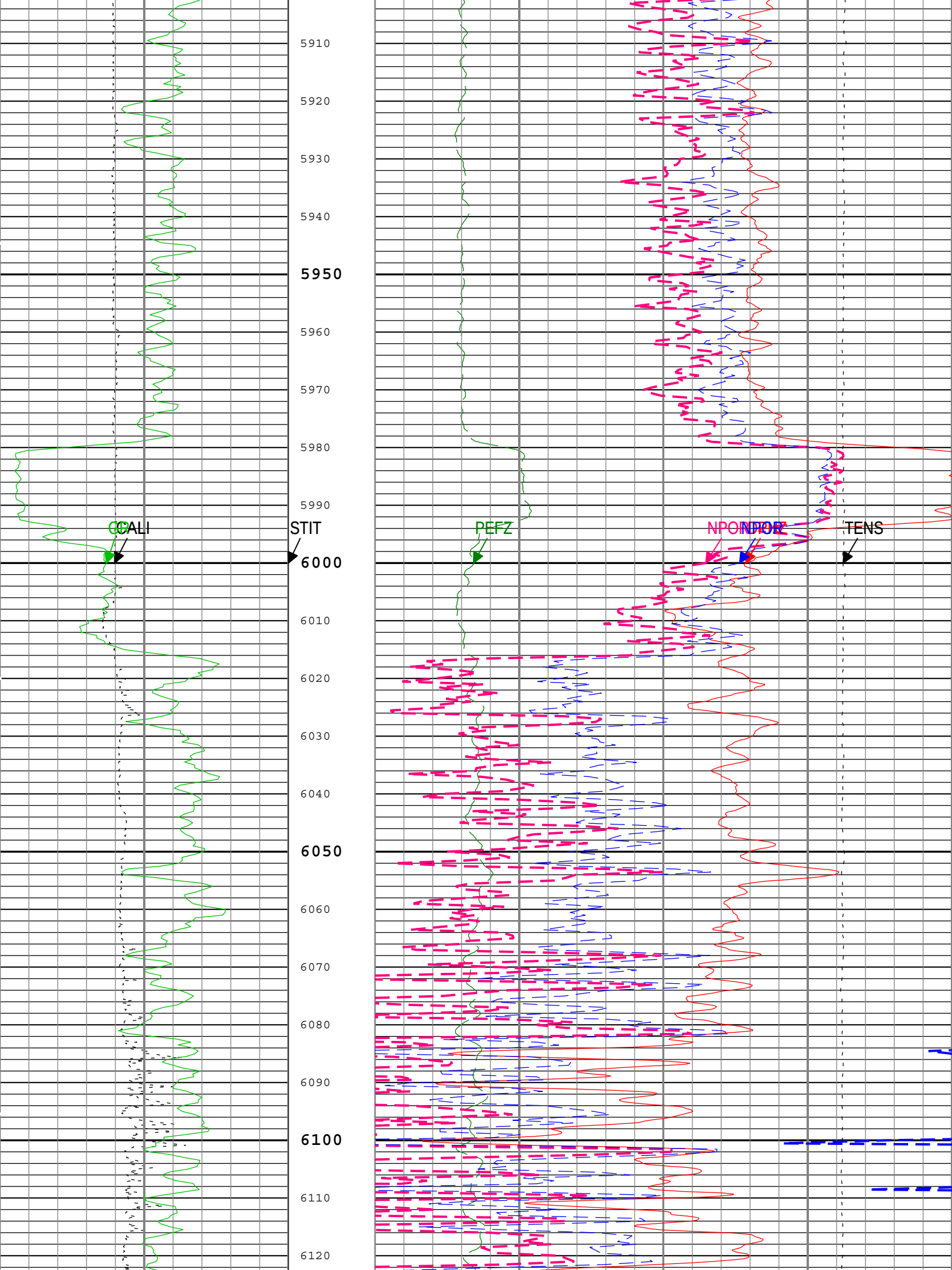
TIME_1900 - Time Marked every 60.00 (s)

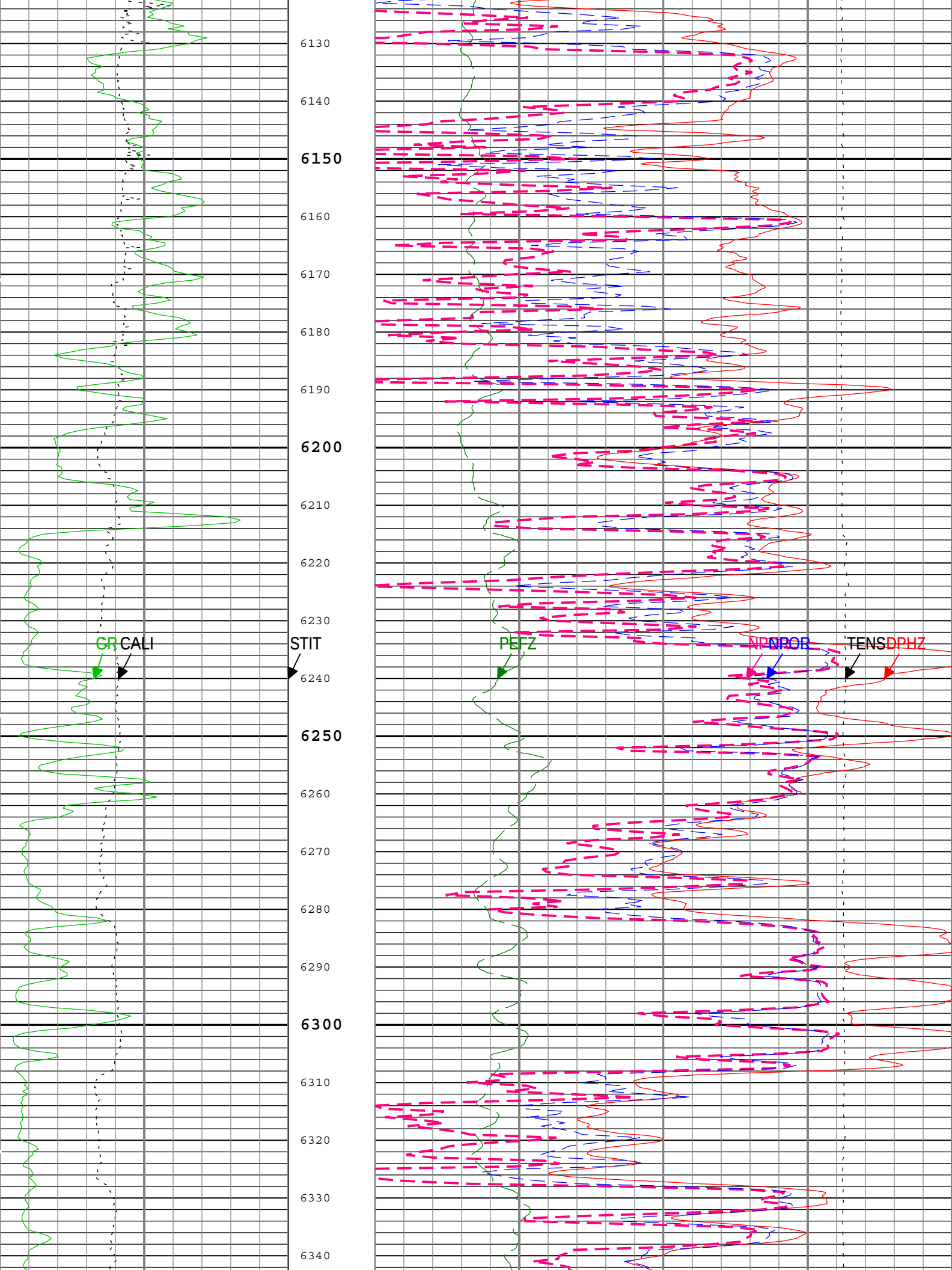


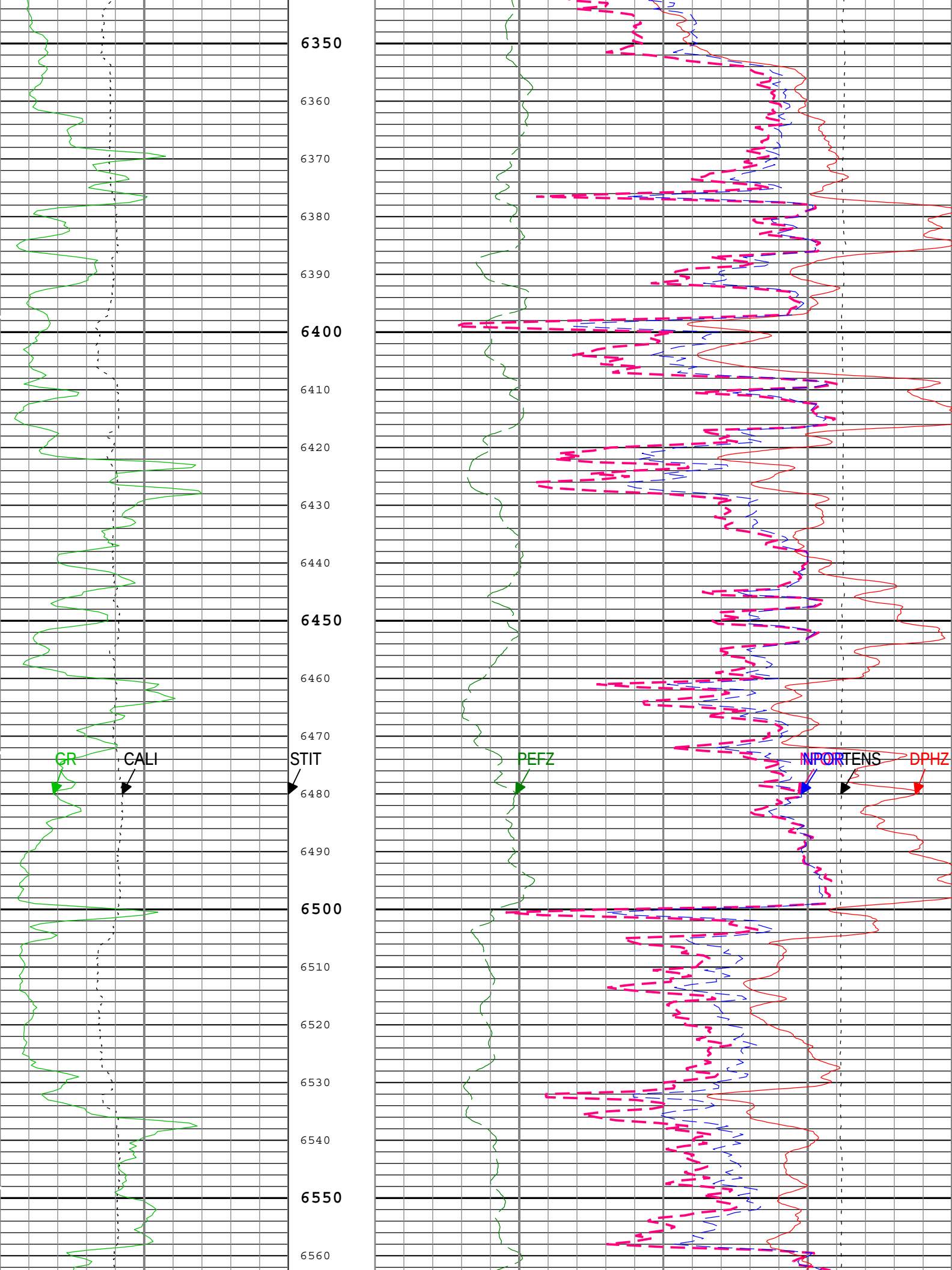

Main To Repeat
Repeat To Main
Gamma Ray (GR) HGNS-H
200
gAPI
400
Main To Repeat
Repeat To Main
Stuck Tool Indicator, Total (STIT)
0
ft
50
Main To Repeat
Repeat To Main
Standard Resolution Density Porosity (DPHZ) HDRS-H
0.45
ft3/ft3
-0.15
Main To Repeat
Repeat To Main
Gamma Ray (GR) HGNS-H
0
gAPI
200
Main To Repeat
Repeat To Main
Enhanced Thermal Neutron Porosity in Selected Lithology (NPOR) HGNS-H
0.45
m3/m3
-0.15
5300
5310
5320
5330
5340
5350
5360
5370
5380
5390
5400
5410
5420
5430
5440
5450
5460

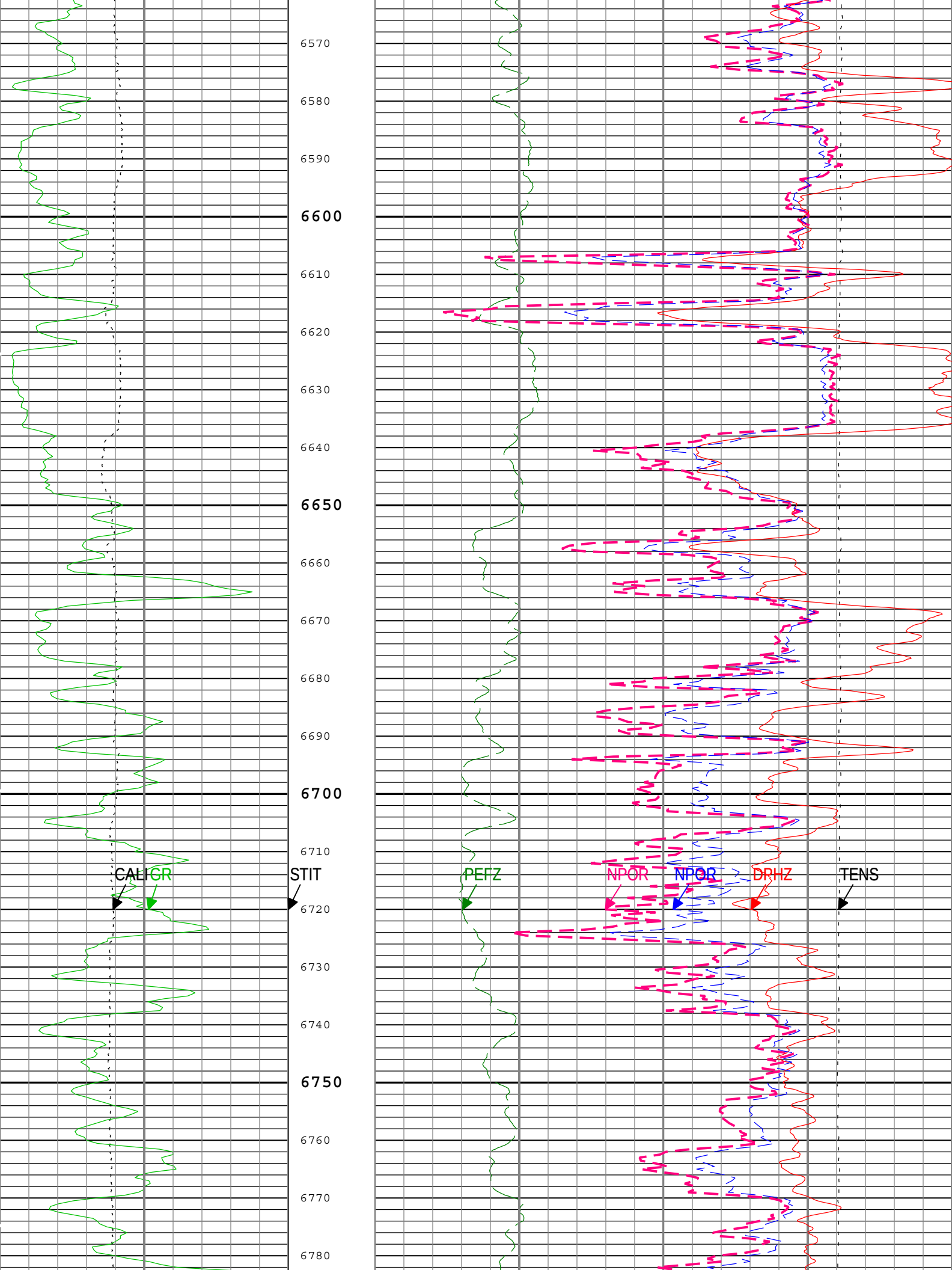

CALI
GR
STIT
PEFZ
NPGR
NPOR
DPHZ
TENS
5470
5480
5490
5500
5510
5520
5530
5540
5550
5560
5570
5580
5590
5600
5610
5620
5630
5640
5650
5660
5670
5680

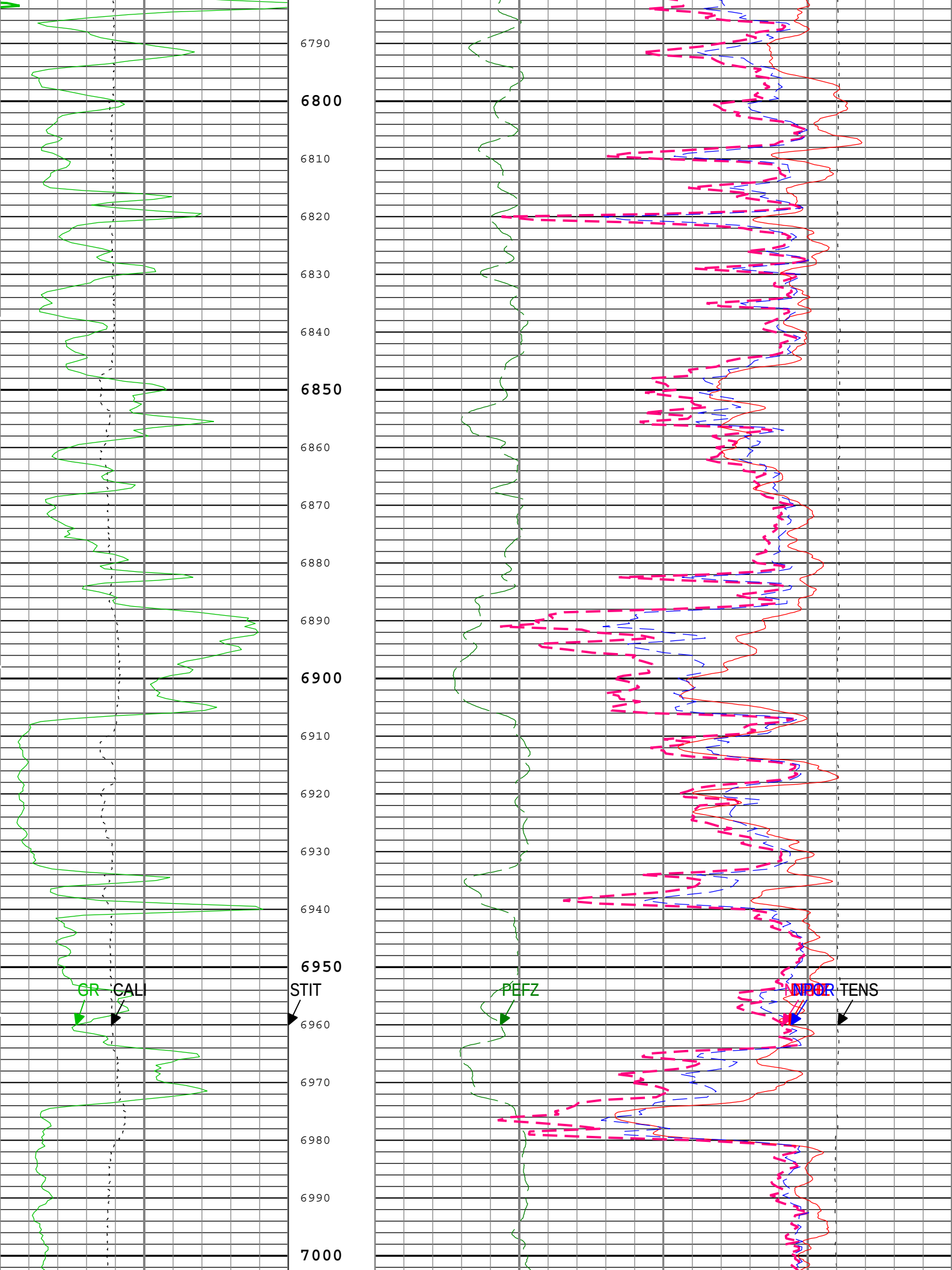

5690
5700
5710
5720
5730
5740
5750
5760
5770
5780
5790
5800
5810
5820
5830
5840
5850
5860
5870
5880
5890
5900
CALI
STIT
PEFZ
NPOR
NPOR
DPHZ
TENS

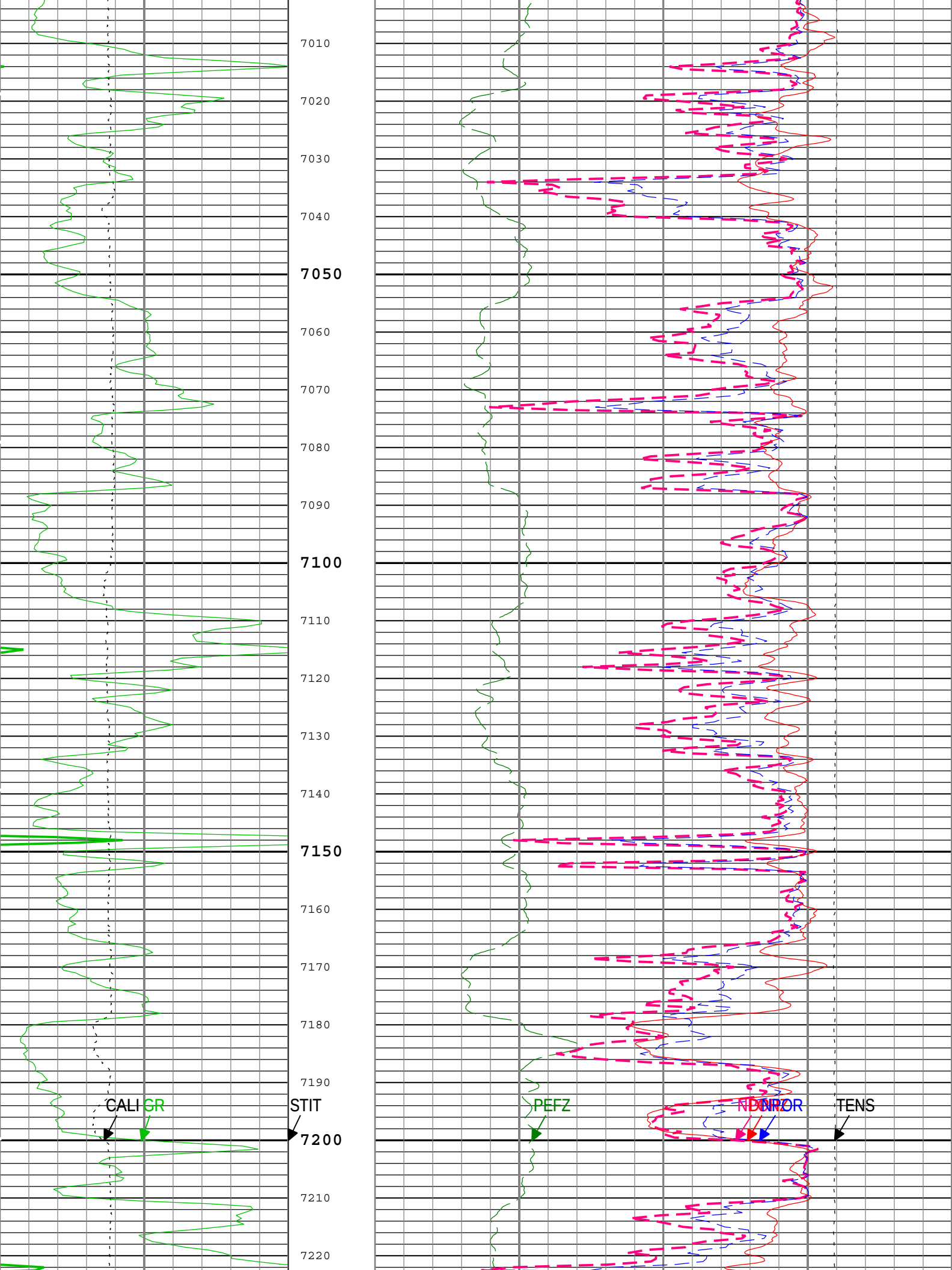

5910
5920
5930
5940
5950
5960
5970
5980
5990
6000
6010
6020
6030
6040
6050
6060
6070
6080
6090
6100
6110
6120
CALI
STIT
PEFZ
TENS

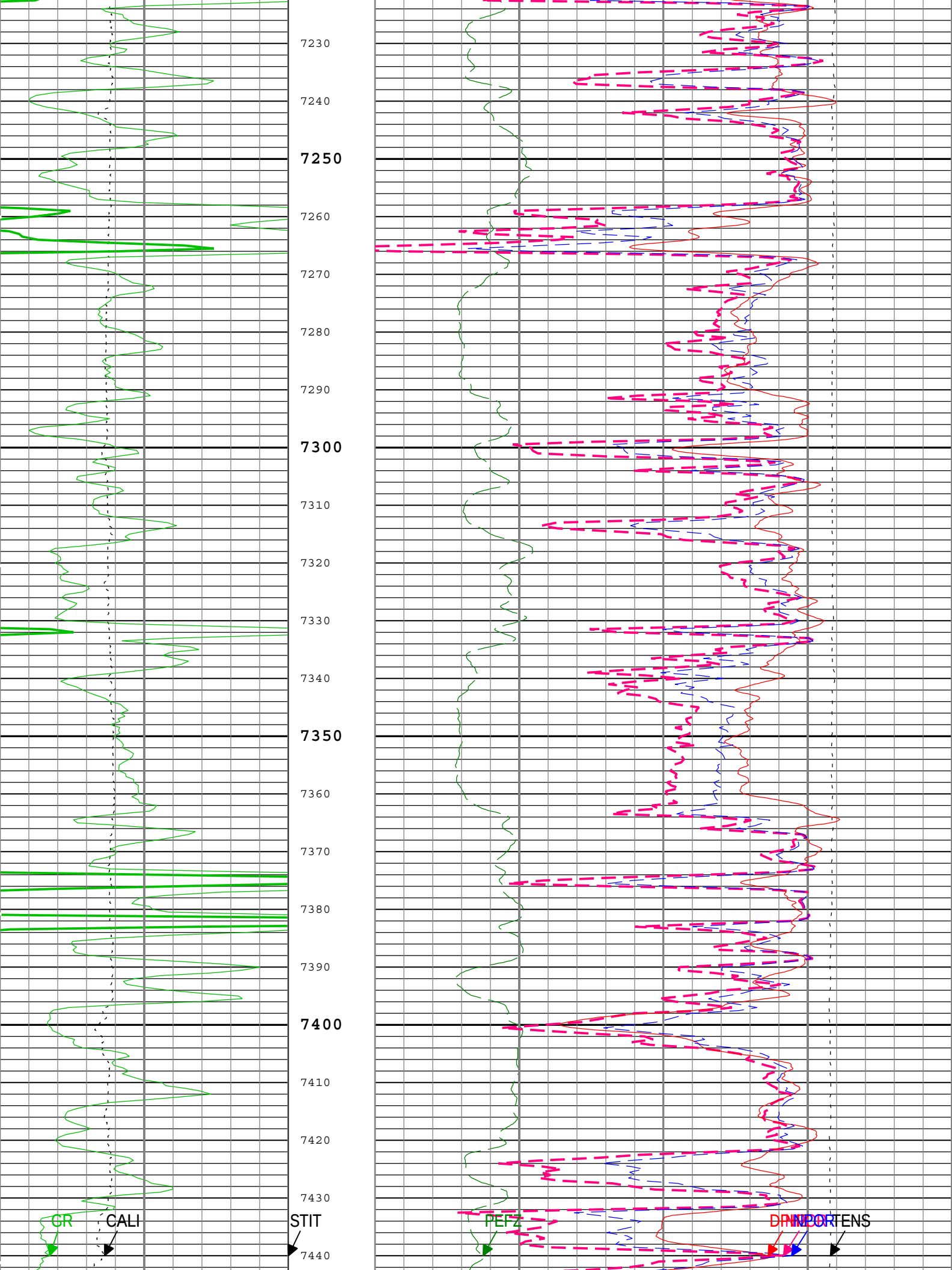

6130
6140
6150
6160
6170
6180
6190
6200
6210
6220
6230
6240
6250
6260
6270
6280
6290
6300
6310
6320
6330
6340
GR
CALI
STIT
PEFZ
NPOR
TENS
DPHZ

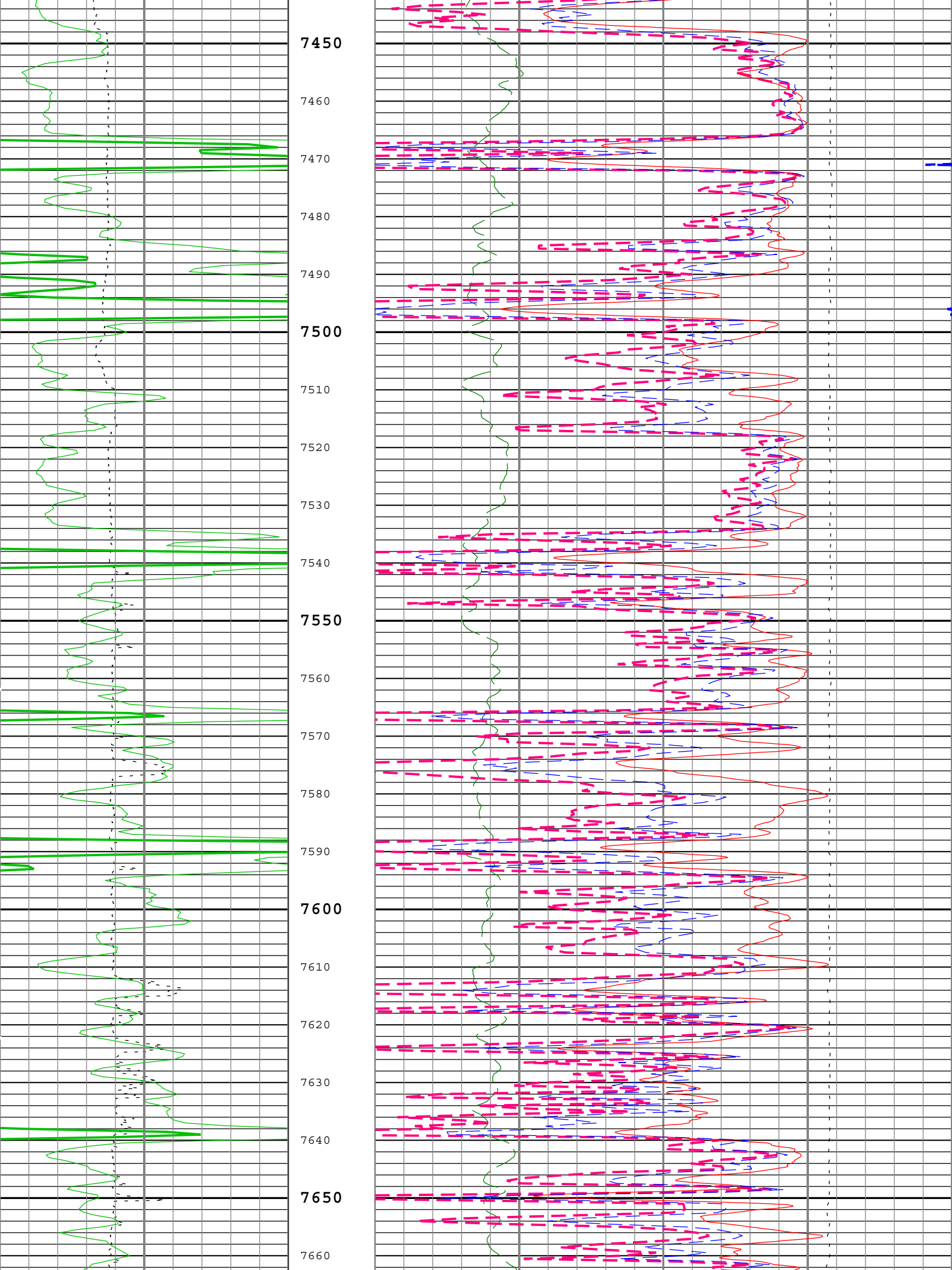

6350
6360
6370
6380
6390
6400
6410
6420
6430
6440
6450
6460
6470
GR
CALI
STIT
PEFZ
NPOR
TENS
DPHZ
6480
6490
6500
6510
6520
6530
6540
6550
6560

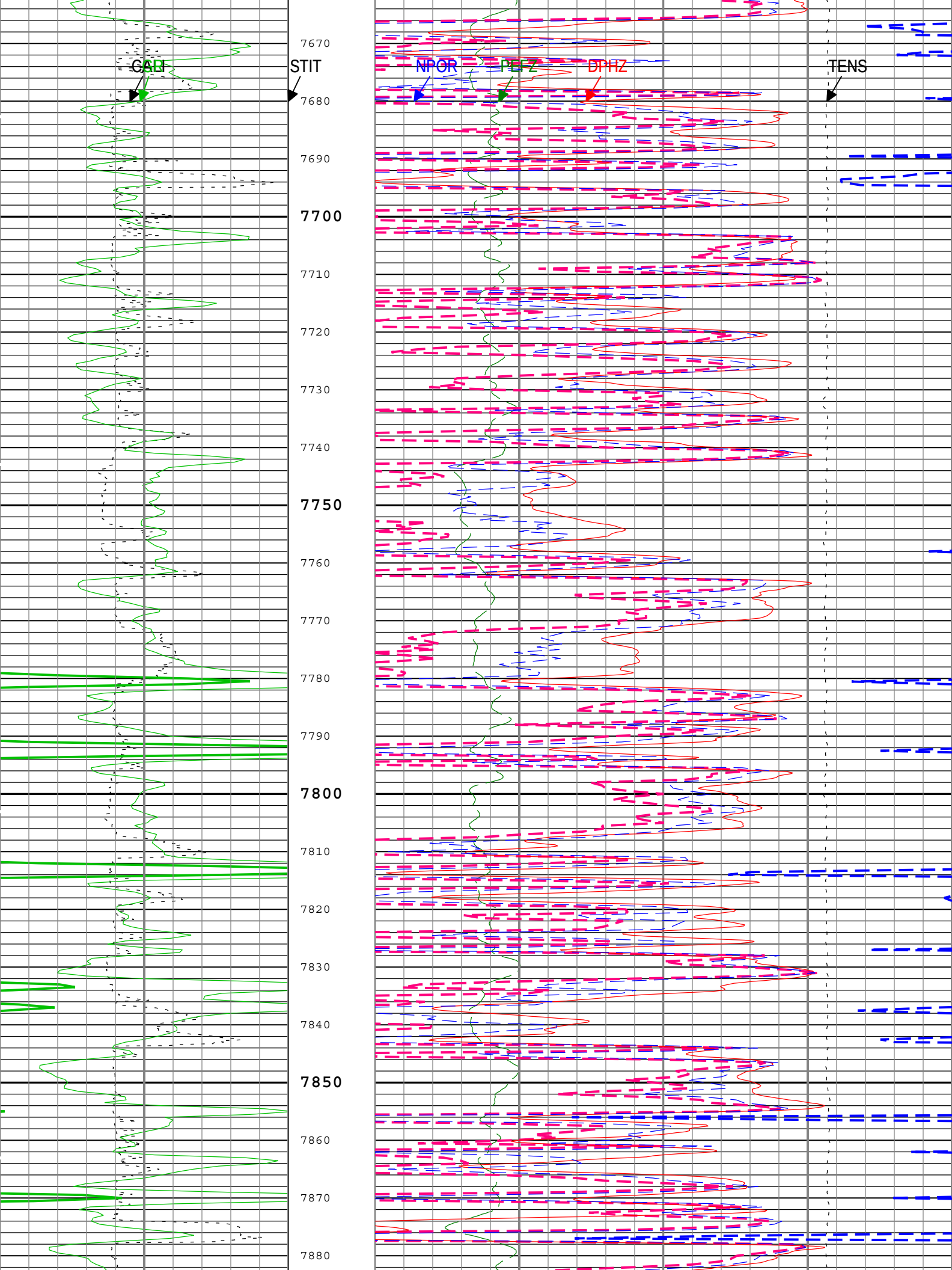

6570
6580
6590
6600
6610
6620
6630
6640
6650
6660
6670
6680
6690
6700
6710
6720
6730
6740
6750
6760
6770
6780
CALI
GR
STIT
PEFZ
NPOR
NPOR
DRHZ
TENS

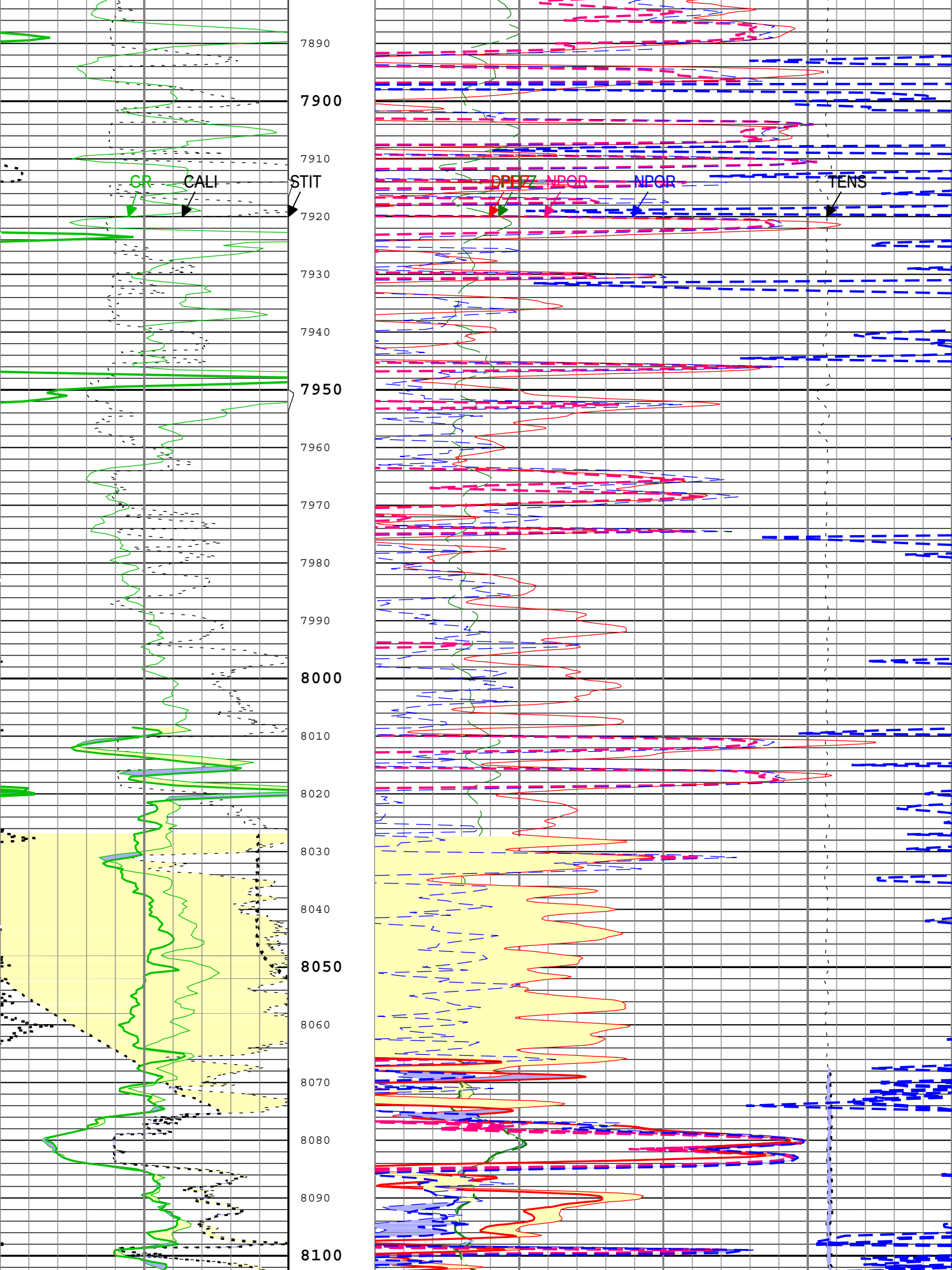

6790
6800
6810
6820
6830
6840
6850
6860
6870
6880
6890
6900
6910
6920
6930
6940
6950
6960
6970
6980
6990
7000
GR
CALI
STIT
PEFZ
TENS

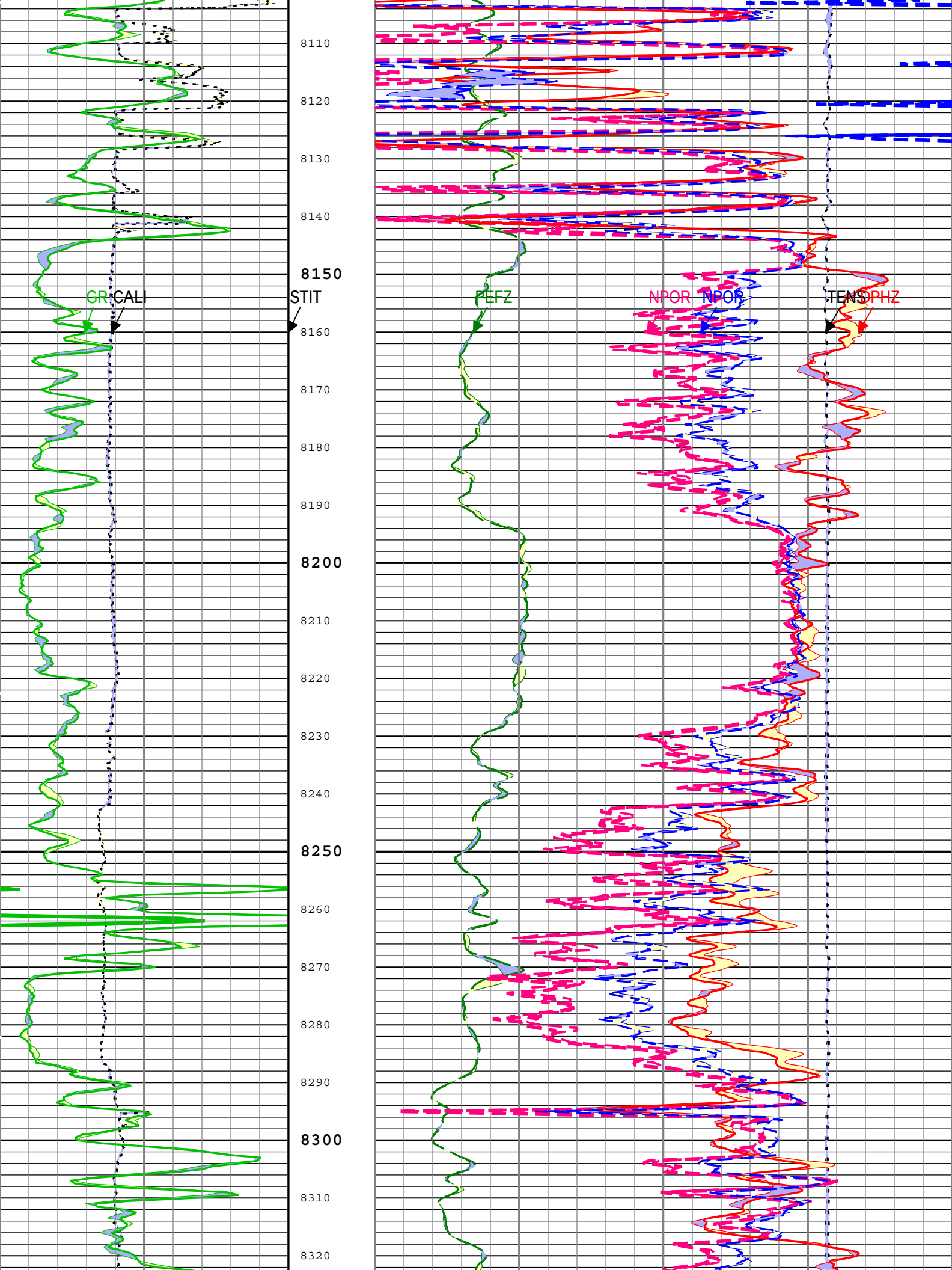

7010
7020
7030
7040
7050
7060
7070
7080
7090
7100
7110
7120
7130
7140
7150
7160
7170
7180
7190
7200
7210
7220
CALI
GR
STIT
PEFZ
TENS

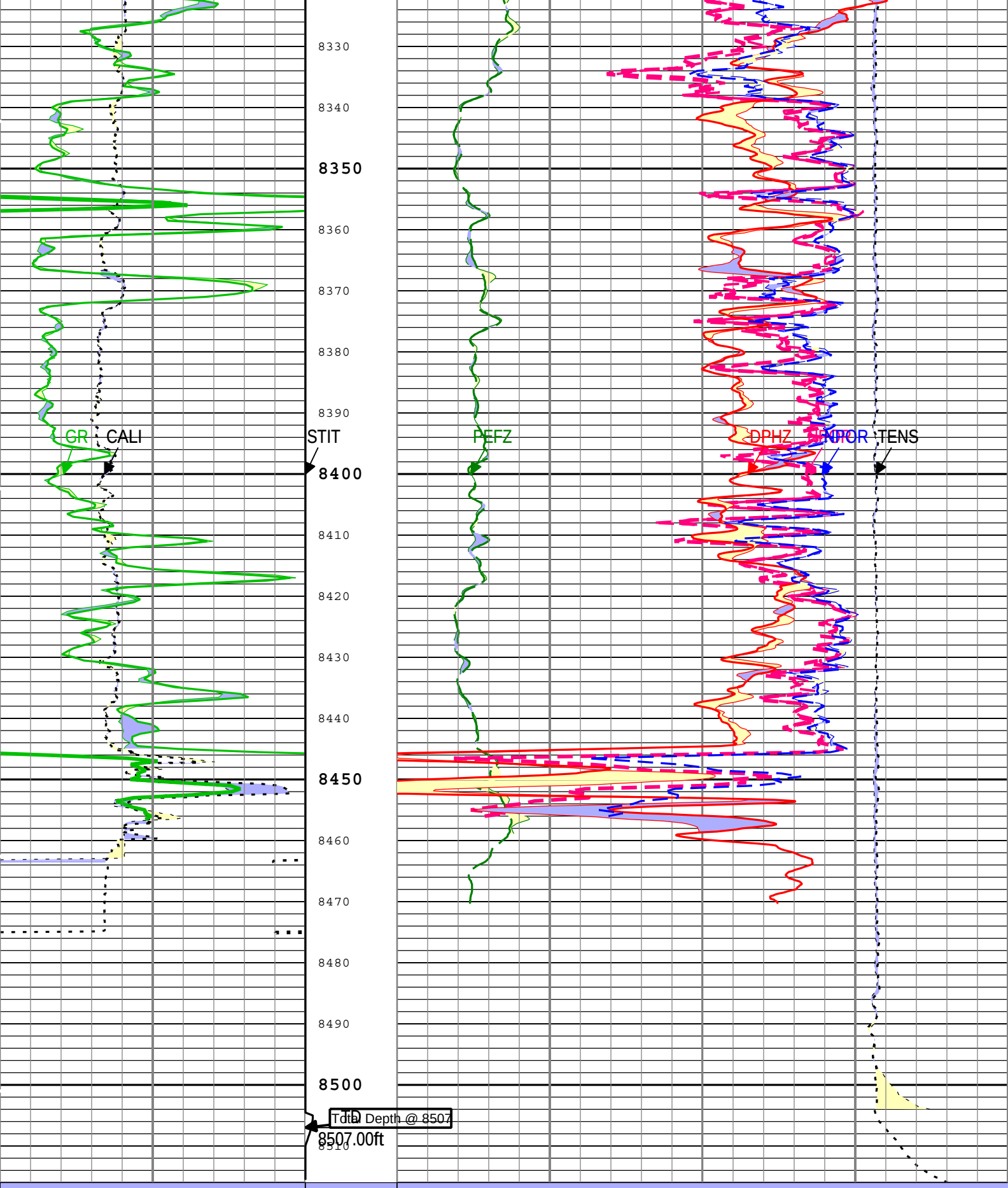

7230
7240
7250
7260
7270
7280
7290
7300
7310
7320
7330
7340
7350
7360
7370
7380
7390
7400
7410
7420
7430
7440
GR
CALI
STIT
PEFZ
TENS


7450
7460
7470
7480
7490
7500
7510
7520
7530
7540
7550
7560
7570
7580
7590
7600
7610
7620
7630
7640
7650
7660


CALI
STIT
NPOR
PEFZ
DPHZ
TENS
7670
7680
7690
7700
7710
7720
7730
7740
7750
7760
7770
7780
7790
7800
7810
7820
7830
7840
7850
7860
7870
7880


GR
CALI
STIT
DPHZ
NPOR
NPOR
TENS
7890
7900
7910
7920
7930
7940
7950
7960
7970
7980
7990
8000
8010
8020
8030
8040
8050
8060
8070
8080
8090
8100


GR
CALI
STIT
PEFZ
NPOR
NPOR
TENS
DPHZ
8110
8120
8130
8140
8150
8160
8170
8180
8190
8200
8210
8220
8230
8240
8250
8260
8270
8280
8290
8300
8310
8320



Main To Repeat

Repeat To Main

Caliper (CALI) HDRS-H

4 in 14

Main To Repeat

Repeat To Main

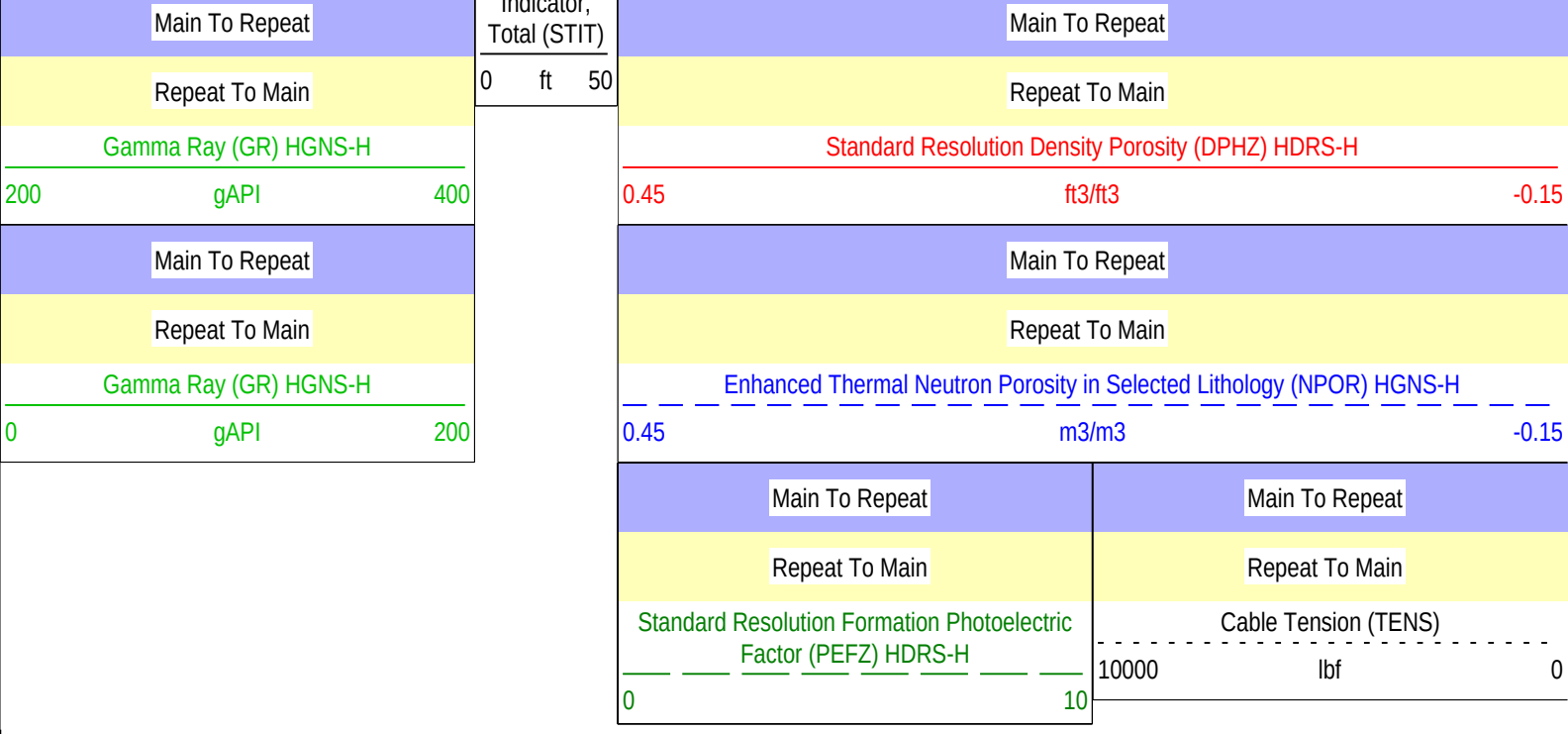
Stuck Tool Indicator

Main To Repeat

Repeat To Main

Enhanced Thermal Neutron Porosity in Selected Lithology (NPOR) HGNS-H

-0.1 ft3/ft3 -0.5



TIME_1900 - Time Marked every 60.00 (s)

Description: HGNS standard resolution porosities for Platform Express Format: EMD 5in Porosity RA Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 06-Nov-2012 06:21:19

Run1

5" Density

Integration Summary

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

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
DepthCorrection	DepthCorrection	3.1.9755.0

Tool Elements	Description	Software Version	Firmware Version
HRCC-H	HILT High-Resolution Control Cartridge, 150 degC	3.1.9755.0	2.0
HGNS-H	HILT Gamma-Ray and Neutron Sonde, 150 degC	3.1.9755.0	2.0
HRGD-H	HILT Resistivity Gamma-Ray Density Device, 150 degC	3.1.9755.0	3.0

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	Depth Shift	Include Parallel Data
Run1	Log[4]:Up	Up	166.47 ft	8504.24 ft	06-Nov-2012 3:30:47 AM	06-Nov-2012 5:24:04 AM	0.00 ft	

All depths are referenced to toolstring zero

Log

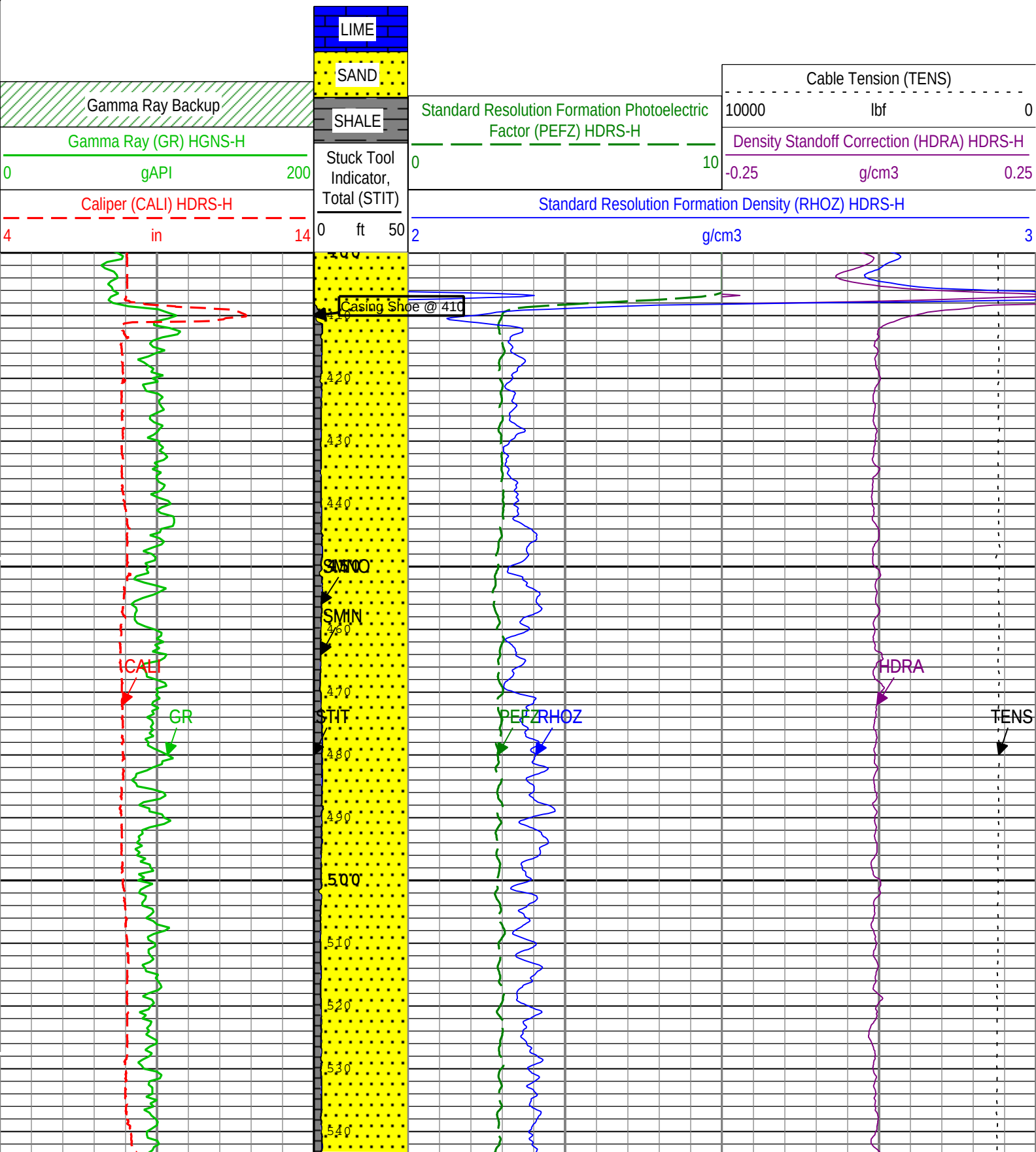
Run1: Log[4]:Up

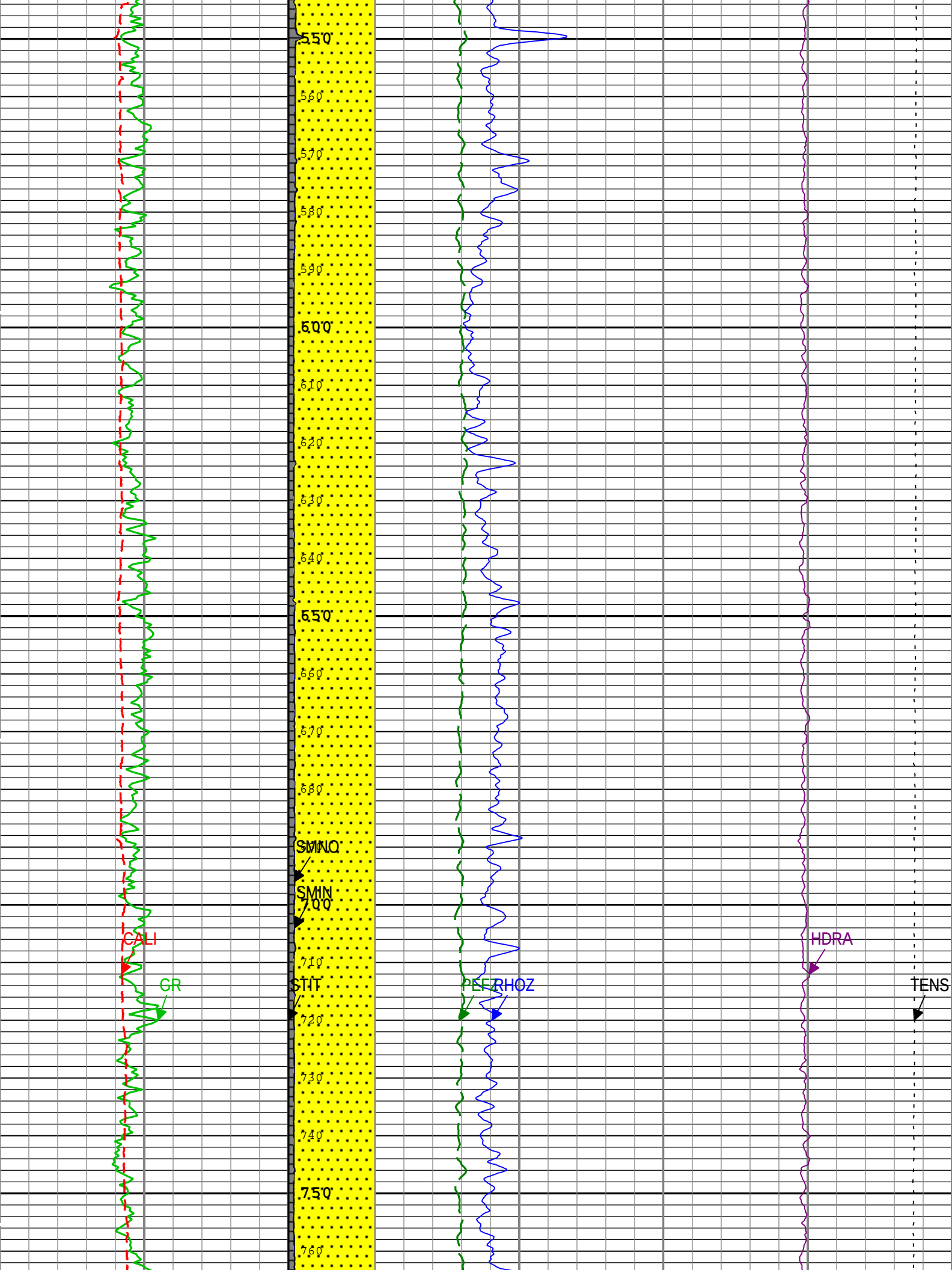
Description: HGNS standard resolution porosities for Platform Express Format: Log (EMD 5in Density) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 06-Nov-2012 06:21:21

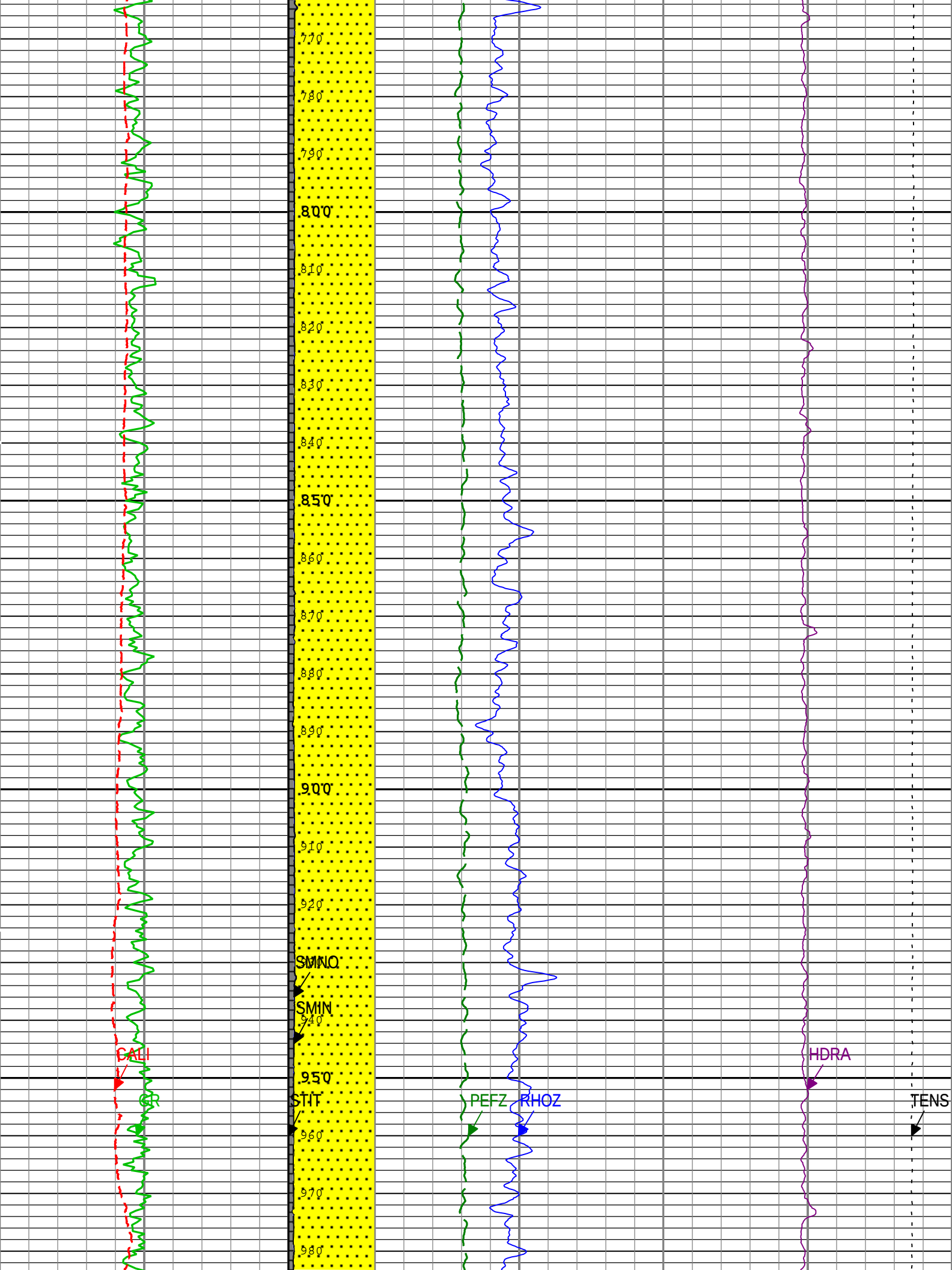
Channel	Source	Sampling
CALI	HDRS-H:HRCC-H:HRCC-H	1in
GR	HGNS-H:HGNS-H:HGNS-H	6in
HDRA	HDRS-H:HRMS-H:HRGD-H	2in

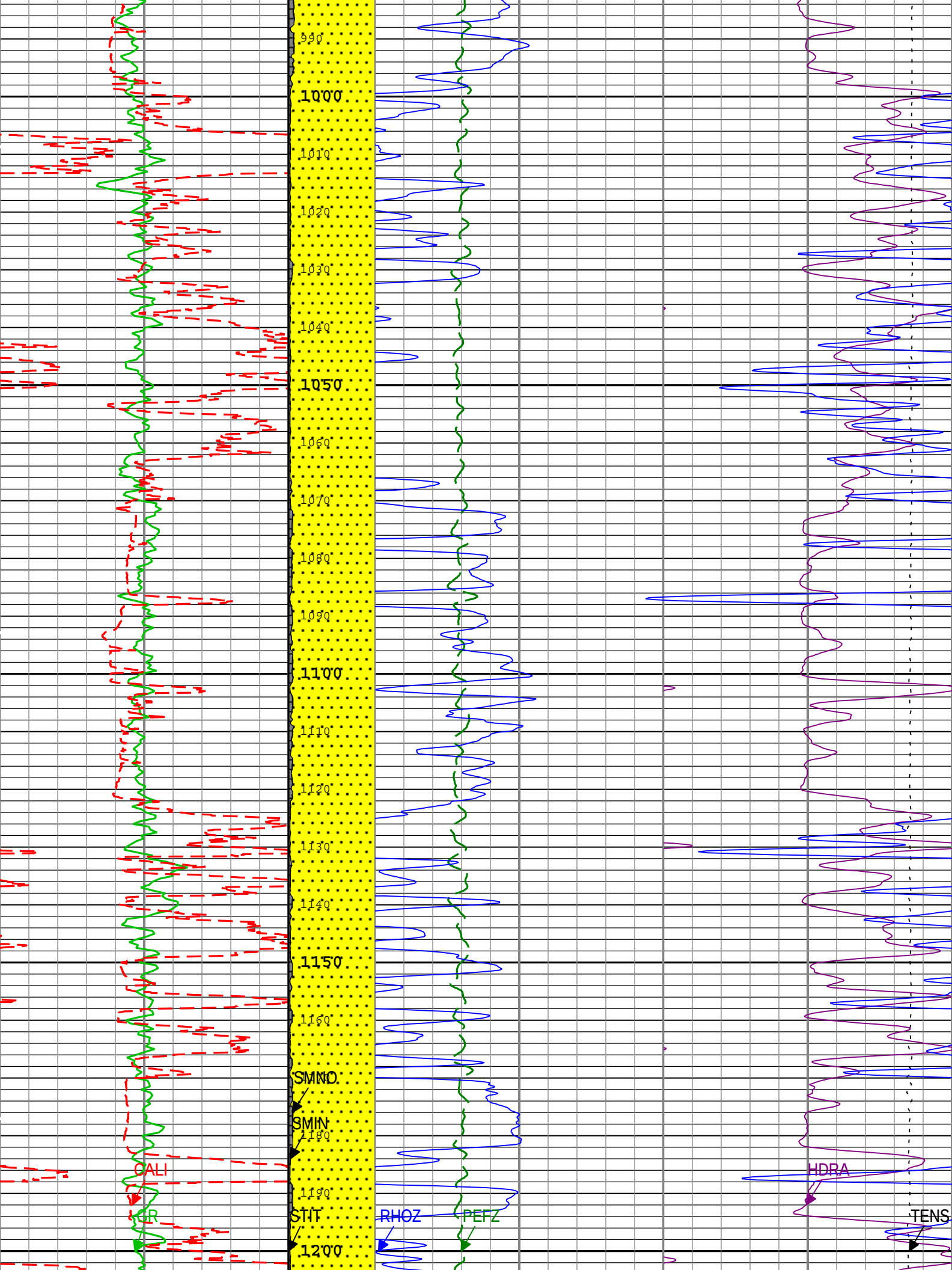
PEFZ	HDRS-H:HRMS-H:HRGD-H	2in
RHOZ	HDRS-H:HRMS-H:HRGD-H	2in
SMIN	HDRS-H:HRMS-H:HRGD-H	2in
SMNO	HDRS-H:HRMS-H:HRGD-H	2in
STIT	DepthCorrection	6in
TENS	WLWorkflow	6in
TIME_1900	WLWorkflow	0.1in

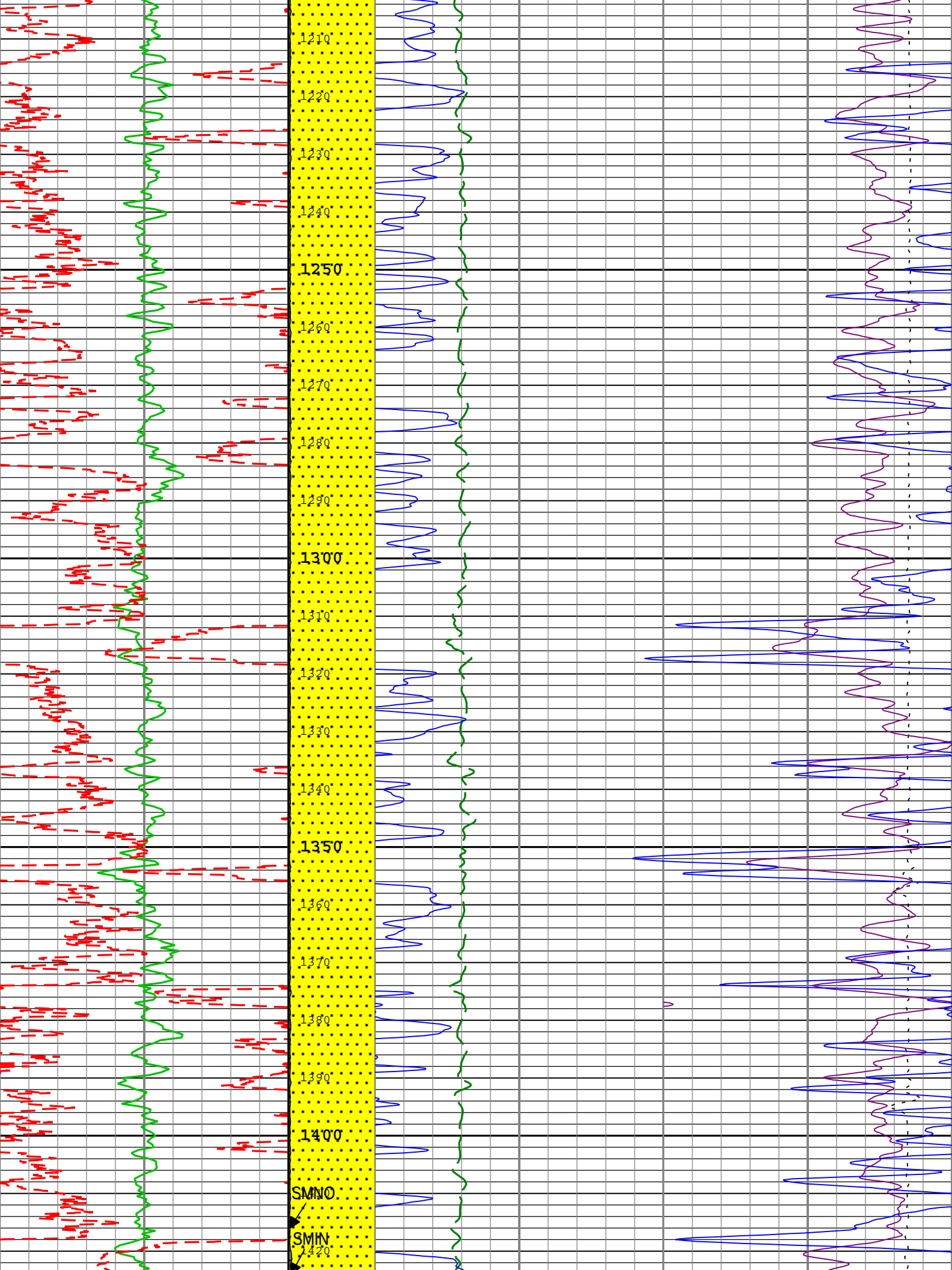
TIME_1900 - Time Marked every 60.00 (s)

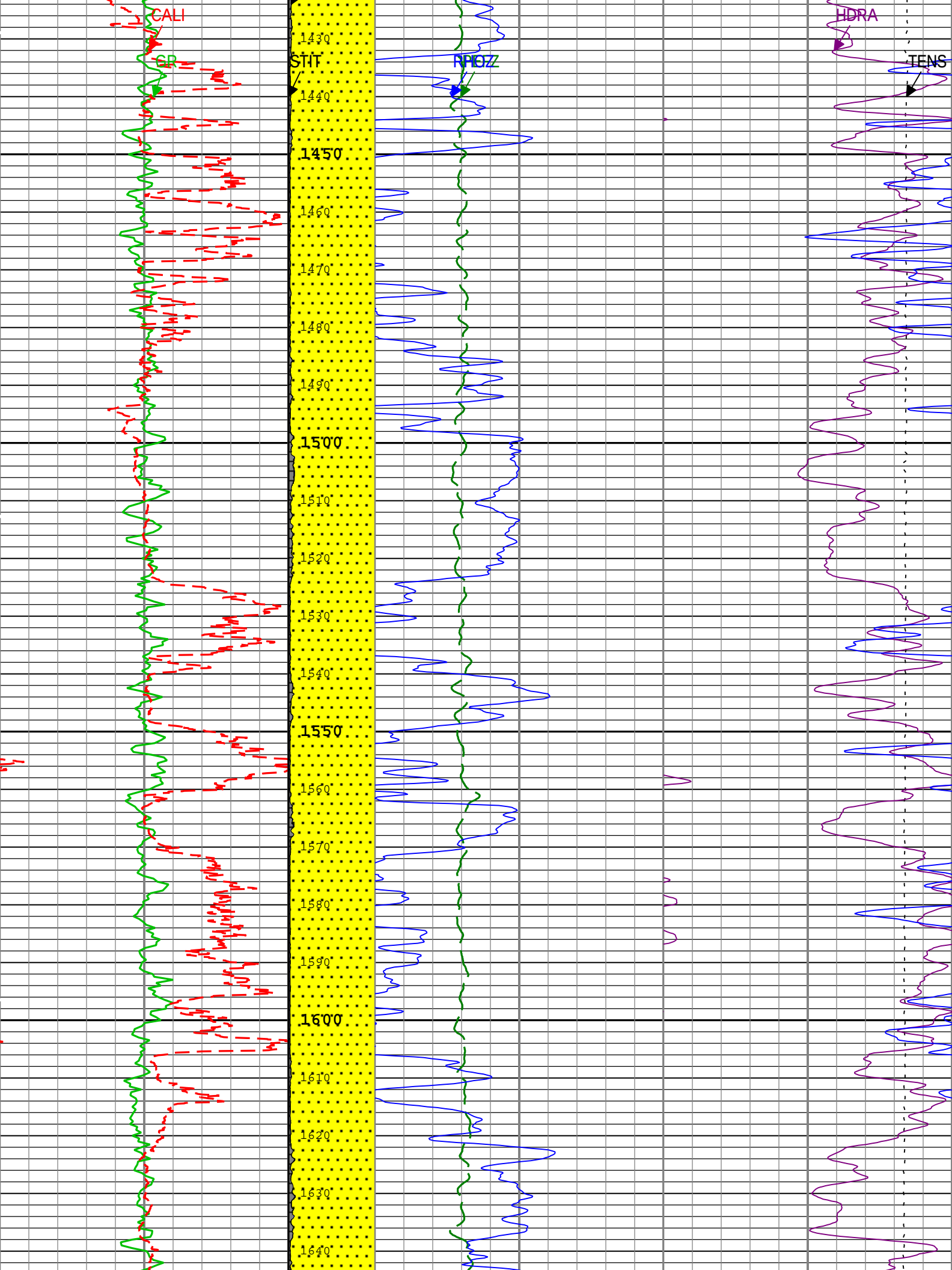


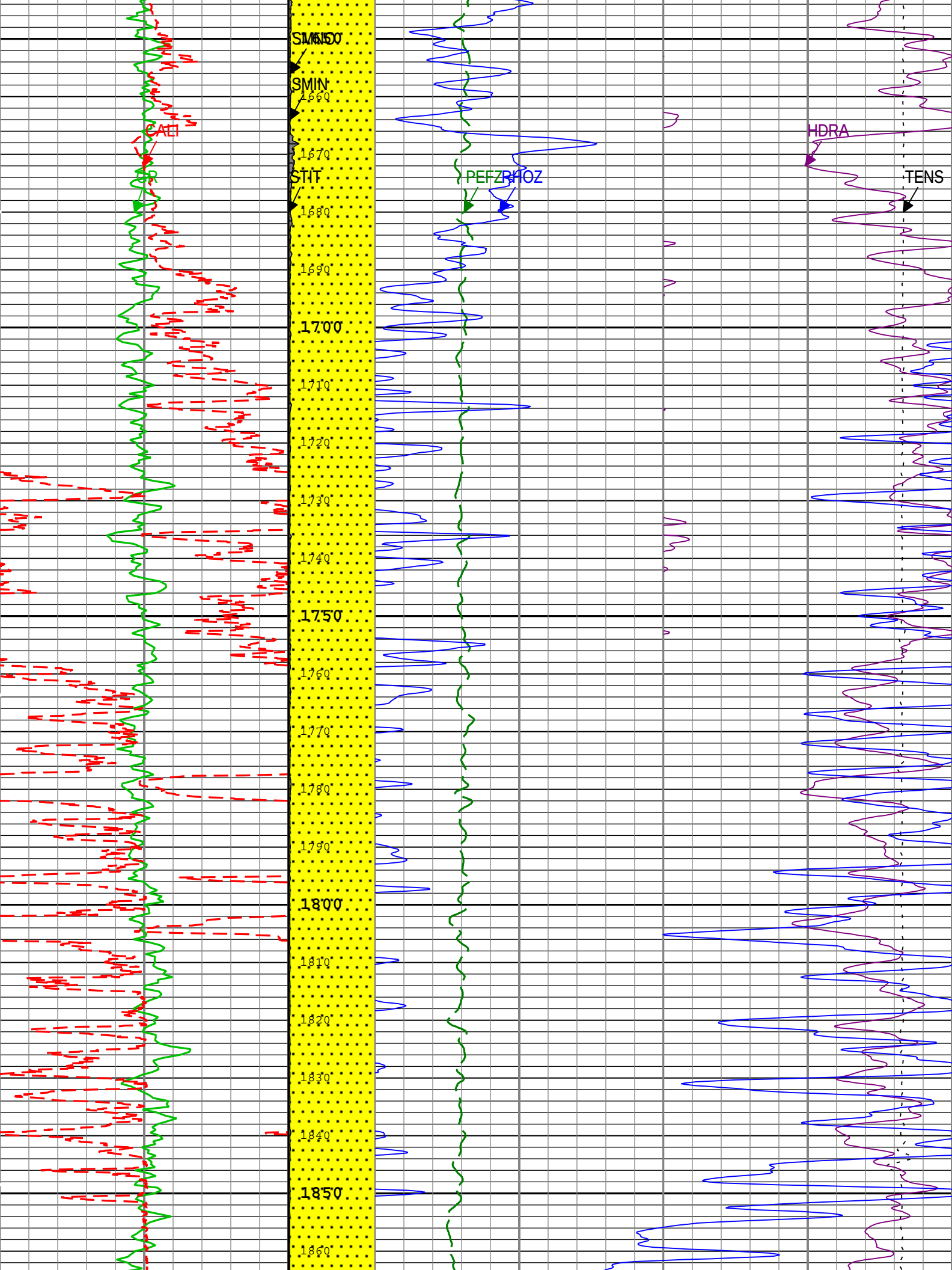

5.50
5.60
5.70
5.80
5.90
6.00
6.10
6.20
6.30
6.40
6.50
6.60
6.70
6.80
SMNO
SMIN
7.00
7.10
7.20
7.30
7.40
7.50
7.60
CALI
GR
STIT
PEFZ
RHOZ
HDRA
TENS

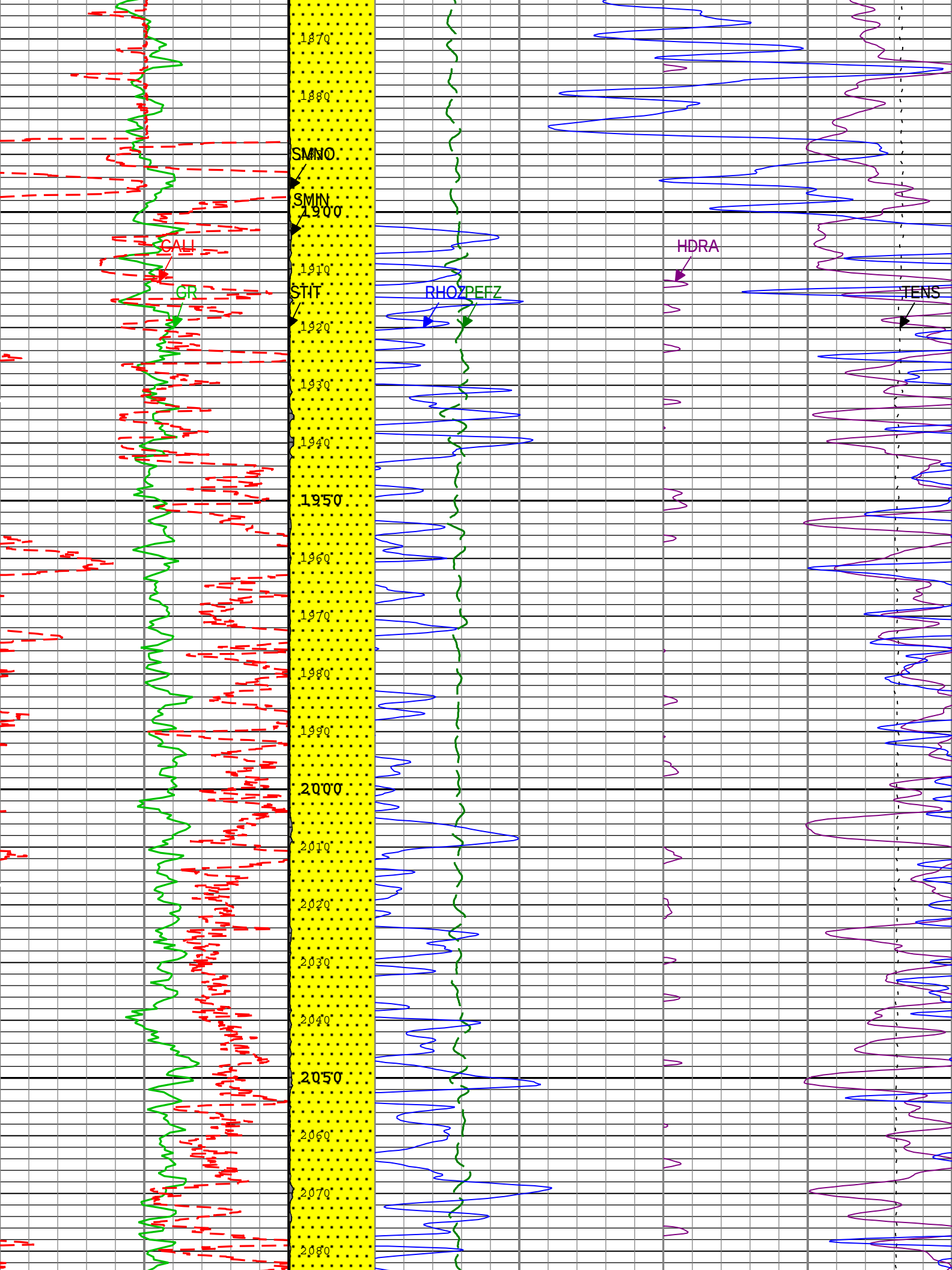

770
780
790
800
810
820
830
840
850
860
870
880
890
900
910
920
940
950
960
970
980
SMNO
SMIN
CALI
GR
STIT
PEFZ
RHOZ
HDRA
TENS

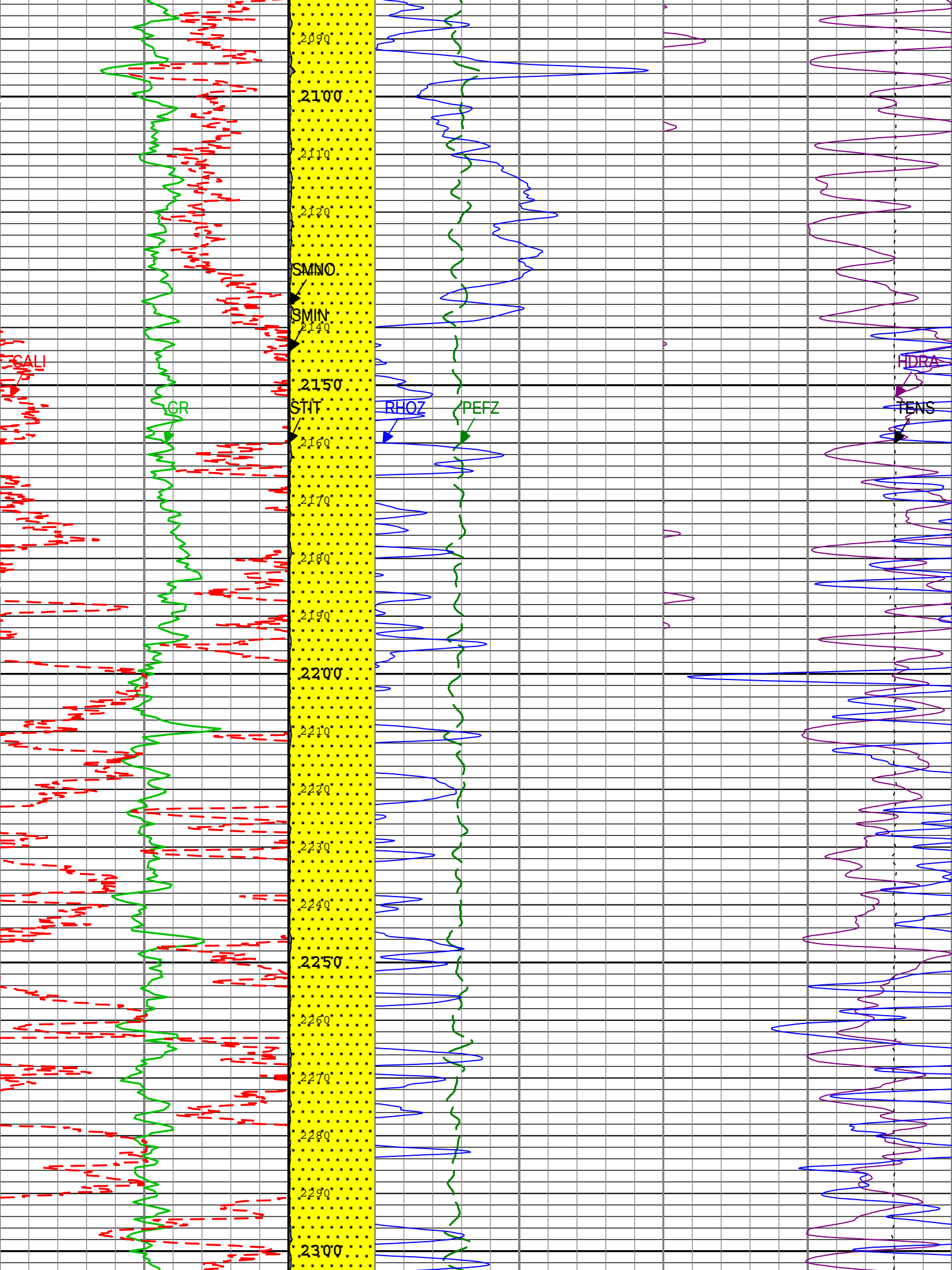

990
1000
1010
1020
1030
1040
1050
1060
1070
1080
1090
1100
1110
1120
1130
1140
1150
1160
SMNO
SMIN
1180
CALI
1190
GR
STIT
RHOZ
PEFZ
1200
HDRA
TENS

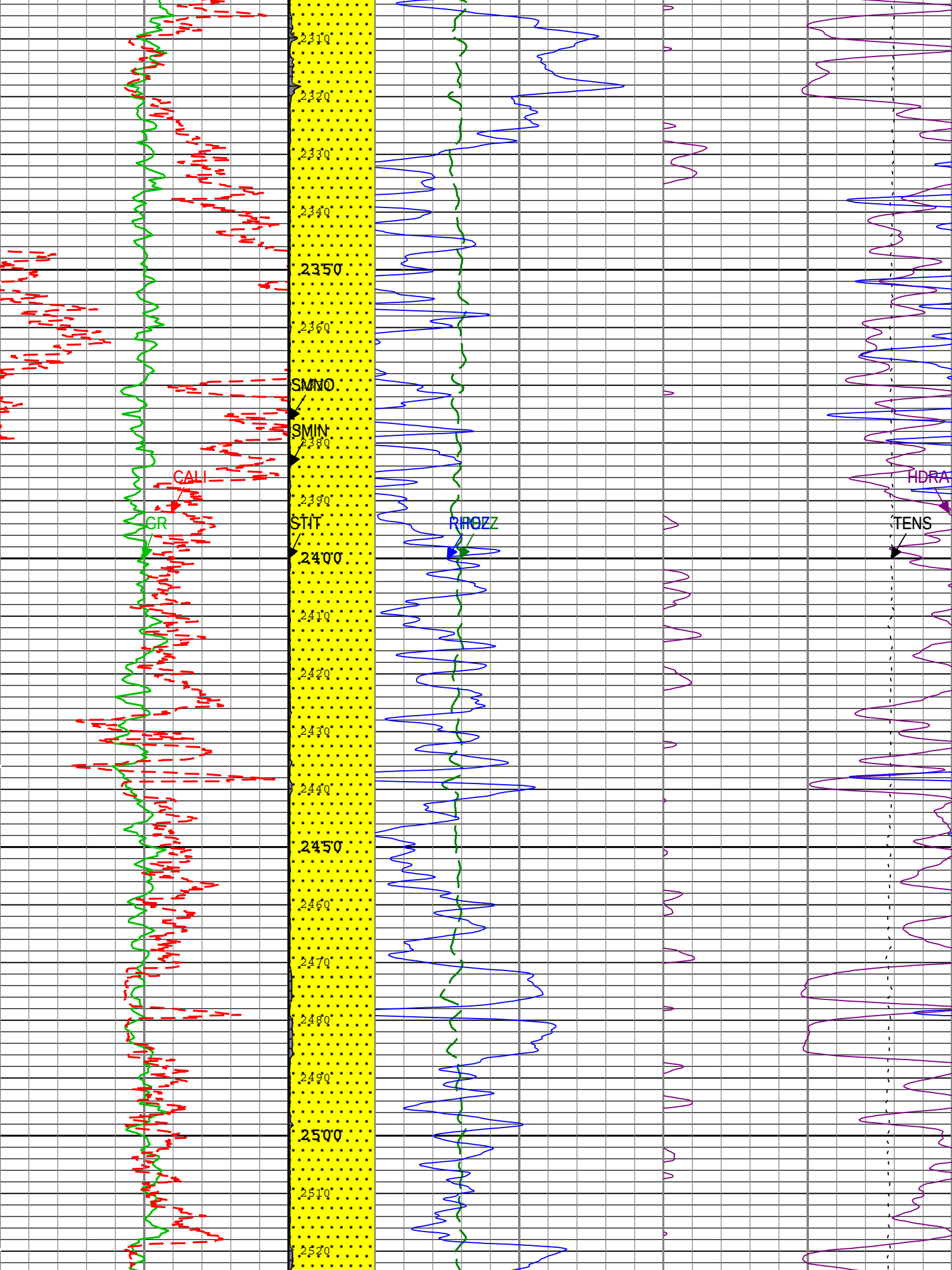

1210
1220
1230
1240
1250
1260
1270
1280
1290
1300
1310
1320
1330
1340
1350
1360
1370
1380
1390
1400
SMNO
SMN
1420

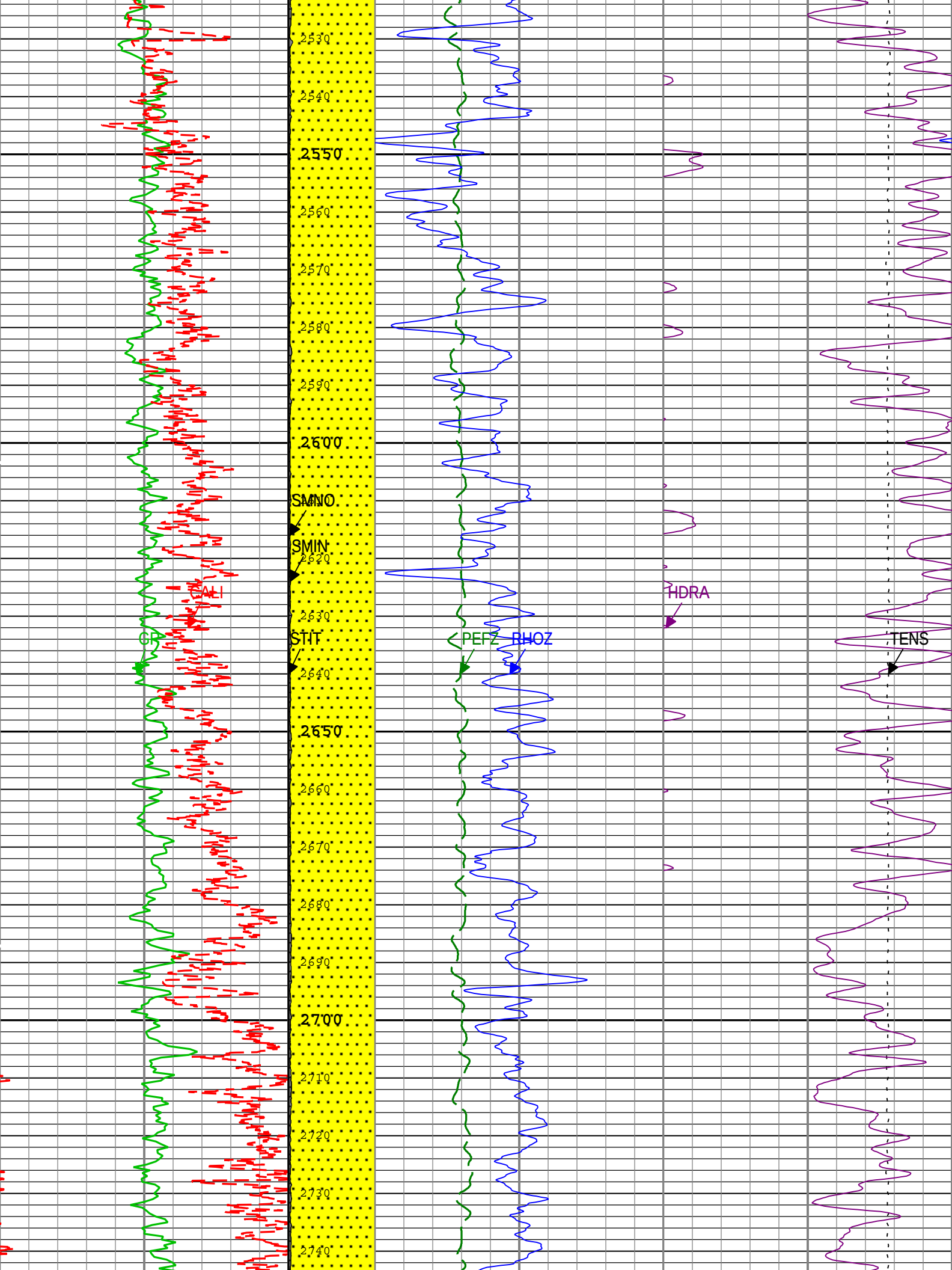

CALI
GR
STIT
RHOZ
HDRA
TENS
1430
1440
1450
1460
1470
1480
1490
1500
1510
1520
1530
1540
1550
1560
1570
1580
1590
1600
1610
1620
1630
1640

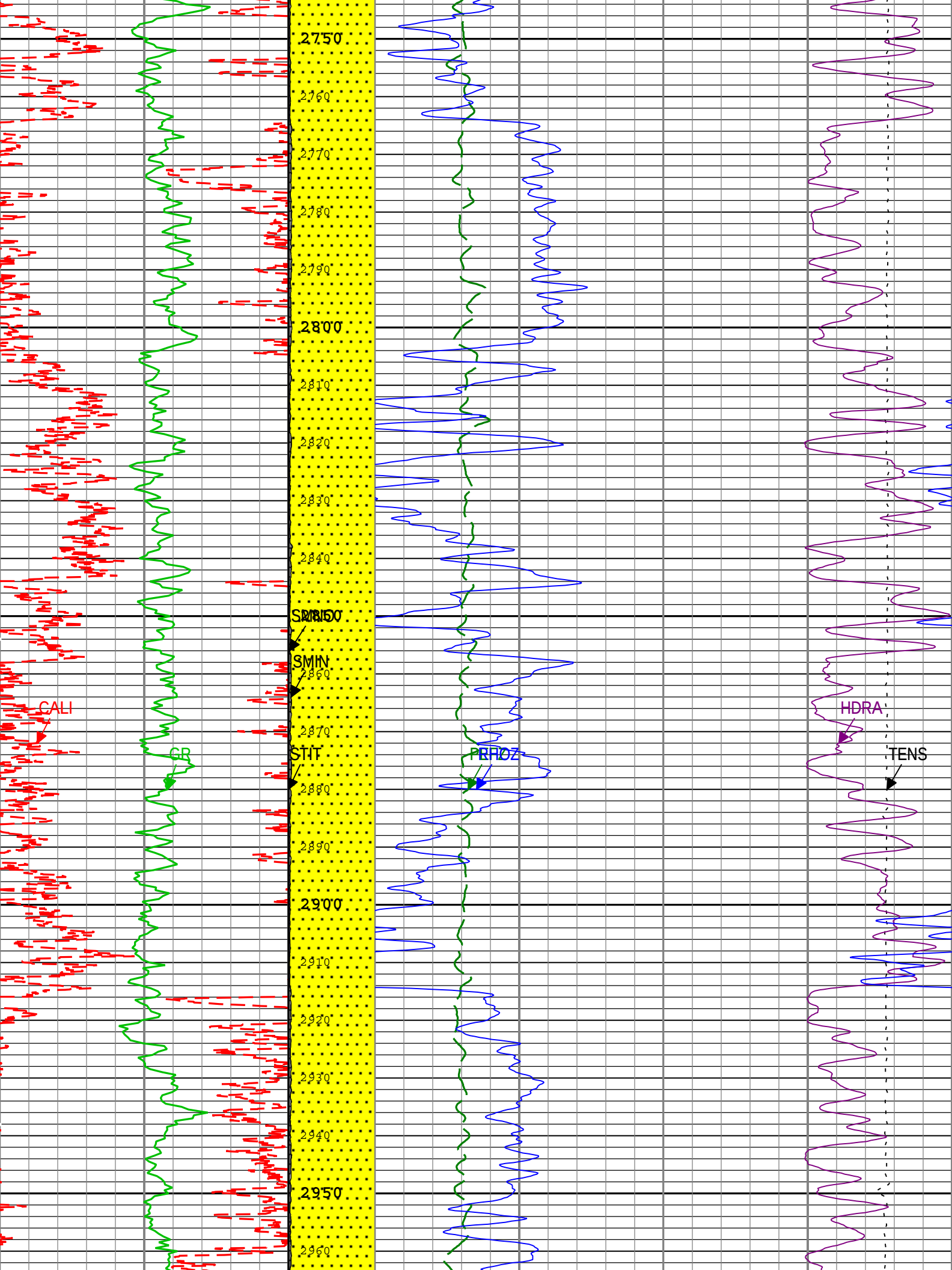

SMIN
SMIN
CALI
GR
STIT
PEFZ
RHOZ
HDRA
TENS
1650
1660
1670
1680
1690
1700
1710
1720
1730
1740
1750
1760
1770
1780
1790
1800
1810
1820
1830
1840
1850
1860

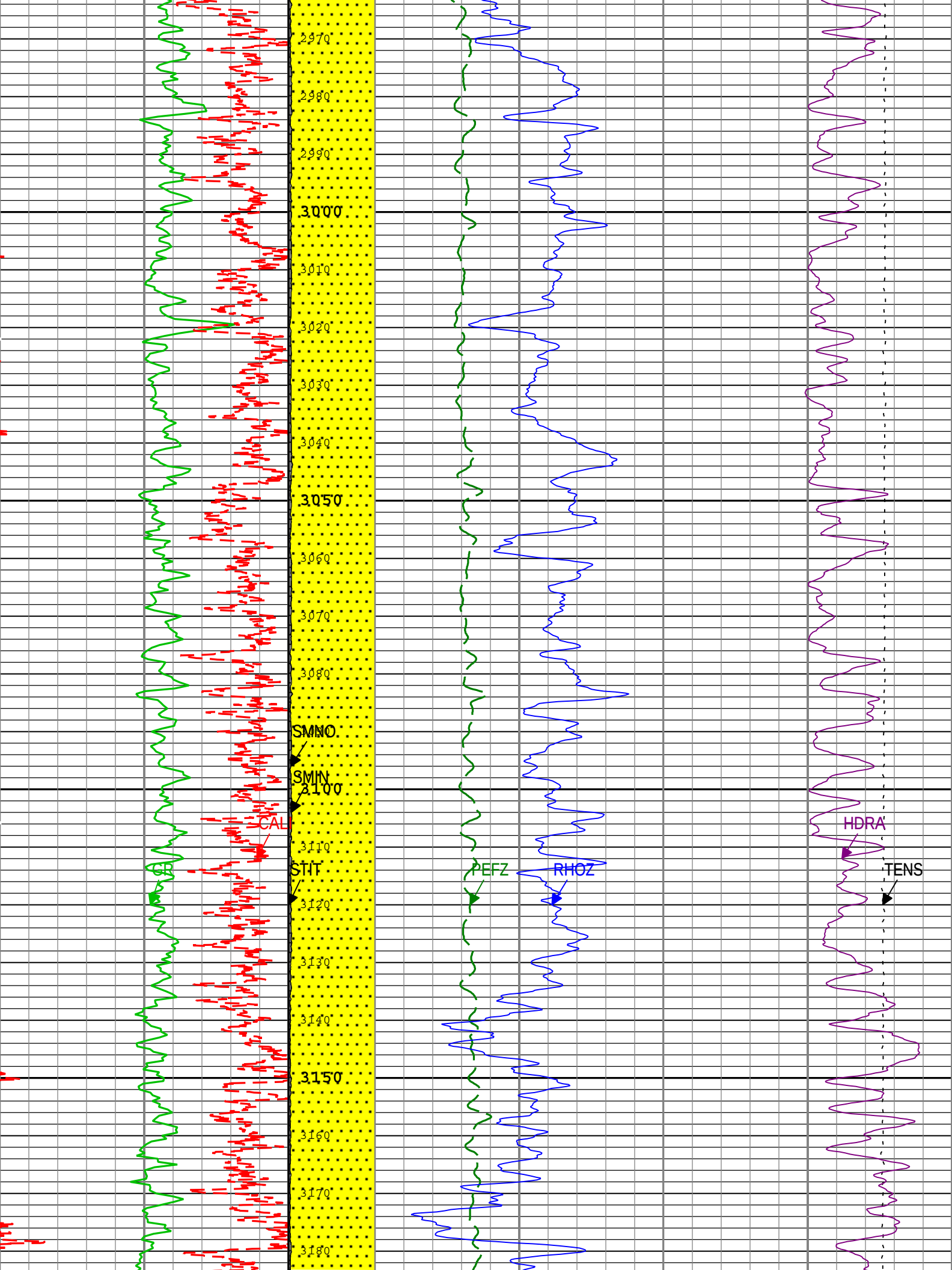

SMNO
SMIN
CALI
CR
STIT
RHOZ
PEFZ
HDRA
TENS
1870
1880
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
2000
2010
2020
2030
2040
2050
2060
2070
2080

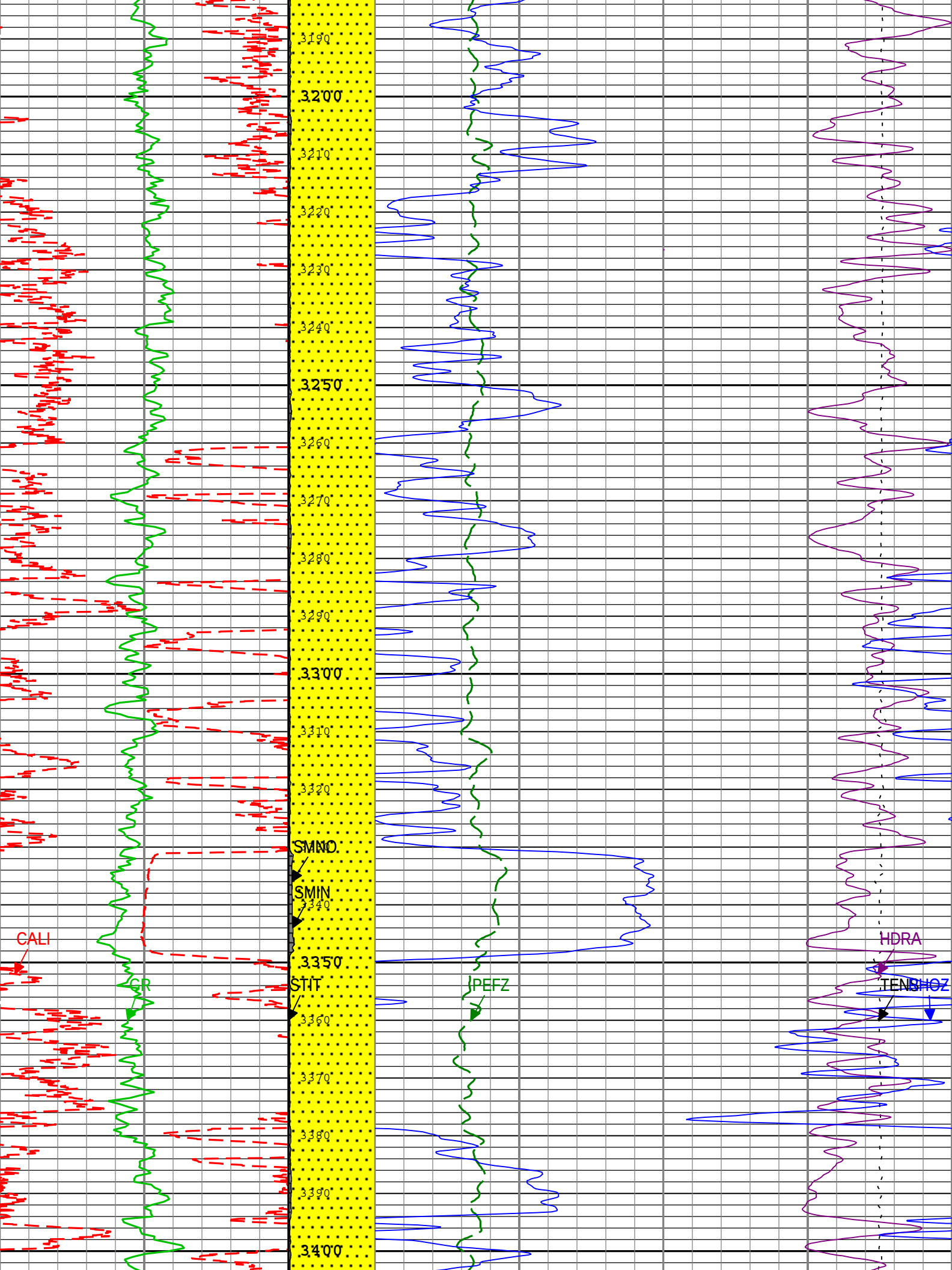

2090
2100
2110
2120
SMNO
SMIN
2140
CALI
2150
CR
STIT
RHOZ
PEFZ
2160
HDRA
TENS
2170
2180
2190
2200
2210
2220
2230
2240
2250
2260
2270
2280
2290
2300

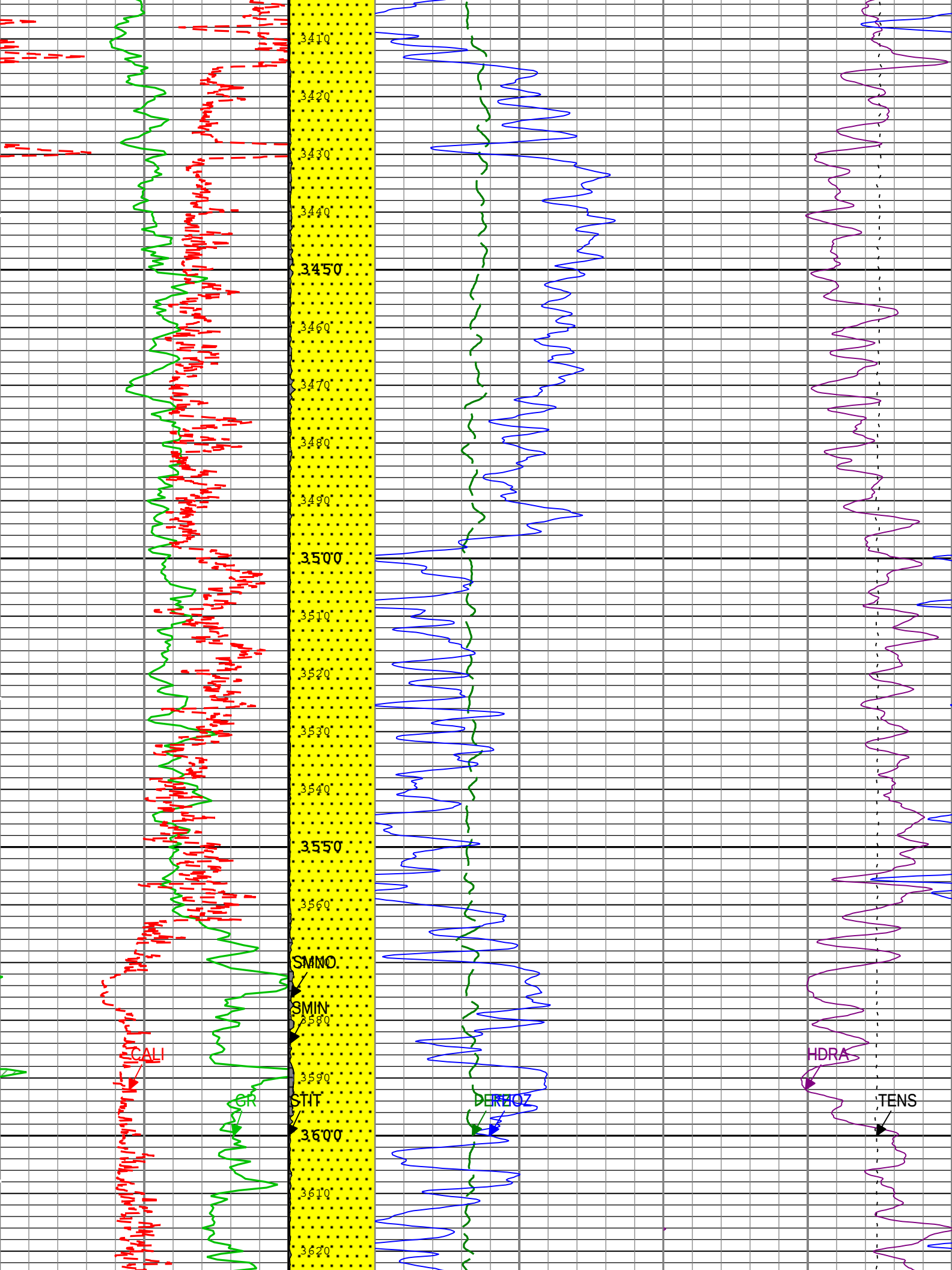

2310
2320
2330
2340
2350
2360
SMNO
SMIN
2380
CALI
2390
GR
STIT
RHOZ
2400
2410
2420
2430
2440
2450
2460
2470
2480
2490
2500
2510
2520
HDRA
TENS

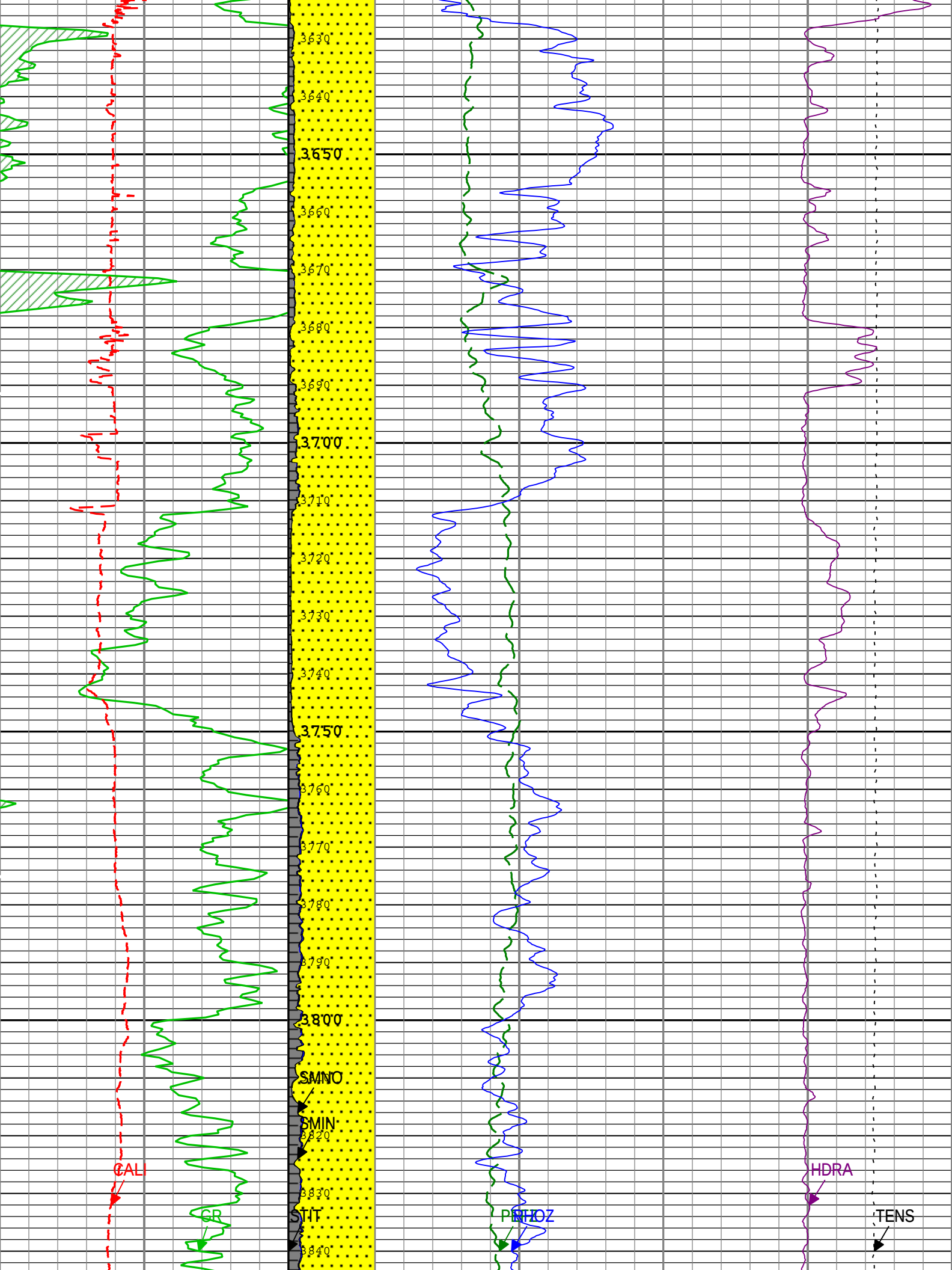

2530
2540
2550
2560
2570
2580
2590
2600
SMNO
SMIN
2620
CALI
2630
GR
STIT
PEFZ
RHOZ
2640
HDRA
TENS
2650
2660
2670
2680
2690
2700
2710
2720
2730
2740

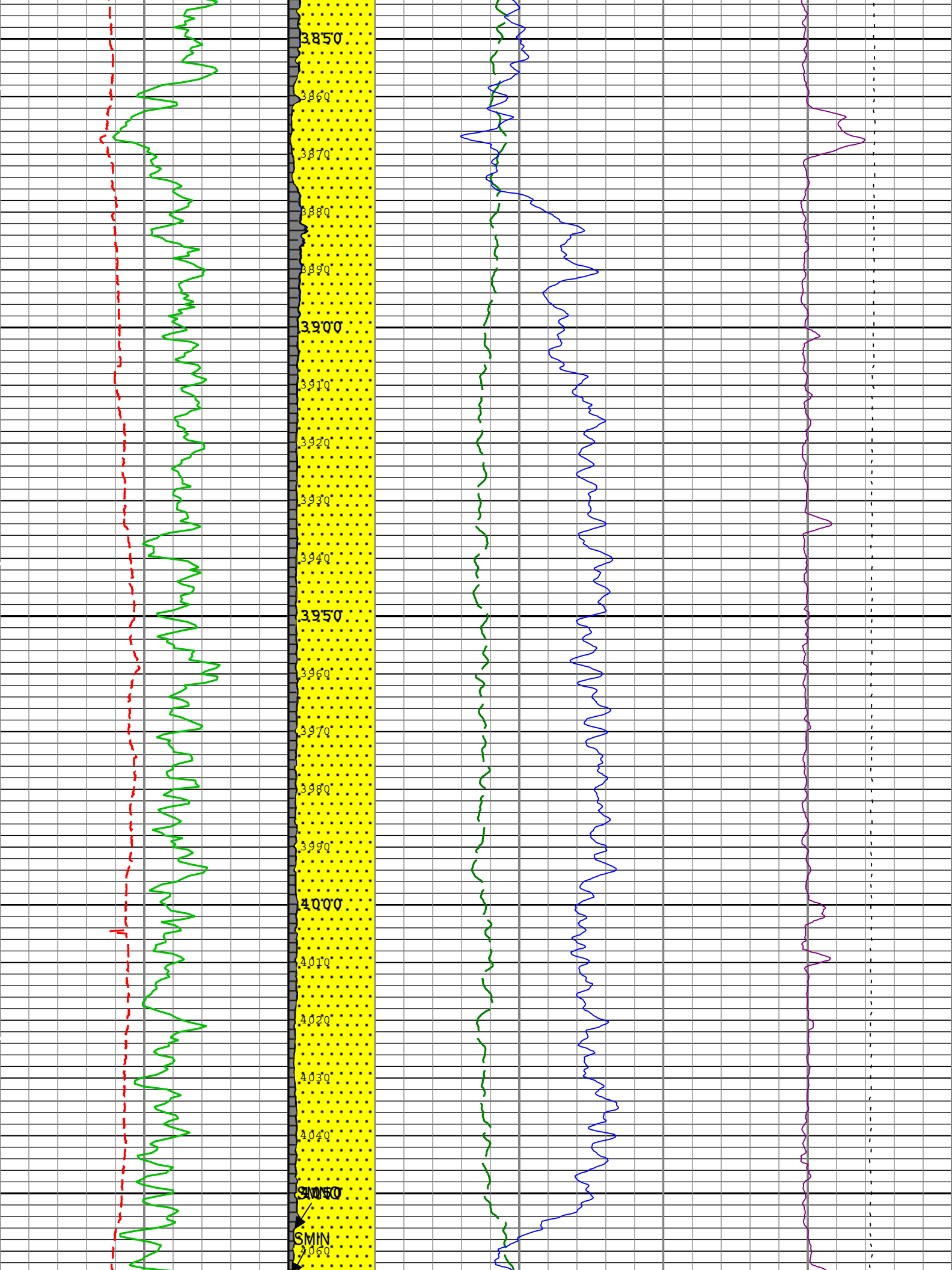

2750
2760
2770
2780
2790
2800
2810
2820
2830
2840
SMIN
SMIN
2860
CALI
2870
GR
STIT
PRROZ
2880
2890
2900
2910
2920
2930
2940
2950
2960
HDRA
TENS

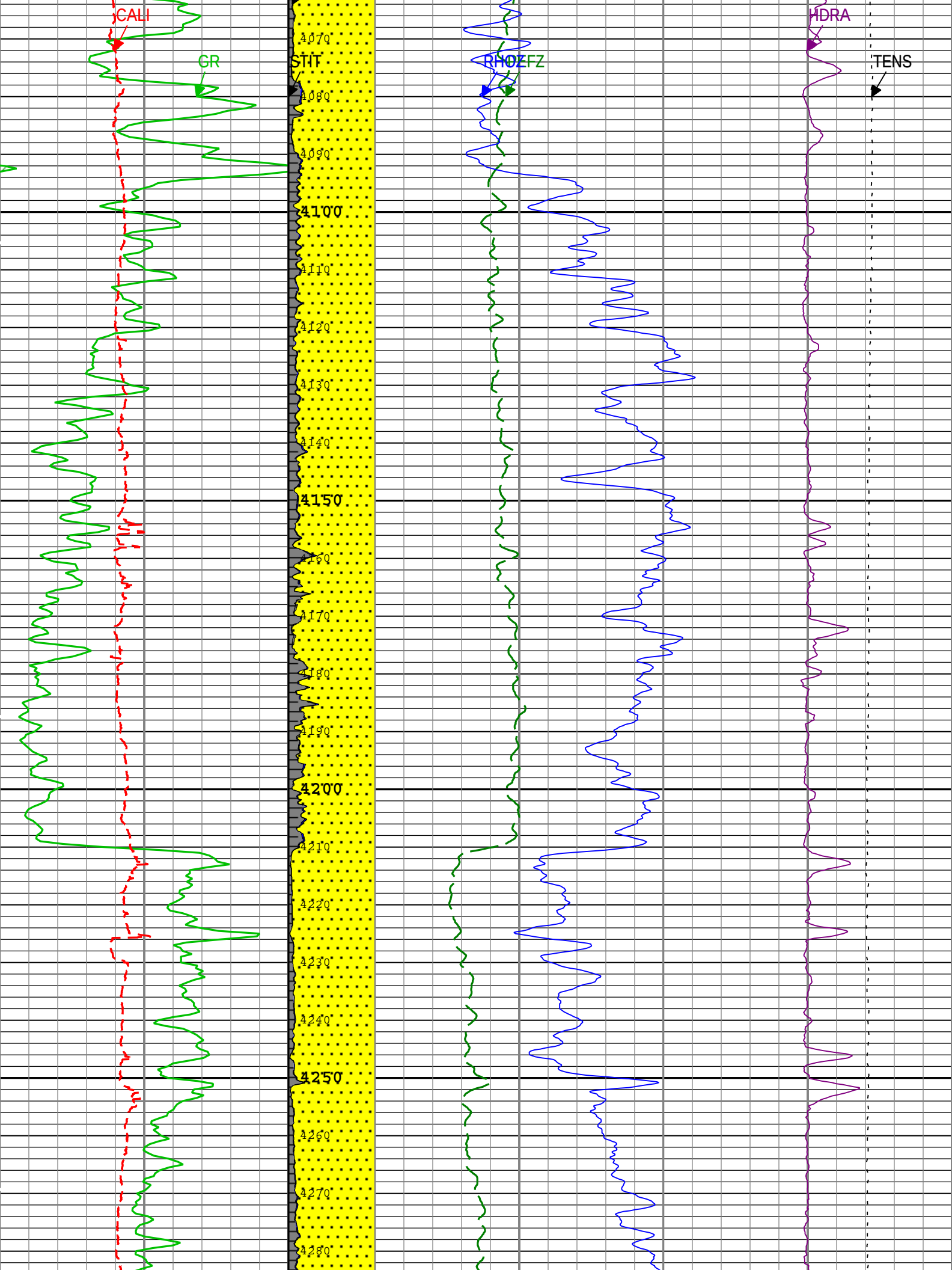

2970
2980
2990
3000
3010
3020
3030
3040
3050
3060
3070
3080
SMNO
SMIN
3100
CALI
3110
GR
STIT
PEFZ
RHOZ
HDRA
TENS
3120
3130
3140
3150
3160
3170
3180

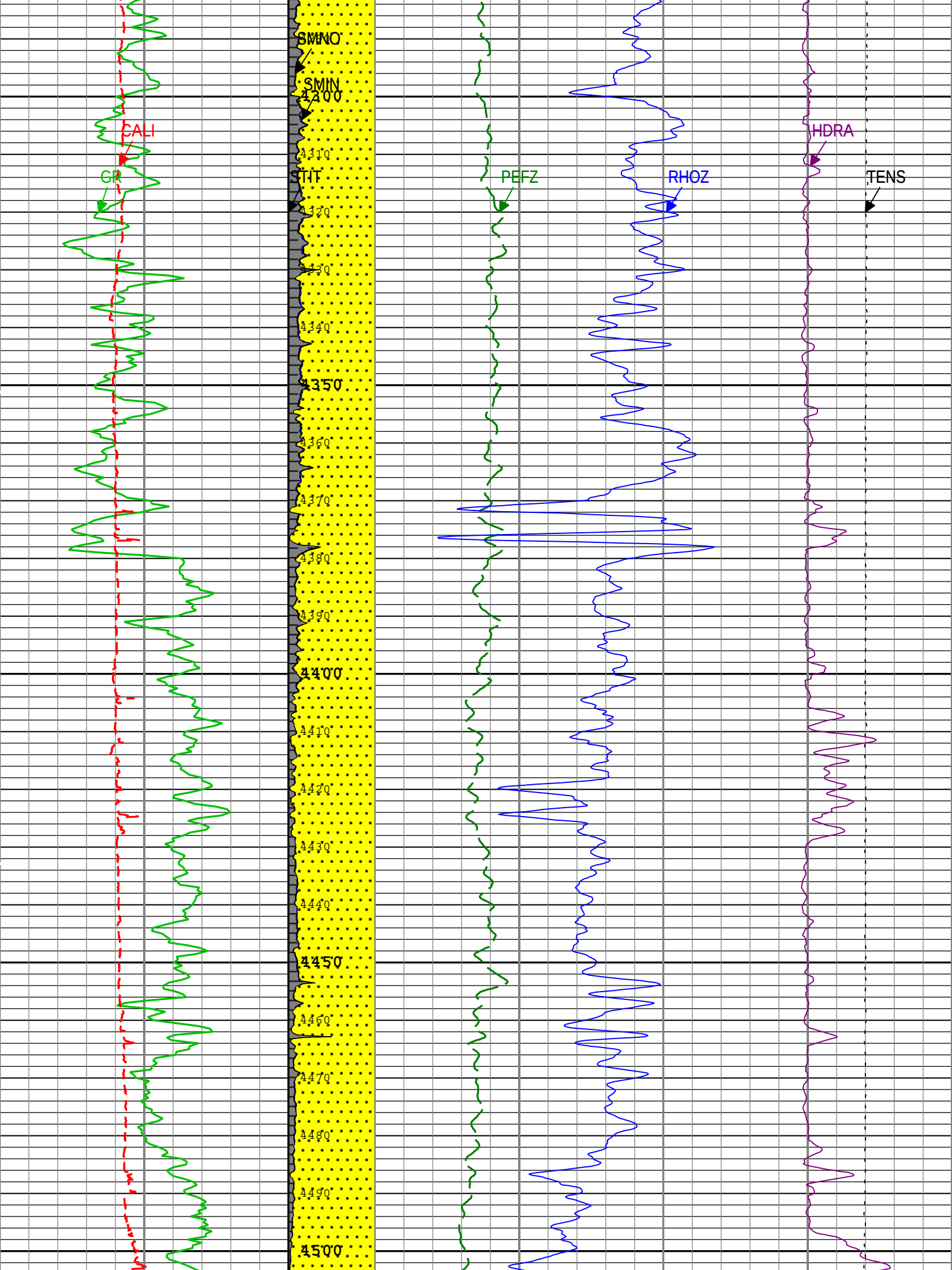

3190
3200
3210
3220
3230
3240
3250
3260
3270
3280
3290
3300
3310
3320
SMNO
SMIN
3340
CALI
3350
CR
STIT
PEFZ
HDRA
TENS
HOZ
3360
3370
3380
3390
3400

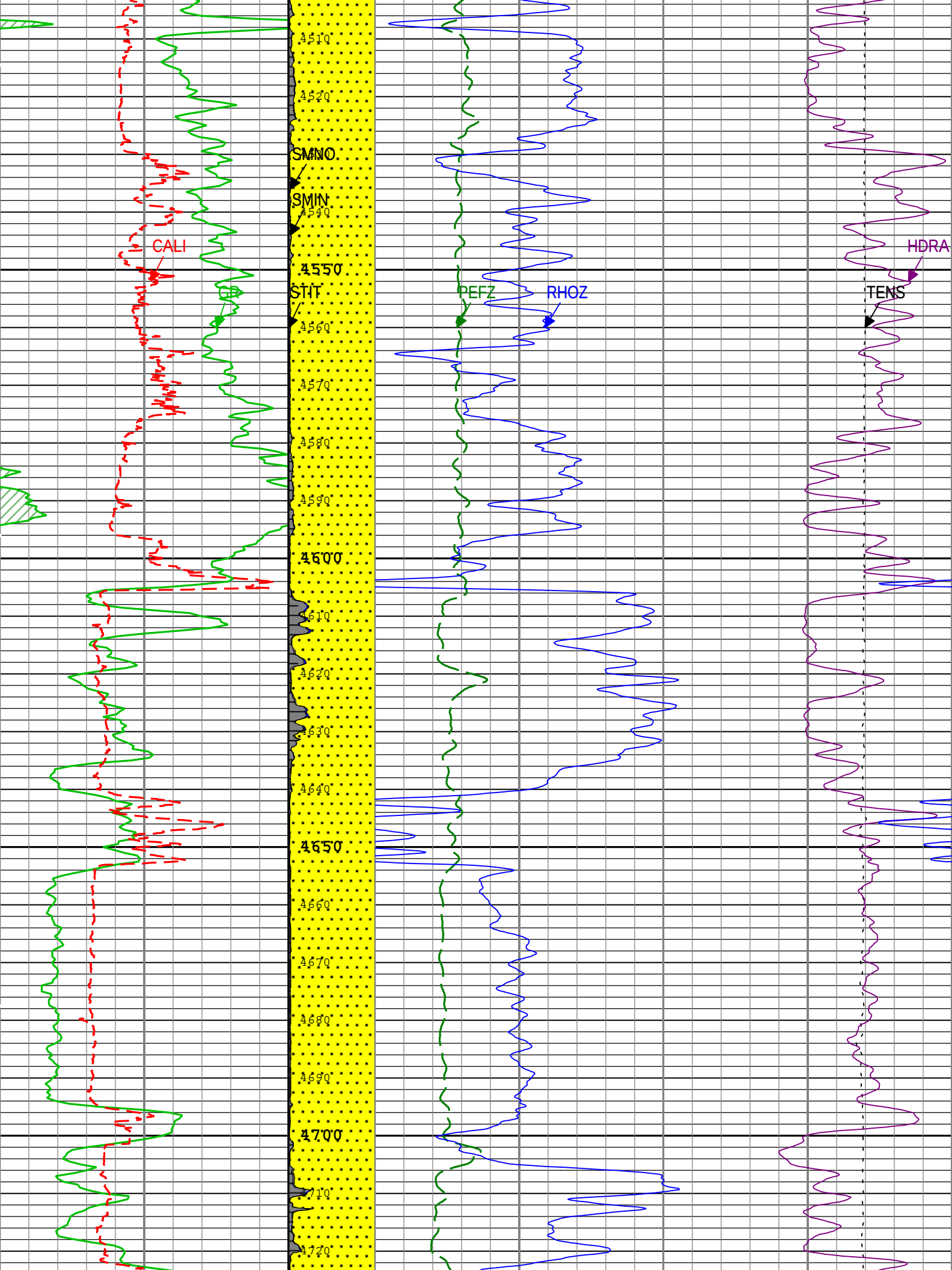

3410
3420
3430
3440
3450
3460
3470
3480
3490
3500
3510
3520
3530
3540
3550
3560
SMNO
SMIN
3580
CALI
3590
GR
STIT
DERHOZ
3600
HDRA
TENS
3610
3620

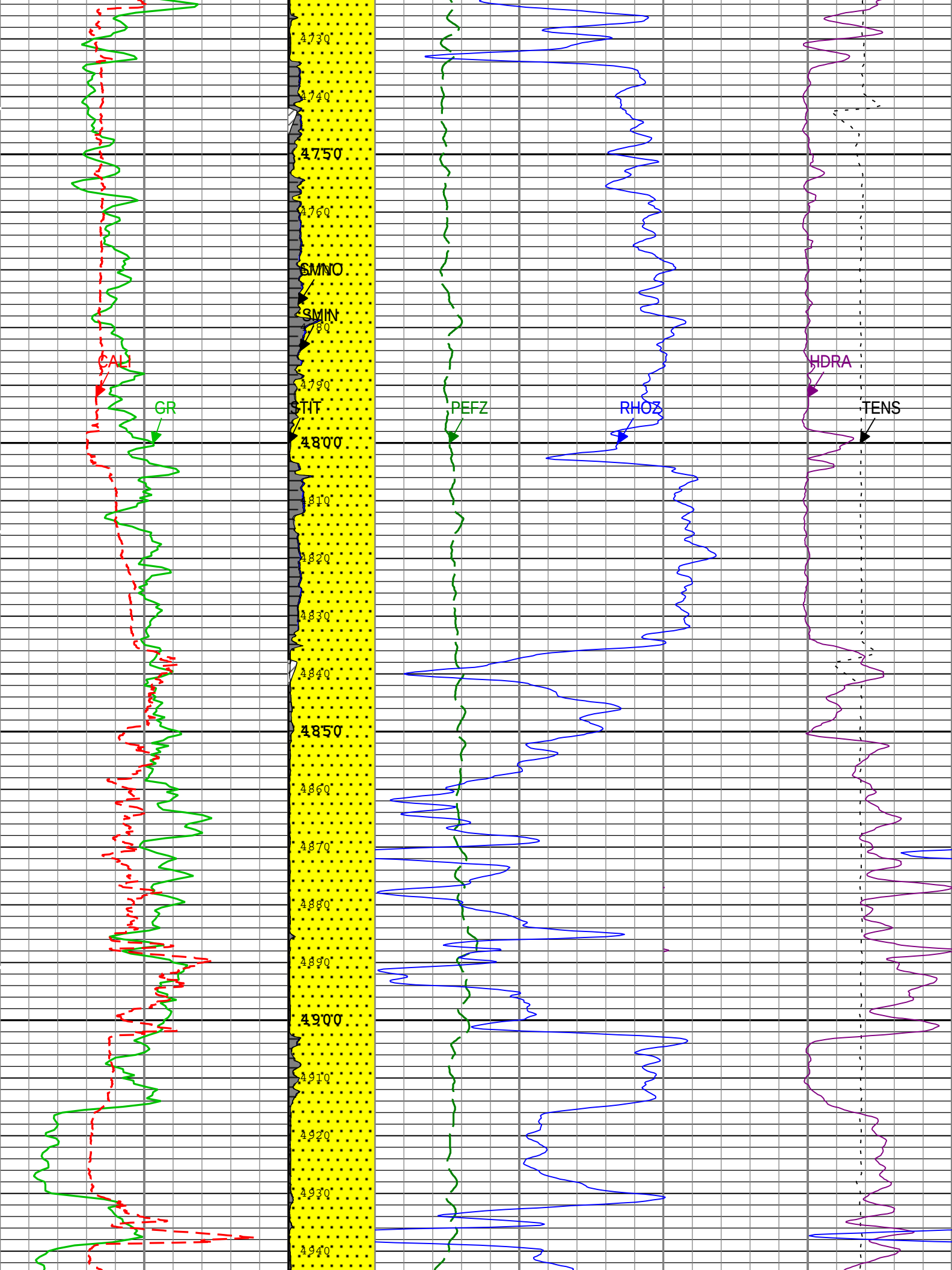

3630
3640
3650
3660
3670
3680
3690
3700
3710
3720
3730
3740
3750
3760
3770
3780
3790
3800
SMNO
SMIN
3820
3830
STIT
3840
CALI
CR
PHIDZ
HDRA
TENS

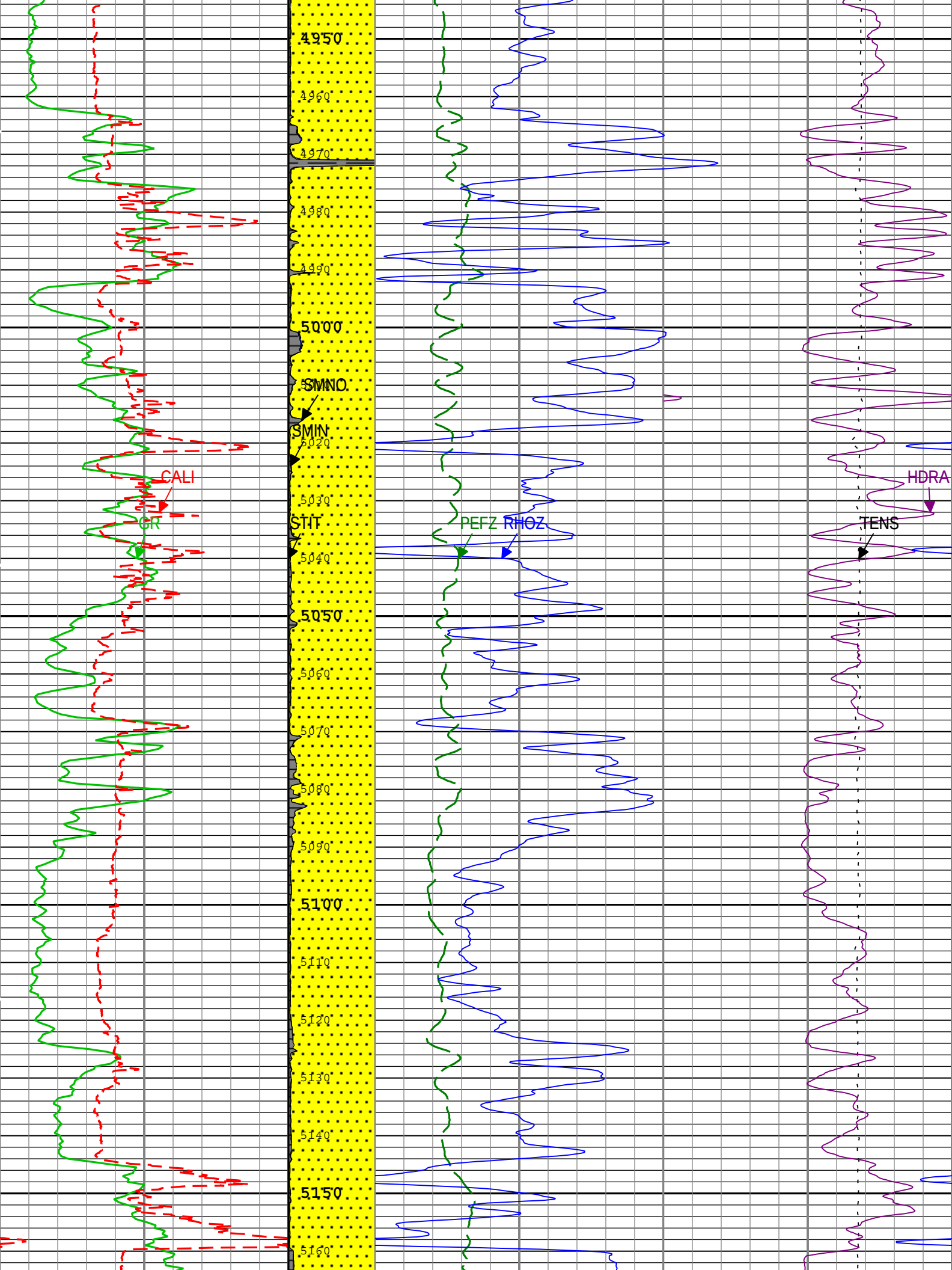

3850
3860
3870
3880
3890
3900
3910
3920
3930
3940
3950
3960
3970
3980
3990
4000
4010
4020
4030
4040
4050
SMIN
4060

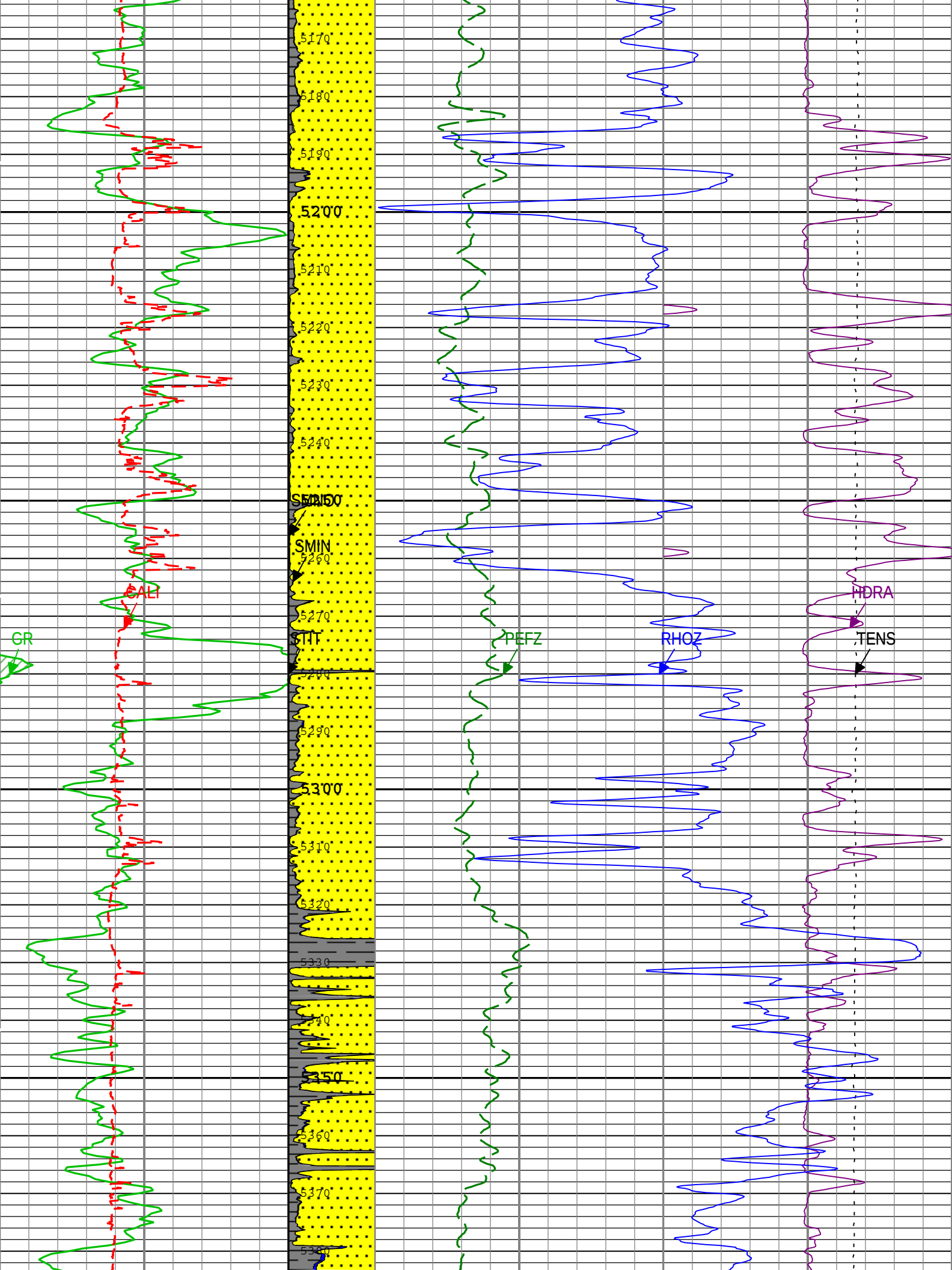

CALI
GR
SHT
RHOZ
HDRA
TENS
4070
4080
4090
4100
4110
4120
4130
4140
4150
4160
4170
4180
4190
4200
4210
4220
4230
4240
4250
4260
4270
4280

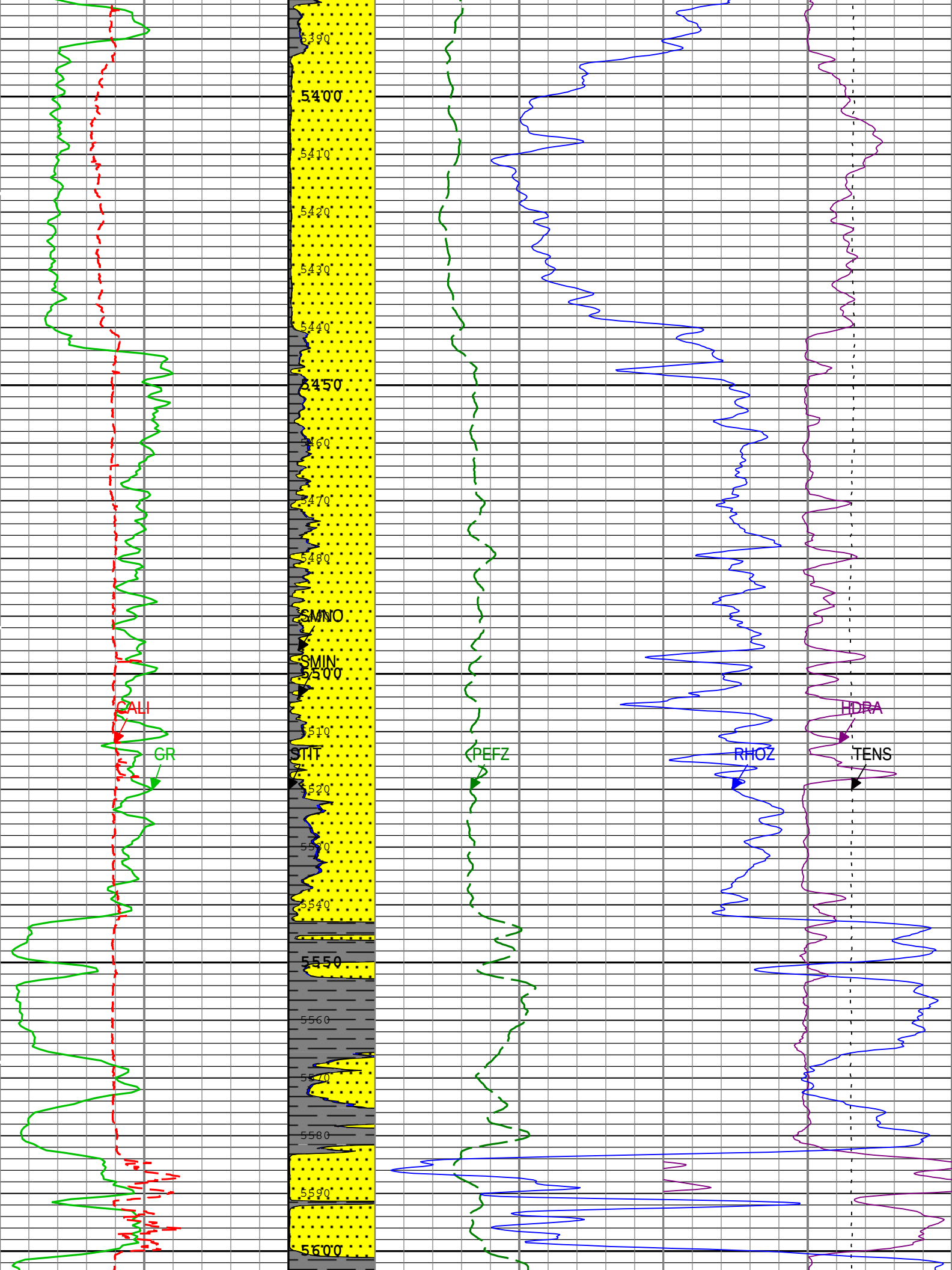

SMNO
SMIN
CALI
HDRA
GR
PEFZ
RHOZ
TENS
4300
4310
4320
4330
4340
4350
4360
4370
4380
4390
4400
4410
4420
4430
4440
4450
4460
4470
4480
4490
4500

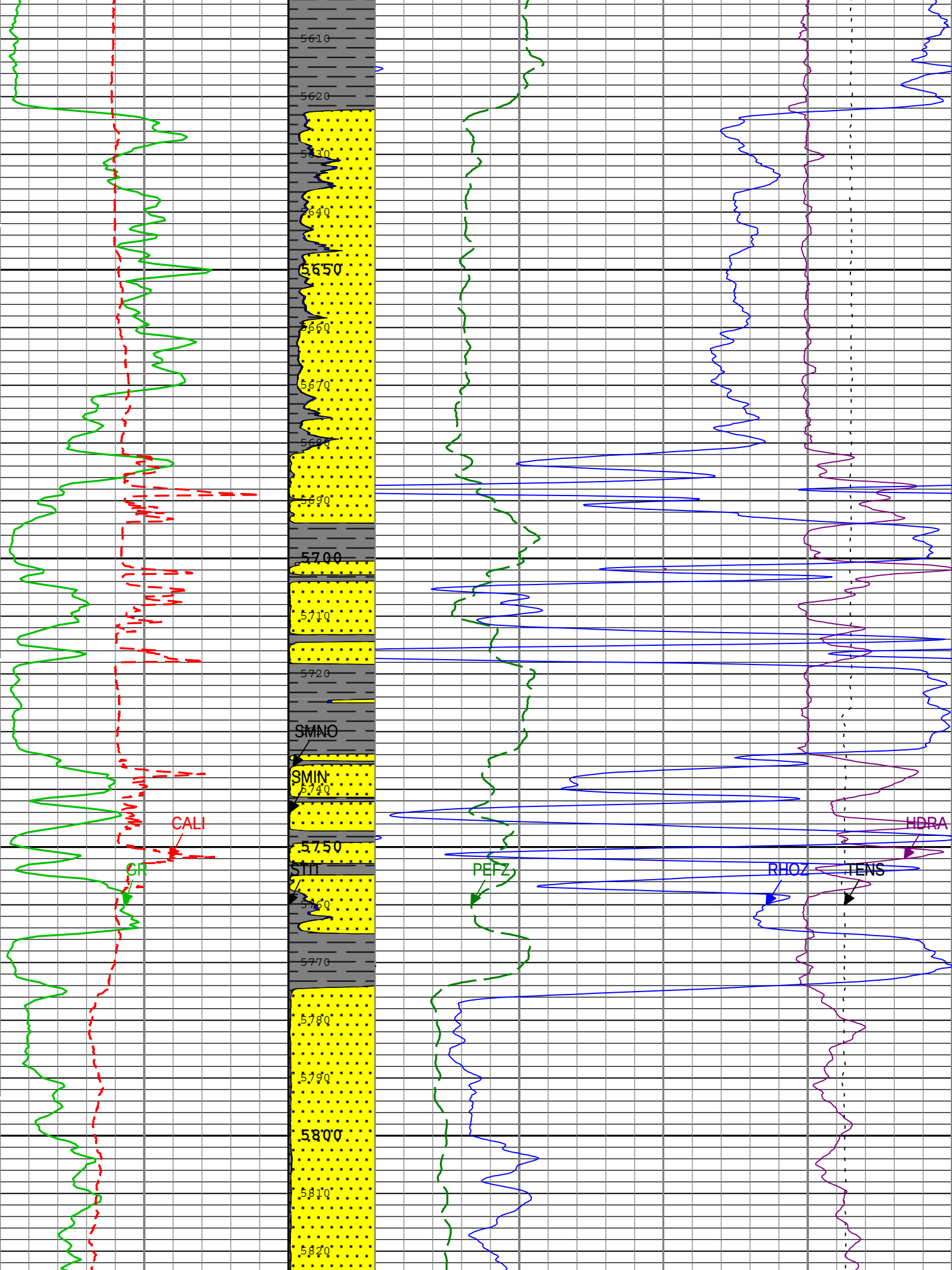

4510
4520
SMNO
SMIN
4540
CALI
4550
STIT
4560
4570
4580
4590
4600
4610
4620
4630
4640
4650
4660
4670
4680
4690
4700
4710
4720
PEFZ
RHOZ
HDRA
TENS

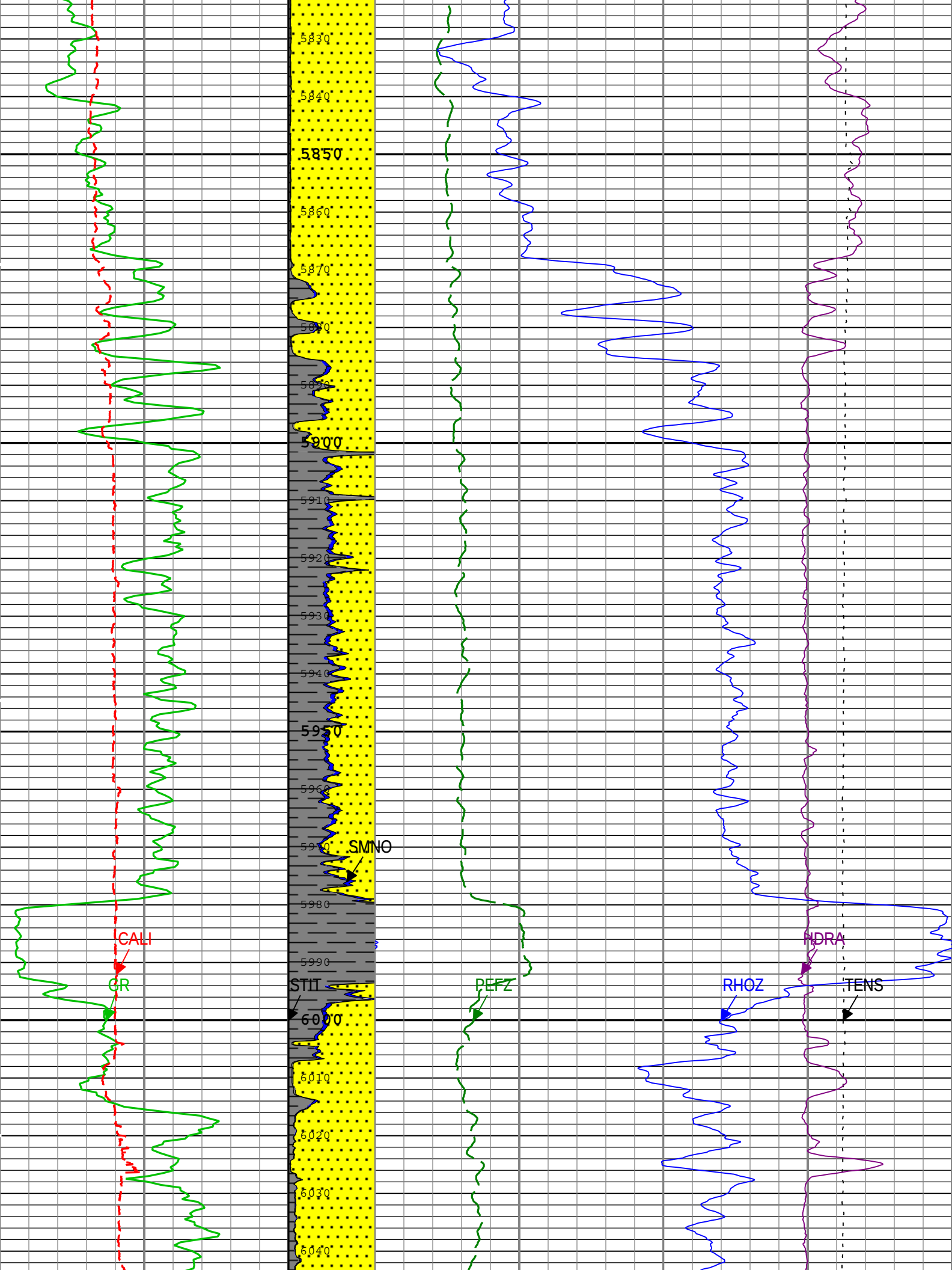

4730
4740
4750
4760
SMNO
SMIN
4780
CALI
GR
4790
STIT
PEFZ
RHOZ
HDRA
TENS
4800
4810
4820
4830
4840
4850
4860
4870
4880
4890
4900
4910
4920
4930
4940

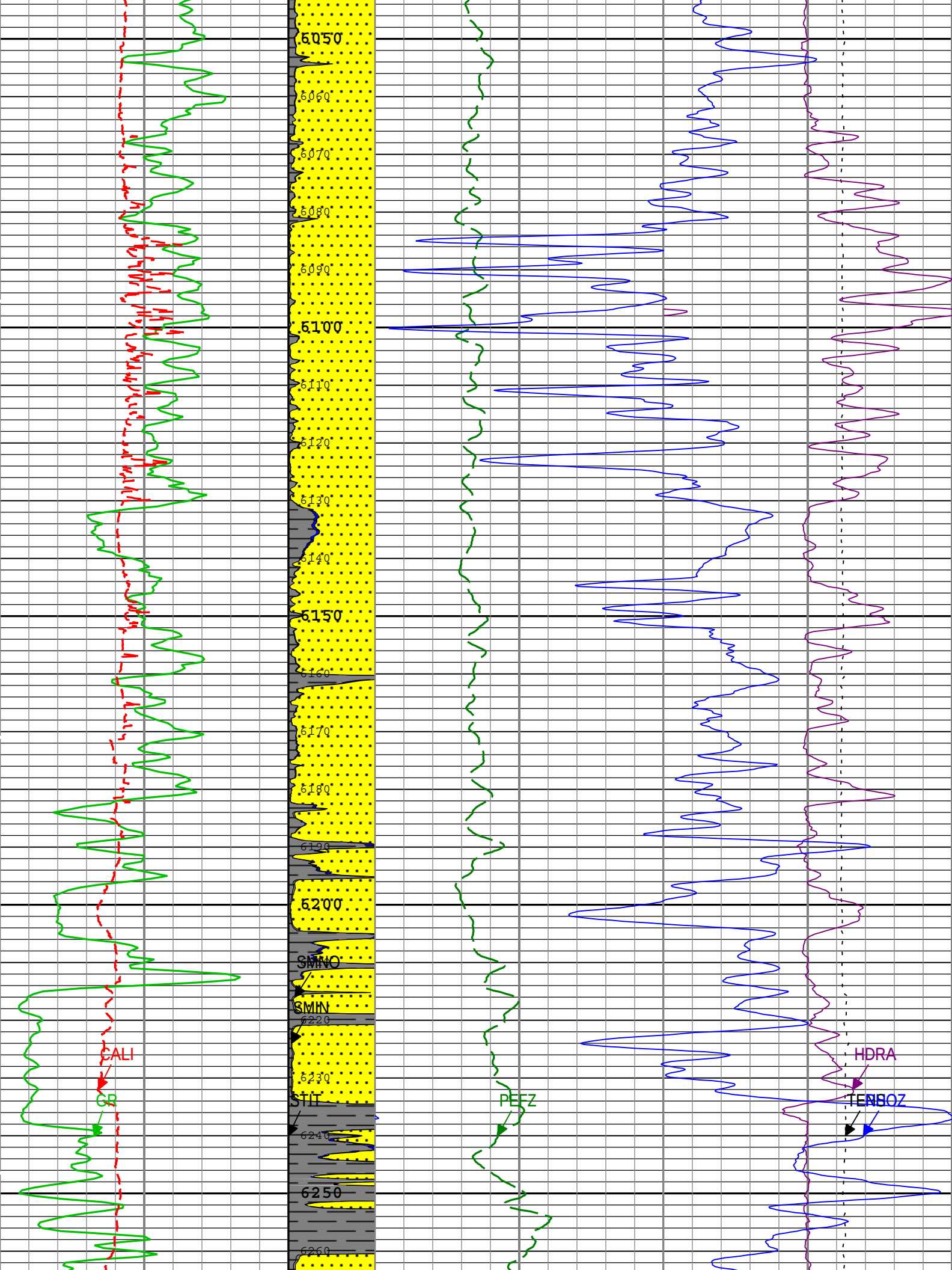

4950
4960
4970
4980
4990
5000
SMNO
SMIN
5020
CALI
5030
GR
STIT
PEFZ
RHOZ
HDRA
TENS
5040
5050
5060
5070
5080
5090
5100
5110
5120
5130
5140
5150
5160

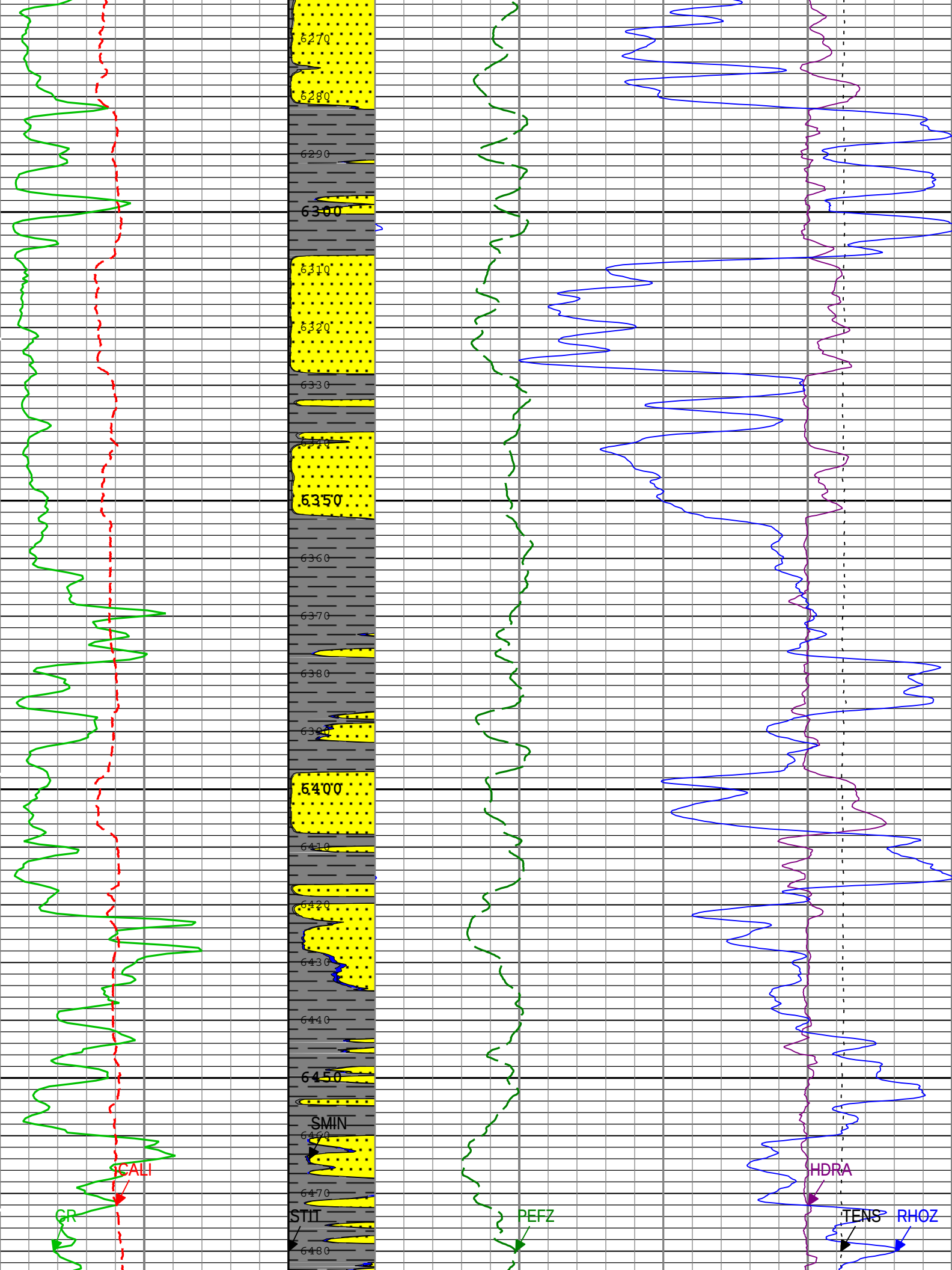

5170
5180
5190
5200
5210
5220
5230
5240
SMIN
5260
CALI
GR
5270
5280
5290
5300
5310
5320
5330
5340
5350
5360
5370
5380
PEFZ
RHOZ
HDRA
TENS

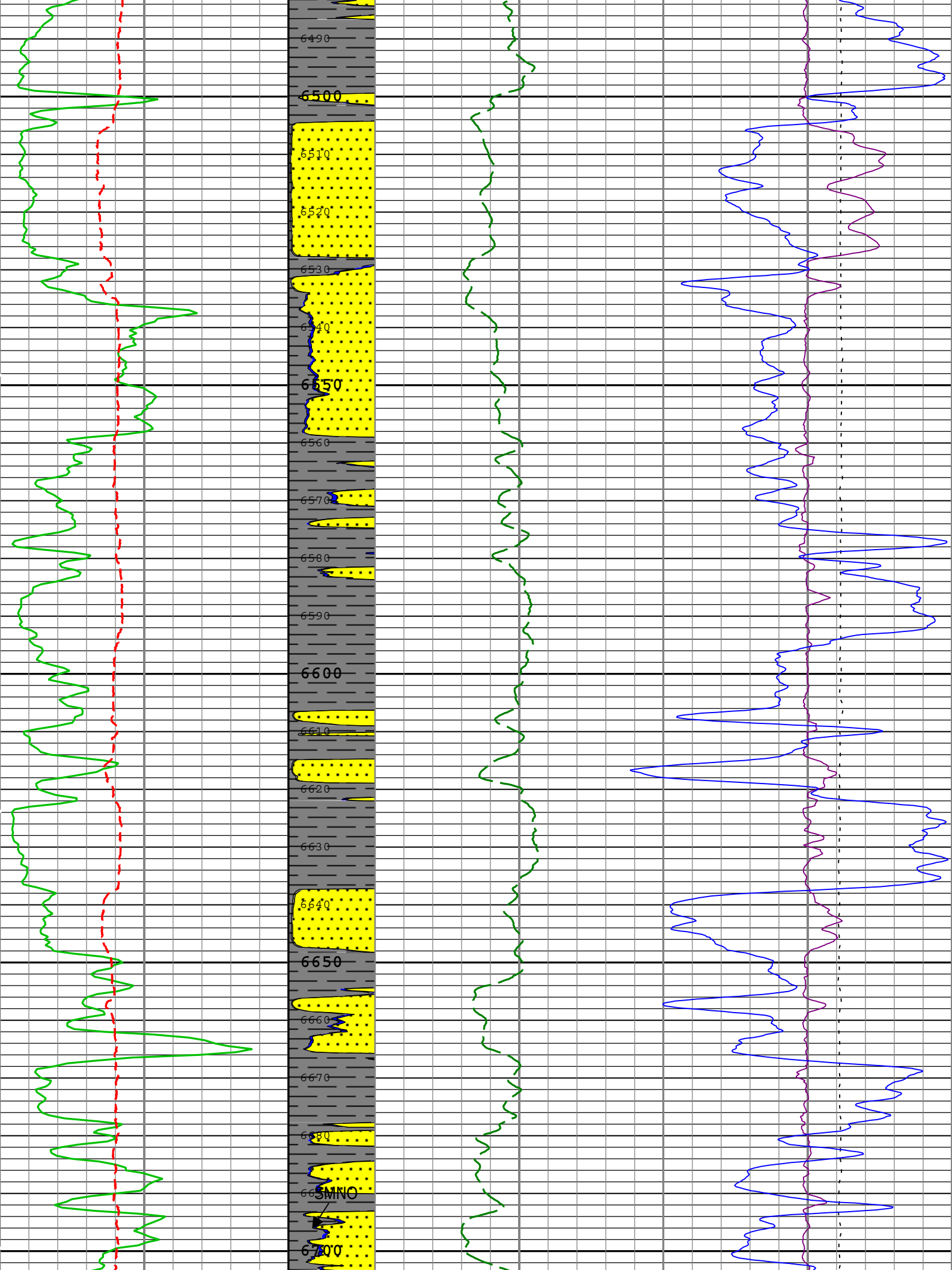

5390
5400
5410
5420
5430
5440
5450
5460
5470
5480
SMNO
SMIN
5500
CALI
5510
GR
STIT
PEFZ
RHOZ
HDRA
TENS
5520
5530
5540
5550
5560
5570
5580
5590
5600

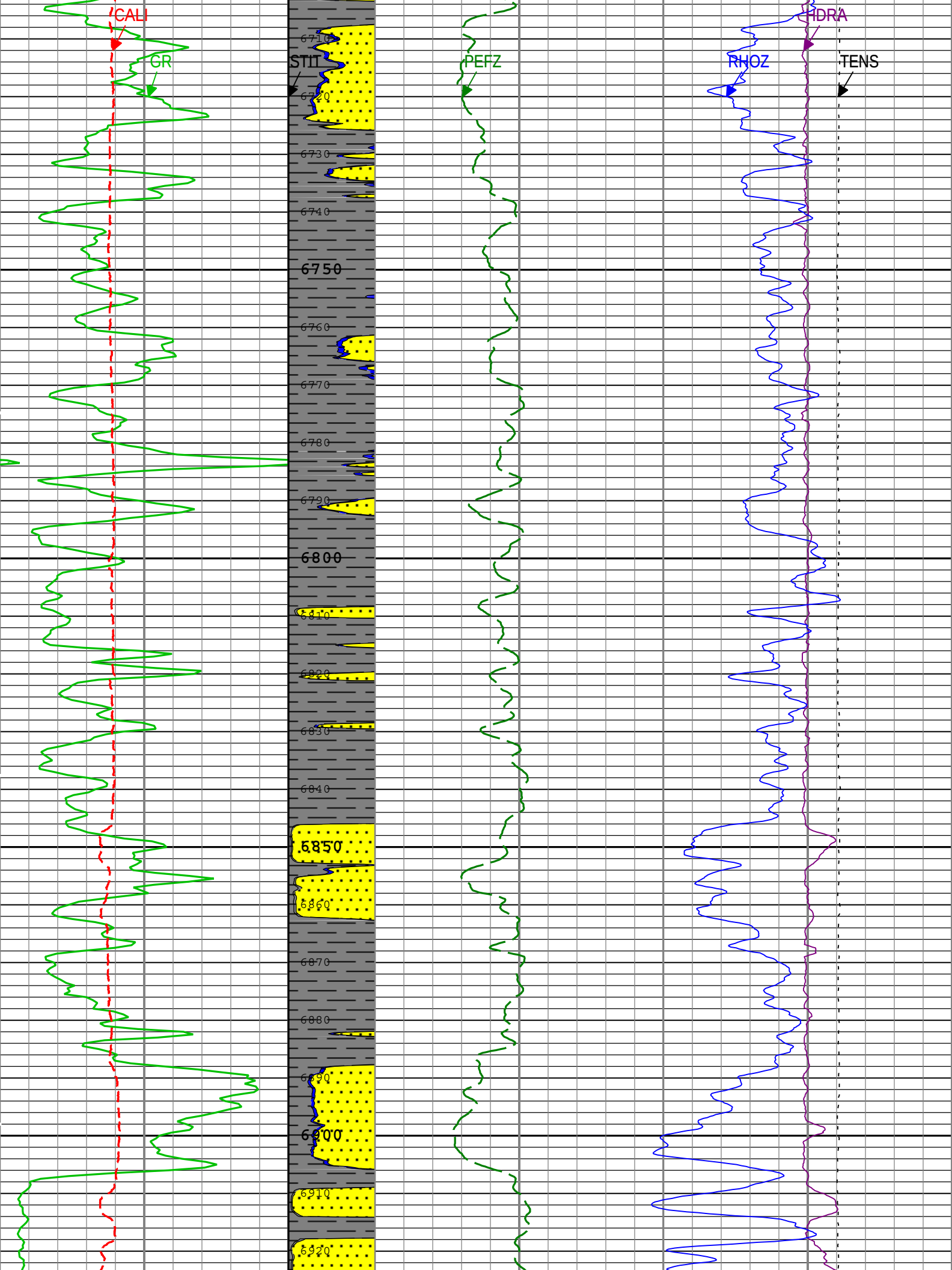

5610
5620
5630
5640
5650
5660
5670
5680
5690
5700
5710
5720
SMNO
SMIN
5740
5750
STIT
5760
5770
5780
5790
5800
5810
5820
CALI
CR
PEFZ
RHOZ
TENS
HDRA

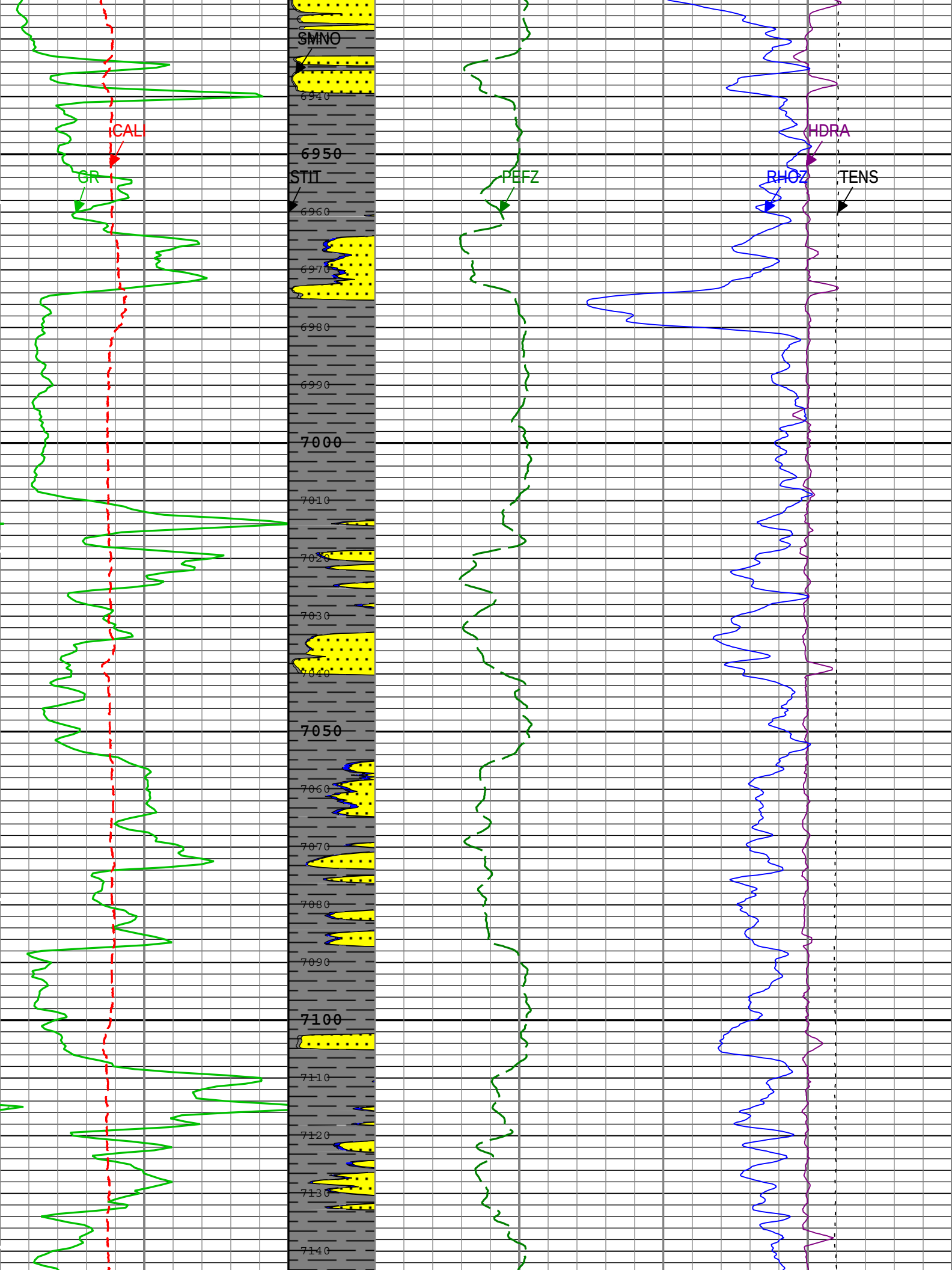

5830
5840
5850
5860
5870
5880
5890
5900
5910
5920
5930
5940
5950
5960
5970
5980
5990
6000
6010
6020
6030
6040
SMNO
CALI
GR
STIT
PEFZ
RHOZ
HDRA
TENS

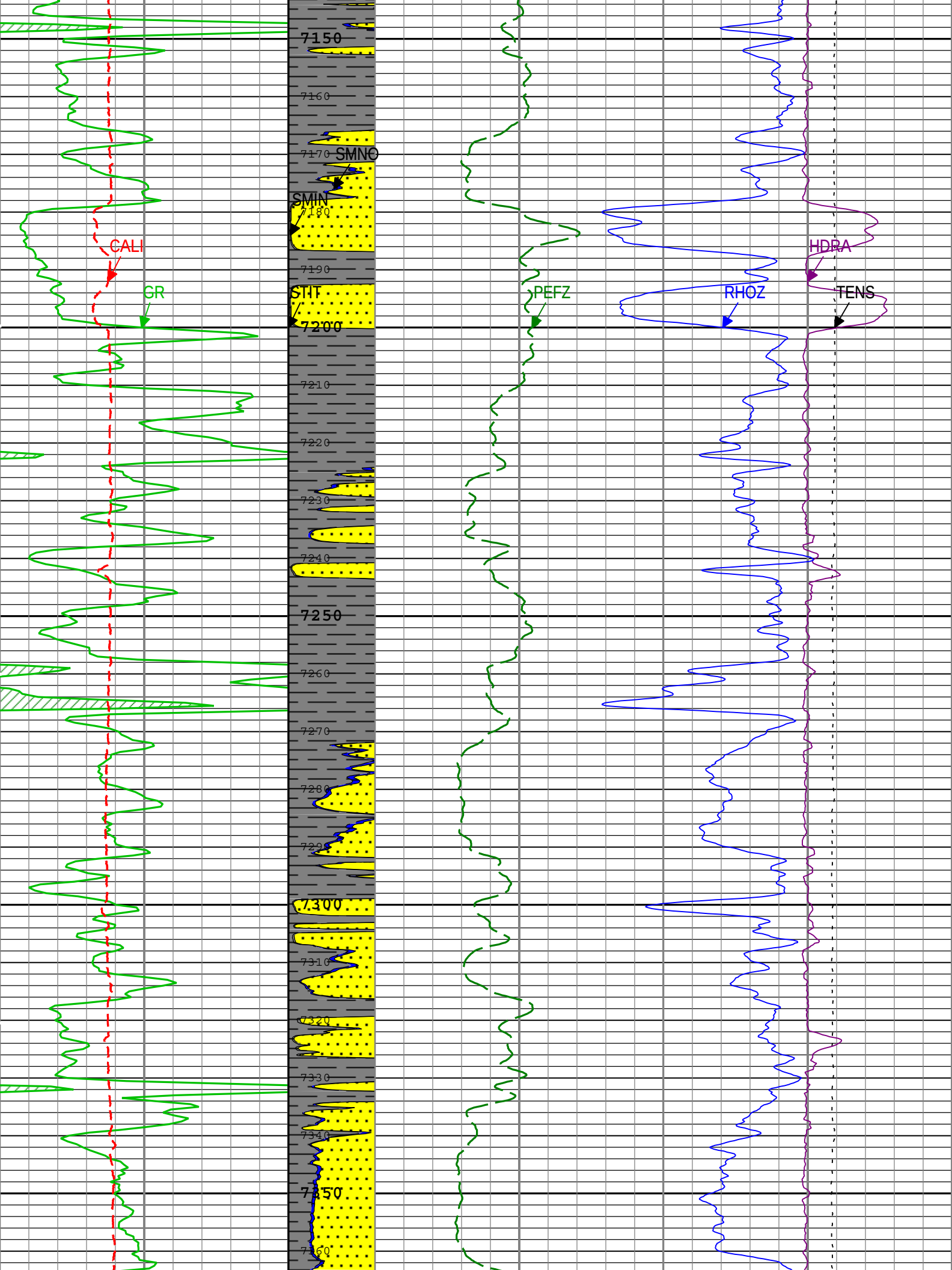

6050
6060
6070
6080
6090
6100
6110
6120
6130
6140
6150
6160
6170
6180
6190
6200
6220
6230
6240
6250
6260
CALI
GR
SMNO
SMN
STIT
PEFZ
HDRA
TENS
BOZ

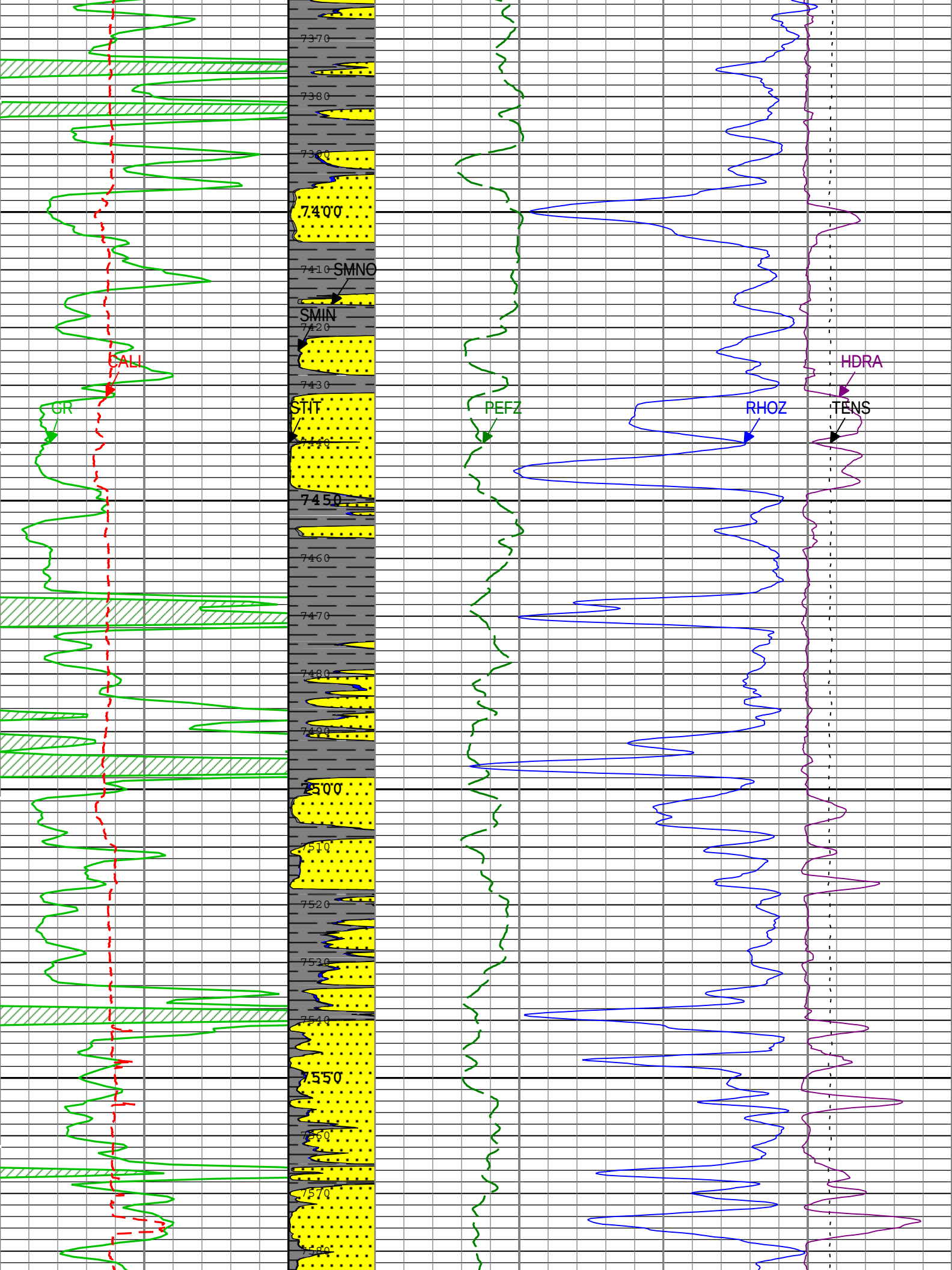

6270
6280
6290
6300
6310
6320
6330
6340
6350
6360
6370
6380
6390
6400
6410
6420
6430
6440
6450
6460
6470
6480
SMIN
CALI
GR
STIT
PEFZ
HDRA
TENS
RHOZ

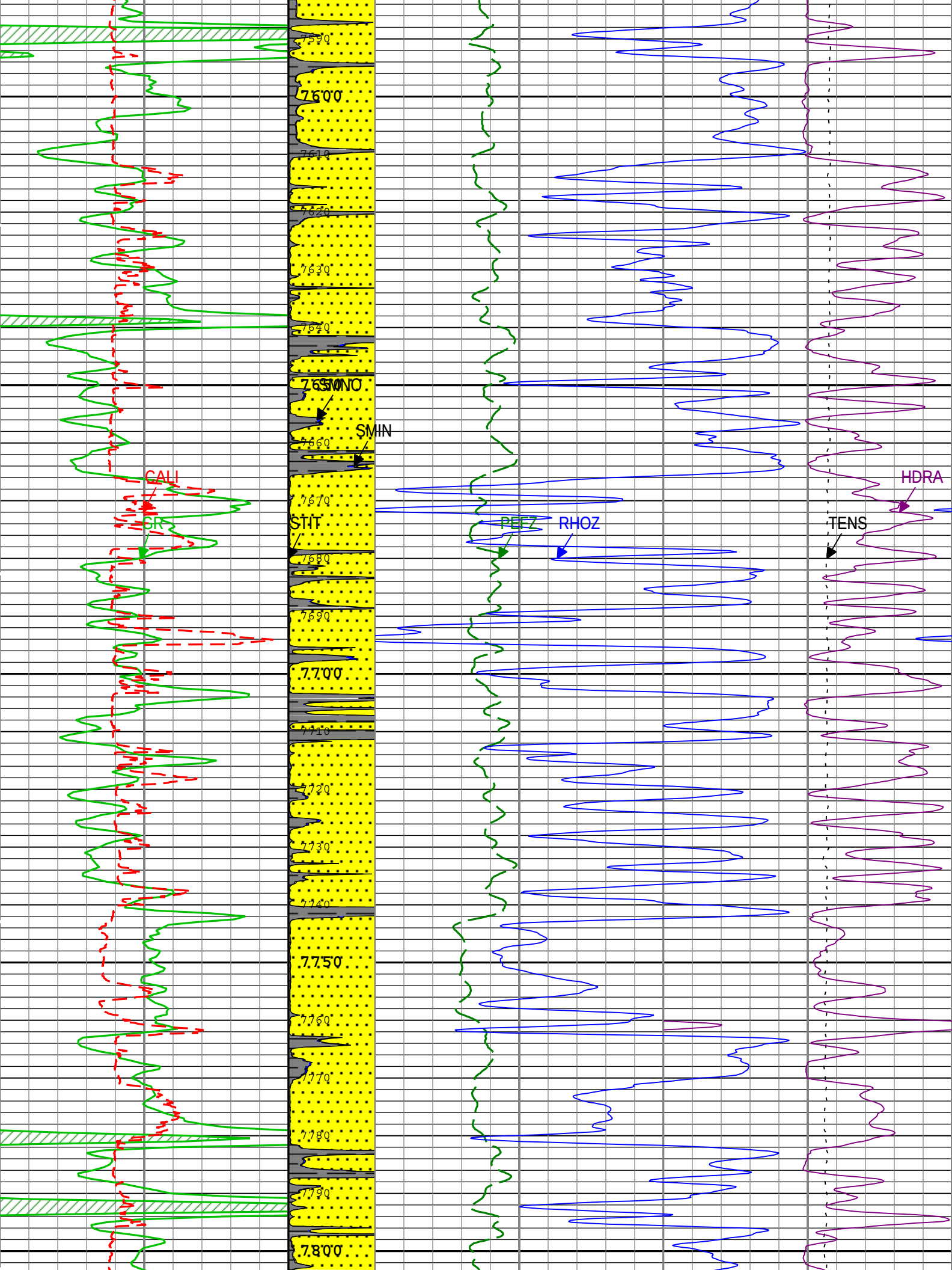

6490
6500
6510
6520
6530
6540
6550
6560
6570
6580
6590
6600
6610
6620
6630
6640
6650
6660
6670
6680
6690
SMNO
6700

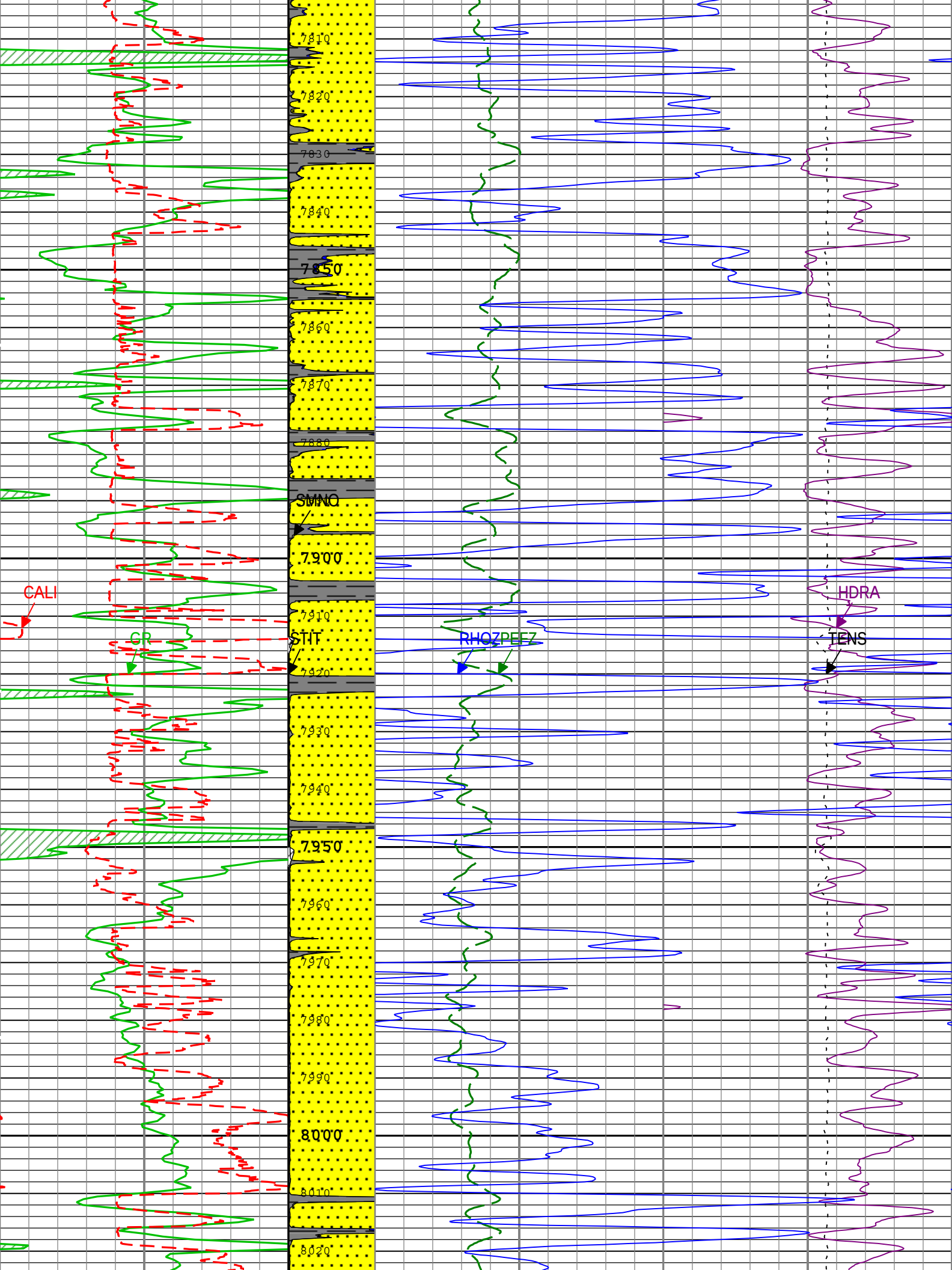

CALI
GR
STII
PEFZ
RHOZ
HDRA
TENS
6710
6720
6730
6740
6750
6760
6770
6780
6790
6800
6810
6820
6830
6840
6850
6860
6870
6880
6890
6900
6910
6920

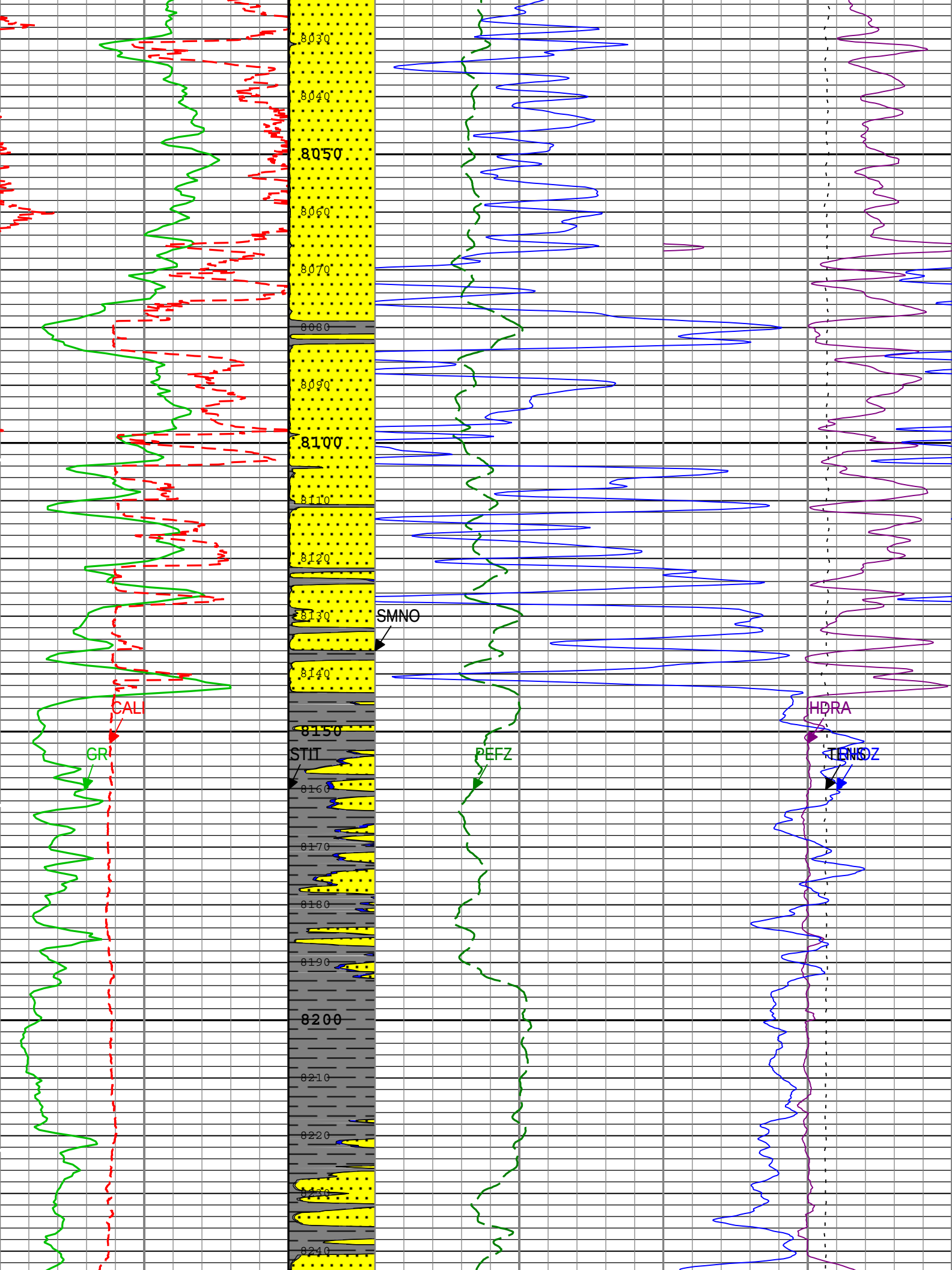

SMNO
6940
ICALI
6950
GR
STIT
PEFZ
HDRA
RHOZ
TENS
6960
6970
6980
6990
7000
7010
7020
7030
7040
7050
7060
7070
7080
7090
7100
7110
7120
7130
7140

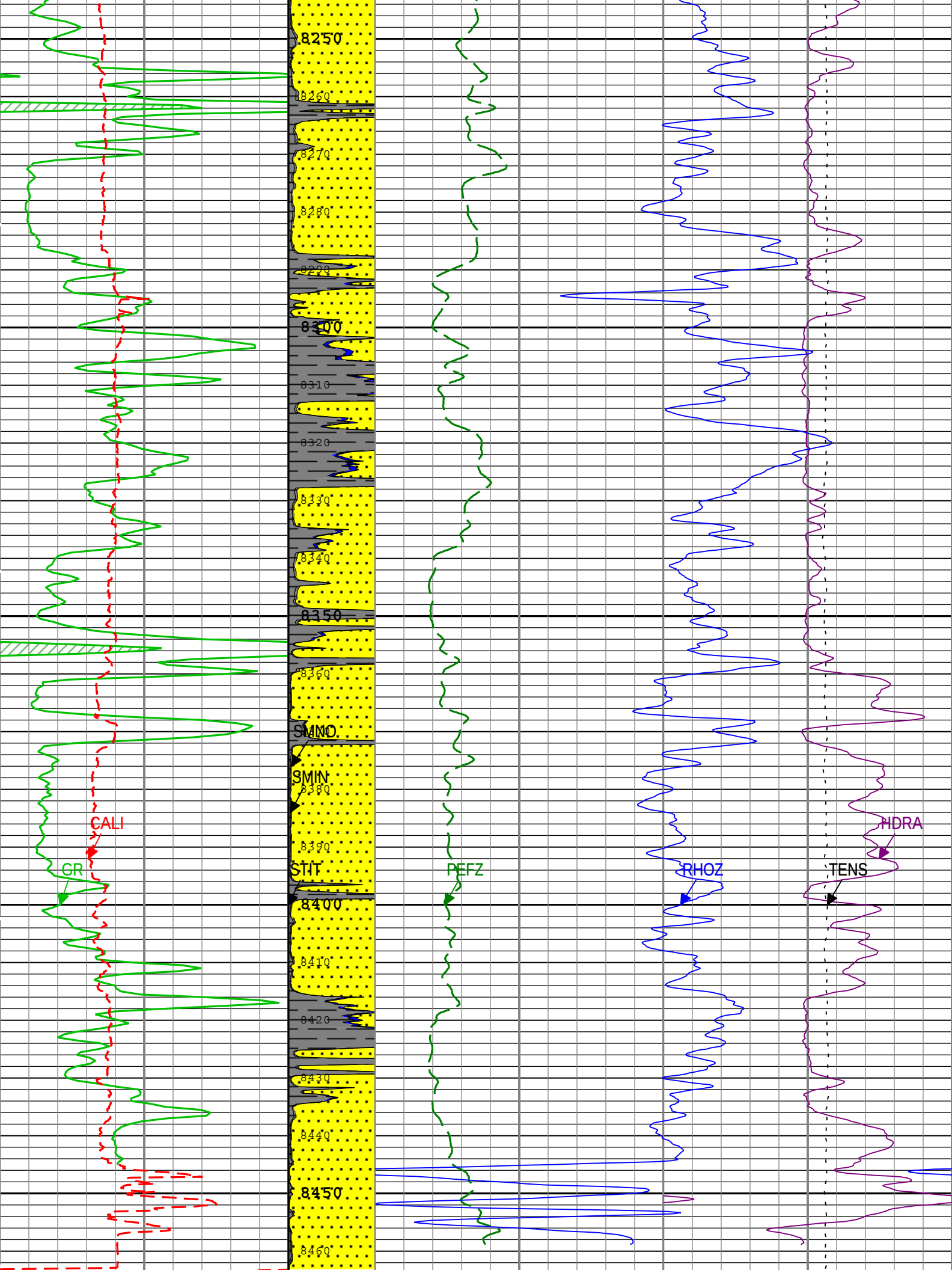

7150
7160
7170
SMNO
SMIN
7180
7190
STIT
7200
7210
7220
7230
7240
7250
7260
7270
7280
7290
7300
7310
7320
7330
7340
7350
7360
CALI
GR
PEFZ
RHOZ
HDRA
TENS

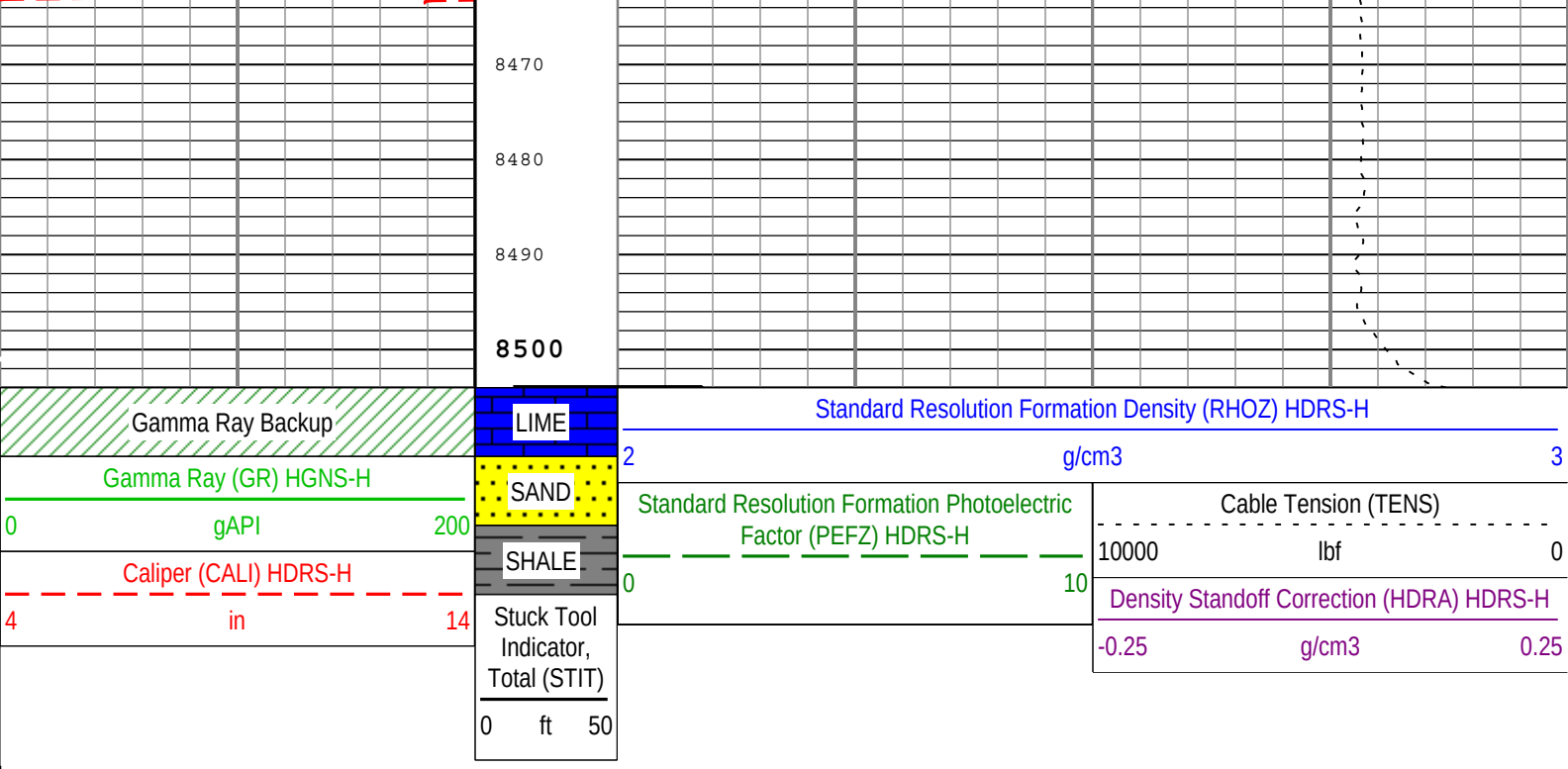

7370
7380
7390
7400
7410
7420
7430
7440
7450
7460
7470
7480
7490
7500
7510
7520
7530
7540
7550
7560
7570
7580
SMNO
SMIN
STIT
CALI
GR
PEFZ
RHOZ
HDRA
TENS


7590
7600
7610
7620
7630
7640
7650
SMNO
SMIN
7660
CALI
7670
CR
STIT
PEFZ
RHOZ
HDRA
TENS
7680
7690
7700
7710
7720
7730
7740
7750
7760
7770
7780
7790
7800


7810
7820
7830
7840
7850
7860
7870
7880
SWNQ
7900
CALI
7910
GR
STIT
7920
RHOZ
PEFZ
HDRA
TENS
7930
7940
7950
7960
7970
7980
7990
8000
8010
8020


8030
8040
8050
8060
8070
8080
8090
8100
8110
8120
8130
8140
8150
8160
8170
8180
8190
8200
8210
8220
8240
SMNO
CALI
GR
STIT
PEFZ
HDRA
TNNS


8250
8260
8270
8280
8290
8300
8310
8320
8330
8340
8350
8360
SMNO
SMIN
8380
8390
STIT
8400
8410
8420
8430
8440
8450
8460
CALI
GR
PEFZ
RHOZ
HDRA
TENS



Description: HGNS standard resolution porosities for Platform Express Format: Log (EMD 5in Density) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 06-Nov-2012 06:21:21

Channel Processing Parameters

Parameter	Description	Tool	Value	Unit
BARI	Barite Mud Presence Flag	Borehole	No	
BHS	Borehole Status (Open or Cased Hole)	Borehole	Open	
BS	Bit Size	WLSESSION	Depth Zoned	in
CALI_SHIFT	CALI Supplementary Offset	HDRS-H	0	in
CBLO	Casing Bottom (Logger)	WLSESSION	410	ft
CDEN	Cement Density	HGNS-H	2	g/cm3
DC_MODE	Depth Correction Mode	DepthCorrection	Real-time	
DFD	Drilling Fluid Density	Borehole	9.2	lbm/gal
DFT	Drilling Fluid Type	Borehole	Water	
DHC	Density Hole Correction	HDRS-H	Bit Size	
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	
SOCO	Standoff Correction Option	HGNS-H	Yes	
TD	Total Measured Depth	Borehole	8507	ft

Depth Zone Parameters

Parameter	Value	Start (ft)	Stop (ft)
BS	0	400	410
BS	7.875	410	8504

All depth are actual.

Tool Control Parameters

Parameter	Description	Tool	Value	Unit
HRGD_BRD_TYPE	HRGD Board Type	HDRS-H	WITH_HET	
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	3600	ft/h

Calibration Report

HDRS-H (HILT Density and Rxo Sonde, 150 degC) Calibration - Run Run1

Primary Equipment :

HILT High-Resolution Control Cartridge, 150 degC	HRCC-H	
HILT Resistivity Gamma-Ray Density Device, 150 degC	HRGD-H	3816

Auxiliary Equipment :

HRDD Backscatter Detector	Backscatter	
HRDD Long Spacing Detector	Long Spacing	28732
HRDD Short Spacing Detector	Short Spacing	27634
Cesium 137 Gamma-Ray Logging Source	GSR-J	5240
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): 16:23:18 01-Nov-2012 Expired by 3 days

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit
Small Ring	in	Before	8.00	6.00	8.74	10.00
Large Ring	in	Before	12.00	9.00	13.10	15.00

HDRS Density Calibration - Inversion Results

Master (EEPROM): 12:02:16 27-Oct-2012

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit
Rho Aluminum	g/cm3	Master	2.596	2.586	2.599	2.606
Rho Magnesium	g/cm3	Master	1.686	1.676	1.685	1.696
Pe Aluminum		Master	2.570	2.470	2.534	2.670
Pe Magnesium		Master	2.650	2.550	2.642	2.750

HDRS Density Calibration - Deviation Summary

Master (EEPROM): 12:02:16 27-Oct-2012

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit
BS Average Deviation	%	Master	0	-0.6000	0.5313	0.6000
BS Max Deviation	%	Master	0	-1.6000	1.0019	1.6000
SS Average Deviation	%	Master	0	-1.0000	0.3341	1.0000
SS Max Deviation	%	Master	0	-2.5000	1.1387	2.5000
LS Average Deviation	%	Master	0	-1.5000	0.7415	1.5000
LS Max Deviation	%	Master	0	-3.5000	2.3181	3.5000

HDRS Density Calibration - Background Summary

Master (EEPROM): 12:02:16 27-Oct-2012 Before (Measured): 16:24:27 01-Nov-2012 Expired by 3 days

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit
BS Window Ratio		Master	1.0000		0.7507	
		Before	0.7507	0.7131	0.7495	0.7882
		Before-Master	-----	-----	-0.0012	-----
BS Window Sum	1/s	Master	1		26052	
		Before	26052	24749	26225	27355
		Before-Master	-----	-----	173	-----
SS Window Ratio		Master	1.0000		0.4792	
		Before	0.4792	0.4552	0.4825	0.5031
		Before-Master	-----	-----	0.0033	-----
SS Window Sum	1/s	Master	1		10312	
		Before	10312	9797	10298	10828
		Before-Master	-----	-----	-14	-----
LS Window Ratio		Master	1.0000		0.3034	
		Before	0.3034	0.2882	0.3033	0.3186
		Before-Master	-----	-----	-0.0001	-----
LS Window Sum	1/s	Master	1		1214	
		Before	1214	1153	1201	1275
		Before-Master	-----	-----	-13	-----

HDRS Density Calibration - Photo-multiplier High Voltages

Master (EEPROM): 12:02:16 27-Oct-2012 Before (Measured): 16:24:27 01-Nov-2012 Expired by 3 days

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit

BS PM High Voltage	V	Master		1000	1580	2400
		Before		1000	1584	2400
		Before-Master	-----	-100	4	100
SS PM High Voltage	V	Master		1000	1401	2400
		Before		1000	1407	2400
		Before-Master	-----	-100	6	100
LS PM High Voltage	V	Master		1000	1216	2400
		Before		1000	1225	2400
		Before-Master	-----	-100	9	100

HDRS Density Calibration - Crystal Quality Resolutions

Master (EEPROM): 12:02:16 27-Oct-2012 Before (Measured): 16:24:27 01-Nov-2012 Expired by 3 days

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit
BS Crystal Resolution	%	Master		5.00	11.79	25.00
		Before		5.00	11.88	25.00
		Before-Master	-----	-1.00	0.09	1.00
SS Crystal Resolution	%	Master		5.00	9.89	20.00
		Before		5.00	10.02	20.00
		Before-Master	-----	-1.00	0.13	1.00
LS Crystal Resolution	%	Master		5.00	8.16	20.00
		Before		5.00	8.23	20.00
		Before-Master	-----	-1.00	0.07	1.00

HDRS MCFL Calibration - MCFL Accumulations

Before (Measured): 16:25:07 01-Nov-2012 Expired by 3 days

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit
Main Resistivity	ohm.m	Before	3875	3565	3877	4185
Deep Resistivity	ohm.m	Before	3830	3524	3826	4136
Shallow Resistivity	ohm.m	Before	3830	3524	3829	4136

Company: Nighthawk Production LLC

Schlumberger

Well: Whistler 6-22

Field: Wildcat

County: Lincoln

State: Colorado

Platform Express

Compensated Neutron Log

LithoDensity