

Company: Expedition Water Solution LLC

Well: EWS 1

Field: Wildcat

County: Weld State: Colorado

Platform Express			
Compensated Neutron Log			
LithoDensity			
Location:		Elev.:	
NWNW Sec. 26, T8N, R60W		K.B. 4926.50 ft	
SHL: 325' FNL X 372' FWL		G.L. 4913.00 ft	
D.F. 4925.50 ft			
Permanent Datum:	Ground Level	Elev.:	4913.00 f
Log Measured From:	Kelly Bushing	13.50 ft	above Perm.Datum
Drilling Measured From:	Kelly Bushing		
API Serial No.	Section:	Township:	Range:
05-123-39770-0000	26	8N	60W
Logging Date	25-Aug-2014		
Run Number	Run1: PEX-AIT		
Depth Driller	9900.00 ft		
Schlumberger Depth	9894.00 ft		
Bottom Log Interval	9894.00 ft		
Top Log Interval	7600.00 ft		
Casing Driller Size @ Depth	7 in @ 8078.00 ft		
Casing Schlumberger	8084 ft		
Bit Size	6:125 in		
Type Fluid In Hole	Polymer		
Density	Viscosity	40 s	
Fluid Loss	PH		
MUD			
Source of Sample			
RM @ Meas Temp	Active Tank		
RMF @ Meas Temp	0.8 ohm.m	@ 100 degF	
RMC @ Meas Temp	0.64 ohm.m	@ 100 degF	
Source RMF	0.96 ohm.m	@ 100 degF	
RM @ BHT	RMC	Pressed	
RM @ BHT	RMF @ BHT	0.31 @ 265	0.25 @ 265
Max Recorded Temperatures			
Circulation Stopped			
Time			
Time			
Logger on Bottom			
Unit Number	Location:	3022	Ft. Morgan, CO
Recorded By	Tim Hoffman		
Witnessed By	Erasmo Parras		

Disclaimer

THE USE OF AND RELIANCE UPON THIS RECORDED-DATA BY THE HEREIN NAMED COMPANY (AND ANY OF ITS AFFILIATES, PARTNERS, REPRESENTATIVES, AGENTS, CONSULTANTS AND EMPLOYEES) IS SUBJECT TO THE TERMS AND CONDITIONS AGREED UPON BETWEEN SCHLUMBERGER AND THE COMPANY, INCLUDING: (a) RESTRICTIONS ON USE OF THE RECORDED-DATA; (b) DISCLAIMERS AND WAIVERS OF WARRANTIES AND REPRESENTATIONS REGARDING COMPANY'S USE AND RELIANCE UPON THE RECORDED-DATA; AND (c) CUSTOMER'S FULL AND SOLE RESPONSIBILITY FOR ANY INFERENCE DRAWN OR DECISION MADE IN CONNECTION WITH THE USE OF THIS RECORDED-DATA.

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11.1 Integration Summary

11.2 Software Version

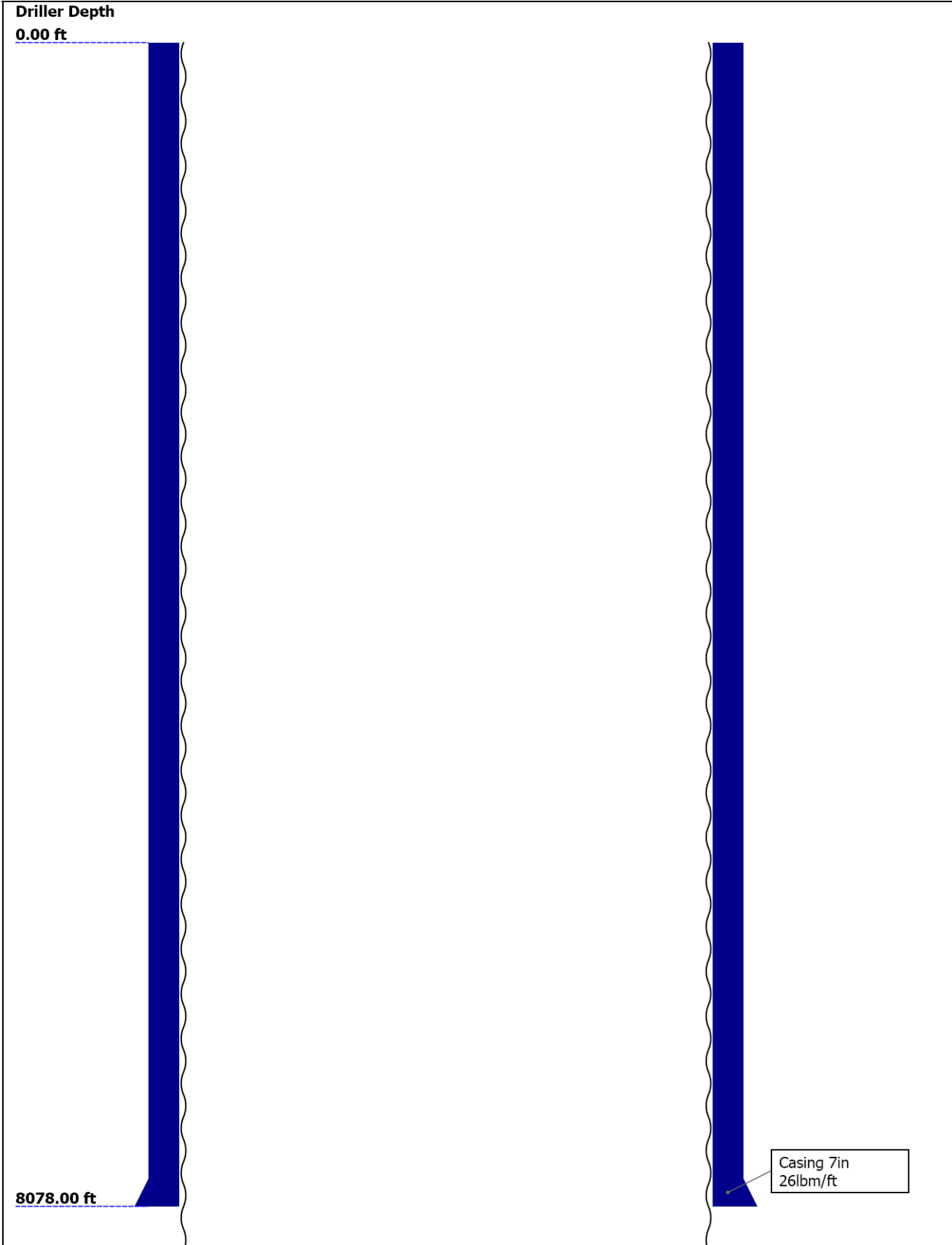
11.3 Composite Summary

11.4 Log ( KM 5in Density )

11.5 Parameter Listing

12. Tail

Well Sketch





Borehole Size/Casing/Tubing Record


Bit						
Bit Size ( in )	6.125					
Top Driller ( ft )	0					
Top Logger ( ft )	0					
Bottom Driller ( ft )	9900					
Bottom Logger ( ft )	9894					
Casing						
Size ( in )	7					
Weight ( lbm/ft )	26					
Inner Diameter ( in )	6.276					
Grade	N/A					
Top Driller ( ft )	0					
Top Logger ( ft )	0					
Bottom Driller ( ft )	8078					
Bottom Logger ( ft )	8084					

Operational Run Summary

Parameter ( unit )	Run1: PEX-AIT					
Date Log Started	25-Aug-2014					
Time Log Started	18:26:08					
Date Log Finished	25-Aug-2014					
Time Log Finished	20:05:00					
Top Log Interval ( ft )						
Bottom Log Interval ( ft )						
Total Depth ( ft )	9894.00					
Max Hole Deviation ( deg )						
Azimuth of Max Deviation ( deg )						
Bit Size ( in )	6.125					
Logging Unit Number	3022					
Logging Unit Location	Ft. Morgan, CO					
Recorded By	Tim Hoffman					
Witnessed By	Erasmo Parras					

Service Order Number	CXQ3-00097				
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Remarks and Equipment Summary

Run1: PEX-AIT: Toolstring				Run1: PEX-AIT: Remarks	
<div> <div> <div>Equip name</div> <div>LEH-QT</div> <div>LEH-QT</div> </div> <div> <div>Length</div> <div>43.57</div> </div> </div>		<div> <div>MP name</div> <div></div> </div>	<div> <div>Offset</div> <div></div> </div>	This is the first run in hole	
				Toolstring run as per tool sketch	
				Matrix changes are noted in the parameters section	
<div> <div>DTC-H</div> <div>ECH-KC:9469</div> <div>DTC-H</div> </div>	<div> <div>40.65</div> </div>	<div> <div>CTEM</div> <div>HV</div> </div>	<div> <div>39.75</div> <div>0.00</div> </div>	Crew: Jay Musgrave, Ian Derry	
<div> <div>HGNS-H:3985</div> <div>HGNH:3785</div> <div>NPV-N</div> <div>NSR-F:5068</div> <div>HMCA-H</div> <div>HACCZ-H:4269</div> <div>HGNS-H:3985</div> </div>	<div> <div>37.65</div> </div>	<div> <div>ToolStatus</div> <div>TelStatus</div> <div>Temperature</div> </div>	<div> <div>37.65</div> <div>37.65</div> <div>37.62</div> </div>		
<div> <div>HDRS-H:4826</div> <div>ECH-MEB:4711</div> <div>HRCC-H:5705</div> <div>HRMS-H:4826</div> <div>Short Spacing</div> <div>GPV-Q</div> <div>Backscatter</div> <div>Long Spacing:28910</div> <div>GSR-J:5240</div> <div>HRGD-H:4791</div> </div>	<div> <div>28.24</div> </div>	<div> <div>CNL Porosity</div> <div>HGNS</div> <div>HMCA</div> <div>Accelerometer</div> </div>	<div> <div>30.57</div> <div>28.24</div> <div>28.24</div> <div>0.00</div> </div>		
<div> <div>AIT-M:208</div> <div>AMIS:208</div> <div>AMRM</div> </div>	<div> <div>16.00</div> </div>	<div> <div>HRCC</div> </div>	<div> <div>24.24</div> </div>		
		<div> <div>MCFL</div> <div>Caliper</div> <div>TLD Density</div> </div>	<div> <div>18.81</div> <div>18.33</div> <div>17.94</div> </div>		
		<div> <div>Temperature</div> <div>Induction</div> <div>Power Supply</div> </div>	<div> <div>7.91</div> <div>7.91</div> <div>7.91</div> </div>		

 <p>Lengths are in ft Maximum Outer Diameter = 4.625 in Line: Sensor Location, Value: Gating Offset All measurements are relative to TOOL_ZERO</p>		
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Depth Summary			
		Run1: PEX-AIT	
Depth Measuring Device			
Type	IDW-B		
Serial Number	5896		
Calibration Date	13-Aug-2014		
Calibrator Serial Number			
Calibration Cable Type	7-39P LXS		
Wheel Correction 1	-3		
Wheel Correction 2	-2		
Tension Device			
Type	CMTD-B/A		
Serial Number	1109		
Calibration Date	08-Aug-2014		
Calibrator Serial Number	78135		
Number of Calibration Points	10		
Calibration Root Mean Square Error	8		
Calibration Peak Error	15		
Logging Cable			
Type	7-39P-LXS		
Serial Number			
Length	11800.00 ft		
Conveyance Type	Wireline		
Rig Type			
Run1: PEX-AIT:Depth Control Parameters		Depth Control Remarks	
Log Sequence	First Log In the Well	All Schlumberger depth control policies followed	
Rig Up Length At Surface		IDW used as primary depth reference. Z-chart used as secondary	
Rig Up Length At Bottom			
Rig Up Length Correction			
Stretch Correction			
Tool Zero Check At Surface			
Run1: PEX-AIT			
5" Porosity			

Software Version			
Acquisition System		Version	
MaxWell		4.0.9163.3000	
Application Patch		Patch-SP-10767_13393-4.0.9163.3001	
Computation	Description	Version	
HENVIR	Computation Ensemble for the HGNS Neutron environmental corrections	4.0.9033.3000	
DepthCorrection	DepthCorrection	4.0.9213.3000	
Tool Elements	Description	Software Version	Firmware Version
HRCC-H	HILT High-Resolution Control Cartridge, 150 degC	4.0.9231.3000	2.0
HGNS-H	HILT Gamma-Ray and Neutron Sonde, 150 degC	4.0.9231.3000	2.0

HRGD-H	HILT Resistivity Gamma-Ray Density Device, 150 degC	4.0.9231.3000	3.0
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## Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
Run1: PEX-AIT	Log[3]:Up	Up	7491.74 ft	9914.31 ft	25-Aug-2014 7:27:20 PM	25-Aug-2014 8:04:48 PM	ON	4.30 ft	Yes

All depths are referenced to toolstring zero

## Log

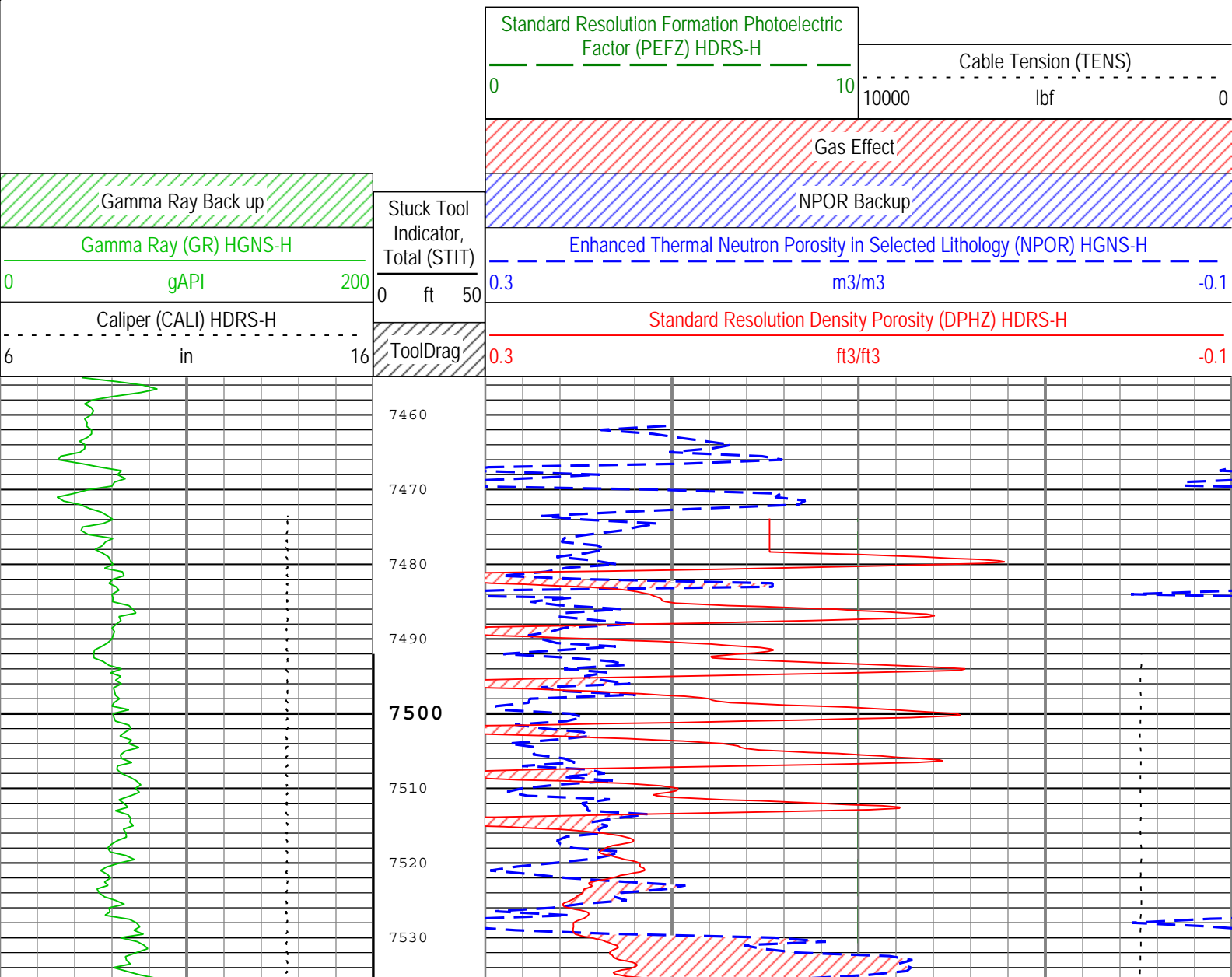
Company:Expedition Water Solution LLC Well:EWS 1

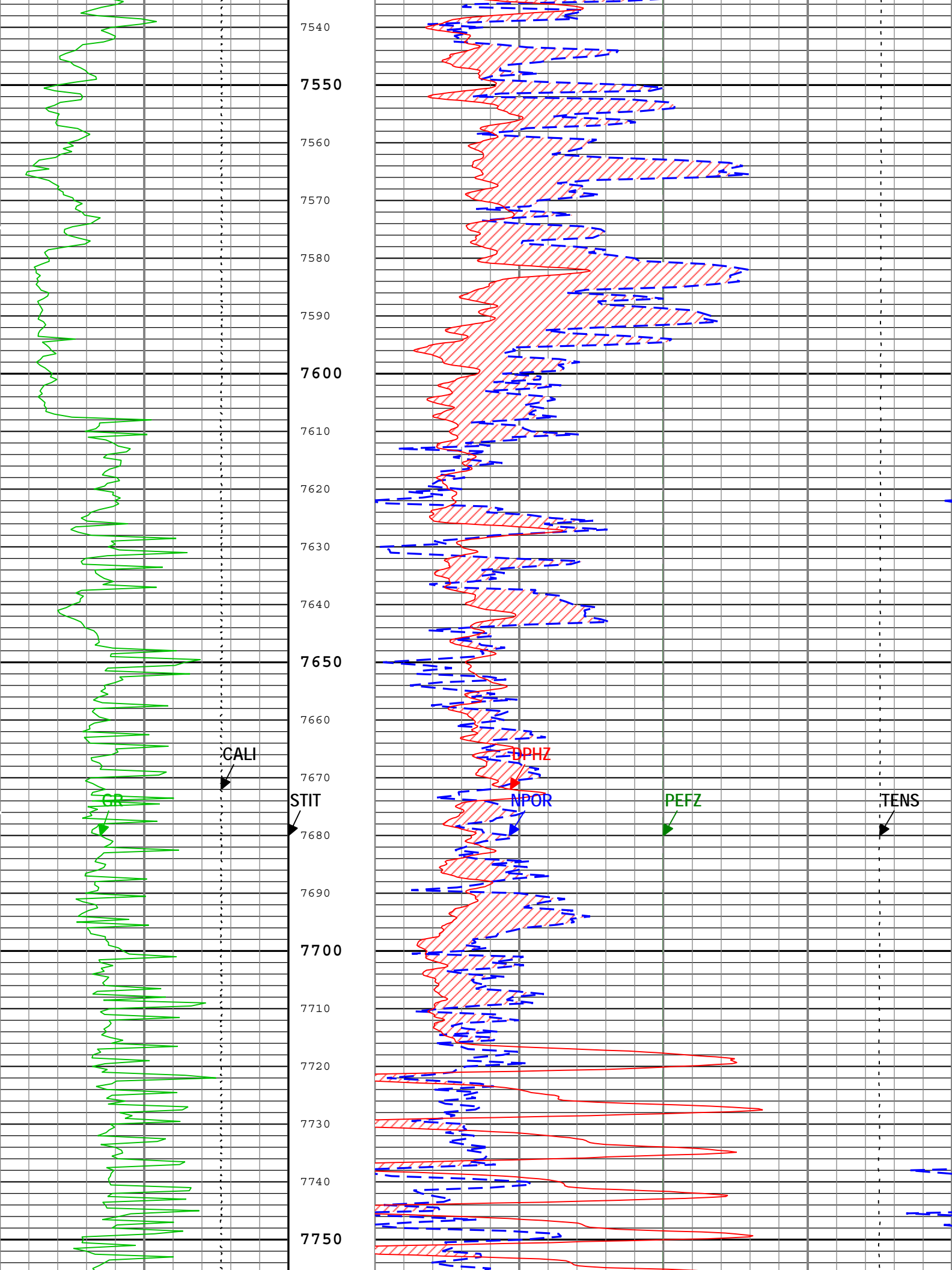
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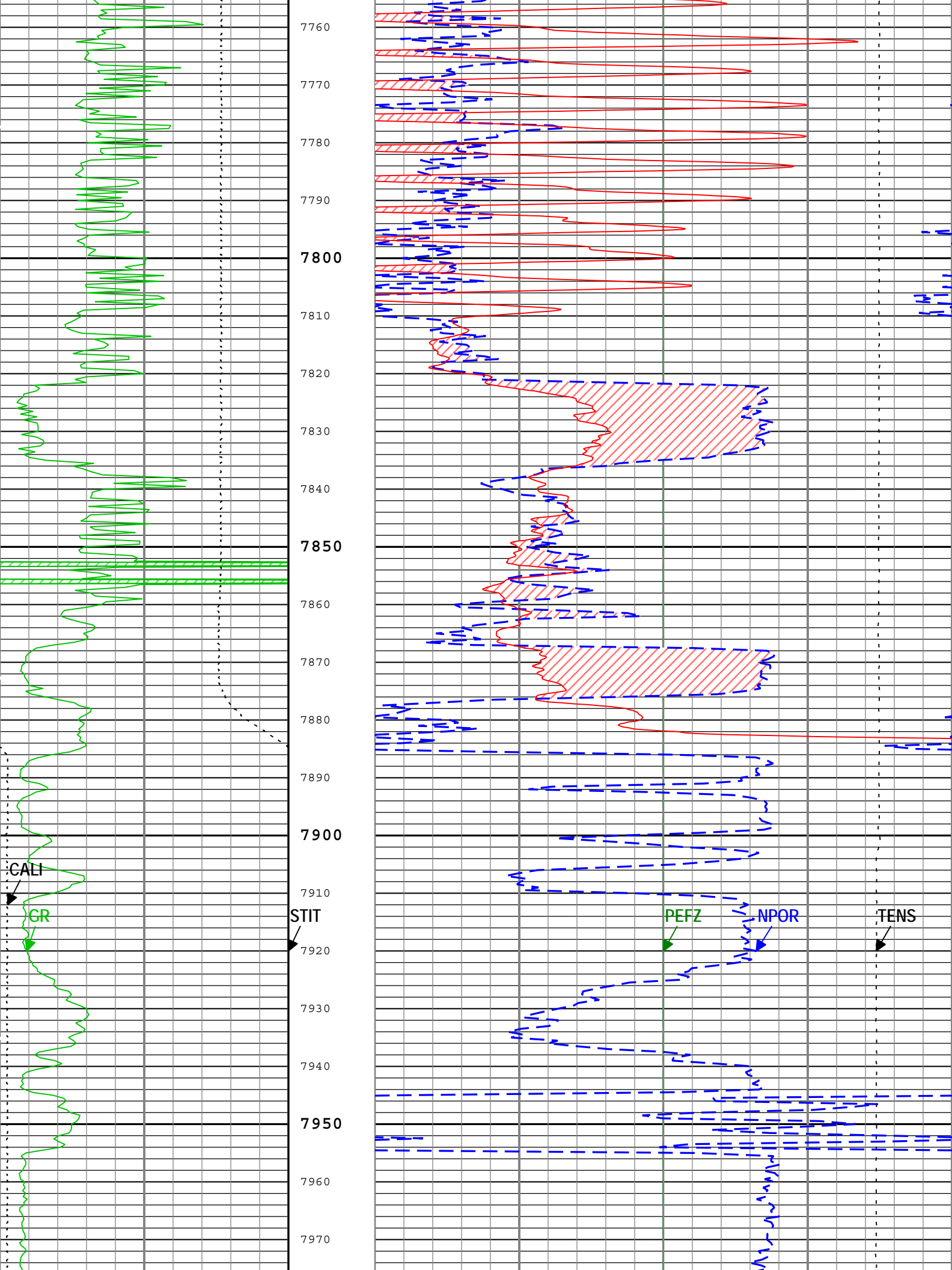
Description: HGNS standard resolution porosities for Platform Express Format: Log ( KM 5in Porosity ) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 25-Aug-2014 20:29:47

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

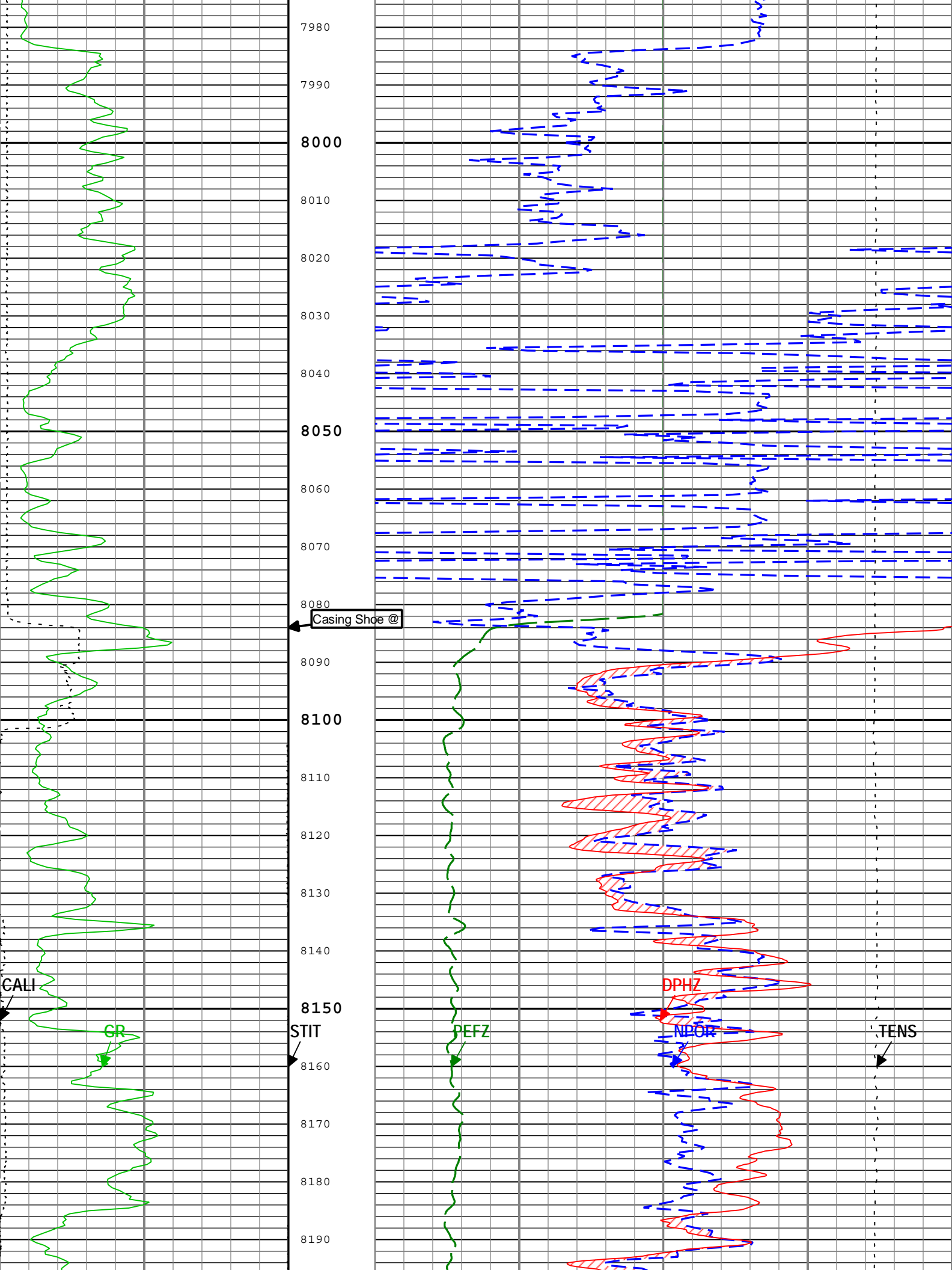
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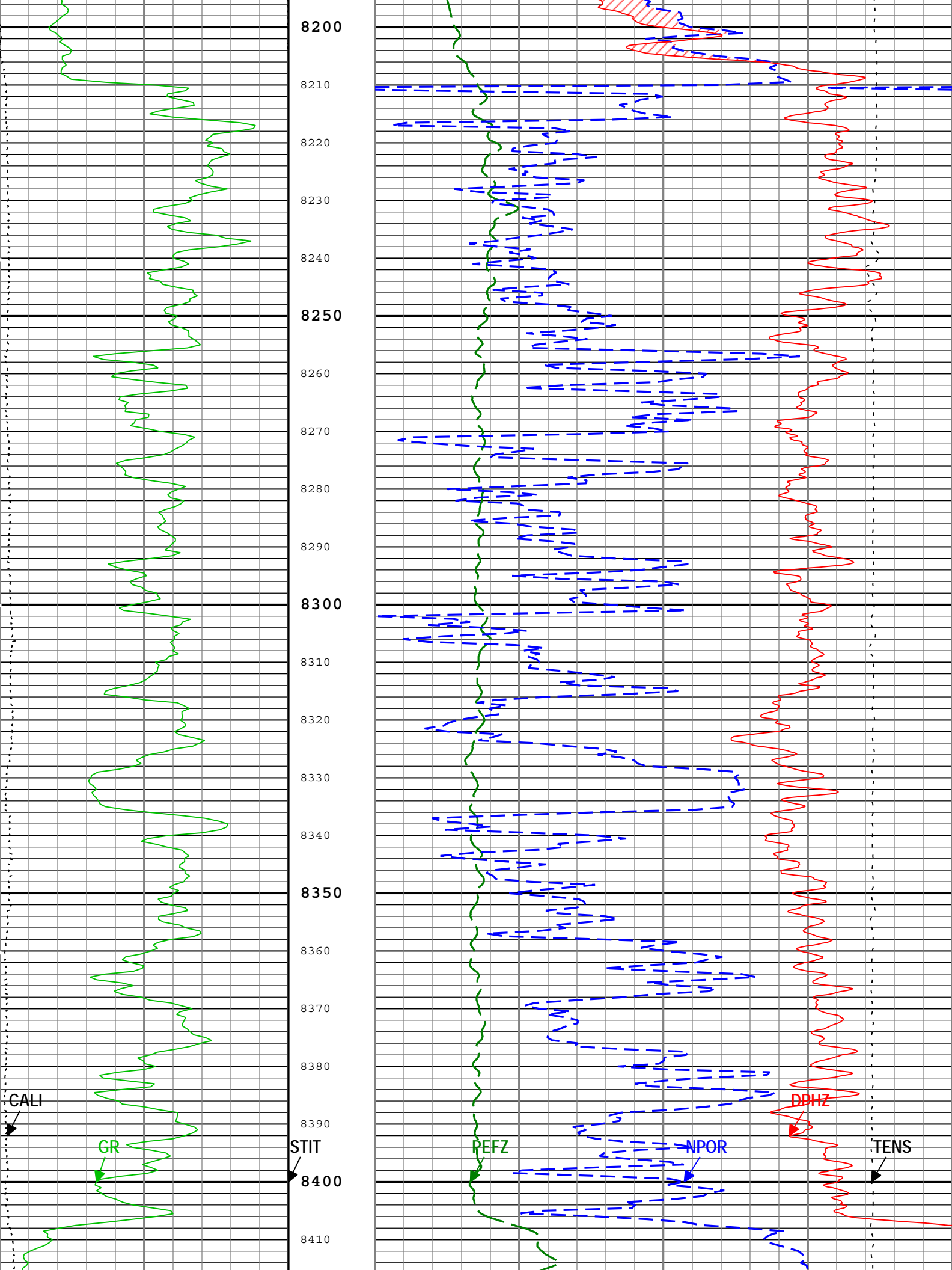


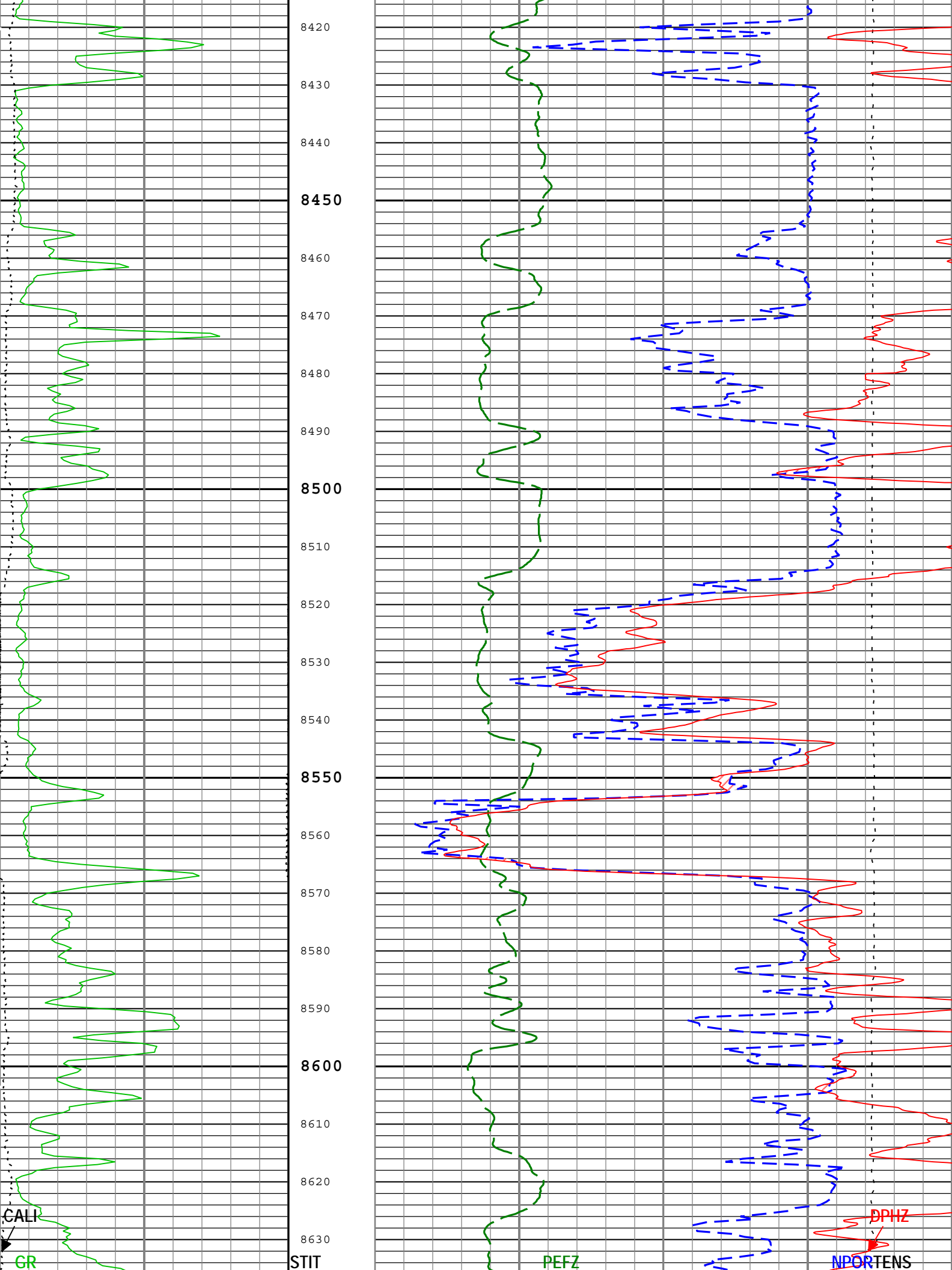


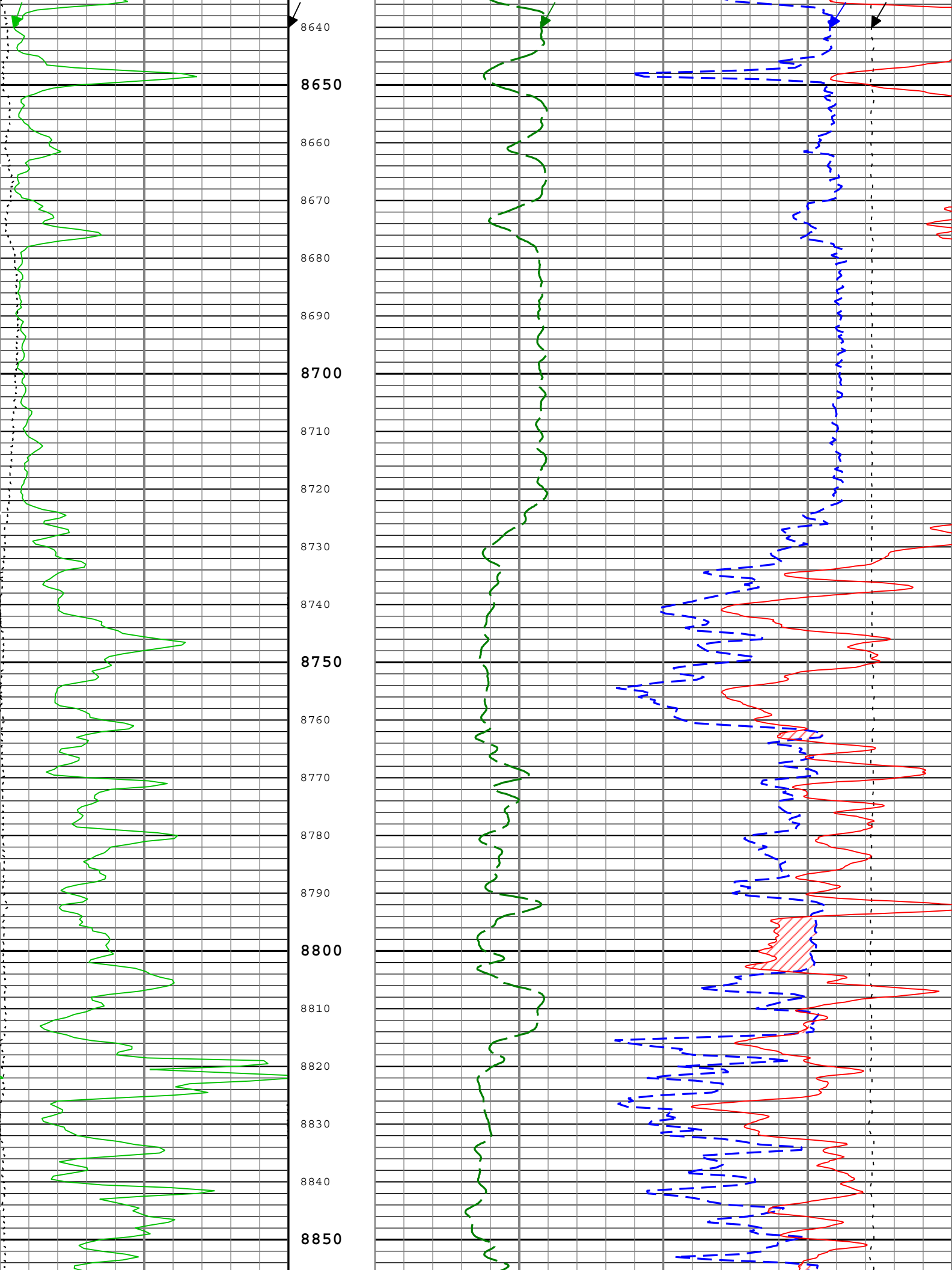


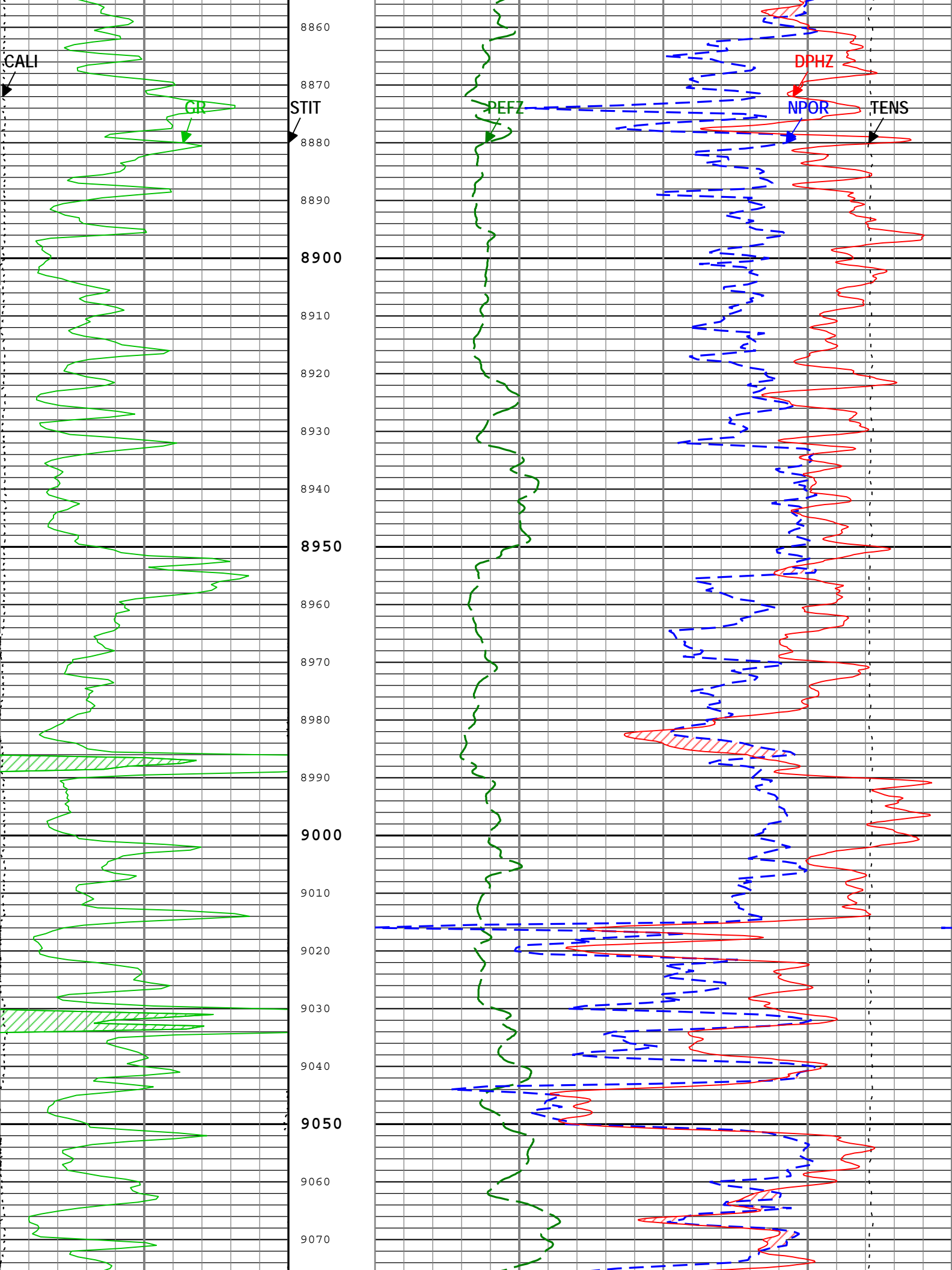


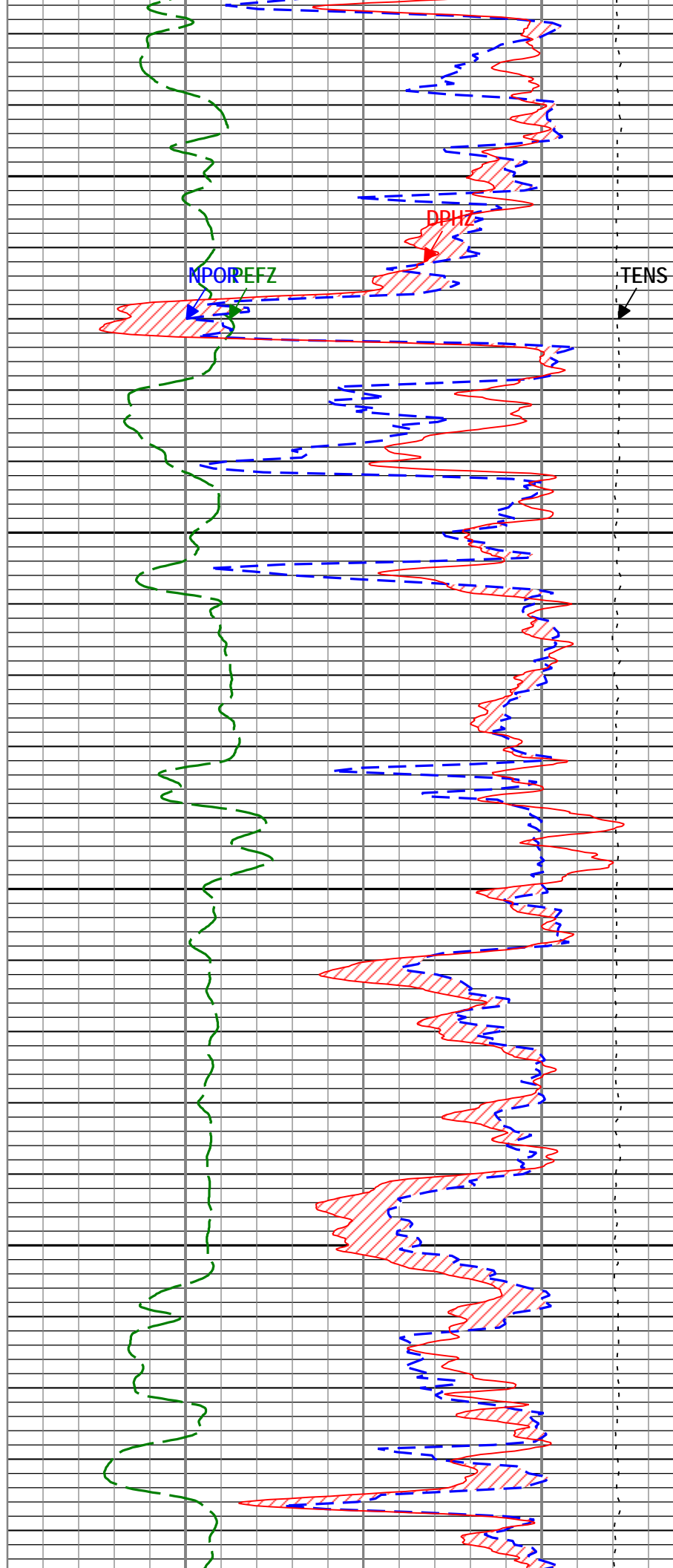
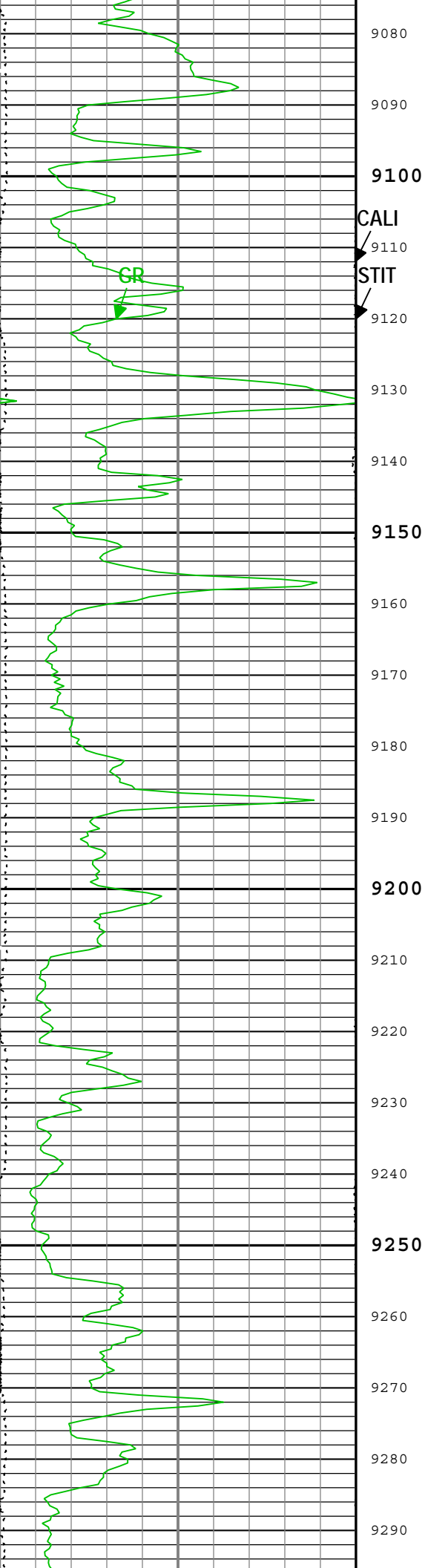


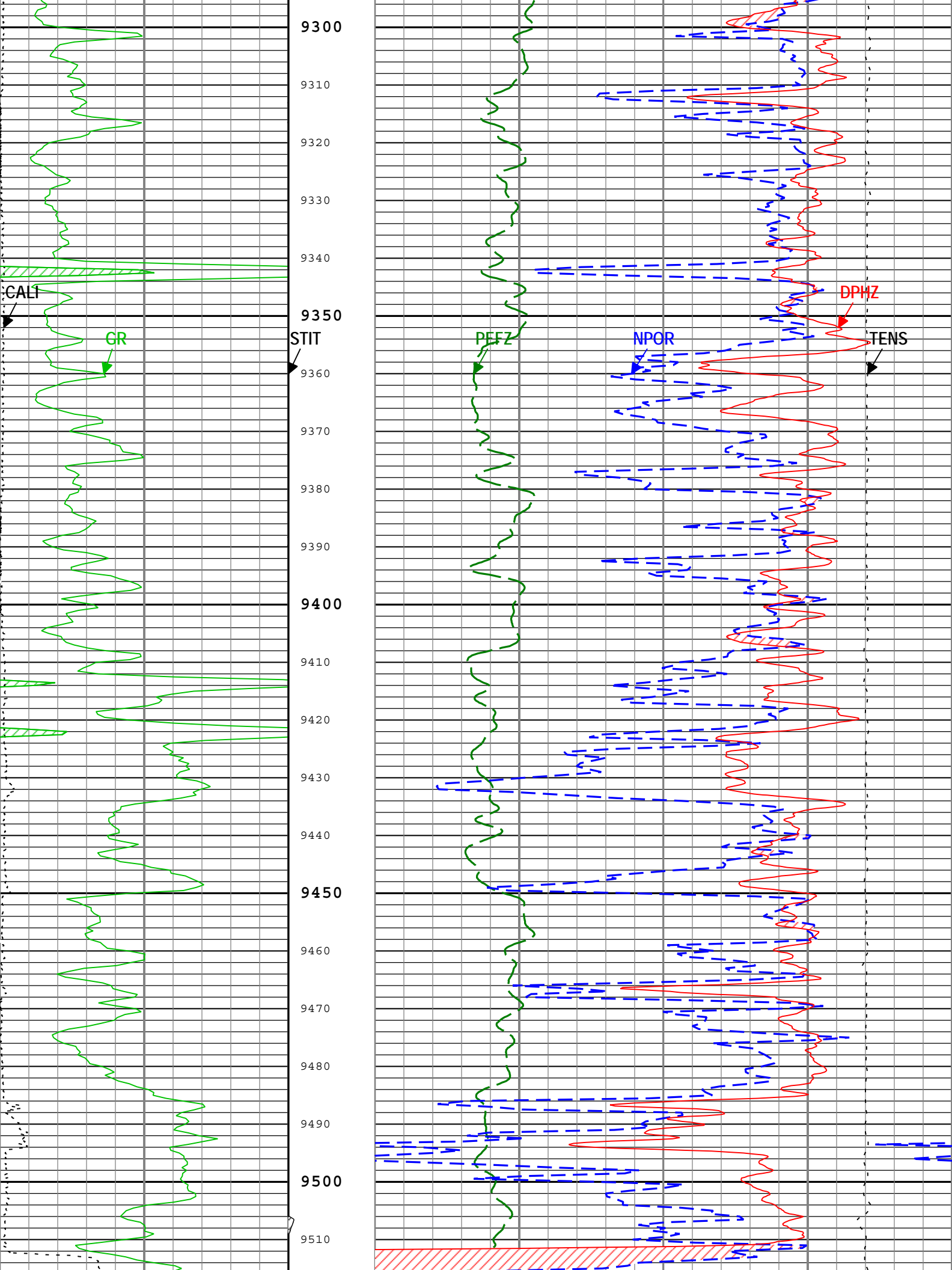


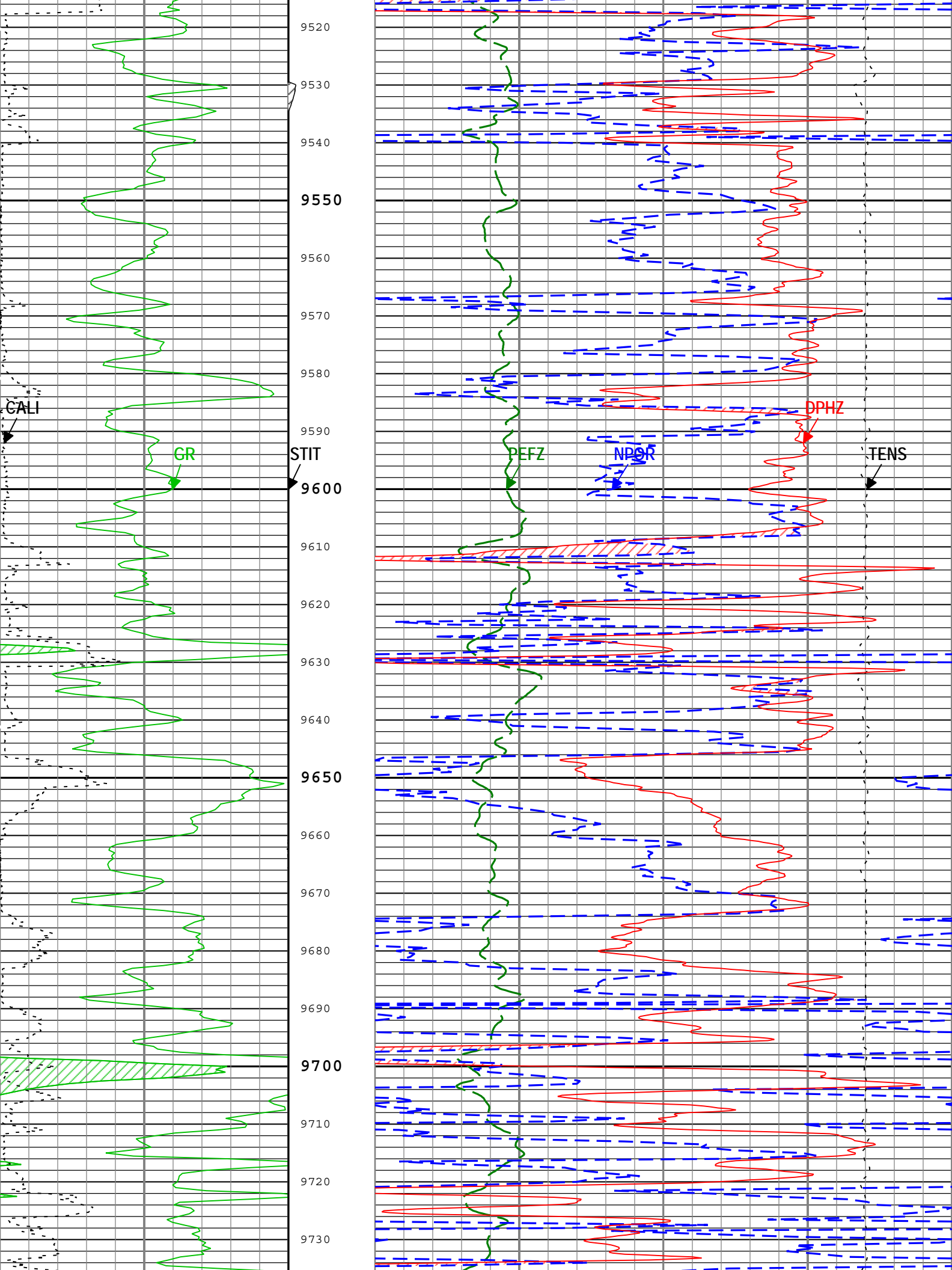




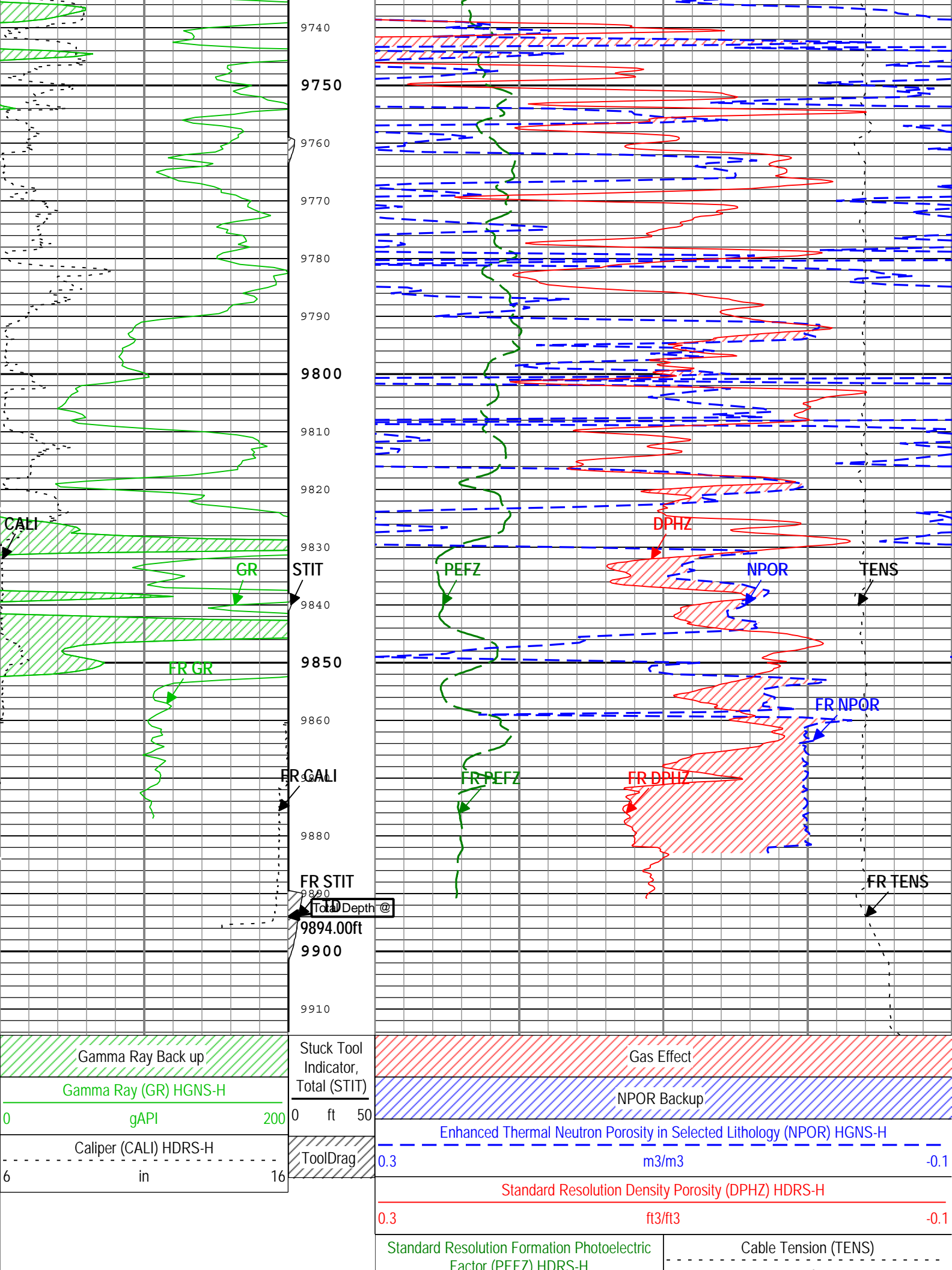












Channel Processing Parameters				
Parameter	Description	Tool	Value	Unit
BARI	Barite Mud Presence Flag	Borehole	No	
BHS	Borehole Status (Open or Cased Hole)	Borehole	Open	
BHT	Bottom Hole Temperature	Borehole	265	degF
BS	Bit Size	WLSESSION	6.125	in
BSAL	Borehole Salinity	Borehole	0	ppm
CALI_SHIFT	CALI Supplementary Offset	HDRS-H	0.3	in
CBLO	Casing Bottom (Logger)	WLSESSION	8084	ft
CDEN	Cement Density	HGNS-H	2	g/cm3
DFD	Drilling Fluid Density	Borehole	8.8	lbm/gal
DFT	Drilling Fluid Type	Borehole	Water	
DFT_WATER	Drilling Fluid Water Type	Borehole	Polymer	
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	Depth Zoned	
MDEN	Matrix Density for Density Porosity	Borehole	Depth Zoned	g/cm3
MFST	Mud Filtrate Sample Temperature	Borehole	100	degF
RMFS	Resistivity of Mud Filtrate Sample	Borehole	0.64	ohm.m
SOCO	Standoff Correction Option	HGNS-H	Yes	
TD	Total Measured Depth	Borehole	9894	ft

Depth Zone Parameters			
Parameter	Value	Start ( ft )	Stop ( ft )
MATR	SANDSTONE	7455	8480
MATR	LIMESTONE	8480	9795
MATR	SANDSTONE	9795	9850
MATR	LIMESTONE	9850	9882
MATR	SANDSTONE	9882	9914.5
MDEN	2.68	7455	8480
MDEN	2.71	8480	9795
MDEN	2.68	9795	9850
MDEN	2.71	9850	9882
MDEN	2.68	9882	9914.5
All depth are actual.			

Tool Control Parameters				
Parameter	Description	Tool	Value	Unit
HMCA_BRD_TYPE	HMCA Board Type	HGNS-H	1	
HPCD_BRD_TYPE	HPCD Board Type	HDRS-H	WITH HET	

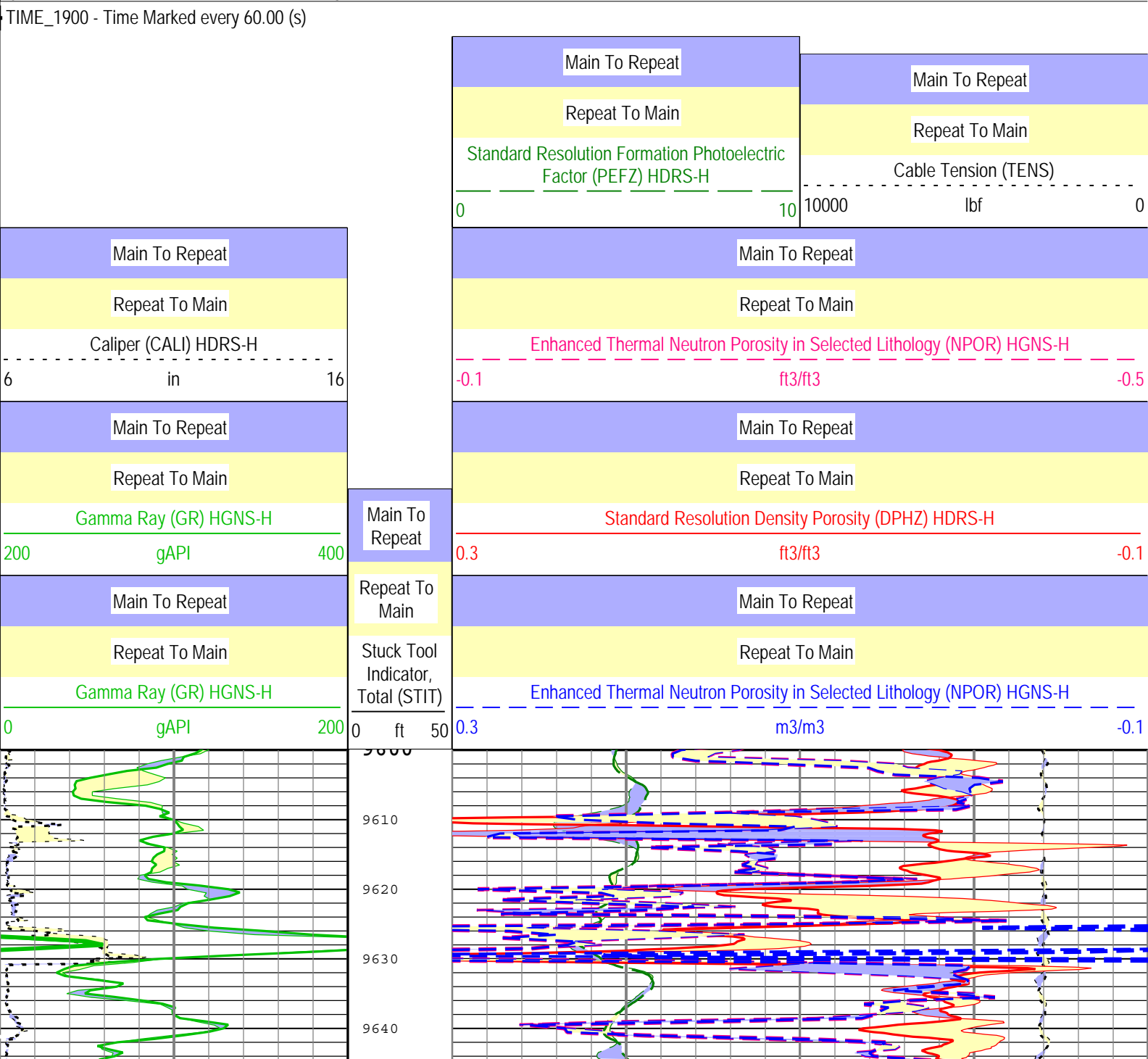
IRGD_BRD_TYPE	IRGD Board Type	HDRS4T	WHITE	
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	3600	ft/h

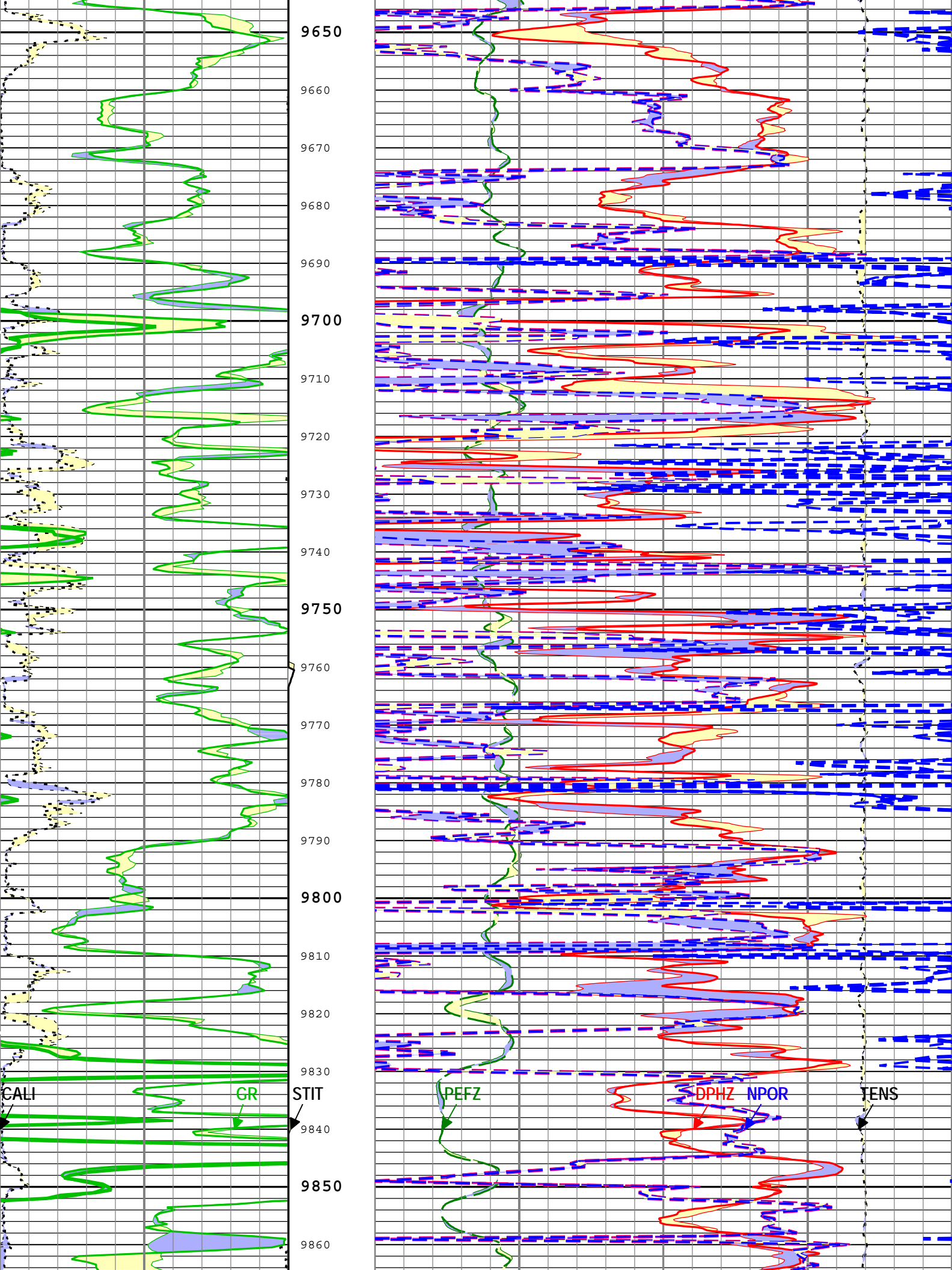
Run1: PEX-AIT

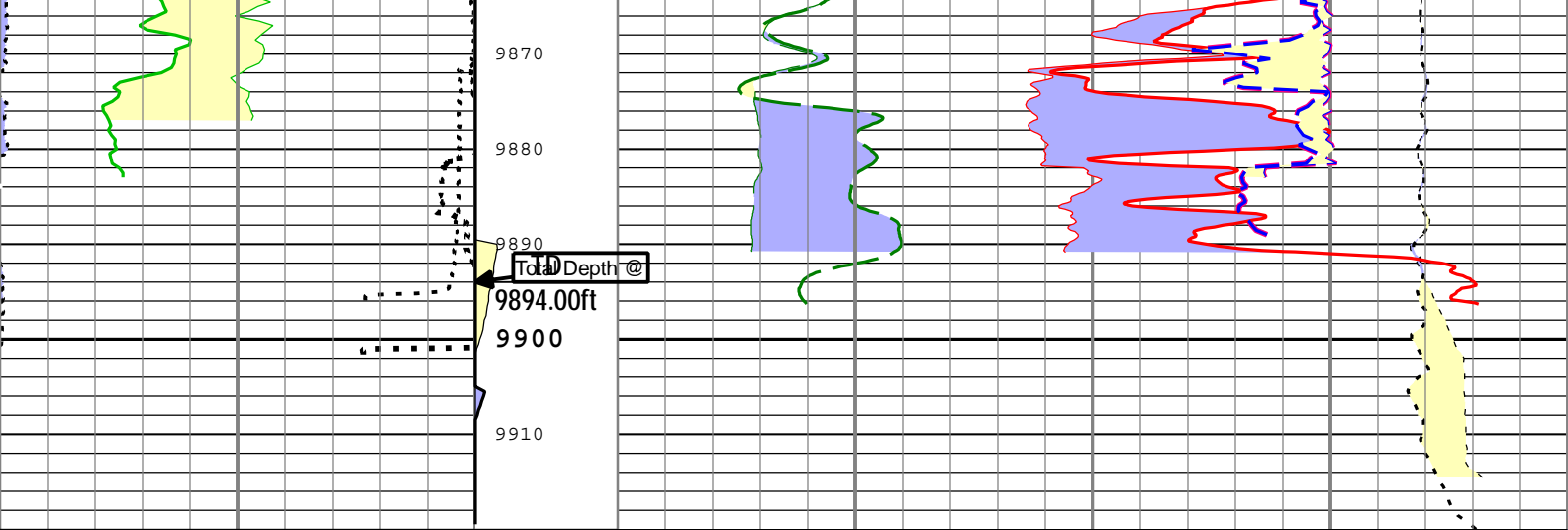
5" Porosity Repeat

Pass Summary									
Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
Run1: PEX-AIT	Log[2]:Up	Up	9584.94 ft	9919.91 ft	25-Aug-2014 7:17:46 PM	25-Aug-2014 7:24:23 PM	ON	4.04 ft	Yes
Run1: PEX-AIT	Log[3]:Up	Up	7491.74 ft	9914.31 ft	25-Aug-2014 7:27:20 PM	25-Aug-2014 8:04:48 PM	ON	4.30 ft	Yes
All depths are referenced to toolstring zero									
Log		<div>Company:Expedition Water Solution LLC      Well:EWS 1</div> <div>Run1: PEX-AIT: Log[3]:Up:S003</div>							

Description: HGNS standard resolution porosities for Platform Express    Format: Log ( KM 5in Porosity RA )    Index Scale: 5 in per 100 ft    Index Unit: ft    Index Type: Measured Depth    Creation Date: 25-Aug-2014 20:29:48







Main To Repeat
Repeat To Main
Caliper (CALI) HDRS-H
6 in 16
Main To Repeat
Repeat To Main
Gamma Ray (GR) HGNS-H
200 gAPI 400
Main To Repeat
Repeat To Main
Gamma Ray (GR) HGNS-H
0 gAPI 200

Main To Repeat
Repeat To Main
Stuck Tool Indicator, Total (STIT)
0 ft 50

Main To Repeat
Repeat To Main
Enhanced Thermal Neutron Porosity in Selected Lithology (NPOR) HGNS-H
-0.1 ft3/ft3 -0.5
Main To Repeat
Repeat To Main
Standard Resolution Density Porosity (DPHZ) HDRS-H
0.3 ft3/ft3 -0.1
Main To Repeat
Repeat To Main
Enhanced Thermal Neutron Porosity in Selected Lithology (NPOR) HGNS-H
0.3 m3/m3 -0.1
Main To Repeat
Repeat To Main
Standard Resolution Formation Photoelectric Factor (PEFZ) HDRS-H
0 10
Main To Repeat
Repeat To Main
Cable Tension (TENS)
10000 lbf 0

TIME\_1900 - Time Marked every 60.00 (s)

Description: HGNS standard resolution porosities for Platform Express    Format: Log ( KM 5in Porosity RA )    Index Scale: 5 in per 100 ft    Index Unit: ft    Index Type: Measured Depth    Creation Date: 25-Aug-2014 20:29:48

Run1: PEX-AIT			
5" Density			
Software Version			
Acquisition System		Version	
MaxWell		4.0.9163.3000	
Application Patch		Patch-SP-10767_13393-4.0.9163.3001	
Computation	Description	Version	
DepthCorrection	DepthCorrection	4.0.9213.3000	
Tool Elements	Description	Software Version	Firmware Version

HRCC-H	HILT High-Resolution Control Cartridge, 150 degC	4.0.9231.3000	2.0
HGNS-H	HILT Gamma-Ray and Neutron Sonde, 150 degC	4.0.9231.3000	2.0
HRGD-H	HILT Resistivity Gamma-Ray Density Device, 150 degC	4.0.9231.3000	3.0

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
Run1: PEX-AIT	Log[3]:Up	Up	7491.74 ft	9914.31 ft	25-Aug-2014 7:27:20 PM	25-Aug-2014 8:04:48 PM	ON	4.30 ft	Yes

All depths are referenced to toolstring zero

Log

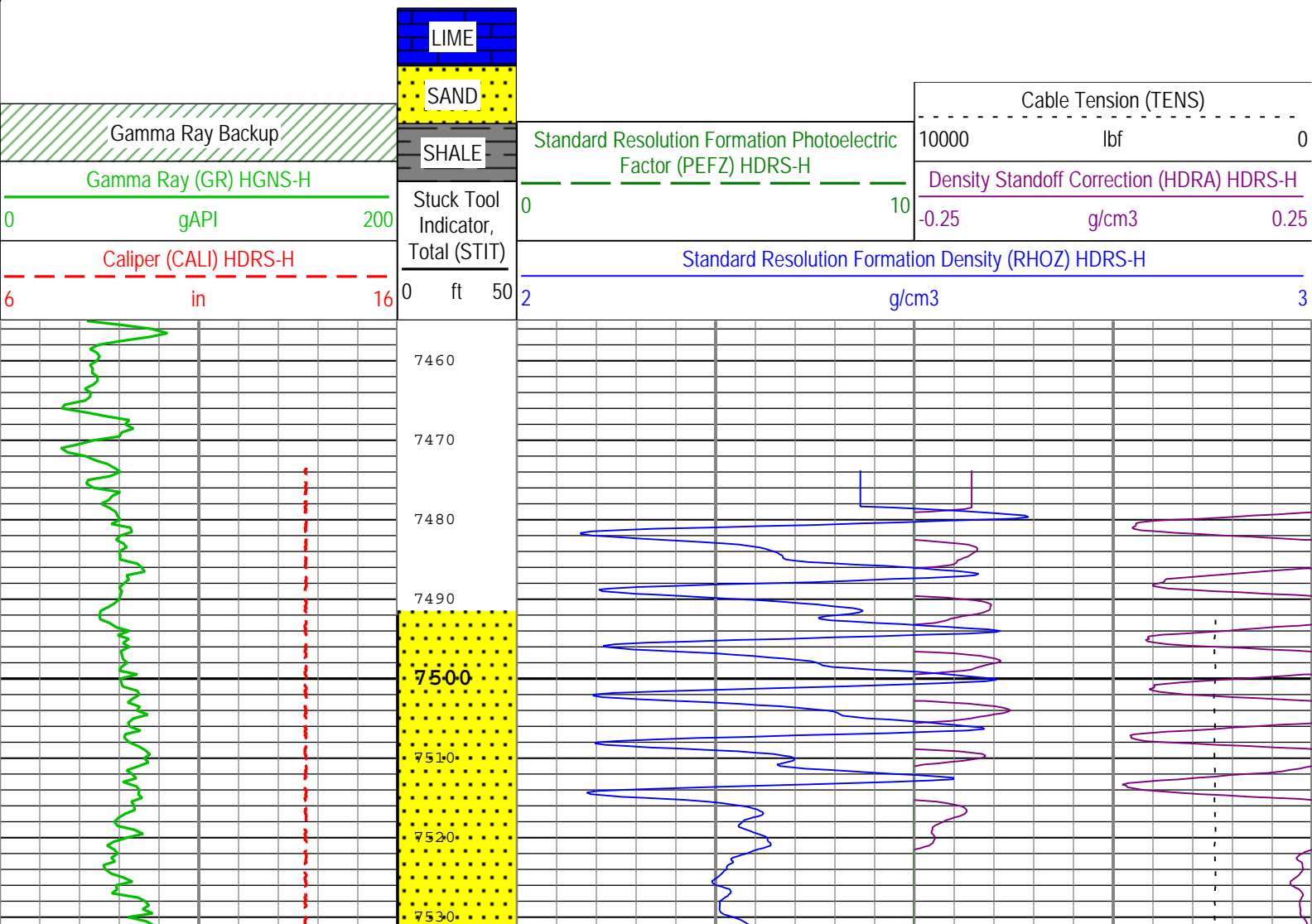
Company:Expedition Water Solution LLC      Well:EWS 1

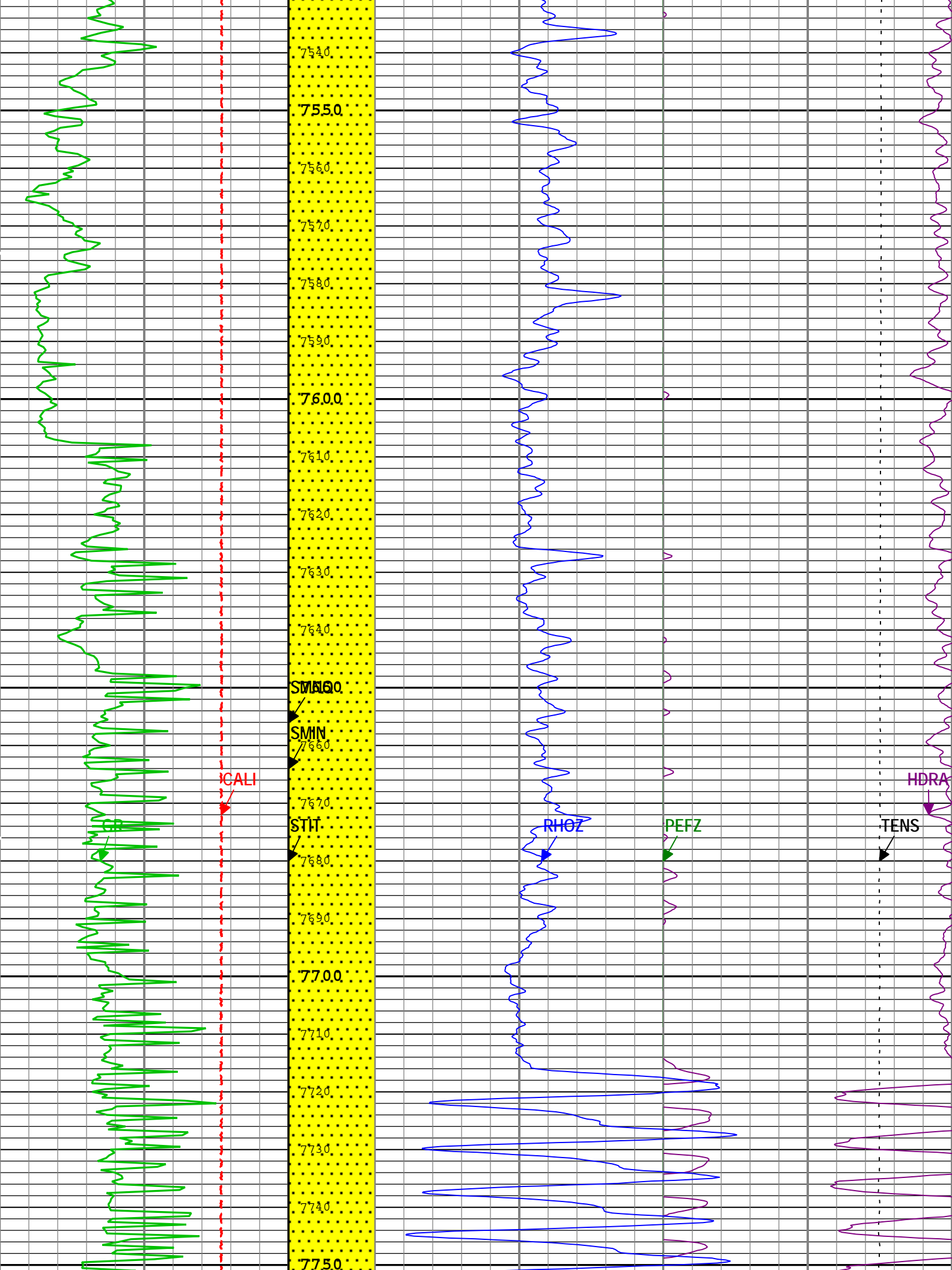
Run1: PEX-AIT: Log[3]:Up:S003

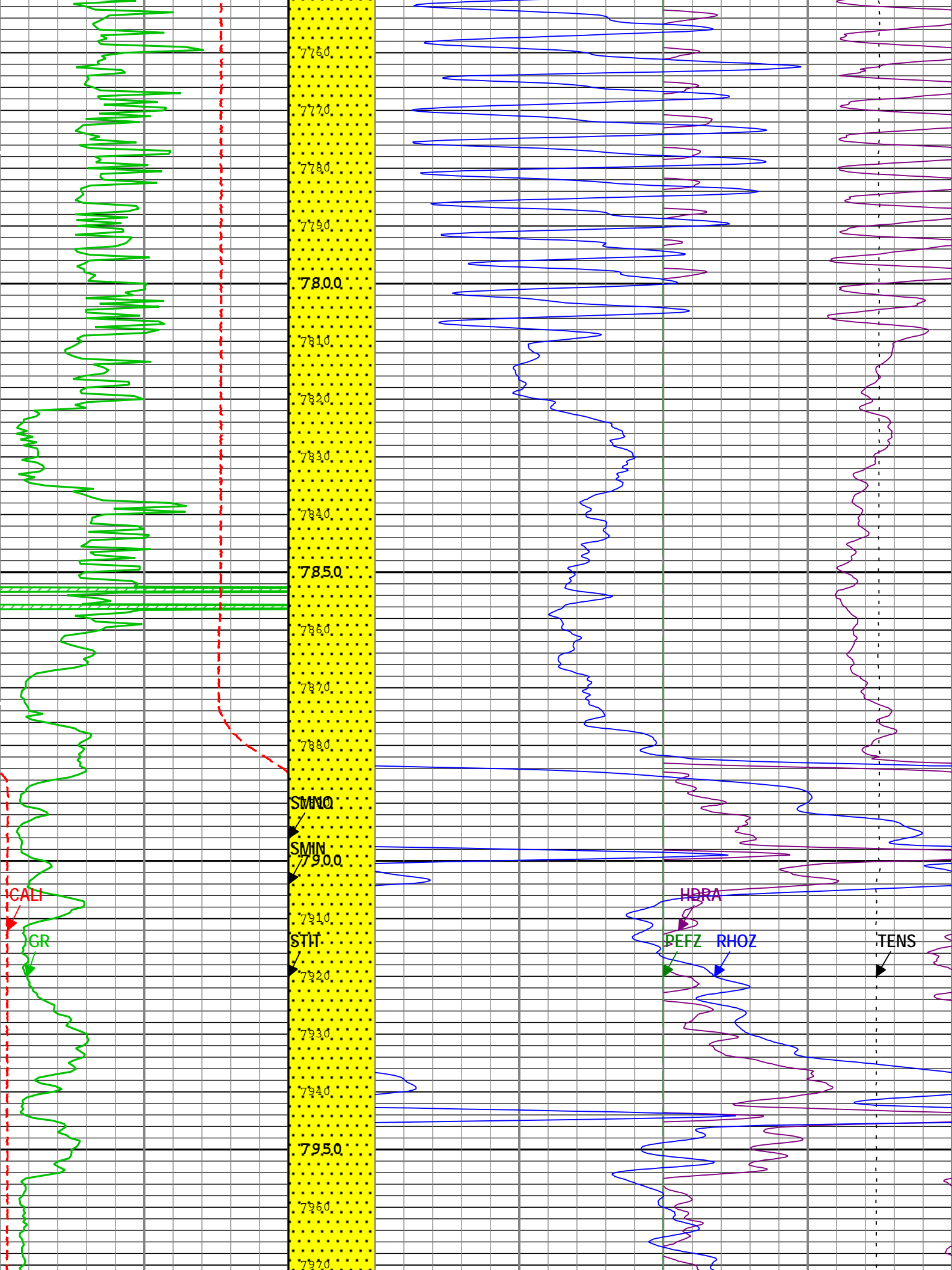
Description: HGNS standard resolution porosities for Platform Express    Format: Log ( KM 5in Density )    Index Scale: 5 in per 100 ft    Index Unit: ft    Index Type: Measured Depth    Creation Date: 25-Aug-2014 20:29:49

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

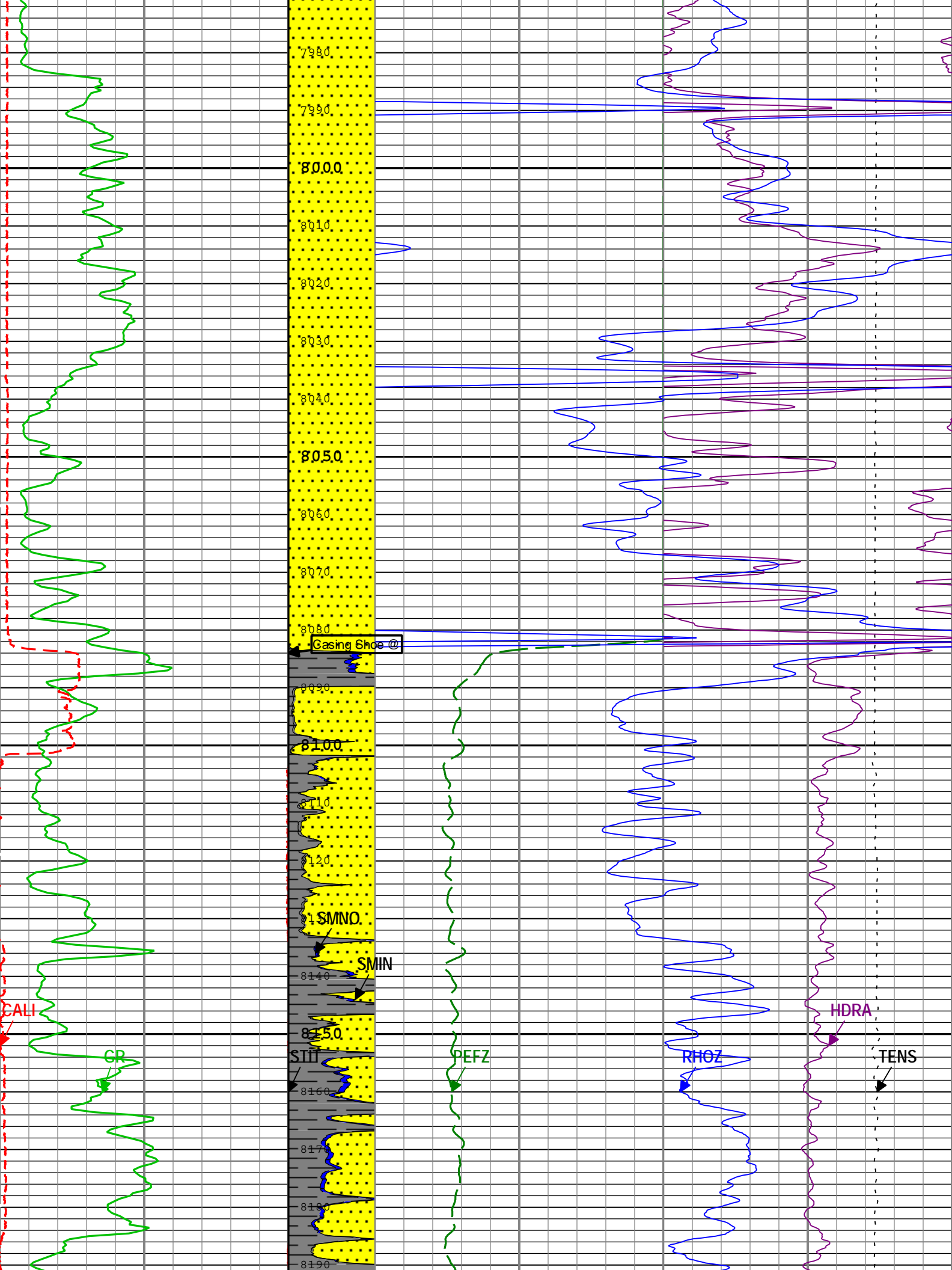
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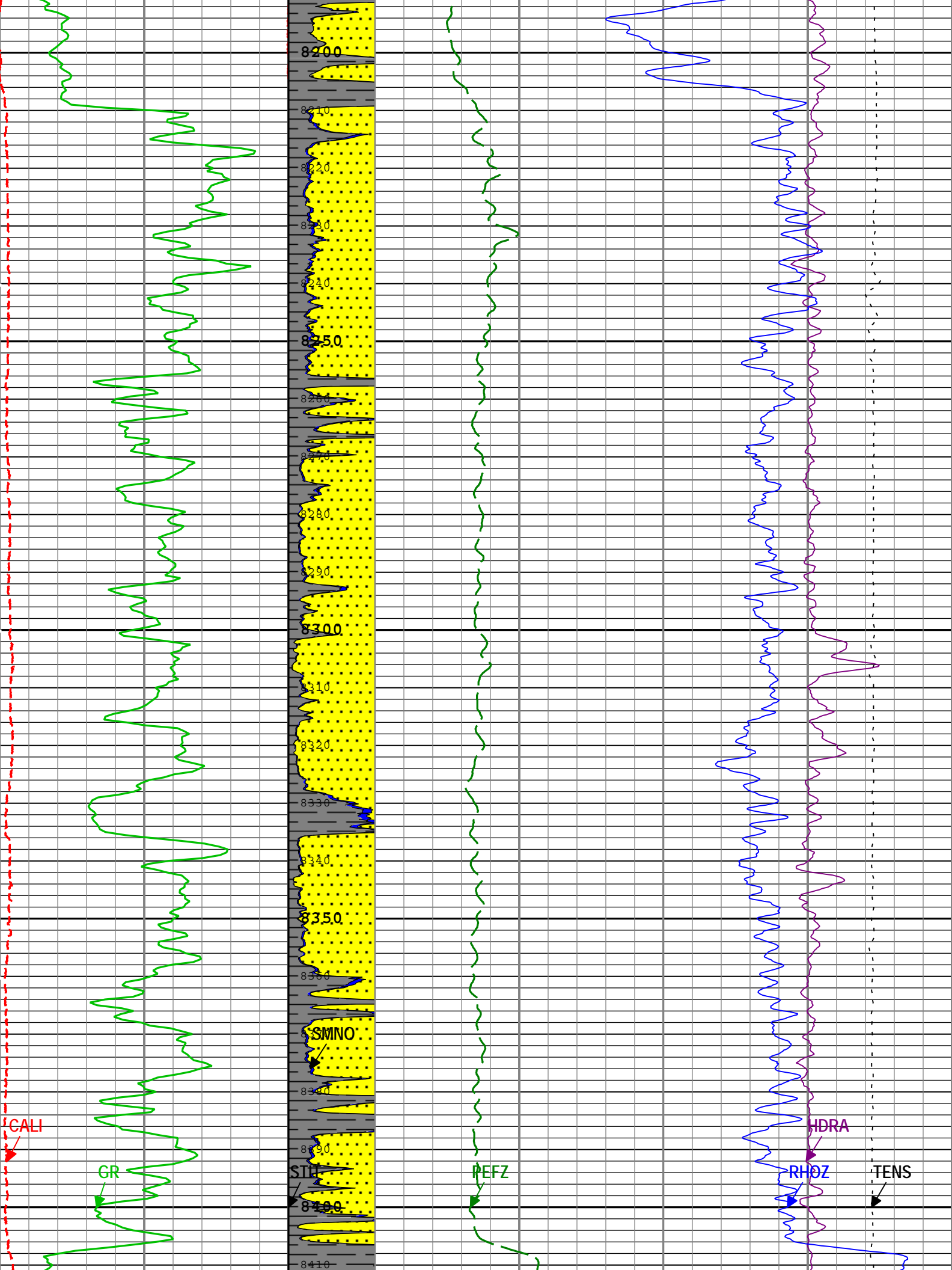


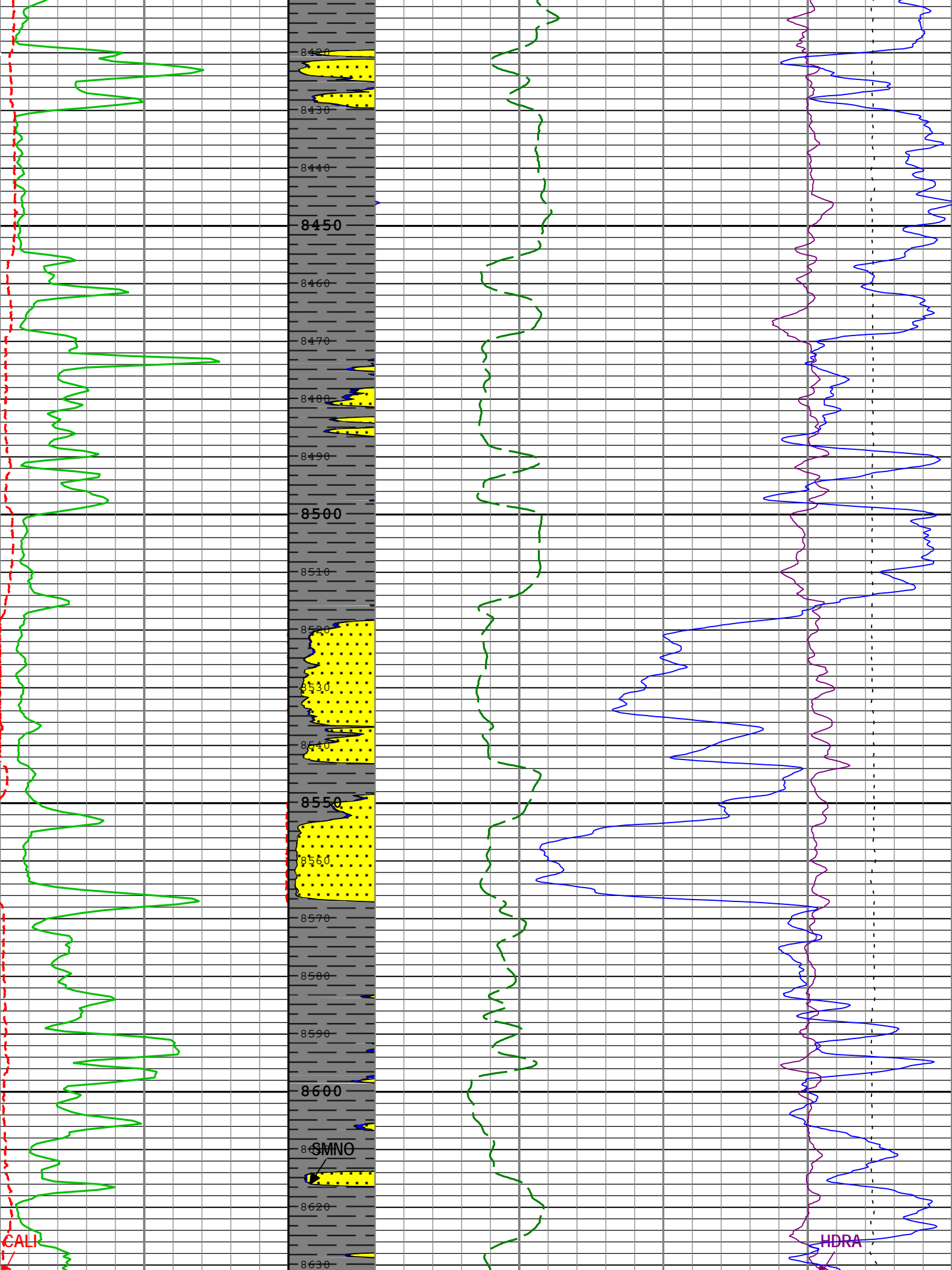


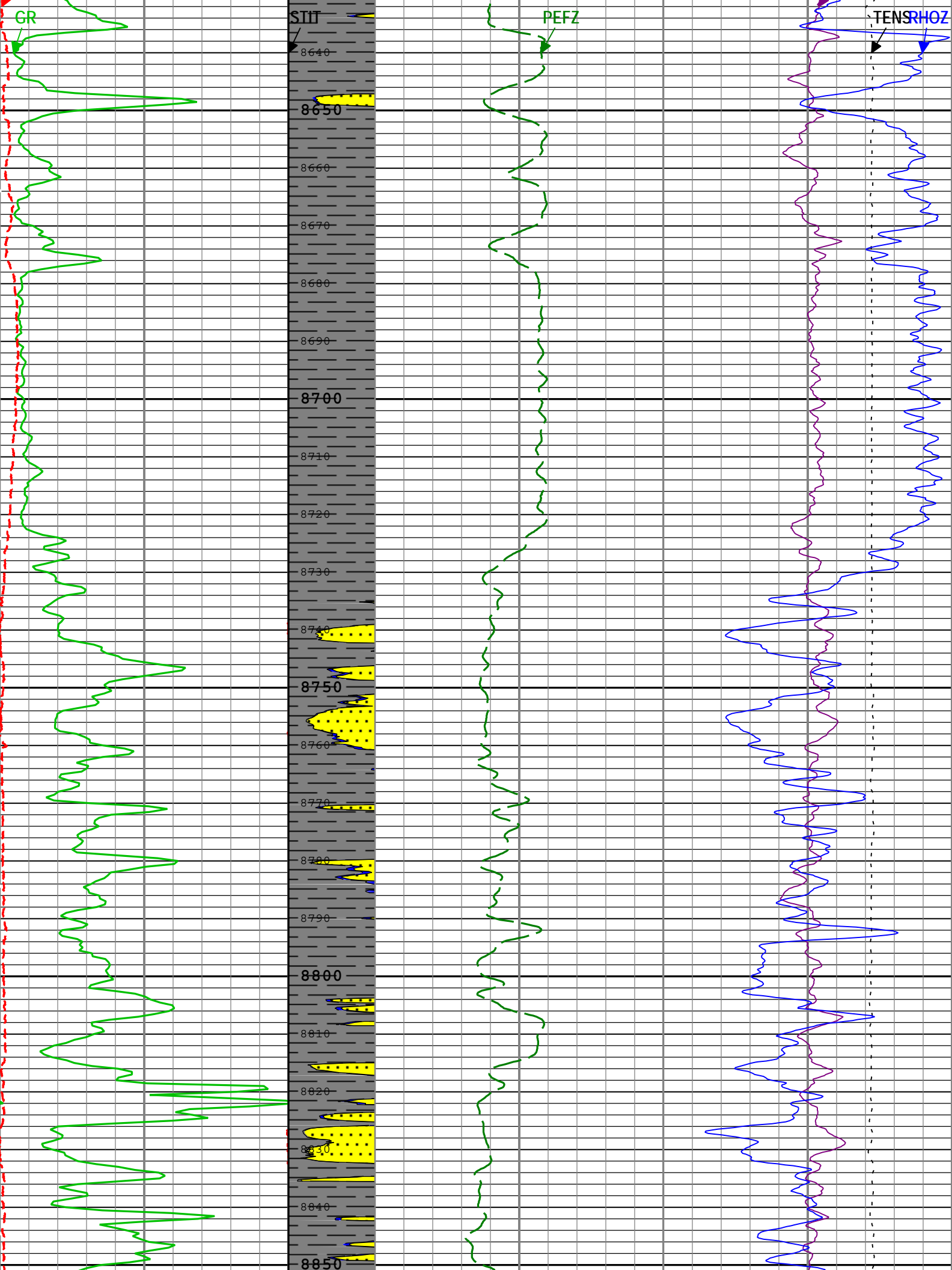


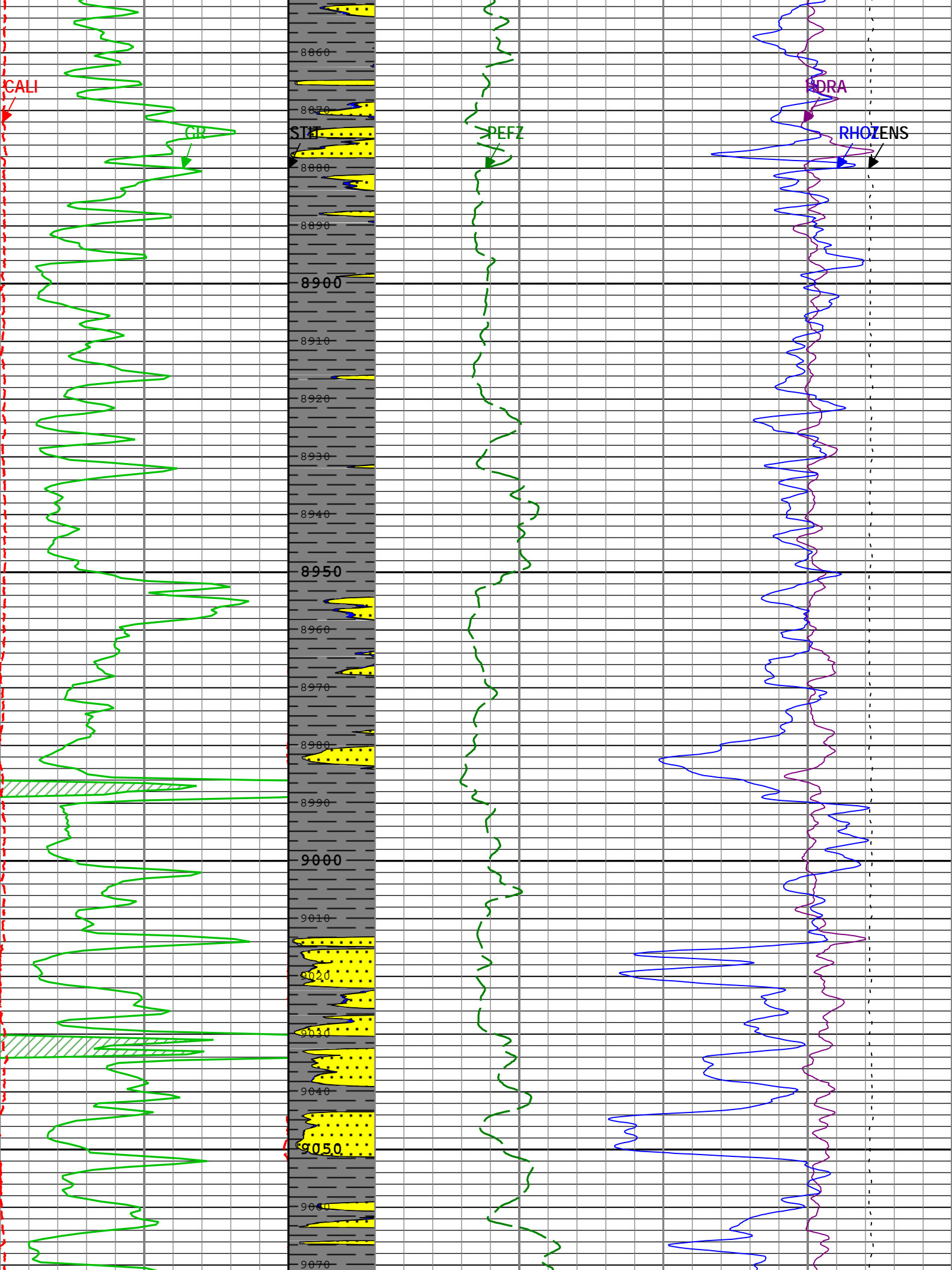


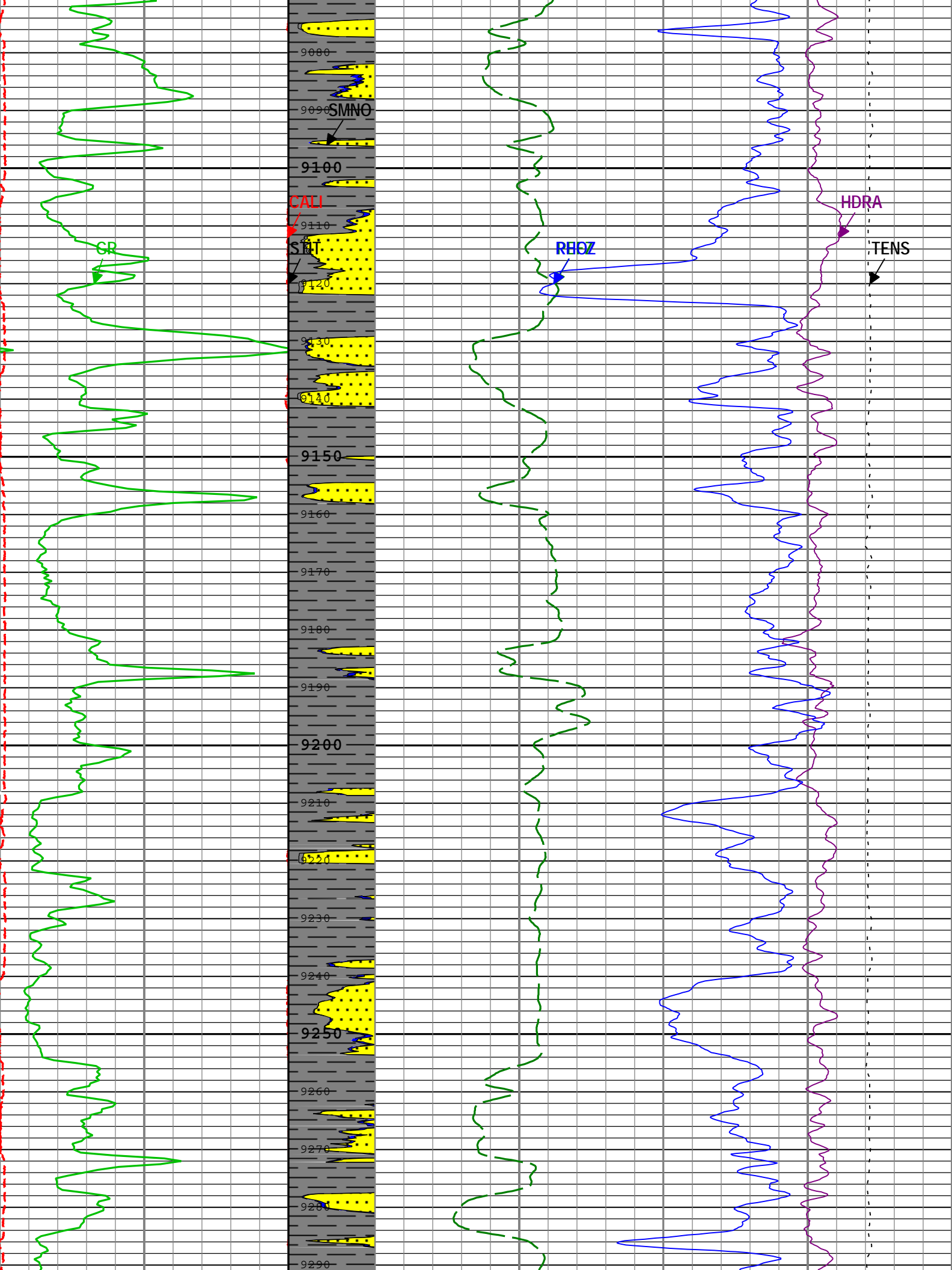


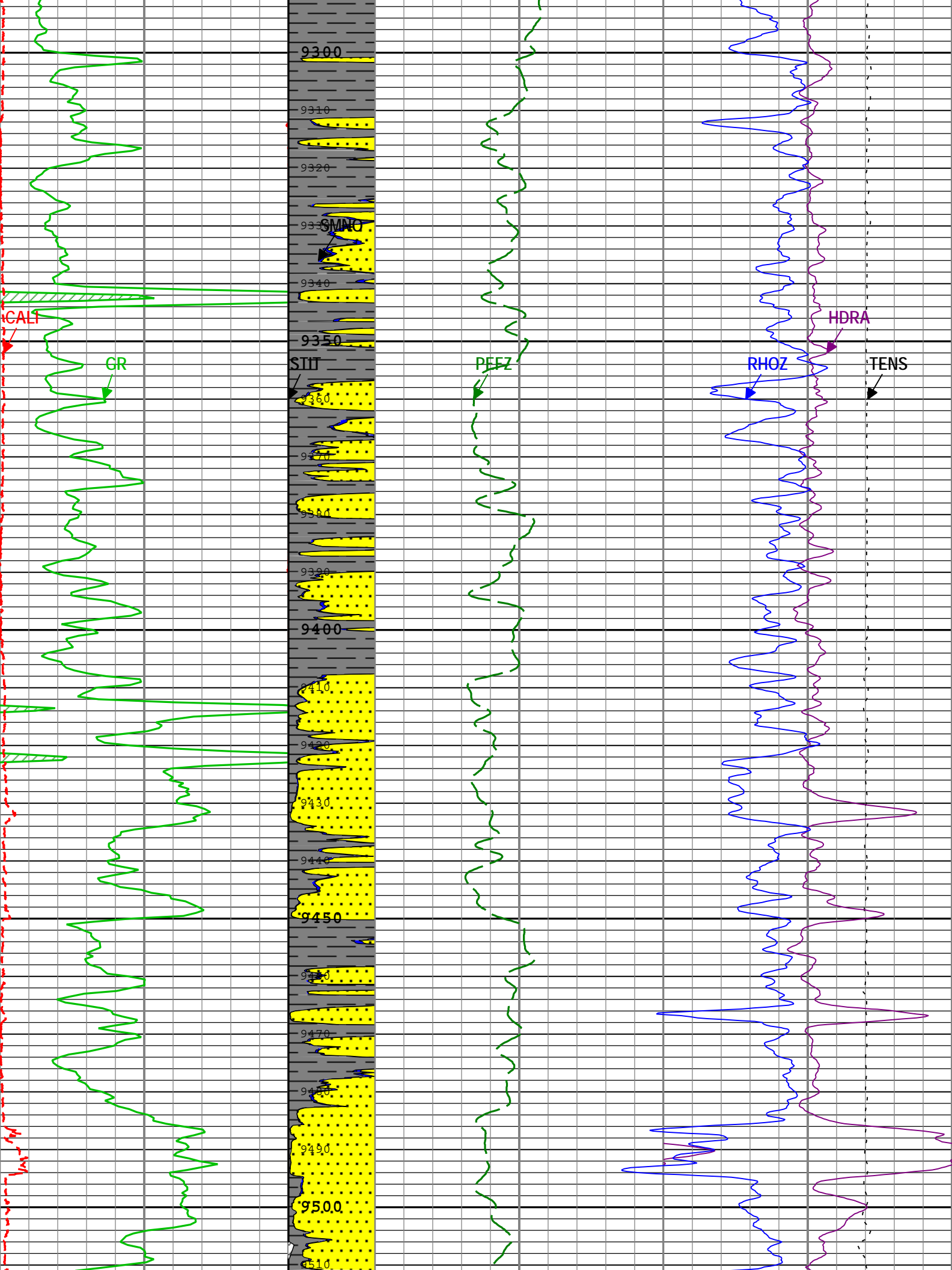


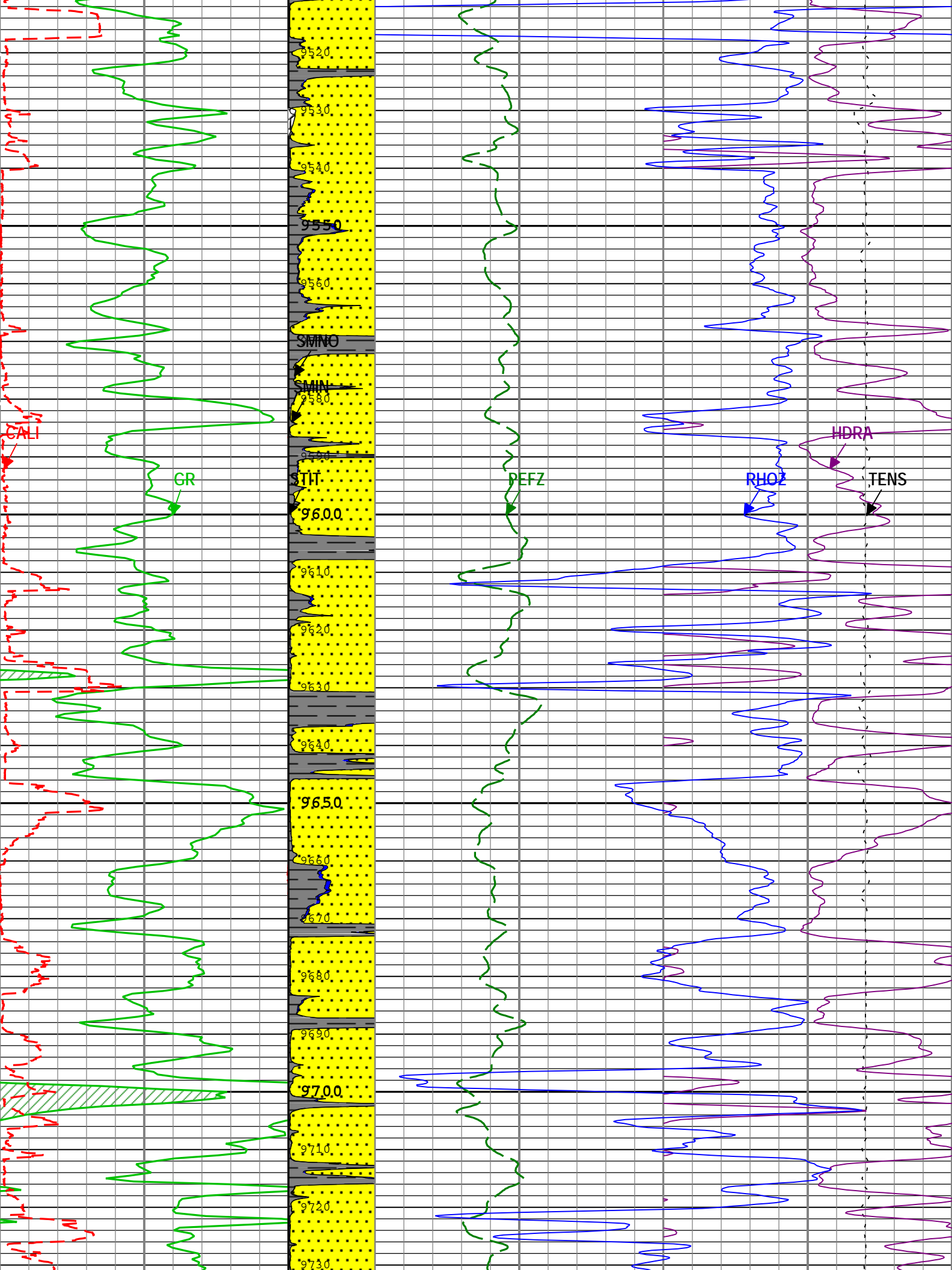




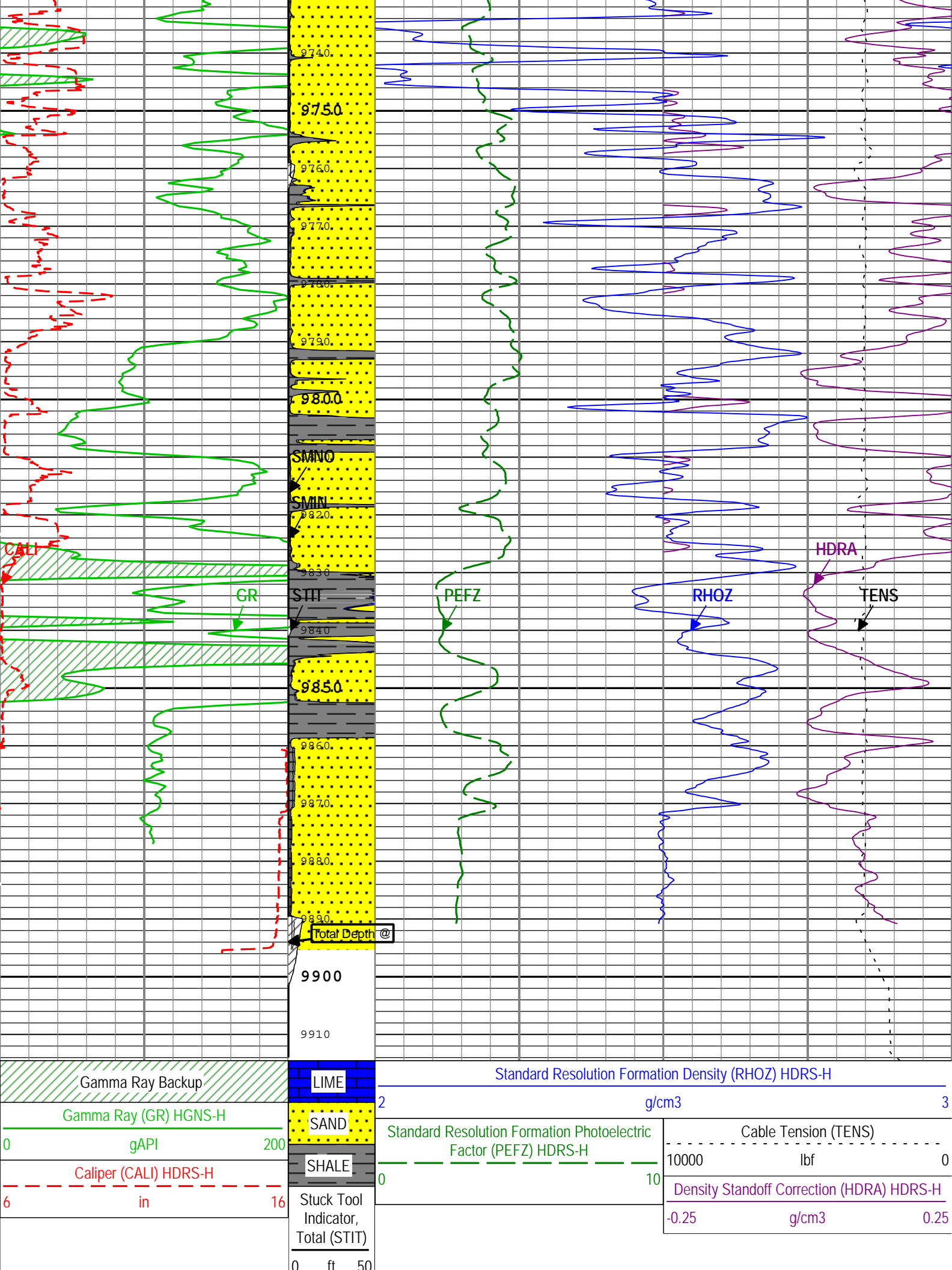












TIME_1900 - Time Marked every 60.00 (s)				
Description: HGNS standard resolution porosities for Platform Express    Format: Log ( KM 5in Density )    Index Scale: 5 in per 100 ft    Index Unit: ft    Index Type: Measured Depth    Creation Date: 25-Aug-2014 20:29:49				
Channel Processing Parameters				
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	6.125	in
CALI_SHIFT	CALI Supplementary Offset	HDRS-H	0.3	in
CBLO	Casing Bottom (Logger)	WLSESSION	8084	ft
CDEN	Cement Density	HGNS-H	2	g/cm3
DFD	Drilling Fluid Density	Borehole	8.8	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	9894	ft
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
<div> <div>Company:</div> <div>Expedition Water Solution LLC</div> <div>Schlumberger</div> </div> <div> <div>Well:</div> <div>EWS 1</div> </div> <div> <div>Field:</div> <div>Wildcat</div> </div> <div> <div>County:</div> <div>Weld</div> </div> <div> <div>State:</div> <div>Colorado</div> </div>				
Platform Express				

Plutonium Express

Compensated Neutron Log

LithoDensity