

Company: Nighthawk Production LLC

Well: Silverton 16-10

Field: Jolly Ranch

County: Lincoln State: Colorado

Laterolog Print

HRLA

County:	Lincoln				
Field:	Jolly Ranch				
Location:	Lat/Long : 39.539/-103.42				
Well:	Silverton 16-10				
Company:	Nighthawk Production LLC				
		Location:			
		Lat/Long : 39.539/-103.42	Elev.:	K.B.	5242.00 ft
		SHL : 1183 FSL X 922' FEL SESE		G.L.	5227.00 ft
				D.F.	5241.00 ft
		Permanent Datum:	Ground Level	Elev.:	5227.00 f
		Log Measured From:	Kelly Bushing	15.00 ft	above Perm.Datum
		Drilling Measured From:	Kelly Bushing		
		API Serial No.	Section:	Township:	Range:
		05-073-06528-00	10	6S	54W
Logging Date	12-Jun-2013				

Logging Date	12-Jun-2013				
Run Number	Run 1				
Depth Driller	8450.00 ft				
Schlumberger Depth	8460.00 ft				
Bottom Log Interval	8460.00 ft				
Top Log Interval	345.00 ft				
Casing Driller Size @ Depth	8.625 in @ 334.00 ft				
Casing Schlumberger	345 ft				
Bit Size	7.875 in				
Type Fluid In Hole	Chemical Gel				
MUD	Density	9 lbm/gal	68 s		
	Fluid Loss	PH	7.3		
	Source of Sample		Flowline		
RM @ Meas Temp	0.58 ohm.m @ 80 degF				
RMF @ Meas Temp	0.44 ohm.m @ 80 degF				
RMC @ Meas Temp	0.72 ohm.m @ 80 degF				
Source RMF	RMC	Calculated	Calculated		
RM @ BHT	RMF @ BHT	0.25 @ 196	0.19 @ 196		
Max Recorded Temperatures	196 degF		196	196	
Circulation Stopped	Time	12-Jun-2013	13:30:00		
Logger on Bottom	Time	13-Jun-2013	21:40:23		
Unit Number	Location:	2135	Fort Morgan		
Recorded By	Arvin Shi				
Witnessed By	Anders Elgend / Jim Wier				

Disclaimer

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Well Sketch

Driller Depth
0.00 ft

334.00 ft

Casing 8.625in
24lbm/ft



Borehole Size/Casing/Tubing Record						
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Bit						
Bit Size (in)	7.875					
Top Driller (ft)	334					
Top Logger (ft)	345					
Bottom Driller (ft)	8450					
Bottom Logger (ft)	8460					
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)	334					
Bottom Logger (ft)	345					

Operational Run Summary						
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Parameter (unit)	Run 1					
Date Log Started	12-Jun-2013					
Time Log Started	22:42:13					
Date Log Finished	14-Jun-2013					
Time Log Finished	00:03:34					
Top Log Interval (ft)	345.00					
Bottom Log Interval (ft)	8460.00					
Total Depth (ft)	8460.00					
Max Hole Deviation (deg)	NaN					
Azimuth of Max Deviation (deg)	NaN					
Bit Size (in)	7.875					
Logging Unit Number	2135					
Logging Unit Location	Fort Morgan					
Recorded By	Arvin Shi					
Witnessed By	Anders Elgerd / Jim Wier					
Service Order Number	C6VJ-00060					

Remarks and Equipment Summary				
Run 1: Toolstring				Run 1: Remarks
Equip name	Length	MP name	Offset	All Schlumberger depth measurement policies followed
LEH-QT	97.73			IDW used as primary depth measurement and Z-Chart as secondary depth measurement
LEH-QT				
AH-369	94.82			
EDTC-B:8593	93.39			
EDTH-B:8625				
EDTG-B:77756				
EDTC-B:8593				
		CTEM	89.89	
		ACCZ	0.00	
		HV	0.00	
		Gamma Ray	88.02	
		TelStatus	86.89	
		Temperature	86.87	
HGNS-H:4865	86.89			
HGNH:4817				
NPV-N		GR	86.15	
NSR-F:2554				
HMCA-H				
HACCZ-H:6991				
HGNS-H:4865				
		CNL Porosity	79.82	
		HGNS	77.48	
		HMCA	77.48	
		Accelerometer	0.00	
HDRS-H:3863	77.48			
ECH-MEB:2898				
HRCC-H:3828				
HRMS-H:3863				
Backscatter				
Short Spacing				
GPV-Q				
GSR-J:5471		HRCC	73.48	
Long Spacing:28620				
HRGD-H:3870				
		MCFL	68.05	
		Caliper	67.57	
		TLD Density	67.18	
HRLT-B	65.24			
HRUH-B				
HRUC-B				
HRLS-B				
HRLH-B				
HRLC-B				
AH-270				

Resistivity 53.47

AH-184[2]:28 41.04
29

MAST-B:8506 39.04
ECH-SF:8081
MAPC-BA:8081
MAMS-CA:8506

MAMS 23.6

AH-184[1]:75 18.00
7

AIT-H:398 16.00
AHIS:398
AHRM



Lengths are in ft
Maximum Outer Diameter = 9.000 in
Line: Sensor Location, Value: Gating Offset
All measurements are relative to TOOL_ZERO

Depth Summary

Depth Control Parameters	Run 1		
Conveyance Type	Wireline		
Rig Type	Land		
Depth Measuring Device	Run 1		
Type	IDW-B		
Wheel Correction 1	-7		
Wheel Correction 2	-5		
Tension Device	Run 1		
Type	CMTD-B/A		
Calibration Date	17-May-2013		
Calibrator Serial Number	78135		
Calibration Points	10		
Calibration RMS	13		
Calibration Peak Error	24		
Logging Cable	Run 1		
Type	7-46NT-XS		
Logging Cable Length (ft)	24000.00		

Run 1

Integration Summary

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

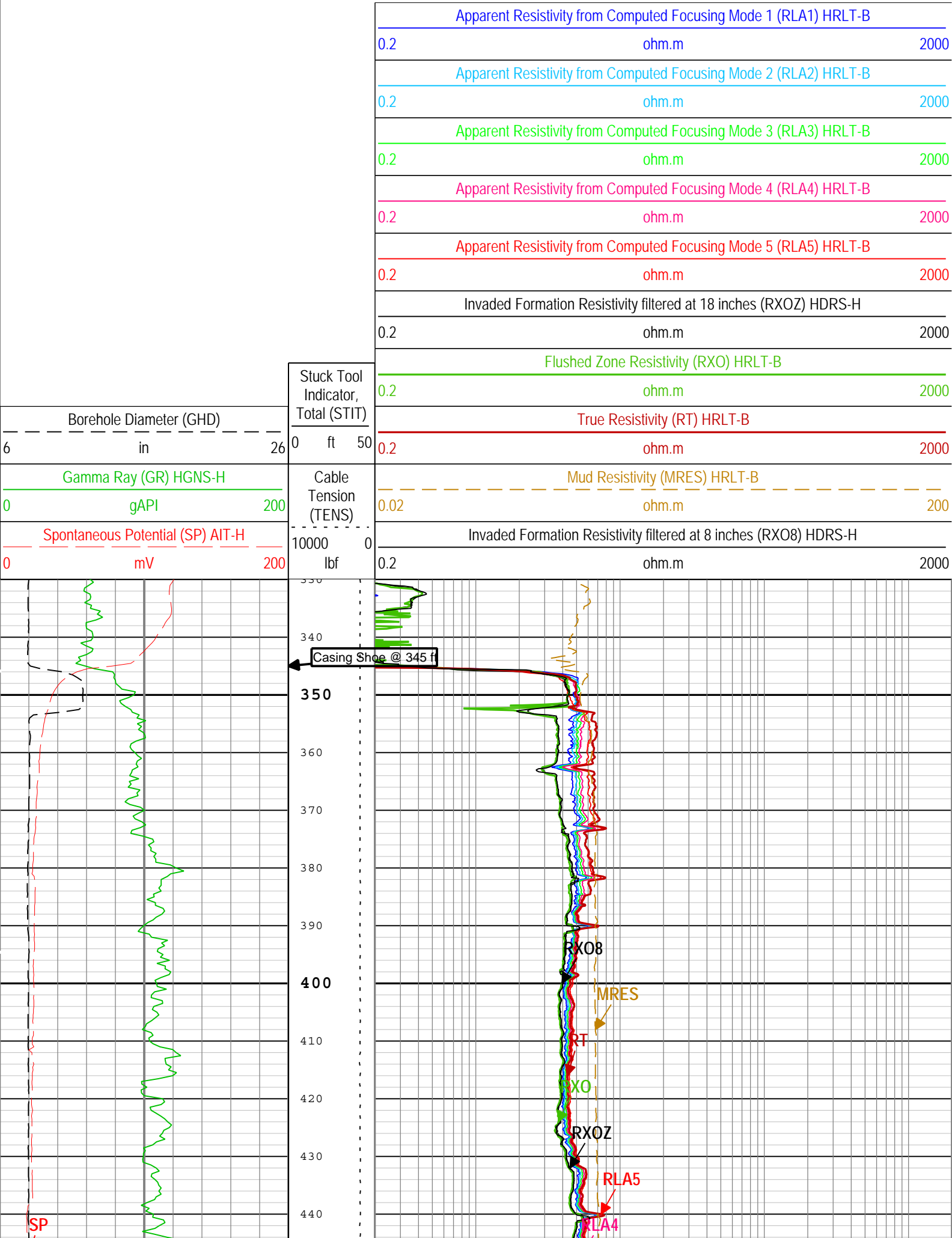
Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	Depth Shift	Include Parallel Data
Run 1	Log[7]:Up	Up	105.88 ft	8480.06 ft	13-Jun-2013 9:41:24 PM	14-Jun-2013 12:02:54 AM	0.00 ft	

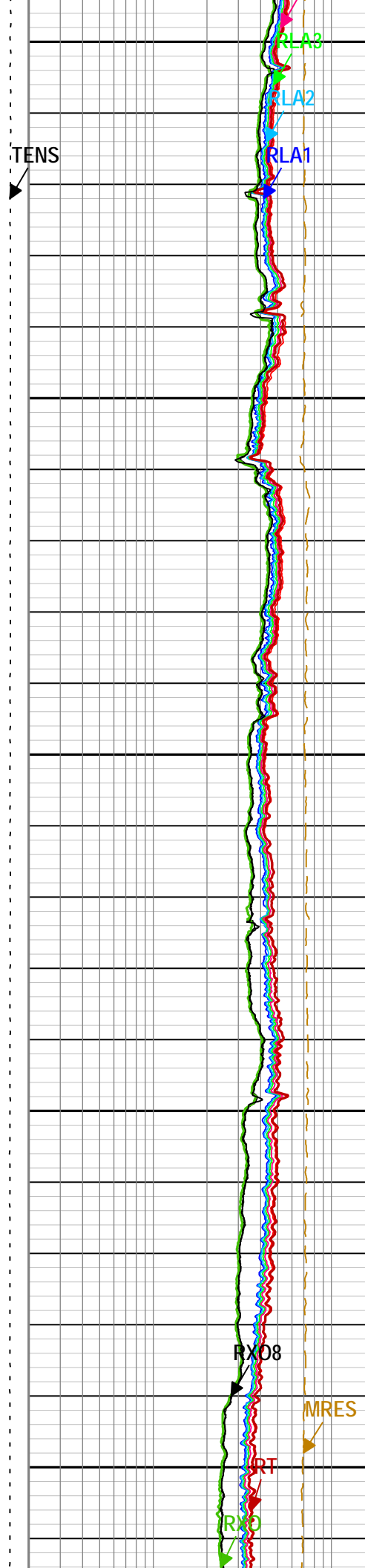
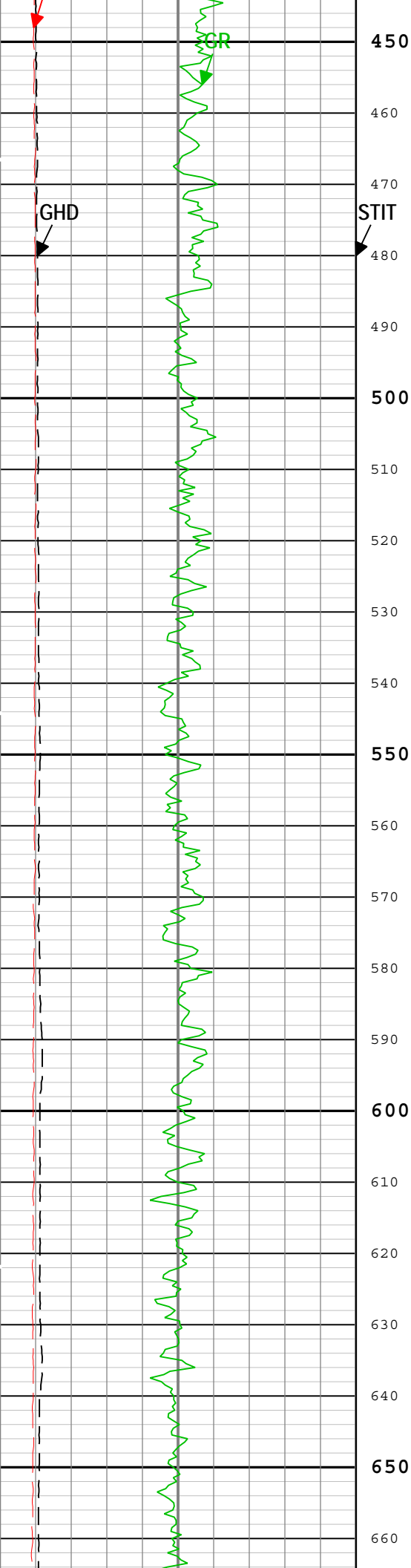
All depths are referenced to toolstring zero

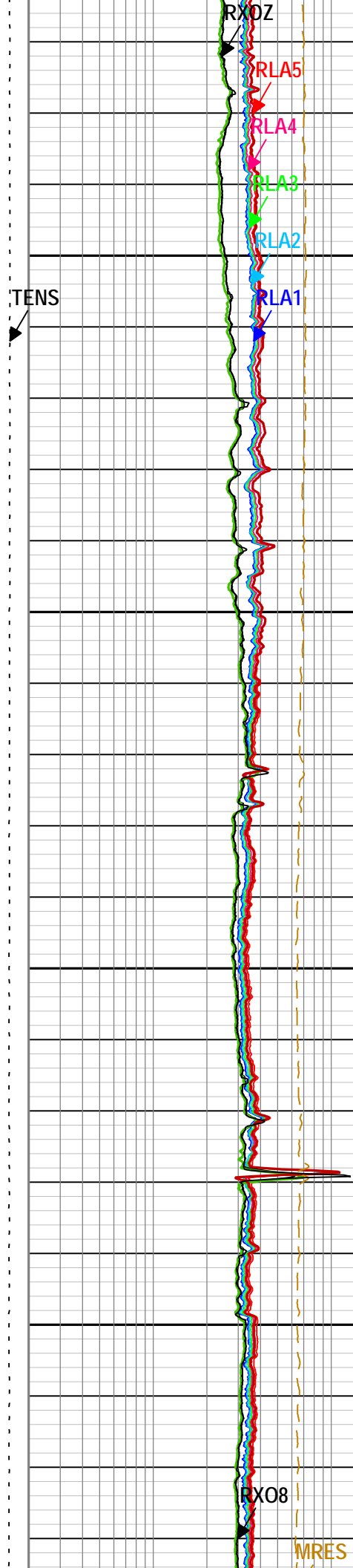
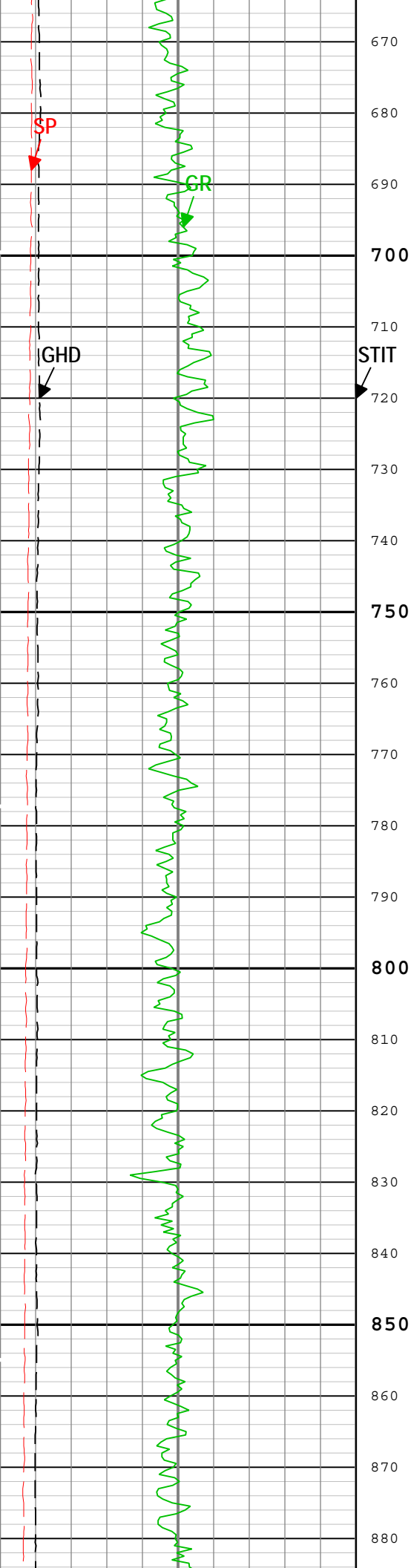
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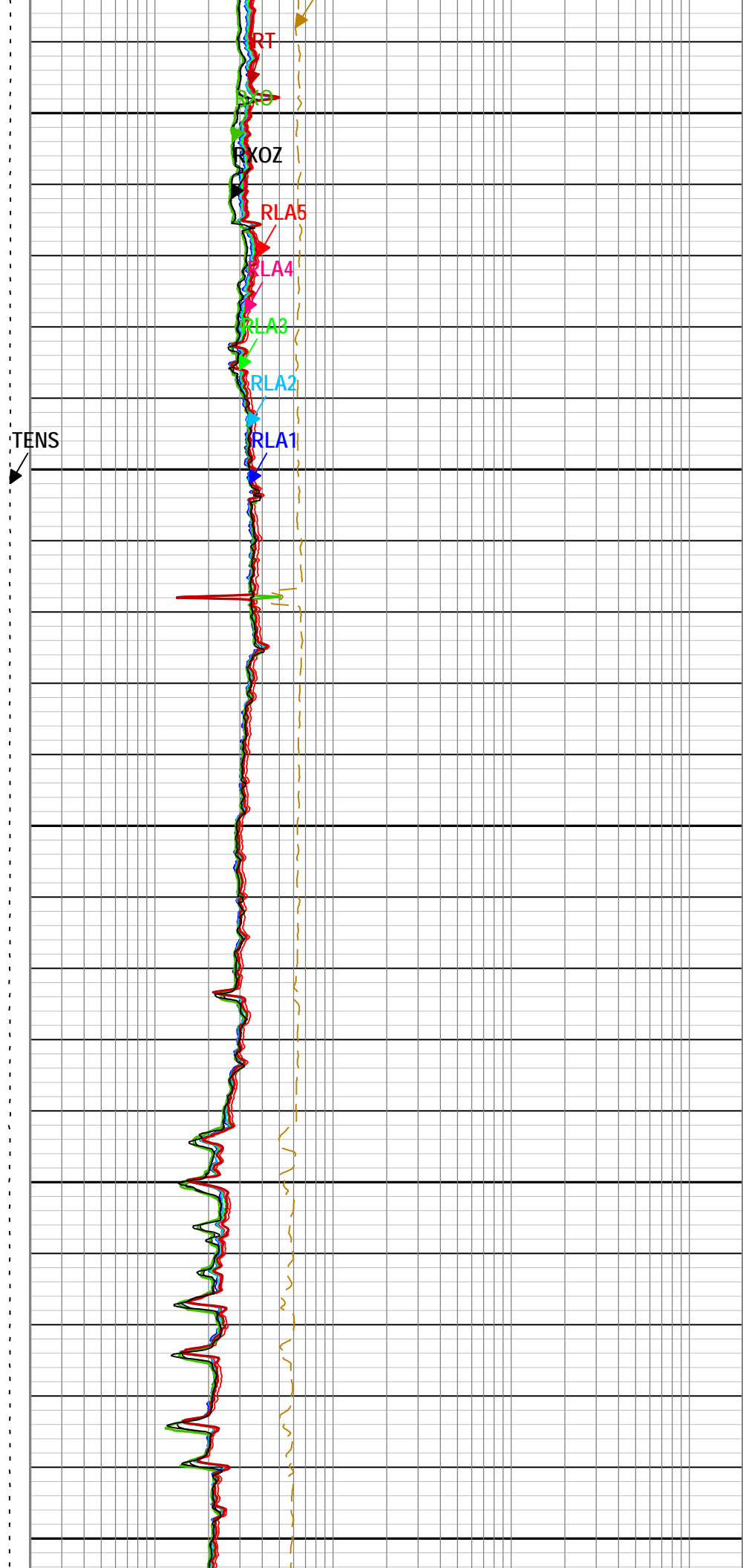
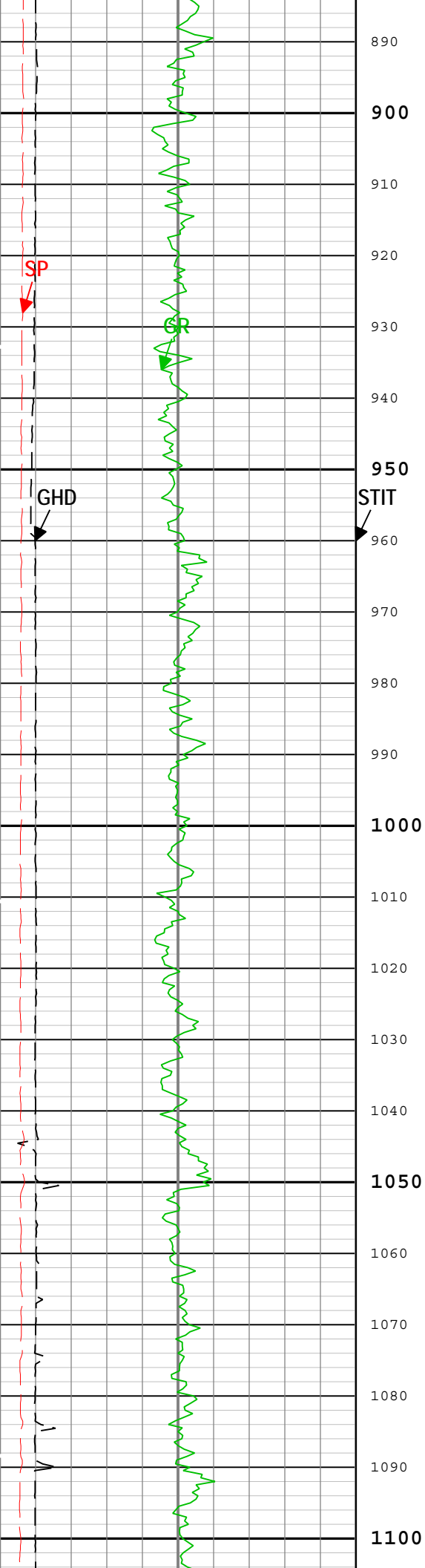
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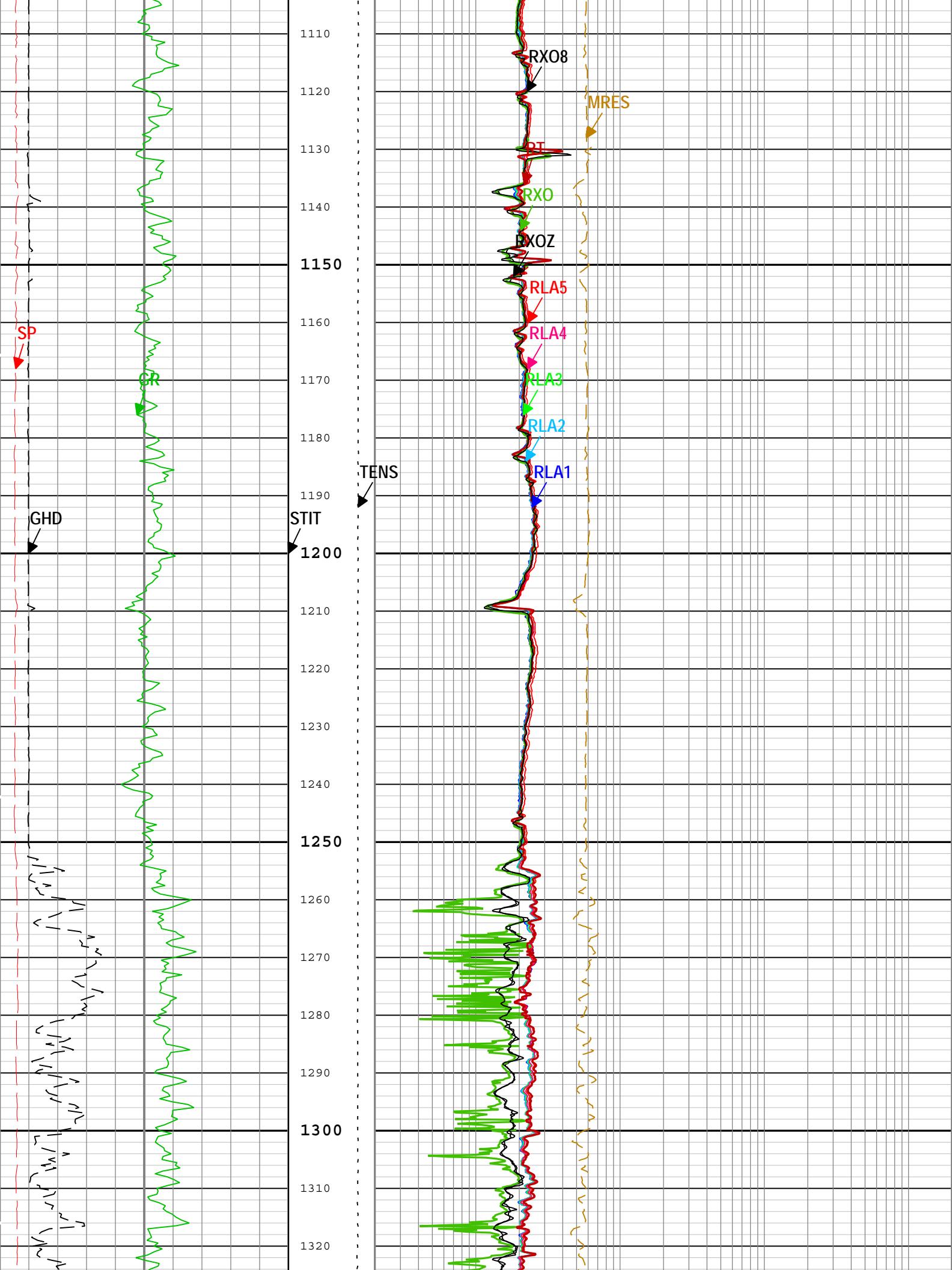
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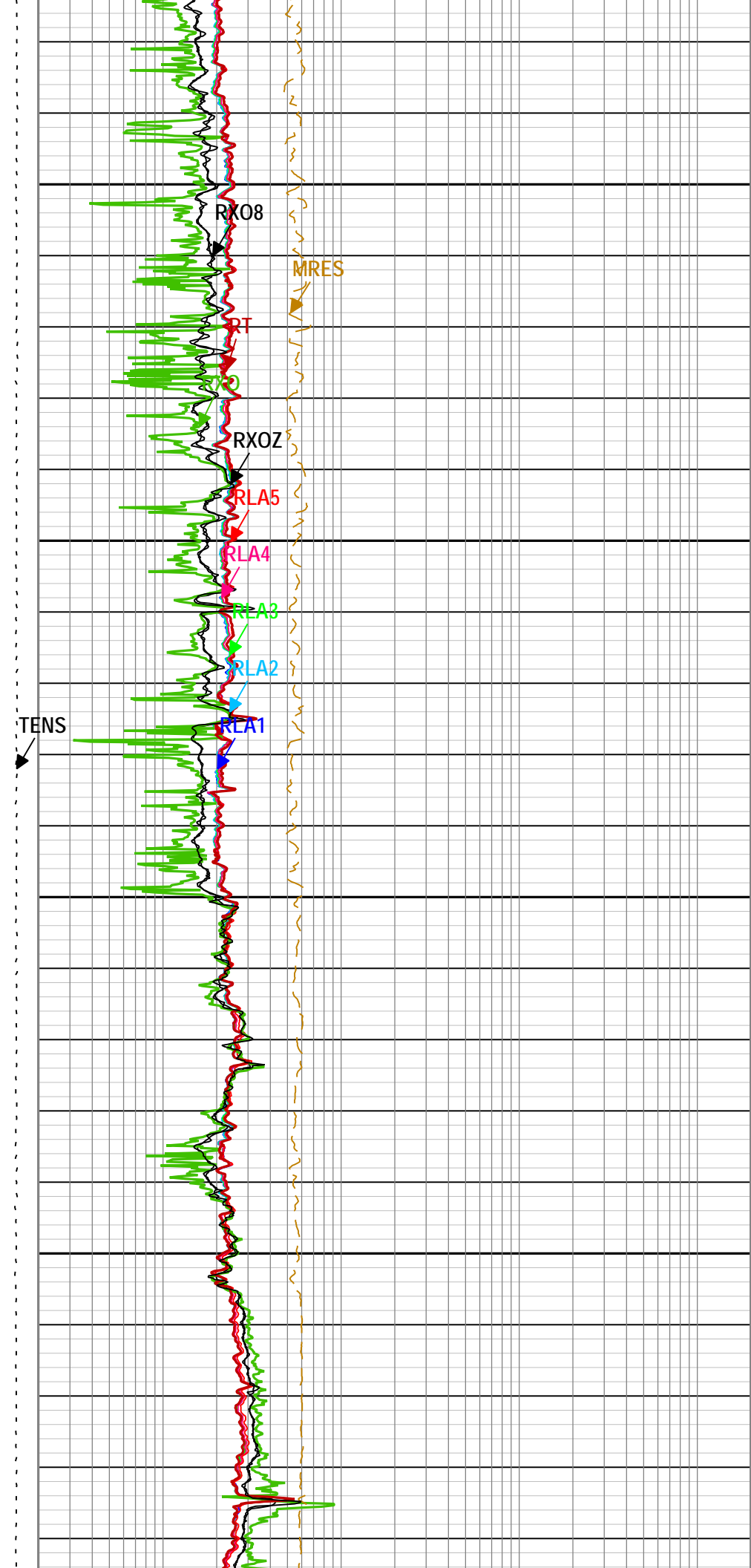
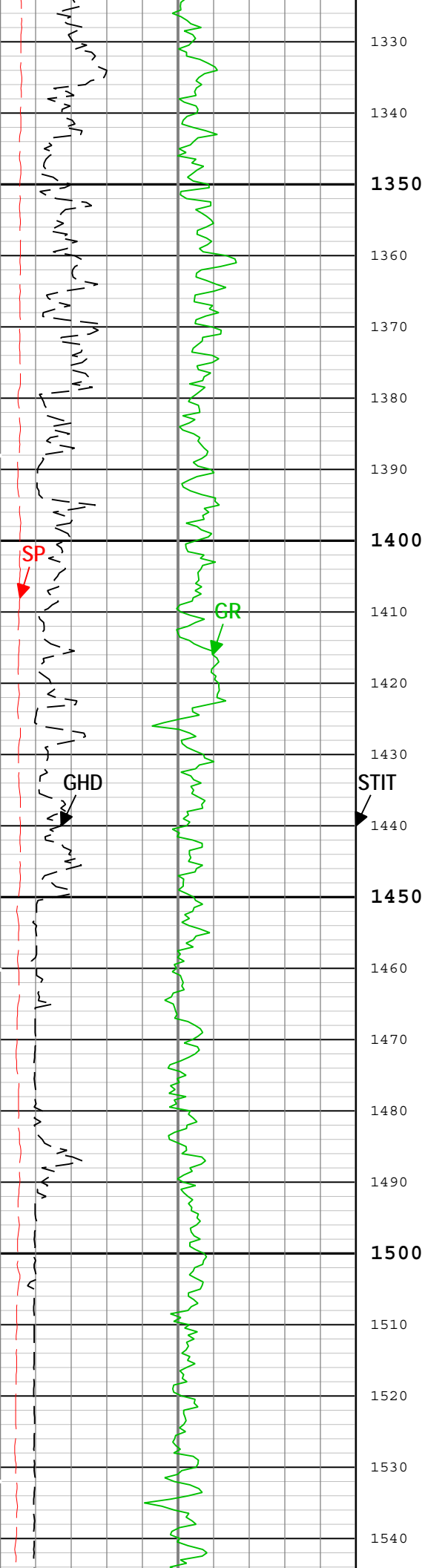


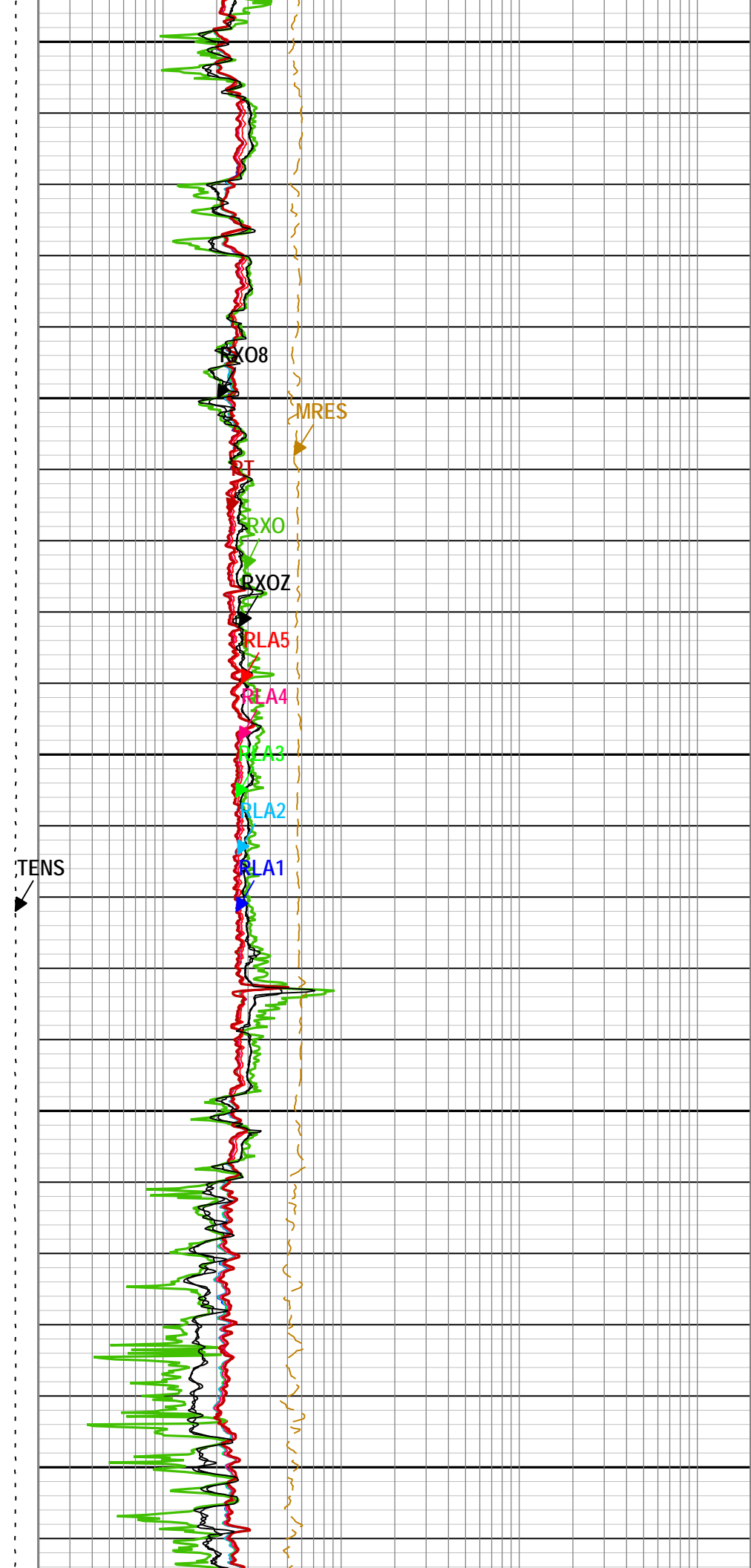
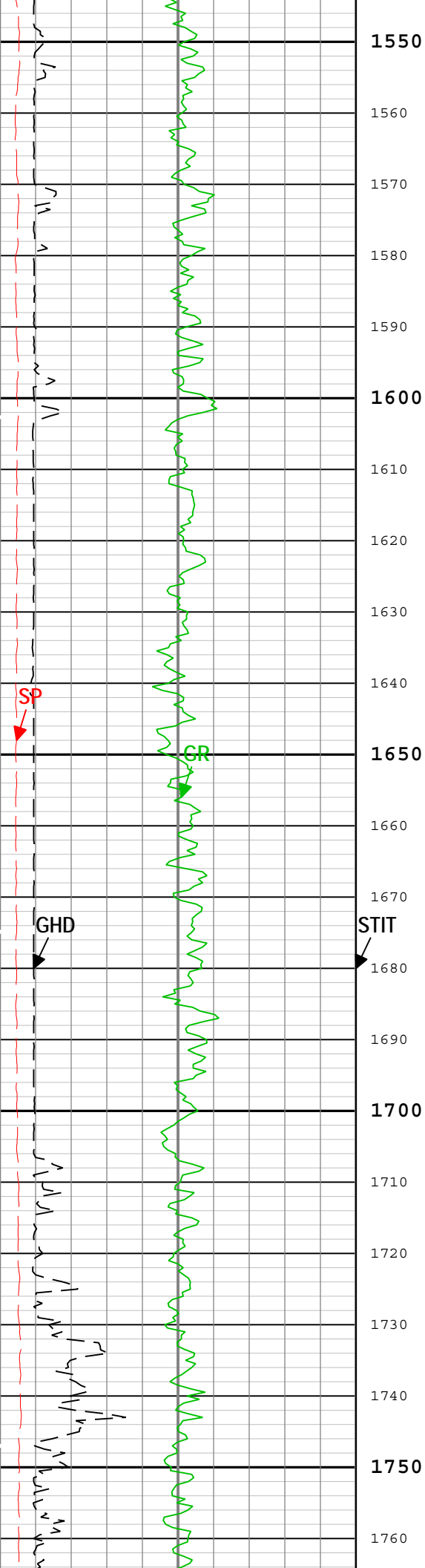


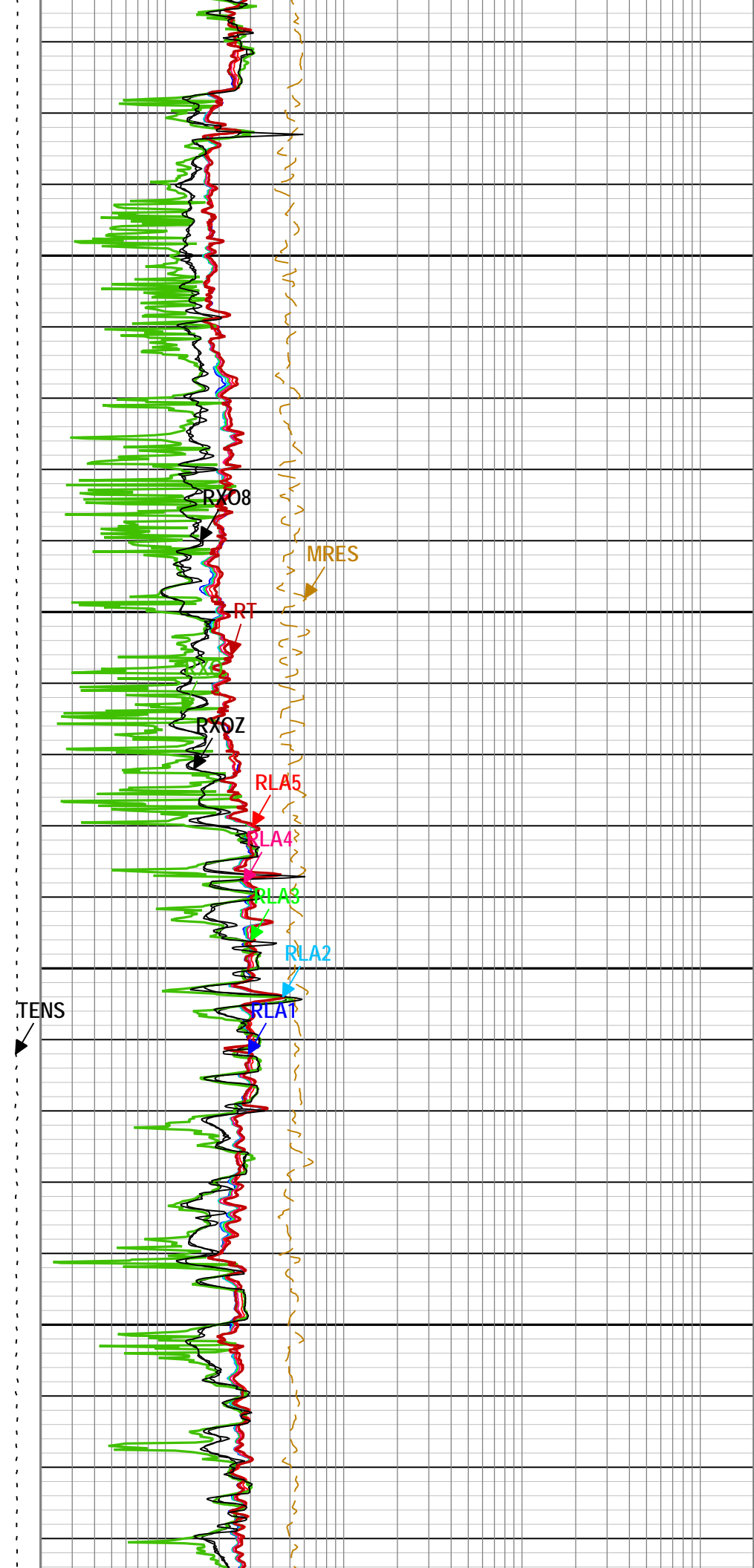
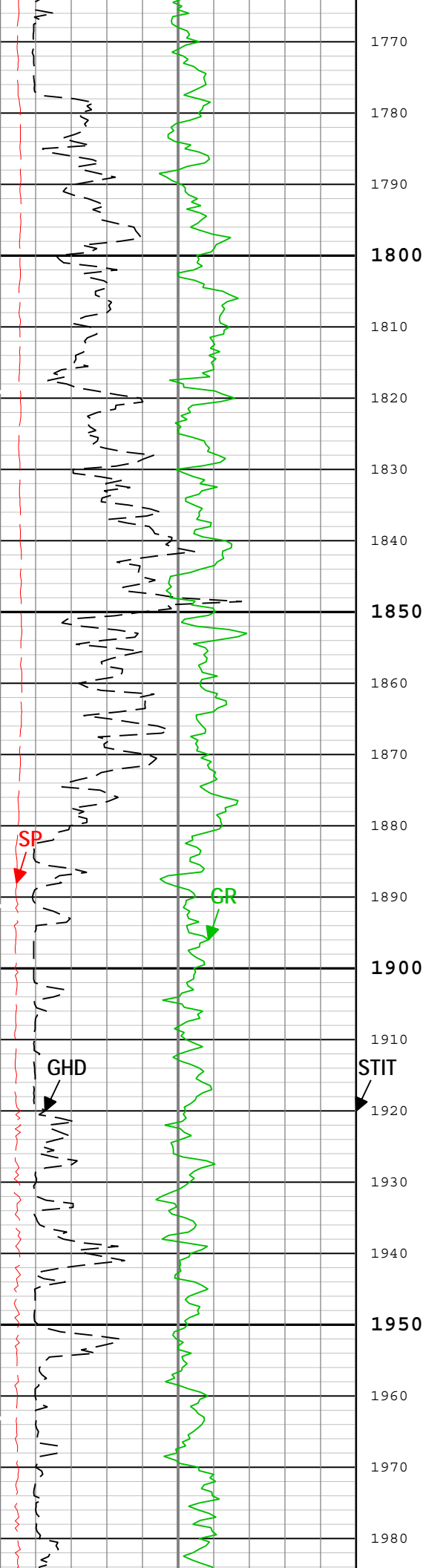


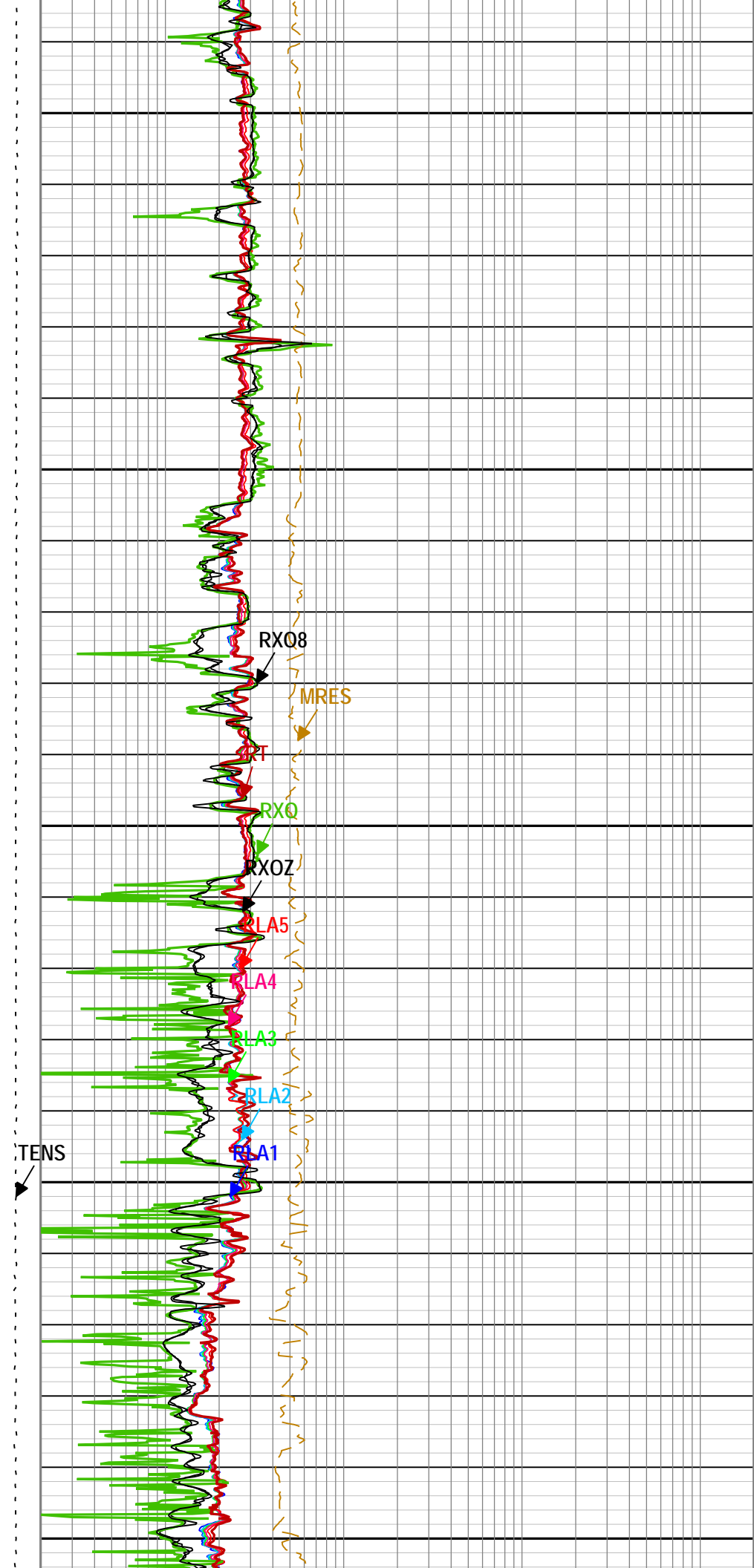
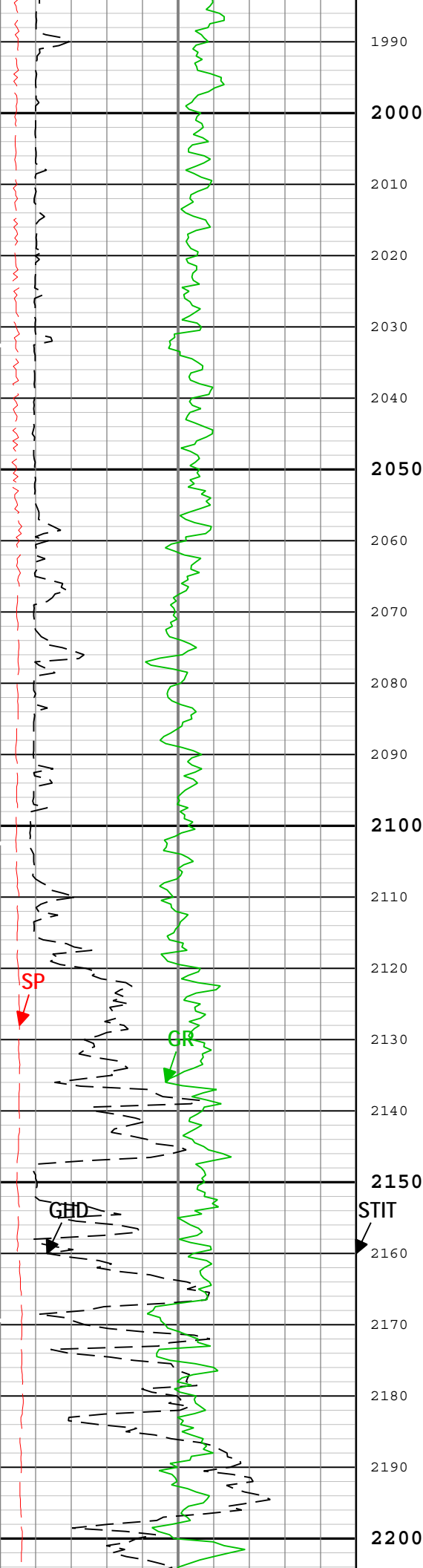


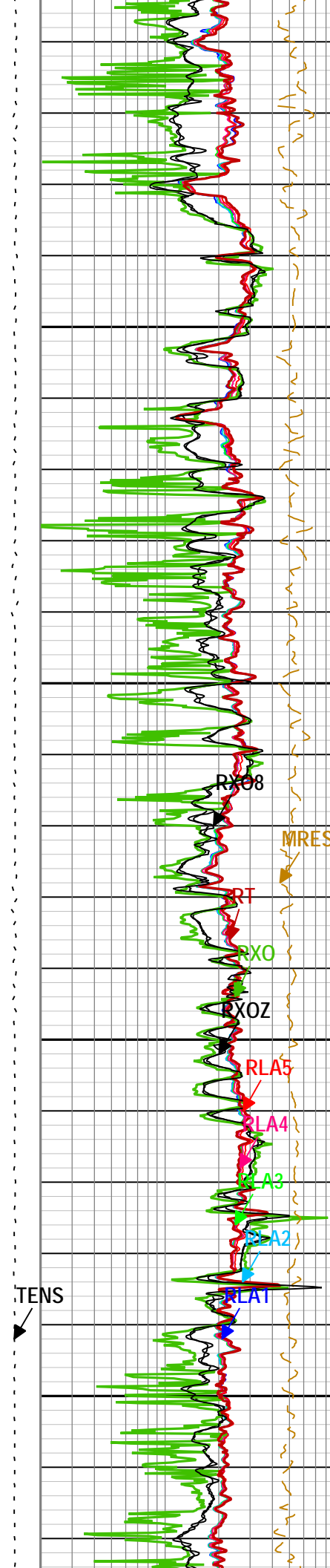
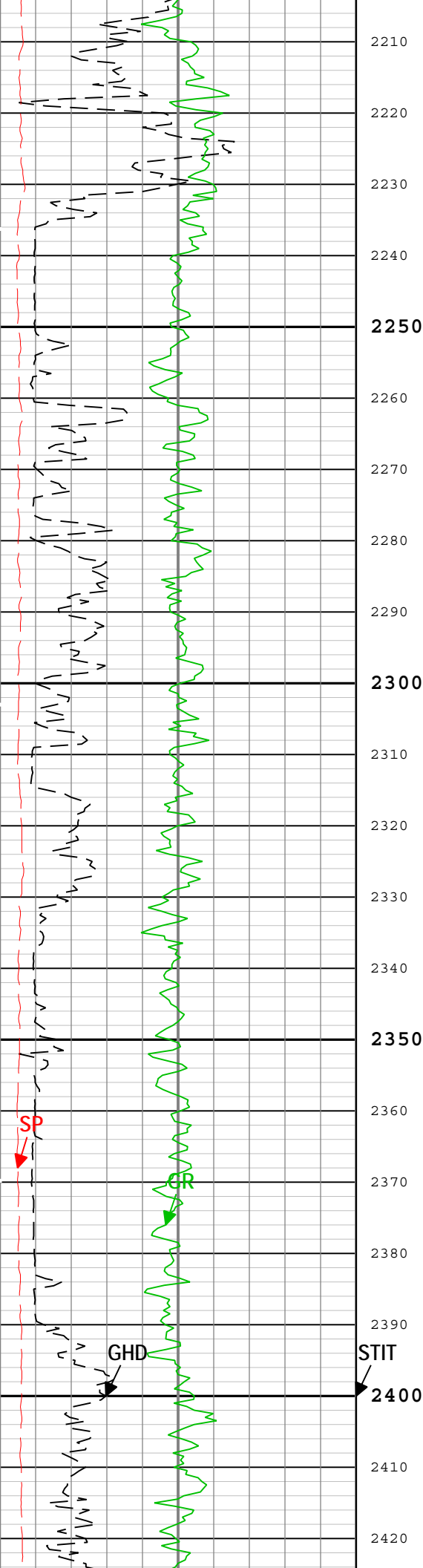


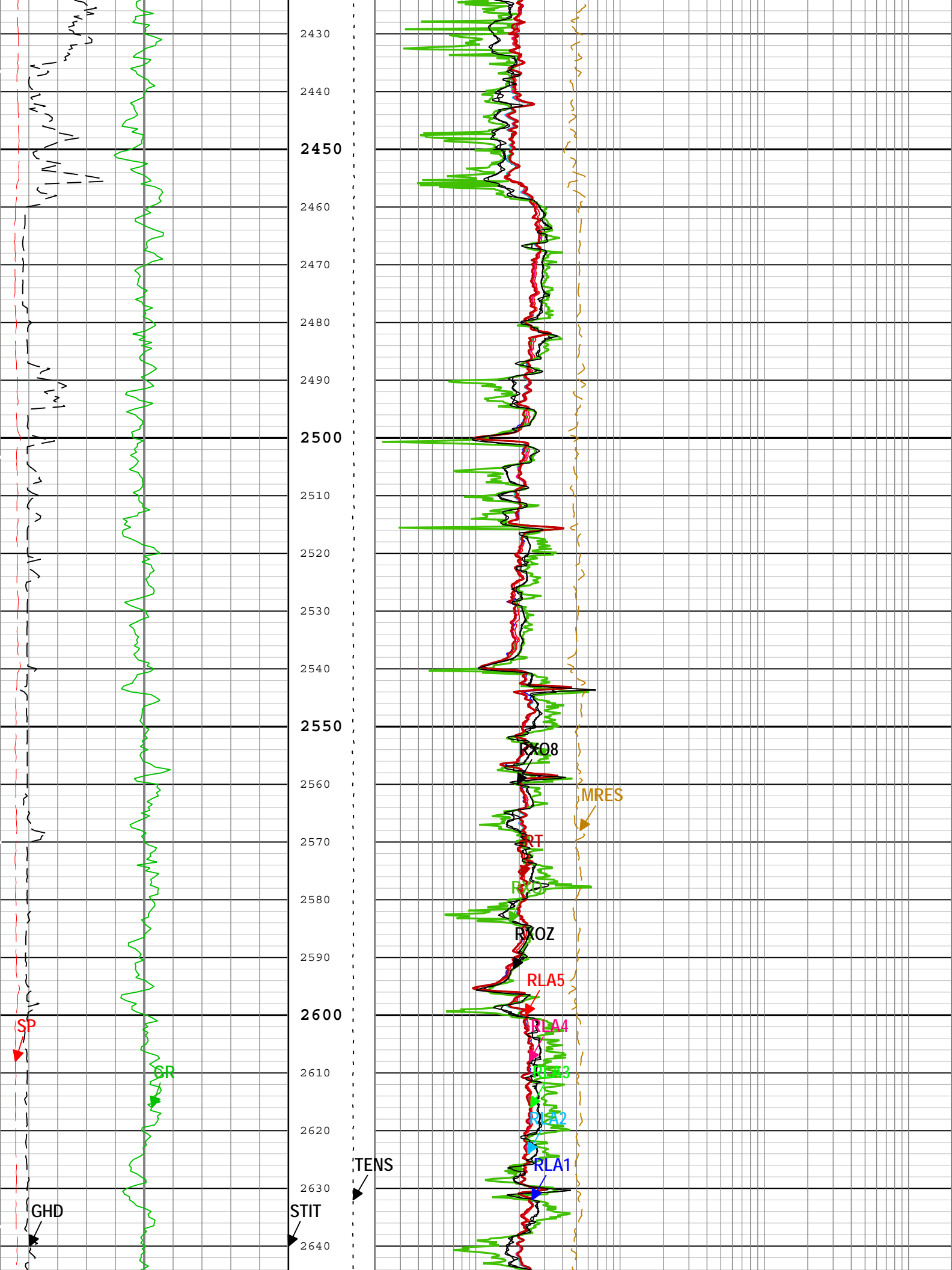


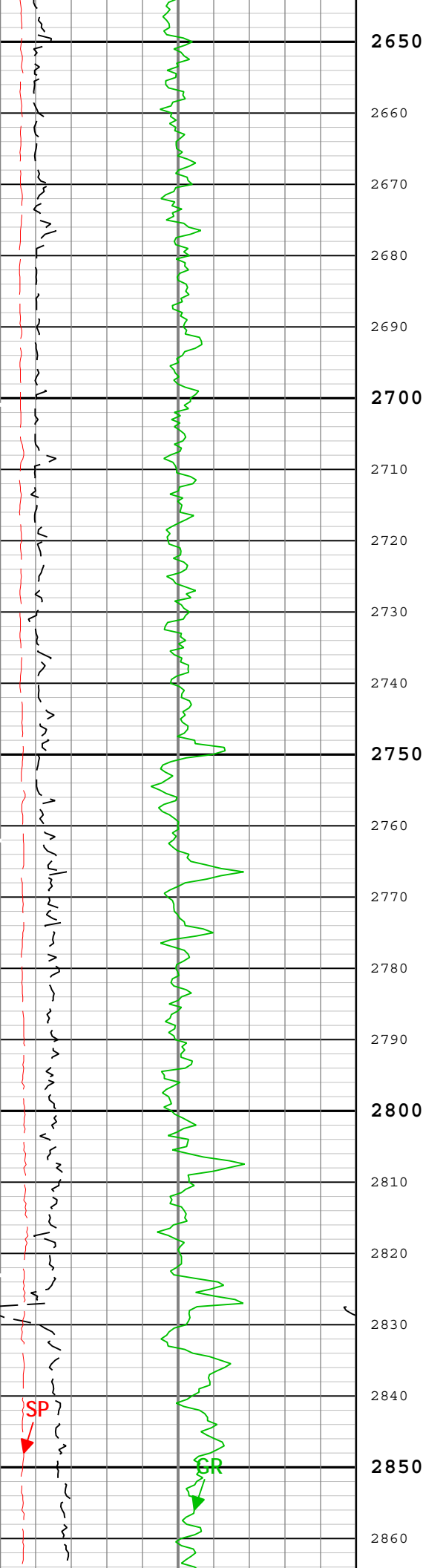












2650

2660

2670

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2700

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2800

2810

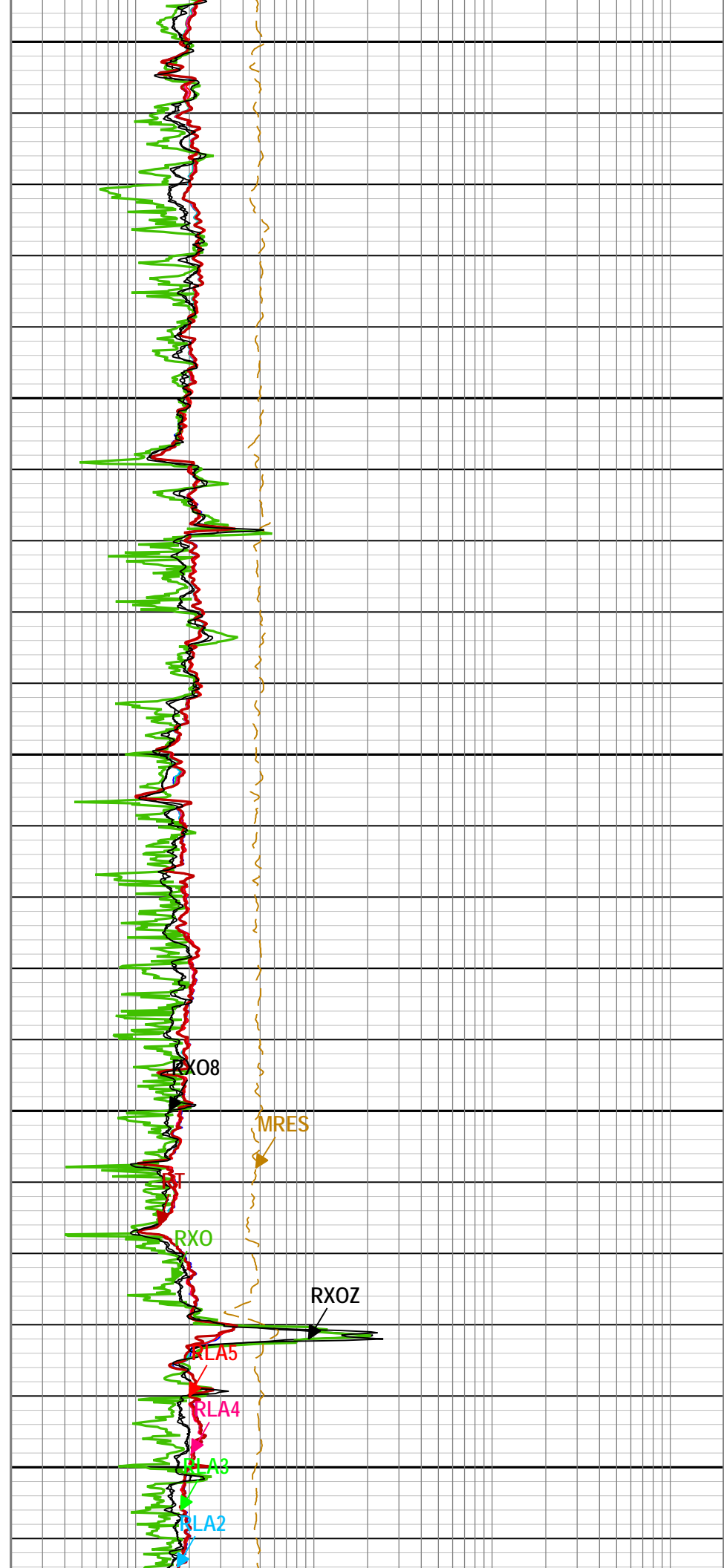
2820

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2860



RX08

MRES

RX0

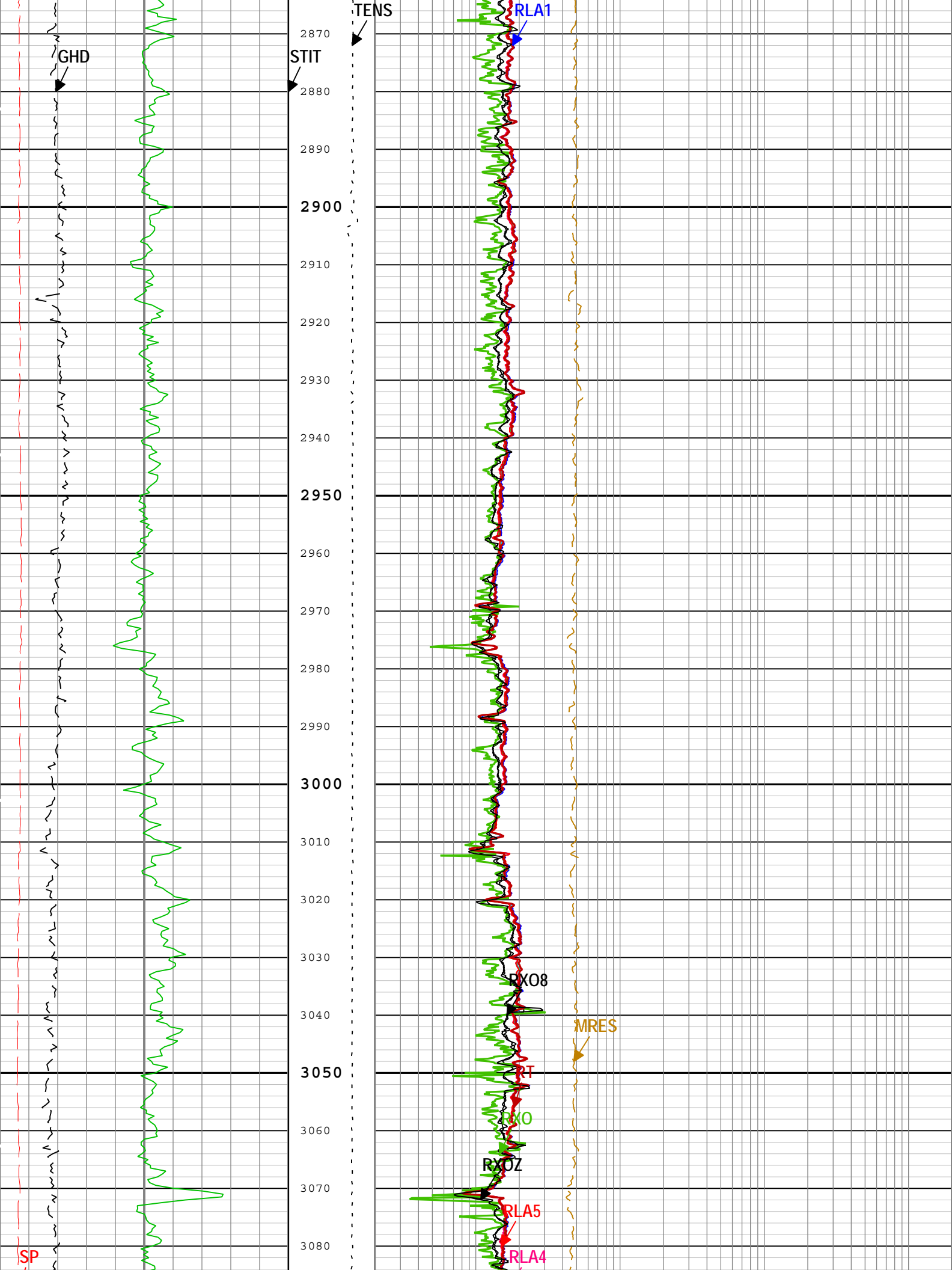
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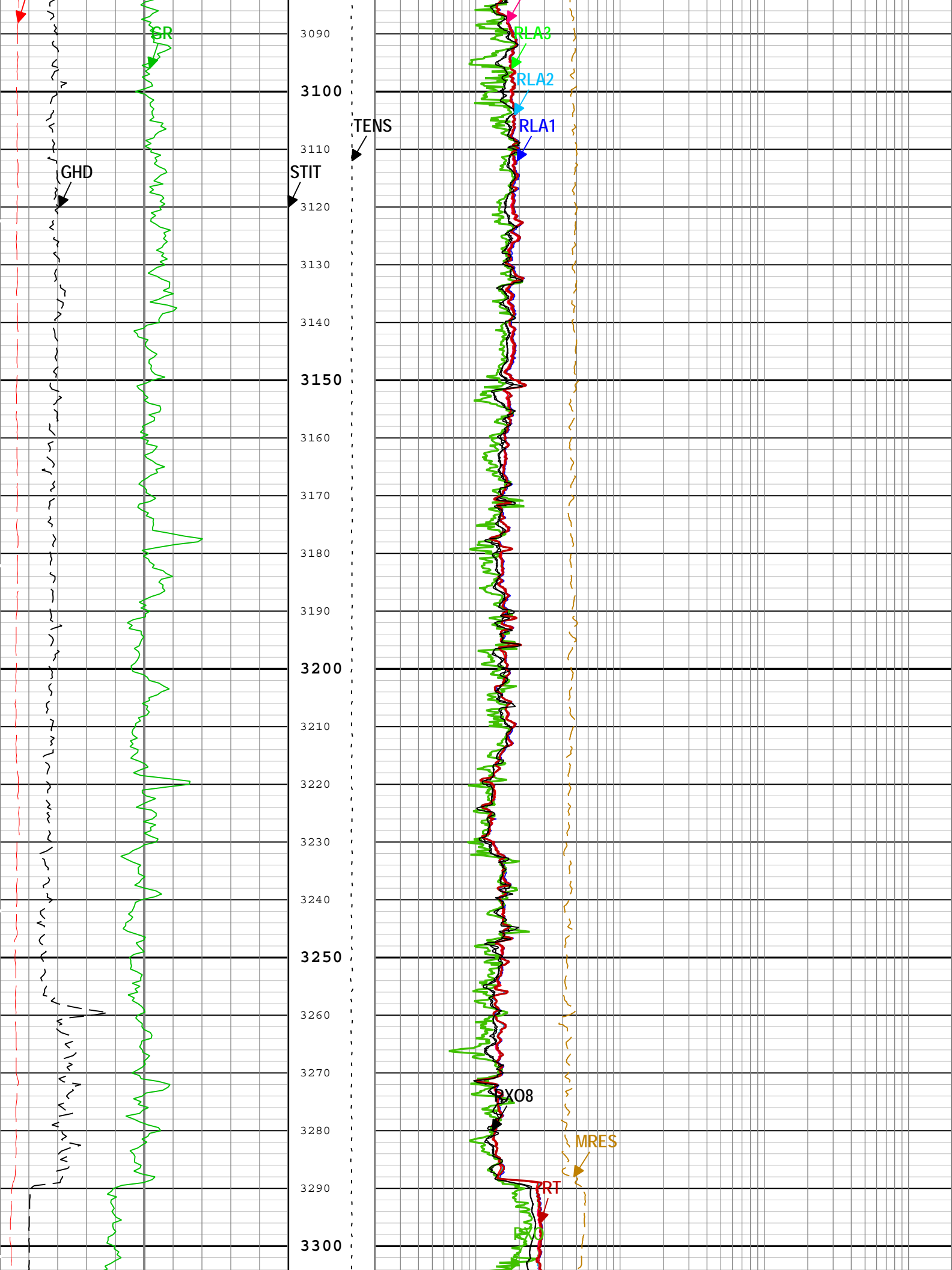
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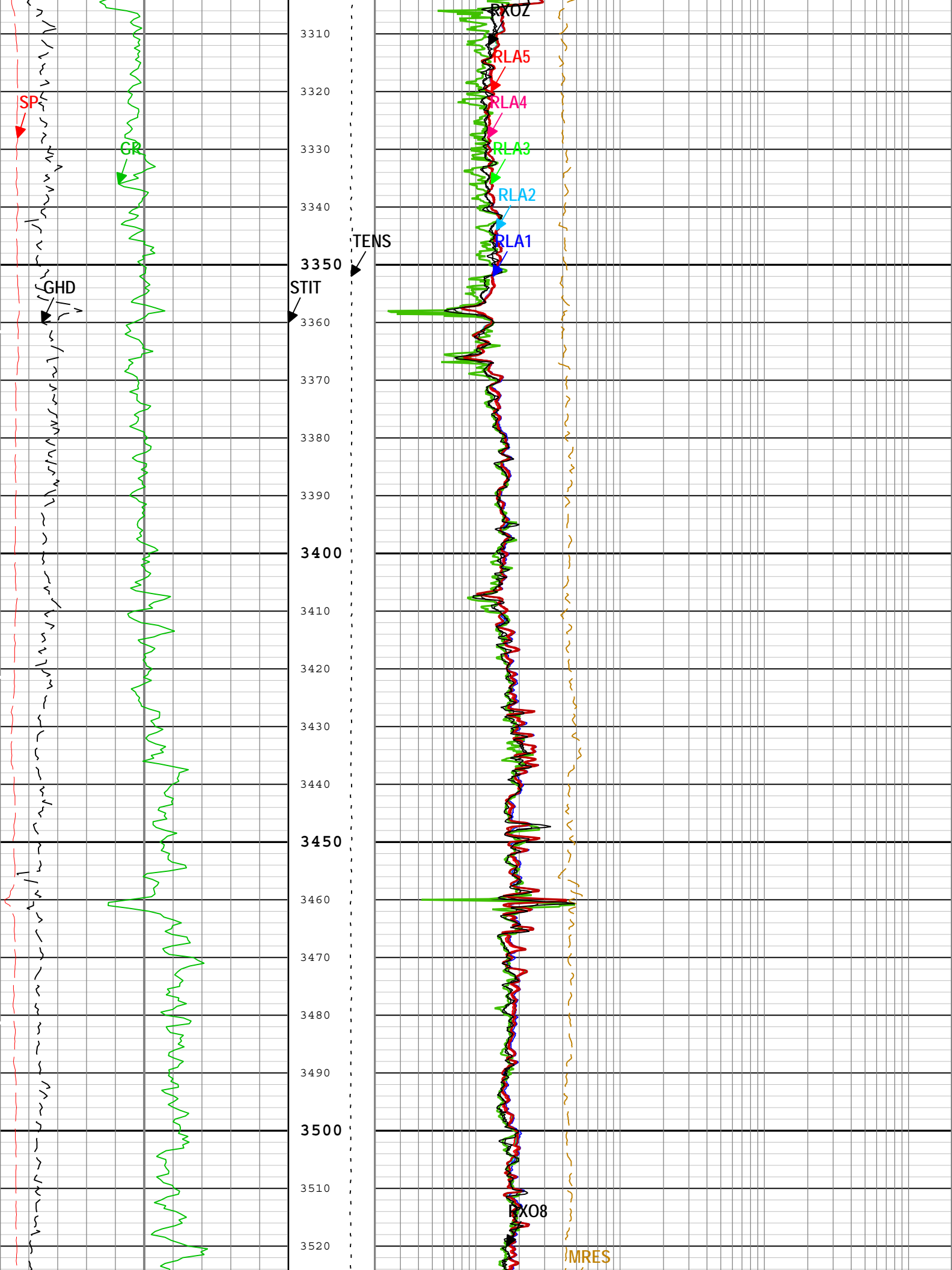
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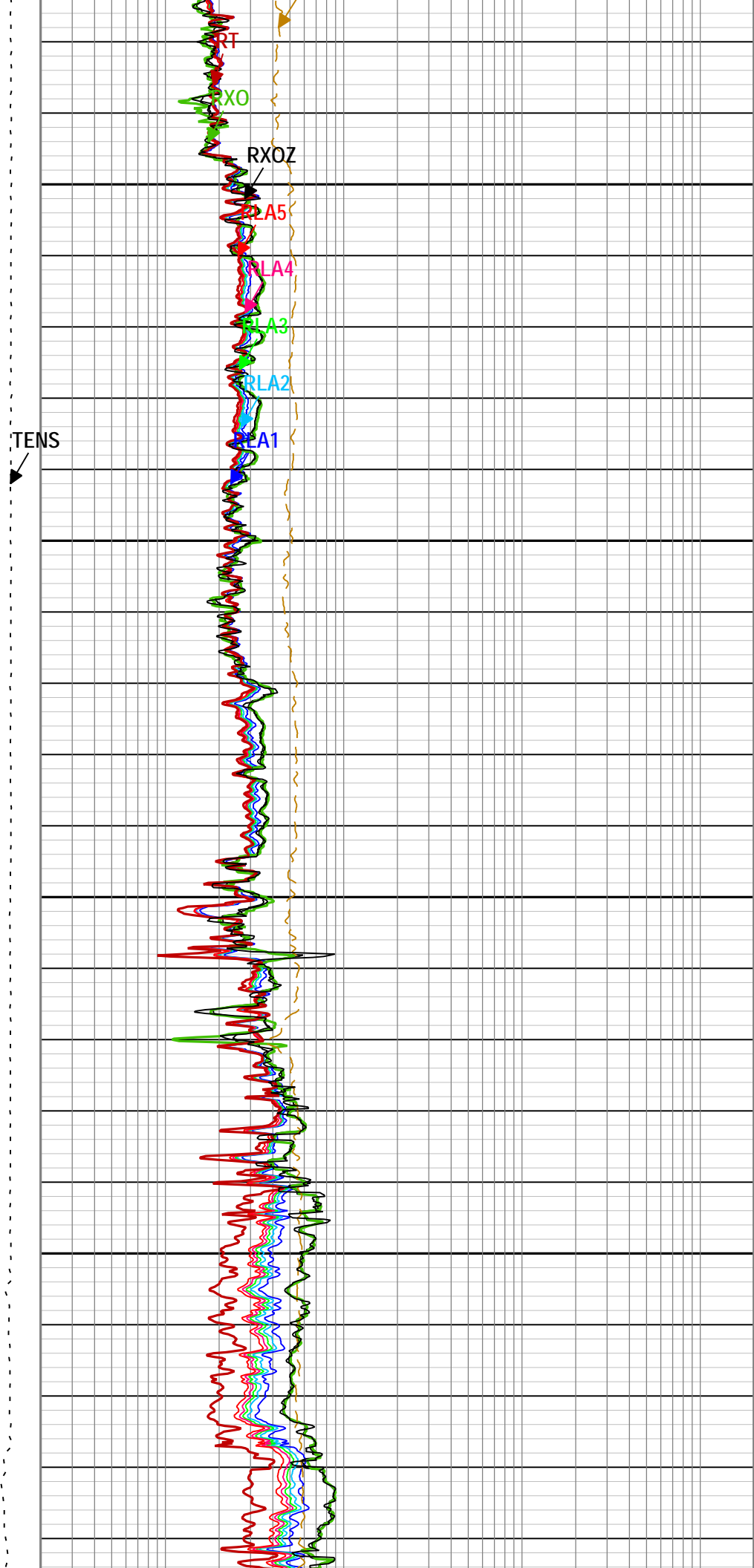
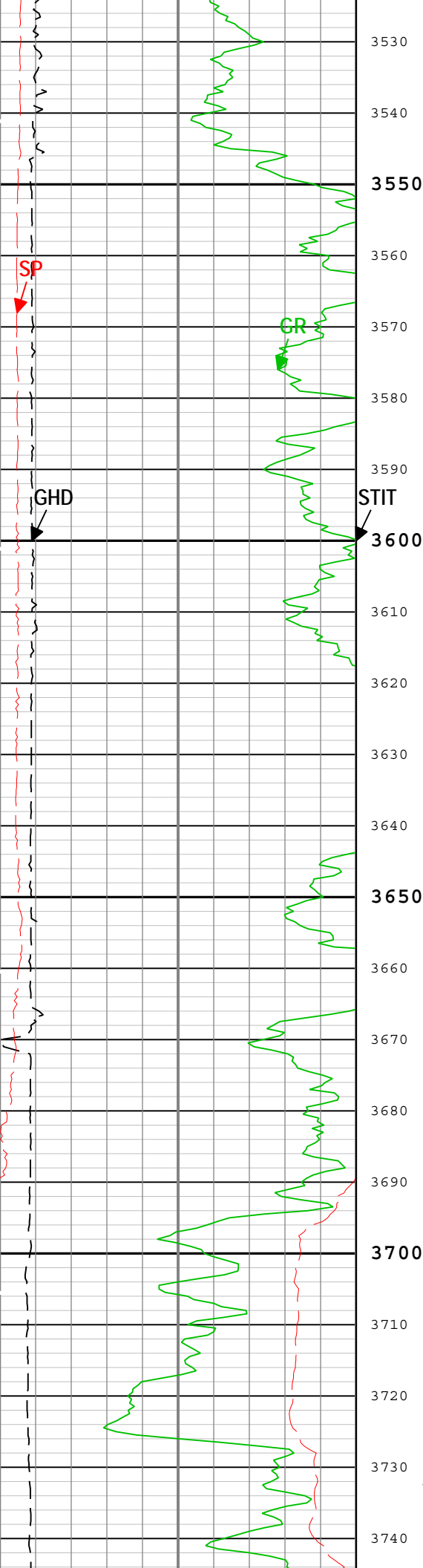
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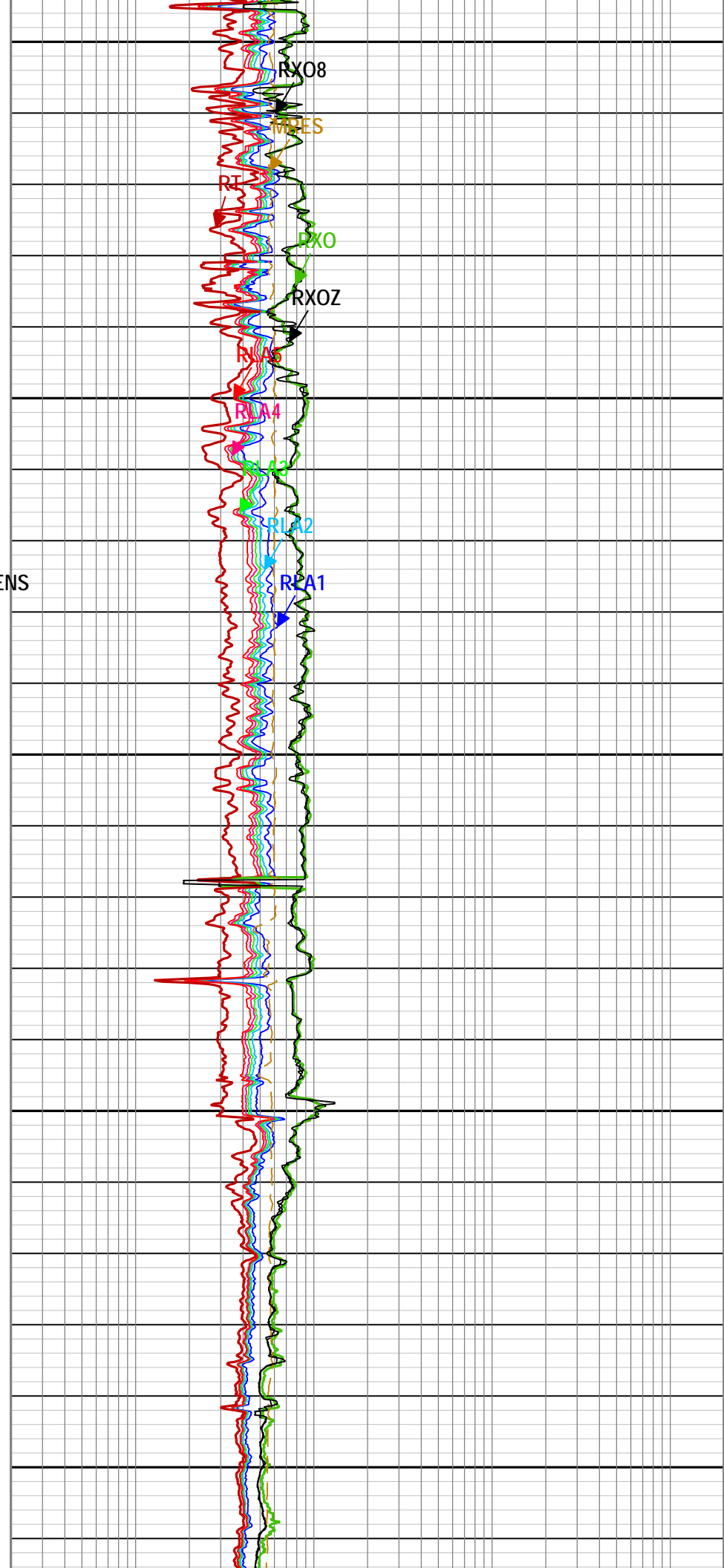
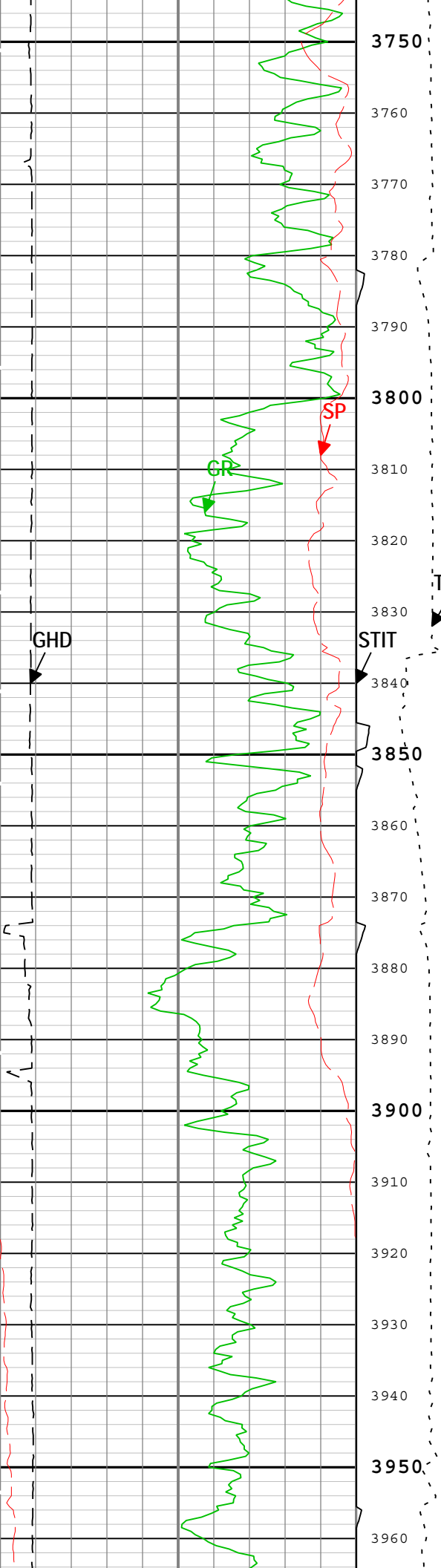
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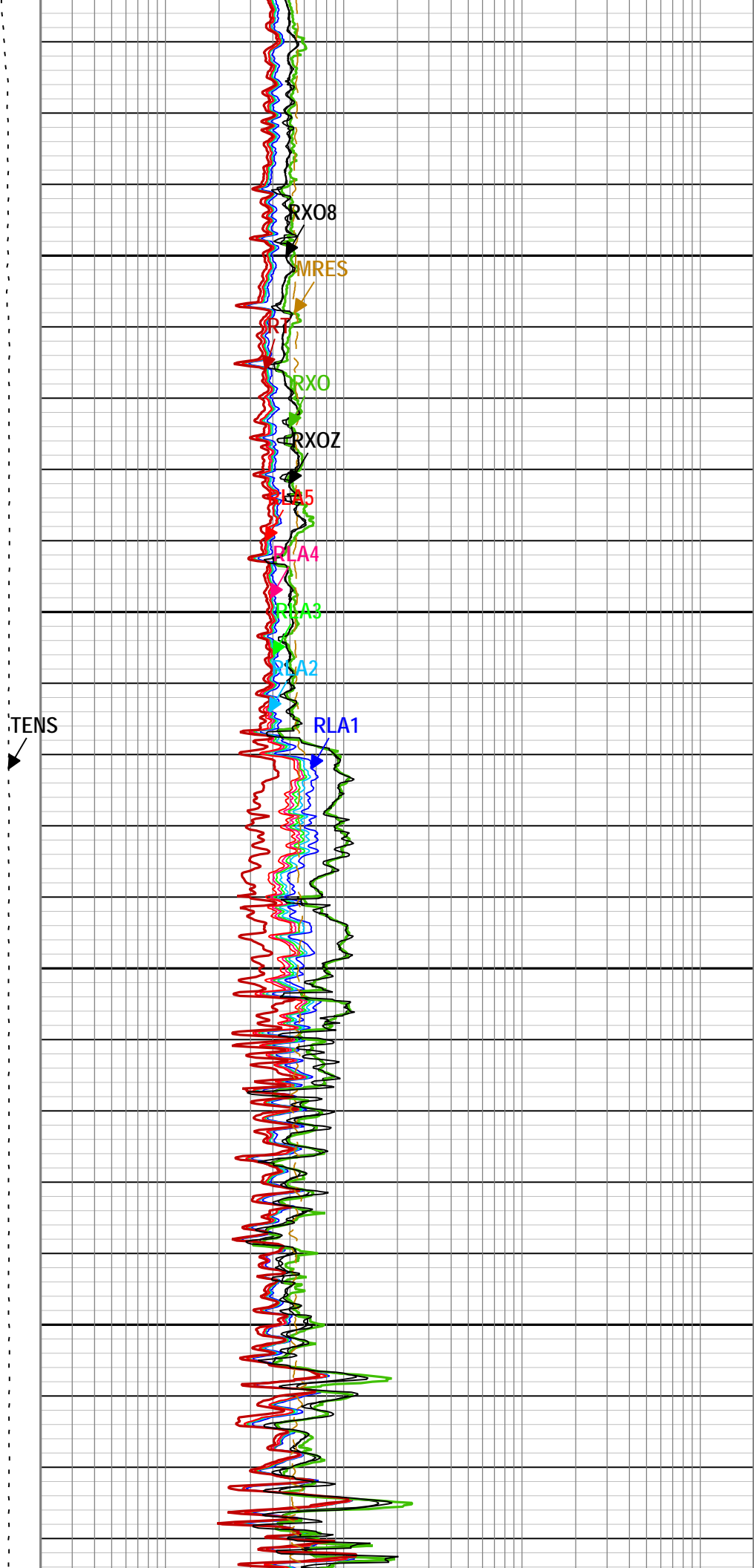
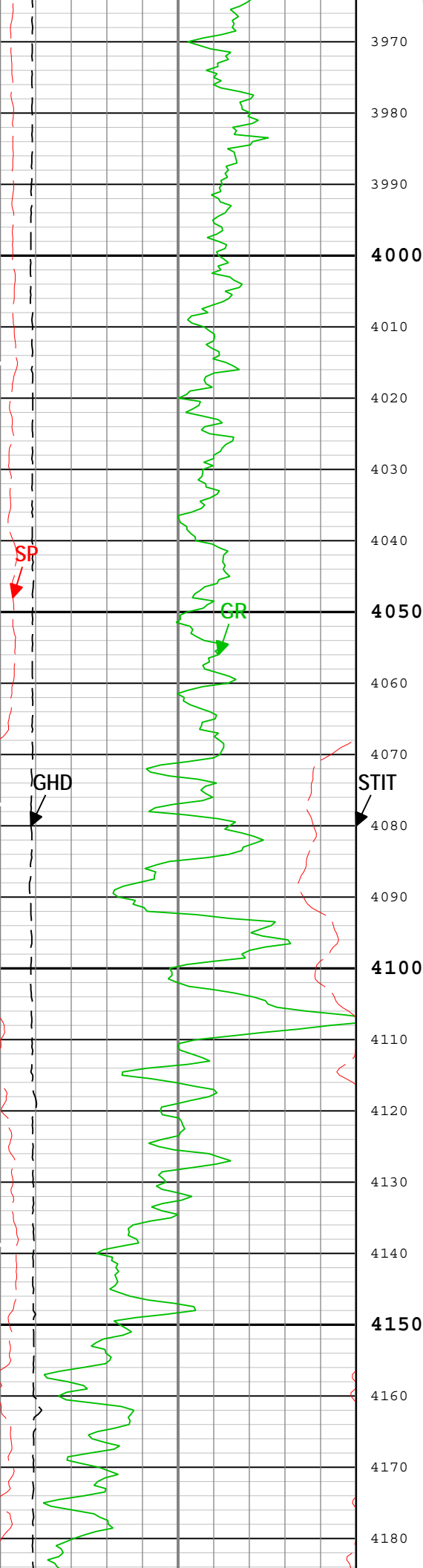


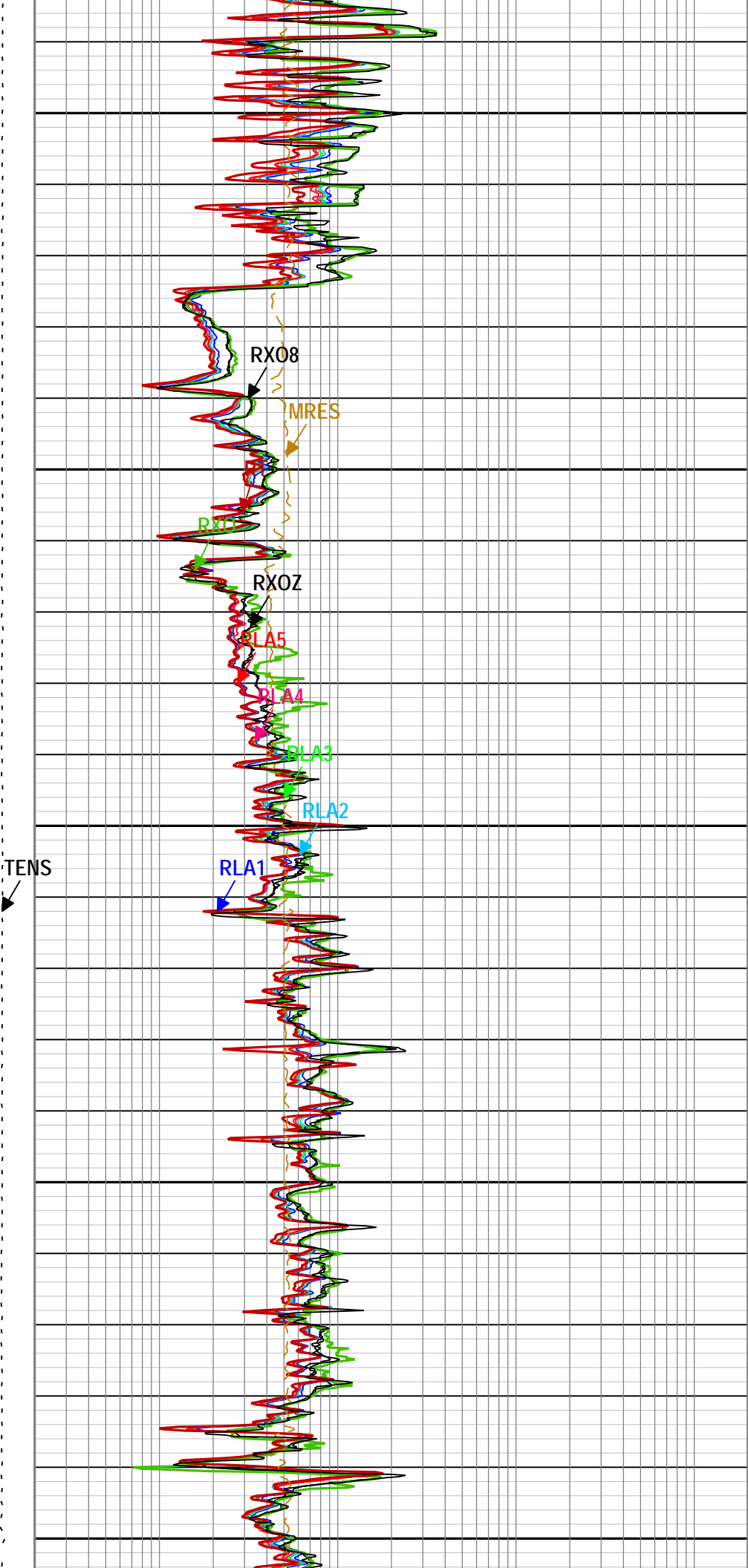
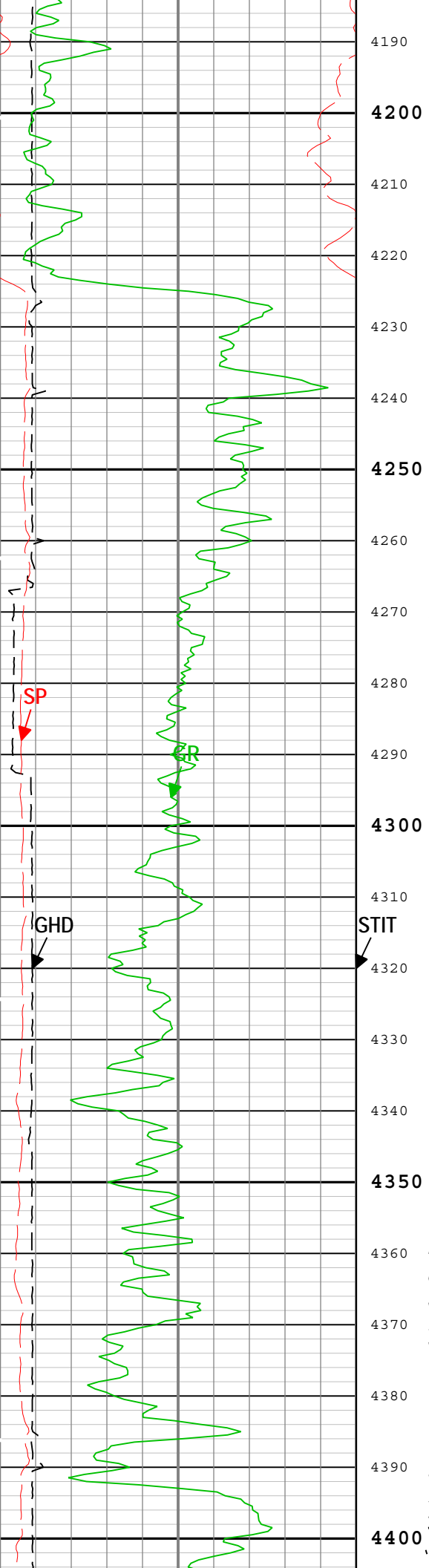


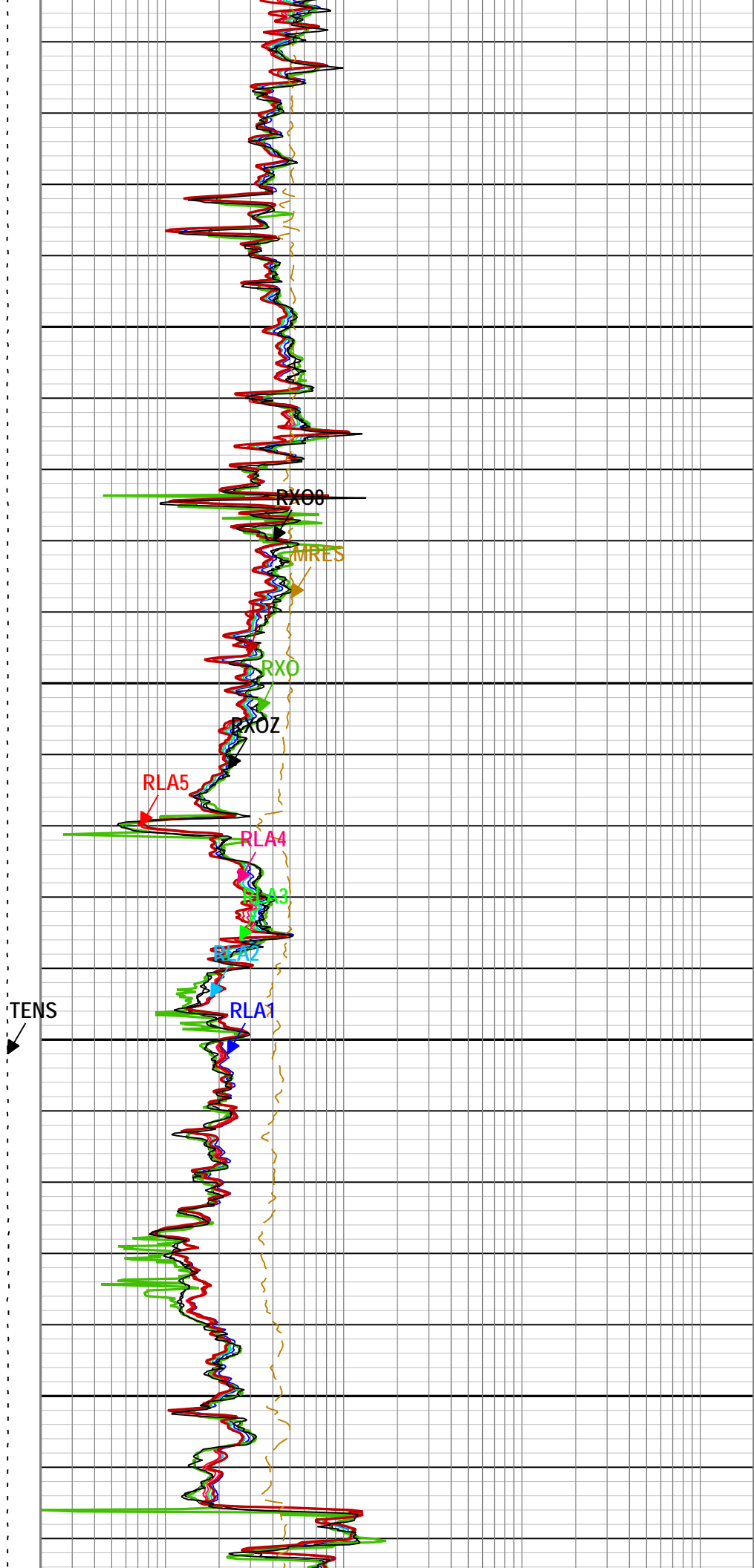
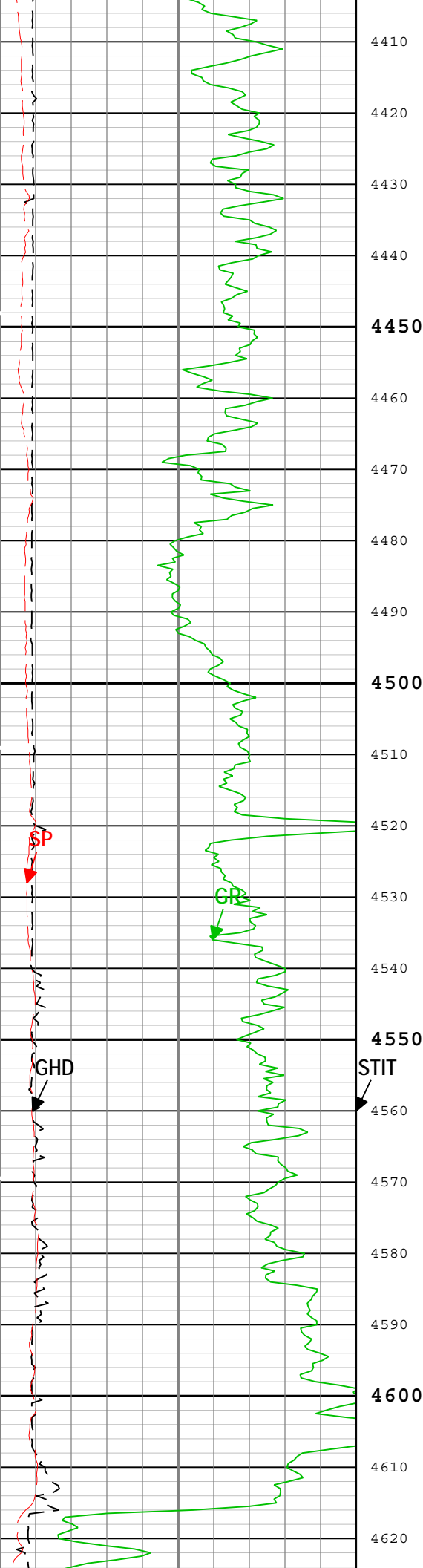


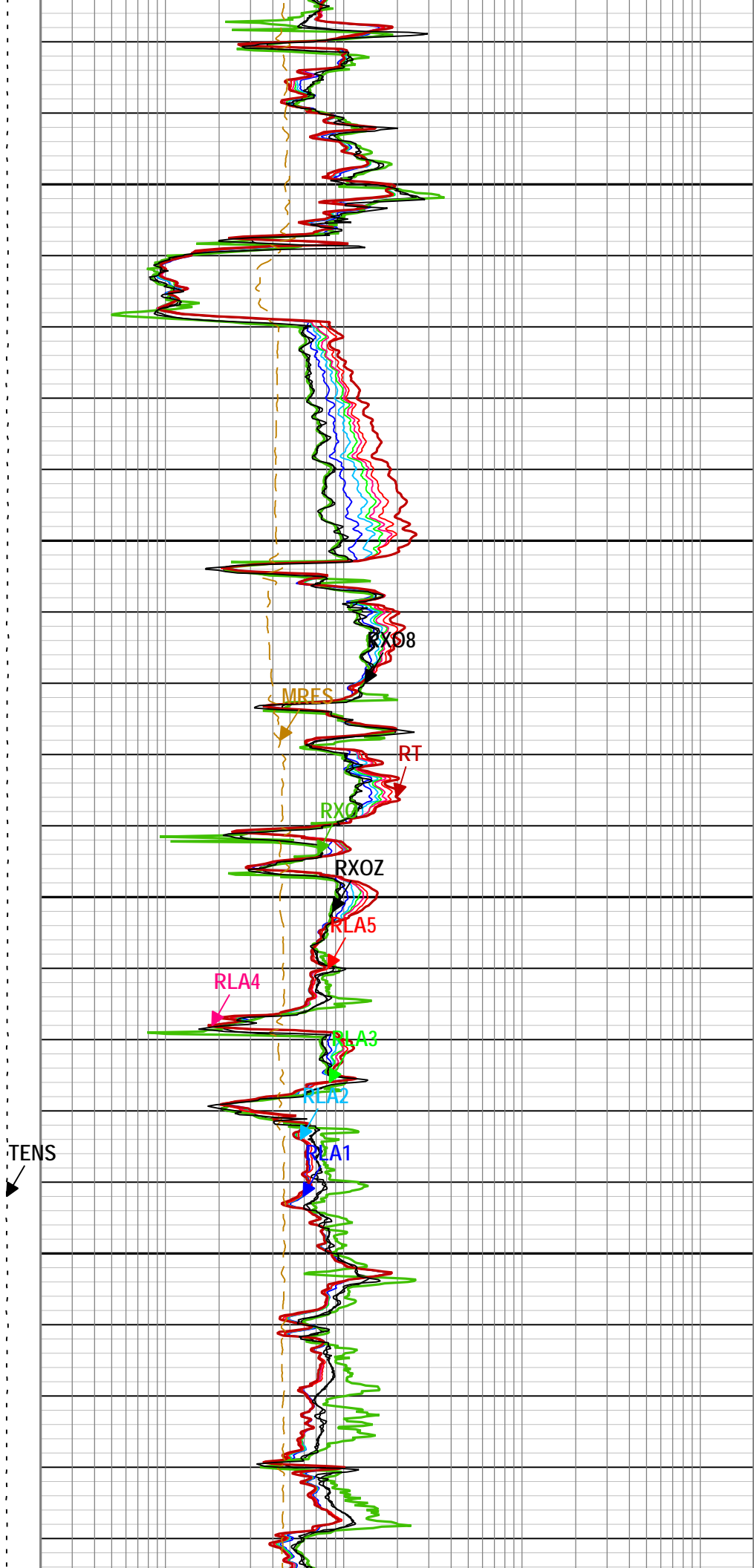
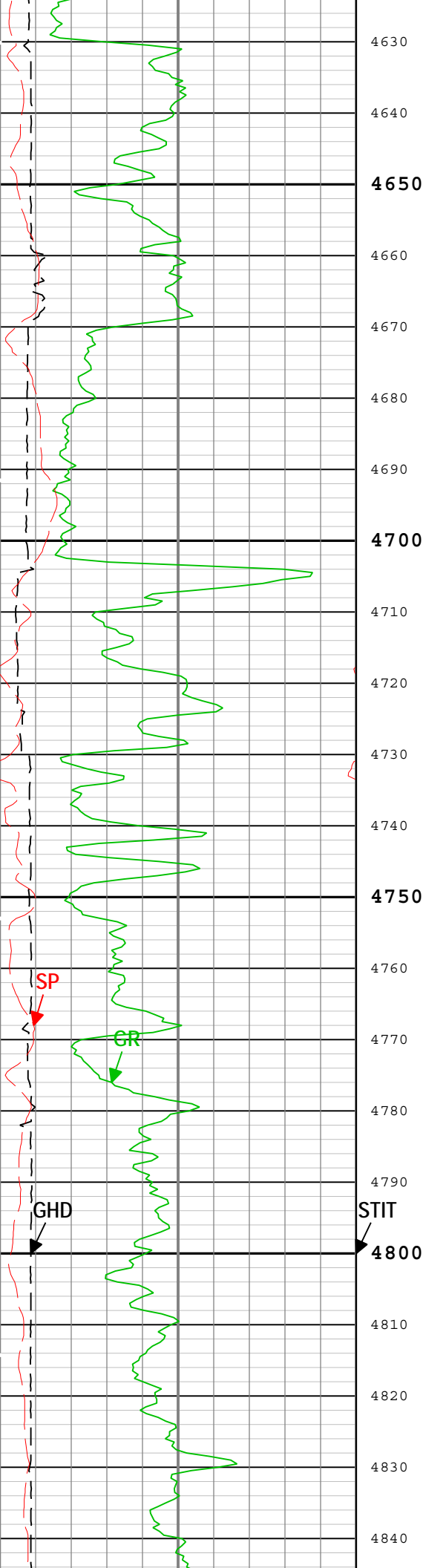


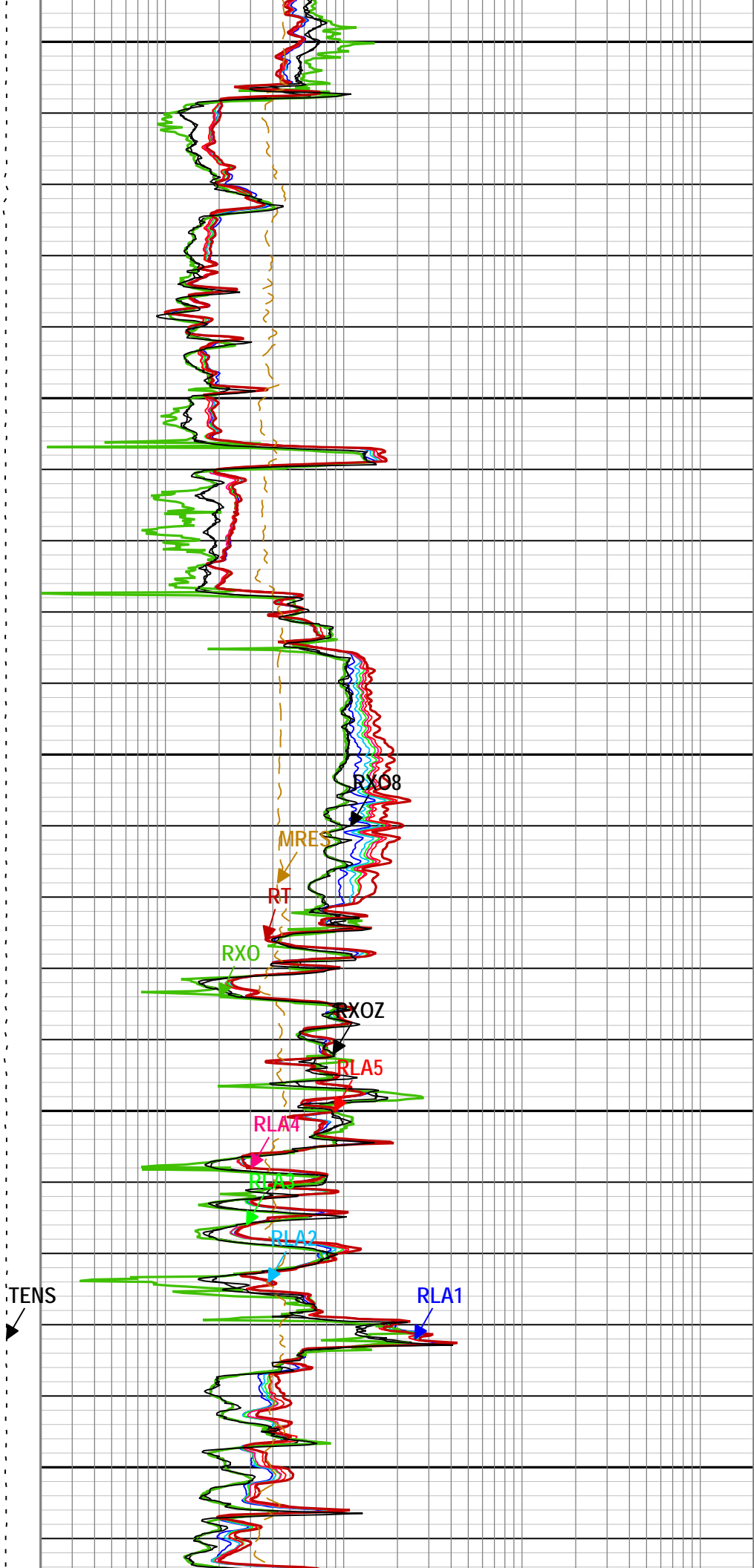
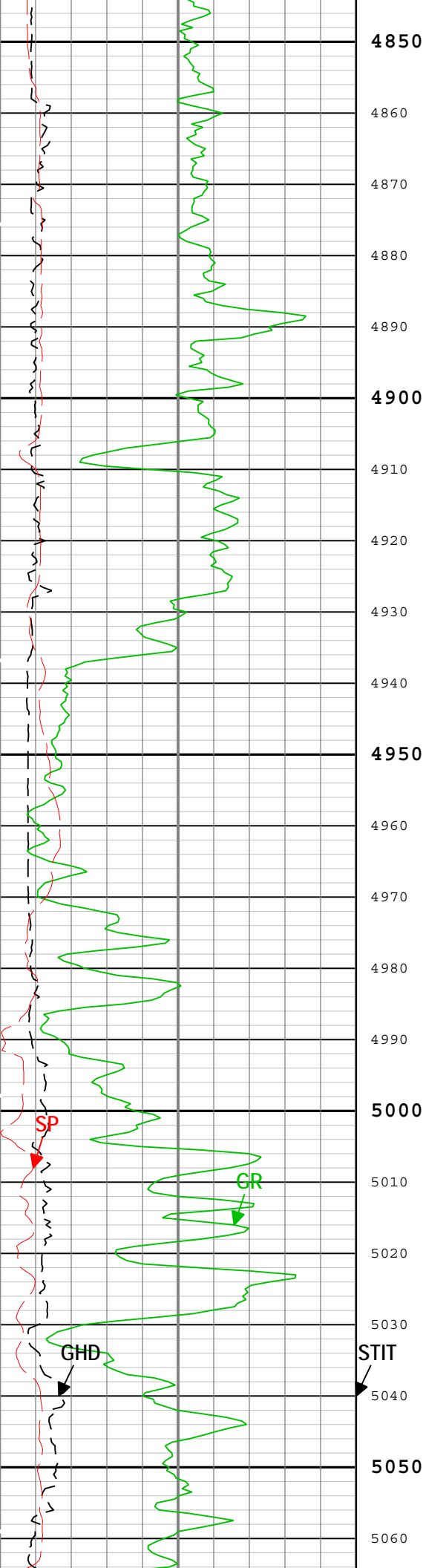


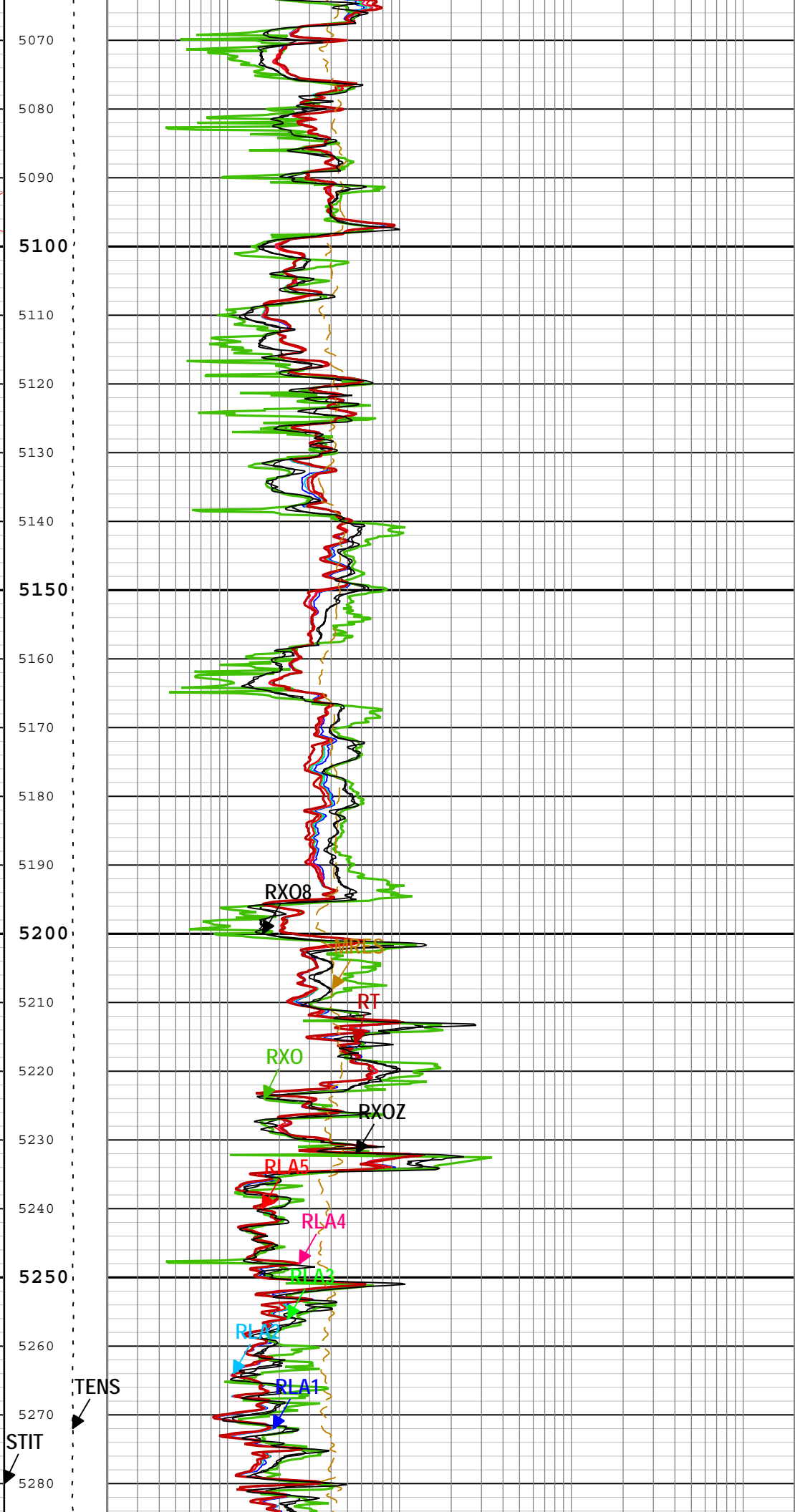
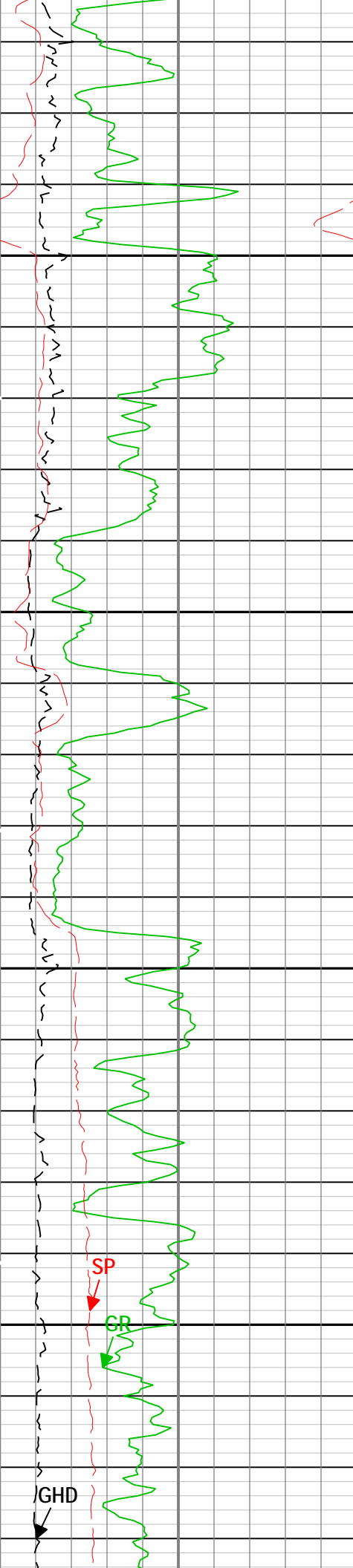


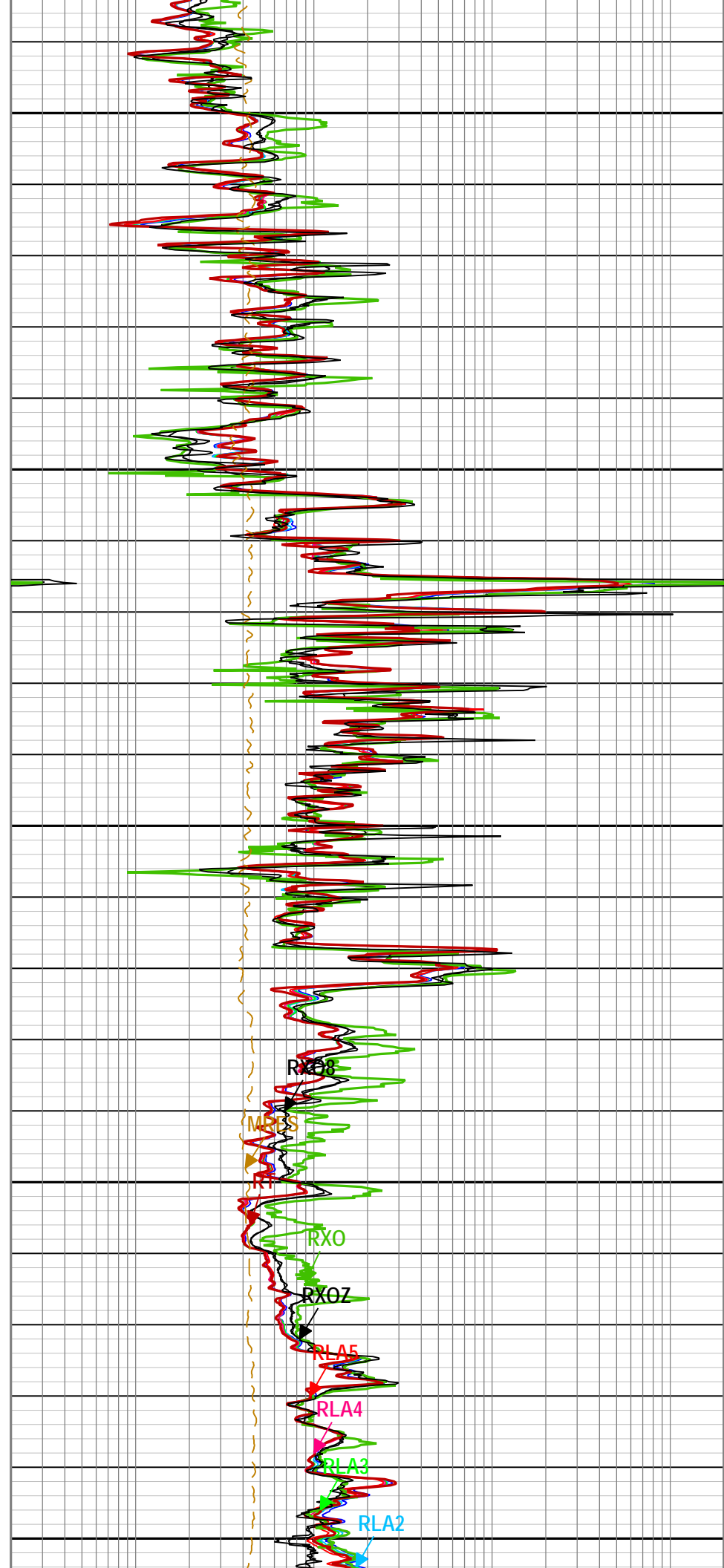
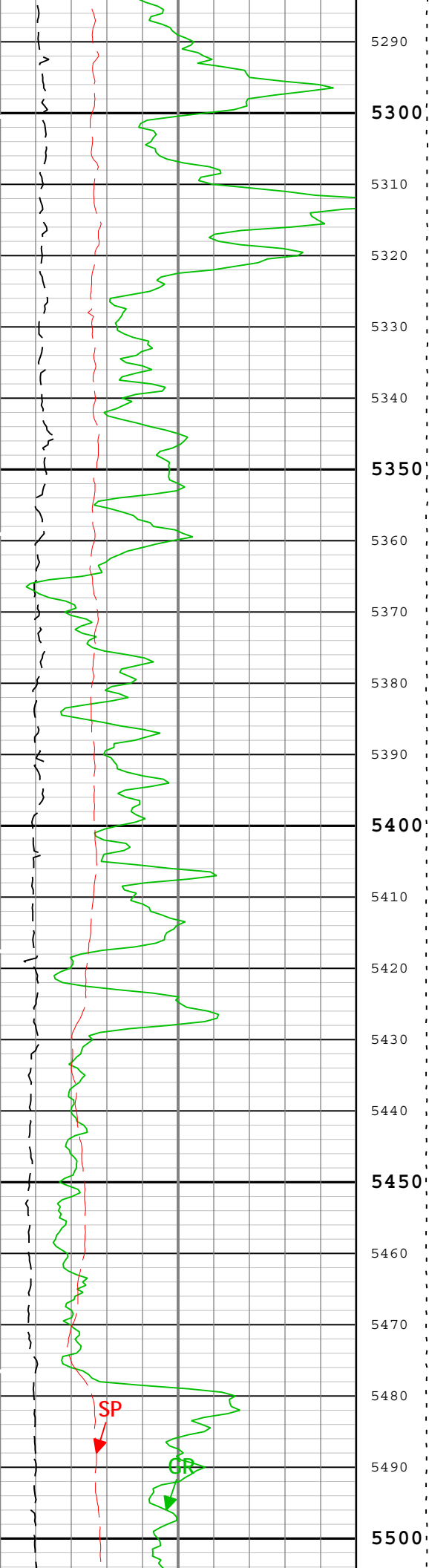


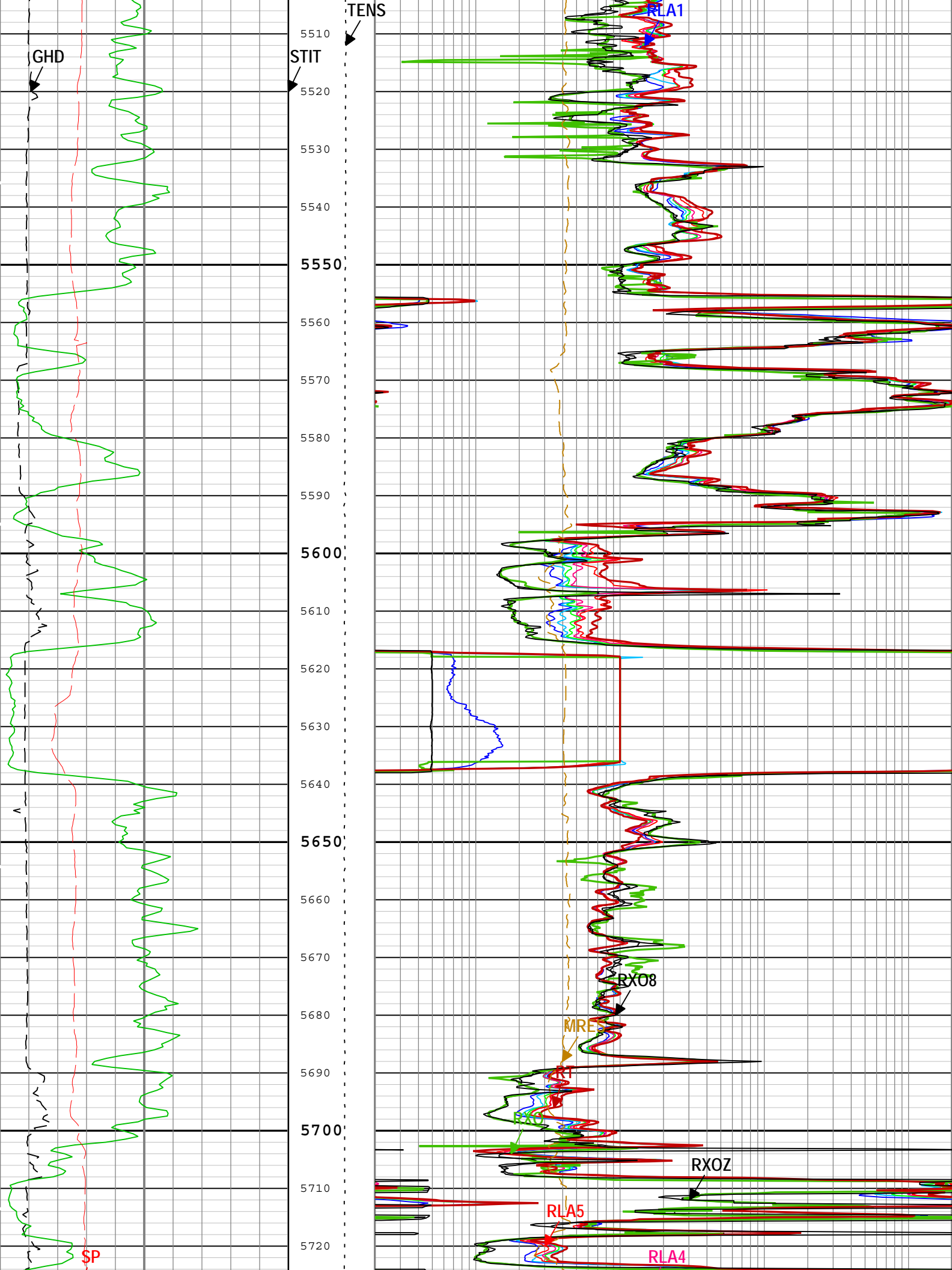


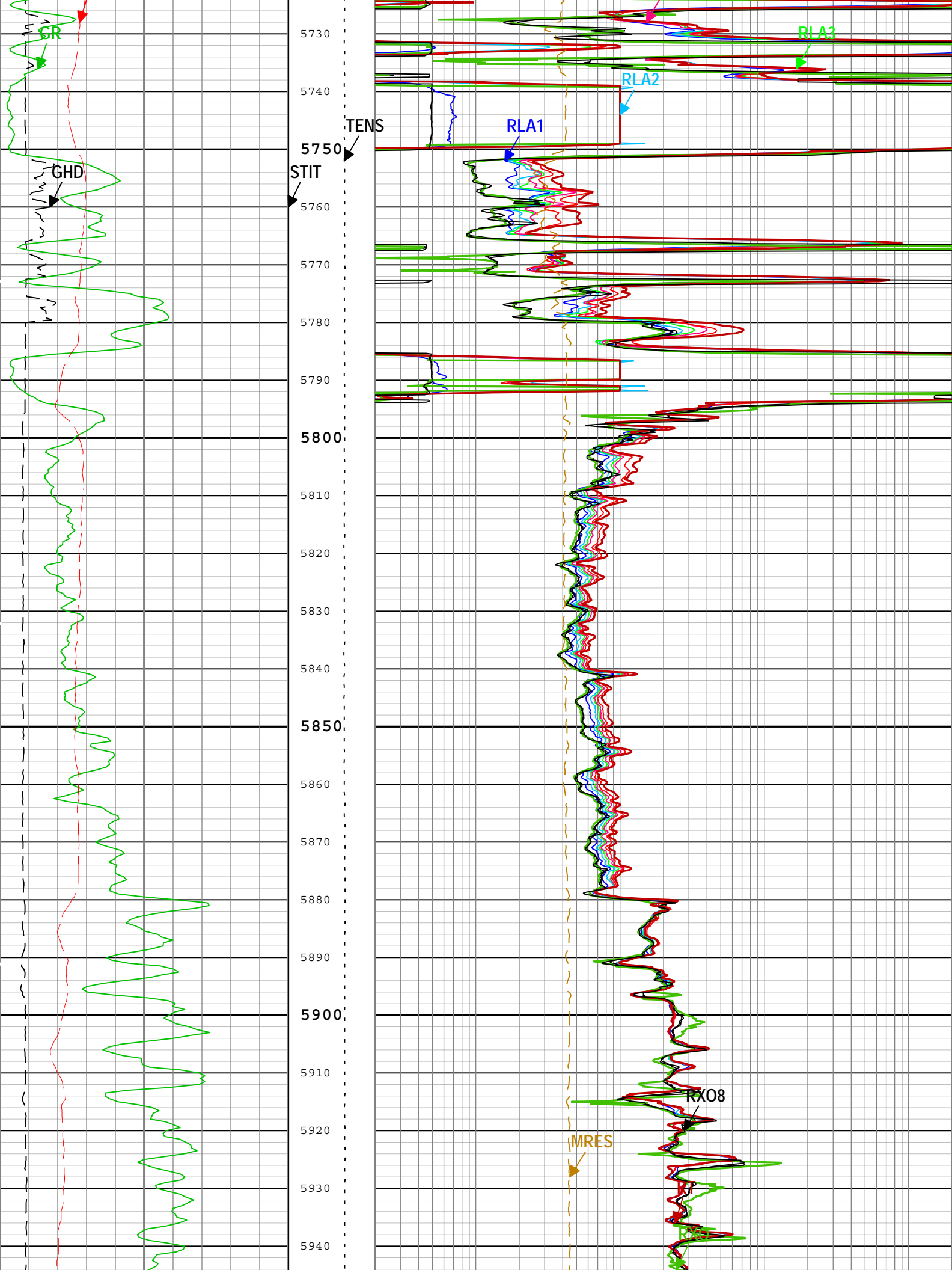


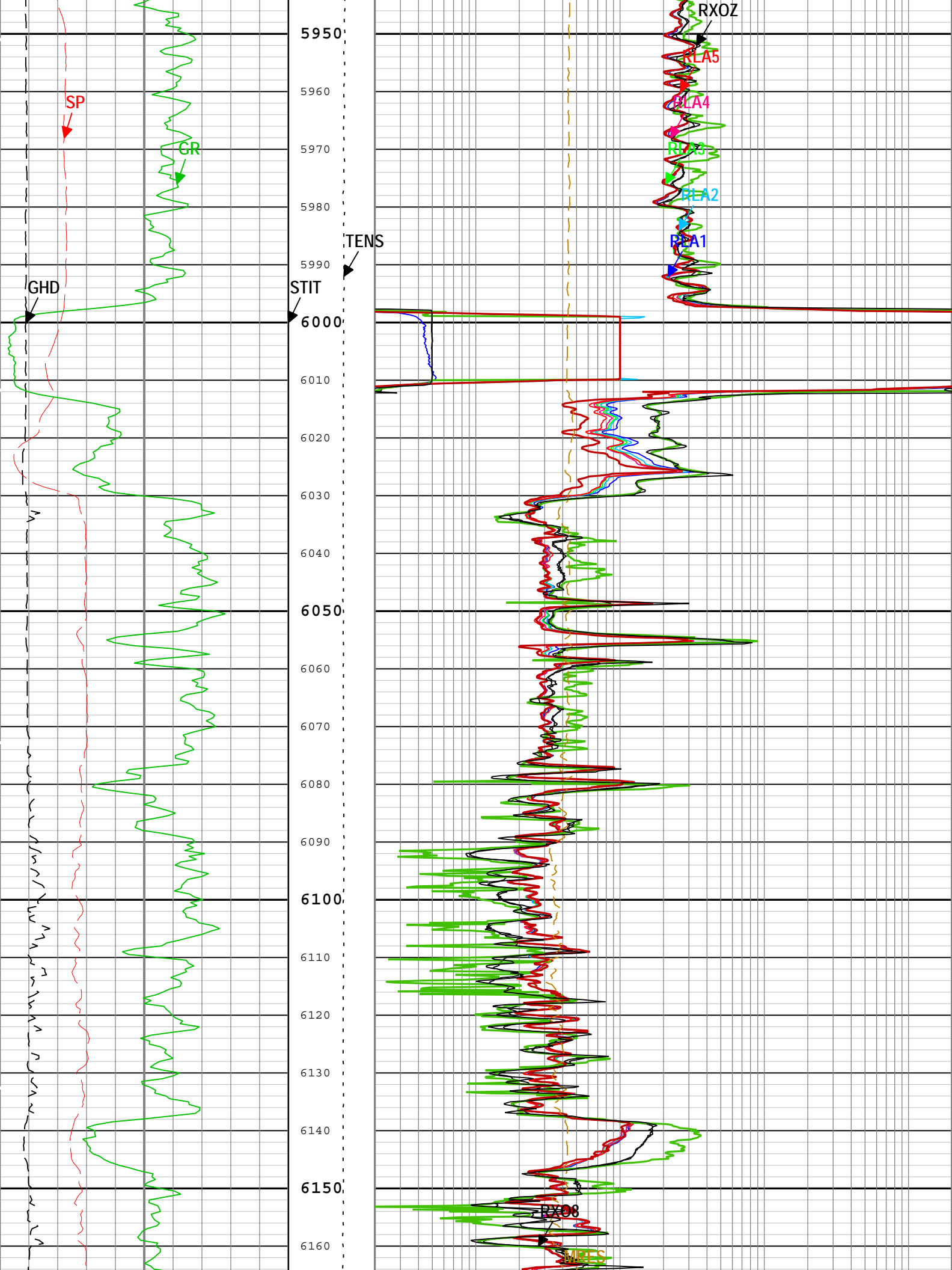


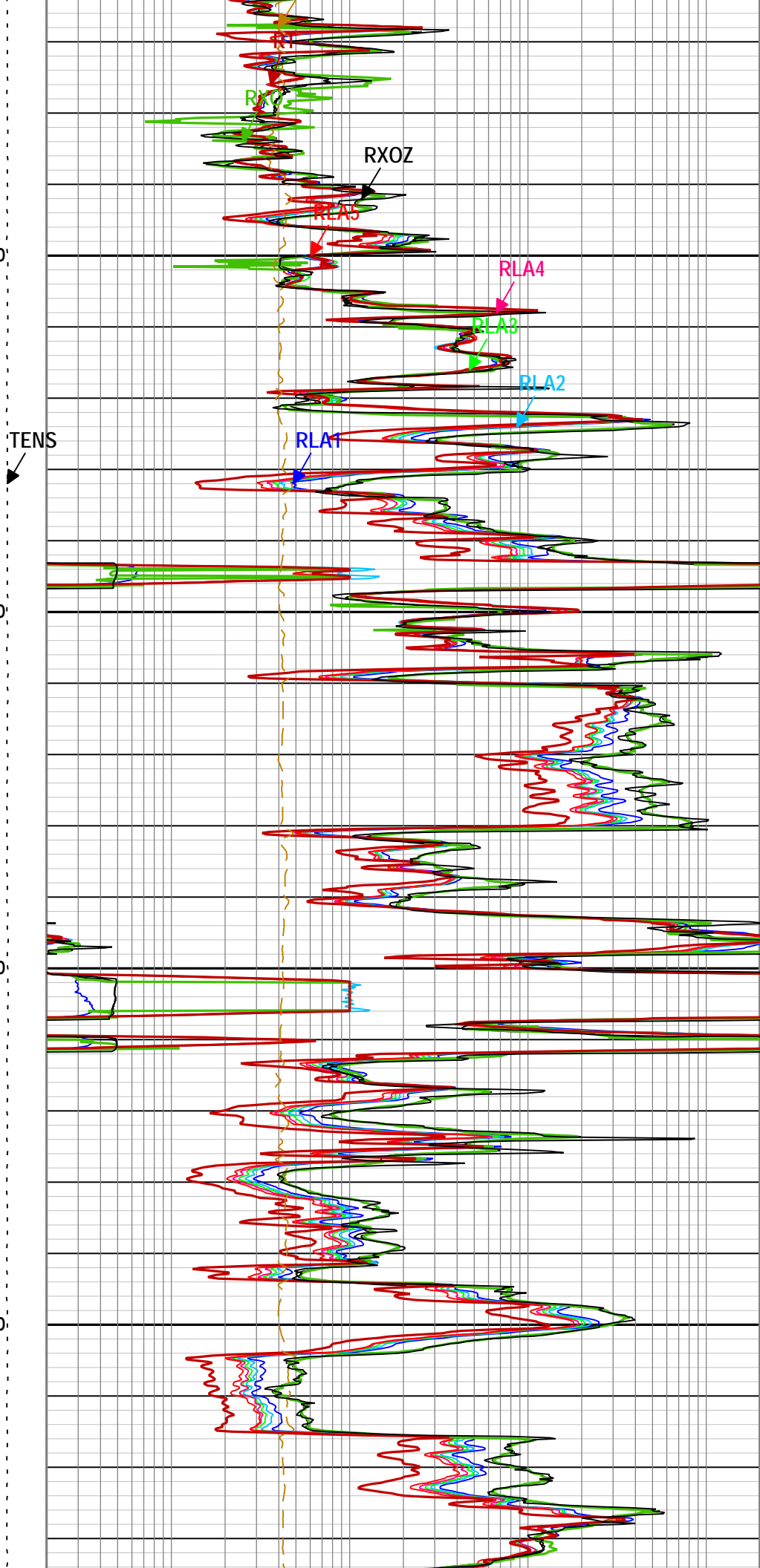
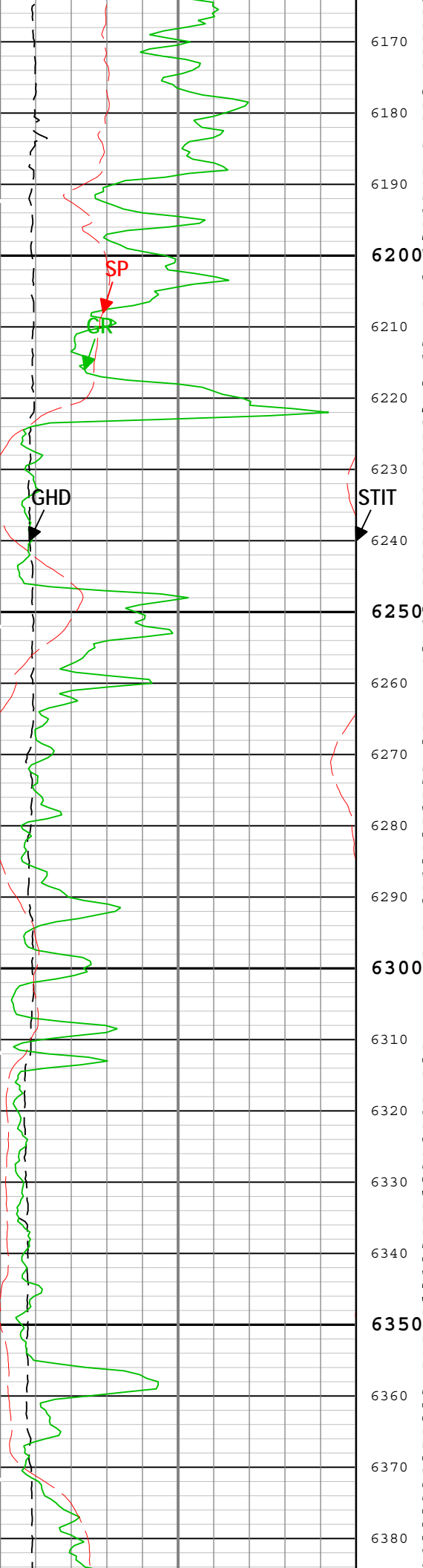


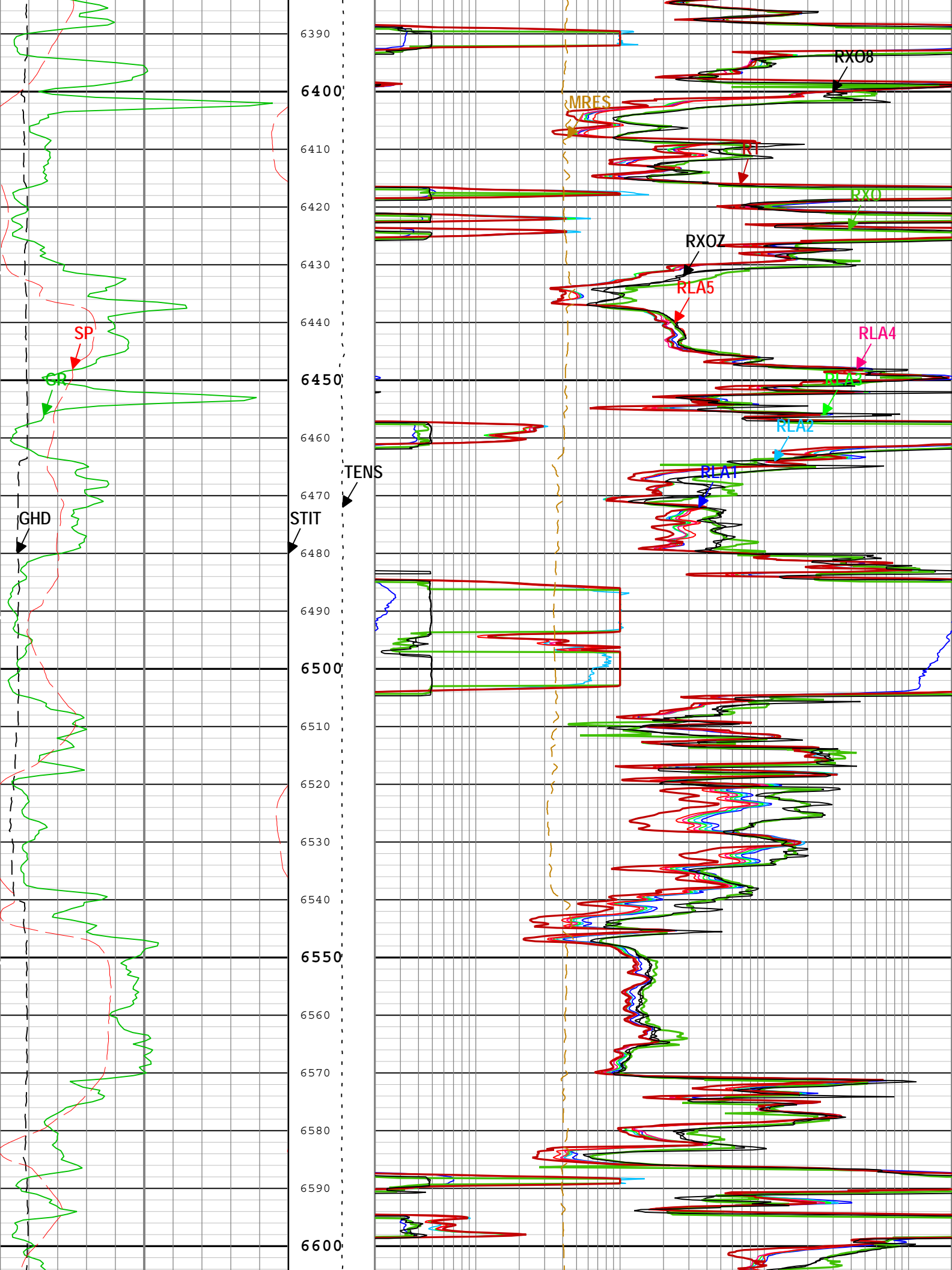


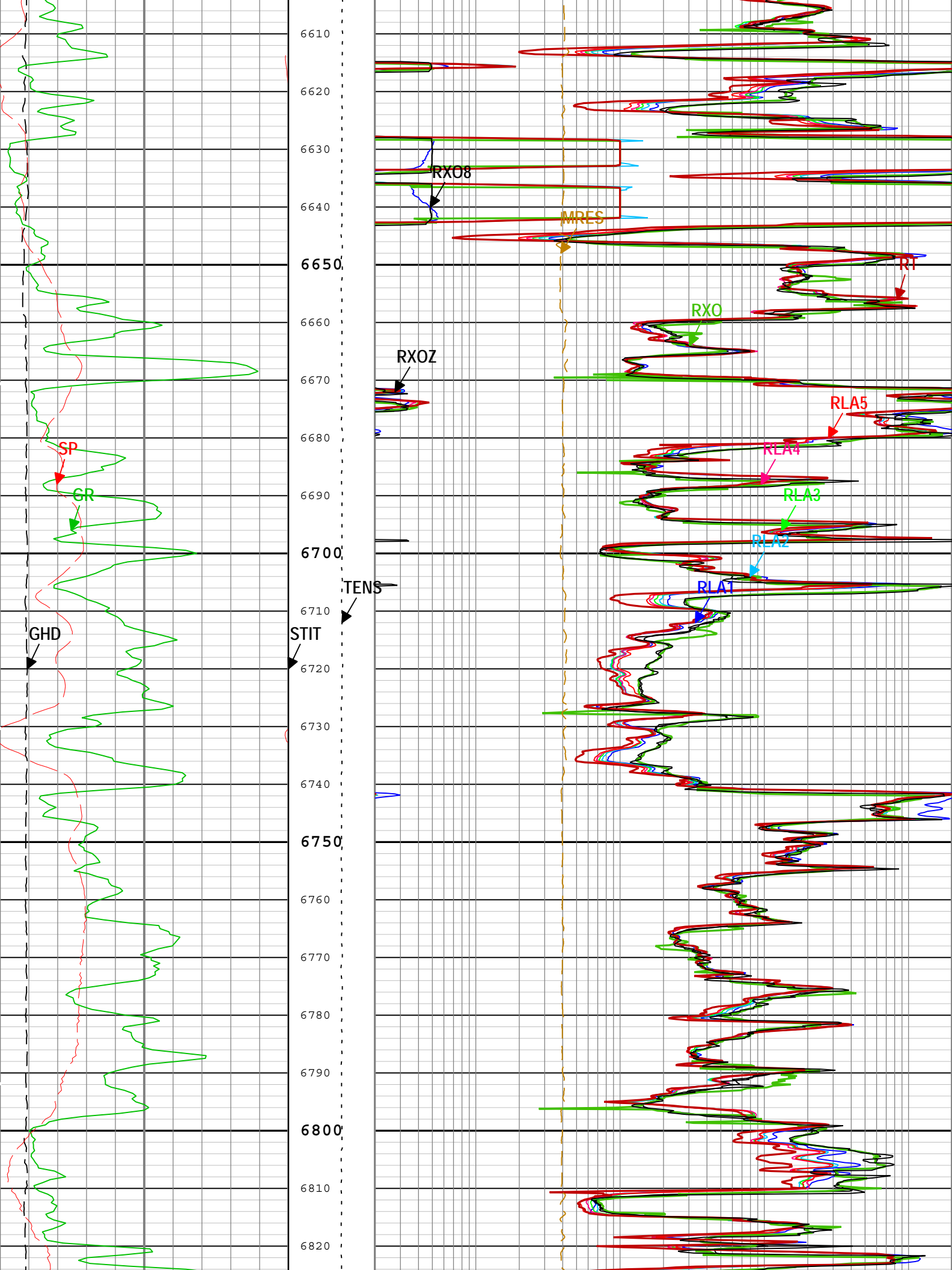


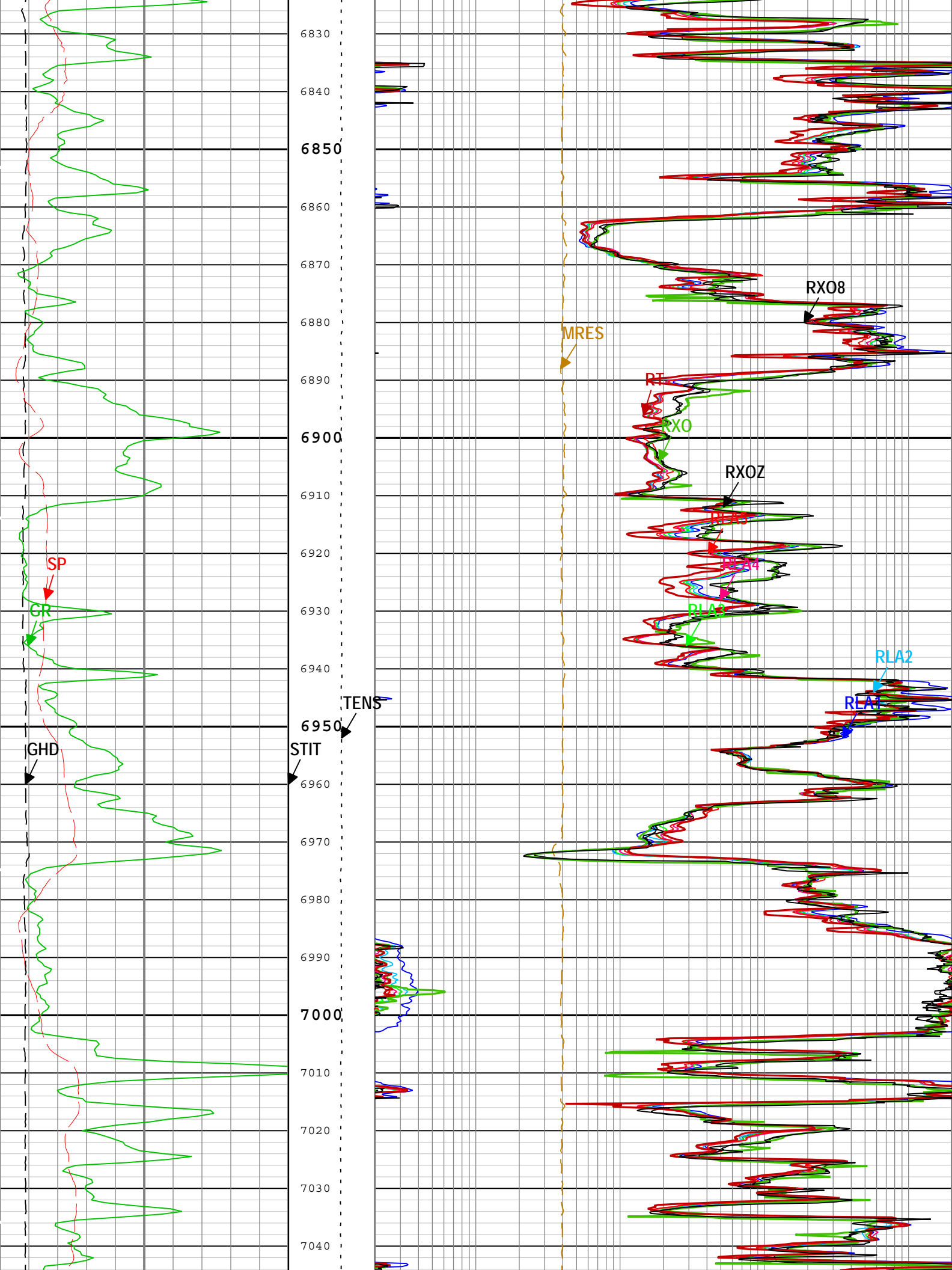


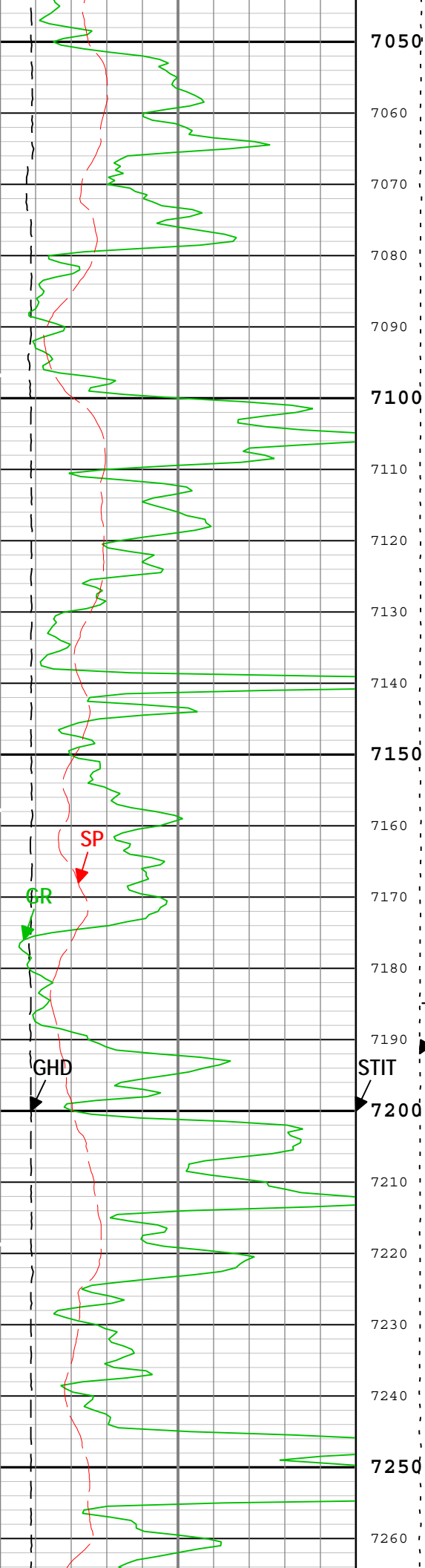












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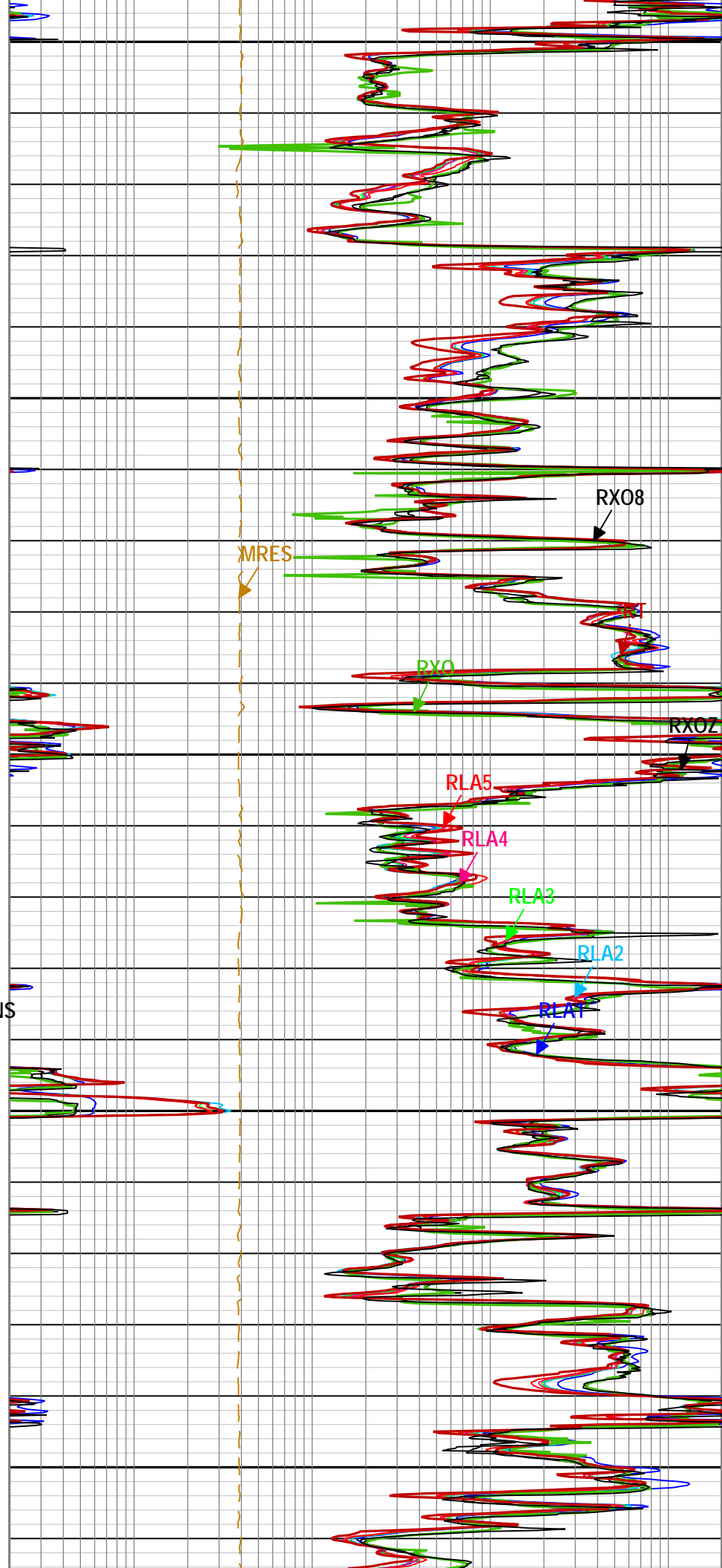
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7250

7260

TENS

STIT



MRES

RX08

RX0

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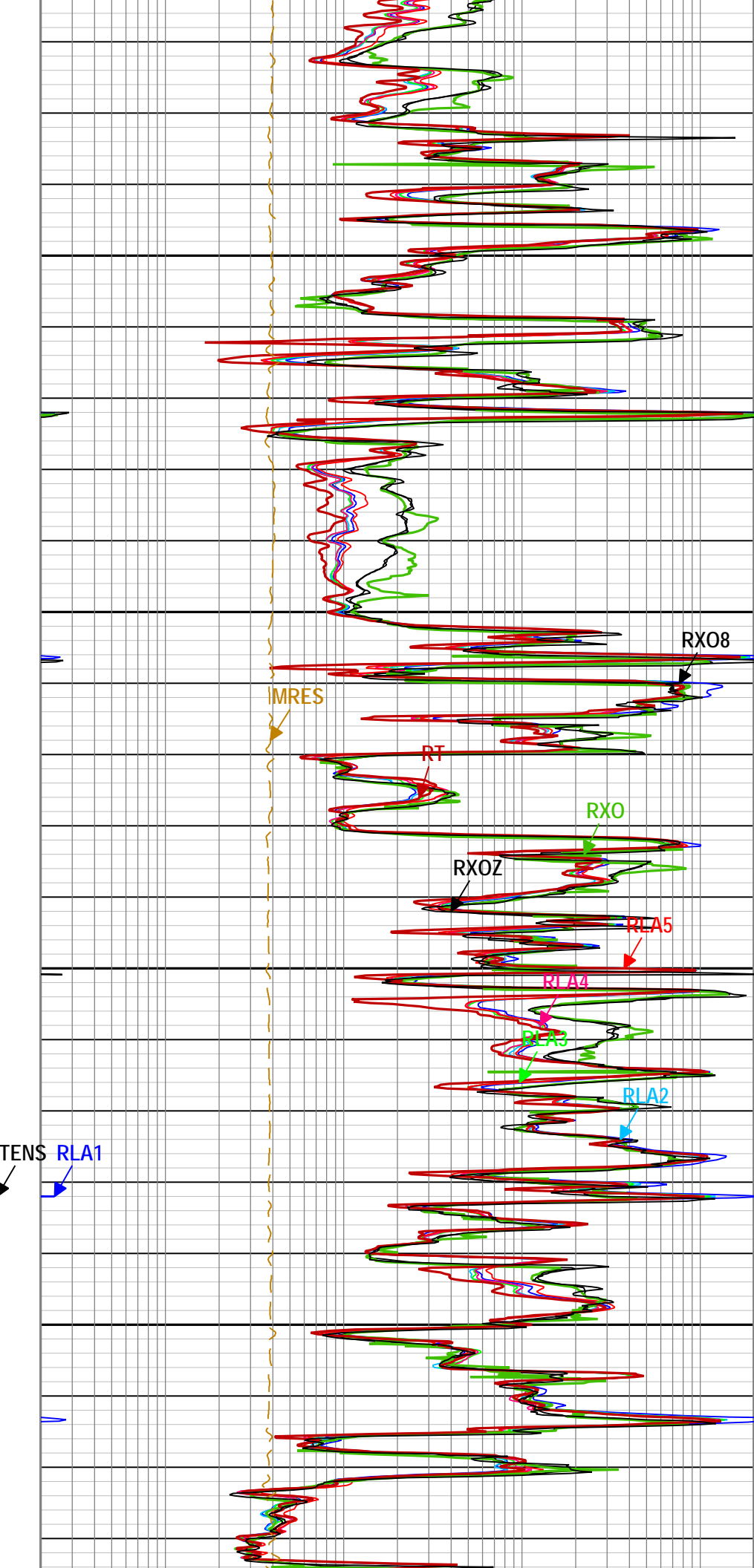
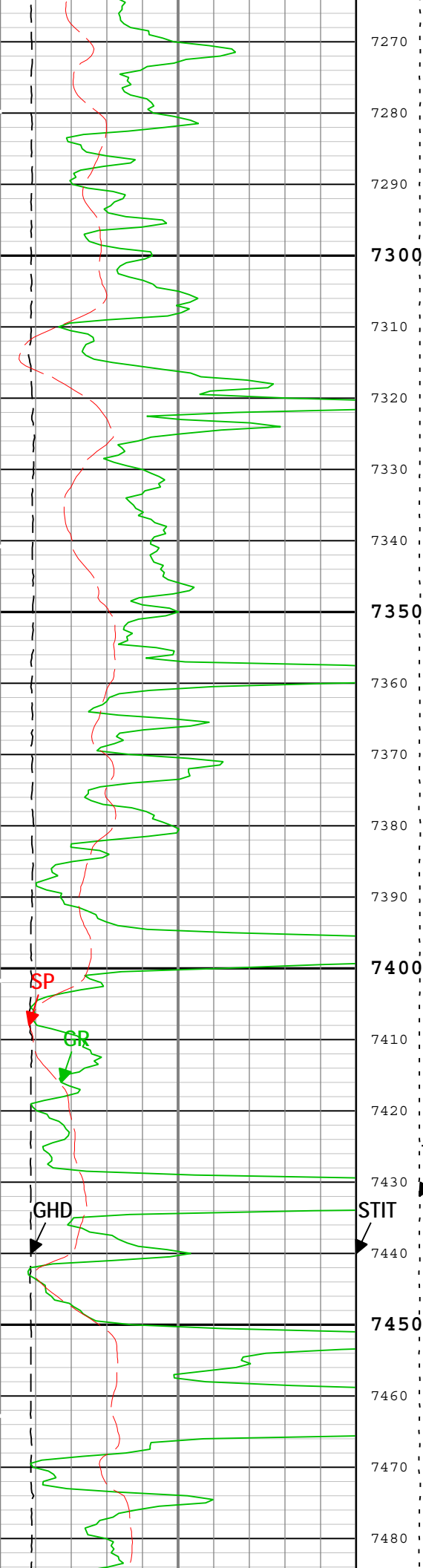
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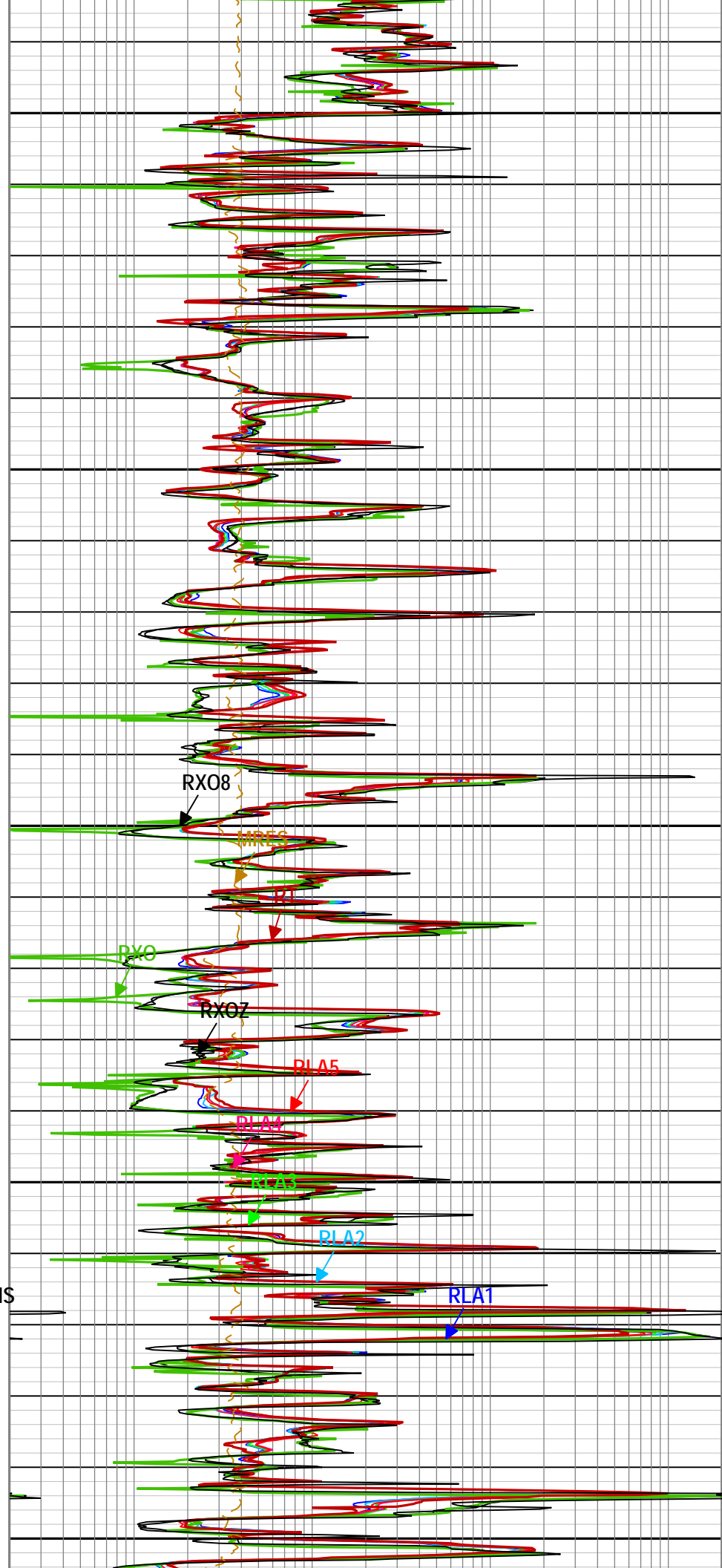
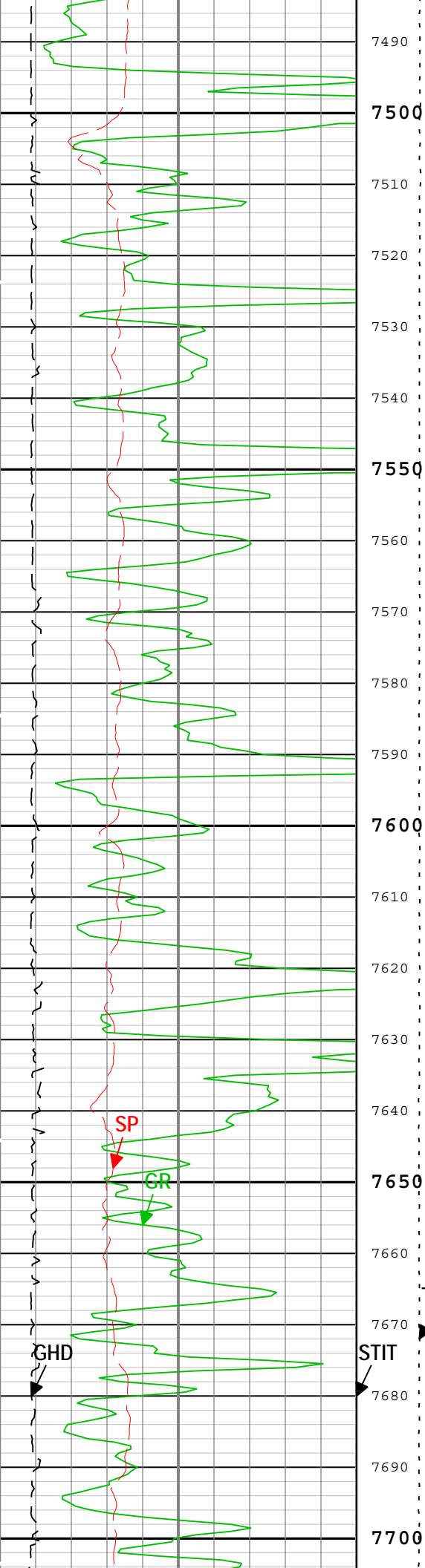
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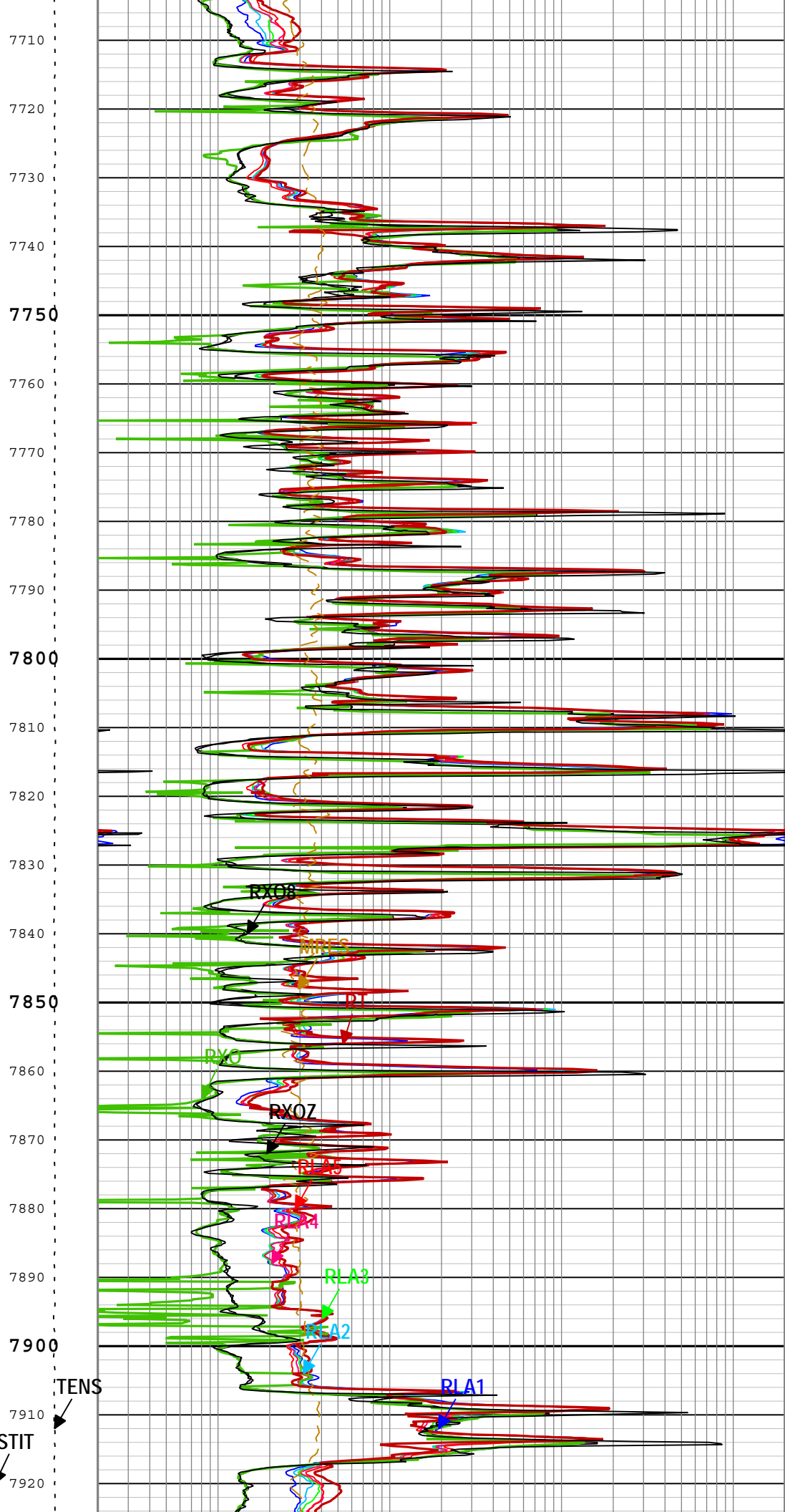
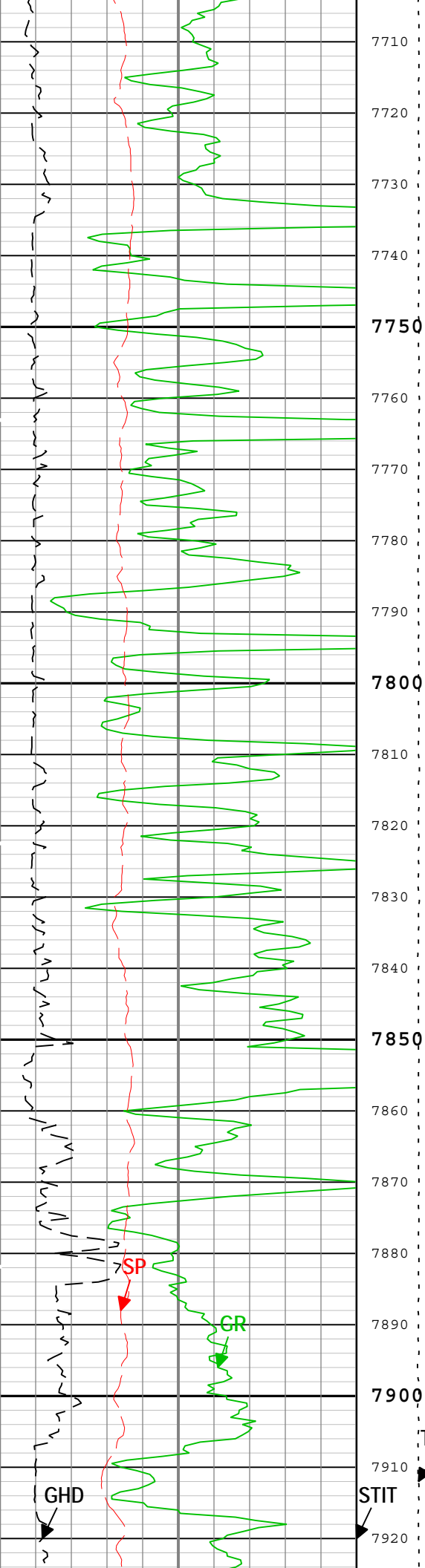
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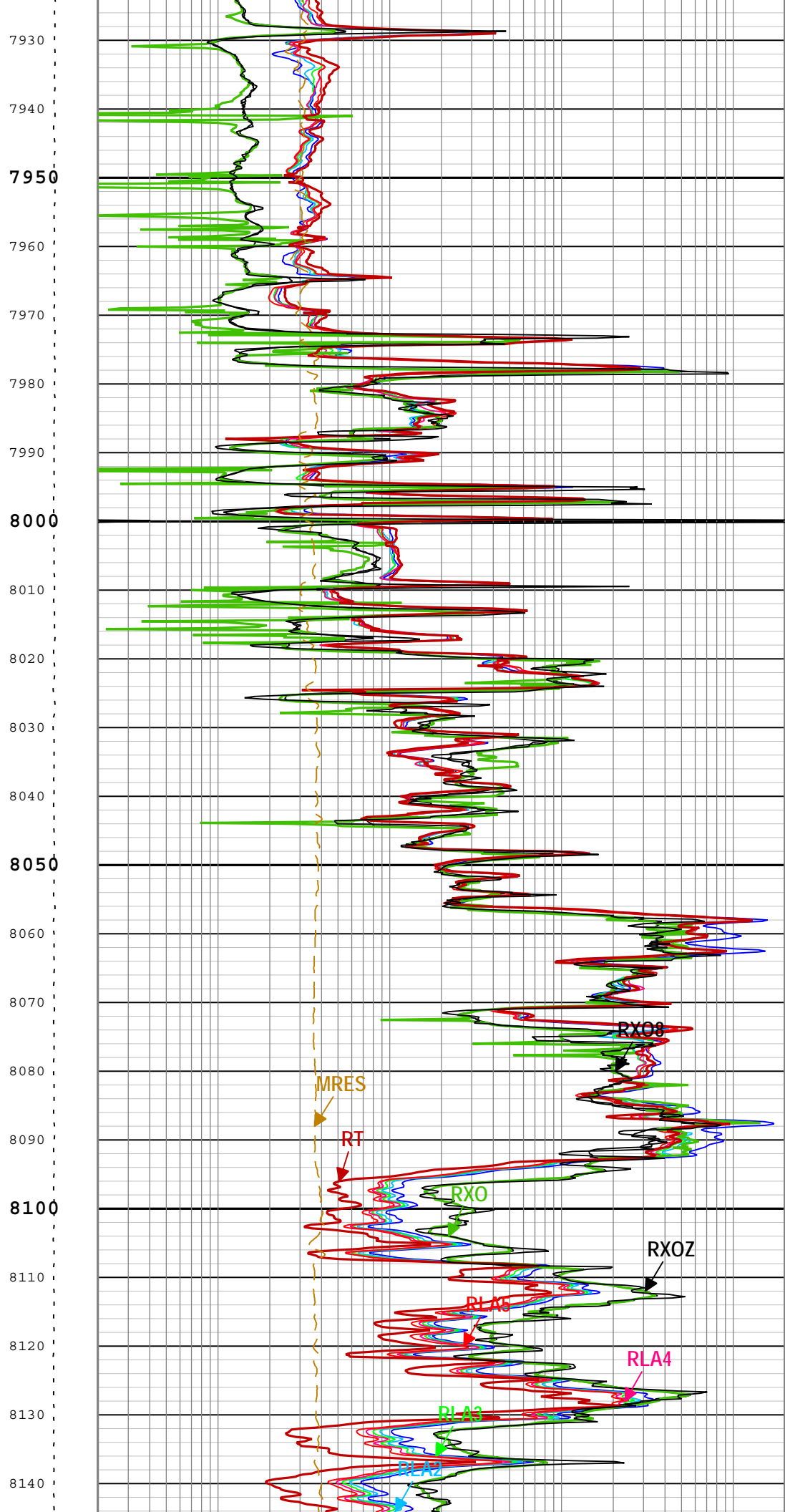
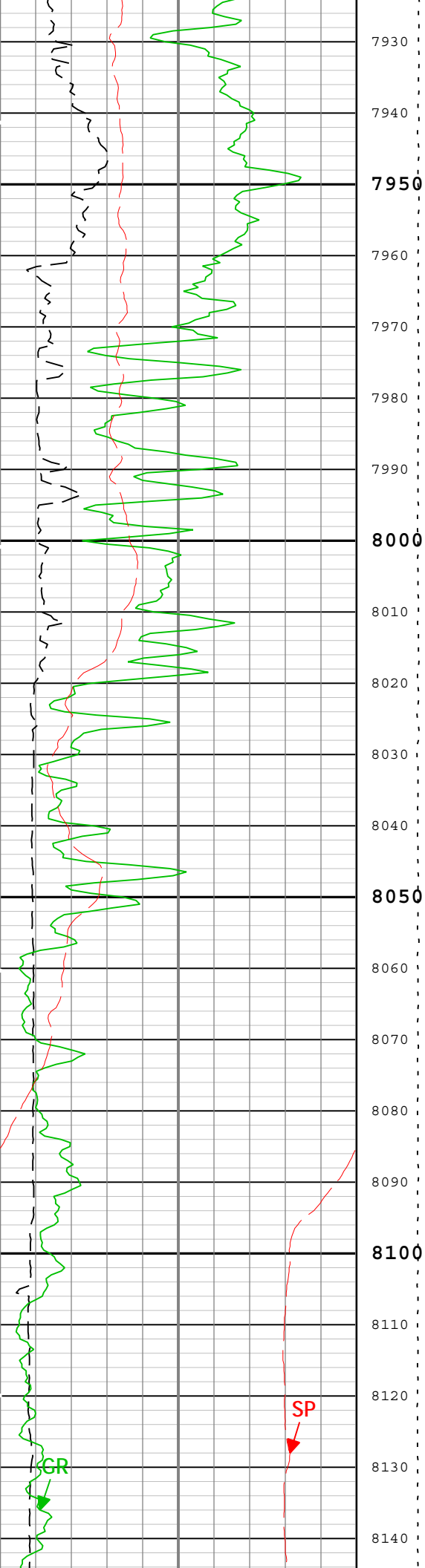
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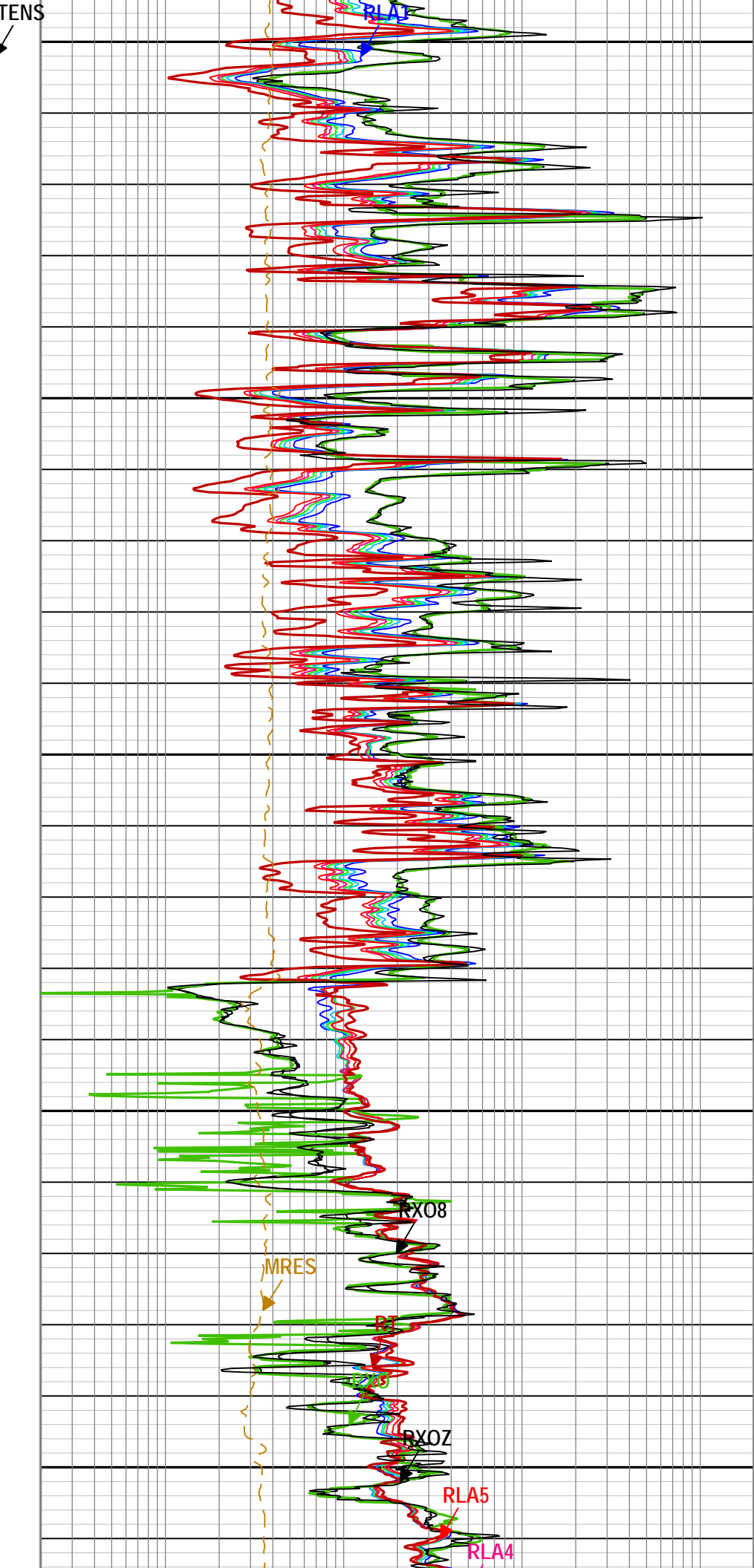
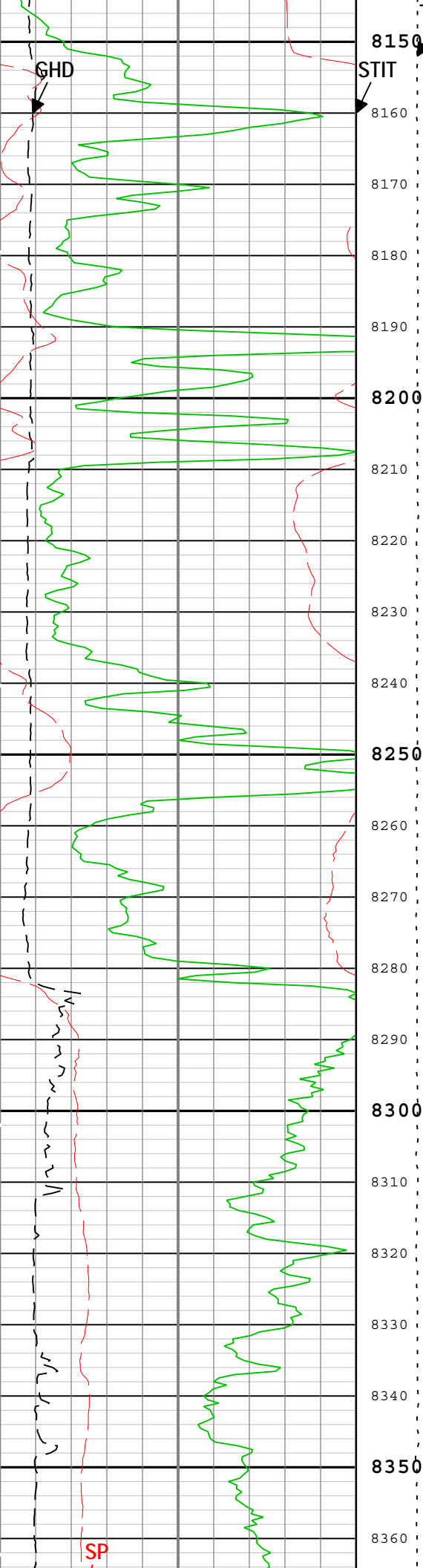
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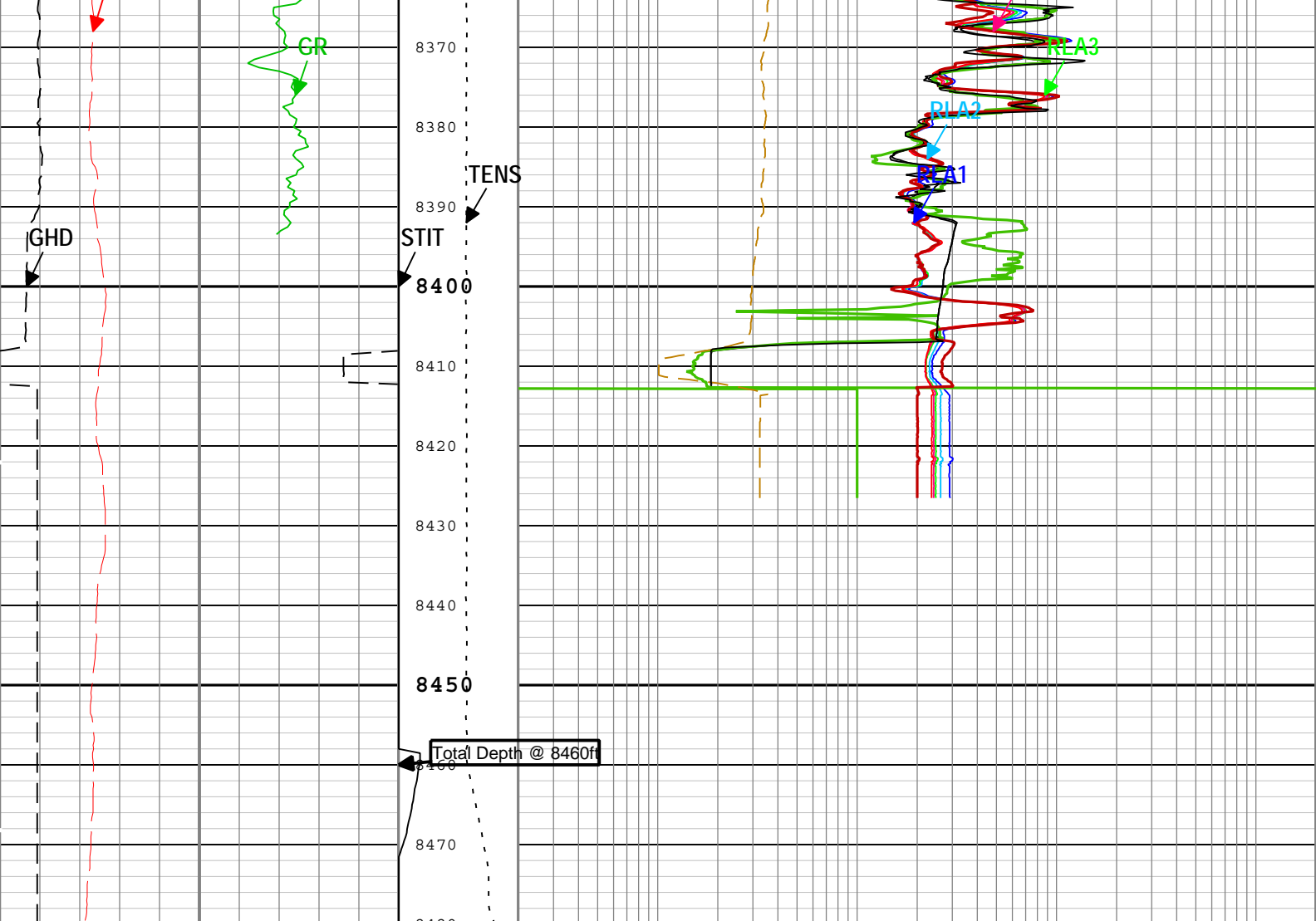













Borehole Diameter (GHD)		Apparent Resistivity from Computed Focusing Mode 1 (RLA1) HRLT-B	
6	26	0.2	2000
in		ohm.m	
Gamma Ray (GR) HGNS-H		Apparent Resistivity from Computed Focusing Mode 2 (RLA2) HRLT-B	
0	200	0.2	2000
gAPI		ohm.m	
Spontaneous Potential (SP) AIT-H		Apparent Resistivity from Computed Focusing Mode 3 (RLA3) HRLT-B	
0	200	0.2	2000
mV		ohm.m	
		Apparent Resistivity from Computed Focusing Mode 4 (RLA4) HRLT-B	
		0.2	2000
		ohm.m	
		Apparent Resistivity from Computed Focusing Mode 5 (RLA5) HRLT-B	
		0.2	2000
		ohm.m	
		Invaded Formation Resistivity filtered at 18 inches (RXOZ) HDRS-H	
		0.2	2000
		ohm.m	
		Flushed Zone Resistivity (RXO) HRLT-B	
		0.2	2000
		ohm.m	
		True Resistivity (RT) HRLT-B	
		0.2	2000
		ohm.m	
		Mud Resistivity (MRES) HRLT-B	
		0.02	200
		ohm.m	
		Invaded Formation Resistivity filtered at 8 inches (RXO8) HDRS-H	
		0.2	2000
		ohm.m	

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	0.07	in
CBLO	Casing Bottom (Logger)	WLSESSION	345	ft
CDEN	Cement Density	HGNS-H	2	g/cm3
DC_MODE	Depth Correction Mode	DepthCorrection	Real-time	
DFD	Drilling Fluid Density	Borehole	9	lbm/gal
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	
HRLT_PROCRM	Mud Resistivity Select	HRLT-B	External GRSE	
HRLT_RXOM	Inversion Micro-Resistivity Selection, from Measured Micro-Resistivity	HRLT-B	RXOZ	
HRLT_RXOSE	Inversion Micro-Resistivity Selection	HRLT-B	Measured RXO	
KFAC_HRLT	HRLT Geometrical Factor Option	HRLT-B	Sonde	
PROCINV	Resistivity Inversion Selection	HRLT-B	On	
PROCMSO	Mechanical Standoff Size	HRLT-B	1	in
PROCSP0	Sonde Position	HRLT-B	Eccentered	
SOCO	Standoff Correction Option	HGNS-H	Yes	
SPDR	SP Drift Per Foot	AIT-H	0	mV/ft
TD	Total Measured Depth	Borehole	8460	ft

Depth Zone Parameters			
Parameter	Value	Start (ft)	Stop (ft)
BS	0	330	345
BS	7.875	345	8480
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

Company:	Nighthawk Production LLC	
Well:	Silverton 16-10	
Field:	Jolly Ranch	
County:	Lincoln	
State:	Colorado	

