

Company: Bonanza Creek

Well: State Seventy Holes J-18

Field: Wattenberg

County: Weld State: Colorado

Platform Express			
Caliper			
Cement Volume			
Location:	SESW, Sec18, T4N, R62W		Elev.: K.B. 4577.50 ft
	SHL: 610FSL x 1455' FWL		G.L. 4564.00 ft
	Lat/Long: 40.306861/-104.371342		D.F. 4576.50 ft
	Permanent Datum:	Ground Level	Elev.: 4564.00 f
Log Measured From:		Kelly Bushing	13.50 ft above Perm.Datum
Drilling Measured From:		Kelly Bushing	
API Serial No.	Section:	Township:	Range:
05-123-41614	18	4N	62W
Logging Date	28-Sep-2016		

Run Number	One		
Depth Driller	6800.00 ft		
Schlumberger Depth	6800.00 ft		
Bottom Log Interval	6798.00 ft		
Top Log Interval	1459.00 ft		
Casing Driller Size @ Depth	9.625 in @ 1465.00 ft		
Casing Schlumberger	1465 ft		
Bit Size	8.75 in		
Type Fluid In Hole	Water		
Density	Viscosity	33 s	
Fluid Loss	PH	11.6 cm3	9.7
MUD			
Source of Sample			
RM @ Meas Temp	2.24 ohm.m @ 75.3 degF		
RMF @ Meas Temp	2.11 ohm.m @ 75 degF		
RMC @ Meas Temp	2.52 ohm.m @ 75 degF		
Source RMF	RMC	Calculated	
RM @ BHT	RMF @ BHT	0.83 @ 216	0.77 @ 216
Max Recorded Temperatures			
Circulation Stopped		Time	04:30:00
Logger on Bottom		Time	16:30:00
Unit Number	Location:	9115	FtMorgan
Recorded By	B Kesek		
Witnessed By	Tim Jayne		

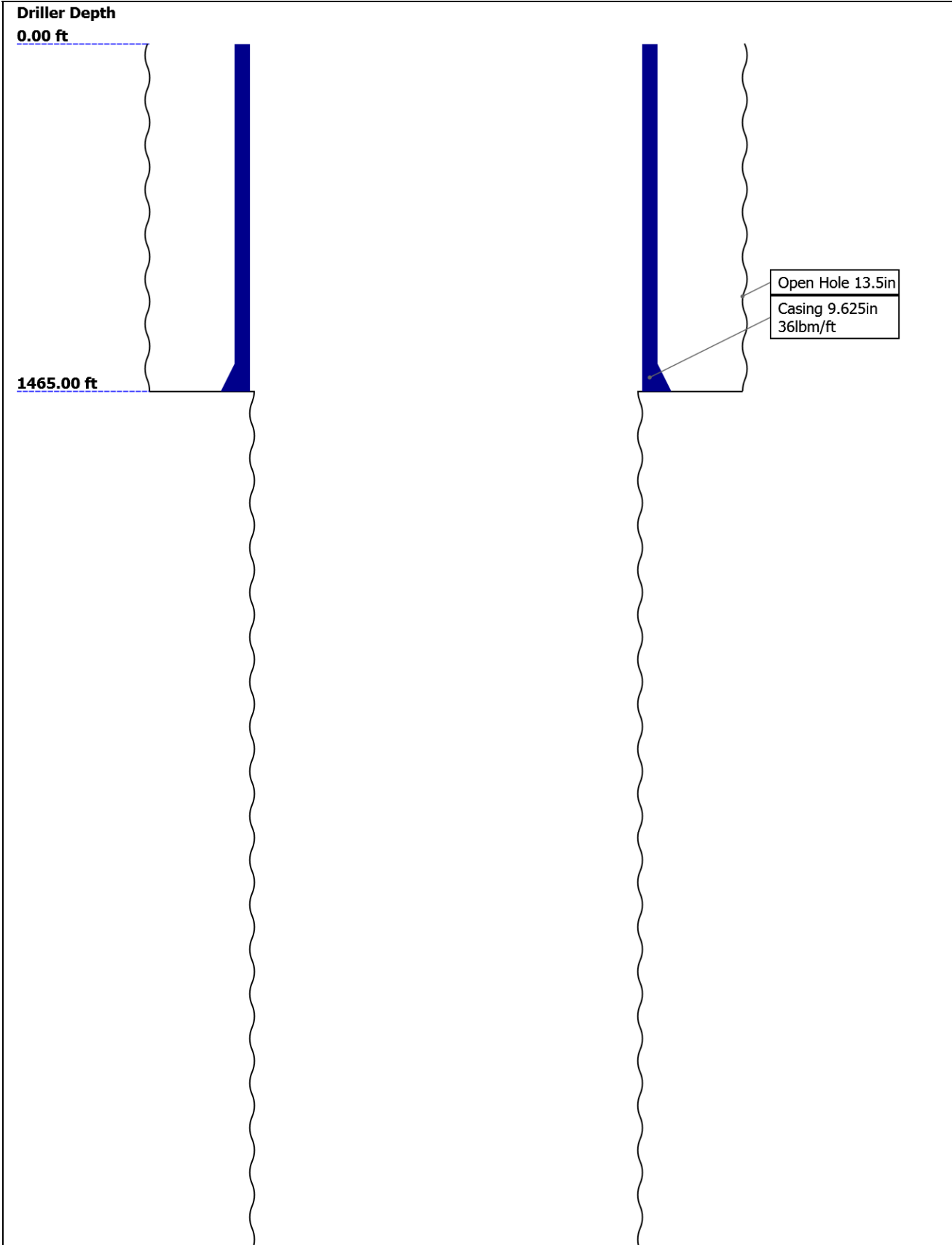
Disclaimer

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Well Sketch




6800.00 ft

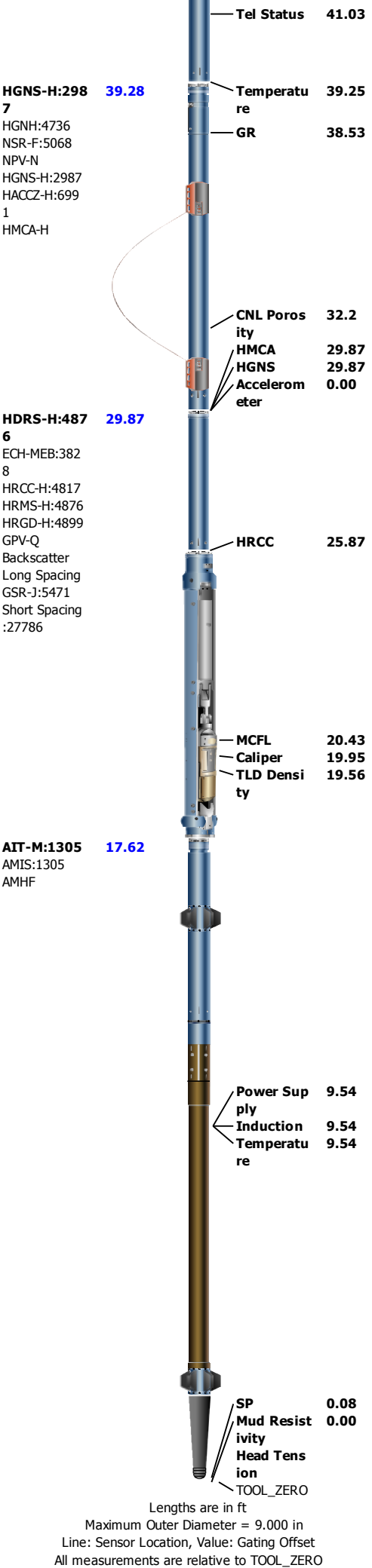
Open Hole 8.75in

Borehole Size/Casing/Tubing Record

Bit						
Bit Size ( in )	13.5	8.75				
Top Driller ( ft )	0	1465				
Top Logger ( ft )	0	1465				
Bottom Driller ( ft )	1465	6800				
Bottom Logger ( ft )	1465	6800				
Casing						
Size ( in )	9.625					
Weight ( lbm/ft )	36					
Inner Diameter ( in )	8.921					
Grade	N/A					
Top Driller ( ft )	0					
Top Logger ( ft )	0					
Bottom Driller ( ft )	1465					
Bottom Logger ( ft )	1465					

Remarks and Equipment Summary

One: Toolstring				One: Remarks
<div><div><div>Equip name</div><div>LEH-QT</div><div>LEH-QT</div></div><div><div>Length</div><div>56.88</div></div></div> <div></div> <div><div>MP name</div><div>Offset</div></div>				This is the first run in the well.
				Toolstring ran as per toolsketch.
				Neutron corrections: Holesize, Standoff
				Matrix: Limestone. MDen: 2.71g/cm3
				Repeat pass performed below casing shoe due to adverse hole conditions at bottom.
<div><div><div>DTC-H:8980</div><div>ECH-KC:1005</div><div>3</div><div>DTC-H:8980</div></div><div><div>Length</div><div>53.97</div></div></div> <div><div>CTEM</div><div>HV</div></div> <div><div>TelStatus</div><div>ToolStatus</div></div>				Caliper closed at: 6490-6464ft 5500-5494ft Due to adverse hole conditions. Discussed with company man.
				Hole finder at the bottom of AIT used succesfully to get passed a bridge.
<div><div><div>HNGS-BA:16</div><div>6</div><div>HEH-K:177</div><div>HNGS-BA:166</div></div><div><div>Length</div><div>50.97</div></div></div> <div><div>GR</div></div> <div><div>Offset</div><div>47.98</div></div>				
<div><div><div>HNGC-B:108</div><div>HNGH-A:46</div><div>HNGC-B:108</div></div><div><div>Length</div><div>42.78</div></div></div>				



Depth Summary									
		One							
Depth Measuring Device									
Type	IDW-B								
Serial Number									
Calibration Date									
Calibrator Serial Number									
Calibration Cable Type	7-46axs								
Wheel Correction 1	0								
Wheel Correction 2	0								
Tension Device									
Type	CMTD-B/A								
Serial Number	146								
Calibration Date	26-Sep-2016								
Calibrator Serial Number									
Number of Calibration Points	10								
Calibration Root Mean Square Error	4								
Calibration Peak Error	7								
Logging Cable									
Type	7-46NT-XS								
Serial Number									
Length	24000.00 ft								
Conveyance Type	Wireline								
Rig Type									
One:Depth Control Parameters					Depth Control Remarks				
Log Sequence	First Log In the Well				All Schlumberger depth procedures followed.  IDW used as primary depth control device.  Z-chart used as secondary depth control device.				
Rig Up Length At Surface									
Rig Up Length At Bottom									
Rig Up Length Correction									
Stretch Correction									
Tool Zero Check At Surface									
One									
Integration Summary									
Output Channel(s)	Output Description		Input Parameter			Output Value		Unit	
ICV	Integrated Cement Volume		GCSE_UP_PASS, FCD			785.7		ft3	
IHV	Integrated Hole Volume		GCSE_UP_PASS			2208.19		ft3	
Software Version									
Acquisition System						Version			
Maxwell 2016 SP2						6.2.68624.3100			
Pass Summary									
Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
One	Log[4]Up	Up	1287.81 ft	6810.88 ft	28-Sep-2016	28-Sep-2016	ON	4.00 ft	Yes

TIME\_1900 - Time Marked every 60.00 (s)

ICV - Integrated Cement Volume every 100.00 (ft3)

IHV - Integrated Hole Volume every 100.00 (ft3)

ICV - Integrated Cement Volume every 10.00 (ft3)

IHV - Integrated Hole Volume every 10.00 (ft3)

Bit Size (BS) RT

4 in 14

Calibrated Gamma Ray (GR) HGNS-H

0 gAPI 200

Caliper (HCAL) HDRS-H

4 in 14

Stuck Tool Indicator, Total (STIT)

0 ft 50

Integrated Cement Volume (ICV) RT ft3

Bit Size (BS) RT

23 in

Caliper (HCAL) HDRS-H

23 in

FCD2-FCD3

Future Casing (Outer) Diameter (FCD)

-17 in

Future Casing (Outer) Diameter (FCD)

23 in -17

1340

1350

1360

1370

1380

1390

785.78

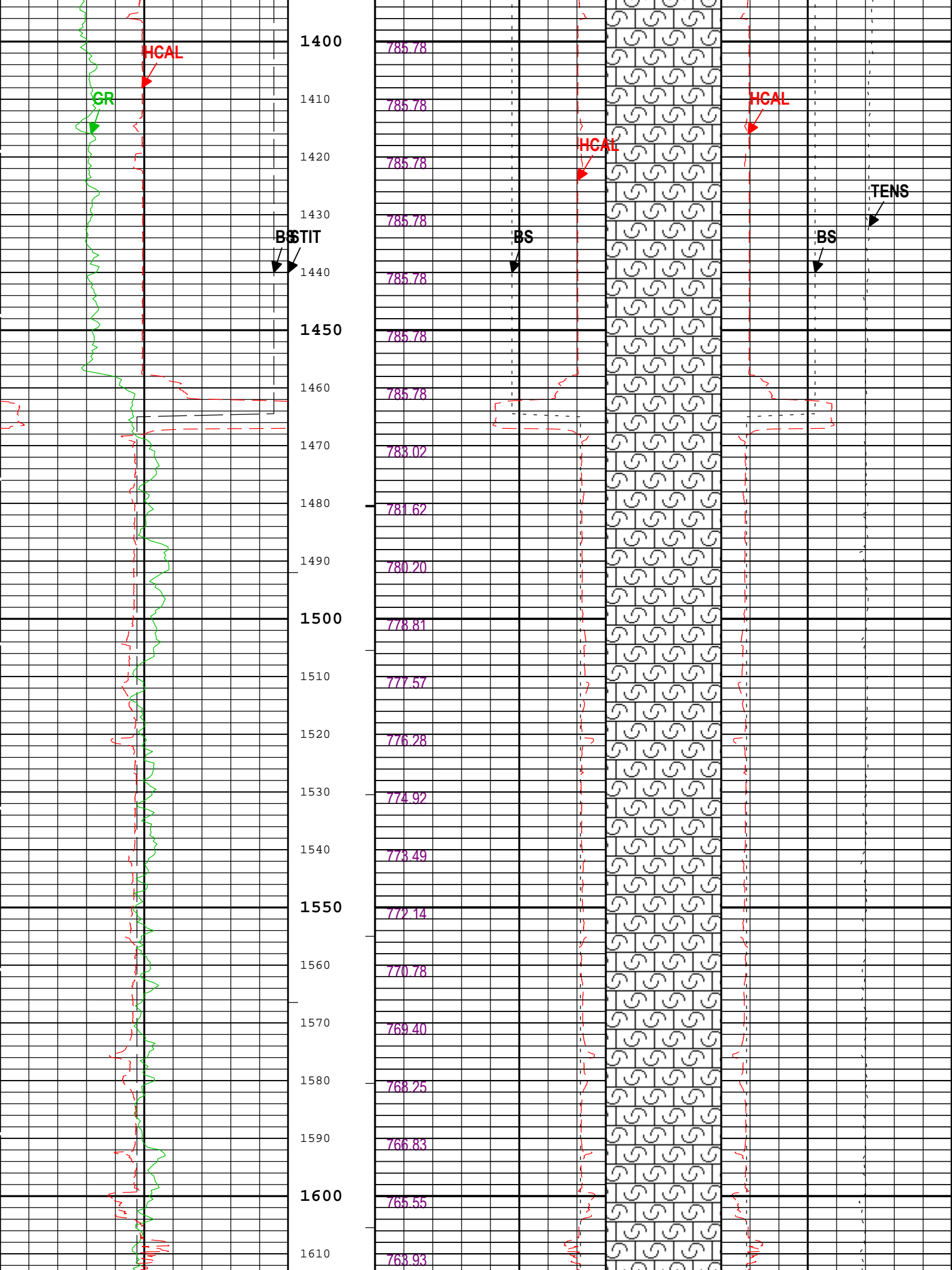
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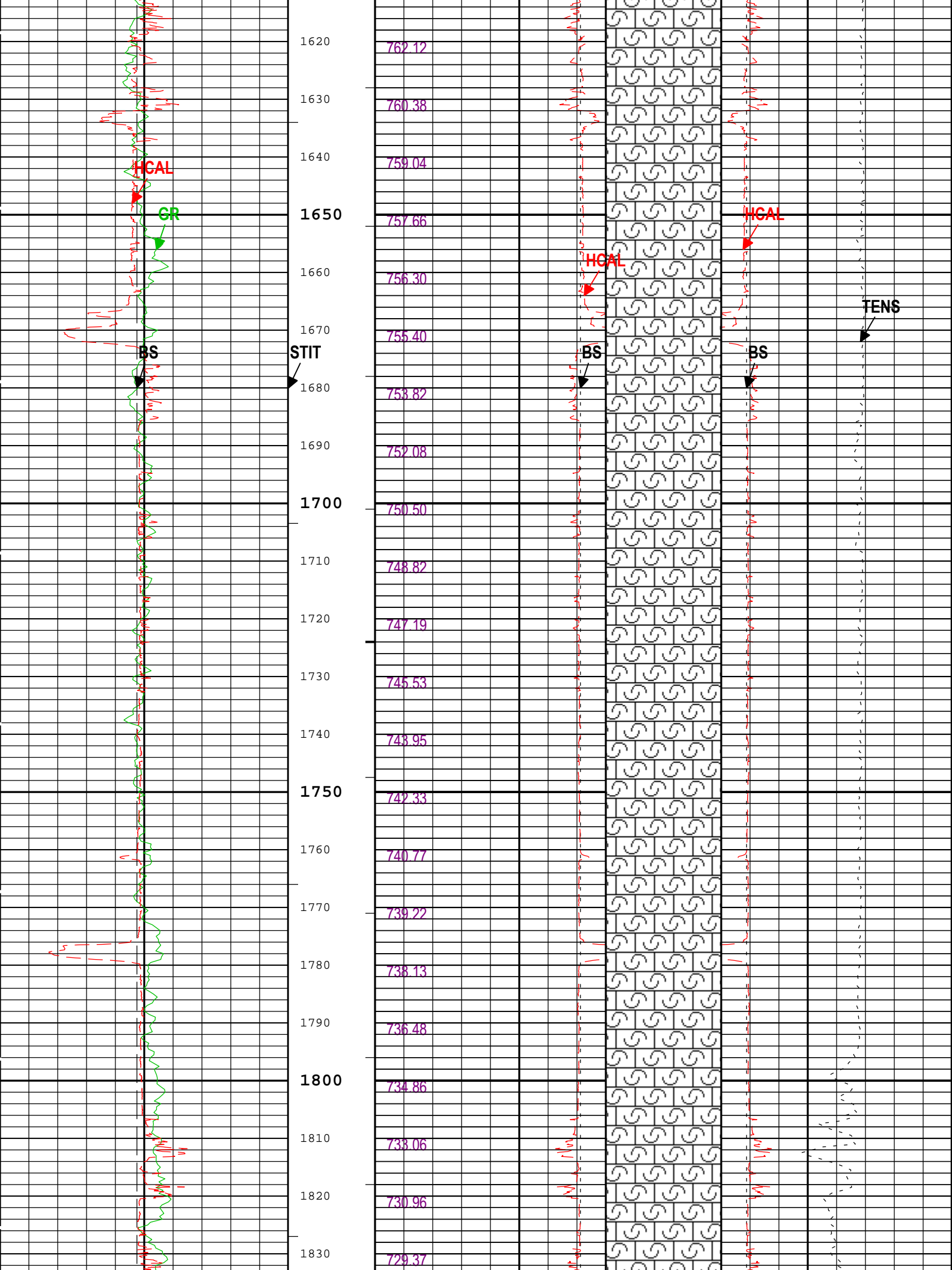
785.78

785.78

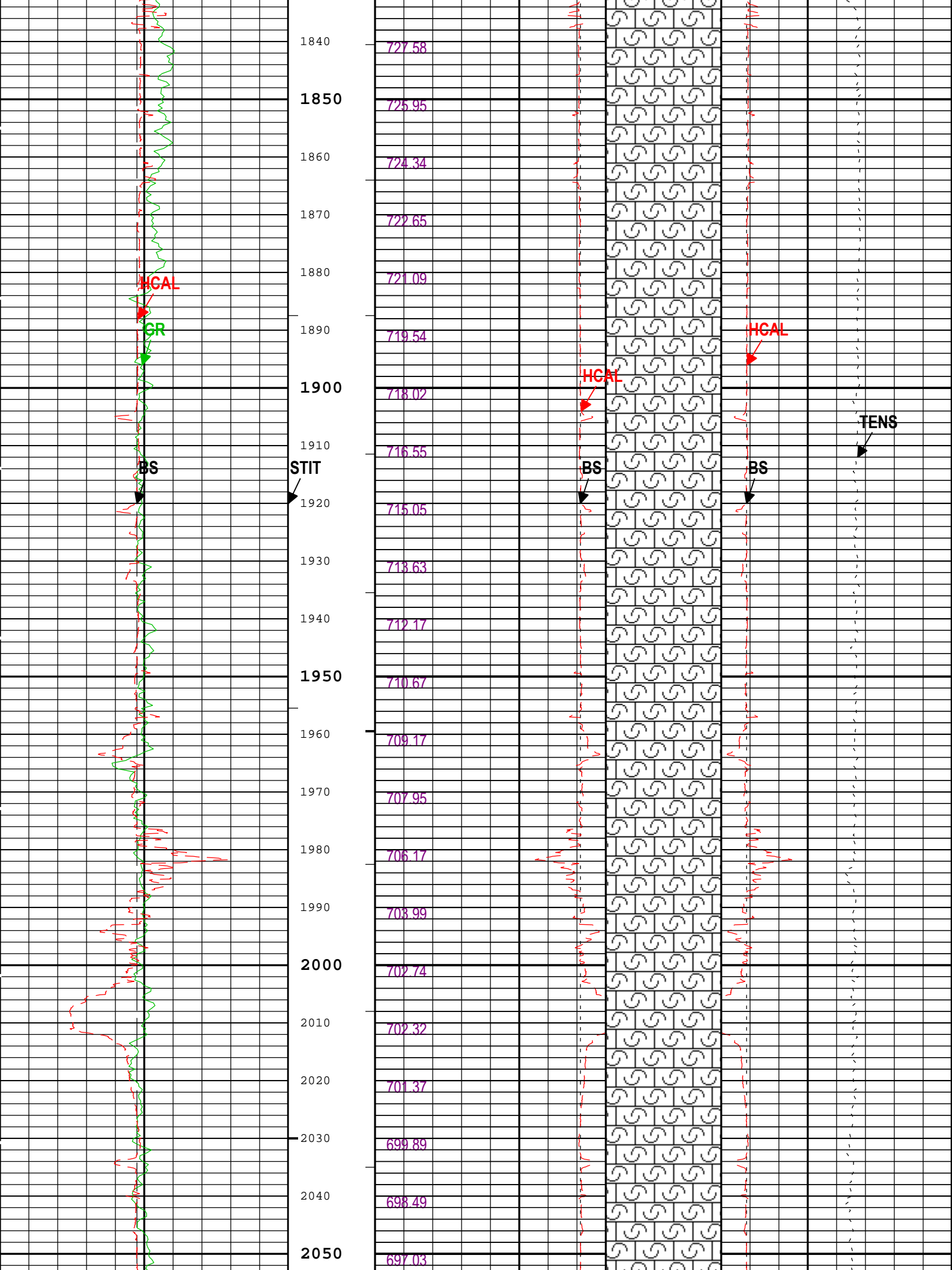
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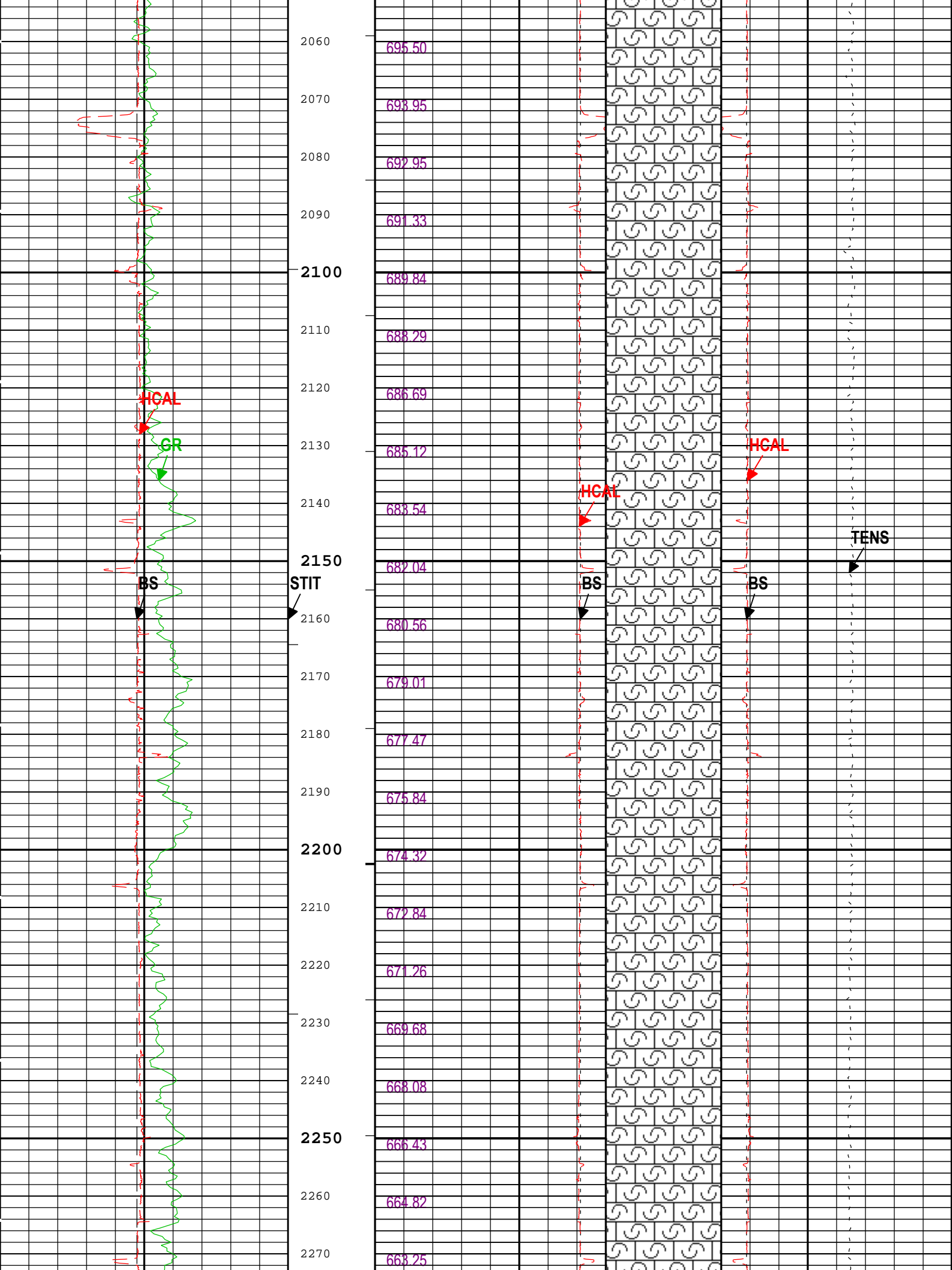
785.78

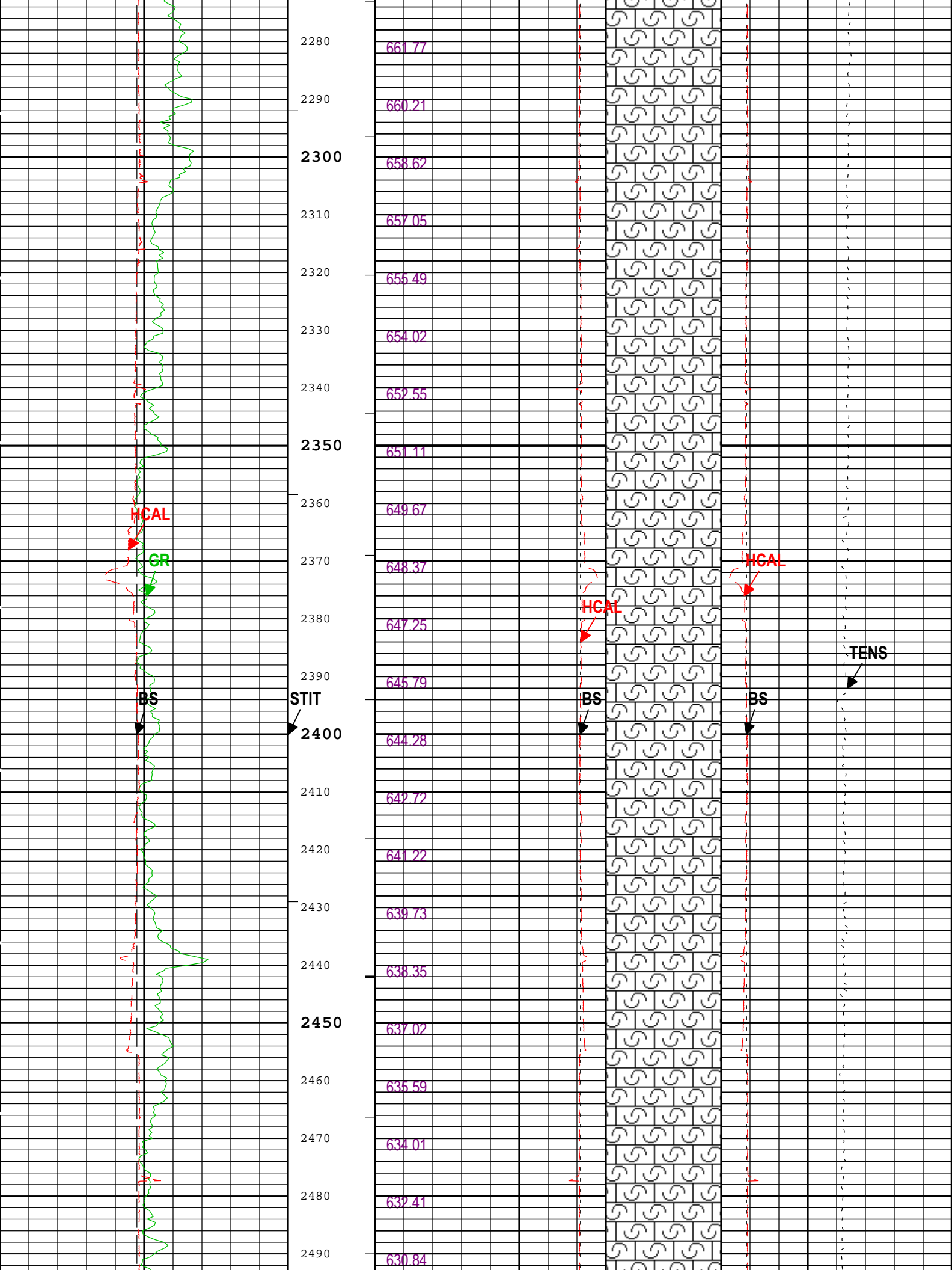


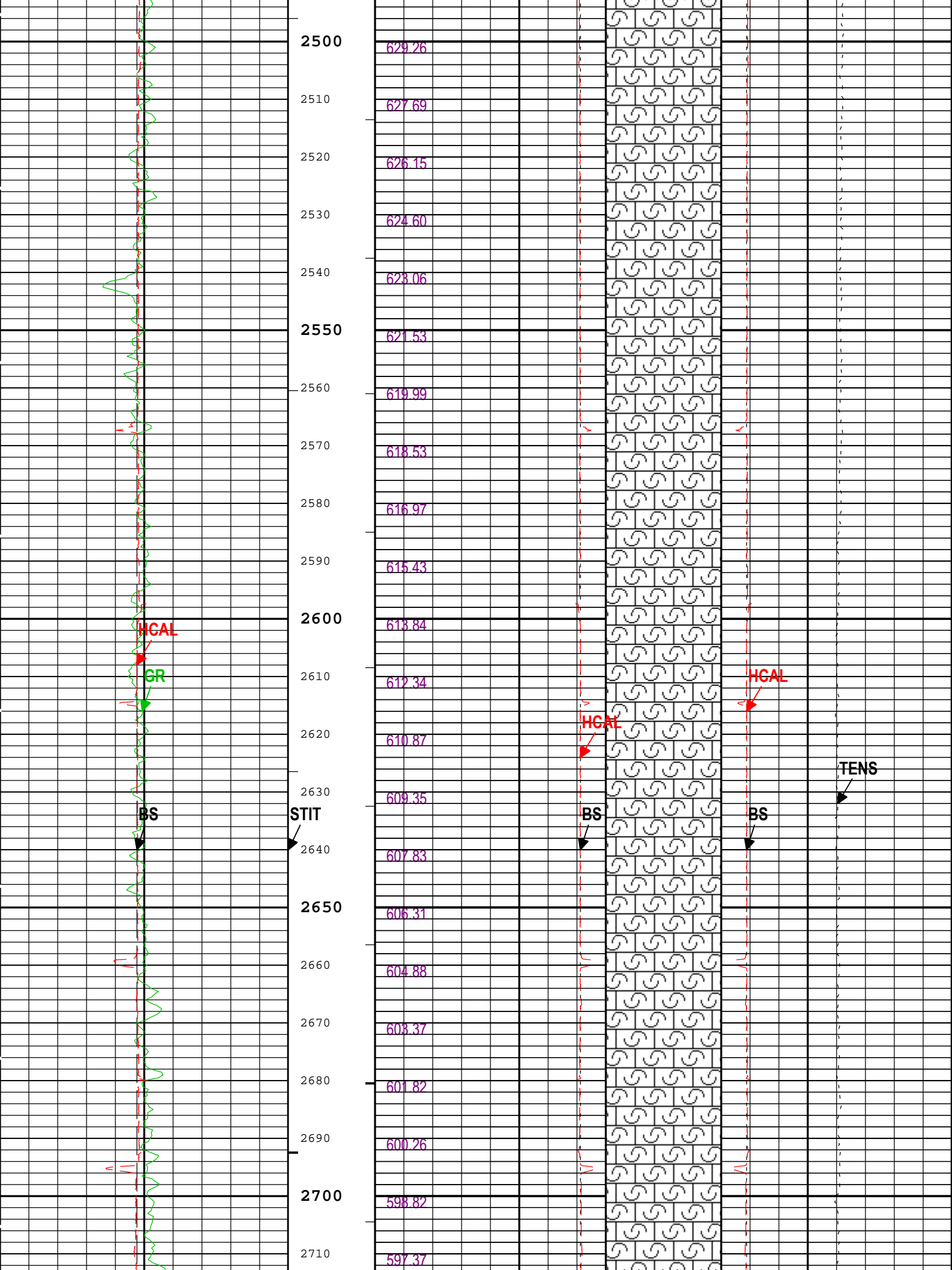


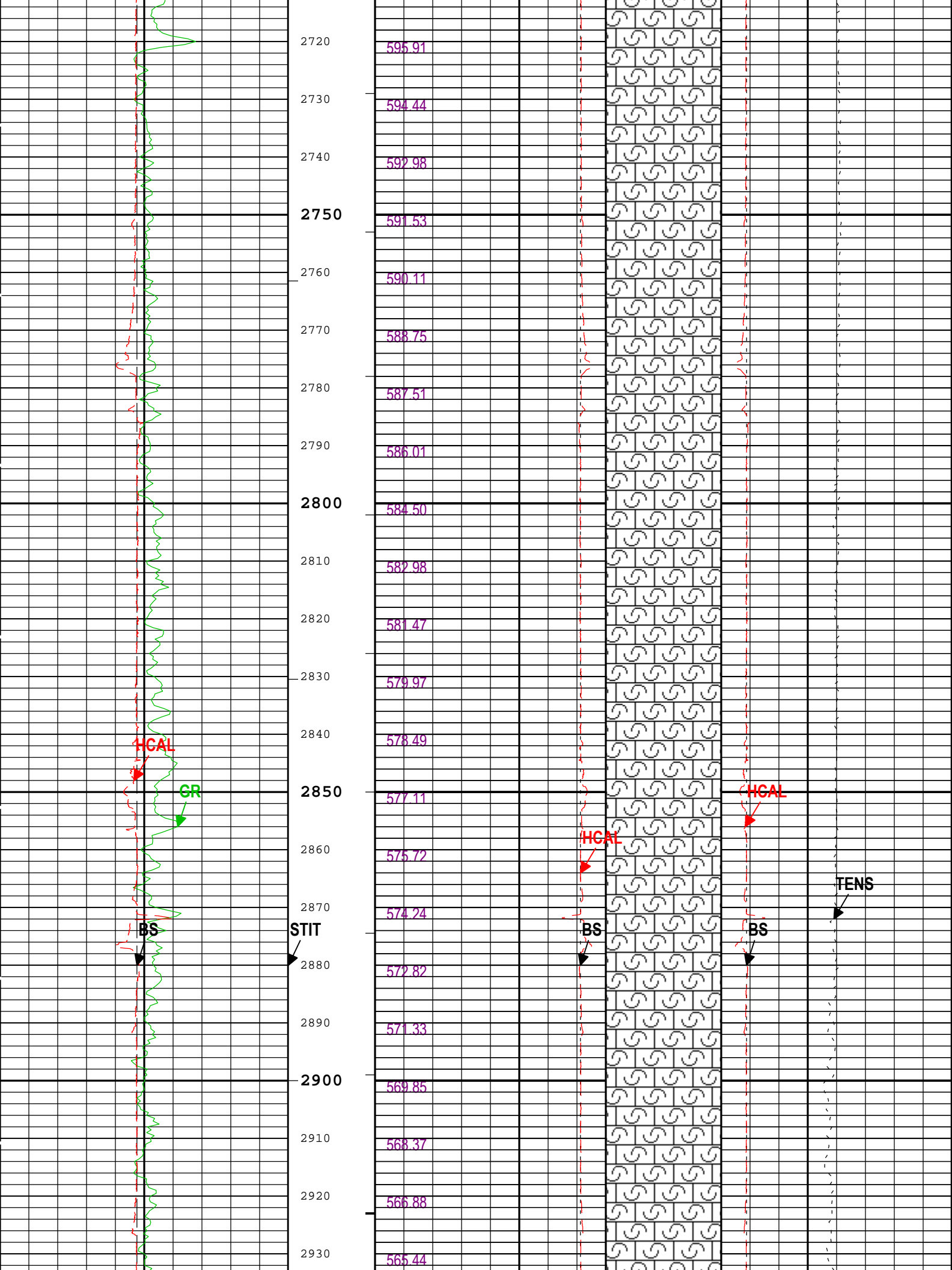


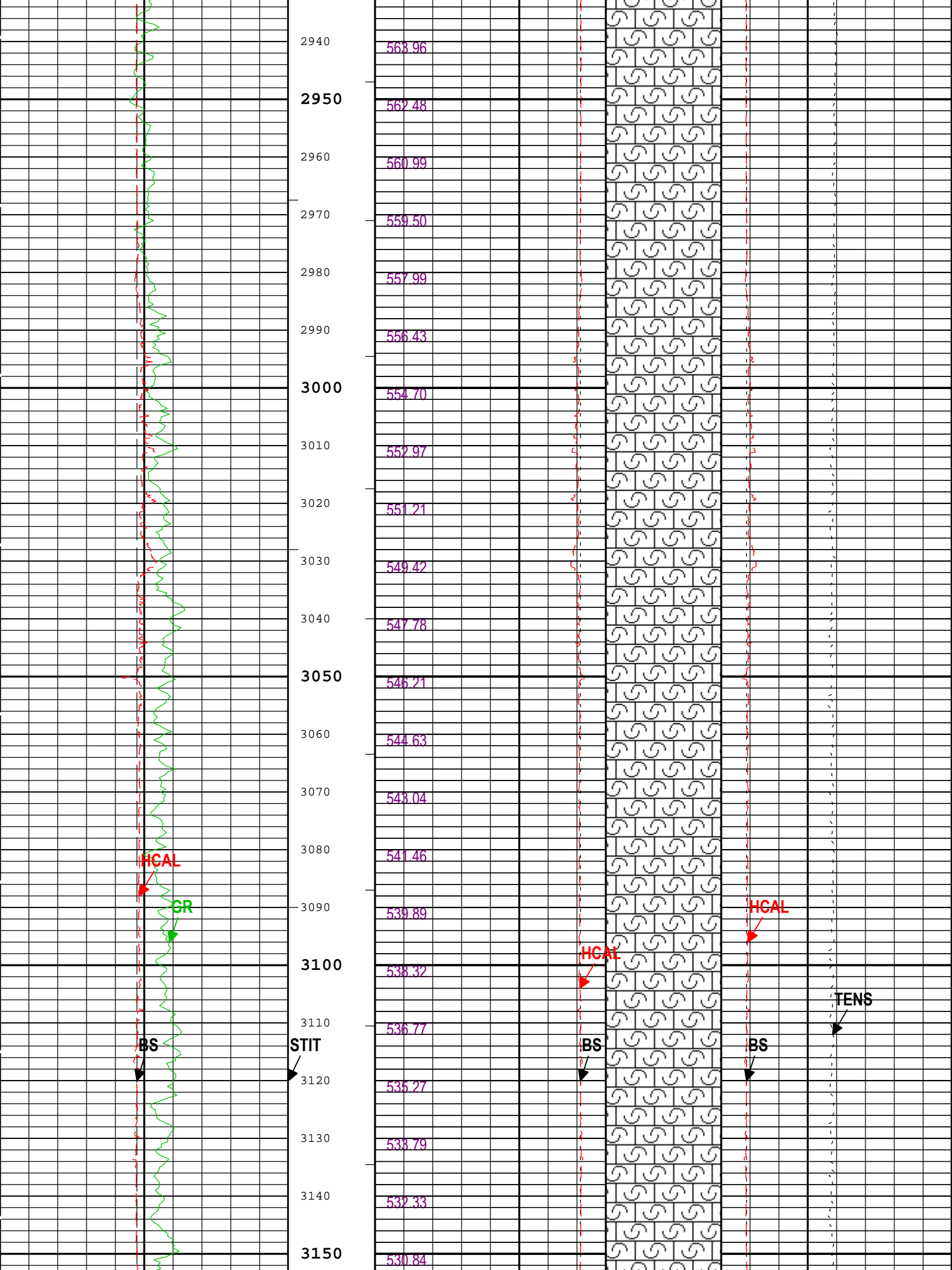


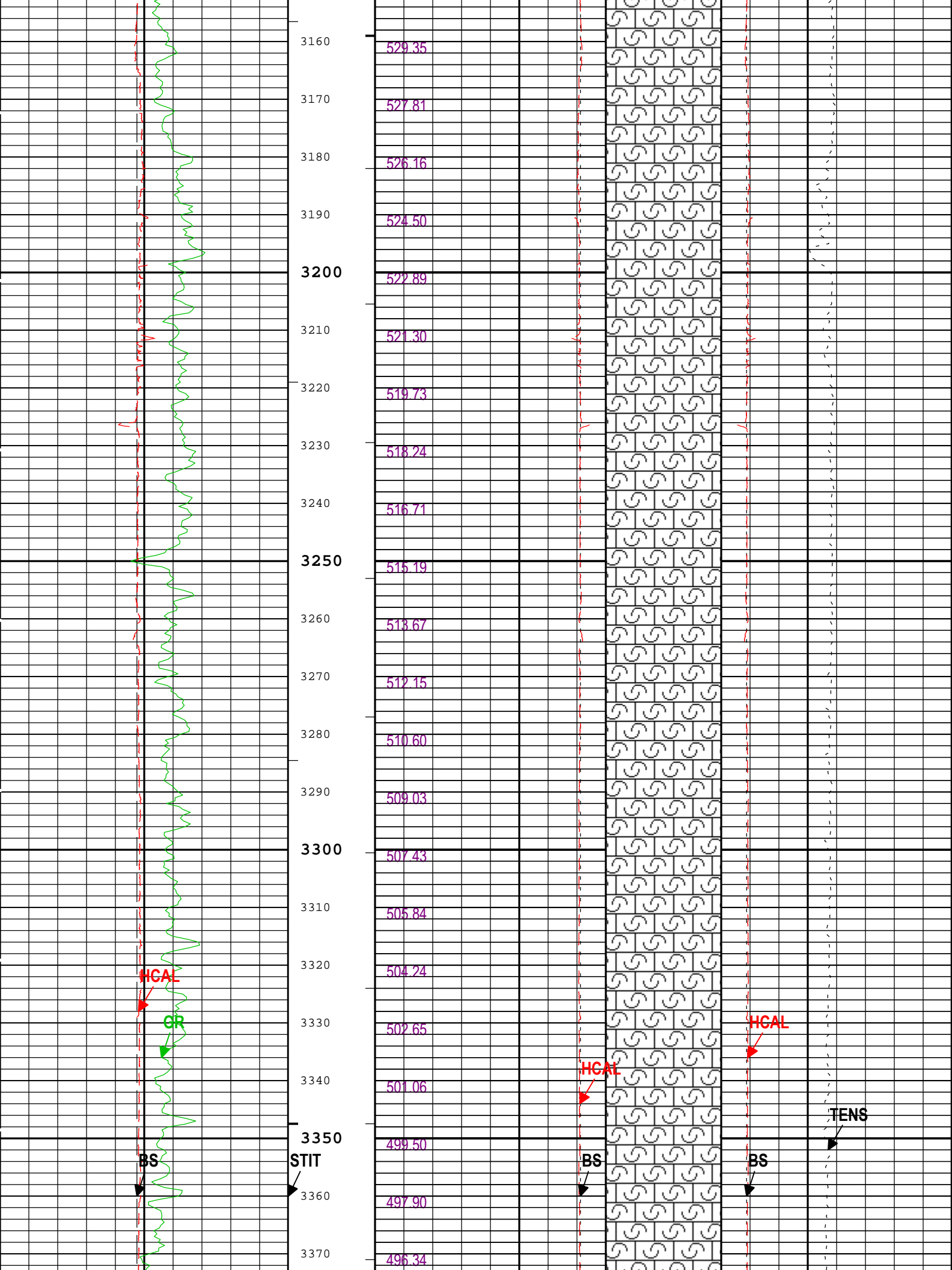


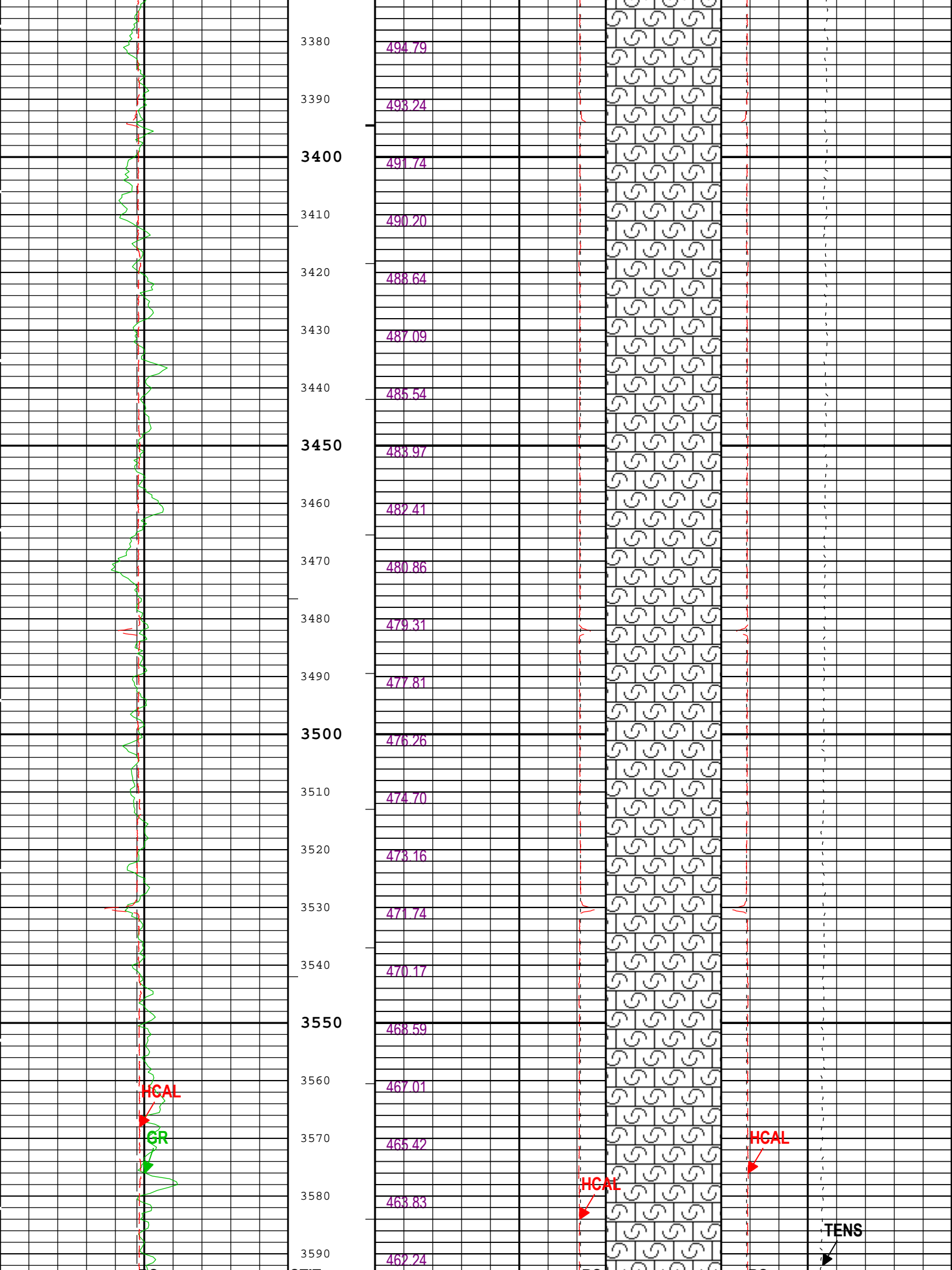




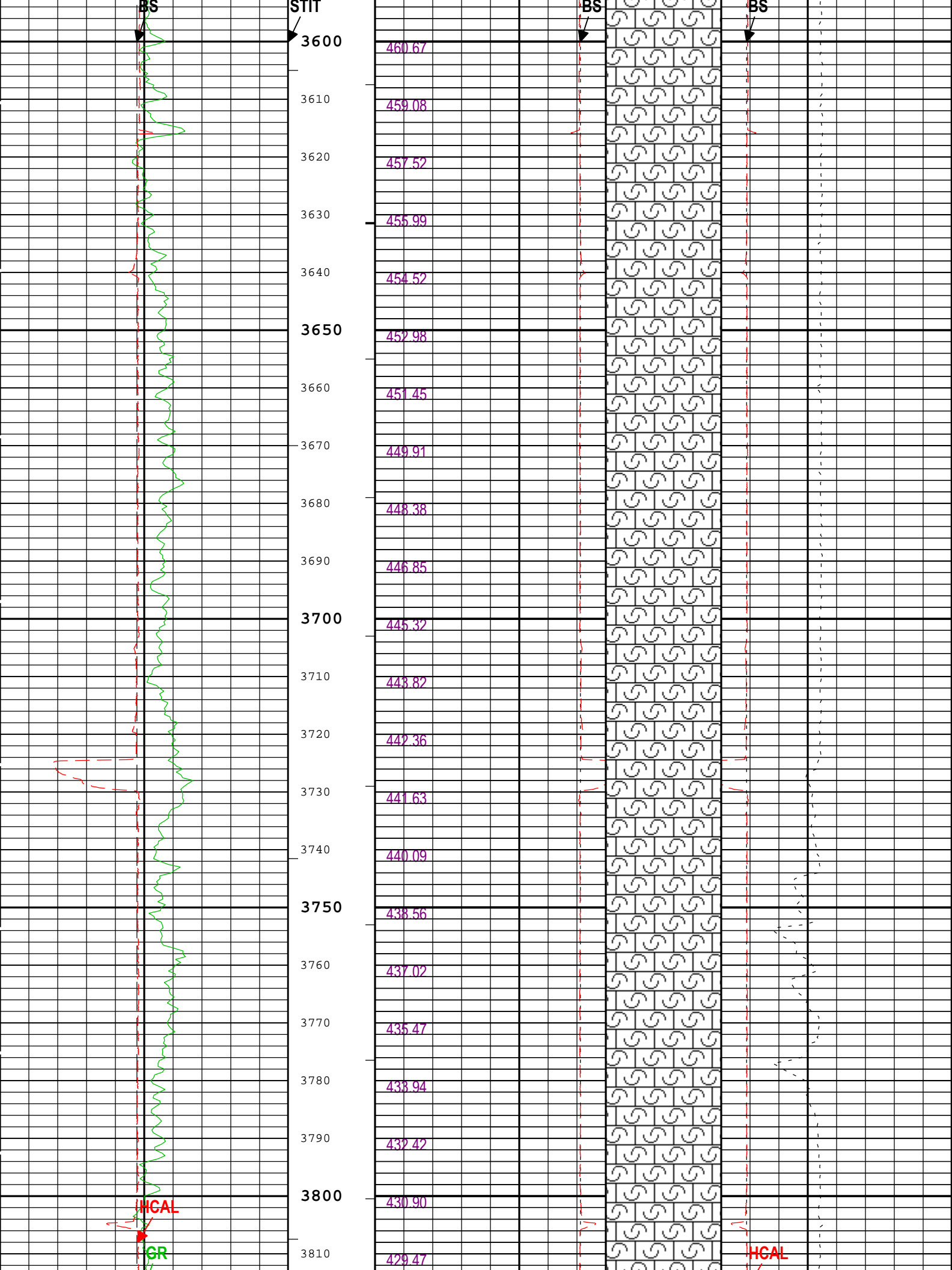


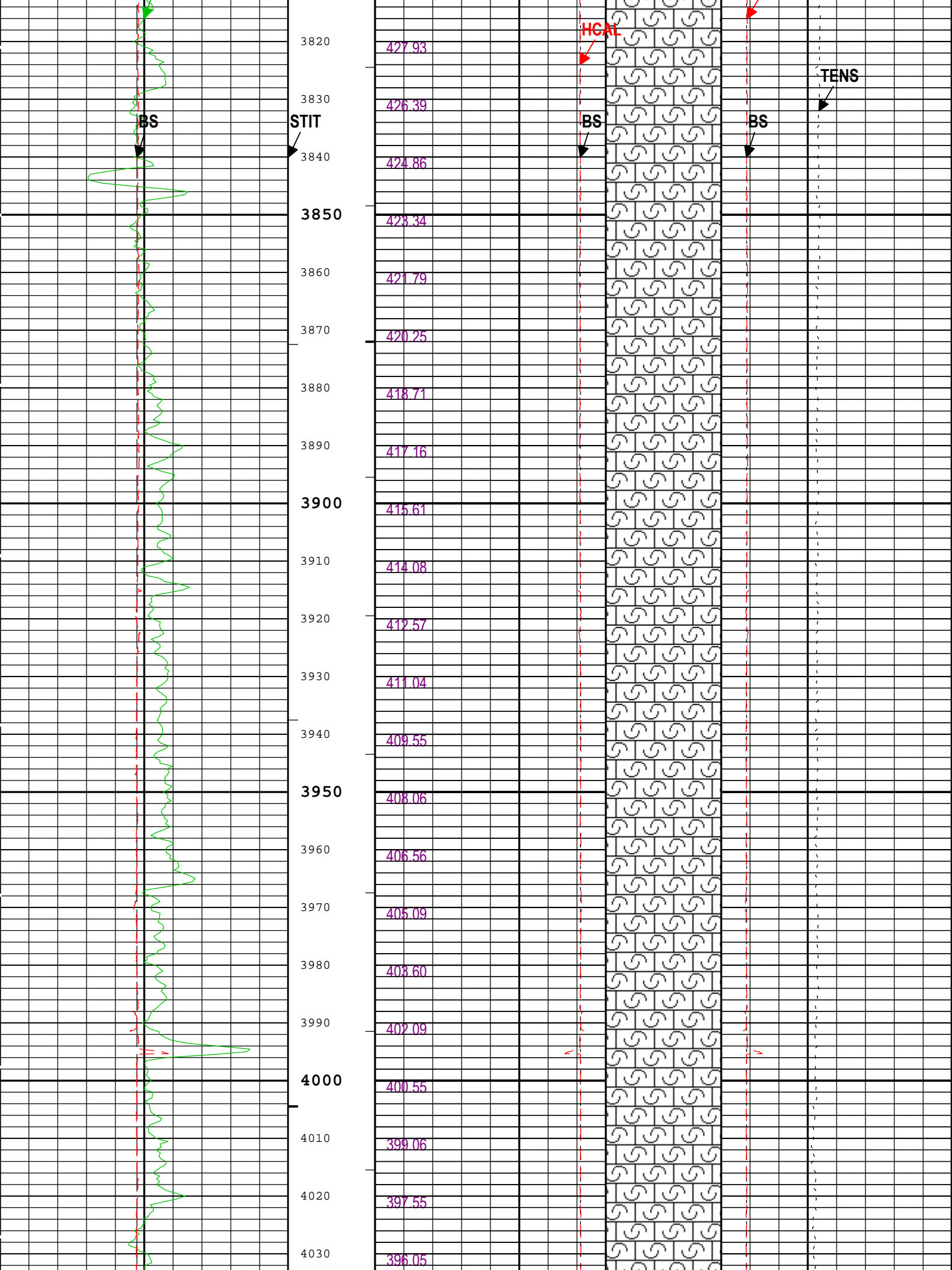


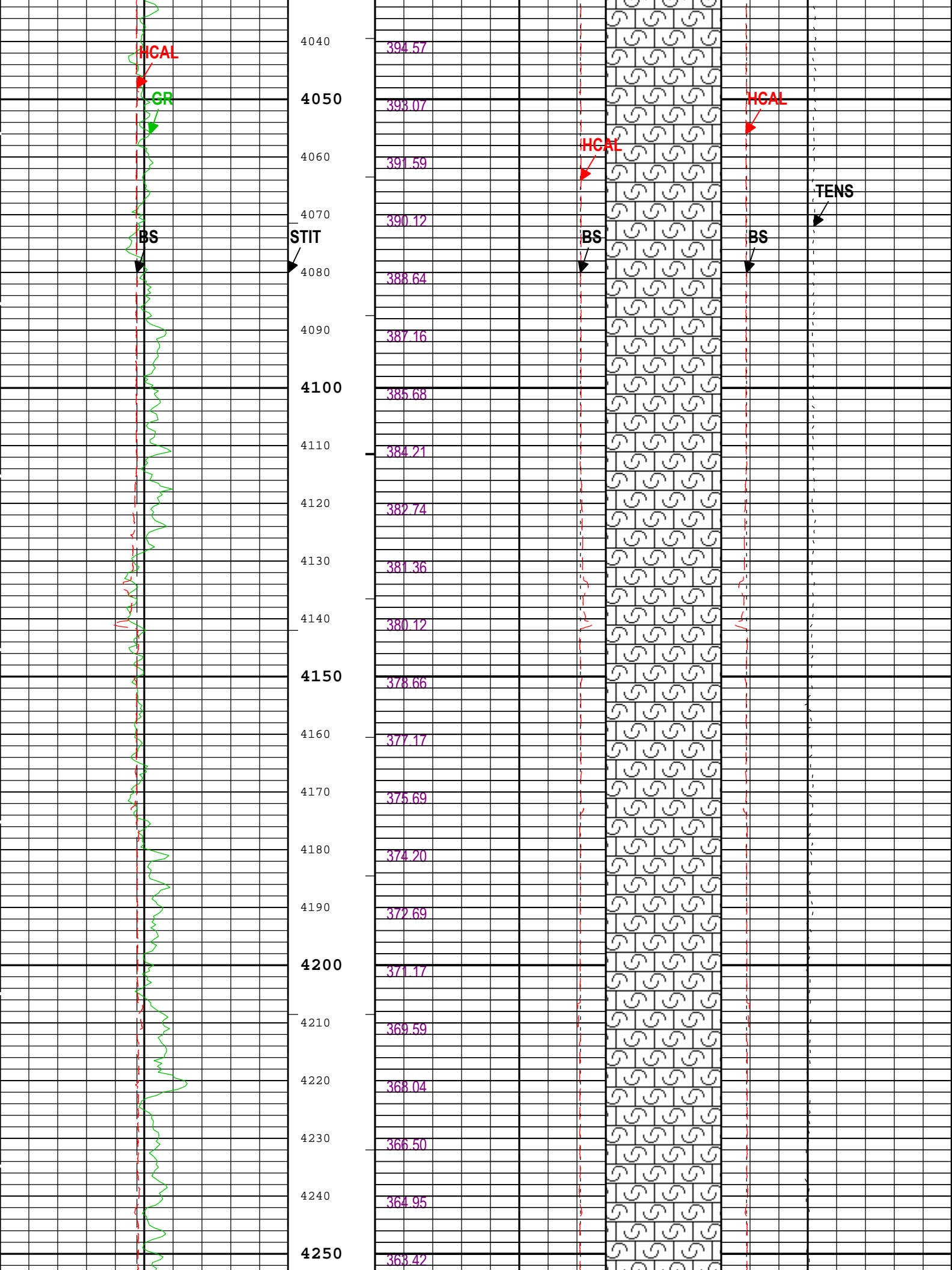


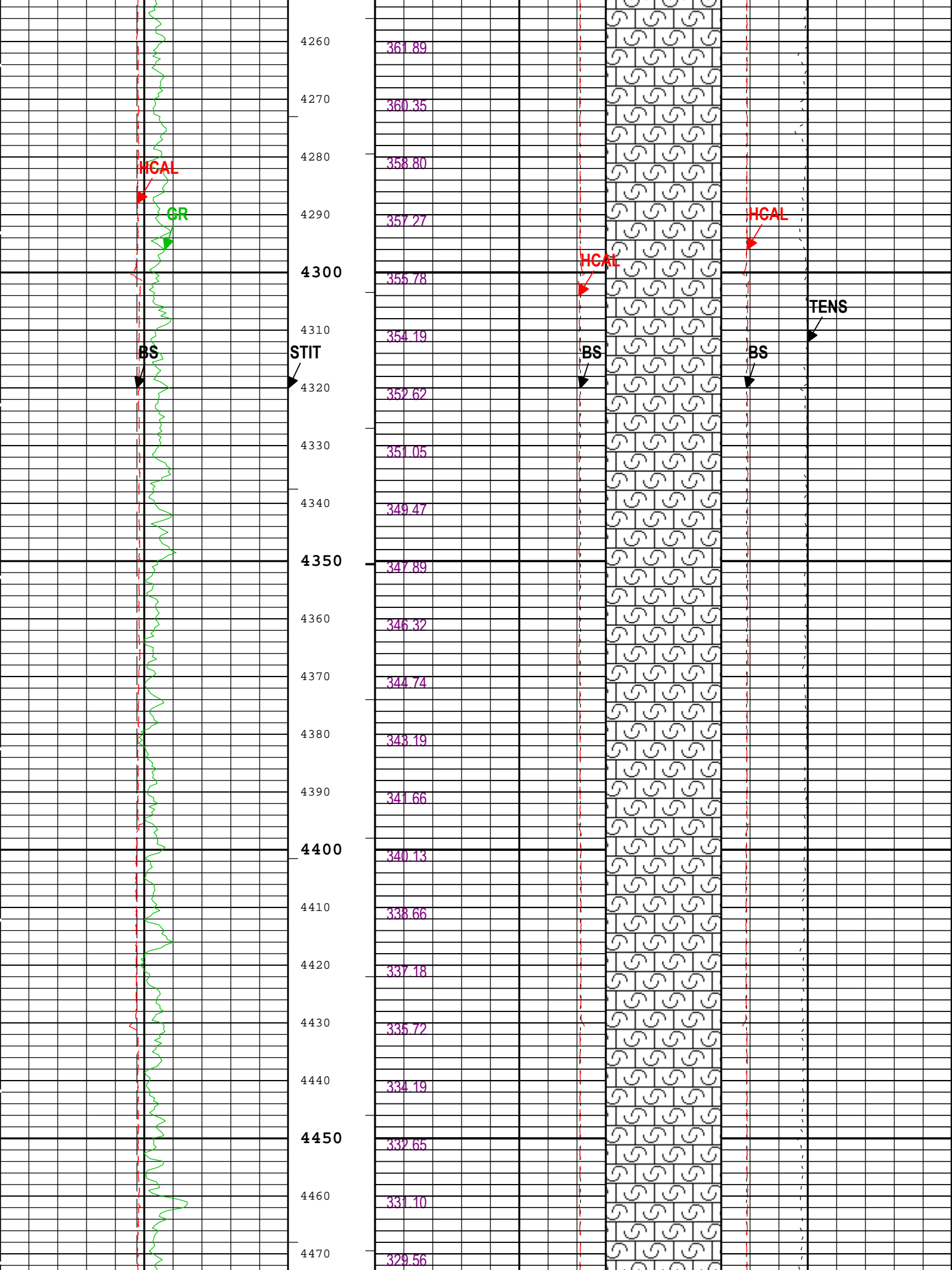


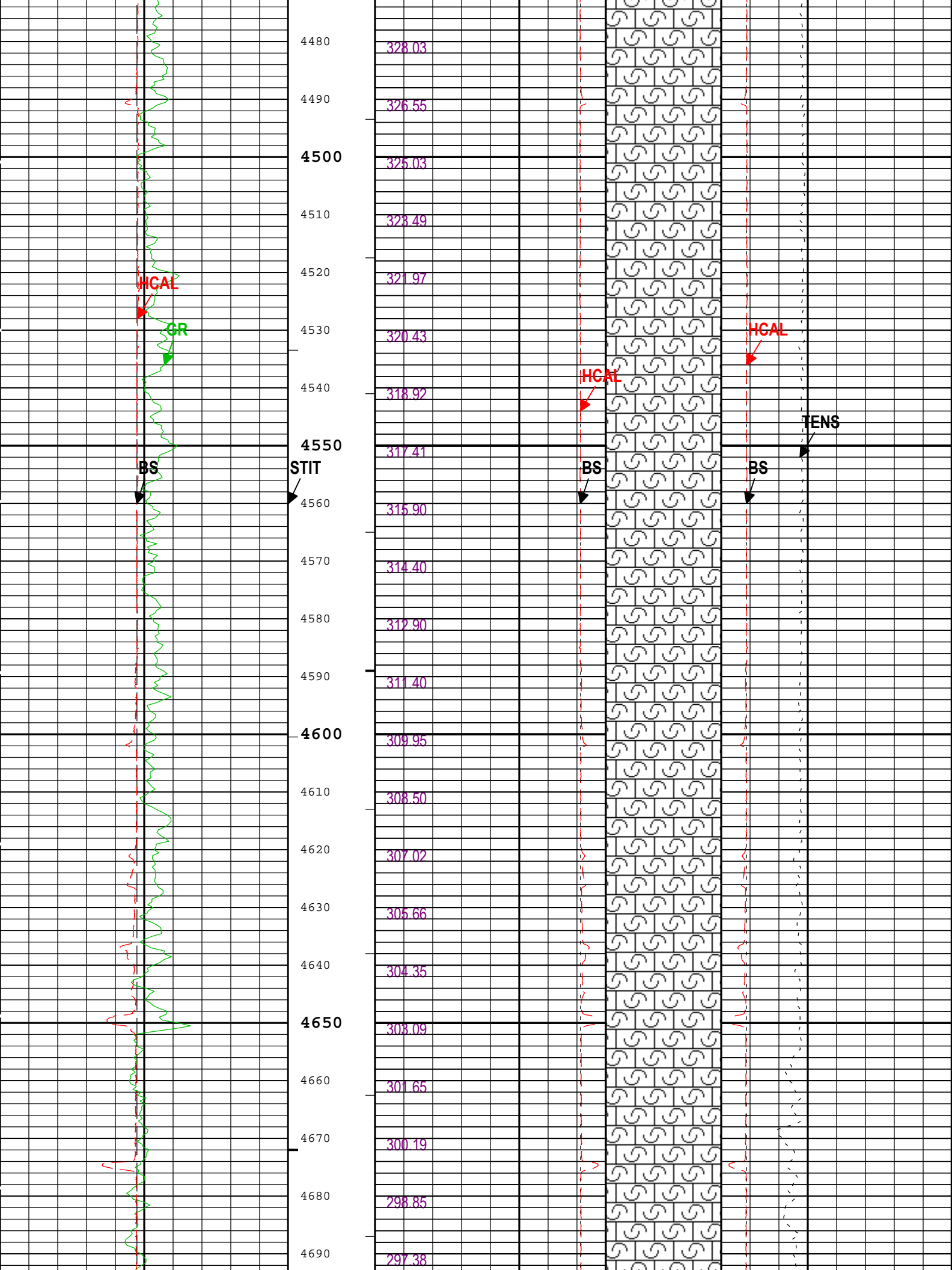


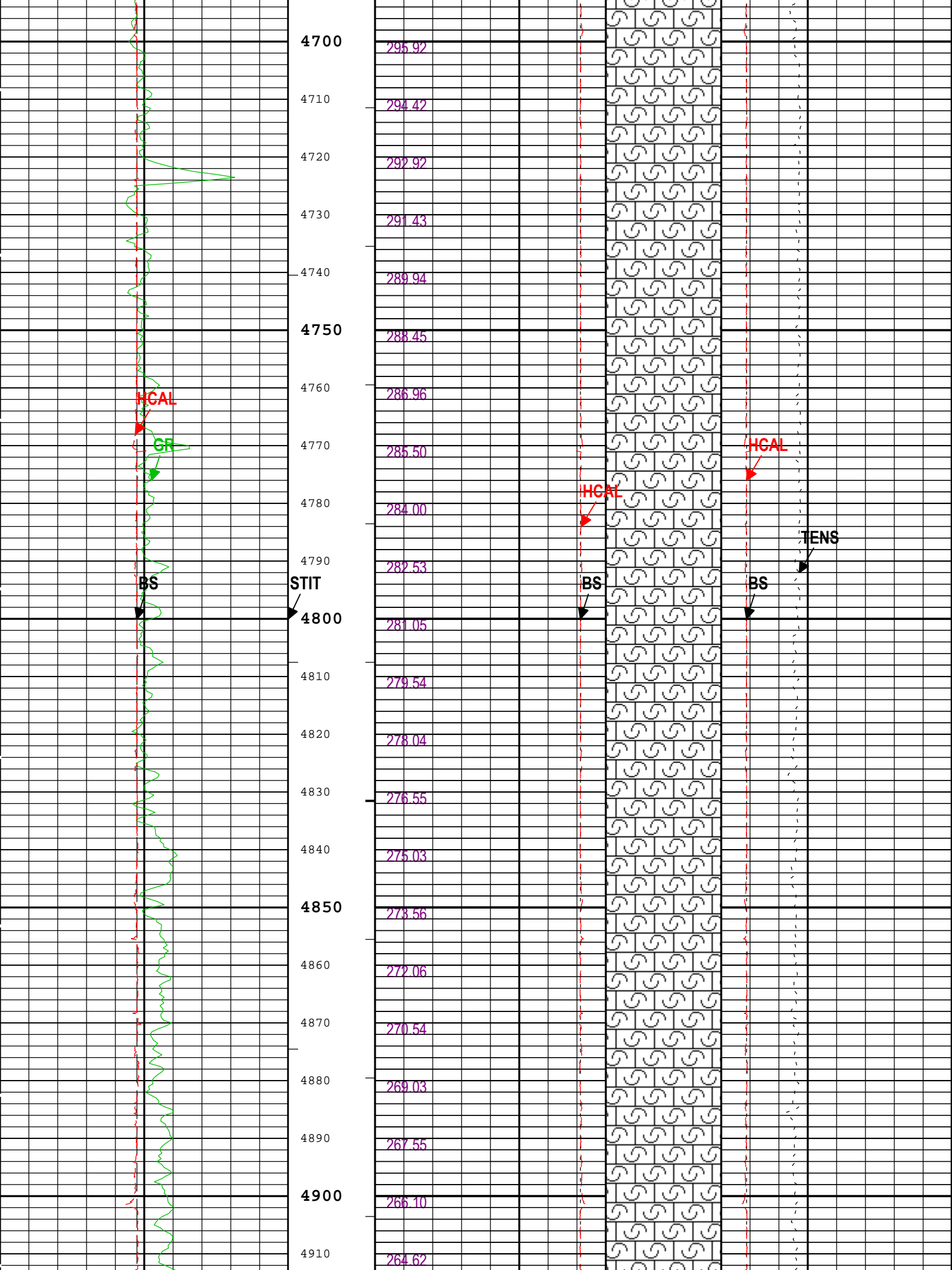


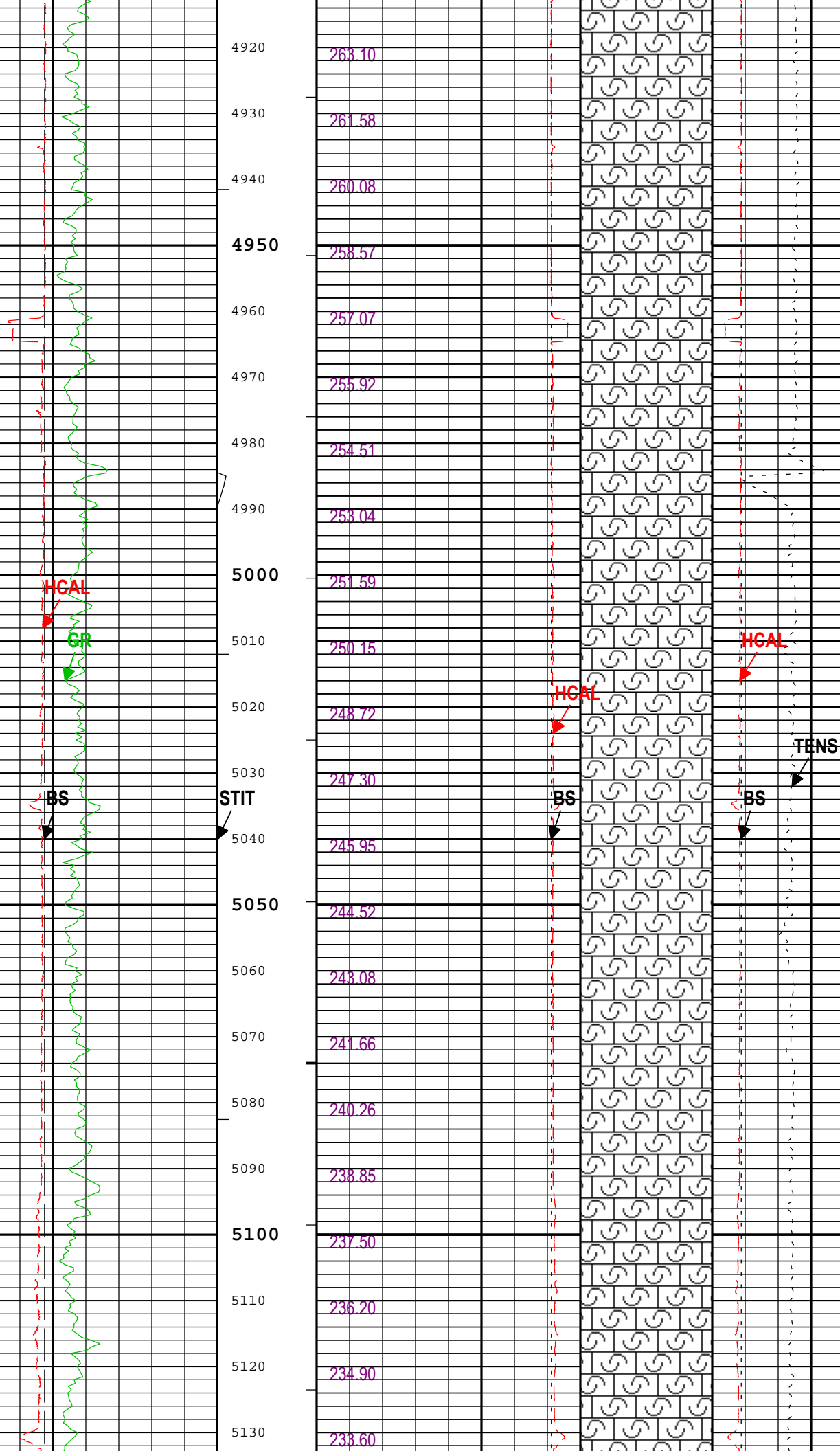


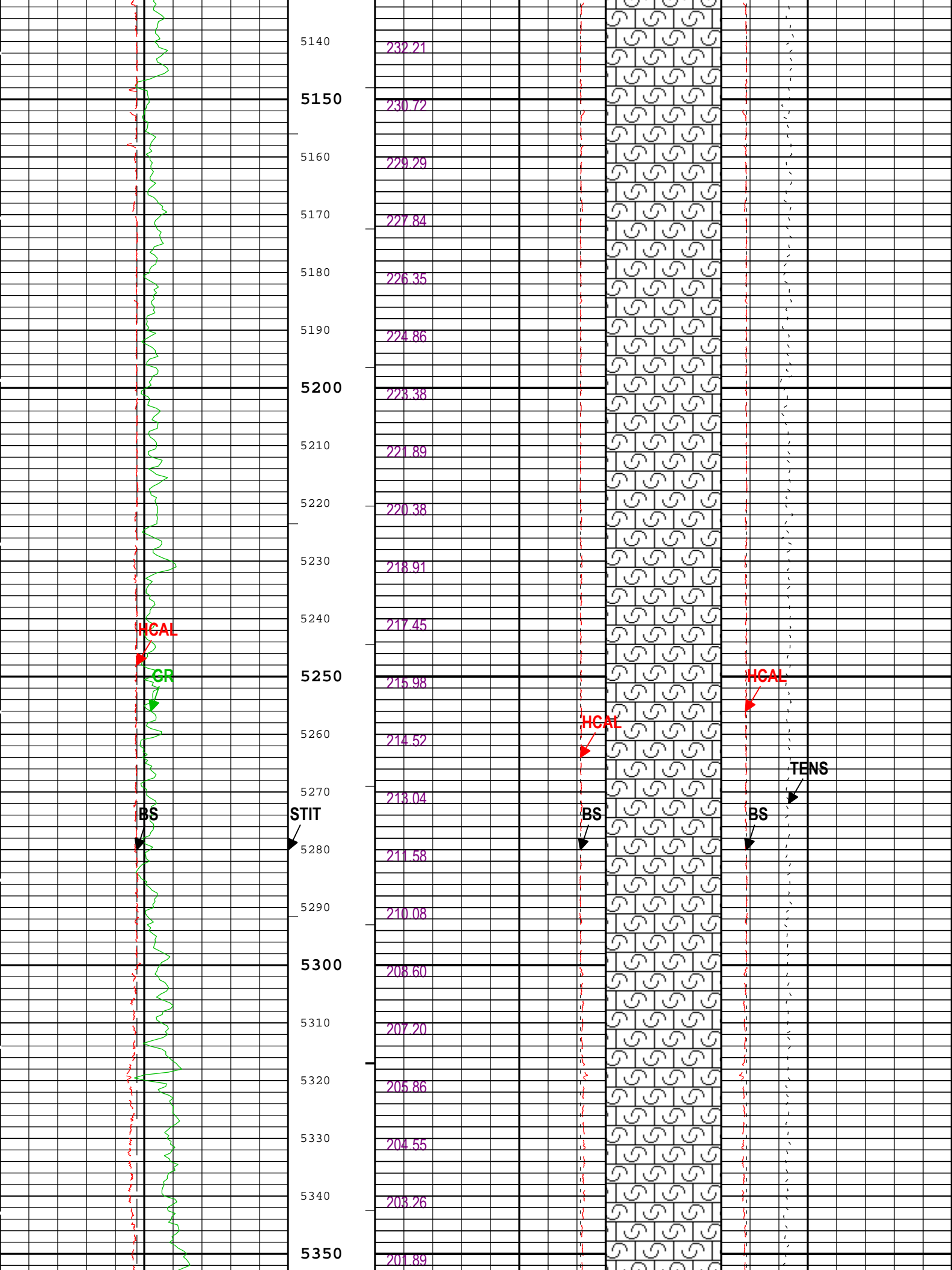




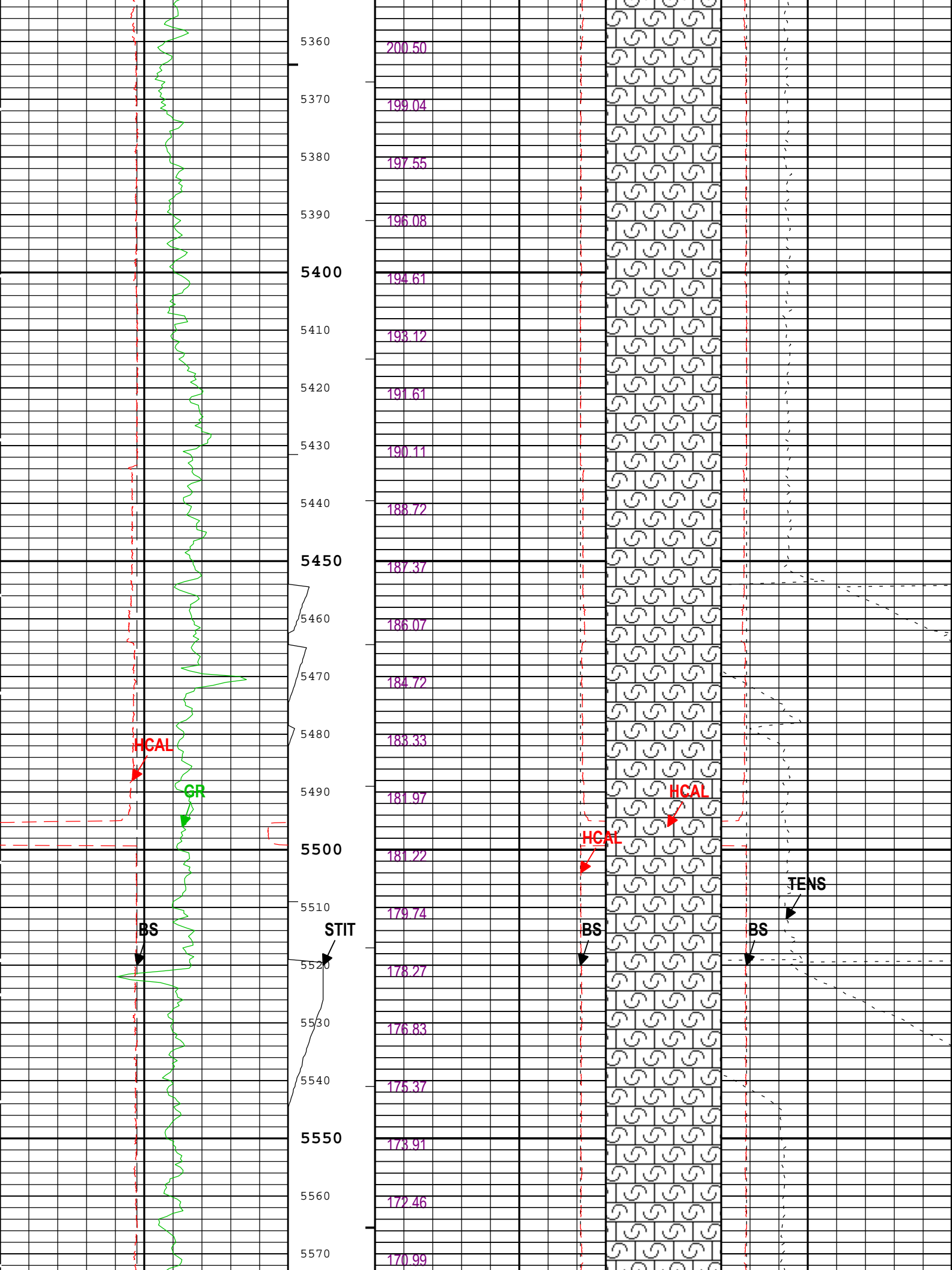


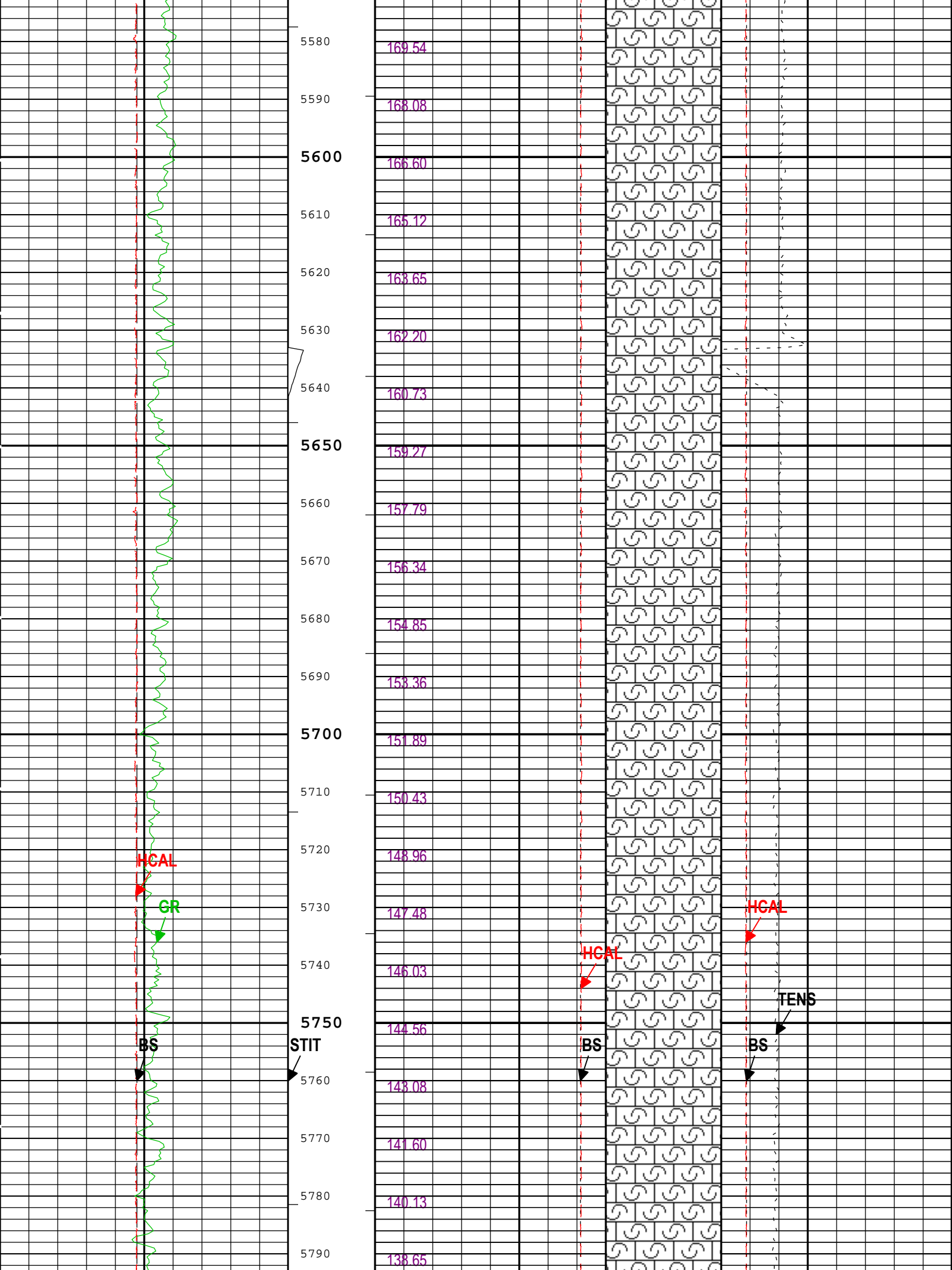


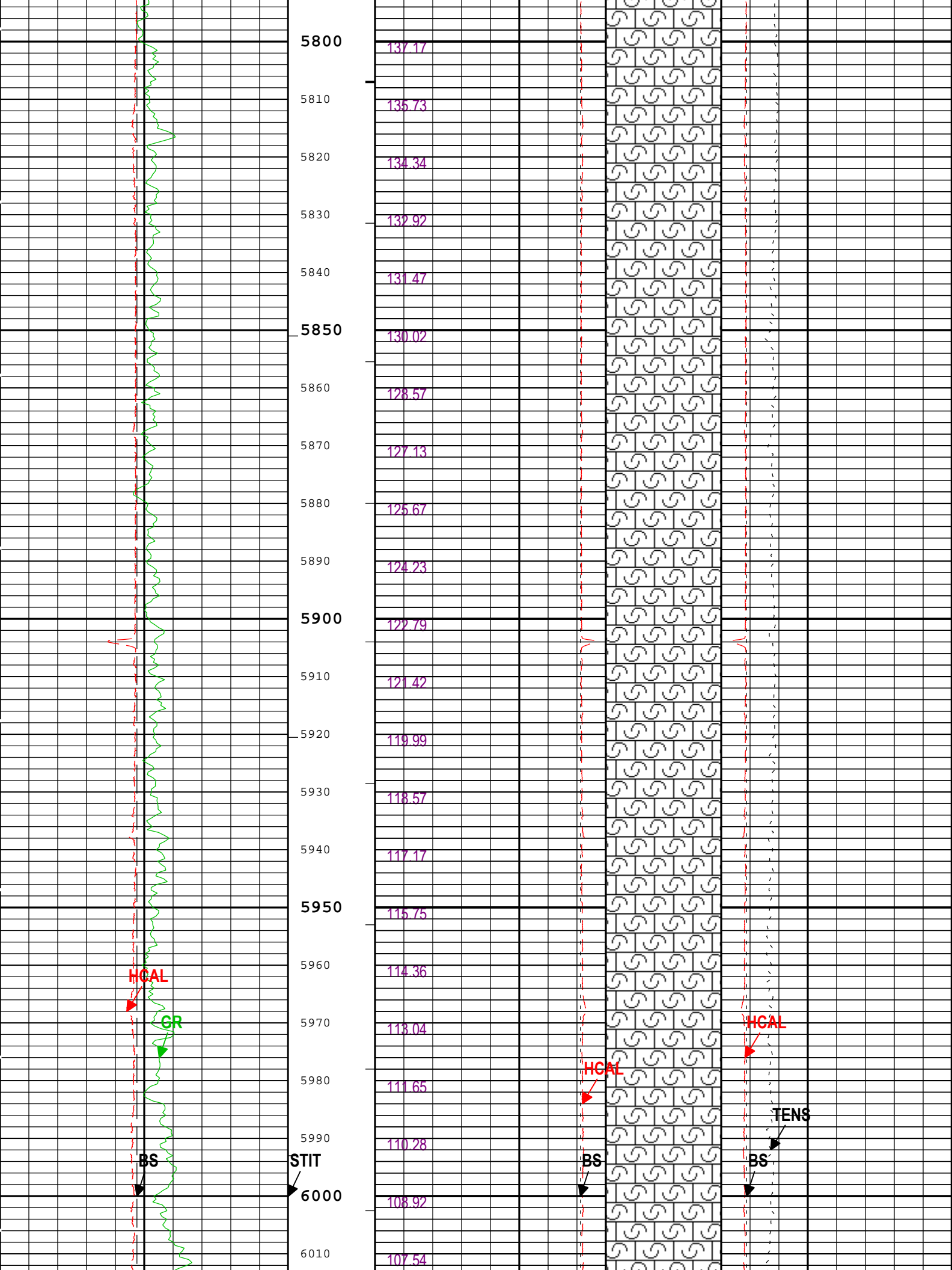


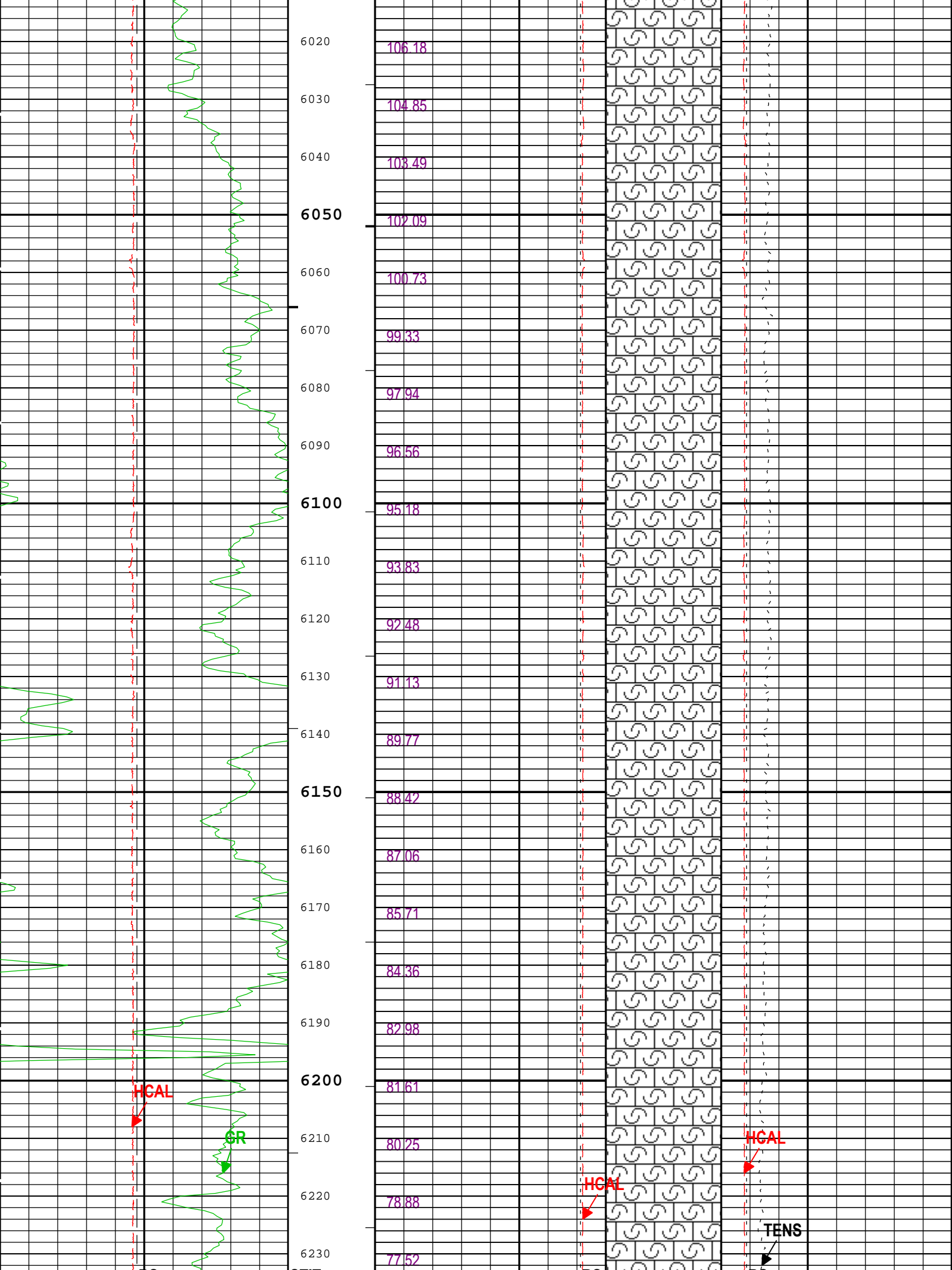


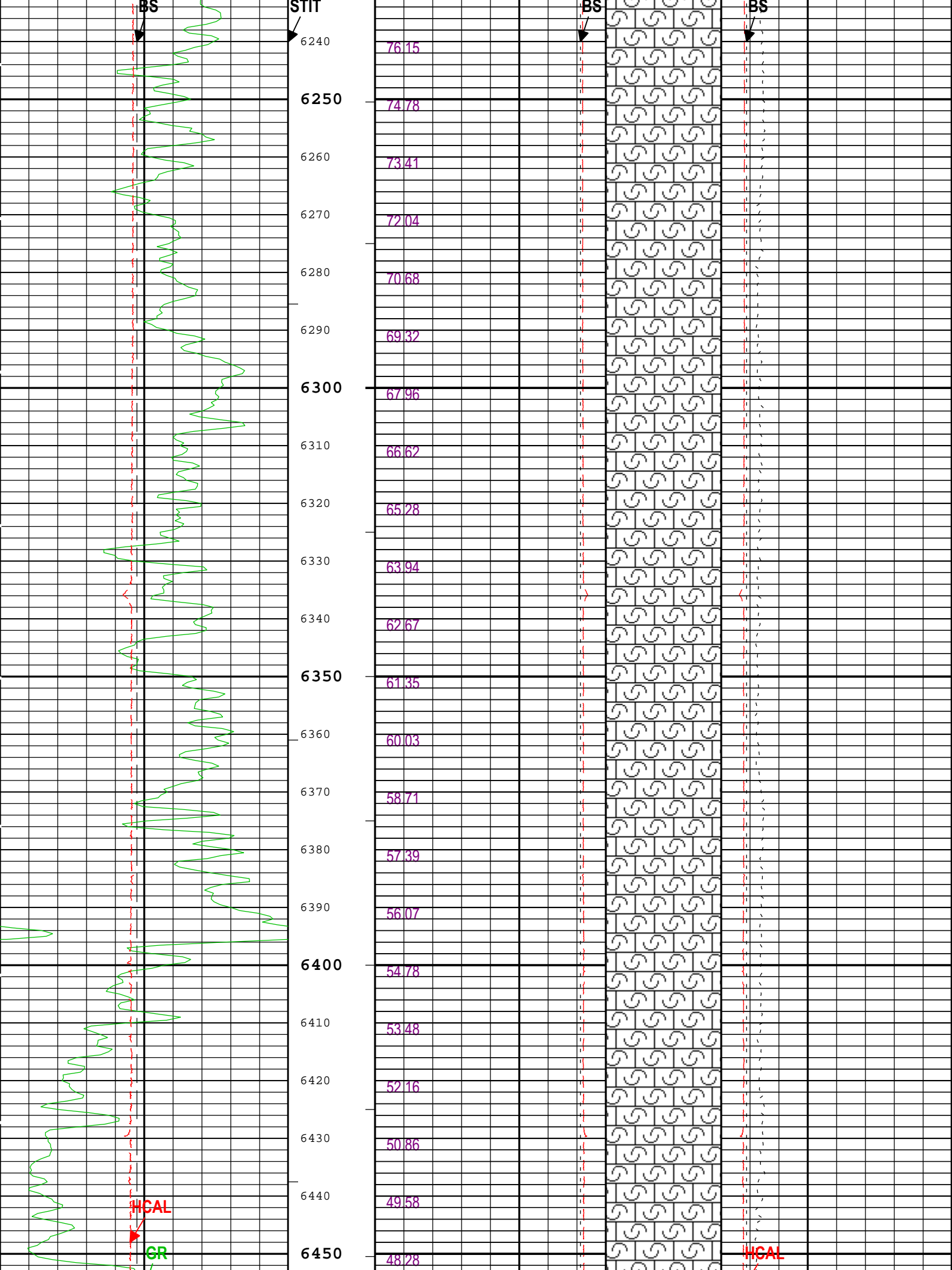


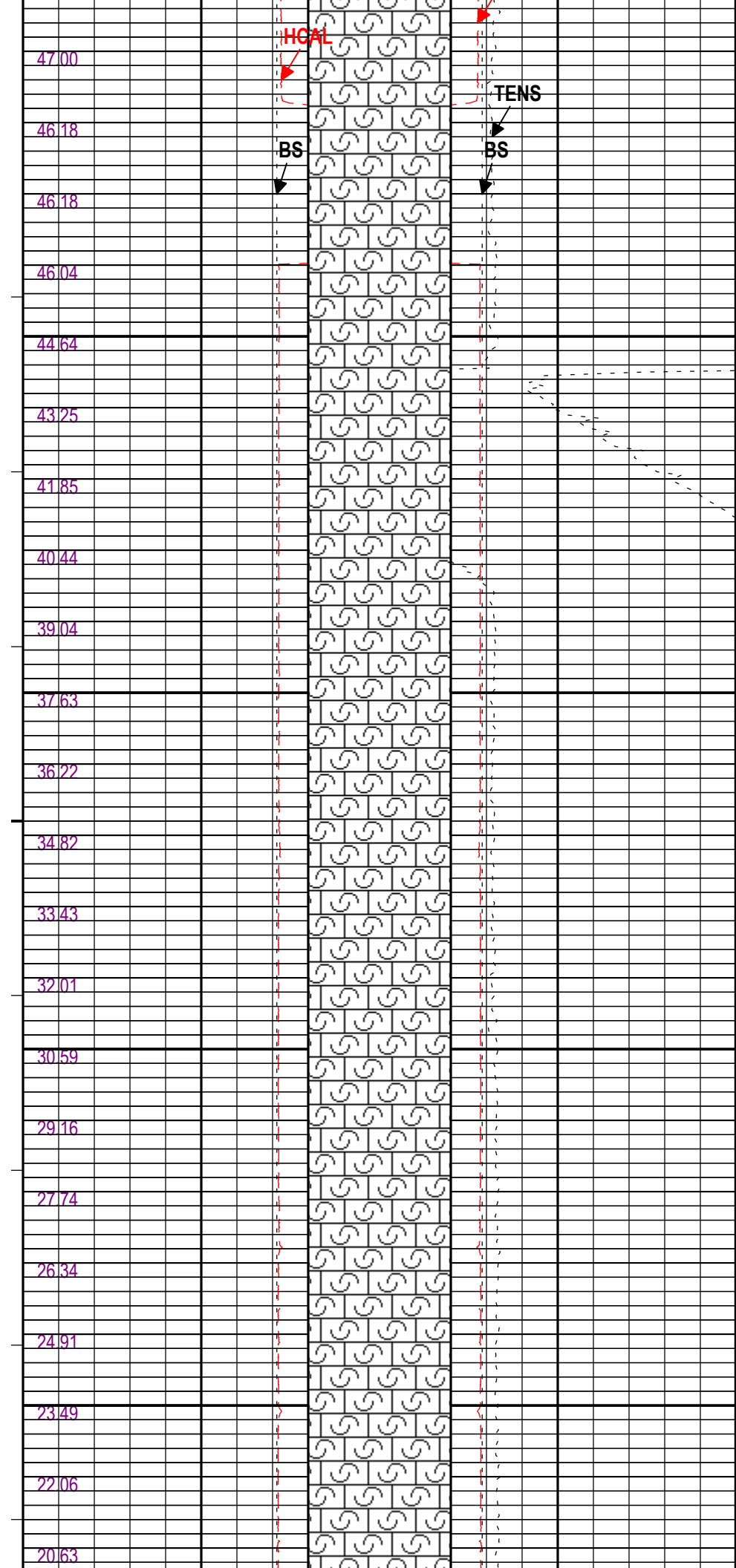
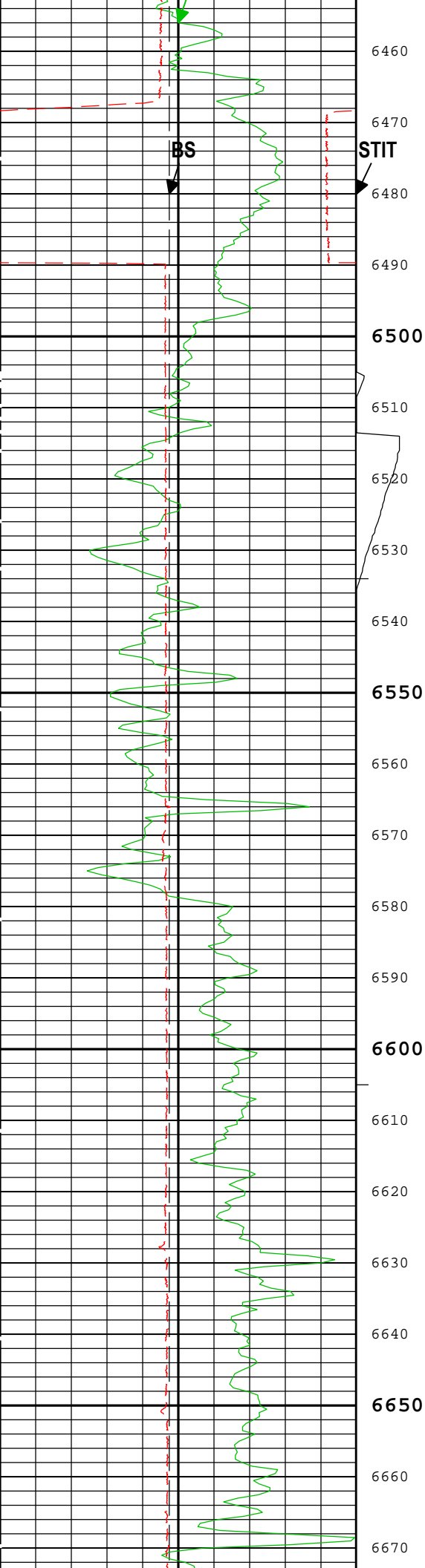


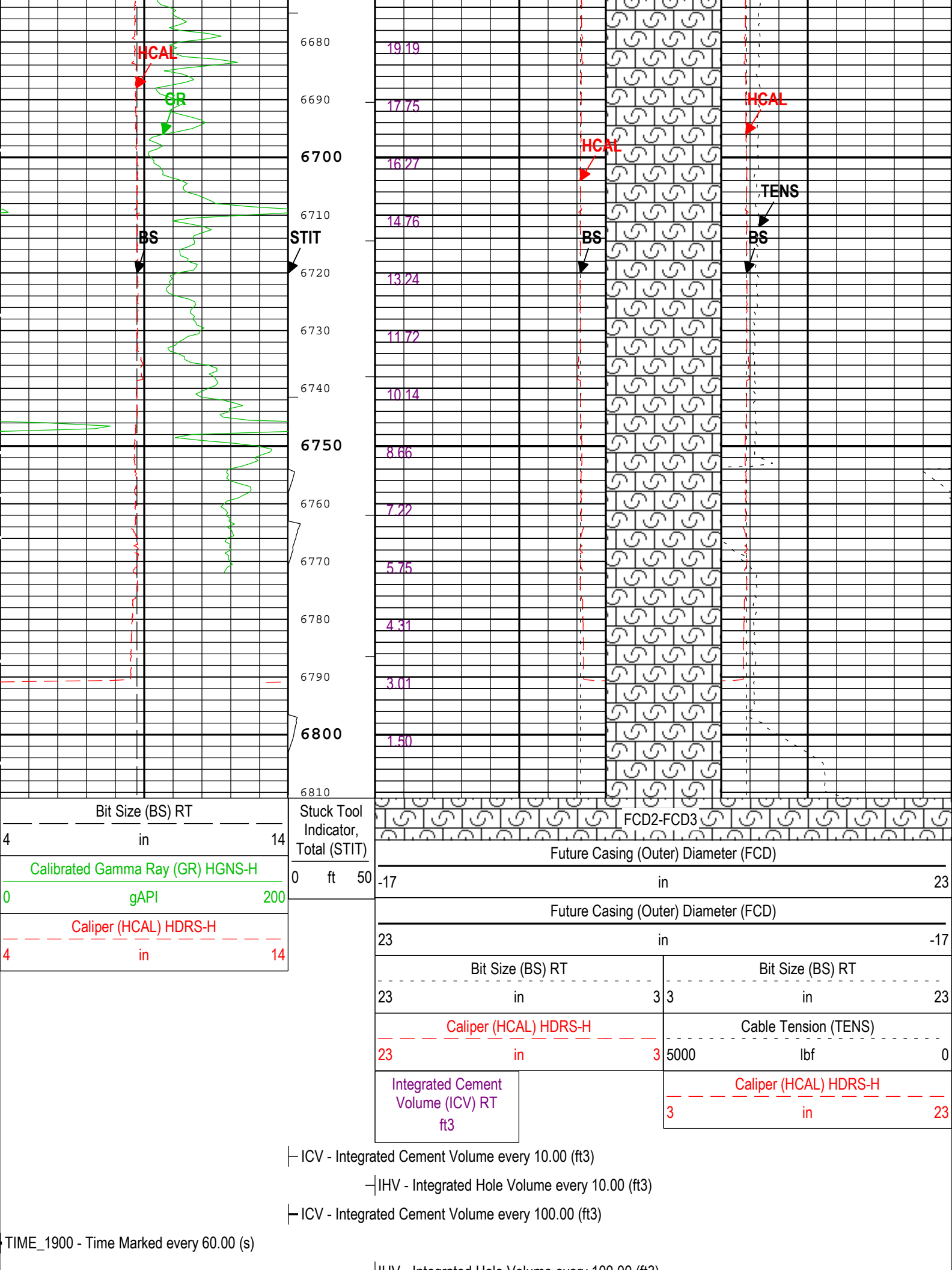












Channel Processing Parameters				
One: Parameters				
Parameter	Description	Tool	Value	Unit
BHS	Borehole Status (Open or Cased Hole)	Borehole	Open	
BS	Bit Size	WLSESSION	Depth Zoned	in
CALI_SHIFT	CALI Supplementary Offset	HDRS-H	-0.8	in
CBLO	Casing Bottom (Logger)	WLSESSION	1465	ft
CSODDRL	Casing Outer Diameter - Zoned along driller depths	WLSESSION	9.625	in
DC_MODE	Depth Correction Mode	DepthCorrection	Real-time	
FCD	Future Casing (Outer) Diameter	WLSESSION	7	in
GCSE_DOWN_PASS	Generalized Caliper Selection for WL Log Down Passes	Borehole	BS(RT)	
GCSE_UP_PASS	Generalized Caliper Selection for WL Log Up Passes	Borehole	CALI	

Depth Zone Parameters			
Parameter	Value	Start ( ft )	Stop ( ft )
BS	13.5	1331	1465
BS	8.75	1465	6800
All depth are actual.			

Tool Control Parameters				
One: Parameters				
Parameter	Description	Tool	Value	Unit
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	1800	ft/h

Calibration Report			
HDRS-H (HILT Density and Rxo Sonde, 150 degC) Calibration - Run One			
Primary Equipment :			
	HILT High-Resolution Control Cartridge, 150 degC	HRCC-H	4817
	HILT Resistivity Gamma-Ray Density Device, 150 degC	HRGD-H	4899
Auxiliary Equipment :			
	HRDD Backscatter Detector	Backscatter	
	HRDD Long Spacing Detector	Long Spacing	
	HRDD Short Spacing Detector	Short Spacing	27786
	Cesium 137 Gamma-Ray Logging Source	GSR-J	5471
	HILT High-Resolution Control Cartridge, 150 degC	HRCC-H	4817
	HILT High-Resolution Mechanical Sonde, 150 degC	HRMS-H	4876
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):		06:42:22 28-Sep-2016					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Small Ring	in	Before	8.00	6.00	6.98	10.00	
Large Ring	in	Before	12.00	9.00	10.77	15.00	

HDRS Density Calibration - Inversion Results							
Master (EEPROM):		13:05:16 19-Sep-2016					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Rho Aluminum	g/cm3	Master	2.596	2.586	2.601	2.606	
Rho Magnesium	g/cm3	Master	1.836	1.826	1.837	1.838	



Rho Magnesium	g/cm3	Master	1.686	1.676	1.685	1.696	<div><div></div><div></div><div></div><div></div><div></div></div>
Pe Aluminum		Master	2.570	2.470	2.555	2.670	<div><div></div><div></div><div></div><div></div><div></div></div>
Pe Magnesium		Master	2.650	2.550	2.632	2.750	<div><div></div><div></div><div></div><div></div><div></div></div>

## HDRS Density Calibration - Deviation Summary

Master (EEPROM):		13:05:16 19-Sep-2016					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div><div></div><div></div><div></div><div></div><div></div></div>
BS Average Deviation	%	Master	0	-0.6000	0.2429	0.6000	<div><div></div><div></div><div></div><div></div><div></div></div>
BS Max Deviation	%	Master	0	-1.6000	0.6364	1.6000	<div><div></div><div></div><div></div><div></div><div></div></div>
SS Average Deviation	%	Master	0	-1.0000	0.2258	1.0000	<div><div></div><div></div><div></div><div></div><div></div></div>
SS Max Deviation	%	Master	0	-2.5000	0.8880	2.5000	<div><div></div><div></div><div></div><div></div><div></div></div>
LS Average Deviation	%	Master	0	-1.5000	0.6466	1.5000	<div><div></div><div></div><div></div><div></div><div></div></div>
LS Max Deviation	%	Master	0	-3.5000	1.9468	3.5000	<div><div></div><div></div><div></div><div></div><div></div></div>

## HDRS Density Calibration - Background Summary

Master (EEPROM):		13:05:16 19-Sep-2016		Before (Measured):		06:31:28 28-Sep-2016	
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div><div></div><div></div><div></div><div></div><div></div></div>
BS Window Ratio		Master	1.0000		0.7367		<div><div></div><div></div><div></div><div></div><div></div></div>
		Before	0.7367	0.6999	0.7363	0.7735	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before-Master	-----	-----	-0.0004	-----	<div><div></div><div></div><div></div><div></div><div></div></div>
BS Window Sum	1/s	Master	1		25558		<div><div></div><div></div><div></div><div></div><div></div></div>
		Before	25558	24280	25473	26836	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before-Master	-----	-----	-85	-----	<div><div></div><div></div><div></div><div></div><div></div></div>
SS Window Ratio		Master	1.0000		0.4811		<div><div></div><div></div><div></div><div></div><div></div></div>
		Before	0.4811	0.4571	0.4803	0.5052	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before-Master	-----	-----	-0.0008	-----	<div><div></div><div></div><div></div><div></div><div></div></div>
SS Window Sum	1/s	Master	1		11029		<div><div></div><div></div><div></div><div></div><div></div></div>
		Before	11029	10478	11009	11580	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before-Master	-----	-----	-20	-----	<div><div></div><div></div><div></div><div></div><div></div></div>
LS Window Ratio		Master	1.0000		0.3006		<div><div></div><div></div><div></div><div></div><div></div></div>
		Before	0.3006	0.2856	0.3039	0.3156	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before-Master	-----	-----	0.0033	-----	<div><div></div><div></div><div></div><div></div><div></div></div>
LS Window Sum	1/s	Master	1		1229		<div><div></div><div></div><div></div><div></div><div></div></div>
		Before	1229	1168	1231	1291	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before-Master	-----	-----	2	-----	<div><div></div><div></div><div></div><div></div><div></div></div>

## HDRS Density Calibration - Photo-multiplier High Voltages

Master (EEPROM):		13:05:16 19-Sep-2016		Before (Measured):		06:31:28 28-Sep-2016	
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div><div></div><div></div><div></div><div></div><div></div></div>
BS PM High Voltage	V	Master		1000	1447	2400	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before		1000	1451	2400	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before-Master	-----	-100	4	100	<div><div></div><div></div><div></div><div></div><div></div></div>
SS PM High Voltage	V	Master		1000	1401	2400	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before		1000	1411	2400	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before-Master	-----	-100	10	100	<div><div></div><div></div><div></div><div></div><div></div></div>
LS PM High Voltage	V	Master		1000	1469	2400	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before		1000	1472	2400	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before-Master	-----	-100	3	100	<div><div></div><div></div><div></div><div></div><div></div></div>

## HDRS Density Calibration - Crystal Quality Resolutions

Master (EEPROM):		13:05:16 19-Sep-2016		Before (Measured):		06:31:28 28-Sep-2016	
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div><div></div><div></div><div></div><div></div><div></div></div>
BS Crystal Resolution	%	Master		5.00	11.77	25.00	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before		5.00	11.75	25.00	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before-Master	-----	-1.00	-0.02	1.00	<div><div></div><div></div><div></div><div></div><div></div></div>
SS Crystal Resolution	%	Master		5.00	10.16	20.00	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before		5.00	10.46	20.00	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before-Master	-----	-1.00	0.30	1.00	<div><div></div><div></div><div></div><div></div><div></div></div>
LS Crystal Resolution	%	Master		5.00	8.17	20.00	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before		5.00	7.75	20.00	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before-Master	-----	-1.00	-0.42	1.00	<div><div></div><div></div><div></div><div></div><div></div></div>

## HDRS MCFL Calibration - MCFL Accumulations

Before (Measured):		06:32:50 28-Sep-2016					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div><div></div><div></div><div></div><div></div><div></div></div>

Main Resistivity	ohm.m	Before	3875	3565	3884	4185	<div><div></div><div></div><div></div><div></div><div></div></div>
Deep Resistivity	ohm.m	Before	3830	3524	3782	4136	<div><div></div><div></div><div></div><div></div><div></div></div>
Shallow Resistivity	ohm.m	Before	3830	3524	3691	4136	<div><div></div><div></div><div></div><div></div><div></div></div>

Company:	Bonanza Creek	<b>Schlumberger</b>
Well:	State Seventy Holes J-18	
Field:	Wattenberg	
County:	Weld	
State:	Colorado	

National Express

Caliper

Cement Volume