

Company: NIGHTHAWK PRODUCTION LLC

Well: TAOS 1-10

Field: WILDCAT

County: LINCOLN State: COLORADO

County: LINCOLN Field: WILDCAT Well: TAOS 1-10 Company: NIGHTHAWK PRODUCTION LLC	Platform Express			
	Caliper			
	Cement Volume			
	Location:		Elev. K.B. 5228.00 ft	
	NENE SEC. 10, T6S, R54W 1091' FNL X 852' FEL LAT/LONG: 39.547420/-103.419820		G.L. 5213.00 ft D.F. 5227.00 ft	
County:	Field:	Location:	Well:	Company:
Permanent Datum:		Ground Level	Elev.:	5213.00 f
Log Measured From:		Kelly Bushing	15.00 ft	above Perm.Datum
Drilling Measured From:		Kelly Bushing		
API Serial No.		Section:	Township:	Range:
05-073-06520-0000		10	6S	54W
Logging Date	31-May-2013			
Run Number	Run 1			
Depth Driller	8300.00 ft			
Schlumberger Depth	8315.00 ft			
Bottom Log Interval	8315.00 ft			
Top Log Interval	309.50 ft			
Casing Driller Size @ Depth	8.625 in @ 301.00 ft			
Casing Schlumberger	309.5 ft			
Bit Size	7.875 in			
Type Fluid In Hole	Fresh Water/DAP			
MUD	Density	Viscosity	55 s	
	Fluid Loss	PH	7.2	
Source of Sample		Flowline		
RM @ Meas Temp	0.75 ohm.m @		89.68 degF	
RMF @ Meas Temp	0.56 ohm.m @		75 degF	
RMC @ Meas Temp	0.94 ohm.m @		75 degF	
Source RMF	RMC	Calculated	Calculated	
RM @ BHT	RMF @ BHT	0.4 @ 175.45	0.25 @ 175.45	
Max Recorded Temperatures		175.45 degF		
Circulation Stopped		31-May-2013 11:00:00		
Logger on Bottom		31-May-2013 16:15:00		
Unit Number	Location:	3022	FORT MORGAN, C	
Recorded By	Keri Lonng			
Witnessed By	Anders Elgerd / Jim Wier			

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.

Contents

- 1. Header
- 2. Disclaimer
- 3. Contents
- 4. Well Sketch
- 5. Borehole Size/Casing/Tubing Record
- 6. Operational Run Summary
- 7. Borehole Fluids
- 8. Remarks and Equipment Summary
- 9. Depth Summary
- 10. Survey Record
- 11. Run 1
 - 11.1 Integration Summary
 - 11.2 Software Version
 - 11.3 Composite Summary
 - 11.4 Log (Noble East Caliper)
 - 11.5 Parameter Listing
- 12. Calibration Report

Well Sketch

Driller Depth

0.00 ft

301.00 ft

Casing 8.625in
24lbm/ft

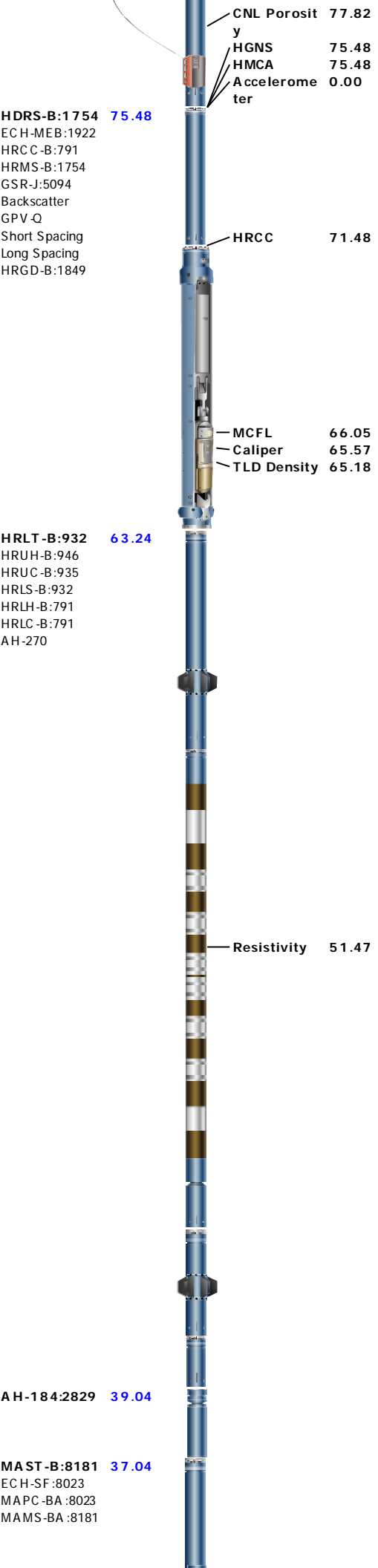


Borehole Size/Casing/Tubing Record						
------------------------------------	--	--	--	--	--	--

Bit						
Bit Size (in)	7.875					
Top Driller (ft)	301					
Top Logger (ft)	309.5					
Bottom Driller (ft)	8300					
Bottom Logger (ft)	8315					
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)	301					
Bottom Logger (ft)	309.5					

Operational Run Summary						
-------------------------	--	--	--	--	--	--

Parameter (unit)	Run 1					
Date Log Started	31-May-2013					
Time Log Started	15:38:56					
Date Log Finished	31-May-2013					
Time Log Finished	18:58:53					
Top Log Interval (ft)	309.50					
Bottom Log Interval (ft)	8315.00					
Total Depth (ft)	8300.00					
Max Hole Deviation (deg)	0.00					
Azimuth of Max Deviation (deg)	0.00					
Bit Size (in)	7.875					
Logging Unit Number	3022					
Logging Unit Location	FORT MORGAN, COLORADO					
Recorded By	Keri Loring					
Witnessed By	Anders Elgerd / Jim Wier					
Service Order Number	BX19-00078					





AIT-H:398
AHIS:398
AHRM:398

16.00

MAMS 21.6

Temperature 7.91
Power Supply 7.91
Induction 7.91

SP 0.08
Mud Resistivity 0.00
Head Tension
TOOL_ZERO

Lengths are in ft

Maximum Outer Diameter = 5.000 in

Line: Sensor Location, V value: Gating Offset

All measurements are relative to TOOL_ZERO

Depth Summary

Depth Summary			
Depth Control Parameters	Run 1		
Conveyance Type	Wireline		
Rig Type	LAND		
Depth Remark Parameters	Run 1		
Depth Remark 1	All Schlumberger depth control		

		procedures followed.													
Depth Remark 2		IDW used as primary depth control device.													
Depth Remark 3		Z-chart used as secondary depth control device.													
Depth Measuring Device		Run 1													
Type		IDW-B													
Serial Number		6868A													
Calibration Date		24-OCT-2012													
Calibration Cable Type		7-39P-LXS													
Wheel Correction 1		-6													
Wheel Correction 2		-5													
Tension Device		Run 1													
Type		CMTD-B/A													
Serial Number		1109													
Calibration Date		30-MAR-2013													
Calibrator Serial Number		78135A													
Calibration Points		10													
Calibration RMS		15													
Calibration Peak Error		26													
Logging Cable		Run 1													
Type		7-39P-LXS													
Serial Number		U711136													
Logging Cable Length (ft)		17100.00													
Survey Record															
Survey Calculation															
Method :		Minimum Radius of Curvature				DLS Method :				Lubinski					
North Reference :		True North				Total Correction Formula :				Magnetic Dec					
Rig Location															
Latitude :		39.547420 degrees				Longitude :				-103.41982 degrees					
Tie In Point															
Measured Depth:		0.00 ft		Inclination:		0.00 deg		Azimuth:		0.00 deg					
True Vertical Depth:		0.00 ft		North Displacement:		0.00 ft		East Displacement:		0.00 ft					
Survey Quality Index															
9 : Manual		28 : Tie-In Point													
Survey Correction Index															
0 : No correction															
Survey Description Index															
0 : Not Flagged Survey															
Seq	MD (ft)	Incl (deg)	Azim (deg)	Course (ft)	TVD (ft)	V Sec (ft)	N/ -S (ft)	E/ -W (ft)	Closure (ft)	at Azim (deg)	DLS deg/100ft	Tool Type	QI	CI	DI
1	0.00	0.00	0.00	- - - -	0.00	0.00	0.00	0.00	0.00	90.00	0.00	TIP	28	0	0
2	256.00	0.57	89.84	256.00	256.00	0.00	0.00	1.27	1.28	89.84	0.22	Other	9	0	0
3	347.00	0.80	131.70	91.00	346.99	-0.42	-0.42	2.20	2.23	100.75	0.59	Other	9	0	0
4	408.00	0.70	146.90	61.00	407.98	-1.01	-1.01	2.72	2.92	110.42	0.36	Other	9	0	0
5	469.00	0.80	133.50	61.00	468.98	-1.62	-1.62	3.23	3.61	116.59	0.33	Other	9	0	0
6	561.00	1.50	134.00	92.00	560.96	-2.90	-2.90	4.57	5.41	122.39	0.76	Other	9	0	0
7	652.00	1.30	136.30	91.00	651.93	-4.47	-4.47	6.14	7.58	126.08	0.23	Other	9	0	0
8	746.00	1.80	120.00	94.00	745.90	-5.98	-5.98	8.15	10.10	126.26	0.70	Other	9	0	0
9	838.00	2.30	107.10	92.00	837.84	-7.25	-7.25	11.17	13.32	122.97	0.74	Other	9	0	0
10	940.00	2.60	101.30	102.00	939.75	-8.30	-8.30	15.39	17.49	118.34	0.38	Other	9	0	0
11	1026.00	2.50	102.00	86.00	1025.66	-9.07	-9.07	19.14	21.19	115.36	0.12	Other	9	0	0
12	1111.00	2.20	109.60	85.00	1110.59	-10.01	-10.01	22.49	24.61	113.98	0.51	Other	9	0	0
13	1197.00	2.30	105.40	86.00	1196.52	-11.02	-11.02	25.71	27.99	113.20	0.22	Other	9	0	0

14	1282.00	2.40	109.20	85.00	1281.45	-12.06	-12.06	29.03	31.43	112.55	0.22	Other	9	0	0
15	1368.00	1.90	113.80	86.00	1367.39	-13.22	-13.22	32.04	34.65	112.43	0.61	Other	9	0	0
16	1453.00	1.80	122.40	85.00	1452.35	-14.51	-14.51	34.46	37.37	112.83	0.35	Other	9	0	0
17	1539.00	1.50	119.10	86.00	1538.31	-15.78	-15.78	36.58	39.83	113.33	0.37	Other	9	0	0
18	1626.00	1.80	114.50	87.00	1625.28	-16.90	-16.90	38.82	42.32	113.52	0.38	Other	9	0	0
19	1712.00	1.50	124.00	86.00	1711.24	-18.09	-18.09	40.98	44.78	113.82	0.47	Other	9	0	0
20	1797.00	1.30	113.80	85.00	1796.22	-19.10	-19.10	42.78	46.85	114.06	0.38	Other	9	0	0
21	1883.00	1.50	109.90	86.00	1882.19	-19.88	-19.88	44.74	48.95	113.96	0.26	Other	9	0	0
22	1968.00	1.20	114.70	85.00	1967.17	-20.63	-20.63	46.59	50.95	113.88	0.38	Other	9	0	0
23	2054.00	1.60	127.00	86.00	2053.14	-21.73	-21.73	48.37	53.02	114.19	0.58	Other	9	0	0
24	2139.00	1.50	135.60	85.00	2138.11	-23.23	-23.23	50.09	55.22	114.88	0.30	Other	9	0	0
25	2225.00	1.70	129.80	86.00	2224.08	-24.86	-24.86	51.86	57.51	115.61	0.30	Other	9	0	0
26	2310.00	1.40	122.80	85.00	2309.04	-26.22	-26.22	53.70	59.78	116.03	0.42	Other	9	0	0
27	2395.00	2.00	102.40	85.00	2394.01	-27.11	-27.11	56.02	62.24	115.82	0.99	Other	9	0	0
28	2483.00	2.00	98.70	88.00	2481.95	-27.67	-27.67	59.04	65.19	115.11	0.15	Other	9	0	0
29	2568.00	2.10	98.90	85.00	2566.90	-28.13	-28.13	62.05	68.11	114.39	0.12	Other	9	0	0
30	2654.00	2.30	98.00	86.00	2652.84	-28.62	-28.62	65.31	71.29	113.66	0.24	Other	9	0	0
31	2740.00	2.00	96.60	86.00	2738.78	-29.03	-29.03	68.51	74.41	112.96	0.35	Other	9	0	0
32	2825.00	2.30	103.60	85.00	2823.72	-29.60	-29.60	71.64	77.53	112.45	0.47	Other	9	0	0
33	2911.00	2.30	114.00	86.00	2909.65	-30.71	-30.71	74.90	80.94	112.29	0.48	Other	9	0	0
34	2996.00	2.40	116.80	85.00	2994.58	-32.21	-32.21	78.04	84.42	112.42	0.18	Other	9	0	0
35	3081.00	2.40	118.40	85.00	3079.50	-33.85	-33.85	81.20	87.96	112.63	0.08	Other	9	0	0
36	3167.00	2.20	118.60	86.00	3165.43	-35.50	-35.50	84.23	91.40	112.85	0.23	Other	9	0	0
37	3252.00	2.50	126.60	85.00	3250.36	-37.39	-37.39	87.15	94.82	113.22	0.52	Other	9	0	0
38	3337.00	1.30	116.60	85.00	3335.31	-38.92	-38.92	89.50	97.60	113.50	1.46	Other	9	0	0
39	3425.00	1.30	117.00	88.00	3423.29	-39.82	-39.82	91.28	99.61	113.57	0.01	Other	9	0	0
40	3512.00	1.40	107.30	87.00	3510.27	-40.59	-40.59	93.18	101.64	113.54	0.29	Other	9	0	0
41	3602.00	1.40	124.00	90.00	3600.24	-41.53	-41.53	95.14	103.81	113.58	0.45	Other	9	0	0
42	3688.00	1.50	133.00	86.00	3686.21	-42.89	-42.89	96.83	105.91	113.89	0.29	Other	9	0	0
43	3773.00	1.50	131.60	85.00	3771.18	-44.38	-44.38	98.48	108.01	114.26	0.04	Other	9	0	0
44	3859.00	1.40	142.50	86.00	3857.15	-45.96	-45.96	99.96	110.01	114.69	0.34	Other	9	0	0
45	3944.00	1.10	122.40	85.00	3942.13	-47.22	-47.22	101.28	111.75	115.00	0.62	Other	9	0	0
46	4030.00	1.30	124.40	86.00	4028.12	-48.22	-48.22	102.78	113.52	115.13	0.24	Other	9	0	0
47	4115.00	1.80	107.10	85.00	4113.09	-49.16	-49.16	104.85	115.81	115.12	0.80	Other	9	0	0
48	4201.00	1.60	101.90	86.00	4199.05	-49.80	-49.80	107.32	118.31	114.89	0.29	Other	9	0	0
49	4288.00	1.70	103.40	87.00	4286.01	-50.35	-50.35	109.76	120.77	114.64	0.13	Other	9	0	0
50	4374.00	1.80	95.50	86.00	4371.97	-50.77	-50.77	112.35	123.29	114.32	0.30	Other	9	0	0
51	4459.00	1.60	93.60	85.00	4456.93	-50.98	-50.98	114.86	125.66	113.93	0.24	Other	9	0	0
52	4545.00	1.50	74.30	86.00	4542.90	-50.75	-50.75	117.14	127.66	113.42	0.61	Other	9	0	0
53	4634.00	1.90	72.70	89.00	4631.86	-49.99	-49.99	119.67	129.69	112.67	0.45	Other	9	0	0
54	4720.00	1.80	77.40	86.00	4717.82	-49.28	-49.28	122.35	131.89	111.94	0.21	Other	9	0	0
55	4807.00	1.80	79.50	87.00	4804.78	-48.73	-48.73	125.03	134.19	111.29	0.08	Other	9	0	0
56	4893.00	2.00	70.20	86.00	4890.73	-47.97	-47.97	127.77	136.48	110.58	0.43	Other	9	0	0
57	4980.00	1.80	103.40	87.00	4977.68	-47.78	-47.78	130.53	139.01	110.10	1.27	Other	9	0	0
58	5067.00	2.00	106.60	87.00	5064.64	-48.53	-48.53	133.31	141.86	110.00	0.26	Other	9	0	0
59	5147.00	2.20	106.20	80.00	5144.58	-49.35	-49.35	136.12	144.78	109.93	0.25	Other	9	0	0
60	5233.00	2.00	109.10	86.00	5230.52	-50.31	-50.31	139.13	147.93	109.88	0.26	Other	9	0	0
61	5318.00	2.00	109.80	85.00	5315.47	-51.29	-51.29	141.92	150.92	109.87	0.03	Other	9	0	0
62	5404.00	2.00	112.80	86.00	5401.42	-52.38	-52.38	144.72	153.90	109.90	0.12	Other	9	0	0
63	5489.00	1.90	115.90	85.00	5486.37	-53.57	-53.57	147.36	156.79	109.98	0.17	Other	9	0	0
64	5575.00	1.80	106.10	86.00	5572.33	-54.57	-54.57	149.94	159.55	110.00	0.39	Other	9	0	0
65	5660.00	1.40	96.60	85.00	5657.29	-55.06	-55.06	152.25	161.91	109.88	0.56	Other	9	0	0
66	5746.00	1.60	105.20	86.00	5743.26	-55.50	-55.50	154.45	164.11	109.76	0.35	Other	9	0	0
67	5831.00	2.70	115.70	85.00	5828.20	-56.67	-56.67	157.40	167.29	109.80	1.37	Other	9	0	0

68	5917.00	2.80	126.50	86.00	5914.10	-58.80	-58.80	160.91	171.33	110.07	0.61	Other	9	0	0
69	6004.00	1.60	140.30	87.00	6001.04	-61.00	-61.00	163.40	174.41	110.47	1.50	Other	9	0	0
70	6090.00	1.40	141.10	86.00	6087.01	-62.74	-62.74	164.83	176.38	110.84	0.23	Other	9	0	0
71	6175.00	1.70	135.10	85.00	6171.98	-64.44	-64.44	166.37	178.41	111.17	0.40	Other	9	0	0
72	6261.00	1.30	131.90	86.00	6257.95	-66.00	-66.00	167.99	180.48	111.45	0.48	Other	9	0	0
73	6346.00	1.30	128.60	85.00	6342.93	-67.24	-67.24	169.47	182.32	111.64	0.09	Other	9	0	0
74	6431.00	1.80	123.30	85.00	6427.90	-68.58	-68.58	171.33	184.55	111.81	0.61	Other	9	0	0
75	6517.00	1.60	127.20	86.00	6513.86	-70.05	-70.05	173.42	187.04	111.99	0.27	Other	9	0	0
76	6603.00	1.40	124.50	86.00	6599.83	-71.37	-71.37	175.24	189.21	112.16	0.25	Other	9	0	0
77	6690.00	2.30	106.10	87.00	6686.78	-72.45	-72.45	177.80	191.99	112.17	1.23	Other	9	0	0
78	6776.00	2.10	101.00	86.00	6772.72	-73.23	-73.23	181.00	195.24	112.03	0.33	Other	9	0	0
79	6864.00	2.00	101.50	88.00	6860.66	-73.85	-73.85	184.09	198.36	111.86	0.12	Other	9	0	0
80	6949.00	2.10	106.60	85.00	6945.61	-74.59	-74.59	187.03	201.35	111.74	0.24	Other	9	0	0
81	7035.00	2.50	122.20	86.00	7031.54	-76.04	-76.04	190.13	204.76	111.80	0.86	Other	9	0	0
82	7123.00	2.50	120.80	88.00	7119.46	-78.04	-78.04	193.40	208.56	111.98	0.07	Other	9	0	0
83	7210.00	2.40	117.50	87.00	7206.38	-79.85	-79.85	196.65	212.24	112.10	0.20	Other	9	0	0
84	7295.00	1.80	106.60	85.00	7291.32	-81.06	-81.06	199.51	215.35	112.11	0.84	Other	9	0	0
85	7381.00	1.70	116.40	86.00	7377.28	-82.01	-82.01	201.94	217.95	112.10	0.37	Other	9	0	0
86	7466.00	1.50	138.80	85.00	7462.25	-83.41	-83.41	203.81	220.21	112.26	0.77	Other	9	0	0
87	7552.00	1.20	114.00	86.00	7548.22	-84.62	-84.62	205.37	222.11	112.39	0.76	Other	9	0	0
88	7641.00	1.10	107.00	89.00	7637.21	-85.25	-85.25	207.04	223.92	112.38	0.19	Other	9	0	0
89	7728.00	1.90	103.60	87.00	7724.18	-85.83	-85.83	209.24	226.15	112.30	0.92	Other	9	0	0
90	7771.00	2.40	110.30	43.00	7767.15	-86.31	-86.31	210.78	227.76	112.27	1.30	Other	9	0	0
91	7813.00	2.90	111.90	42.00	7809.10	-87.02	-87.02	212.59	229.69	112.26	1.20	Other	9	0	0
92	7855.00	3.00	115.20	42.00	7851.04	-87.88	-87.88	214.57	231.86	112.27	0.47	Other	9	0	0
93	7898.00	2.60	111.30	43.00	7893.99	-88.71	-88.71	216.49	233.96	112.28	1.03	Other	9	0	0
94	7941.00	2.20	113.60	43.00	7936.96	-89.40	-89.40	218.16	235.76	112.28	0.96	Other	9	0	0

Run 1															

Integration Summary															
Output Channel(s)		Output Description				Input Parameter				Output Value			Unit		
ICV		Integrated Cement Volume				GCSE_UP_PASS, FCD				2208.11			ft3		
IHV		Integrated Hole Volume				GCSE_UP_PASS				3532.9			ft3		

Software Version															
Acquisition System									Version						
MaxWell									3.1.9755.0						
Application Patch									SP-20121221-3.1.9755.1574						
									EXP_APL-CMR1574-3.1.9755.1732						
									EXP_APL-MASTCustWF-3.1.9755.1929						

Computation			Description									Version			
Borehole			Borehole Ensemble provides common Borehole Parameters and Channels									3.1.9755.1732			
DepthCorrection			DepthCorrection									3.1.9755.1732			
Tool Elements			Description						Software Version			Firmware Version			
HGNS-B			HILT Gamma-Ray and Neutron Sonde, 125 degC						3.1.9755.0			2.0			
HRCC-B			HILT High-Resolution Control Cartridge, 125 degC						3.1.9755.0			2.0			

Pass Summary															
Run Name	Pass Objective		Direction	Top	Bottom	Start				Stop			Depth Shift	Include Parallel Data	
Run 1	Main[3]:Up		Up	285.10 ft	8340.47 ft	31-May-2013 4:39:28 PM				31-May-2013 6:55:10 PM			10.52 ft	true	

Channel	Source	Sampling
ICV	Borehole	6in
BS	Borehole	6in
CALI	HDRS-B:HRCC-B:HRCC-B	1in
GR	HGNS-B:HGNS-B:HGNS-B	6in
ICV	Borehole	6in
IHV	Borehole	6in
TIME_1900	WLWorkflow	0.1in
STIT	DepthCorrection	6in
TENS	WLWorkflow	6in

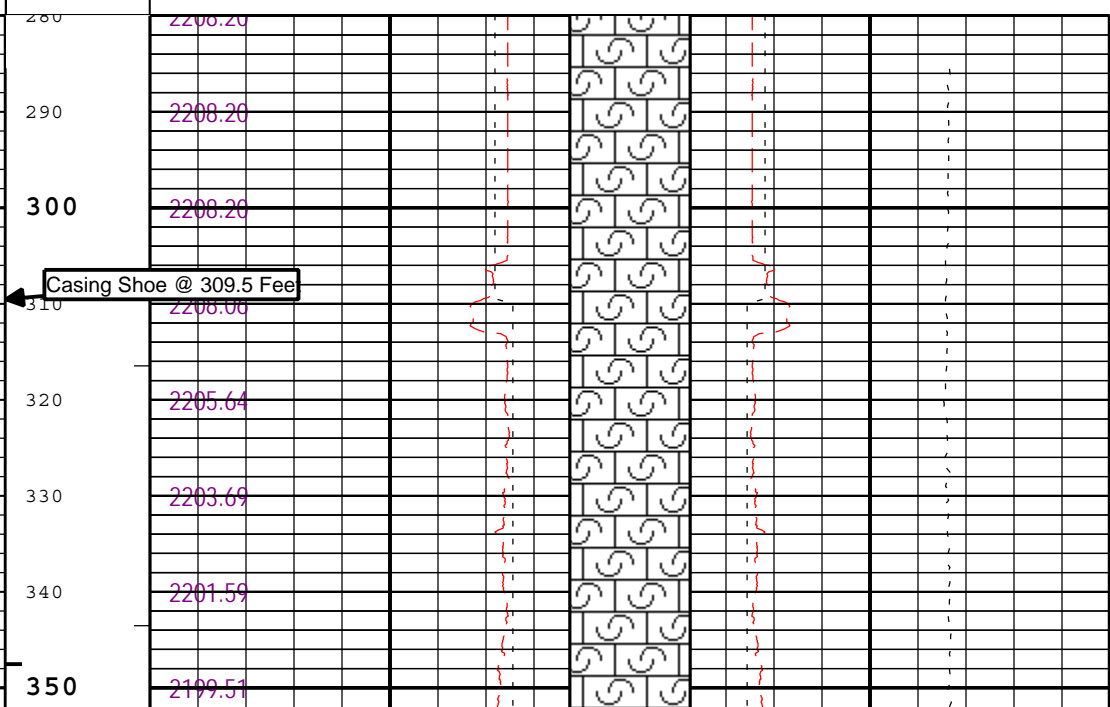
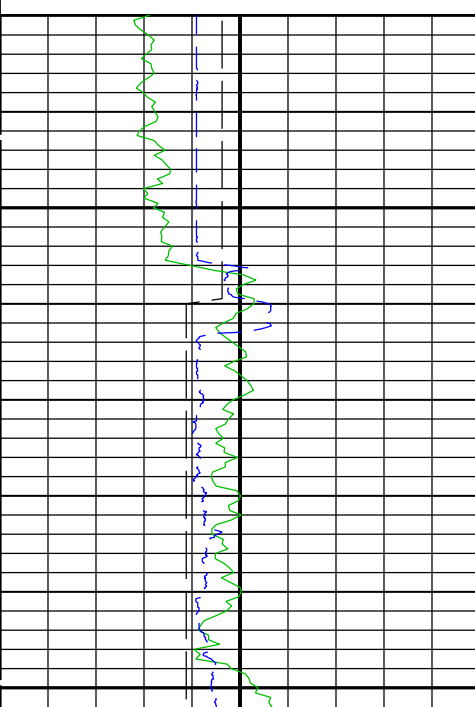
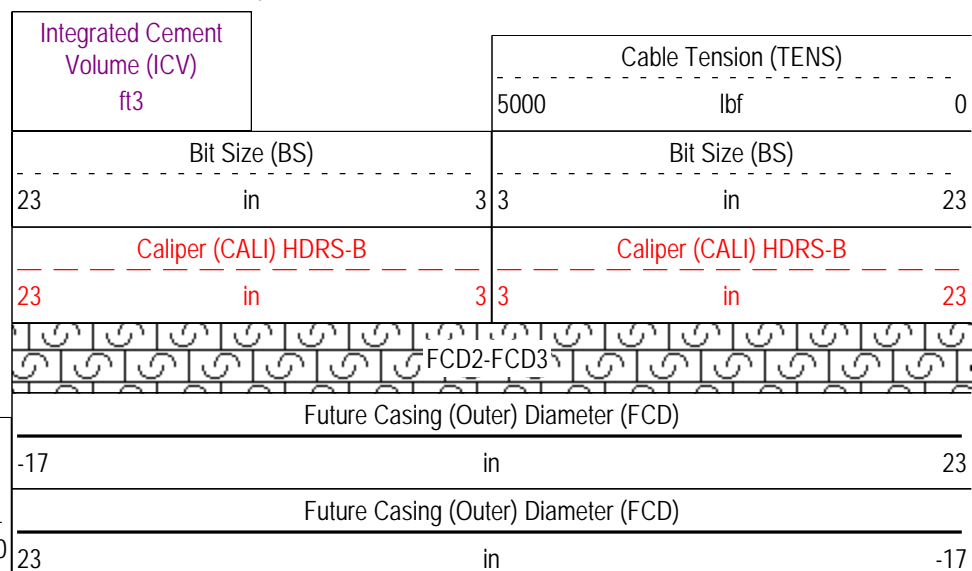
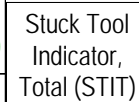
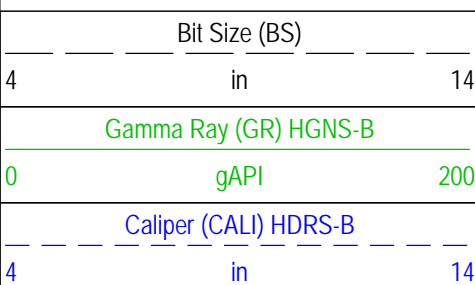
—IHV - Integrated Hole Volume every 100.00 (ft3)

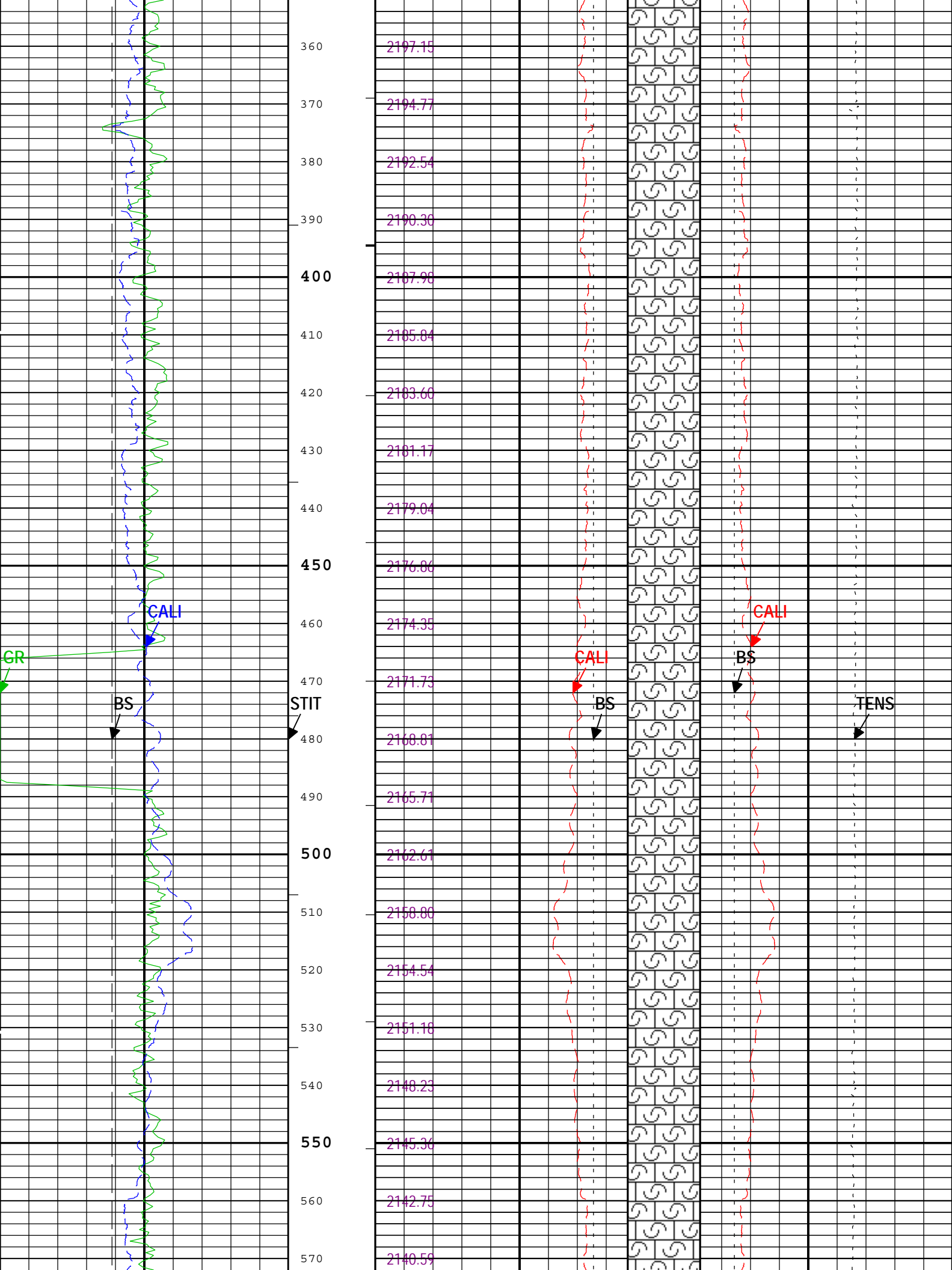
TIME_1900 - Time Marked every 60.00 (s)

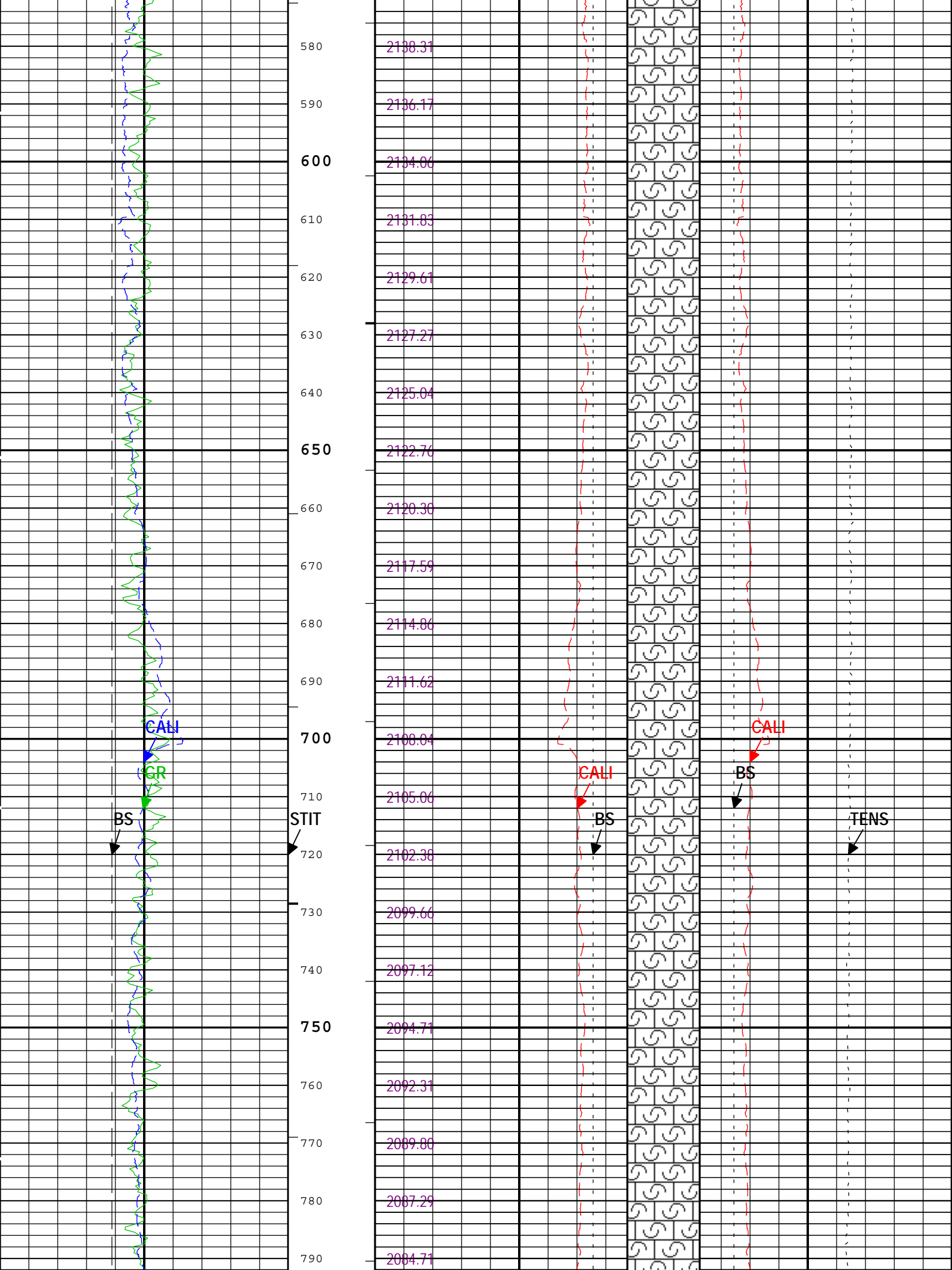
└ ICV - Integrated Cement Volume every 100.00 (ft3)

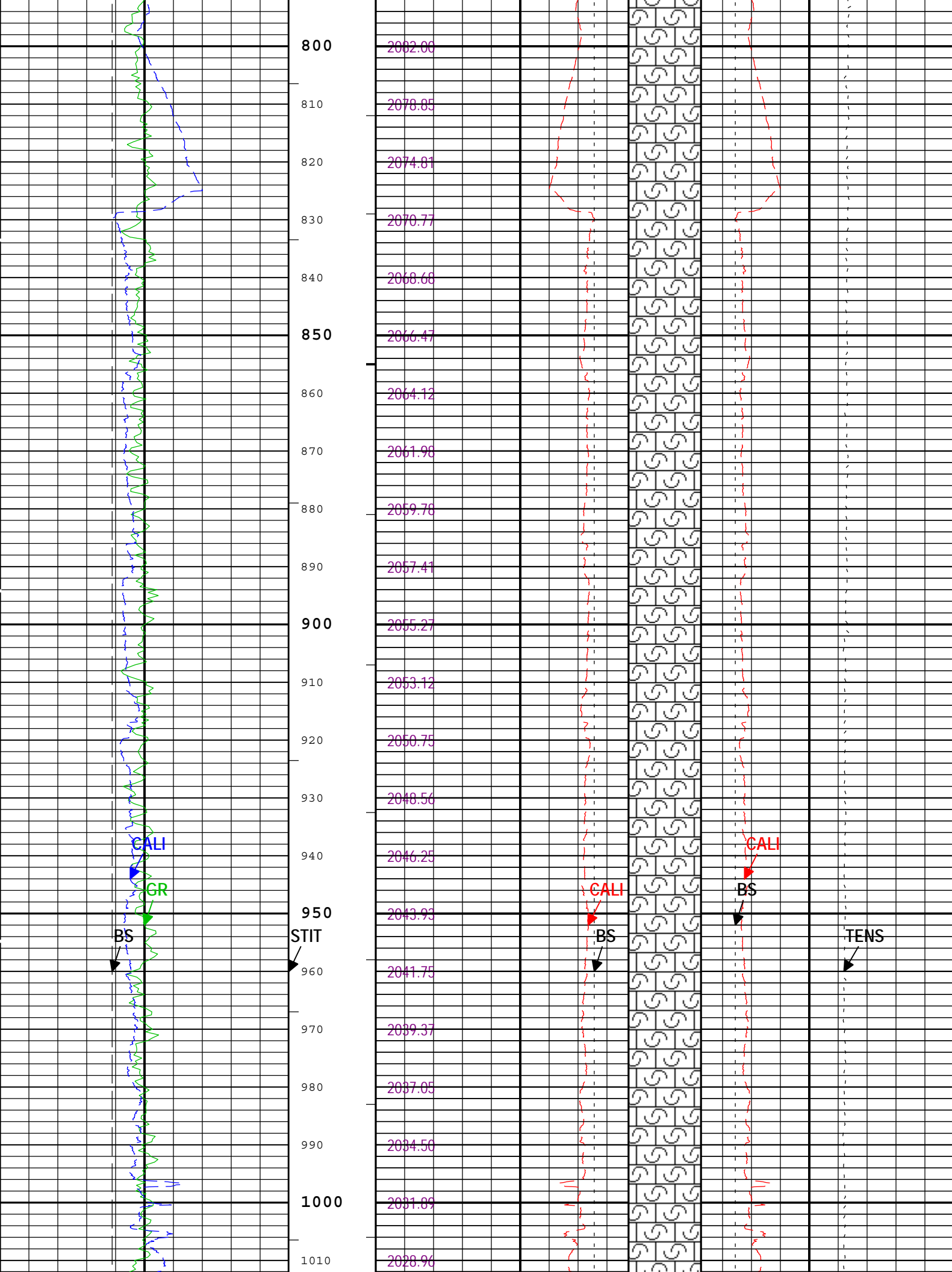
—IHV - Integrated Hole Volume every 10.00 (ft3)

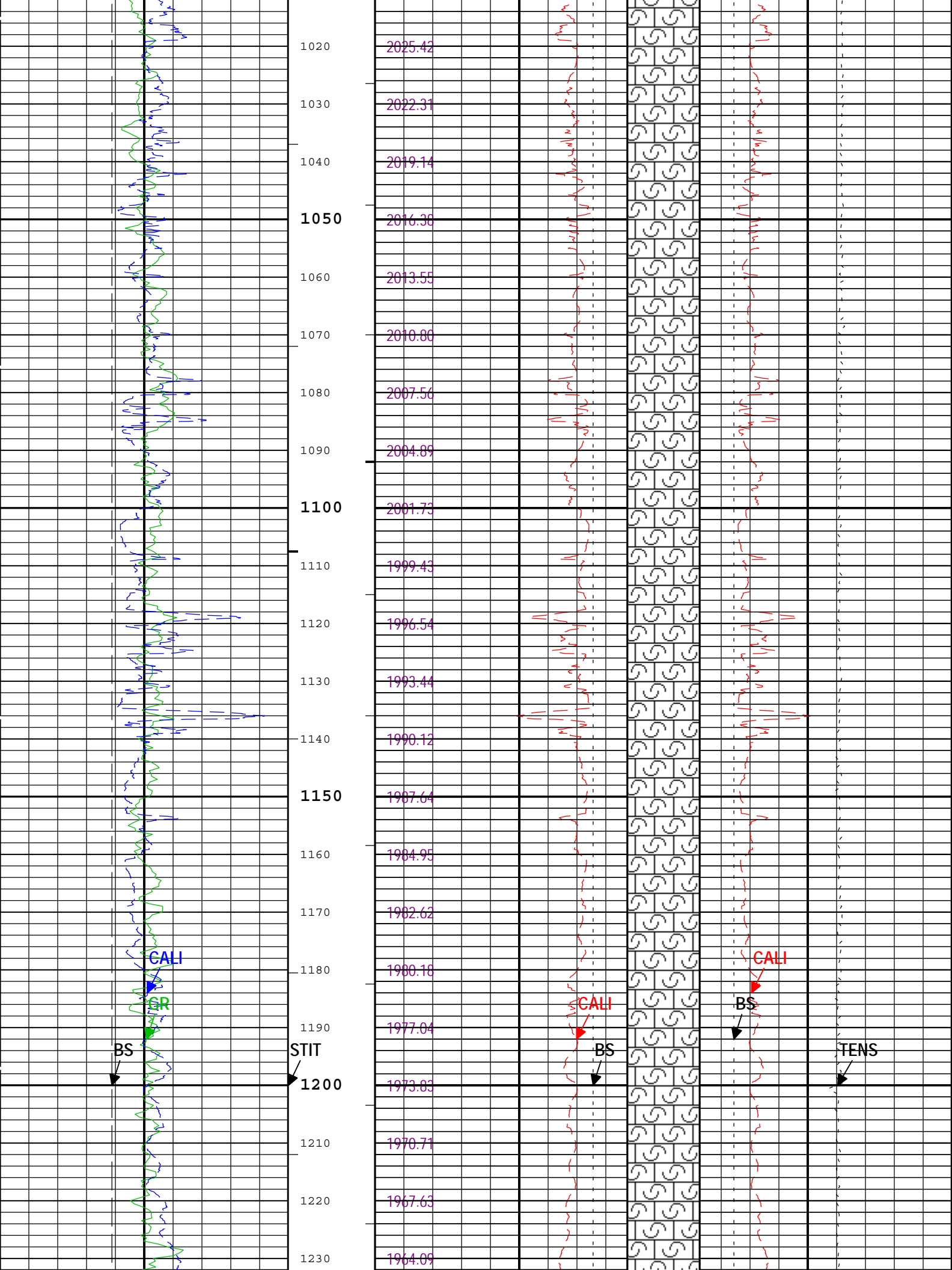
└ ICV - Integrated Cement Volume every 10.00 (ft3)

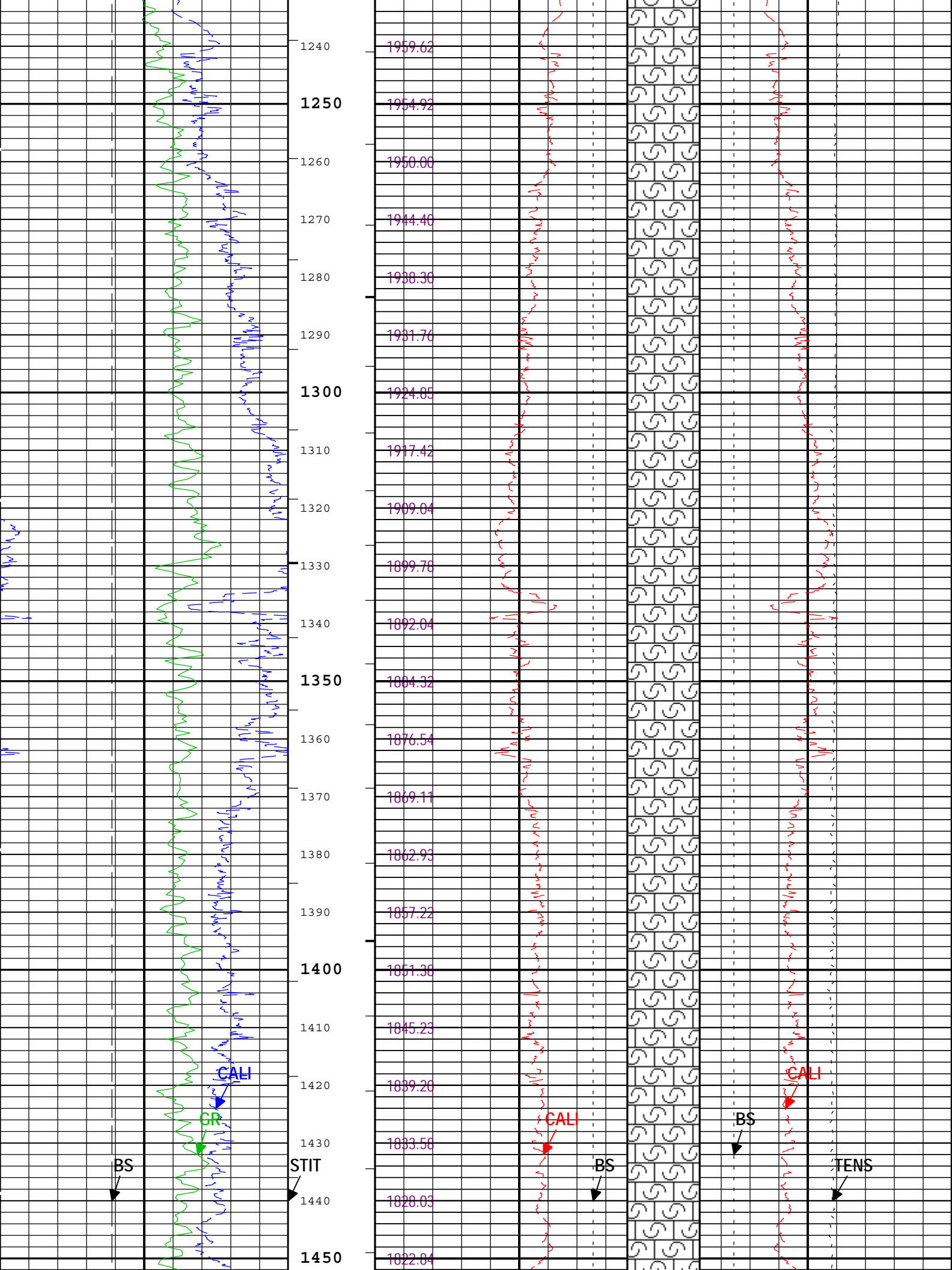


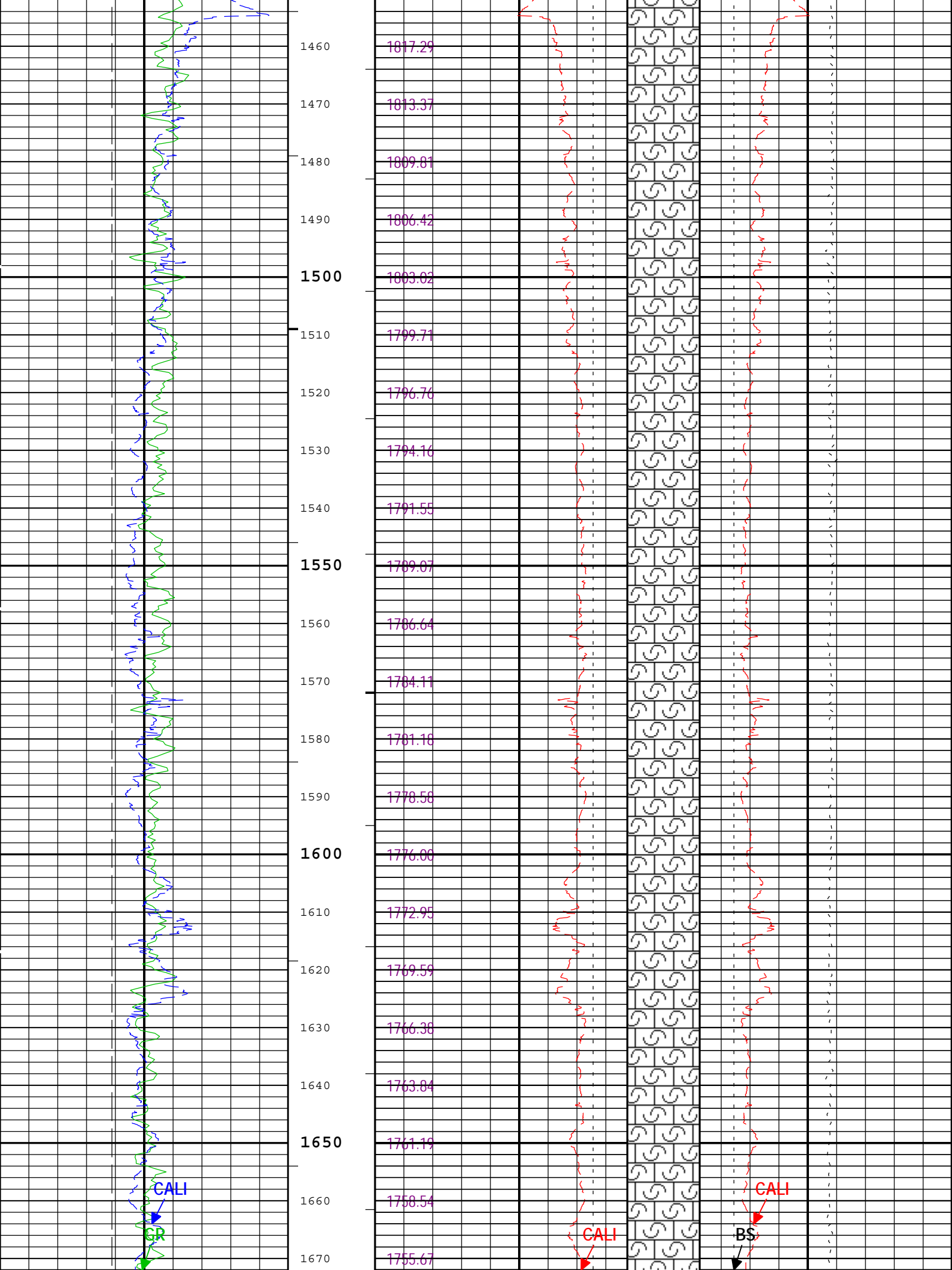


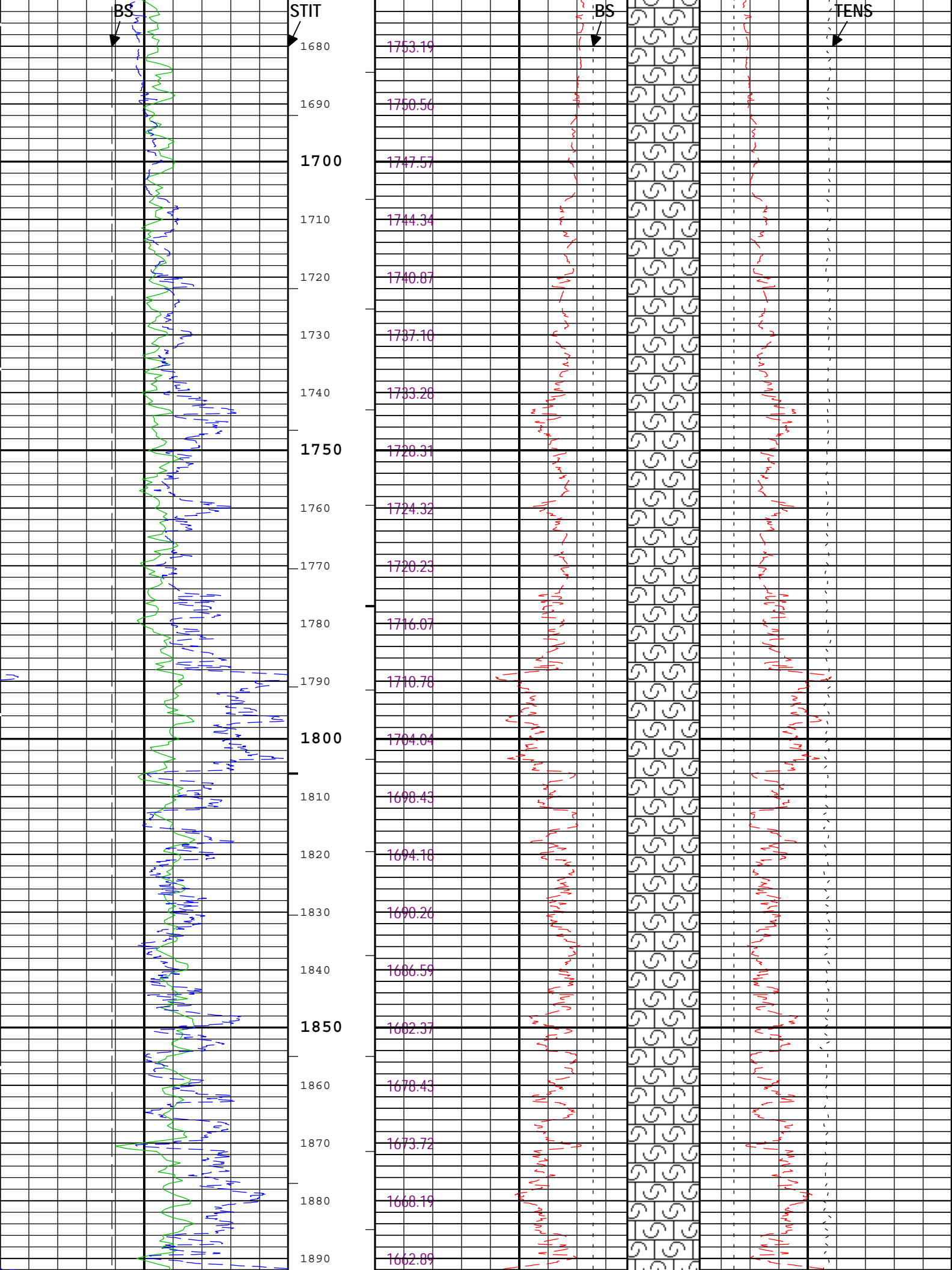


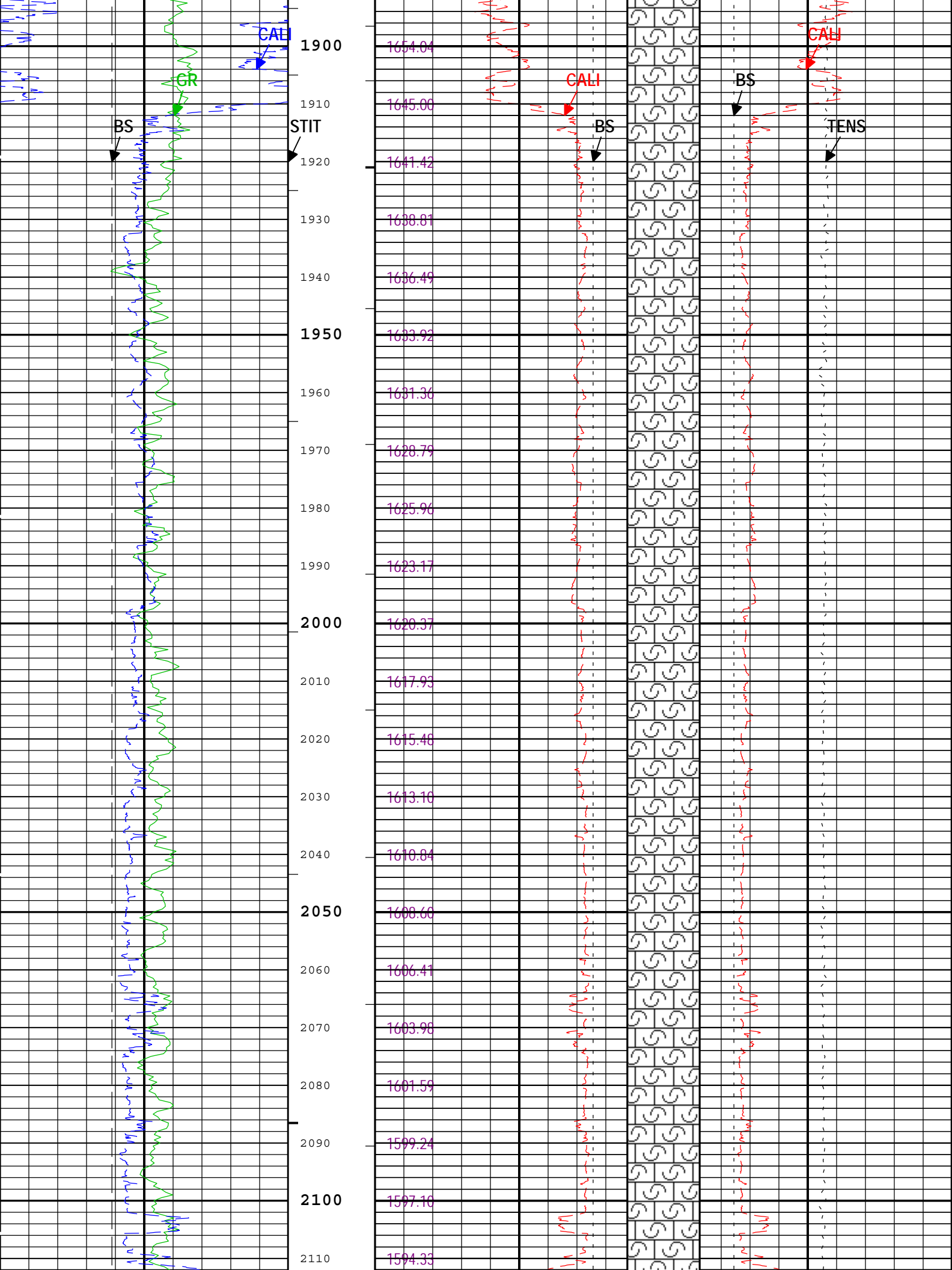


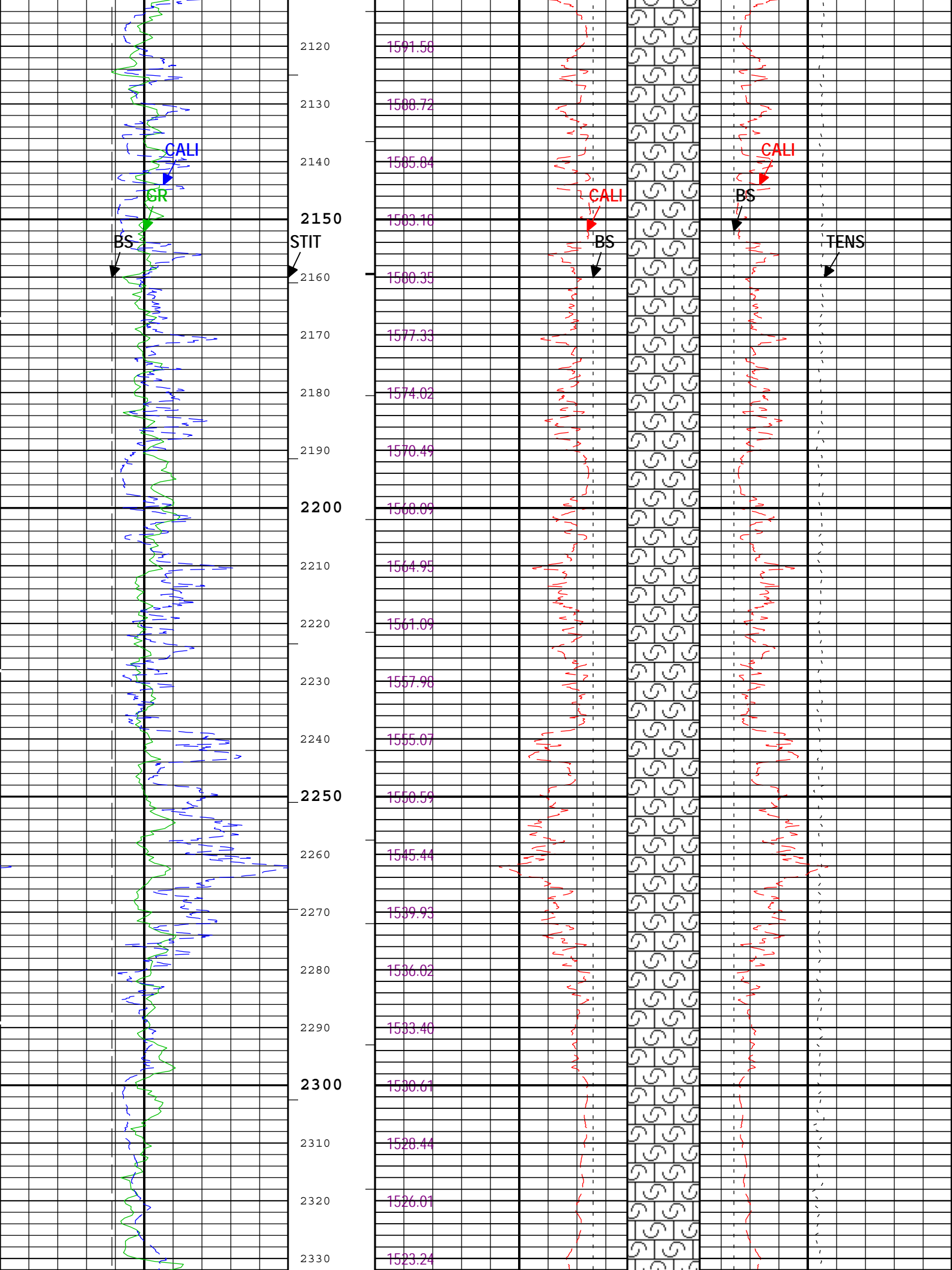


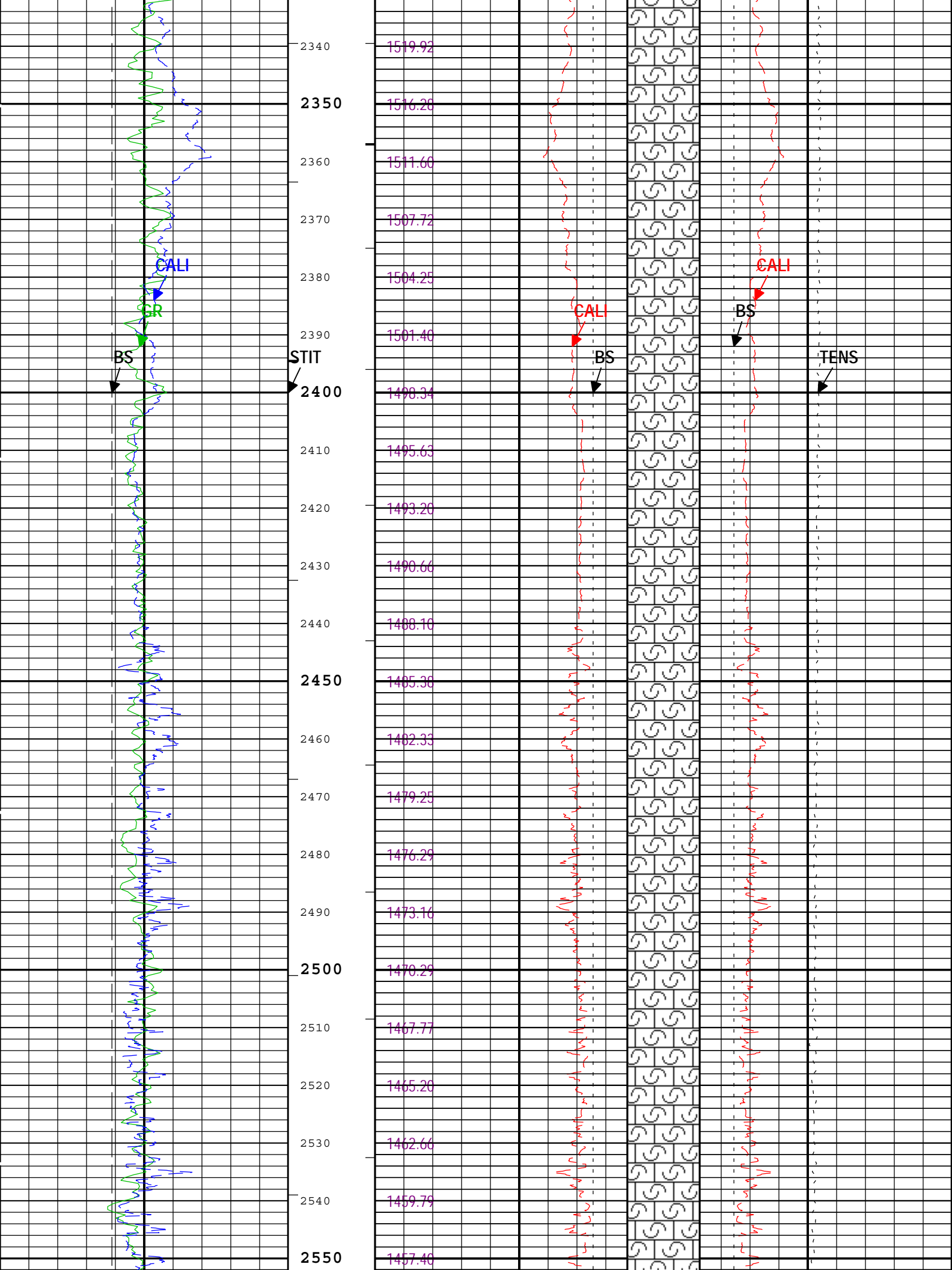


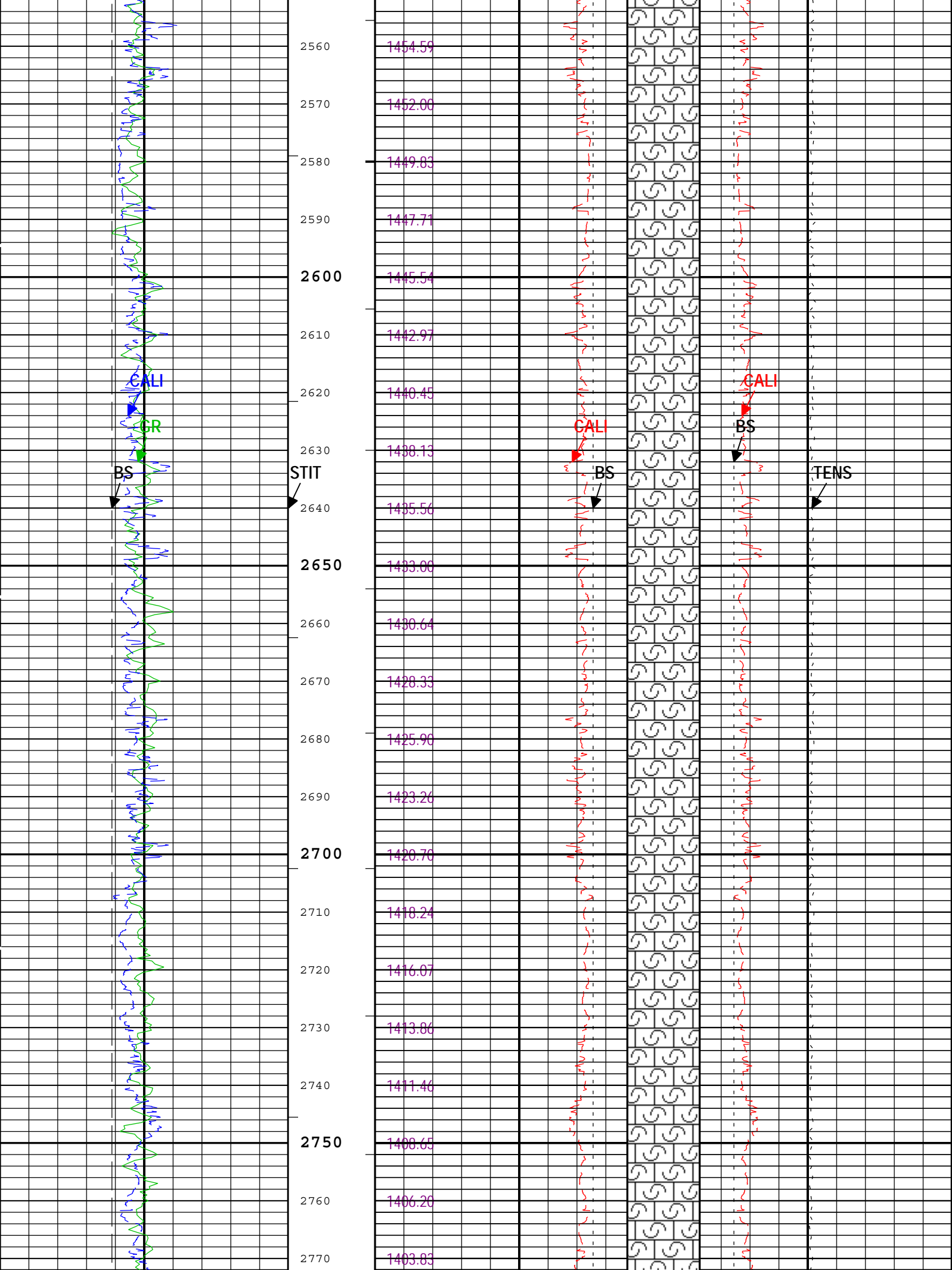


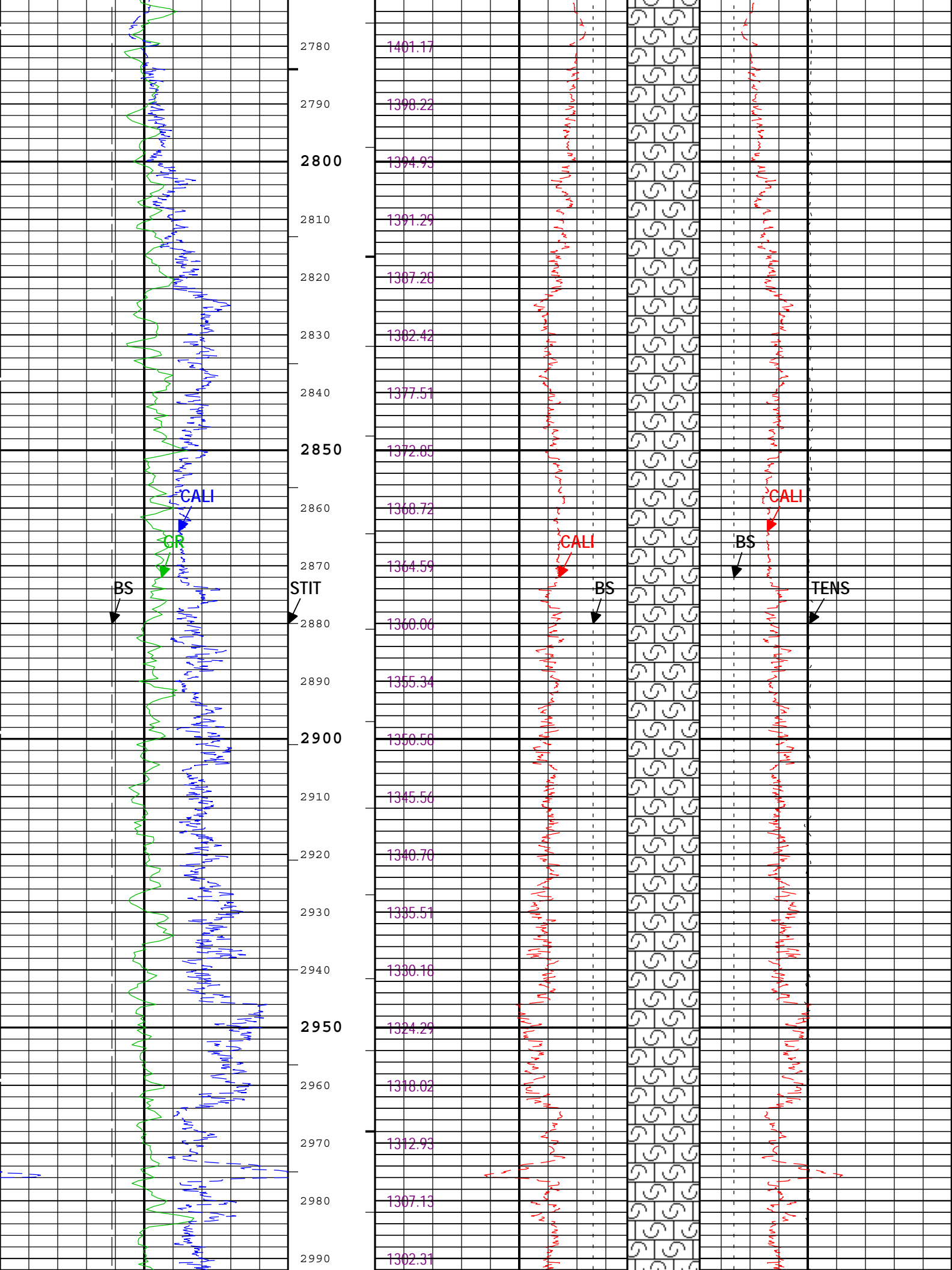


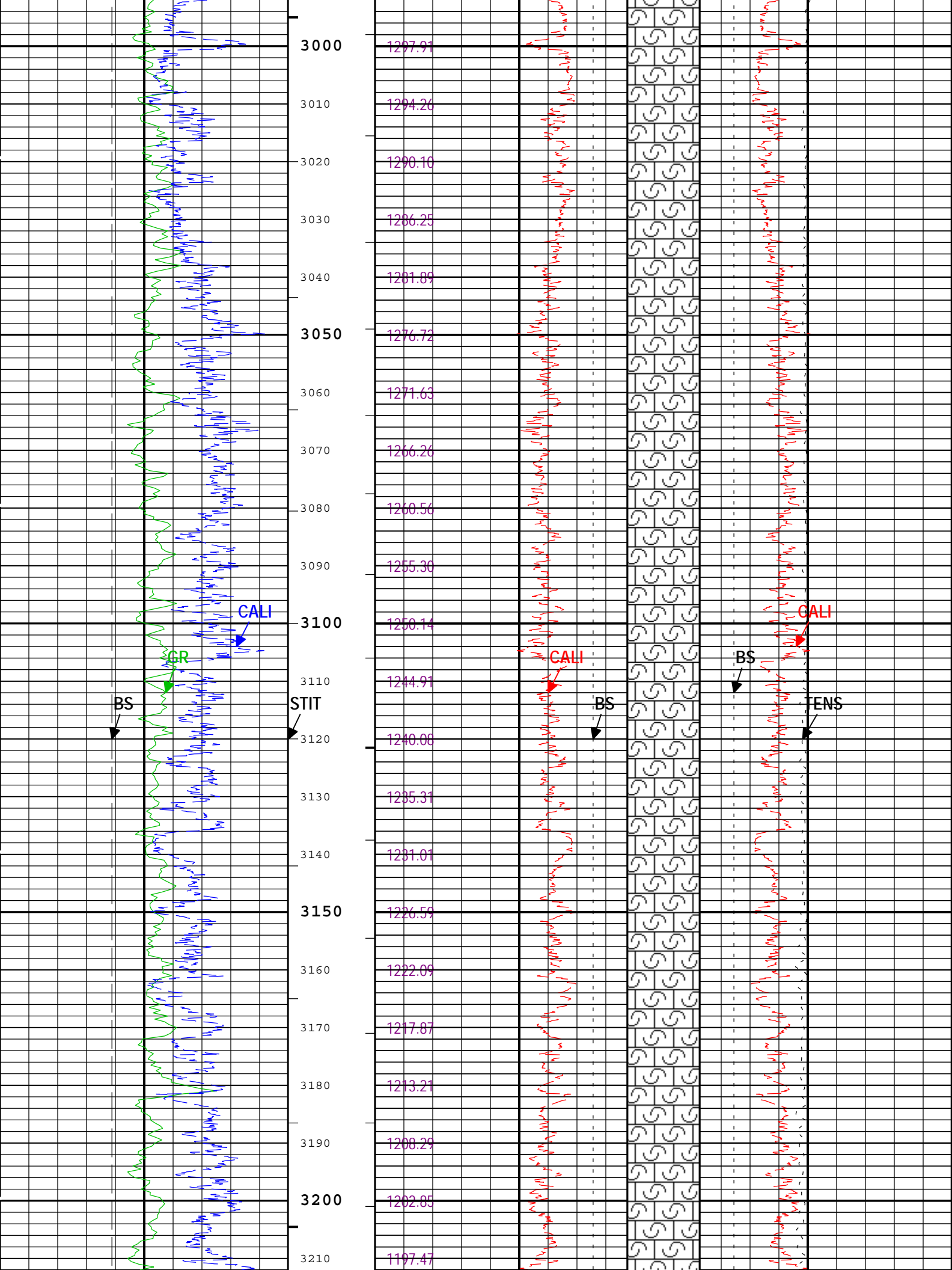


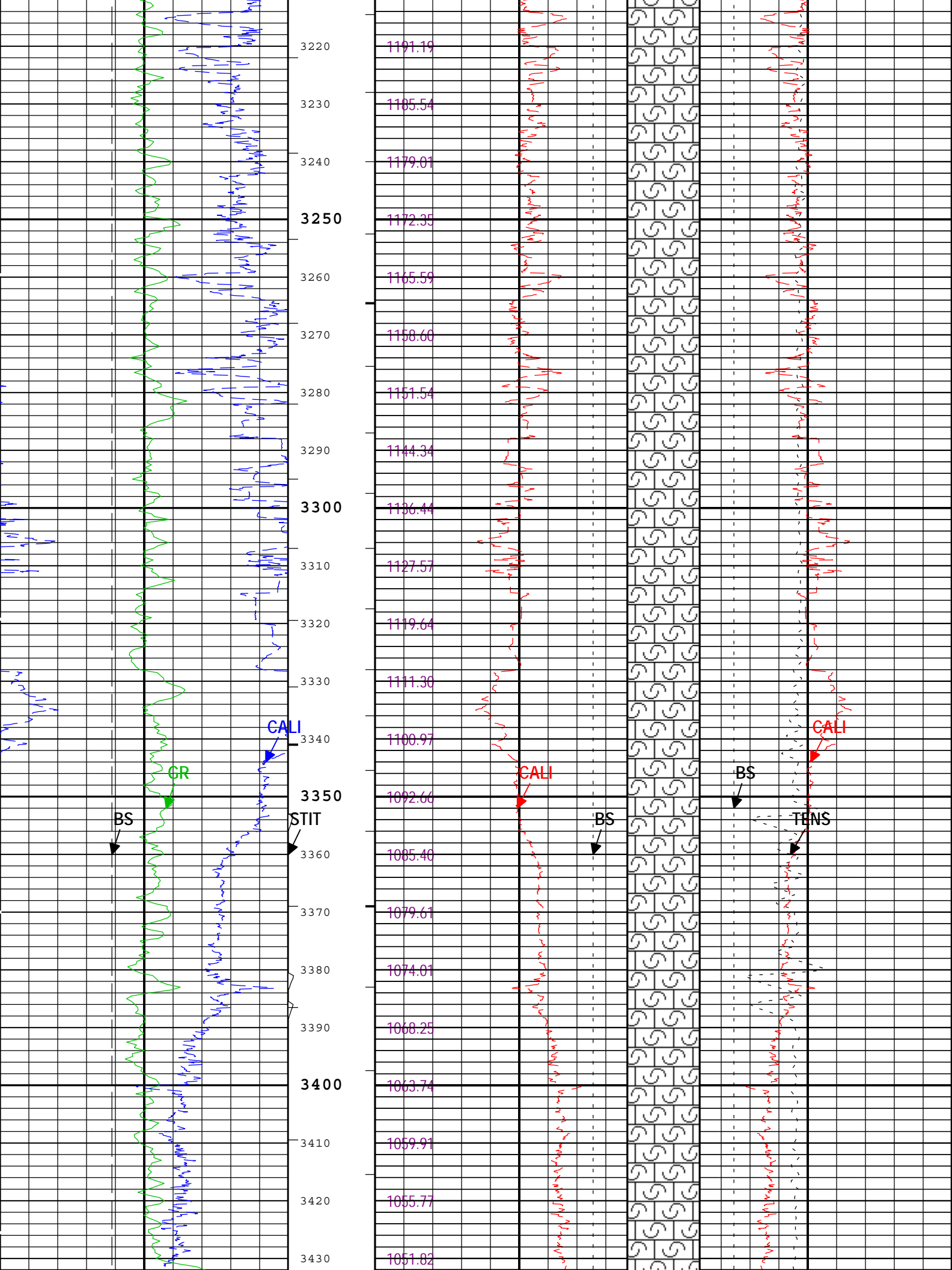


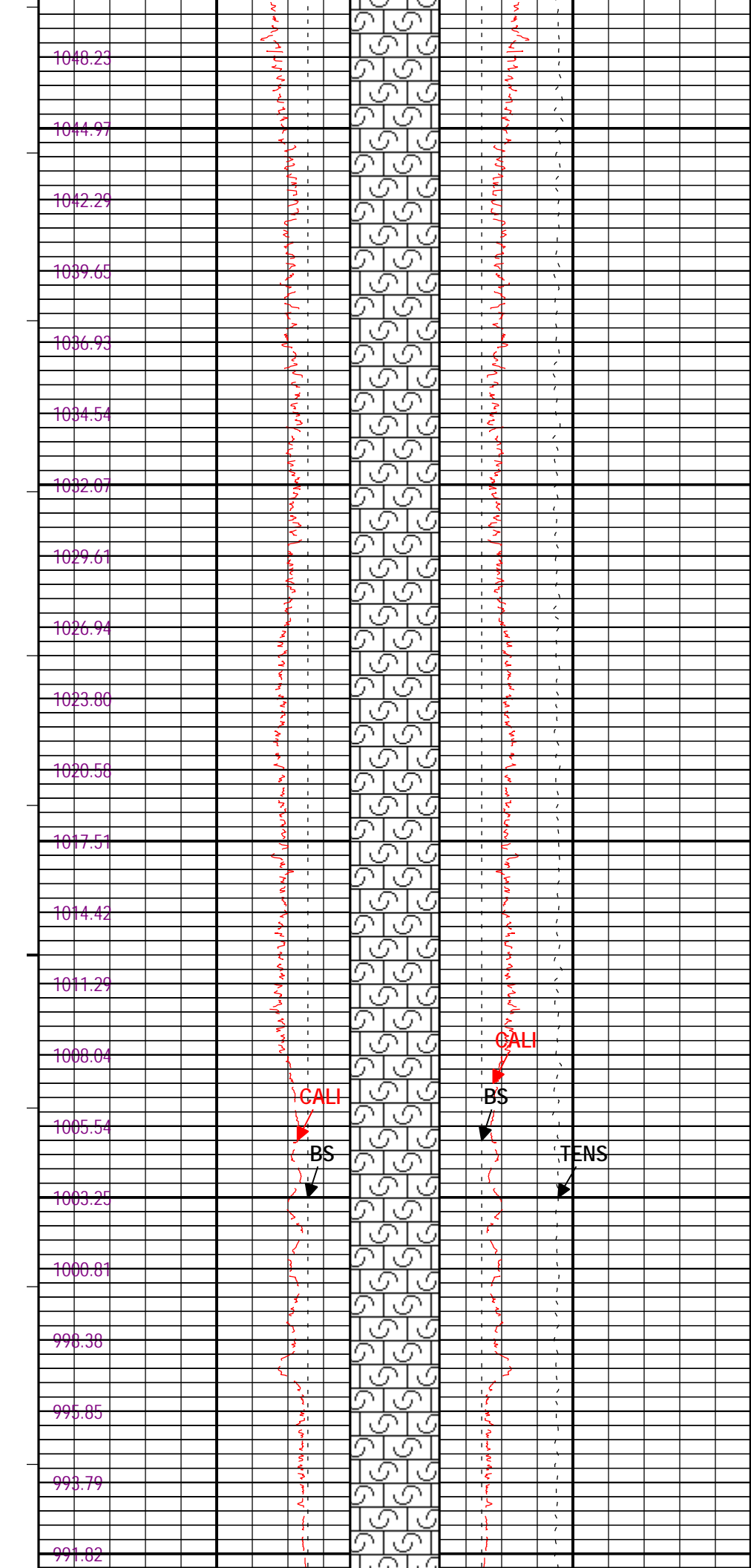
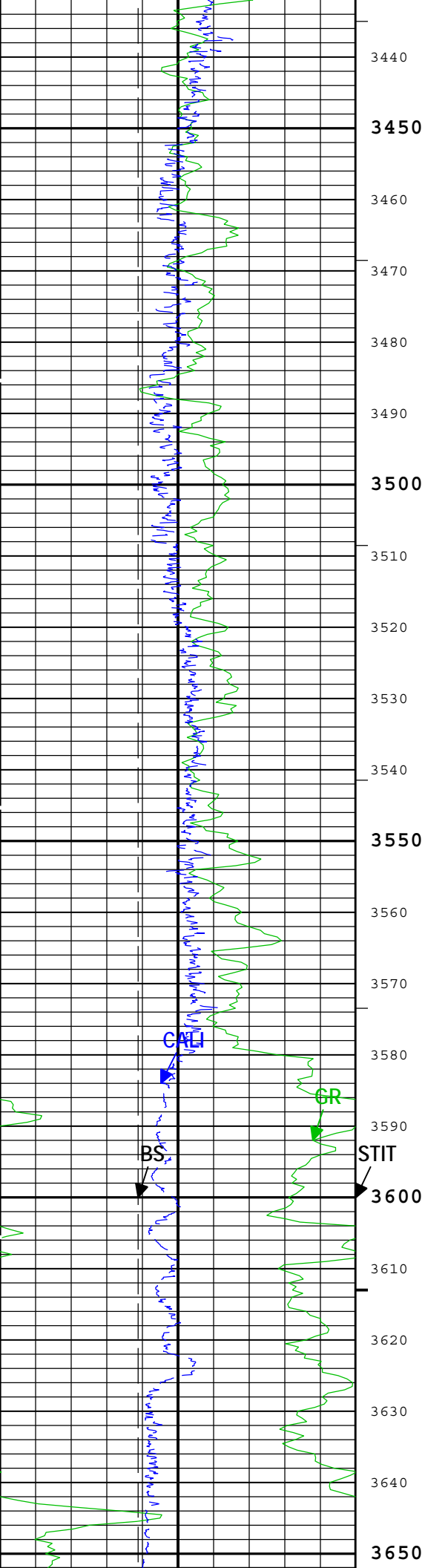


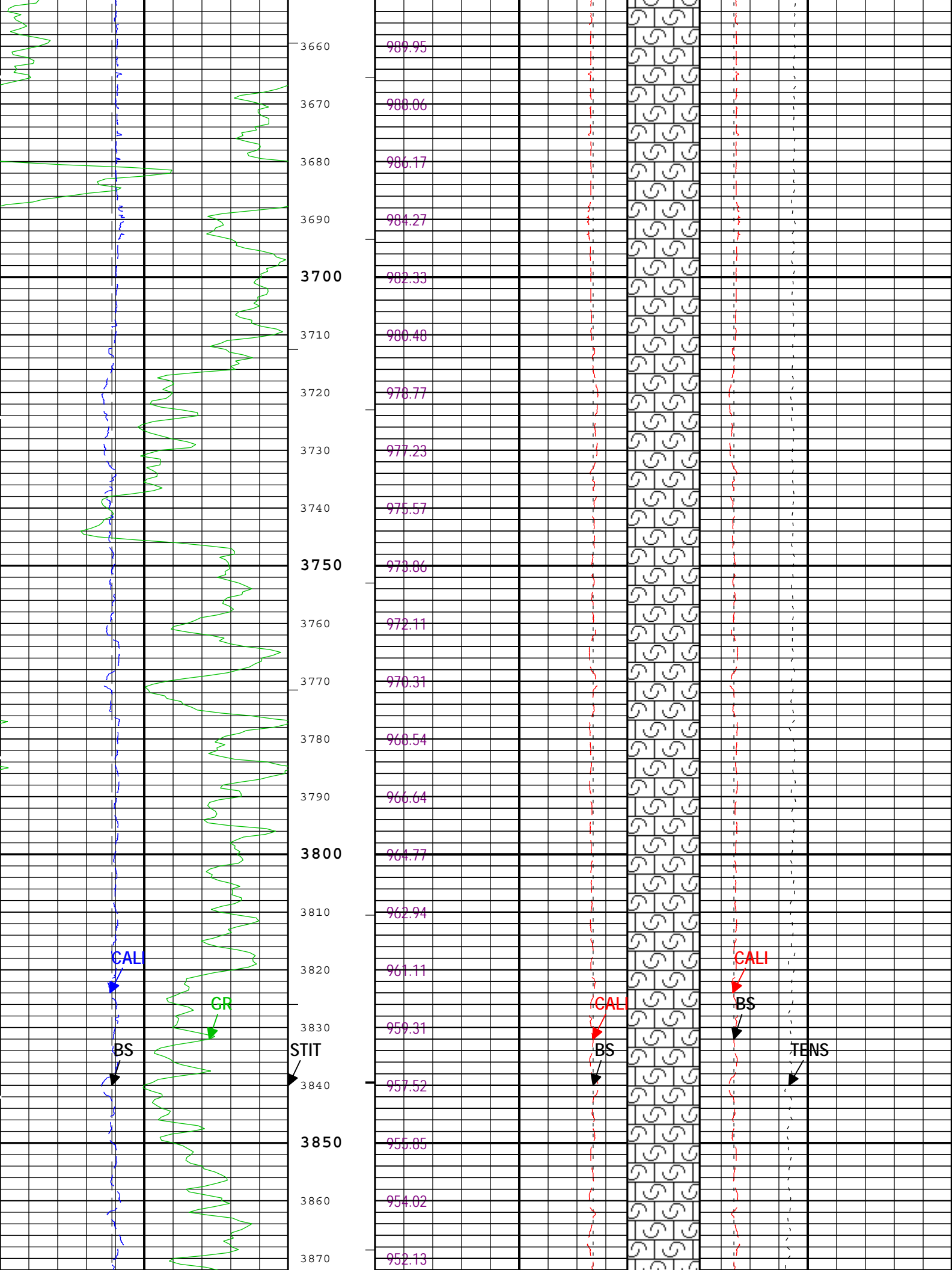


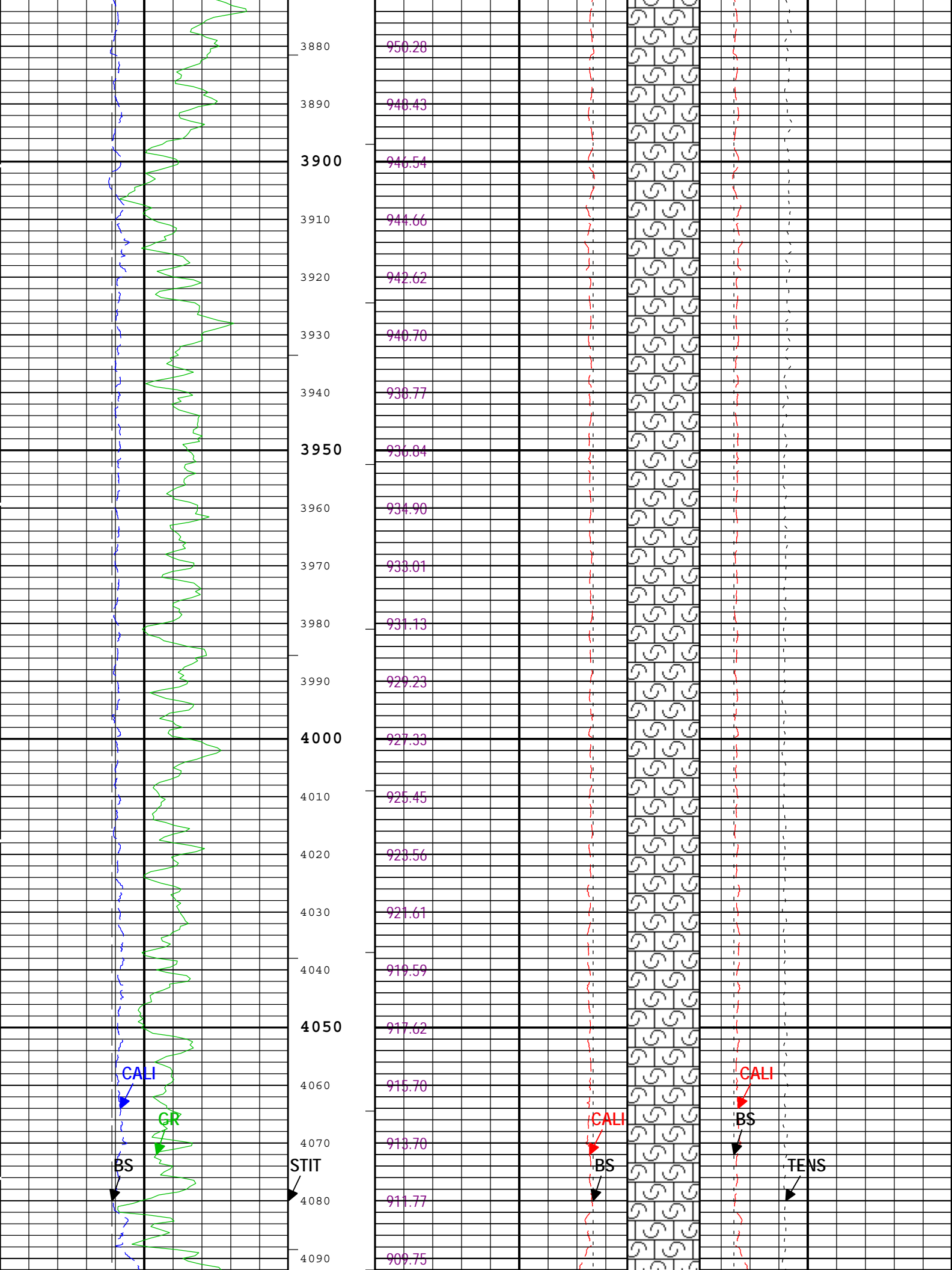


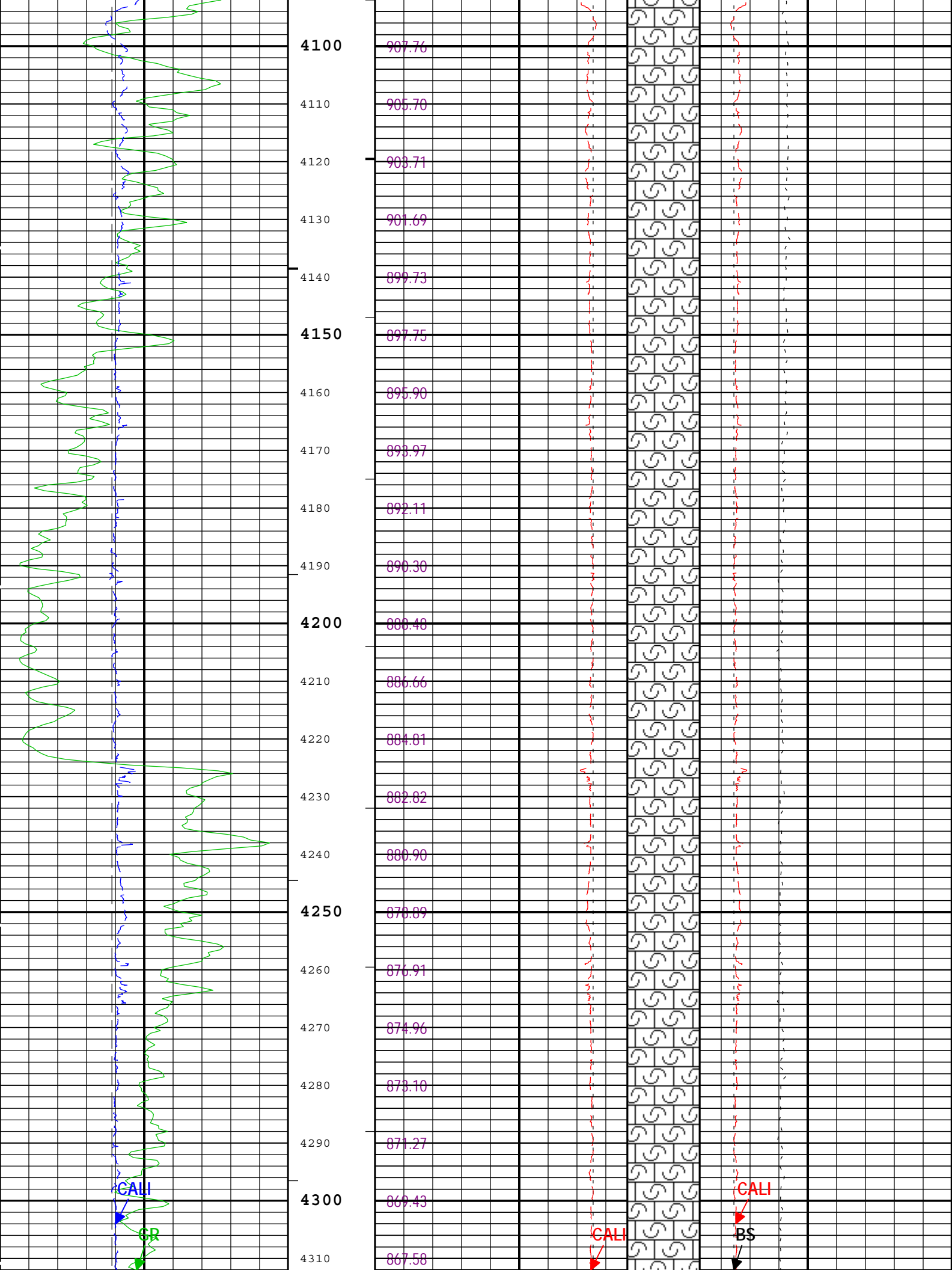


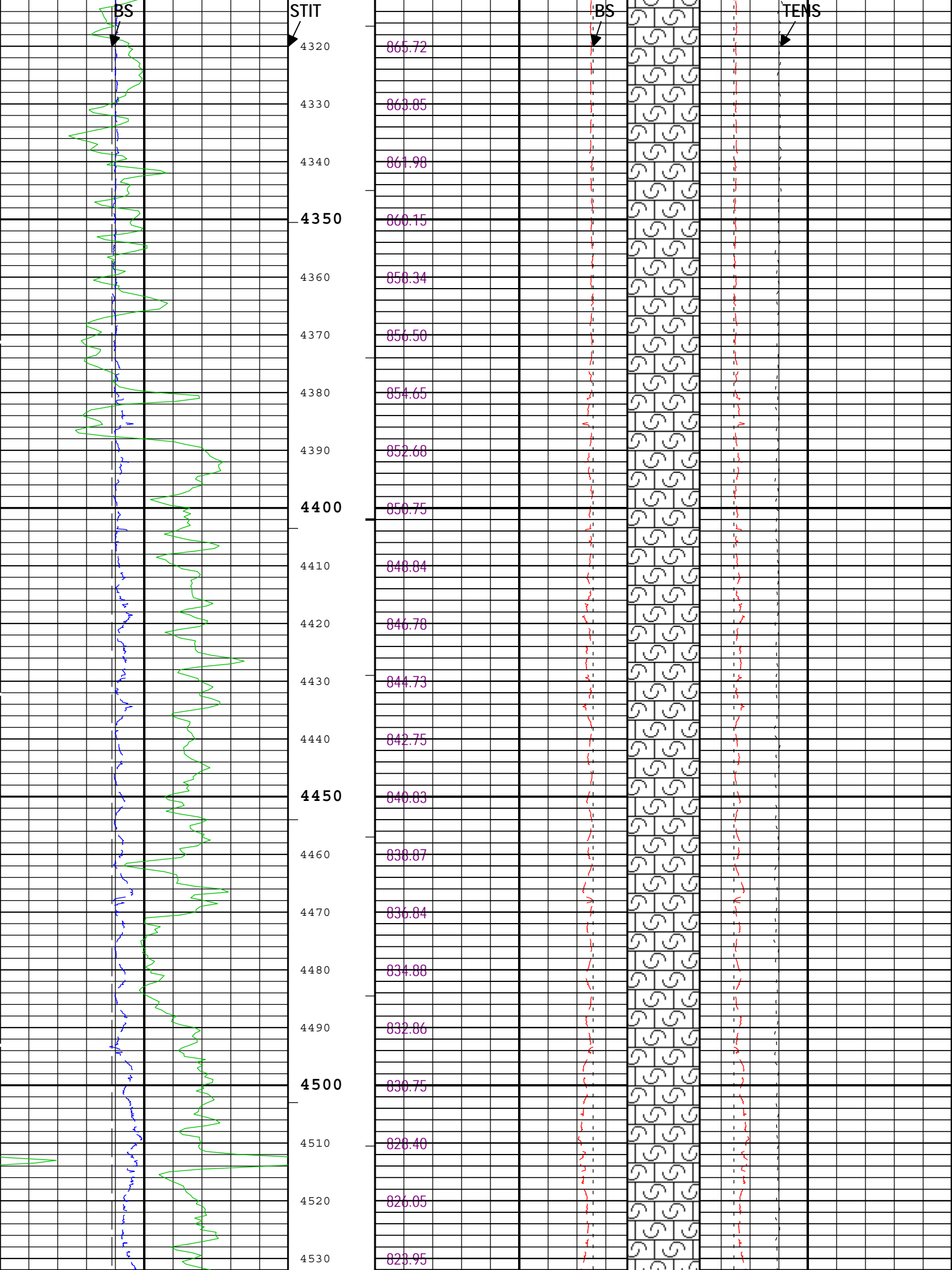


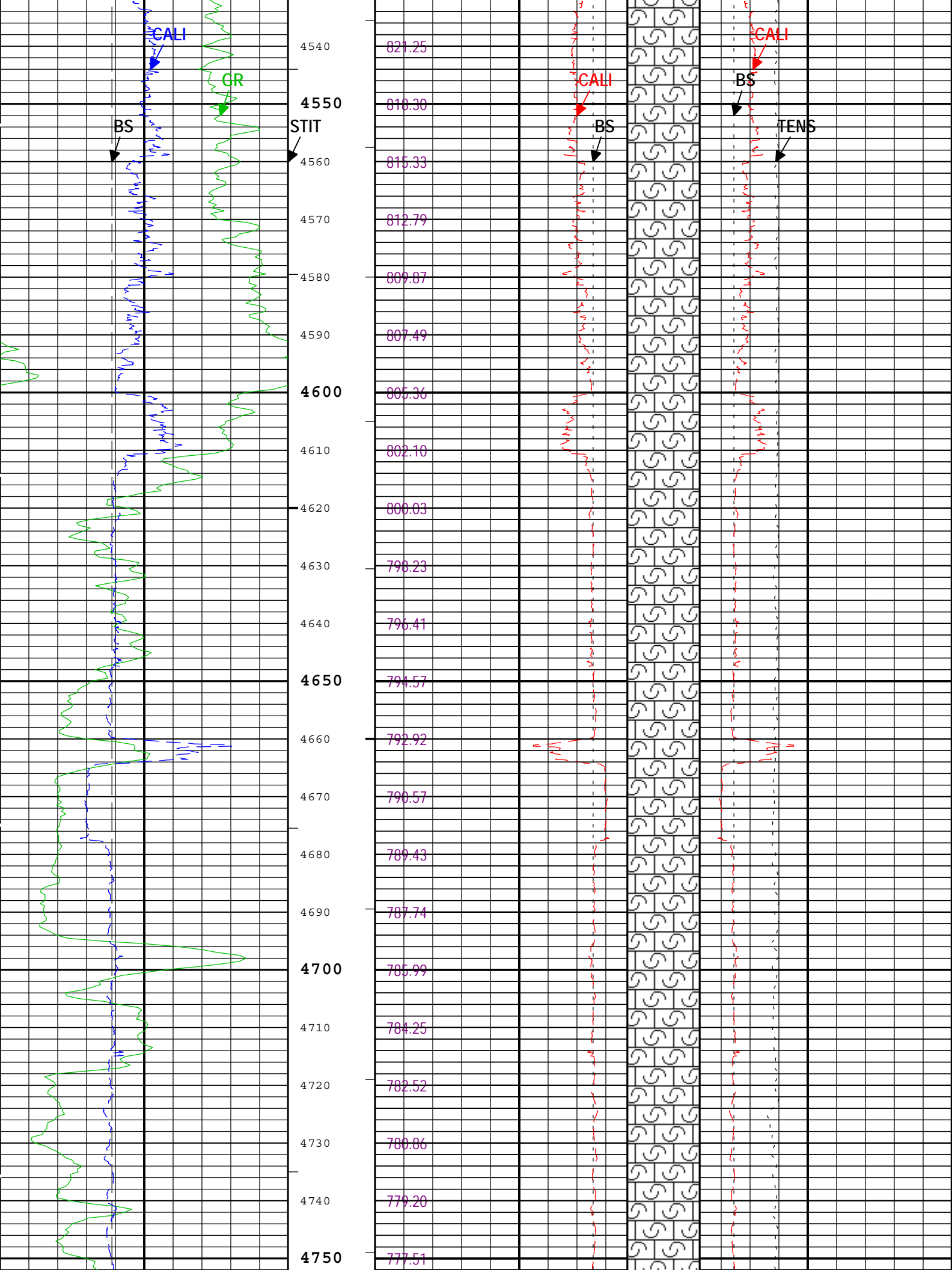


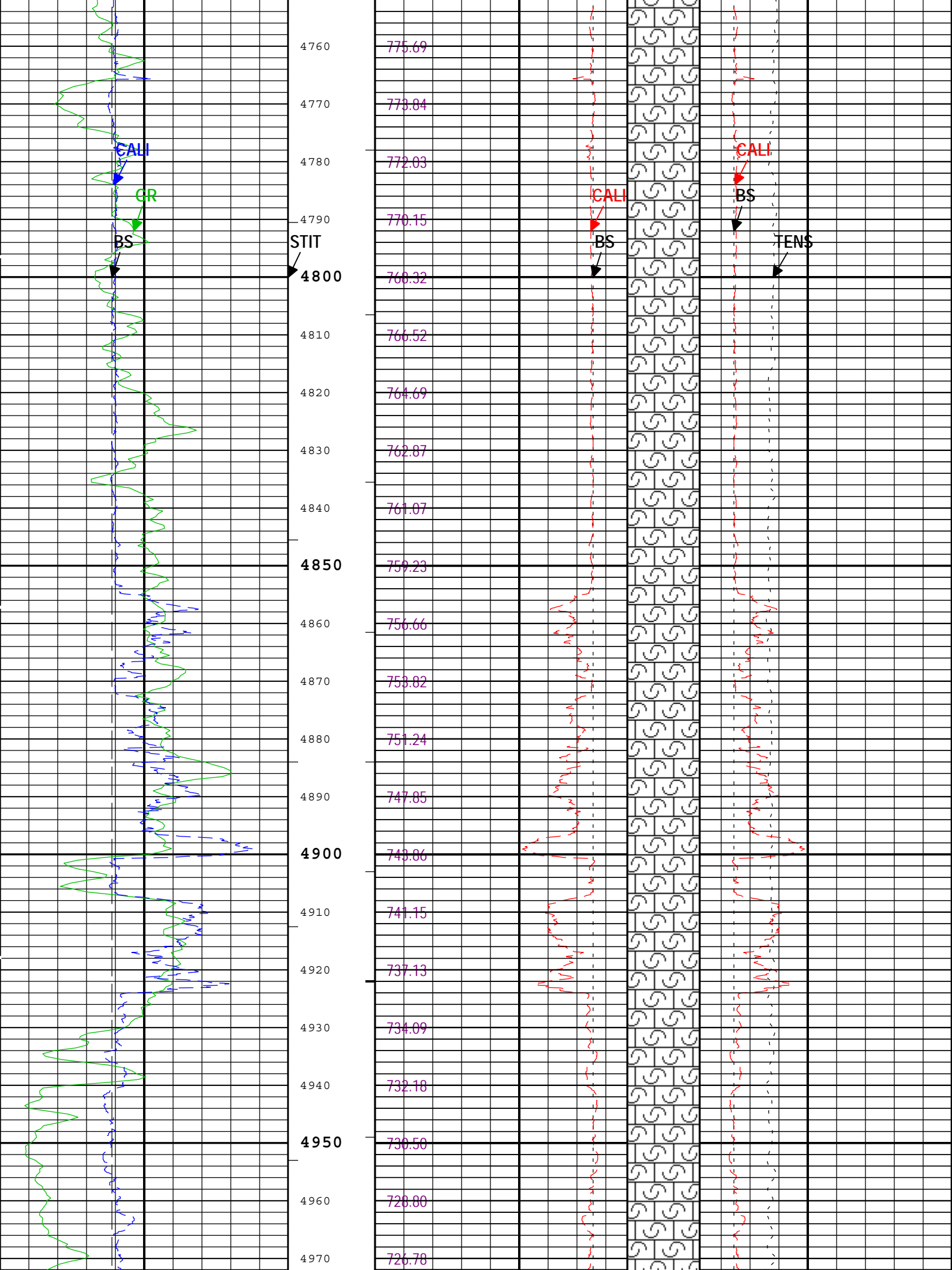


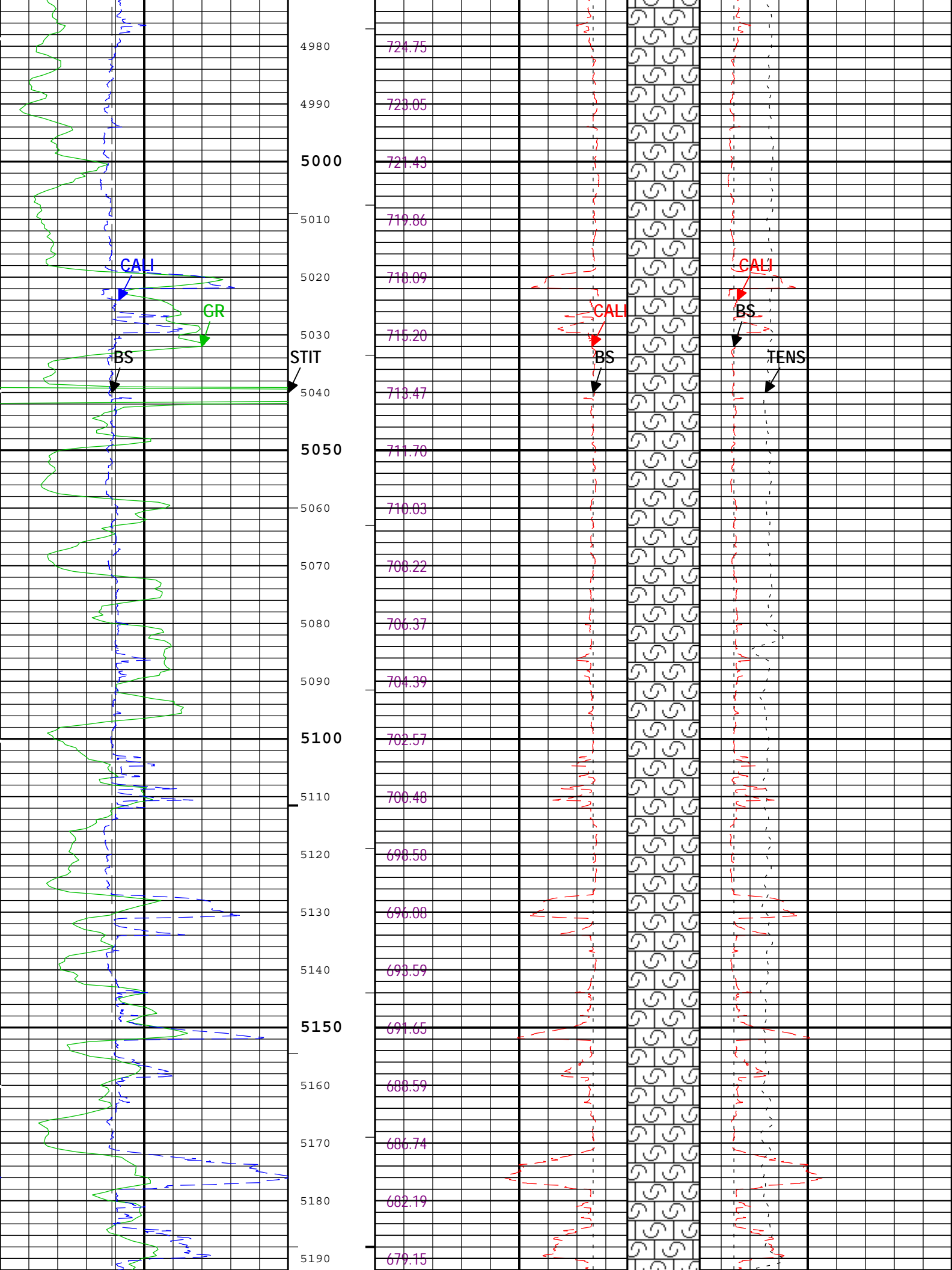


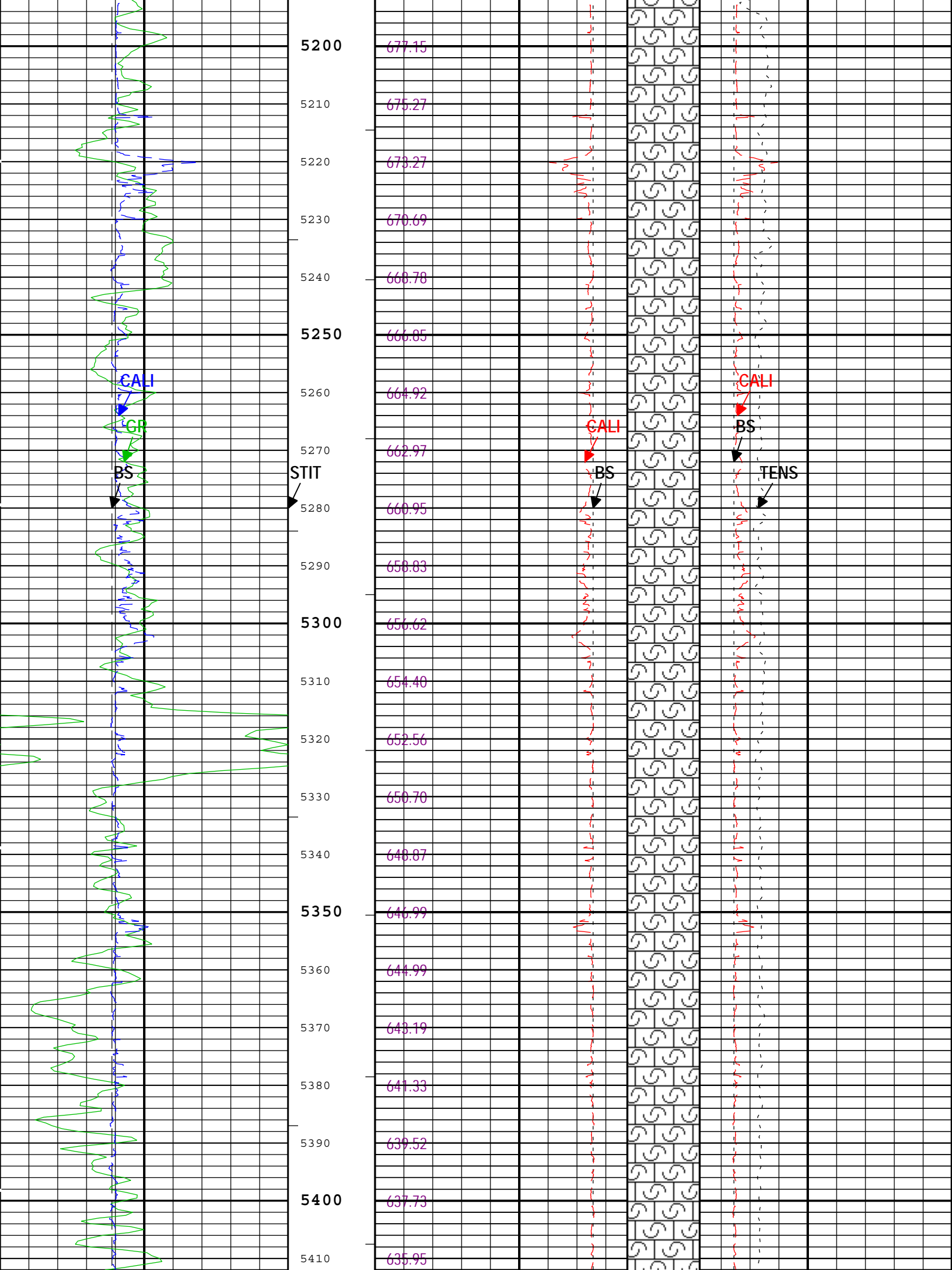


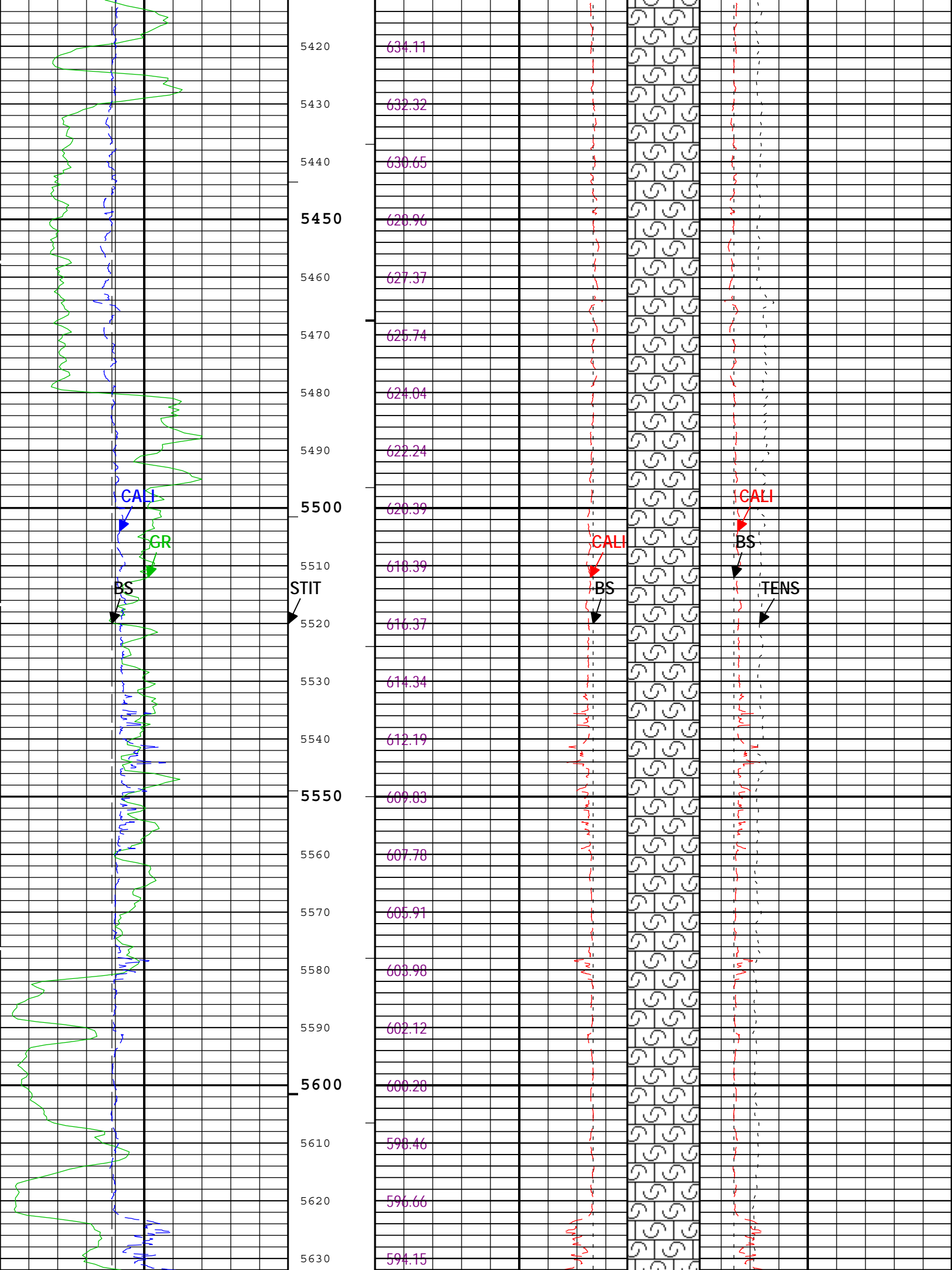


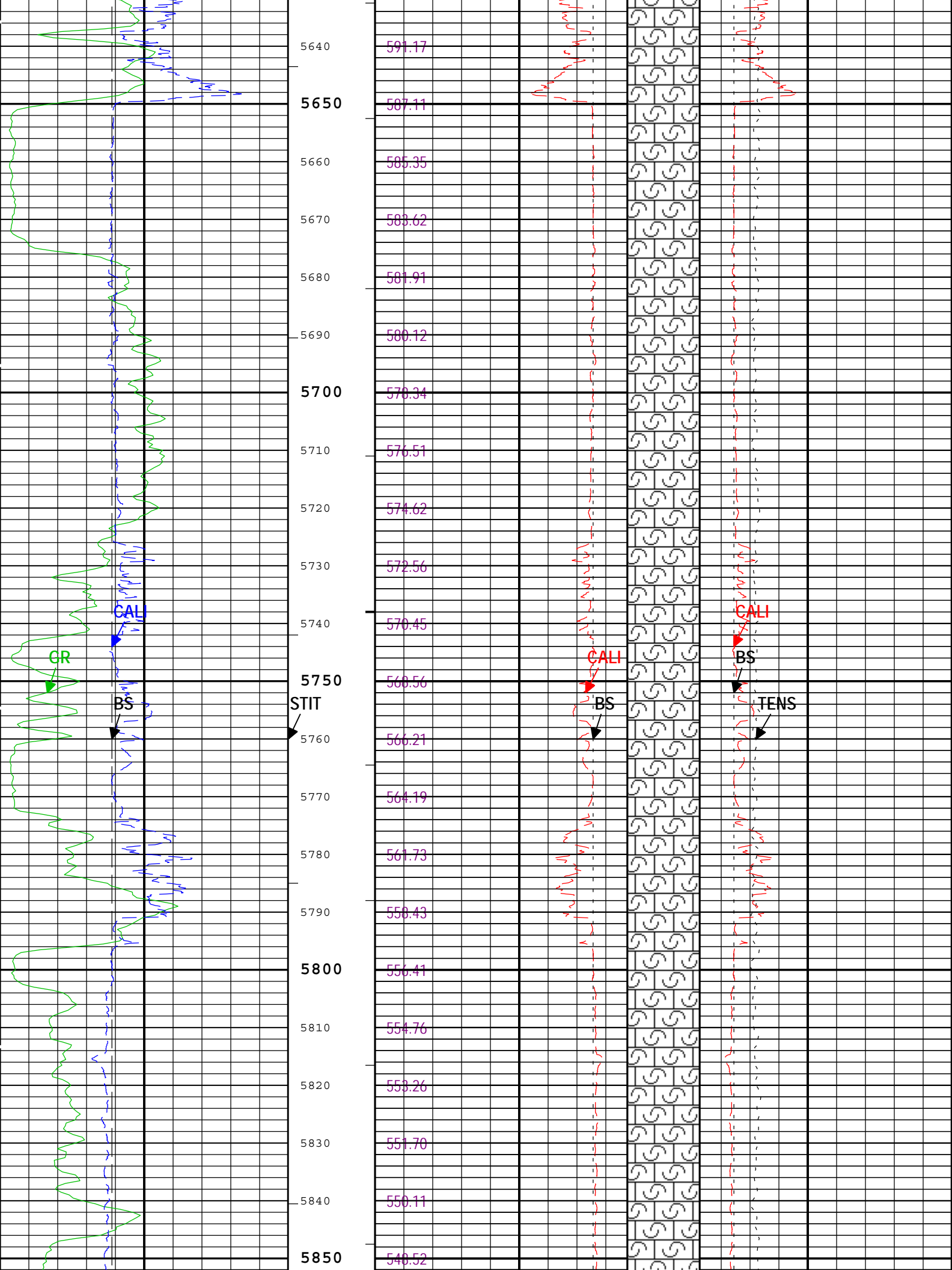


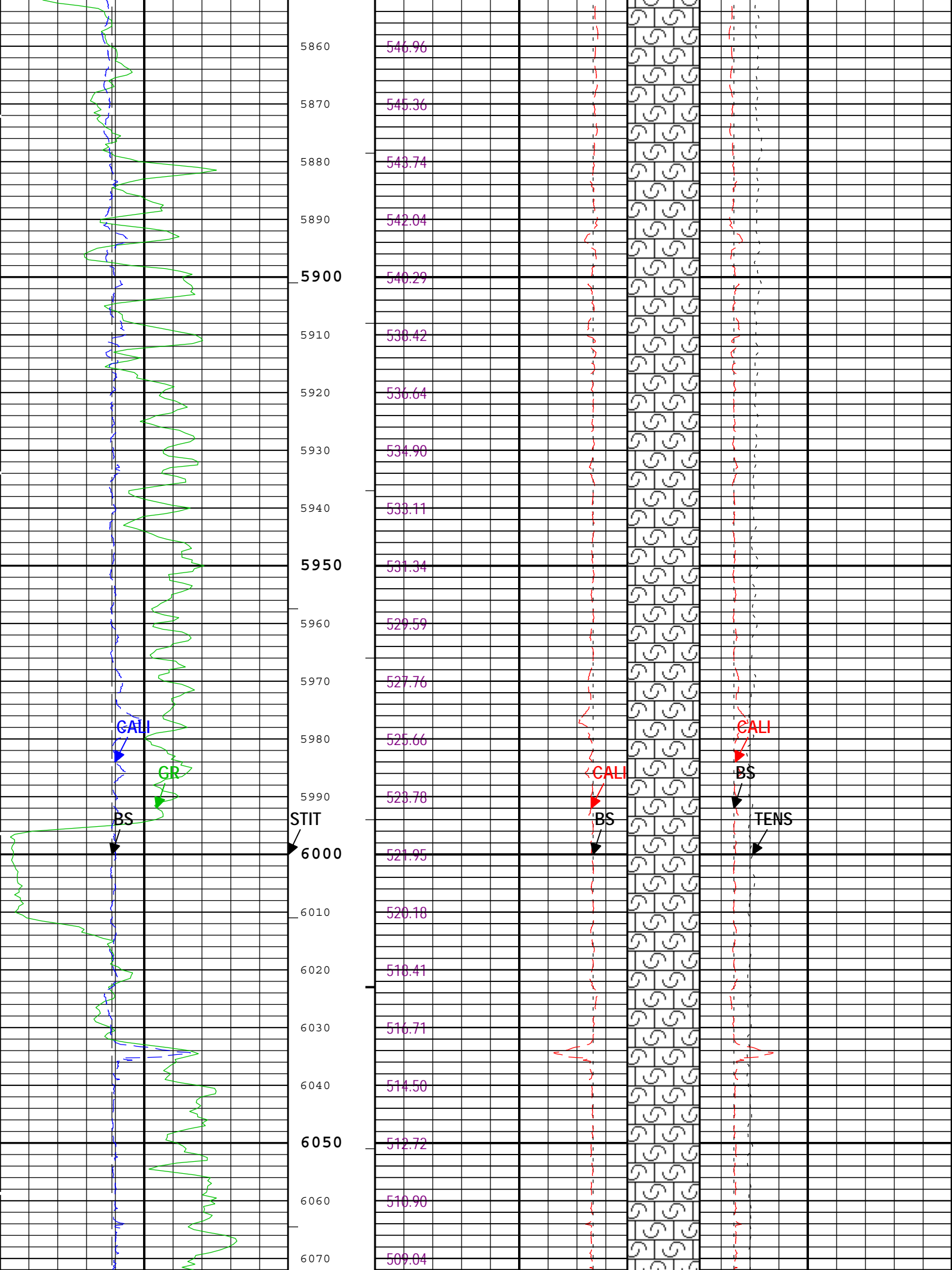


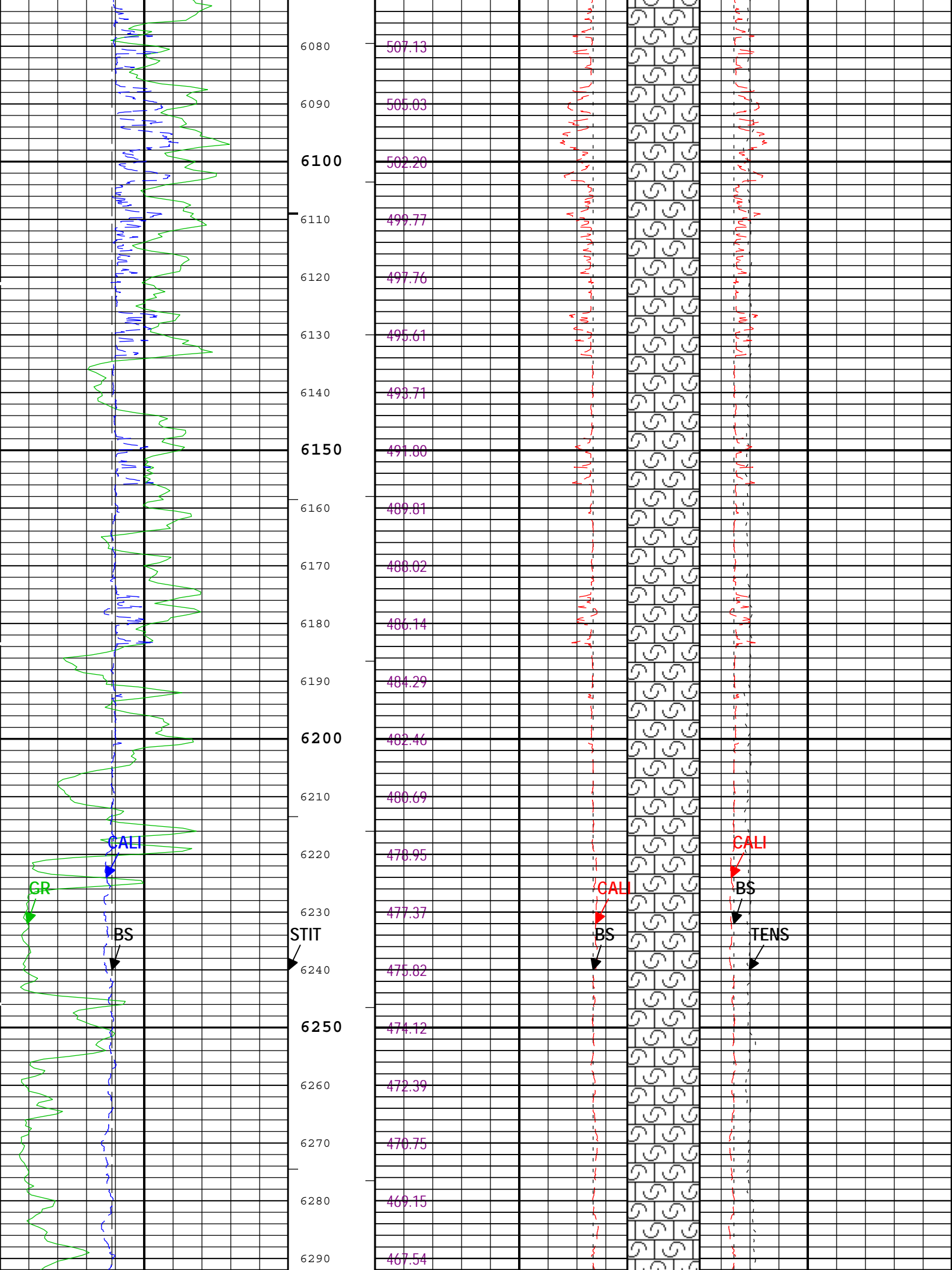


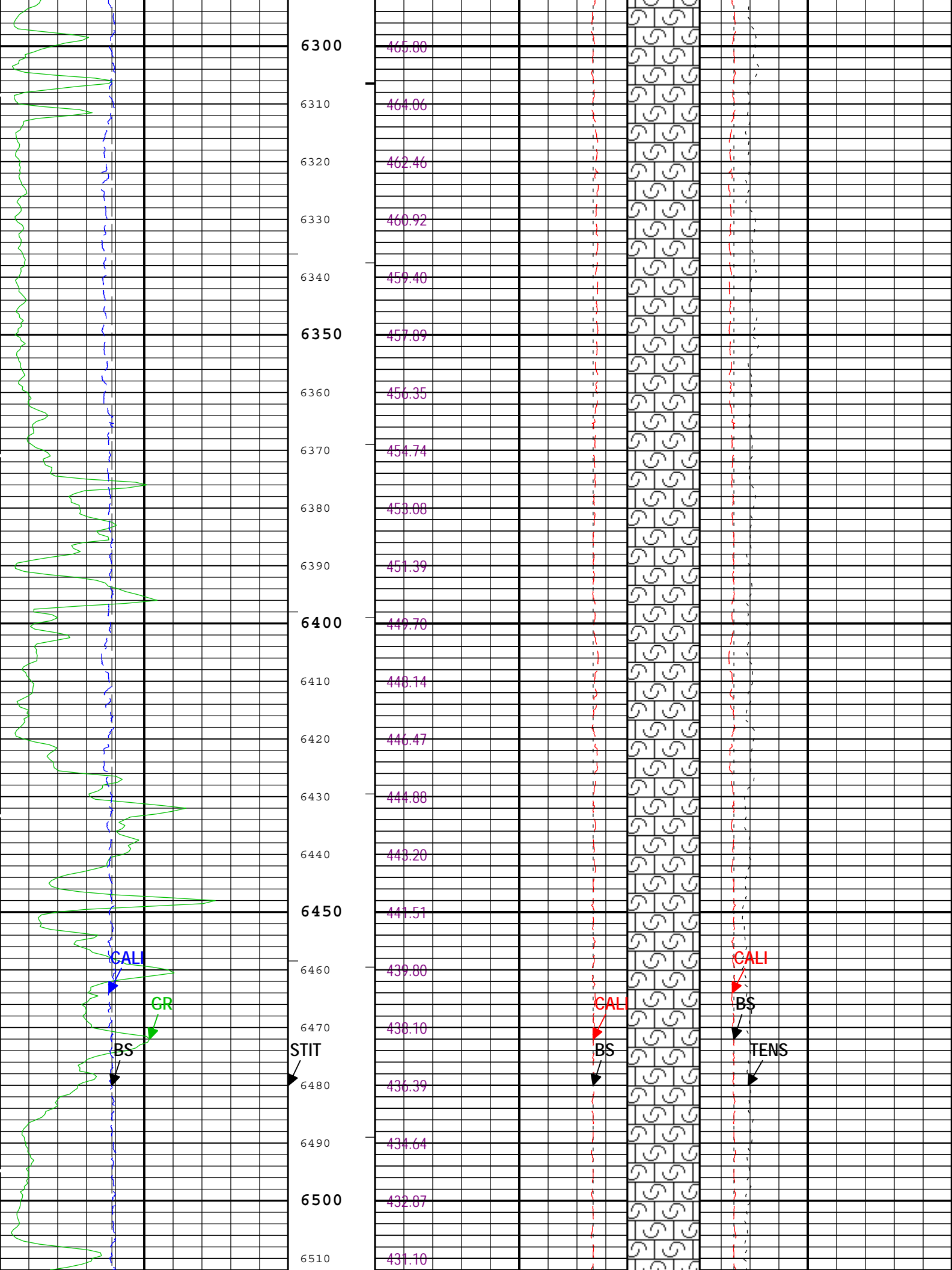


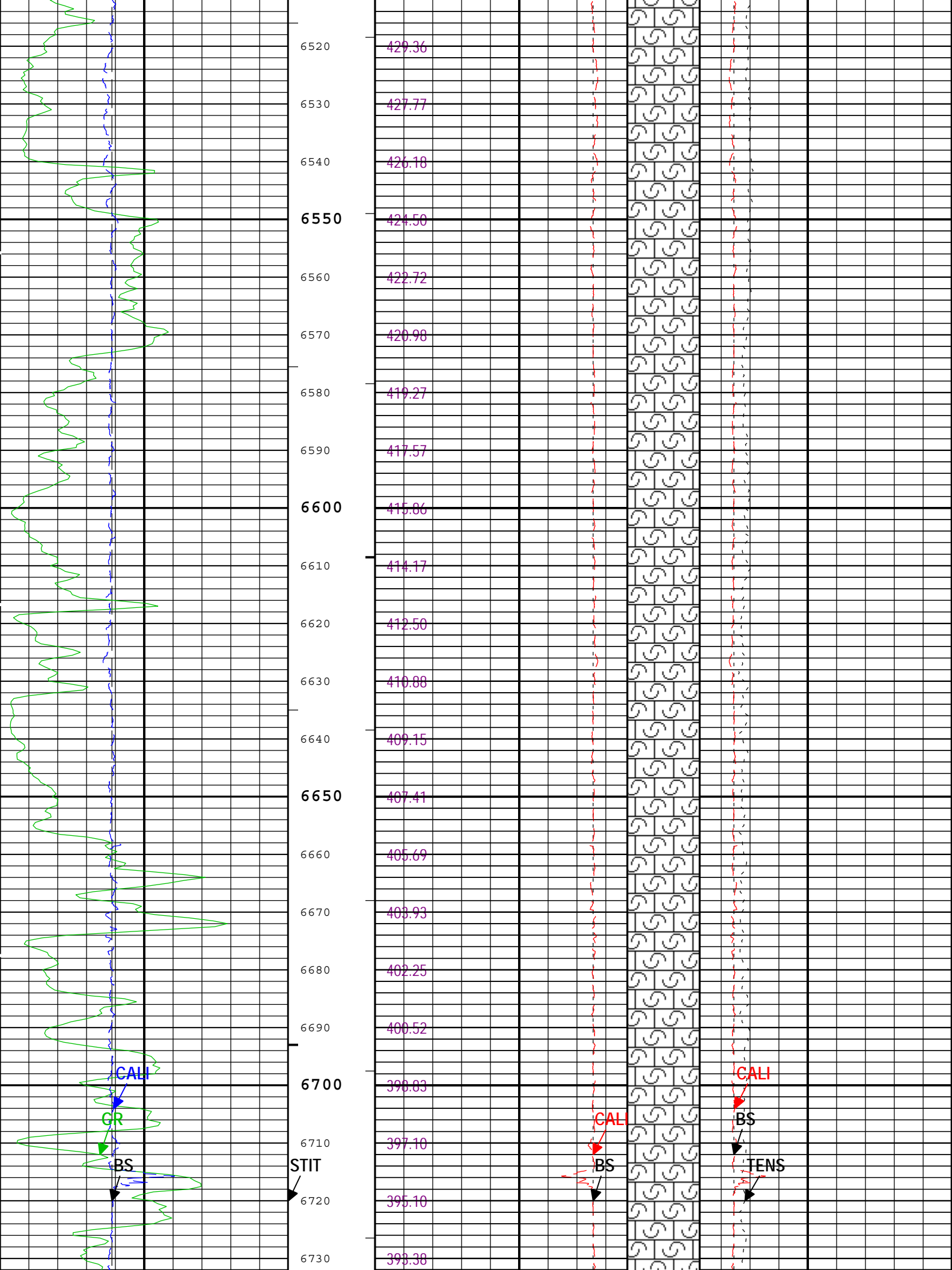


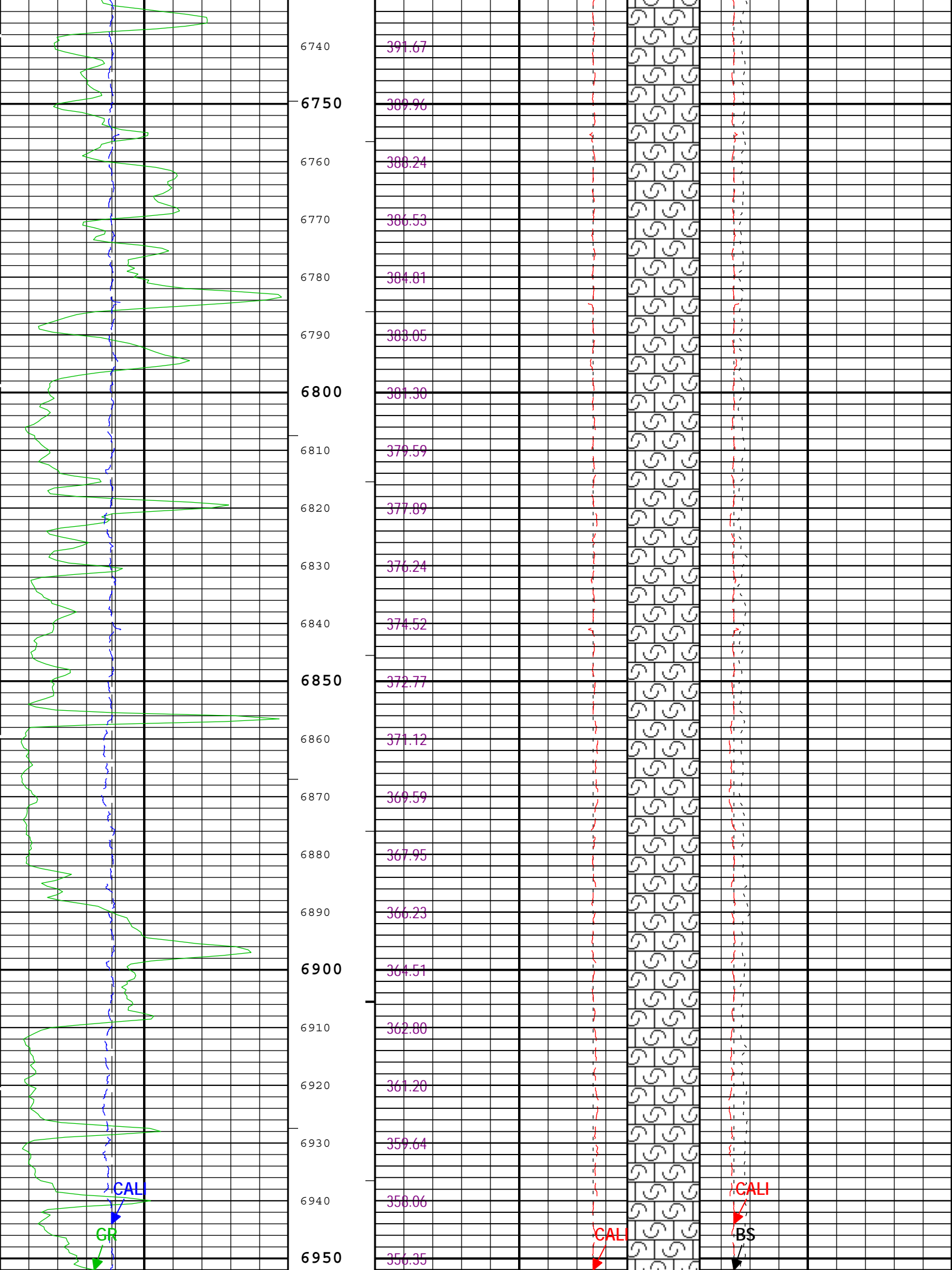


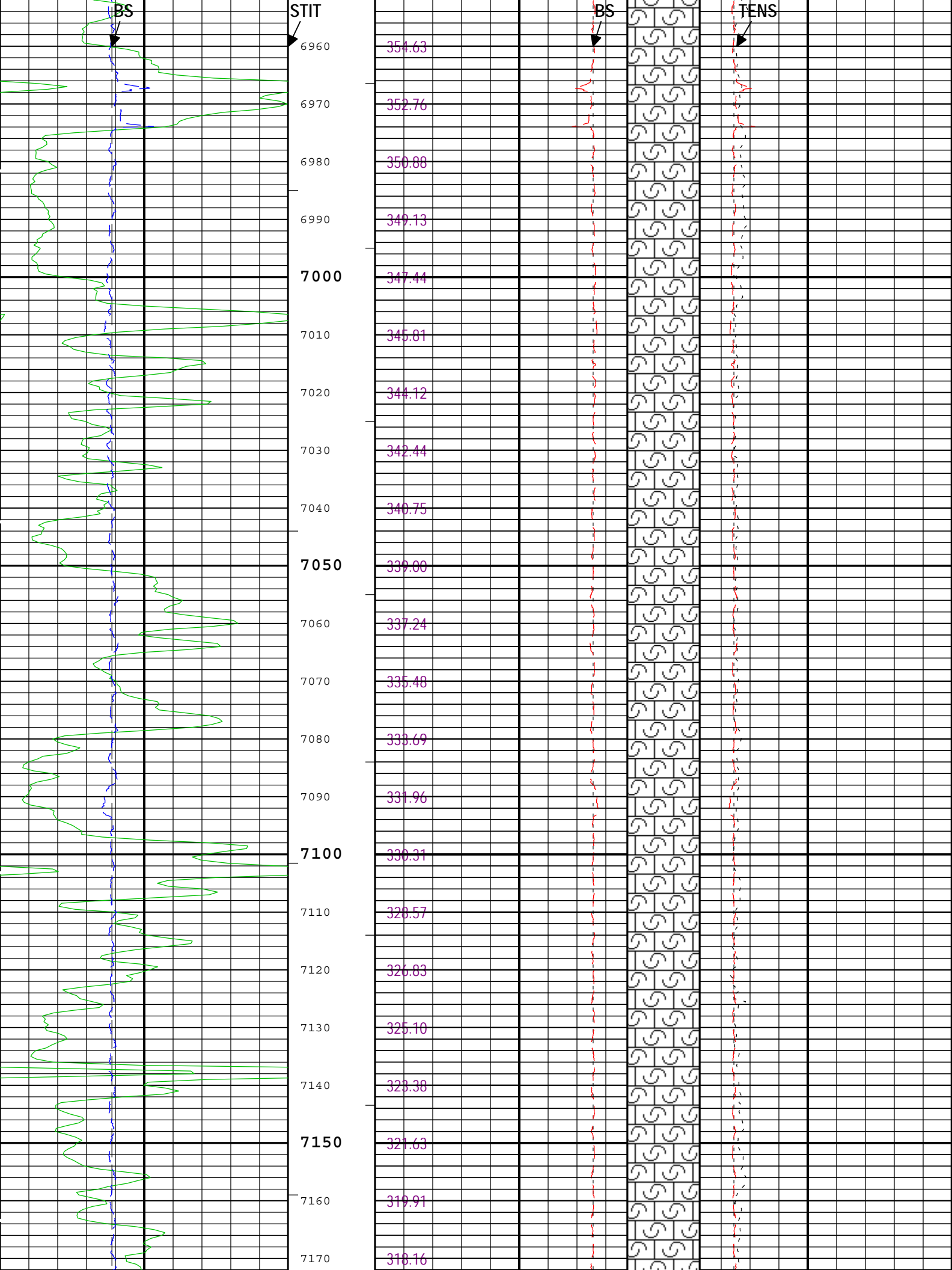


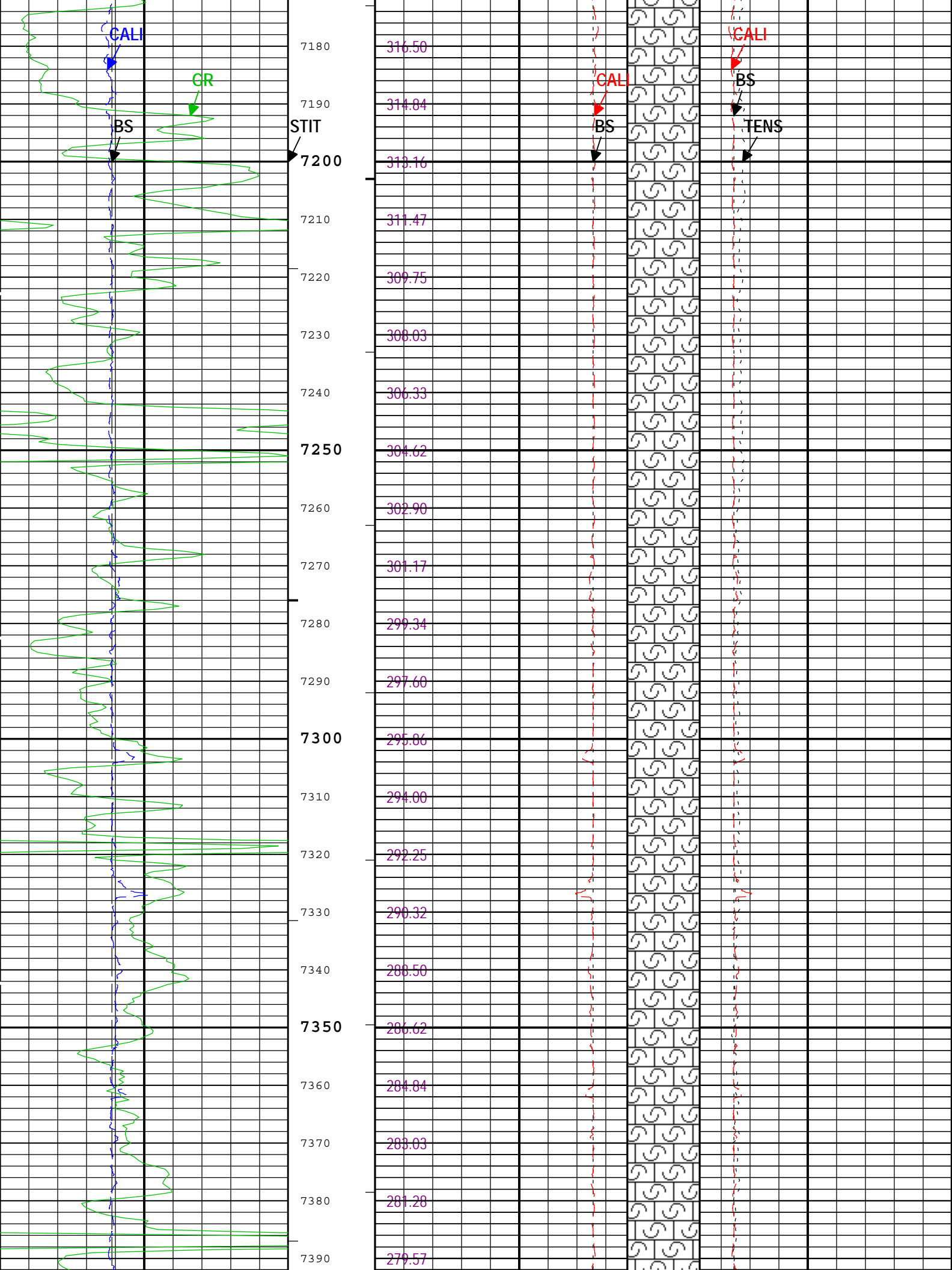


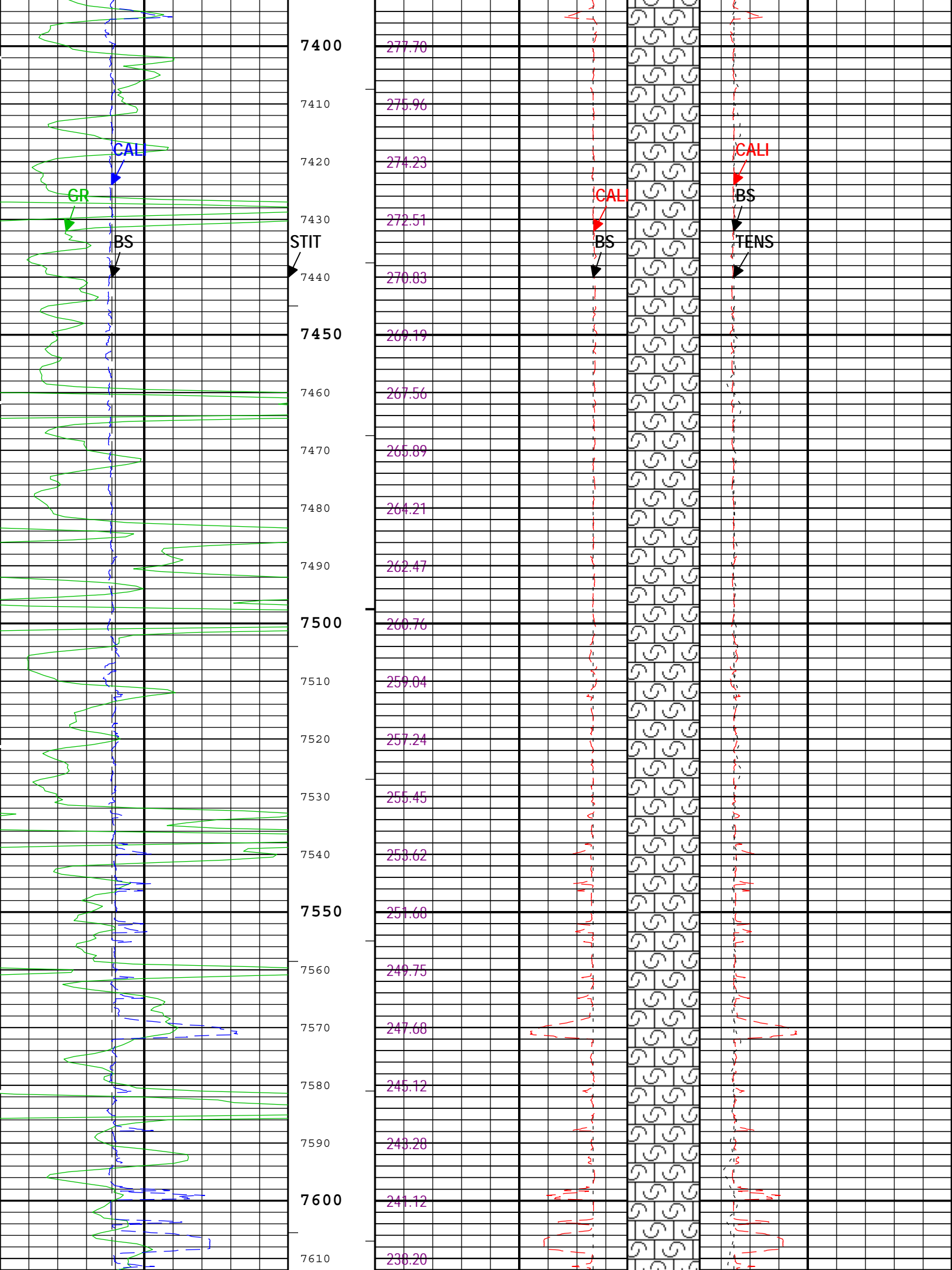


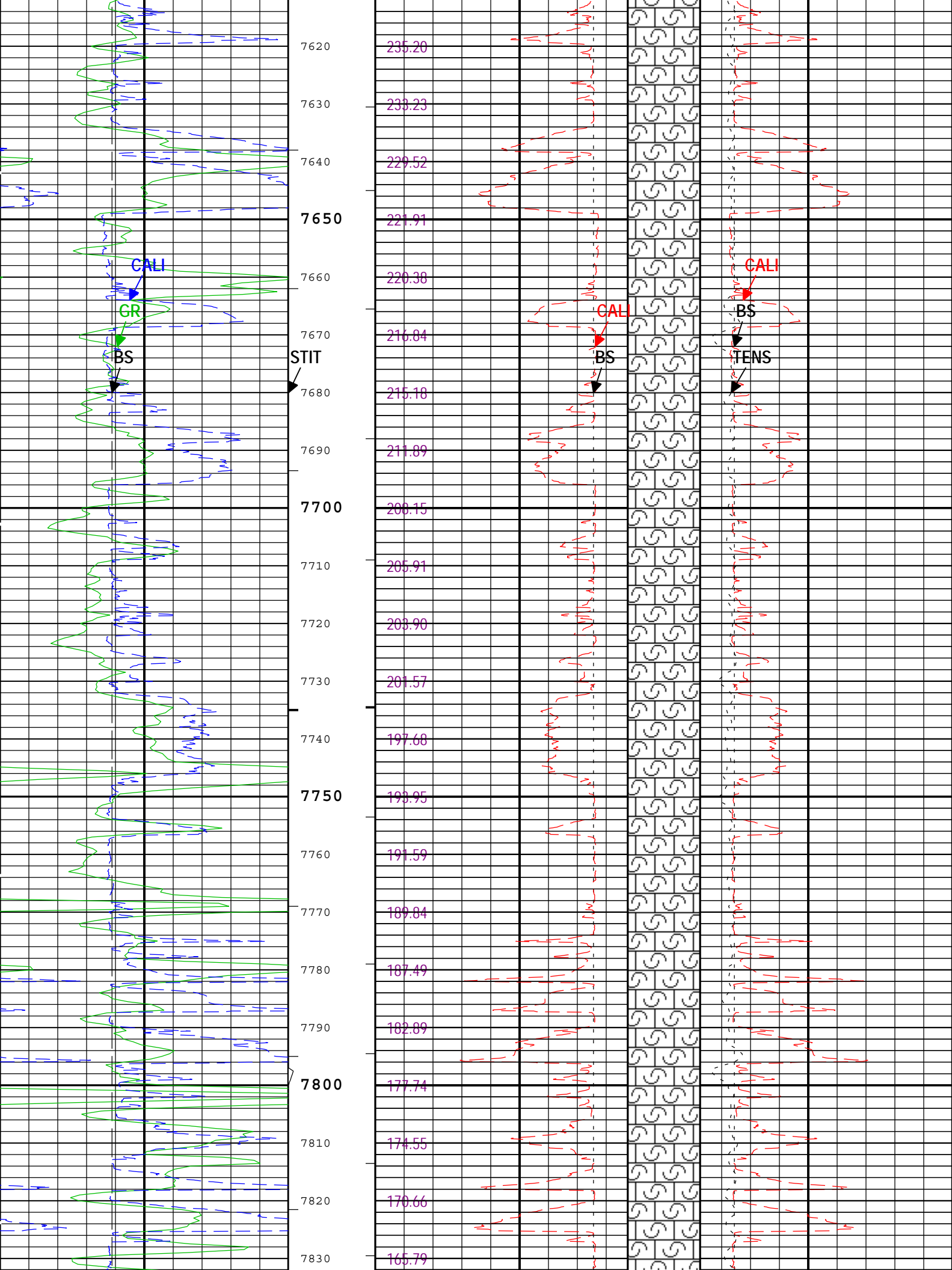


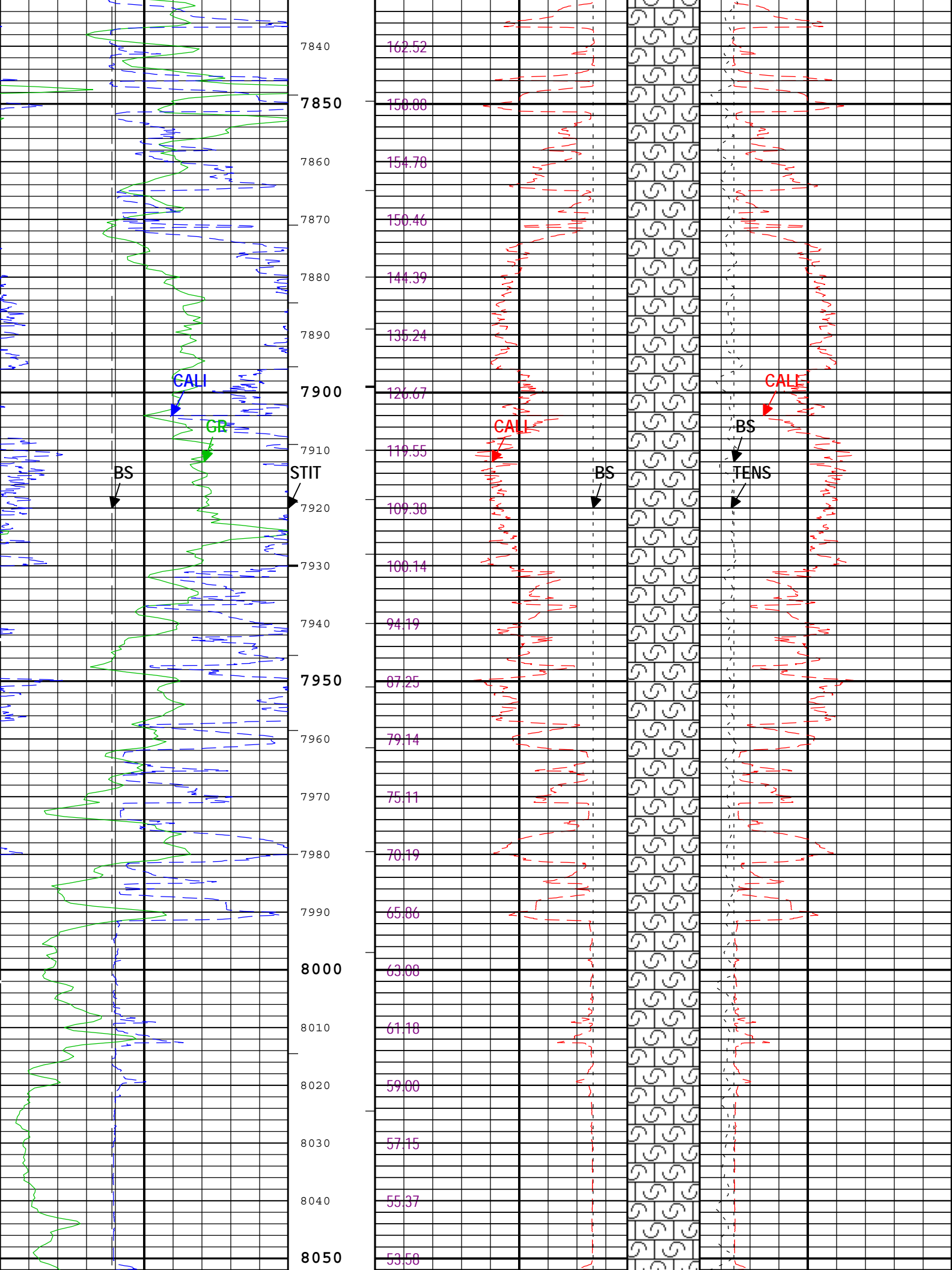


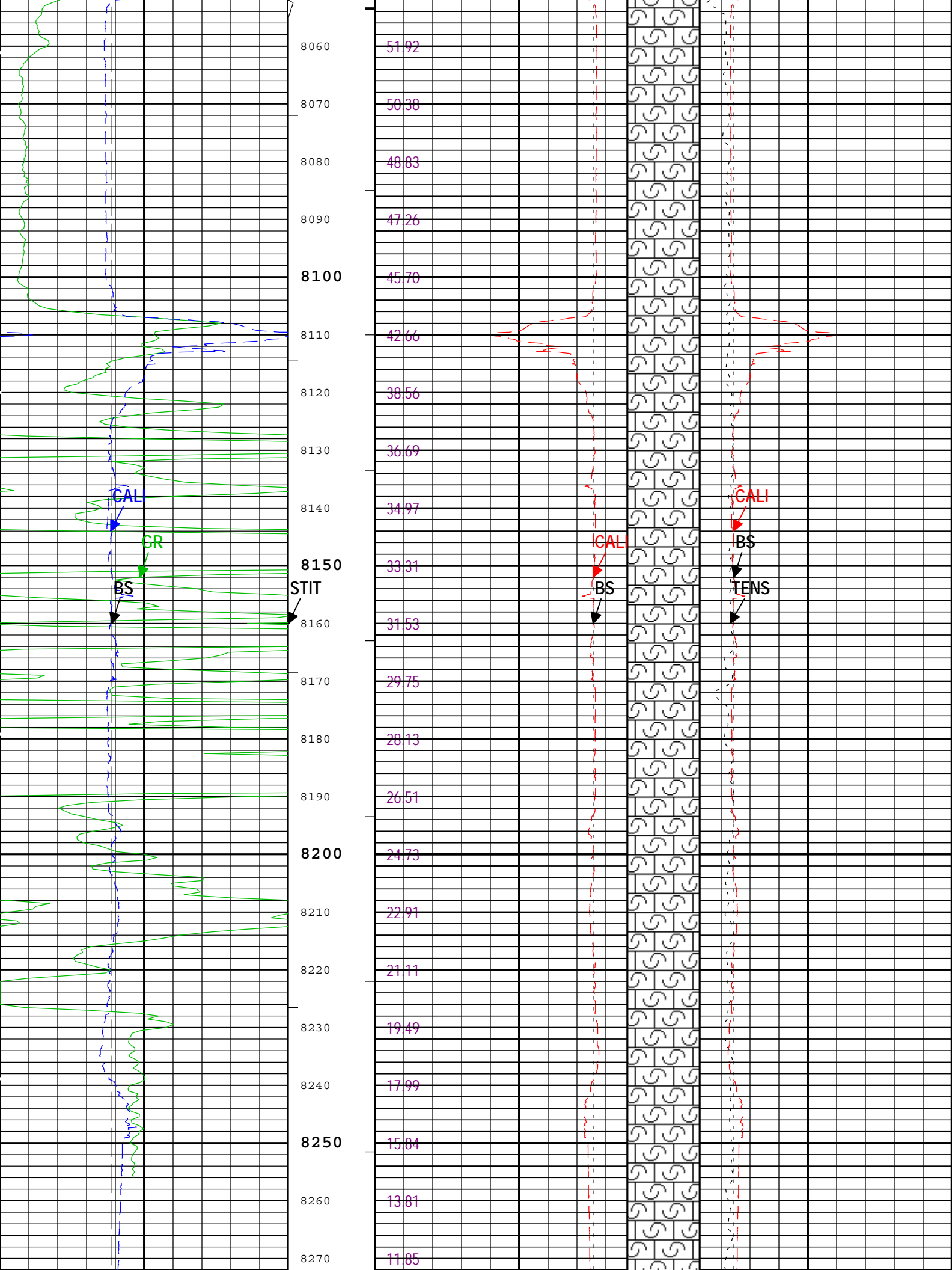


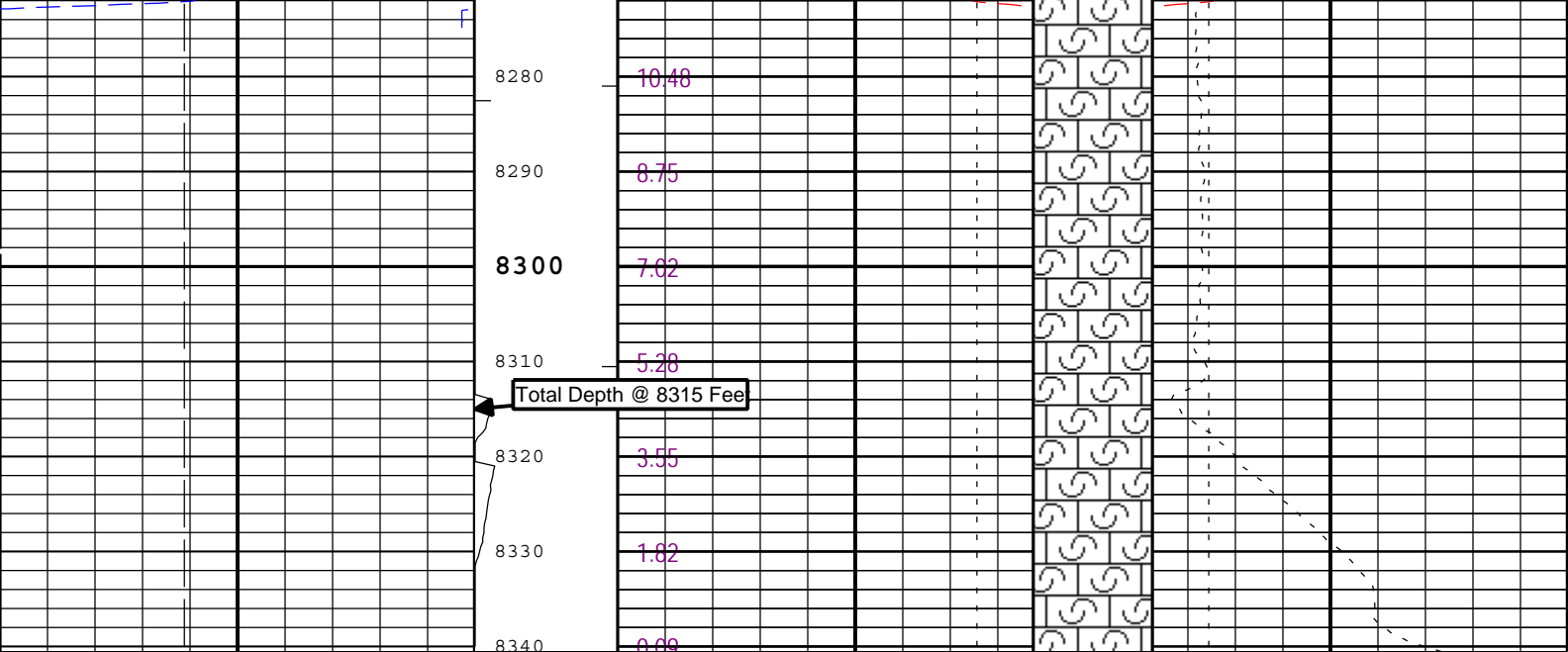












Bit Size (BS)			Stuck Tool Indicator, Total (STIT)	FCD2-FCD3		
4	in	14		Future Casing (Outer) Diameter (FCD)		
Gamma Ray (GR) HGNS-B				-17 in 23		
0	gAPI	200		Future Casing (Outer) Diameter (FCD)		
Caliper (CALI) HDRS-B				23 in -17		
4	in	14	Bit Size (BS)		Cable Tension (TENS)	

23 in 3			Cable Tension (TENS)		
23 in 3			5000 lbf 0		
Caliper (CALI) HDRS-B			Bit Size (BS)		
23 in 3			3 in 23		
Integrated Cement Volume (ICV) ft3			Caliper (CALI) HDRS-B		
			3 in 23		

- ICV - Integrated Cement Volume every 10.00 (ft3)
- IHV - Integrated Hole Volume every 10.00 (ft3)
- ICV - Integrated Cement Volume every 100.00 (ft3)
- TIME_1900 - Time Marked every 60.00 (s)
- IHV - Integrated Hole Volume every 100.00 (ft3)

Description: Format: Log (Noble East Caliper) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 31-May-2013 22:19:42

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-B	0.121	in
CBLO	Casing Bottom (Logger)	WLSESSION	309.5	ft
CDEN	Cement Density	HGNS-B	2	g/cm3
CSODDRL	Casing Outer Diameter - Zoned along driller depths	WLSESSION	8.625	in
DC_MODE	Depth Correction Mode	DepthCorrection	Real-time	
DFD	Drilling Fluid Density	Borehole	9	lbm/gal
FCD	Future Casing (Outer) Diameter	WLSESSION	5.5	in
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	
SOCO	Standoff Correction Option	HGNS-B	Yes	
TD	Total Measured Depth	Borehole	8300	ft

Depth Zone Parameters

Parameter	Value	Start (ft)	Stop (ft)
BS	0	280	309.5
BS	7.875	309.5	8340.5

All depth are actual.

Tool Control Parameters

Parameter	Description	Tool	Value	Unit
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	3600	ft/h

Calibration Report

HDRS-B (HILT Density and Rxo Sonde, 125 degC) Calibration - Run 1

Primary Equipment :

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

Auxiliary Equipment :

HRDD Backscatter Detector	Backscatter	
HRDD Long Spacing Detector	Long Spacing	
HRDD Short Spacing Detector	Short Spacing	
Cesium 137 Gamma-Ray Logging Source	GSR-J	5094
HILT High-Resolution Control Cartridge, 125 degC	HRCC-B	791
HILT High-Resolution Mechanical Sonde, 125 degC	HRMS-B	1754

Calibration Parameter :

Small Ring Size (Caliper Calibration Small Ring)	8.00
Large Ring Size (Caliper Calibration Large Ring)	12.00

HDRS Caliper Calibration - Caliper Accumulations

Before (Measured): **13:51:36 30-May-2013 Expired by 1 days**

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Small Ring	in	Before	8.00	6.00	8.06	10.00	
Large Ring	in	Before	12.00	9.00	12.26	15.00	

HDRS Density Calibration - Inversion Results

Master (EEPROM): 12:10:08 24-May-2013

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Rho Aluminum	g/cm3	Master	2.596	2.586	2.600	2.606	
Rho Magnesium	g/cm3	Master	1.686	1.676	1.688	1.696	
Pe Aluminum		Master	2.570	2.470	2.564	2.670	
Pe Magnesium		Master	2.650	2.550	2.620	2.750	

HDRS Density Calibration - Deviation Summary

Master (EEPROM): 12:10:08 24-May-2013

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
BS Average Deviation	%	Master	0	-0.6000	0.4759	0.6000	
BS Max Deviation	%	Master	0	-1.6000	1.0180	1.6000	
SS Average Deviation	%	Master	0	-1.0000	0.3444	1.0000	
SS Max Deviation	%	Master	0	-2.5000	1.6146	2.5000	
LS Average Deviation	%	Master	0	-1.5000	0.3616	1.5000	
LS Max Deviation	%	Master	0	-3.5000	1.2182	3.5000	

HDRS Density Calibration - Background Summary

Master (EEPROM): 12:10:08 24-May-2013 Before (Measured): **13:48:25 30-May-2013 Expired by 1 days**

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
BS Window Ratio		Master	1.0000		0.7358		
		Before	0.7358	0.6990	0.7372	0.7725	
		Before-Master	-----	-----	0.0014	-----	

HGNS Accelerometer EEPROM - Accelerometer EEPROM Read

Master (EEPROM):		00:00:00 15-Dec-1996					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Accelerometer Manufacturer		Master			Sunstrand		
Accelerometer Reference Temperature	degF	Master		30.2	68.0	122.0	
Accelerometer Coefficients - 0		Master	----	----	51.000	----	
Accelerometer Coefficients - 1		Master	----	----	11.800	----	
Accelerometer Coefficients - 2		Master	----	----	0.011	----	
Accelerometer Coefficients - 3		Master	----	----	0.000	----	
Accelerometer Coefficients - 4		Master	----	----	2.182	----	
Accelerometer Coefficients - 5		Master	----	----	0.000	----	
Accelerometer Coefficients - 6		Master	----	----	0.000	----	
Accelerometer Coefficients - 7		Master	----	----	0.000	----	
Accelerometer Coefficients - 8		Master	----	----	293.400	----	
Accelerometer Coefficients - 9		Master	----	----	0.997	----	

HGNS Neutron Calibration - HGNS Neutron Accumulations

Master (EEPROM):		10:38:08 25-Feb-2013 Expired by 5 days		Before (Measured):		13:45:42 30-May-2013 Expired by 1 days		After:	
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit			
Near Zero Measurement	1/s	Master	0	5.0	27.8	40.0			
		Before	0	5.0	29.0	40.0			
		After	----	----	----	----			
		Before-Master	----	-4.2	1.2	4.2			
		After-Before	----	----	----	----			
Far Zero Measurement	1/s	Master	0	5.0	31.8	40.0			
		Before	0	5.0	31.0	40.0			
		After	----	----	----	----			
		Before-Master	----	-4.8	-0.8	4.8			
		After-Before	----	----	----	----			
Near Plus Measurement - 0	1/s	Master	6031.0	4700.0	4914.0	6900.0			
		Before	----	----	----	----			
		After	----	----	----	----			
		Before-Master	----	----	----	----			
		After-Before	----	----	----	----			
Far Plus Measurement - 0	1/s	Master	2793.0	1900.0	2076.0	2900.0			
		Before	----	----	----	----			
		After	----	----	----	----			
		Before-Master	----	----	----	----			
		After-Before	----	----	----	----			
Near Corrected Plus Measurement - 0	1/s	Master		4700.0	4881.0	6900.0			
		Before	----	----	----	----			
		After	----	----	----	----			
		Before-Master	----	----	----	----			
		After-Before	----	----	----	----			
Far Corrected Plus Measurement - 0	1/s	Master		1900.0	2041.0	2900.0			
		Before	----	----	----	----			
		After	----	----	----	----			
		Before-Master	----	----	----	----			
		After-Before	----	----	----	----			

HGNS Gamma-Ray Calibration - Gamma-Ray Accumulations

Before (Measured):		13:48:38 30-May-2013 Expired by 1 days		After:				
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit		
RGR Zero Measurement	gAPI	Before	30.0	0	81.9	120.0		
		After	----	----	----	----		
		After-Before	----	----	----	----		
RGR Plus Measurement	gAPI	Before	185.4	157.1	168.3	206.3		
		After	----	----	NOT DONE	----		
		After-Before	----	----	----	----		
GR Calibration Gain		Before	0.89	0.80	0.98	1.05		
		After	----	----	----	----		
		After-Before	----	----	----	----		

Well: TAOS 1-10
Field: WILDCAT
County: LINCOLN
State: COLORADO

Platform Express

Caliper

Cement Volume