

Company: NIGHTHAWK PRODUCTION LLC

Well: TAOS 1-10

Field: WILDCAT

County: LINCOLN Country: UNITED STATES

Platform Express  
Array Induction  
with Linear Correlation

County:	LINCOLN				
Field:	WILDCAT				
Location:	NENE SEC 10, T6S, R54W				
Well:	TAOS 1-10				
Company:	NIGHTHAWK PRODUCTION LLC				
Logging Date	Location:				
	Permanent Datum:		Ground Level	Elev.:	
	Log Measured From:		Kelly Bushing	15.00 ft	above Perm.Datum
	Drilling Measured From:		Kelly Bushing		
	API Serial No.	Max.Hole Deviation	Longitude:	Latitude:	
	05-073-06520-0000	0 deg	-103.41982 degrees	39.547420 degrees	

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	9 lbm/gal	55 s	
	Fluid Loss	12 cm3	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		Time	11:00:00	
Logger on Bottom		Time		
Unit Number	Location:	3022	FORT MORGAN, C	
Recorded By	Keri Lofing			
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.

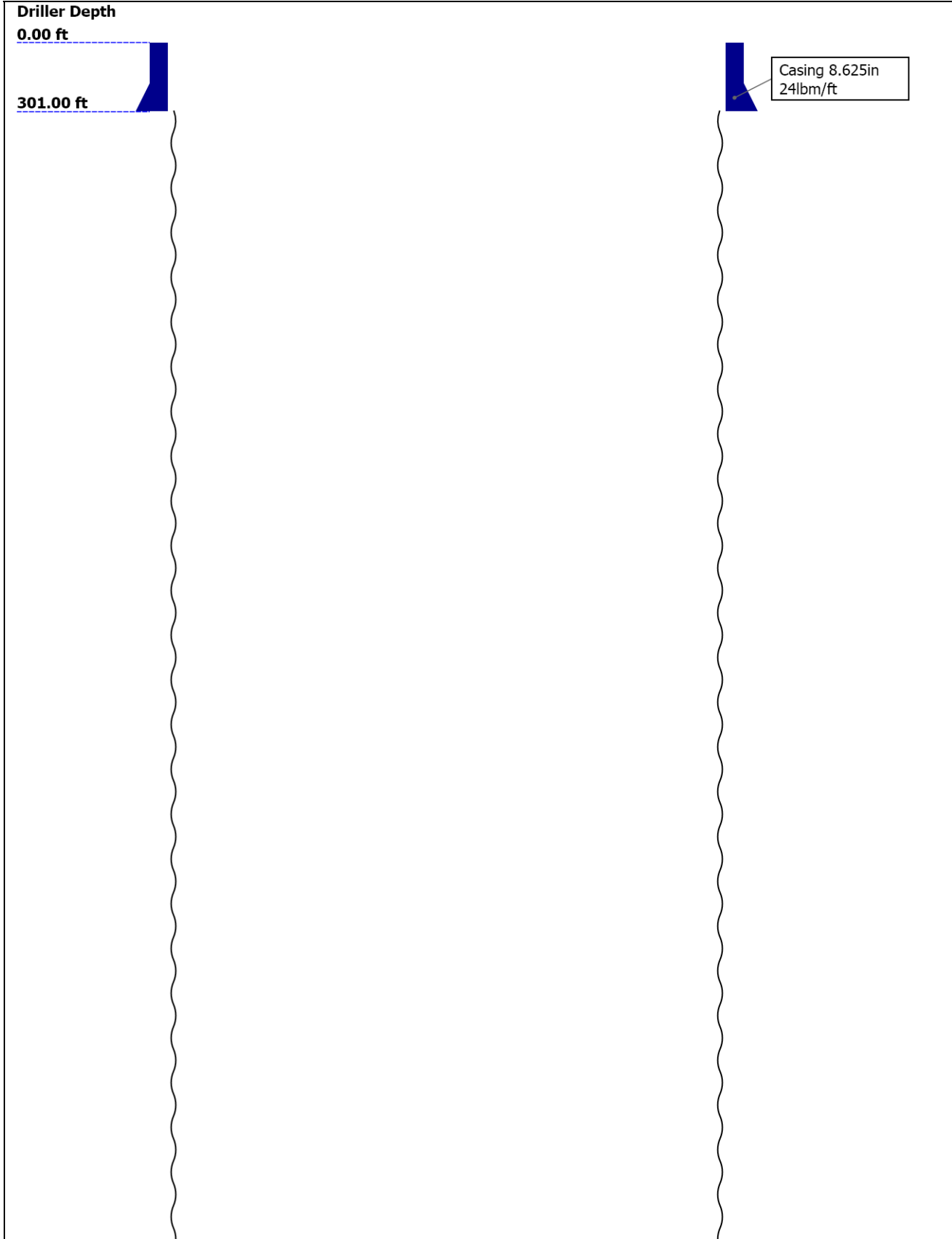
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Well Sketch



8300.00 ft

Open Hole 7.875in

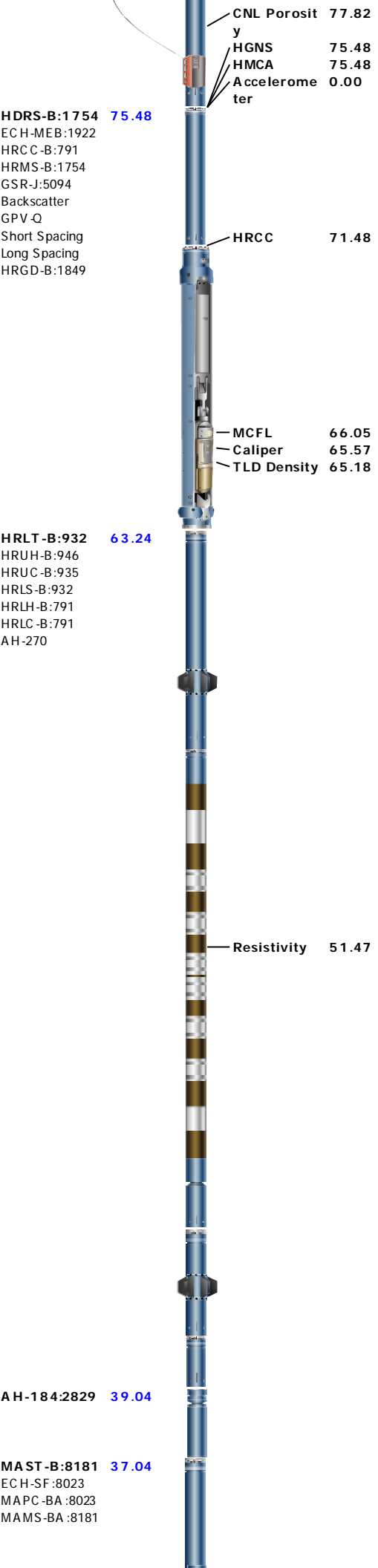
## Borehole Size/Casing/Tubing Record

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					







MAMS 21.6

16.00

AIT-H:398  
AHIS:398  
AHRM:398

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 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

2" Induction

Integration Summary

Output Channel(s)	Output Description	Input Parameter	Output Value	Unit
ICV	Integrated Cement Volume	GCSE_UP_PASS, FCD	2208.11	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

Tool Elements	Description	Software Version	Firmware Version
AHIS	Array Induction Sonde - H	3.1.9755.1574	
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

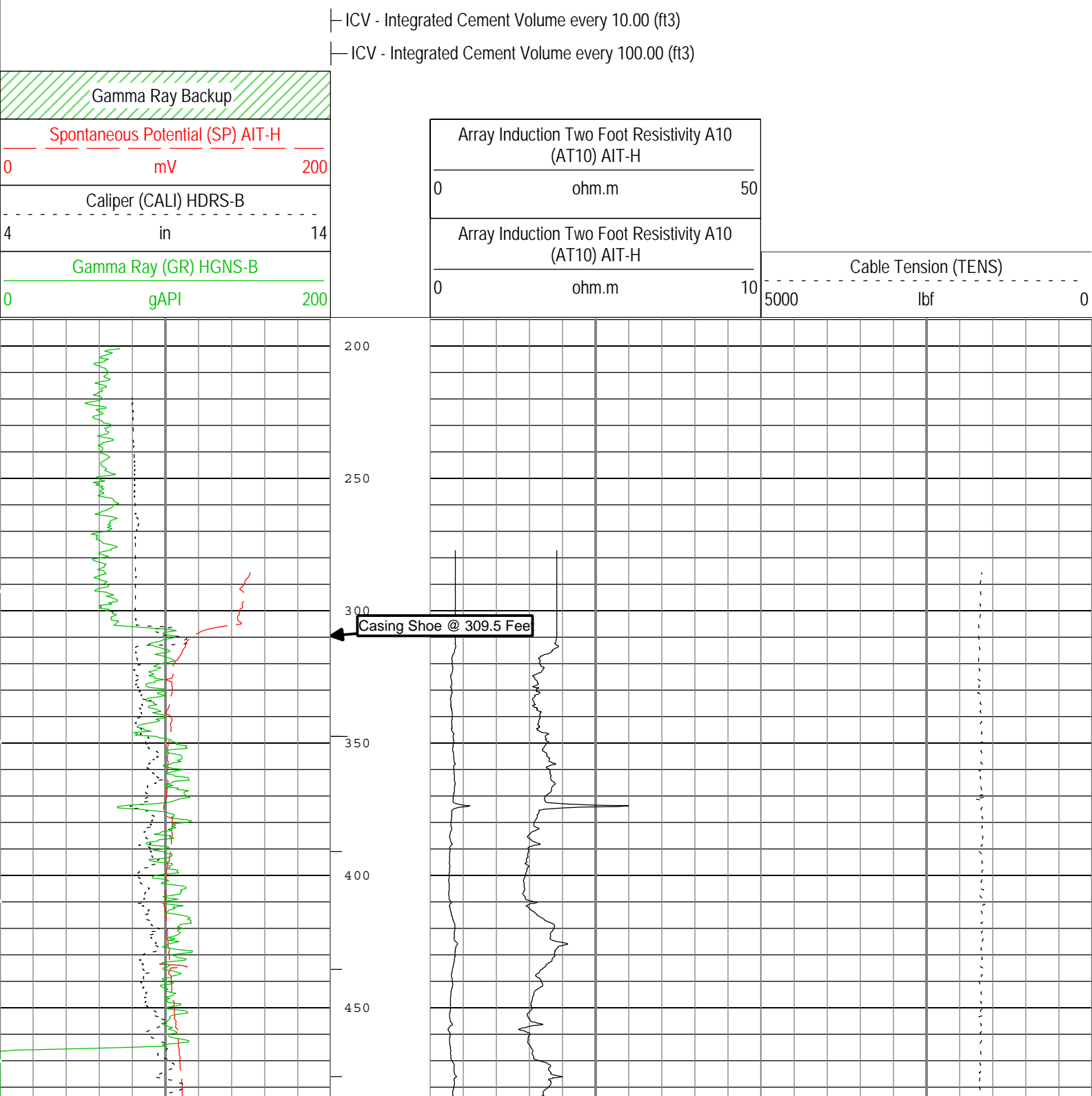
Pass Summary

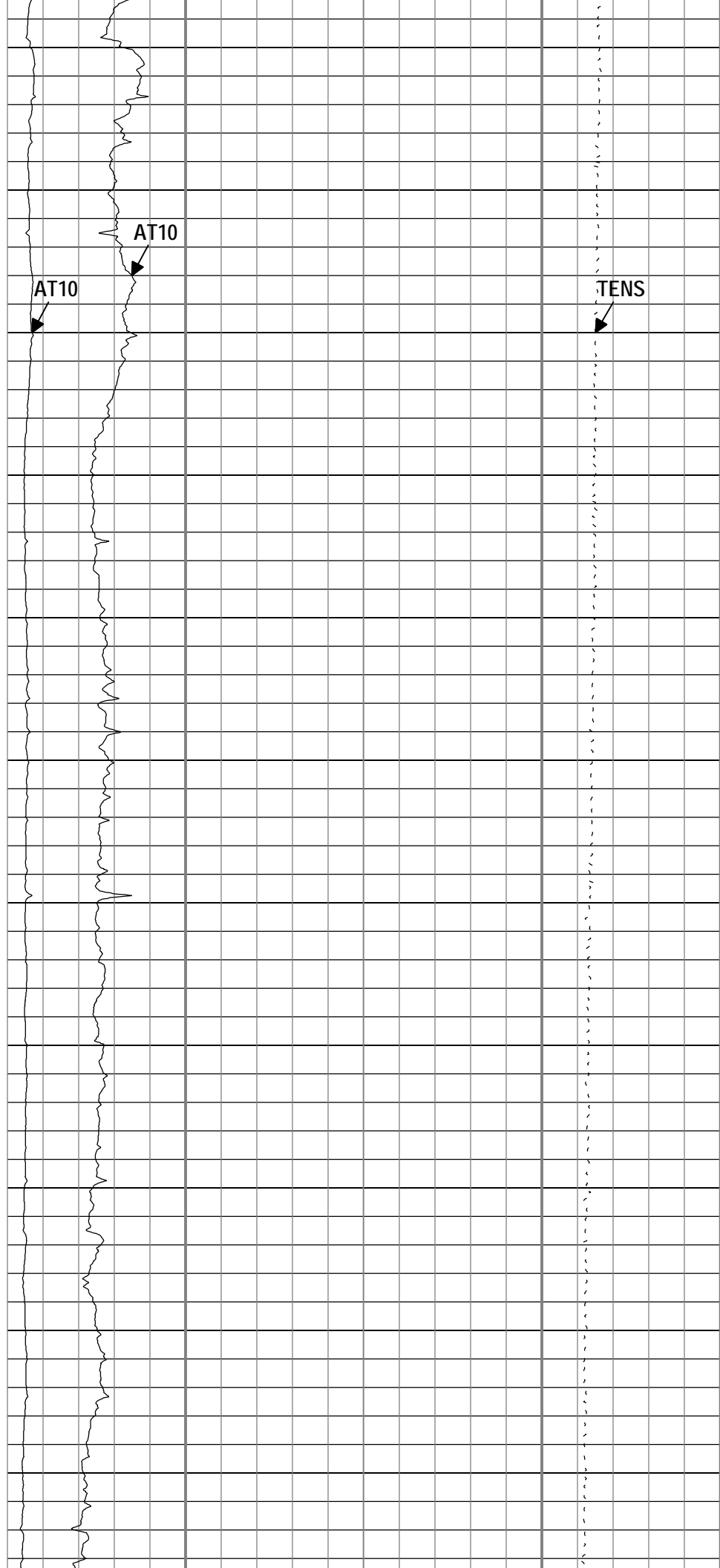
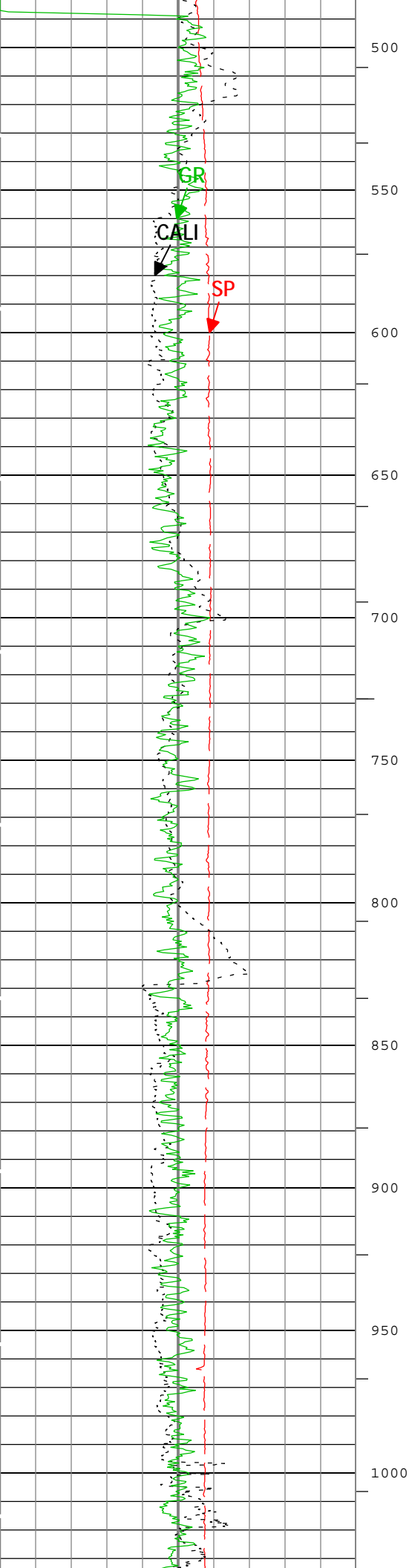
Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	Depth Shift	Include Parallel Data
Run 1	Main[3]:Up	Up	285.10 ft	8340.47 ft	31-May-2013 4:39:28 PM	31-May-2013 6:55:10 PM	10.52 ft	true

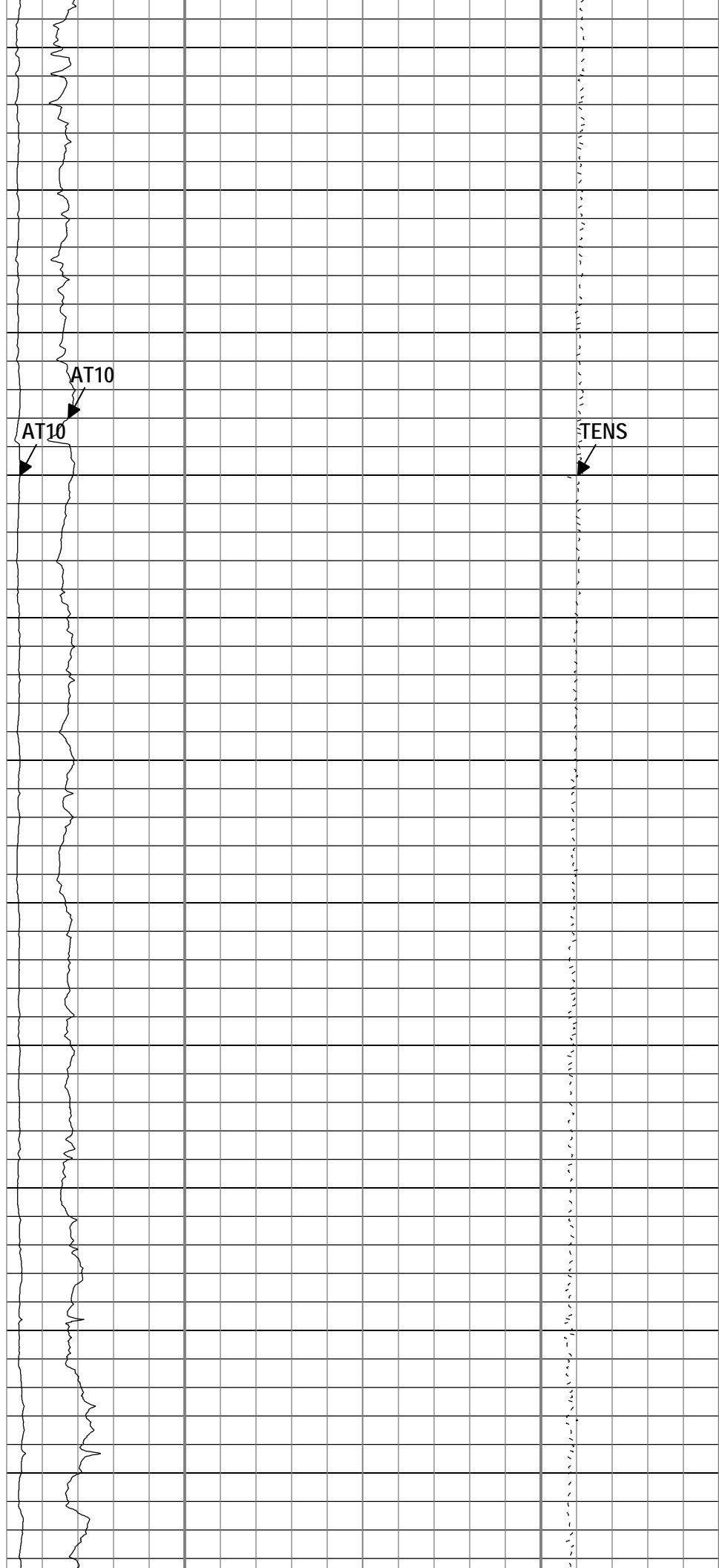
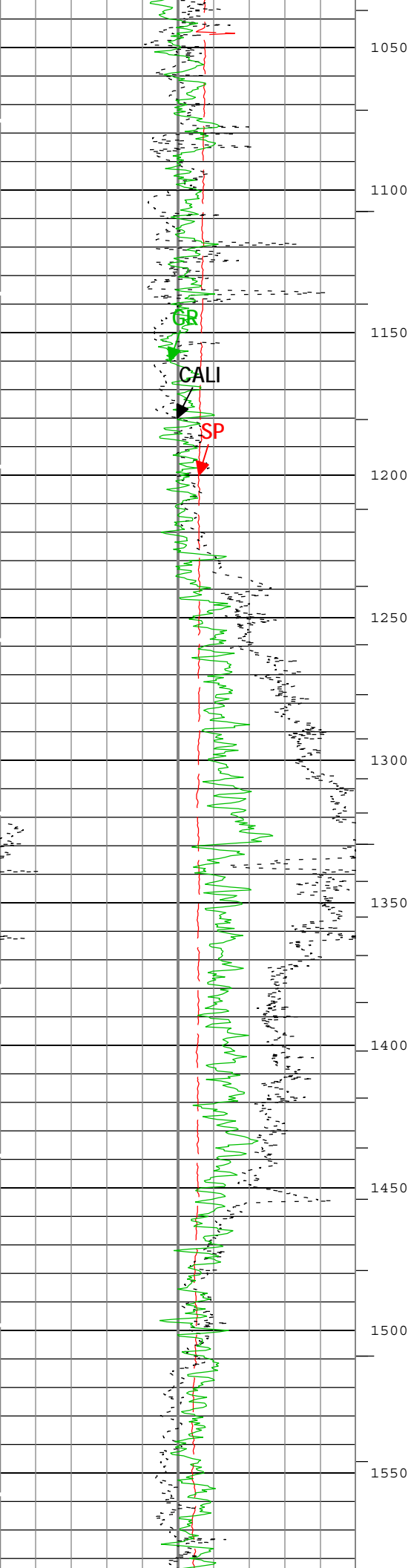
All depths are referenced to toolstring zero

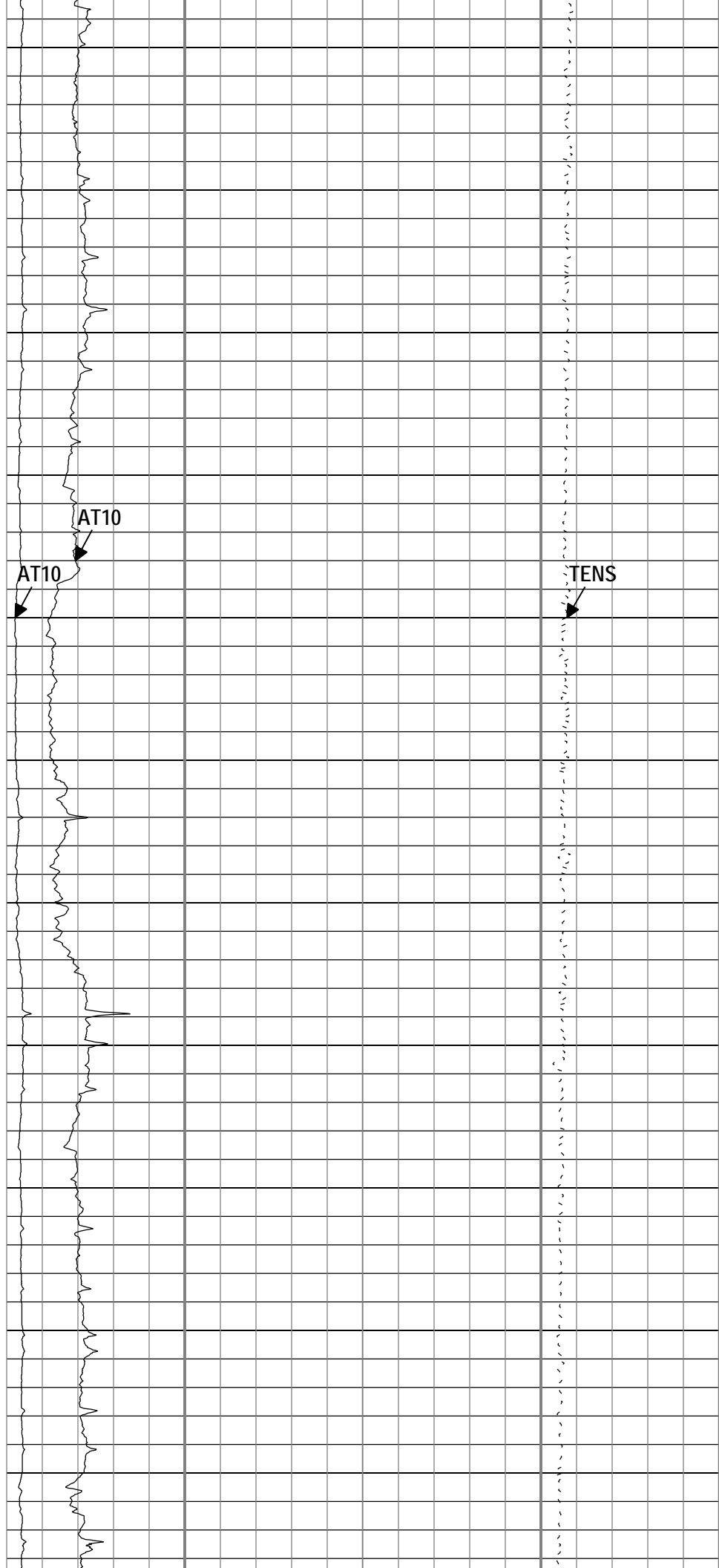
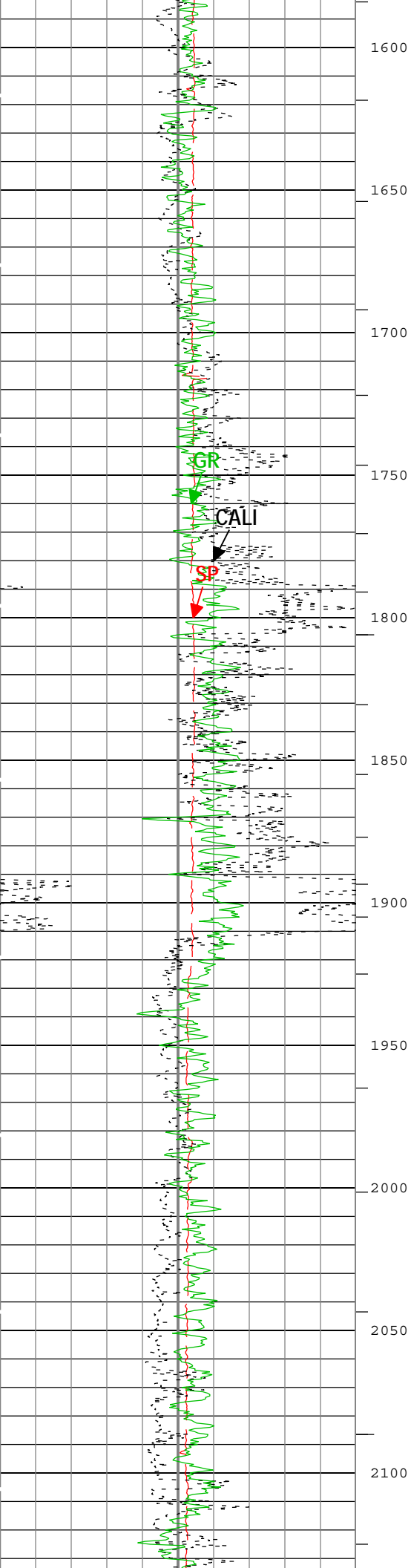
Description: AIT Basic Log Two    Format: Log ( Import of Kerr McGee 2in Induction )    Index Scale: 2 in per 100 ft    Index Unit: ft    Index Type: Measured		
Depth	Creation Date: 31-May-2013 22:20:06	
Channel	Source	Sampling
AT10	AIT-H:AHIS:AHIS	3in
CALI	HDRS-B:HRCC-B:HRCC-B	1in
GR	HGNS-B:HGNS-B:HGNS-B	6in
ICV	Borehole	6in
SP	AIT-H:AHIS:AHIS	6in
TENS	WLWorkflow	6in
TIME_1900	WLWorkflow	0.1in

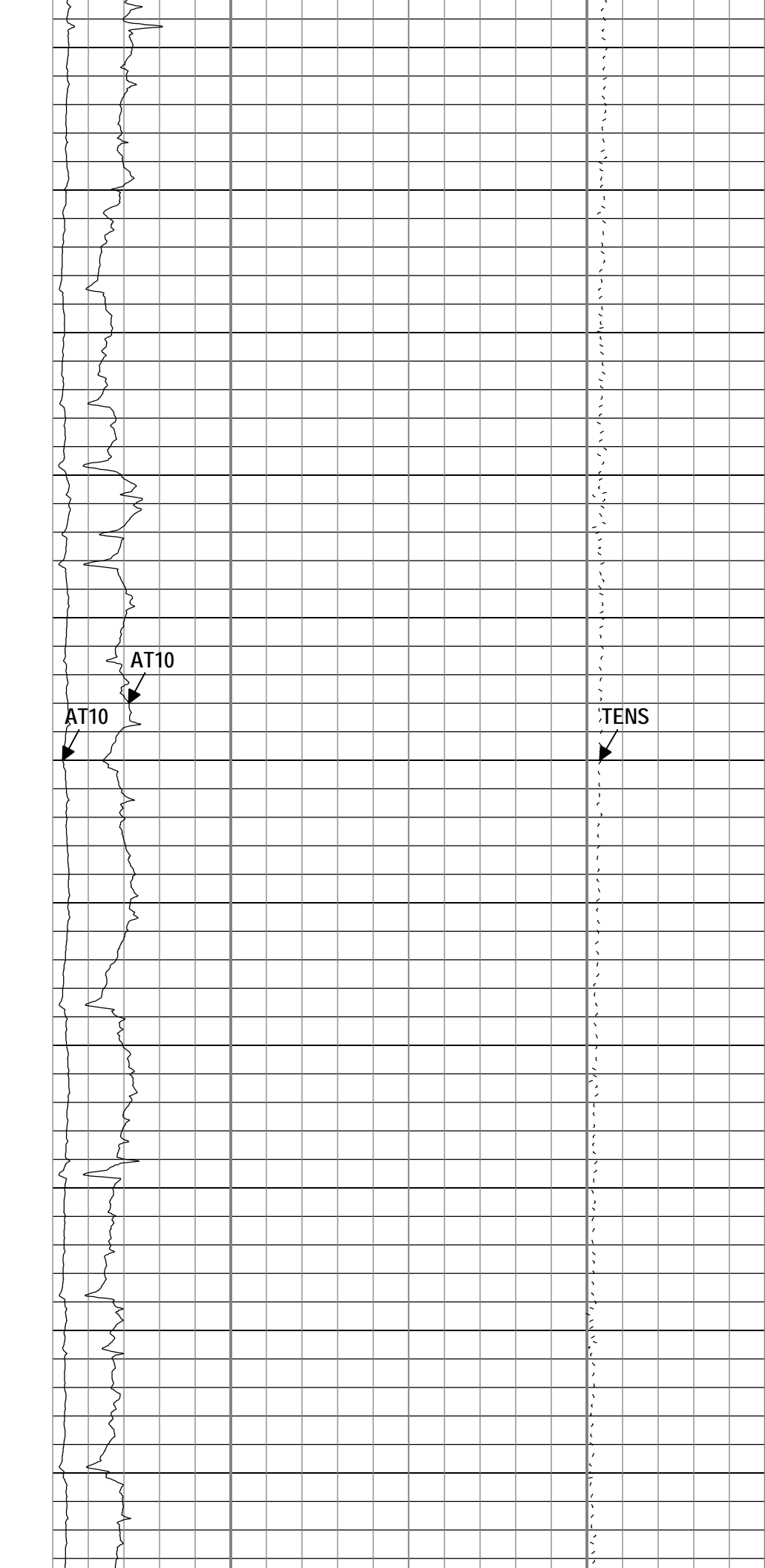
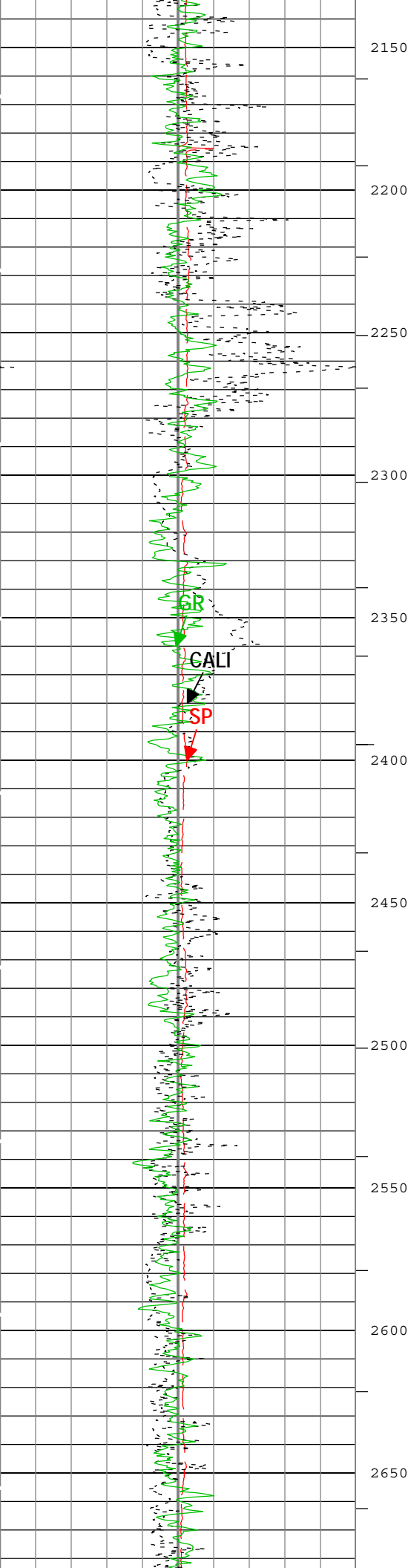
TIME\_1900 - Time Marked every 60.00 (s)

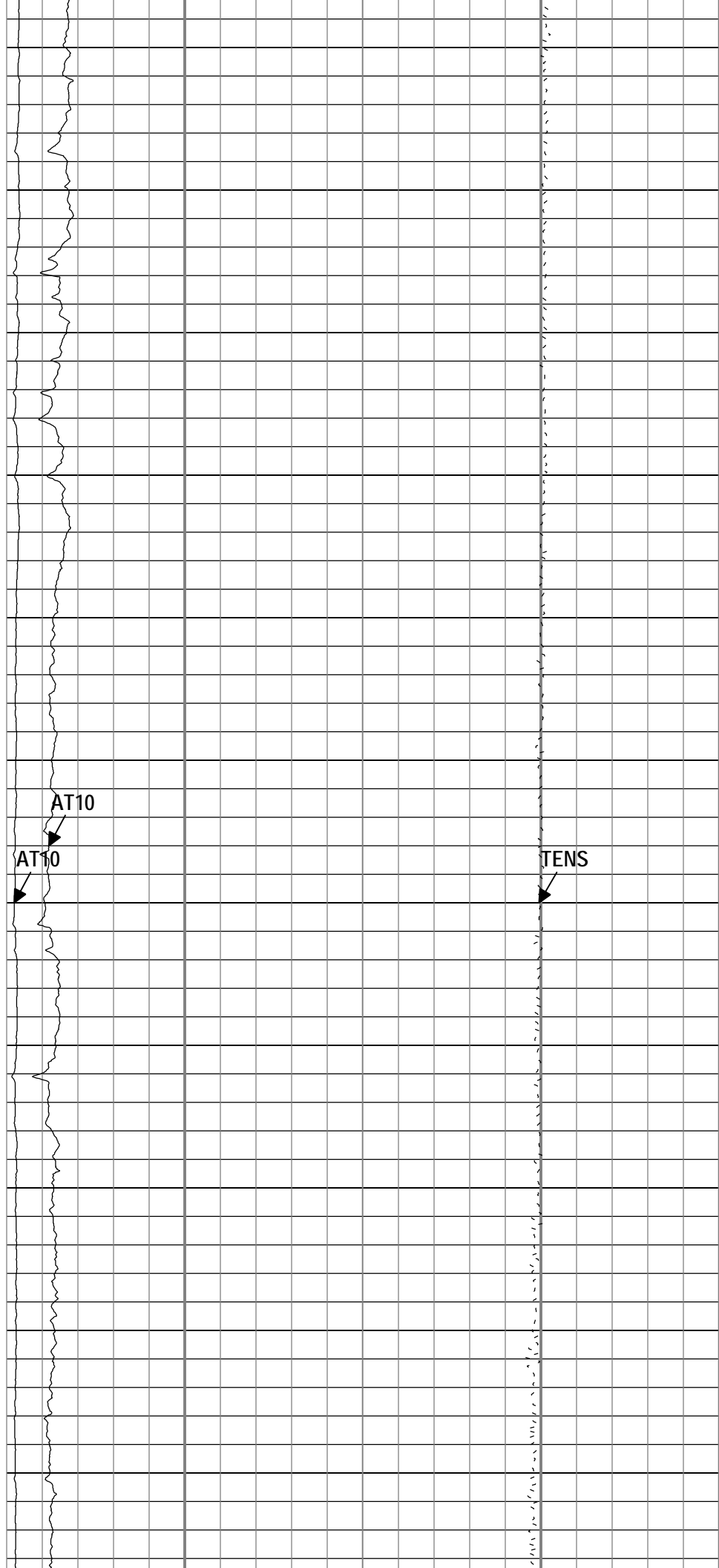
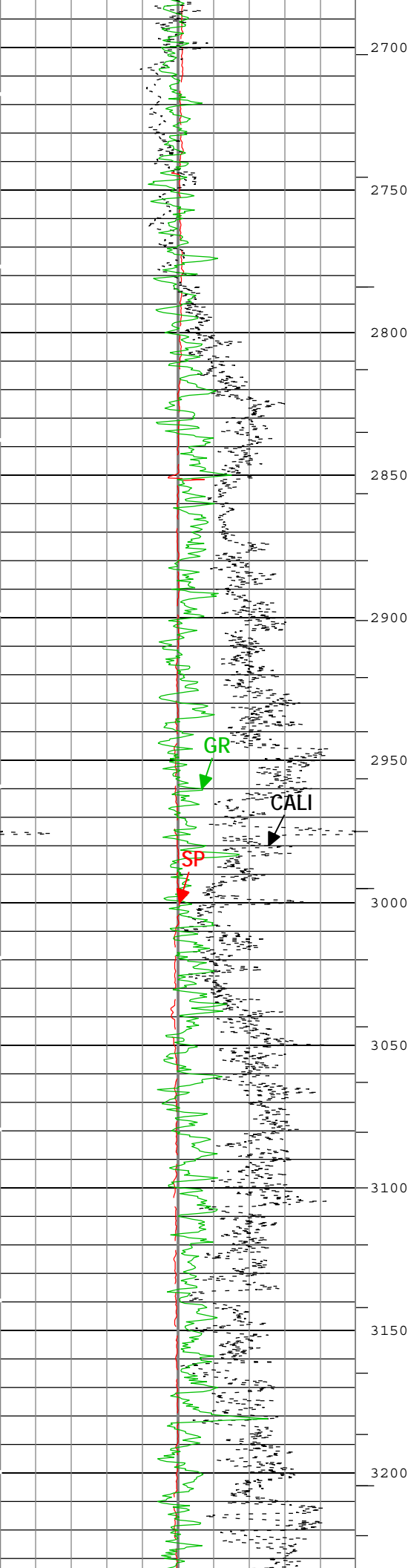


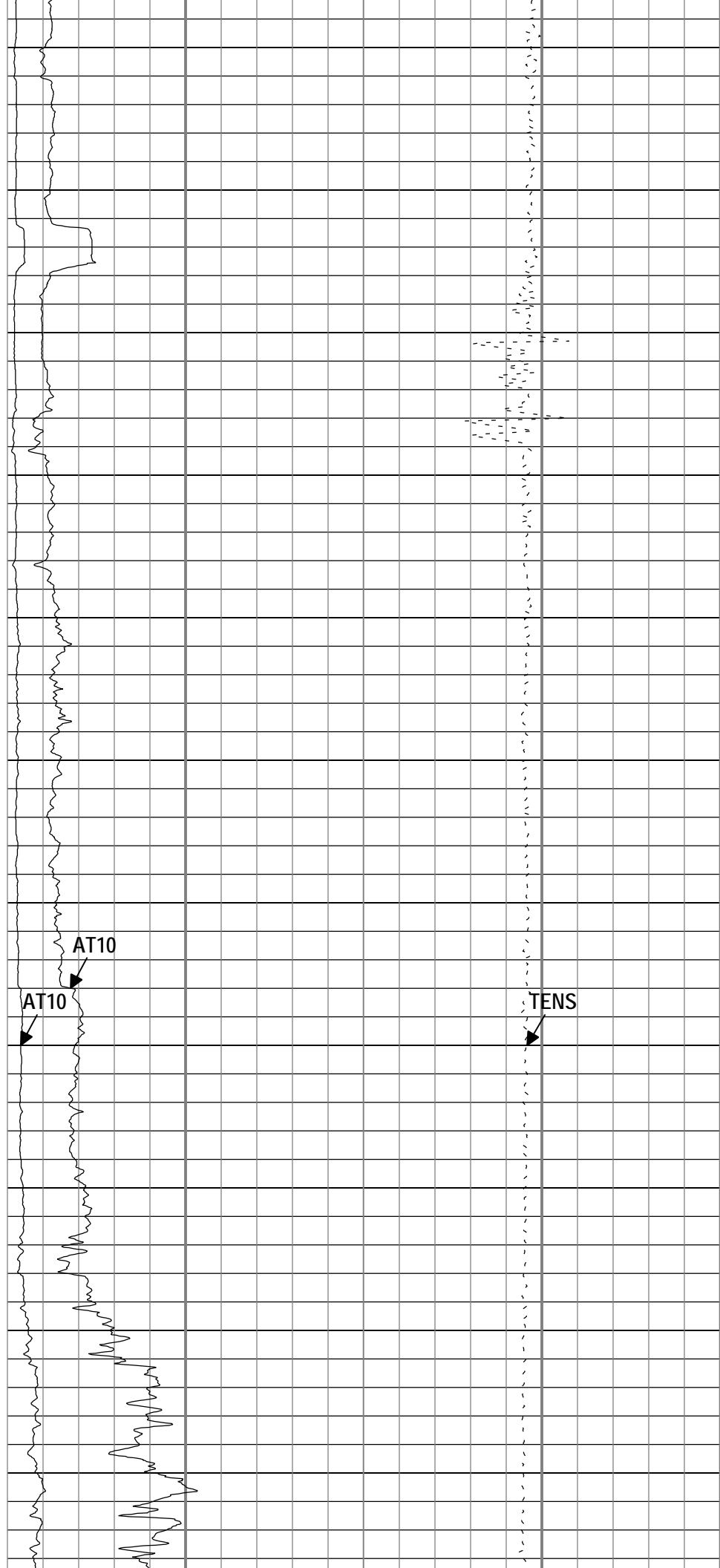
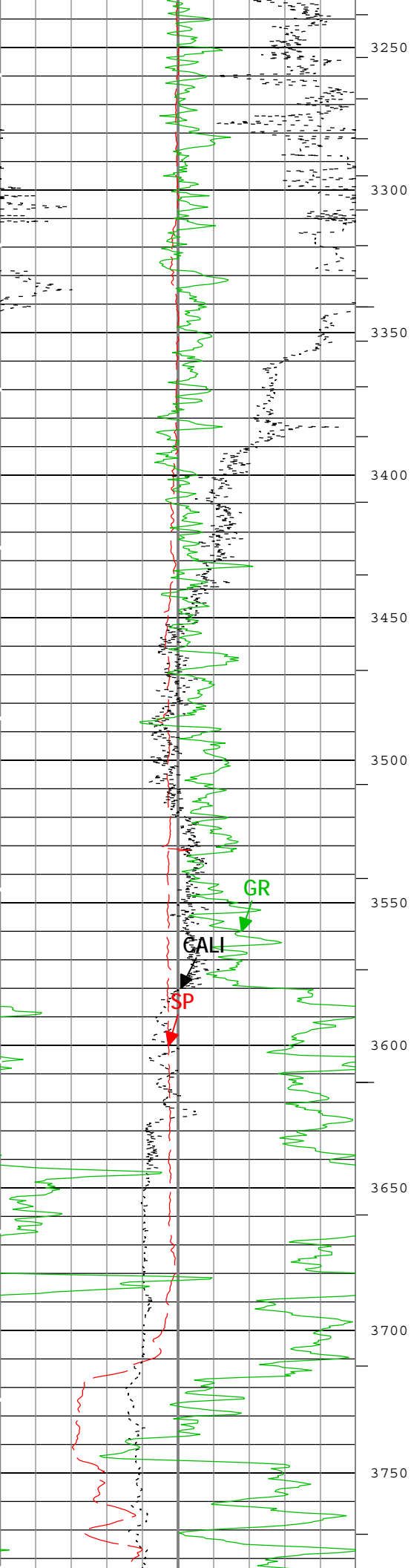




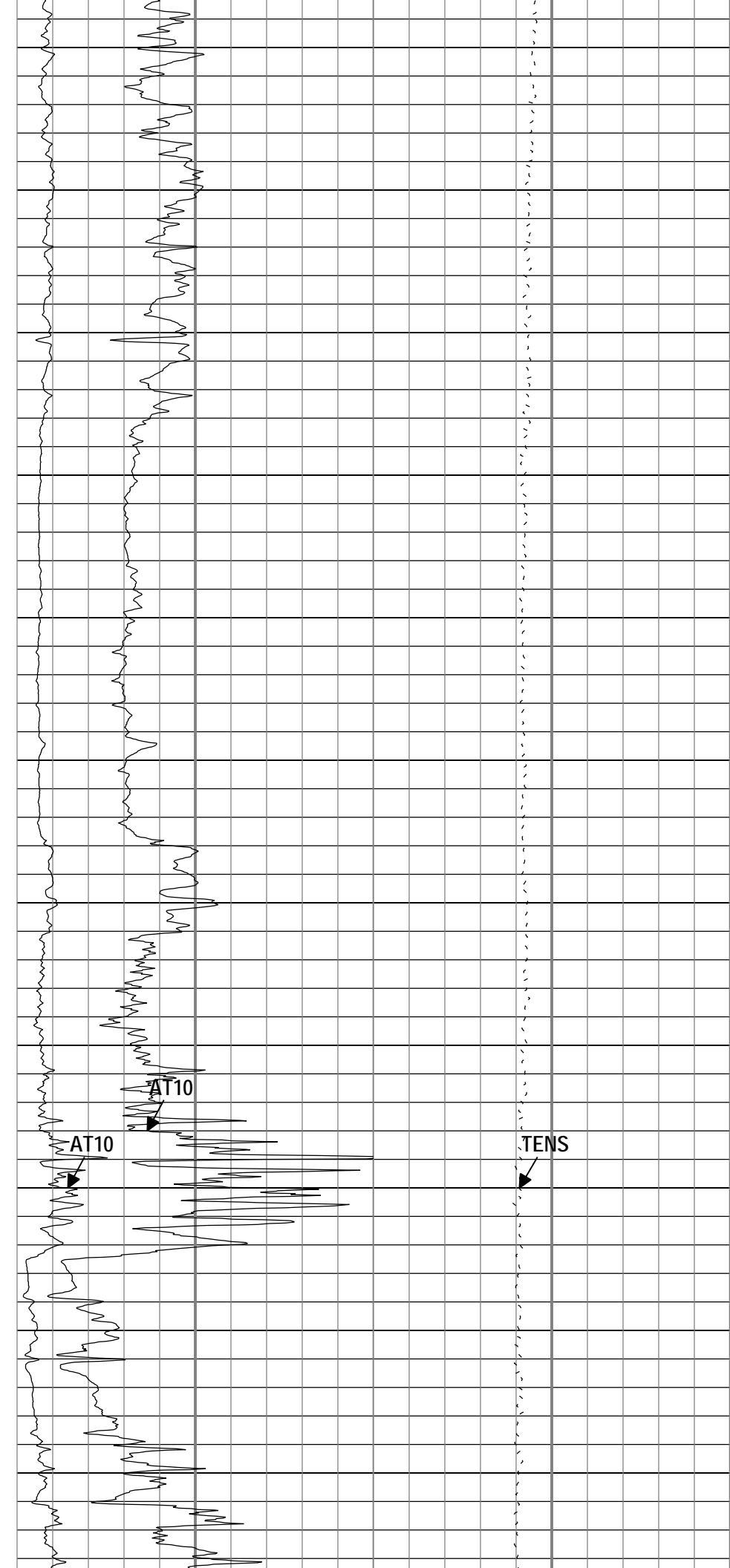
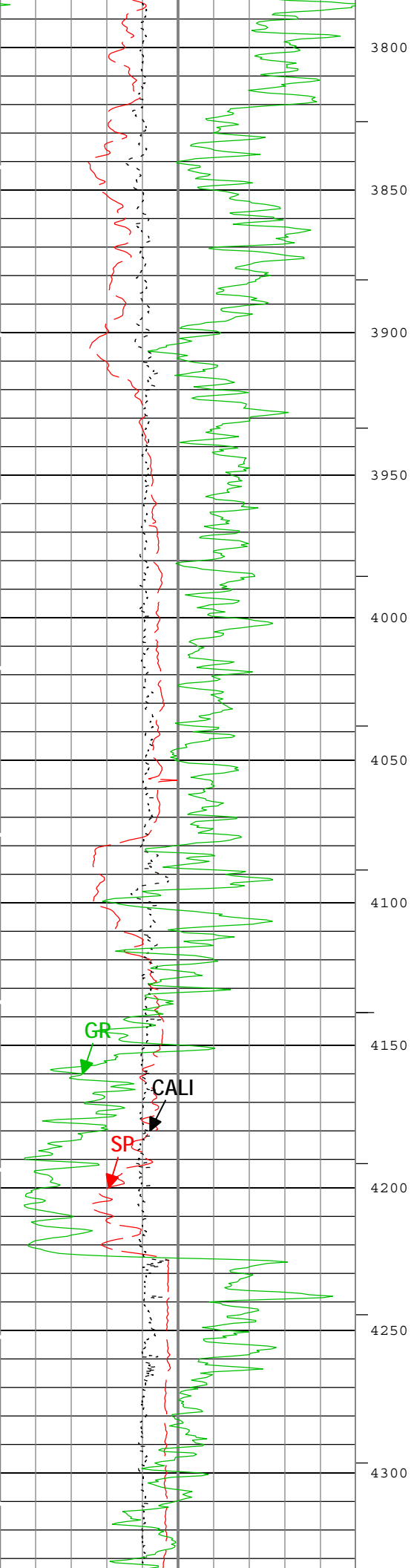


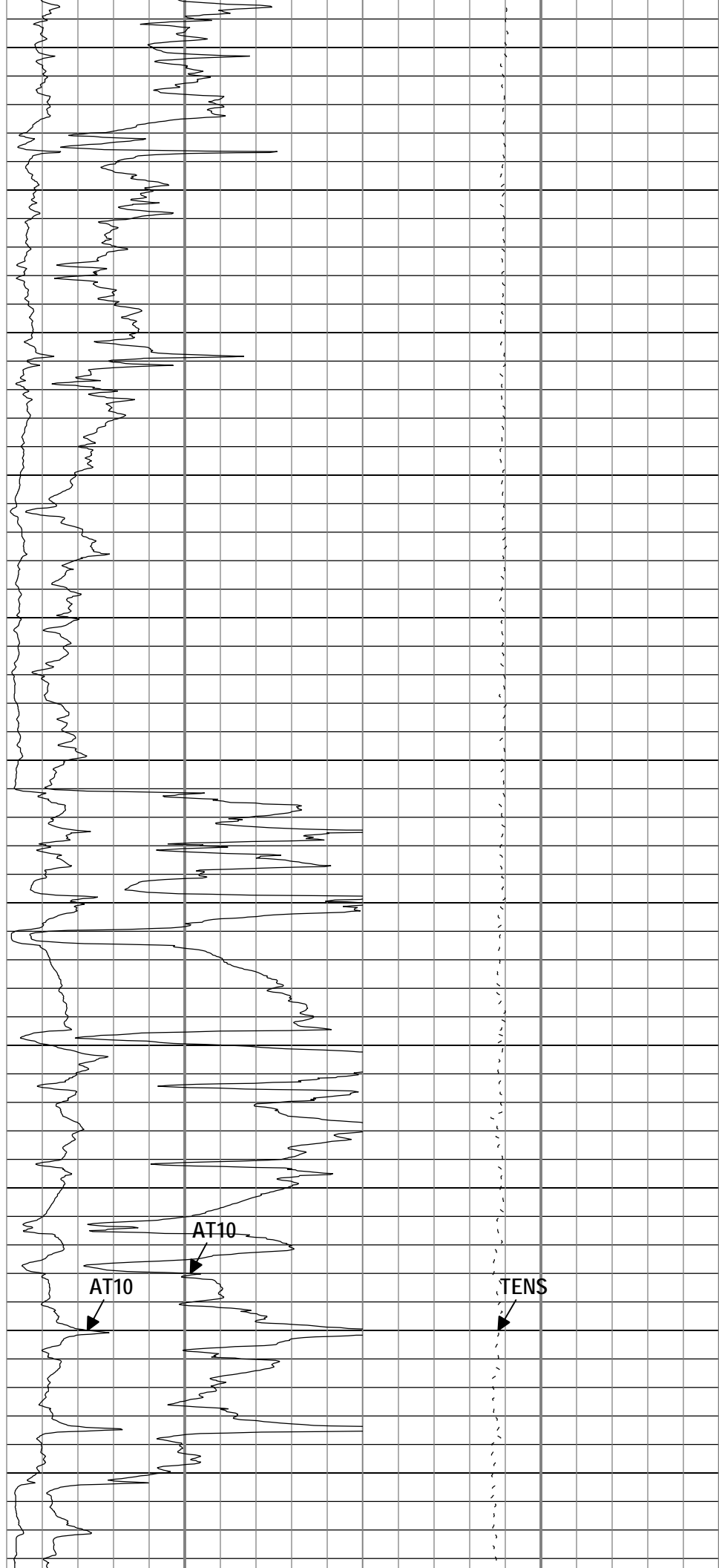
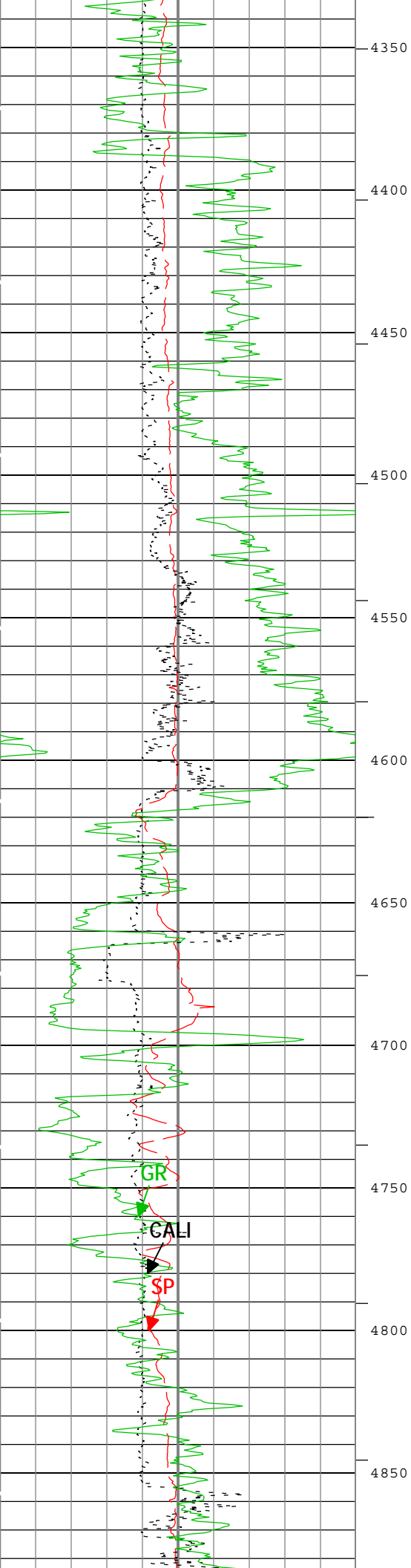


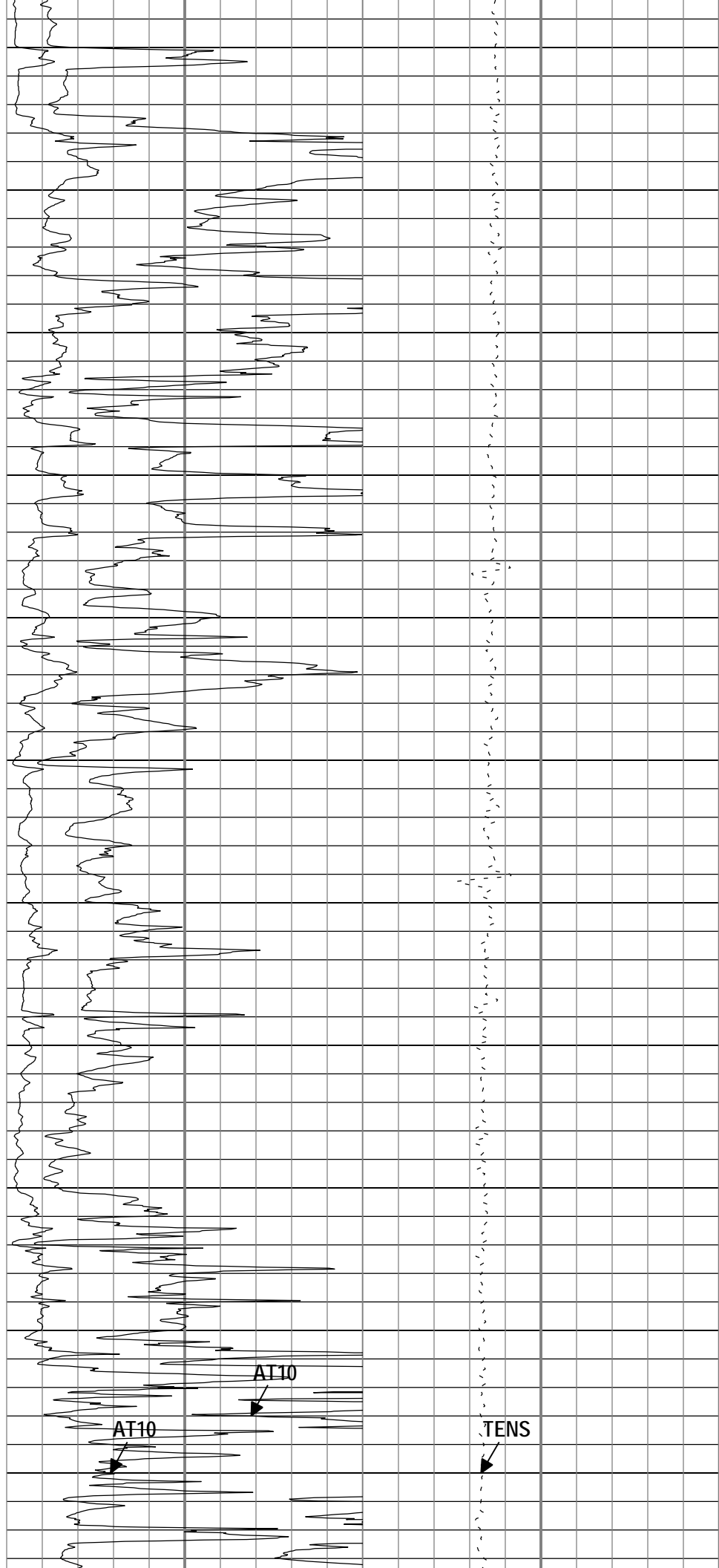
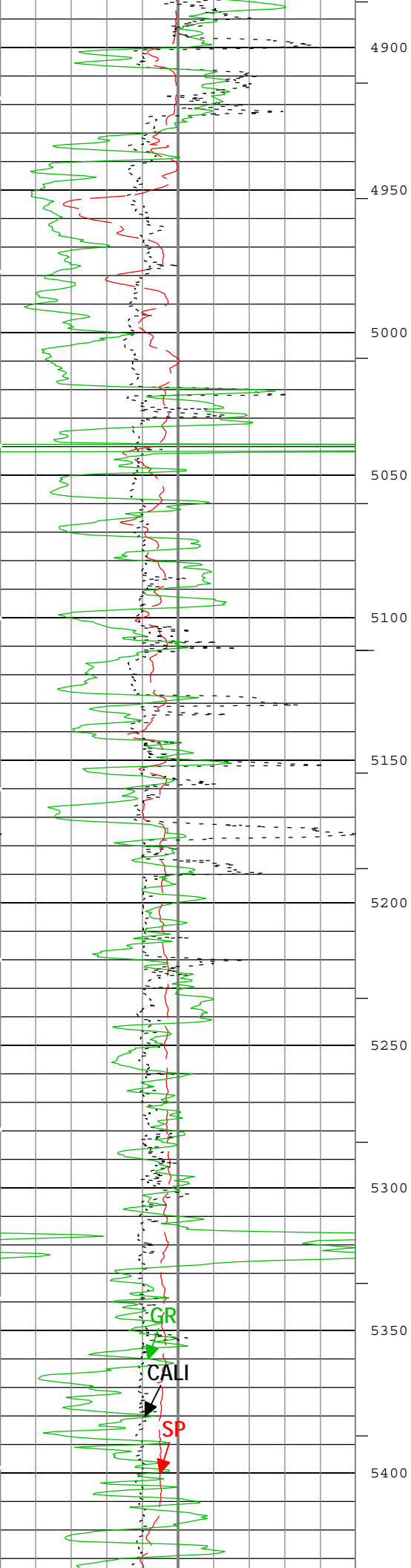


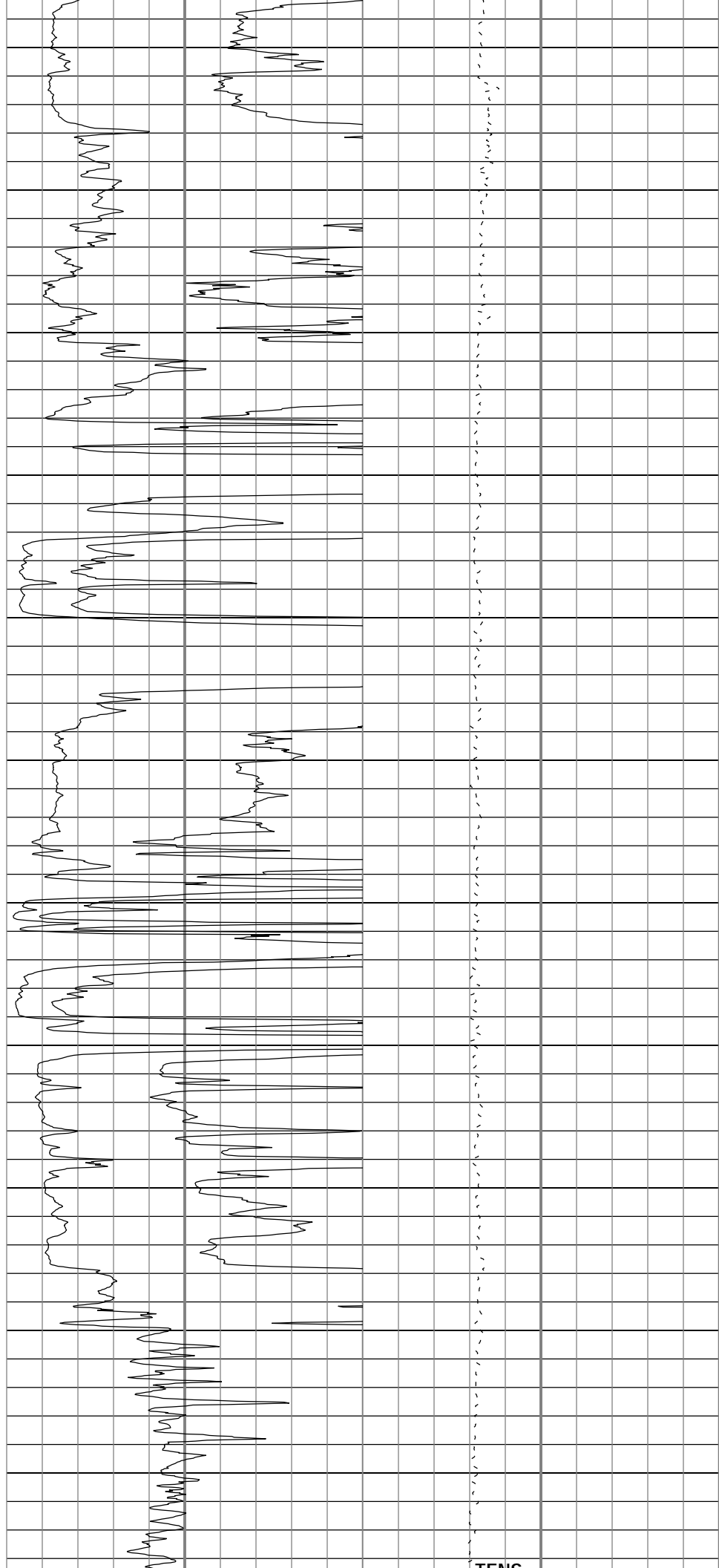
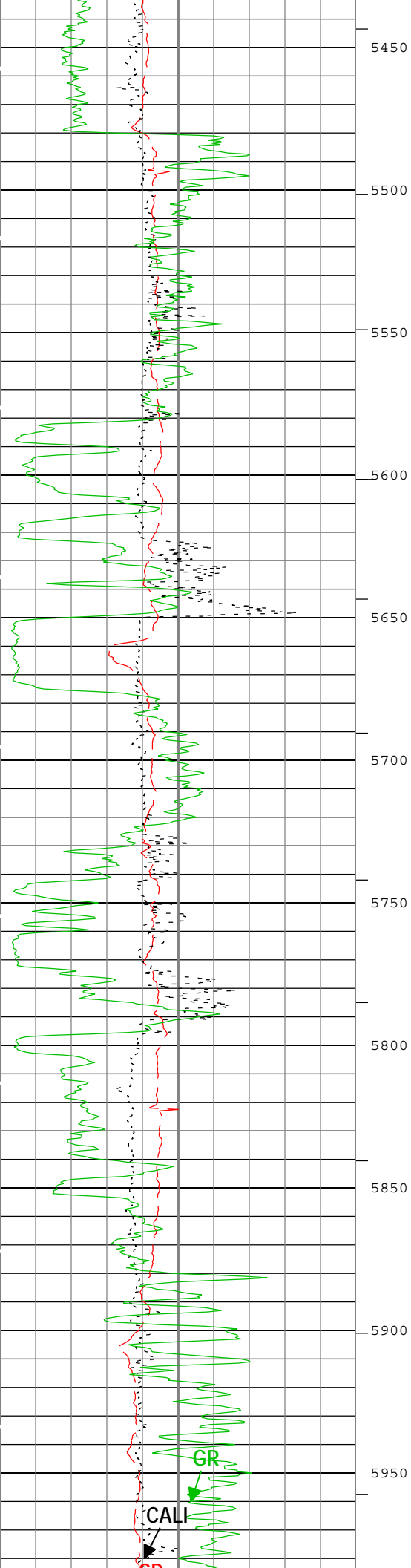


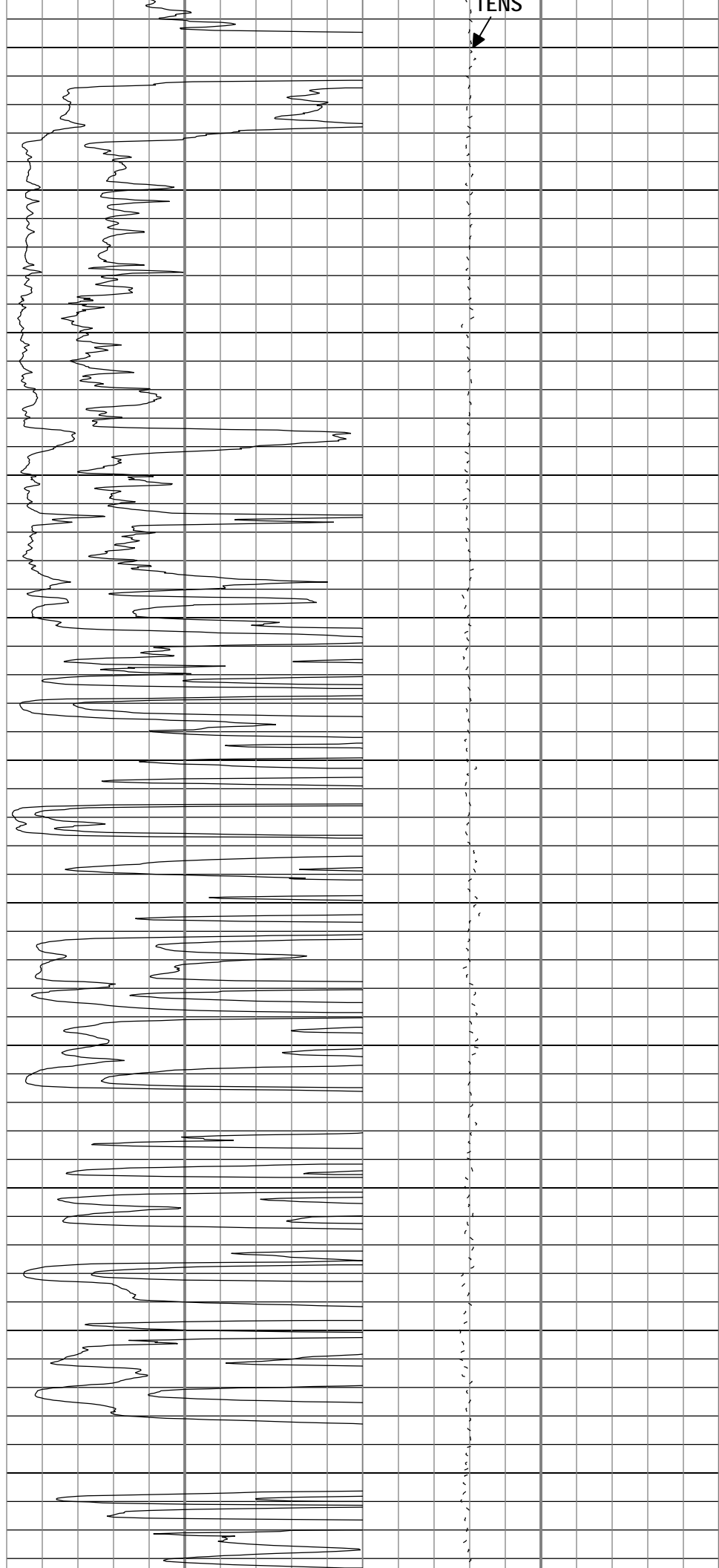
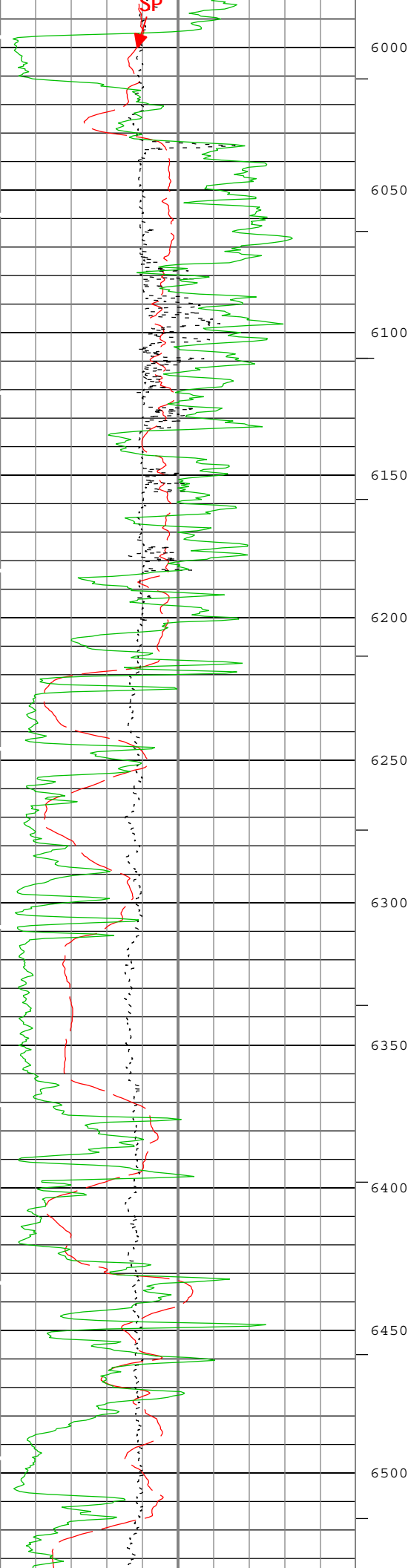


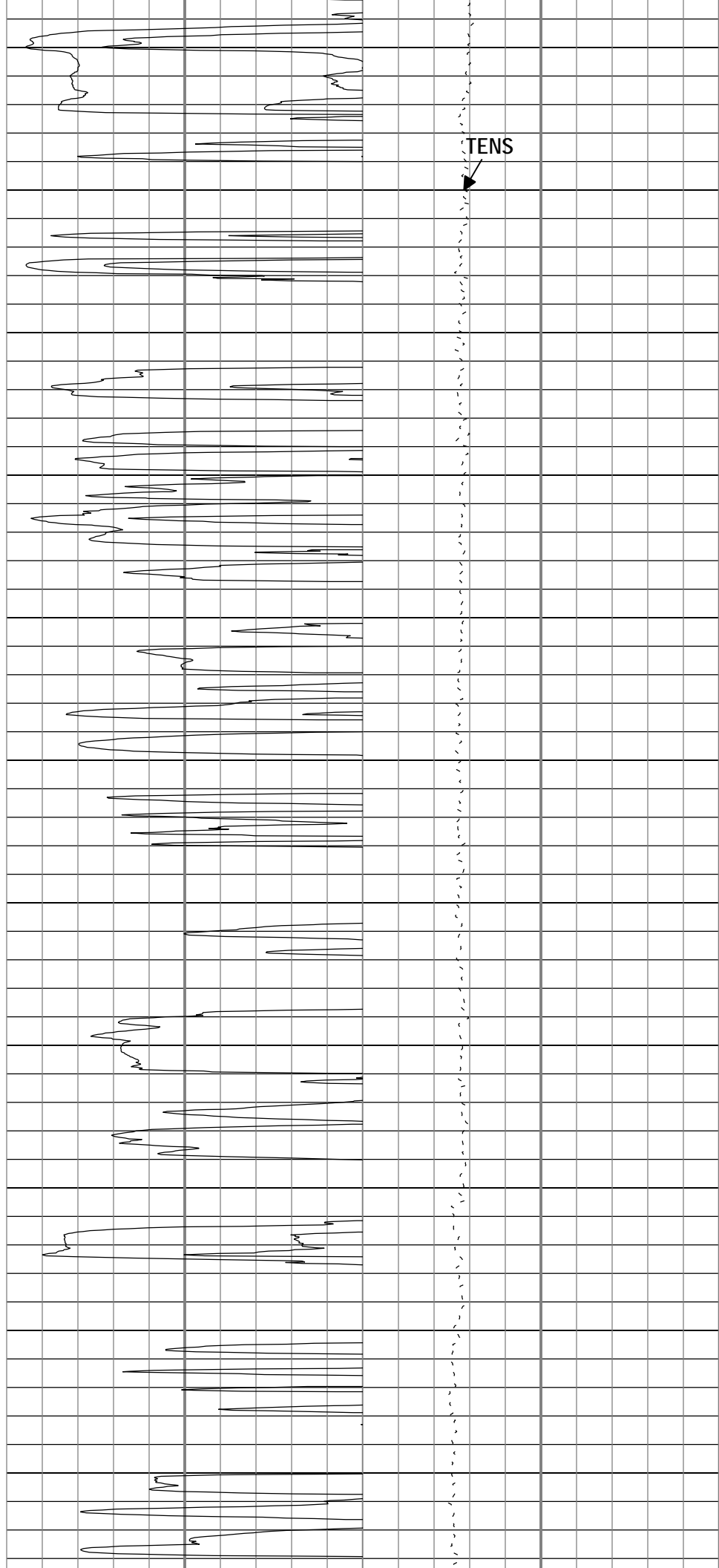
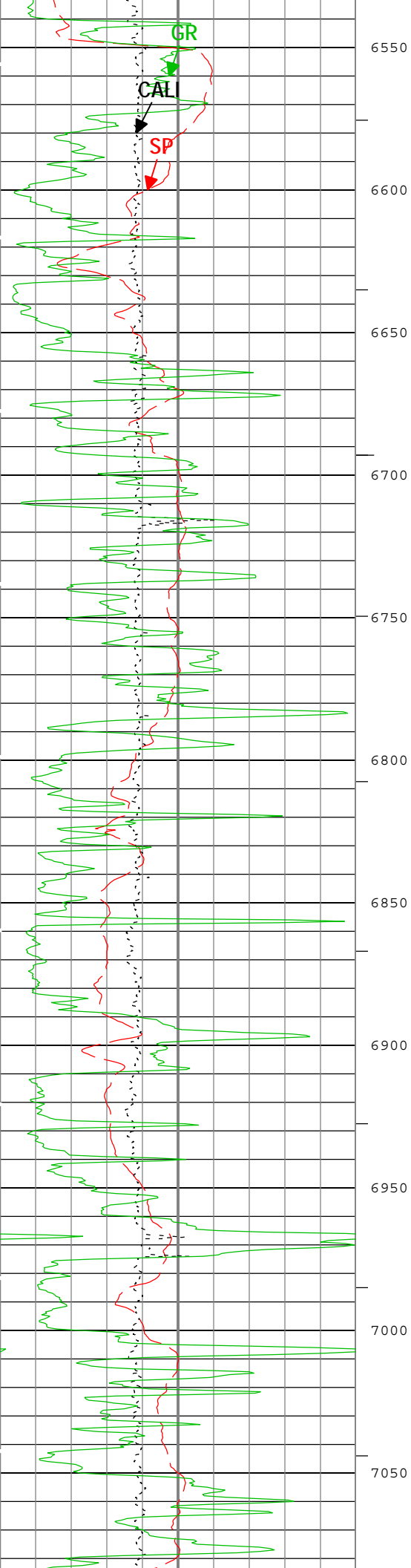


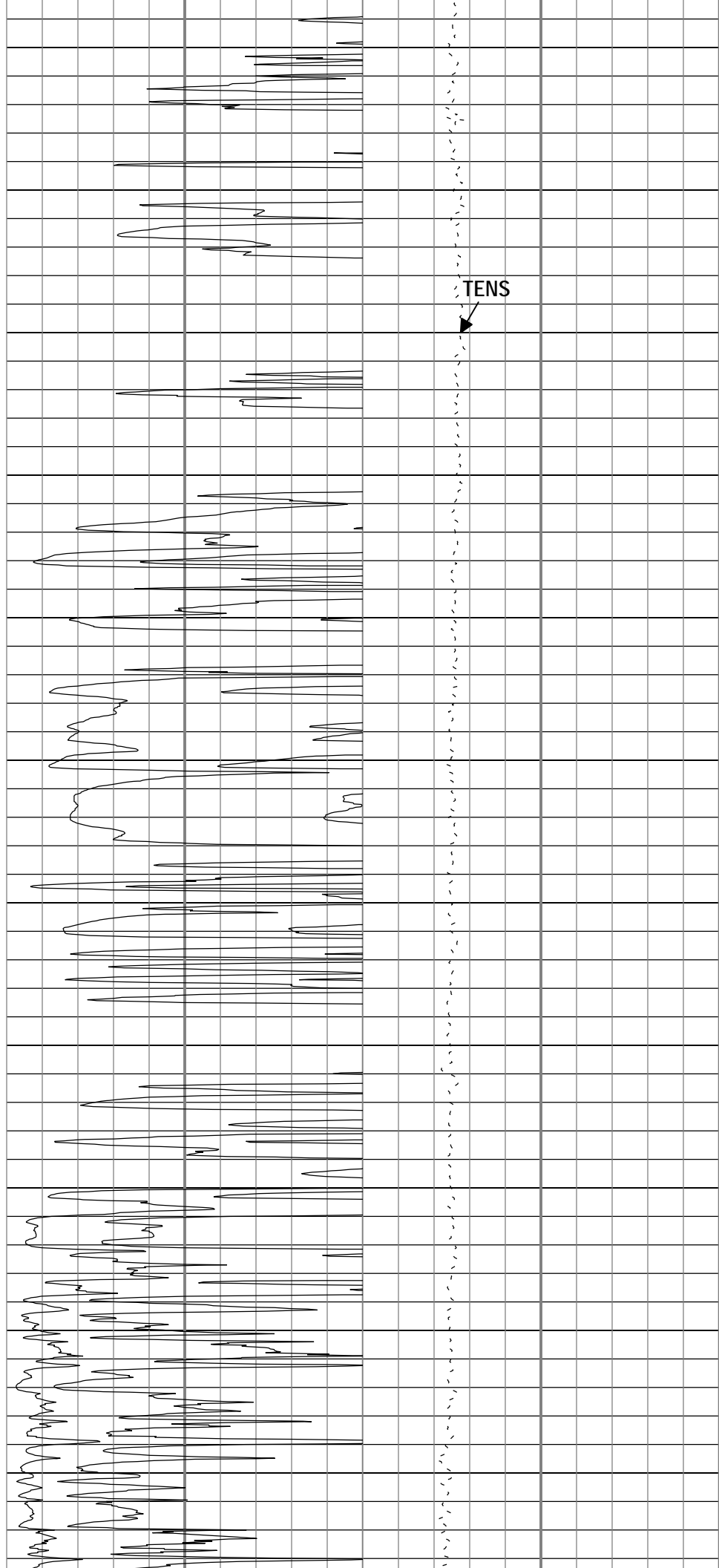
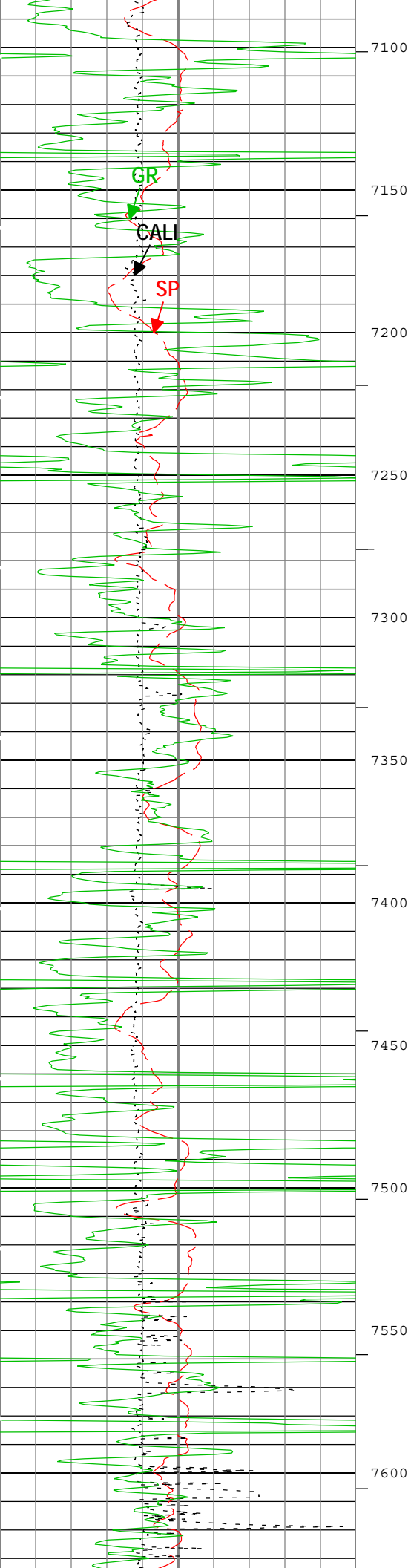


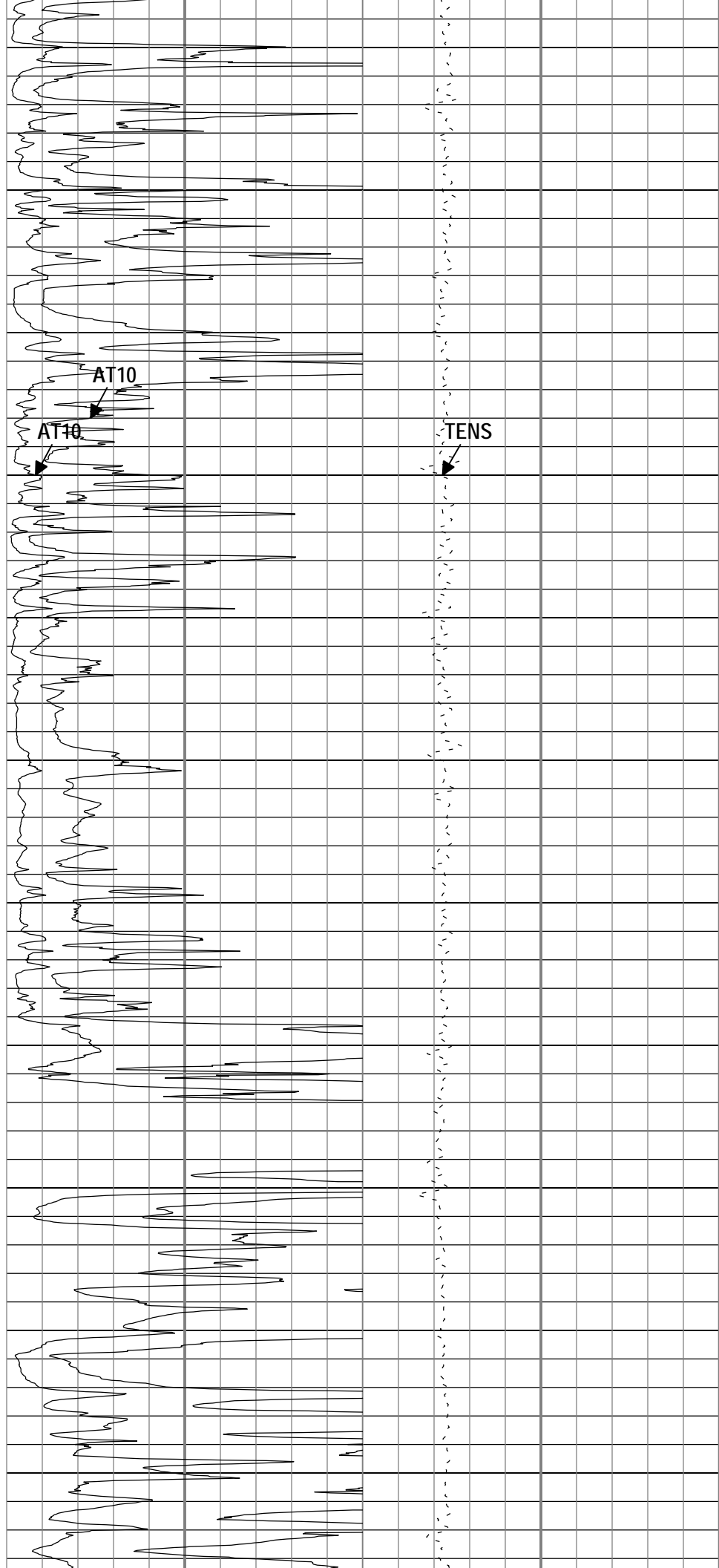
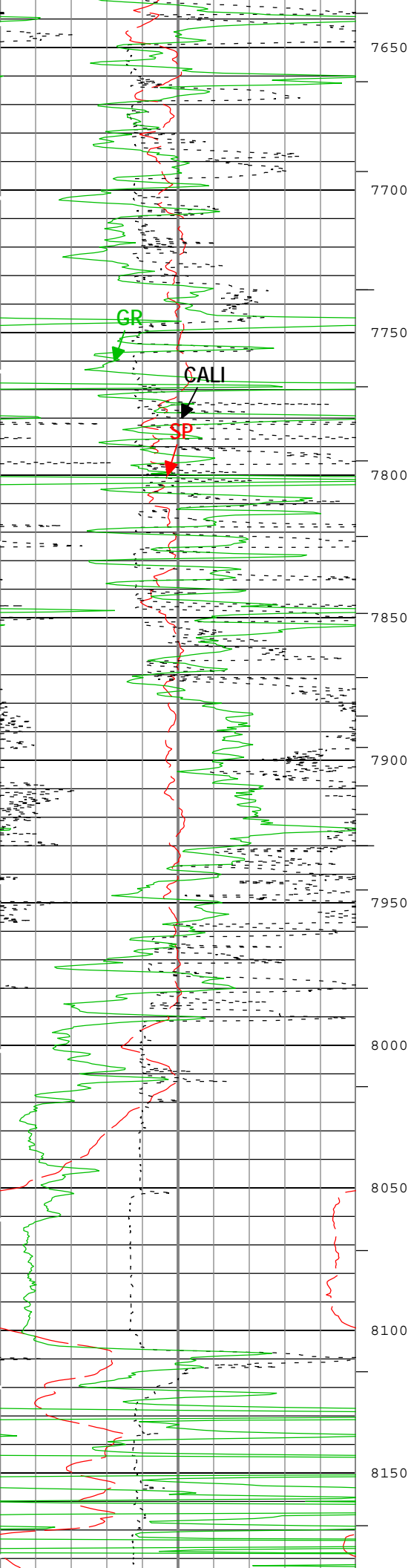




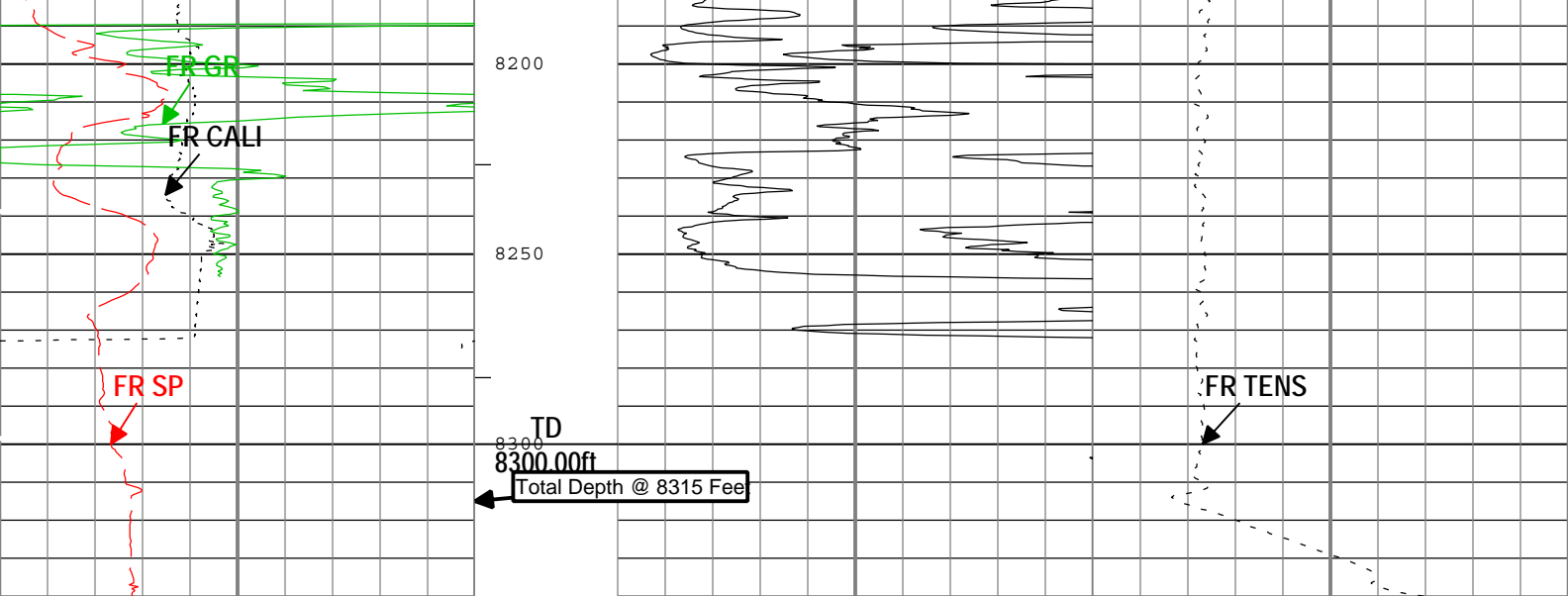












Gamma Ray Backup		
Spontaneous Potential (SP) AIT-H		
0	mV	200
Caliper (CALI) HDRS-B		
4	in	14
Gamma Ray (GR) HGNS-B		
0	gAPI	200

Array Induction Two Foot Resistivity A10 (AT10) AIT-H		
0	ohm.m	50
Array Induction Two Foot Resistivity A10 (AT10) AIT-H		
0	ohm.m	10

Cable Tension (TENS)		
5000	lbf	0

ICV - Integrated Cement Volume every 100.00 (ft3)  
ICV - Integrated Cement Volume every 10.00 (ft3)  
TIME\_1900 - Time Marked every 60.00 (s)

Description: AIT Basic Log Two Format: Log ( Import of Kerr McGee 2in Induction ) Index Scale: 2 in per 100 ft Index Unit: ft Index Type: Measured  
Depth Creation Date: 31-May-2013 22:20:06

Channel Processing Parameters				
Parameter	Description	Tool	Value	Unit
ABHM	Array Induction Borehole Correction Mode	AIT-H	Compute Standoff	
ABLM	Array Induction Basic Logs Mode	AIT-H	Normal	
ACDE	Array Induction Casing Detection Enable	AIT-H	Yes	
ASTA	Array Induction Tool Standoff	AIT-H	1	in
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
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	
GRSE	Generalized Mud Resistivity Selection, from Measured or Computed Mud Resistivity	Borehole	AMF	
SOCO	Standoff Correction Option	HGNS-B	Yes	
SPDR	SP Drift Per Foot	AIT-H	0	mV/ft

## Depth Zone Parameters

Parameter	Value	Start ( ft )	Stop ( ft )
BS	0	189.5	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

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

Tool Elements	Description	Software Version	Firmware Version
AHIS	Array Induction Sonde - H	3.1.9755.1574	
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

All depths are referenced to toolstring zero

Log	Run 1: Main[3]:Up				
Description: AIT Basic Log Two    Format: Log ( KM 5in Induction Upper )    Index Scale: 5 in per 100 ft    Index Unit: ft    Index Type: Measured Depth    Creation Date: 31-May-2013 22:20:08					

Channel	Source	Sampling
AT10	AIT-H:AHIS:AHIS	3in
AT20	AIT-H:AHIS:AHIS	3in
AT30	AIT-H:AHIS:AHIS	3in
AT60	AIT-H:AHIS:AHIS	3in
AT90	AIT-H:AHIS:AHIS	3in
CALI	HDRS-B:HRCC-B:HRCC-B	1in
GR	HGNS-B:HGNS-B:HGNS-B	6in
ICV	Borehole	6in
IHV	Borehole	6in
SP	AIT-H:AHIS:AHIS	6in
TENS	WLWorkflow	6in
TIME_1900	WLWorkflow	0.1in

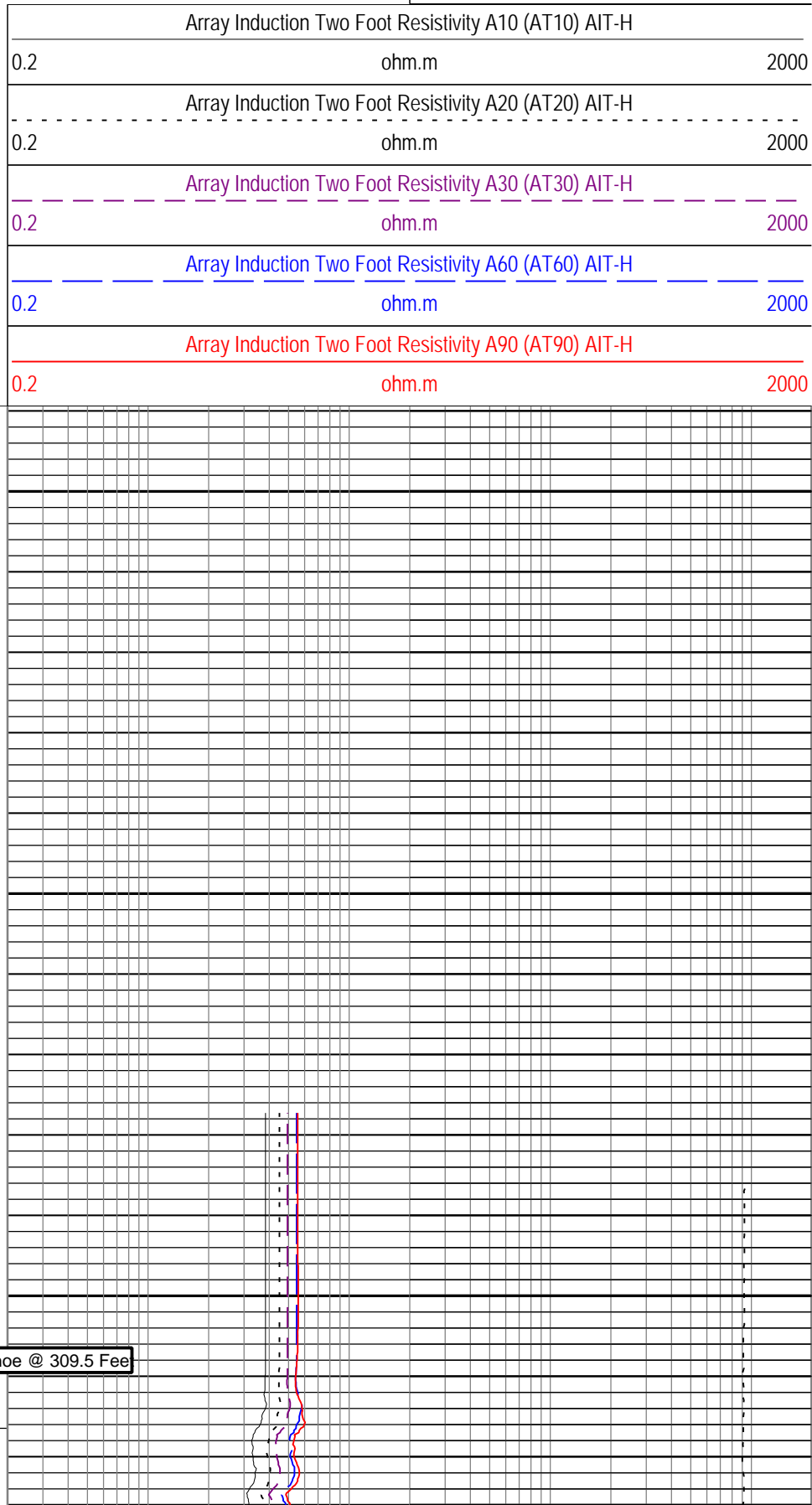
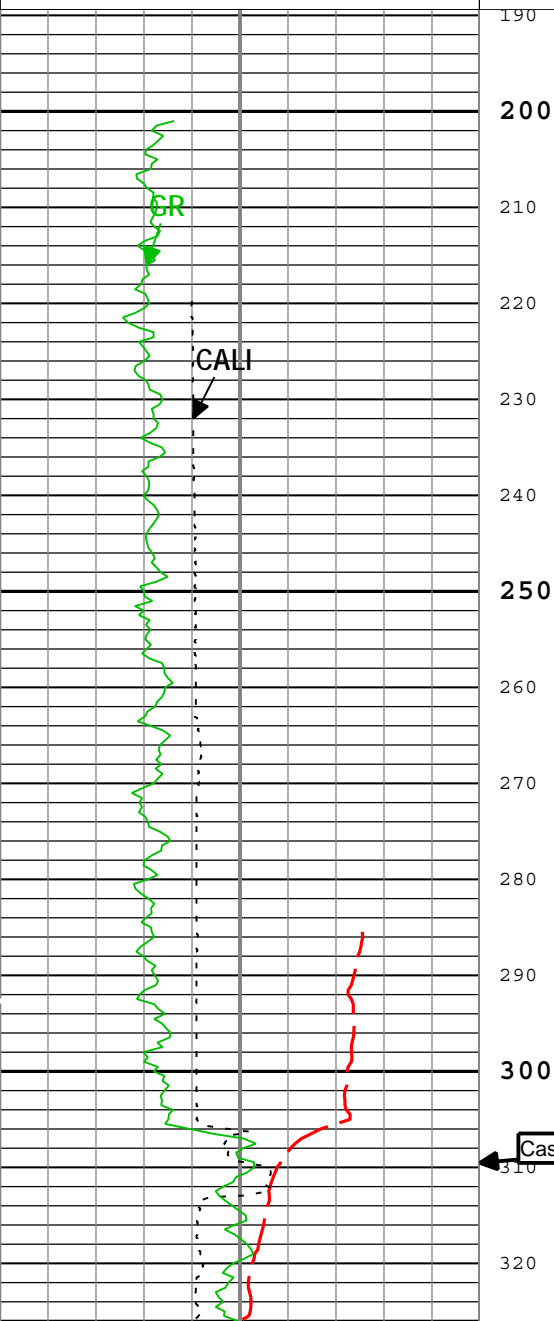
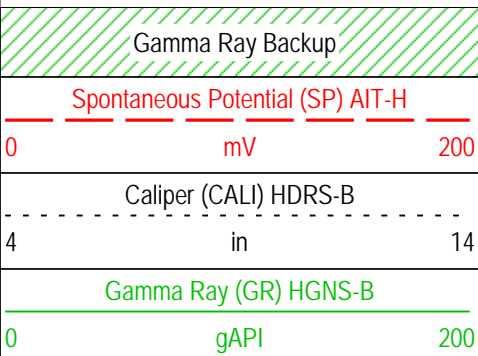
—IHV - Integrated Hole Volume every 10.00 (ft3)  
—IHV - Integrated Hole Volume every 100.00 (ft3)

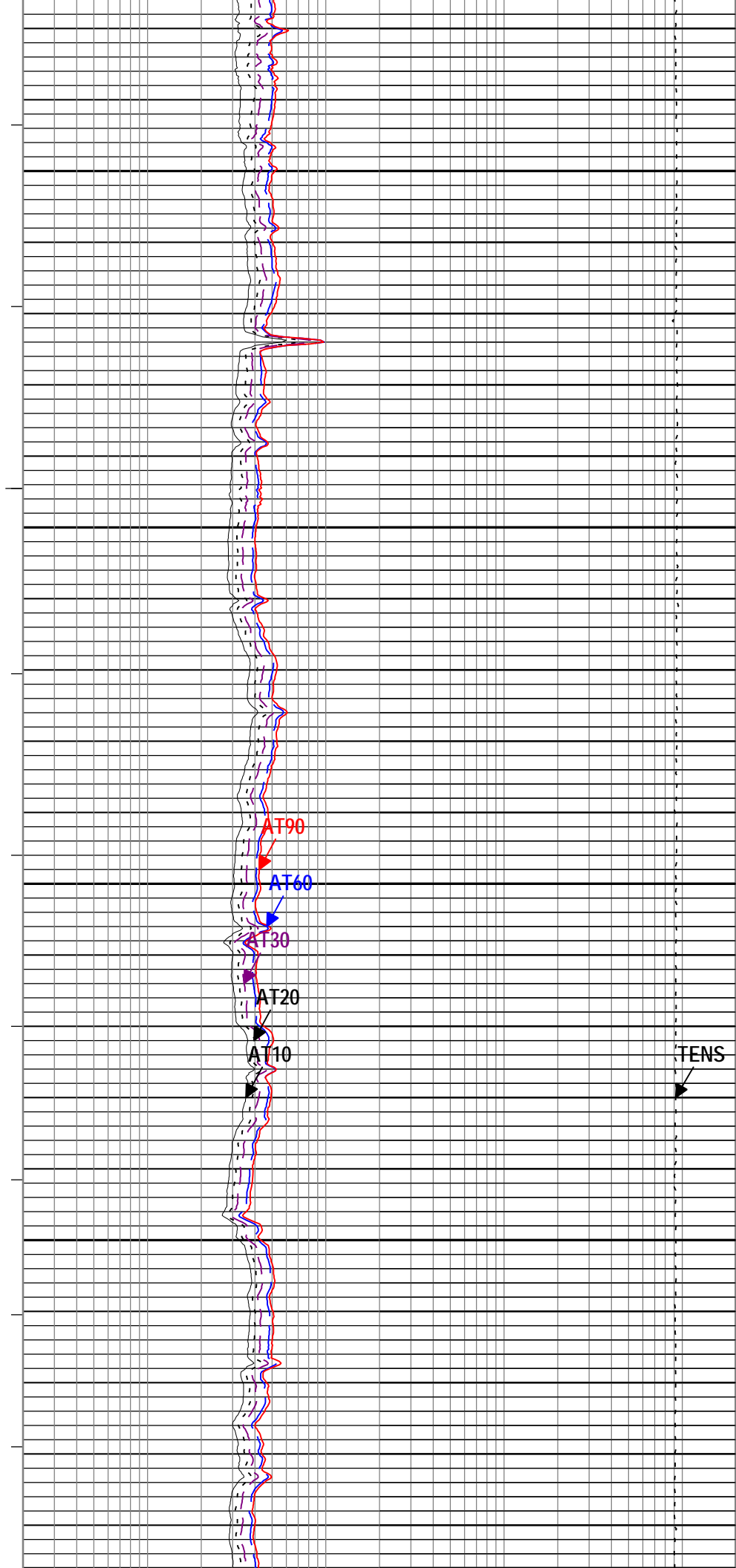
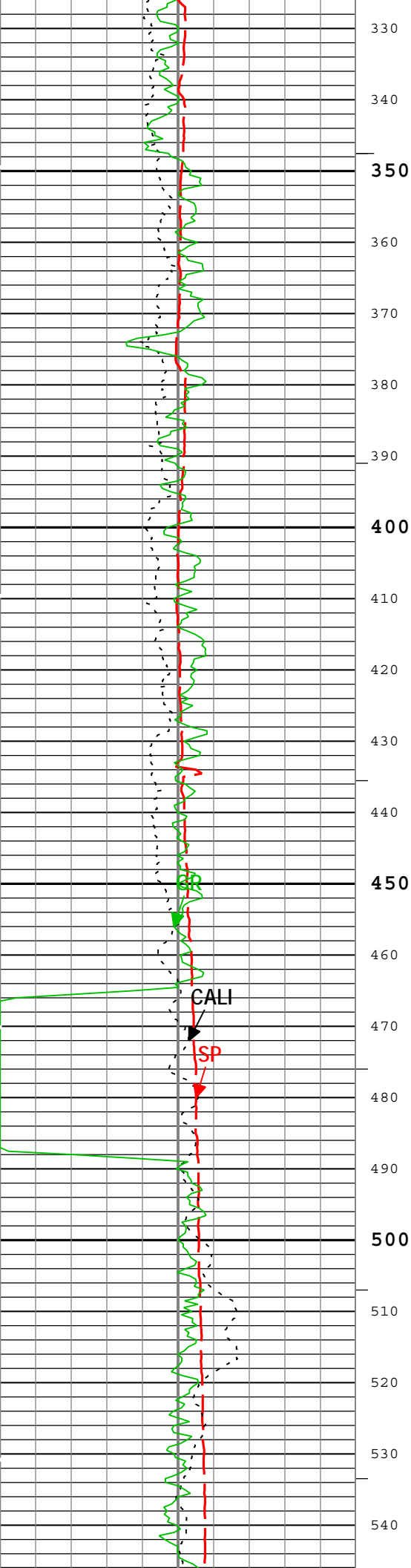
TIME\_1900 - Time Marked every 60.00 (s)

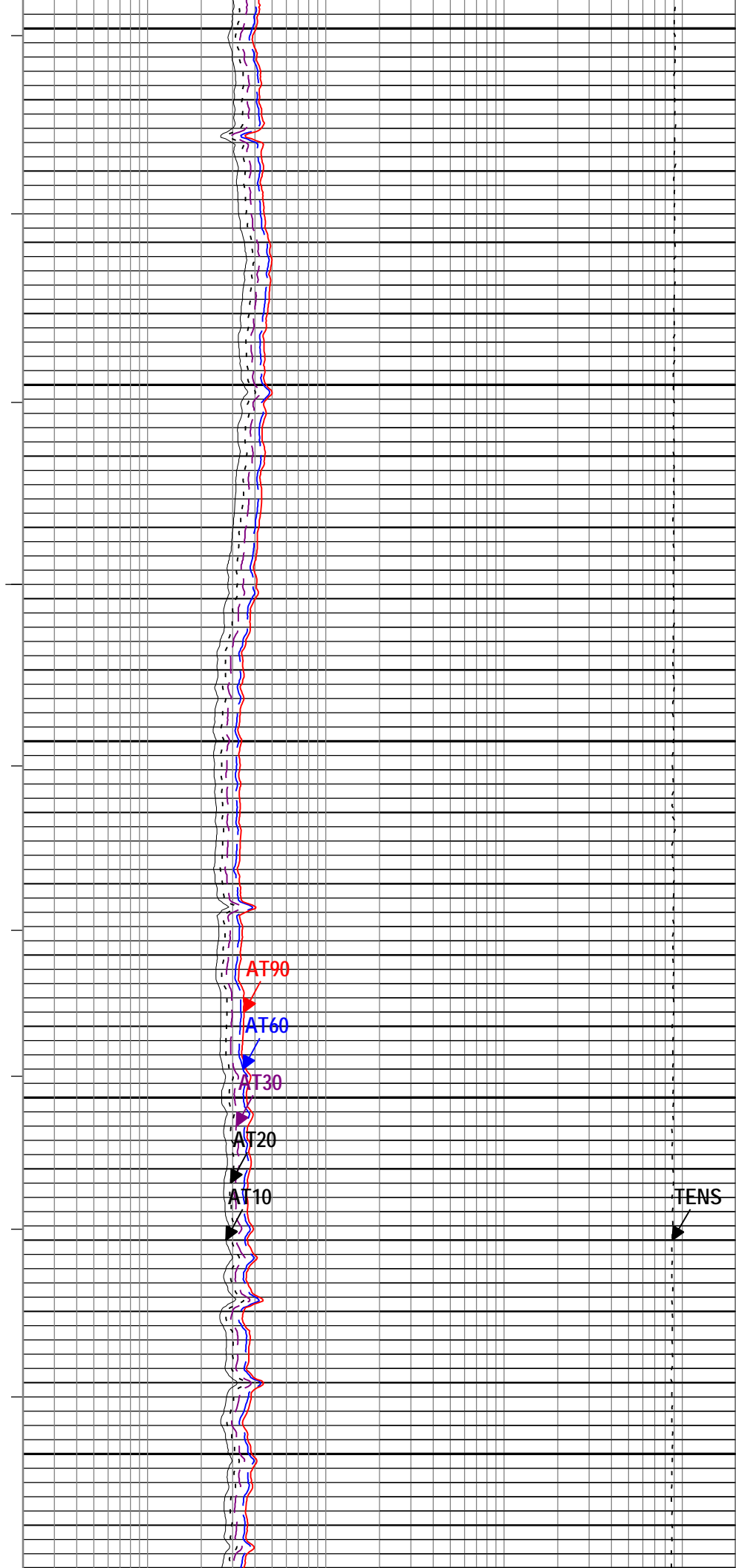
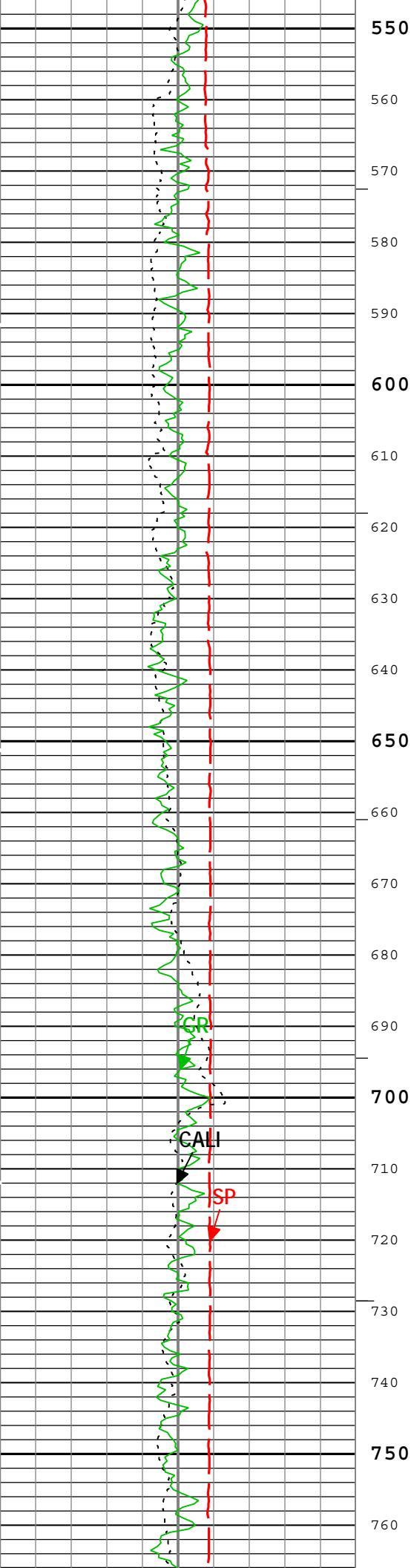
—ICV - Integrated Cement Volume every 10.00 (ft3)

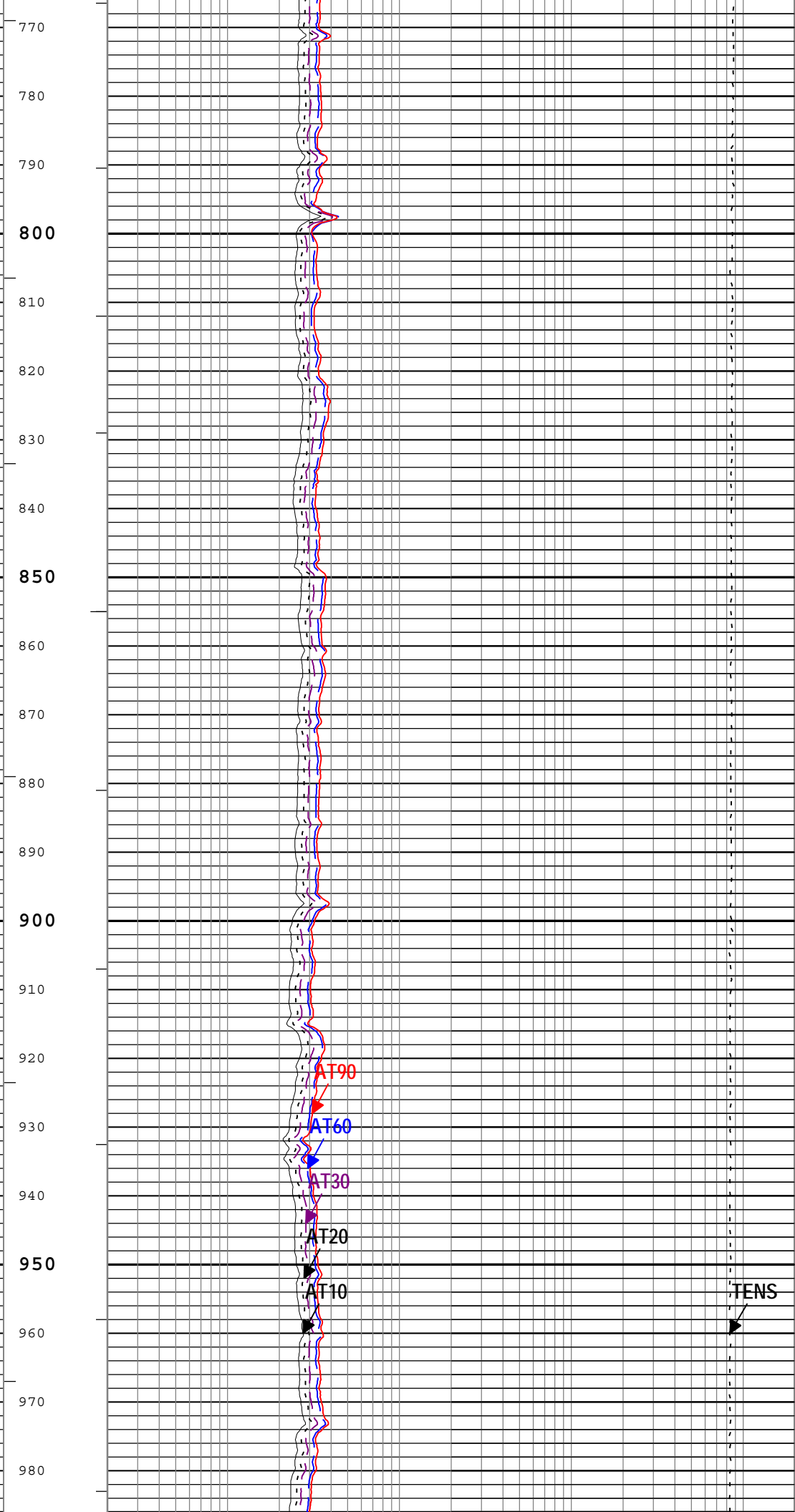
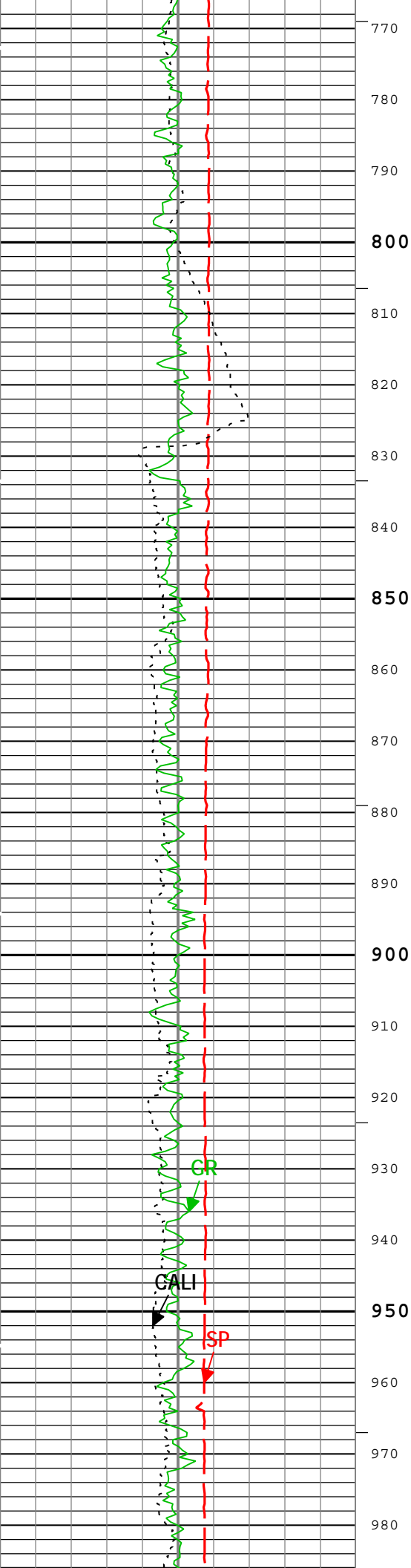
—ICV - Integrated Cement Volume every 100.00 (ft3)

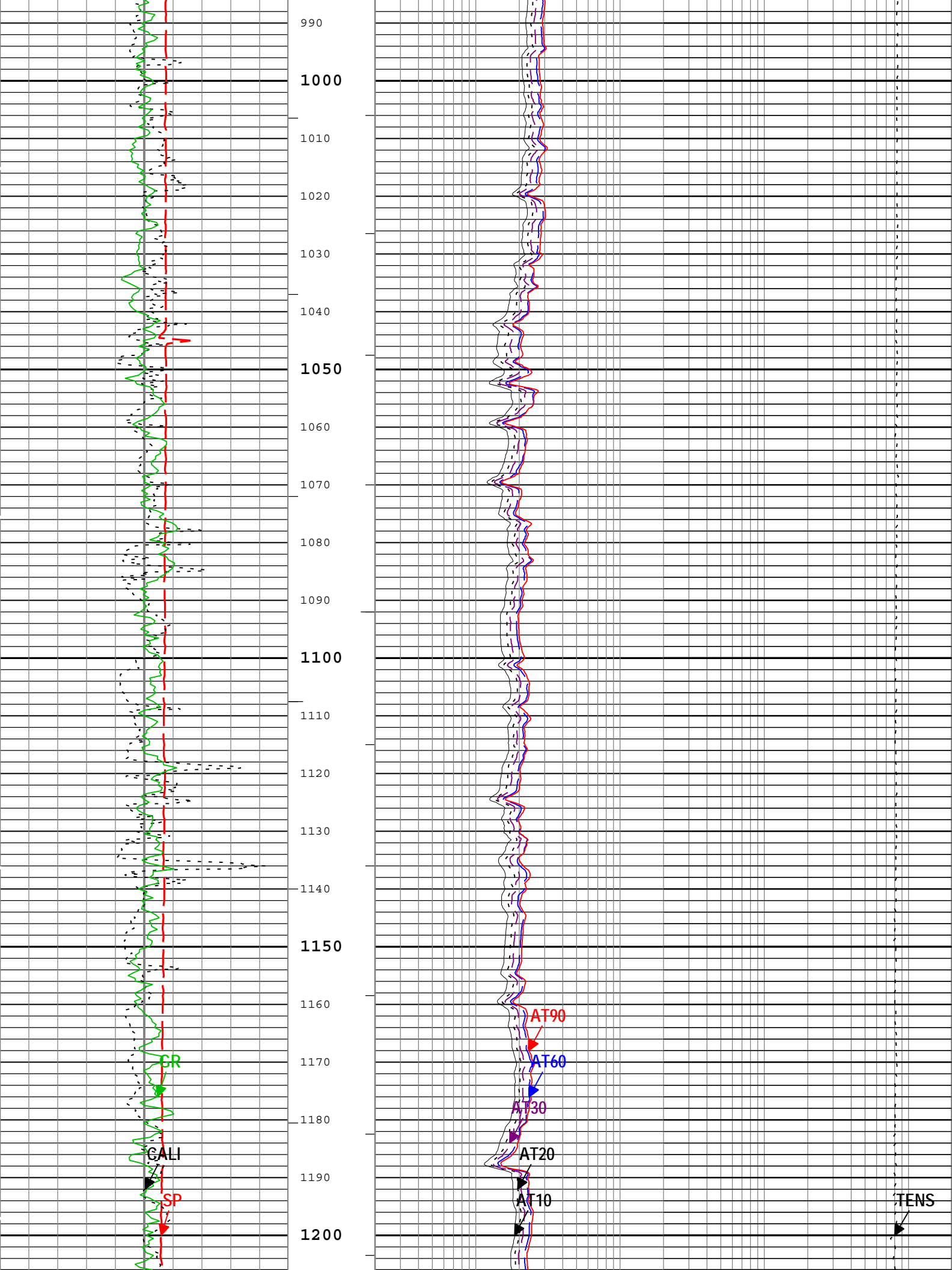
Cable Tension (TENS)		
10000	lbf	0

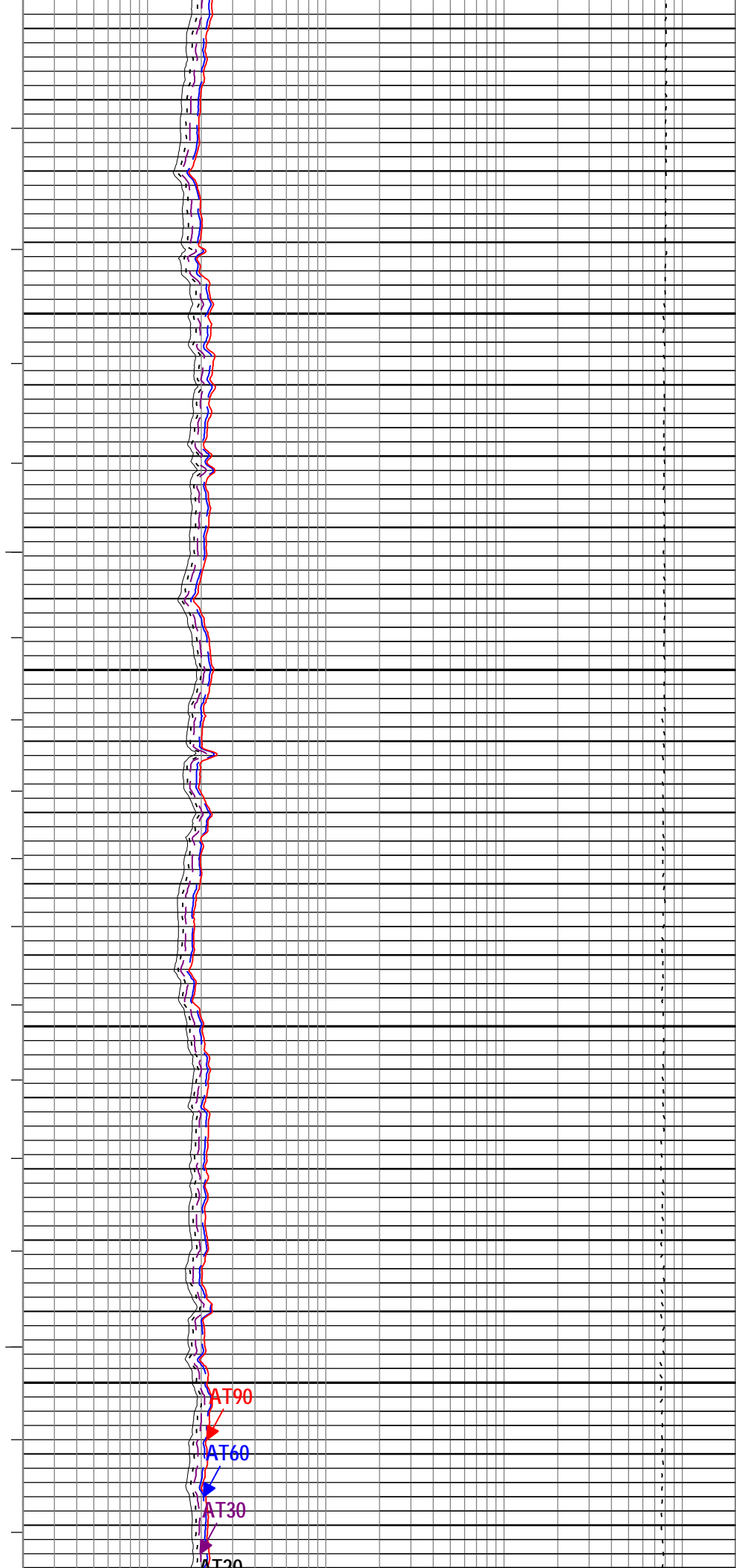
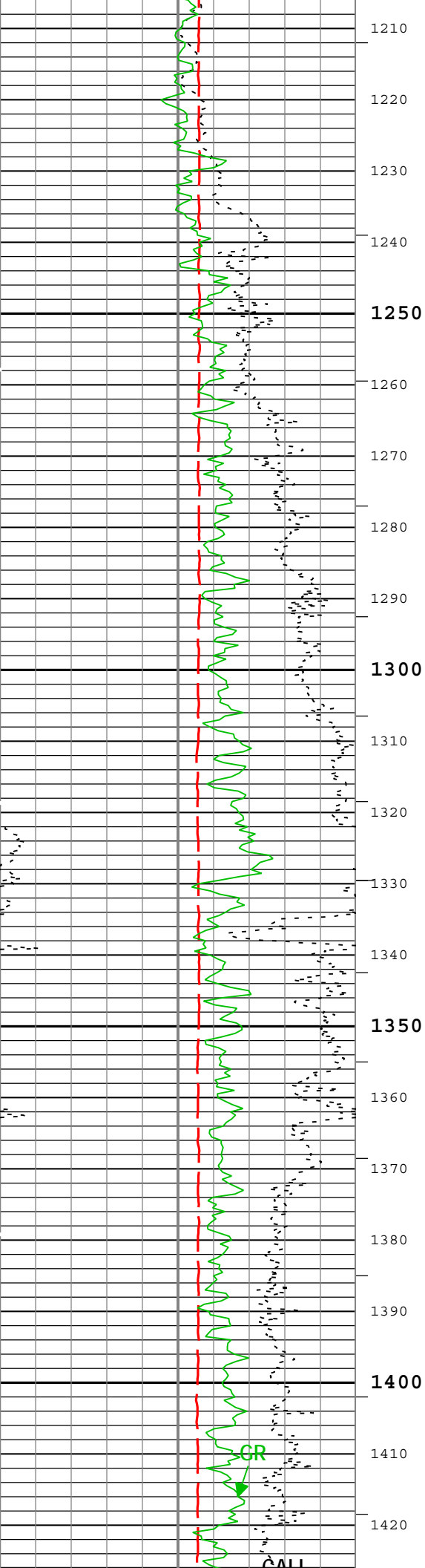




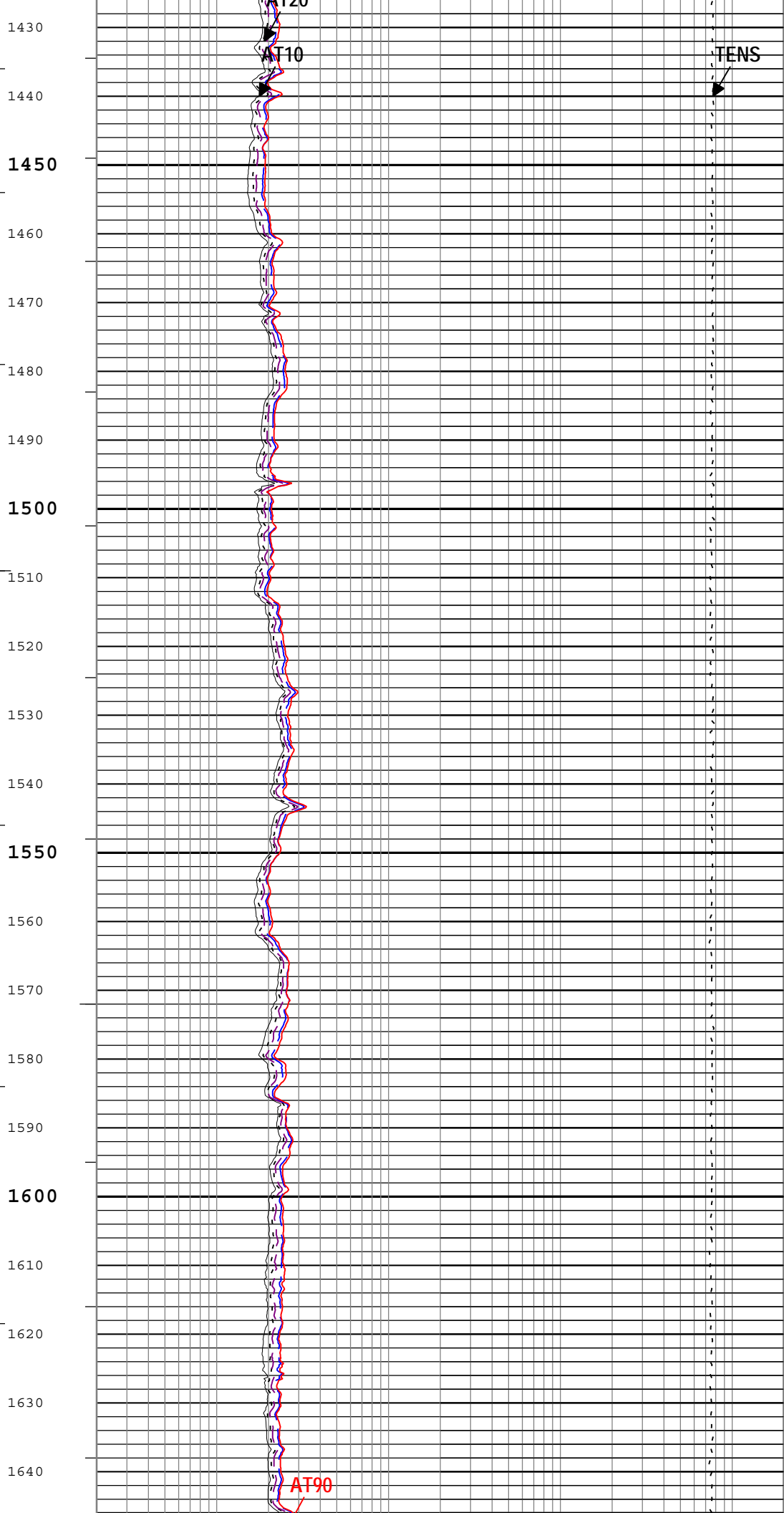
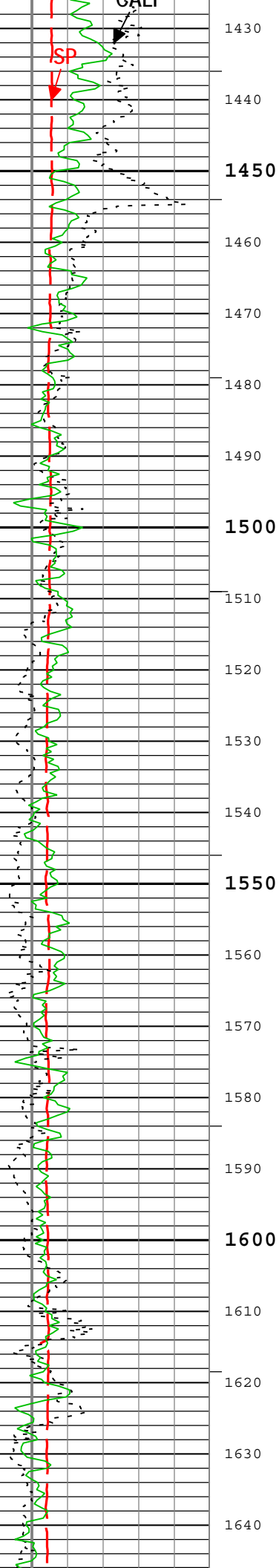


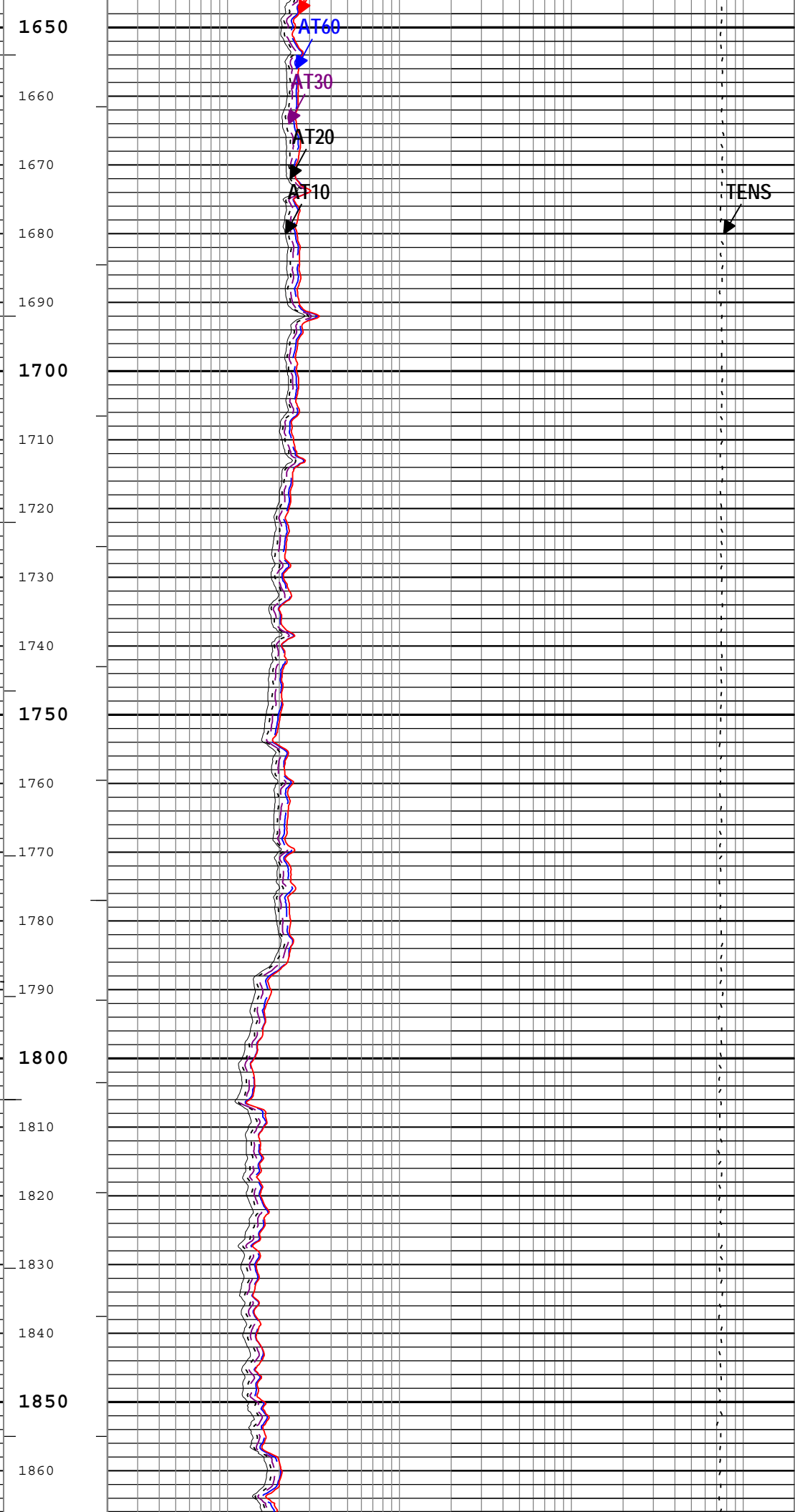
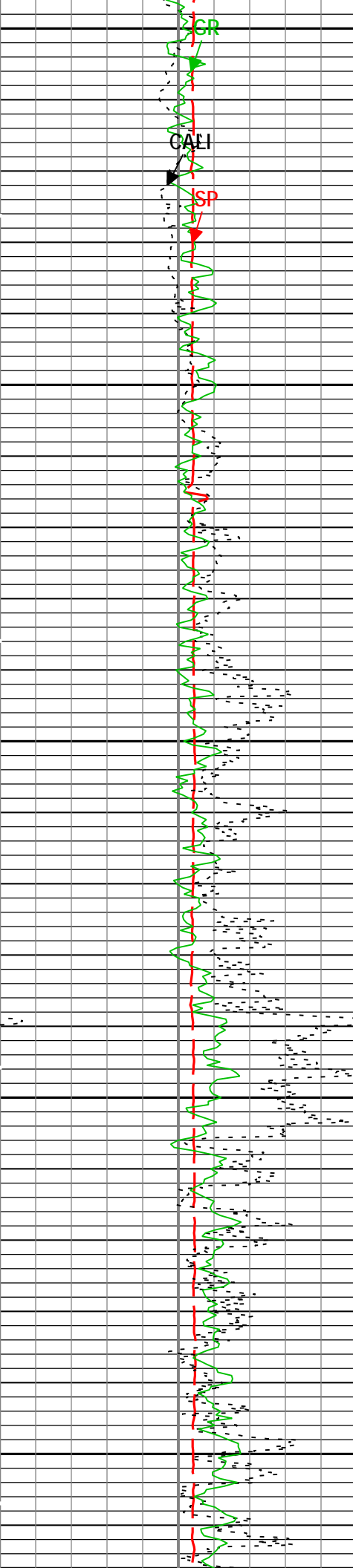


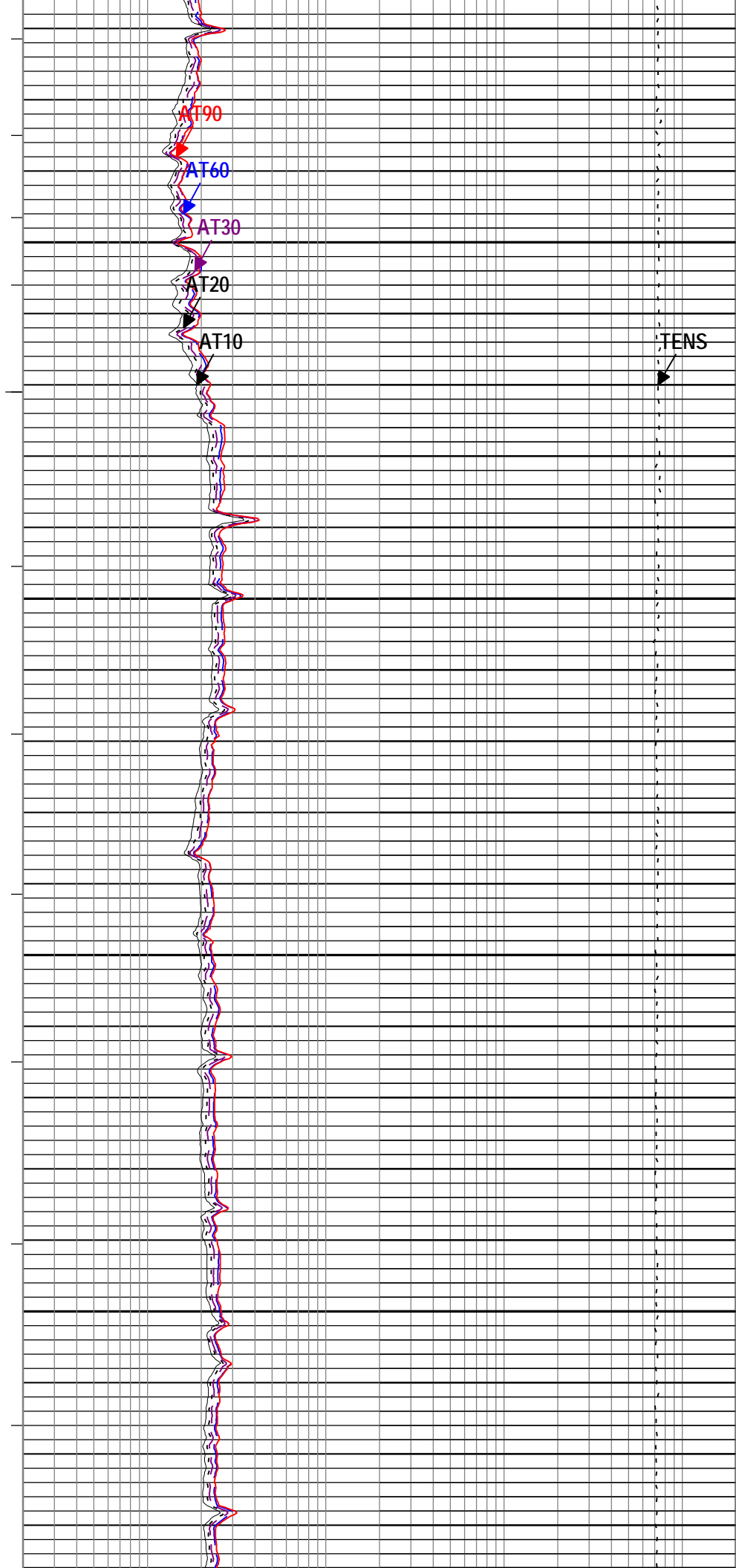
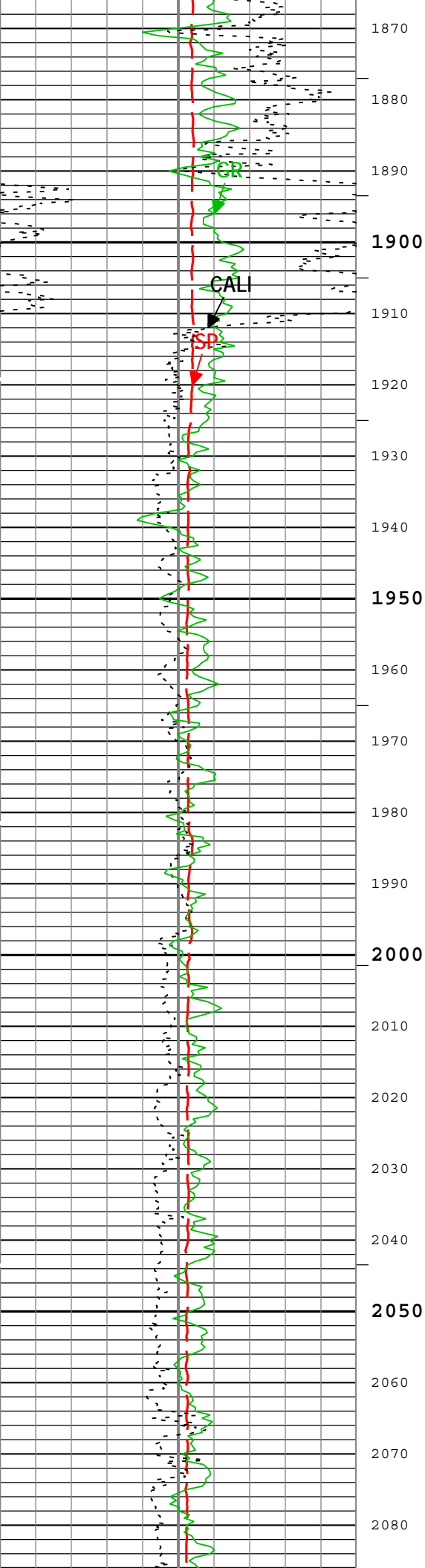


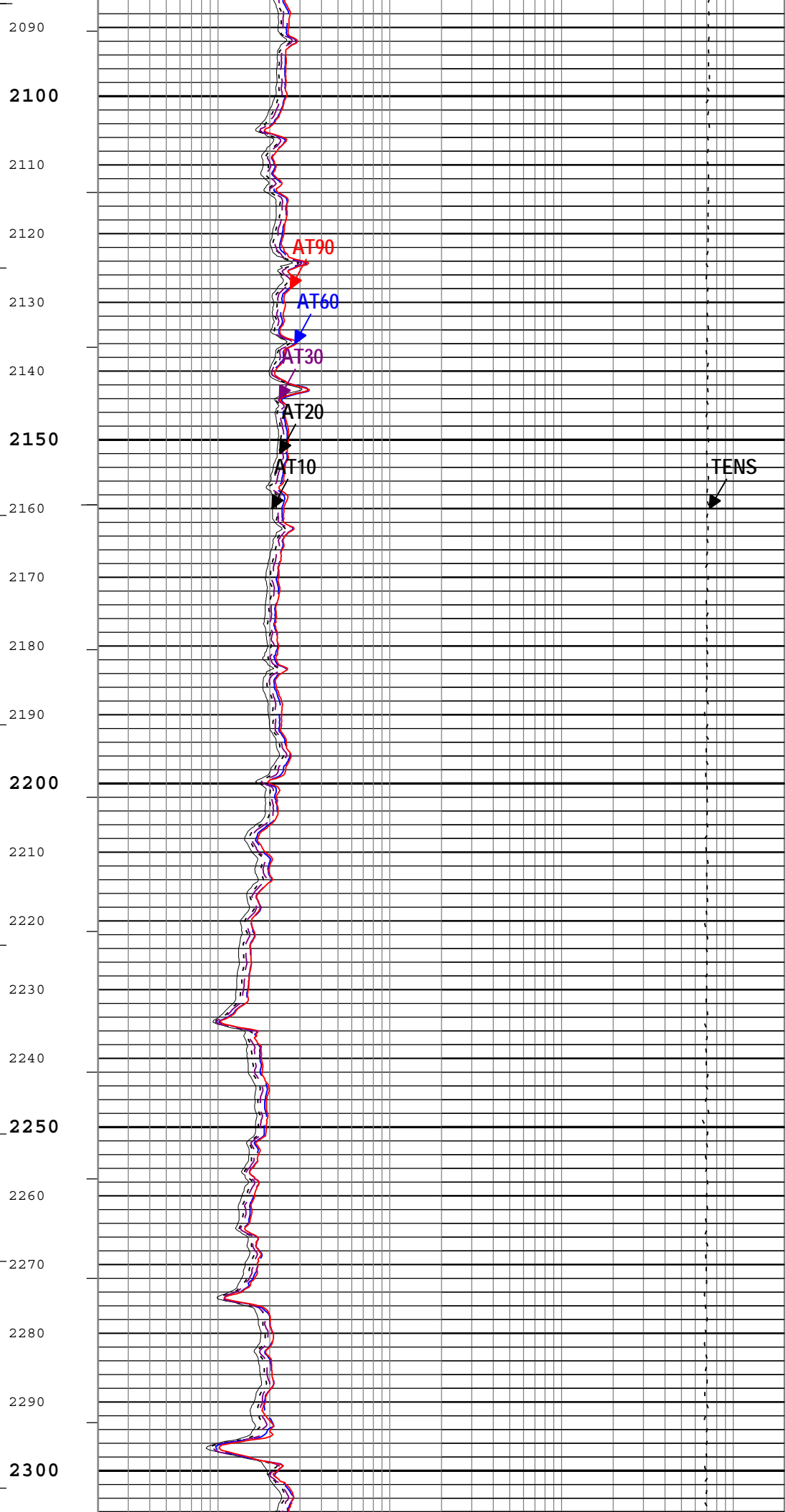
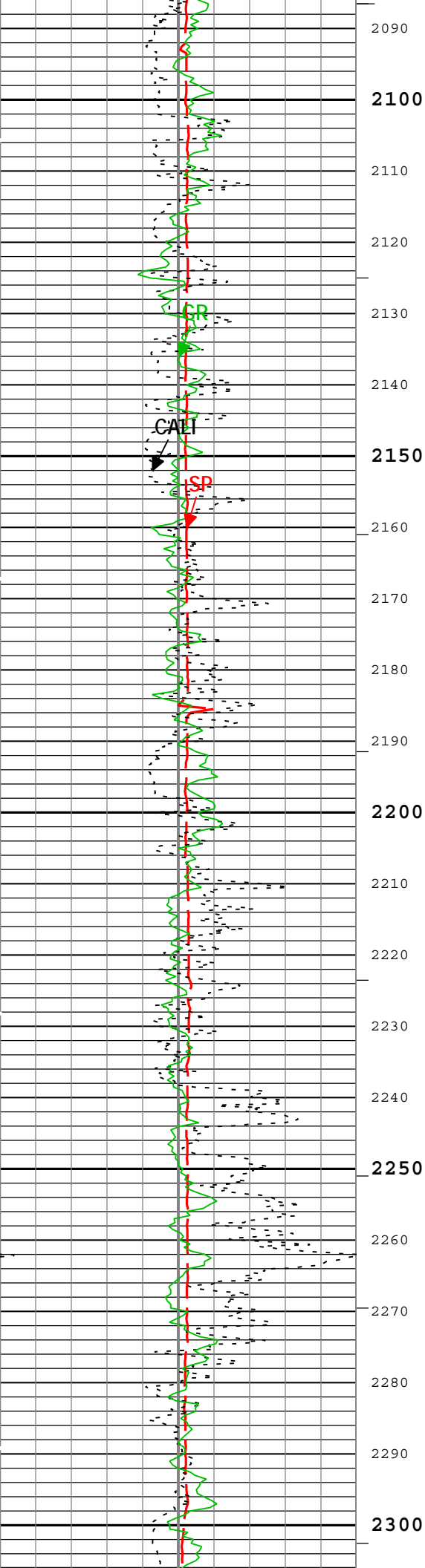


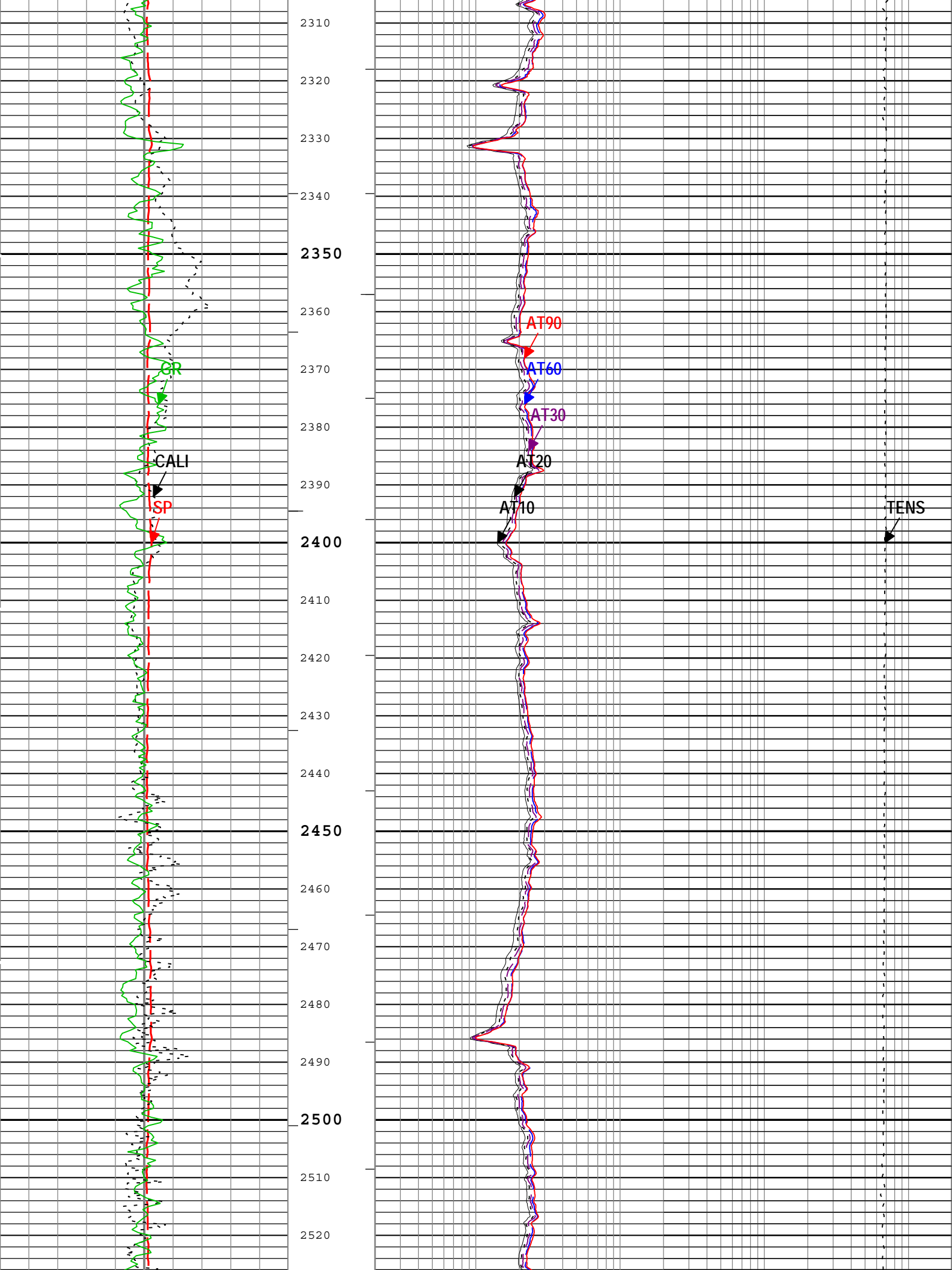


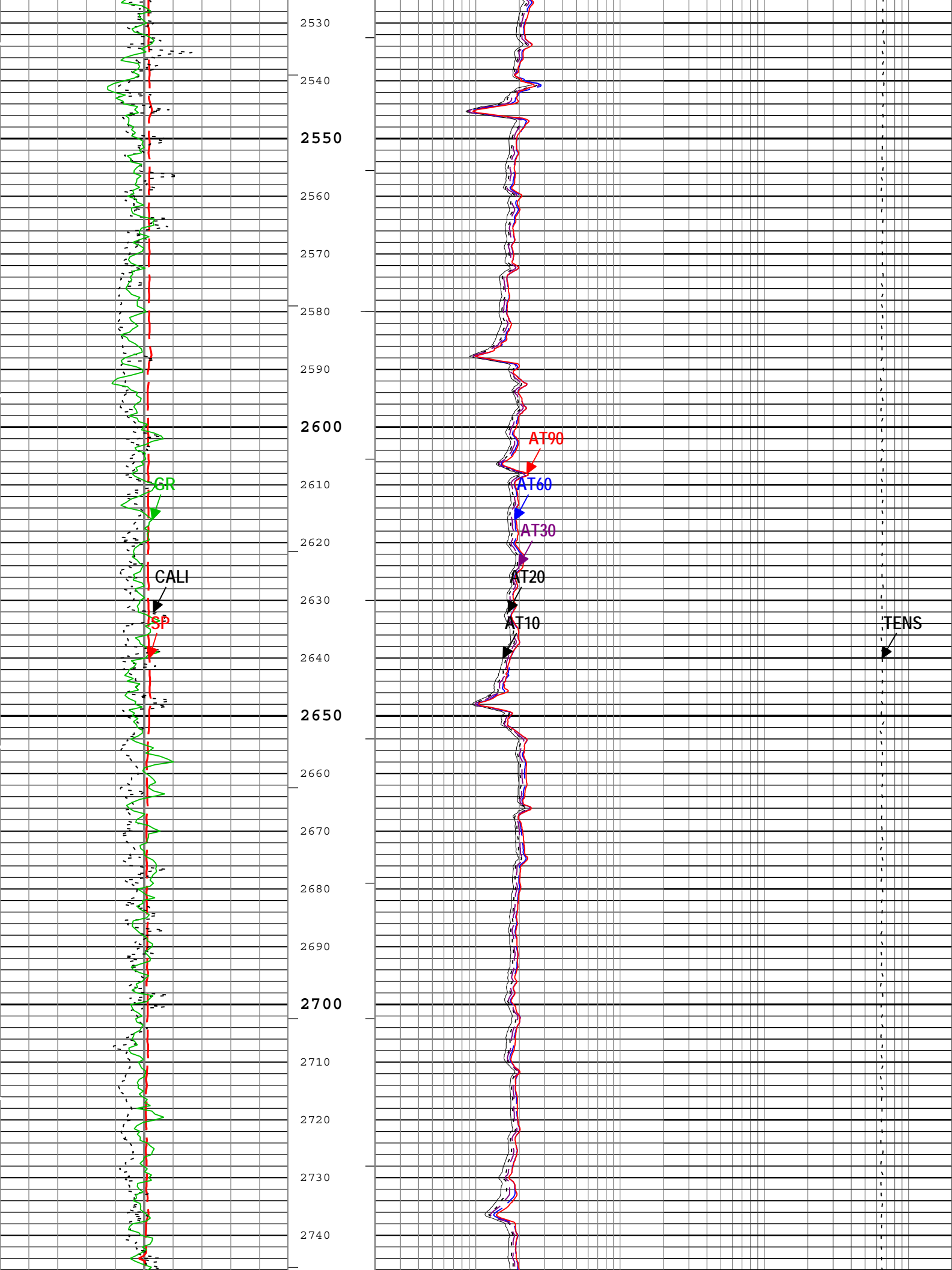


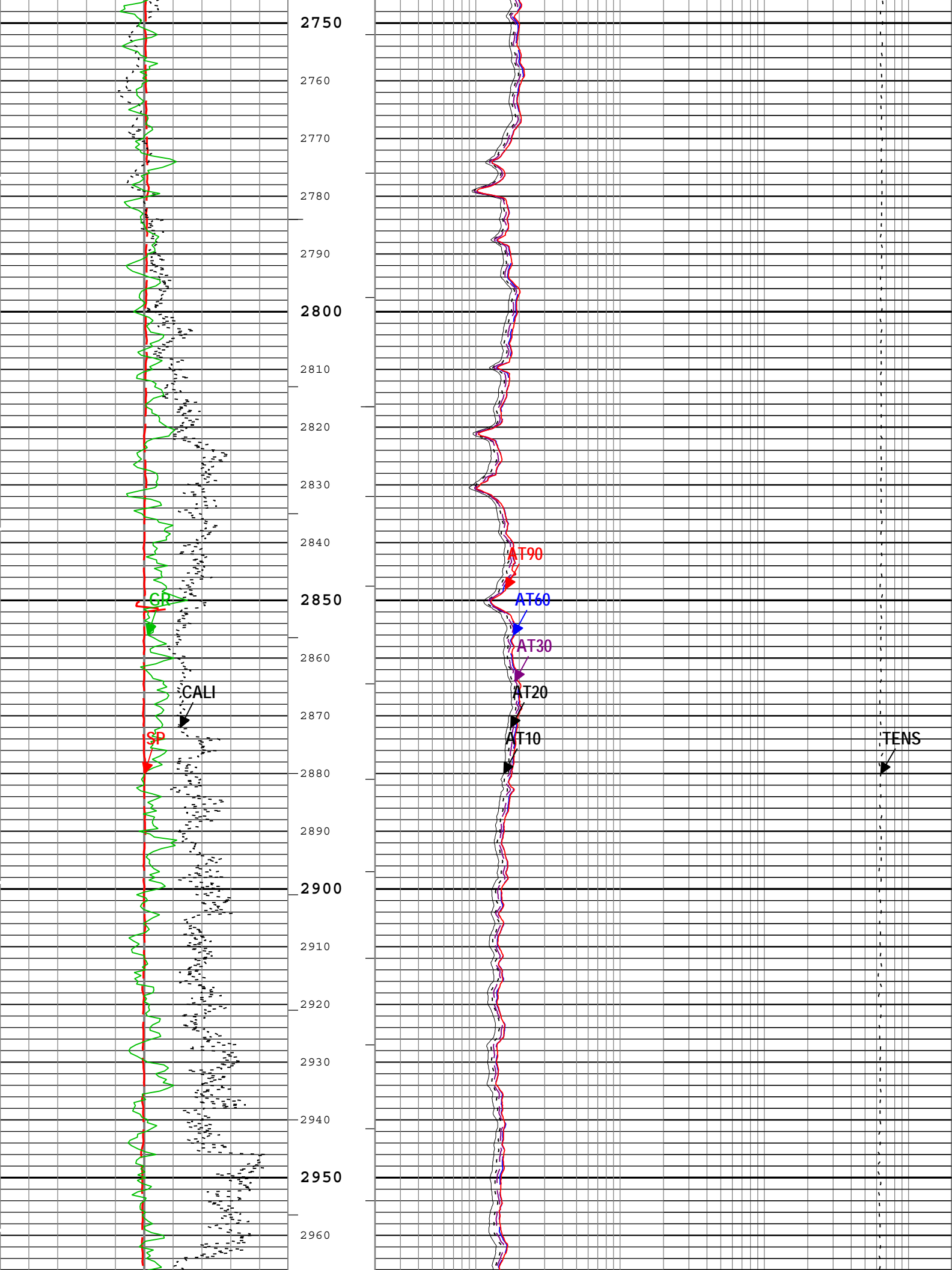


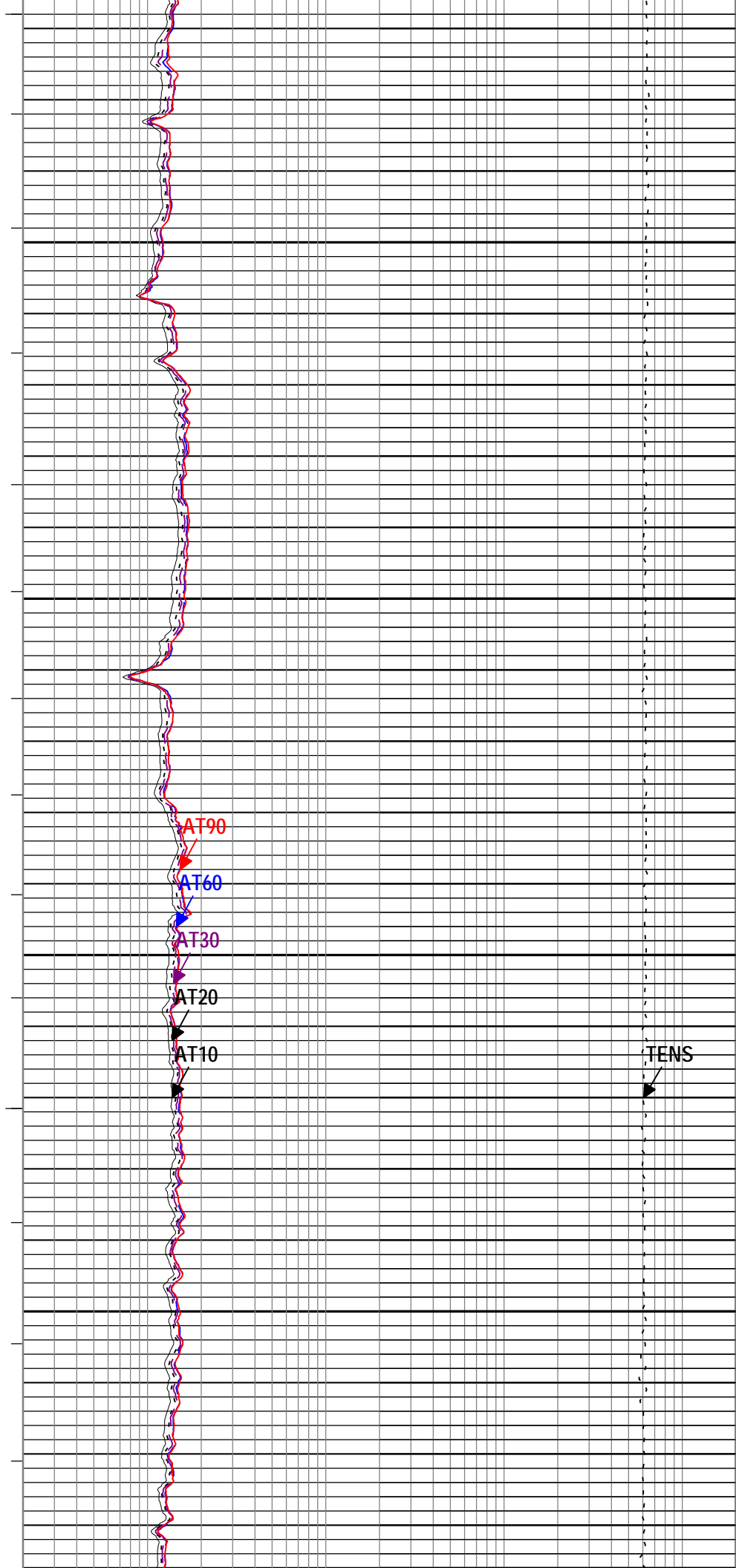
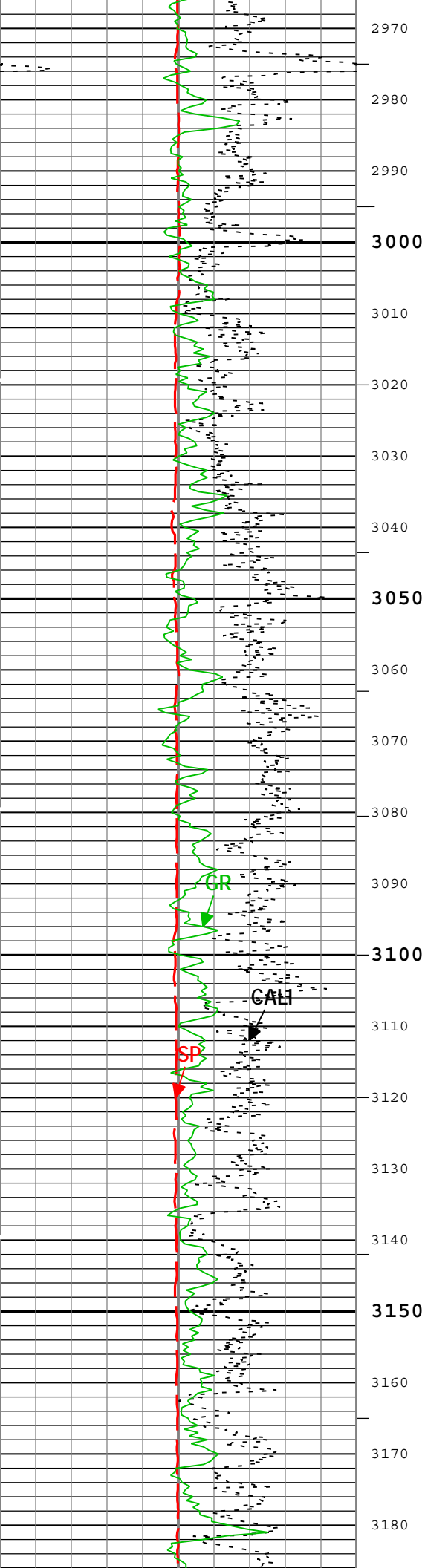




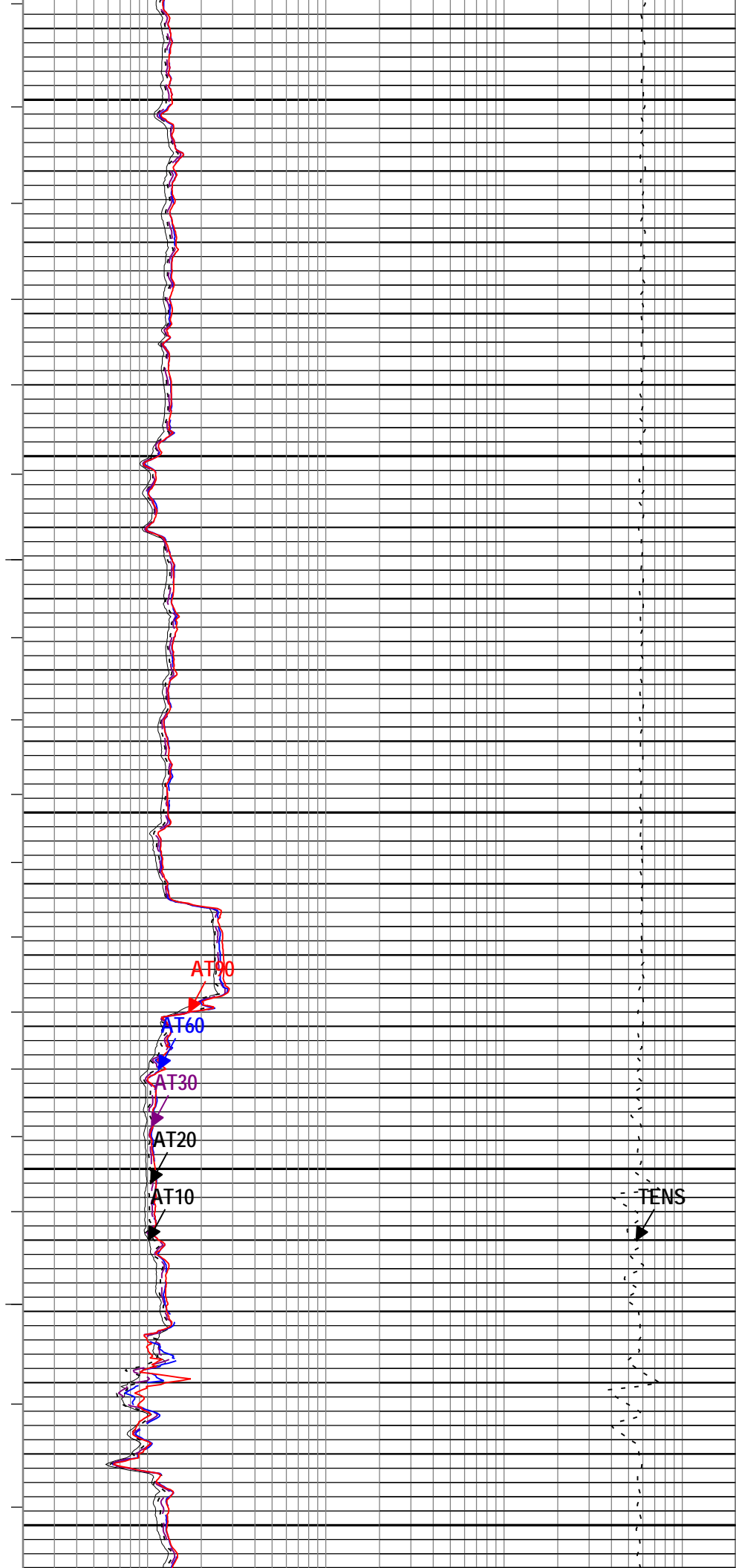
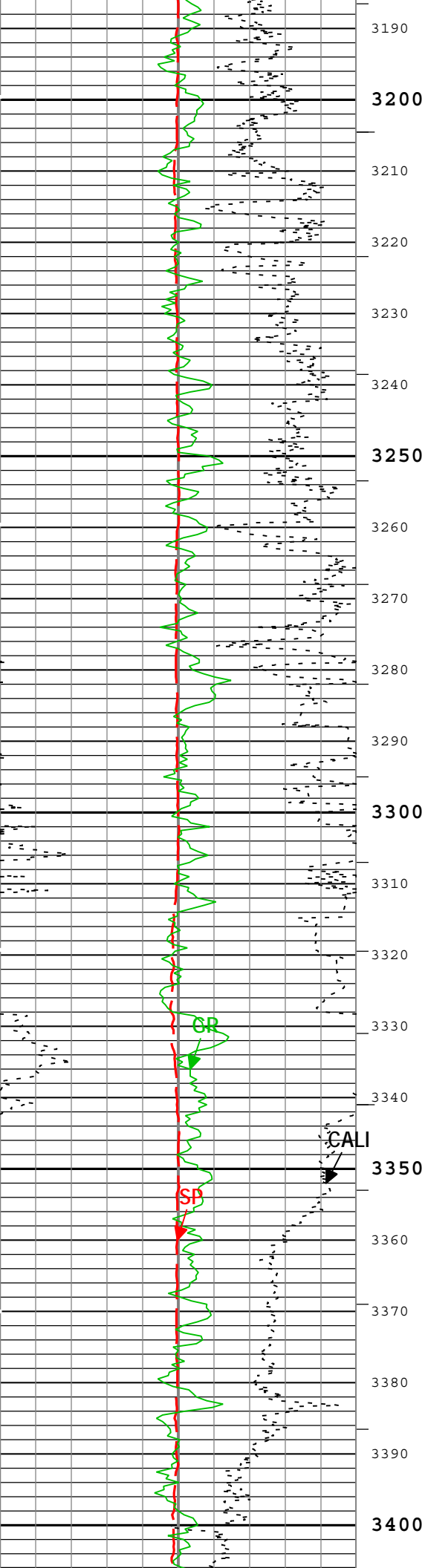


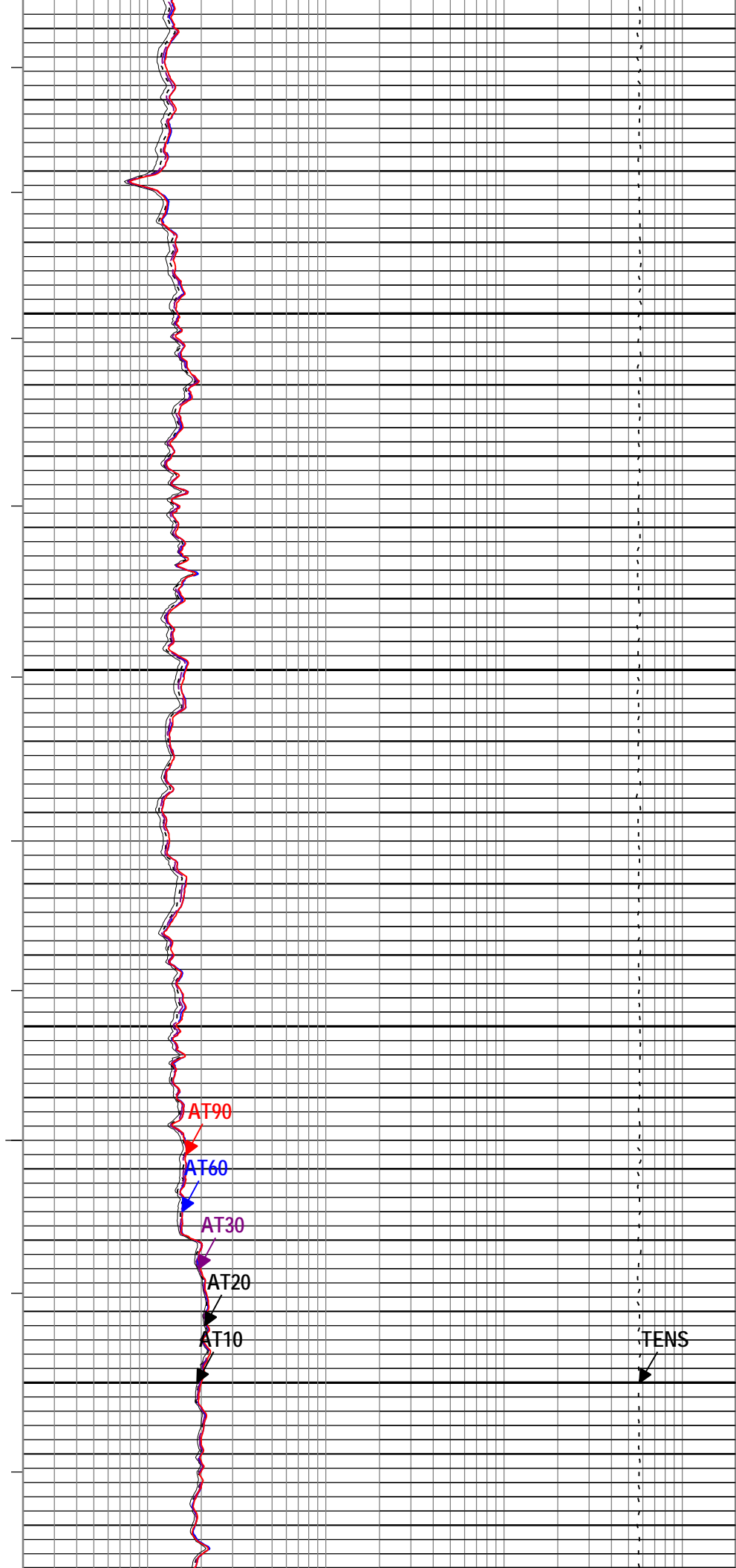
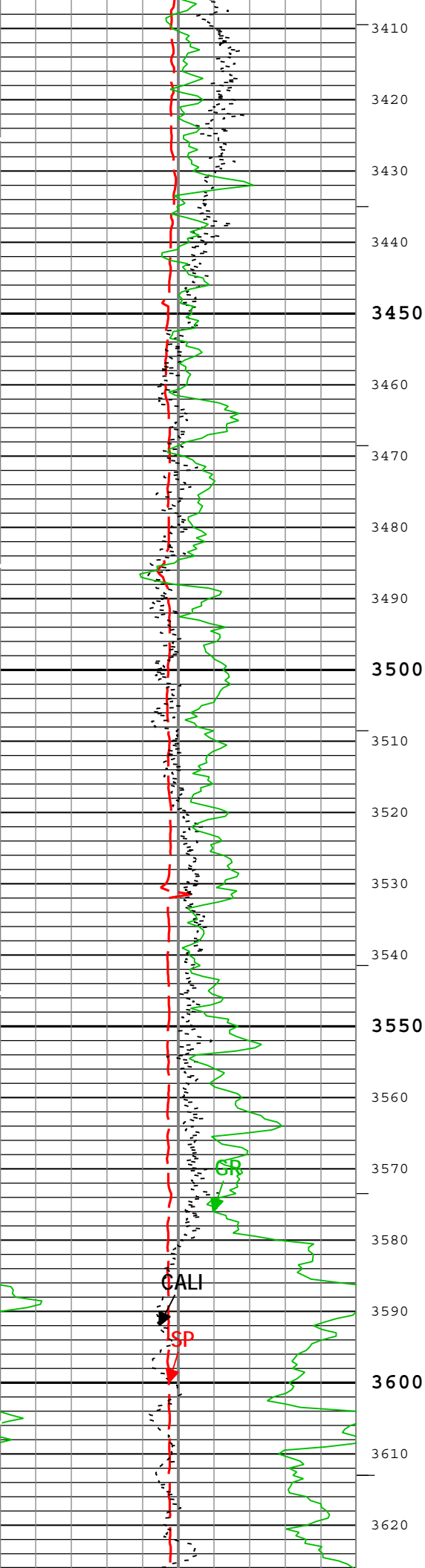


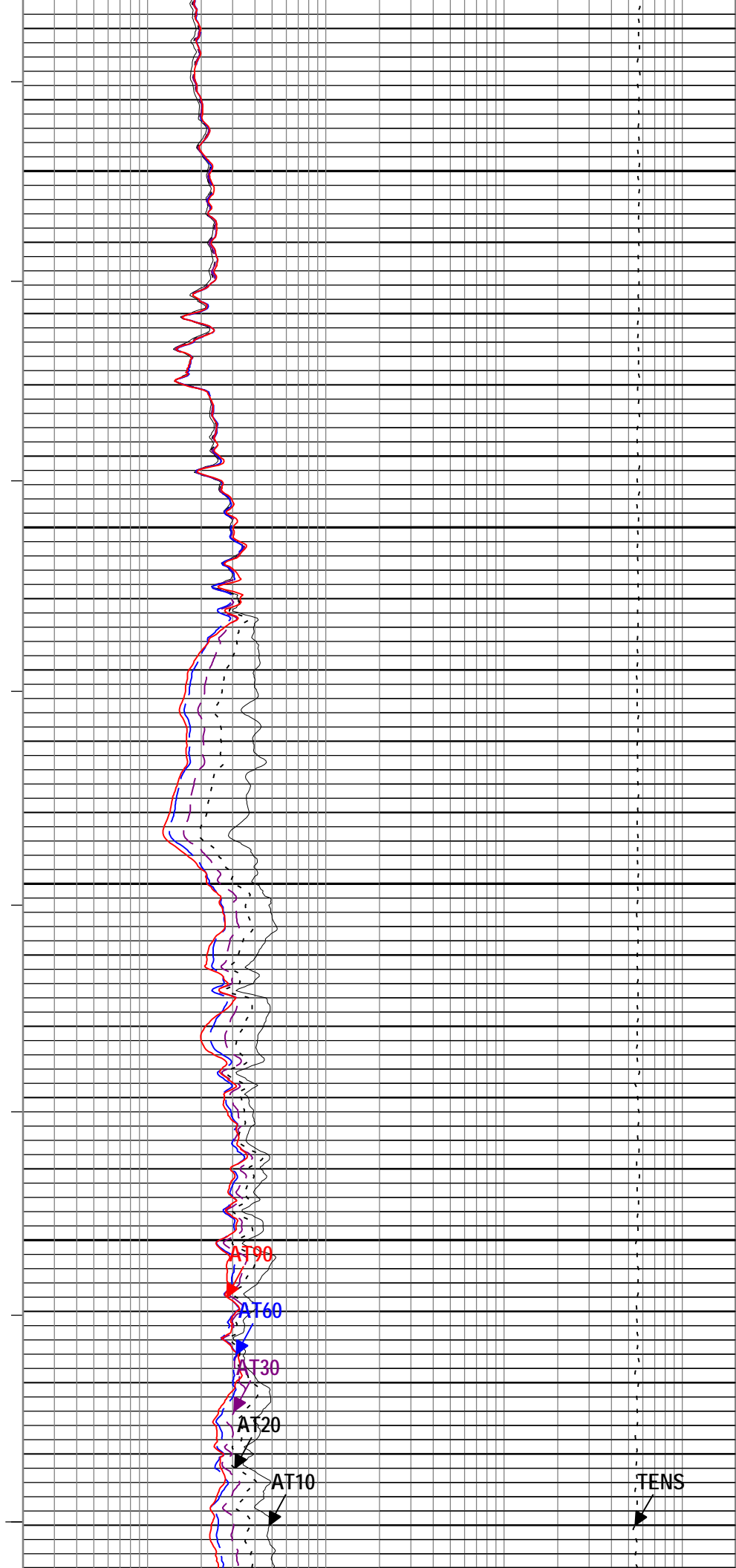
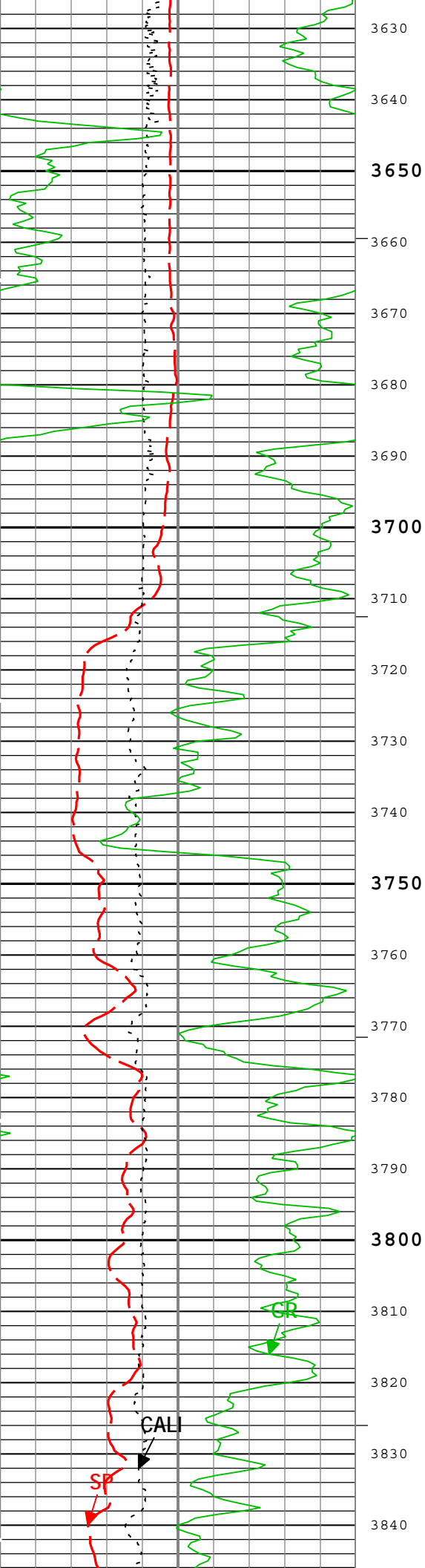


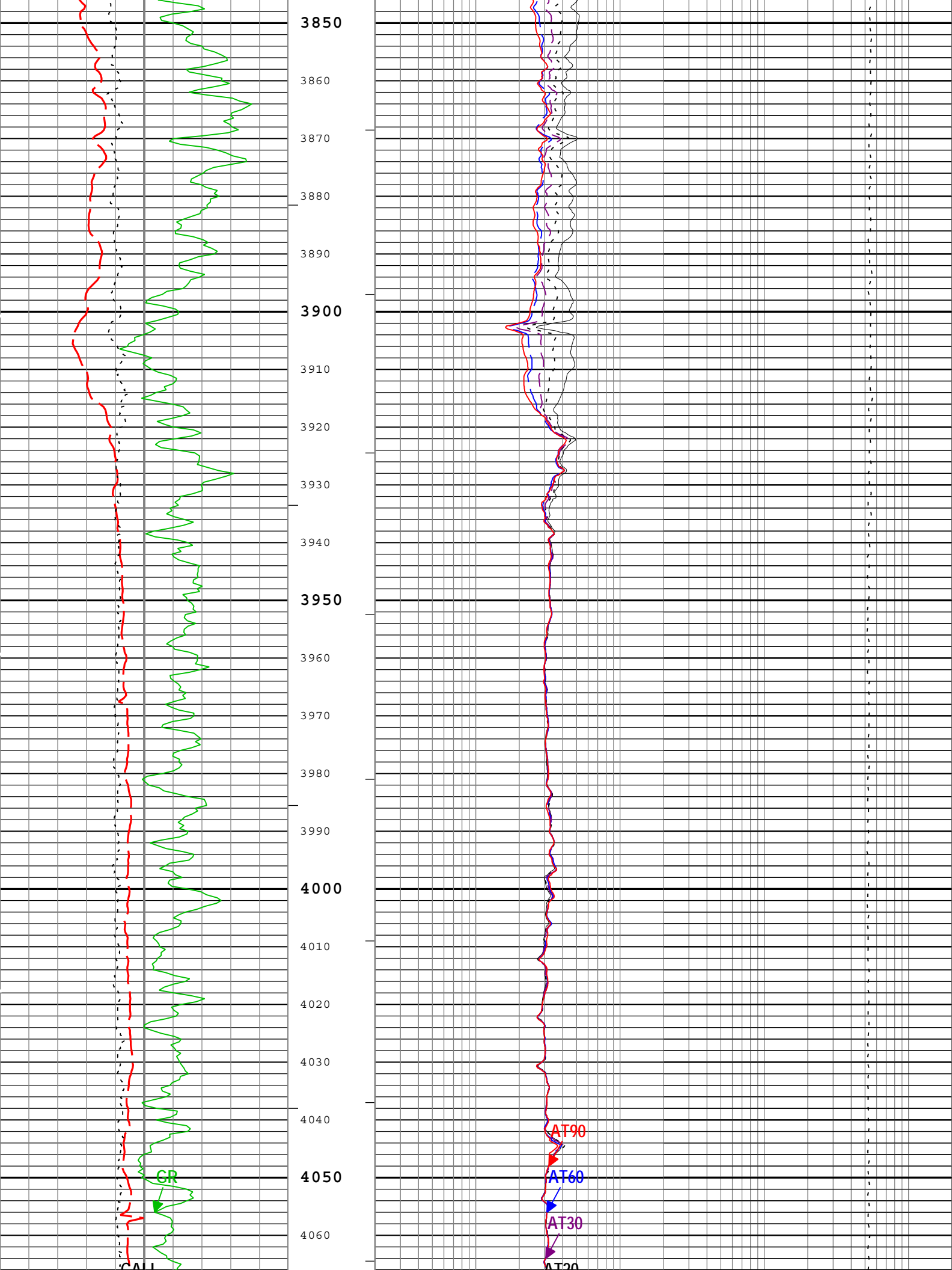


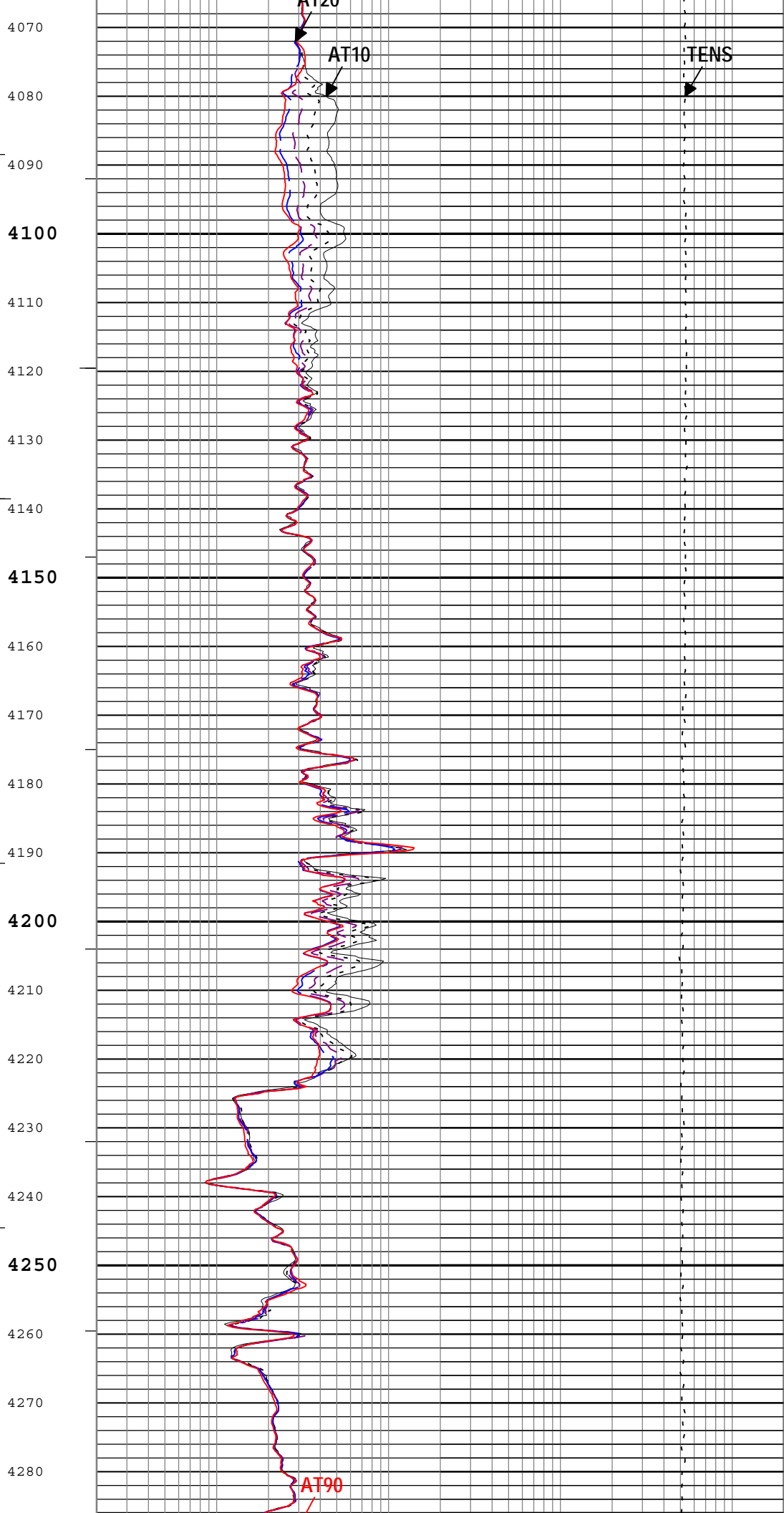
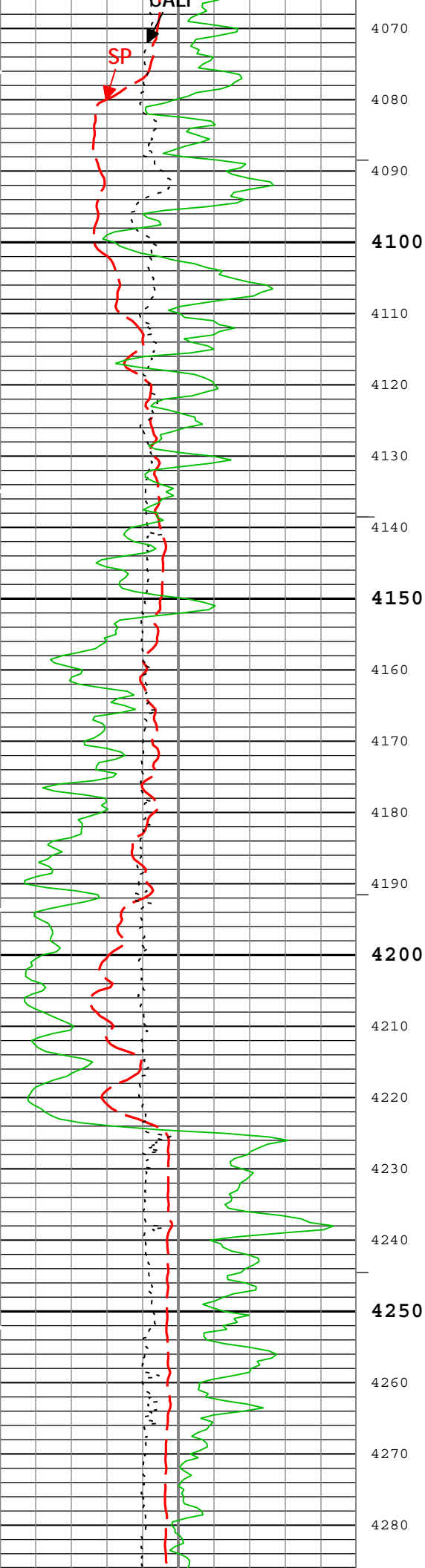


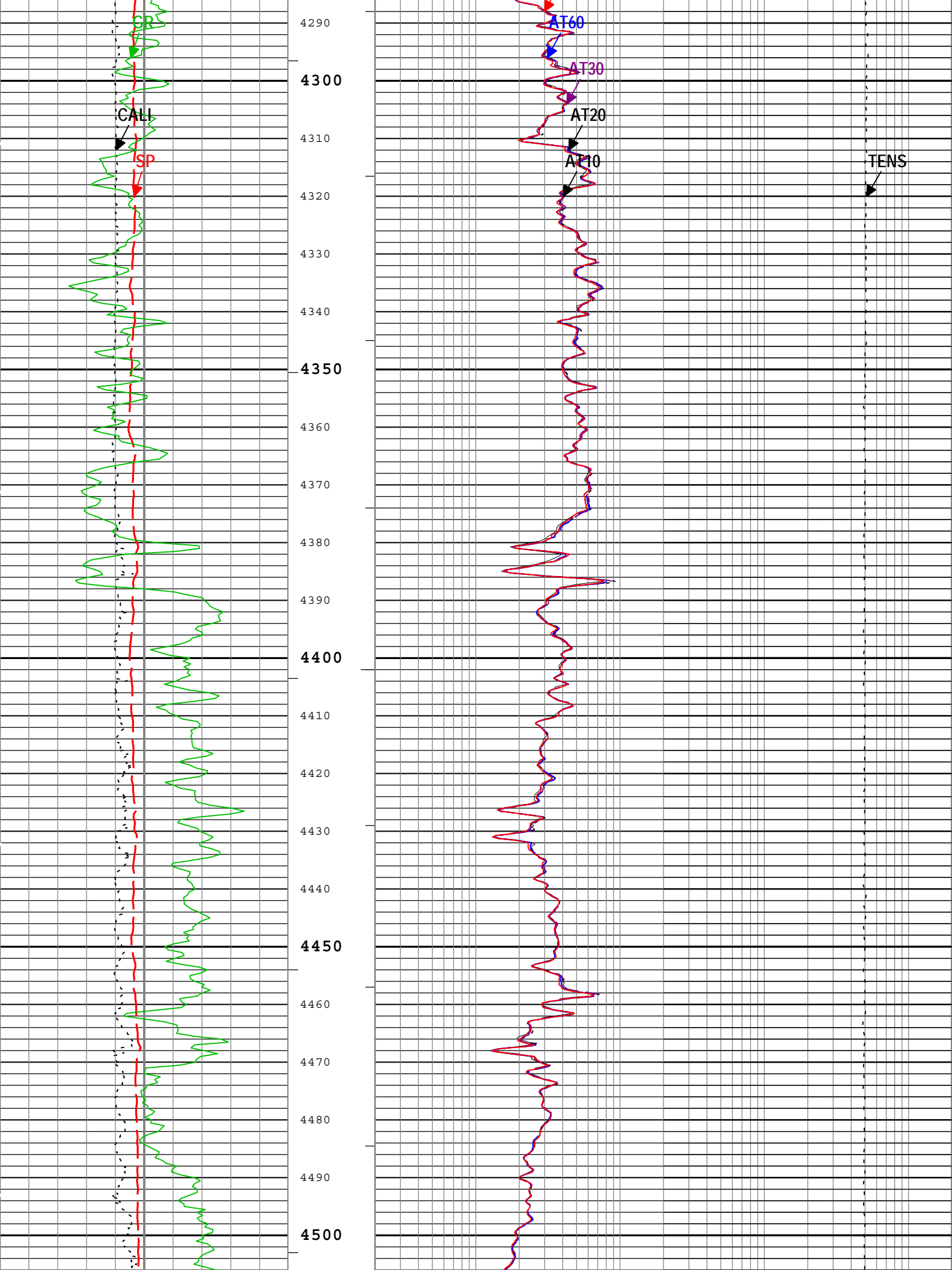


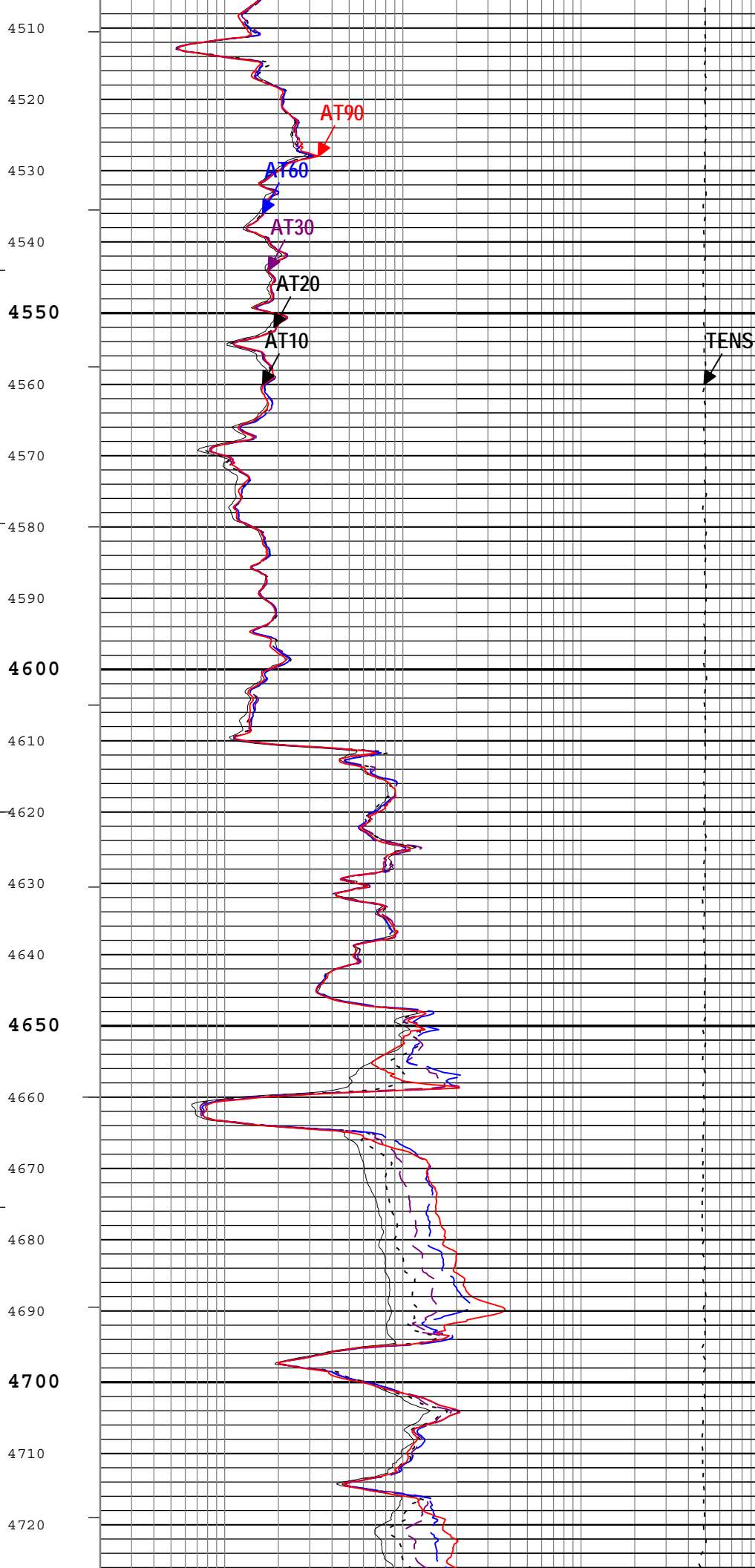
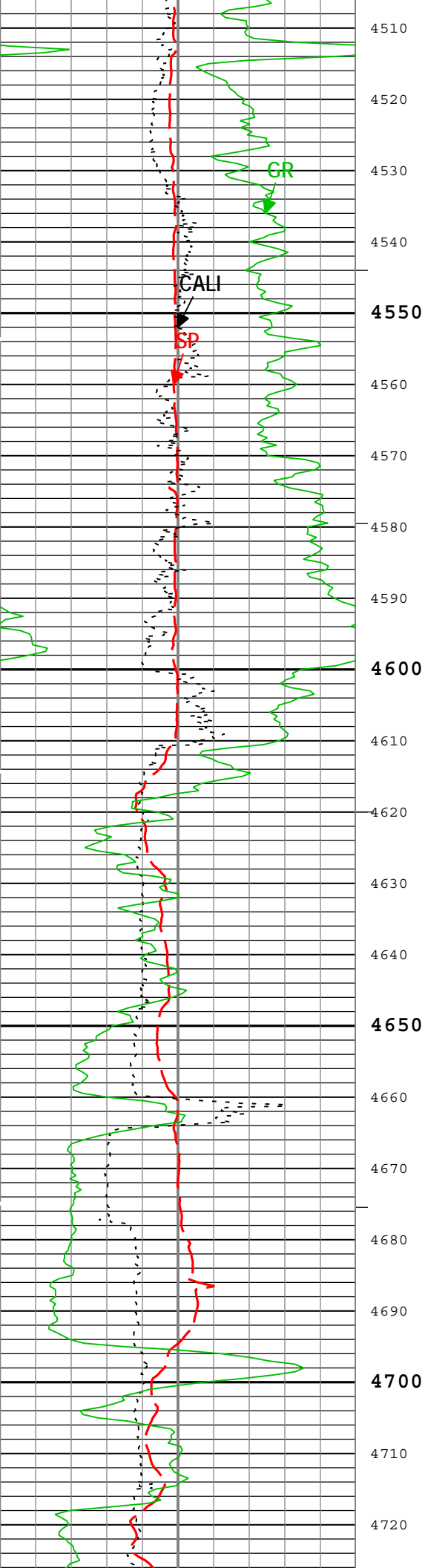


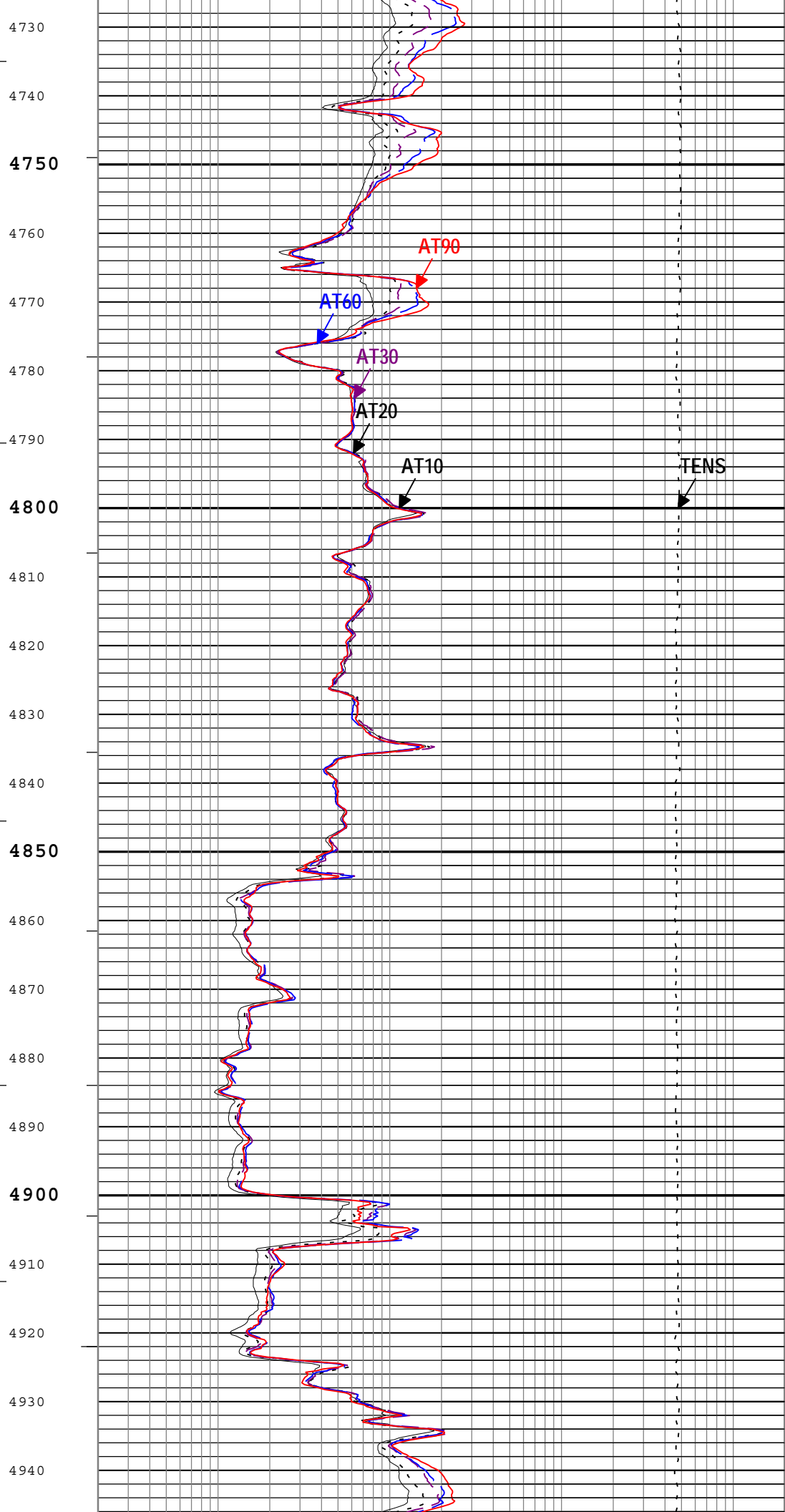
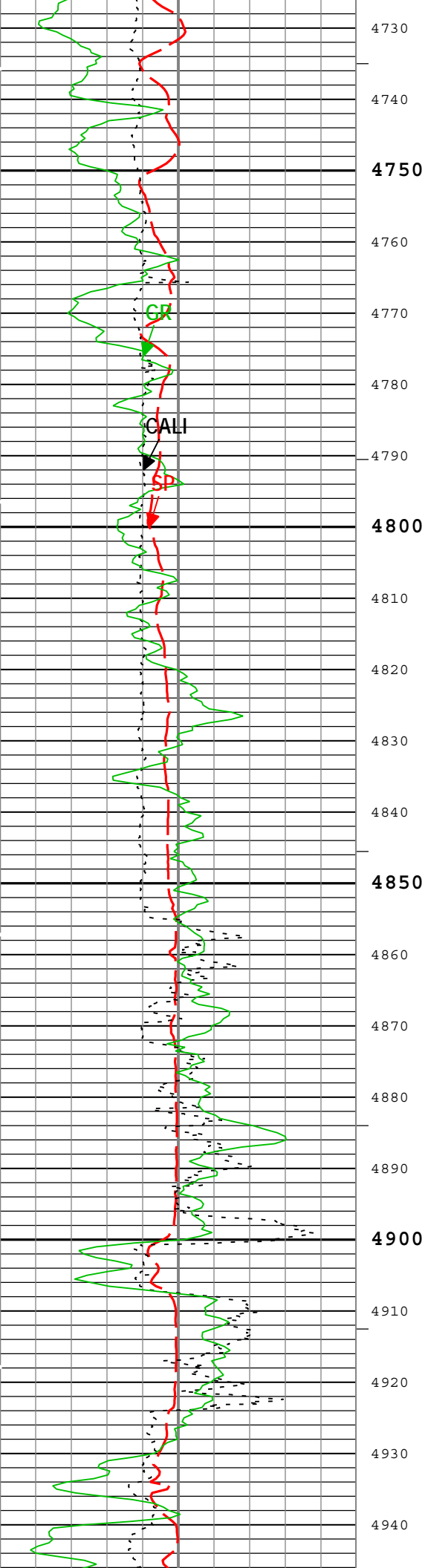




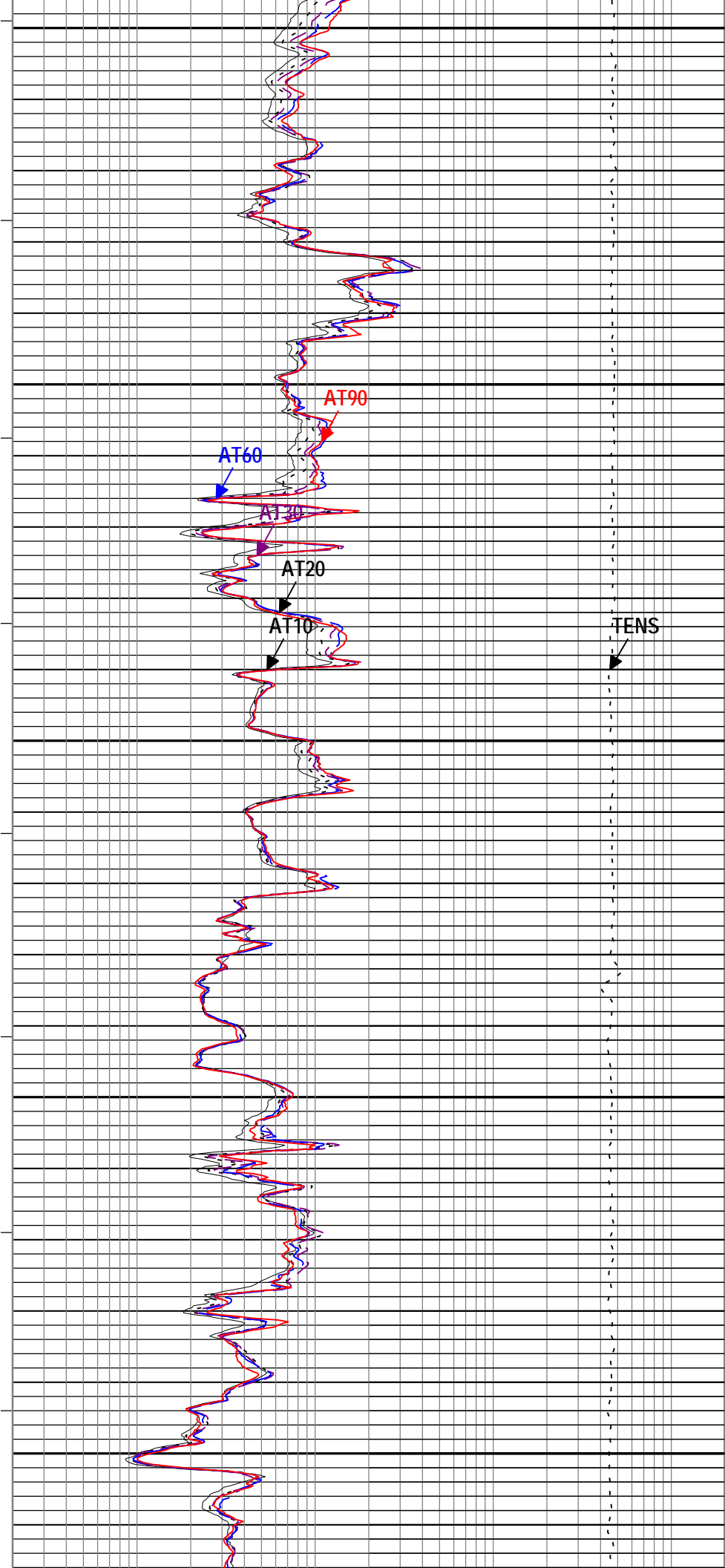
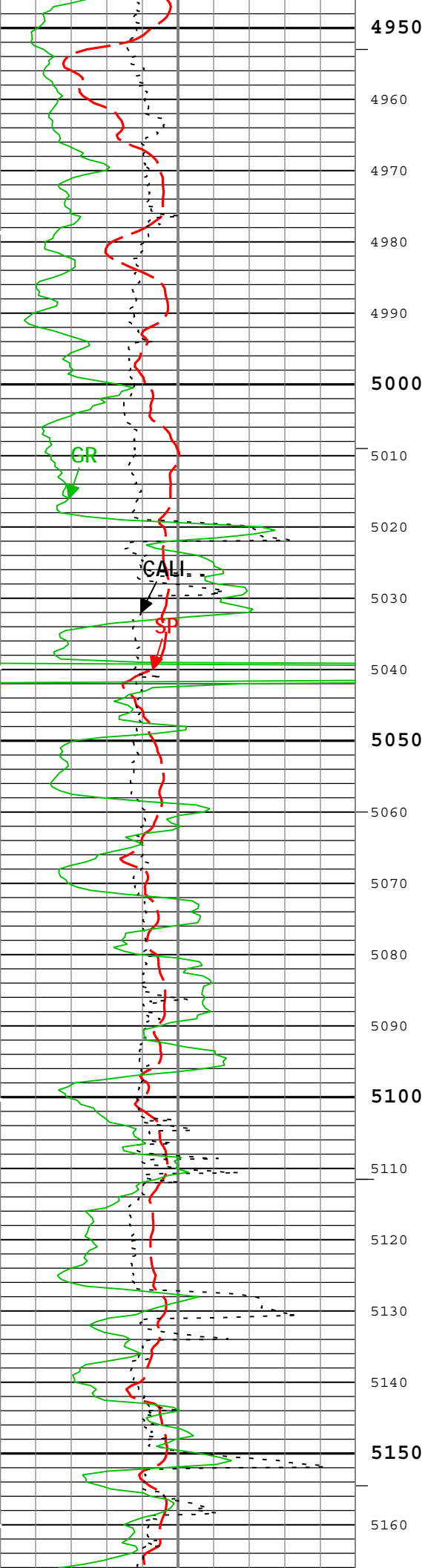


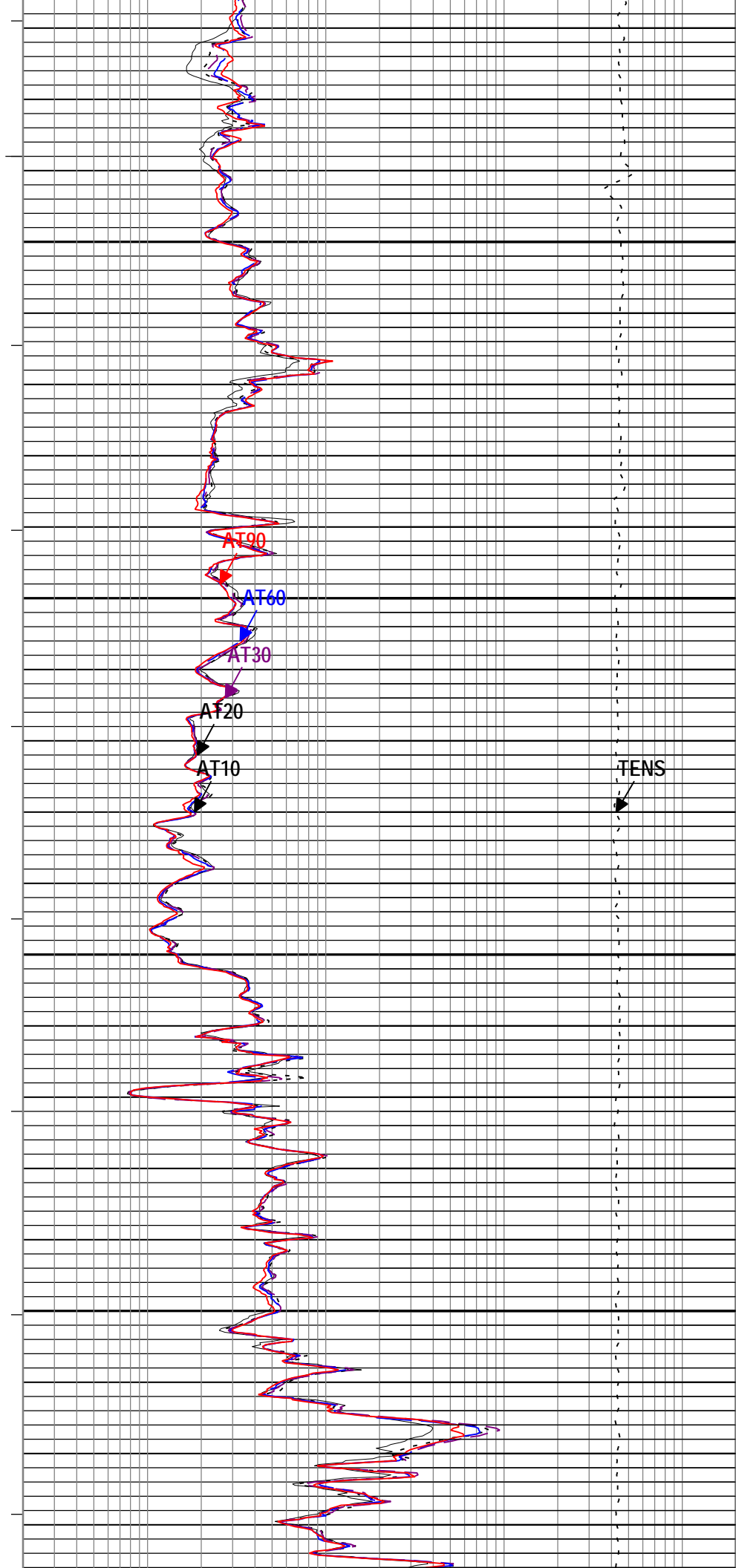
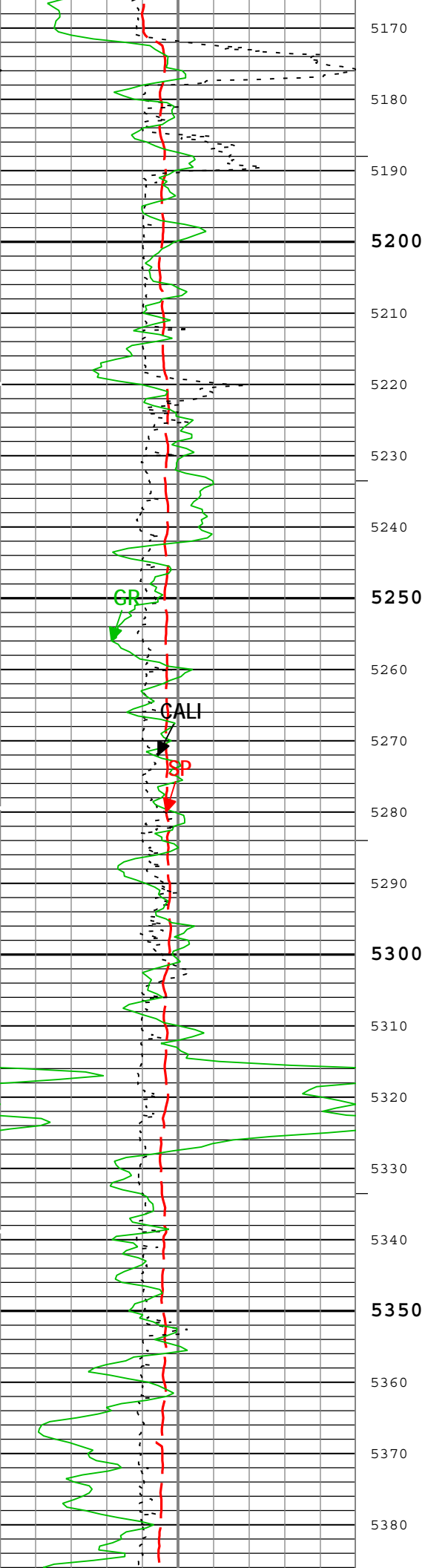


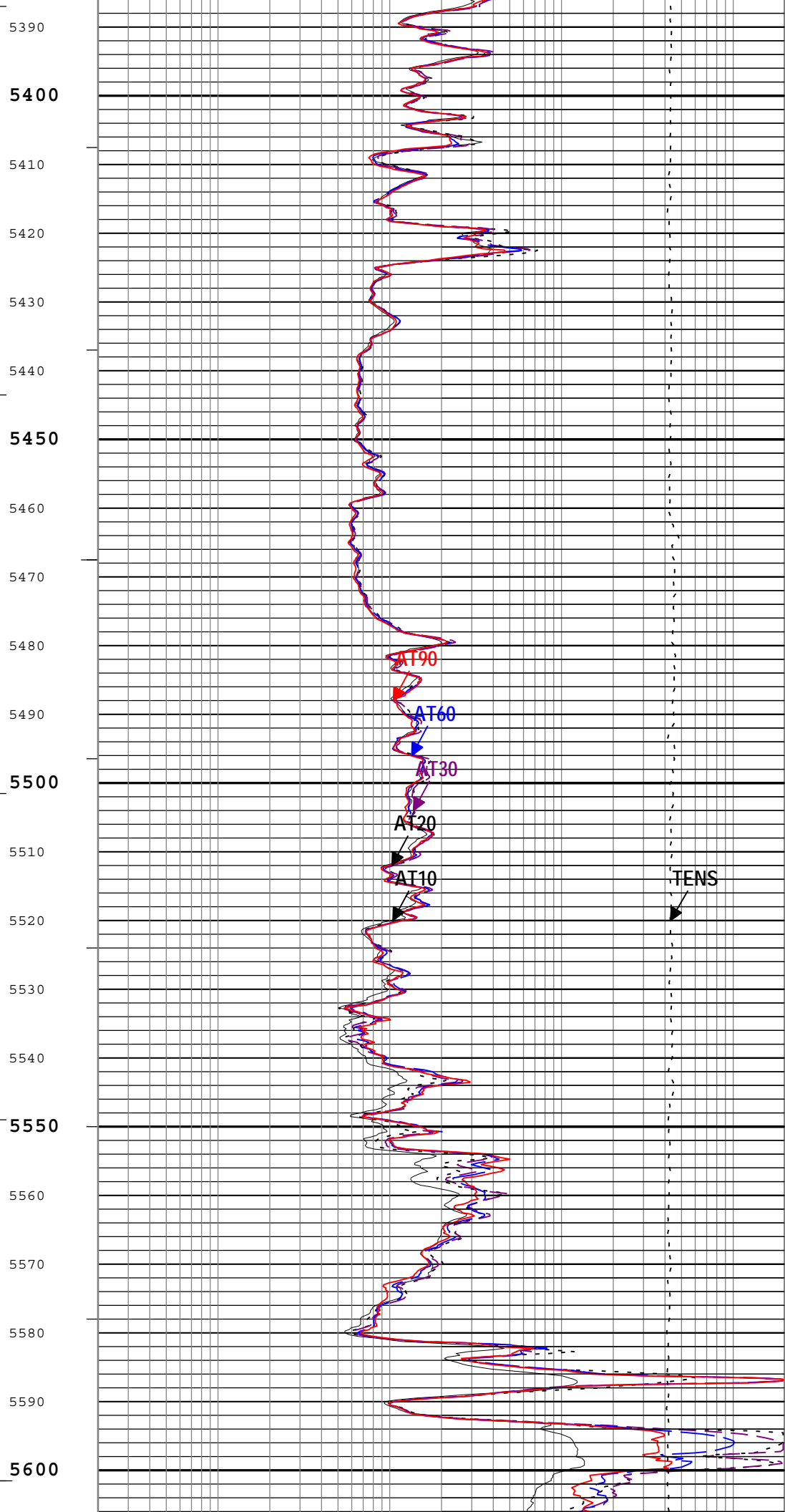
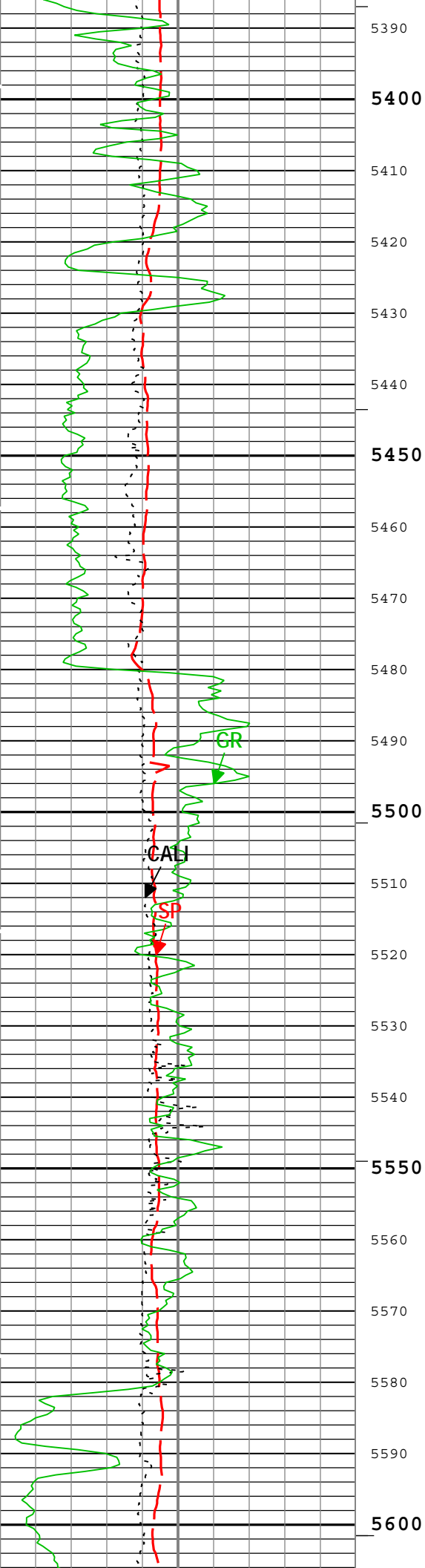


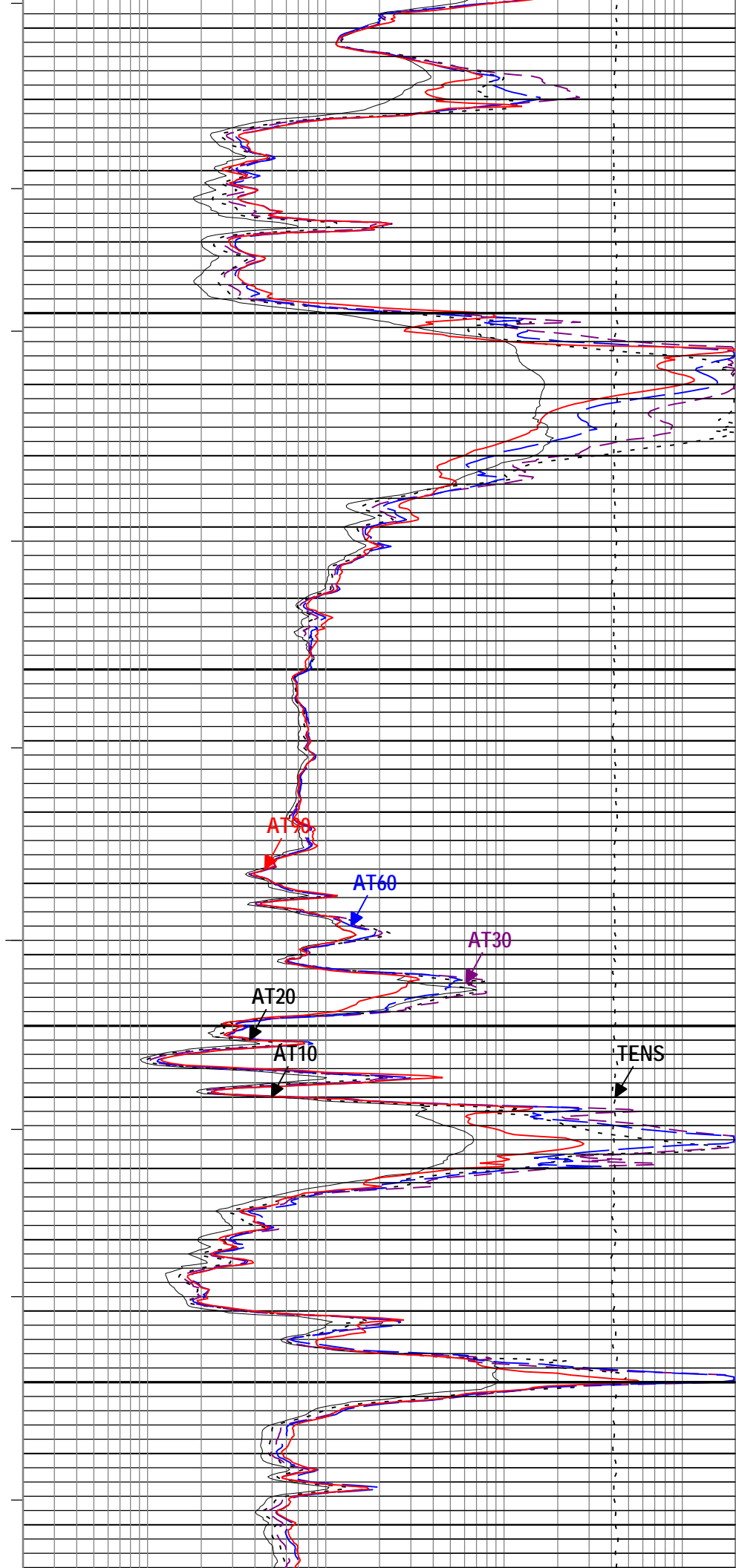
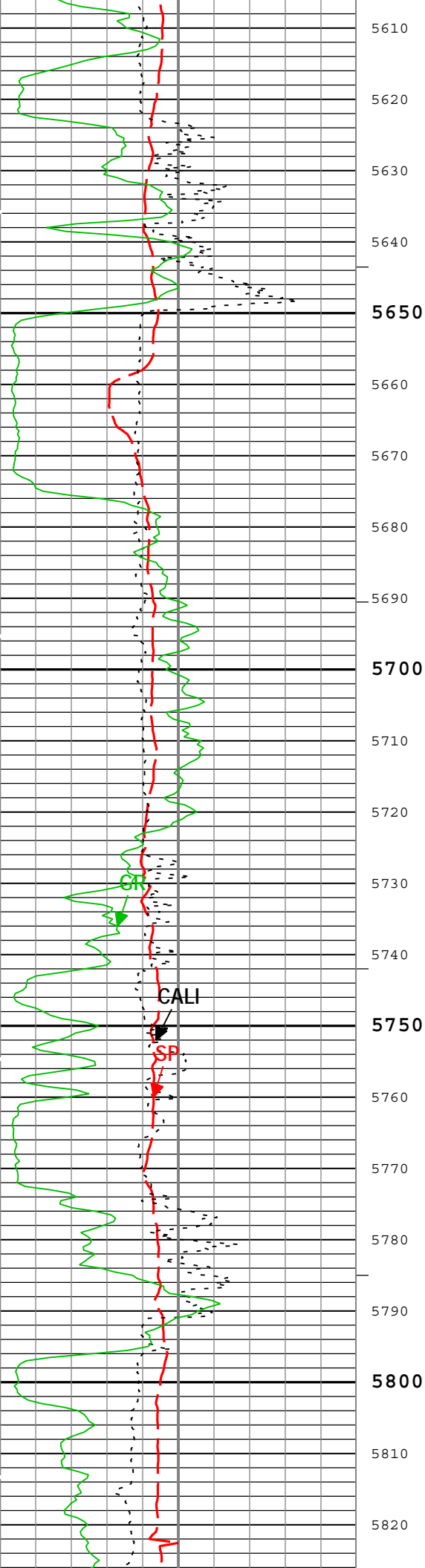


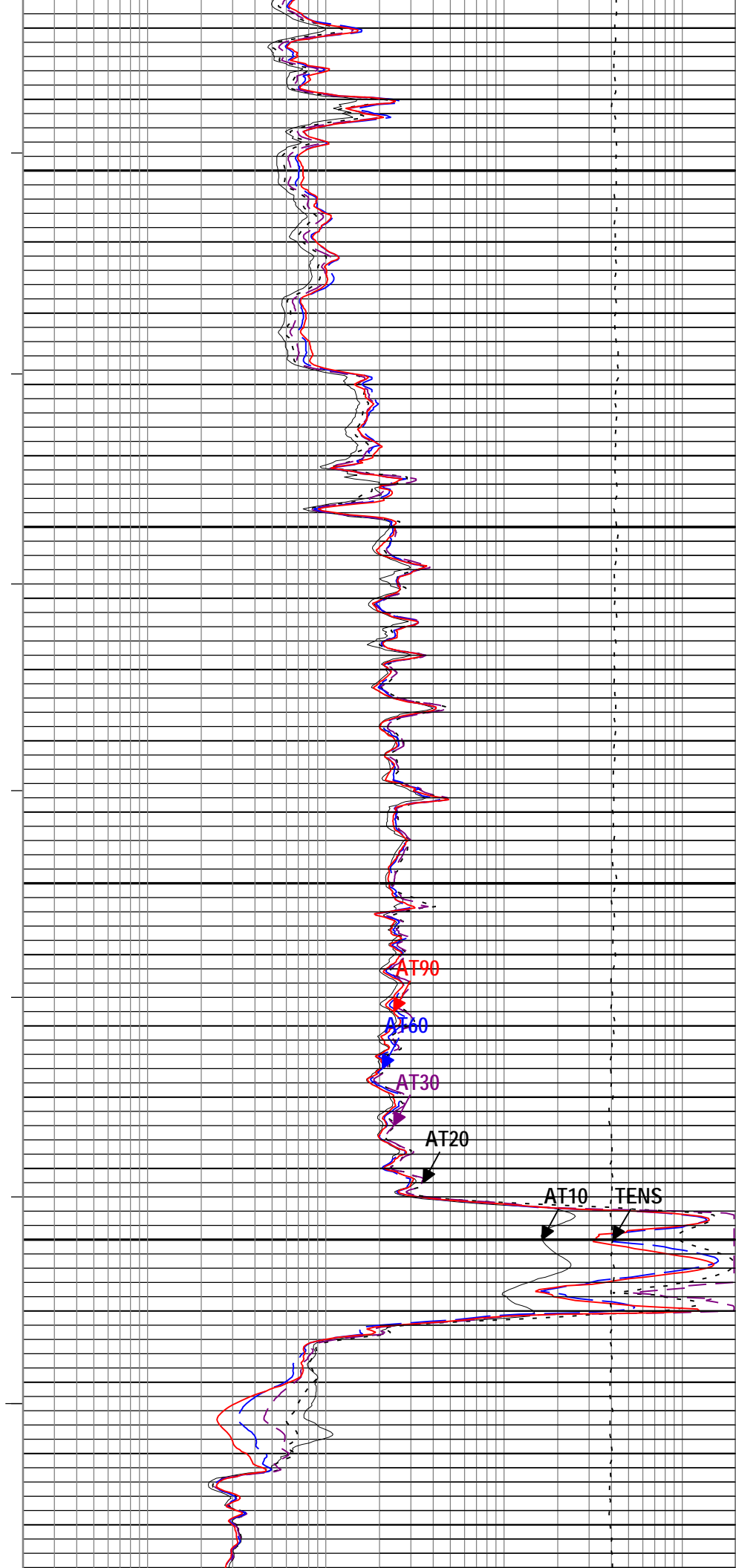
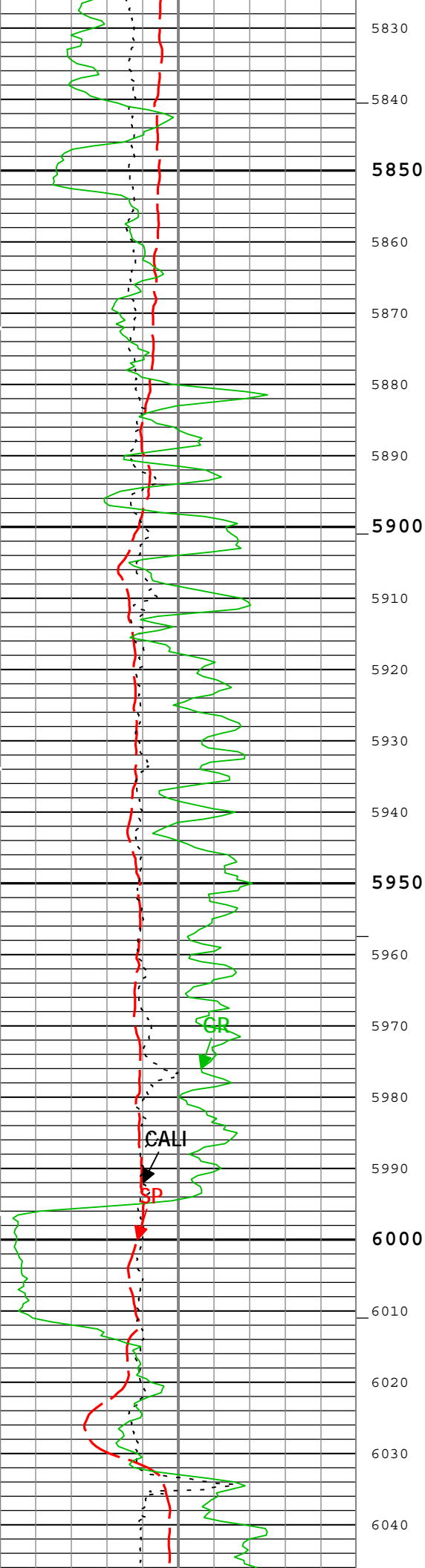


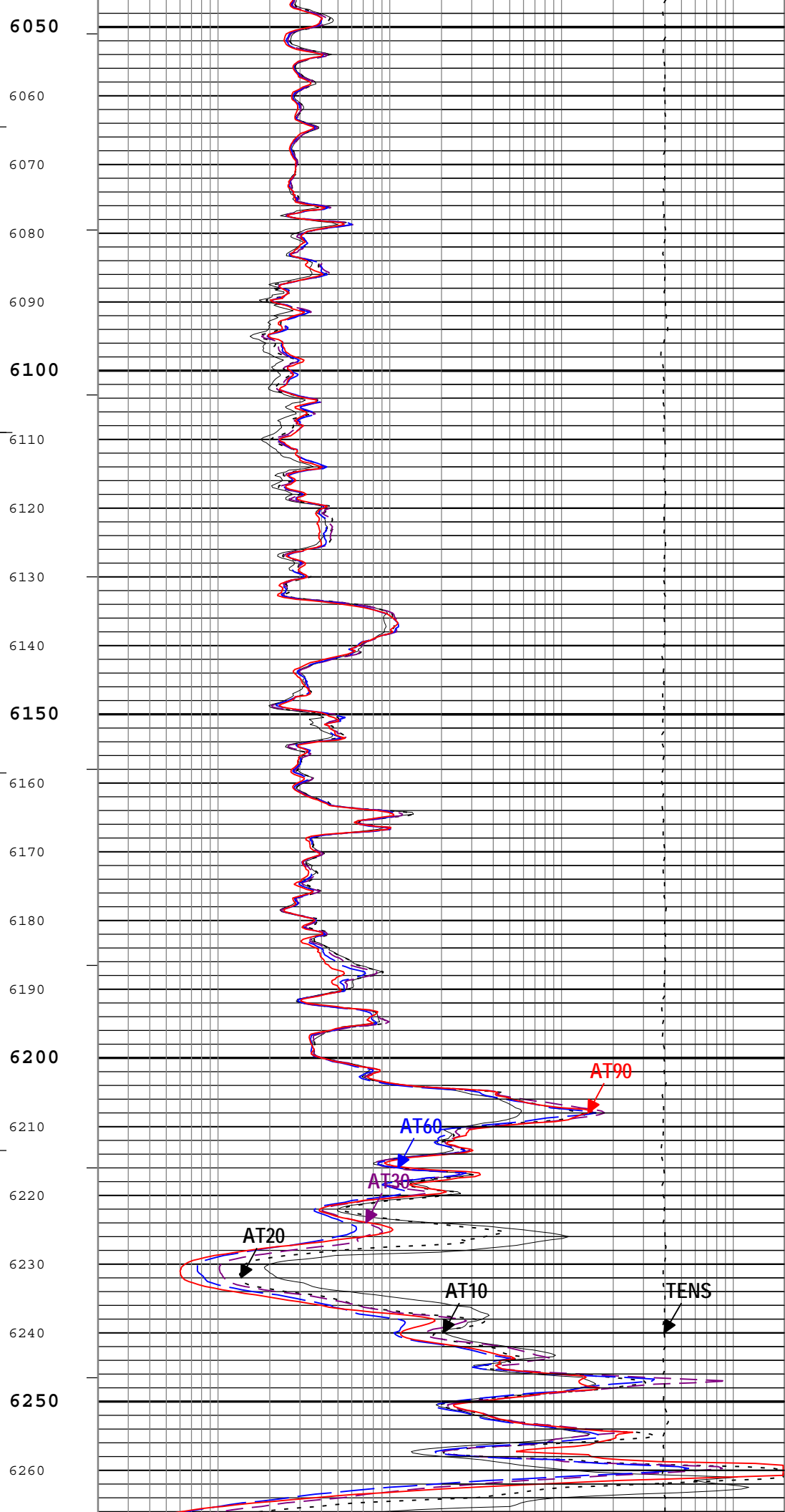
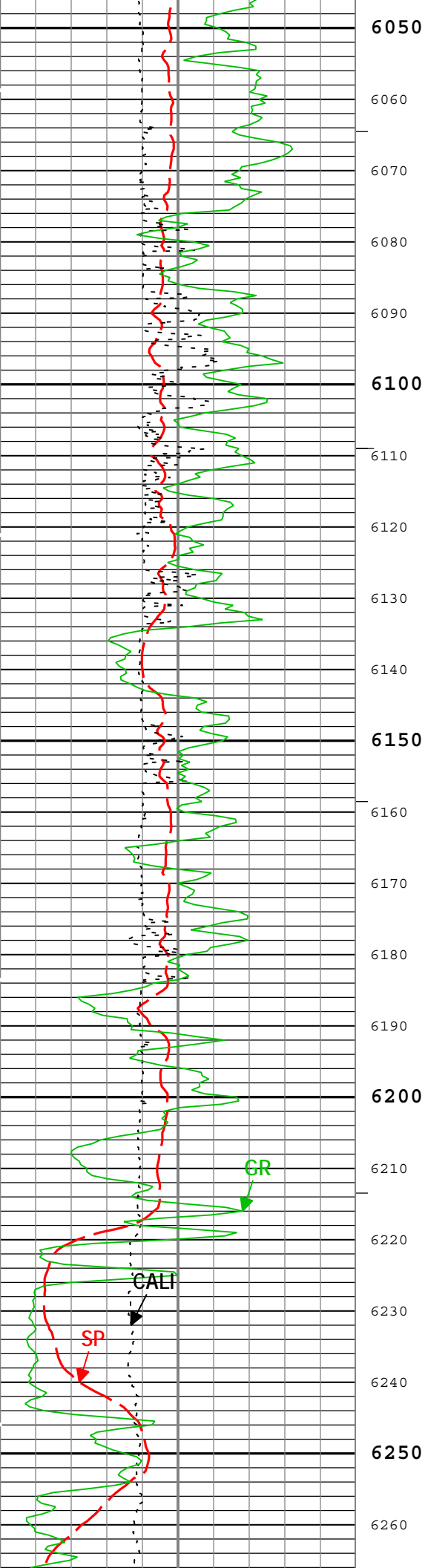


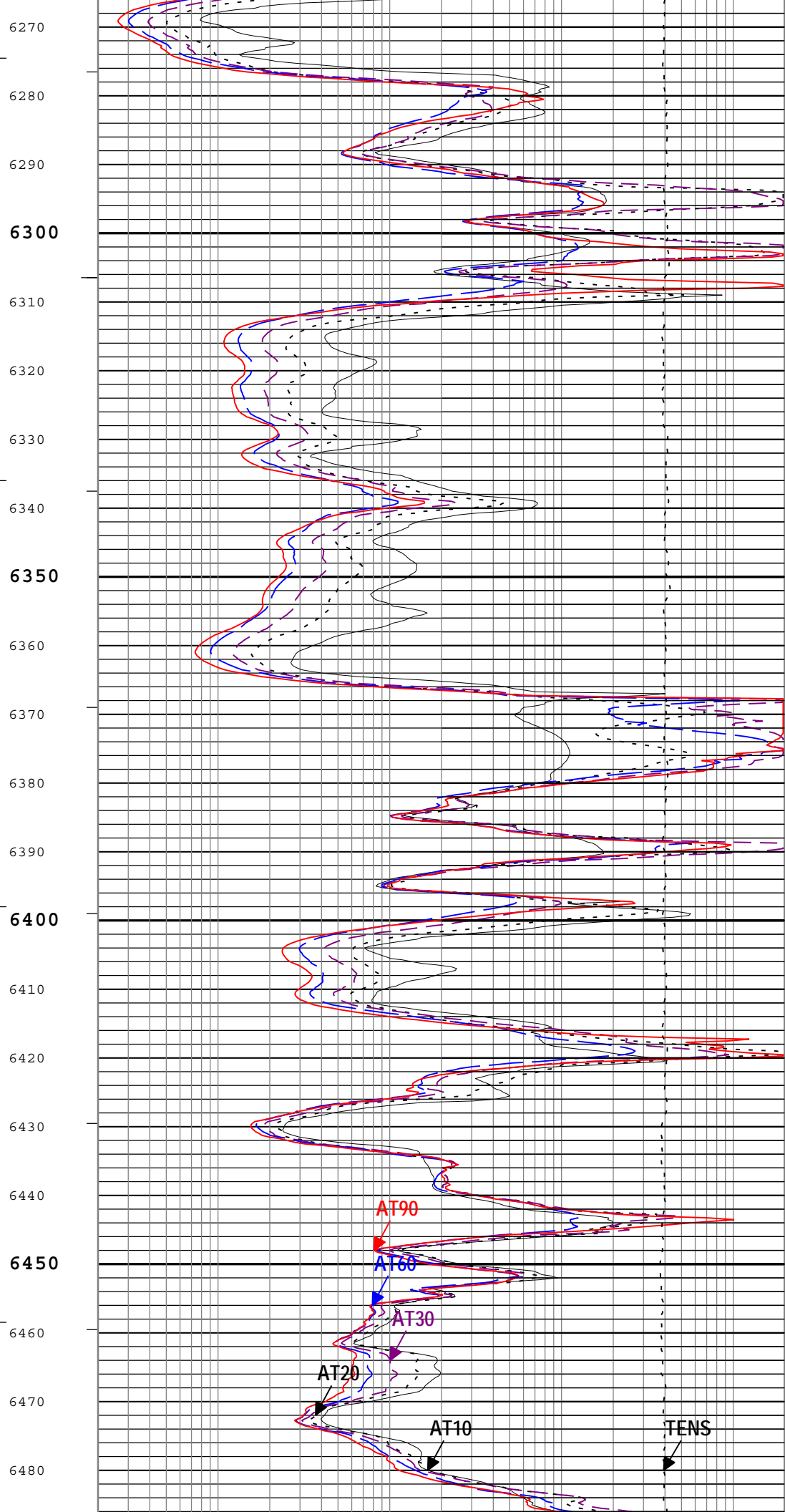
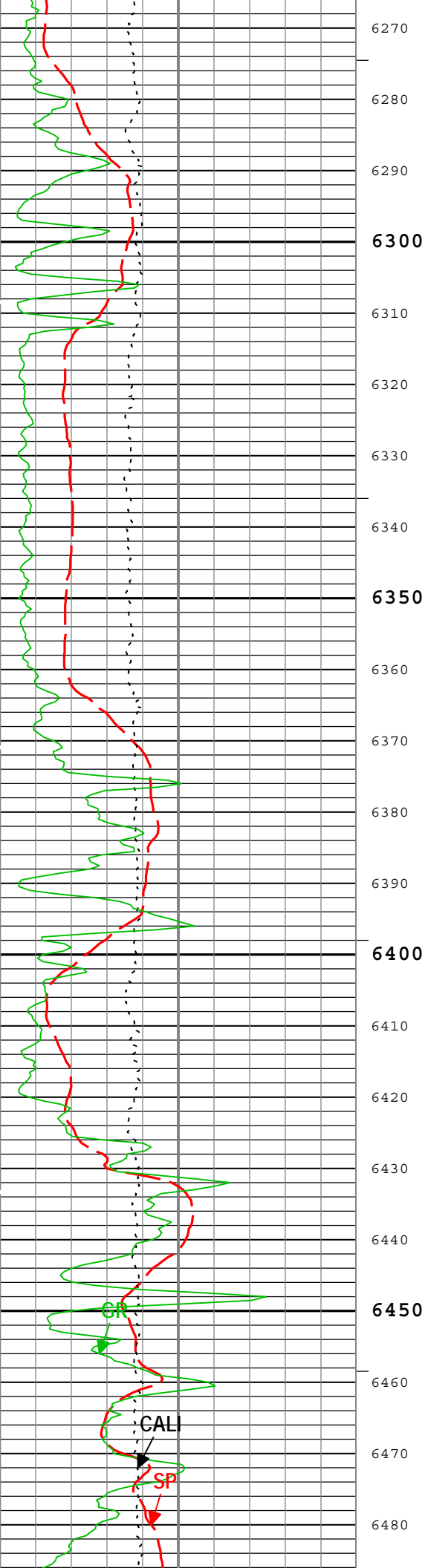


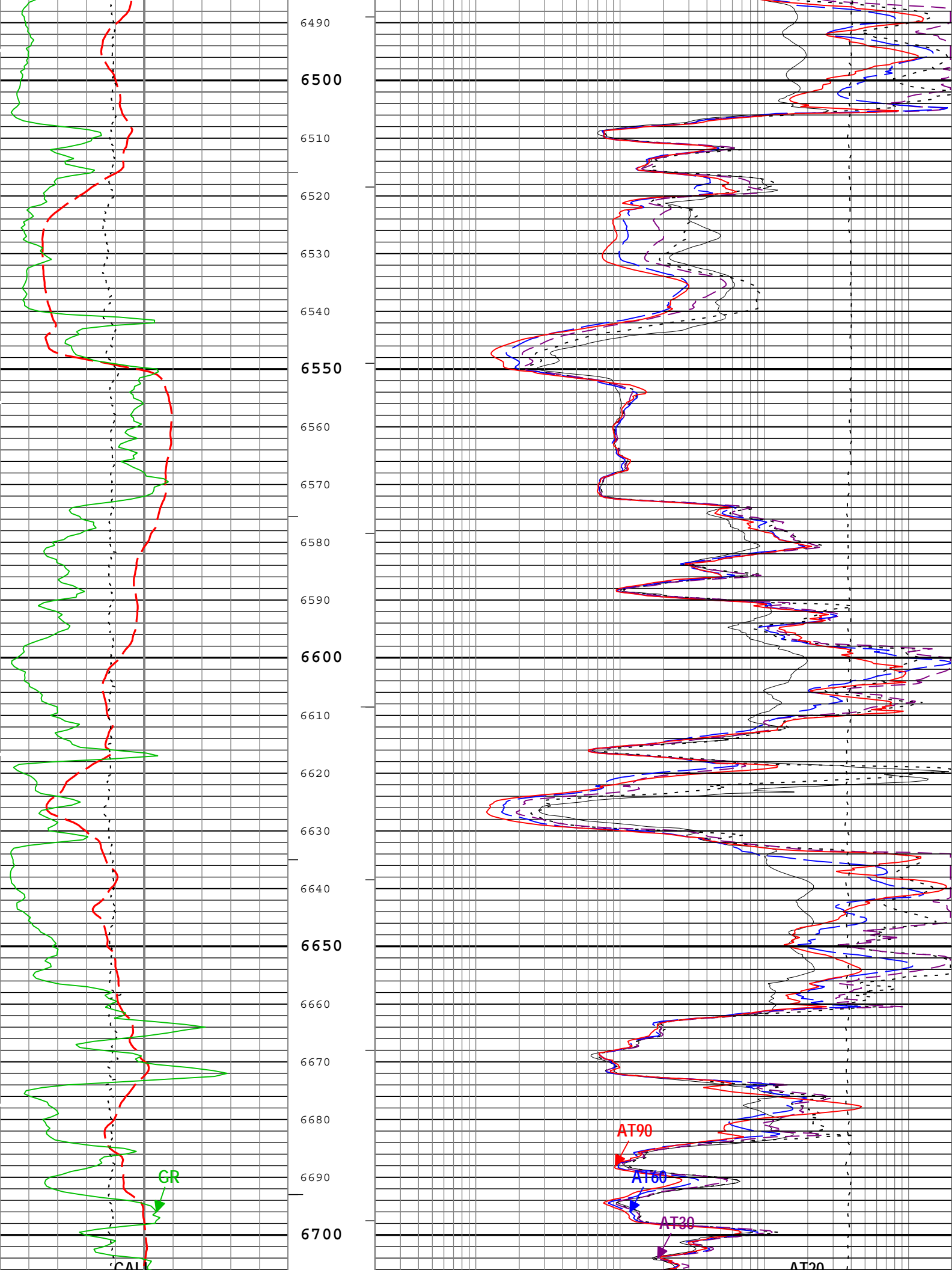




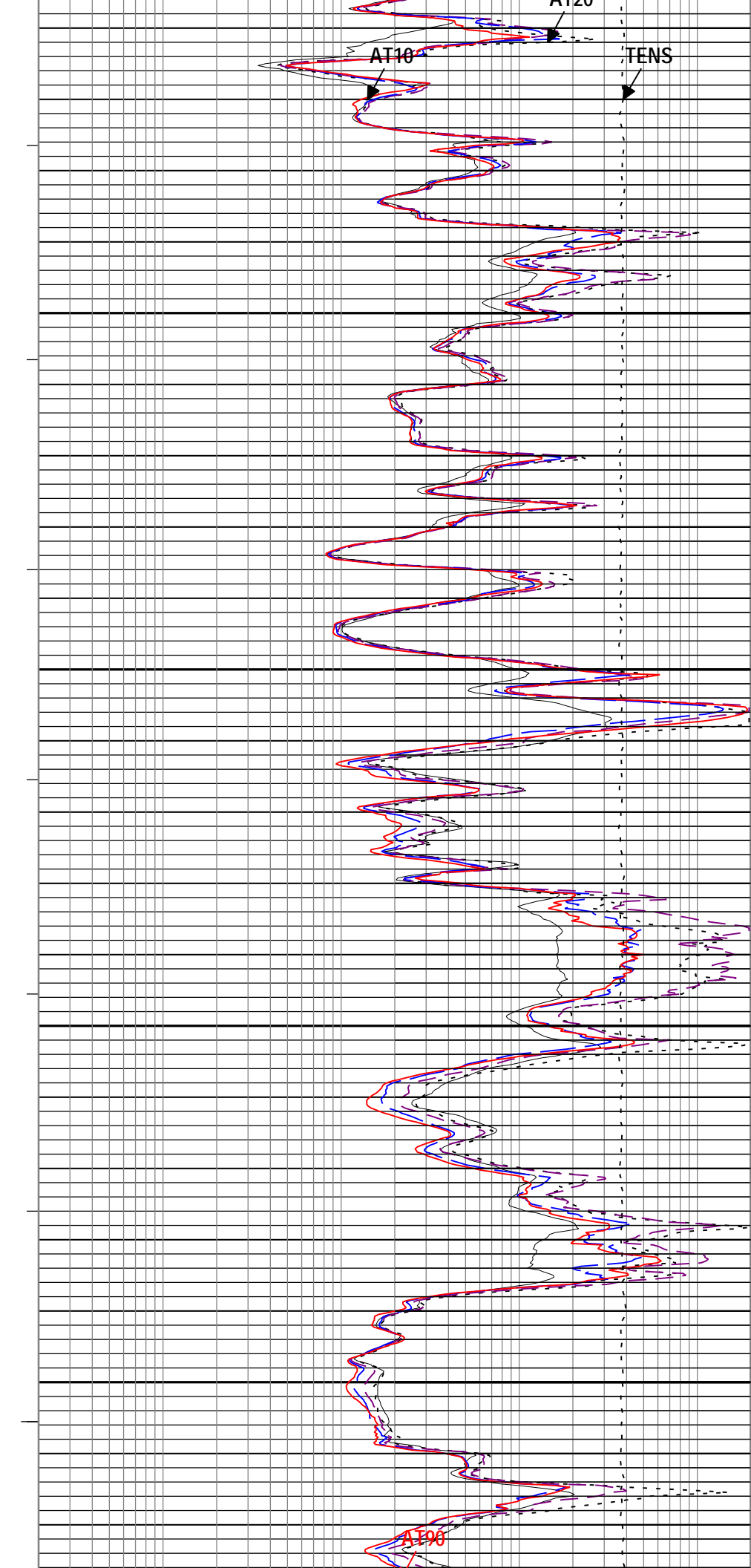
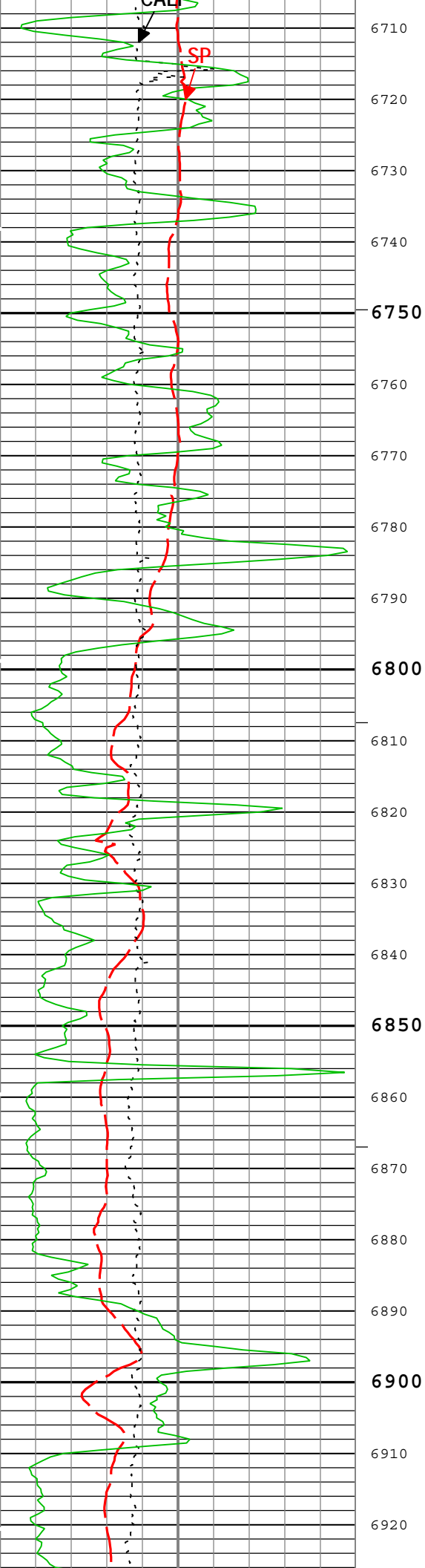


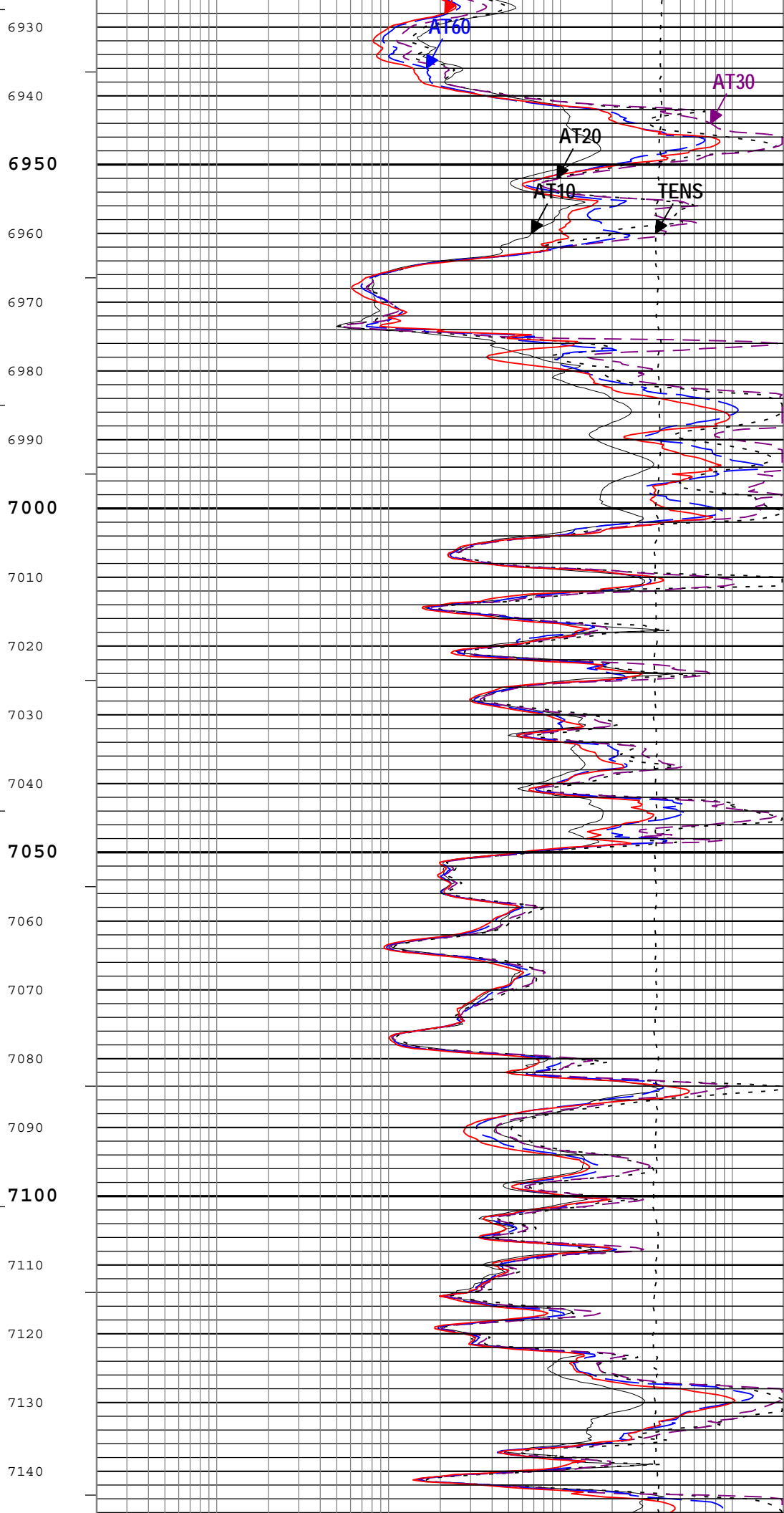
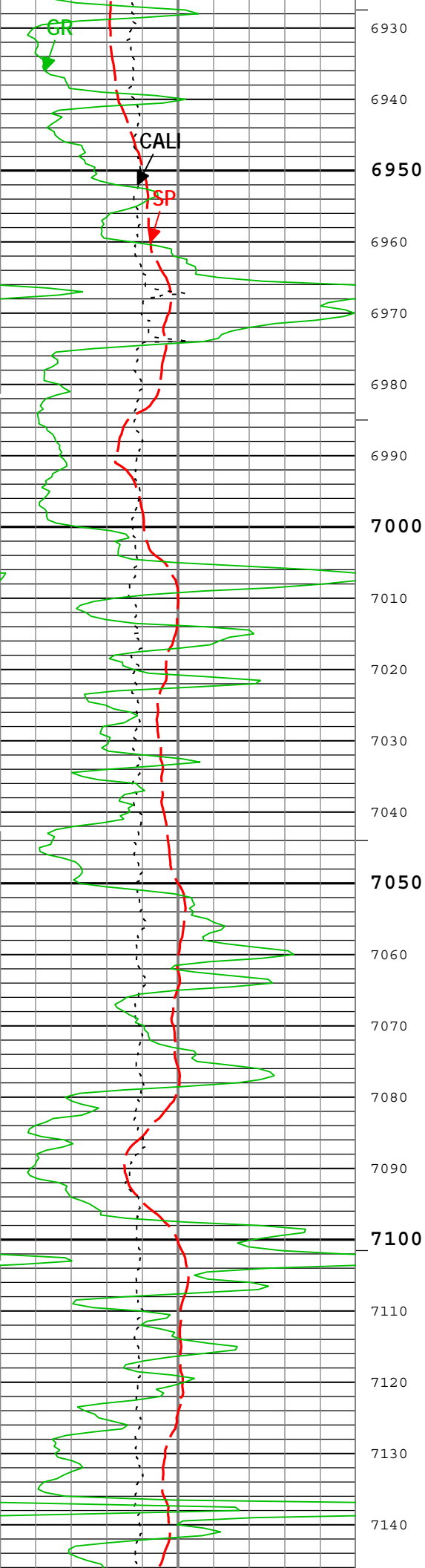


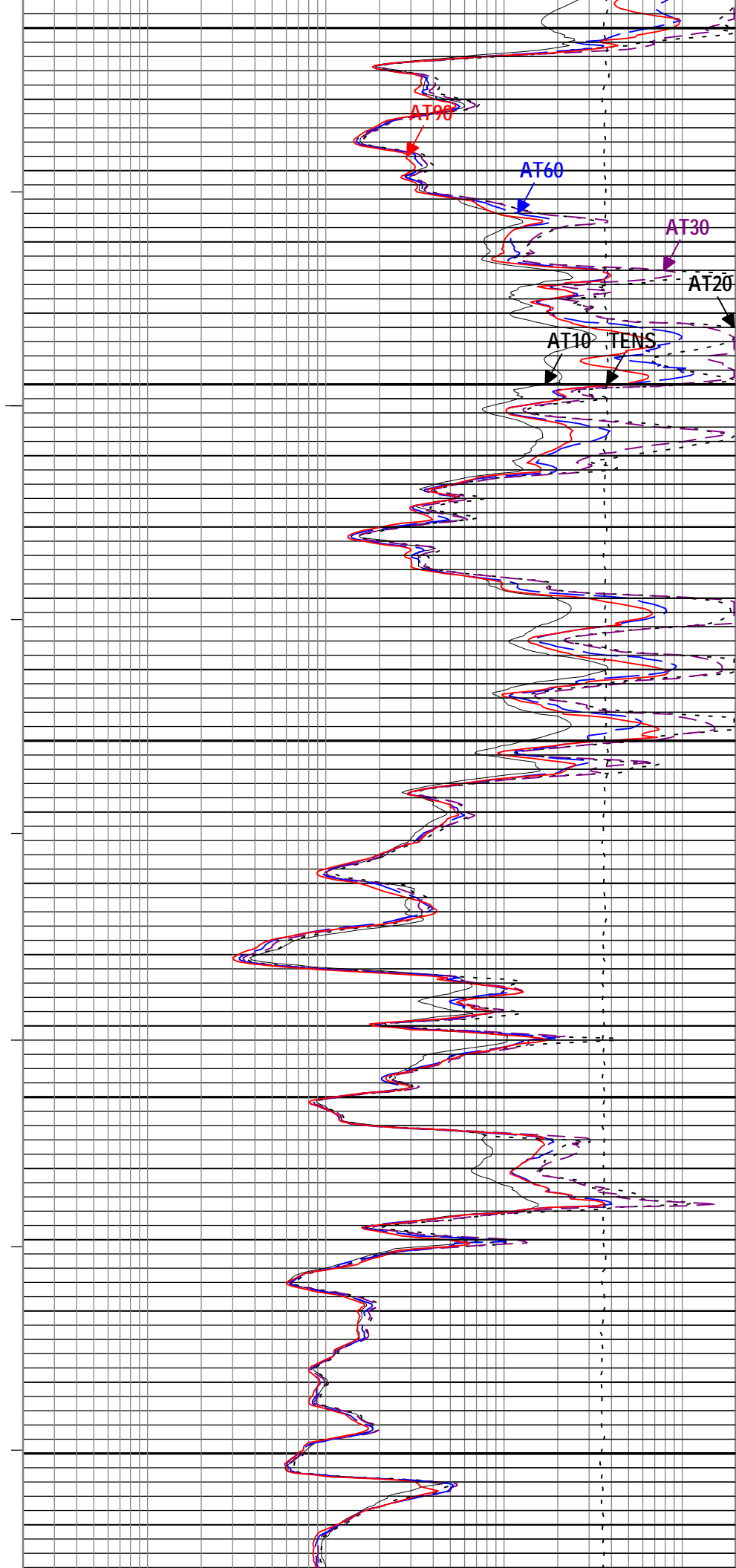
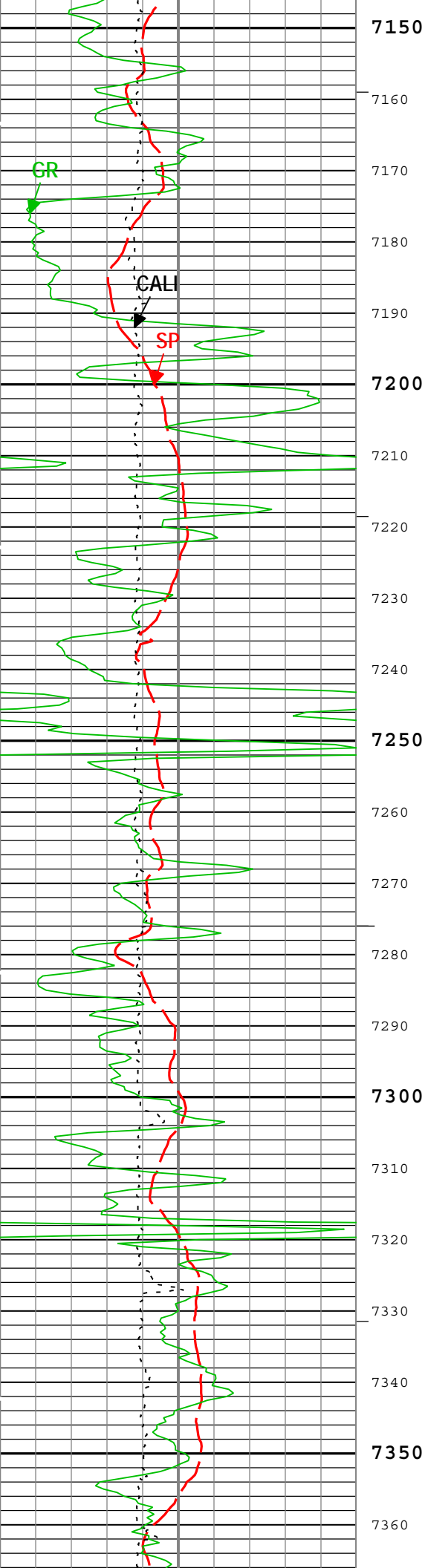


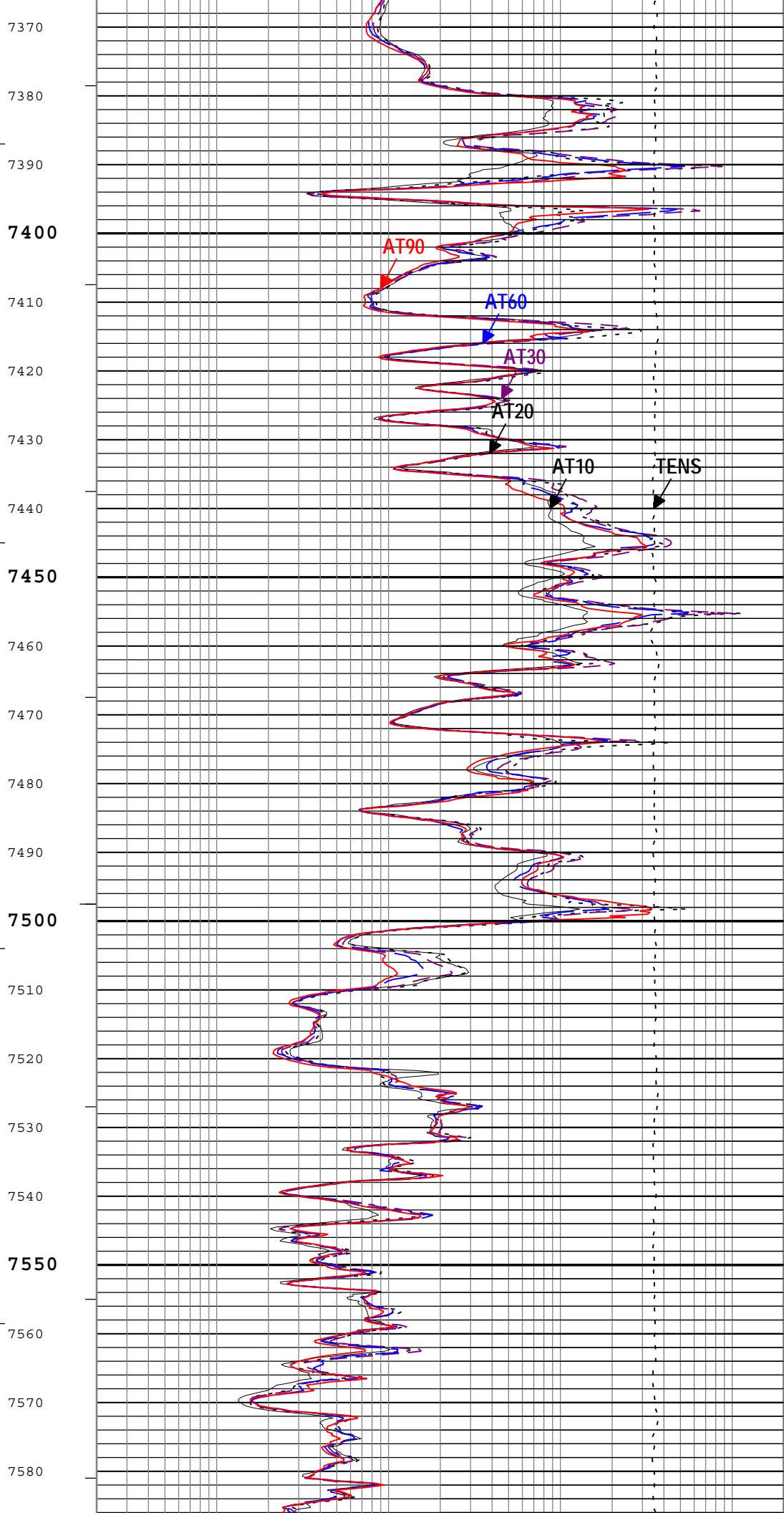
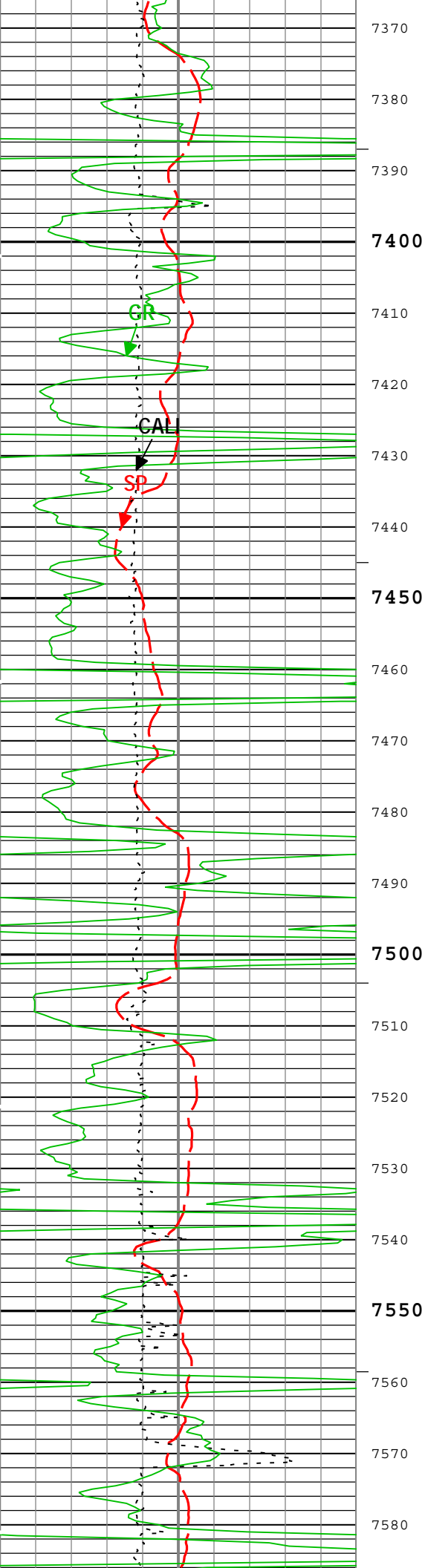


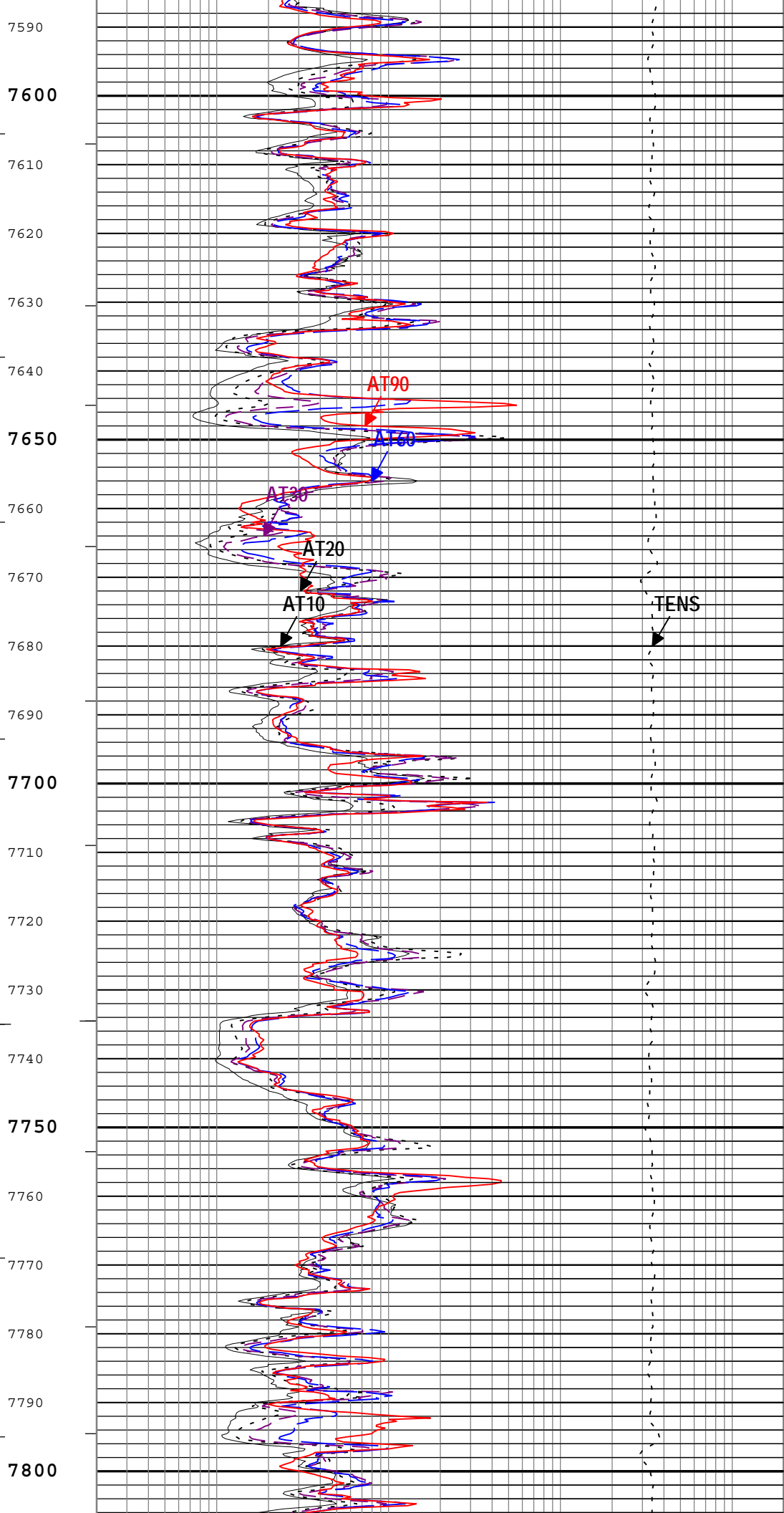
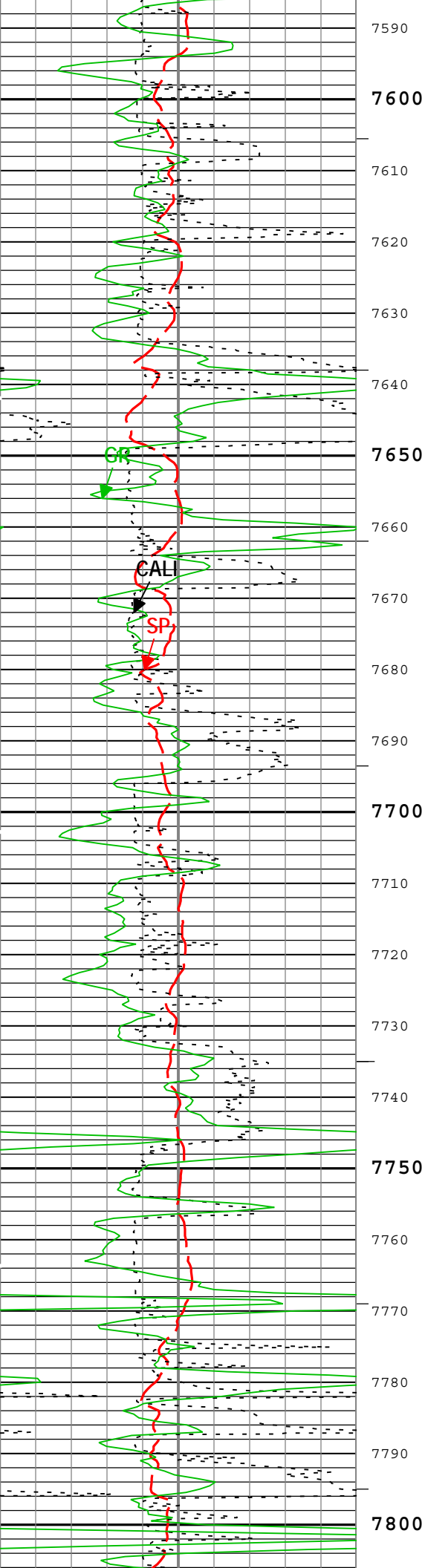


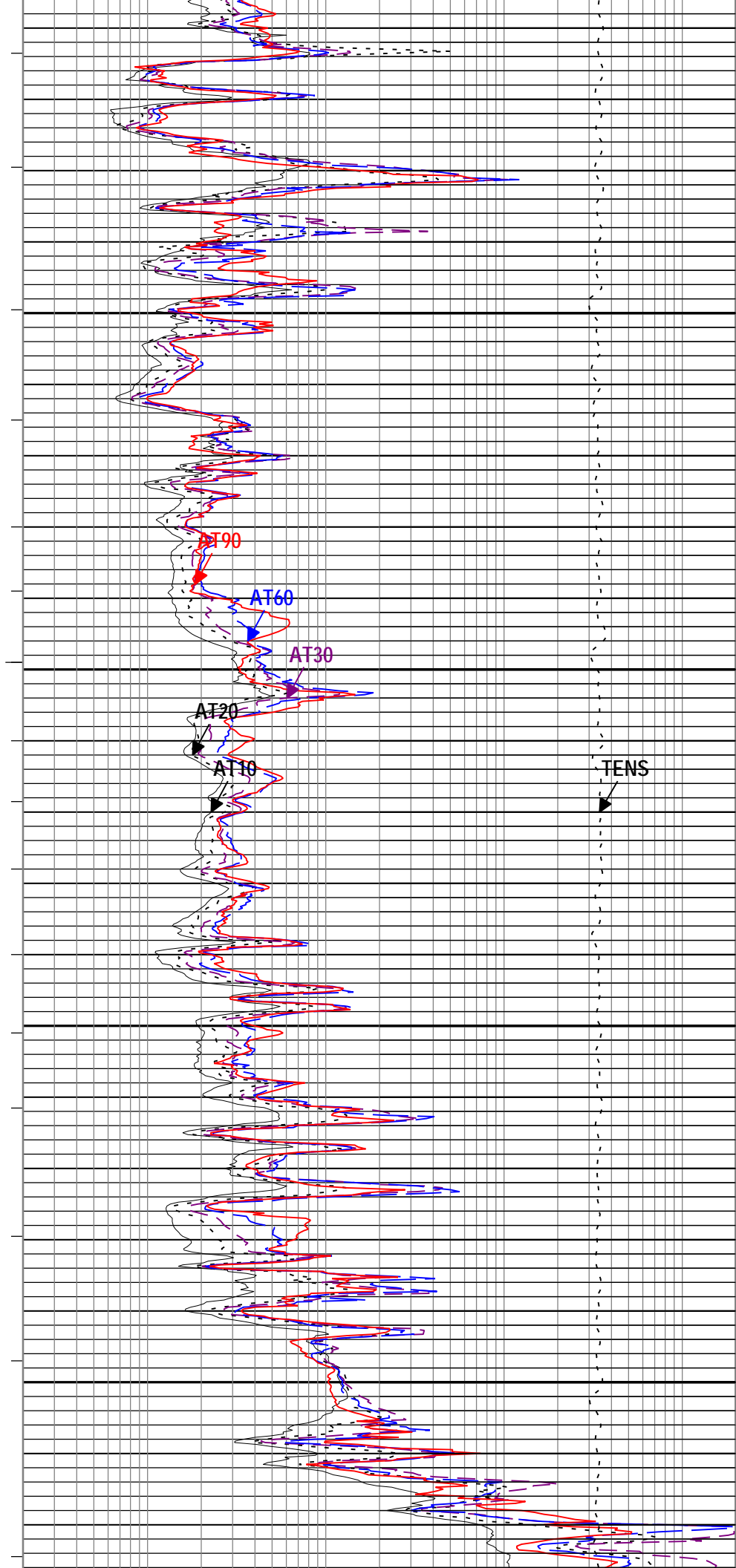
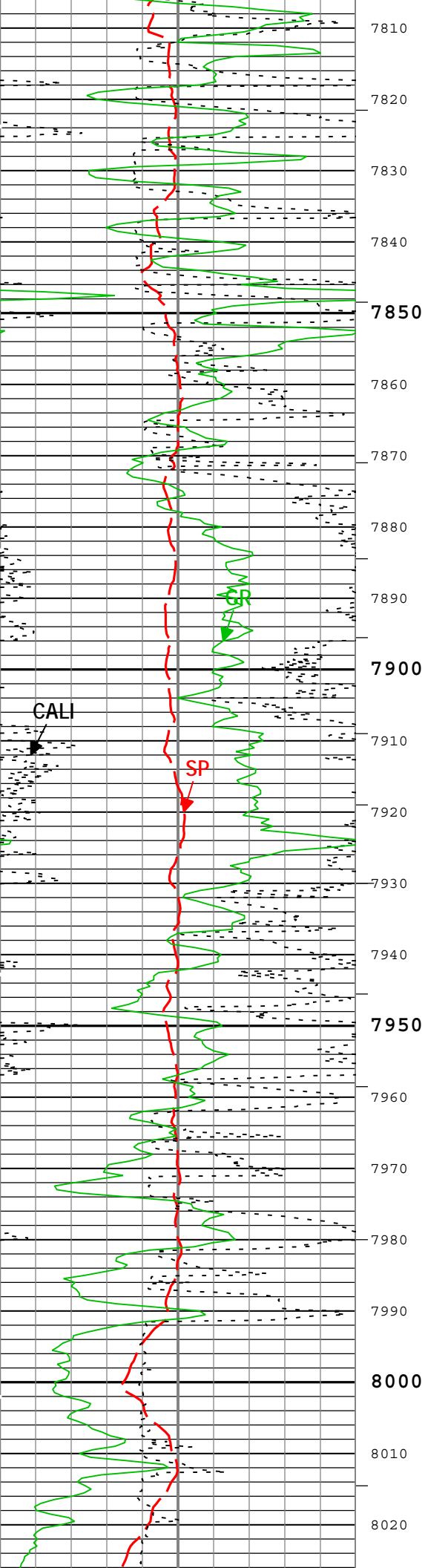


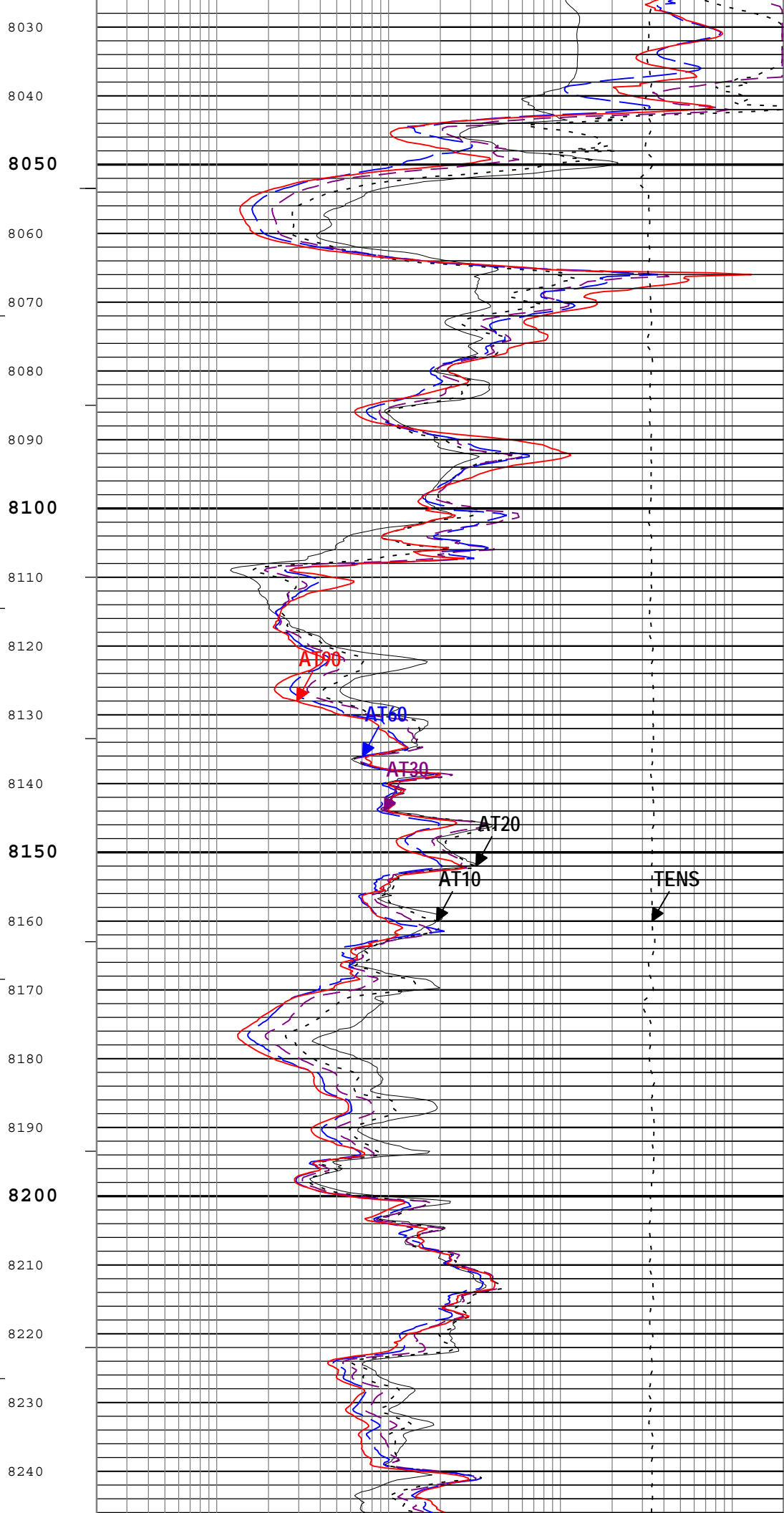
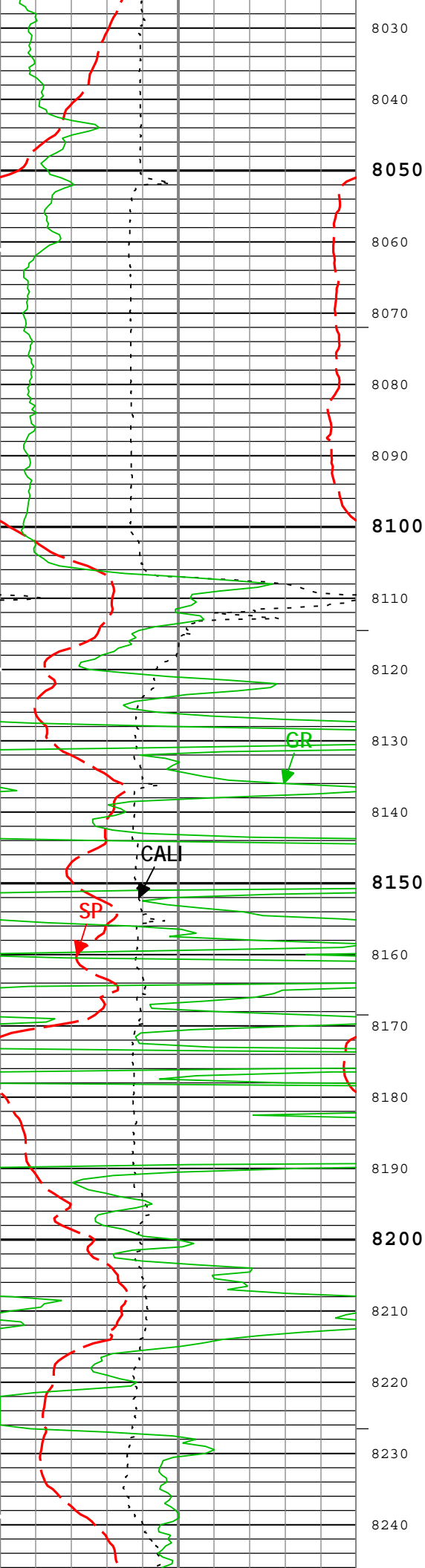


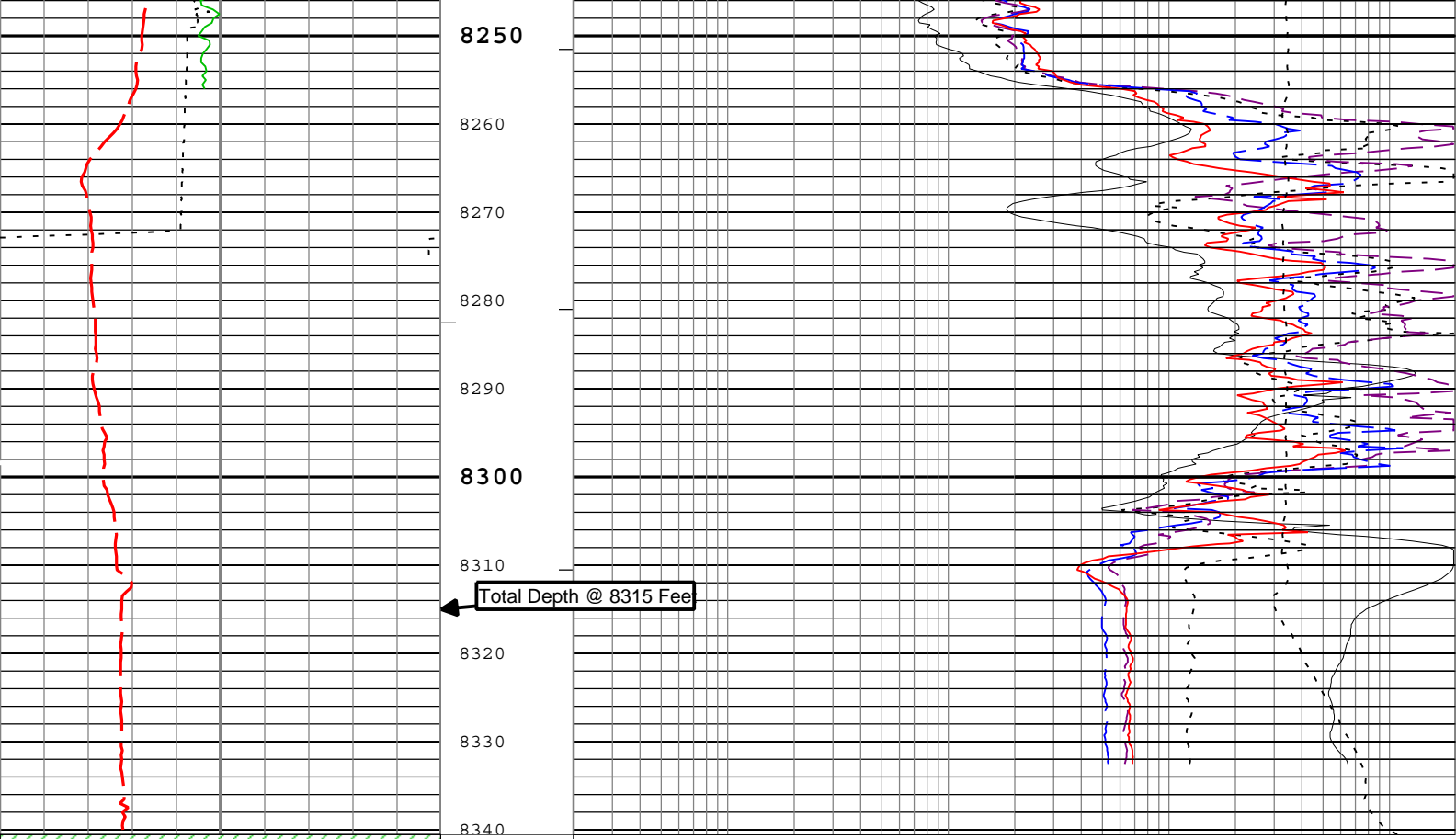












Gamma Ray Backup		
Spontaneous Potential (SP) AIT-H		
0	mV	200
Caliper (CALI) HDRS-B		
4	in	14
Gamma Ray (GR) HGNS-B		
0	gAPI	200

Array Induction Two Foot Resistivity A10 (AT10) AIT-H		
0.2	ohm.m	2000
Array Induction Two Foot Resistivity A20 (AT20) AIT-H		
0.2	ohm.m	2000
Array Induction Two Foot Resistivity A30 (AT30) AIT-H		
0.2	ohm.m	2000
Array Induction Two Foot Resistivity A60 (AT60) AIT-H		
0.2	ohm.m	2000
Array Induction Two Foot Resistivity A90 (AT90) AIT-H		
0.2	ohm.m	2000

Cable Tension (TENS)		
10000	lbf	0

—ICV - Integrated Cement Volume every 100.00 (ft3)

—ICV - Integrated Cement Volume every 10.00 (ft3)

TIME\_1900 - Time Marked every 60.00 (s)

—IHV - Integrated Hole Volume every 100.00 (ft3)

—IHV - Integrated Hole Volume every 10.00 (ft3)

Description: AIT Basic Log Two    Format: Log ( KM 5in Induction Upper )    Index Scale: 5 in per 100 ft    Index Unit: ft    Index Type: Measured Depth    Creation Date: 31-May-2013 22:20:08

Channel Processing Parameters				
Parameter	Description	Tool	Value	Unit
ABHM	Array Induction Borehole Correction Mode	AIT-H	Compute Standoff	
ABLM	Array Induction Basic Logs Mode	AIT-H	Normal	
ACDE	Array Induction Casing Detection Enable	AIT-H	Yes	
ASTA	Array Induction Tool Standoff	AIT-H	1	in
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
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	
GRSE	Generalized Mud Resistivity Selection, from Measured or Computed Mud Resistivity	Borehole	AMF	
SOCO	Standoff Correction Option	HGNS-B	Yes	
SPDR	SP Drift Per Foot	AIT-H	0	mV/ft

Depth Zone Parameters			
Parameter	Value	Start ( ft )	Stop ( ft )
BS	0	189.5	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

Run 1									
5" Induction									

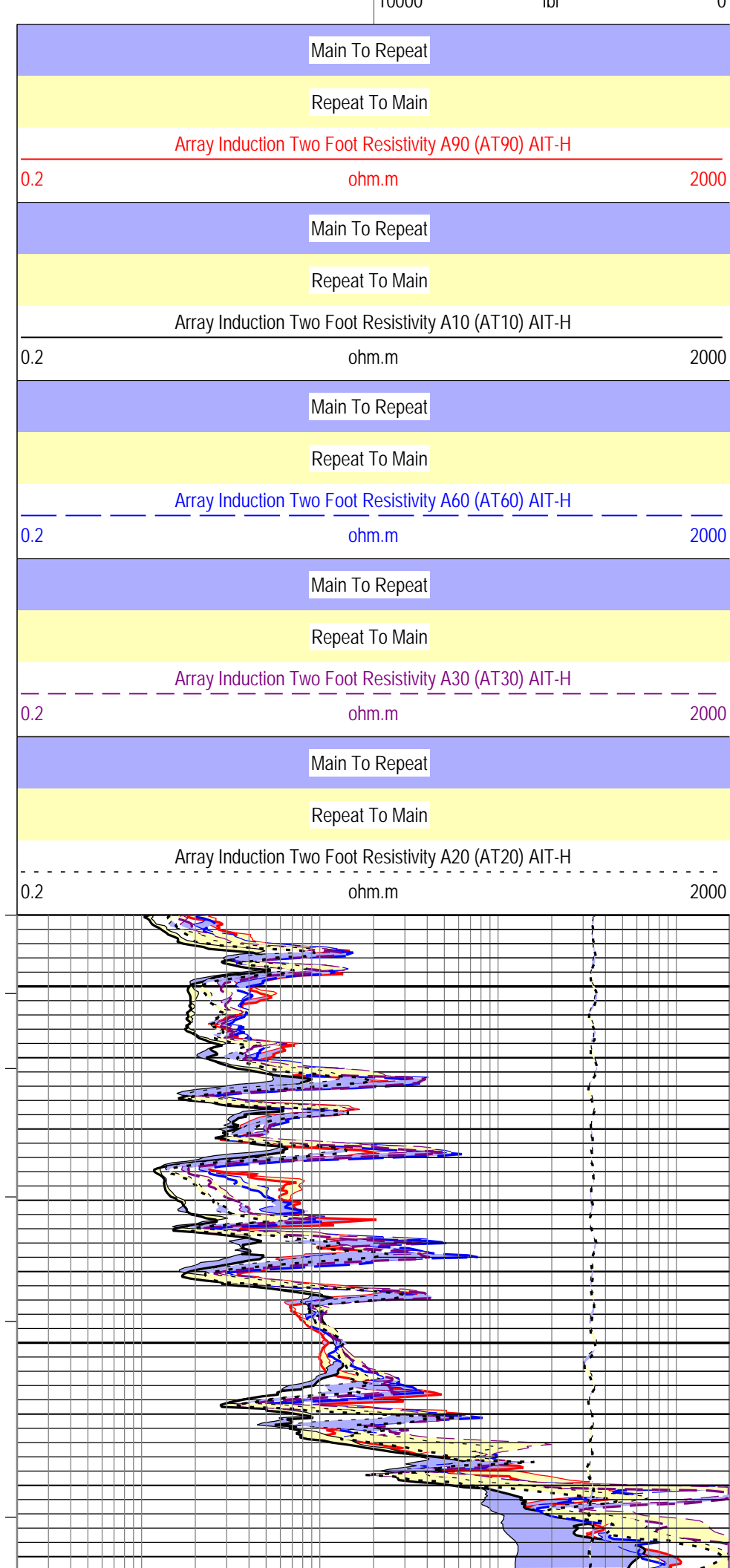
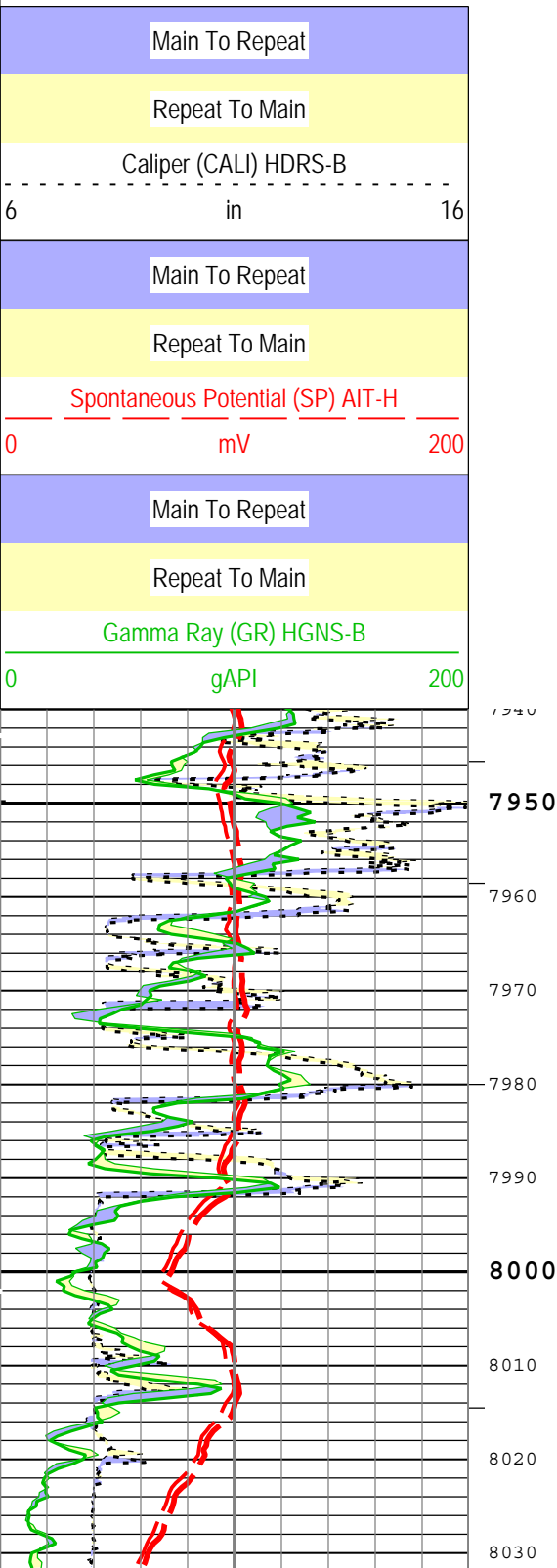
Pass Summary								
Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	Depth Shift	Include Parallel Data
Run 1	Repeat[2]:Up	Up	7892.70 ft	8335.41 ft	31-May-2013 4:27:36 PM	31-May-2013 4:35:26 PM	10.10 ft	true
Run 1	Main[3]:Up	Up	285.10 ft	8340.47 ft	31-May-2013 4:39:28 PM	31-May-2013 6:55:10 PM	10.52 ft	true
All depths are referenced to toolstring zero								
Log	Run 1: Main[3]:Up							

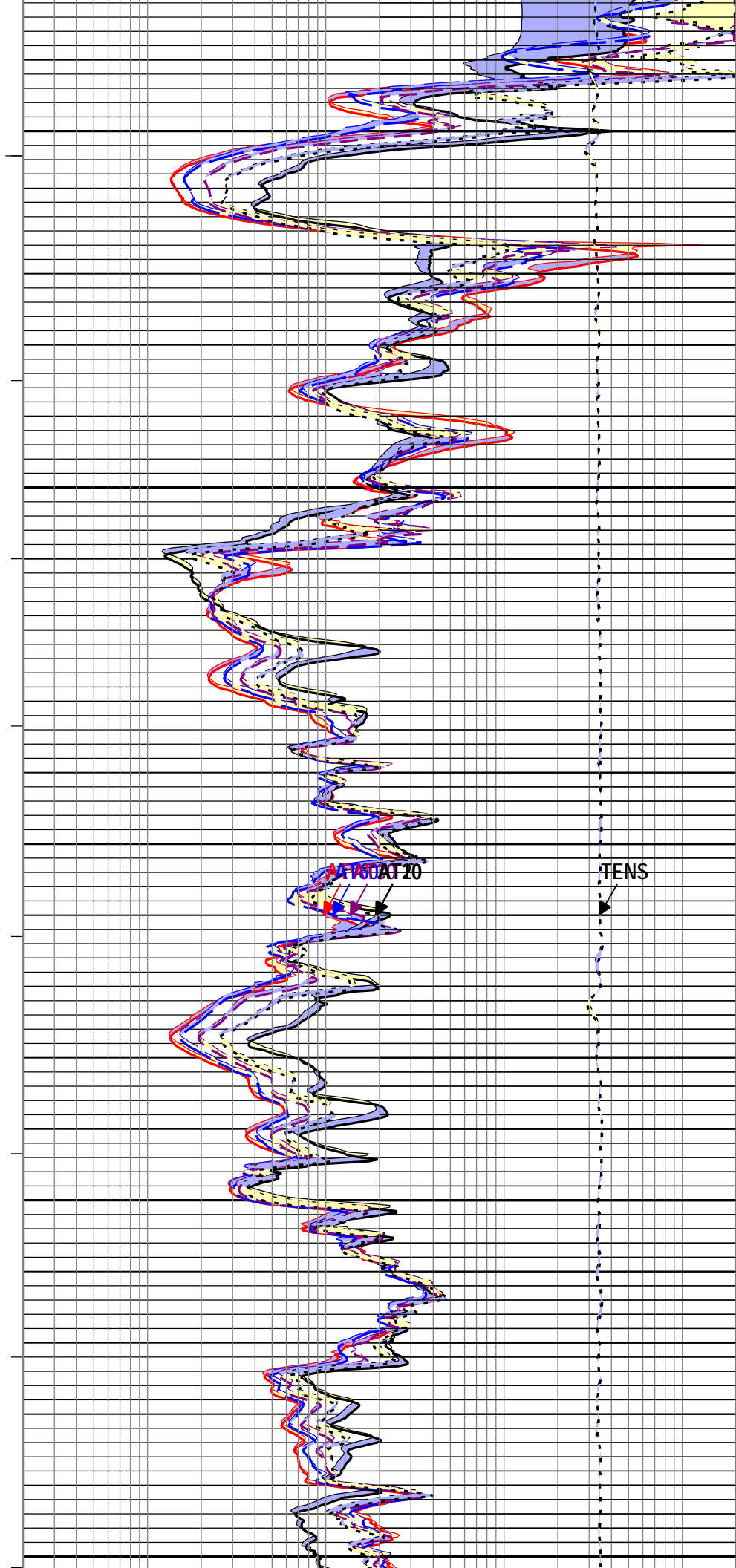
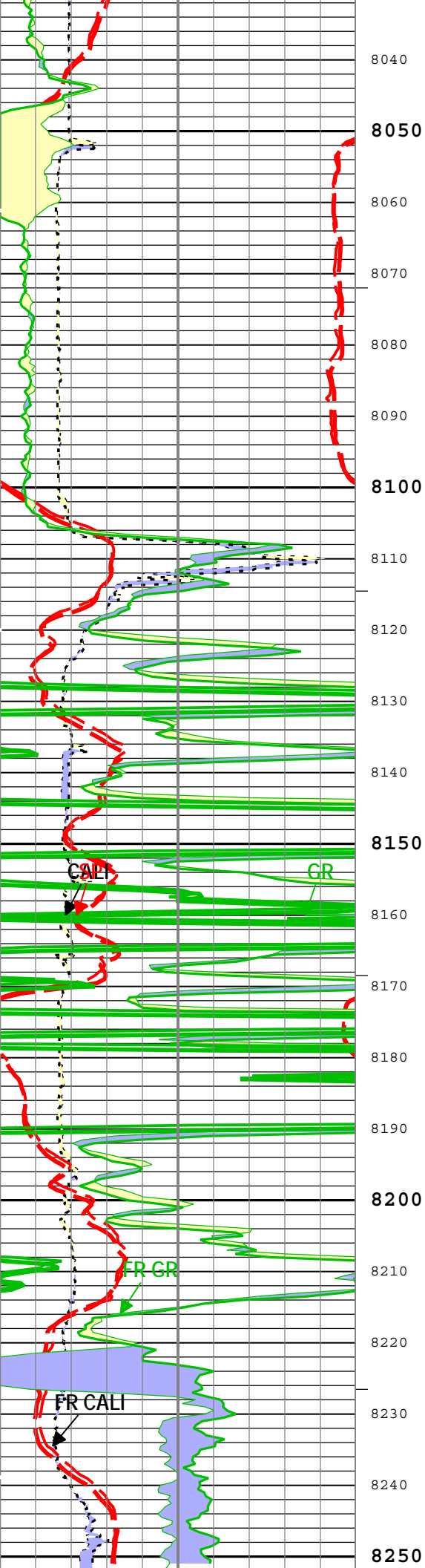
Description: AIT Basic Log Two
 Format: Log ( KM 5in Induction RA )
 Index Scale: 5 in per 100 ft
 Index Unit: ft
 Index Type: Measured Depth
 Creation Date: 31-May-2013 22:20:12

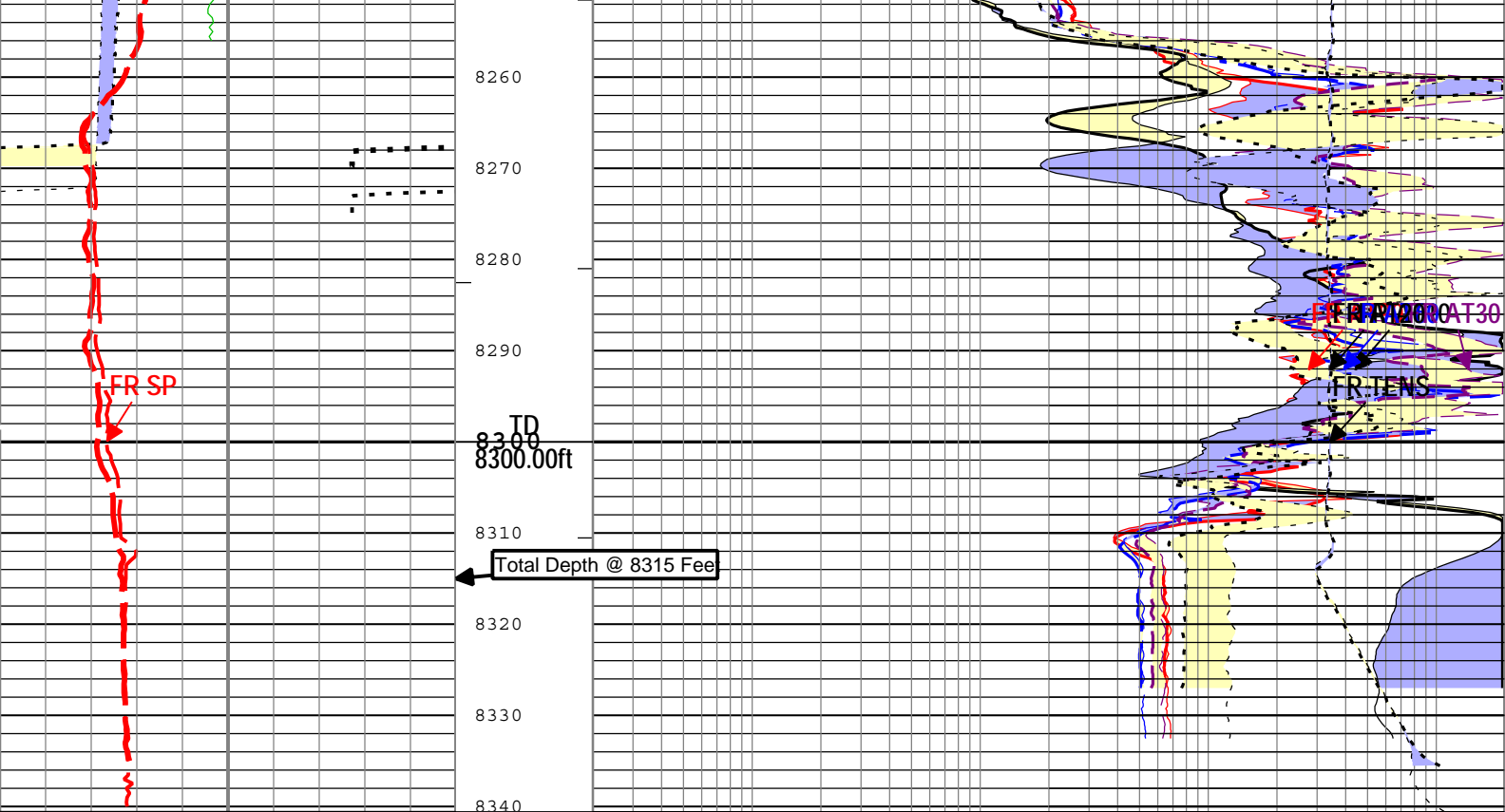
Channel	Source	Sampling
ICV	Borehole	6in
IHV	Borehole	6in
TIME_1900	WLWorkflow	0.1in

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

Main To Repeat
Repeat To Main
Cable Tension (TENS)
-----
10000                      1bf







Main To Repeat		
Repeat To Main		
Caliper (CALI) HDRS-B		
6	in	16
Main To Repeat		
Repeat To Main		
Spontaneous Potential (SP) AIT-H		
0	mV	200
Main To Repeat		
Repeat To Main		
Gamma Ray (GR) HGNS-B		
0	gAPI	200

Main To Repeat		
Repeat To Main		
Array Induction Two Foot Resistivity A90 (AT90) AIT-H		
0.2	ohm.m	2000
Main To Repeat		
Repeat To Main		
Array Induction Two Foot Resistivity A10 (AT10) AIT-H		
0.2	ohm.m	2000
Main To Repeat		
Repeat To Main		
Array Induction Two Foot Resistivity A60 (AT60) AIT-H		
0.2	ohm.m	2000
Main To Repeat		
Repeat To Main		
Array Induction Two Foot Resistivity A30 (AT30) AIT-H		
0.2	ohm.m	2000
Main To Repeat		
Repeat To Main		
Array Induction Two Foot Resistivity A20 (AT20) AIT-H		
0.2	ohm.m	2000

Main To Repeat		
----------------	--	--

				Repeat To Main	
				Cable Tension (TENS)	
				10000	0
				lbf	
— ICV - Integrated Cement Volume every 100.00 (ft3)					
— ICV - Integrated Cement Volume every 10.00 (ft3)					
TIME_1900 - Time Marked every 60.00 (s)					
— IHV - Integrated Hole Volume every 100.00 (ft3)					
— IHV - Integrated Hole Volume every 10.00 (ft3)					
Description: AIT Basic Log Two    Format: Log ( KM 5in Induction RA )    Index Scale: 5 in per 100 ft    Index Unit: ft    Index Type: Measured Depth    Creation Date: 31-May-2013 22:20:12					

Calibration Report

AIT-H (Array Induction Tool - H) Calibration - Run 1

Primary Equipment :

Array Induction Sonde - H AHIS 398

Auxiliary Equipment :

AITH Rm/SP Bottom Nose AHRM 398

AIT Sonde Calibration - Test Loop Gain

Master (EEPROM): 11:33:25 08-Mar-2013

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Test Loop Gain - 0		Master	1.000	0.950	1.016	1.050	
Test Loop Phase - 0	deg	Master	0	-3.000	0.420	3.000	
Test Loop Gain - 1		Master	1.000	0.950	1.015	1.050	
Test Loop Phase - 1	deg	Master	0	-3.000	0.591	3.000	
Test Loop Gain - 2		Master	1.000	0.950	1.018	1.050	
Test Loop Phase - 2	deg	Master	0	-3.000	0.001	3.000	
Test Loop Gain - 3		Master	1.000	0.950	1.016	1.050	
Test Loop Phase - 3	deg	Master	0	-3.000	0.047	3.000	
Test Loop Gain - 4		Master	1.000	0.950	0.998	1.050	
Test Loop Phase - 4	deg	Master	0	-3.000	-0.017	3.000	
Test Loop Gain - 5		Master	1.000	0.950	0.992	1.050	
Test Loop Phase - 5	deg	Master	0	-3.000	-0.183	3.000	
Test Loop Gain - 6		Master	1.000	0.950	1.000	1.050	
Test Loop Phase - 6	deg	Master	0	-3.000	0.156	3.000	
Test Loop Gain - 7		Master	1.000	0.950	1.014	1.050	
Test Loop Phase - 7	deg	Master	0	-3.000	-0.218	3.000	

AIT Sonde Calibration - Sonde Error Correction

Master (EEPROM): 11:33:25 08-Mar-2013

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Sonde Error Correction Real - 0	mS/m	Master	-----	-231.000	-84.646	119.000	
Sonde Error Correction Quad - 0		Master	-----	-2250.000	116.355	2250.000	
Sonde Error Correction Real - 1	mS/m	Master	-----	114.000	169.146	204.000	
Sonde Error Correction Quad - 1		Master	-----	-625.000	151.070	625.000	
Sonde Error Correction Real - 2	mS/m	Master	-----	66.000	112.979	156.000	
Sonde Error Correction Quad - 2		Master	-----	-350.000	30.139	350.000	
Sonde Error Correction Real - 3	mS/m	Master	-----	39.000	59.570	89.000	
Sonde Error Correction Quad - 3		Master	-----	-250.000	41.303	250.000	
Sonde Error Correction Real - 4	mS/m	Master	-----	15.000	23.093	35.000	
Sonde Error Correction Quad - 4		Master	-----	-63.000	-12.430	63.000	
Sonde Error Correction Real - 5	mS/m	Master	-----	4.000	13.930	24.000	
Sonde Error Correction Quad - 5		Master	-----	-50.000	1.759	50.000	
Sonde Error Correction Real - 6	mS/m	Master	-----	5.000	9.620	15.000	
Sonde Error Correction Quad - 6		Master	-----	-30.000	5.363	30.000	
Sonde Error Correction Real - 7	mS/m	Master	-----	-5.000	-0.801	5.000	
Sonde Error Correction Quad - 7		Master	-----	-30.000	3.431	30.000	

AIT Mud Calibration - Mud Calibration Gain

Master (EEPROM): 11:33:25 08-Mar-2013

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div><div></div><div></div><div></div><div></div></div>
Coarse Gain		Master	1.000	0.800	0.826	1.200	<div><div></div><div></div><div></div><div></div></div>
Fine Gain		Master	1.000	0.800	0.823	1.200	<div><div></div><div></div><div></div><div></div></div>
AIT Electronics Check - Thru Calibration Check							
Master (EEPROM):	11:33:25 08-Mar-2013	Before (Measured):	15:42:21 31-May-2013	After:			
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div><div></div><div></div><div></div><div></div></div>
Thru Cal Mag - 0	V	Master	----	0.363	0.627	0.847	<div><div></div><div></div><div></div><div></div></div>
		Before	----	0.363	0.626	0.847	<div><div></div><div></div><div></div><div></div></div>
		After	----	----	----	----	<div><div></div><div></div><div></div><div></div></div>
		Before-Master	----	----	-0.001	----	<div><div></div><div></div><div></div><div></div></div>
		After-Before	----	----	----	----	<div><div></div><div></div><div></div><div></div></div>
Thru Cal Phase - 0	deg	Master	----	11.000	74.092	131.000	<div><div></div><div></div><div></div><div></div></div>
		Before	----	11.000	74.503	131.000	<div><div></div><div></div><div></div><div></div></div>
		After	----	----	----	----	<div><div></div><div></div><div></div><div></div></div>
		Before-Master	----	----	0.411	----	<div><div></div><div></div><div></div><div></div></div>
		After-Before	----	----	----	----	<div><div></div><div></div><div></div><div></div></div>
Thru Cal Mag - 1	V	Master	----	0.762	1.284	1.778	<div><div></div><div></div><div></div><div></div></div>
		Before	----	0.762	1.283	1.778	<div><div></div><div></div><div></div><div></div></div>
		After	----	----	----	----	<div><div></div><div></div><div></div><div></div></div>
		Before-Master	----	----	-0.001	----	<div><div></div><div></div><div></div><div></div></div>
		After-Before	----	----	----	----	<div><div></div><div></div><div></div><div></div></div>
Thru Cal Phase - 1	deg	Master	----	10.000	73.071	130.000	<div><div></div><div></div><div></div><div></div></div>
		Before	----	10.000	73.483	130.000	<div><div></div><div></div><div></div><div></div></div>
		After	----	----	----	----	<div><div></div><div></div><div></div><div></div></div>
		Before-Master	----	----	0.412	----	<div><div></div><div></div><div></div><div></div></div>
		After-Before	----	----	----	----	<div><div></div><div></div><div></div><div></div></div>
Thru Cal Mag - 2	V	Master	----	0.374	0.637	0.872	<div><div></div><div></div><div></div><div></div></div>
		Before	----	0.374	0.636	0.872	<div><div></div><div></div><div></div><div></div></div>
		After	----	----	----	----	<div><div></div><div></div><div></div><div></div></div>
		Before-Master	----	----	-0.001	----	<div><div></div><div></div><div></div><div></div></div>
		After-Before	----	----	----	----	<div><div></div><div></div><div></div><div></div></div>
Thru Cal Phase - 2	deg	Master	----	6.000	68.875	126.000	<div><div></div><div></div><div></div><div></div></div>
		Before	----	6.000	69.294	126.000	<div><div></div><div></div><div></div><div></div></div>
		After	----	----	----	----	<div><div></div><div></div><div></div><div></div></div>
		Before-Master	----	----	0.419	----	<div><div></div><div></div><div></div><div></div></div>
		After-Before	----	----	----	----	<div><div></div><div></div><div></div><div></div></div>
Thru Cal Mag - 3	V	Master	----	0.422	0.723	0.986	<div><div></div><div></div><div></div><div></div></div>
		Before	----	0.422	0.722	0.986	<div><div></div><div></div><div></div><div></div></div>
		After	----	----	----	----	<div><div></div><div></div><div></div><div></div></div>
		Before-Master	----	----	-0.001	----	<div><div></div><div></div><div></div><div></div></div>
		After-Before	----	----	----	----	<div><div></div><div></div><div></div><div></div></div>
Thru Cal Phase - 3	deg	Master	----	5.000	67.972	125.000	<div><div></div><div></div><div></div><div></div></div>
		Before	----	5.000	68.392	125.000	<div><div></div><div></div><div></div><div></div></div>
		After	----	----	----	----	<div><div></div><div></div><div></div><div></div></div>
		Before-Master	----	----	0.420	----	<div><div></div><div></div><div></div><div></div></div>
		After-Before	----	----	----	----	<div><div></div><div></div><div></div><div></div></div>
Thru Cal Mag - 4	V	Master	----	0.802	1.347	1.872	<div><div></div><div></div><div></div><div></div></div>
		Before	----	0.802	1.346	1.872	<div><div></div><div></div><div></div><div></div></div>
		After	----	----	----	----	<div><div></div><div></div><div></div><div></div></div>
		Before-Master	----	----	-0.001	----	<div><div></div><div></div><div></div><div></div></div>
		After-Before	----	----	----	----	<div><div></div><div></div><div></div><div></div></div>
Thru Cal Phase - 4	deg	Master	----	-1.000	60.999	119.000	<div><div></div><div></div><div></div><div></div></div>
		Before	----	-1.000	61.424	119.000	<div><div></div><div></div><div></div><div></div></div>
		After	----	----	----	----	<div><div></div><div></div><div></div><div></div></div>
		Before-Master	----	----	0.425	----	<div><div></div><div></div><div></div><div></div></div>
		After-Before	----	----	----	----	<div><div></div><div></div><div></div><div></div></div>
Thru Cal Mag - 5	V	Master	----	1.173	1.946	2.737	<div><div></div><div></div><div></div><div></div></div>
		Before	----	1.173	1.943	2.737	<div><div></div><div></div><div></div><div></div></div>
		After	----	----	----	----	<div><div></div><div></div><div></div><div></div></div>
		Before-Master	----	----	-0.003	----	<div><div></div><div></div><div></div><div></div></div>
		After-Before	----	----	----	----	<div><div></div><div></div><div></div><div></div></div>
Thru Cal Phase - 5	deg	Master	----	-3.000	58.812	117.000	<div><div></div><div></div><div></div><div></div></div>
		Before	----	-3.000	59.249	117.000	<div><div></div><div></div><div></div><div></div></div>
		After	----	----	----	----	<div><div></div><div></div><div></div><div></div></div>
		Before-Master	----	----	0.437	----	<div><div></div><div></div><div></div><div></div></div>
		After-Before	----	----	----	----	<div><div></div><div></div><div></div><div></div></div>
Thru Cal Mag - 6	V	Master	----	1.173	1.941	2.737	<div><div></div><div></div><div></div><div></div></div>

		Before	----	1.173	1.939	2.737	<div><div></div></div>
		After	----	----	----	----	<div><div></div></div>
		Before-Master	----	----	-0.002	----	<div><div></div></div>
		After-Before	----	----	----	----	<div><div></div></div>
Thru Cal Phase - 6	deg	Master	----	-3.000	58.874	117.000	<div><div></div></div>
		Before	----	-3.000	59.313	117.000	<div><div></div></div>
		After	----	----	----	----	<div><div></div></div>
		Before-Master	----	----	0.439	----	<div><div></div></div>
		After-Before	----	----	----	----	<div><div></div></div>
Thru Cal Mag - 7	V	Master	----	0.849	1.378	1.981	<div><div></div></div>
		Before	----	0.849	1.378	1.981	<div><div></div></div>
		After	----	----	----	----	<div><div></div></div>
		Before-Master	----	----	0.000	----	<div><div></div></div>
		After-Before	----	----	----	----	<div><div></div></div>
Thru Cal Phase - 7	deg	Master	----	-7.000	53.154	113.000	<div><div></div></div>
		Before	----	-7.000	53.666	113.000	<div><div></div></div>
		After	----	----	----	----	<div><div></div></div>
		Before-Master	----	----	0.512	----	<div><div></div></div>
		After-Before	----	----	----	----	<div><div></div></div>
SPA Zero	mV	Master		-50.000	-0.032	50.000	<div><div></div></div>
		Before		-50.000	-0.046	50.000	<div><div></div></div>
		After	----	----	----	----	<div><div></div></div>
		Before-Master	----	----	-0.014	----	<div><div></div></div>
		After-Before	----	----	----	----	<div><div></div></div>
SPA Plus	mV	Master		941.000	992.378	1040.000	<div><div></div></div>
		Before		941.000	993.083	1040.000	<div><div></div></div>
		After	----	----	----	----	<div><div></div></div>
		Before-Master	----	----	0.705	----	<div><div></div></div>
		After-Before	----	----	----	----	<div><div></div></div>
Temperature Zero	V	Master		-0.050	0.000	0.050	<div><div></div></div>
		Before		-0.050	0.000	0.050	<div><div></div></div>
		After	----	----	----	----	<div><div></div></div>
		Before-Master	----	----	0.000	----	<div><div></div></div>
		After-Before	----	----	----	----	<div><div></div></div>
Temperature Plus	V	Master		0.870	0.919	0.960	<div><div></div></div>
		Before		0.870	0.920	0.960	<div><div></div></div>
		After	----	----	----	----	<div><div></div></div>
		Before-Master	----	----	0.001	----	<div><div></div></div>
		After-Before	----	----	----	----	<div><div></div></div>

HGNS-B (HILT Gamma-Ray and Neutron Sonde, 125 degC) Calibration - Run 1			
Primary Equipment :			
HILT Gamma-Ray and Neutron Sonde, 125 degC	HGNS-B	863	
Auxiliary Equipment :			
HGNS Accelerometer, 125 degC	HACCZ-B	452	
AmBe Neutron Logging Source	NSR-F	5069	
Calibration Parameter :			
Water Temperature			
Housing Size			
JIG-BKG (Jig minus background reference)	165		

HGNS Accelerometer Calibration - Accelerometer Accumulations							
Before (Measured):		15:41:18 31-May-2013					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div><div></div></div>
AZ Vertical Measurement	ft/s2	Before	32.2	31.5	31.8	32.8	<div><div></div></div>
HGNS Accelerometer EEPROM - Accelerometer EEPROM Read							
Master (EEPROM):		00:00:00 15-Dec-1996					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div><div></div></div>
Accelerometer Manufacturer		Master			Sunstrand		<div><div></div></div>
Accelerometer Reference Temperature	degF	Master		30.2	68.0	122.0	<div><div></div></div>
Accelerometer Coefficients - 0		Master	----	----	51.000	----	<div><div></div></div>
Accelerometer Coefficients - 1		Master	----	----	11.800	----	<div><div></div></div>

Accelerometer Coefficients - 1		Master	-----	-----	0.011	-----	
Accelerometer Coefficients - 2		Master	-----	-----	0.000	-----	
Accelerometer Coefficients - 3		Master	-----	-----	2.182	-----	
Accelerometer Coefficients - 4		Master	-----	-----	0.000	-----	
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	-----	-----	-----	-----	

Company: NIGHTHAWK PRODUCTION LLC

Schlumberger

Well: TAOS 1-10

Field: WILDCAT



County:	LINCOLN
Country:	UNITED STATES
Platform Express Array Induction with Linear Correlation	