Schlumberger

Company: NIGHTHAWK PRODUCTION LLC

Well: TAOS 1-10

Field: WILDCAT

County: LINCOLN Country: UNITED STATES

County: LINCOLN
Field: WILDCAT
Location: NENE SEC 10, T6S, R54W
Well: TAOS 1-10
Company: NIGHTHAWK PRODUCTION LLC

Platform Express

Triple Combo

Location:				
NENE SEC 10, T6S, R54W		Elev.	K.B.	5228.00 ft
1091' FNL X 852' FEL			G.L.	5213.00 ft
LAT/LONG: 39.547420/-103.419820			D.F.	5227.00 ft
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.	Max.Hole Deviation	Longitude:	Latitude:
05-073-06520-0000	0 deg	-103.41982 degrees	39.547420 degrees

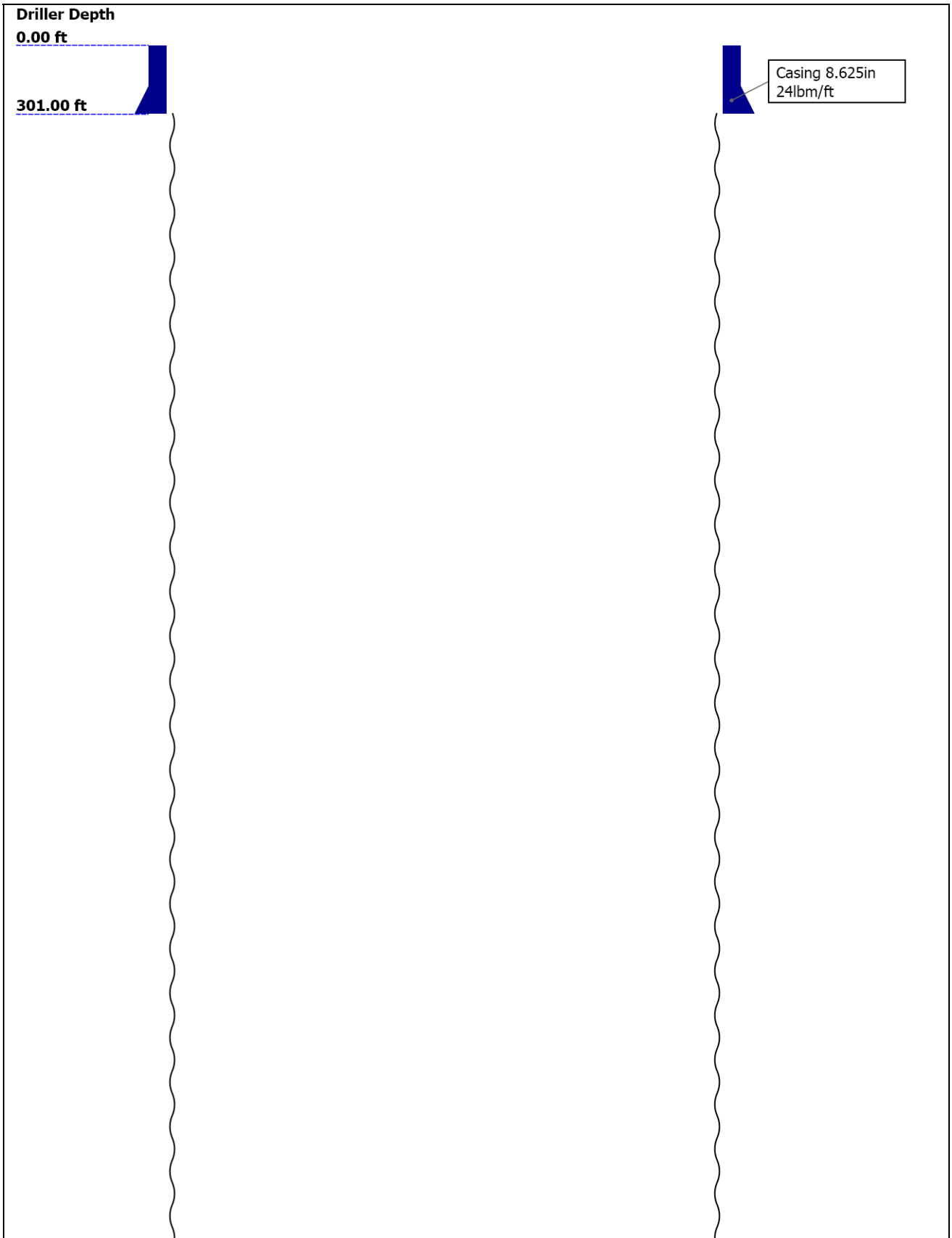
Logging Date			31-May-2013			
Run Number			Run 1			
Depth Driller			8300.00 ft			
Schlumberger Depth			8315.00 ft			
Bottom Log Interval			8315.00 ft			
Top Log Interval			309.50 ft			
Casing Driller Size @ Depth			8.625 in @ 301.00 ft			
Casing Schlumberger			309.5 ft			
Bit Size			7.875 in			
Type Fluid In Hole			Fresh Water/DAP			
MUD	Density	Viscosity	9 lbm/gal	55 s		
	Fluid Loss	PH	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		31-May-2013	11:00:00		
Logger on Bottom	Time		31-May-2013	16:15:00		
Unit Number	Location:		3022	FORT MORGAN, C		
Recorded By			Keri Loring			
Witnessed By			Anders Elgerd / Jim Wier			

Disclaimer

Contents

13. Tail

Well Sketch



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					

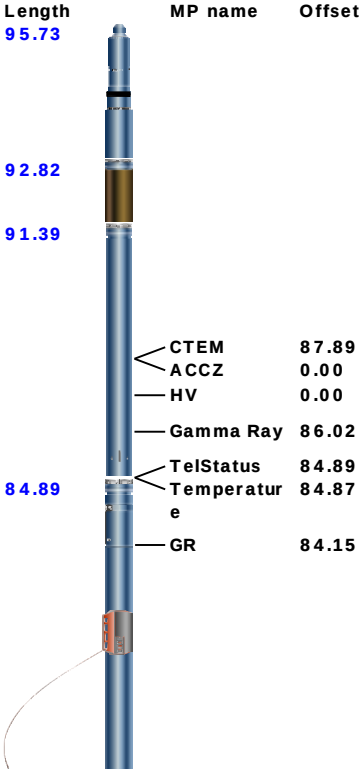
Borehole Fluids

Parameter(unit)	Run 1					
Fluid Type	Water					
Fluid Name	Fresh Water/DAP					
Max Recorded Temperatures (degF)	175.45					
Source of Sample	Flowline					
Salinity (ppm)	36327.1					
Density (lbm/gal)	9					
Funnel Viscosity (s)	55					
Fluid Loss (cm3)	12					
PH	7.2					
Date/Time Circulation Stopped	31-May-2013 11:00:00					
Date Logger on Bottom	31-May-2013					
Time Logger on Bottom	16:15:00					
Source RMF	Calculated					
RMC	Calculated					
RM @ Meas Temp (ohm.m@degF)	0.75 @ 89.68					
RMF @ Meas Temp (ohm.m@degF)	0.56 @ 75					
RMC @ Meas Temp (ohm.m@degF)	0.94 @ 75					
RM @ BHT (ohm.m@degF)	0.4 @ 175.45					
RMF @ BHT (ohm.m@degF)	0.25 @ 175.45					
RMC @ BHT (ohm.m@degF)	0.42 @ 175.45					
Total Solid (%)	5					
High Gravity Solids (%)	0					

Remarks and Equipment Summary

Run 1: Toolstring

Equip name	Length
LEH-QT:2110	**95.73**
LEH-QT:2110	
AH-369:1762	**92.82**
EDTC-B:9049	**91.39**
EDTH-B:9072	
EDTG-A	
EDTC-B:9049	
HGNS-B:863	**84.89**
HGNH:2883	
NSR-F:5069	
NPV-N	
HMCA-B	
HGNS-B:863	
HACCZ-B:452	



MP name	Offset
CTEM	**87.89**
ACCZ	**0.00**
HV	**0.00**
Gamma Ray	**86.02**
TelStatus	**84.89**
Temperatur e	**84.87**
GR	**84.15**

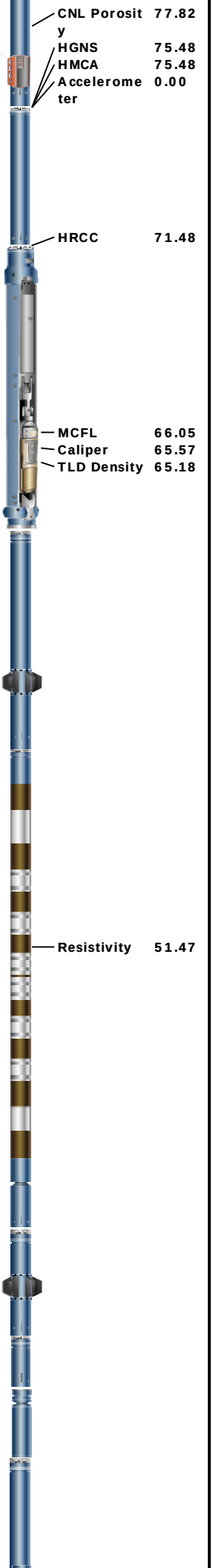
Run 1: Remarks

Toolstring run as per toolsketch

First run in hole.

Thank you for choosing Schlumberger Wireline.

Crew: J. Musgrave, J. Jump



HDRS-B:1754 **75.48**
ECH-MEB:1922
HRCC-B:791
HRMS-B:1754
GSR-J:5094
Backscatter
GPV-Q
Short Spacing
Long Spacing
HRGD-B:1849

HRLT-B:932 **63.24**
HRUH-B:946
HRUC-B:935
HRLS-B:932
HRLH-B:791
HRLC-B:791
AH-270

AH-184:2829 **39.04**

MAST-B:8181 **37.04**
ECH-SF:8023
MAPC-BA:8023
MAMS-BA:8181

Lengths are in ft
Maximum Outer Diameter = 5.000 in
Line: Sensor Location, Value: Gating Offset
All measurements are relative to TOOL_ZERO

Depth Summary

Depth Control Parameters	Run 1		
Conveyance Type	Wireline		
Rig Type	LAND		
Depth 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

5" Triple Combo

Integration Summary

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

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
HENVIR	Computation Ensemble for the HGNS Neutron environmental corrections	3.1.9755.0
DepthCorrection	DepthCorrection	3.1.9755.1732

Tool Elements	Description	Software Version	Firmware Version
HRGD-B	HILT Resistivity Gamma-Ray Density Device, 125 degC	3.1.9755.0	3.0
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: HGNS standard resolution porosities for Platform Express Format: Log (KM 5in Triple Combo) Index Scale: 5 in per 100 ft Index Unit: ft
Index Type: Measured Depth Creation Date: 31-May-2013 22:20:33

Channel	Source	Sampling
AT10	AIT-H:AHIS:AHIS	3in
AT30	AIT-H:AHIS:AHIS	3in
AT90	AIT-H:AHIS:AHIS	3in
CALI	HDRS-B:HRCC-B:HRCC-B	1in
DPHZ	HDRS-B:HRMS-B:HRGD-B	2in
GR	HGNS-B:HGNS-B:HGNS-B	6in
NPOR	HGNS-B:HGNS-B:HGNS-B	6in
PEFZ	HDRS-B:HRMS-B:HRGD-B	2in
SP	AIT-H:AHIS:AHIS	6in
STIT	DepthCorrection	6in
TENS	WLWorkflow	6in
TIME_1900	WLWorkflow	0.1in

TIME_1900 - Time Marked every 60.00 (s)

Standard Resolution Formation Photoelectric Factor (PEFZ) HDRS-B
0 10

Gas Effect
NPOR Backup

Array Induction Two Foot Resistivity A10 (AT10) AIT-H
2 ohm.m 2000

Array Induction Two Foot Resistivity A30 (AT30) AIT-H
2 ohm.m 2000

Array Induction Two Foot Resistivity A90 (AT90) AIT-H
2 ohm.m 2000

Standard Resolution Density Porosity (DPHZ) HDRS-B
0.3 ft3/ft3 -0.1

Enhanced Thermal Neutron Porosity in Selected Lithology (NPOR) HGNS-B
0.3 m3/m3 -0.1

Gamma Ray Back up

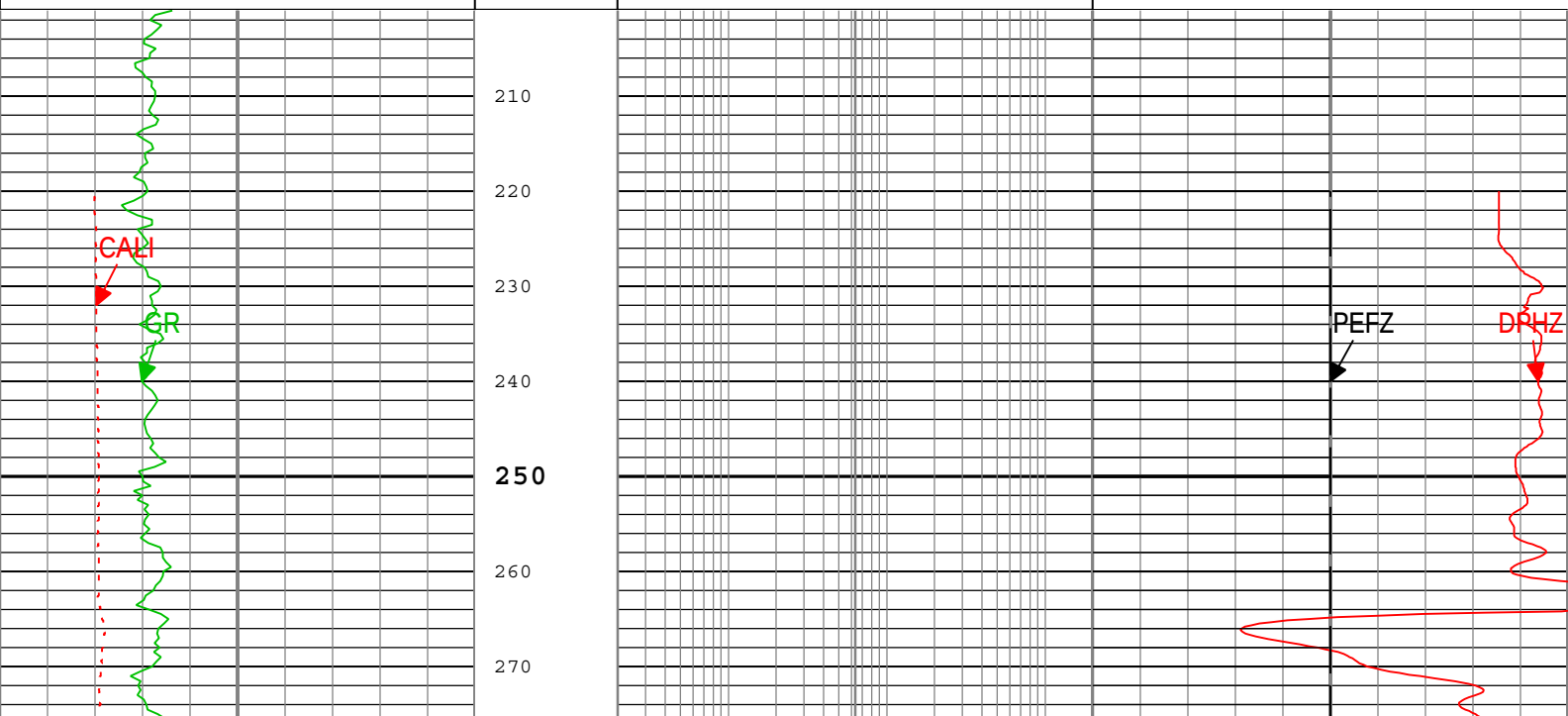
Gamma Ray (GR) HGNS-B
0 gAPI 200

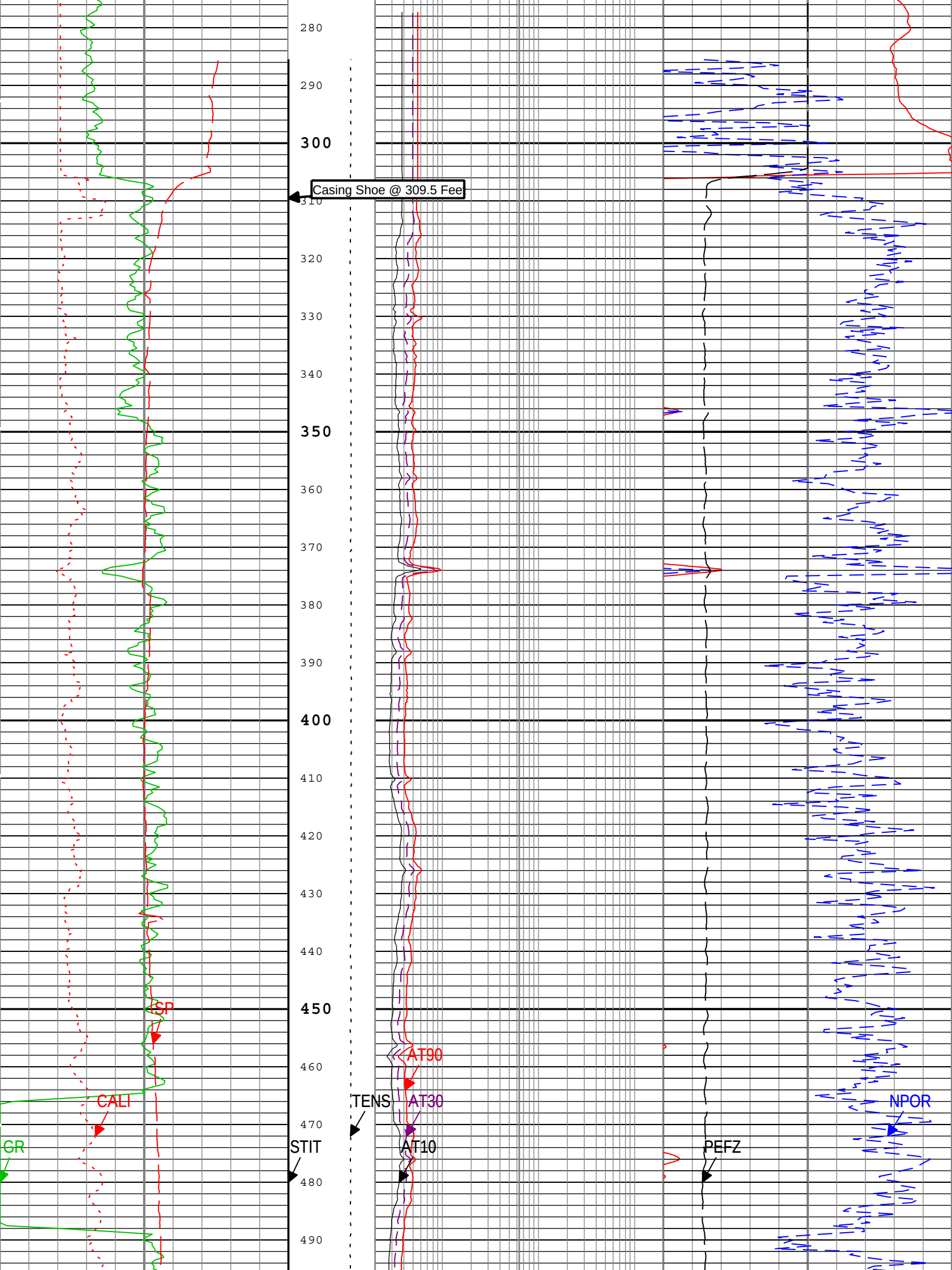
Caliper (CALI) HDRS-B
6 in 16

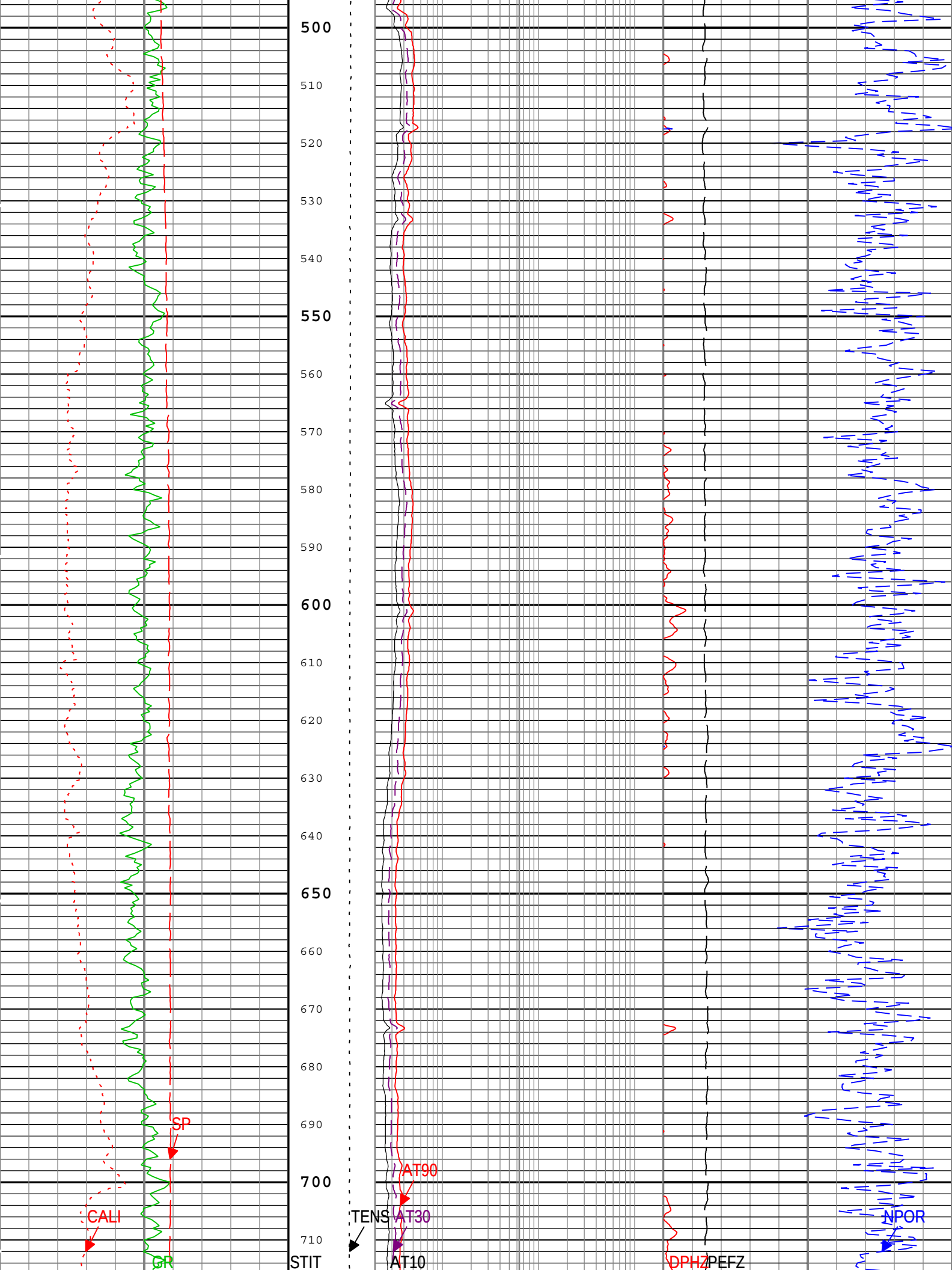
Spontaneous Potential (SP) AIT-H
0 mV 200

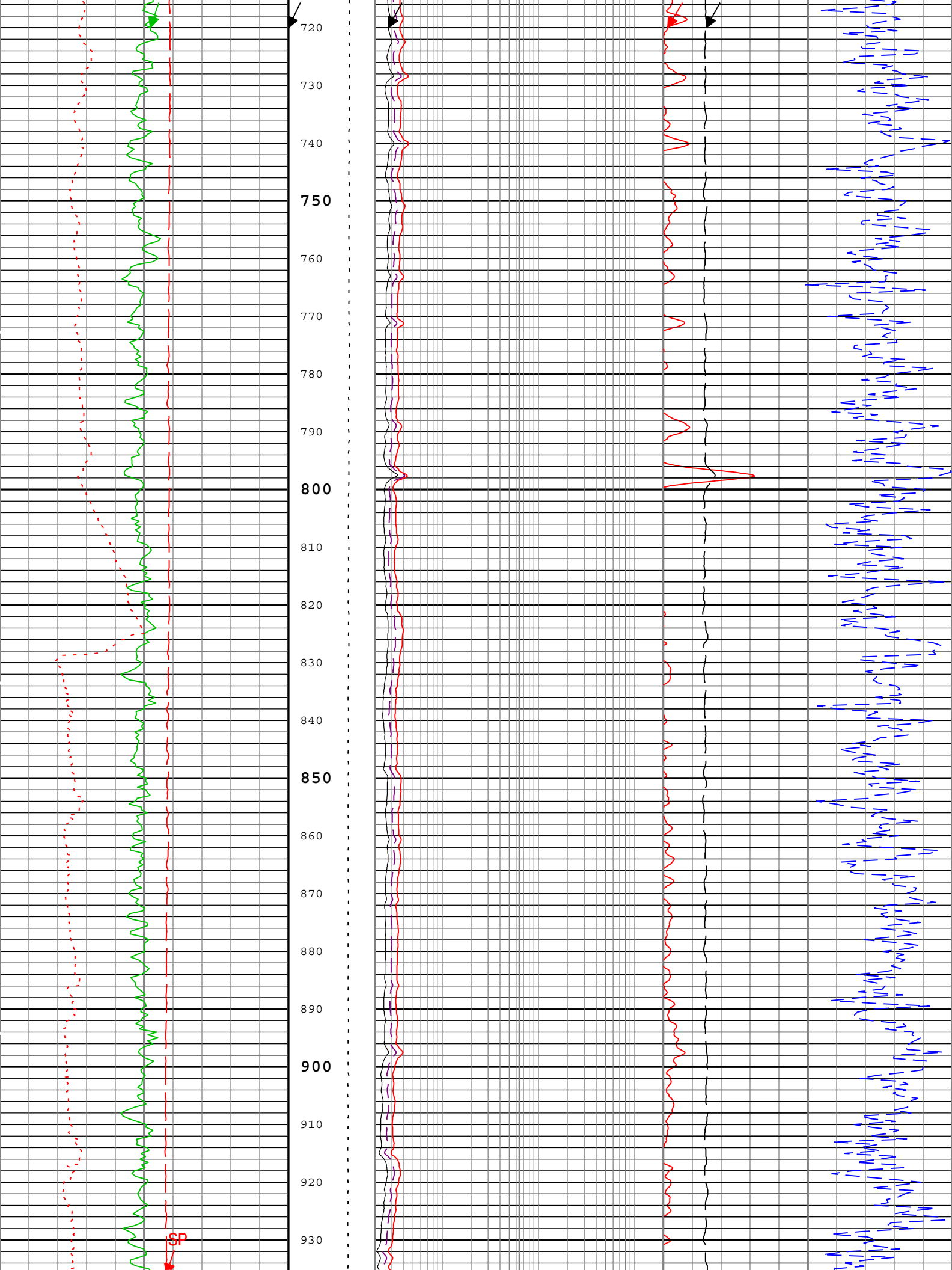
Stuck Tool Indicator, Total (STIT)
0 ft 50

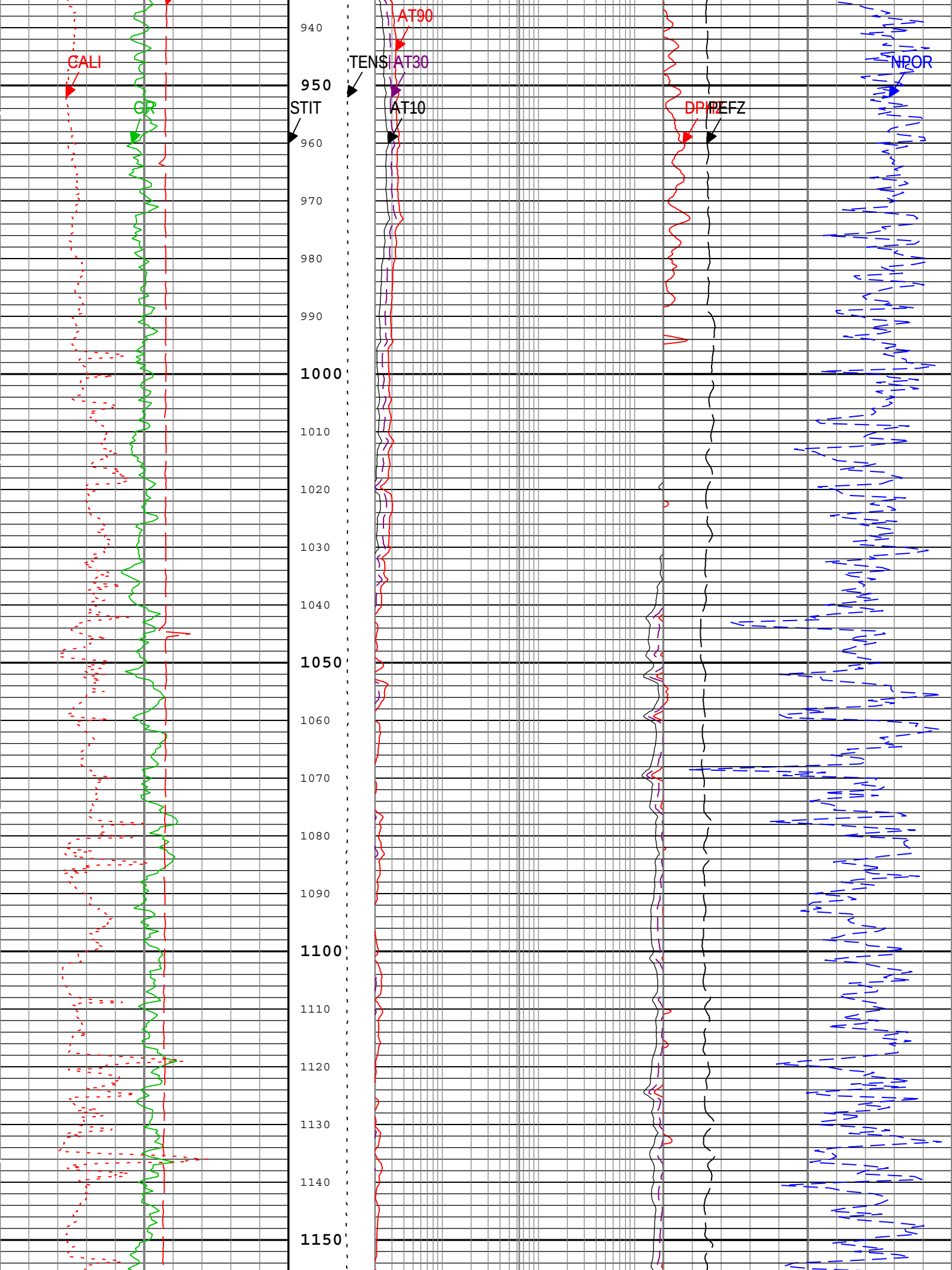
Cable Tension (TENS)
6000 lbf 0

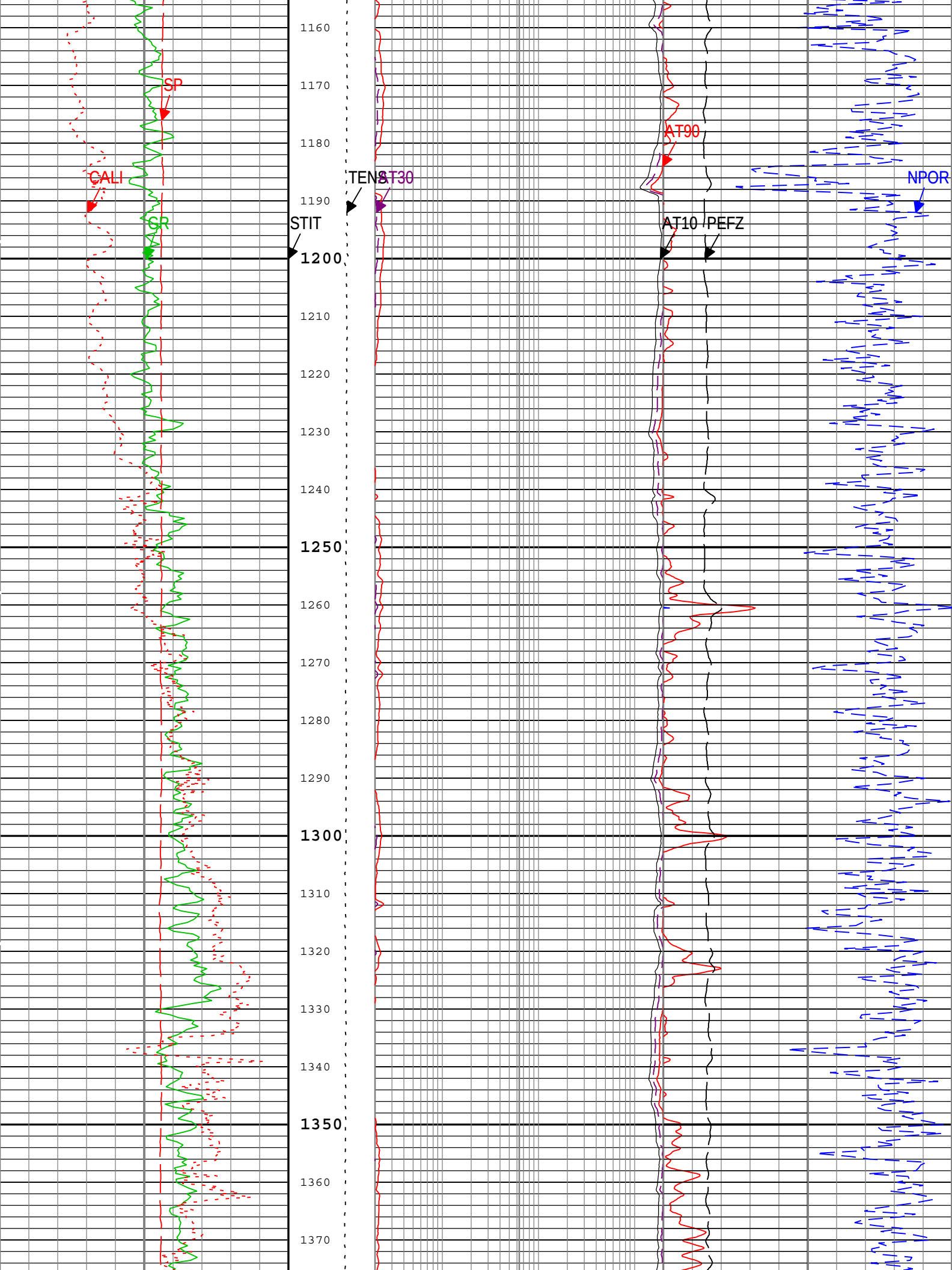


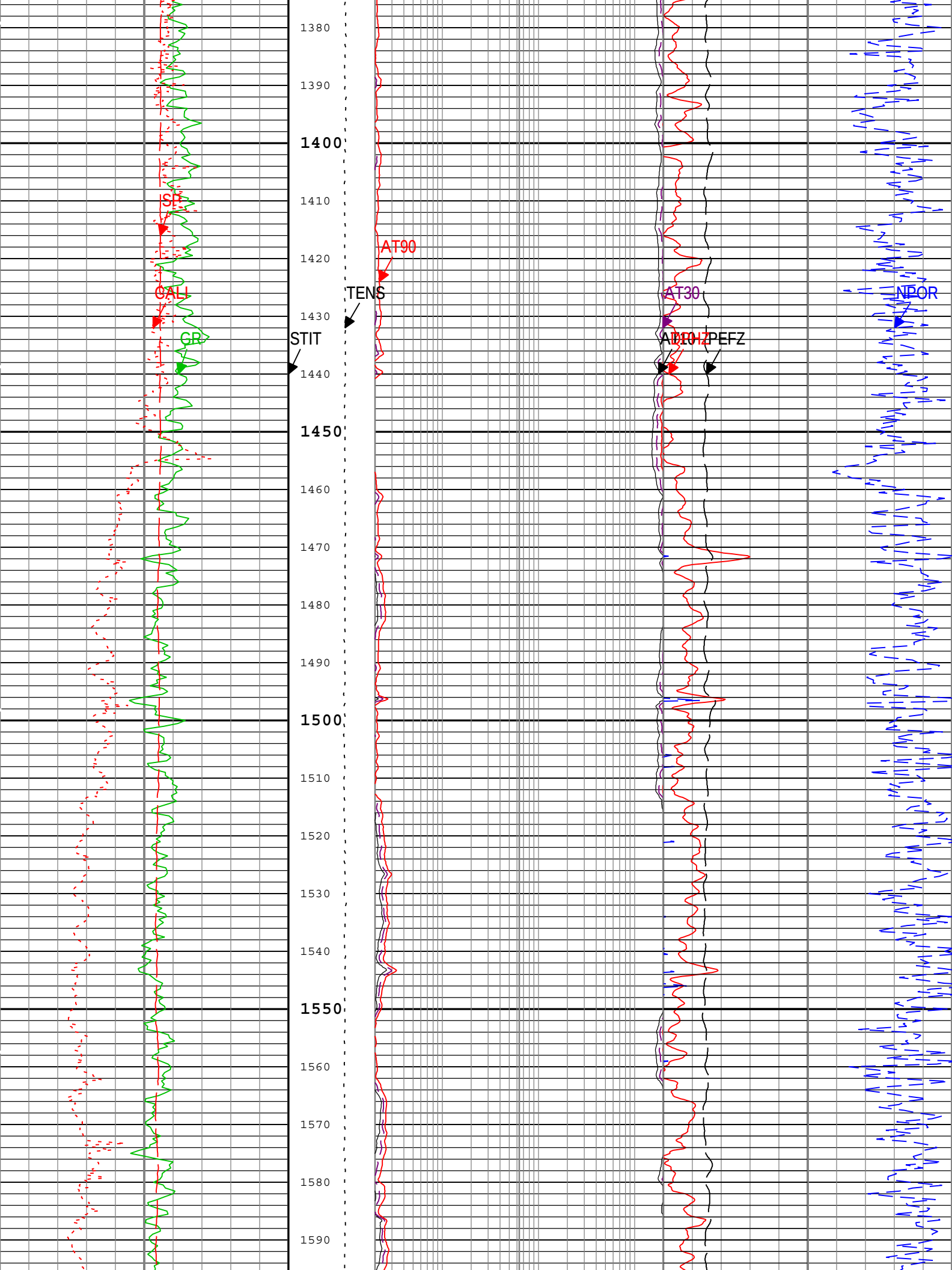

280
290
300
Casing Shoe @ 309.5 Feet
310
320
330
340
350
360
370
380
390
400
410
420
430
440
450
460
470
480
490
SP
CALI
GR
AT90
TENS
AT30
STIT
AT10
PEFZ
NPOR

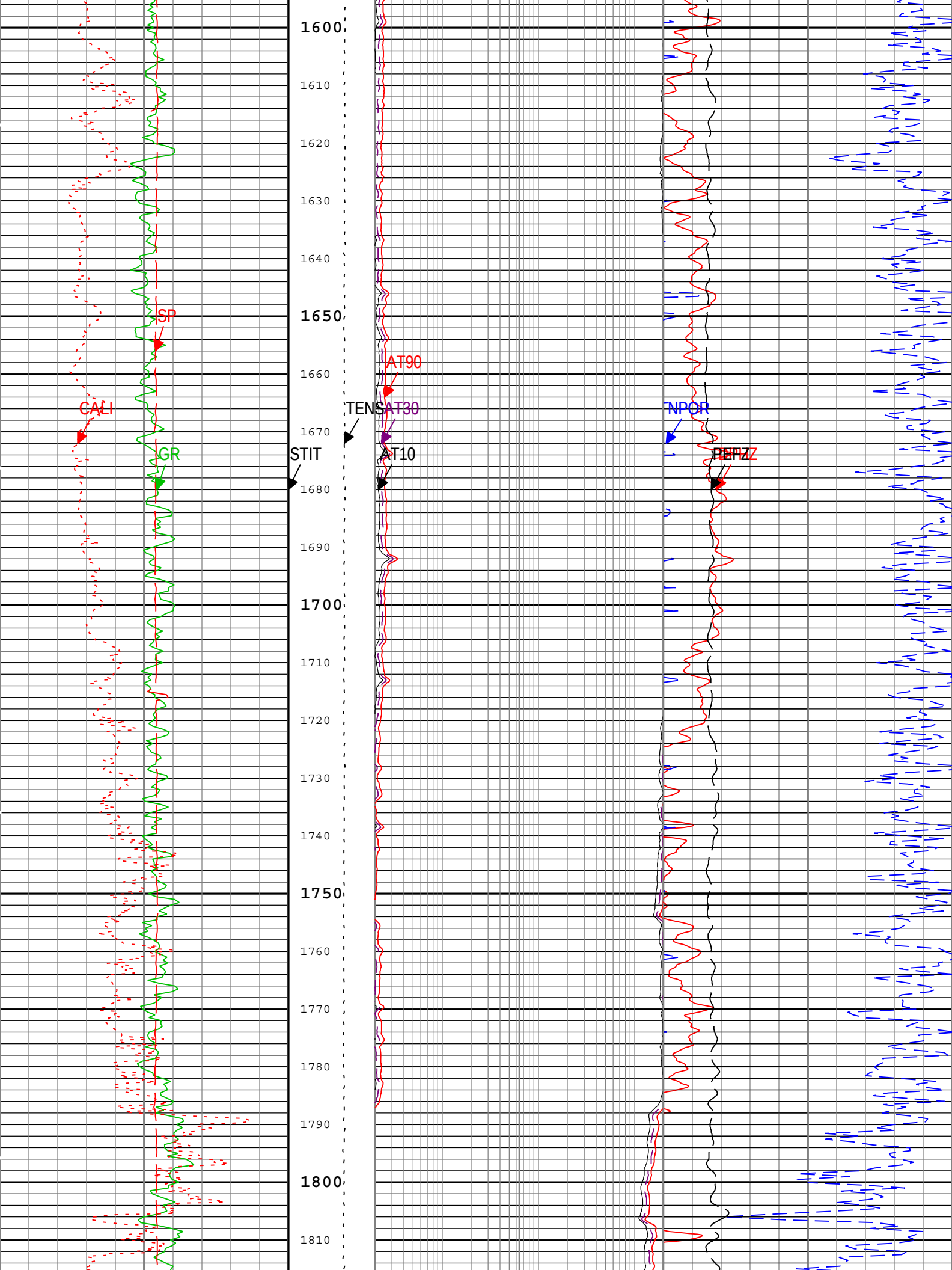

500
510
520
530
540
550
560
570
580
590
600
610
620
630
640
650
660
670
680
690
700
710
SP
CALI
GR
AT90
TENS
AT30
STIT
AT10
DPHZ
PEFZ
NPOR

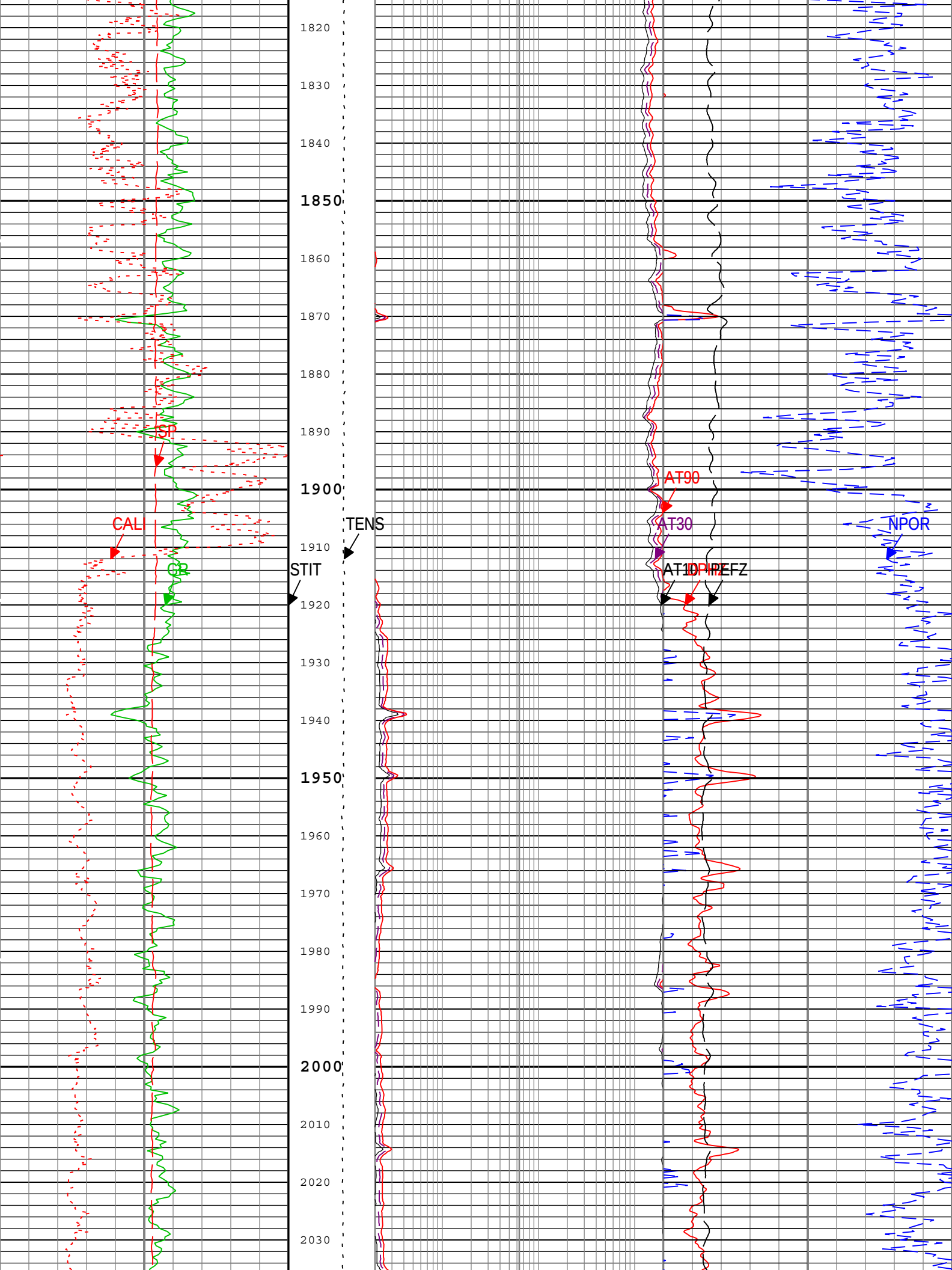

720
730
740
750
760
770
780
790
800
810
820
830
840
850
860
870
880
890
900
910
920
930
SP

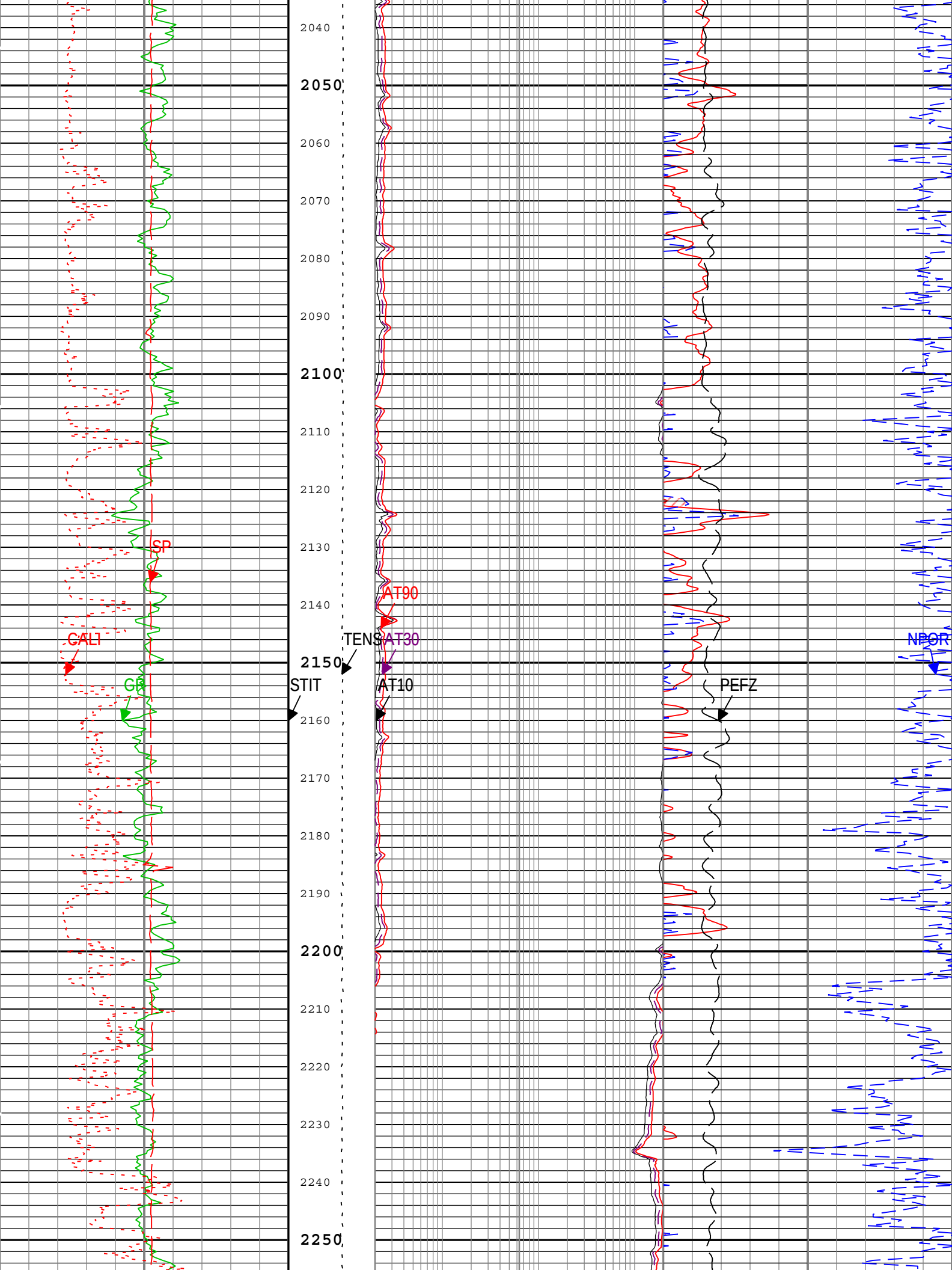

CALI
GR
STIT
TENS
AT90
AT30
AT10
DPHZ
PEFZ
NPOR
940
950
960
970
980
990
1000
1010
1020
1030
1040
1050
1060
1070
1080
1090
1100
1110
1120
1130
1140
1150

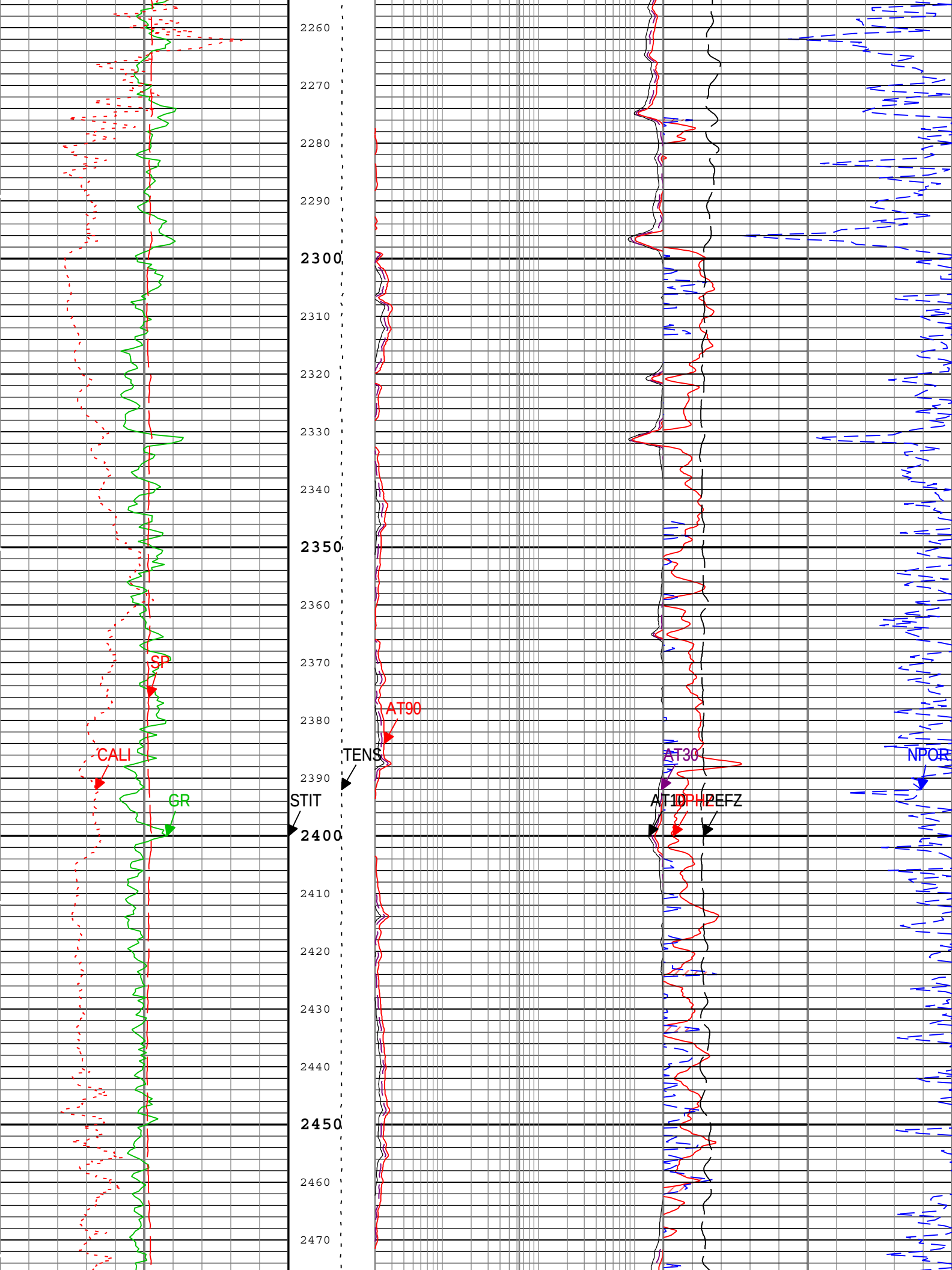

SP
CALI
GR
TENS
AT30
STIT
AT90
AT10
PEFZ
NPOR
1160
1170
1180
1190
1200
1210
1220
1230
1240
1250
1260
1270
1280
1290
1300
1310
1320
1330
1340
1350
1360
1370

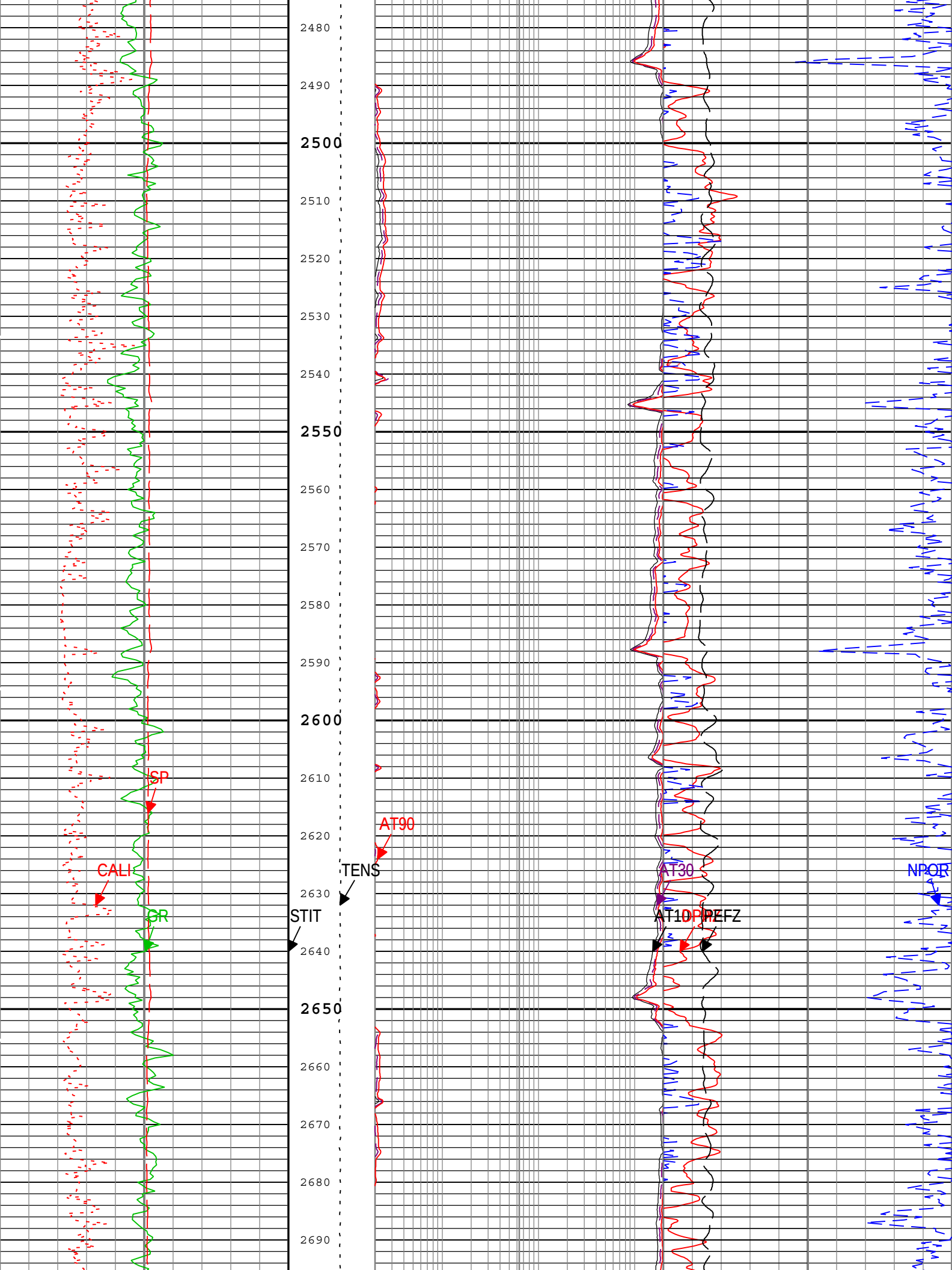

1380
1390
1400
1410
1420
1430
1440
1450
1460
1470
1480
1490
1500
1510
1520
1530
1540
1550
1560
1570
1580
1590
SP
CALI
GR
AT90
TENS
STIT
AT30
PEFZ
NPOR

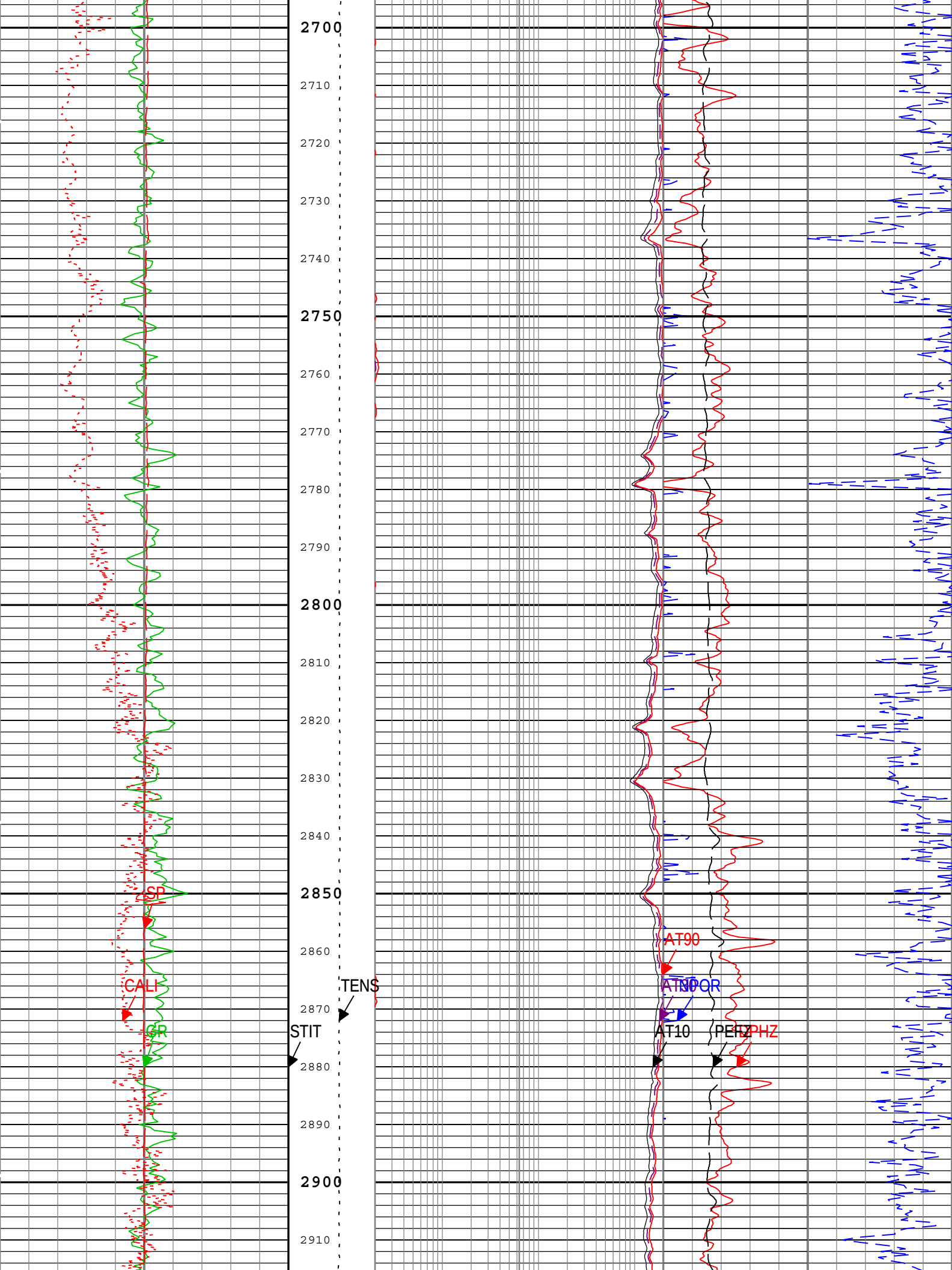

1600
1610
1620
1630
1640
1650
1660
1670
1680
1690
1700
1710
1720
1730
1740
1750
1760
1770
1780
1790
1800
1810
SP
CALI
GR
TENS
STIT
AT90
AT30
AT10
NPOR
PEFZ

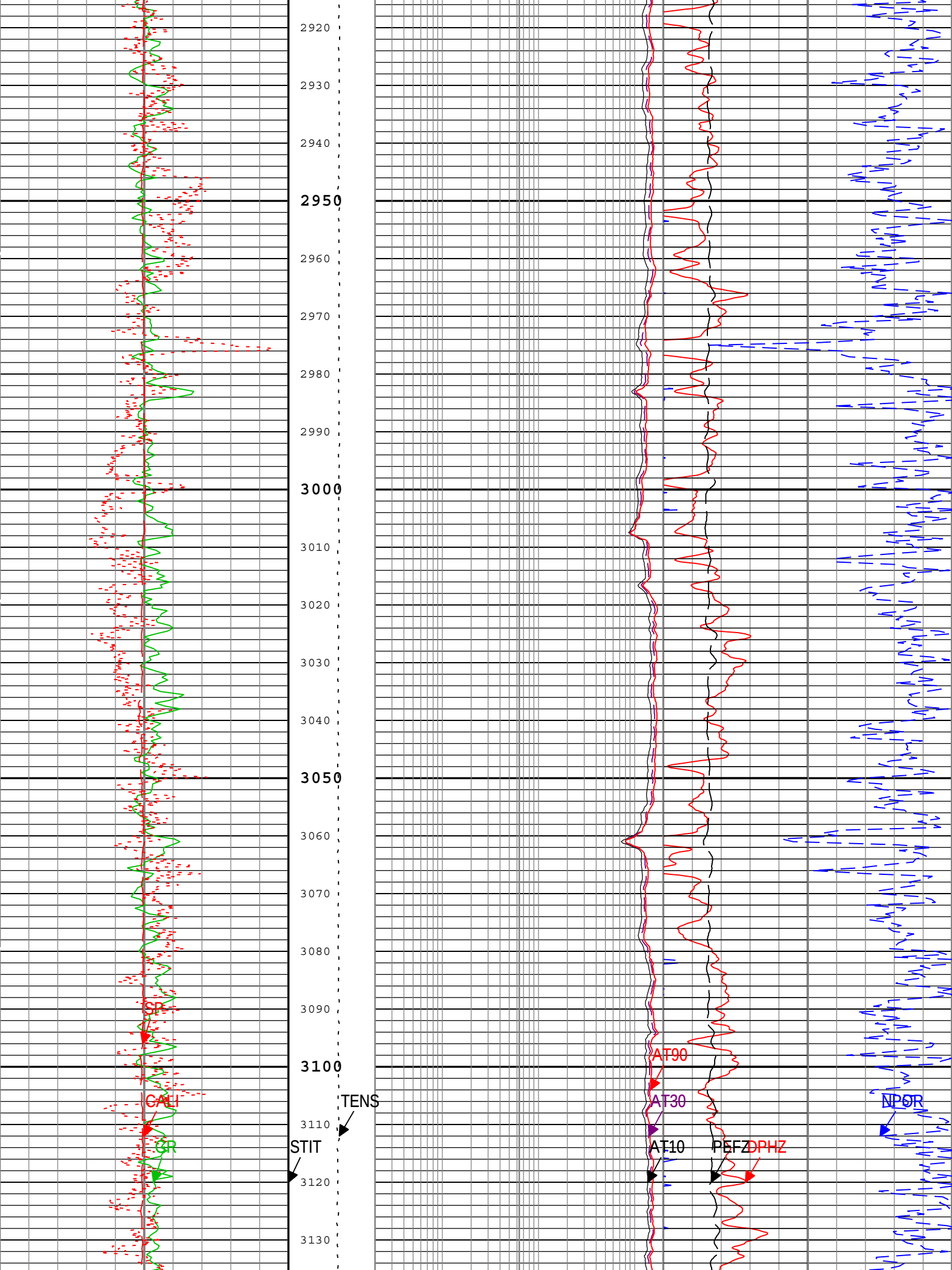

1820
1830
1840
1850
1860
1870
1880
1890
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
2000
2010
2020
2030
SP
CALI
GR
TENS
STIT
AT90
AT30
AT10
DPHI
PEFZ
NPOR

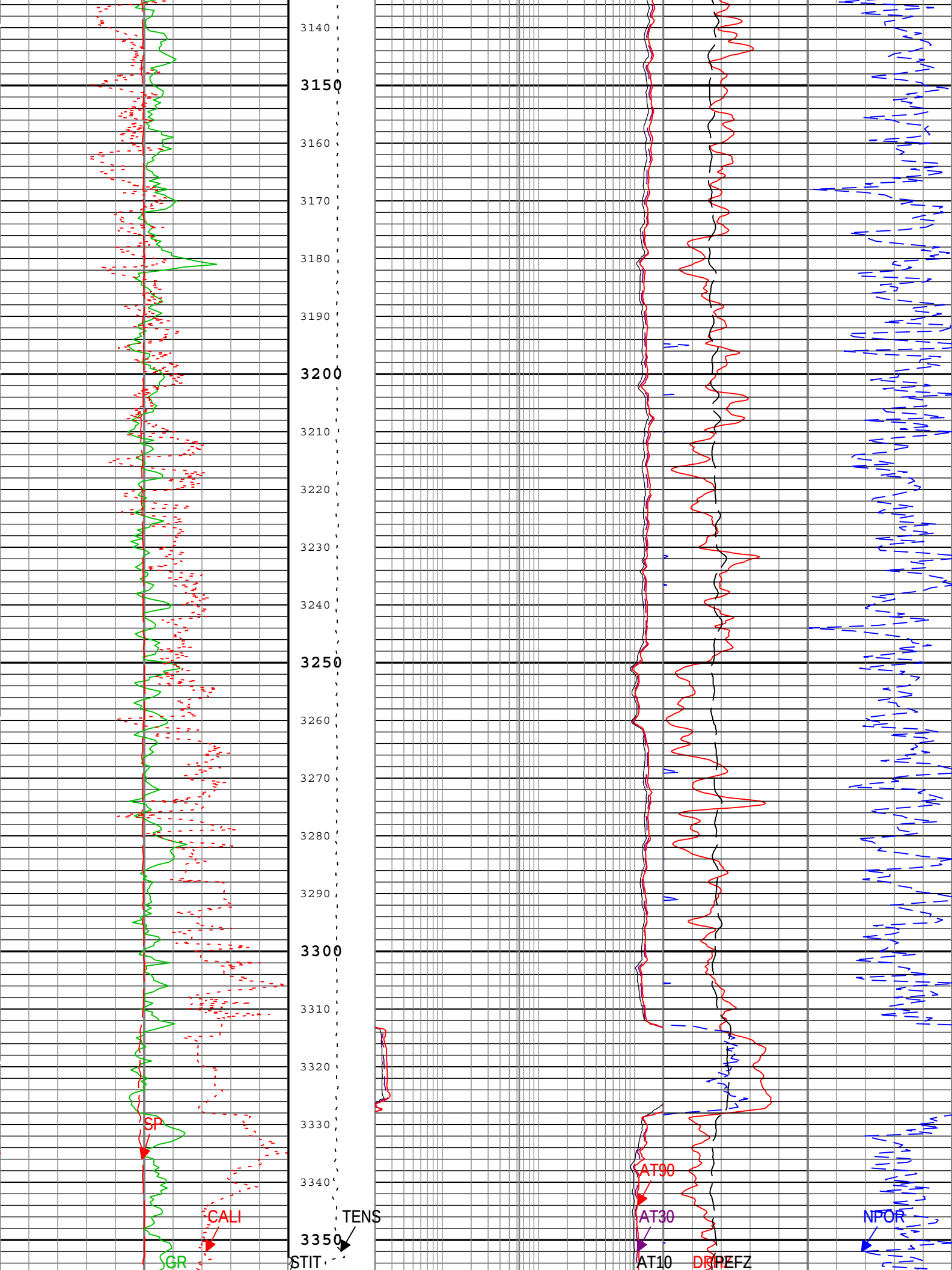

2040
2050
2060
2070
2080
2090
2100
2110
2120
2130
2140
2150
2160
2170
2180
2190
2200
2210
2220
2230
2240
2250
SP
CALI
GR
TENS
AT90
AT30
AT10
STIT
PEFZ
NPOR

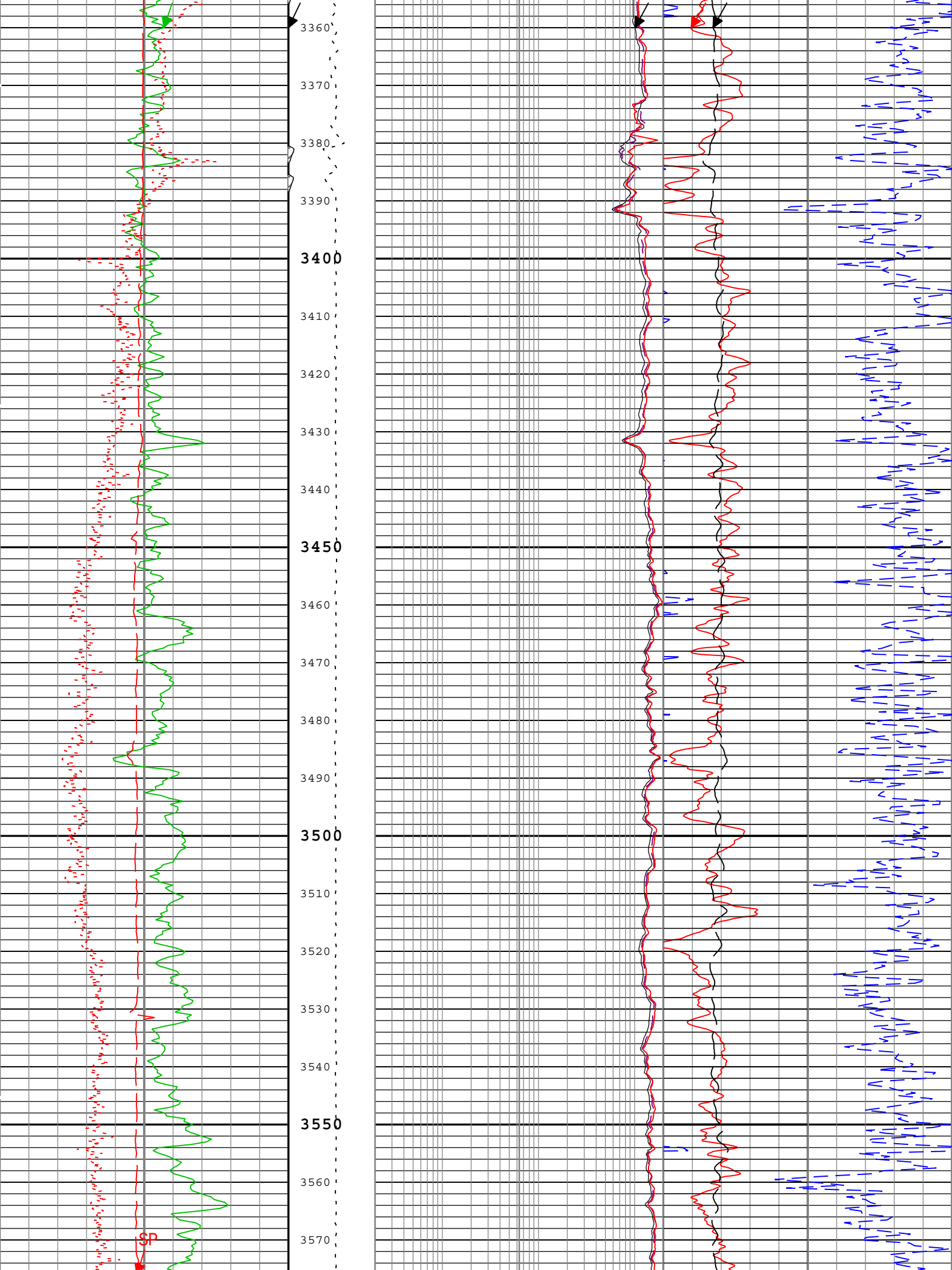

2260
2270
2280
2290
2300
2310
2320
2330
2340
2350
2360
2370
2380
2390
2400
2410
2420
2430
2440
2450
2460
2470
SP
CALI
GR
AT90
TENS
STIT
AT30
AT10
PHIE
PEFZ
NPOR

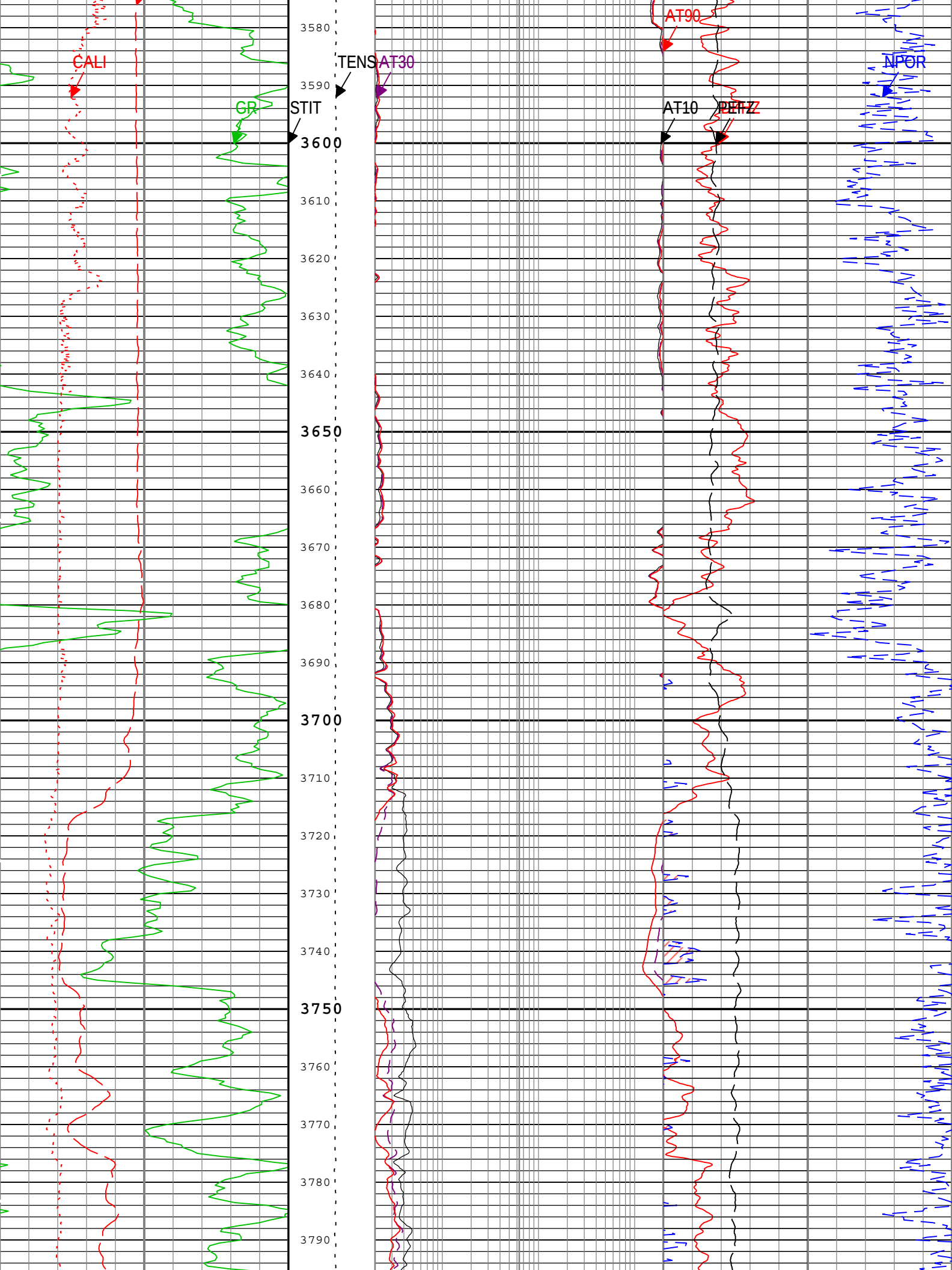

2480
2490
2500
2510
2520
2530
2540
2550
2560
2570
2580
2590
2600
2610
2620
2630
2640
2650
2660
2670
2680
2690
SP
CALI
GR
AT90
TENS
STIT
AT30
AT10
DPHIZ
PEFZ
NPOR

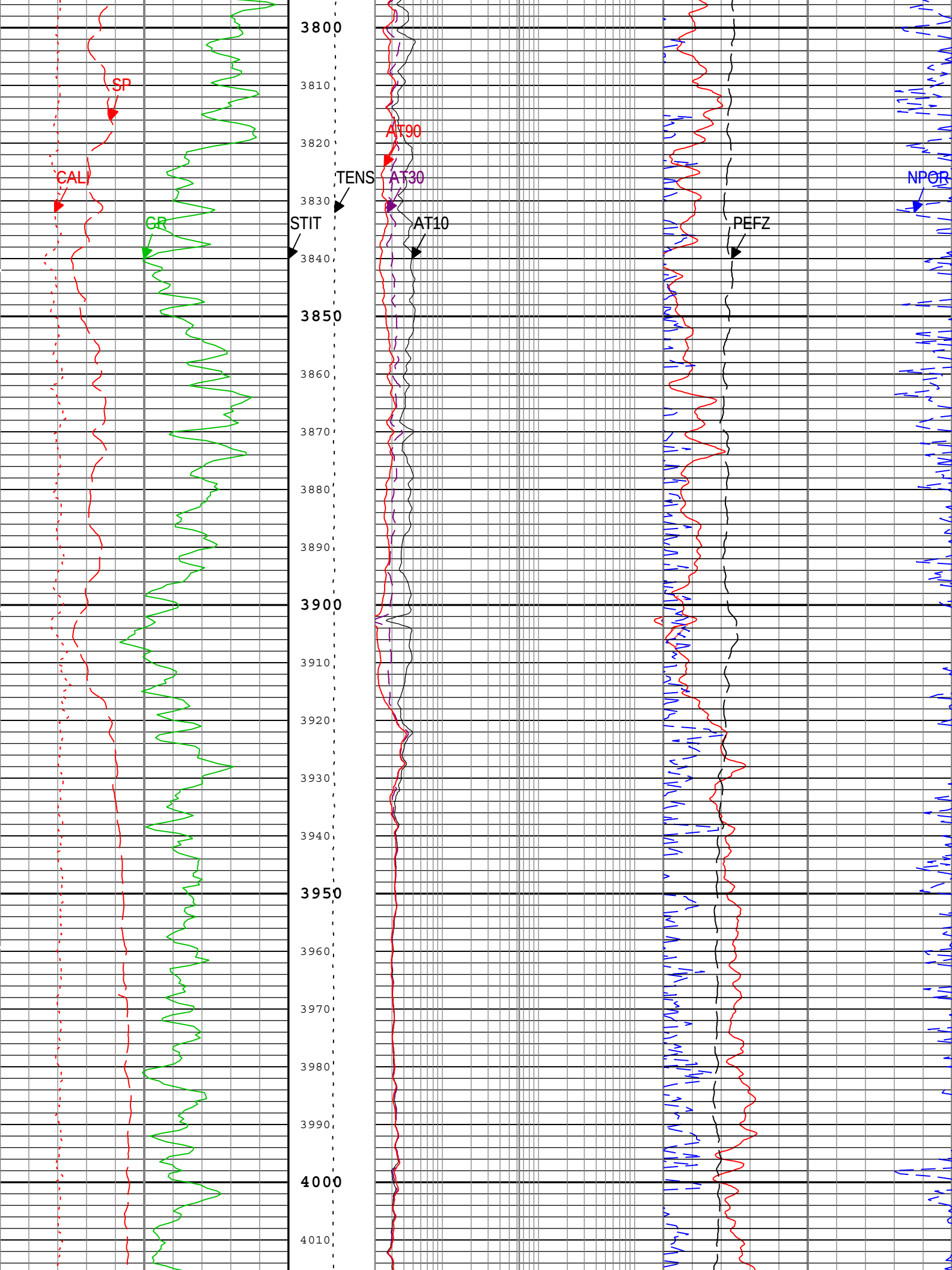

2700
2710
2720
2730
2740
2750
2760
2770
2780
2790
2800
2810
2820
2830
2840
2850
2860
2870
2880
2890
2900
2910
SP
CALI
GR
TENS
STIT
AT90
AT10
PEHZ
PHZ

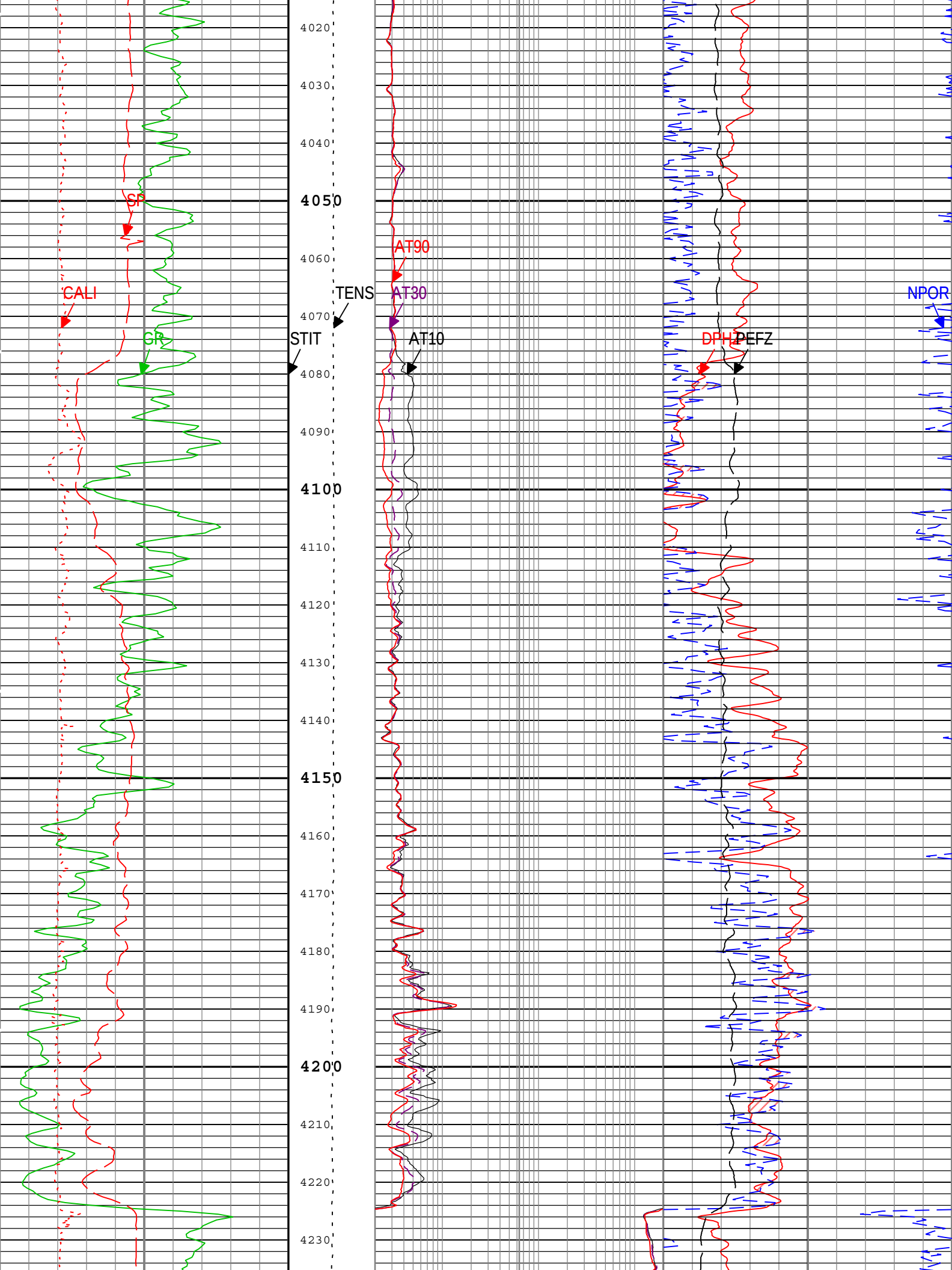

2920
2930
2940
2950
2960
2970
2980
2990
3000
3010
3020
3030
3040
3050
3060
3070
3080
3090
3100
3110
3120
3130
SP
CALI
GR
TENS
STIT
AT90
AT30
AT10
PEFZ
DPHZ
NPOR

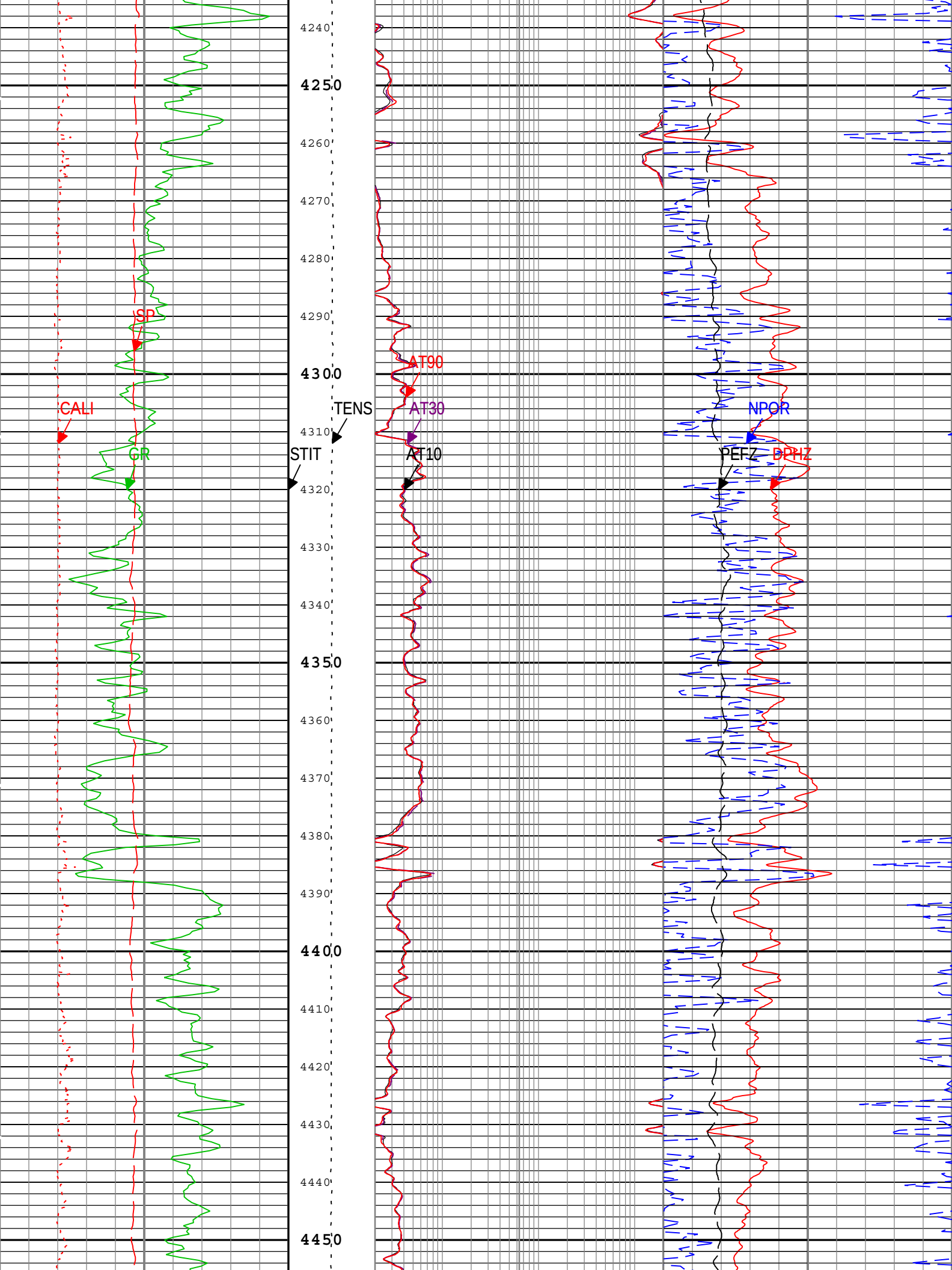

3140
3150
3160
3170
3180
3190
3200
3210
3220
3230
3240
3250
3260
3270
3280
3290
3300
3310
3320
3330
3340
3350
SP
CALI
GR
TENS
STIT
AT90
AT30
AT10
DR
PEFZ
NPOR

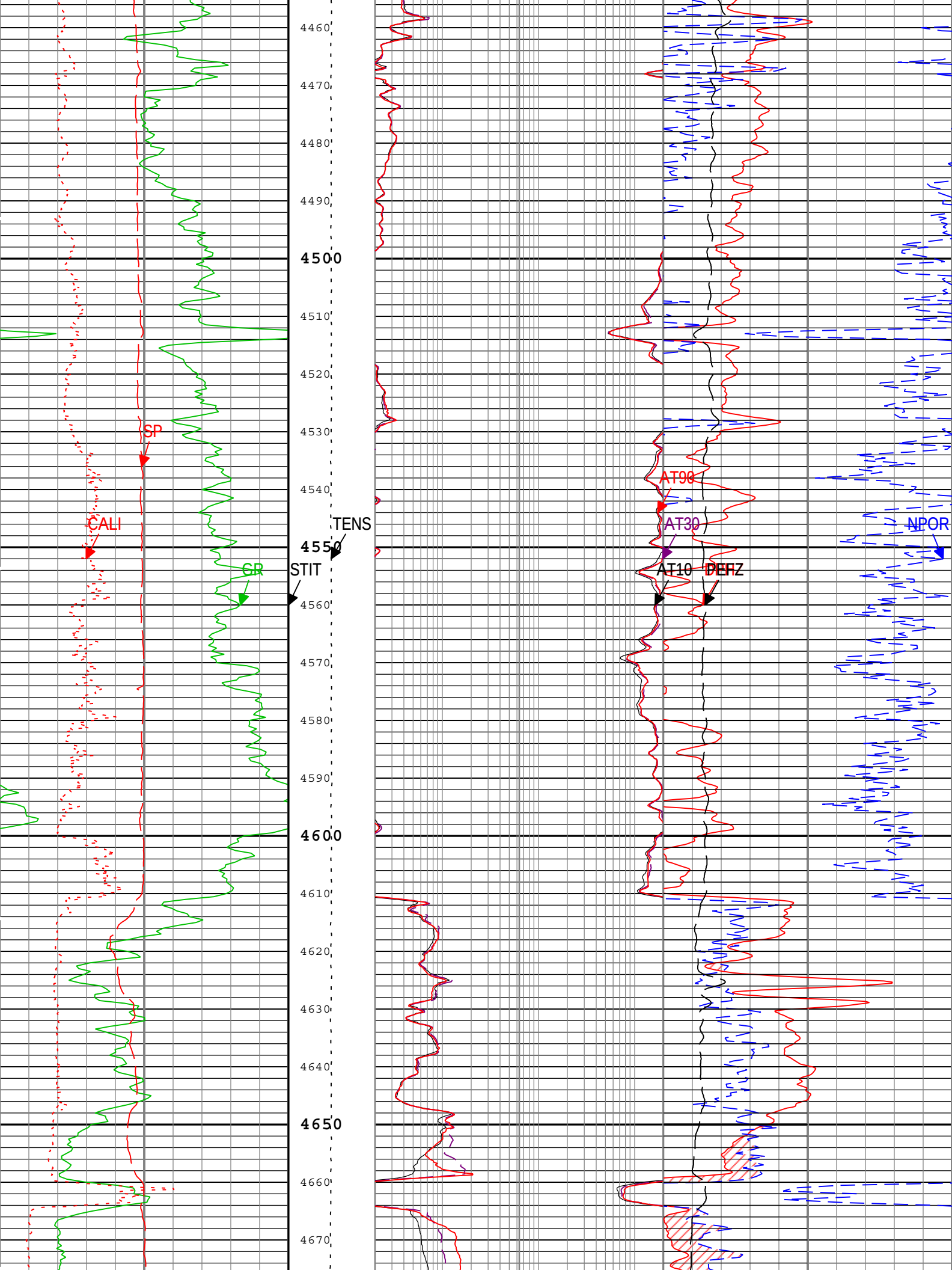

3360
3370
3380
3390
3400
3410
3420
3430
3440
3450
3460
3470
3480
3490
3500
3510
3520
3530
3540
3550
3560
3570
SP

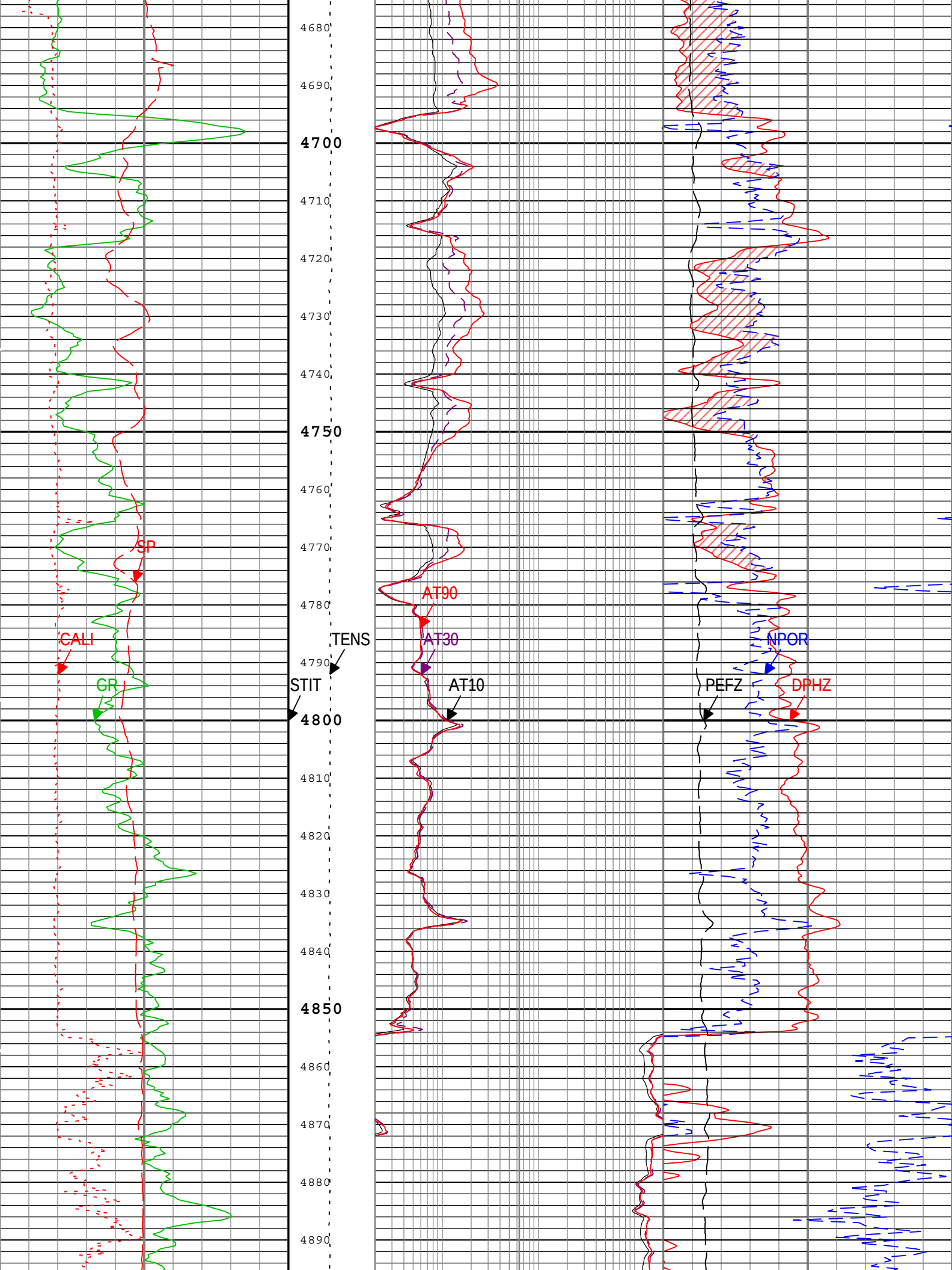

CALI
GR
TENS
STIT
AT30
AT90
AT10
PEFZ
NPOR
3580
3590
3600
3610
3620
3630
3640
3650
3660
3670
3680
3690
3700
3710
3720
3730
3740
3750
3760
3770
3780
3790

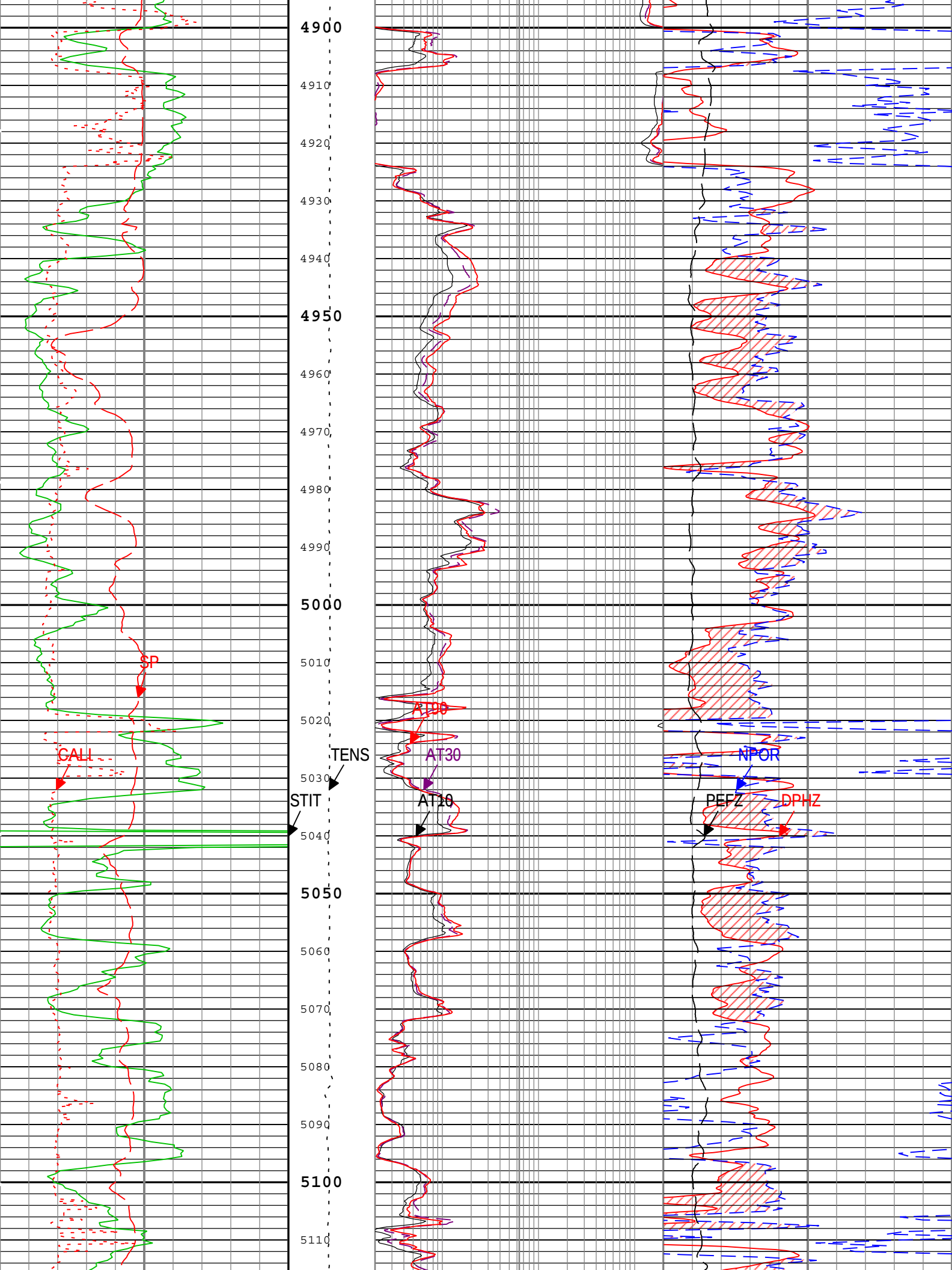

SP
CALI
GR
TENS
STIT
AT90
AT30
AT10
PEFZ
NPOR
3800
3810
3820
3830
3840
3850
3860
3870
3880
3890
3900
3910
3920
3930
3940
3950
3960
3970
3980
3990
4000
4010

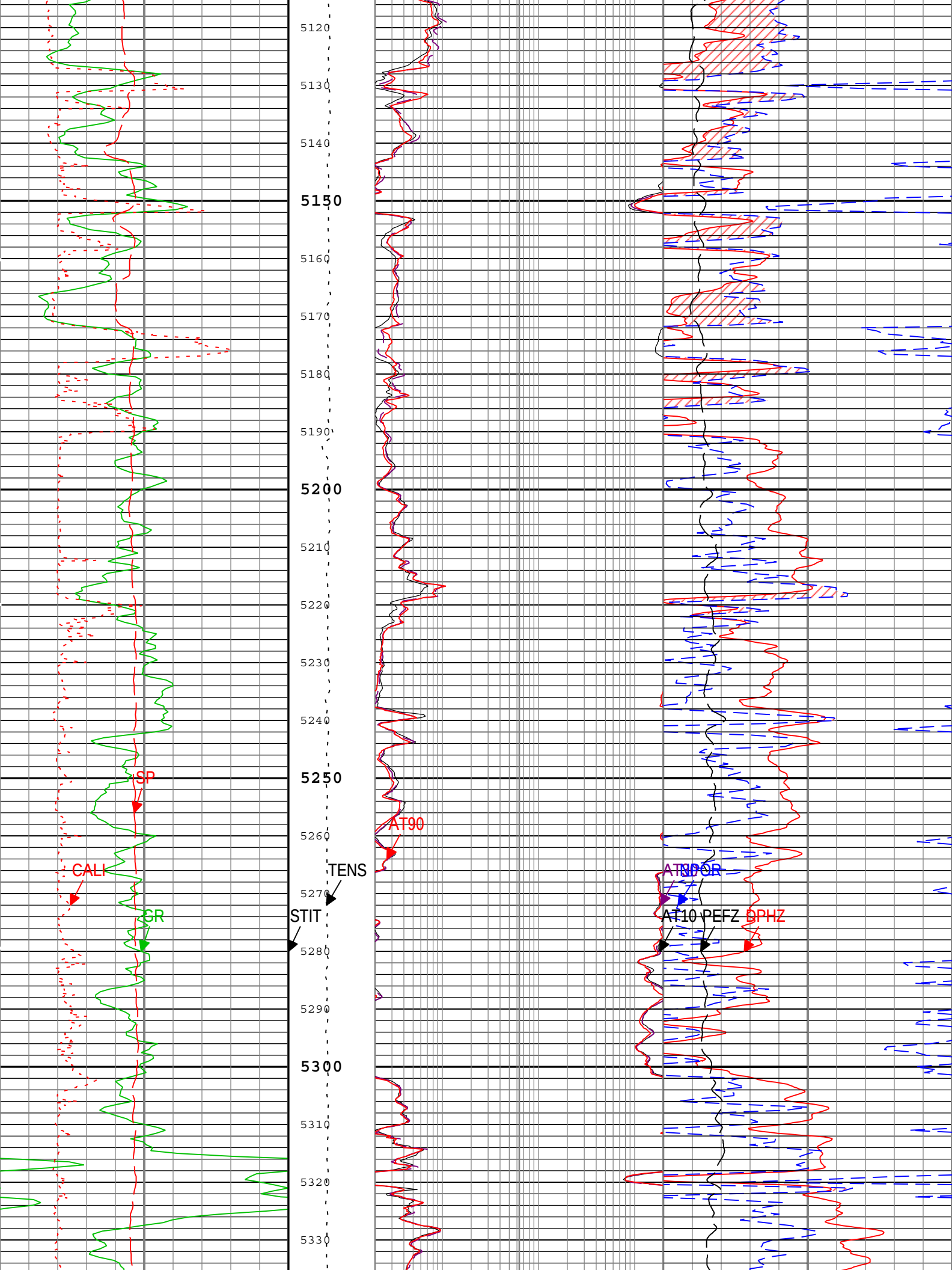

SP
CALI
GR
TENS
STIT
AT90
AT30
AT10
NPOR
DPHZ
PEFZ
4020
4030
4040
4050
4060
4070
4080
4090
4100
4110
4120
4130
4140
4150
4160
4170
4180
4190
4200
4210
4220
4230

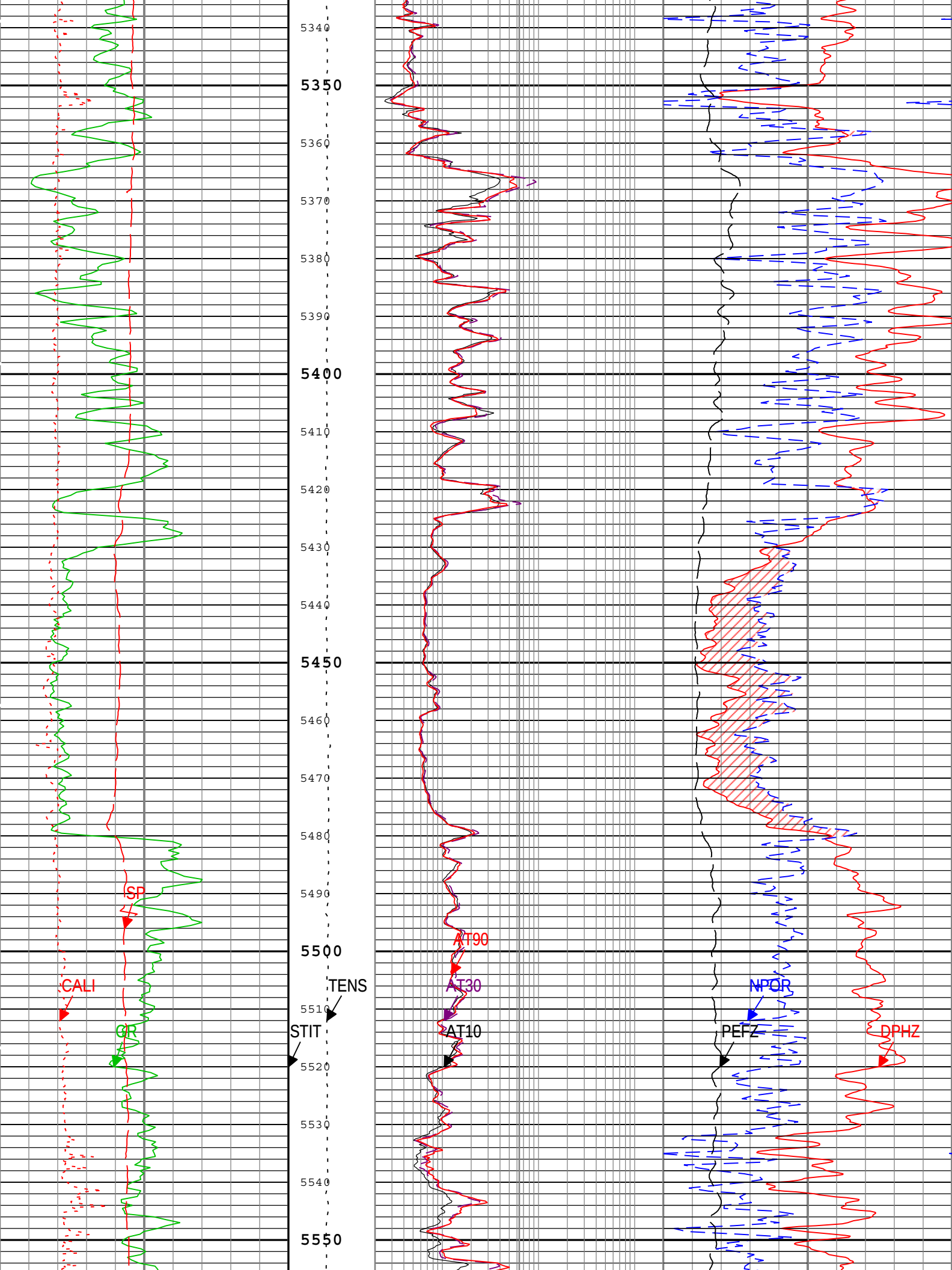

4240
4250
4260
4270
4280
4290
4300
4310
4320
4330
4340
4350
4360
4370
4380
4390
4400
4410
4420
4430
4440
4450
SP
CALI
GR
TENS
STIT
AT90
AT30
AT10
NPOR
PEFZ
DPHZ

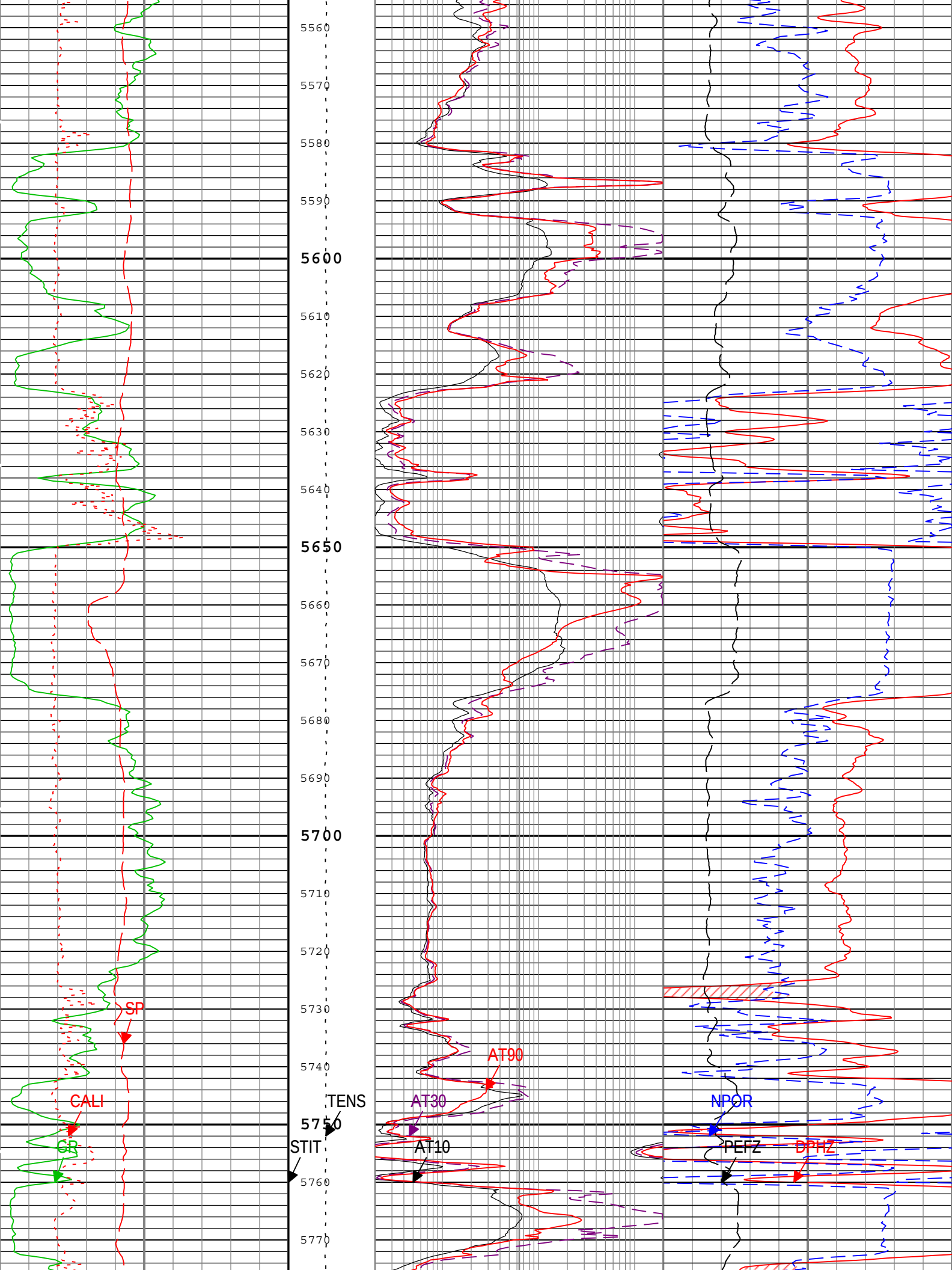

4460
4470
4480
4490
4500
4510
4520
4530
4540
4550
4560
4570
4580
4590
4600
4610
4620
4630
4640
4650
4660
4670
SP
CALI
GR
TENS
STIT
AT90
AT30
AT10
DEFZ
NPOR

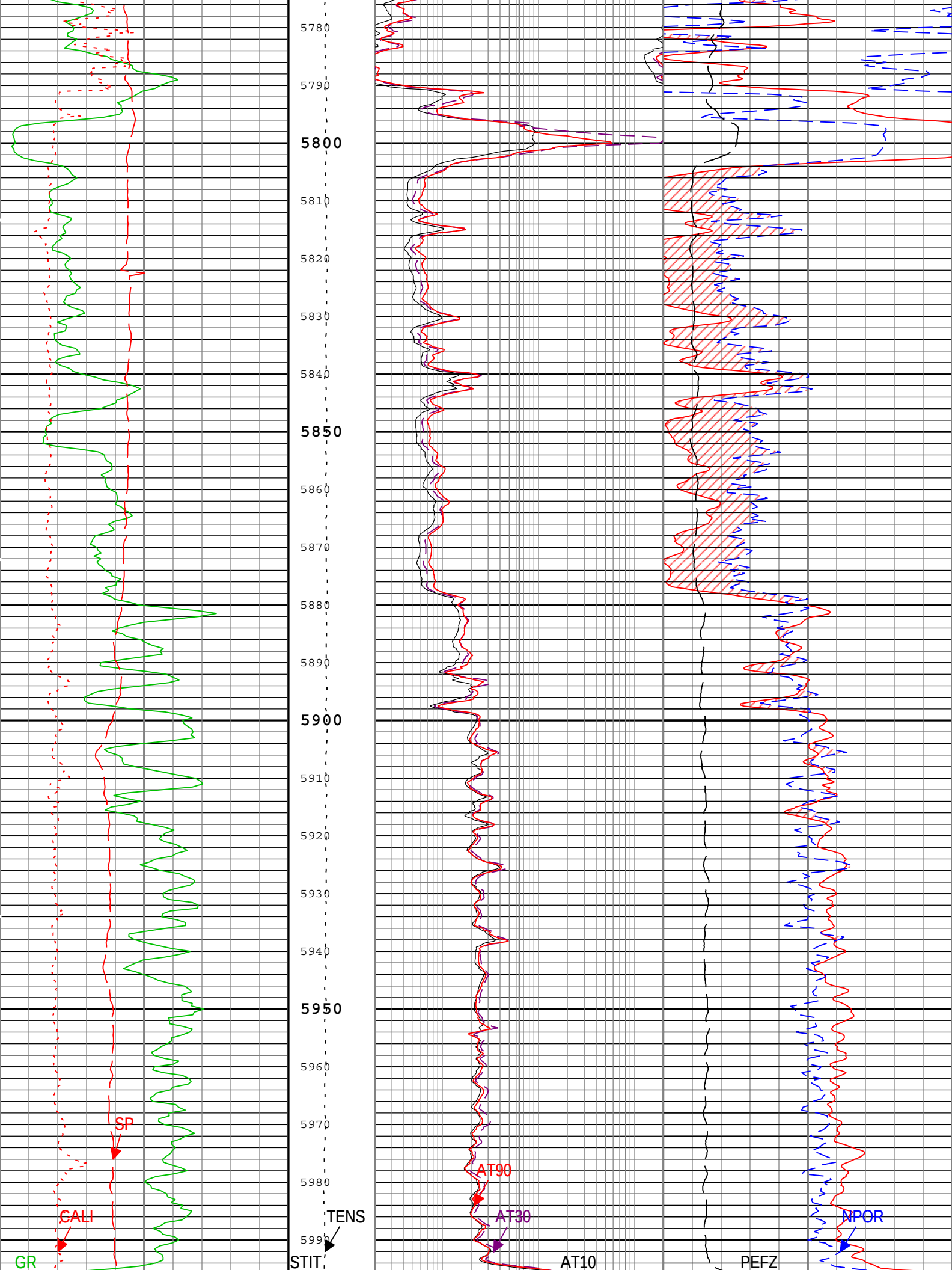

4680
4690
4700
4710
4720
4730
4740
4750
4760
4770
4780
4790
4800
4810
4820
4830
4840
4850
4860
4870
4880
4890
SP
CALI
GR
TENS
STIT
AT90
AT30
AT10
NPOR
PEFZ
DPHZ

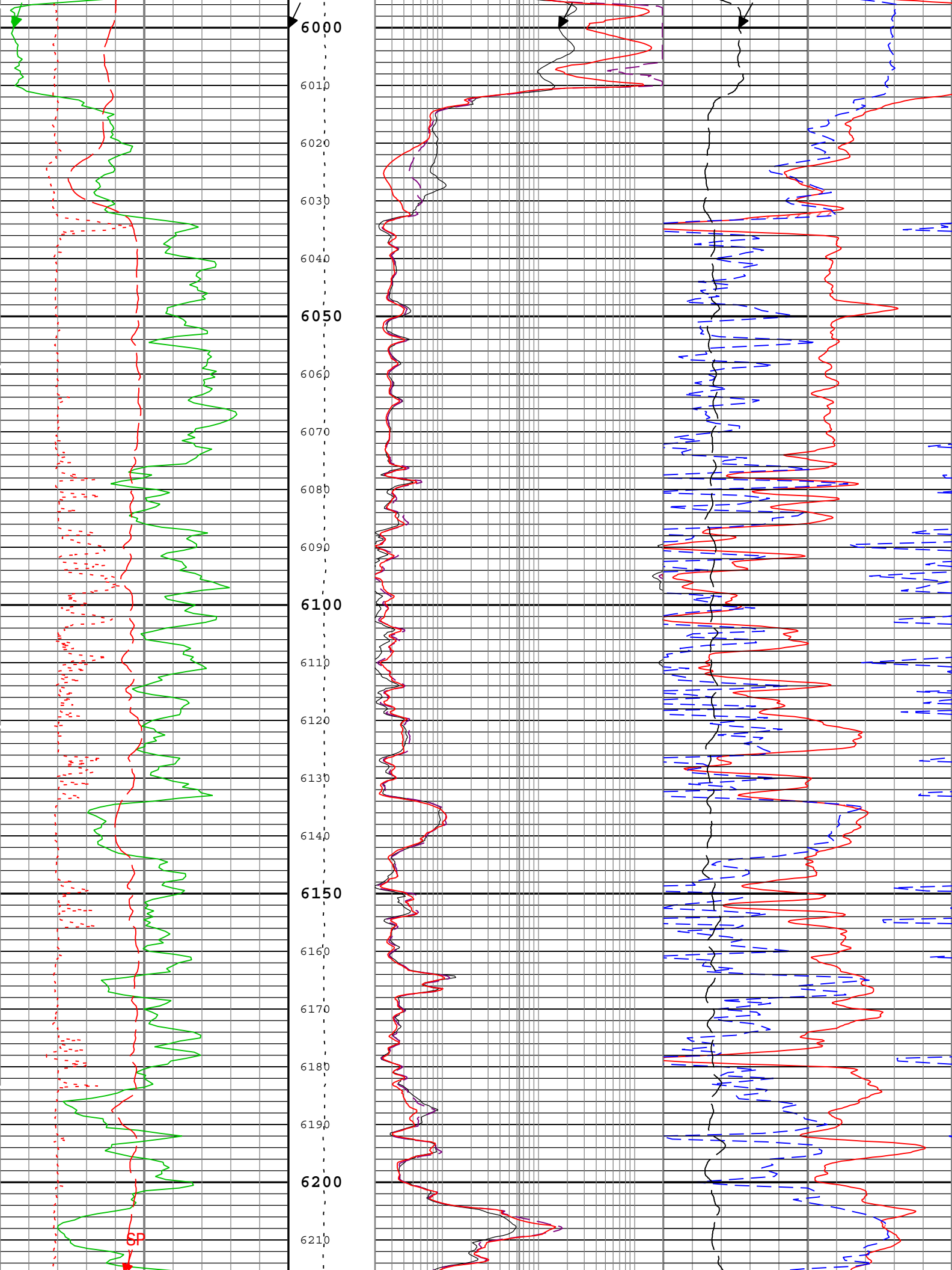

4900
4910
4920
4930
4940
4950
4960
4970
4980
4990
5000
5010
5020
5030
5040
5050
5060
5070
5080
5090
5100
5110
SP
CALI
TENS
STIT
AT90
AT30
AT10
NPOR
PEFZ
DPHZ

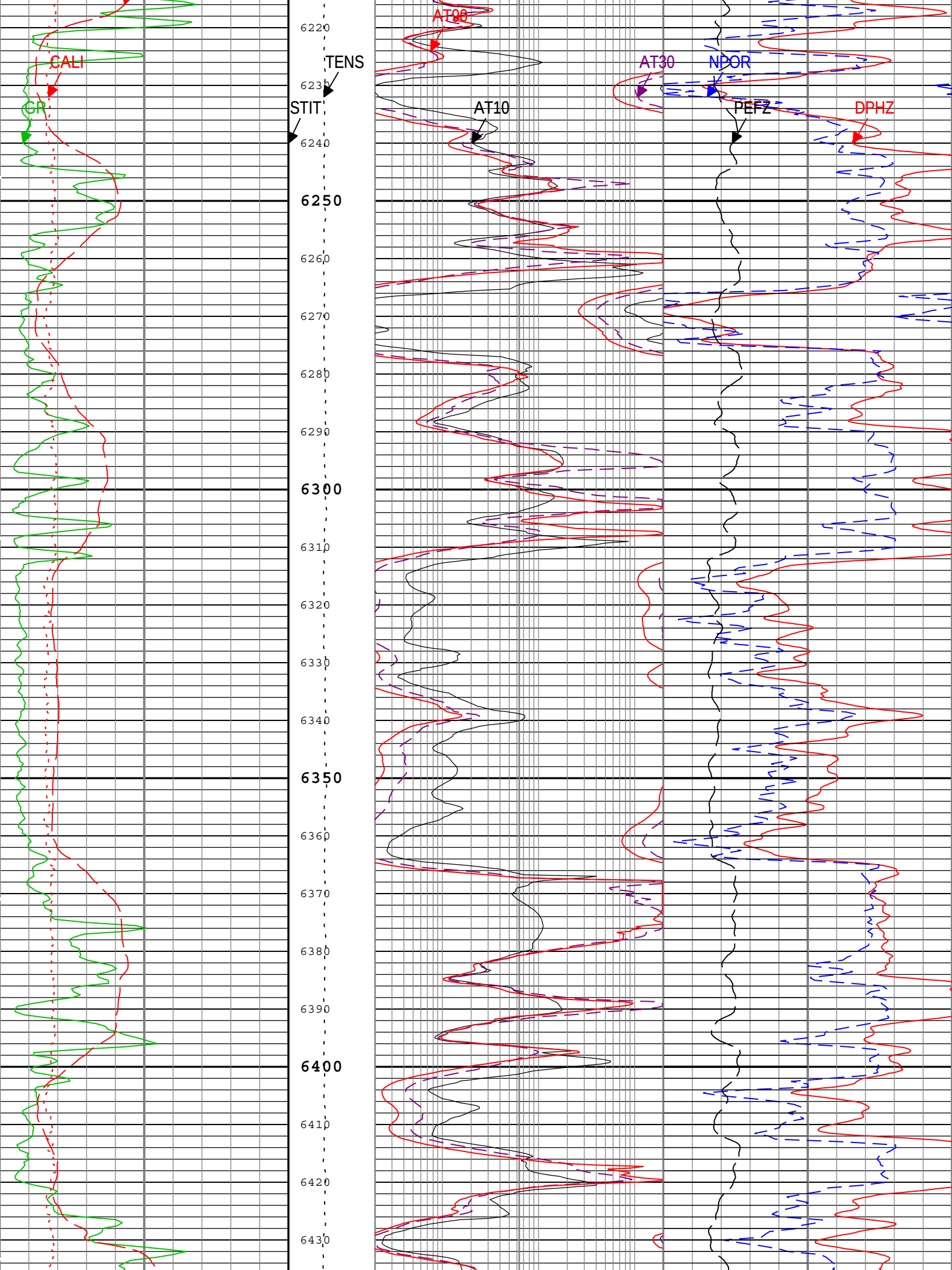

5120
5130
5140
5150
5160
5170
5180
5190
5200
5210
5220
5230
5240
5250
5260
5270
5280
5290
5300
5310
5320
5330
SP
CALI
GR
AT90
TENS
STIT
AT10
PEFZ
DPHZ

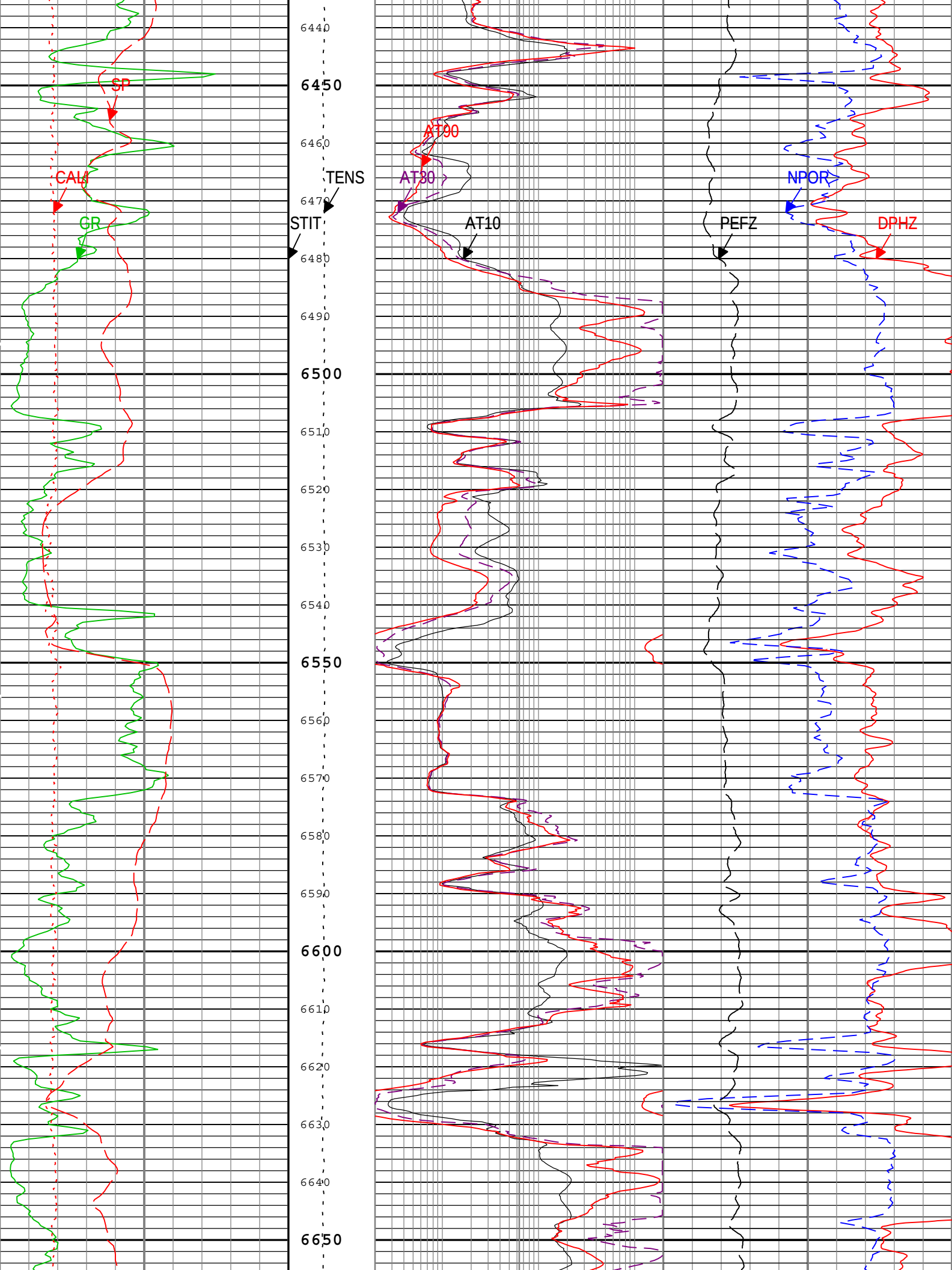

5340
5350
5360
5370
5380
5390
5400
5410
5420
5430
5440
5450
5460
5470
5480
5490
5500
5510
5520
5530
5540
5550
SP
CALI
GR
TENS
STIT
AT90
AT30
AT10
NPOR
PEFZ
DPHZ

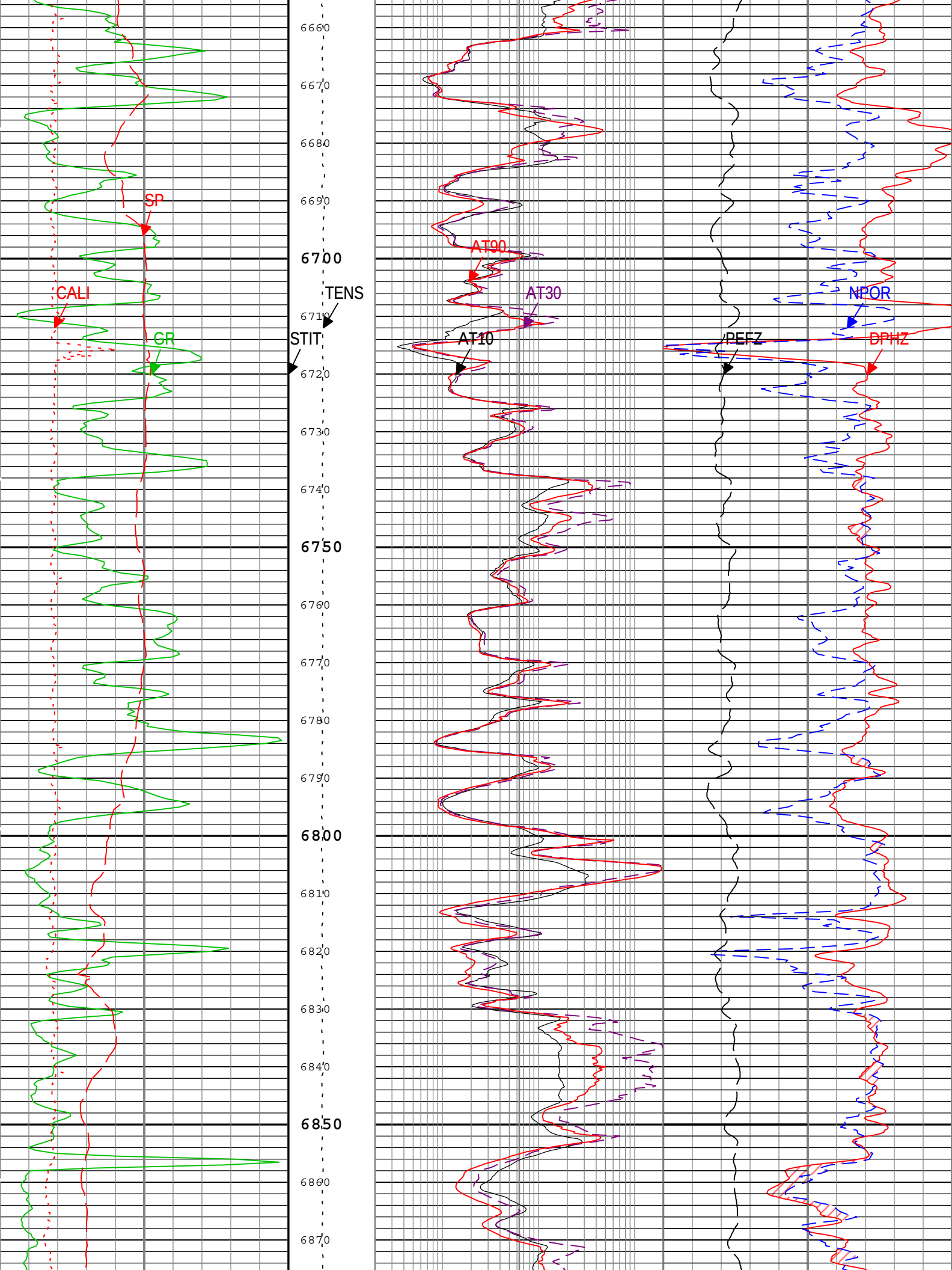

5560
5570
5580
5590
5600
5610
5620
5630
5640
5650
5660
5670
5680
5690
5700
5710
5720
5730
5740
5750
5760
5770
SP
CALI
GR
TENS
STIT
AT90
AT30
AT10
NPOR
PEFZ
DPHZ

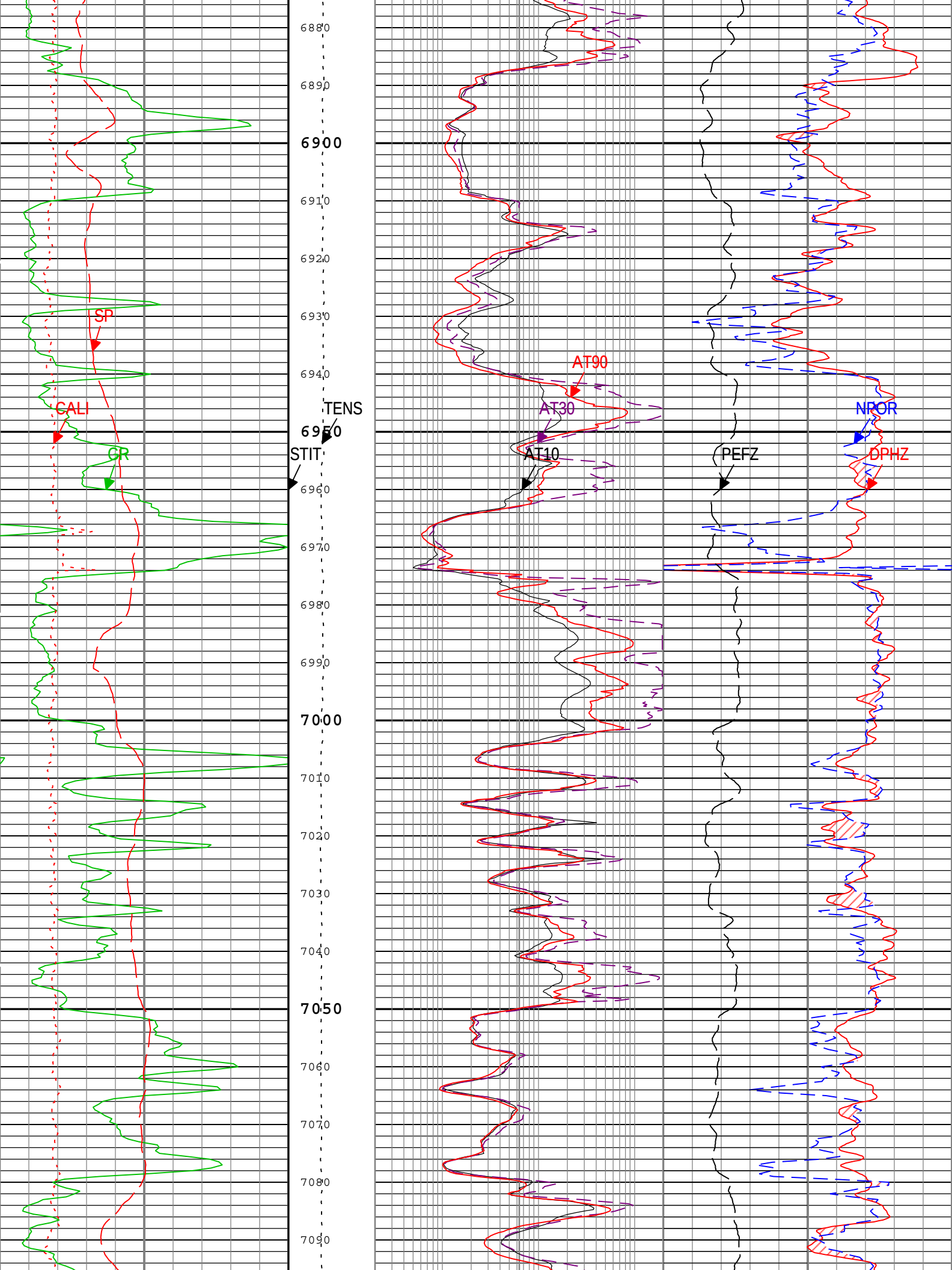

5780
5790
5800
5810
5820
5830
5840
5850
5860
5870
5880
5890
5900
5910
5920
5930
5940
5950
5960
5970
5980
5990
SP
CALI
TENS
AT90
AT30
NPOR
GR
STIT
AT10
PEFZ

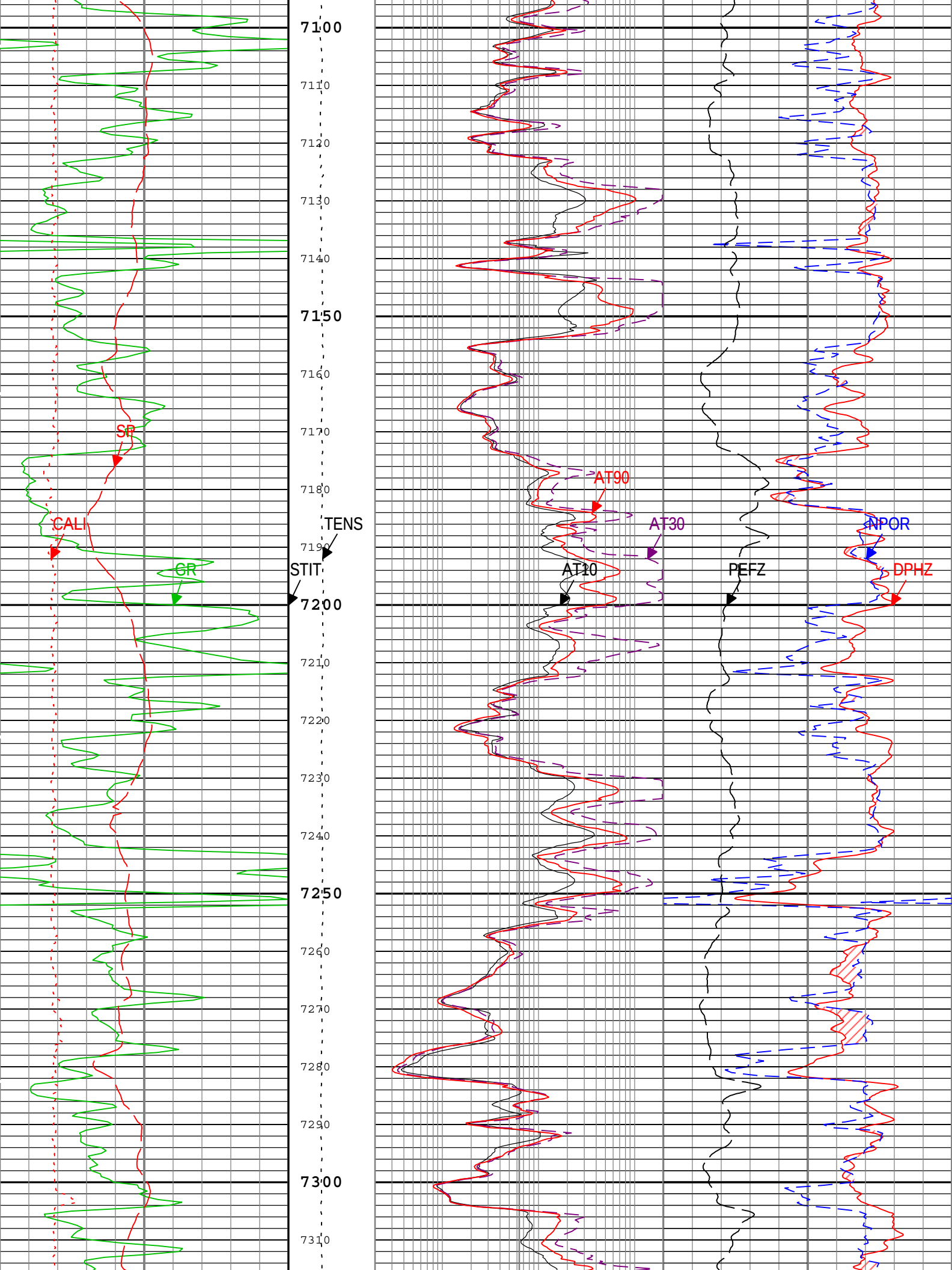

6000
6010
6020
6030
6040
6050
6060
6070
6080
6090
6100
6110
6120
6130
6140
6150
6160
6170
6180
6190
6200
6210
SP

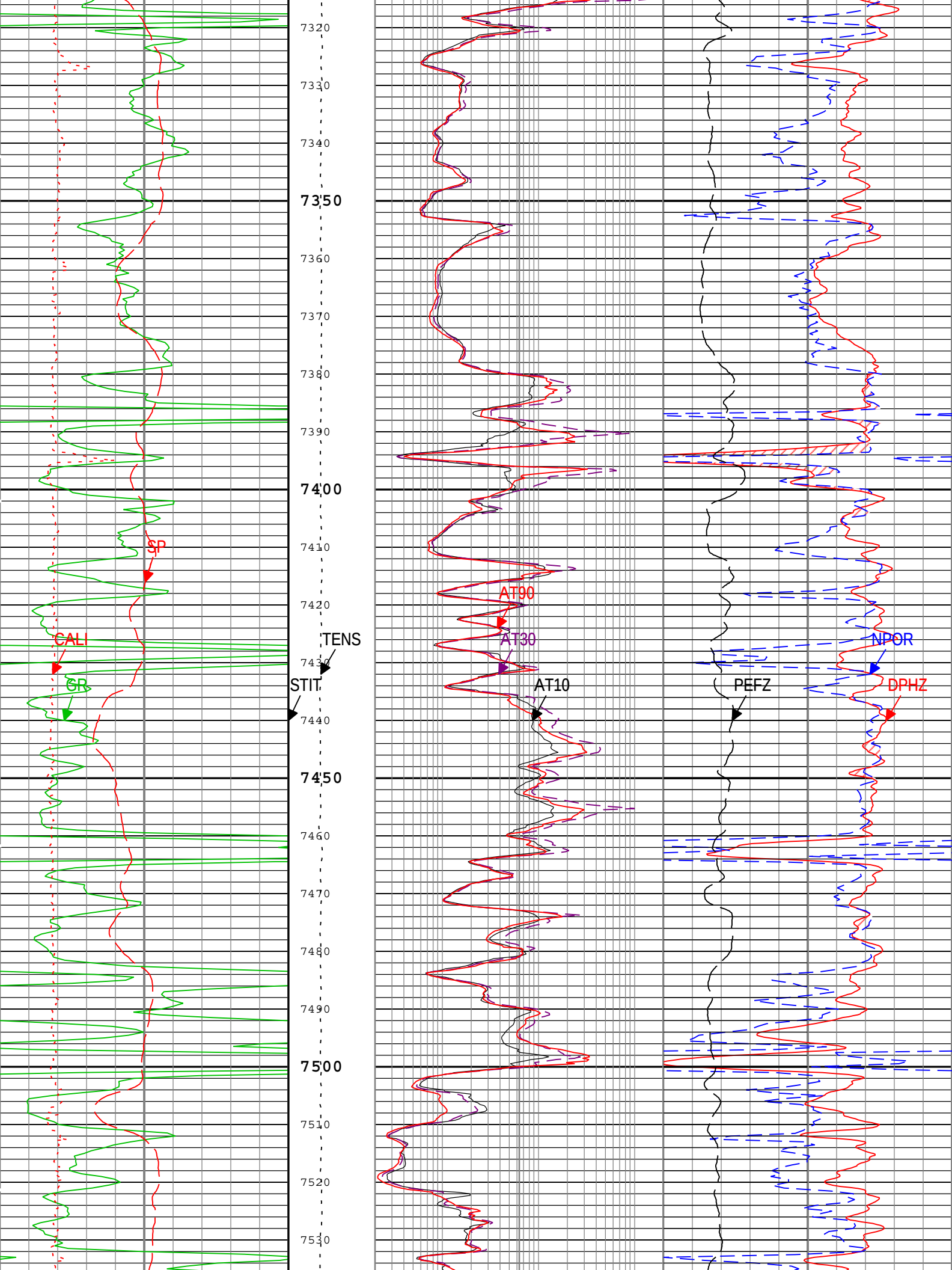

CALI
GR
TENS
STIT
AT00
AT10
AT30
NPOR
PEFZ
DPHZ
6220
6230
6240
6250
6260
6270
6280
6290
6300
6310
6320
6330
6340
6350
6360
6370
6380
6390
6400
6410
6420
6430

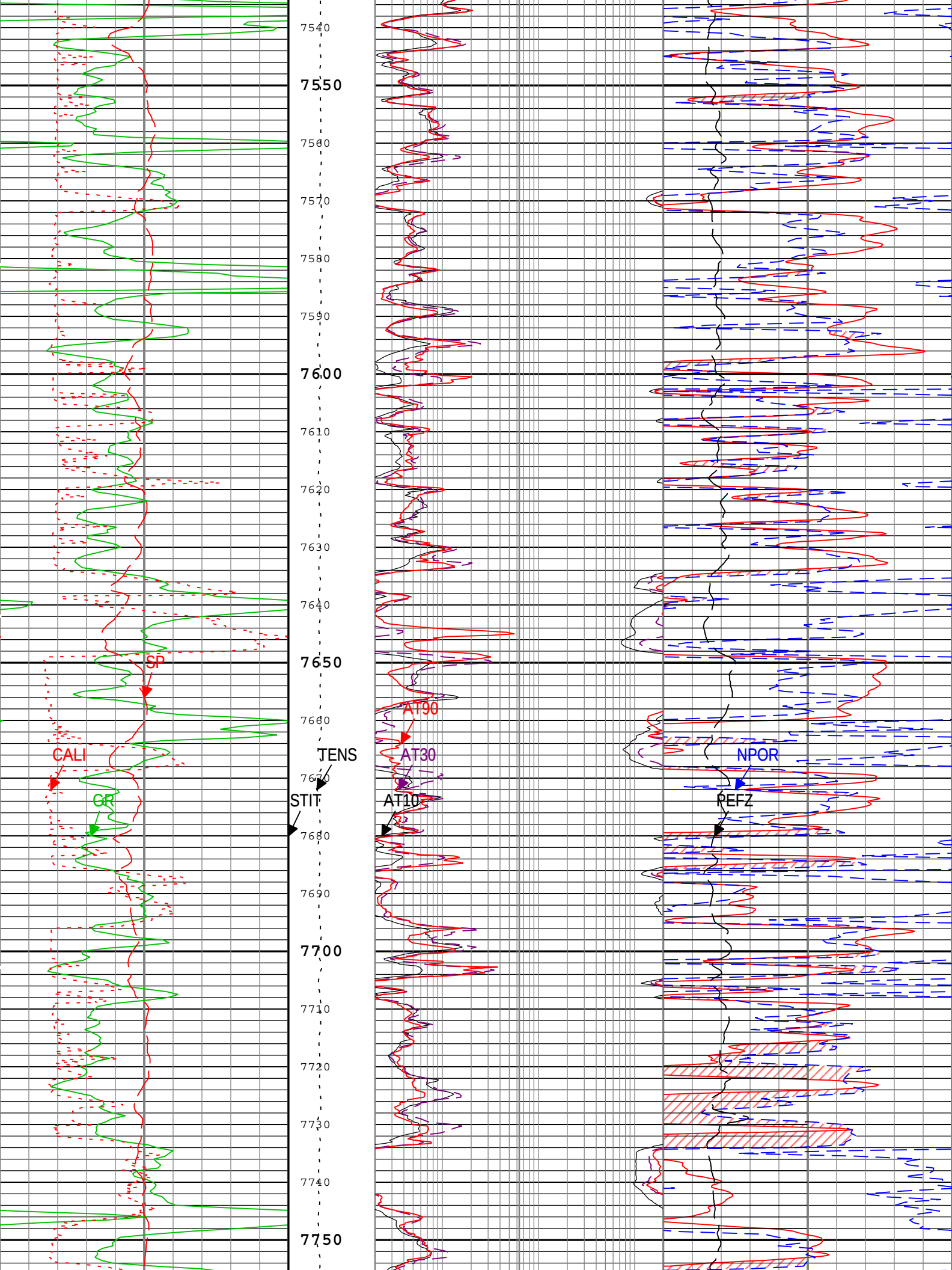

SP
CALI
GR
TENS
STIT
AT90
AT30
AT10
NPOR
PEFZ
DPHZ
6440
6450
6460
6470
6480
6490
6500
6510
6520
6530
6540
6550
6560
6570
6580
6590
6600
6610
6620
6630
6640
6650

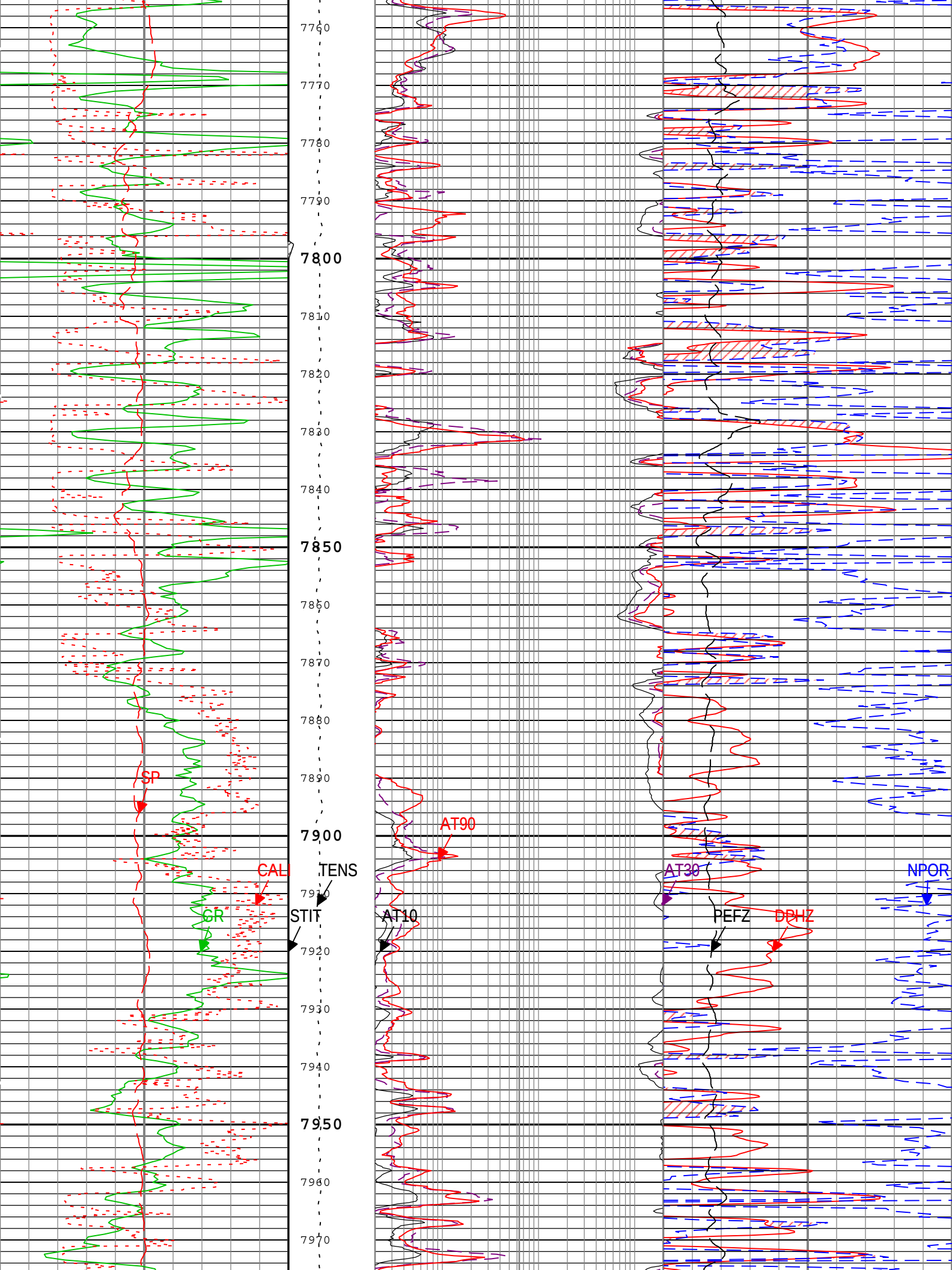

SP
CALI
GR
TENS
STIT
AT90
AT30
AT10
NPOR
PEFZ
DPHZ
6660
6670
6680
6690
6700
6710
6720
6730
6740
6750
6760
6770
6780
6790
6800
6810
6820
6830
6840
6850
6860
6870

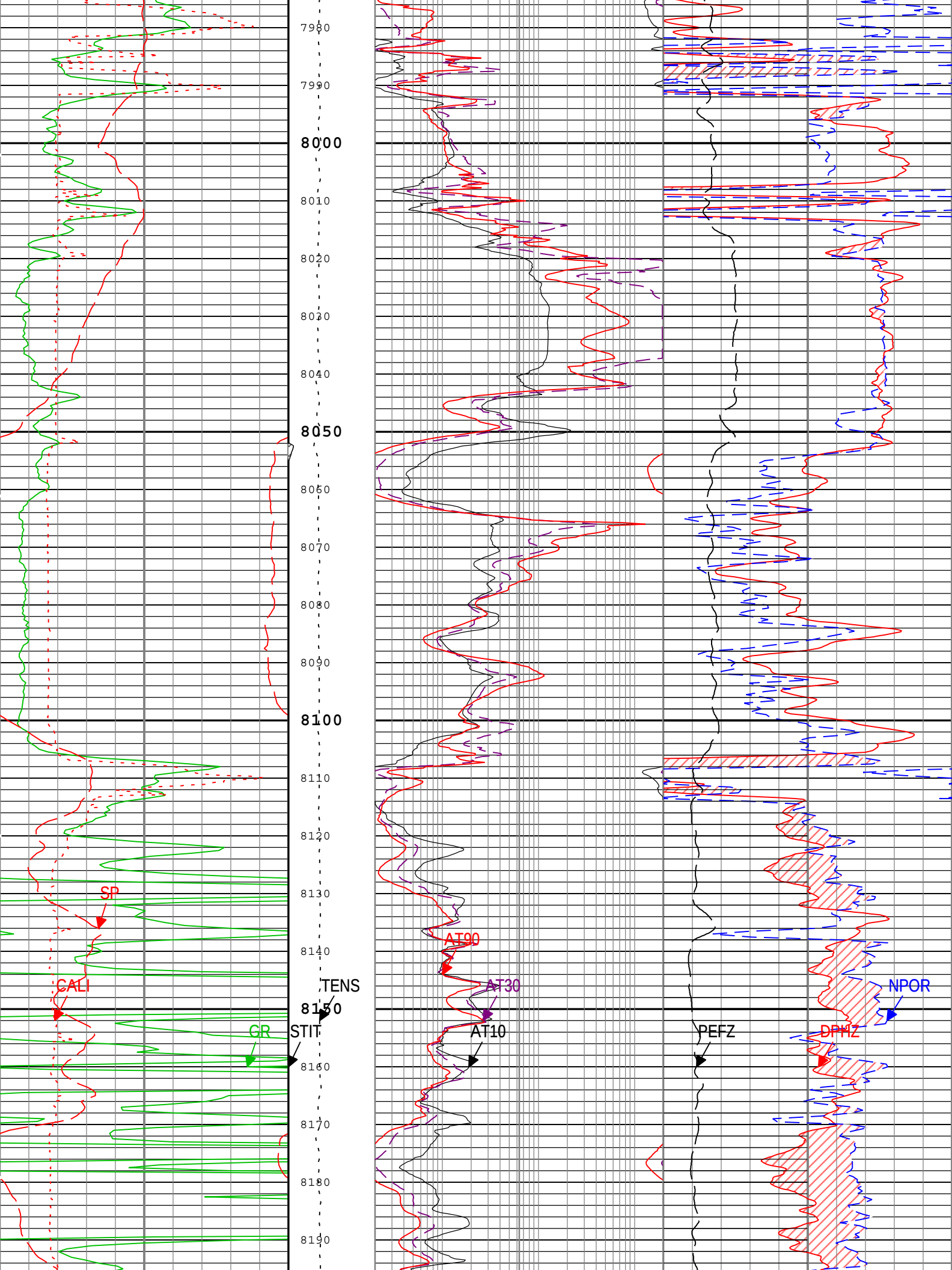

SP
CALI
CR
TENS
STIT
AT90
AT30
AT10
PEFZ
NPOR
DPHZ
6880
6890
6900
6910
6920
6930
6940
6950
6960
6970
6980
6990
7000
7010
7020
7030
7040
7050
7060
7070
7080
7090

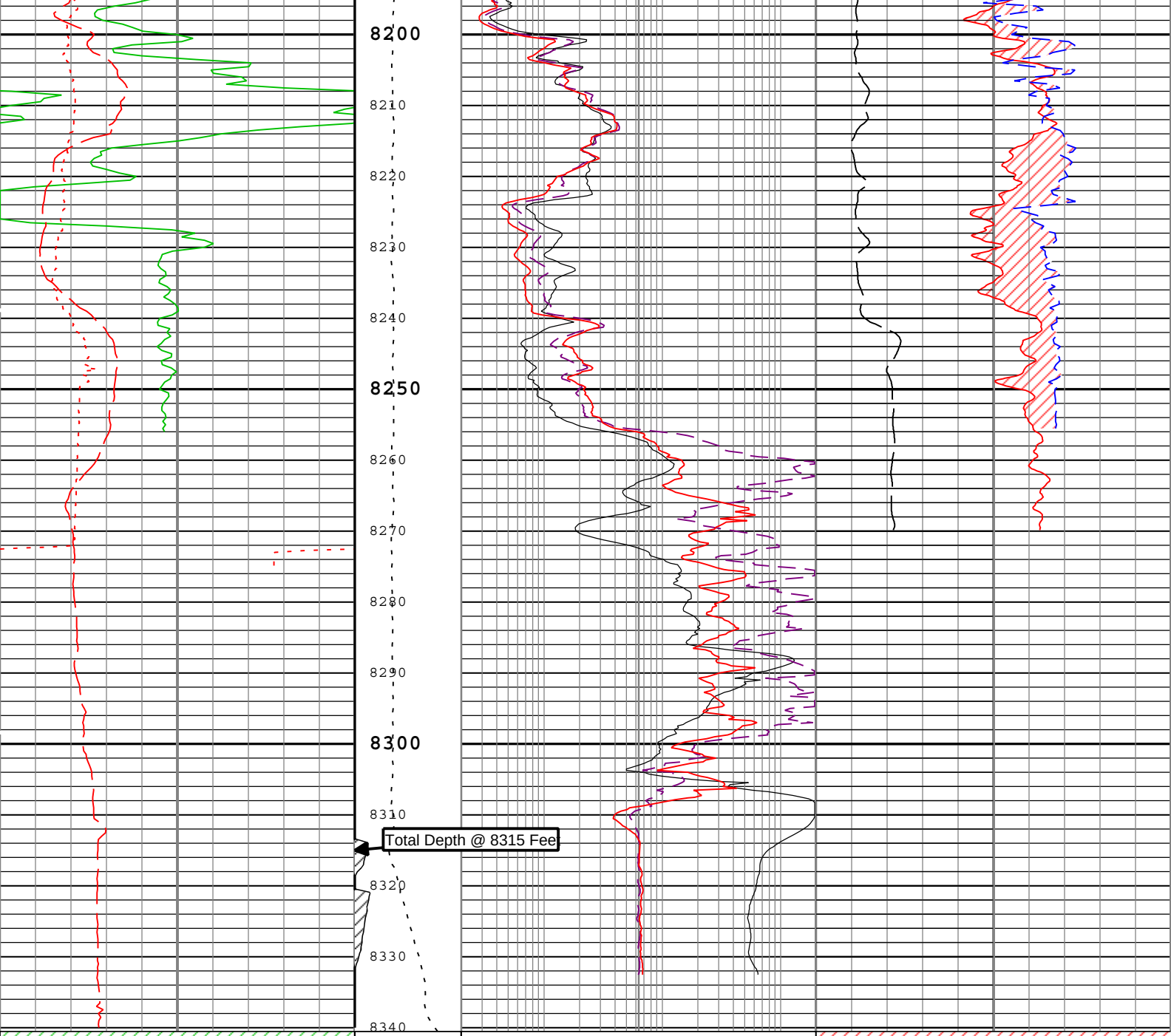

7100
7110
7120
7130
7140
7150
7160
7170
7180
7190
7200
7210
7220
7230
7240
7250
7260
7270
7280
7290
7300
7310
SP
CALI
TENS
GR
STIT
AT90
AT30
AT20
PEFZ
NPOR
DPHZ


7320
7330
7340
7350
7360
7370
7380
7390
7400
7410
7420
7430
7440
7450
7460
7470
7480
7490
7500
7510
7520
7530
SP
CALI
GR
TENS
STIT
AT90
AT30
AT10
NPOR
PEFZ
DPHZ


7540
7550
7560
7570
7580
7590
7600
7610
7620
7630
7640
7650
7660
7670
7680
7690
7700
7710
7720
7730
7740
7750
SP
CALI
GR
TENS
STIT
AT90
AT30
AT10
NPOR
PEFZ


7760
7770
7780
7790
7800
7810
7820
7830
7840
7850
7860
7870
7880
7890
7900
7910
7920
7930
7940
7950
7960
7970
SP
CALI
TENS
GR
STIT
AT90
AT10
AT30
PEFZ
DPHZ
NPOR


7980
7990
8000
8010
8020
8030
8040
8050
8060
8070
8080
8090
8100
8110
8120
8130
8140
8150
8160
8170
8180
8190
SP
CALI
GR
TENS
STIT
AT90
AT30
AT10
PEFZ
DPHZ
NPOR



Gamma Ray Back up

Gamma Ray (GR) HGNS-B

0 gAPI 200

Caliper (CALI) HDRS-B

6 in 16

Spontaneous Potential (SP) AIT-H

0 mV 200

Stuck Tool Indicator, Total (STIT)

0 ft 50

Cable Tension (TENS)

6000 lbf 0

Array Induction Two Foot Resistivity A10 (AT10) AIT-H

2 ohm.m 2000

Array Induction Two Foot Resistivity A30 (AT30) AIT-H

2 ohm.m 2000

Array Induction Two Foot Resistivity A90 (AT90) AIT-H

2 ohm.m 2000

Gas Effect

NPOR Backup

Standard Resolution Density Porosity (DPHZ) HDRS-B

0.3 ft3/ft3 -0.1

Enhanced Thermal Neutron Porosity in Selected Lithology (NPOR) HGNS-B

0.3 m3/m3 -0.1

Standard Resolution Formation Photoelectric Factor (PEFZ) HDRS-B

0 10

TIME_1900 - Time Marked every 60.00 (s)

Description: HGNS standard resolution porosities for Platform Express Format: Log (KM 5in Triple Combo) Index Scale: 5 in per 100 ft Index Unit: ft

Index Type: Measured Depth Creation Date: 21-May-2013 22:20:22

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
BSAL	Borehole Salinity	Borehole	36327.1	ppm
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
DC_MODE	Depth Correction Mode	DepthCorrection	Real-time	
DFD	Drilling Fluid Density	Borehole	9	lbm/gal
DFT	Drilling Fluid Type	Borehole	Water	
DFT_WATER	Drilling Fluid Water Type	Borehole	Fresh Water/DAP	
DHC	Density Hole Correction	HDRS-B	Bit Size	
FD	Fluid Density	Borehole	1	g/cm3
FSAL	Formation Salinity	Borehole	0	ppm
GCSE_DOWN_PASS	Generalized Caliper Selection for WL Log Down Passes	Borehole	BS	
GCSE_UP_PASS	Generalized Caliper Selection for WL Log Up Passes	Borehole	CALI	
GRSE	Generalized Mud Resistivity Selection, from Measured or Computed Mud Resistivity	Borehole	AMF	
GTSE	Generalized Temperature Selection, from Measured or Computed Temperature	Borehole	CTEM	
HSCO	Hole Size Correction Option	HGNS-B	Yes	
MATR	Rock Matrix for Neutron Porosity Corrections	Borehole	LIMESTONE	
MDEN	Matrix Density for Density Porosity	Borehole	2.71	g/cm3
MFST	Mud Filtrate Sample Temperature	Borehole	75	degF
RMFS	Resistivity of Mud Filtrate Sample	Borehole	0.56	ohm.m
SOCO	Standoff Correction Option	HGNS-B	Yes	
SPDR	SP Drift Per Foot	AIT-H	0	mV/ft
TD	Total Measured Depth	Borehole	8300	ft

Depth Zone Parameters

Parameter	Value	Start (ft)	Stop (ft)
BS	0	201	309.5
BS	7.875	309.5	8340.5

All depth are actual.

Tool Control Parameters

Parameter	Description	Tool	Value	Unit
HMCA_BRD_TYPE	HMCA Board Type	HGNS-B	0	
HRGD_BRD_TYPE	HRGD Board Type	HDRS-B	WITHOUT_HET	
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	3600	ft/h
STSO_HRDD	Temperature Source for the Density Algorithm	HDRS-B	Decaytime algorithm	

Calibration Report

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

Primary Equipment :

Array Induction Sonde - H	AHIS	398

Auxiliary Equipment :

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
Coarse Gain		Master	1.000	0.800	0.826	1.200
Fine Gain		Master	1.000	0.800	0.823	1.200

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
Thru Cal Mag - 0	V	Master	-----	0.363	0.627	0.847
		Before	-----	0.363	0.626	0.847
		After	-----	-----	-----	-----
		Before-Master	-----	-----	-0.001	-----
		After-Before	-----	-----	-----	-----
Thru Cal Phase - 0	deg	Master	-----	11.000	74.092	131.000
		Before	-----	11.000	74.503	131.000
		After	-----	-----	-----	-----
		Before-Master	-----	-----	0.411	-----
		After-Before	-----	-----	-----	-----
Thru Cal Mag - 1	V	Master	-----	0.762	1.284	1.778
		Before	-----	0.762	1.283	1.778
		After	-----	-----	-----	-----
		Before-Master	-----	-----	-0.001	-----
		After-Before	-----	-----	-----	-----

Thru Cal Phase - 1	deg	Master	-----	10.000	73.071	130.000
		Before	-----	10.000	73.483	130.000
		After	-----	-----	-----	-----
		Before-Master	-----	-----	0.412	-----
		After-Before	-----	-----	-----	-----
Thru Cal Mag - 2	V	Master	-----	0.374	0.637	0.872
		Before	-----	0.374	0.636	0.872
		After	-----	-----	-----	-----
		Before-Master	-----	-----	-0.001	-----
		After-Before	-----	-----	-----	-----
Thru Cal Phase - 2	deg	Master	-----	6.000	68.875	126.000
		Before	-----	6.000	69.294	126.000
		After	-----	-----	-----	-----
		Before-Master	-----	-----	0.419	-----
		After-Before	-----	-----	-----	-----
Thru Cal Mag - 3	V	Master	-----	0.422	0.723	0.986
		Before	-----	0.422	0.722	0.986
		After	-----	-----	-----	-----
		Before-Master	-----	-----	-0.001	-----
		After-Before	-----	-----	-----	-----
Thru Cal Phase - 3	deg	Master	-----	5.000	67.972	125.000
		Before	-----	5.000	68.392	125.000
		After	-----	-----	-----	-----
		Before-Master	-----	-----	0.420	-----
		After-Before	-----	-----	-----	-----
Thru Cal Mag - 4	V	Master	-----	0.802	1.347	1.872
		Before	-----	0.802	1.346	1.872
		After	-----	-----	-----	-----
		Before-Master	-----	-----	-0.001	-----
		After-Before	-----	-----	-----	-----
Thru Cal Phase - 4	deg	Master	-----	-1.000	60.999	119.000
		Before	-----	-1.000	61.424	119.000
		After	-----	-----	-----	-----
		Before-Master	-----	-----	0.425	-----
		After-Before	-----	-----	-----	-----
Thru Cal Mag - 5	V	Master	-----	1.173	1.946	2.737
		Before	-----	1.173	1.943	2.737
		After	-----	-----	-----	-----
		Before-Master	-----	-----	-0.003	-----
		After-Before	-----	-----	-----	-----
Thru Cal Phase - 5	deg	Master	-----	-3.000	58.812	117.000
		Before	-----	-3.000	59.249	117.000
		After	-----	-----	-----	-----
		Before-Master	-----	-----	0.437	-----
		After-Before	-----	-----	-----	-----
Thru Cal Mag - 6	V	Master	-----	1.173	1.941	2.737
		Before	-----	1.173	1.939	2.737
		After	-----	-----	-----	-----
		Before-Master	-----	-----	-0.002	-----
		After-Before	-----	-----	-----	-----
Thru Cal Phase - 6	deg	Master	-----	-3.000	58.874	117.000
		Before	-----	-3.000	59.313	117.000
		After	-----	-----	-----	-----
		Before-Master	-----	-----	0.439	-----
		After-Before	-----	-----	-----	-----
Thru Cal Mag - 7	V	Master	-----	0.849	1.378	1.981
		Before	-----	0.849	1.378	1.981
		After	-----	-----	-----	-----
		Before-Master	-----	-----	0.000	-----
		After-Before	-----	-----	-----	-----
Thru Cal Phase - 7	deg	Master	-----	-7.000	53.154	113.000
		Before	-----	-7.000	53.666	113.000
		After	-----	-----	-----	-----
		Before-Master	-----	-----	0.512	-----
		After-Before	-----	-----	-----	-----
SPA Zero	mV	Master		-50.000	-0.032	50.000
		Before		-50.000	-0.046	50.000
		After	-----	-----	-----	-----

		Before-Master	-----	-----	-0.014	-----
		After-Before	-----	-----	-----	-----
SPA Plus	mV	Master		941.000	992.378	1040.000
		Before		941.000	993.083	1040.000
		After	-----	-----	-----	-----
		Before-Master	-----	-----	0.705	-----
		After-Before	-----	-----	-----	-----
Temperature Zero	V	Master		-0.050	0.000	0.050
		Before		-0.050	0.000	0.050
		After	-----	-----	-----	-----
		Before-Master	-----	-----	0.000	-----
		After-Before	-----	-----	-----	-----
Temperature Plus	V	Master		0.870	0.919	0.960
		Before		0.870	0.920	0.960
		After	-----	-----	-----	-----
		Before-Master	-----	-----	0.001	-----
		After-Before	-----	-----	-----	-----

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	-----

BS Window Sum	1/s	Master	1		9446	
		Before	9446	8974	9445	9918
		Before-Master	-----	-----	-1	-----
SS Window Ratio		Master	1.0000		0.4930	
		Before	0.4930	0.4684	0.4957	0.5177
		Before-Master	-----	-----	0.0027	-----
SS Window Sum	1/s	Master	1		9080	
		Before	9080	8626	9063	9534
		Before-Master	-----	-----	-17	-----
LS Window Ratio		Master	1.0000		0.2968	
		Before	0.2968	0.2819	0.2965	0.3116
		Before-Master	-----	-----	-0.0003	-----
LS Window Sum	1/s	Master	1		1064	
		Before	1064	1011	1056	1118
		Before-Master	-----	-----	-8	-----

HDRS Density Calibration - Photo-multiplier High Voltages

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 PM High Voltage	V	Master		1000	1623	2400
		Before		1000	1613	2400
		Before-Master	-----	-100	-10	100
SS PM High Voltage	V	Master		1000	1662	2400
		Before		1000	1670	2400
		Before-Master	-----	-100	8	100
LS PM High Voltage	V	Master		1000	1584	2400
		Before		1000	1576	2400
		Before-Master	-----	-100	-8	100

HDRS Density Calibration - Crystal Quality Resolutions

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 Crystal Resolution	%	Master		5.00	11.92	25.00
		Before		5.00	12.03	25.00
		Before-Master	-----	-1.00	0.11	1.00
SS Crystal Resolution	%	Master		5.00	9.99	20.00
		Before		5.00	10.03	20.00
		Before-Master	-----	-1.00	0.04	1.00
LS Crystal Resolution	%	Master		5.00	9.72	20.00
		Before		5.00	9.60	20.00
		Before-Master	-----	-1.00	-0.12	1.00

HDRS MCFL Calibration - MCFL Accumulations

Before (Measured): 16:27:25 31-May-2013

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit
Main Resistivity	ohm.m	Before	3875	3565	1834	4185
Deep Resistivity	ohm.m	Before	3830	3524	1908	4136
Shallow Resistivity	ohm.m	Before	3830	3524	1992	4136

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

AZ Vertical Measurement	ft/s2	Before	32.2	31.5	31.8	32.8

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	-----	-----	-----	-----

Company: NIGHTHAWK PRODUCTION LLC

Schlumberger

Well: TAOS 1-10

Field: WILDCAT

County: LINCOLN

Country: UNITED STATES

Platform Express
Triple Combo