

Company:Caerus Piceance LLC

Well:Puckett 12C-1

Field:Wildcat

County:Garfield

State:Colorado

Reservoir Saturation Tool

Sigma

County:Garfield

Well:Wildcat

Location:SHL: S2, T7S, R97W

Company:Caerus Piceance LLC

Field:Wildcat

Location:SHL: S2, T7S, R97W

Well:Puckett 12C-1

Company:Caerus Piceance LLC

Location:SHL: S2, T7S, R97W
2207' FNL & 635' FEL
LAT: 39.475731 / LONG: -108.180253

Elev.: K.B. 8509.00 ft
G.L. 8479.00 ft
D.F. 8479.00 ft

Permanent Datum:Ground Level

Log Measured From:Kelly Bushing

Drilling Measured From:Kelly Bushing

Elev.: 30.00 ft

above Perm.Datum

API Serial No.05-045-22620

Section:2

Township:7S

Range:97W

Logging Date	23-Jul-2015
Run Number	ONE
Depth Driller	9010.00 ft
Schlumberger Depth	9010.00 ft
Bottom Log Interval	8849.00 ft
Top Log Interval	2500.00 ft
Casing Fluid Type	3% KCl
Salinity	
Density	9 lbm/gal
Fluid Level	8.00 ft
BIT/CASING/TUBING STRING	
Bit Size	8.75 in
From	2525.00 ft
To	9010.00 ft
Casing/Tubing Size	4.5 in
Weight	11.6 lbm/ft
Grade	P110
From	0.00 ft
To	9005.00 ft
Max Recorded Temperatures	238 degF
Logger on Bottom	24-Jul-2015
Unit Number	9108
Recorded By	Benjamin Mormon/A. Mustafa
Witnessed By	Natalie Naeve

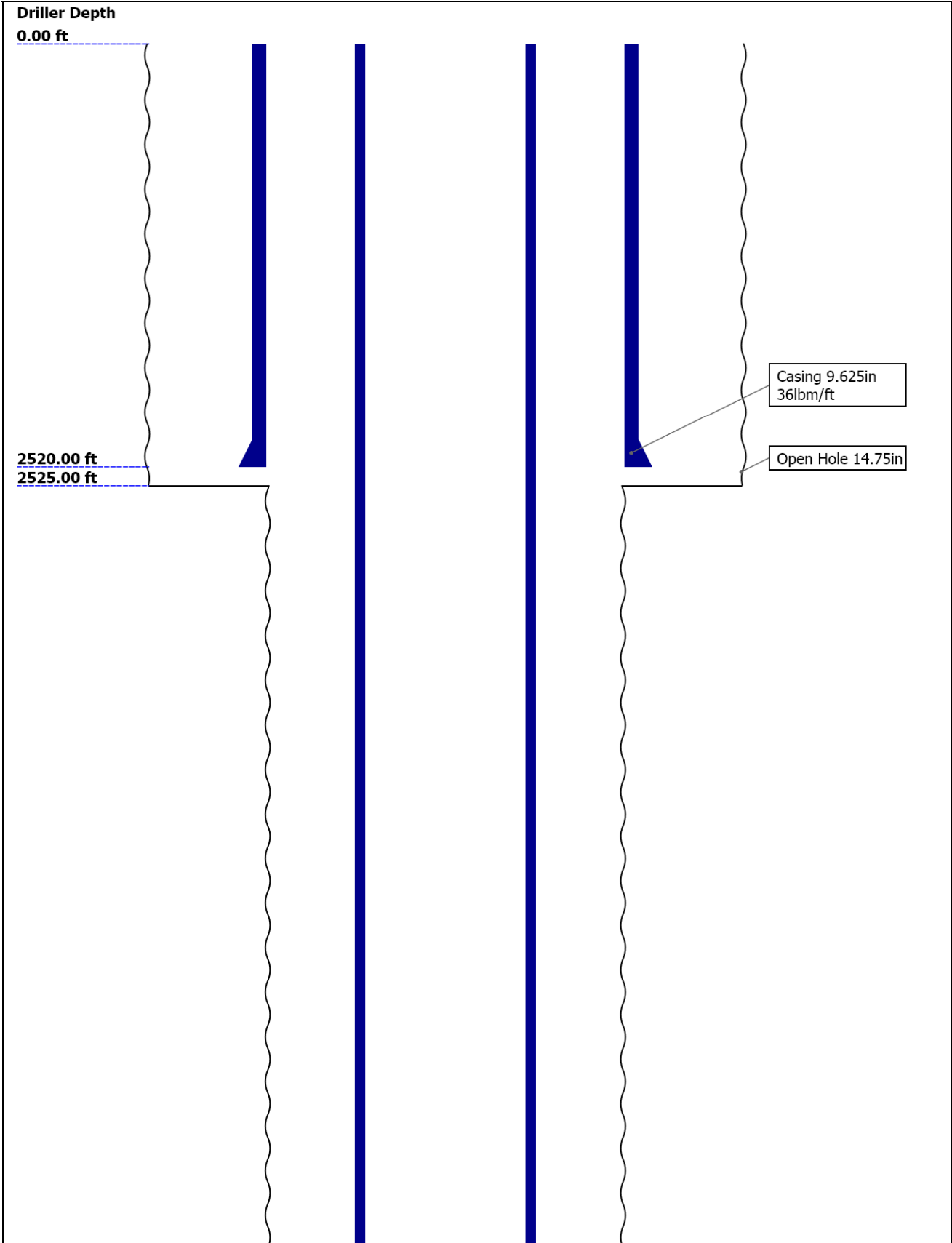
Disclaimer

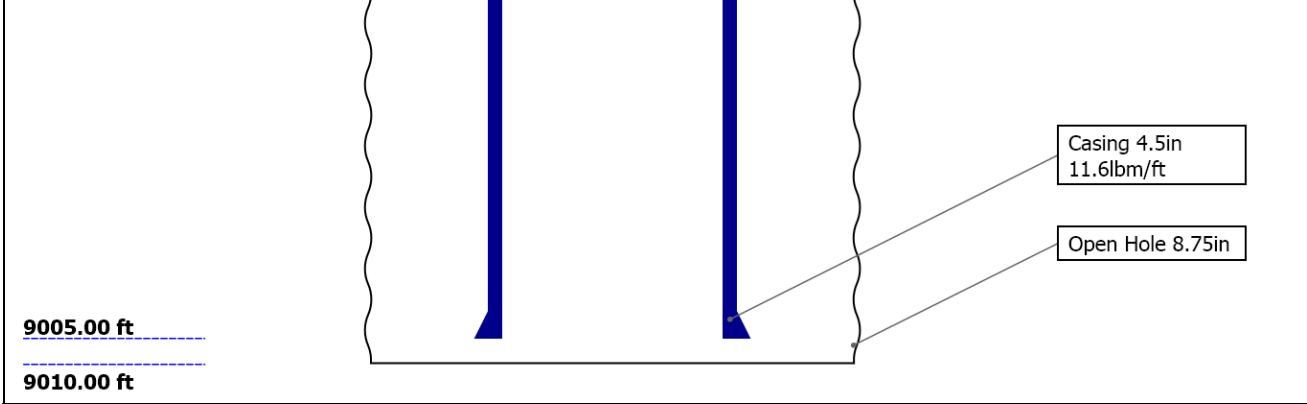
THE USE OF AND RELIANCE UPON THIS RECORDED-DATA BY THE HEREIN NAMED COMPANY (AND ANY OF ITS AFFILIATES, PARTNERS, REPRESENTATIVES, AGENTS, CONSULTANTS AND EMPLOYEES) IS SUBJECT TO THE TERMS AND CONDITIONS AGREED UPON BETWEEN SCHLUMBERGER AND THE COMPANY, INCLUDING: (a) RESTRICTIONS ON USE OF THE RECORDED-DATA; (b) DISCLAIMERS AND WAIVERS OF WARRANTIES AND REPRESENTATIONS REGARDING COMPANY'S USE AND RELIANCE UPON THE RECORDED-DATA; AND (c) CUSTOMER'S FULL AND SOLE RESPONSIBILITY FOR ANY INFERENCE DRAWN OR DECISION MADE IN CONNECTION WITH THE USE OF THIS RECORDED-DATA.

Contents	
1. Header	
2. Disclaimer	
3. Contents	
4. Well Sketch	
5. Borehole Size/Casing/Tubing Record	
6. Operational Run Summary	
7. Remarks and Equipment Summary	
8. Depth Summary	
9. ONE	
9.1 Integration Summary	
9.2 Software Version	
9.3 Composite Summary	
9.4 Log (RST SIGMA Answer)	
9.5 Parameter Listing	
10. ONE	
10.1 Composite Summary	
10.2 Log (RST SIGMA Answer RA)	

- 11. Calibration Report
- 12. Tail

Well Sketch





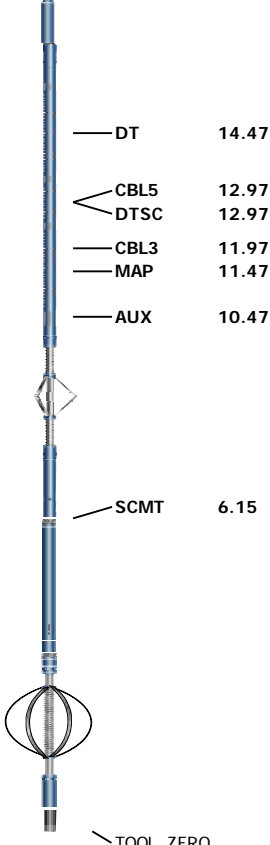
Borehole Size/Casing/Tubing Record

Bit						
Bit Size (in)	14.75	8.75				
Top Driller (ft)	0	2525				
Top Logger (ft)	0	2525				
Bottom Driller (ft)	2525	9010				
Bottom Logger (ft)	2525	9010				
Casing						
Size (in)	9.625	4.5				
Weight (lbm/ft)	36	11.6				
Inner Diameter (in)	8.921	4				
Grade	J55	P110				
Top Driller (ft)	0	0				
Top Logger (ft)	36	0				
Bottom Driller (ft)	2520	9005				
Bottom Logger (ft)	2520	9005				

Operational Run Summary

Parameter (unit)	ONE					
Date Log Started	23-Jul-2015					
Time Log Started	21:32:33					
Date Log Finished	24-Jul-2015					
Time Log Finished	05:51:20					
Top Log Interval (ft)						
Bottom Log Interval (ft)						
Total Depth (ft)						
Max Hole Deviation (deg)						
Azimuth of Max Deviation (deg)						
Bit Size (in)	8.750					
Logging Unit Number	9108					
Logging Unit Location	FT Morgan, Co					
Recorded By	Benjamin Mormon/A.					

[illegible]



BNS-P 0.14

Lengths are in ft
Maximum Outer Diameter = 3.375 in
Line: Sensor Location, Value: Gating Offset
All measurements are relative to TOOL_ZERO

Depth Summary

ONE		
-----	--	--

Depth Measuring Device

Type	IDW-JA		
Serial Number	6510		
Calibration Date	29-Mar-2015		
Calibrator Serial Number			
Calibration Cable Type	7-46 AXS		
Wheel Correction 1	-4		
Wheel Correction 2	-2		

Tension Device

Type	CMTD-B/A		
Serial Number	171		
Calibration Date	26-JUN-2015		
Calibrator Serial Number	123		
Number of Calibration Points	10		
Calibration Root Mean Square Error	13		
Calibration Peak Error	31		

Logging Cable

Type	7-46A-XS		
Serial Number	U714071		
Length	17500.00 ft		
Conveyance Type	Wireline		
Rig Type			

ONE:Depth Control Parameters

Depth Control Remarks

Log Sequence	First Log In the Well	Schlumberger Depth Control Procedures followed
Rig Up Length At Surface		IDW used as primary depth control device
Rig Up Length At Bottom		Z-Chart used as secondary depth control
Rig Up Length Correction		Logs correlated to down log

6.70 ft

ONE

Software Version

Pass Summary

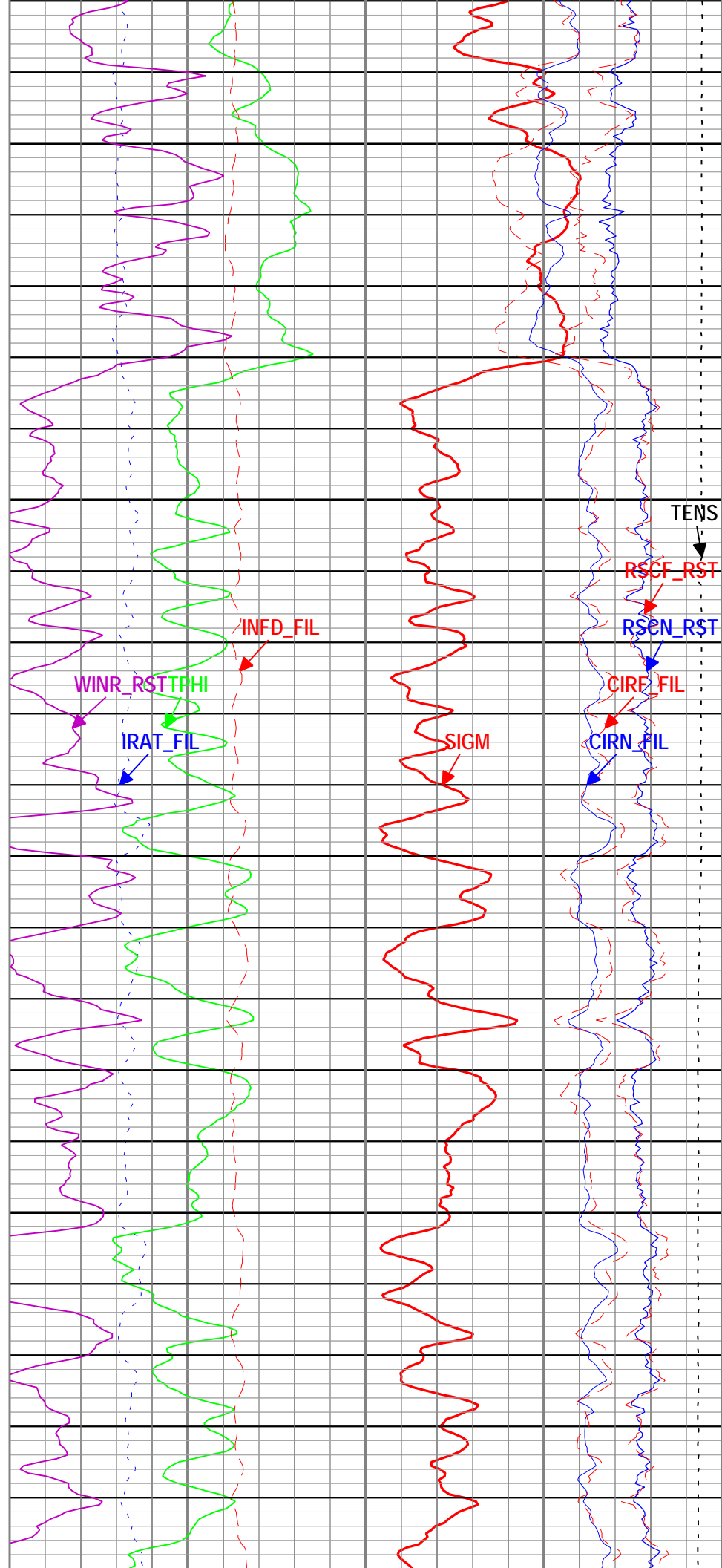
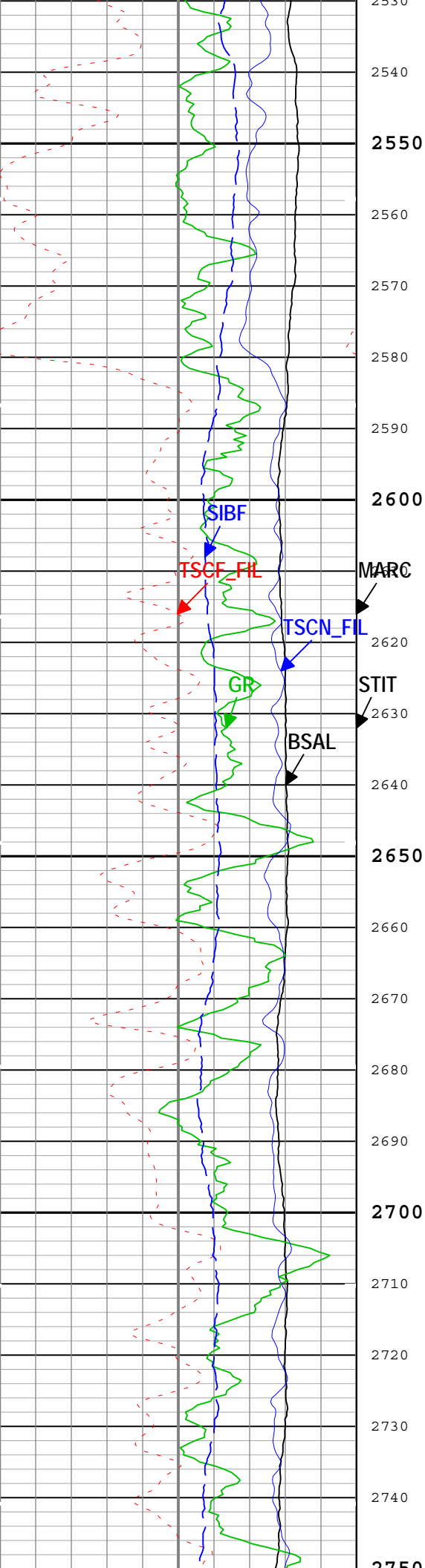
All depths are referenced to toolstring zero

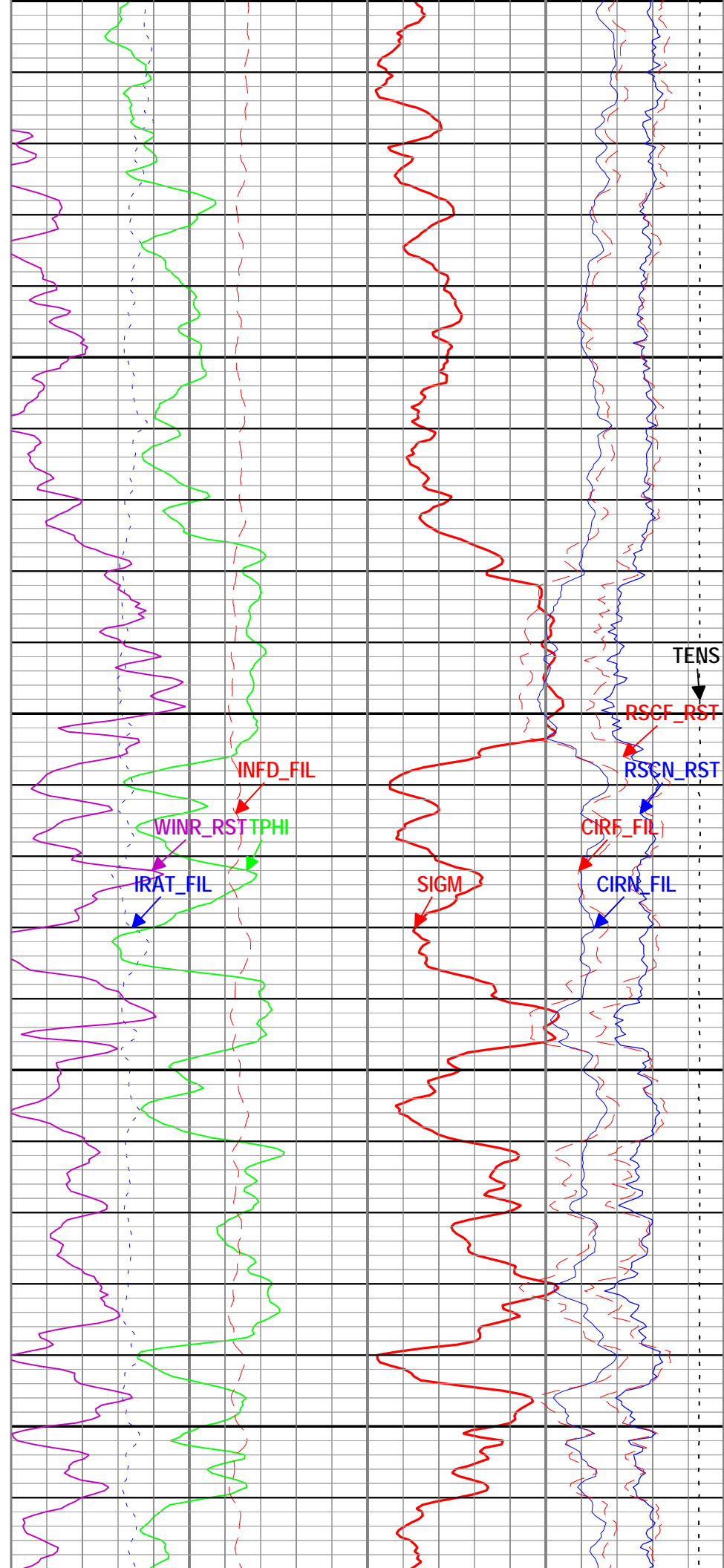
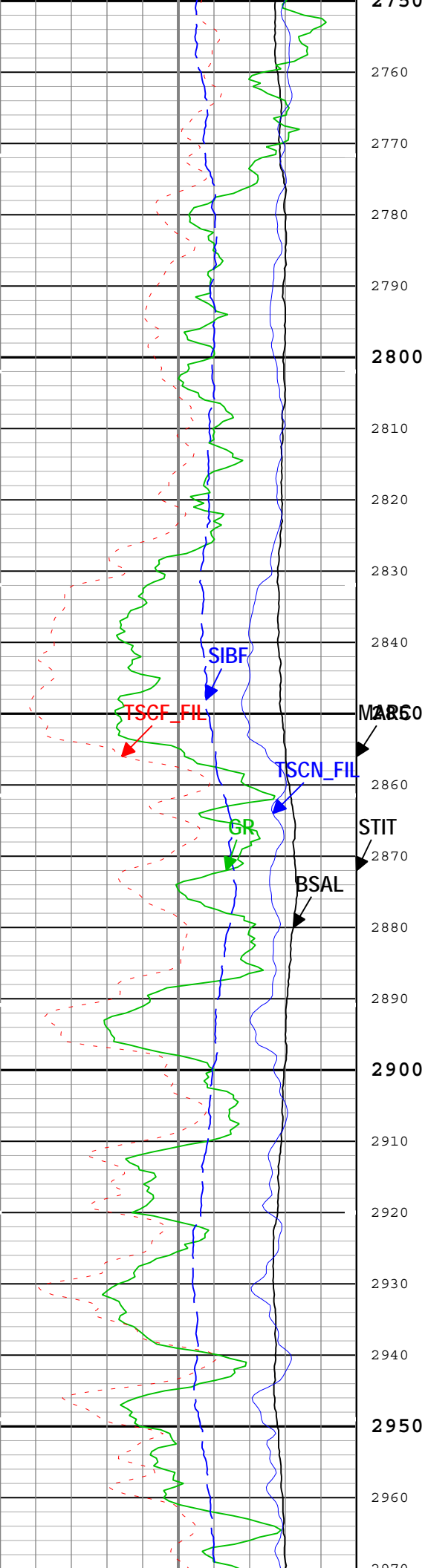
Log

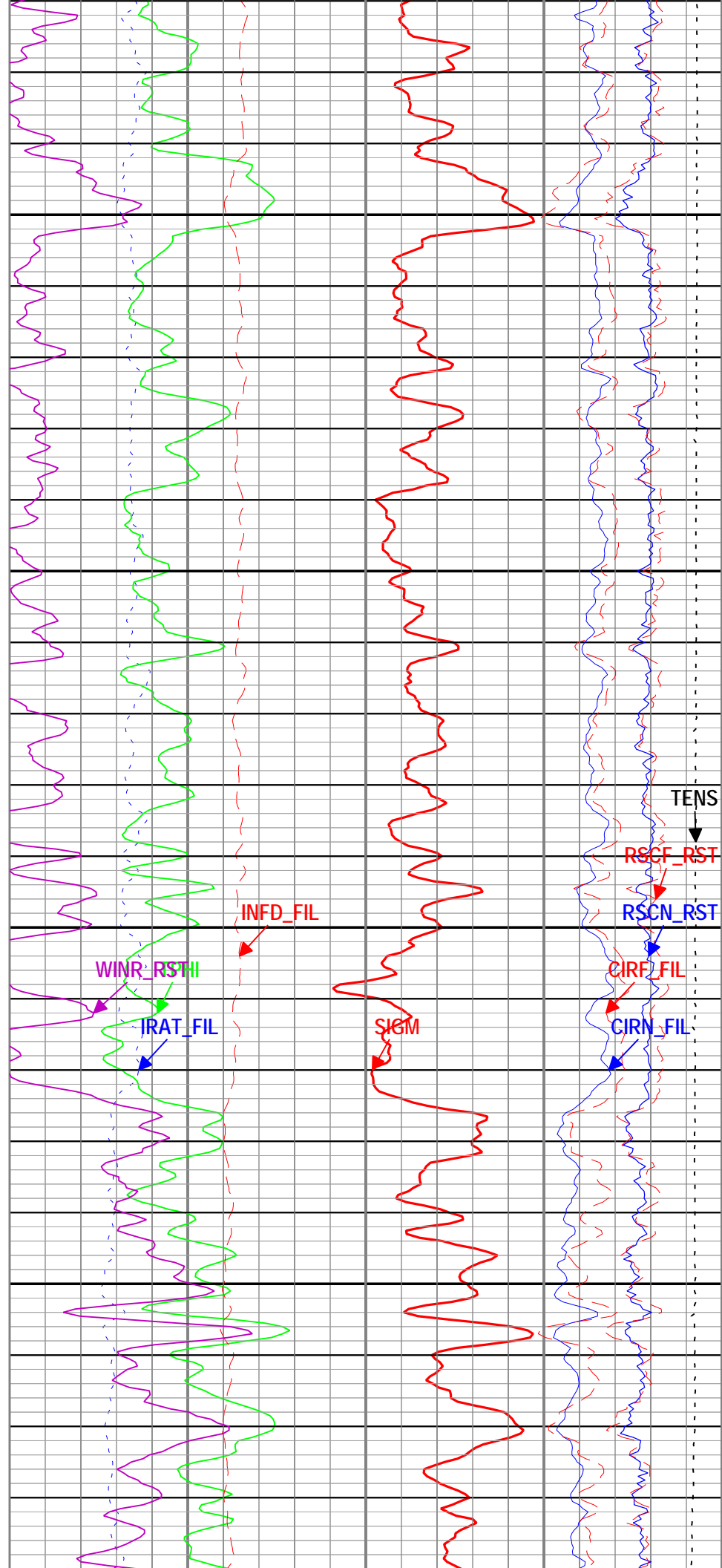
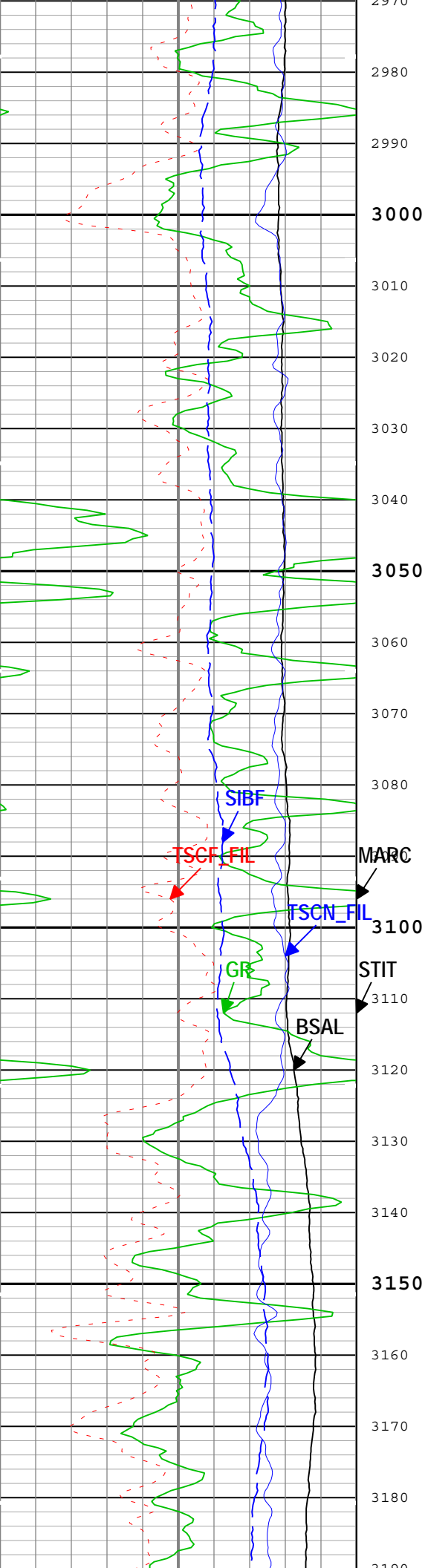
ONE: Log[5]:Up:S006

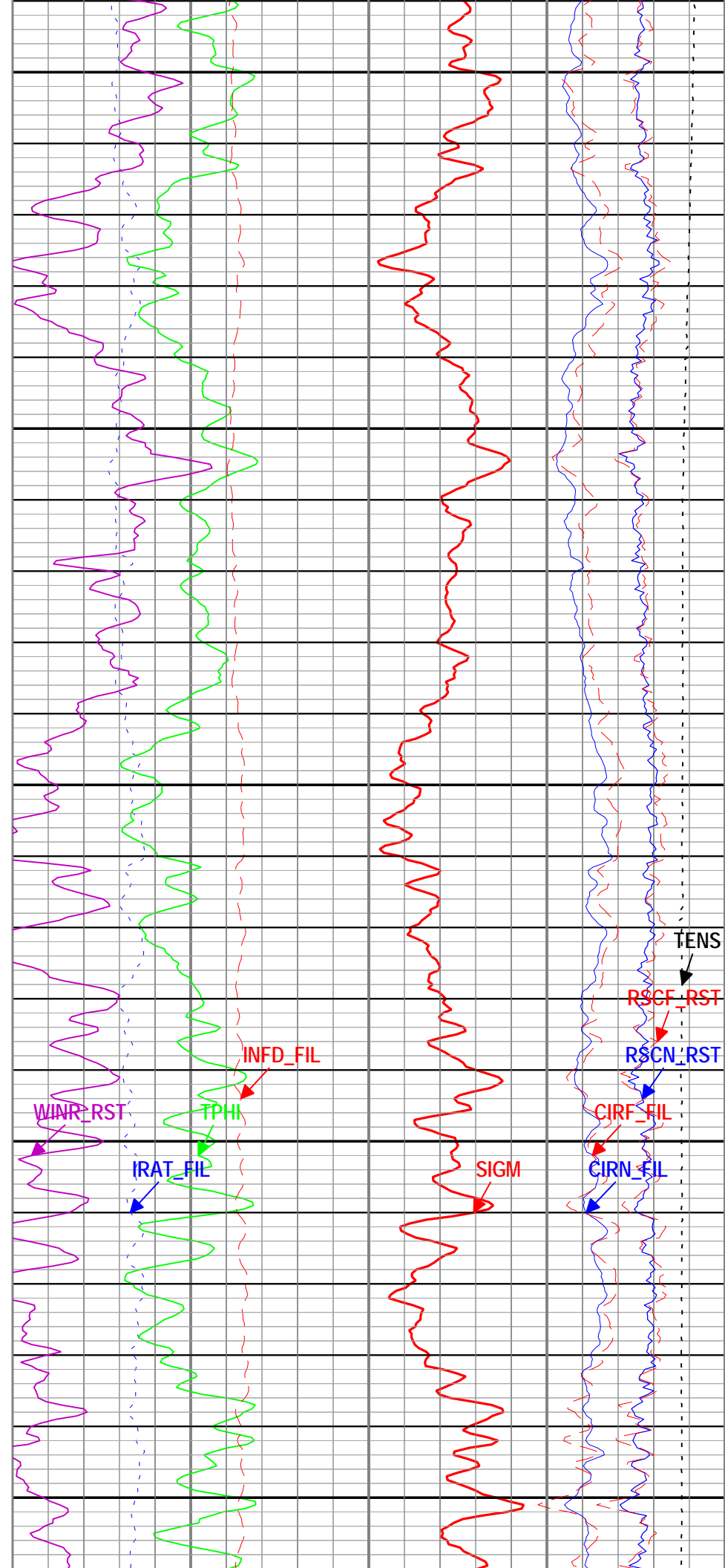
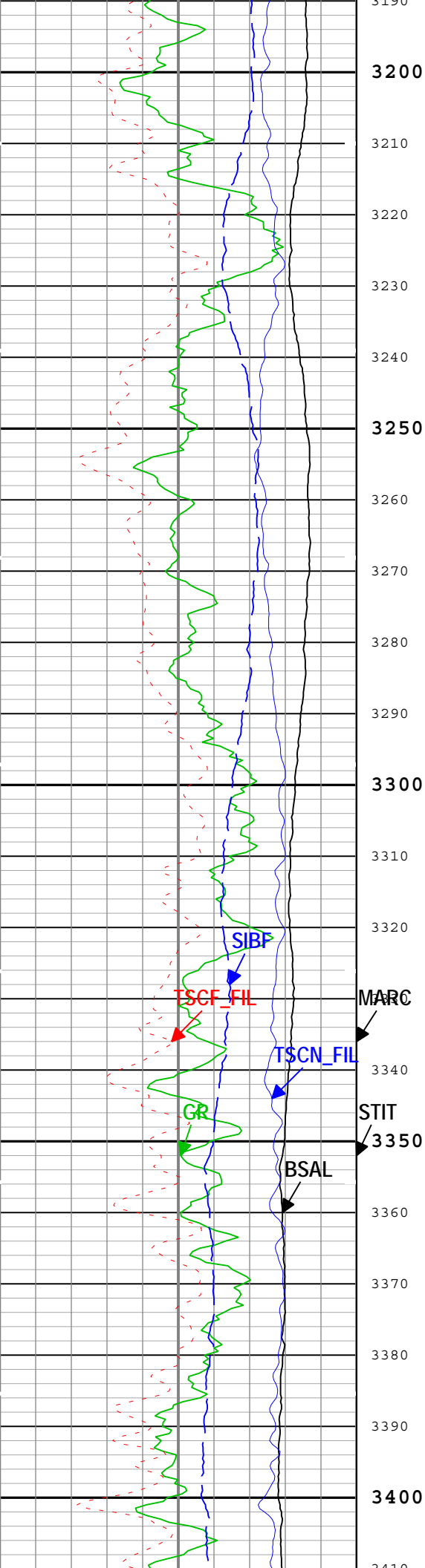
TIME_1900 - Time Marked every 60.00 (s)

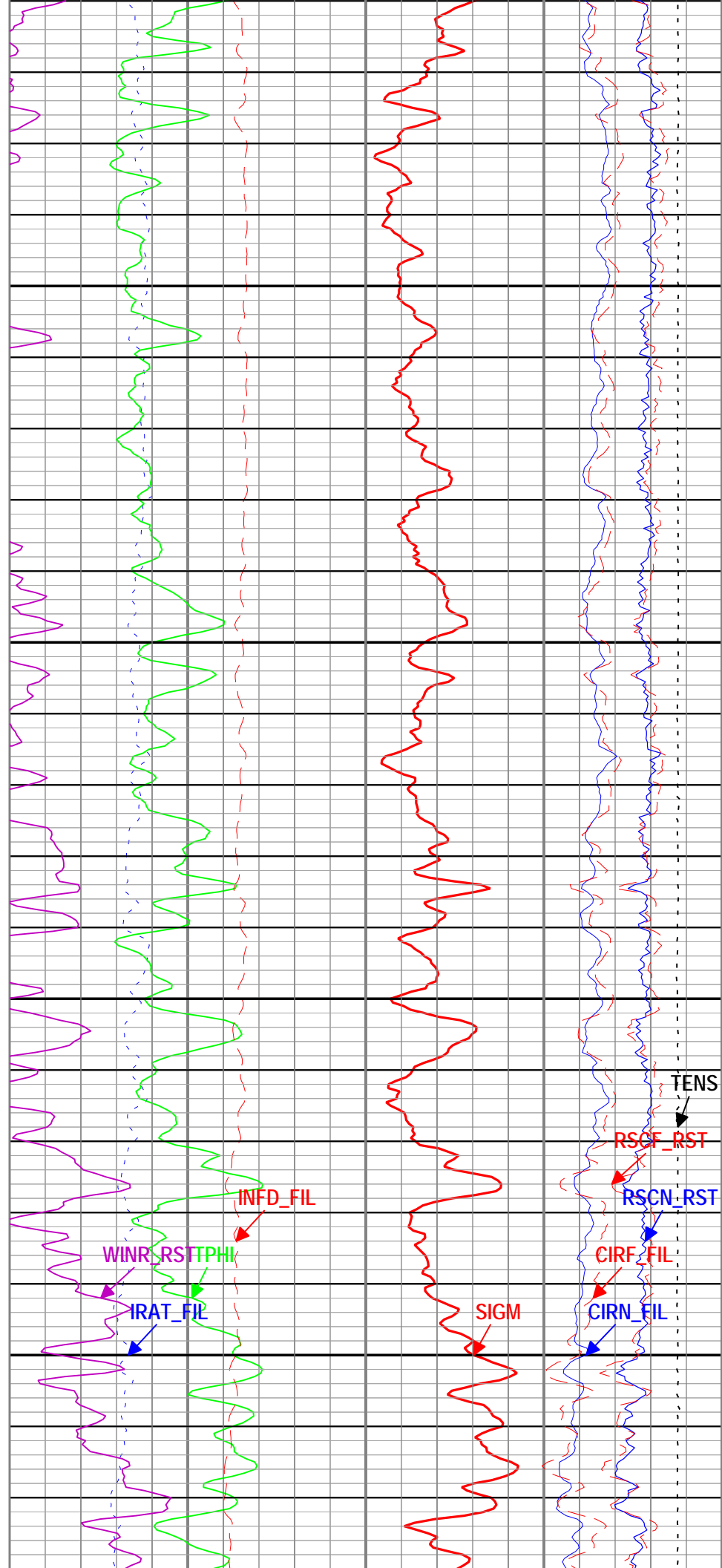
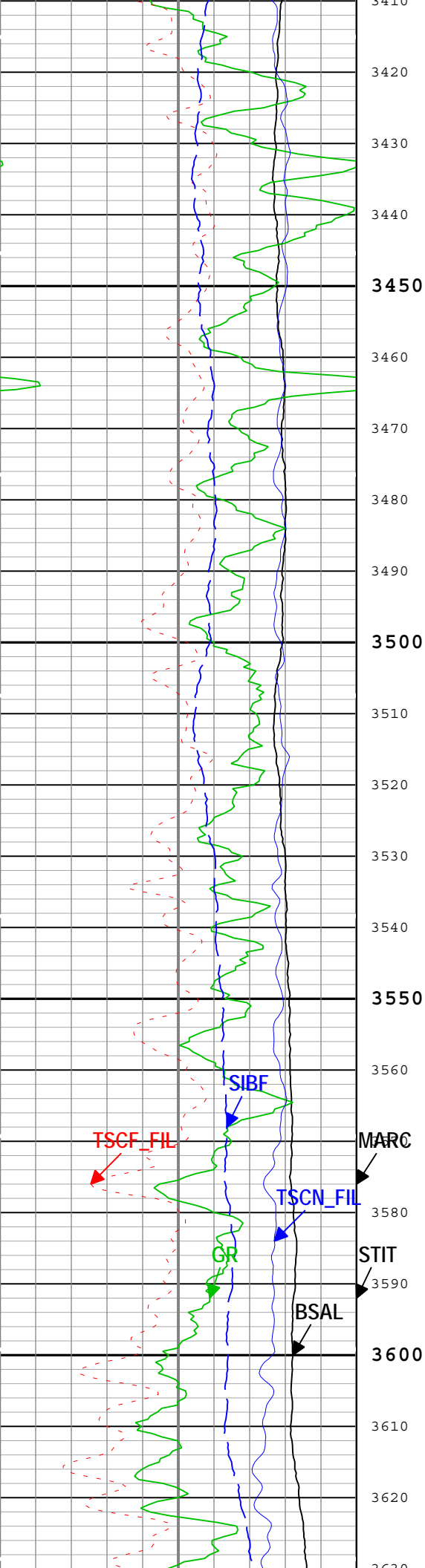
— ICV - Integrated Cement Volume every 100.00 (ft3)

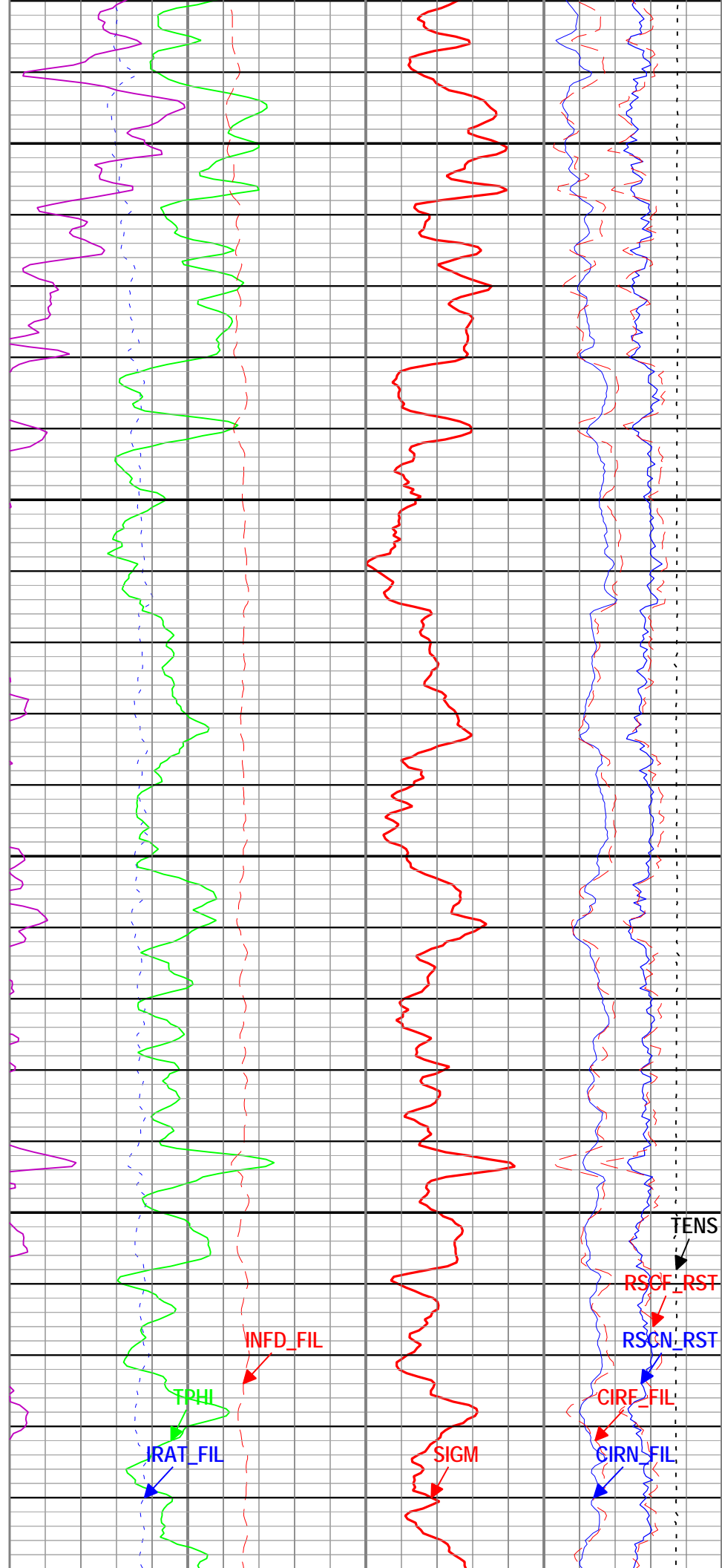
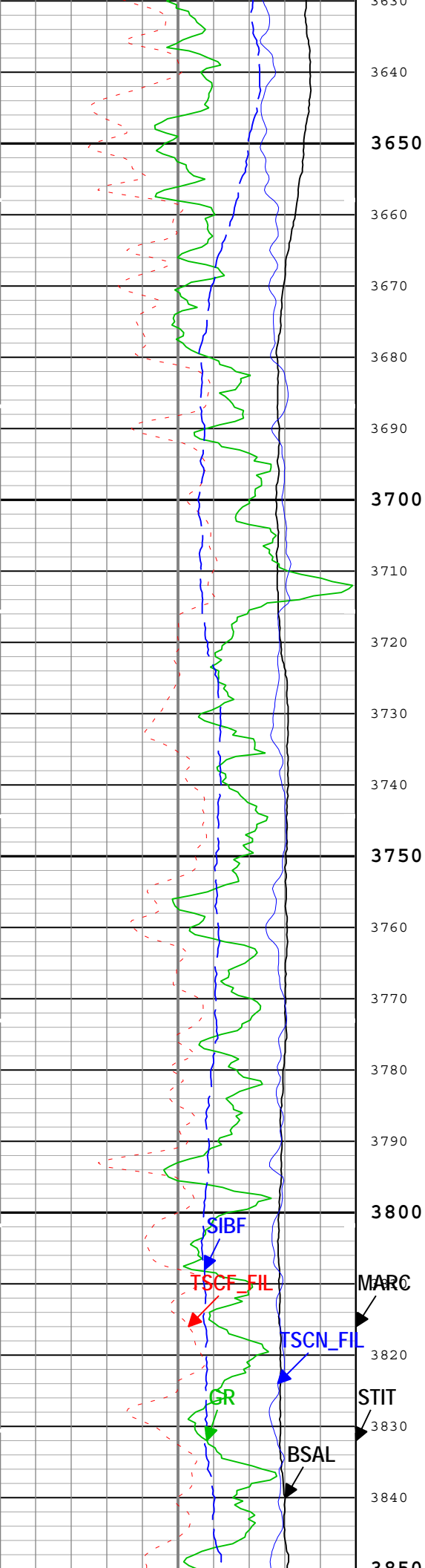


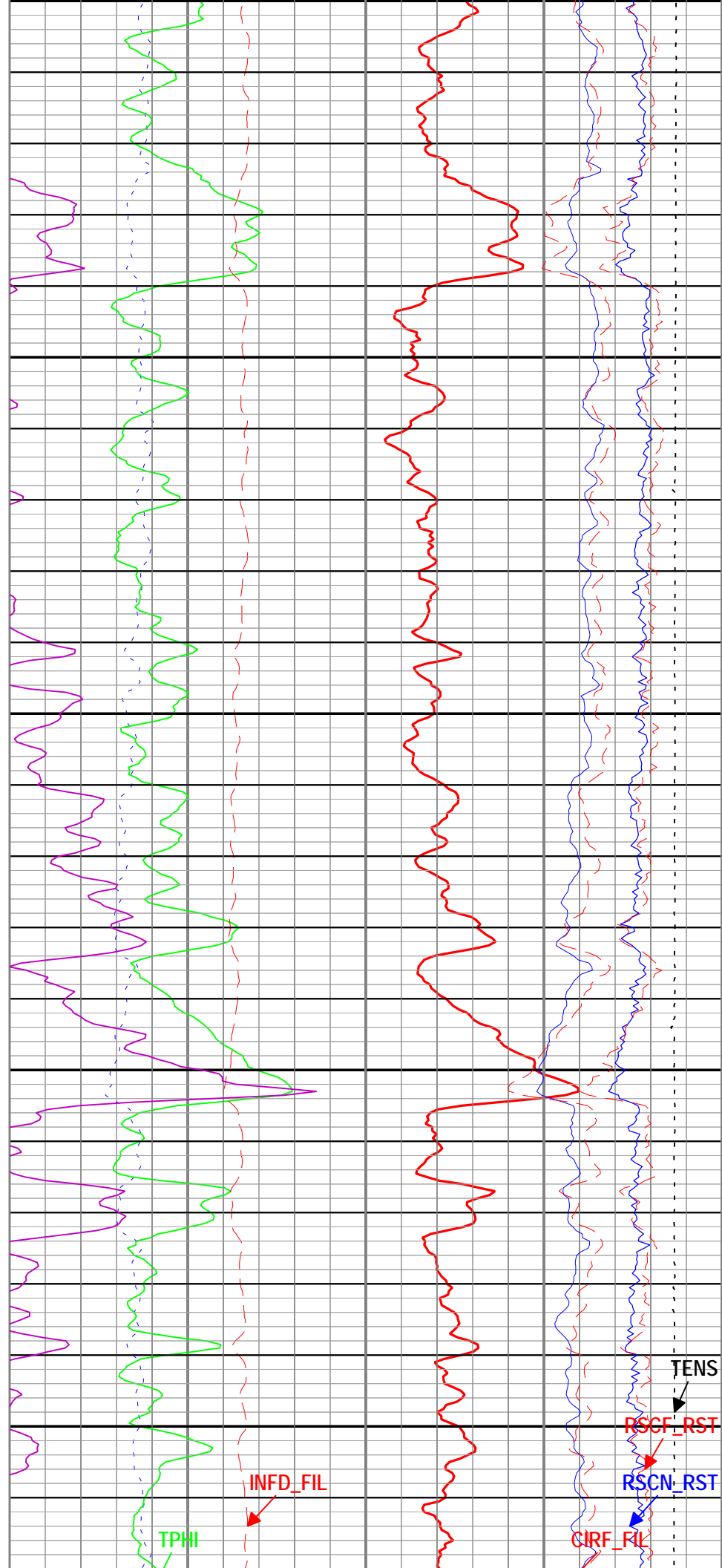
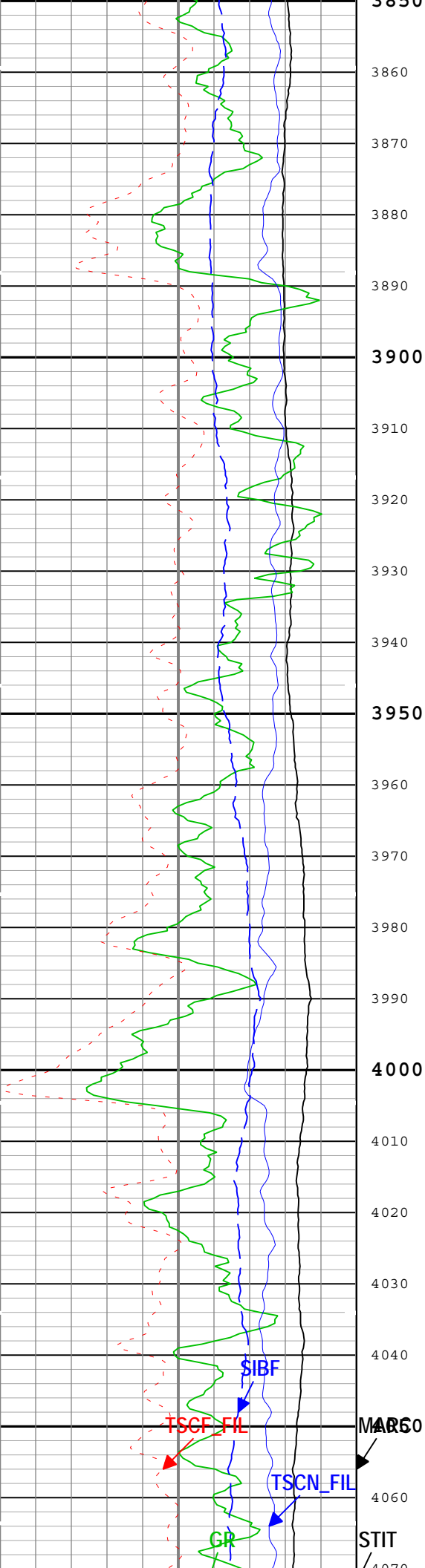


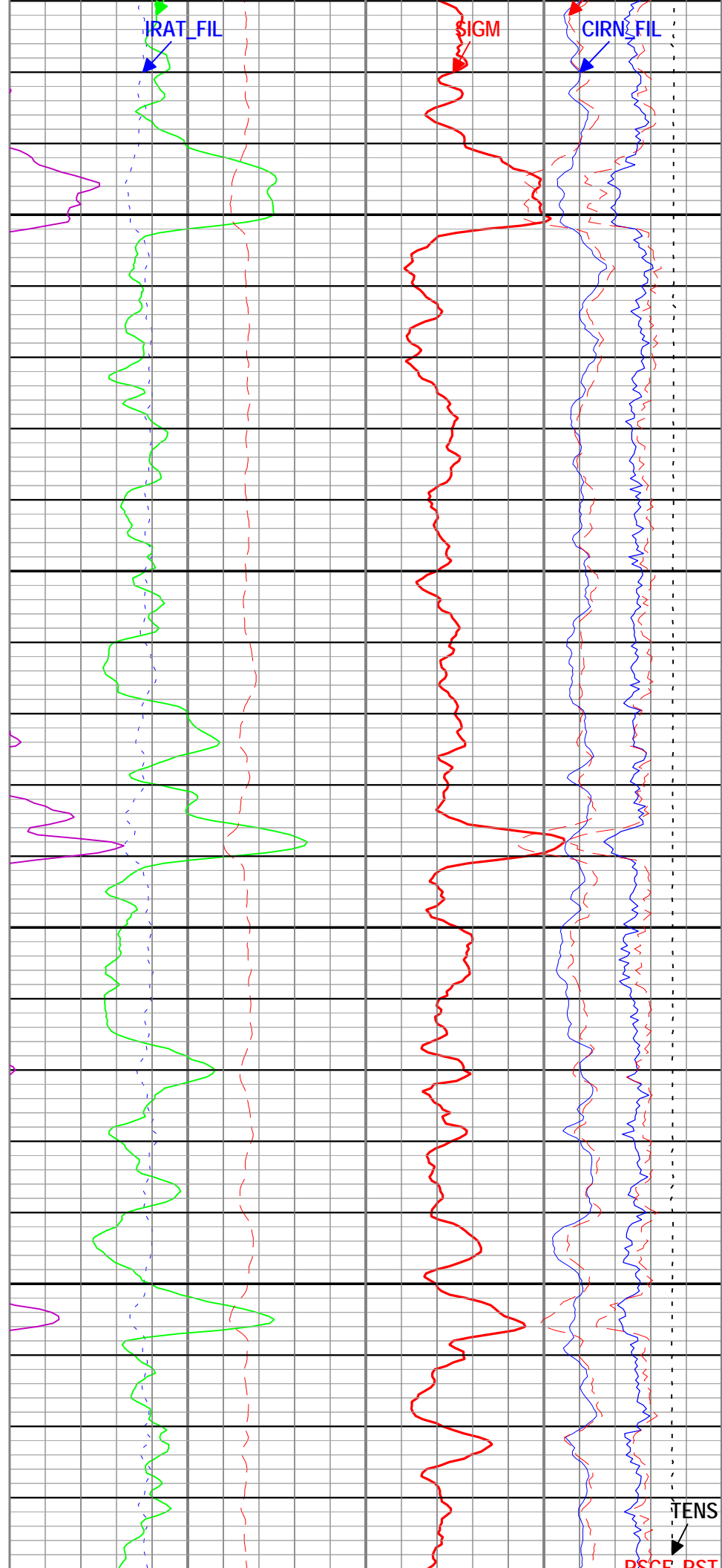
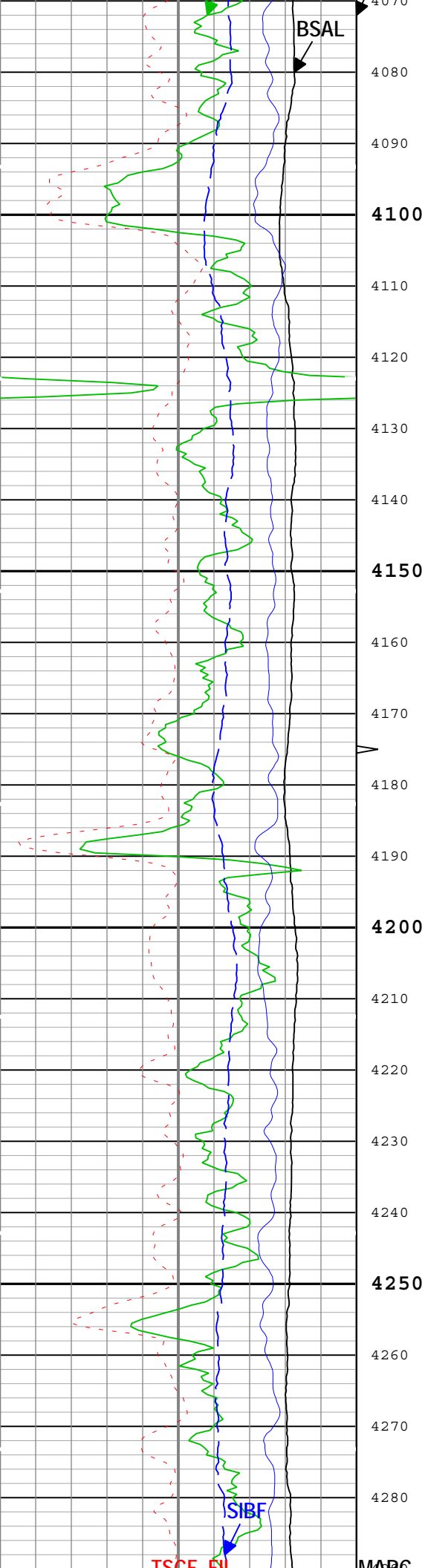


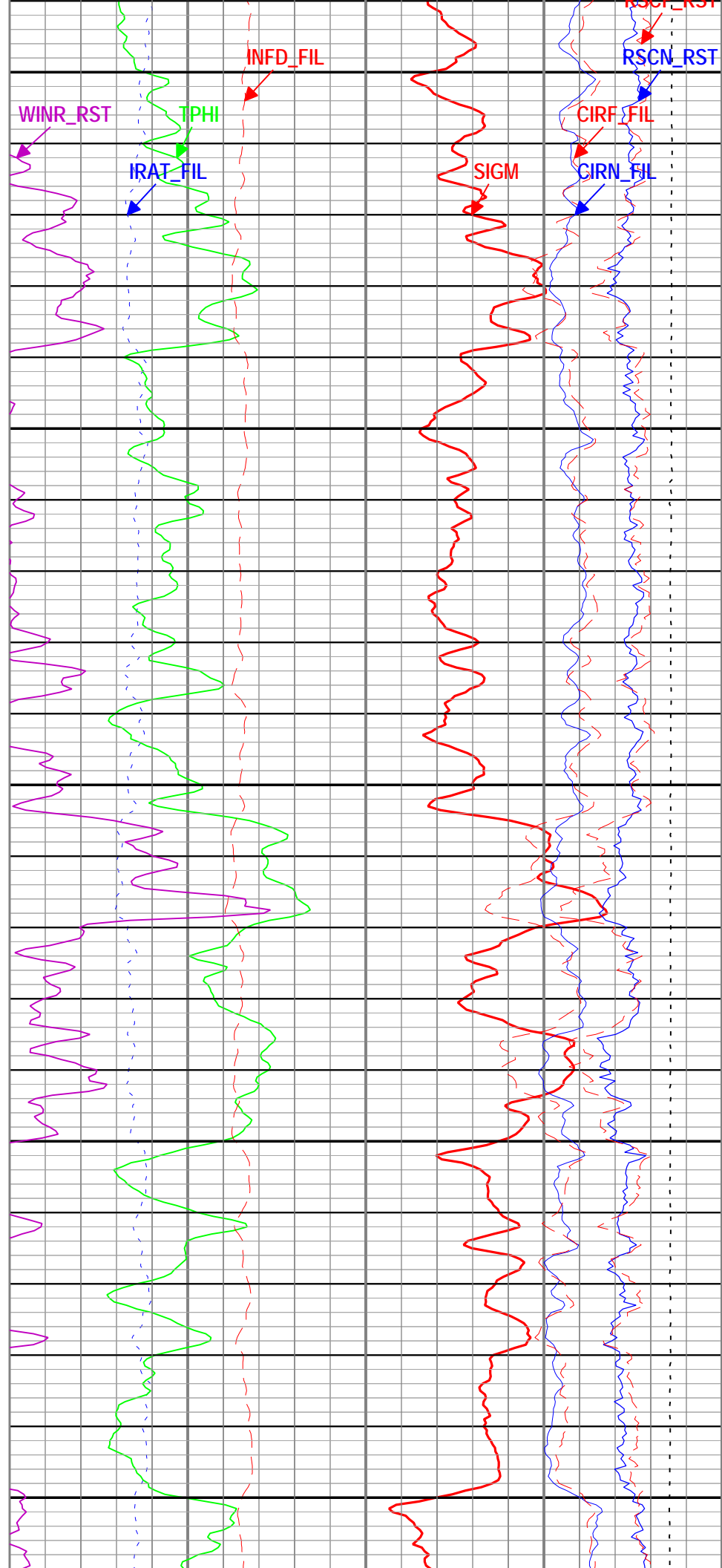
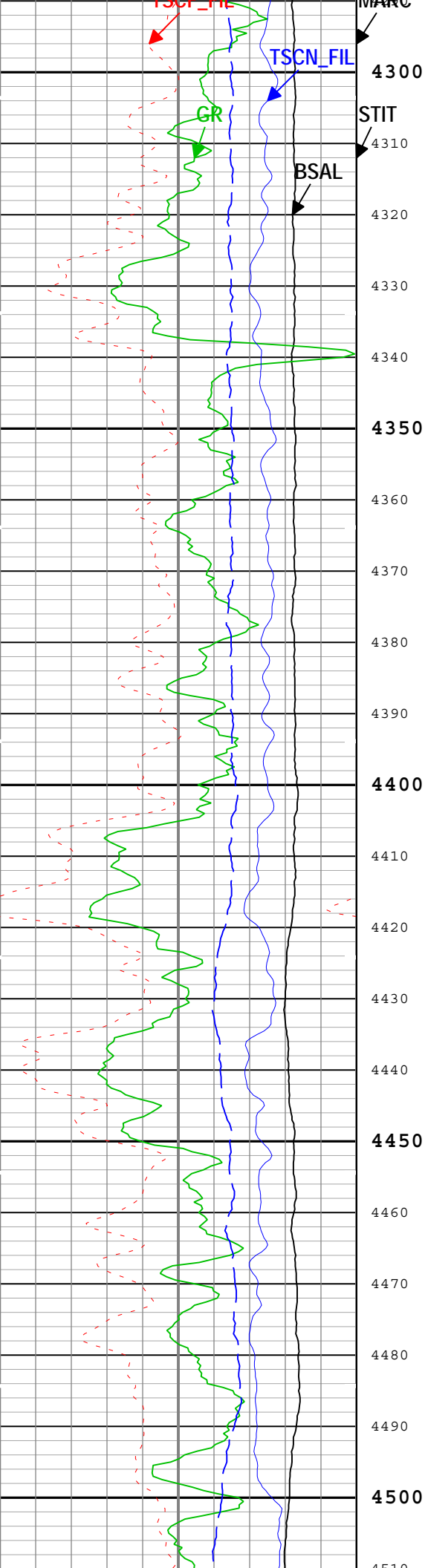


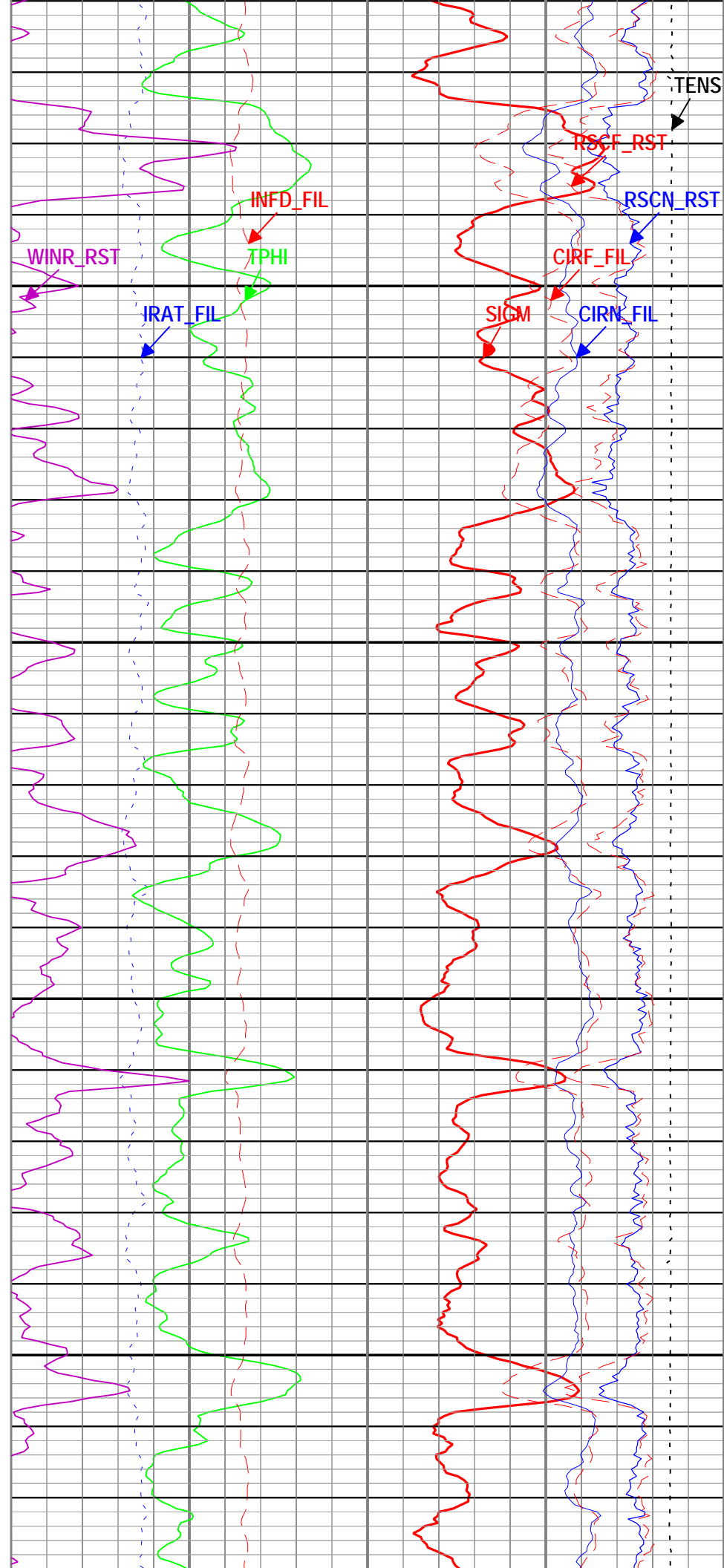
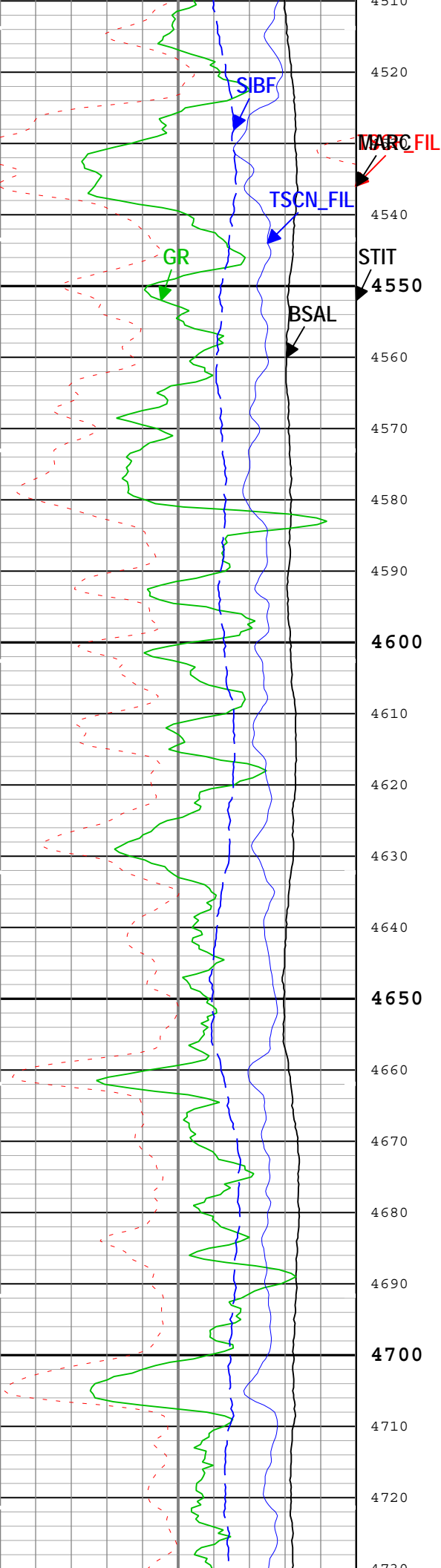


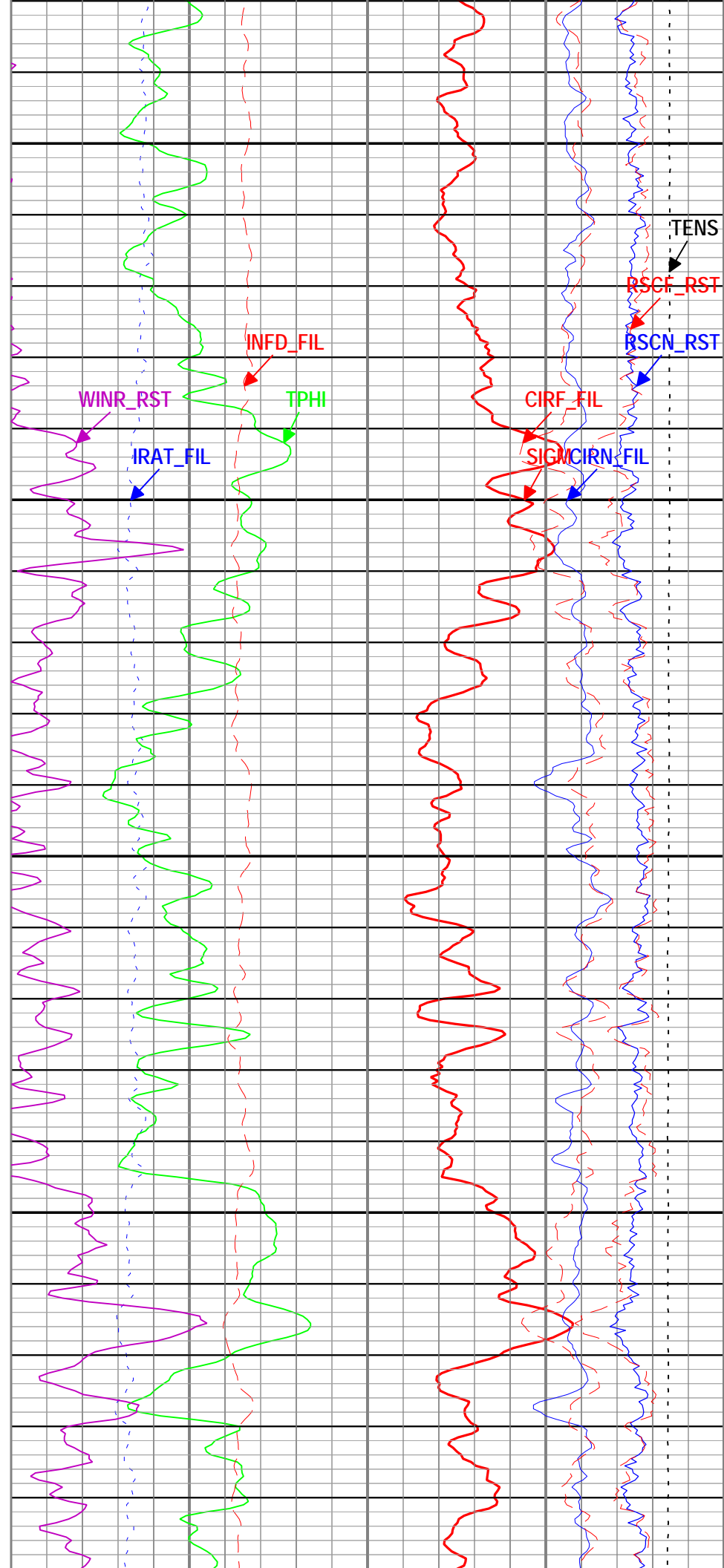
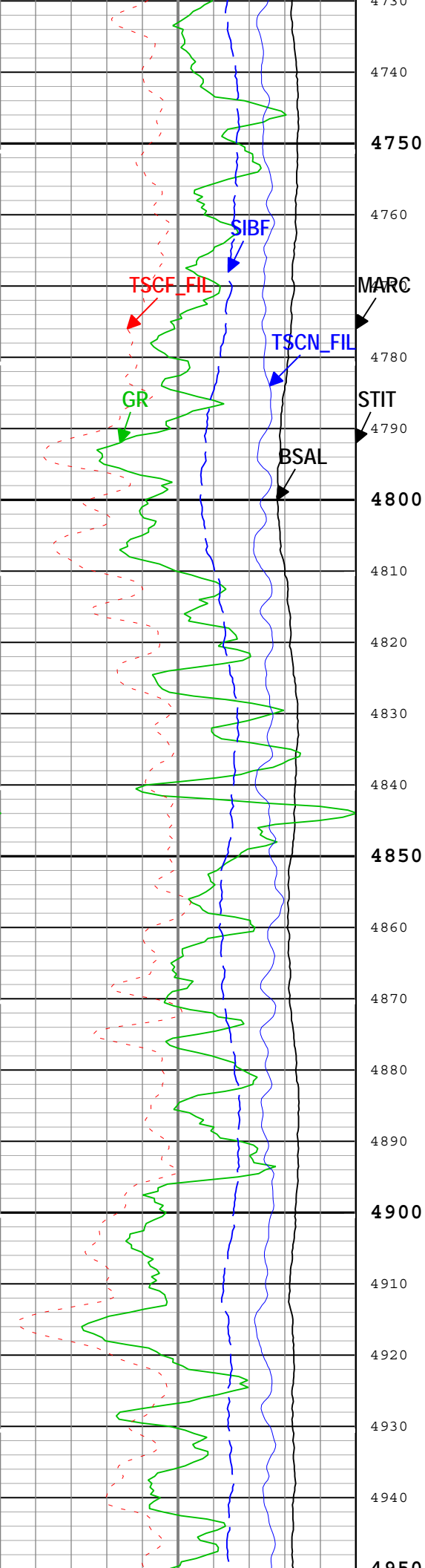


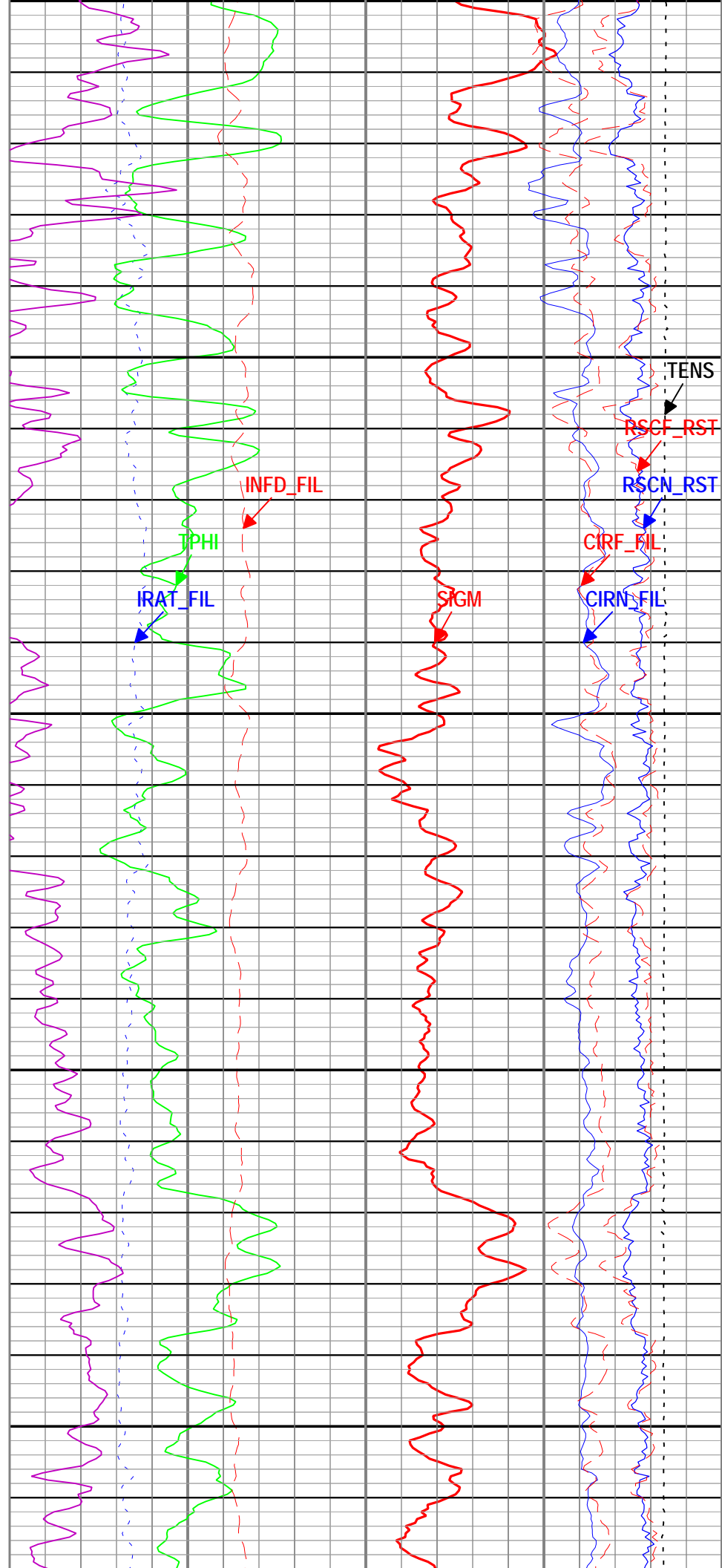
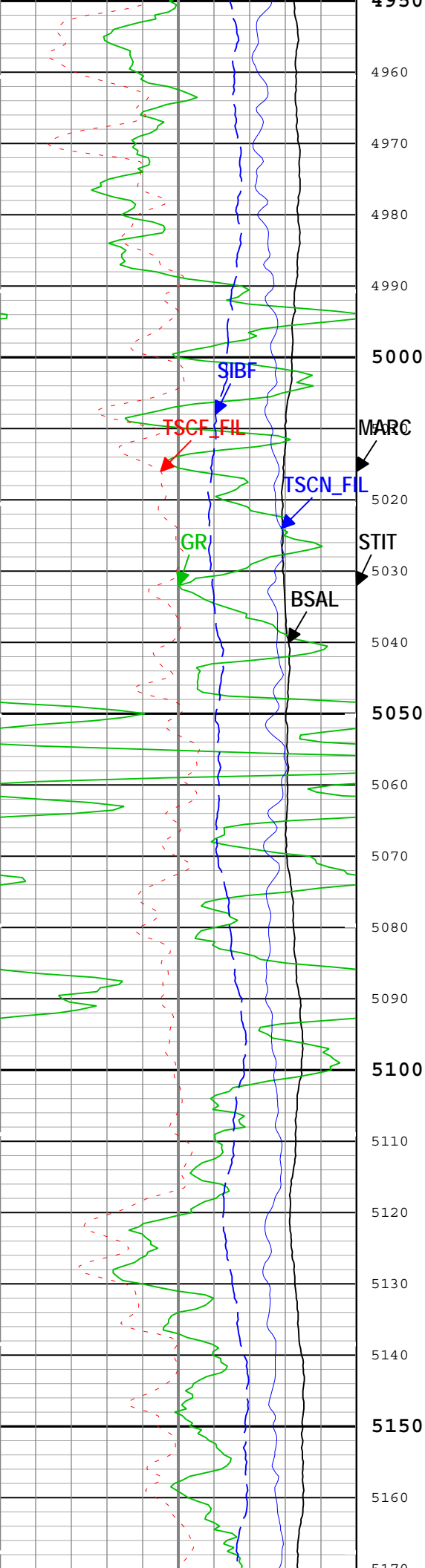


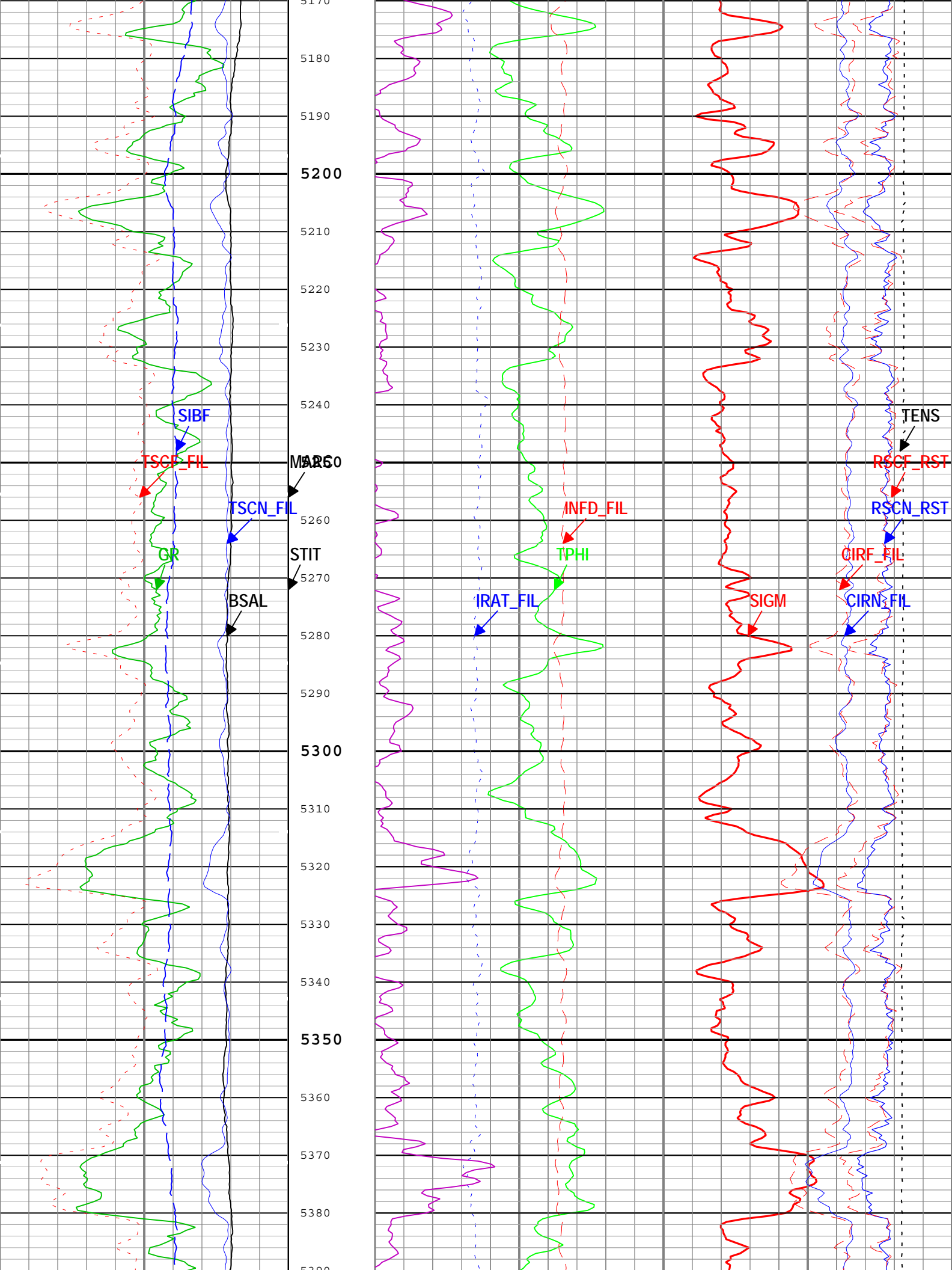


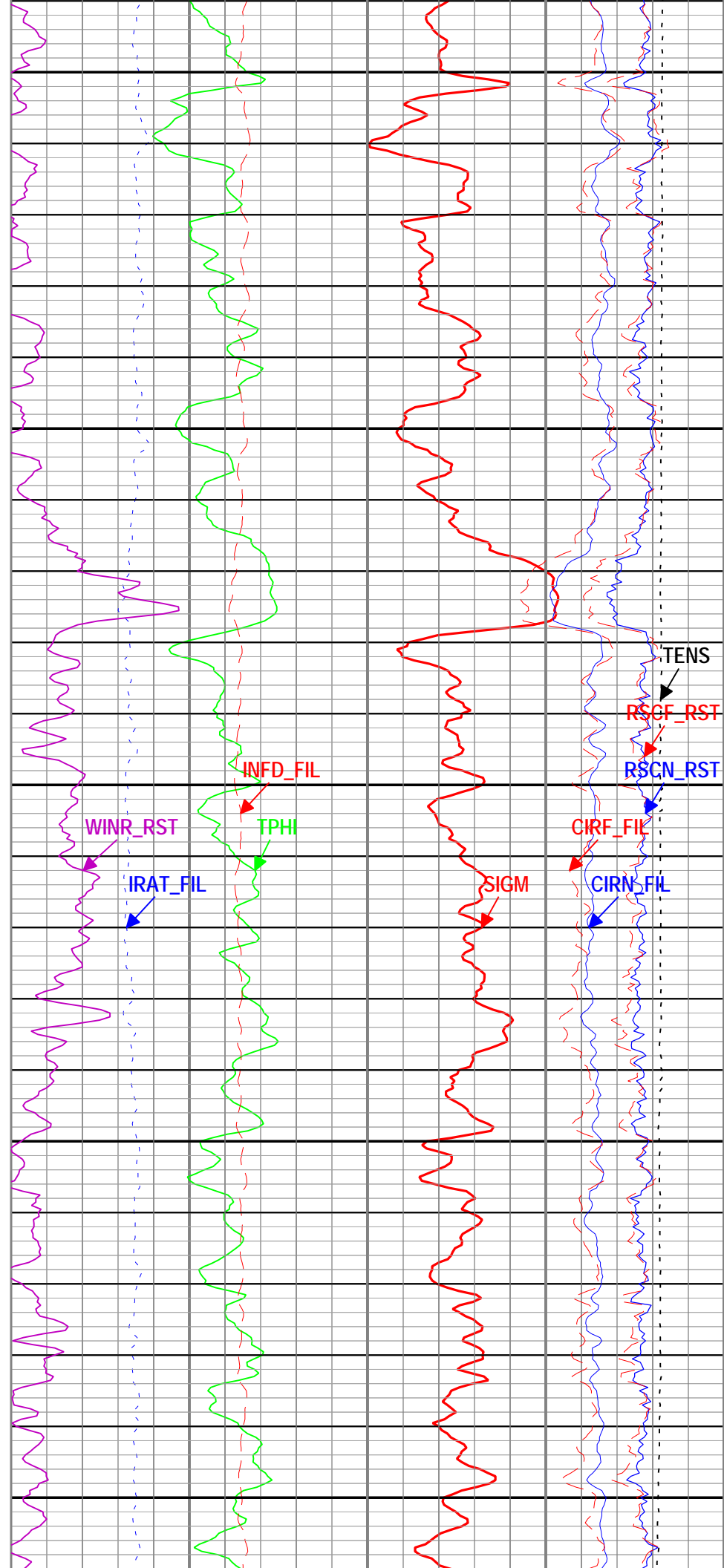
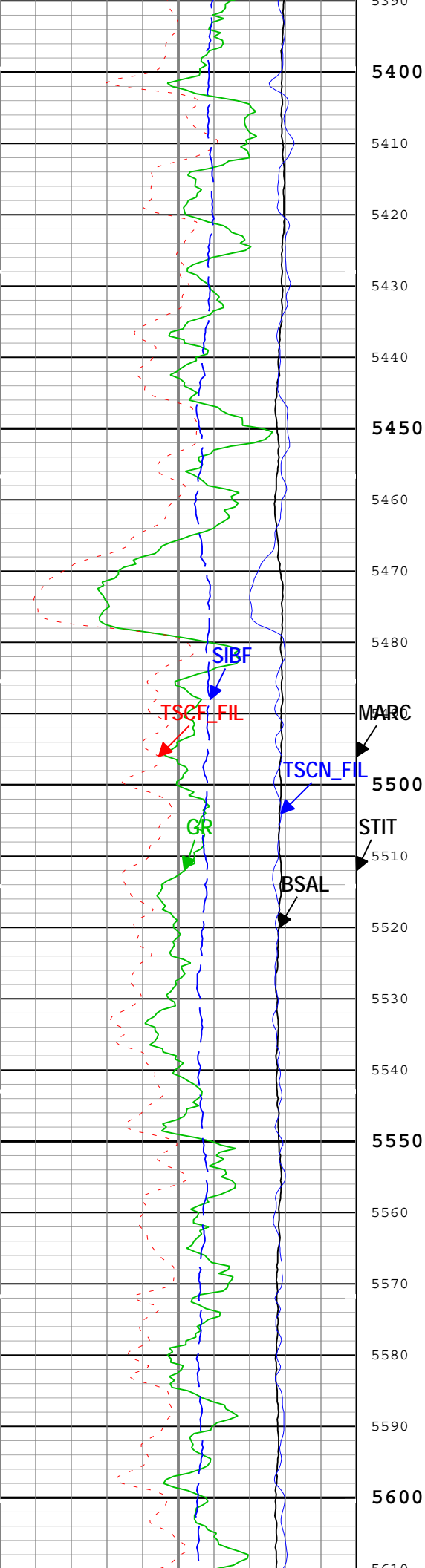


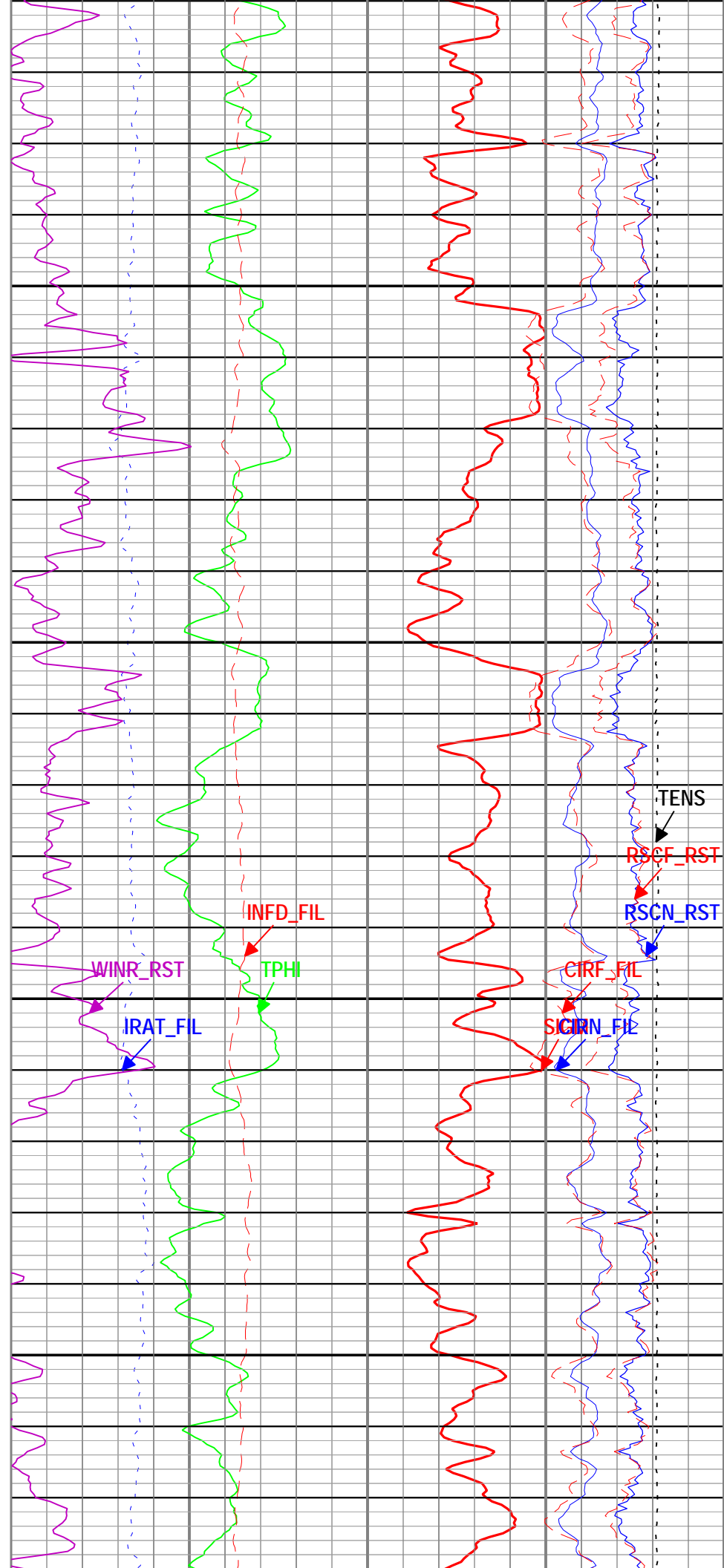
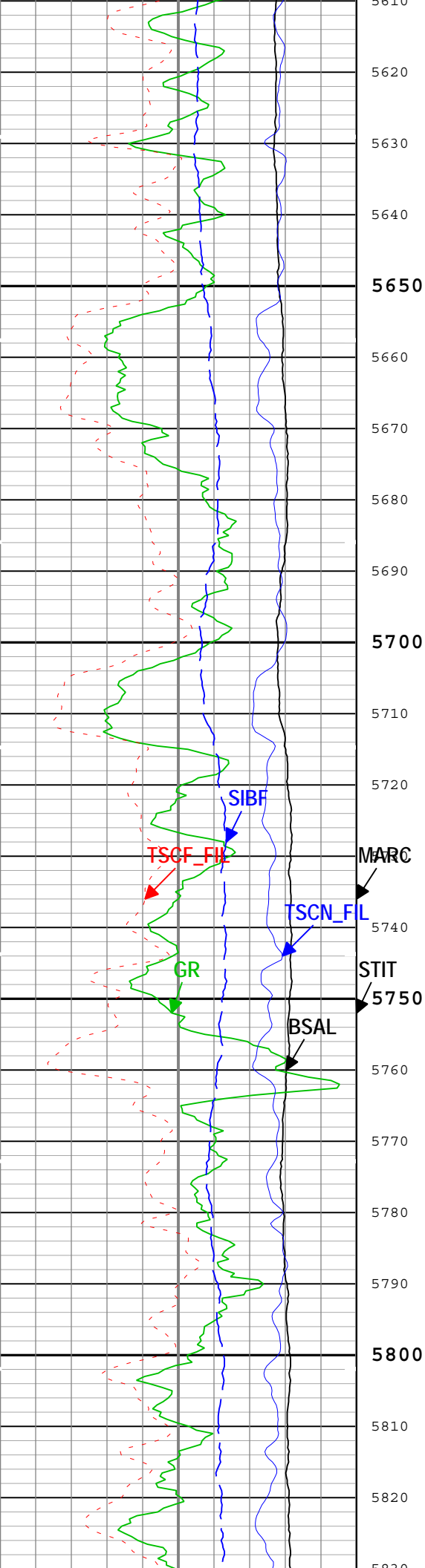


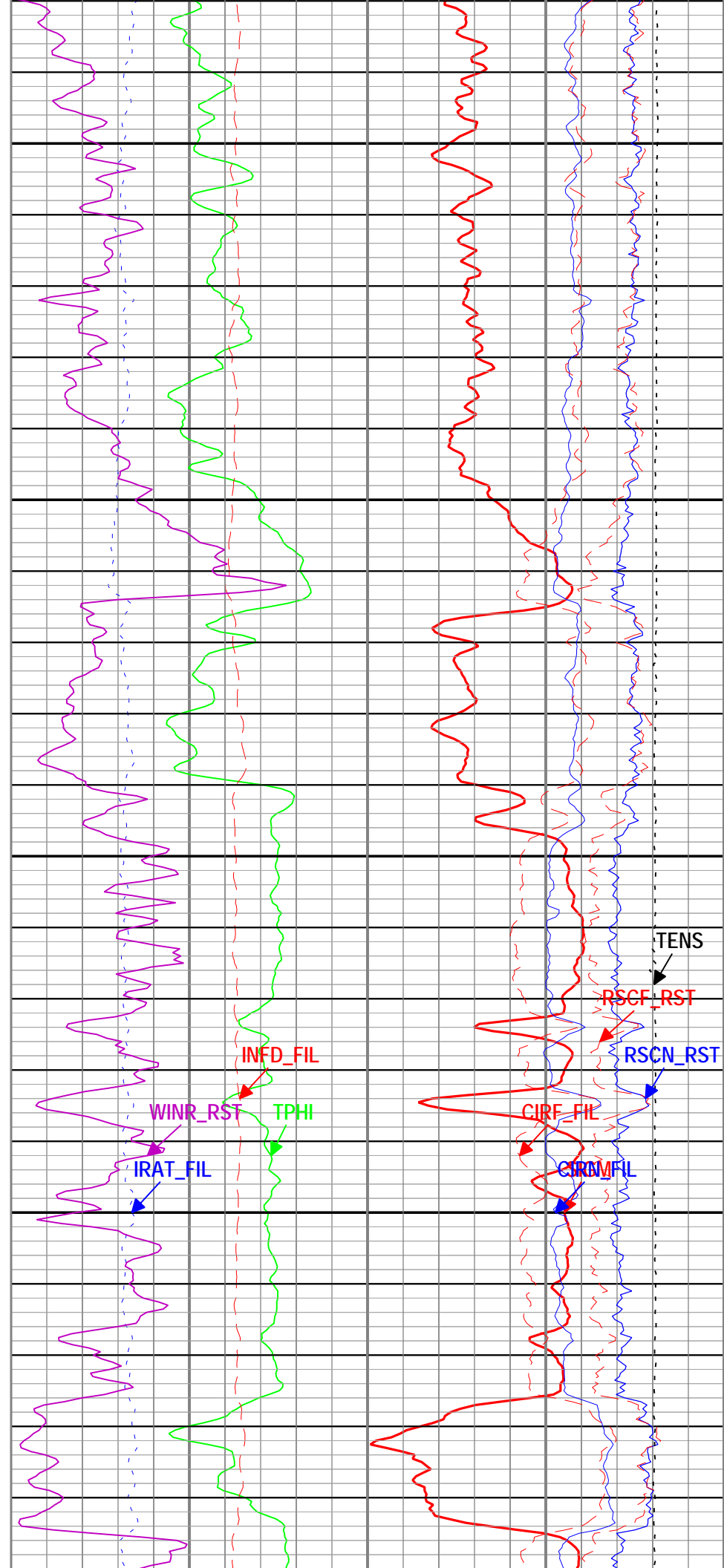
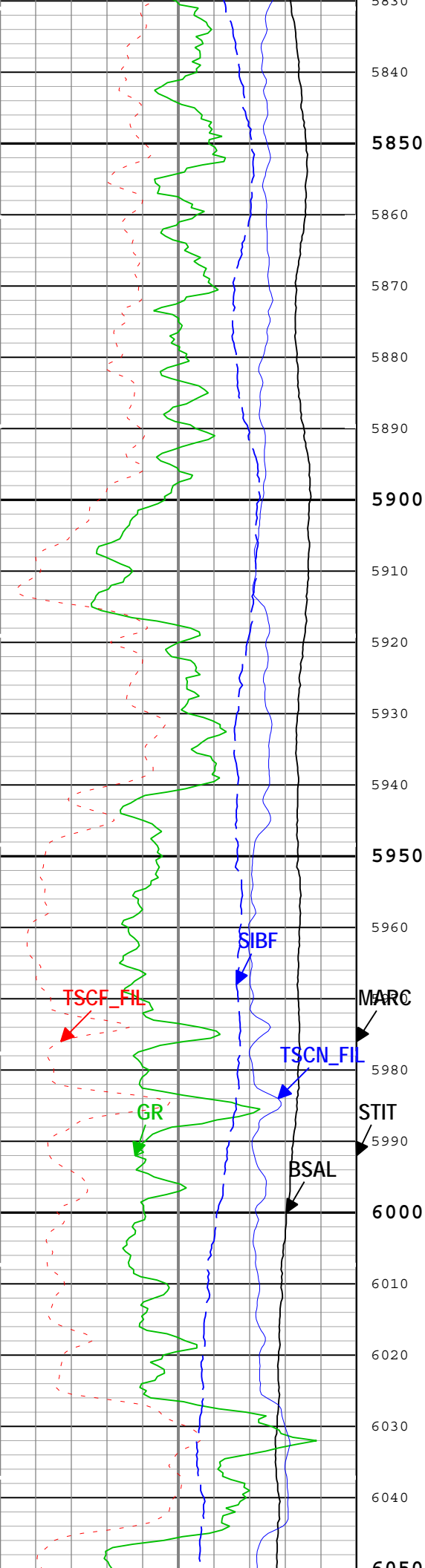


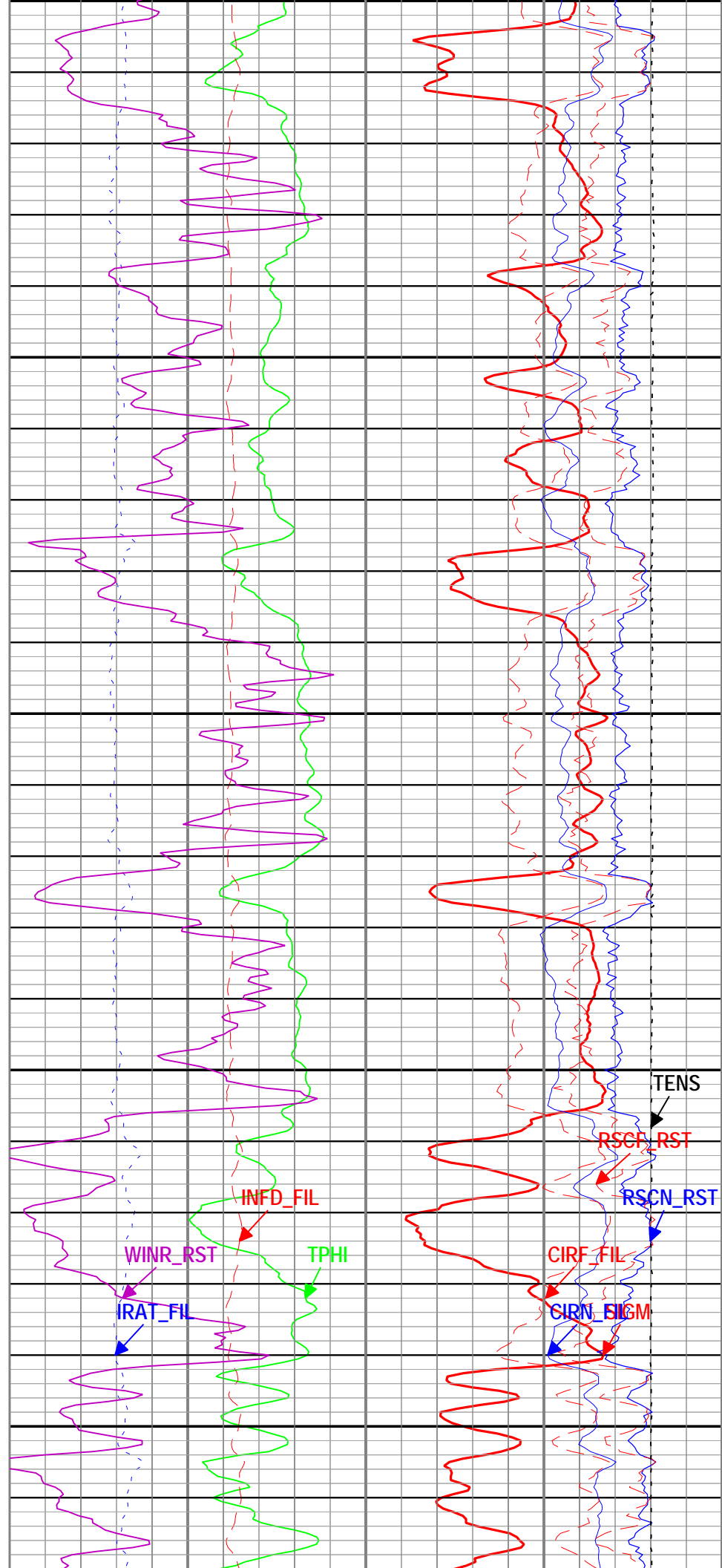
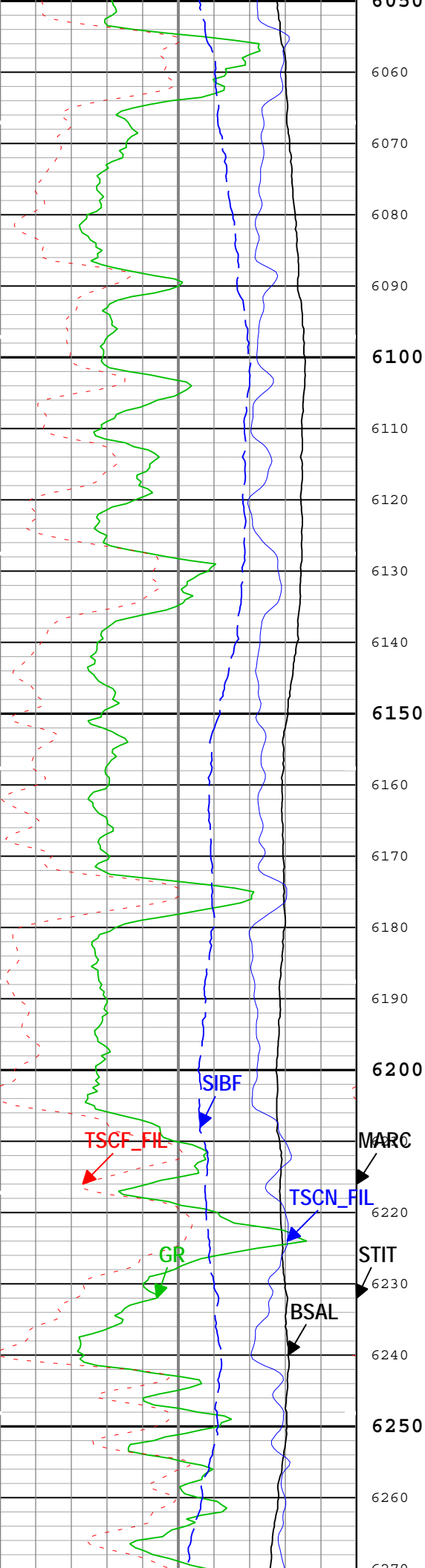


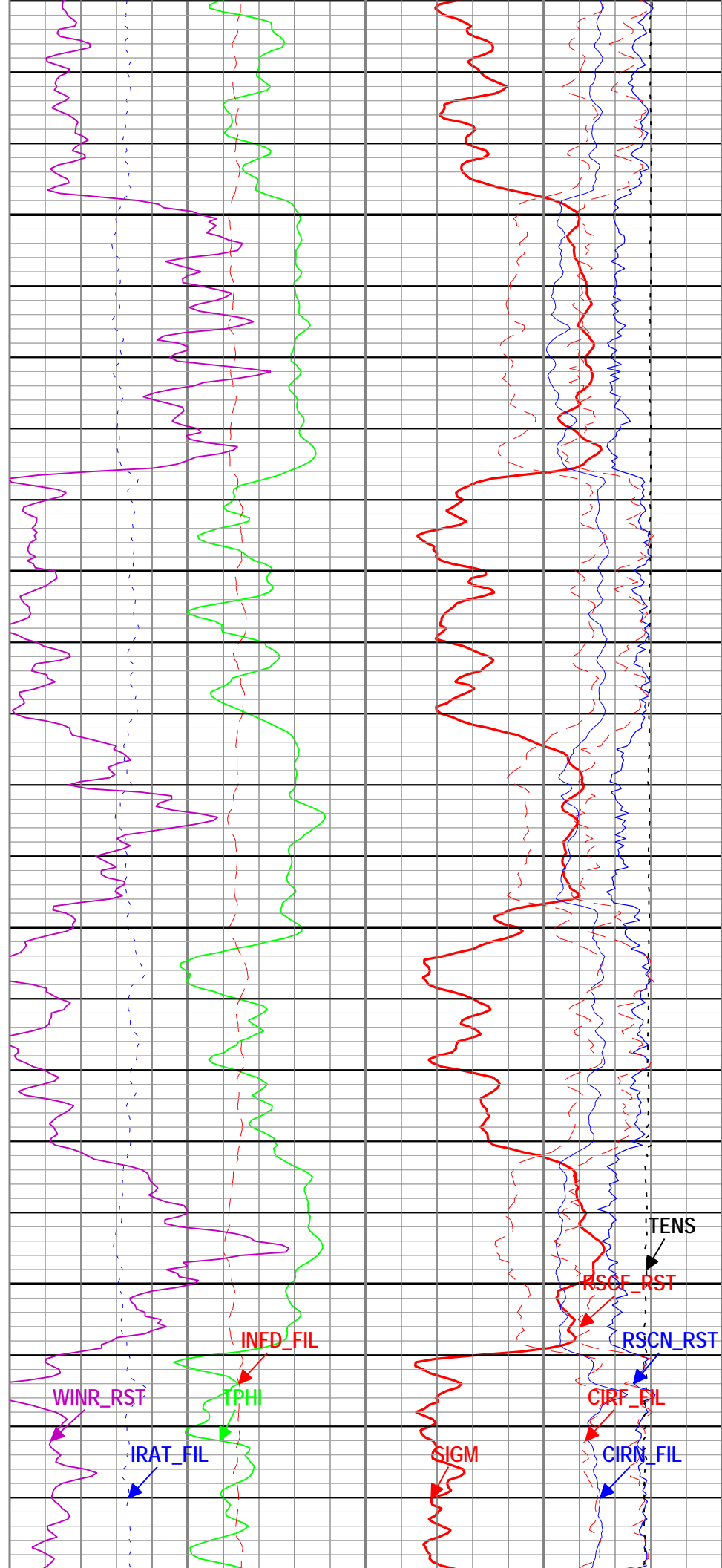
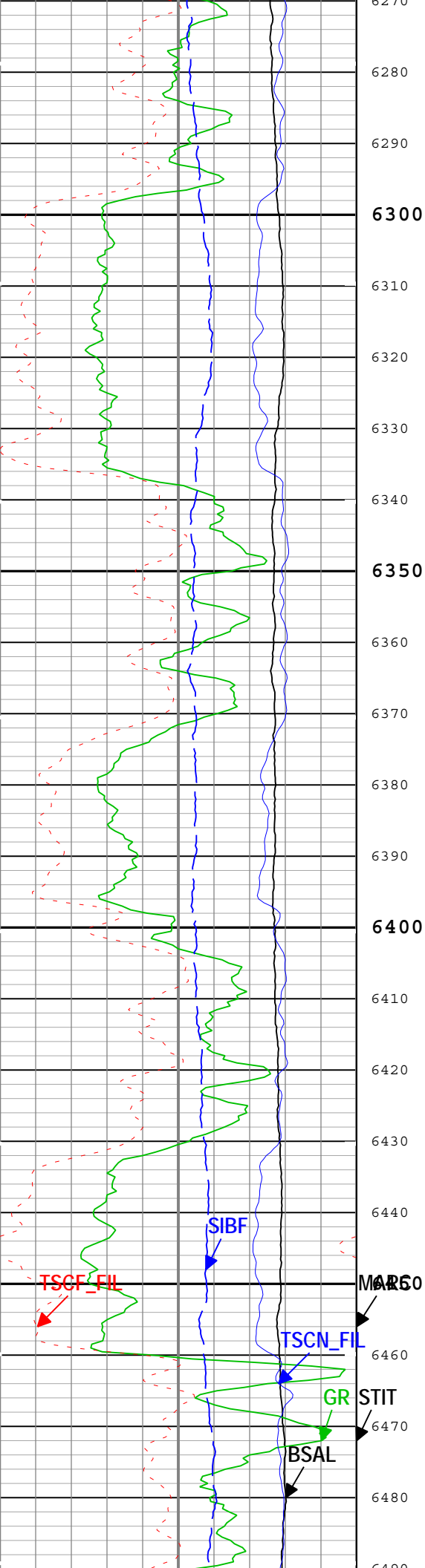


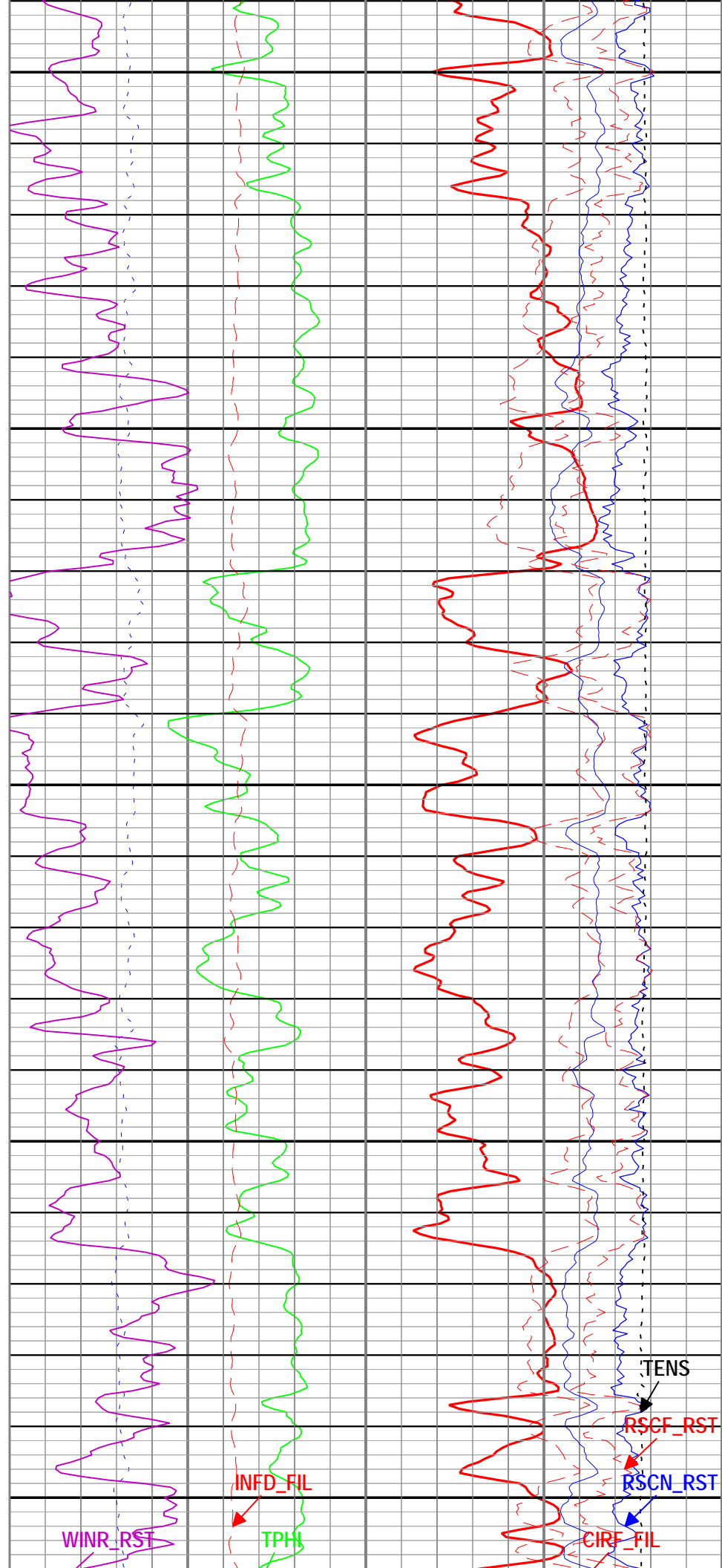
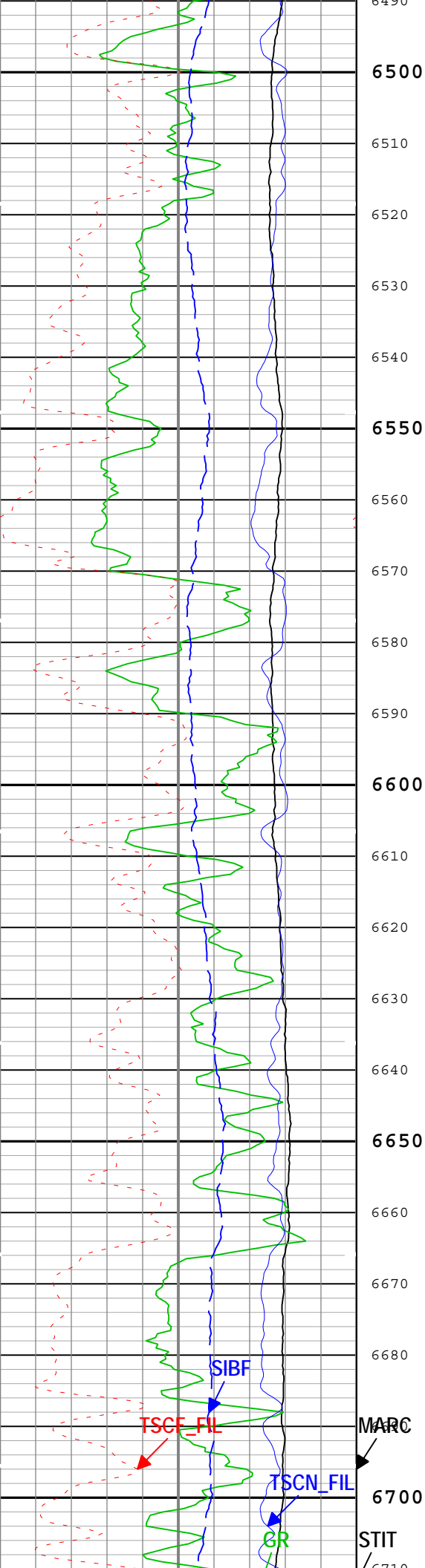


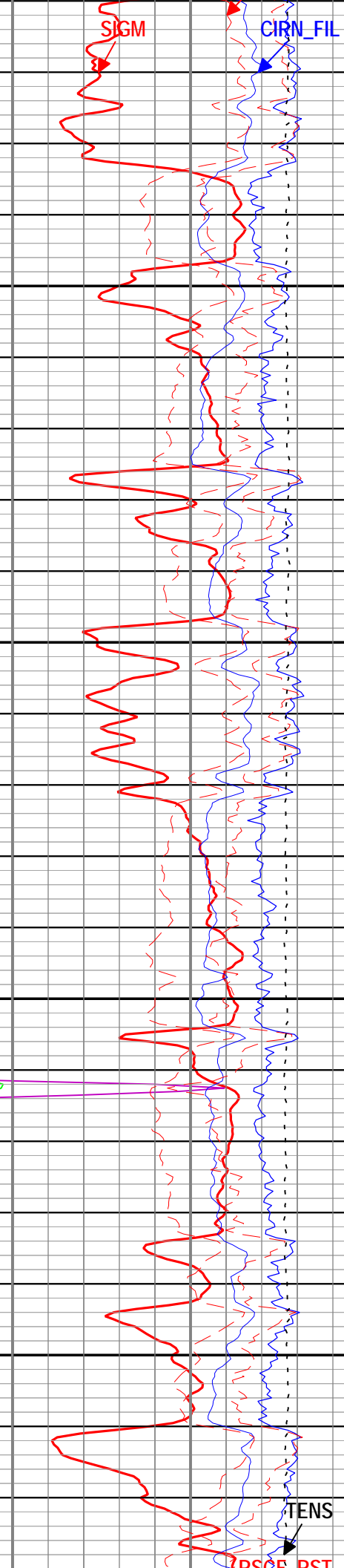
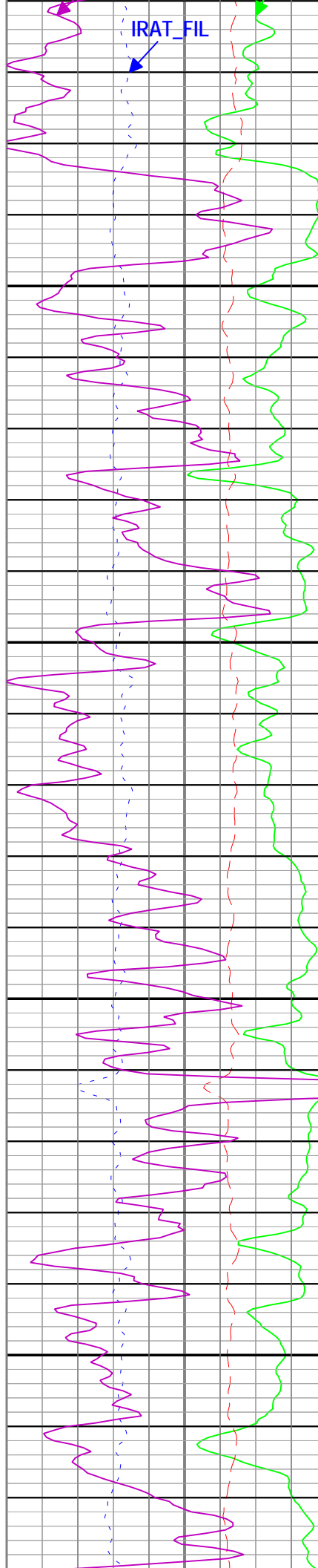
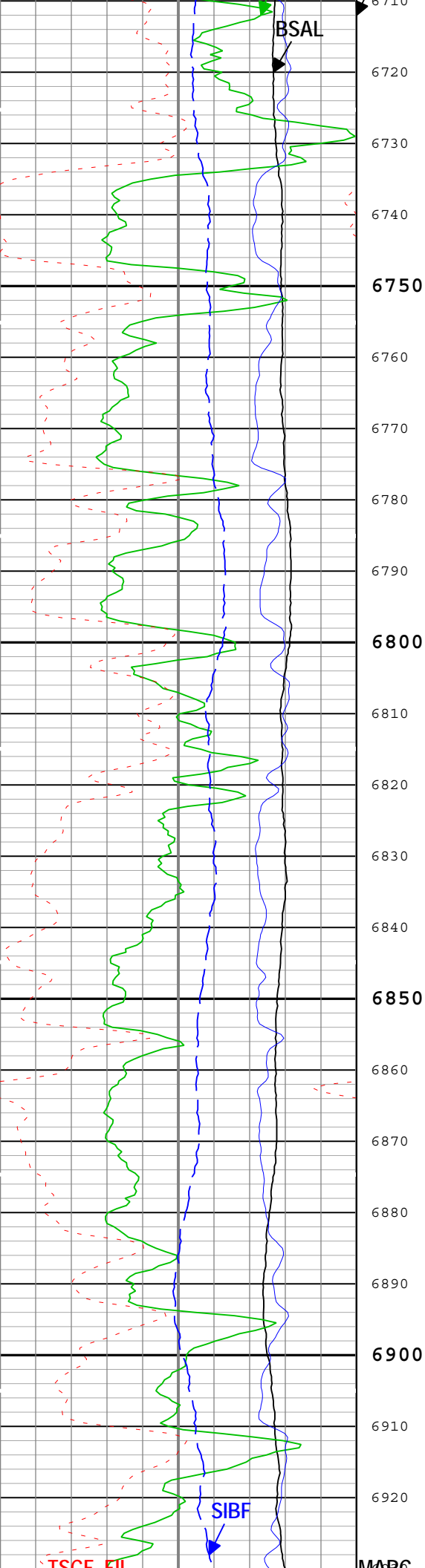


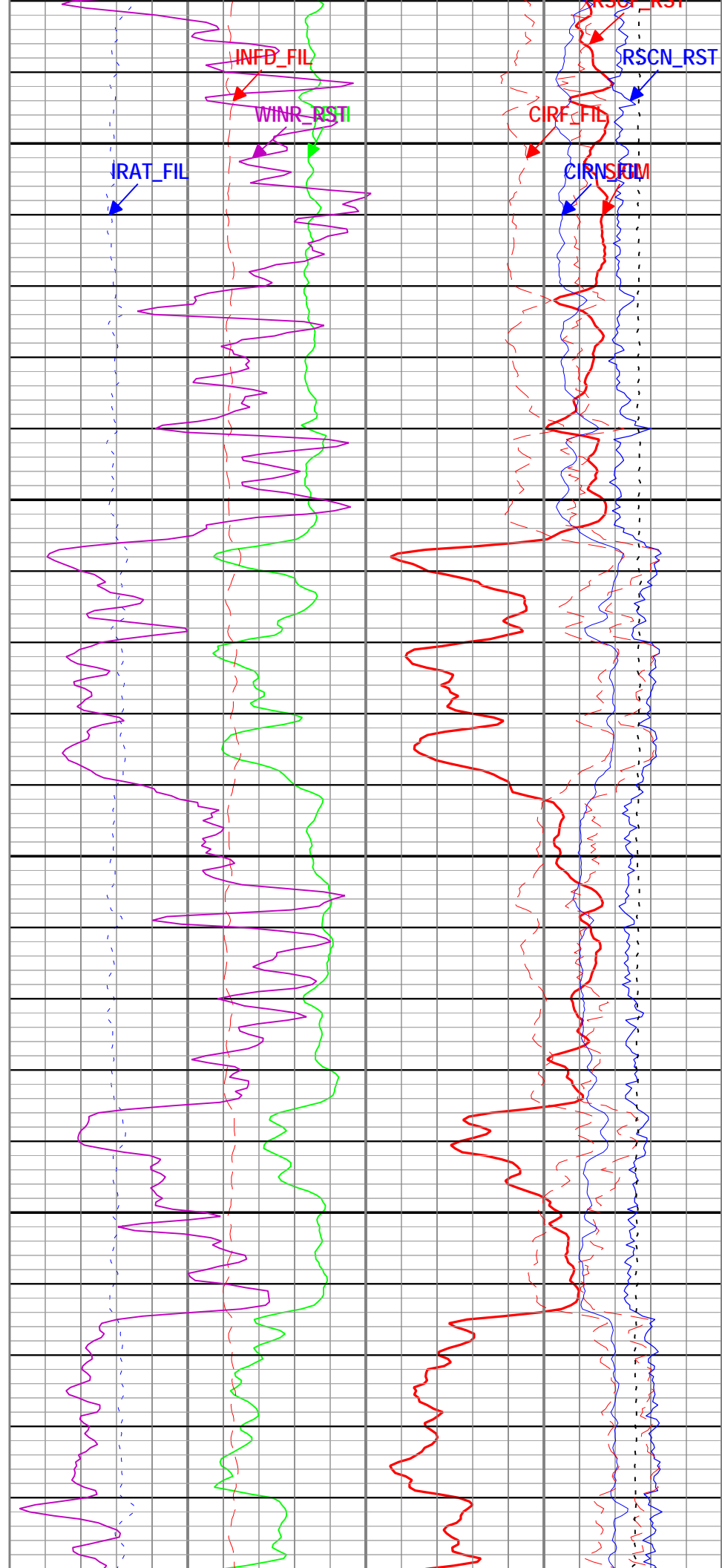
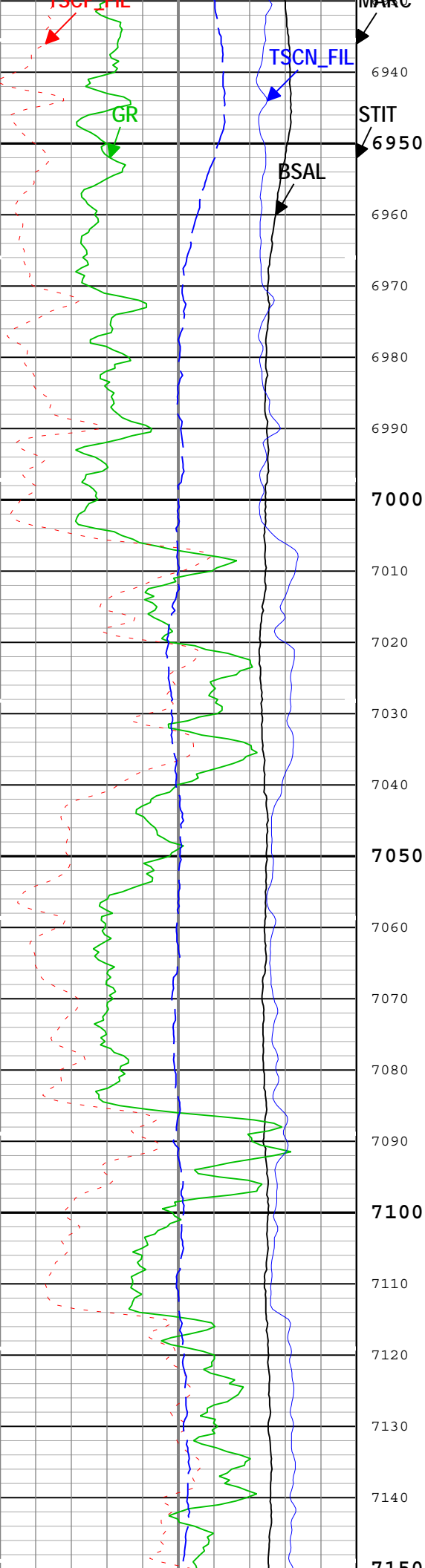


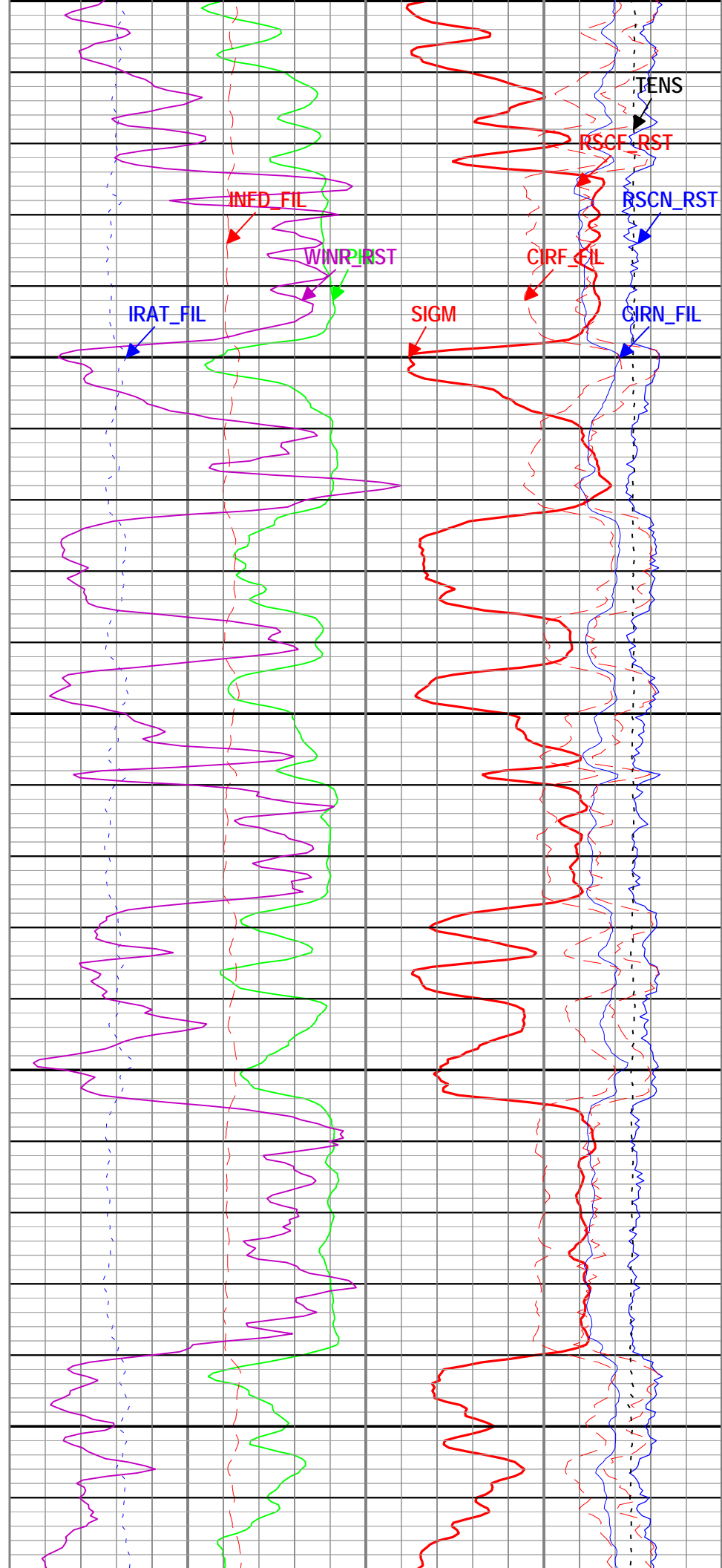
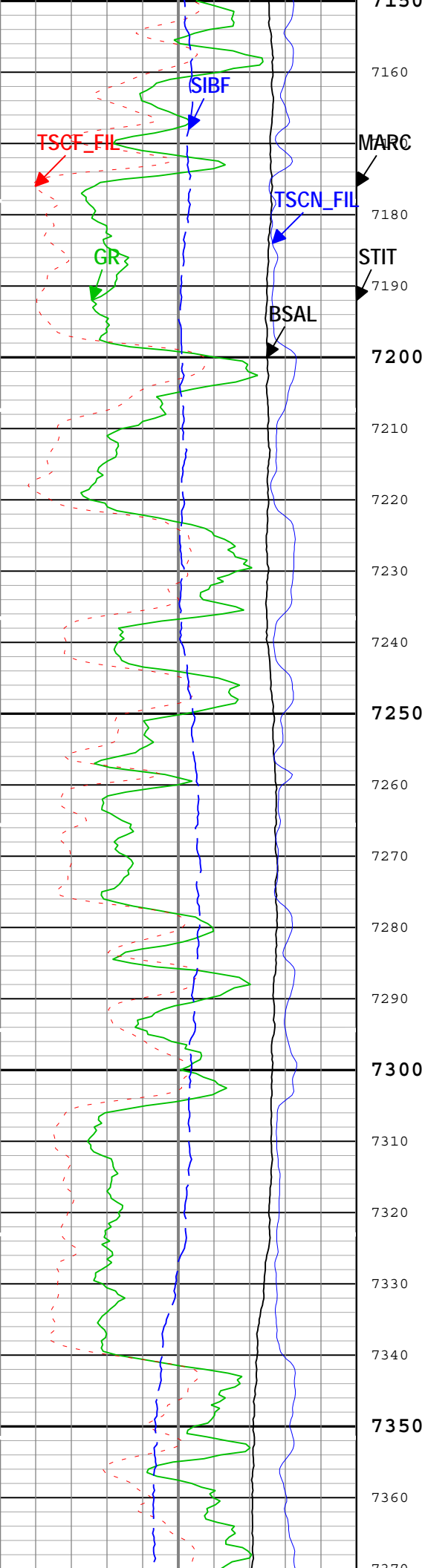


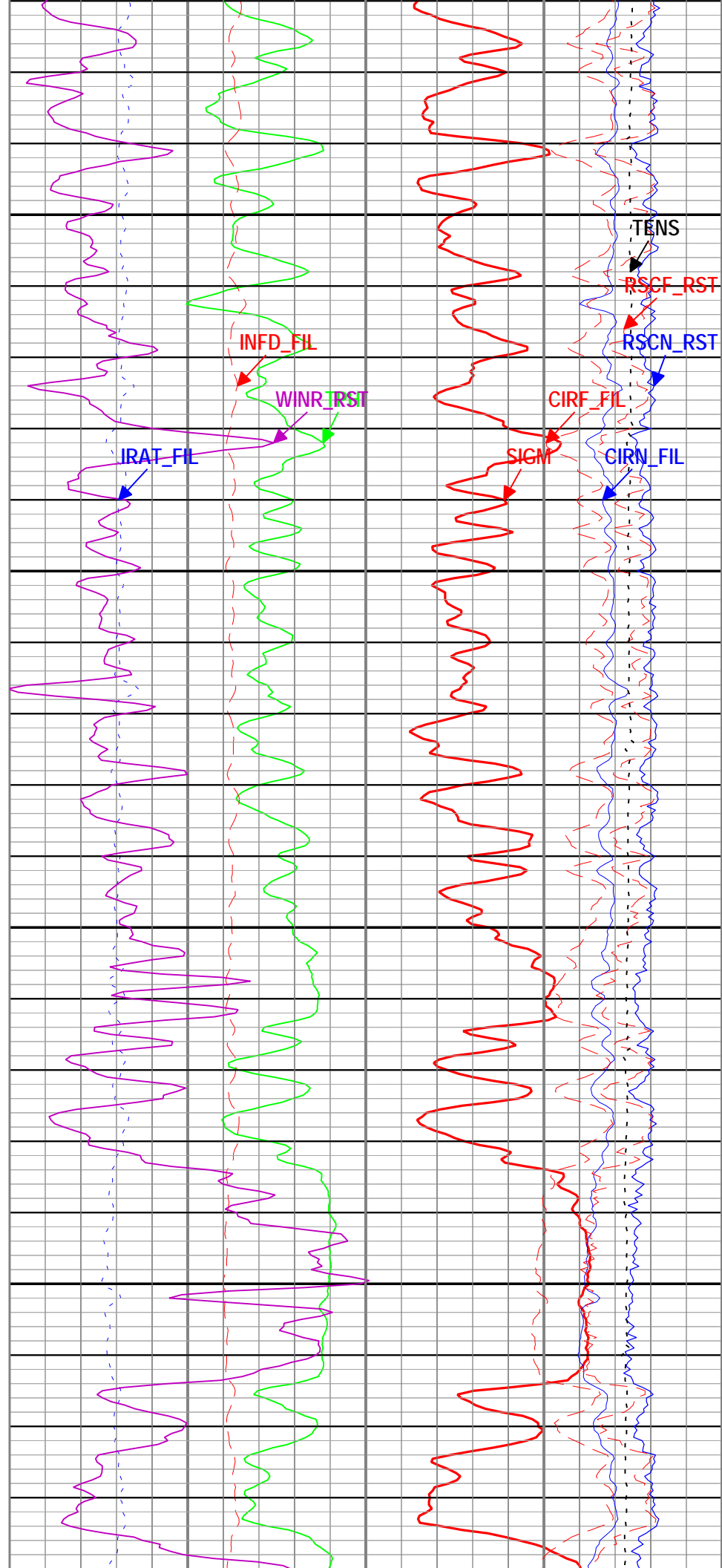
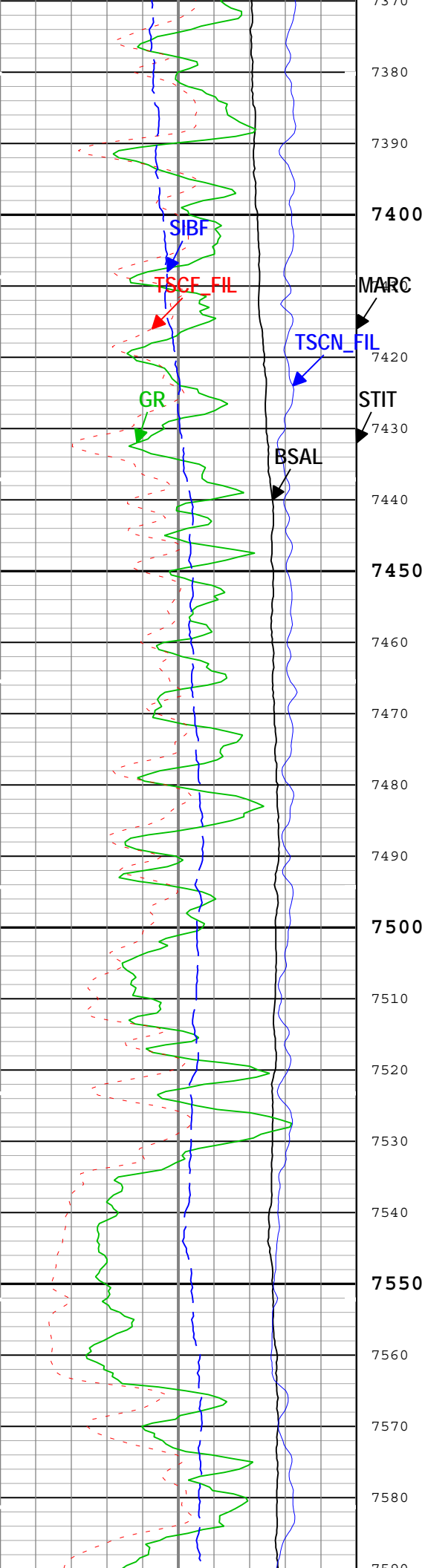


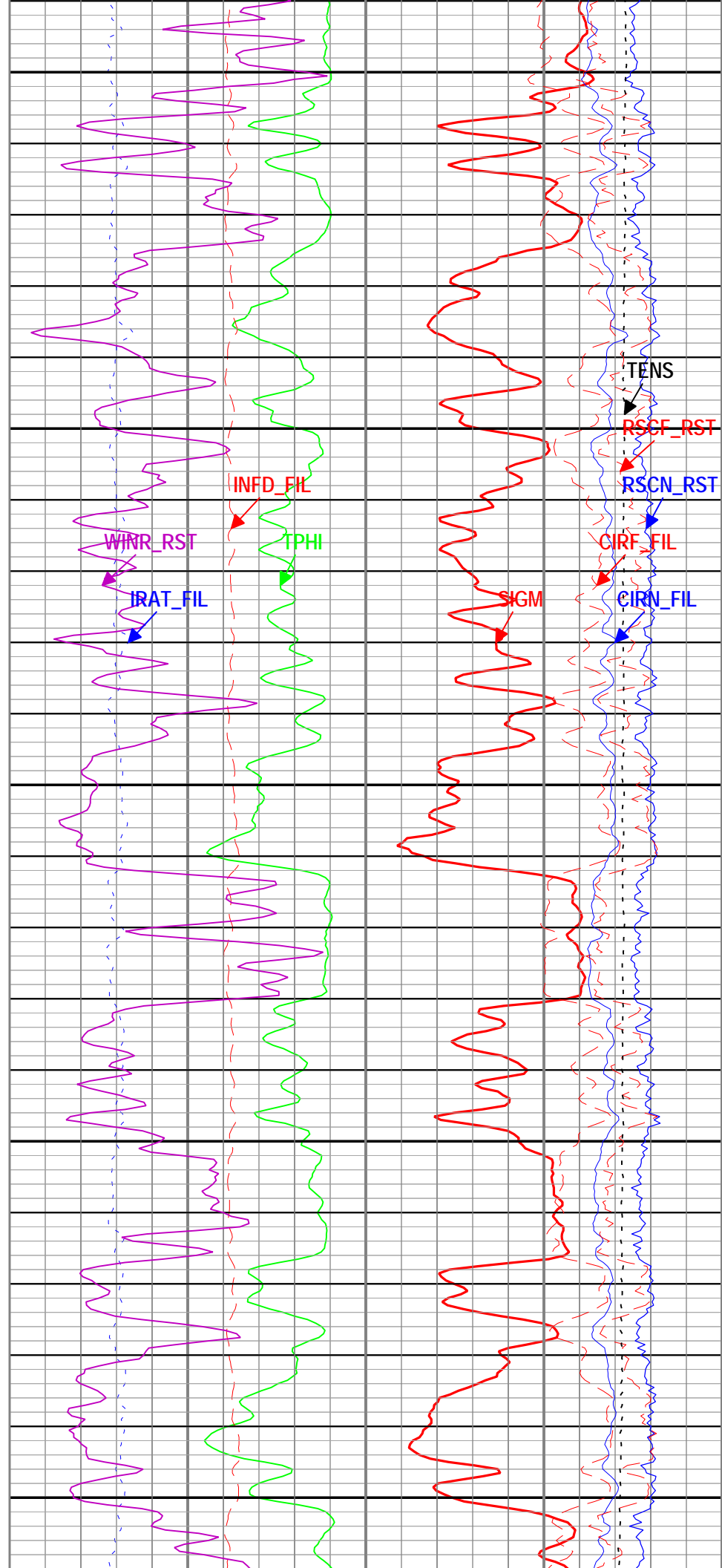
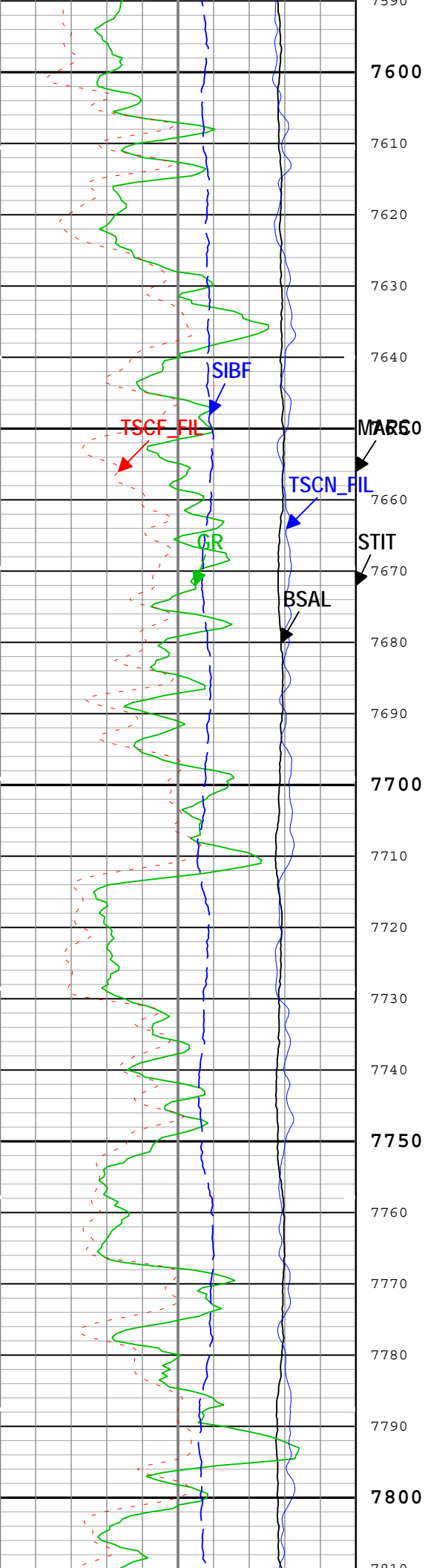


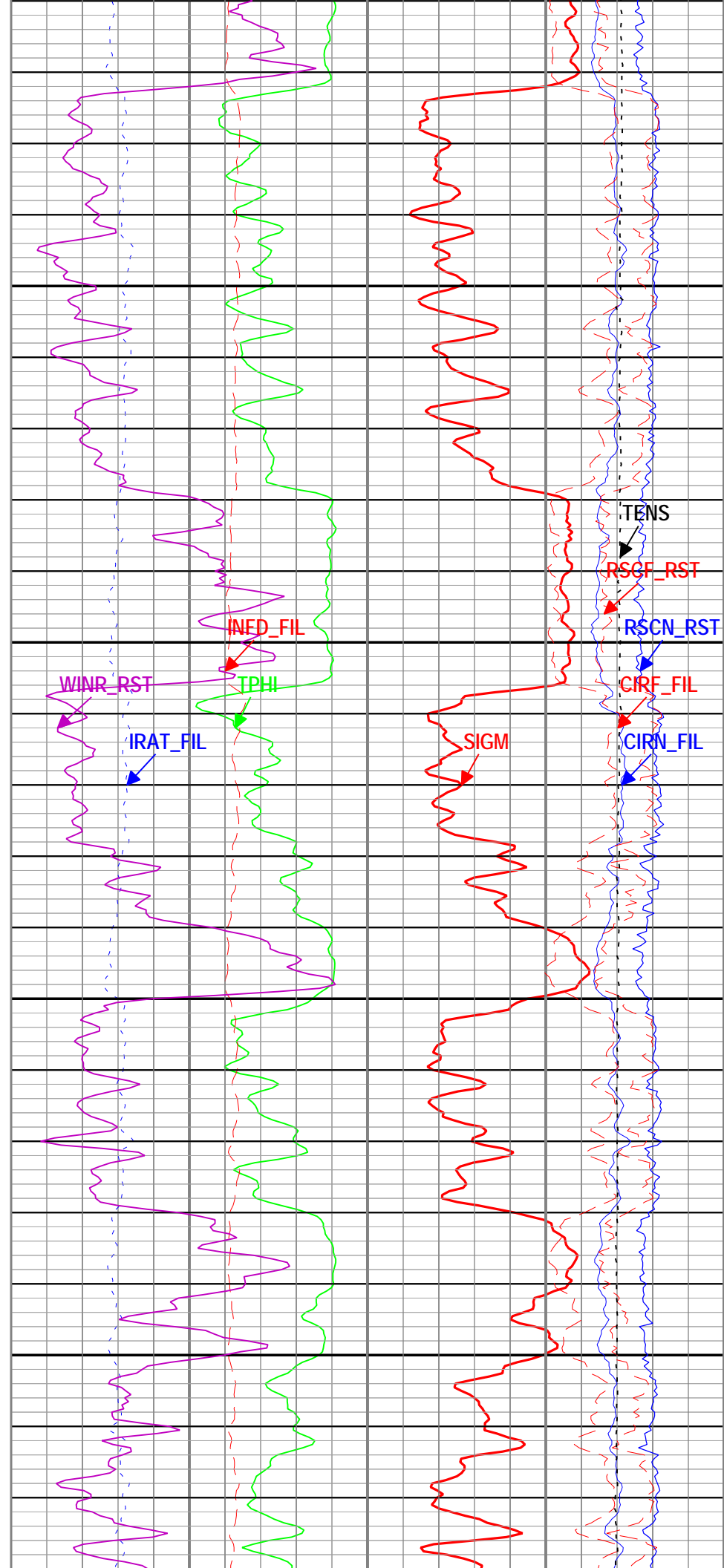
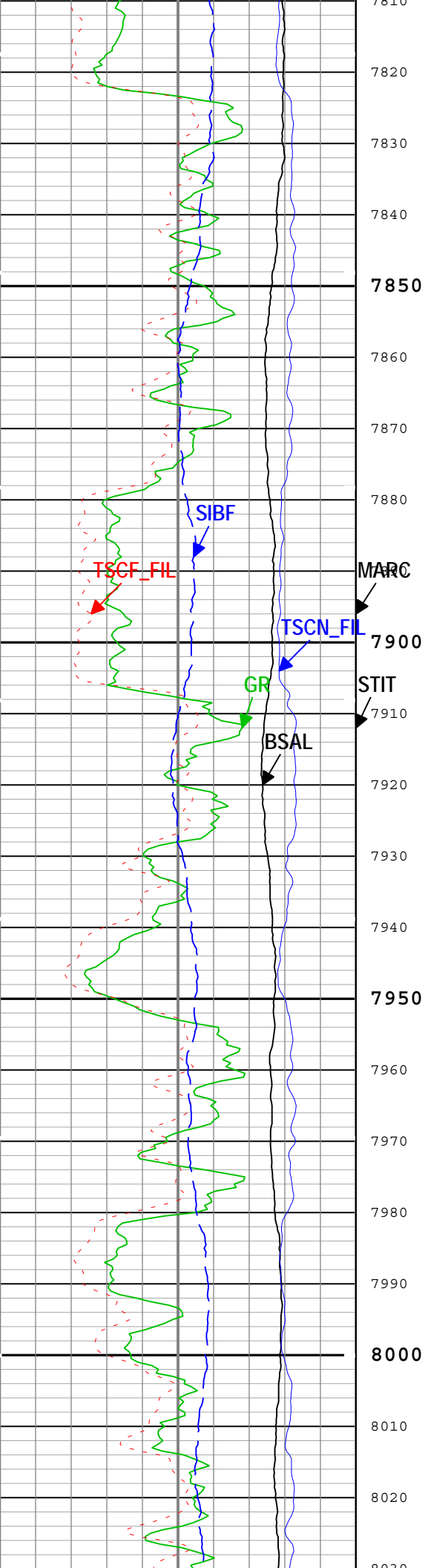


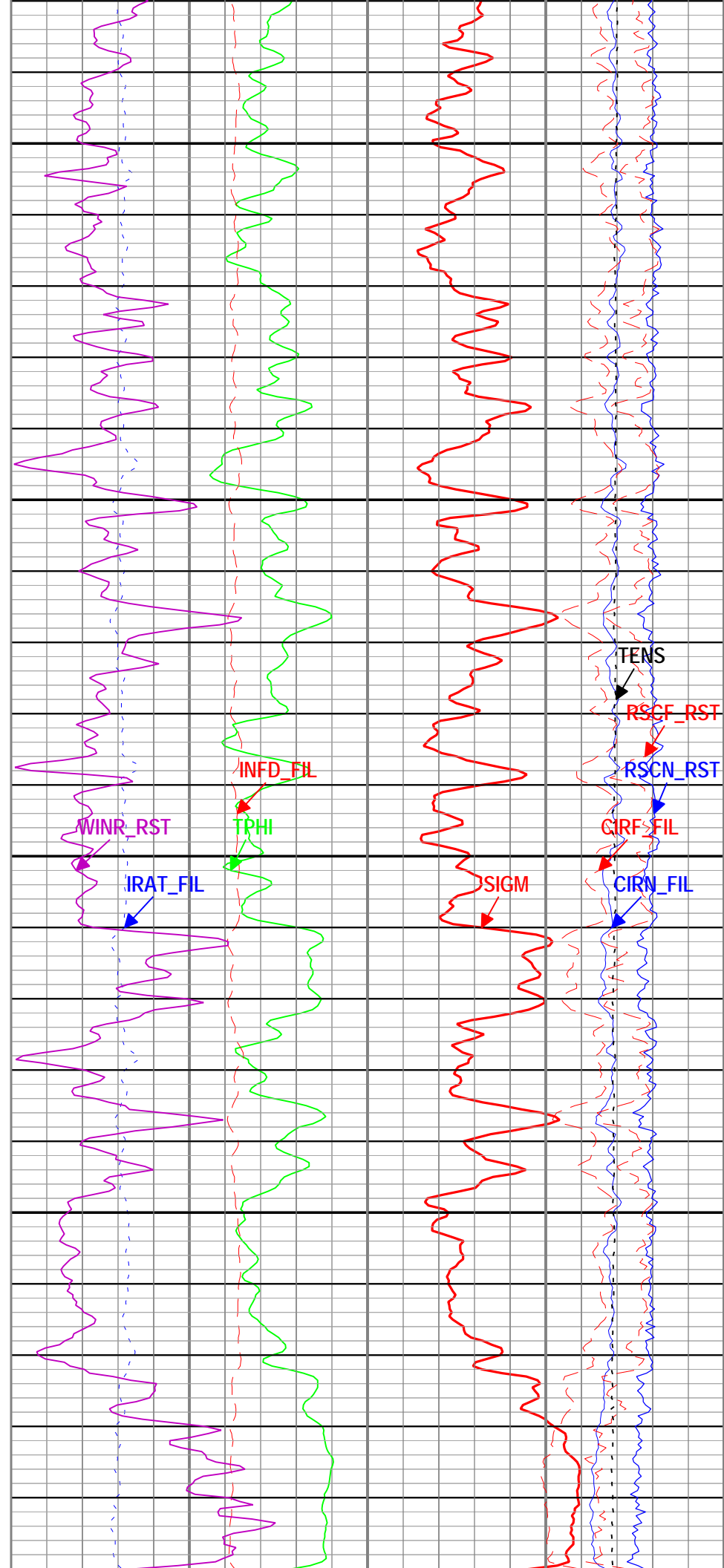
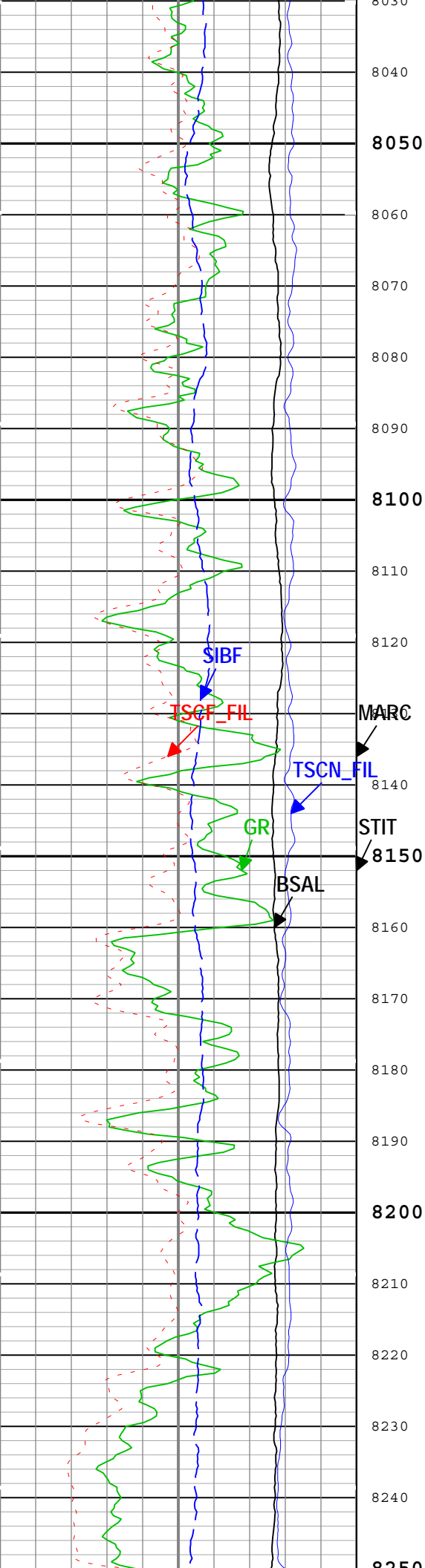


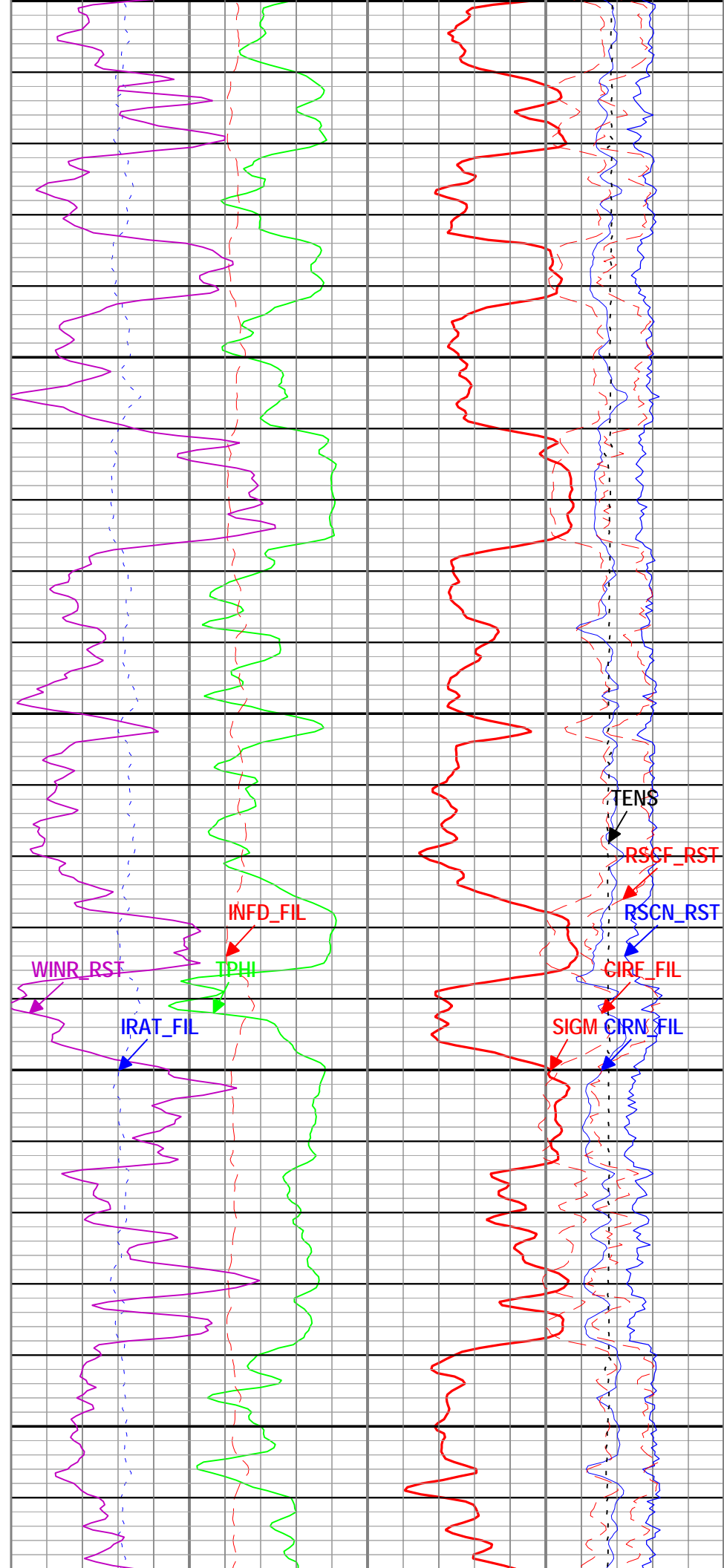
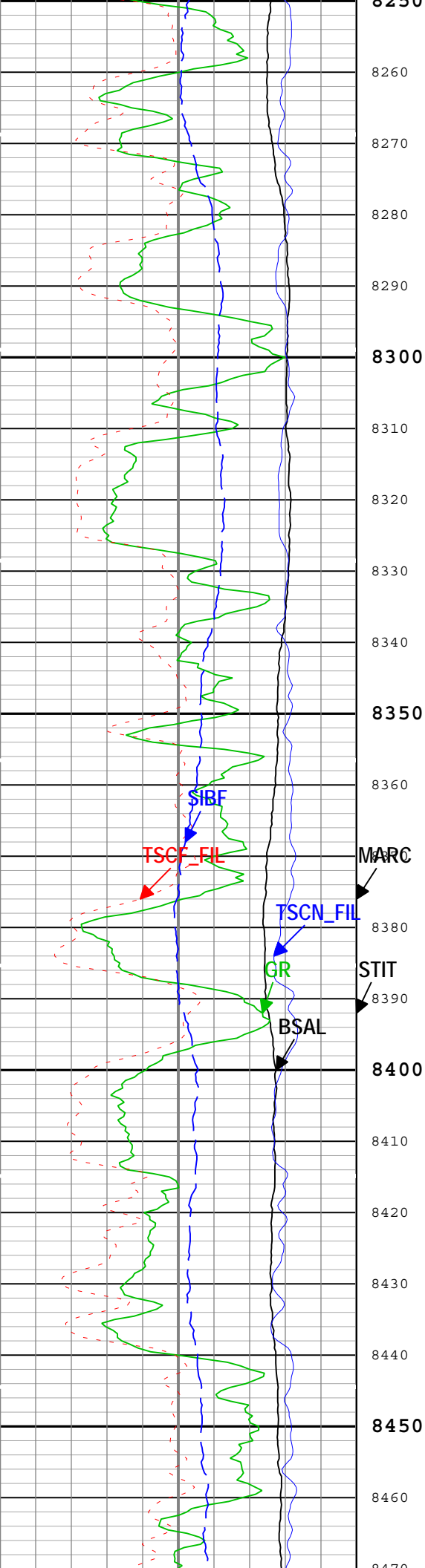


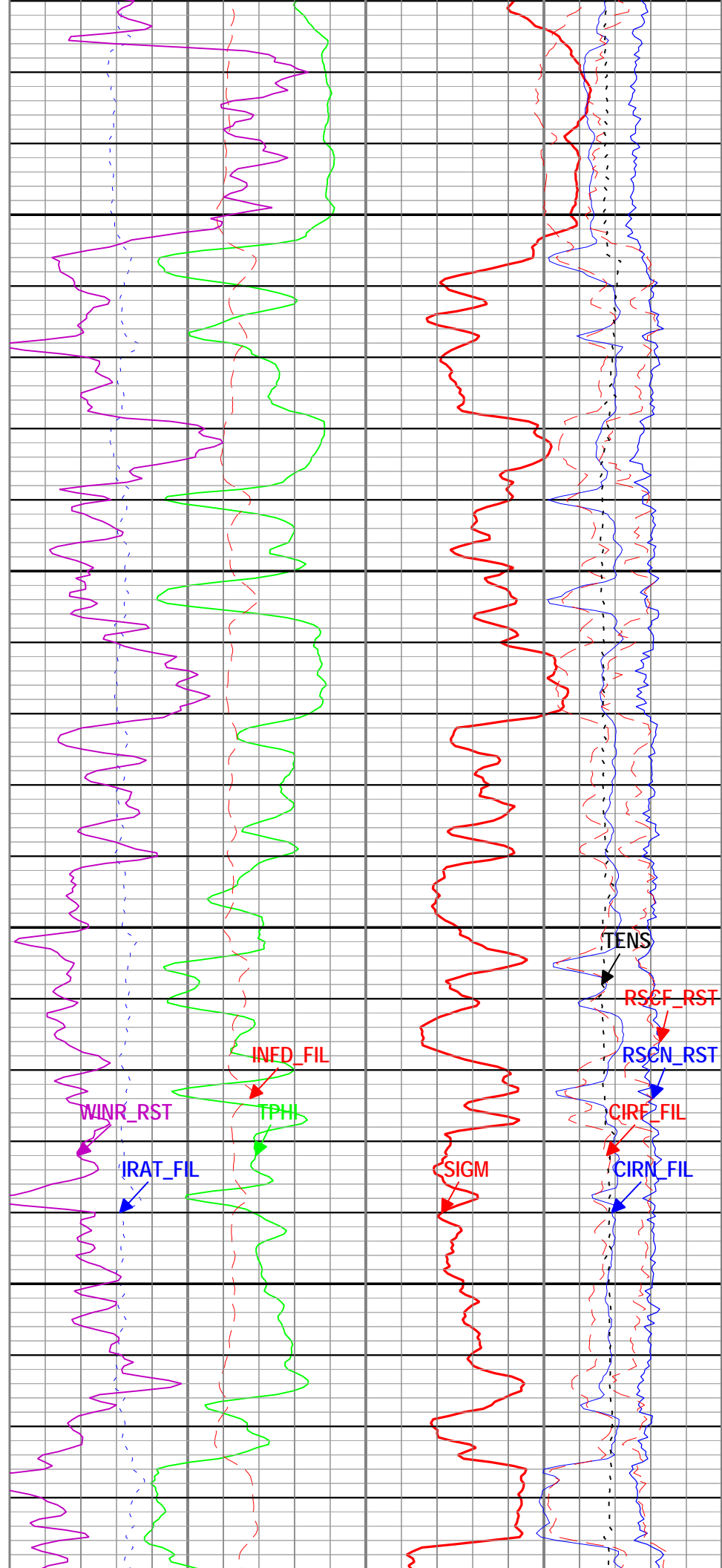
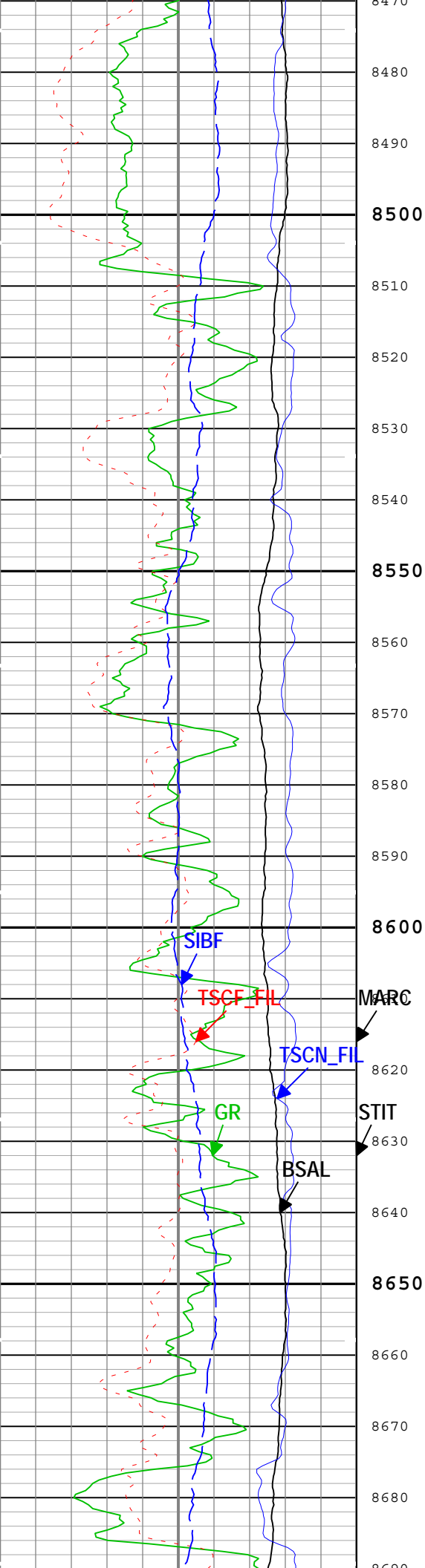


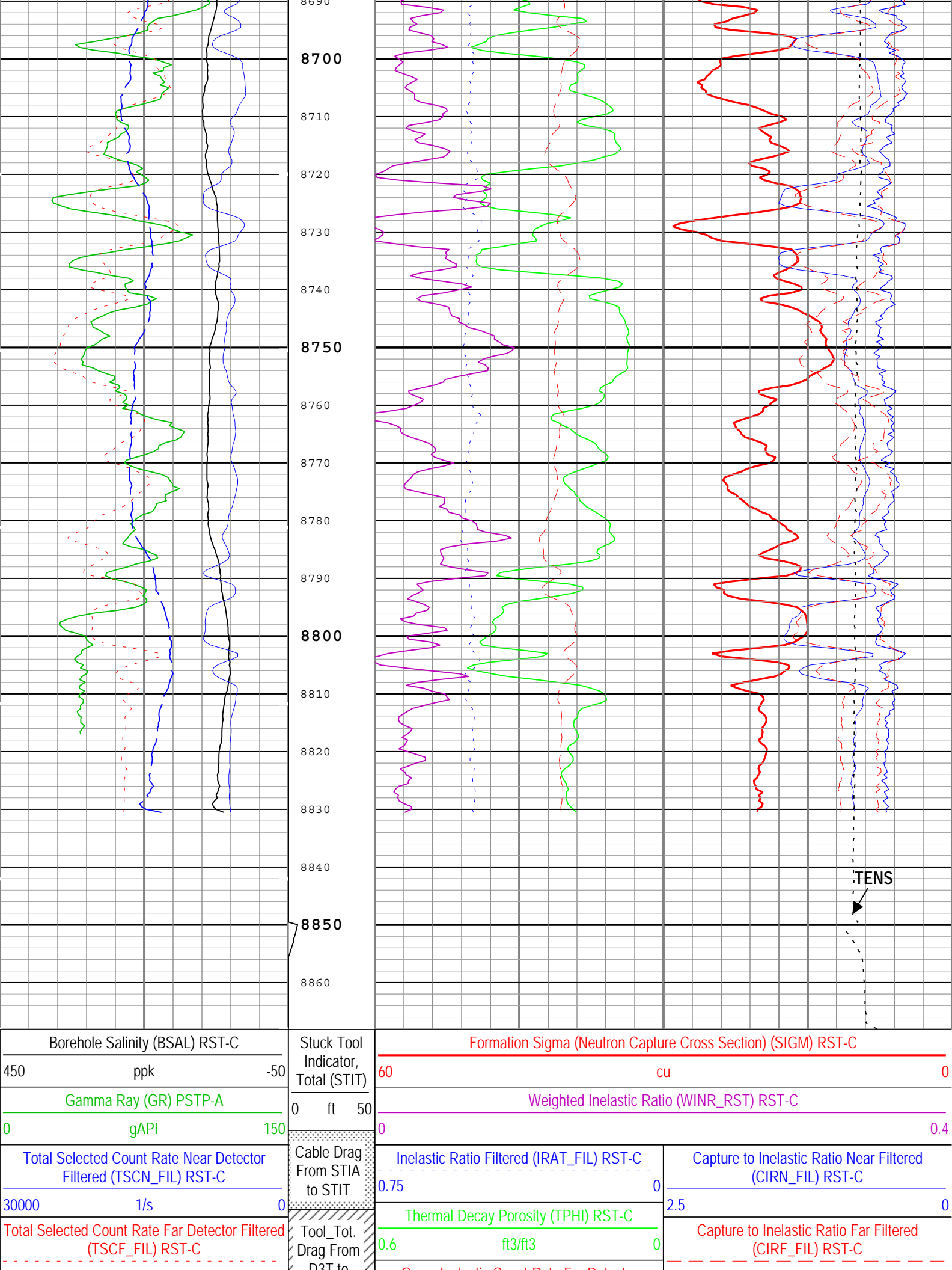












Description: RST SIGMA Answer	Format: Log (RST SIGMA Answer)	Index Scale: 5 in per 100 ft	Index Unit: ft	Index Type: Measured Depth	Creation
Date: 24-Jul-2015 06:41:54					

ONE: Parameters

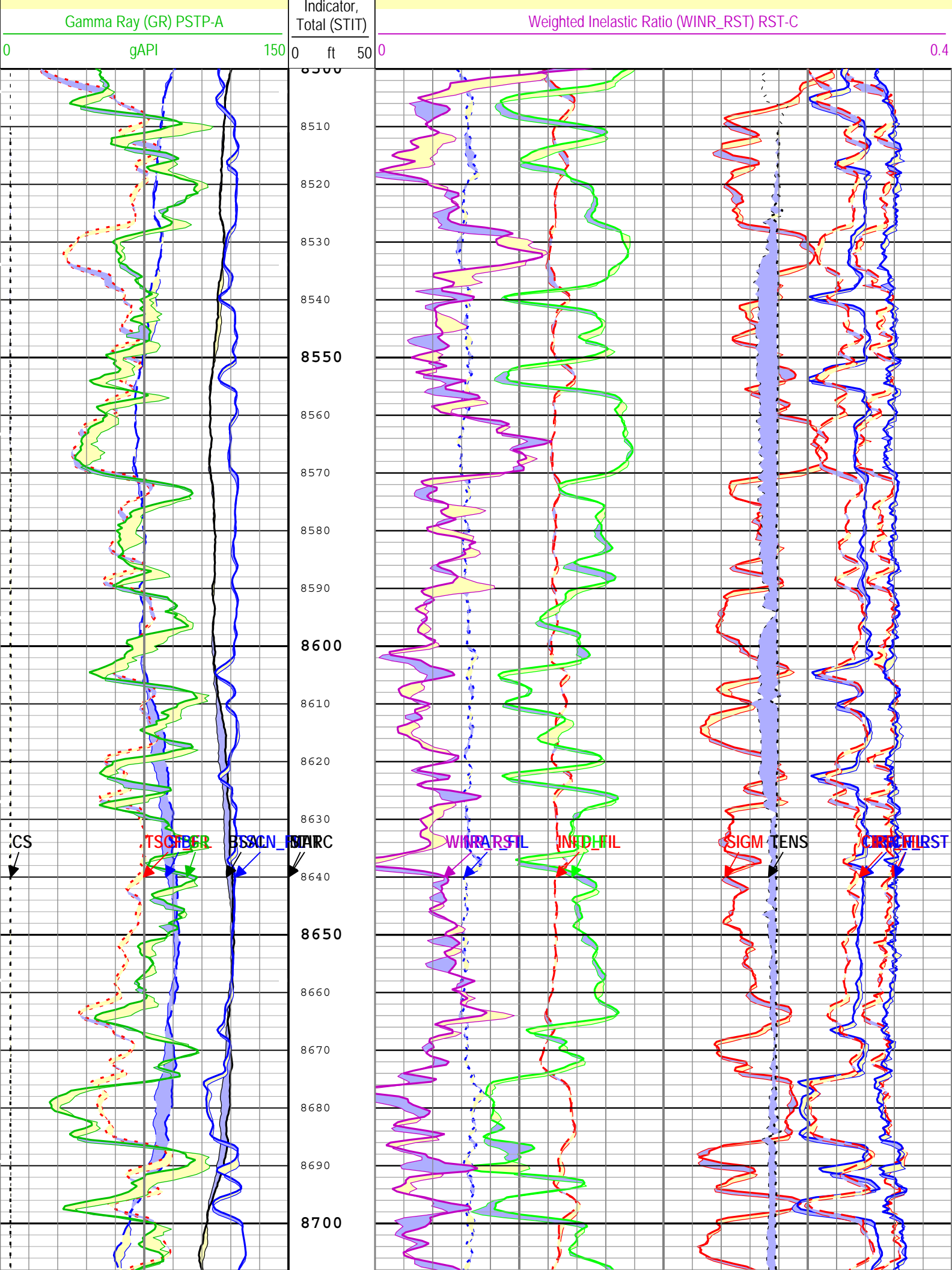
Depth Zone Parameters

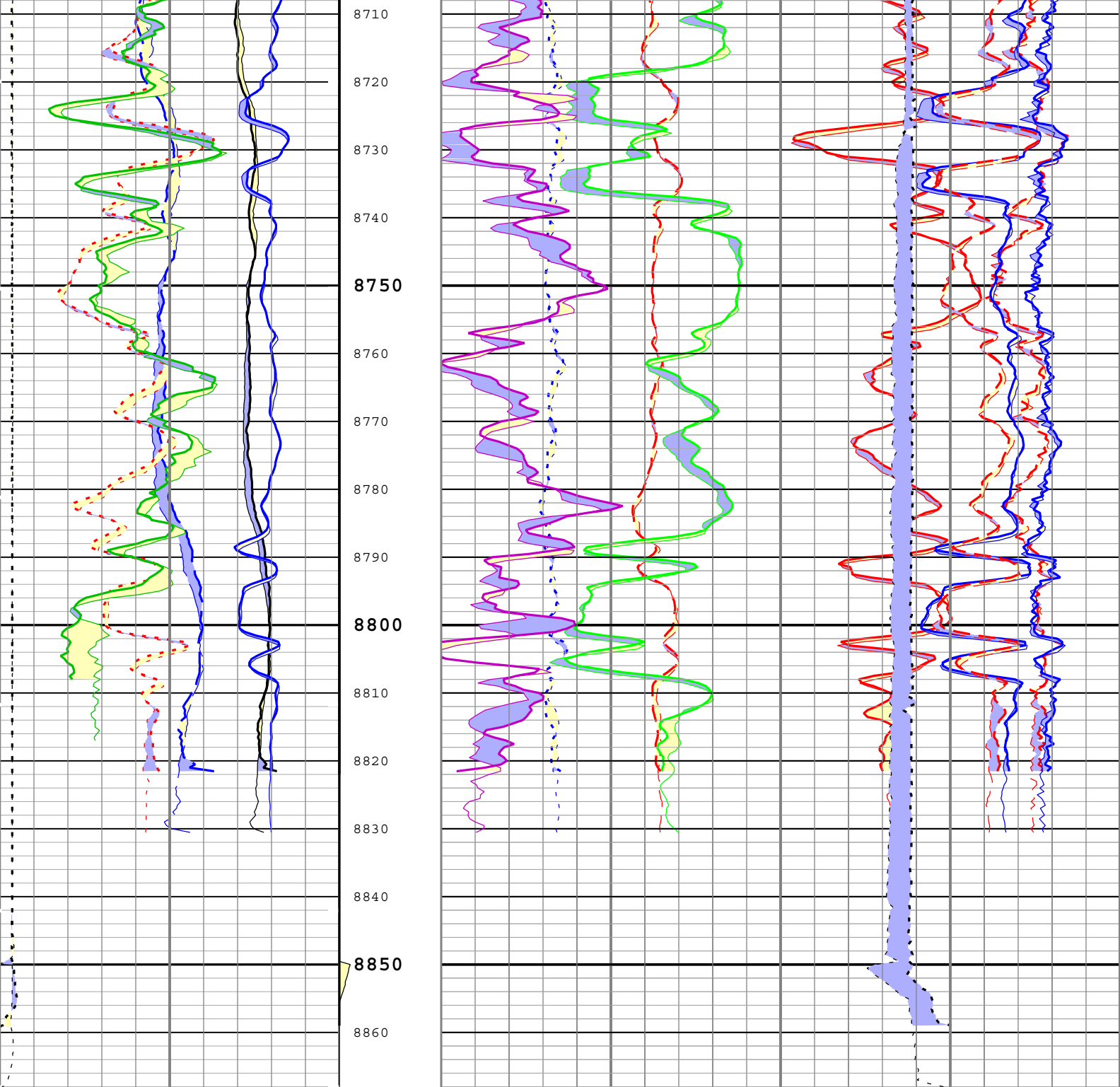
All depth are actual.

ONE: Parameters

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
----------	----------------	-----------	-----	--------	-------	------	----------	-------------	-----------------------

All depths are referenced to toolstring zero





Main To Repeat		Main To Repeat	Main To Repeat		
Repeat To Main			Repeat To Main		
Borehole Salinity (BSAL) RST-C		Repeat To Main	Formation Sigma (Neutron Capture Cross Section) (SIGM) RST-C		
450	ppk		-50	60	cu
Main To Repeat		Minitron Arc Count (MARC) RST-C	Main To Repeat		
Repeat To Main			Repeat To Main		
Sigma Borehole Fluid (SIBF) RST-C		0	Weighted Inelastic Ratio (WINR_RST) RST-C		
100	cu	0	0	0.4	
Main To Repeat		Main To Repeat	Main To Repeat		
Repeat To Main			Main To Repeat		

Repeat To Main			Main			Repeat To Main			Repeat To Main			
Cable Speed (CS)			Stuck Tool Indicator, Total (STIT)			Gross Inelastic Count Rate Far Detector Filtered (INFD_FIL) RST-C			Far Detector Effective Unregulated Capture Count Rate (RSCF_RST) RST-C			
0 ft/h 50000			0 ft 50			10000 1/s 0			45 0			
Main To Repeat				Main To Repeat			Main To Repeat					
Repeat To Main				Repeat To Main			Repeat To Main					
Total Selected Count Rate Near Detector Filtered (TSCN_FIL) RST-C				Inelastic Ratio Filtered (IRAT_FIL) RST-C			Near Detector Effective Unregulated Capture Count Rate (RSCN_RST) RST-C					
30000 1/s 0				0.75 0			45 0					
Main To Repeat				Main To Repeat			Main To Repeat					
Repeat To Main				Repeat To Main			Repeat To Main					
Total Selected Count Rate Far Detector Filtered (TSCF_FIL) RST-C				Thermal Decay Porosity (TPHI) RST-C			Capture to Inelastic Ratio Near Filtered (CIRN_FIL) RST-C					
12000 1/s 0				0.6 ft3/ft3 0			2.5 0					
Main To Repeat							Main To Repeat					
Repeat To Main							Repeat To Main					
Gamma Ray (GR) PSTP-A							Capture to Inelastic Ratio Far Filtered (CIRF_FIL) RST-C					
0 gAPI 150							5 0					
							Main To Repeat					
							Repeat To Main					
							Cable Tension (TENS)					
							5000 lbf 0					
							ICV - Integrated Cement Volume every 100.00 (ft3) ICV - Integrated Cement Volume every 10.00 (ft3) IHV - Integrated Hole Volume every 100.00 (ft3) IHV - Integrated Hole Volume every 10.00 (ft3)					
							TIME_1900 - Time Marked every 60.00 (s)			TIME_1900 - Elapsed time since midnight, 30 December 1899 every 60.00 (s)		

Description: RST SIGMA Answer Format: Log (RST SIGMA Answer RA) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth

Creation Date: 24-Jul-2015 06:41:58

Calibration Report							
RST-C (Reservoir Saturation Pro Tool C) Calibration - Run ONE							
Primary Equipment :							
RSC Acquisition Cartridge			RSC-E		381		
RST IC Tank Calibration - RST IC Tank Calibration							
Master:							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Near Spectral Acquisition Time Calibration Coefficient - 0	s	Master	----	----	----	----	
Near Carbon/Oxygen Ratio Calibration Coefficient - 0		Master	----	----	----	----	
Far Carbon/Oxygen Ratio Calibration Coefficient - 0		Master	----	----	----	----	
Near Windows Carbon/Oxygen Ratio Calibration Coefficient - 0		Master	----	----	----	----	
Far Windows Carbon/Oxygen Ratio Calibration Coefficient - 0		Master	----	----	----	----	

Far Windows Carbon/Oxygen Ratio Calibration Coefficient - 0		Master	----	----	----	----	
Near IC Mode Capture Optimization Resolution Degradation Factor Calibration Coefficient - 0		Master	----	----	----	----	
Far IC Mode Capture Optimization Resolution Degradation Factor Calibration Coefficient - 0		Master	----	----	----	----	
Near Pulse Shape Compensation Voltage Setting Echo Calibration Coefficient - 0	V	Master	----	----	----	----	
Far Pulse Shape Compensation Voltage Setting Echo Calibration Coefficient - 0	V	Master	----	----	----	----	
Near Photomultiplier High Voltage Setting Echo Calibration Coefficient - 0	V	Master	----	----	----	----	
Far Photomultiplier High Voltage Setting Echo Calibration Coefficient - 0	V	Master	----	----	----	----	
Minitron Measured Beam Current Calibration Coefficient - 0	uA	Master	----	----	----	----	
Grid Current Peak Calibration Coefficient - 0	mA	Master	----	----	----	----	
Minitron Measured Extractor Current Calibration Coefficient - 0	uA	Master	----	----	----	----	
Minitron Measured High Voltage Calibration Coefficient - 0	kV	Master	----	----	----	----	
Near Instantaneous Count Rate Calibration Coefficient - 0	kHz	Master	----	----	----	----	
Near/Far Count Rate Ratio Calibration Coefficient - 0		Master	----	----	----	----	

RST IC Tank Check - RST IC Tank Check

Master:							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Near Spectral Acquisition Time Calibration Coefficient	s	Master			NOT DONE		
Near Carbon/Oxygen Ratio Calibration Coefficient - 0		Master	----	----	----	----	
Far Carbon/Oxygen Ratio Calibration Coefficient - 0		Master	----	----	----	----	
Near Windows Carbon/Oxygen Ratio Calibration Coefficient - 0		Master	----	----	----	----	
Far Windows Carbon/Oxygen Ratio Calibration Coefficient - 0		Master	----	----	----	----	
Near IC Mode Capture Optimization Resolution Degradation Factor Calibration Coefficient - 0		Master	----	----	----	----	
Far IC Mode Capture Optimization Resolution Degradation Factor Calibration Coefficient - 0		Master	----	----	----	----	
Near Pulse Shape Compensation Voltage Setting Echo Calibration Coefficient - 0	V	Master	----	----	----	----	
Far Pulse Shape Compensation Voltage Setting Echo Calibration Coefficient - 0	V	Master	----	----	----	----	
Near Photomultiplier High Voltage Setting Echo Calibration Coefficient - 0	V	Master	----	----	----	----	
Far Photomultiplier High Voltage Setting Echo Calibration Coefficient - 0	V	Master	----	----	----	----	
Minitron Measured Beam Current Calibration Coefficient - 0	uA	Master	----	----	----	----	
Grid Current Peak Calibration Coefficient - 0	mA	Master	----	----	----	----	
Minitron Measured Extractor Current Calibration Coefficient - 0	uA	Master	----	----	----	----	
Minitron Measured High Voltage Calibration Coefficient - 0	kV	Master	----	----	----	----	
Near Instantaneous Count Rate Calibration Coefficient	kHz	Master			NOT DONE		
Near/Far Count Rate Ratio Calibration Coefficient		Master			NOT DONE		

RST Sigma Tank Check - RST Sigma Tank Check

Master (Measured): 14:57:24 17-Jul-2015							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Near Spectral Acquisition Time Calibration Coefficient	s	Master		300.0	300.3		
Near/Far Capture Ratio Calibration Coefficient		Master	0.980	0.930	0.982	1.030	
Sigma Formation Near Apparent Calibration Coefficient - 0	1/m	Master	----	----	----	----	
Sigma Formation Far Apparent Calibration Coefficient - 0	1/m	Master	----	----	----	----	

	Rt**0	Rt**1
Rt**0	1500	3840

PBMS A Reference Clock Master Calibration

Master (EEPROM): 00:00:00 11-Mar-2002

PBMS_REF_CLOCK PBMS A Clock Coefficients
(Master)

	Temp**0	Temp**1	Temp**2	Temp**3	Temp**4	Temp**5
Temp**0	-278.6698	2.064625	-0.2005075	0.001553137	-2.817383E-07	0

PBMS A Sapphire Master Calibration

Master (EEPROM): 00:00:00 11-Mar-2002

PBMS_P_GAUGE_PRES Sapphire Pressure Model Coefficients
(Master)

	Tt**0	Tt**1	Tt**2	Tt**3	Tt**4	Tt**5
Tp**0	-30895.39	22304.77	-7131.54	1088.081	-64.84312	0
Tp**1	22708.98	-15815.74	5200.516	-813.7849	49.69807	0
Tp**2	-206.2166	83.83393	-9.064614	0	0	0
Tp**3	3.194887	-0.7157836	0	0	0	0
Tp**4	0	0	0	0	0	0
Tp**5	0	0	0	0	0	0

PBMS_P_GAUGE_TEMP Sapphire Temperature Model Coefficients
(Master)

	Tp**0	Tp**1	Tp**2	Tp**3	Tp**4	Tp**5
Tt**0	2222.343	-1.531535	-1.735451	0.3578298	-0.04106665	0
Tt**1	-1381.82	3.050812	0.4269152	-0.03685322	0.004793864	0
Tt**2	302.3562	-1.086123	-0.04274265	0	0	0
Tt**3	-23.36074	0.1179722	0	0	0	0
Tt**4	0	0	0	0	0	0
Tt**5	0	0	0	0	0	0

Company: Caerus Piceance LLC

Schlumberger

Well: Puckett 12C-1

Field: Wildcat

County:	Garfield
State:	Colorado
Reservoir Saturation Tool	
Sigma	