

Company: CAERUS OPERATING LLC

Well: Chevron 12A-17

Field: Grand Valley

County: Garfield State: Colorado

Reservoir Saturation Tool

Sigma

Location:	Lot 1 Sec. 17 T6S R96W	Elev.:	K.B. 5613.00 ft
Permanent Datum:		G.L.	5583.00 ft
Log Measured From:		D.F.	5613.00 ft
Drilling Measured From:		Ground Level	5583.00 f
API Serial No.	05-045-23243	Kelly Bushing	30.00 ft
		Kelly Bushing	above Perm.Datum
Section:	17	Township:	6S
		Range:	96W

Logging Date 23-Jul-2017

Run Number ONE

Depth Driller 7718.00 ft

Schlumberger Depth 7718.00 ft

Bottom Log Interval 7700.00 ft

Top Log Interval 500.00 ft

Casing Fluid Type Water

Salinity

Density 10 lbm/gal

Fluid Level 8.00 ft

BIT/CASING/TUBING STRING

Bit Size 6.00 in

From 0.00 ft

To 7718.00 ft

Casing/Tubing Size 4.5 in

Weight 11.6 lbm/ft

Grade N/A

From 0.00 ft

To 7718.00 ft

Max Recorded Temperatures

Logger on Bottom 23-Jul-2017 14:41:00

Unit Number OSL-CAR2 2161 Ft. Morgan

Recorded By L. Awalt

Witnessed By

Disclaimer

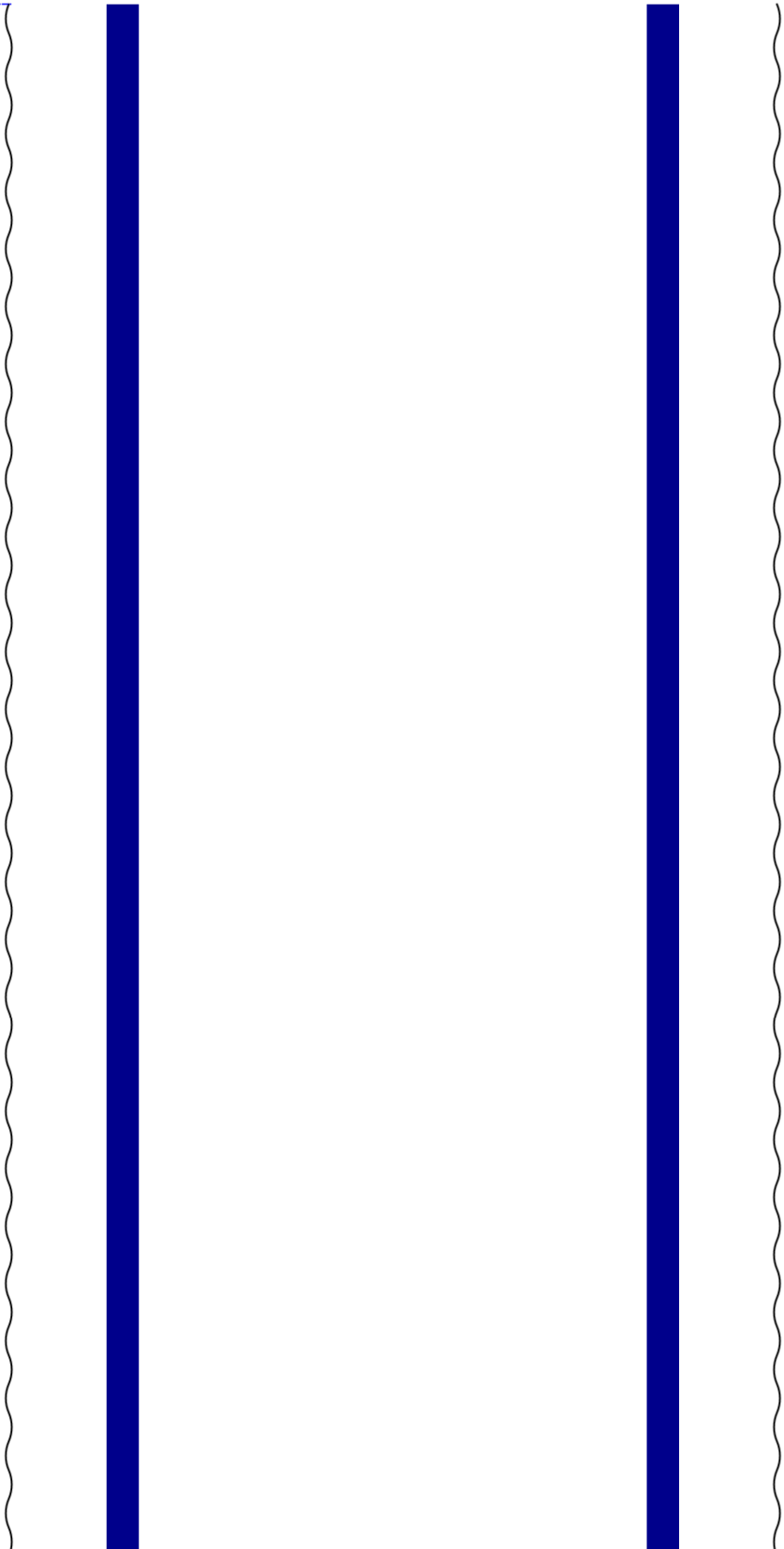
THE USE OF AND RELIANCE UPON THIS RECORDED-DATA BY THE HEREIN NAMED COMPANY (AND ANY OF ITS AFFILIATES, PARTNERS, REPRESENTATIVES, AGENTS, CONSULTANTS AND EMPLOYEES) IS SUBJECT TO THE TERMS AND CONDITIONS AGREED UPON BETWEEN SCHLUMBERGER AND THE COMPANY, INCLUDING: (a) RESTRICTIONS ON USE OF THE RECORDED-DATA; (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

Driller Depth
0.00 ft



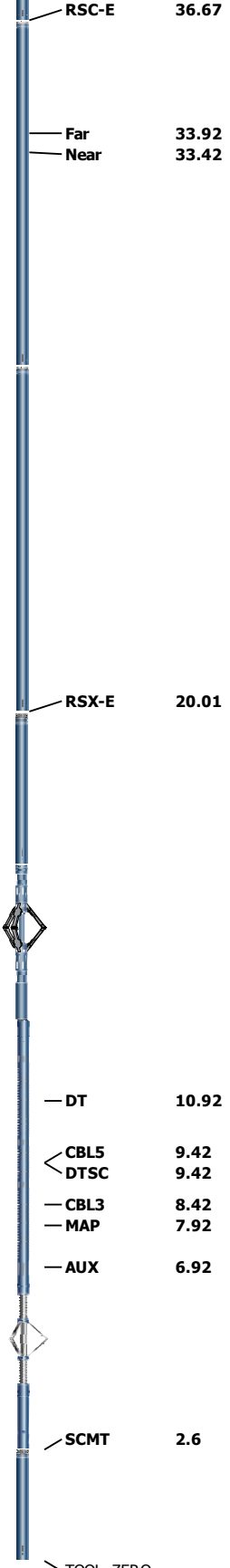


Borehole Size/Casing/Tubing Record

Bit					
Bit Size (in)	6				
Top Driller (ft)	0				
Top Logger (ft)	0				
Bottom Driller (ft)	7718				
Bottom Logger (ft)	7718				
Casing					
Size (in)	4.5				
Weight (lbm/ft)	11.6				
Inner Diameter (in)	4				
Grade	N/A				
Top Driller (ft)	0				
Top Logger (ft)	0				
Bottom Driller (ft)	7718				
Bottom Logger (ft)	7718				

Remarks and Equipment Summary

ONE: Toolstring				ONE: Remarks
Equip name	Length	MP name	Offset	<p>Thank you for choosing Schlumberger!</p> <p>Log run for cement and formation evaluation.</p> <p>Tool run centralized as per tool sketch</p> <p>Repeat pass done at surface following main pass, GR expected to be High</p> <p>Crew: Oscar Silva, Kenneth Ellis, Gary Lapp</p>
LEH-QT	55.37			
AH-63	52.45			
AH-79	52.13			
PSTP-A:382	51.3	GR	47.59	
3		PSTC	47.3	
PSC-A		PSTC Tool	0.00	
PSTC-A:3733		String Bot		
PBMS-A:3823		tom		
Sapphire 10kP		Temperatu	44.51	
SI		re		
		Sapphire P	44.4	
		ressure		
		CCL	43.78	
		PBMS	43.03	
RST-C:343	43.03			
RSCH-A:412				
RSC-E:416				
RSS-A:374				
MNTR-F:1254				
RSXH-A:342				
RSX-E:343				



SCMT-CB:82 20.01
84
 SECH-CA
 SCMC-CA:808
 9
 CMIR-AG
 SCMS-CB:828
 4
 SCMx-CA:820
 5

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-B		
Serial Number			

Calibration Date			
Calibrator Serial Number			
Calibration Cable Type			
Wheel Correction 1	0		
Wheel Correction 2	0		

Tension Device			
Type	CMTD-B/A		
Serial Number			
Calibration Date			
Calibrator Serial Number			
Number of Calibration Points	0		

Logging Cable			
Type	7-39P-LXS		
Serial Number			
Length	2000.00 ft		
Conveyance Type	Wireline		
Rig Type	Crane		

ONE:Depth Control Parameters		Depth Control Remarks	
Log Sequence	First Log In the Well		
Rig Up Length At Surface			
Rig Up Length At Bottom			
Rig Up Length Correction			
Stretch Correction			
Tool Zero Check At Surface			

ONE

Main

Software Version

Acquisition System	Version
Maxwell 2017 SP2	7.2.87778.3100

Pass Summary

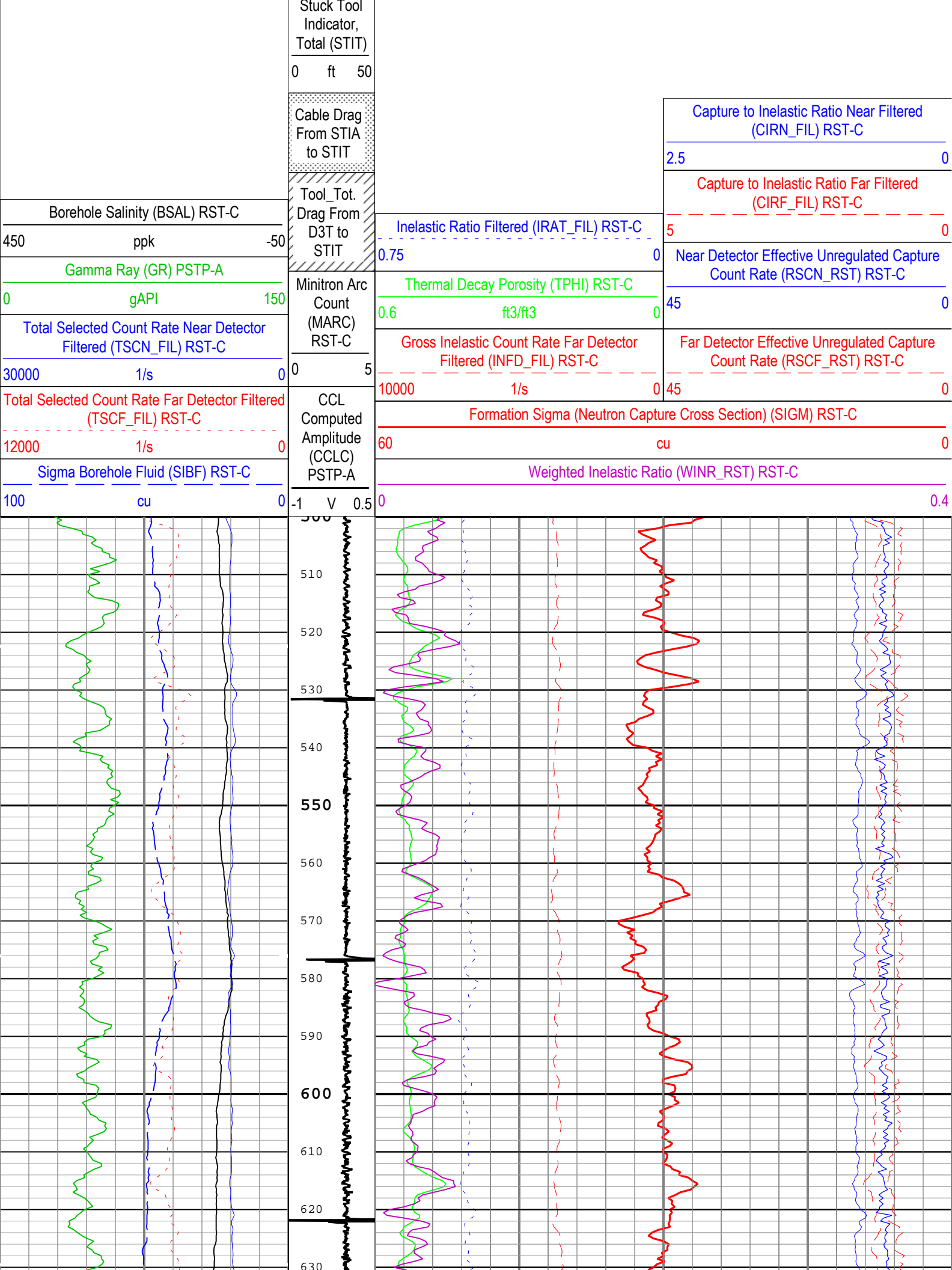
Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
ONE	Log[3]:Up	Up	482.76 ft	7708.53 ft	23-Jul-2017 2:11:36 AM	23-Jul-2017 4:28:44 AM	ON	7.91 ft	Yes

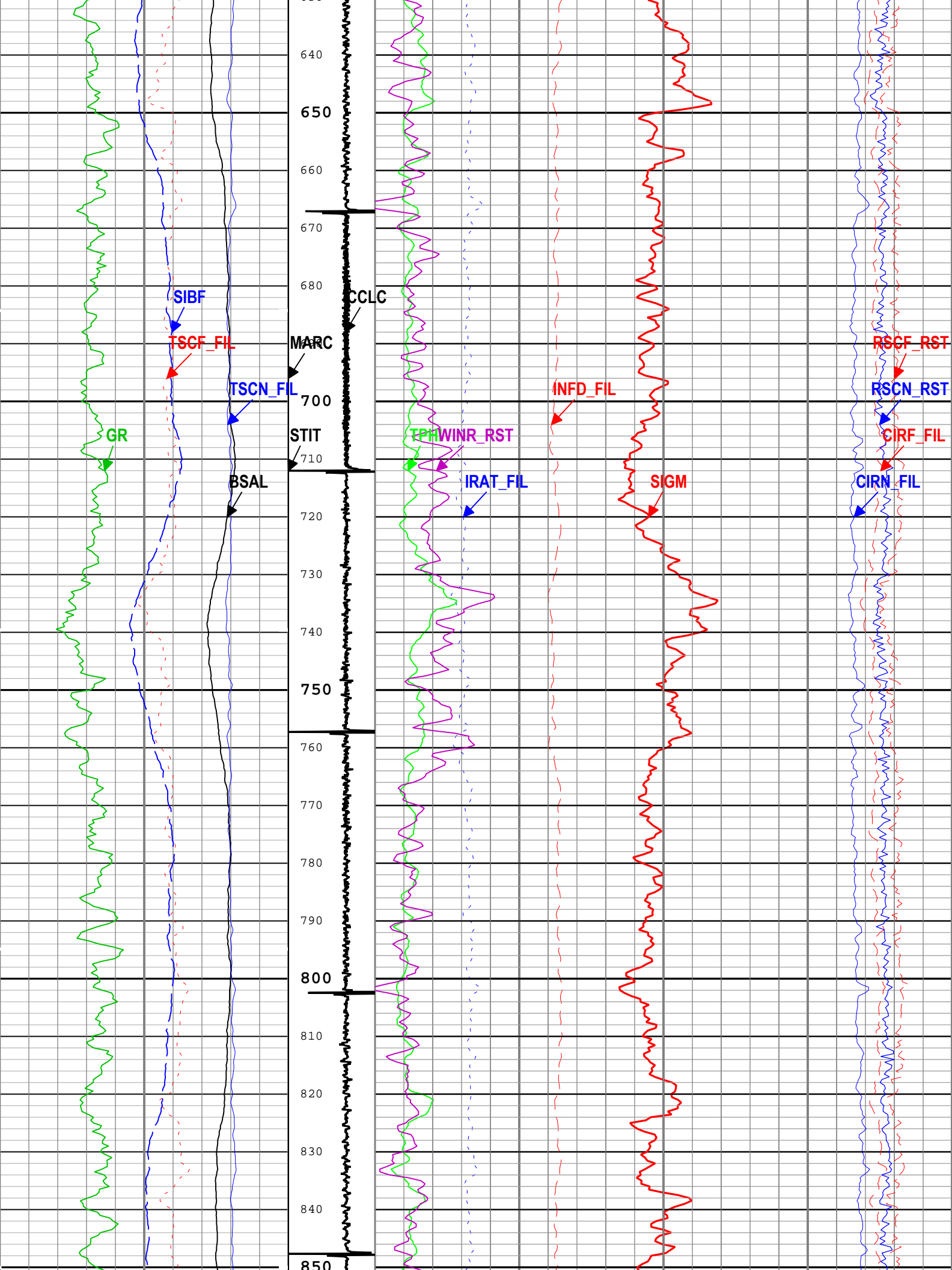
All depths are referenced to toolstring zero

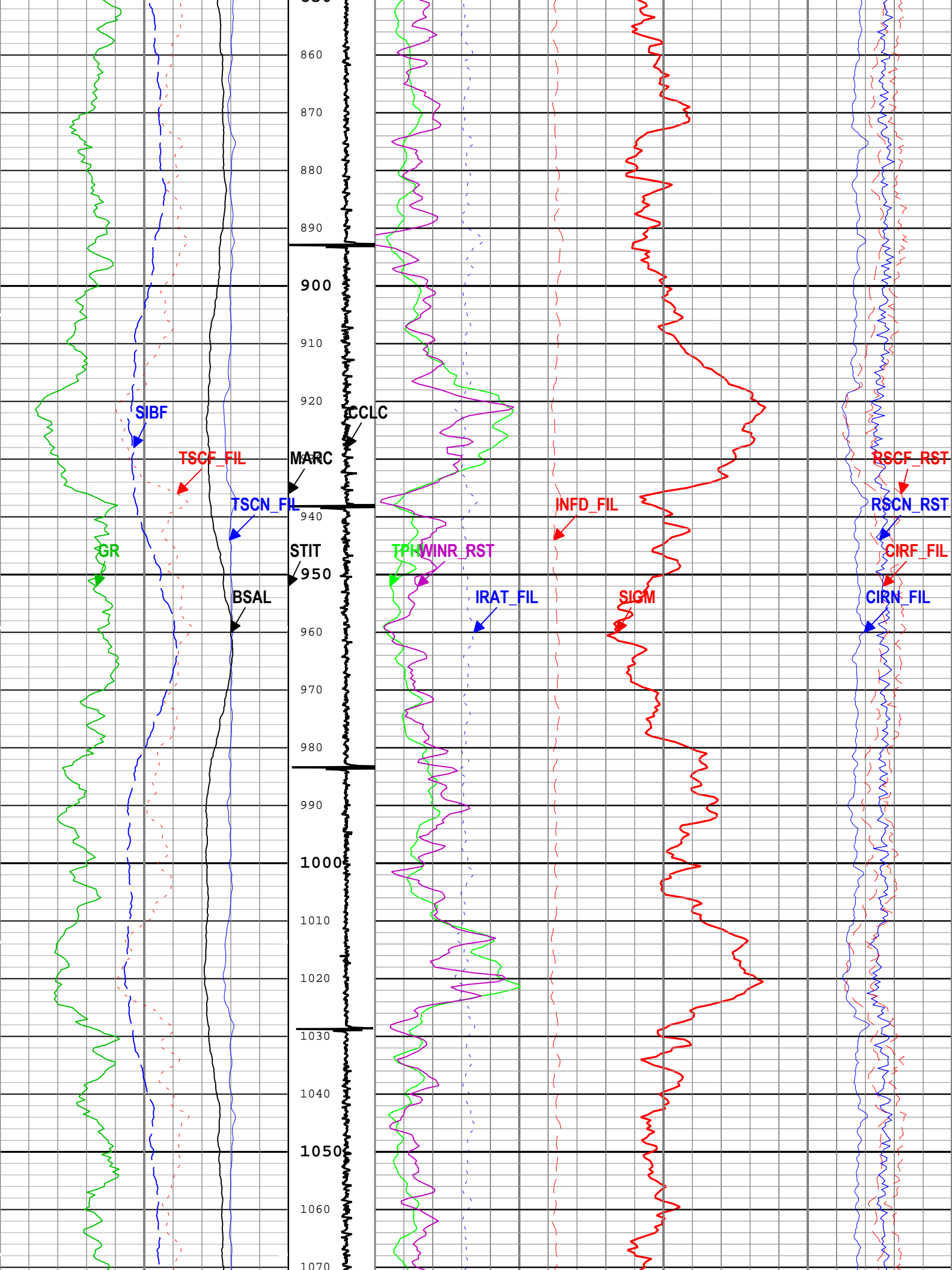
Log	Company:CAERUS OPERATING LLC Well:Chevron 12A-17 ONE: Log[3]:Up:S002
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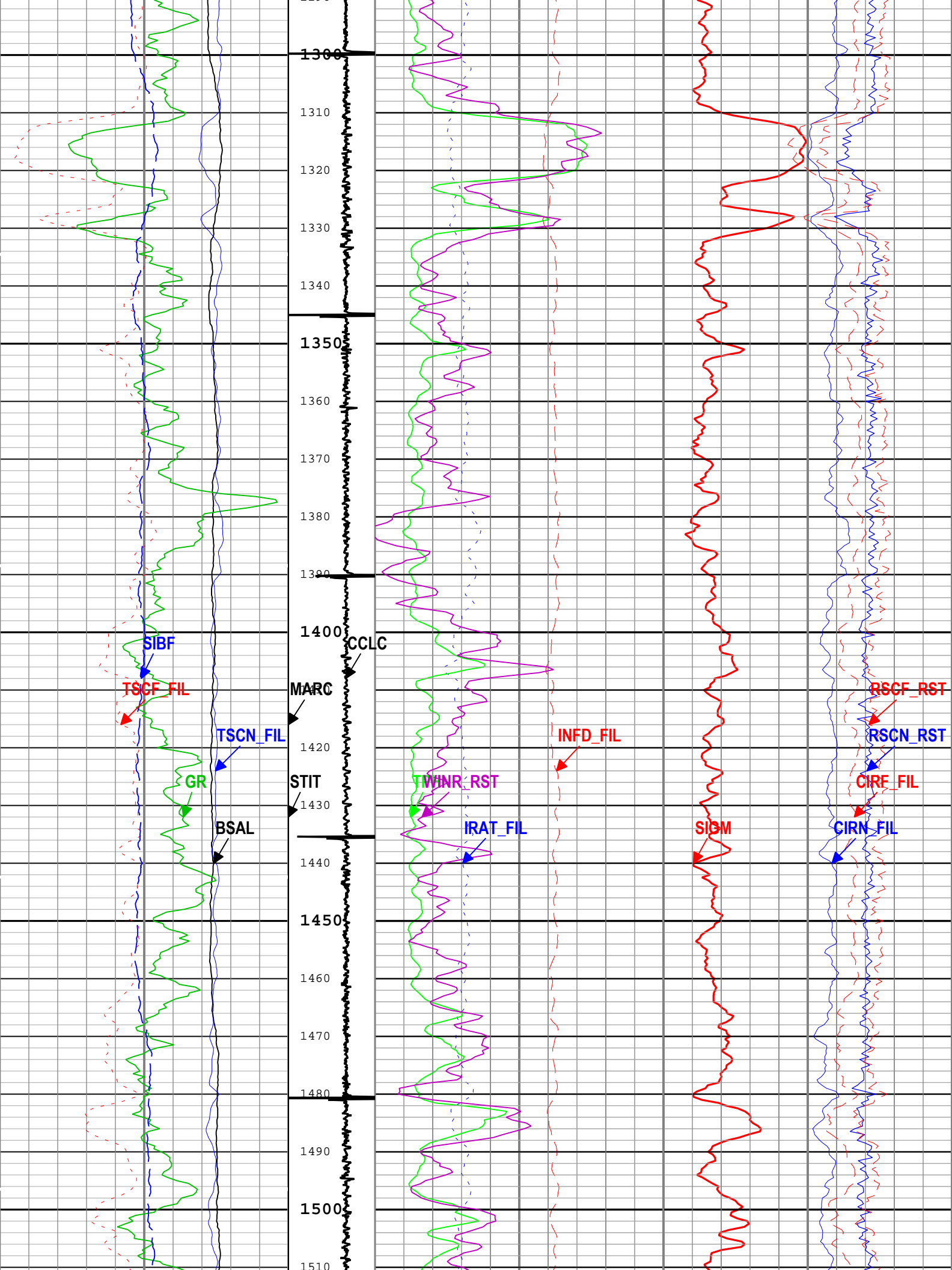
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Creation Date: 23-Jul-2017 04:54:32

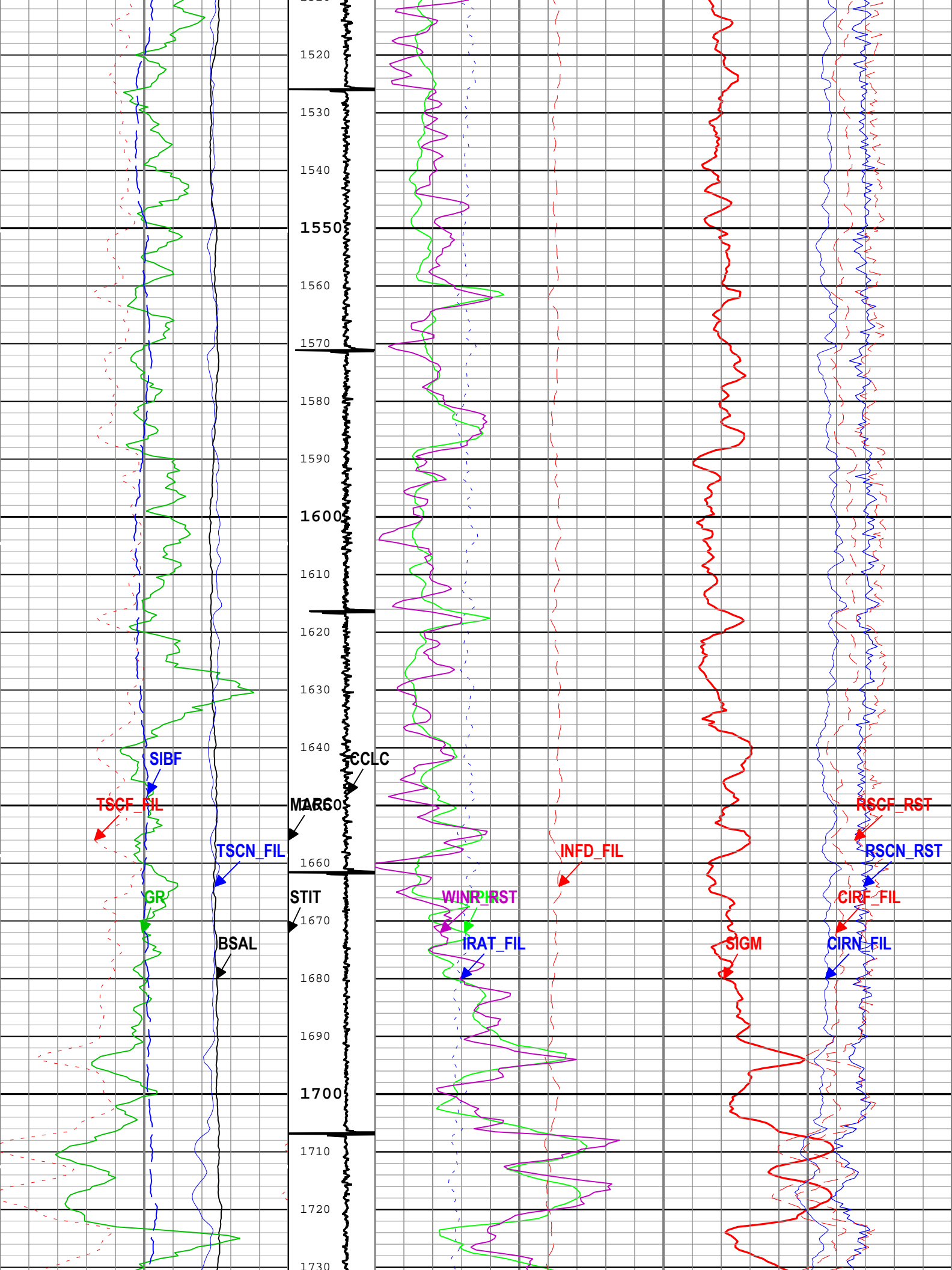
- | TIME_1900 - Elapsed time since midnight, 30 December 1899 every 60.00 (s)
- TIME_1900 - Time Marked every 60.00 (s)
- | IHV - Integrated Hole Volume every 10.00 (ft3)
- | IHV - Integrated Hole Volume every 100.00 (ft3)
- | ICV - Integrated Cement Volume every 10.00 (ft3)
- | ICV - Integrated Cement Volume every 100.00 (ft3)

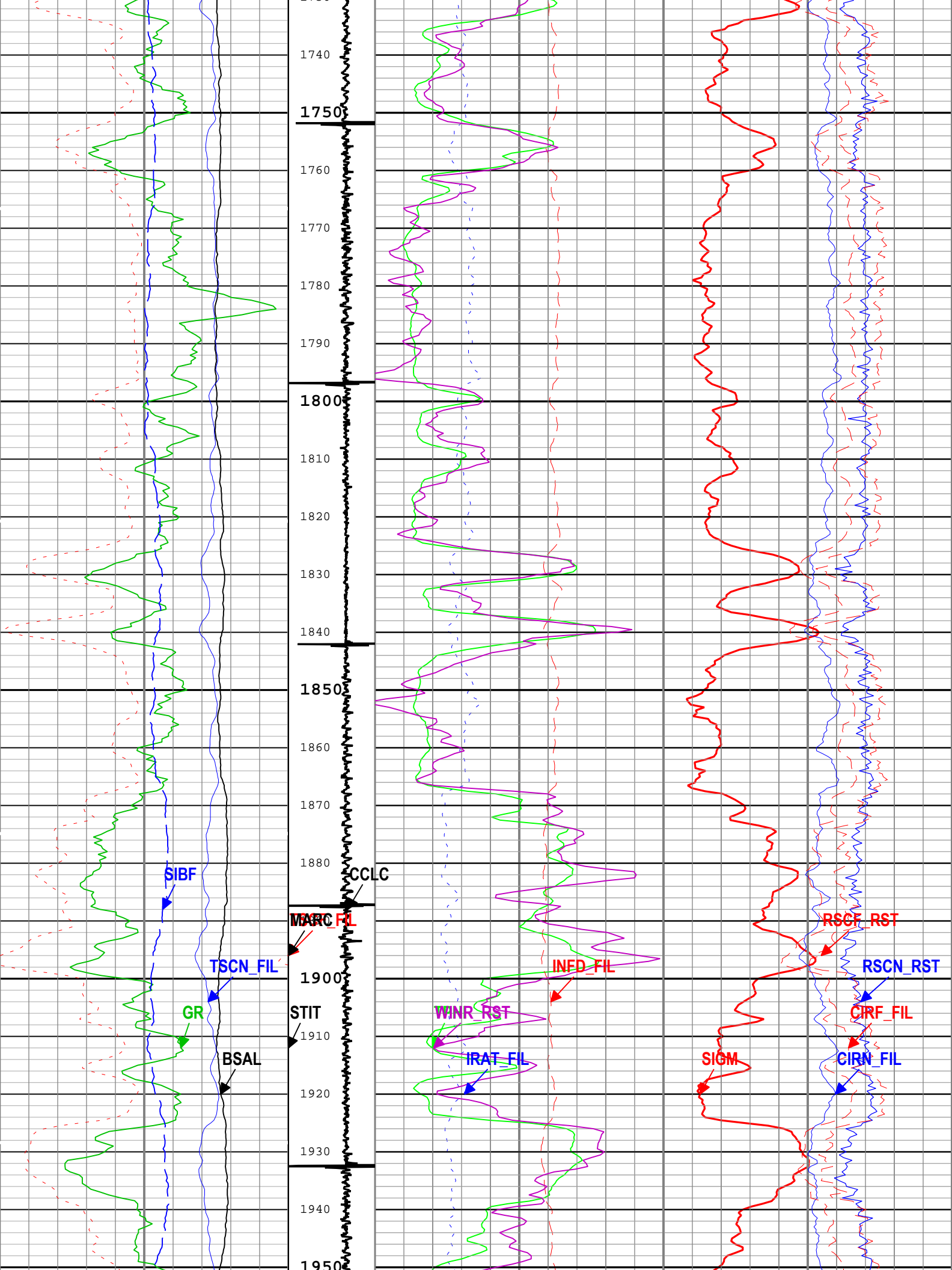


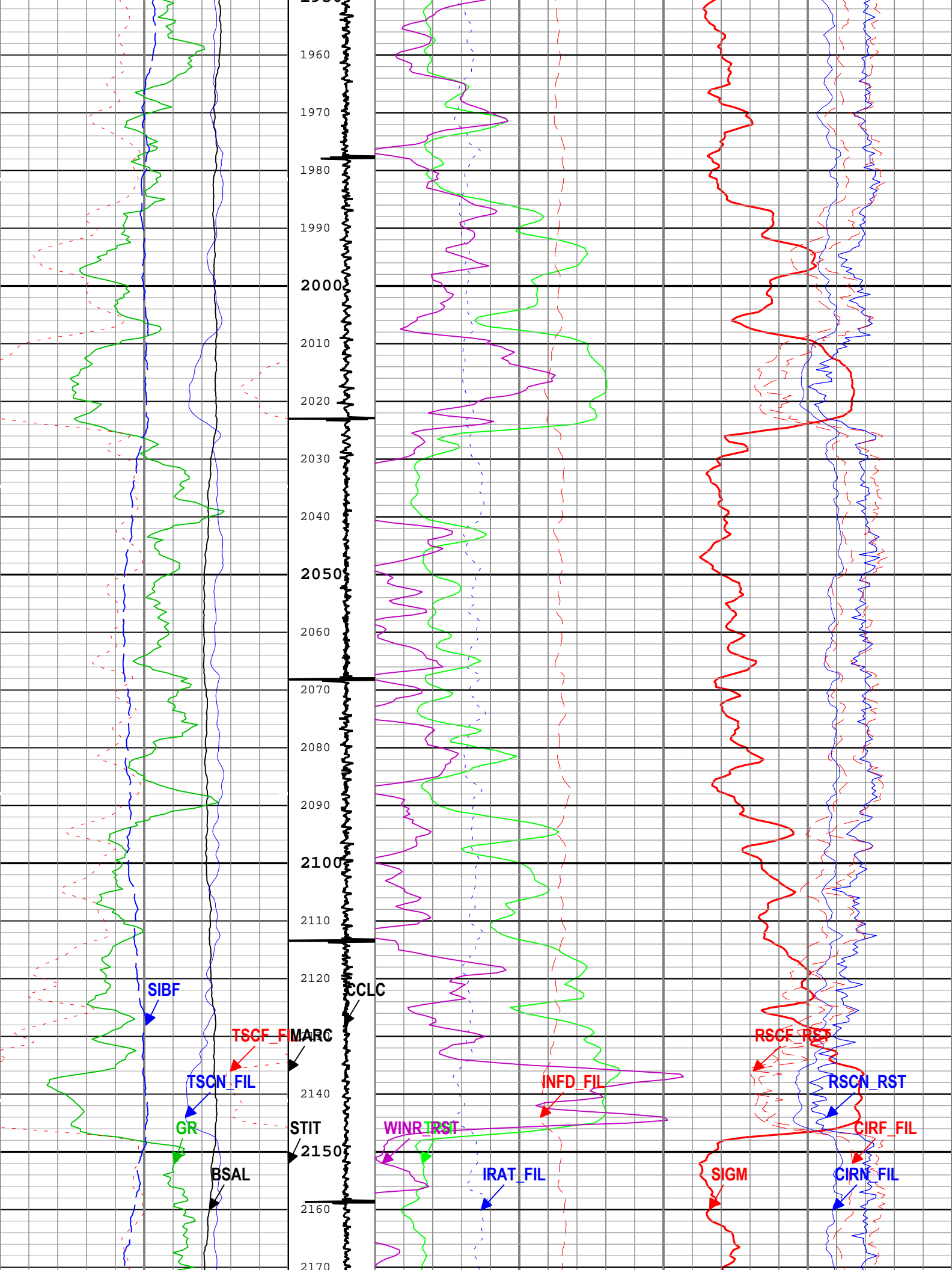


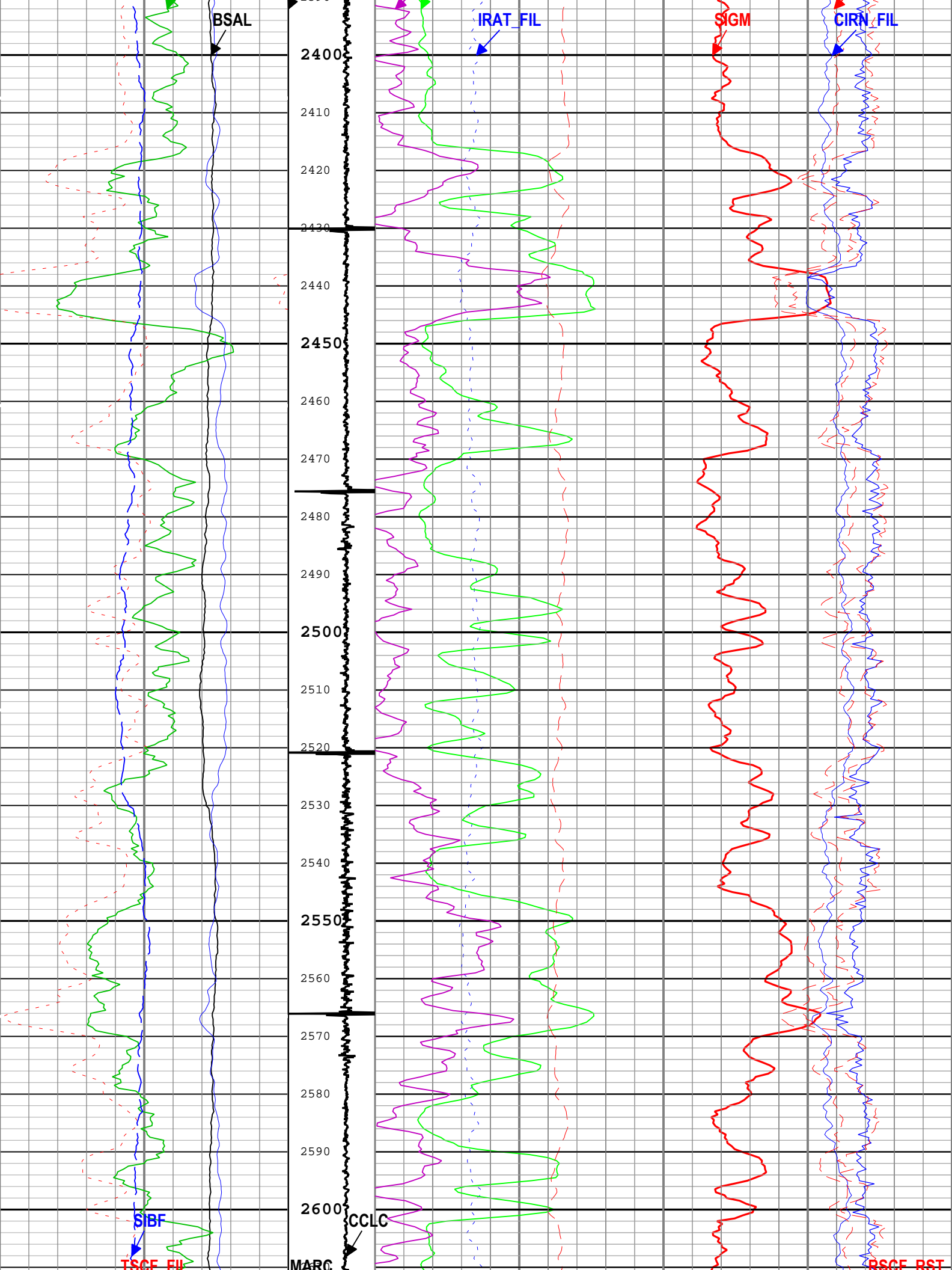


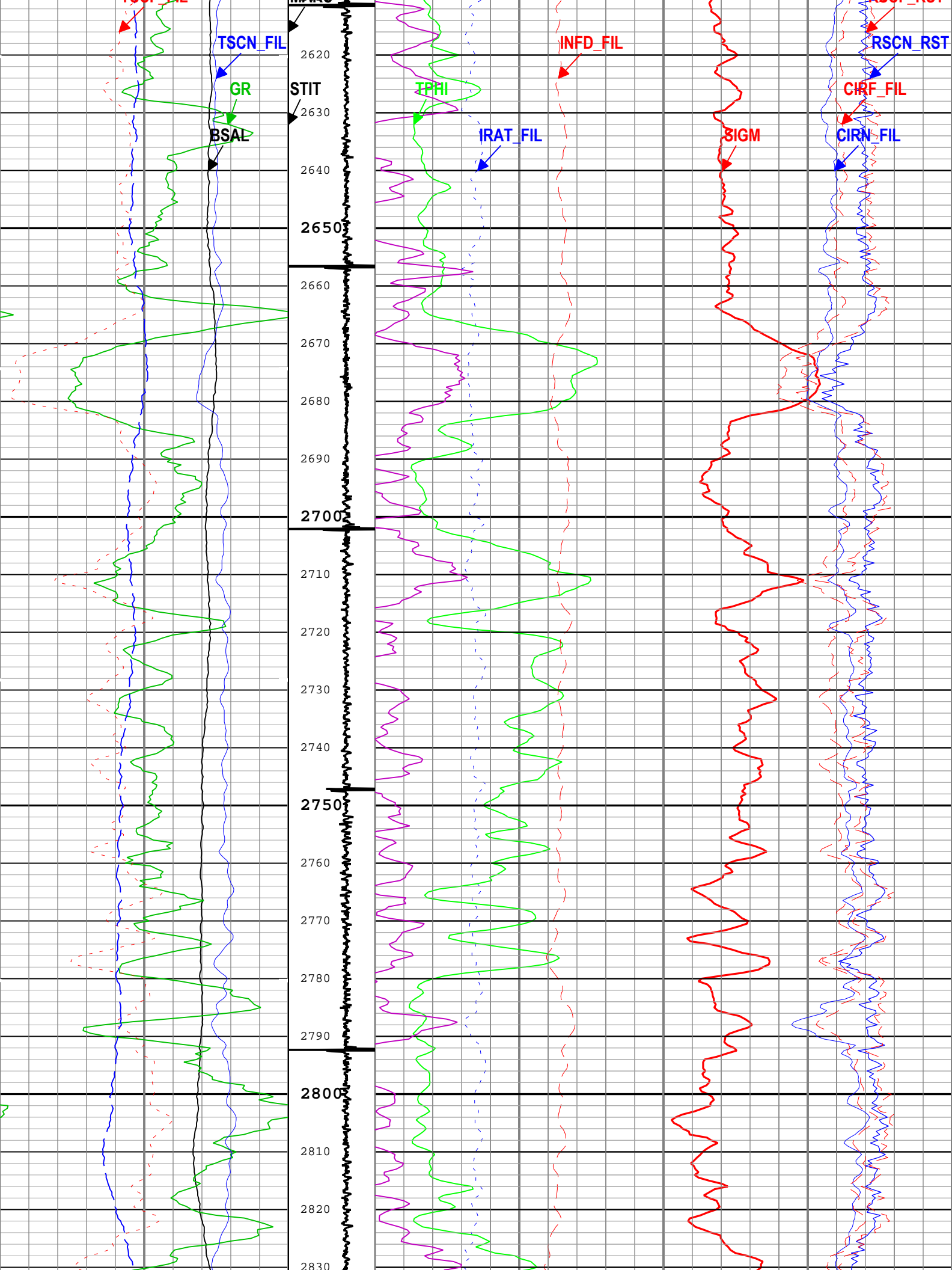


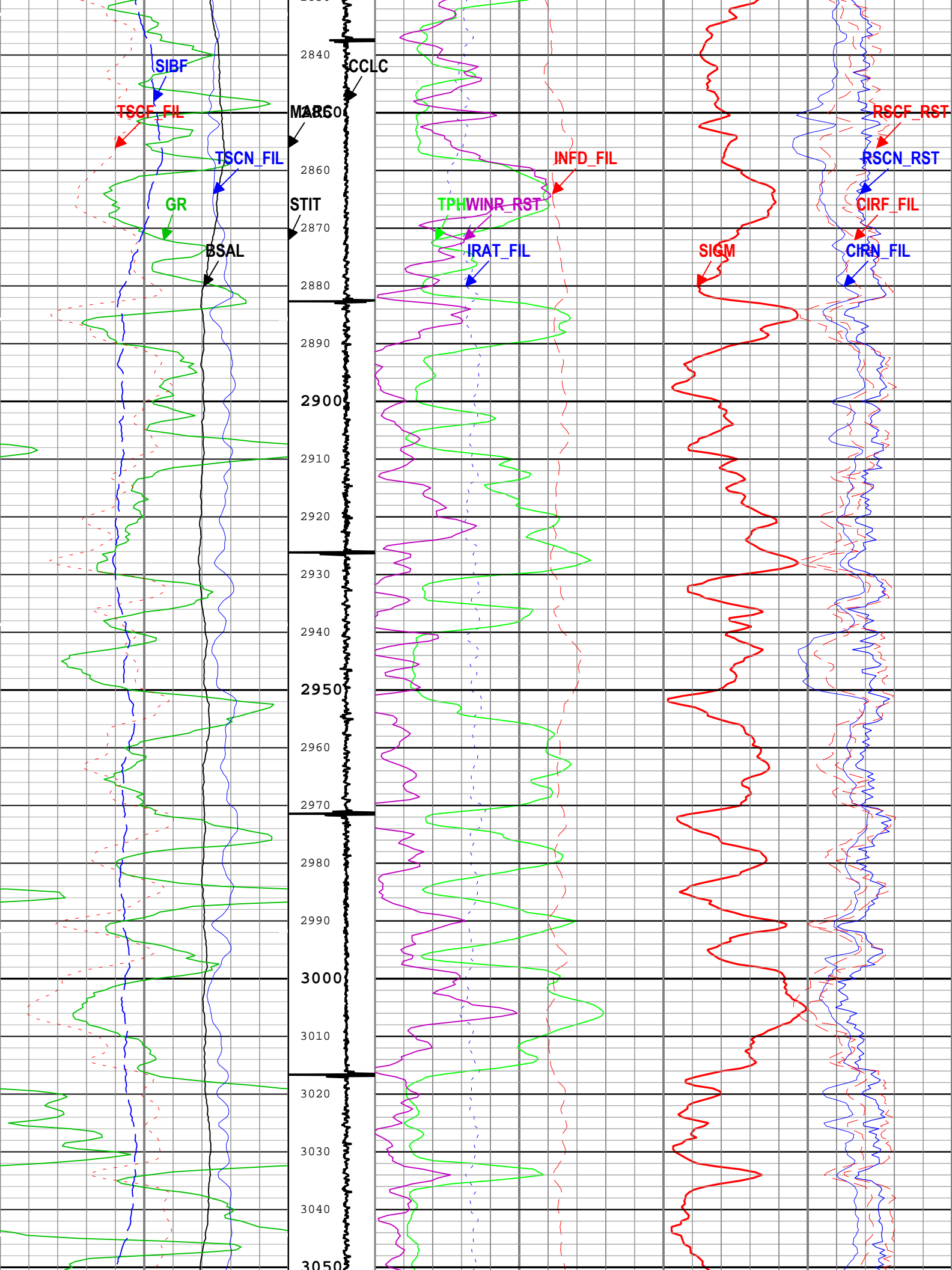


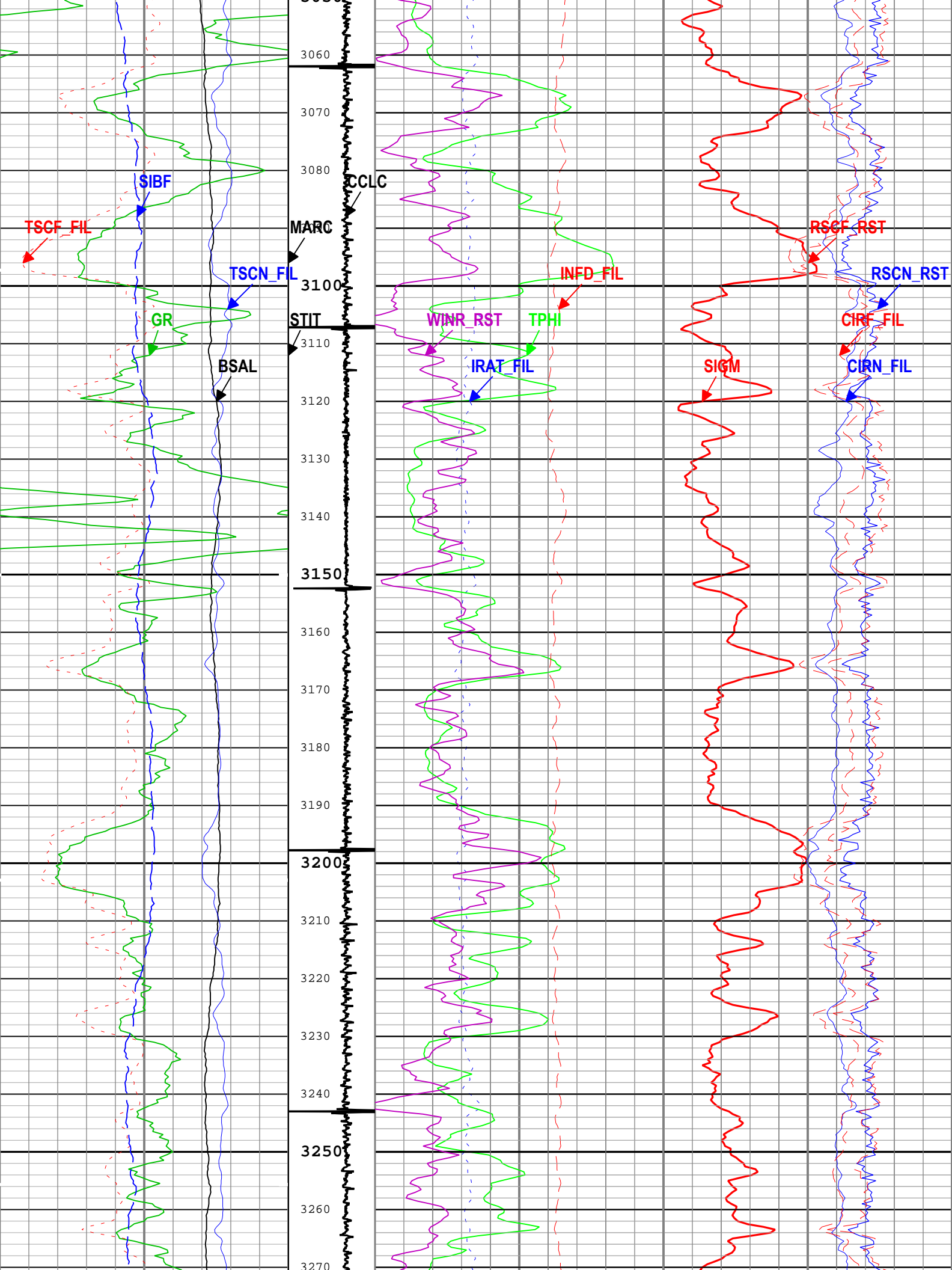


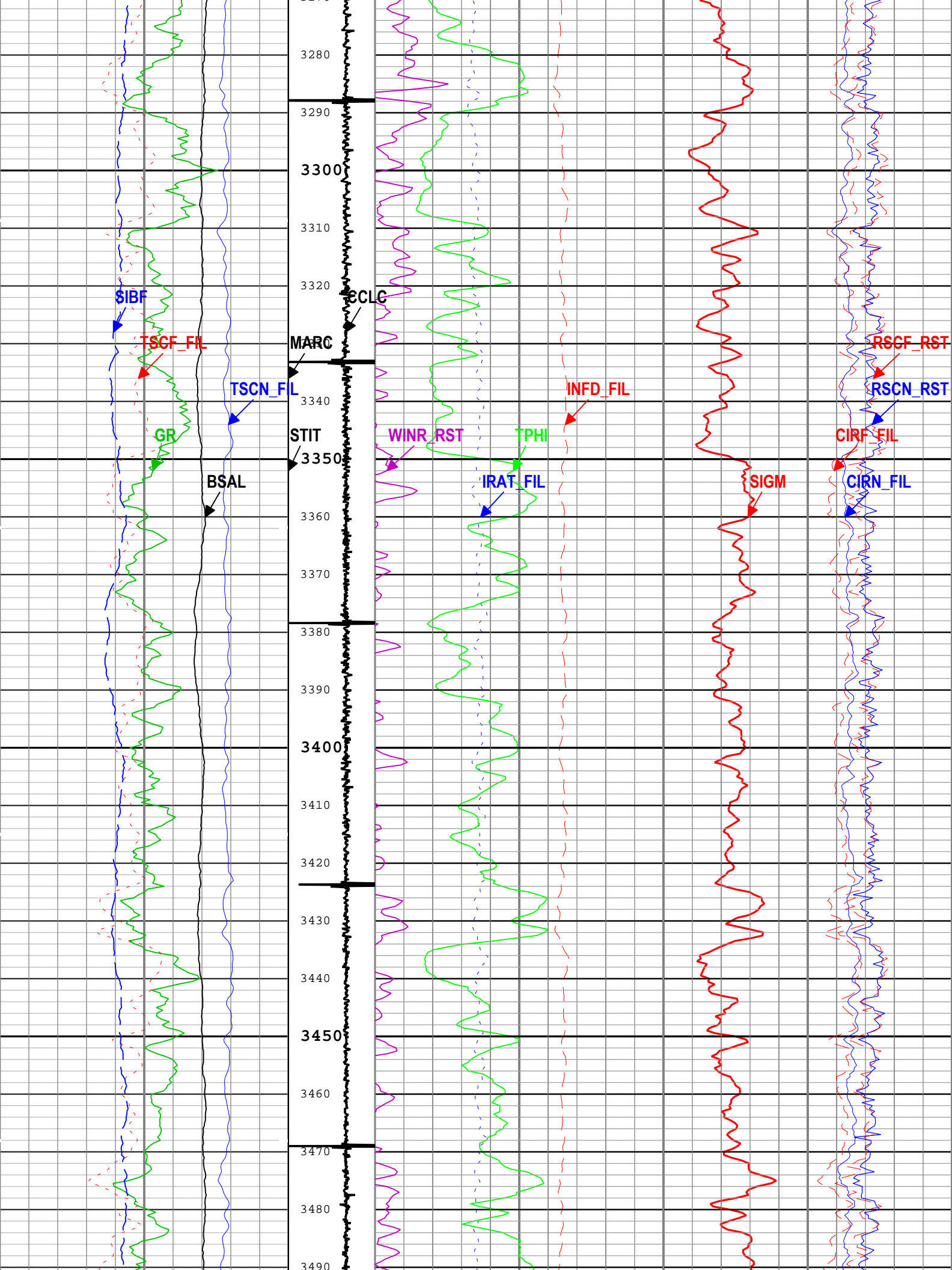


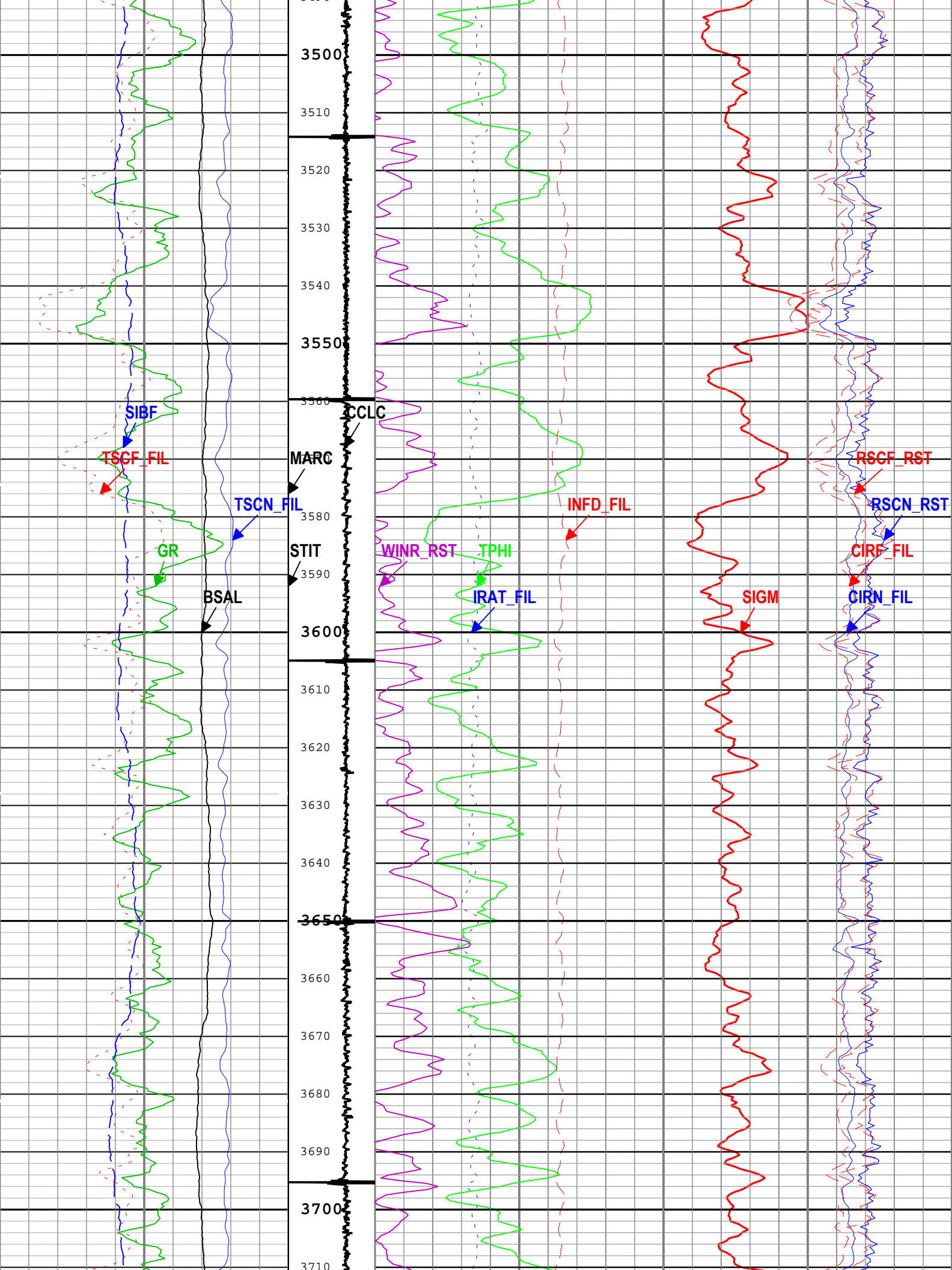


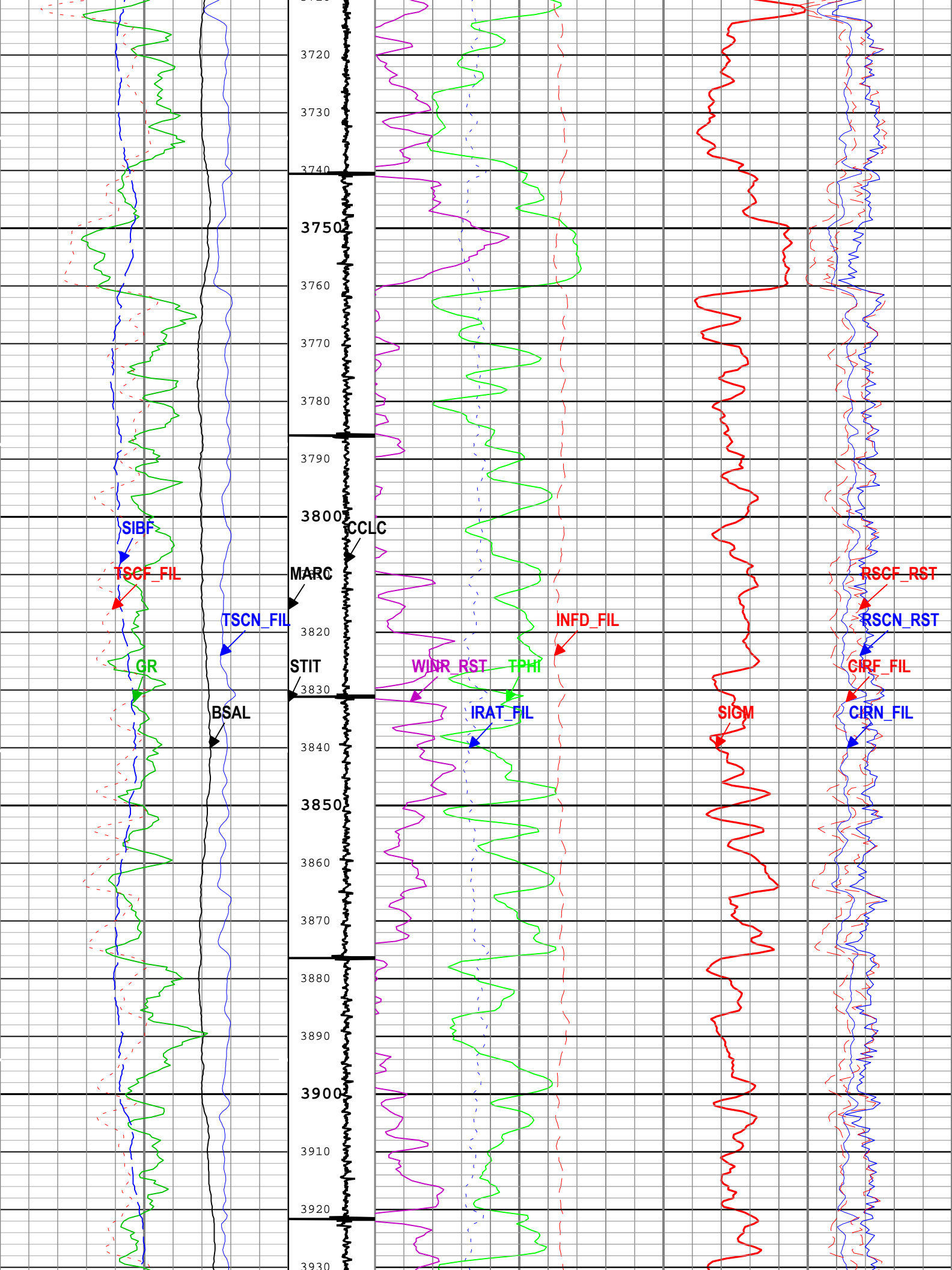


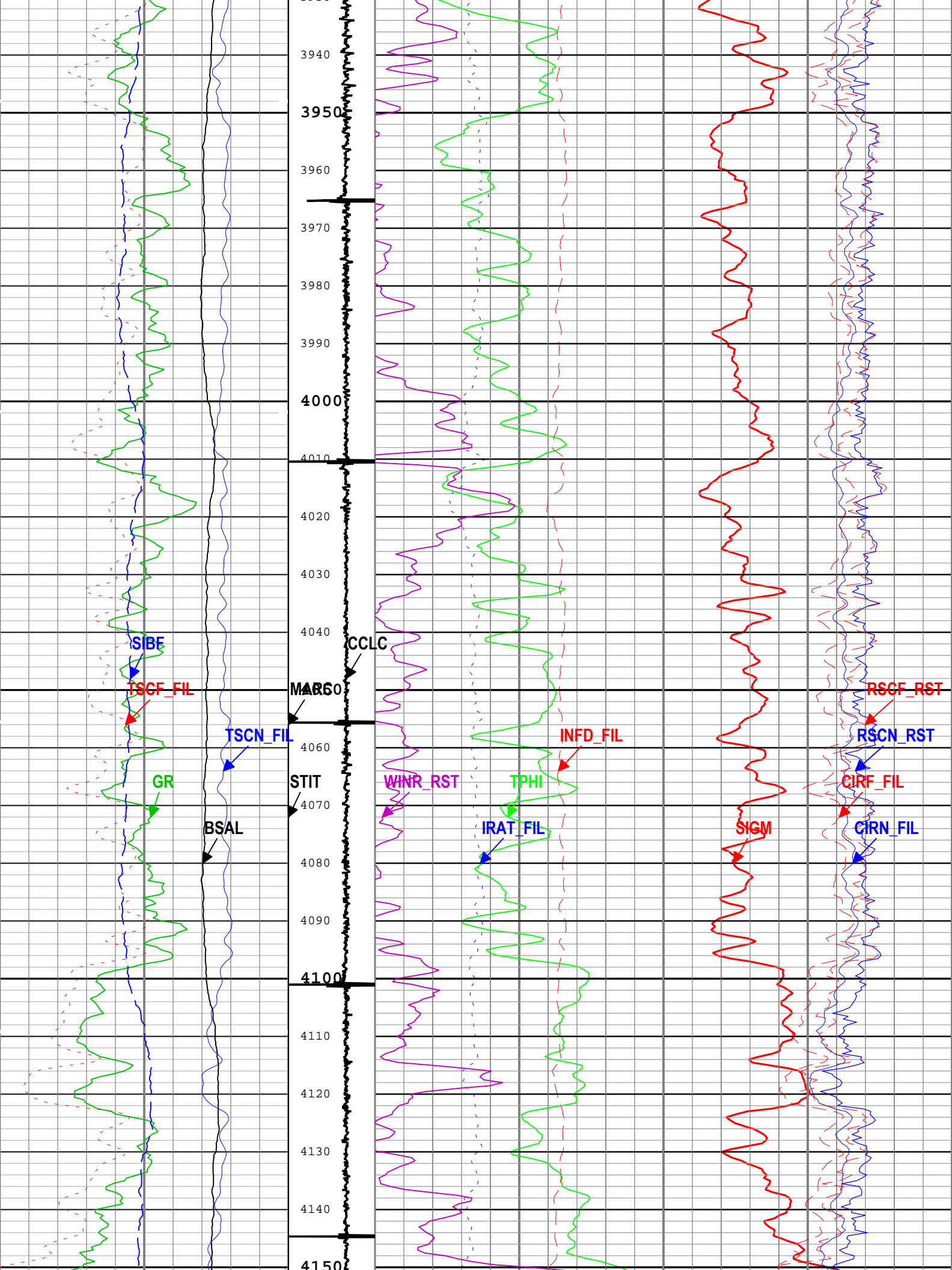


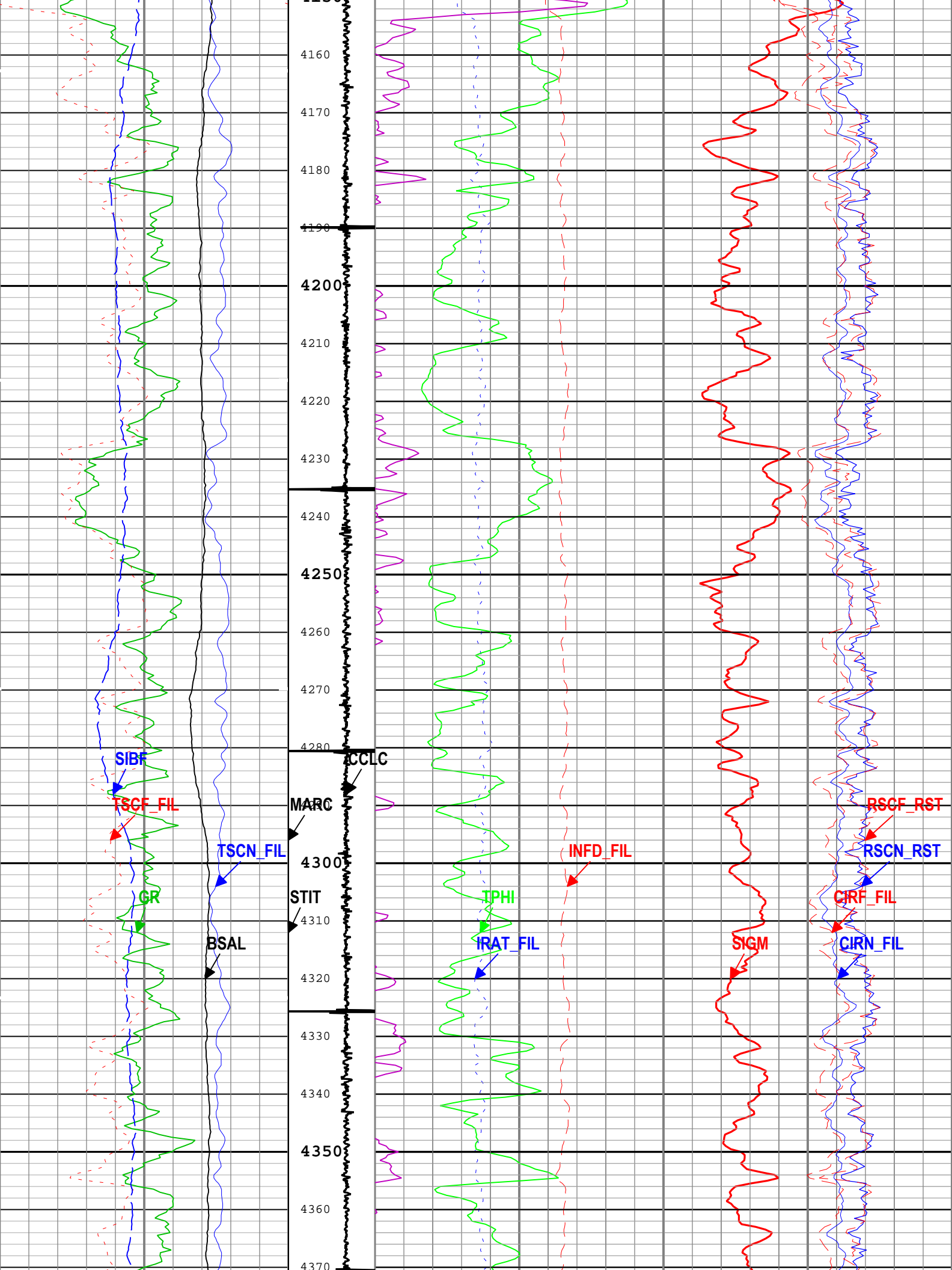


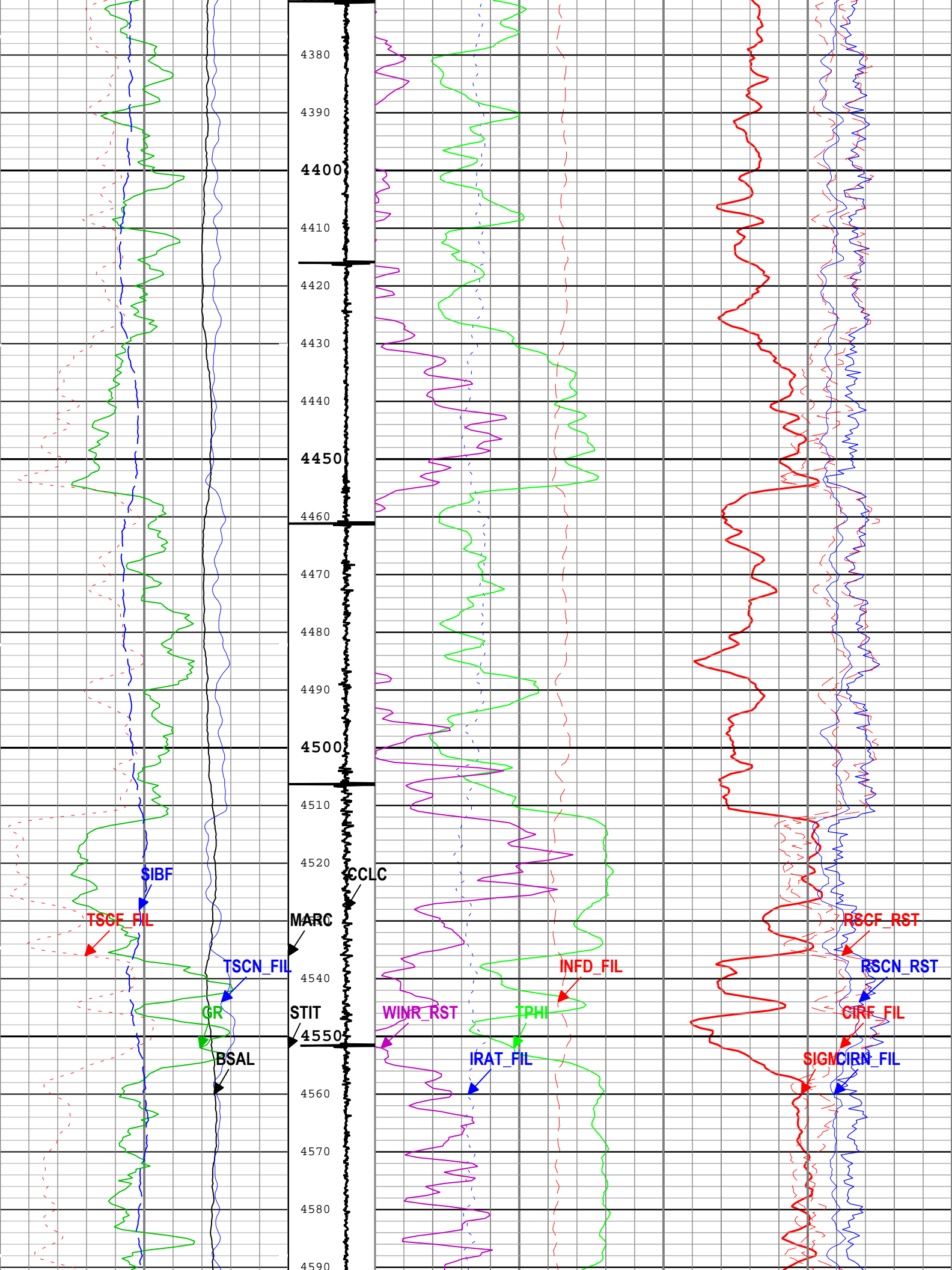


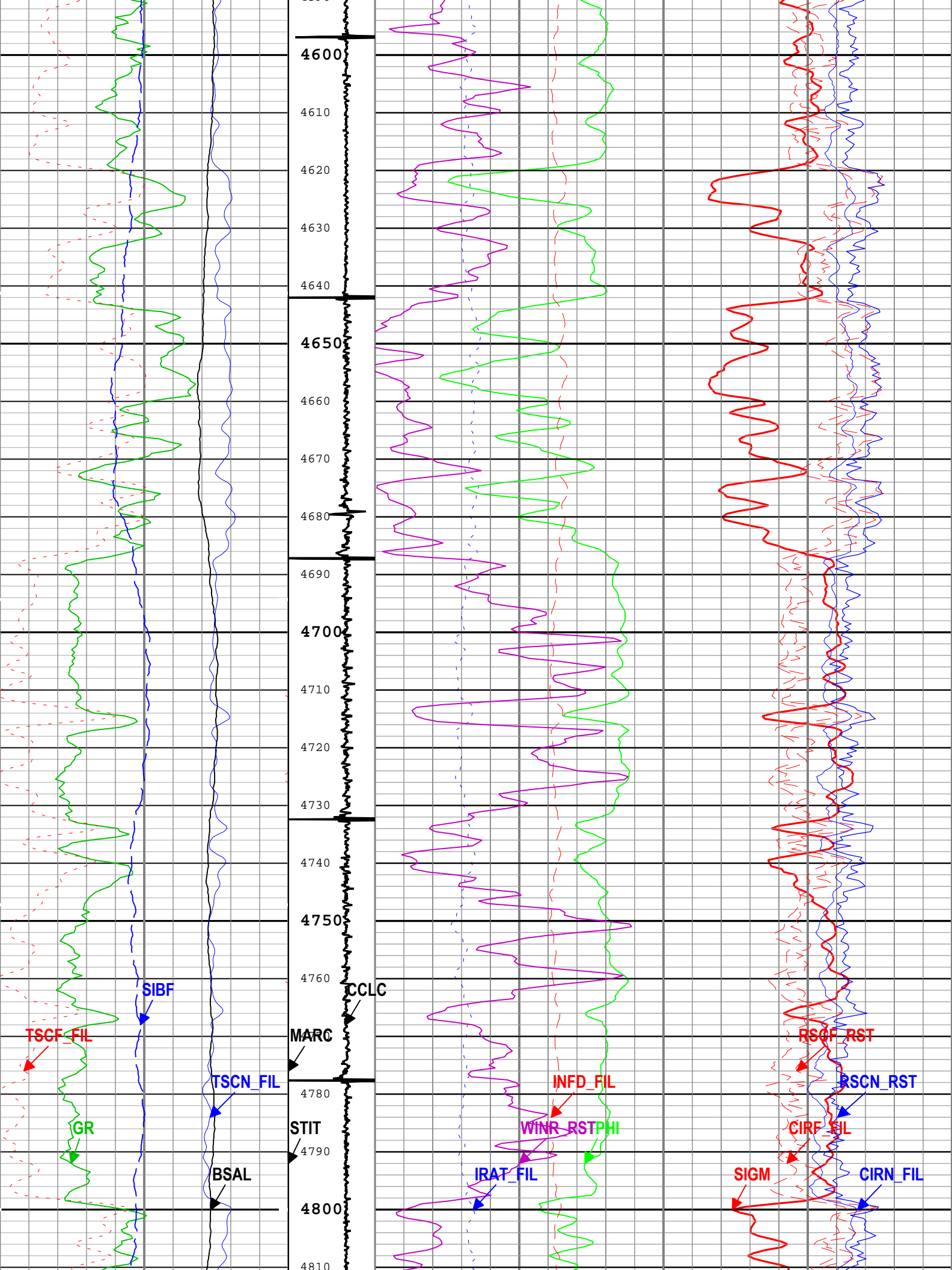


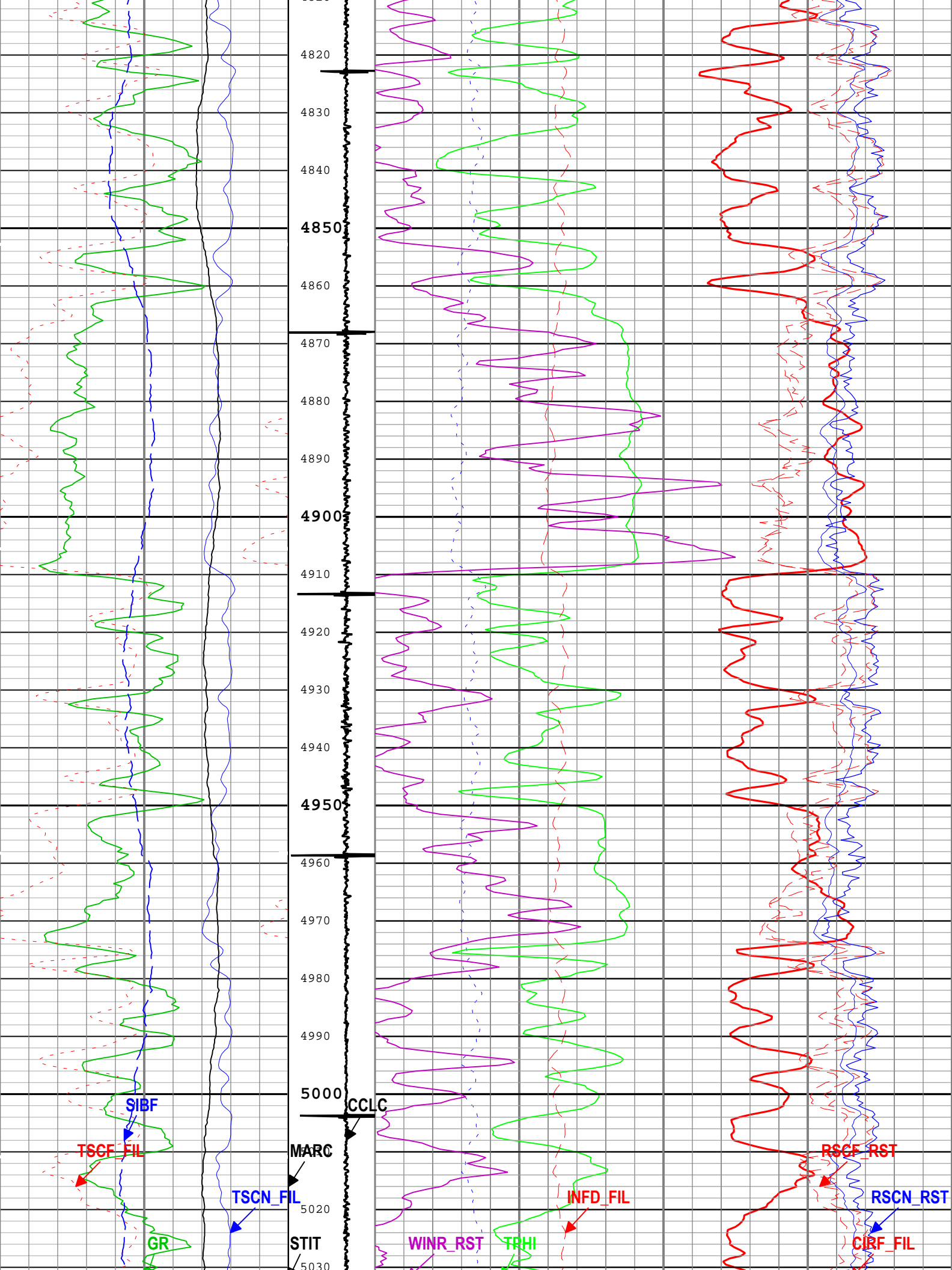


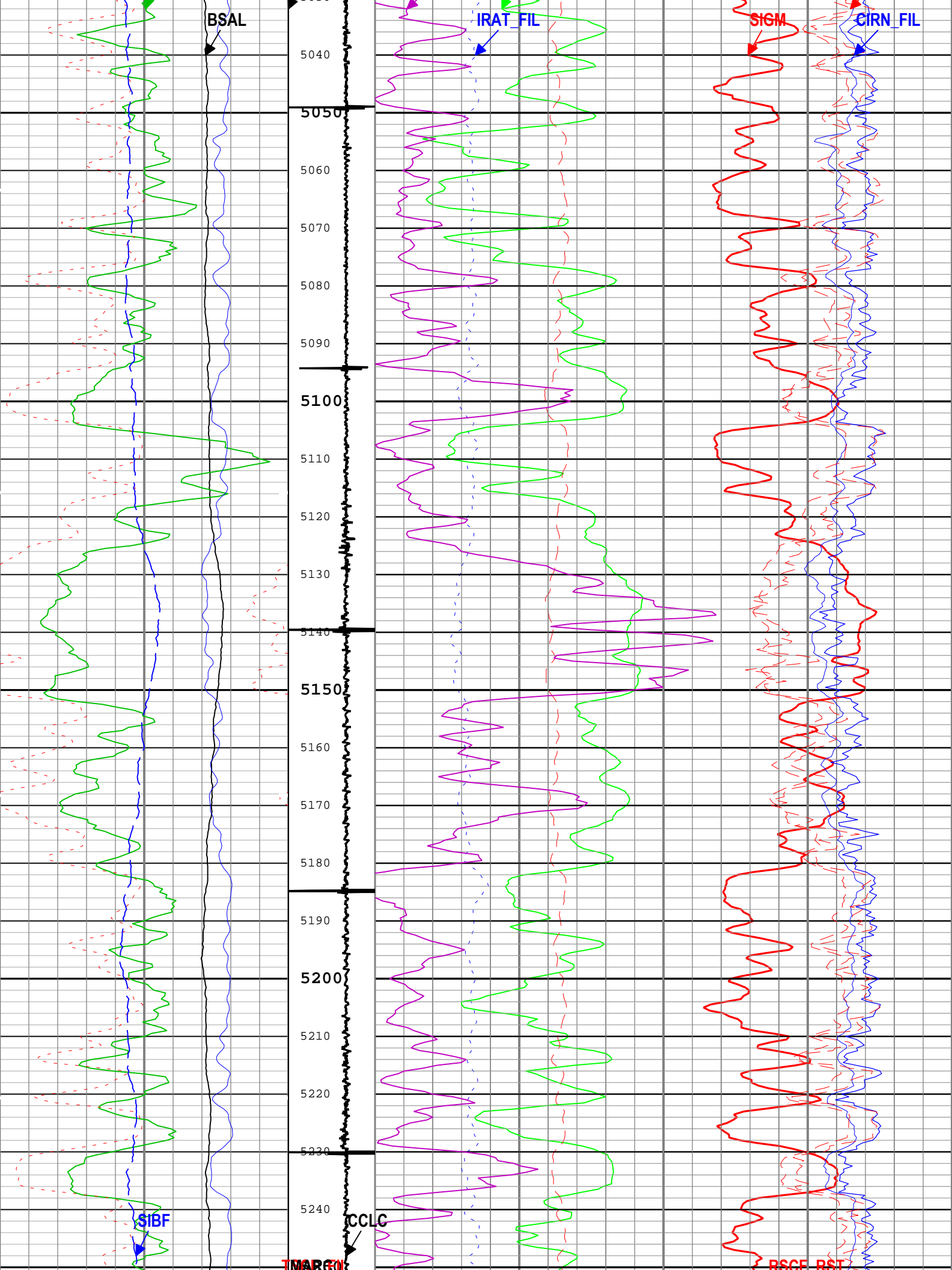


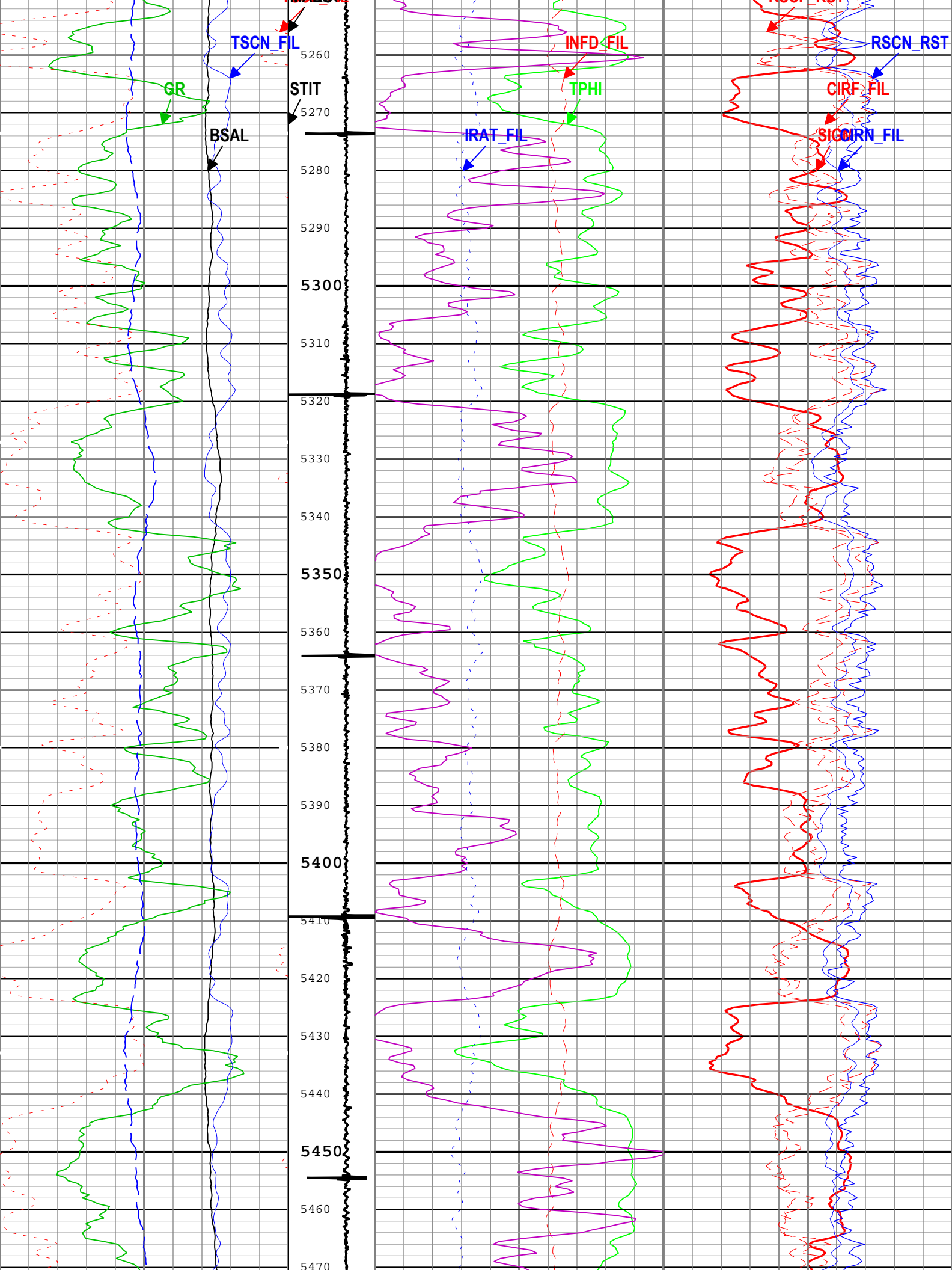


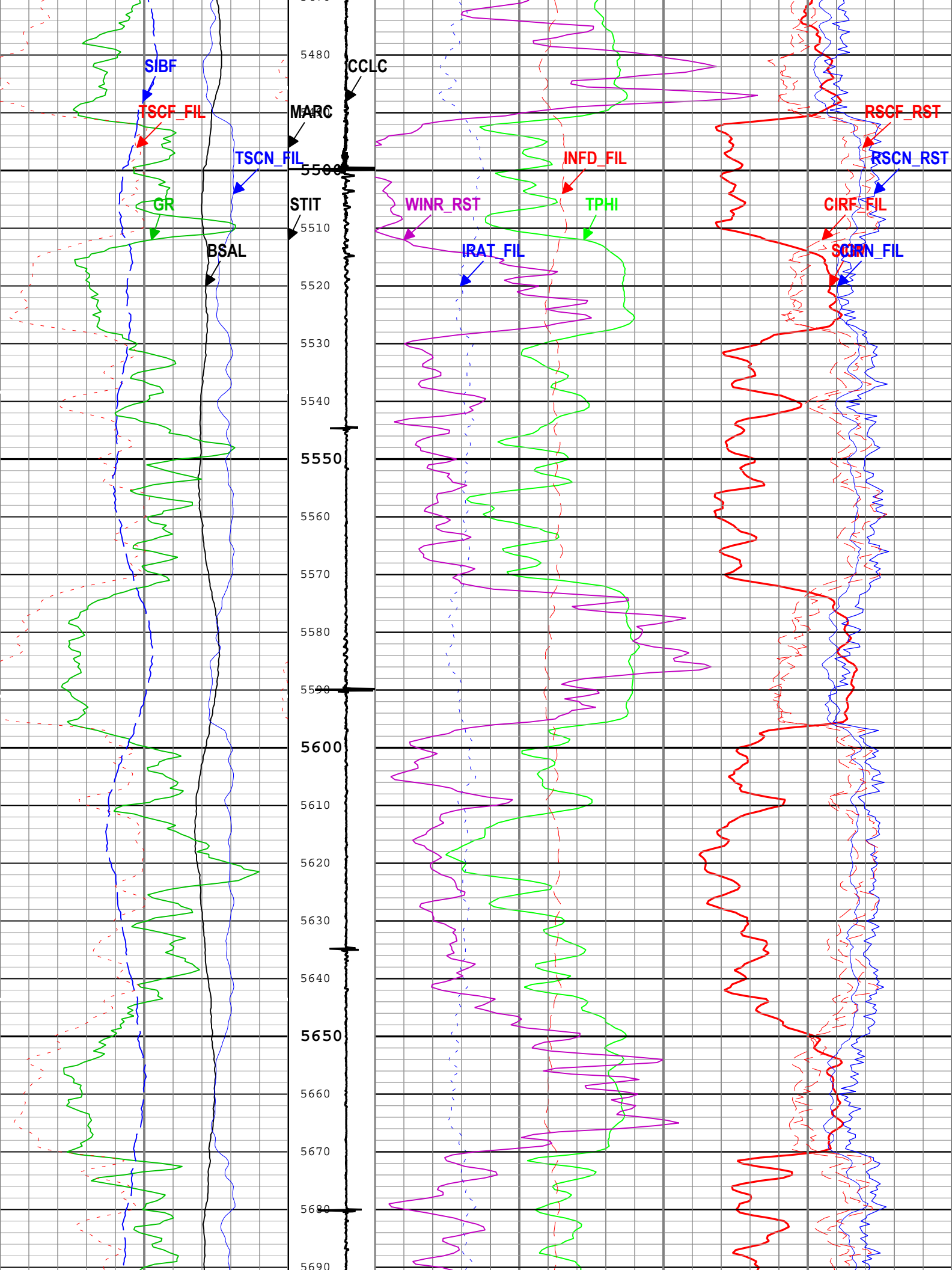


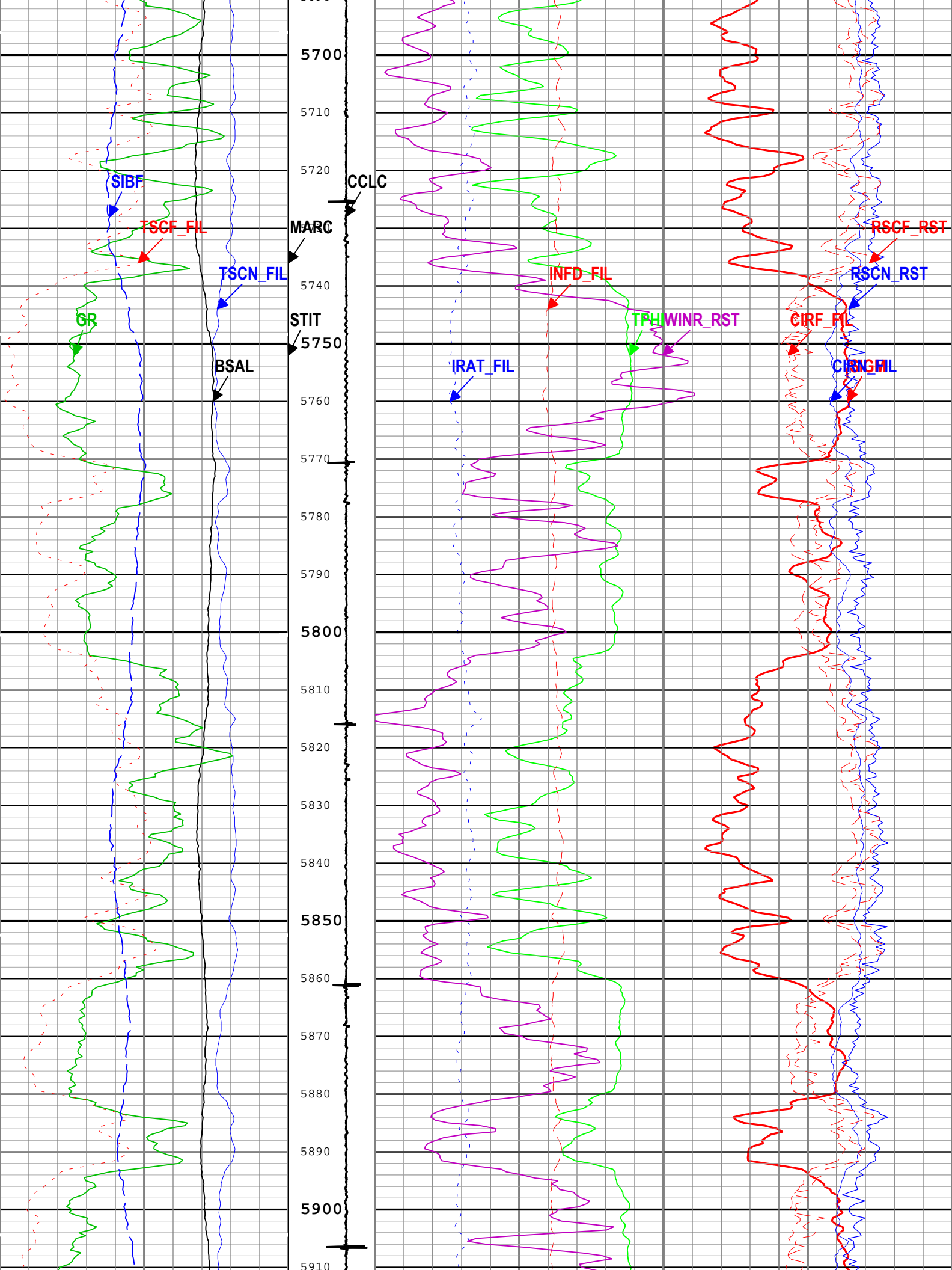


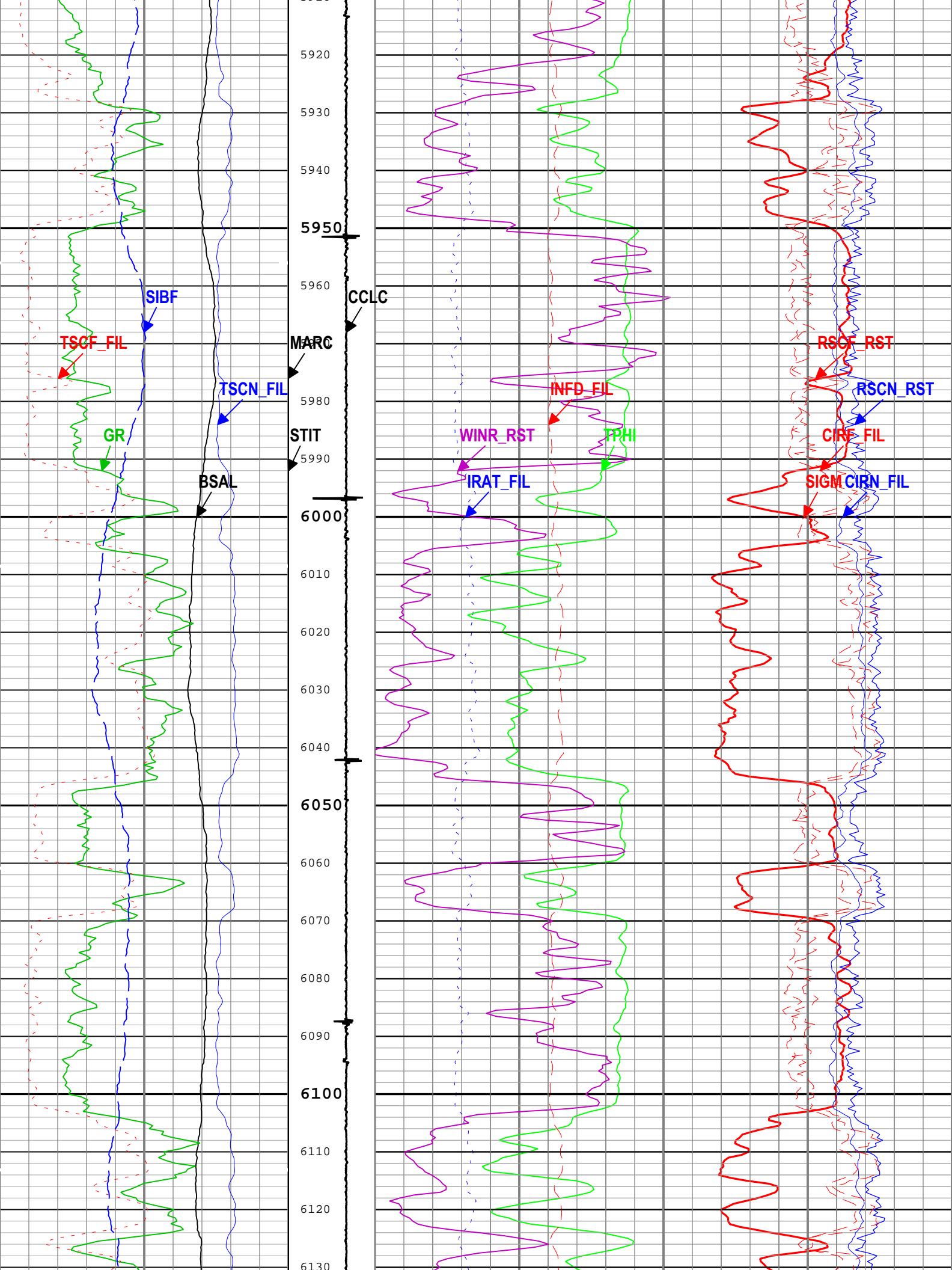


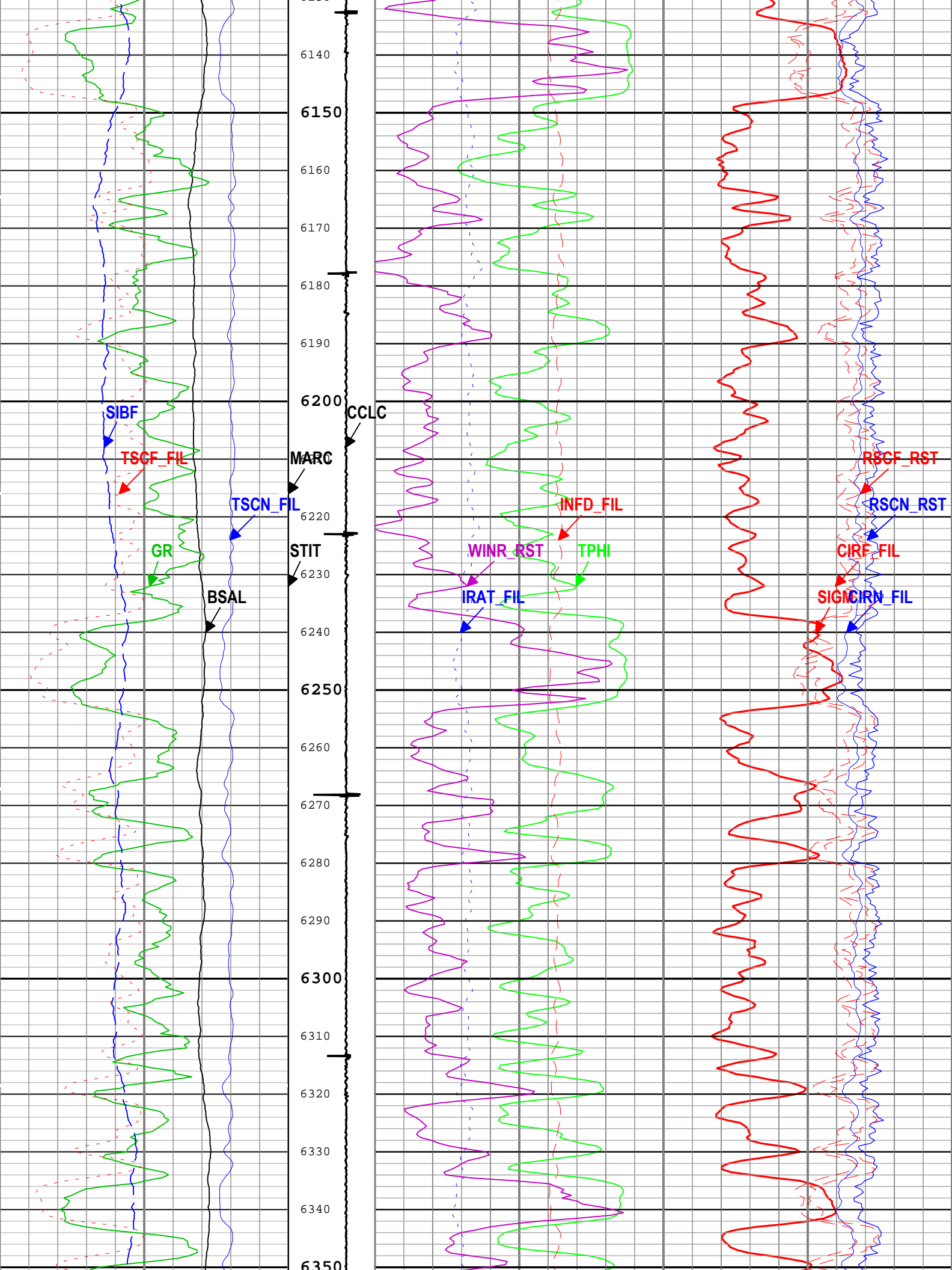


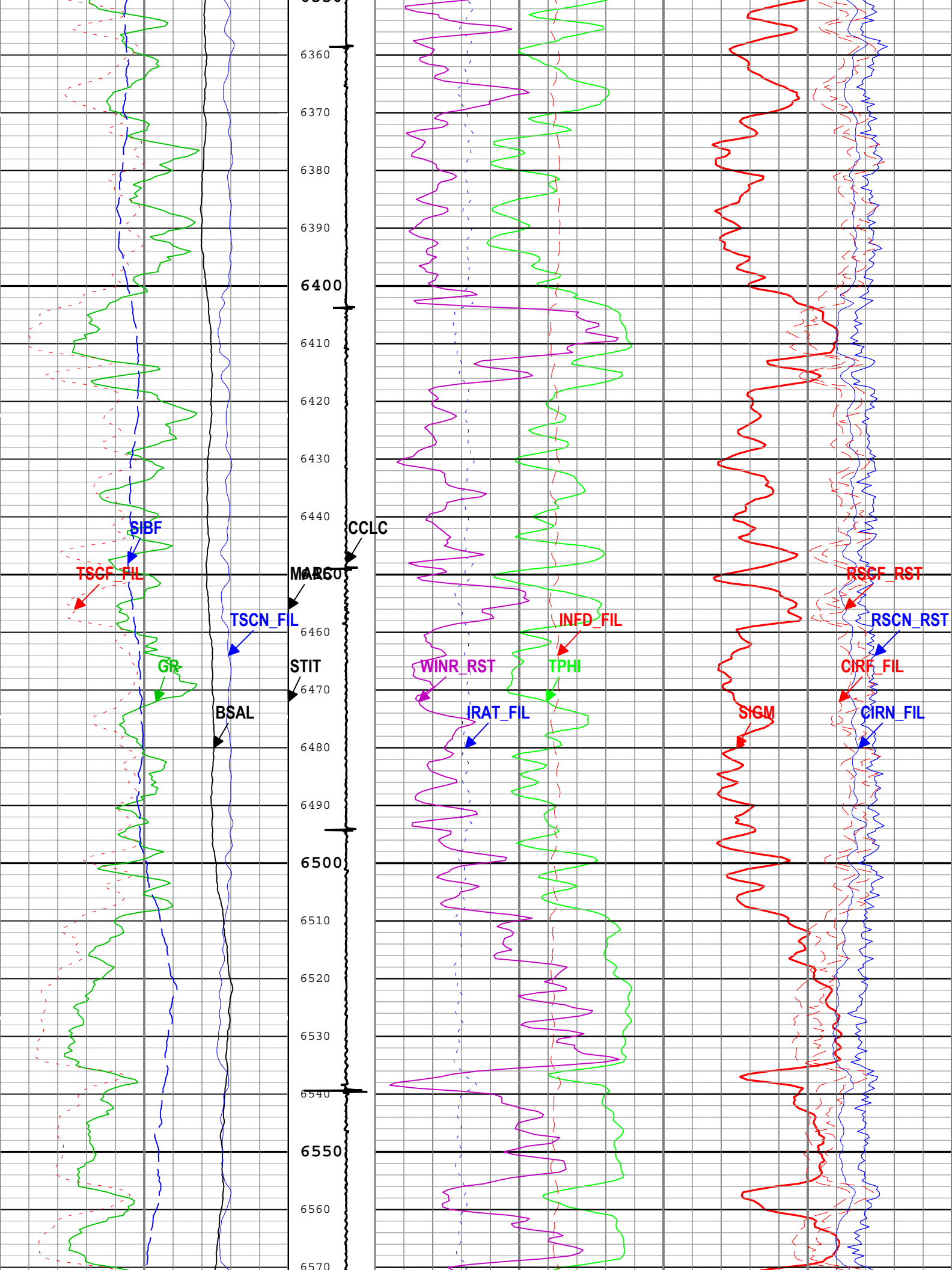


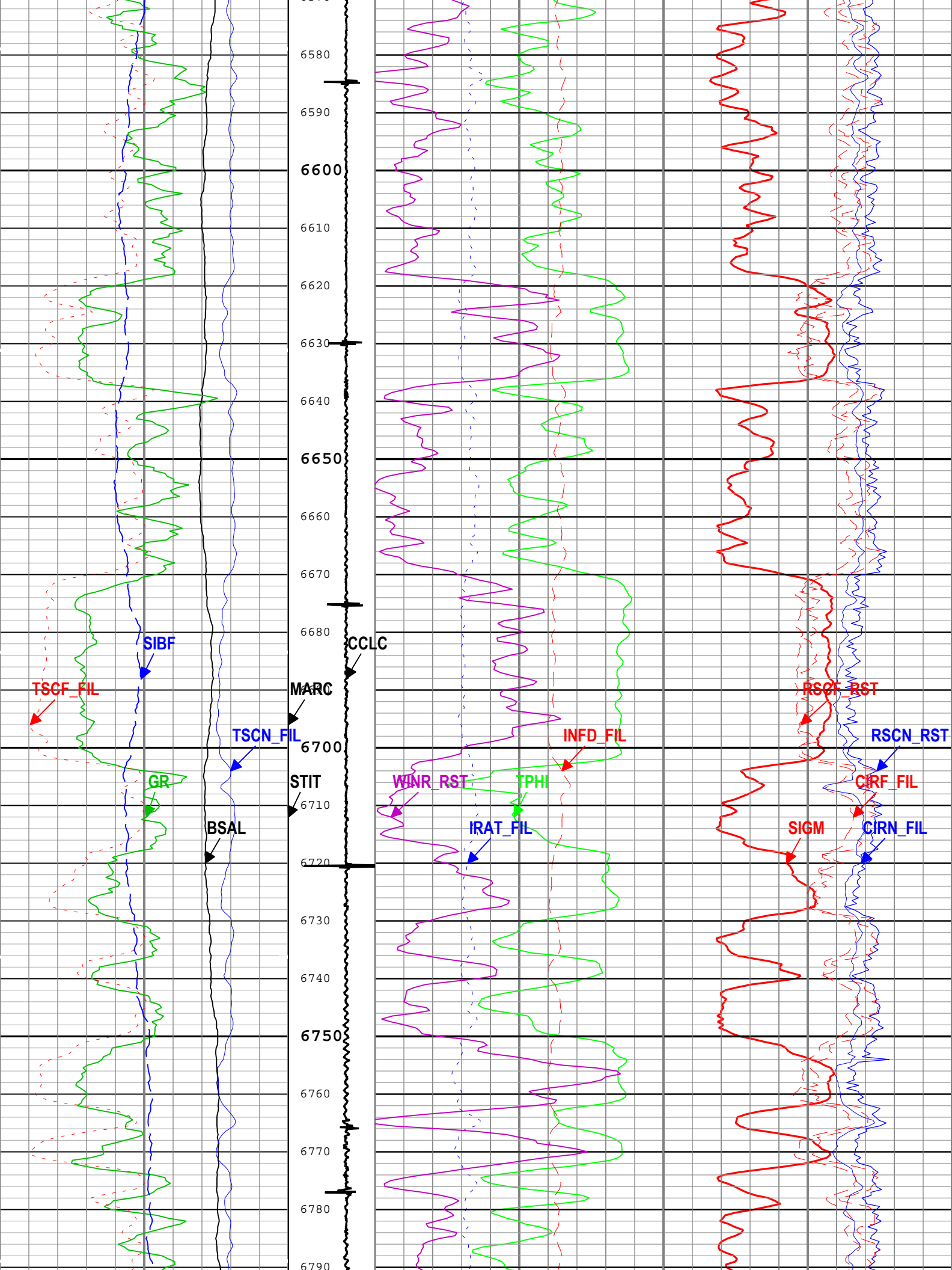


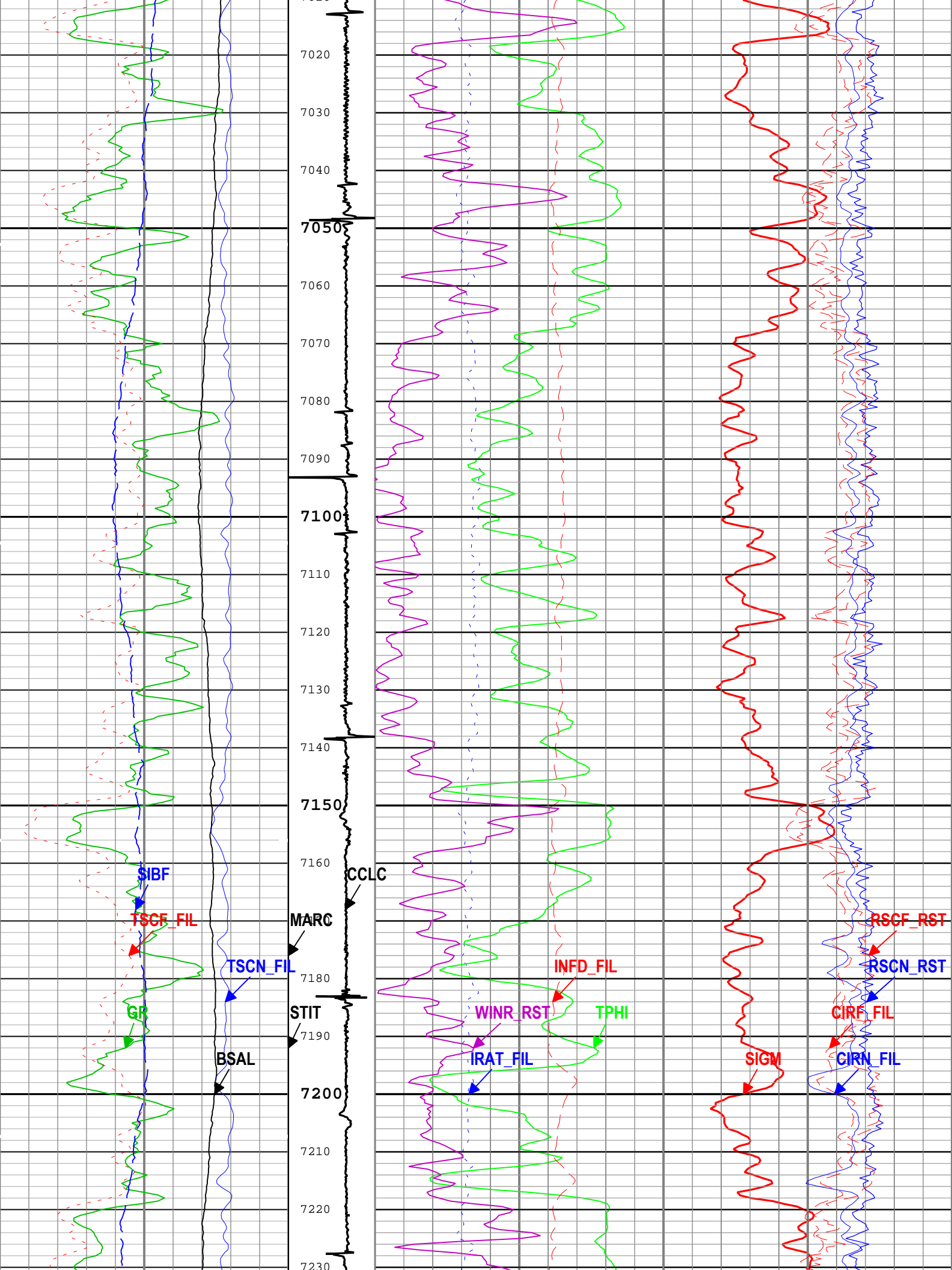


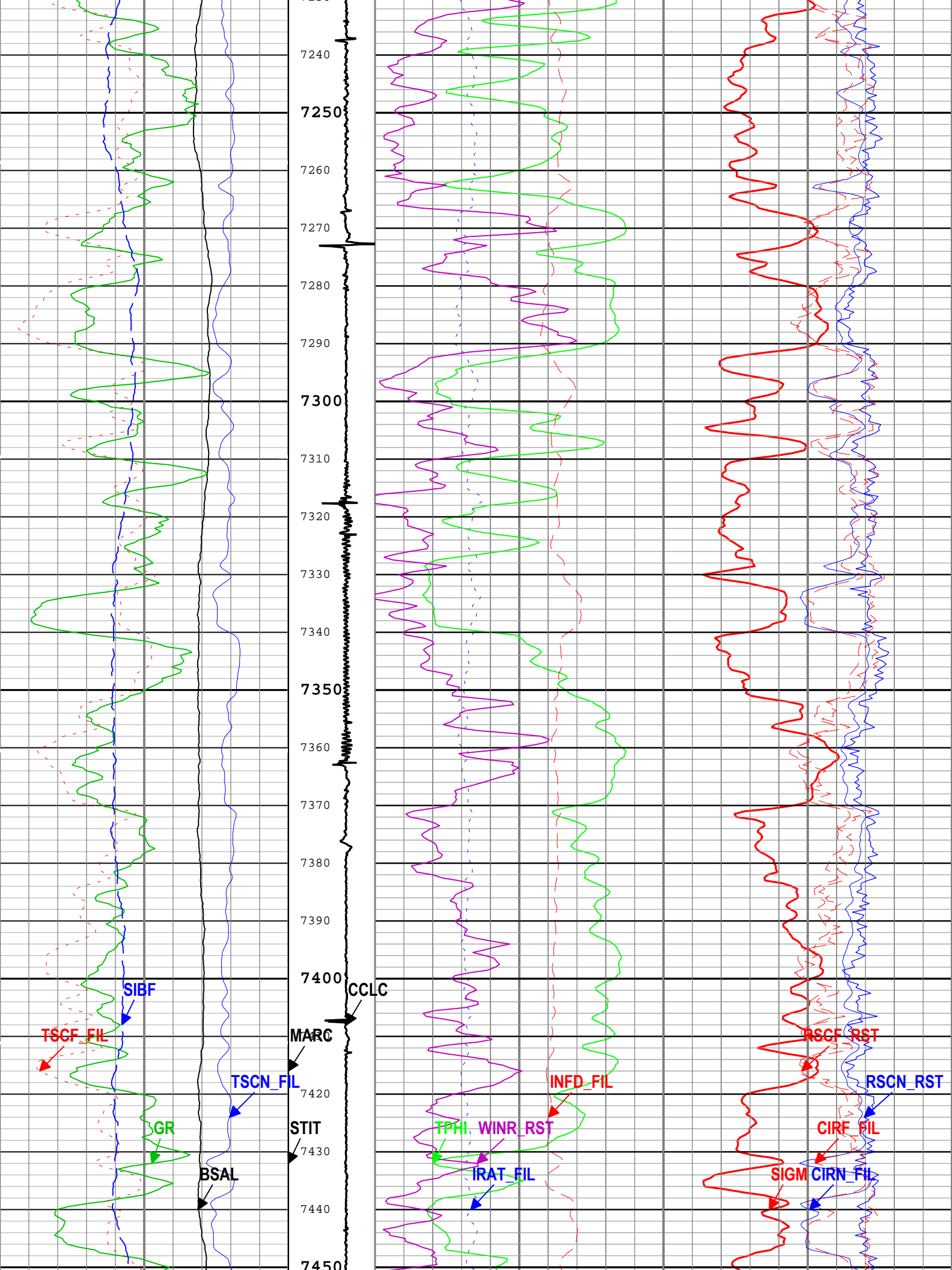


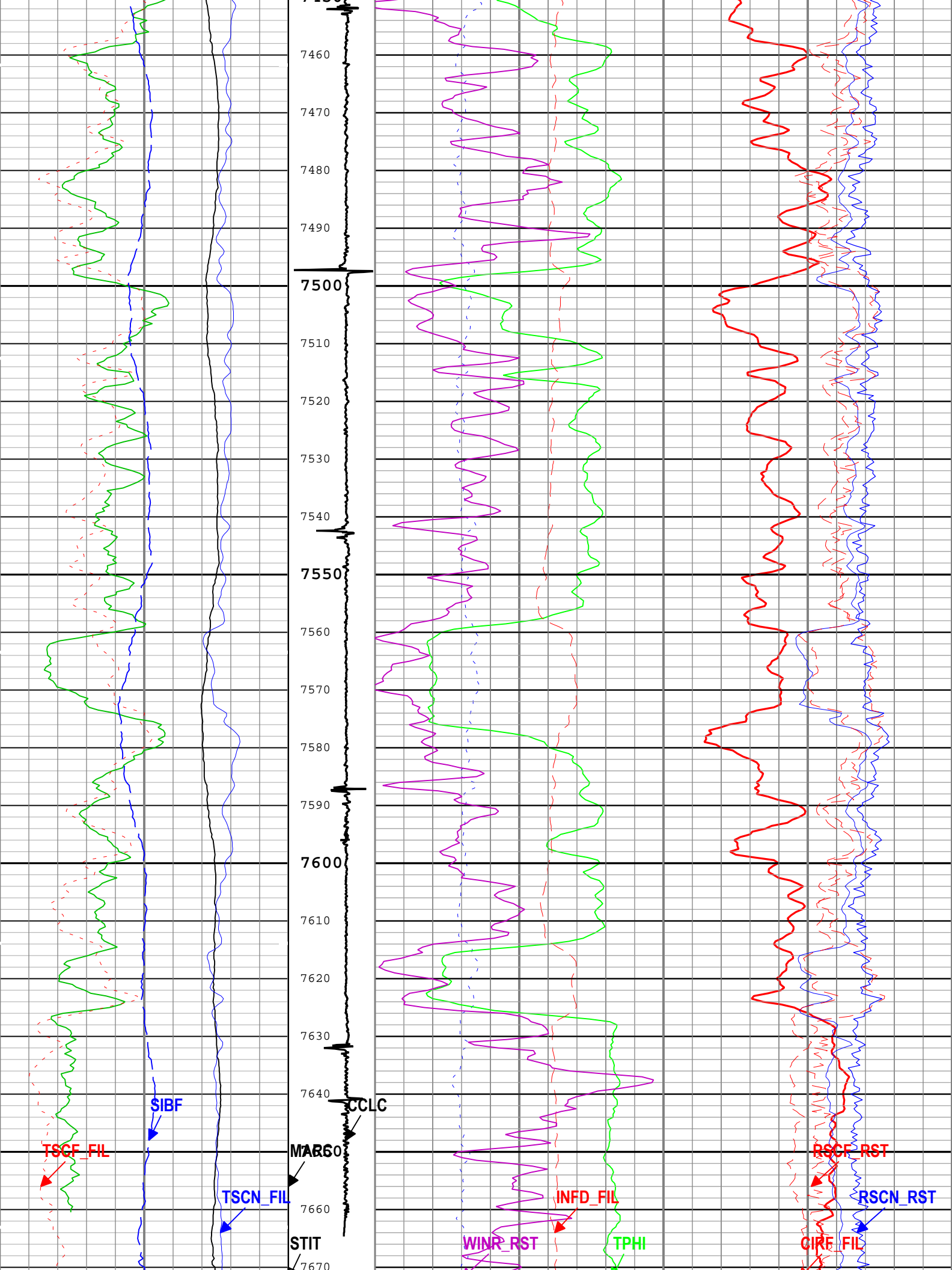


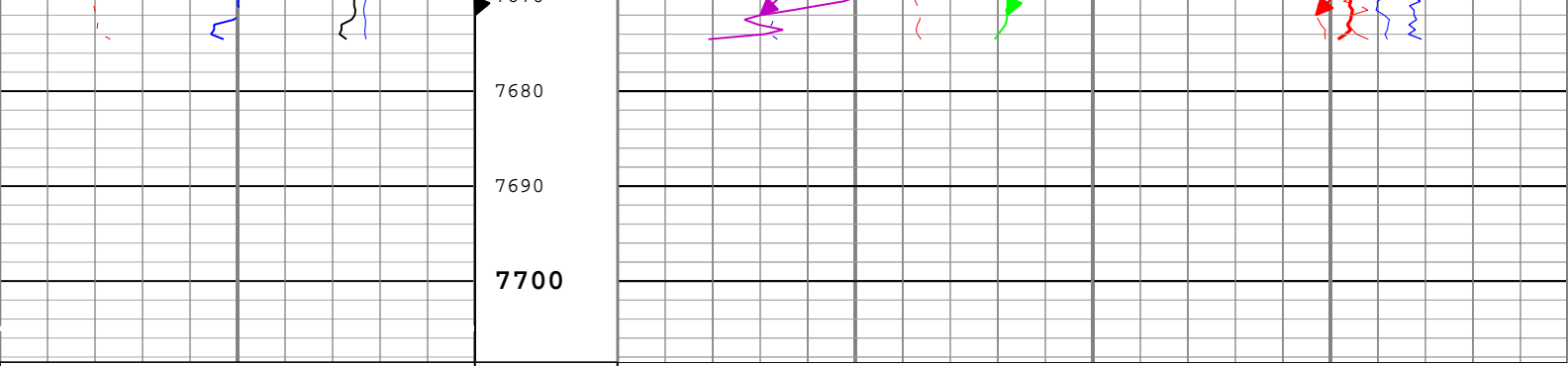












Borehole Salinity (BSAL) RST-C		Stuck Tool Indicator, Total (STIT)	Formation Sigma (Neutron Capture Cross Section) (SIGM) RST-C		
450	ppk -50		60	cu 0	
Gamma Ray (GR) PSTP-A		0 ft 50	Weighted Inelastic Ratio (WINR_RST) RST-C		
0	gAPI 150		0	0.4	
Total Selected Count Rate Near Detector Filtered (TSCN_FIL) RST-C		Cable Drag From STIA to STIT	Inelastic Ratio Filtered (IRAT_FIL) RST-C		
30000	1/s 0		0.75	0	Capture to Inelastic Ratio Near Filtered (CIRN_FIL) RST-C
Total Selected Count Rate Far Detector Filtered (TSCF_FIL) RST-C		Tool Tot. Drag From D3T to STIT	Thermal Decay Porosity (TPHI) RST-C		
12000	1/s 0		0.6	ft3/ft3 0	Capture to Inelastic Ratio Far Filtered (CIRF_FIL) RST-C
Sigma Borehole Fluid (SIBF) RST-C		Minitron Arc Count (MARC) RST-C	Gross Inelastic Count Rate Far Detector Filtered (INFD_FIL) RST-C		
100	cu 0		10000	1/s 0	5
		CCL Computed Amplitude (CCLC) PSTP-A	Near Detector Effective Unregulated Capture Count Rate (RSCN_RST) RST-C		
			45	0	Far Detector Effective Unregulated Capture Count Rate (RSCF_RST) RST-C
				45	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 (Import of RST SIGMA Answer) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth
 Creation Date: 23-Jul-2017 04:54:32

Channel Processing Parameters

ONE: Parameters

Parameter	Description	Tool	Value	Unit
BHS	Borehole Status (Open or Cased Hole)	Borehole	Open	
BS	Bit Size	WLSESSION	6	in
BSAL	Borehole Salinity	Borehole	0	ppm
BSALOPT	Borehole Salinity Option	RST-C	Unknown	
DC_MODE	Depth Correction Mode	DepthCorrection	Real-time	
DFT_CATEGORY	Drilling Fluid Type	Borehole	Water	
MATR	Rock Matrix for Neutron Porosity Corrections	Borehole	LIMESTONE	

Tool Control Parameters

ONE: Parameters

Parameter	Description	Tool	Value	Unit
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	150	ft/h
PCCG	PSP Downhole CCL Gain	PSTP-A	12 dB	
RST_DLM	Depth Log Mode	RST-C	Sigma	

ONE

Repeat

Pass Summary

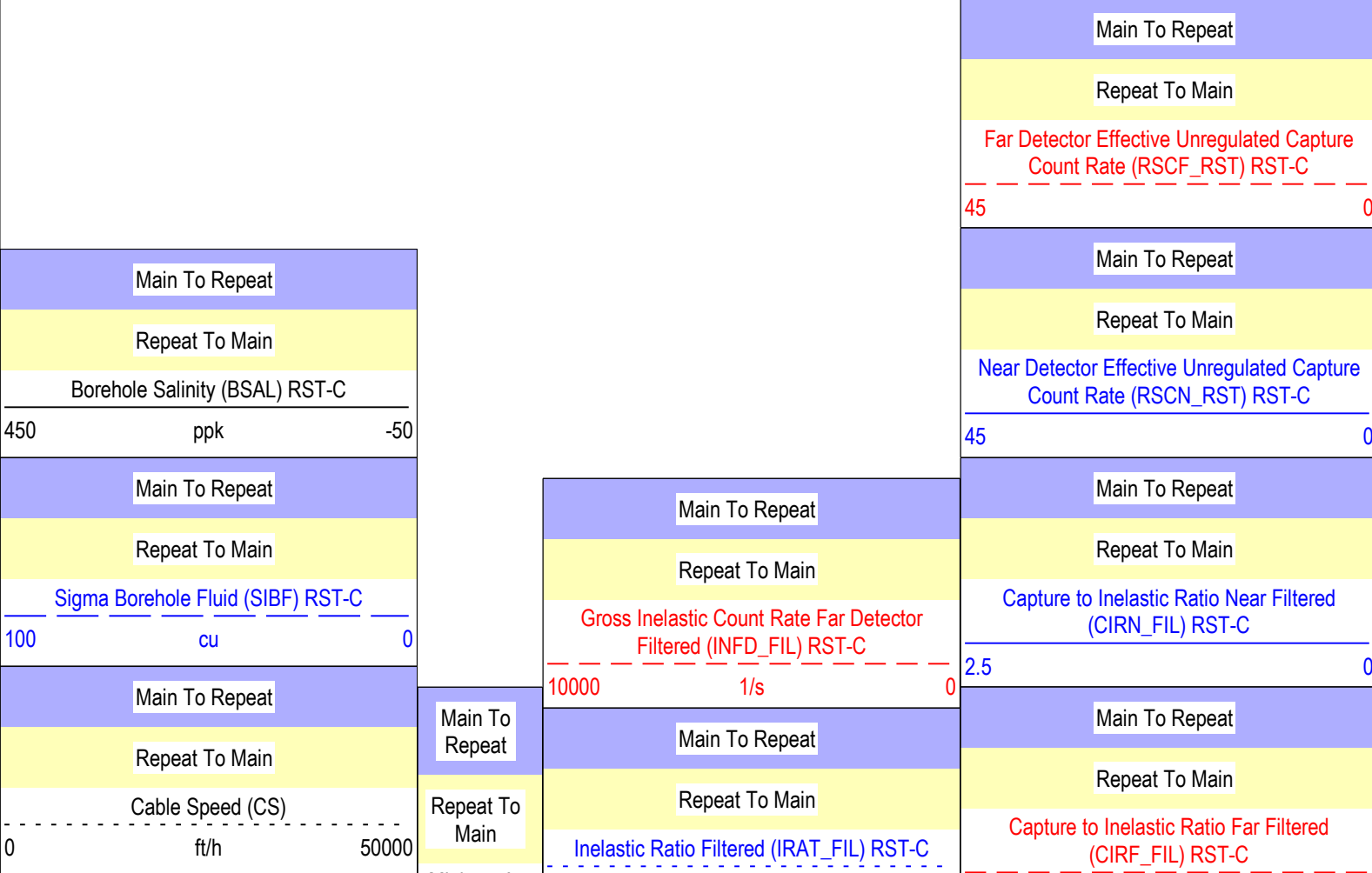
Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
ONE	Log[3]:Up	Up	482.76 ft	7708.53 ft	23-Jul-2017 2:11:36 AM	23-Jul-2017 4:28:44 AM	ON	7.91 ft	Yes
ONE	Log[4]:Up	Up	529.96 ft	811.56 ft	23-Jul-2017 4:30:58 AM	23-Jul-2017 4:36:38 AM	ON	7.81 ft	Yes

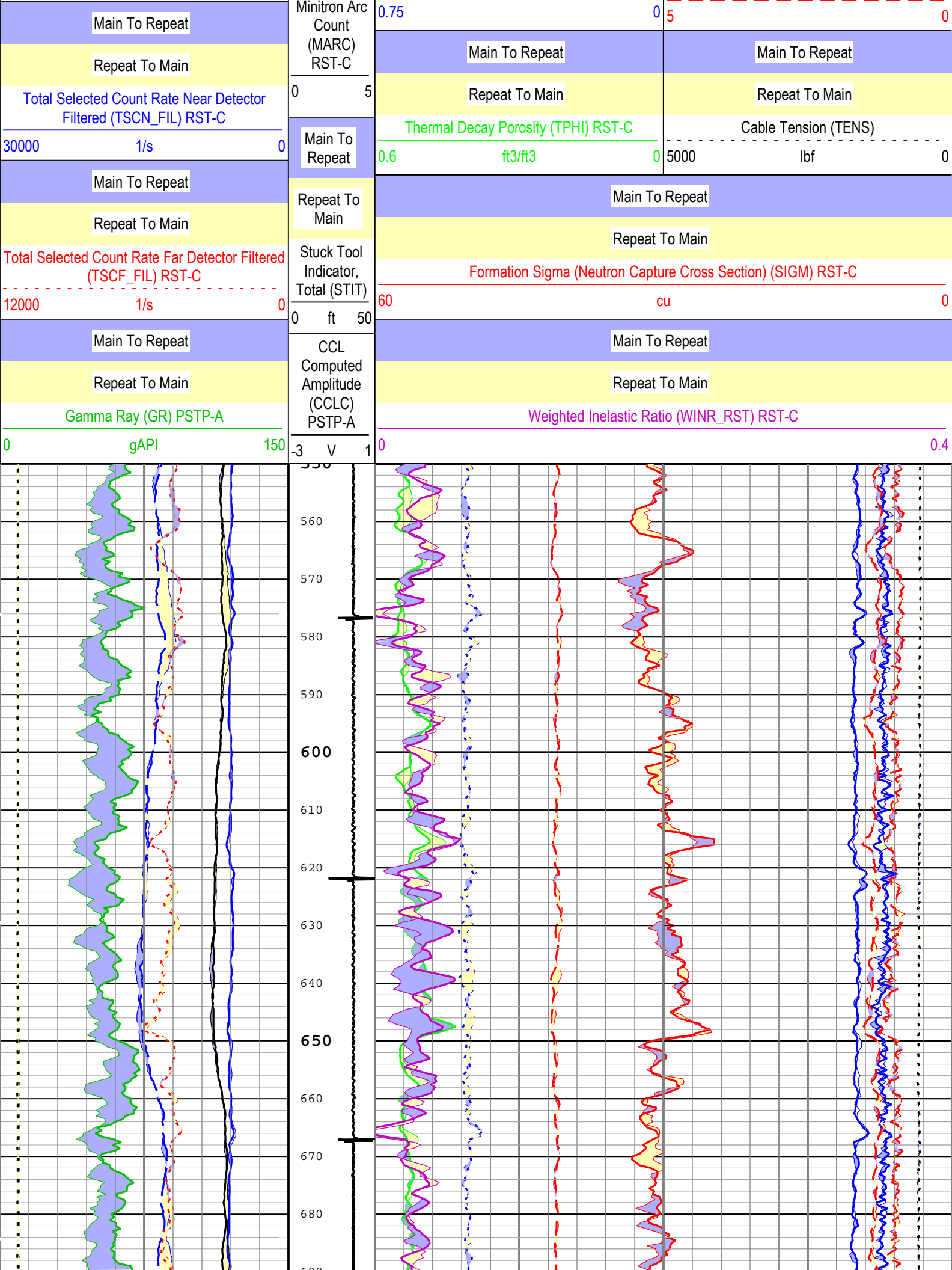
All depths are referenced to toolstring zero

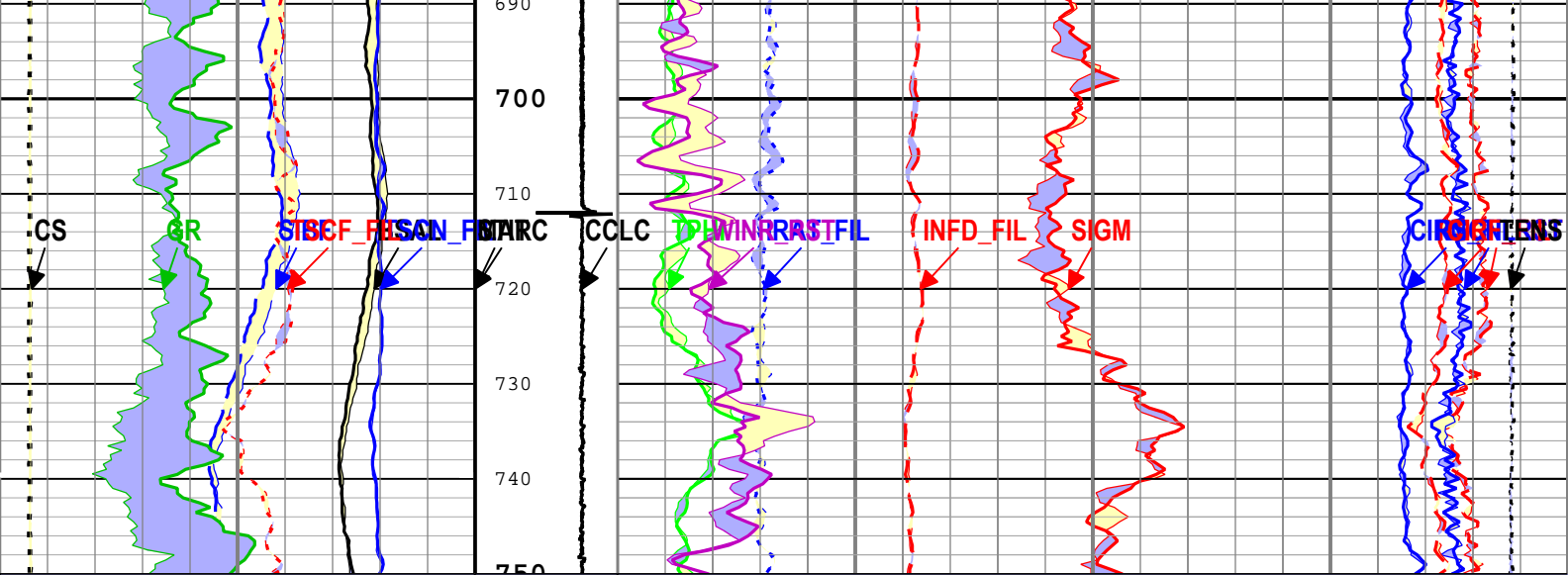
Log	Company: CAERUS OPERATING LLC Well: Chevron 12A-17 ONE: Log[3]:Up:S002
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Description: RST SIGMA Answer Format: Log (RST SIGMA Answer RA) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth
Creation Date: 23-Jul-2017 04:54:37

- | TIME_1900 - Elapsed time since midnight, 30 December 1899 every 60.00 (s)
 - | IHV - Integrated Hole Volume every 10.00 (ft3)
 - | IHV - Integrated Hole Volume every 100.00 (ft3)
 - | ICV - Integrated Cement Volume every 10.00 (ft3)
- TIME_1900 - Time Marked every 60.00 (s)
 - | ICV - Integrated Cement Volume every 100.00 (ft3)







Main To Repeat	Repeat To Main	Borehole Salinity (BSAL) RST-C	450	ppk	-50
Main To Repeat	Repeat To Main	Sigma Borehole Fluid (SIBF) RST-C	100	cu	0
Main To Repeat	Repeat To Main	Cable Speed (CS)	0	ft/h	50000
Main To Repeat	Repeat To Main	Total Selected Count Rate Near Detector Filtered (TSCN_FIL) RST-C	30000	1/s	0
Main To Repeat	Repeat To Main	Total Selected Count Rate Far Detector Filtered (TSCF_FIL) RST-C	12000	1/s	0
Main To Repeat	Repeat To Main	Gamma Ray (GR) PSTP-A	0	gAPI	150

Main To Repeat	Repeat To Main	Minitron Arc Count (MARC) RST-C	0	5	
Main To Repeat	Repeat To Main	Stuck Tool Indicator, Total (STIT)	0	ft	50
Main To Repeat	Repeat To Main	CCL Computed Amplitude (CCLC) PSTP-A	-3	V	1

Main To Repeat	Repeat To Main	Formation Sigma (Neutron Capture Cross Section) (SIGM) RST-C	60	cu	0
Main To Repeat	Repeat To Main	Weighted Inelastic Ratio (WINR_RST) RST-C	0		0.4
Main To Repeat	Repeat To Main	Gross Inelastic Count Rate Far Detector Filtered (INFDFIL) RST-C	10000	1/s	0
Main To Repeat	Repeat To Main	Inelastic Ratio Filtered (IRAT_FIL) RST-C	0.75		0
Main To Repeat	Repeat To Main	Thermal Decay Porosity (TPHI) RST-C	0.6	ft3/ft3	0

Main To Repeat	Repeat To Main	Far Detector Effective Unregulated Capture Count Rate (RSCF_RST) RST-C	45		0
Main To Repeat	Repeat To Main	Near Detector Effective Unregulated Capture Count Rate (RSCN_RST) RST-C	45		0
Main To Repeat	Repeat To Main	Capture to Inelastic Ratio Near Filtered (CIRN_FIL) RST-C	2.5		0
Main To Repeat	Repeat To Main	Capture to Inelastic Ratio Far Filtered (CIRF_FIL) RST-C	5		0

Main To Repeat		
Repeat To Main		
Cable Tension (TENS)		
5000	lbf	0

|— ICV - Integrated Cement Volume every 100.00 (ft3)

TIME_1900 - Time Marked every 60.00 (s)

|— 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 - Elapsed time since midnight, 30 December 1899 every 60.00 (s)

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Company: CAERUS OPERATING LLC



Well: Chevron 12A-17

Field: Grand Valley

Reservoir Saturation Tool

Sigma