

Company: CAERUS OPERATING LLC

Well: Puckett 13D-23 697

Field: Grand Valley

County: Garfield State: Colorado

Reservoir Saturation Log
Sigma Log
Gamma Ray/CCL

County: Garfield

Field: Grand Valley

Location: Lat 39.30°07.76" N Long. 108.11°18.38" W

Well: Puckett 13D-23 697

Company: CAERUS OPERATING LLC

Location:		Lat 39.30°07.76" N Long. 108.11°18.38" W		Elev.:		K.B. 8462.00 ft	
						G.L. 8432.00 ft	
						D.F. 8462.00 ft	
Permanent Datum:		Ground Level		Elev.:		8432.00 ft	
Log Measured From:		Kelly Bushing		30.00 ft		above Perm.Datum	
Drilling Measured From:		Kelly Bushing					
API Serial No.	Section:	Township:	Range:				
50445233730000	23	6S	97W				

Logging Date	15-Dec-2017
Run Number	RST
Depth Driller	9410.00 ft
Schlumberger Depth	9410.00 ft
Bottom Log Interval	9360.00 ft
Top Log Interval	2500.00 ft
Casing Fluid Type	Water
Salinity	
Density	8.6 lbm/gal
Fluid Level	8.00 ft
BIT/CASING/TUBING STRING	
Bit Size	8.75 in
From	2520.00 ft
To	9410.00 ft
Casing/Tubing Size	4.5 in
Weight	11.6 lbm/ft
Grade	P110
From	0.00 ft
To	9404.80 ft
Max Recorded Temperatures	238.6 degF
Logger on Bottom	15-Dec-2017 21:22:00
Unit Number	Location:
Recorded By	Beatriz Guaita
Witnessed By	Ryan Tompkins

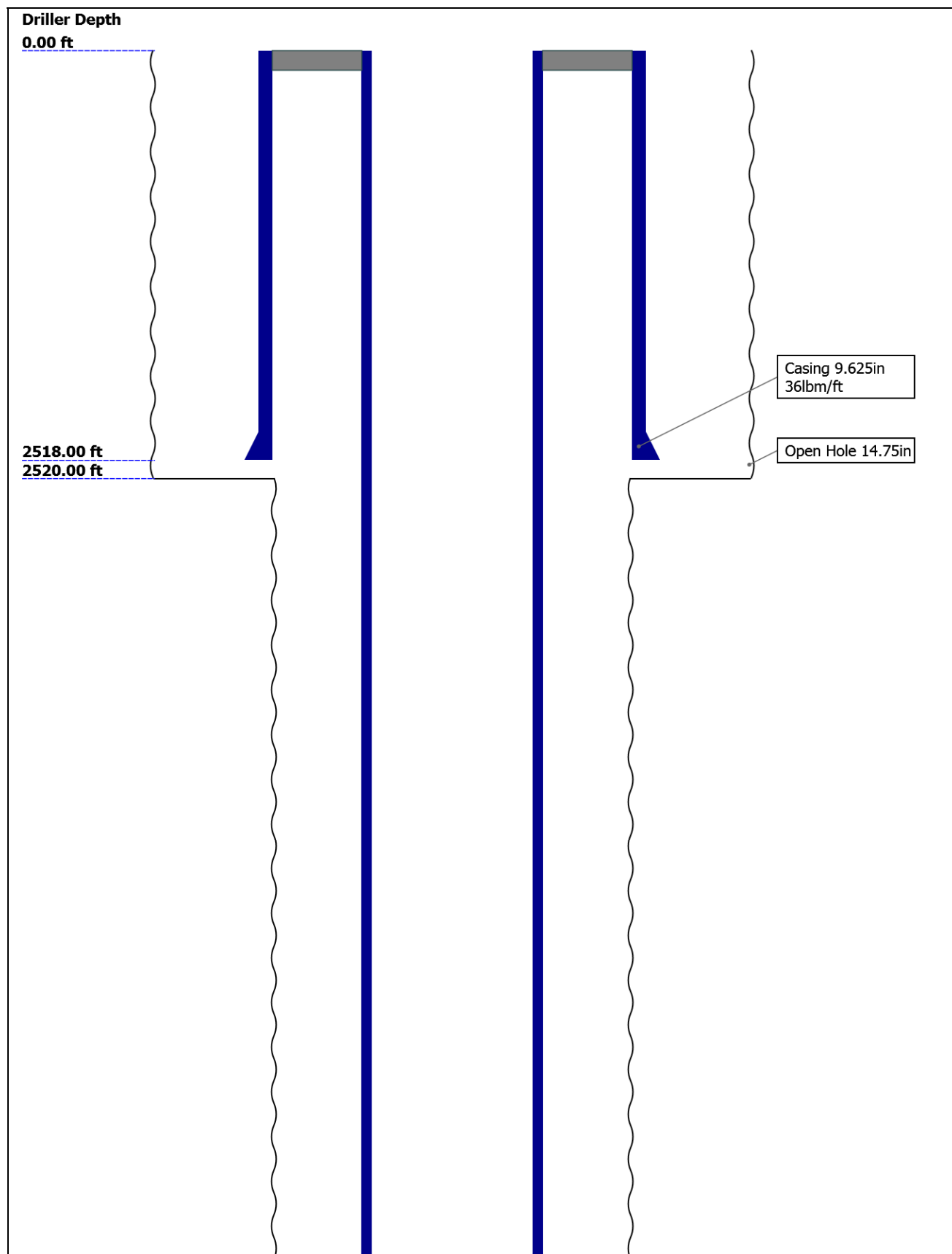
Disclaimer

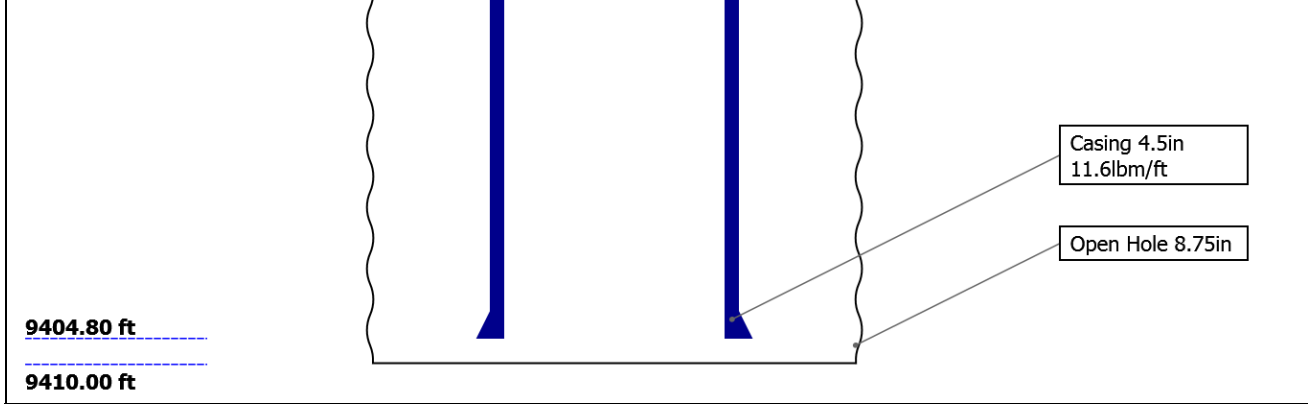
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Well Sketch



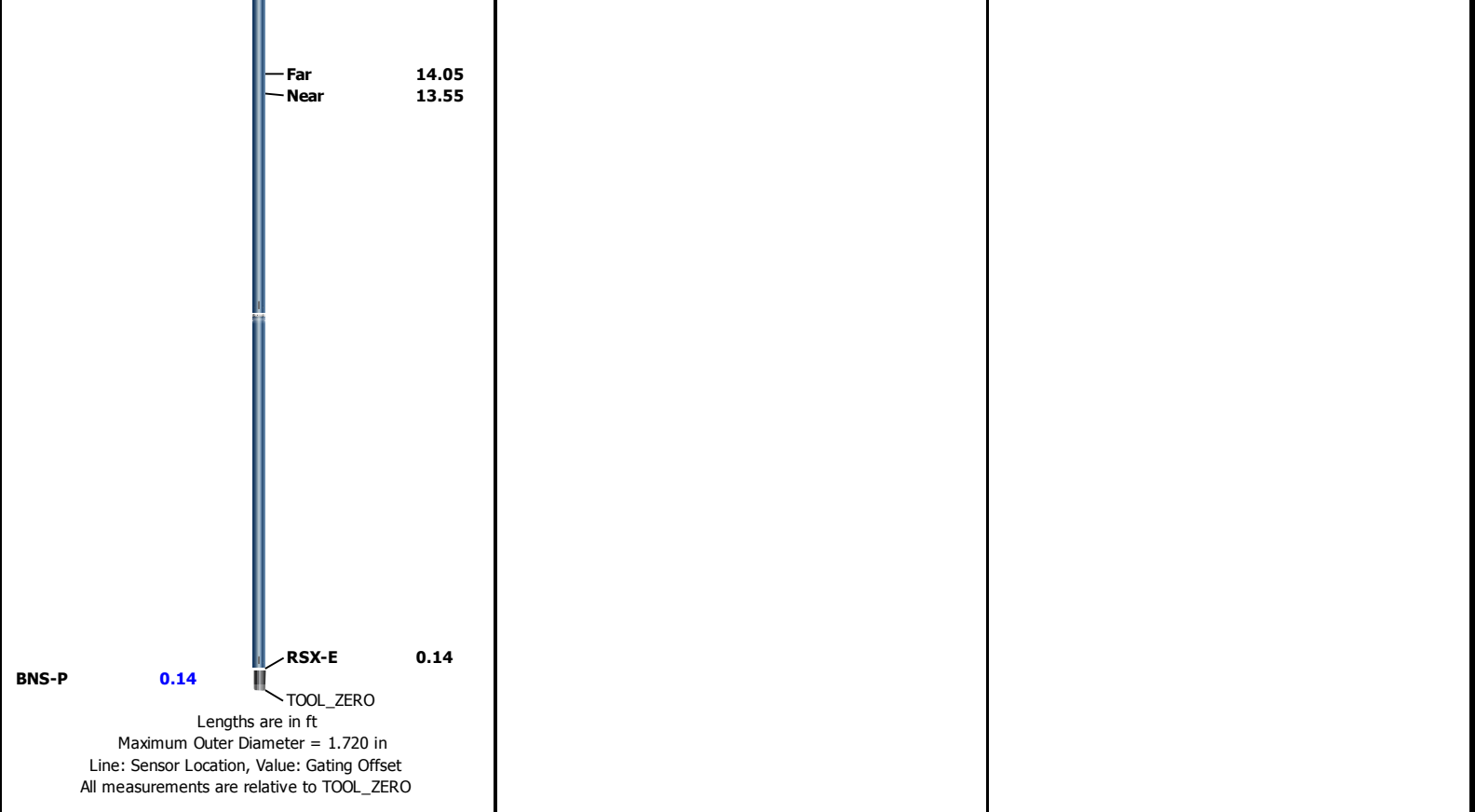


Borehole Size/Casing/Tubing Record

Bit						
Bit Size (in)	14.75	8.75				
Top Driller (ft)	0	2520				
Top Logger (ft)	0	2520				
Bottom Driller (ft)	2520	9410				
Bottom Logger (ft)	2520	9410				
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)	0	0				
Bottom Driller (ft)	2518	9404.8				
Bottom Logger (ft)	2518	9404.8				

Remarks and Equipment Summary

RST: Toolstring				RST: Remarks		
Equip name	Length	MP name	Offset	Tool ran as per tool sketch		
PEH-EF	34.07			Main Pass from TD to 2500'		
AH-38	31.71			Maximum Bottom Hole Temperature: 238.6 DegF		
PSTP-B:2826	31.43			Maximum Bottom Hole Pressure: 3805 psi.		
PSC-A		GR	27.73			
PSTC-A:2827		PSTC	27.43			
PBMS-B:2826		PSTC Tool S	0.00			
		tring Bottom				
		Temperatur	24.68			
		e				
		CQG Pressur	24.33			
		e				
		CCL	23.92			
		PBMS	23.17			
RST-C:478	23.17					
RSCH-A:303						
RSC-E:315						
RSS-A:382						
MNTR-F:1471-5						
1351						
RSXH-A:482						
RSX-E:478						
		RSC-E	16.81			



Composite 1

Main Sigma Log

Software Version

Acquisition System	Version
Maxwell 2017 SP2	7.2.87778.3100

Composite Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
RST	Log[5]:Up	Up	8016.60 ft	9362.66 ft	15-Dec-2017 19:46:33	15-Dec-2017 20:32:25	ON	9.51 ft	Yes
RST	Log[9]:Up	Up	2298.90 ft	8113.17 ft	15-Dec-2017 22:10:07	16-Dec-2017 01:03:44	ON	10.94 ft	Yes

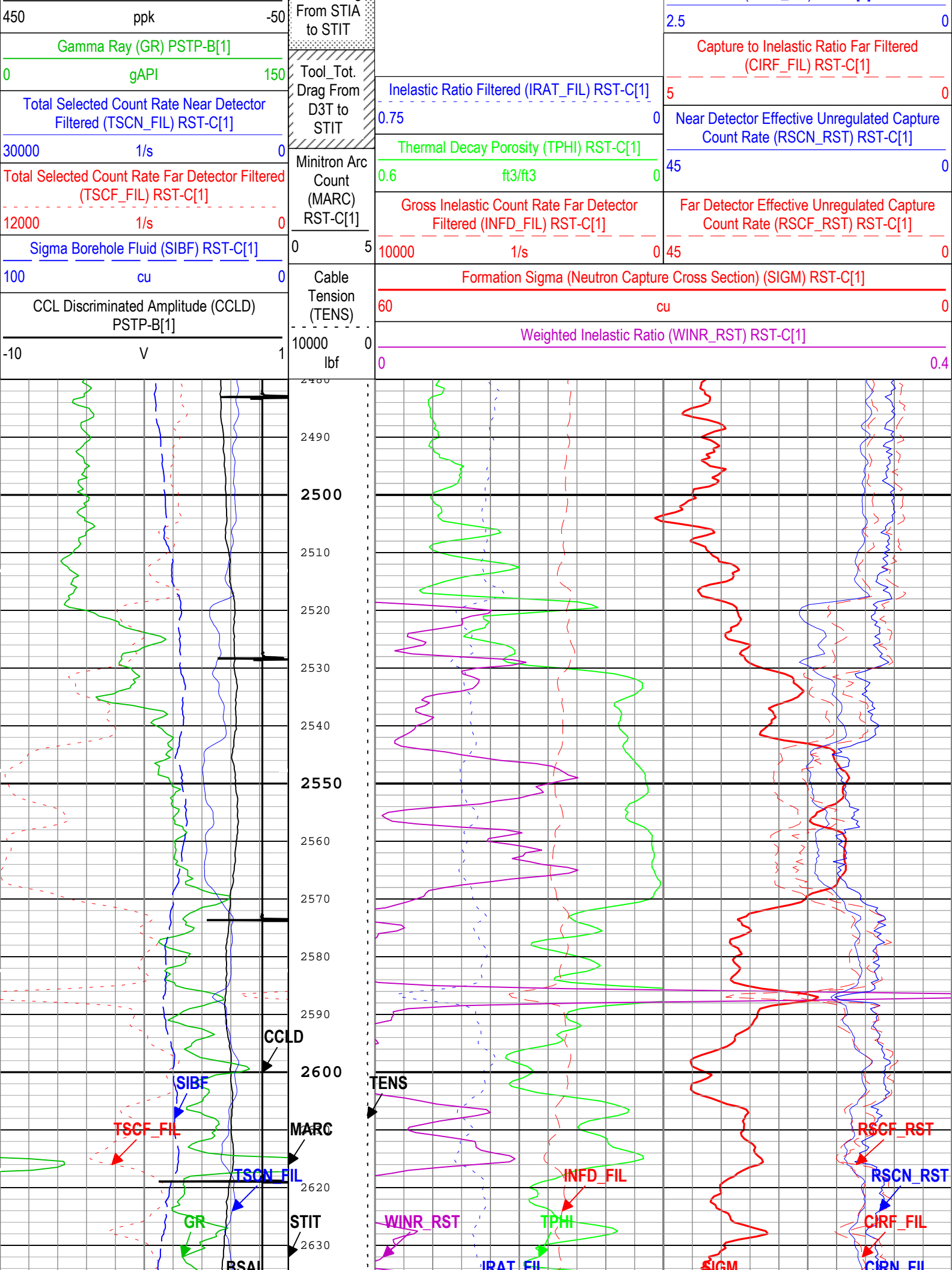
All depths are referenced to toolstring zero

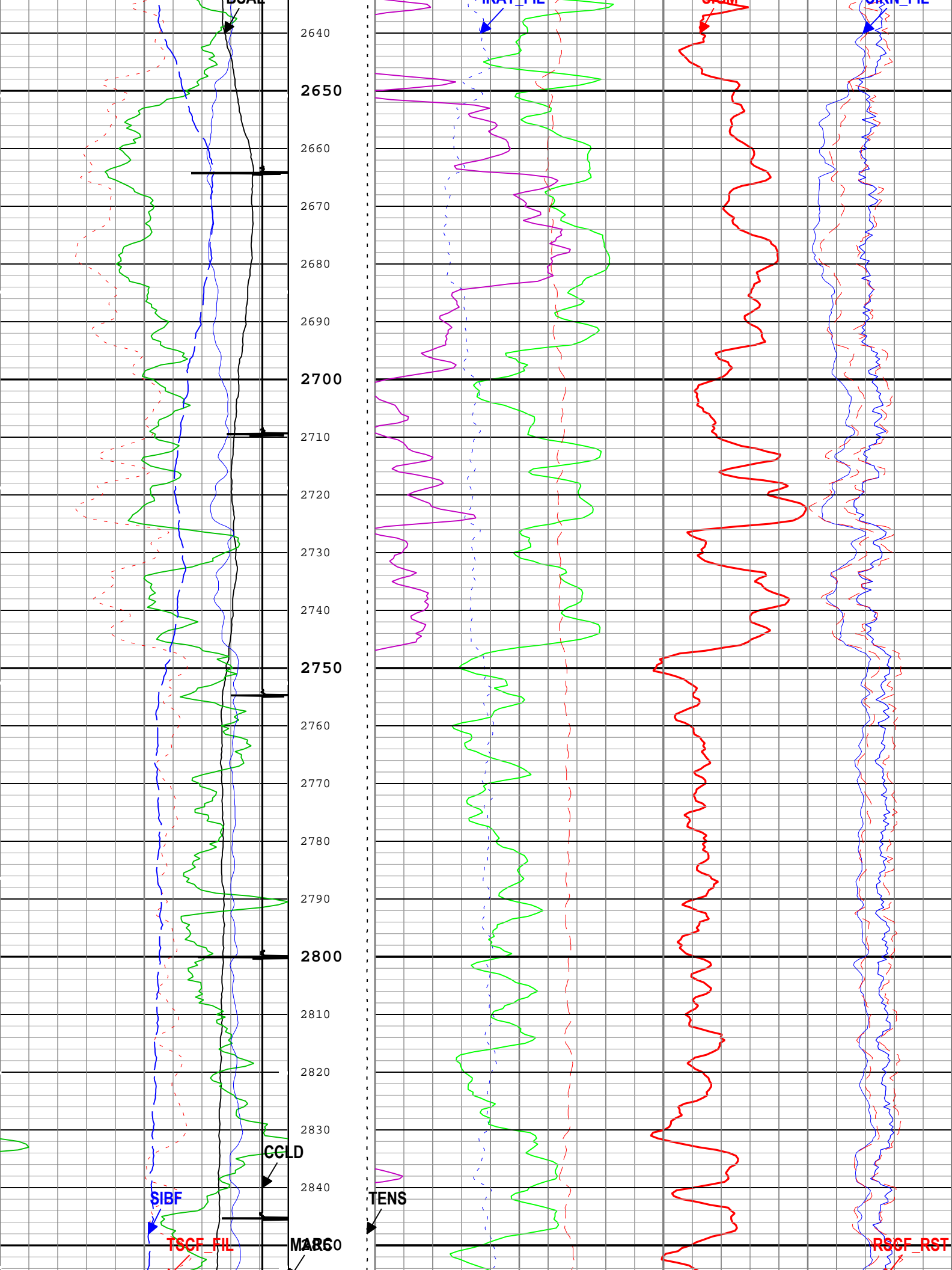
Log

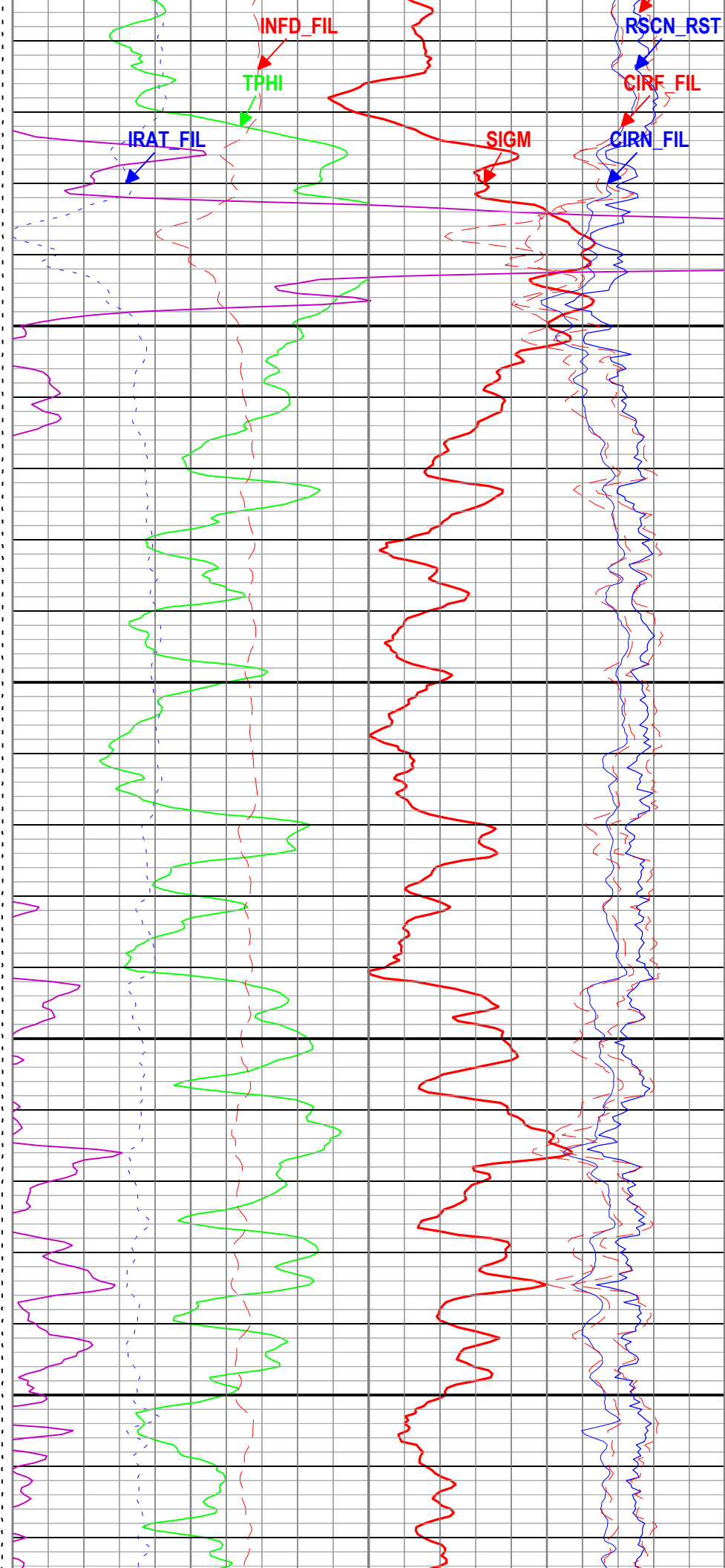
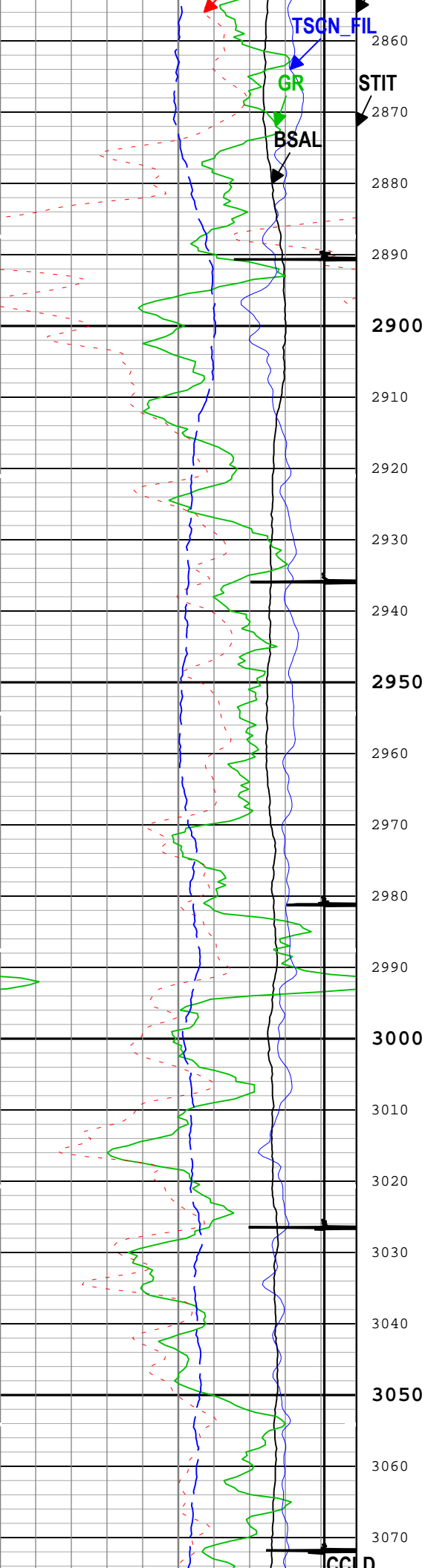
Company:CAERUS OPERATING LLC Well:Puckett 13D-23 697
Composite 1:S008

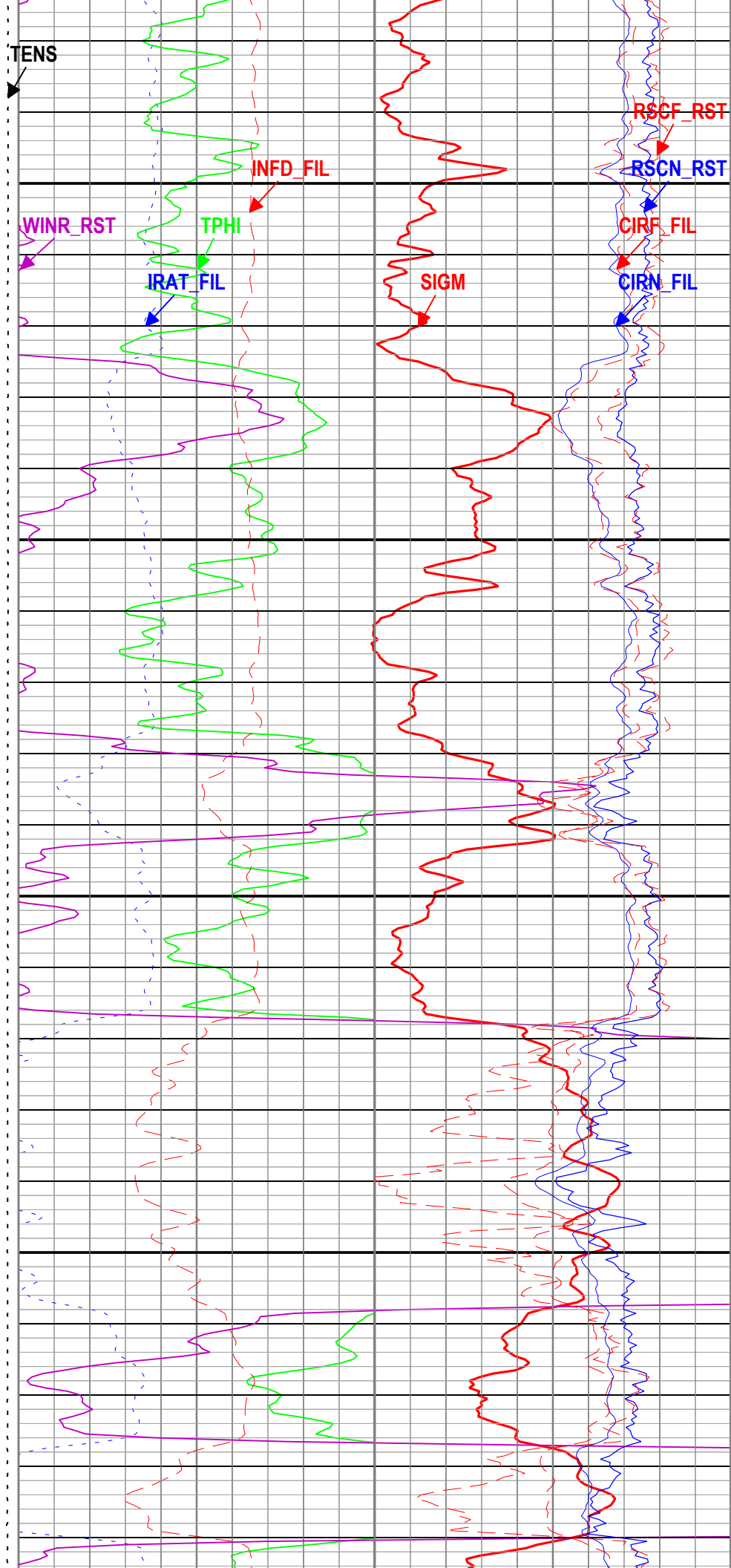
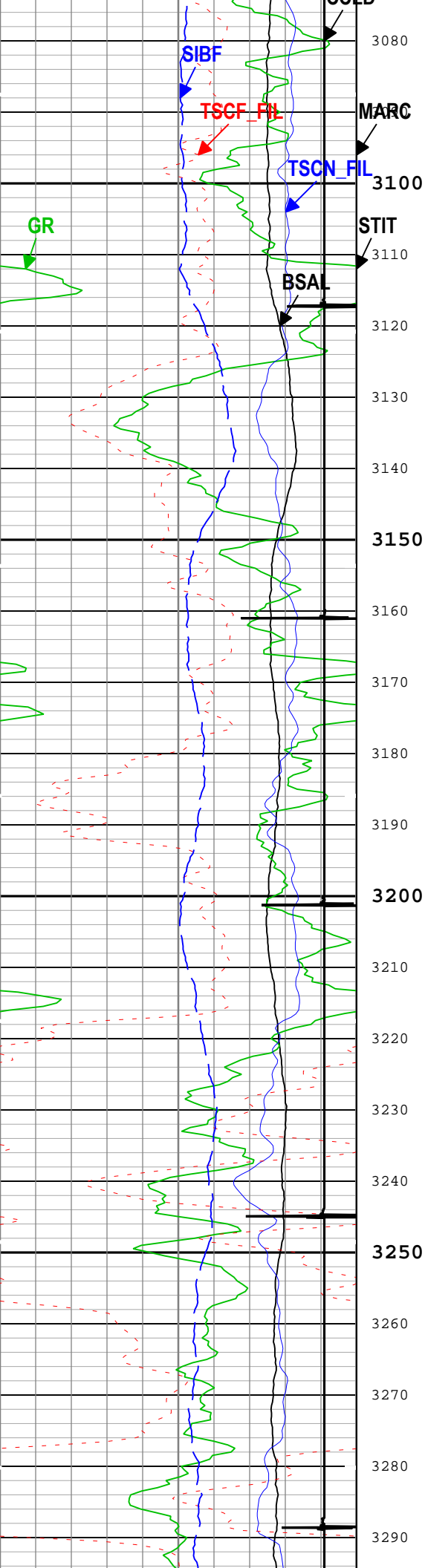
Description: RST SIGMA Answer Format: Log (RST SIGMA Answer) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 17-Dec-2017 22:42:07

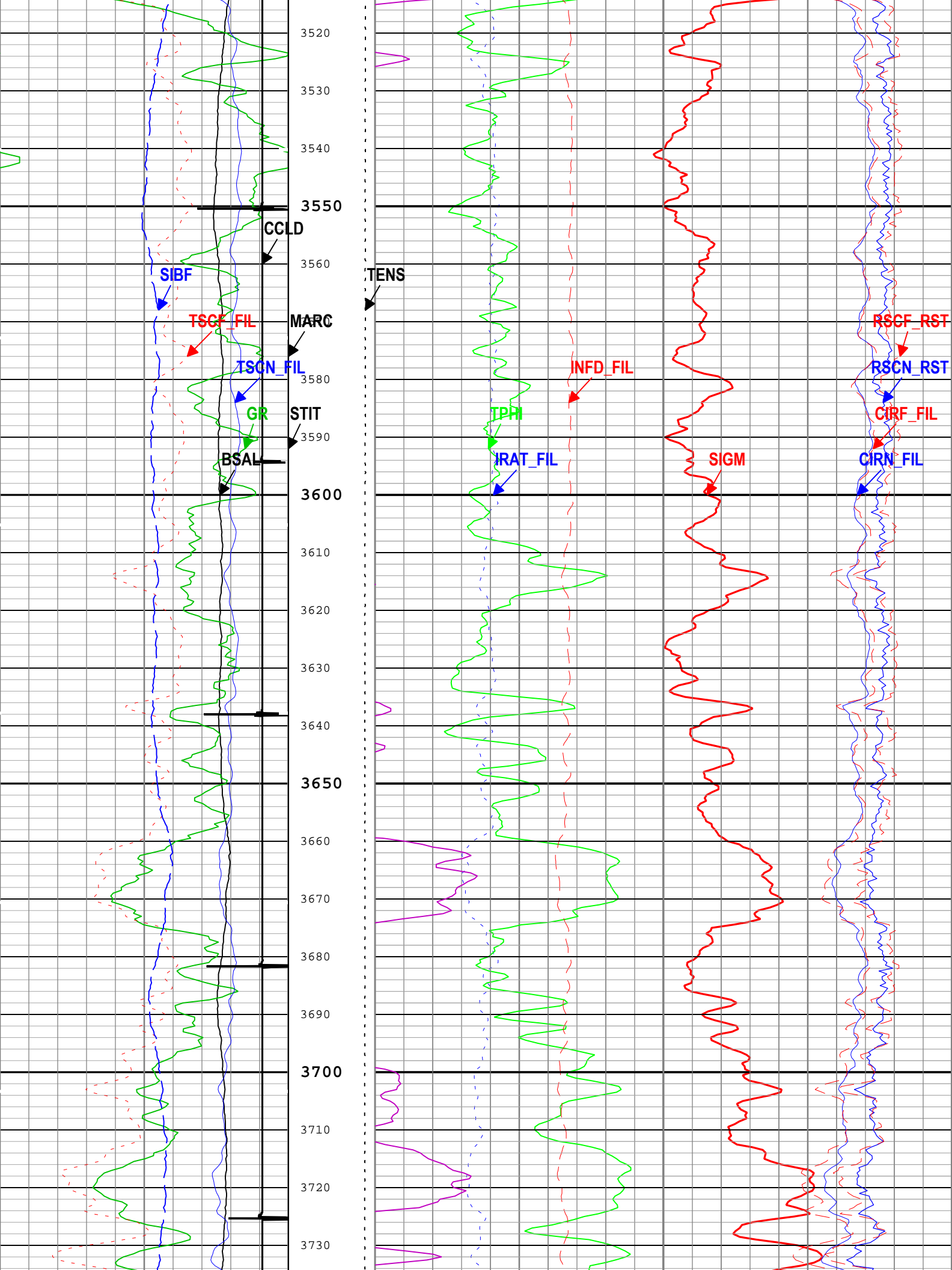
TIME_1900 - Time Marked every 60.00 (s)	TIME_1900 - Elapsed time since midnight, 30 December 1899 every 60.00 (s)
	IHV - Integrated Hole Volume every 10.00 (ft3)
	IHV - Integrated Hole Volume every 100.00 (ft3)
	ICV - Integrated Cement Volume every 10.00 (ft3)
TIME_1900 - Time Marked every 60.00 (s)	ICV - Integrated Cement Volume every 100.00 (ft3)
	Stuck Tool Indicator, Total (STIT)
	0 ft 50
	Cable Drag
Borehole Salinity (BSAL) RST-C[1]	Capture to Inelastic Ratio Near Filtered (CIRN_FIL) RST-C[1]

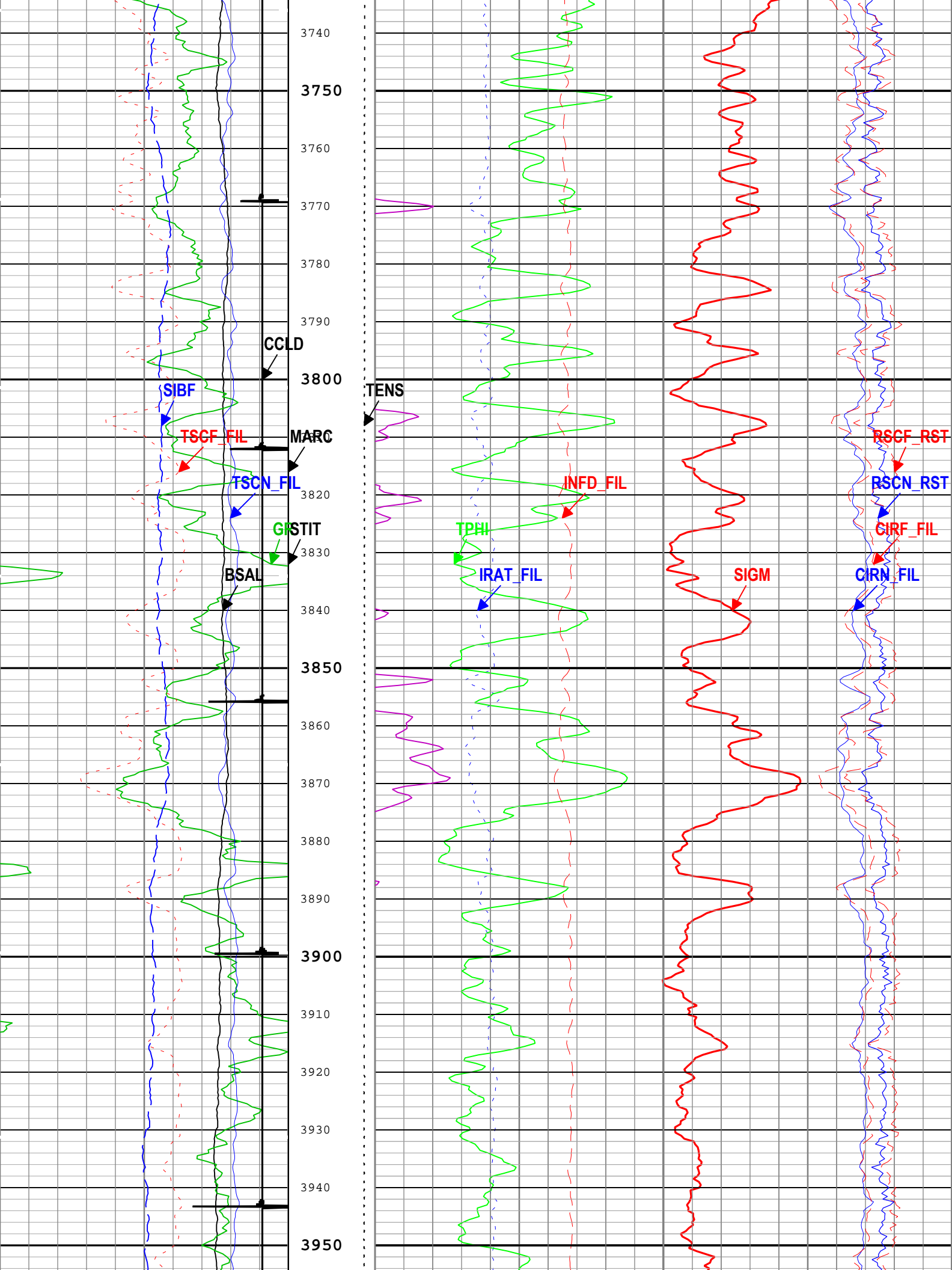


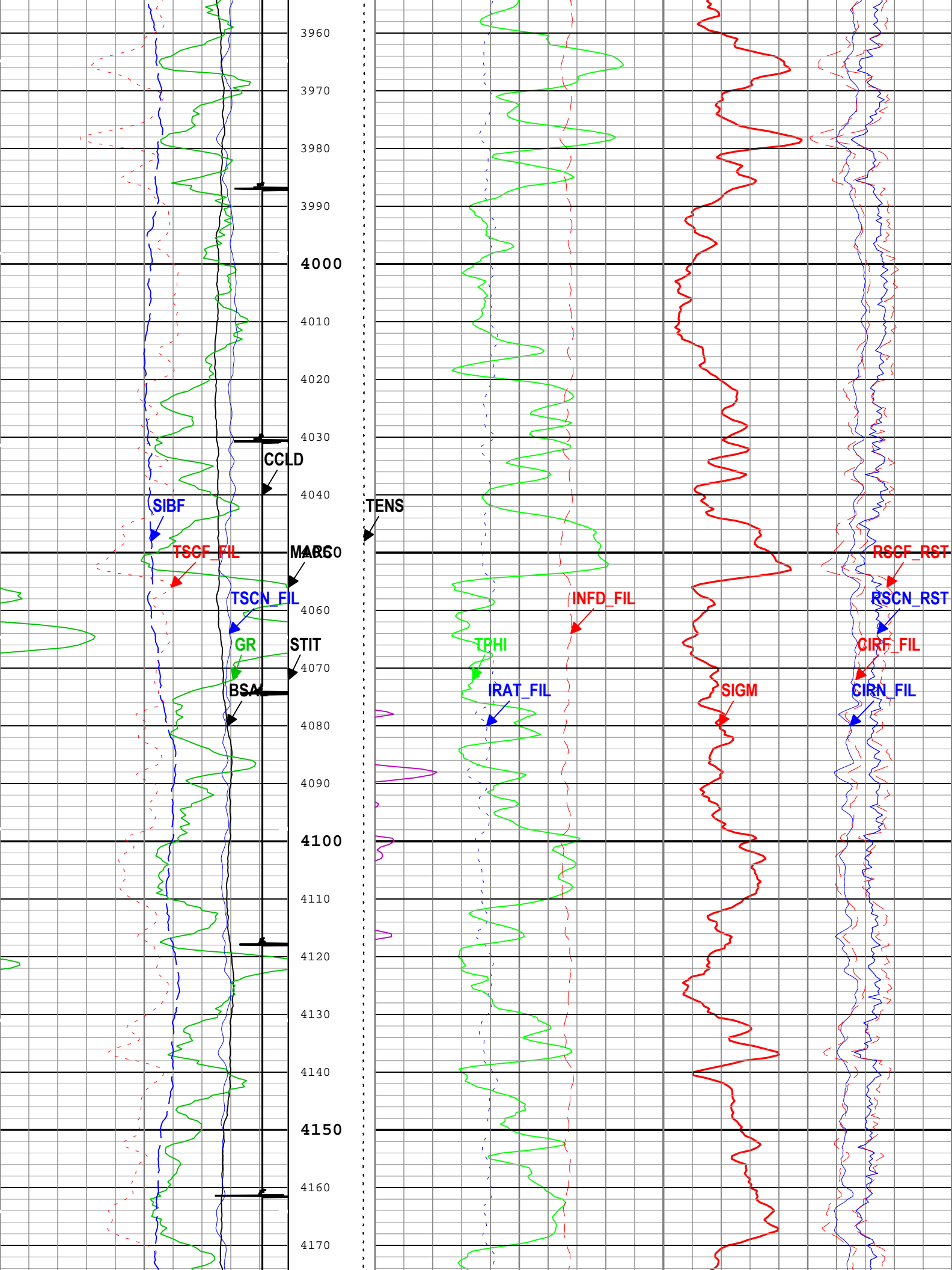


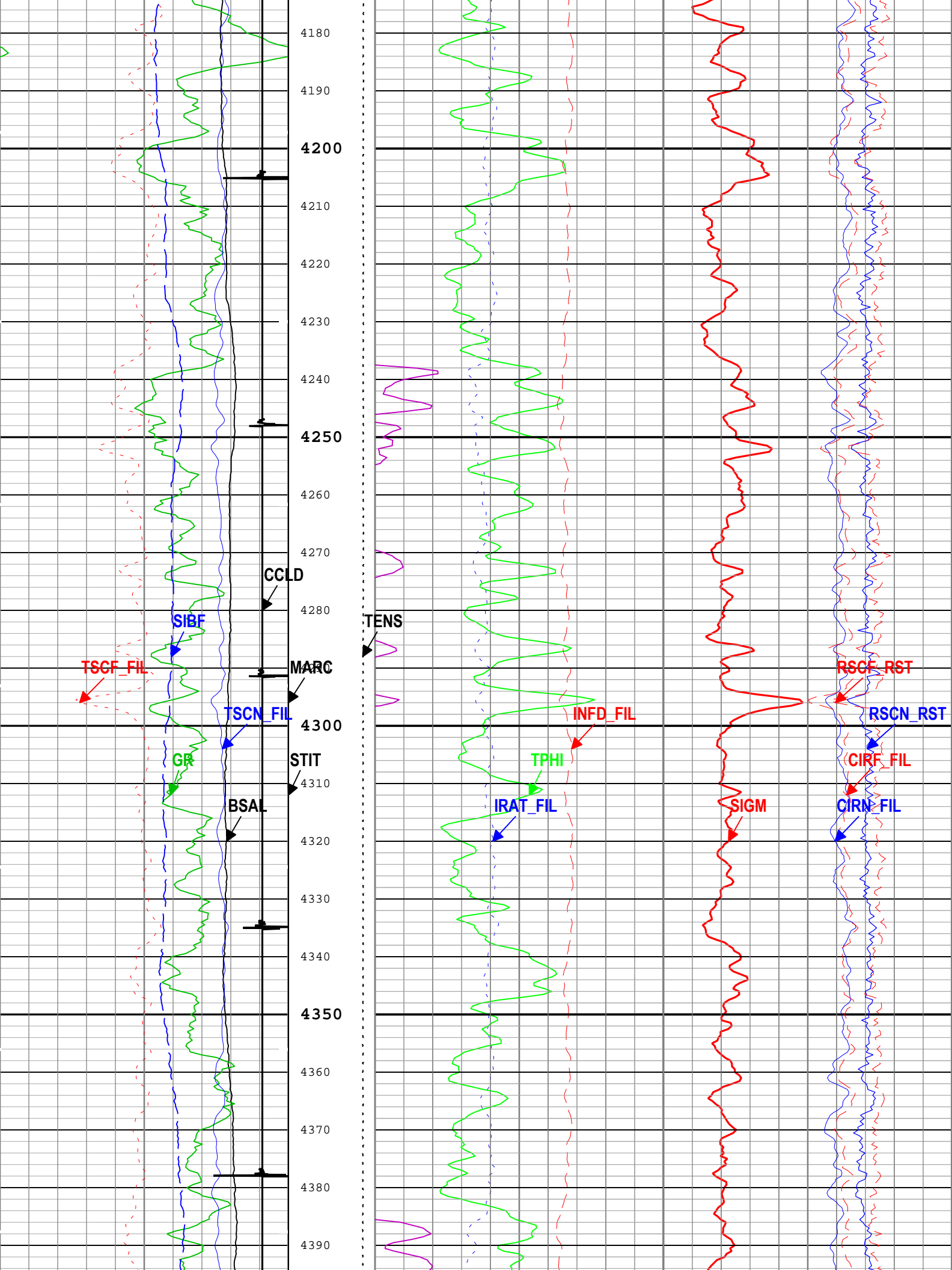


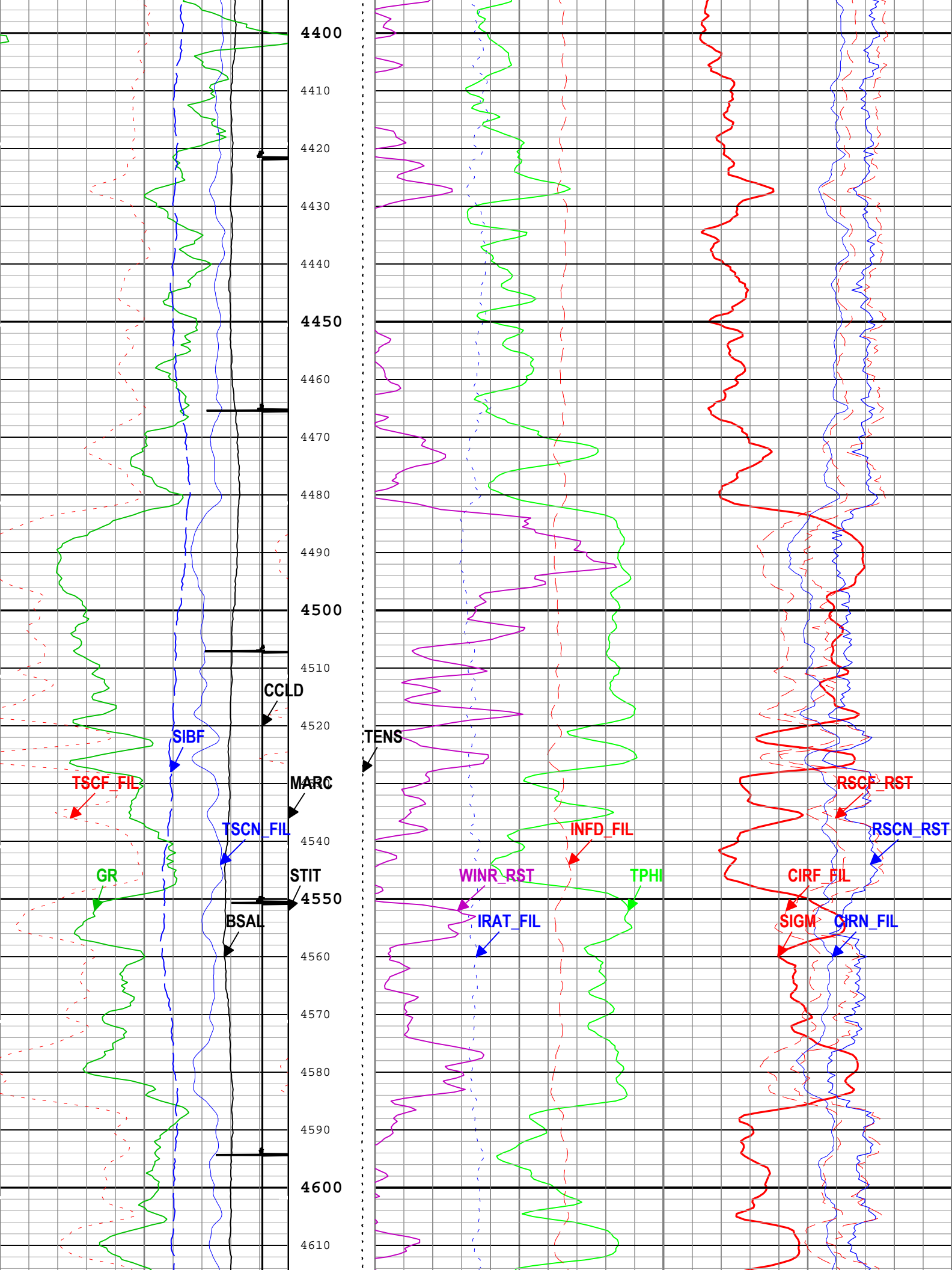


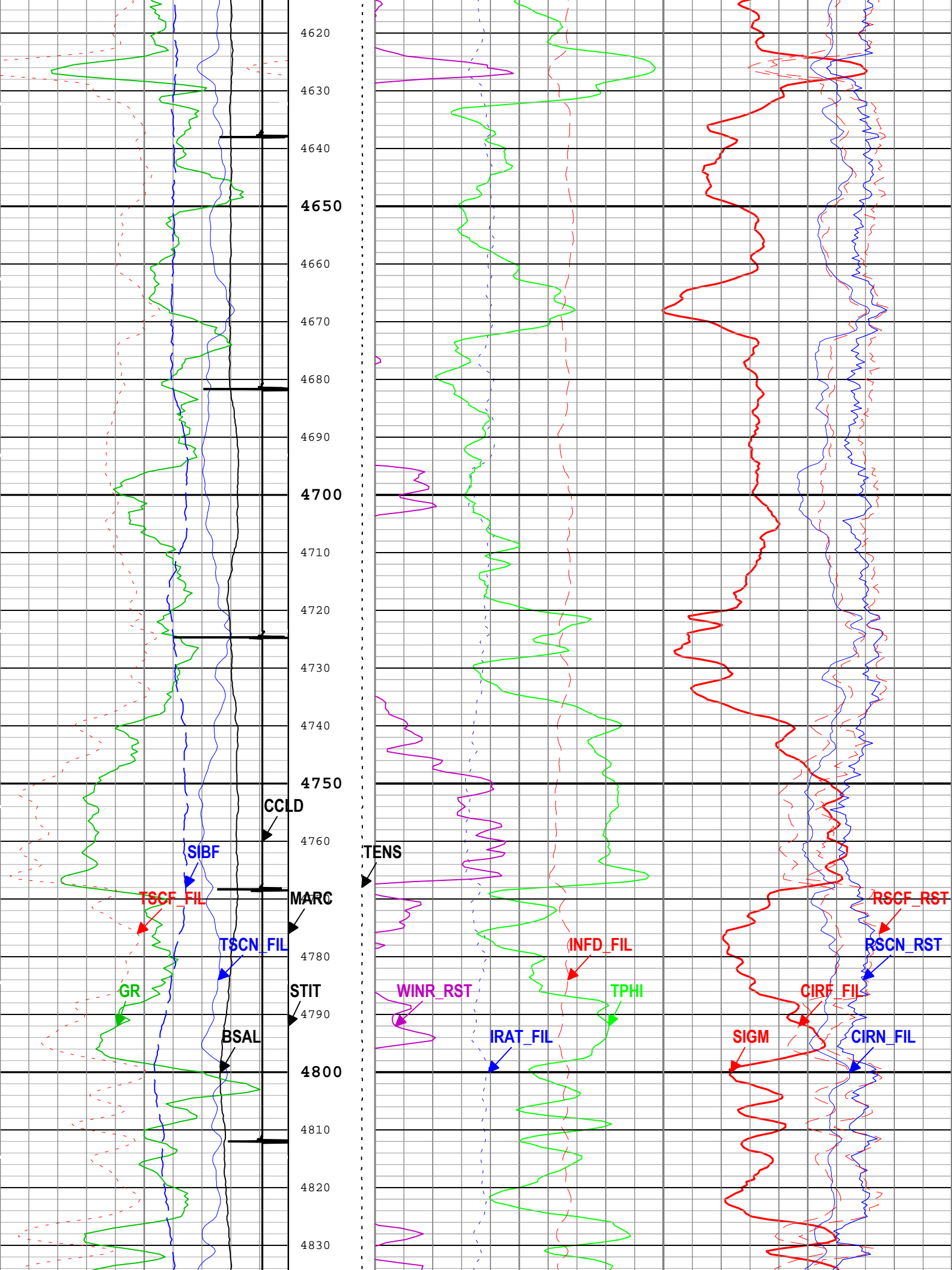


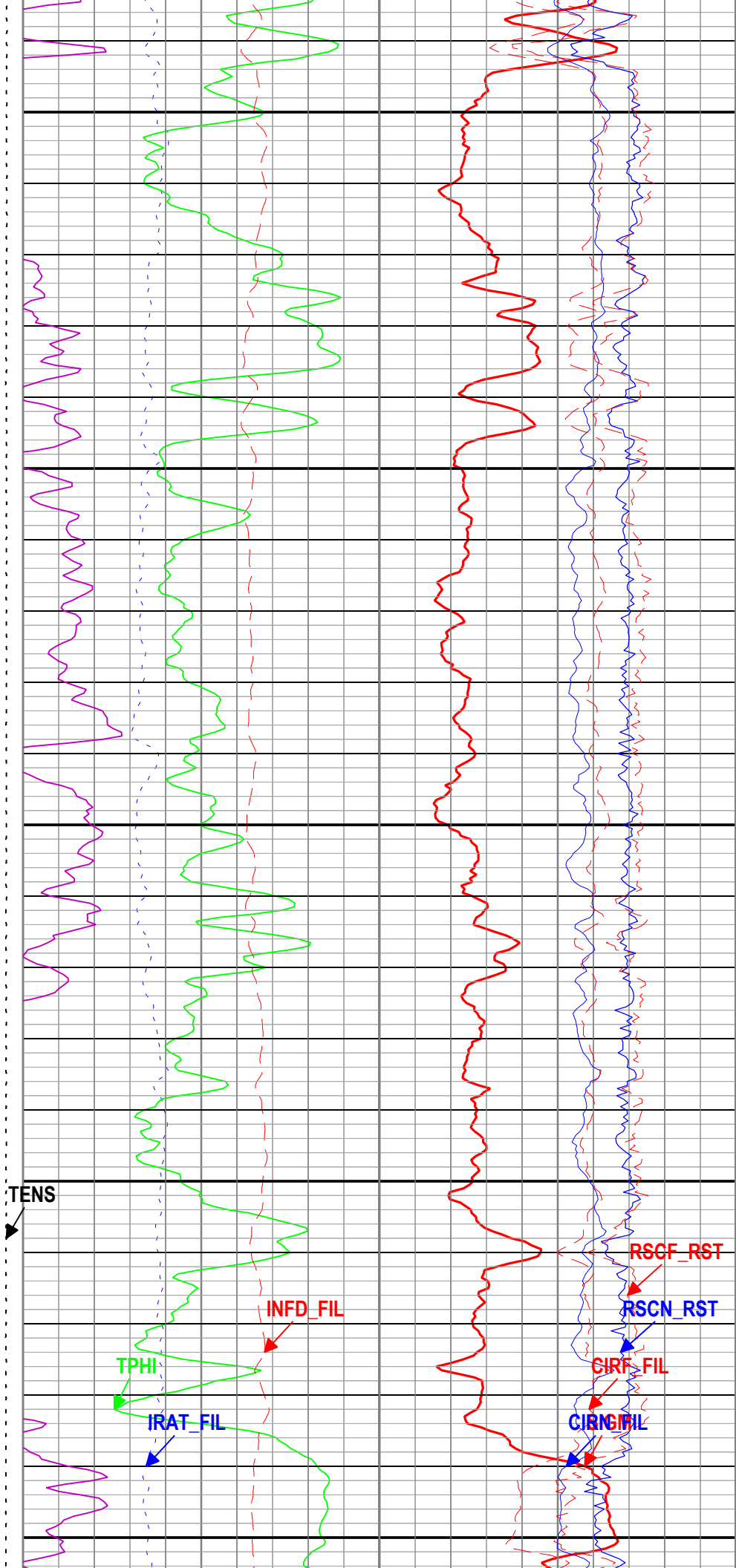
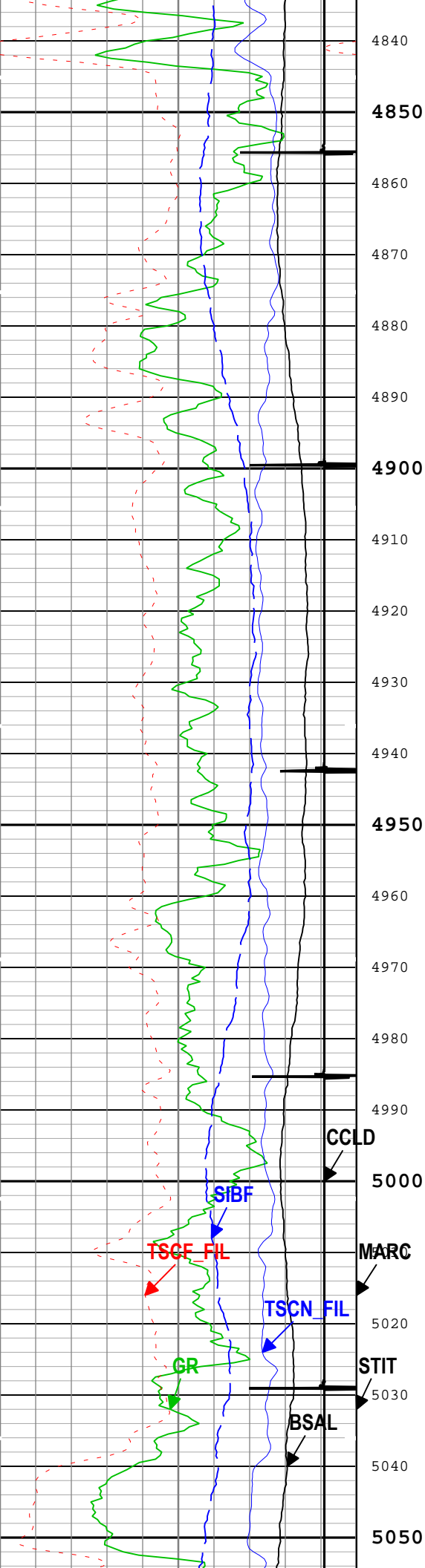


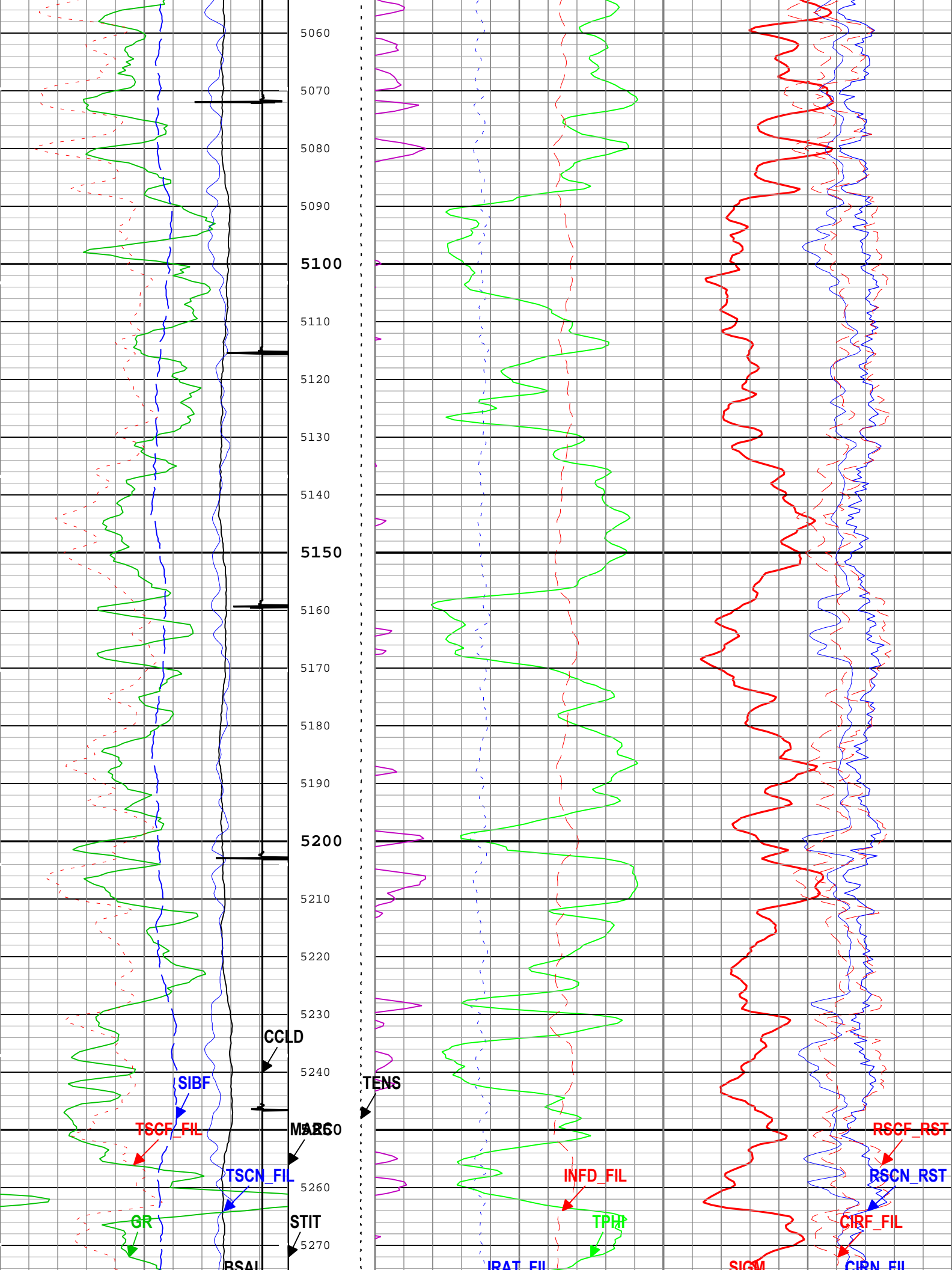


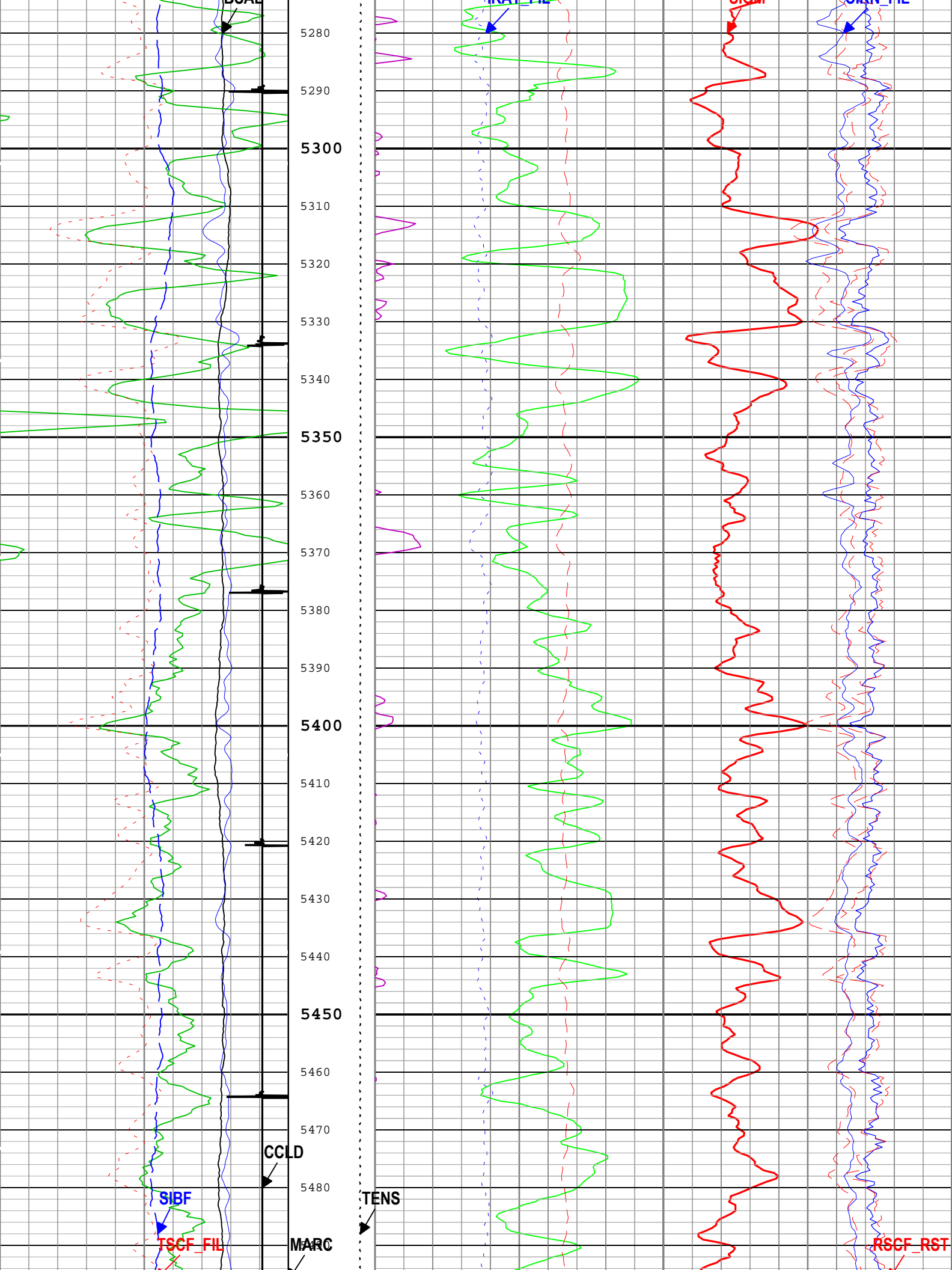


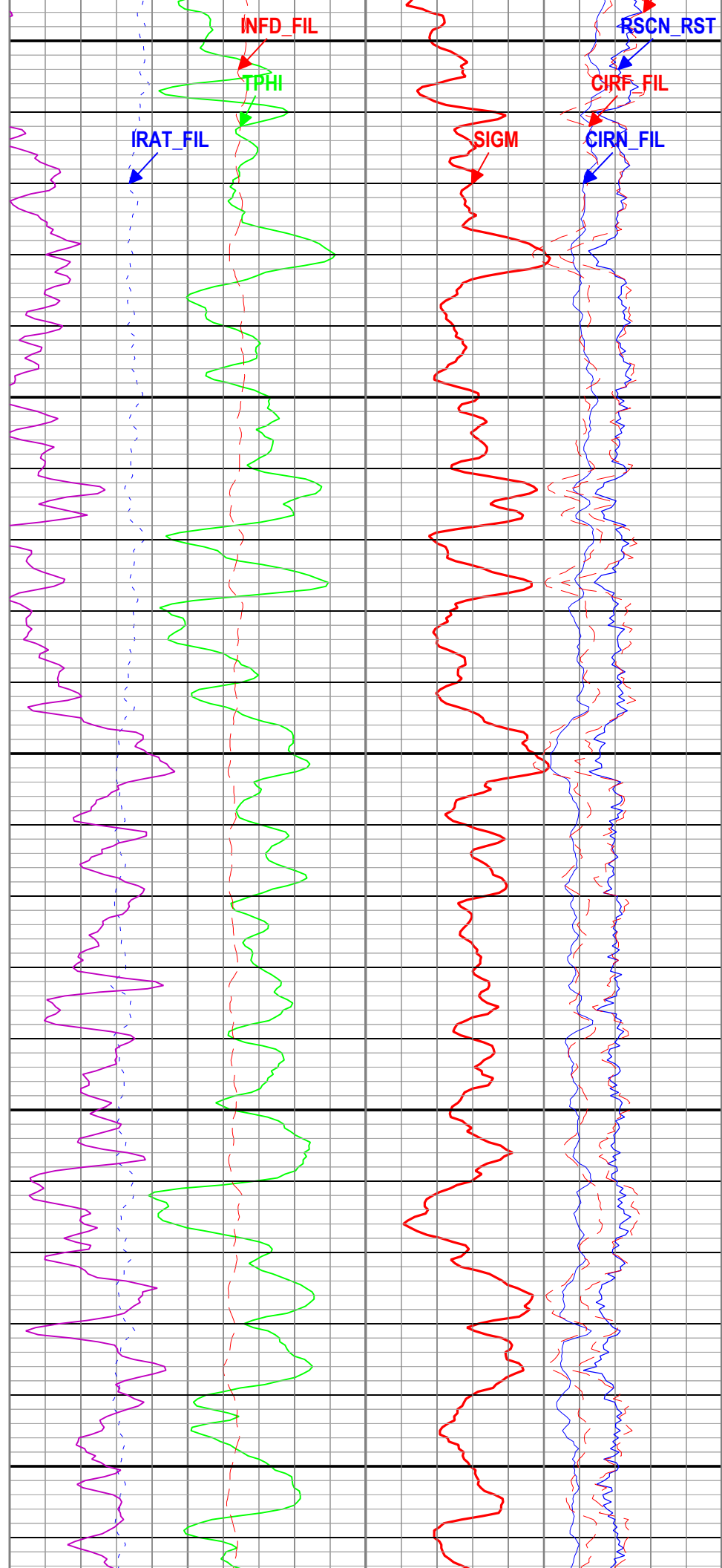
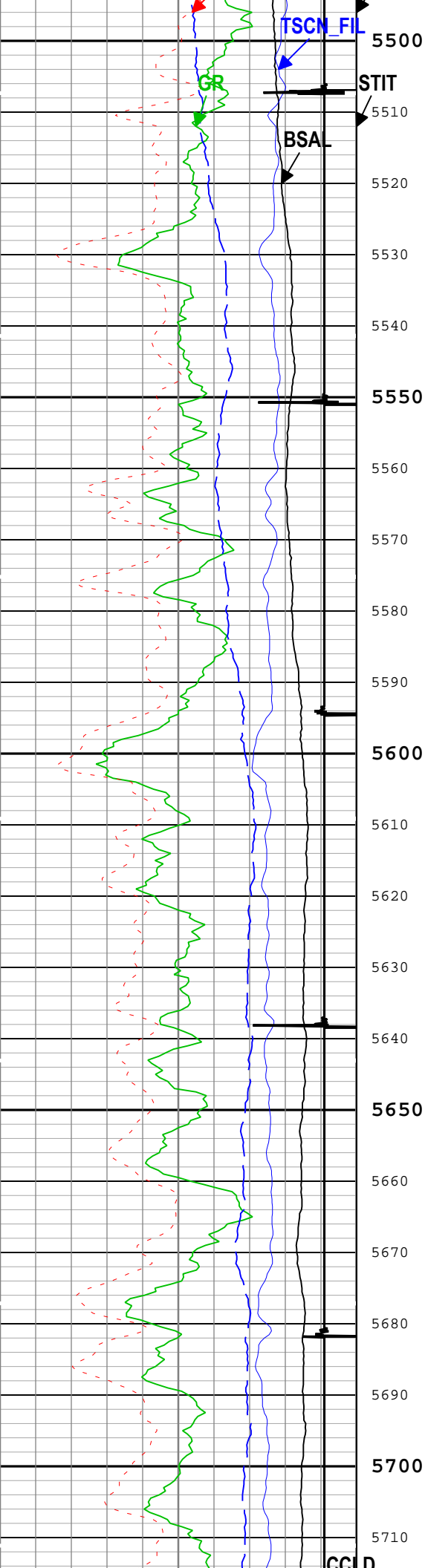


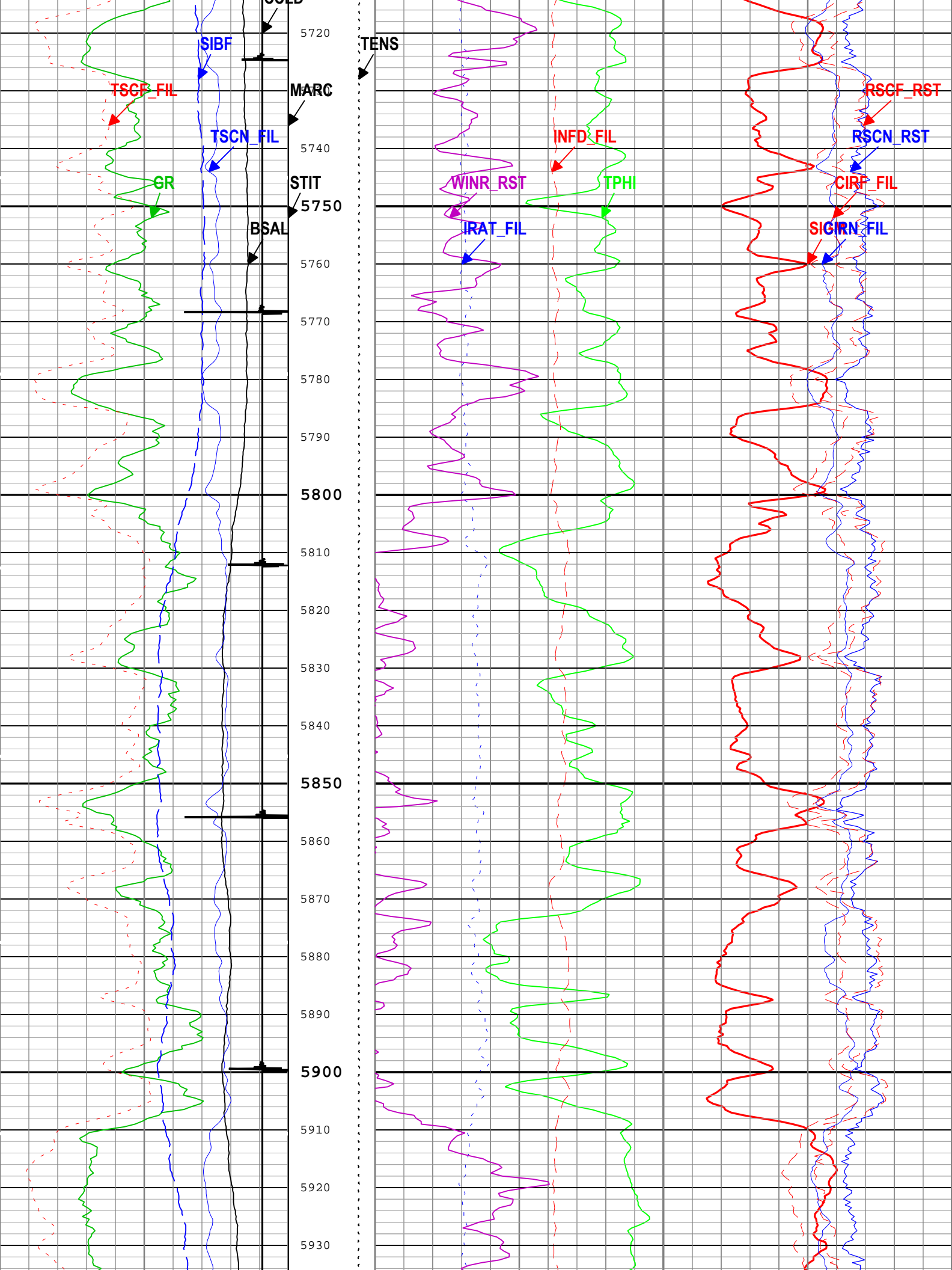


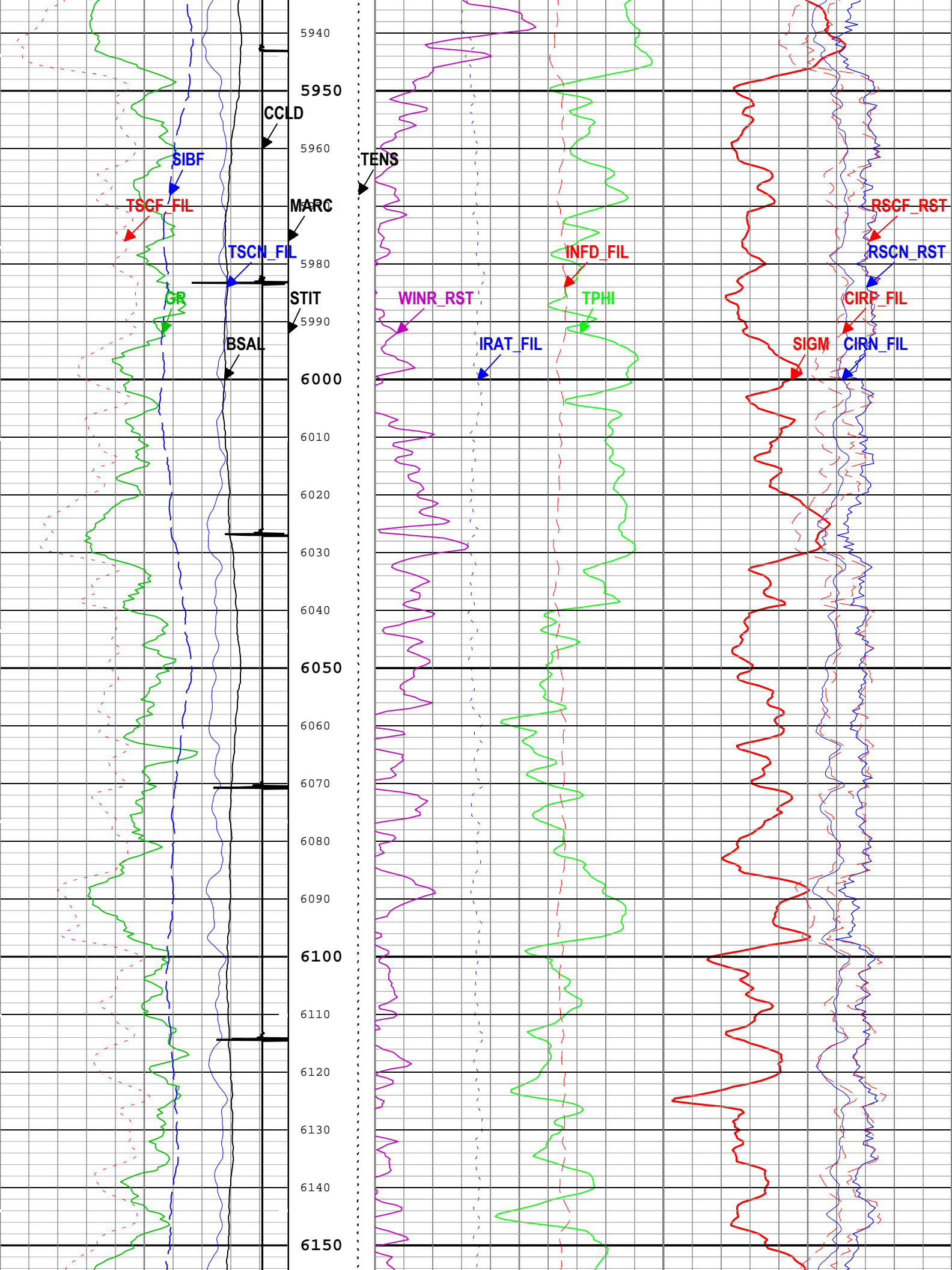


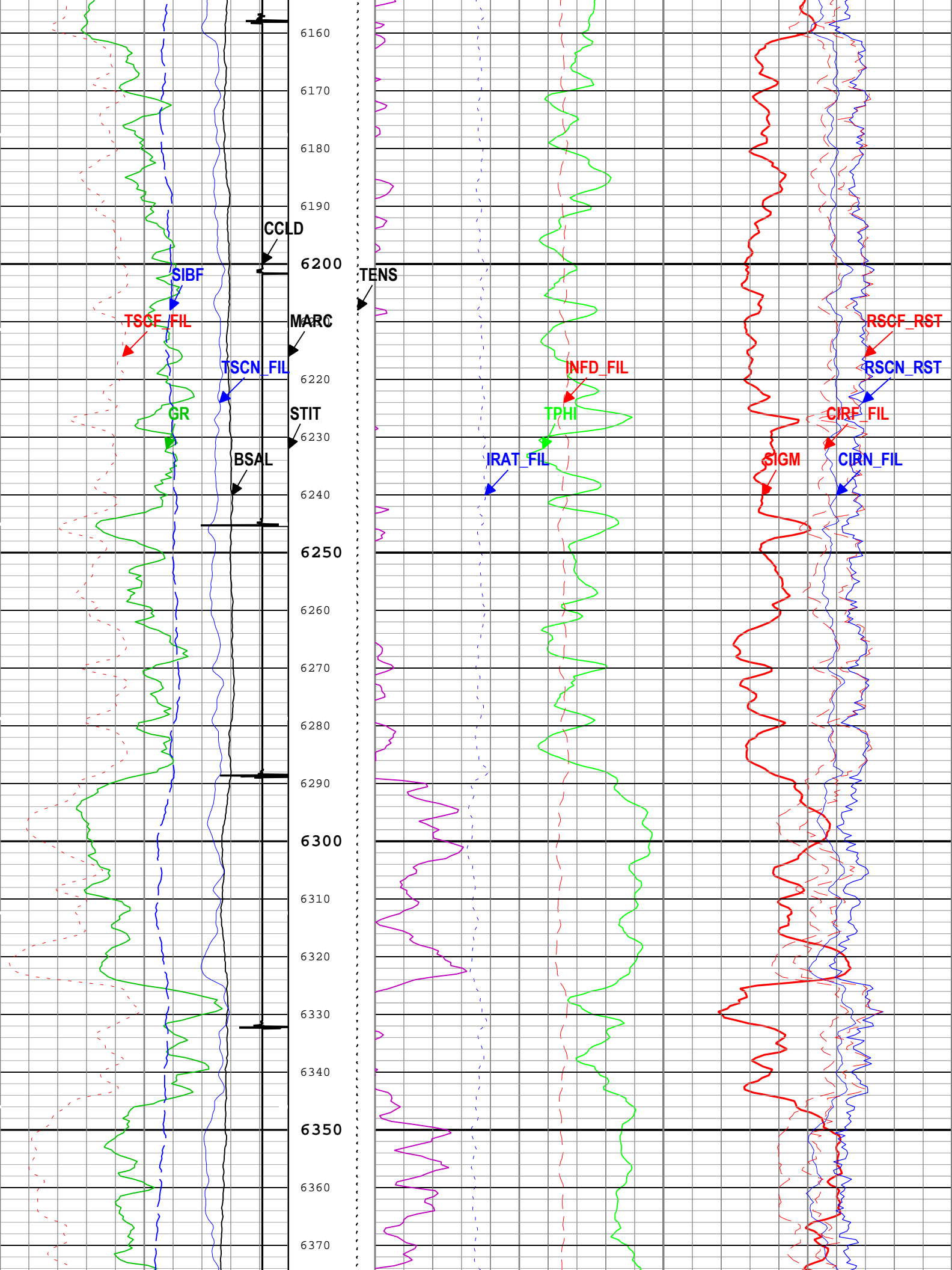


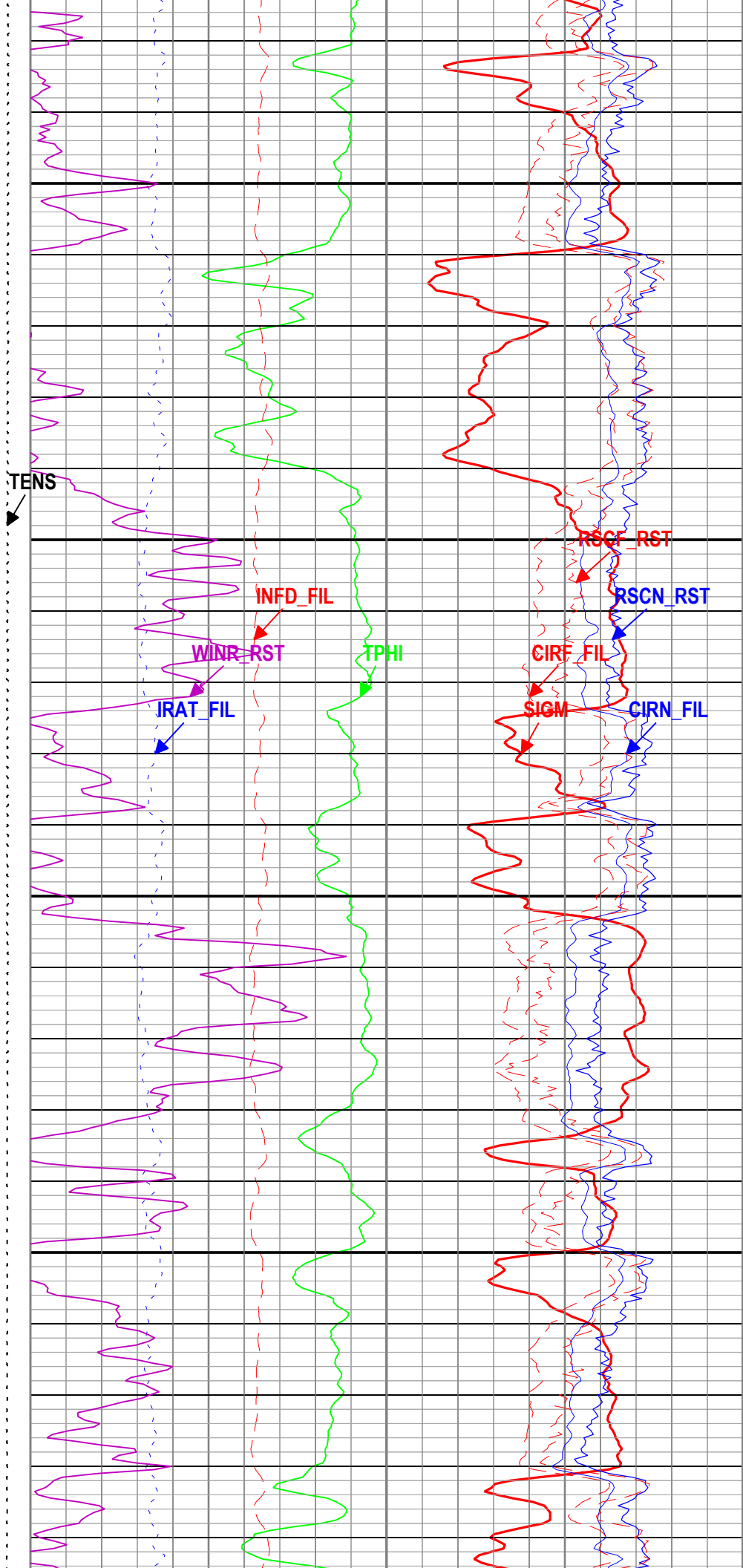
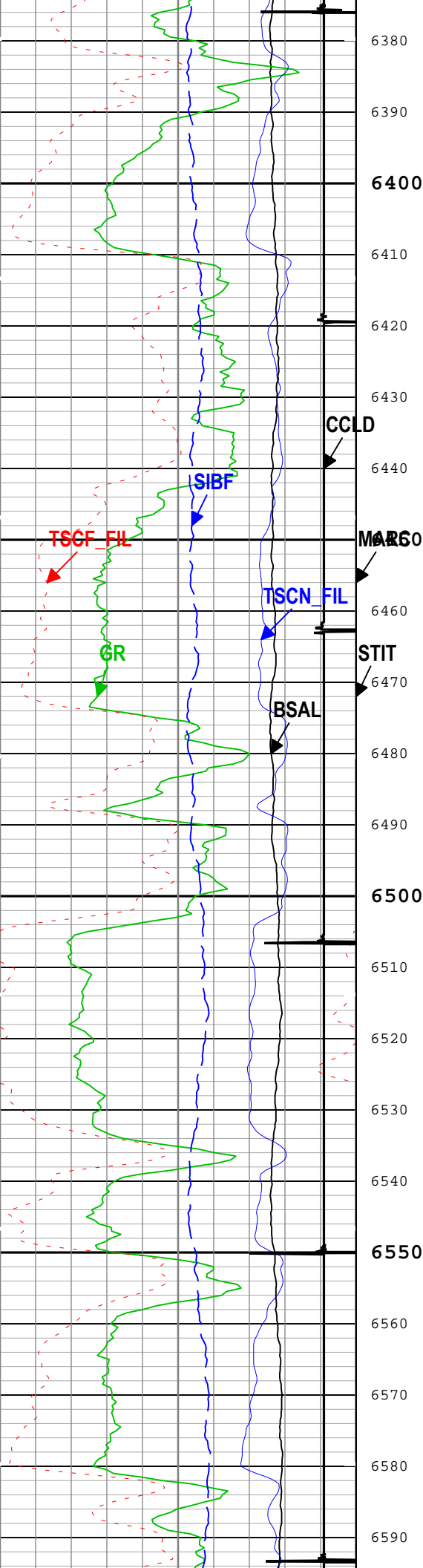


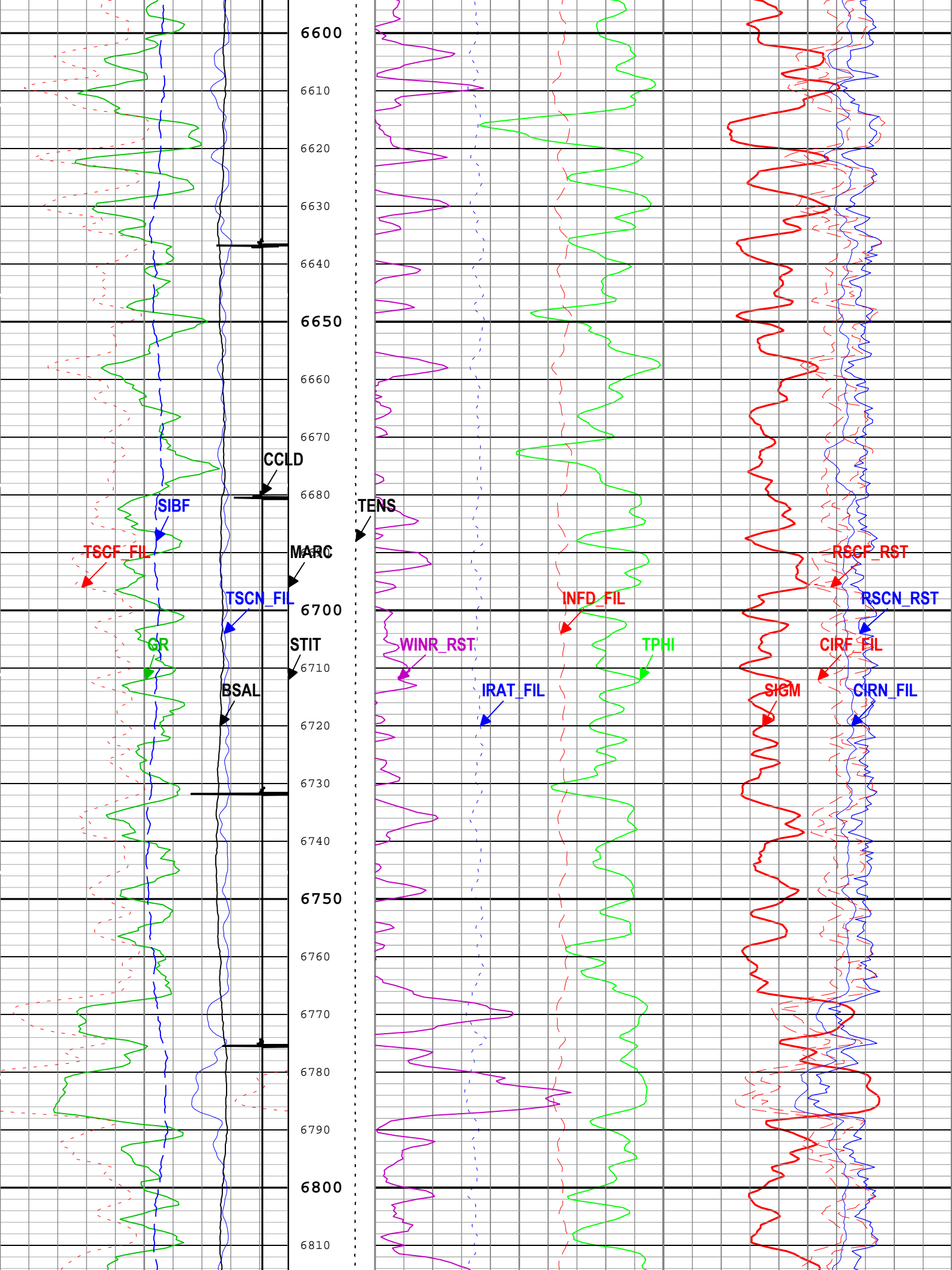


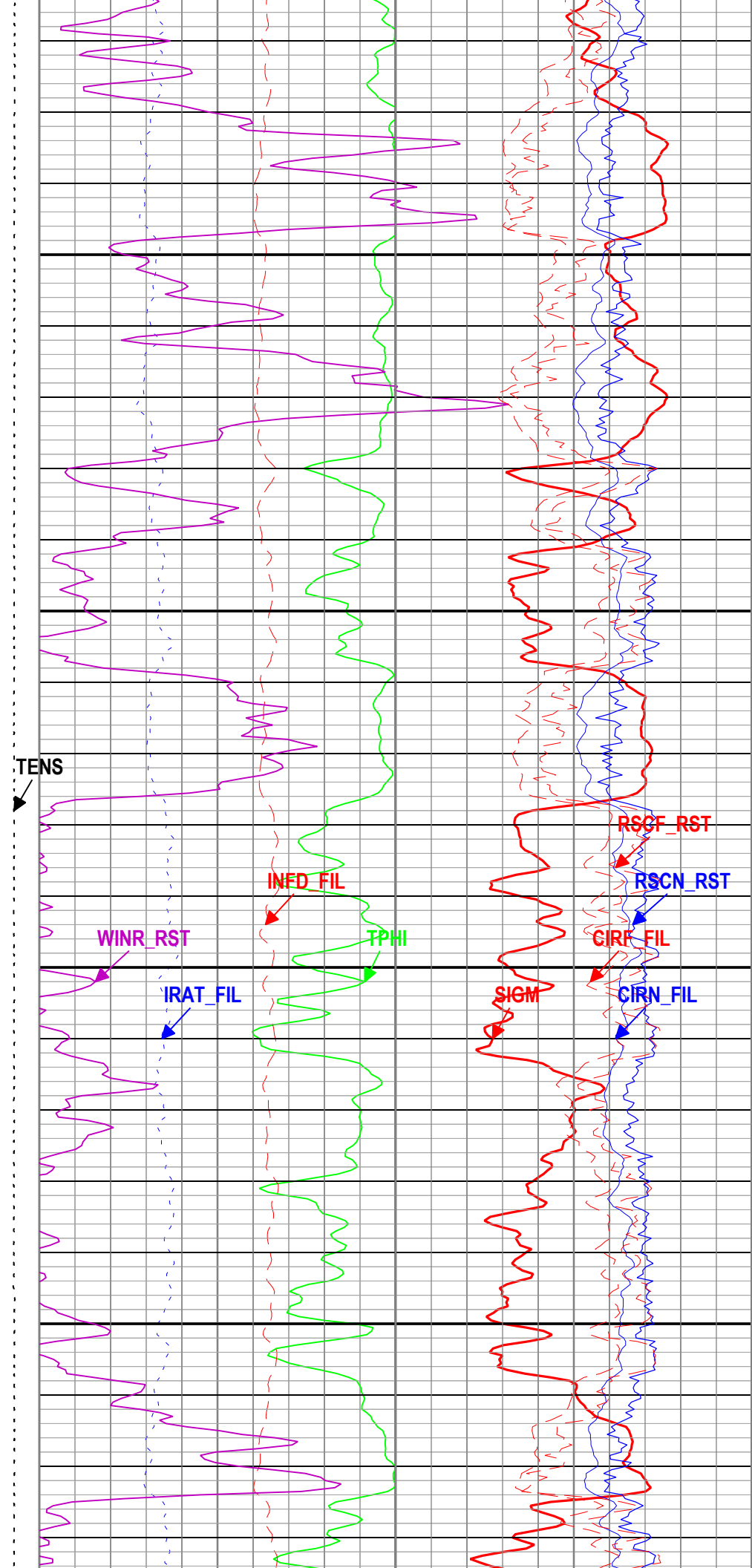
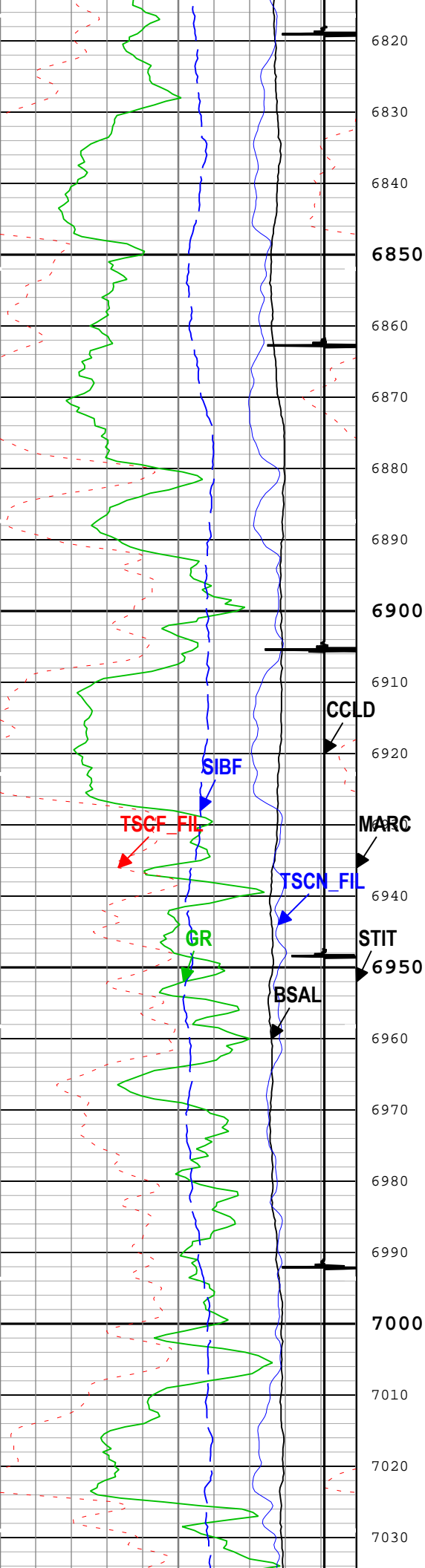


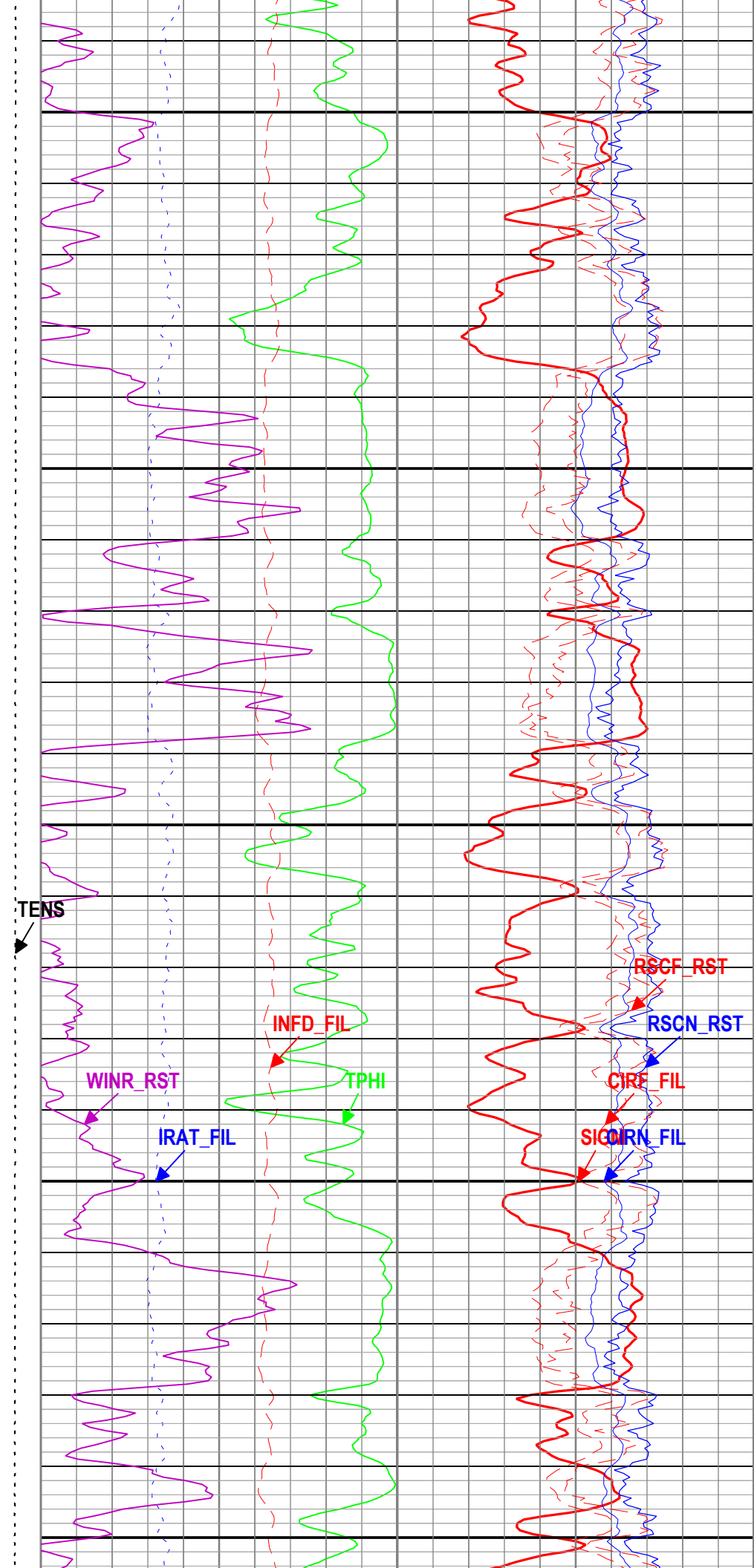
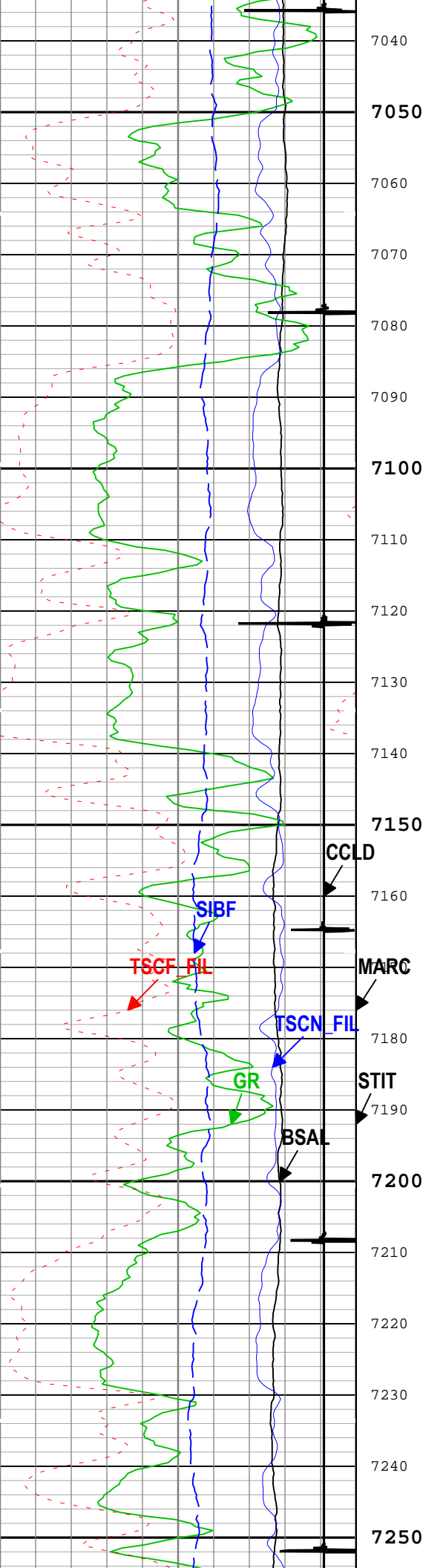


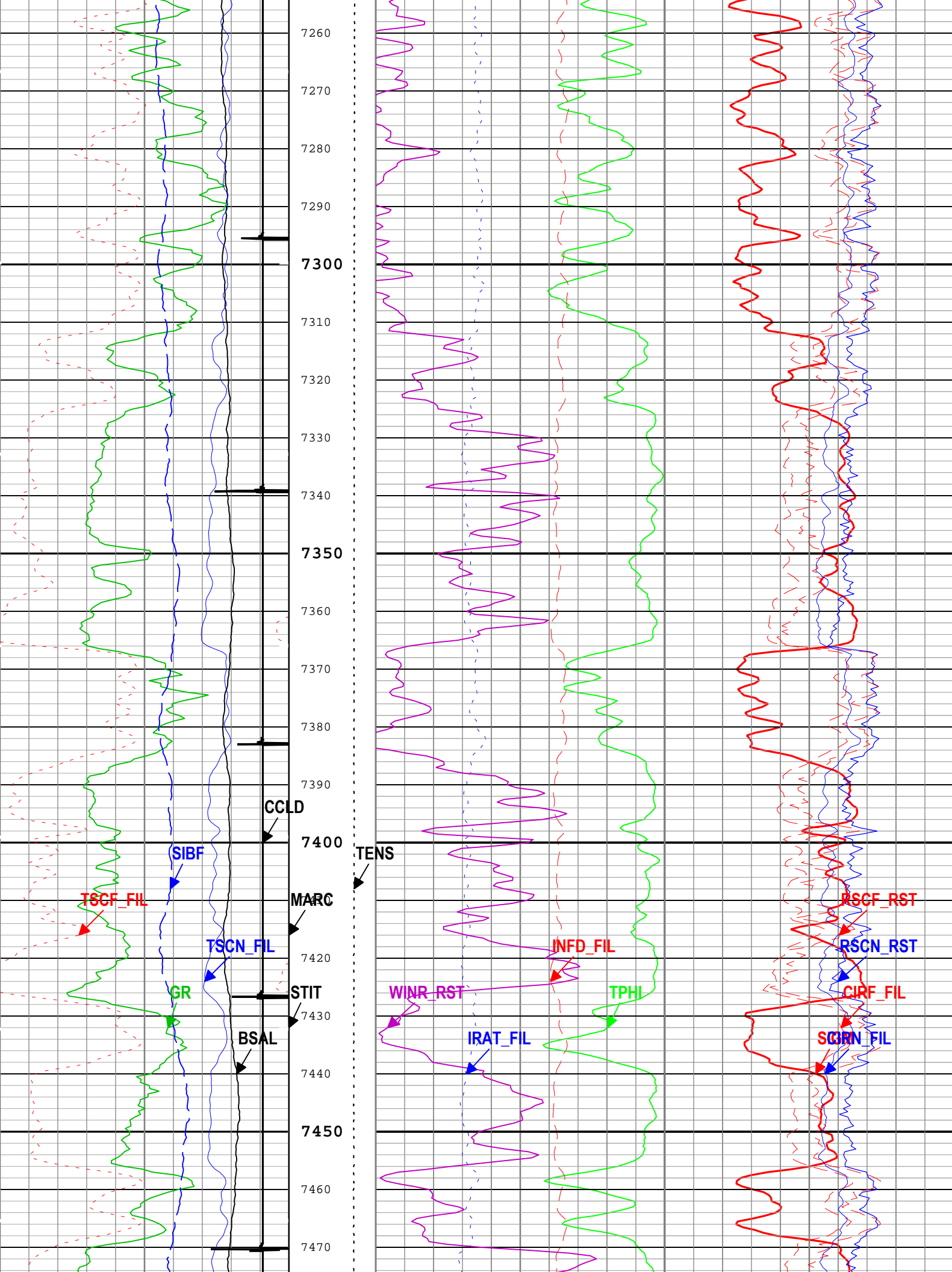


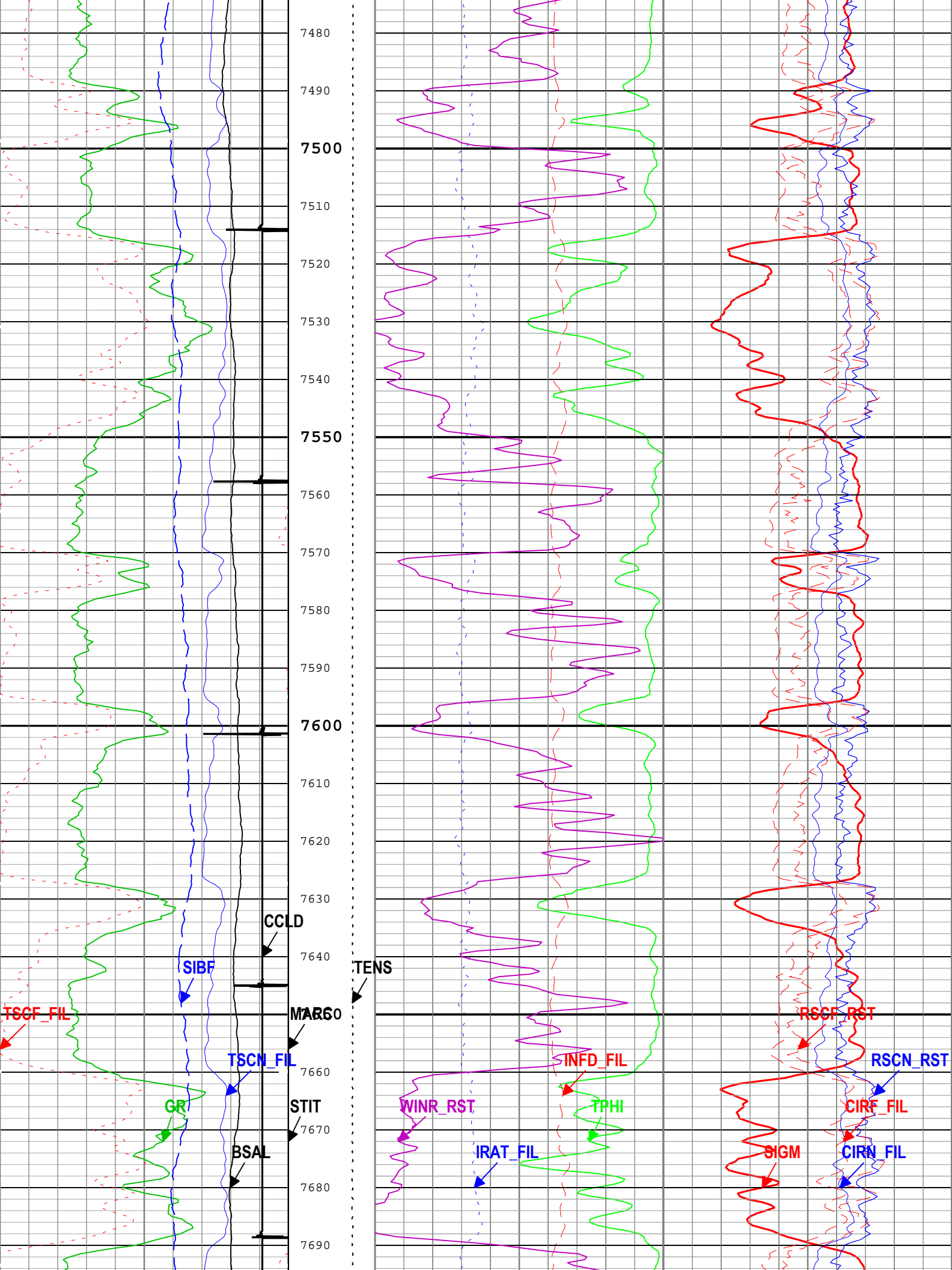


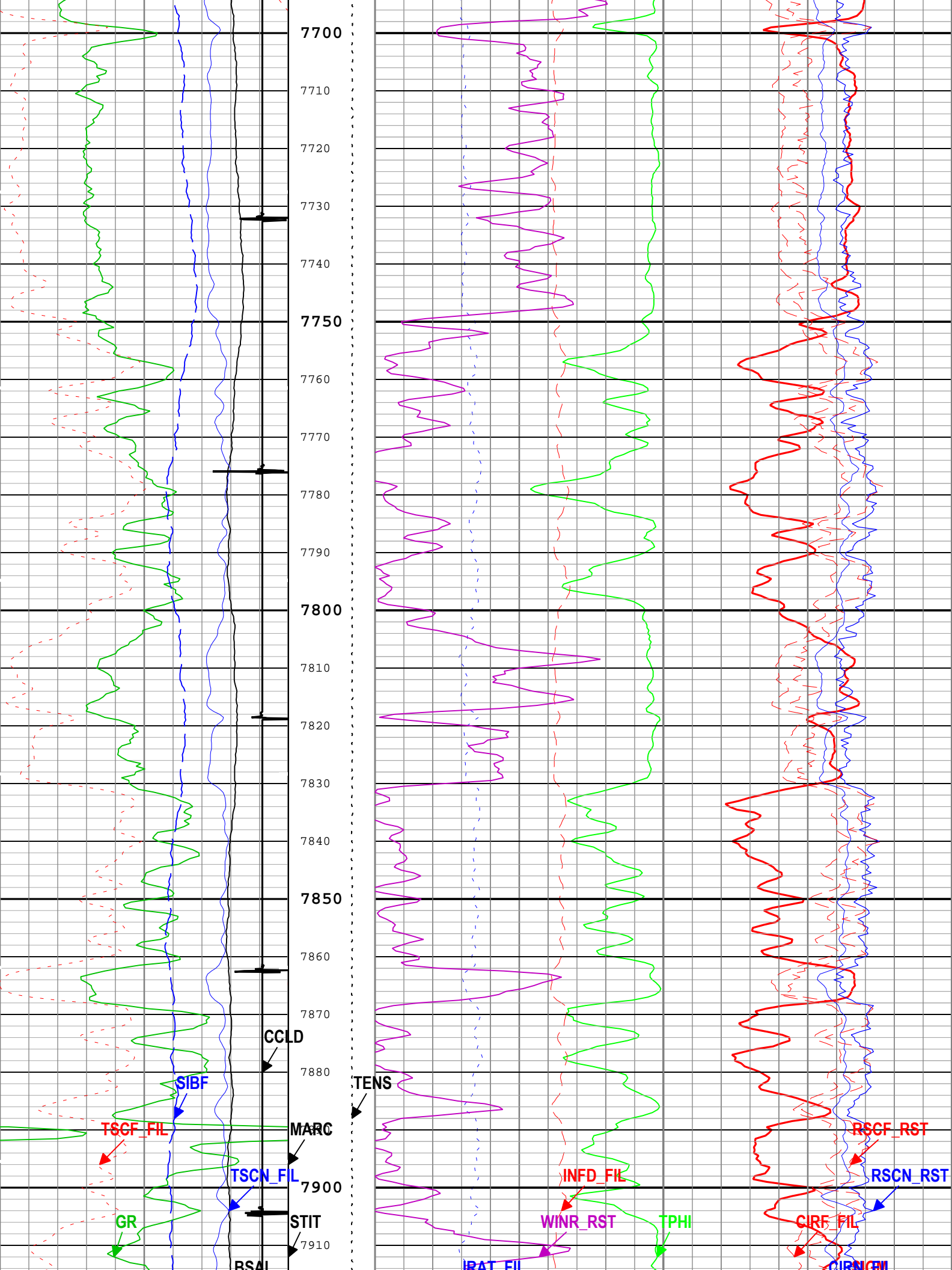


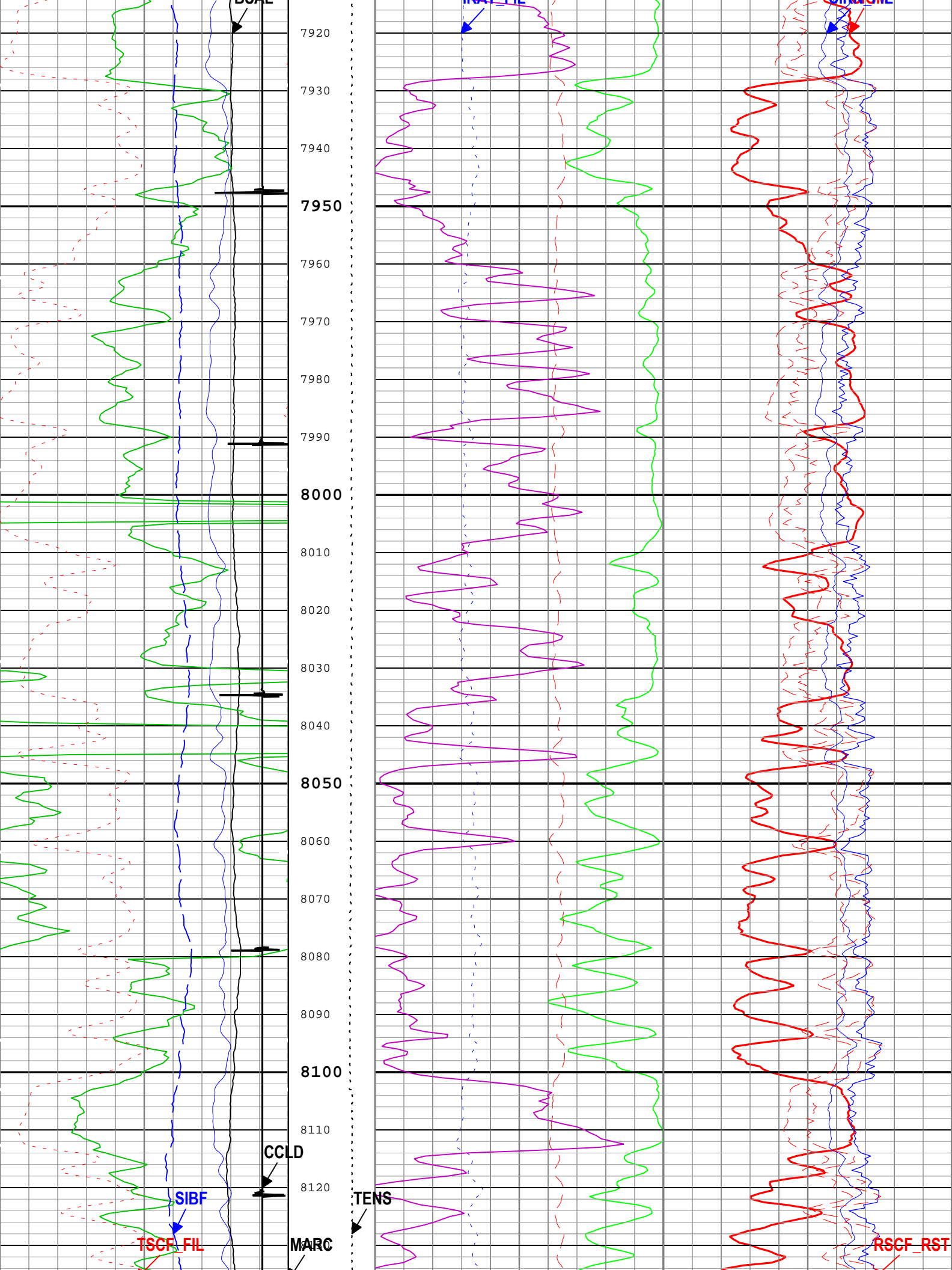


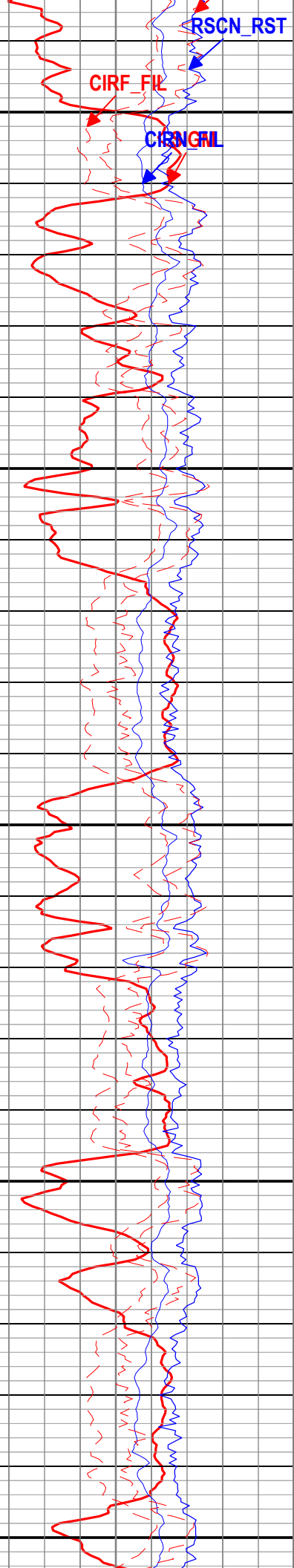
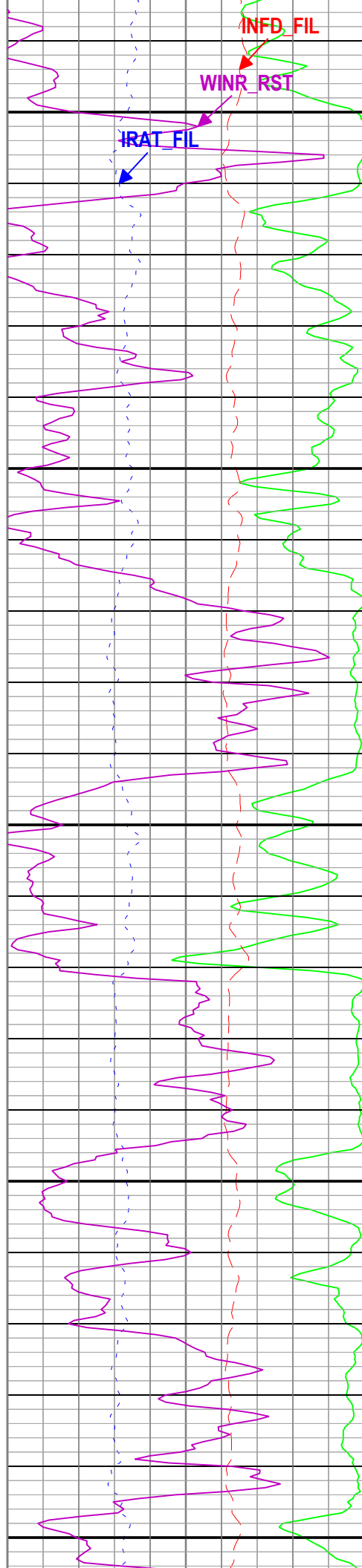
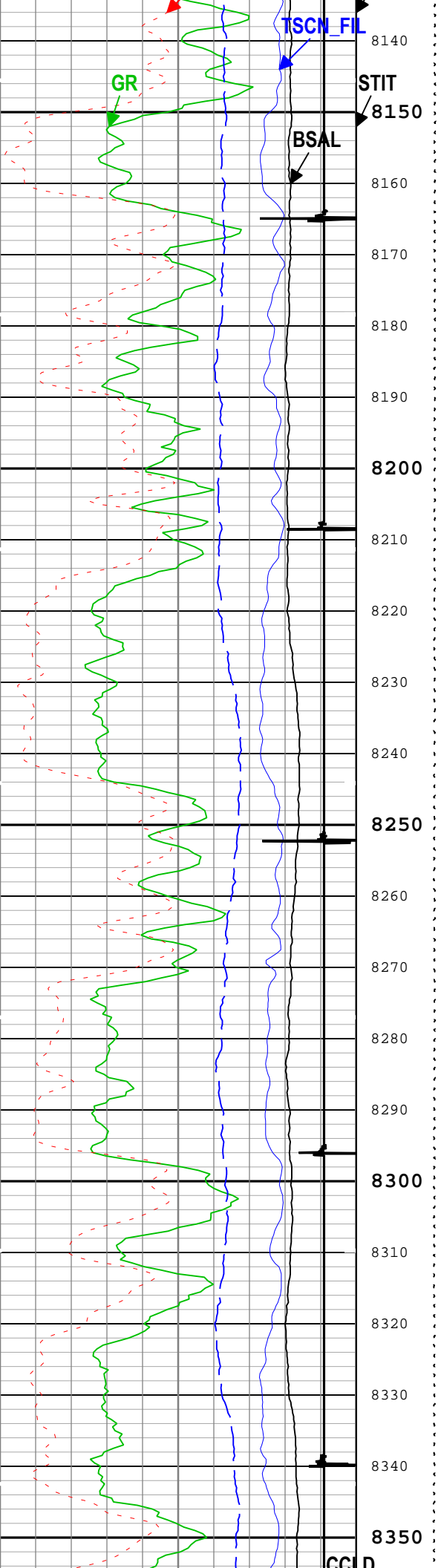


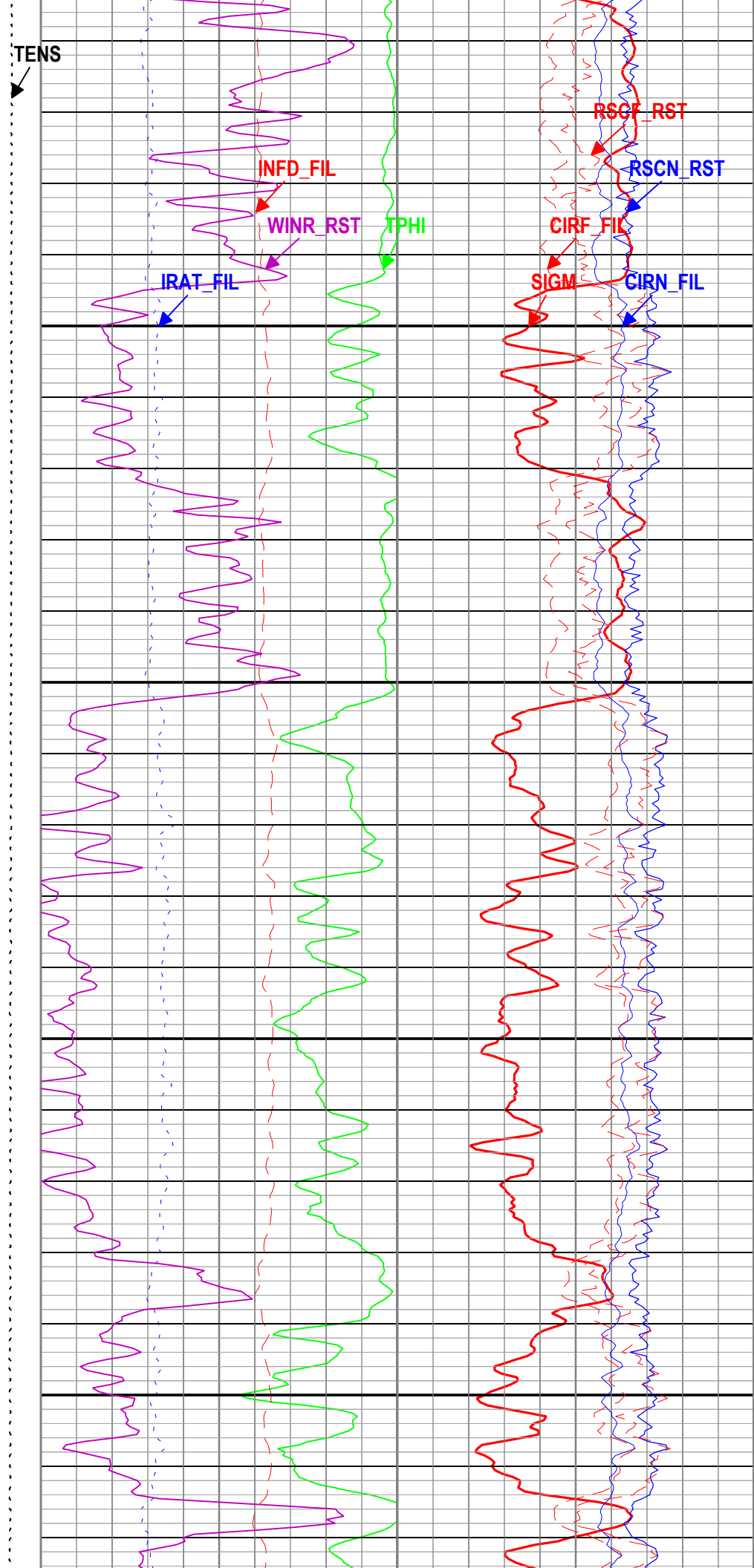
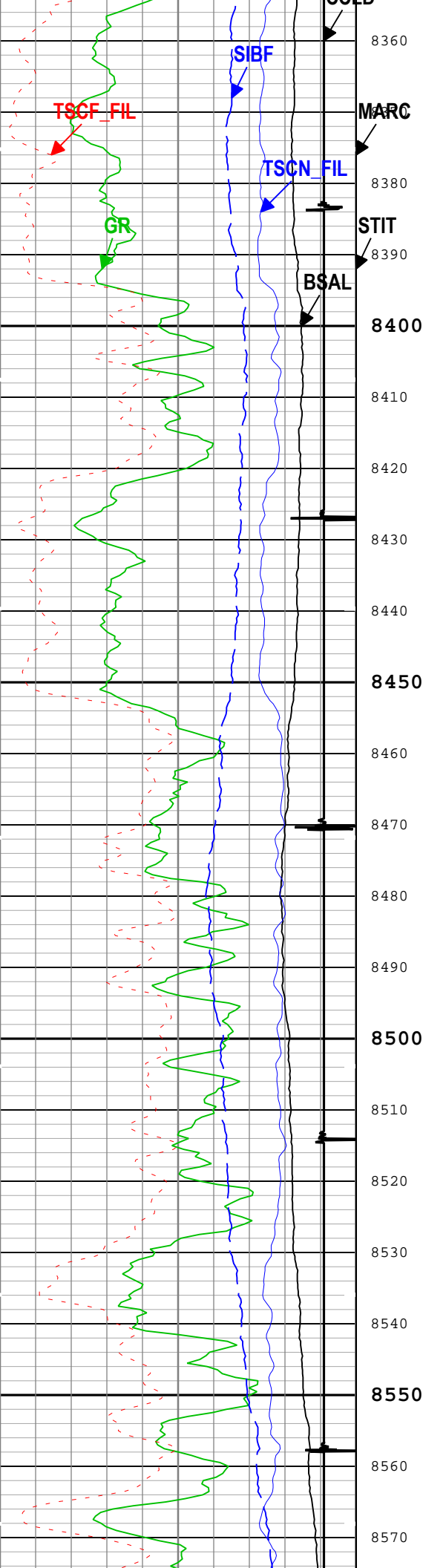


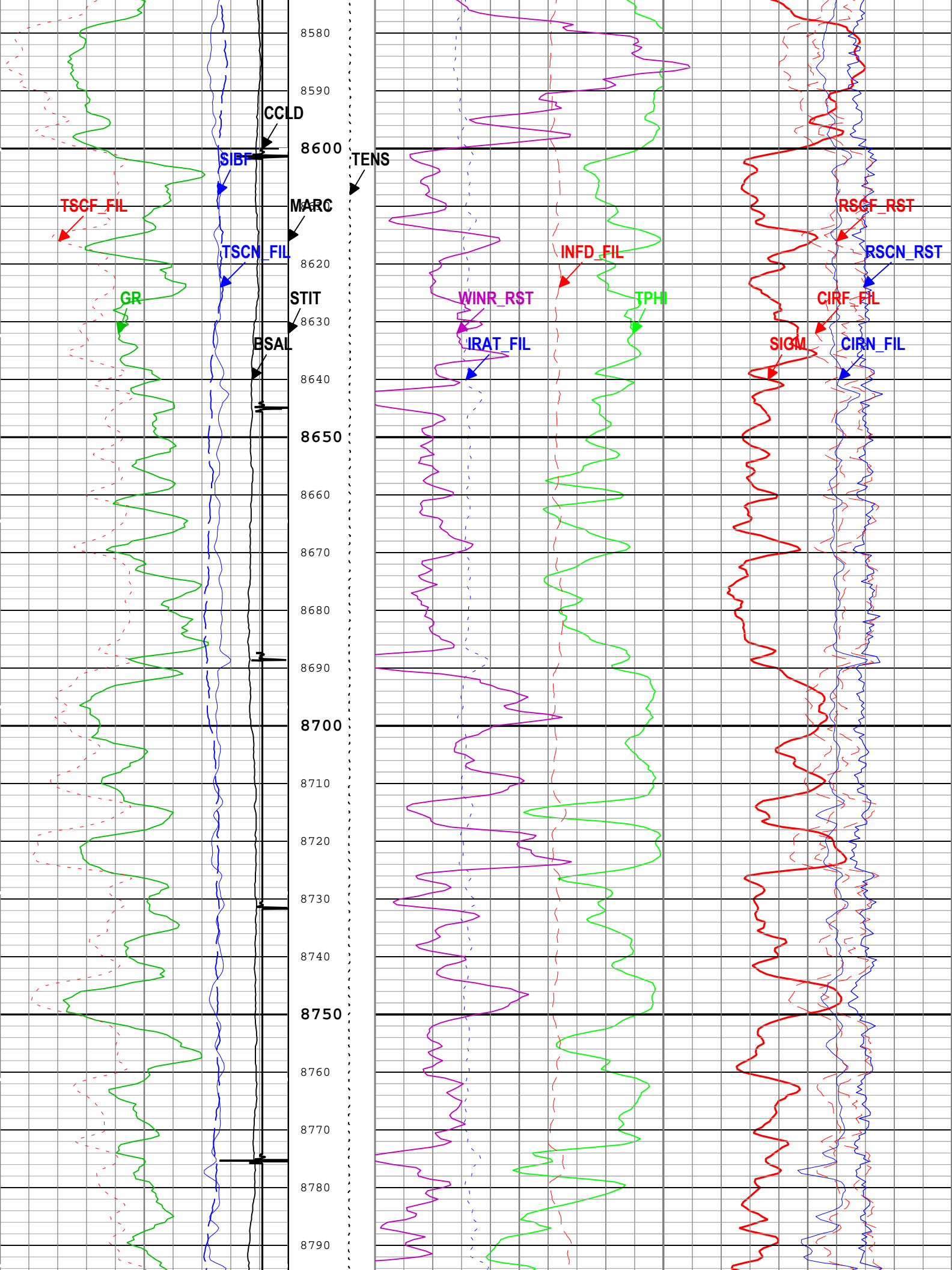


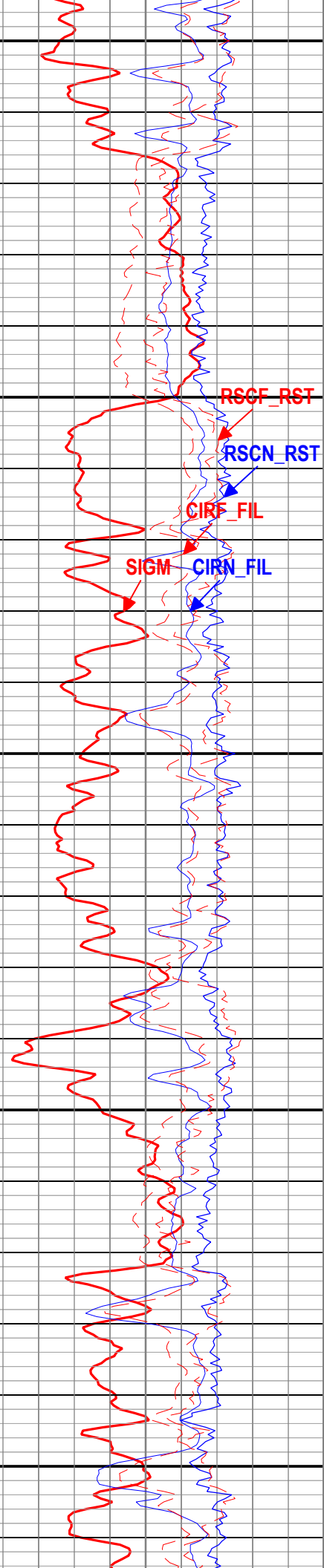
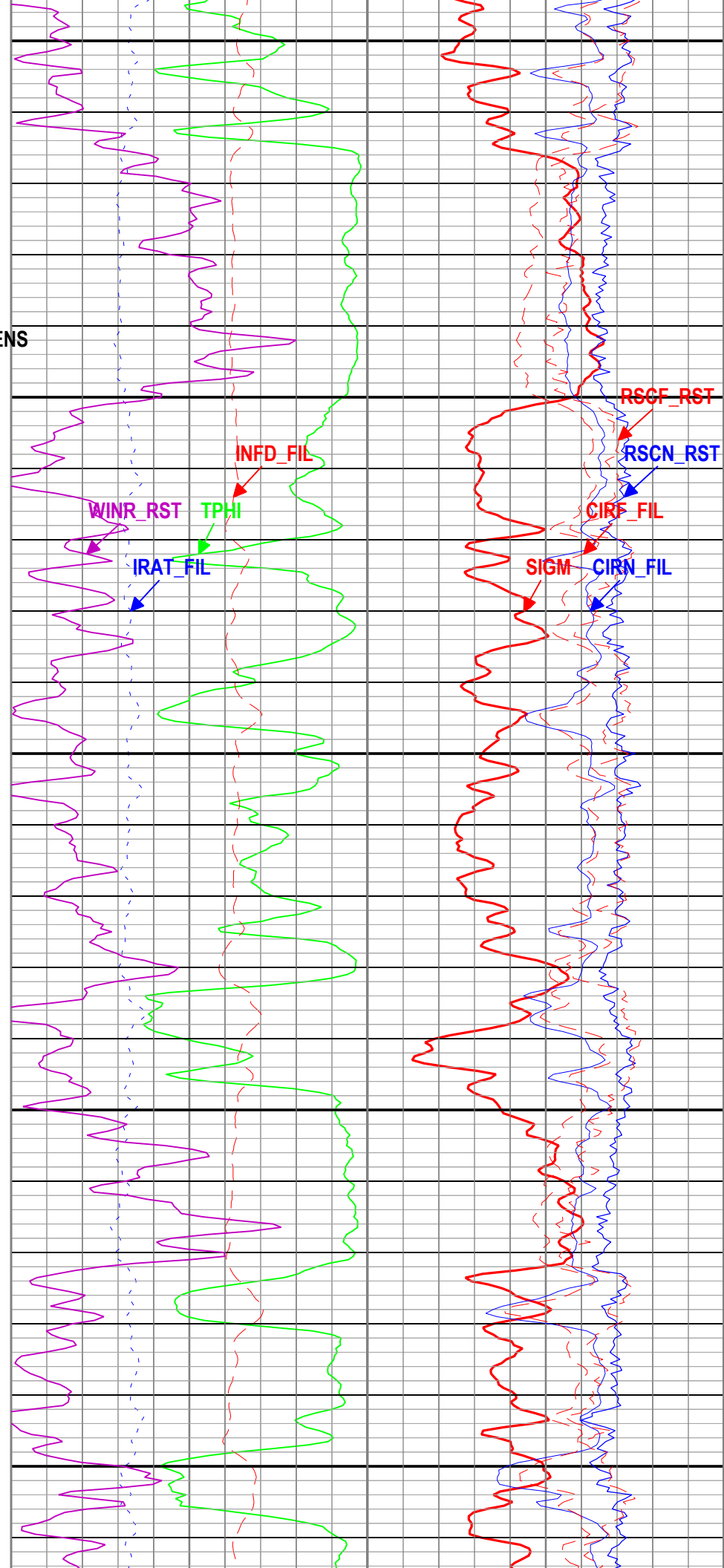
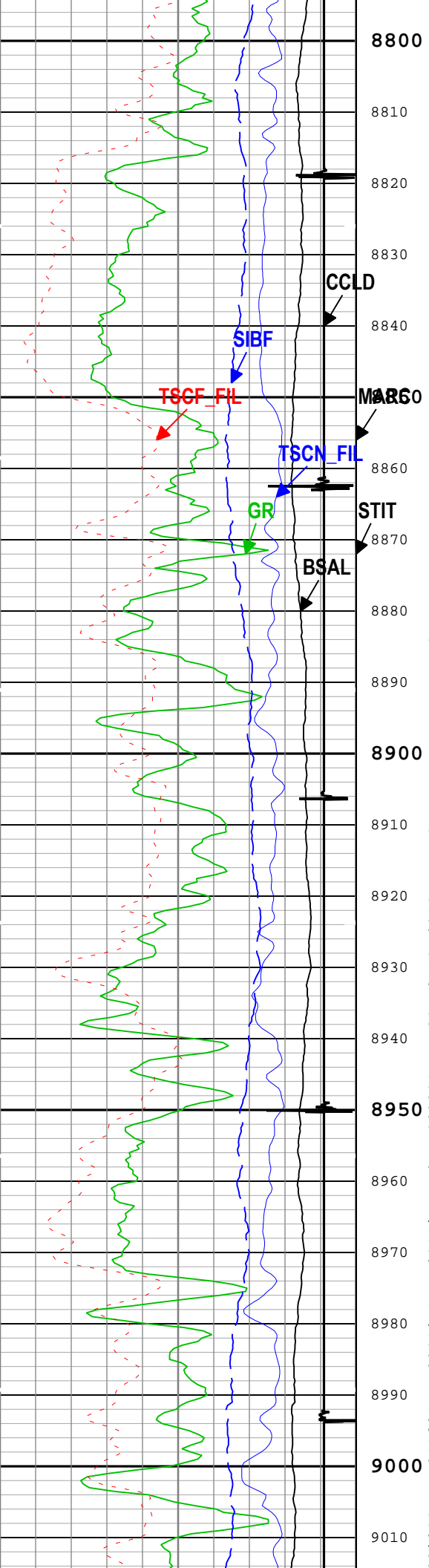


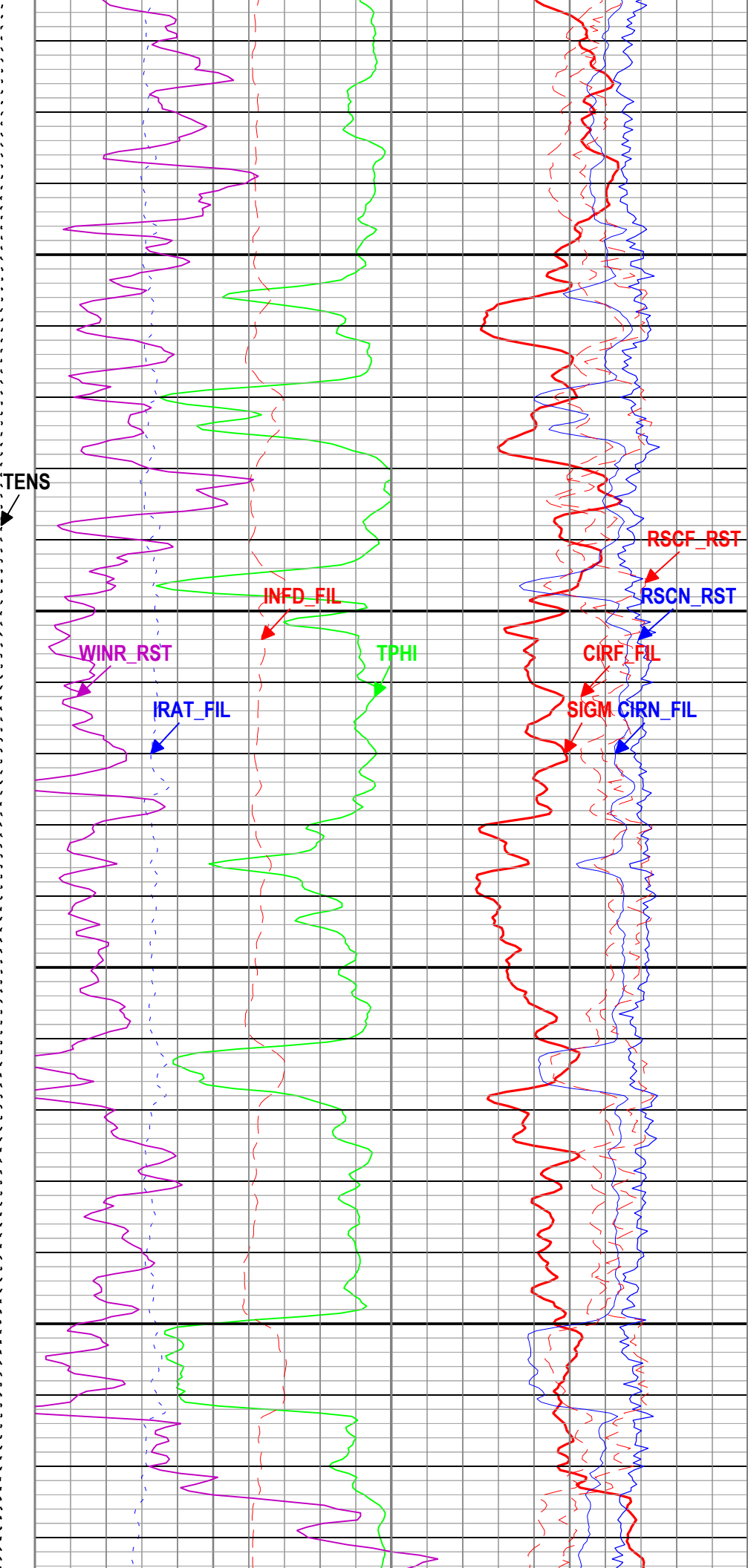
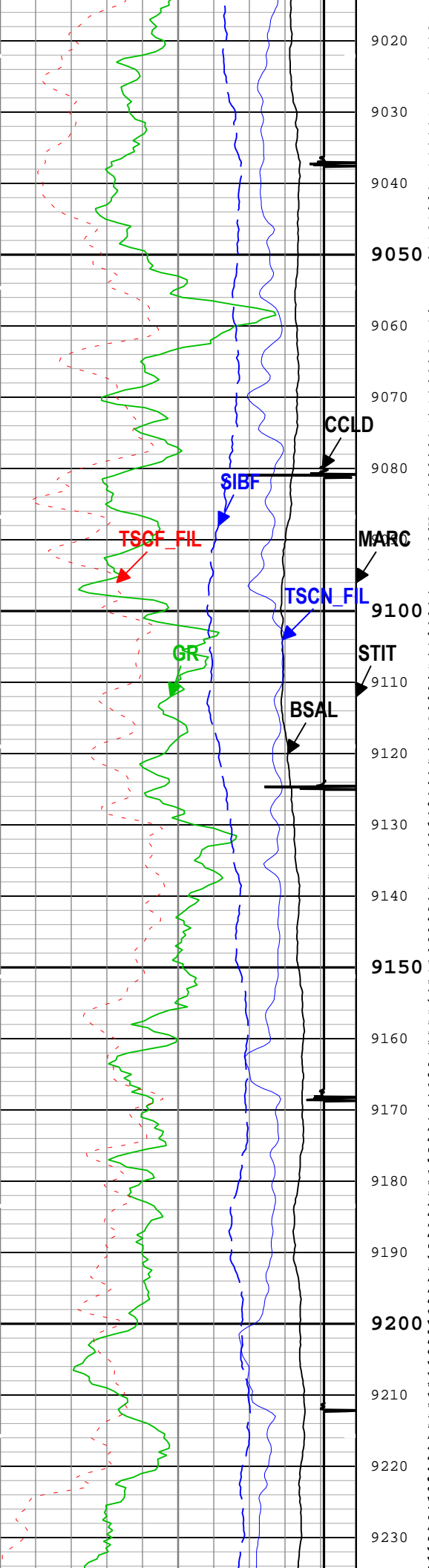


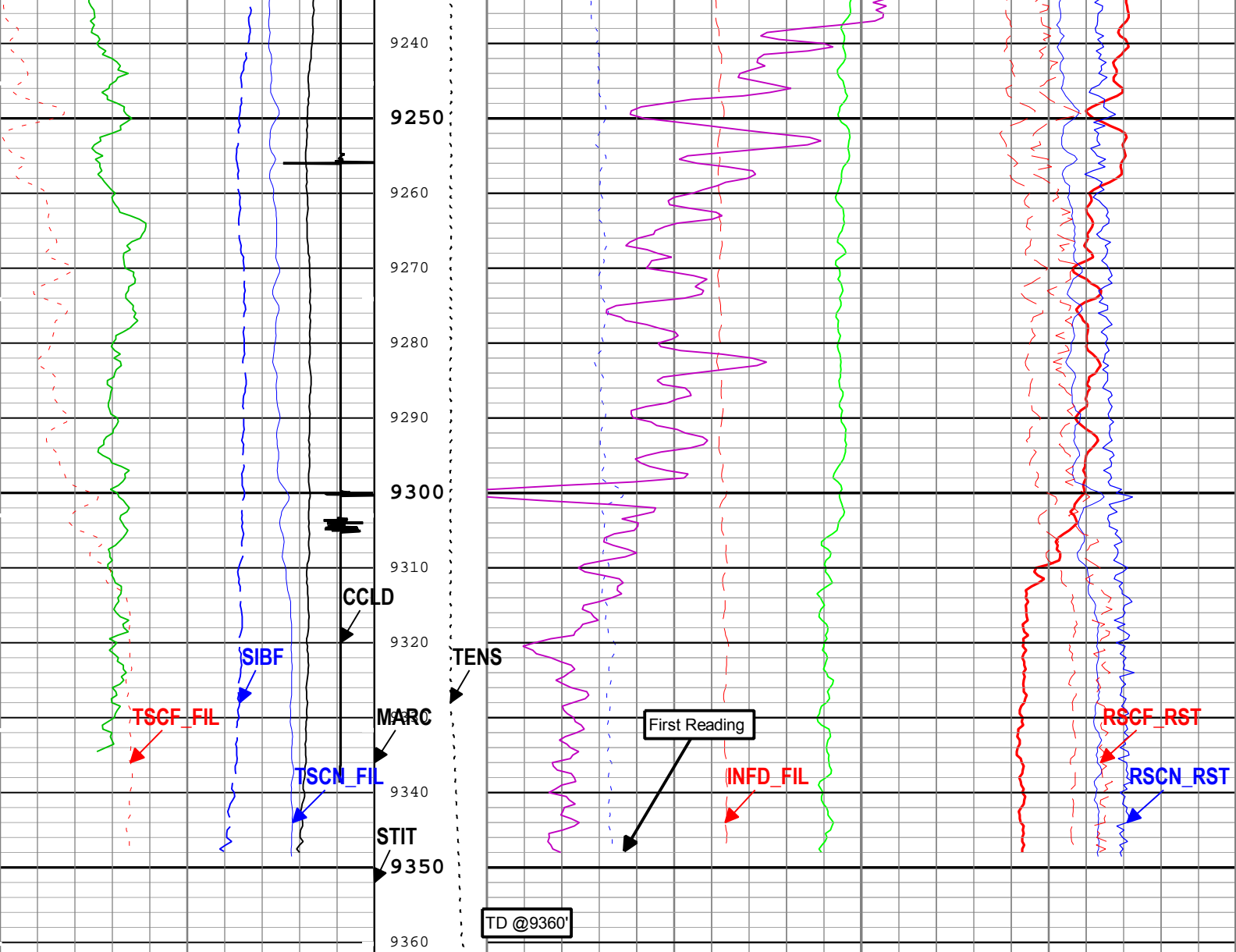












Borehole Salinity (BSAL) RST-C[1]			Stuck Tool Indicator, Total (STIT)			Formation Sigma (Neutron Capture Cross Section) (SIGM) RST-C[1]		
450	ppk	-50	0	ft	50	60	cu	0
Gamma Ray (GR) PSTP-B[1]			Cable Drag From STIA to STIT			Weighted Inelastic Ratio (WINR_RST) RST-C[1]		
0	gAPI	150	Cable Drag From D3T to STIT			0		0.4
Total Selected Count Rate Near Detector Filtered (TSCN_FIL) RST-C[1]			Minitron Arc Count (MARC) RST-C[1]			Inelastic Ratio Filtered (IRAT_FIL) RST-C[1]		
30000	1/s	0	0		5	0.75		0
Total Selected Count Rate Far Detector Filtered (TSCF_FIL) RST-C[1]			Cable Tension (TENS)			Thermal Decay Porosity (TPHI) RST-C[1]		
12000	1/s	0	10000	lbf	0	0.6	ft3/ft3	0
Sigma Borehole Fluid (SIBF) RST-C[1]			ICV - Integrated Cement Volume every 100.00 (ft3)			Gross Inelastic Count Rate Far Detector Filtered (INFD_FIL) RST-C[1]		
100	cu	0				10000	1/s	0
CCLD Discriminated Amplitude (CCLD) PSTP-B[1]						Capture to Inelastic Ratio Near Filtered (CIRN_FIL) RST-C[1]		
-10	V	1				2.5		0
						Capture to Inelastic Ratio Far Filtered (CIRF_FIL) RST-C[1]		
						5		0
						Near Detector Effective Unregulated Capture Count Rate (RSCN_RST) RST-C[1]		
						45		0
						Far Detector Effective Unregulated Capture Count Rate (RSCF_RST) RST-C[1]		
						45		0

- └─ 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)

Channel Processing Parameters	
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Parameter	Description	Tool	Value	Unit
BHS	Borehole Status (Open or Cased Hole)	Borehole	Cased	
BS	Bit Size	WLSESSION	Depth Zoned	in
BSAL	Borehole Salinity	Borehole	0	ppm
BSALOPT	Borehole Salinity Option	RST-C	Unknown	
DFT_CATEGORY	Drilling Fluid Type	Borehole	Water	
MATR	Rock Matrix for Neutron Porosity Corrections	Borehole	LIMESTONE	

Parameter	Value	Start (ft)	Stop (ft)
BS	14.75	2480	2520
BS	8.75	2520	9362

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

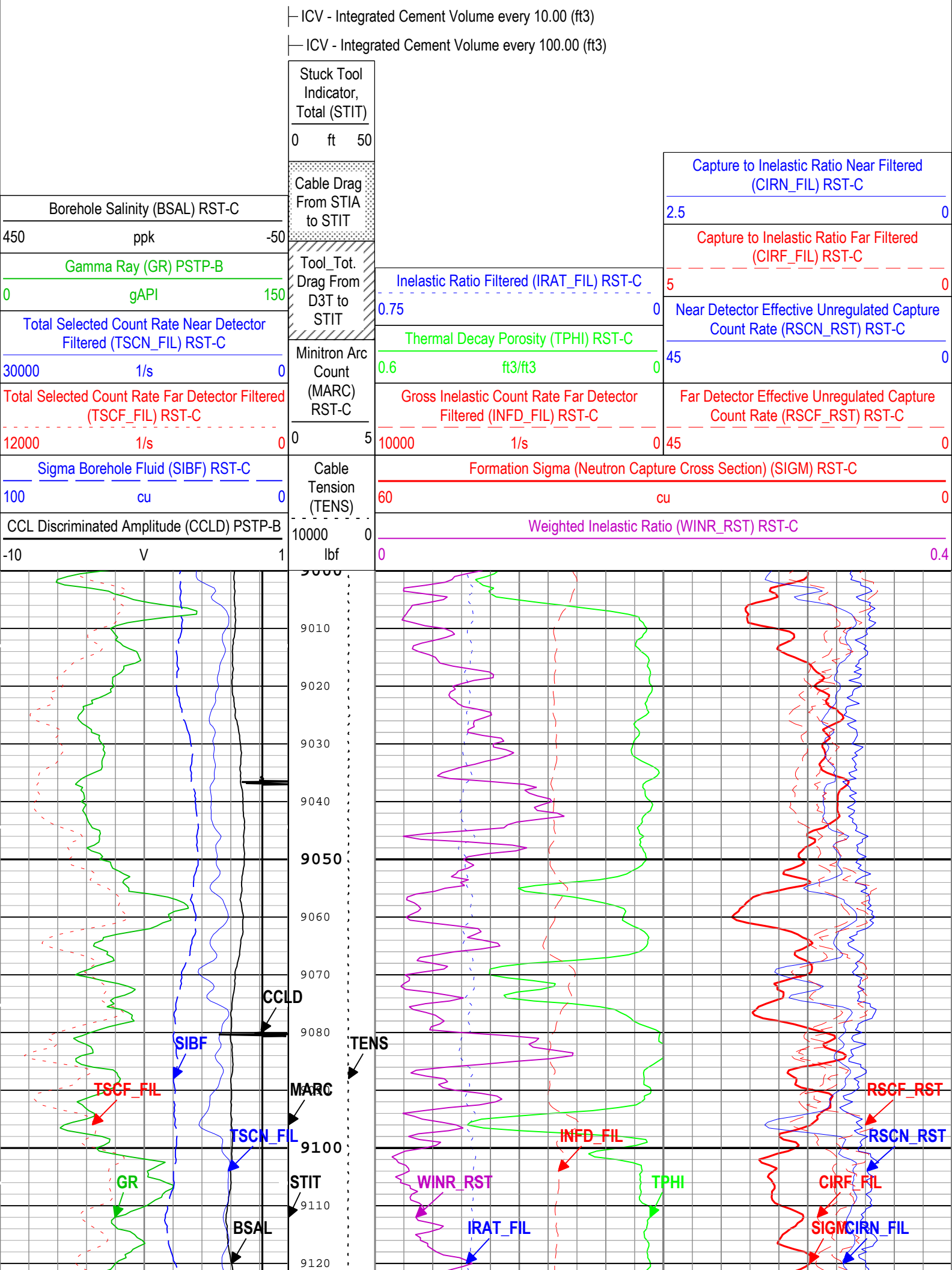
Repeat Sigma Log

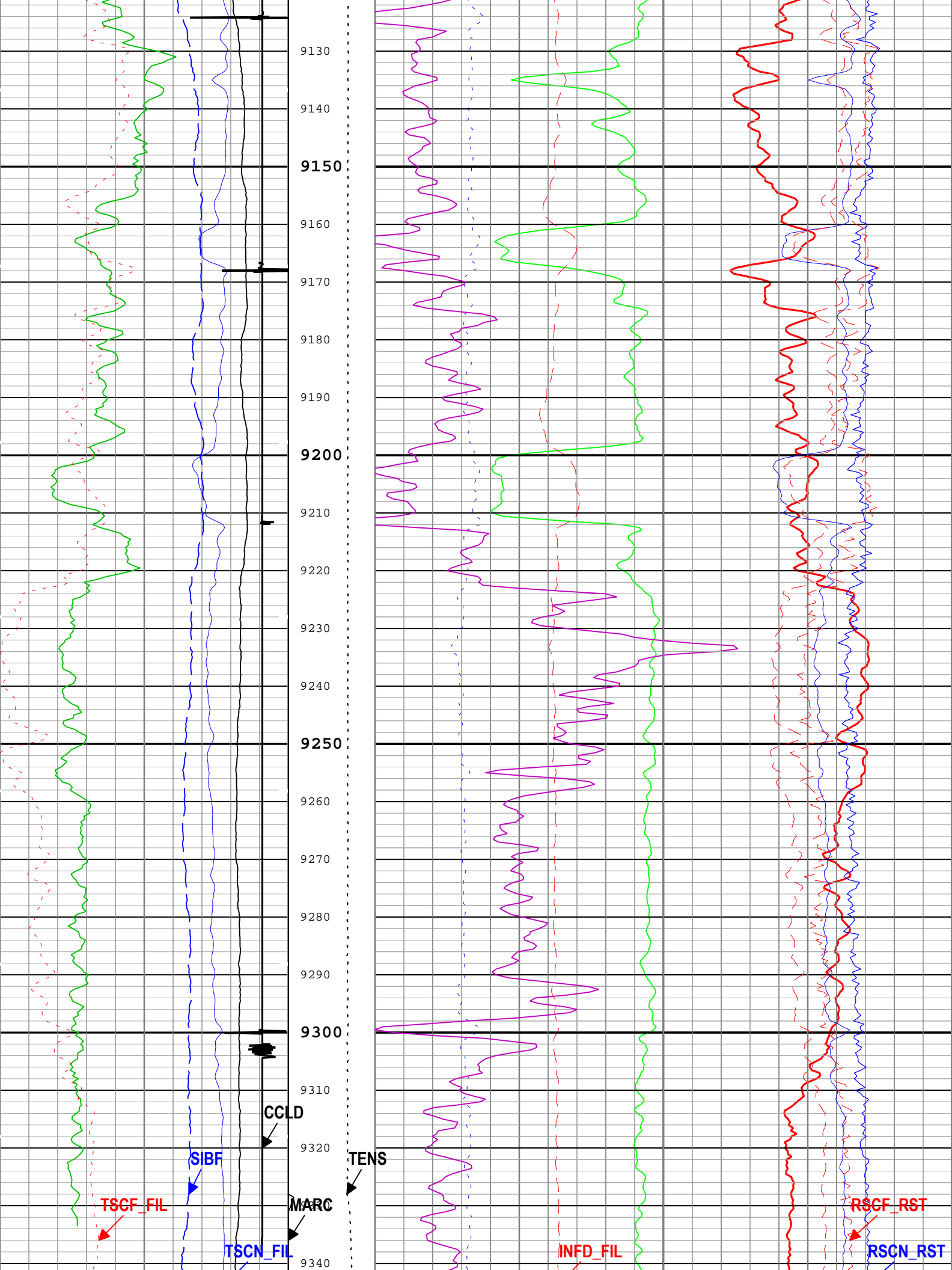
Acquisition System	Version
Maxwell 2017 SP2	7.2.87778.3100

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
RST	Log[3]:Up	Up	8994.38 ft	9361.72 ft	15-Dec-2017 19:23:34	15-Dec-2017 19:42:06	ON	7.94 ft	Yes

Log Company:CAERUS OPERATING LLC Well:Puckett 13D-23 697 RST: Log[3]:Up:S008

- |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)





9350

9360

STIT

9350

0

ft

50

Cable Drag From STIA to STIT

0

5

Tool_Tot. Drag From D3T to STIT

0

5

Minitron Arc Count (MARC) RST-C

0

5

Cable Tension (TENS)

10000

0

lbf

Borehole Salinity (BSAL) RST-C

450

ppk

-50

Gamma Ray (GR) PSTP-B

0

gAPI

150

Total Selected Count Rate Near Detector Filtered (TSCN_FIL) RST-C

30000

1/s

0

Total Selected Count Rate Far Detector Filtered (TSCF_FIL) RST-C

12000

1/s

0

Sigma Borehole Fluid (SIBF) RST-C

100

cu

0

CCL Discriminated Amplitude (CCLD) PSTP-B

-10

V

1

Formation Sigma (Neutron Capture Cross Section) (SIGM) RST-C

60

cu

0

Weighted Inelastic Ratio (WINR_RST) RST-C

0

0.4

Inelastic Ratio Filtered (IRAT_FIL) RST-C

0.75

0

Thermal Decay Porosity (TPHI) RST-C

0.6

ft3/ft3

0

Gross Inelastic Count Rate Far Detector Filtered (INFD_FIL) RST-C

10000

1/s

0

Capture to Inelastic Ratio Near Filtered (CIRN_FIL) RST-C

2.5

0

Capture to Inelastic Ratio Far Filtered (CIRF_FIL) RST-C

5

0

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

TIME_1900 - Time Marked every 60.00 (s)

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: 17-Dec-2017 22:42:16

Channel Processing Parameters				
RST: Parameters				
Parameter	Description	Tool	Value	Unit
BHS	Borehole Status (Open or Cased Hole)	Borehole	Cased	
BS	Bit Size	WLSESSION	8.75	in
BSAL	Borehole Salinity	Borehole	0	ppm
BSALOPT	Borehole Salinity Option	RST-C	Unknown	
DFT_CATEGORY	Drilling Fluid Type	Borehole	Water	
MATR	Rock Matrix for Neutron Porosity Corrections	Borehole	LIMESTONE	
Tool Control Parameters				
RST: Parameters				
Parameter	Description	Tool	Value	Unit
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	150	ft/h
PCCG	PSP Downhole CCL Gain	PSTP-B	Time Zoned	
RST_DLM	Depth Log Mode	RST-C	Sigma	

Time Zone Parameters

Parameter	Value	Start Time	Stop Time	Start Depth (ft)	Stop Depth (ft)
PCCG	12 dB	15-Dec-2017 19:23:34	15-Dec-2017 19:31:29	9361.72	9303.1
PCCG	0 dB	15-Dec-2017 19:31:29	15-Dec-2017 19:34:05	9303.1	9225.26
PCCG	12 dB	15-Dec-2017 19:34:05	15-Dec-2017 19:42:06	9225.26	8994.38
All depth are at tool zero.					

Company:

CAERUS OPERATING LLC

Well:

Puckett 13D-23 697

Field:

Grand Valley

County:

Garfield

State:

Colorado

Schlumberger

Reservoir Saturation Log

Sigma Log

Gamma Ray/CCL