Schlumberger

Company: CAERUS OIL & GAS LLC

Well: NPR 11C-9 596

Field: NPR

County: GARFIELD State: COLORADO

CEMENT BOND LOG

RST SIGMA LOG

GAMMA RAY - COLLAR LOCATOR LOG

County: GARFIELD
Field: NPR
Location: NPR G09 596 PAD
Well: NPR 11C-9 596
Company: CAERUS OIL & GAS LLC

Location:
NPR G09 596 PAD
SE 1/4 NW 1/4
SEC9,T5S,R96W

Elev.: K.B. 7673.00 ft
G.L. 7649.00 ft
D.F. 7673.00 ft

Permanent Datum: Ground Level Elev.: 7649.00 f
Log Measured From: Kelly Bushing 24.00 ft above Perm.Datum
Drilling Measured From: Kelly Bushing

API Serial No.	Section:	Township:	Range:
5045238730000	9	5S	96W

Logging Date		05-Mar-2019	
Run Number		ONE	
Depth Driller		10172.60 ft	
Schlumberger Depth		10115.00 ft	
Bottom Log Interval		10115.00 ft	
Top Log Interval		2000.00 ft	
Casing Fluid Type		Fresh Water	
Salinity			
Density		8.4 lbm/gal	
Fluid Level		8.00 ft	
BIT/CASING/TUBING STRING			
Bit Size		8.75 in	
From		2488.80 ft	
To		10172.60 ft	
Casing/Tubing Size		4.5 in	
Weight		11.6 lbm/ft	
Grade		P110	
From		0.00 ft	
To		10172.60 ft	
Max Recorded Temperatures		271.5 degF	
Logger on Bottom	Time	05-Mar-2019	16:47:00
Unit Number	Location:	MSLC-AR2 3007	EVANSTON,WY
Recorded By		BEATRIZ GUAITA	
Witnessed By		ED KOENIG	

Disclaimer

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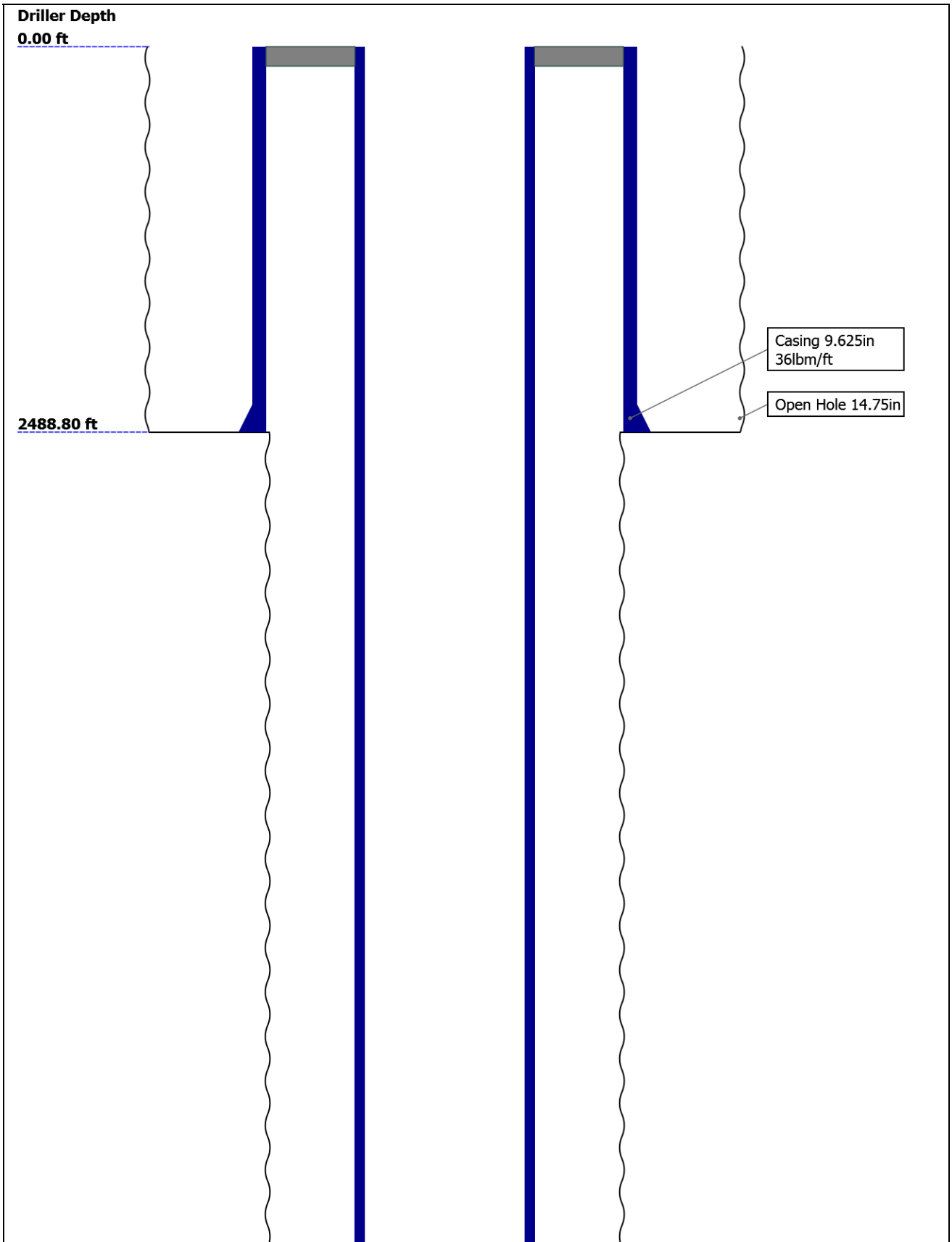
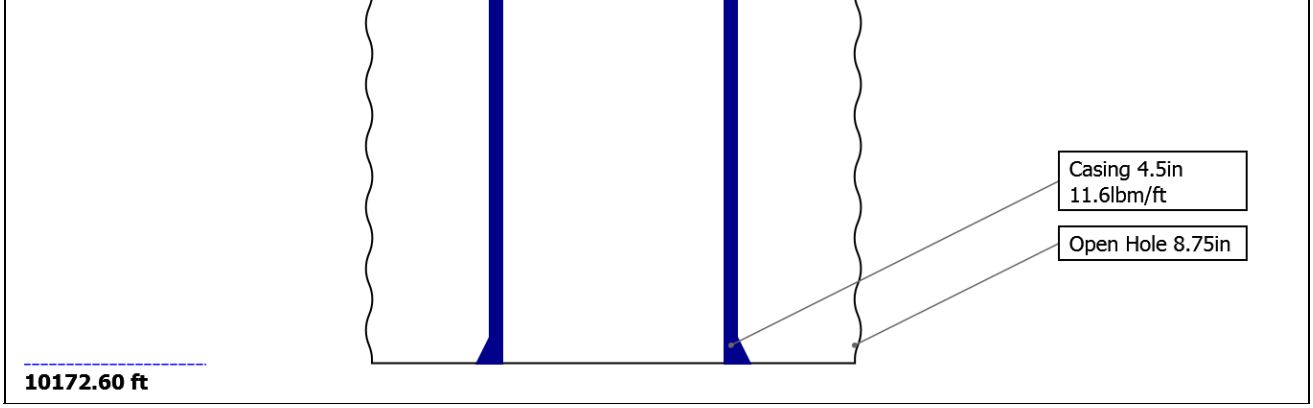
Contents

Well Sketch





Borehole Size/Casing/Tubing Record

Bit						
Bit Size (in)	14.75	8.75				
Top Driller (ft)	0	2488.8				
Top Logger (ft)	0	2488.8				
Bottom Driller (ft)	2488.8	10172.6				
Bottom Logger (ft)	2488.8	10172.6				
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)	2488.8	10172.6				
Bottom Logger (ft)	2488.8	10172.6				

Remarks and Equipment Summary

ONE: Toolstring

Equip name	Length	MP name	Offset
PEH-E	55.32		
AH-38	53.64		
PSTP-E:824	53.36		
PSC-A		**GR**	49.65
PSTC-E:822		**PSTC**	49.36
PBMS-E:824		**PSTC Tool String Bottom**	0.00
Sapphire 175: 37216		**Temperature**	46.57
		Board Temperature	46.45
		Sapphire Pressure	46.45
		CCL	45.84
		PBMS	45.09
RST-C:389	45.09		
RSCH-A:218			
RSC-E:270			
RSS-A:507			
MNTR-F:1688 -51463			
RSXH-A:386			
RSX-E:389			
		RSC-E	38.73

ONE: Remarks

ONE: Remarks
Toolstring ran as per Tool Scketch.
Gemcos ran for Tool Centralization.
RST Mode: Sigma.
Matrix: Sandstone.
Max Recorded Temperature: 271.5 DegF.
Max Recorded Pressure: 4251 psi.
SLB Depth: 10115 ft.
Cycle Skipping due to Good Quality Cement.
Thank you for choosing Schlumberger!.

Lengths are in ft
Maximum Outer Diameter = 1.720 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	6912		
Calibration Date	21-JAN-2019		
Calibrator Serial Number	57		
Calibration Cable Type	1-25ZA-XXS		
Wheel Correction 1	-4		
Wheel Correction 2	-5		
Tension Device			
Type	CMTD-B/A		
Serial Number	5036		
Calibration Date	22-JAN-2019		
Calibrator Serial Number	282973A		
Number of Calibration Points	10		
Calibration Root Mean Square Error	16		
Calibration Peak Error	22		
Logging Cable			
Type	1-25ZA-XXS		
Serial Number	F112140		
Length	17000.00 ft		
Conveyance Type	Wireline		
Rig Type	MAST		

ONE:Depth Control Parameters		Depth Control Remarks
Log Sequence	First Log In the Well	All Schlumberger depth control procedures followed.
Rig Up Length At Surface		IDW used as primary depth control procedures.
Rig Up Length At Bottom		Z-Chart used as secondary depth control procedures.
Rig Up Length Correction		Log Correlated with Down log.
Stretch Correction	4.73 ft	
Tool Zero Check At Surface		

ONE

CBL-VDL Main Pass [5:100]

Software Version

Acquisition System	Version
Maxwell 2018 SP2	8.2.104493.3100
Application Patch	Wireline_Hotfix-Mandatory-2018.2_8.2.108371

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
ONE	Log[2]:Up	Up	1972.62 ft	10130.45 ft	05-Mar-2019 3:27:54 PM	05-Mar-2019 8:02:09 PM	ON	4.73 ft	No

All depths are referenced to toolstring zero

Log

Company:CAERUS OIL & GAS LLC Well:NPR 11C-9 596

ONE: Log[2]:Up:S013

Description: Sonic CBL with VDL Format: Log (Sonic CBL with VDL) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation

Date: 05-Mar-2019 20:48:28

BIEP - Bond Index Event Pips SCMT-CB

TIME_1900 - Time Marked every 60.00 (s)

Cable Tension (TENS)
0 lbf 1800

Stuck Tool Indicator, Total (STIT)
0 ft 50

Cable Drag

Tool_Tot. Drag

CBL Amplitude (CBL) SCMT-CB
0 mV 10

CBL Amplitude (CBL) SCMT-CB
0 mV 100

Good Bond (GOBO)
0 mV 10

GoodBond From CBL to GOBO

Gamma Ray (GR) PSTP-E
0 gAPI 150

Transit Time for CBL (TT) SCMT-CB
400 us 200

CCL Discriminated Amplitude (CCLD) PSTP-E
-10 V 1

Min Amplitude Max

VDL VariableDensity (VDL) SCMT-CB
200 us 1200

2000
2010
2020
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2110
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CCLD
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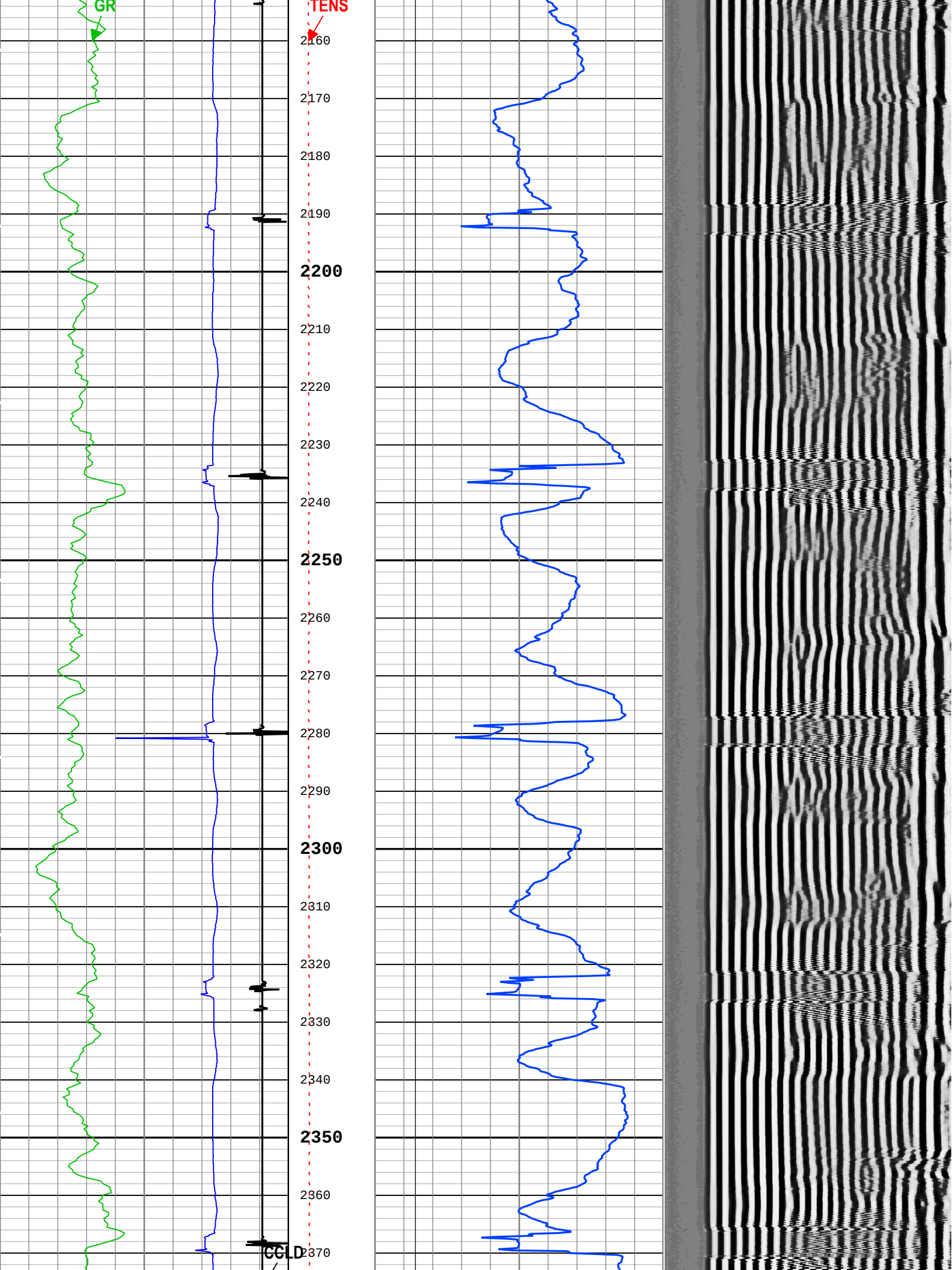
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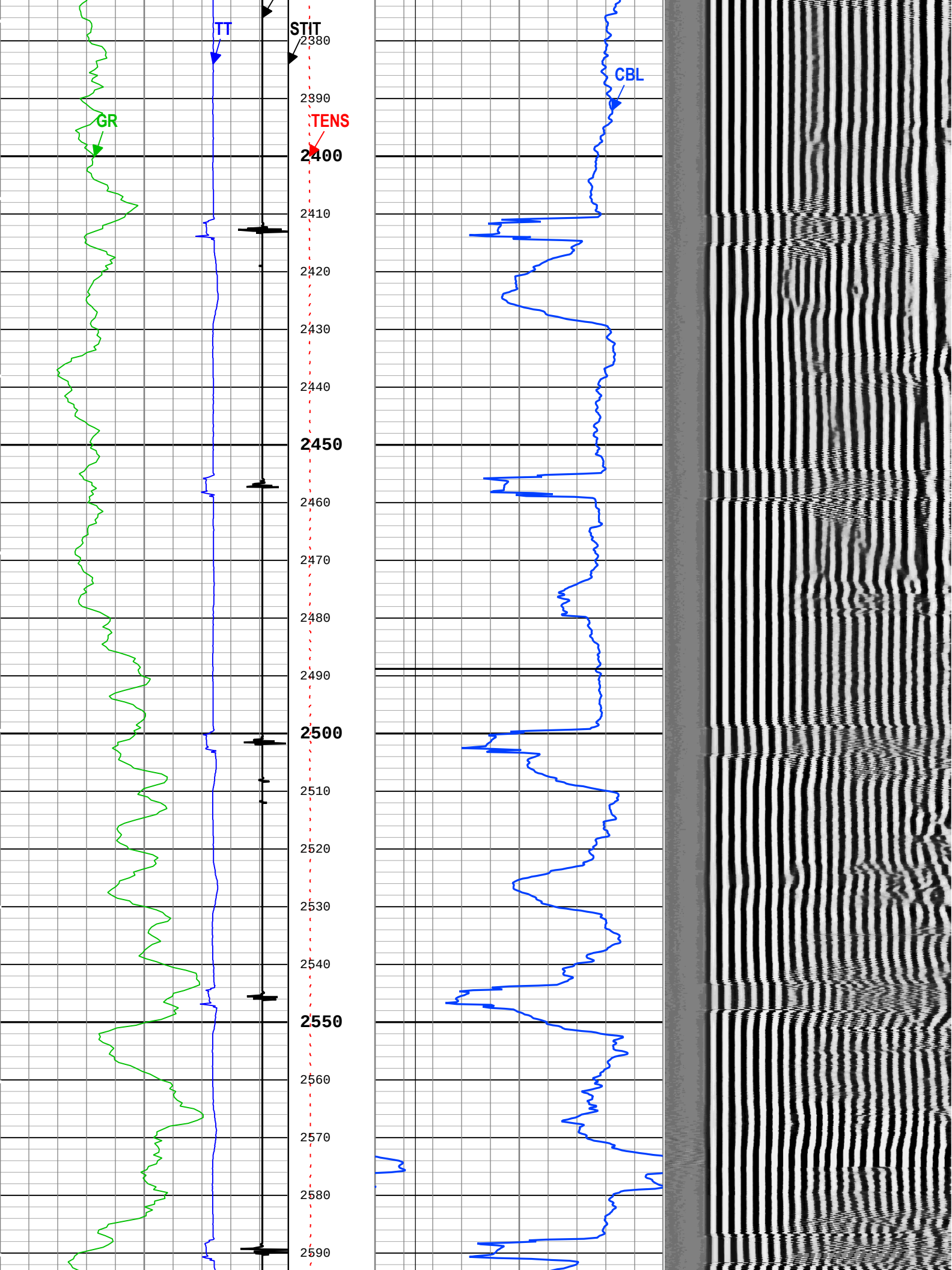
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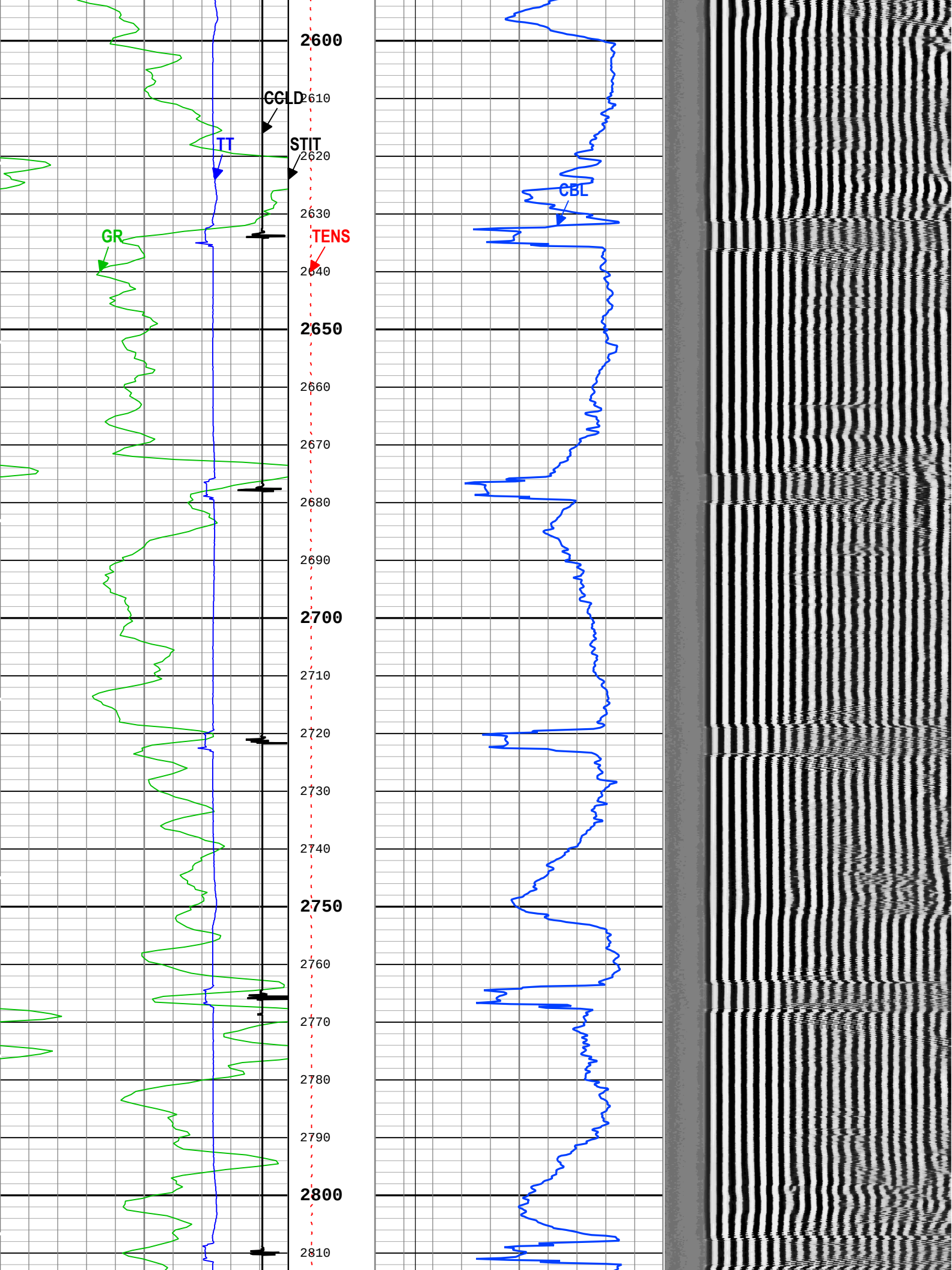
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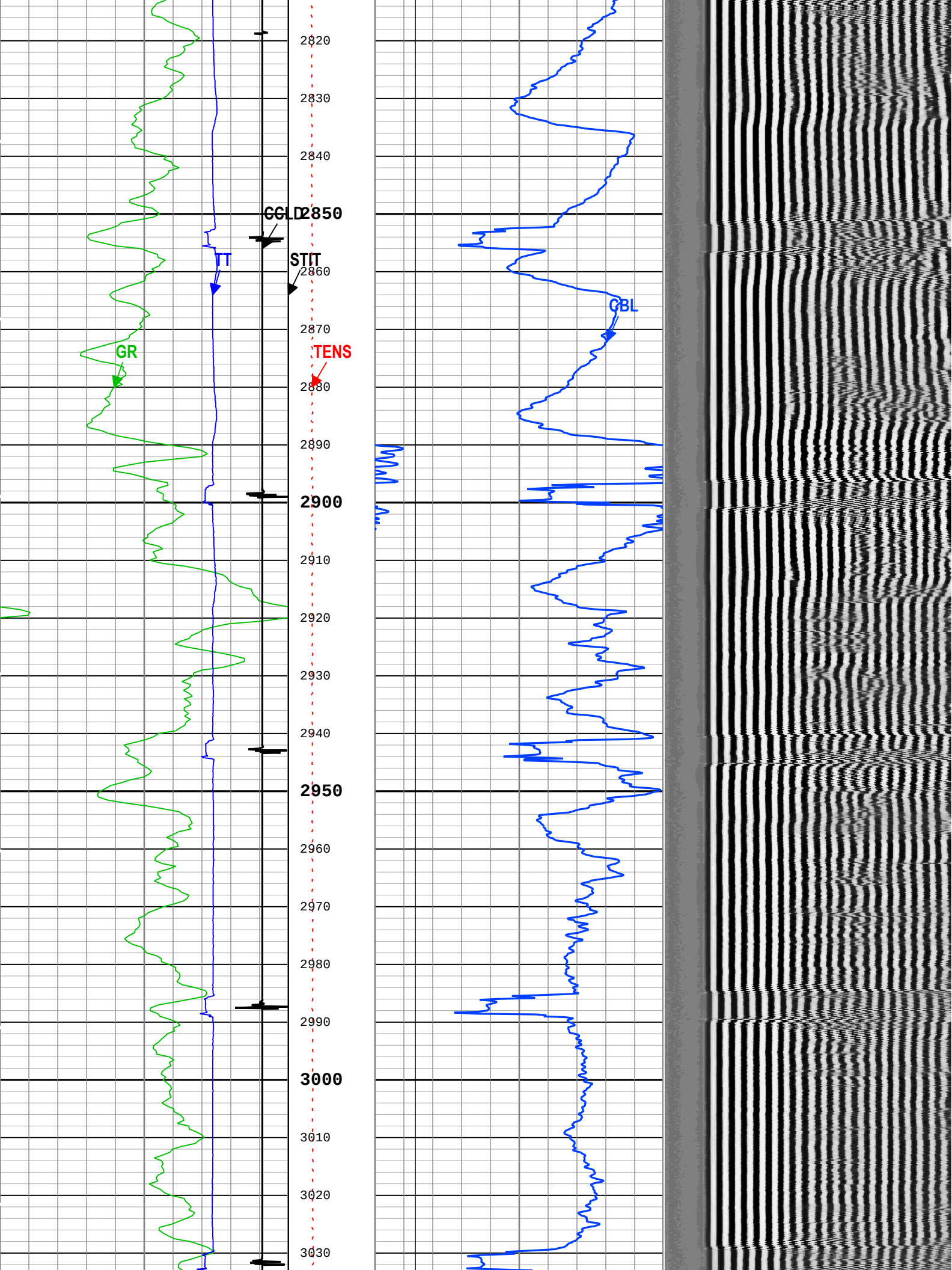
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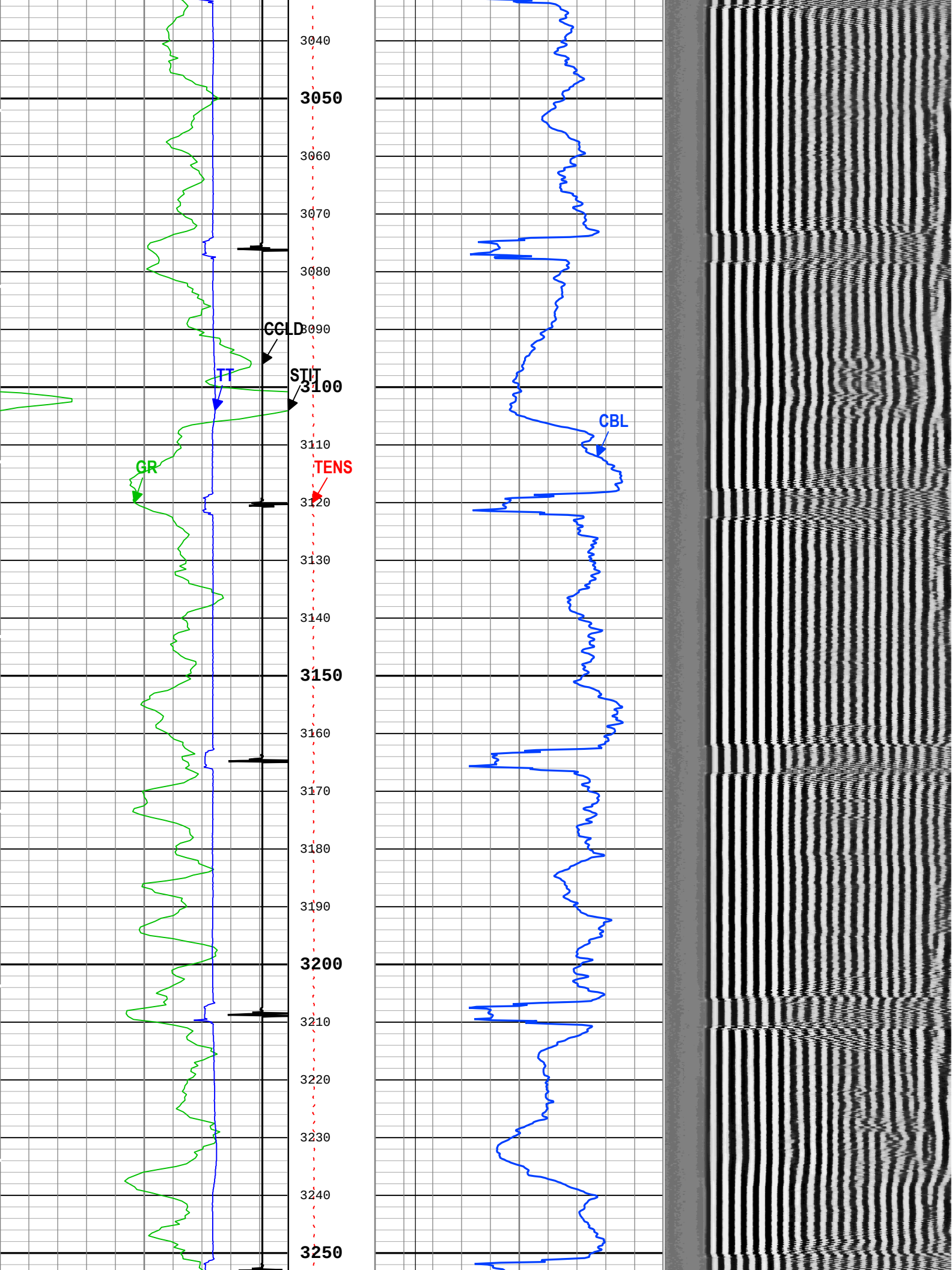
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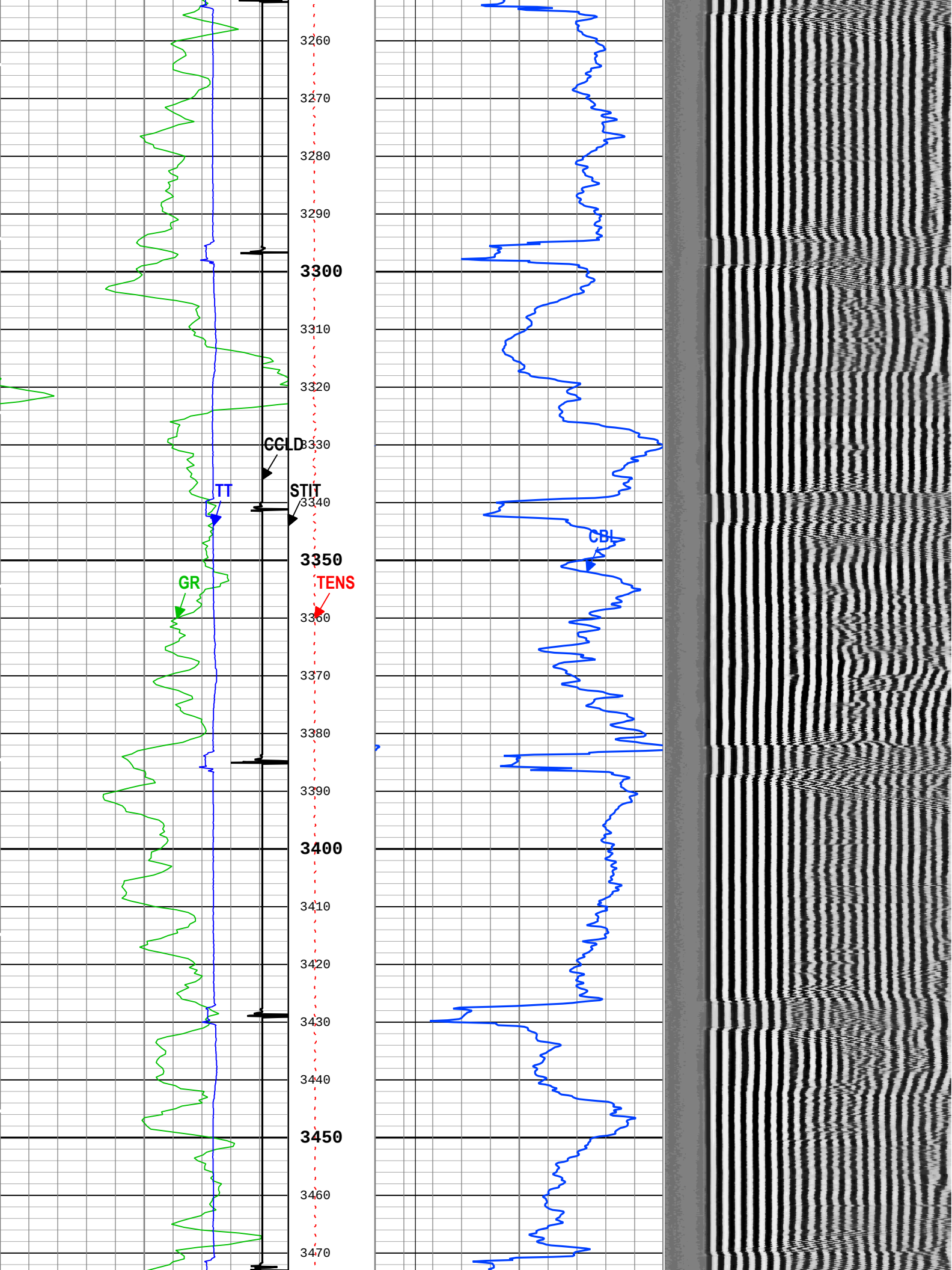
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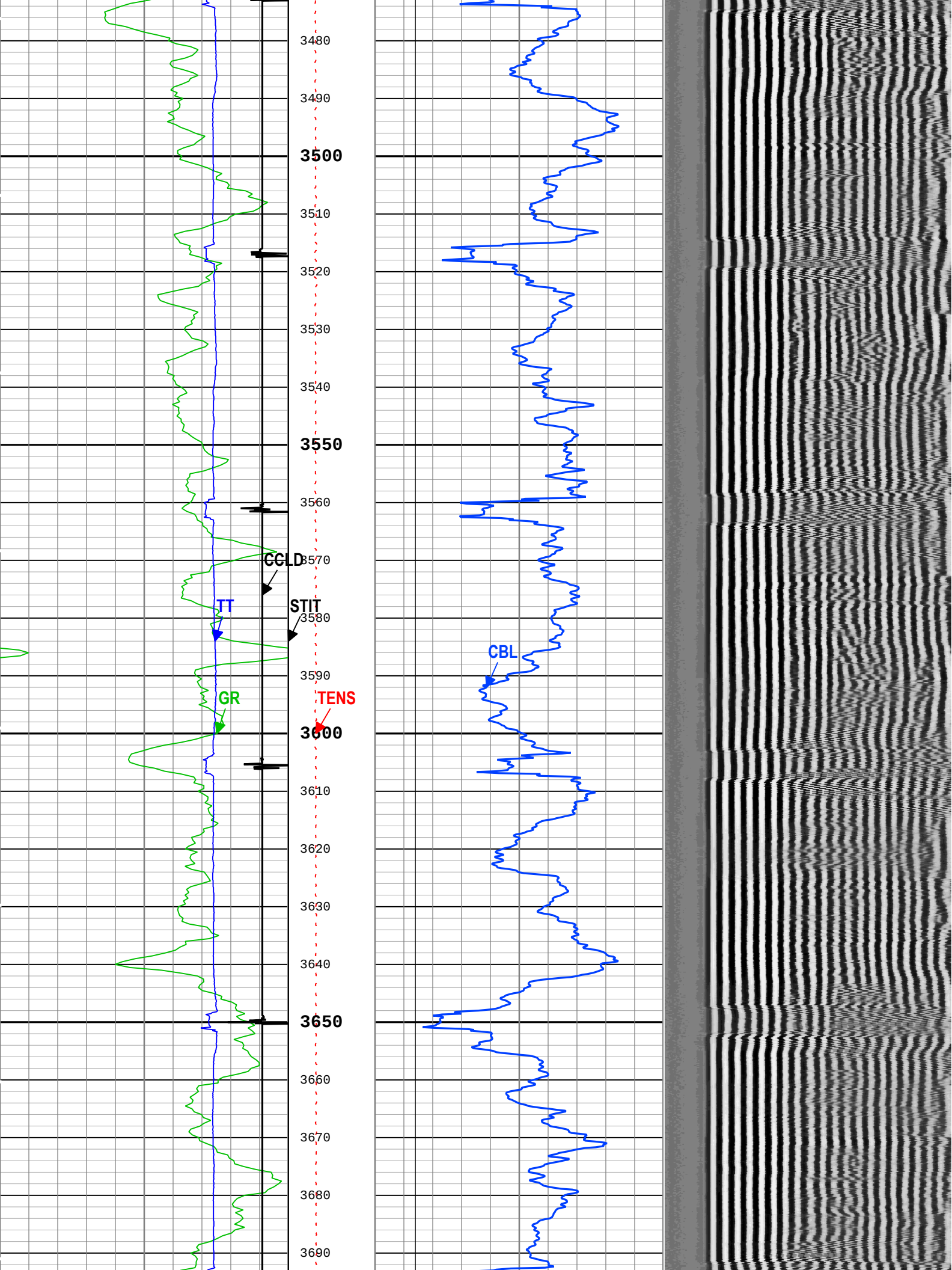
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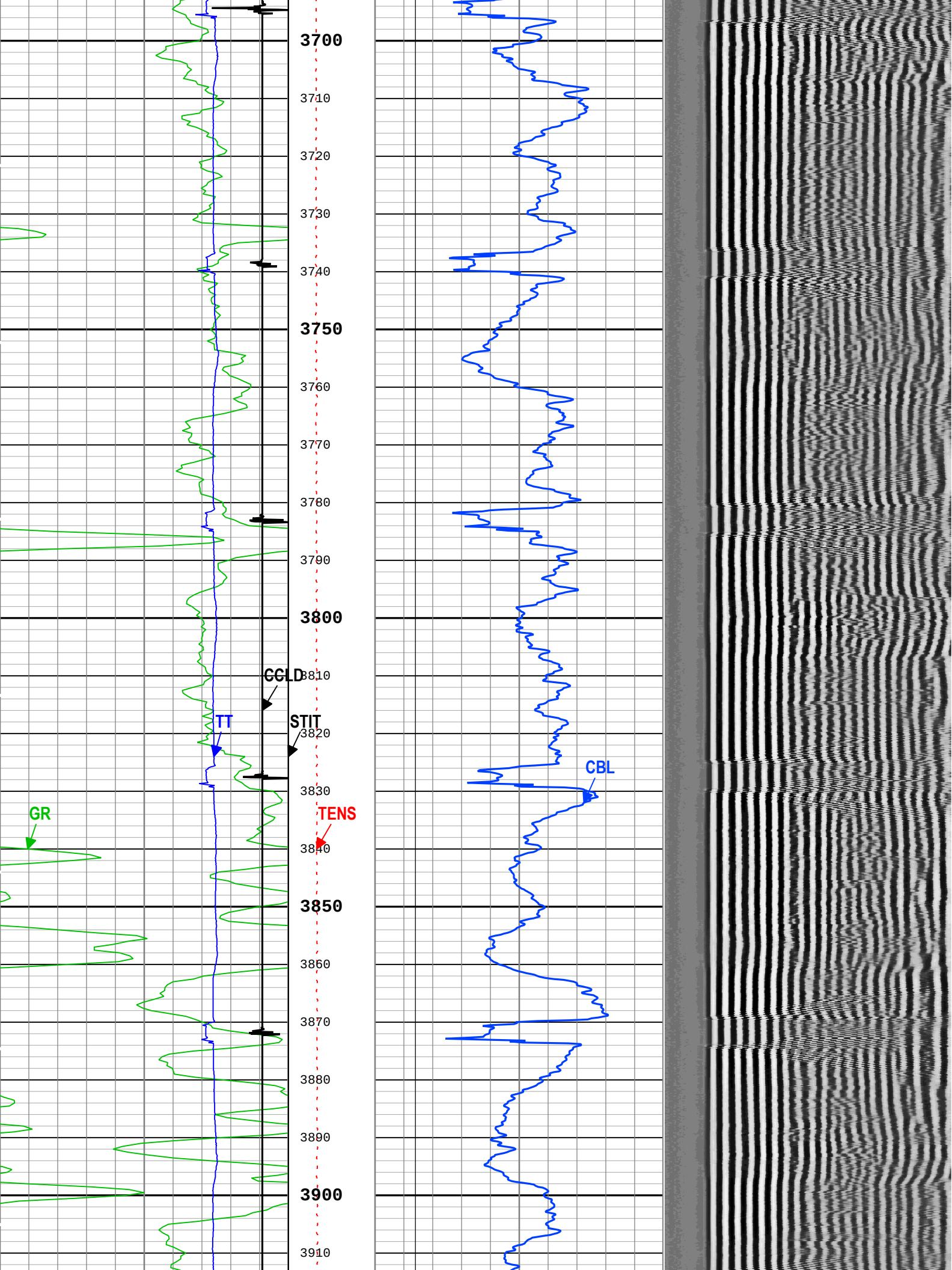
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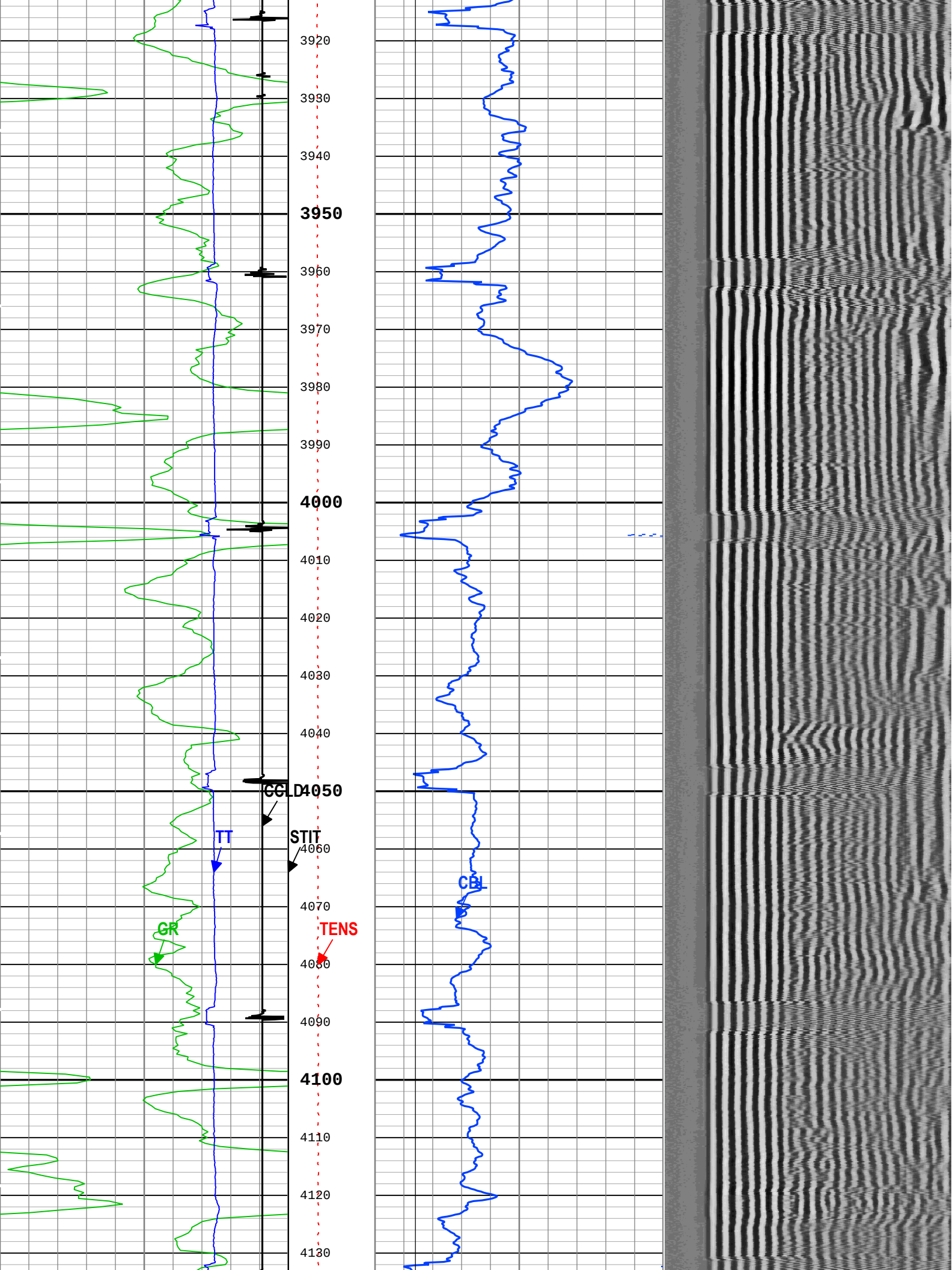
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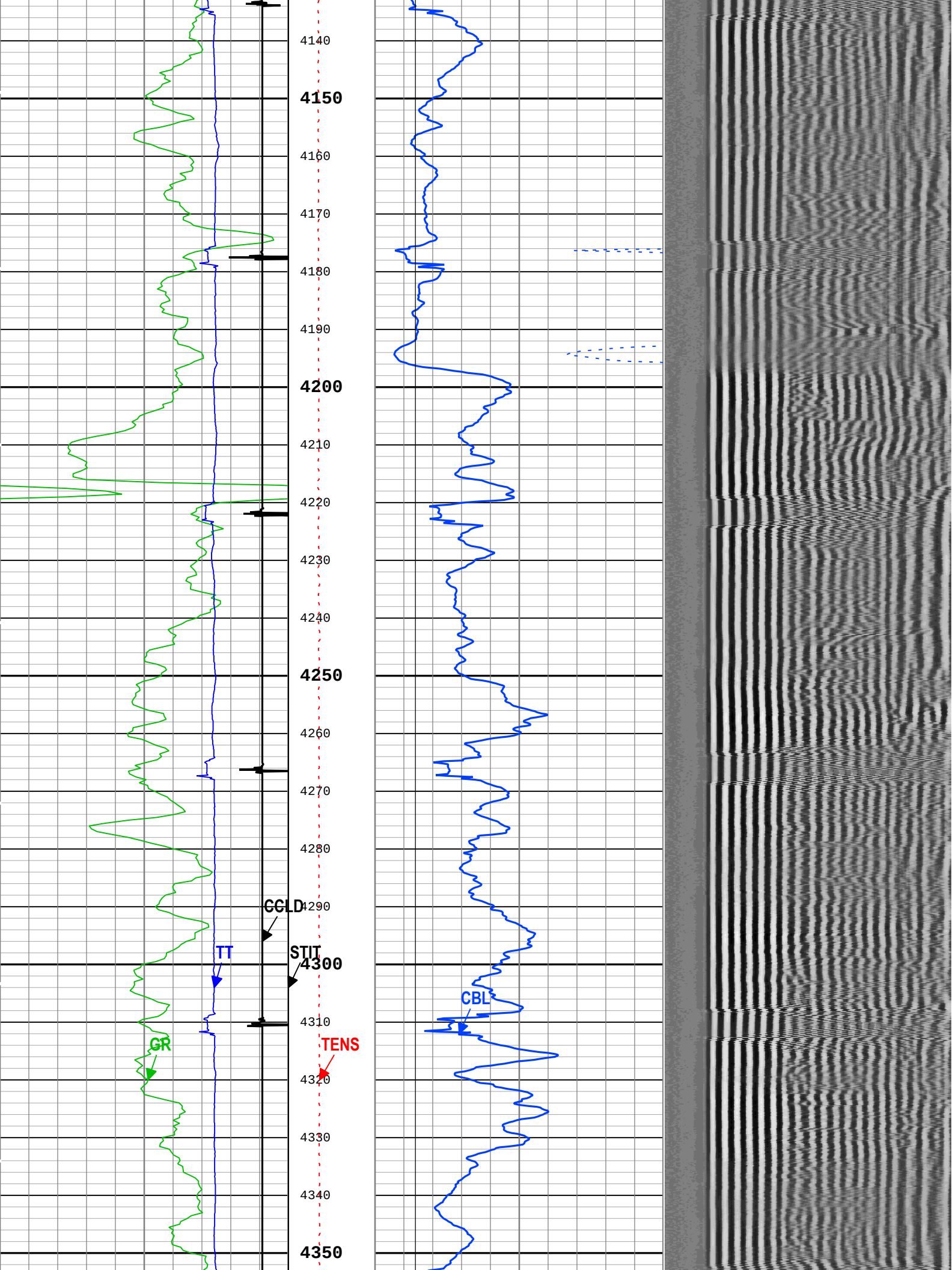
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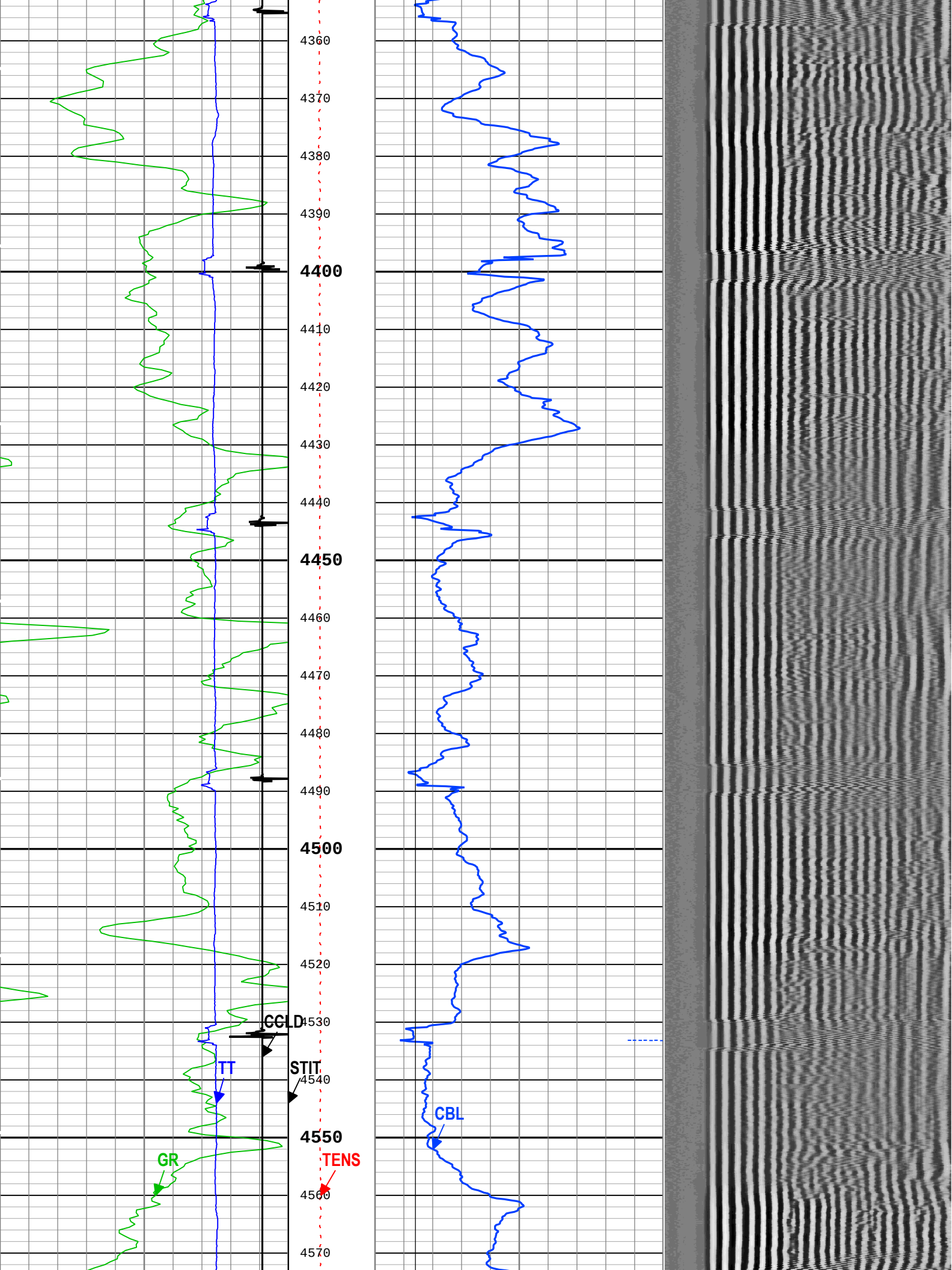
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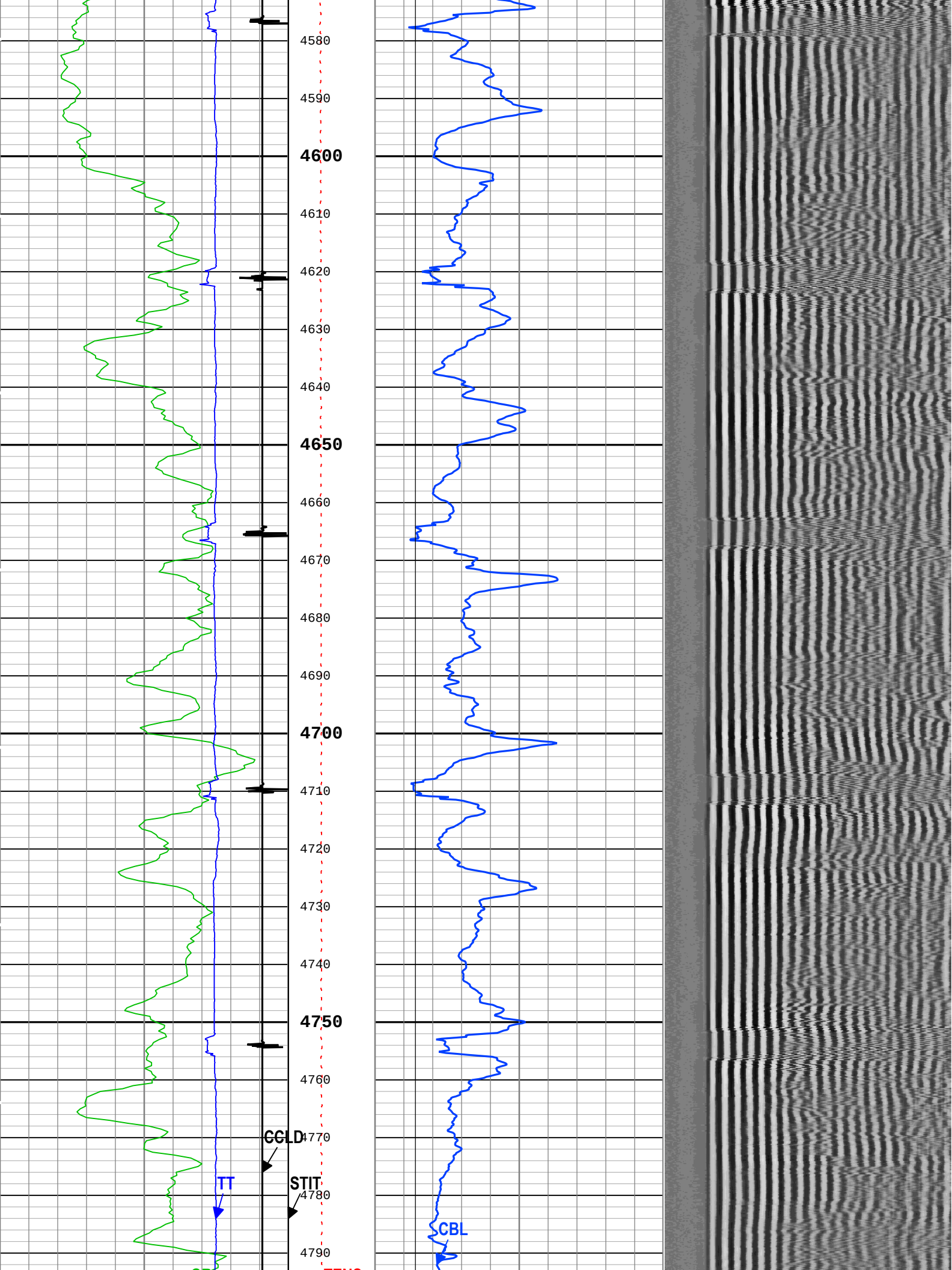
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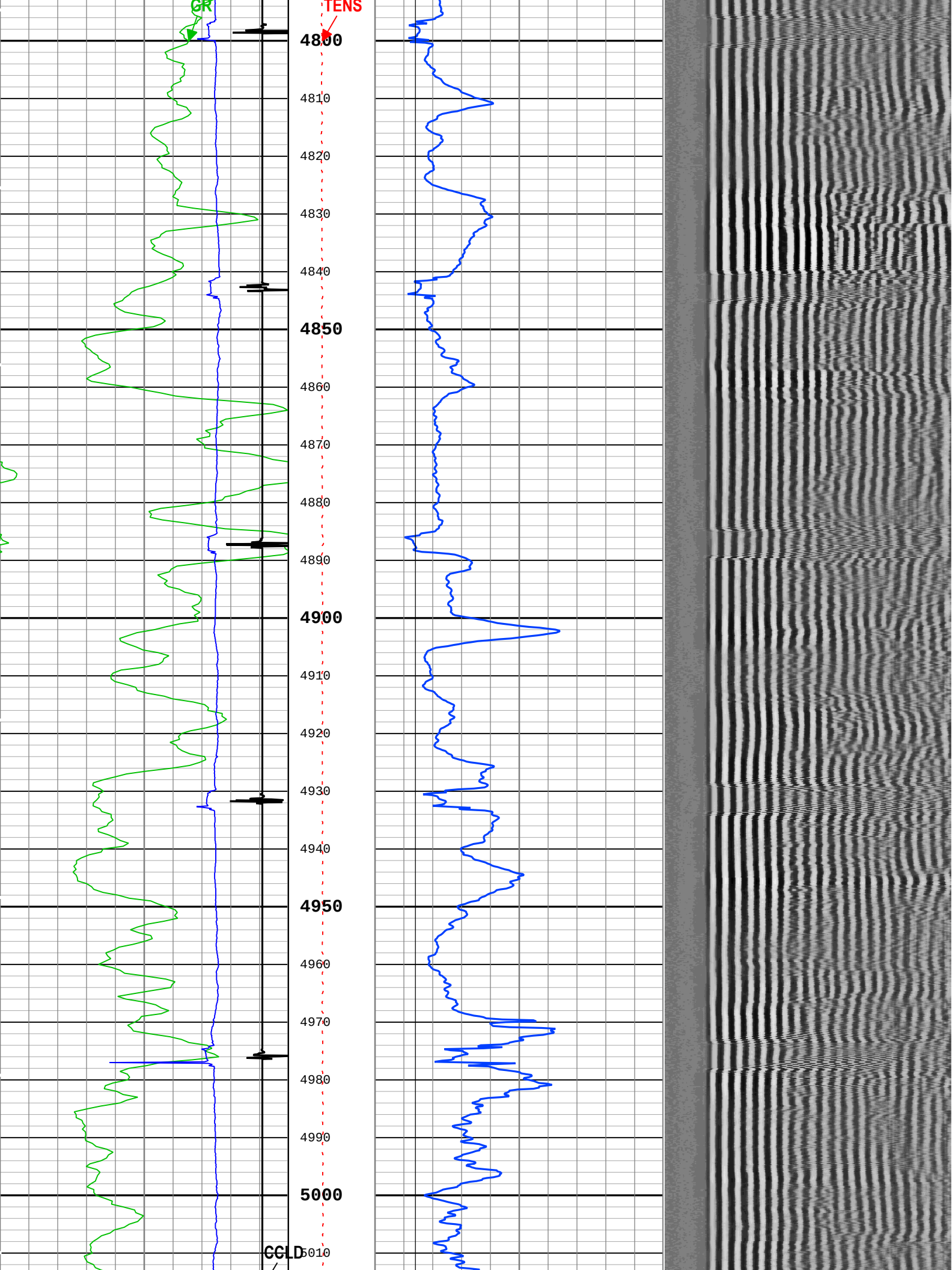
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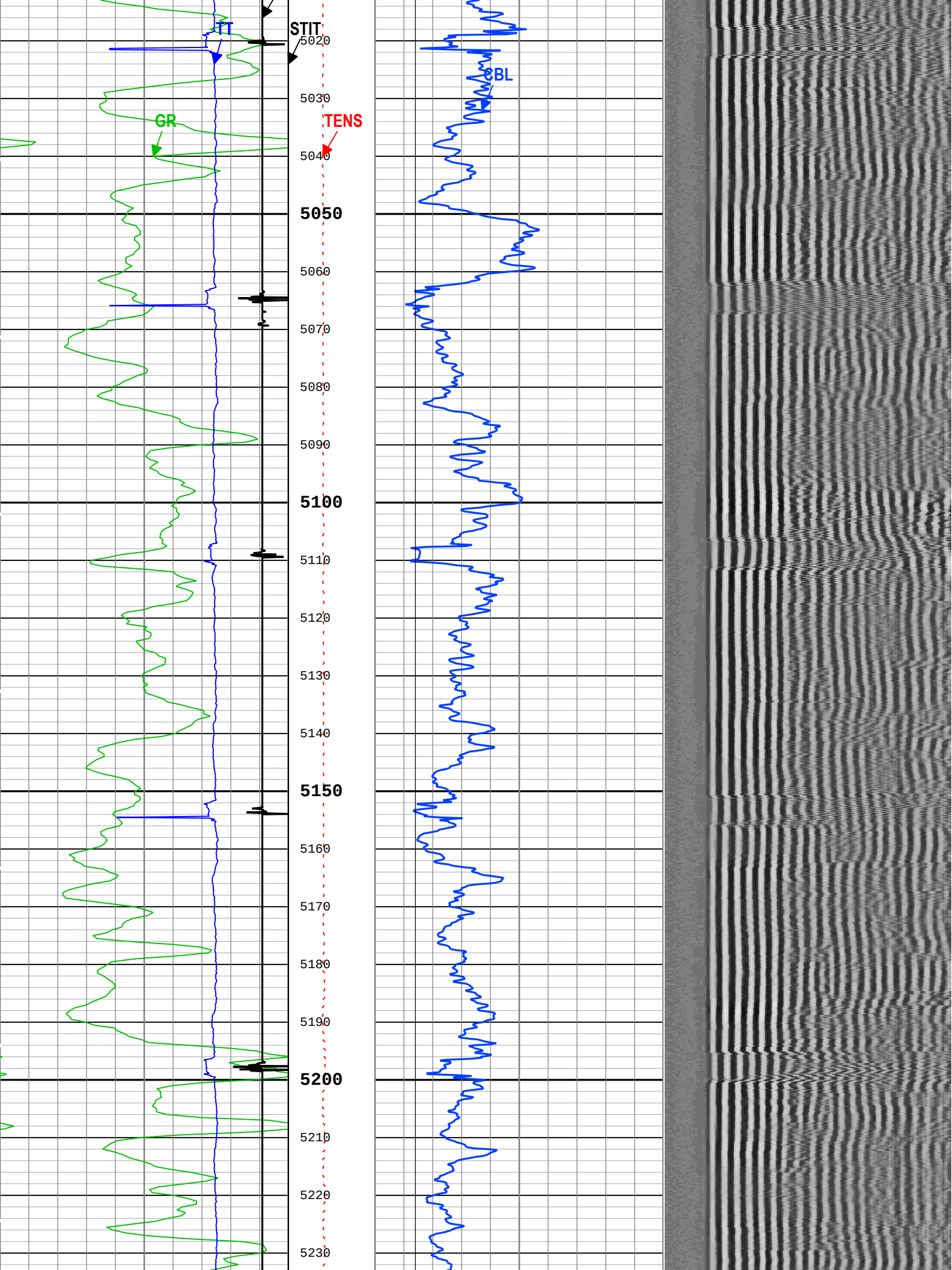
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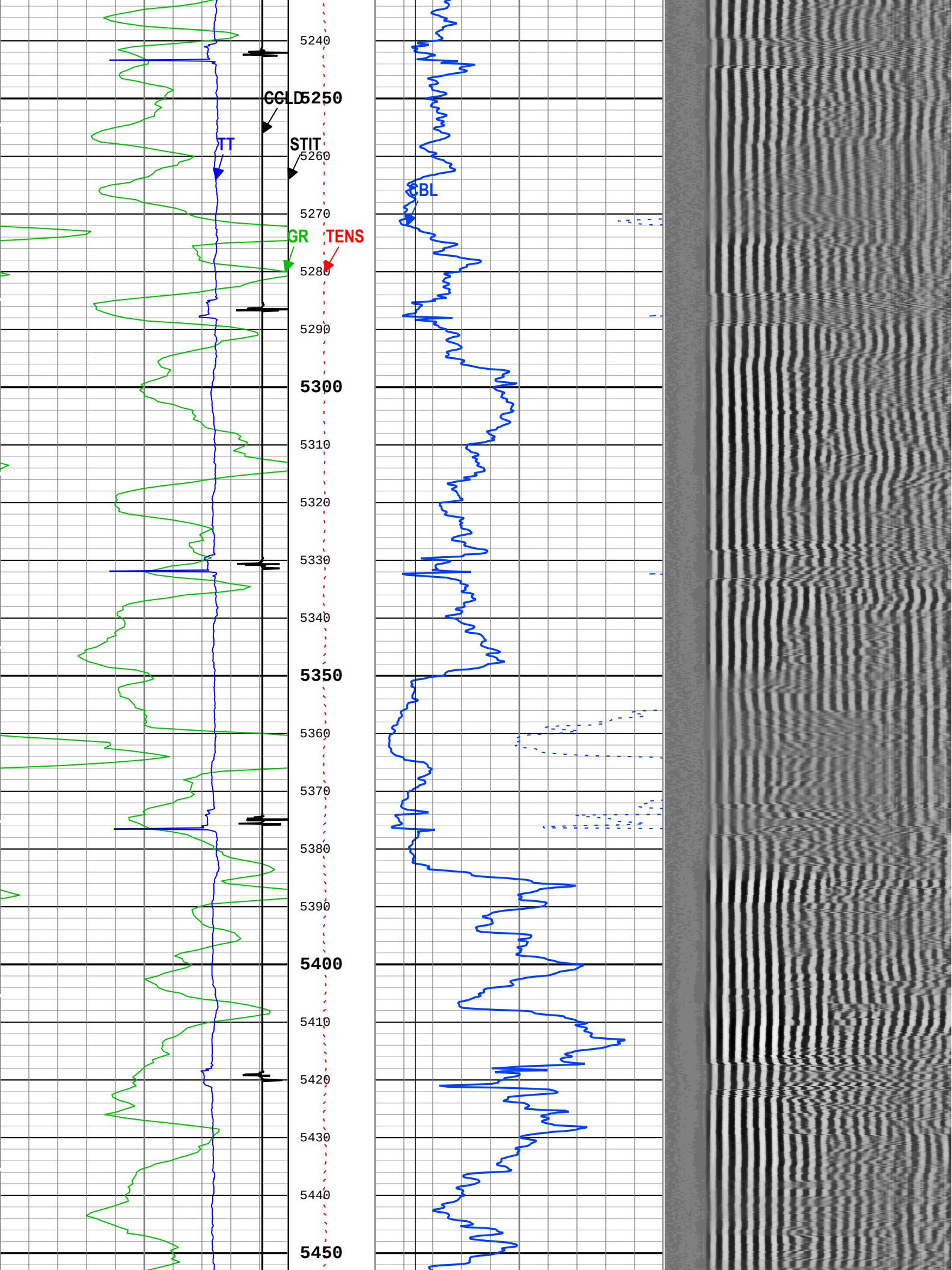
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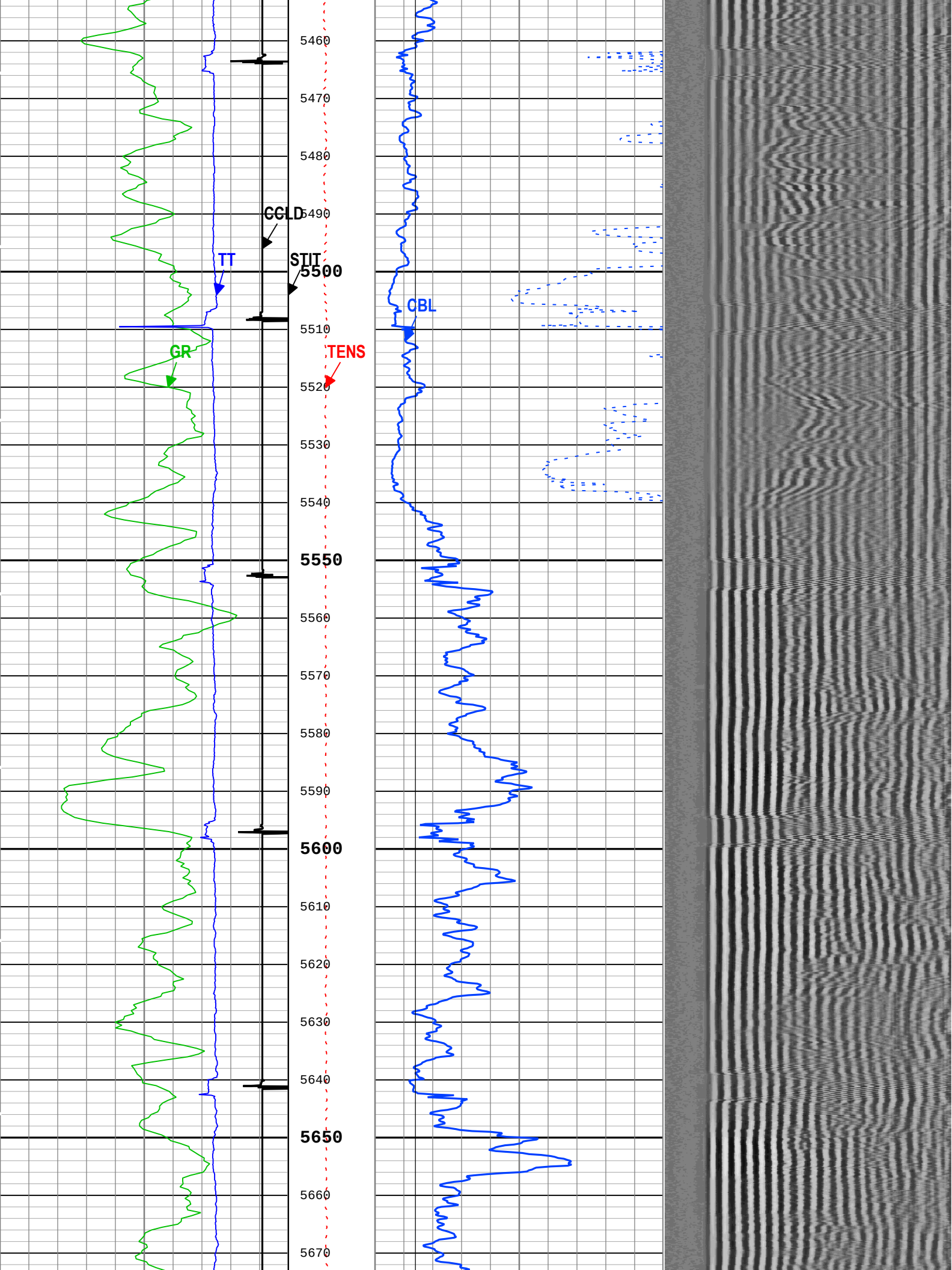
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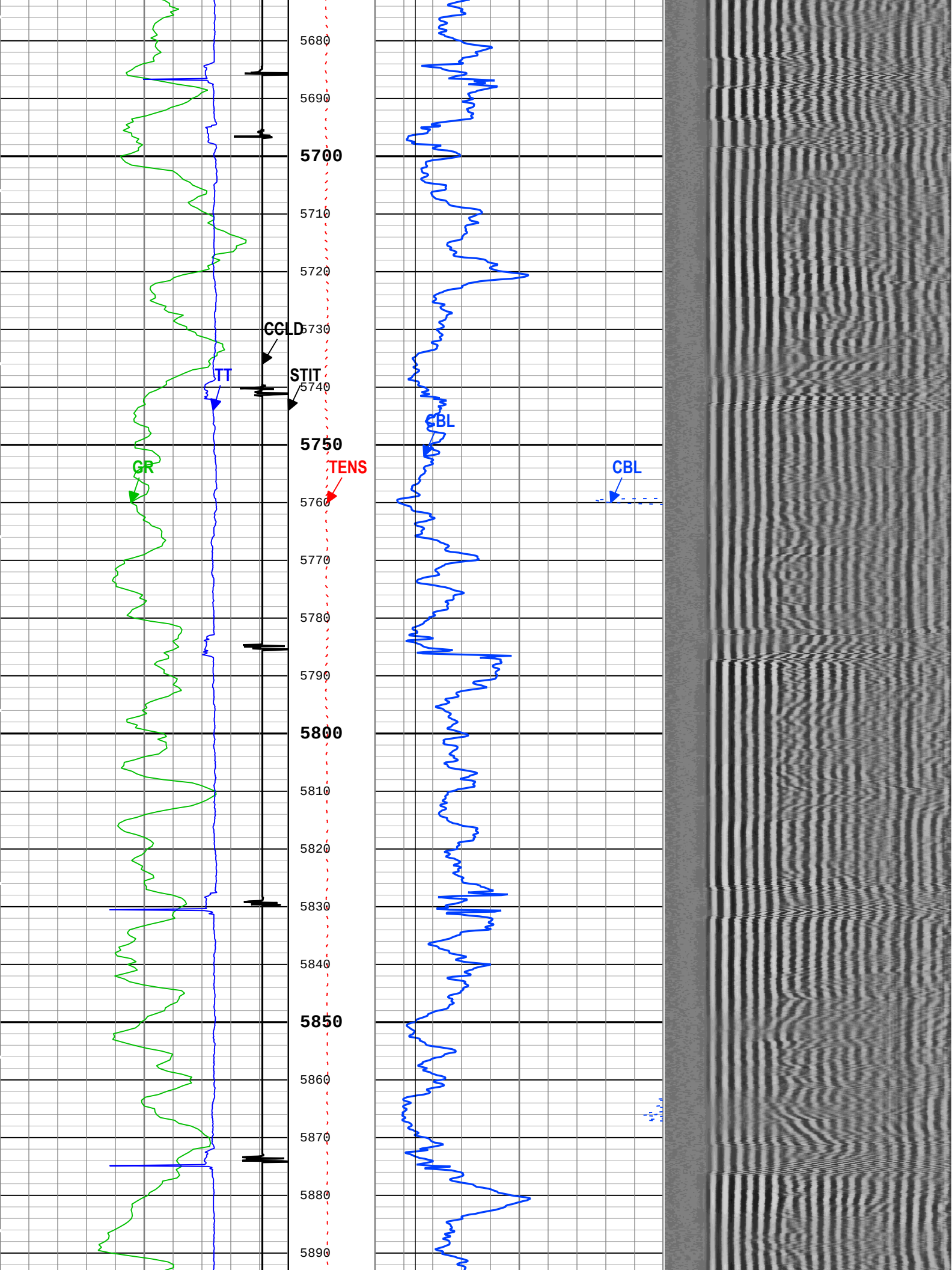
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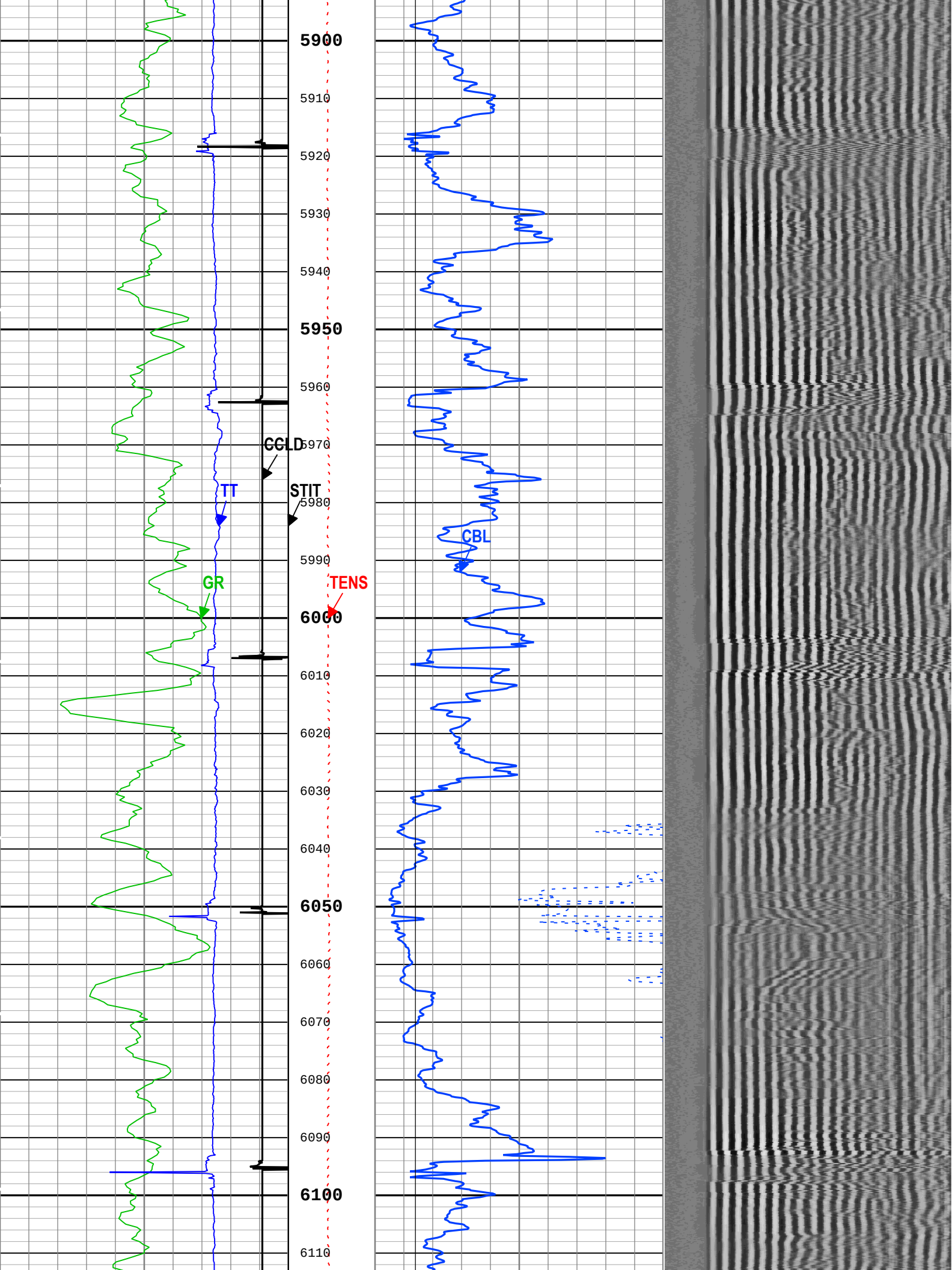
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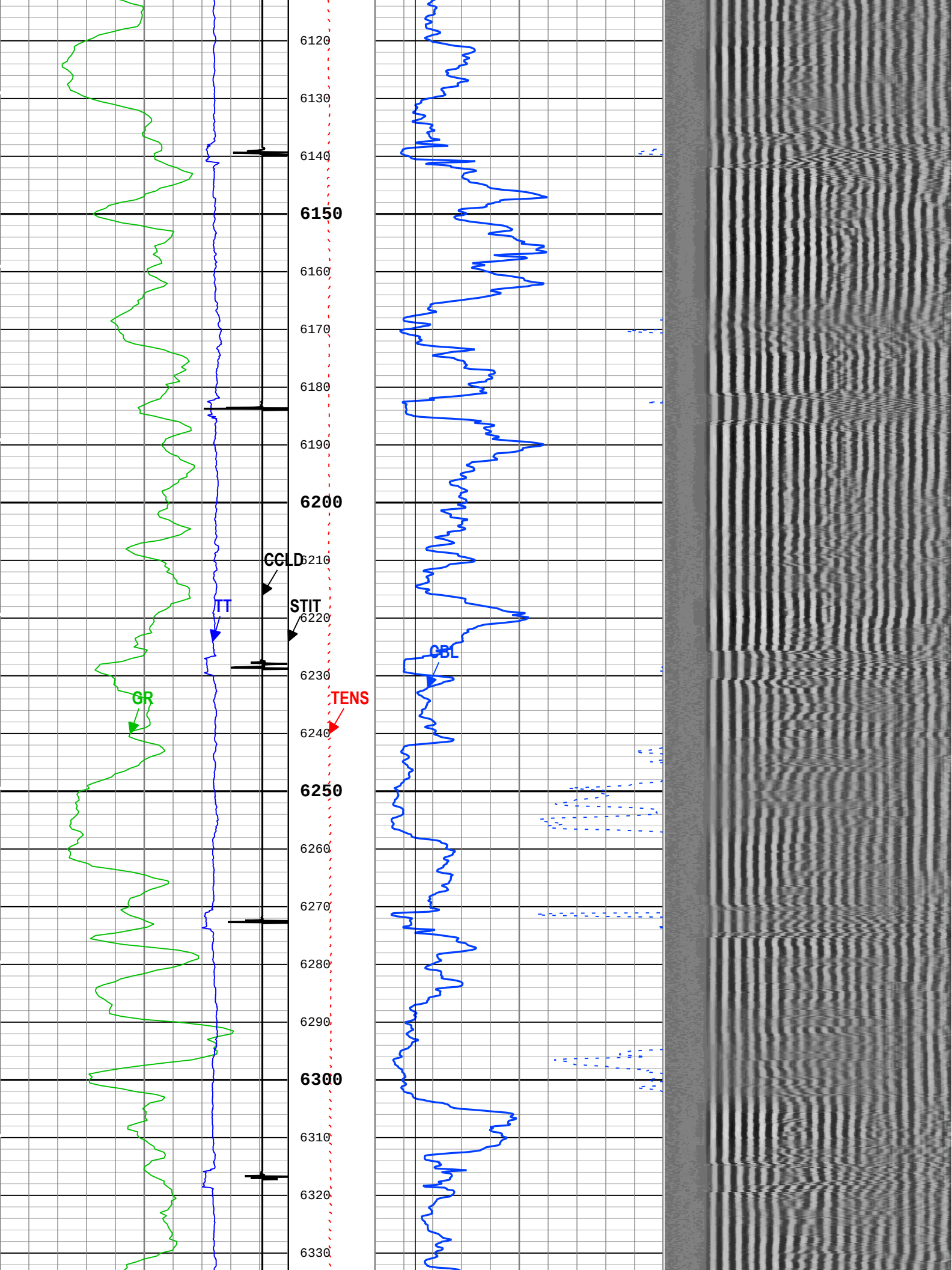
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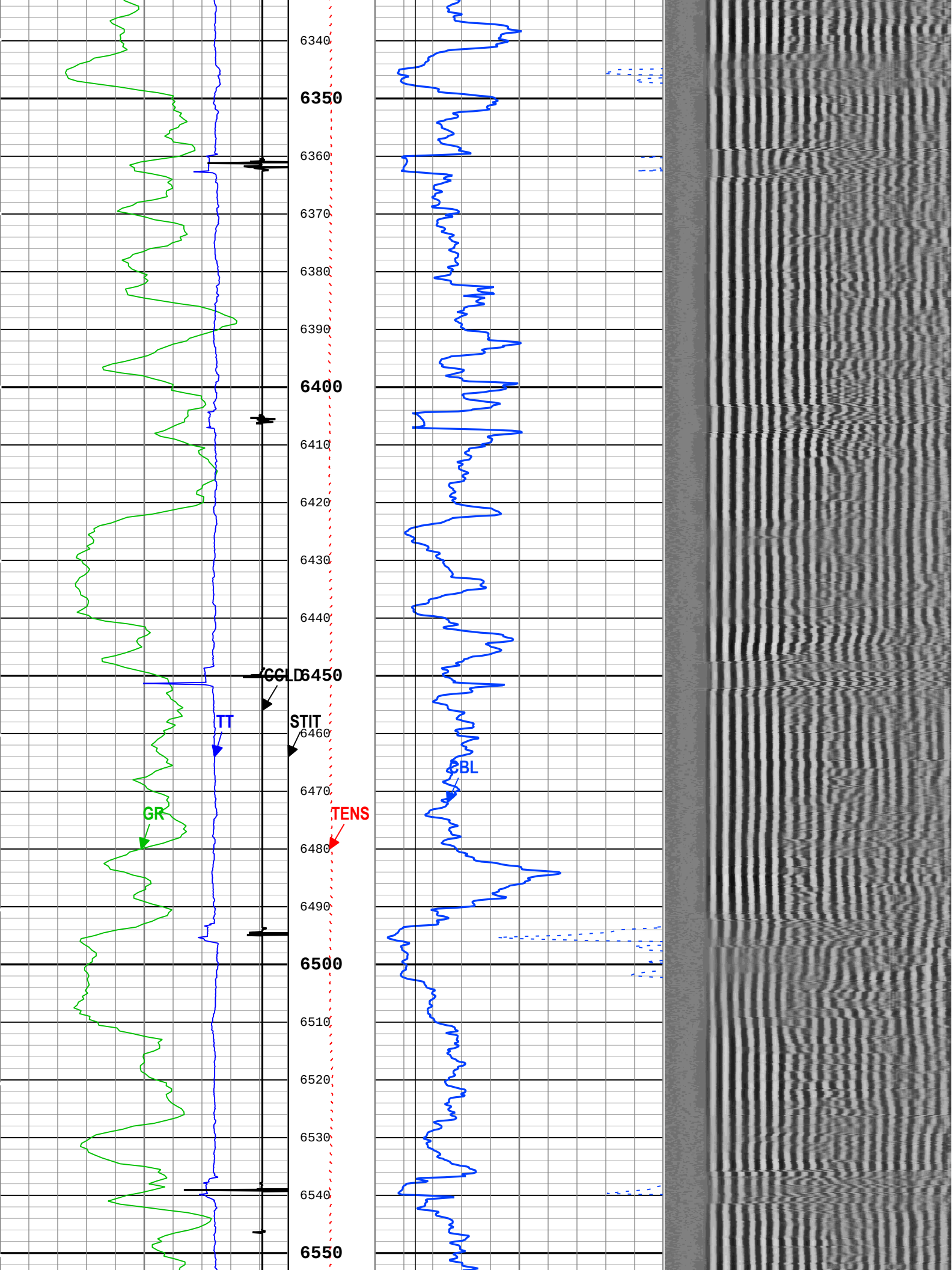
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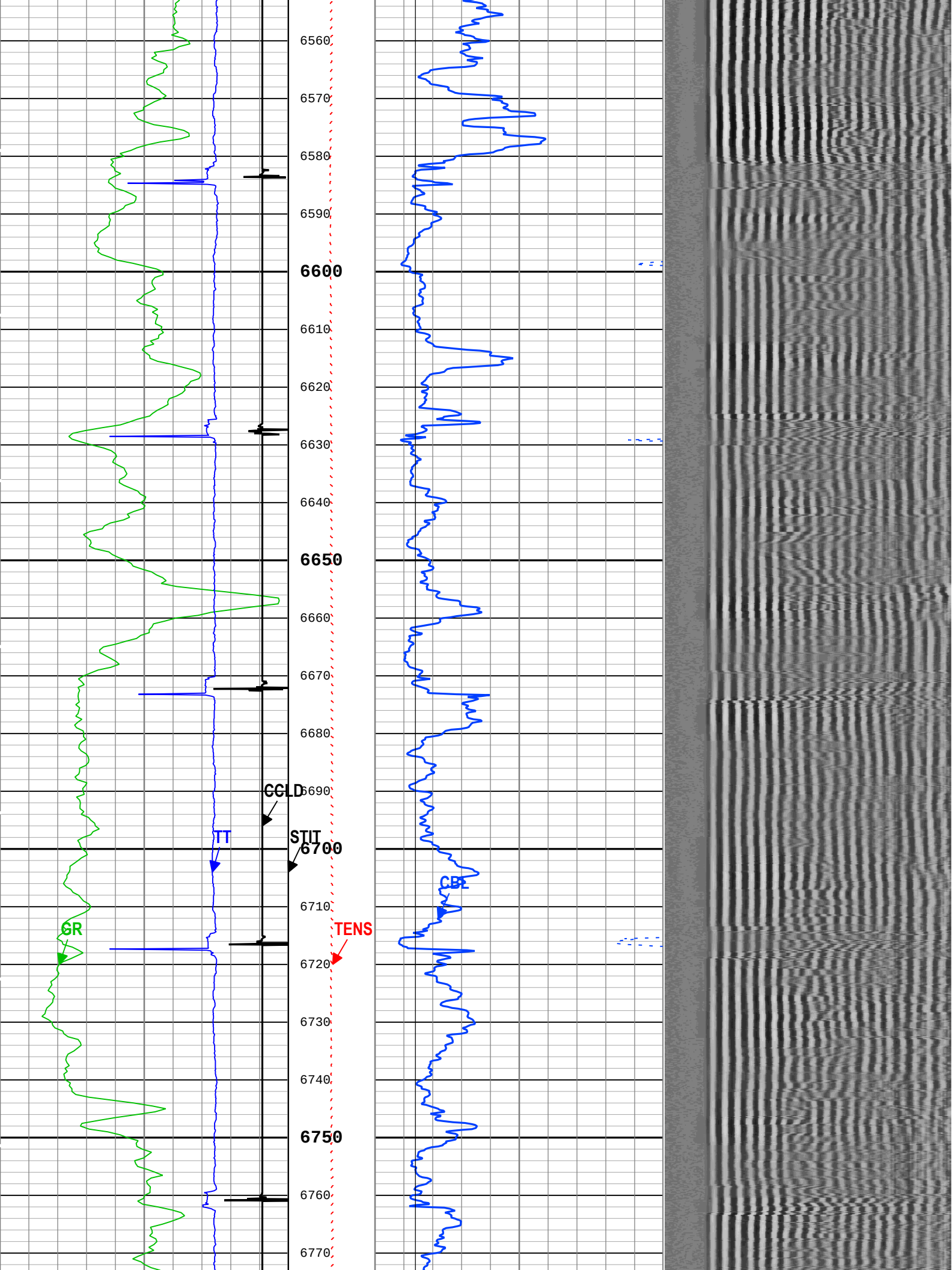
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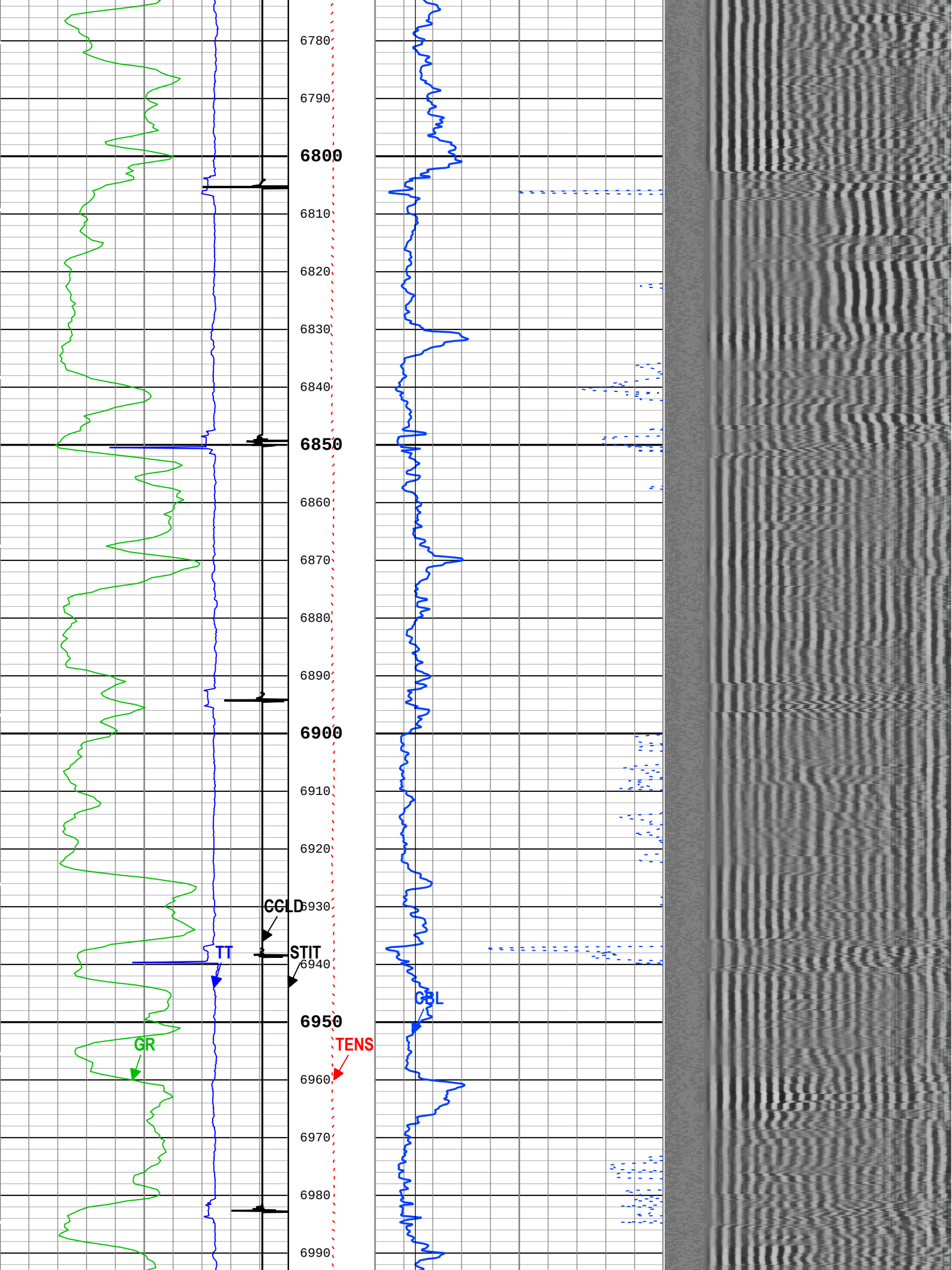
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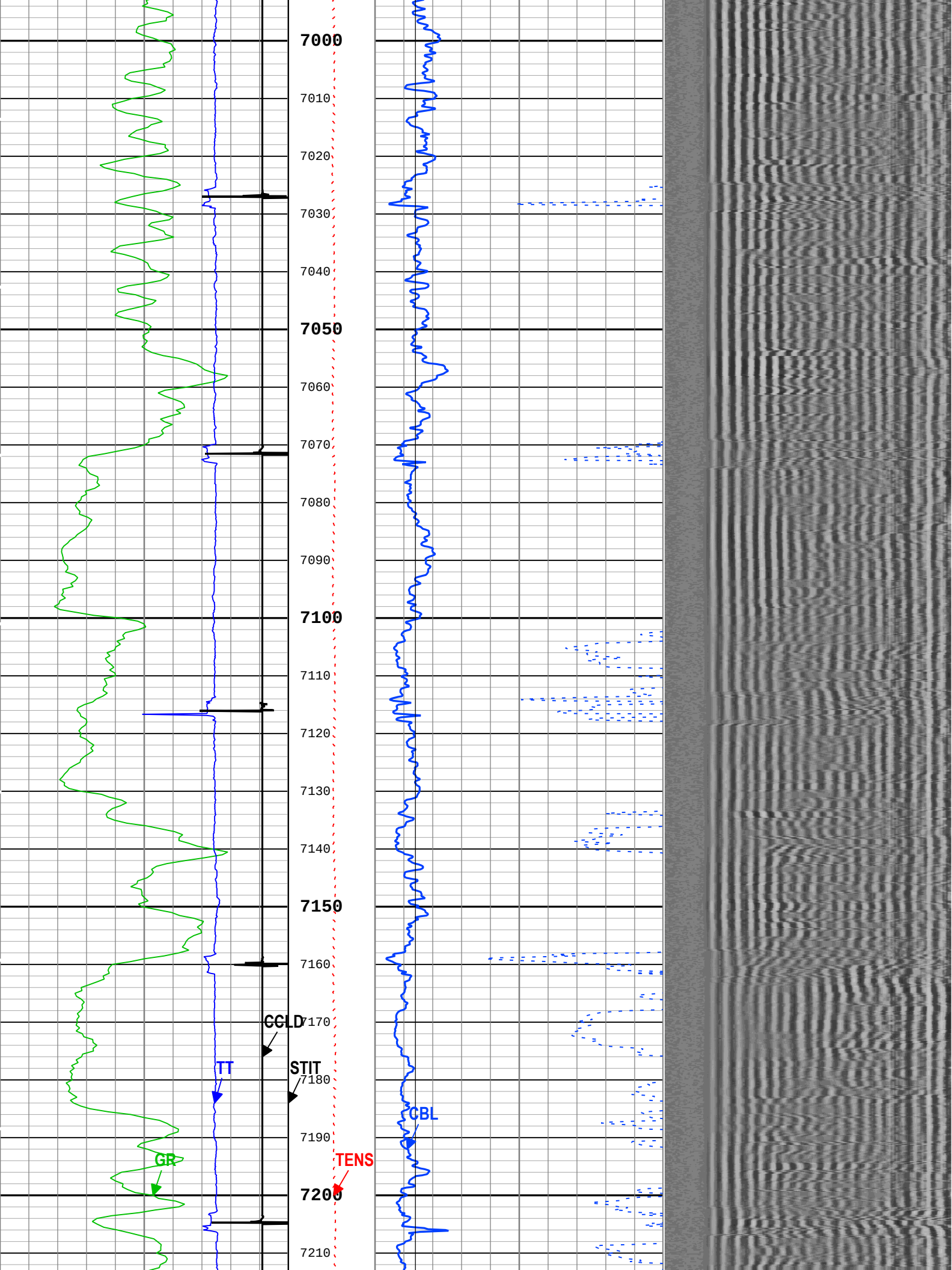
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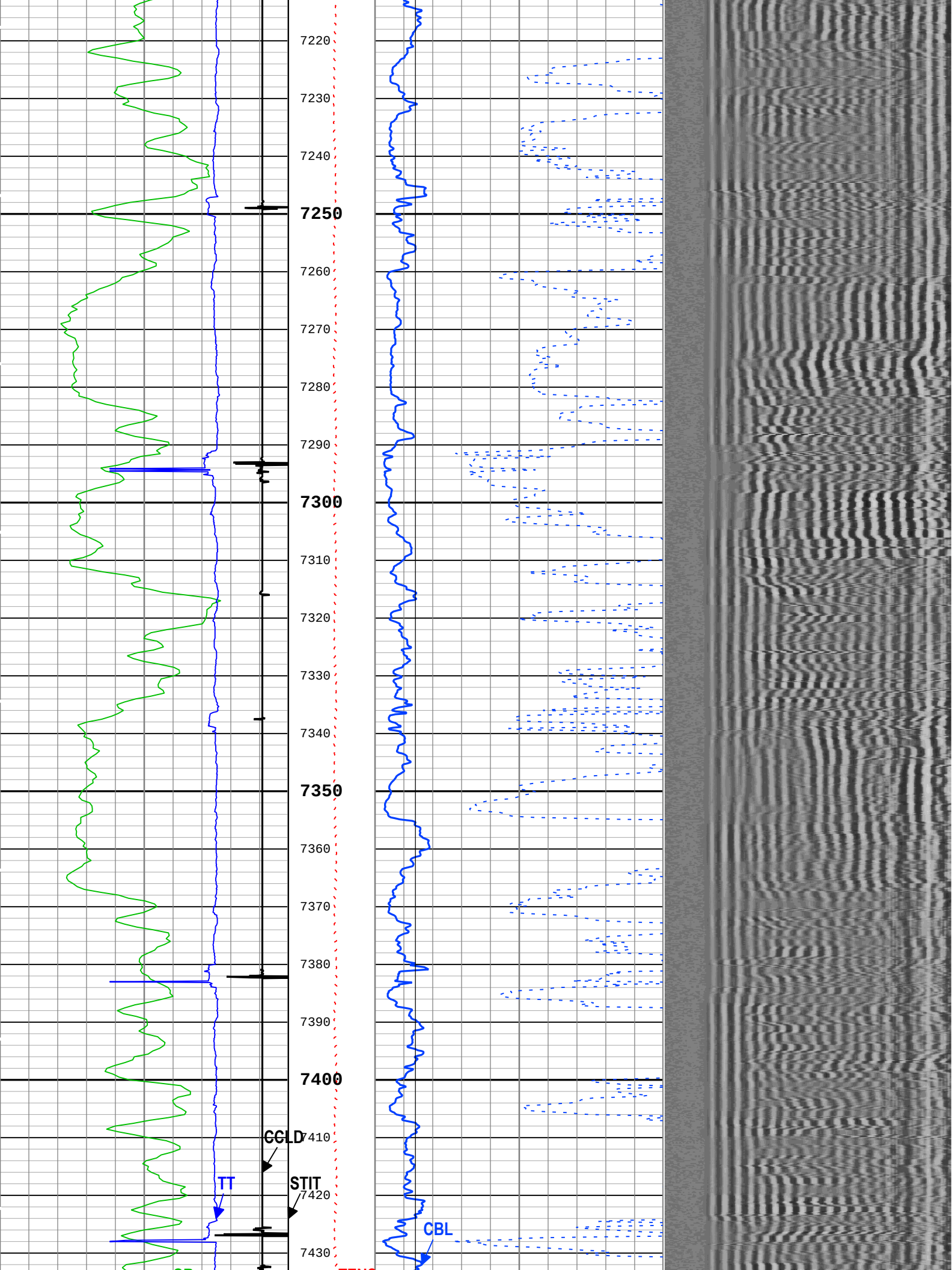
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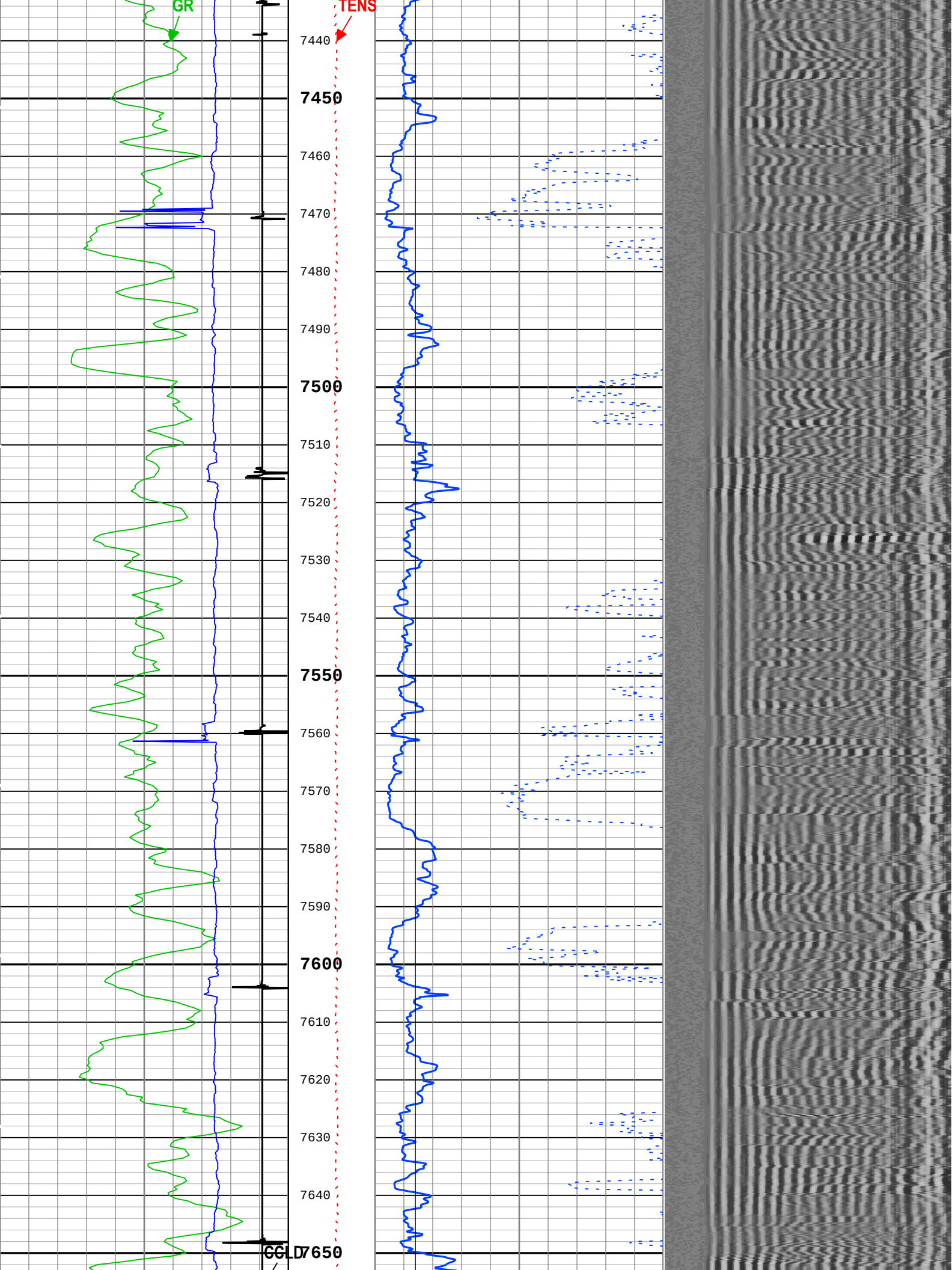
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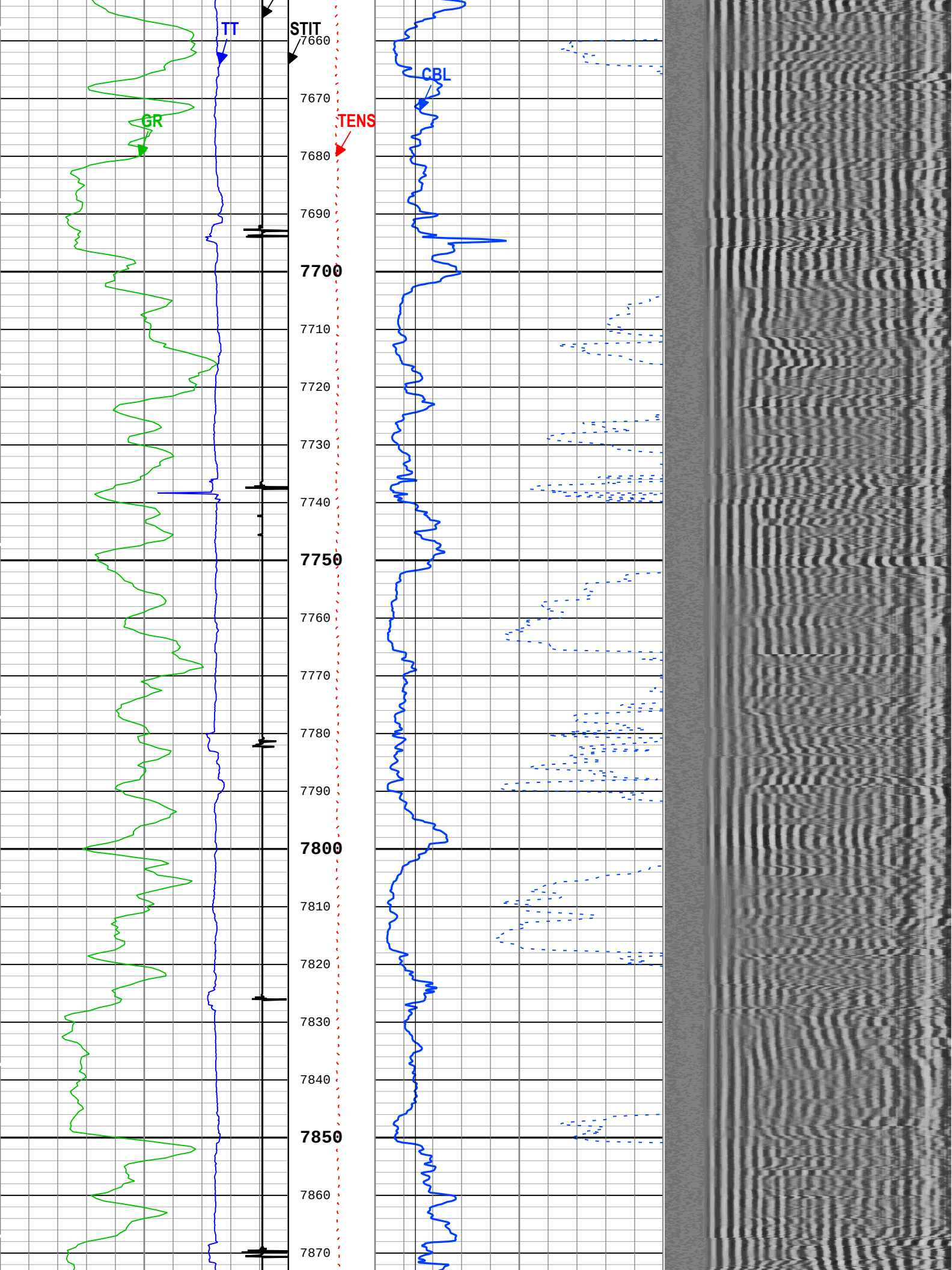
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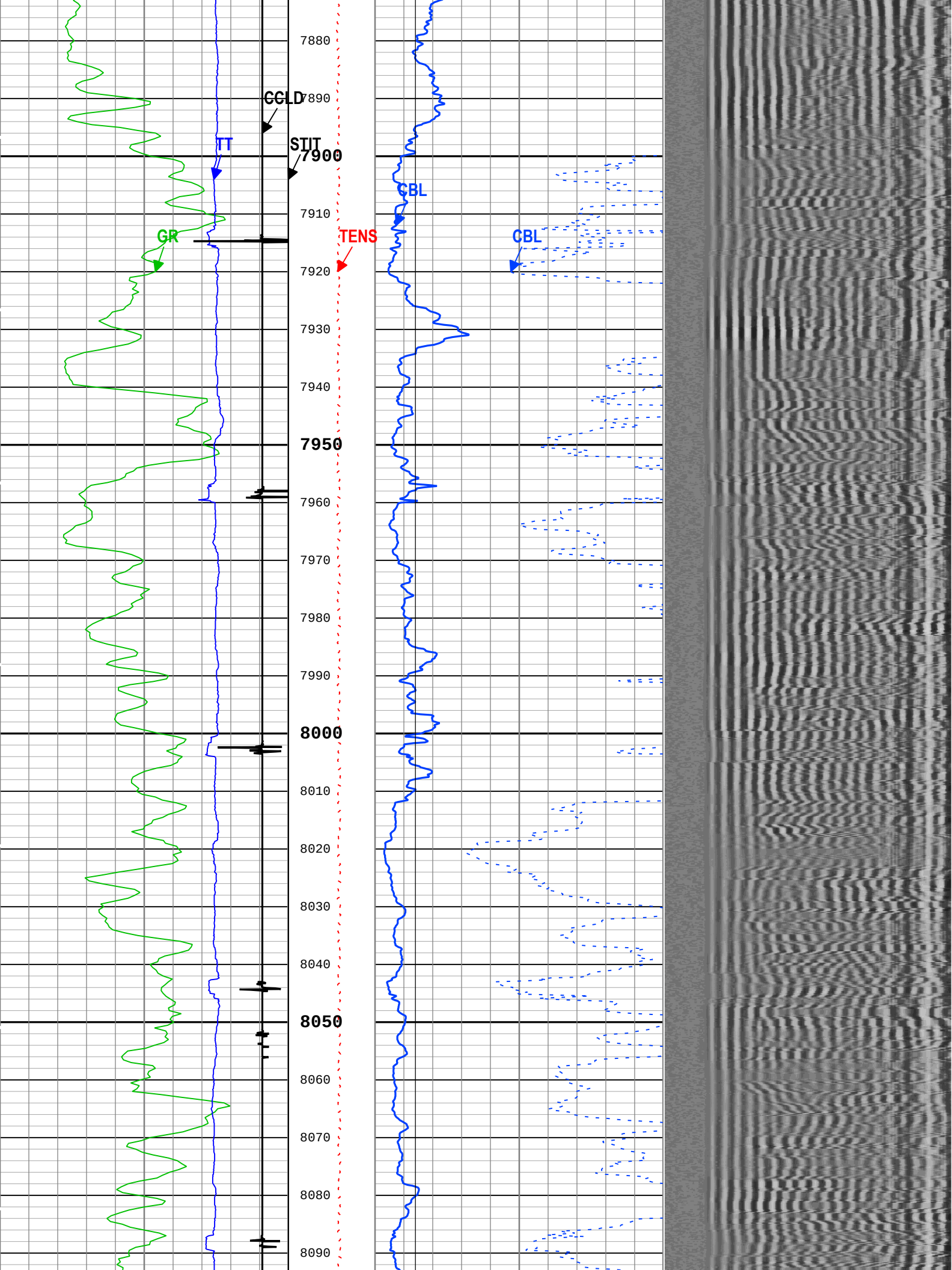
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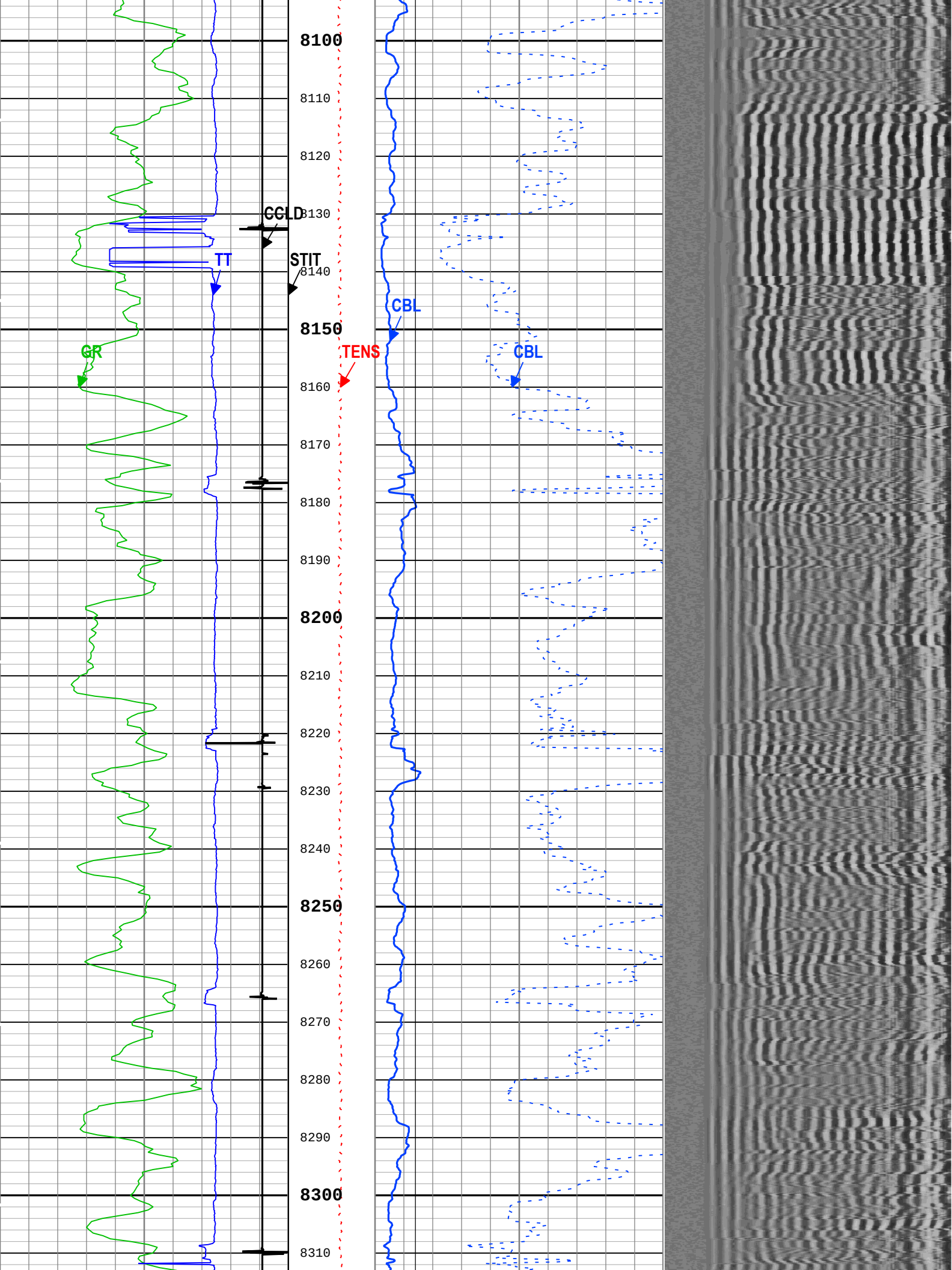
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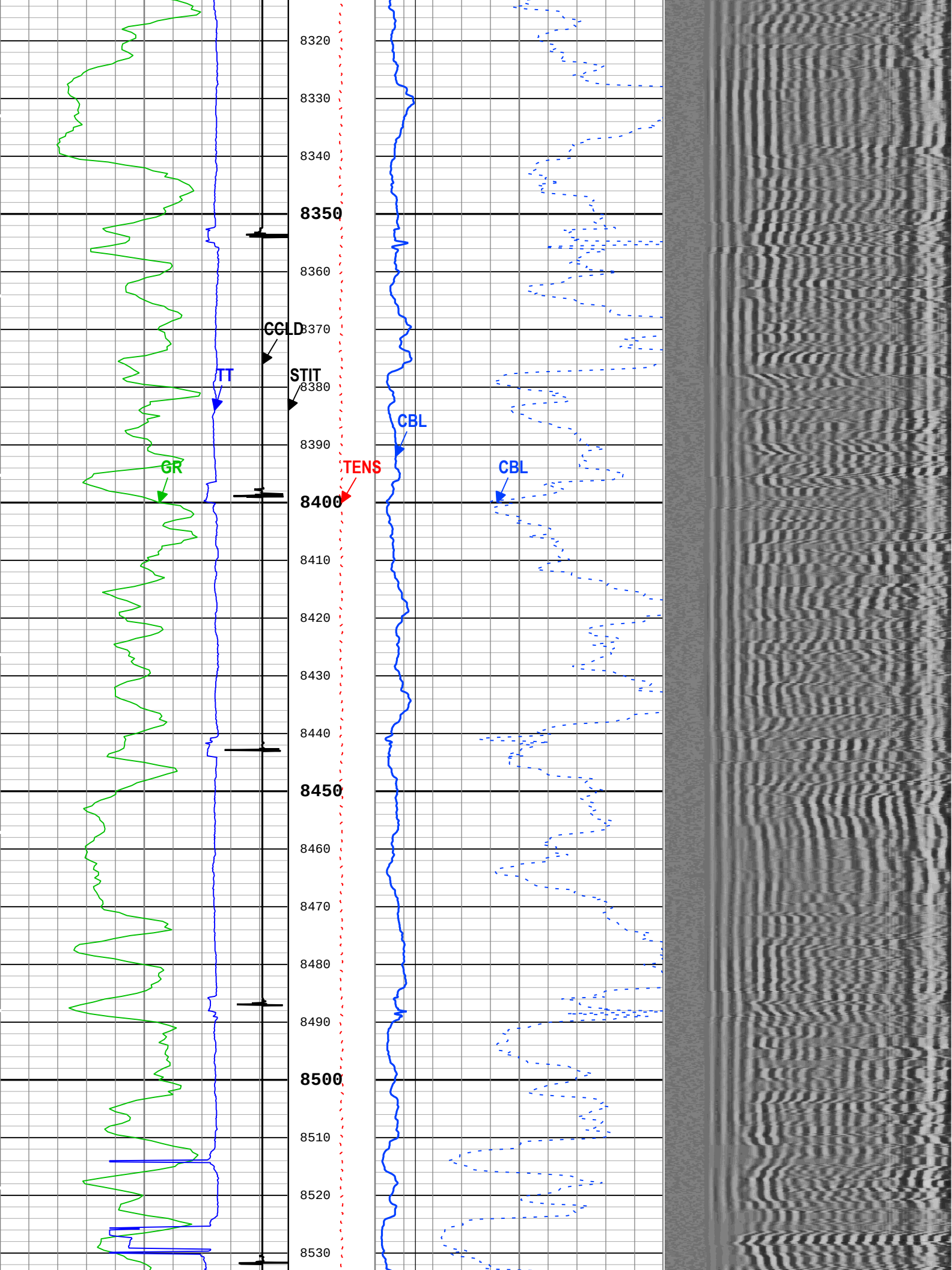
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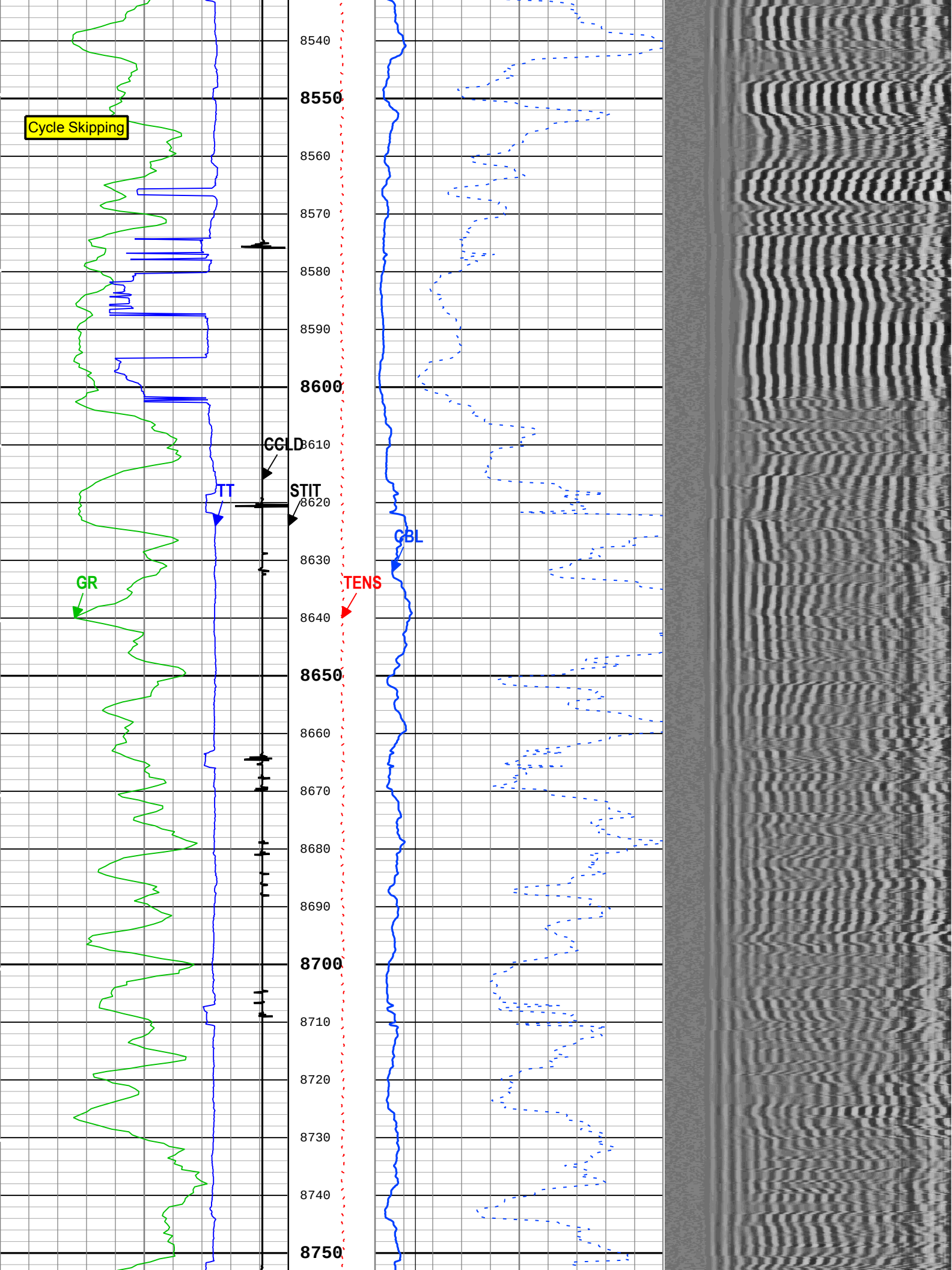
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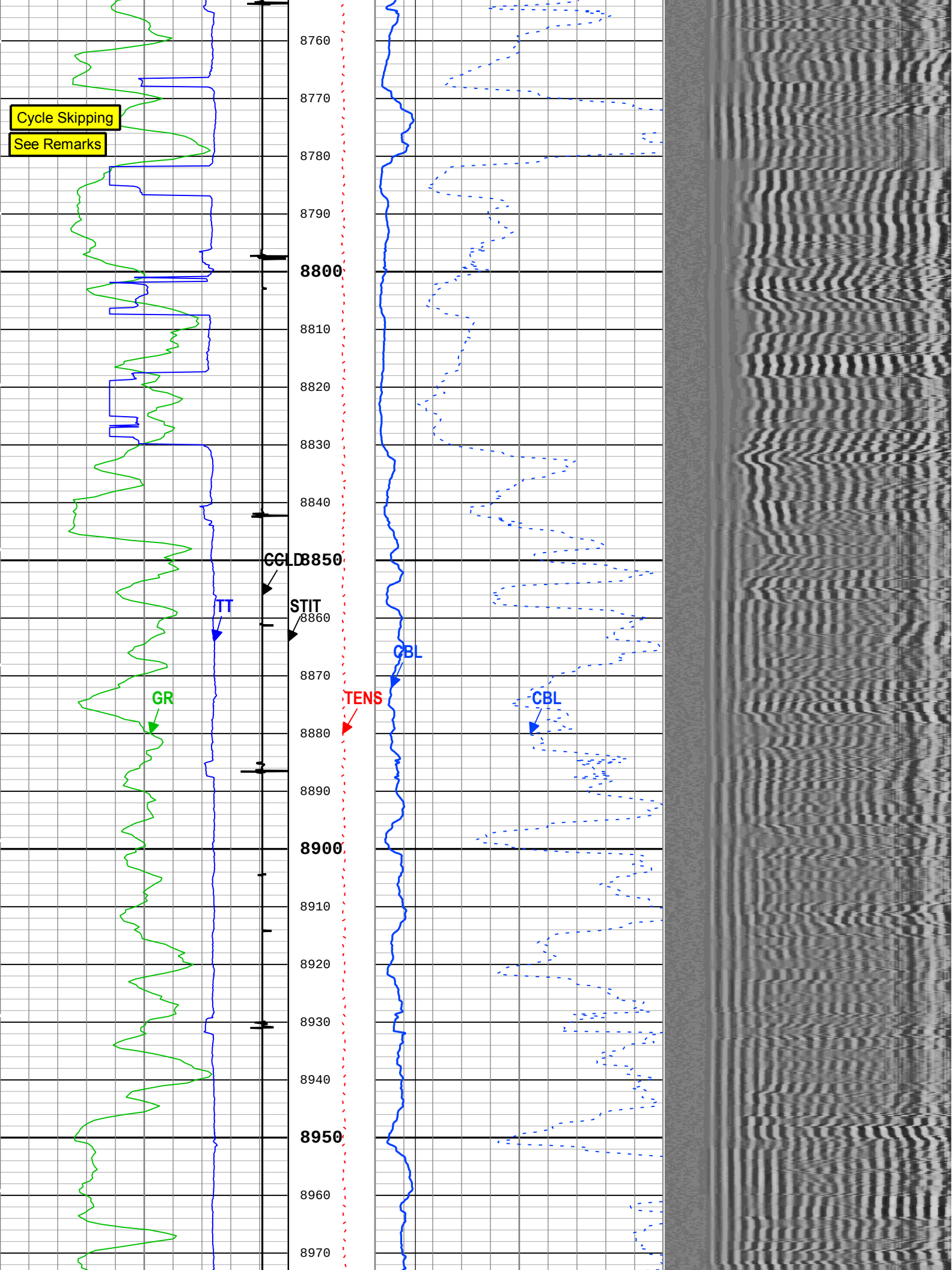
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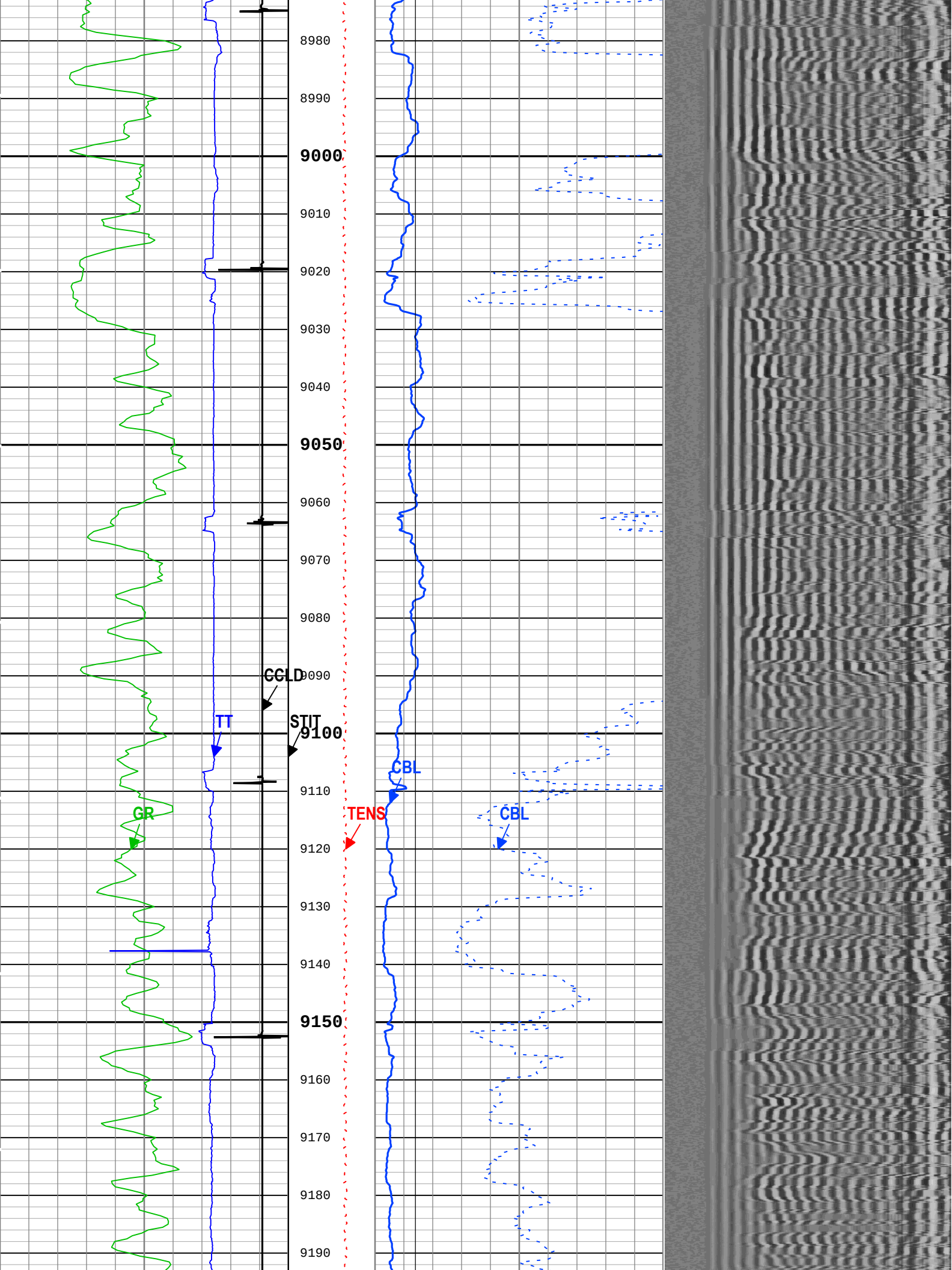
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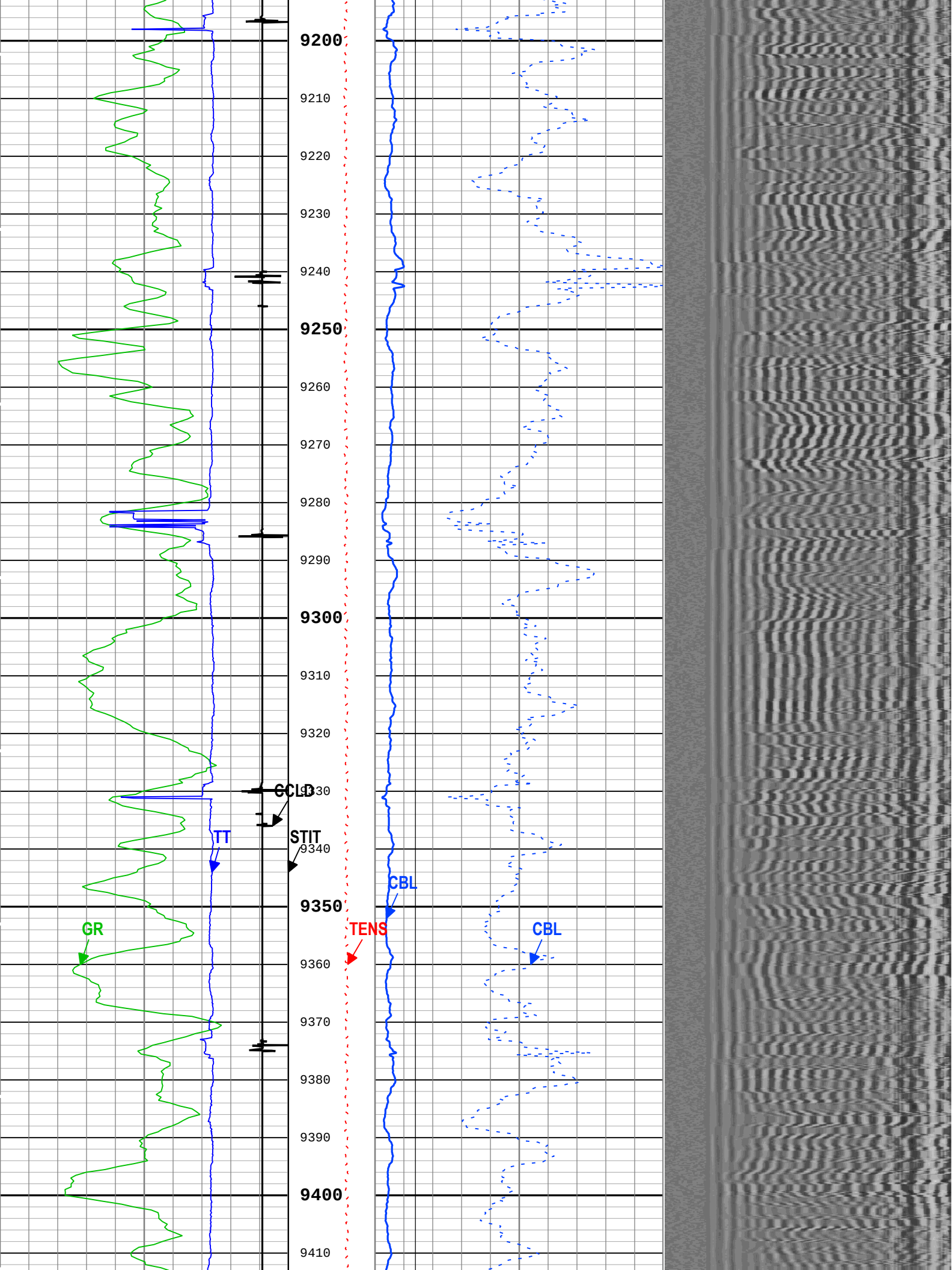
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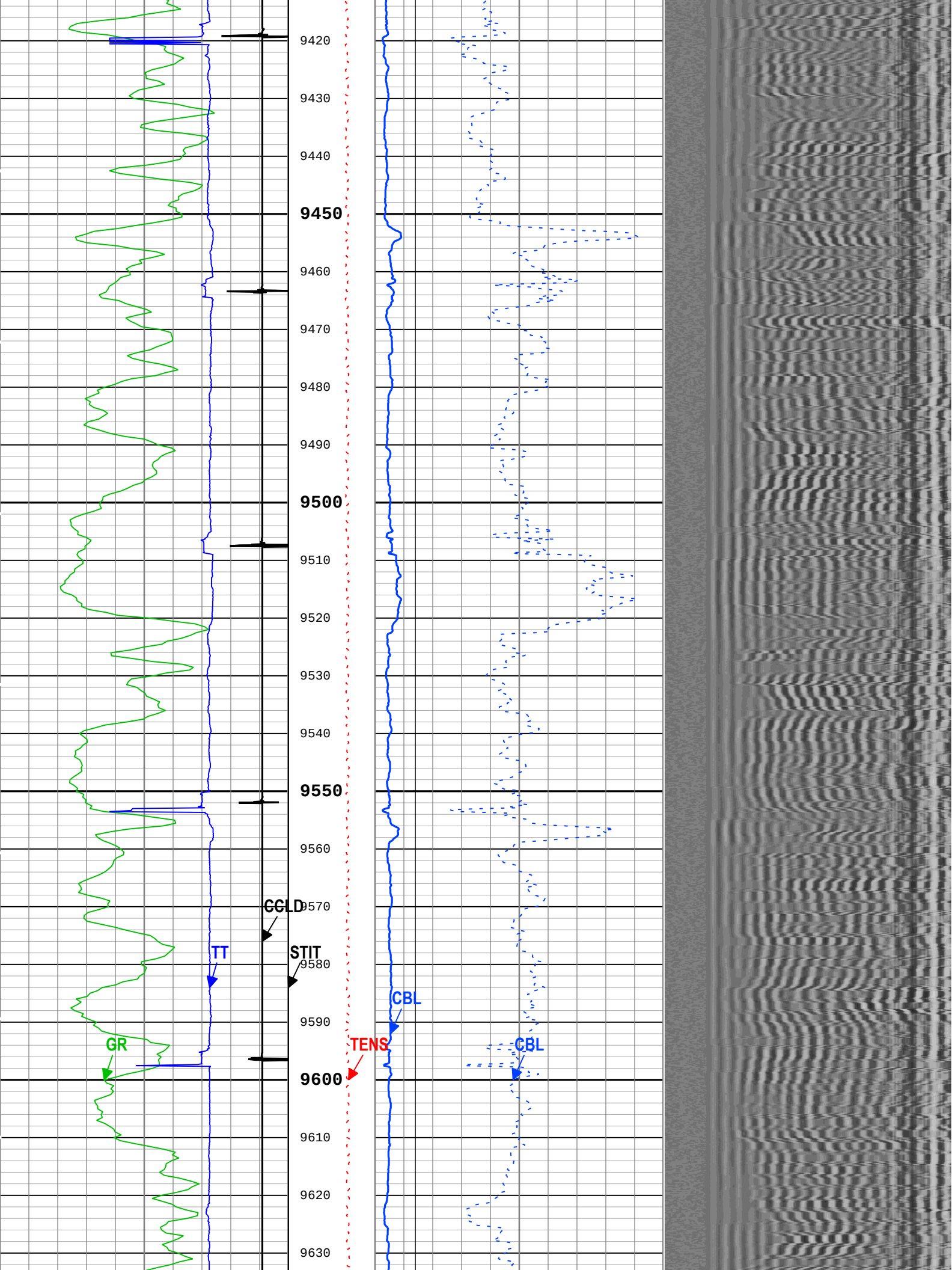
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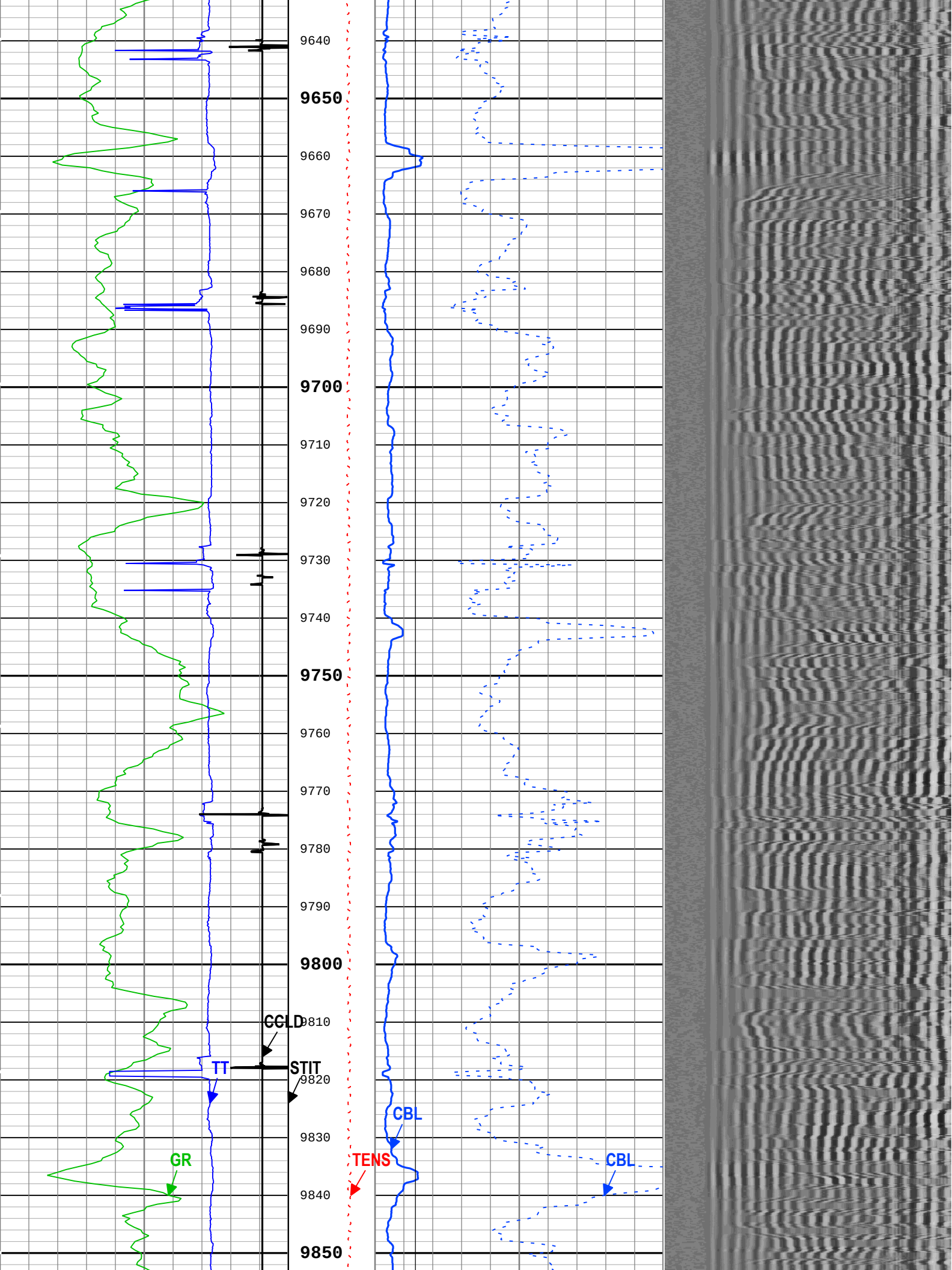
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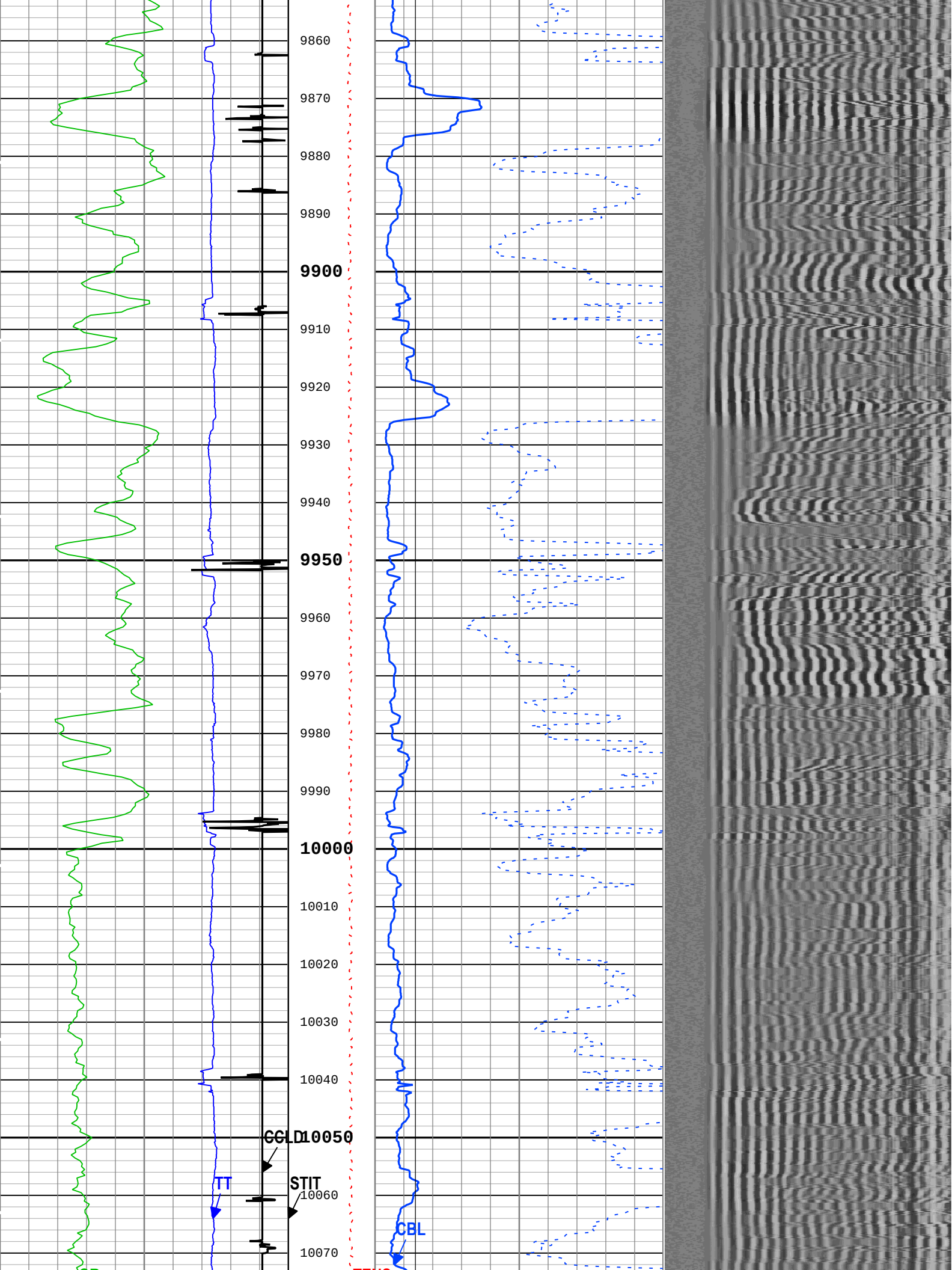
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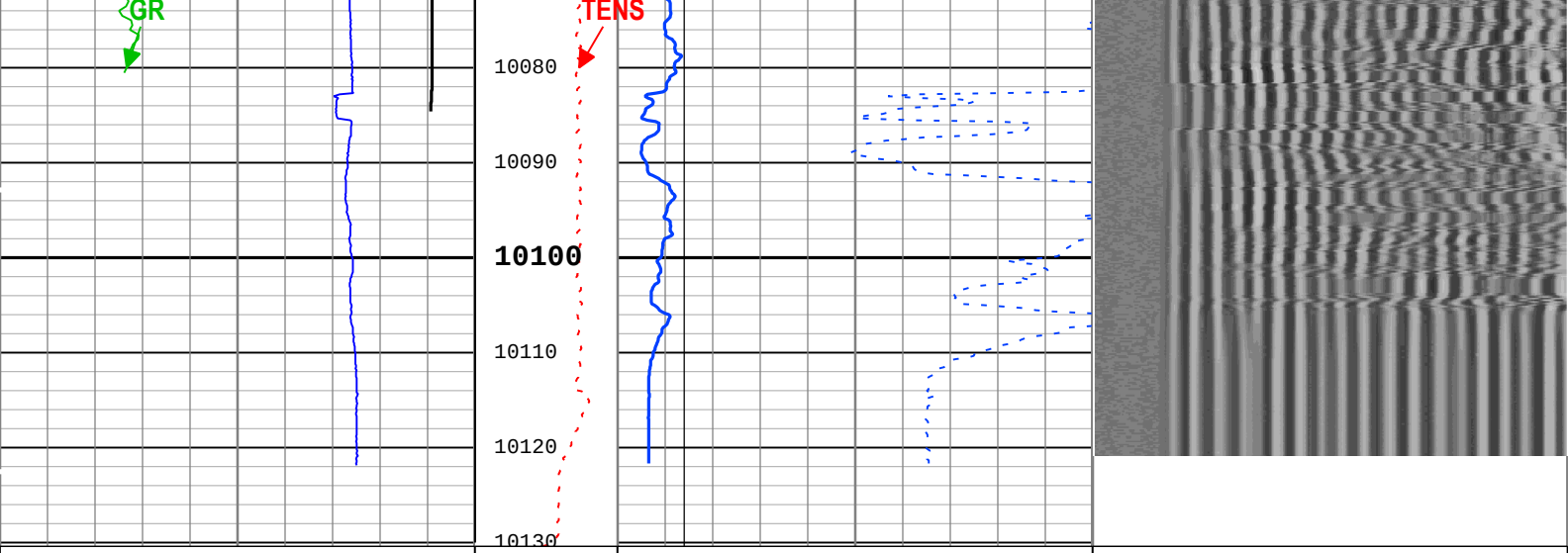


Gamma Ray (GR) PSTP-E
0 gAPI 150

Transit Time for CBL (TT) SCMT-CB
400 us 200

CCL Discriminated Amplitude (CCLD) PSTP-E
-10 V 1

Cable Tension (TENS)
0 lbf 1800

Stuck Tool Indicator, Total (STIT)
0 ft 50

Cable Drag

Tool_Tot. Drag

CBL Amplitude (CBL) SCMT-CB
0 mV 10

CBL Amplitude (CBL) SCMT-CB
0 mV 100

Good Bond (GOBO)
0 mV 10

GoodBond From CBL to GOBO

Min Amplitude Max

VDL VariableDensity (VDL) SCMT-CB
200 us 1200

TIME_1900 - Time Marked every 60.00 (s)

BIEP - Bond Index Event Pips SCMT-CB

Description: Sonic CBL with VDL Format: Log (Sonic CBL with VDL) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 05-Mar-2019 20:48:28

Channel Processing Parameters

ONE: Parameters

Parameter	Description	Tool	Value	Unit
BHT	Bottom Hole Temperature	Borehole	212	degF
CB3G	SCMT CBL 3 ft Peak Detection T0_Delay and Noise Gate	SCMT-CB	Time Zoned	us
CBLG	CBL Gate Width	SCMT-CB	Time Zoned	us
CBRA	CBL LQC Reference Amplitude in Free Pipe	SCMT-CB	80	mV
THNO	Nominal Casing Thickness - Zoned along logger depths	WLSESSION	0.25	in
DC_MODE	Depth Correction Mode	DepthCorrection	Real-time	
DFD	Drilling Fluid Density	Borehole	8.4	lbm/gal
DFT_CATEGORY	Drilling Fluid Type	Borehole	Water	
DTMD	Borehole Fluid Slowness	Borehole	206	us/ft
EDF	Elevation of Derrick Floor Above Permanent Datum	WLSESSION	24	ft
EPD	Elevation of Permanent Datum (PDAT) above Mean Sea Level	WLSESSION	7649	ft
FCF	CBL Fluid Compensation Factor	SCMT-CB	1	
GGRD	Geothermal Gradient	Borehole	1	0.01 degF/ft
GOBO_CURR	Good Bond in Arbitrary Cement	SCMT-CB	1.4	mV
GTSE	Generalized Temperature Selection, from Measured or Computed Temperature	Borehole	GTEM_LINEST(RT)	
MATT_CURR	Maximum Attenuation in Arbitrary Cement	SCMT-CB	16.92	dB/ft
MCI	Minimum Cemented Interval for Isolation	SCMT-CB	Depth Zoned	ft

MSA	Minimum Sonic Amplitude	SCMT-CB	0.51	mV
MSA_CURR	Minimum Sonic Amplitude in Arbitrary Cement	SCMT-CB	0.51	mV
PDAT	Permanent Datum	WLSESSION	GL	
RUN_SNUM	Run Sequence Number	WSDRUN	2	
SHT	Surface Hole Temperature	Borehole	68	degF

Depth Zone Parameters

Parameter	Value	Start (ft)	Stop (ft)
MCI	14.81	2000	2488.8
MCI	1.25	2488.8	10130.42

All depth are actual.

Time Zone Parameters

Parameter	Value	Start Time	Stop Time	Start Depth (ft)	Stop Depth (ft)
CB3G	224	05-Mar-2019 15:27:54	05-Mar-2019 18:25:31	10130.45	4932.54
CB3G	230.58	05-Mar-2019 18:25:31	05-Mar-2019 20:02:09	4932.54	1972.62
CBLG	40	05-Mar-2019 15:27:54	05-Mar-2019 16:41:58	10130.45	8020.48
CBLG	100	05-Mar-2019 16:41:58	05-Mar-2019 17:30:50	8020.48	6583.46
CBLG	75	05-Mar-2019 17:30:50	05-Mar-2019 17:30:54	6583.46	6581.76
CBLG	83	05-Mar-2019 17:30:54	05-Mar-2019 18:23:59	6581.76	4979.51
CBLG	72	05-Mar-2019 18:23:59	05-Mar-2019 18:24:03	4979.51	4977.16
CBLG	63	05-Mar-2019 18:24:03	05-Mar-2019 18:24:11	4977.16	4973.39
CBLG	57	05-Mar-2019 18:24:11	05-Mar-2019 18:24:23	4973.39	4967.18
CBLG	59	05-Mar-2019 18:24:23	05-Mar-2019 18:24:37	4967.18	4960.14
CBLG	49	05-Mar-2019 18:24:37	05-Mar-2019 18:25:34	4960.14	4930.98
CBLG	46	05-Mar-2019 18:25:34	05-Mar-2019 20:02:09	4930.98	1972.62

All depth are at tool zero.

Tool Control Parameters

ONE: Parameters

Parameter	Description	Tool	Value	Unit
CMTM	SCMT Operating Mode	SCMT-CB	Log	
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	150	ft/h
PCCG	PSP Downhole CCL Gain	PSTP-E	Time Zoned	

Time Zone Parameters

Parameter	Value	Start Time	Stop Time	Start Depth (ft)	Stop Depth (ft)
PCCG	0 dB	05-Mar-2019 15:27:54	05-Mar-2019 15:32:28	10130.45	10108.36
PCCG	12 dB	05-Mar-2019 15:32:28	05-Mar-2019 15:38:55	10108.36	9914.12
PCCG	0 dB	05-Mar-2019 15:38:55	05-Mar-2019 20:02:09	9914.12	1972.62

All depth are at tool zero.

ONE

RST Sigma Main Pass [5:100]

Software Version

Acquisition System	Version
Maxwell 2018 SP2	8.2.104493.3100
Application Patch	Wireline_Hotfix-Mandatory-2018.2_8.2.108371

Pass Summary

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
ONE	Log[2]:Up	Up	1972.62 ft	10130.45 ft	05-Mar-2019 3:27:54 PM	05-Mar-2019 8:02:09 PM	ON	4.73 ft	No

All depths are referenced to toolstring zero

Log

Company:CAERUS OIL & GAS LLC Well:NPR 11C-9 596

ONE: Log[2]:Up:S013

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: 05-Mar-2019 20:48:40

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)

ICV - Integrated Cement Volume every 100.00 (ft3)

Borehole Salinity (BSAL) RST-C
450 ppk -50

Gamma Ray (GR) PSTP-E
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-E
-10 V 1

Stuck Tool Indicator, Total (STIT)
0 ft 50

Cable Drag From STIA to STIT

Tool_Tot. Drag From D3T to STIT

Minitron Arc Count (MARC) RST-C
0 5

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

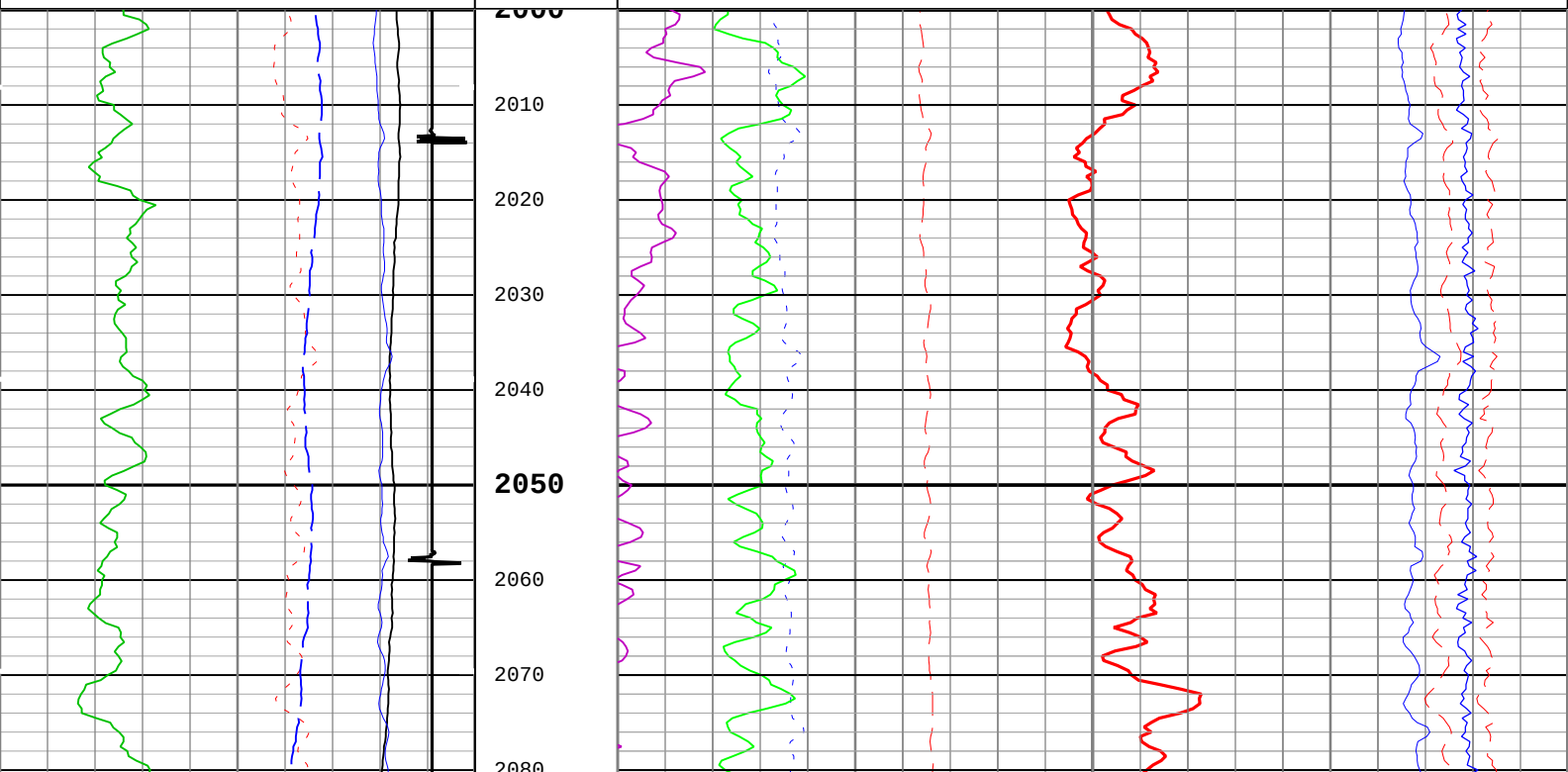
Capture to Inelastic Ratio Far Filtered (CIRF_FIL) RST-C
5 0

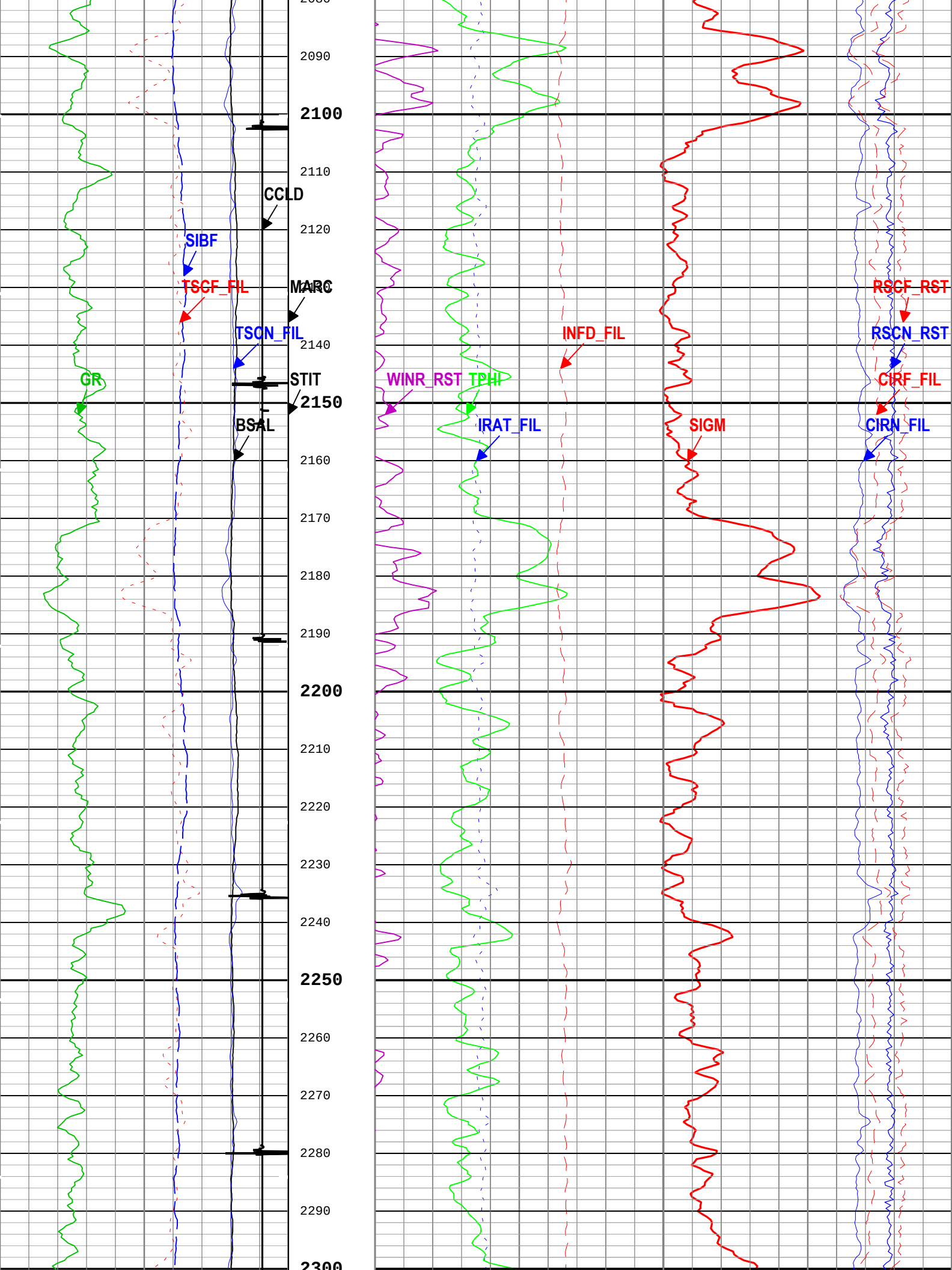
Near Detector Effective Unregulated Capture Count Rate (RSCN_RST) RST-C
45 0

Far Detector Effective Unregulated Capture Count Rate (RSCF_RST) RST-C
45 0

Formation Sigma (Neutron Capture Cross Section) (SIGM) RST-C
60 cu 0

Weighted Inelastic Ratio (WINR_RST) RST-C
0 0.4

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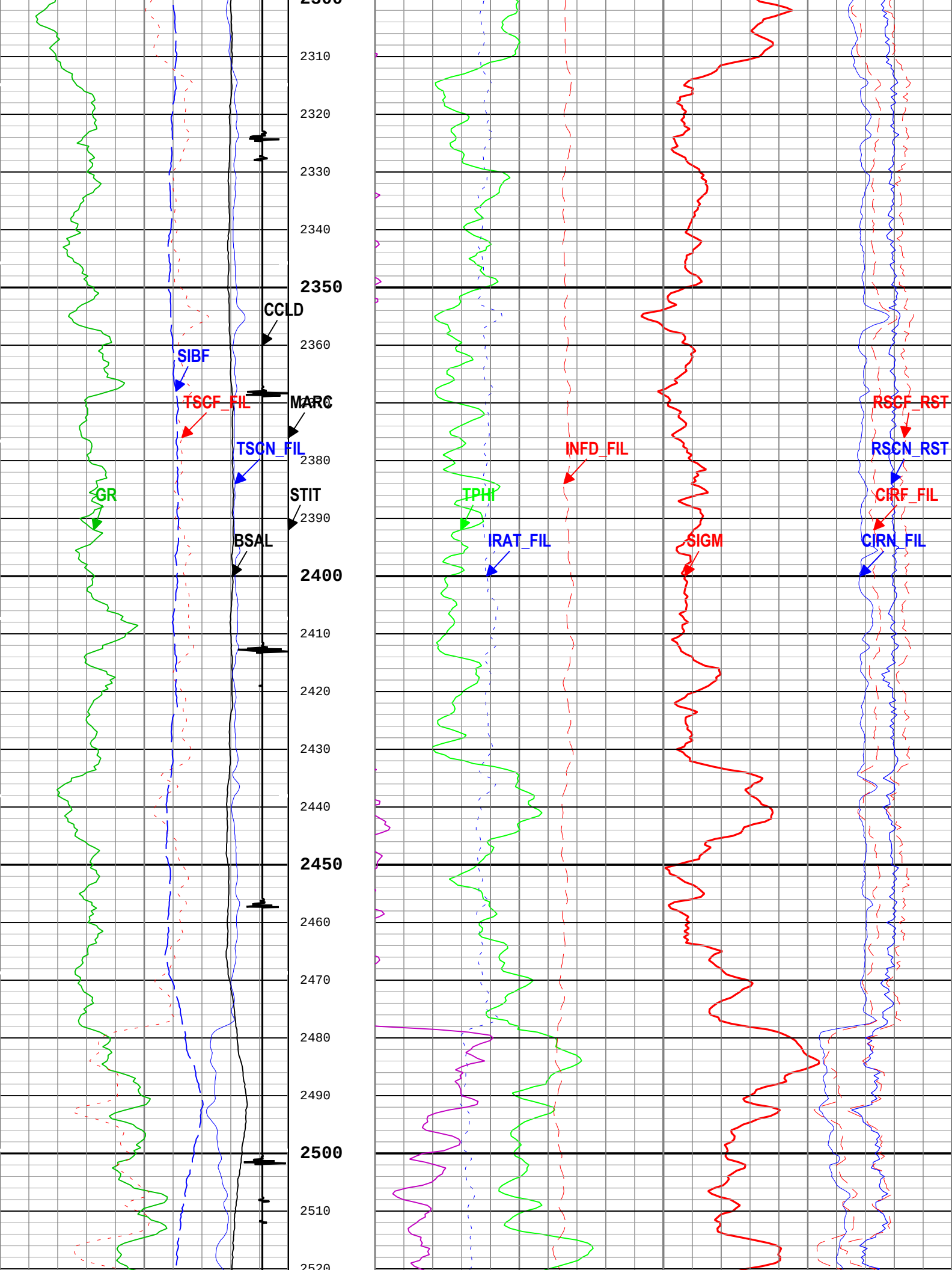
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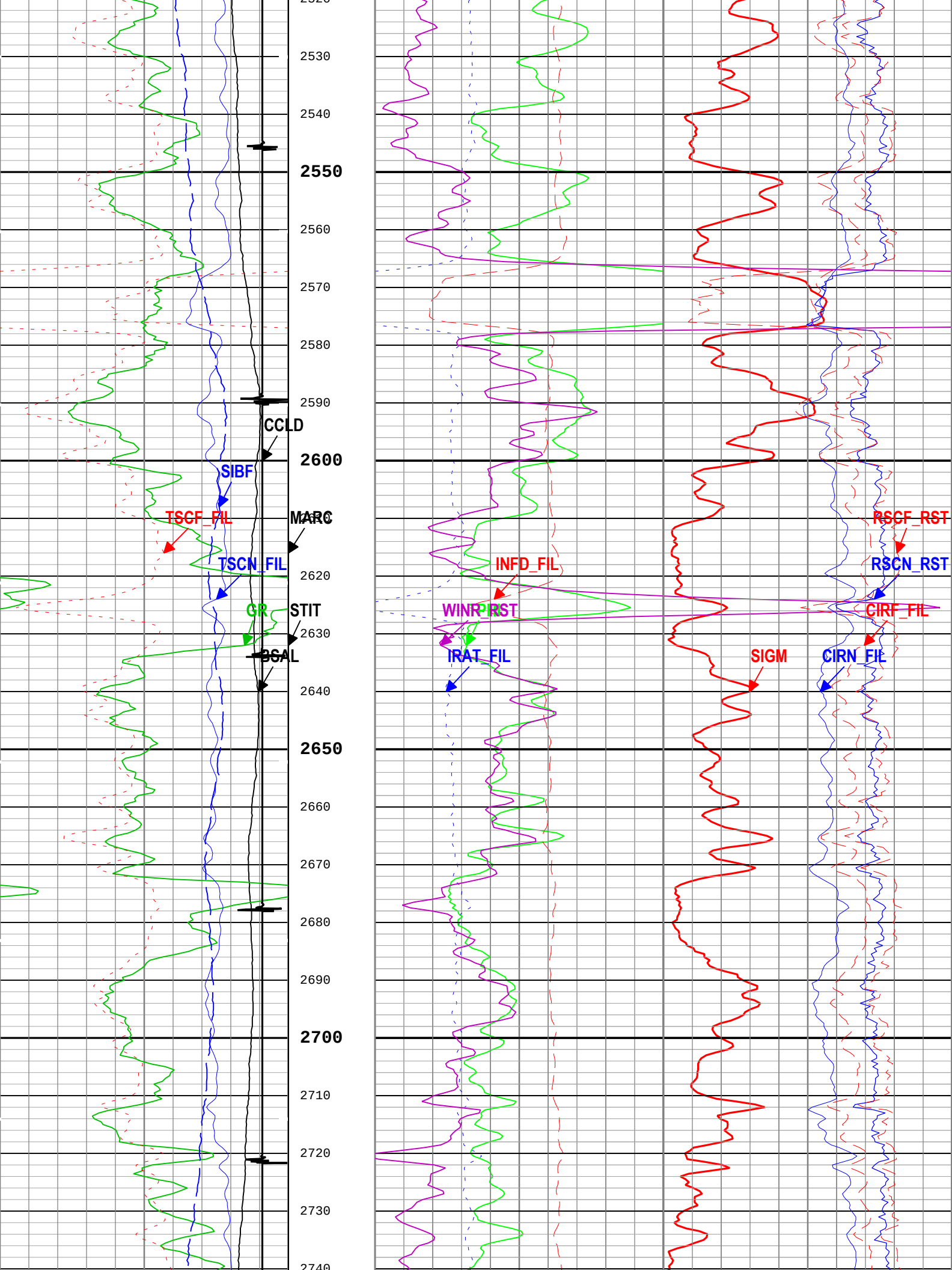
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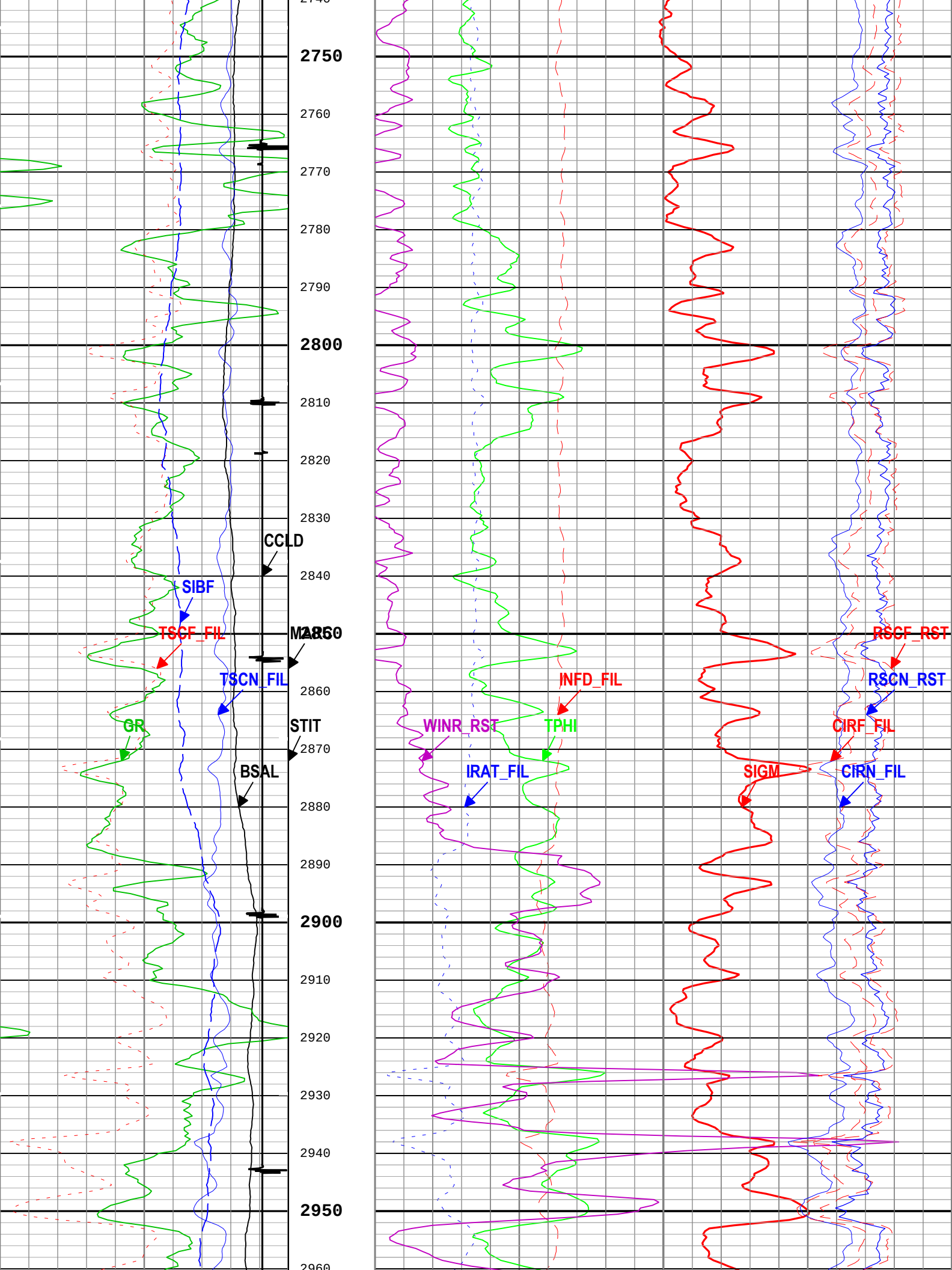
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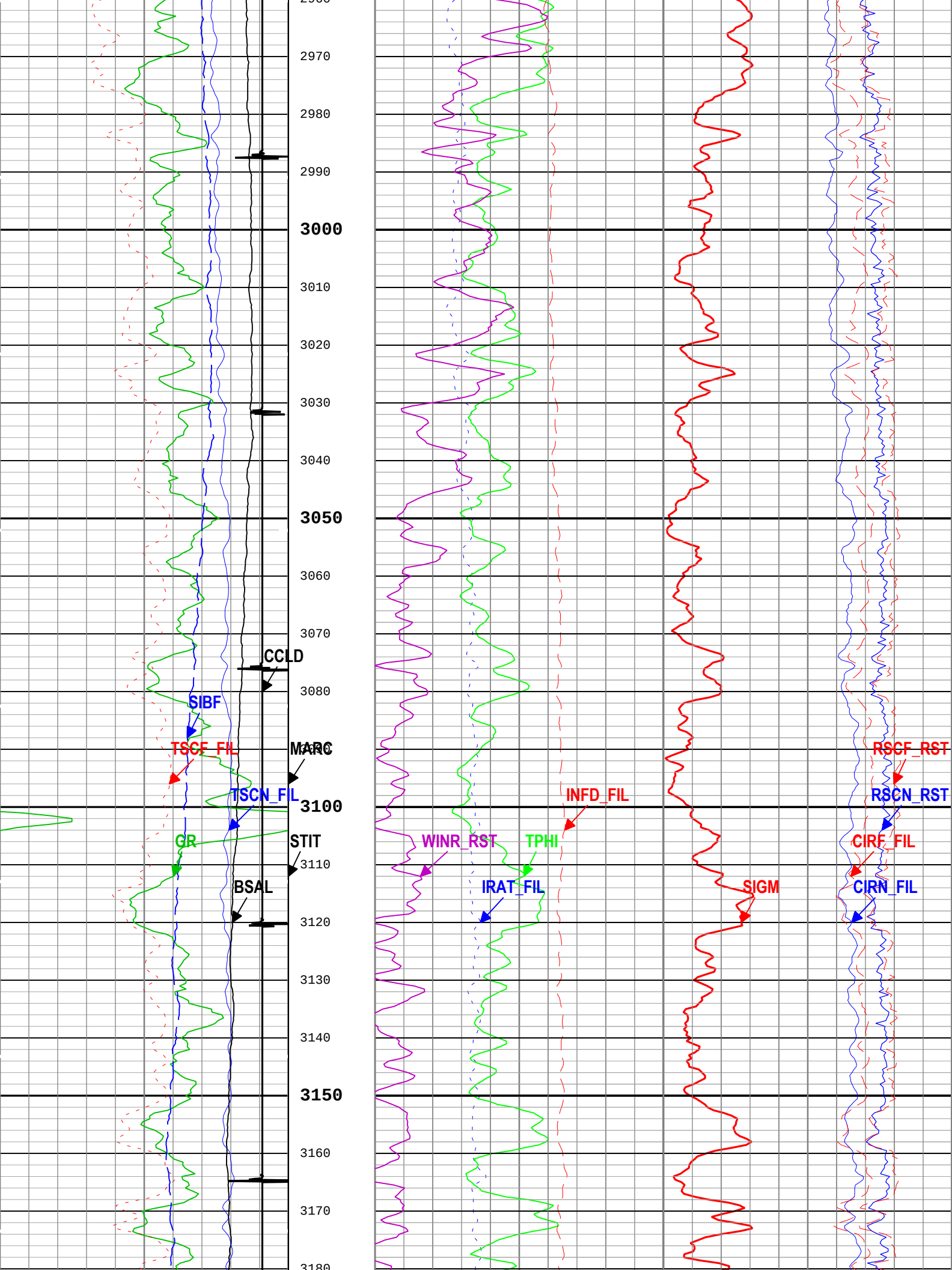
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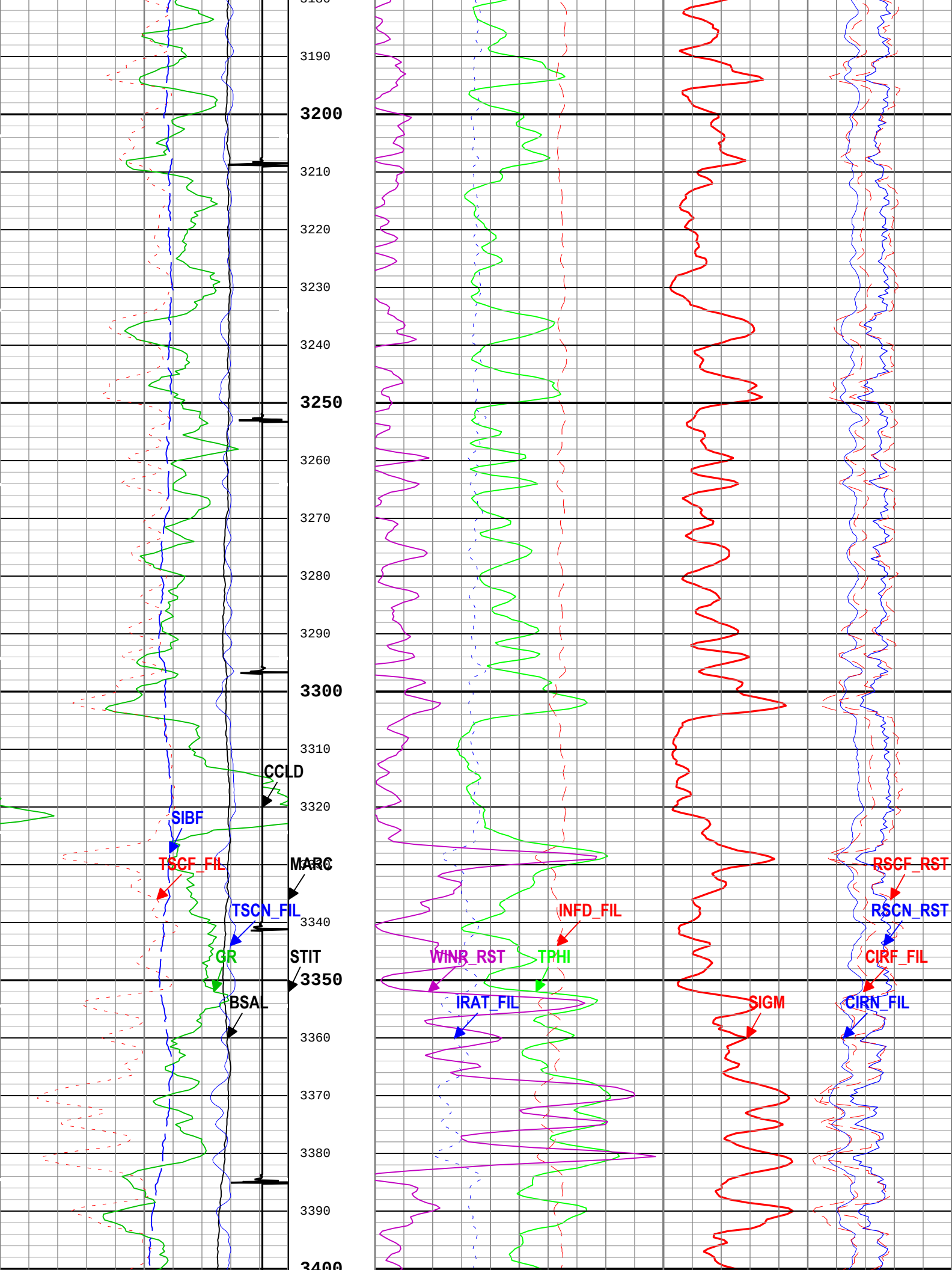
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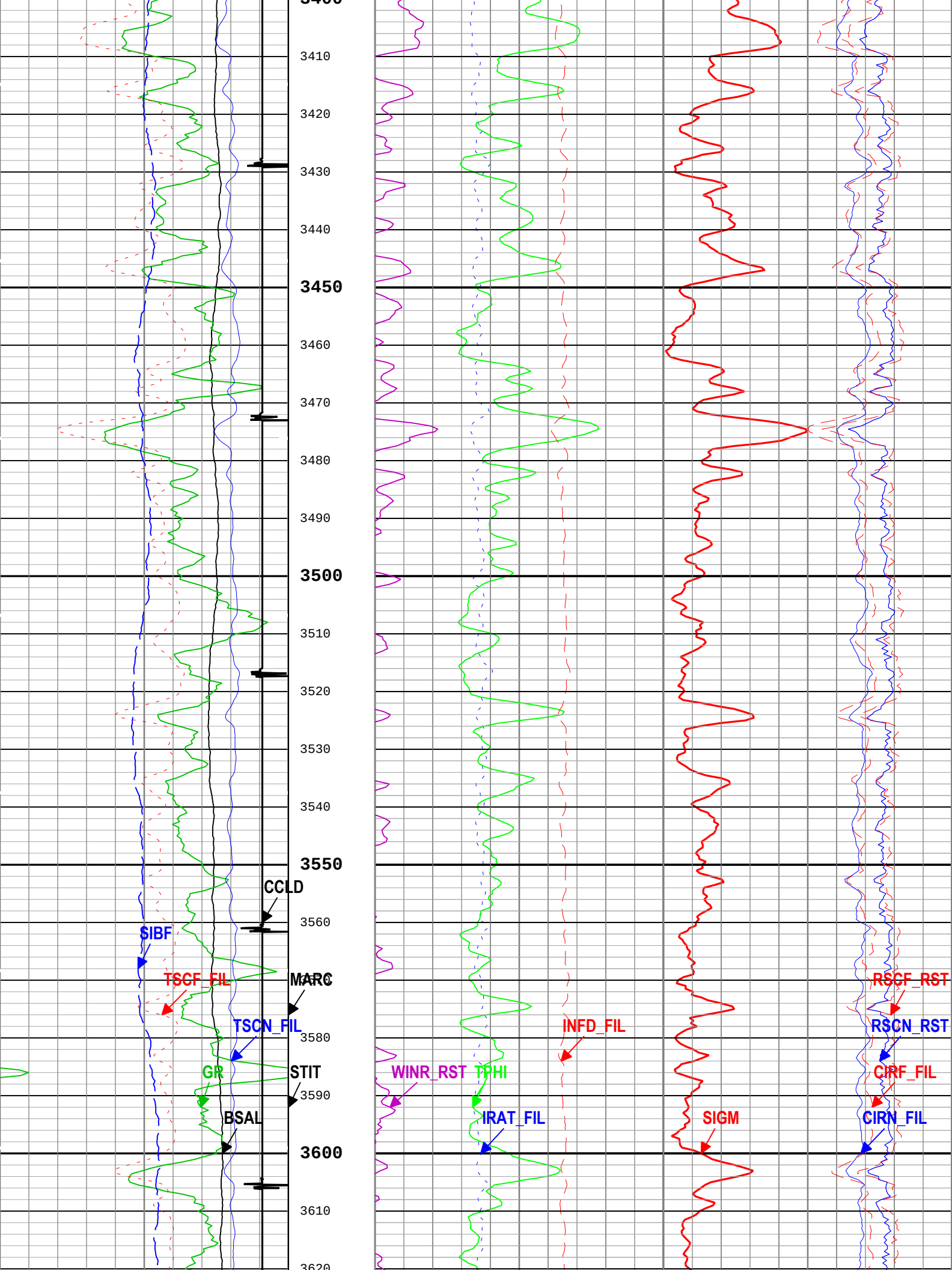
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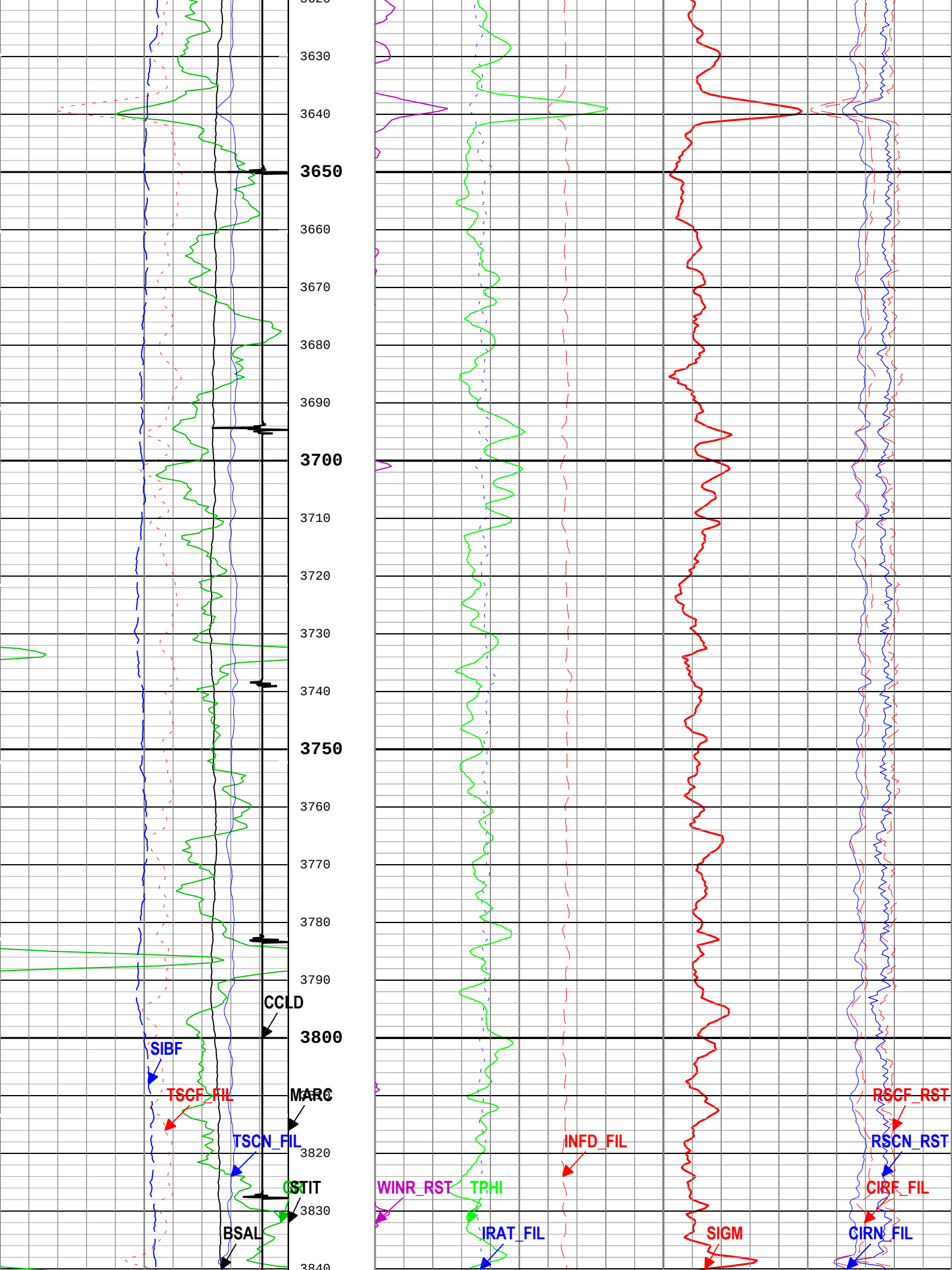
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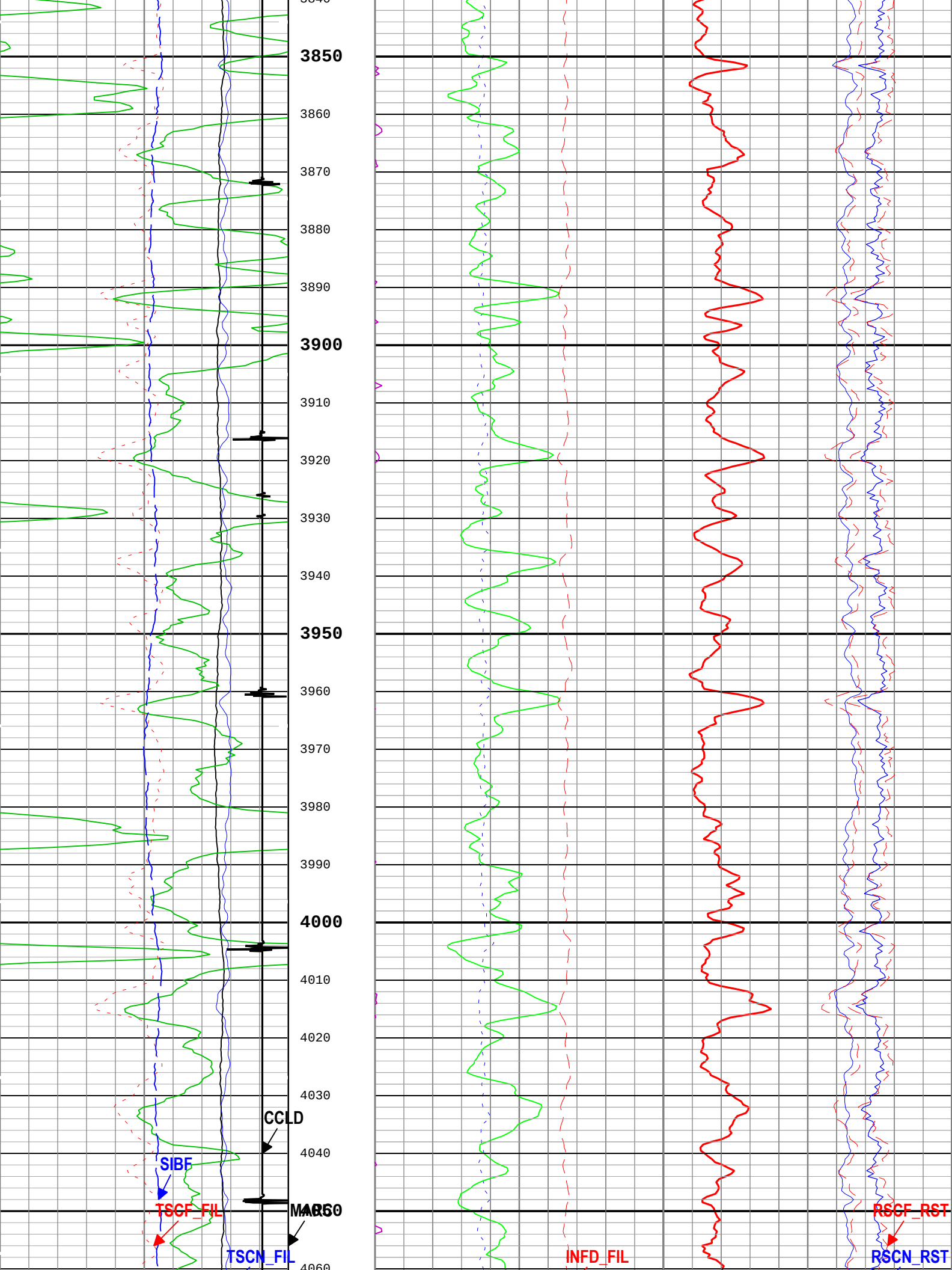
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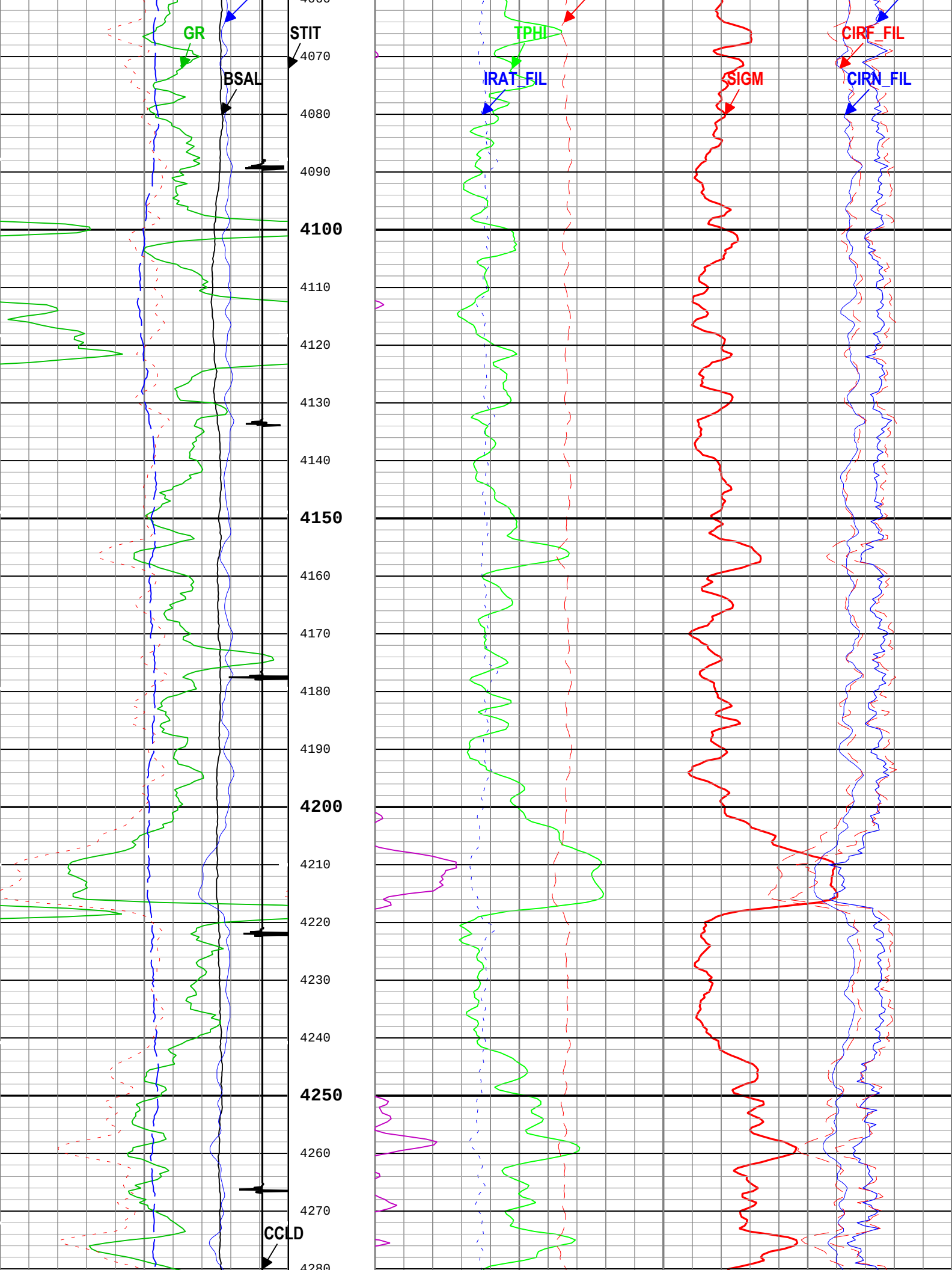
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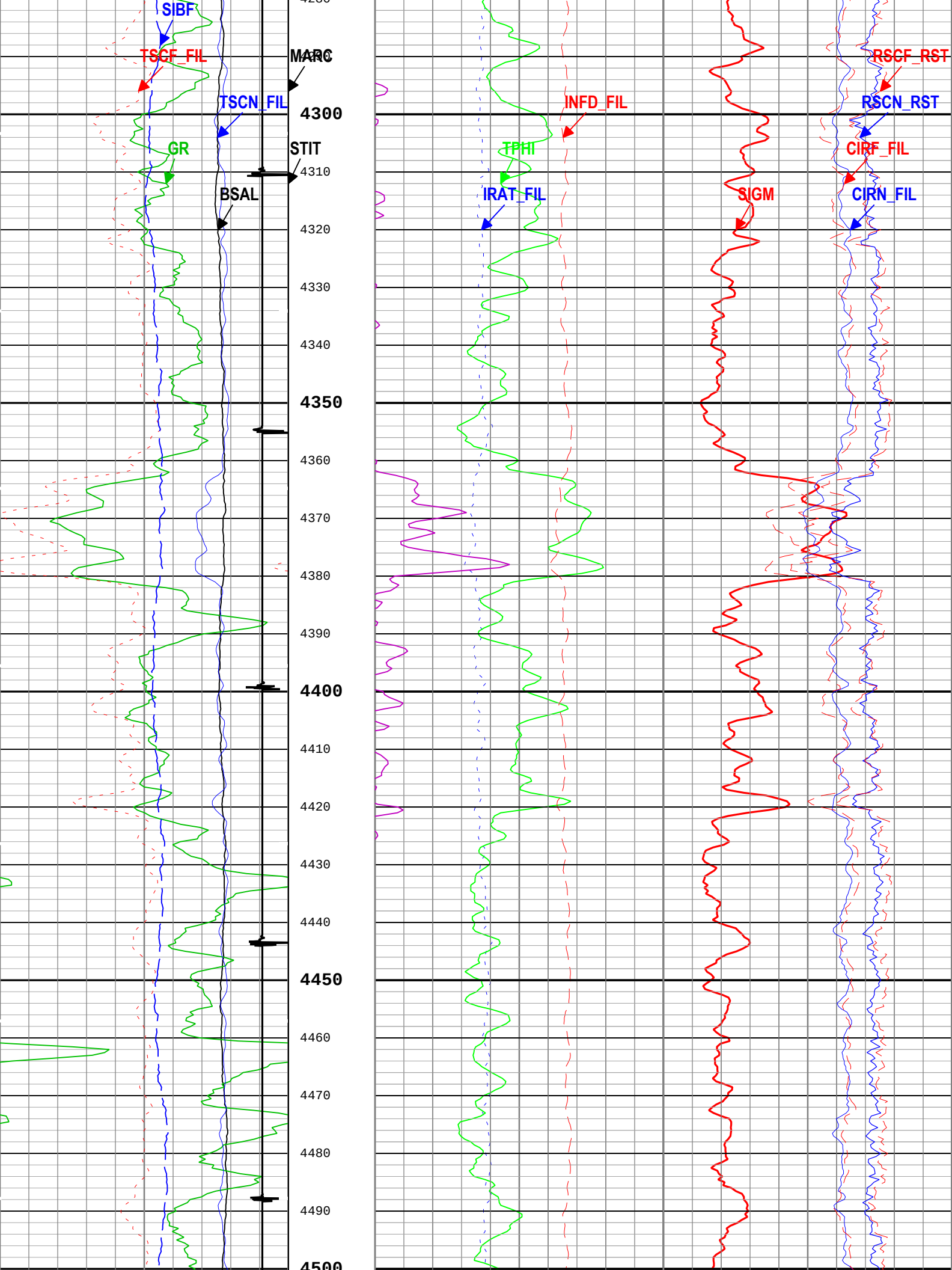
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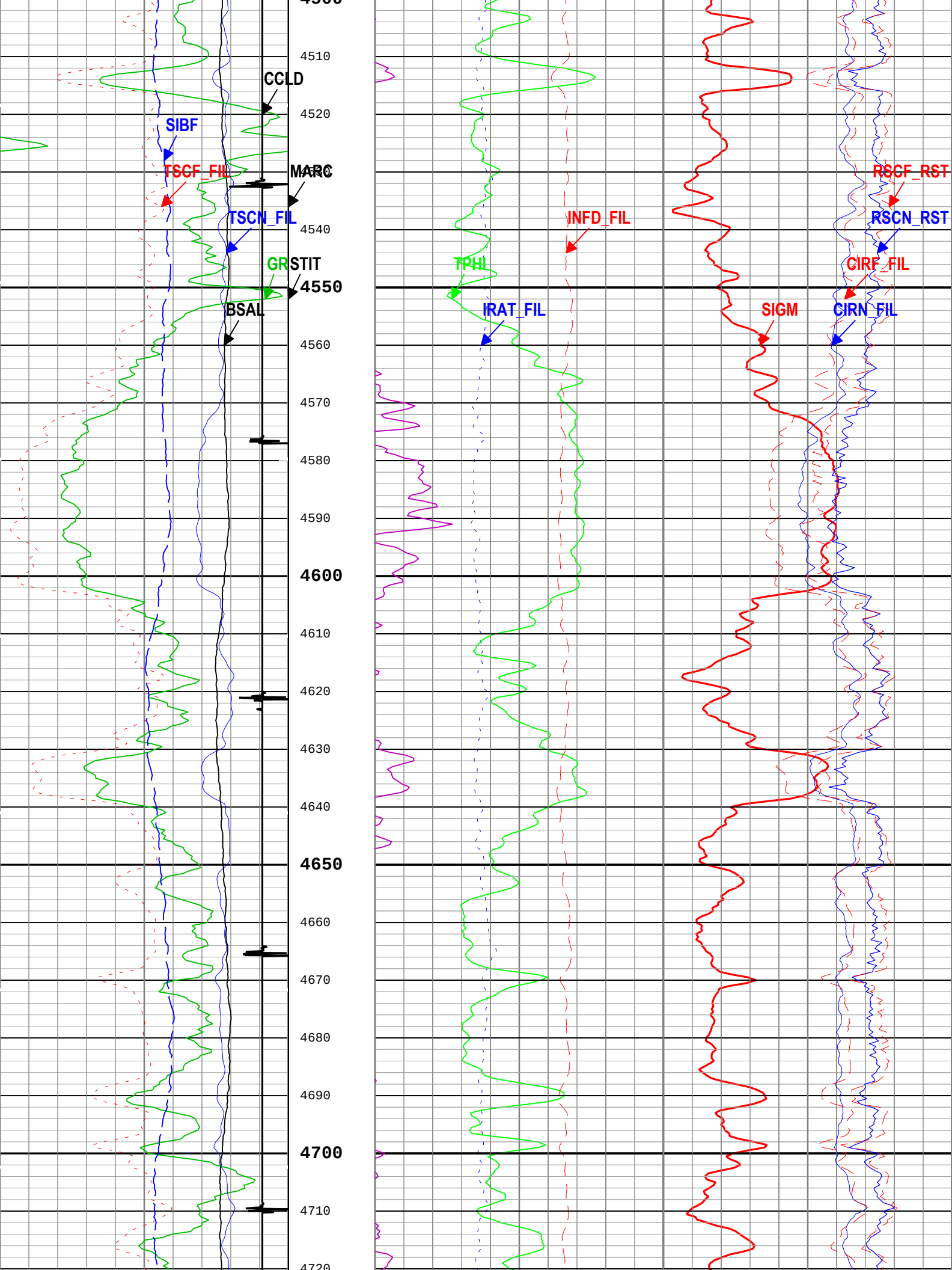
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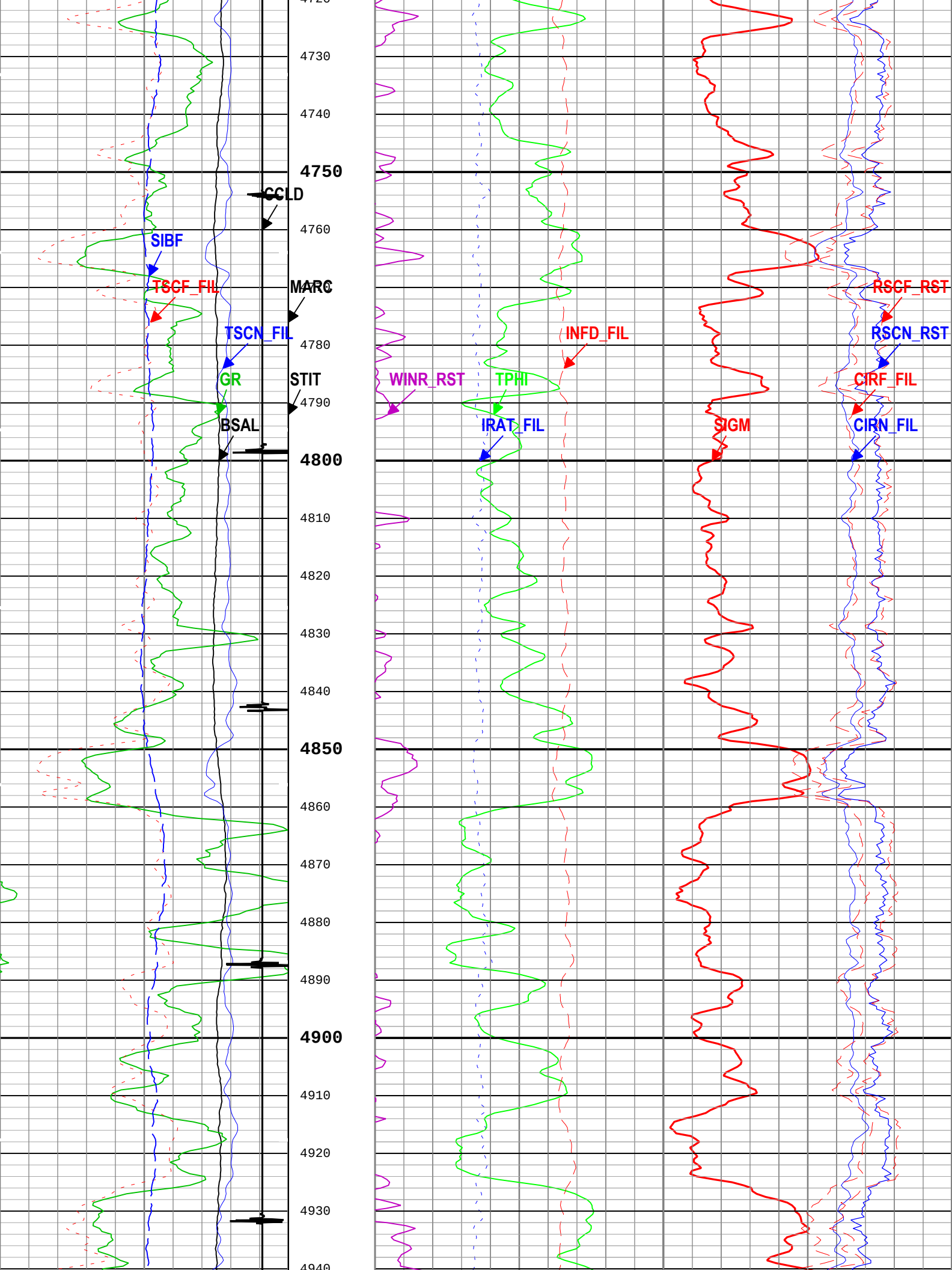
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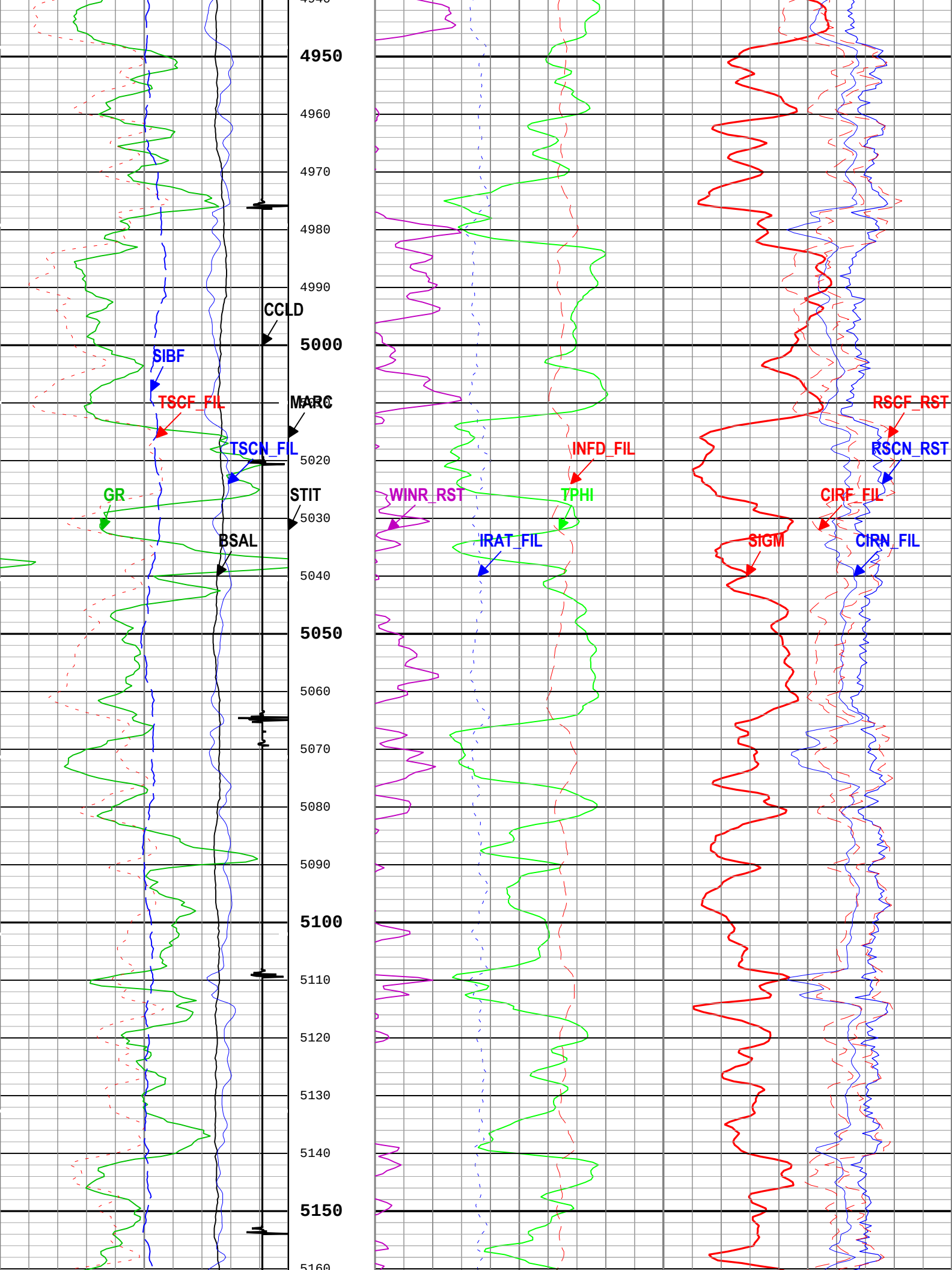
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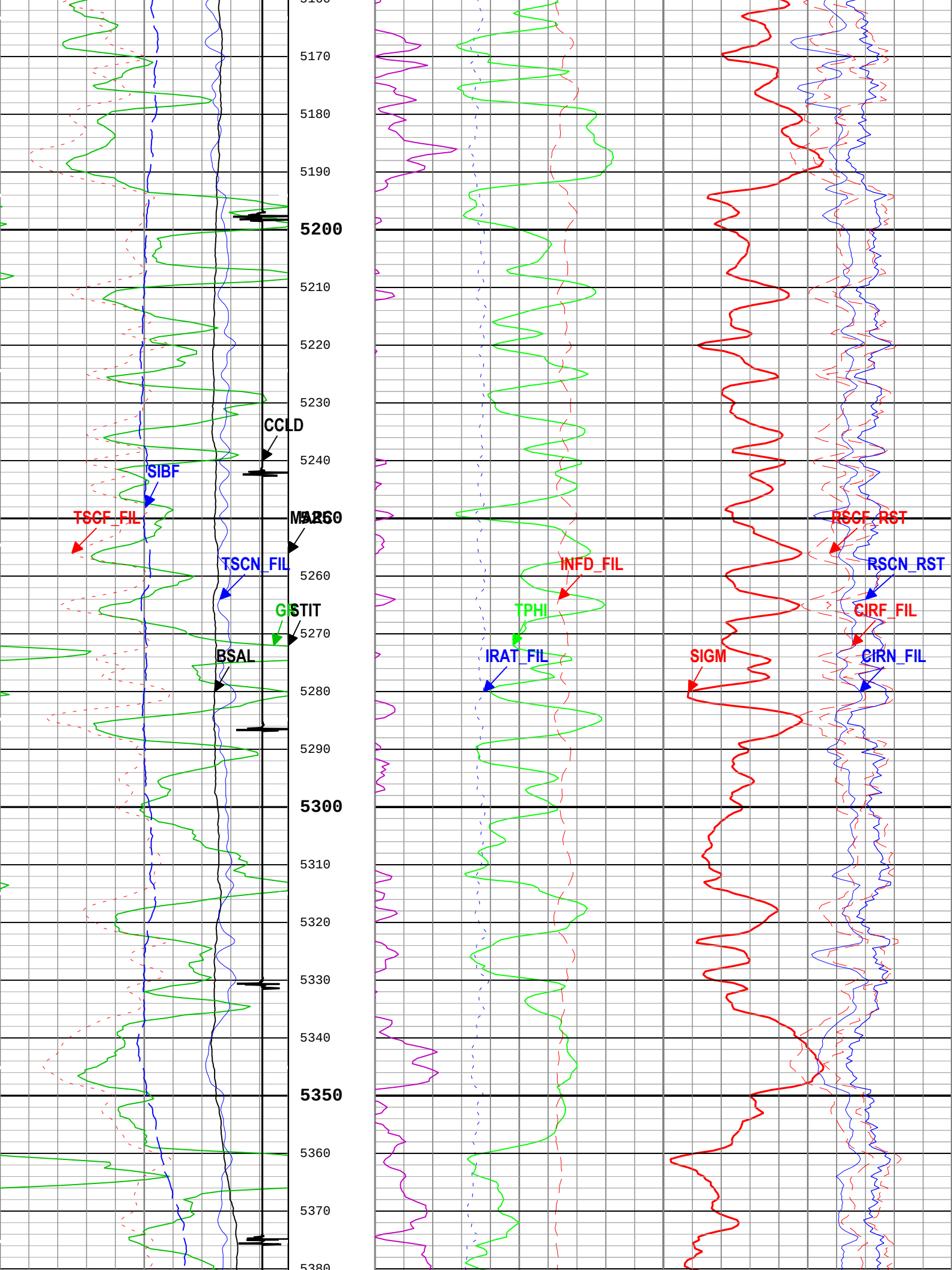
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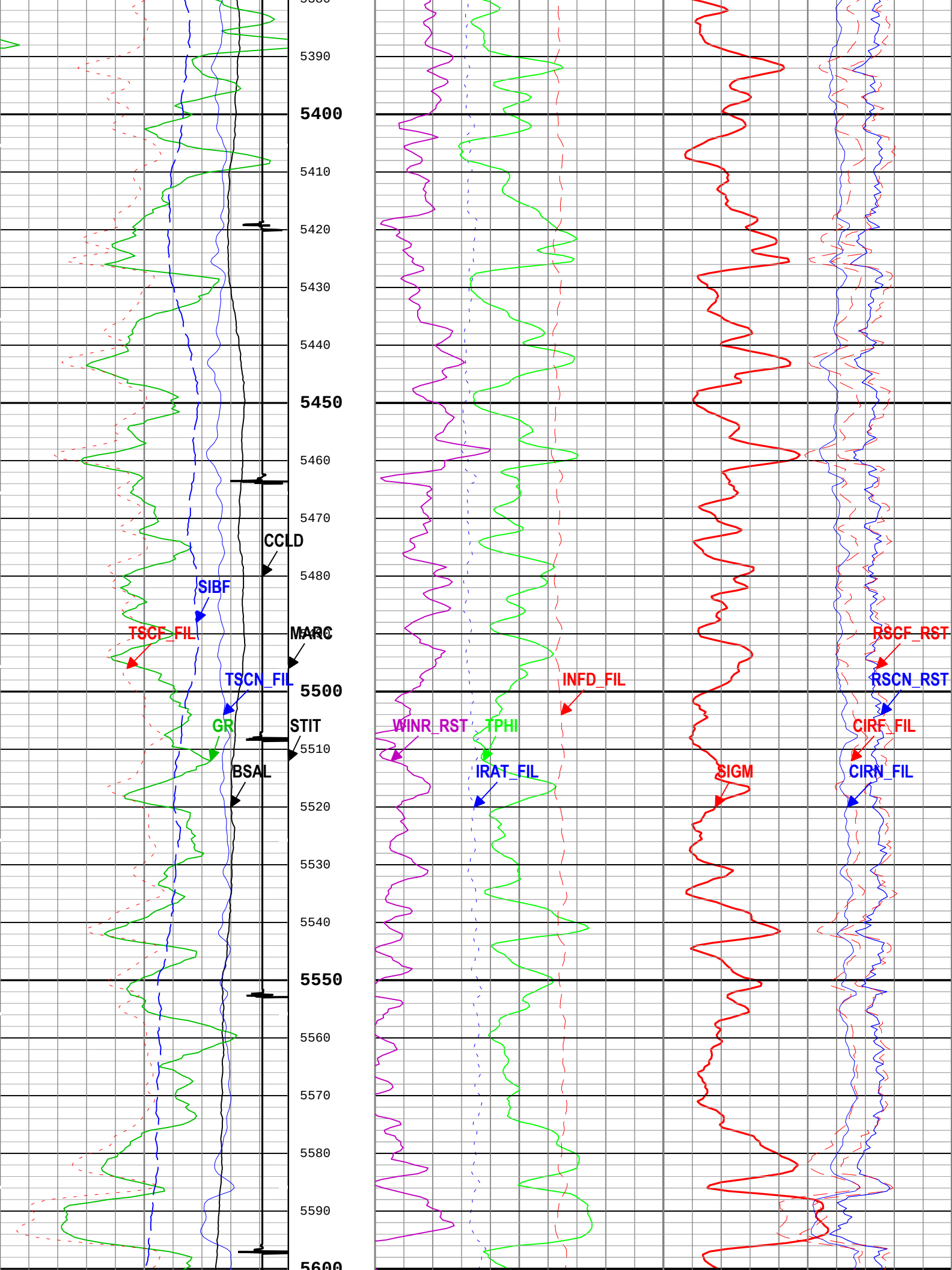
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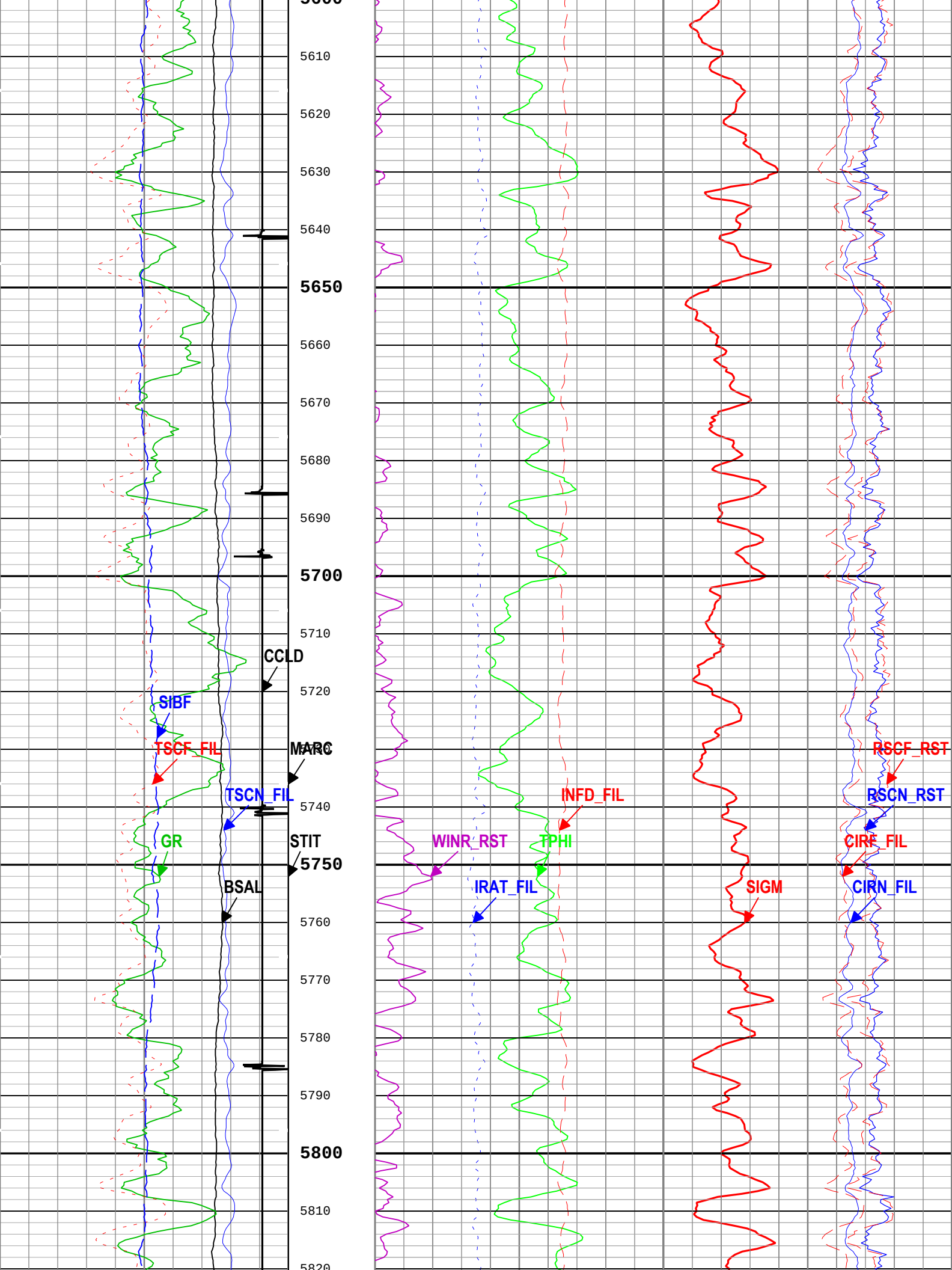
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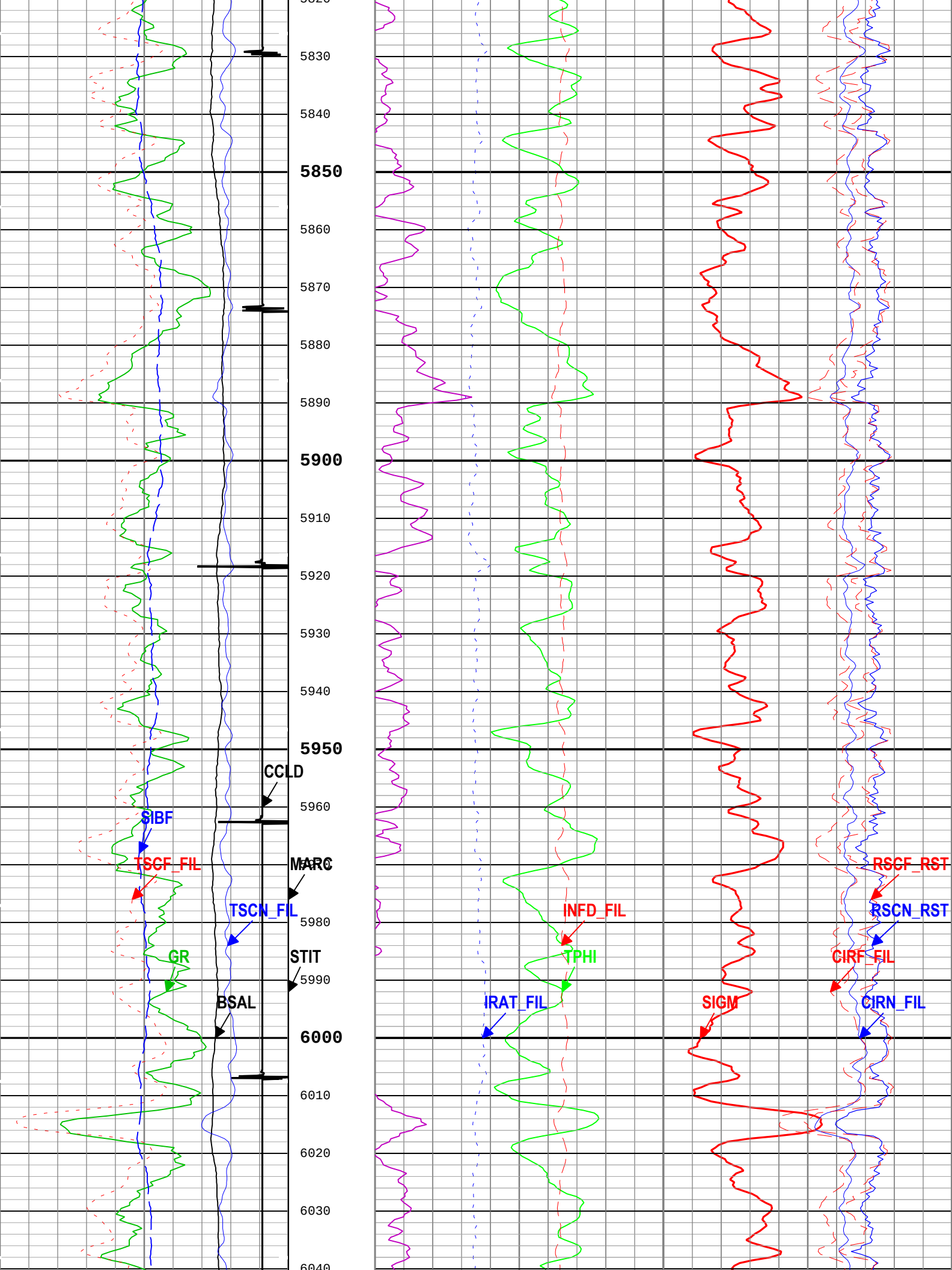
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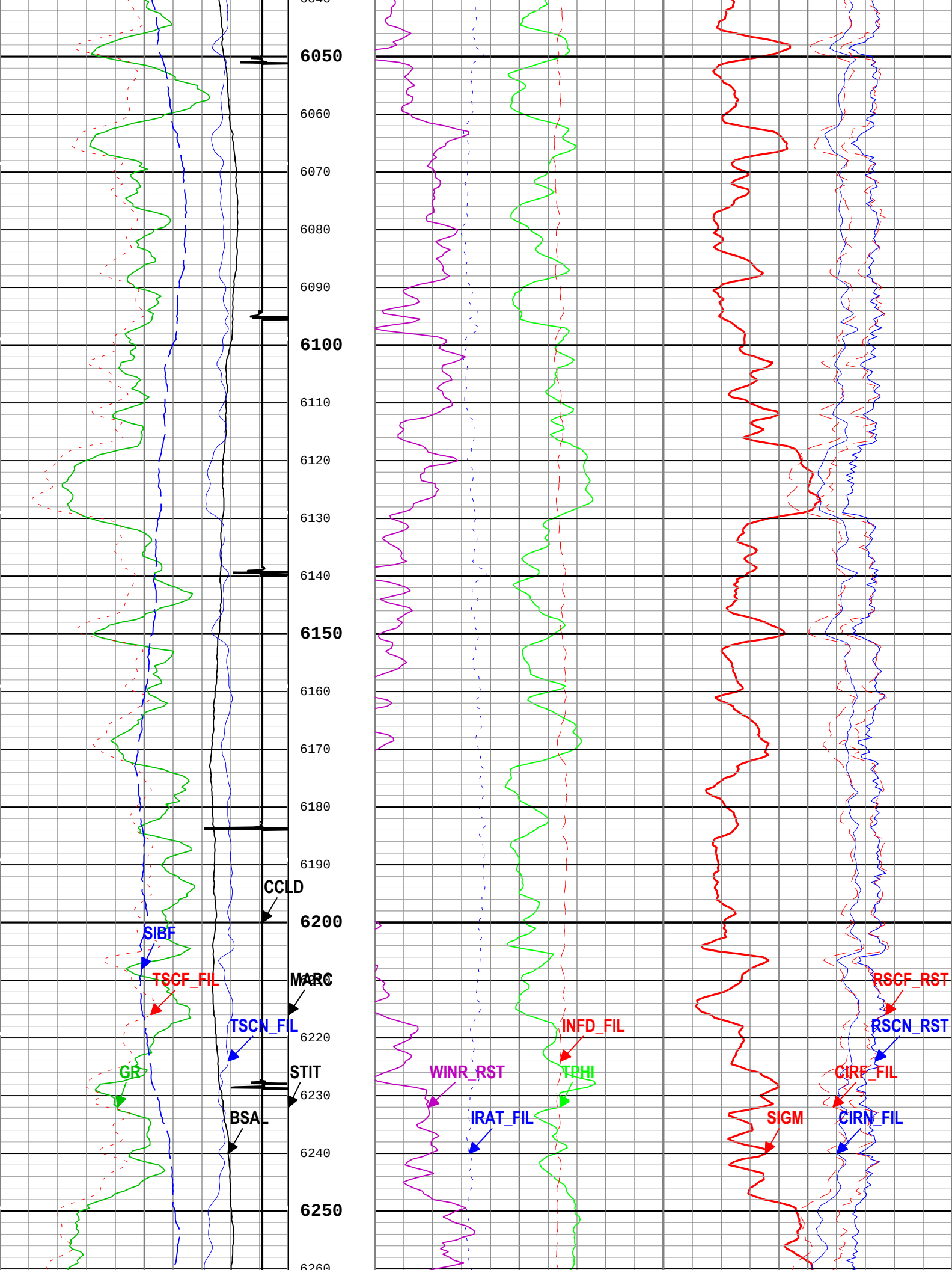
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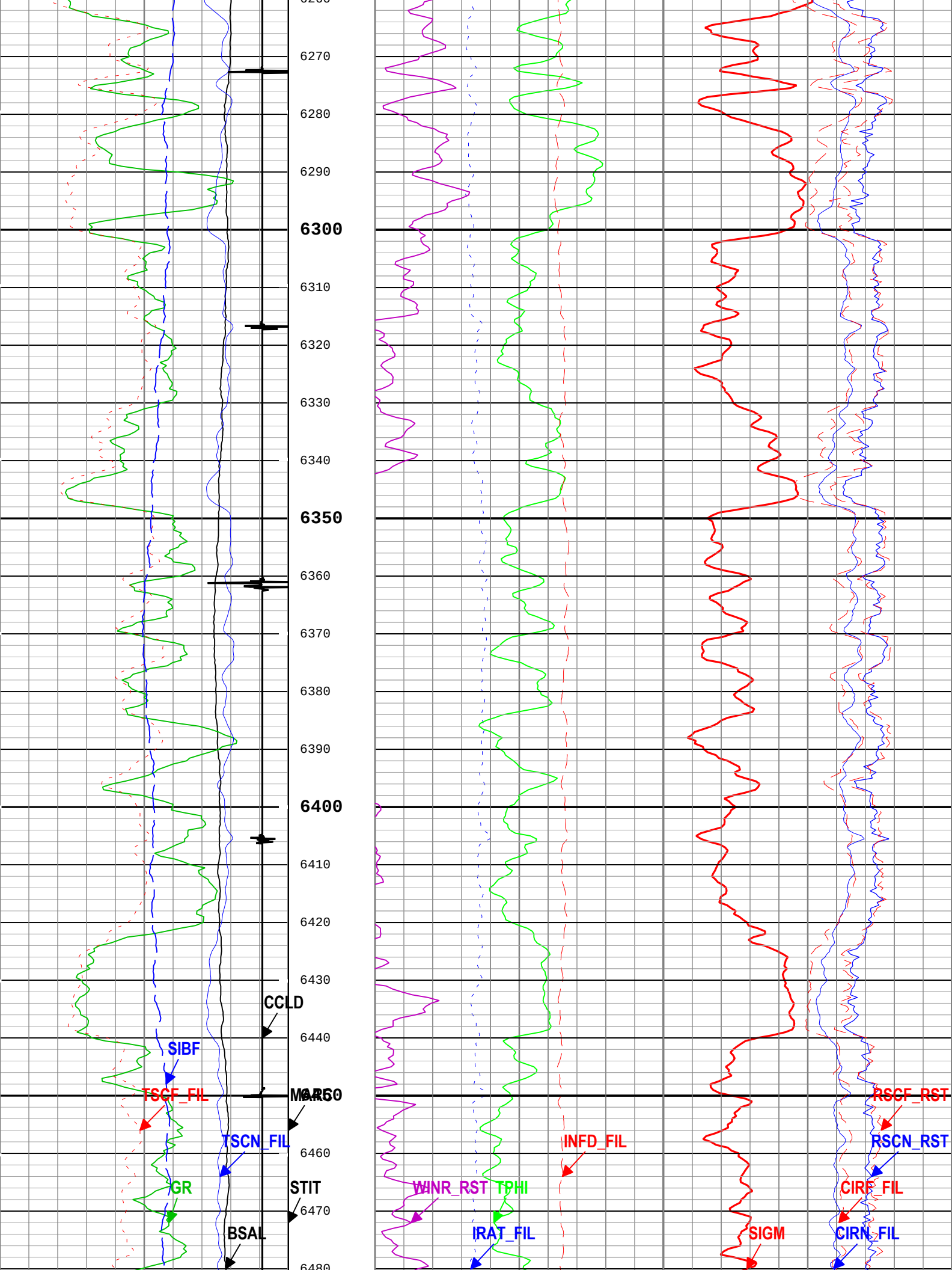
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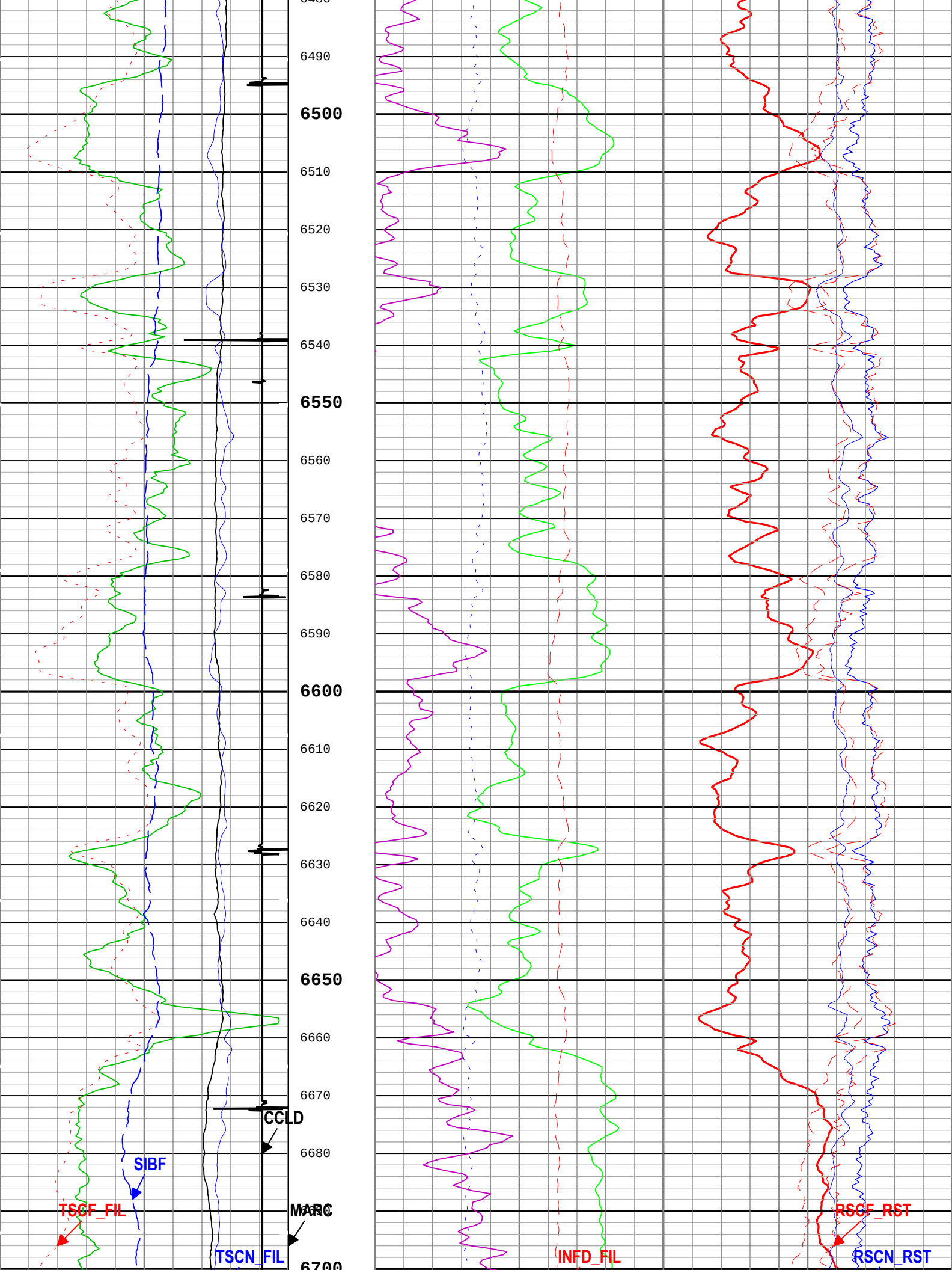
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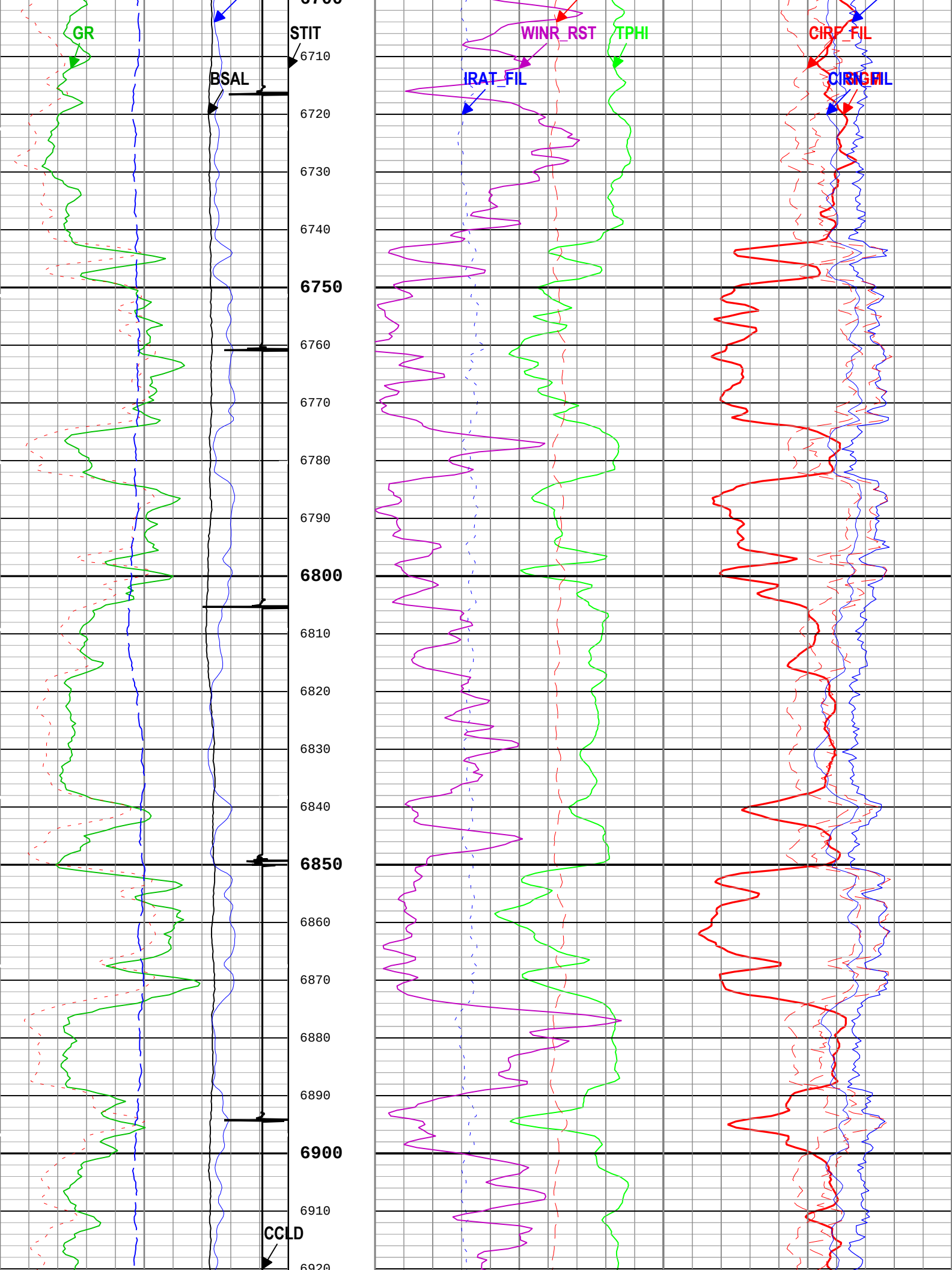
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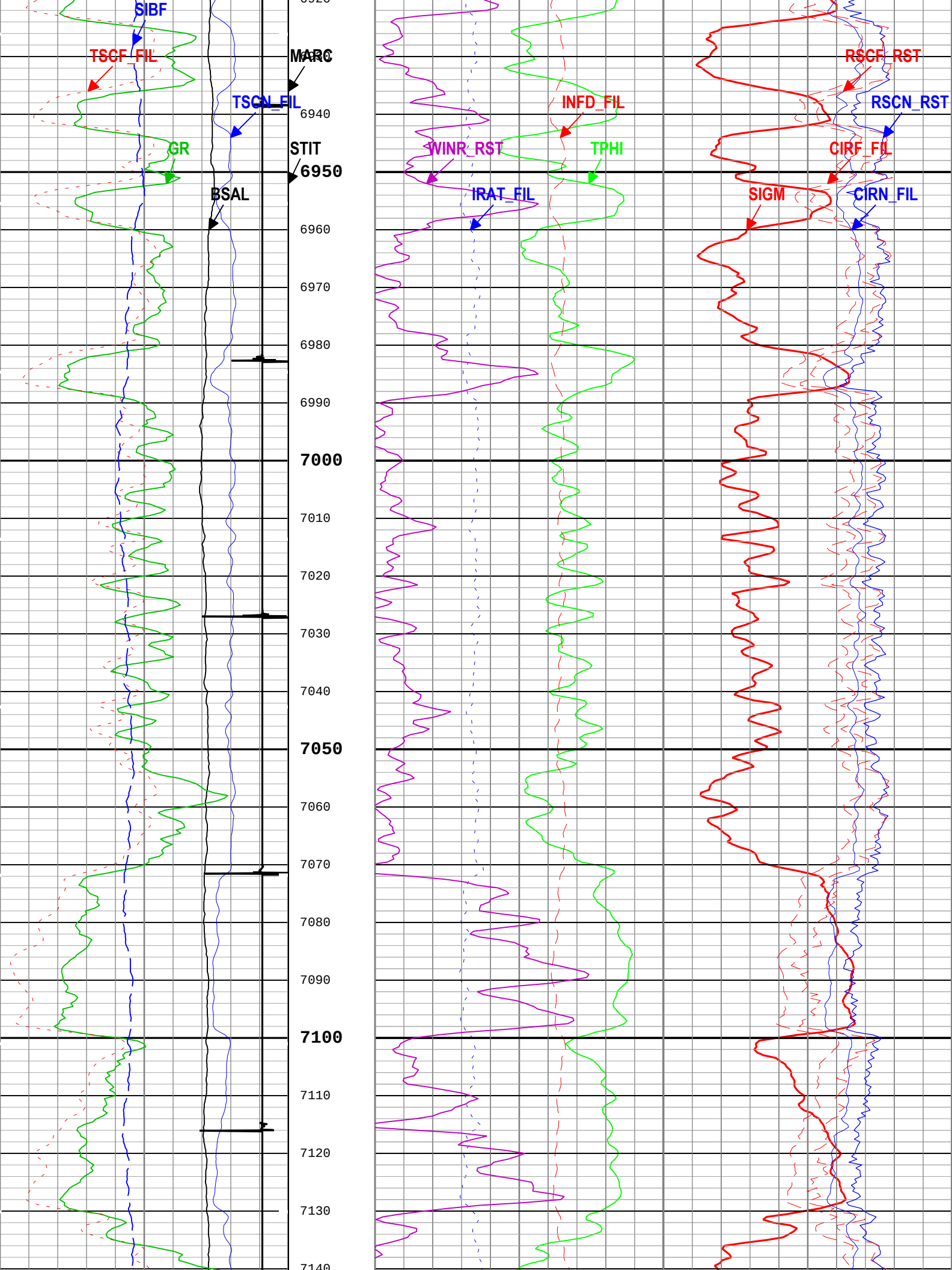
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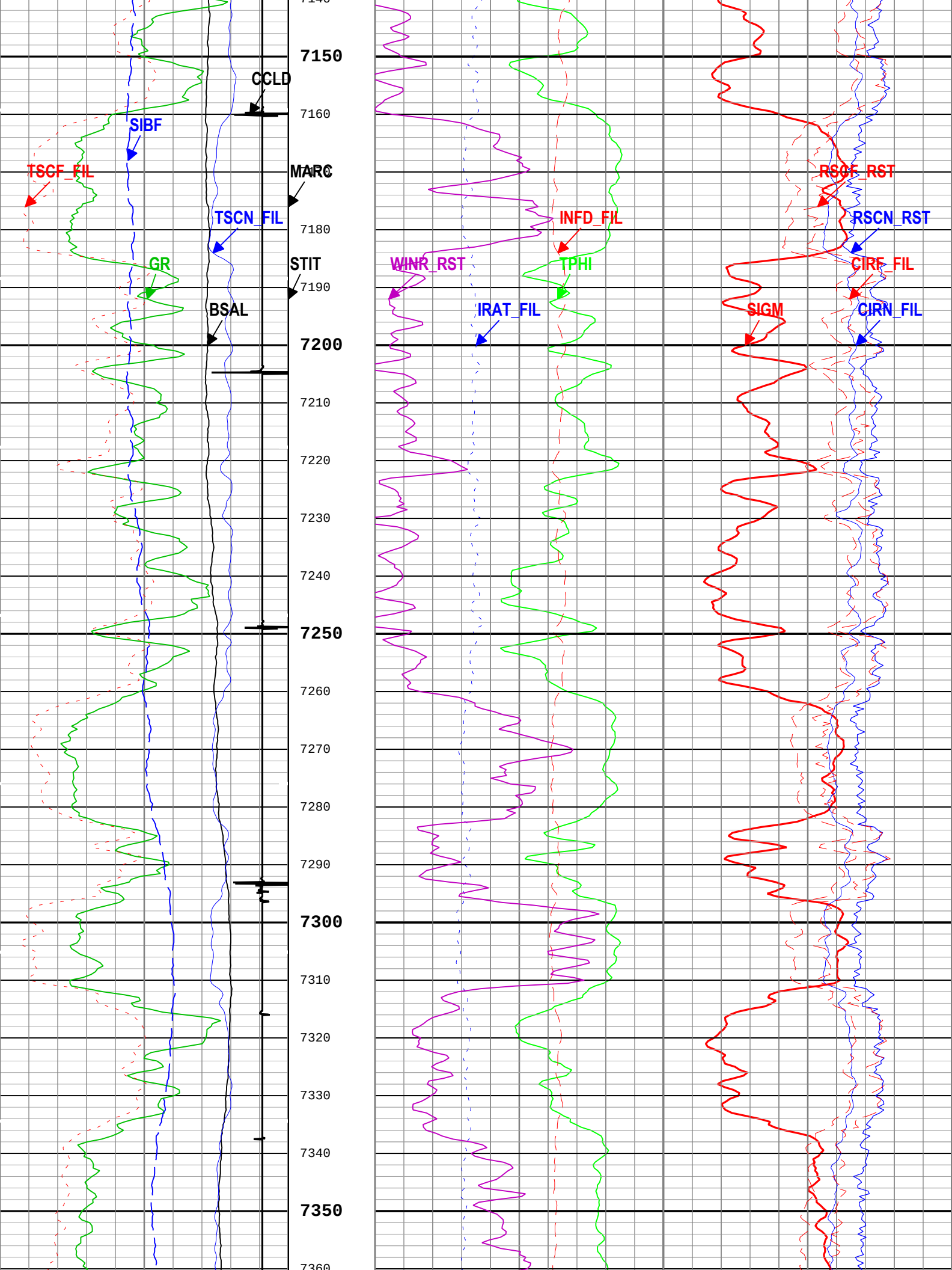
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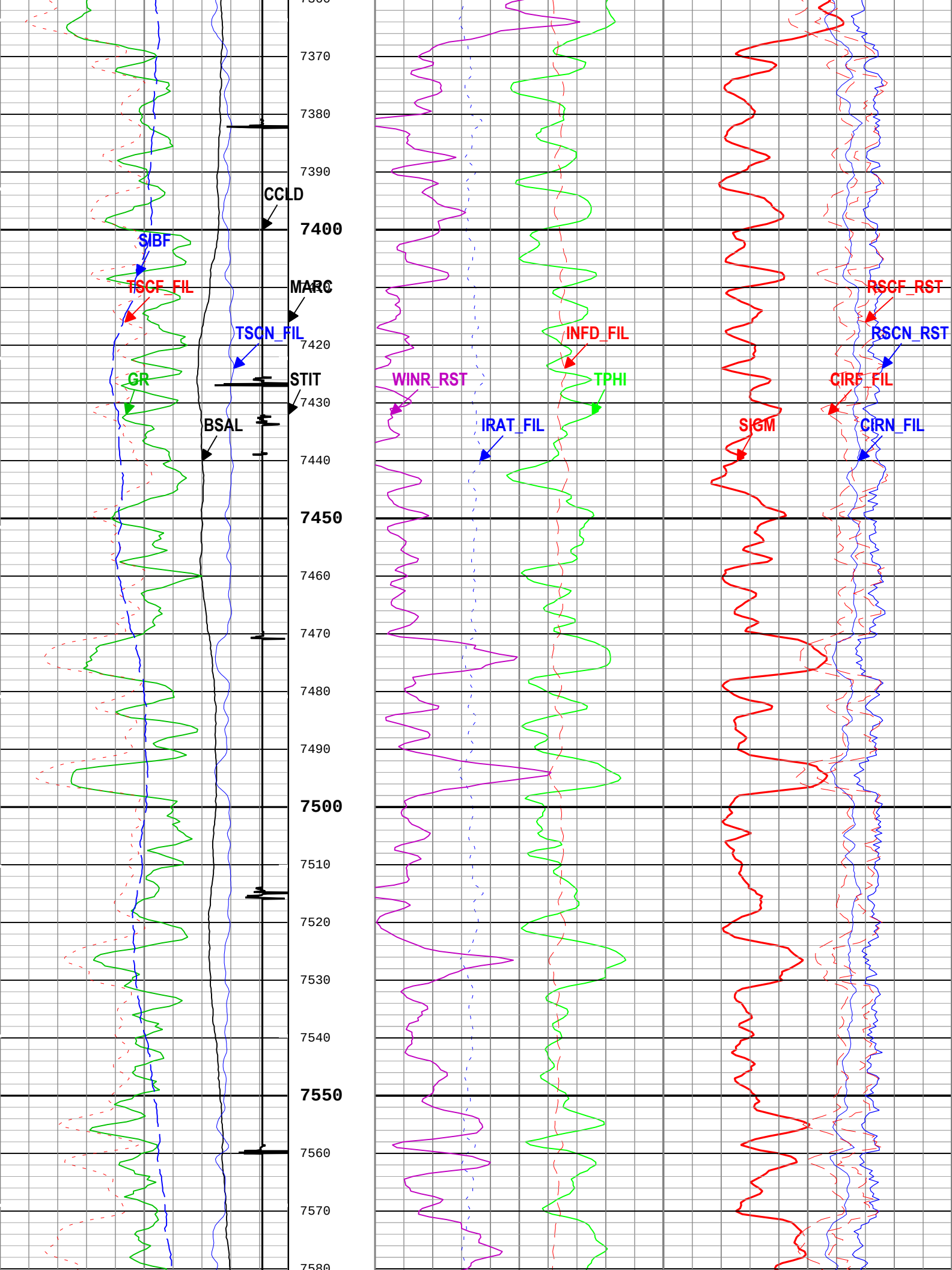
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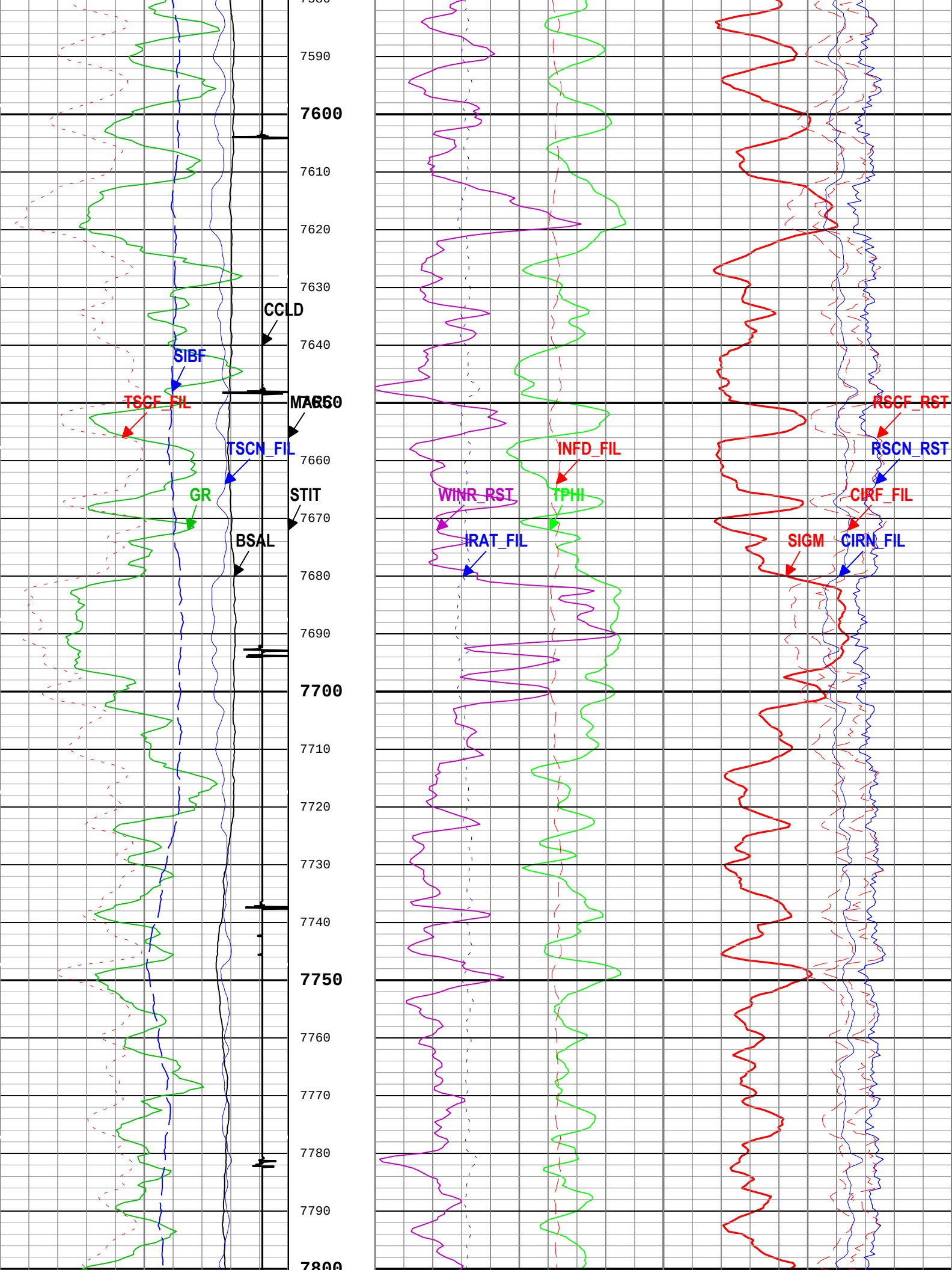
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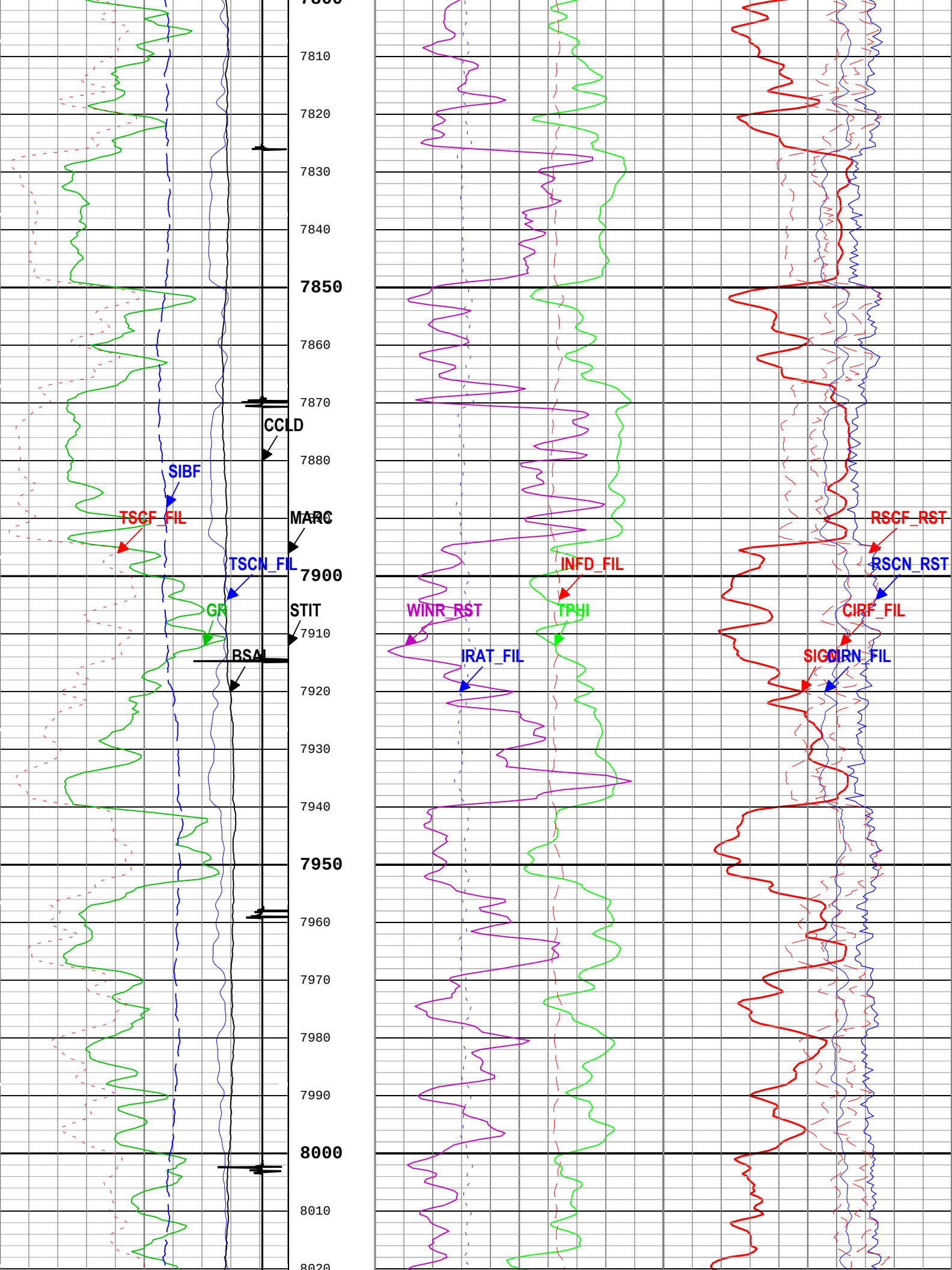
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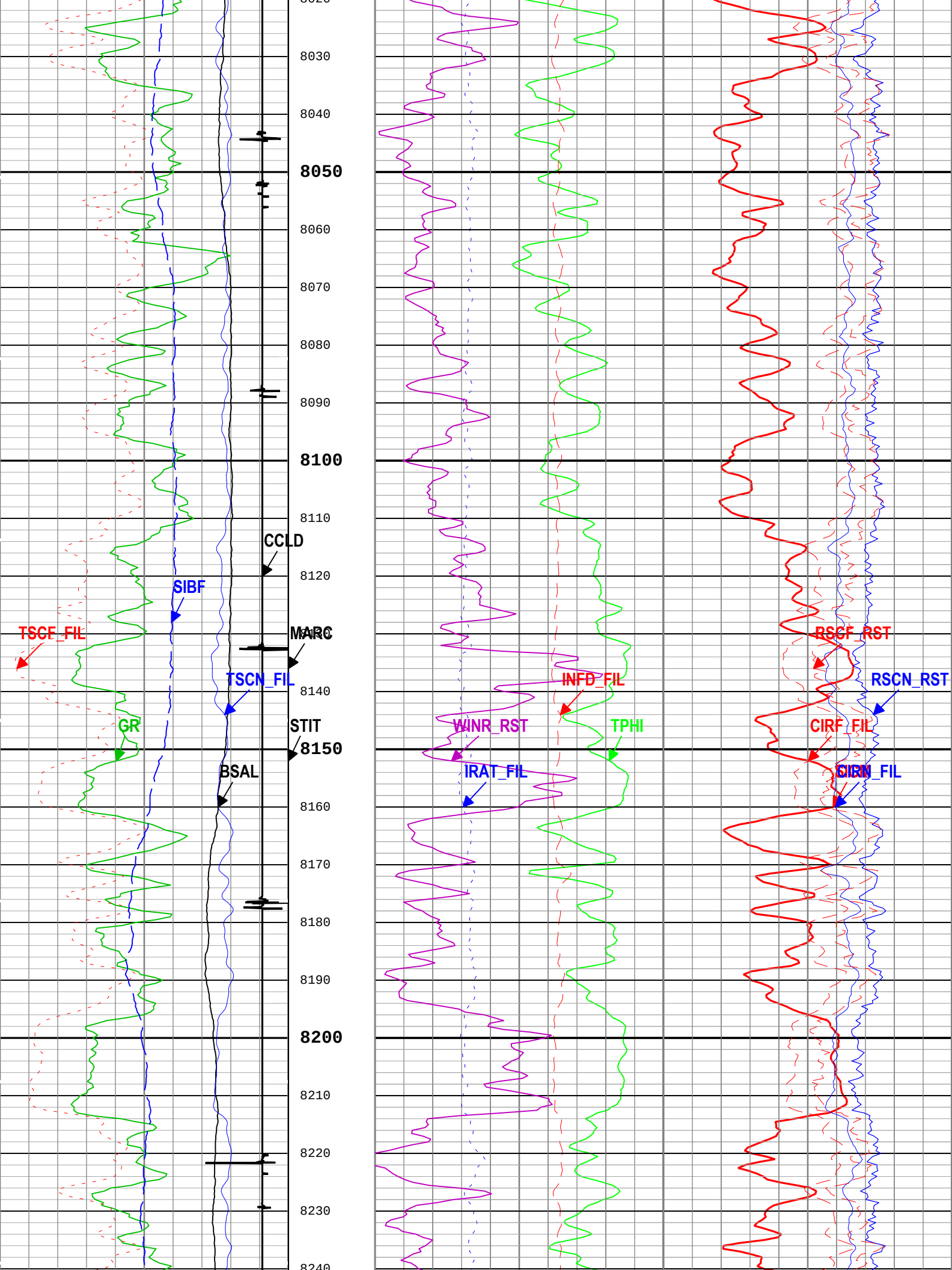
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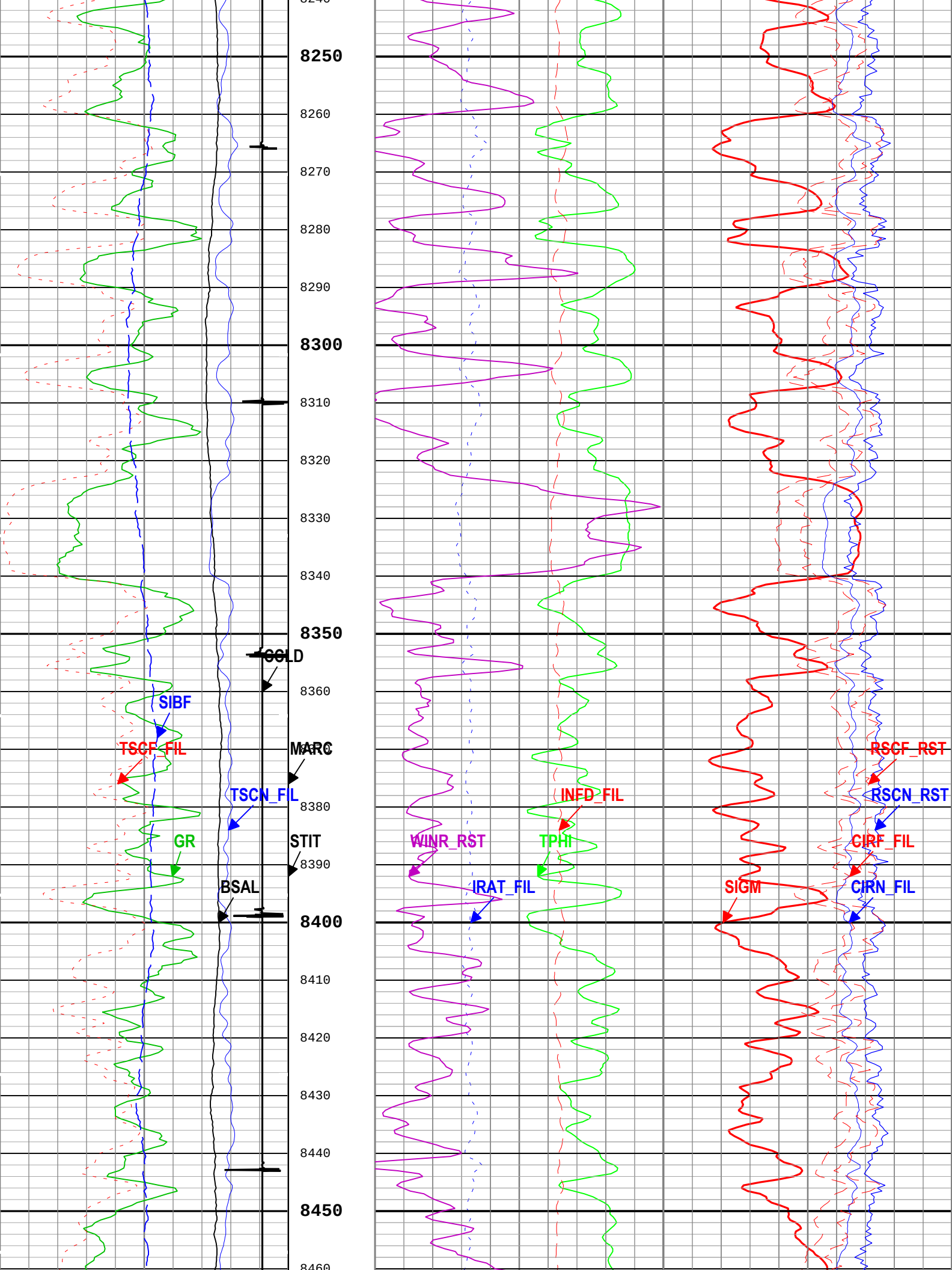
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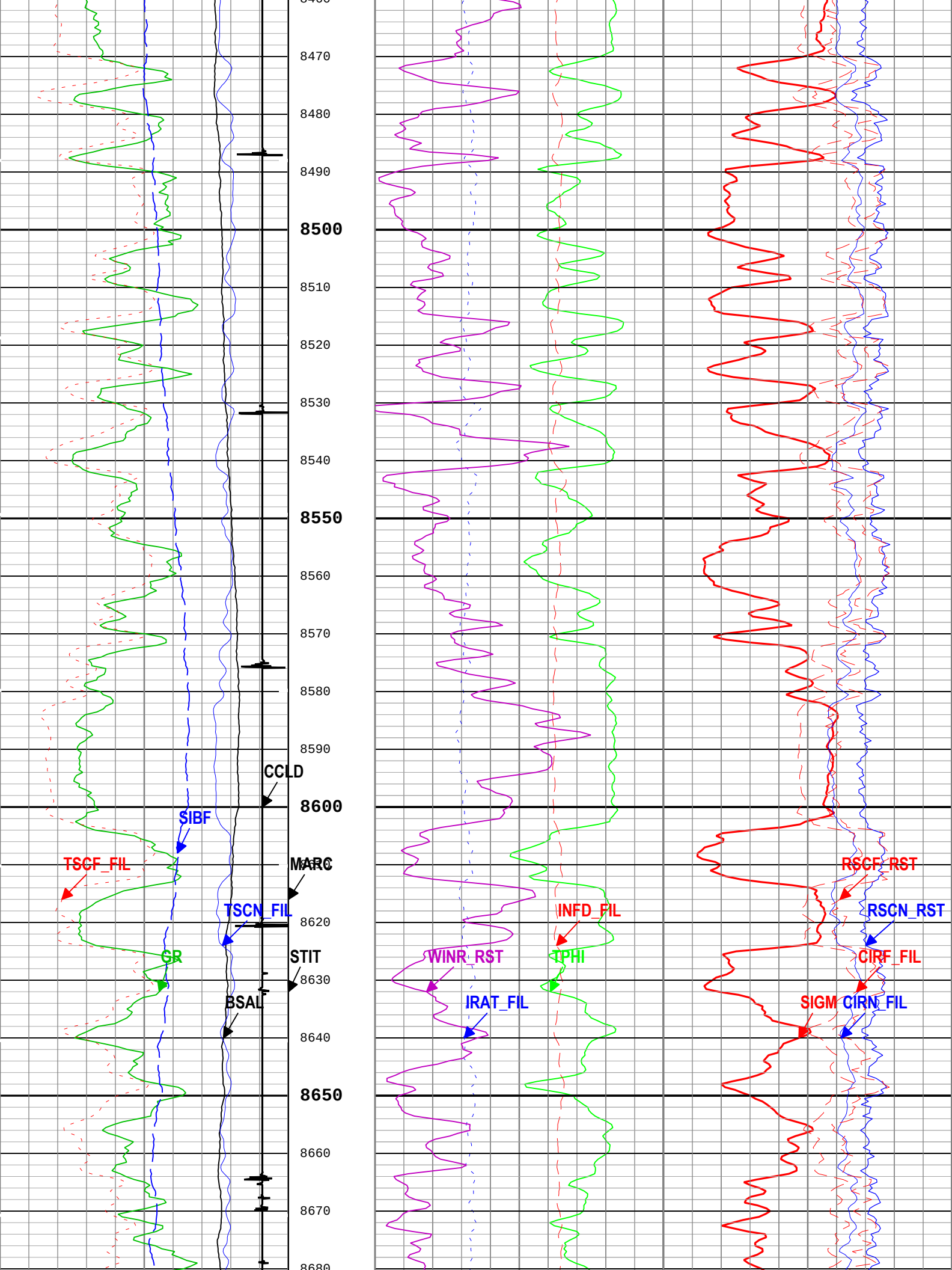
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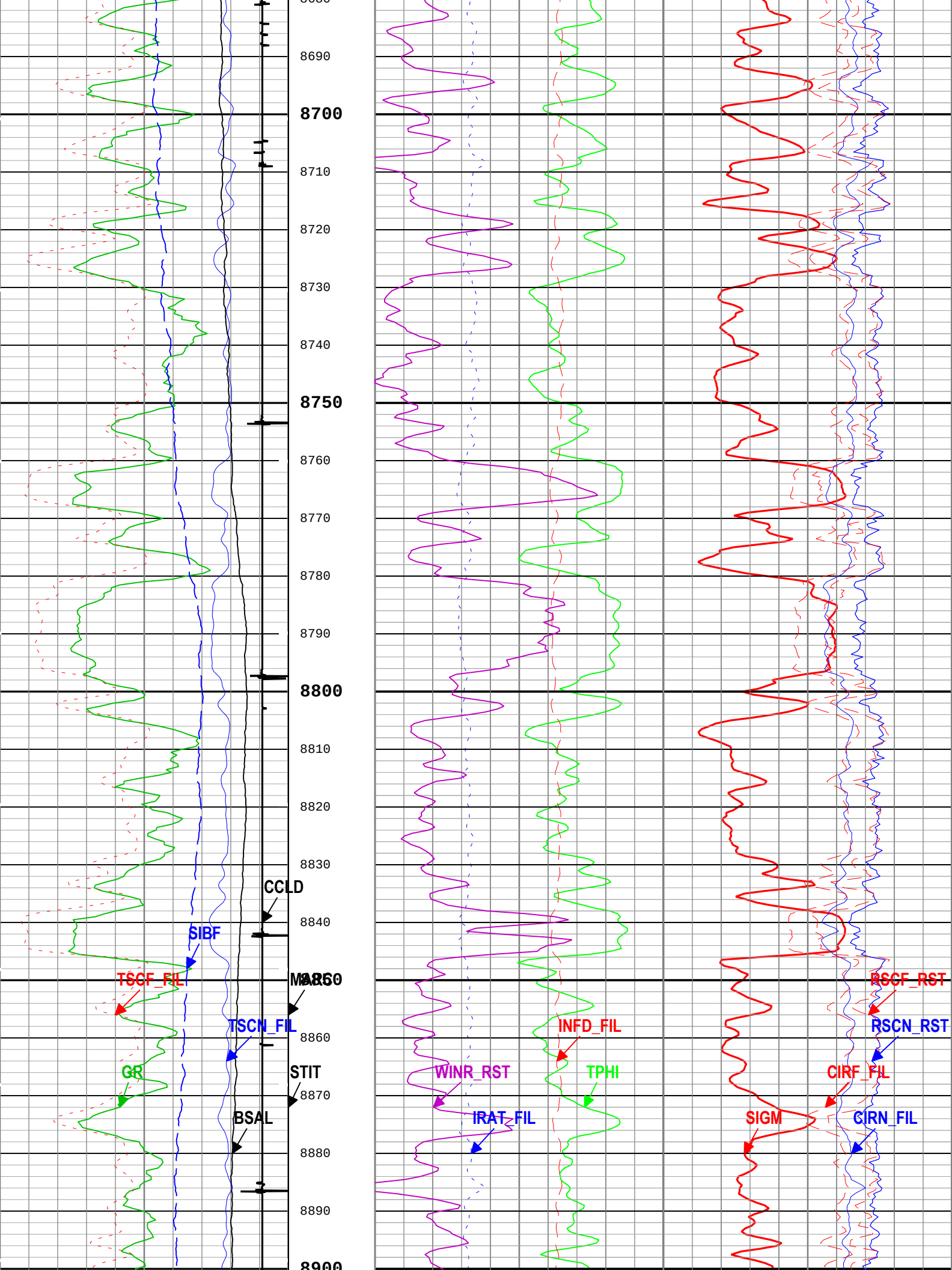
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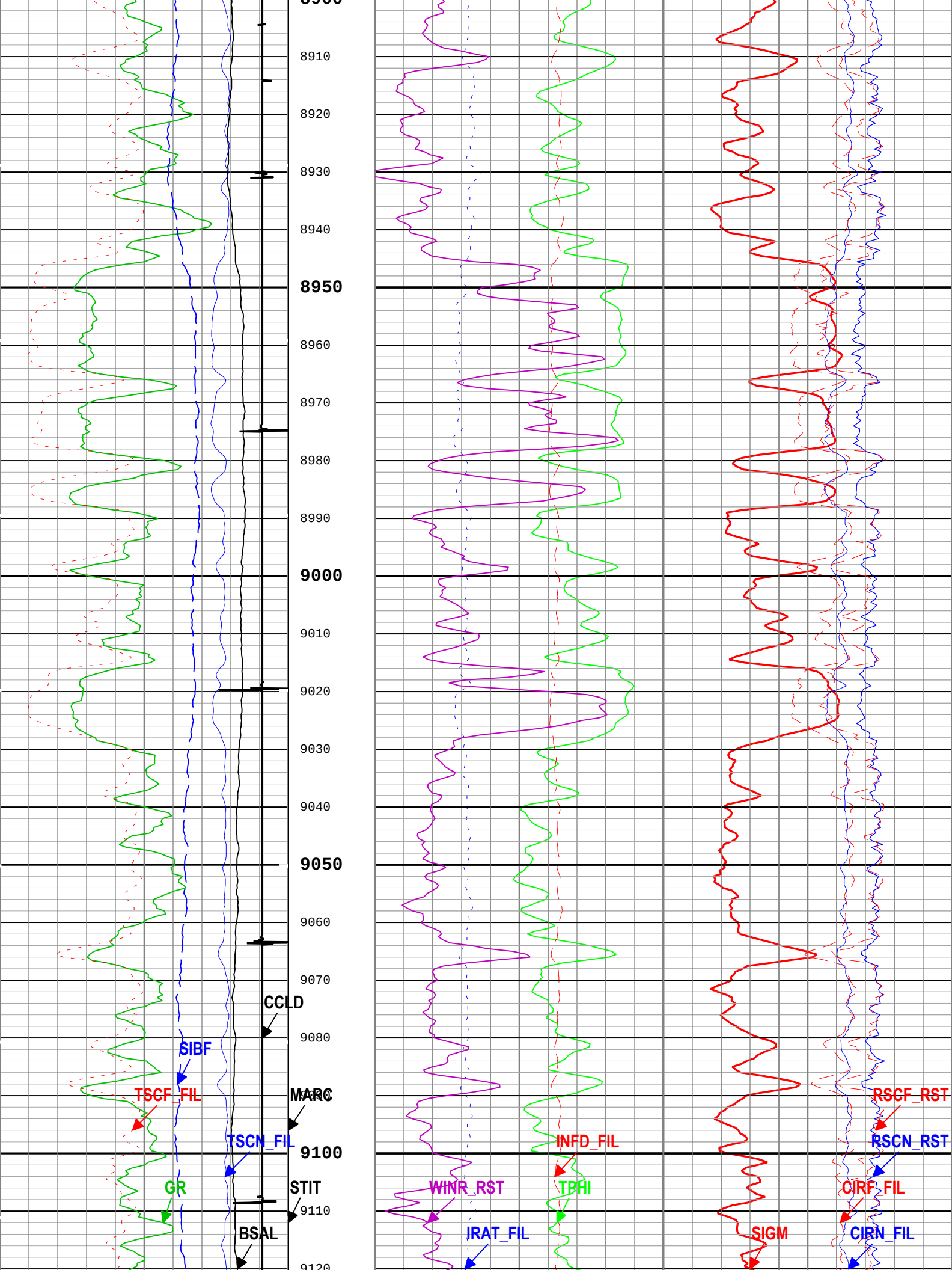
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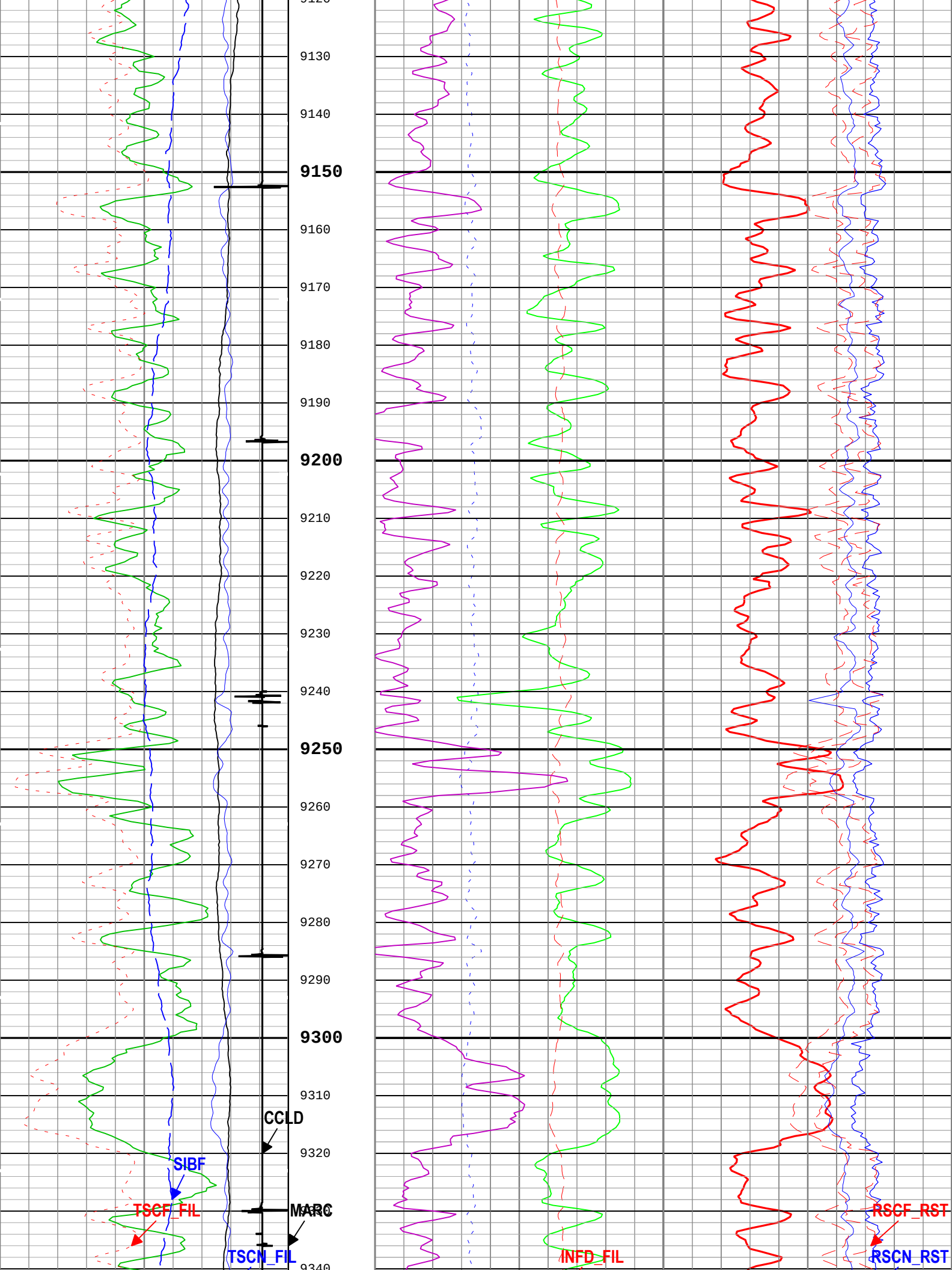
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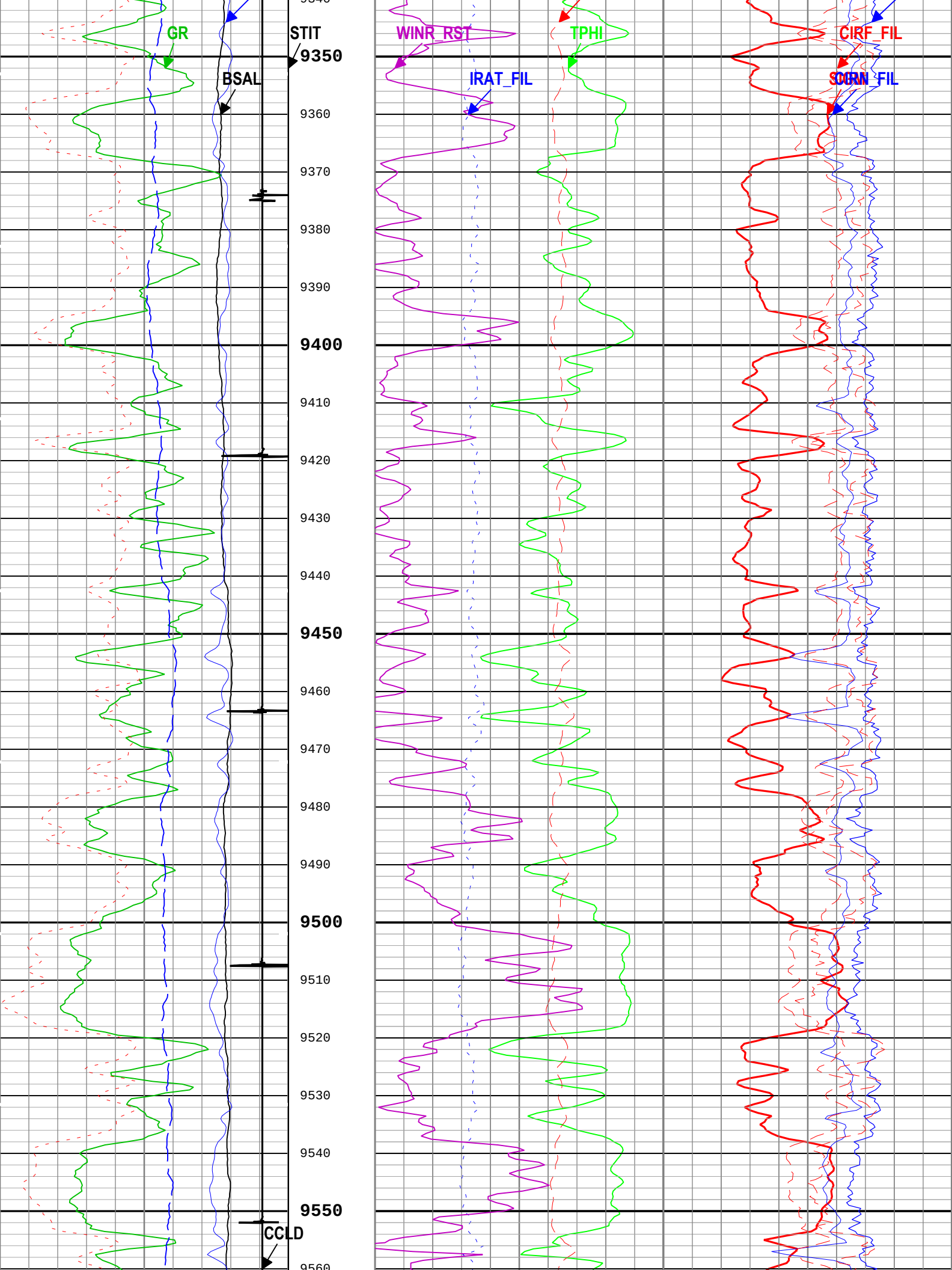
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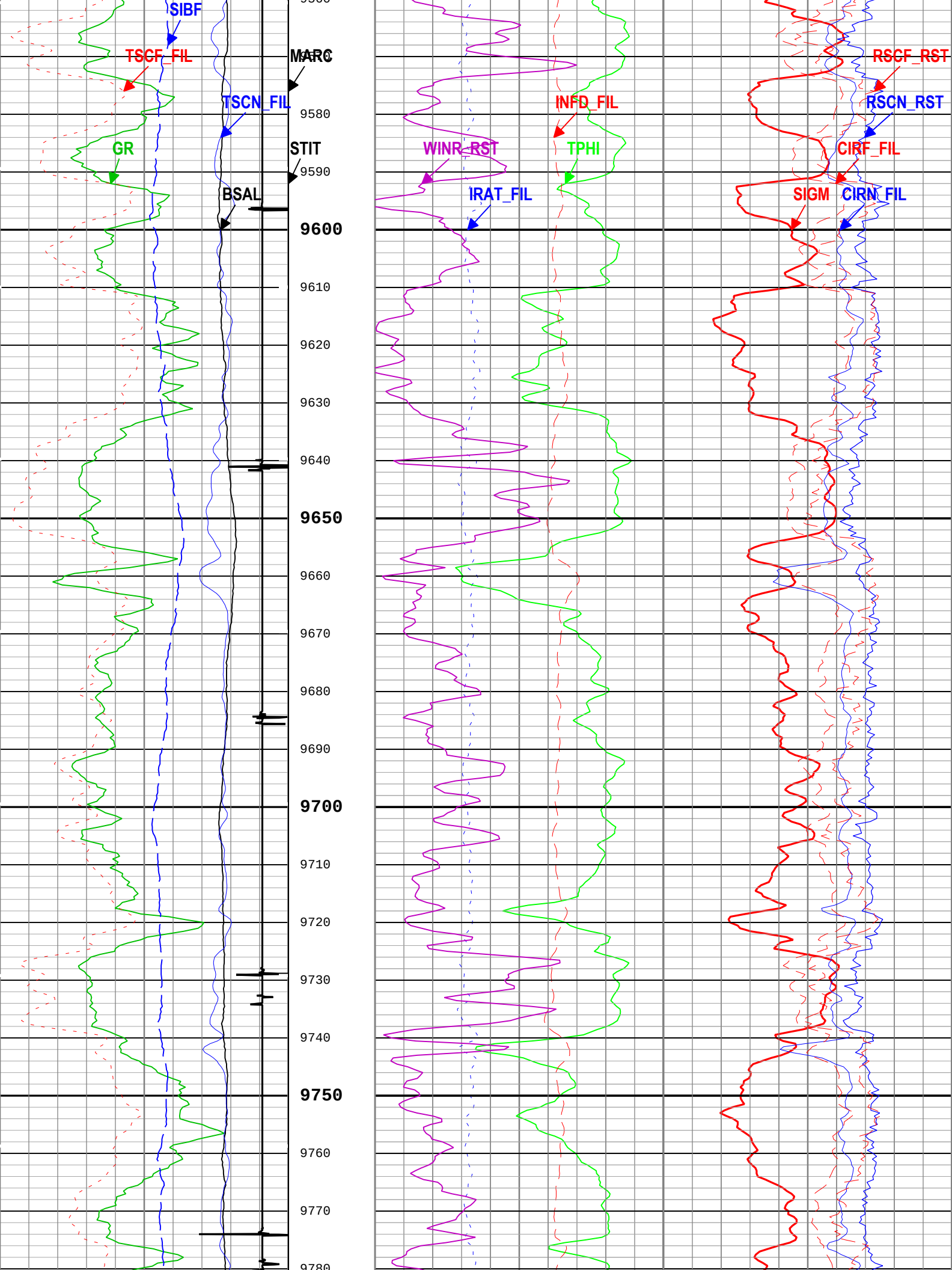
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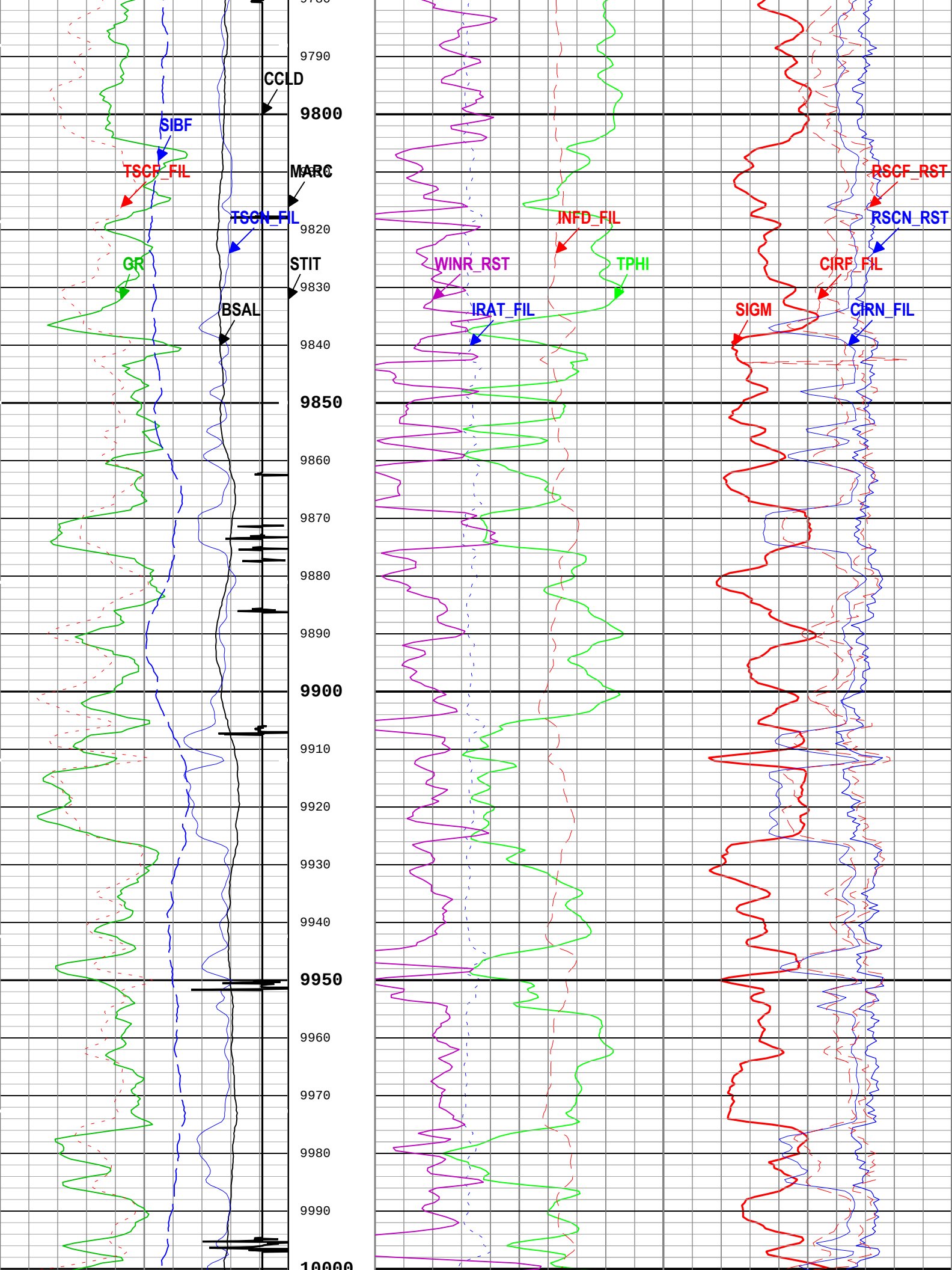
WINR_RST
TPHI
IRAT_FIL
RSCF_RST
RSCN_RST
CIRF_FIL
SIGM
CIRN_FIL


CCLD
SIBF
TSCF_FIL
MARC
TSCN_FIL
GR
STIT
BSAL
WINR_RST
INFD_FIL
TPHI
IRAT_FIL
RSCF_RST
RSCN_RST
CIRF_FIL
SIGM
CIRN_FIL
9790
9800
9820
9830
9840
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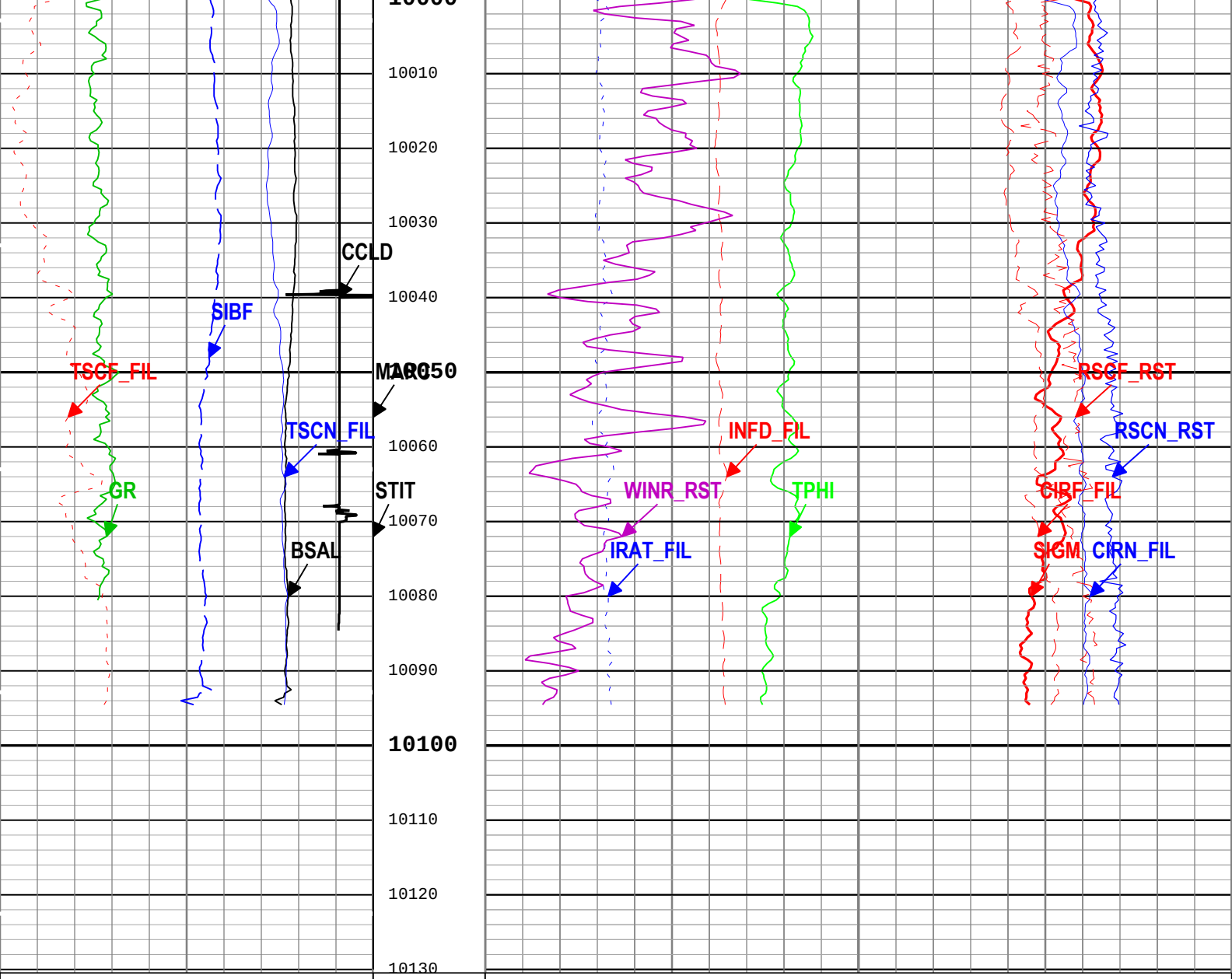
10000



Borehole Salinity (BSAL) RST-C		
450	ppk	-50
Gamma Ray (GR) PSTP-E		
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-E		
-10	V	1

Stuck Tool Indicator, Total (STIT)		
0	ft	50
Cable Drag From STIA to STIT		
Tool_Tot. Drag From D3T to STIT		
Minitron Arc Count (MARC) RST-C		
0		5

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)

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: 05-Mar-2019 20:48:40

Channel Processing Parameters

ONE: Parameters

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	
DC_MODE	Depth Correction Mode	DepthCorrection	Real-time	
DFT_CATEGORY	Drilling Fluid Type	Borehole	Water	
MATR	Rock Matrix for Neutron Porosity Corrections	Borehole	SANDSTONE	

Depth Zone Parameters

Parameter	Value	Start (ft)	Stop (ft)
BS	14.75	2000	2488.8
BS	8.75	2488.8	10130.45

All depth are actual.

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-E	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	0 dB	05-Mar-2019 15:27:54	05-Mar-2019 15:32:28	10130.45	10108.36
PCCG	12 dB	05-Mar-2019 15:32:28	05-Mar-2019 15:38:55	10108.36	9914.12
PCCG	0 dB	05-Mar-2019 15:38:55	05-Mar-2019 20:02:09	9914.12	1972.62

All depth are at tool zero.

ONE

CBL-VDL Repeat Pass [5:100]

Software Version

Acquisition System	Version
Maxwell 2018 SP2	8.2.104493.3100
Application Patch	Wireline_Hotfix-Mandatory-2018.2_8.2.108371

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
ONE	Log[3]:Up	Up	1963.15 ft	2305.08 ft	05-Mar-2019 8:05:06 PM	05-Mar-2019 8:17:04 PM	ON	5.07 ft	No

All depths are referenced to toolstring zero

Description: Sonic CBL with VDL Format: Log (Sonic CBL with VDL) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 05-Mar-2019 20:48:46

BIEP - Bond Index Event Pips SCMT-CB

TIME_1900 - Time Marked every 60.00 (s)

Cable Tension (TENS)
0 lbf 1800

Stuck Tool Indicator, Total (STIT)
0 ft 50

Cable Drag

Tool_Tot. Drag

CBL Amplitude (CBL) SCMT-CB
0 mV 10

CBL Amplitude (CBL) SCMT-CB
0 mV 100

Good Bond (GOBO)
0 mV 10

GoodBond From CBL to GOBO

Min Amplitude Max

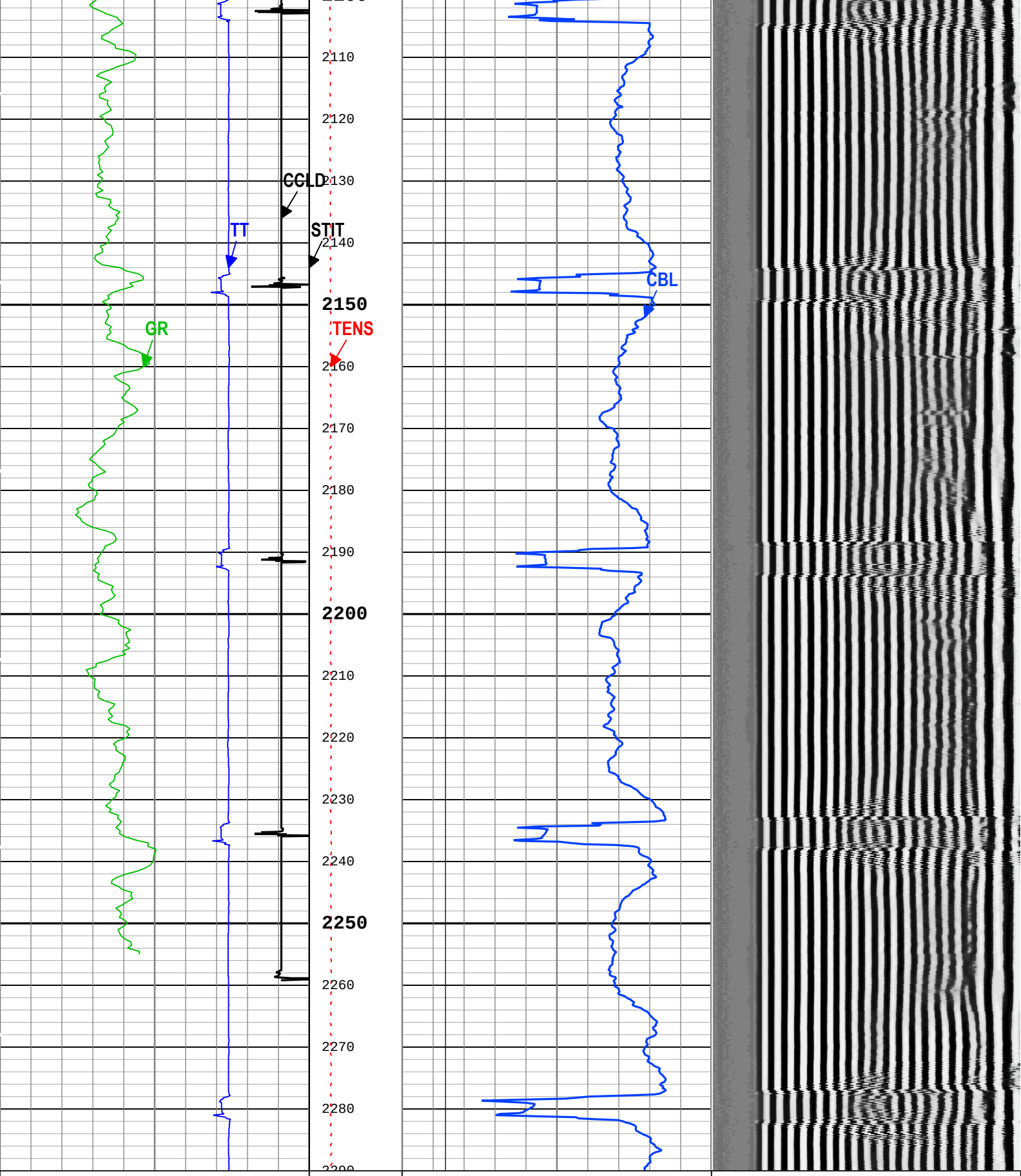
VDL VariableDensity (VDL) SCMT-CB
200 us 1200

Gamma Ray (GR) PSTP-E
0 gAPI 150

Transit Time for CBL (TT) SCMT-CB
400 us 200

CCL Discriminated Amplitude (CCLD) PSTP-E
-10 V 1

1960
1970
1980
1990
2000
2010
2020
2030
2040
2050
2060
2070
2080
2090
2100

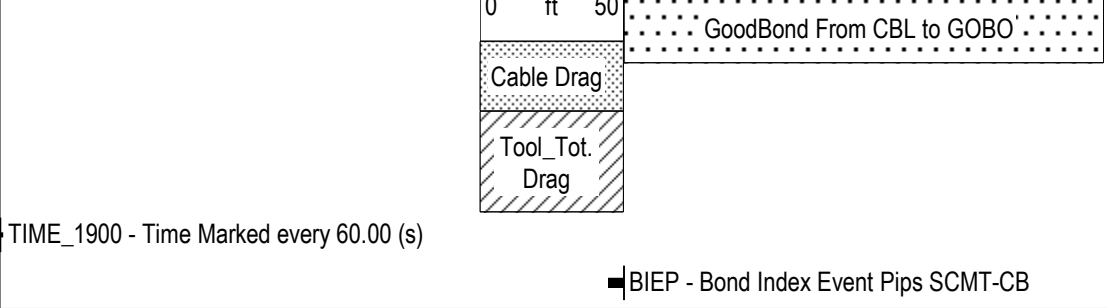


Gamma Ray (GR) PSTP-E	Cable Tension (TENS)	CBL Amplitude (CBL) SCMT-CB
0 gAPI 150	0 lbf 1800	0 mV 10
Transit Time for CBL (TT) SCMT-CB		CBL Amplitude (CBL) SCMT-CB
400 us 200	Stuck Tool Indicator, Total (STIT)	0 mV 100
CCL Discriminated Amplitude (CCLD) PSTP-E		Good Bond (GOBO)
-10 V 1		0 mV 10

Min Amplitude Max

VDL VariableDensity (VDL) SCMT-CB

200 us 1200



Description: Sonic CBL with VDL Format: Log (Sonic CBL with VDL) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 05-Mar-2019 20:48:46

Channel Processing Parameters

ONE: Parameters

Parameter	Description	Tool	Value	Unit
BHT	Bottom Hole Temperature	Borehole	212	degF
CB3G	SCMT CBL 3 ft Peak Detection T0_Delay and Noise Gate	SCMT-CB	230.58	us
CBLG	CBL Gate Width	SCMT-CB	46	us
CBRA	CBL LQC Reference Amplitude in Free Pipe	SCMT-CB	80	mV
THNO	Nominal Casing Thickness - Zoned along logger depths	WLSESSION	0.25	in
DC_MODE	Depth Correction Mode	DepthCorrection	Real-time	
DFD	Drilling Fluid Density	Borehole	8.4	lbm/gal
DFT_CATEGORY	Drilling Fluid Type	Borehole	Water	
DTMD	Borehole Fluid Slowness	Borehole	206	us/ft
EDF	Elevation of Derrick Floor Above Permanent Datum	WLSESSION	24	ft
EPD	Elevation of Permanent Datum (PDAT) above Mean Sea Level	WLSESSION	7649	ft
FCF	CBL Fluid Compensation Factor	SCMT-CB	1	
GGRD	Geothermal Gradient	Borehole	1	0.01 degF/ft
GOBO_CURR	Good Bond in Arbitrary Cement	SCMT-CB	1.4	mV
GTSE	Generalized Temperature Selection, from Measured or Computed Temperature	Borehole	GTEM_LINEST(RT)	
MATT_CURR	Maximum Attenuation in Arbitrary Cement	SCMT-CB	16.92	dB/ft
MCI	Minimum Cemented Interval for Isolation	SCMT-CB	14.81	ft
MSA	Minimum Sonic Amplitude	SCMT-CB	0.51	mV
MSA_CURR	Minimum Sonic Amplitude in Arbitrary Cement	SCMT-CB	0.51	mV
PDAT	Permanent Datum	WLSESSION	GL	
RUN_SNUM	Run Sequence Number	WSDRUN	2	
SHT	Surface Hole Temperature	Borehole	68	degF

Tool Control Parameters

ONE: Parameters

Parameter	Description	Tool	Value	Unit
CMTM	SCMT Operating Mode	SCMT-CB	Log	
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	150	ft/h
PCCG	PSP Downhole CCL Gain	PSTP-E	0 dB	

ONE

RST Sigma Repeat Pass [5:100]

Software Version

Acquisition System	Version
Maxwell 2018 SP2	8.2.104493.3100
Application Patch	Wireline_Hotfix-Mandatory-2018.2_8.2.108371

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
ONE	Log[3]:Up	Up	1963.15 ft	2305.08 ft	05-Mar-2019 8:05:06 PM	05-Mar-2019 8:17:04 PM	ON	5.07 ft	No

All depths are referenced to toolstring zero

Log

Company:CAERUS OIL & GAS LLC Well:NPR 11C-9 596

ONE: Log[3]:Up:S013

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: 05-Mar-2019 20:48:48

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)

ICV - Integrated Cement Volume every 100.00 (ft3)

Borehole Salinity (BSAL) RST-C
450 ppk -50

Gamma Ray (GR) PSTP-E
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-E
-10 V 1

Stuck Tool Indicator, Total (STIT)
0 ft 50

Cable Drag From STIA to STIT

Tool_Tot. Drag From D3T to STIT

Minitron Arc Count (MARC) RST-C
0 5

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

Formation Sigma (Neutron Capture Cross Section) (SIGM) RST-C
60 cu 0

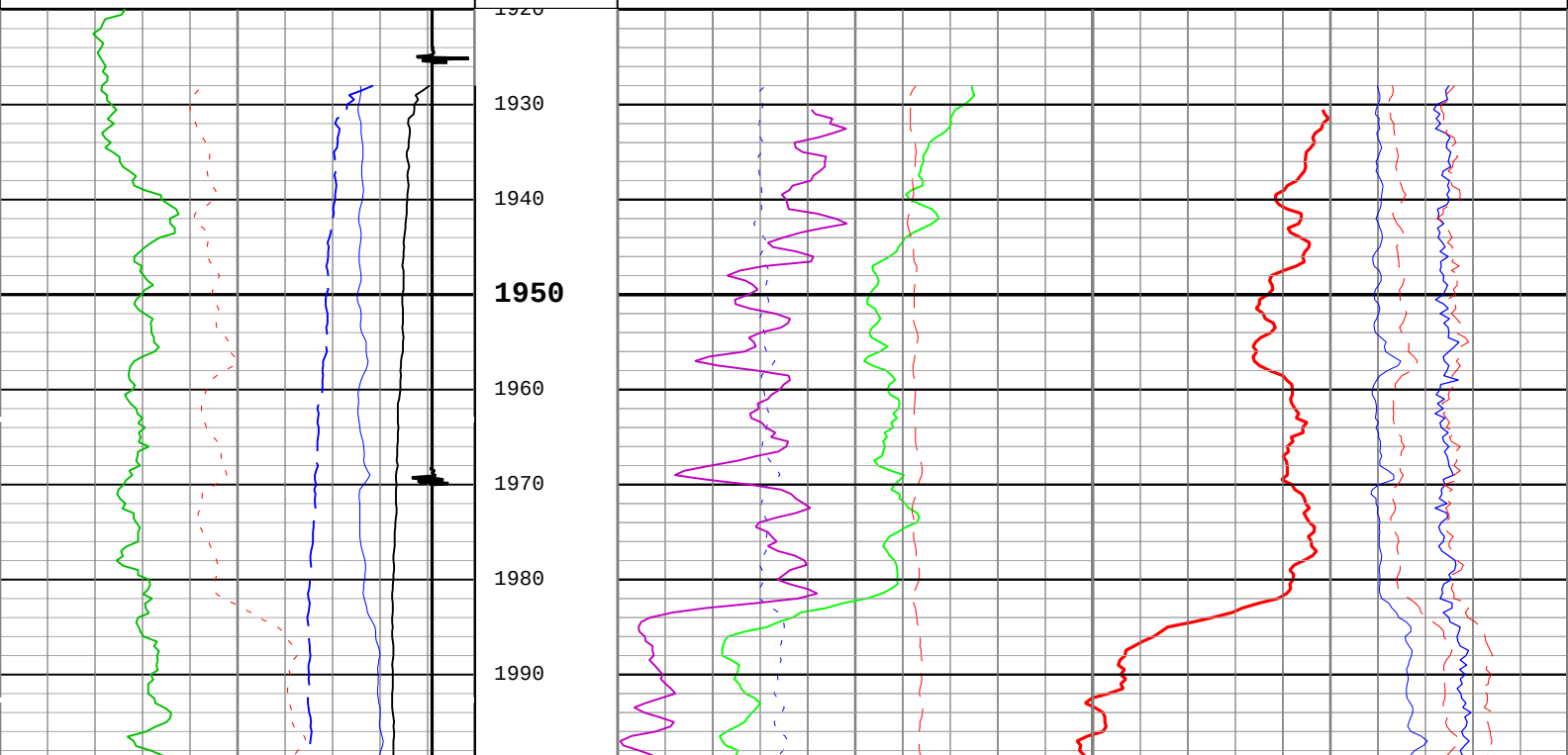
Weighted Inelastic Ratio (WINR_RST) RST-C
0 0.4

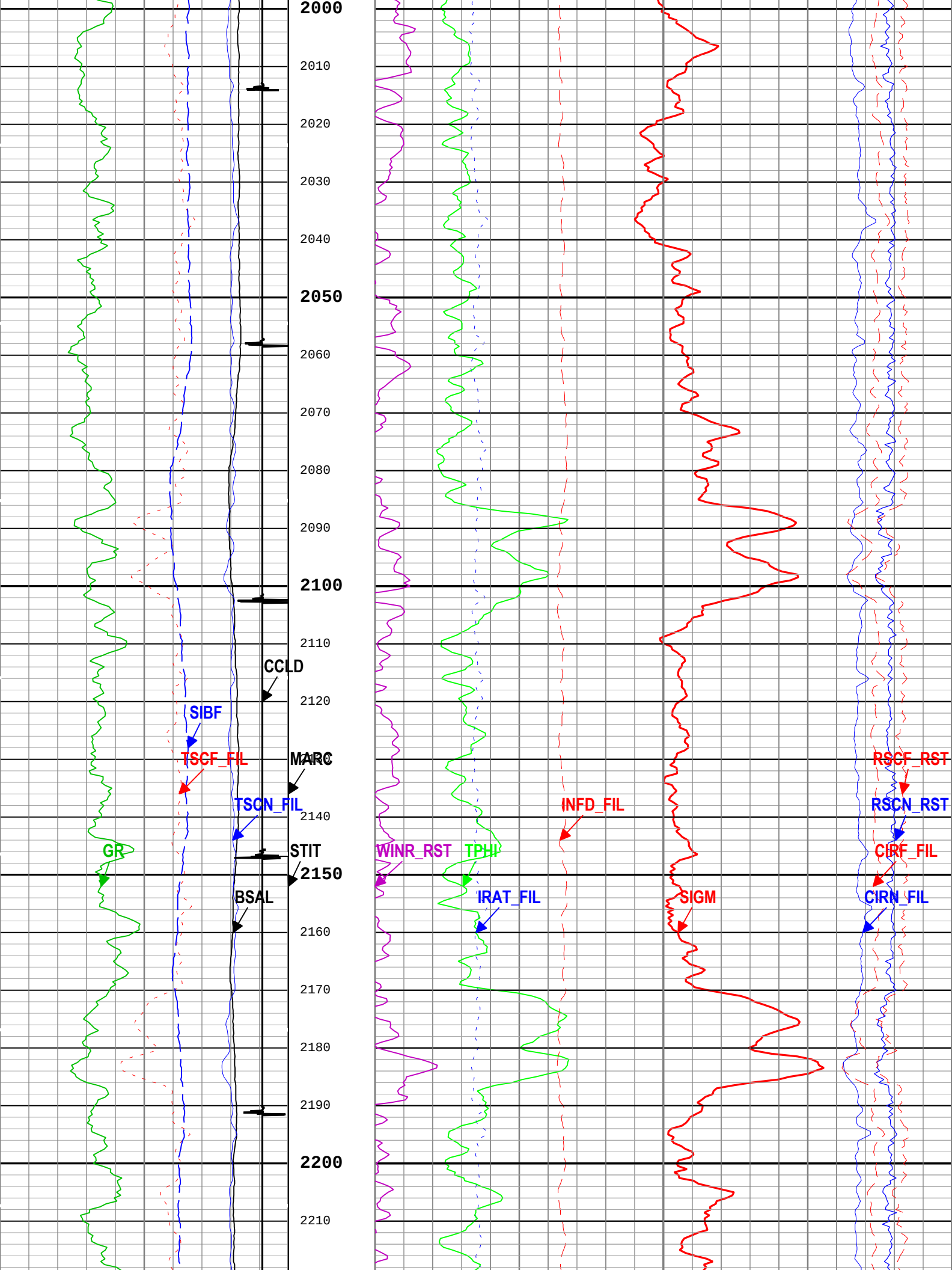
Capture to Inelastic Ratio Near Filtered (CIRN_FIL) RST-C
2.5 0

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




2000
2010
2020
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2110
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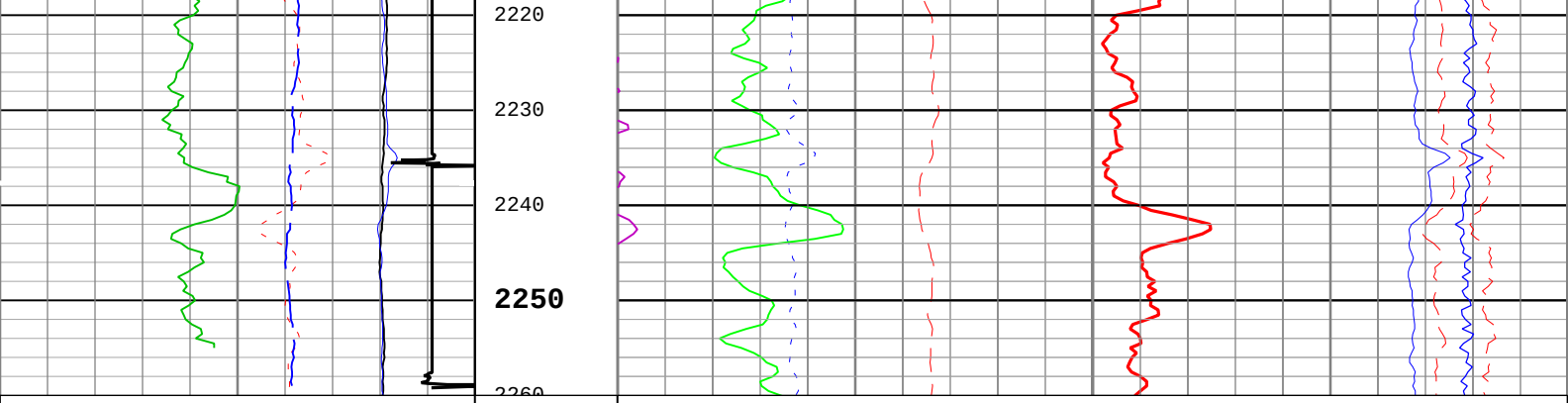
2160
2170
2180
2190
2200
2210
CCLD
SIBF
TSCF_FIL
MARC
TSCN_FIL
GR
STIT
BSAL
WINR_RST
TPHI
IRAT_FIL
INFD_FIL
SIGM
RSCF_RST
RSCN_RST
CIRF_FIL
CIRN_FIL



Borehole Salinity (BSAL) RST-C
450 ppk -50

Gamma Ray (GR) PSTP-E
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-E
-10 V 1

Stuck Tool Indicator, Total (STIT)
0 ft 50

Cable Drag From STIA to STIT

Tool_Tot. Drag From D3T to STIT

Minitron Arc Count (MARC) RST-C
0 5

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: 05-Mar-2019 20:48:48

Channel Processing Parameters

ONE: Parameters

Parameter	Description	Tool	Value	Unit
BHS	Borehole Status (Open or Cased Hole)	Borehole	Cased	
BS	Bit Size	WLSESSION	14.75	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	SANDSTONE	

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-E	0 dB	
RST_DLM	Depth Log Mode	RST-C	Sigma	

Company: CAERUS OIL & GAS LLC

Schlumberger

Well: NPR 11C-9 596

Field: NPR

County: GARFIELD

State: COLORADO

CEMENT BOND LOG

RST SIGMA LOG

GAMMA RAY - COLLAR LOCATOR LOG