Schlumberger

Company: Nighthawk Production LLC

Well: Pikes Peak Williams 4-30

Field: Wildcat

County: Lincoln State: Colorado

Borehole Compensated Sonic

County: Lincoln
Field: Wildcat
Location: NWNW Sec 30, T13S, R55W
Well: Pikes Peak Williams 4-30
Company: Nighthawk Production LLC

Location:				
NWNW Sec 30, T13S, R55W		Elev.	K.B.	5155.00 ft
SHL: 660' FNL x 660' FWL			G.L.	5143.00 ft
Lat/Long: 38.892850/-103.605630			D.F.	5154.00 ft
Permanent Datum:	Ground Level	Elev.:		5143.00 f
Log Measured From:	Kelly Bushing	12.00 ft		above Perm.Datum
Drilling Measured From:	Kelly Bushing			

API Serial No.	Section:	Township:	Range:
05-073-06478-0000	30	13S	55W

Logging Date			26-Sep-2012			
Run Number			Run 1			
Depth Driller			7896.00 ft			
Schlumberger Depth			7884.00 ft			
Bottom Log Interval			7884.00 ft			
Top Log Interval			342.00 ft			
Casing Driller Size @ Depth			8.625 in @ 328.00 ft			
Casing Schlumberger			342 ft			
Bit Size			7.875 in			
Type Fluid In Hole			Fresh Water			
MUD	Density	Viscosity	8.4 lbm/gal	44 s		
	Fluid Loss	PH	8.4 cm3	7.6		
	Source of Sample		Flowline			
RM @ Meas Temp			1.74 ohm.m @ 64.02 degF			
RMF @ Meas Temp			1.3 ohm.m @ 75 degF			
RMC @ Meas Temp			2.17 ohm.m @ 75 degF			
Source RMF	RMC		Calculated	Calculated		
RM @ BHT	RMF @ BHT		0.72 @ 163.67	0.63 @ 163.67		
Max Recorded Temperatures			163.67 degF			
Circulation Stopped	Time		26-Sep-2012	01:30:00		
Logger on Bottom	Time		26-Sep-2012	09:25:00		
Unit Number	Location:		2135	Fort Morgan, Colora		
Recorded By			Keri Loring			
Witnessed By			Jim Weir / Andy Elgerd			

Disclaimer

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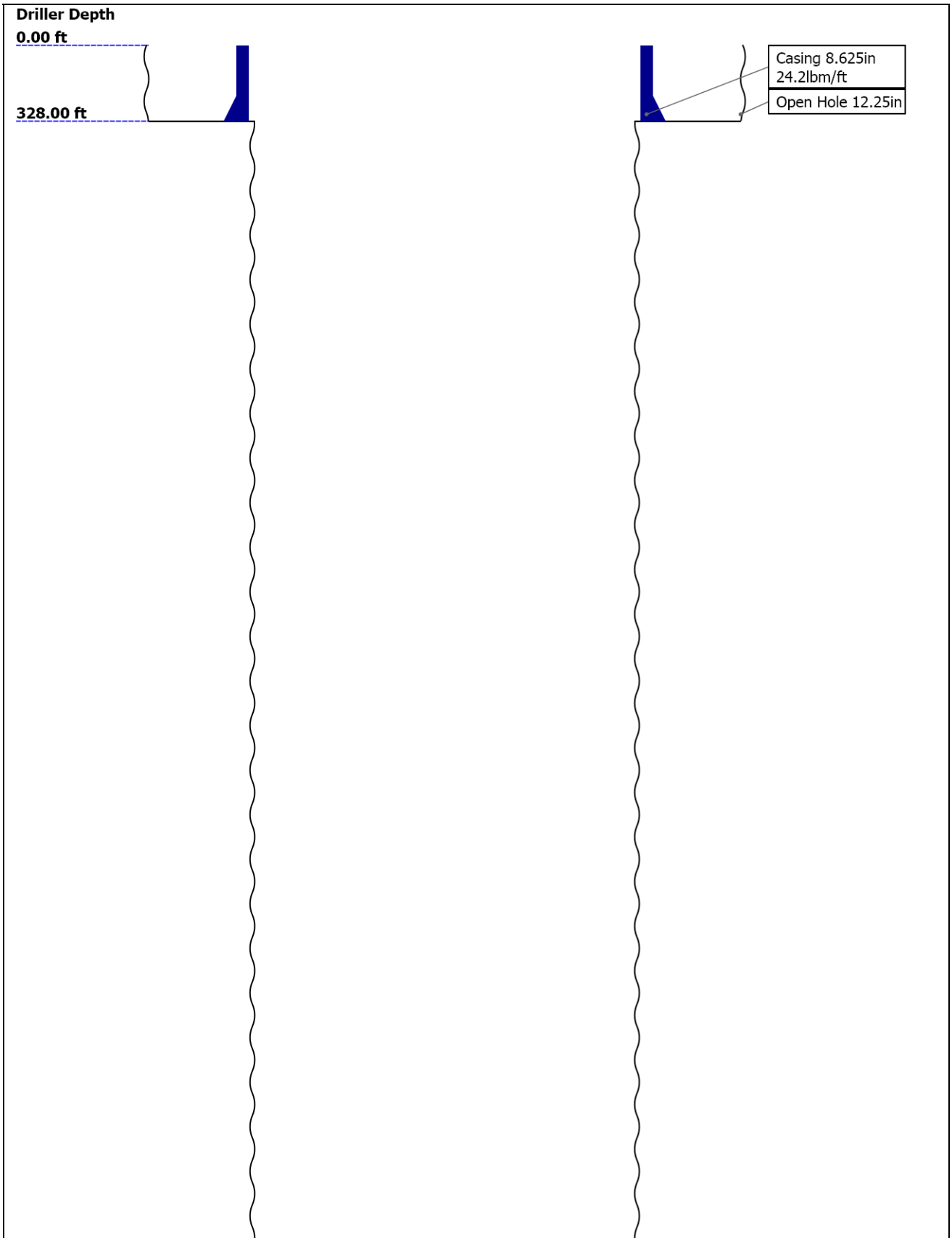
Well Sketch



Borehole Size/Casing/Tubing Record

Bit						
Bit Size (in)	12.25	7.875				
Top Driller (ft)	0	328				
Top Logger (ft)	0	342				
Bottom Driller (ft)	328	7896				
Bottom Logger (ft)	342	7884				
Casing						
Size (in)	8.625					
Weight (lbm/ft)	24.2					
Inner Diameter (in)	8.095					
Top Driller (ft)	0					
Top Logger (ft)	0					
Bottom Driller (ft)	328					
Bottom Logger (ft)	342					

Operational Run Summary

Parameter (unit)	Run 1					
Date Log Started	26-Sep-2012					
Time Log Started	08:13:59					
Date Log Finished	26-Sep-2012					
Time Log Finished	11:49:15					
Top Log Interval (ft)	342.00					
Bottom Log Interval (ft)	7884.00					
Total Depth (ft)	7884.00					
Max Hole Deviation (deg)	0.00					
Azimuth of Max Deviation (deg)	0.00					
Bit Size (in)	7.875					
Logging Unit Number	2135					
Logging Unit Location	Fort Morgan, Colorado					
Recorded By	Keri Loring					
Witnessed By	Jim Weir / Andy Elgerd					
Service Order Number	BX19-00056					

Borehole Fluids

Parameter(unit)	Run 1					
Fluid Type	Water					
Fluid Name	Fresh Water					
Max Recorded Temperatures (degF)	163.67					
Source of Sample	Flowline					
Salinity (ppm)	3601.04					
Density (lbm/gal)	8.4					
Funnel Viscosity (s)	44					
Fluid Loss (cm3)	8.4					
PH	7.6					
Date/Time Circulation Stopped	26-Sep-2012 01:30:00					
Date Logger on Bottom	26-Sep-2012					
Time Logger on Bottom	09:25:00					
Source RMF	Calculated					
RMC	Calculated					
RM @ Meas Temp (ohm.m@degF)	1.74 @ 64.02					
RMF @ Meas Temp (ohm.m@degF)	1.3 @ 75					
RMC @ Meas Temp (ohm.m@degF)	2.17 @ 75					
RM @ BHT (ohm.m@degF)	0.72 @ 163.67					
RMF @ BHT (ohm.m@degF)	0.63 @ 163.67					
RMC @ BHT (ohm.m@degF)	1.04 @ 163.67					
Total Solid (%)	2					
High Gravity Solids (%)						

Remarks and Equipment Summary

Run 1: Toolstring

Equip name	Length	MP name	Offset
LEH-QT	**66.21**		
LEH-QT			
DTC-H:9469	**63.29**		
ECH-KC:10530		**CTEM**	**62.39**
DTC-H:9469		**HV**	**0.00**
		ToolStatus	**60.29**
		TelStatus	**60.29**
HGNS-H:4779	**60.29**	**Temperatur e**	**60.26**
HGNH:3826			
NPV-N		**GR**	**59.55**
NSR-F:5168			
HGNS-H:4779			
HACCZ-H:5736			
HMCA-H			
		CNL Porosit y	**53.21**
		HMCA	**50.88**
		HGNS	**50.88**
		Accelerome ter	**0.00**
HDRS-H:4706	**50.88**		
ECH-MEB:4711			

Run 1: Remarks

Toolstring run as per toolsketch with the exception of CME-Z[2] which is on the SLS, not the DSLC.

First run in hole procedures followed.

HRCC-H:5705
HRMS-H:4706
GPV-Q
GSR-J:5240
Short Spacing:27
634
Backscatter
HRGD-H:3816
Long Spacing:28
732

HRCC 46.88
MCFL 41.45
Caliper 40.96
TLD Density 40.57

AH-184:909 38.64

DSLT-H:8339 36.64
ECH-KH:8401
DSLC-H:8339
SLS-E:165

CBL 3ft 24.17
Upper-Near 24.17
VDL 5ft 23.17
Upper-Far 23.17
Delta-T 21.79
Lower-Far 20.42
Lower-Near 19.42
SLS-E 16.00

AIT-M:1270 16.00
AMIS:1270
AMRM:1270

Temperatur e 7.91
Power Supply 7.91
Induction 7.91

Lengths are in ft
Maximum Outer Diameter = 4.950 in
Line: Sensor Location, Value: Gating Offset
All measurements are relative to TOOL_ZERO

Depth Summary

Depth Control Parameters	Run 1		
Conveyance Type	Wireline		
Rig Type	Land		
Depth Remark Parameters	**Run 1**		
Depth Remark 1	All Schlumberger depth procedures followed.		
Depth Remark 2	IDW used as primary depth control device.		
Depth Remark 3	Z-chart used as secondary depth control device.		
Depth Measuring Device	**Run 1**		
Type	IDW-B		
Serial Number	4938		
Calibration Date	11-Apr-2012		
Calibration Cable Type	7-46P XS		
Wheel Correction 1	-6		
Wheel Correction 2	-6		
Tension Device	**Run 1**		
Type	CMTD-B/A		
Serial Number	1919		
Calibration Date	10-Sep-2012		
Calibrator Serial Number	78135a		
Calibration Points	10		
Calibration RMS	12		
Calibration Peak Error	24		
Logging Cable	**Run 1**		
Type	7-46P-XS		
Serial Number	U711057		
Logging Cable Length (ft)	24600.00		

Run 1

Integration Summary

Output Channel(s)	Output Description	Input Parameter	Output Value	Unit
ITT	Integrated Transit Time	ITTS	0	s

Pass Summary

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

Run 1	Main[4]:Up	Up	31.88 ft	7892.18 ft	26-Sep-2012 9:23:43 AM	26-Sep-2012 11:48:38 AM	6.25 ft	true

All depths are referenced to toolstring zero

Log

Run 1: Main[4]:Up

Description: SONI_Traditional_CompressionalDT_Curves Format: Log (Sonic Delta-t_1) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 26-Sep-2012 13:24:26

ITT - Integrated Transit Time every 1.00 (ms)

ITT - Integrated Transit Time every 10.00 (ms)

TIME_1900 - Time Marked every 60.00 (s)

Bit Size (BS)
6 in 16

Raw Gamma Ray (RGR) HGNS-H
0 gAPI 150

Spontaneous Potential (SP) AIT-M
-80 mV 20

Sonic Velocity (SVEL) DSLT-H
5000 ft/s 25000

Transit Time 1 (TT1) DSLT-H
1200 us 200

Transit Time 2 (TT2) DSLT-H
1200 us 200

Transit Time 3 (TT3) DSLT-H
1200 us 200

Transit Time 4 (TT4) DSLT-H
1200 us 200

Stuck Tool Indicator, Total (STIT)
0 ft 50

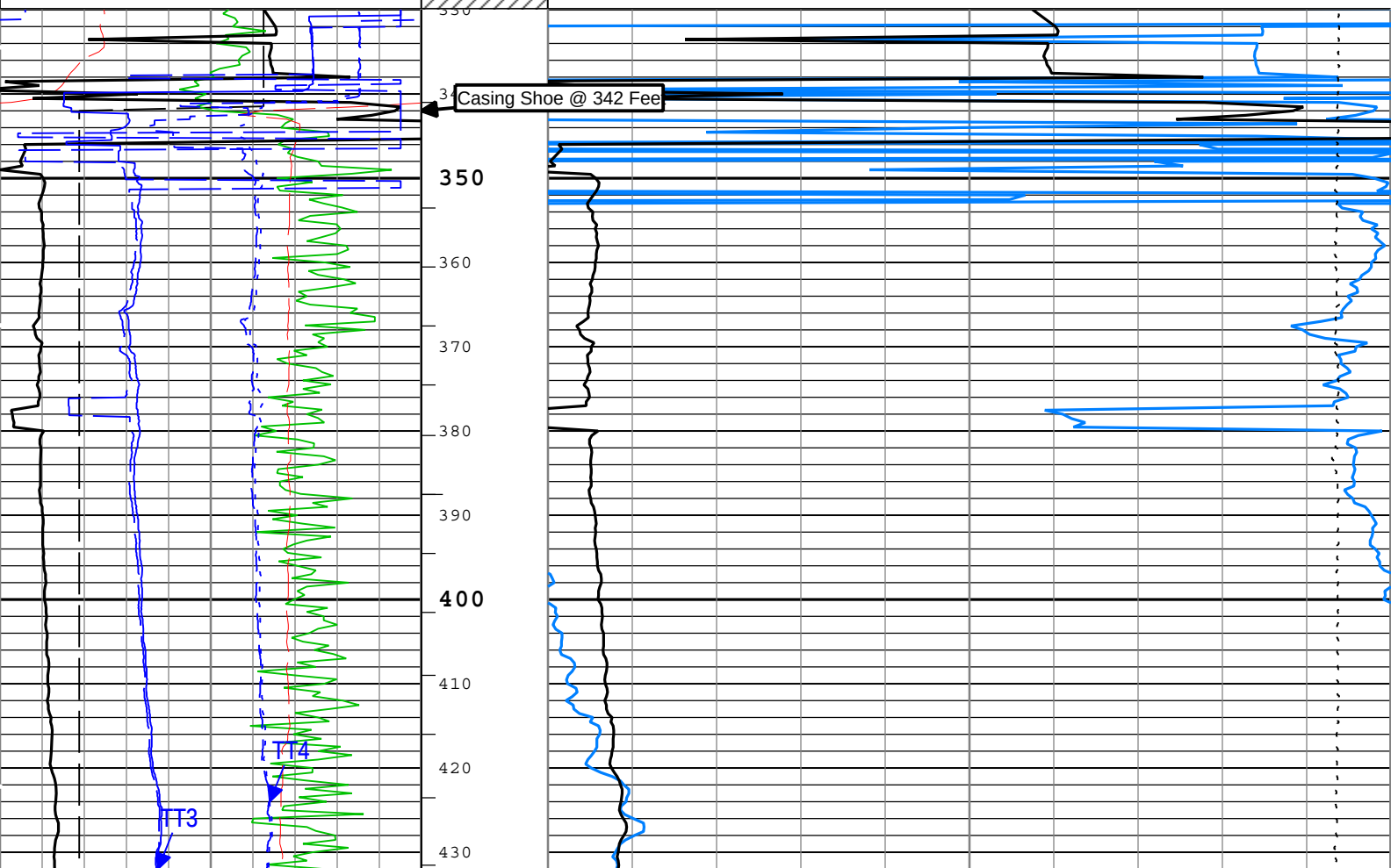
CableDrag

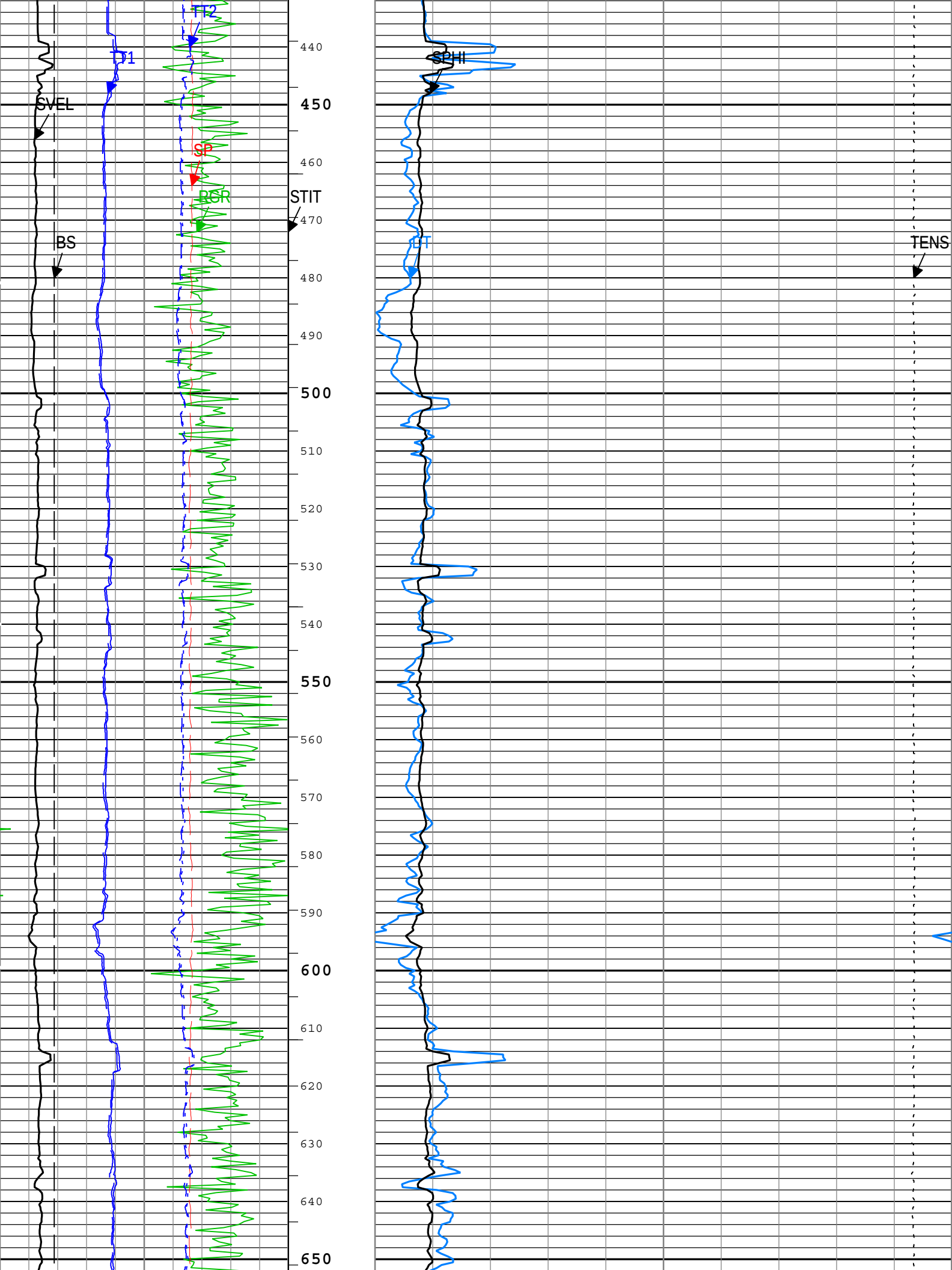
ToolDrag

Cable Tension (TENS)
10000 lbf 0

Delta-T (also called Slowness or Interval Transit Time) (DT) DSLT-H
140 us/ft 40

Sonic Porosity (SPHI) DSLT-H
0.45 ft3/ft3 -0.15

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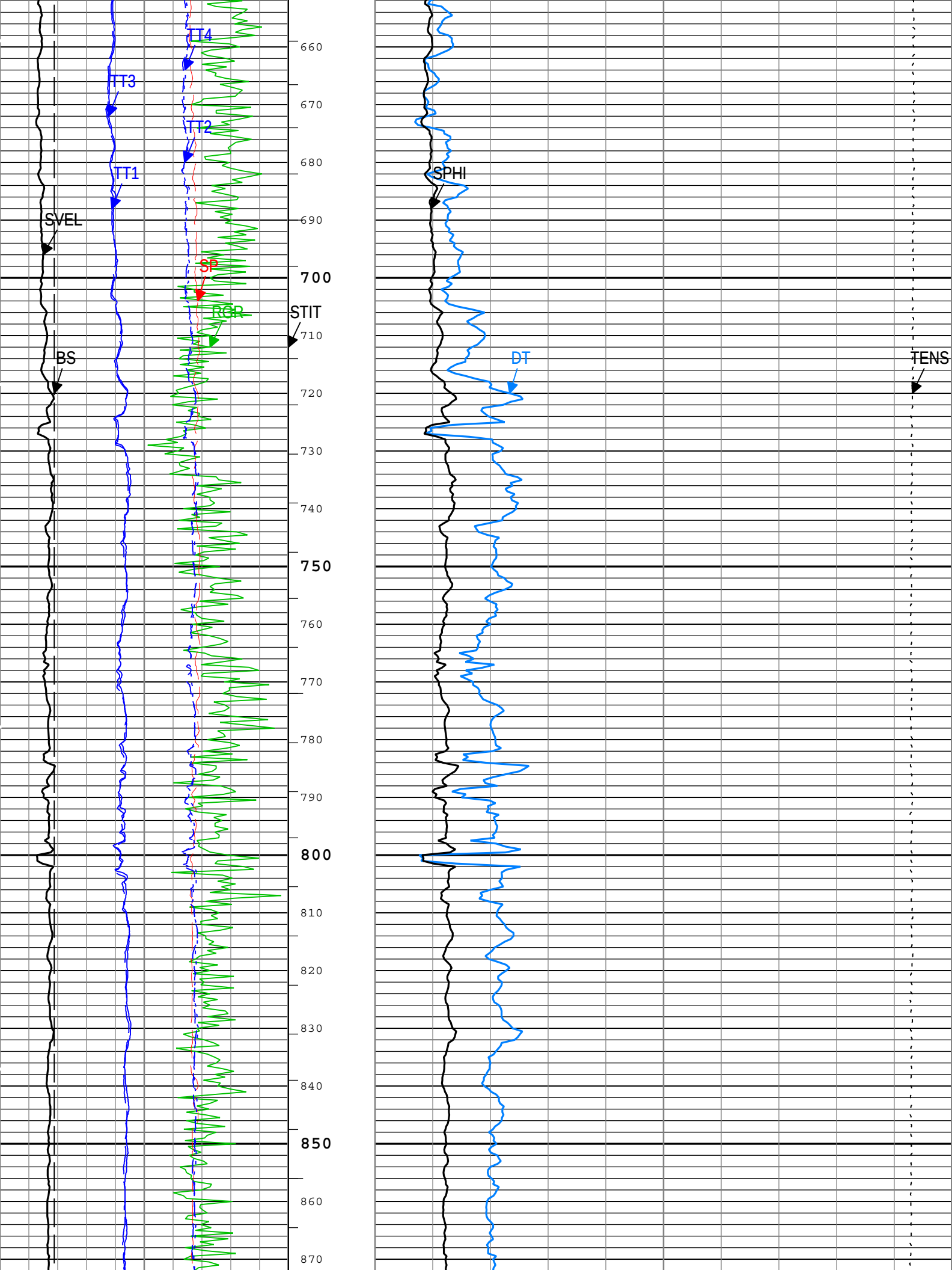
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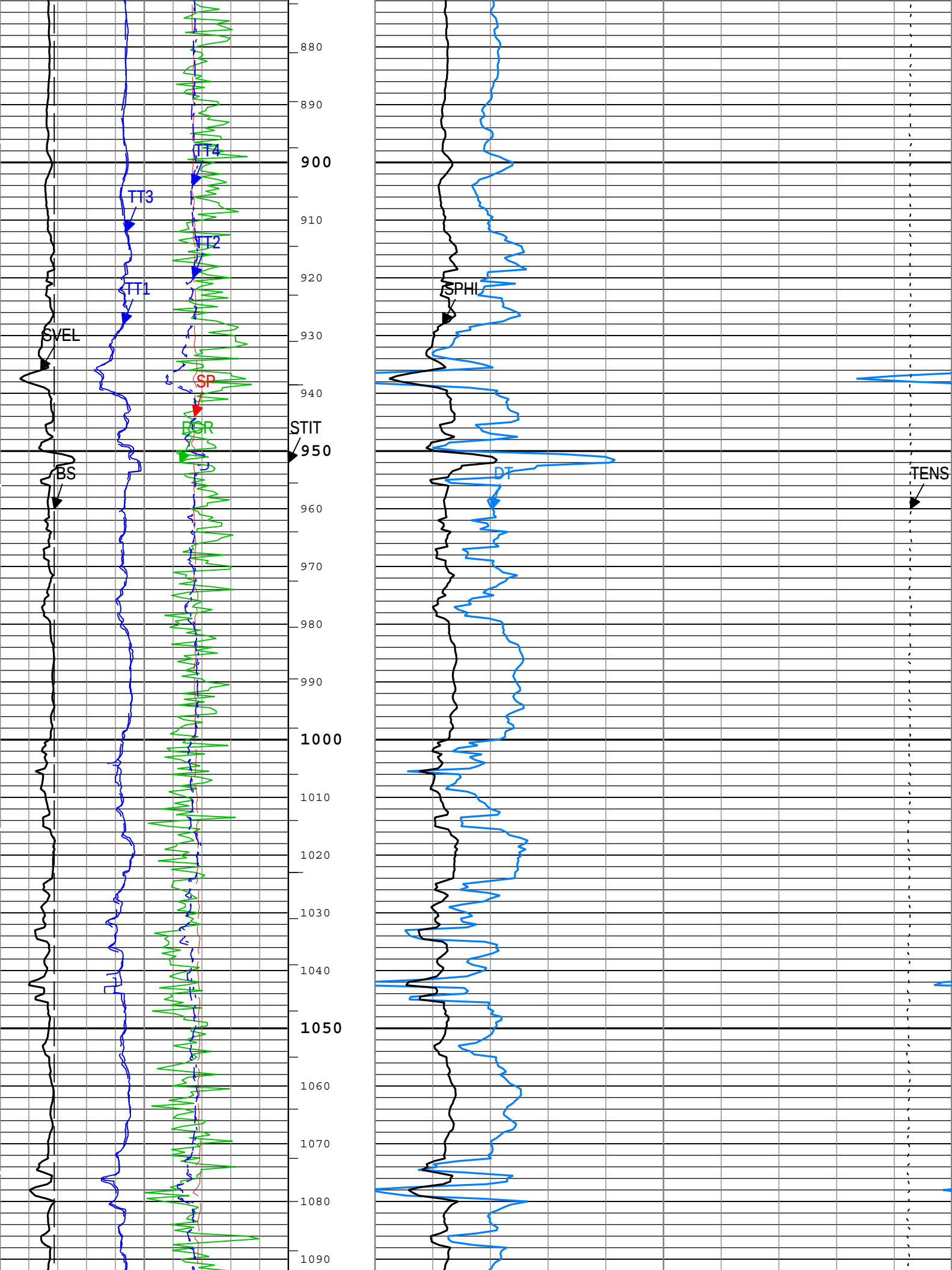
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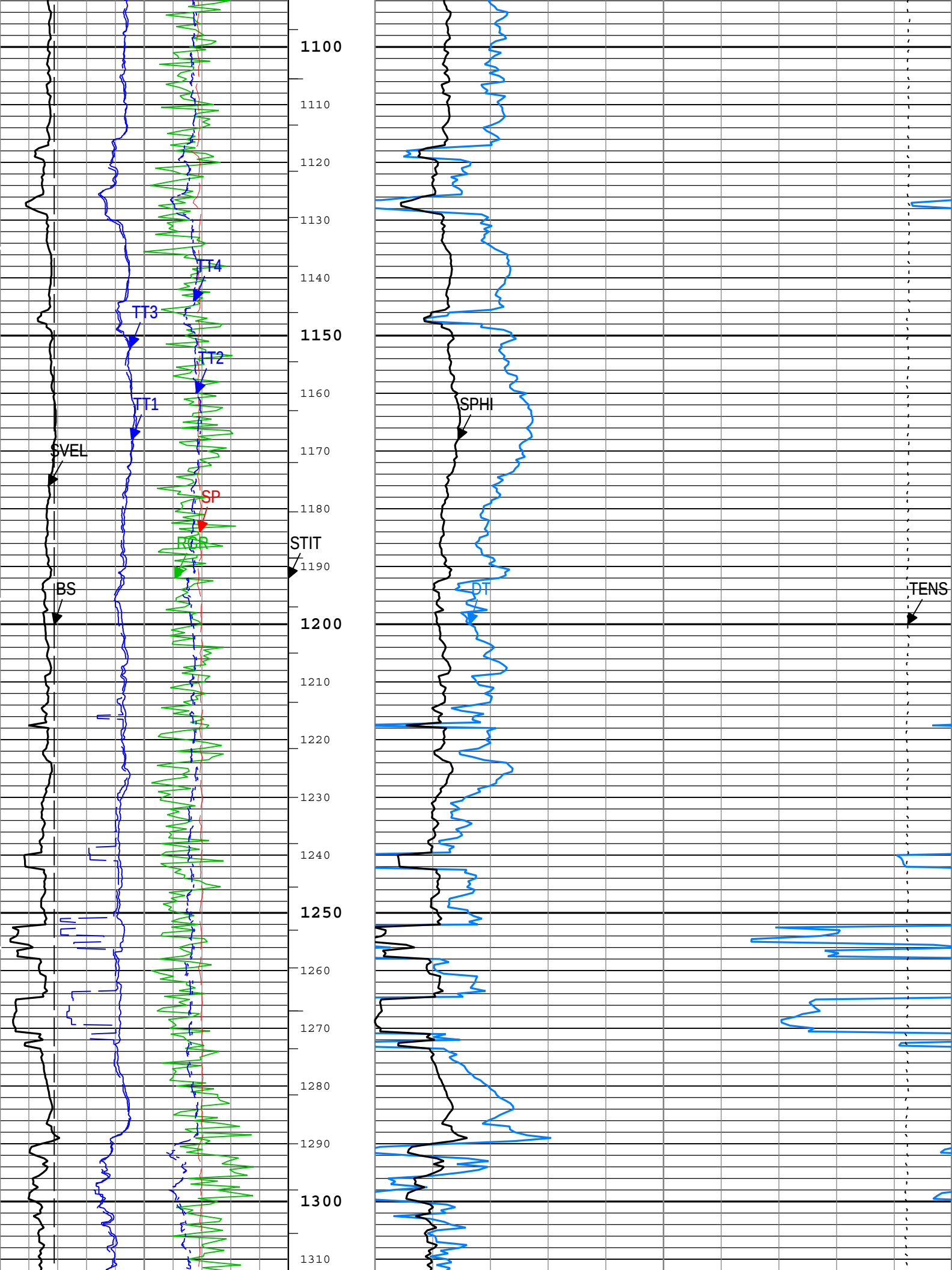
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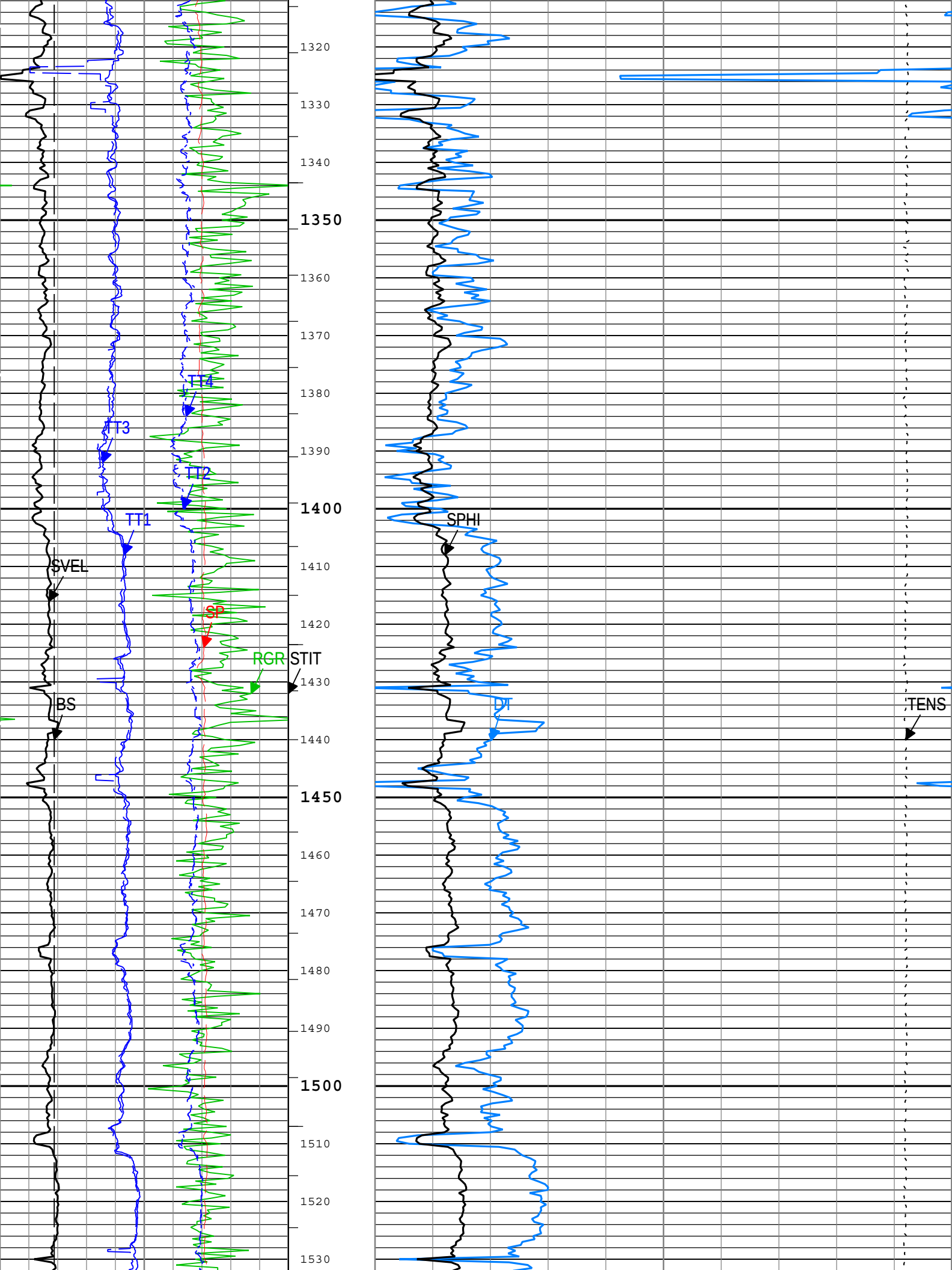
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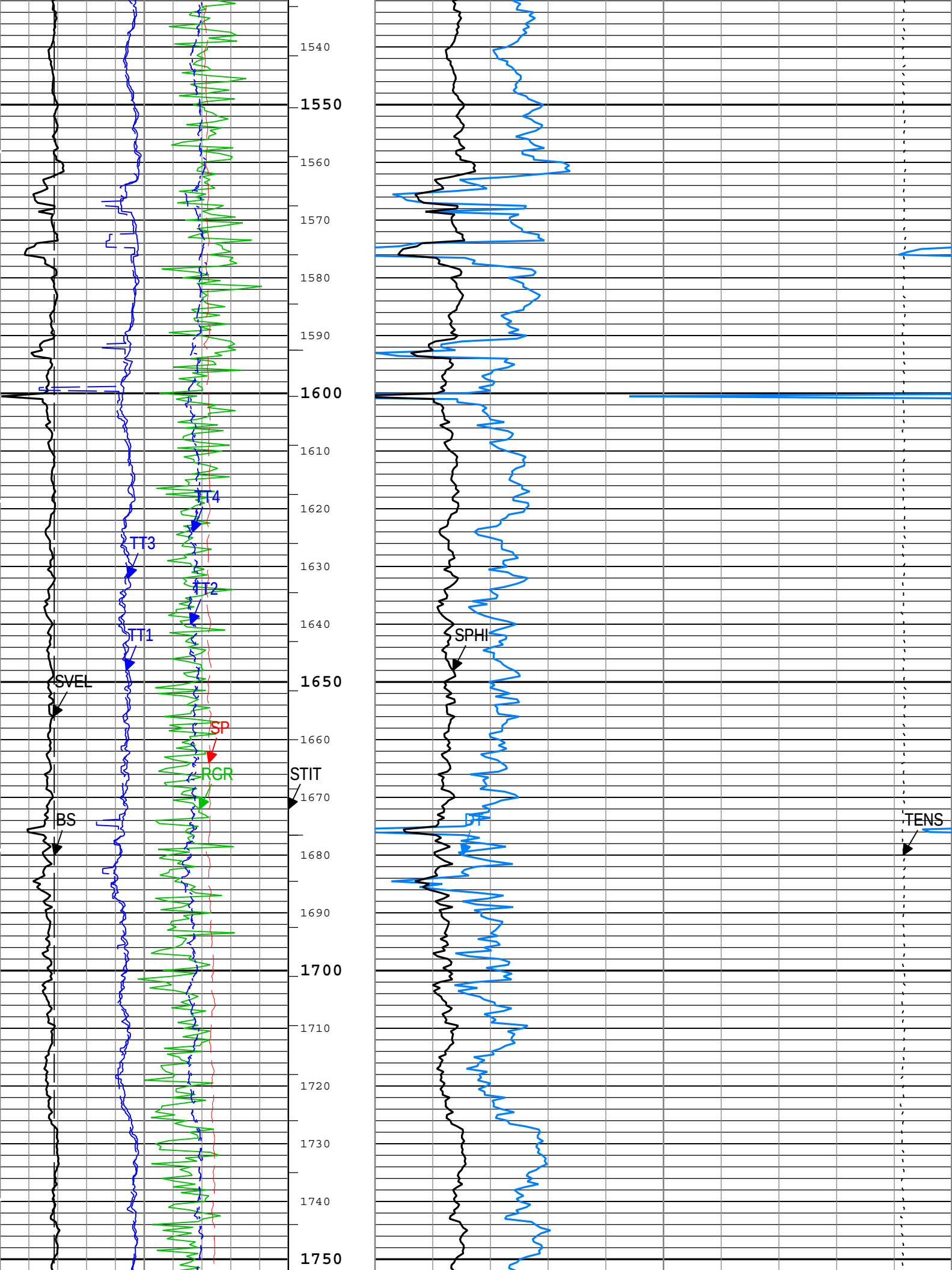
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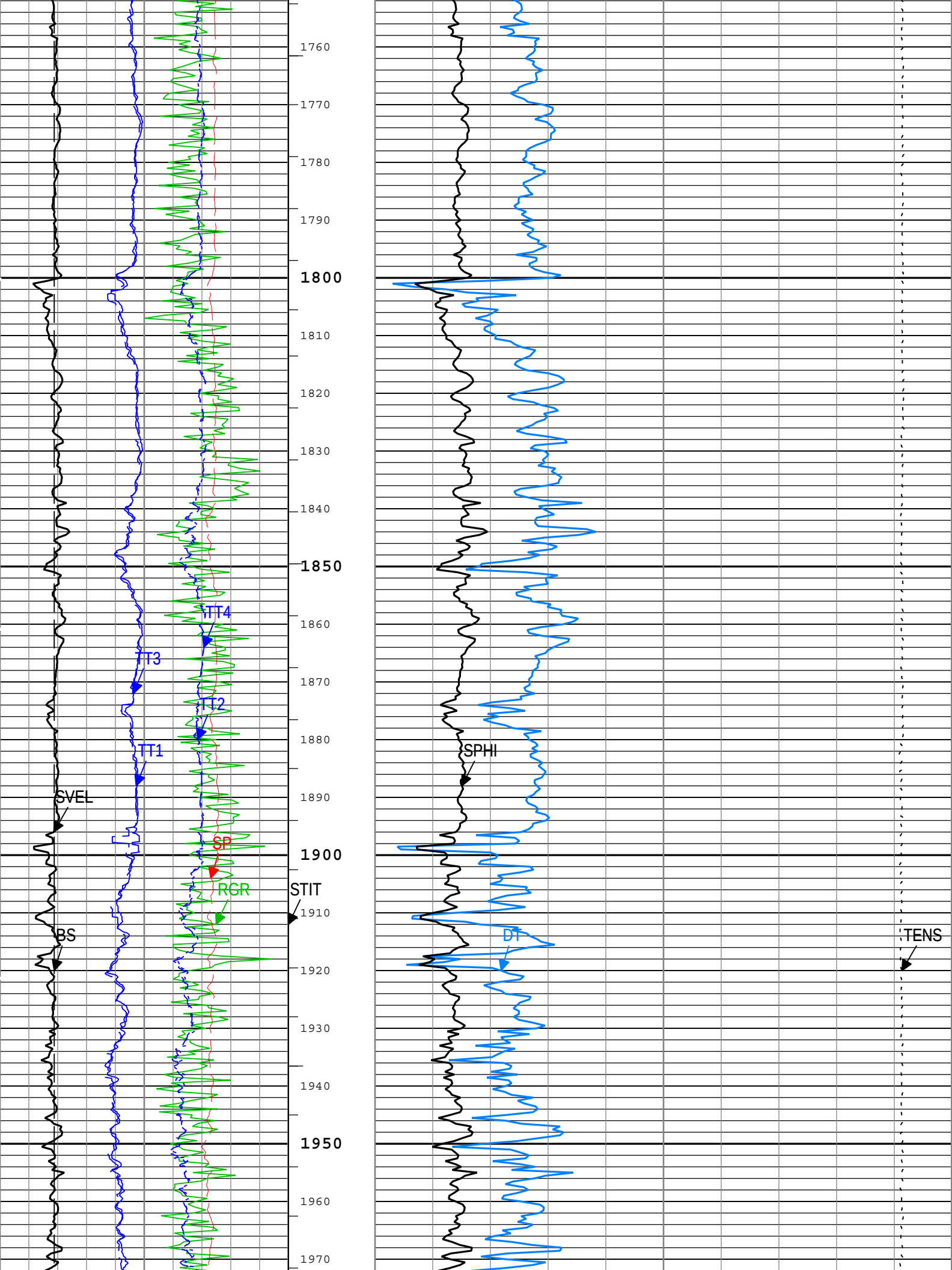
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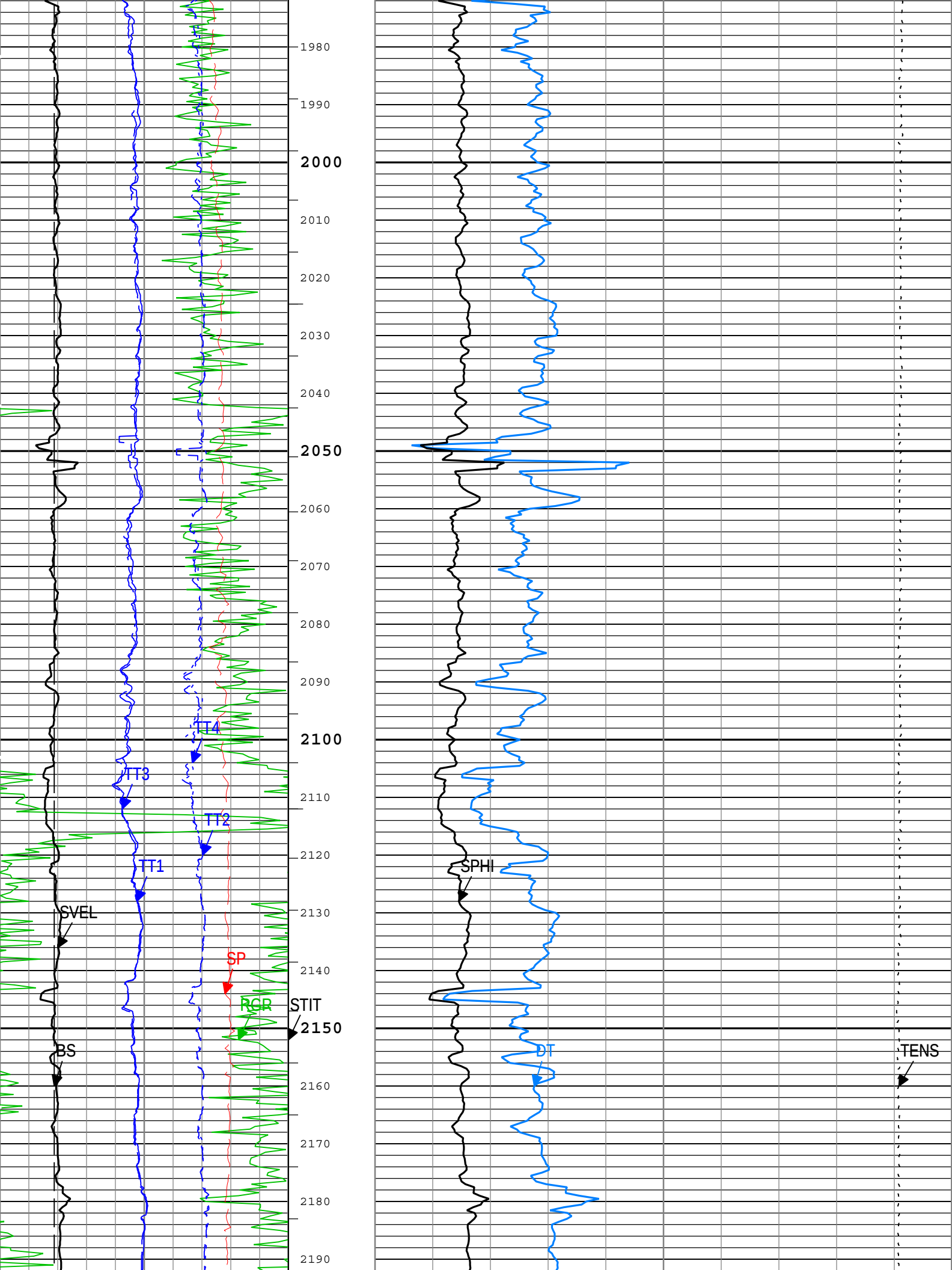
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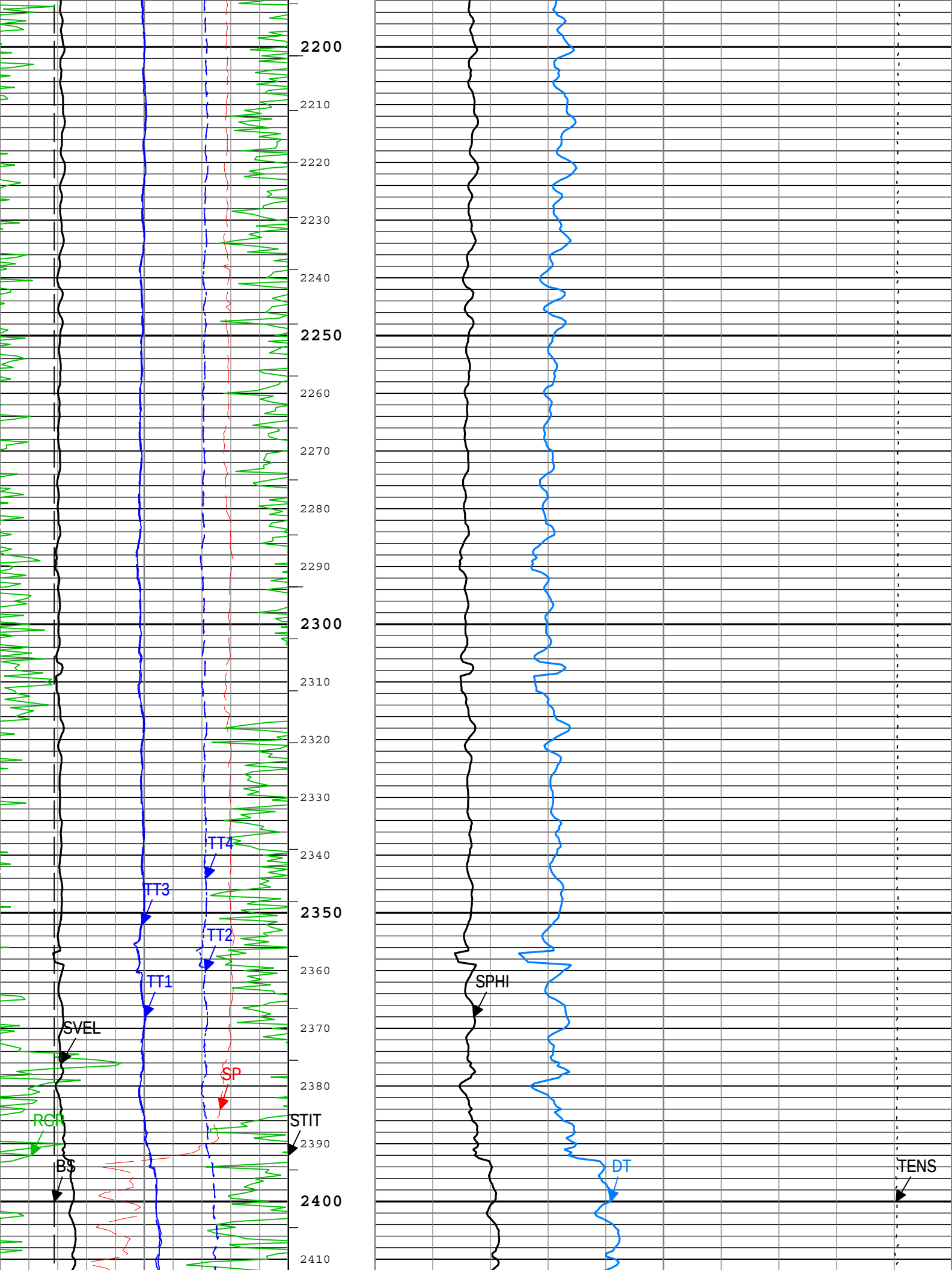
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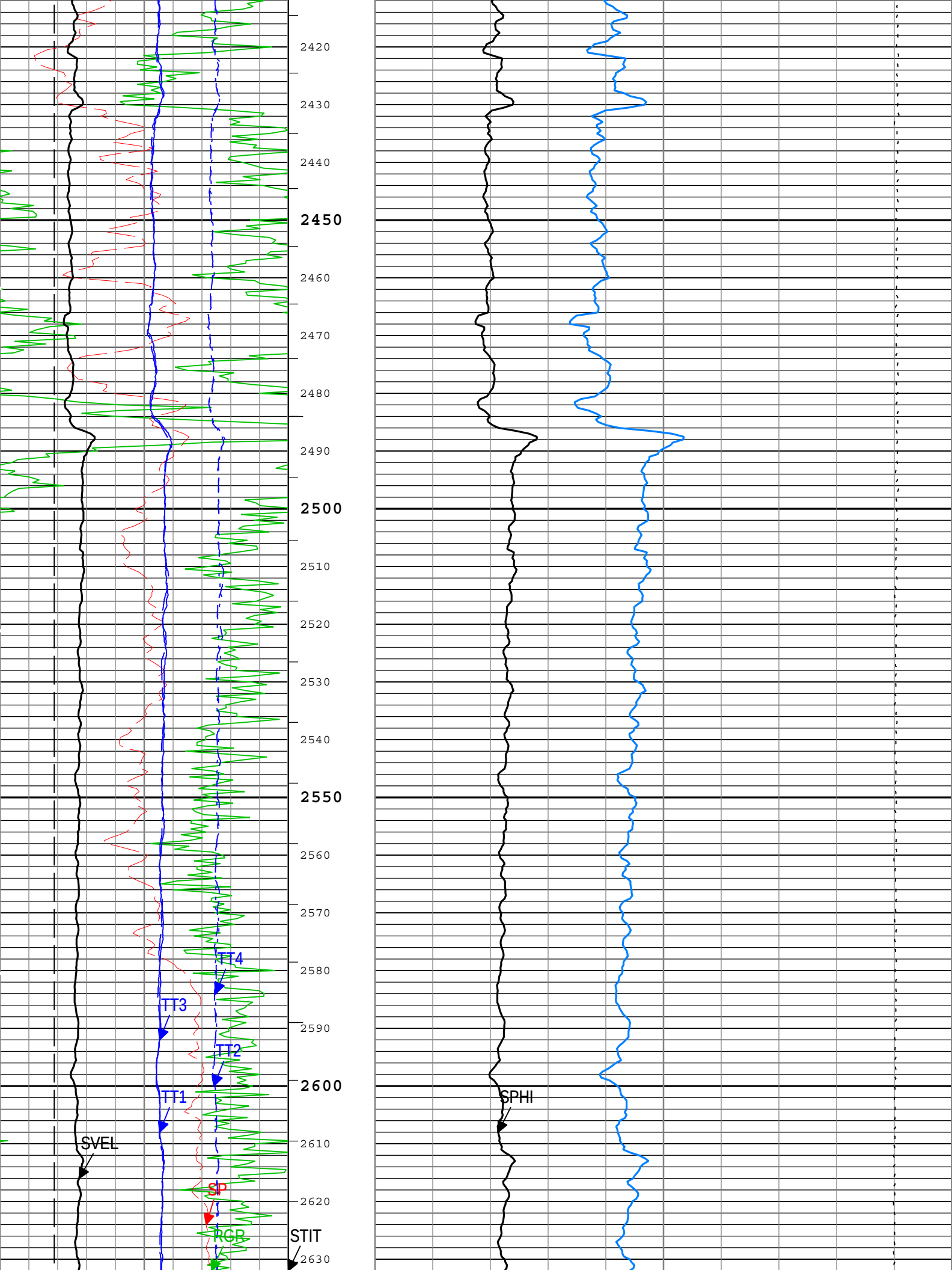
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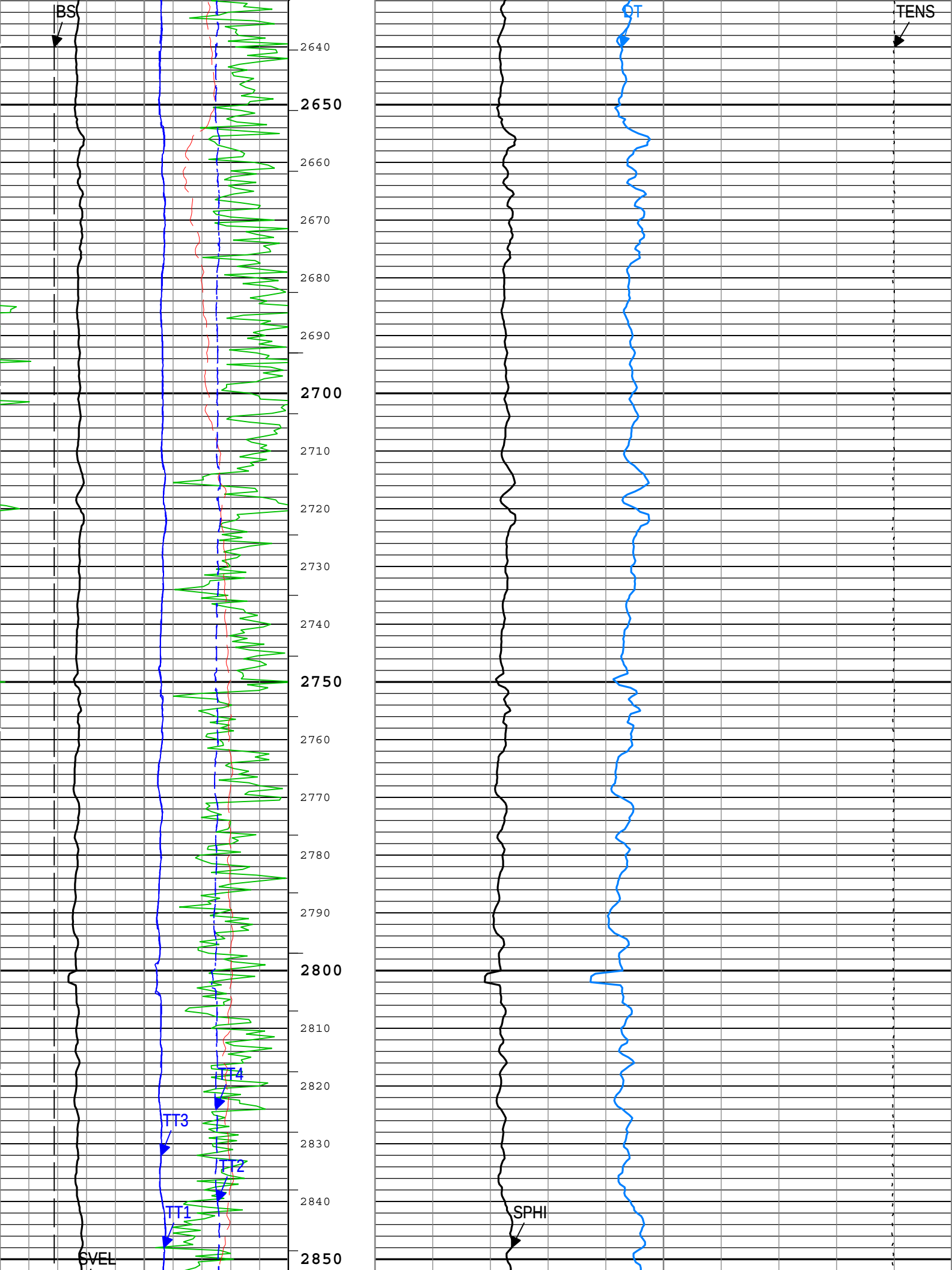
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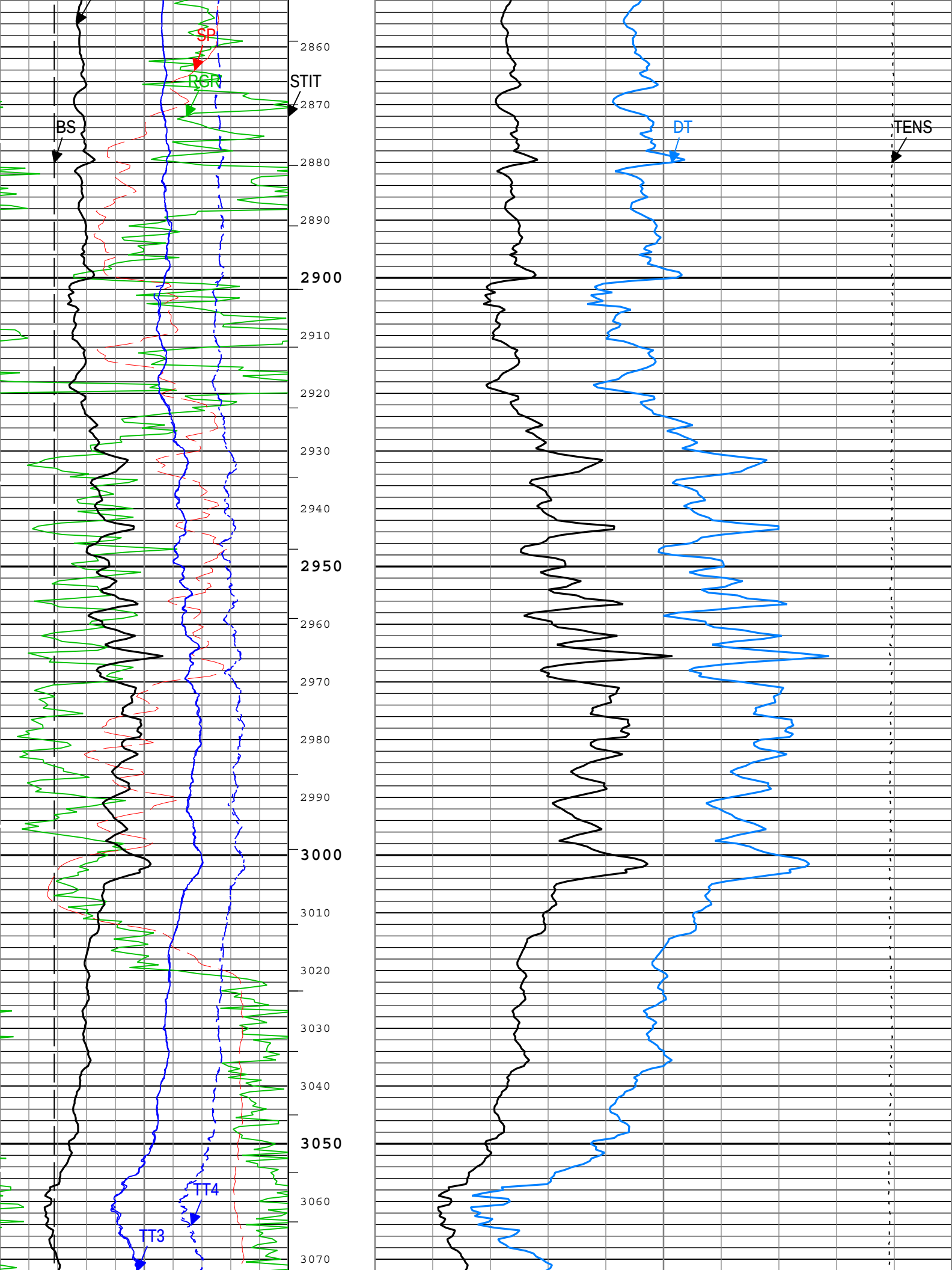
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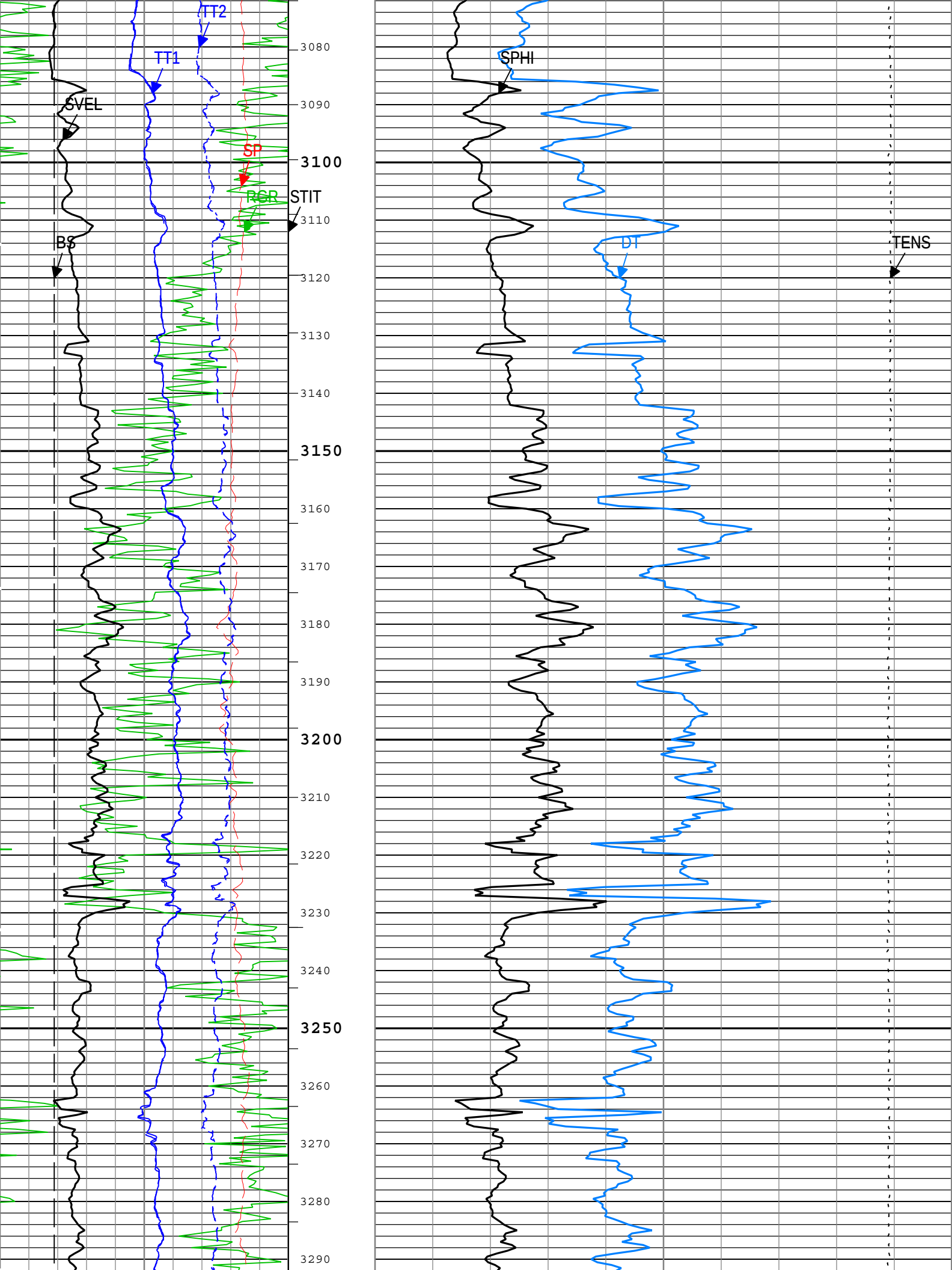
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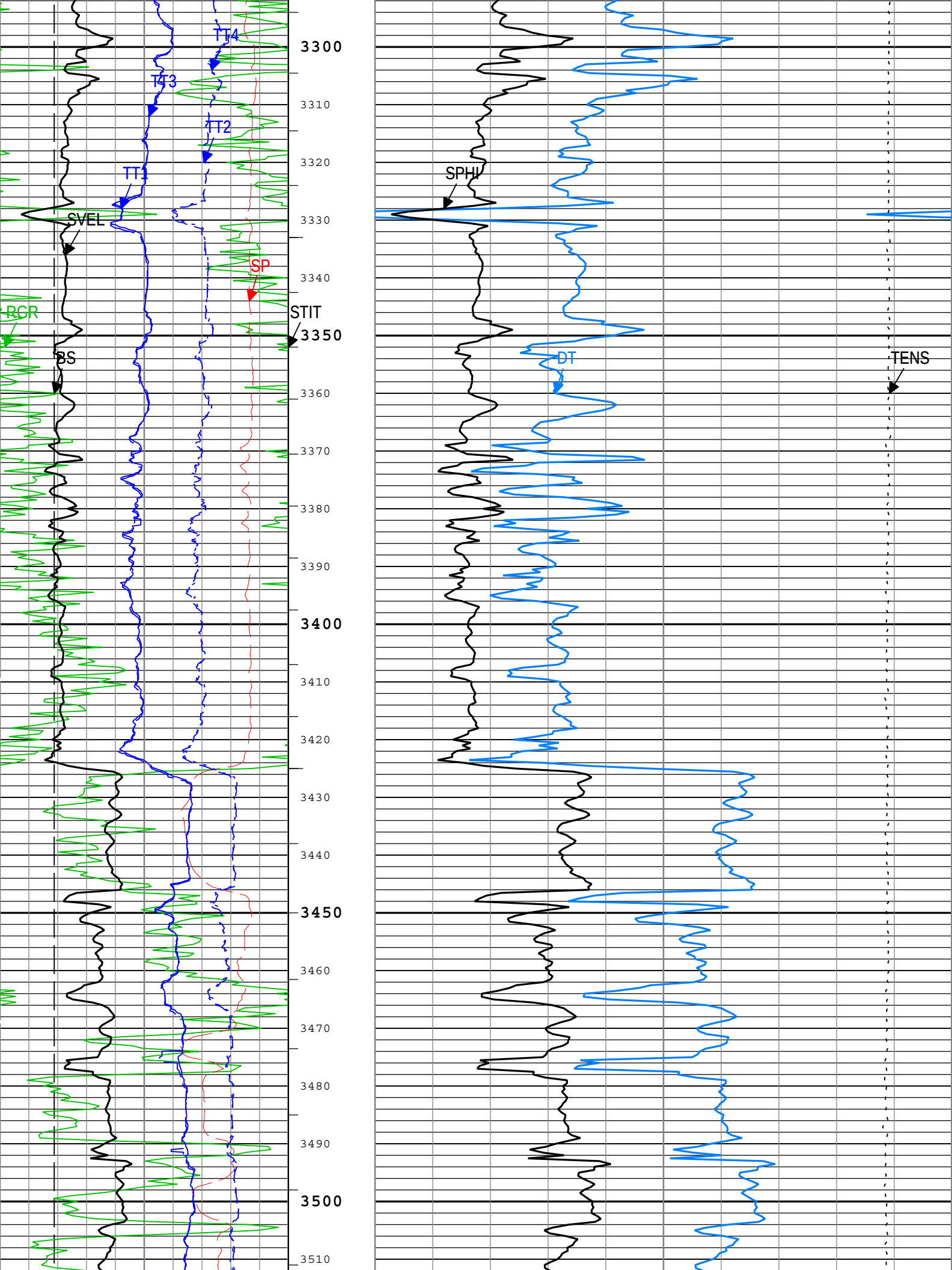
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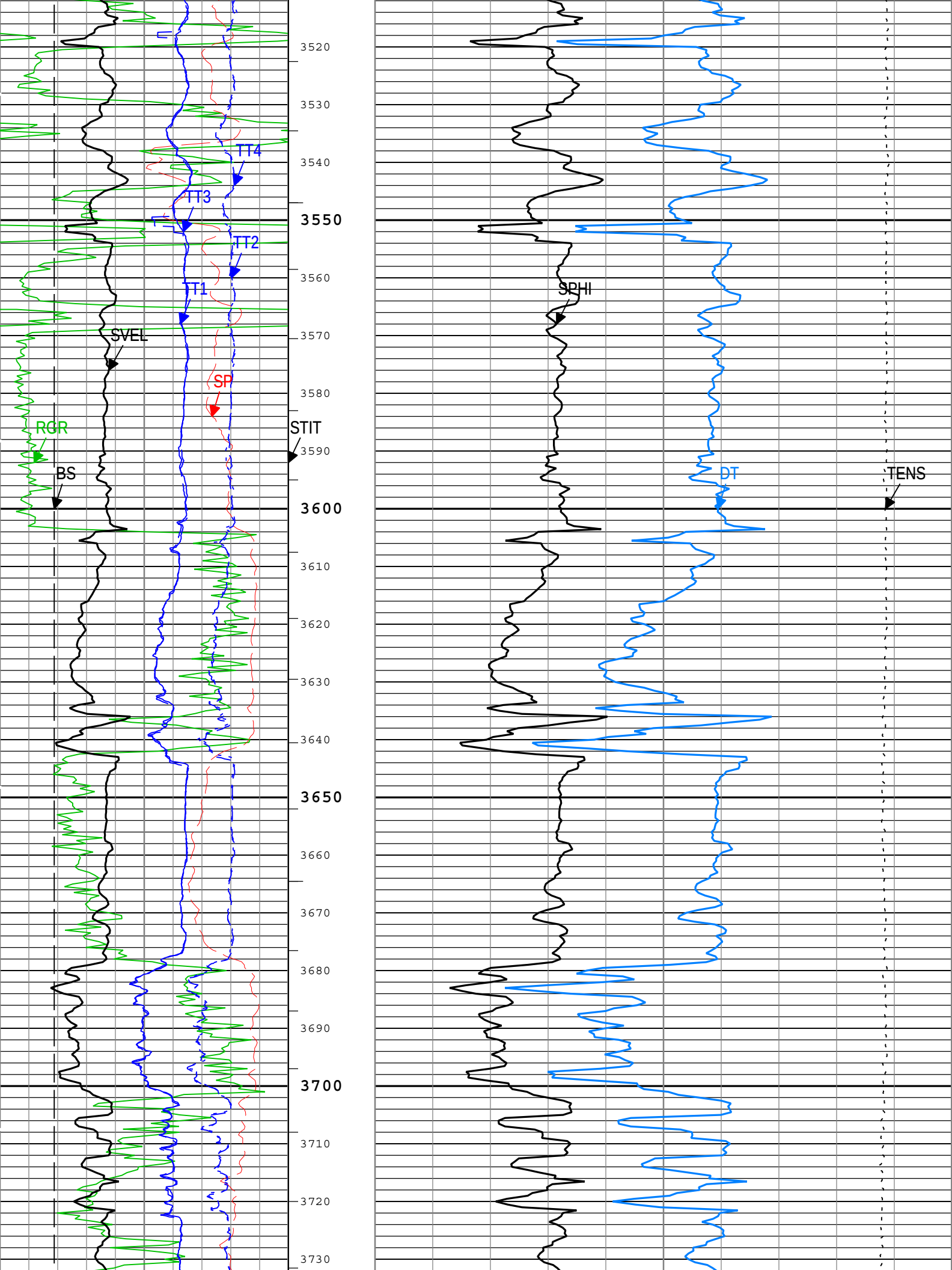
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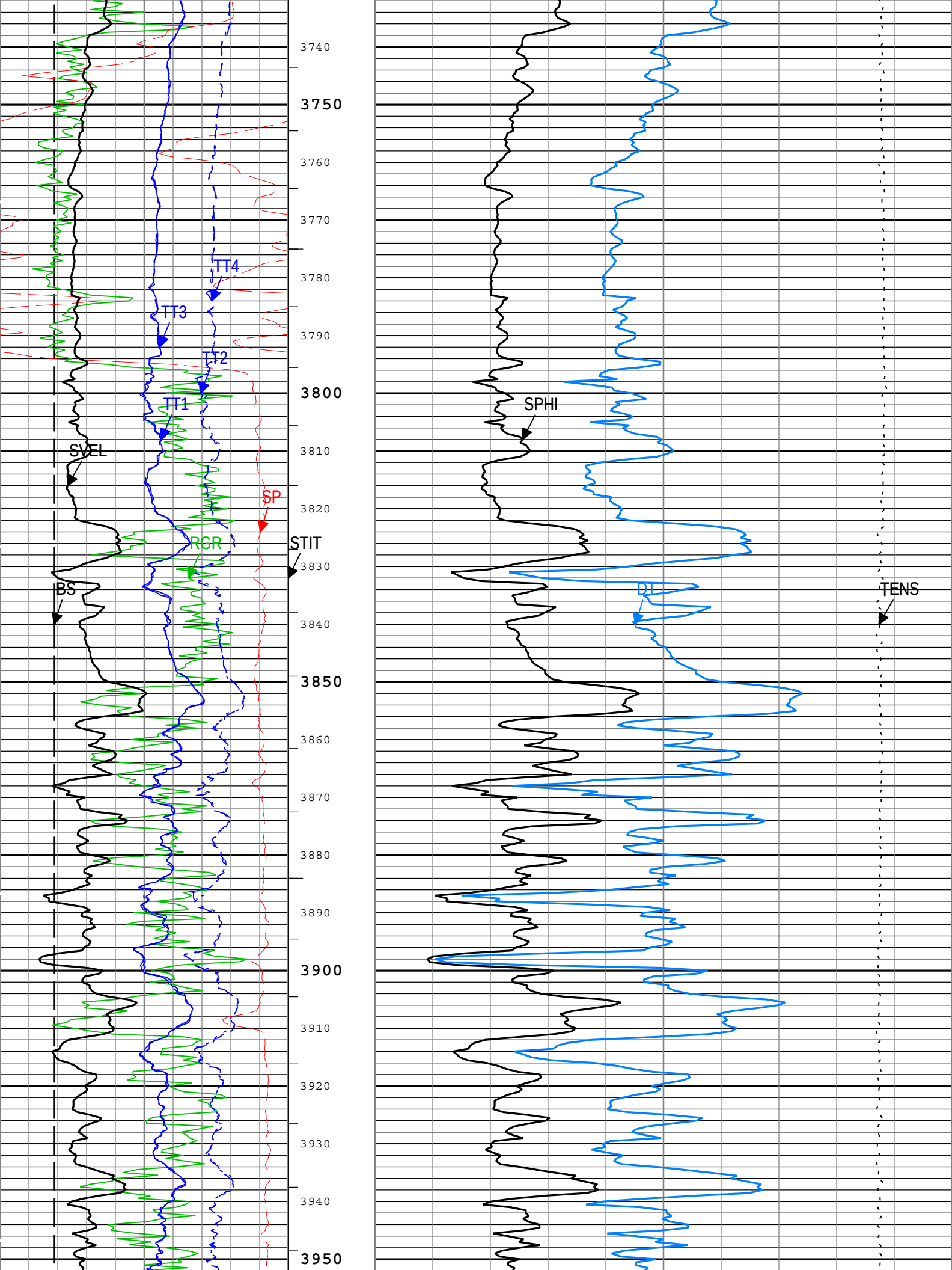
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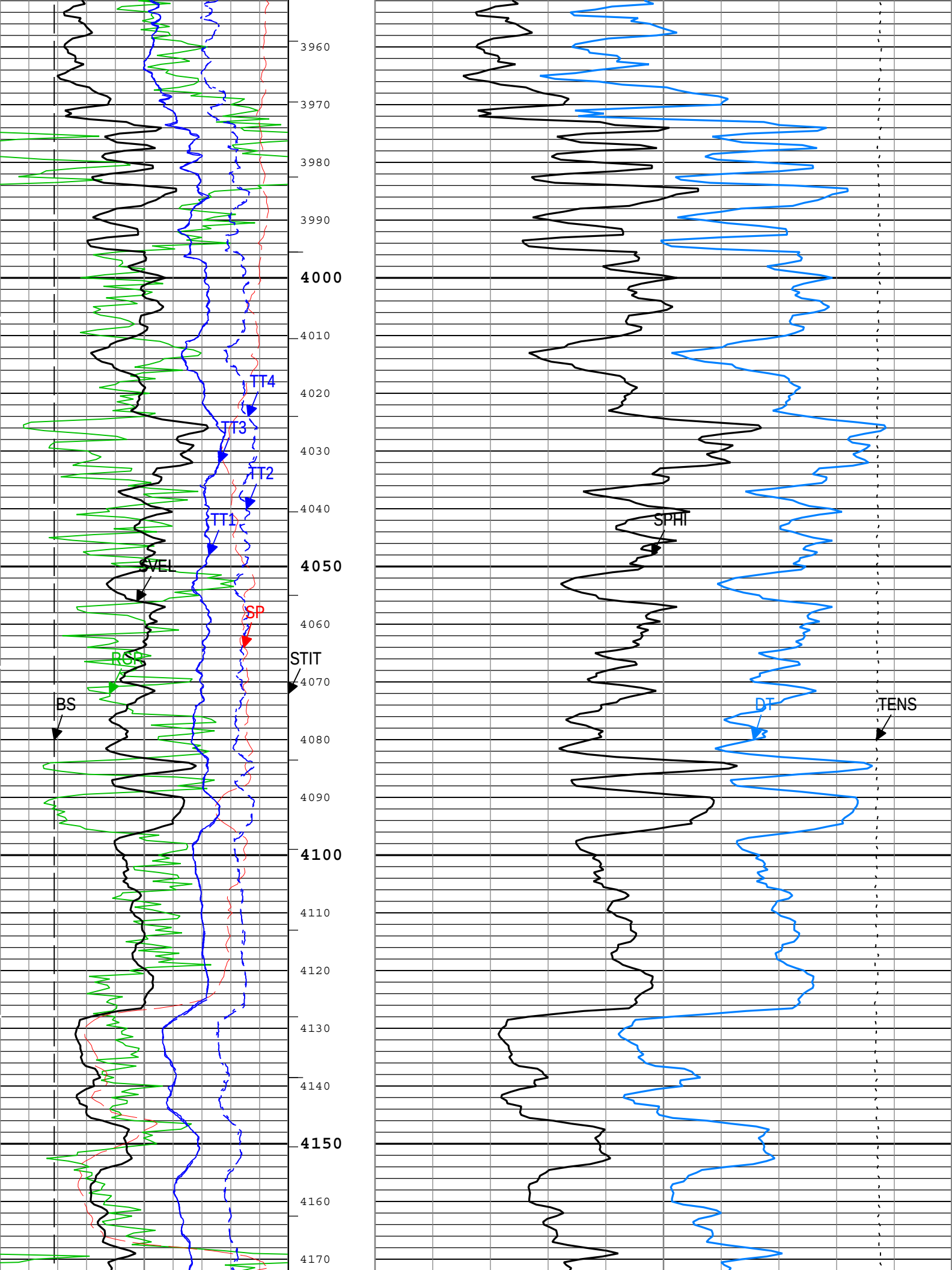
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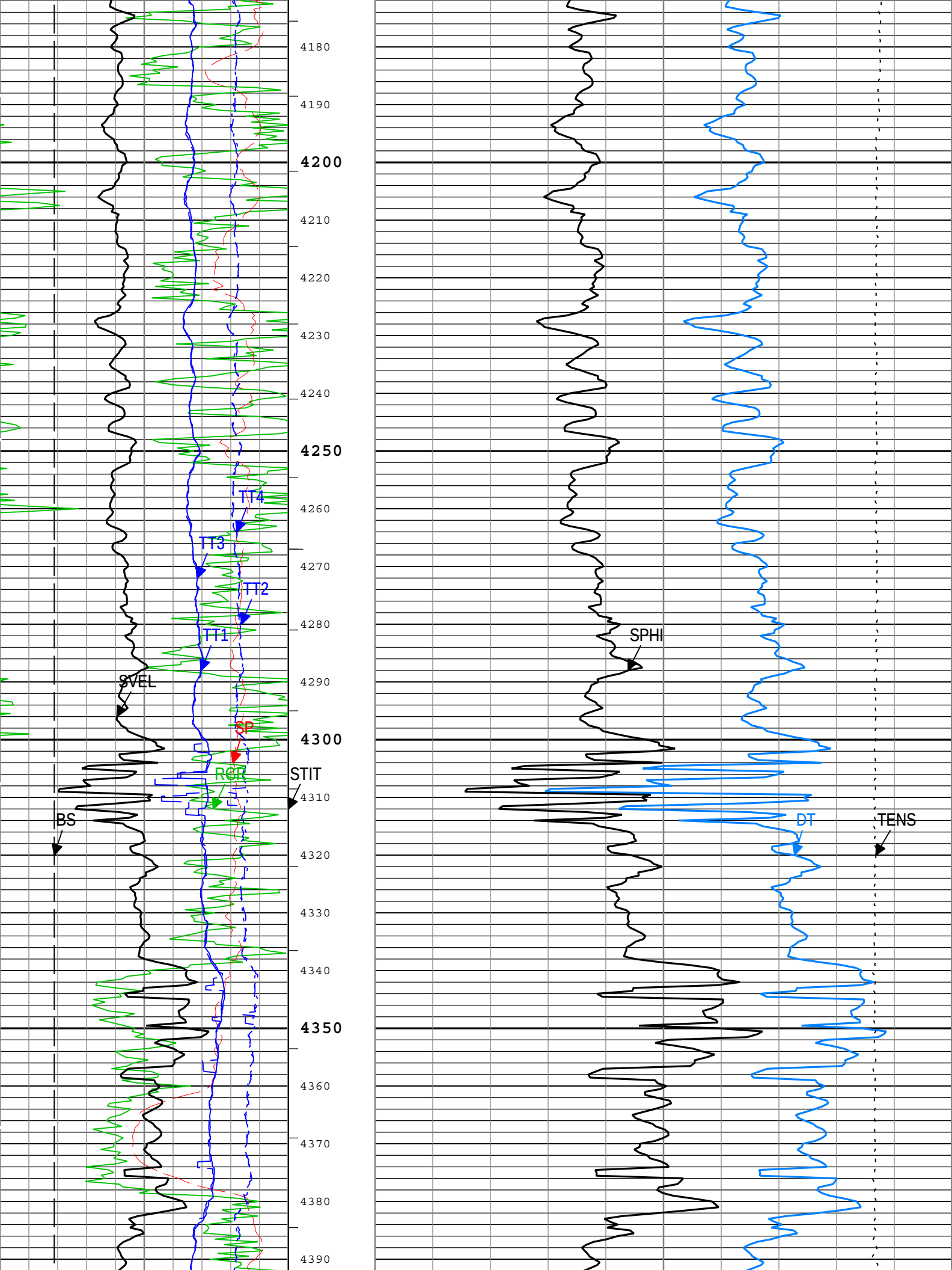
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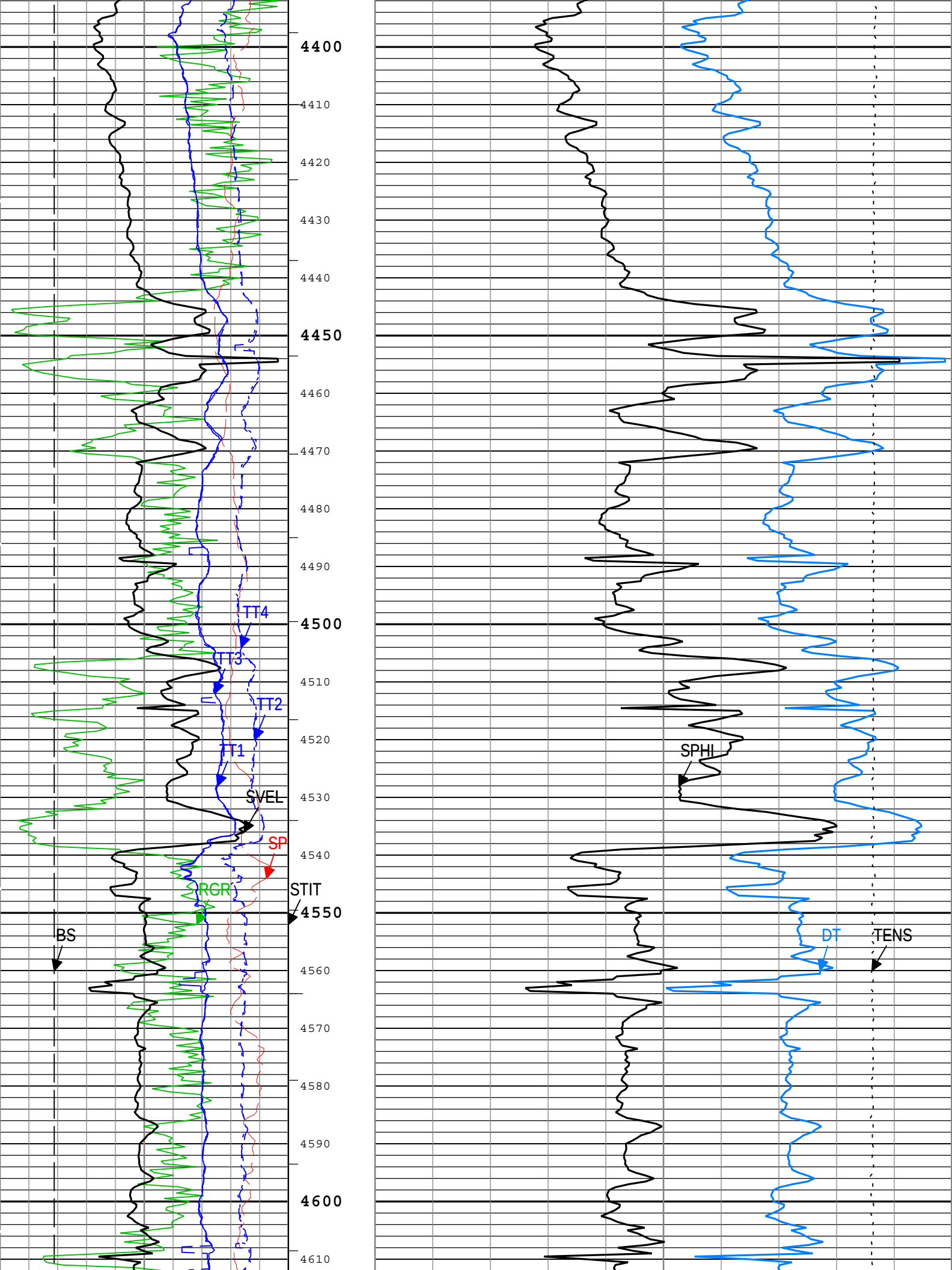
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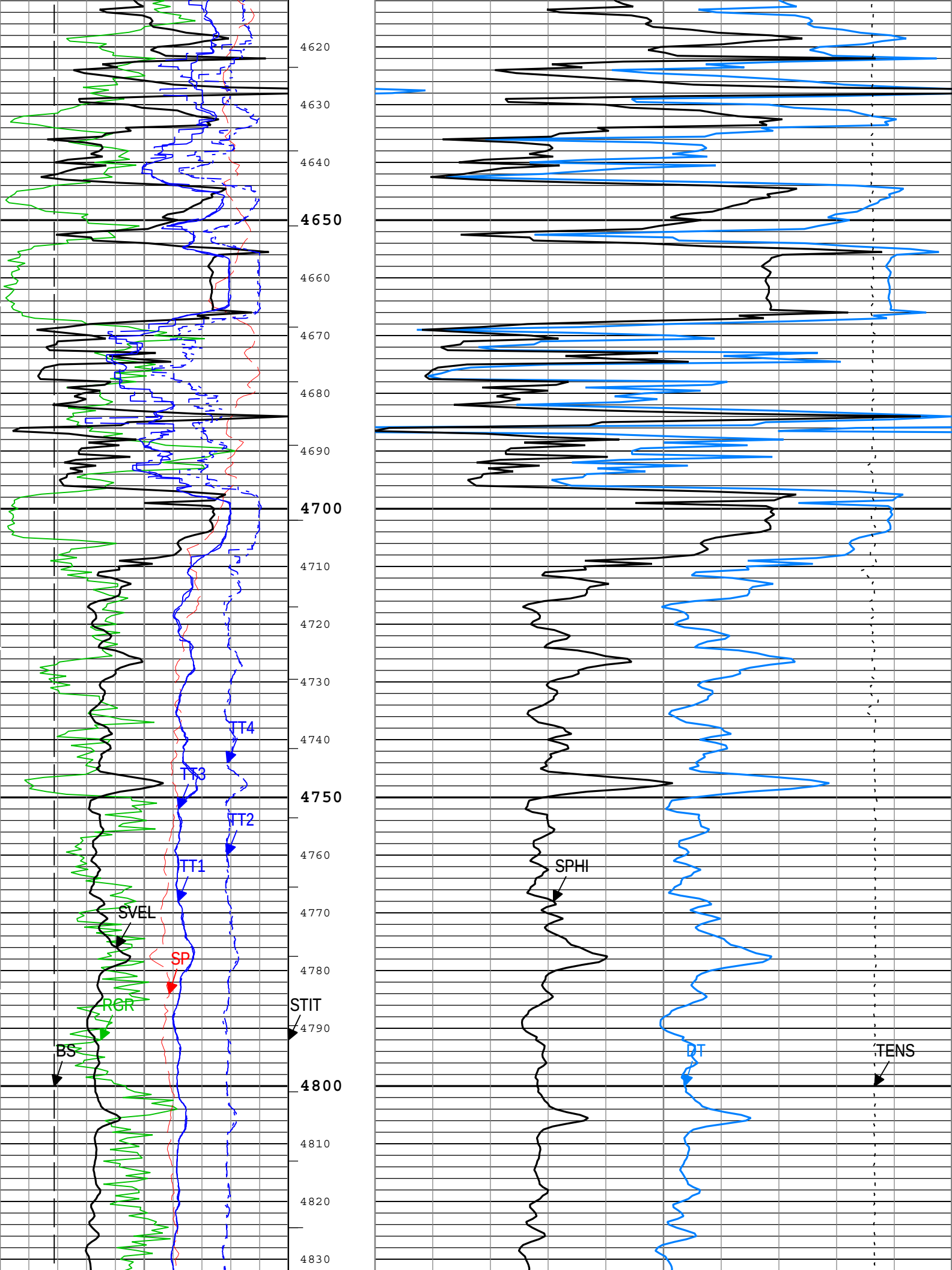
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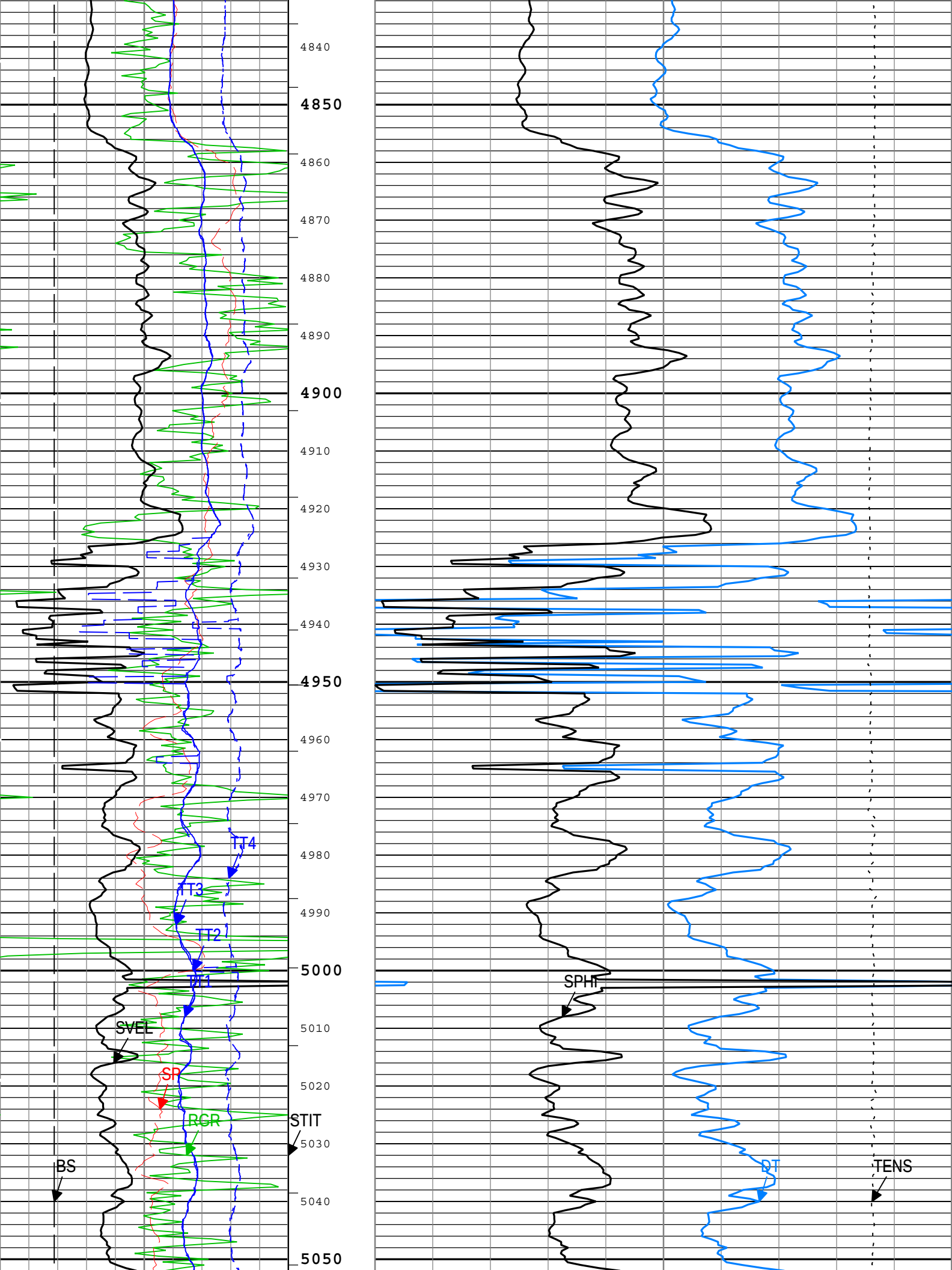
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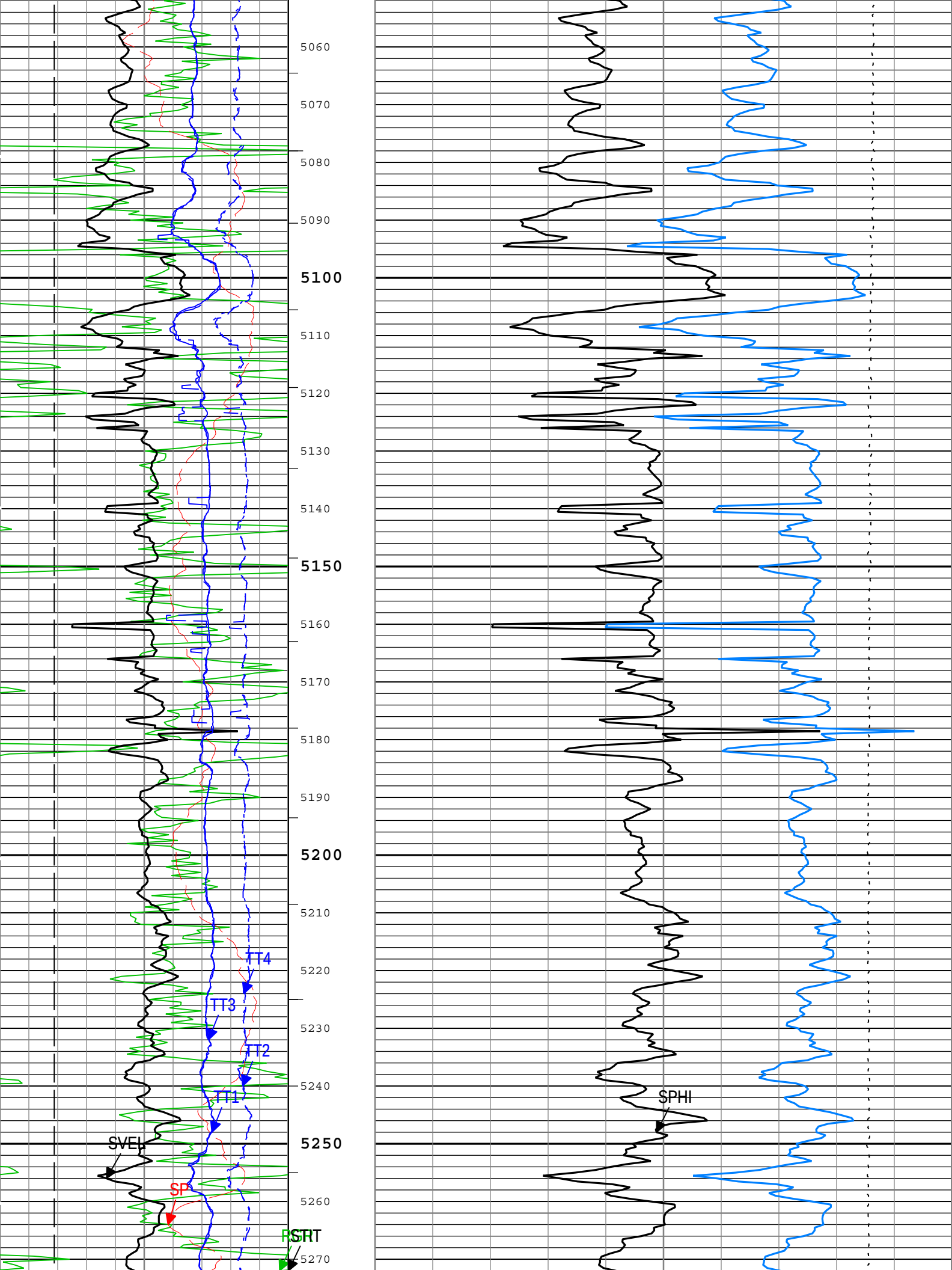
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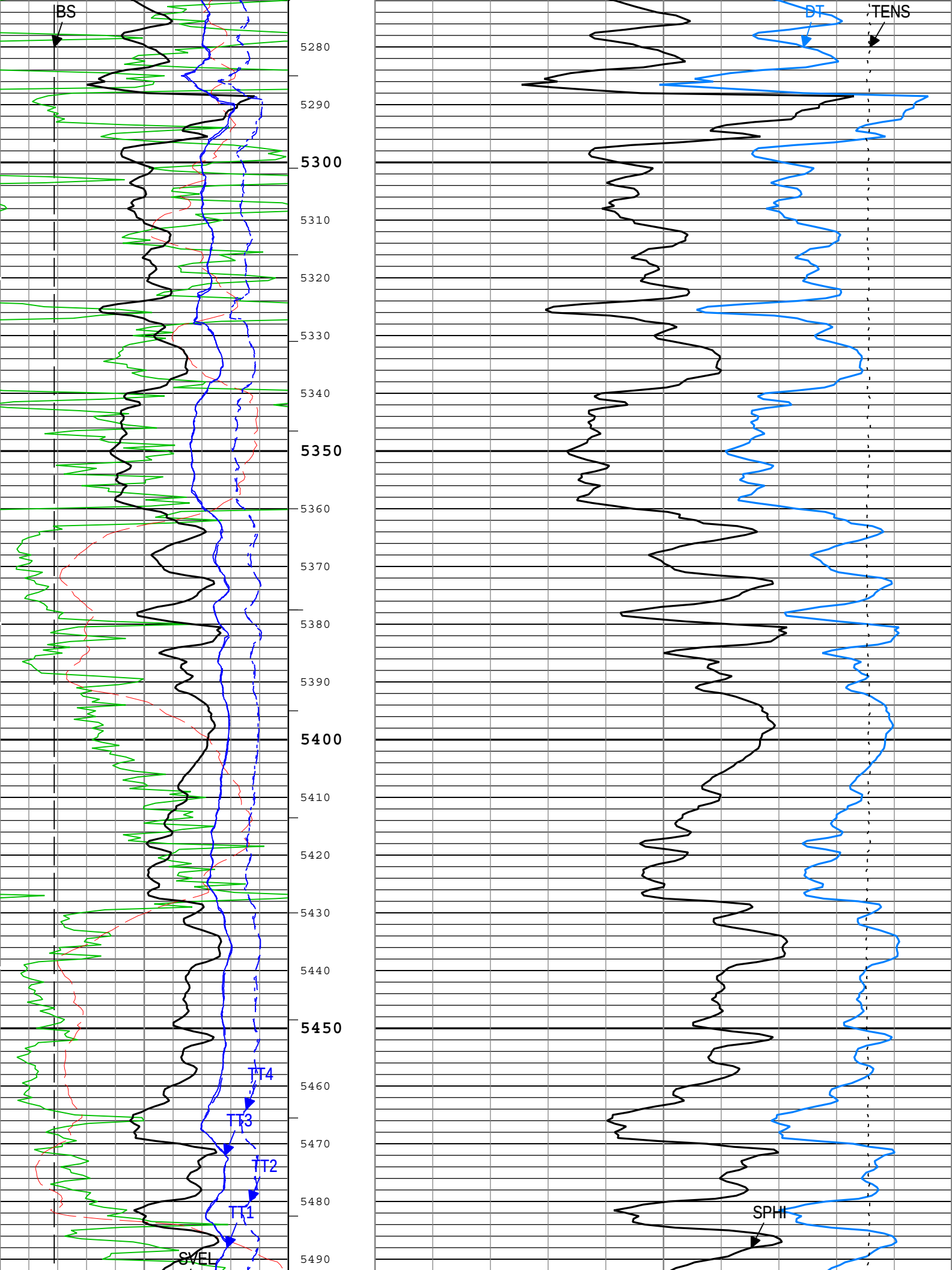
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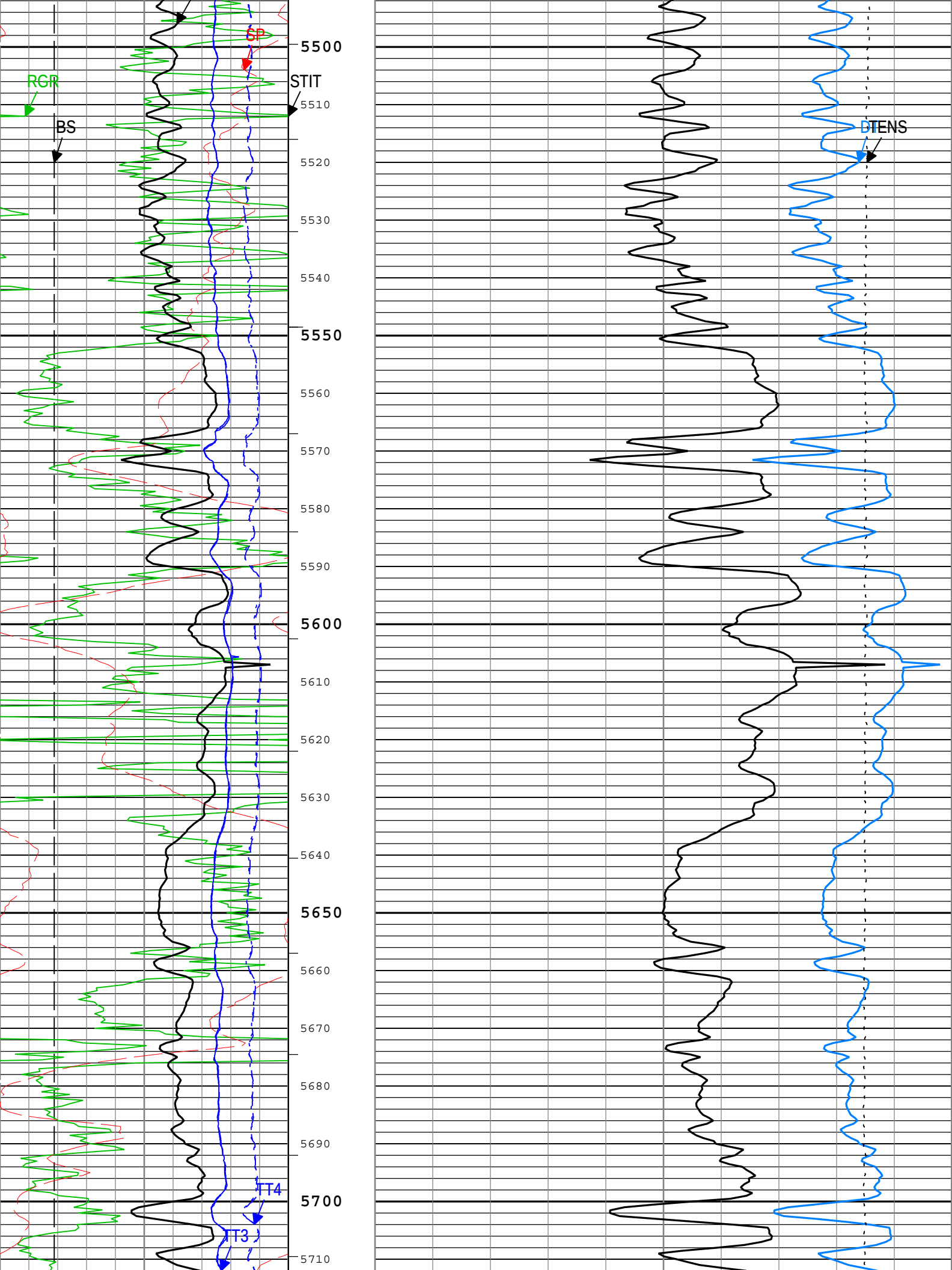
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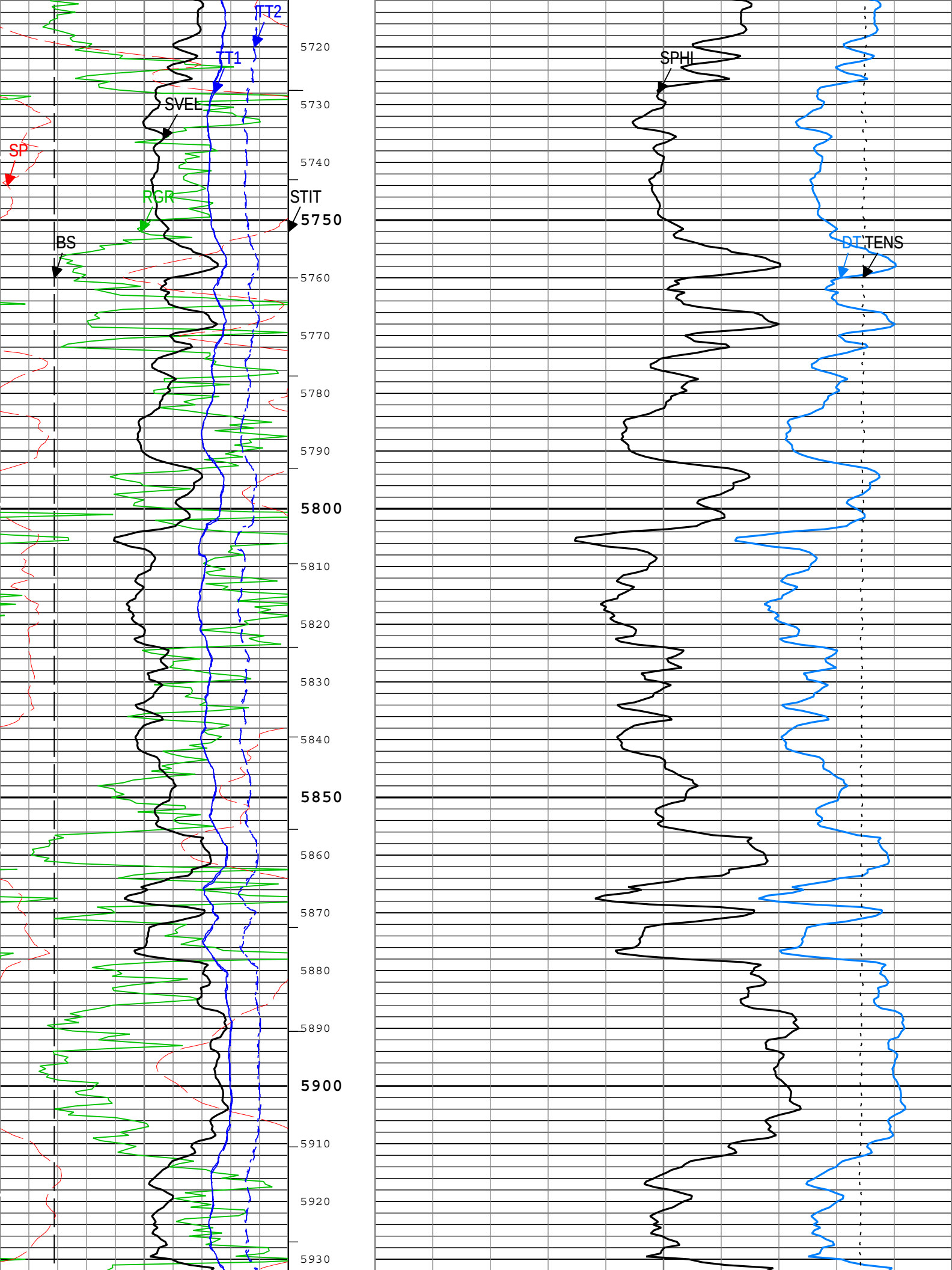
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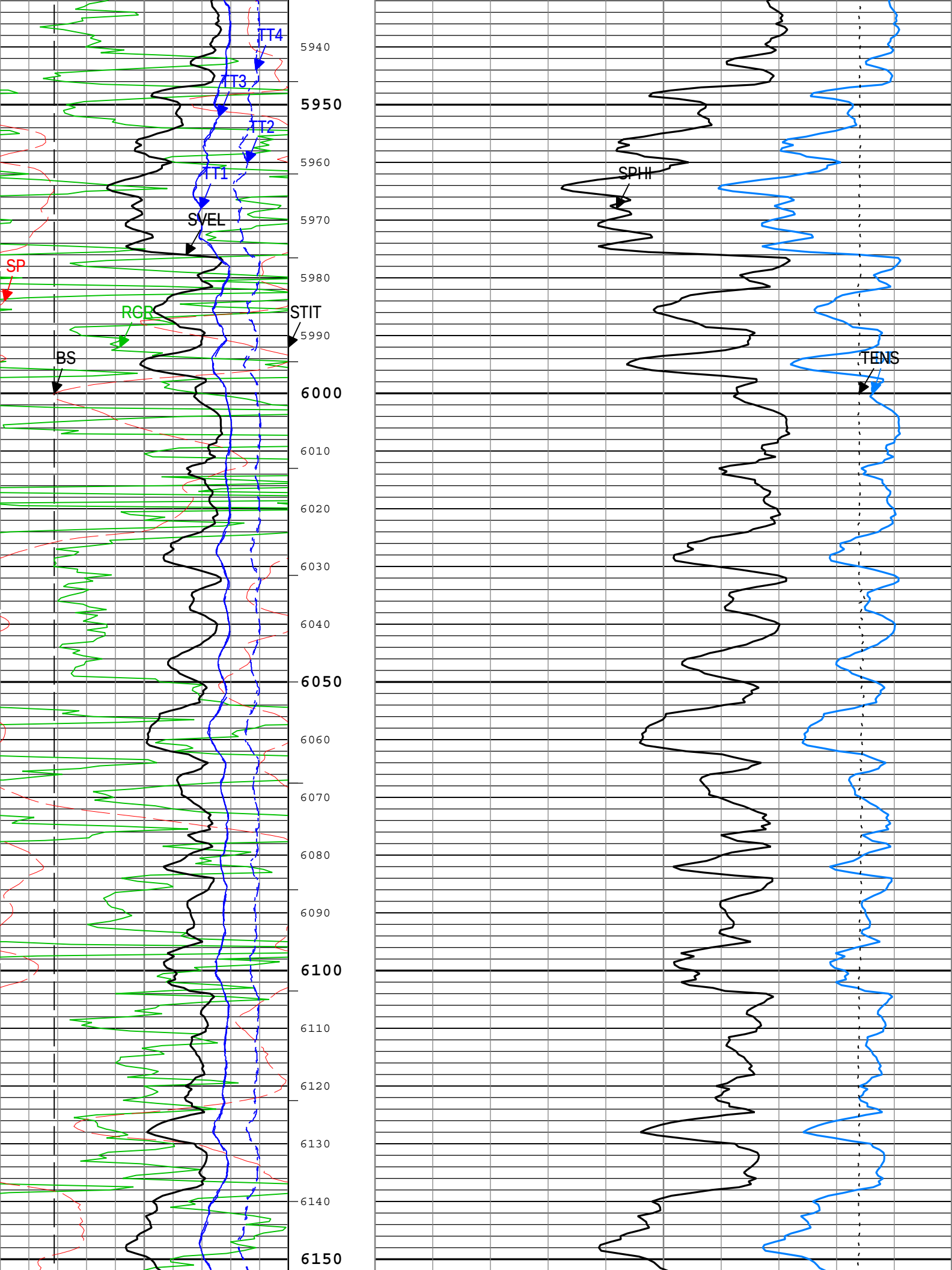
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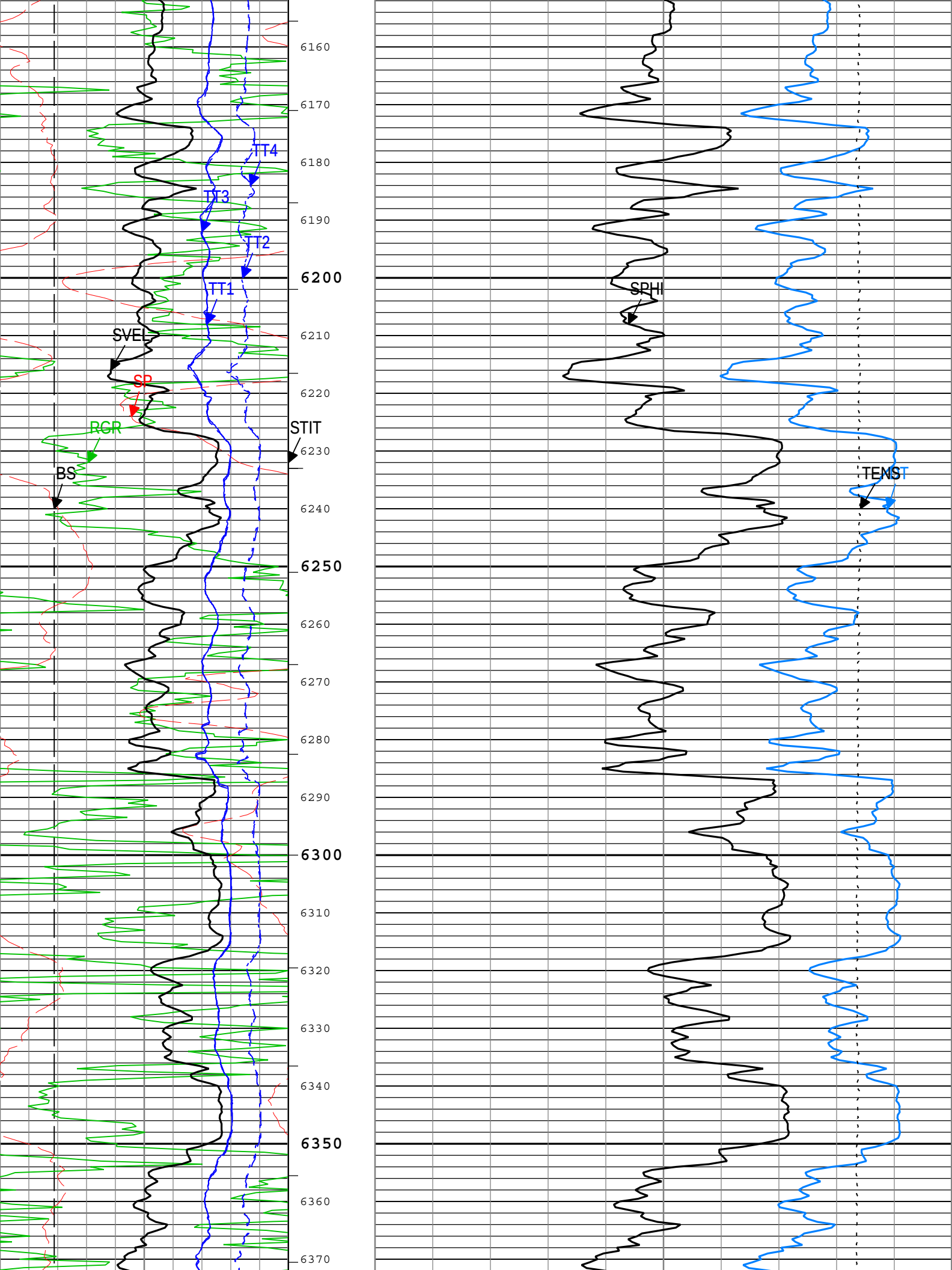
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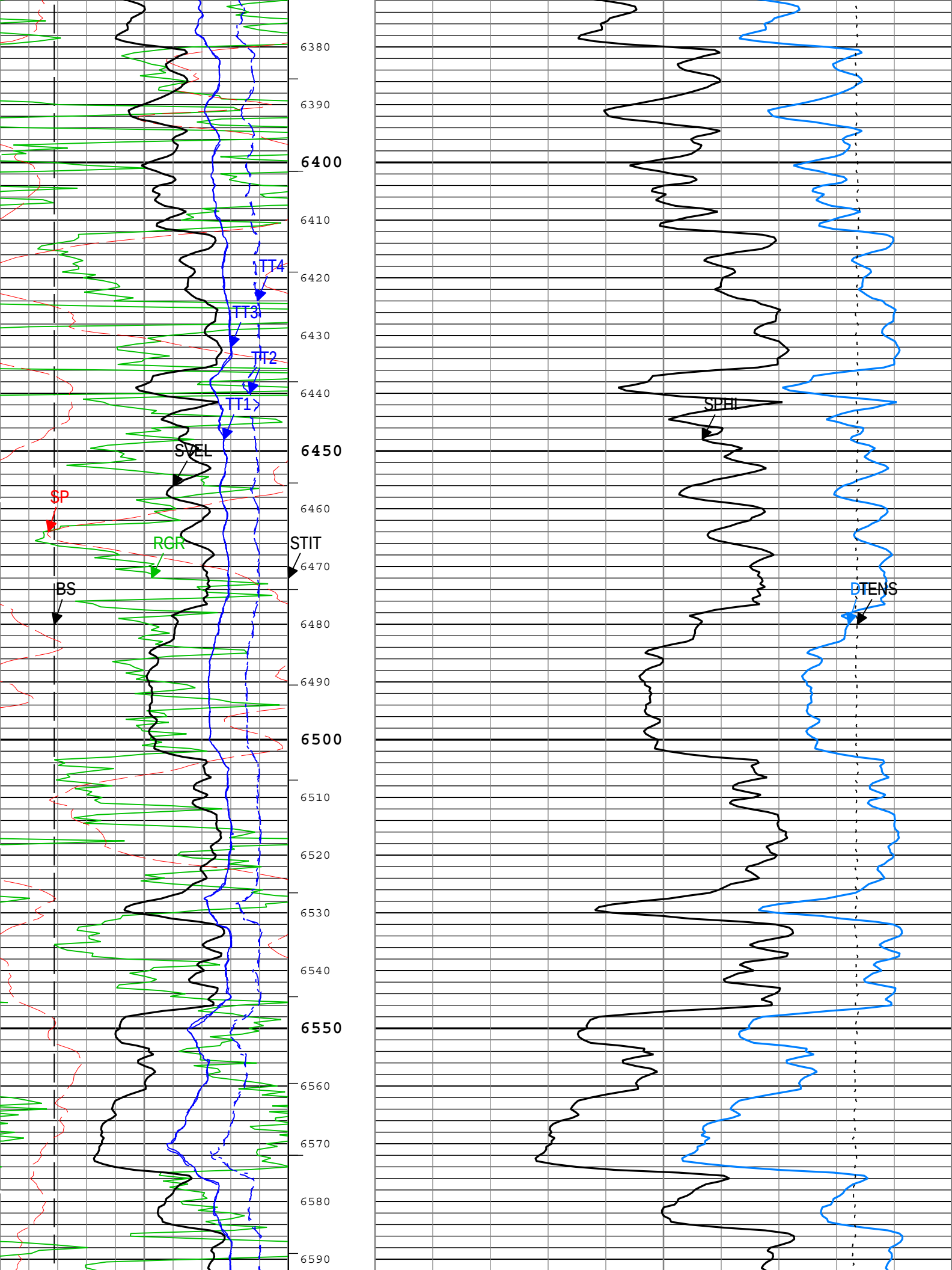
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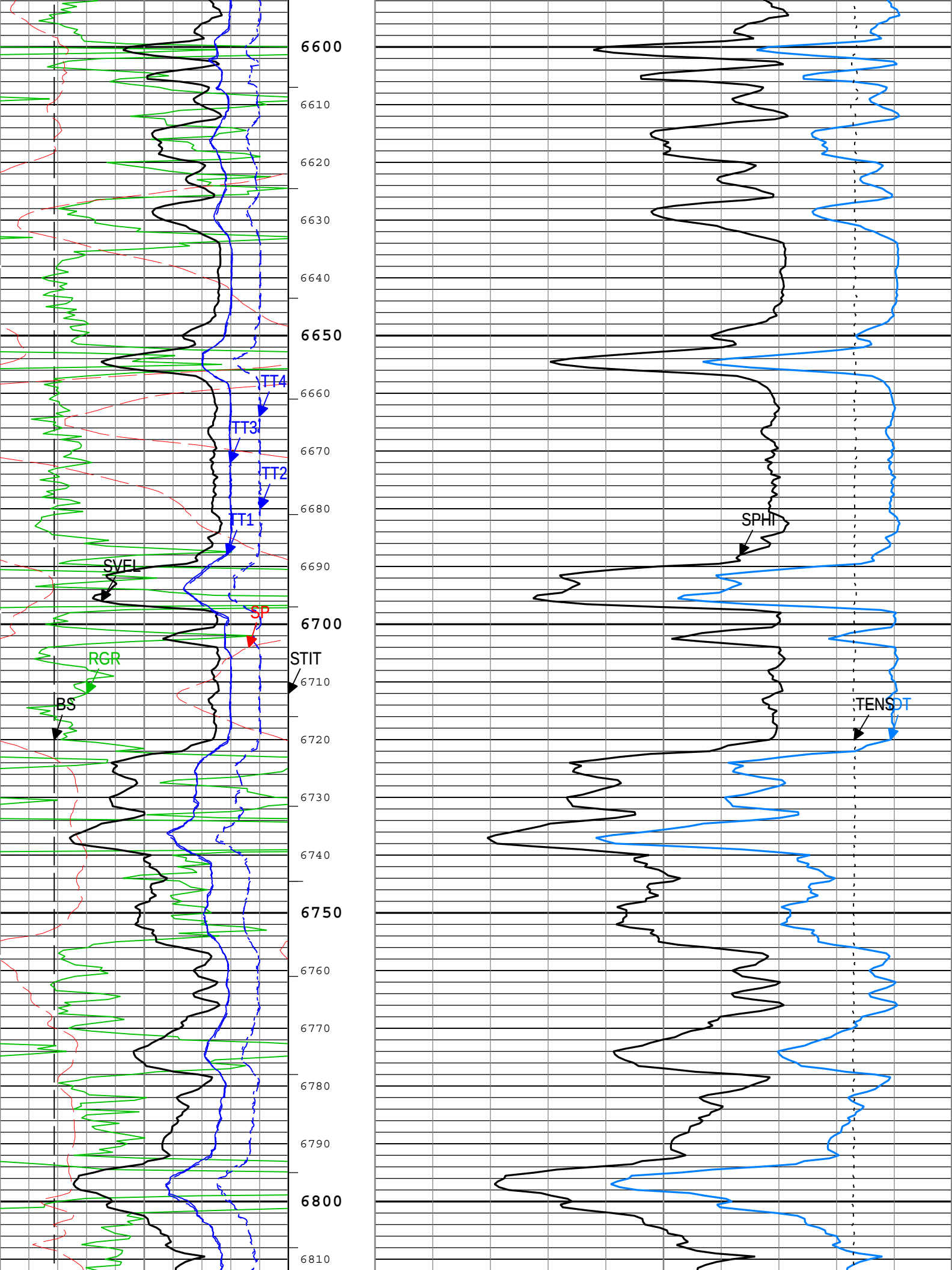
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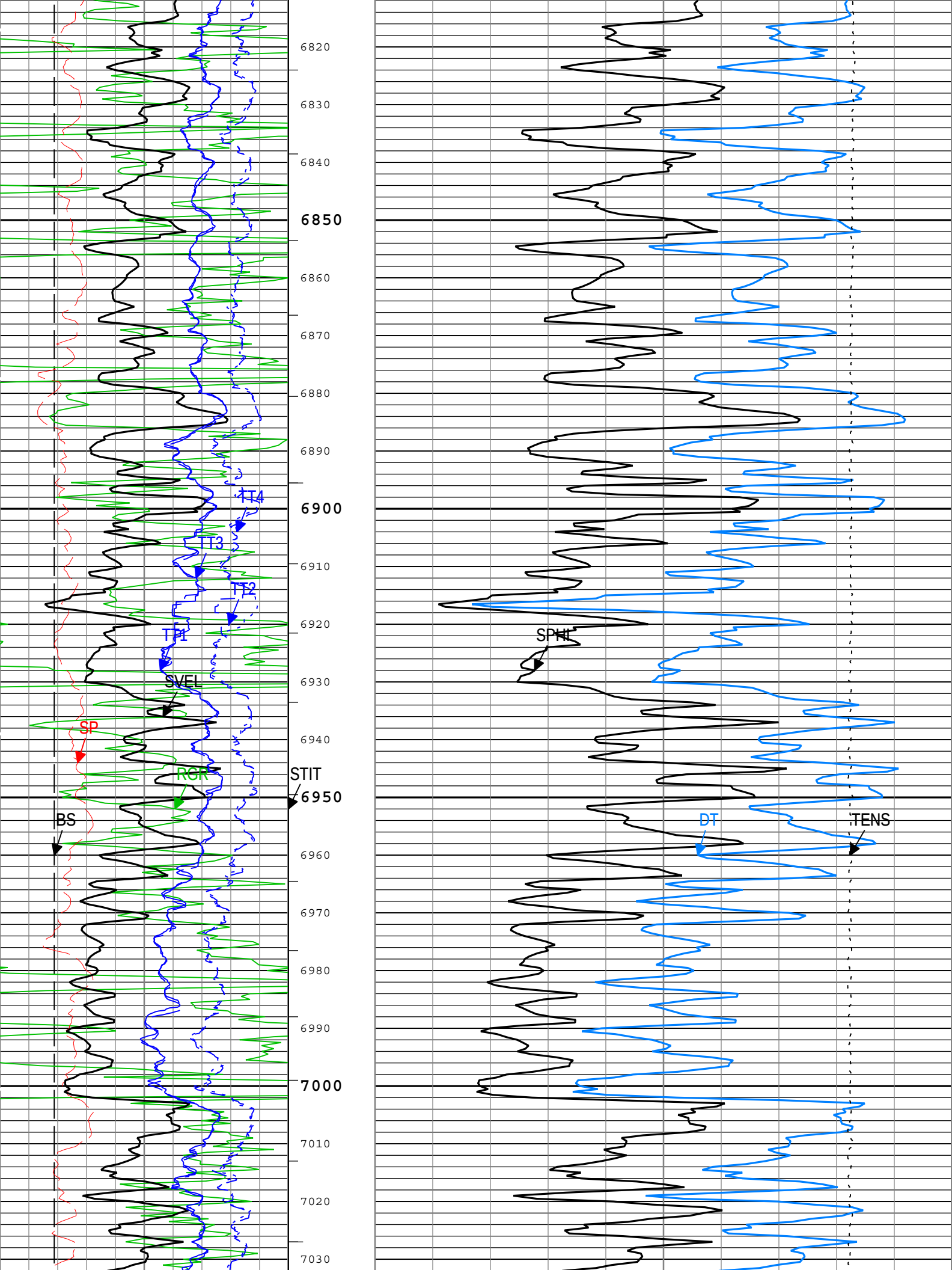
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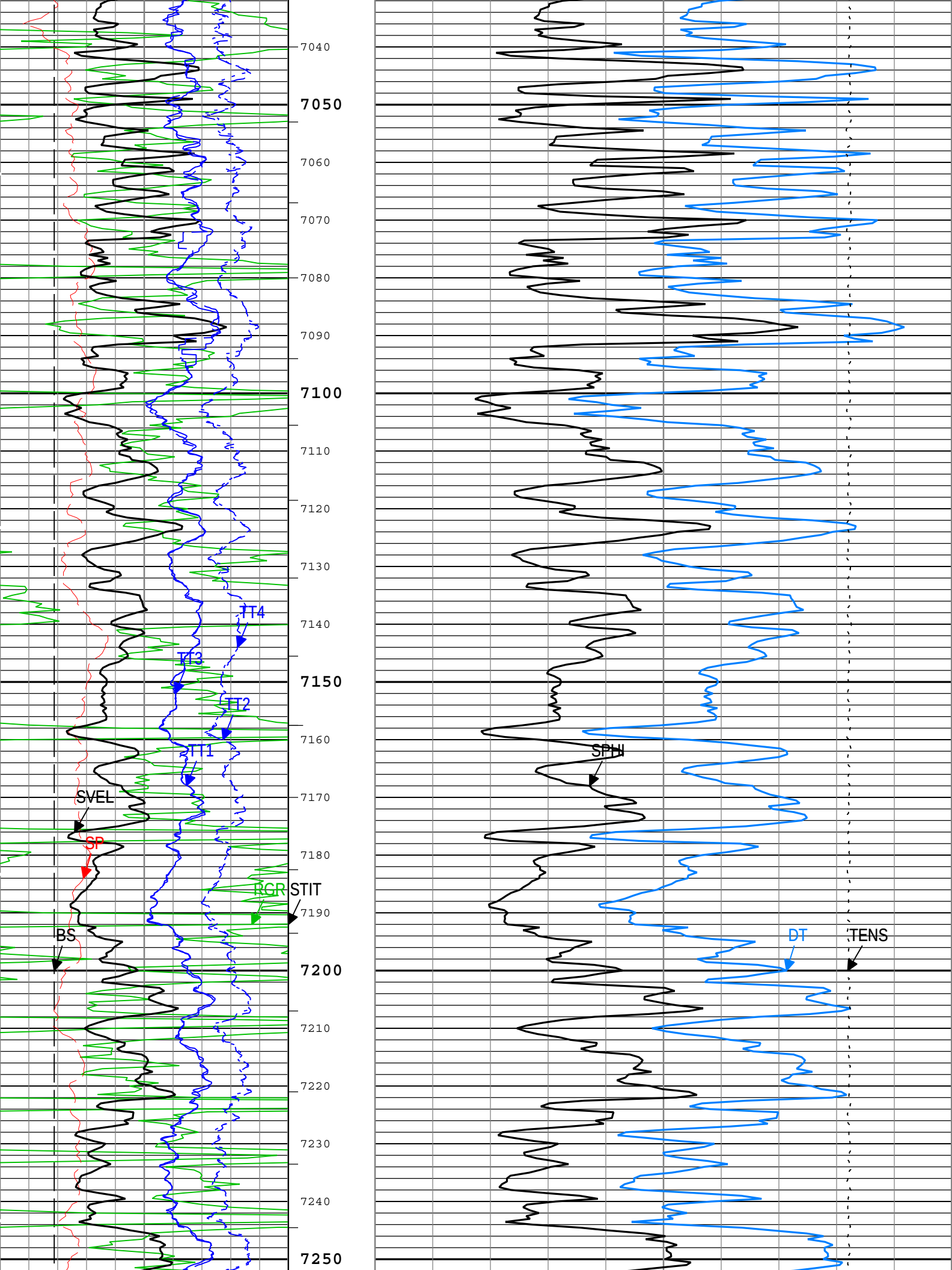
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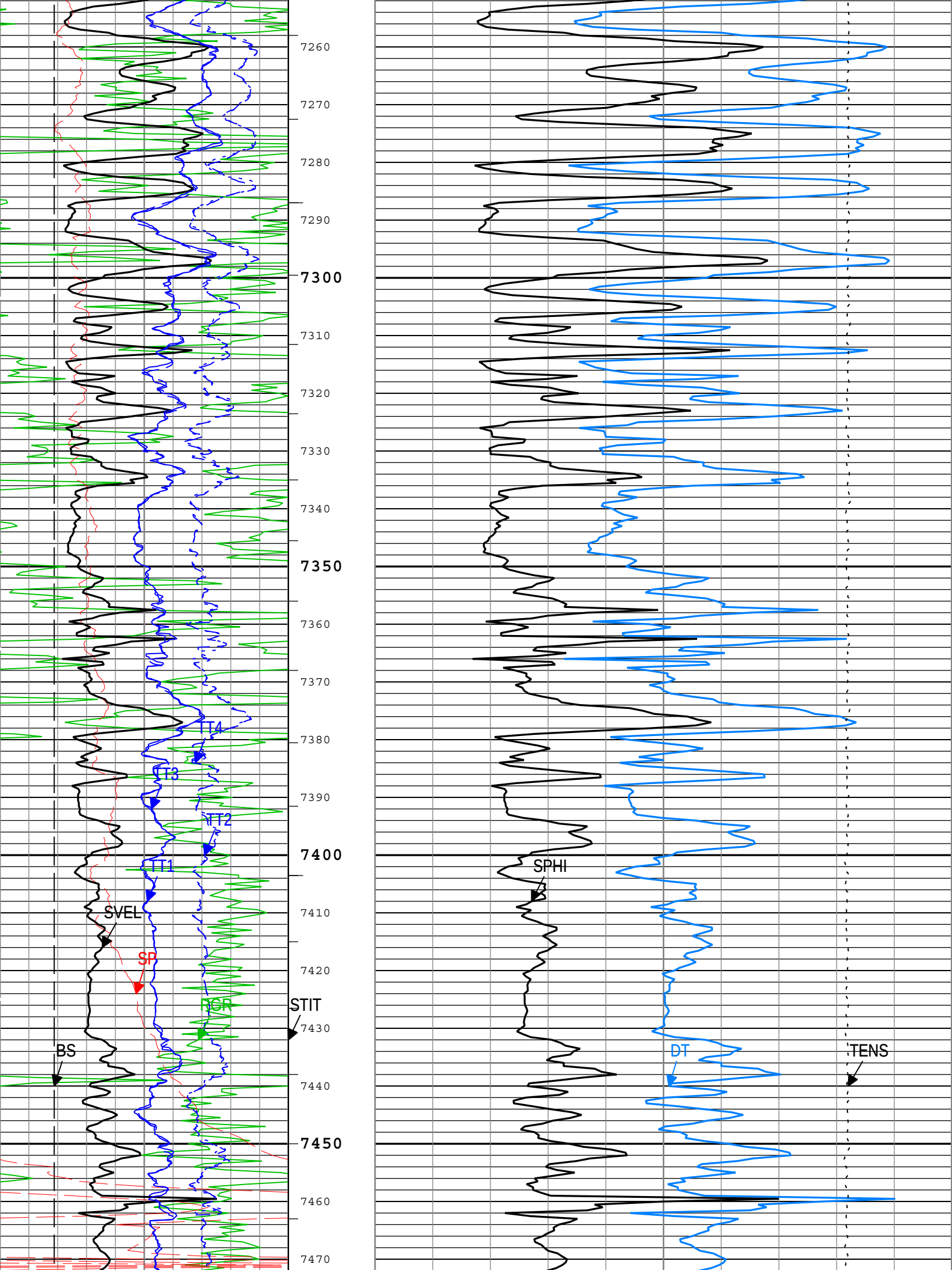
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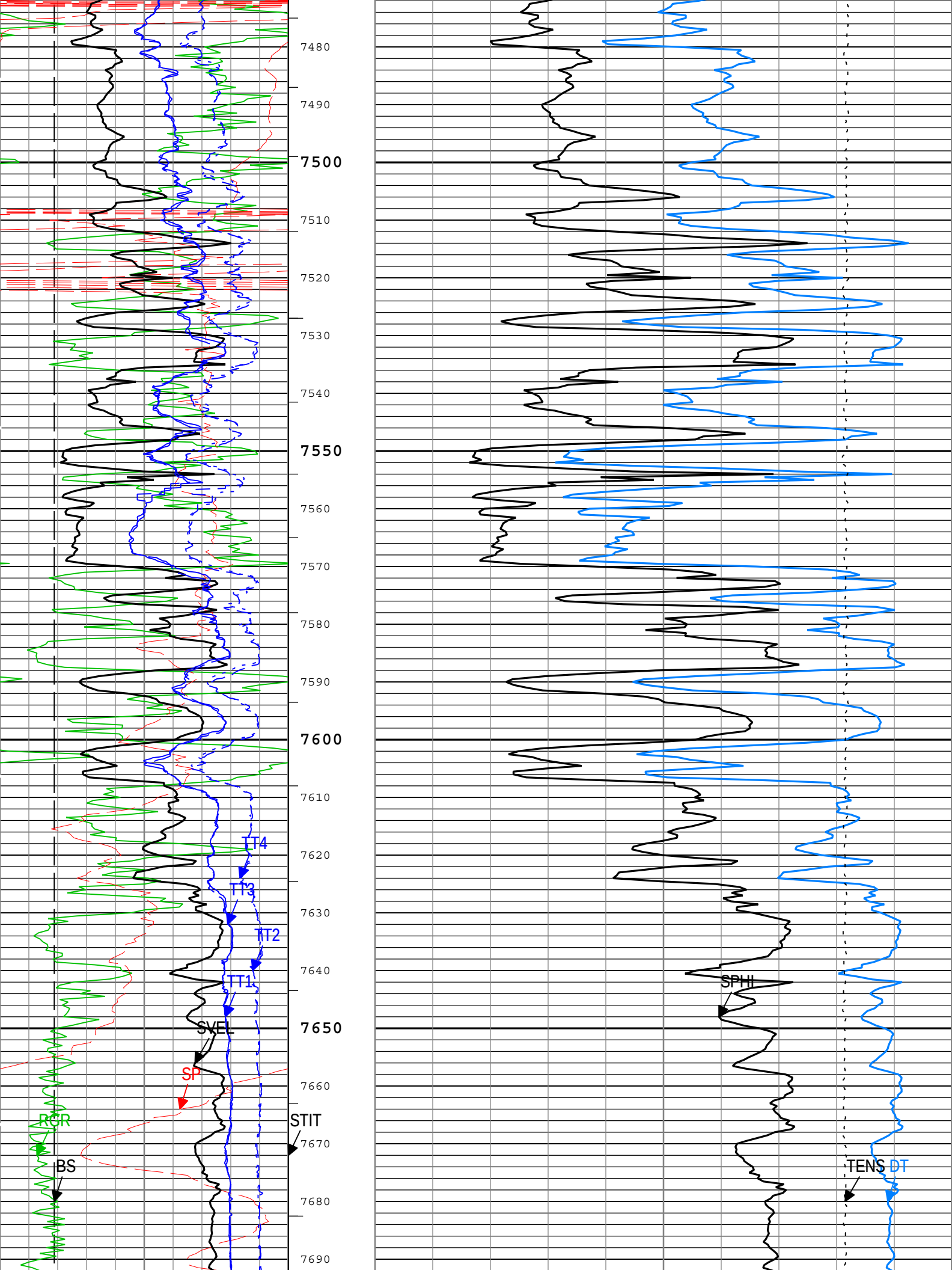
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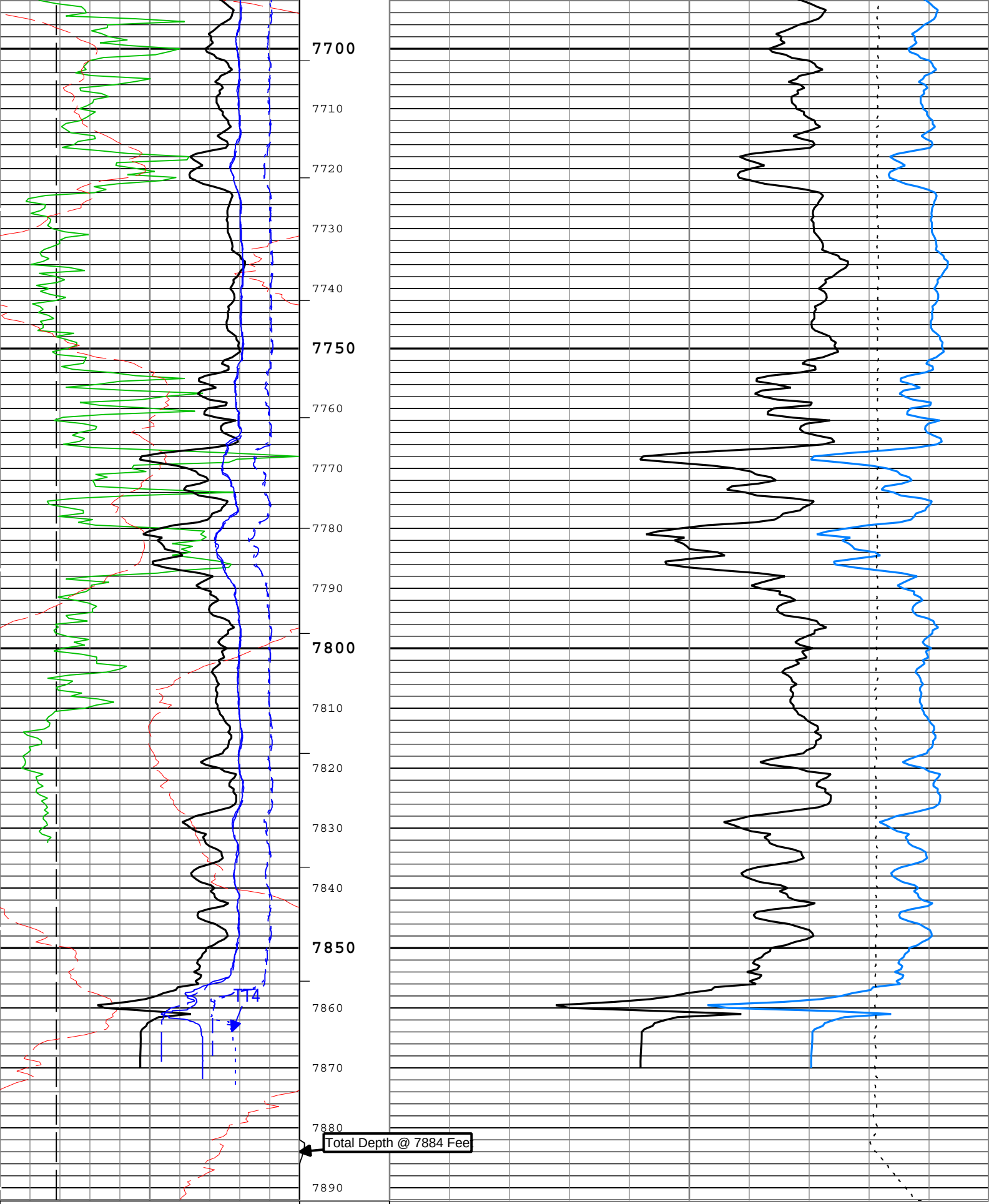


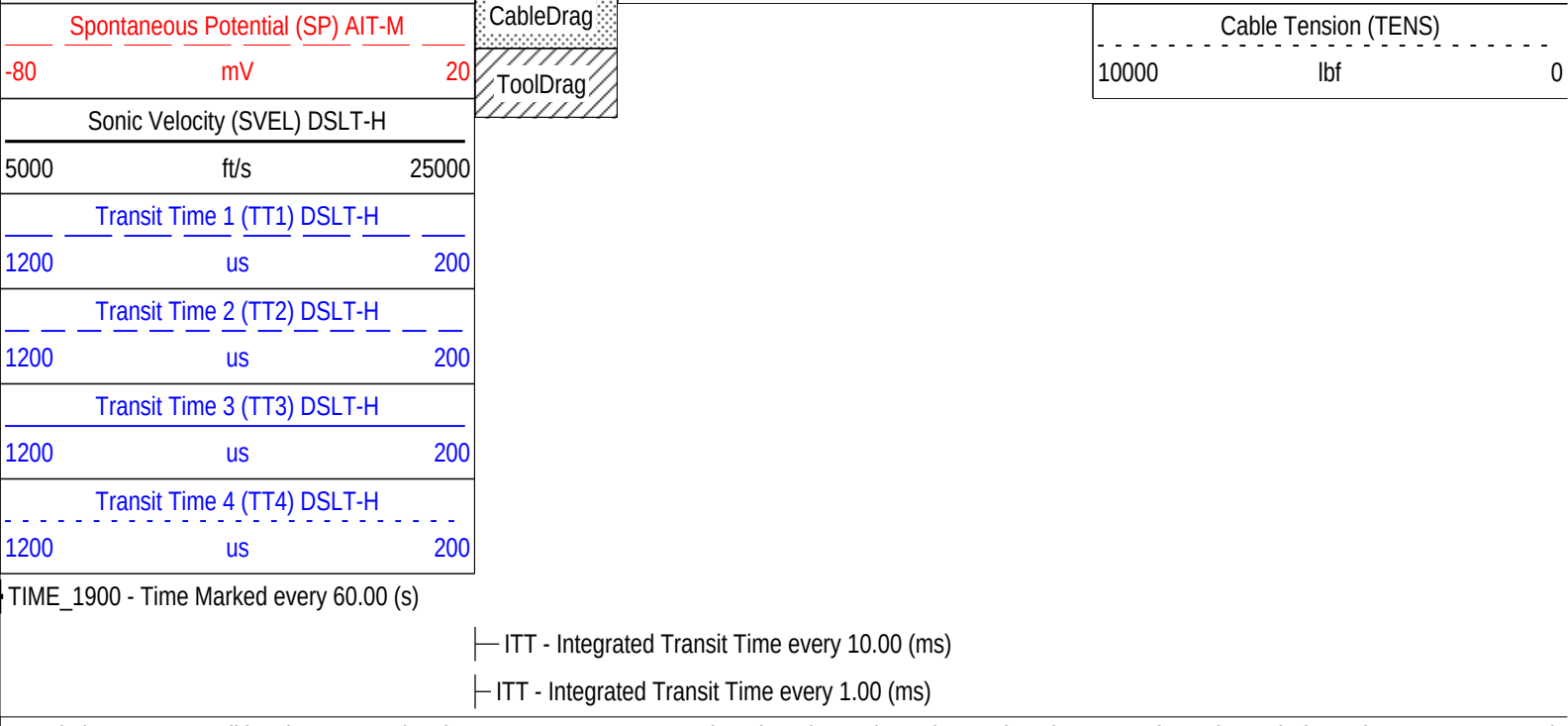
Bit Size (BS)
6 in 16

Raw Gamma Ray (RGR) HGNS-H
0 gAPI 150

Stuck Tool Indicator, Total (STIT)
0 ft 50

Delta-T (also called Slowness or Interval Transit Time) (DT) DSLT-H
140 us/ft 40

Sonic Porosity (SPHI) DSLT-H
0.45 ft3/ft3 -0.15



Description: SONI_Traditional_CompressionalDT_Curves Format: Log (Sonic Delta-t_1) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 26-Sep-2012 13:24:26

Channel Processing Parameters

Parameter	Description	Tool	Value	Unit
BS	Bit Size	WLSESSION	Depth Zoned	in
CBLO	Casing Bottom (Logger)	WLSESSION	342	ft
CDTS	Correction for Delta-T Shale, Empirical	Borehole	100	us/ft
DC_MODE	Depth Correction Mode	DepthCorrection	Real-time	
DETE	Delta-T Detection	DSLT-H	E2	
DTCM	Delta-T Computation Mode	DSLT-H	Full	
DTF	Delta-T Fluid	Borehole	189	us/ft
DTM	Delta-T Matrix	Borehole	47.5	us/ft
ITTS	Integrated Transit Time Source	DSLT-H	DT	
MAHTR	Manual High Threshold Reference for first arrival detection	DSLT-H	120	
MNHTR	Minimum High Threshold Reference for first arrival detection	DSLT-H	Time Zoned	
NMSG	Near Minimum Sliding Gate	DSLT-H	140	us
SGAD	Sliding Gate Status	DSLT-H	On	
SPDR	SP Drift Per Foot	AIT-M	0	mV/ft
SPFS	Sonic Porosity Formula	Borehole	Raymer-Hunt	
SPSO	Sonic Porosity Source	DSLT-H	DT	
TD	Total Measured Depth	Borehole	7884	ft

Depth Zone Parameters

Parameter	Value	Start (ft)	Stop (ft)
BS	12.25	330	342
BS	7.875	342	7892.17

All depth are actual.

Time Zone Parameters

Parameter	Value	Start Time	Stop Time	Start Depth (ft)	Stop Depth (ft)
MNHTR	500	26-Sep-2012 09:23:43	26-Sep-2012 09:40:27	7892.17	7034.27
MNHTR	546	26-Sep-2012 09:40:27	26-Sep-2012 09:48:37	7034.27	6540.52
MNHTR	500	26-Sep-2012 09:48:37	26-Sep-2012 10:12:24	6540.52	5115.52
MNHTR	499	26-Sep-2012 10:12:24	26-Sep-2012 10:17:52	5115.52	4790.62

MNHTR	499	26-Sep-2012 10:12:24	26-Sep-2012 10:17:52	5115.52	4790.62
MNHTR	500	26-Sep-2012 10:17:52	26-Sep-2012 11:14:33	4790.62	1403.94
MNHTR	543	26-Sep-2012 11:14:33	26-Sep-2012 11:14:35	1403.94	1401.67
MNHTR	378	26-Sep-2012 11:14:35	26-Sep-2012 11:17:36	1401.67	1218.85
MNHTR	303	26-Sep-2012 11:17:36	26-Sep-2012 11:17:58	1218.85	1197.42
MNHTR	248	26-Sep-2012 11:17:58	26-Sep-2012 11:48:38	1197.42	31.88

All depth are at tool zero.

Tool Control Parameters

Parameter	Description	Tool	Value	Unit
DSLT_MODE	DSLT Acquisition Mode	DSLT-H	BHC	
DSLT_RATE	DSLT Firing Rate	DSLT-H	15 Hz	
DTFS	DSLT Telemetry Frame Size	DSLT-H	536	
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	3600	ft/h

Run 1

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	Depth Shift	Include Parallel Data
Run 1	Log[3]:Up	Up	7391.00 ft	7891.79 ft	26-Sep-2012 9:11:55 AM	26-Sep-2012 9:21:03 AM	5.73 ft	true
Run 1	Main[4]:Up	Up	31.88 ft	7892.18 ft	26-Sep-2012 9:23:43 AM	26-Sep-2012 11:48:38 AM	6.25 ft	true

All depths are referenced to toolstring zero

Log

Run 1: Main[4]:Up

Description: SONI_Traditional_CompressionalDT_Curves Format: Log (Sonic Delta-t_1 RA) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 26-Sep-2012 13:24:32

ITT - Integrated Transit Time every 1.00 (ms)

ITT - Integrated Transit Time every 10.00 (ms)

TIME_1900 - Time Marked every 60.00 (s)

Main To Repeat

Repeat To Main

Sonic Velocity (SVEL) DSLT-H

5000 ft/s 25000

Main To Repeat

Repeat To Main

Transit Time 1 (TT1) DSLT-H

1200 us 200

Main To Repeat

Repeat To Main

Spontaneous Potential (SP) AIT-M

-80 mV 20

Main To Repeat

Repeat To Main

Transit Time 2 (TT2) DSLT-H

1200 us 200

Main To Repeat

Repeat To Main

Transit Time 3 (TT3) DSLT-H

1200 us 200

Main To Repeat

Repeat To Main

Transit Time 4 (TT4) DSLT-H

1200 us 200

Main To Repeat

Repeat To Main

Cable Speed (CS)

0 ft/h 50000

Main To Repeat

Repeat To Main

Cable Tension (TENS)

10000 lbf 0

Main To Repeat

Repeat To Main

Bit Size (BS)

6 in 16

Main To Repeat

Repeat To Main

Sonic Porosity (SPHI) DSLT-H

0.45 ft3/ft3 -0.15

Main To Repeat

Repeat To Main

Raw Gamma Ray (RGR) HGNS-H

0 gAPI 150

Main To Repeat

Repeat To Main

Stuck Tool Indicator, Total (STIT)

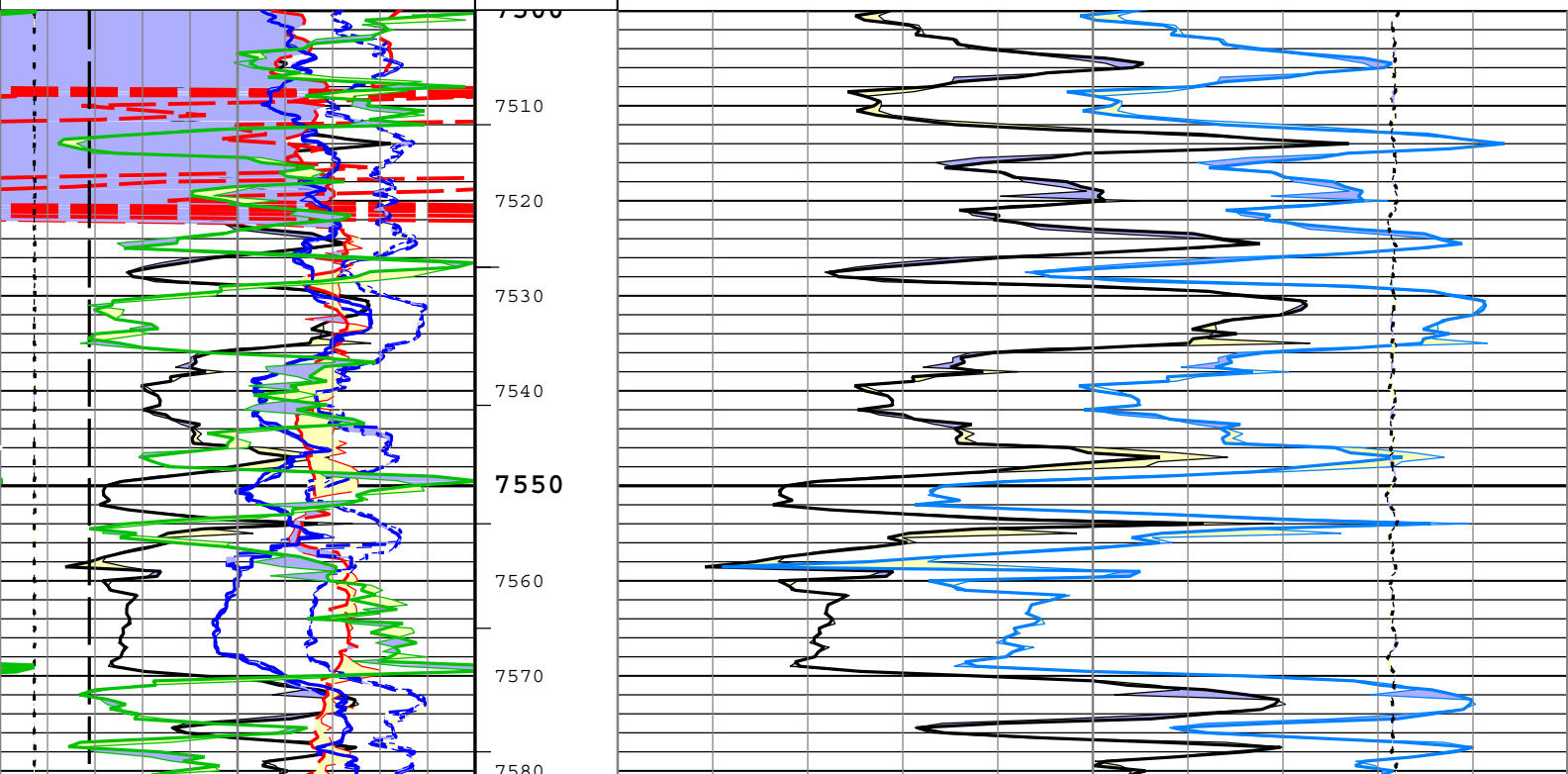
0 ft 50

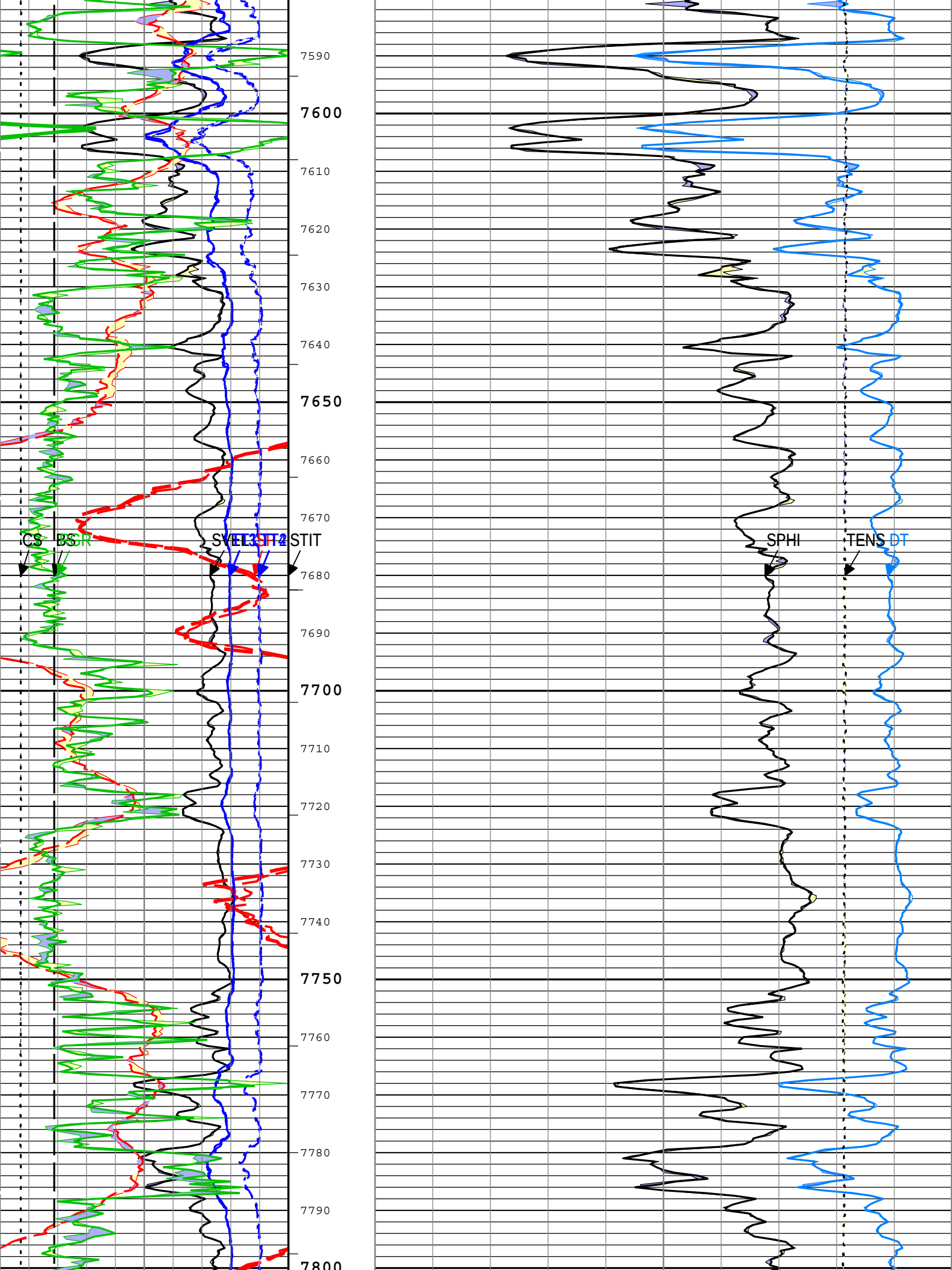
Main To Repeat

Repeat To Main

Delta-T (also called Slowness or Interval Transit Time) (DT) DSLT-H

140 us/ft 40

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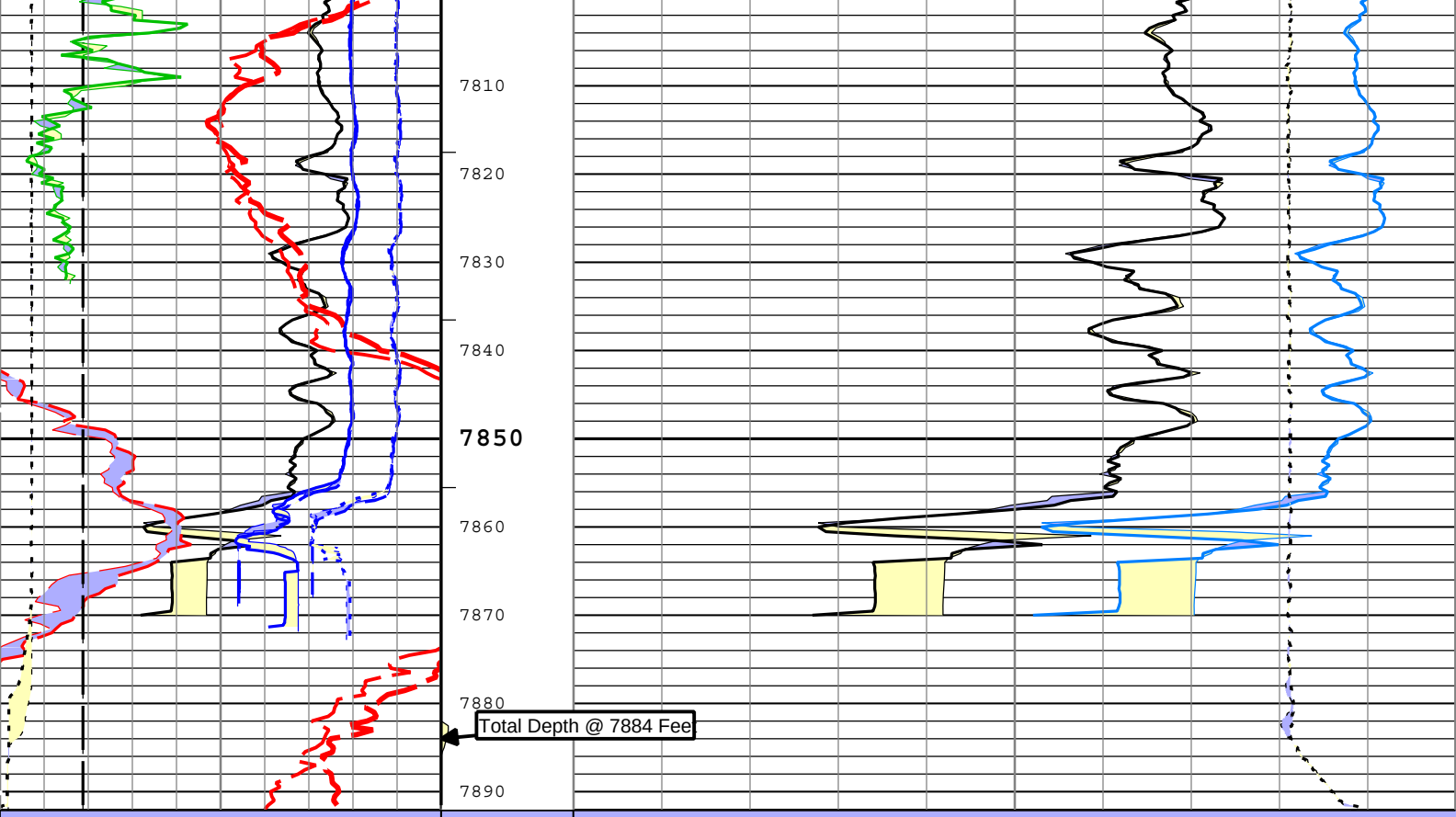

Main To Repeat

Repeat To Main

Sonic Velocity (SVEL) DSLT-H

5000 ft/s 25000

Main To Repeat

Repeat To Main

Transit Time 1 (TT1) DSLT-H

1200 us 200

Main To Repeat

Repeat To Main

Spontaneous Potential (SP) AIT-M

-80 mV 20

Main To Repeat

Repeat To Main

Transit Time 2 (TT2) DSLT-H

1200 us 200

Main To Repeat

Repeat To Main

Transit Time 3 (TT3) DSLT-H

1200 us 200

Main To Repeat

Repeat To Main

Stuck Tool Indicator, Total (STIT)

0 ft 50

Main To Repeat

Repeat To Main

Sonic Porosity (SPHI) DSLT-H

0.45 ft3/ft3 -0.15

Main To Repeat

Repeat To Main

Delta-T (also called Slowness or Interval Transit Time) (DT) DSLT-H

140 us/ft 40

Main To Repeat

Repeat To Main

Cable Tension (TENS)

10000 lbf 0

Main To Repeat

Repeat To Main

Transit Time 4 (TT4) DSLT-H

1200 us 200

Main To Repeat

Repeat To Main

Cable Speed (CS)

0 ft/h 50000

Main To Repeat

Repeat To Main

Bit Size (BS)

6 in 16

Main To Repeat

Repeat To Main

Raw Gamma Ray (RGR) HGNS-H

0 gAPI 150

TIME_1900 - Time Marked every 60.00 (s)

ITT - Integrated Transit Time every 10.00 (ms)

ITT - Integrated Transit Time every 1.00 (ms)

Description: SONI_Traditional_CompressionalDT_Curves Format: Log (Sonic Delta-t_1 RA) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 26-Sep-2012 13:24:32

Calibration Report

DSLT-H (Digitizing Sonic Logging Tool - H) Calibration - Run 1

Primary Equipment :

Sonic Logging Sonde E supports 3'-5'BHC DT and CBL/VDL	SLS-E	165

CBL Normalization - CBL Accumulations

Master:

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Upper Far Amplitude - 0		Master	-----	-----	-----	-----	
Upper Near Raw Amplitude - 0	mV	Master	-----	-----	-----	-----	
Lower Far Amplitude - 0		Master	-----	-----	-----	-----	
Lower Near Raw Amplitude - 0	mV	Master	-----	-----	-----	-----	

CBL Normalization - CBL/VDL Coefficients

Master:

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
CBL Correction Factor for UT		Master	3.500	2.700	NOT DONE	4.300	
CBL Correction Factor for LT		Master	2.500	1.700	NOT DONE	4.300	
VDL Ratio between UT and LT for CBLB Mode		Master	1.000		NOT DONE		

CBL Free Pipe Adjustment - Free Pipe Measurement

Before:

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
CBL Amplitude - 0	mV	Before	-----	-----	-----	-----	
CBL Reference Amplitude (CBRA) - 0	mV	Before	-----	-----	-----	-----	
Measurement Depth - 0	ft	Before	-----	-----	-----	-----	

CBL Free Pipe Adjustment - CBL Amplitude Coefficient

Before:

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	

CBL Adjustment Factor		Before	1.000	0.200	NOT DONE	5.000
Depth of Before Calibration	ft	Before			NOT DONE	

HGNS-H (HILT Gamma-Ray and Neutron Sonde, 150 degC) Calibration - Run 1

Primary Equipment :

HILT Gamma-Ray and Neutron Sonde, 150 degC	HGNS-H	4779

Auxiliary Equipment :

HGNS Accelerometer, 150 degC	HACCZ-H	5736
AmBe Neutron Logging Source	NSR-F	5168

Calibration Parameter :

Water Temperature	
Housing Size	
JIG-BKG (Jig minus background reference)	165

HGNS Accelerometer Calibration - Accelerometer Accumulations

Before (Measured): 08:17:00 26-Sep-2012

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit
AZ Vertical Measurement	ft/s2	Before	32.2	31.5	32.0	32.8

HGNS Accelerometer EEPROM - Accelerometer EEPROM Read

Master (EEPROM): 00:00:00 15-Mar-2006

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit
Accelerometer Manufacturer		Master			QAT_160	
Accelerometer Reference Temperature	degF	Master		30.2	77.0	122.0
Accelerometer Coefficients - 0		Master	-----	-----	8084.000	-----
Accelerometer Coefficients - 1		Master	-----	-----	-8.467	-----
Accelerometer Coefficients - 2		Master	-----	-----	0.009	-----
Accelerometer Coefficients - 3		Master	-----	-----	0.000	-----
Accelerometer Coefficients - 4		Master	-----	-----	2.722	-----
Accelerometer Coefficients - 5		Master	-----	-----	0.000	-----
Accelerometer Coefficients - 6		Master	-----	-----	0.000	-----
Accelerometer Coefficients - 7		Master	-----	-----	0.000	-----
Accelerometer Coefficients - 8		Master	-----	-----	298.700	-----
Accelerometer Coefficients - 9		Master	-----	-----	0.995	-----

HGNS Neutron Calibration - HGNS Neutron Accumulations

Master (EEPROM): 11:55:48 10-Jul-2012 Before (Measured): 11:55:23 25-Sep-2012 After:

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit
Near Zero Measurement	1/s	Master	0	5.0	25.2	40.0
		Before	0	5.0	25.2	40.0
		After	-----	-----	-----	-----
		Before-Master	-----	-3.8	0.0	3.8
		After-Before	-----	-----	-----	-----
Far Zero Measurement	1/s	Master	0	5.0	28.4	40.0
		Before	0	5.0	27.7	40.0
		After	-----	-----	-----	-----
		Before-Master	-----	-4.3	-0.7	4.3
		After-Before	-----	-----	-----	-----
Near Plus Measurement - 0	1/s	Master	6031.0	4700.0	5277.0	6900.0
		Before	-----	-----	-----	-----
		After	-----	-----	-----	-----
		Before-Master	-----	-----	-----	-----
		After-Before	-----	-----	-----	-----
Far Plus Measurement - 0	1/s	Master	2793.0	1900.0	2204.0	2900.0
		Before	-----	-----	-----	-----
		After	-----	-----	-----	-----
		Before-Master	-----	-----	-----	-----
		After-Before	-----	-----	-----	-----
Near Corrected Plus Measurement - 0	1/s	Master		4700.0	5227.0	6900.0
		Before	-----	-----	-----	-----
		After	-----	-----	-----	-----
		Before-Master	-----	-----	-----	-----

		After-Before	-----	-----	-----	-----
Far Corrected Plus Measurement - 0	1/s	Master		1900.0	2158.0	2900.0
		Before	-----	-----	-----	-----
		After	-----	-----	-----	-----
		Before-Master	-----	-----	-----	-----
		After-Before	-----	-----	-----	-----

HGNS Gamma-Ray Calibration - Gamma-Ray Accumulations

Before (Measured): 12:01:46 25-Sep-2012 After:

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit
RGR Zero Measurement	gAPI	Before	30.0	0	82.6	120.0
		After	-----	-----	-----	-----
		After-Before	-----	-----	-----	-----
RGR Plus Measurement	gAPI	Before	185.4	157.1	168.1	206.3
		After			NOT DONE	
		After-Before	-----	-----	-----	-----
GR Calibration Gain		Before	0.89	0.80	0.98	1.05
		After	-----	-----	-----	-----
		After-Before	-----	-----	-----	-----

Company: Nighthawk Production LLC

Schlumberger

Well: Pikes Peak Williams 4-30

Field: Wildcat

County: Lincoln

State: Colorado

Borehole Compensated Sonic