Schlumberger

Company: Bonanza Creek

Well: State Seventy Holes J-18

Field: Wattenberg

County: Weld State: Colorado

Platform Express

Array Induction

with Linear Correlation

County: Weld
Field: Wattenberg
Location: SESW, Sec18. T4N, R62W
Well: State Seventy Holes J-18
Company: Bonanza Creek

Location:				
SESW, Sec18. T4N, R62W		Elev.:	K.B.	4577.50 ft
SHL: 610'FSL x 1455' FWL			G.L.	4564.00 ft
Lat/Long: 40.306861/-104.371342			D.F.	4576.50 ft
Permanent Datum:	Ground Level	Elev.:		4564.00 f
Log Measured From:	Kelly Bushing	13.50 ft		above Perm.Datum
Drilling Measured From:	Kelly Bushing			

API Serial No.	Section:	Township:	Range:
05-123-41614	18	4N	62W

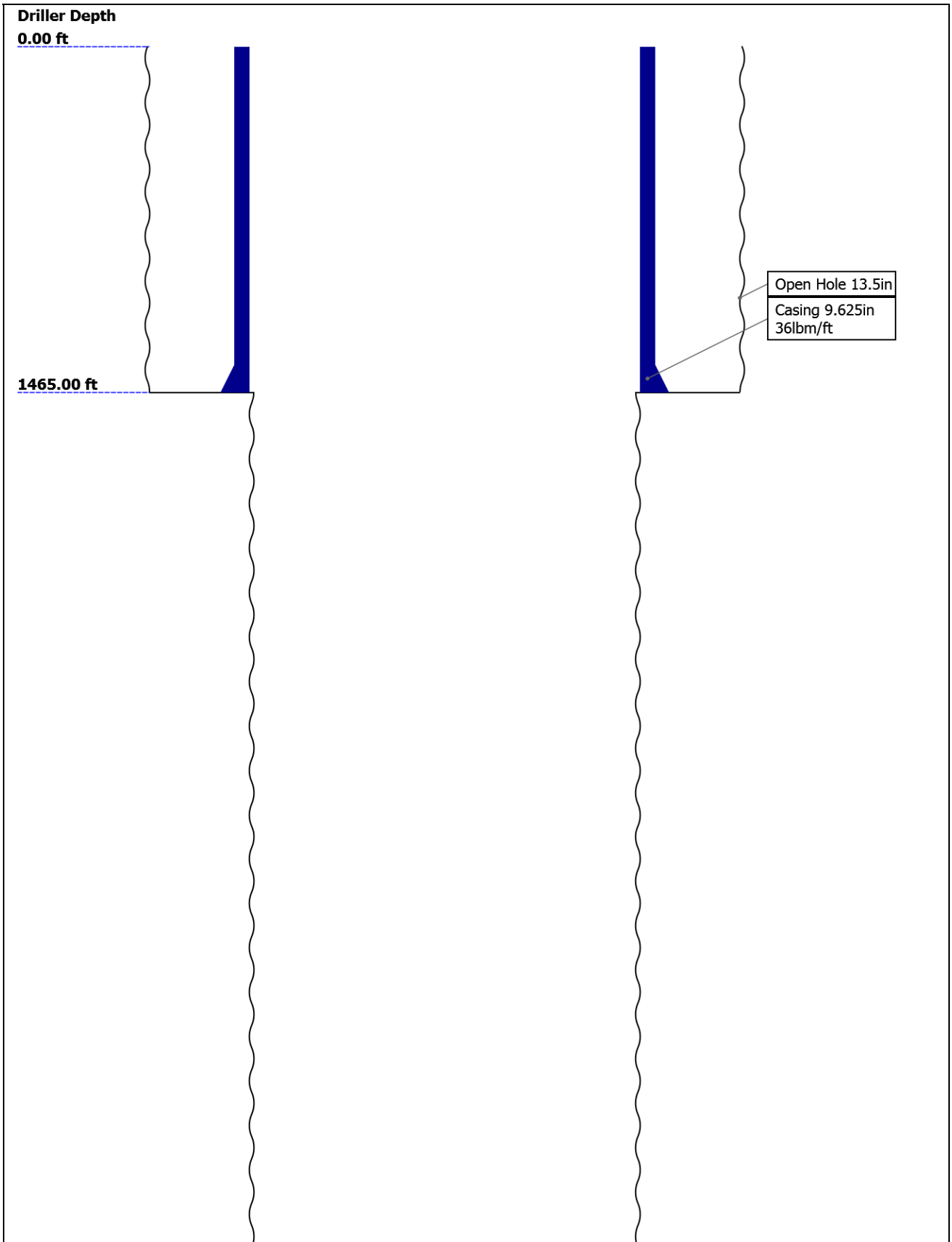
Logging Date			28-Sep-2016			
Run Number			One			
Depth Driller			6800.00 ft			
Schlumberger Depth			6800.00 ft			
Bottom Log Interval			6798.00 ft			
Top Log Interval			1459.00 ft			
Casing Driller Size @ Depth			9.625 in @ 1465.00 ft			
Casing Schlumberger			1465 ft			
Bit Size			8.75 in			
Type Fluid In Hole			Water			
MUD	Density	Viscosity	9.7 lbm/gal	33 s		
	Fluid Loss	PH	11.6 cm3	9.7		
	Source of Sample		Active Tank			
RM @ Meas Temp			2.24 ohm.m @ 75.3 degF			
RMF @ Meas Temp			2.11 ohm.m @ 75 degF			
RMC @ Meas Temp			2.52 ohm.m @ 75 degF			
Source RMF	RMC		Calculated	Calculated		
RM @ BHT	RMF @ BHT		0.83 @ 216	0.77 @ 216		
Max Recorded Temperatures			216 degF			
Circulation Stopped	Time		28-Sep-2016	04:30:00		
Logger on Bottom	Time		28-Sep-2016	16:30:00		
Unit Number	Location:		9115	Ft Morgan		
Recorded By			B Kesek			
Witnessed By			Tim Jayne			

Disclaimer

Contents

11. Tail

Well Sketch



Borehole Size/Casing/Tubing Record

Bit						
Bit Size (in)	13.5	8.75				
Top Driller (ft)	0	1465				
Top Logger (ft)	0	1465				
Bottom Driller (ft)	1465	6800				
Bottom Logger (ft)	1465	6800				
Casing						
Size (in)	9.625					
Weight (lbm/ft)	36					
Inner Diameter (in)	8.921					
Grade	N/A					
Top Driller (ft)	0					
Top Logger (ft)	0					
Bottom Driller (ft)	1465					
Bottom Logger (ft)	1465					

Remarks and Equipment Summary

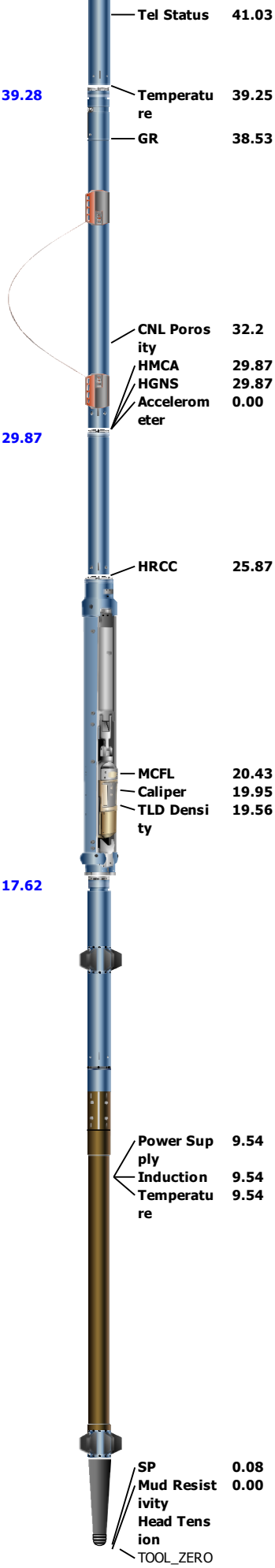
One: Toolstring

Equip name	Length
LEH-QT	**56.88**
LEH-QT	
DTC-H:8980	**53.97**
ECH-KC:10053	
DTC-H:8980	
HNGS-BA:166	**50.97**
HEH-K:177	
HNGS-BA:166	
HNGC-B:108	**42.78**
HNGH-A:46	
HNGC-B:108	

MP name	Offset
CTEM	**53.07**
HV	**0.00**
TelStatus	**50.97**
ToolStatus	**50.97**
GR	**47.98**

One: Remarks

This is the first run in the well.
Toolstring ran as per toolsketch.
Neutron corrections: Holesize, Standoff
Matrix: Limestone. MDen: 2.71g/cm3
Repeat pass performed below casing shoe due to adverse hole conditions at bottom.
Caliper closed at: 6490-6464ft 5500-5494ft Due to adverse hole conditions. Discussed with company man.
Hole finder at the bottom of AIT used succesfully to get passed a bridge.



HGNS-H:2987 39.28
HGNH:4736
NSR-F:5068
NPV-N
HGNS-H:2987
HACCZ-H:6991
HMCA-H

HDRS-H:4876 29.87
ECH-MEB:3828
HRCC-H:4817
HRMS-H:4876
HRGD-H:4899
GPV-Q
Backscatter
Long Spacing
GSR-J:5471
Short Spacing
:27786

AIT-M:1305 17.62
AMIS:1305
AMHF

Lengths are in ft
Maximum Outer Diameter = 9.000 in
Line: Sensor Location, Value: Gating Offset
All measurements are relative to TOOL_ZERO

Depth Summary

	One		
Depth Measuring Device			
Type	IDW-B		
Serial Number			
Calibration Date			
Calibrator Serial Number			
Calibration Cable Type	7-46axs		
Wheel Correction 1	0		
Wheel Correction 2	0		
Tension Device			
Type	CMTD-B/A		
Serial Number	146		
Calibration Date	26-Sep-2016		
Calibrator Serial Number			
Number of Calibration Points	10		
Calibration Root Mean Square Error	4		
Calibration Peak Error	7		
Logging Cable			
Type	7-46NT-XS		
Serial Number			
Length	24000.00 ft		
Conveyance Type	Wireline		
Rig Type			

One:Depth Control Parameters		Depth Control Remarks
Log Sequence	First Log In the Well	All Schlumberger depth procedures followed.
Rig Up Length At Surface		IDW used as primary depth control device.
Rig Up Length At Bottom		Z-chart used as secondary depth control device.
Rig Up Length Correction		
Stretch Correction		
Tool Zero Check At Surface		

One

5" Induction

Integration Summary

Output Channel(s)	Output Description	Input Parameter	Output Value	Unit
ICV	Integrated Cement Volume	GCSE_UP_PASS, FCD	785.7	ft3
IHV	Integrated Hole Volume	GCSE_UP_PASS	2208.19	ft3

Software Version

Acquisition System	Version
Maxwell 2016 SP2	6.2.68624.3100

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
One	Log[4]:Up	Up	1287.81 ft	6810.88 ft	28-Sep-2016	28-Sep-2016	ON	4.00 ft	Yes

One	Log[4]:Up	Up	1387.81 ft	6810.88 ft	28-Sep-2016 5:33:25 PM	28-Sep-2016 9:39:06 PM	ON	4.00 ft	Yes

All depths are referenced to toolstring zero

Log

Company:Bonanza Creek Well:State Seventy Holes J-18

One: Log[4]:Up:S003

Description: AIT Basic Log Two Format: Log (KM 5in Induction) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 28-Sep-2016 22:53:19

Channel	Source	Sampling
AT10	AIT-M:AMIS:AMIS	3in
AT20	AIT-M:AMIS:AMIS	3in
AT30	AIT-M:AMIS:AMIS	3in
AT60	AIT-M:AMIS:AMIS	3in
AT90	AIT-M:AMIS:AMIS	3in
CALI	HDRS-H:HRCC-H:HRCC-H	1in
GR	HGNS-H:HGNS-H:HGNS-H	6in
ICV	Borehole	6in - RT
IHV	Borehole	6in - RT
SP	AIT-M:AMIS:AMIS	6in
TENS	WLWorkflow	6in
TIME_1900	WLWorkflow	0.1in

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)

TIME_1900 - Time Marked every 60.00 (s)

Cable Tension (TENS)

10000 lbf 0

Array Induction Two Foot Resistivity A10 (AT10) AIT-M

0.2 ohm.m 2000

Array Induction Two Foot Resistivity A20 (AT20) AIT-M

0.2 ohm.m 2000

Array Induction Two Foot Resistivity A30 (AT30) AIT-M

0.2 ohm.m 2000

Array Induction Two Foot Resistivity A60 (AT60) AIT-M

0.2 ohm.m 2000

Array Induction Two Foot Resistivity A90 (AT90) AIT-M

0.2 ohm.m 2000

Gamma Ray Backup

Spontaneous Potential (SP) AIT-M

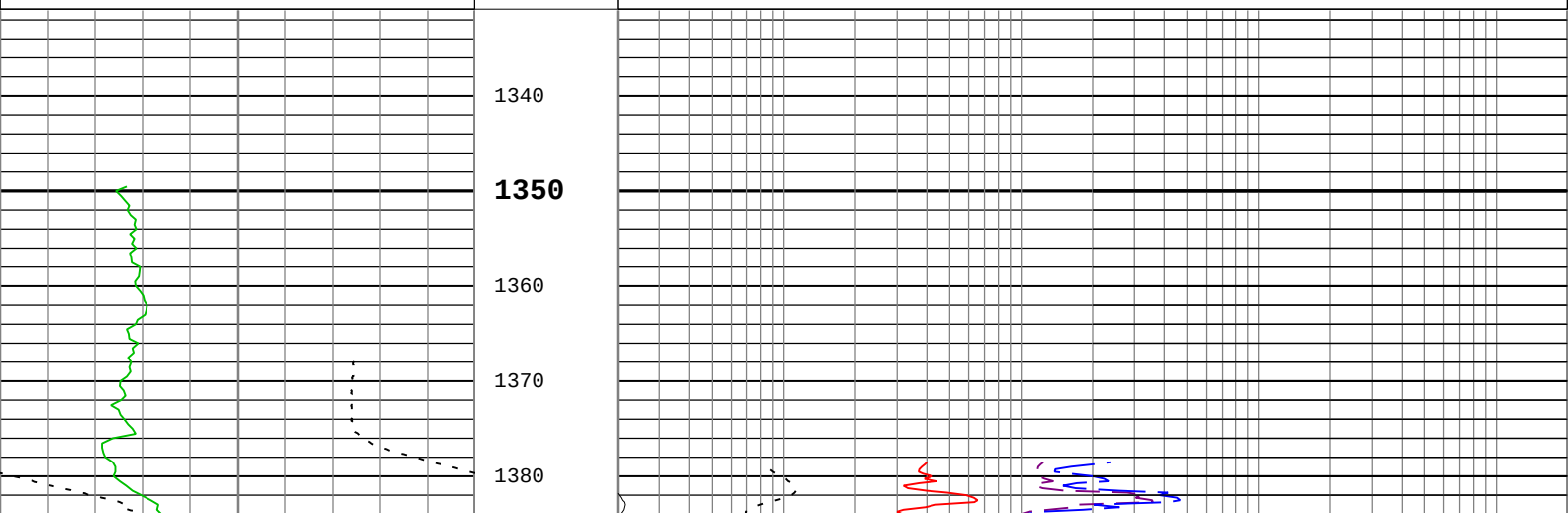
-160 mV 40

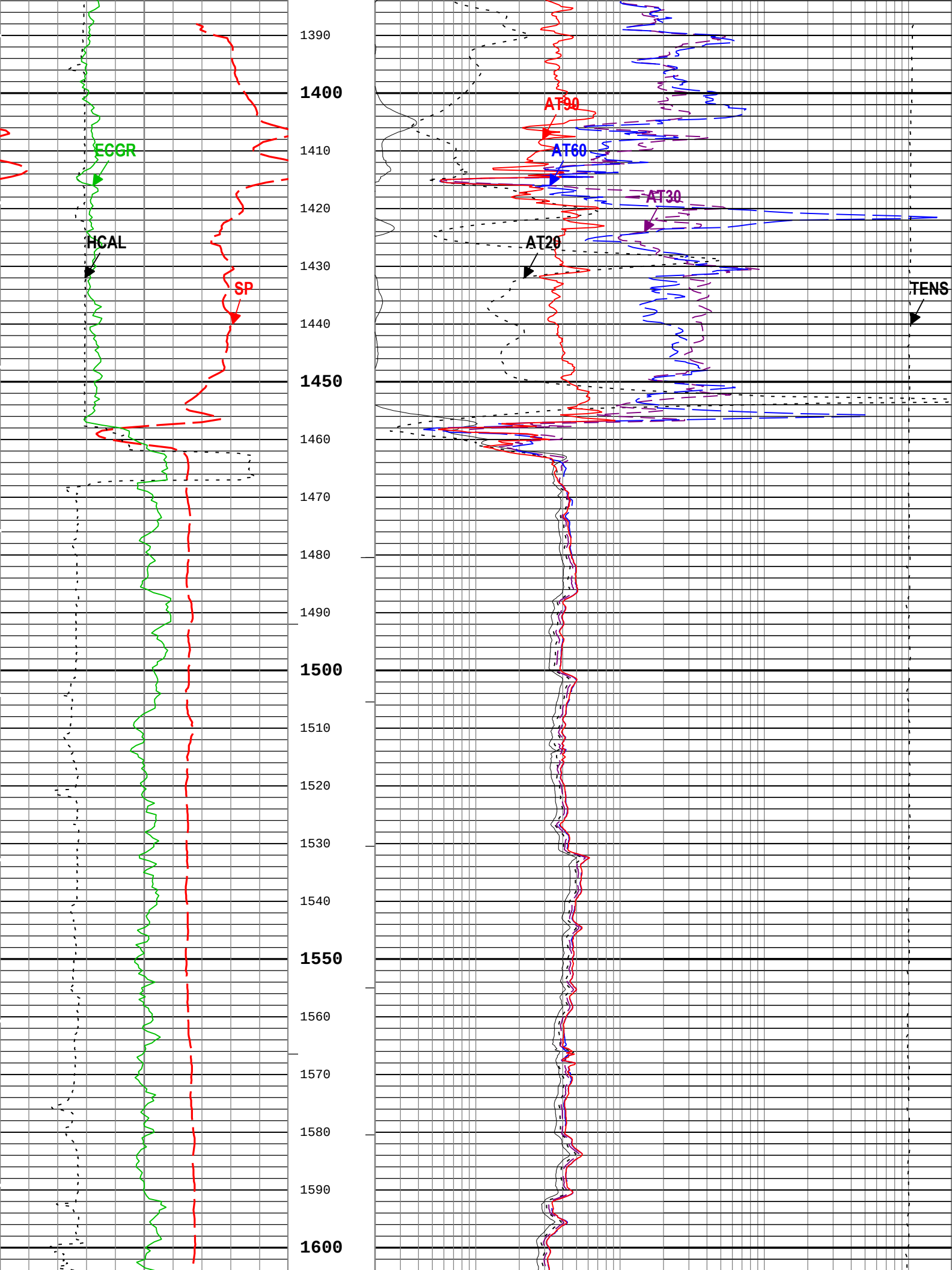
Caliper (HCAL) HDRS-H

6 in 16

Gamma Ray (ECGR) HGNS-H

0 gAPI 200

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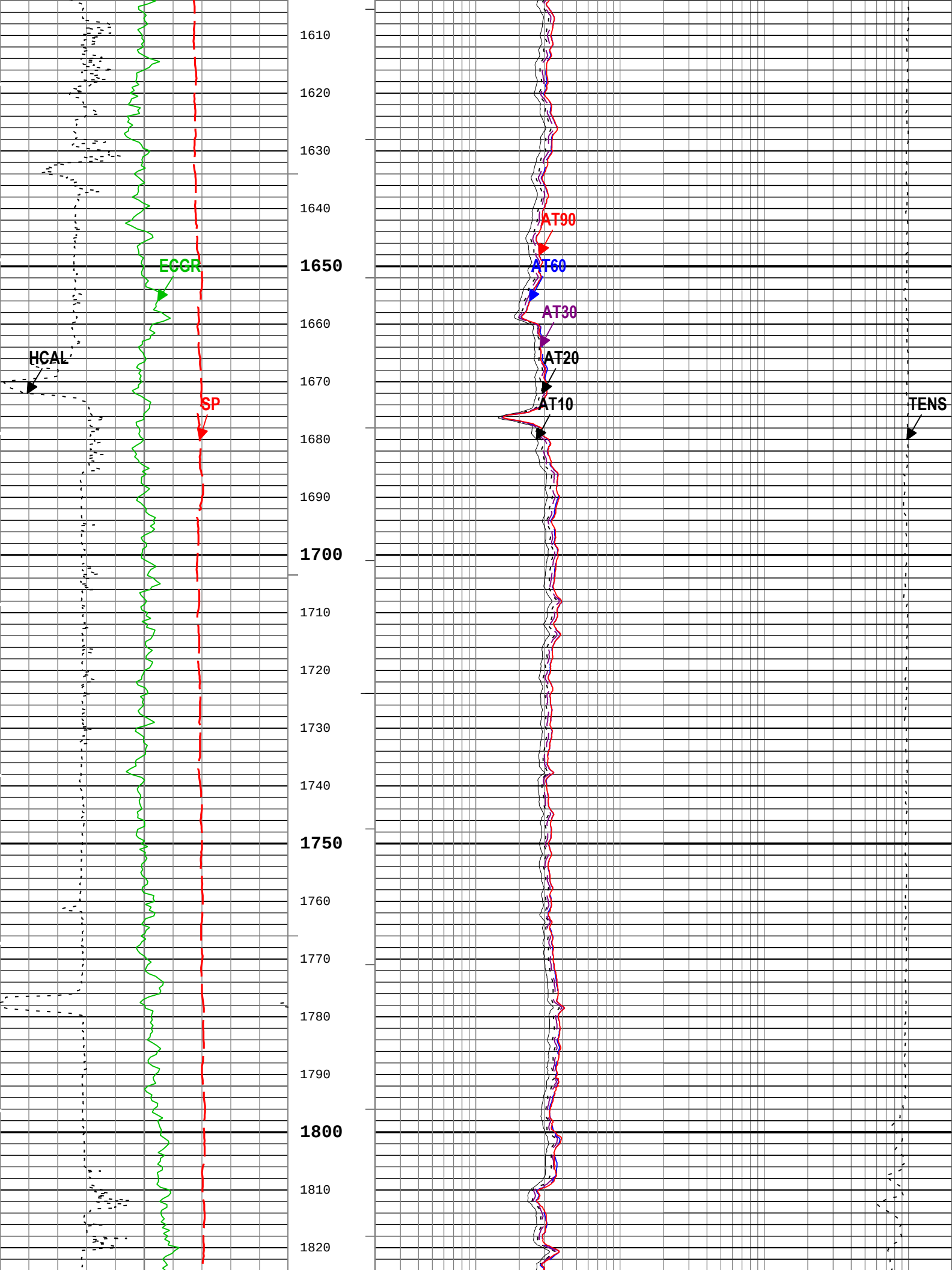
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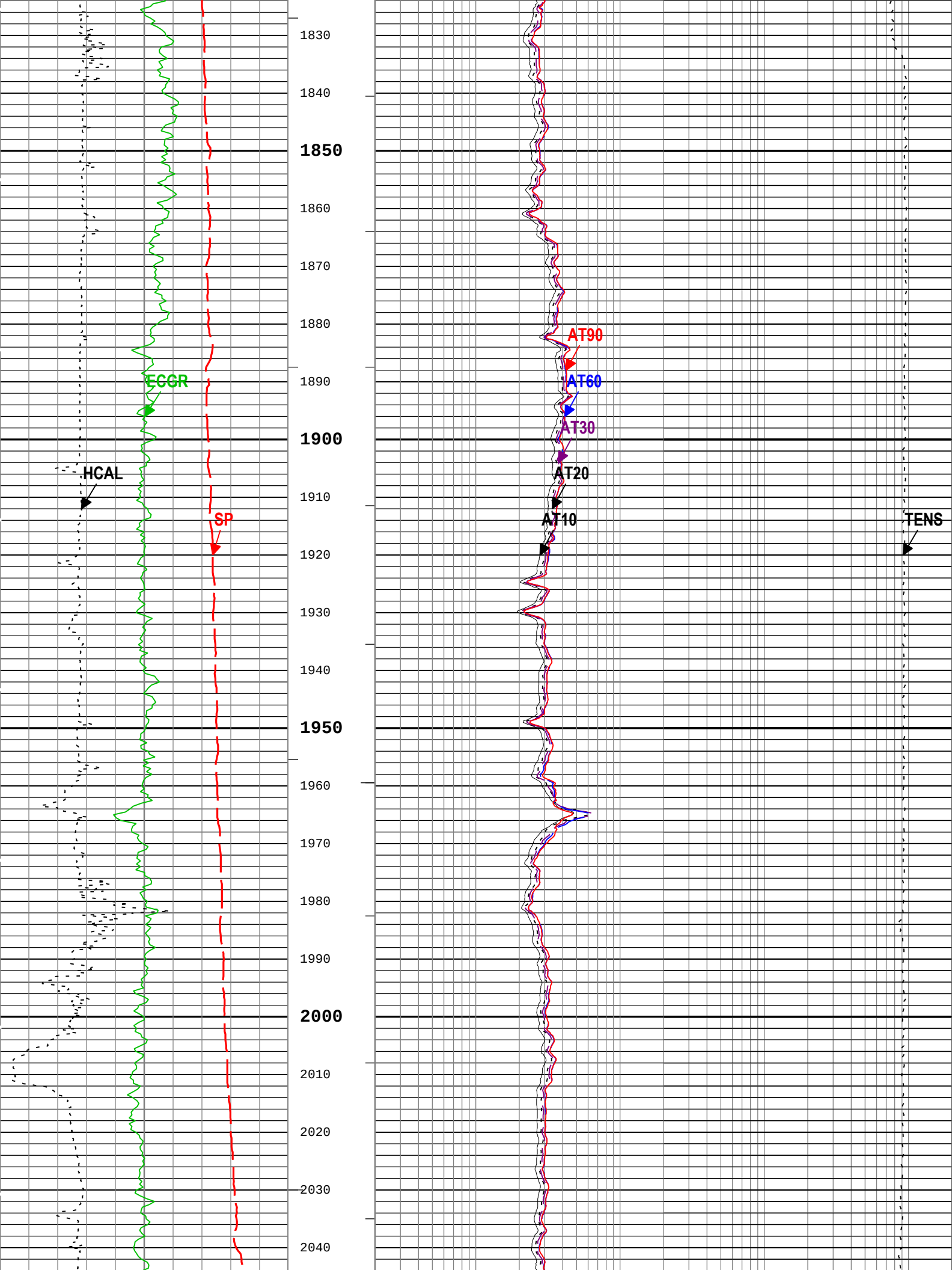
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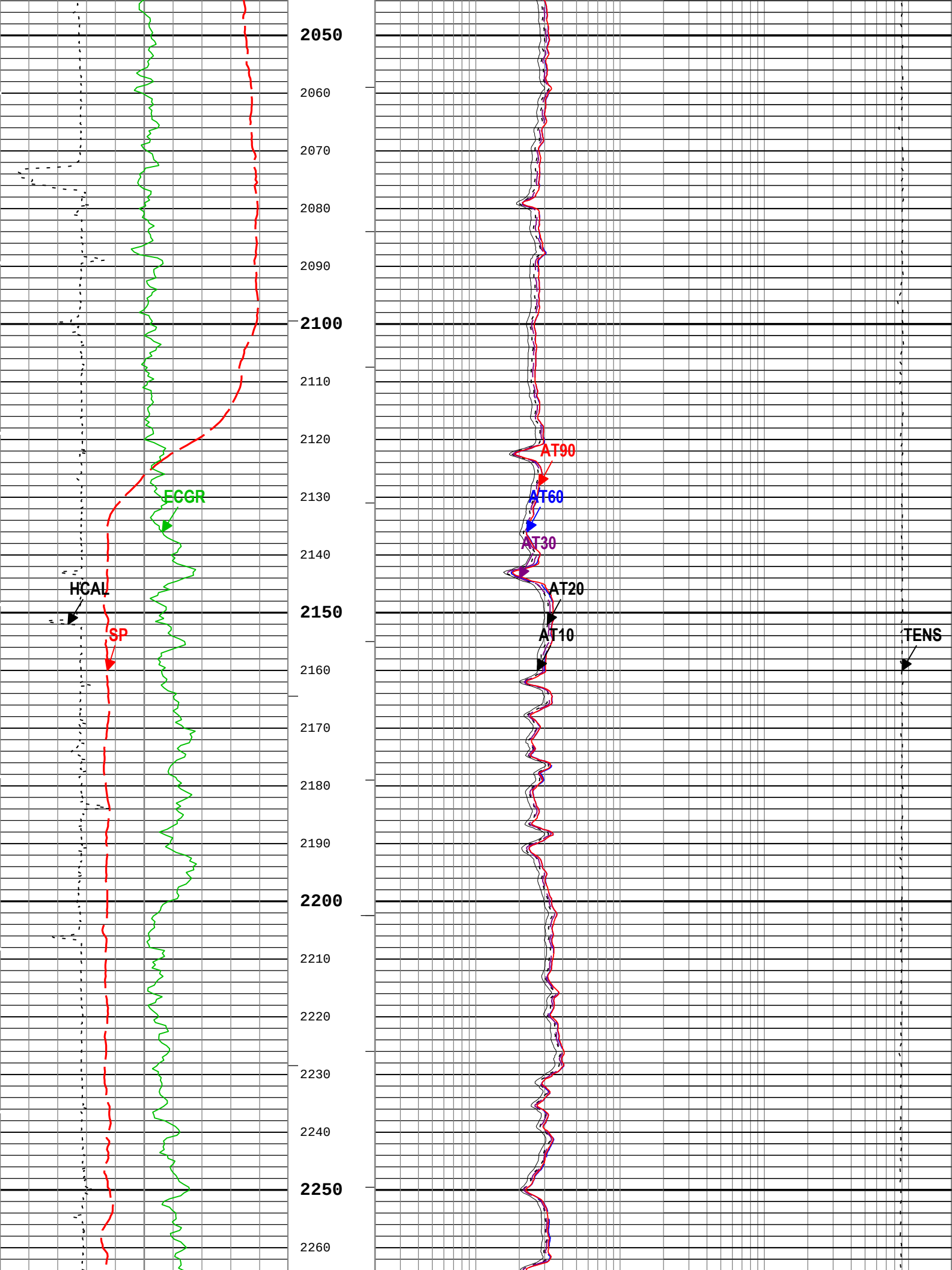
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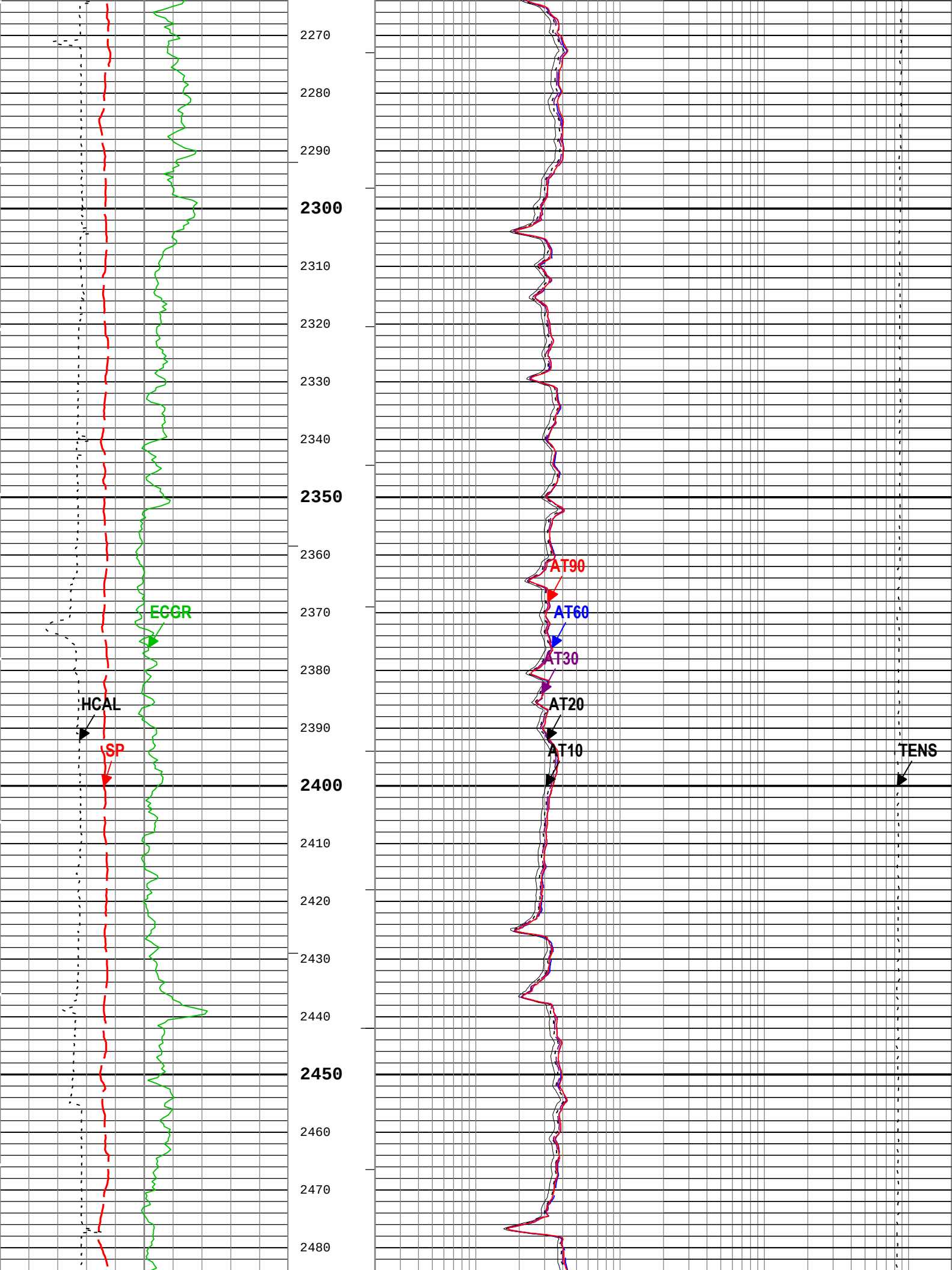
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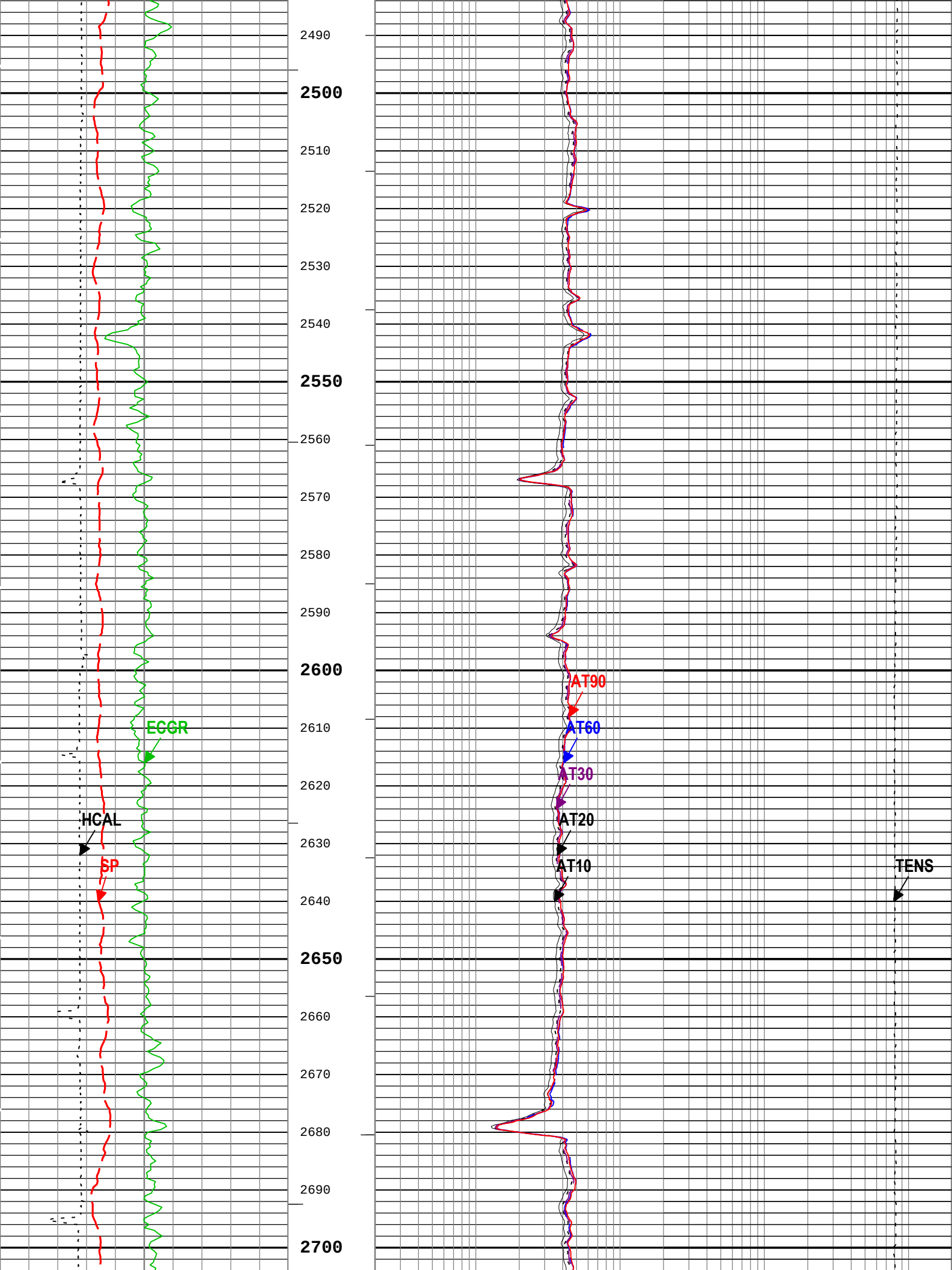
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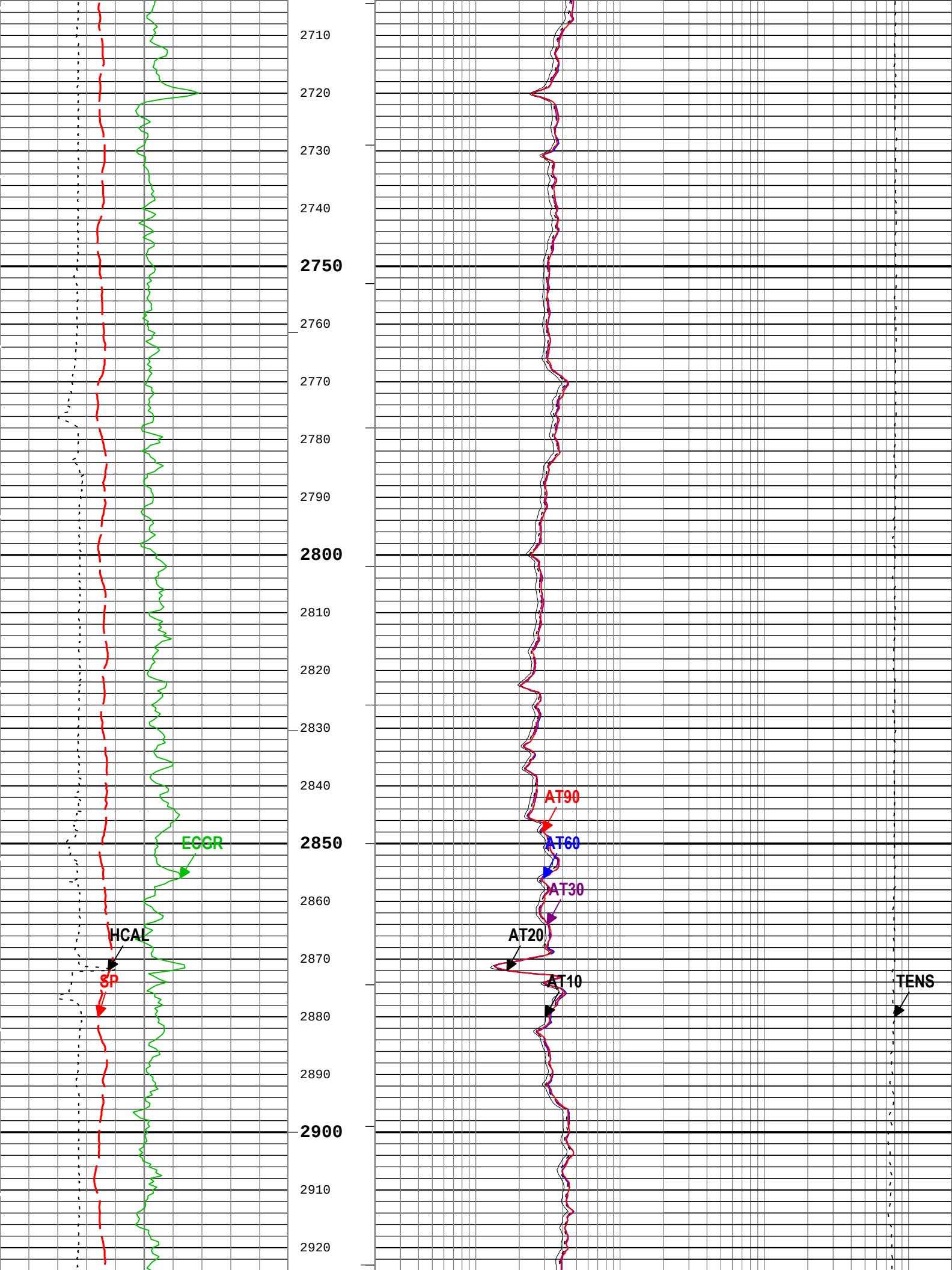
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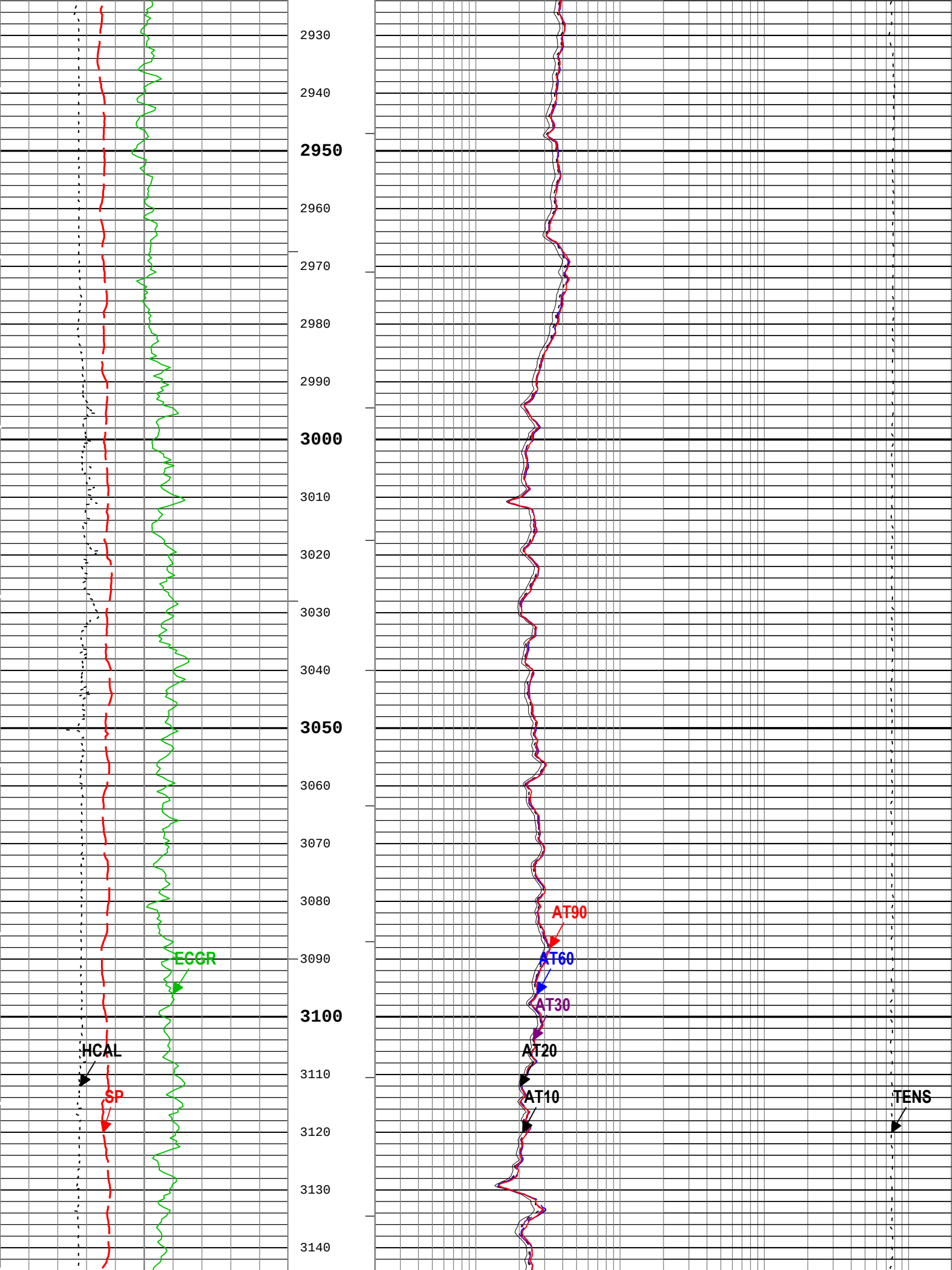
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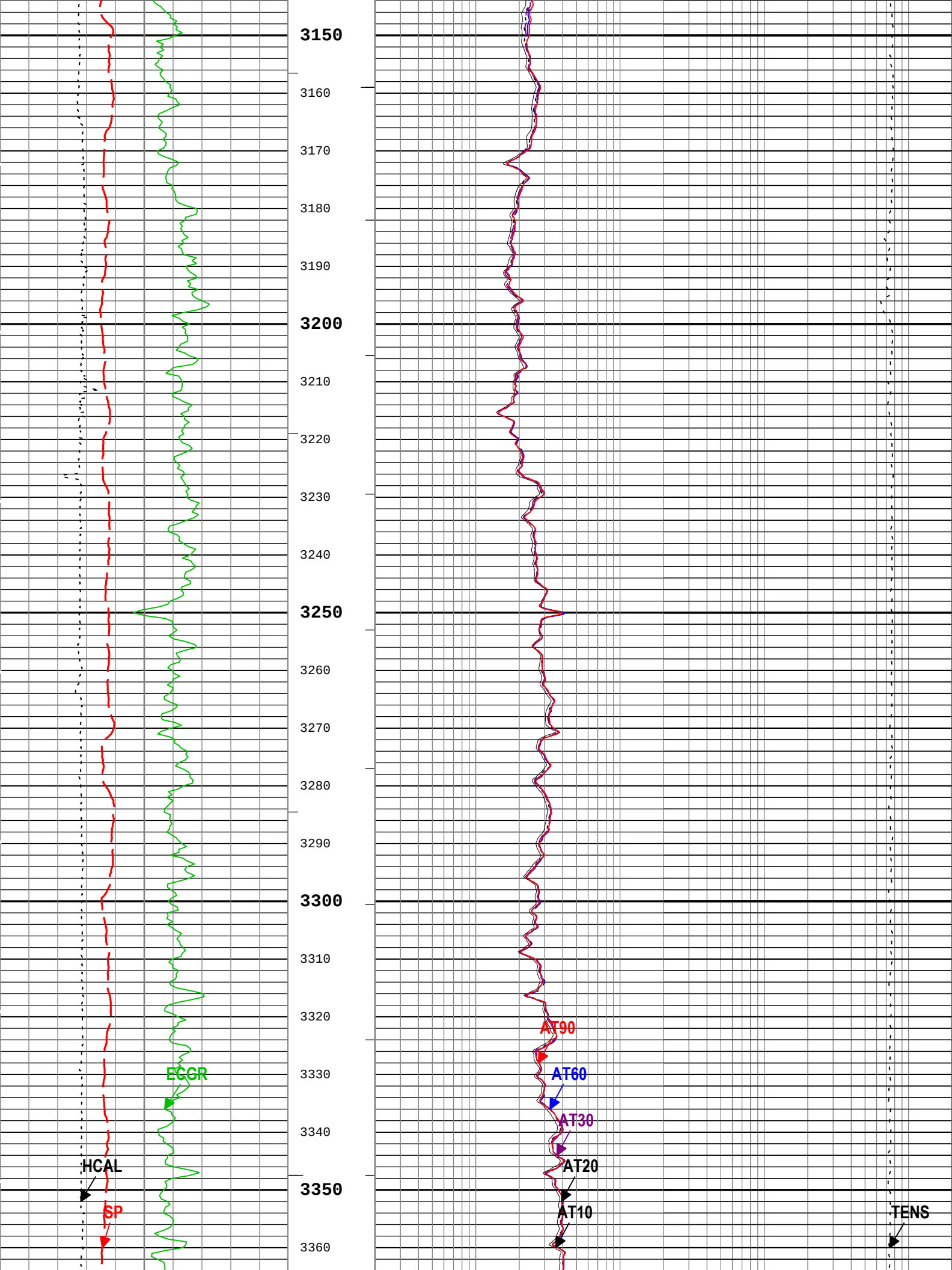
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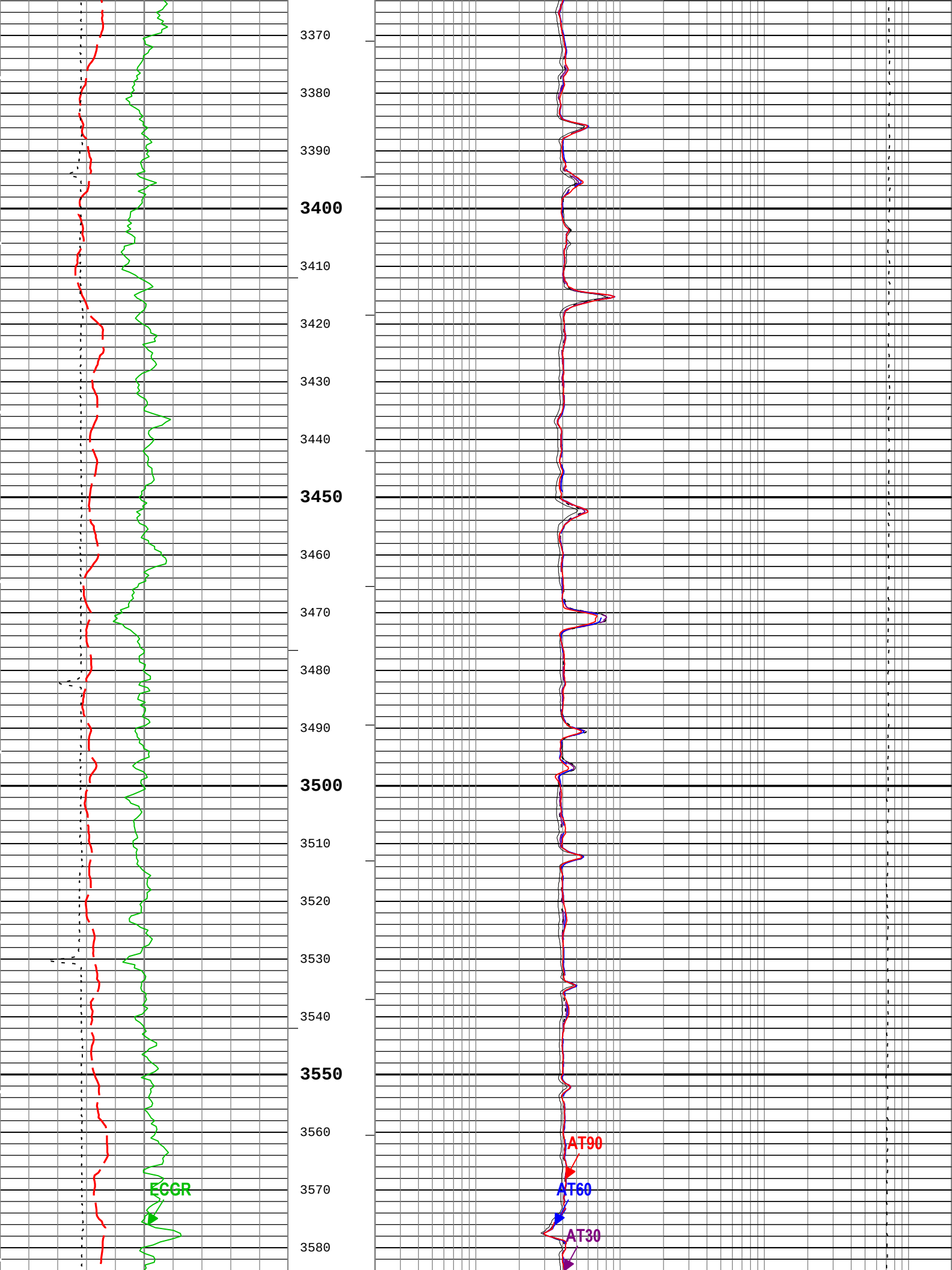
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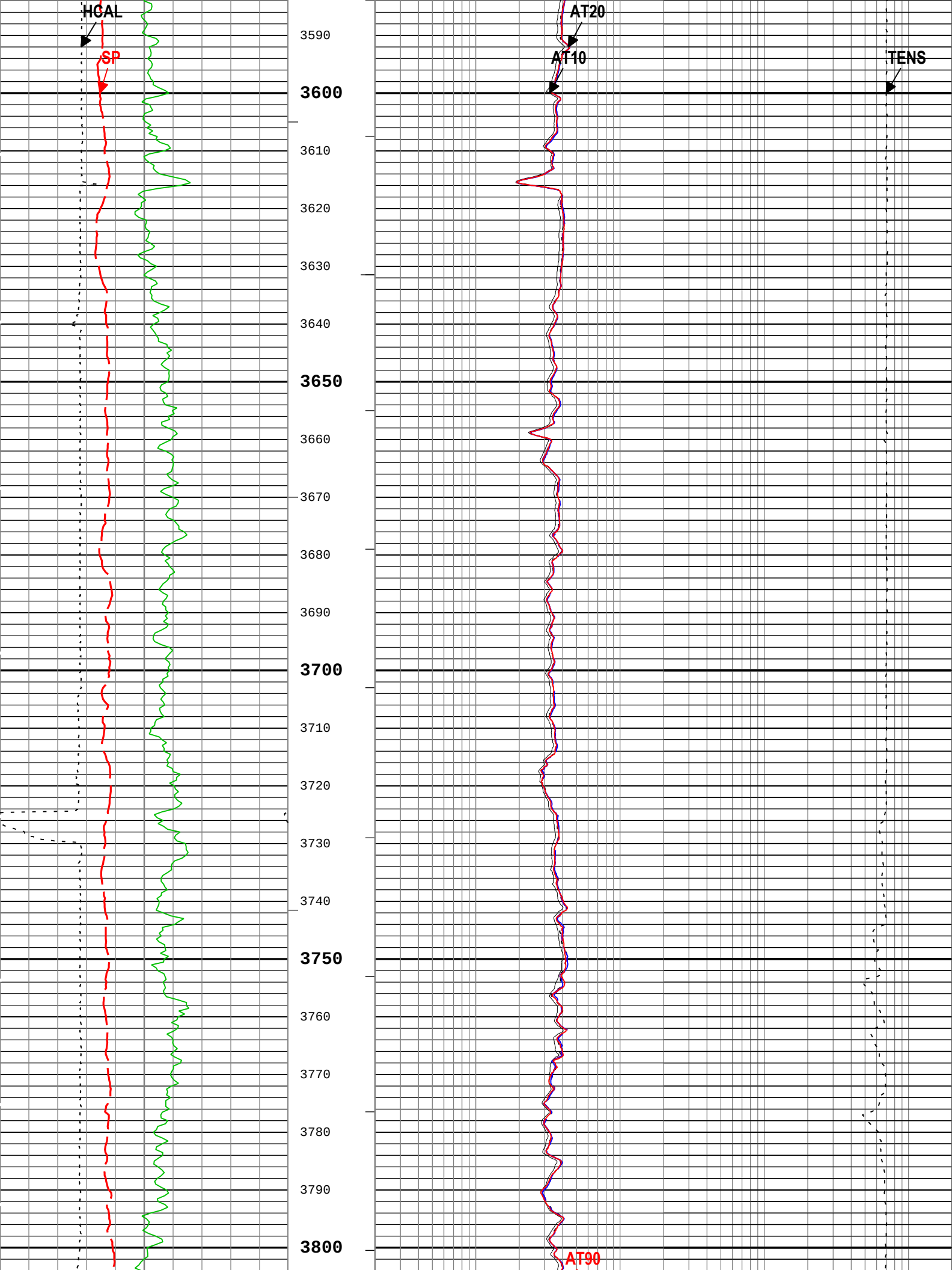
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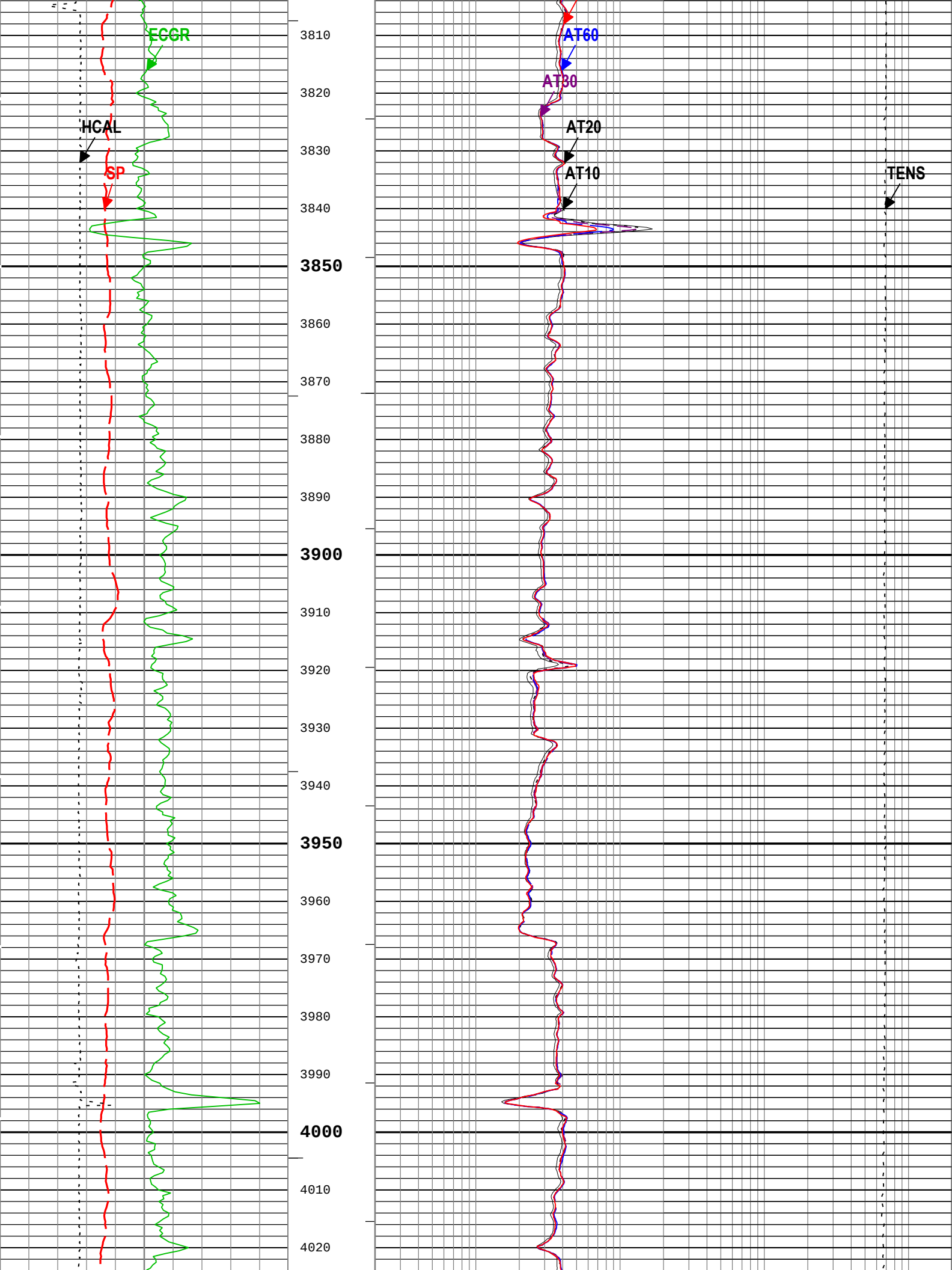
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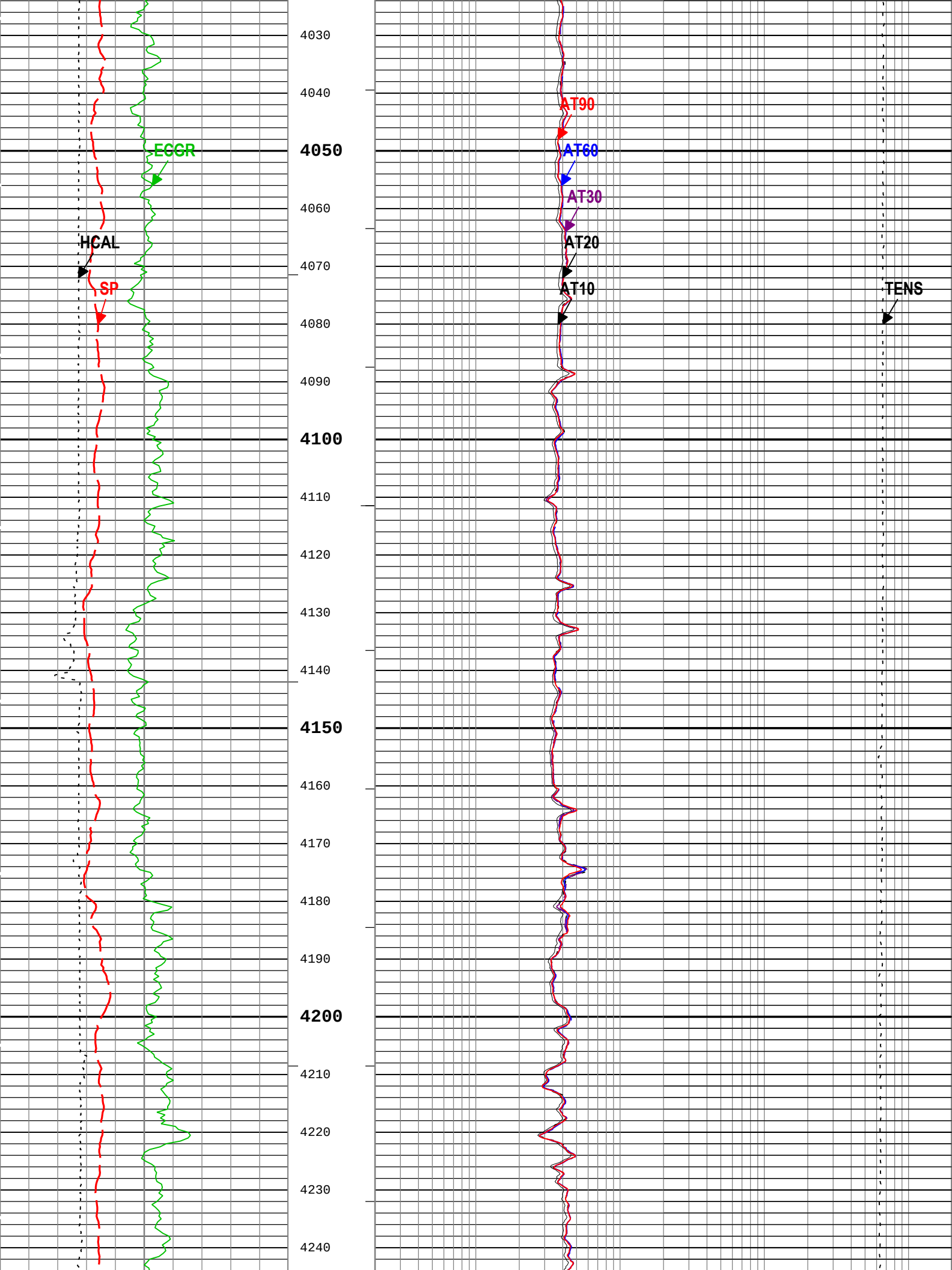
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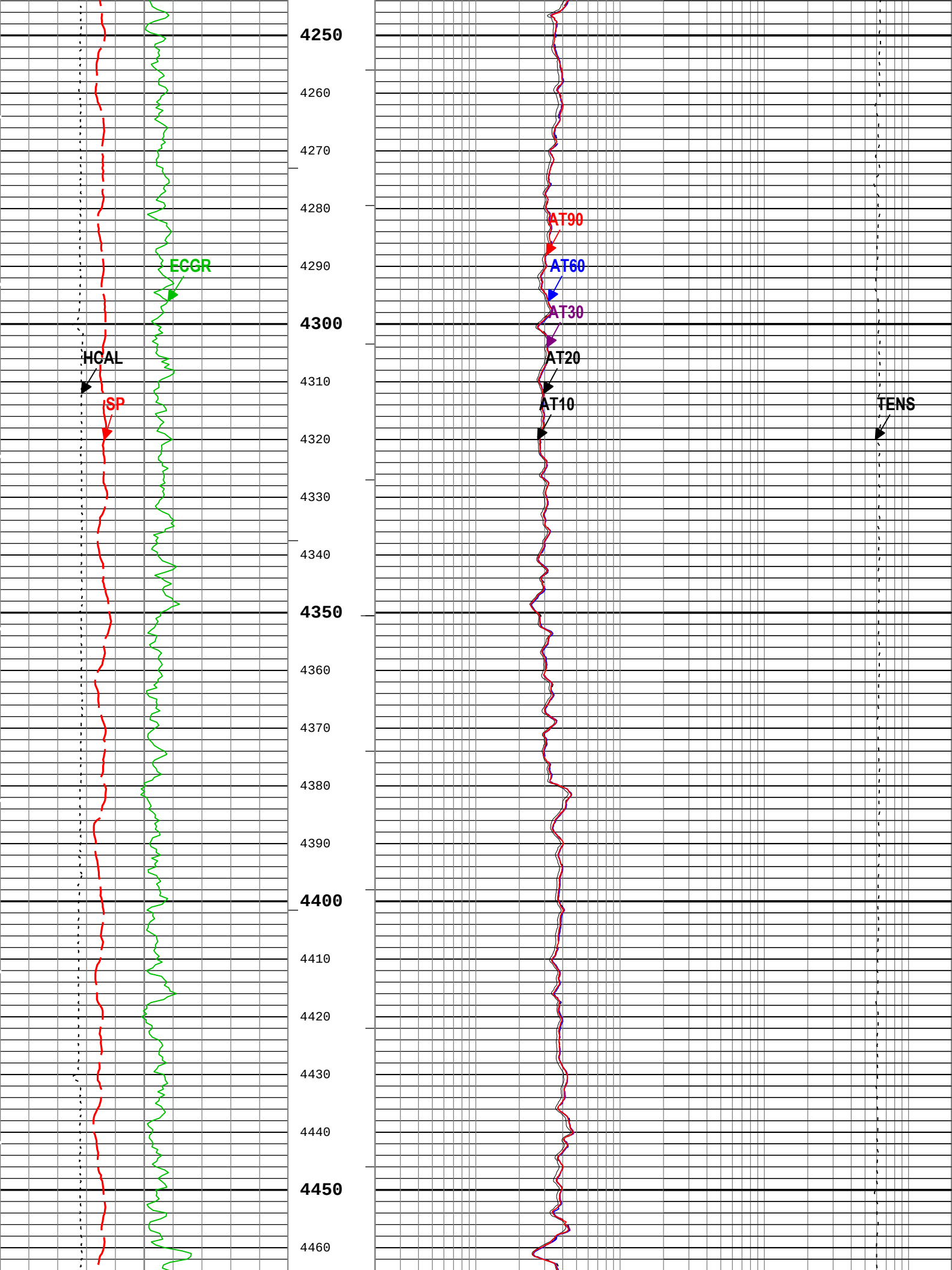
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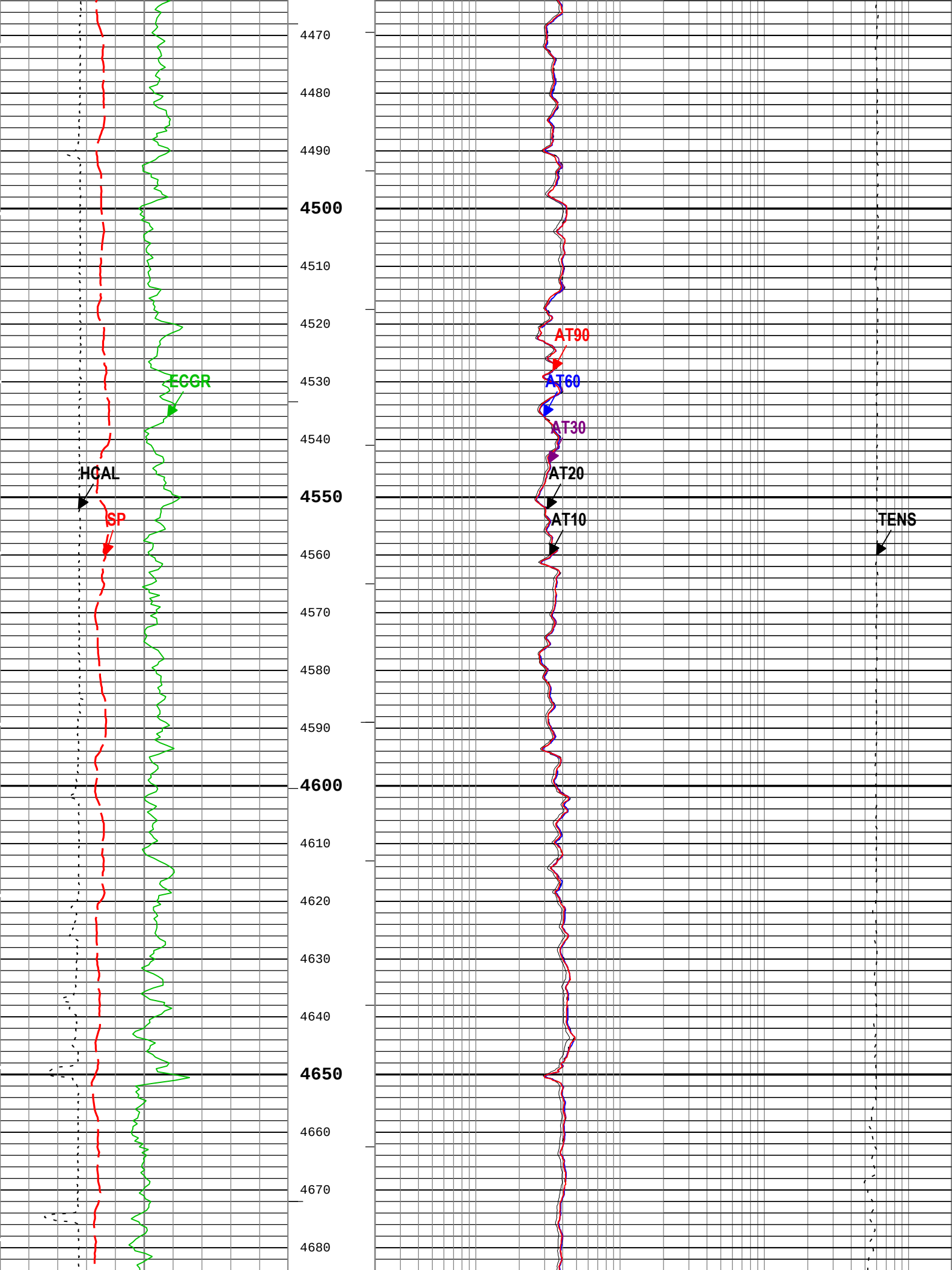
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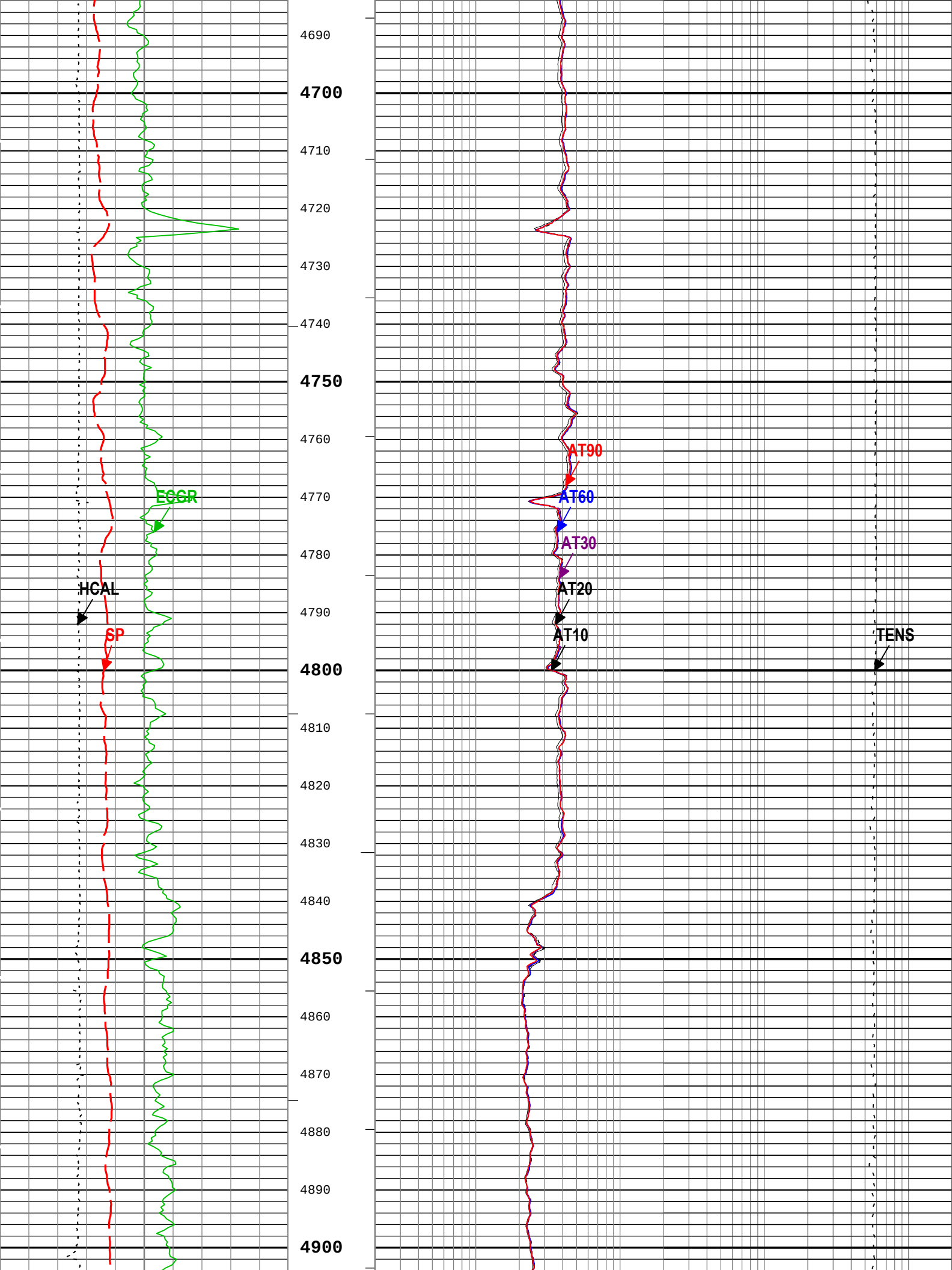
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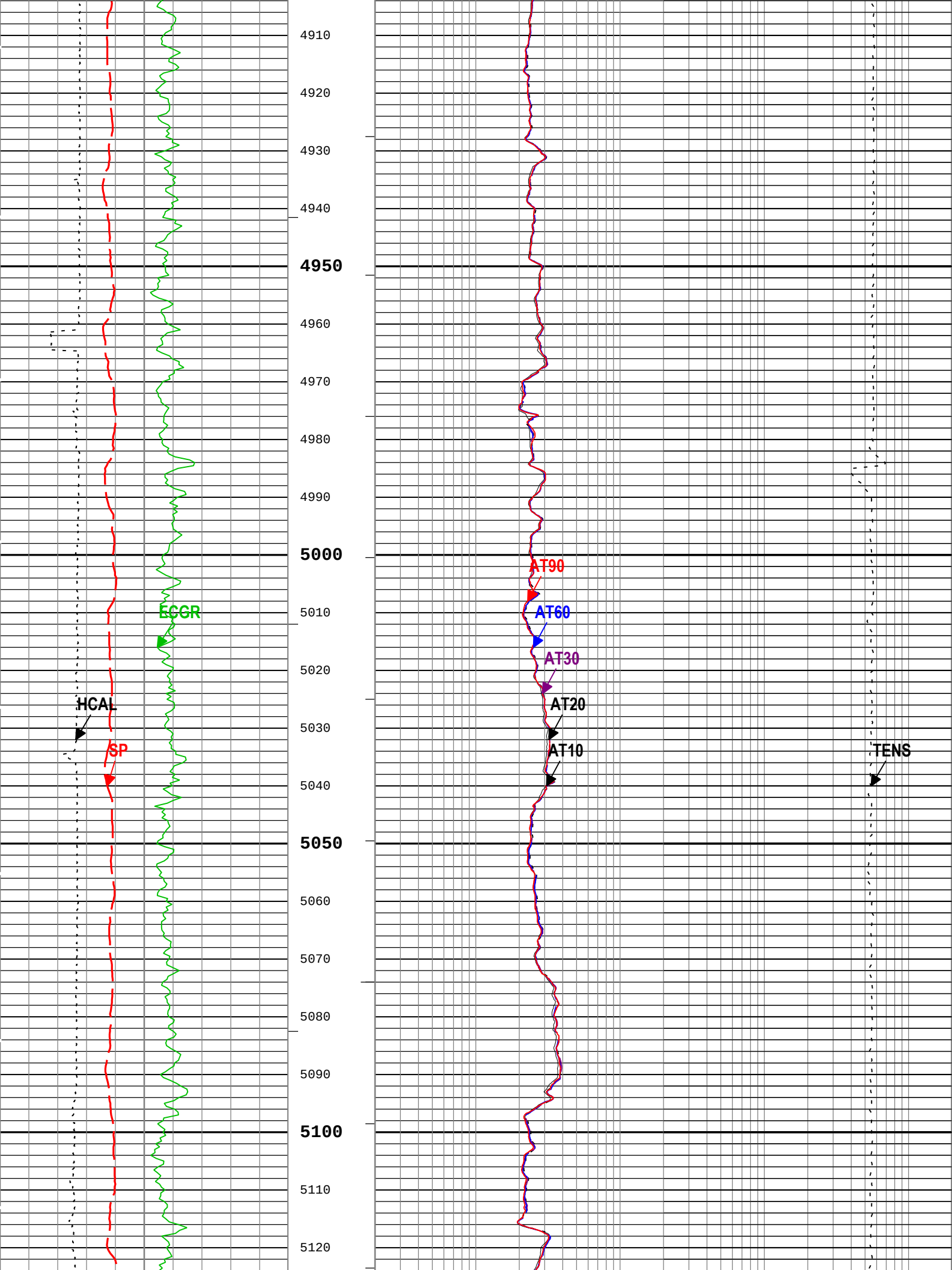
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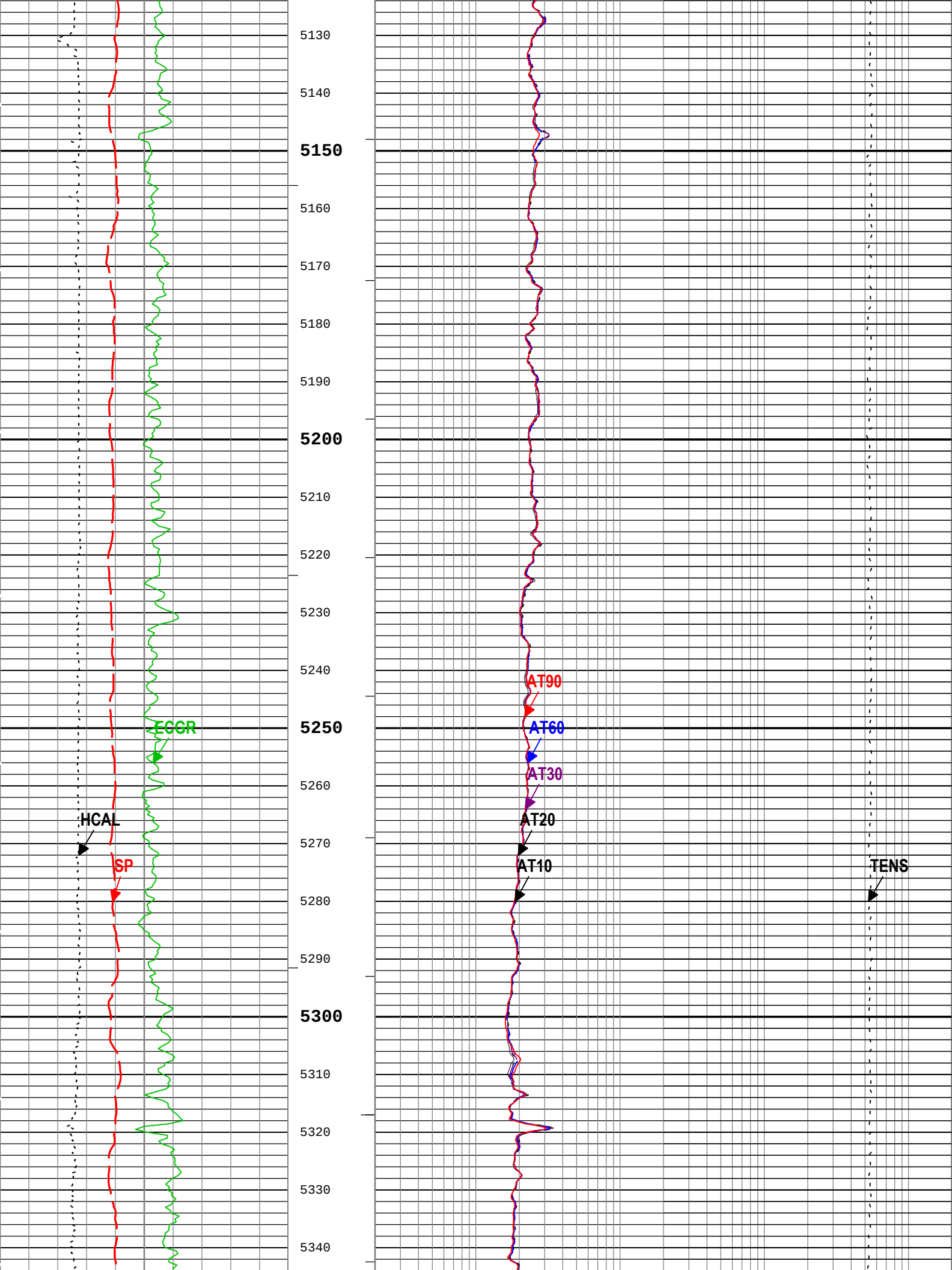
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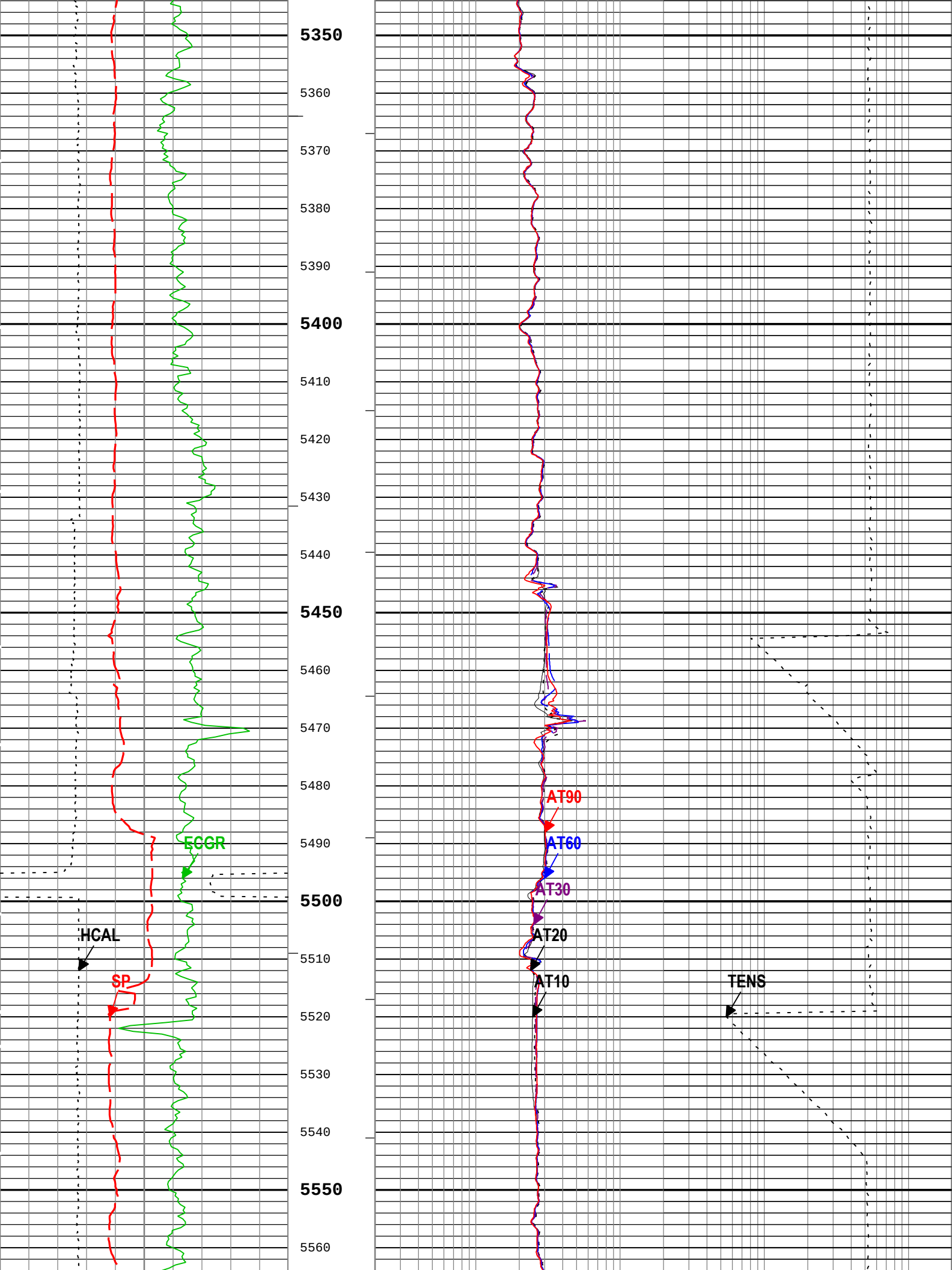
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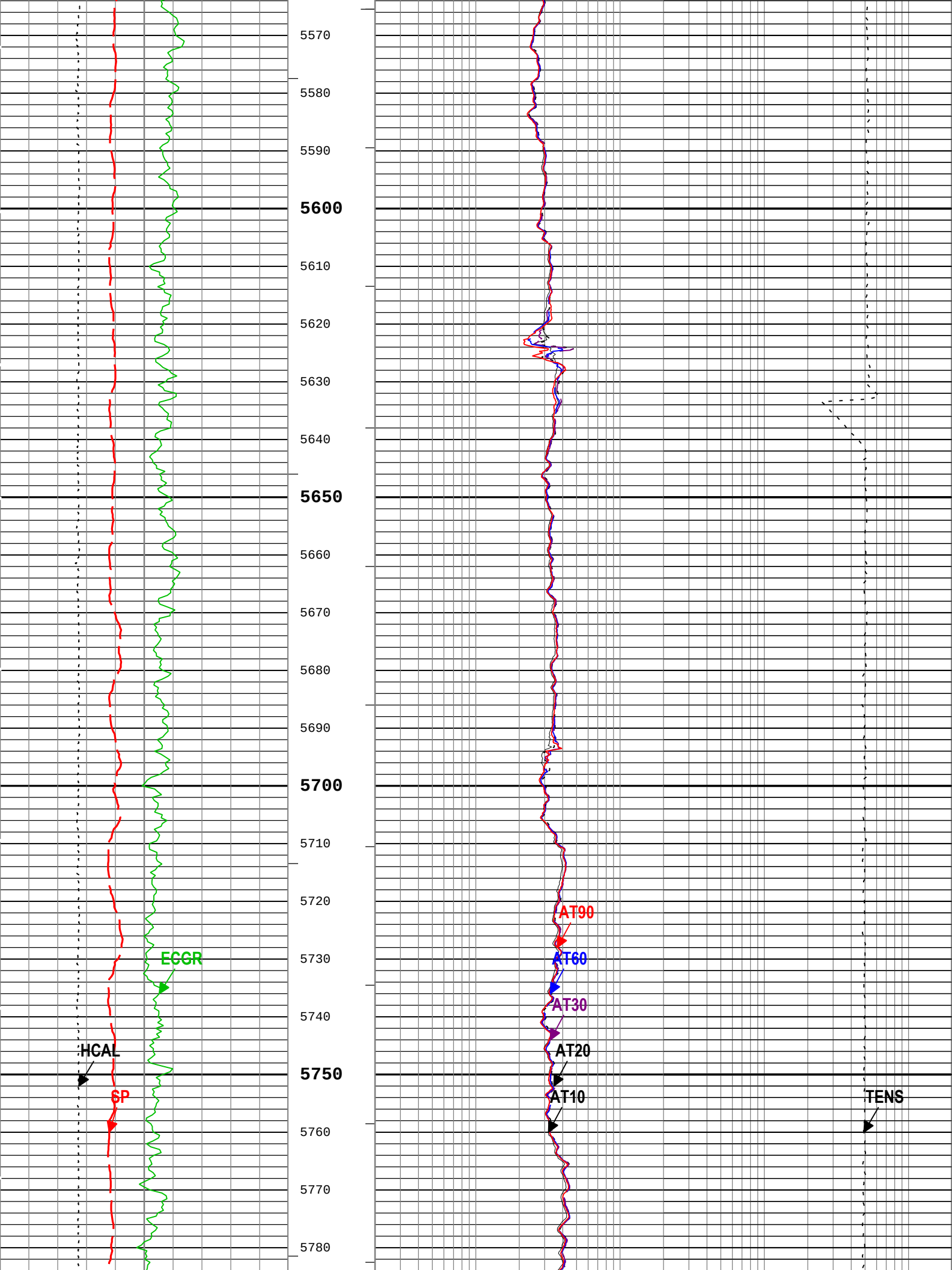
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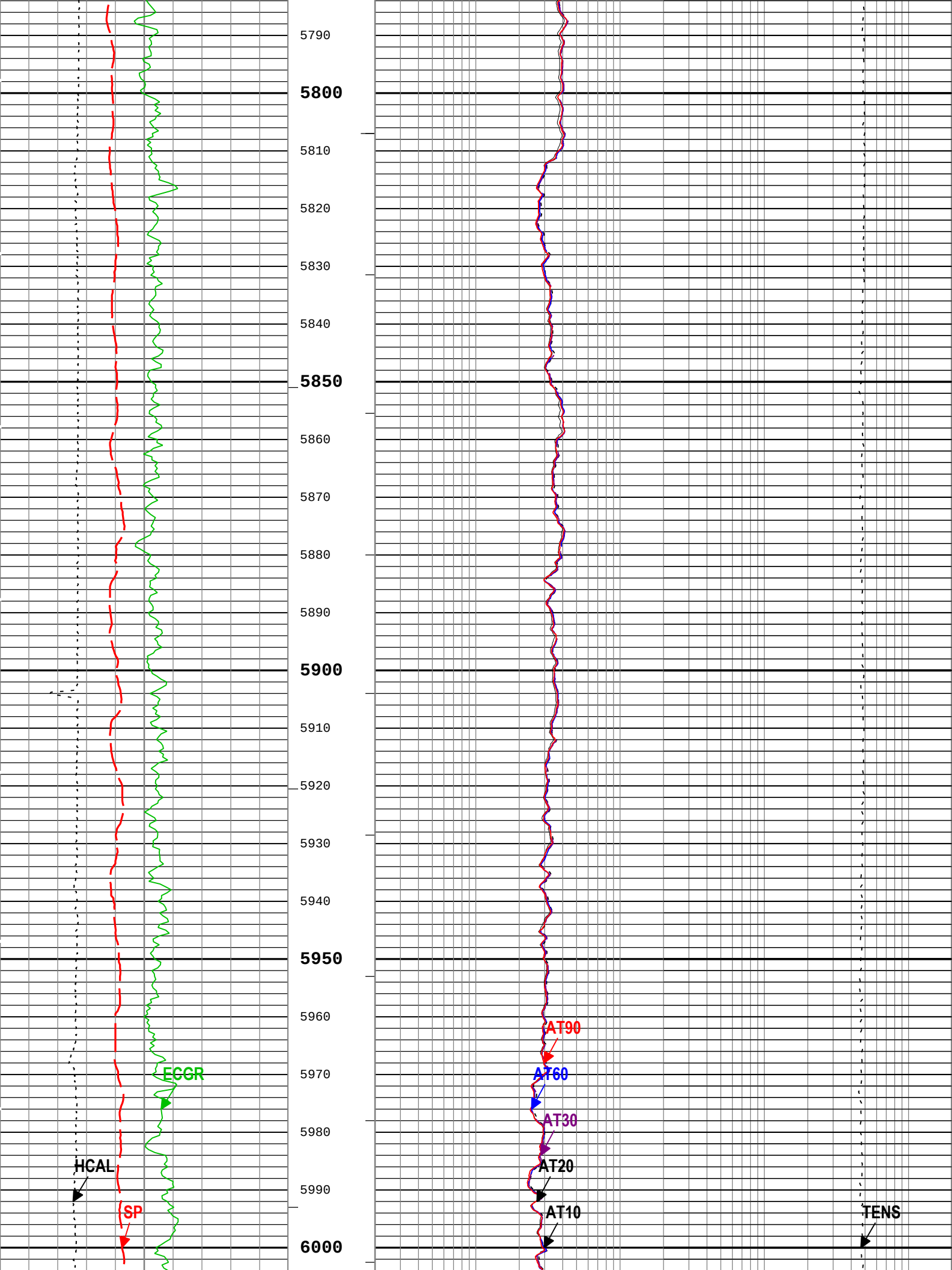
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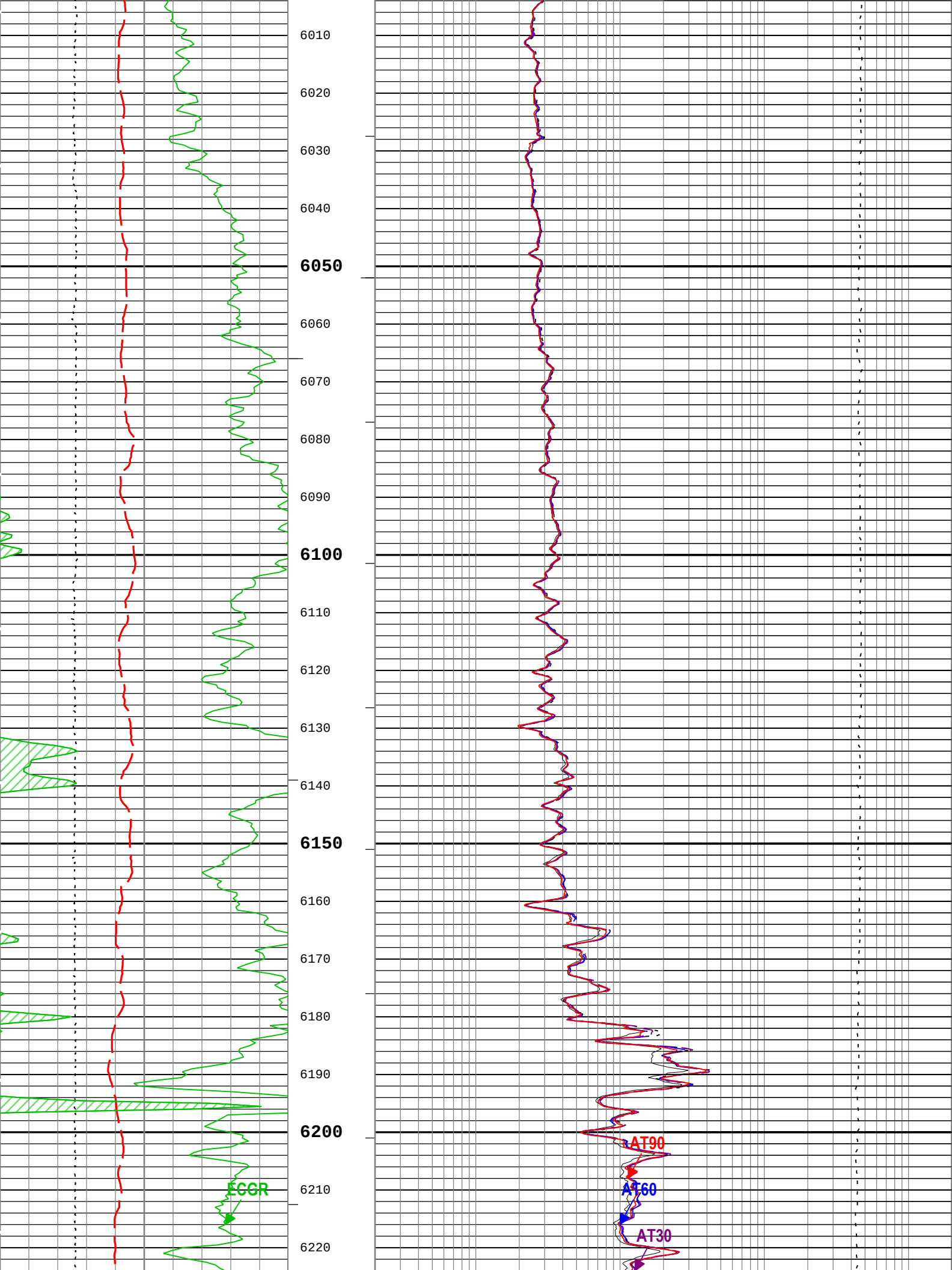
TENS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6200
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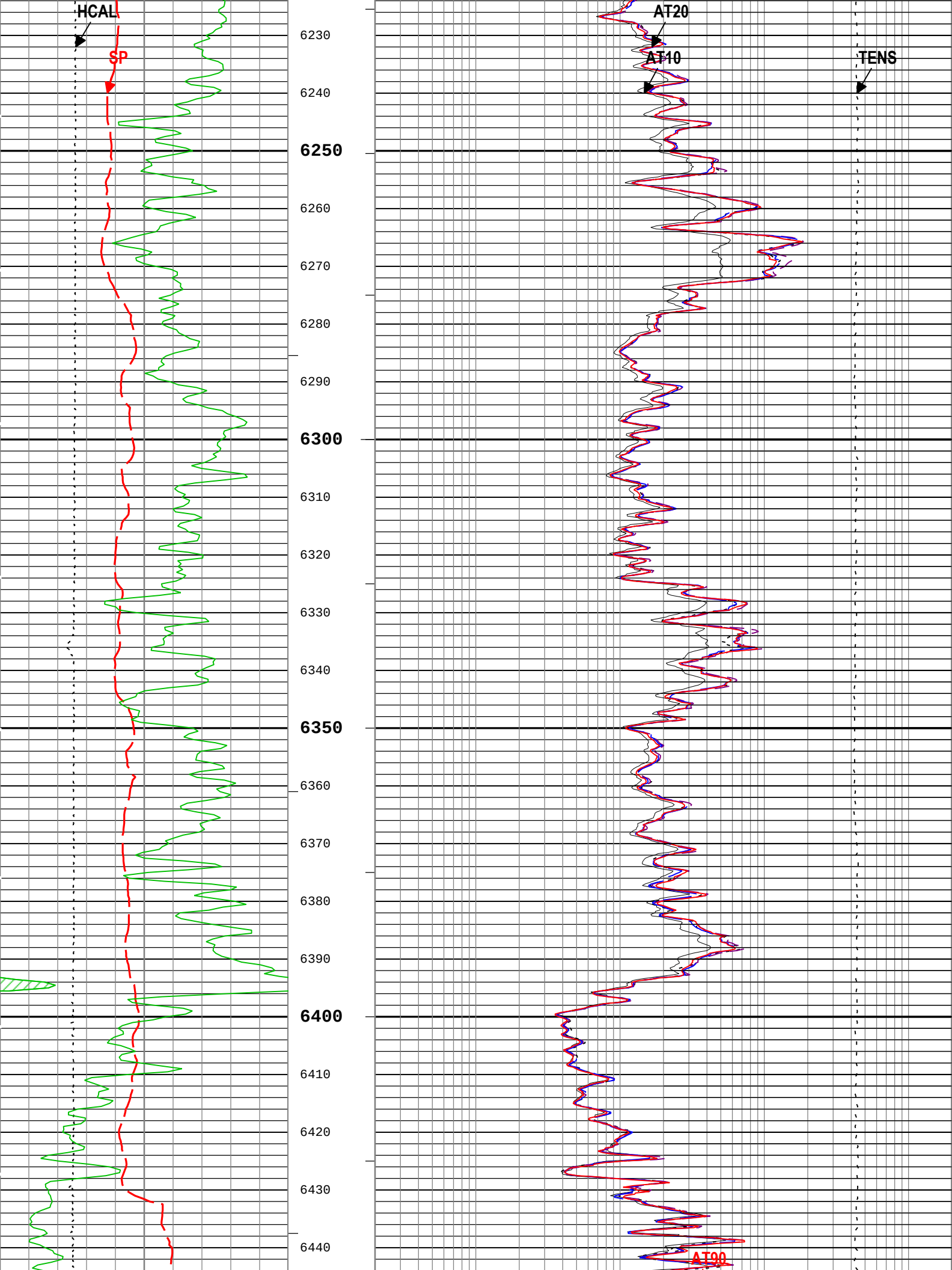
6220
ECGR
AT90
AT60
AT30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SP
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TENS
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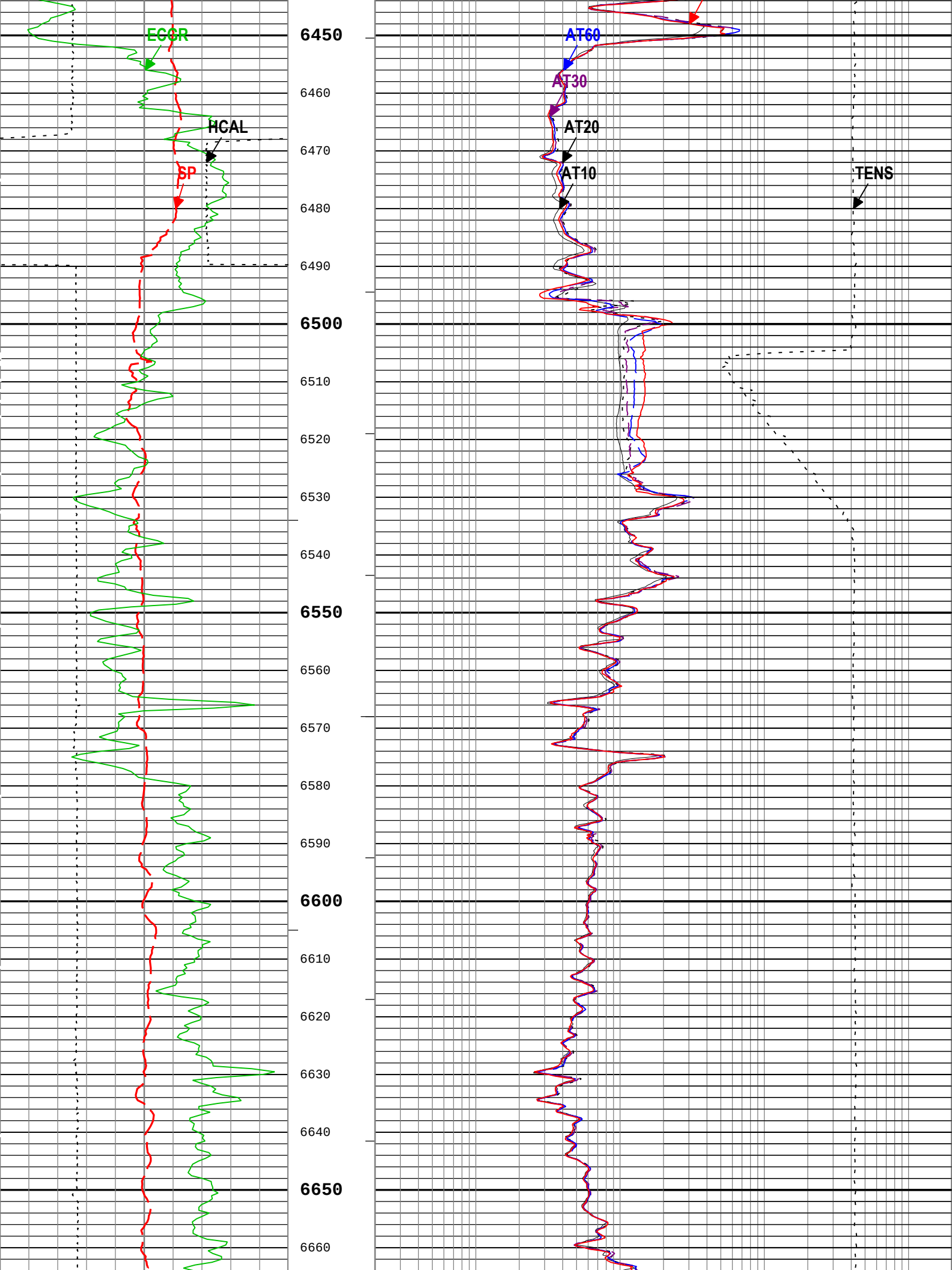
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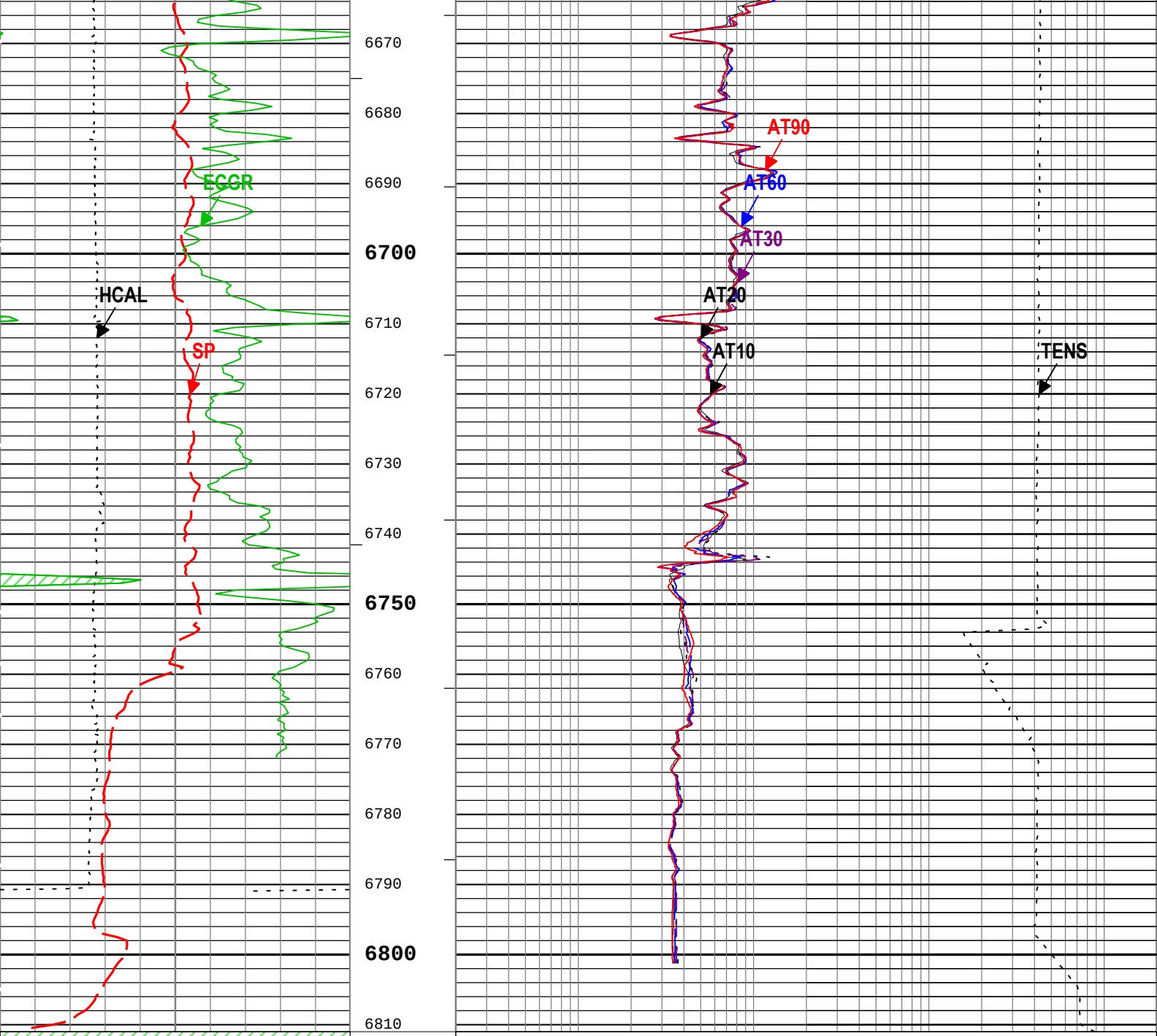


Gamma Ray Backup

Spontaneous Potential (SP) AIT-M

-160 mV 40

Caliper (HCAL) HDRS-H

6 in 16

Gamma Ray (ECGR) HGNS-H

0 gAPI 200

Array Induction Two Foot Resistivity A10 (AT10) AIT-M

0.2 ohm.m 2000

Array Induction Two Foot Resistivity A20 (AT20) AIT-M

0.2 ohm.m 2000

Array Induction Two Foot Resistivity A30 (AT30) AIT-M

0.2 ohm.m 2000

Array Induction Two Foot Resistivity A60 (AT60) AIT-M

0.2 ohm.m 2000

Array Induction Two Foot Resistivity A90 (AT90) AIT-M

0.2 ohm.m 2000

Cable Tension (TENS)

10000 lbf 0

TIME_1900 - Time Marked every 60.00 (s)

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)

Description: AIT Basic Log Two Format: Log (KM 5in Induction) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 28-Sep-2016 22:53:19

Channel Processing Parameters

One: Parameters

Parameter	Description	Tool	Value	Unit
ABHM	Array Induction Borehole Correction Mode	AIT-M	Compute Standoff	
ASTA	Array Induction Tool Standoff	AIT-M	1.425	in
ISSBAR	Barite Mud Presence Flag	Borehole	No	
BHS	Borehole Status (Open or Cased Hole)	Borehole	Open	
BHT	Bottom Hole Temperature	Borehole	216	degF
BS	Bit Size	WLSESSION	Depth Zoned	in
CALI_SHIFT	CALI Supplementary Offset	HDRS-H	-0.8	in
CBLO	Casing Bottom (Logger)	WLSESSION	1465	ft
CDEN	Cement Density	HGNS-H	2	g/cm3
CSODDRL	Casing Outer Diameter - Zoned along driller depths	WLSESSION	9.625	in
DFD	Drilling Fluid Density	Borehole	9.7	lbm/gal
DFT	Drilling Fluid Type	Borehole	Water	
FCD	Future Casing (Outer) Diameter	WLSESSION	7	in
GCSE_DOWN_PASS	Generalized Caliper Selection for WL Log Down Passes	Borehole	BS(RT)	
GCSE_UP_PASS	Generalized Caliper Selection for WL Log Up Passes	Borehole	CALI	
GRSE	Generalized Mud Resistivity Selection, from Measured or Computed Mud Resistivity	Borehole	REMS(RT)	
GTSE	Generalized Temperature Selection, from Measured or Computed Temperature	Borehole	CTEM	
MST	Mud Sample Temperature	Borehole	75.3	degF
RMS	Resistivity of Mud Sample	Borehole	2.24	ohm.m
SOCO	Standoff Correction Option	HGNS-H	Yes	
SPDR	SP Drift Per Foot	AIT-M	0	mV/ft

Depth Zone Parameters

Parameter	Value	Start (ft)	Stop (ft)
BS	13.5	1331	1465
BS	8.75	1465	6800

All depth are actual.

Tool Control Parameters

One: Parameters

Parameter	Description	Tool	Value	Unit
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	1800	ft/h

One

5" Induction

Software Version

Acquisition System	Version
Maxwell 2016 SP2	6.2.68624.3100

Pass Summary

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

One	Log[4]:Up	Up	1387.81 ft	6810.88 ft	28-Sep-2016 5:33:25 PM	28-Sep-2016 9:39:06 PM	ON	4.00 ft	Yes
One	Log[5]:Up	Up	1387.33 ft	1776.64 ft	28-Sep-2016 9:43:34 PM	28-Sep-2016 9:57:15 PM	ON	4.10 ft	Yes

All depths are referenced to toolstring zero

Log

Company:Bonanza Creek Well:State Seventy Holes J-18

One: Log[4]:Up:S003

Description: AIT Basic Log Two Format: Log (KM 5in Induction RA) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 28-Sep-2016 22:53:23

IHV - Integrated Hole Volume every 10.00 (ft3)

IHV - Integrated Hole Volume every 100.00 (ft3)

TIME_1900 - Time Marked every 60.00 (s)

ICV - Integrated Cement Volume every 10.00 (ft3)

ICV - Integrated Cement Volume every 100.00 (ft3)

Main To Repeat

Repeat To Main

Cable Tension (TENS)

10000 lbf 0

Main To Repeat

Repeat To Main

Array Induction Two Foot Resistivity A90 (AT90) AIT-M

0.2 ohm.m 2000

Main To Repeat

Repeat To Main

Caliper (HCAL) HDRS-H

6 in 16

Main To Repeat

Repeat To Main

Array Induction Two Foot Resistivity A10 (AT10) AIT-M

0.2 ohm.m 2000

Main To Repeat

Repeat To Main

Spontaneous Potential (SP) AIT-M

-160 mV 40

Main To Repeat

Repeat To Main

Array Induction Two Foot Resistivity A60 (AT60) AIT-M

0.2 ohm.m 2000

Main To Repeat

Repeat To Main

Gamma Ray (ECGR) HGNS-H

200 gAPI 400

Main To Repeat

Repeat To Main

Array Induction Two Foot Resistivity A30 (AT30) AIT-M

0.2 ohm.m 2000

Main To Repeat

Repeat To Main

Gamma Ray (ECGR) HGNS-H

0 gAPI 200

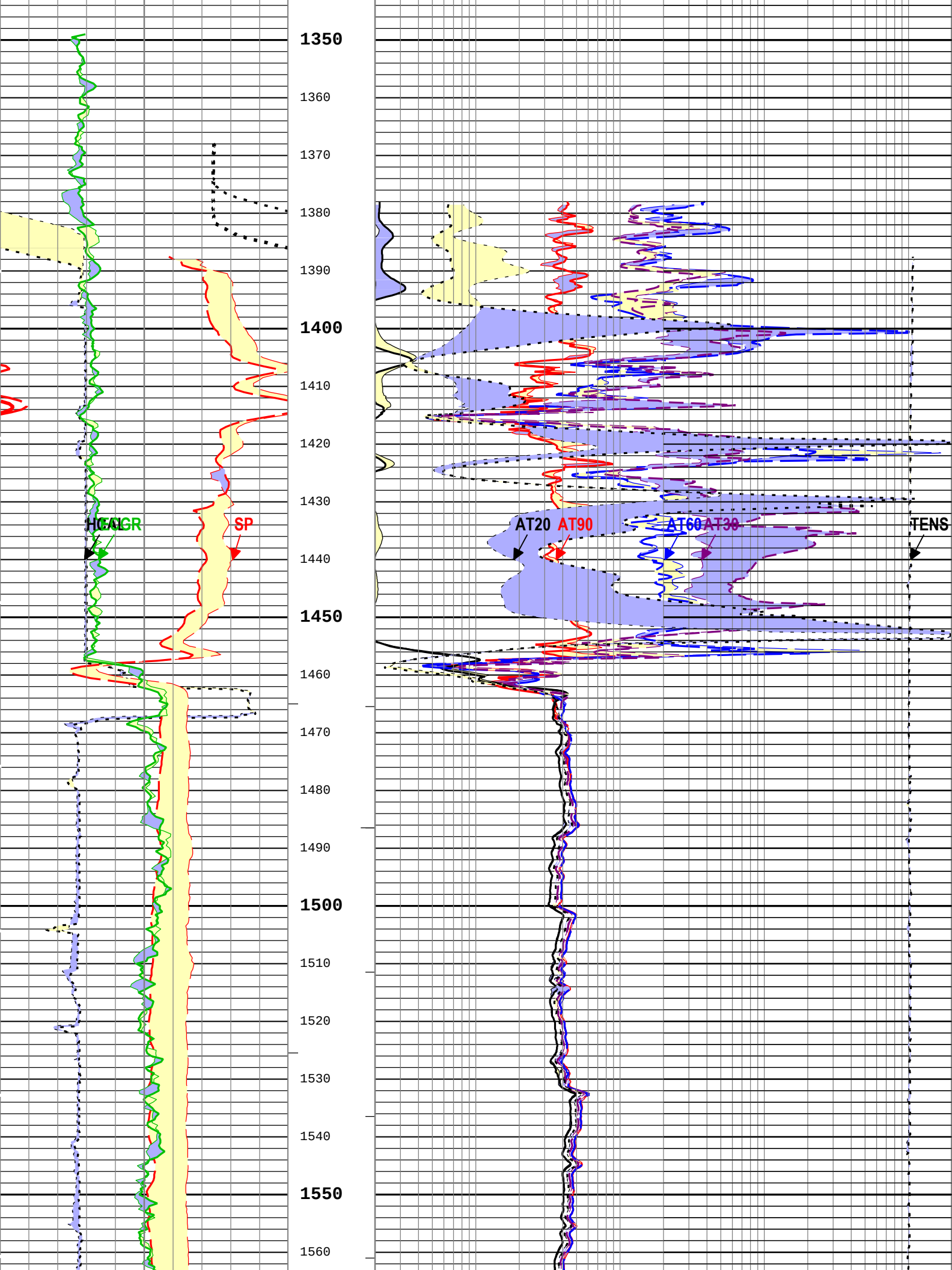
Main To Repeat

Repeat To Main

Array Induction Two Foot Resistivity A20 (AT20) AIT-M

0.2 ohm.m 2000

1340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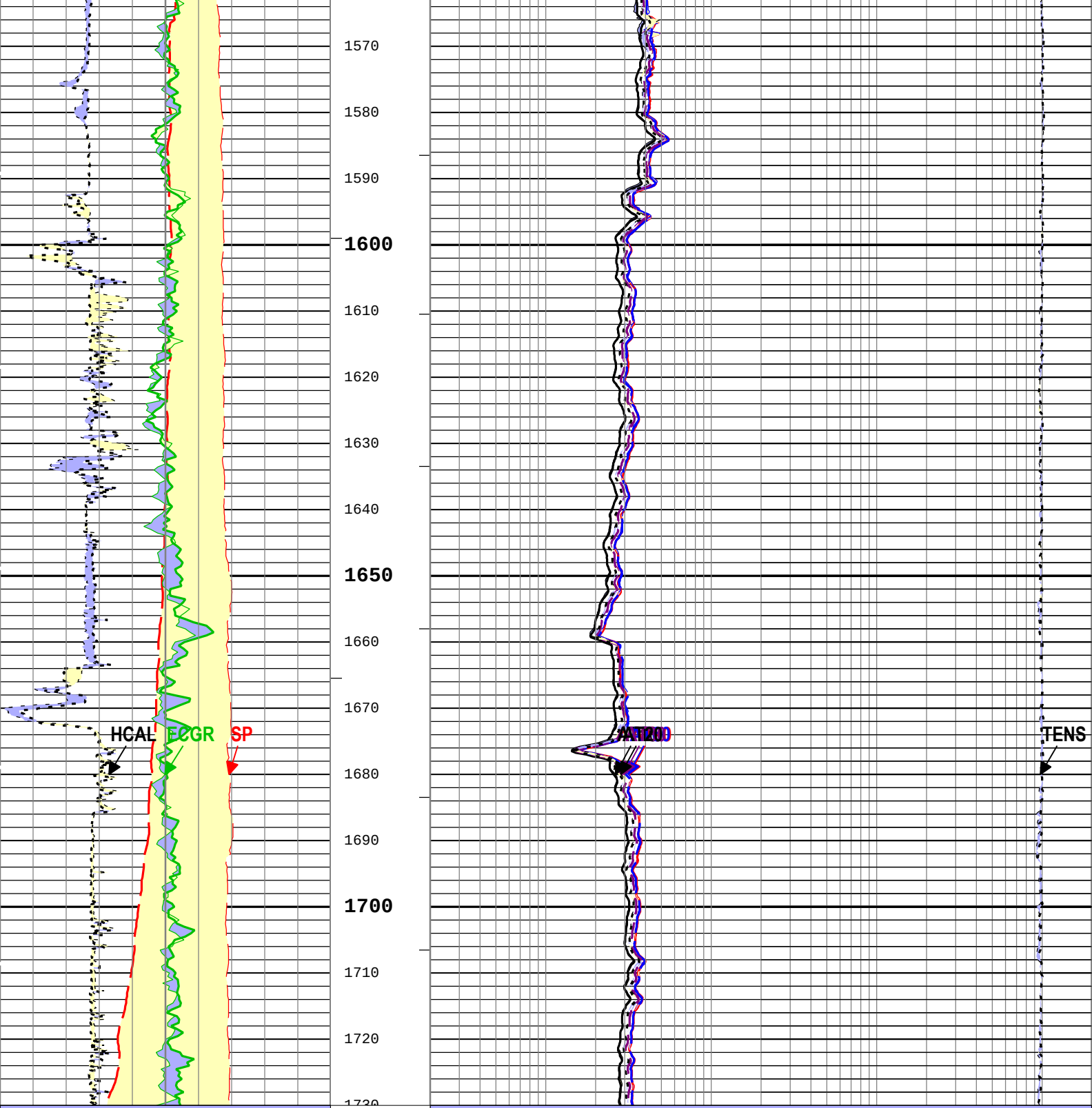
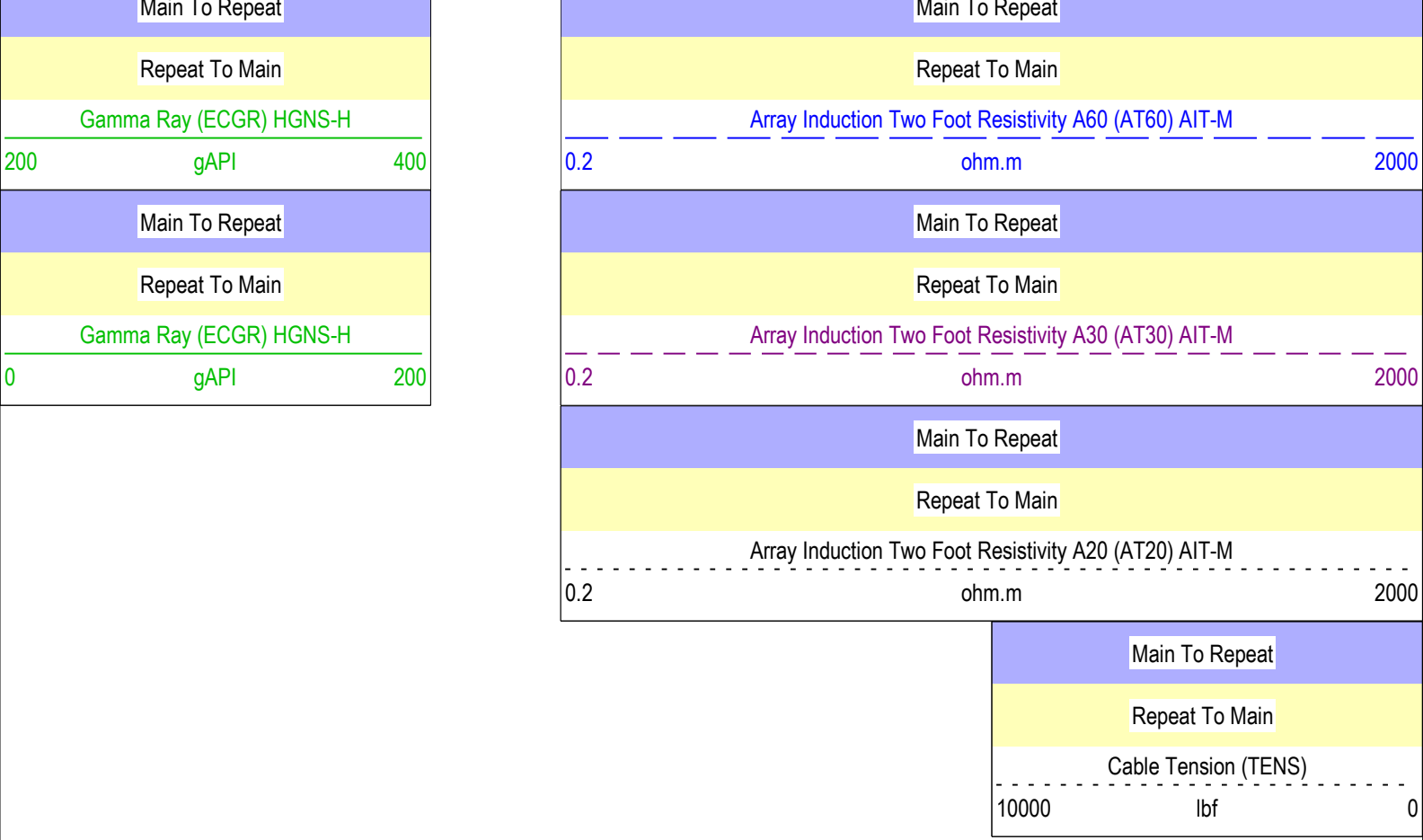
HCAL
GR
SP
AT20
AT90
AT60
AT30
TENS



Main To Repeat	Main To Repeat
Repeat To Main	Repeat To Main
Caliper (HCAL) HDRS-H	Array Induction Two Foot Resistivity A90 (AT90) AIT-M
6 in 16	0.2 ohm.m 2000
Main To Repeat	Main To Repeat
Repeat To Main	Repeat To Main
Spontaneous Potential (SP) AIT-M	Array Induction Two Foot Resistivity A10 (AT10) AIT-M
-160 mV 40	0.2 ohm.m 2000



Description: AIT Basic Log Two Format: Log (KM 5in Induction RA) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 28-Sep-2016 22:53:23

Channel Processing Parameters

One: Parameters

Parameter	Description	Tool	Value	Unit
ABHM	Array Induction Borehole Correction Mode	AIT-M	Compute Standoff	
ASTA	Array Induction Tool Standoff	AIT-M	1.425	in
ISSBAR	Barite Mud Presence Flag	Borehole	No	
BHS	Borehole Status (Open or Cased Hole)	Borehole	Open	
BHT	Bottom Hole Temperature	Borehole	216	degF
BS	Bit Size	WLSESSION	Depth Zoned	in
CALI_SHIFT	CALI Supplementary Offset	HDRS-H	-0.8	in
CBLO	Casing Bottom (Logger)	WLSESSION	1465	ft
CDEN	Cement Density	HGNS-H	2	g/cm3
CSODDRL	Casing Outer Diameter - Zoned along driller depths	WLSESSION	9.625	in
DFD	Drilling Fluid Density	Borehole	9.7	lbm/gal
DFT	Drilling Fluid Type	Borehole	Water	
FCD	Future Casing (Outer) Diameter	WLSESSION	7	in
GCSE_DOWN_PASS	Generalized Caliper Selection for WL Log Down Passes	Borehole	BS(RT)	
GCSE_UP_PASS	Generalized Caliper Selection for WL Log Up Passes	Borehole	CALI	
GRSE	Generalized Mud Resistivity Selection, from Measured or Computed Mud Resistivity	Borehole	REMS(RT)	
GTSE	Generalized Temperature Selection, from Measured or	Borehole	CTEM	

	Computed Temperature			
MST	Mud Sample Temperature	Borehole	75.3	degF
RMS	Resistivity of Mud Sample	Borehole	2.24	ohm.m
SOCO	Standoff Correction Option	HGNS-H	Yes	
SPDR	SP Drift Per Foot	AIT-M	0	mV/ft

Depth Zone Parameters

Parameter	Value	Start (ft)	Stop (ft)
BS	13.5	1331	1465
BS	8.75	1465	1730

All depth are actual.

Tool Control Parameters

One: Parameters

Parameter	Description	Tool	Value	Unit
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	1800	ft/h

Calibration Report

AIT-M (Array Induction Tool - M) Calibration - Run One

Primary Equipment :

File code for AIT-MA Sonde Tool Element AMIS 1305

AIT Sonde Calibration - Test Loop Gain

Master (EEPROM): 19:45:52 30-Aug-2016

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit
Test Loop Gain - 0		Master	1.000	0.950	1.019	1.050
Test Loop Phase - 0	deg	Master	0	-3.000	0.457	3.000
Test Loop Gain - 1		Master	1.000	0.950	1.018	1.050
Test Loop Phase - 1	deg	Master	0	-3.000	0.485	3.000
Test Loop Gain - 2		Master	1.000	0.950	1.017	1.050
Test Loop Phase - 2	deg	Master	0	-3.000	-1.158	3.000
Test Loop Gain - 3		Master	1.000	0.950	1.014	1.050
Test Loop Phase - 3	deg	Master	0	-3.000	-0.716	3.000
Test Loop Gain - 4		Master	1.000	0.950	0.999	1.050
Test Loop Phase - 4	deg	Master	0	-3.000	-0.186	3.000
Test Loop Gain - 5		Master	1.000	0.950	0.997	1.050
Test Loop Phase - 5	deg	Master	0	-3.000	-0.244	3.000
Test Loop Gain - 6		Master	1.000	0.950	1.007	1.050
Test Loop Phase - 6	deg	Master	0	-3.000	0.209	3.000
Test Loop Gain - 7		Master	1.000	0.950	1.031	1.050
Test Loop Phase - 7	deg	Master	0	-3.000	0.072	3.000

AIT Sonde Calibration - Sonde Error Correction

Master (EEPROM): 19:45:52 30-Aug-2016

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit
Sonde Error Correction Real - 0	mS/m	Master	-----	-231.000	-82.274	119.000
Sonde Error Correction Quad - 0		Master	-----	-2250.000	-11.750	2250.000
Sonde Error Correction Real - 1	mS/m	Master	-----	114.000	189.132	204.000
Sonde Error Correction Quad - 1		Master	-----	-625.000	-99.398	625.000
Sonde Error Correction Real - 2	mS/m	Master	-----	66.000	91.987	156.000
Sonde Error Correction Quad - 2		Master	-----	-350.000	-163.766	350.000
Sonde Error Correction Real - 3	mS/m	Master	-----	39.000	56.787	89.000
Sonde Error Correction Quad - 3		Master	-----	-250.000	10.774	250.000
Sonde Error Correction Real - 4	mS/m	Master	-----	15.000	27.318	35.000
Sonde Error Correction Quad - 4		Master	-----	-63.000	-9.964	63.000
Sonde Error Correction Real - 5	mS/m	Master	-----	4.000	11.520	24.000
Sonde Error Correction Quad - 5		Master	-----	-50.000	21.600	50.000
Sonde Error Correction Real - 6	mS/m	Master	-----	5.000	10.623	15.000
Sonde Error Correction Quad - 6		Master	-----	-30.000	-5.057	30.000

Sonde Error Correction Real - 7	mS/m	Master	-----	-5.000	-1.679	5.000
Sonde Error Correction Quad - 7		Master	-----	-30.000	3.884	30.000

AIT Mud Calibration - Mud Calibration Gain

Master (EEPROM): 19:45:52 30-Aug-2016

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit
Coarse Gain		Master	1.000	0.800	1.152	1.200
Fine Gain		Master	1.000	0.800	1.147	1.200

AIT Electronics Check - Thru Calibration Check

Master (EEPROM): 19:45:52 30-Aug-2016 Before (Measured): 06:27:16 28-Sep-2016

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit
Thru Cal Mag - 0	V	Master	-----	0.366	0.608	0.854
		Before	-----	0.366	0.608	0.854
		Before-Master	-----	-----	0.000	-----
Thru Cal Phase - 0	deg	Master	-----	137.000	-172.932	-103.000
		Before	-----	137.000	-172.261	-103.000
		Before-Master	-----	-----	0.671	-----
Thru Cal Mag - 1	V	Master	-----	0.762	1.246	1.778
		Before	-----	0.762	1.246	1.778
		Before-Master	-----	-----	0.000	-----
Thru Cal Phase - 1	deg	Master	-----	136.000	-173.870	-104.000
		Before	-----	136.000	-173.199	-104.000
		Before-Master	-----	-----	0.671	-----
Thru Cal Mag - 2	V	Master	-----	0.372	0.617	0.868
		Before	-----	0.372	0.617	0.868
		Before-Master	-----	-----	0.000	-----
Thru Cal Phase - 2	deg	Master	-----	132.000	-177.254	-108.000
		Before	-----	132.000	-176.582	-108.000
		Before-Master	-----	-----	0.672	-----
Thru Cal Mag - 3	V	Master	-----	0.420	0.699	0.980
		Before	-----	0.420	0.699	0.980
		Before-Master	-----	-----	0.000	-----
Thru Cal Phase - 3	deg	Master	-----	131.000	-177.987	-109.000
		Before	-----	131.000	-177.315	-109.000
		Before-Master	-----	-----	0.672	-----
Thru Cal Mag - 4	V	Master	-----	0.804	1.309	1.876
		Before	-----	0.804	1.309	1.876
		Before-Master	-----	-----	0.000	-----
Thru Cal Phase - 4	deg	Master	-----	125.000	176.206	-115.000
		Before	-----	125.000	176.886	-115.000
		Before-Master	-----	-----	0.680	-----
Thru Cal Mag - 5	V	Master	-----	1.176	1.906	2.744
		Before	-----	1.176	1.906	2.744
		Before-Master	-----	-----	0.000	-----
Thru Cal Phase - 5	deg	Master	-----	122.000	174.647	-118.000
		Before	-----	122.000	175.331	-118.000
		Before-Master	-----	-----	0.684	-----
Thru Cal Mag - 6	V	Master	-----	1.176	1.904	2.744
		Before	-----	1.176	1.904	2.744
		Before-Master	-----	-----	0.000	-----
Thru Cal Phase - 6	deg	Master	-----	121.000	174.679	-119.000
		Before	-----	121.000	175.363	-119.000
		Before-Master	-----	-----	0.684	-----
Thru Cal Mag - 7	V	Master	-----	0.846	1.375	1.974
		Before	-----	0.846	1.375	1.974
		Before-Master	-----	-----	0.000	-----
Thru Cal Phase - 7	deg	Master	-----	115.000	173.699	-125.000
		Before	-----	115.000	174.424	-125.000
		Before-Master	-----	-----	0.725	-----
SPA Zero	mV	Master		-50.000	-0.126	50.000
		Before		-50.000	-0.126	50.000
		Before-Master	-----	-----	0.000	-----
SPA Plus	mV	Master		941.000	1004.288	1040.000

		Before		941.000	1003.706	1040.000	
		Before-Master	-----	-----	-0.582	-----	
Temperature Zero	V	Master		-0.050	0.000	0.050	
		Before		-0.050	0.000	0.050	
		Before-Master	-----	-----	0.000	-----	
Temperature Plus	V	Master		0.870	0.930	0.960	
		Before		0.870	0.930	0.960	
		Before-Master	-----	-----	0.000	-----	

Company: Bonanza Creek

Schlumberger

Well: State Seventy Holes J-18

Field: Wattenberg

County: Weld

State: Colorado

Platform Express
Array Induction
with Linear Correlation