

Company: OMIMEX PETROLEUM

Well: DRACO #4-20-1-48

Field: Wildcat

County: Yuma State: Colorado

Platform Express  
Array Induction  
with Linear Correlation

County: Yuma  
Field: Wildcat  
Location: NWNW  
Well: DRACO #4-20-1-48  
Company: OMIMEX PETROLEUM

Location:	NWNW	Elev.:	K.B.	4231.50 ft
	613 FNL 828 FWL		G.L.	4213.00 ft
	Lat/Long: 40.04425/-102.77182		D.F.	4231.50 ft
	Permanent Datum:	Ground Level	Elev.:	4213.00 f
Log Measured From:		Kelly Bushing	18.50 ft	above Perm.Datum
Drilling Measured From:		Kelly Bushing		
API Serial No.	Section:	Township:	Range:	
05-125-12128	20	1N	48W	

Logging Date 22-Jul-2018

Run Number 1A

Depth Driller 6813.00 ft

Schlumberger Depth 6802.00 ft

Bottom Log Interval 6802.00 ft

Top Log Interval 400.00 ft

Casing Driller Size @ Depth 8.625 in @ 422.00 ft

Casing Schlumberger 419 ft

Bit Size 7.875 in

Type Fluid In Hole Water

Density 9.2 lbm/gal 48 s

Fluid Loss PH

MUD Source of Sample Active Tank

RM @ Meas Temp 0.2 ohm.m @ 68 degF

RMF @ Meas Temp 0.15 ohm.m @ 68 degF

RMC @ Meas Temp

Source RMF RMC Pressed

RM @ BHT RMF @ BHT 0.08 @ 177 0.06 @ 177

Max Recorded Temperatures 177 degF

Circulation Stopped 22-Jul-2018 00:00:00

Logger on Bottom 22-Jul-2018 07:44:00

Unit Number 9108 Location: Fort Morgan

Recorded By Evan Grzecki

Witnessed By Paul DeKaye

Disclaimer

THE USE OF AND RELIANCE UPON THIS RECORDED-DATA BY THE HEREIN NAMED COMPANY (AND ANY OF ITS AFFILIATES, PARTNERS, REPRESENTATIVES, AGENTS, CONSULTANTS AND EMPLOYEES) IS SUBJECT TO THE TERMS AND CONDITIONS AGREED UPON BETWEEN SCHLUMBERGER AND THE COMPANY, INCLUDING: (a) RESTRICTIONS ON USE OF THE RECORDED-DATA; (b) DISCLAIMERS AND WAIVERS OF WARRANTIES AND REPRESENTATIONS REGARDING COMPANY'S USE AND RELIANCE UPON THE RECORDED-DATA; AND (c) CUSTOMER'S FULL AND SOLE RESPONSIBILITY FOR ANY INFERENCE DRAWN OR DECISION MADE IN CONNECTION WITH THE USE OF THIS RECORDED-DATA.

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Well Sketch

Driller Depth

0.00 ft

422.00 ft

Casing 8.625in  
24lbm/ft

Open Hole 12.25in



Borehole Size/Casing/Tubing Record

Bit						
Bit Size ( in )	12.25	7.875				
Top Driller ( ft )	0	422				
Top Logger ( ft )	0	419				
Bottom Driller ( ft )	422	6813				
Bottom Logger ( ft )	419	6802				
Casing						
Size ( in )	8.625					
Weight ( lbm/ft )	24					
Inner Diameter ( in )	8.097					
Grade	N/A					
Top Driller ( ft )	0					
Top Logger ( ft )	0					
Bottom Driller ( ft )	422					
Bottom Logger ( ft )	419					

Remarks and Equipment Summary

1A: Toolstring				1A: Remarks	
<div><div><div>Equip name</div><div>LEH-QT</div><div>LEH-QT</div></div><div><div>Length</div><div>93.97</div></div><div><div>MP name</div><div></div></div><div><div>Offset</div><div></div></div></div> <div></div>	Thank you for choosing Schlumberger!				
	Log run for formation evaluation				
	Toolstring run as per toolsketch				
	Matrix: Limestone; MDEN: 2.71				
	Log correlated to down log				
	Crew: Gary Lapp, Claude Walz				

HNGH-A:4062  
HNGC-B:579

- Tel Status 74.04

HGNH:3748  
NSR-F:5070  
NPV-N  
HMCA-H  
HGNS-H:3966  
HACCZ-H:416  
8

-Temperatu	72.26
re	
-GR	71.55

CNL Poros	65.21
ity	
YGNS	62.88
YHMA	62.88
Accelerom	0.00
eter	

ECH-MEB:283  
3  
HRCC-H:3849  
HRMS-H:4773  
GSR-J:5471  
HRGD-H:3973  
GPV-Q  
Short Spacing  
Long Spacing  
:28732  
Backscatter

- HRCC	58.88
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MCFL	53.45
Caliper	52.96
TLD Density	52.57

SFT-270  
DHRU-F

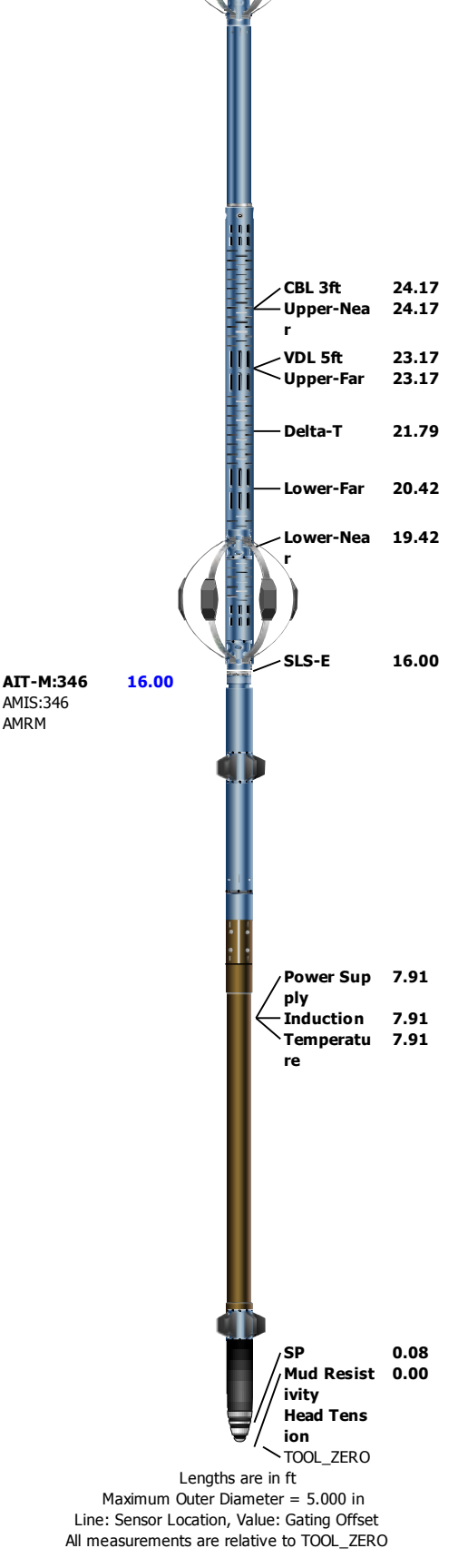
**- GPIT-F Inc 43.22**  
**linometer**

GPIH-B:3838  
GPIC-F:770  
DHRU-F:1879

**GPIT 0.00**

SFT-270  
DHRU-F

ECH-KH:8331  
DSLCH-H:8279  
SLS-E:8020



## Depth Summary

	1A		
Depth Measuring Device			
Type	IDW-B		
Serial Number			
Calibration Date			
Calibrator Serial Number			
Calibration Cable Type			

Wheel Correction 1	0								
Wheel Correction 2	0								
Tension Device									
Type	CMTD-B/A								
Serial Number									
Calibration Date									
Calibrator Serial Number									
Number of Calibration Points	0								
Logging Cable									
Type	7-46NT-XS								
Serial Number									
Length	24000.00 ft								
Conveyance Type	Wireline								
Rig Type	Drilling Rig								
1A:Depth Control Parameters		Depth Control Remarks							
Log Sequence	First Log In the Well								
Rig Up Length At Surface									
Rig Up Length At Bottom									
Rig Up Length Correction									
Stretch Correction									
Tool Zero Check At Surface									
1A									
1" Induction									
Integration Summary									
Output Channel(s)	Output Description	Input Parameter	Output Value	Unit					
ICV	Integrated Cement Volume	GCSE_UP_PASS, FCD	1606.04	ft3					
IHV	Integrated Hole Volume	GCSE_UP_PASS	2661.82	ft3					
Software Version									
Acquisition System		Version							
Maxwell 2018 SP1		8.1.99839.3100							
Application Patch		Wireline_Hotfix-Mandatory-2018SP1_8.1.102865							
Pass Summary									
Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
1A	Log[4]:Up	Up	89.66 ft	6818.83 ft	22-Jul-2018 7:44:13 AM	22-Jul-2018 11:26:52 AM	ON	6.97 ft	Yes
All depths are referenced to toolstring zero									
Log	Company:OMIMEX PETROLEUM			Well:DRACO #4-20-1-48					
1A: Log[4]:Up:S007									
Description: AIT Basic Log Two    Format: Log ( EMD 5in Induction )    Index Scale: 1 in per 100 ft    Index Unit: ft    Index Type: Measured Depth    Creation Date: 22-Jul-2018 12:13:01									
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
BS	Borehole	6in - RT
CALI	HDRS-H:HRCC-H:HRCC-H	1in
GR	HGNS-H:HGNS-H:HGNS-H	6in
ICV	Borehole	6in - RT
IHV	Borehole	6in - RT
RXOZ	HDRS-H:HRMS-H:HRGD-H	2in
SP	AIT-M:AMIS:AMIS	6in
TENS	WLWorkflow	6in
TIME_1900	WLWorkflow	0.1in

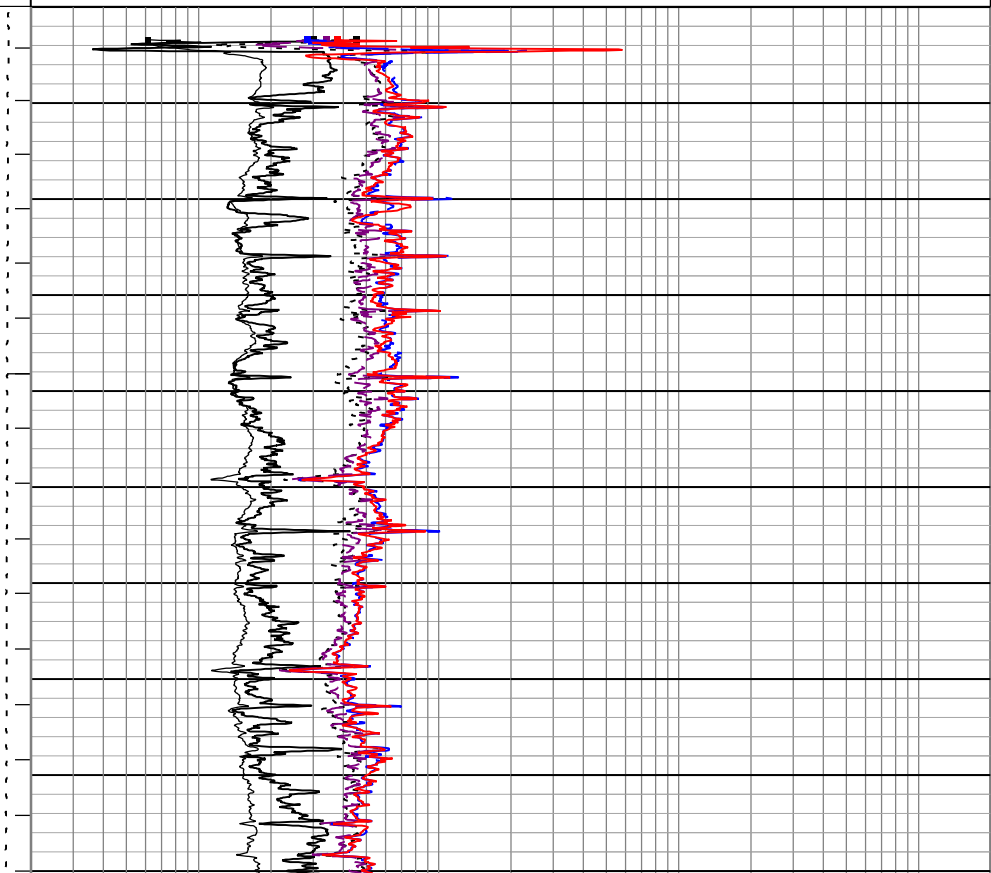
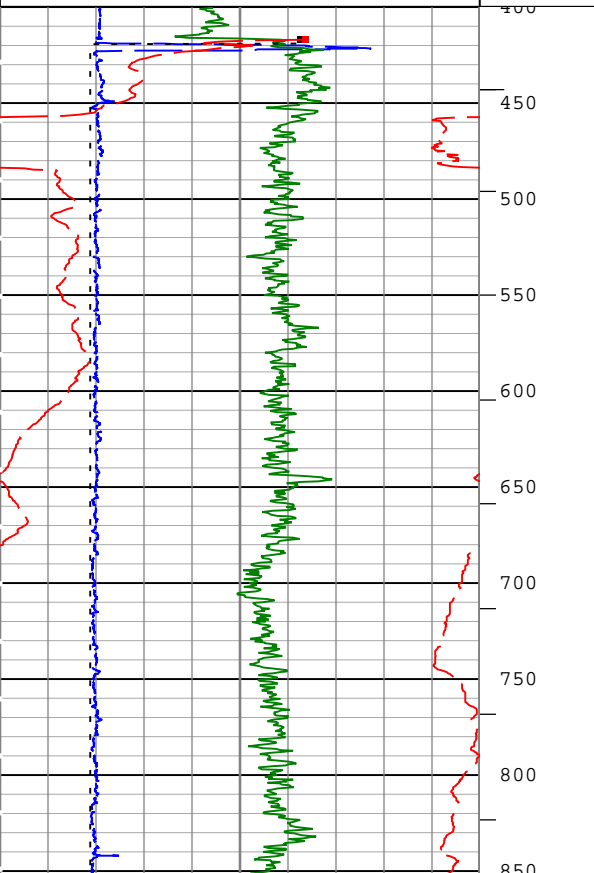
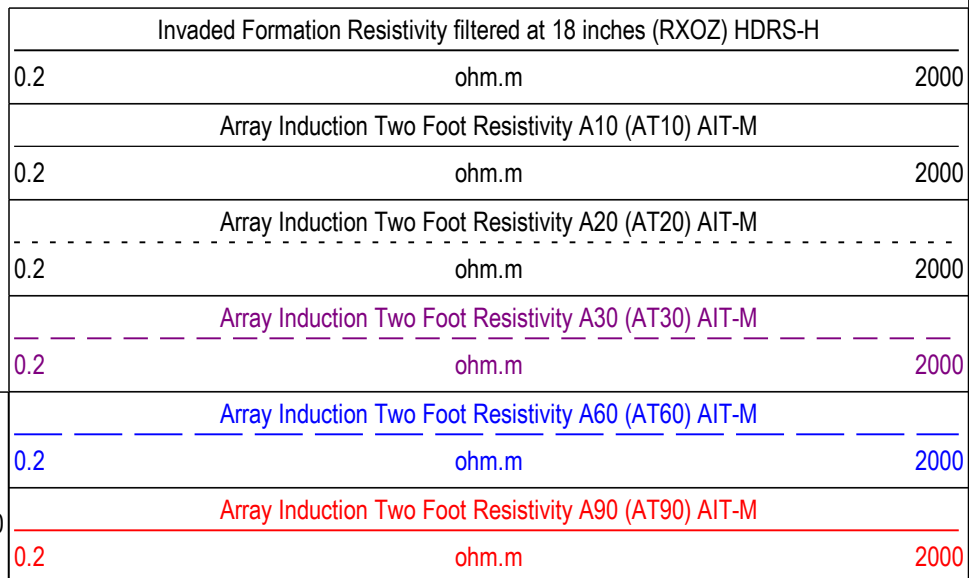
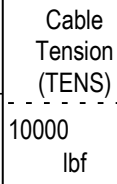
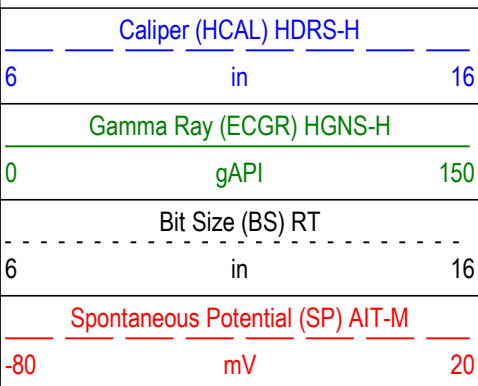
—IHV - Integrated Hole Volume every 10.00 (ft3)

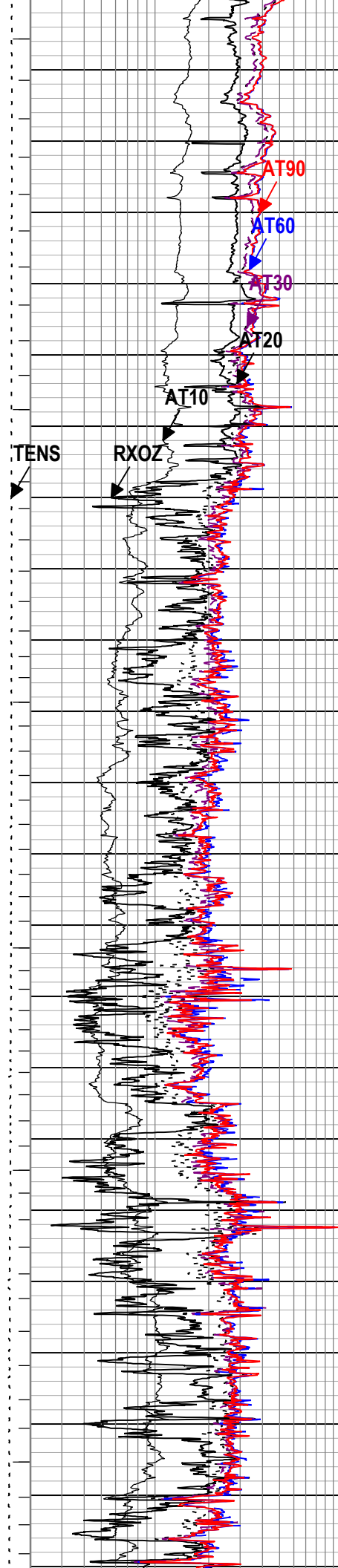
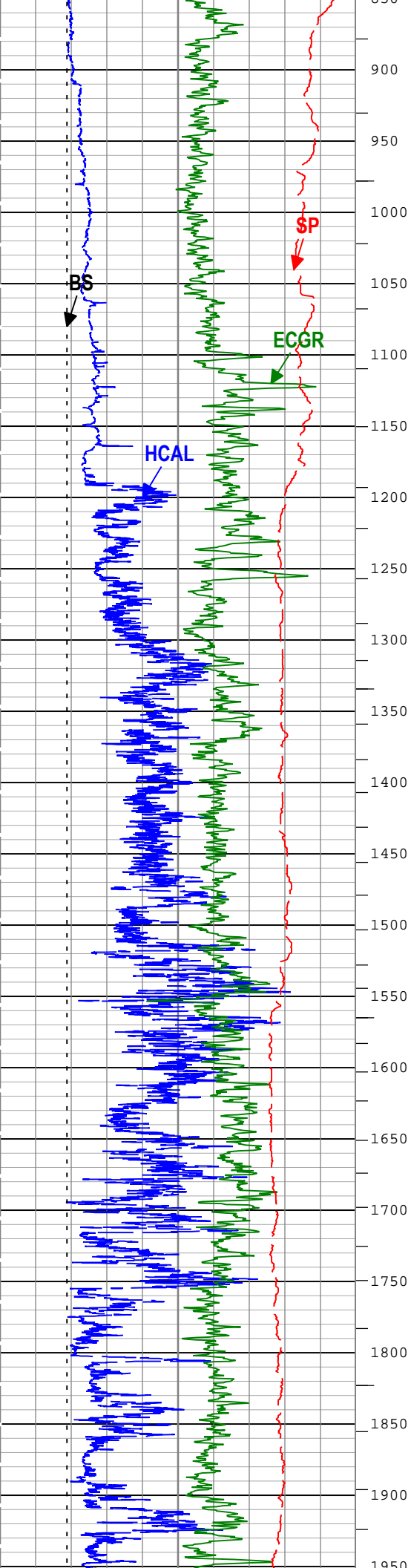
—IHV - Integrated Hole Volume every 100.00 (ft3)

—ICV - Integrated Cement Volume every 10.00 (ft3)

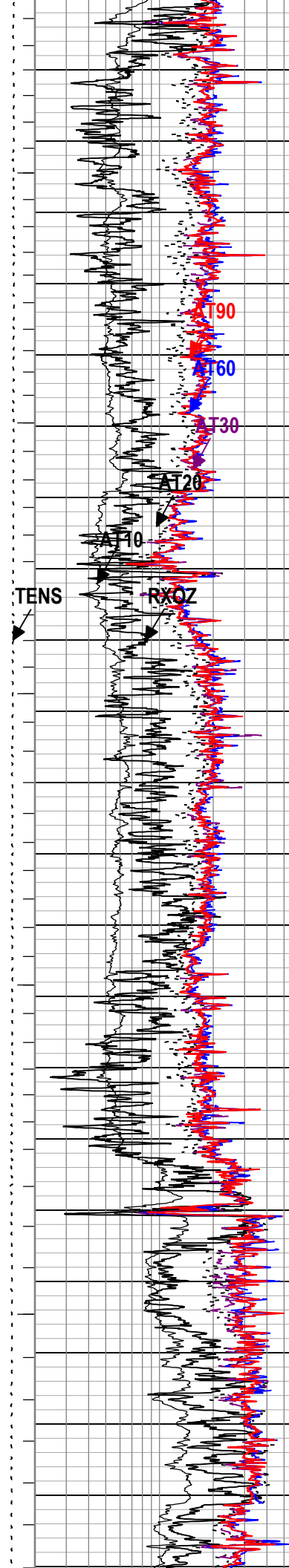
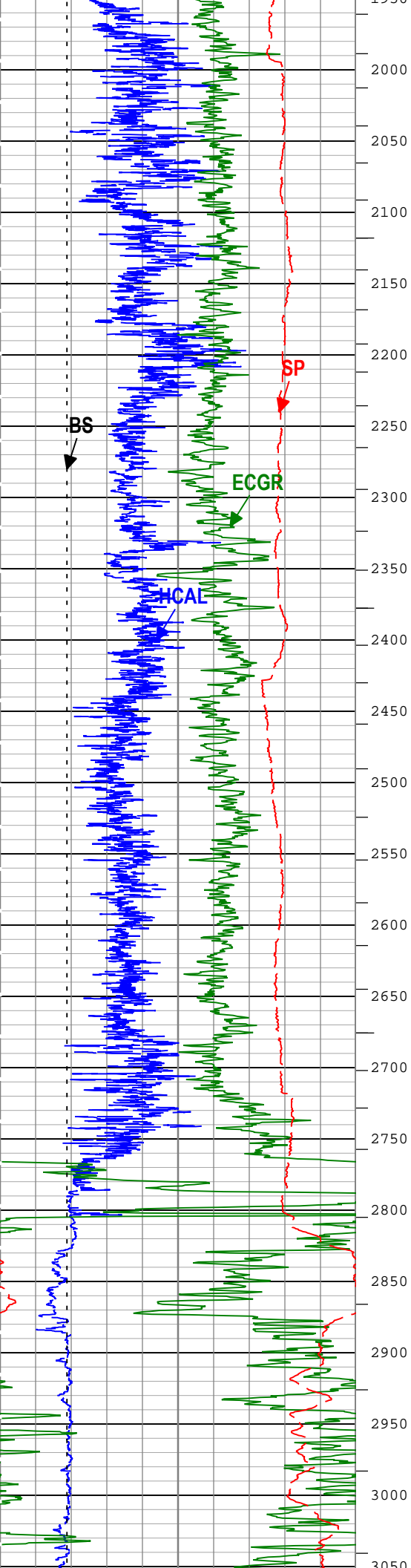
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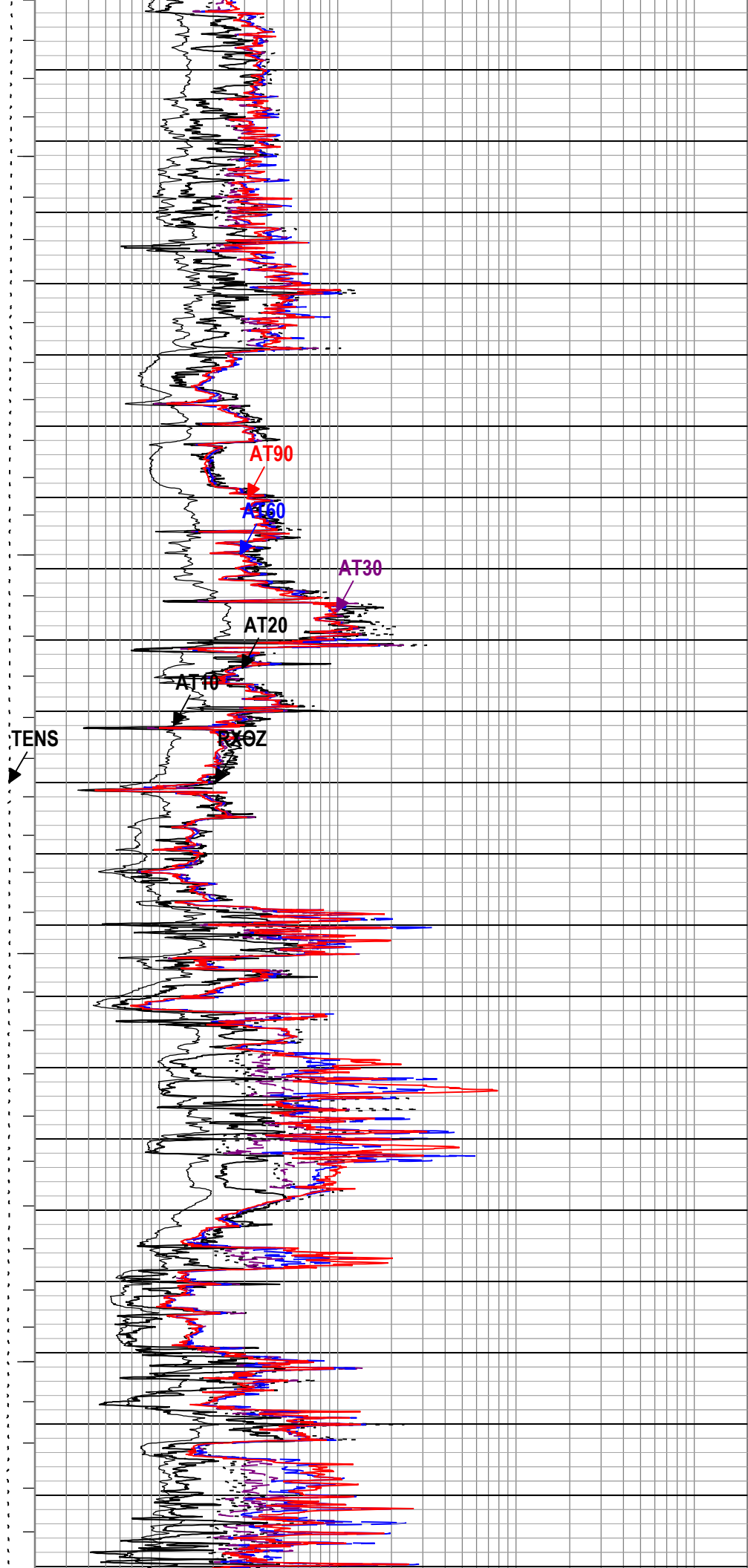
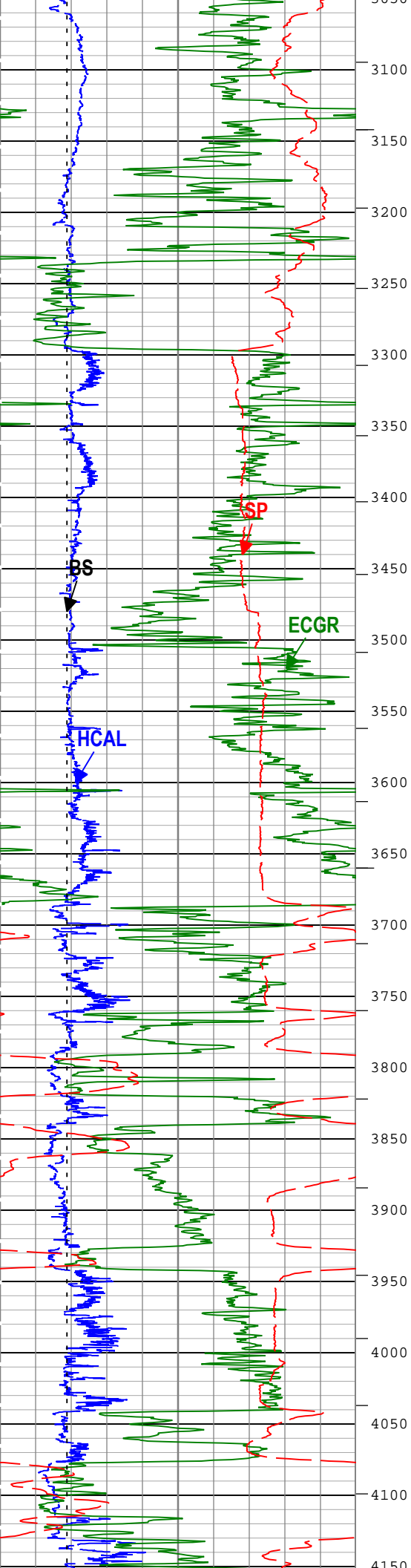
TIME\_1900 - Time Marked every 60.00 (s)

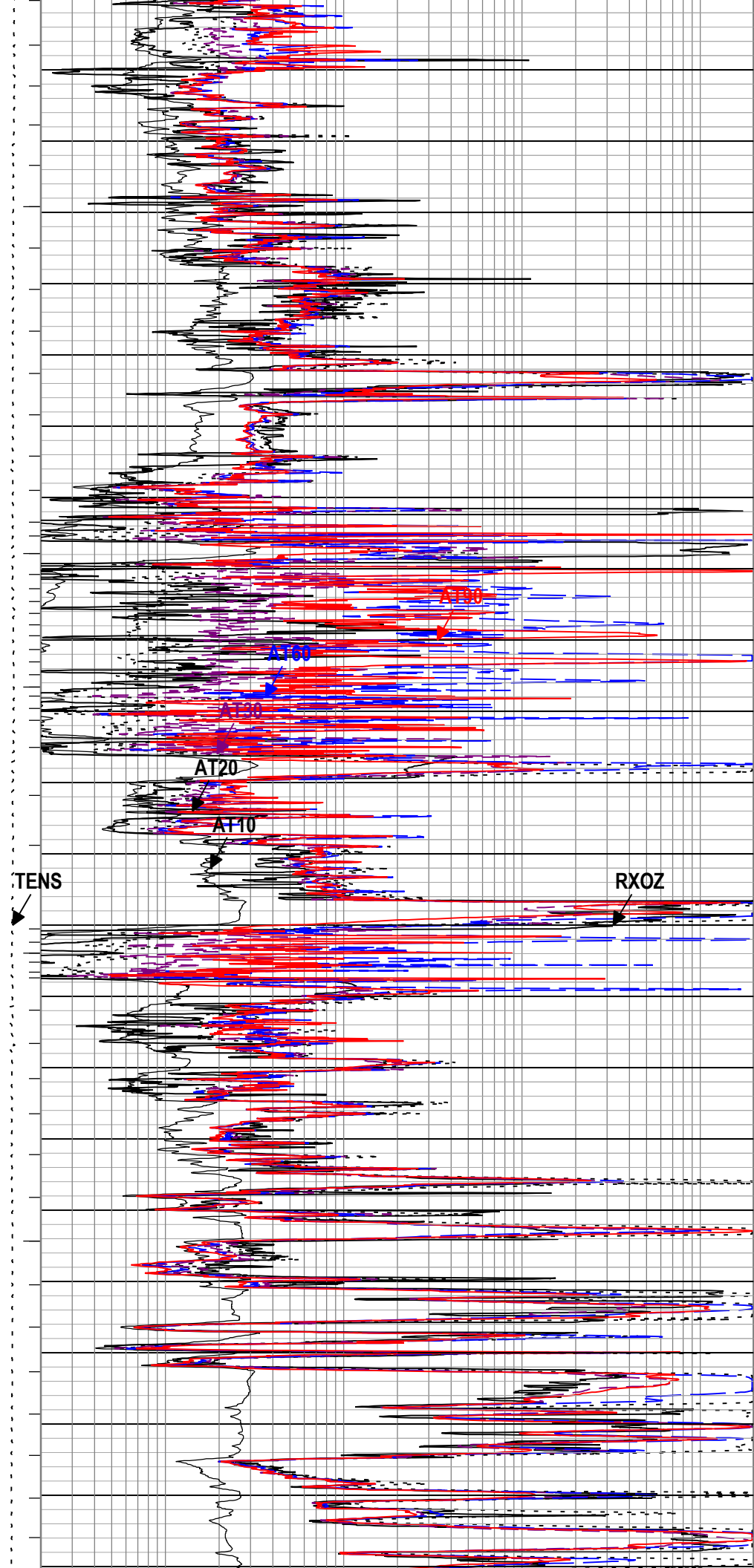
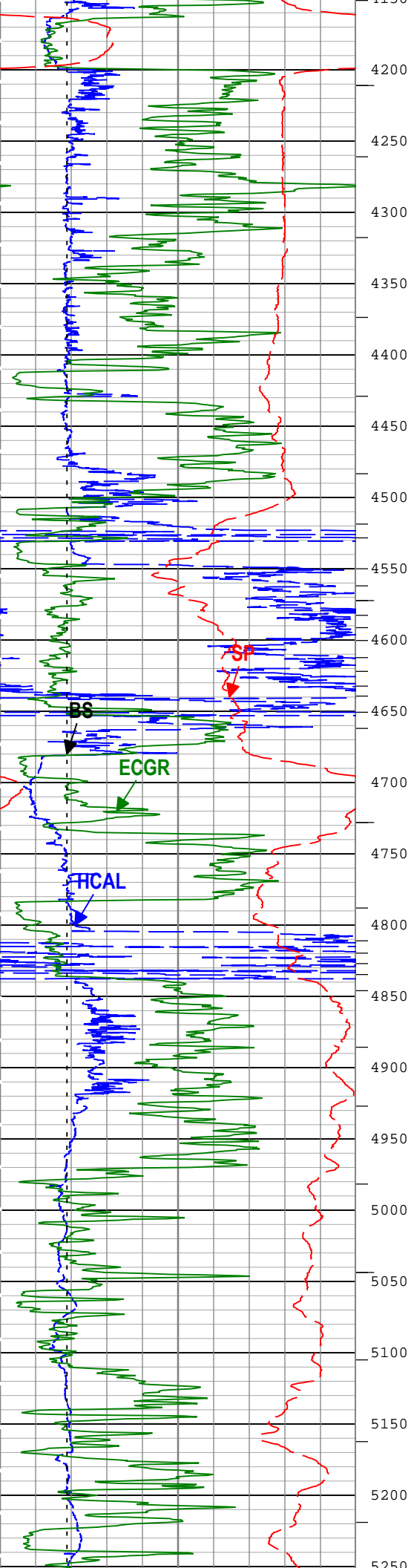


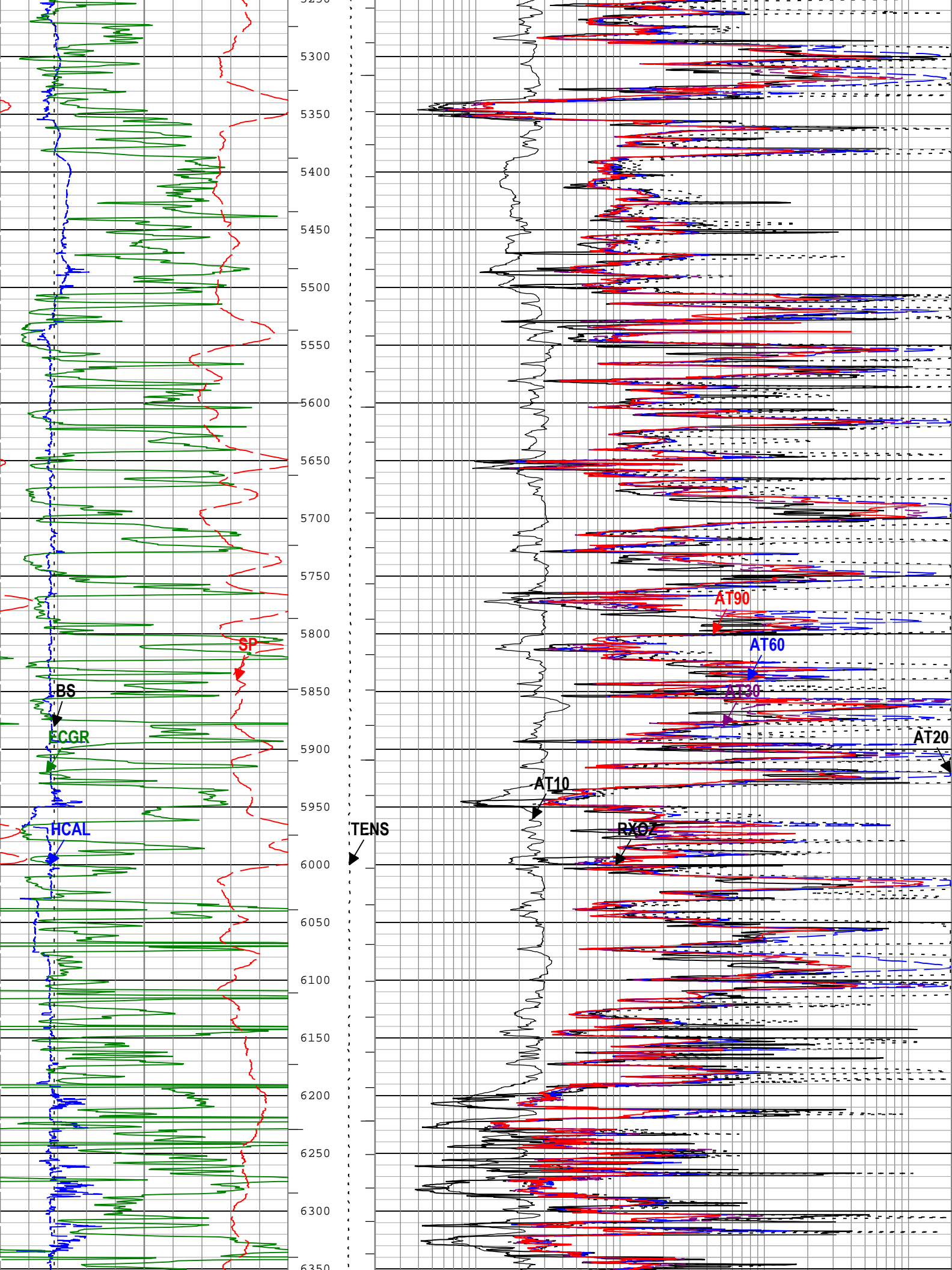


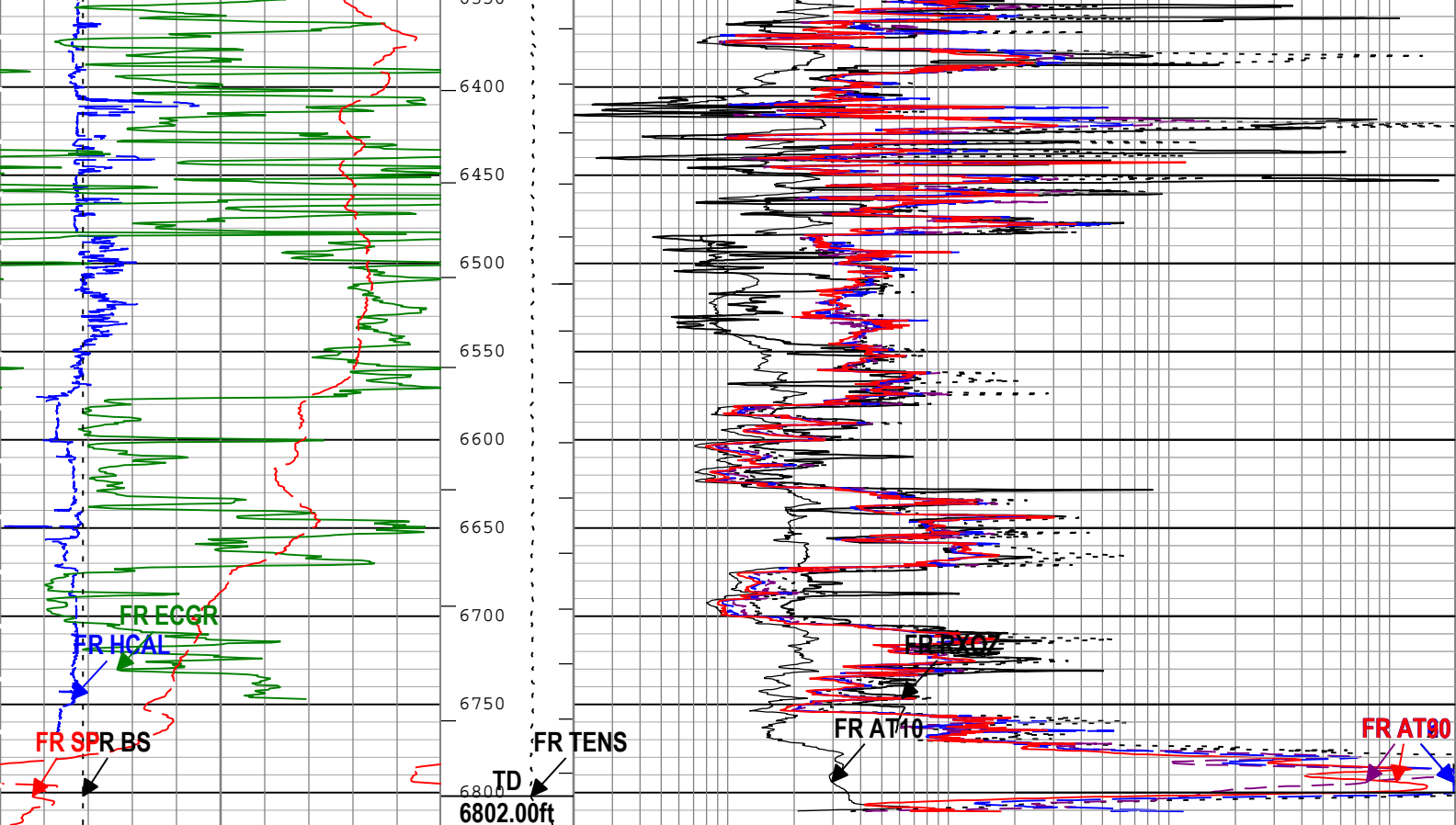












Caliper (HCAL) HDRS-H	Cable Tension (TENS)	Invaded Formation Resistivity filtered at 18 inches (RXOZ) HDRS-H
6 in 16	10000 lbf	0.2 ohm.m 2000
Gamma Ray (ECGR) HGNS-H		Array Induction Two Foot Resistivity A10 (AT10) AIT-M
0 gAPI 150		0.2 ohm.m 2000
Bit Size (BS) RT		Array Induction Two Foot Resistivity A20 (AT20) AIT-M
6 in 16		0.2 ohm.m 2000
Spontaneous Potential (SP) AIT-M		Array Induction Two Foot Resistivity A30 (AT30) AIT-M
-80 mV 20		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

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 ( EMD 5in Induction ) Index Scale: 1 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 22-Jul-2018 12:13:01

## Channel Processing Parameters

### 1A: Parameters

Parameter	Description	Tool	Value	Unit
ABHM	Array Induction Borehole Correction Mode	AIT-M	Compute Mud Resistivity	
ASTA	Array Induction Tool Standoff	AIT-M	0.125	in
ISSBAR	Barite Mud Presence Flag	Borehole	No	
BHS	Borehole Status (Open or Cased Hole)	Borehole	Open	



BS	Bit Size	WLSESSION	Depth Zoned	in
CALI_SHIFT	CALI Supplementary Offset	HDRS-H	0.05	in
CBLO	Casing Bottom (Logger)	WLSESSION	419	ft
CDEN	Cement Density	HGNS-H	2	g/cm3
CSODDRL	Casing Outer Diameter - Zoned along driller depths	WLSESSION	8.625	in
DFD	Drilling Fluid Density	Borehole	9.2	lbm/gal
DFT_CATEGORY	Drilling Fluid Type	Borehole	Water	
FCD	Future Casing (Outer) Diameter	WLSESSION	5.5	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	AMF	
MPOF	MCFL Processing Operation Mode	HDRS-H	On	
SPDR	SP Drift Per Foot	AIT-M	0	mV/ft

Depth Zone Parameters			
Parameter	Value	Start ( ft )	Stop ( ft )
BS	12.25	400	419
BS	7.875	419	6802
All depth are actual.			

Tool Control Parameters				
1A: Parameters				
Parameter	Description	Tool	Value	Unit
HRGD_BOARD_TYPE	HRGD Board Type	HDRS-H	WITH_HET	
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	1800	ft/h

1A				
5" Induction				

Integration Summary				
Output Channel(s)	Output Description	Input Parameter	Output Value	Unit
ICV	Integrated Cement Volume	GCSE_UP_PASS, FCD	1606.04	ft3
IHV	Integrated Hole Volume	GCSE_UP_PASS	2661.82	ft3

Software Version	
Acquisition System	Version
Maxwell 2018 SP1	8.1.99839.3100
Application Patch	Wireline_Hotfix-Mandatory-2018SP1_8.1.102865

Pass Summary									
Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
1A	Log[4]:Up	Up	89.66 ft	6818.83 ft	22-Jul-2018 7:44:13 AM	22-Jul-2018 11:26:52 AM	ON	6.97 ft	Yes

All depths are referenced to toolstring zero

Log	Company:OMIMEX PETROLEUM				Well:DRACO #4-20-1-48	
	1A: Log[4]:Up:S007					
Description: AIT Basic Log Two    Format: Log ( EMD 5in Induction )    Index Scale: 5 in per 100 ft    Index Unit: ft    Index Type: Measured Depth    Creation Date: 22-Jul-2018 12:13:04						

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
BS	Borehole	6in - RT
CALI	HDRS-H:HRCC-H:HRCC-H	1in
GR	HGNS-H:HGNS-H:HGNS-H	6in
ICV	Borehole	6in - RT
IHV	Borehole	6in - RT
RXOZ	HDRS-H:HRMS-H:HRGD-H	2in
SP	AIT-M:AMIS:AMIS	6in
TENS	WLWorkflow	6in
TIME_1900	WLWorkflow	0.1in

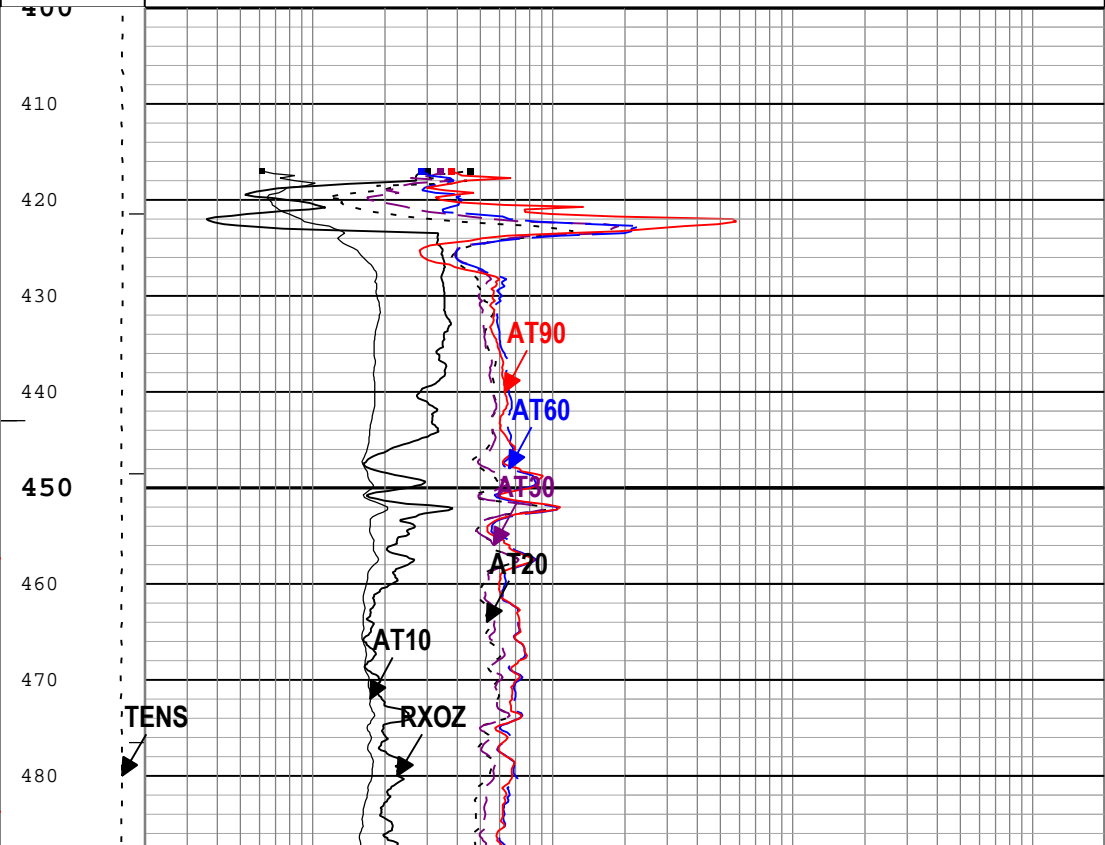
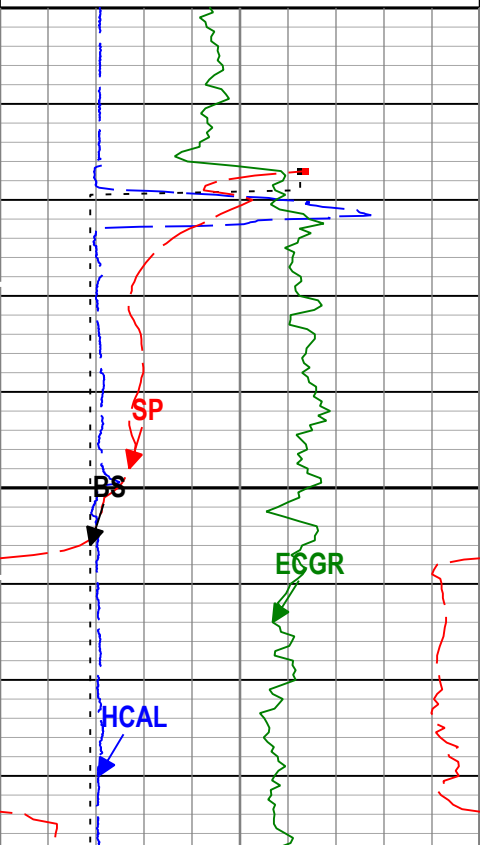
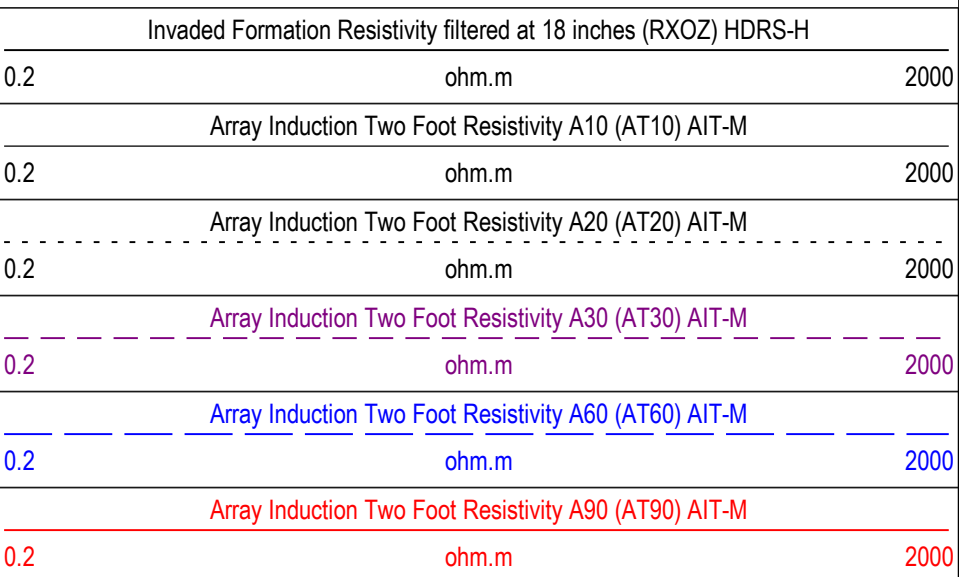
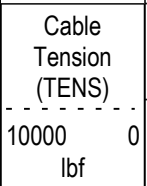
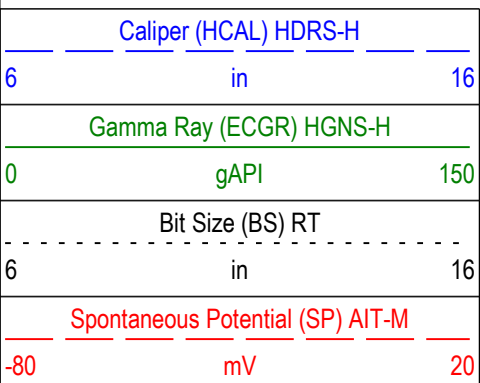
— IHV - Integrated Hole Volume every 10.00 (ft3)

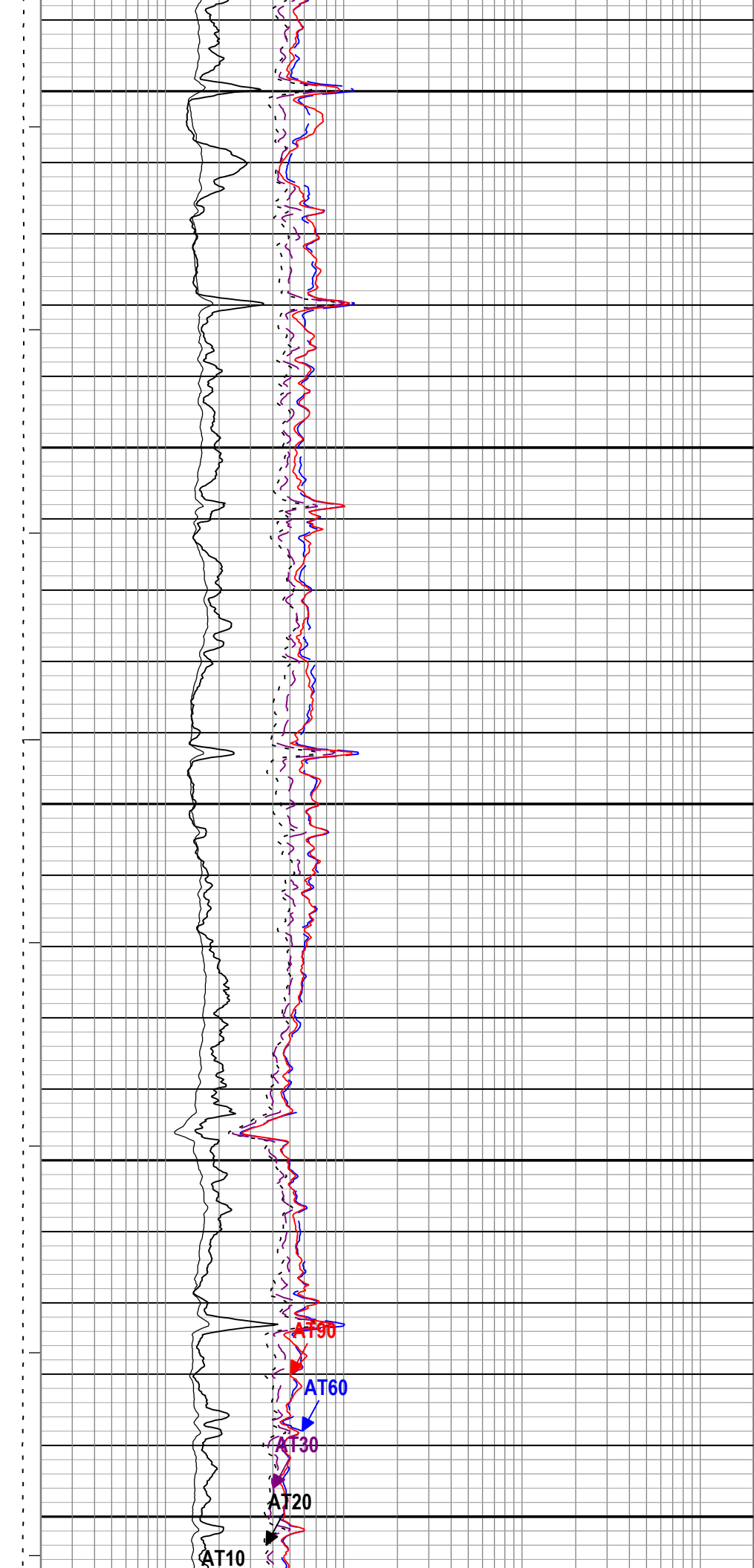
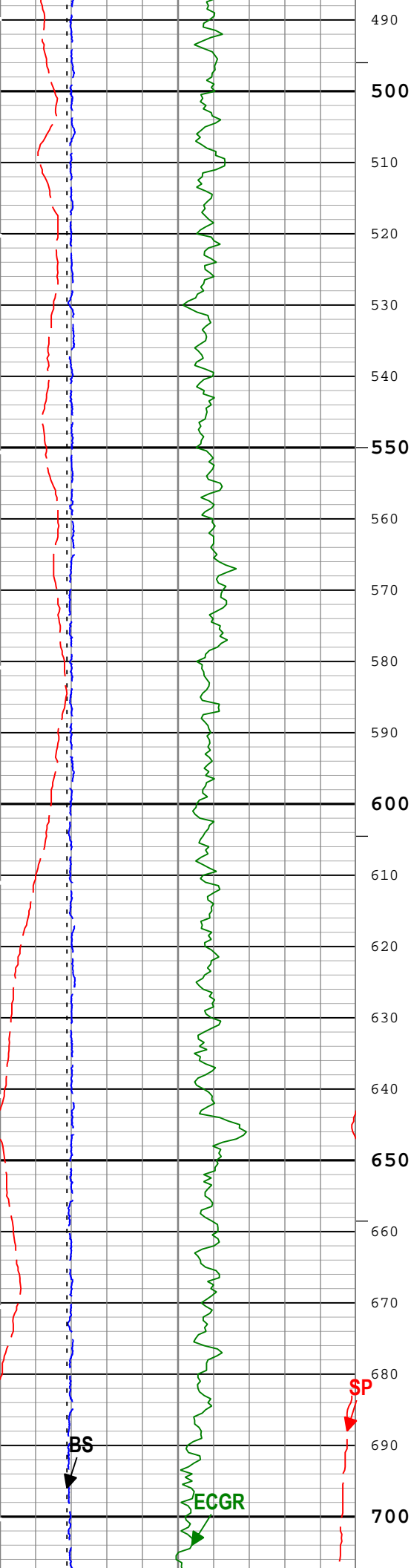
— IHV - Integrated Hole Volume every 100.00 (ft3)

— ICV - Integrated Cement Volume every 10.00 (ft3)

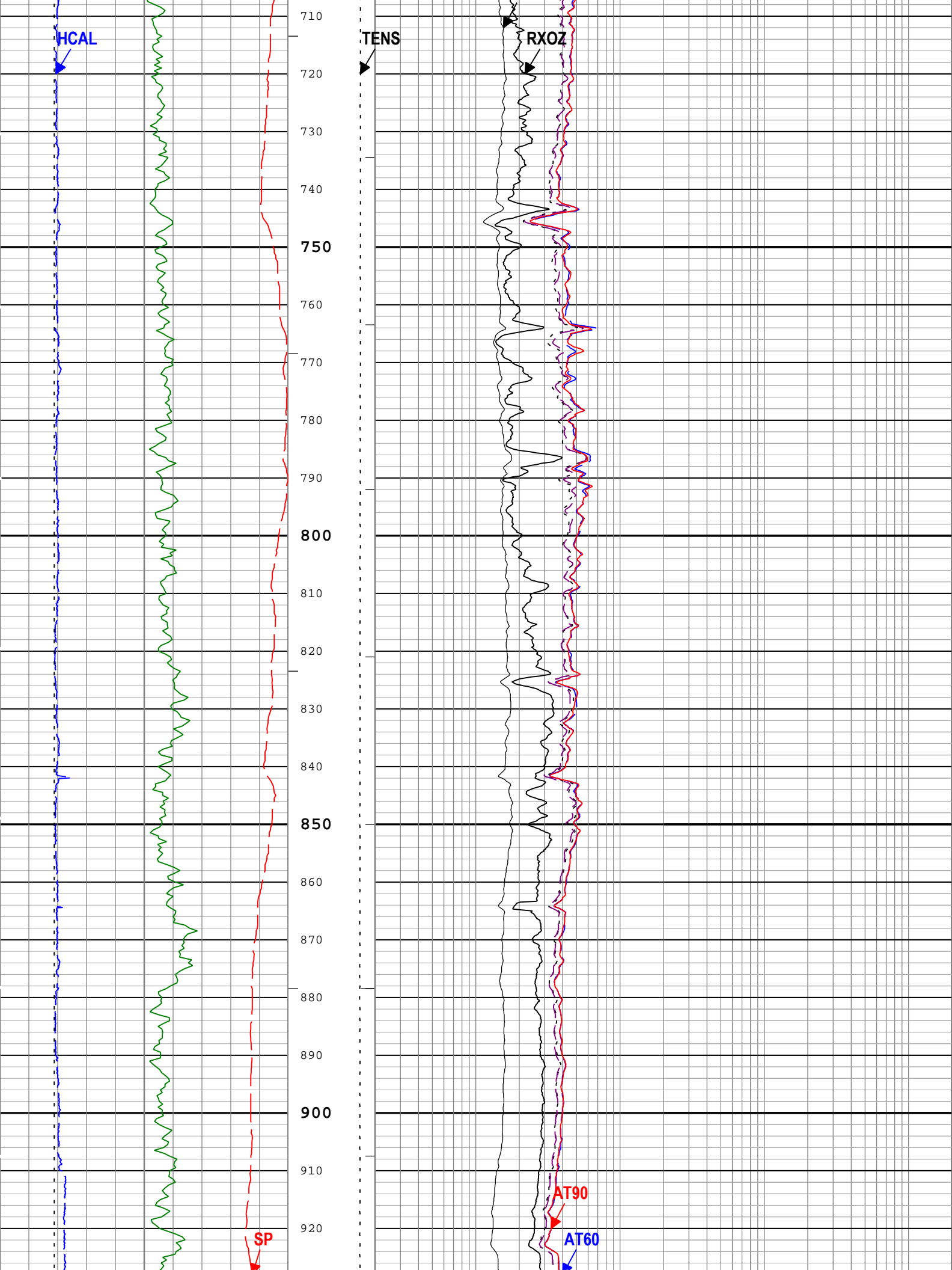
— ICV - Integrated Cement Volume every 100.00 (ft3)

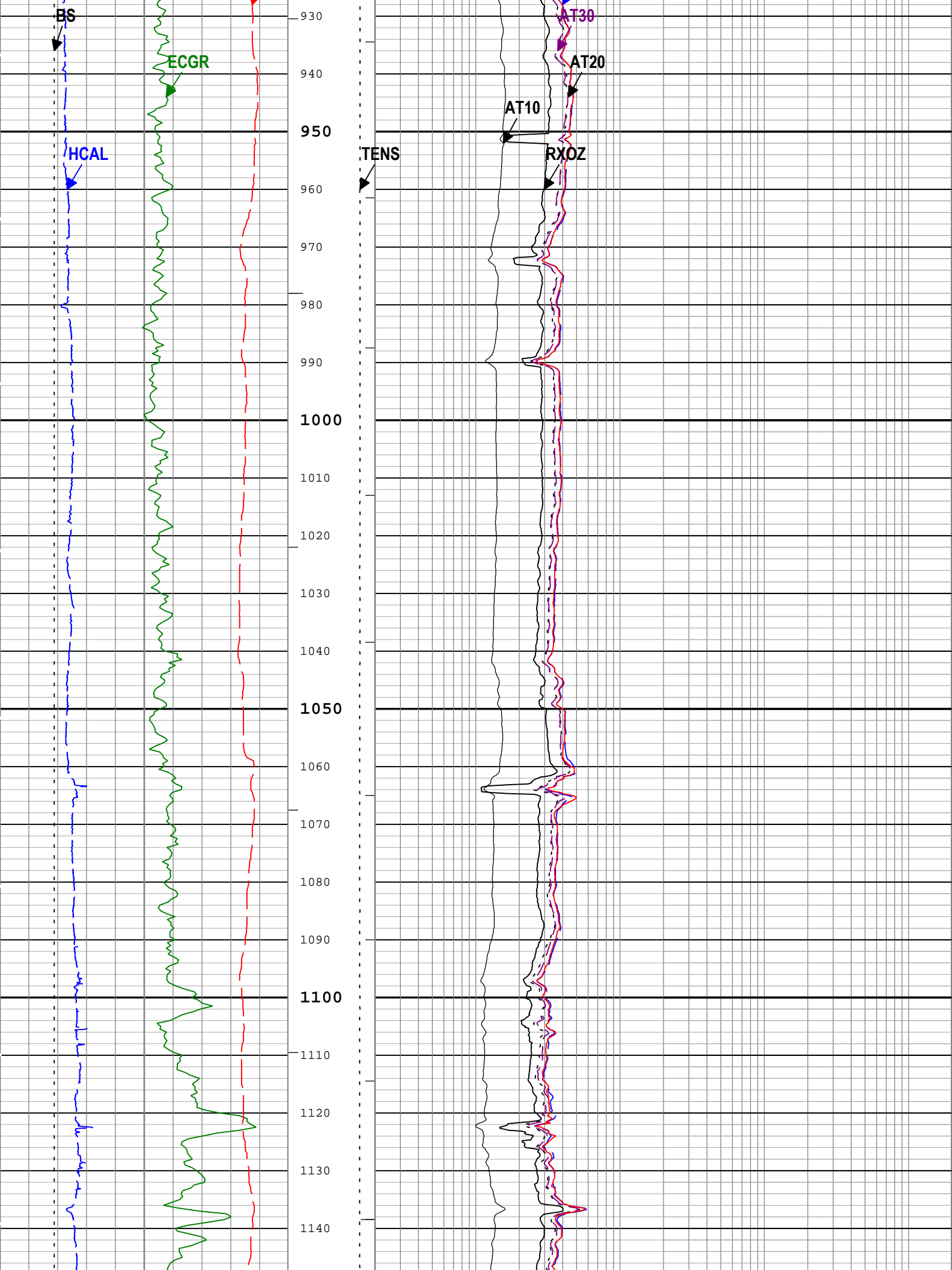
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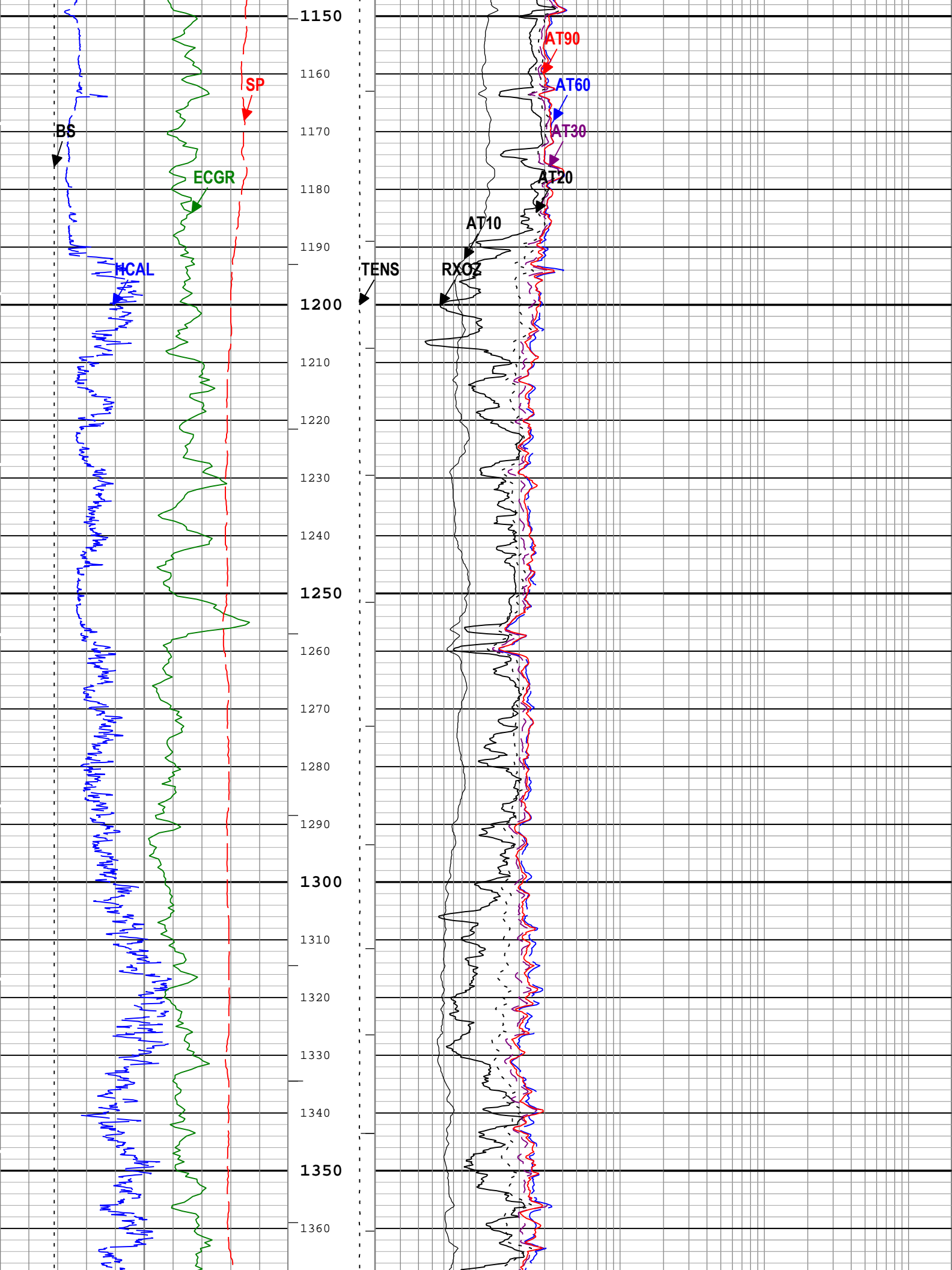


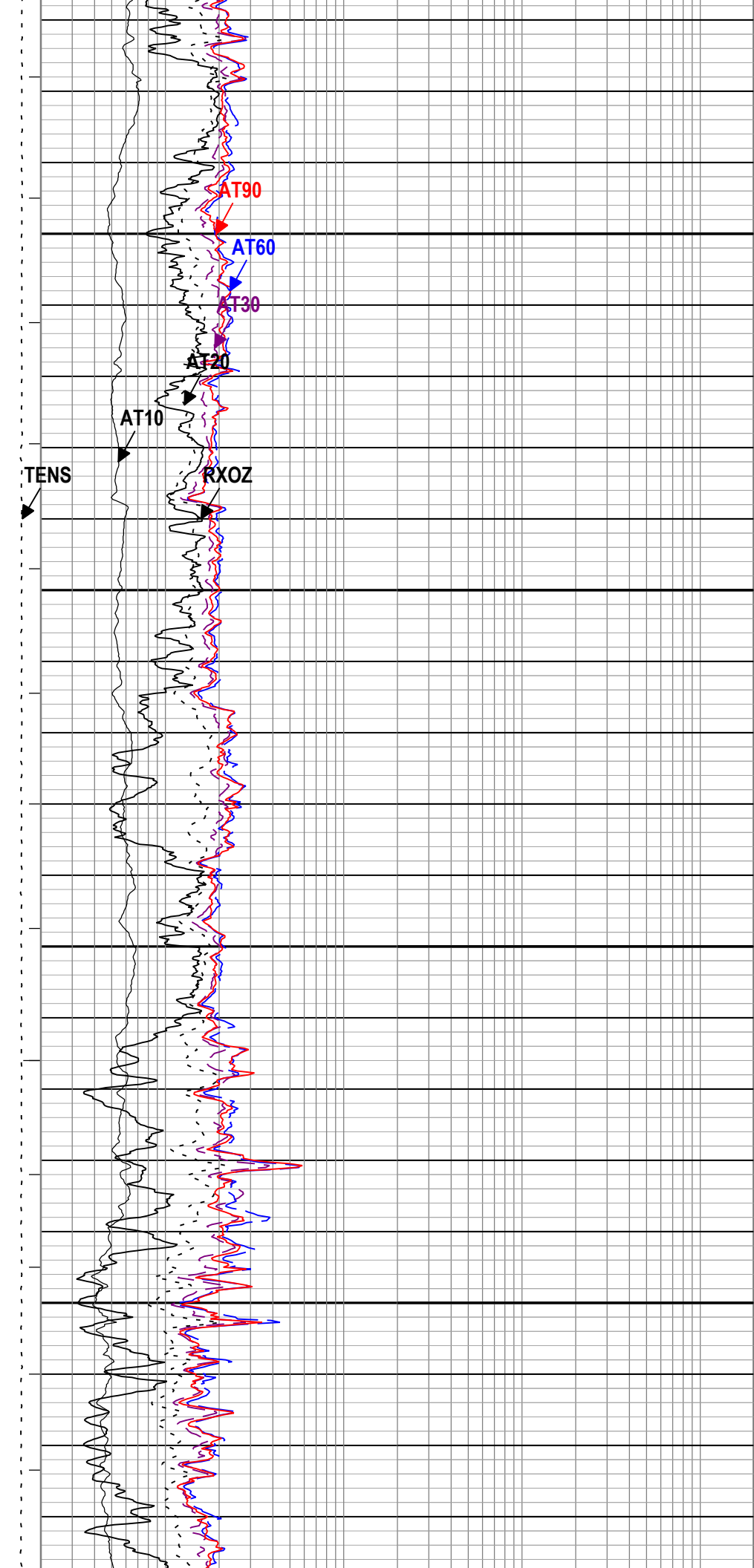
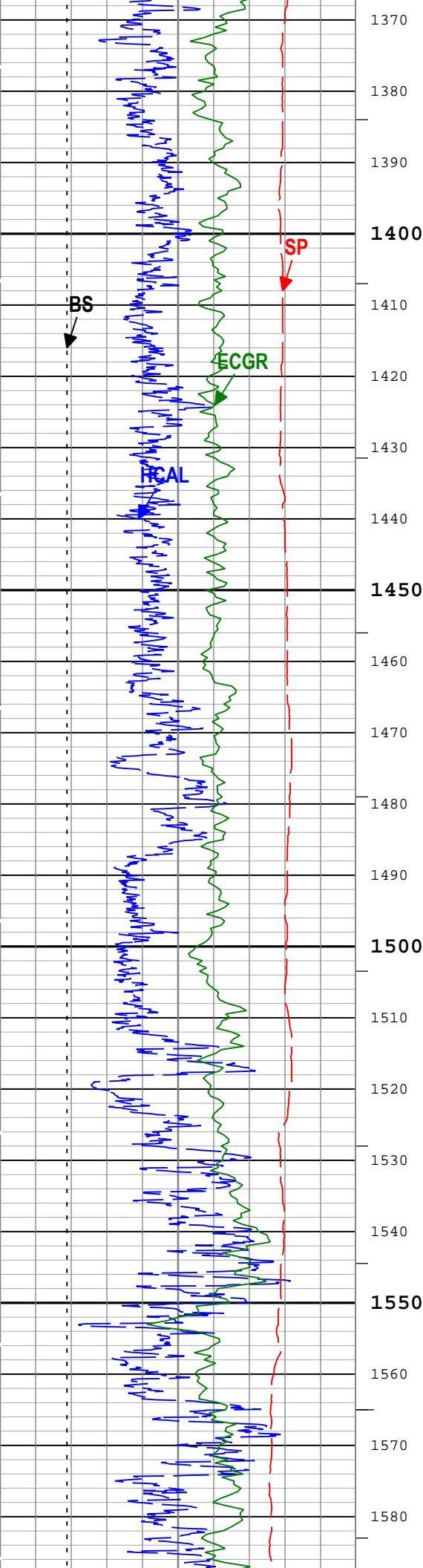


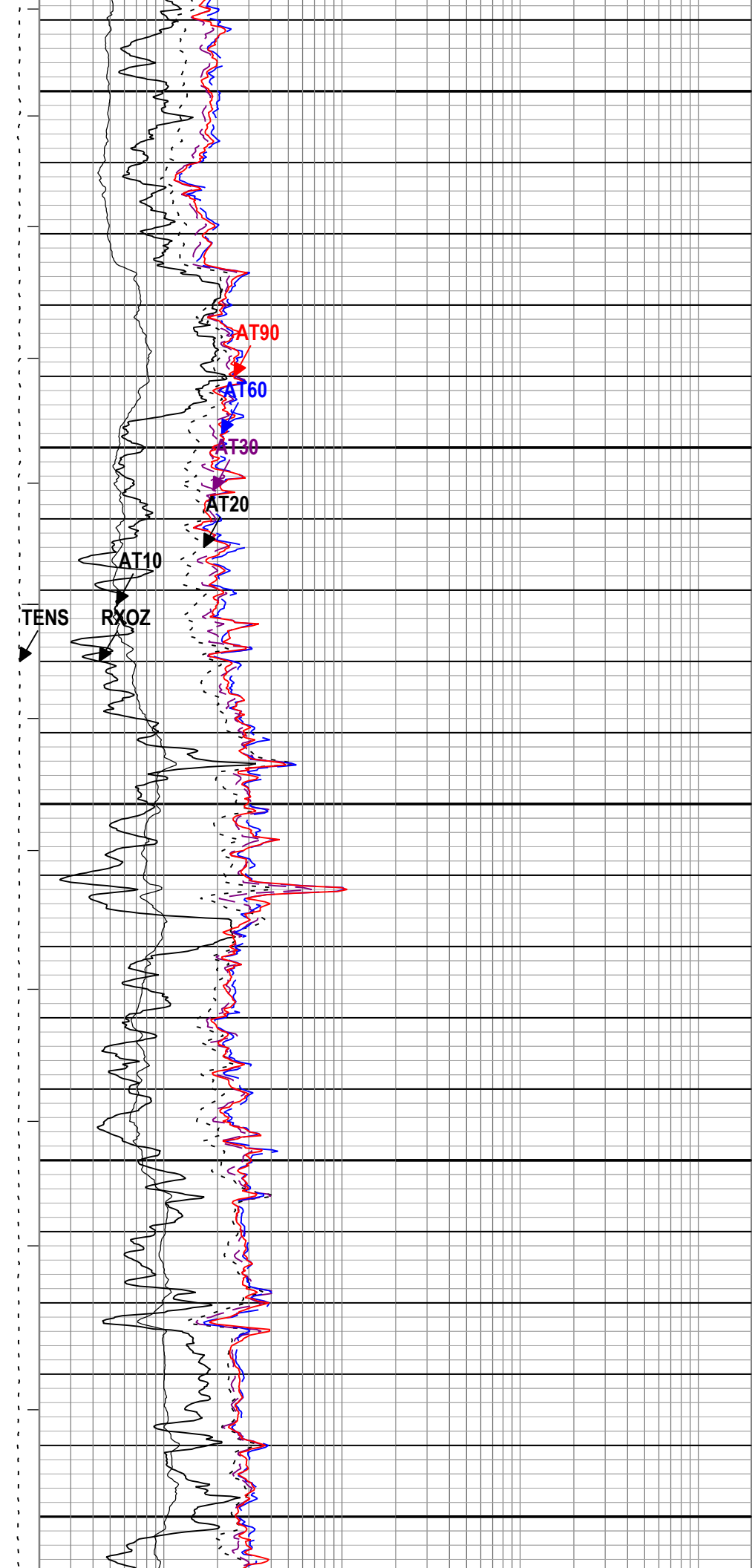
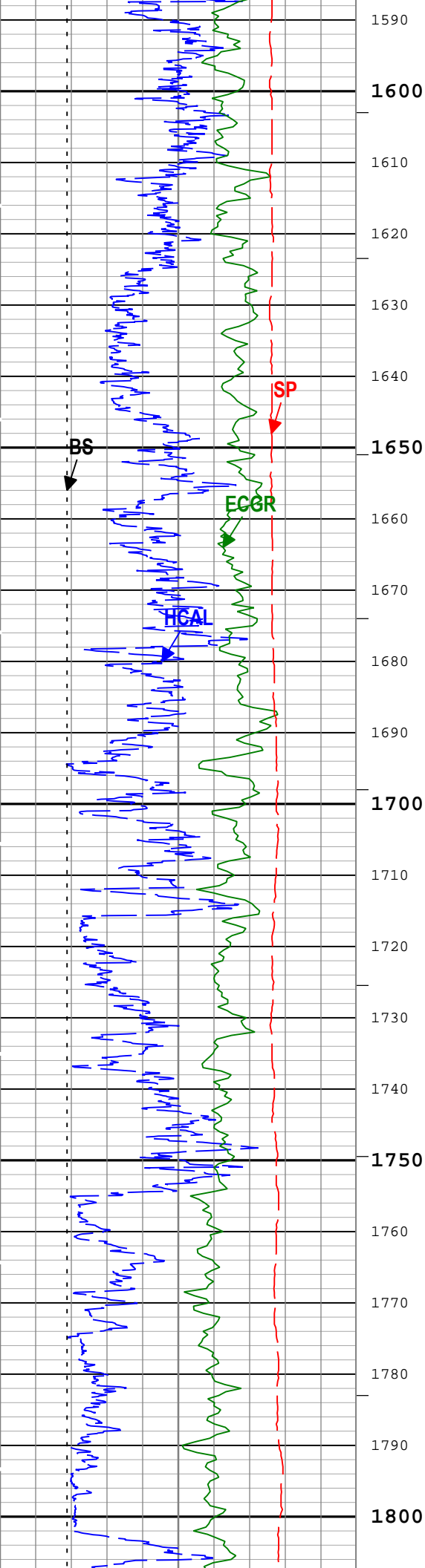


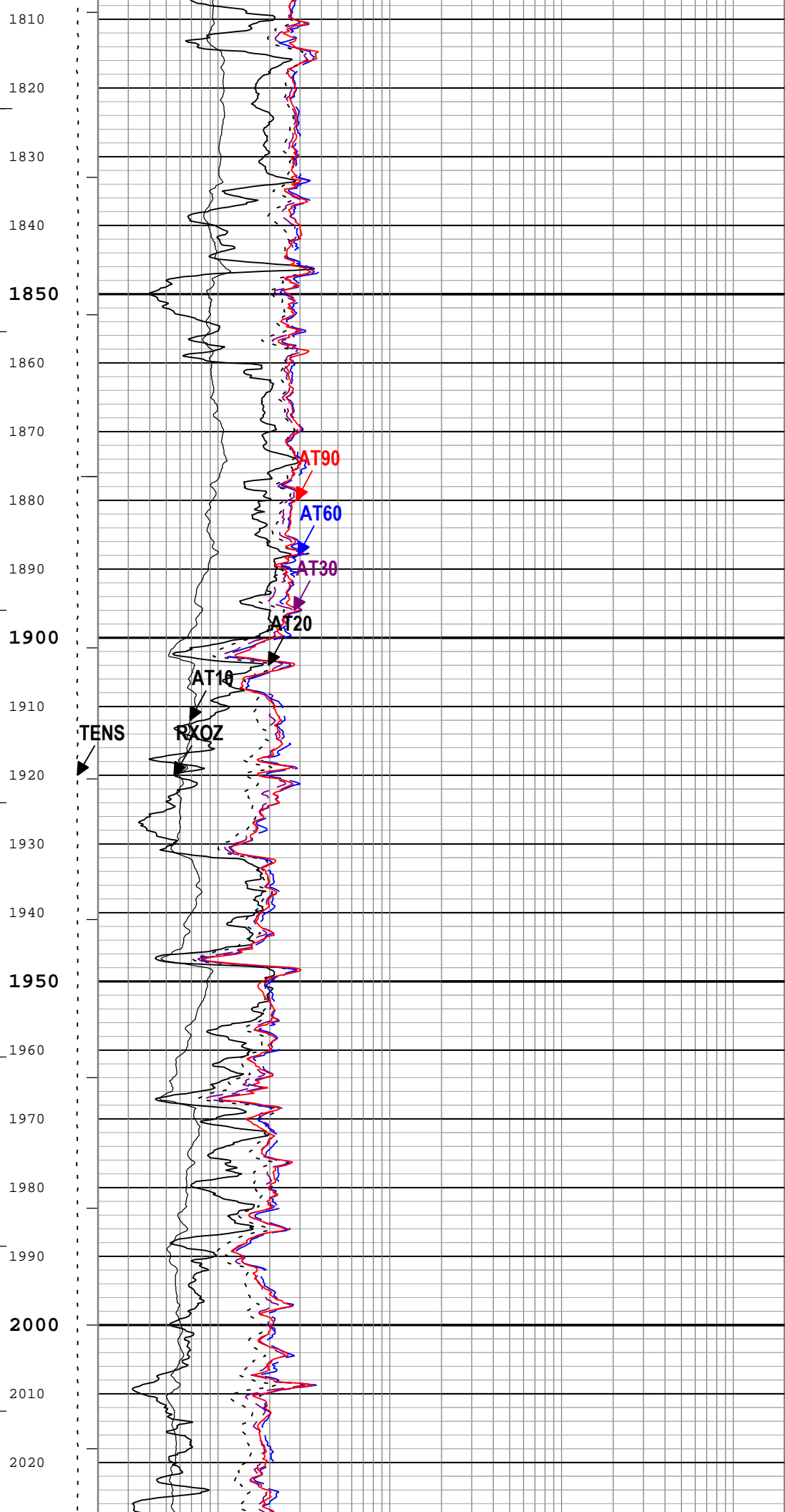
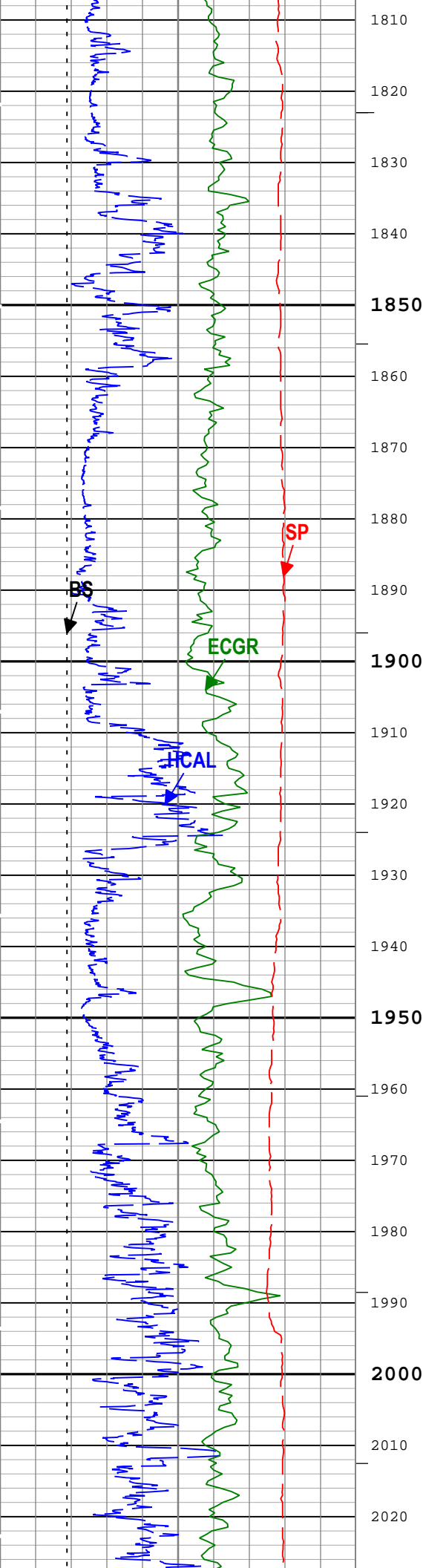


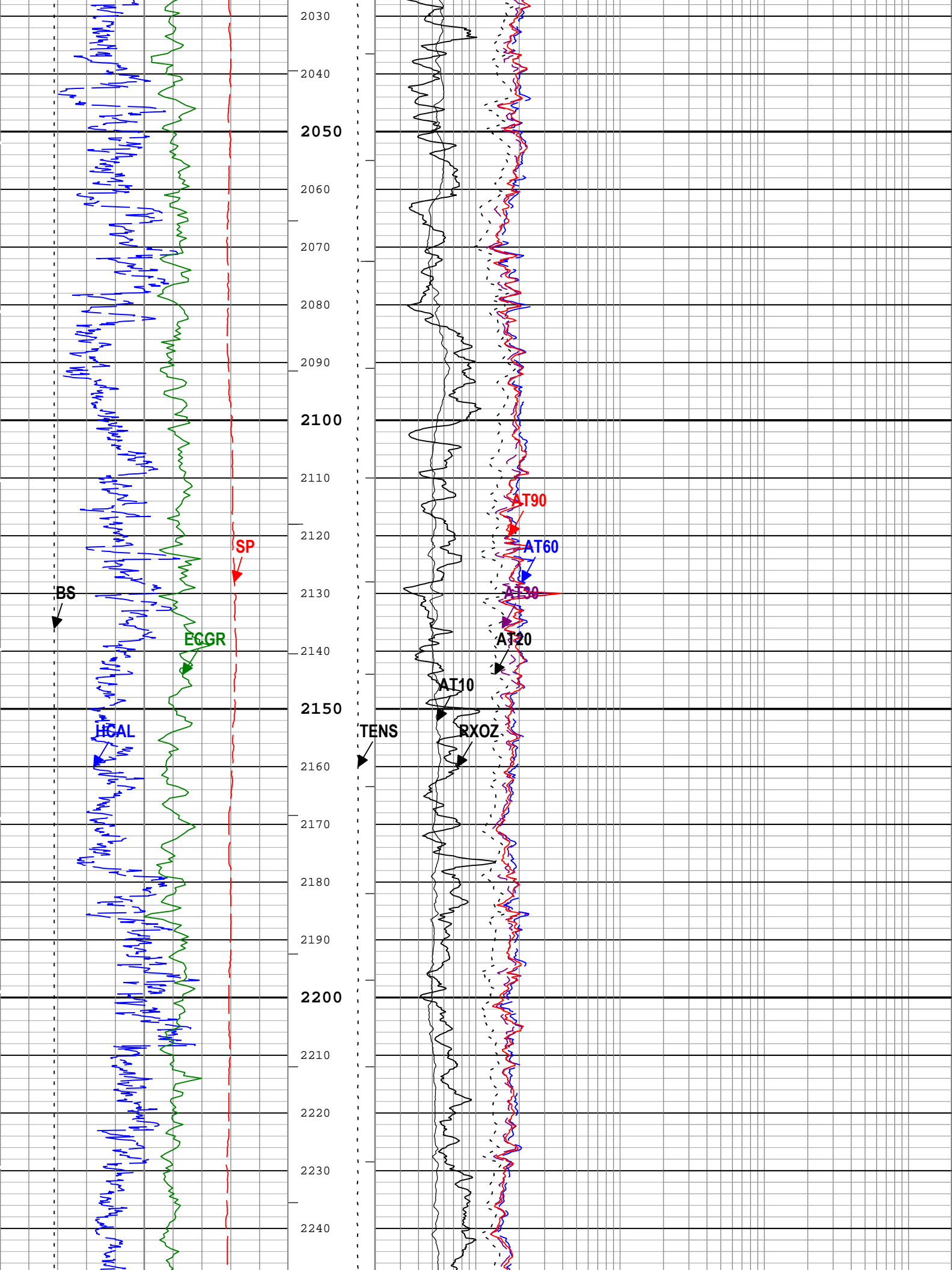


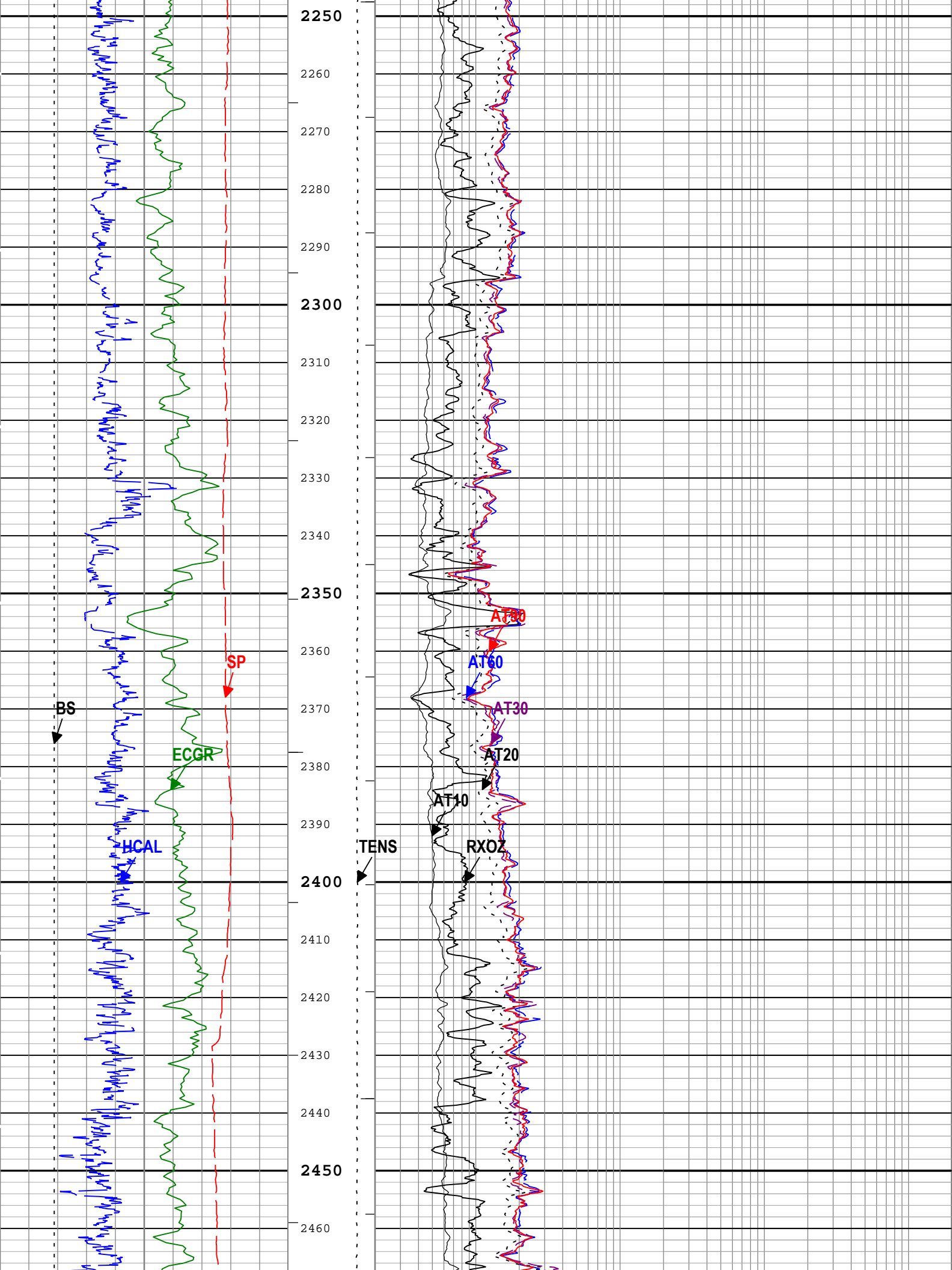




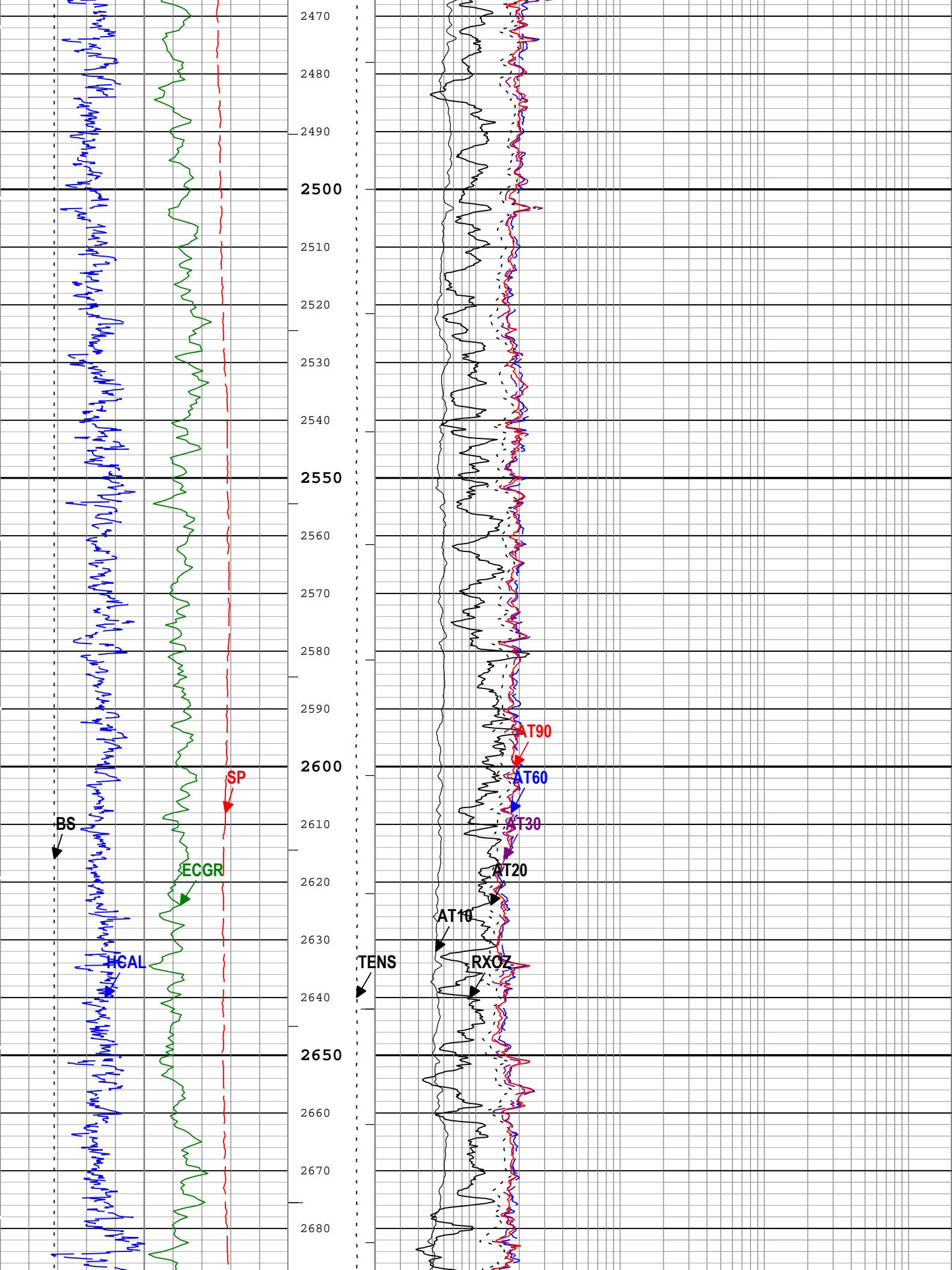


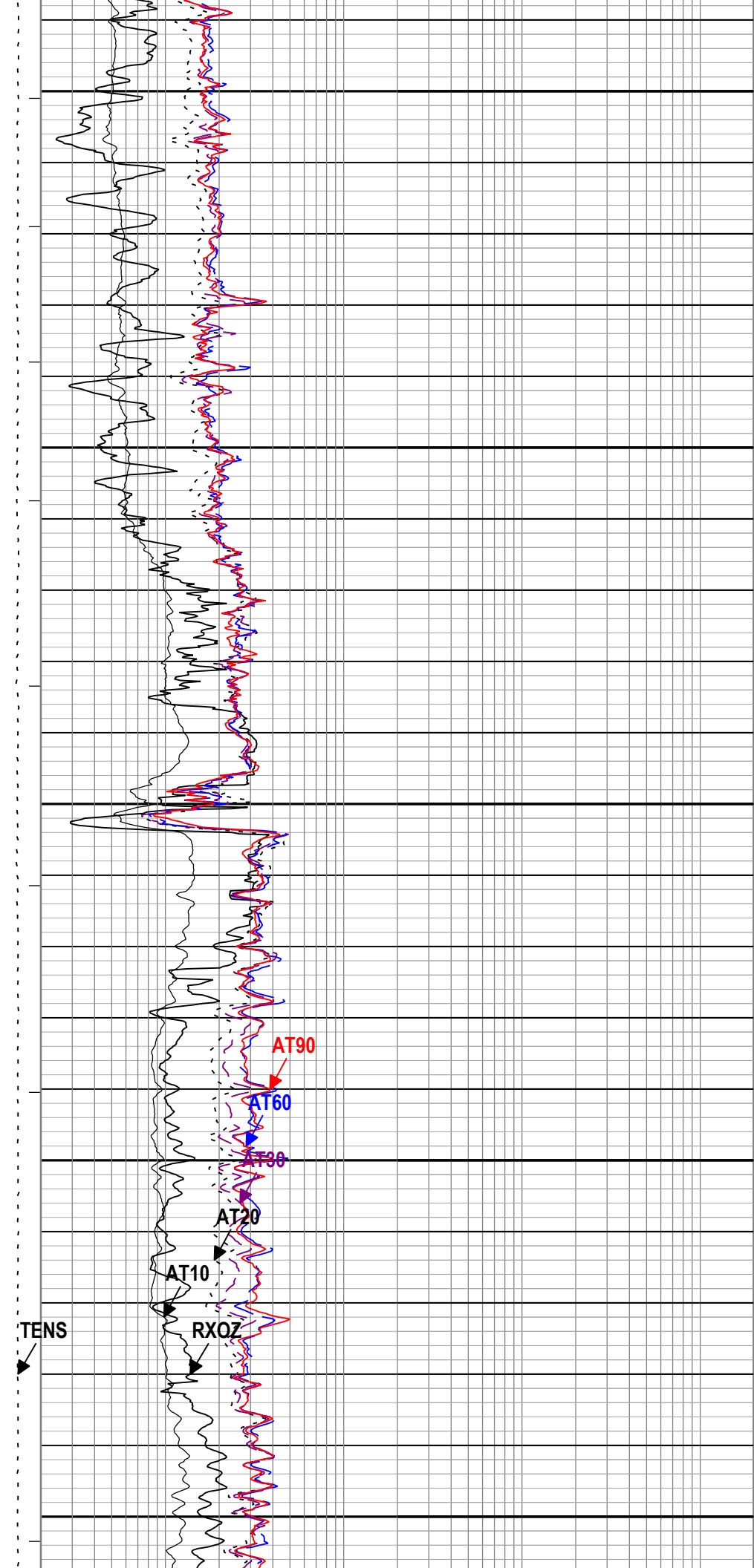
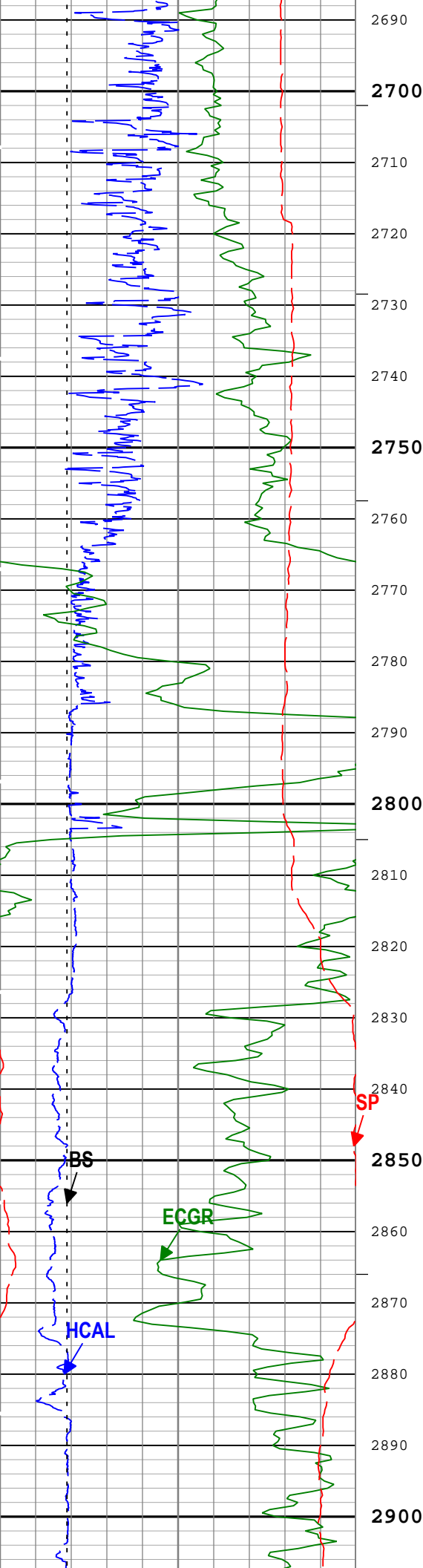


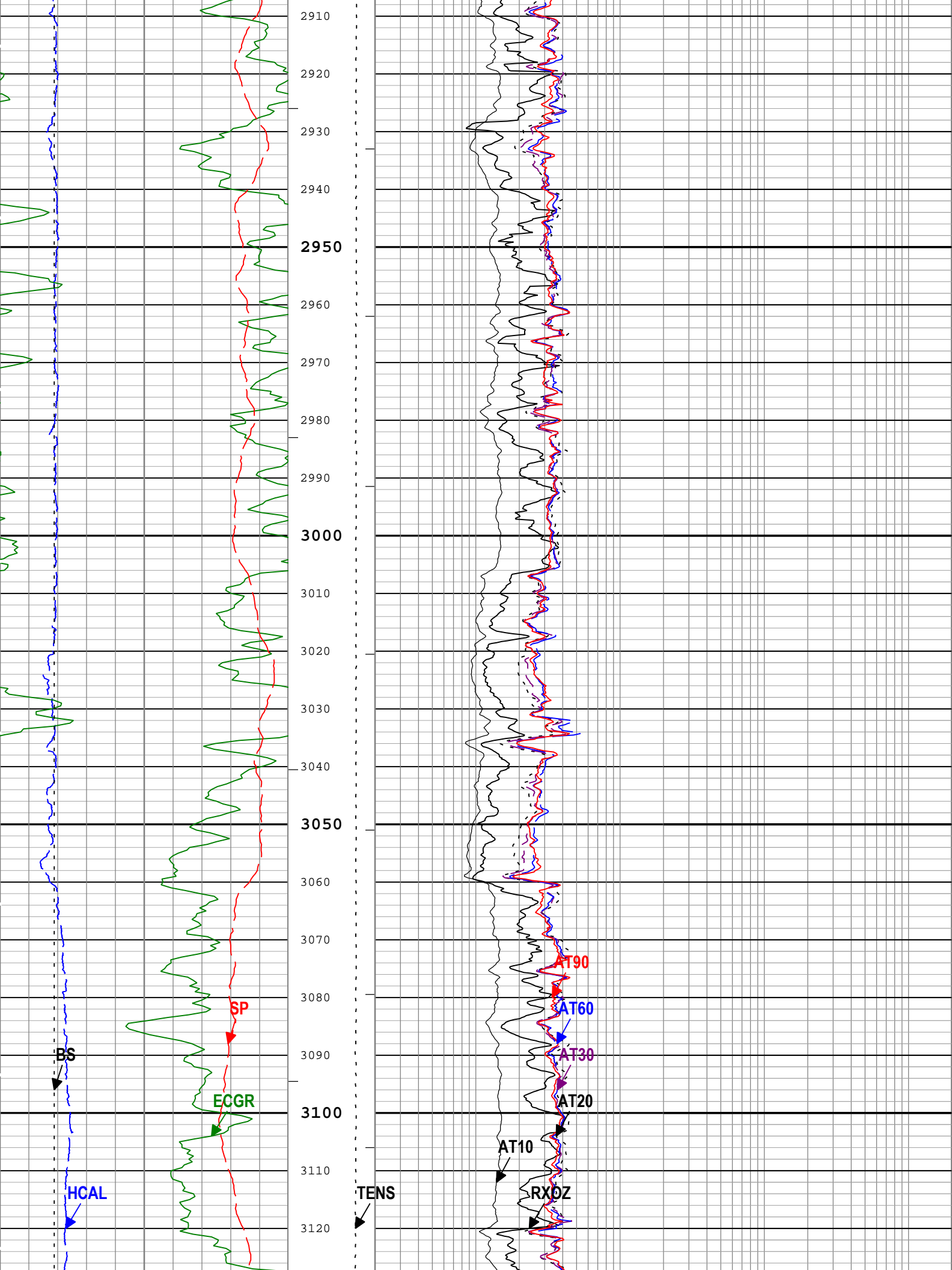


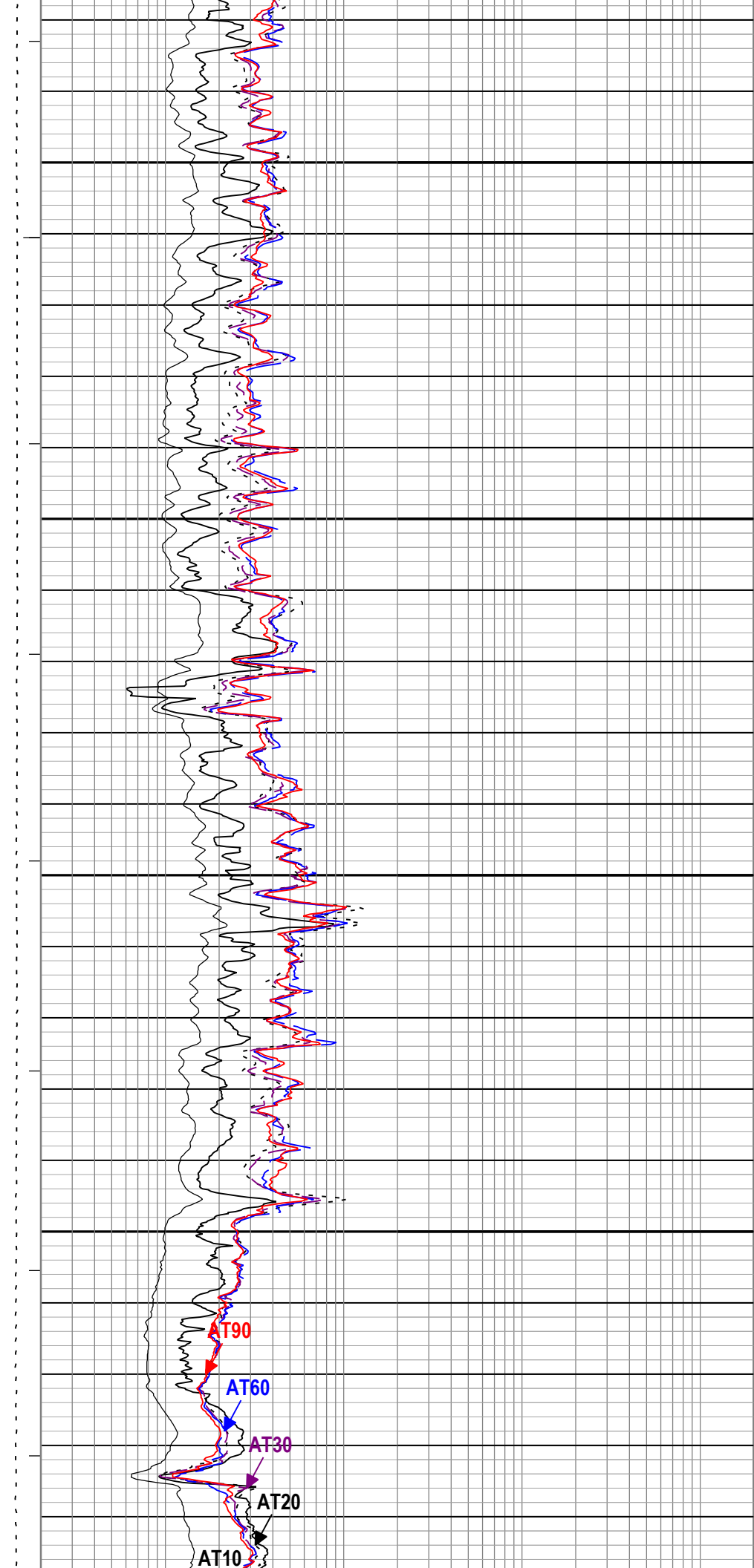
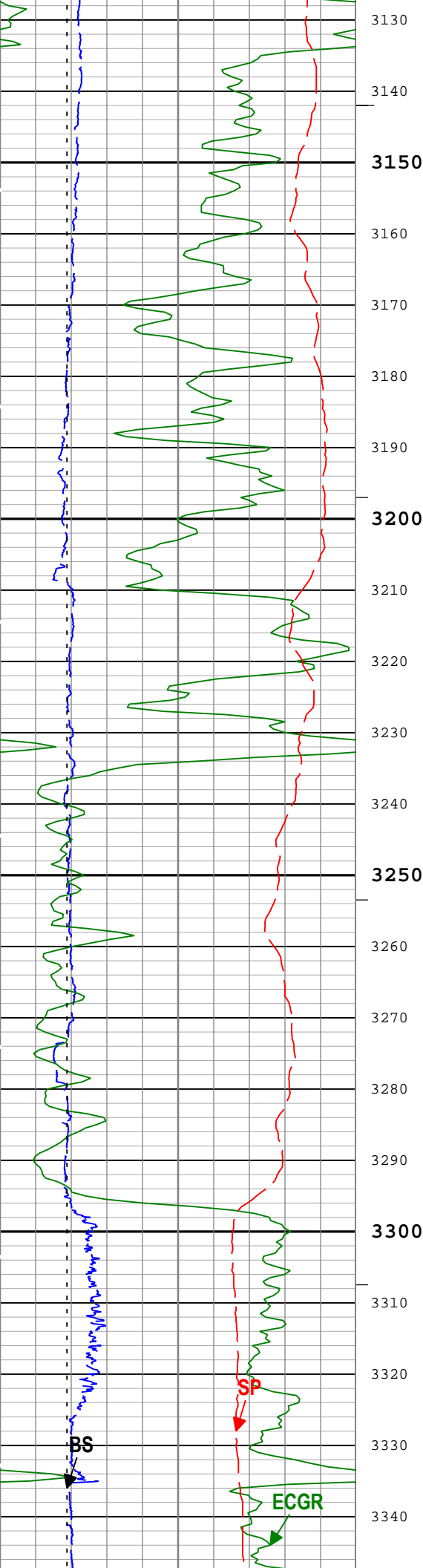


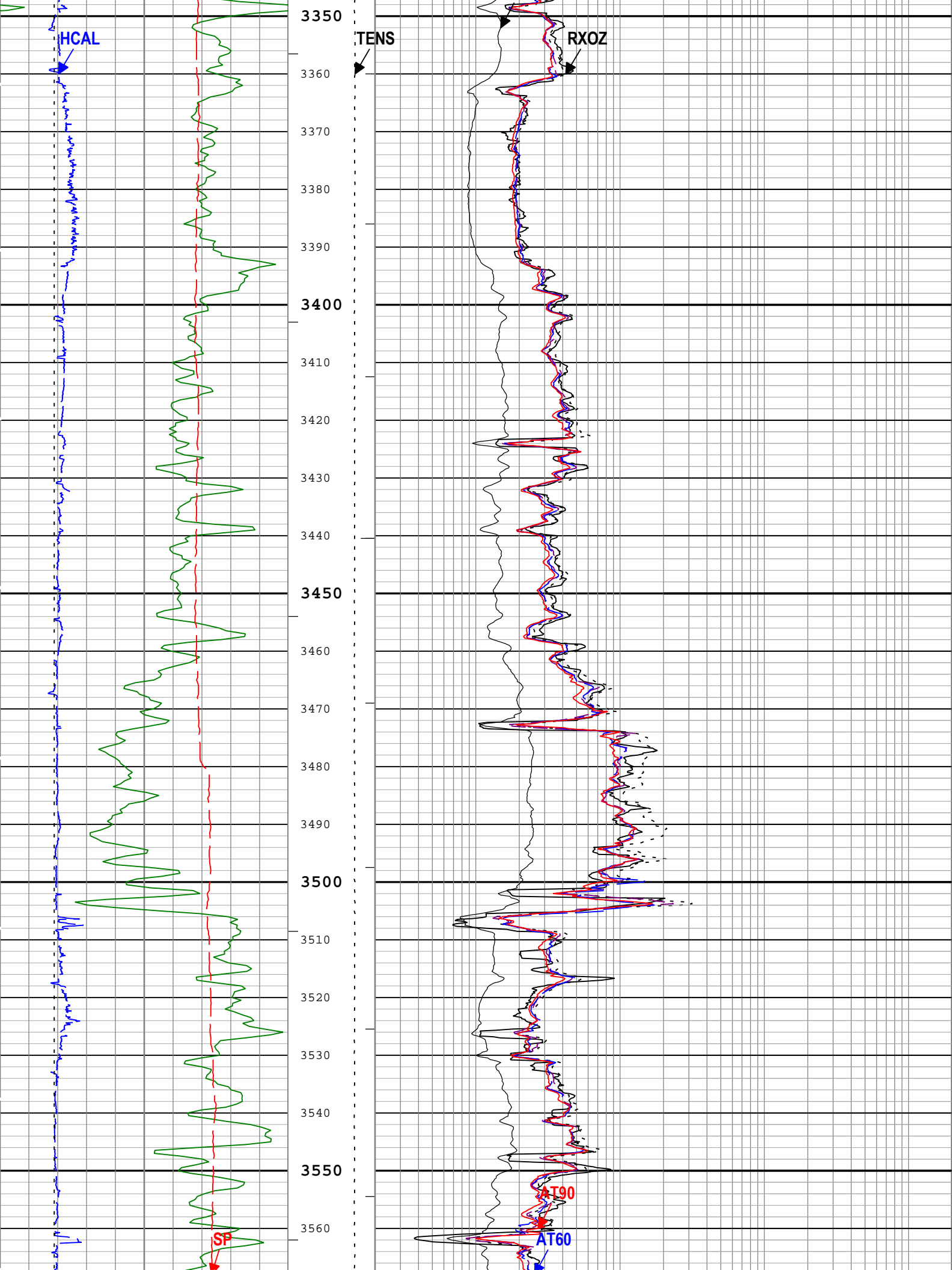


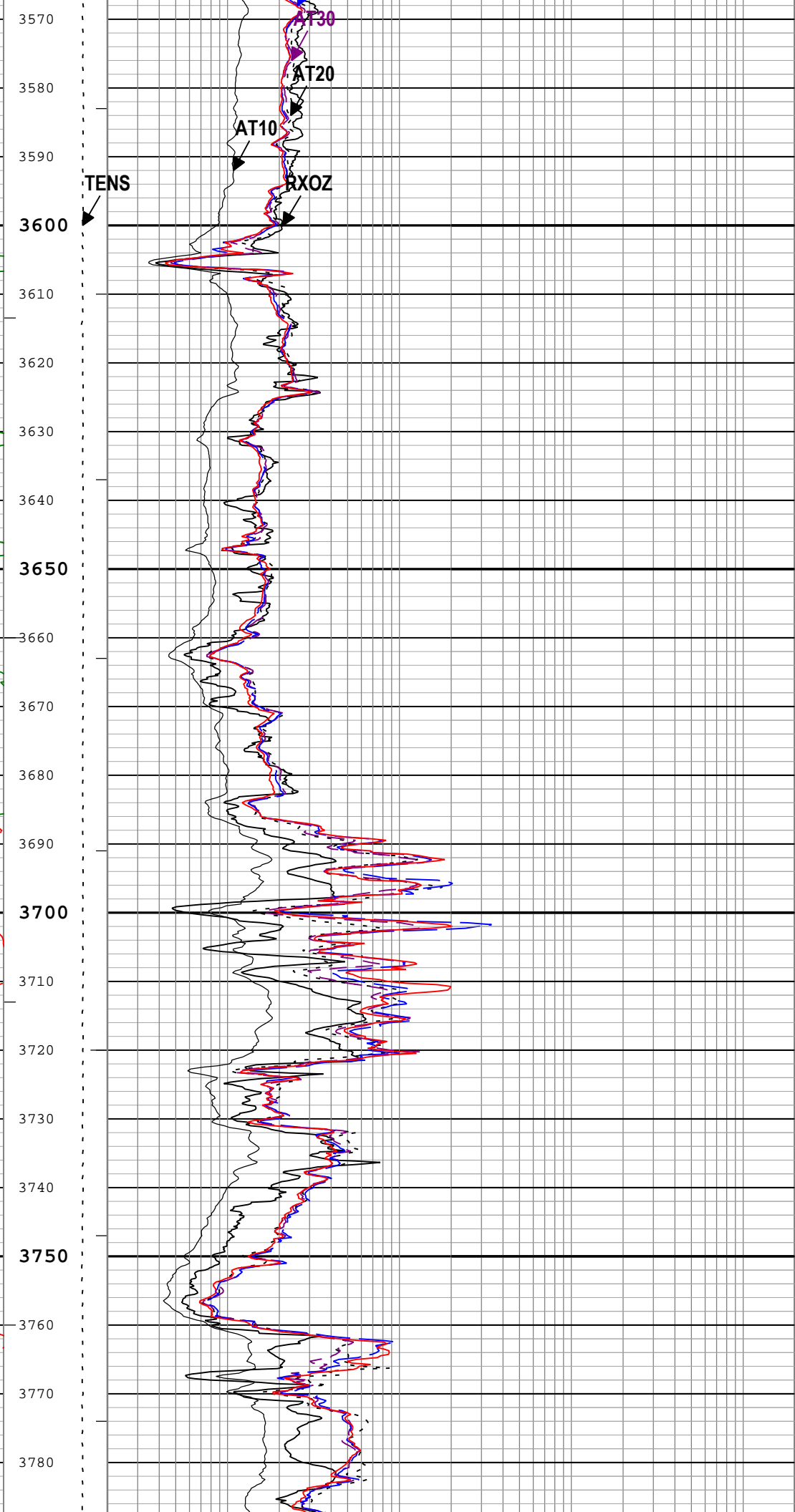
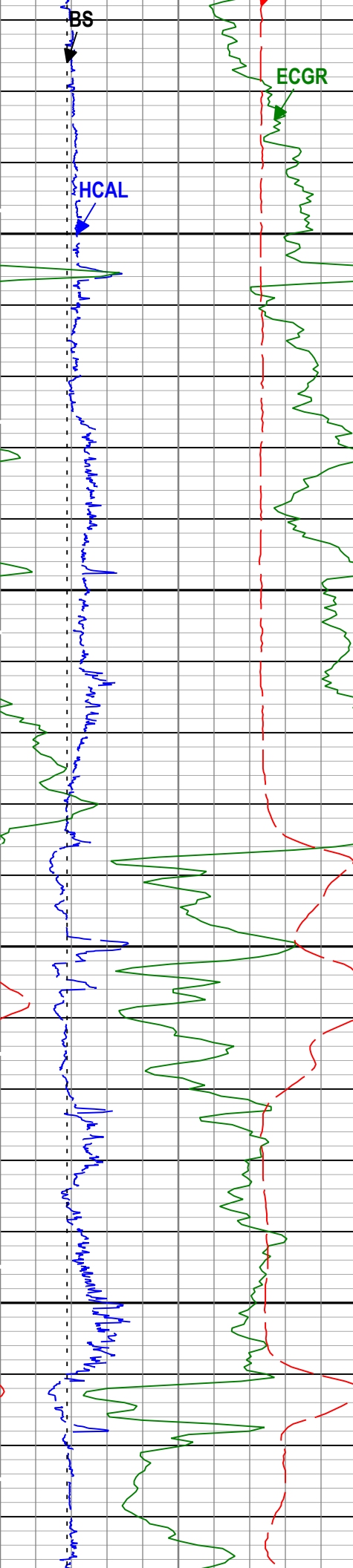


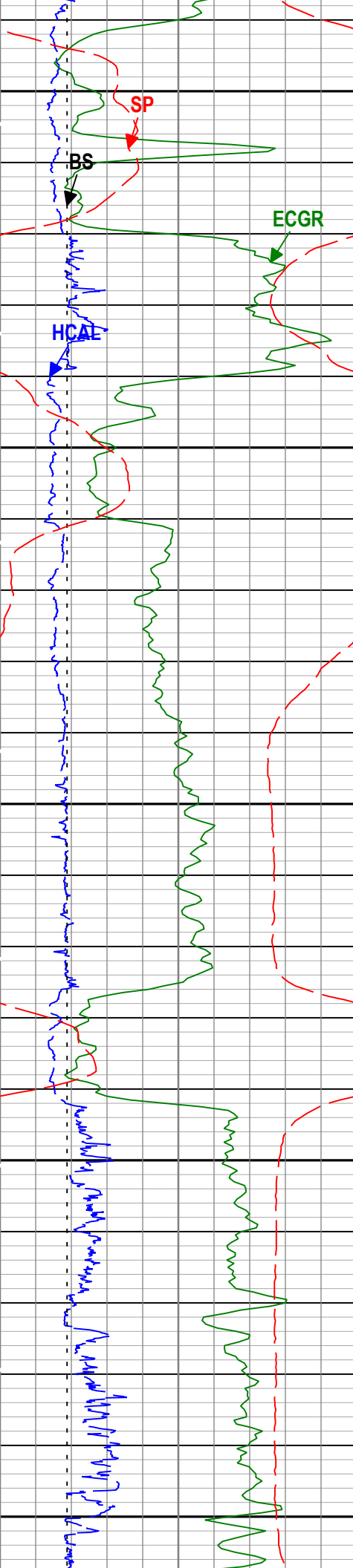




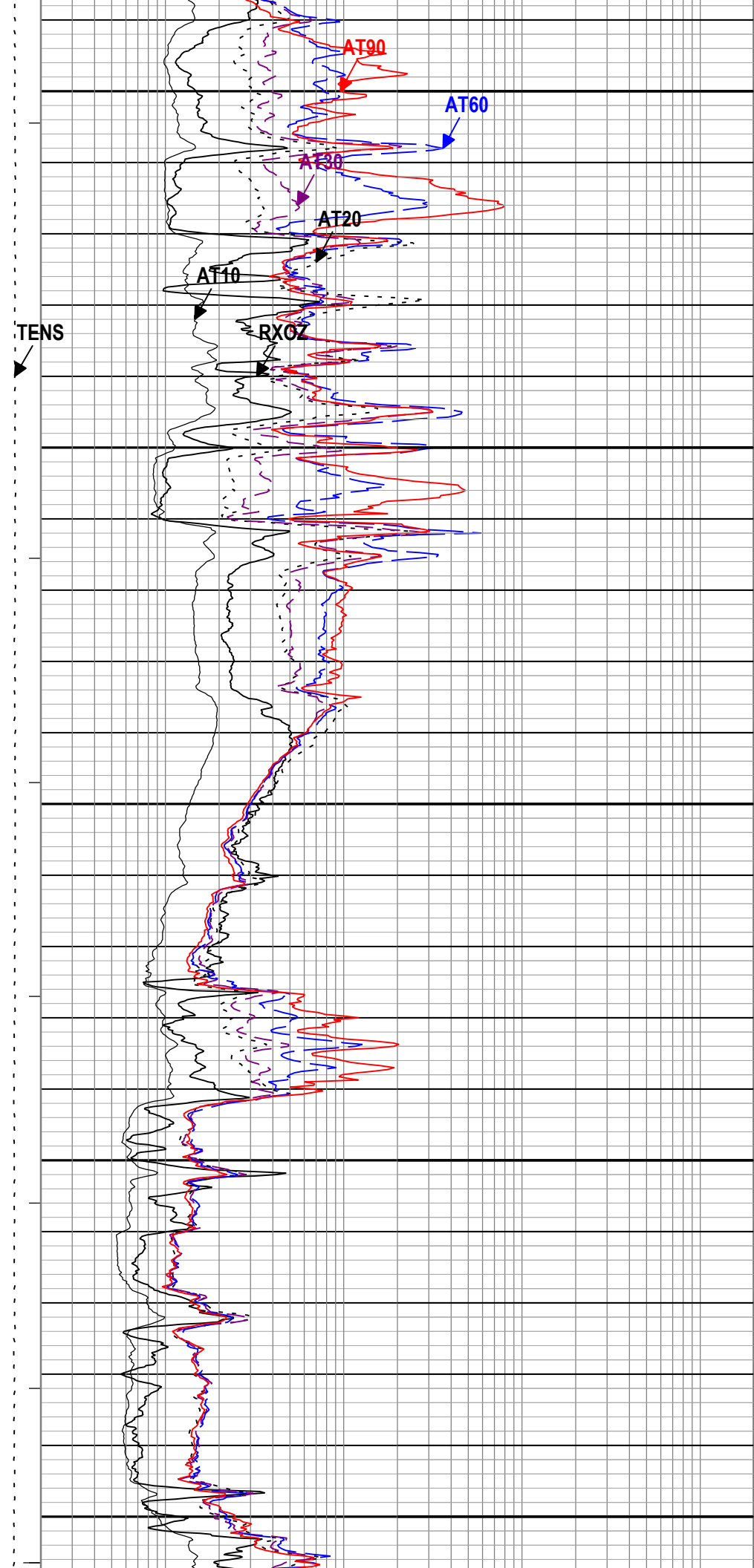


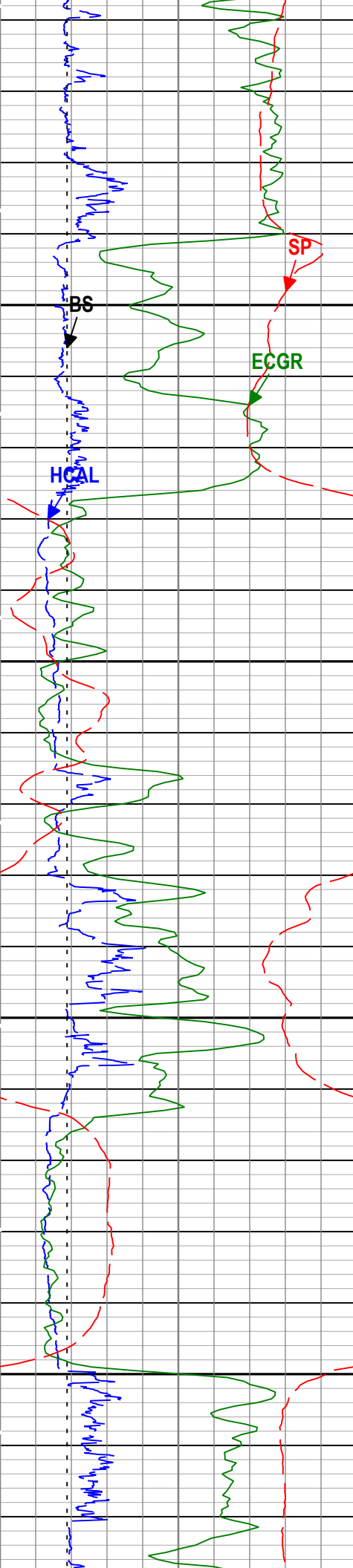




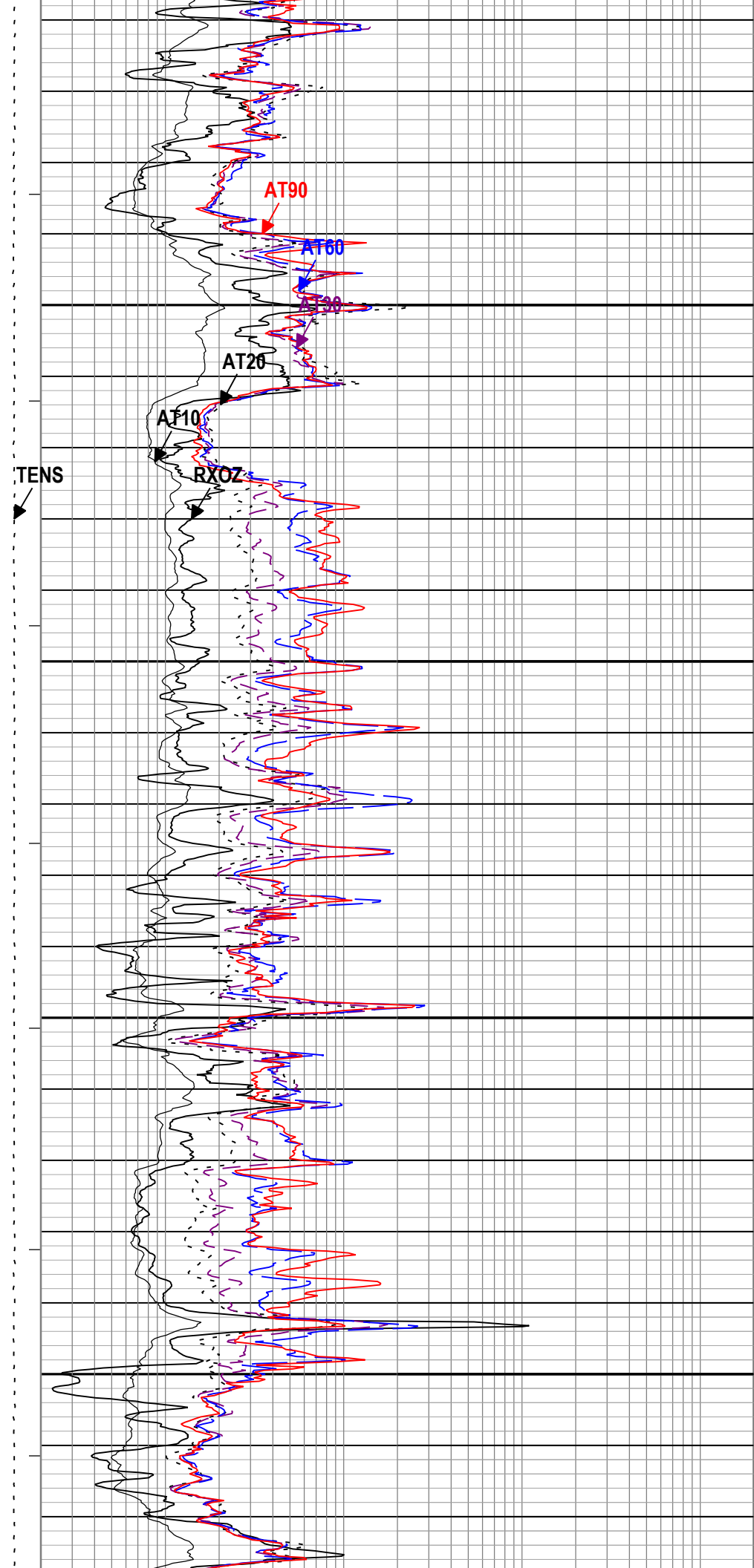


3790  
3800  
3810  
3820  
3830  
3840  
3850  
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3970  
3980  
3990  
4000

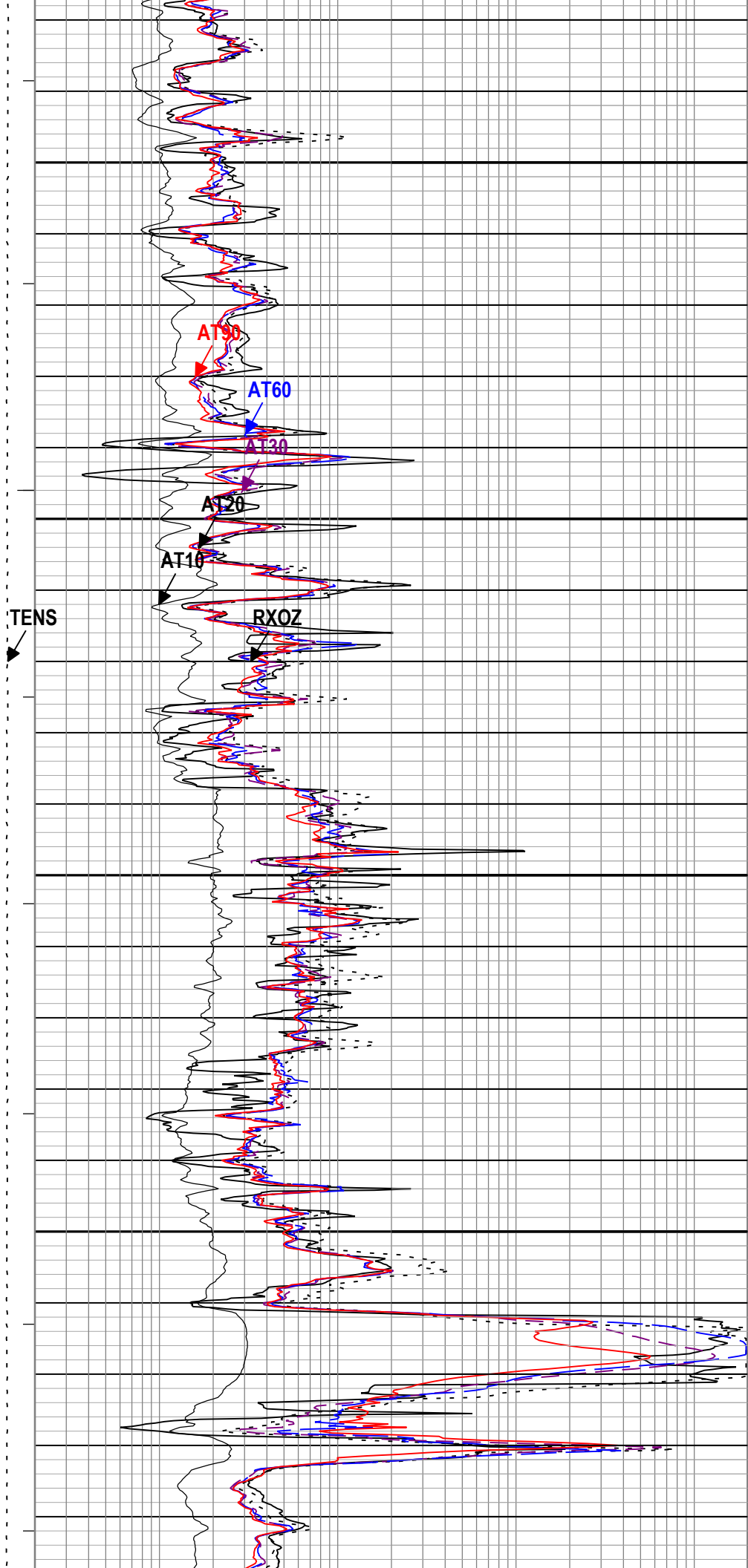
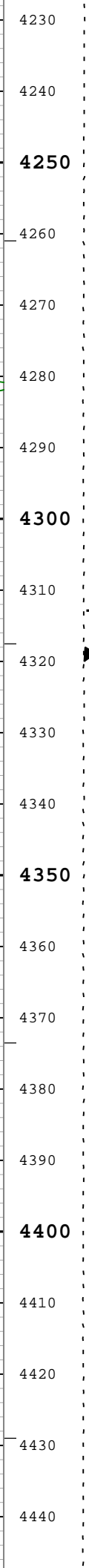
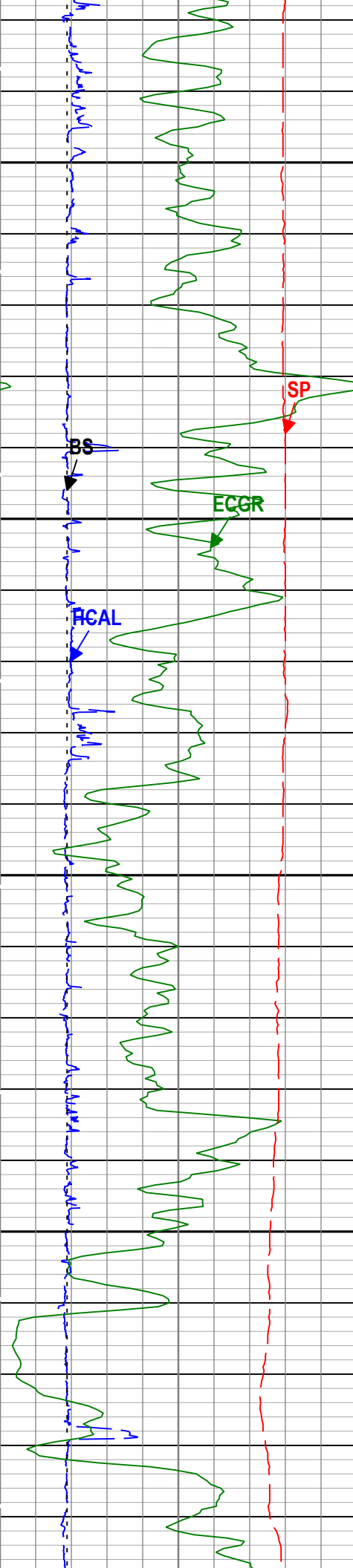


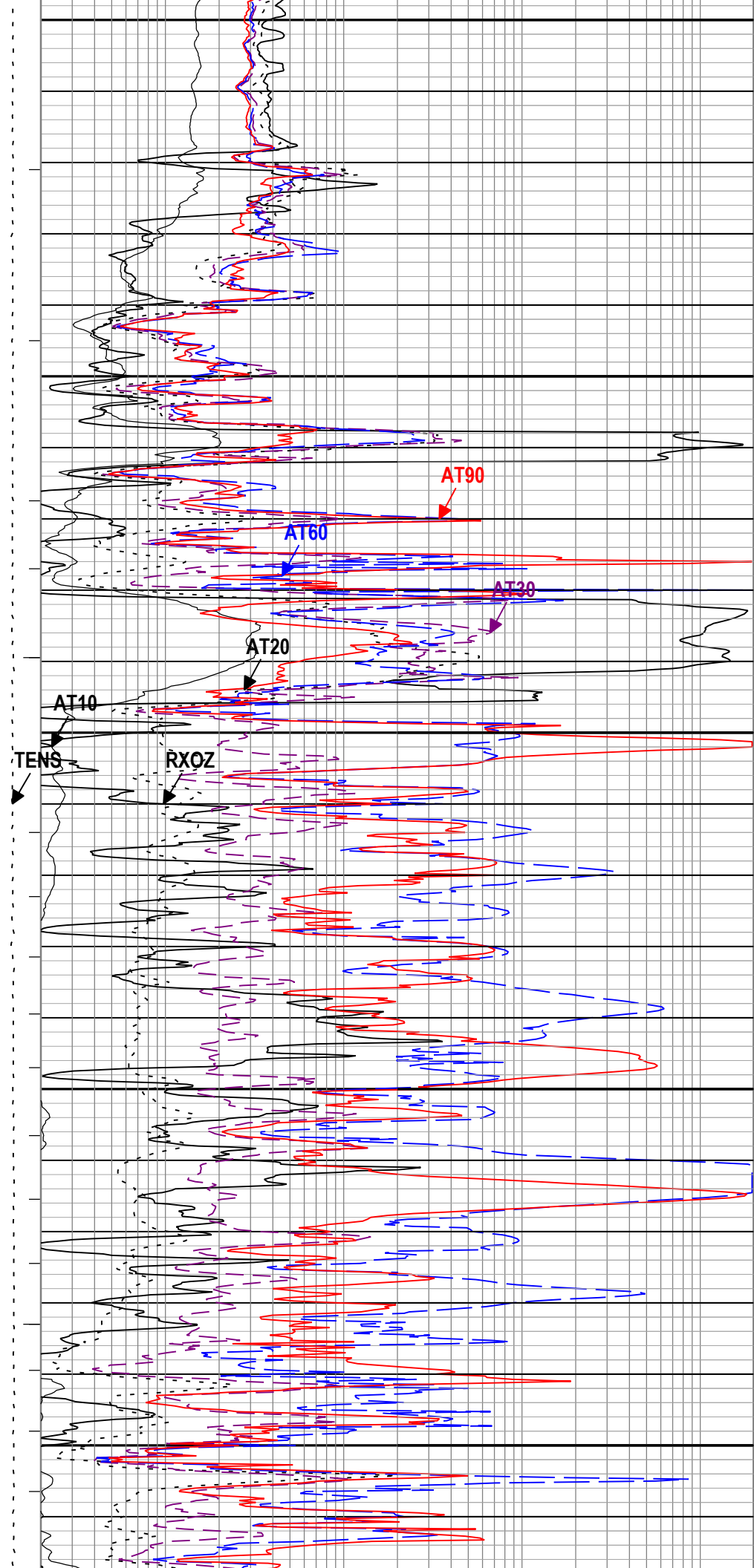
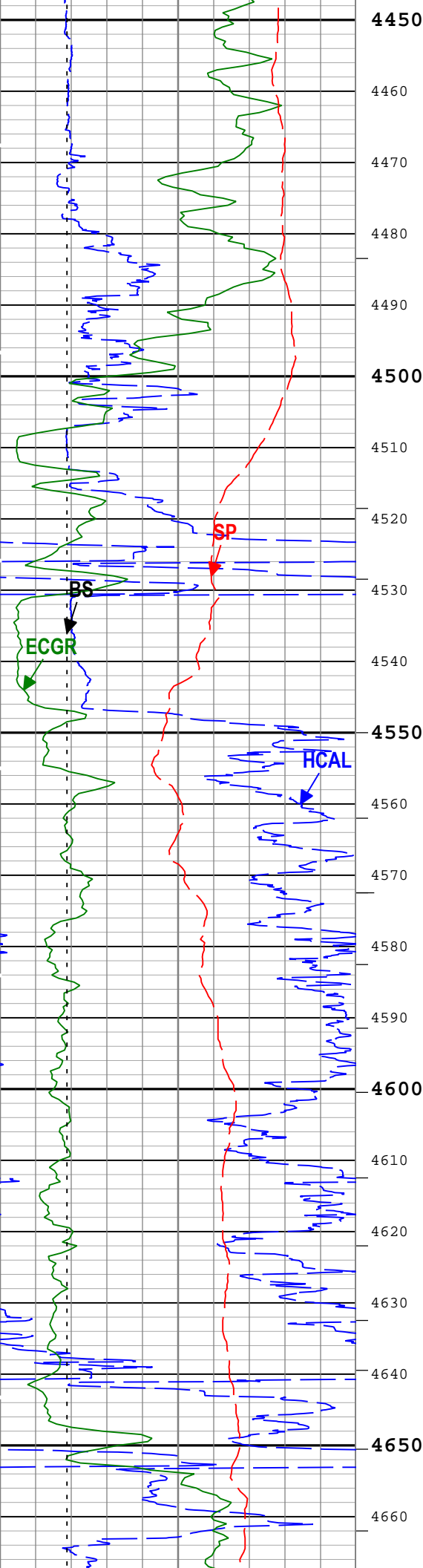


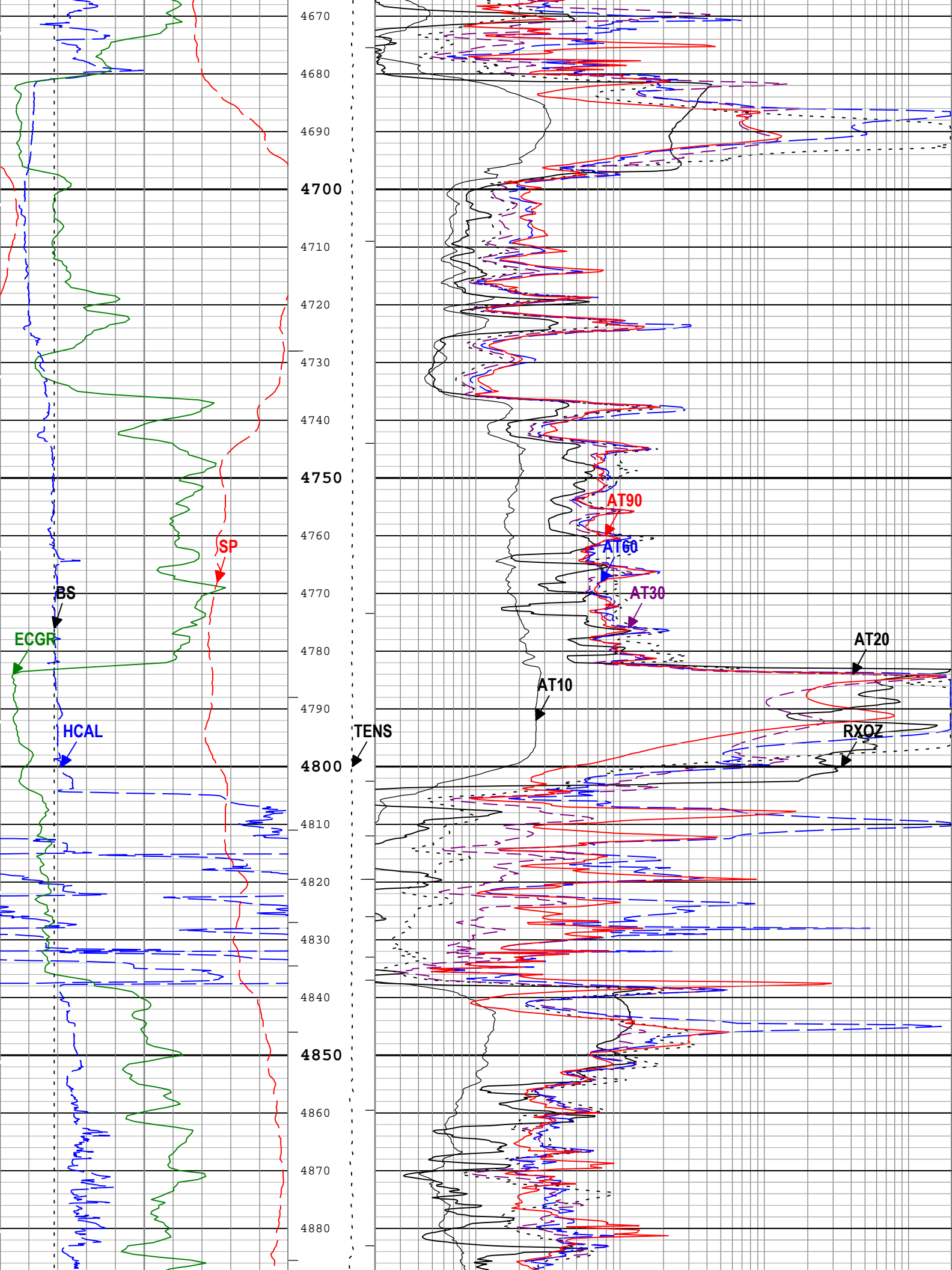
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4160  
4170  
4180  
4190  
4200  
4210  
4220

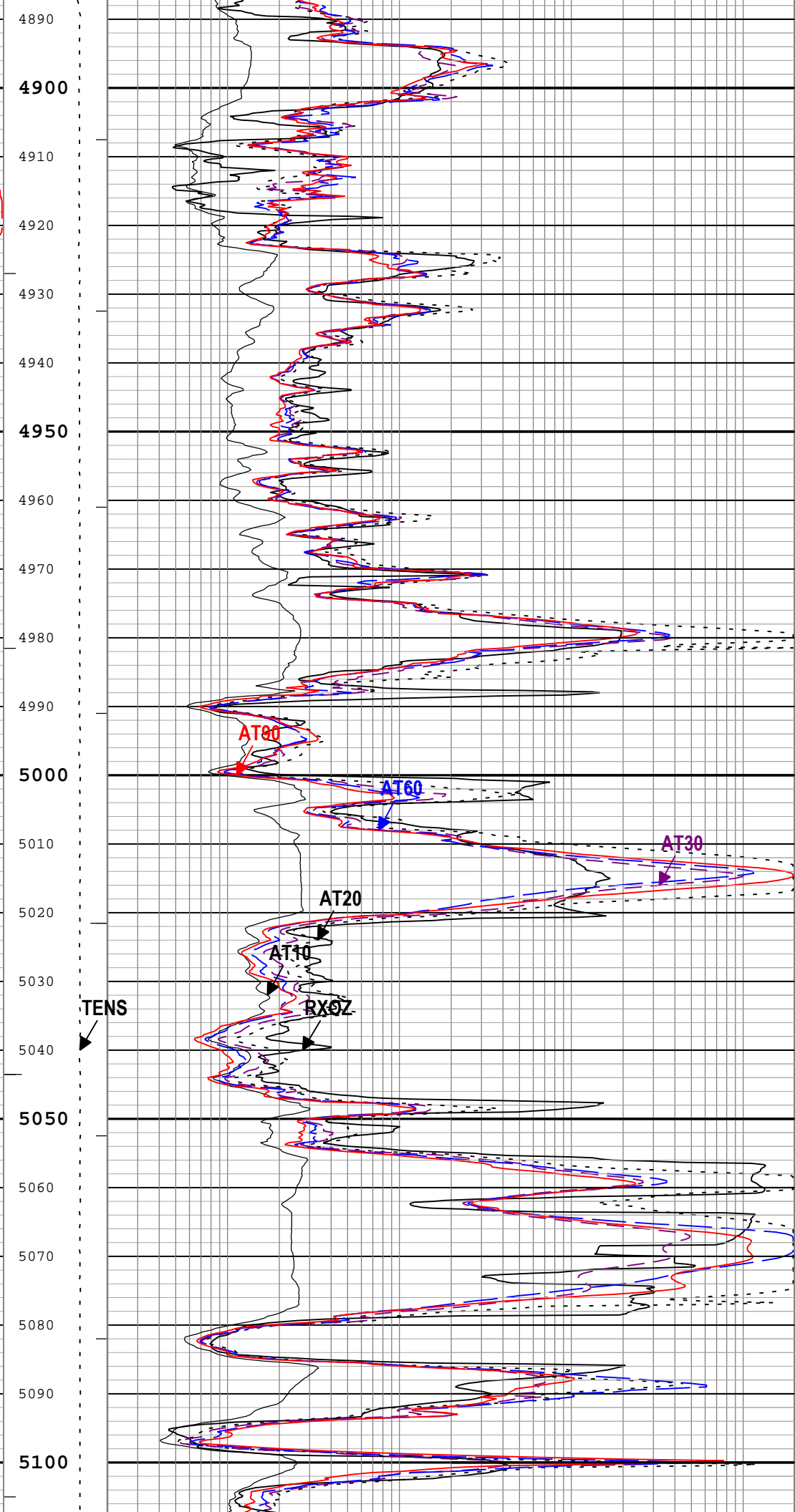
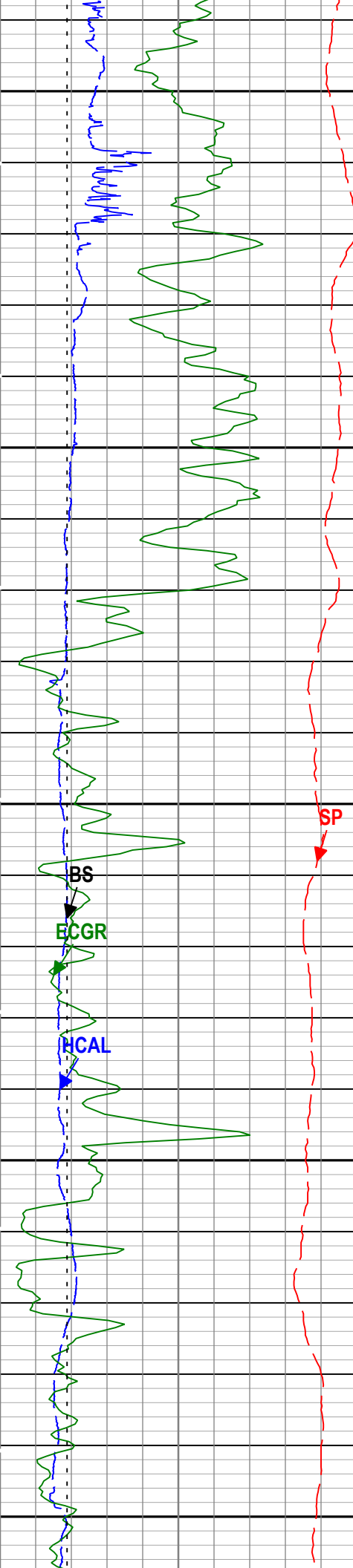


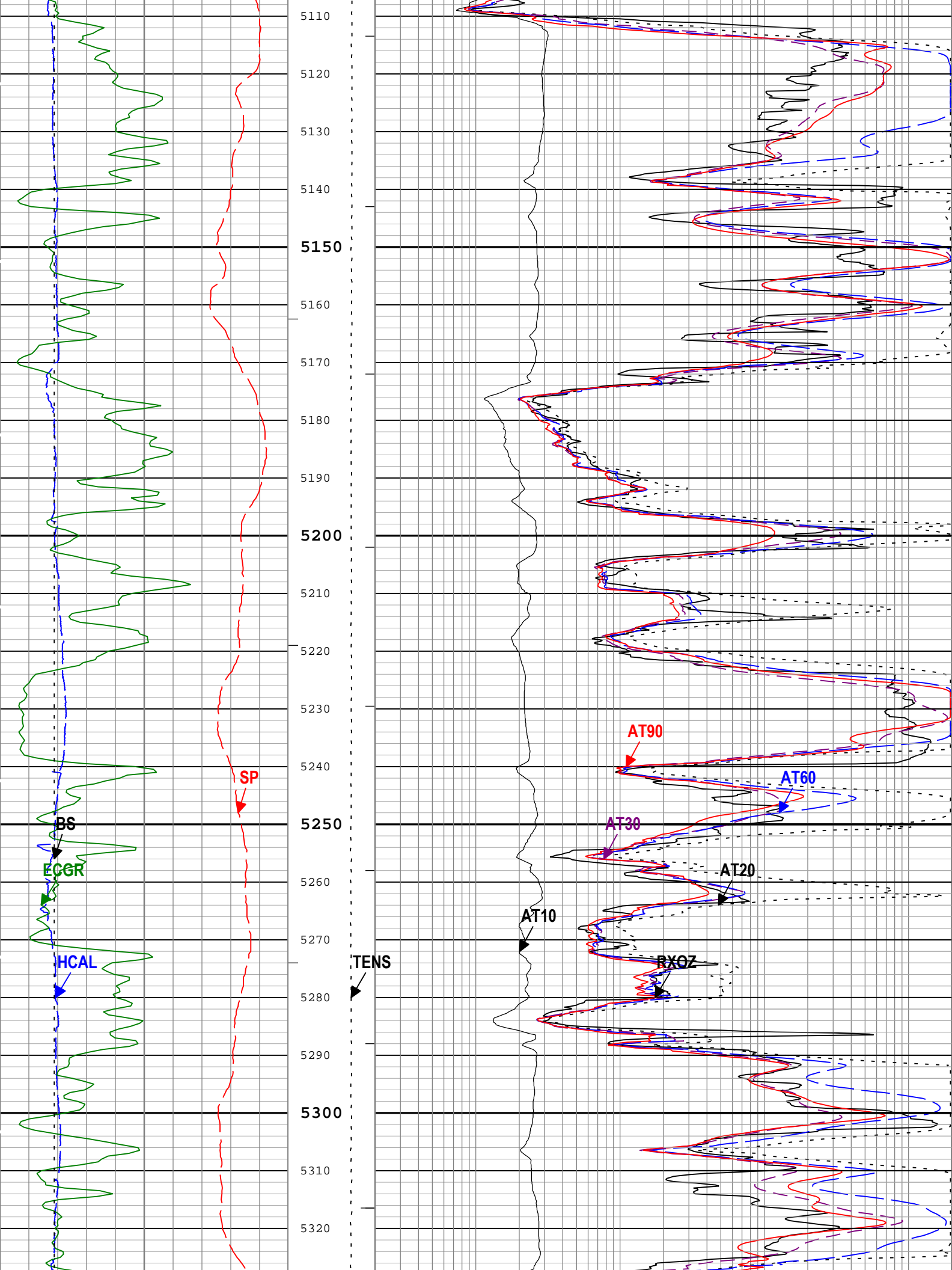


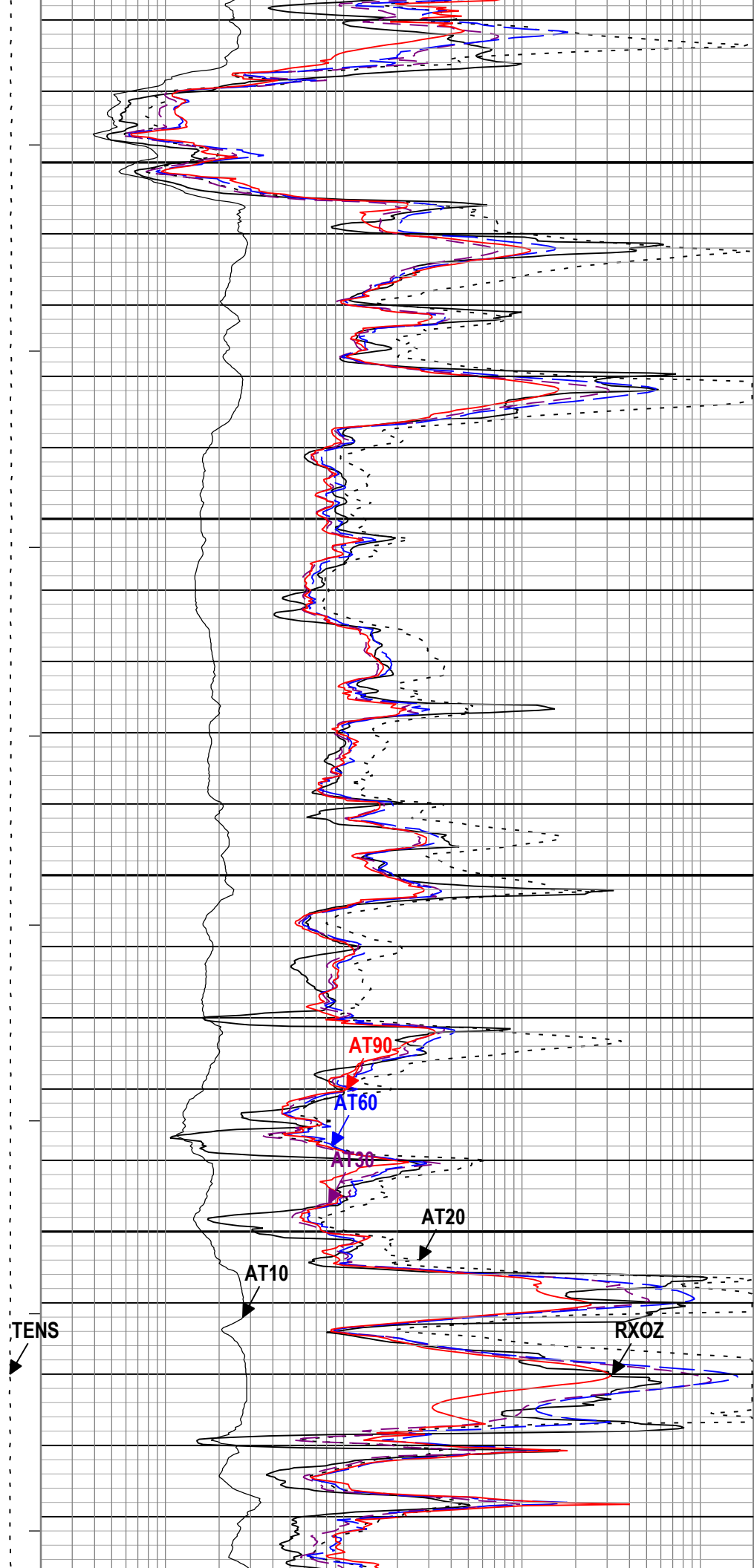
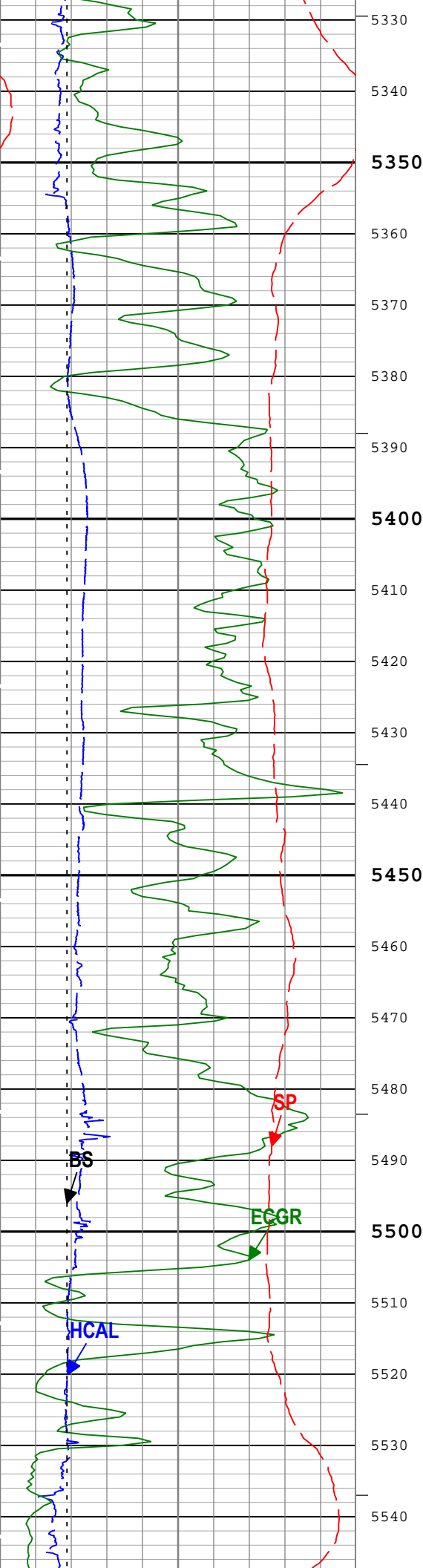




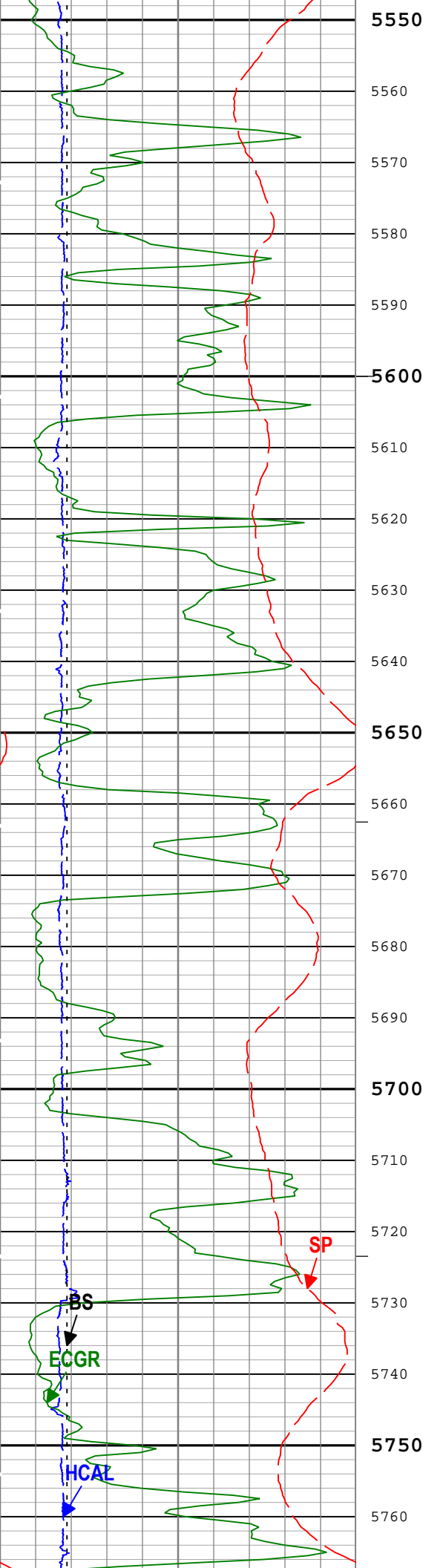












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5670

5680

5690

5700

5710

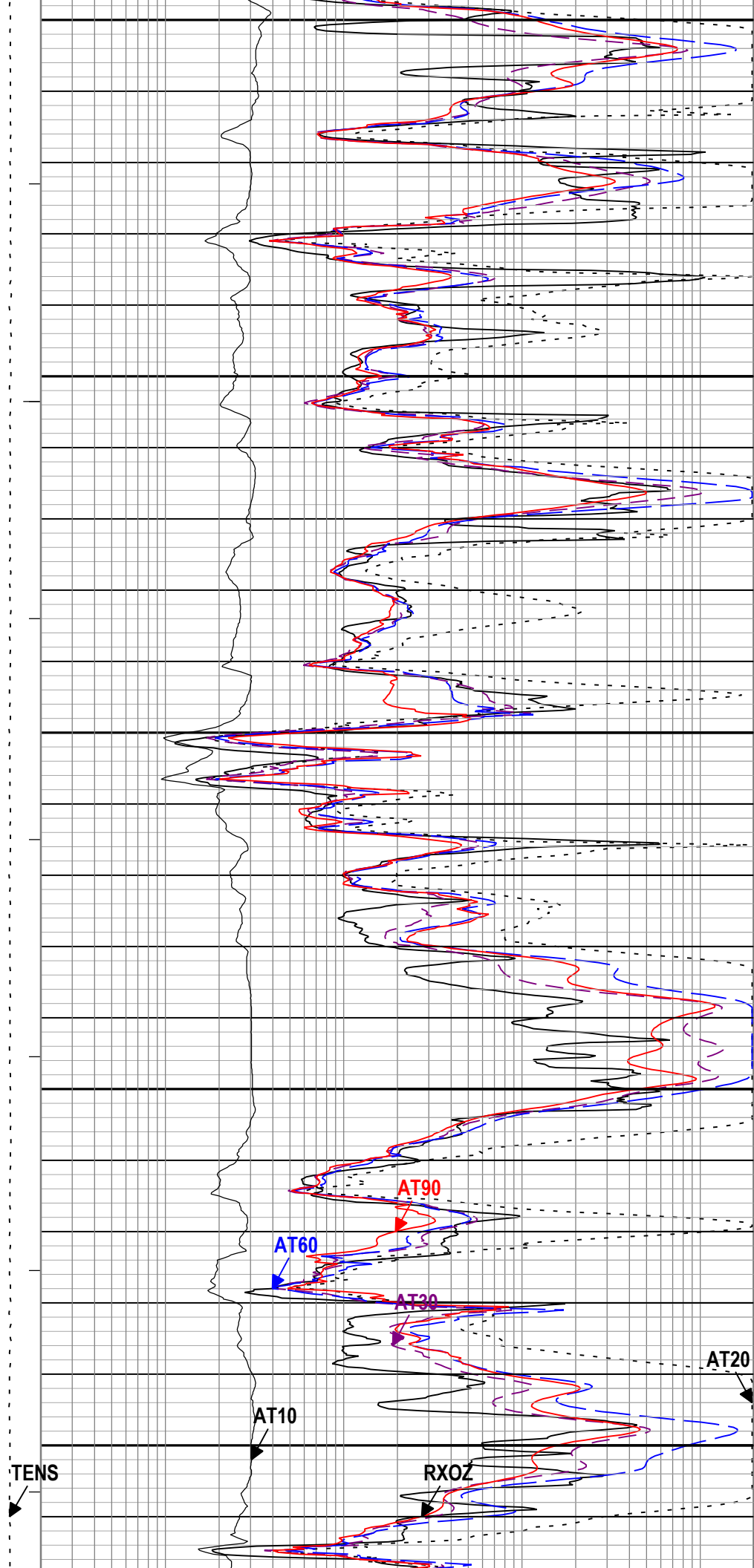
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5730

5740

5750

5760



TENS

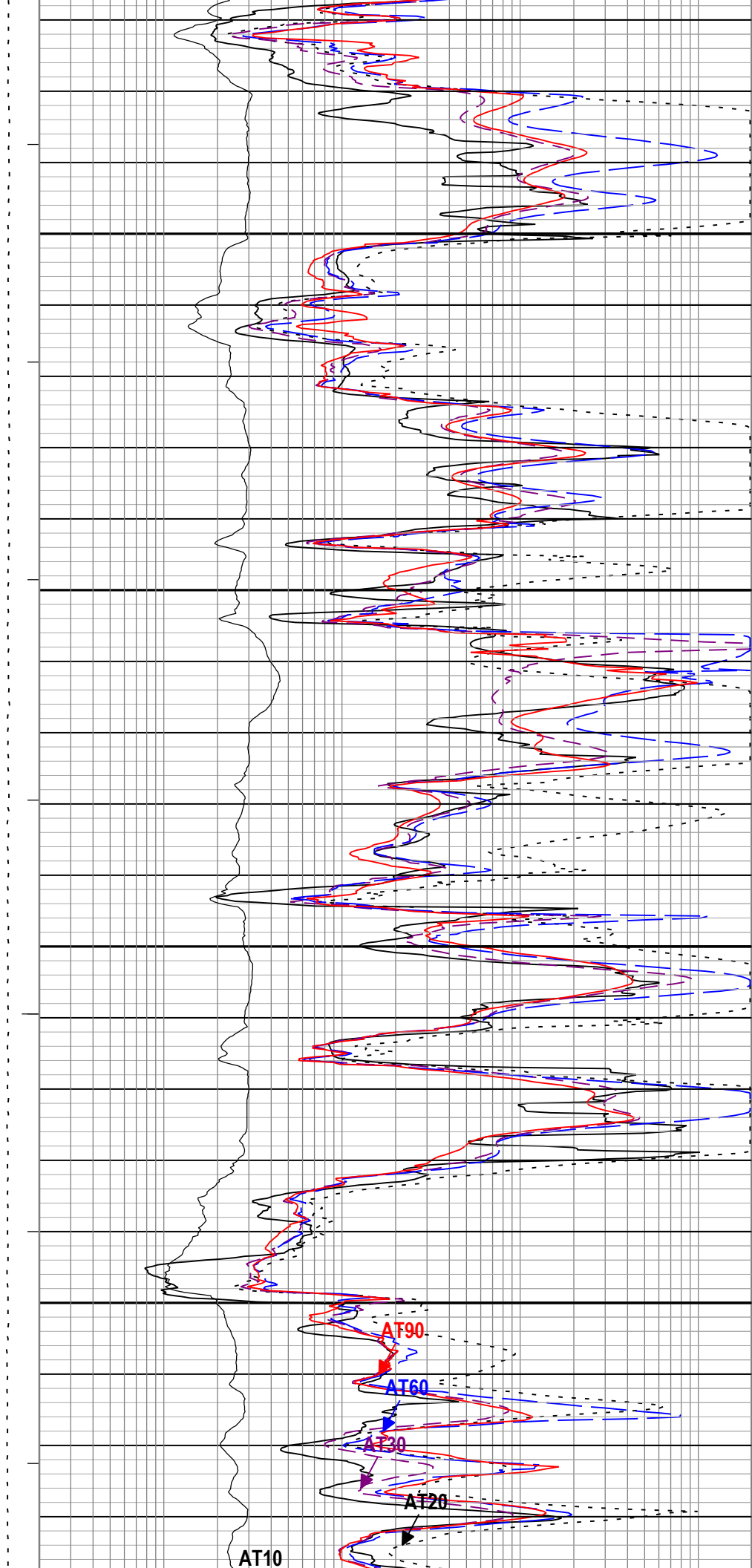
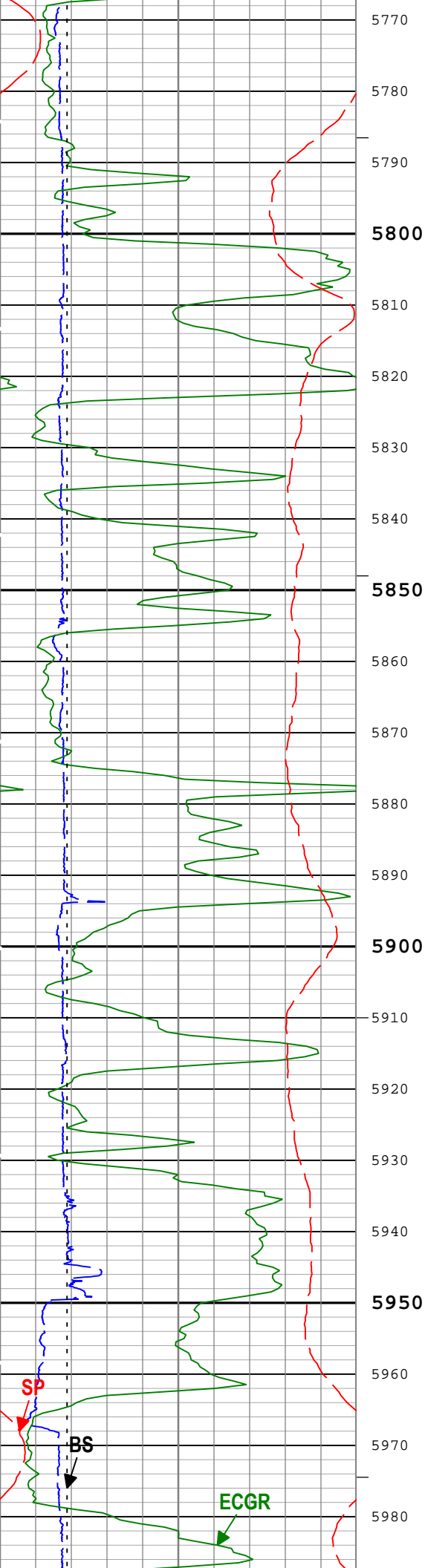
AT90

AT60

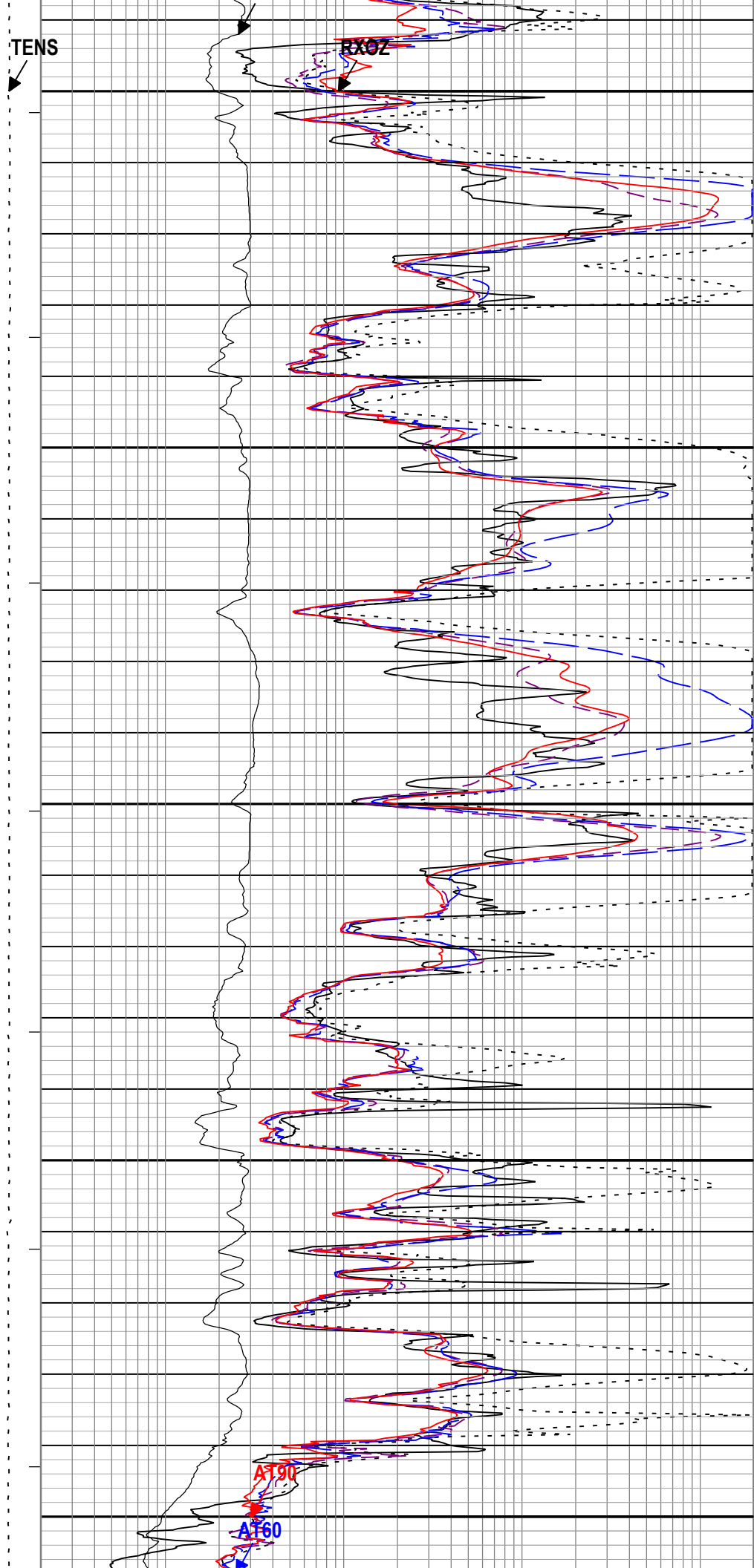
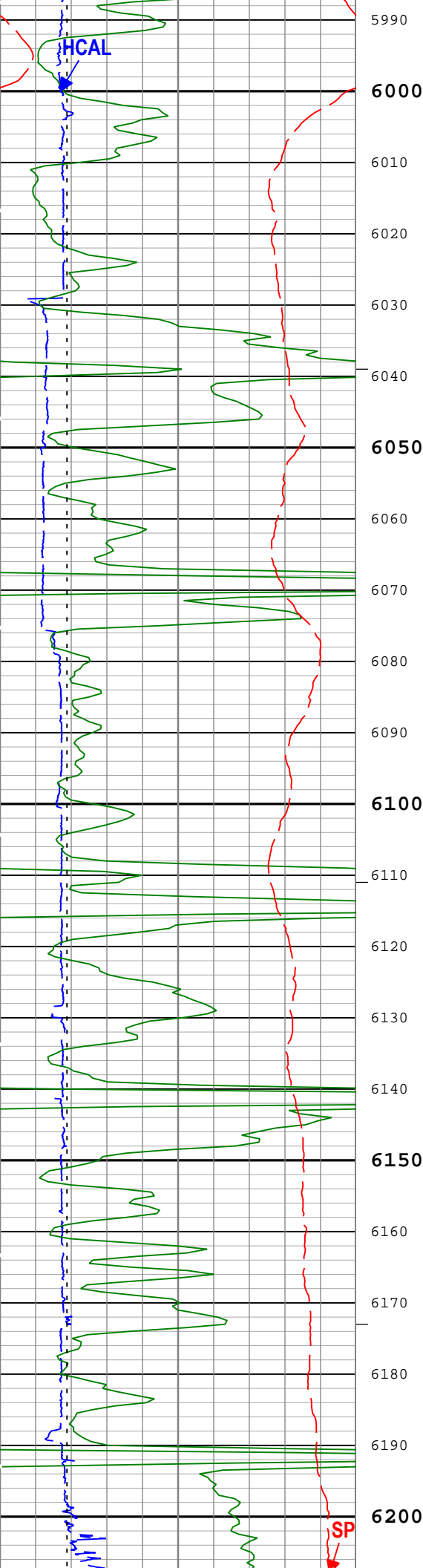
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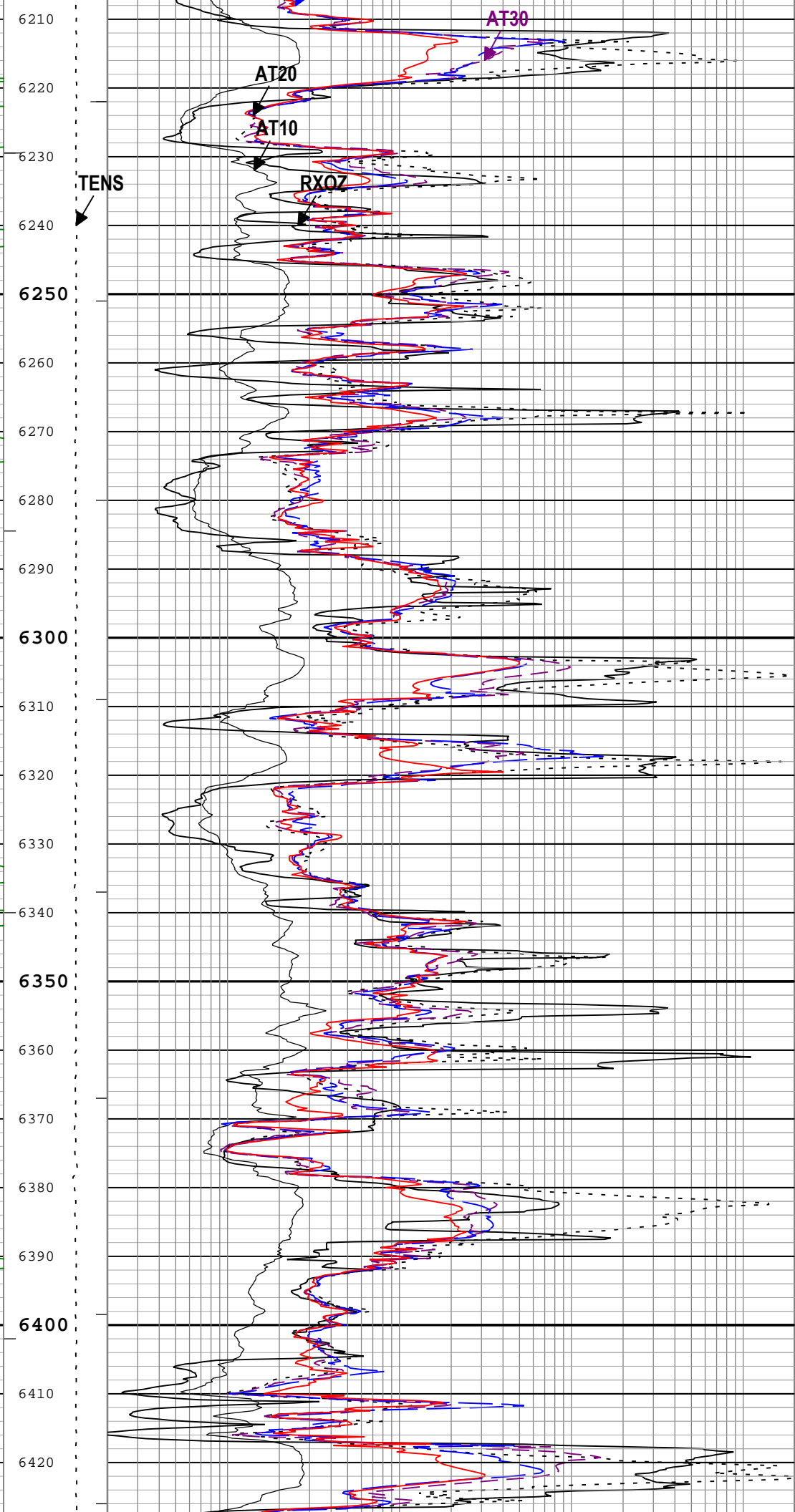
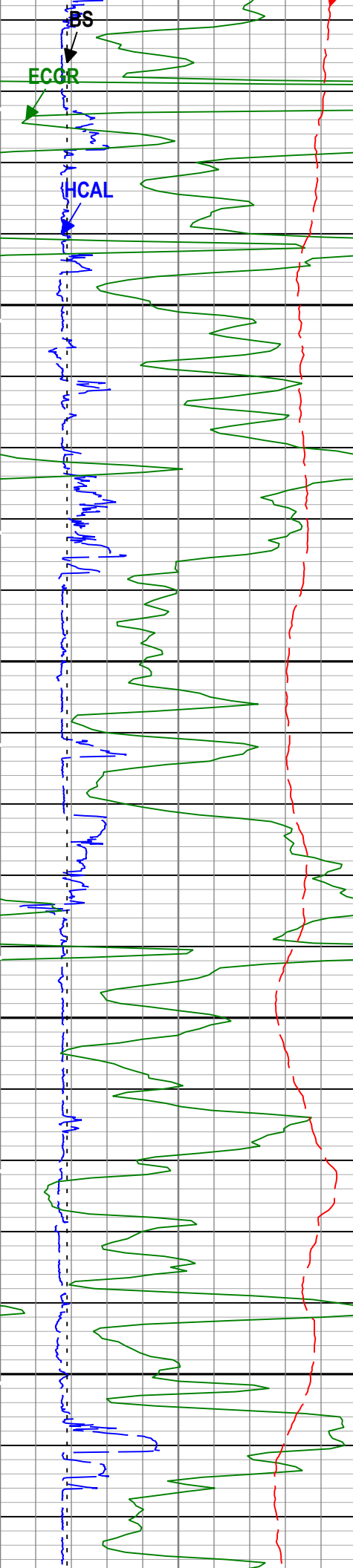
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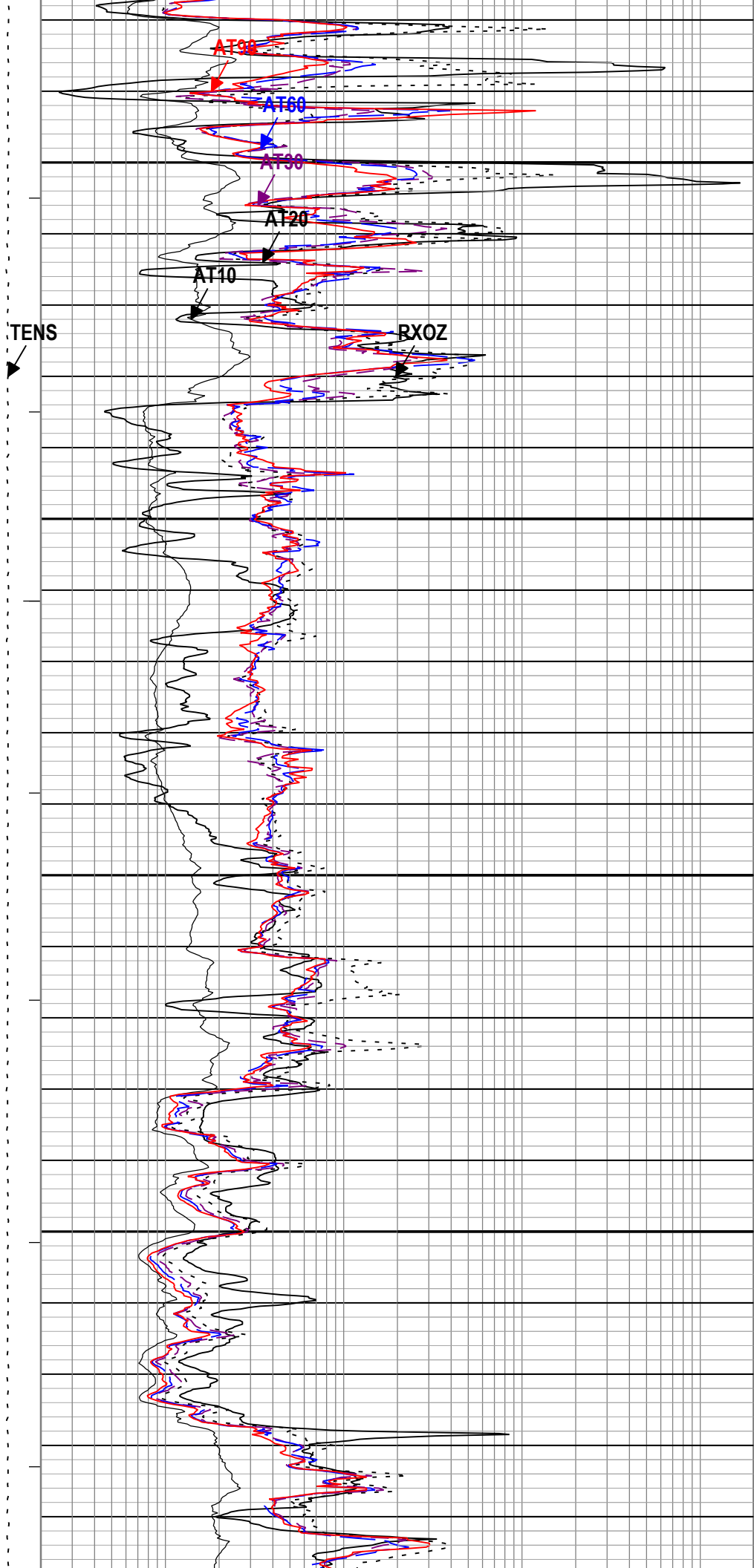
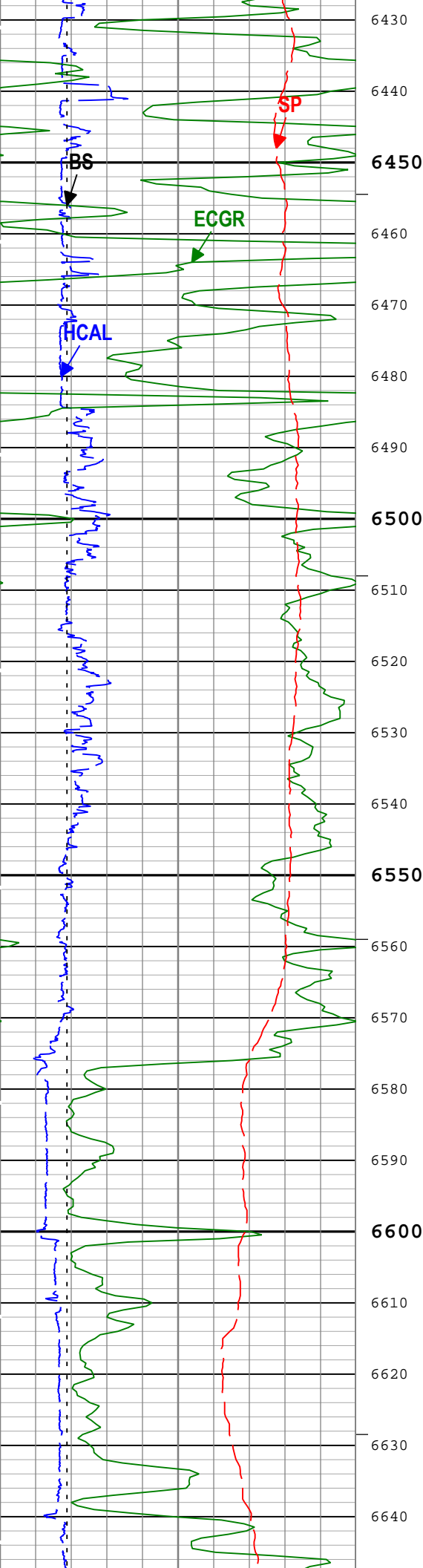
RXOZ

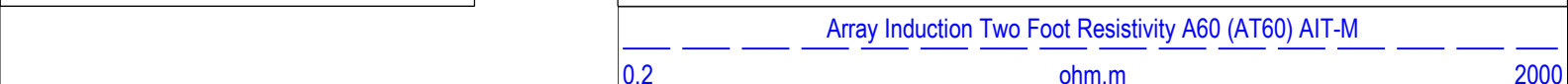
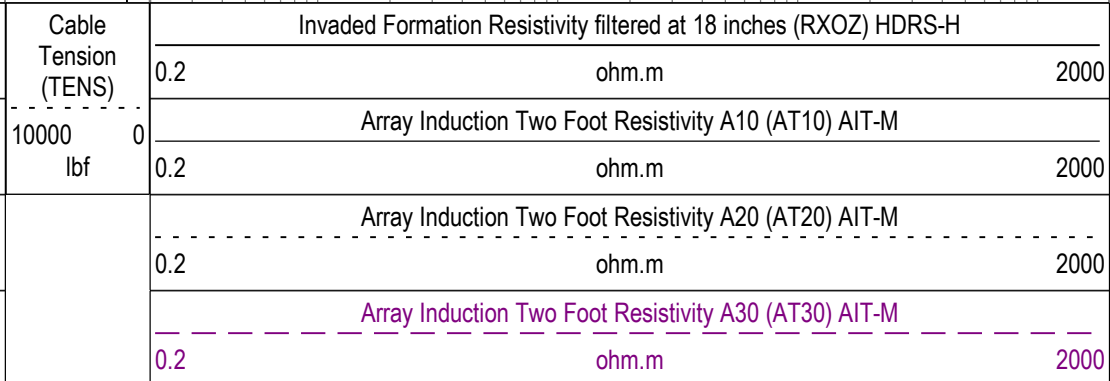
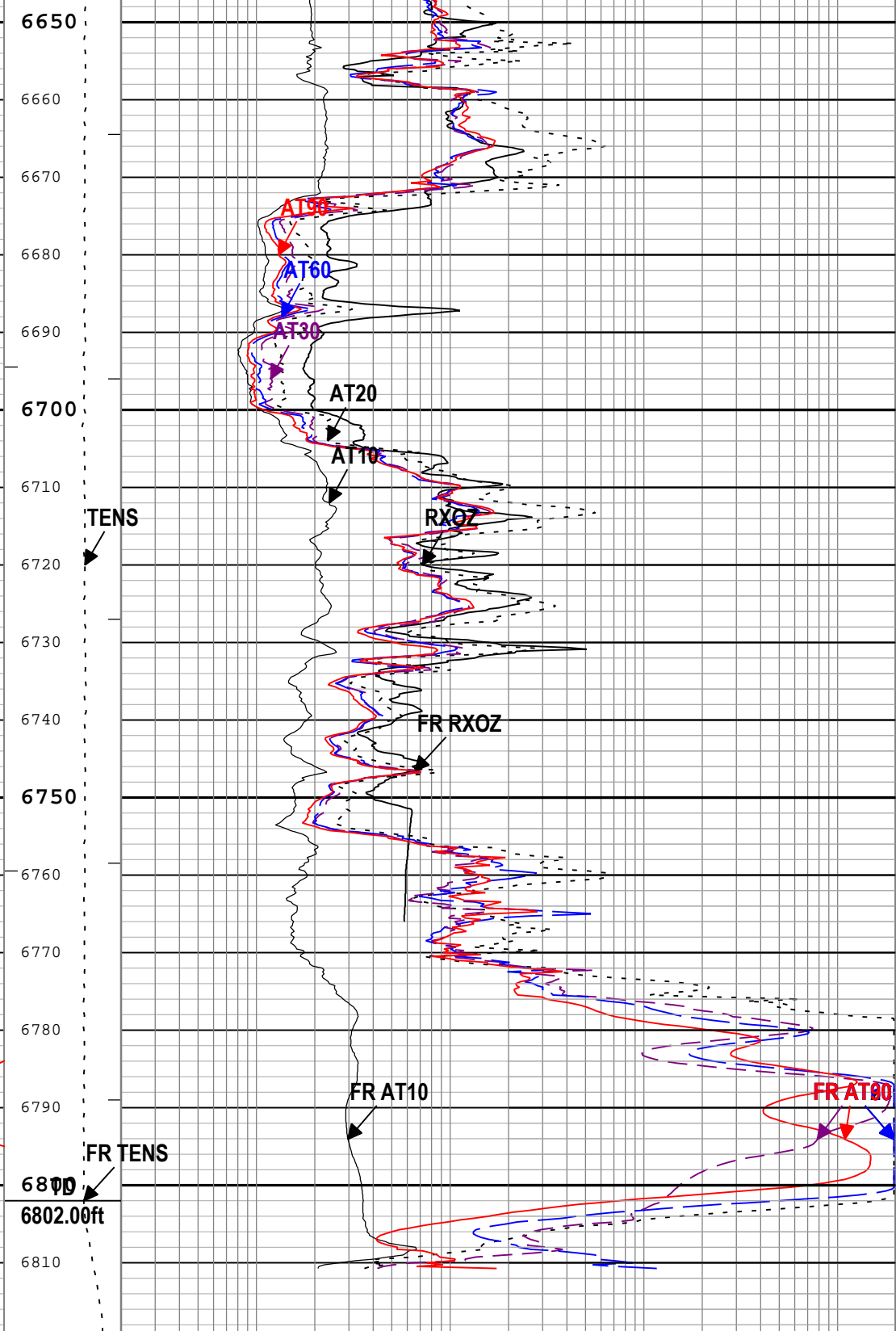
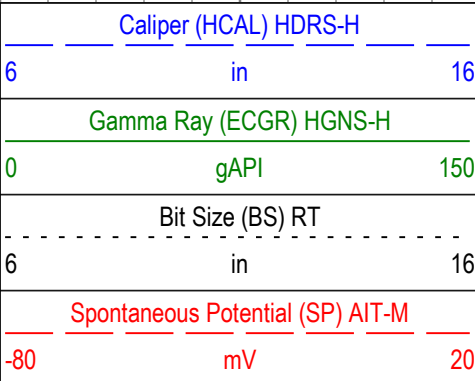
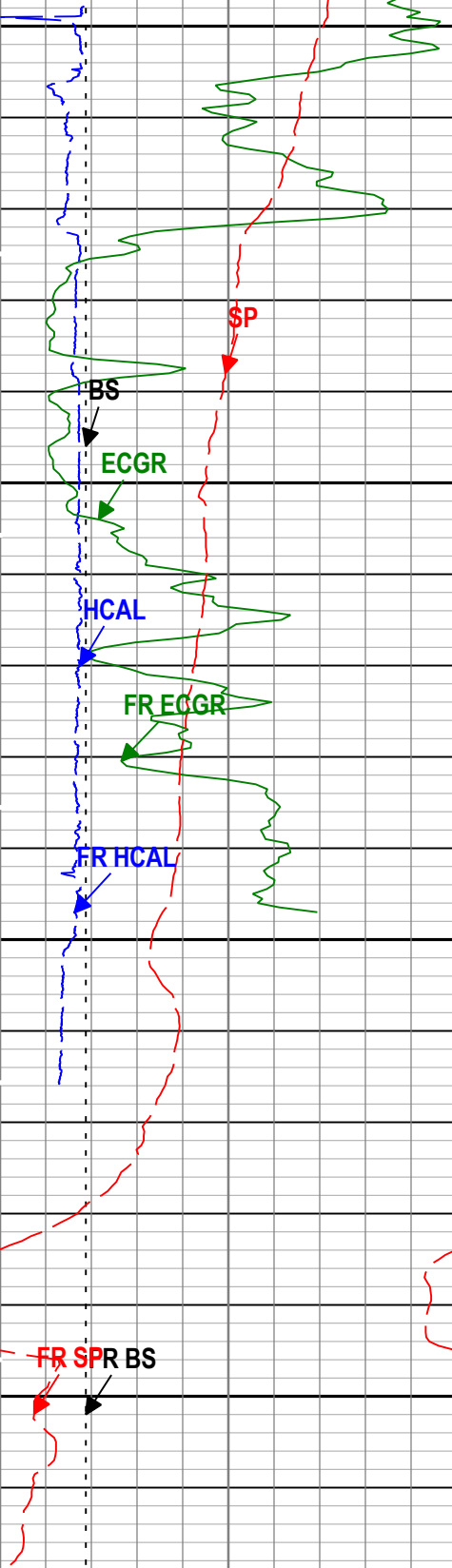










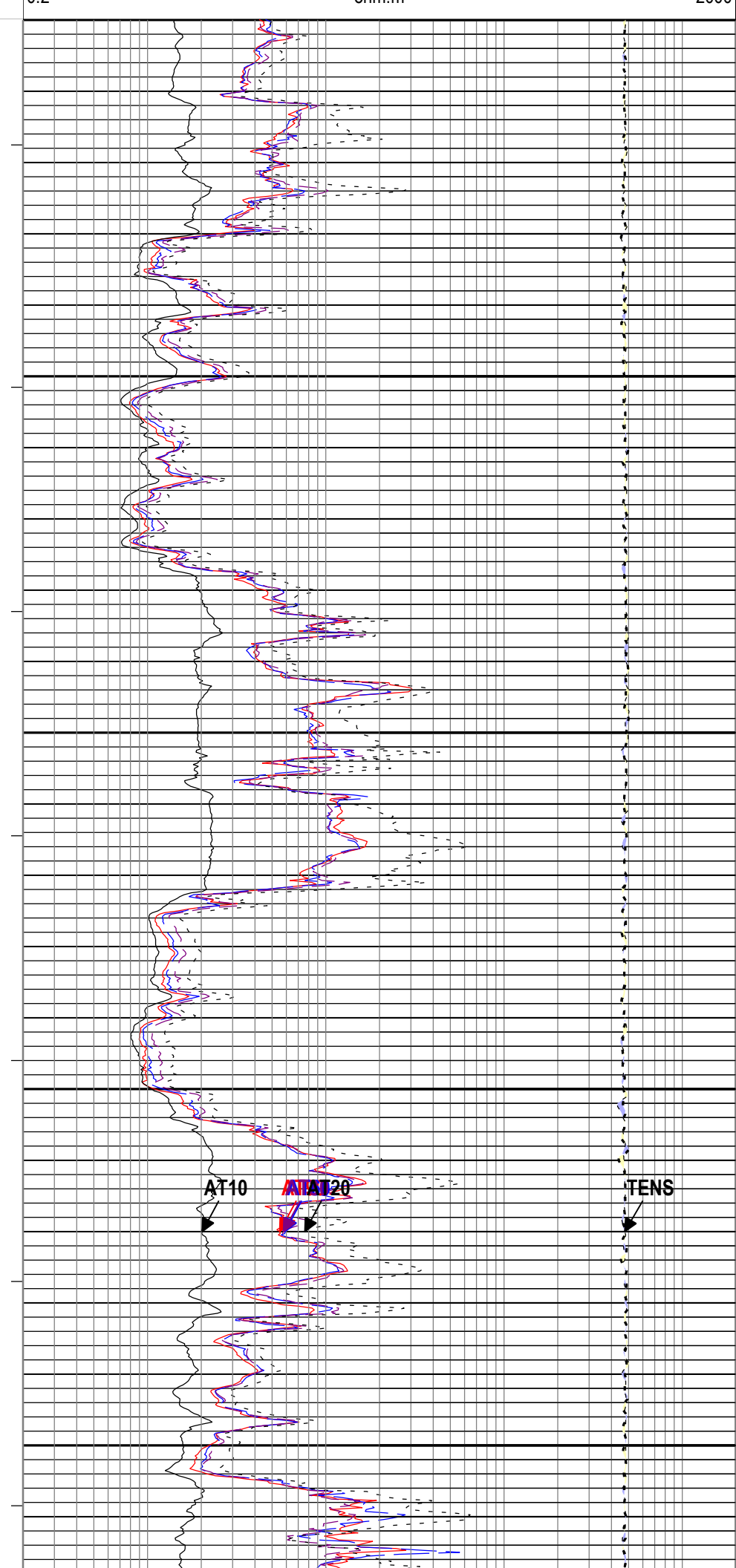
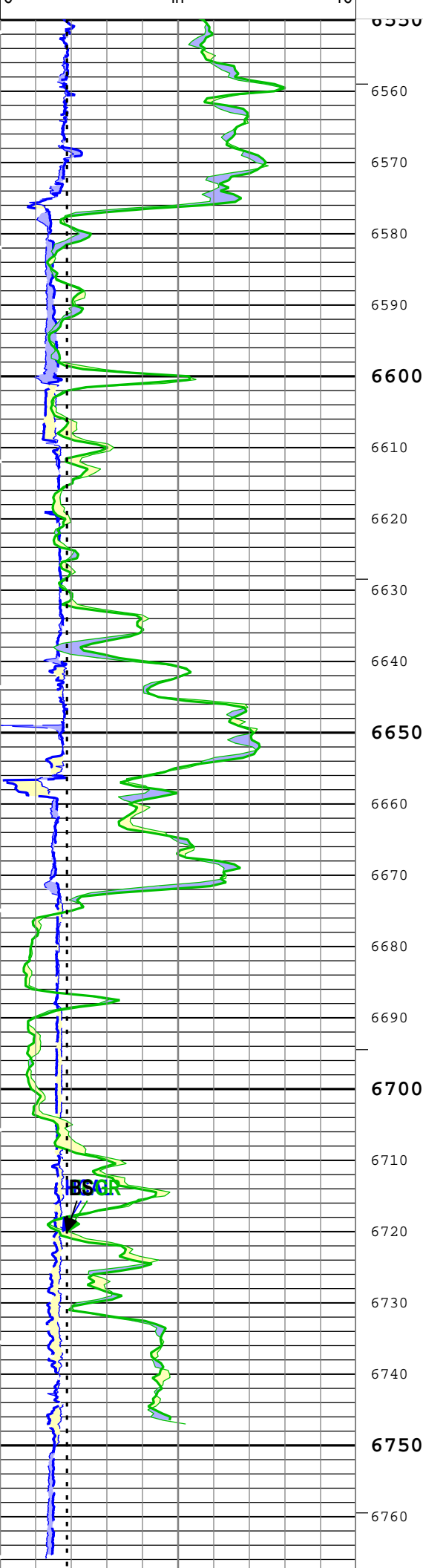


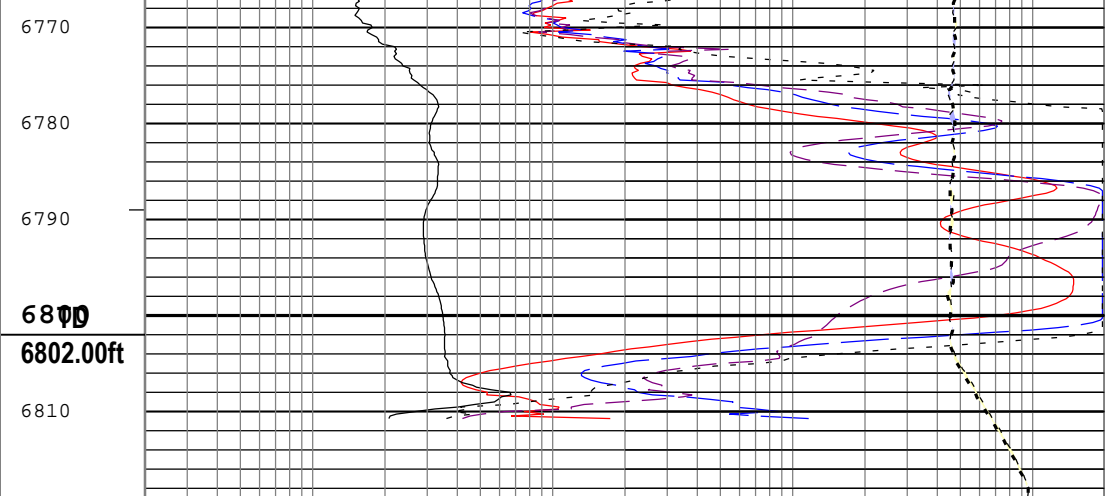
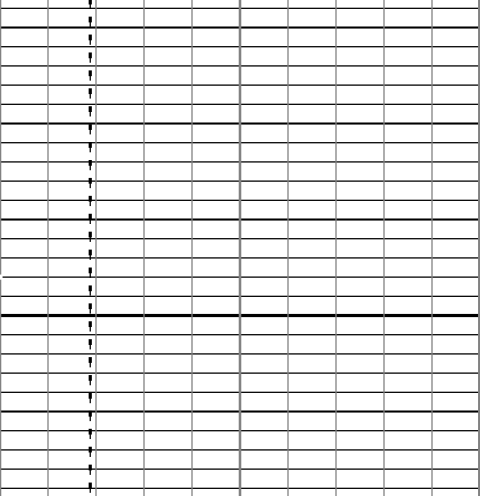
		Array Induction Two Foot Resistivity A90 (AT90) AIT-M		
		0.2	ohm.m	2000
TIME_1900 - Time Marked every 60.00 (s)				
<div> <div>└─ ICV - Integrated Cement Volume every 100.00 (ft3)</div> <div>└─ ICV - Integrated Cement Volume every 10.00 (ft3)</div> <div>└─ IHV - Integrated Hole Volume every 100.00 (ft3)</div> <div>└─ IHV - Integrated Hole Volume every 10.00 (ft3)</div> </div>				
Description: AIT Basic Log Two    Format: Log ( EMD 5in Induction )    Index Scale: 5 in per 100 ft    Index Unit: ft    Index Type: Measured Depth    Creation Date: 22-Jul-2018 12:13:04				
Channel Processing Parameters				
1A: Parameters				
Parameter	Description	Tool	Value	Unit
ABHM	Array Induction Borehole Correction Mode	AIT-M	Compute Mud Resistivity	
ASTA	Array Induction Tool Standoff	AIT-M	0.125	in
ISSBAR	Barite Mud Presence Flag	Borehole	No	
BHS	Borehole Status (Open or Cased Hole)	Borehole	Open	
BS	Bit Size	WLSESSION	Depth Zoned	in
CALI_SHIFT	CALI Supplementary Offset	HDRS-H	0.05	in
CBLO	Casing Bottom (Logger)	WLSESSION	419	ft
CDEN	Cement Density	HGNS-H	2	g/cm3
CSODDRL	Casing Outer Diameter - Zoned along driller depths	WLSESSION	8.625	in
DFD	Drilling Fluid Density	Borehole	9.2	lbm/gal
DFT_CATEGORY	Drilling Fluid Type	Borehole	Water	
FCD	Future Casing (Outer) Diameter	WLSESSION	5.5	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	AMF	
MPOF	MCFL Processing Operation Mode	HDRS-H	On	
SPDR	SP Drift Per Foot	AIT-M	0	mV/ft
Depth Zone Parameters				
Parameter	Value	Start ( ft )	Stop ( ft )	
BS	12.25	400	419	
BS	7.875	419	6802	
All depth are actual.				
Tool Control Parameters				
1A: Parameters				
Parameter	Description	Tool	Value	Unit
HRGD_BOARD_TYPE	HRGD Board Type	HDRS-H	WITH_HET	
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	1800	ft/h
1A				
5" Induction Repeat Analysis				
Software Version				
Acquisition System		Version		
Maxwell 2018 SP1		8.1.99839.3100		
Application Patch		Wireline_Hotfix-Mandatory-2018SP1_8.1.102865		

Pass Summary									
Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
1A	Log[3]:Up	Up	6537.50 ft	6818.33 ft	22-Jul-2018 7:21:43 AM	22-Jul-2018 7:31:03 AM	ON	6.77 ft	Yes
1A	Log[4]:Up	Up	89.66 ft	6818.83 ft	22-Jul-2018 7:44:13 AM	22-Jul-2018 11:26:52 AM	ON	6.97 ft	Yes
All depths are referenced to toolstring zero									
Log	Company:OMIMEX PETROLEUM      Well:DRACO #4-20-1-48 1A: Log[4]:Up:S007								

Description: AIT Basic Log Two    Format: EMD 5in Induction RA    Index Scale: 5 in per 100 ft    Index Unit: ft    Index Type: Measured Depth    Creation Date: 22-Jul-2018 12:13:09

—  IHV - Integrated Hole Volume every 10.00 (ft3)					
—  IHV - Integrated Hole Volume every 100.00 (ft3)					
—  ICV - Integrated Cement Volume every 10.00 (ft3)					
TIME_1900 - Time Marked every 60.00 (s)					
—  ICV - Integrated Cement Volume every 100.00 (ft3)					
			<div><div>Main To Repeat</div><div>Repeat To Main</div><div>Cable Tension (TENS)</div><div>10000      lbf      0</div></div>		
			<div><div>Main To Repeat</div><div>Repeat To Main</div><div>Array Induction Two Foot Resistivity A90 (AT90) AIT-M</div><div>0.2      ohm.m      2000</div></div>		
<div><div>Main To Repeat</div><div>Repeat To Main</div><div>Caliper (HCAL) HDRS-H</div><div>6      in      16</div></div>			<div><div>Main To Repeat</div><div>Repeat To Main</div><div>Array Induction Two Foot Resistivity A10 (AT10) AIT-M</div><div>0.2      ohm.m      2000</div></div>		
<div><div>Main To Repeat</div><div>Repeat To Main</div><div>Gamma Ray (ECGR) HGNS-H</div><div>200      gAPI      400</div></div>			<div><div>Main To Repeat</div><div>Repeat To Main</div><div>Array Induction Two Foot Resistivity A60 (AT60) AIT-M</div><div>0.2      ohm.m      2000</div></div>		
<div><div>Main To Repeat</div><div>Repeat To Main</div><div>Gamma Ray (ECGR) HGNS-H</div><div>0      gAPI      200</div></div>			<div><div>Main To Repeat</div><div>Repeat To Main</div><div>Array Induction Two Foot Resistivity A30 (AT30) AIT-M</div><div>0.2      ohm.m      2000</div></div>		
<div><div>Main To Repeat</div><div>Repeat To Main</div><div>Bit Size (BS) RT</div><div>6      in      16</div></div>			<div><div>Main To Repeat</div><div>Repeat To Main</div><div>Array Induction Two Foot Resistivity A20 (AT20) AIT-M</div><div>0.2      ohm.m      2000</div></div>		





Main To Repeat		
Repeat To Main		
Caliper (HCAL) HDRS-H		
6	in	16
Main To Repeat		
Repeat To Main		
Gamma Ray (ECGR) HGNS-H		
200	gAPI	400
Main To Repeat		
Repeat To Main		
Gamma Ray (ECGR) HGNS-H		
0	gAPI	200
Main To Repeat		
Repeat To Main		
Bit Size (BS) RT		
6	in	16

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		
Array Induction Two Foot Resistivity A10 (AT10) AIT-M		
0.2	ohm.m	2000
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		
Array Induction Two Foot Resistivity A30 (AT30) AIT-M		
0.2	ohm.m	2000
Main To Repeat		
Repeat To Main		
Array Induction Two Foot Resistivity A20 (AT20) AIT-M		
0.2	ohm.m	2000

Main To Repeat		
Repeat To Main		
Cable Tension (TENS)		
10000	lbf	0

— ICV - Integrated Cement Volume every 100.00 (ft3)

TIME\_1900 - Time Marked every 60.00 (s)

— ICV - Integrated Cement Volume every 10.00 (ft3)

— IHV - Integrated Hole Volume every 100.00 (ft3)



Description: AIT Basic Log Two    Format: EMD 5in Induction RA    Index Scale: 5 in per 100 ft    Index Unit: ft    Index Type: Measured Depth    Creation Date: 22-Jul-2018 12:13:09

## Channel Processing Parameters

### 1A: Parameters

Parameter	Description	Tool	Value	Unit
ABHM	Array Induction Borehole Correction Mode	AIT-M	Compute Mud Resistivity	
ASTA	Array Induction Tool Standoff	AIT-M	0.125	in
ISSBAR	Barite Mud Presence Flag	Borehole	No	
BHS	Borehole Status (Open or Cased Hole)	Borehole	Open	
BS	Bit Size	WLSESSION	7.875	in
CALI_SHIFT	CALI Supplementary Offset	HDRS-H	0.05	in
CBLO	Casing Bottom (Logger)	WLSESSION	419	ft
CDEN	Cement Density	HGNS-H	2	g/cm3
DFD	Drilling Fluid Density	Borehole	9.2	lbm/gal
DFT_CATEGORY	Drilling Fluid Type	Borehole	Water	
FCD	Future Casing (Outer) Diameter	WLSESSION	5.5	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	AMF	

## Tool Control Parameters

### 1A: 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 1A

Primary Equipment :  
 File code for AIT-MA Sonde Tool Element                      AMIS                      346

### AIT Electronics Check - Thru Calibration Check

Before (Measured):                      06:28:25 22-Jul-2018

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Thru Cal Mag - 0	V	Before	-----	0.366	0.622	0.854	<div><div></div></div>
Thru Cal Phase - 0	deg	Before	-----	137.000	-158.823	-103.000	<div><div></div></div>
Thru Cal Mag - 1	V	Before	-----	0.762	1.275	1.778	<div><div></div></div>
Thru Cal Phase - 1	deg	Before	-----	136.000	-159.901	-104.000	<div><div></div></div>
Thru Cal Mag - 2	V	Before	-----	0.372	0.633	0.868	<div><div></div></div>
Thru Cal Phase - 2	deg	Before	-----	132.000	-163.436	-108.000	<div><div></div></div>
Thru Cal Mag - 3	V	Before	-----	0.420	0.713	0.980	<div><div></div></div>
Thru Cal Phase - 3	deg	Before	-----	131.000	-164.194	-109.000	<div><div></div></div>
Thru Cal Mag - 4	V	Before	-----	0.804	1.337	1.876	<div><div></div></div>
Thru Cal Phase - 4	deg	Before	-----	125.000	-170.297	-115.000	<div><div></div></div>
Thru Cal Mag - 5	V	Before	-----	1.176	1.949	2.744	<div><div></div></div>
Thru Cal Phase - 5	deg	Before	-----	122.000	-171.960	-118.000	<div><div></div></div>
Thru Cal Mag - 6	V	Before	-----	1.176	1.949	2.744	<div><div></div></div>
Thru Cal Phase - 6	deg	Before	-----	121.000	-171.932	-119.000	<div><div></div></div>
Thru Cal Mag - 7	V	Before	-----	0.846	1.402	1.974	<div><div></div></div>
Thru Cal Phase - 7	deg	Before	-----	115.000	-172.757	-125.000	<div><div></div></div>
SPA Zero	mV	Before		-50.000	0.081	50.000	<div><div></div></div>
SPA Plus	mV	Before		941.000	990.870	1040.000	<div><div></div></div>
Temperature Zero	V	Before		-0.050	0.000	0.050	<div><div></div></div>
Temperature Plus	V	Before		0.870	0.918	0.960	<div><div></div></div>

GPIT-F[2] (General-Purpose Inclinometer Tool) Calibration - Run 1A

Primary Equipment :

DHRU-F

DHRU-F

1879

Signals and Temperature Correction for Accelerometers

Master (EEPROM): 18:00:00 11-Jun-2015

GPITF\_ACCX\_MODEL GPIT-F Accelero X Model  
(Master)

	Racx**0	Racx**1
Temp**0	-0.0637	0.0006675
Temp**1	8.327E-05	-1.168E-07
Temp**2	2.331E-06	1.155E-09
Temp**3	-8.836E-09	-5.973E-12

GPITF\_ACCY\_MODEL GPIT-F Accelero Y Model  
(Master)

	Racy**0	Racy**1
Temp**0	0.04747	-0.0006769
Temp**1	-0.0001226	1.257E-07
Temp**2	-3.207E-06	-1.269E-09
Temp**3	1.839E-08	6.415E-12

GPITF\_ACCZ\_MODEL GPIT-F Accelero Z Model  
(Master)

	Racz**0	Racz**1
Temp**0	-0.001672	0.0006659
Temp**1	0.0002801	-1.048E-07
Temp**2	5.203E-06	9.783E-10
Temp**3	-2.394E-08	-5.354E-12

Perpendicular Correction for Accelerometers

Master (EEPROM): 18:00:00 11-Jun-2015

GPITF\_ACC\_AXIS\_MODE GPIT-F Accelero Axis Model  
L (Master)

	Data**0	Data**1	Data**2	Data**3	Data**4	Data**5	Data**6
Temp**0	0.001157	0.0002453	-0.00036	0.001947	0.0003778	-0.0007125	0
Temp**1	-2.039E-06	4.561E-06	1.078E-06	-2.614E-06	-4.627E-07	1.843E-06	0

Signals and Temperature Correction for Magnetometer

Master (EEPROM): 18:00:00 11-Jun-2015

GPITF\_MAGX\_MODEL GPIT-F Magneto X Model  
(Master)

	Rmagx**0	Rmagx**1
Temp**0	67.22	4.882
Temp**1	-2.785	-0.0008244
Temp**2	0.01835	1.152E-05
Temp**3	-7.003E-05	-4.613E-08

GPITF\_MAGY\_MODEL GPIT-F Magneto Y Model  
(Master)

	Rmagy**0	Rmagy**1
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Temp**0	-67.28	-4.941
Temp**1	2.377	0.0009495
Temp**2	0.001545	-1.267E-05
Temp**3	-2.949E-06	5.021E-08
GPITF_MAGZ_MODEL GPIT-F Magneto Z Model (Master)		
	Rmagz**0	Rmagz**1
Temp**0	-45	4.876
Temp**1	2.038	-0.0008672
Temp**2	-0.05341	1.19E-05
Temp**3	0.0002442	-4.72E-08

Perpendicular Correction for Magnetometer							
Master (EEPROM): 18:00:00 11-Jun-2015							
GPITF_MAG_AXIS_MODE GPIT-F Magneto Axis Model L (Master)							
	Data**0	Data**1	Data**2	Data**3	Data**4	Data**5	Data**6
Temp**0	0.0002494	0.002506	-0.003455	0.005592	0.00187	-0.003144	0
Temp**1	-3.318E-06	8.637E-06	2.257E-06	9.562E-07	-2.279E-06	-7.721E-06	0

Master (EEPROM): 18:00:00 08-Jun-2015		
GPITF_ELEC_COEFF1 GPIT-F Electronic Coeff 1 (Master)		
	Data**0	Data**1
Temp**0	-0.1633	249.5
Temp**1	0.005167	0.02592
Temp**2	9.811E-05	-0.0006259
Temp**3	-9.734E-07	5.259E-06
Temp**4	2.135E-09	-1.558E-08
GPITF_ELEC_COEFF2 GPIT-F Electronic Coeff 2 (Master)		
	Data**0	Data**1
Temp**0	0.3331	249.8
Temp**1	-0.005045	0.007026
Temp**2	0.0002525	-0.0002276
Temp**3	-2.522E-06	2.041E-06
Temp**4	8.285E-09	-6.781E-09
GPITF_ELEC_COEFF3 GPIT-F Electronic Coeff 3 (Master)		
	Data**0	Data**1
Temp**0	-2.973	249.9
Temp**1	-0.02021	0.002742
Temp**2	0.0003738	-0.0001091
Temp**3	-3.406E-06	9.304E-07
Temp**4	1.072E-08	-3.352E-09

Master (EEPROM): 18:00:00 08-Jun-2015	
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Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit		
3S Average Deviation	%	Master	0	-0.6000	0.4799	0.6000		
3S Max Deviation	%	Master	0	-1.6000	1.3212	1.6000		
5S Average Deviation	%	Master	0	-1.0000	0.8929	1.0000		
5S Max Deviation	%	Master	0	-2.5000	1.8617	2.5000		
7S Average Deviation	%	Master	0	-1.5000	1.3096	1.5000		
7S Max Deviation	%	Master	0	-3.5000	2.7904	3.5000		

## HDRS Density Calibration - Background Summary

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Master (EEPROM): 17:27:48 15-Jul-2018

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit		
BS Window Ratio		Master	1.0000		0.7378			
BS Window Sum	1/s	Master	1		22130			
SS Window Ratio		Master	1.0000		0.4838			
SS Window Sum	1/s	Master	1		9630			
LS Window Ratio		Master	1.0000		0.3074			
LS Window Sum	1/s	Master	1		1080			

## HDRS Density Calibration - Photo-multiplier High Voltages

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Master (EEPROM): 17:27:48 15-Jul-2018

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit		
BS PM High Voltage	V	Master		1000	1460	2400		
SS PM High Voltage	V	Master		1000	1718	2400		
LS PM High Voltage	V	Master		1000	1207	2400		

## HDRS Density Calibration - Crystal Quality Resolutions

Master (EEPROM): 17:27:48 15-Jul-2018

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit		
3S Crystal Resolution	%	Master		5.00	10.71	25.00	<div><div></div></div>	
SS Crystal Resolution	%	Master		5.00	9.45	20.00	<div><div></div></div>	
LS Crystal Resolution	%	Master		5.00	8.18	20.00	<div><div></div></div>	

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

**Primary Equipment :**

HILT Gamma-Ray and Neutron Sonde, 150 degC

HGNS-H

3966

**Auxiliary Equipment :**

HGNS Accelerometer, 150 degC

HACCZ-H

4168

AmBe Neutron Logging Source

NSR-F

5070

Calibration Parameter :

Water Temperature (Calibration Tank Water Temperature)

70.0

Housing Size (Thermal Housing Size)

3.38

JIG-BKG

## HGNS Accelerometer EEPROM - Accelerometer EEPROM Read

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Master (EEPROM): 18:00:00 14-Jul-2005

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	----	----	1582.500	----		
Accelerometer Coefficients - 1		Master	----	----	35.100	----		
Accelerometer Coefficients - 2		Master	----	----	-0.047	----		
Accelerometer Coefficients - 3		Master	----	----	-0.001	----		
Accelerometer Coefficients - 4		Master	----	----	2.739	----		
Accelerometer Coefficients - 5		Master	----	----	0.000	----		
Accelerometer Coefficients - 6		Master	----	----	0.000	----		
Accelerometer Coefficients - 7		Master	----	----	0.000	----		
Accelerometer Coefficients - 8		Master	----	----	298.400	----		
Accelerometer Coefficients - 9		Master	----	----	0.991	----		

## HGNS Neutron Calibration - HGNS Neutron Accumulations

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Master (EEPROM): 14:54:40 15-Jul-2018

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div><div></div></div>
Near Zero Measurement	1/s	Master	0	5.0	25.3	40.0	<div><div></div></div>
Far Zero Measurement	1/s	Master	0	5.0	28.3	40.0	<div><div></div></div>
Near Plus Measurement	1/s	Master	6031.0	4700.0	5016.0	6900.0	<div><div></div></div>
Far Plus Measurement	1/s	Master	2793.0	1900.0	2126.0	2900.0	<div><div></div></div>
Near Corrected Plus Measurement	1/s	Master		4700.0	5016.0	6900.0	<div><div></div></div>
Far Corrected Plus Measurement	1/s	Master		1900.0	2114.0	2900.0	<div><div></div></div>

HNGS-BA (Hostile-environment Natural Gamma-ray Sonde) Calibration - Run 1A			
Primary Equipment :			
HNGS Sonde Element	HNGS-BA	178	
Auxiliary Equipment :			
Hostile Natural Gamma Ray Cartridge	HNGC-B	579	
HNGS Housing Element	HEH-K	175	
		0	

## Calibration History - Calibration History

Master:							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div><div></div></div>
- 0		Master	----	----	----	----	<div><div></div></div>

## HNGS Background and Na22 Set Point Determination - Detector 1 Check

Master (EEPROM):		10:33:41 08-Mar-2018					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div><div></div></div>
Na 511 Peak Location		Master	40.000	37.500	39.654	42.500	<div><div></div></div>
Na 511 Peak Resolution	%	Master	15.500	12.000	15.548	19.000	<div><div></div></div>
High Voltage DAC Value	V	Master			1220.219		<div><div></div></div>
Na 1785 Peak Location		Master	142.650	135.000	142.763	150.300	<div><div></div></div>
Na 1785 Peak Resolution	%	Master	8.500	6.500	8.744	11.000	<div><div></div></div>
Temperature - 0	degF	Master	----	----	----	----	<div><div></div></div>
Na Count Rate	CPS	Master	45.000	15.000	27.456	100.000	<div><div></div></div>

## HNGS Background and Na22 Set Point Determination - Detector 2 Check

Master (EEPROM):		10:33:41 08-Mar-2018					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div><div></div></div>
Na 511 Peak Location		Master	40.000	37.500	39.522	42.500	<div><div></div></div>
Na 511 Peak Resolution	%	Master	15.500	12.000	15.961	19.000	<div><div></div></div>
High Voltage DAC Value	V	Master			1214.577		<div><div></div></div>
Na 1785 Peak Location		Master	142.650	135.000	141.778	150.300	<div><div></div></div>
Na 1785 Peak Resolution	%	Master	8.500	6.500	8.752	11.000	<div><div></div></div>
Temperature - 0	degF	Master	----	----	----	----	<div><div></div></div>
Na Count Rate	CPS	Master	45.000	15.000	27.522	100.000	<div><div></div></div>

## HNGS Background and Na22 Set Point Determination - Ratio of Detector 1 to Detector 2

Master (EEPROM):		10:33:41 08-Mar-2018					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div><div></div></div>
Coincidence Count Rate Ratio		Master			1.001		<div><div></div></div>

## HNGS Background and Na22 Set Point Determination - Detector 1 Calibration

Master (EEPROM):		10:33:41 08-Mar-2018					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div><div></div></div>
Th Peak Location		Master	209.630	201.000	208.333	218.250	<div><div></div></div>
Th Peak Resolution	%	Master	7.000	5.000	6.648	9.000	<div><div></div></div>
Background Count Rate	CPS	Master			74.274		<div><div></div></div>
Gain Ratio		Master	1.000	0.940	0.999	1.060	<div><div></div></div>

## HNGS Background and Na22 Set Point Determination - Detector 2 Calibration

Master (EEPROM):		10:33:41 08-Mar-2018					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div><div></div></div>
Th Peak Location		Master	209.630	201.000	210.042	218.250	<div><div></div></div>
Th Peak Resolution	%	Master	7.000	5.000	6.597	9.000	<div><div></div></div>

Background Count Rate	CPS	Master			73.200		
Gain Ratio		Master	1.000	0.940	1.011	1.060	

## HNGS Background and Na22 Set Point Determination - Detector 1 Calibration

Master (EEPROM): 10:33:41 08-Mar-2018

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Na 511 Peak Set Point		Master	40.000	38.000	41.000	43.500	

## HNGS Background and Na22 Set Point Determination - Detector 2 Calibration

Master (EEPROM): 10:33:41 08-Mar-2018

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Na 511 Peak Set Point		Master	40.000	38.000	41.000	43.500	

## EDTC-B (Enhanced Digital Telemetry Cartridge - Version B) Calibration - Run 1A

Primary Equipment :  
EDTC-B EDTC-B

Calibration Parameter :  
Plus Reference

## EDTC-B Memory Data - EDTC-B Memory Data

Master (EEPROM): 07:42:06 22-Jul-2018

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Initial PMT HV	V	Master			1596.000		
Accelerometer Serial Number		Master			539		
Accelerometer Coefficients - 0		Master	----	----	3.014E+000	----	
Accelerometer Coefficients - 1		Master	----	----	2.800E-004	----	
Accelerometer Coefficients - 2		Master	----	----	3.524E-007	----	
Accelerometer Coefficients - 3		Master	----	----	-5.257E-008	----	
Accelerometer Coefficients - 4		Master	----	----	1.263E-009	----	
Accelerometer Coefficients - 5		Master	----	----	-9.535E-012	----	
Accelerometer Coefficients - 6		Master	----	----	2.442E-014	----	
Accelerometer Coefficients - 7		Master	----	----	-3.396E-003	----	
Accelerometer Coefficients - 8		Master	----	----	3.712E-005	----	
Accelerometer Coefficients - 9		Master	----	----	-5.869E-009	----	
Accelerometer Coefficients - 10		Master	----	----	1.195E-009	----	
Accelerometer Coefficients - 11		Master	----	----	-4.589E-012	----	
Gamma-Ray Detector Serial Number		Master			7434		

Company:	OMIMEX PETROLEUM	Schlumberger
Well:	DRACO #4-20-1-48	
Field:	Wildcat	
County:	Yuma	
State:	Colorado	
Platform Express Array Induction with Linear Correlation		