

Company: St. Croix Operating, Inc.

Well: Jack Creek #1

Field: Wildcat

County: Washington State: Colorado

Platform Express  
Array Induction with 5" Linear  
with Linear Correlation

County: Washington  
Field: Wildcat  
Location: SENE  
Well: Jack Creek #1  
Company: St. Croix Operating, Inc.

Location:	SENE	Elev.:	K.B.	4603.00 ft
	2038 FNL 600 FEL		G.L.	4597.00 ft
	Lat/Long: 39.91161/-103.08922		D.F.	4603.00 ft
	Permanent Datum:	Ground Level	Elev.:	4597.00 f
Log Measured From:		Kelly Bushing	6.00 ft	above Perm.Datum
Drilling Measured From:		Kelly Bushing		
API Serial No.	Section:	Township:	Range:	
05-121-11078	4	2S	51W	

Logging Date 21-Jul-2018

Run Number 1A

Depth Driller 4273.00 ft

Schlumberger Depth 4270.00 ft

Bottom Log Interval 4270.00 ft

Top Log Interval 0.00 ft

Casing Driller Size @ Depth 8.625 in @ 470.00 ft

Casing Schlumberger 475 ft

Bit Size 7.875 in

Type Fluid In Hole Water

Density 8.8 lbm/gal

Fluid Loss PH 43 s

Source of Sample Active Tank 8.5

RM @ Meas Temp 0.2 ohm.m @ 68 degF

RMF @ Meas Temp 0.15 ohm.m @ 68 degF

RMC @ Meas Temp

Source RMF RMC

RM @ BHT RMF @ BHT Pressed

Max Recorded Temperatures 0.11 @ 130 0.08 @ 130

Circulation Stopped 133 degF

Logger on Bottom 21-Jul-2018 11:30:00

Unit Number 21-Jul-2018 16:14:00

Recorded By 9108

Witnessed By Evan Grzecki

Thomas

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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10. 1A 5" Induction

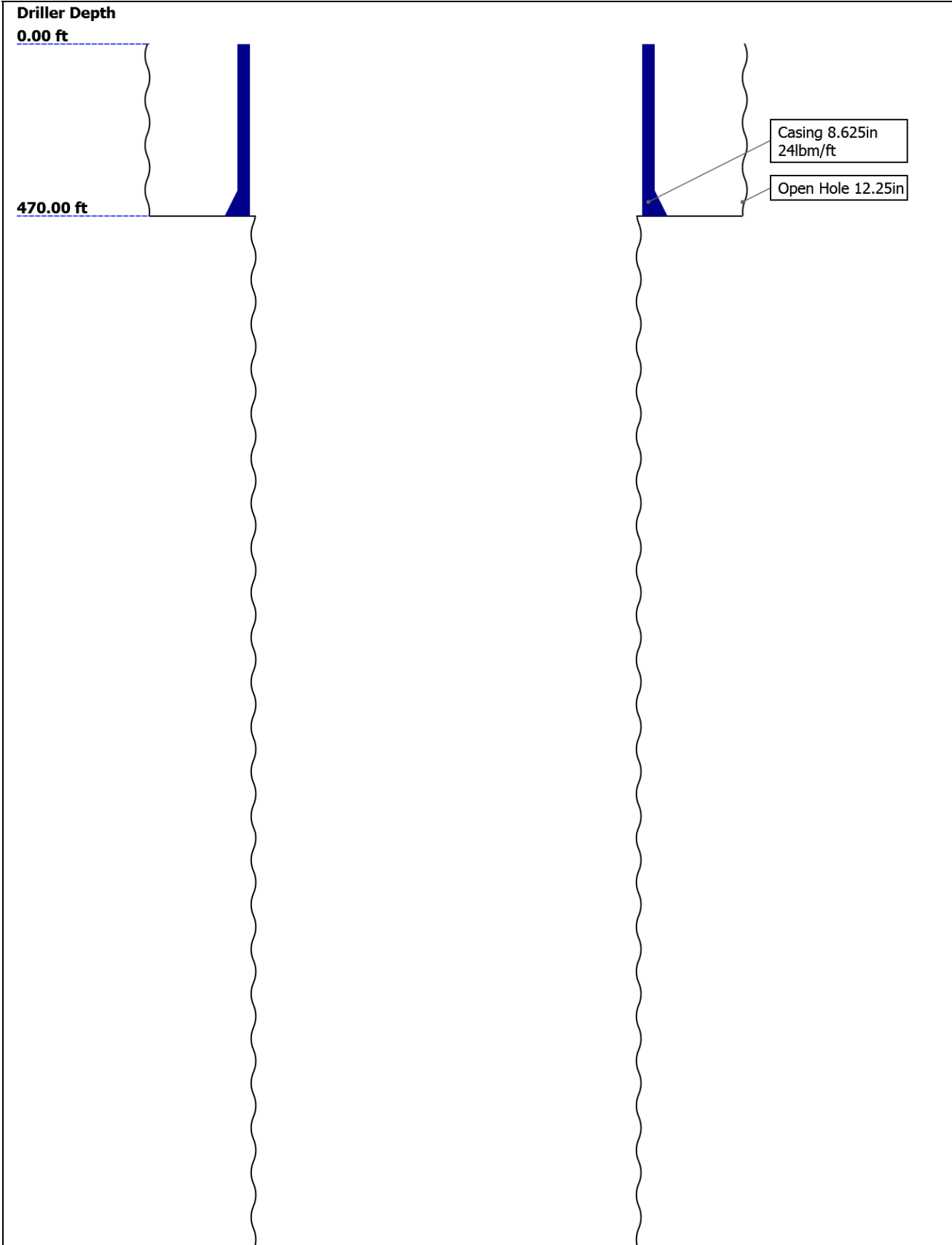
10.1 Composite Summary

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11. Calibration Report

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Well Sketch

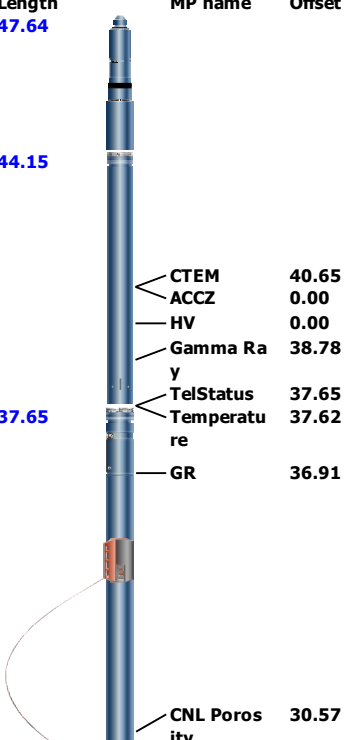


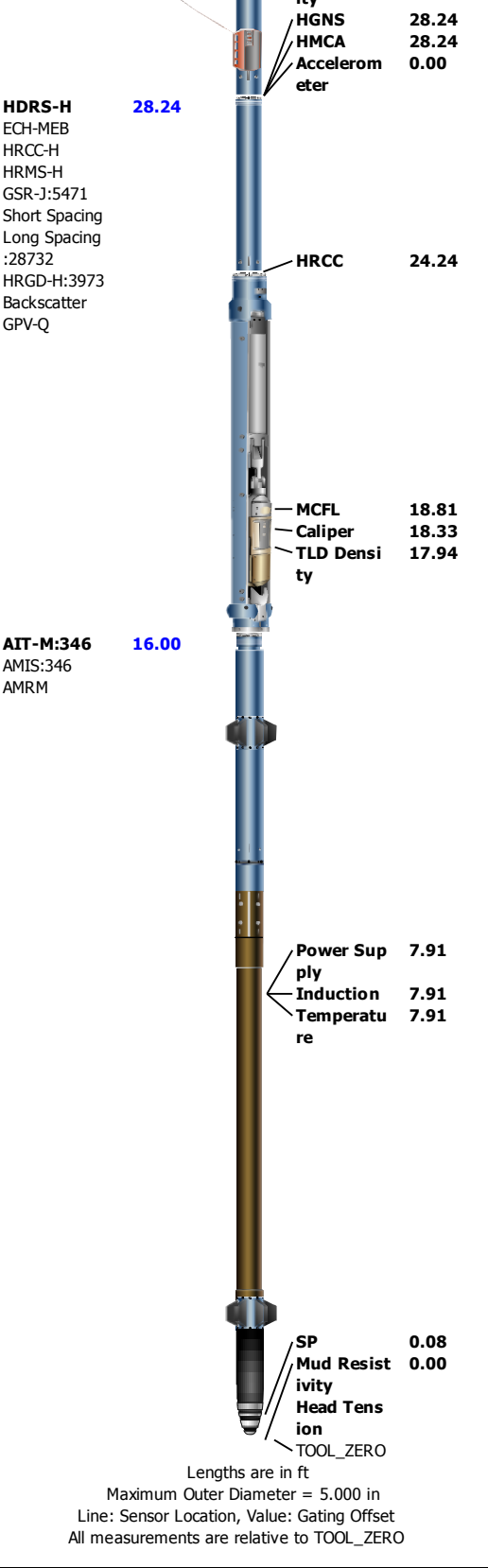


Borehole Size/Casing/Tubing Record

Bit						
Bit Size ( in )	12.25	7.875				
Top Driller ( ft )	0	470				
Top Logger ( ft )	0	475				
Bottom Driller ( ft )	470	4273				
Bottom Logger ( ft )	475	4270				
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 )	470					
Bottom Logger ( ft )	475					

Remarks and Equipment Summary

1A: Toolstring				1A: Remarks
<b>Equip name</b> <b>LEH-QT</b> LEH-QT	<b>Length</b> <b>47.64</b>	<b>MP name</b>	<b>Offset</b>	Thank you for choosing Schlumberger!
				Logs run for formation evaluation
				Toolstring run slick as per client request
				TD-4050ft -> MATRIX: Sandstone; MDEN: 2.65
				4050ft-3100ft -> MATRIX: Limestone; MDEN: 2.71 g/cc
				Logs correlated to down log
<b>EDTC-B</b> EDTH-B EDTG-A EDTC-B	<b>44.15</b>	<b>CTEM</b> <b>ACCZ</b> <b>HV</b> <b>Gamma Ra</b> <b>y</b> <b>TelStatus</b> <b>Temperatu</b> <b>re</b> <b>GR</b>	<b>40.65</b> <b>0.00</b> <b>0.00</b> <b>38.78</b>  <b>37.65</b> <b>37.62</b>  <b>36.91</b>	Crew: Gary Lapp, Claude Walz
<b>HGNS-H</b> HGNH NPV-N NSR-F:5070 HMCA-H HACCZ-H:416 8 HGNS-H	<b>37.65</b>	<b>CNL Poros</b> <b>ity</b>	<b>30.57</b>	



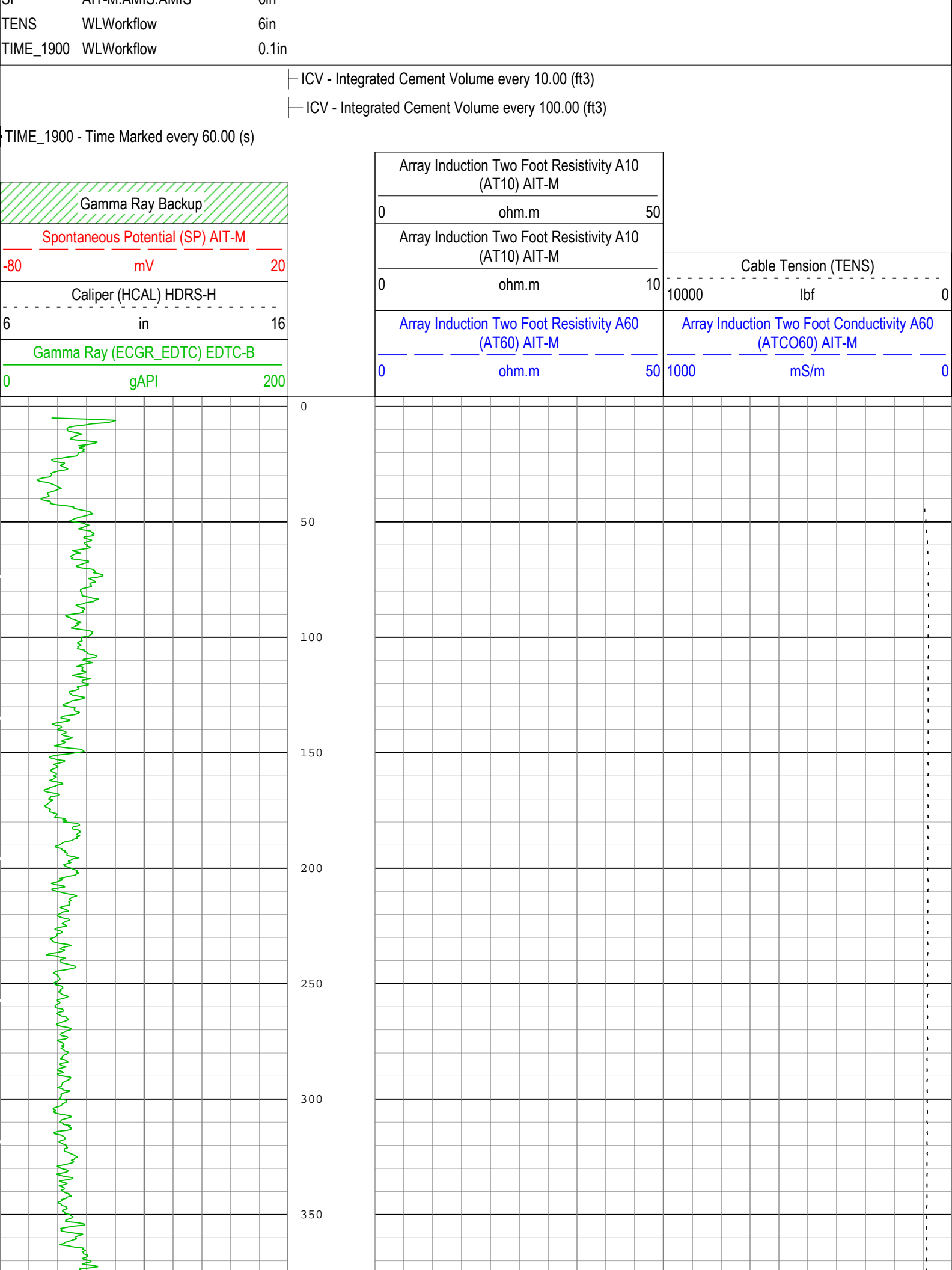
## Depth Summary

	1A		
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## Depth Measuring Device

Type	IDW-B		
Serial Number			
Calibration Date			
Calibrator Serial Number			
Calibration Cable Type			
Wheel Correction 1	0		
Wheel Correction 2	0		





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

0ohm.m50

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

0ohm.m10

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

0ohm.m50

Array Induction Two Foot Conductivity A60 (ATCO60) AIT-M

1000mS/m0

0

50

100

150

200

250

300

350

0

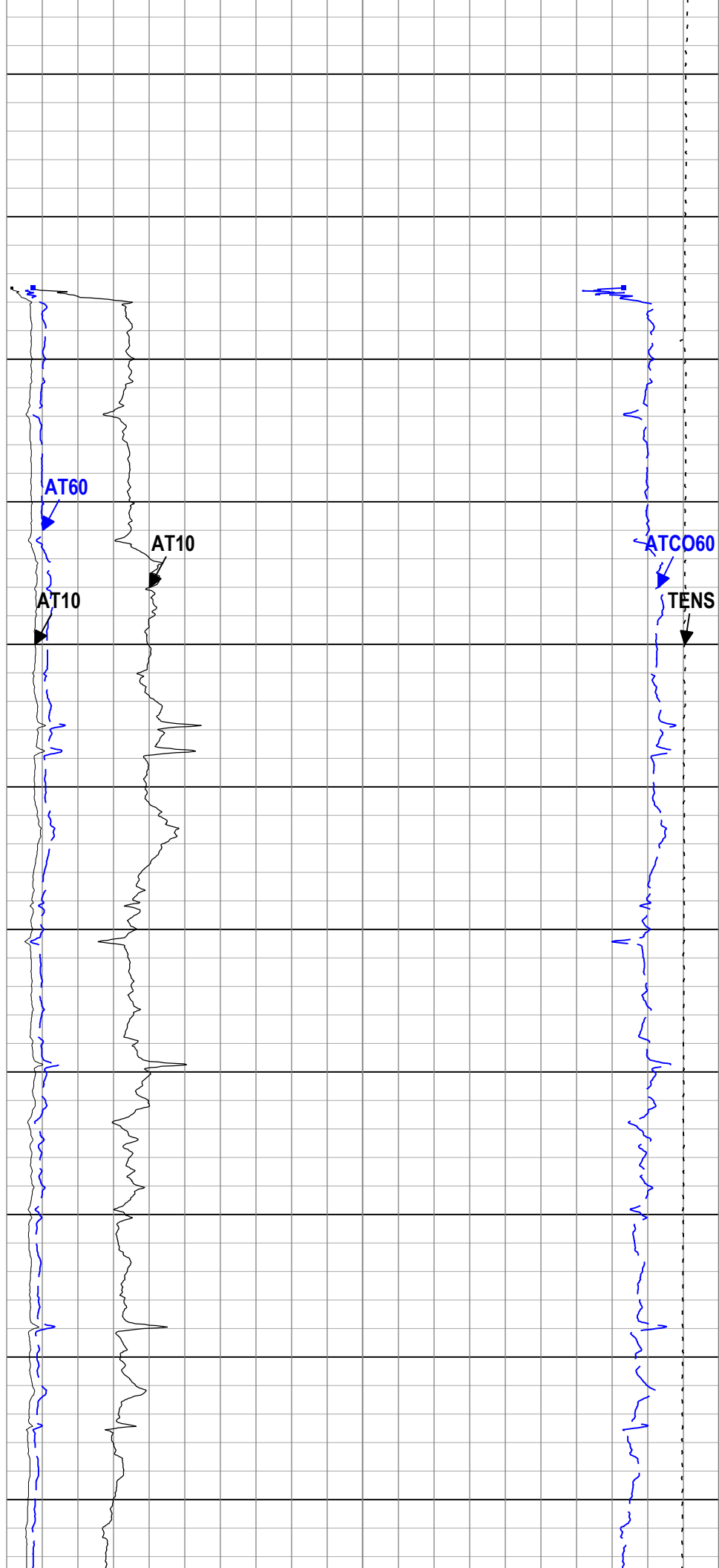
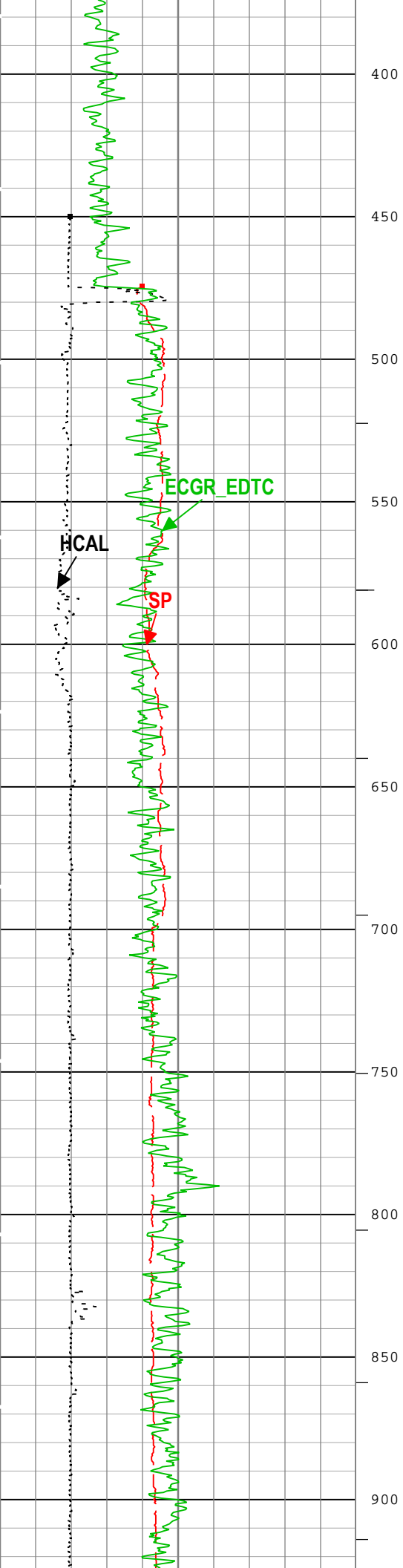
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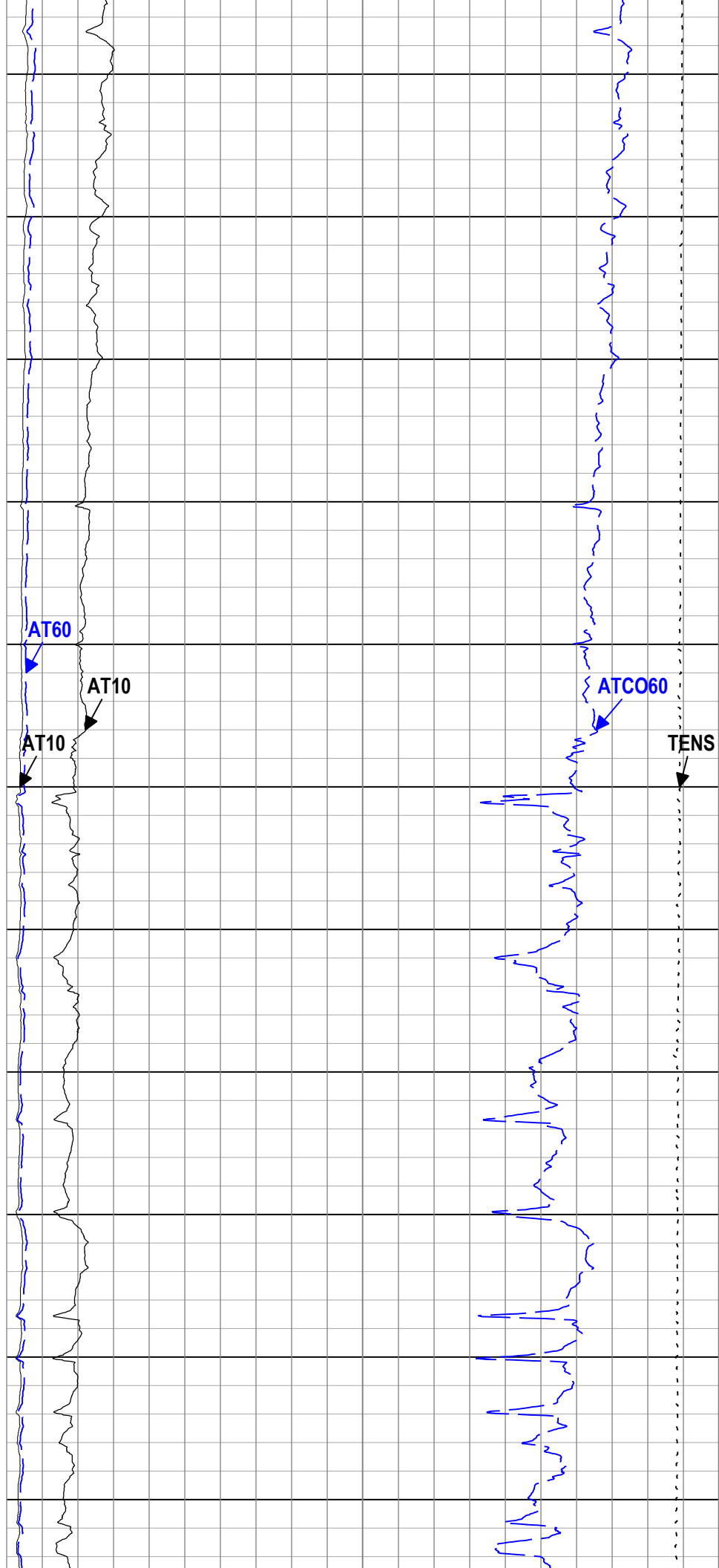
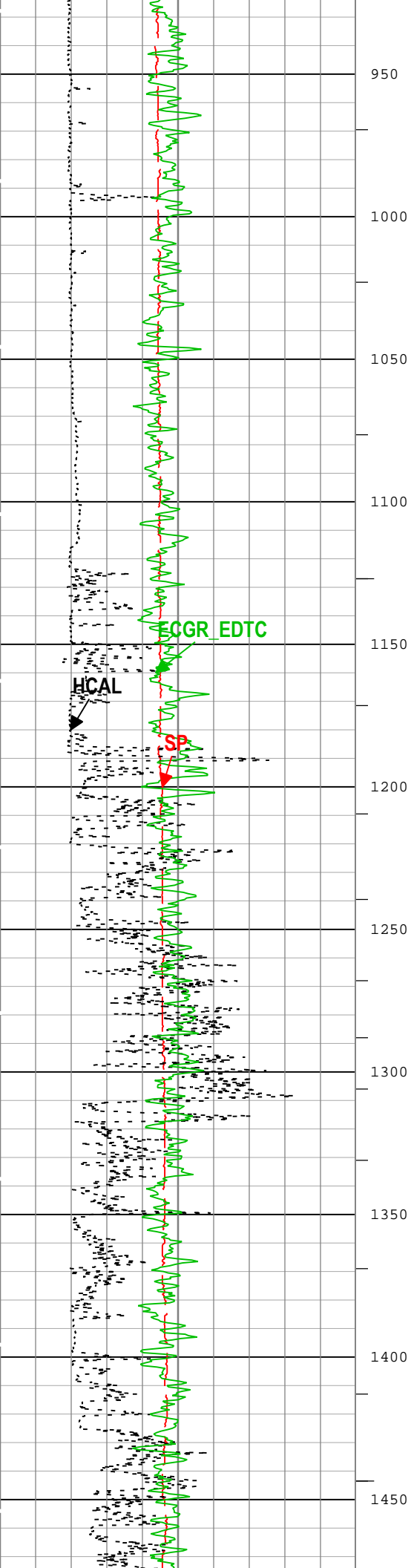
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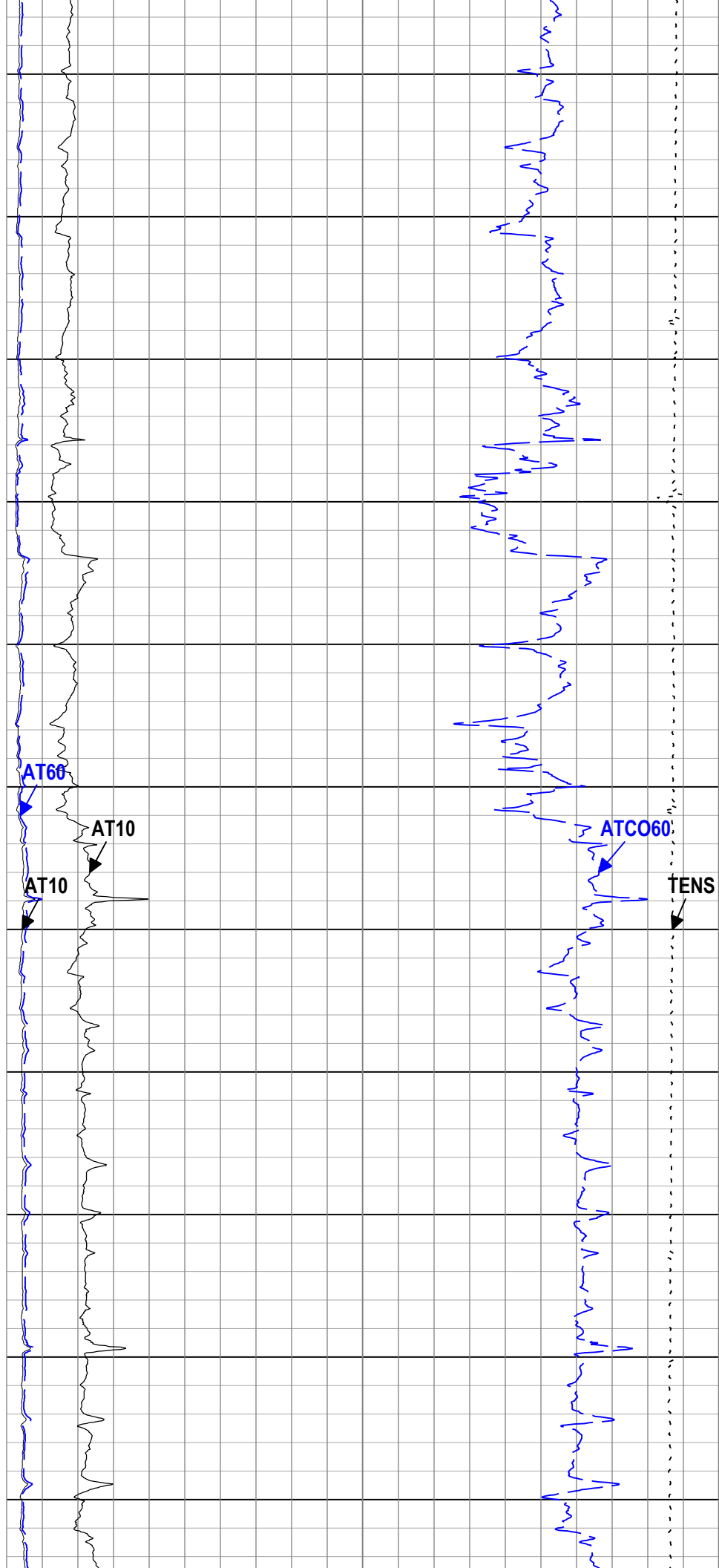
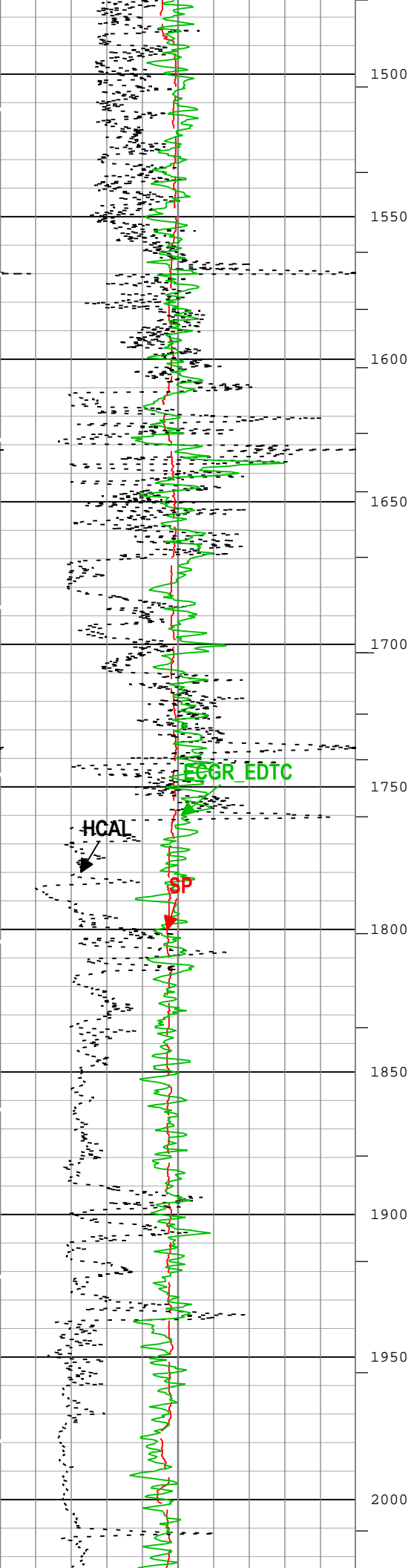
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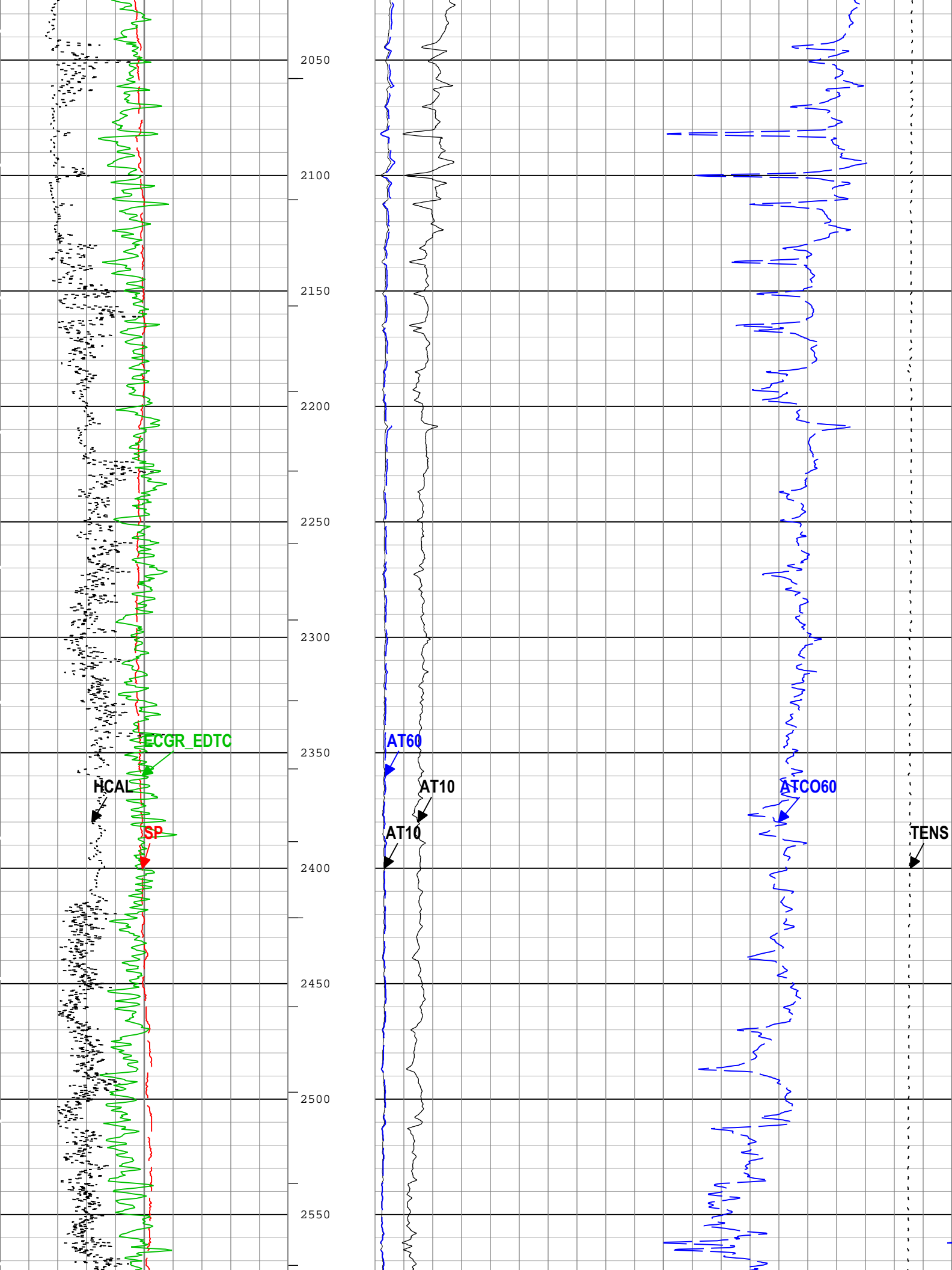
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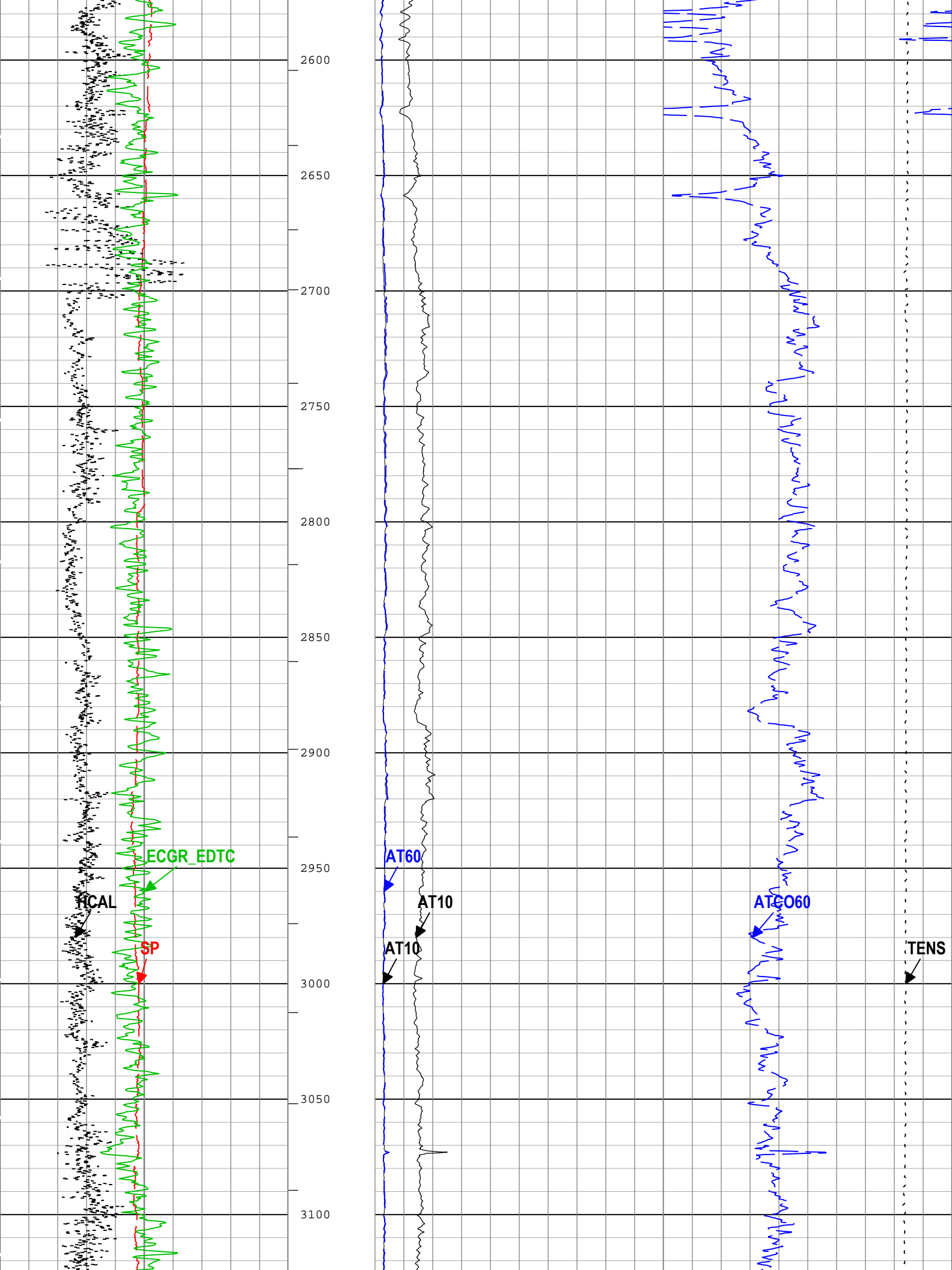


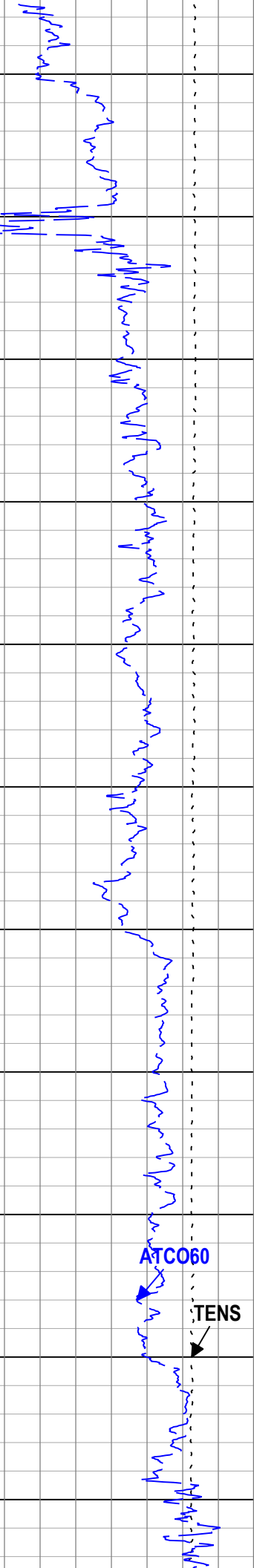
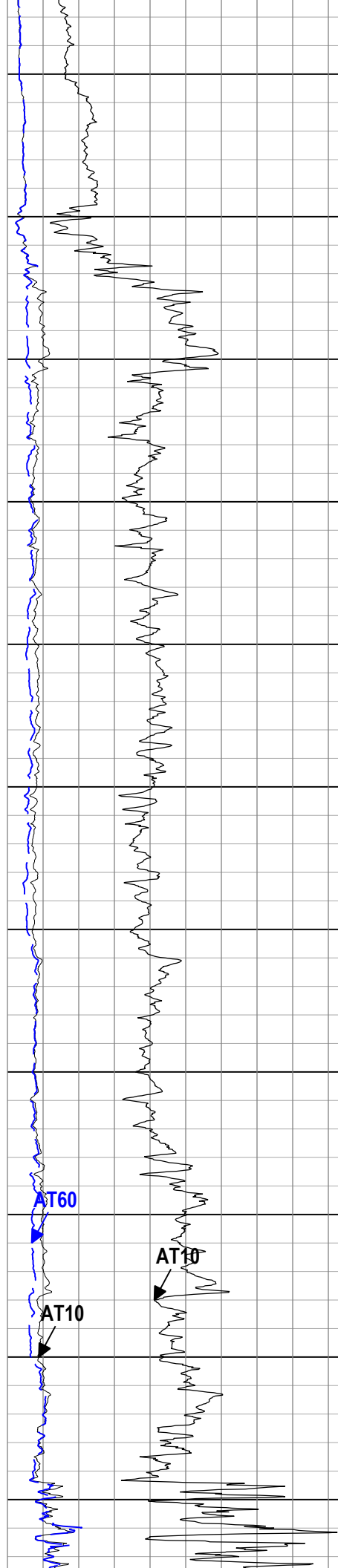
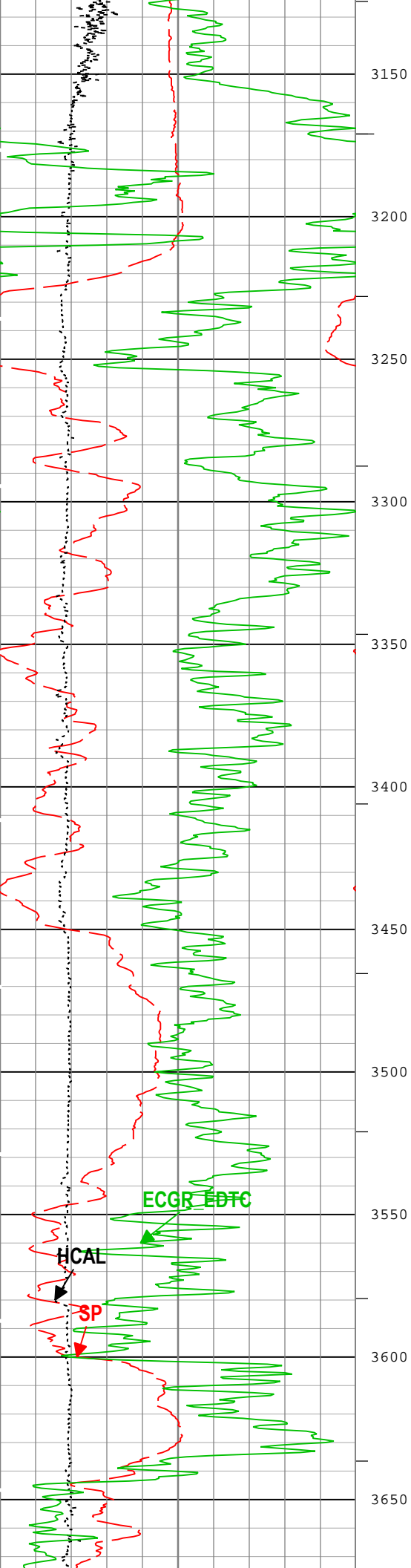


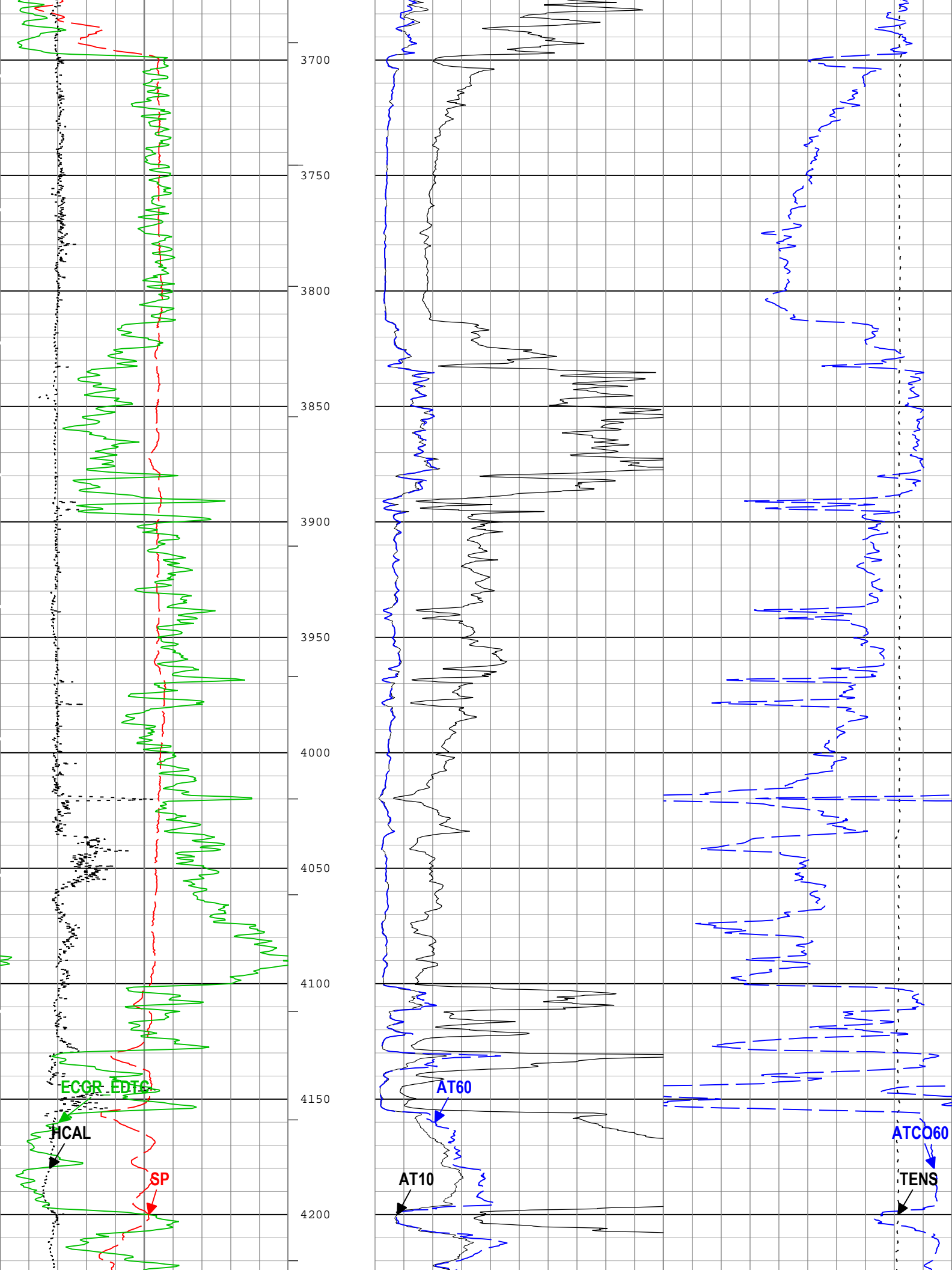


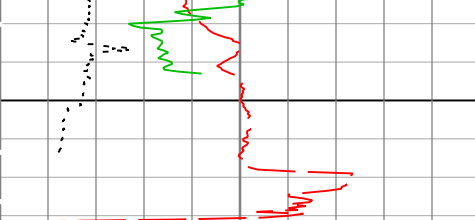












The timeline illustrates the sequence of events during the study. It begins with a 'Gamma Ray Backup' (indicated by a green hatched bar). This is followed by a 'Spontaneous Potential (SP) AIT-M' measurement (red bar). Then, a 'Caliper (HCAL) HDRS-H' measurement is performed (black bar). Finally, a 'Gamma Ray (ECGR\_EDTC) EDTC-B' measurement is conducted (green bar). The timeline is marked with time points: -80 mV, 20 mV, 6 in, and 16 in.

Array Induction Two Foot Resistivity A10 (AT10) AIT-M		
0	ohm.m	50
Array Induction Two Foot Resistivity A10 (AT10) AIT-M		
0	ohm.m	10
Array Induction Two Foot Resistivity A60 (AT60) AIT-M		
0	ohm.m	50

Cable Tension (TENS)	
10000	lbf
0	
Array Induction Two Foot Conductivity A60 (ATCO60) AIT-M	
1000	mS/m
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)

Description: AIT Basic Log Two    Format: Log ( EMD 1in Induction )    Index Scale: 2 in per 100 ft    Index Unit: ft    Index Type: Measured Depth    Creation Date: 21-Jul-2018 18:00:18

## 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	in
CBLO	Casing Bottom (Logger)	WLSESSION	475	ft
CDEN	Cement Density	EDTC-B	2	g/cm3
CSODDRL	Casing Outer Diameter - Zoned along driller depths	WLSESSION	8.625	in
DFD	Drilling Fluid Density	Borehole	8.8	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	
SP_SHIFT	SP Shift	AIT-M	50	mV
SPDR	SP Drift Per Foot	AIT-M	0	mV/ft

### Depth Zone Parameters

Parameter	Value	Start ( ft )	Stop ( ft )
BS	12.25	0	475
BS	7.875	475	4270

All depth are actual.

## Tool Control Parameters

## 1A: Parameters

Parameter	Description	Tool	Value	Unit
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MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	3600	ft/h
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1A

## 5" Induction

## Integration Summary

Output Channel(s)	Output Description	Input Parameter	Output Value	Unit
ICV	Integrated Cement Volume	GCSE_UP_PASS, FCD	919.42	ft3
IHV	Integrated Hole Volume	GCSE_UP_PASS	1547.44	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[6]:Up	Up	43.14 ft	4281.79 ft	21-Jul-2018 4:14:35 PM	21-Jul-2018 5:28:06 PM	ON	2.08 ft	No

All depths are referenced to toolstring zero

## Log

Company:St. Croix Operating, Inc.

Well: Jack Creek #1

1A: Log[6]:Up:S005

Description: AIT Basic Log Two    Format: Log ( EMD 5in Induction Upper )    Index Scale: 5 in per 100 ft    Index Unit: ft    Index Type: Measured Depth

Creation Date: 21-Jul-2018 18:00:20

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	EDTC-B:EDTC-B:EDTC-B	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)

TIME\_1900 - Time Marked every 60.00 (s)

└ ICV - Integrated Cement Volume every 10.00 (ft3)

— ICV - Integrated Cement Volume every 100.00 (ft3)

Cable Tension (TENS)

Array Induction Two Foot Resistivity A10 (AT10) AIT-M		
0	ohm.m	50

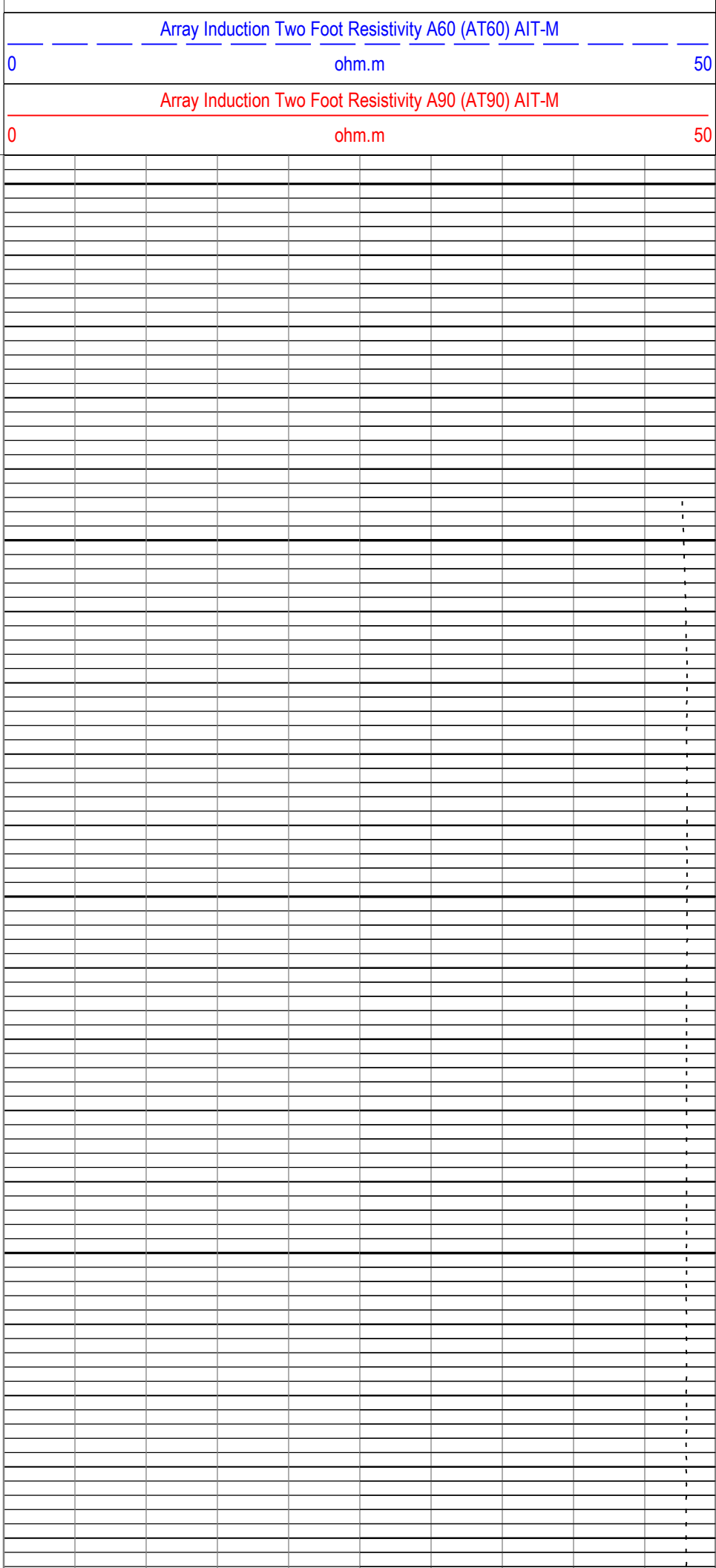
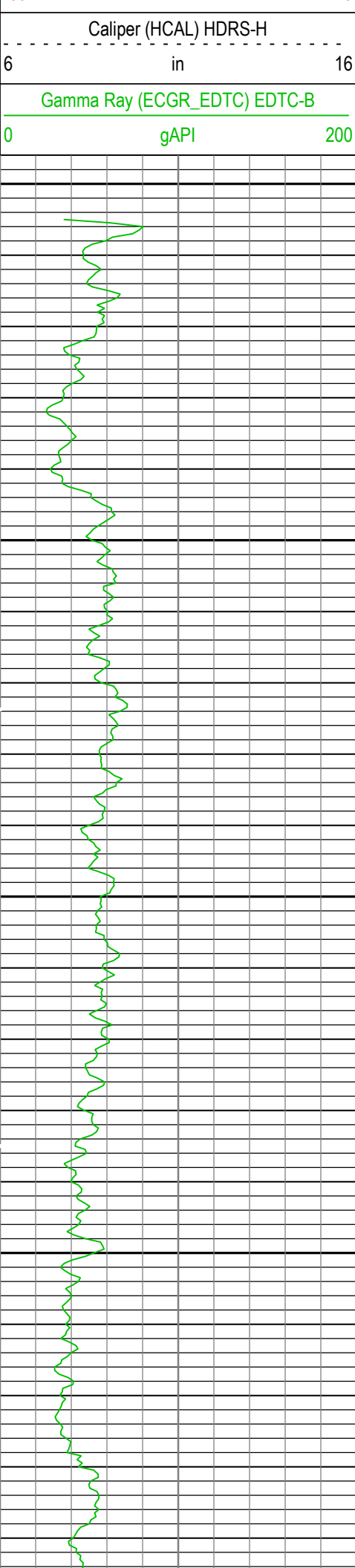
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Array Induction Two Foot Resistivity A30 (AT30) AIT-M

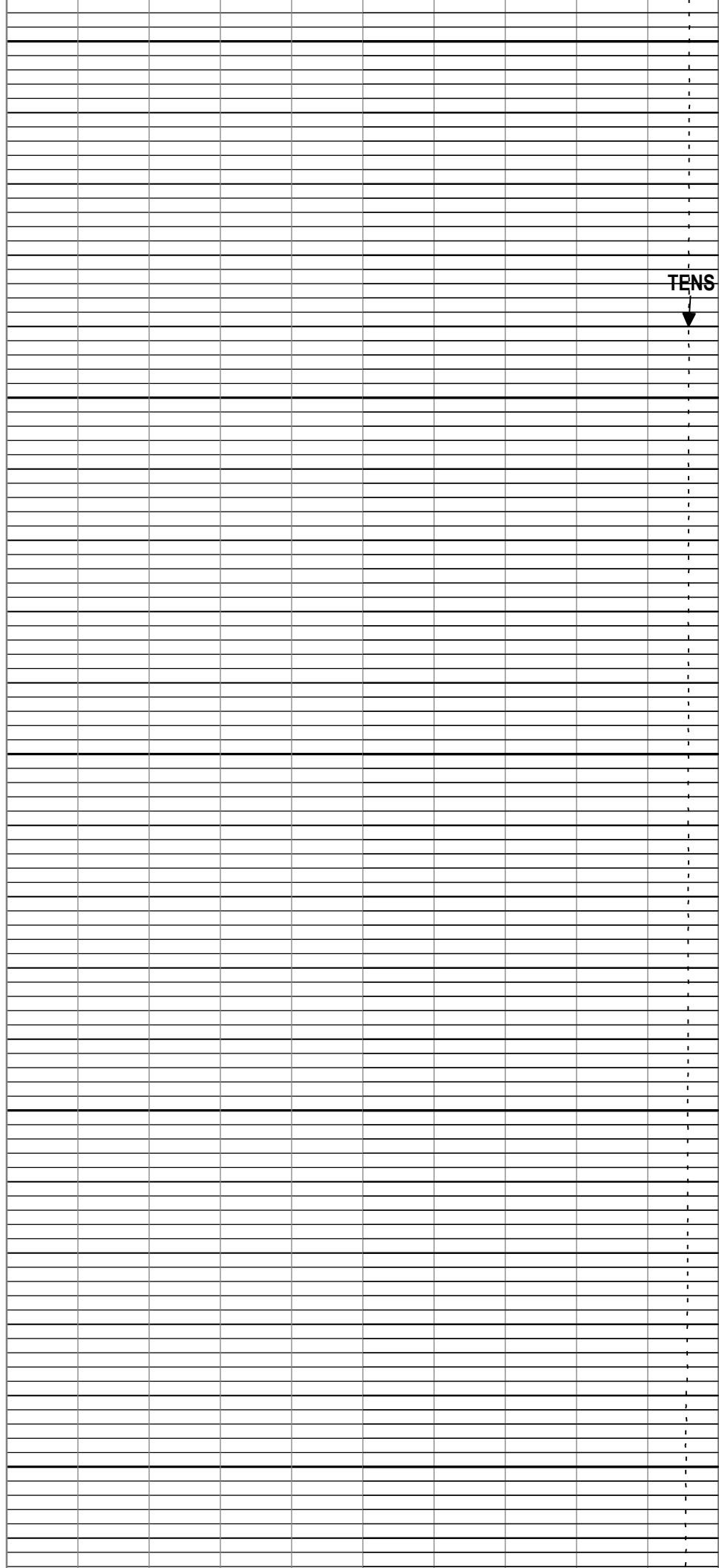
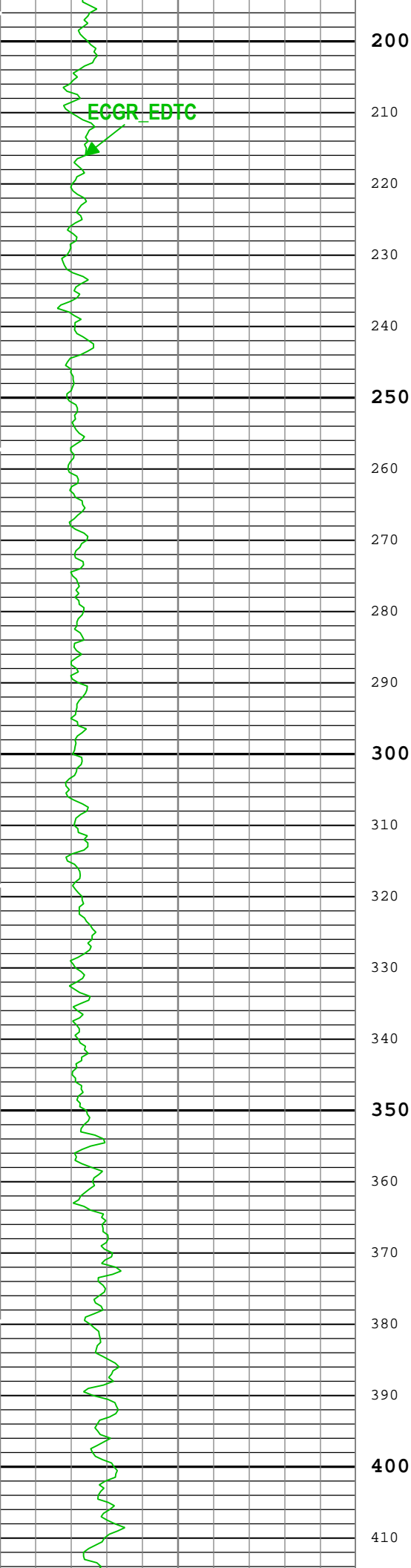
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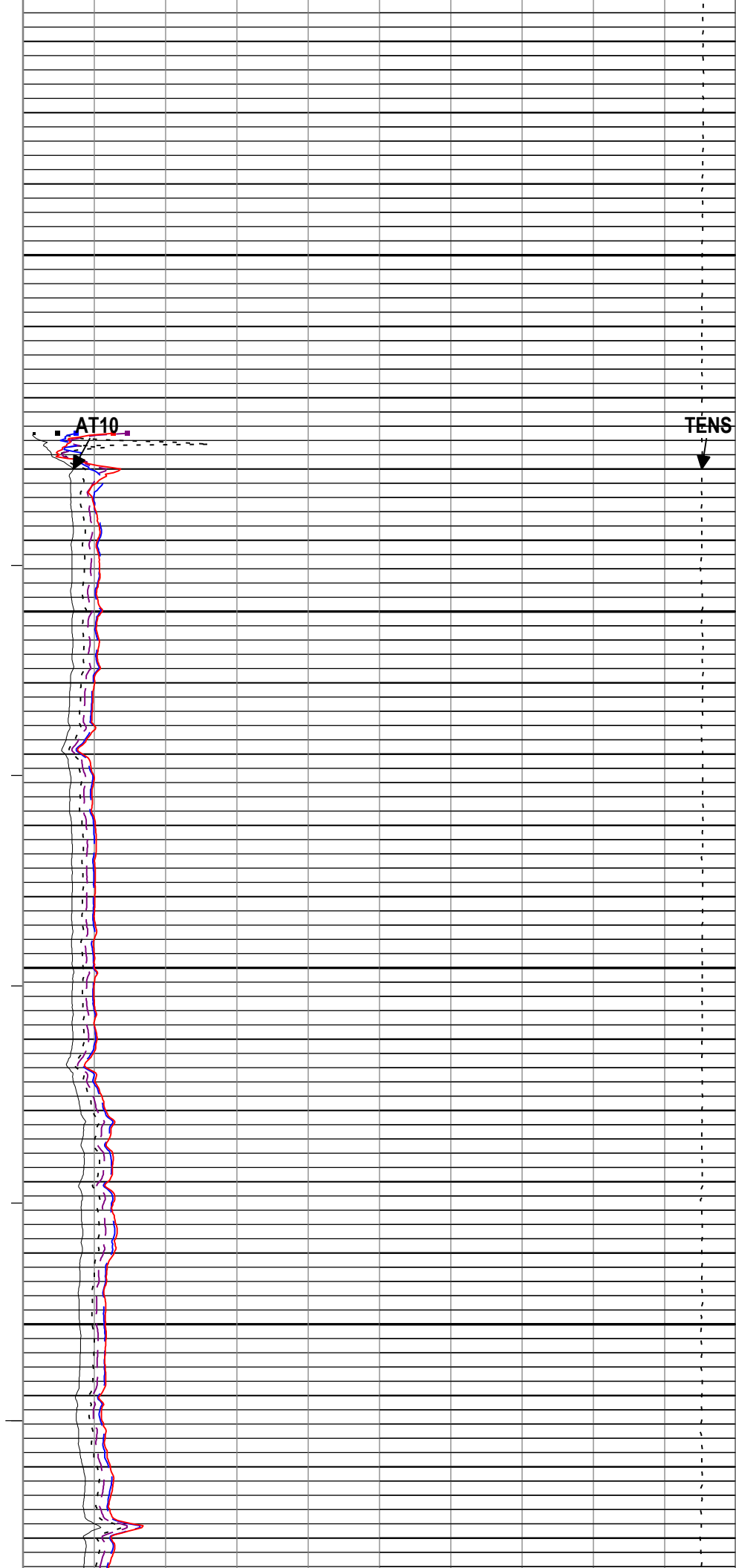
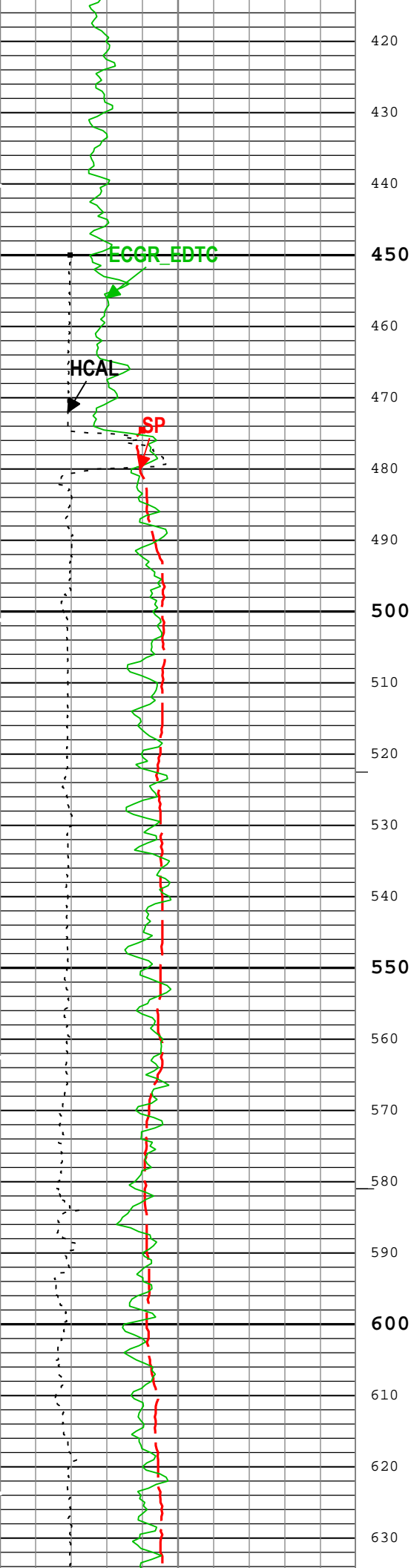
Spontaneous Potential (SP) AIT-M

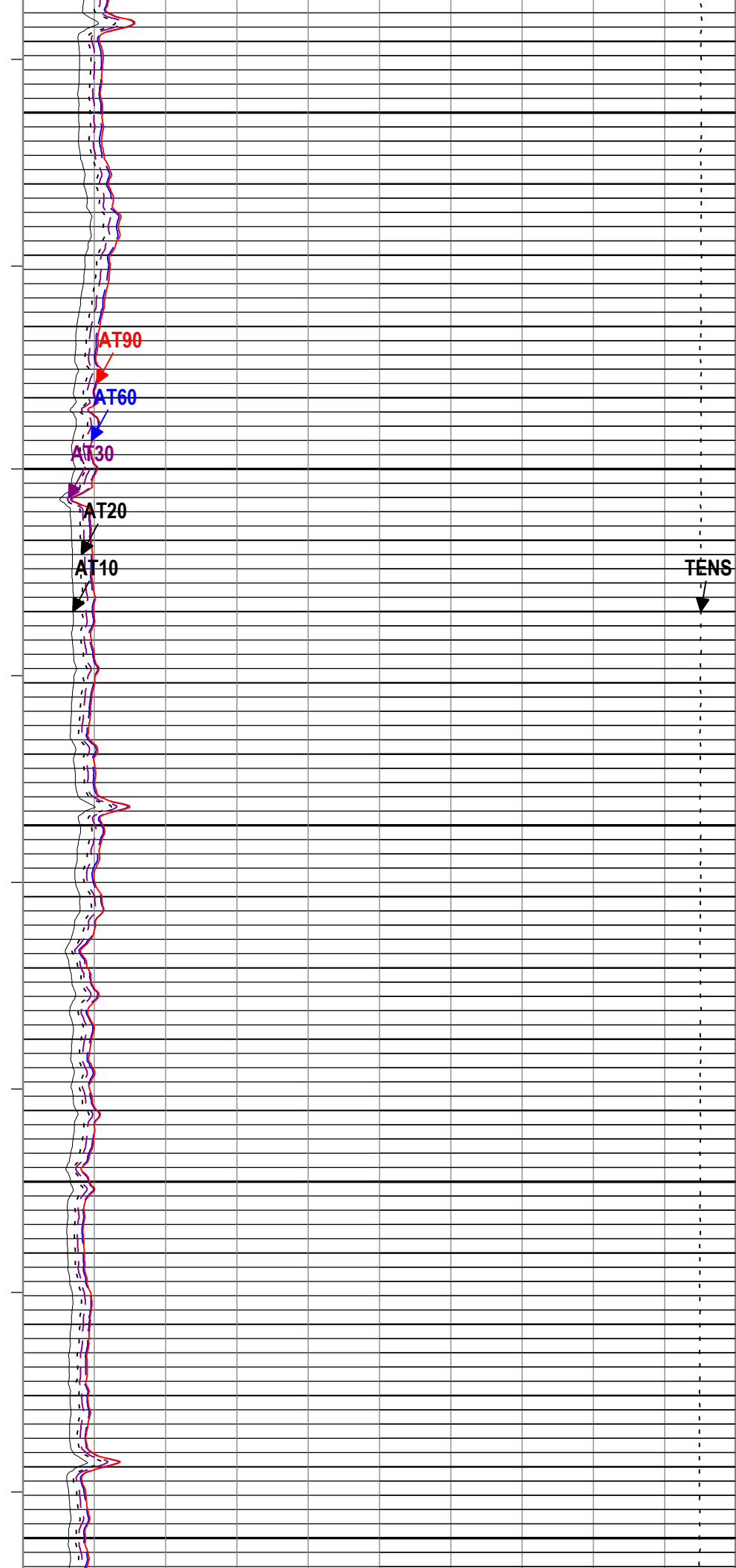
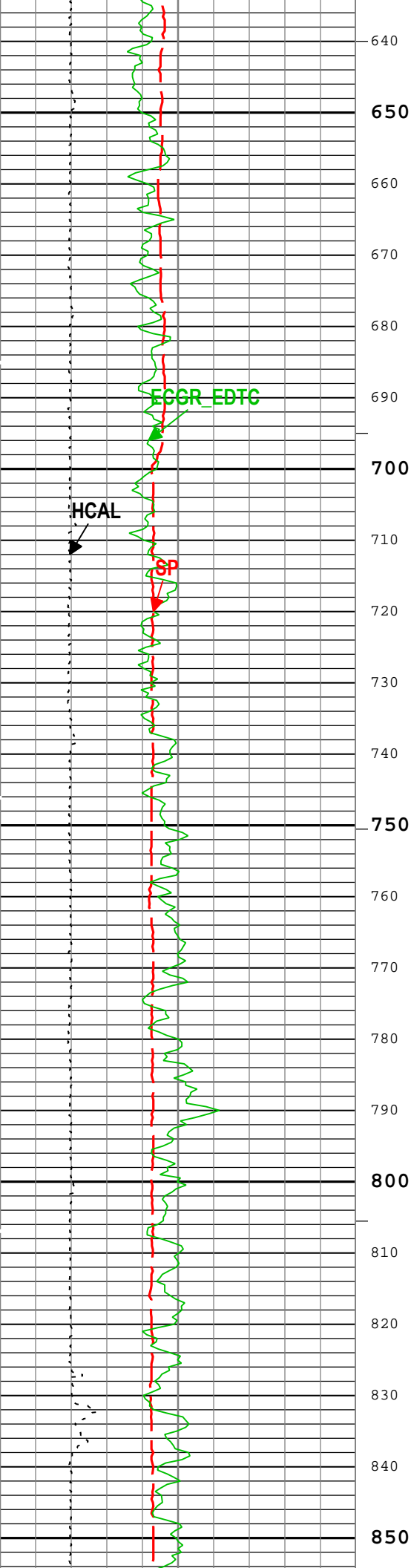
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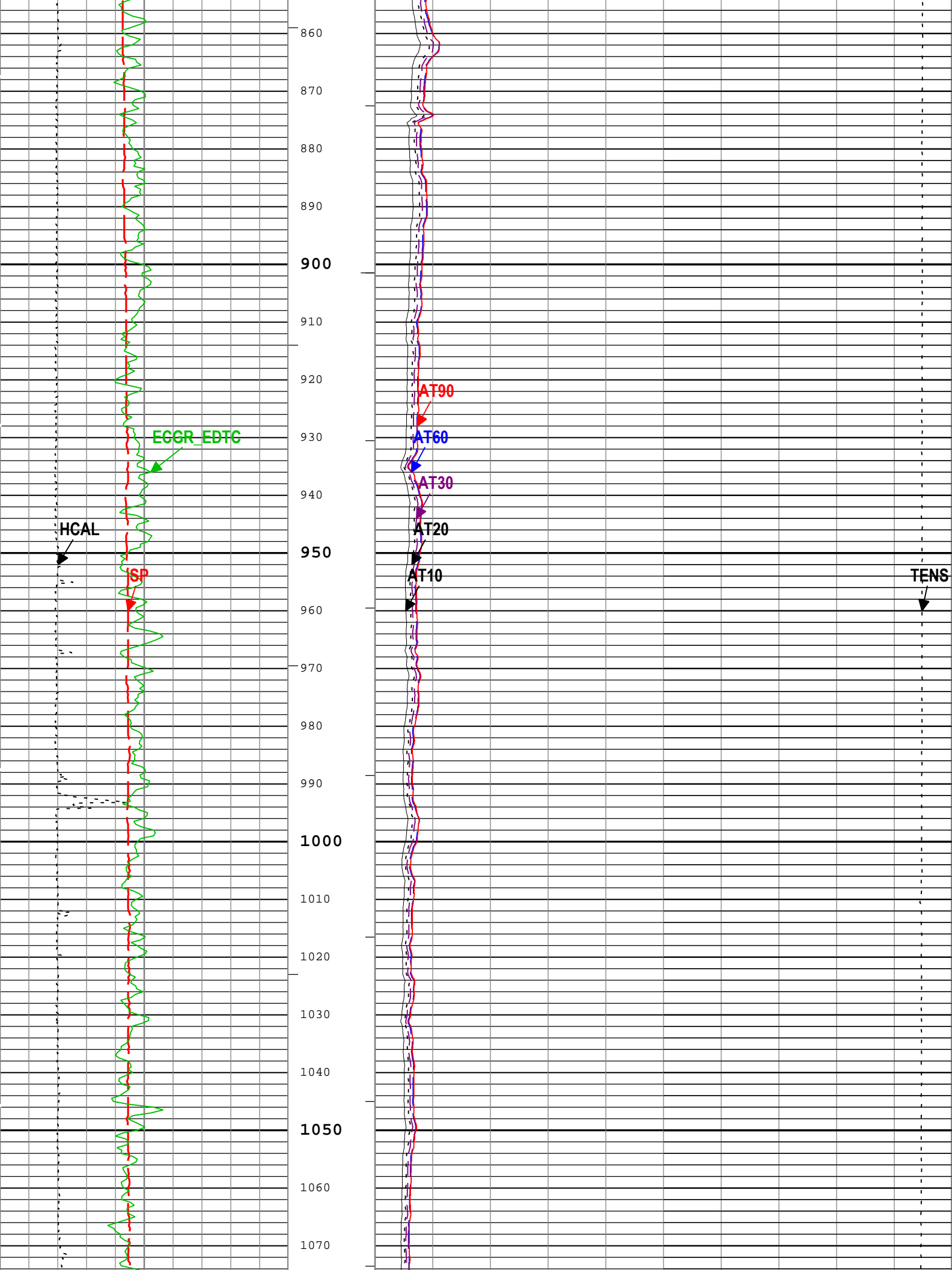


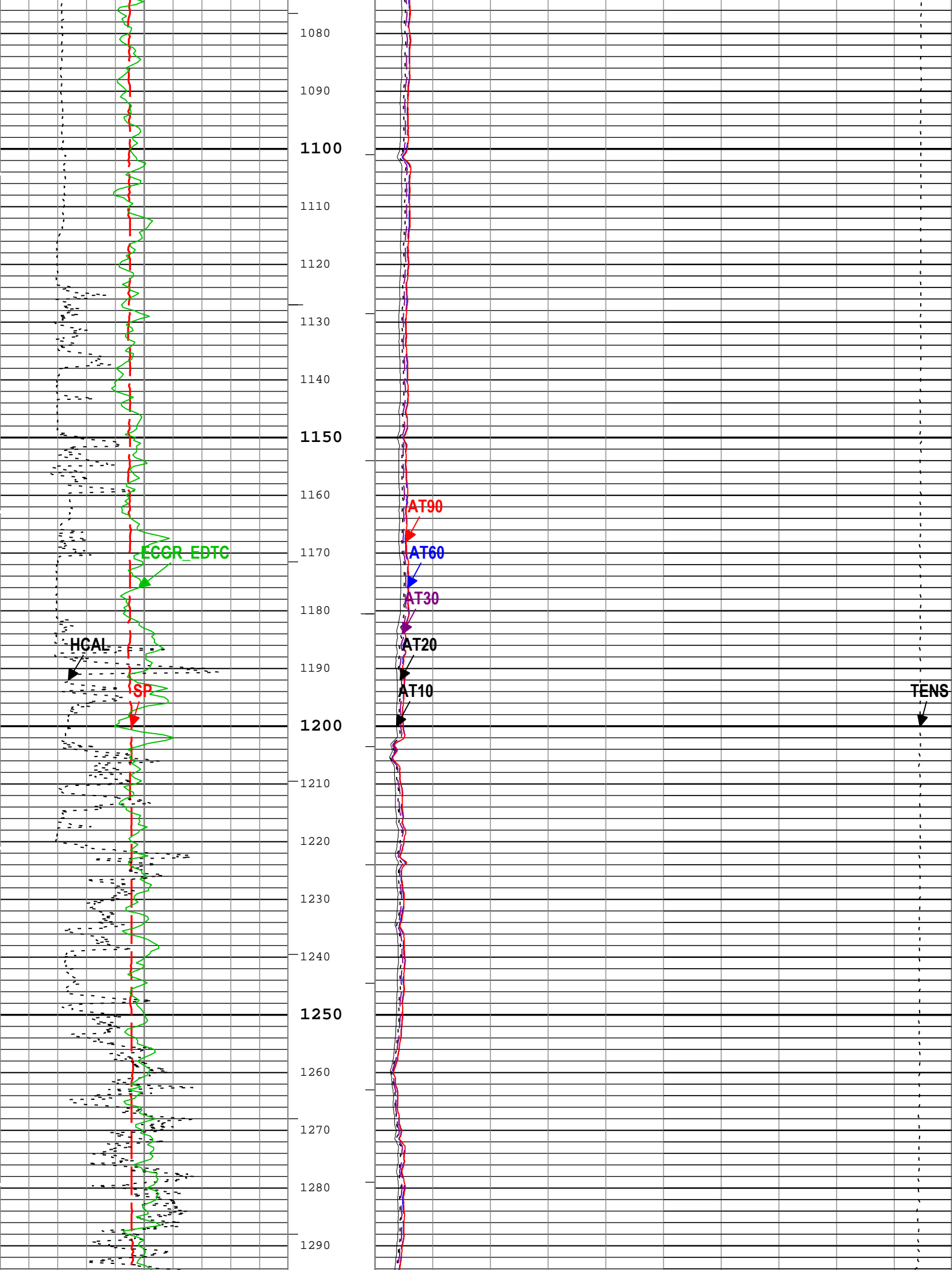


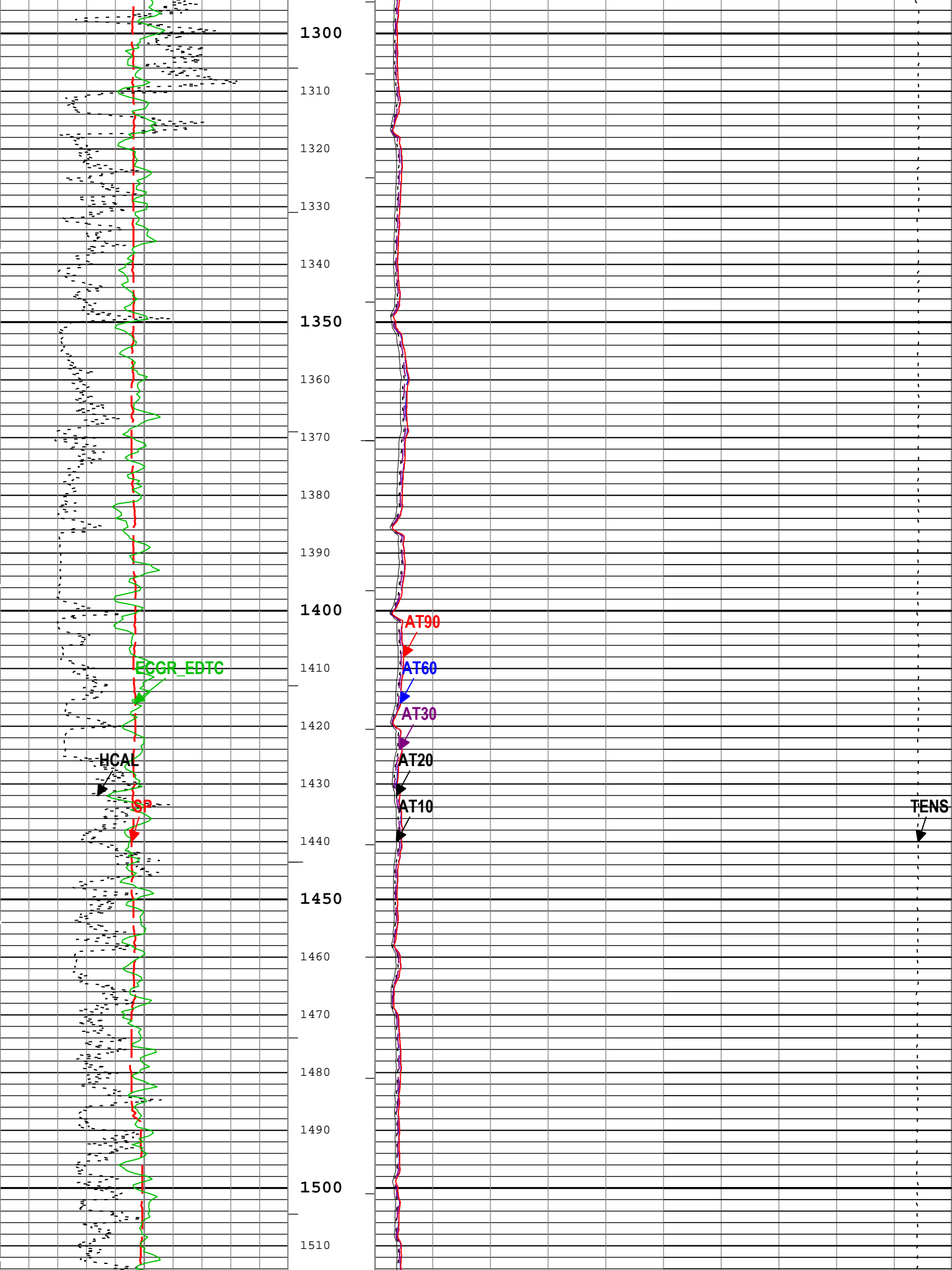


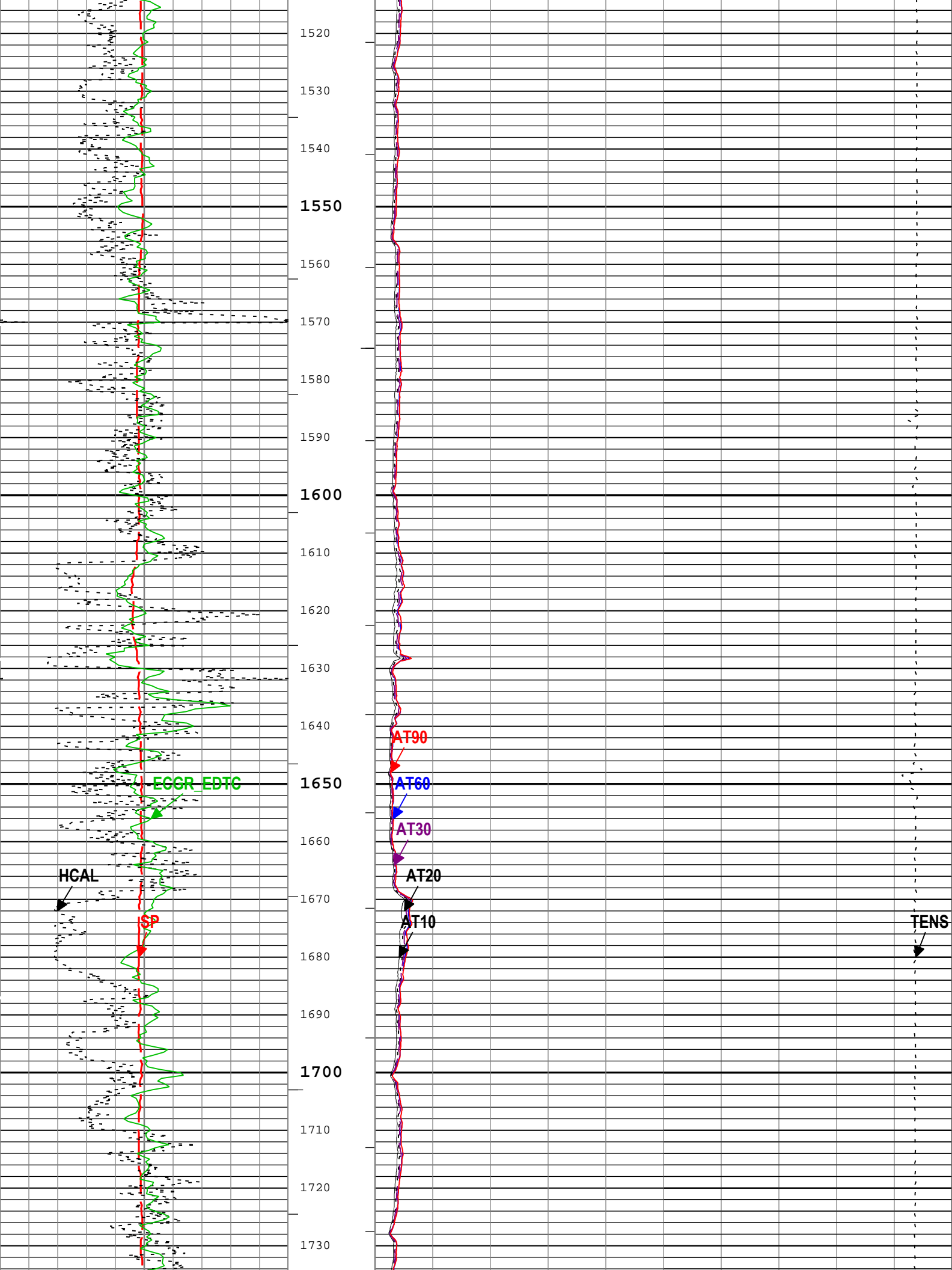


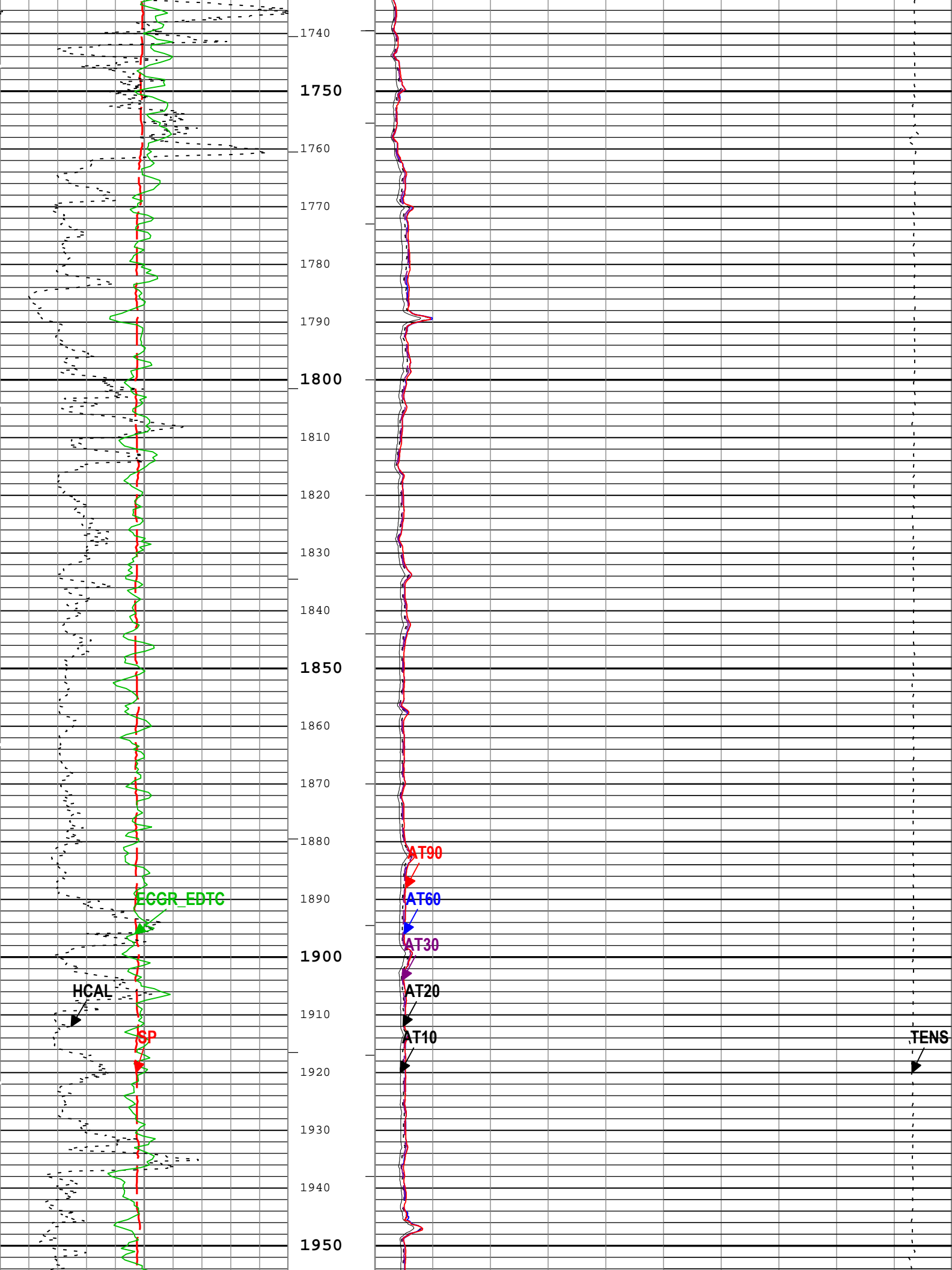




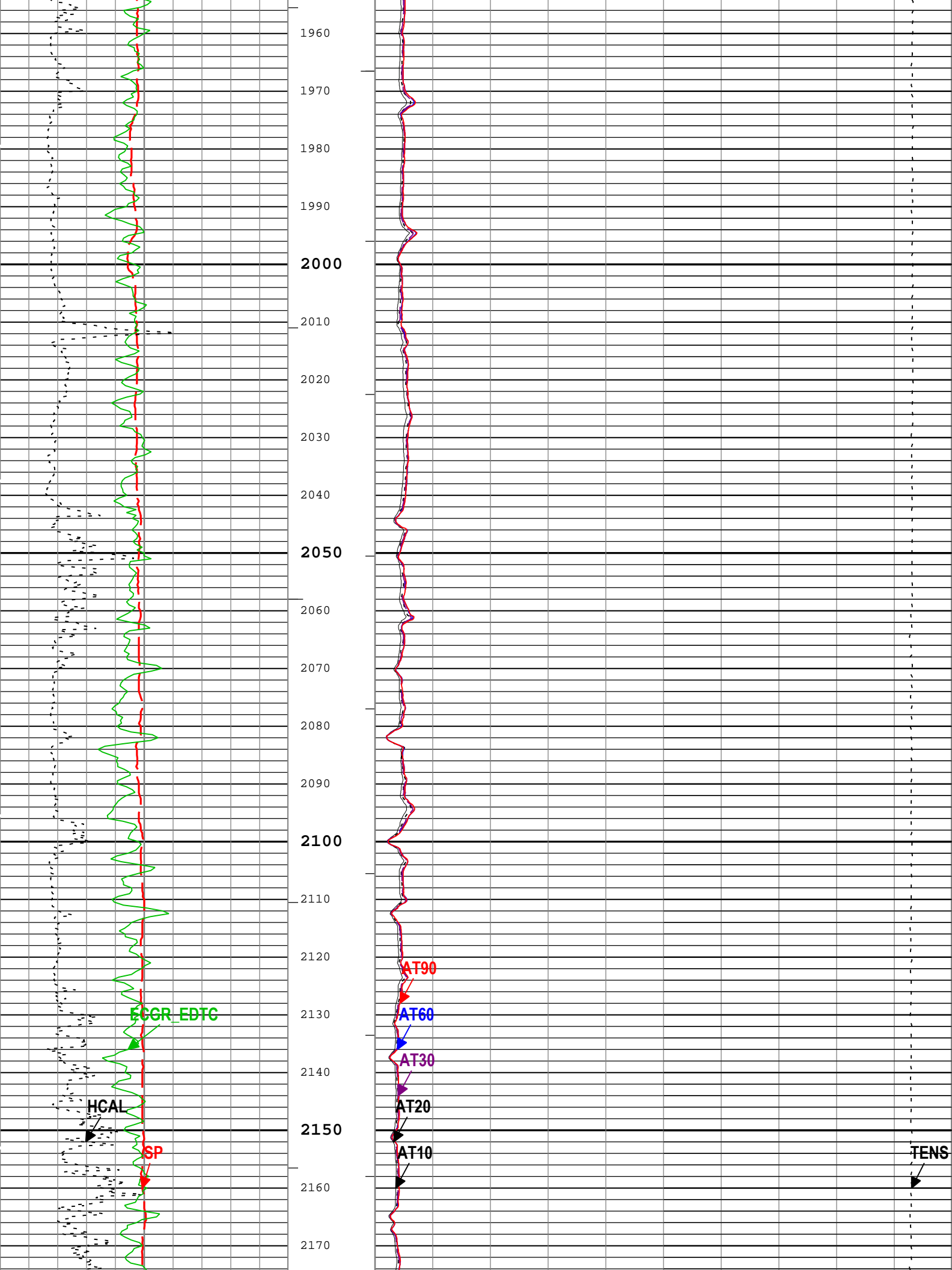


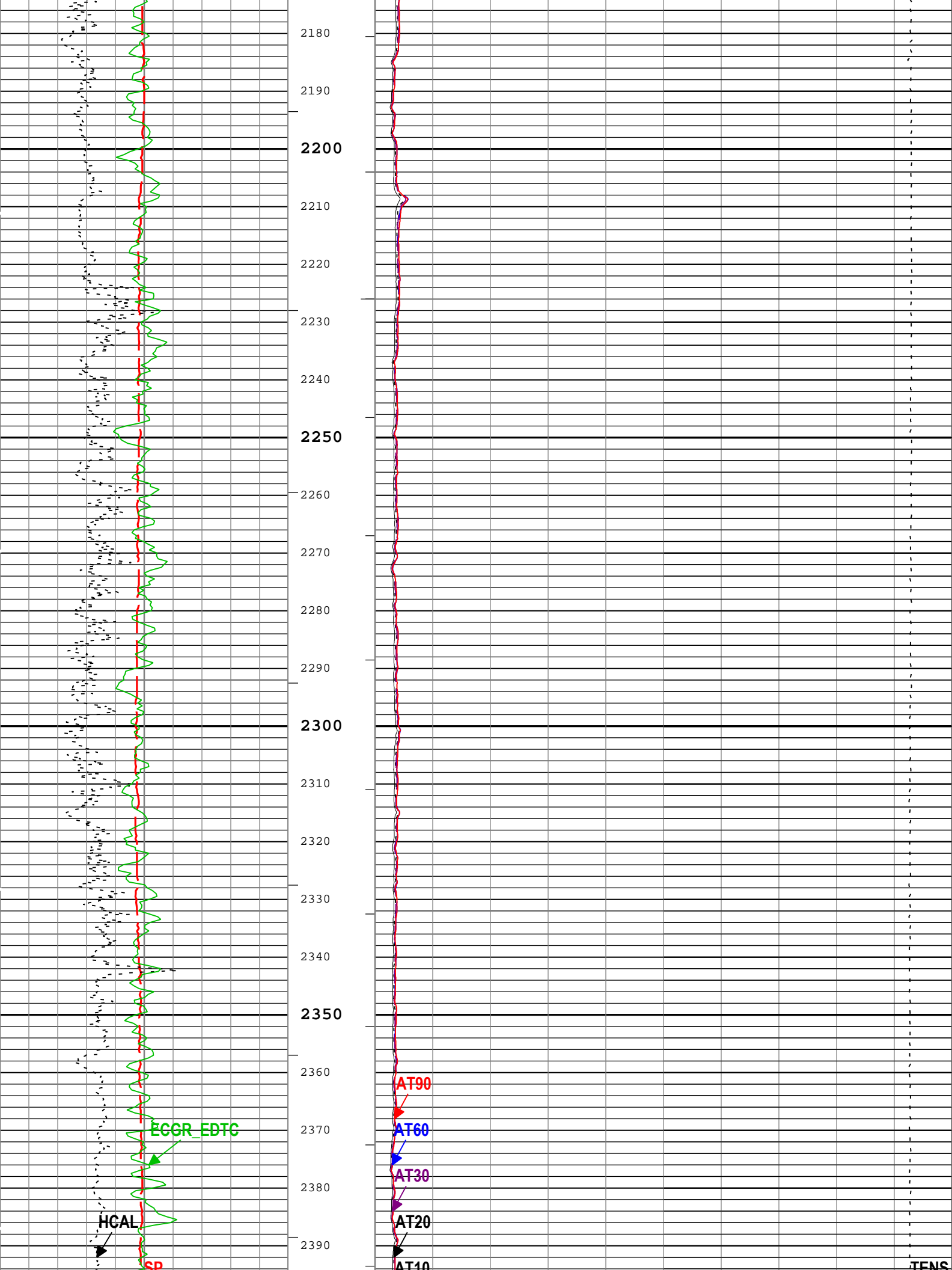


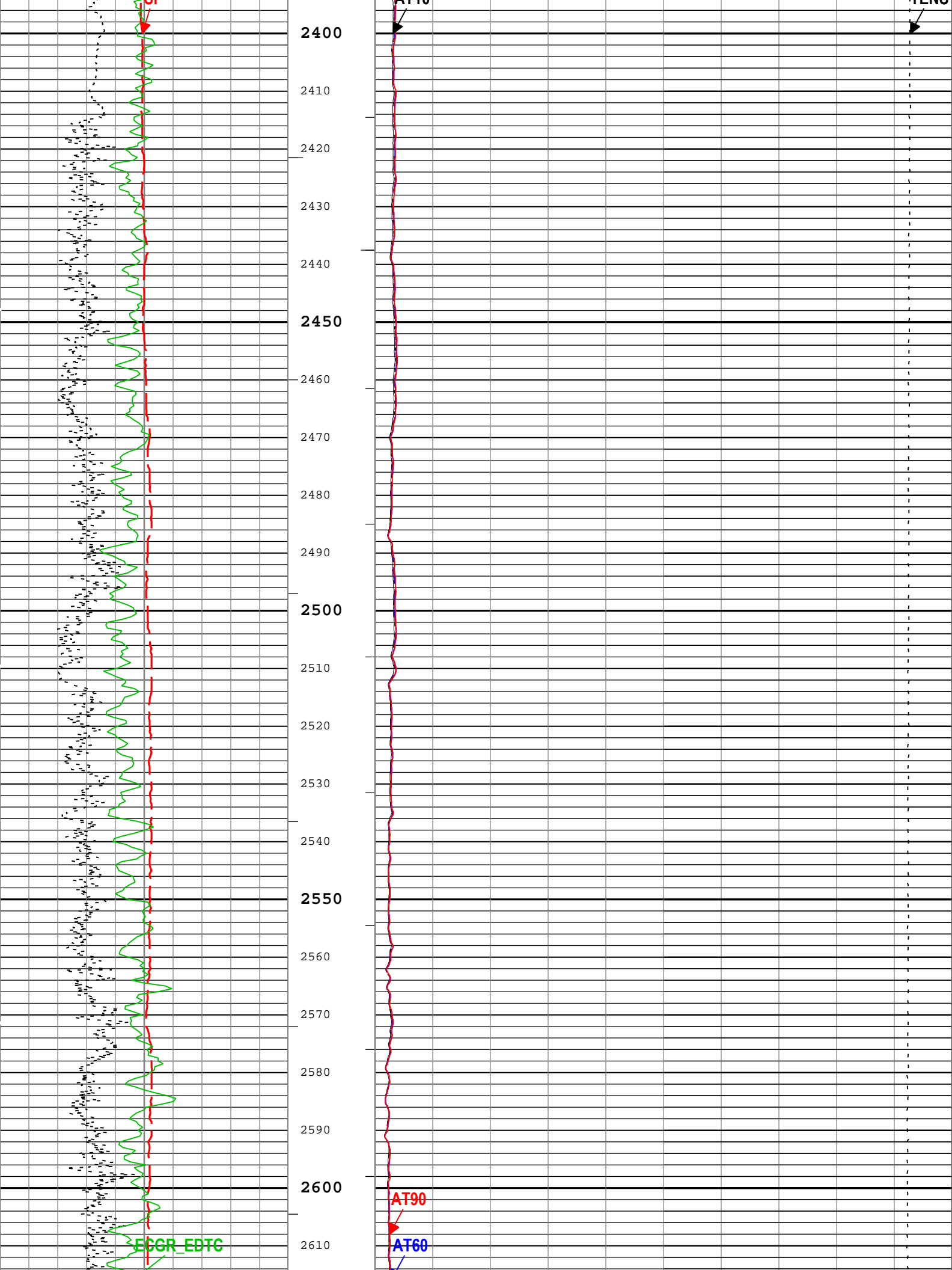


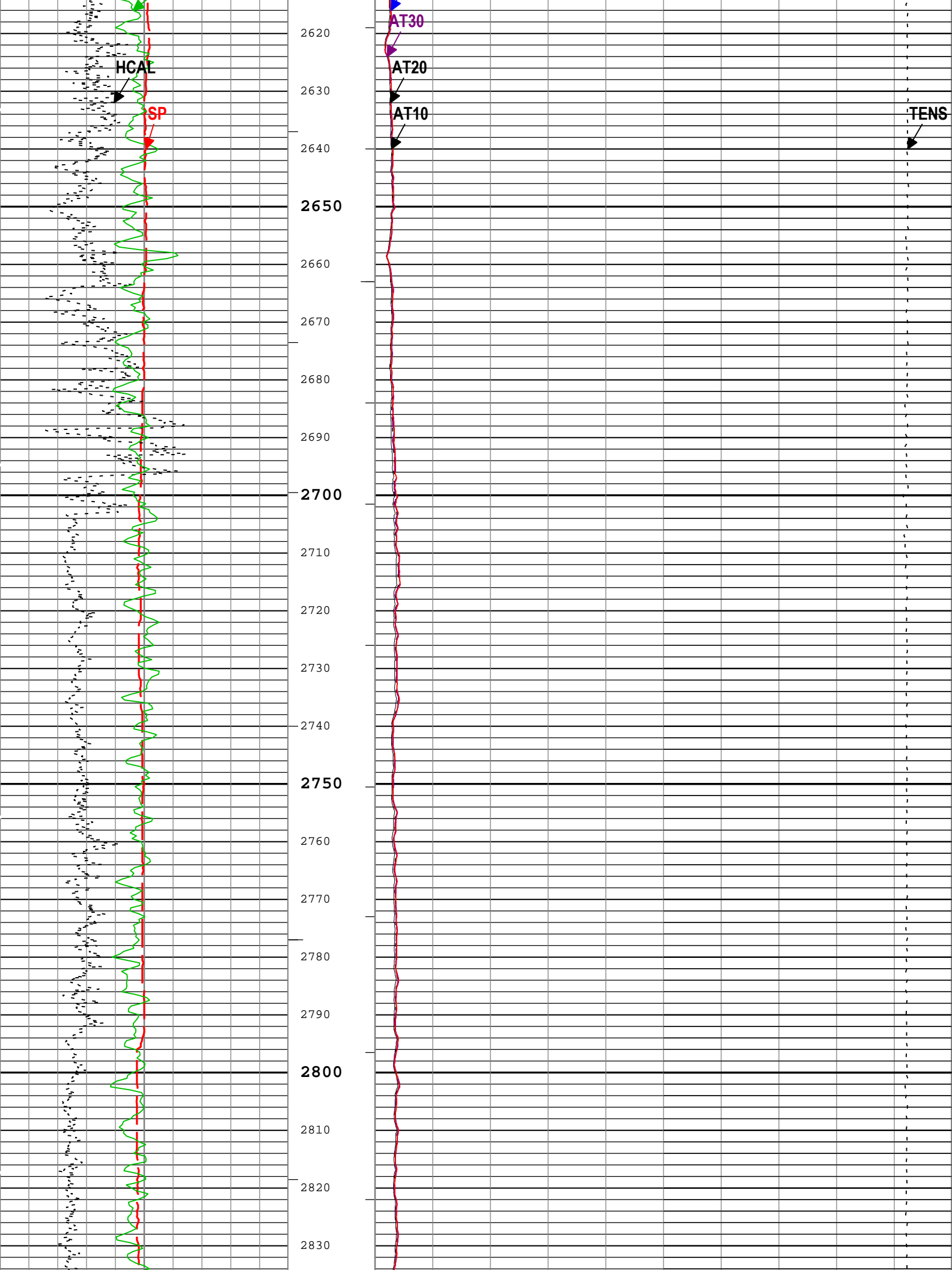


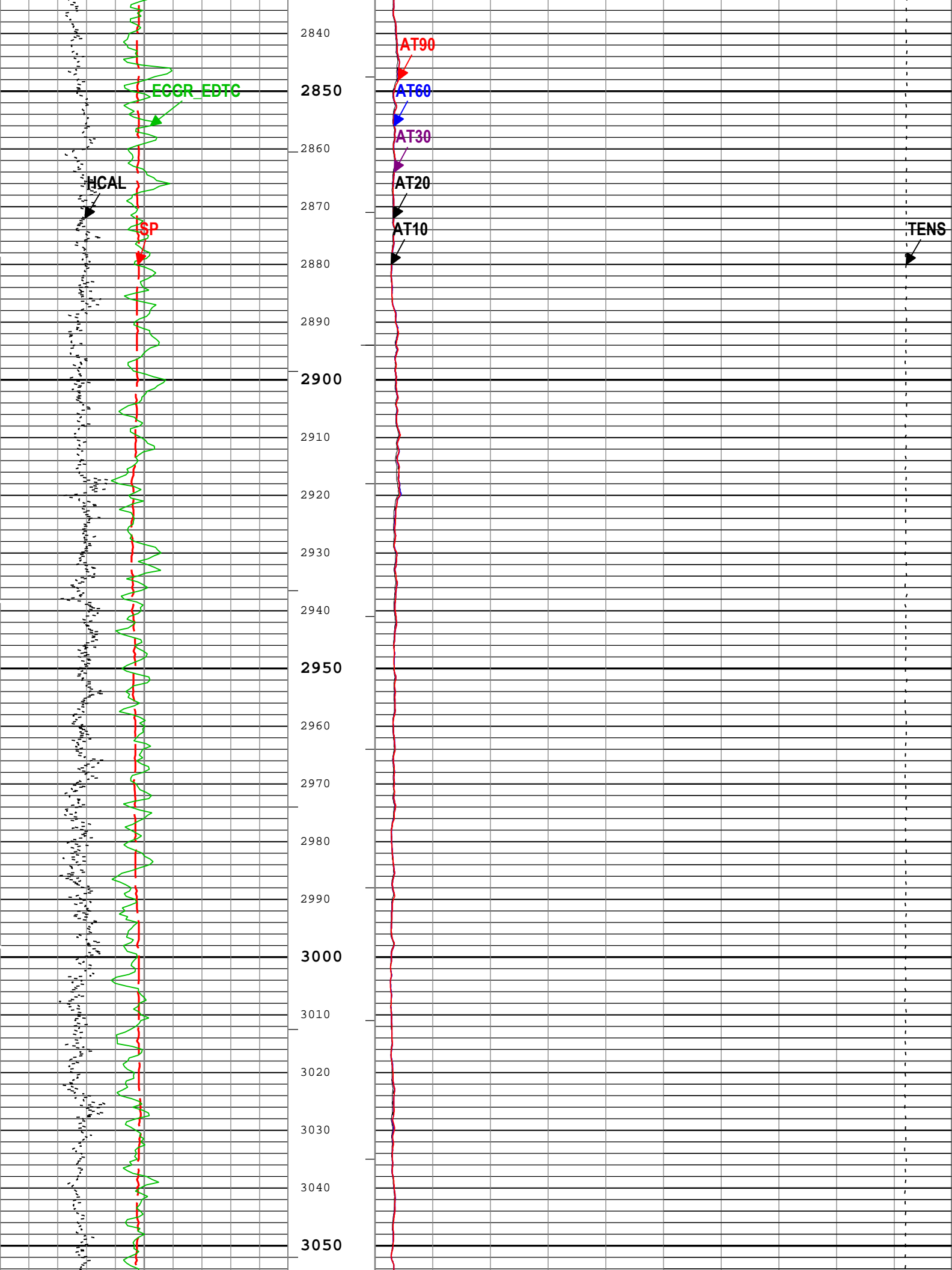


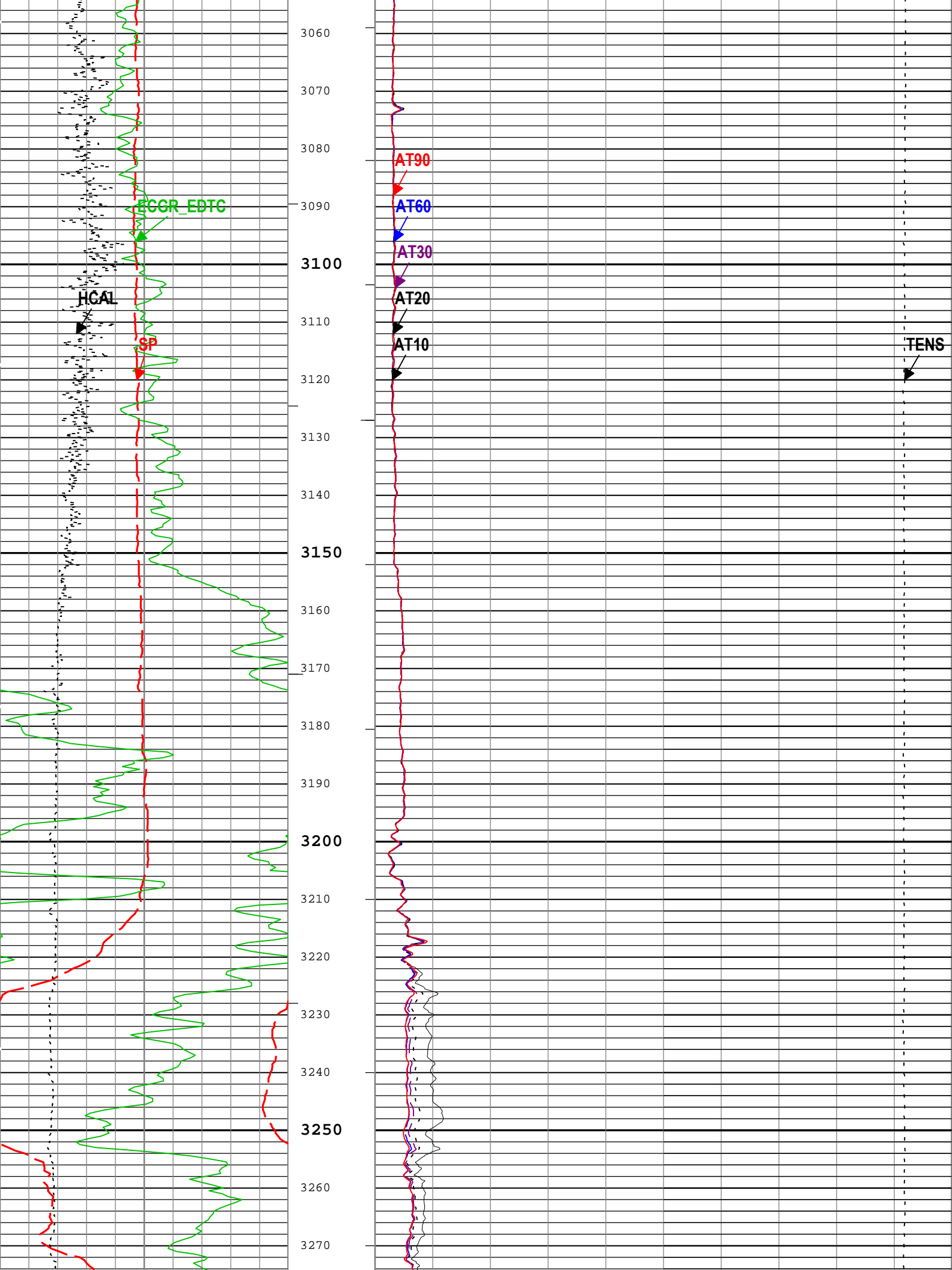




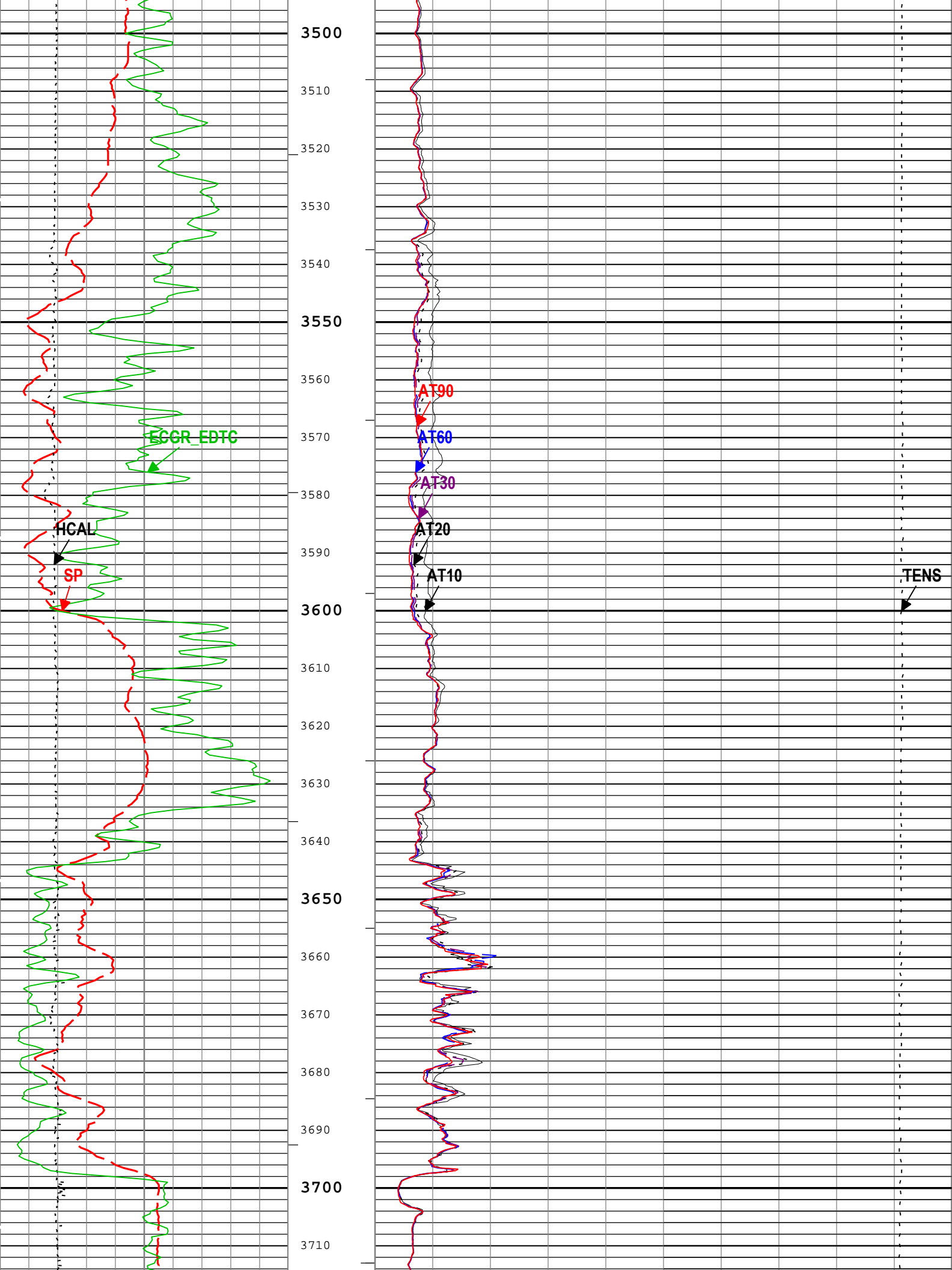




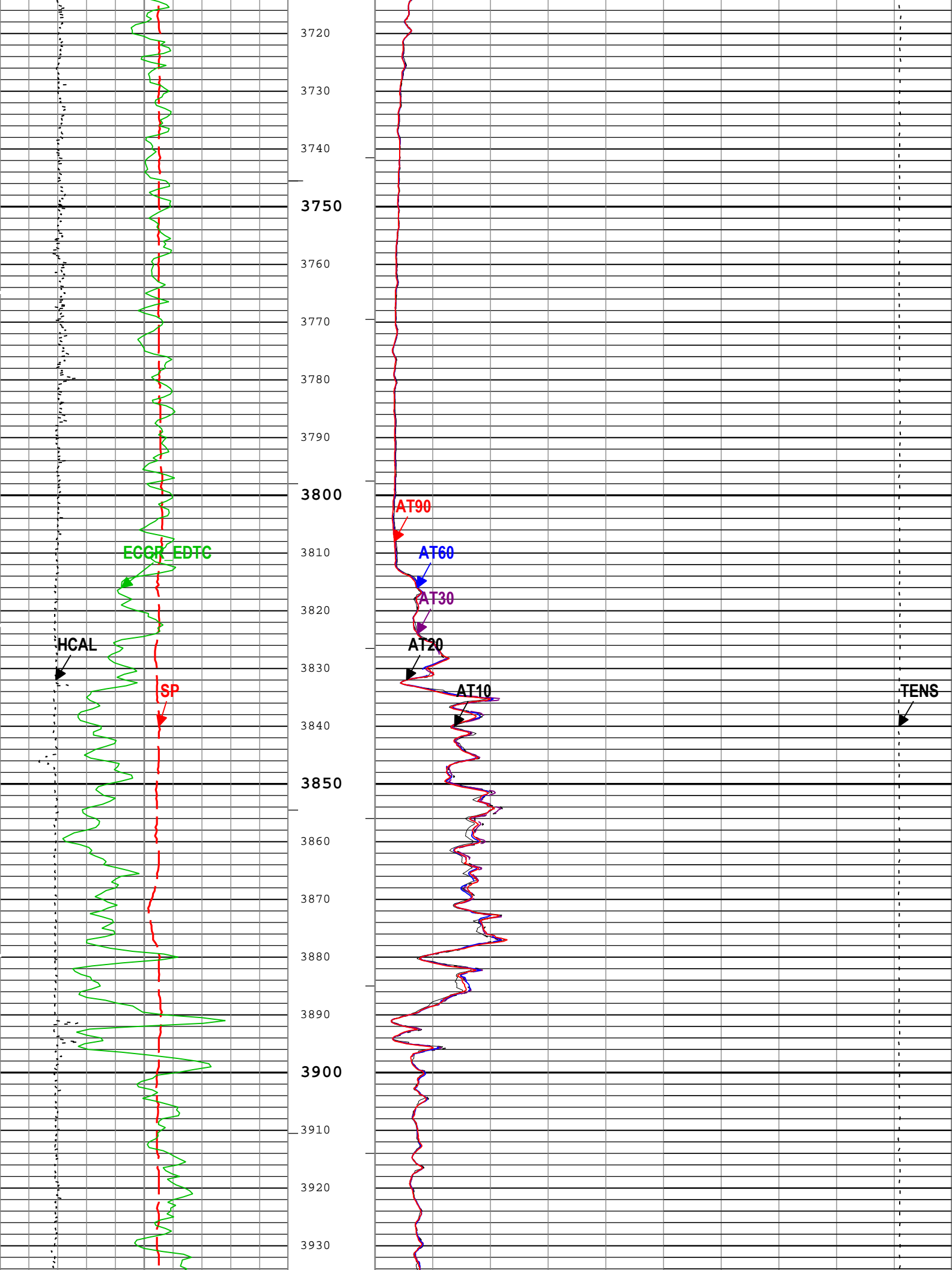


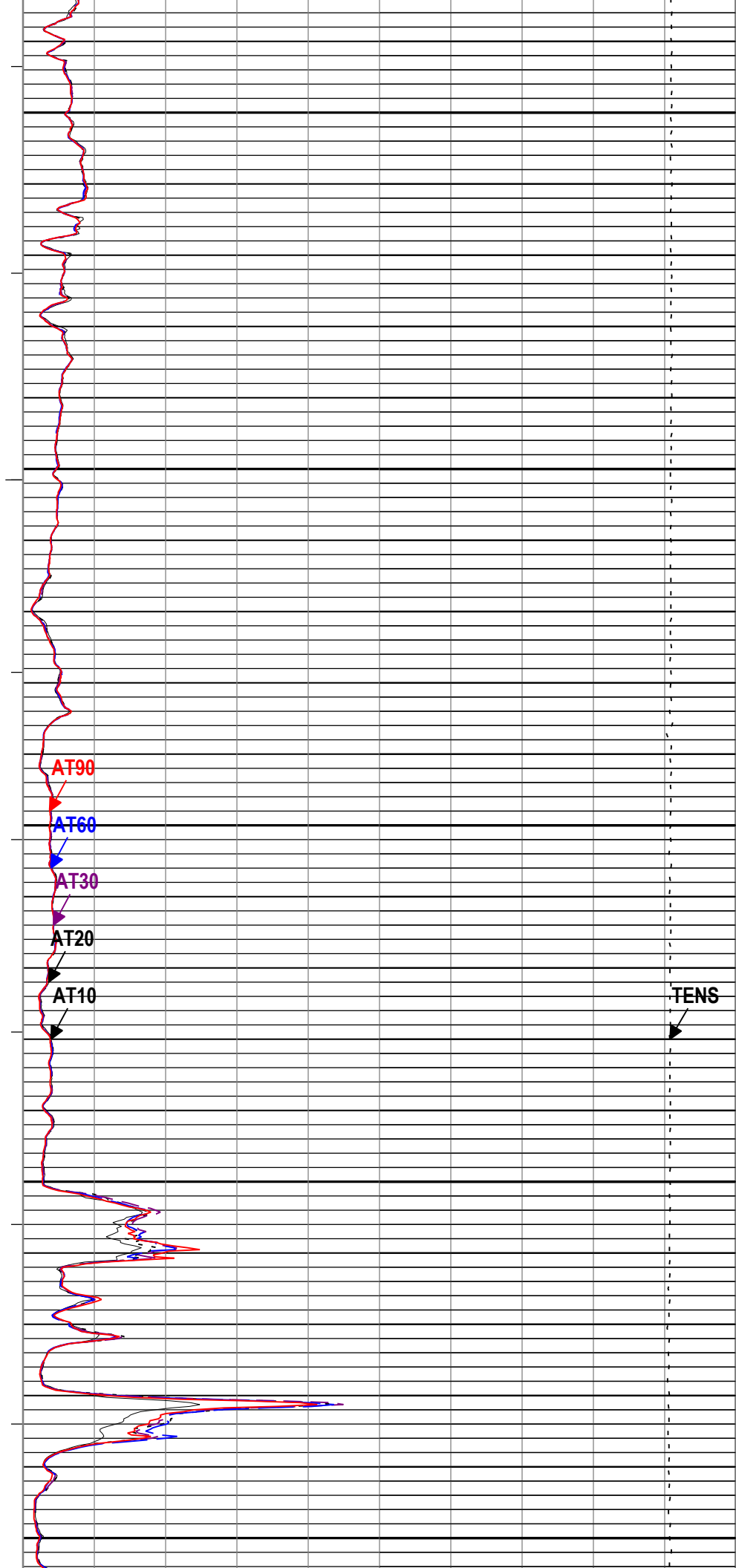
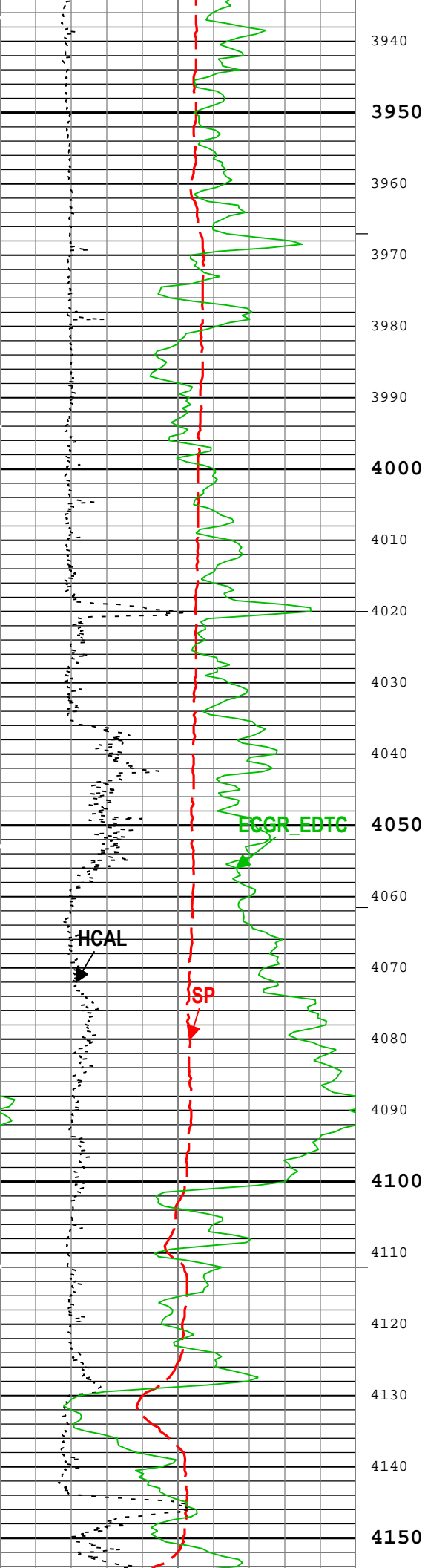


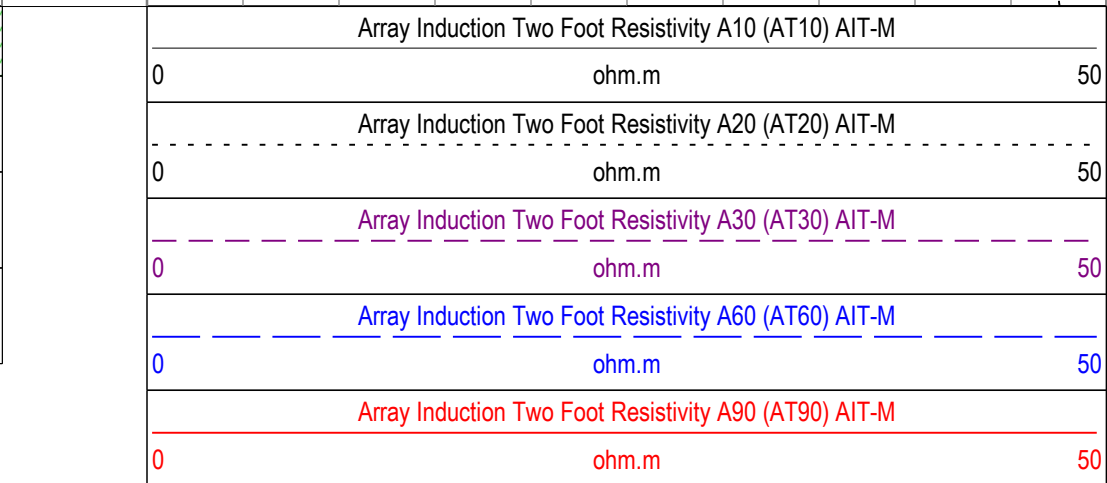
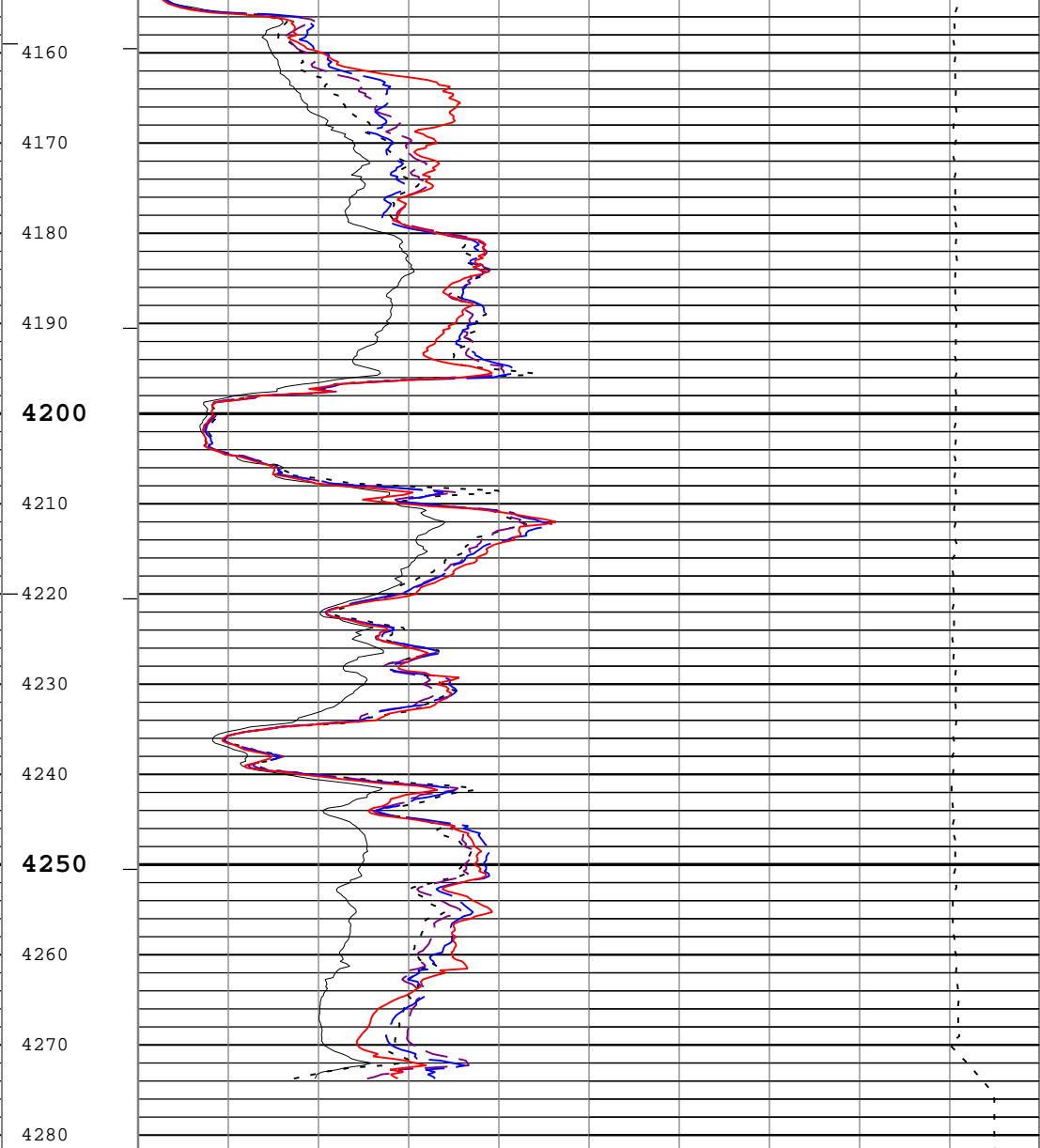
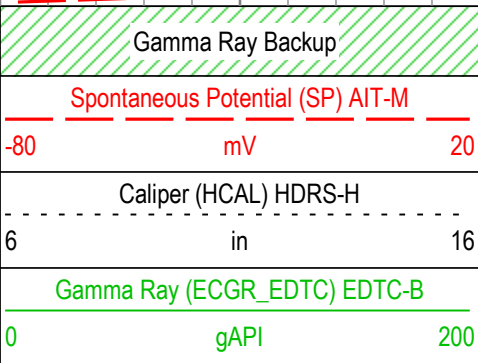
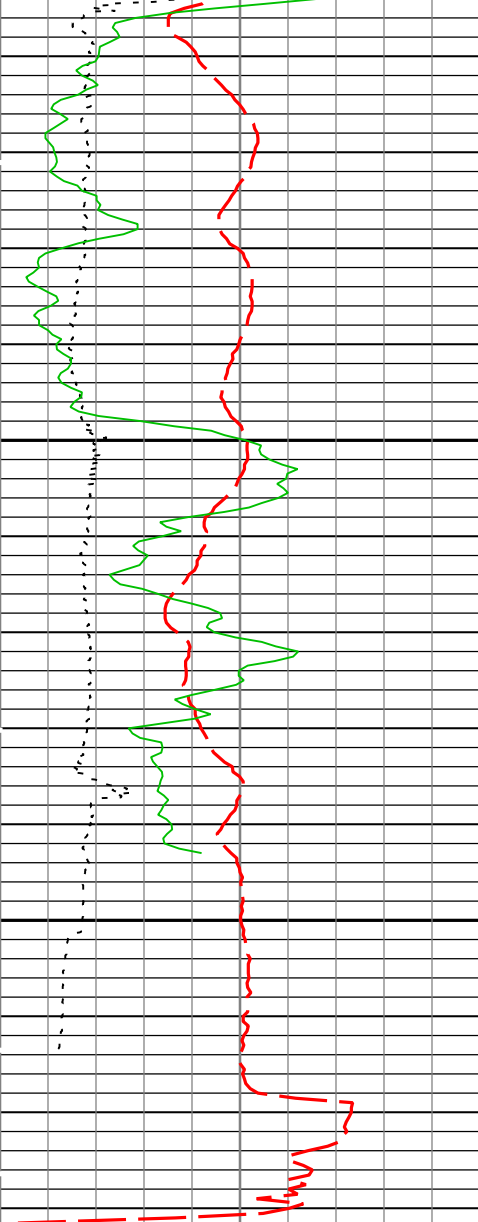












— ICV - Integrated Cement Volume every 100.00 (ft3)

— ICV - Integrated Cement Volume every 10.00 (ft3)

TIME\_1900 - Time Marked every 60.00 (s)

— IHV - Integrated Hole Volume every 100.00 (ft3)

— IHV - Integrated Hole Volume every 10.00 (ft3)

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	in
CBLO	Casing Bottom (Logger)	WLSESSION	475	ft
CDEN	Cement Density	EDTC-B	2	g/cm3
CSODDRL	Casing Outer Diameter - Zoned along driller depths	WLSESSION	8.625	in
DFD	Drilling Fluid Density	Borehole	8.8	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	
SP_SHIFT	SP Shift	AIT-M	50	mV
SPDR	SP Drift Per Foot	AIT-M	0	mV/ft

Depth Zone Parameters

Parameter	Value	Start ( ft )	Stop ( ft )
BS	12.25	0	475
BS	7.875	475	4270

All depth are actual.

Tool Control Parameters

1A: Parameters

Parameter	Description	Tool	Value	Unit
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	3600	ft/h

1A

5" Induction

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
1A	Log[5]:Up	Up	4021.97 ft	4278.08 ft	21-Jul-2018 3:59:11 PM	21-Jul-2018 4:08:48 PM	ON	1.76 ft	No
1A	Log[6]:Up	Up	43.14 ft	4281.79 ft	21-Jul-2018 4:14:35 PM	21-Jul-2018 5:28:06 PM	ON	2.08 ft	No

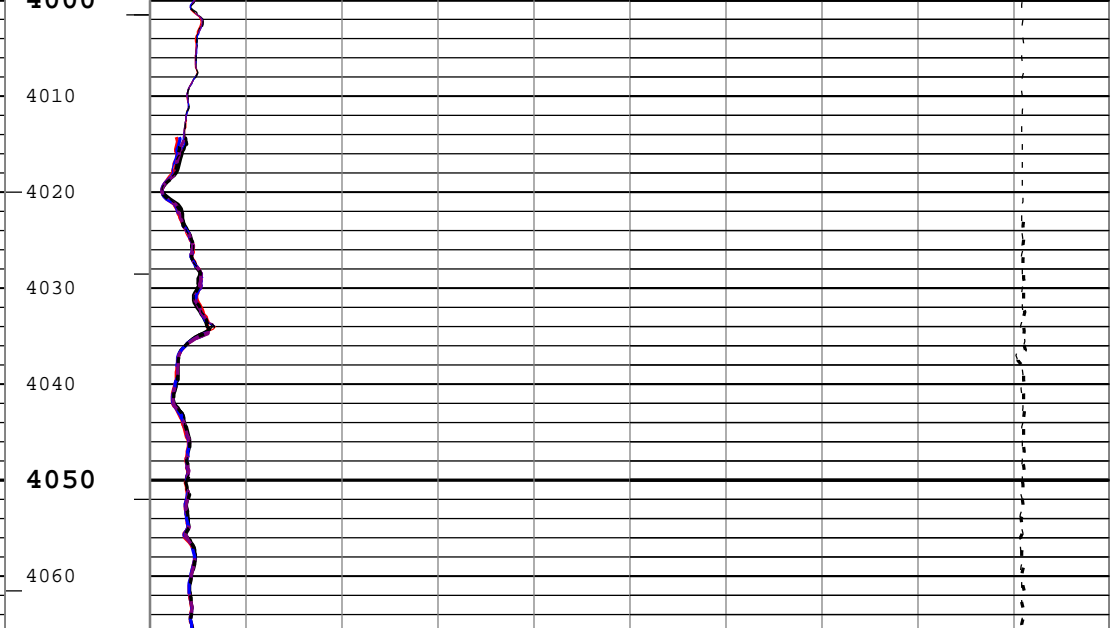
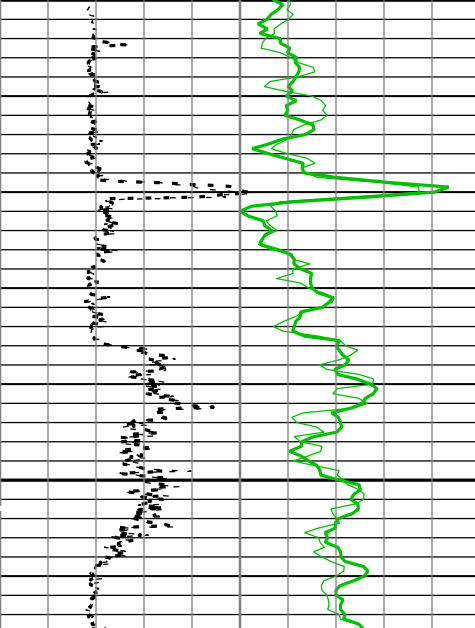
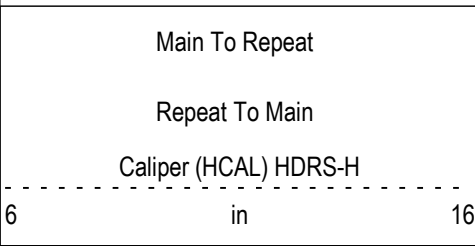
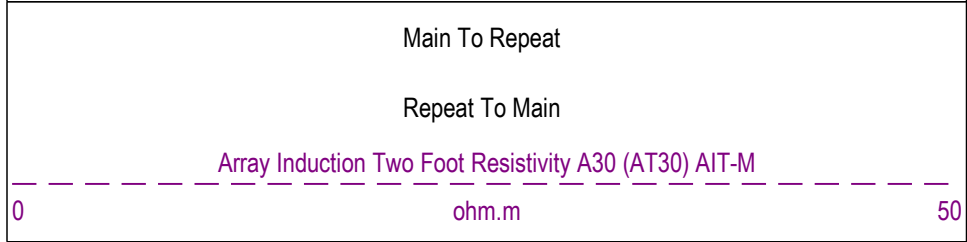
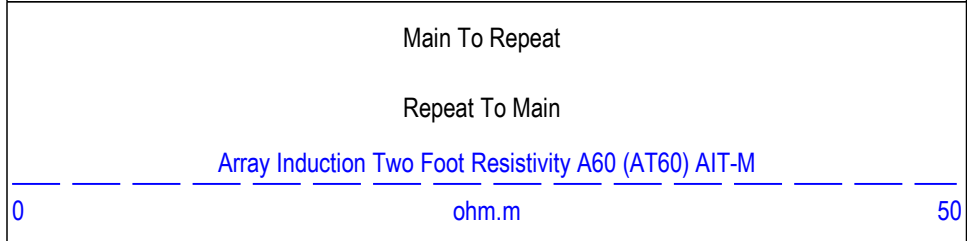
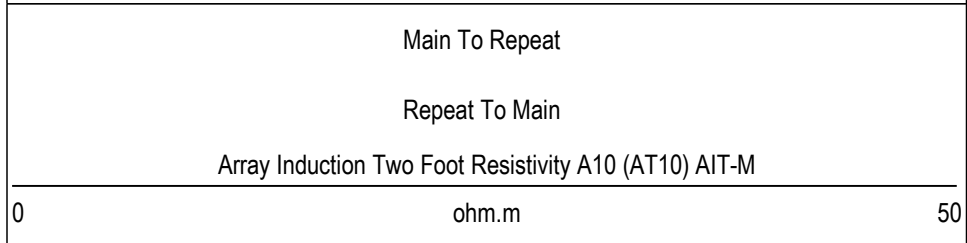
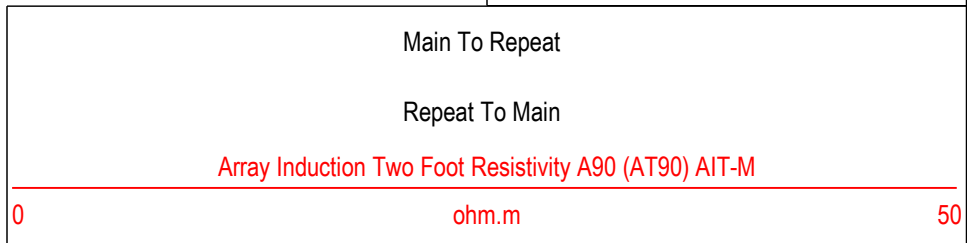
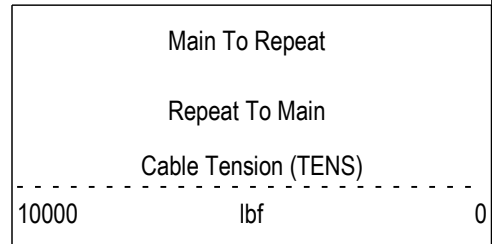
All depths are referenced to toolstring zero

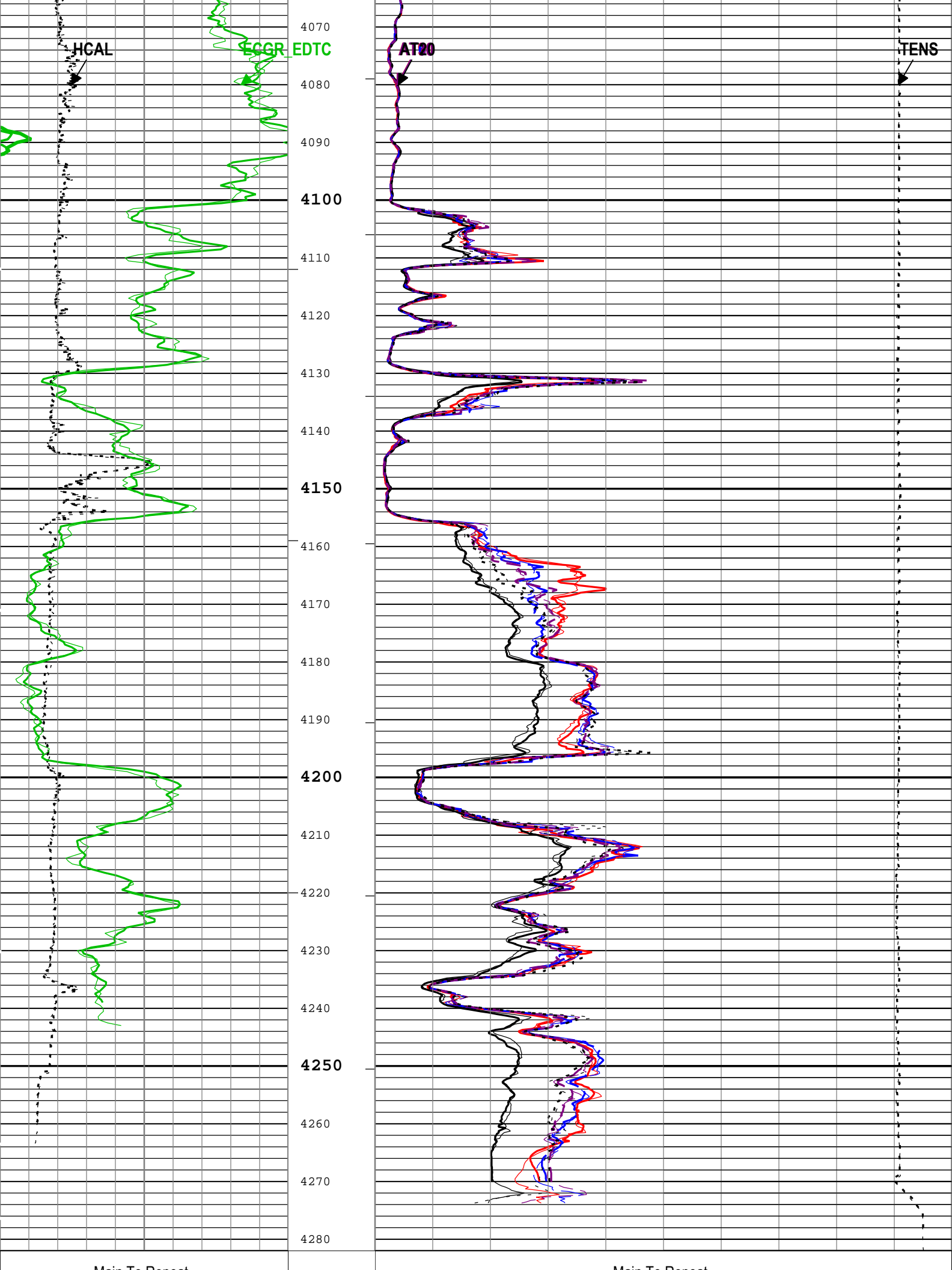
Log	Company:St. Croix Operating, Inc.      Well:Jack Creek #1 1A: Log[6]:Up:S005
-----	---

Description: AIT Basic Log Two    Format: Log ( EMD 5in Induction Upper RA )    Index Scale: 5 in per 100 ft    Index Unit: ft    Index Type: Measured Depth  
Creation Date: 21-Jul-2018 18:00:23

—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		
Caliper (HCAL) HDRS-H		
6	in	16
Main To Repeat		
Repeat To Main		
Gamma Ray (ECGR_EDTC) EDTC-B		
0	gAPI	200

Main To Repeat		
Repeat To Main		
Array Induction Two Foot Resistivity A90 (AT90) AIT-M		
0	ohm.m	50
Main To Repeat		
Repeat To Main		
Array Induction Two Foot Resistivity A10 (AT10) AIT-M		
0	ohm.m	50
Main To Repeat		
Repeat To Main		
Array Induction Two Foot Resistivity A60 (AT60) AIT-M		
0	ohm.m	50
Main To Repeat		
Repeat To Main		
Array Induction Two Foot Resistivity A30 (AT30) AIT-M		
0	ohm.m	50
Main To Repeat		
Repeat To Main		
Array Induction Two Foot Resistivity A20 (AT20) AIT-M		
0	ohm.m	50

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

ICV - Integrated Cement Volume every 100.00 (ft3)

ICV - Integrated Cement Volume every 10.00 (ft3)

TIME\_1900 - Time Marked every 60.00 (s)

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 Upper RA )

Index Scale: 5 in per 100 ft

Index Unit: ft

Index Type: Measured Depth

Creation Date: 21-Jul-2018 18:00:23

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):		04:18:35 21-Jul-2018					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div><div></div><div></div></div>
Thru Cal Mag - 0	V	Before	-----	0.366	0.623	0.854	<div><div></div><div></div><div></div></div>
Thru Cal Phase - 0	deg	Before	-----	137.000	-164.307	-103.000	<div><div></div><div></div><div></div></div>
Thru Cal Mag - 1	V	Before	-----	0.762	1.276	1.778	<div><div></div><div></div><div></div></div>

Thru Cal Mag - 1	V	Before	-----	0.762	1.276	1.778	<div><div></div><div></div><div></div><div></div><div></div></div>
Thru Cal Phase - 1	deg	Before	-----	136.000	-165.384	-104.000	<div><div></div><div></div><div></div><div></div><div></div></div>
Thru Cal Mag - 2	V	Before	-----	0.372	0.633	0.868	<div><div></div><div></div><div></div><div></div><div></div></div>
Thru Cal Phase - 2	deg	Before	-----	132.000	-168.919	-108.000	<div><div></div><div></div><div></div><div></div><div></div></div>
Thru Cal Mag - 3	V	Before	-----	0.420	0.714	0.980	<div><div></div><div></div><div></div><div></div><div></div></div>
Thru Cal Phase - 3	deg	Before	-----	131.000	-169.675	-109.000	<div><div></div><div></div><div></div><div></div><div></div></div>
Thru Cal Mag - 4	V	Before	-----	0.804	1.338	1.876	<div><div></div><div></div><div></div><div></div><div></div></div>
Thru Cal Phase - 4	deg	Before	-----	125.000	-175.775	-115.000	<div><div></div><div></div><div></div><div></div><div></div></div>
Thru Cal Mag - 5	V	Before	-----	1.176	1.951	2.744	<div><div></div><div></div><div></div><div></div><div></div></div>
Thru Cal Phase - 5	deg	Before	-----	122.000	-177.433	-118.000	<div><div></div><div></div><div></div><div></div><div></div></div>
Thru Cal Mag - 6	V	Before	-----	1.176	1.950	2.744	<div><div></div><div></div><div></div><div></div><div></div></div>
Thru Cal Phase - 6	deg	Before	-----	121.000	-177.407	-119.000	<div><div></div><div></div><div></div><div></div><div></div></div>
Thru Cal Mag - 7	V	Before	-----	0.846	1.403	1.974	<div><div></div><div></div><div></div><div></div><div></div></div>
Thru Cal Phase - 7	deg	Before	-----	115.000	-178.208	-125.000	<div><div></div><div></div><div></div><div></div><div></div></div>
SPA Zero	mV	Before		-50.000	0.095	50.000	<div><div></div><div></div><div></div><div></div><div></div></div>
SPA Plus	mV	Before		941.000	990.903	1040.000	<div><div></div><div></div><div></div><div></div><div></div></div>
Temperature Zero	V	Before		-0.050	0.000	0.050	<div><div></div><div></div><div></div><div></div><div></div></div>
Temperature Plus	V	Before		0.870	0.918	0.960	<div><div></div><div></div><div></div><div></div><div></div></div>

## HDRS-H (HILT Density and Rxo Sonde, 150 degC) Calibration - Run 1A

### Primary Equipment :

HILT High-Resolution Control Cartridge, 150 degC	HRCC-H	
HILT Resistivity Gamma-Ray Density Device, 150 degC	HRGD-H	3973

### Auxiliary Equipment :

HRDD Backscatter Detector	Backscatter	
HRDD Long Spacing Detector	Long Spacing	28732
HRDD Short Spacing Detector	Short Spacing	
Cesium 137 Gamma-Ray Logging Source	GSR-J	5471
HILT High-Resolution Control Cartridge, 150 degC	HRCC-H	
HILT High-Resolution Mechanical Sonde, 150 degC	HRMS-H	

### Calibration Parameter :

Small Ring Size  
Large Ring Size

## HDRS Density Calibration - Inversion Results

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

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div><div></div><div></div><div></div><div></div><div></div></div>
Rho Aluminum	g/cm3	Master	2.596	2.586	2.604	2.606	<div><div></div><div></div><div></div><div></div><div></div></div>
Rho Magnesium	g/cm3	Master	1.686	1.676	1.687	1.696	<div><div></div><div></div><div></div><div></div><div></div></div>
Pe Aluminum		Master	2.570	2.470	2.591	2.670	<div><div></div><div></div><div></div><div></div><div></div></div>
Pe Magnesium		Master	2.650	2.550	2.564	2.750	<div><div></div><div></div><div></div><div></div><div></div></div>

## HDRS Density Calibration - Deviation Summary

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

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div><div></div><div></div><div></div><div></div><div></div></div>
BS Average Deviation	%	Master	0	-0.6000	0.4799	0.6000	<div><div></div><div></div><div></div><div></div><div></div></div>
BS Max Deviation	%	Master	0	-1.6000	1.3212	1.6000	<div><div></div><div></div><div></div><div></div><div></div></div>
SS Average Deviation	%	Master	0	-1.0000	0.8929	1.0000	<div><div></div><div></div><div></div><div></div><div></div></div>
SS Max Deviation	%	Master	0	-2.5000	1.8617	2.5000	<div><div></div><div></div><div></div><div></div><div></div></div>
LS Average Deviation	%	Master	0	-1.5000	1.3096	1.5000	<div><div></div><div></div><div></div><div></div><div></div></div>
LS Max Deviation	%	Master	0	-3.5000	2.7904	3.5000	<div><div></div><div></div><div></div><div></div><div></div></div>

## HDRS Density Calibration - Background Summary

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

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div><div></div><div></div><div></div><div></div><div></div></div>
BS Window Ratio		Master	1.0000		0.7378		<div><div></div><div></div><div></div><div></div><div></div></div>
BS Window Sum	1/s	Master	1		22130		<div><div></div><div></div><div></div><div></div><div></div></div>
SS Window Ratio		Master	1.0000		0.4838		<div><div></div><div></div><div></div><div></div><div></div></div>
SS Window Sum	1/s	Master	1		9630		<div><div></div><div></div><div></div><div></div><div></div></div>



SS Window Sum	1/s	Master	1		9030		
LS Window Ratio		Master	1.0000		0.3074		
LS Window Sum	1/s	Master	1		1080		

## HDRS Density Calibration - Photo-multiplier High Voltages

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	
BS Crystal Resolution	%	Master		5.00	10.71	25.00	
SS Crystal Resolution	%	Master		5.00	9.45	20.00	
LS Crystal Resolution	%	Master		5.00	8.18	20.00	

## 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

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

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

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

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

Company: St. Croix Operating, Inc.

**Schlumberger**

Well: Jack Creek #1

Field: Wildcat

County: Washington

State: Colorado

Platform Express

Array Induction with 5" Linear

