

Company: Bonanza Creek

Well: State Seventy Holes J-18

Field: Wattenberg

County: Weld State: Colorado

Platform Express

Triple Combo

County: Weld

Field: Wattenberg

Location: SESW, Sec18. T4N, R62W

Well: State Seventy Holes J-18

Company: Bonanza Creek

Location:

SESW, Sec18. T4N, R62W

SHL: 610FSL x 1455' FWL

Lat/Long: 40.306861/-104.371342

Elev.:

K.B. 4577.50 ft

G.L. 4564.00 ft

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.

05-123-41614

Section:

18

Township:

4N

Range:

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			
D U D	Density	9.7 lbm/gal	33 s	
	Fluid Loss	PH	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				
Circulation Stopped		Time	04:30:00	
Logger on Bottom		Time	16:30:00	
Unit Number	Location:	9115	FtMorgan	
Recorded By	B Kesek			
Witnessed By	Tim Jayne			

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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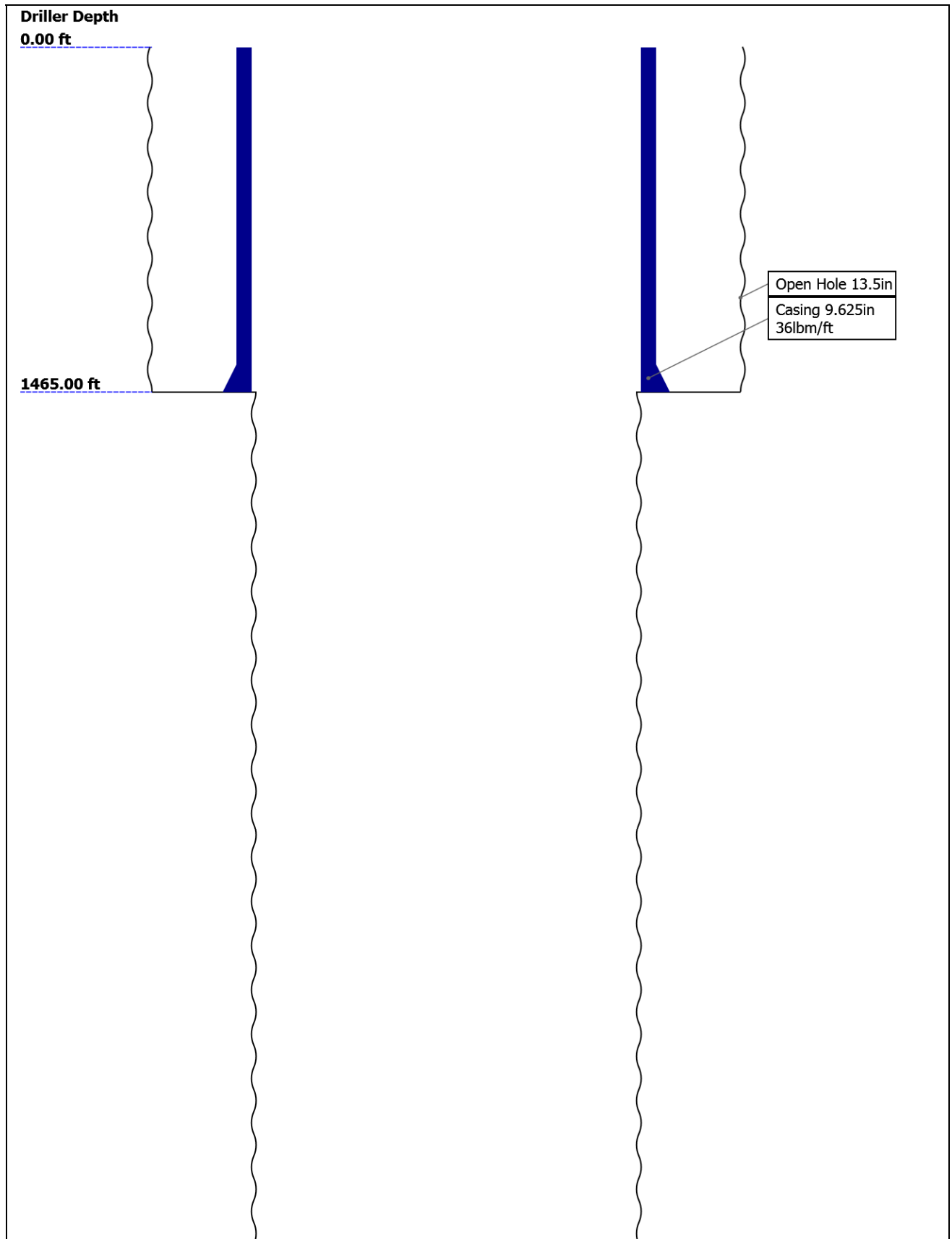
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## Well Sketch




6800.00 ft

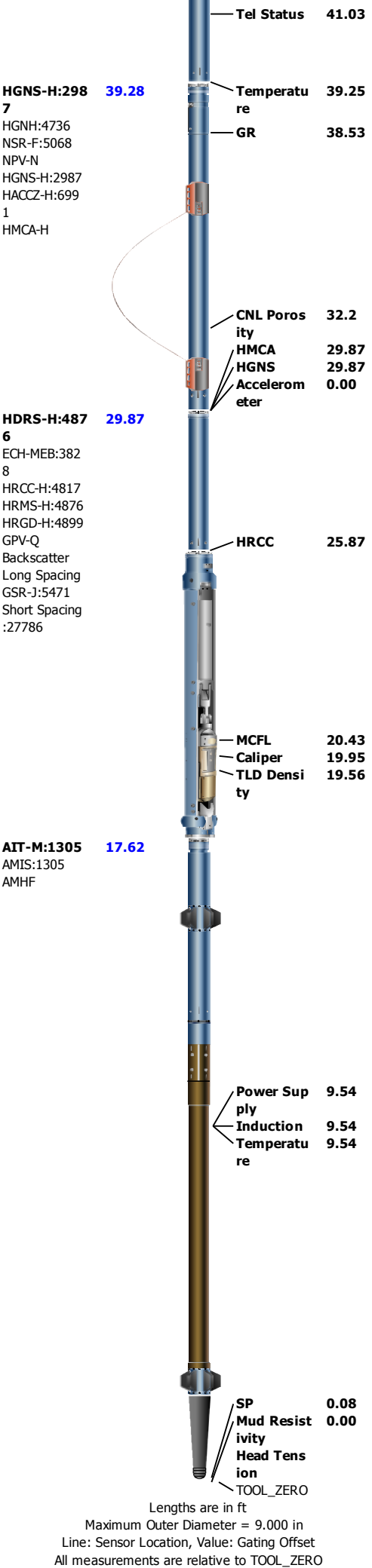
Open Hole 8.75in

Borehole Size/Casing/Tubing Record

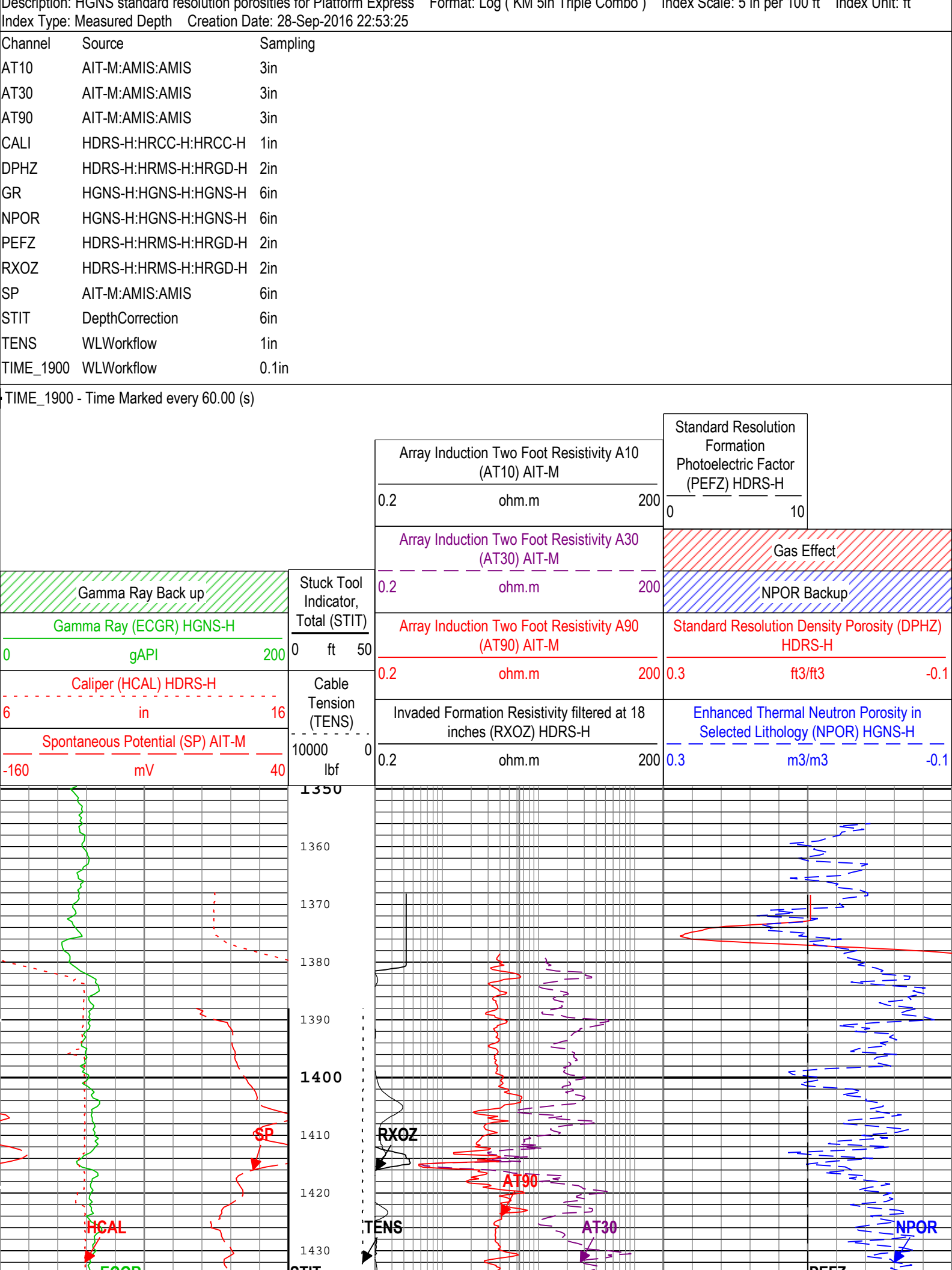
Bit						
Bit Size ( in )	13.5	8.75				
Top Driller ( ft )	0	1465				
Top Logger ( ft )	0	1465				
Bottom Driller ( ft )	1465	6800				
Bottom Logger ( ft )	1465	6800				
Casing						
Size ( in )	9.625					
Weight ( lbm/ft )	36					
Inner Diameter ( in )	8.921					
Grade	N/A					
Top Driller ( ft )	0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

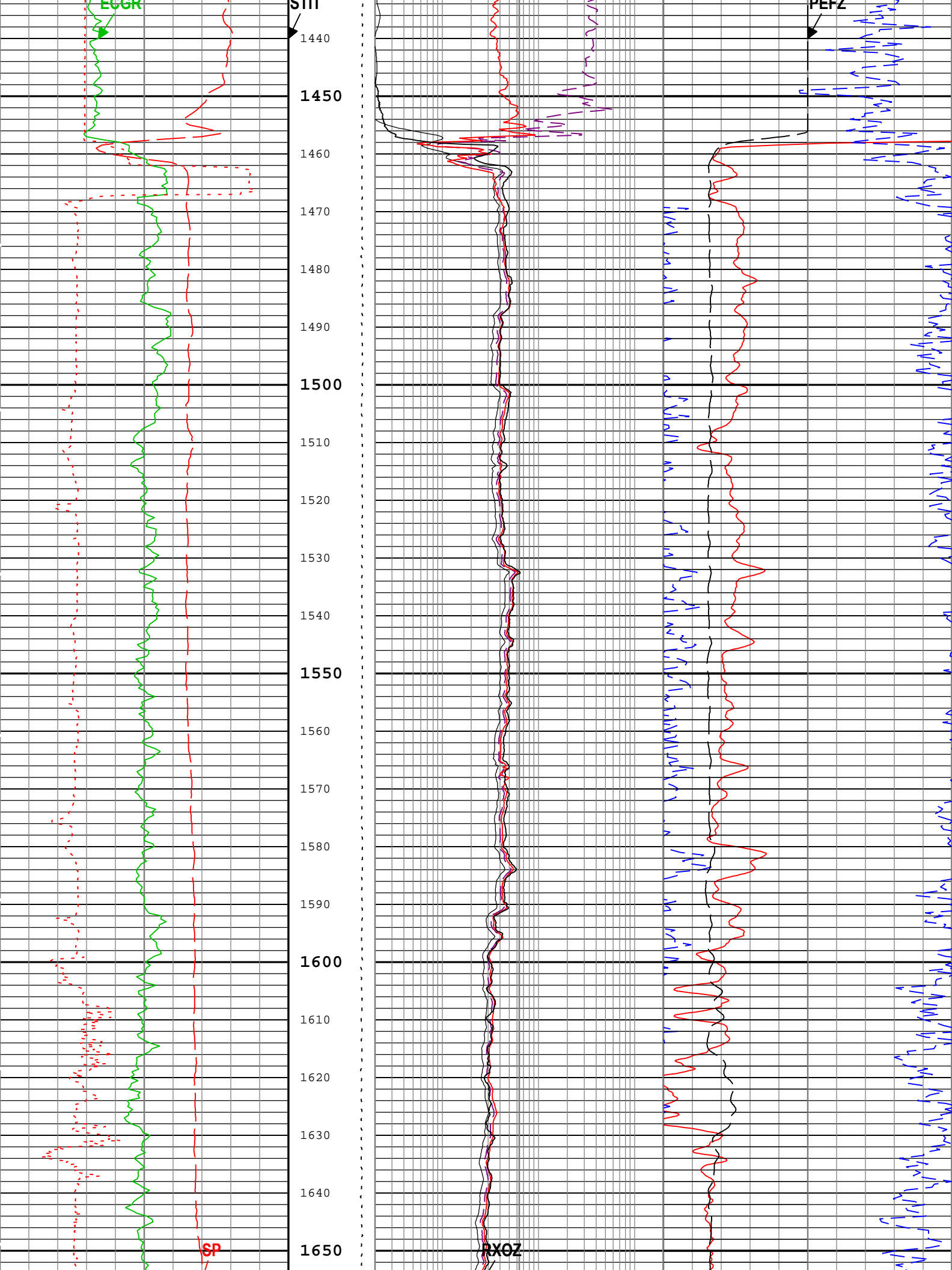
Remarks and Equipment Summary

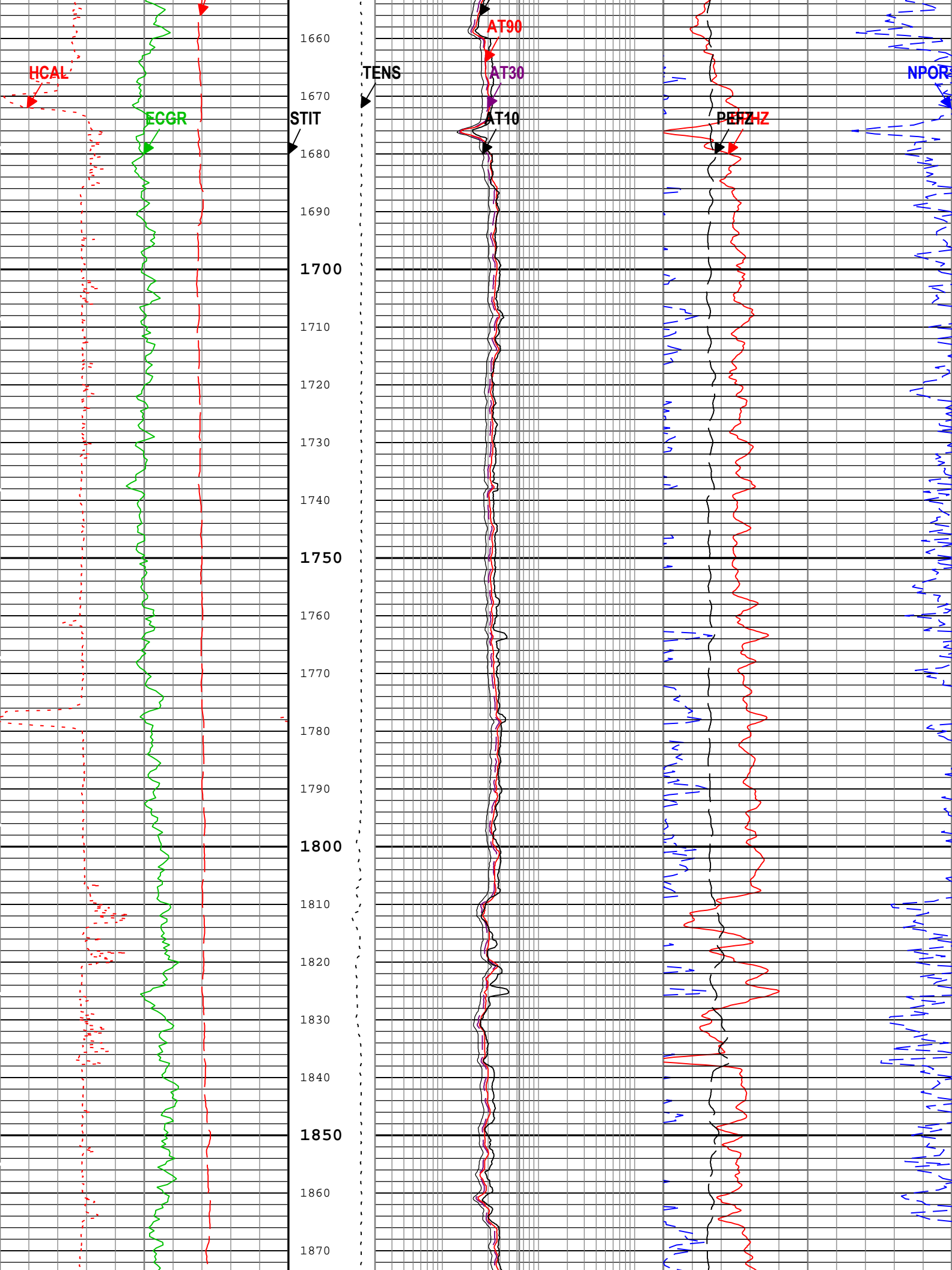
One: Toolstring				One: Remarks
<div><div><div>Equip name</div><div>LEH-QT</div><div>LEH-QT</div></div><div><div>Length</div><div>56.88</div></div><div><div>MP name</div><div></div></div><div><div>Offset</div><div></div></div></div> <div></div>				This is the first run in the well.
				Toolstring ran 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.
<div><div><div>DTC-H:8980</div><div>ECH-KC:1005</div><div>3</div><div>DTC-H:8980</div></div><div><div>Length</div><div>53.97</div></div><div><div>MP name</div><div>CTEM HV</div></div><div><div>Offset</div><div>53.07</div></div></div> <div><div><div>TelStatus</div><div>50.97</div></div><div><div>ToolStatus</div><div>50.97</div></div></div>				Caliper closed at: 6490-6464ft 5500-5494ft Due to adverse hole conditions. Discussed with company man.
<div><div><div>HNGS-BA:16</div><div>6</div><div>HEH-K:177</div><div>HNGS-BA:166</div></div><div><div>Length</div><div>50.97</div></div><div><div>MP name</div><div></div></div><div><div>Offset</div><div></div></div></div> <div><div><div>GR</div><div>47.98</div></div></div>				Hole finder at the bottom of AIT used succesfully to get passed a bridge.
<div><div><div>HNGC-B:108</div><div>HNGH-A:46</div><div>HNGC-B:108</div></div><div><div>Length</div><div>42.78</div></div><div><div>MP name</div><div></div></div><div><div>Offset</div><div></div></div></div>				



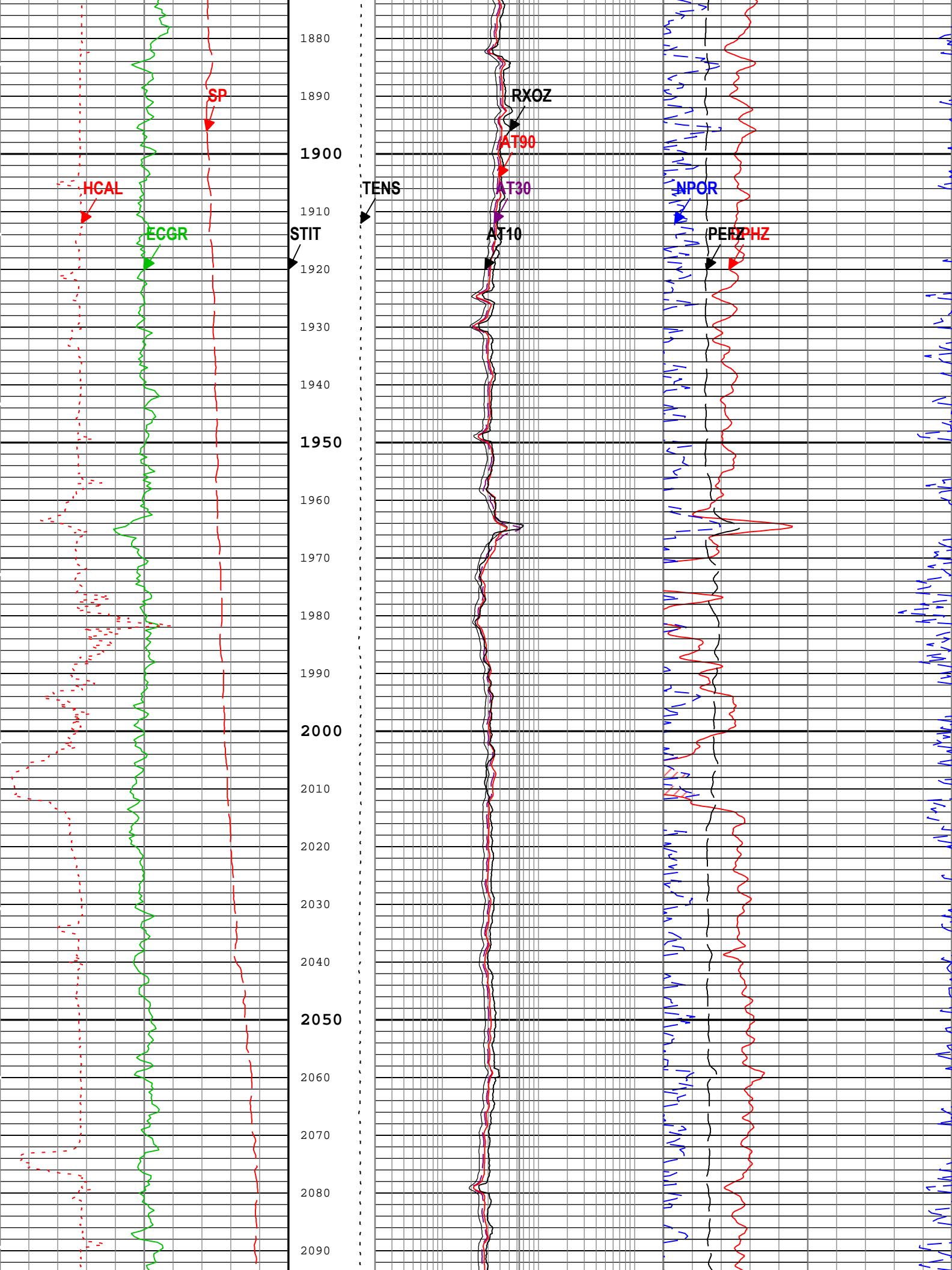
Depth Summary										
		One								
Depth Measuring Device										
Type		IDW-B								
Serial Number										
Calibration Date										
Calibrator Serial Number										
Calibration Cable Type		7-46axs								
Wheel Correction 1		0								
Wheel Correction 2		0								
Tension Device										
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" Triple Combo										
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	
All depths are referenced to toolstring zero										
Log	Company:Bonanza Creek Well:State Seventy Holes J-18									
One: Log[4]:Up:S003										
Description: UCNIS standard resolution, perspective for Platform Express. Format: Log (KM 5in Triple Combo). Index Scale: 5 in per 100 ft. Index Unit: ft										

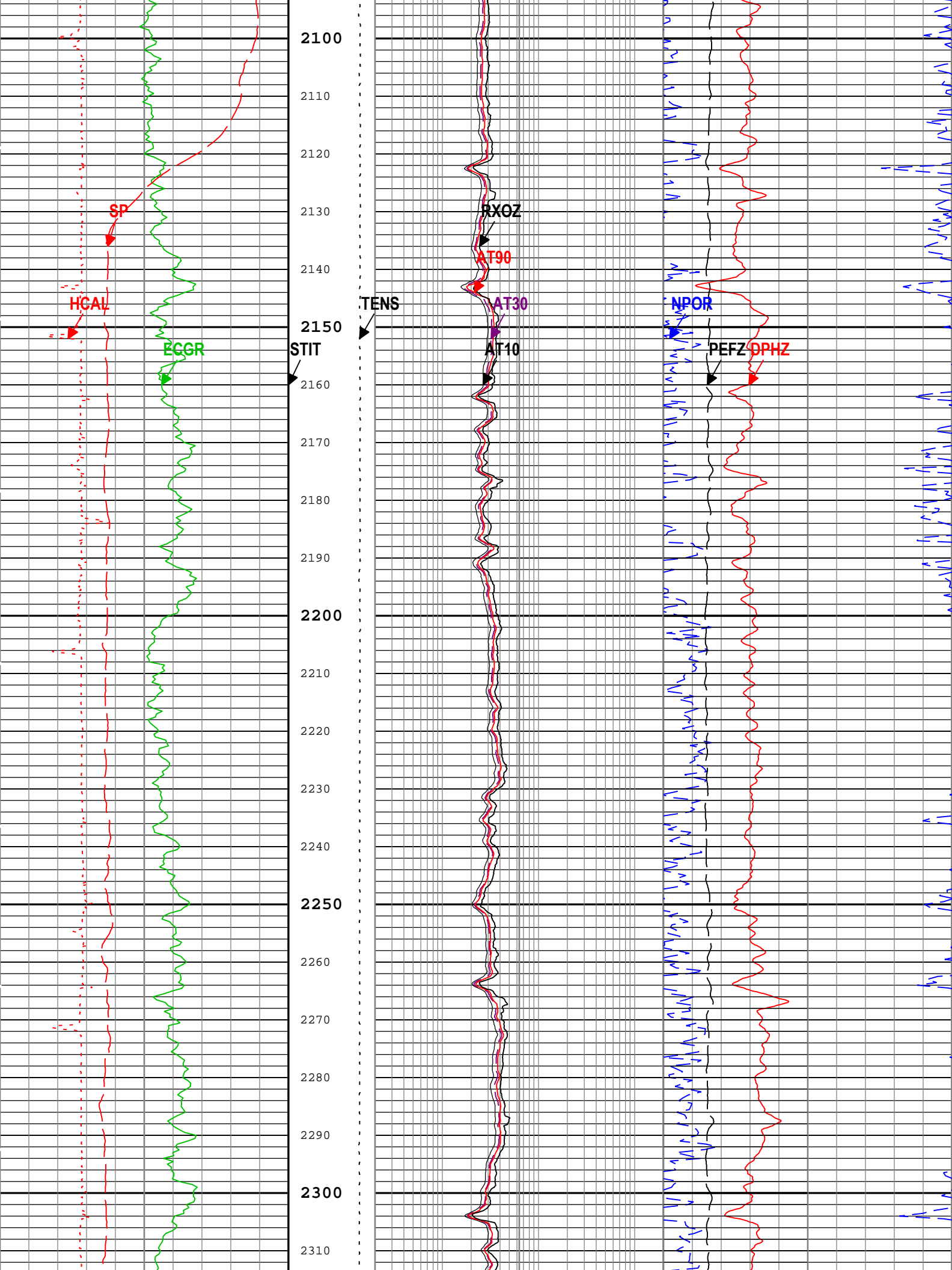


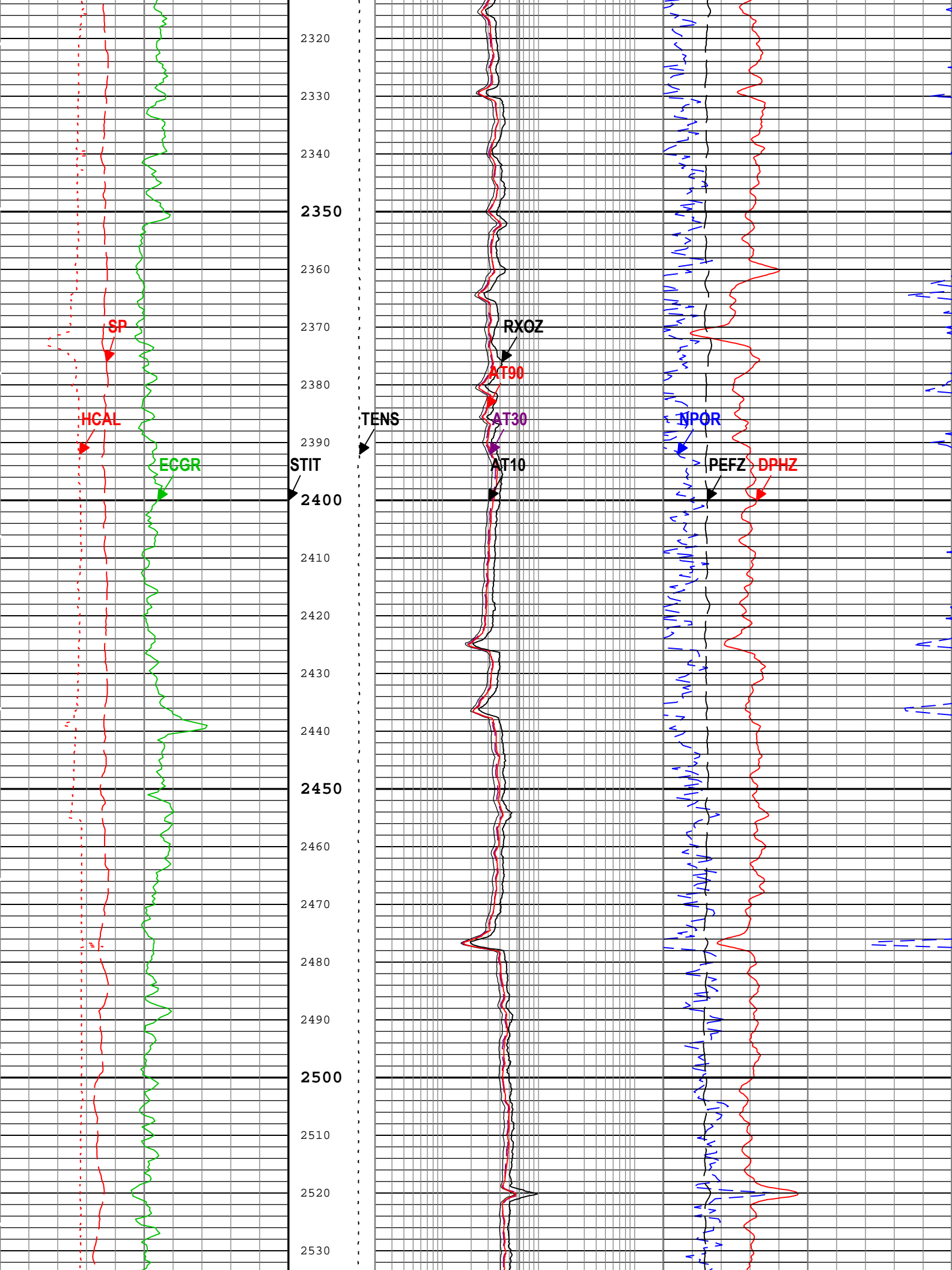


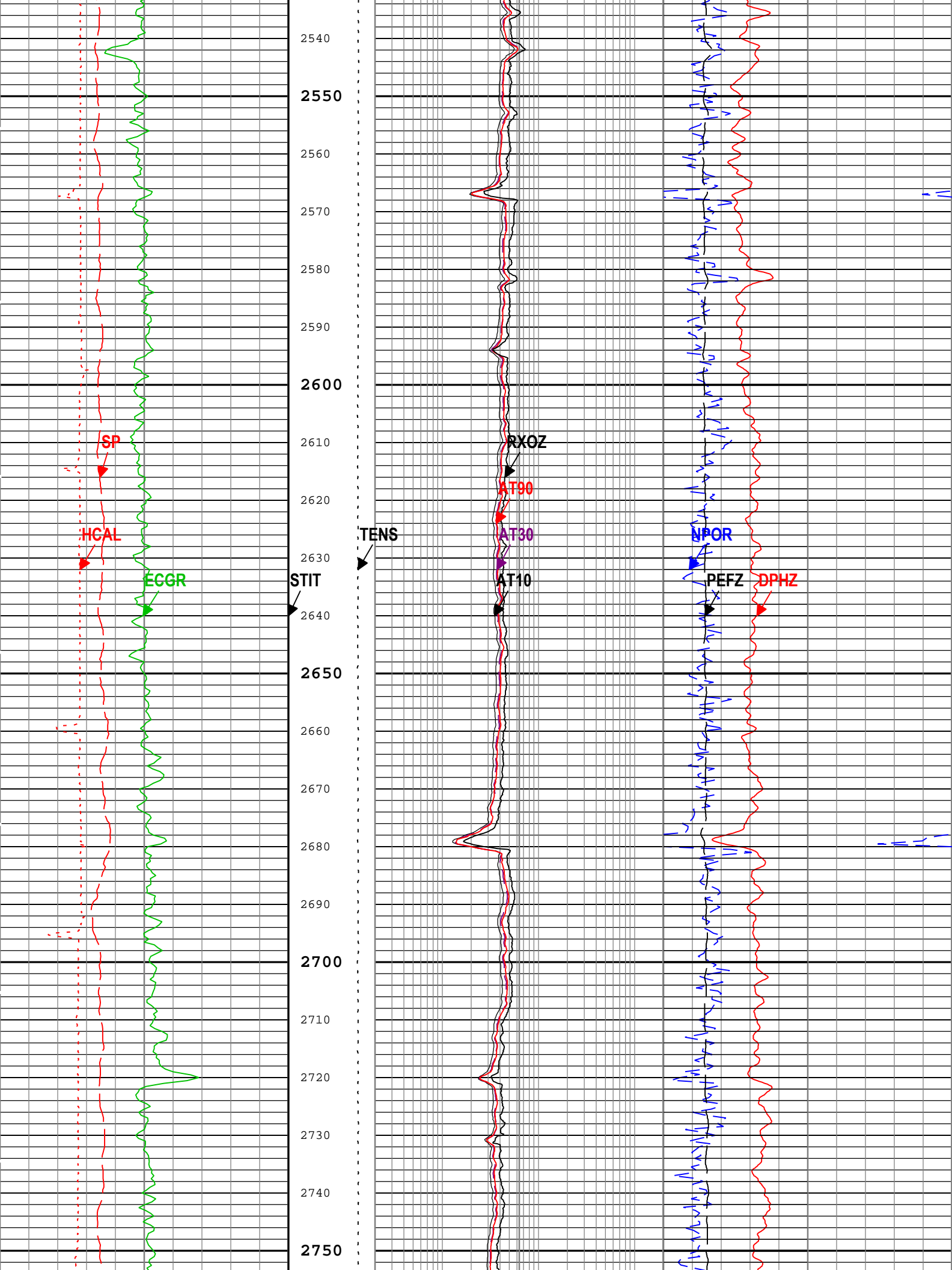


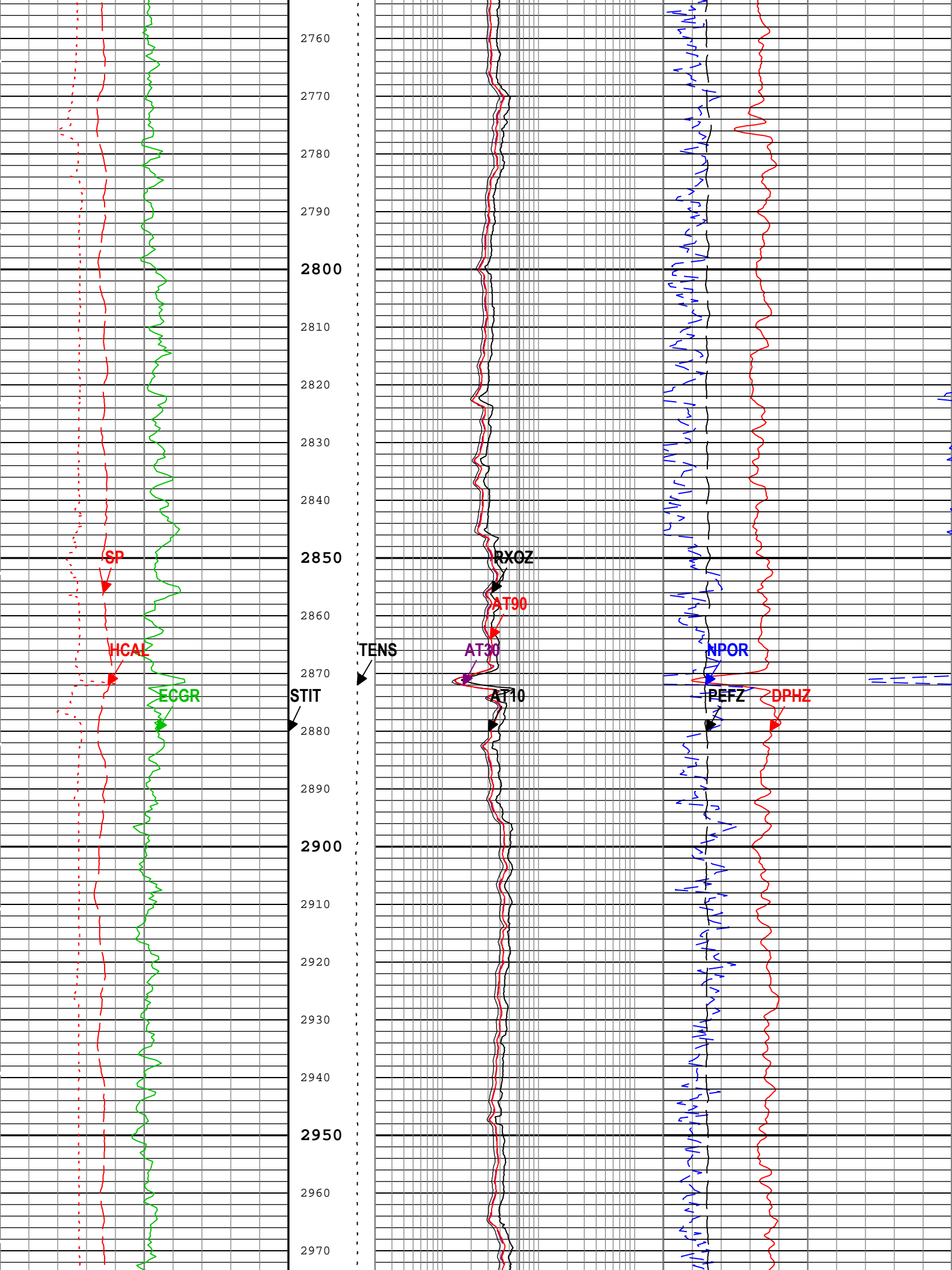


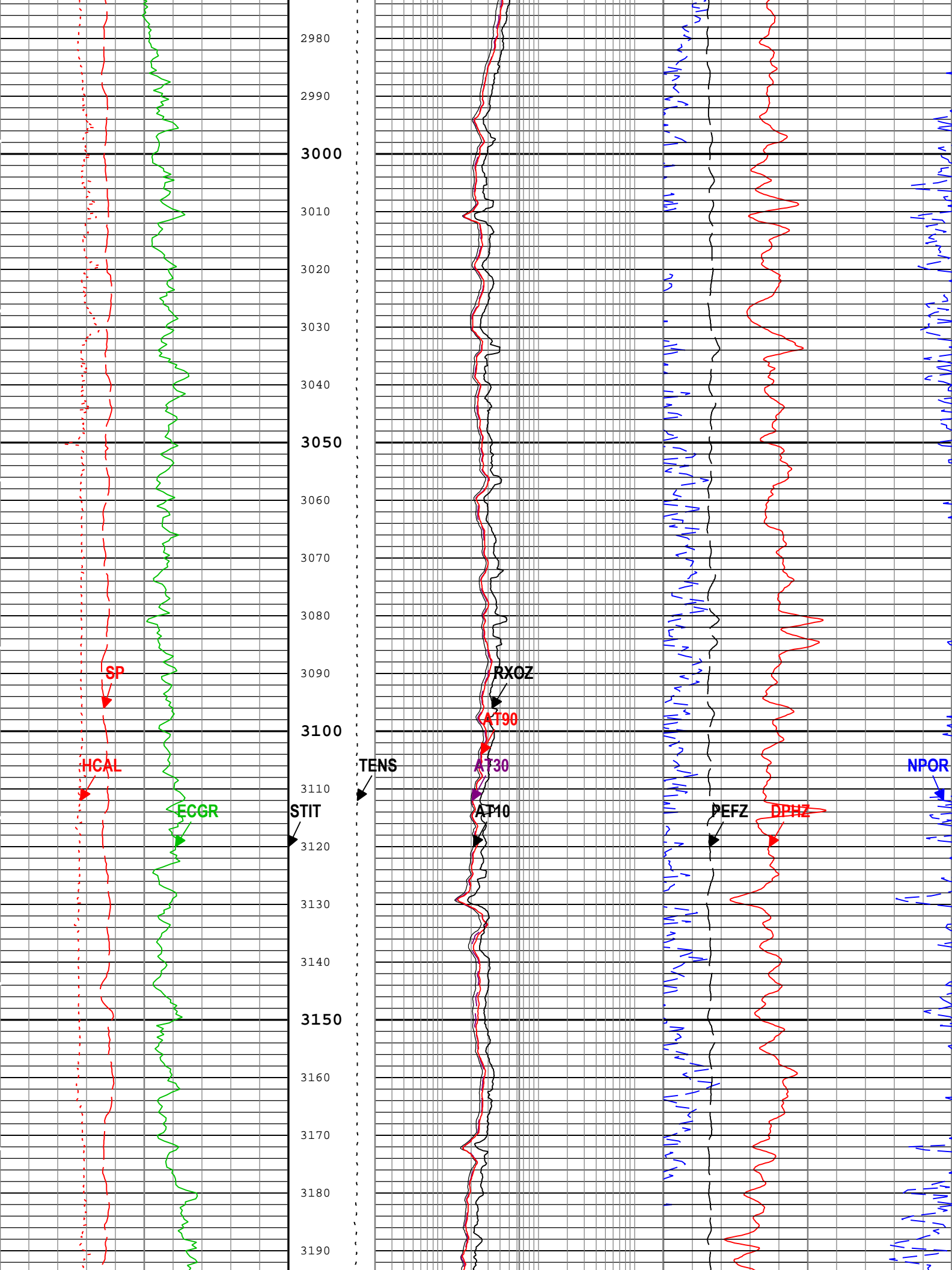


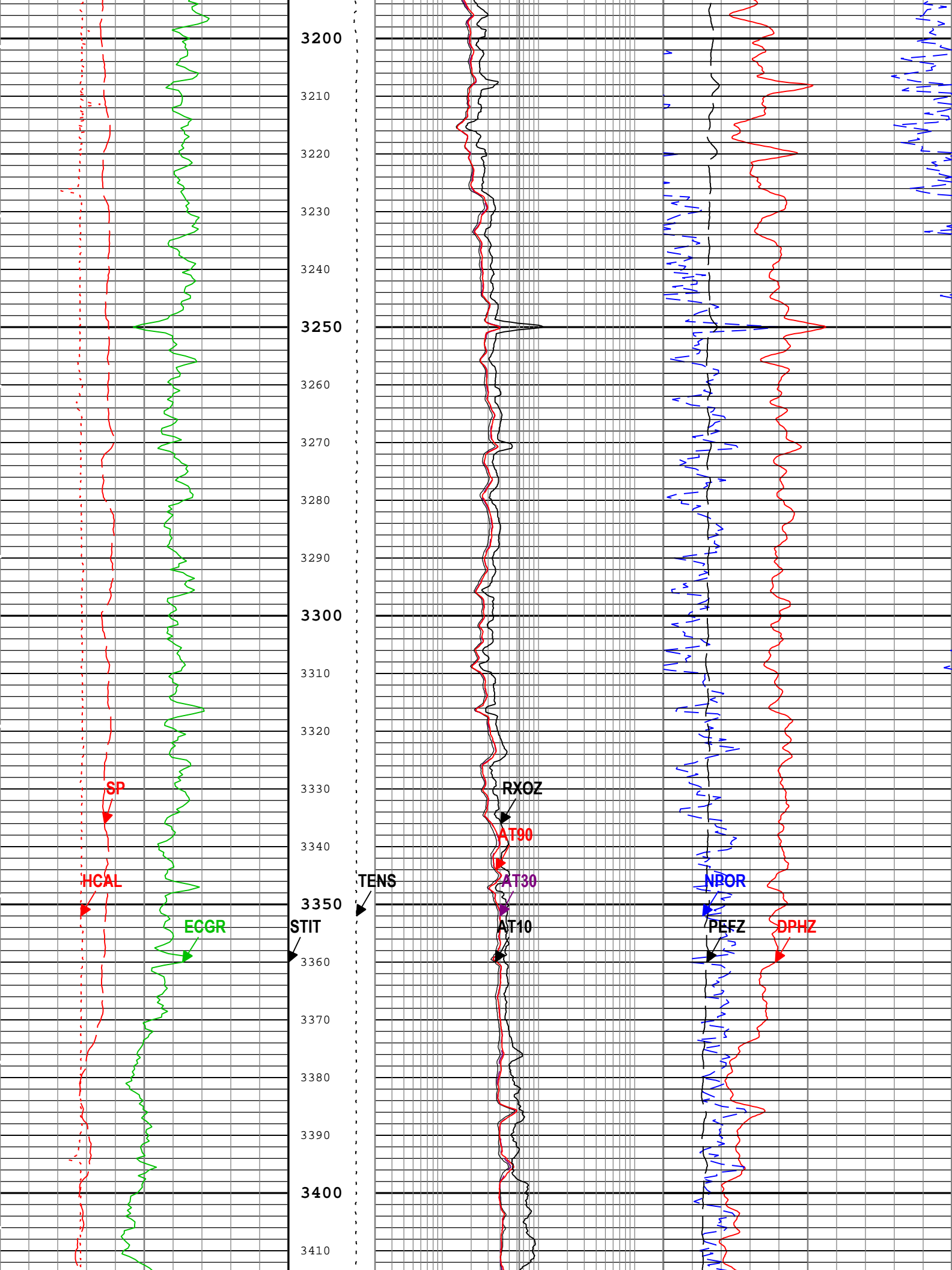


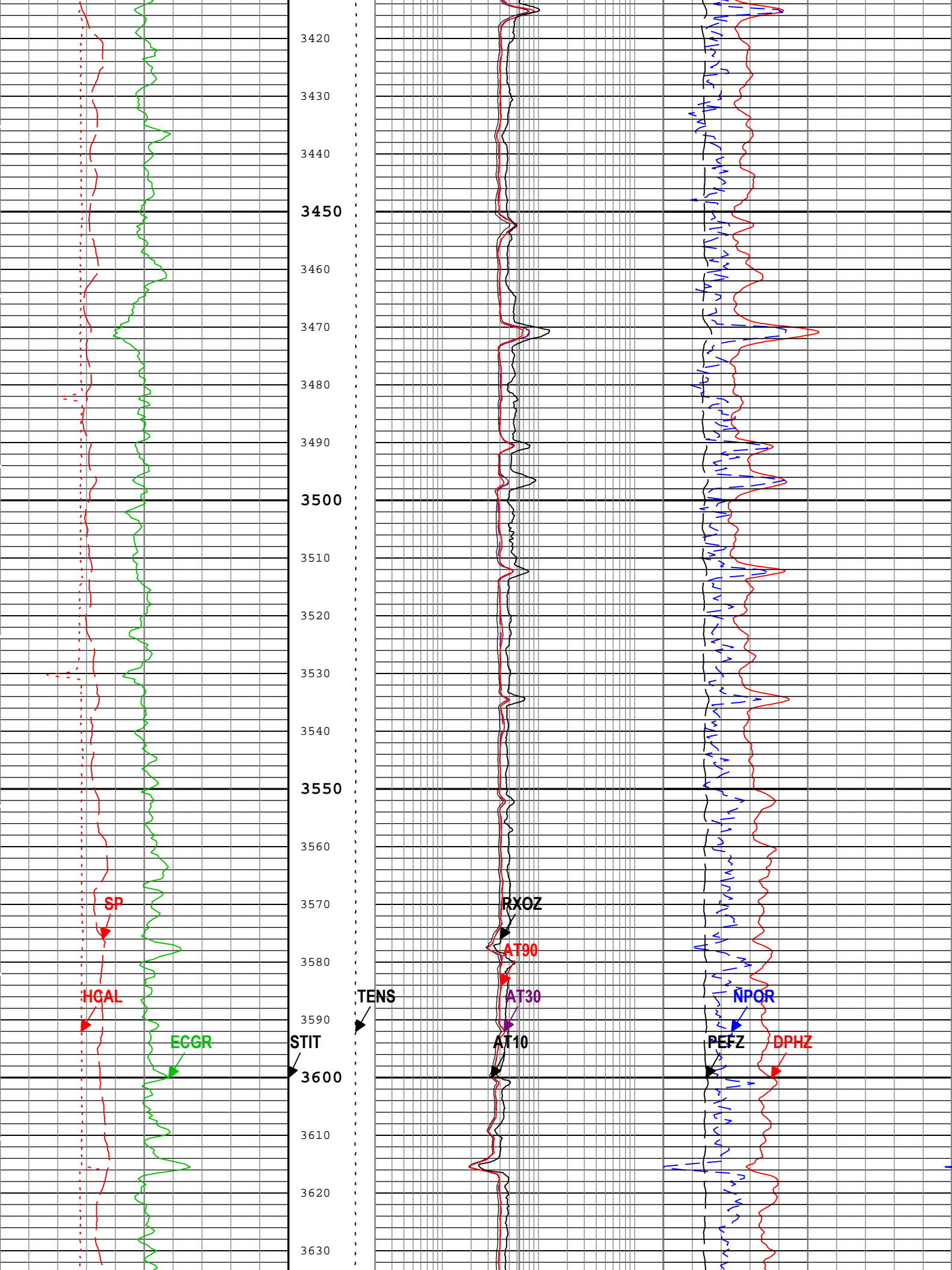




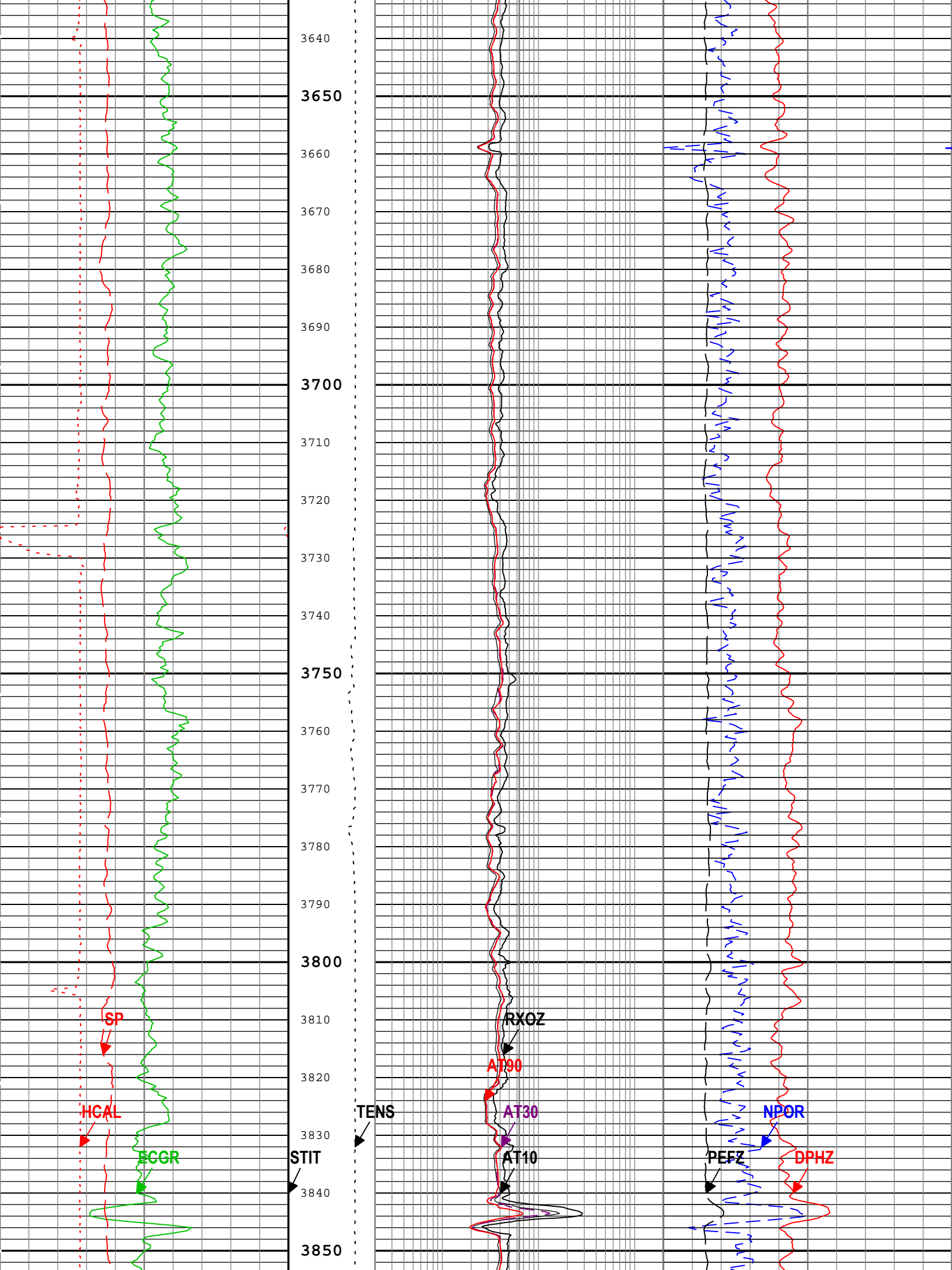


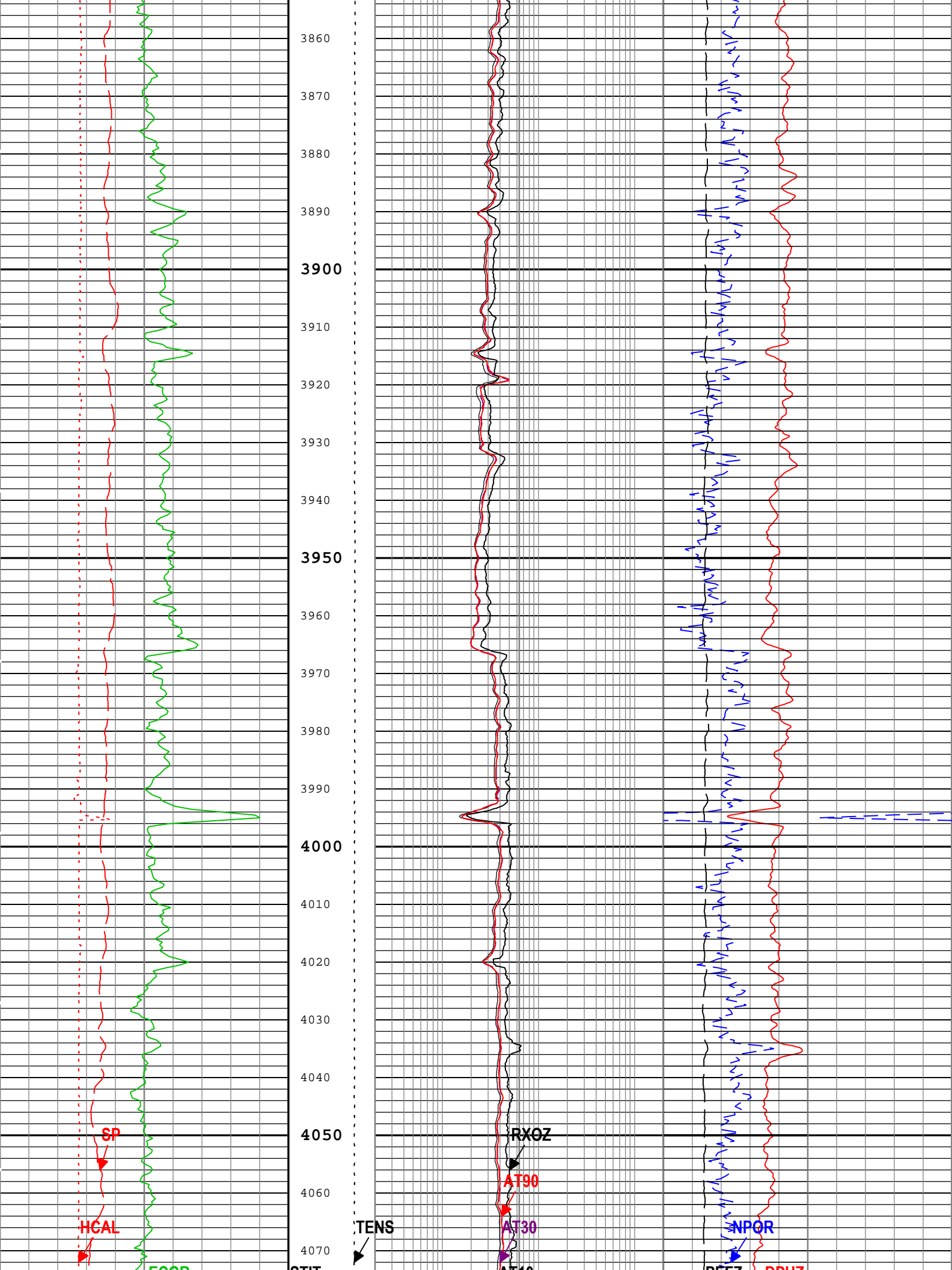


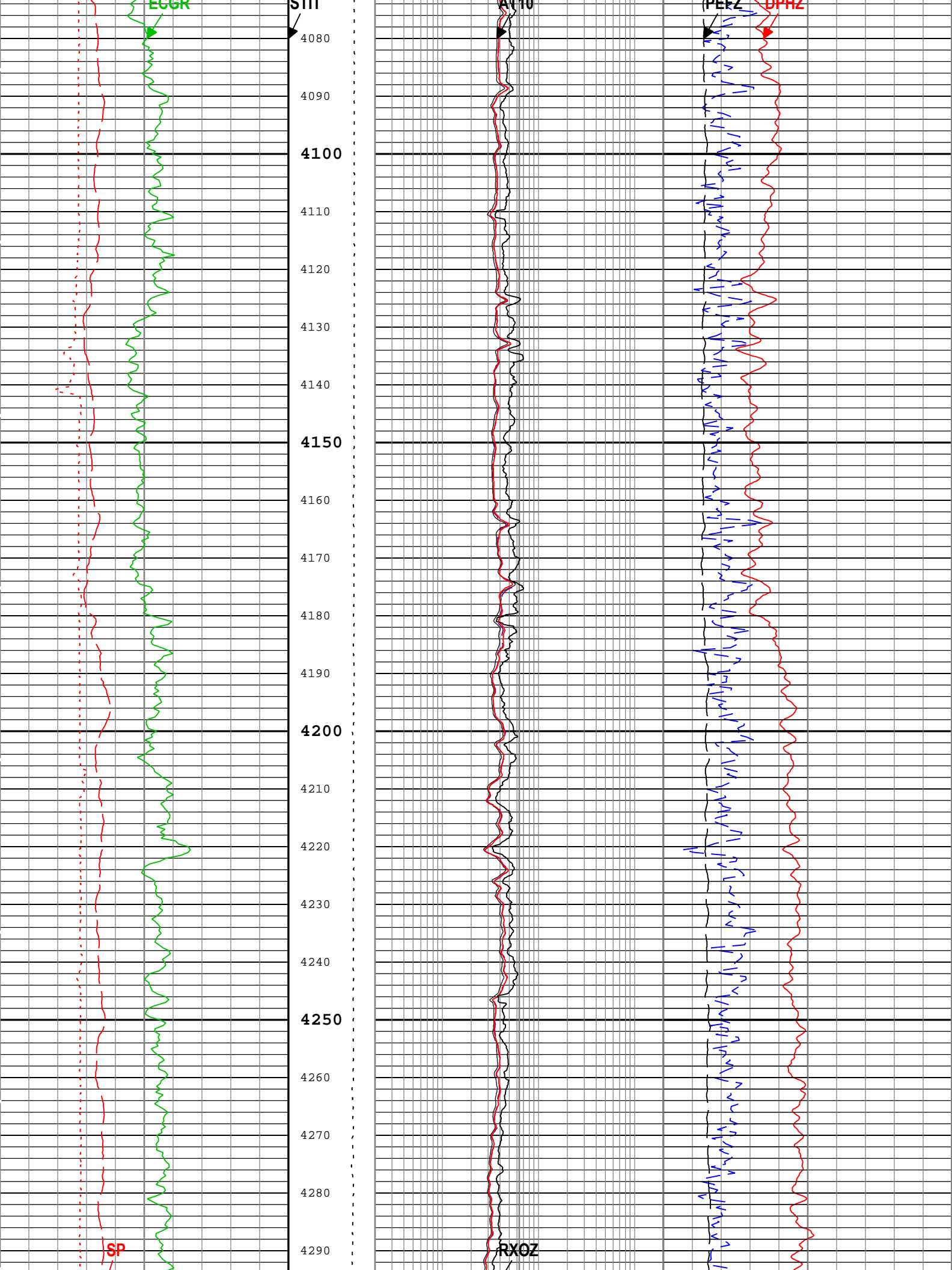


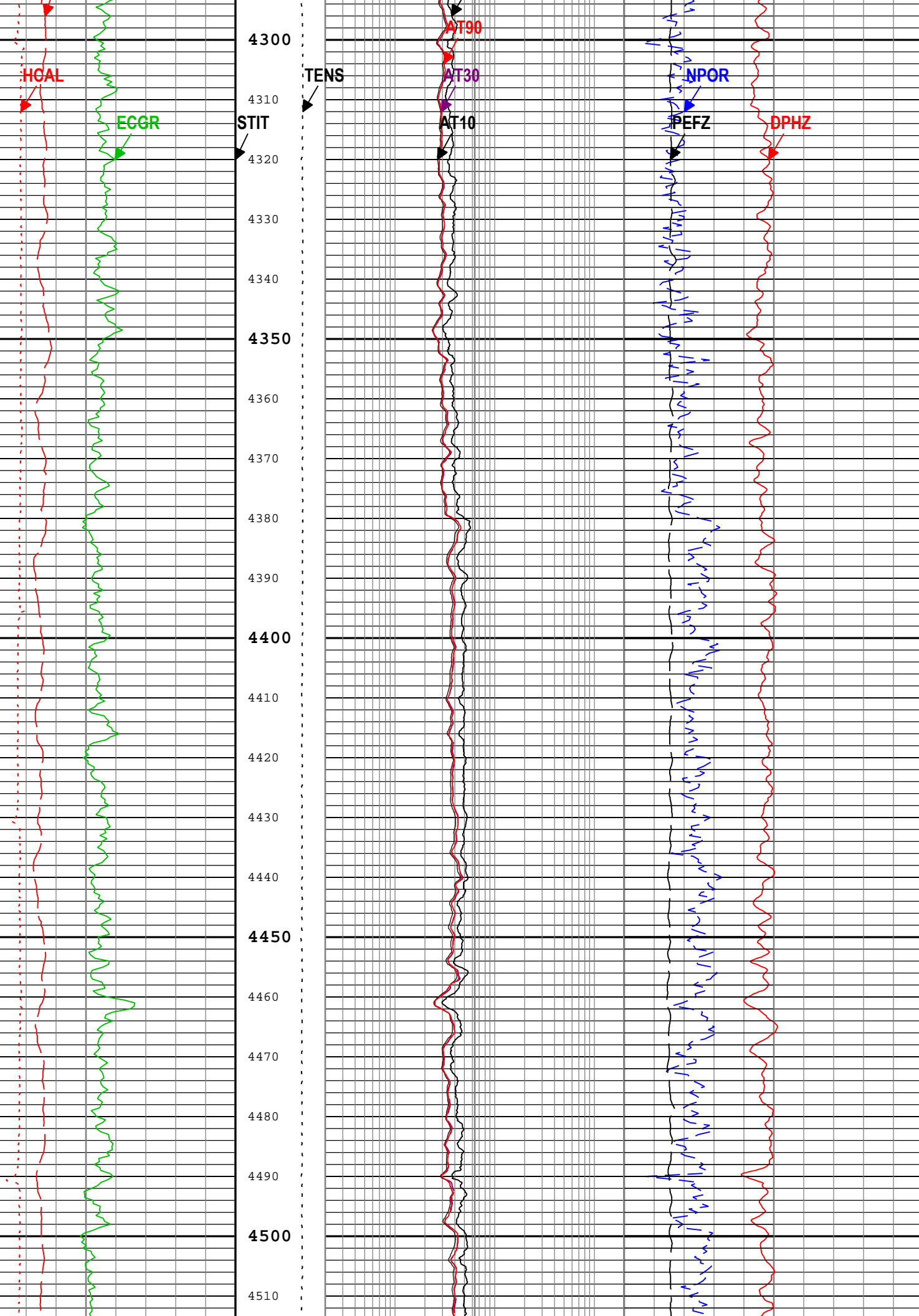


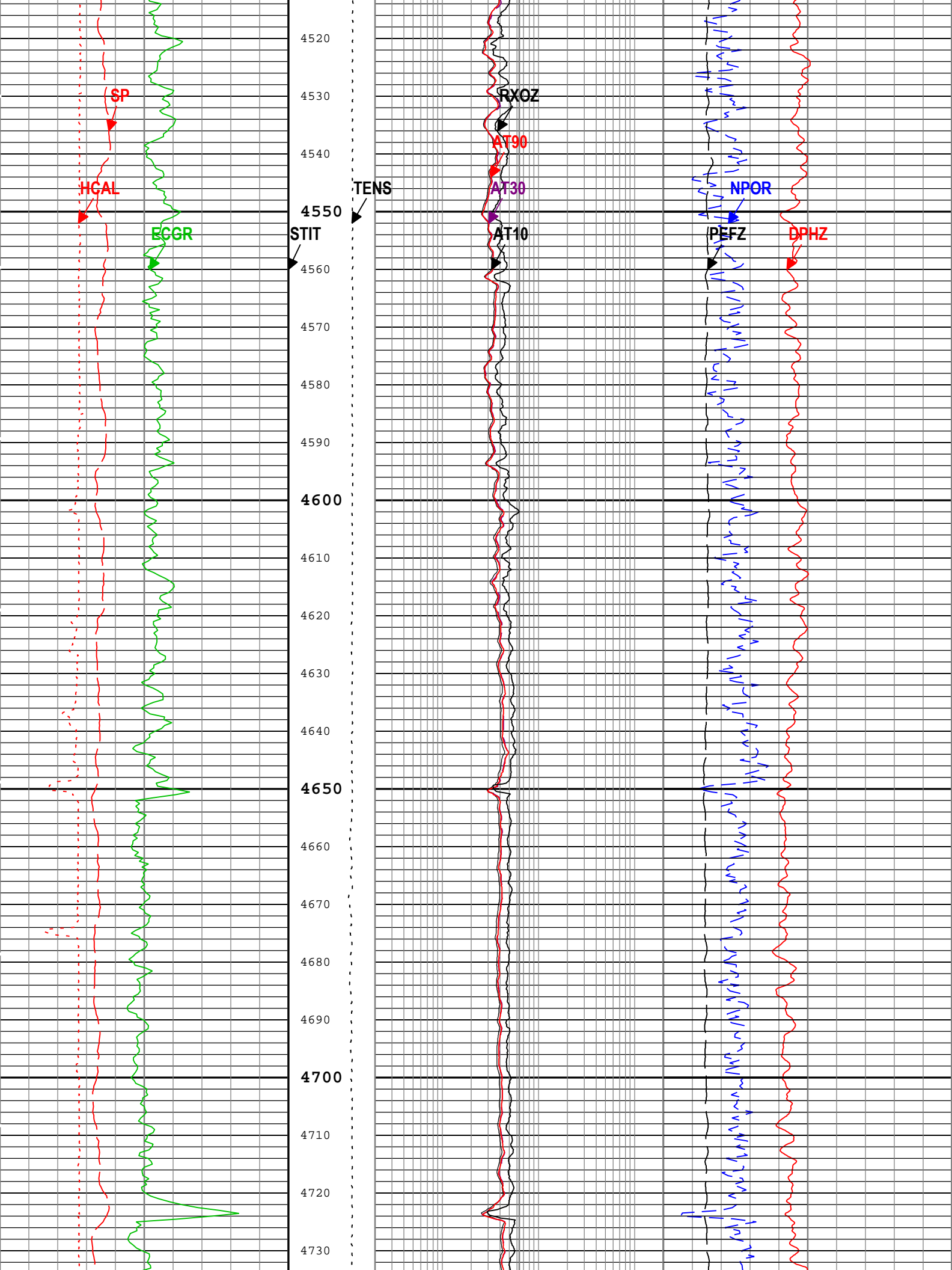


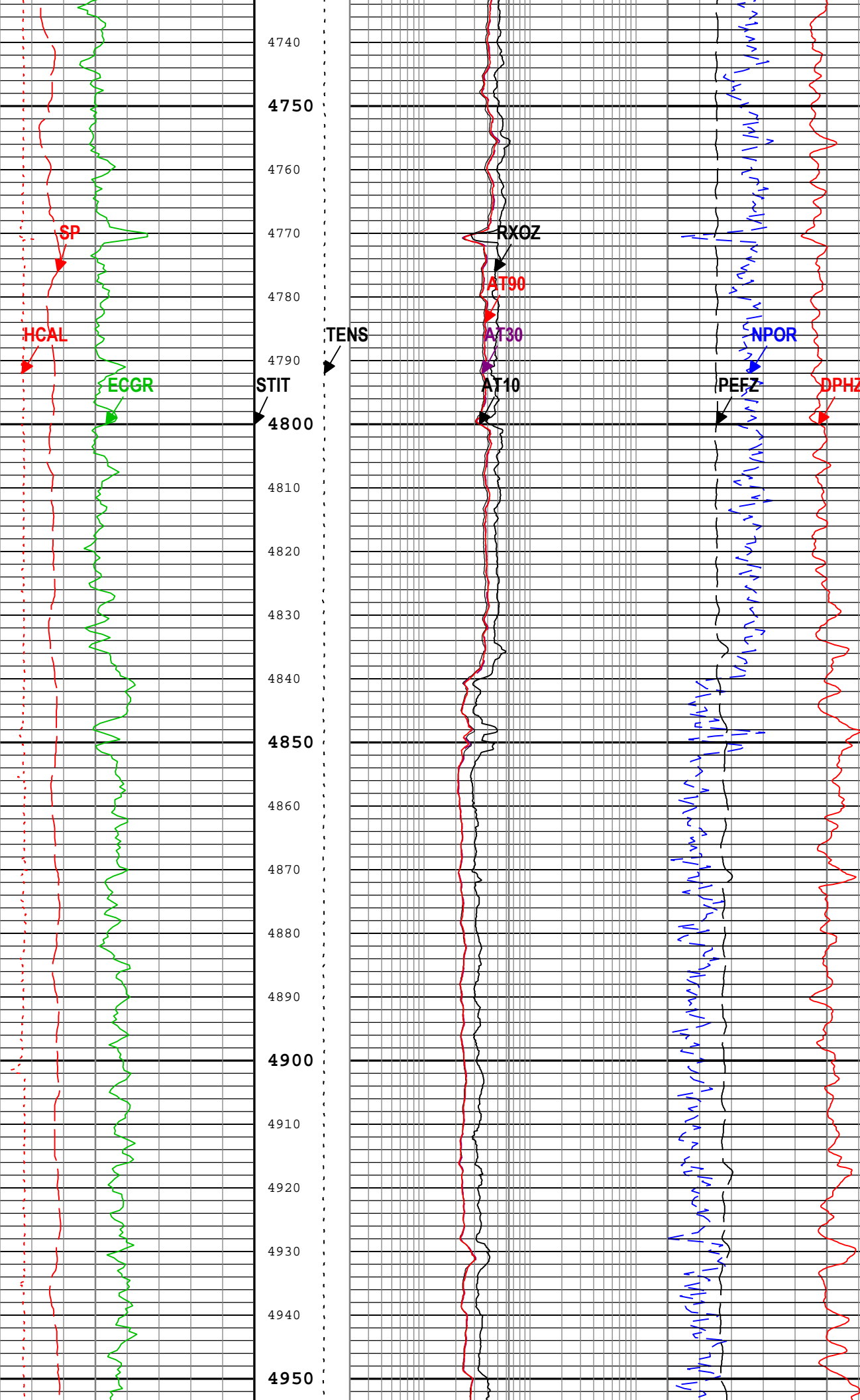


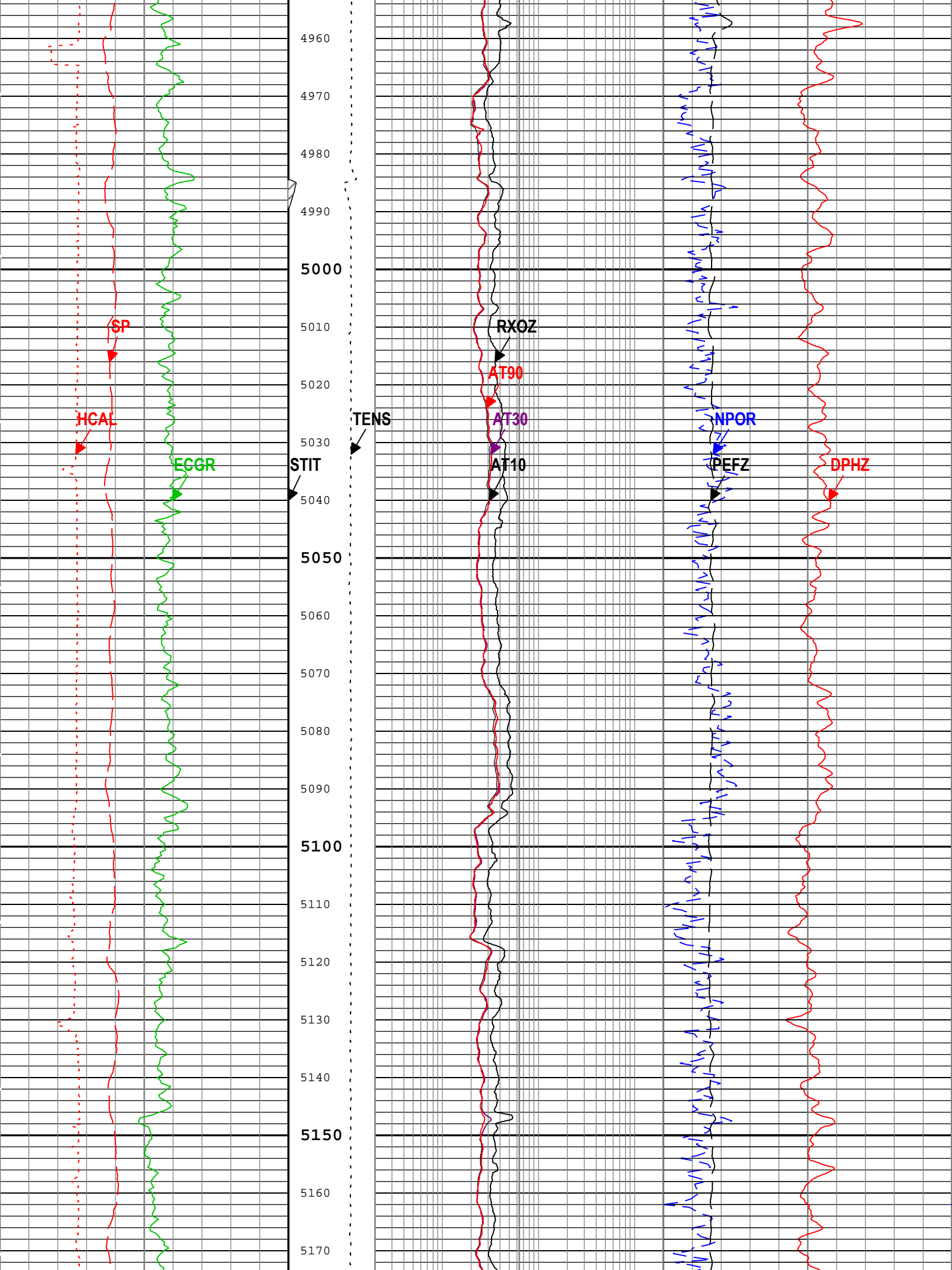


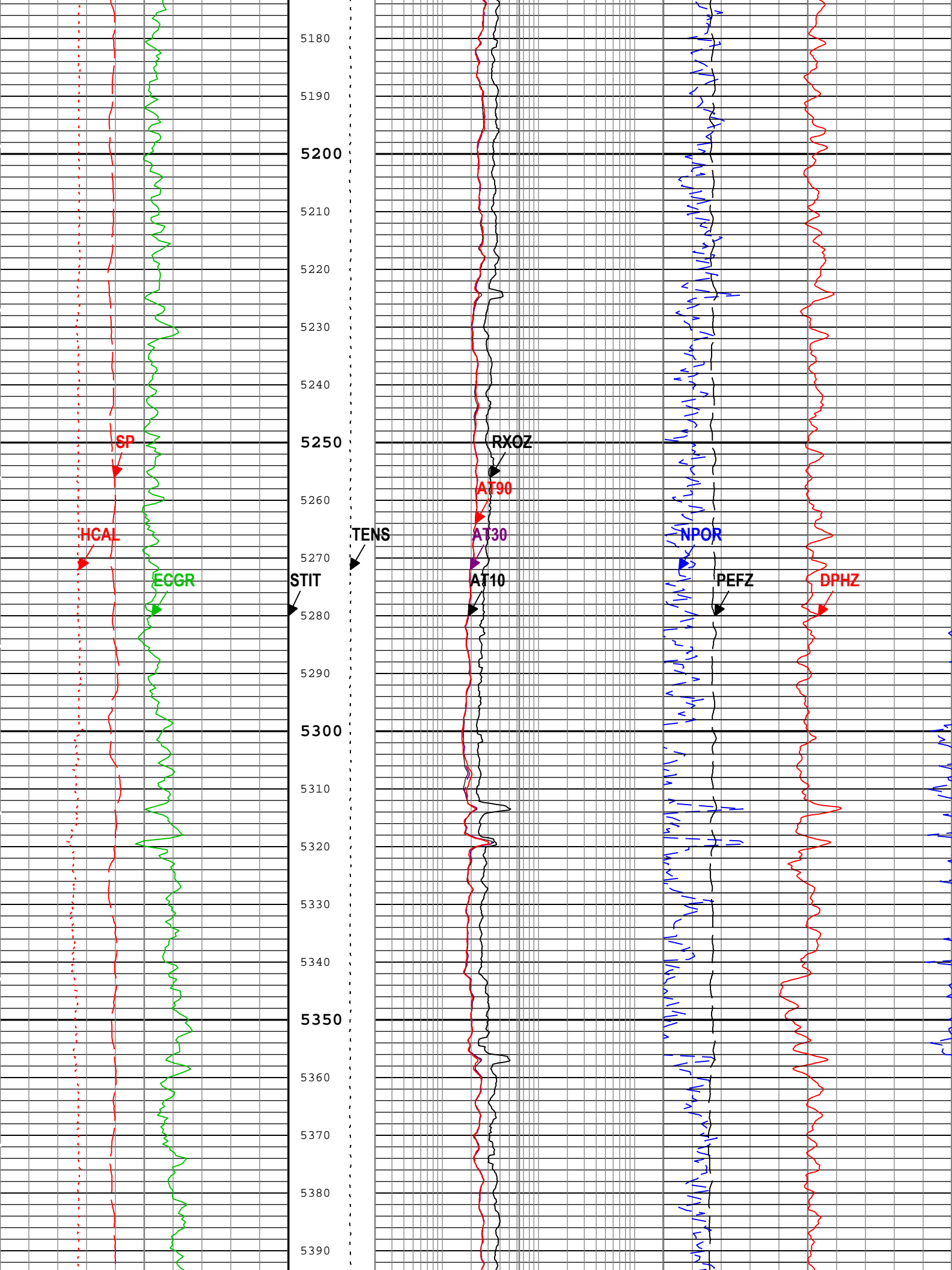




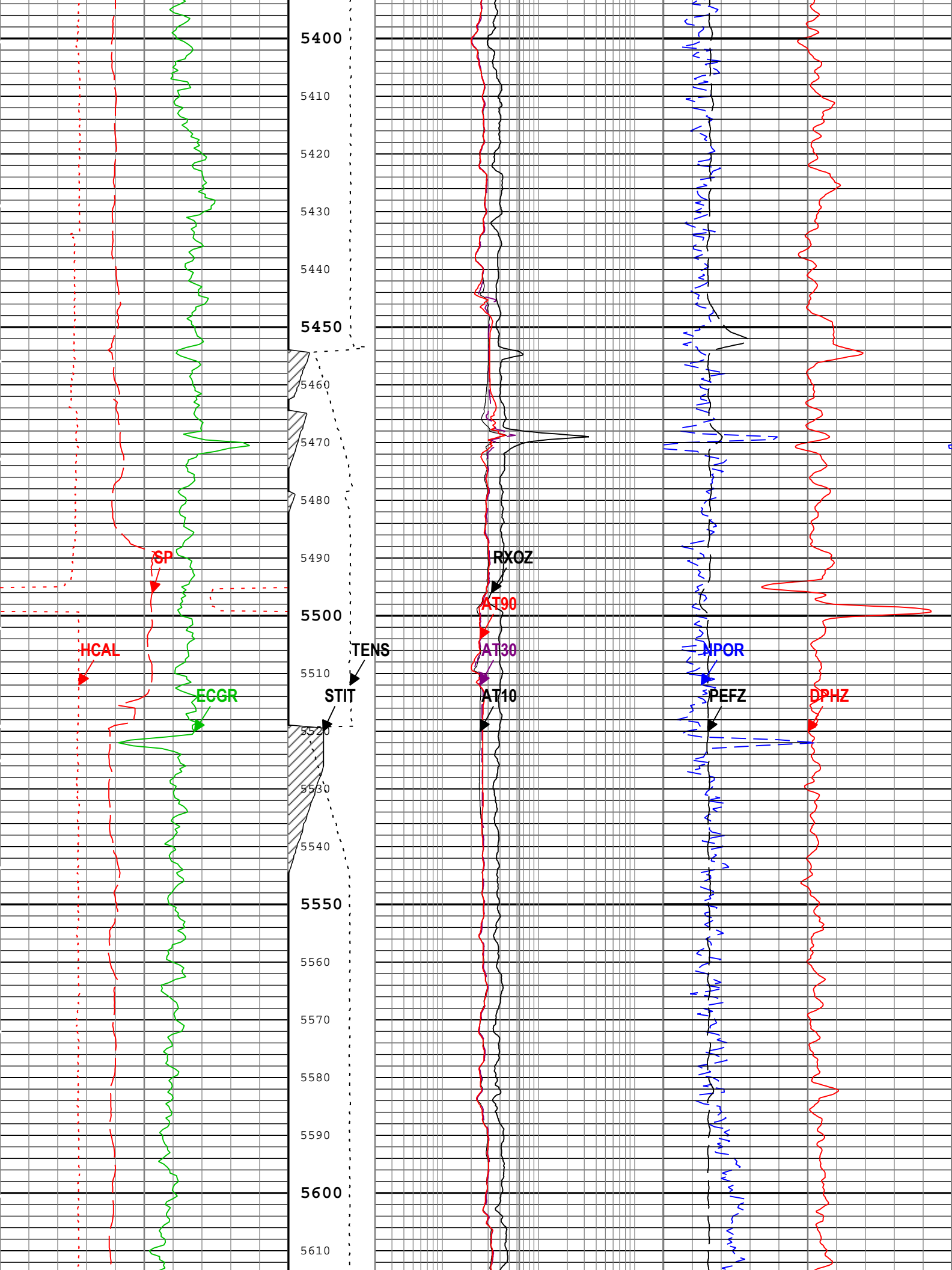


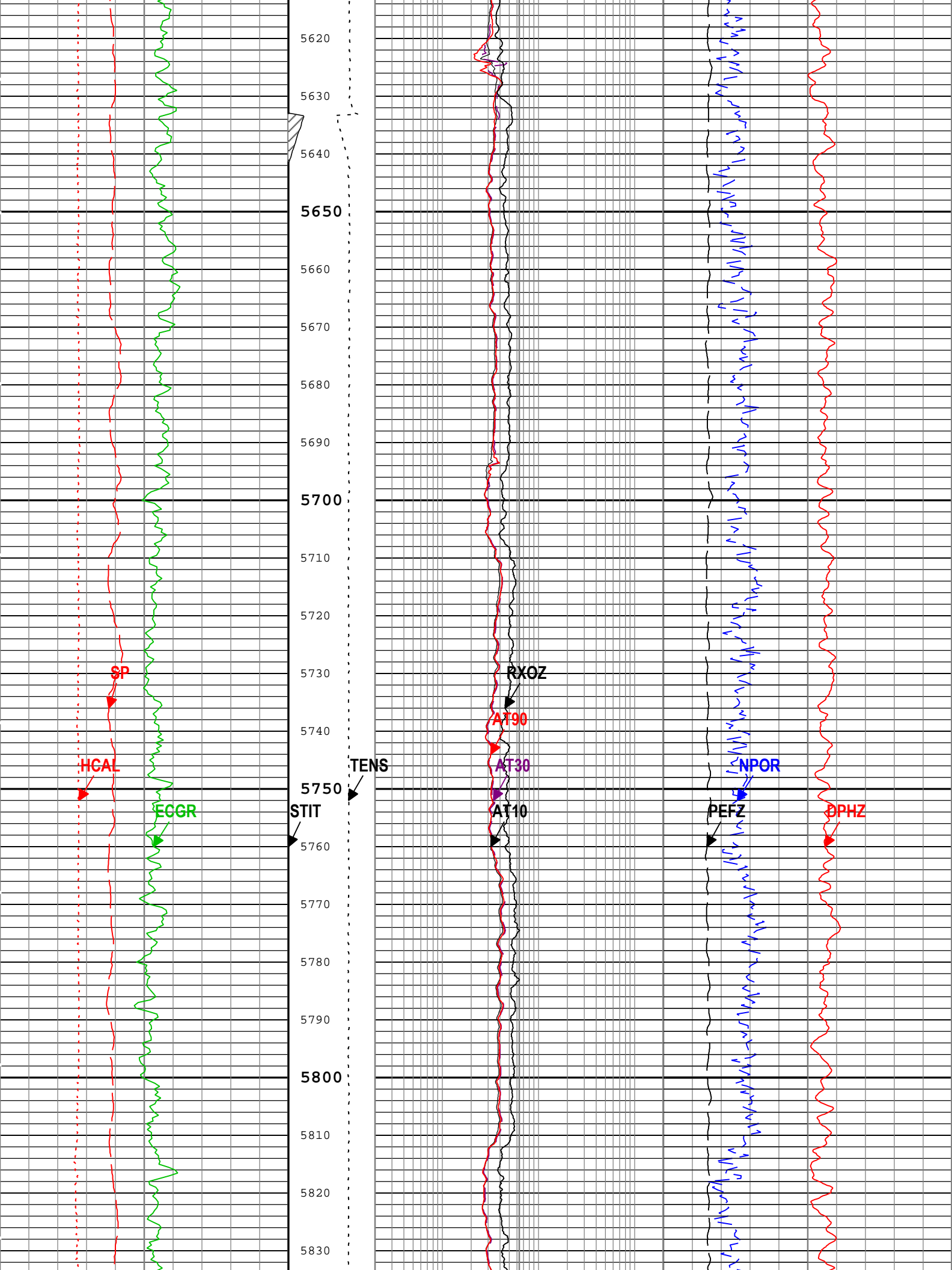


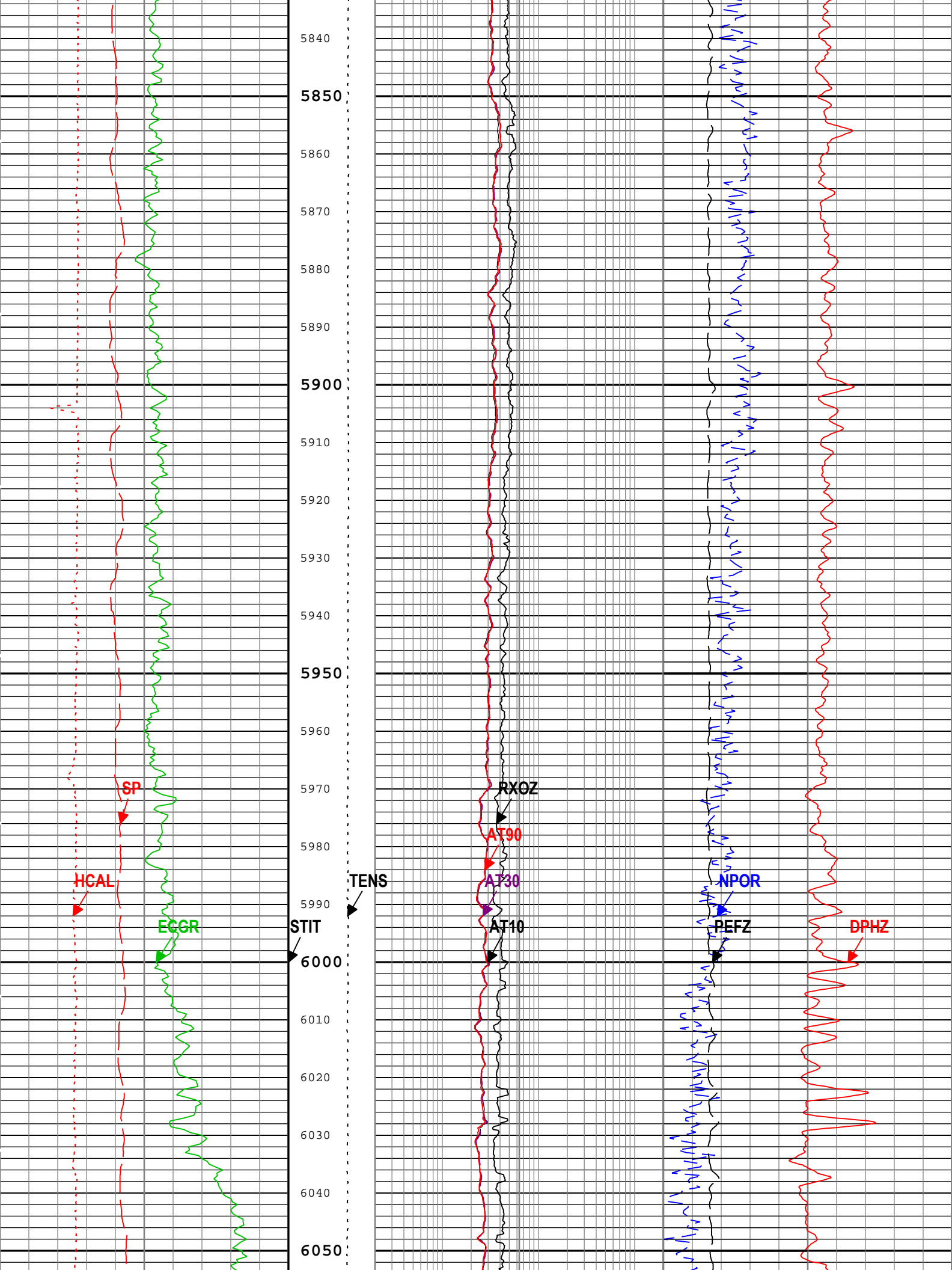


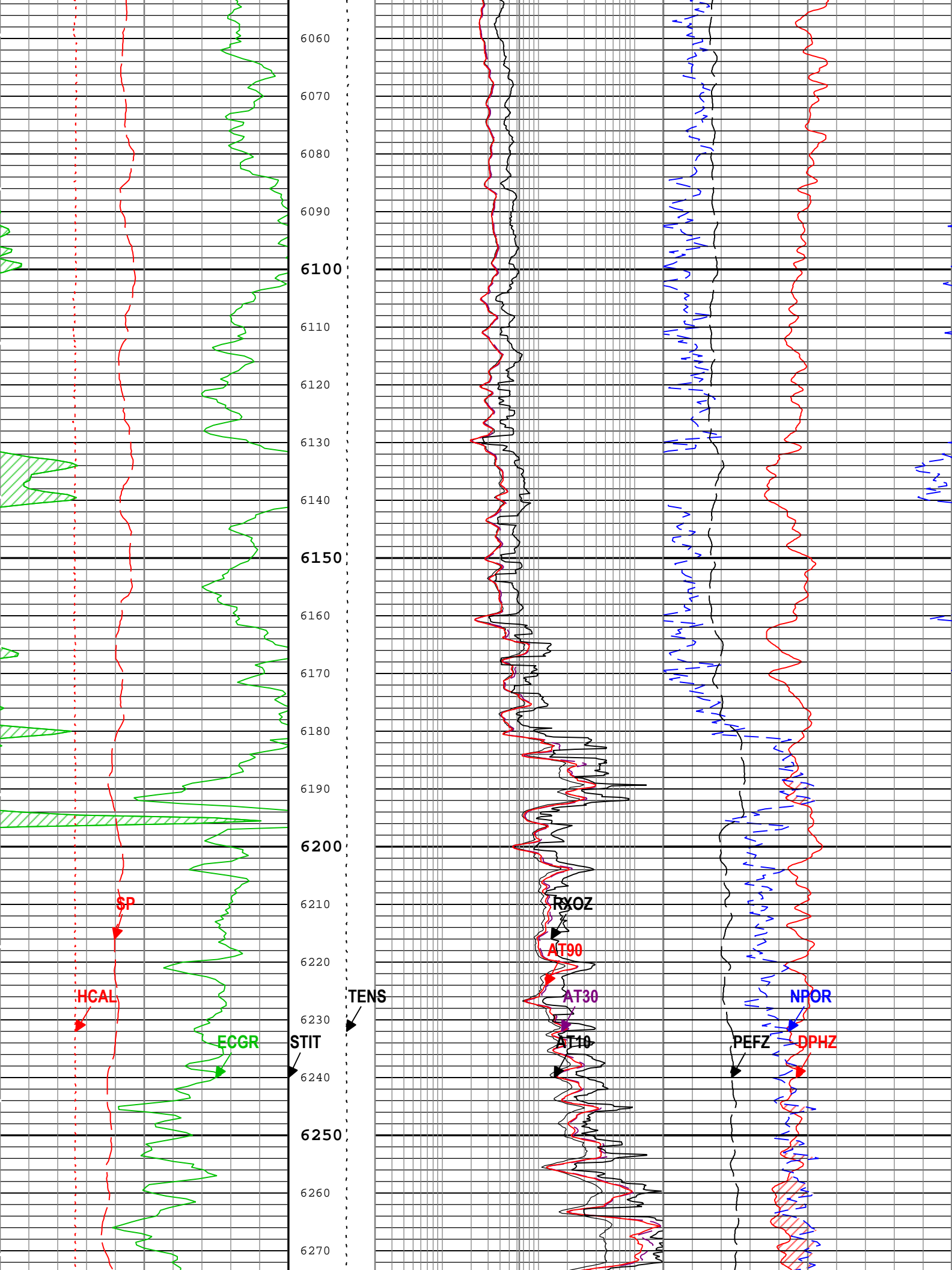


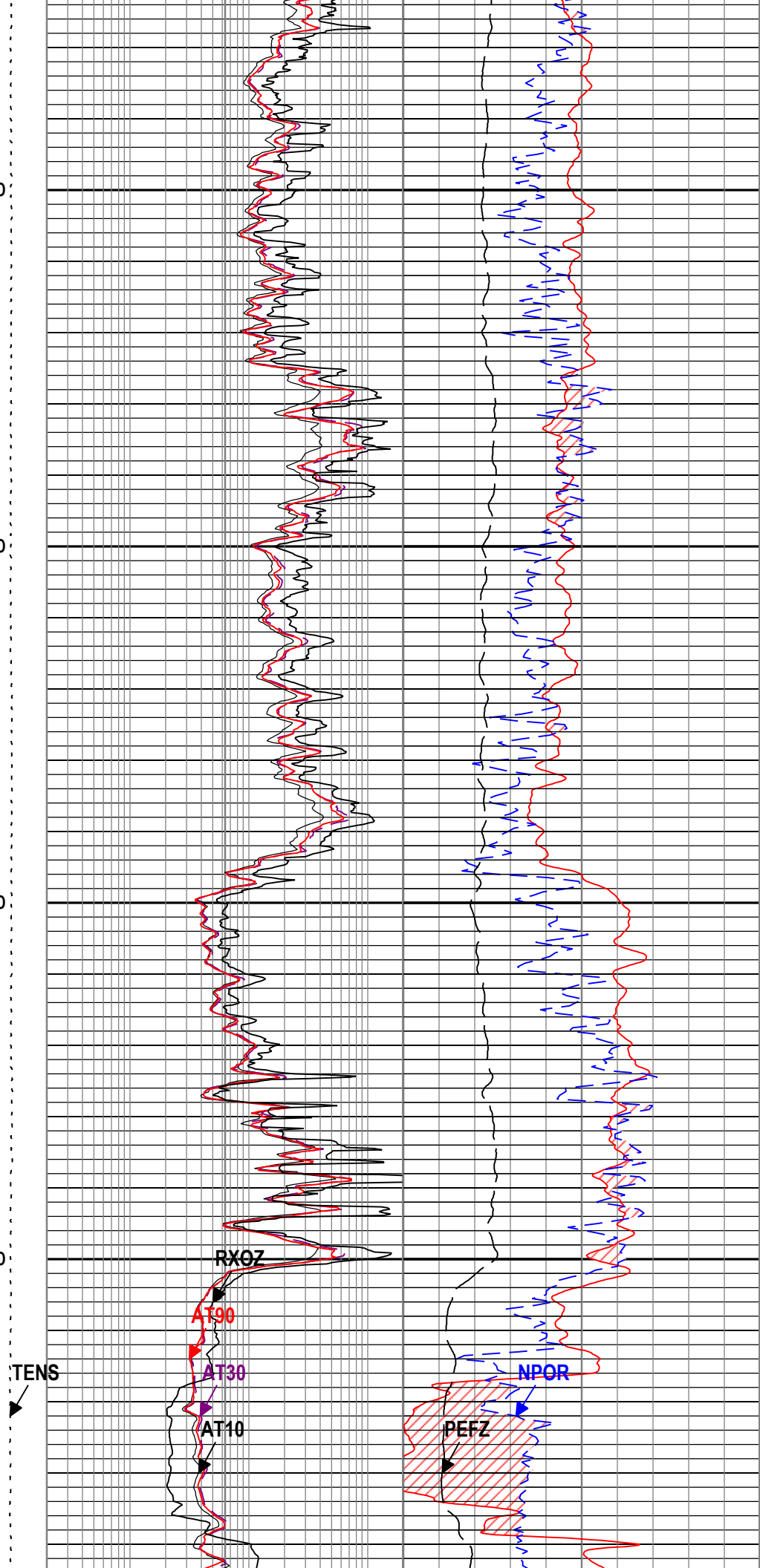
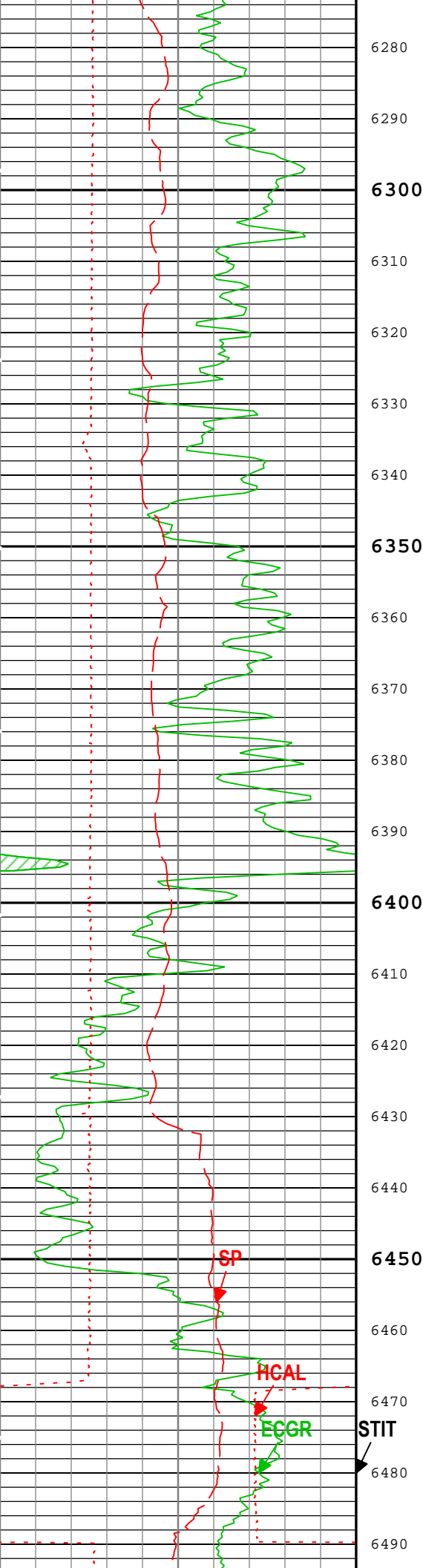


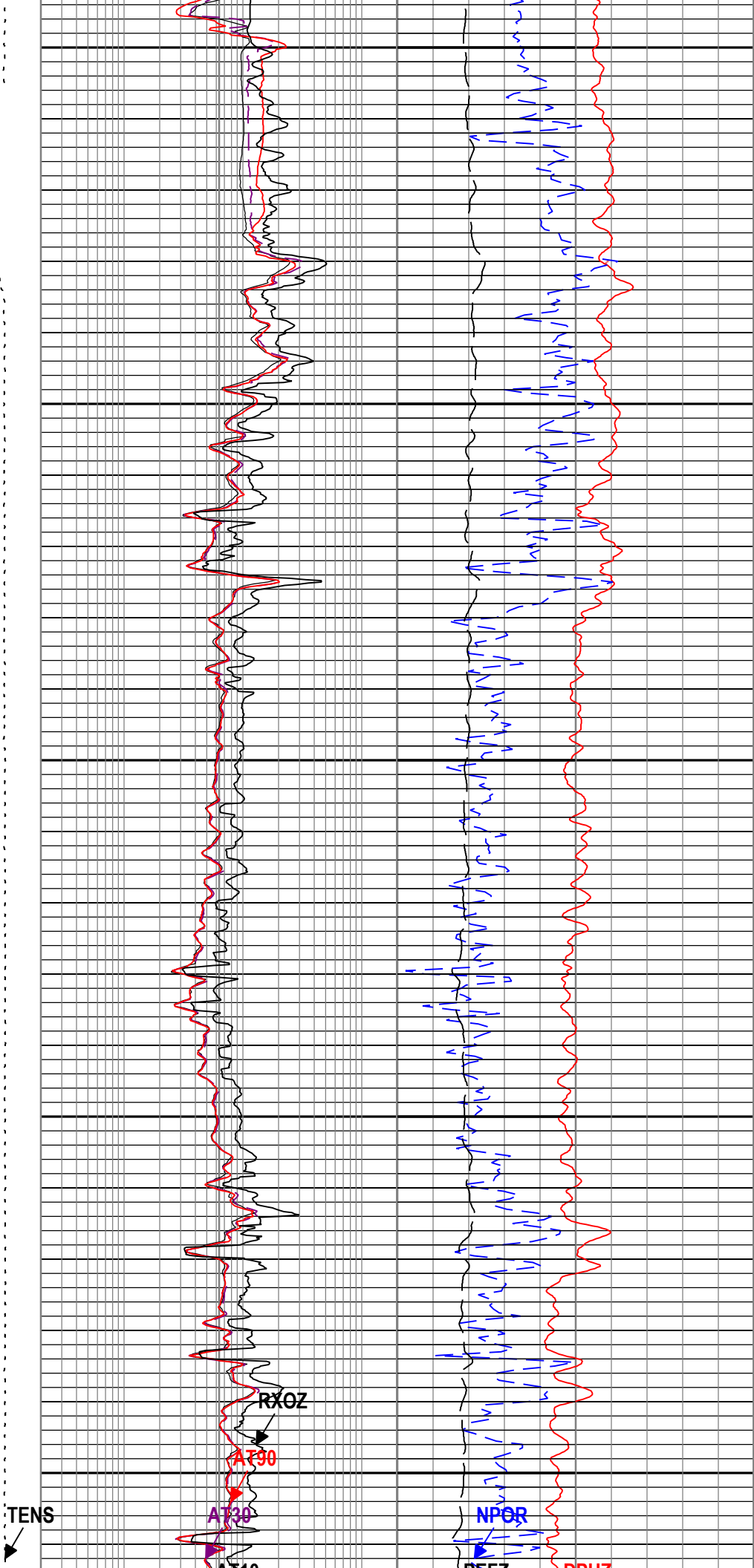
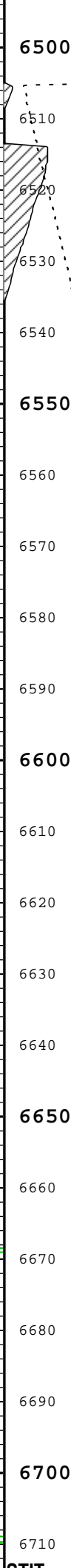
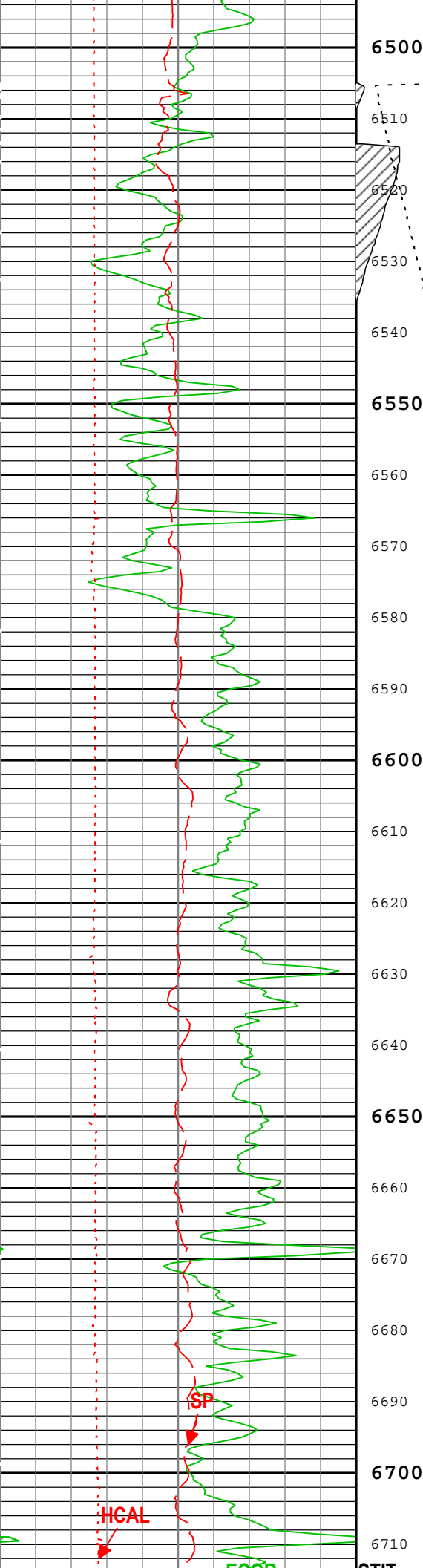


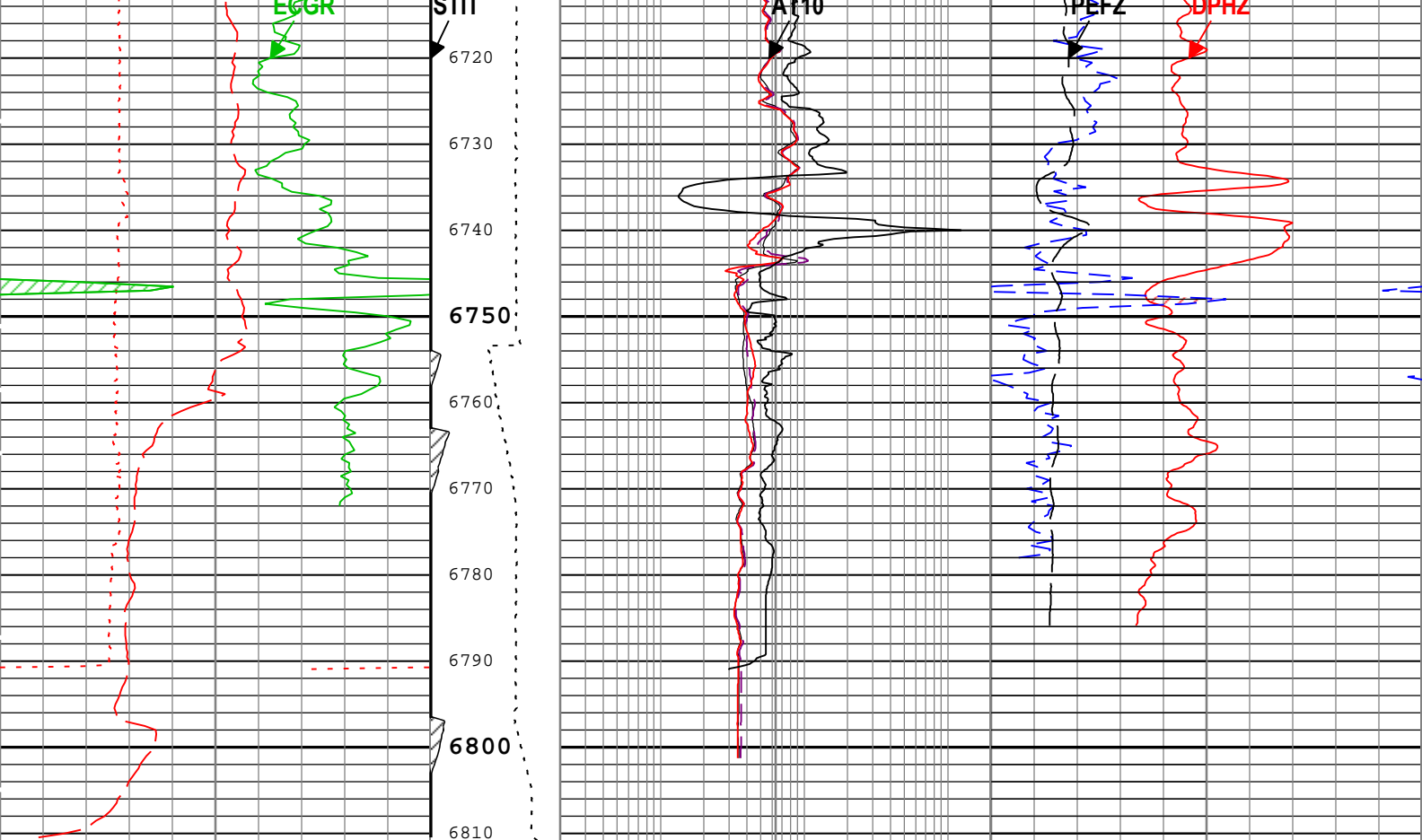












Gamma Ray Back up			Stuck Tool Indicator, Total (STIT)	Array Induction Two Foot Resistivity A10 (AT10) AIT-M			Gas Effect		
Gamma Ray (ECGR) HGNS-H				0.2 ohm.m 200			NPOR Backup		
0	gAPI		200	0	ft	50	Standard Resolution Density Porosity (DPHZ) HDRS-H		
Caliper (HCAL) HDRS-H			Cable Tension (TENS)	Array Induction Two Foot Resistivity A30 (AT30) AIT-M			0.3 ft3/ft3 -0.1		
6	in			16	0.2 ohm.m 200				
Spontaneous Potential (SP) AIT-M			10000 lbf	Array Induction Two Foot Resistivity A90 (AT90) AIT-M			Enhanced Thermal Neutron Porosity in Selected Lithology (NPOR) HGNS-H		
-160	mV			40	0.2 ohm.m 200			0.3 m3/m3 -0.1	
				Invaded Formation Resistivity filtered at 18 inches (RXOZ) HDRS-H			Standard Resolution Formation Photoelectric Factor (PEFZ) HDRS-H		
				0.2 ohm.m 200					
							0 10		

TIME\_1900 - Time Marked every 60.00 (s)

Description: HGNS standard resolution porosities for Platform Express Format: Log ( KM 5in Triple Combo ) Index Scale: 5 in per 100 ft Index Unit: ft  
Index Type: Measured Depth Creation Date: 28-Sep-2016 22:53:25

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
BSAL	Borehole Salinity	Borehole	0	ppm

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
DC_MODE	Depth Correction Mode	DepthCorrection	Real-time	
DFD	Drilling Fluid Density	Borehole	9.7	lbm/gal
DFT	Drilling Fluid Type	Borehole	Water	
DHC	Density Hole Correction	HDRS-H	Bit Size	
FD	Fluid Density	Borehole	1	g/cm3
FSAL	Formation Salinity	Borehole	0	ppm
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	
HSCO	Hole Size Correction Option	HGNS-H	Yes	
MATR	Rock Matrix for Neutron Porosity Corrections	Borehole	LIMESTONE	
MDEN	Matrix Density for Density Porosity	Borehole	2.71	g/cm3
MFST	Mud Filtrate Sample Temperature	Borehole	75	degF
MPOF	MCFL Processing Operation Mode	HDRS-H	On	
MST	Mud Sample Temperature	Borehole	75.3	degF
NPRM	HRDD Nuclear Processing Mode	HDRS-H	Standard Resolution	
RMFS	Resistivity of Mud Filtrate Sample	Borehole	2.11	ohm.m
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	1349.5	1465
BS	8.75	1465	6800
All depth are actual.			

Tool Control 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

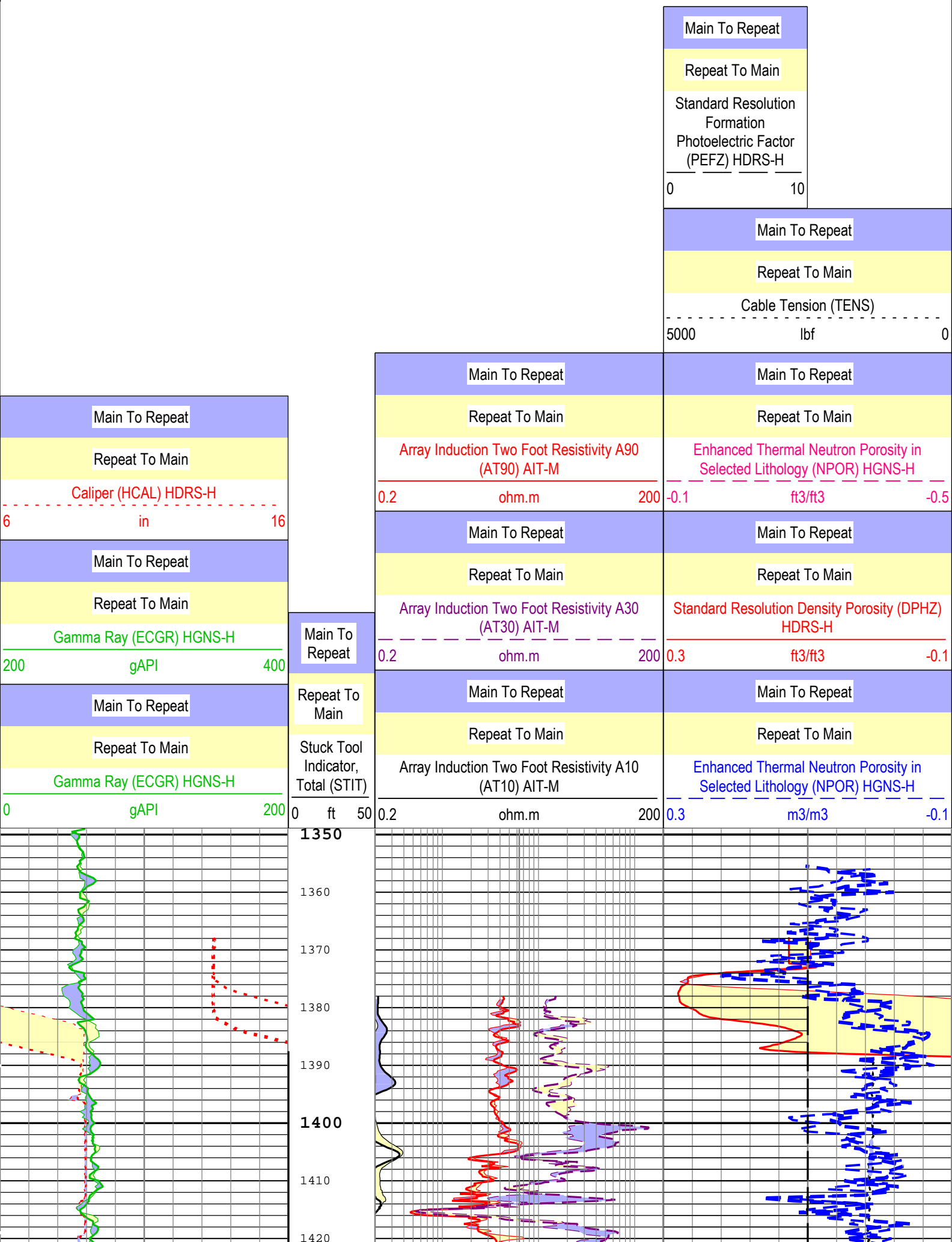
One									
5" Triple Combo									

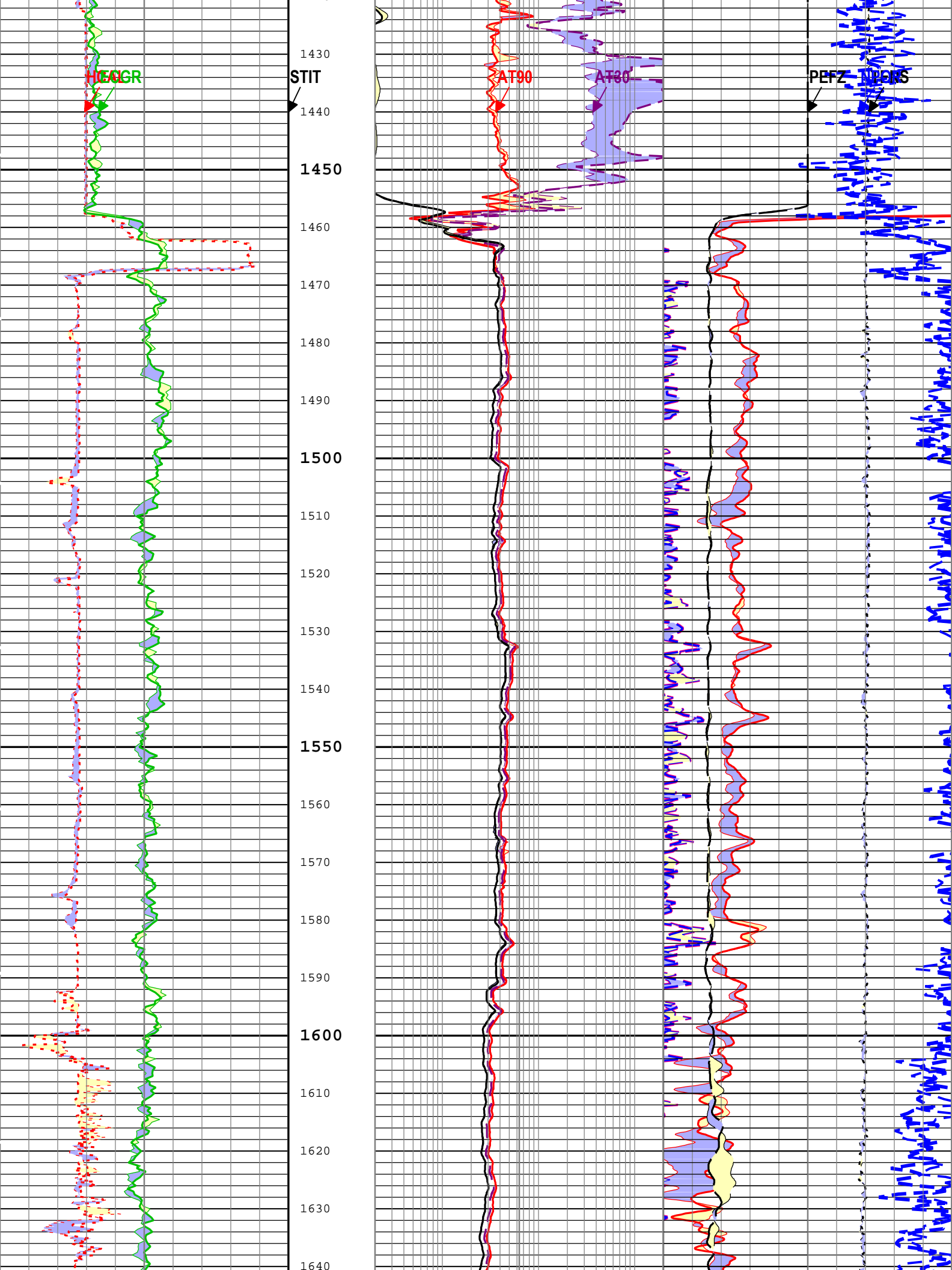
Pass Summary									
Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
One	Log[4]:Up	Up	1387.81 ft	6810.88 ft	28-Sep-2016 5:33:25 PM	28-Sep-2016 9:39:06 PM	ON	4.00 ft	Yes
One	Log[5]:Up	Up	1387.33 ft	1776.64 ft	28-Sep-2016 9:43:34 PM	28-Sep-2016 9:57:15 PM	ON	4.10 ft	Yes

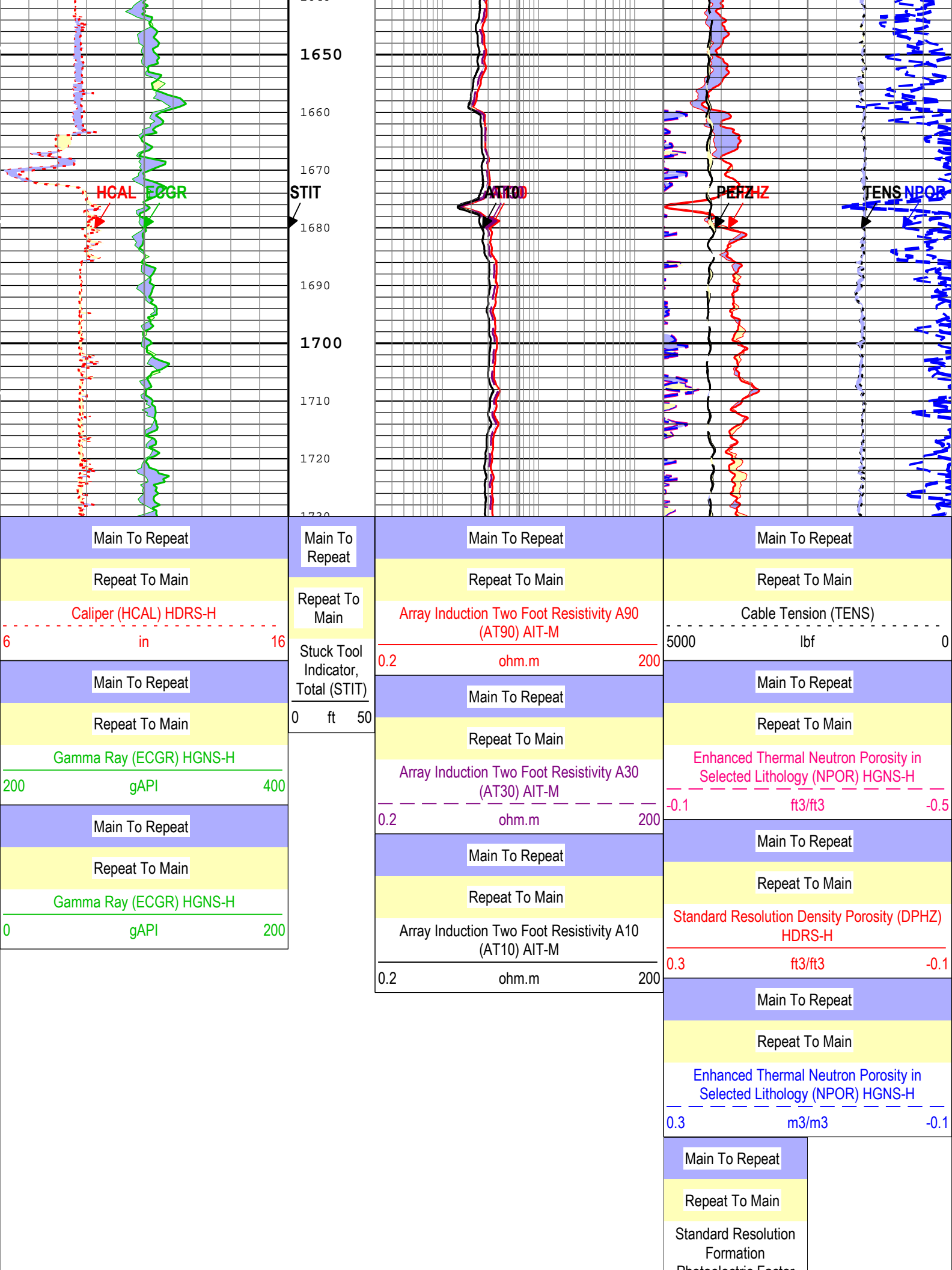
All depths are referenced to toolstring zero									
Log	<div> <div>Company:Bonanza Creek</div> <div>Well:State Seventy Holes J-18</div> <div>One: Log[4]:Up:S003</div> </div>								

Description: HGNS standard resolution porosities for Platform Express    Format: Log ( KM 5in Triple Combo RA )    Index Scale: 5 in per 100 ft    Index Unit: ft  
Index Type: Measured Depth    Creation Date: 28-Sep-2016 22:53:29









TIME\_1900 - Time Marked every 60.00 (s)

Description: HGNS standard resolution porosities for Platform Express    Format: Log ( KM 5in Triple Combo RA )    Index Scale: 5 in per 100 ft    Index Unit: ft  
Index Type: Measured Depth    Creation Date: 28-Sep-2016 22:53:29

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	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before-Master	-----	-----	0.000	-----	<div><div></div><div></div><div></div><div></div><div></div></div>
Thru Cal Phase - 0	deg	Master	-----	137.000	-172.932	-103.000	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before	-----	137.000	-172.261	-103.000	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before-Master	-----	-----	0.671	-----	<div><div></div><div></div><div></div><div></div><div></div></div>
Thru Cal Mag - 1	V	Master	-----	0.762	1.246	1.778	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before	-----	0.762	1.246	1.778	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before-Master	-----	-----	0.000	-----	<div><div></div><div></div><div></div><div></div><div></div></div>
Thru Cal Phase - 1	deg	Master	-----	136.000	-173.870	-104.000	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before	-----	136.000	-173.199	-104.000	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before-Master	-----	-----	0.671	-----	<div><div></div><div></div><div></div><div></div><div></div></div>
Thru Cal Mag - 2	V	Master	-----	0.372	0.617	0.868	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before	-----	0.372	0.617	0.868	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before-Master	-----	-----	0.000	-----	<div><div></div><div></div><div></div><div></div><div></div></div>
Thru Cal Phase - 2	deg	Master	-----	132.000	-177.254	-108.000	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before	-----	132.000	-176.582	-108.000	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before-Master	-----	-----	0.672	-----	<div><div></div><div></div><div></div><div></div><div></div></div>
Thru Cal Mag - 3	V	Master	-----	0.420	0.699	0.980	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before	-----	0.420	0.699	0.980	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before-Master	-----	-----	0.000	-----	<div><div></div><div></div><div></div><div></div><div></div></div>
Thru Cal Phase - 3	deg	Master	-----	131.000	-177.987	-109.000	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before	-----	131.000	-177.315	-109.000	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before-Master	-----	-----	0.672	-----	<div><div></div><div></div><div></div><div></div><div></div></div>
Thru Cal Mag - 4	V	Master	-----	0.804	1.309	1.876	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before	-----	0.804	1.309	1.876	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before-Master	-----	-----	0.000	-----	<div><div></div><div></div><div></div><div></div><div></div></div>
Thru Cal Phase - 4	deg	Master	-----	125.000	176.206	-115.000	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before	-----	125.000	176.886	-115.000	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before-Master	-----	-----	0.680	-----	<div><div></div><div></div><div></div><div></div><div></div></div>
Thru Cal Mag - 5	V	Master	-----	1.176	1.906	2.744	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before	-----	1.176	1.906	2.744	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before-Master	-----	-----	0.000	-----	<div><div></div><div></div><div></div><div></div><div></div></div>
Thru Cal Phase - 5	deg	Master	-----	122.000	174.647	-118.000	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before	-----	122.000	175.331	-118.000	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before-Master	-----	-----	0.684	-----	<div><div></div><div></div><div></div><div></div><div></div></div>
Thru Cal Mag - 6	V	Master	-----	1.176	1.904	2.744	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before	-----	1.176	1.904	2.744	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before-Master	-----	-----	0.000	-----	<div><div></div><div></div><div></div><div></div><div></div></div>
Thru Cal Phase - 6	deg	Master	-----	121.000	174.679	-119.000	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before	-----	121.000	175.363	-119.000	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before-Master	-----	-----	0.684	-----	<div><div></div><div></div><div></div><div></div><div></div></div>
Thru Cal Mag - 7	V	Master	-----	0.846	1.375	1.974	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before	-----	0.846	1.375	1.974	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before-Master	-----	-----	0.000	-----	<div><div></div><div></div><div></div><div></div><div></div></div>
Thru Cal Phase - 7	deg	Master	-----	115.000	173.699	-125.000	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before	-----	115.000	174.424	-125.000	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before-Master	-----	-----	0.725	-----	<div><div></div><div></div><div></div><div></div><div></div></div>
SPA Zero	mV	Master		-50.000	-0.126	50.000	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before		-50.000	-0.126	50.000	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before-Master	-----	-----	0.000	-----	<div><div></div><div></div><div></div><div></div><div></div></div>
SPA Plus	mV	Master		941.000	1004.288	1040.000	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before		941.000	1003.706	1040.000	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before-Master	-----	-----	-0.582	-----	<div><div></div><div></div><div></div><div></div><div></div></div>
Temperature Zero	V	Master		-0.050	0.000	0.050	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before		-0.050	0.000	0.050	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before-Master	-----	-----	0.000	-----	<div><div></div><div></div><div></div><div></div><div></div></div>
Temperature Plus	V	Master		0.870	0.930	0.960	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before		0.870	0.930	0.960	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before-Master	-----	-----	0.000	-----	<div><div></div><div></div><div></div><div></div><div></div></div>

HDRS-H (HILT Density and Rxo Sonde, 150 degC) Calibration - Run One

Primary Equipment :

HILT High-Resolution Control Cartridge, 150 degC	HRGD-H	4817
HILT Resistivity Gamma-Ray Density Device, 150 degC	HRGD-H	4899

Auxiliary Equipment :

HRDD Backscatter Detector	Backscatter	
HRDD Long Spacing Detector	Long Spacing	
HRDD Short Spacing Detector	Short Spacing	27786
Cesium 137 Gamma-Ray Logging Source	GSR-J	5471
HILT High-Resolution Control Cartridge, 150 degC	HRCC-H	4817
HILT High-Resolution Mechanical Sonde, 150 degC	HRMS-H	4876

Calibration Parameter :

Small Ring Size (Caliper Calibration Small Ring)	8.00
Large Ring Size (Caliper Calibration Large Ring)	12.00

HDRS Caliper Calibration - Caliper Accumulations

Before (Measured):		06:42:22 28-Sep-2016					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Small Ring	in	Before	8.00	6.00	6.98	10.00	
Large Ring	in	Before	12.00	9.00	10.77	15.00	

HDRS Density Calibration - Inversion Results

Master (EEPROM):		13:05:16 19-Sep-2016					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Rho Aluminum	g/cm3	Master	2.596	2.586	2.601	2.606	
Rho Magnesium	g/cm3	Master	1.686	1.676	1.685	1.696	
Pe Aluminum		Master	2.570	2.470	2.555	2.670	
Pe Magnesium		Master	2.650	2.550	2.632	2.750	

HDRS Density Calibration - Deviation Summary

Master (EEPROM):		13:05:16 19-Sep-2016					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
BS Average Deviation	%	Master	0	-0.6000	0.2429	0.6000	
BS Max Deviation	%	Master	0	-1.6000	0.6364	1.6000	
SS Average Deviation	%	Master	0	-1.0000	0.2258	1.0000	
SS Max Deviation	%	Master	0	-2.5000	0.8880	2.5000	
LS Average Deviation	%	Master	0	-1.5000	0.6466	1.5000	
LS Max Deviation	%	Master	0	-3.5000	1.9468	3.5000	

HDRS Density Calibration - Background Summary

Master (EEPROM):		13:05:16 19-Sep-2016		Before (Measured):		06:31:28 28-Sep-2016	
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
BS Window Ratio		Master	1.0000		0.7367		
		Before	0.7367	0.6999	0.7363	0.7735	
		Before-Master	-----	-----	-0.0004	-----	
BS Window Sum	1/s	Master	1		25558		
		Before	25558	24280	25473	26836	
		Before-Master	-----	-----	-85	-----	
SS Window Ratio		Master	1.0000		0.4811		
		Before	0.4811	0.4571	0.4803	0.5052	
		Before-Master	-----	-----	-0.0008	-----	
SS Window Sum	1/s	Master	1		11029		
		Before	11029	10478	11009	11580	
		Before-Master	-----	-----	-20	-----	
LS Window Ratio		Master	1.0000		0.3006		
		Before	0.3006	0.2856	0.3039	0.3156	
		Before-Master	-----	-----	0.0033	-----	
LS Window Sum	1/s	Master	1		1229		
		Before	1229	1168	1231	1291	
		Before-Master	-----	-----	2	-----	

HDRS Density Calibration - Photo-multiplier High Voltages

Master (EEPROM):		13:05:16 19-Sep-2016		Before (Measured):		06:31:28 28-Sep-2016	
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Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
BS PM High Voltage	V	Master	-----	1000	1447	2400	
		Before		1000	1451	2400	
		Before-Master		-100	4	100	
SS PM High Voltage	V	Master	-----	1000	1401	2400	
		Before		1000	1411	2400	
		Before-Master		-100	10	100	
LS PM High Voltage	V	Master	-----	1000	1469	2400	
		Before		1000	1472	2400	
		Before-Master		-100	3	100	

HDRS Density Calibration - Crystal Quality Resolutions							
Master (EEPROM):		13:05:16 19-Sep-2016		Before (Measured):		06:31:28 28-Sep-2016	
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
BS Crystal Resolution	%	Master	-----	5.00	11.77	25.00	
		Before		5.00	11.75	25.00	
		Before-Master		-1.00	-0.02	1.00	
SS Crystal Resolution	%	Master	-----	5.00	10.16	20.00	
		Before		5.00	10.46	20.00	
		Before-Master		-1.00	0.30	1.00	
LS Crystal Resolution	%	Master	-----	5.00	8.17	20.00	
		Before		5.00	7.75	20.00	
		Before-Master		-1.00	-0.42	1.00	

HDRS MCFL Calibration - MCFL Accumulations							
Before (Measured):		06:32:50 28-Sep-2016					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Main Resistivity	ohm.m	Before	3875	3565	3884	4185	
Deep Resistivity	ohm.m	Before	3830	3524	3782	4136	
Shallow Resistivity	ohm.m	Before	3830	3524	3691	4136	

HGNS-H (HILT Gamma-Ray and Neutron Sonde, 150 degC) Calibration - Run One			
Primary Equipment :			
HILT Gamma-Ray and Neutron Sonde, 150 degC	HGNS-H	2987	
Auxiliary Equipment :			
HGNS Accelerometer, 150 degC	HACCZ-H	6991	
AmBe Neutron Logging Source	NSR-F	5068	
Calibration Parameter :			
Water Temperature			
Housing Size			
JIG-BKG (Jig minus background reference)	165		

HGNS Accelerometer Calibration - Accelerometer Accumulations							
Before (Measured):		16:10:31 28-Sep-2016					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
AZ Vertical Measurement	ft/s2	Before	32.2	31.5	32.1	32.8	

HGNS Accelerometer EEPROM - Accelerometer EEPROM Read							
Master (EEPROM):		00:00:00 15-May-2007					
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	-----	-----	-4298.000	-----	
Accelerometer Coefficients - 1		Master	-----	-----	50.180	-----	
Accelerometer Coefficients - 2		Master	-----	-----	-0.002	-----	
Accelerometer Coefficients - 3		Master	-----	-----	0.000	-----	
Accelerometer Coefficients - 4		Master	-----	-----	2.754	-----	
Accelerometer Coefficients - 5		Master	-----	-----	0.000	-----	
Accelerometer Coefficients - 6		Master	-----	-----	0.000	-----	

Accelerometer Coefficients - 7		Master	-----	-----	0.000	-----		
Accelerometer Coefficients - 8		Master	-----	-----	300.500	-----		
Accelerometer Coefficients - 9		Master	-----	-----	0.994	-----		

## HGNS Neutron Calibration - HGNS Neutron Accumulations

Master (EEPROM):		15:25:00 19-Jul-2016		Before (Measured):		06:28:08 28-Sep-2016			
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div></div>		
Near Zero Measurement	1/s	Master	0	5.0	27.6	40.0	<div></div>		
		Before	0	5.0	27.9	40.0	<div></div>		
		Before-Master	----	-4.1	0.3	4.1	<div></div>		
Far Zero Measurement	1/s	Master	0	5.0	29.5	40.0	<div></div>		
		Before	0	5.0	29.5	40.0	<div></div>		
		Before-Master	----	-4.4	0.0	4.4	<div></div>		
Near Plus Measurement	1/s	Master	6031.0	4700.0	5290.0	6900.0	<div></div>		
		Before	----	----	----	----	<div></div>		
		Before-Master	----	----	----	----	<div></div>		
Far Plus Measurement	1/s	Master	2793.0	1900.0	2194.0	2900.0	<div></div>		
		Before	----	----	----	----	<div></div>		
		Before-Master	----	----	----	----	<div></div>		
Near Corrected Plus Measurement	1/s	Master		4700.0	5156.0	6900.0	<div></div>		
		Before	----	----	----	----	<div></div>		
		Before-Master	----	----	----	----	<div></div>		
Far Corrected Plus Measurement	1/s	Master		1900.0	2097.0	2900.0	<div></div>		
		Before	----	----	----	----	<div></div>		
		Before-Master	----	----	----	----	<div></div>		

## HGNS Gamma-Ray Calibration - Gamma-Ray Accumulations

Before (Measured):		06:32:43 28-Sep-2016						
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit		
RGR Zero Measurement	gAPI	Before	30.0	0	83.7	120.0		
RGR Plus Measurement	gAPI	Before	185.4	157.1	180.0	206.3		
GR Calibration Gain		Before	0.89	0.80	0.92	1.05		



Company:	Bonanza Creek	Schlumberger
Well:	State Seventy Holes J-18	
Field:	Wattenberg	
County:	Weld	
State:	Colorado	
Platform Express		
Triple Combo		