

Company: NGL Water Solutions DJ LLC

Well: NGL C5A

Field: Wattenberg

County: Weld Country: USA

Platform Express
Triple Combo

County:	Weld			
Field:	Wattenberg			
Location:	S25-R2N-T64W			
Well:	NGL C5A			
Company:	NGL Water Solutions DJ LLC			
Location:		Permanent Datum:	Ground Level	Elev.:
Log Measured From:		Kelly Bushing		16.00 ft
Drilling Measured From:		Kelly Bushing		above Perm.Datum
API Serial No.	05-123-40973	Max.Hole Deviation	0 deg	Longitude:
				0.00000000 degrees
				Latitude:
				0.00000000 degree
Logging Date	09-Oct-2015			

Run Number	One		
Depth Driller	9385.00 ft		
Schlumberger Depth	9385.00 ft		
Bottom Log Interval	9385.00 ft		
Top Log Interval	16.00 ft		
Casing Driller Size @ Depth	9.625 in @ 1023.00 ft		
Casing Schlumberger	1031 ft		
Bit Size	8.75 in		
Type Fluid In Hole	Water		
Density	10 lbm/gal	15 s	
Fluid Loss	PH 7 cm3	9.5	
MUD	Source of Sample	Active Tank	
RM @ Meas Temp	0.17 ohm.m	@ 106 degF	
RMF @ Meas Temp	0.13 ohm.m	@ 106 degF	
RMC @ Meas Temp	0.26 ohm.m	@ 106 degF	
Source RMF	RMC	Pressed	
RM @ BHT	0.08 @ 230	0.06 @ 230	
Max Recorded Temperatures	230 degF		
Circulation Stopped	09-Oct-2015	08:30:00	
Logger on Bottom	09-Oct-2015	18:24:00	
Unit Number	9115	Fort Morgan	
Recorded By	Danijl Kholin		
Witnessed By	Red Berge		

Disclaimer

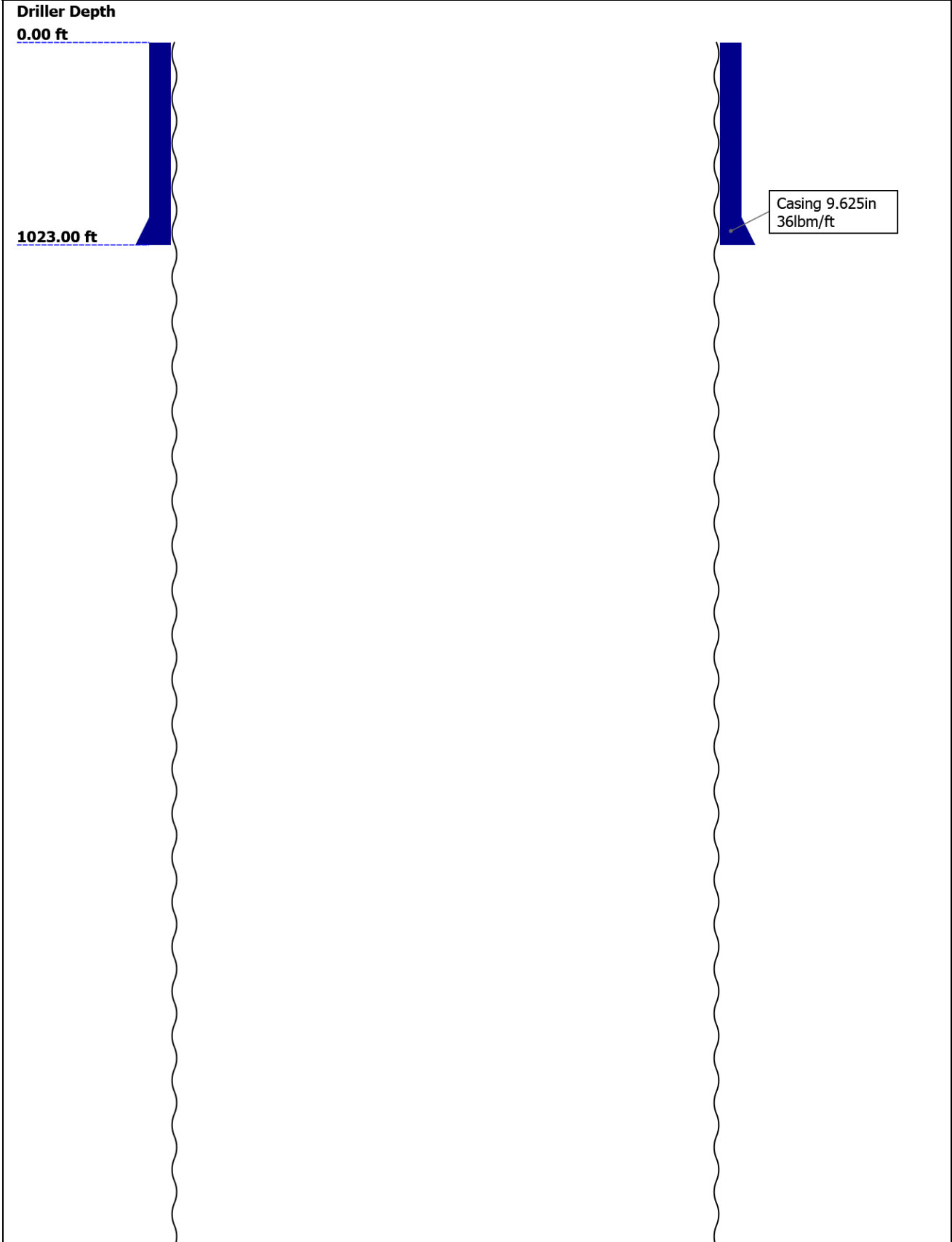
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Well Sketch



9385.00 ft

Open Hole 8.75in

Borehole Size/Casing/Tubing Record

Bit						
Bit Size (in)	8.75					
Top Driller (ft)	0					
Top Logger (ft)	0					
Bottom Driller (ft)	9385					
Bottom Logger (ft)	9385					
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)	1023					
Bottom Logger (ft)	1031					

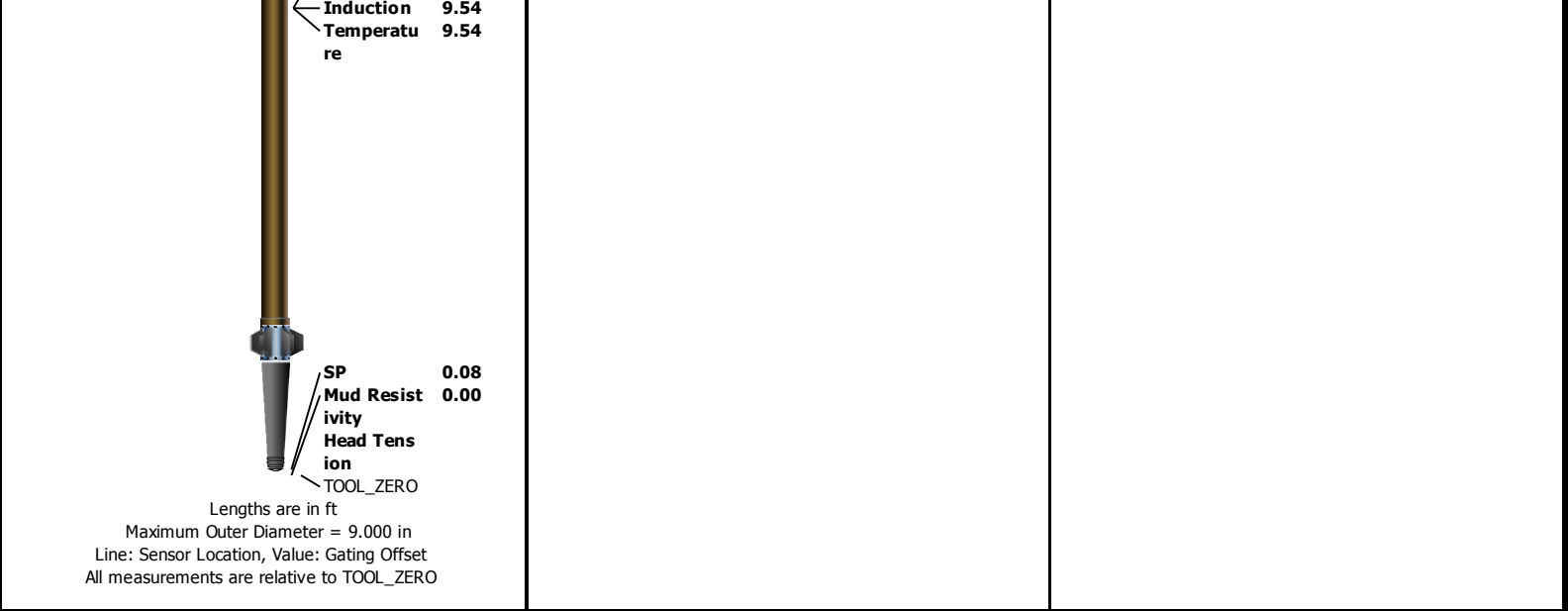
Borehole Fluids

Parameter(unit)	One					
Fluid Type	Water					
Max Recorded Temperatures (degF)	230					
Source of Sample	Active Tank					
Salinity (ppm)	0					
Density (lbm/gal)	10					
Funnel Viscosity (s)	15					
Fluid Loss (cm3)	7					
PH	9.5					
Date/Time Circulation Stopped	09-Oct-2015 08:30:00					
Date Logger on Bottom	09-Oct-2015					
Time Logger on Bottom	18:24:00					
Source RMF						
RMC	Pressed					
RM @ Meas Temp (ohm.m@degF)	0.17 @ 106					
RMF @ Meas Temp (ohm.m@degF)	0.13 @ 106					

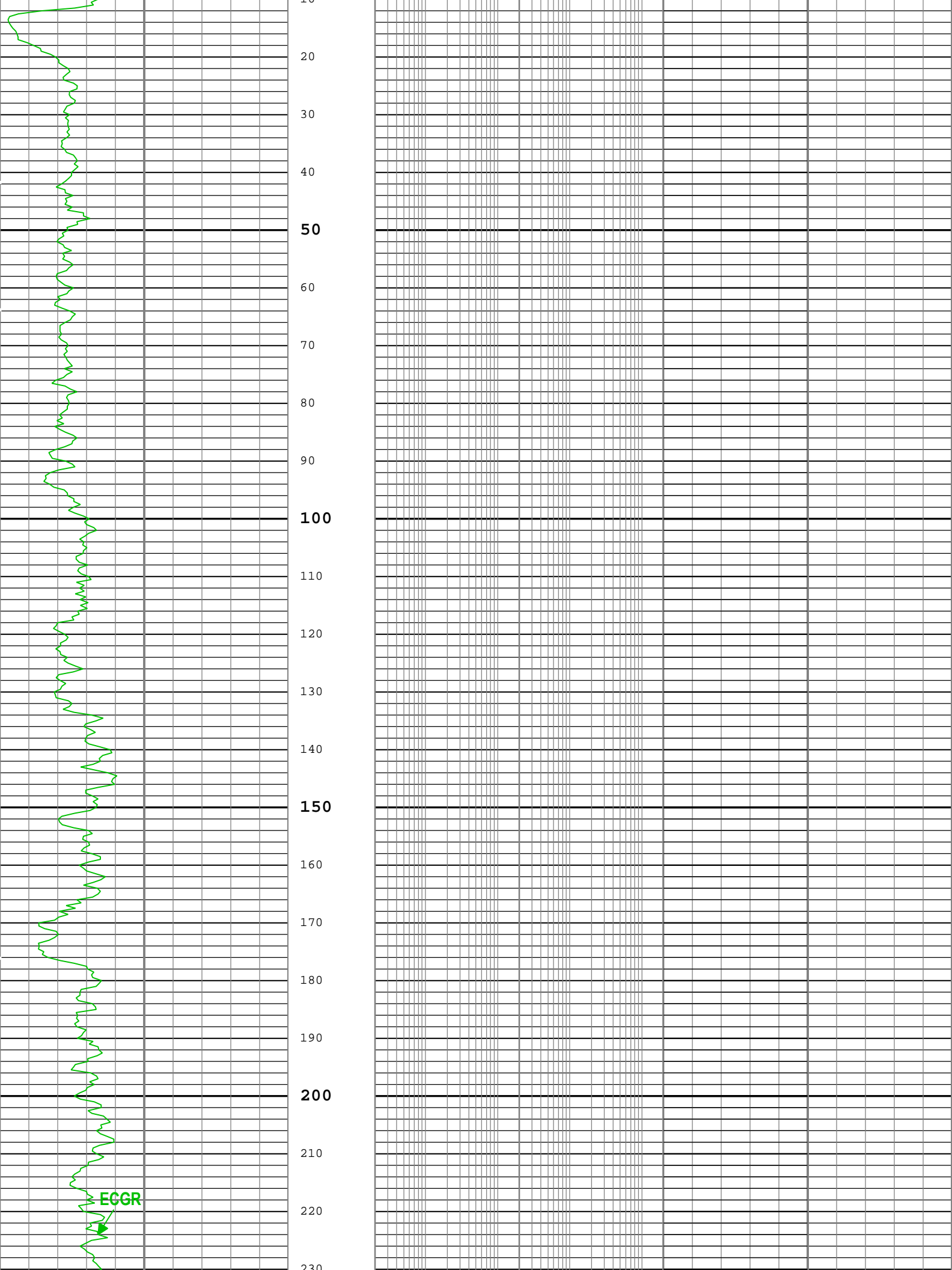
RMC @ Meas Temp (ohm.m@degF)	0.26 @ 106					
RM @ BHT (ohm.m@degF)	0.08 @ 230					
RMF @ BHT (ohm.m@degF)	0.06 @ 230					
RMC @ BHT (ohm.m@degF)	0.12 @ 230					
Total Solid (%)						
High Gravity Solids (%)						

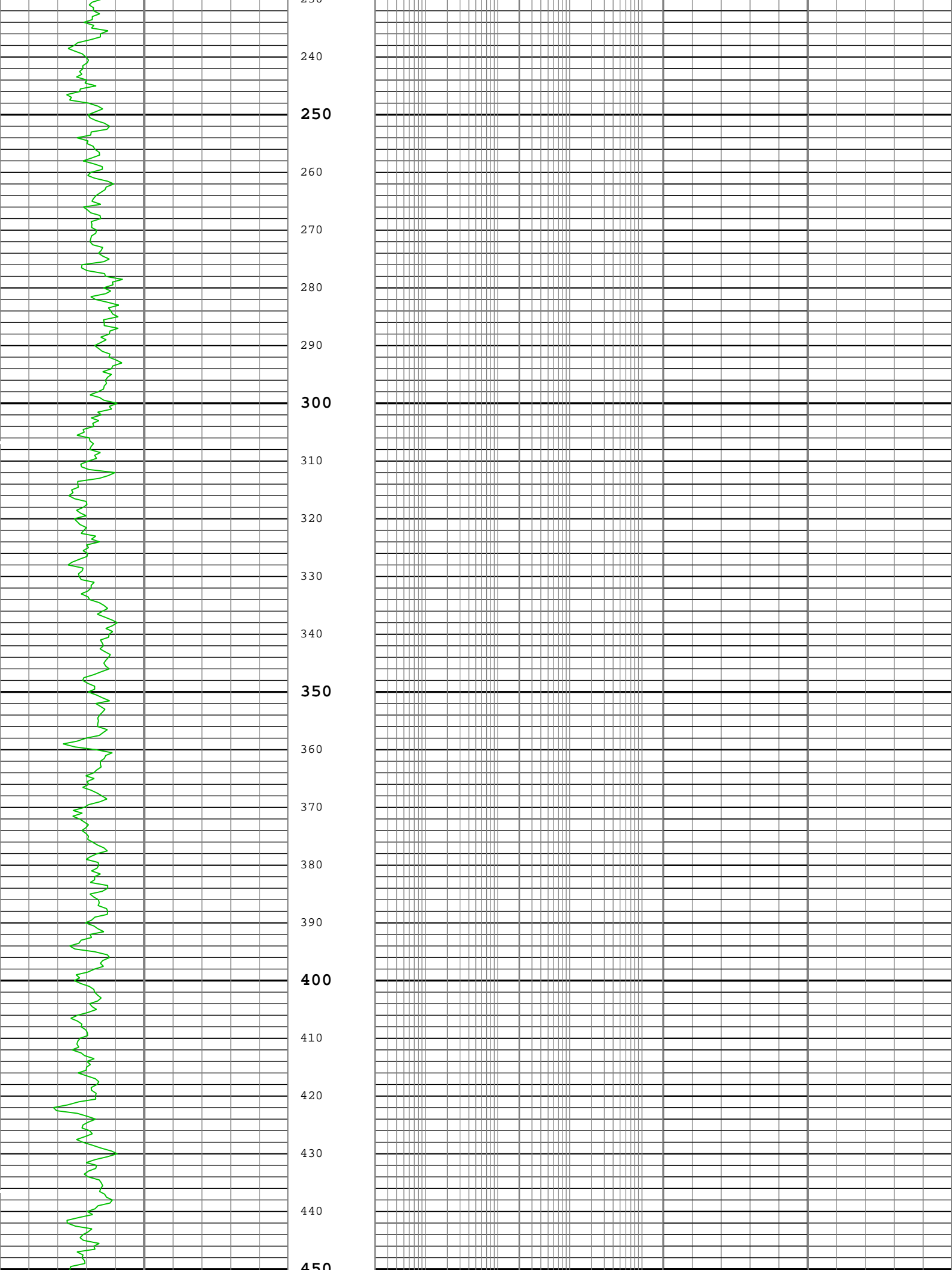
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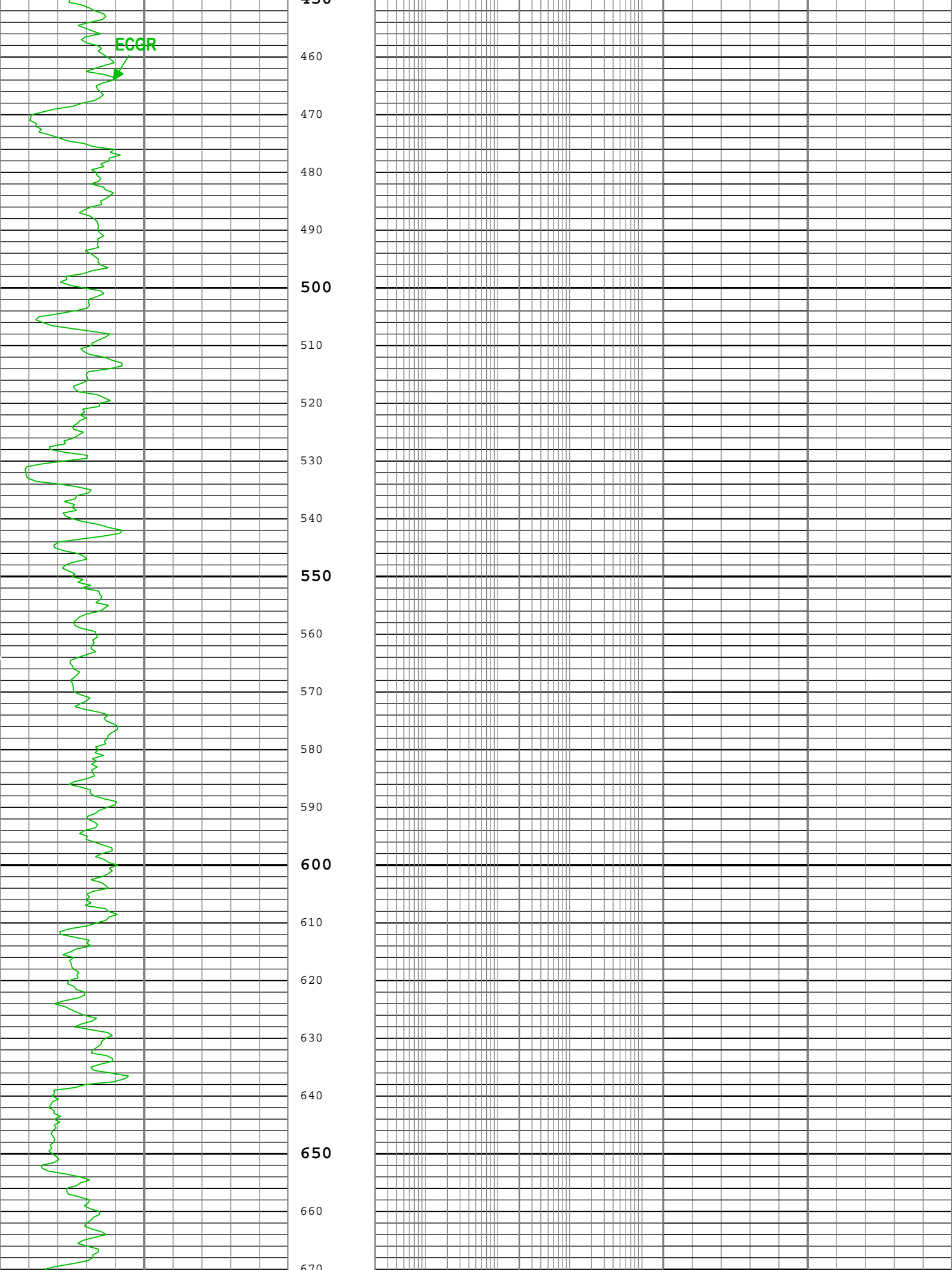
One: Toolstring				One: Remarks	
Equip name LEH-QT LEH-QT	Length 45.19	MP name	Offset	Standoffs and bowspring taken off due to hole conditions per co-man's request	
DTC-H ECH-KC DTC-H	42.28	CTEM HV	41.38	MATR: SS, 2.65 g/cc: 0-7332'	
			0.00	LS, 2.71 g/cc: 7332-7600'	
HGNS-H:4779 HGNH:3826 NPV-N NSR-F:5215 HGNS-H:4779 HMCA-H HACCZ-H:5736	39.28	TelStatus ToolStatus Temperature GR	39.27	CSG: 0-1031, 9.625", 36#	
			39.27		
			39.25		
			38.53		
HDRS-H:4775 ECH-MEB:3827 HRCC-H:4823 HRMS-H:4775 HRGD-H:5788 Long Spacing Backscatter Short Spacing GSR-J:5094 GPV-Q	29.87	CNL Porosity HMCA HGNS Accelerometer	32.2		
			29.87		
			29.87		
			0.00		
AIT-M:50 AMIS:50 AMHF	17.62	HRCC MCFL Caliper TLD Density	25.87		
			20.43		
			19.95		
		Power Supply	9.54		

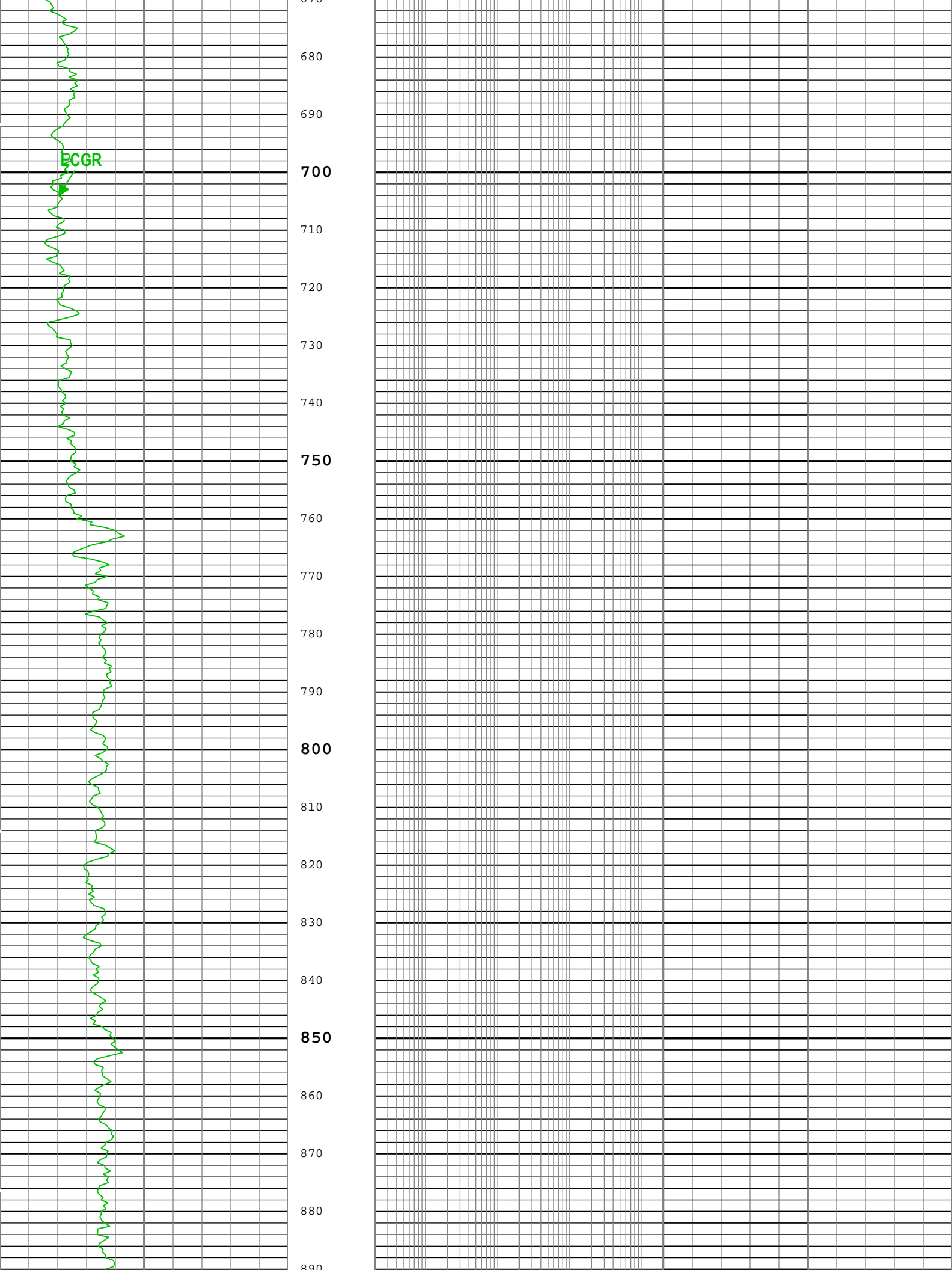


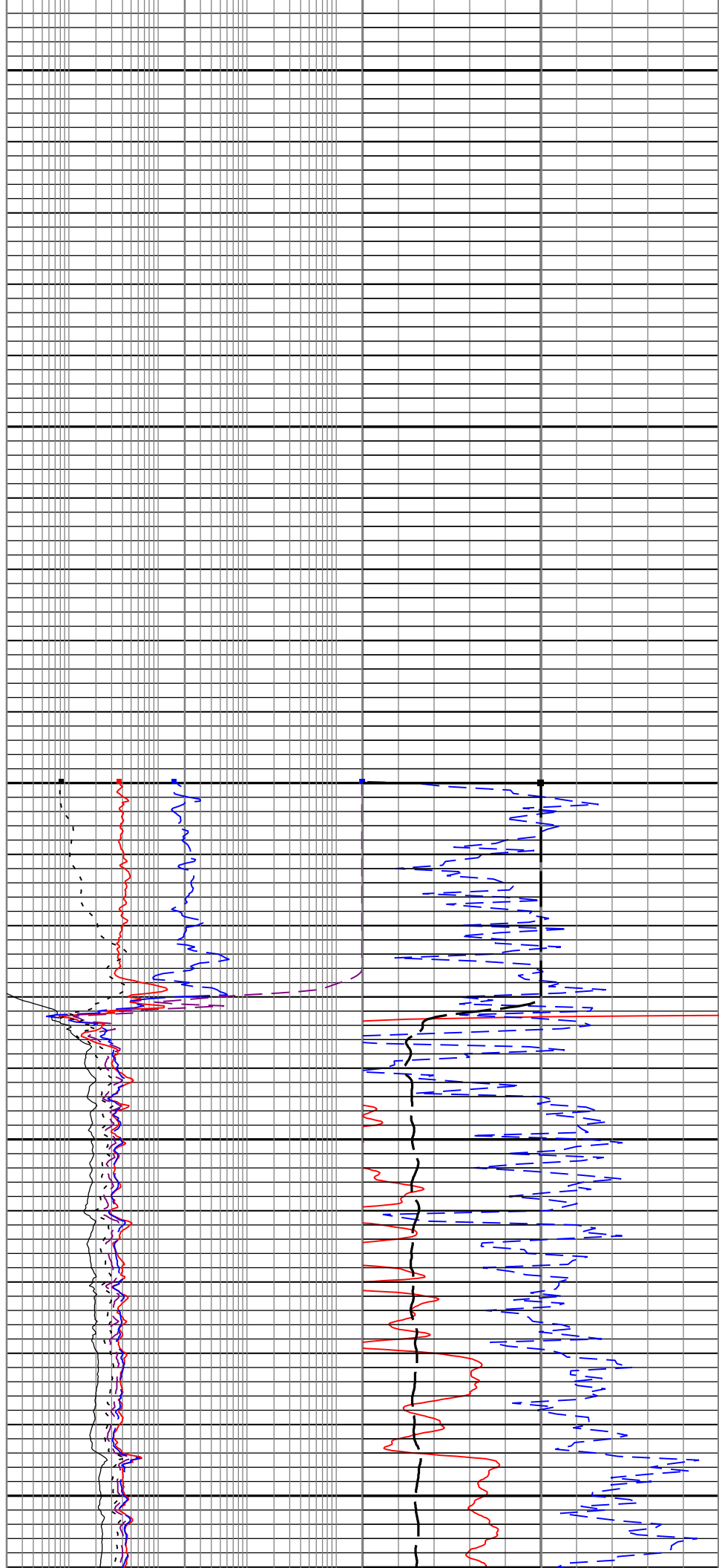
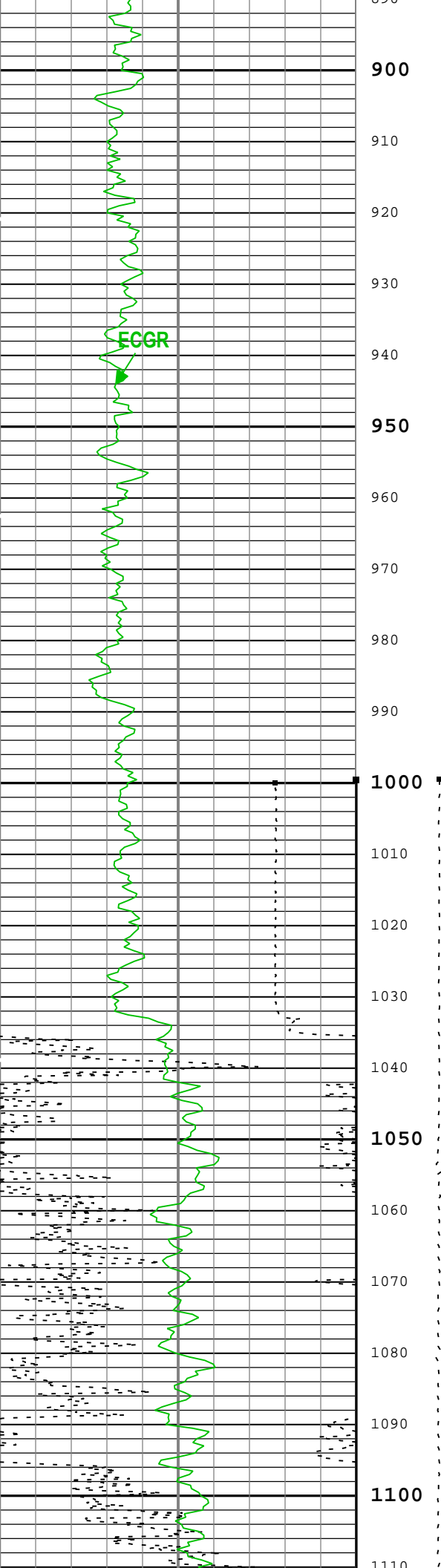
Depth Summary			
One			
Depth Measuring Device			
Type	IDW-B		
Serial Number	6042		
Calibration Date	25-sep-2015		
Calibrator Serial Number	33		
Calibration Cable Type	7-46 AXS		
Wheel Correction 1	-4		
Wheel Correction 2	-1		
Tension Device			
Type	CMTD-B/A		
Serial Number	147		
Calibration Date	04-sep-2015		
Calibrator Serial Number	78805		
Number of Calibration Points	10		
Calibration Root Mean Square Error	20		
Calibration Peak Error	10		
Logging Cable			
Type	7-46A-XS		
Serial Number			
Length	12000.00 ft		
Conveyance Type	Wireline		
Rig Type	Land		
One:Depth Control Parameters		Depth Control Remarks	
Log Sequence	First Log In the Well	All Schlumberger Depth Control Procedures followed	
Rig Up Length At Surface		IDW used as Primary Depth Control	
Rig Up Length At Bottom		Z-chart used as Secondary Depth Control	
Rig Up Length Correction			
Stretch Correction			
Tool Zero Check At Surface			

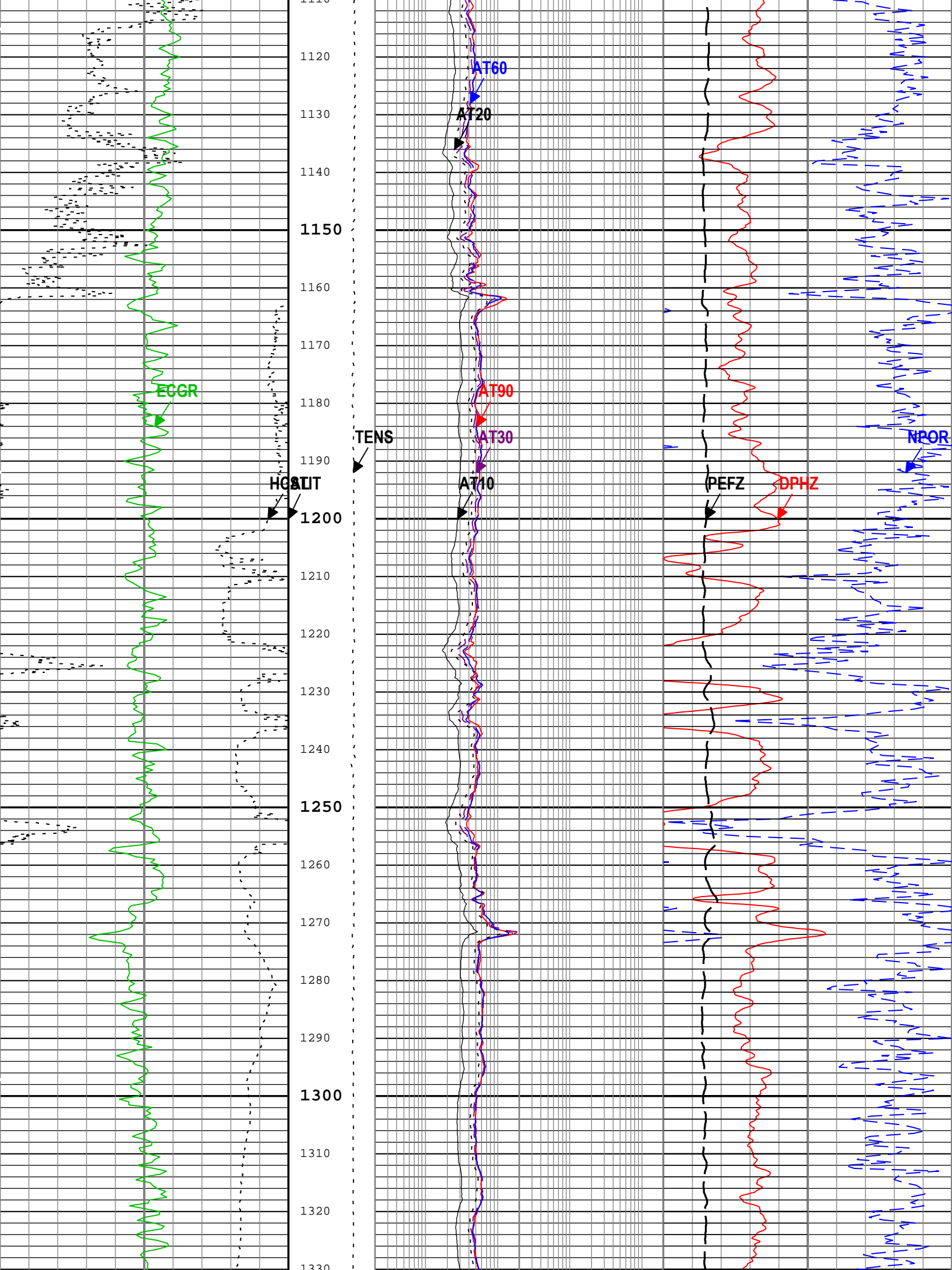


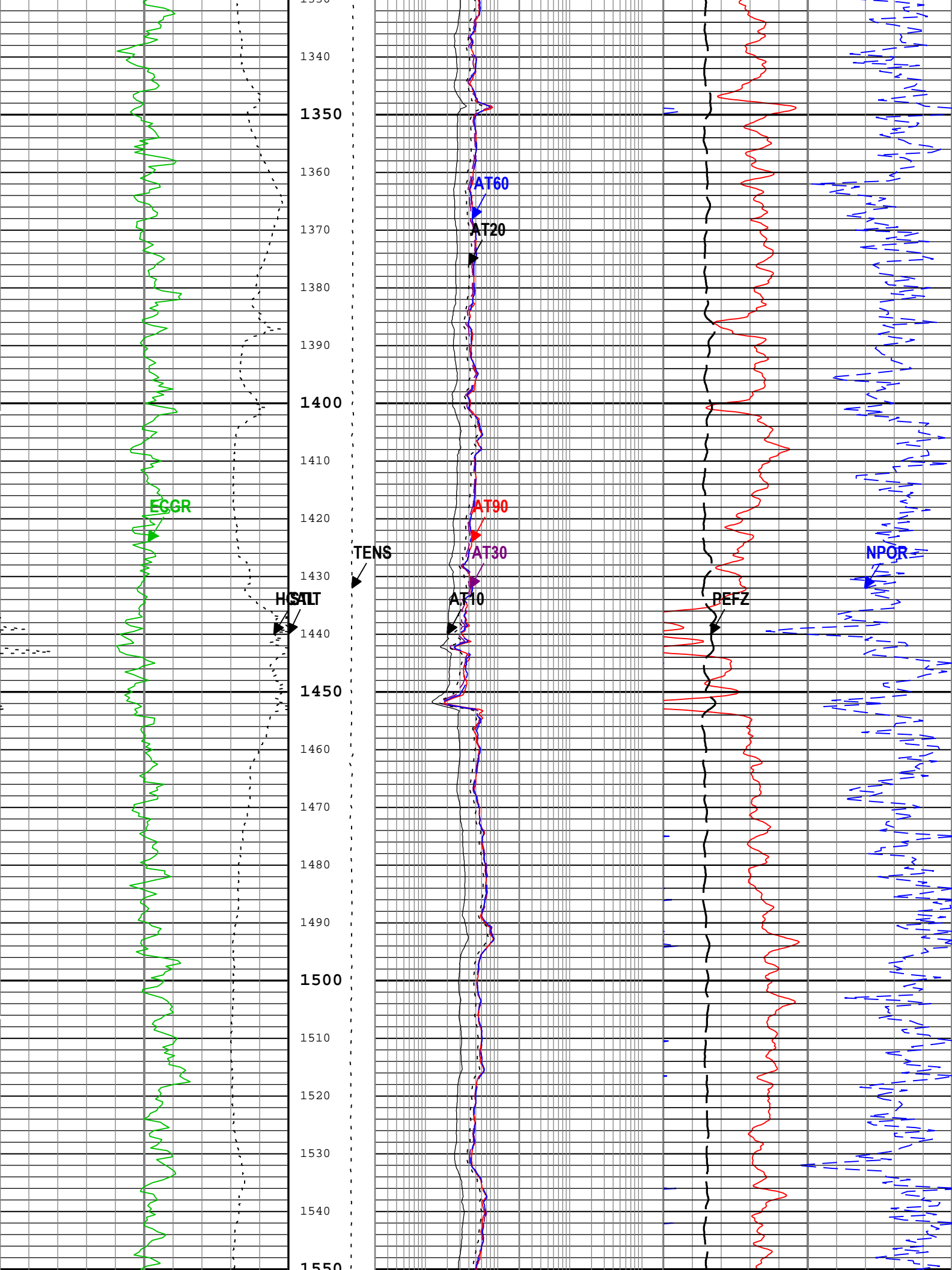


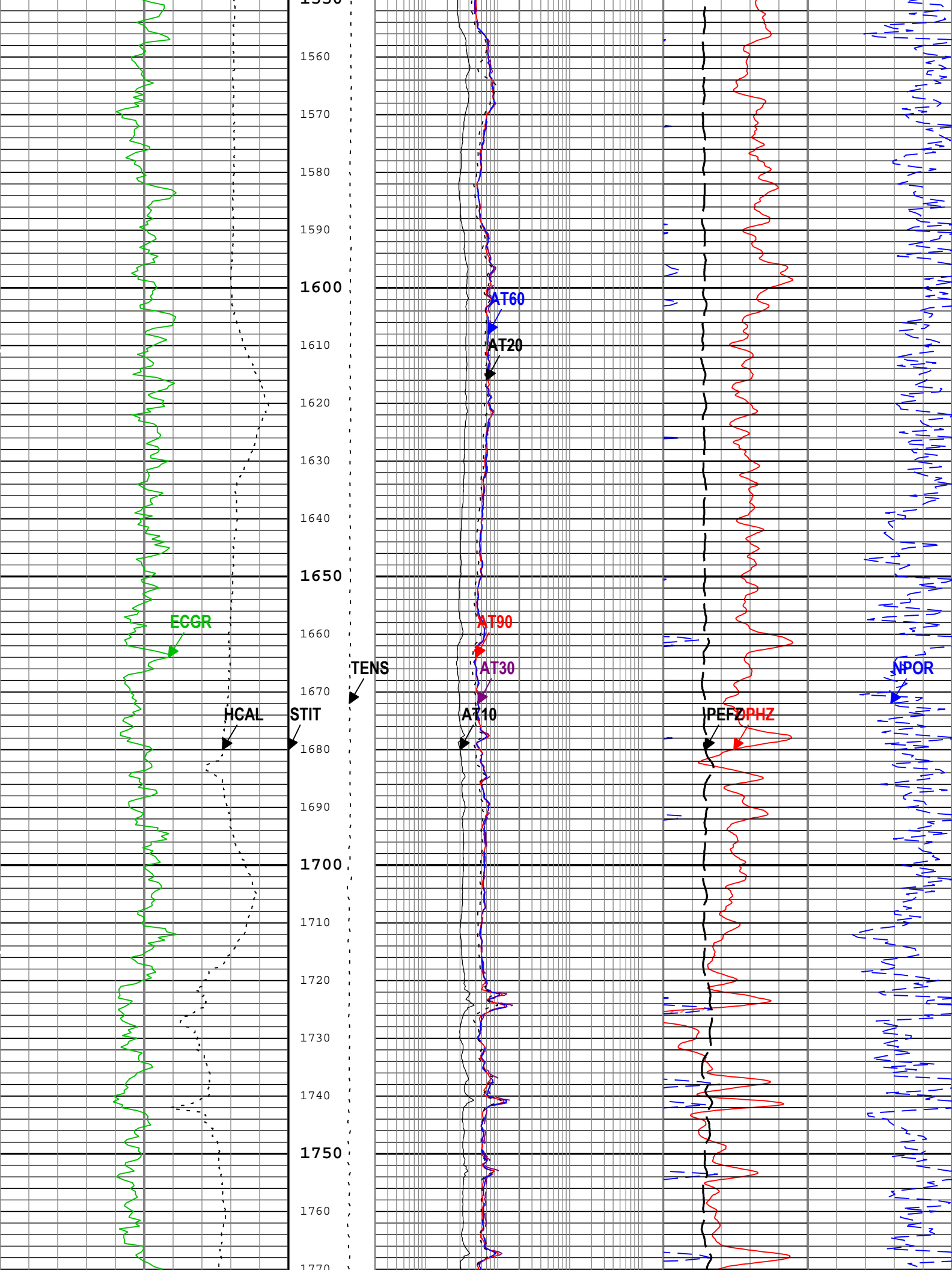


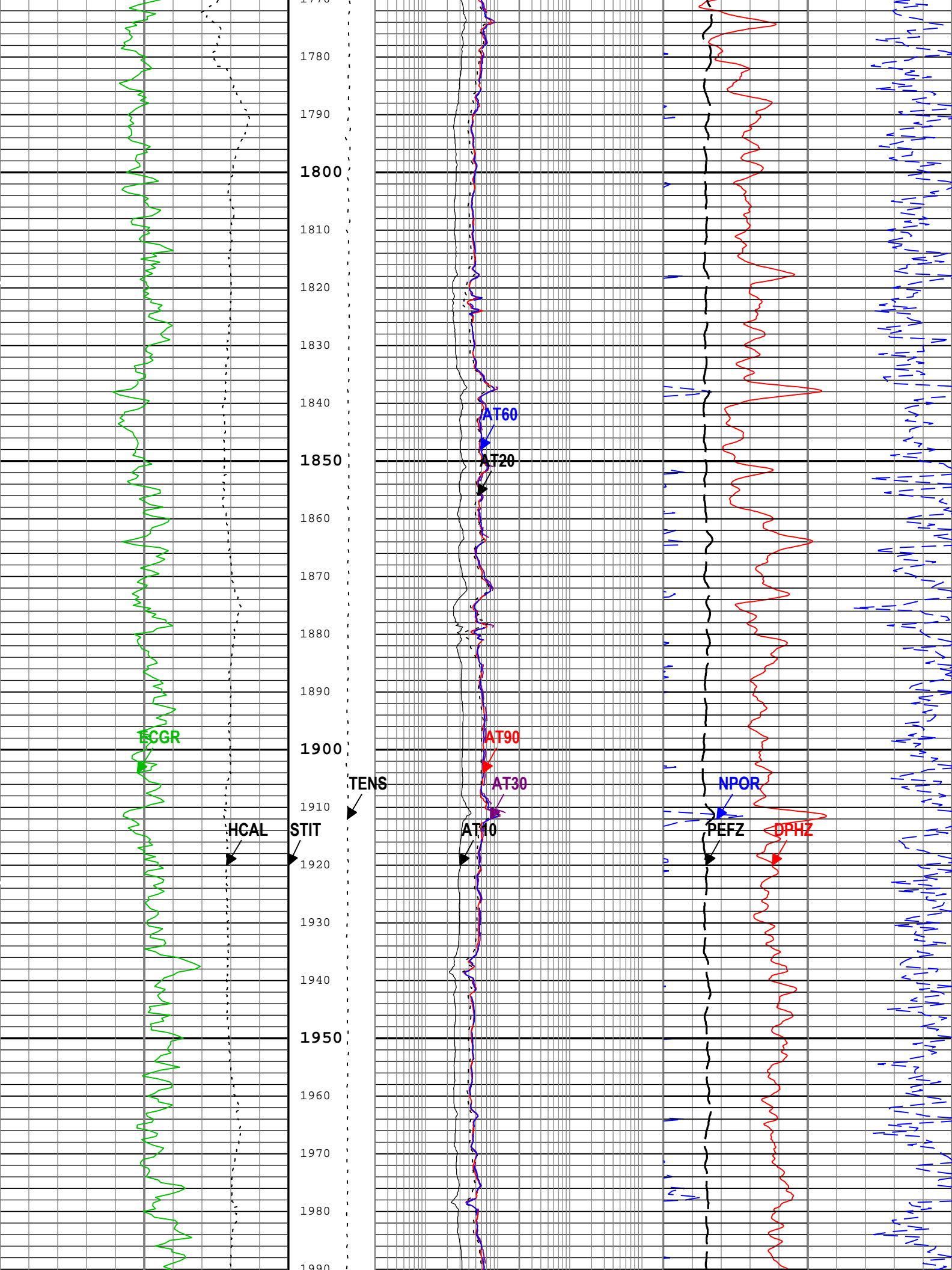


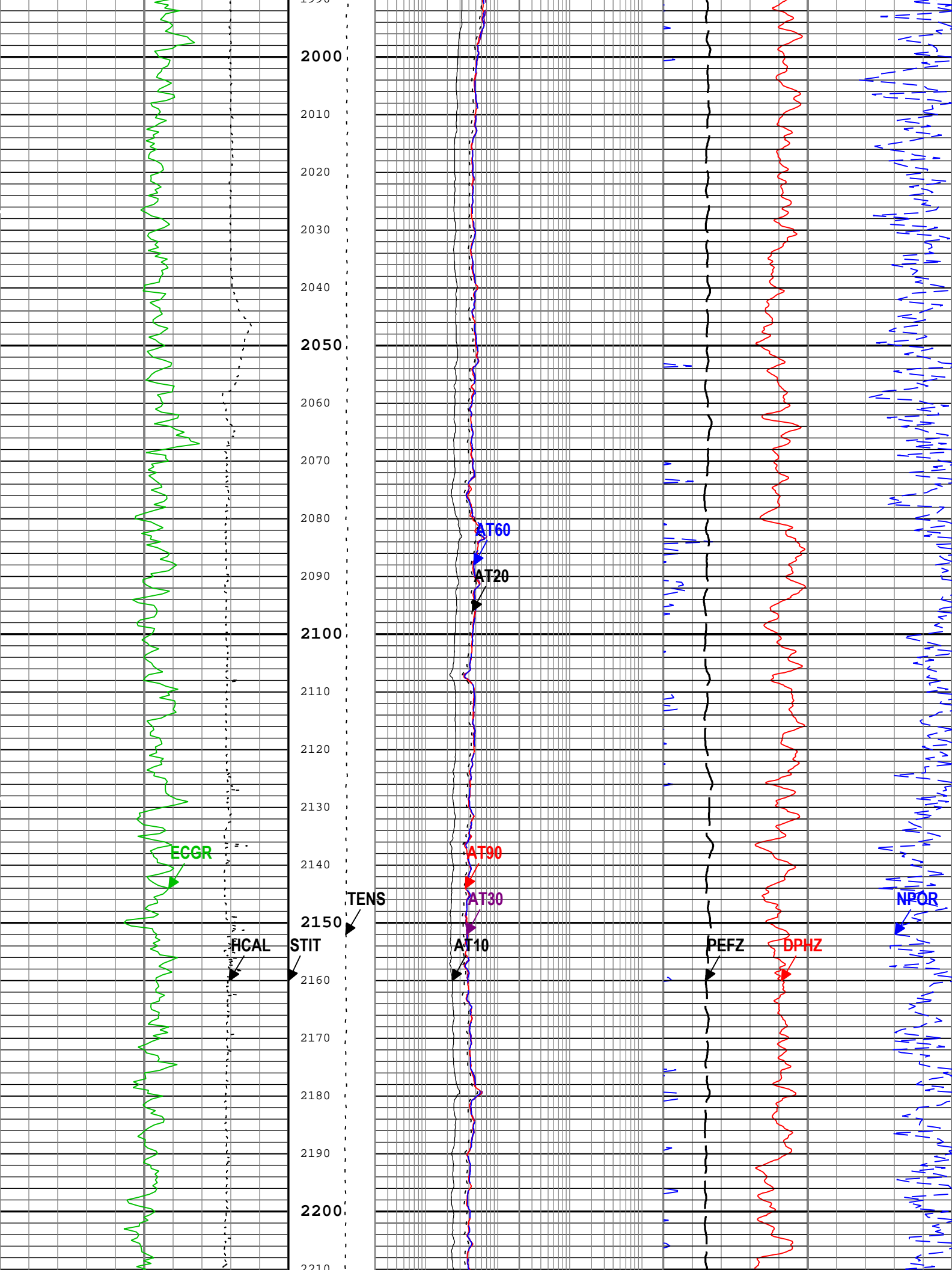


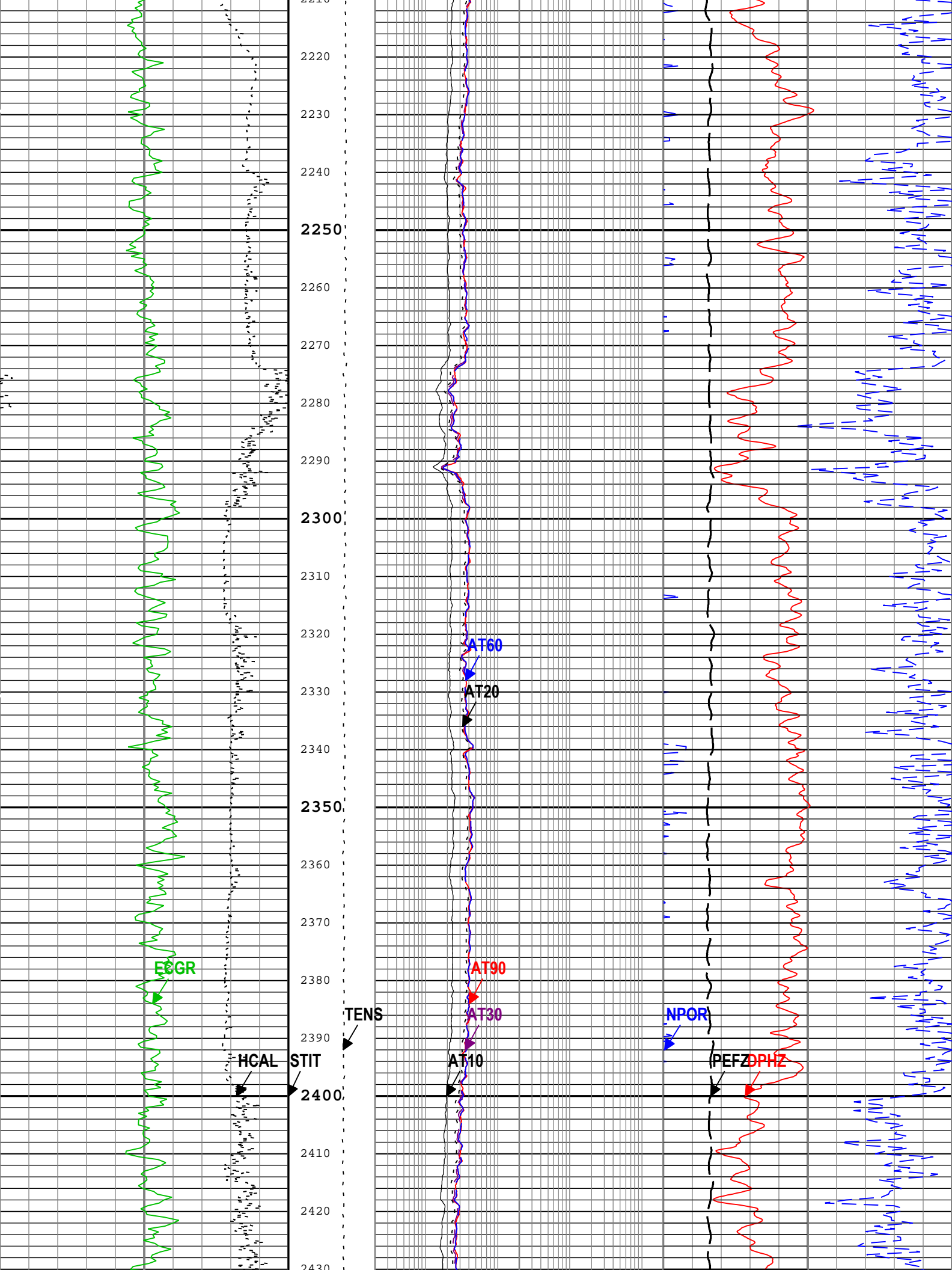


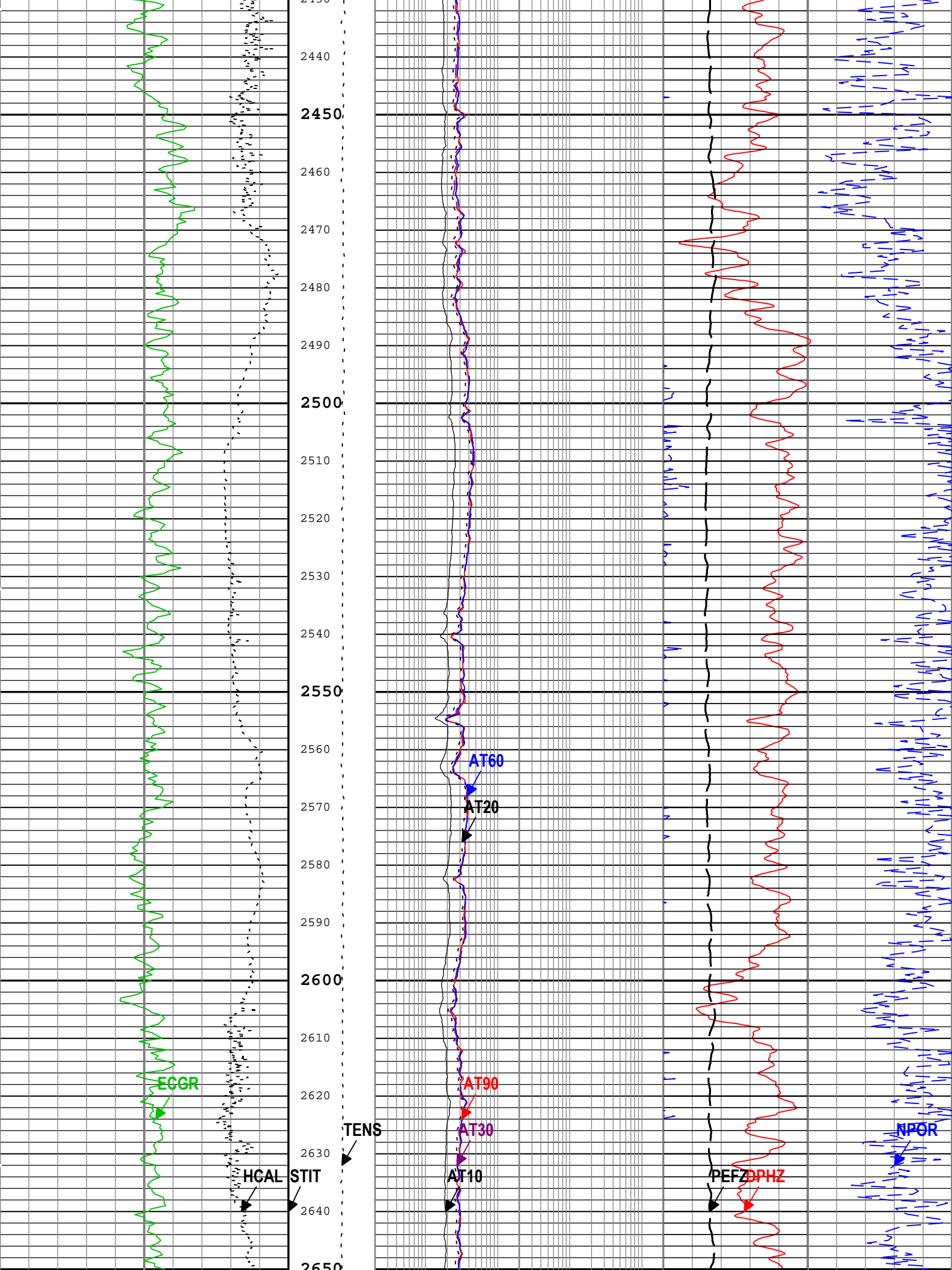


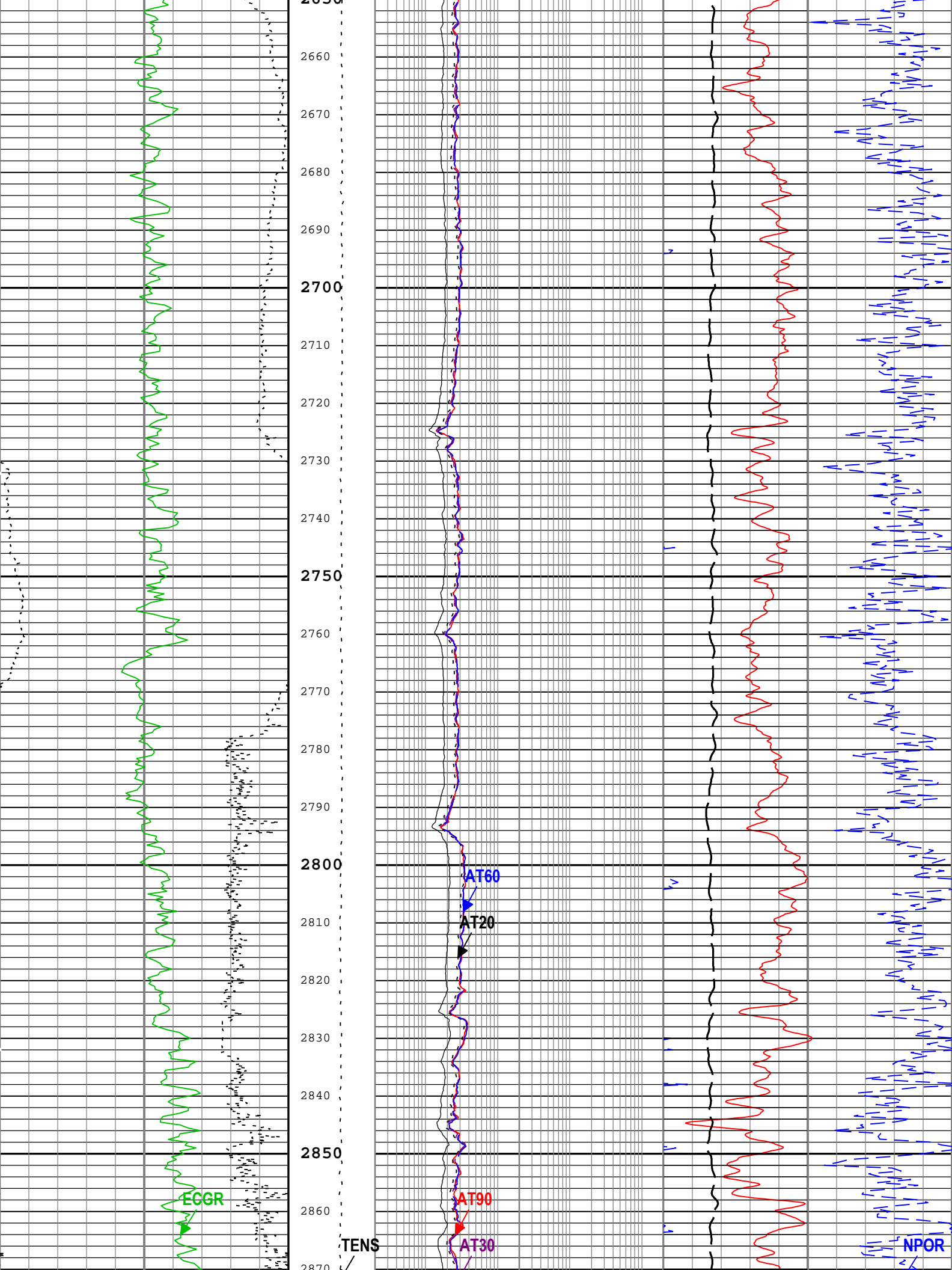


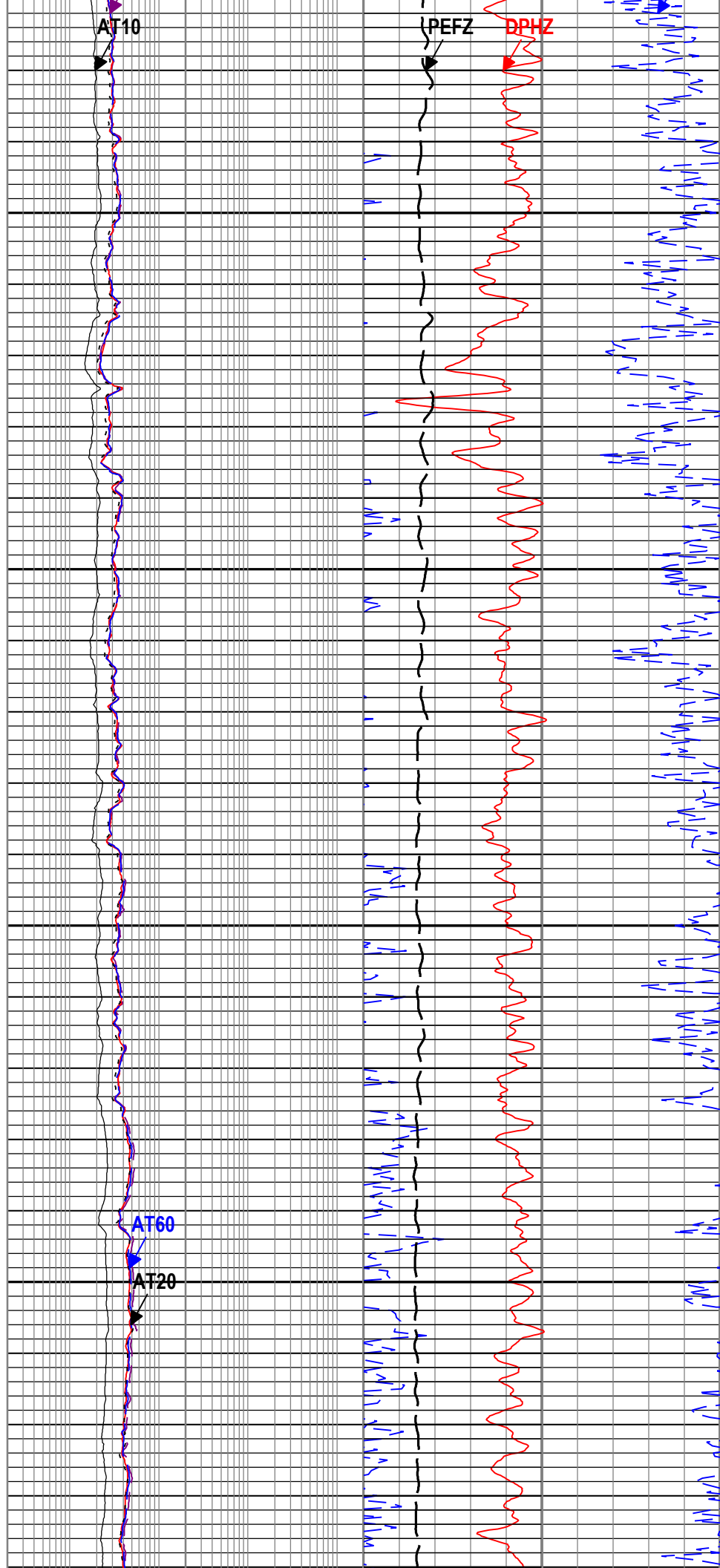
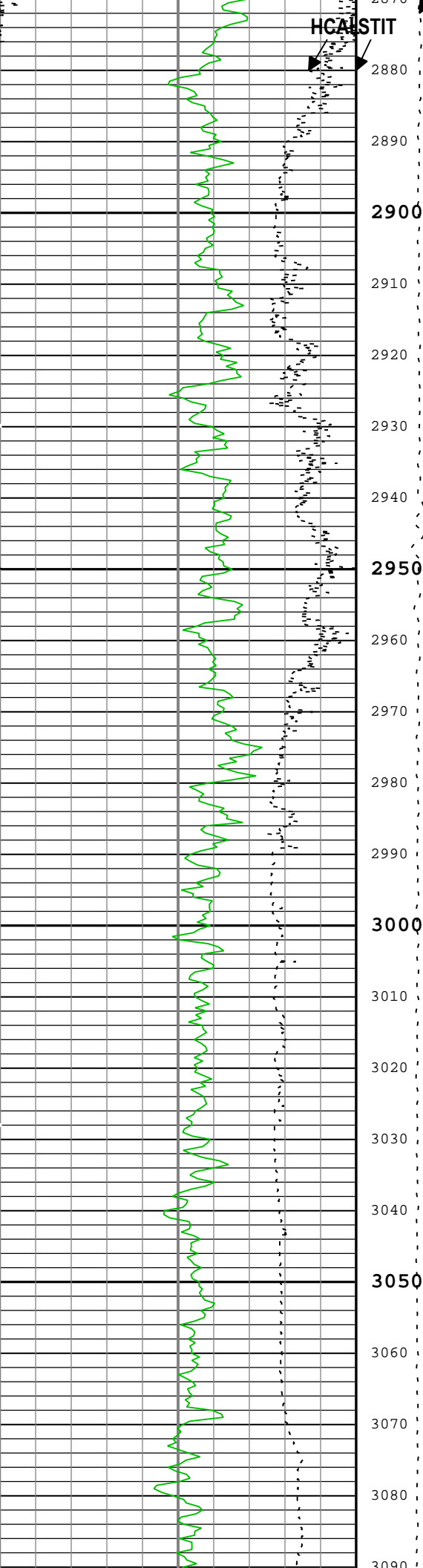


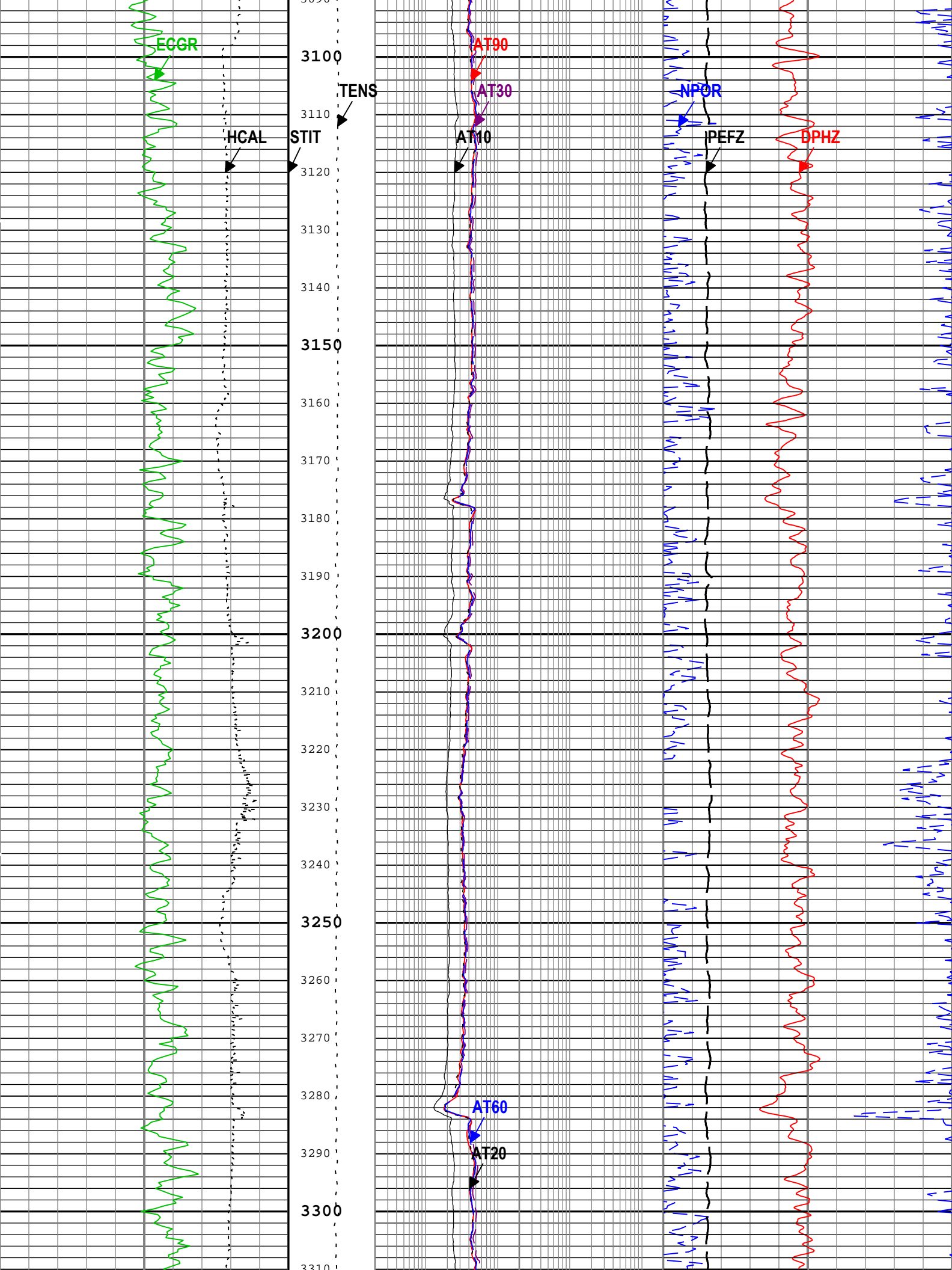


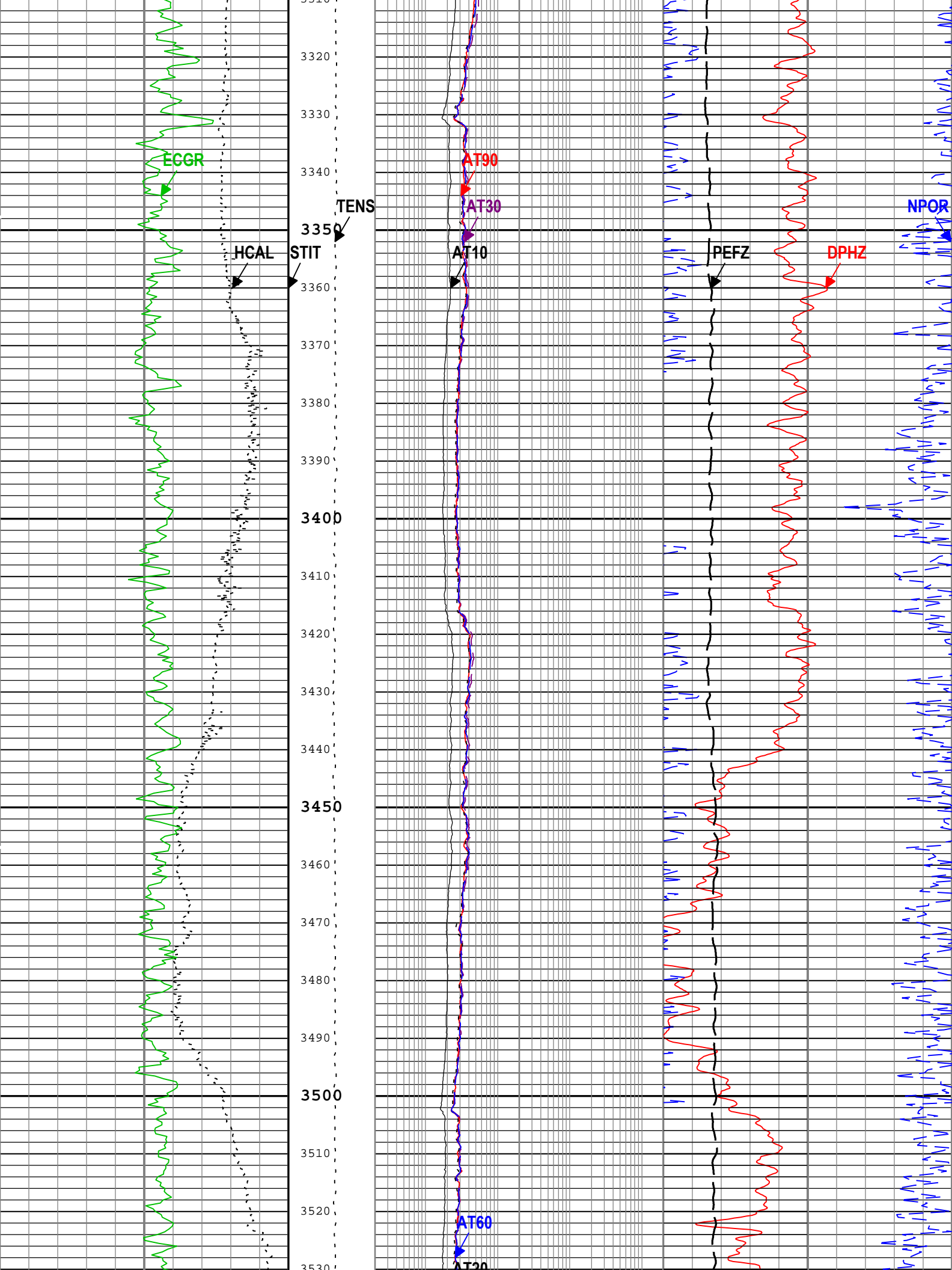


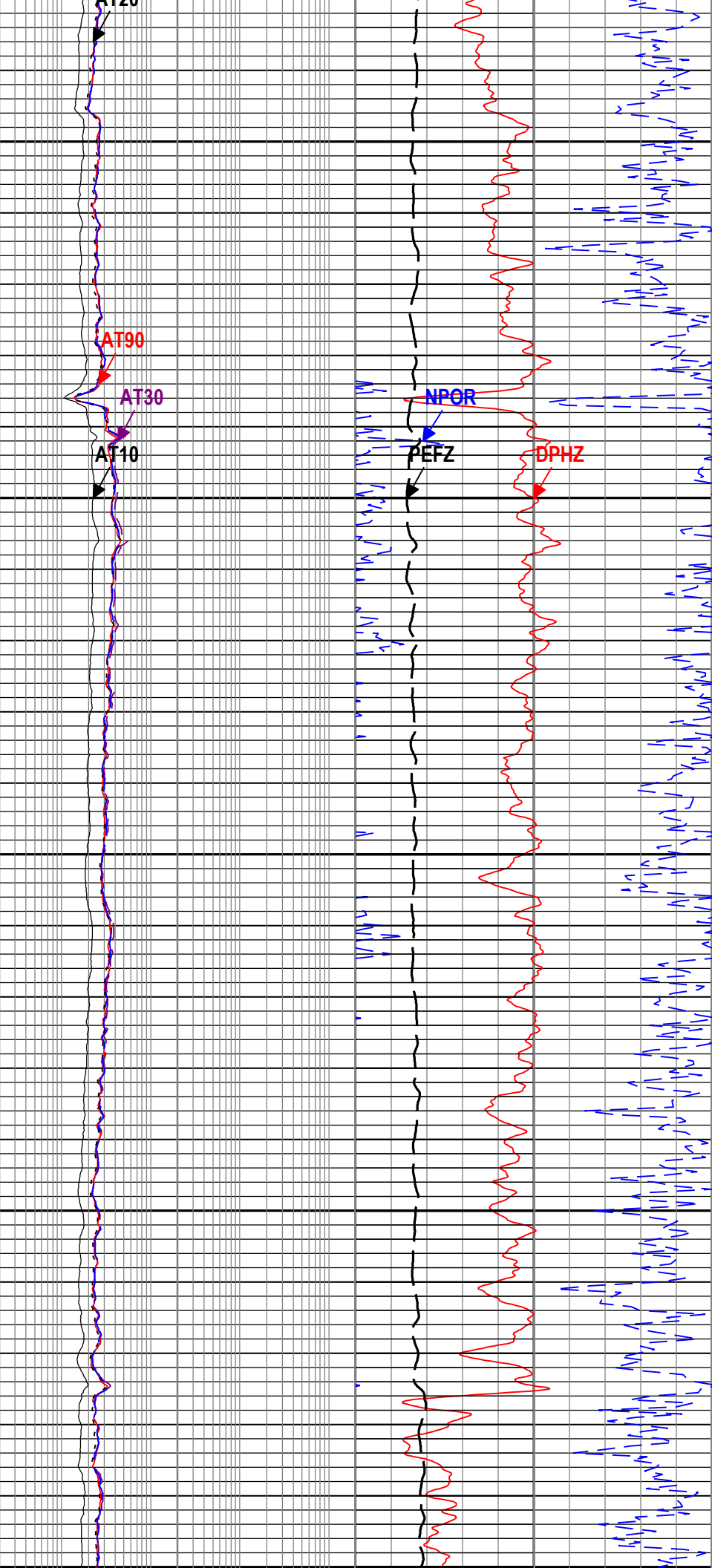
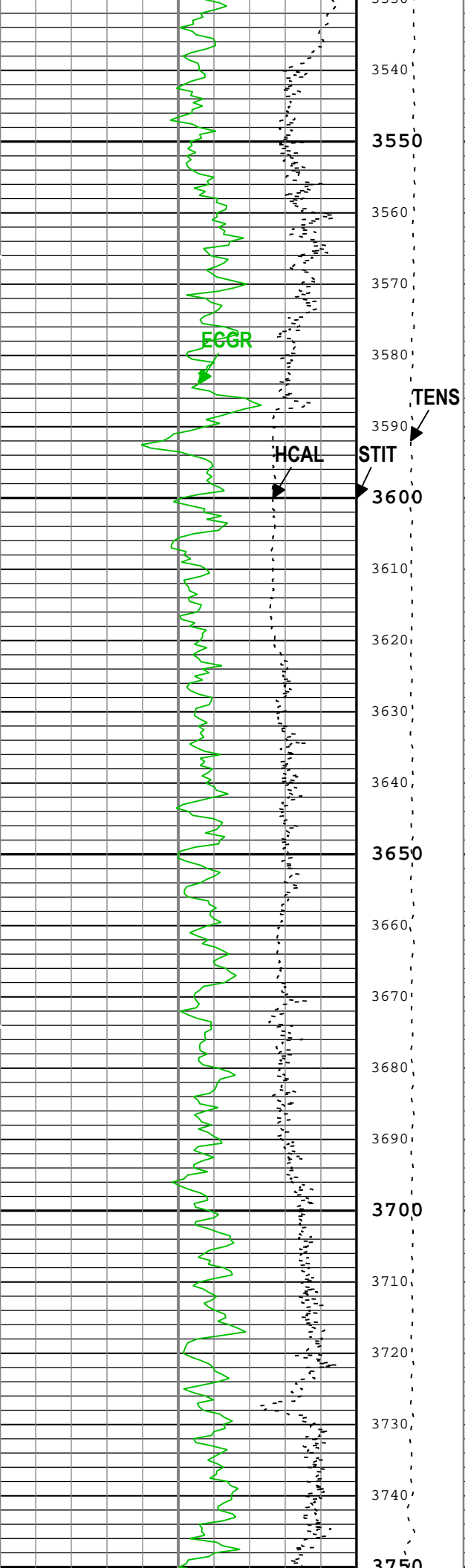


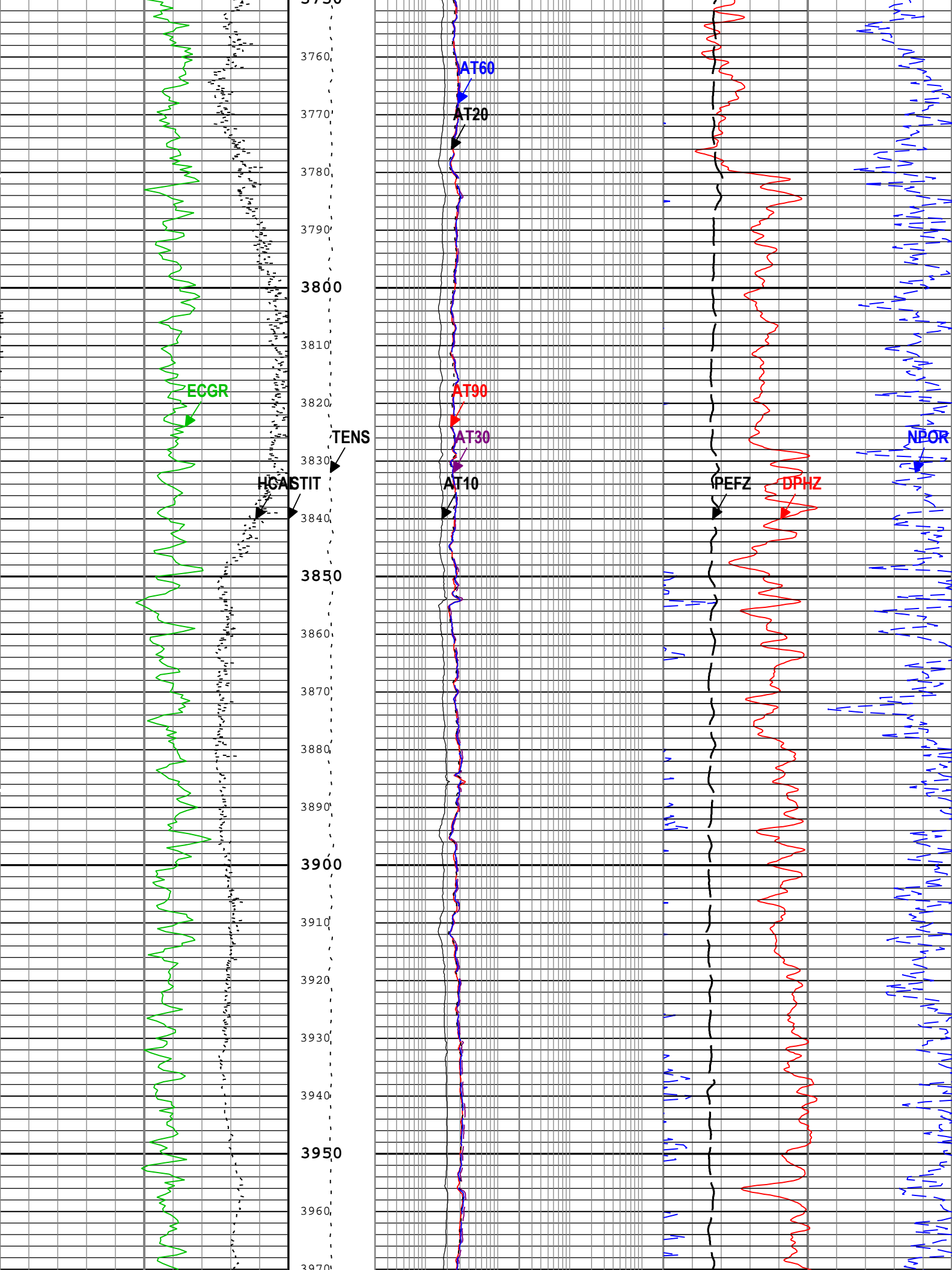


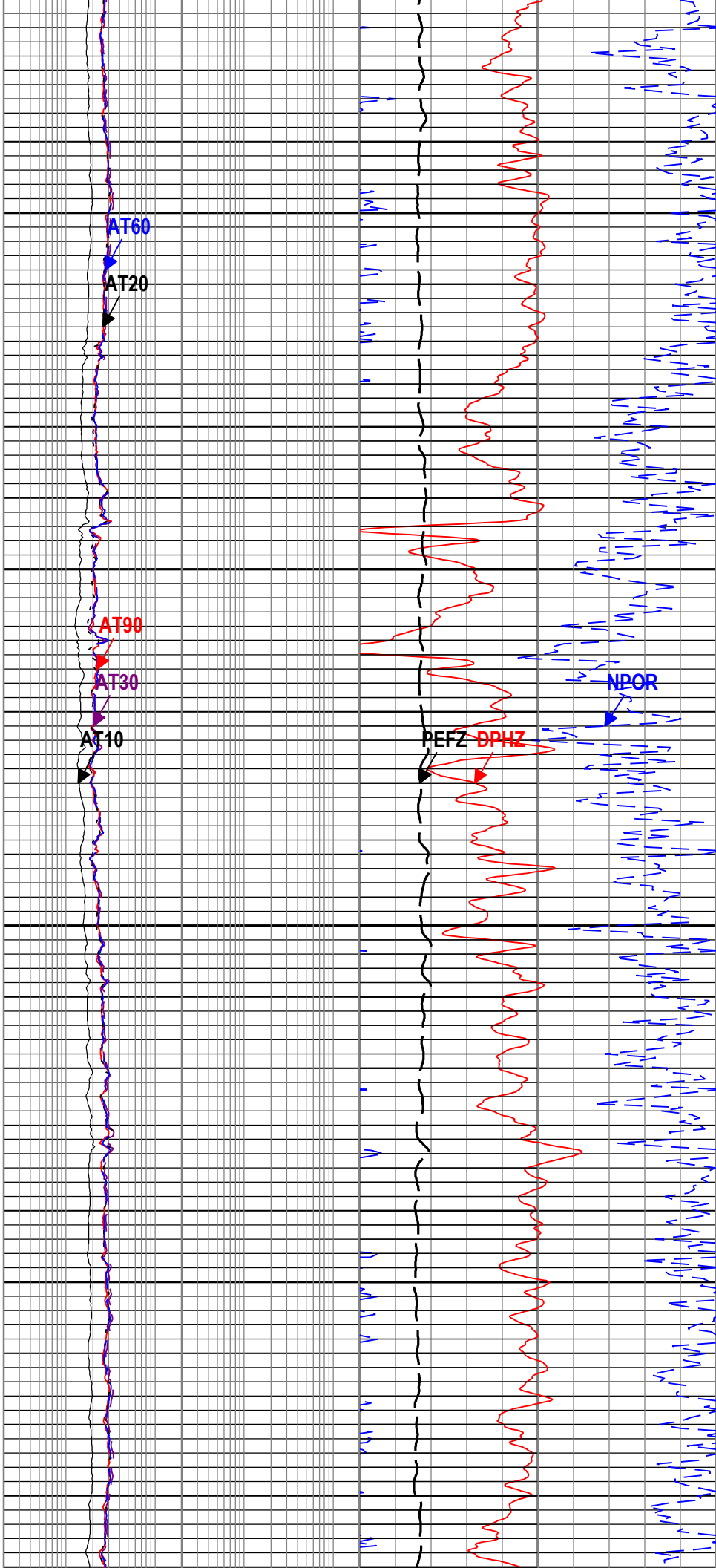
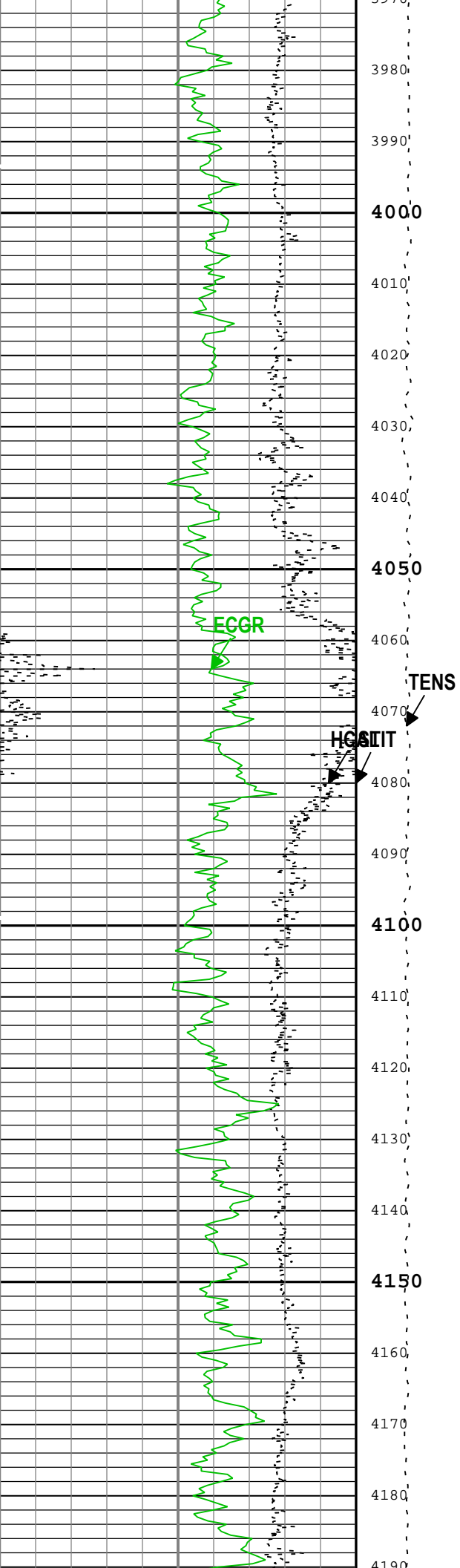


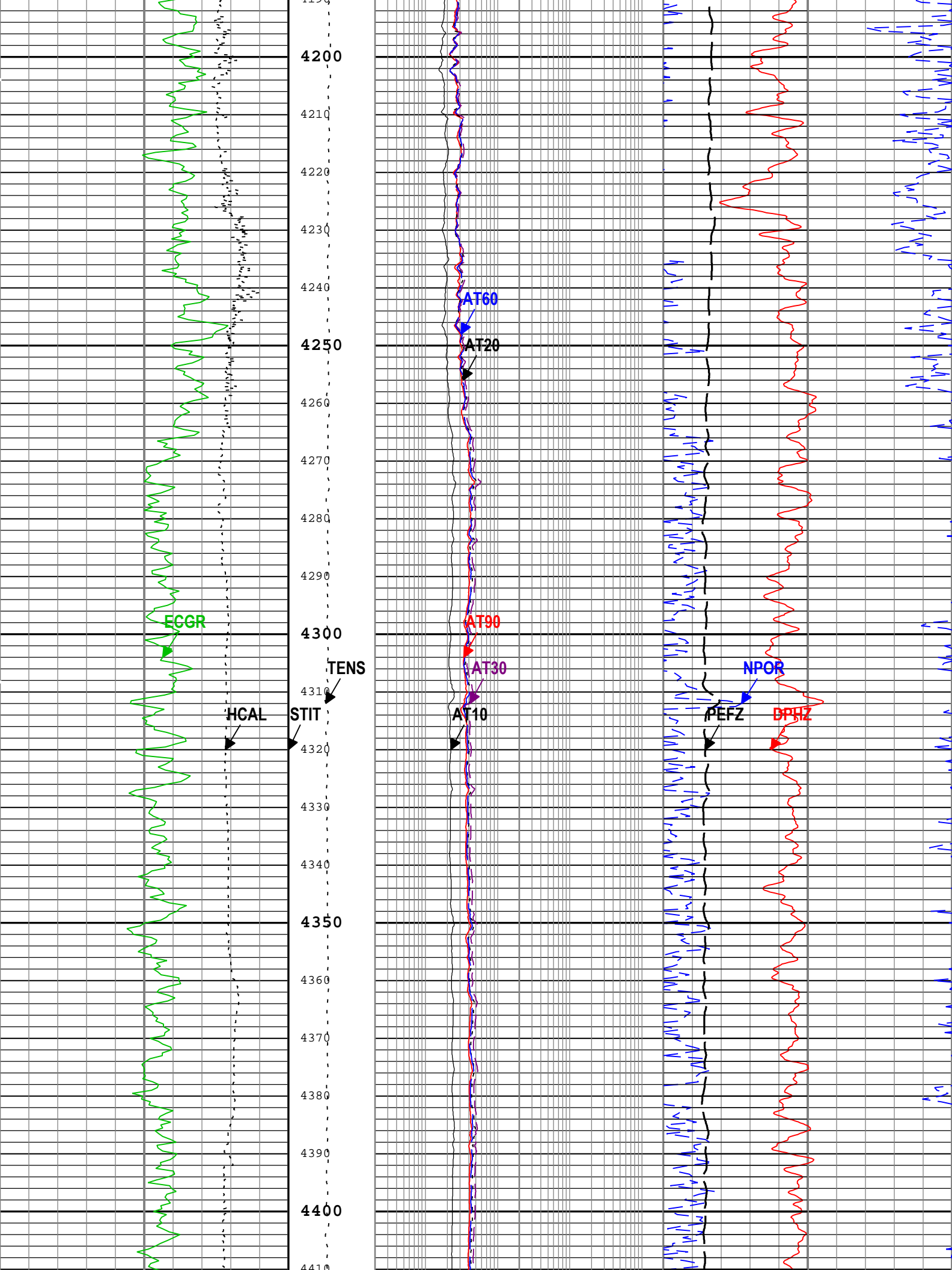


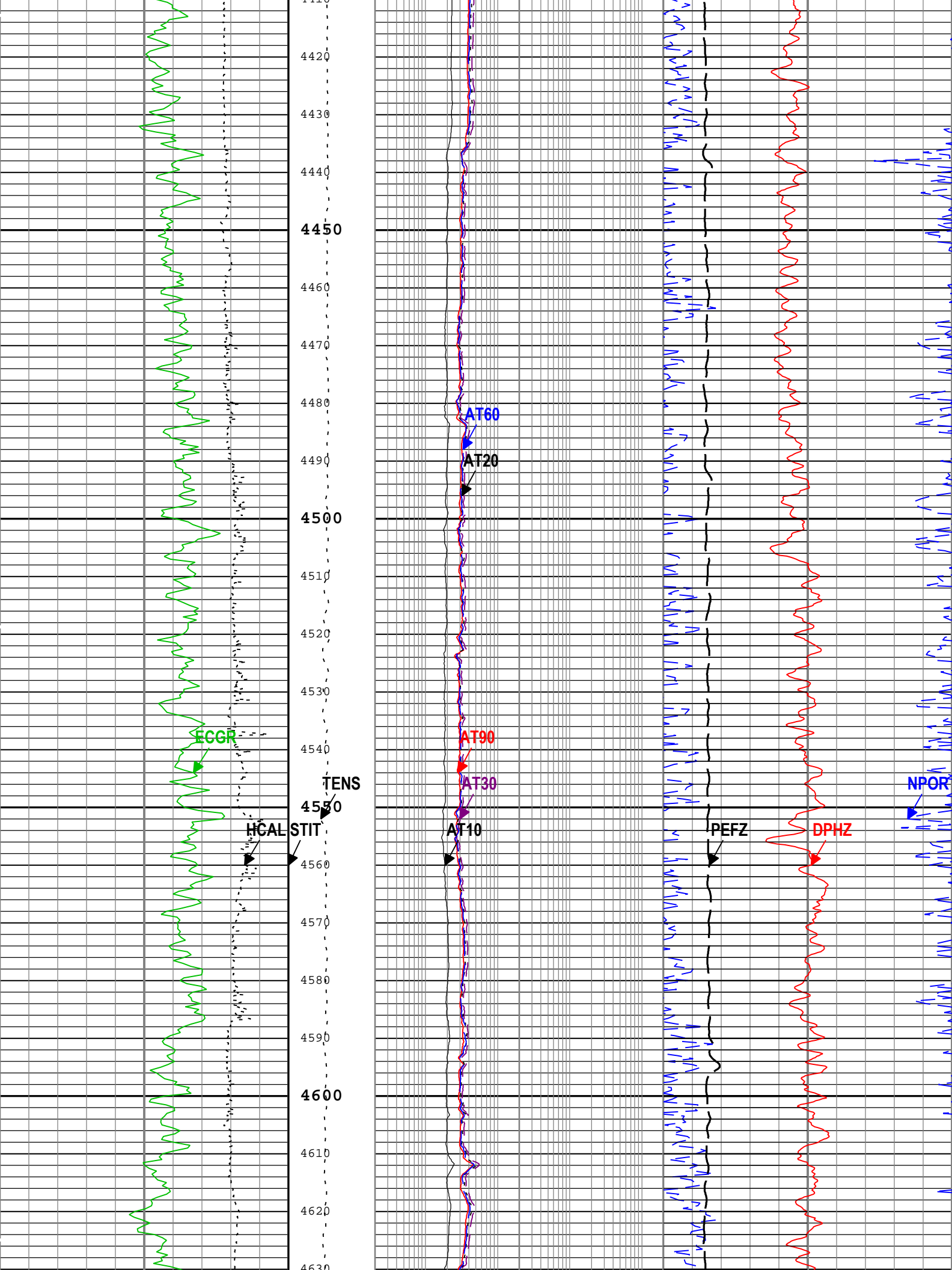


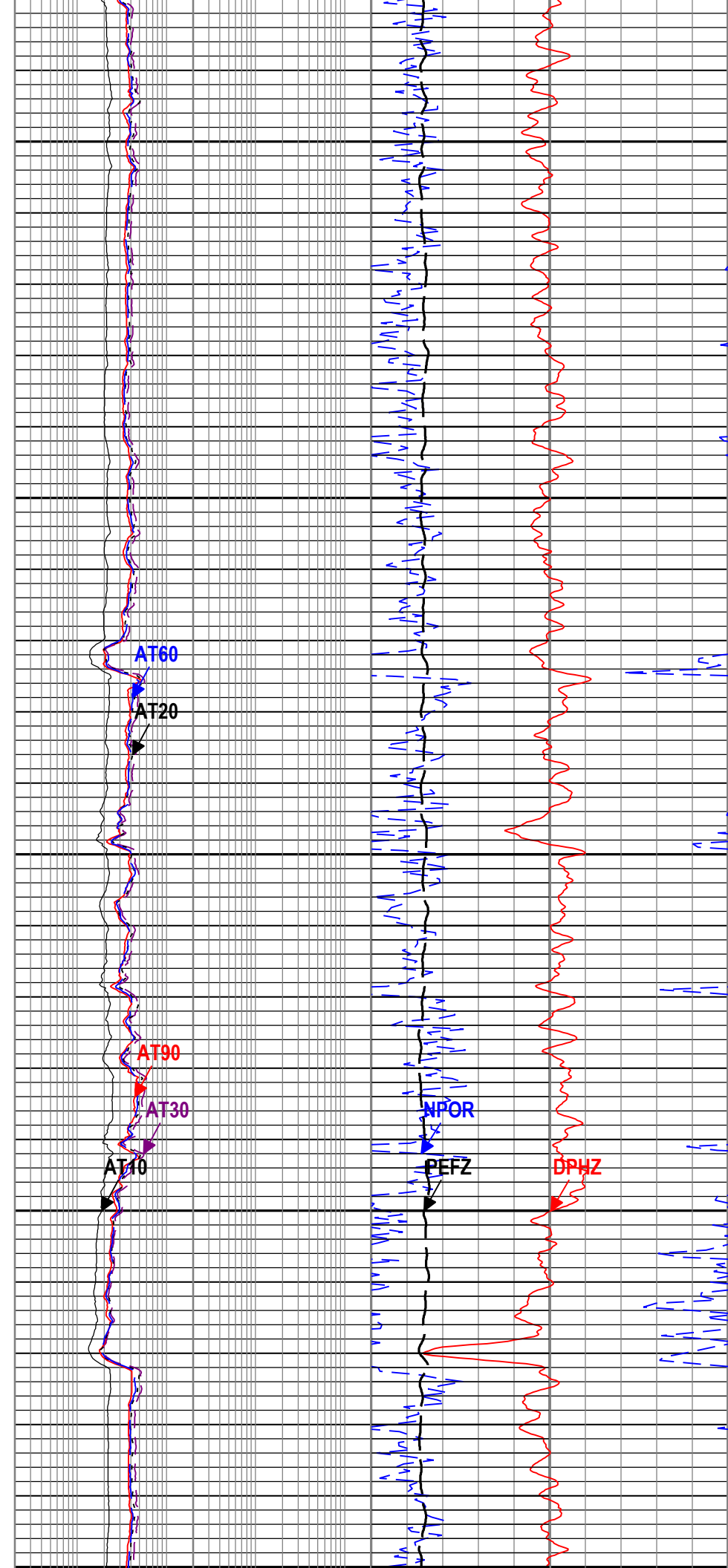
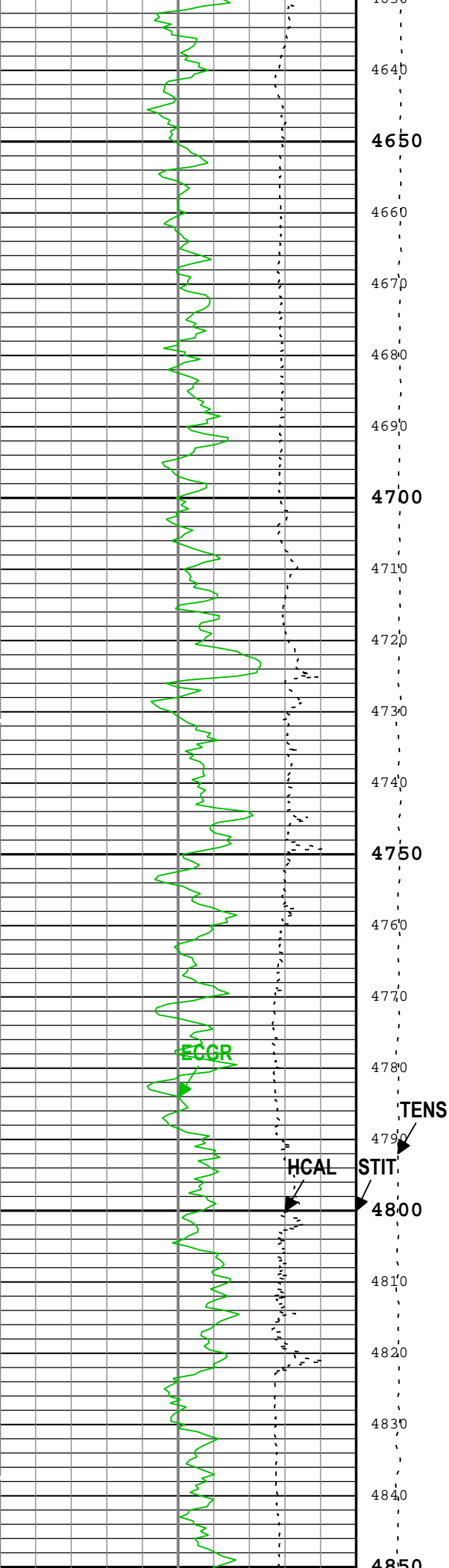


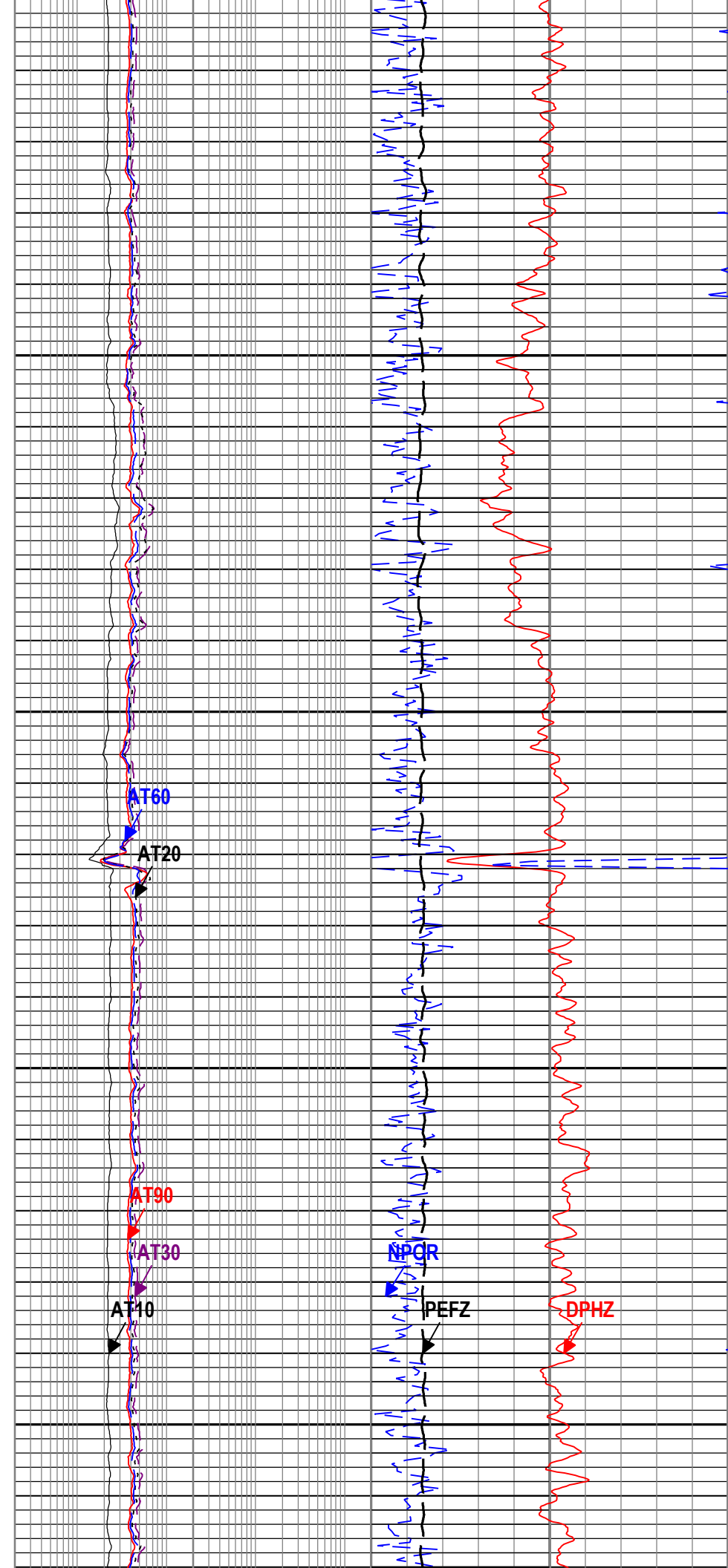
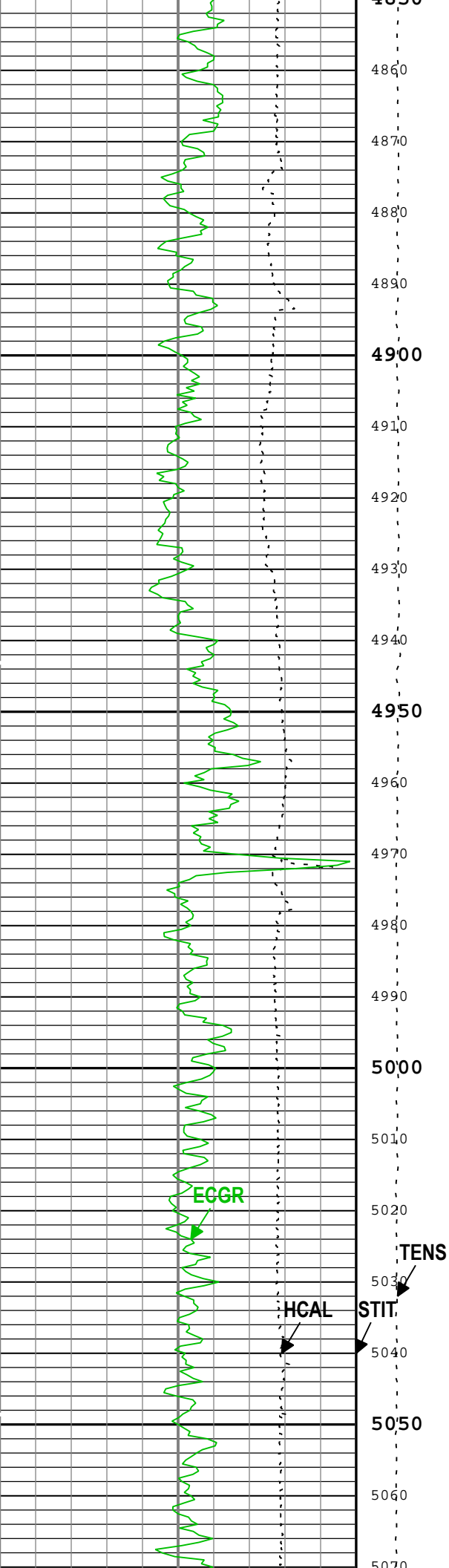


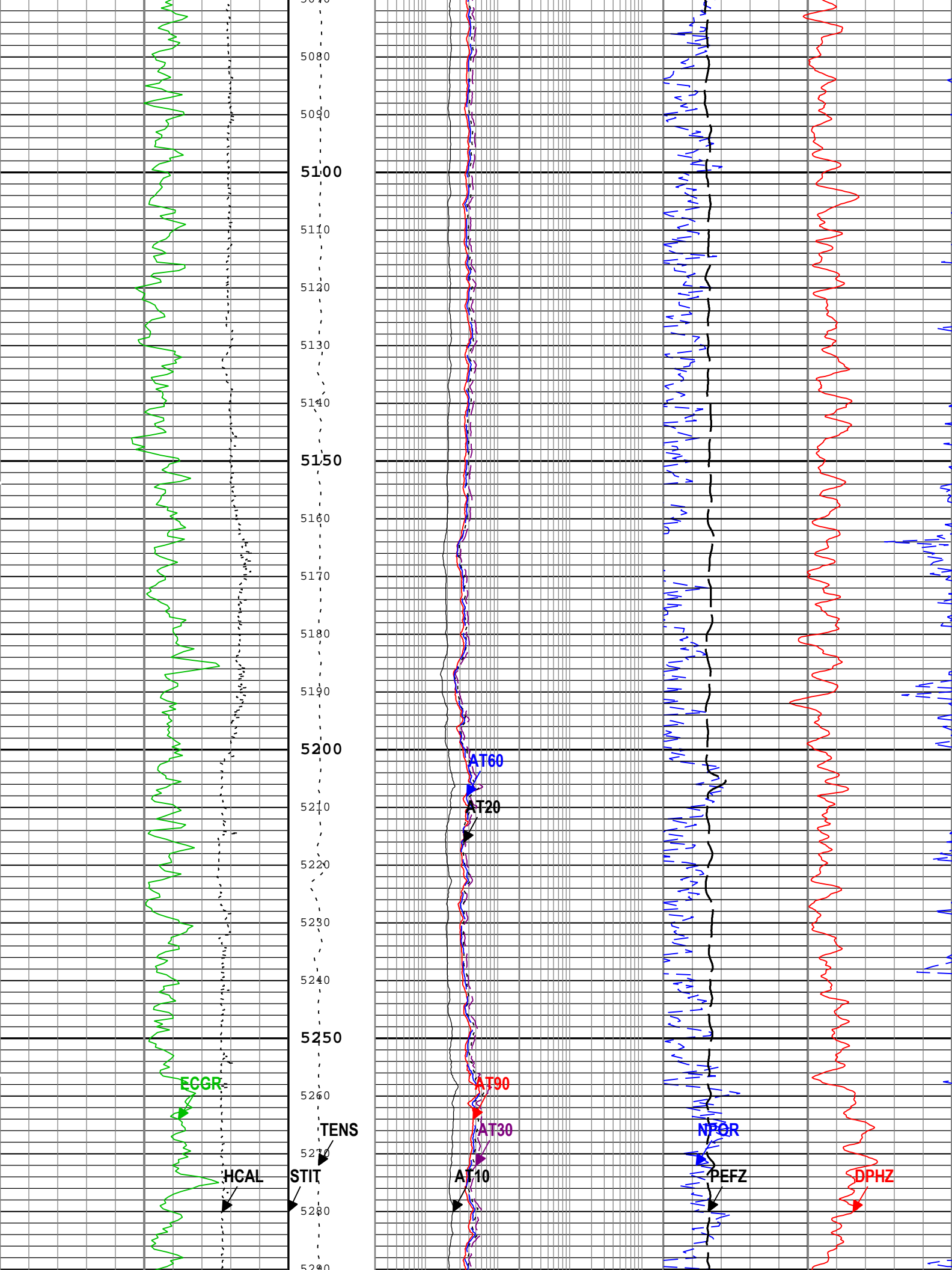


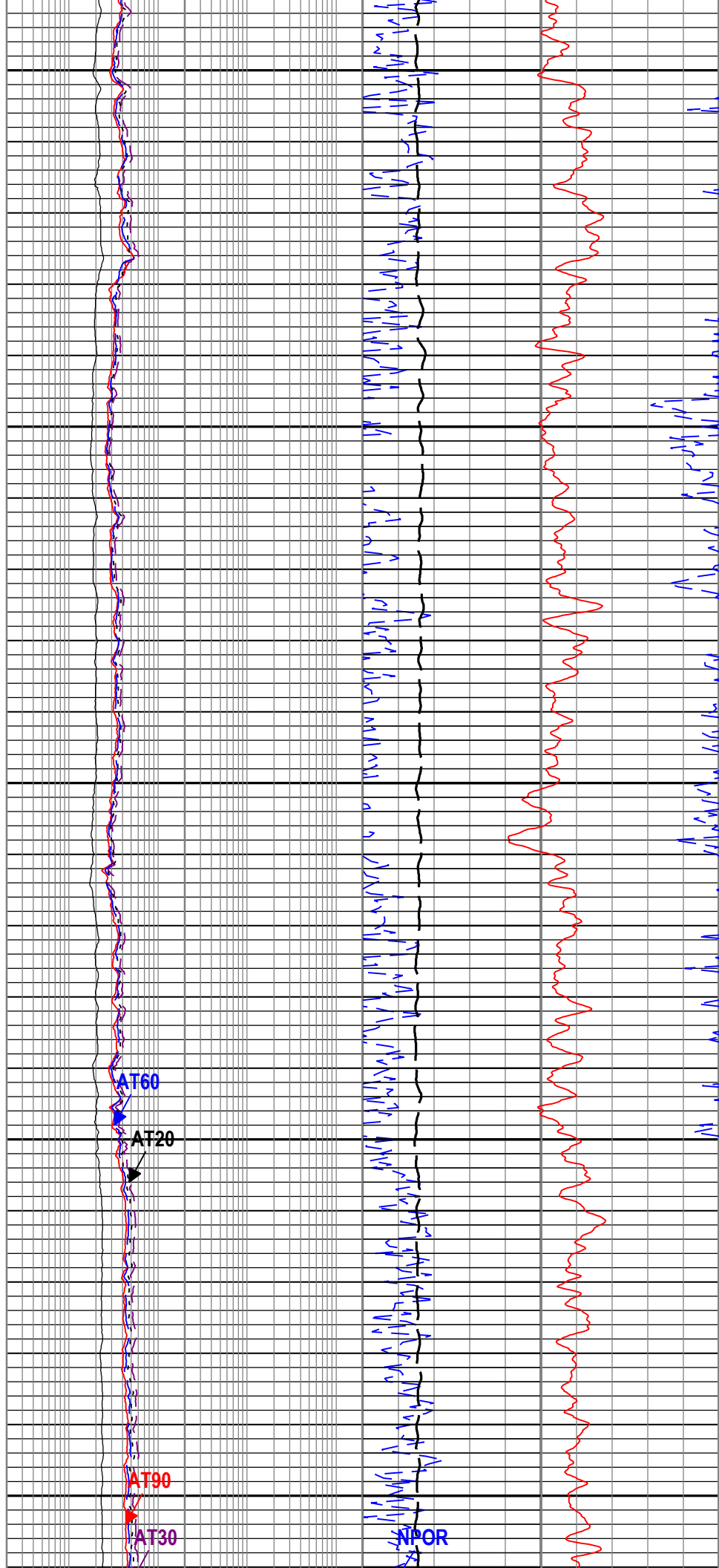
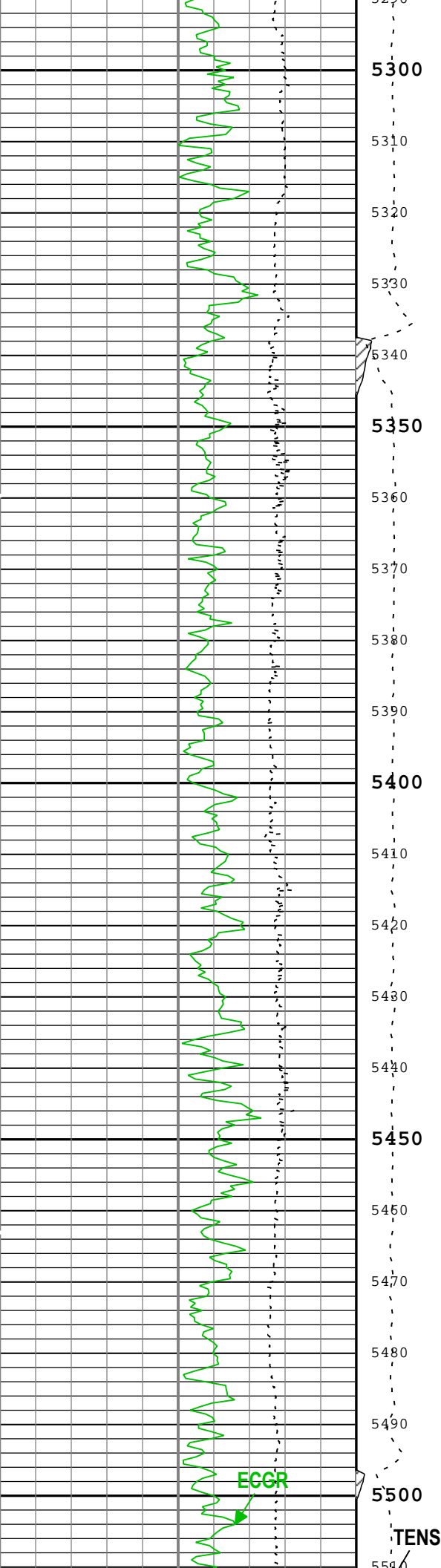


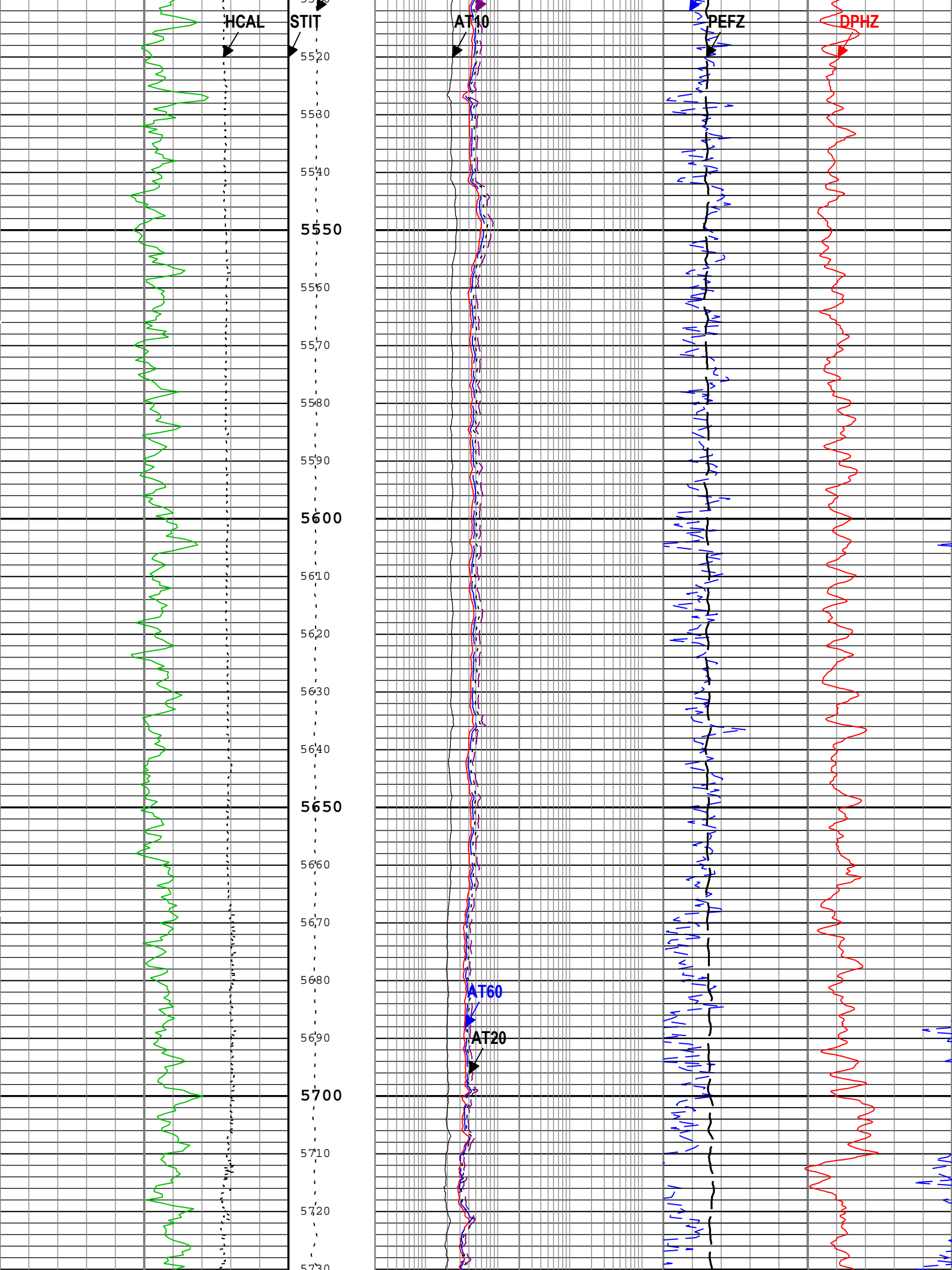


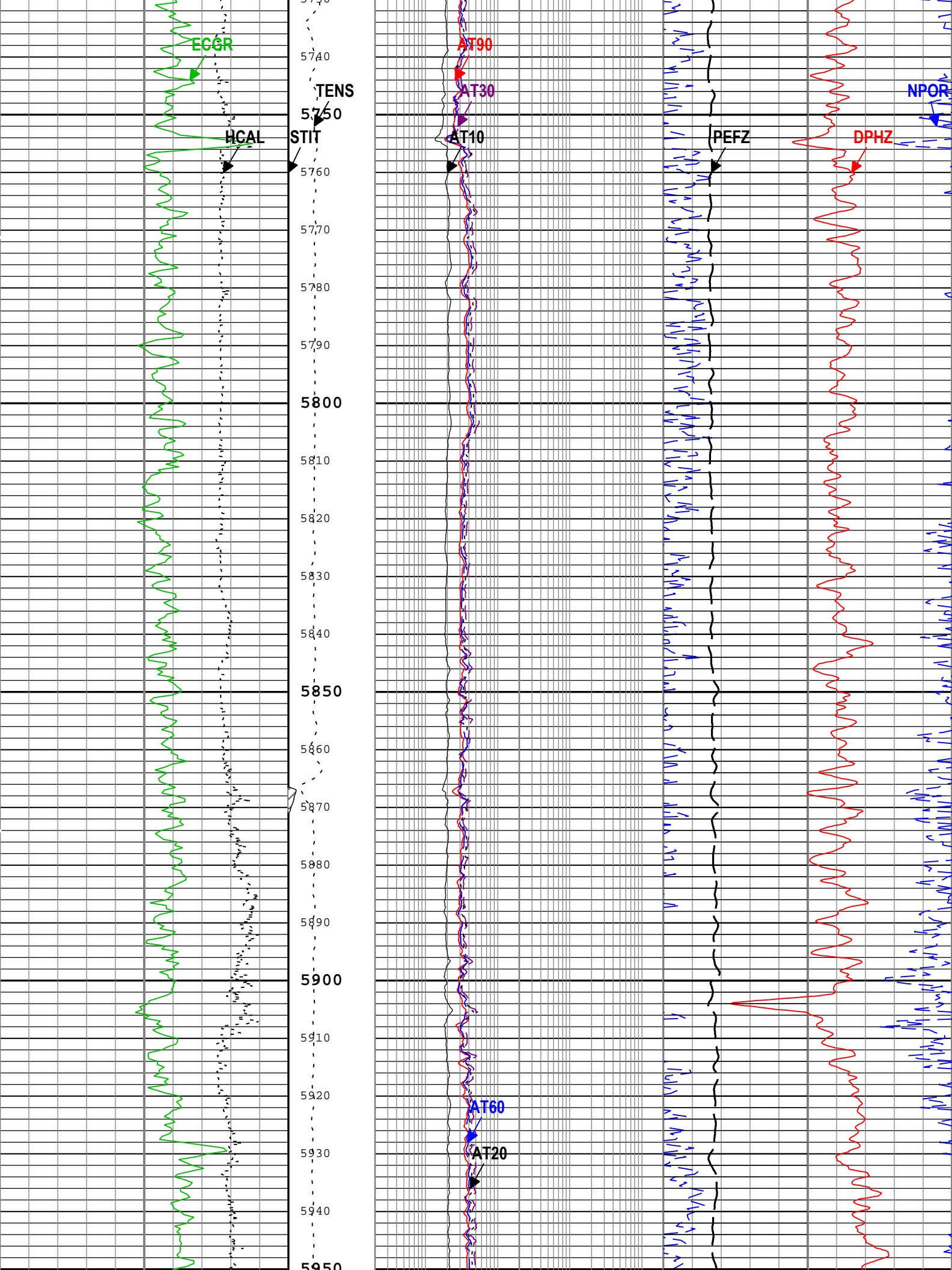


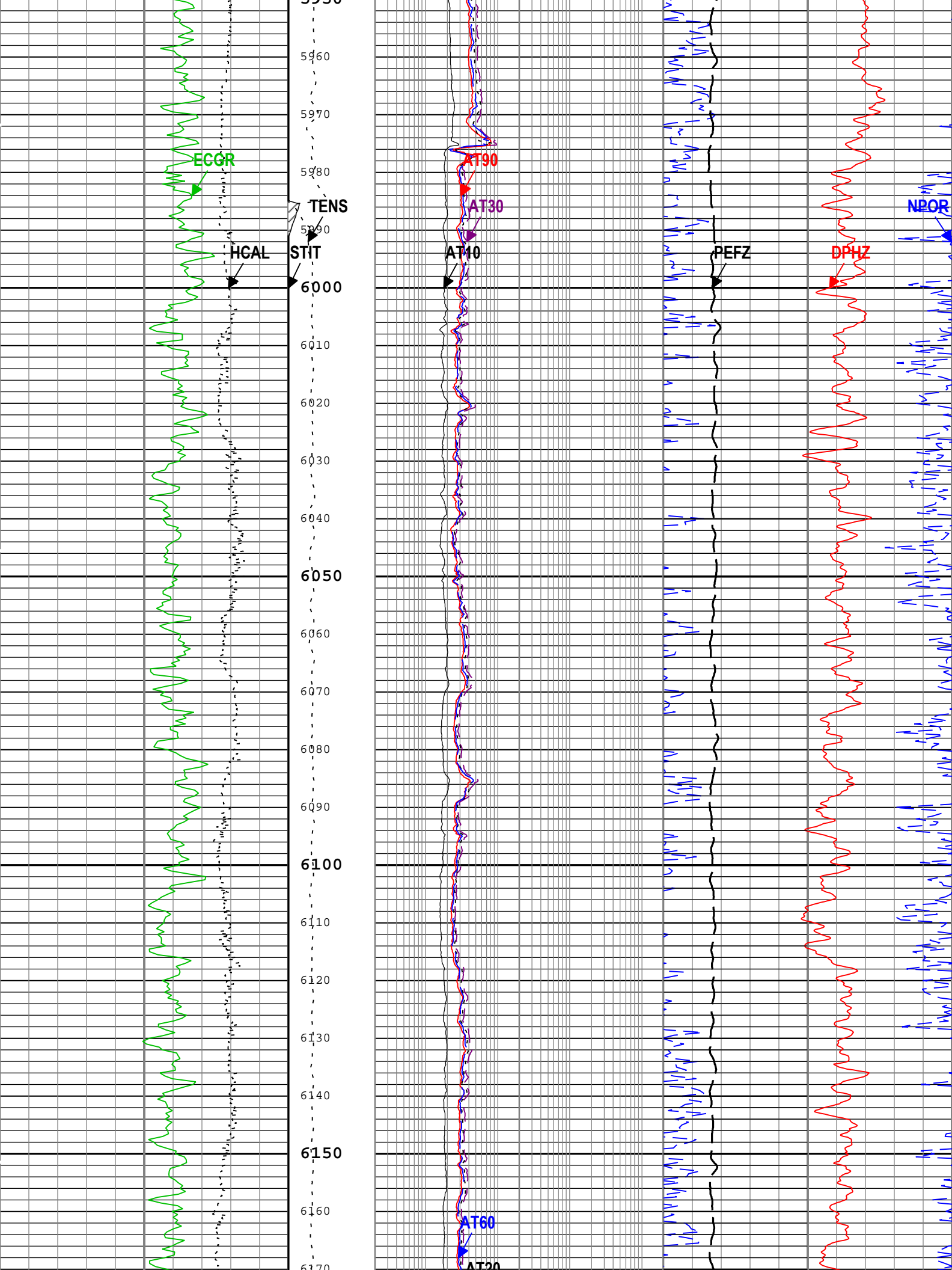


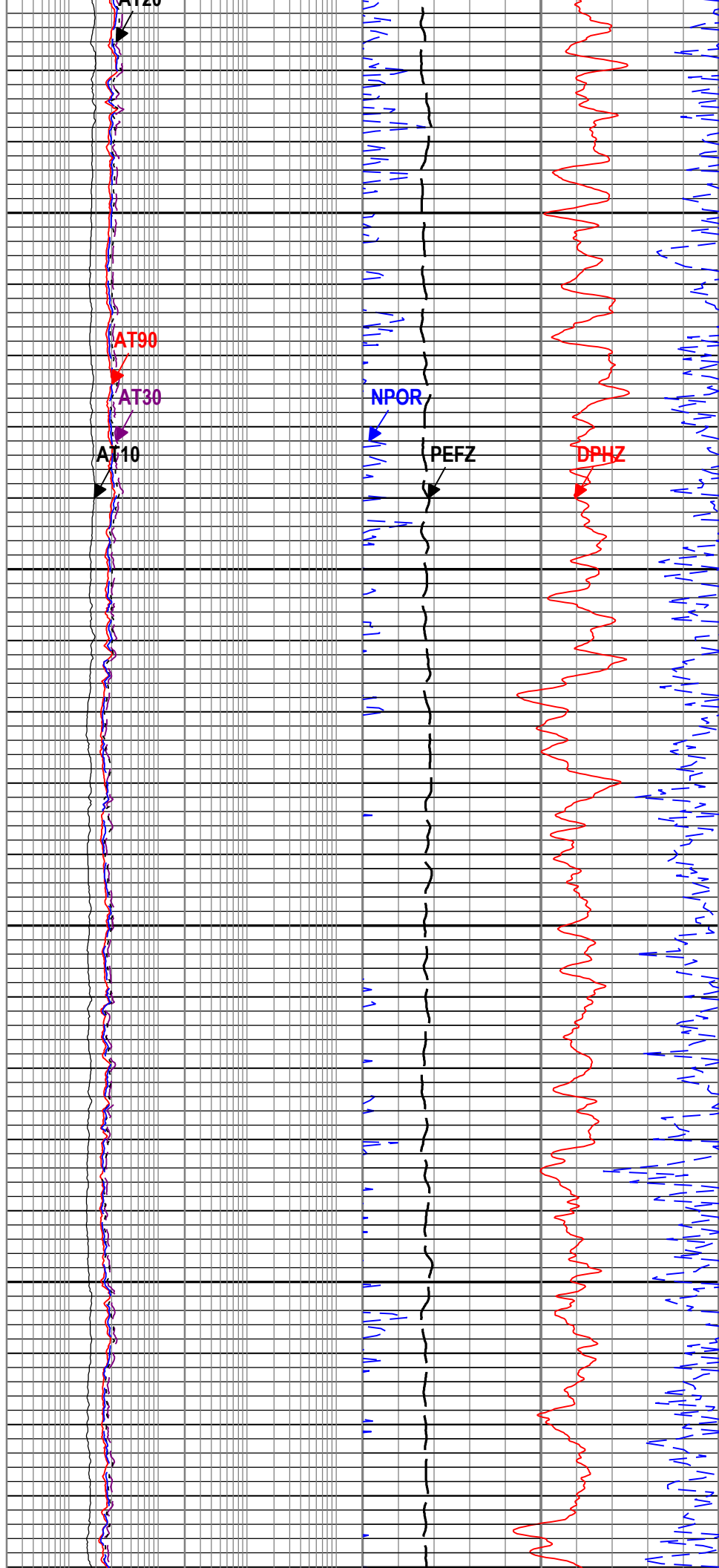
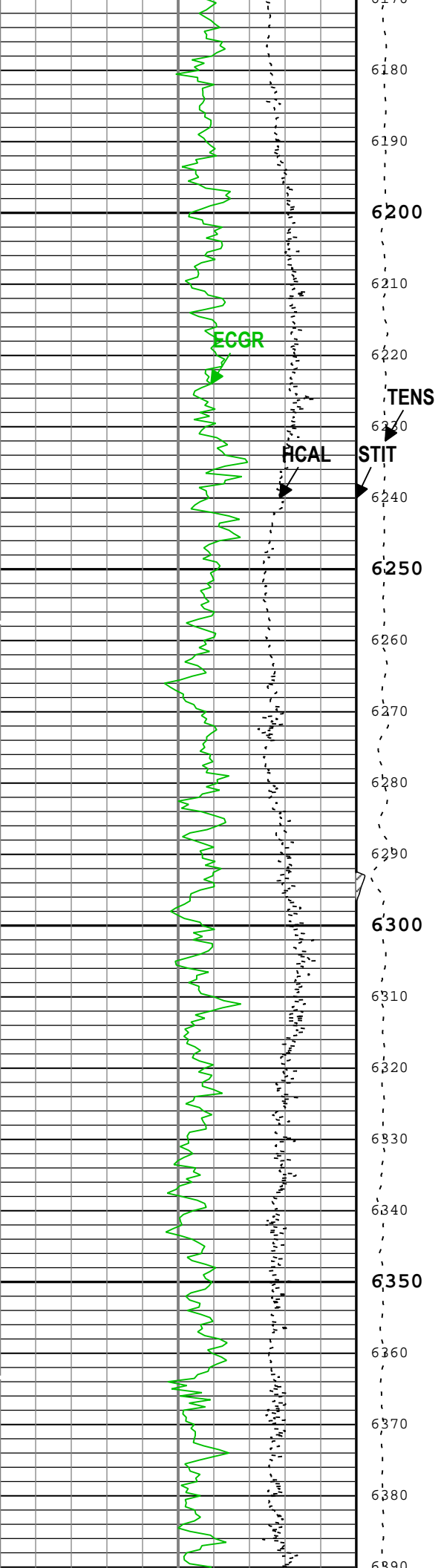


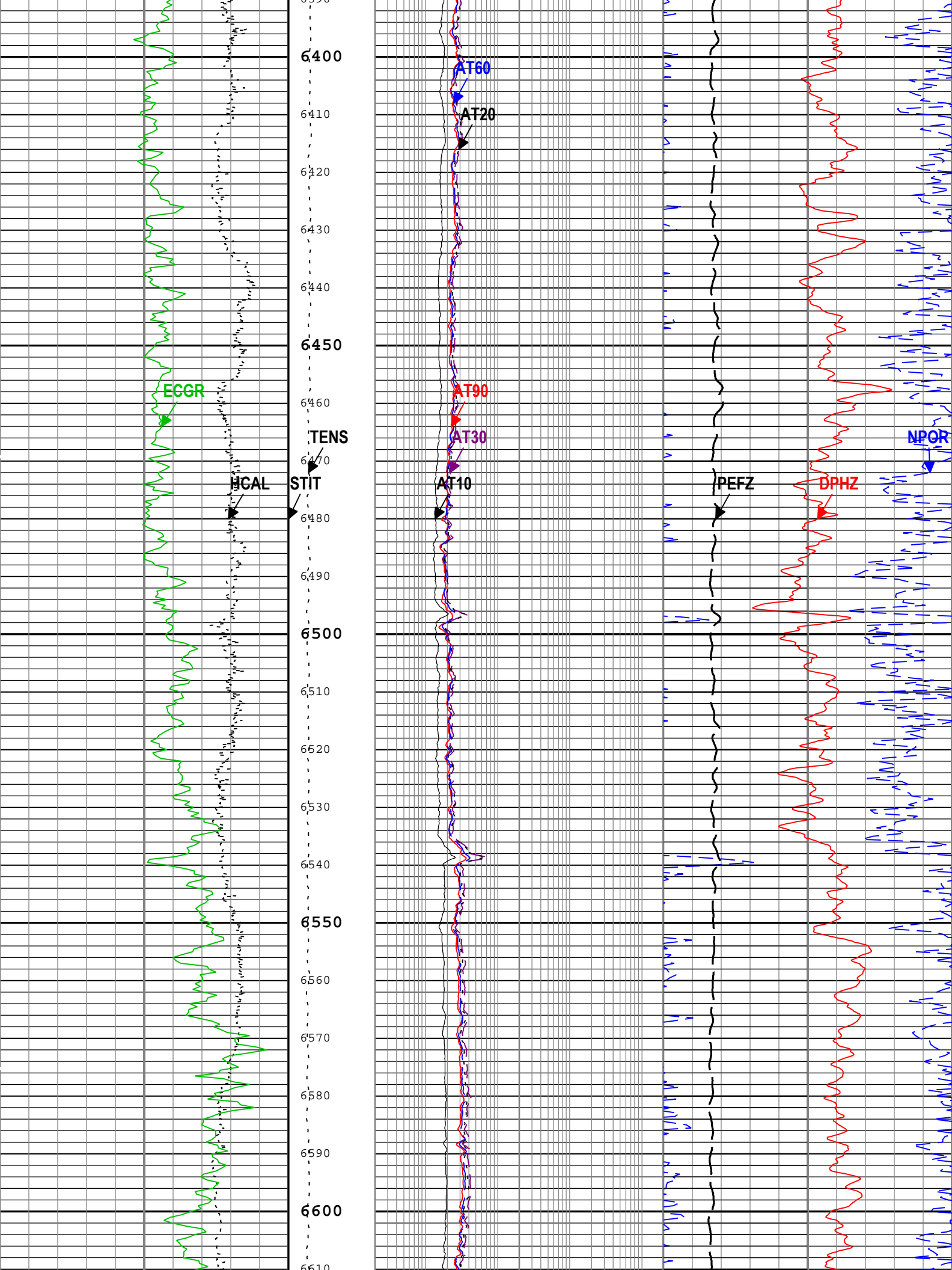


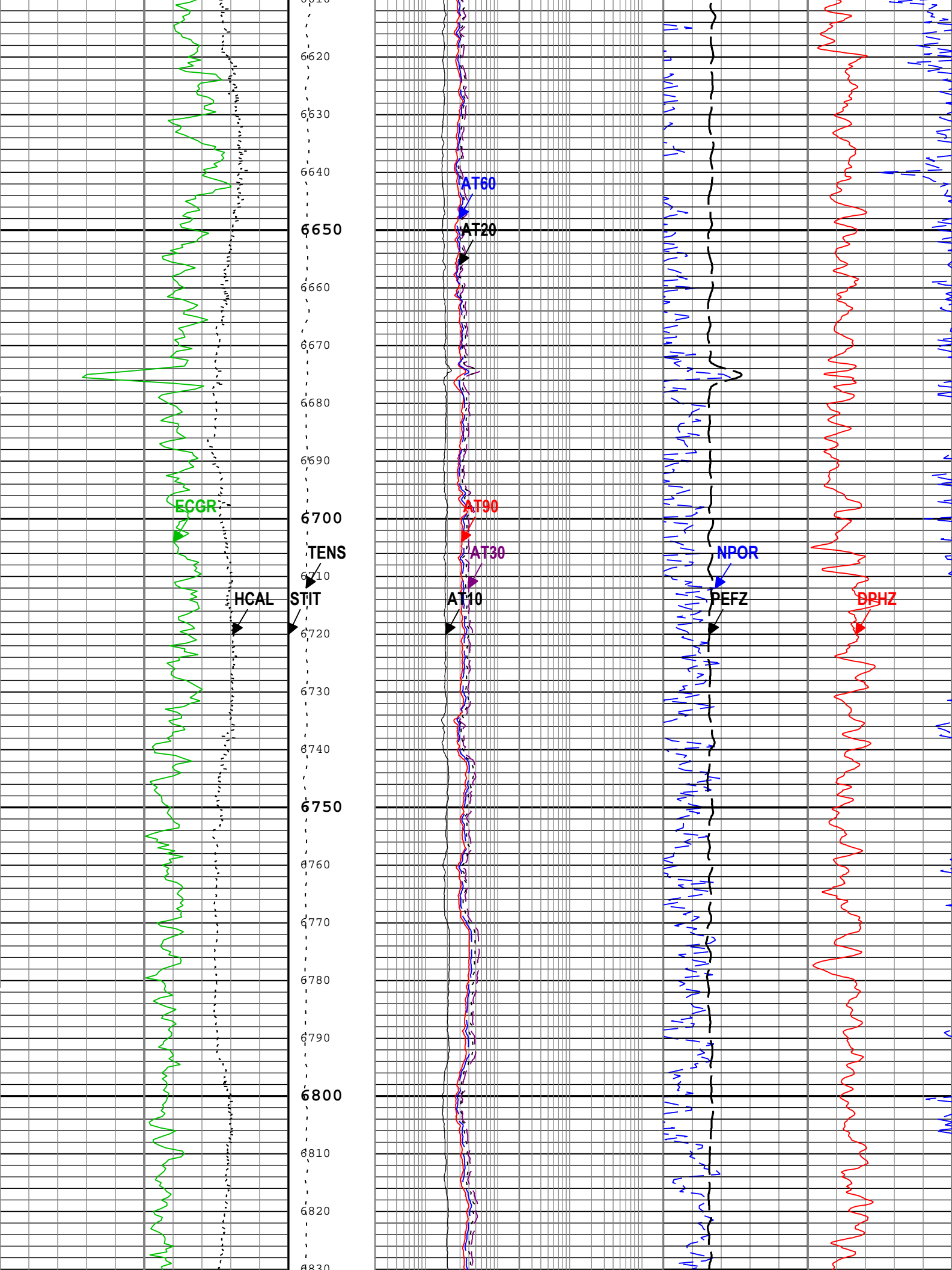


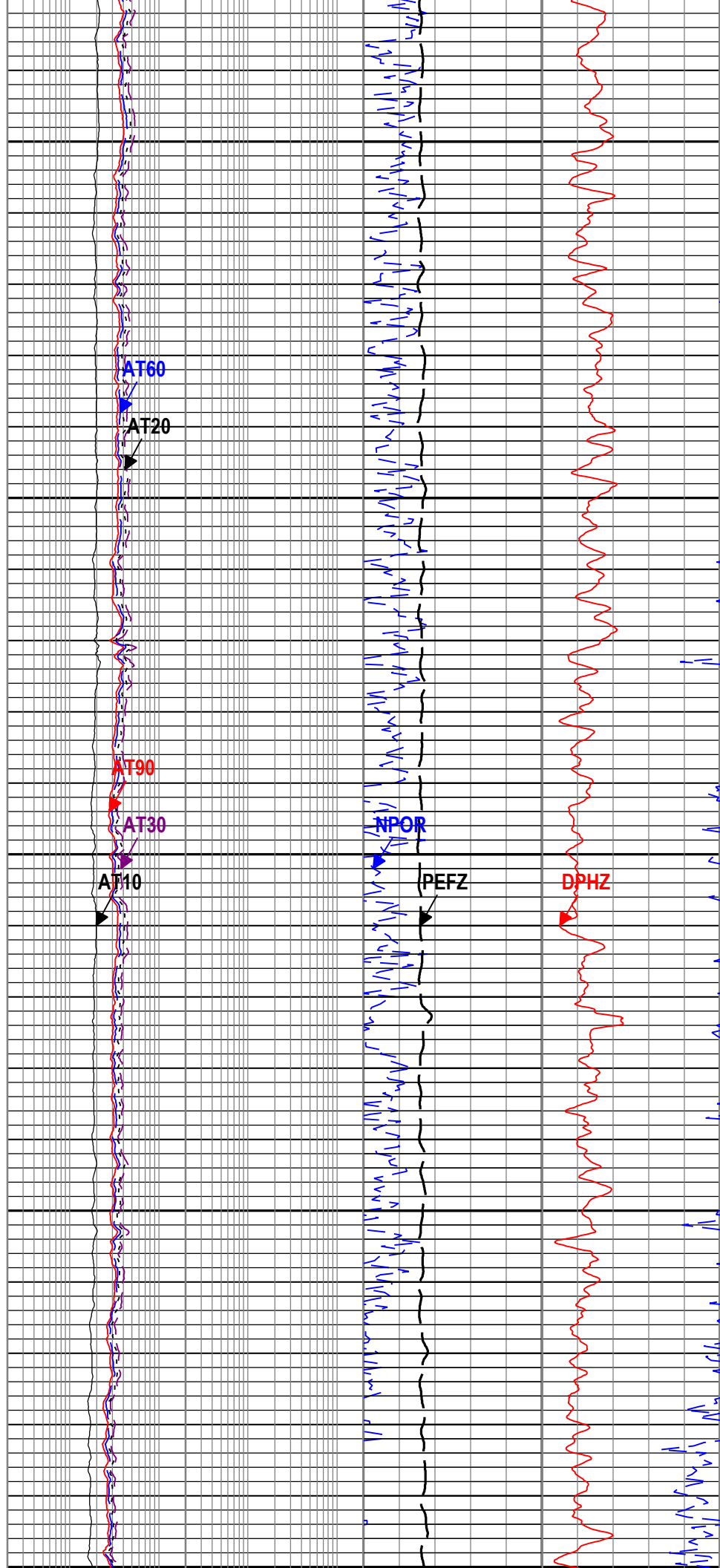
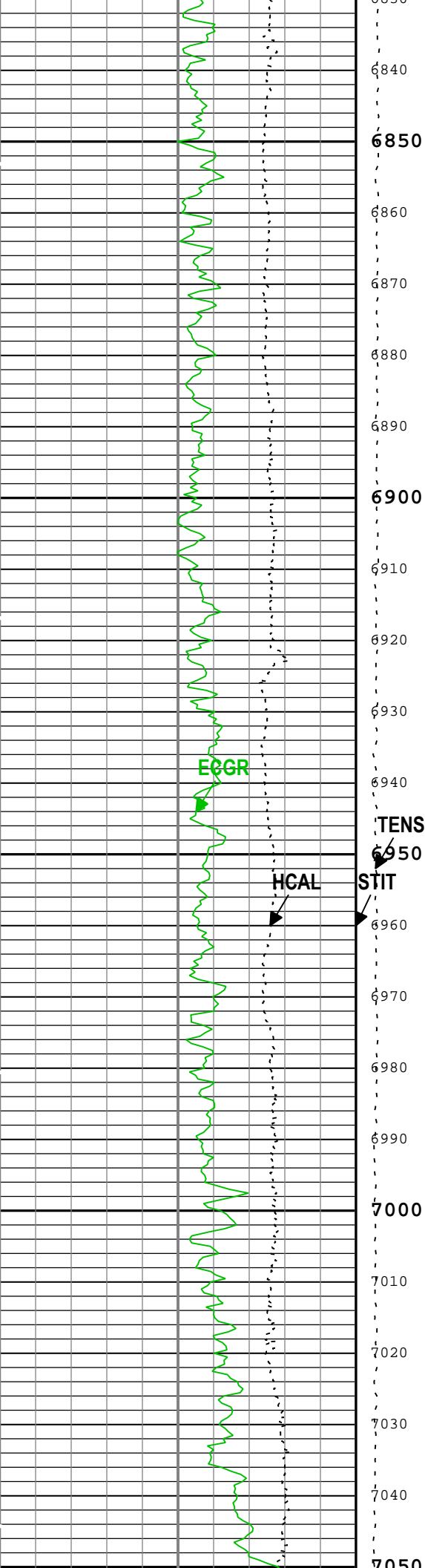


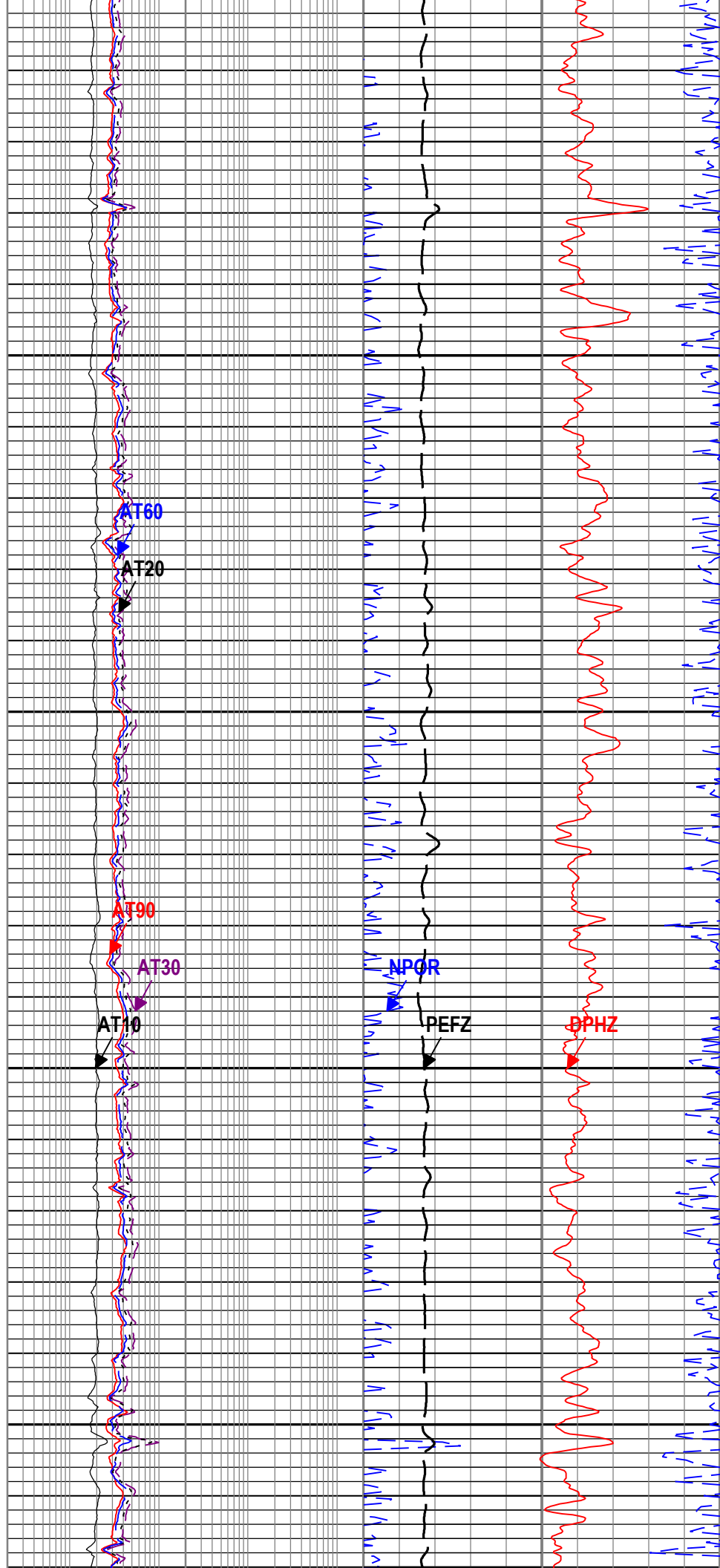
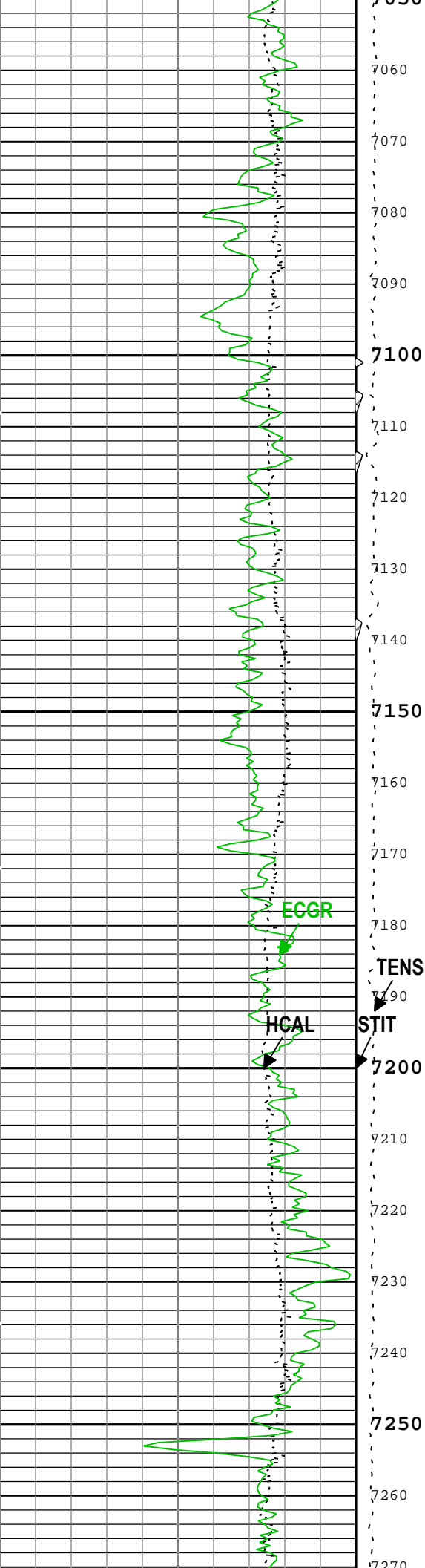


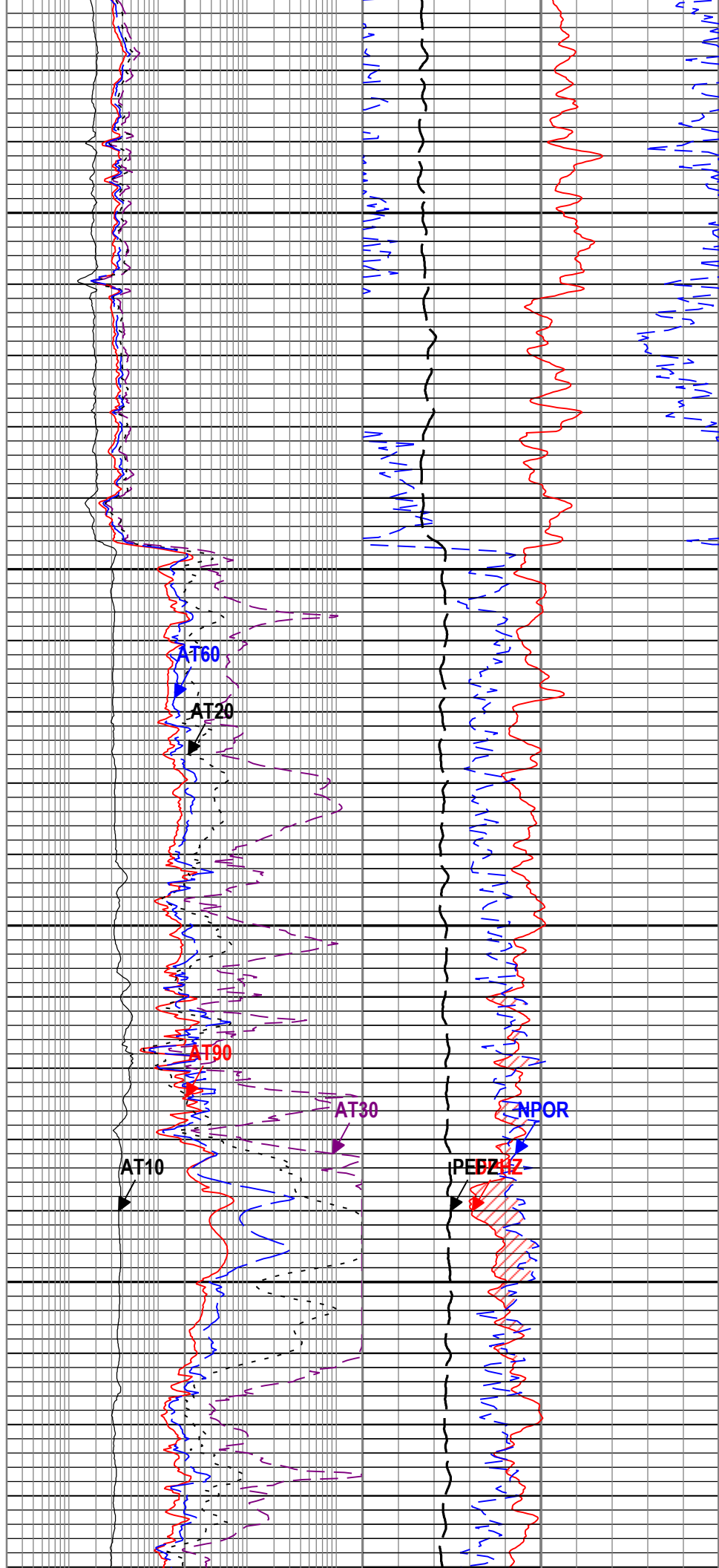
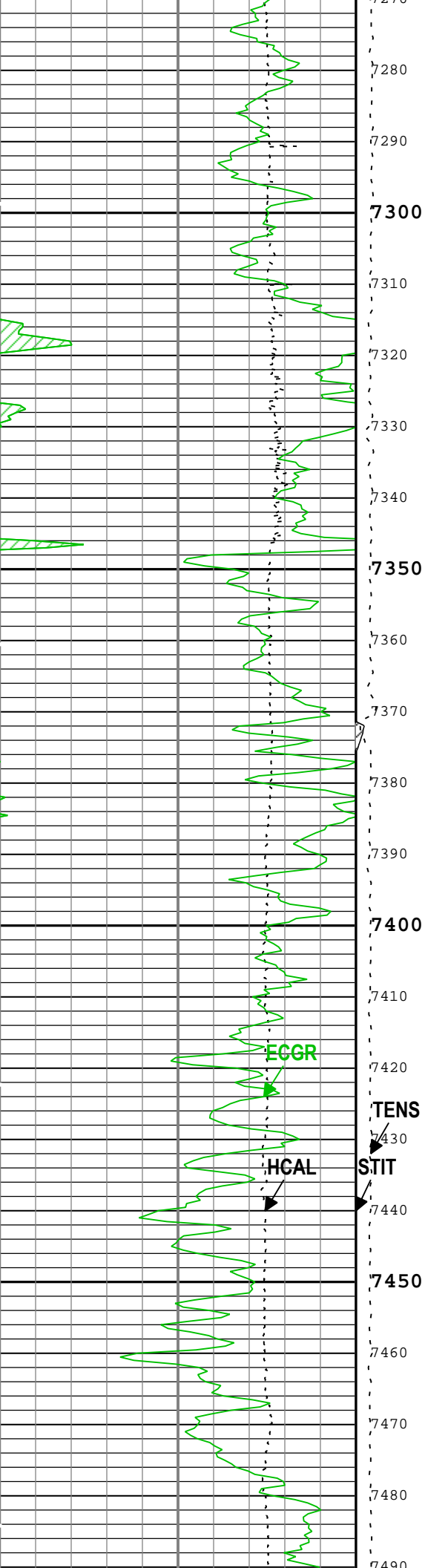


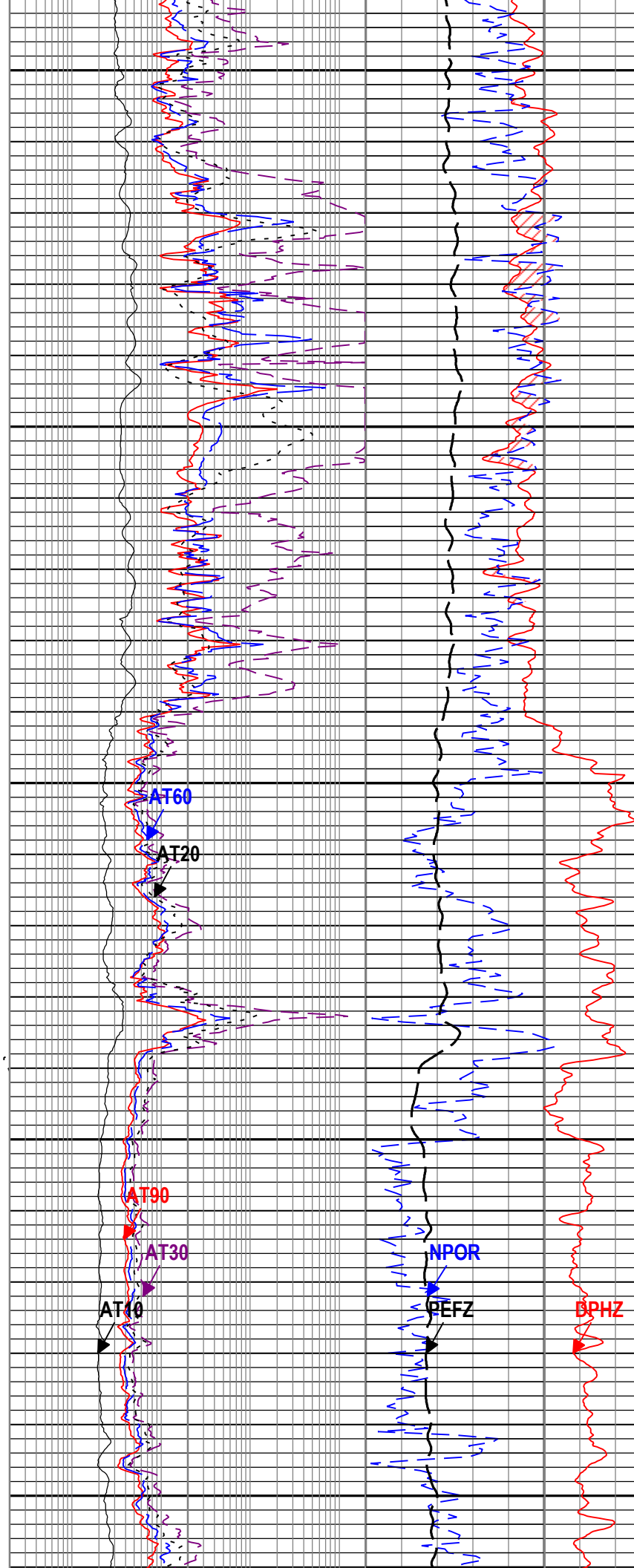
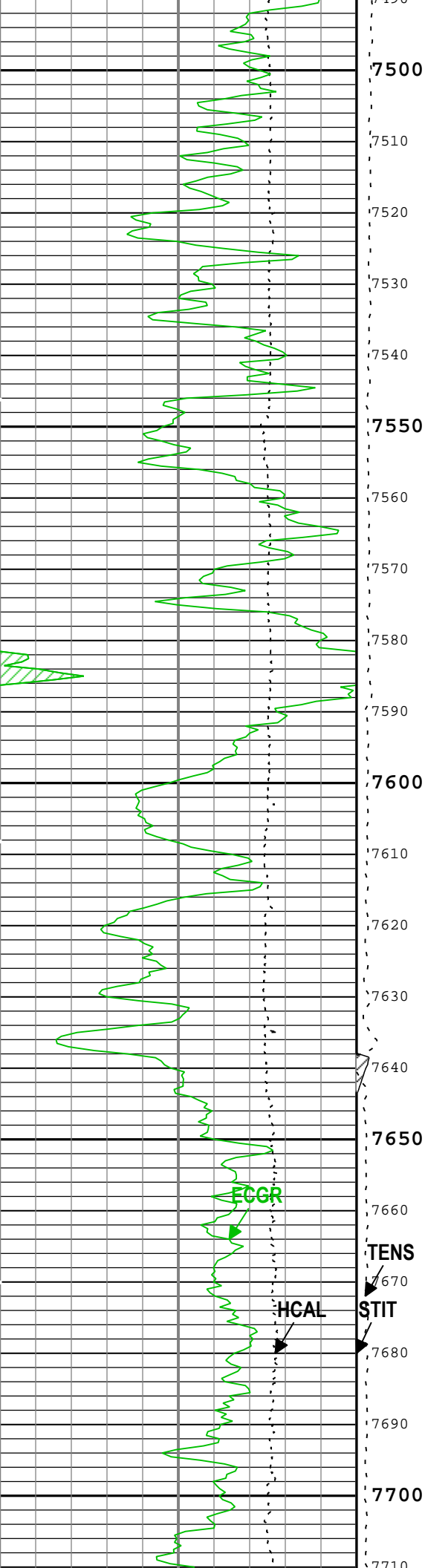


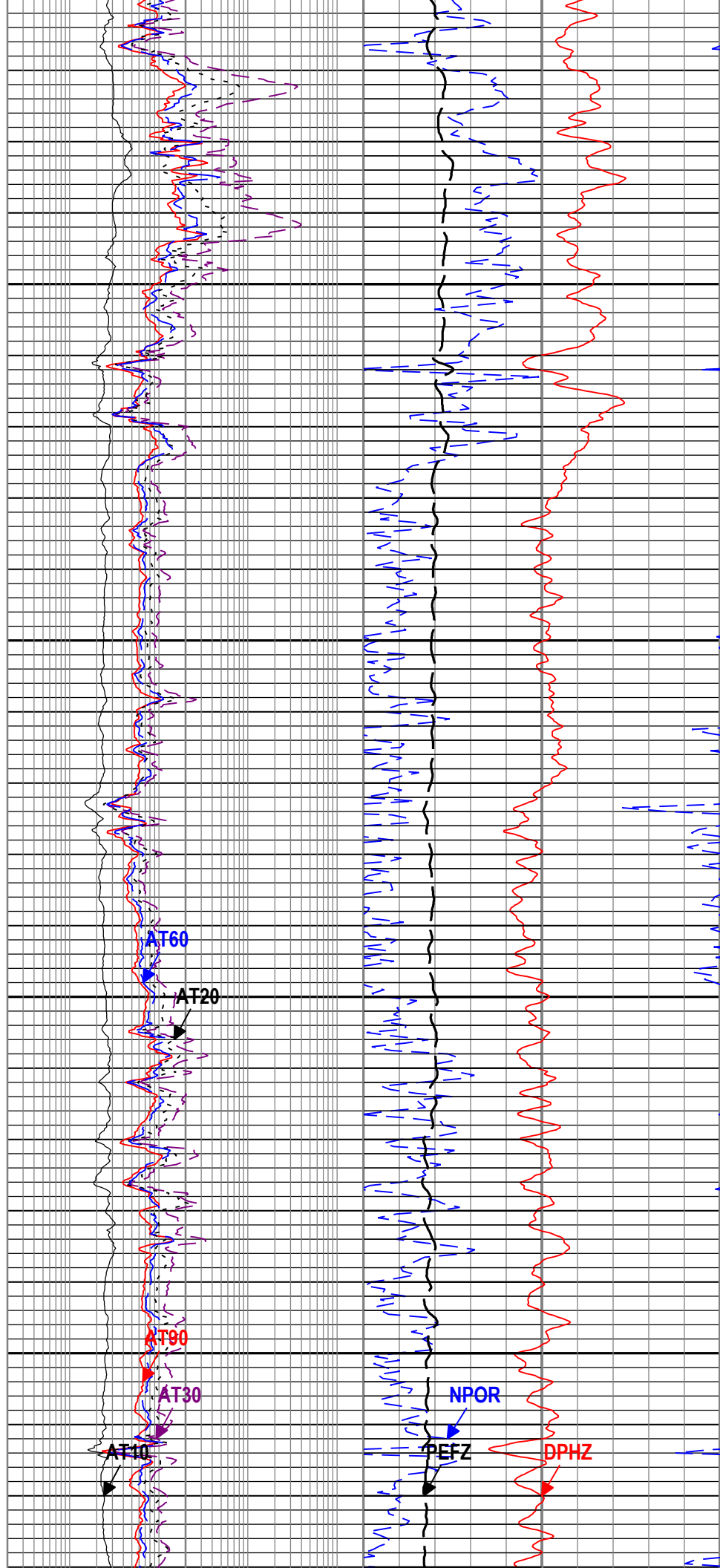
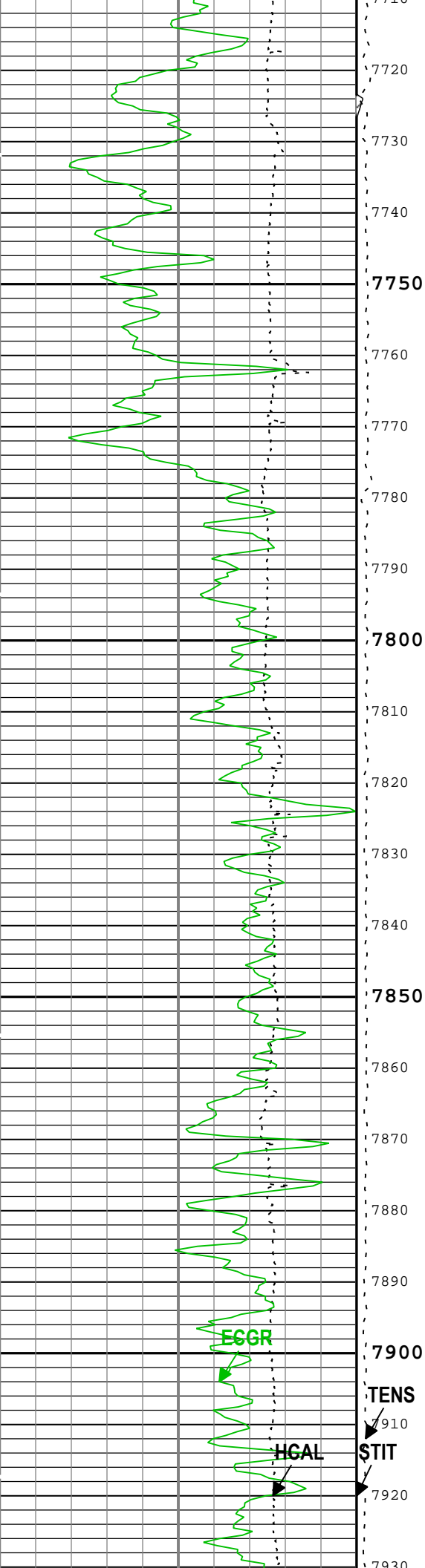


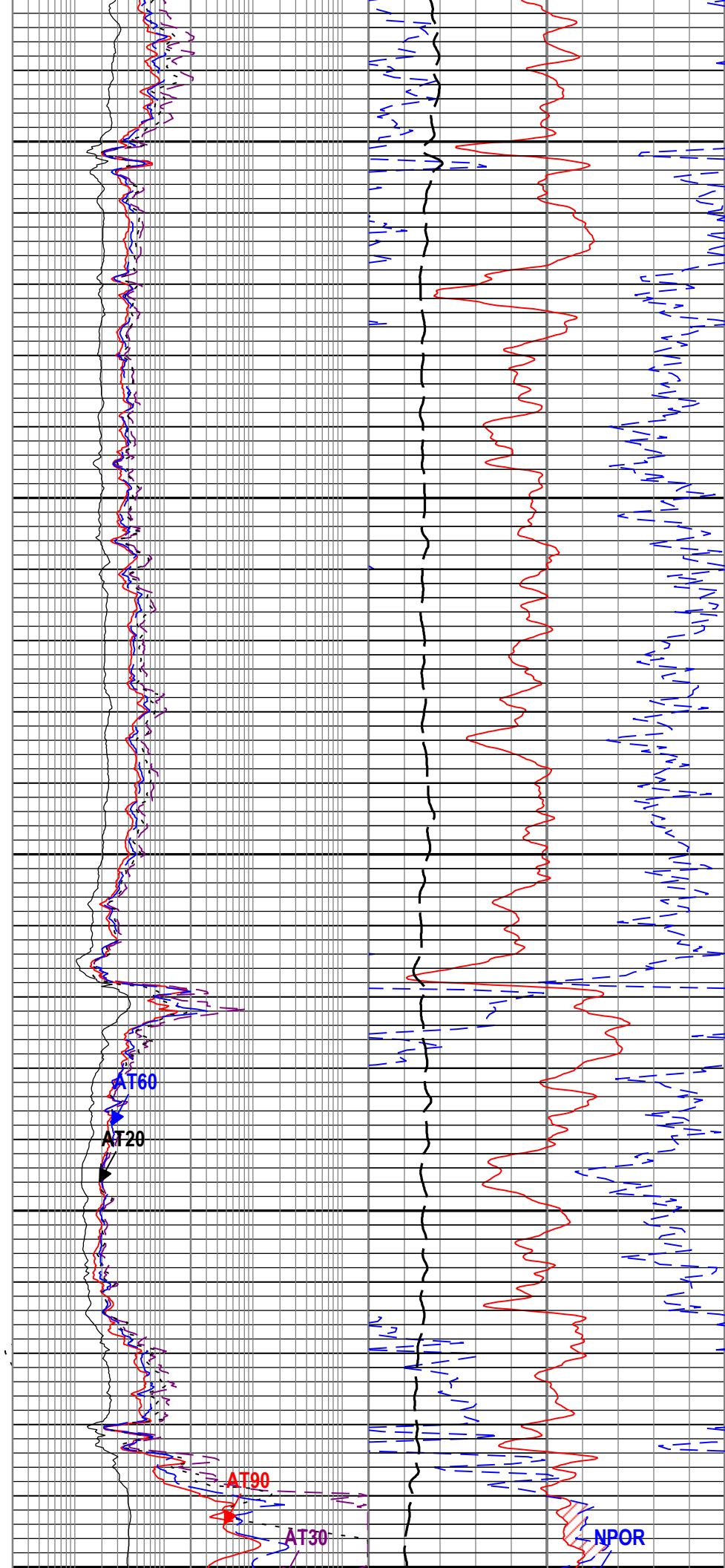
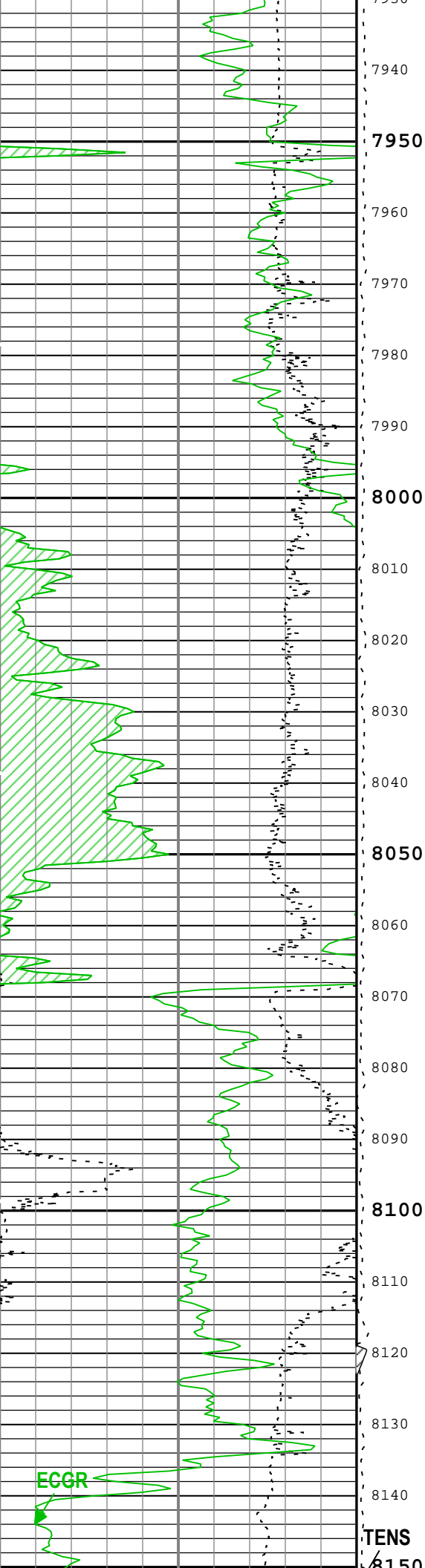


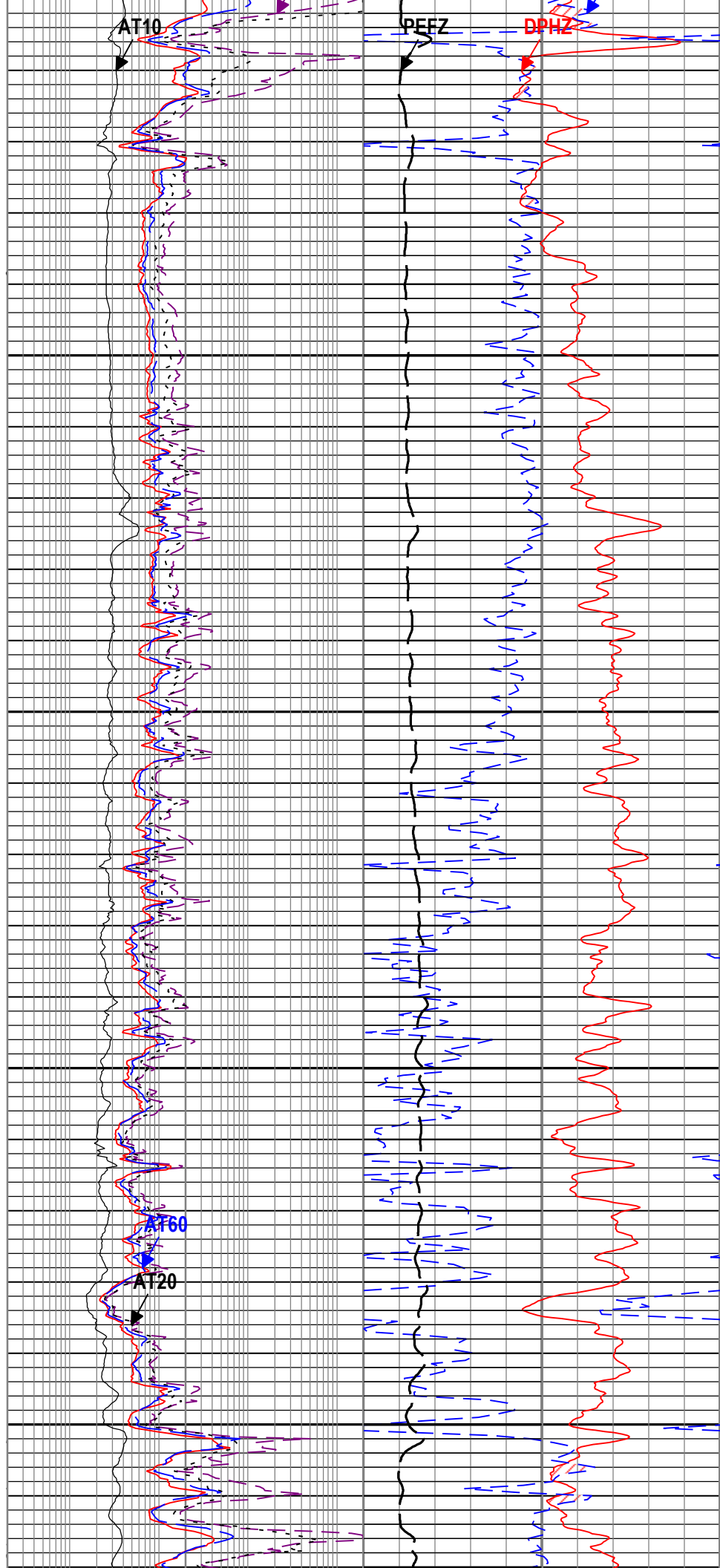
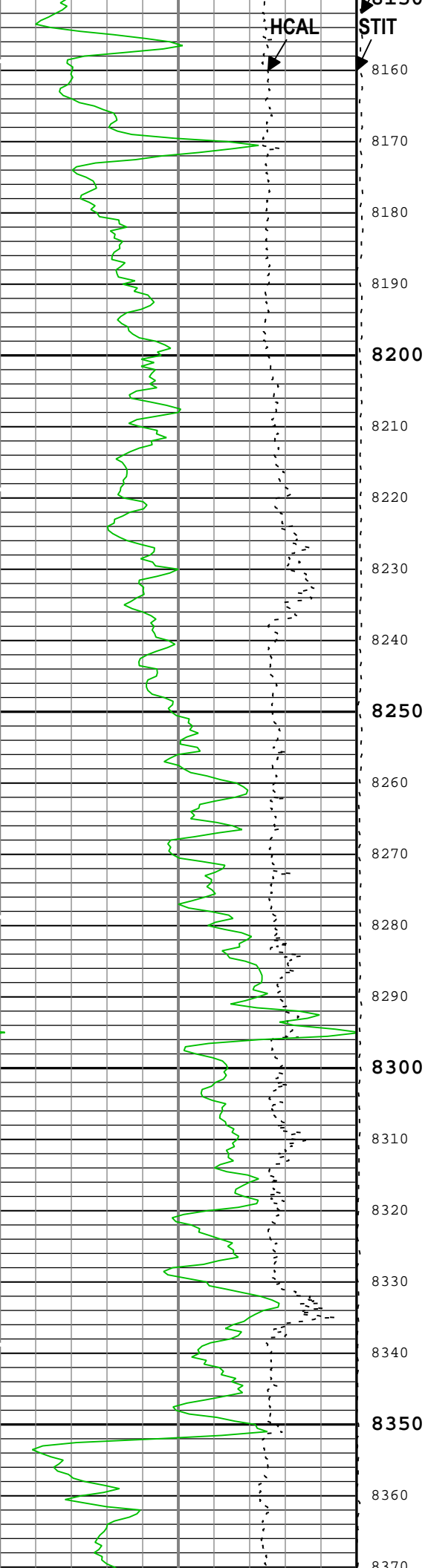


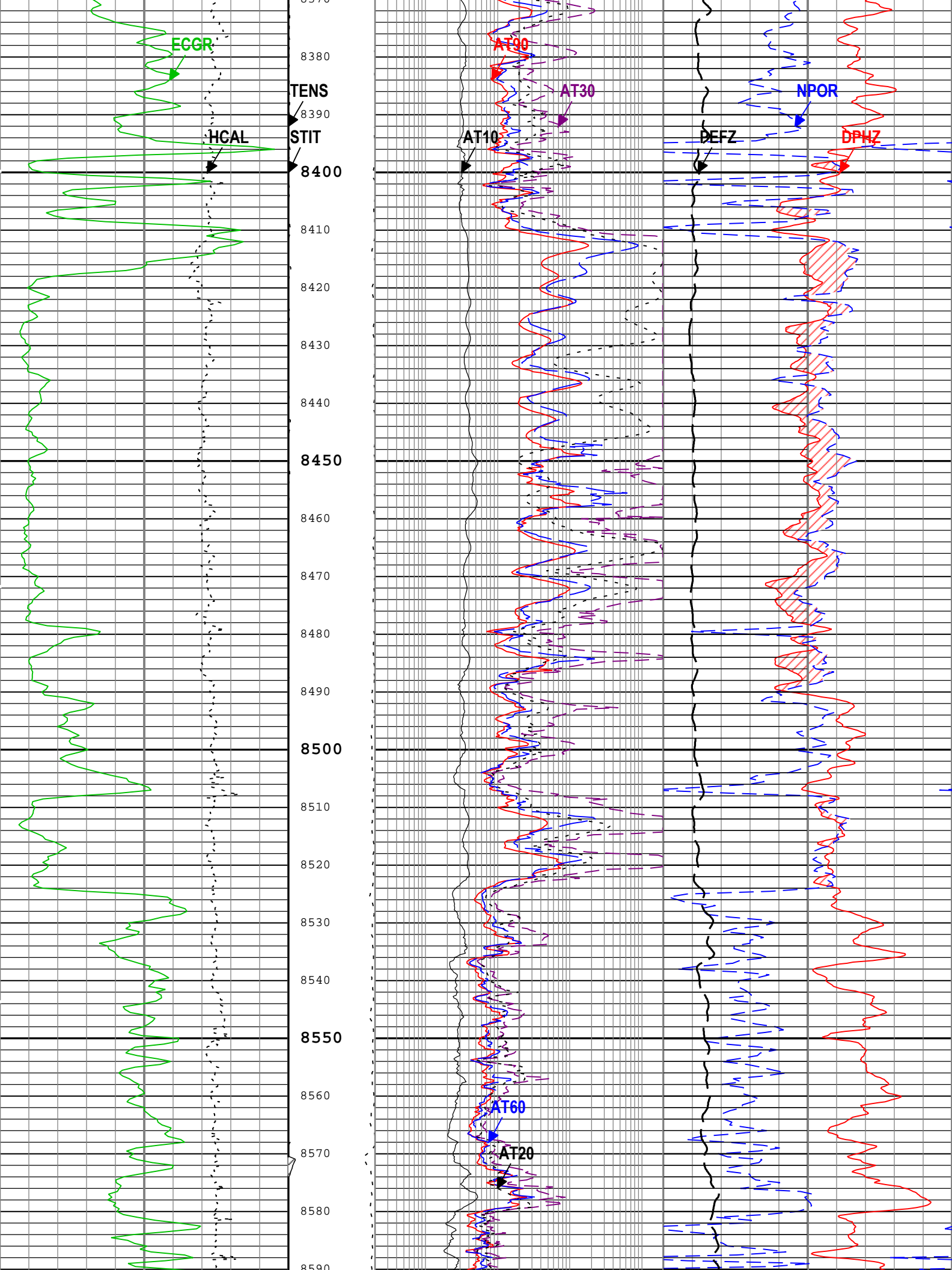


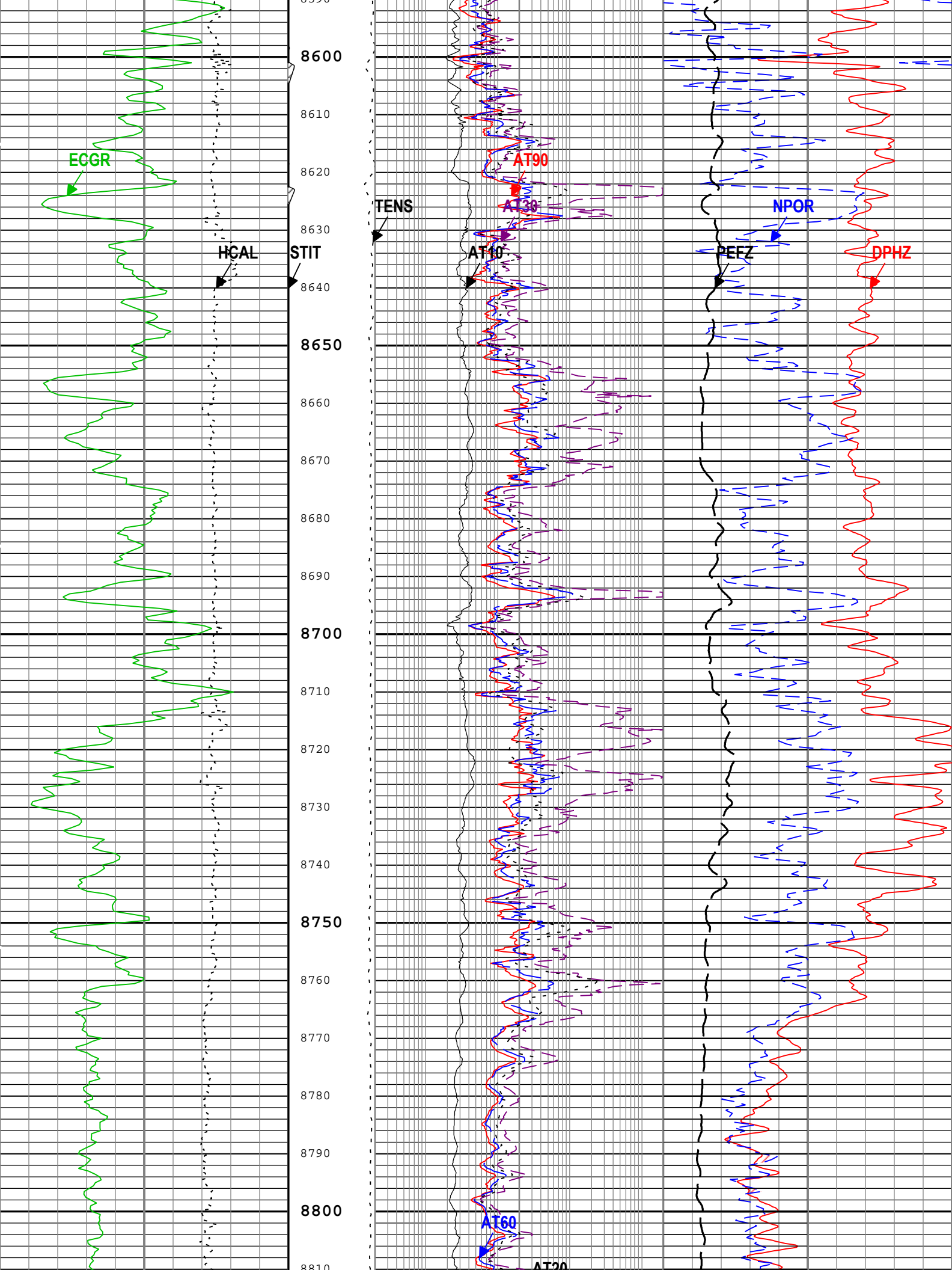


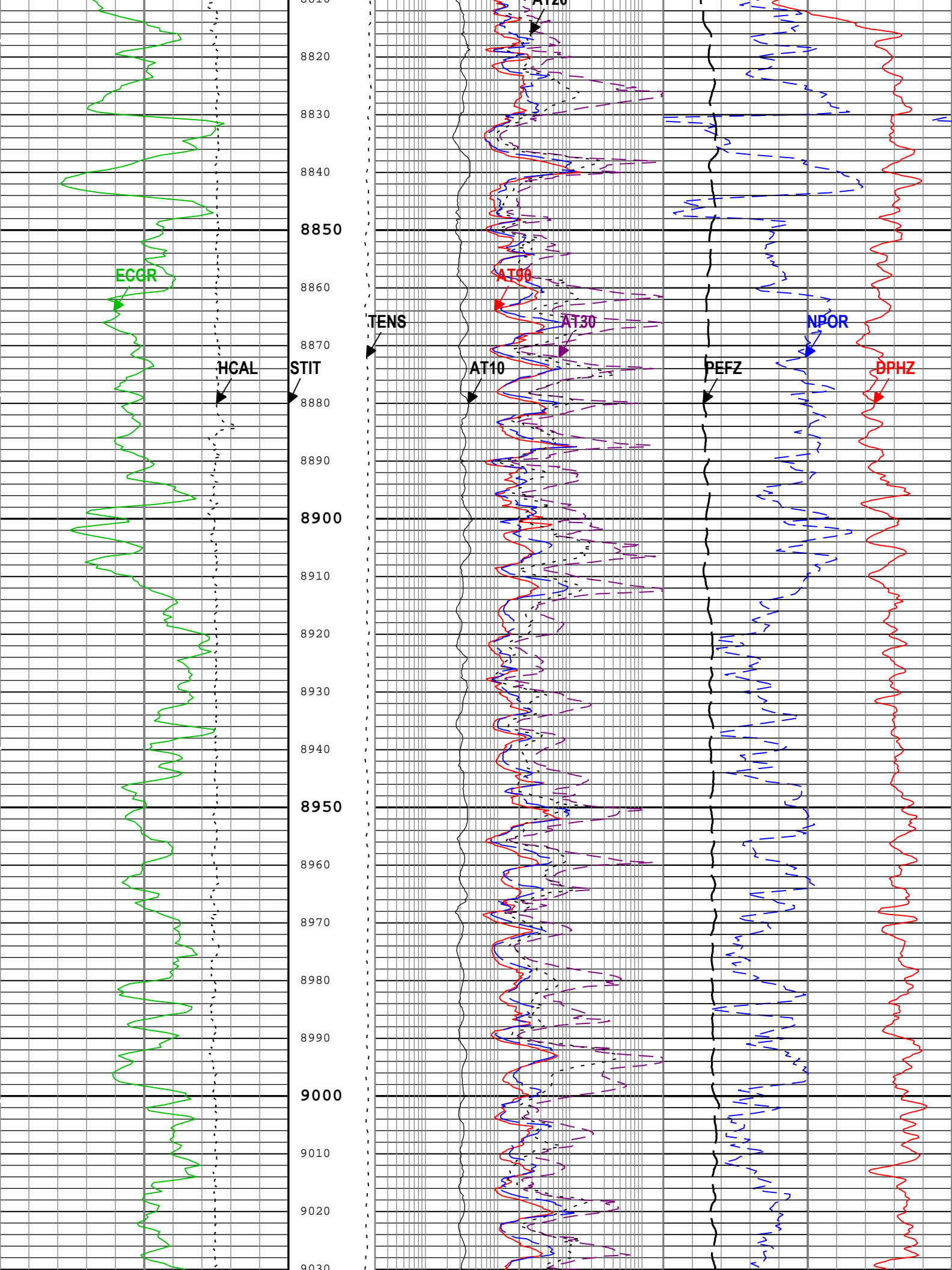


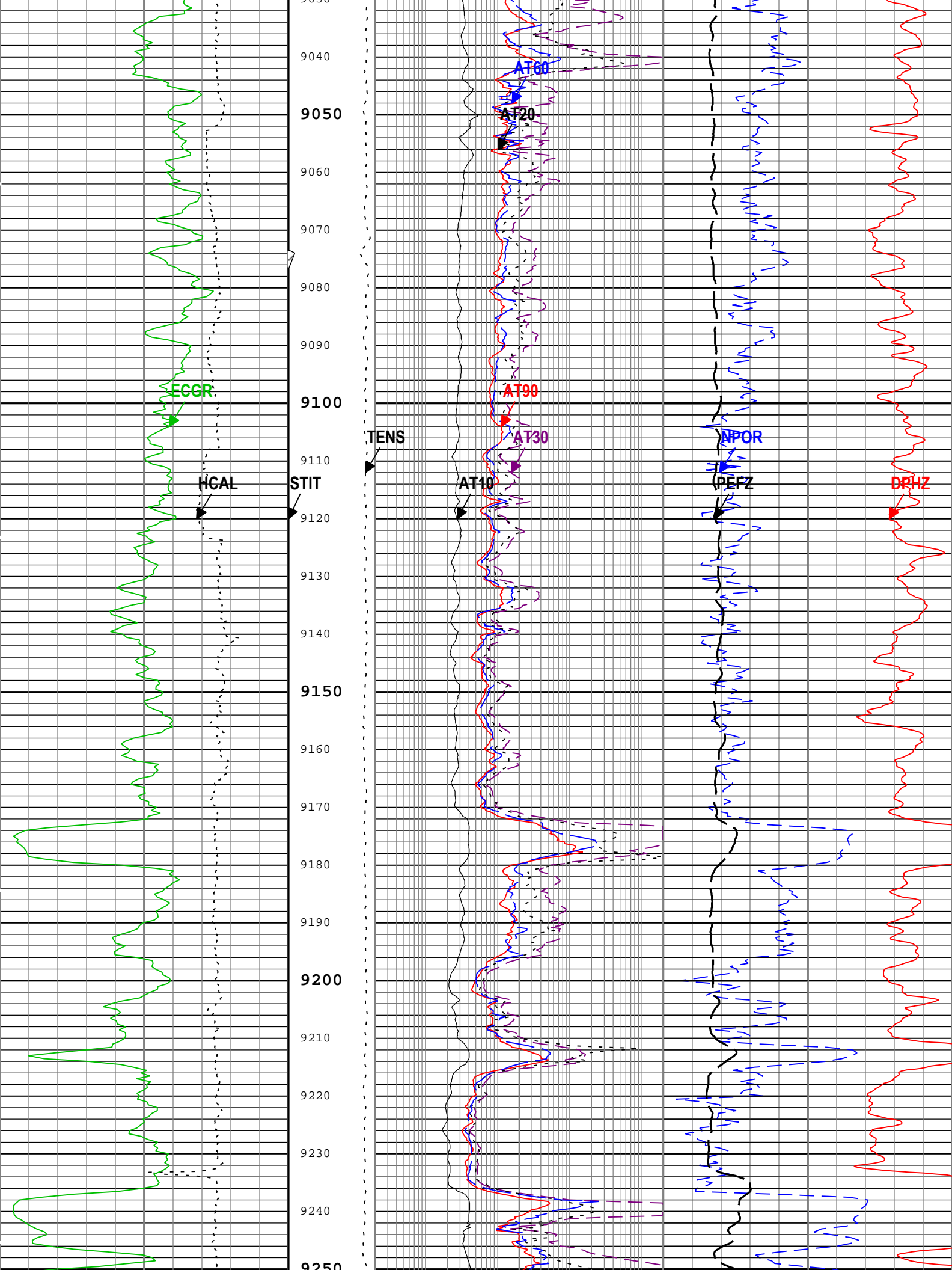


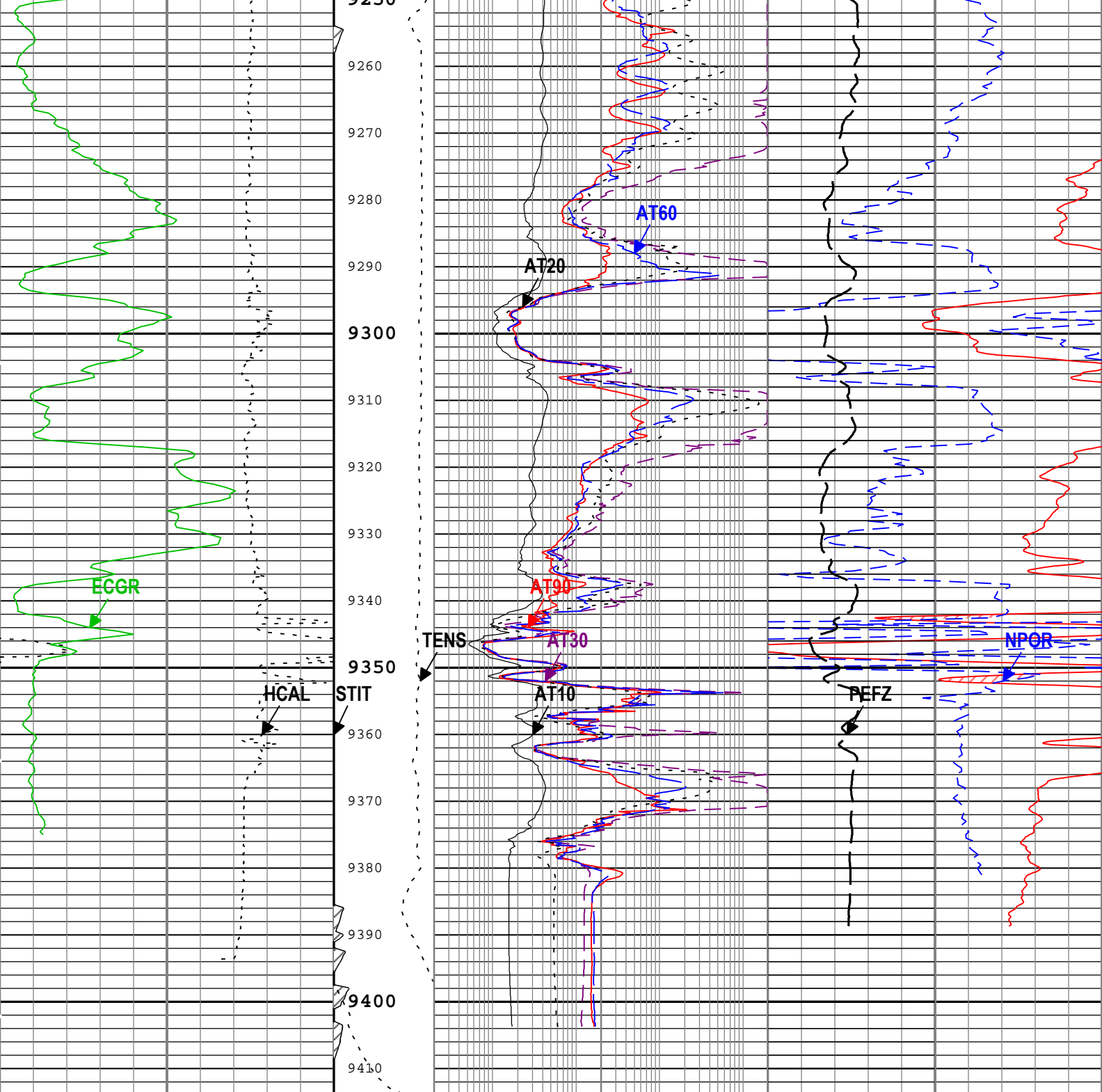












Gamma Ray Back up			Stuck Tool Indicator, Total (STIT)	Array Induction Two Foot Resistivity A10 (AT10) AIT-M			Gas Effect			
Caliper (HCAL) HDRS-H				0.2 ohm.m 2000			NPOR Backup			
1	in		11	0	ft		50			
Gamma Ray (ECGR) HGNS-H			Cable Tension (TENS)	Array Induction Two Foot Resistivity A30 (AT30) AIT-M			Standard Resolution Density Porosity (DPHZ) HDRS-H			
gAPI				0.2 ohm.m 2000			0.3 ft3/ft3 -0.1			
			5000 lbf	0	Array Induction Two Foot Resistivity A90 (AT90) AIT-M			Enhanced Thermal Neutron Porosity in Selected Lithology (NPOR) HGNS-H		
					0.2 ohm.m 2000			0.3 m3/m3 -0.1		
					Array Induction Two Foot Resistivity A20 (AT20) AIT-M			Standard Resolution Formation Photoelectric Factor (PEFZ) HDRS-H		
					0.2 ohm.m 2000					

	0.2	ohm.m	2000	(PEFZ) HDRS-H			
	Array Induction Two Foot Resistivity A60 (AT60) AIT-M			0	10		
	0.2	ohm.m	2000				
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: 09-Oct-2015 20:27:38							
Channel Processing Parameters							
One: Parameters							
Parameter	Description	Tool	Value	Unit			
ABHM	Array Induction Borehole Correction Mode	AIT-M	Compute Standoff				
ISSBAR	Barite Mud Presence Flag	Borehole	No				
BHS	Borehole Status (Open or Cased Hole)	Borehole	Open				
BHT	Bottom Hole Temperature	Borehole	230	degF			
BS	Bit Size	WLSESSION	8.75	in			
BSAL	Borehole Salinity	Borehole	0	ppm			
CALI_SHIFT	CALI Supplementary Offset	HDRS-H	0	in			
CBLO	Casing Bottom (Logger)	WLSESSION	1031	ft			
CDEN	Cement Density	HGNS-H	2	g/cm3			
DC_MODE	Depth Correction Mode	DepthCorrection	Real-time				
DFD	Drilling Fluid Density	Borehole	10	lbm/gal			
DFT	Drilling Fluid Type	Borehole	Water				
DHC	Density Hole Correction	HDRS-H	Bit Size				
EDF	Elevation of Derrick Floor Above Permanent Datum	WLSESSION	16	ft			
EPD	Elevation of Permanent Datum (PDAT) above Mean Sea Level	WLSESSION	4937	ft			
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				
GCSE_UP_PASS	Generalized Caliper Selection for WL Log Up Passes	Borehole	BS				
GGRD	Geothermal Gradient	Borehole	1	0.01 degF/ft			
GRSE	Generalized Mud Resistivity Selection, from Measured or Computed Mud Resistivity	Borehole	REMS				
GTSE	Generalized Temperature Selection, from Measured or Computed Temperature	Borehole	GTEM_LINEST				
HSCO	Hole Size Correction Option	HGNS-H	Yes				
MATR	Rock Matrix for Neutron Porosity Corrections	Borehole	Depth Zoned				
MDEN	Matrix Density for Density Porosity	Borehole	Depth Zoned	g/cm3			
MFST	Mud Filtrate Sample Temperature	Borehole	106	degF			
MST	Mud Sample Temperature	Borehole	106	degF			
PDAT	Permanent Datum	WLSESSION	GL				
RMFS	Resistivity of Mud Filtrate Sample	Borehole	0.13	ohm.m			
RMS	Resistivity of Mud Sample	Borehole	0.17	ohm.m			
SHT	Surface Hole Temperature	Borehole	68	degF			
Depth Zone Parameters							
Parameter	Value	Start (ft)	Stop (ft)				
MATR	SANDSTONE	2	7332				
MATR	LIMESTONE	7332	7600				
MATR	SANDSTONE	7600	9414				
MDEN	2.65	2	7332				
MDEN	2.71	7332	7600				

MDEN	2.65	7600	9414
------	------	------	------

All depth are actual.

Tool Control Parameters

One: Parameters

Parameter	Description	Tool	Value	Unit
HRGD_BOARD_TYPE	HRGD Board Type	HDRS-H	WITH_HET	
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	3600	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	Main[3]:Up	Up	9065.61 ft	9419.80 ft	09-Oct-2015 6:05:07 PM	09-Oct-2015 6:10:48 PM	OFF	18.21 ft	Yes
One	Main[4]:Up	Up	40.17 ft	9413.57 ft	09-Oct-2015 6:14:16 PM	09-Oct-2015 8:04:16 PM	OFF	-1.19 ft	Yes

All depths are referenced to toolstring zero

Log

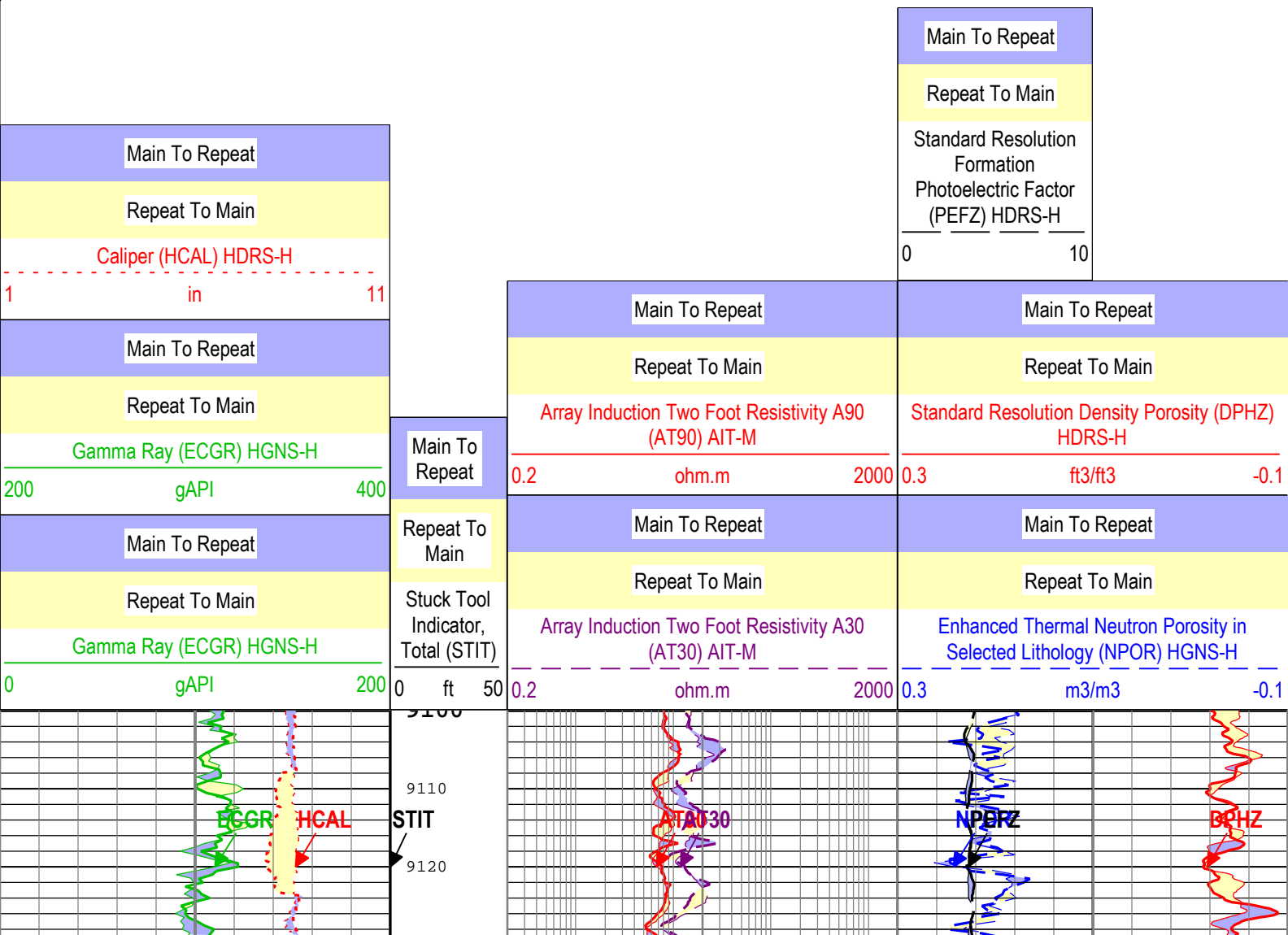
Company:NGL Water Solutions DJ LLC

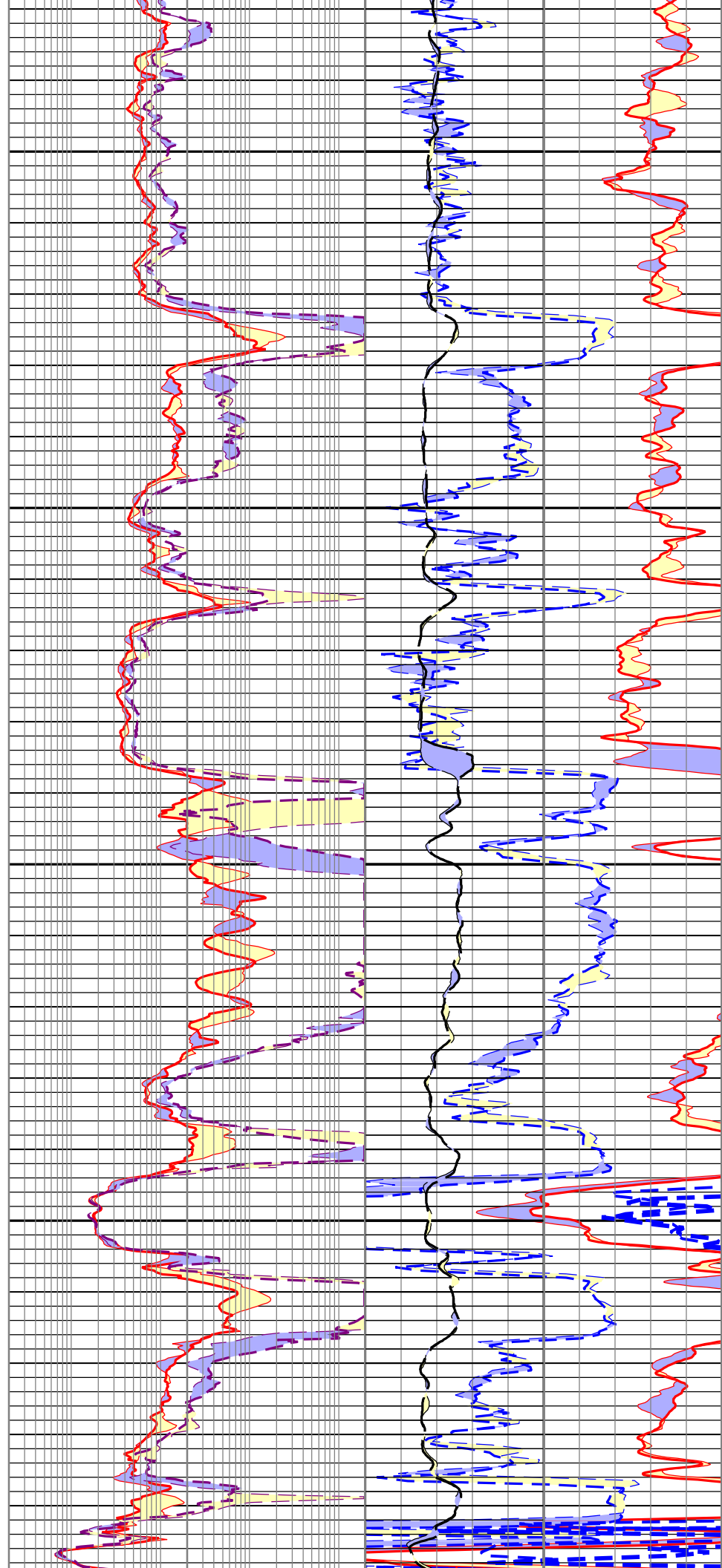
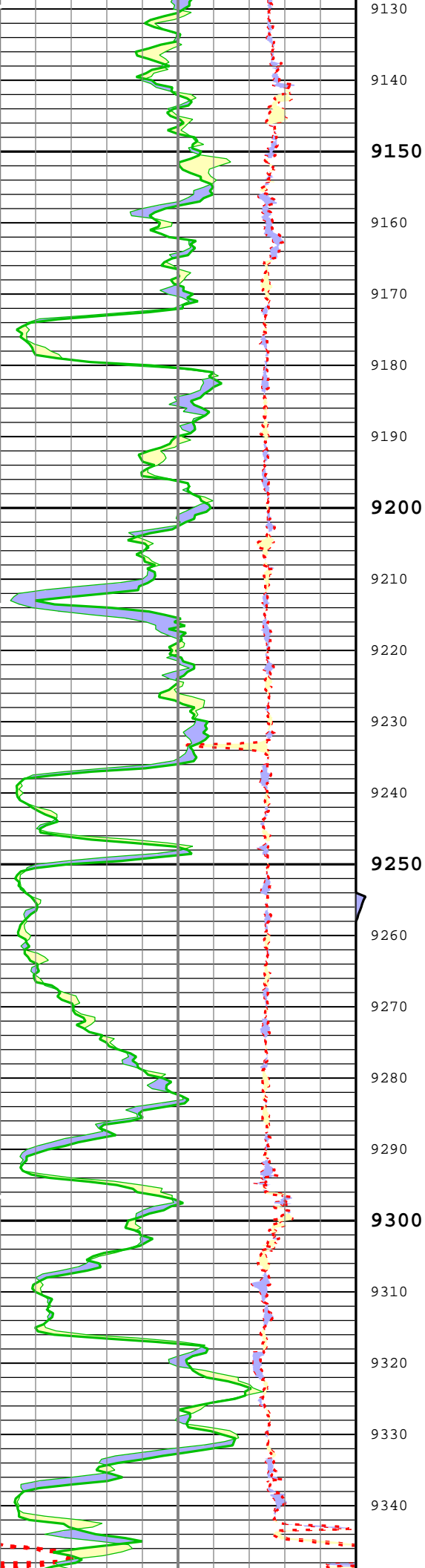
Well:NGL C5A

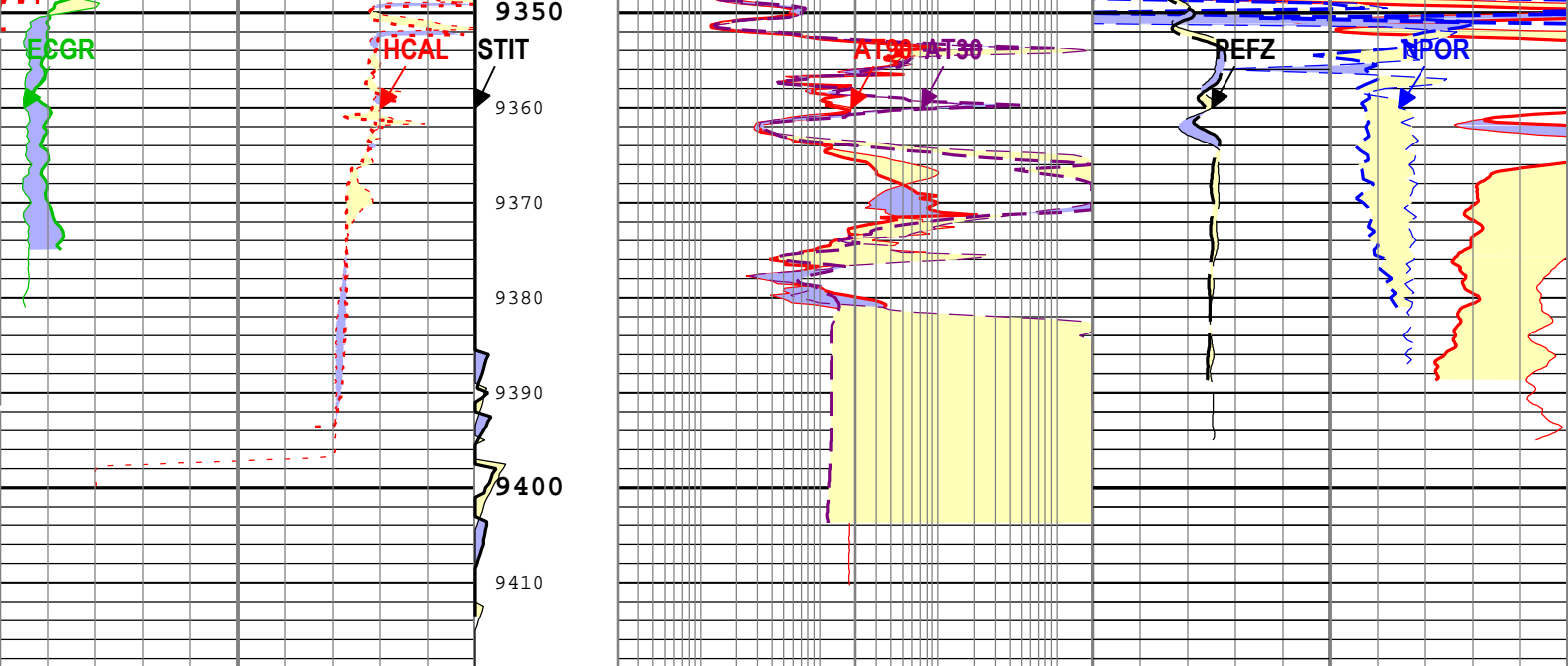
One: Main[3]:Up:S008

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: 09-Oct-2015 20:27:43

TIME_1900 - Time Marked every 60.00 (s)







Main To Repeat	Main To Repeat	Main To Repeat	Main To Repeat
Repeat To Main	Repeat To Main	Repeat To Main	Repeat To Main
Caliper (HCAL) HDRS-H	Array Induction Two Foot Resistivity A90 (AT90) AIT-M	Standard Resolution Density Porosity (DPHZ) HDRS-H	
1 in 11	0.2 ohm.m 2000	0.3 ft3/ft3 -0.1	
Main To Repeat	Main To Repeat	Main To Repeat	Main To Repeat
Repeat To Main	Repeat To Main	Repeat To Main	Repeat To Main
Gamma Ray (ECGR) HGNS-H	Array Induction Two Foot Resistivity A30 (AT30) AIT-M	Enhanced Thermal Neutron Porosity in Selected Lithology (NPOR) HGNS-H	
200 gAPI 400	0.2 ohm.m 2000	0.3 m3/m3 -0.1	
Main To Repeat		Main To Repeat	
Repeat To Main		Repeat To Main	
Gamma Ray (ECGR) HGNS-H		Standard Resolution Formation Photoelectric Factor (PEFZ) HDRS-H	
0 gAPI 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 RA) Index Scale: 5 in per 100 ft Index Unit: ft
Index Type: Measured Depth Creation Date: 09-Oct-2015 20:27:43

Calibration Report							
AIT-M (Array Induction Tool - M) Calibration - Run One							
Primary Equipment :							
File code for AIT-MA Sonde Tool Element			AMIS		50		
AIT Sonde Calibration - Test Loop Gain							
Master (EEPROM):		14:51:29 14-Jul-2015					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div><div></div><div></div></div>
Test Loop Gain - 0		Master	1.000	0.950	1.015	1.050	<div><div></div><div></div><div></div><div></div></div>
Test Loop Phase - 0	deg	Master	0	-3.000	3.064	3.000	<div><div></div><div></div><div></div><div></div></div>
Test Loop Gain - 1		Master	1.000	0.950	1.017	1.050	<div><div></div><div></div><div></div><div></div></div>
Test Loop Phase - 1	deg	Master	0	-3.000	-0.750	3.000	<div><div></div><div></div><div></div><div></div></div>

Test Loop Gain - 2		Master	1.000	0.950	1.014	1.050	
Test Loop Phase - 2	deg	Master	0	-3.000	-2.023	3.000	
Test Loop Gain - 3		Master	1.000	0.950	1.013	1.050	
Test Loop Phase - 3	deg	Master	0	-3.000	-1.119	3.000	
Test Loop Gain - 4		Master	1.000	0.950	0.995	1.050	
Test Loop Phase - 4	deg	Master	0	-3.000	-0.065	3.000	
Test Loop Gain - 5		Master	1.000	0.950	0.987	1.050	
Test Loop Phase - 5	deg	Master	0	-3.000	-0.663	3.000	
Test Loop Gain - 6		Master	1.000	0.950	0.998	1.050	
Test Loop Phase - 6	deg	Master	0	-3.000	-0.015	3.000	
Test Loop Gain - 7		Master	1.000	0.950	1.008	1.050	
Test Loop Phase - 7	deg	Master	0	-3.000	-0.192	3.000	

AIT Sonde Calibration - Sonde Error Correction

Master (EEPROM): 14:51:29 14-Jul-2015

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Sonde Error Correction Real - 0	mS/m	Master	----	-231.000	-80.433	119.000	
Sonde Error Correction Quad - 0		Master	----	-2250.000	-696.906	2250.000	
Sonde Error Correction Real - 1	mS/m	Master	----	114.000	153.807	204.000	
Sonde Error Correction Quad - 1		Master	----	-625.000	-159.131	625.000	
Sonde Error Correction Real - 2	mS/m	Master	----	66.000	115.638	156.000	
Sonde Error Correction Quad - 2		Master	----	-350.000	98.327	350.000	
Sonde Error Correction Real - 3	mS/m	Master	----	39.000	64.407	89.000	
Sonde Error Correction Quad - 3		Master	----	-250.000	-157.795	250.000	
Sonde Error Correction Real - 4	mS/m	Master	----	15.000	23.804	35.000	
Sonde Error Correction Quad - 4		Master	----	-63.000	-1.340	63.000	
Sonde Error Correction Real - 5	mS/m	Master	----	4.000	14.259	24.000	
Sonde Error Correction Quad - 5		Master	----	-50.000	-23.400	50.000	
Sonde Error Correction Real - 6	mS/m	Master	----	5.000	9.575	15.000	
Sonde Error Correction Quad - 6		Master	----	-30.000	-4.946	30.000	
Sonde Error Correction Real - 7	mS/m	Master	----	-5.000	-1.162	5.000	
Sonde Error Correction Quad - 7		Master	----	-30.000	-3.489	30.000	

AIT Mud Calibration - Mud Calibration Gain

Master (EEPROM): 14:51:29 14-Jul-2015

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Coarse Gain		Master	0.650	0.500	0.807	0.800	
Fine Gain		Master	0.650	0.500	0.808	0.800	

AIT Electronics Check - Thru Calibration Check

Master (EEPROM): 14:51:29 14-Jul-2015 Before (Measured): 17:10:26 09-Oct-2015 After:

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Thru Cal Mag - 0	V	Master	----	0.366	0.603	0.854	
		Before	----	0.366	0.603	0.854	
		After	----	----	----	----	
		Before-Master	----	----	0.000	----	
		After-Before	----	----	----	----	
Thru Cal Phase - 0	deg	Master	----	137.000	-165.932	-103.000	
		Before	----	137.000	-164.859	-103.000	
		After	----	----	----	----	
		Before-Master	----	----	1.073	----	
		After-Before	----	----	----	----	
Thru Cal Mag - 1	V	Master	----	0.762	1.236	1.778	
		Before	----	0.762	1.237	1.778	
		After	----	----	----	----	
		Before-Master	----	----	0.001	----	
		After-Before	----	----	----	----	
Thru Cal Phase - 1	deg	Master	----	136.000	-166.885	-104.000	
		Before	----	136.000	-165.812	-104.000	
		After	----	----	----	----	
		Before-Master	----	----	1.073	----	
		After-Before	----	----	----	----	
Thru Cal Mag - 2	V	Master	----	0.372	0.613	0.868	
		Before	----	0.372	0.613	0.868	

		After	----	----	0.000	----	<div><div></div></div>
		Before-Master	----	----	0.000	----	<div><div></div></div>
		After-Before	----	----	----	----	<div><div></div></div>
Thru Cal Phase - 2	deg	Master	----	132.000	-170.372	-108.000	<div><div></div></div>
		Before	----	132.000	-169.297	-108.000	<div><div></div></div>
		After	----	----	----	----	<div><div></div></div>
		Before-Master	----	----	1.075	----	<div><div></div></div>
		After-Before	----	----	----	----	<div><div></div></div>
Thru Cal Mag - 3	V	Master	----	0.420	0.691	0.980	<div><div></div></div>
		Before	----	0.420	0.691	0.980	<div><div></div></div>
		After	----	----	----	----	<div><div></div></div>
		Before-Master	----	----	0.000	----	<div><div></div></div>
		After-Before	----	----	----	----	<div><div></div></div>
Thru Cal Phase - 3	deg	Master	----	131.000	-171.109	-109.000	<div><div></div></div>
		Before	----	131.000	-170.030	-109.000	<div><div></div></div>
		After	----	----	----	----	<div><div></div></div>
		Before-Master	----	----	1.079	----	<div><div></div></div>
		After-Before	----	----	----	----	<div><div></div></div>
Thru Cal Mag - 4	V	Master	----	0.804	1.296	1.876	<div><div></div></div>
		Before	----	0.804	1.297	1.876	<div><div></div></div>
		After	----	----	----	----	<div><div></div></div>
		Before-Master	----	----	0.001	----	<div><div></div></div>
		After-Before	----	----	----	----	<div><div></div></div>
Thru Cal Phase - 4	deg	Master	----	125.000	-177.078	-115.000	<div><div></div></div>
		Before	----	125.000	-175.994	-115.000	<div><div></div></div>
		After	----	----	----	----	<div><div></div></div>
		Before-Master	----	----	1.084	----	<div><div></div></div>
		After-Before	----	----	----	----	<div><div></div></div>
Thru Cal Mag - 5	V	Master	----	1.176	1.887	2.744	<div><div></div></div>
		Before	----	1.176	1.887	2.744	<div><div></div></div>
		After	----	----	----	----	<div><div></div></div>
		Before-Master	----	----	0.000	----	<div><div></div></div>
		After-Before	----	----	----	----	<div><div></div></div>
Thru Cal Phase - 5	deg	Master	----	122.000	-178.611	-118.000	<div><div></div></div>
		Before	----	122.000	-177.522	-118.000	<div><div></div></div>
		After	----	----	----	----	<div><div></div></div>
		Before-Master	----	----	1.089	----	<div><div></div></div>
		After-Before	----	----	----	----	<div><div></div></div>
Thru Cal Mag - 6	V	Master	----	1.176	1.886	2.744	<div><div></div></div>
		Before	----	1.176	1.886	2.744	<div><div></div></div>
		After	----	----	----	----	<div><div></div></div>
		Before-Master	----	----	0.000	----	<div><div></div></div>
		After-Before	----	----	----	----	<div><div></div></div>
Thru Cal Phase - 6	deg	Master	----	121.000	-178.589	-119.000	<div><div></div></div>
		Before	----	121.000	-177.498	-119.000	<div><div></div></div>
		After	----	----	----	----	<div><div></div></div>
		Before-Master	----	----	1.091	----	<div><div></div></div>
		After-Before	----	----	----	----	<div><div></div></div>
Thru Cal Mag - 7	V	Master	----	0.846	1.357	1.974	<div><div></div></div>
		Before	----	0.846	1.358	1.974	<div><div></div></div>
		After	----	----	----	----	<div><div></div></div>
		Before-Master	----	----	0.001	----	<div><div></div></div>
		After-Before	----	----	----	----	<div><div></div></div>
Thru Cal Phase - 7	deg	Master	----	115.000	-179.376	-125.000	<div><div></div></div>
		Before	----	115.000	-178.241	-125.000	<div><div></div></div>
		After	----	----	----	----	<div><div></div></div>
		Before-Master	----	----	1.135	----	<div><div></div></div>
		After-Before	----	----	----	----	<div><div></div></div>
SPA Zero	mV	Master		-50.000	0.155	50.000	<div><div></div></div>
		Before		-50.000	0.232	50.000	<div><div></div></div>
		After	----	----	----	----	<div><div></div></div>
		Before-Master	----	----	0.077	----	<div><div></div></div>
		After-Before	----	----	----	----	<div><div></div></div>
SPA Plus	mV	Master		941.000	988.096	1040.000	<div><div></div></div>

Temperature Plus	mV	Master		941.000	988.093	1040.000	
		Before					
		After	----	----	----	----	
		Before-Master	----	----	-0.003	----	
Temperature Zero	V	Master		-0.050	0.000	0.050	
		Before		-0.050	0.000	0.050	
		After	----	----	----	----	
		Before-Master	----	----	0.000	----	
Temperature Plus	V	Master		0.870	0.915	0.960	
		Before		0.870	0.915	0.960	
		After	----	----	----	----	
		Before-Master	----	----	0.000	----	

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

Primary Equipment :		
HILT High-Resolution Control Cartridge, 150 degC	HRCC-H	4823
HILT Resistivity Gamma-Ray Density Device, 150 degC	HRGD-H	5788
Auxiliary Equipment :		
HRDD Backscatter Detector	Backscatter	
HRDD Long Spacing Detector	Long Spacing	
HRDD Short Spacing Detector	Short Spacing	
Cesium 137 Gamma-Ray Logging Source	GSR-J	5094
HILT High-Resolution Control Cartridge, 150 degC	HRCC-H	4823
HILT High-Resolution Mechanical Sonde, 150 degC	HRMS-H	4775
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): 10:53:54 08-Oct-2015 Expired by 1 days							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Small Ring	in	Before	8.00	6.00	8.26	10.00	
Large Ring	in	Before	12.00	9.00	12.58	15.00	

HDRS Density Calibration - Inversion Results

Master (EEPROM): 14:05:08 28-Sep-2015							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Rho Aluminum	g/cm3	Master	2.596	2.586	2.597	2.606	
Rho Magnesium	g/cm3	Master	1.686	1.676	1.691	1.696	
Pe Aluminum		Master	2.570	2.470	2.593	2.670	
Pe Magnesium		Master	2.650	2.550	2.573	2.750	

HDRS Density Calibration - Deviation Summary

Master (EEPROM): 14:05:08 28-Sep-2015							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
BS Average Deviation	%	Master	0	-0.6000	0.3523	0.6000	
BS Max Deviation	%	Master	0	-1.6000	0.8115	1.6000	
SS Average Deviation	%	Master	0	-1.0000	0.5689	1.0000	
SS Max Deviation	%	Master	0	-2.5000	1.1386	2.5000	
LS Average Deviation	%	Master	0	-1.5000	1.0425	1.5000	
LS Max Deviation	%	Master	0	-3.5000	1.9449	3.5000	

HDRS Density Calibration - Background Summary

Master (EEPROM): 14:05:08 28-Sep-2015				Before (Measured): 10:51:44 08-Oct-2015 Expired by 1 days			
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
BS Window Ratio		Master	1.0000		0.7372		
		Before	0.7372	0.7003	0.7375	0.7740	

		Before-Master	-----	-----	0.0003	-----	
BS Window Sum	1/s	Master	1		24337		
		Before	24337	23121	24362	25554	
		Before-Master	-----	-----	25	-----	
SS Window Ratio		Master	1.0000		0.4894		
		Before	0.4894	0.4649	0.4892	0.5138	
		Before-Master	-----	-----	-0.0002	-----	
SS Window Sum	1/s	Master	1		11717		
		Before	11717	11131	11690	12302	
		Before-Master	-----	-----	-27	-----	
LS Window Ratio		Master	1.0000		0.2996		
		Before	0.2996	0.2846	0.3022	0.3146	
		Before-Master	-----	-----	0.0026	-----	
LS Window Sum	1/s	Master	1		1324		
		Before	1324	1258	1323	1391	
		Before-Master	-----	-----	-1	-----	

HDRS Density Calibration - Photo-multiplier High Voltages

Master (EEPROM):		14:05:08 28-Sep-2015		Before (Measured):		10:51:44 08-Oct-2015 Expired by 1 days	
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
BS PM High Voltage	V	Master		1000	1508	2400	
		Before		1000	1515	2400	
		Before-Master	-----	-100	7	100	
SS PM High Voltage	V	Master		1000	1834	2400	
		Before		1000	1866	2400	
		Before-Master	-----	-100	32	100	
LS PM High Voltage	V	Master		1000	1267	2400	
		Before		1000	1271	2400	
		Before-Master	-----	-100	4	100	

HDRS Density Calibration - Crystal Quality Resolutions

Master (EEPROM):		14:05:08 28-Sep-2015		Before (Measured):		10:51:44 08-Oct-2015 Expired by 1 days	
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
BS Crystal Resolution	%	Master		5.00	10.71	25.00	
		Before		5.00	10.74	25.00	
		Before-Master	-----	-1.00	0.03	1.00	
SS Crystal Resolution	%	Master		5.00	9.63	20.00	
		Before		5.00	9.72	20.00	
		Before-Master	-----	-1.00	0.09	1.00	
LS Crystal Resolution	%	Master		5.00	8.40	20.00	
		Before		5.00	8.32	20.00	
		Before-Master	-----	-1.00	-0.08	1.00	

HDRS MCFL Calibration - MCFL Accumulations

Before (Measured):		10:54:19 08-Oct-2015 Expired by 1 days					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Main Resistivity	ohm.m	Before	3875	3565	3890	4185	
Deep Resistivity	ohm.m	Before	3830	3524	3822	4136	
Shallow Resistivity	ohm.m	Before	3830	3524	3844	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	4779
Auxiliary Equipment :			
HGNS Accelerometer, 150 degC		HACCZ-H	5736
AmBe Neutron Logging Source		NSR-F	5215
Calibration Parameter :			
Water Temperature			
Housing Size			
IIG-BKG (Iig minus background reference)			

HGNS Accelerometer Calibration - Accelerometer Accumulations

Before (Measured): 11:49:33 05-Oct-2015 Expired by 3 days

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-Mar-2006

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Accelerometer Manufacturer		Master			QAT_160		
Accelerometer Reference Temperature	degF	Master		30.2	77.0	122.0	
Accelerometer Coefficients - 0		Master	----	----	8083.000	----	
Accelerometer Coefficients - 1		Master	----	----	-8.467	----	
Accelerometer Coefficients - 2		Master	----	----	0.009	----	
Accelerometer Coefficients - 3		Master	----	----	0.000	----	
Accelerometer Coefficients - 4		Master	----	----	2.721	----	
Accelerometer Coefficients - 5		Master	----	----	0.000	----	
Accelerometer Coefficients - 6		Master	----	----	0.000	----	
Accelerometer Coefficients - 7		Master	----	----	0.000	----	
Accelerometer Coefficients - 8		Master	----	----	298.700	----	
Accelerometer Coefficients - 9		Master	----	----	0.995	----	

HGNS Neutron Calibration - HGNS Neutron Accumulations

Master (EEPROM): 18:02:56 29-Sep-2015 Before (Measured): 10:48:38 08-Oct-2015 After: Expired by 1 days

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Near Zero Measurement	1/s	Master	0	5.0	24.3	40.0	
		Before	0	5.0	24.7	40.0	
		After	----	----	----	----	
		Before-Master	----	-3.6	0.4	3.6	
		After-Before	----	----	----	----	
Far Zero Measurement	1/s	Master	0	5.0	30.9	40.0	
		Before	0	5.0	27.6	40.0	
		After	----	----	----	----	
		Before-Master	----	-4.6	-3.3	4.6	
		After-Before	----	----	----	----	
Near Plus Measurement	1/s	Master	6031.0	4700.0	5278.0	6900.0	
		Before	----	----	----	----	
		After	----	----	----	----	
		Before-Master	----	----	----	----	
		After-Before	----	----	----	----	
Far Plus Measurement	1/s	Master	2793.0	1900.0	2226.0	2900.0	
		Before	----	----	----	----	
		After	----	----	----	----	
		Before-Master	----	----	----	----	
		After-Before	----	----	----	----	
Near Corrected Plus Measurement	1/s	Master		4700.0	5307.0	6900.0	
		Before	----	----	----	----	
		After	----	----	----	----	
		Before-Master	----	----	----	----	
		After-Before	----	----	----	----	
Far Corrected Plus Measurement	1/s	Master		1900.0	2230.0	2900.0	
		Before	----	----	----	----	
		After	----	----	----	----	
		Before-Master	----	----	----	----	
		After-Before	----	----	----	----	

HGNS Gamma-Ray Calibration - Gamma-Ray Accumulations

Before (Measured): 10:58:09 08-Oct-2015 Expired by 1 days After:

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
RGR Zero Measurement	gAPI	Before	30.0	0	89.2	120.0	
		After	----	----	----	----	
		After-Before	----	----	----	----	
RGR Plus Measurement	gAPI	Before	185.4	157.1	166.0	206.3	

		After	----	----	NOT DONE	----		
		After-Before	----	----	----	----		
GR Calibration Gain		Before	0.89	0.80	0.99	1.05		
		After	----	----	----	----		
		After-Before	----	----	----	----		

Company:

NGL Water Solutions DJ LLC

Well:

NGL C5A

Field:

Wattenberg

County:

Weld

Country:

USA

Schlumberger

Platform Express

National Express

Triple Combo