

Company: Cub Creek Energy

Well: Markham 11

Field: Wattenberg

County: Weld Country: US

Platform Express

Triple Combo

County:	Weld			
Field:	Wattenberg			
Location:	SHL: NWSE S32, T4N, R68W		Elev.:	K.B. 1545.00 ft
	2485 FSL & 1517 FEL			G.L. 1528.00 ft
	LAT: 40.262906 / LONG: -105.02313			D.F. 1545.00 ft
Permanent Datum:		Ground Level	Elev.:	1528.00 f
Log Measured From:		Kelly Bushing	17.00 ft	above Perm.Datum
Drilling Measured From:		Kelly Bushing		
API Serial No.		Max.Hole Deviation	Longitude:	Latitude:
05-123-43275			-105.02313 degrees	40.269060 degrees

Logging Date 08-Aug-2016

Run Number Two

Depth Driller 7943.00 ft

Schlumberger Depth 7553.00 ft

Bottom Log Interval 7553.00 ft

Top Log Interval 1531.00 ft

Casing Driller Size @ Depth 9.625 in @ 1528.00 ft

Casing Schlumberger 1531 ft

Bit Size 8.75 in

Type Fluid In Hole Fresh Water

Density Viscosity 10 lbm/gal 55 s

Fluid Loss PH 5.4 cm3 9

MUD Source of Sample Active Tank

RM @ Meas Temp 1.33 ohm.m @ 75 degF

RMF @ Meas Temp 1.01 ohm.m @ 75 degF

RMC @ Meas Temp 2.01 ohm.m @ 75 degF

Source RMF RMC Calculated Calculated

RM @ BHT RMF @ BHT 0.56 @ 189 0.42 @ 189

Max Recorded Temperatures 189 degF

Circulation Stopped 08-Aug-2016 01:20:00

Logger on Bottom 08-Aug-2016 22:06:00

Unit Number 9115 Location: Fort Morgan, CO

Recorded By Benjamin Mammon

Witnessed By Tom Thomas

Disclaimer

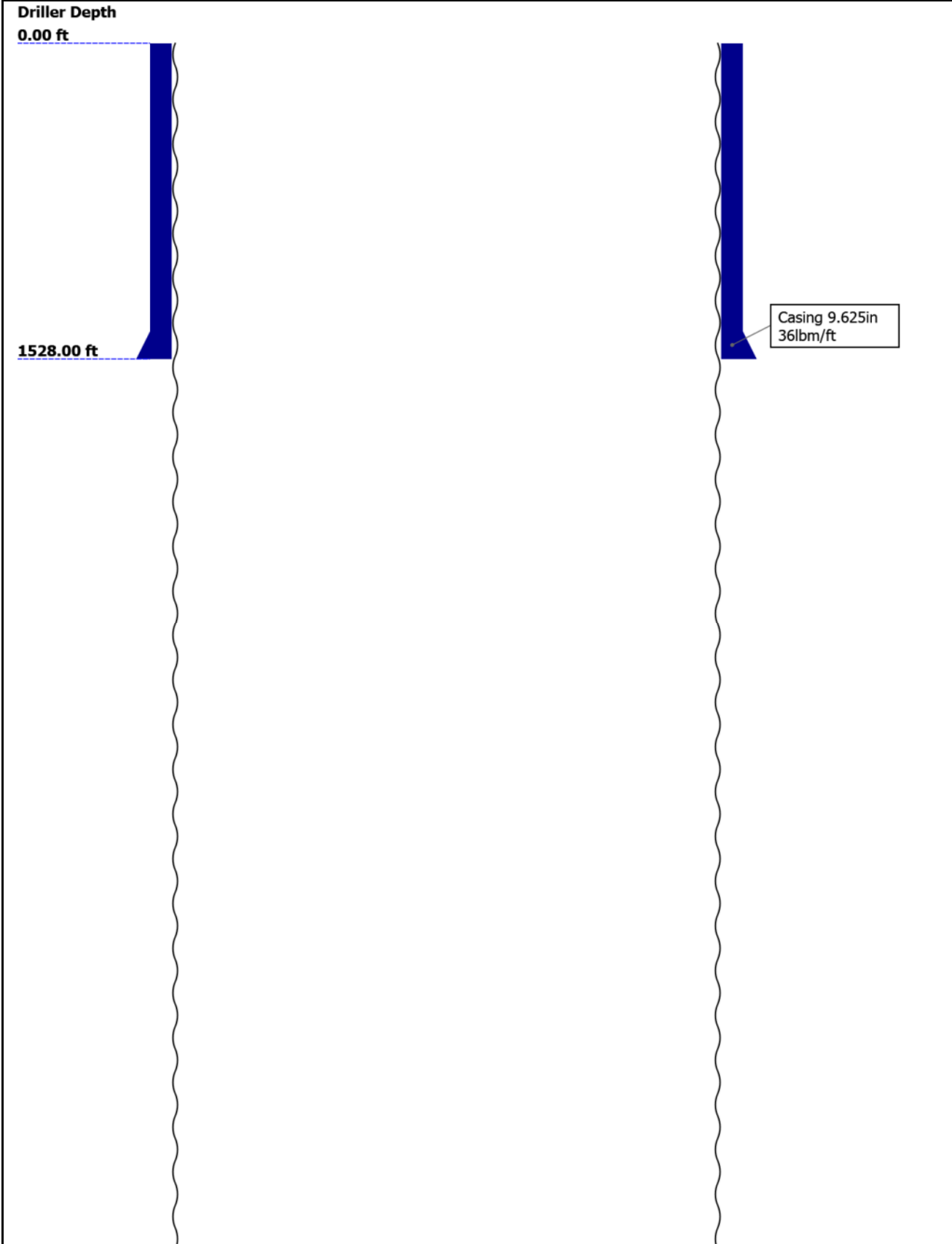
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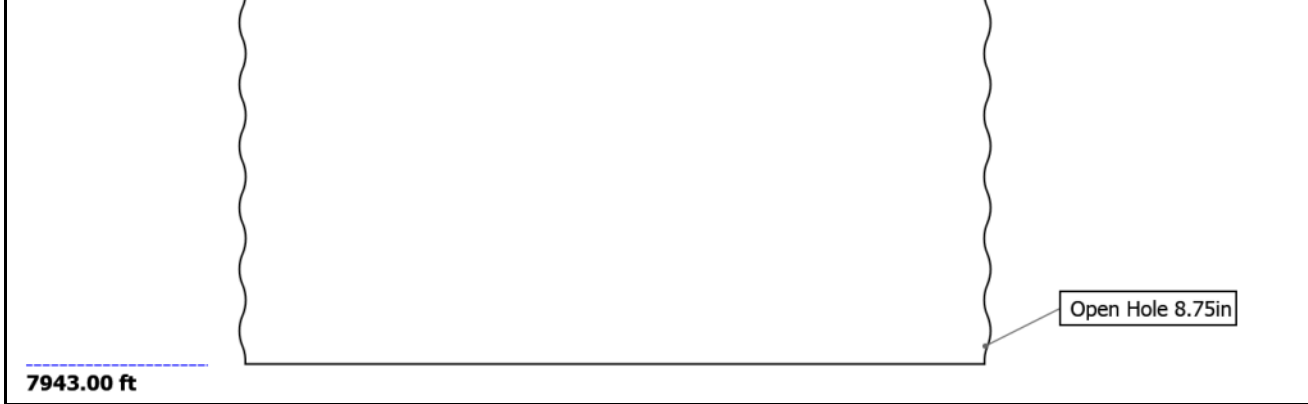
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Well Sketch





Borehole Size/Casing/Tubing Record

Bit						
Bit Size (in)	8.75					
Top Driller (ft)	0					
Top Logger (ft)	0					
Bottom Driller (ft)	7943					
Bottom Logger (ft)	7553					
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)	1528					
Bottom Logger (ft)	1531					

Operational Run Summary

Parameter (unit)	Two					
Date Log Started	08-Aug-2016					
Time Log Started	21:23:00					
Date Log Finished						
Time Log Finished						
Top Log Interval (ft)						
Bottom Log Interval (ft)						
Total Depth (ft)						
Max Hole Deviation (deg)						
Azimuth of Max Deviation (deg)						
Bit Size (in)	8.750					
Logging Unit Number	9115					
Logging Unit Location	Fort Morgan, CO					
Recorded By	Benjamin Marmon					

Witnessed By	Tom Thomas					
Service Order Number	D5ND-00120					

Remarks and Equipment Summary

Two: Toolstring				Two: Remarks
Equip name LEH-QT LEH-QT	Length 43.57	MP name	Offset	Tools ran as per toolsketch
				This is the first log in the well.
				TCOM ran without bowsprings or standoff due to hole conditions.
DTC-H ECH-KC DTC-H	40.65	CTEM HV	39.75 0.00	Logs were recorded as deep as tools could fall in the dog leg.
		TelStatus ToolStatus Temperatu re	37.65 37.65 37.62	Logs started at sonde deviation of 52 deg at 7553'
HGNS-H HGNH NPV-N NSR-F:5068 HACCZ-H:699 1 HGNS-H HMCA-H	37.65	GR	36.91	CSG Shoe @ 1531'
				Caliper shifted -0.914" in casing.
		CNL Poros ity HGNS HMCA Accelerom eter	30.57 28.24 28.24 0.00	
HDRS-H:477 5 ECH-MEB HRCC-H HRMS-H:4775 Short Spacing Long Spacing GPV-Q GSR-J:5471 HRGD-H:5788 Backscatter	28.24	HRCC	24.24	
		MCFL Caliper TLD Densi ty	18.81 18.33 17.94	
AIT-M:50 AMIS: 50 AMRM	16.00			
		Power Sup ply Induction Temperatu re	7.91 7.91 7.91	

		
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Depth Summary	
	Two

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

Tension Device			
Type	CMTD-B/A		
Serial Number			
Calibration Date			
Calibrator Serial Number			
Number of Calibration Points	0		

Logging Cable			
Type	7-46NT-XS		
Serial Number			
Length	24000.00 ft		
Conveyance Type	Wireline		
Rig Type	Land		

Two:Depth Control Parameters		Depth Control Remarks	
Log Sequence	First Log In the Well	All Schlumberger depth control procedures followed during logging operations. IDW used as primary depth control device. ZChart used as secondary depth control device.	
Rig Up Length At Surface			
Rig Up Length At Bottom			
Rig Up Length Correction			
Stretch Correction			
Tool Zero Check At Surface			

Composite 1			
5" Triple Combo			

Software Version			
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Acquisition System		Version	
Maxwell 2016 SP2		6.2.64464.3100	

Composite Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
Two	Log[9]:Up	Up	1409.45 ft	4669.71 ft	09-Aug-2016 12:20:02 AM	09-Aug-2016 1:14:55 AM	ON	21.09 ft	No
Two	Log[10]:Up	Up	3926.01 ft	7584.55 ft	09-Aug-2016 1:42:36 AM	09-Aug-2016 2:44:17 AM	ON	31.25 ft	No

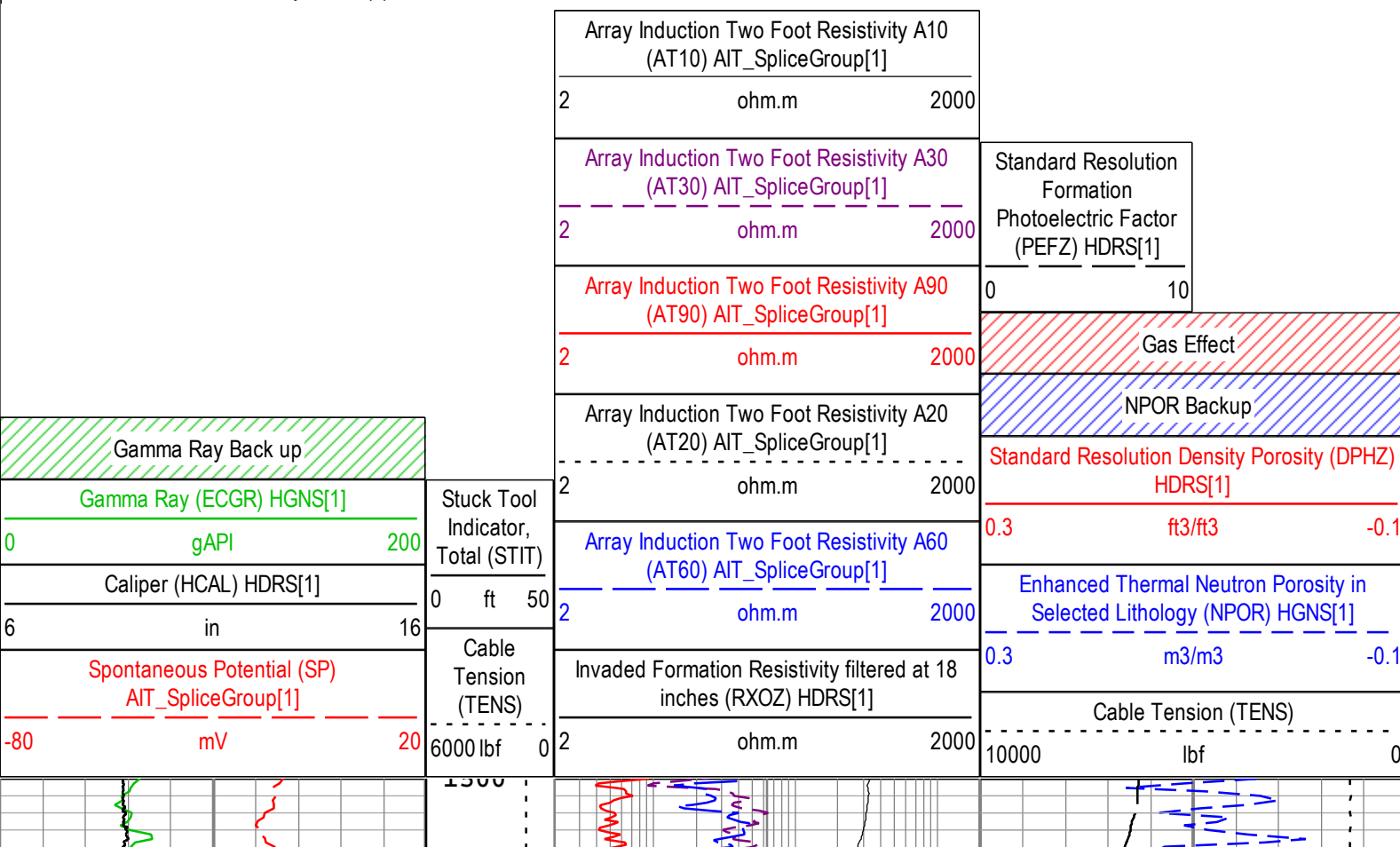
All depths are referenced to toolstring zero

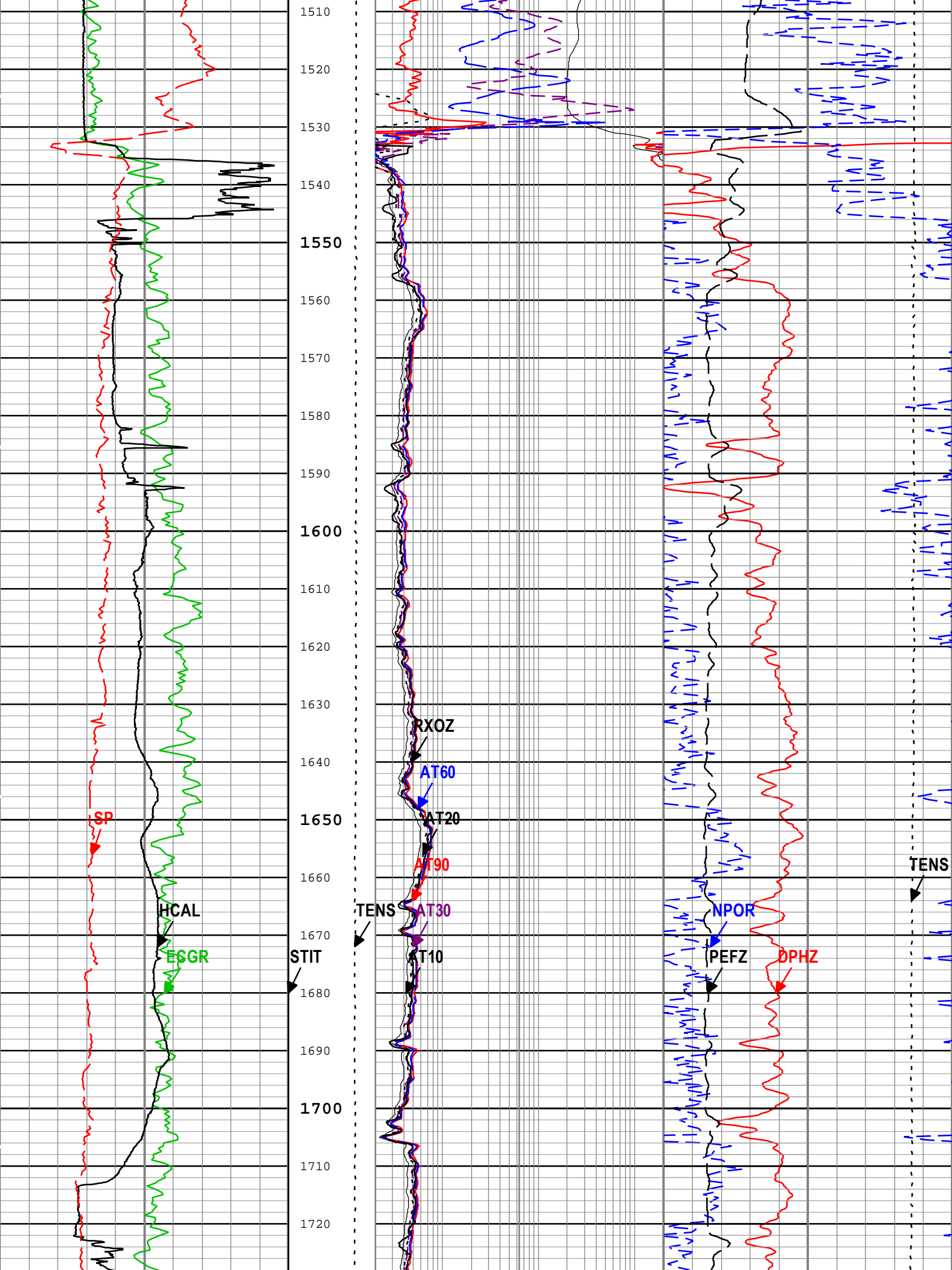
Log	Company:Cub Creek Energy Well:Markham 11 Composite 1:S012
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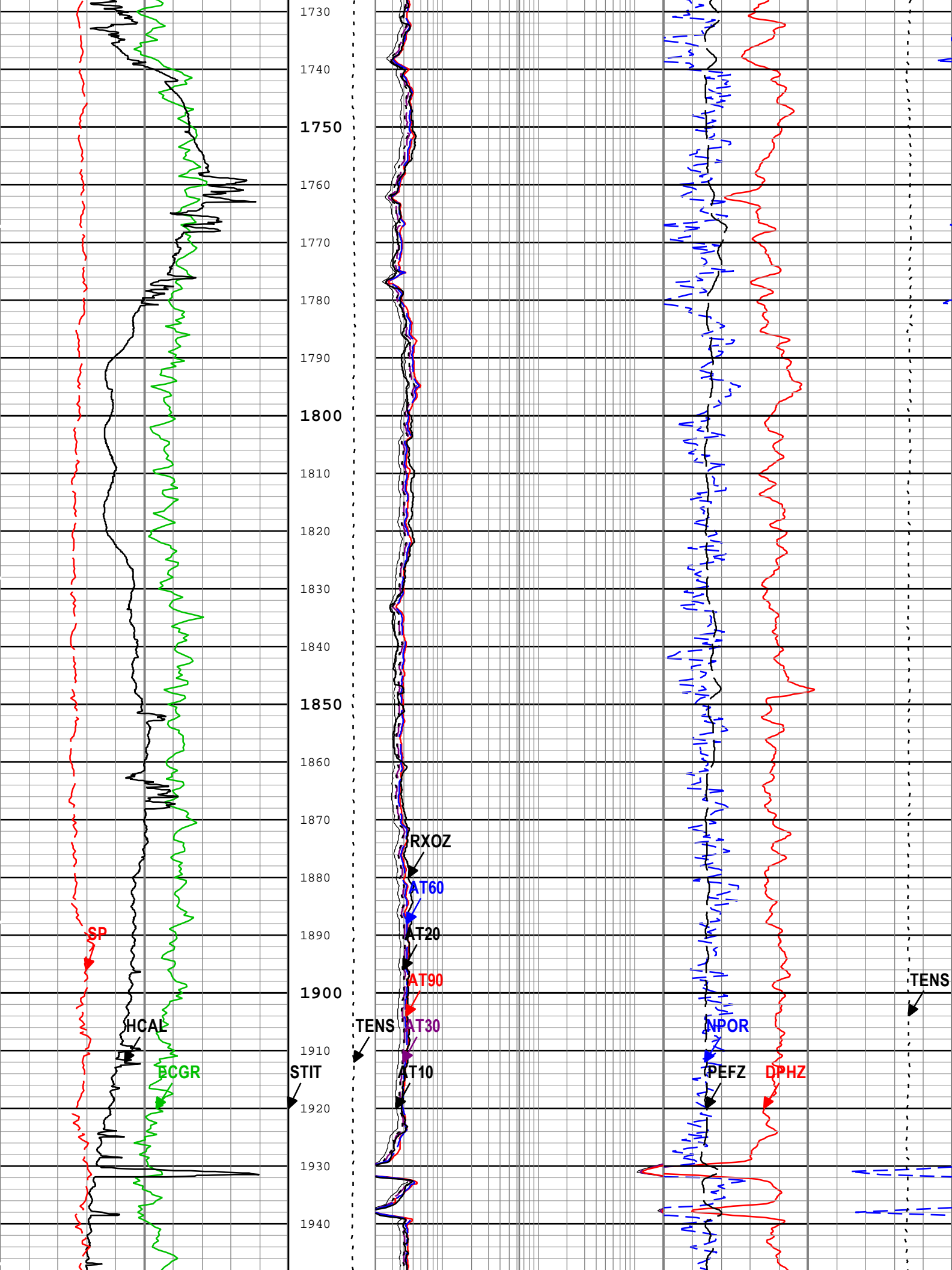
Description: HGNS standard resolution porosities for Platform Express Format: Log (Import (3) of KM 5in Triple Combo) Index Scale: 5 in per 100 ft
Index Unit: ft Index Type: Measured Depth Creation Date: 09-Aug-2016 02:58:45

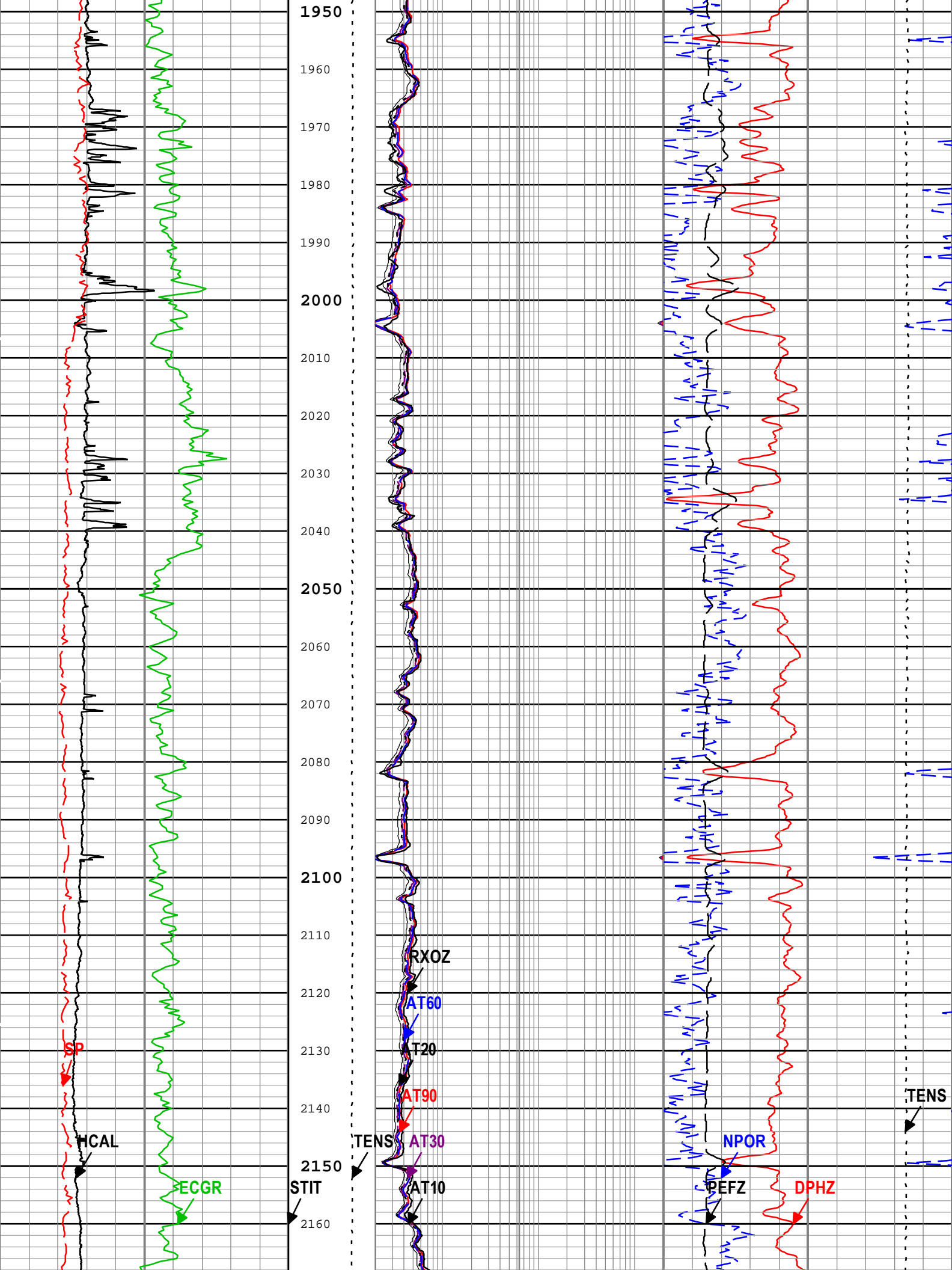
Channel	Source	Sampling
AT10	AIT_SpliceGroup[1]:AMIS[1]:AMIS[1]	3in
AT20	AIT_SpliceGroup[1]:AMIS[1]:AMIS[1]	3in
AT30	AIT_SpliceGroup[1]:AMIS[1]:AMIS[1]	3in
AT60	AIT_SpliceGroup[1]:AMIS[1]:AMIS[1]	3in
AT90	AIT_SpliceGroup[1]:AMIS[1]:AMIS[1]	3in
CALI	HDRS[1]:HRCC-H[1]:HRCC-H[1]	1in
DPHZ	HDRS[1]:HRMS-H[1]:HRGD-H[1]	2in
GR	HGNS[1]:HGNS-H[1]:HGNS-H[1]	6in
NPOR	HGNS[1]:HGNS-H[1]:HGNS-H[1]	6in
PEFZ	HDRS[1]:HRMS-H[1]:HRGD-H[1]	2in
RXOZ	HDRS[1]:HRMS-H[1]:HRGD-H[1]	2in
SP	AIT_SpliceGroup[1]:AMIS[1]:AMIS[1]	6in
STIT	DepthCorrection	6in
TENS	WLWorkflow	6in
TIME_1900	WLWorkflow	0.1in

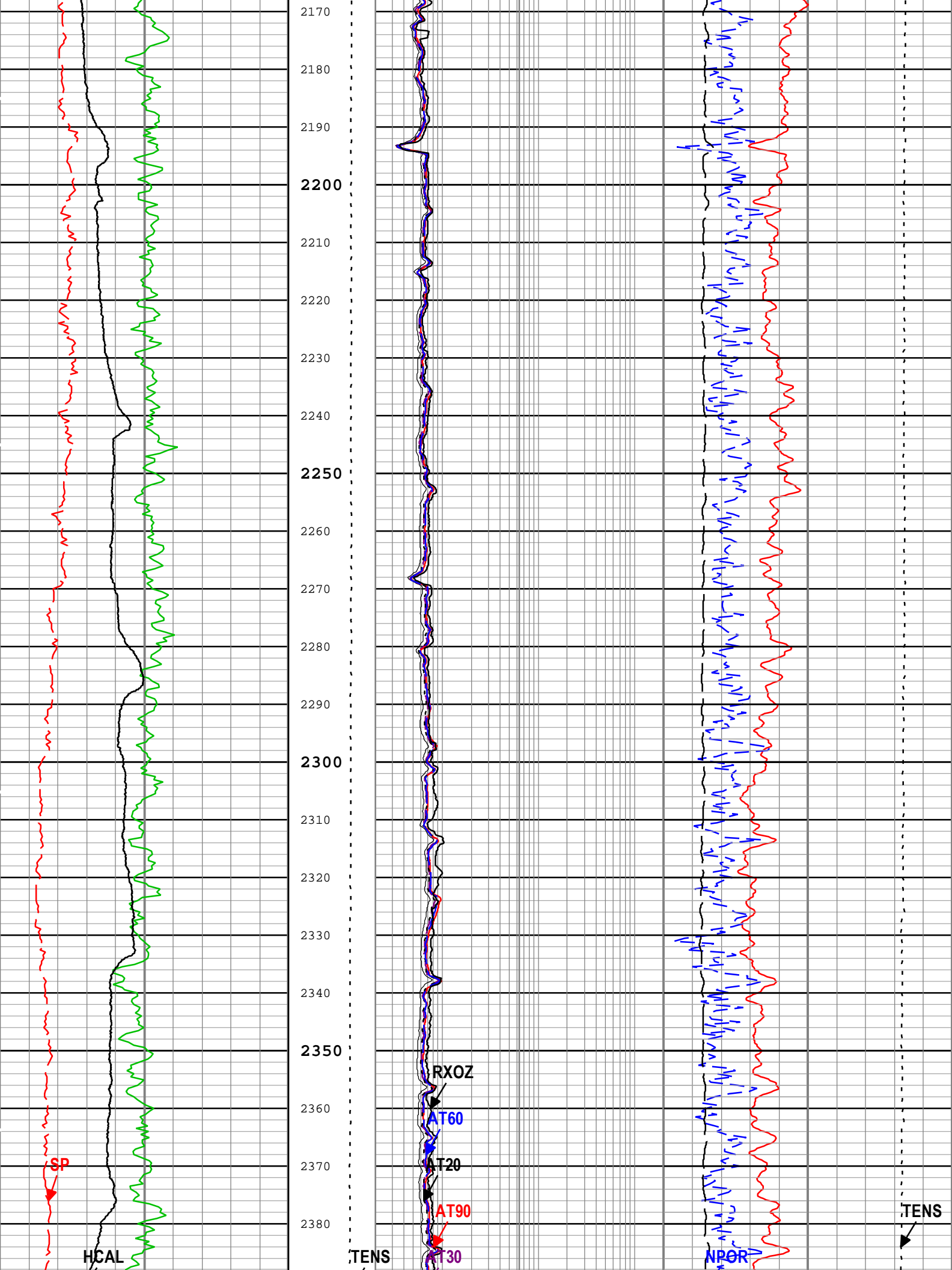
TIME_1900 - Time Marked every 60.00 (s)

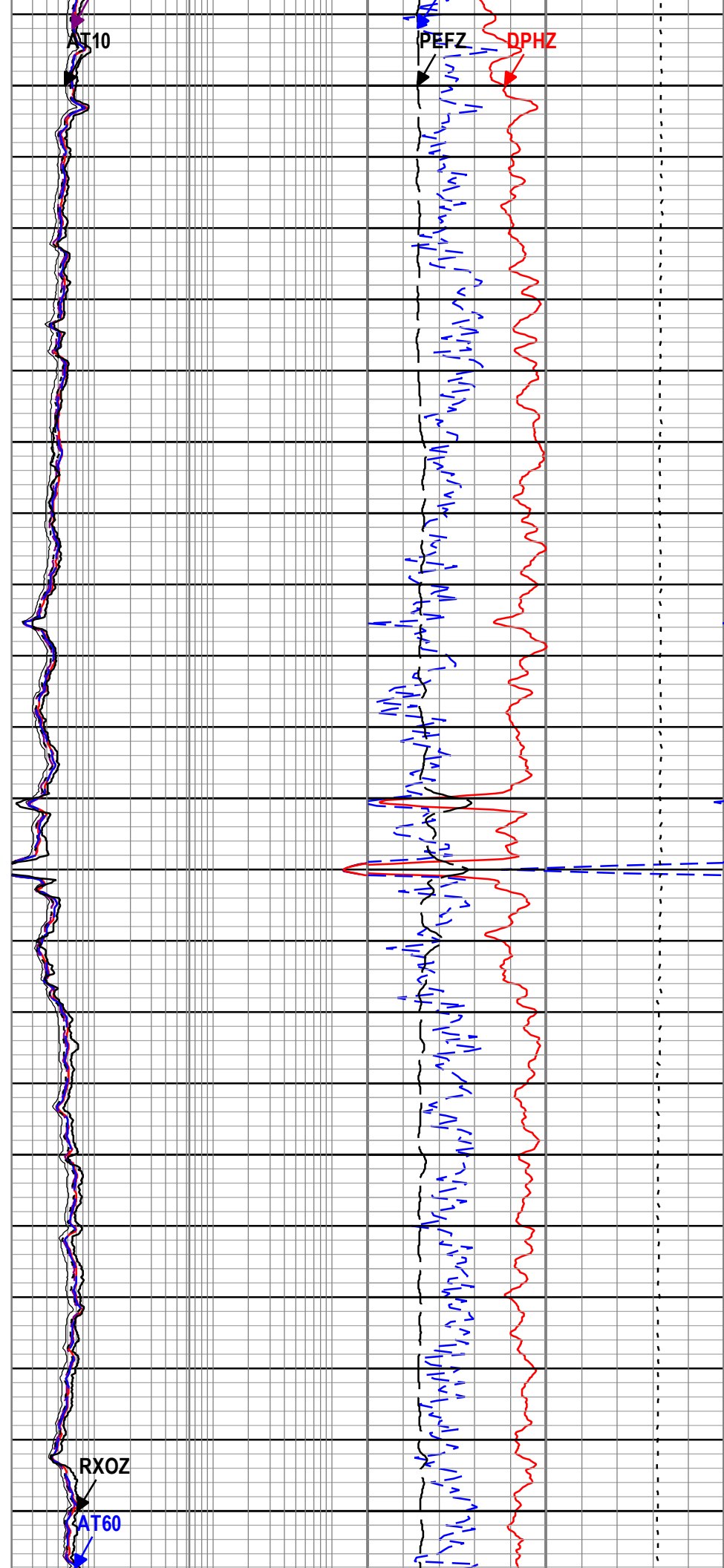
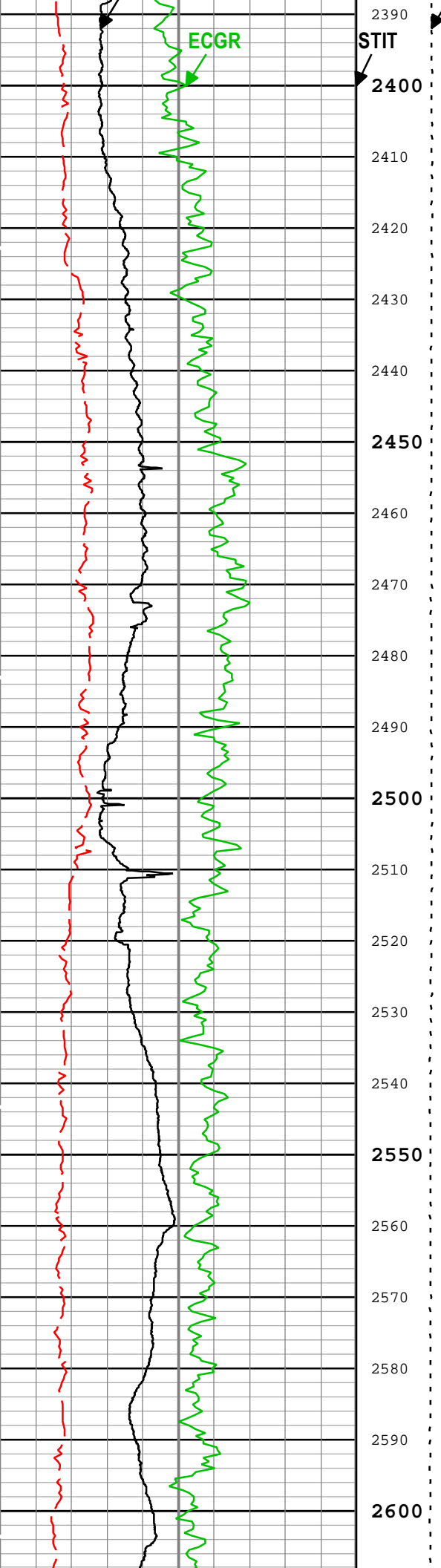


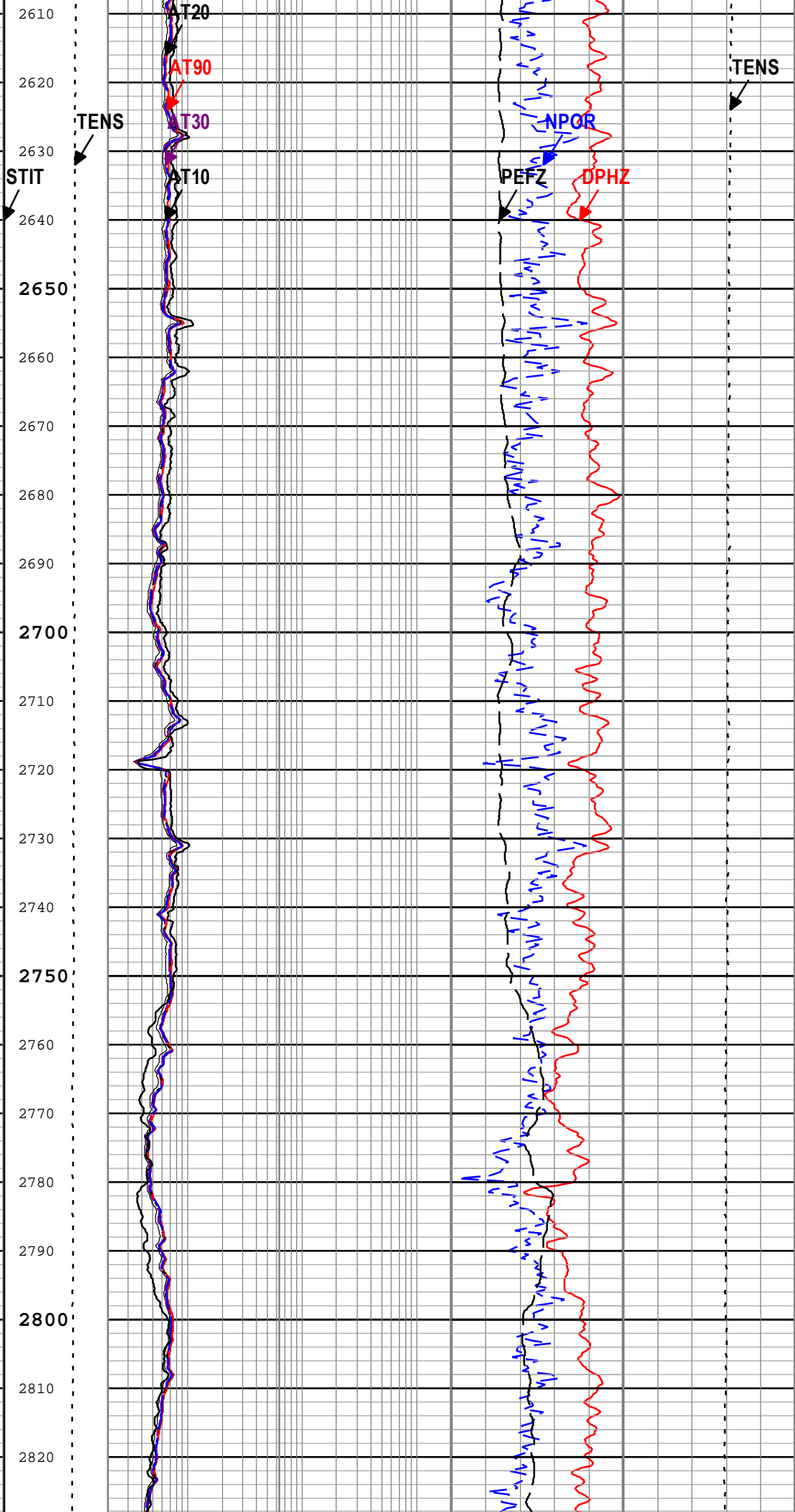
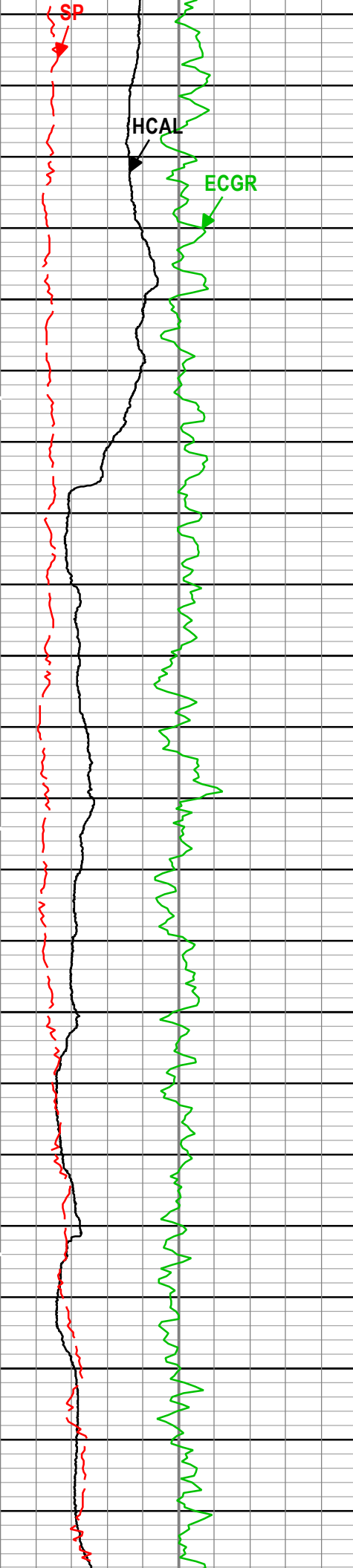


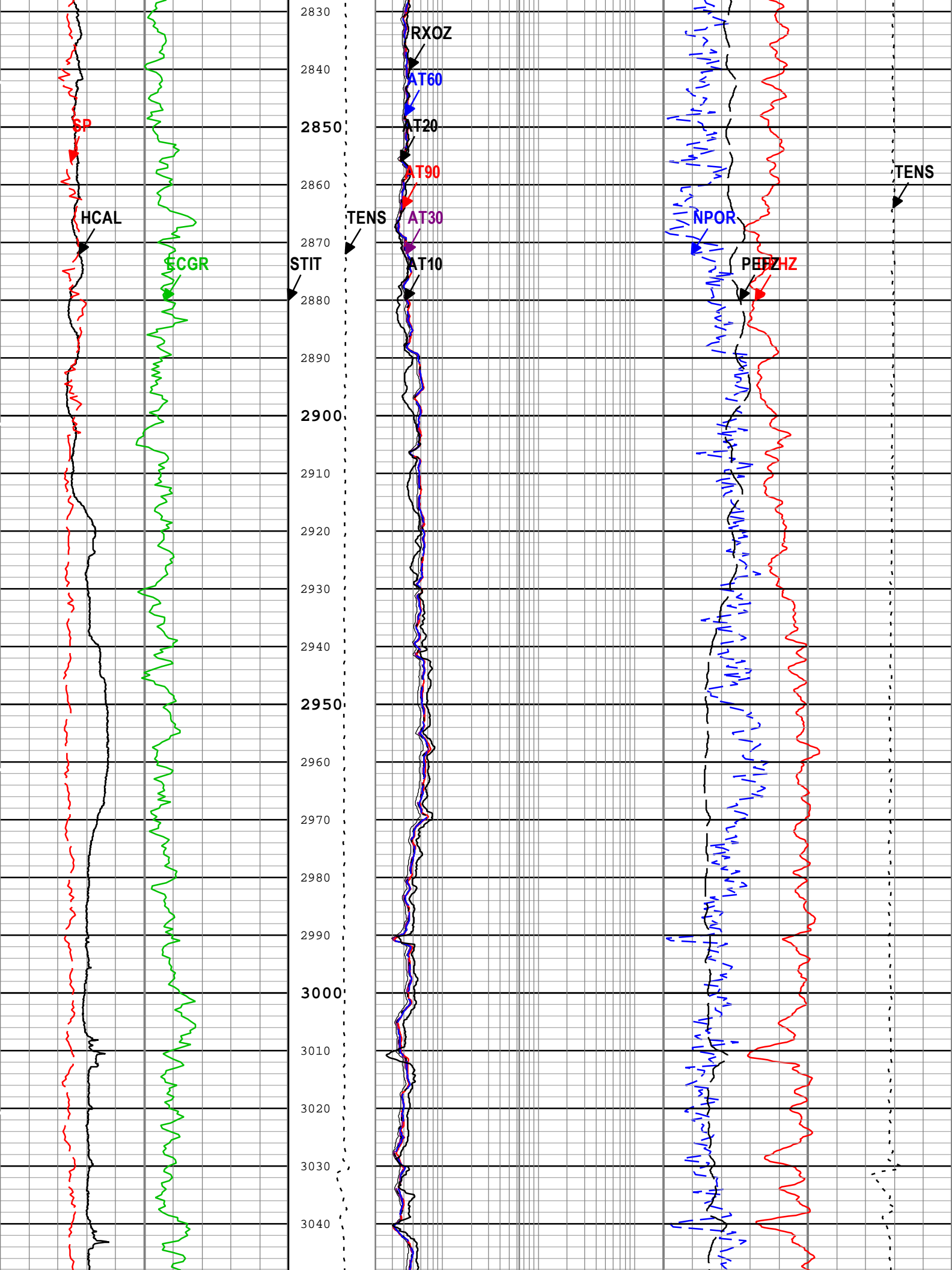


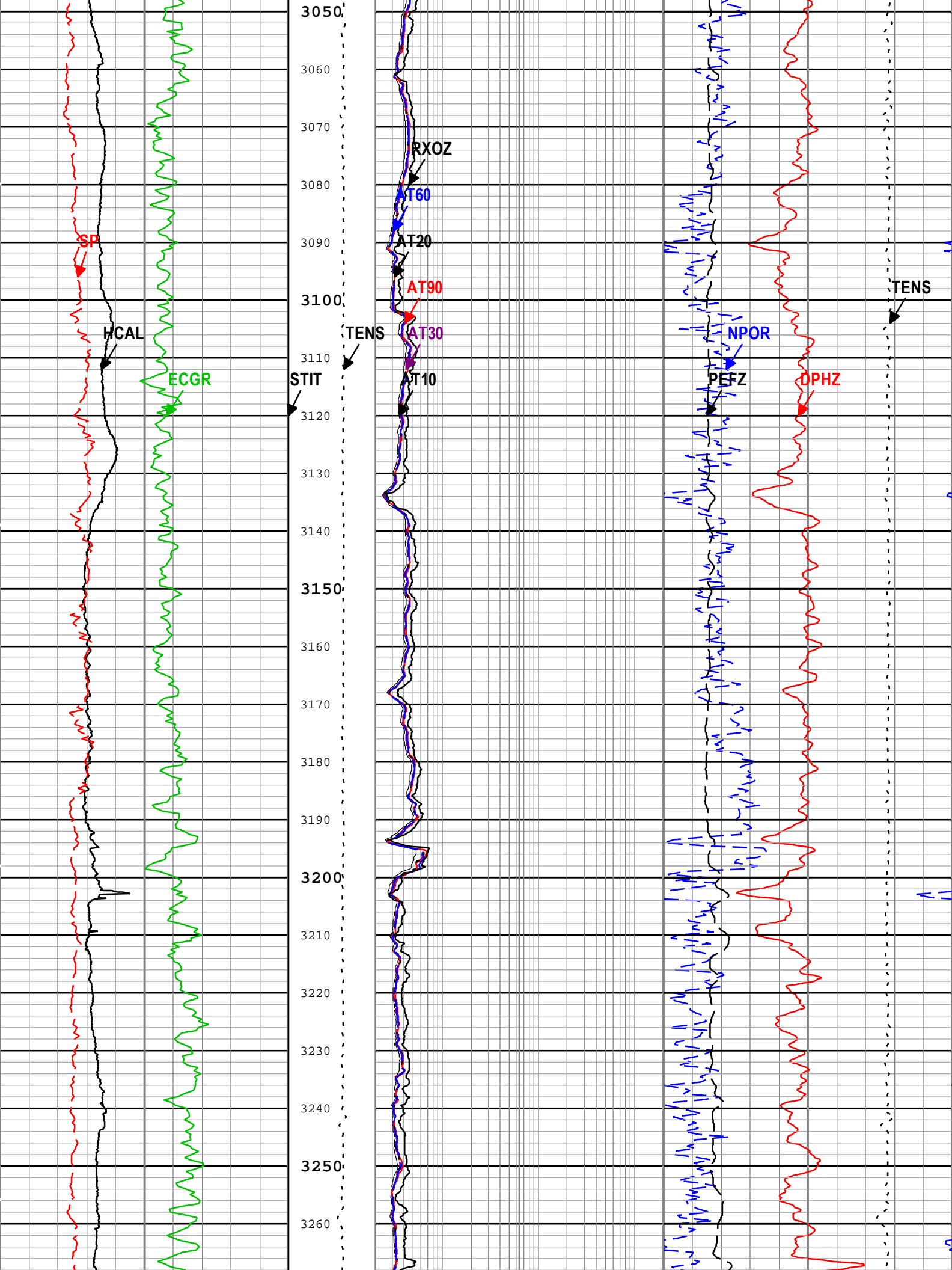


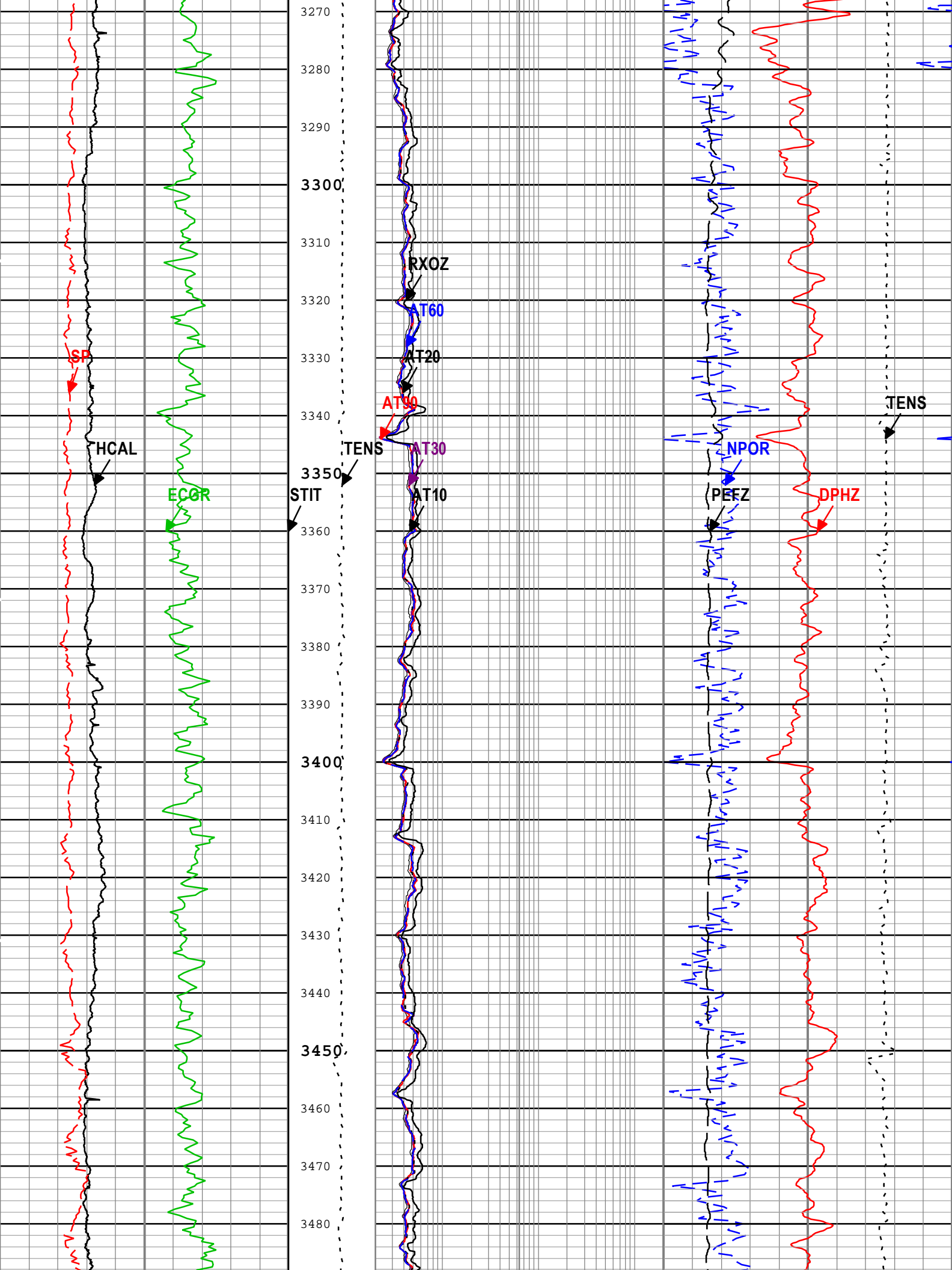


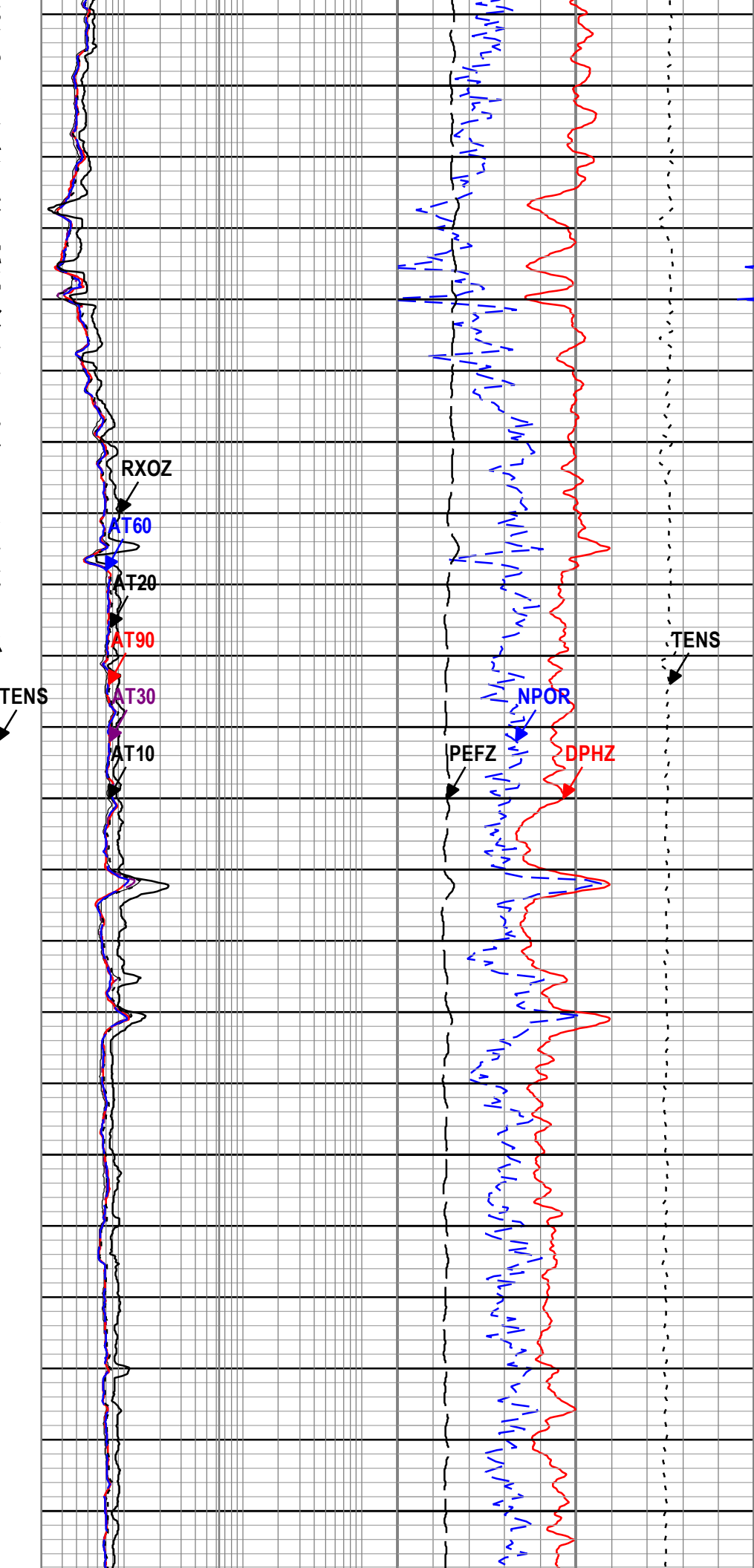
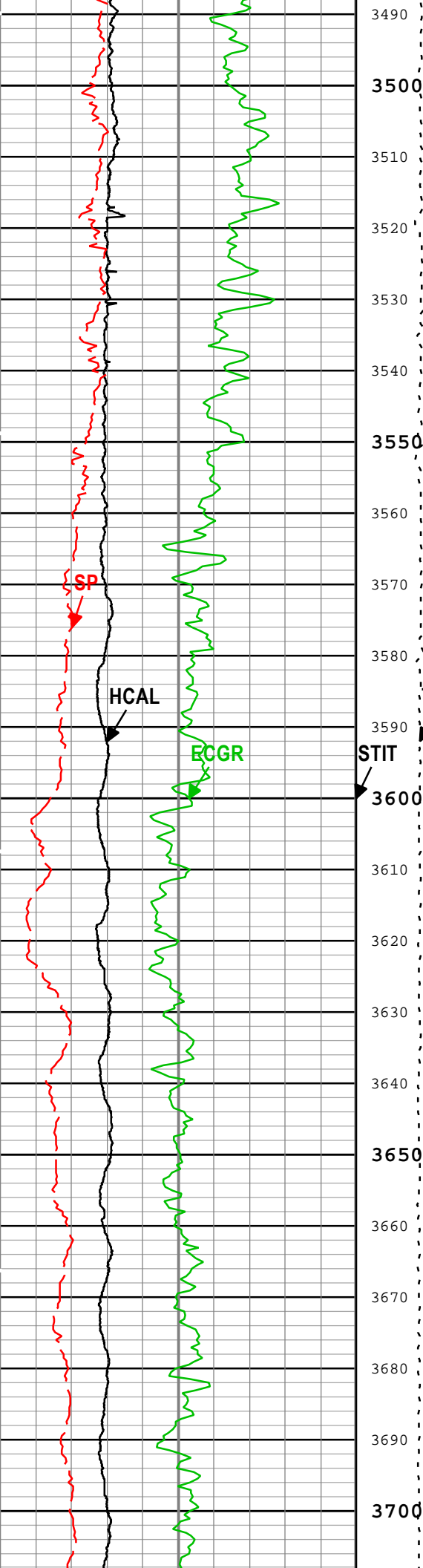


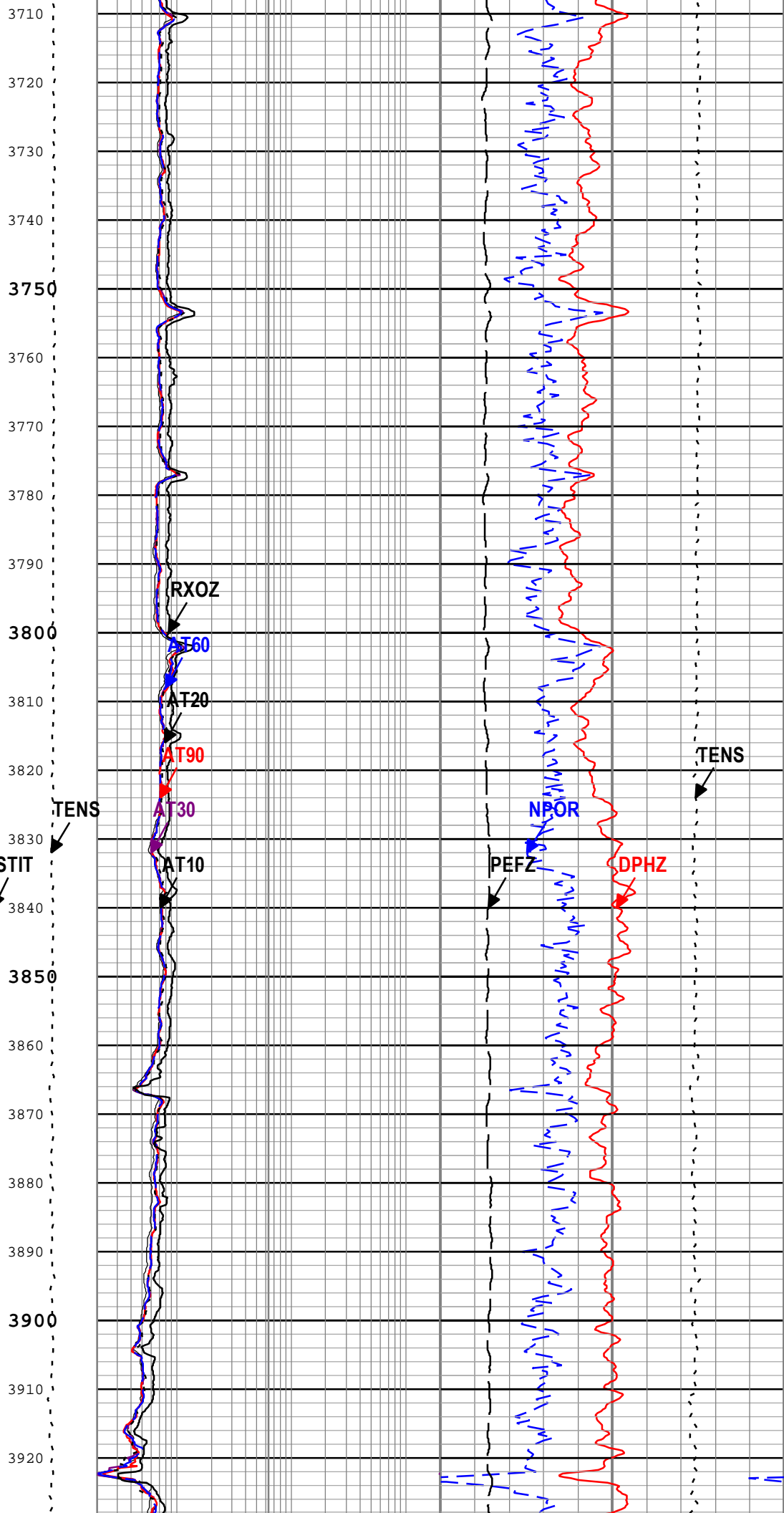
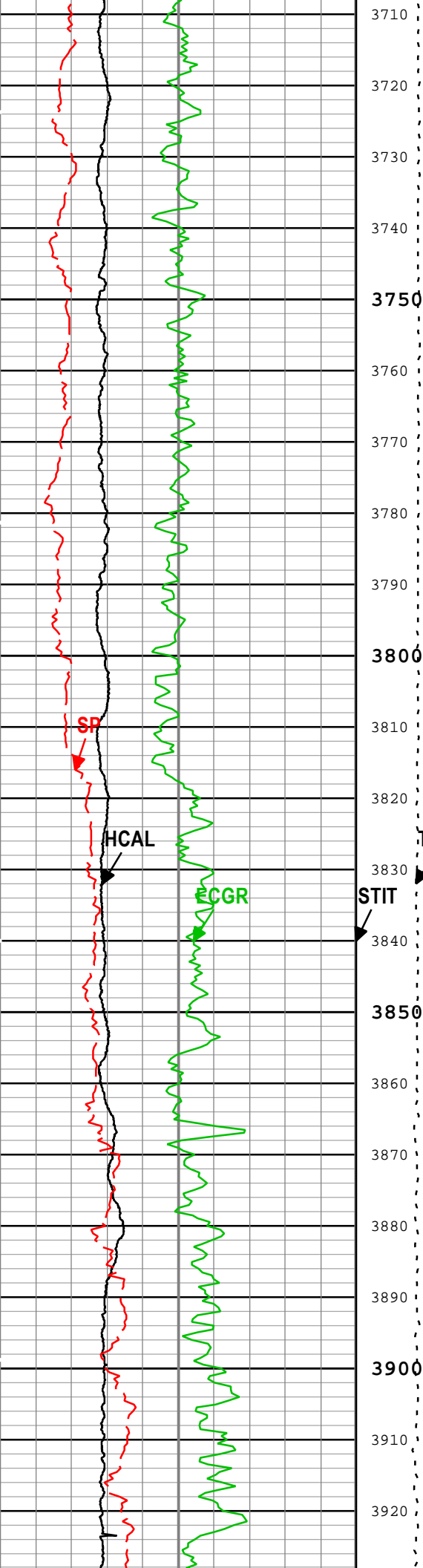


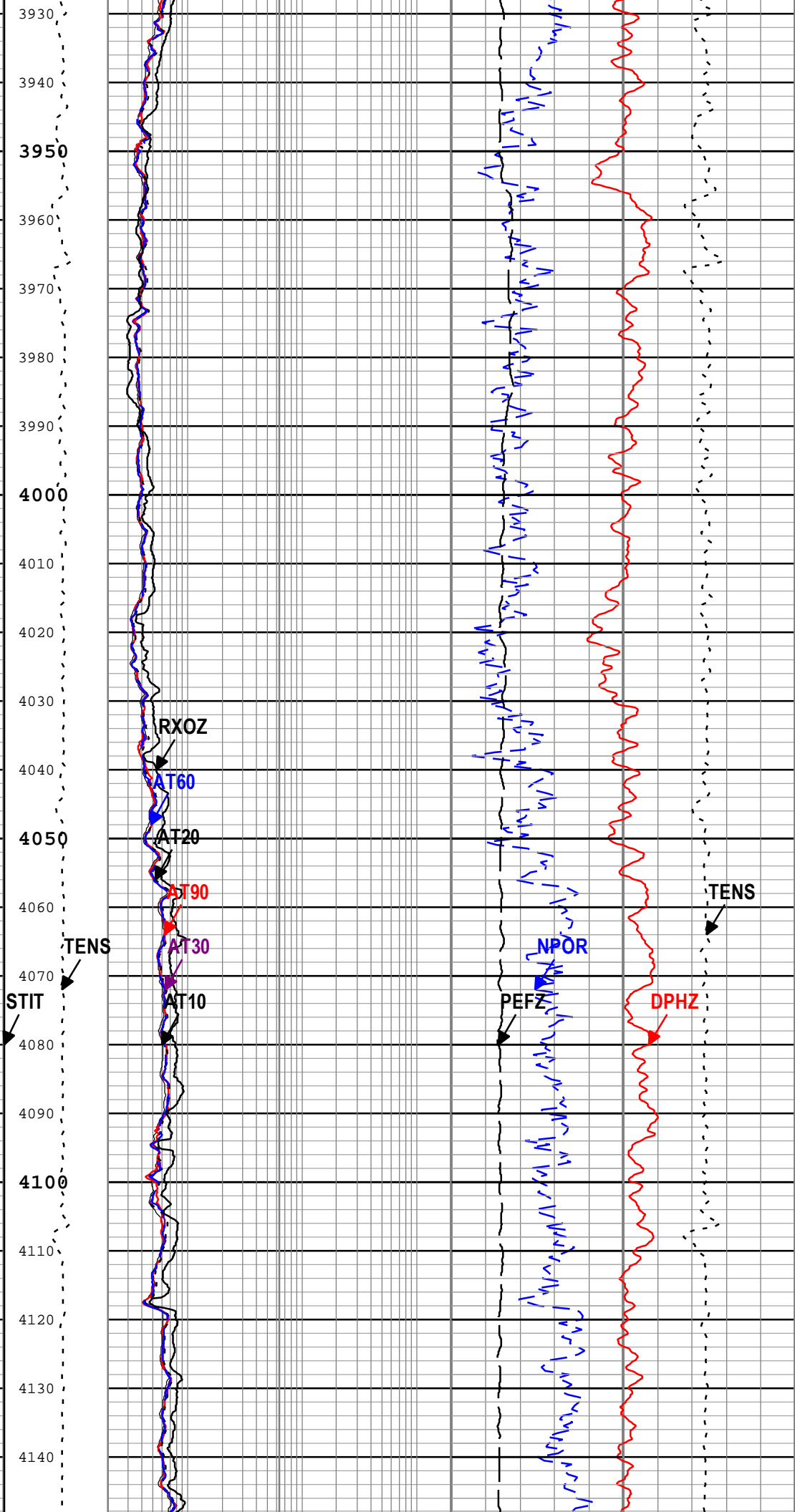
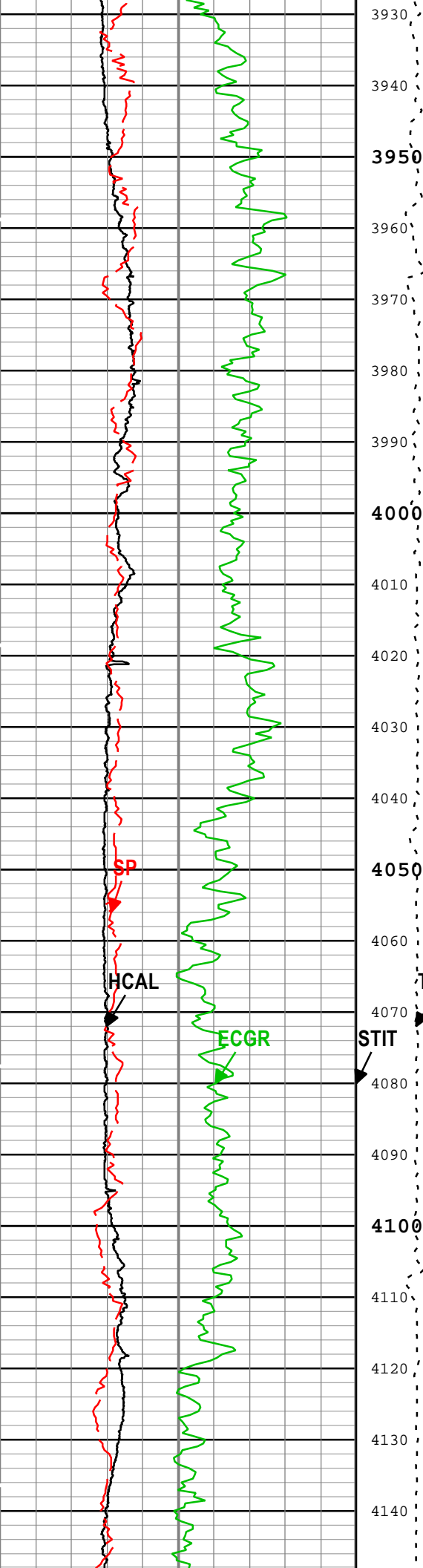


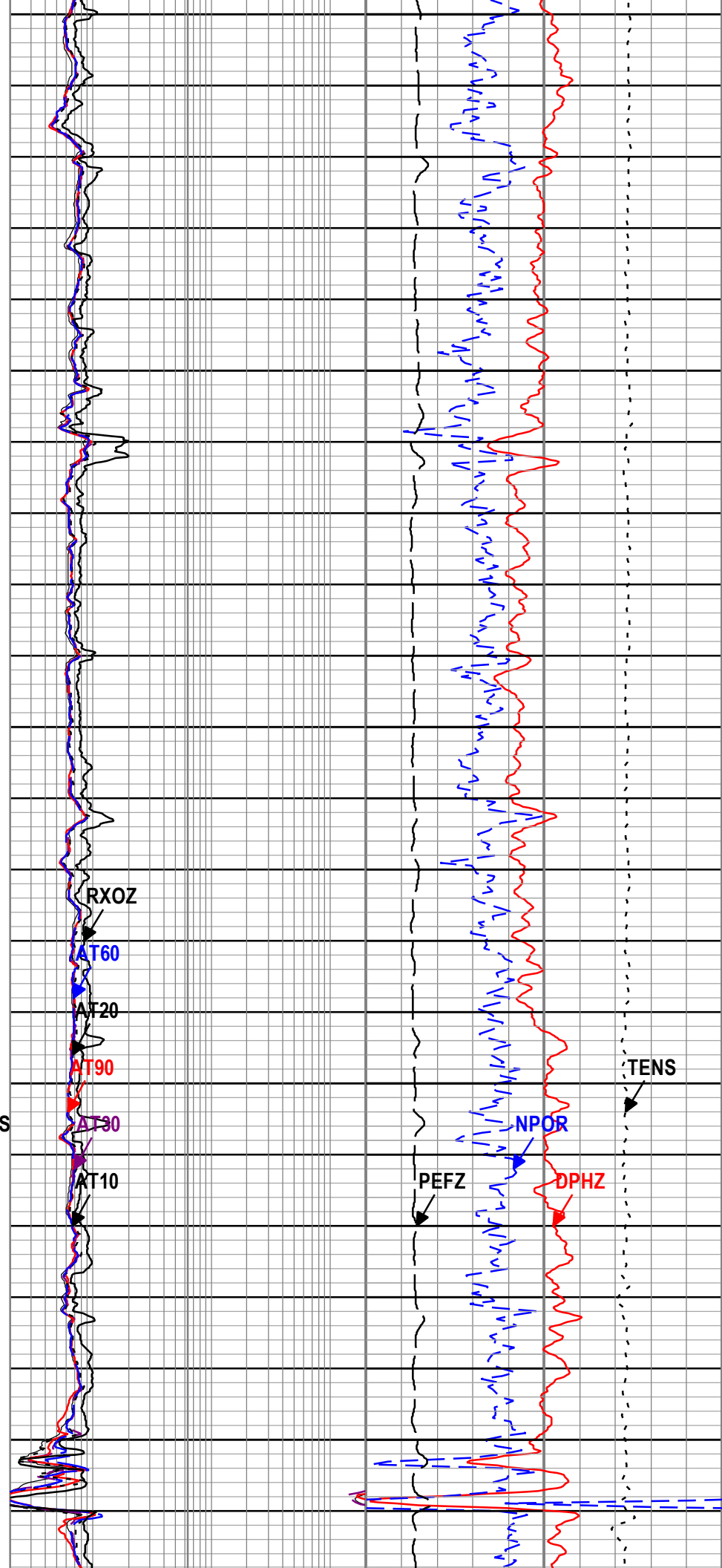
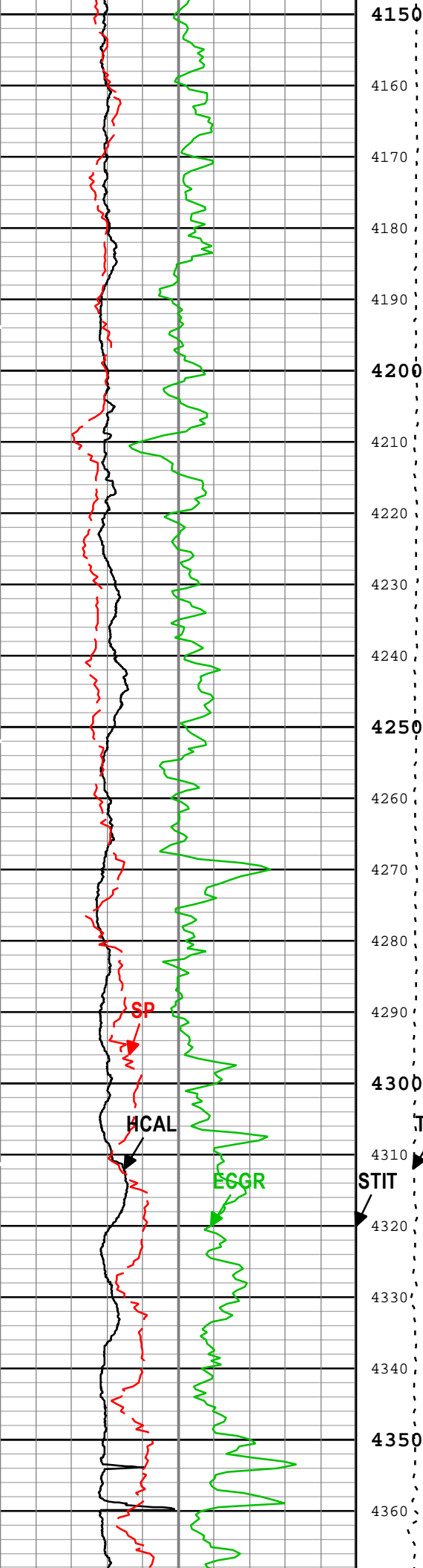


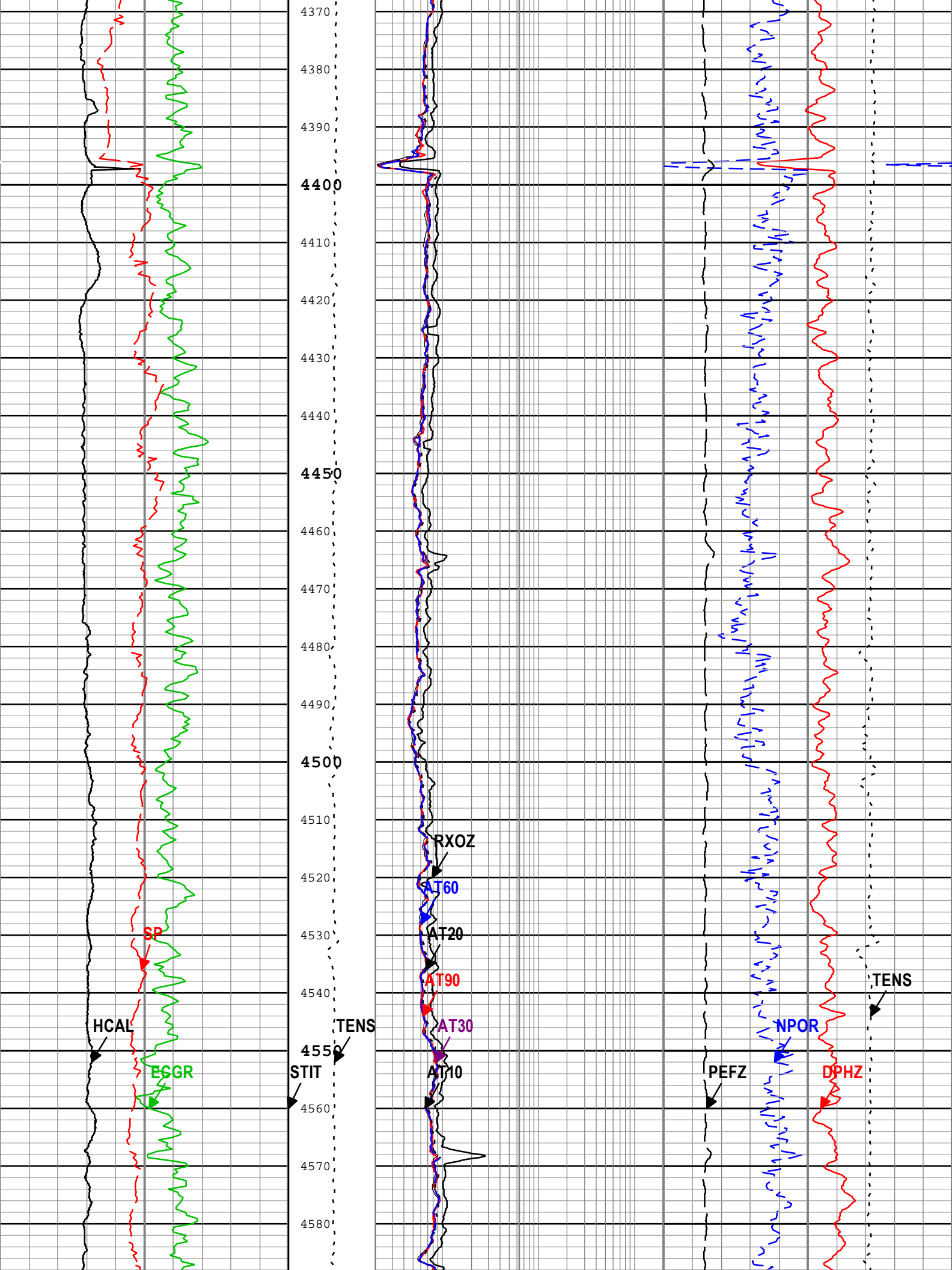


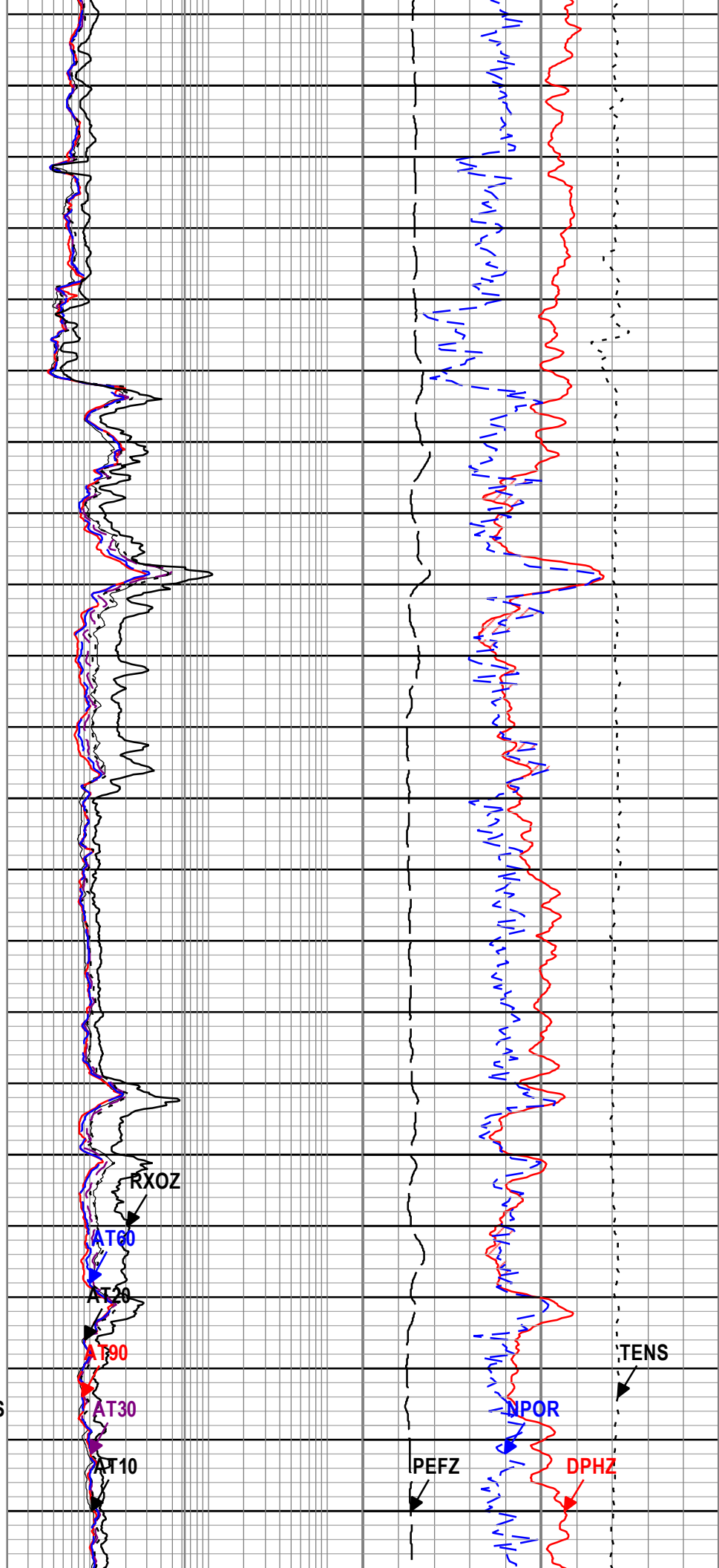
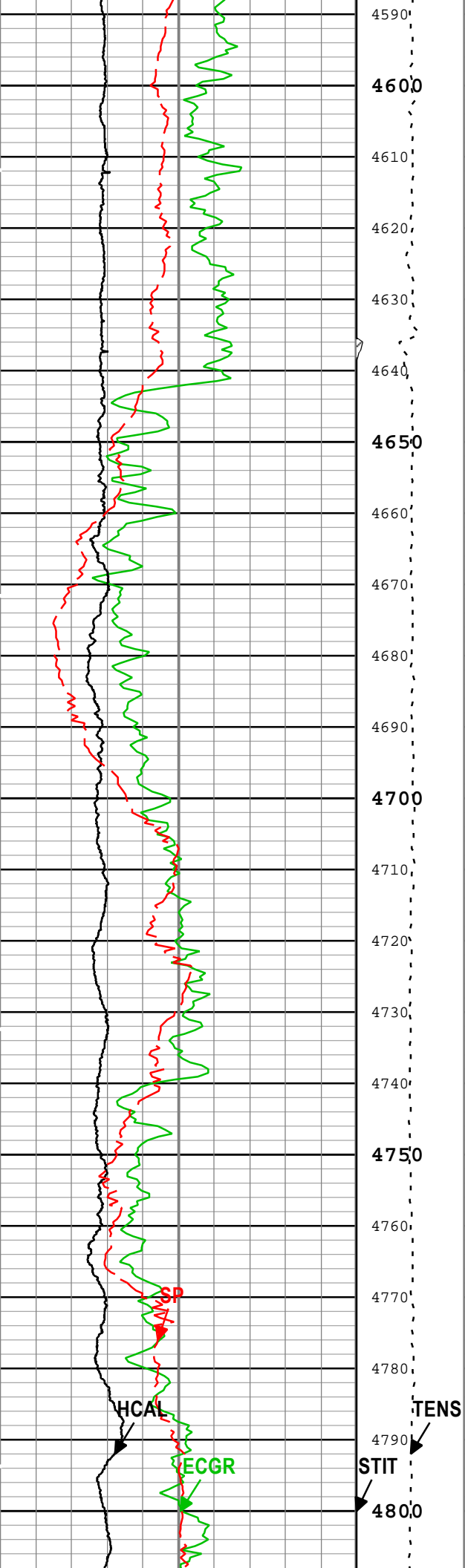


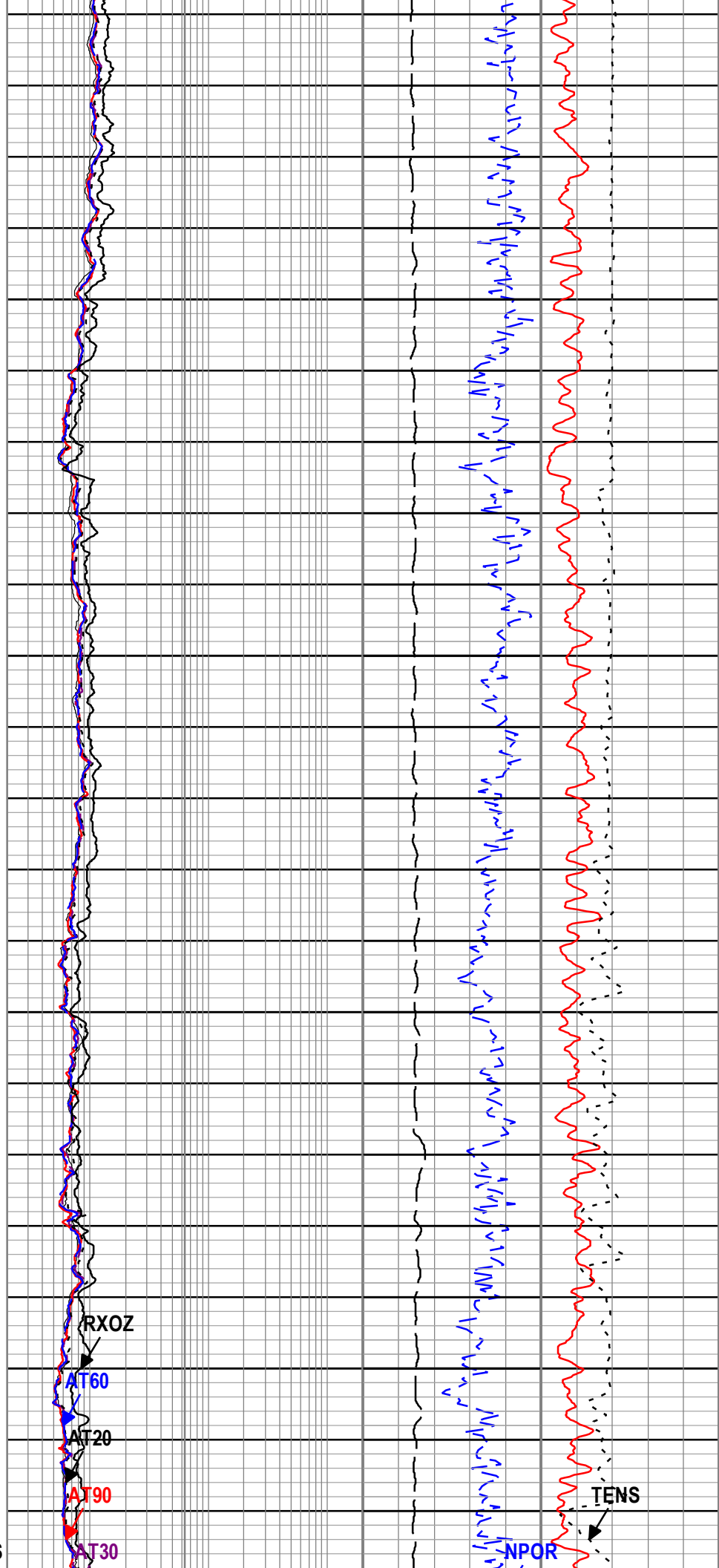
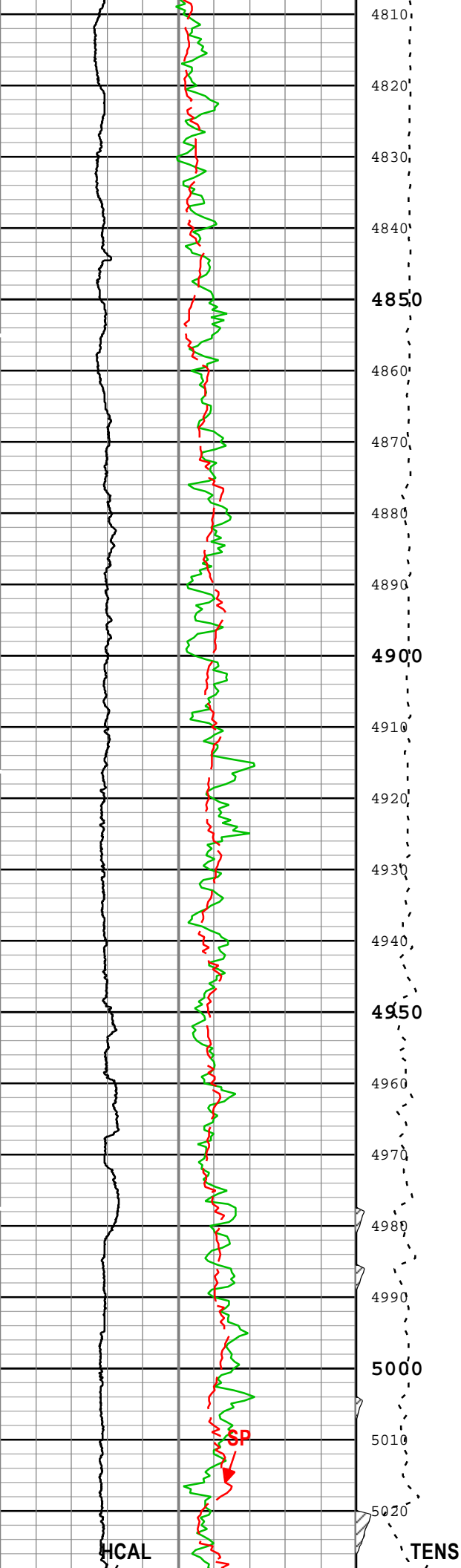


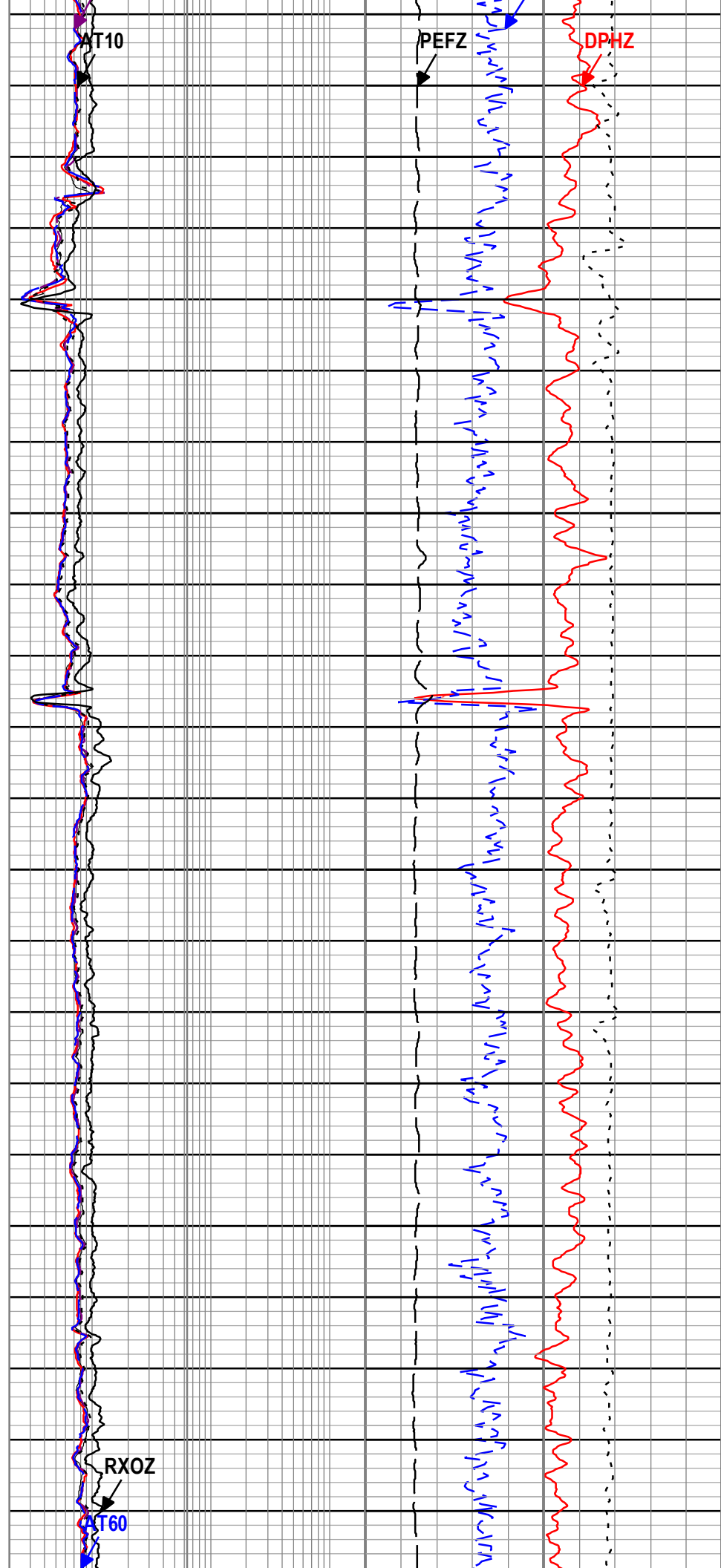
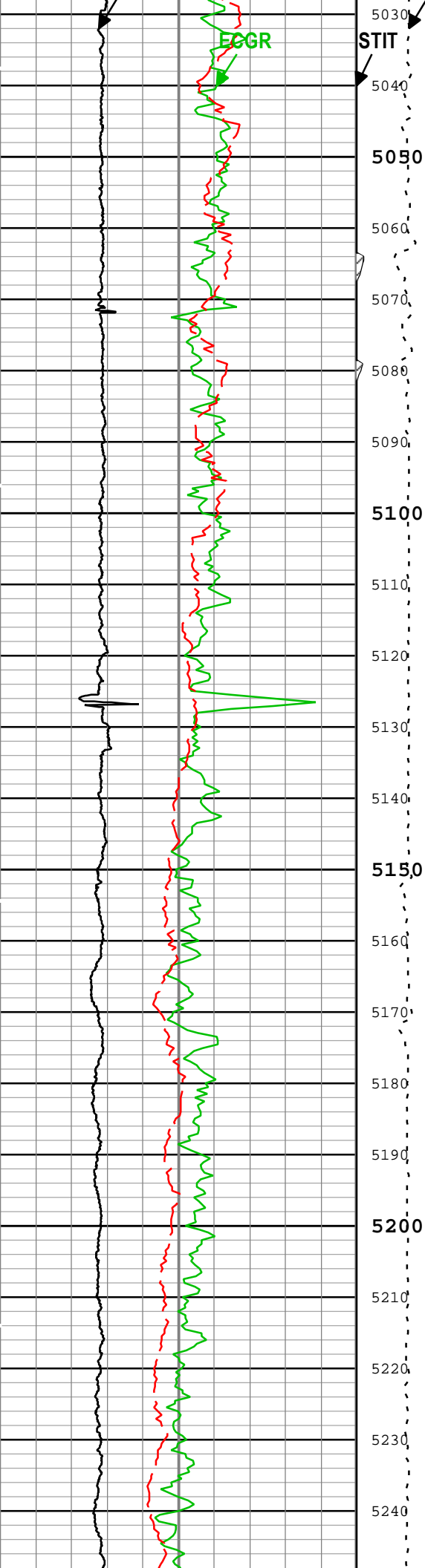


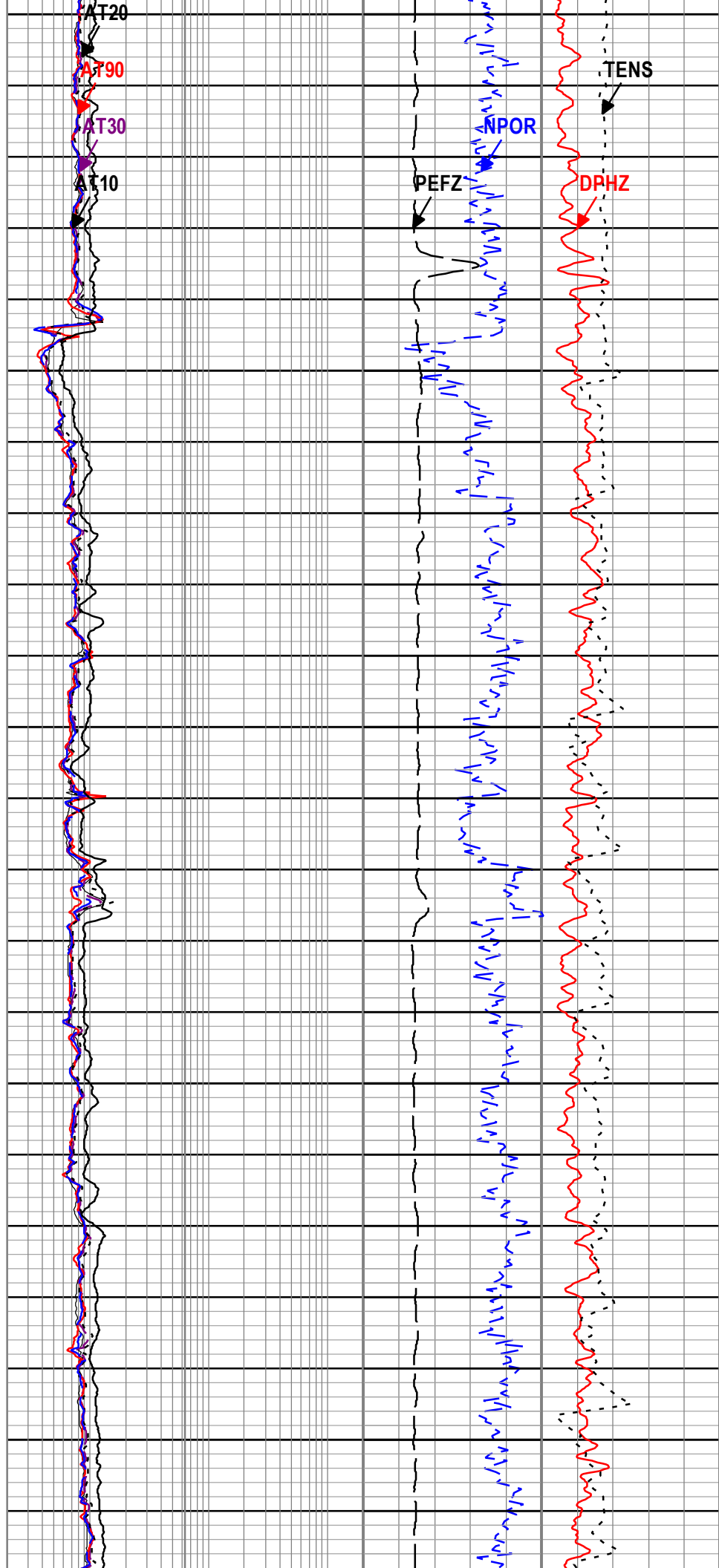
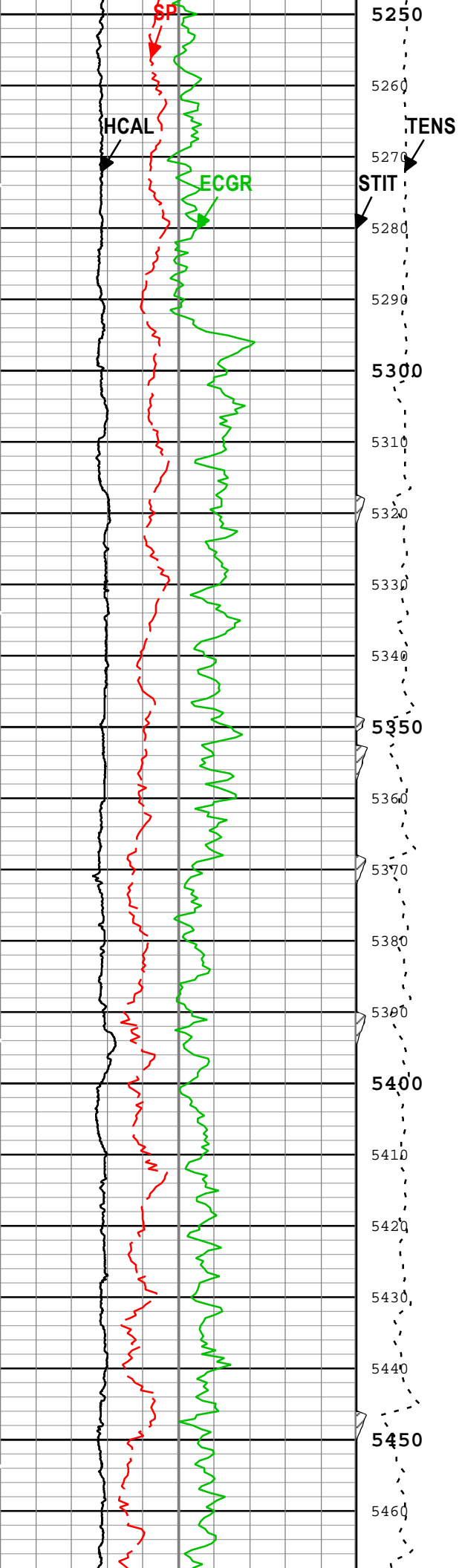


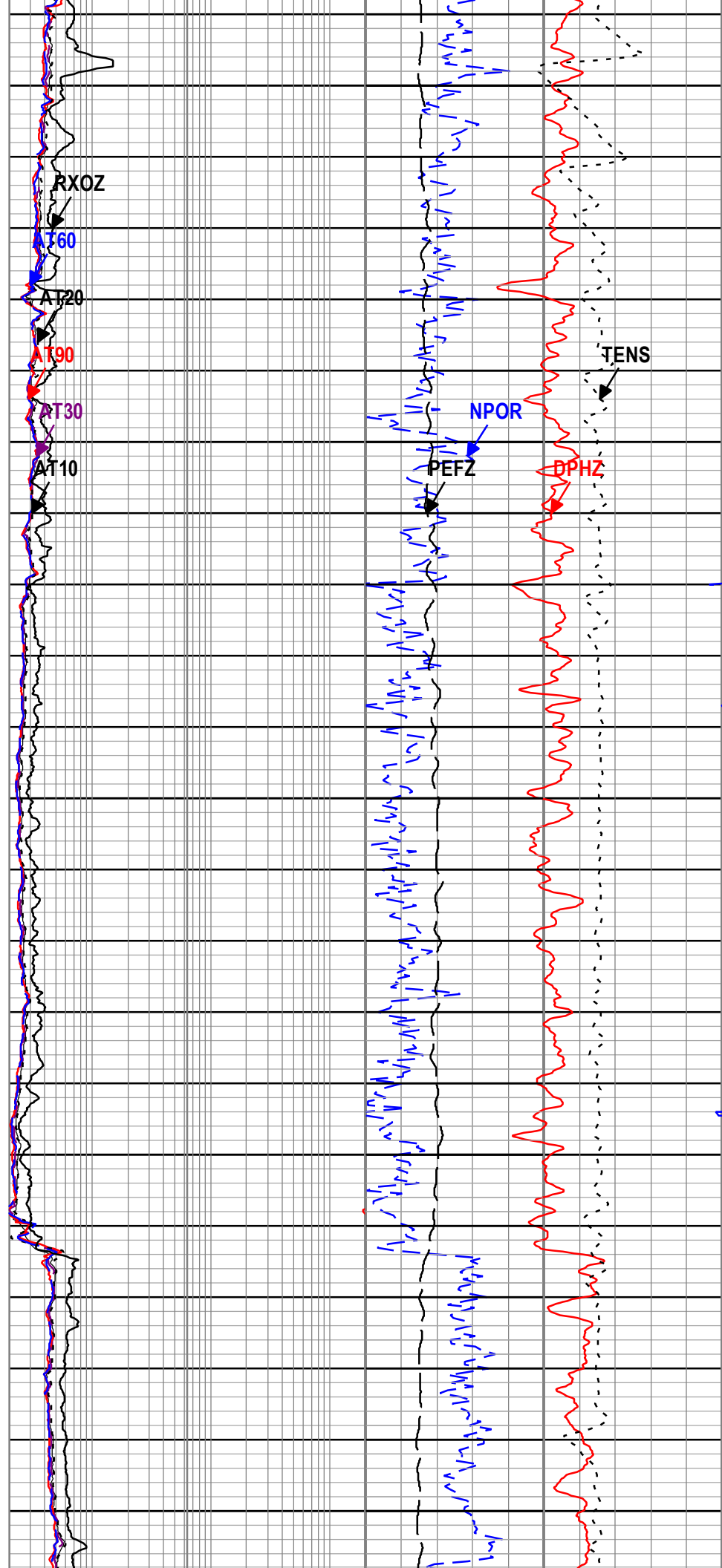
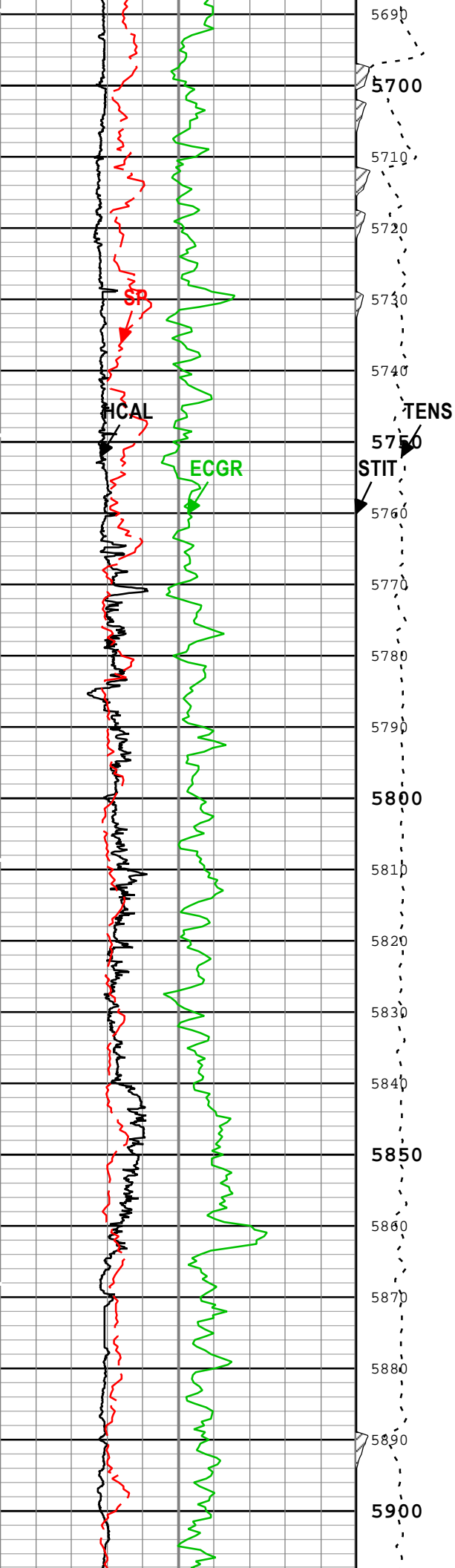


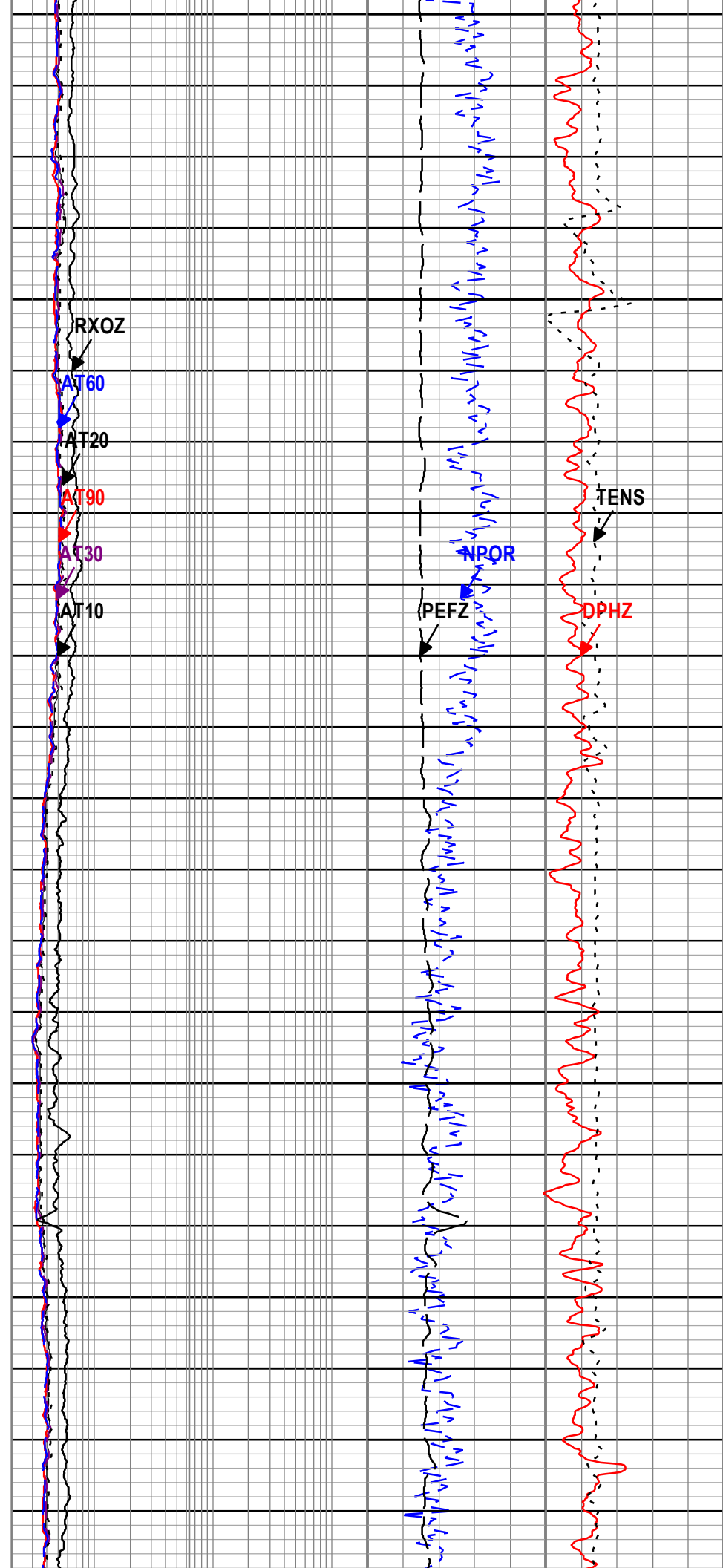
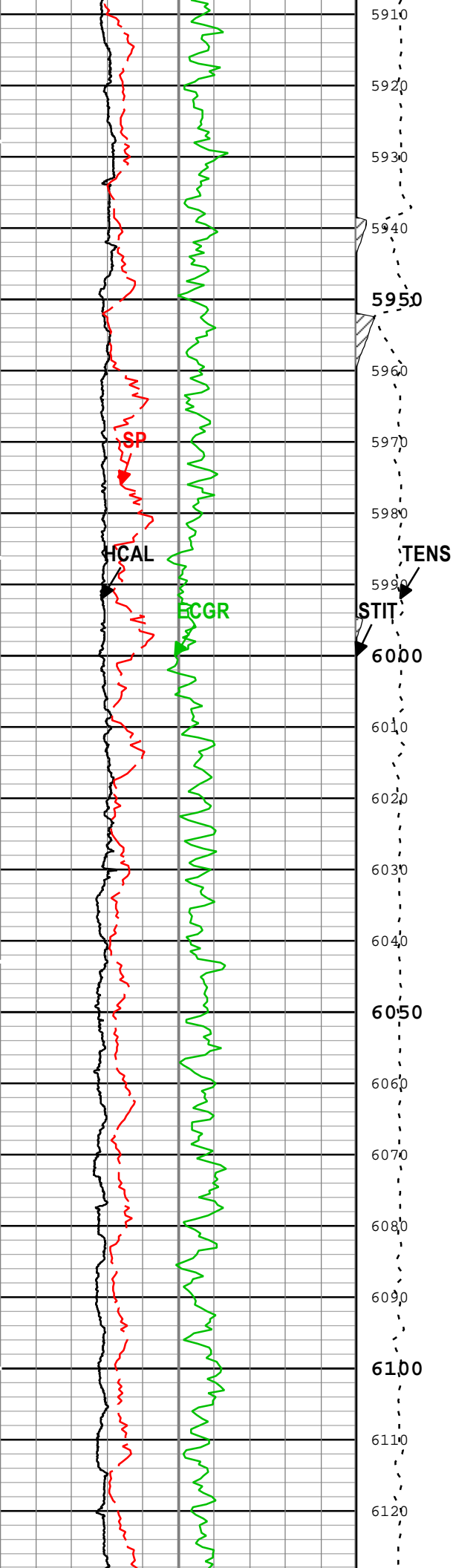


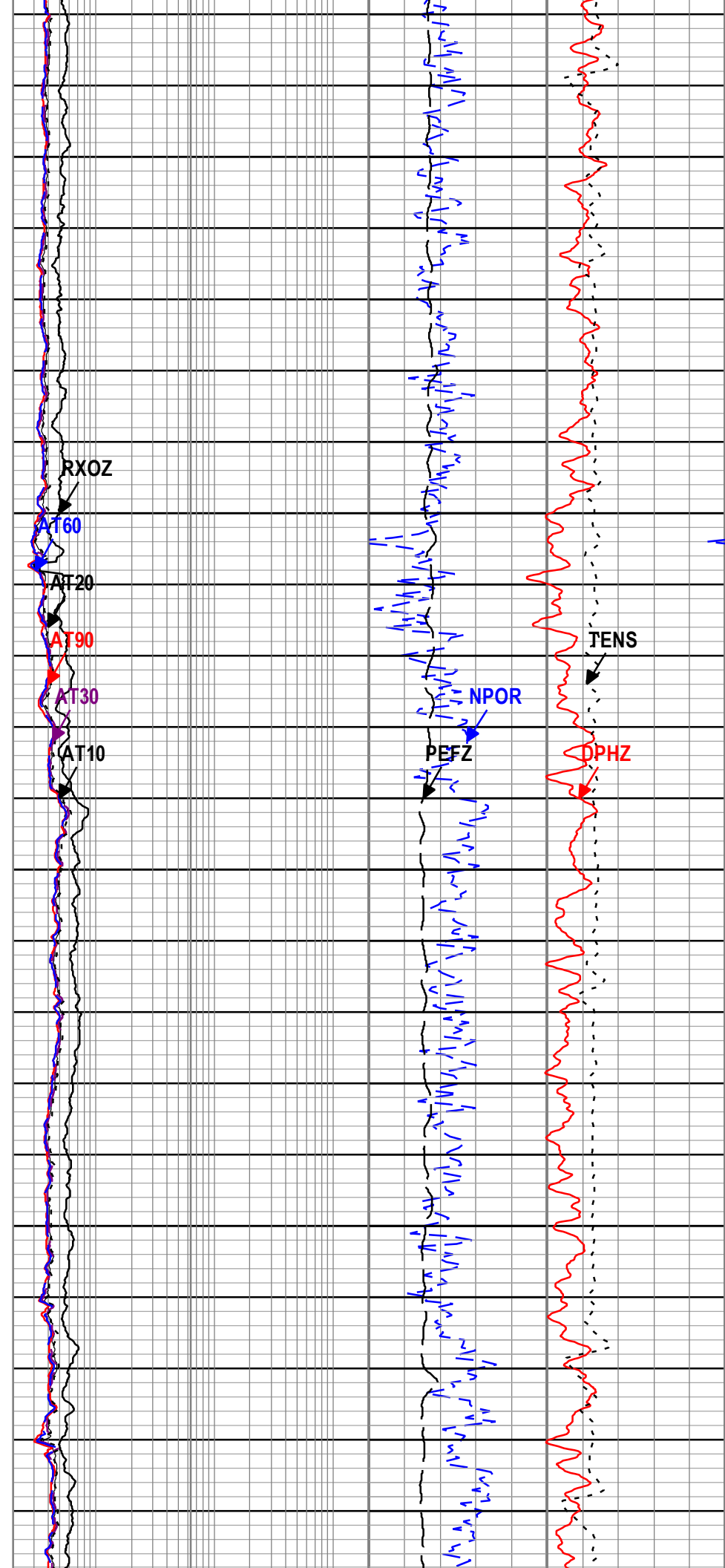
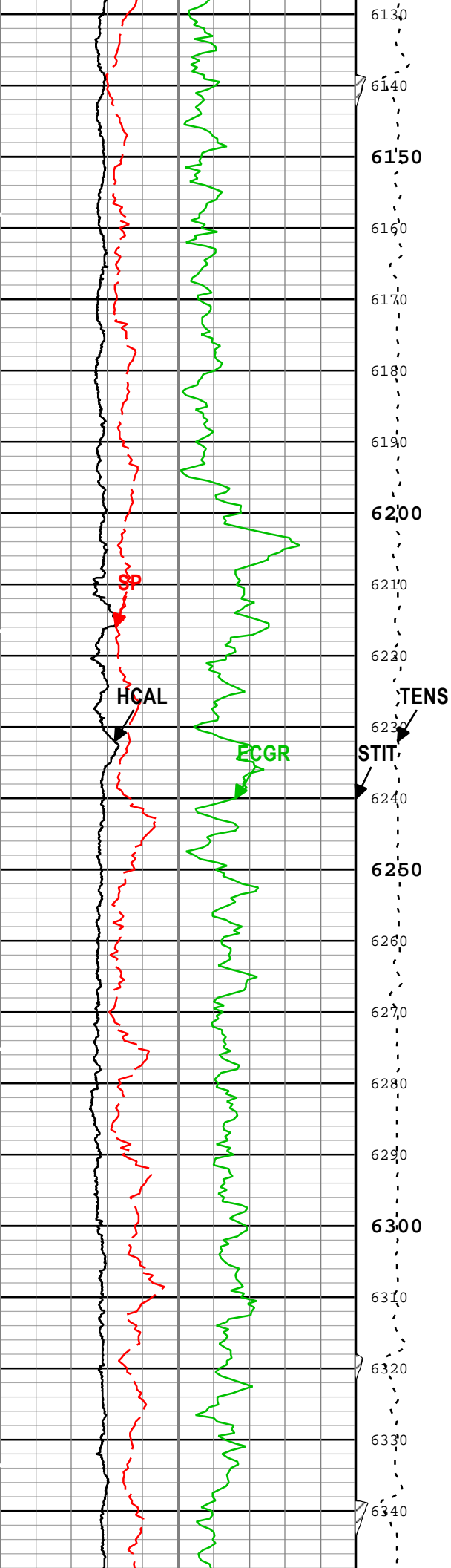


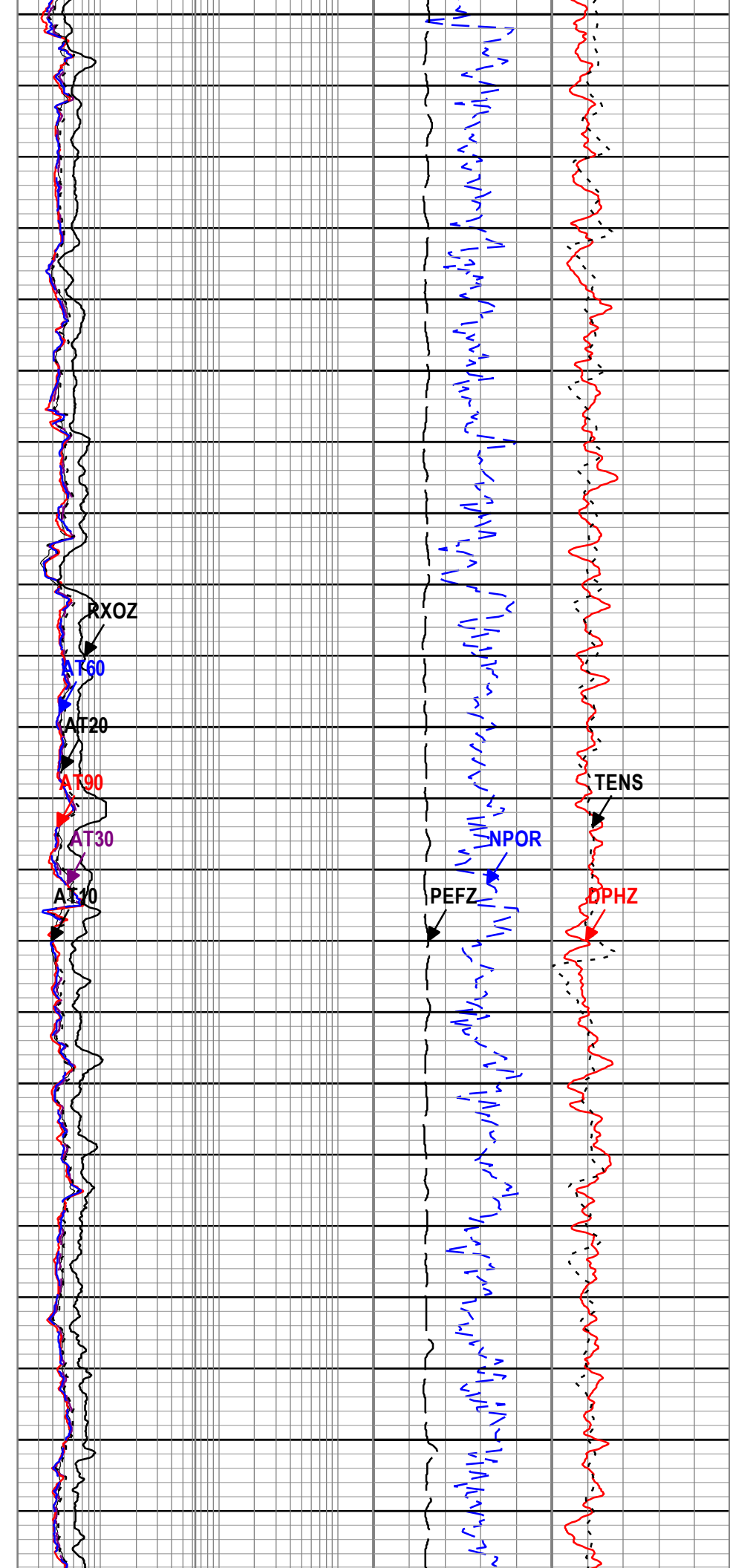
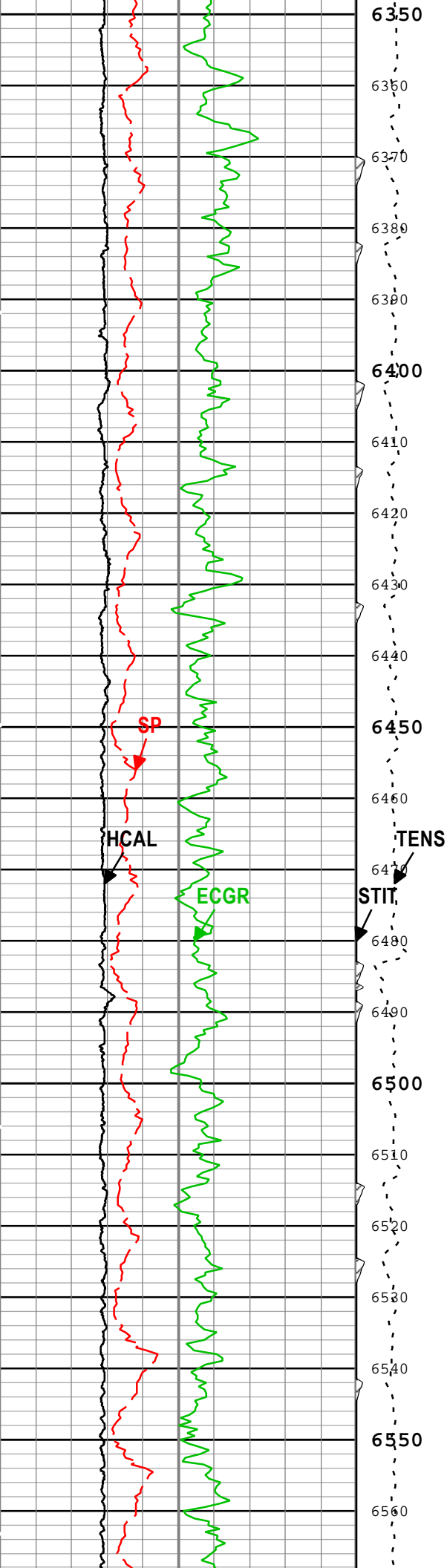


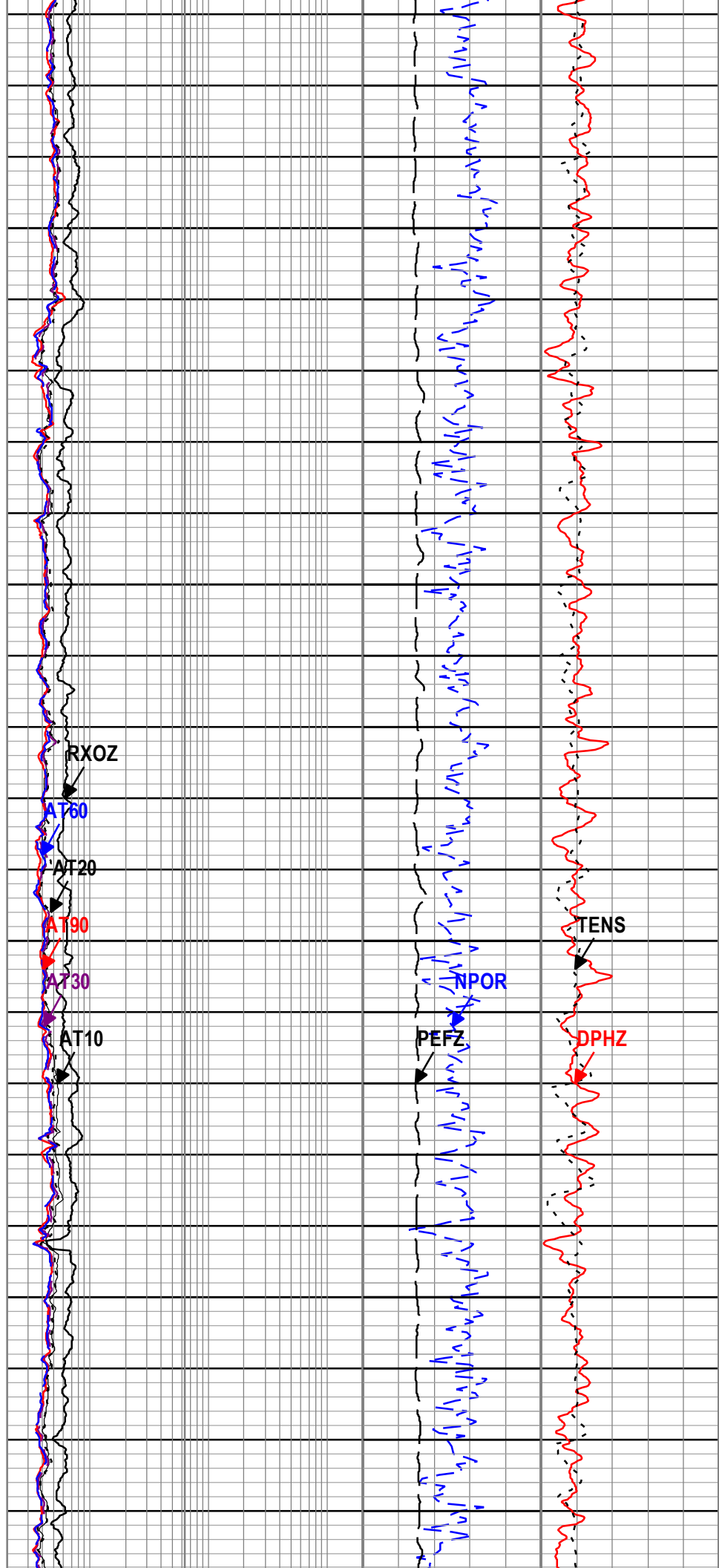
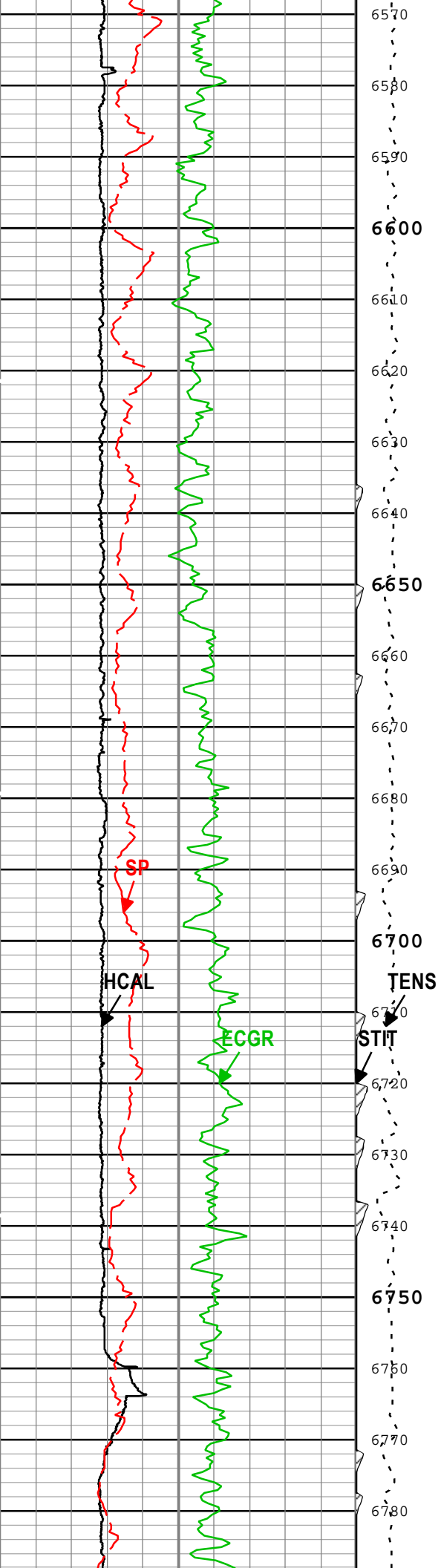


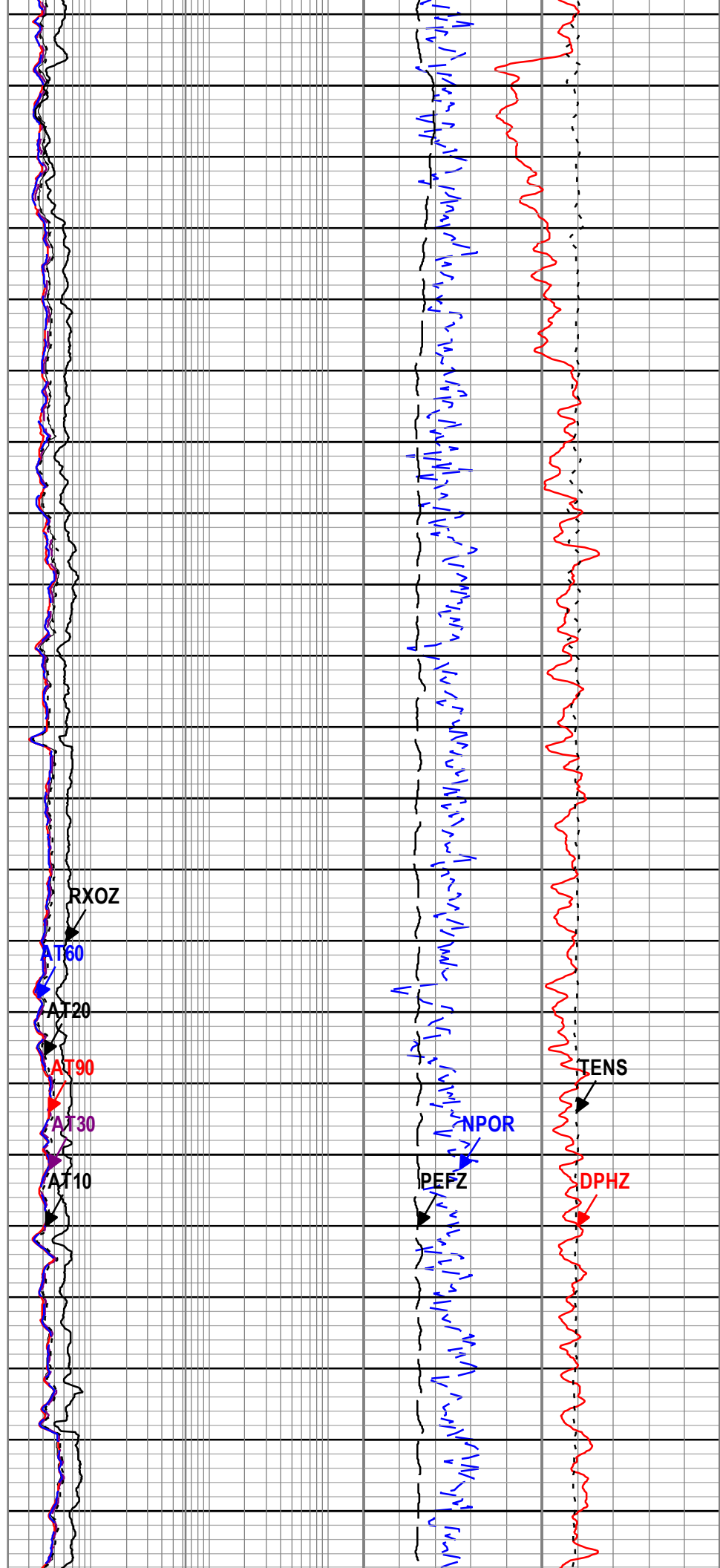
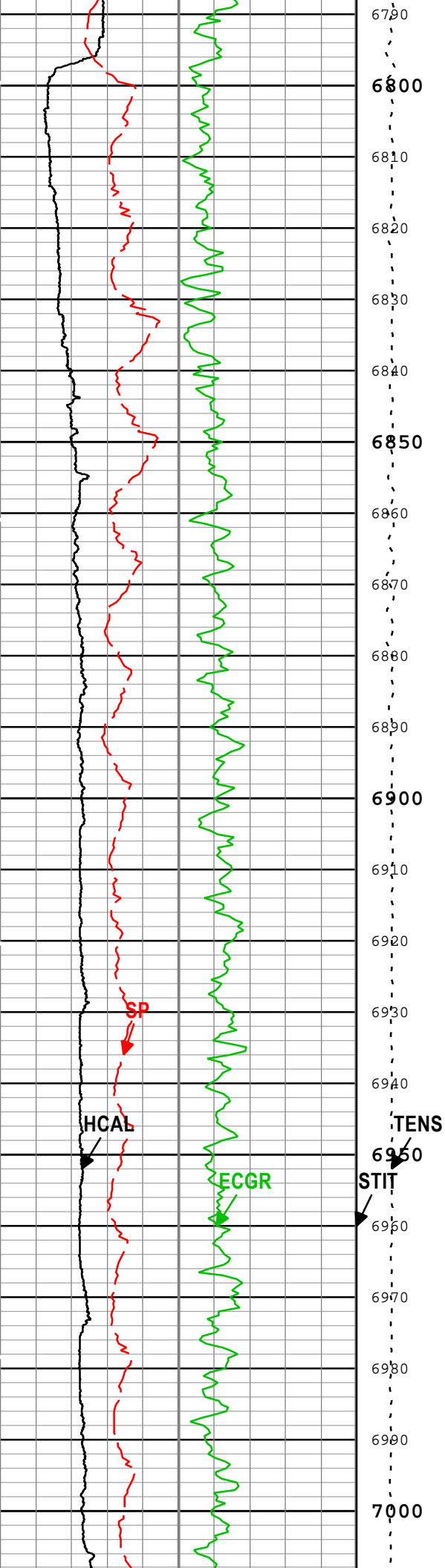


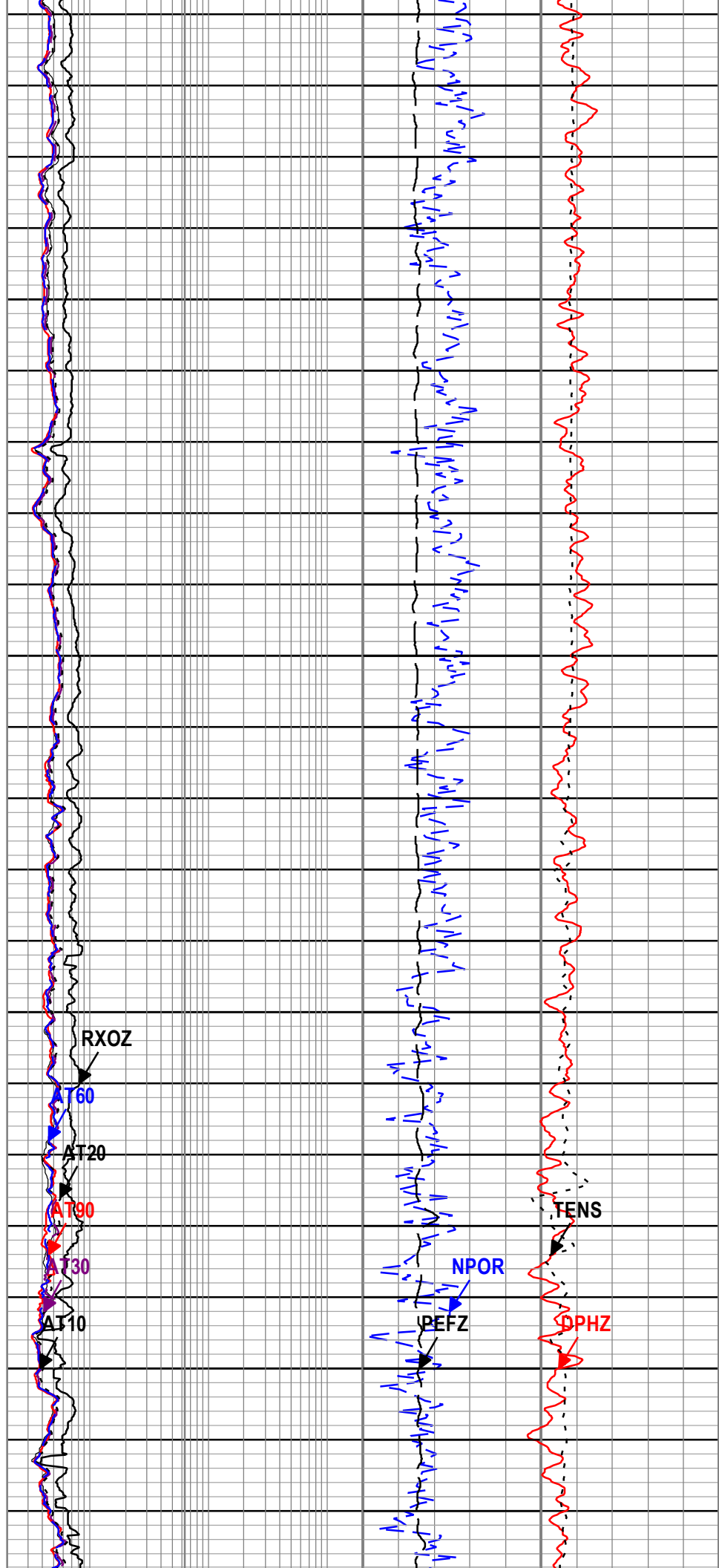
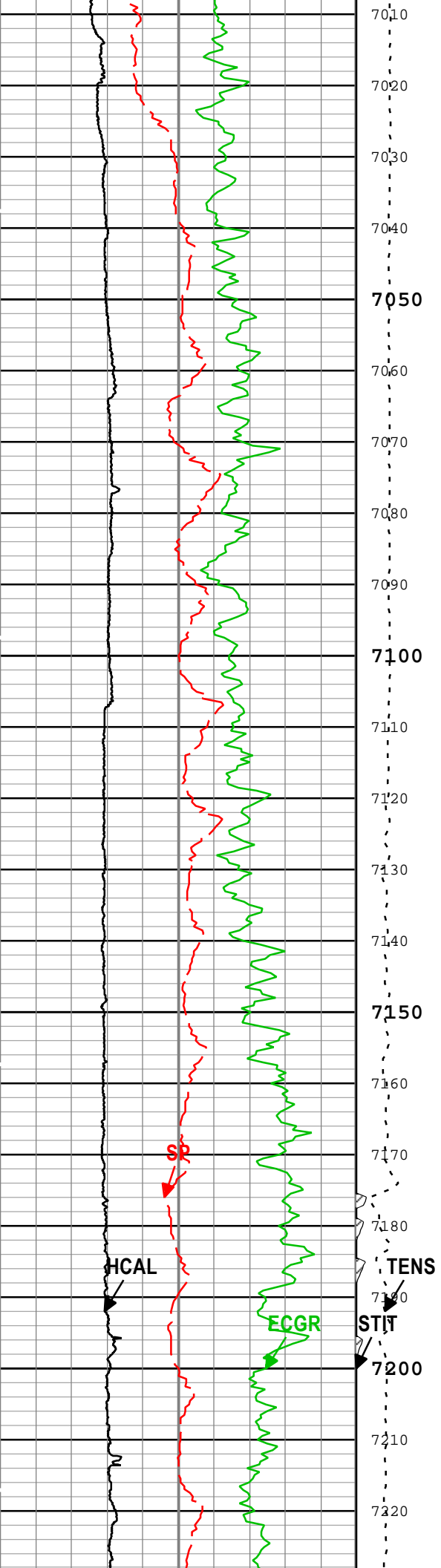


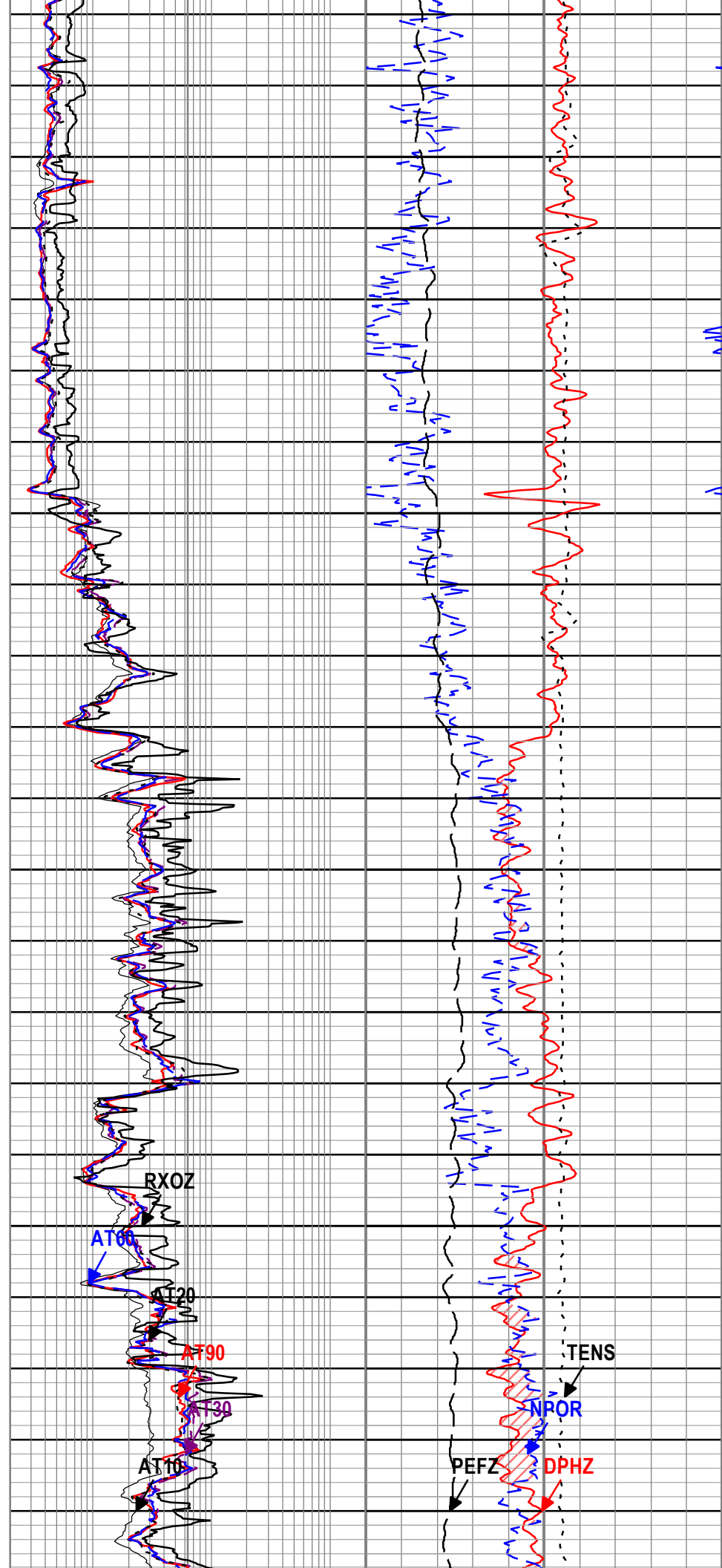
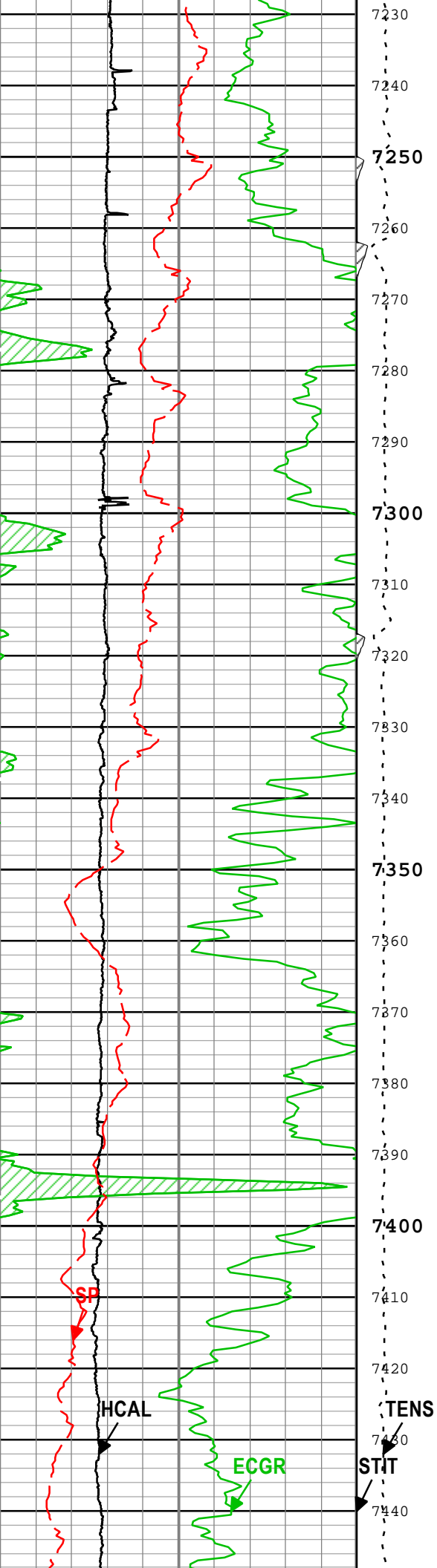


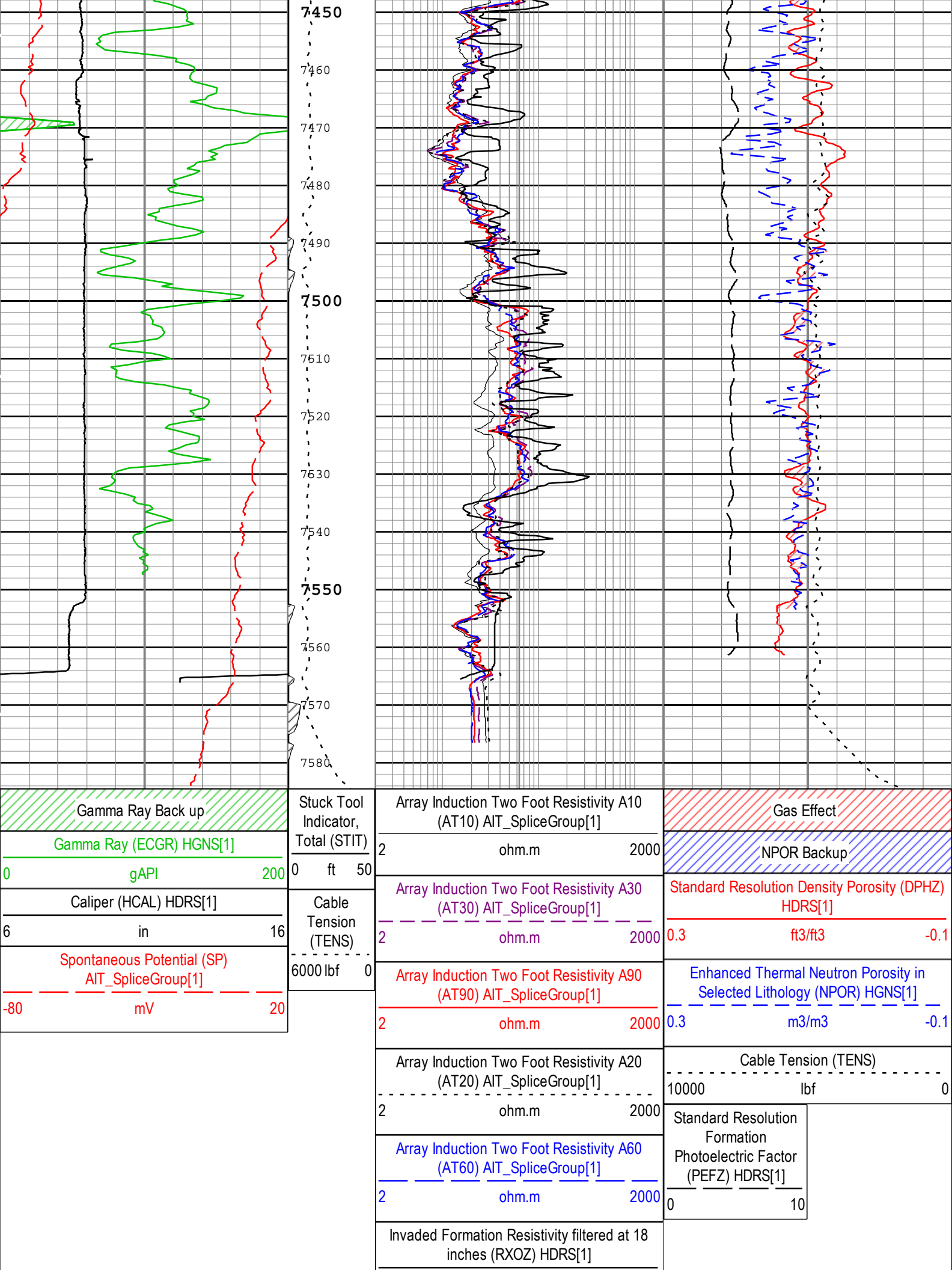












Channel Processing Parameters

Two: Parameters

Parameter	Description	Tool	Value	Unit
ABHM	Array Induction Borehole Correction Mode	AIT-M	Compute Standoff	
ASTA	Array Induction Tool Standoff	AIT-M	0.125	in
ISSBAR	Barite Mud Presence Flag	Borehole	Yes	
BHS	Borehole Status (Open or Cased Hole)	Borehole	Open	
BHT	Bottom Hole Temperature	Borehole	189	degF
BS	Bit Size	WLSESSION	8.75	in
BSAL	Borehole Salinity	Borehole	300	ppm
CALI_SHIFT	CALI Supplementary Offset	HDRS-H	-0.913	in
CBLO	Casing Bottom (Logger)	WLSESSION	1531	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	
DFT_WATER	Drilling Fluid Water Type	Borehole	Fresh 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	AMF	
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
RMFS	Resistivity of Mud Filtrate Sample	Borehole	1.01	ohm.m
SOCO	Standoff Correction Option	HGNS-H	Yes	
SPDR	SP Drift Per Foot	AIT-M	0	mV/ft

Tool Control Parameters

Two: Parameters

Parameter	Description	Tool	Value	Unit
HMCA_BOARD_TYPE	HMCA Board Type	HGNS-H	1	
HRGD_BOARD_TYPE	HRGD Board Type	HDRS-H	WITH_HET	
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	3600	ft/h
NPUC	Nuclear Pile-Up Correction	HDRS-H	On	

Two

5" Triple Combo

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include
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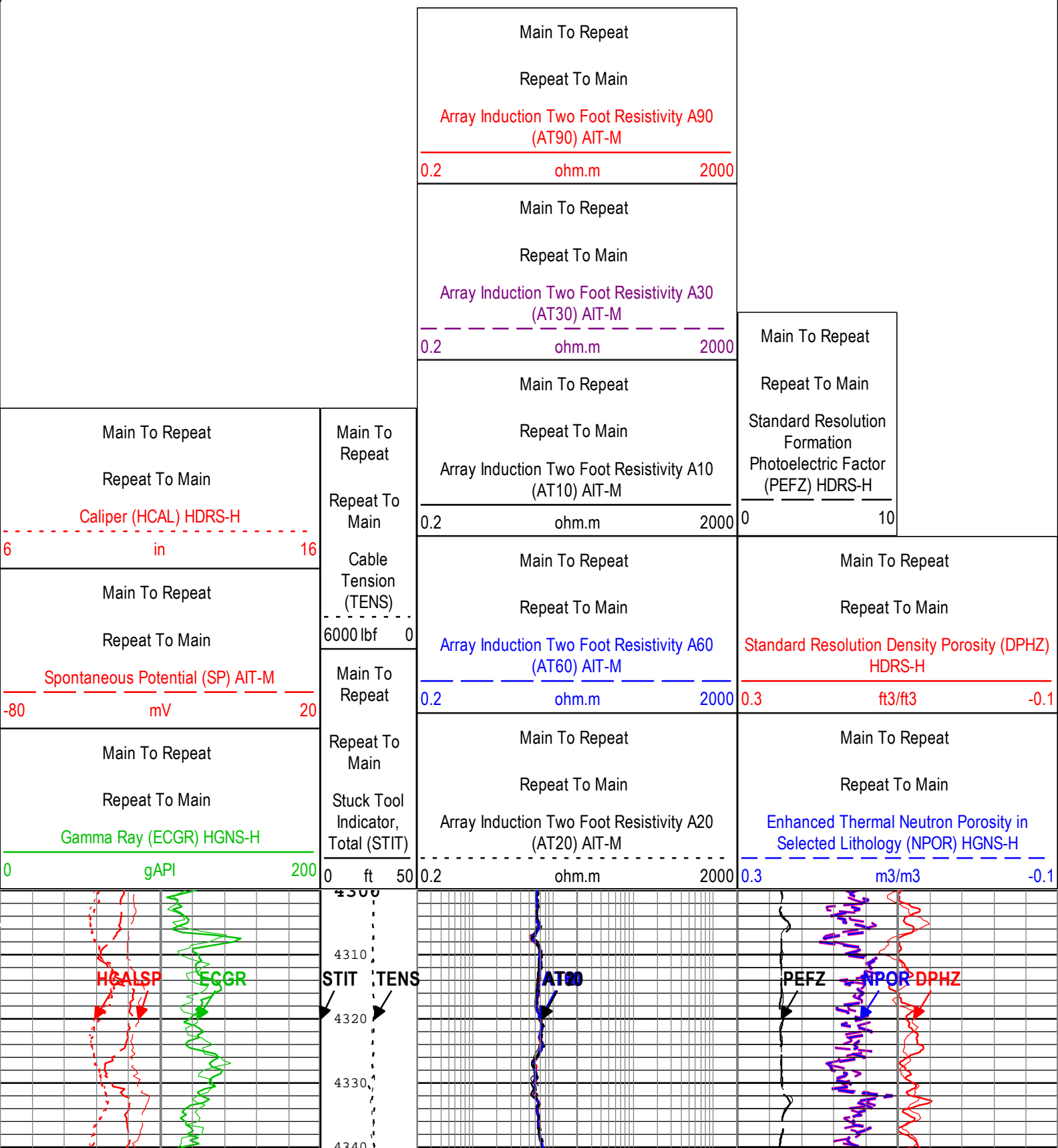
									Parallel Data
Two	Log[9]:Up	Up	1409.45 ft	4669.71 ft	09-Aug-2016 12:20:02 AM	09-Aug-2016 1:14:55 AM	ON	21.09 ft	No
Two	Log[10]:Up	Up	3926.01 ft	7584.55 ft	09-Aug-2016 1:42:36 AM	09-Aug-2016 2:44:17 AM	ON	31.25 ft	No

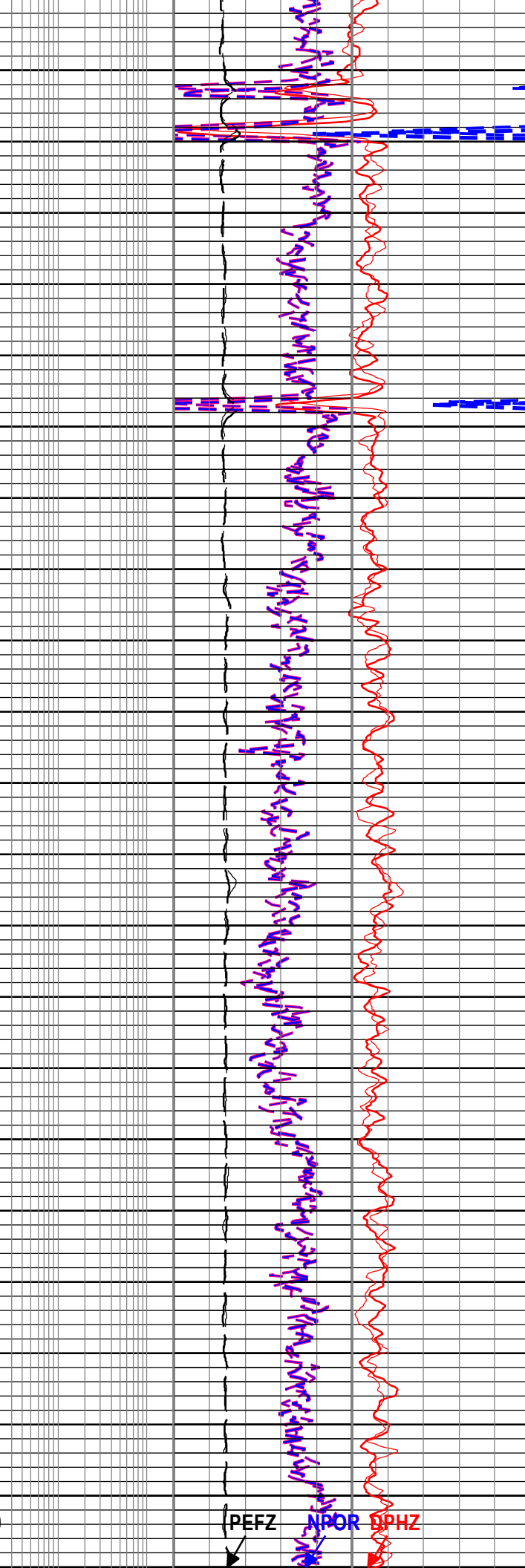
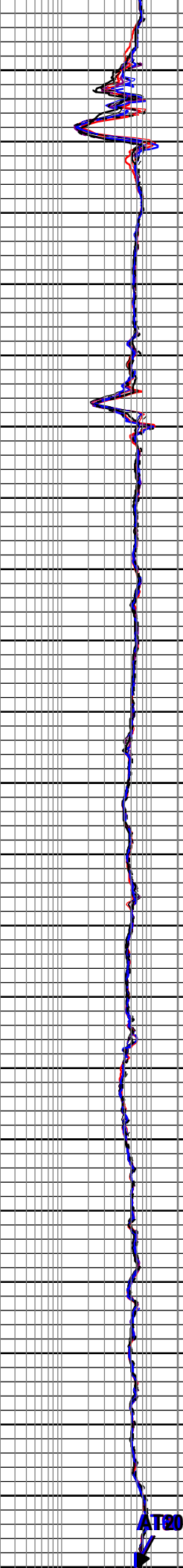
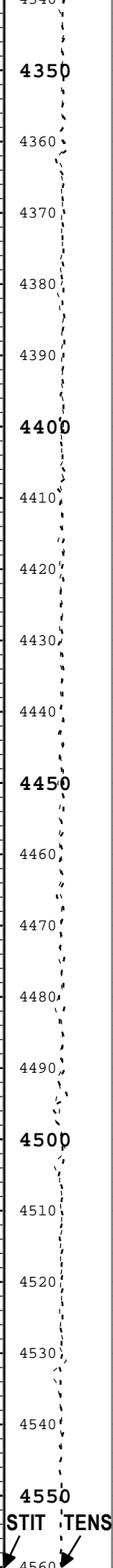
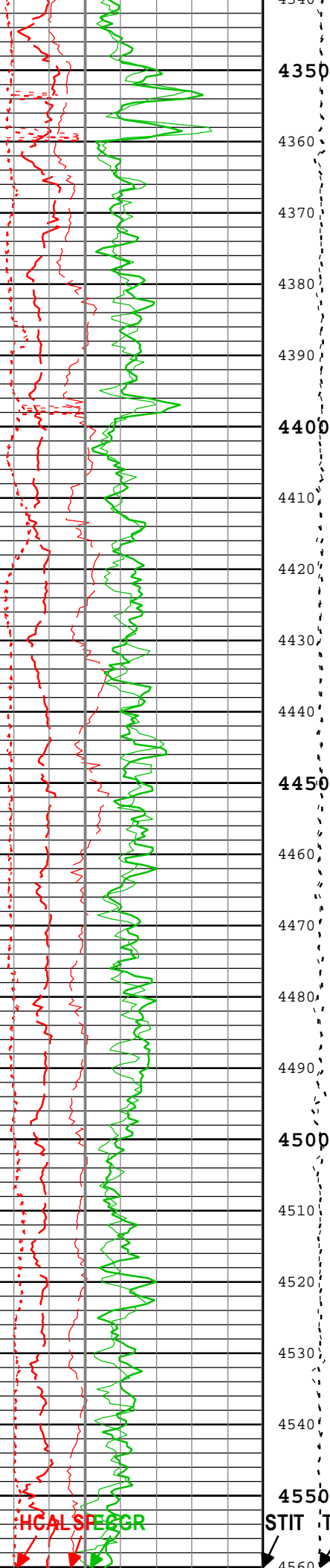
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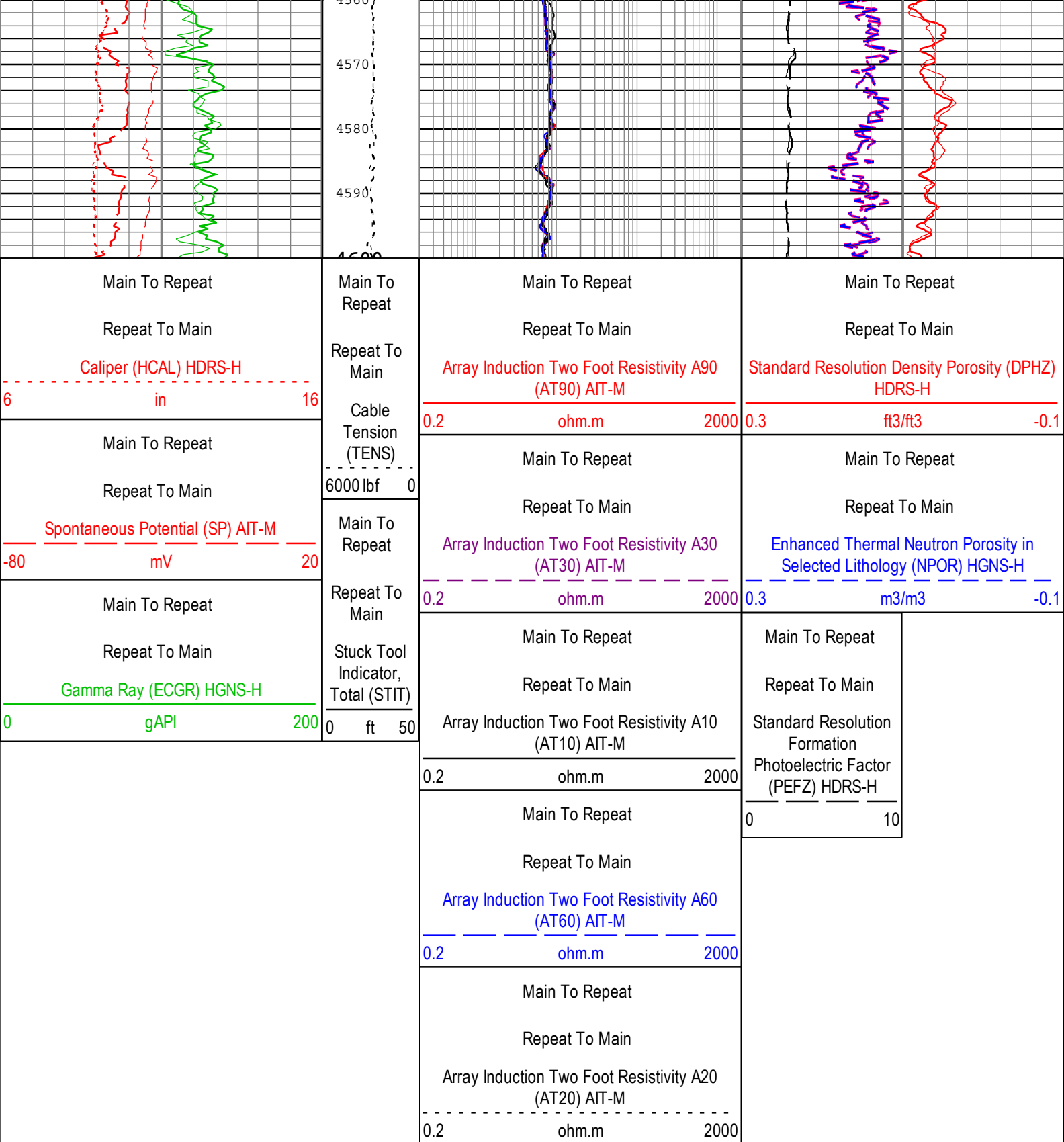
Log	Company:Cub Creek Energy Well:Markham 11								Two: Log[10]:Up:S012
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Description: HGNS standard resolution porosities for Platform Express Format: Log (Import (2) of KM 5in Triple Combo RA) Index Scale: 5 in per 100 ft
Index Unit: ft Index Type: Measured Depth Creation Date: 09-Aug-2016 02:58:52

TIME_1900 - Time Marked every 60.00 (s)







TIME_1900 - Time Marked every 60.00 (s)

Description: HGNS standard resolution porosities for Platform Express Format: Log (Import (2) of KM 5in Triple Combo RA) Index Scale: 5 in per 100 ft
Index Unit: ft Index Type: Measured Depth Creation Date: 09-Aug-2016 02:58:52

Calibration Report		
AIT-M (Array Induction Tool - M) Calibration - Run Two		
Primary Equipment :		
File code for AIT-MA Sonde Tool Element	AMIS	50
Auxiliary Equipment :		
File code for AIT Bottom Nose Tool Element	AMRM	

AIT Sonde Calibration - Test Loop Gain

Master (EEPROM):		15:19:37 05-Aug-2016					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Test Loop Gain - 0		Master	1.000	0.950	1.013	1.050	
Test Loop Phase - 0	deg	Master	0	-3.000	1.893	3.000	
Test Loop Gain - 1		Master	1.000	0.950	1.009	1.050	
Test Loop Phase - 1	deg	Master	0	-3.000	0.092	3.000	
Test Loop Gain - 2		Master	1.000	0.950	1.015	1.050	
Test Loop Phase - 2	deg	Master	0	-3.000	-0.008	3.000	
Test Loop Gain - 3		Master	1.000	0.950	1.012	1.050	
Test Loop Phase - 3	deg	Master	0	-3.000	0.319	3.000	
Test Loop Gain - 4		Master	1.000	0.950	0.998	1.050	
Test Loop Phase - 4	deg	Master	0	-3.000	0.071	3.000	
Test Loop Gain - 5		Master	1.000	0.950	1.022	1.050	
Test Loop Phase - 5	deg	Master	0	-3.000	0.391	3.000	
Test Loop Gain - 6		Master	1.000	0.950	1.035	1.050	
Test Loop Phase - 6	deg	Master	0	-3.000	0.531	3.000	
Test Loop Gain - 7		Master	1.000	0.950	1.047	1.050	
Test Loop Phase - 7	deg	Master	0	-3.000	0.270	3.000	

AIT Sonde Calibration - Sonde Error Correction

Master (EEPROM):		15:19:37 05-Aug-2016					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Sonde Error Correction Real - 0	mS/m	Master	-----	-231.000	-97.409	119.000	
Sonde Error Correction Quad - 0		Master	-----	-2250.000	-596.848	2250.000	
Sonde Error Correction Real - 1	mS/m	Master	-----	114.000	156.040	204.000	
Sonde Error Correction Quad - 1		Master	-----	-625.000	-247.744	625.000	
Sonde Error Correction Real - 2	mS/m	Master	-----	66.000	112.609	156.000	
Sonde Error Correction Quad - 2		Master	-----	-350.000	120.325	350.000	
Sonde Error Correction Real - 3	mS/m	Master	-----	39.000	68.195	89.000	
Sonde Error Correction Quad - 3		Master	-----	-250.000	-161.507	250.000	
Sonde Error Correction Real - 4	mS/m	Master	-----	15.000	24.223	35.000	
Sonde Error Correction Quad - 4		Master	-----	-63.000	-0.939	63.000	
Sonde Error Correction Real - 5	mS/m	Master	-----	4.000	15.665	24.000	
Sonde Error Correction Quad - 5		Master	-----	-50.000	-27.113	50.000	
Sonde Error Correction Real - 6	mS/m	Master	-----	5.000	10.064	15.000	
Sonde Error Correction Quad - 6		Master	-----	-30.000	-6.498	30.000	
Sonde Error Correction Real - 7	mS/m	Master	-----	-5.000	-1.483	5.000	
Sonde Error Correction Quad - 7		Master	-----	-30.000	-4.619	30.000	

AIT Mud Calibration - Mud Calibration Gain

Master (EEPROM):		15:19:37 05-Aug-2016					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Coarse Gain		Master	1.000	0.800	0.934	1.200	
Fine Gain		Master	1.000	0.800	0.938	1.200	

AIT Electronics Check - Thru Calibration Check

Master (EEPROM):		15:19:37 05-Aug-2016		Before (Measured):		21:26:59 08-Aug-2016	
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	
		Before-Master	-----	-----	0.000	-----	
Thru Cal Phase - 0	deg	Master	-----	137.000	-165.864	-103.000	
		Before	-----	137.000	-163.429	-103.000	
		Before-Master	-----	-----	2.435	-----	
Thru Cal Mag - 1	V	Master	-----	0.762	1.237	1.778	
		Before	-----	0.762	1.237	1.778	
		Before-Master	-----	-----	0.000	-----	
Thru Cal Phase - 1	deg	Master	-----	136.000	-166.823	-104.000	
		Before	-----	136.000	-164.386	-104.000	
		Before-Master	-----	-----	2.437	-----	
Thru Cal Mag - 2	V	Master	-----	0.372	0.613	0.868	
		Before	-----	0.372	0.613	0.868	

		Before-Master	-----	-----	0.000	-----	
Thru Cal Phase - 2	deg	Master	-----	132.000	-170.304	-108.000	
		Before	-----	132.000	-167.866	-108.000	
		Before-Master	-----	-----	2.438	-----	
Thru Cal Mag - 3	V	Master	-----	0.420	0.691	0.980	
		Before	-----	0.420	0.691	0.980	
		Before-Master	-----	-----	0.000	-----	
Thru Cal Phase - 3	deg	Master	-----	131.000	-171.041	-109.000	
		Before	-----	131.000	-168.600	-109.000	
		Before-Master	-----	-----	2.441	-----	
Thru Cal Mag - 4	V	Master	-----	0.804	1.297	1.876	
		Before	-----	0.804	1.297	1.876	
		Before-Master	-----	-----	0.000	-----	
Thru Cal Phase - 4	deg	Master	-----	125.000	-177.009	-115.000	
		Before	-----	125.000	-174.566	-115.000	
		Before-Master	-----	-----	2.443	-----	
Thru Cal Mag - 5	V	Master	-----	1.176	1.888	2.744	
		Before	-----	1.176	1.887	2.744	
		Before-Master	-----	-----	-0.001	-----	
Thru Cal Phase - 5	deg	Master	-----	122.000	-178.544	-118.000	
		Before	-----	122.000	-176.097	-118.000	
		Before-Master	-----	-----	2.447	-----	
Thru Cal Mag - 6	V	Master	-----	1.176	1.887	2.744	
		Before	-----	1.176	1.886	2.744	
		Before-Master	-----	-----	-0.001	-----	
Thru Cal Phase - 6	deg	Master	-----	121.000	-178.521	-119.000	
		Before	-----	121.000	-176.074	-119.000	
		Before-Master	-----	-----	2.447	-----	
Thru Cal Mag - 7	V	Master	-----	0.846	1.358	1.974	
		Before	-----	0.846	1.358	1.974	
		Before-Master	-----	-----	0.000	-----	
Thru Cal Phase - 7	deg	Master	-----	115.000	-179.305	-125.000	
		Before	-----	115.000	-176.825	-125.000	
		Before-Master	-----	-----	2.480	-----	
SPA Zero	mV	Master		-50.000	0.156	50.000	
		Before		-50.000	0.169	50.000	
		Before-Master	-----	-----	0.013	-----	
SPA Plus	mV	Master		941.000	988.093	1040.000	
		Before		941.000	988.068	1040.000	
		Before-Master	-----	-----	-0.025	-----	
Temperature Zero	V	Master		-0.050	0.000	0.050	
		Before		-0.050	0.000	0.050	
		Before-Master	-----	-----	0.000	-----	
Temperature Plus	V	Master		0.870	0.915	0.960	
		Before		0.870	0.915	0.960	
		Before-Master	-----	-----	0.000	-----	

HDRS-H (HILT Density and Rxo Sonde, 150 degC) Calibration - Run Two		
Primary Equipment :		
HILT High-Resolution Control Cartridge, 150 degC	HRCC-H	
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	5471
HILT High-Resolution Control Cartridge, 150 degC	HRCC-H	
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):12:17:59 06-Aug-2016 Expired by 1 days

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Small Ring	in	Before	8.00	6.00	7.44	10.00	
Large Ring	in	Before	12.00	9.00	11.20	15.00	

HDRS Density Calibration - Inversion Results

Master (EEPROM):12:33:24 03-Aug-2016

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	1.688	1.696	
Pe Aluminum		Master	2.570	2.470	2.542	2.670	
Pe Magnesium		Master	2.650	2.550	2.631	2.750	

HDRS Density Calibration - Deviation Summary

Master (EEPROM):12:33:24 03-Aug-2016

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
BS Average Deviation	%	Master	0	-0.6000	0.3373	0.6000	
BS Max Deviation	%	Master	0	-1.6000	0.7861	1.6000	
SS Average Deviation	%	Master	0	-1.0000	0.3736	1.0000	
SS Max Deviation	%	Master	0	-2.5000	0.8773	2.5000	
LS Average Deviation	%	Master	0	-1.5000	0.4733	1.5000	
LS Max Deviation	%	Master	0	-3.5000	1.2599	3.5000	

HDRS Density Calibration - Background Summary

Master (EEPROM):12:33:24 03-Aug-2016Before (Measured):12:23:37 06-Aug-2016 Expired by 1 days

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
BS Window Ratio		Master	1.0000		0.7361		
		Before	0.7361	0.6993	0.7365	0.7729	
		Before-Master	-----	-----	0.0004	-----	
BS Window Sum	1/s	Master	1		23864		
		Before	23864	22671	23865	25057	
		Before-Master	-----	-----	1	-----	
SS Window Ratio		Master	1.0000		0.4881		
		Before	0.4881	0.4636	0.4903	0.5125	
		Before-Master	-----	-----	0.0022	-----	
SS Window Sum	1/s	Master	1		11487		
		Before	11487	10913	11495	12061	
		Before-Master	-----	-----	8	-----	
LS Window Ratio		Master	1.0000		0.2975		
		Before	0.2975	0.2826	0.3010	0.3123	
		Before-Master	-----	-----	0.0035	-----	
LS Window Sum	1/s	Master	1		1301		
		Before	1301	1236	1301	1366	
		Before-Master	-----	-----	0	-----	

HDRS Density Calibration - Photo-multiplier High Voltages

Master (EEPROM):12:33:24 03-Aug-2016Before (Measured):12:23:37 06-Aug-2016 Expired by 1 days

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
BS PM High Voltage	V	Master		1000	1577	2400	
		Before		1000	1564	2400	
		Before-Master	-----	-100	-13	100	
SS PM High Voltage	V	Master		1000	1867	2400	
		Before		1000	1875	2400	
		Before-Master	-----	-100	8	100	
LS PM High Voltage	V	Master		1000	1268	2400	
		Before		1000	1270	2400	
		Before-Master	-----	-100	2	100	

HDRS Density Calibration - Crystal Quality Resolutions

Master (EEPROM):12:33:24 03-Aug-2016Before (Measured):12:23:37 06-Aug-2016 Expired by 1 days

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
-------------	------	-------	---------	-----------	--------	------------	--

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
BS Crystal Resolution	%	Master		5.00	10.90	25.00	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before		5.00	10.75	25.00	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before-Master	-----	-1.00	-0.15	1.00	<div><div></div><div></div><div></div><div></div><div></div></div>
SS Crystal Resolution	%	Master		5.00	9.59	20.00	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before		5.00	9.70	20.00	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before-Master	-----	-1.00	0.11	1.00	<div><div></div><div></div><div></div><div></div><div></div></div>
LS Crystal Resolution	%	Master		5.00	8.30	20.00	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before		5.00	8.44	20.00	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before-Master	-----	-1.00	0.14	1.00	<div><div></div><div></div><div></div><div></div><div></div></div>

HDRS MCFL Calibration - MCFL Accumulations

Before (Measured):		21:27:12 08-Aug-2016					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Main Resistivity	ohm.m	Before	3875	3565	3891	4185	<div><div></div><div></div><div></div><div></div><div></div></div>
Deep Resistivity	ohm.m	Before	3830	3524	3805	4136	<div><div></div><div></div><div></div><div></div><div></div></div>
Shallow Resistivity	ohm.m	Before	3830	3524	3835	4136	<div><div></div><div></div><div></div><div></div><div></div></div>

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

Primary Equipment :			
HILT Gamma-Ray and Neutron Sonde, 150 degC		HGNS-H	
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):		21:24:55 08-Aug-2016					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
AZ Vertical Measurement	ft/s2	Before	32.2	31.5	32.1	32.8	<div><div></div><div></div><div></div><div></div><div></div></div>

HGNS Accelerometer EEPROM - Accelerometer EEPROM Read

Master (EEPROM):		19:00:00 14-May-2007					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Accelerometer Manufacturer		Master			QAT_160		<div><div></div><div></div><div></div><div></div><div></div></div>
Accelerometer Reference Temperature	degF	Master		30.2	77.0	122.0	<div><div></div><div></div><div></div><div></div><div></div></div>
Accelerometer Coefficients - 0		Master	-----	-----	-4298.000	-----	<div><div></div><div></div><div></div><div></div><div></div></div>
Accelerometer Coefficients - 1		Master	-----	-----	50.180	-----	<div><div></div><div></div><div></div><div></div><div></div></div>
Accelerometer Coefficients - 2		Master	-----	-----	-0.002	-----	<div><div></div><div></div><div></div><div></div><div></div></div>
Accelerometer Coefficients - 3		Master	-----	-----	0.000	-----	<div><div></div><div></div><div></div><div></div><div></div></div>
Accelerometer Coefficients - 4		Master	-----	-----	2.754	-----	<div><div></div><div></div><div></div><div></div><div></div></div>
Accelerometer Coefficients - 5		Master	-----	-----	0.000	-----	<div><div></div><div></div><div></div><div></div><div></div></div>
Accelerometer Coefficients - 6		Master	-----	-----	0.000	-----	<div><div></div><div></div><div></div><div></div><div></div></div>
Accelerometer Coefficients - 7		Master	-----	-----	0.000	-----	<div><div></div><div></div><div></div><div></div><div></div></div>
Accelerometer Coefficients - 8		Master	-----	-----	300.500	-----	<div><div></div><div></div><div></div><div></div><div></div></div>
Accelerometer Coefficients - 9		Master	-----	-----	0.994	-----	<div><div></div><div></div><div></div><div></div><div></div></div>

HGNS Neutron Calibration - HGNS Neutron Accumulations

Master (EEPROM):		10:25:00 19-Jul-2016		Before (Measured): 12:13:53 06-Aug-2016 Expired by 1 days			
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Near Zero Measurement	1/s	Master	0	5.0	27.6	40.0	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before	0	5.0	28.3	40.0	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before-Master	-----	-4.1	0.7	4.1	<div><div></div><div></div><div></div><div></div><div></div></div>
Far Zero Measurement	1/s	Master	0	5.0	29.5	40.0	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before	0	5.0	29.8	40.0	<div><div></div><div></div><div></div><div></div><div></div></div>
		Before-Master	-----	-4.4	0.3	4.4	<div><div></div><div></div><div></div><div></div><div></div></div>
Near Plus Measurement	1/s	Master	6031.0	4700.0	5290.0	6900.0	<div><div></div><div></div><div></div><div></div><div></div></div>

Near Plus Measurement	1/s	Master Before Before-Master	6831.0 ----- -----	4700.0 ----- -----	5250.0 ----- -----	6500.0 ----- -----	<div><div></div></div>
Far Plus Measurement	1/s	Master Before Before-Master	2793.0 ----- -----	1900.0 ----- -----	2194.0 ----- -----	2900.0 ----- -----	<div><div></div></div>
Near Corrected Plus Measurement	1/s	Master Before Before-Master	----- ----- -----	4700.0 ----- -----	5156.0 ----- -----	6900.0 ----- -----	<div><div></div></div>
Far Corrected Plus Measurement	1/s	Master Before Before-Master	----- ----- -----	1900.0 ----- -----	2097.0 ----- -----	2900.0 ----- -----	<div><div></div></div>

HGNS Gamma-Ray Calibration - Gamma-Ray Accumulations							
Before (Measured): 12:18:13 06-Aug-2016 Expired by 1 days							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div><div></div></div>
RGR Zero Measurement	gAPI	Before	30.0	0	71.8	120.0	<div><div></div></div>
RGR Plus Measurement	gAPI	Before	185.4	157.1	173.8	206.3	<div><div></div></div>
GR Calibration Gain		Before	0.89	0.80	0.95	1.05	<div><div></div></div>

Company:	Cub Creek Energy	Schlumberger
Well:	Markham 11	
Field:	Wattenberg	

County:	Weld
Country:	US
Platform Express	
Triple Combo	