Schlumberger

Company: BP America Production Company

Well: Ford H1

Field: Ignacio Blanco

County: La Plata State: Colorado

Platform Express

Triple Combo

County: La Plata
Field: Ignacio Blanco
Location: SENW Sec. 10, T33N, R8W
Well: Ford H1
Company: BP America Production Company

Location:			
SENW Sec. 10, T33N, R8W SHL: 1678' FNL x 1704' FWL	Elev.:	K.B.	6713.00 ft
		G.L.	6702.00 ft
		D.F.	6713.00 ft

Permanent Datum:	Ground Level	Elev.:	6702.00 f
Log Measured From:	Kelly Bushing	11.00 ft	above Perm.Datum
Drilling Measured From:	Kelly Bushing		

API Serial No.	Section:	Township:	Range:
05-067-09956	10	33N	8W

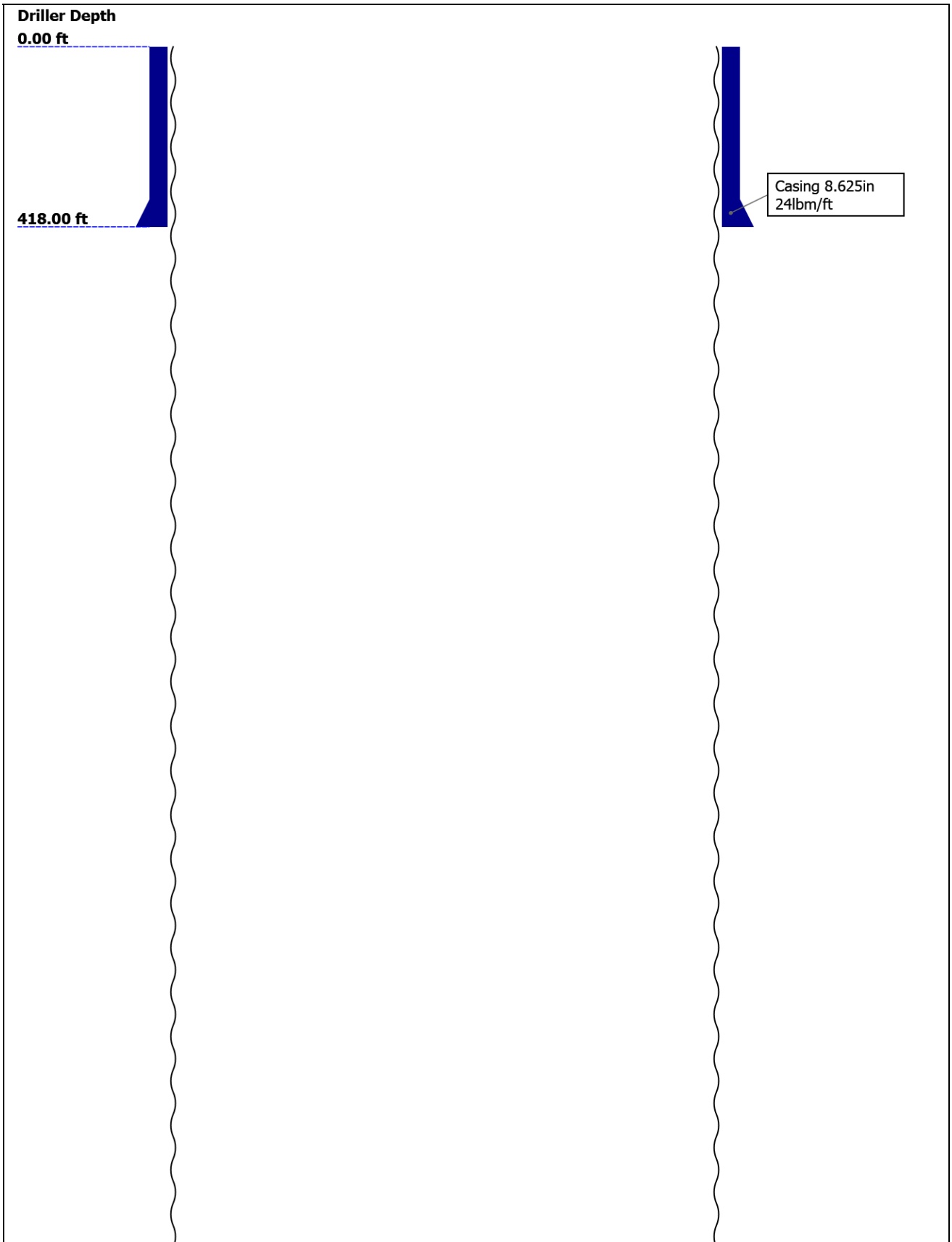
Logging Date		08-Jan-2016				
Run Number		Run 1				
Depth Driller		3584.00 ft				
Schlumberger Depth		3587.70 ft				
Bottom Log Interval		3587.70 ft				
Top Log Interval		418.00 ft				
Casing Driller Size @ Depth		8.625 in @ 418.00 ft				
Casing Schlumberger		418 ft				
Bit Size		7.875 in				
Type Fluid In Hole		WBM				
MUD Density	Viscosity	9.7 lbm/gal	40 s			
MUD Fluid Loss	PH	4.4 cm3	8			
MUD Source of Sample		Flowline				
RM @ Meas Temp		2.43 ohm.m @ 78.11 degF				
RMF @ Meas Temp		1.83 ohm.m @ 78.11 degF				
RMC @ Meas Temp		3.04 ohm.m @ 78.11 degF				
Source RMF	RMC	Calculated	Calculated			
RM @ BHT	RMF @ BHT	1.61 @ 121.4	1.21 @ 121.4			
Max Recorded Temperatures		121.4 degF				
Circulation Stopped	Time	08-Jan-2015	21:00:00			
Logger on Bottom	Time	08-Jan-2016	05:35:00			
Unit Number	Location:	9108	Ft. Morgan, CO			
Recorded By		Aleksei Bekhterev				
Witnessed By		Mark Durio				

Disclaimer

Contents

11.2 Log (KM 5in Triple Combo RA)
12. Calibration Report
13. Tail

Well Sketch



Borehole Size/Casing/Tubing Record

Bit						
Bit Size (in)	7.875					
Top Driller (ft)	0					
Top Logger (ft)	0					
Bottom Driller (ft)	3584					
Bottom Logger (ft)	3587.7					
Casing						
Size (in)	8.625					
Weight (lbm/ft)	24					
Inner Diameter (in)	8.097					
Grade	N/A					
Top Driller (ft)	0					
Top Logger (ft)	0					
Bottom Driller (ft)	418					
Bottom Logger (ft)	418					

Operational Run Summary

Parameter (unit)	Run 1					
Date Log Started	08-Jan-2016					
Time Log Started	04:31:08					
Date Log Finished	08-Jan-2016					
Time Log Finished	13:10:22					
Top Log Interval (ft)	418.00					
Bottom Log Interval (ft)	3587.70					
Total Depth (ft)						
Max Hole Deviation (deg)	0.00					
Azimuth of Max Deviation (deg)	0.00					
Bit Size (in)	7.875					
Logging Unit Number	9108					
Logging Unit Location	Ft. Morgan, CO					
Recorded By	Aleksei Bekhterev					

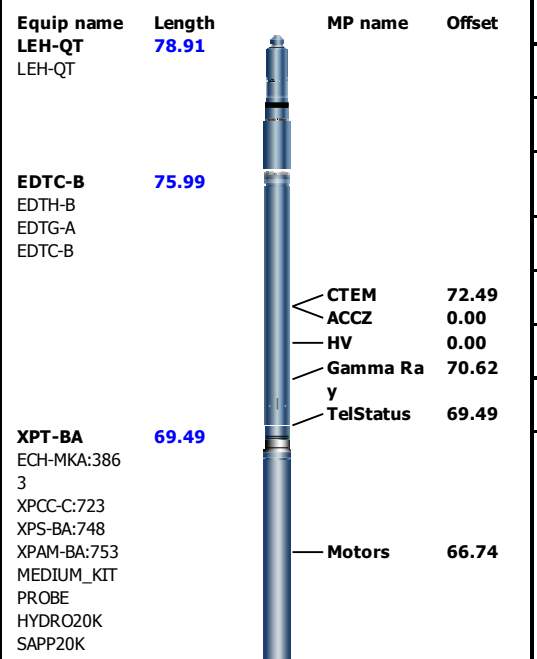
Witnessed By	Mark Durio					
Service Order Number	DETG-00024					

Borehole Fluids

Parameter(unit)	Run 1					
Fluid Type	Water					
Fluid Name	WBM					
Max Recorded Temperatures (degF)	121.4					
Source of Sample	Flowline					
Salinity (ppm)	0					
Density (lbm/gal)	9.7					
Funnel Viscosity (s)	40					
Fluid Loss (cm3)	4.4					
PH	8					
Date/Time Circulation Stopped	08-Jan-2015 21:00:00					
Date Logger on Bottom	08-Jan-2016					
Time Logger on Bottom	05:35:00					
Source RMF	Calculated					
RMC	Calculated					
RM @ Meas Temp (ohm.m@degF)	2.43 @ 78.11					
RMF @ Meas Temp (ohm.m@degF)	1.83 @ 78.11					
RMC @ Meas Temp (ohm.m@degF)	3.04 @ 78.11					
RM @ BHT (ohm.m@degF)	1.61 @ 121.4					
RMF @ BHT (ohm.m@degF)	1.21 @ 121.4					
RMC @ BHT (ohm.m@degF)	2.01 @ 121.4					
Total Solid (%)						
High Gravity Solids (%)						

Remarks and Equipment Summary

Run 1: Toolstring



Run 1: Remarks

- This is first run in hole
- Toolstring ran as per tool sketch
- Matrix: Sandstone, 2.65 g/cc
- Neutron corrections: Standoff correction (SOCO), Hole size correction (HSCO)
- Caliper adjusted in casing
- 4-arms caliper is used to orient the toolstring
- Crew: Ben Carson, Dave Marquez
- Thank you for choosing Schlumberger Wireline!

XPMH-BA
XPMC-BA:780

Probes 53.45

Hydrostatic 51.79

Sapphire 51.79

Cartridge 48.17

AH-184[2] **48.17**

AH-184[1] **46.17**

PPC-B:8195 **44.17**
PPC-B:8195

PPC-B Calipers 43.02

HGNS-H:4736 **37.65**
HGNH
NSR-F:5069
NPV-N
HACCZ-H:5118
HGNS-H:4736
HMCA-H

Temperature 37.62

GR 36.91

CNL Porosity 30.57

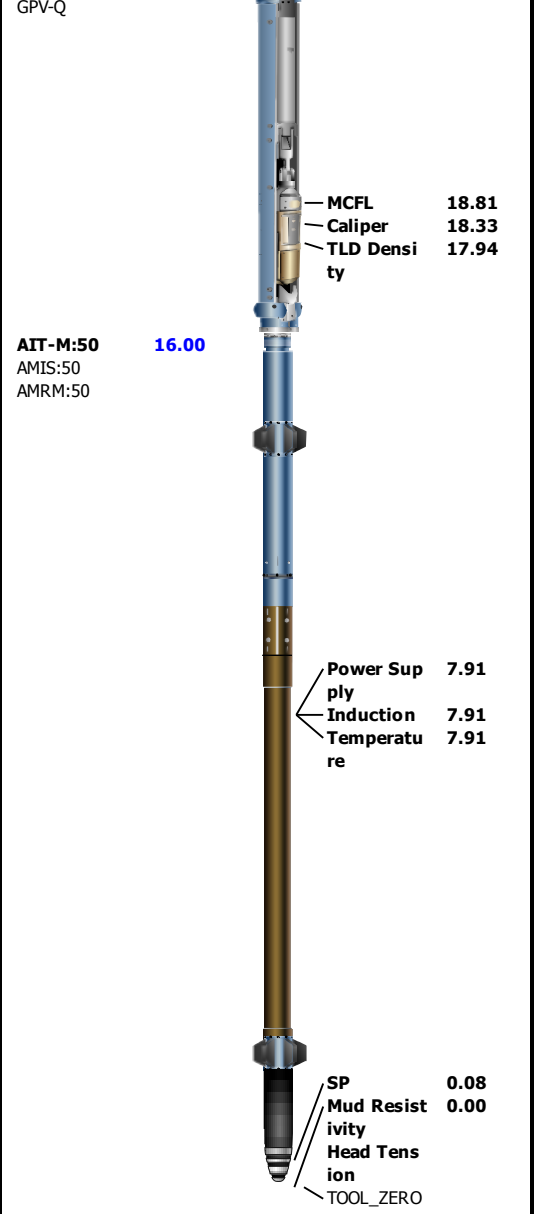
HGNS 28.24

HMCA 28.24

Accelerometer 0.00

HDRS-H:4775 **28.24**
ECH-MEB
HRCC-H
HRMS-H:4775
Backscatter
GSR-J:5094
Long Spacing
Short Spacing
HRGD-H:5788

HRCC 24.24



Depth Summary

	Run 1		
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	7-46A-XS		
Serial Number	13000		
Length	13000.00 ft		
Conveyance Type	Wireline		
Rig Type	One Arm Bandit		

Run 1:Depth Control Parameters		Depth Control Remarks
Log Sequence	First Log In the Well	All Schlumberger depth policies followed
Rig Up Length At Surface		IDW used as primary depth device
Rig Up Length At Bottom		Z-chart used as secondary depth reference
Rig Up Length Correction		
Stretch Correction		
Tool Zero Check At Surface		

Run 1

5" Triple Combo

Software Version

Acquisition System	Version
Maxwell 2016	6.0.53731.3100
Application Patch	Wireline_NPD-CMRTF-2016CMZ-53731_6.0.55135

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
Run 1	Main[3]:Up	Up	78.57 ft	3595.70 ft	08-Jan-2016 5:54:24 AM	08-Jan-2016 7:02:04 AM	ON	0.00 ft	No

All depths are referenced to toolstring zero

Log

Company:BP America Production Company Well:Ford H1

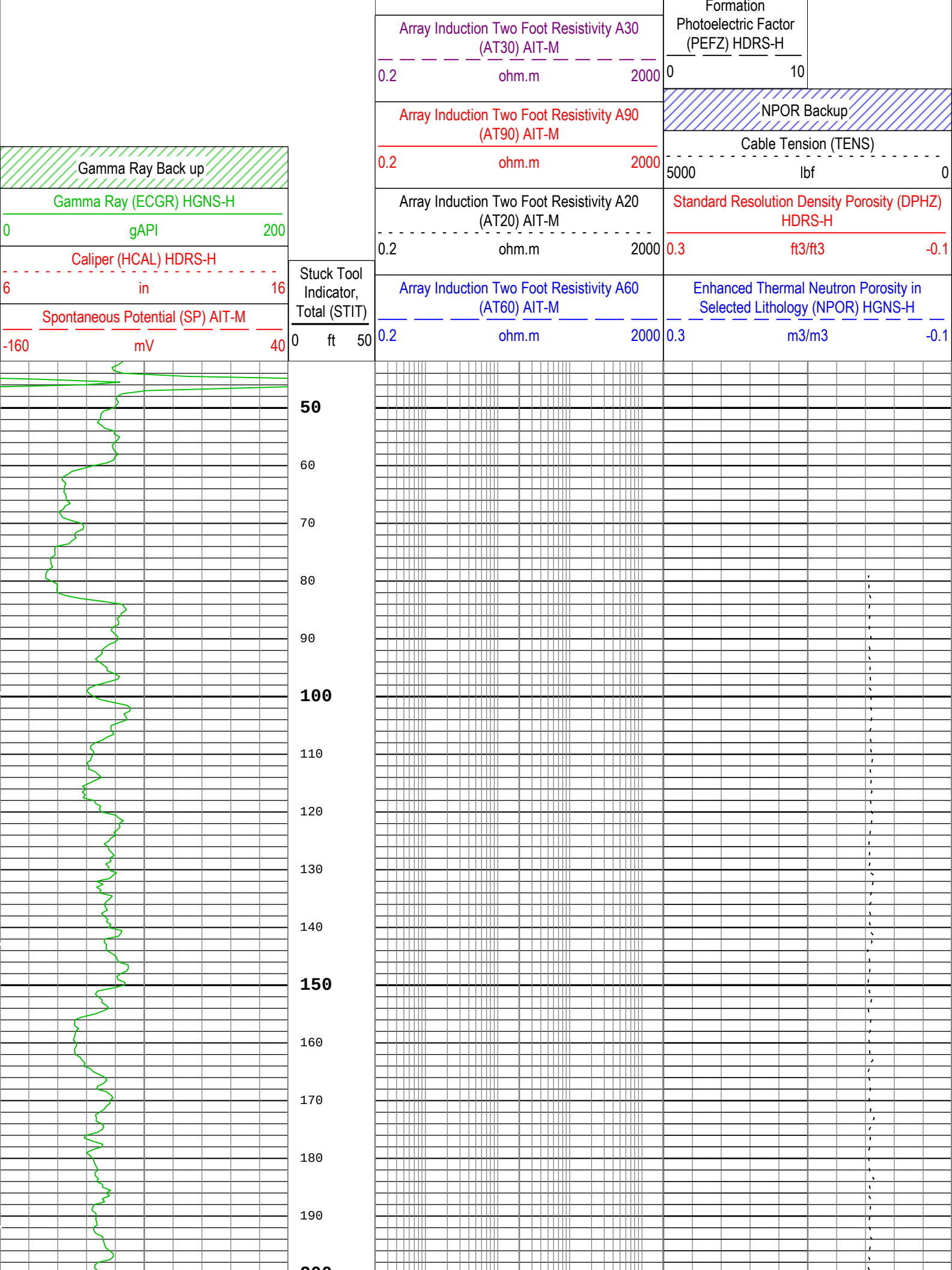
Run 1: Main[3]:Up:S006

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: 08-Jan-2016 13:11:44

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

TIME_1900 - Time Marked every 60.00 (s)

Array Induction Two Foot Resistivity A10 (AT10) AIT-M			Standard Resolution
0.2	ohm.m	2000	


Gamma Ray Back up
Gamma Ray (ECGR) HGNS-H
0
gAPI
200
Caliper (HCAL) HDRS-H
6
in
16
Spontaneous Potential (SP) AIT-M
-160
mV
40
Stuck Tool Indicator, Total (STIT)
0
ft
50
Array Induction Two Foot Resistivity A30 (AT30) AIT-M
0.2
ohm.m
2000
Array Induction Two Foot Resistivity A90 (AT90) AIT-M
0.2
ohm.m
2000
Array Induction Two Foot Resistivity A20 (AT20) AIT-M
0.2
ohm.m
2000
Array Induction Two Foot Resistivity A60 (AT60) AIT-M
0.2
ohm.m
2000
Formation Photoelectric Factor (PEFZ) HDRS-H
0
10
NPOR Backup
Cable Tension (TENS)
5000
lbf
0
Standard Resolution Density Porosity (DPHZ) HDRS-H
0.3
ft3/ft3
-0.1
Enhanced Thermal Neutron Porosity in Selected Lithology (NPOR) HGNS-H
0.3
m3/m3
-0.1
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60
70
80
90
100
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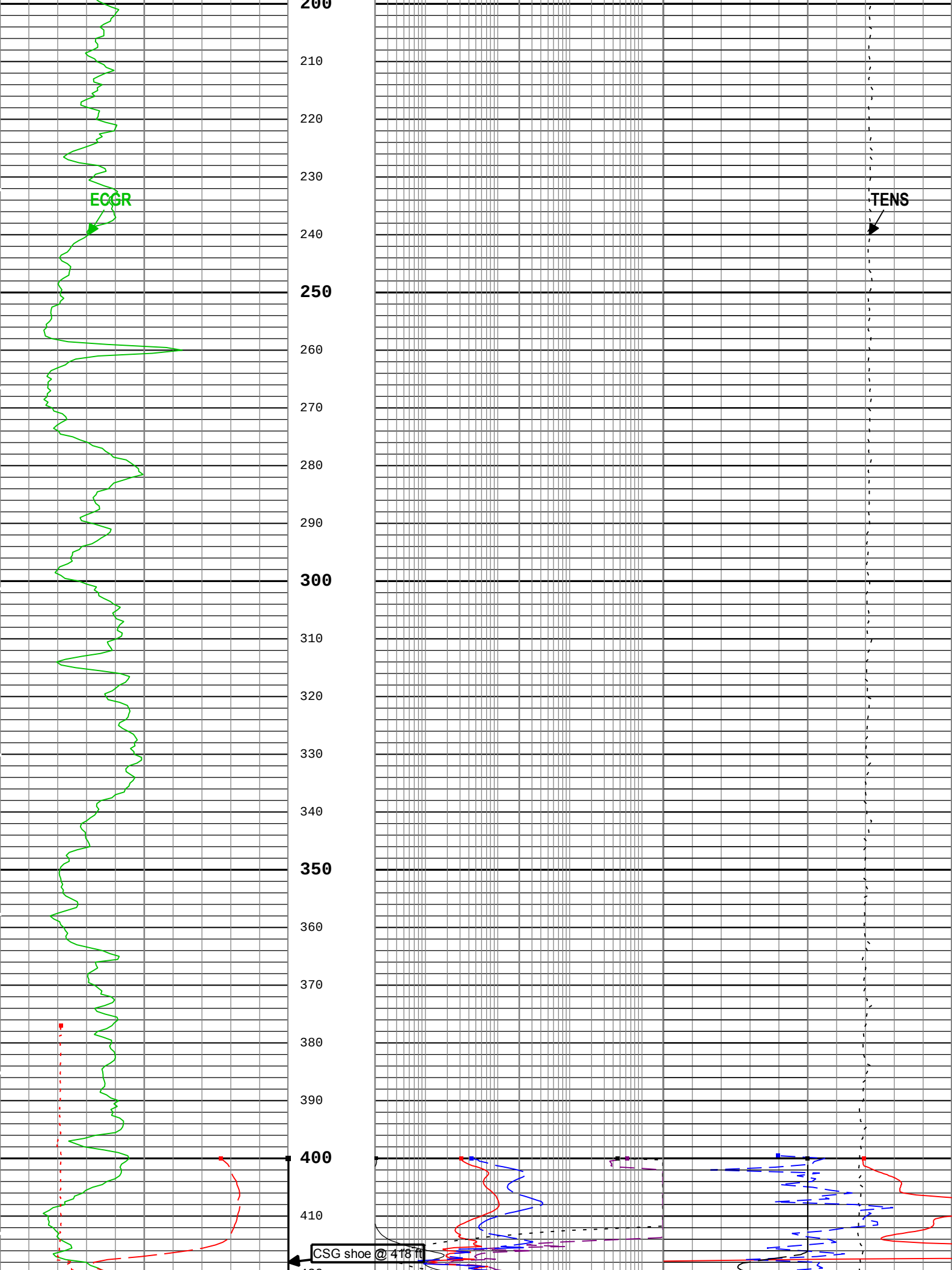
130
140
150
160
170
180
190
200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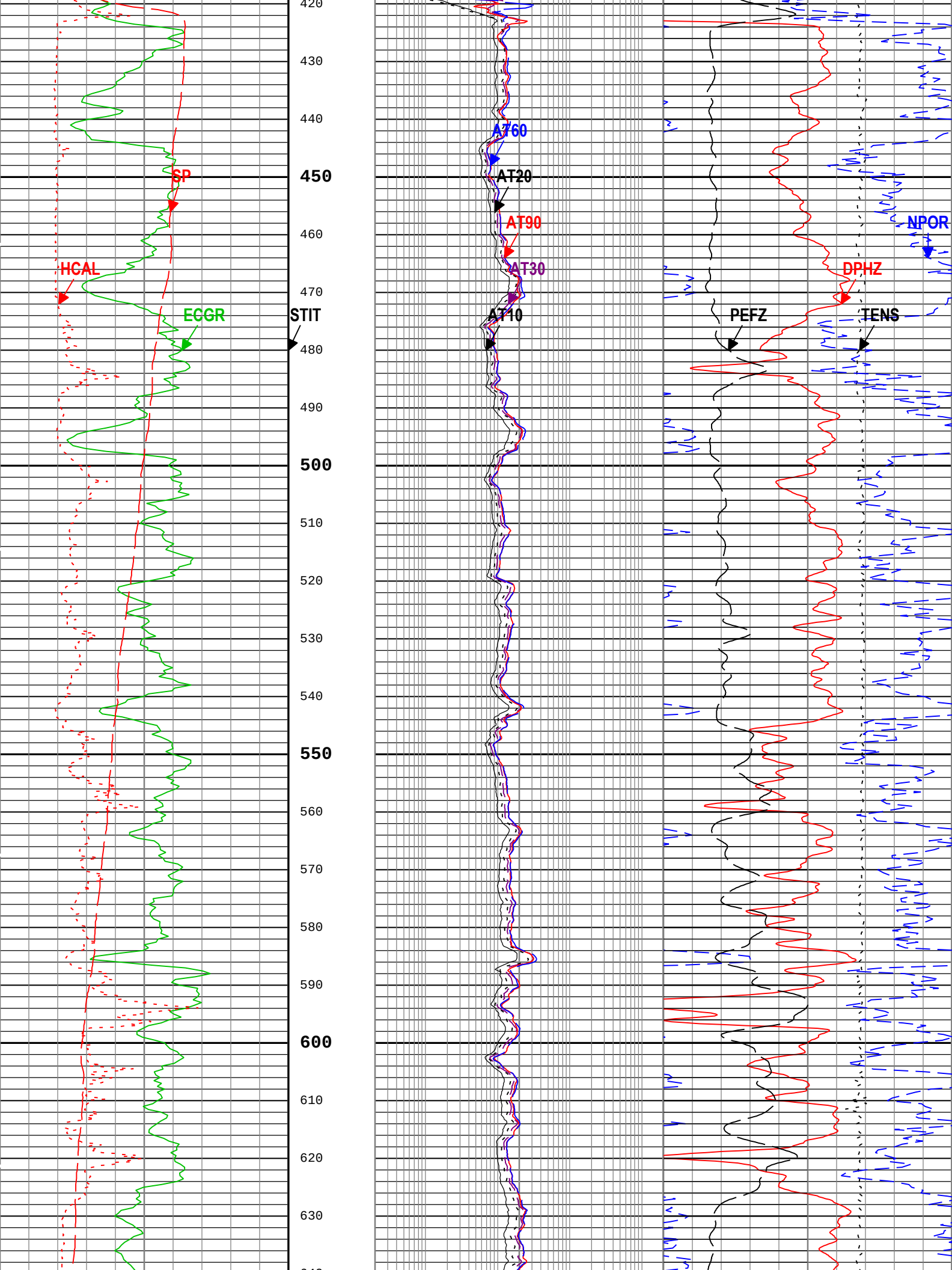
390
400
410
ECGR
TENS
CSG shoe @ 418 ft


SP
HCAL
ECGR
STIT
AT60
AT20
AT90
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AT10
NPOR
DPHZ
PEFZ
TENS
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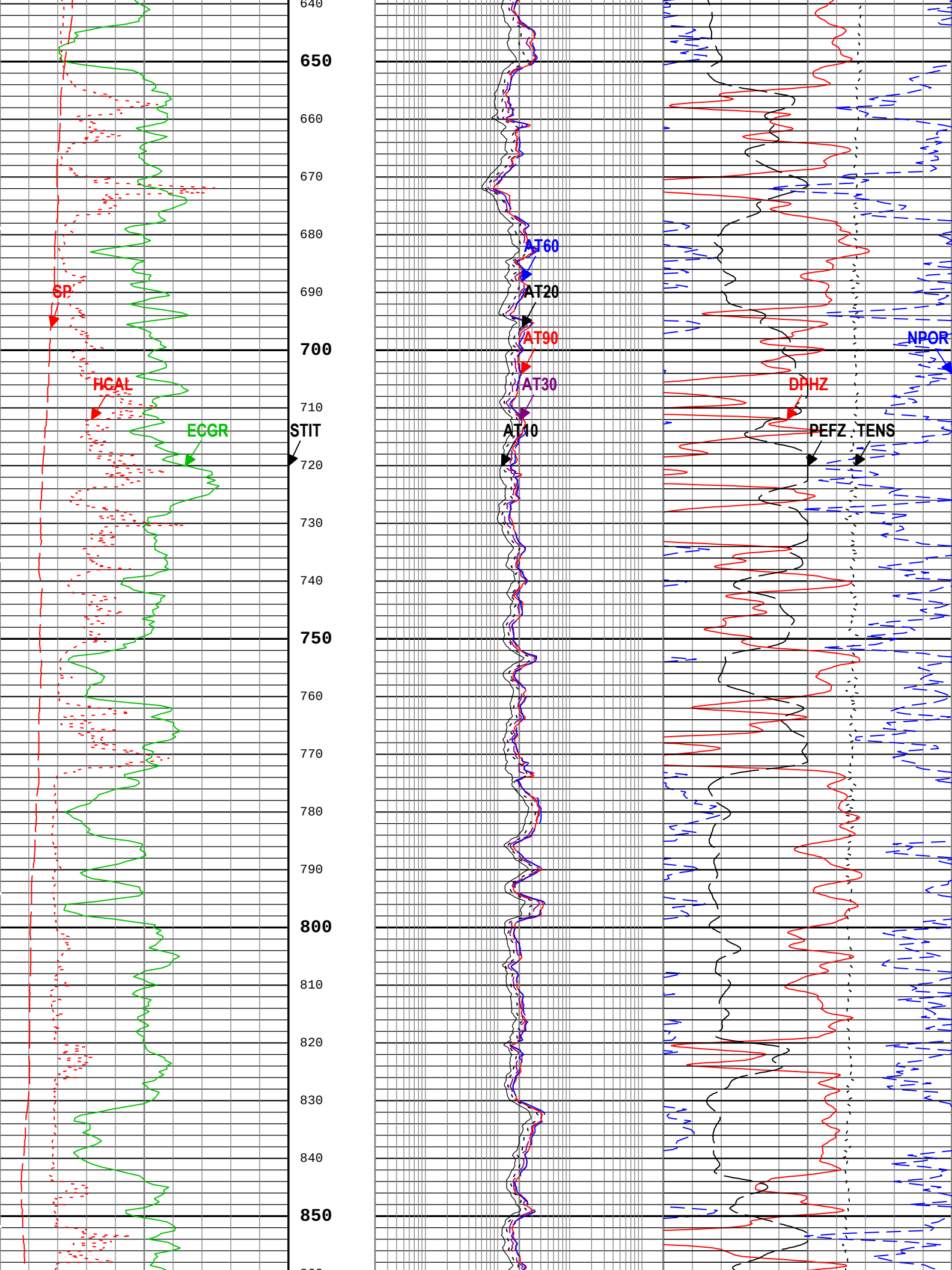
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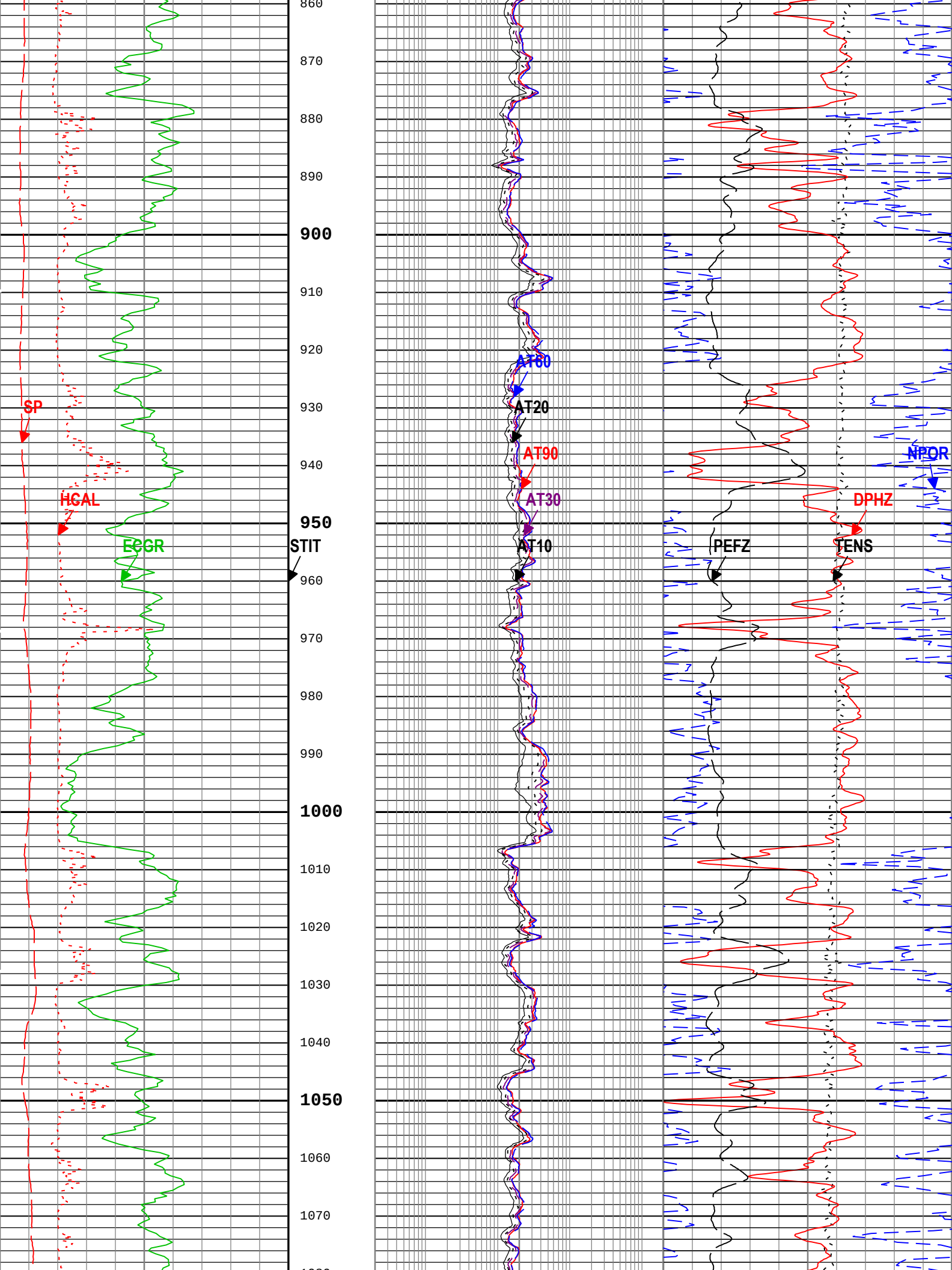
DPHZ
PEFZ
TENS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PEFZ
TENS
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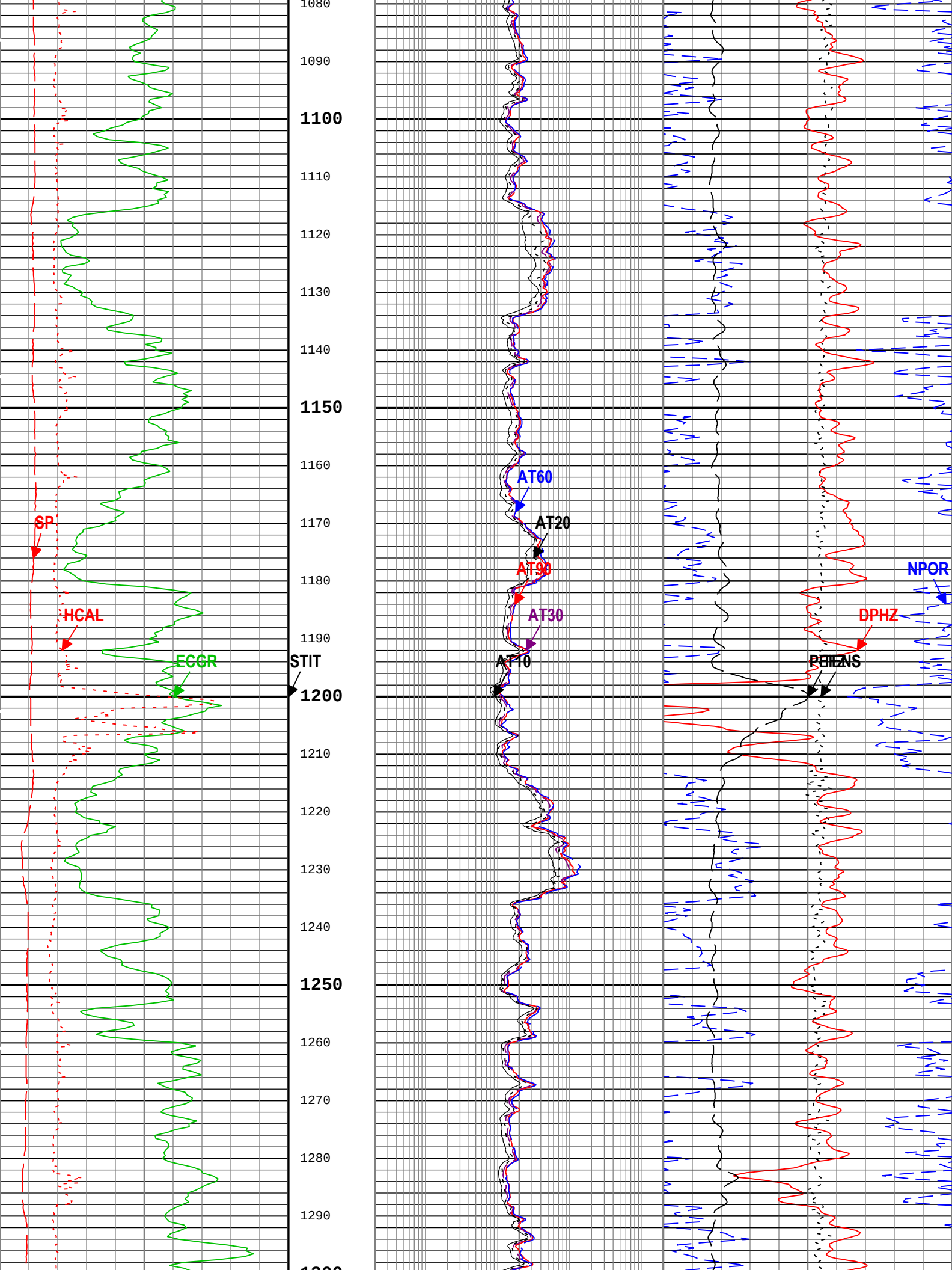
DPHZ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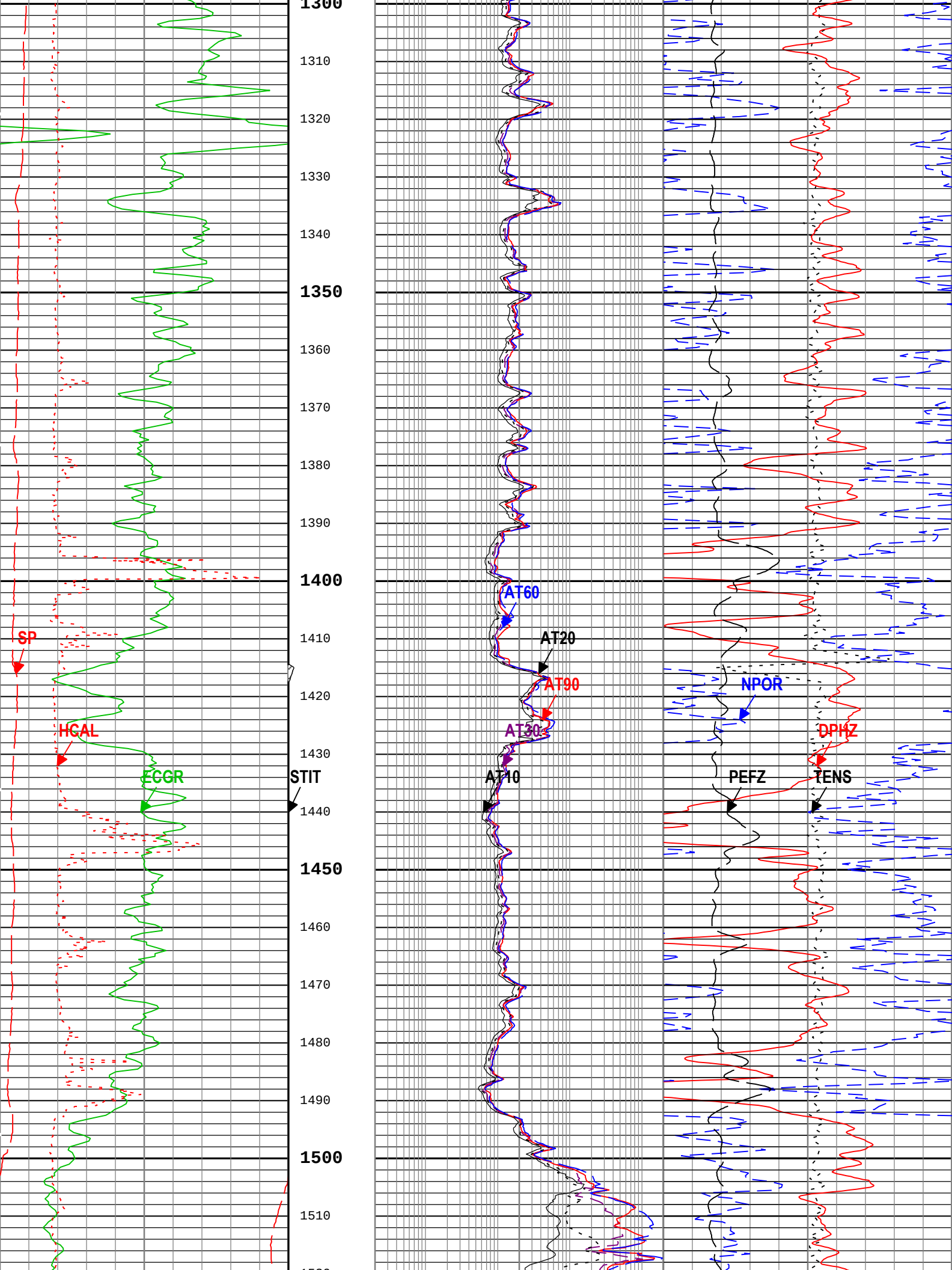
DPHZ
PHIENS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PEFZ
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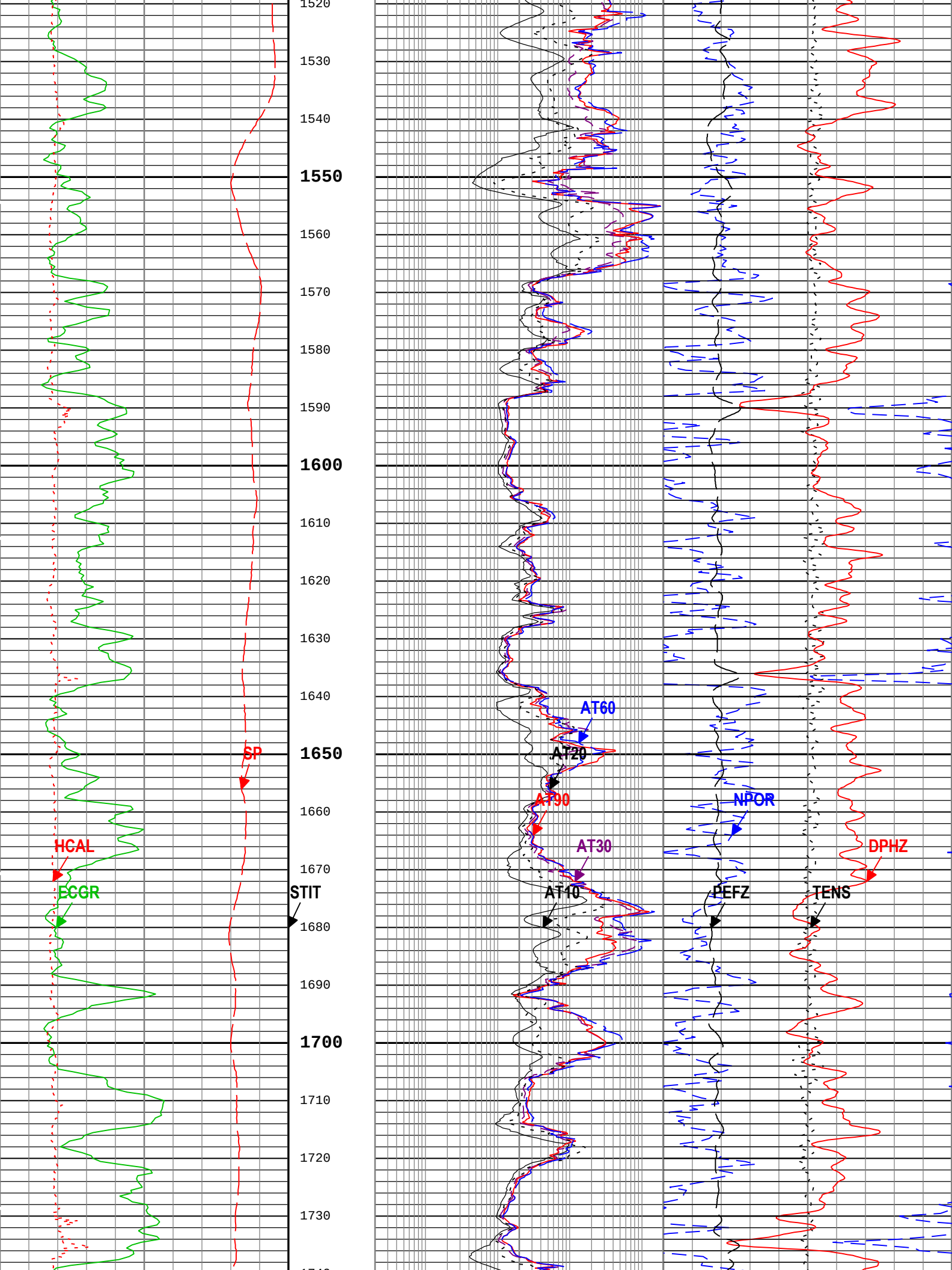
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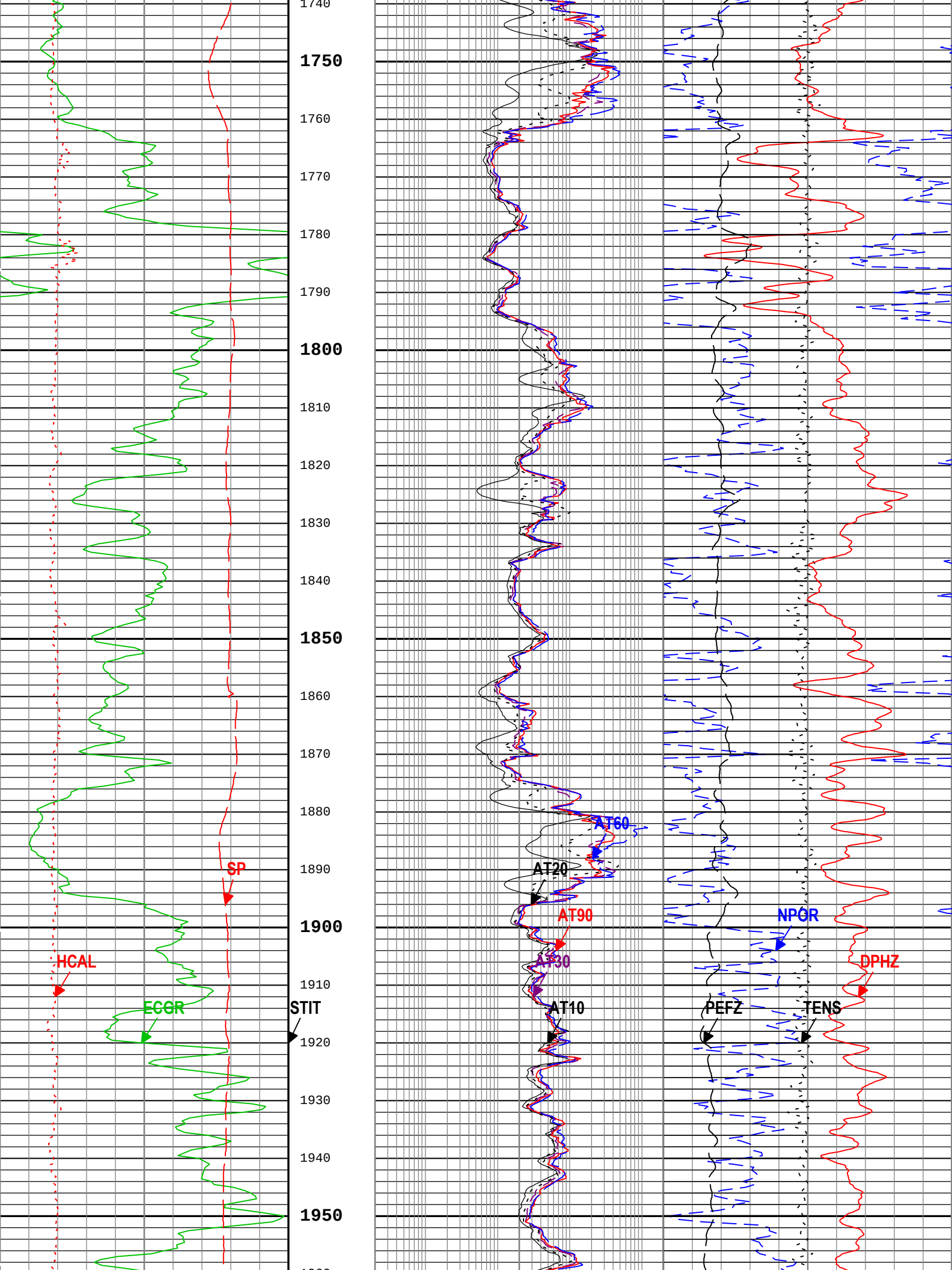
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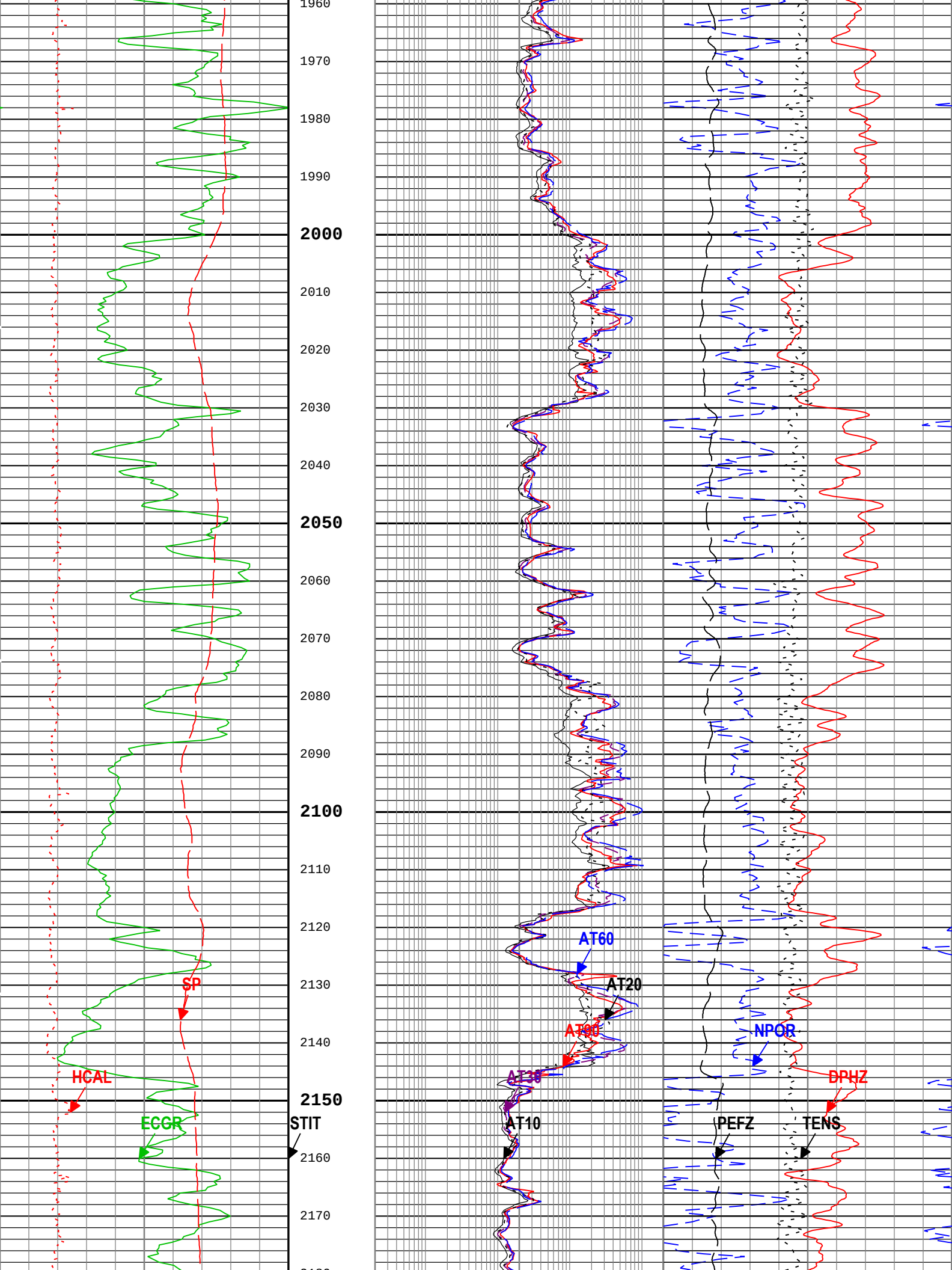
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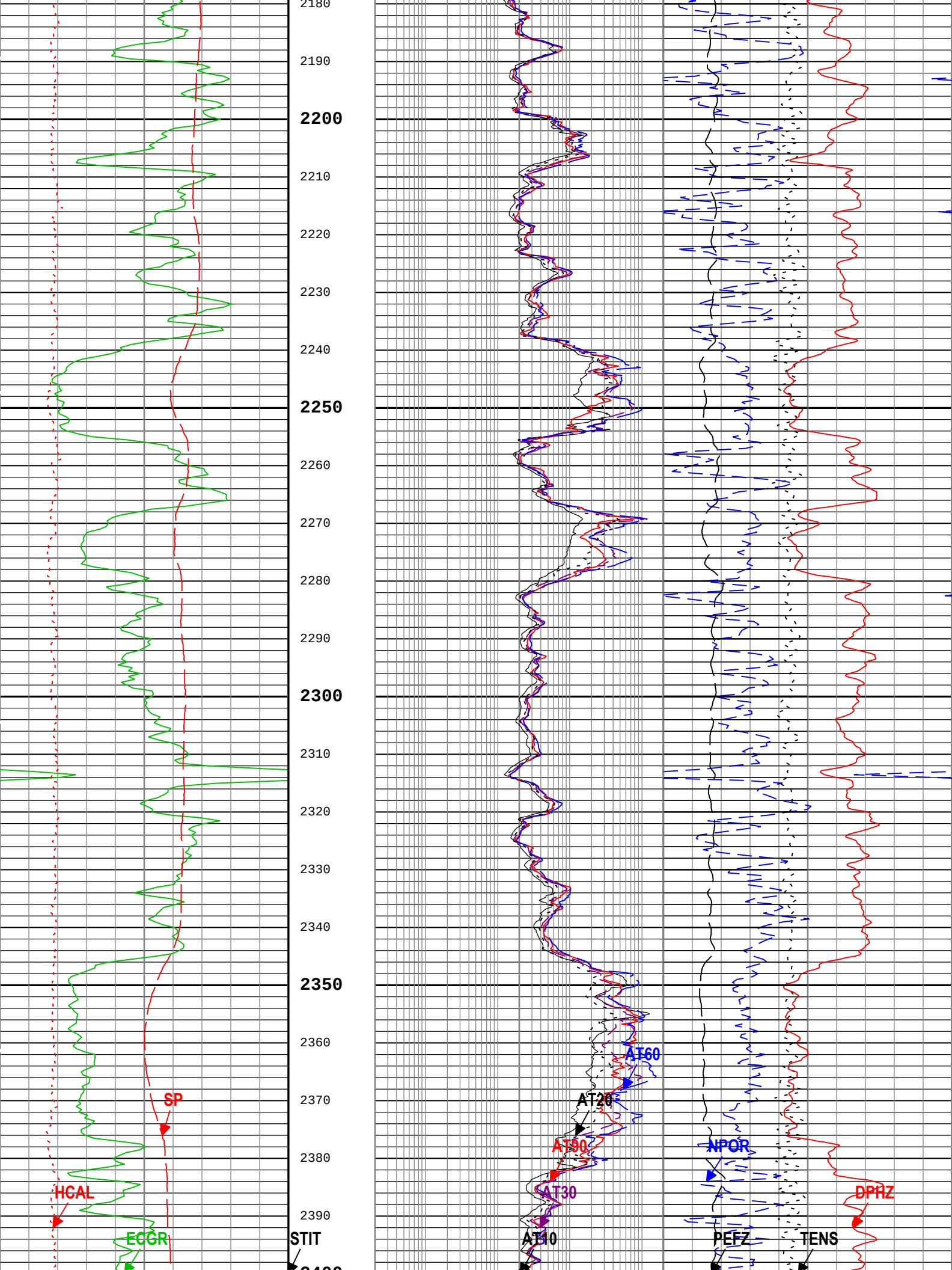
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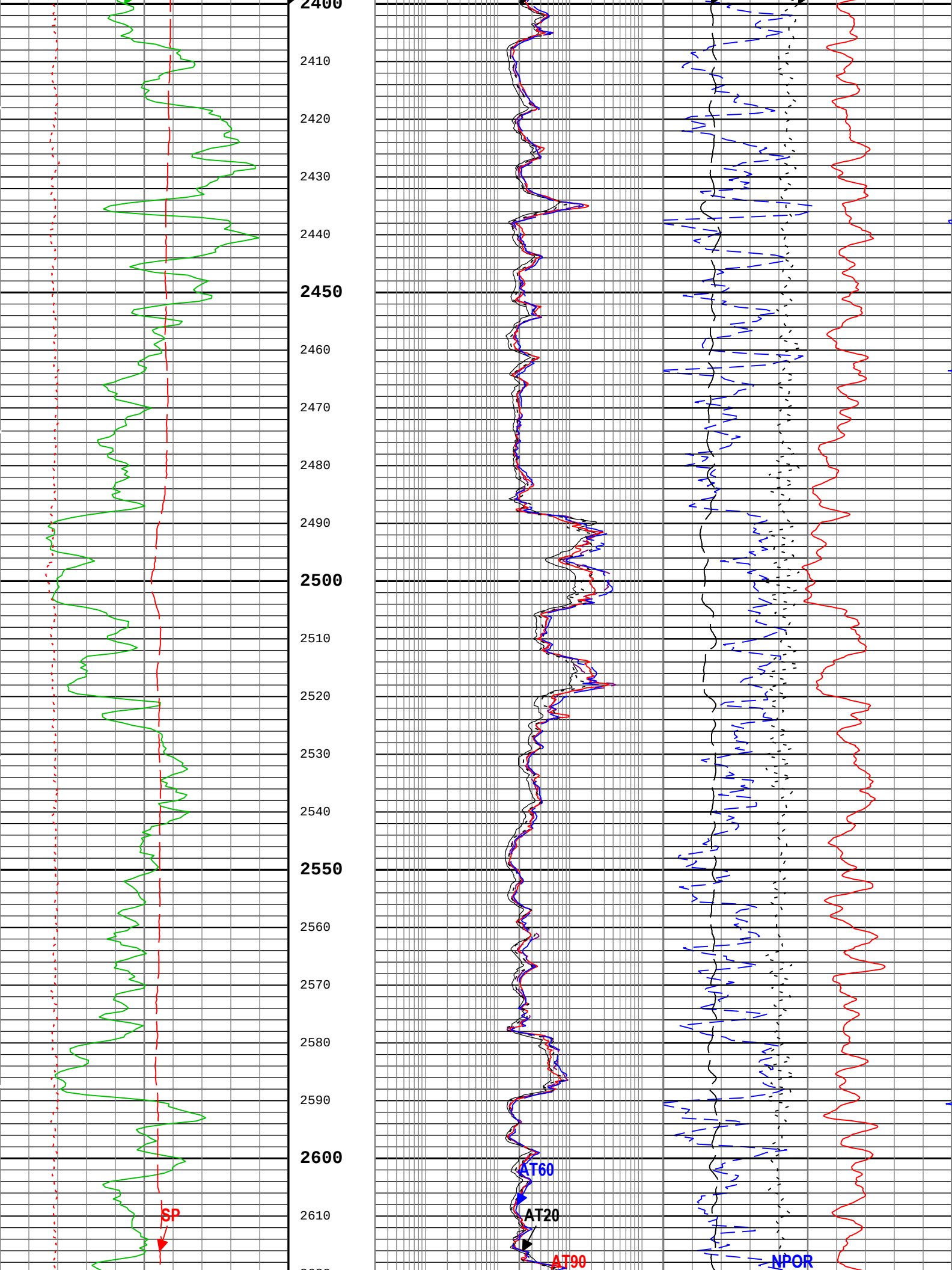
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AT90
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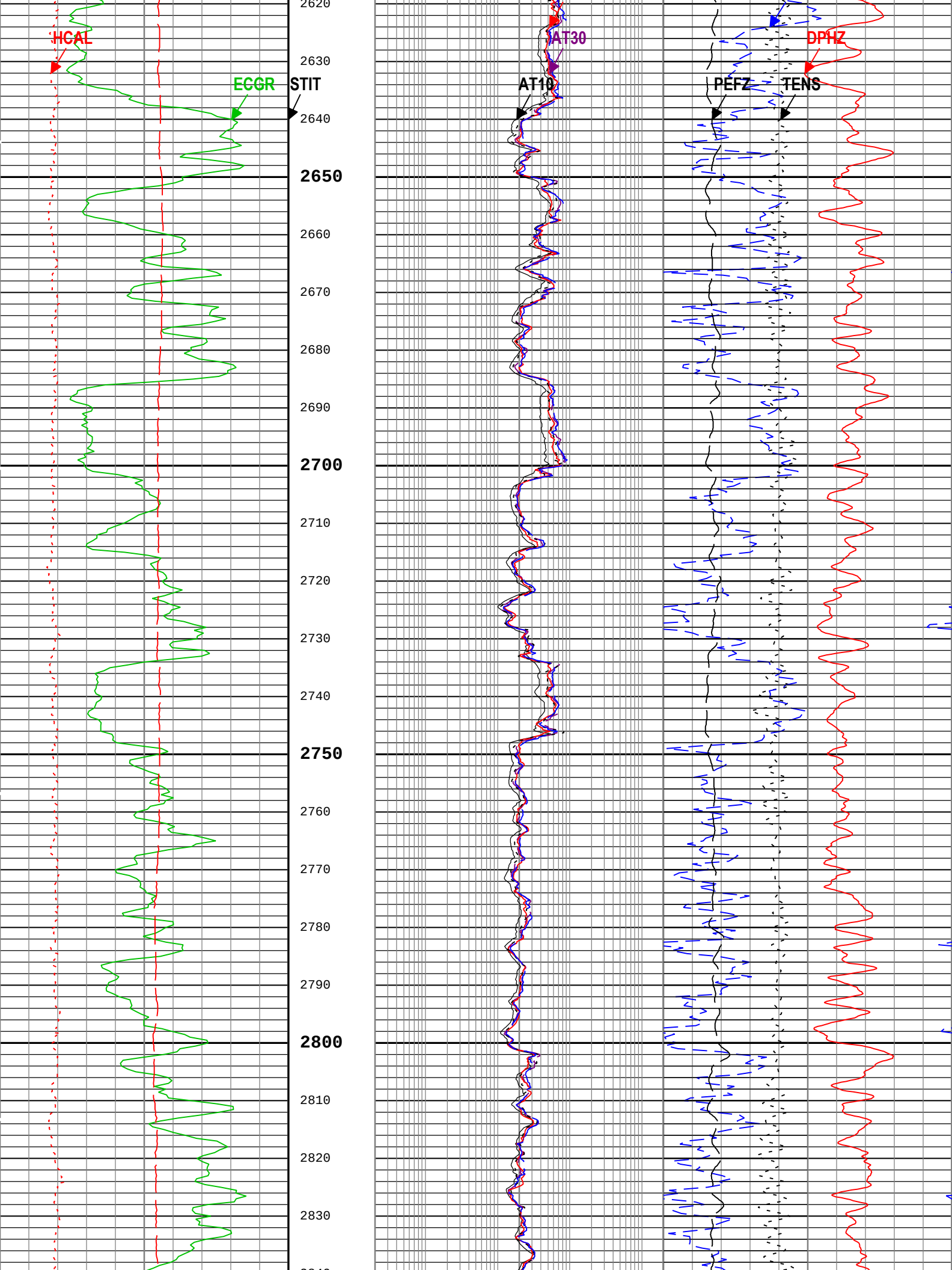
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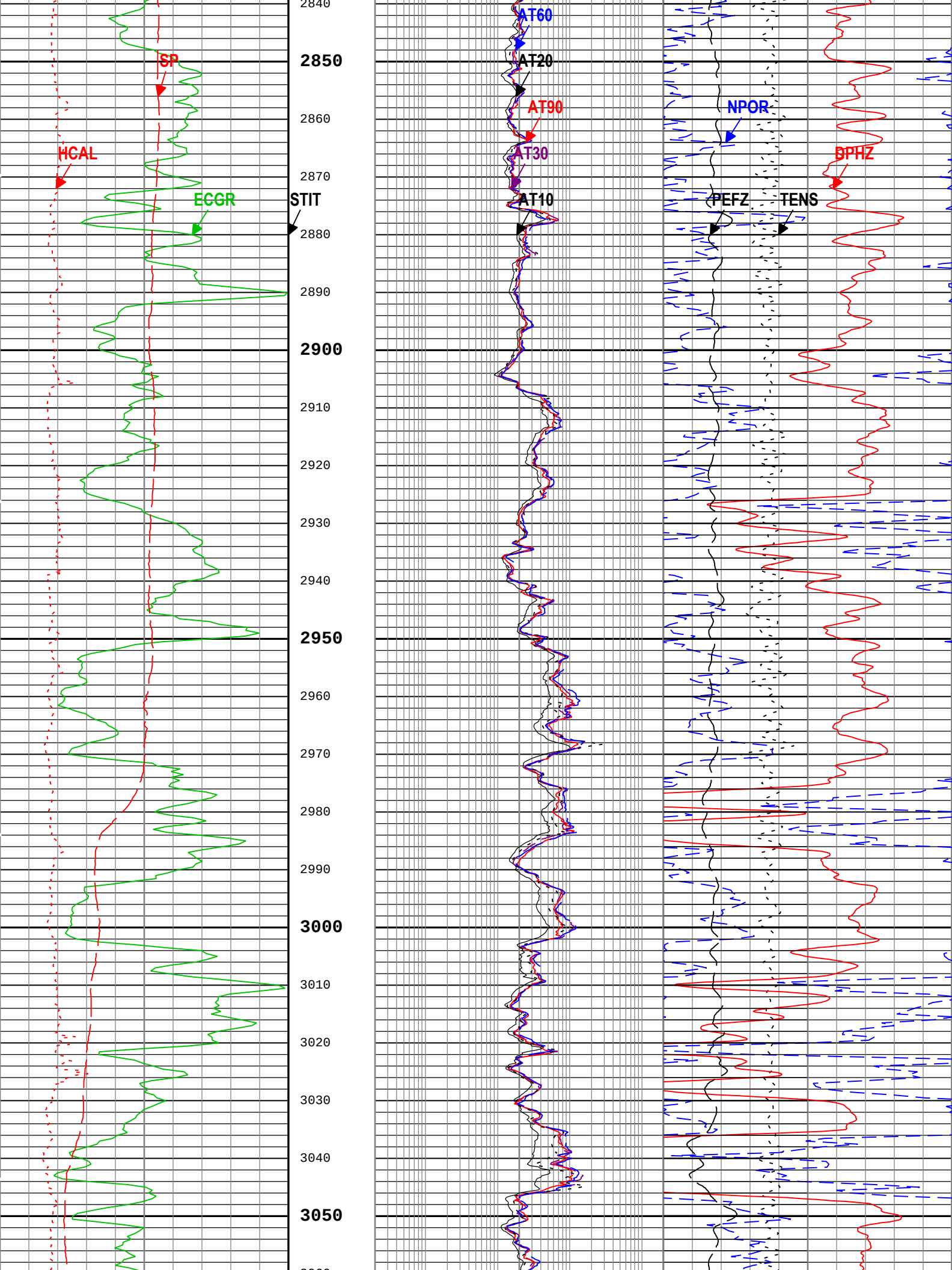
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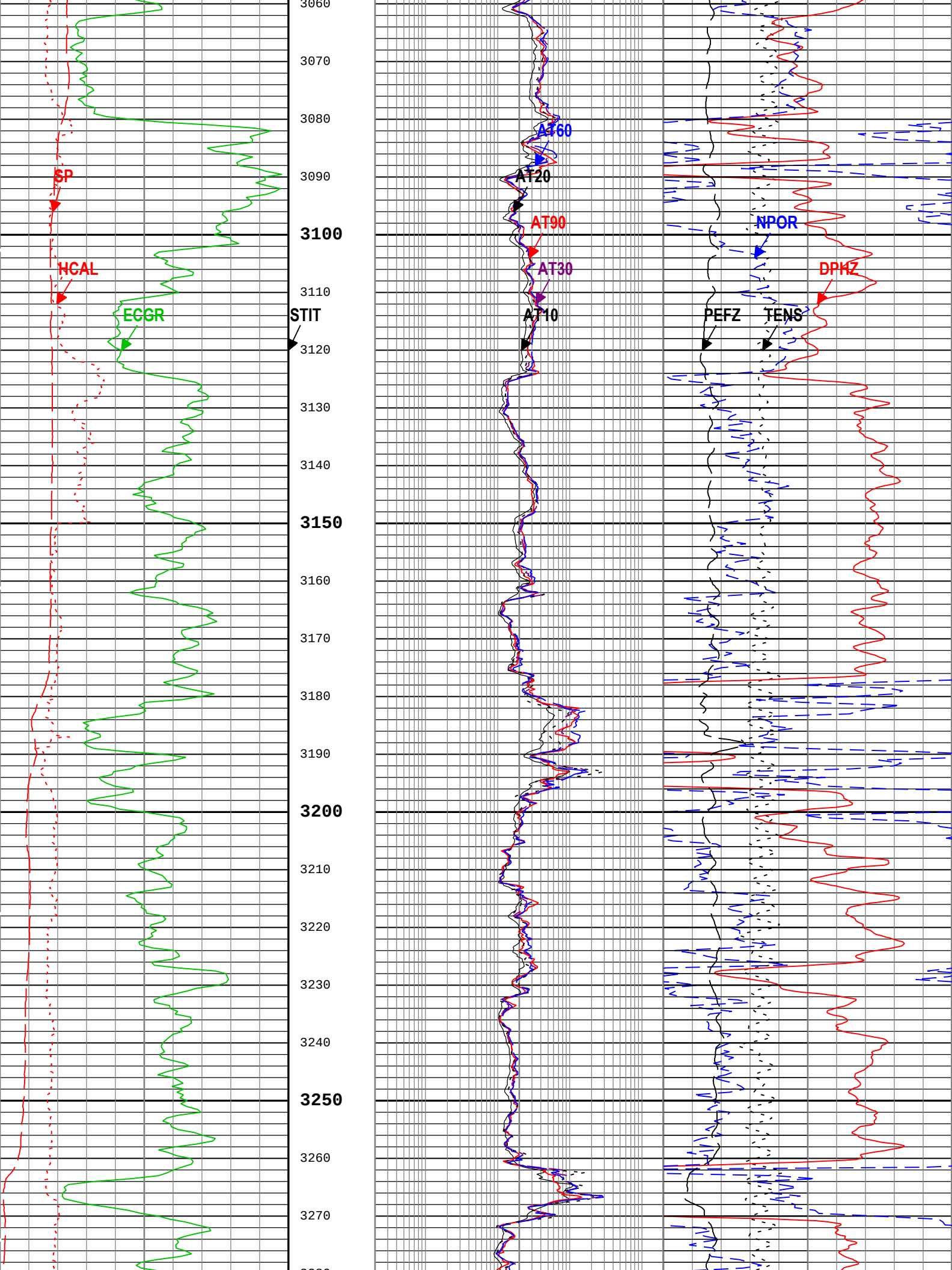
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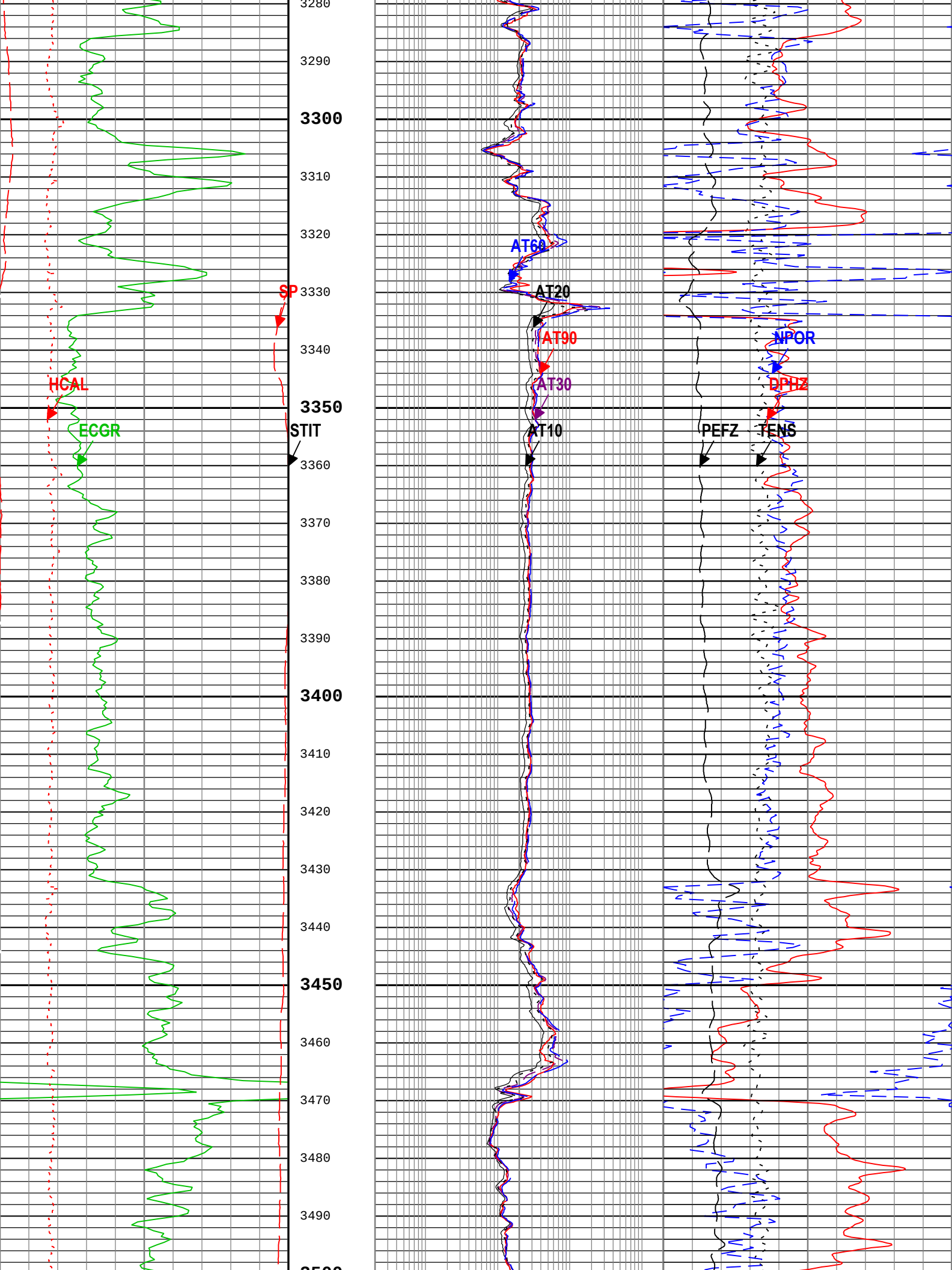
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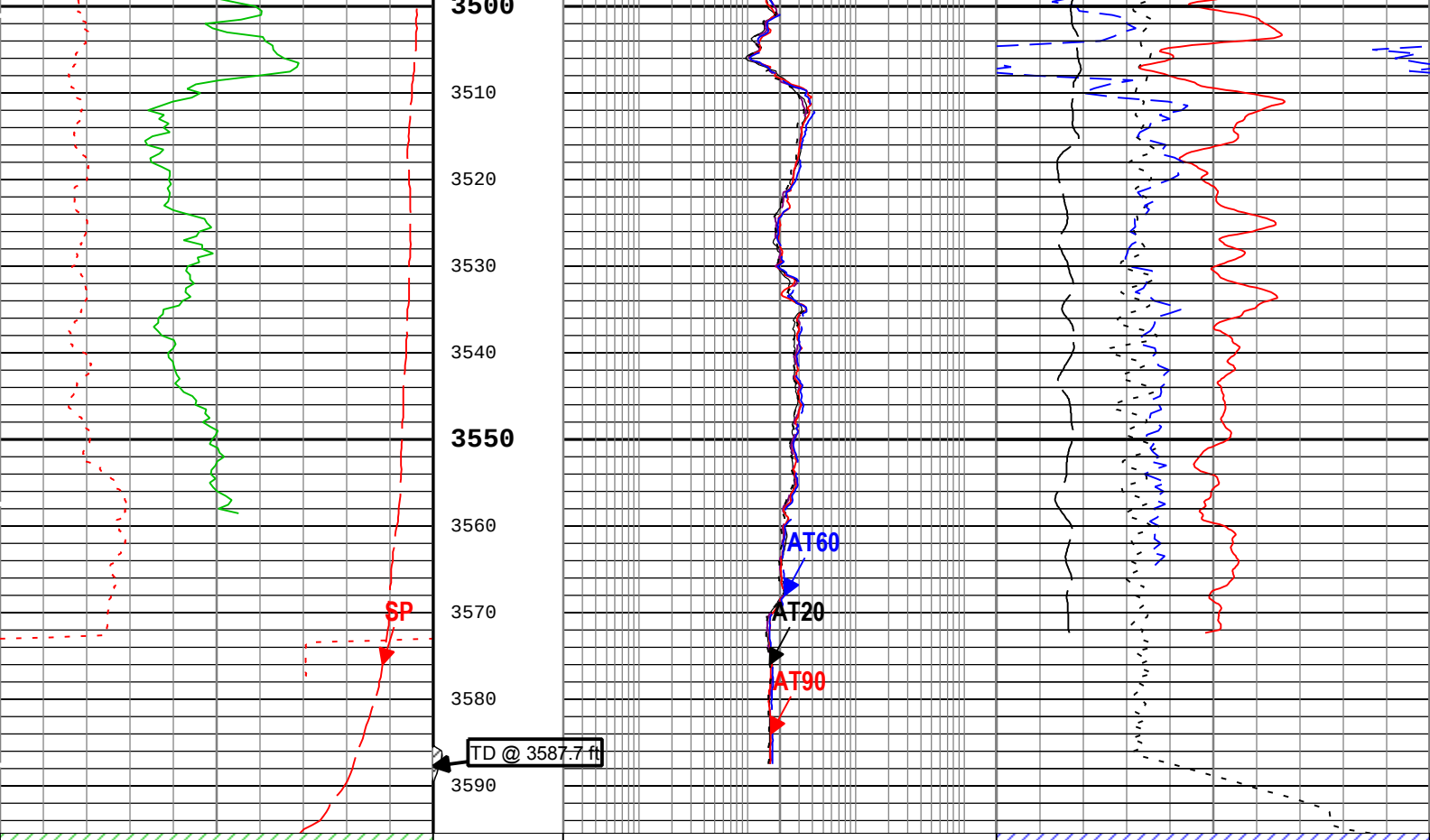
TENS



Gamma Ray Back up

Gamma Ray (ECGR) HGNS-H
0 gAPI 200

Caliper (HCAL) HDRS-H
6 in 16

Spontaneous Potential (SP) AIT-M
-160 mV 40

Stuck Tool Indicator, Total (STIT)
0 ft 50

Array Induction Two Foot Resistivity A10 (AT10) AIT-M
0.2 ohm.m 2000

Array Induction Two Foot Resistivity A30 (AT30) AIT-M
0.2 ohm.m 2000

Array Induction Two Foot Resistivity A90 (AT90) AIT-M
0.2 ohm.m 2000

Array Induction Two Foot Resistivity A20 (AT20) AIT-M
0.2 ohm.m 2000

Array Induction Two Foot Resistivity A60 (AT60) AIT-M
0.2 ohm.m 2000

NPOR Backup

Cable Tension (TENS)
5000 lbf 0

Standard Resolution Density Porosity (DPHZ) HDRS-H
0.3 ft3/ft3 -0.1

Enhanced Thermal Neutron Porosity in Selected Lithology (NPOR) HGNS-H
0.3 m3/m3 -0.1

Standard Resolution Formation Photoelectric Factor (PEFZ) HDRS-H
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: 08-Jan-2016 13:11:44

Channel Processing Parameters

Run 1: 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	121.4	degF
BS	Bit Size	WLSESSION	7.875	in

BSAL	Borehole Salinity	Borehole	0	ppm
CALI_SHIFT	CALI Supplementary Offset	HDRS-H	0.024	in
CBLO	Casing Bottom (Logger)	WLSESSION	418	ft
CDEN	Cement Density	HGNS-H	2	g/cm3
DFD	Drilling Fluid Density	Borehole	9.7	lbm/gal
DFT	Drilling Fluid Type	Borehole	Water	
DFT_WATER	Drilling Fluid Water Type	Borehole	WBM	
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	
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	SANDSTONE	
MDEN	Matrix Density for Density Porosity	Borehole	2.65	g/cm3
MFST	Mud Filtrate Sample Temperature	Borehole	78.11	degF
RMFS	Resistivity of Mud Filtrate Sample	Borehole	1.83	ohm.m
SOCO	Standoff Correction Option	HGNS-H	Yes	
SPDR	SP Drift Per Foot	AIT-M	0	mV/ft

Tool Control Parameters

Run 1: 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

Run 1

5" Triple Combo

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
Run 1	Repeat[2]:Up	Up	3179.63 ft	3596.43 ft	08-Jan-2016 5:41:21 AM	08-Jan-2016 5:50:00 AM	ON	5.82 ft	No
Run 1	Main[3]:Up	Up	78.57 ft	3595.70 ft	08-Jan-2016 5:54:24 AM	08-Jan-2016 7:02:04 AM	ON	0.00 ft	No

All depths are referenced to toolstring zero

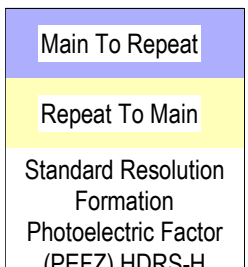
Log

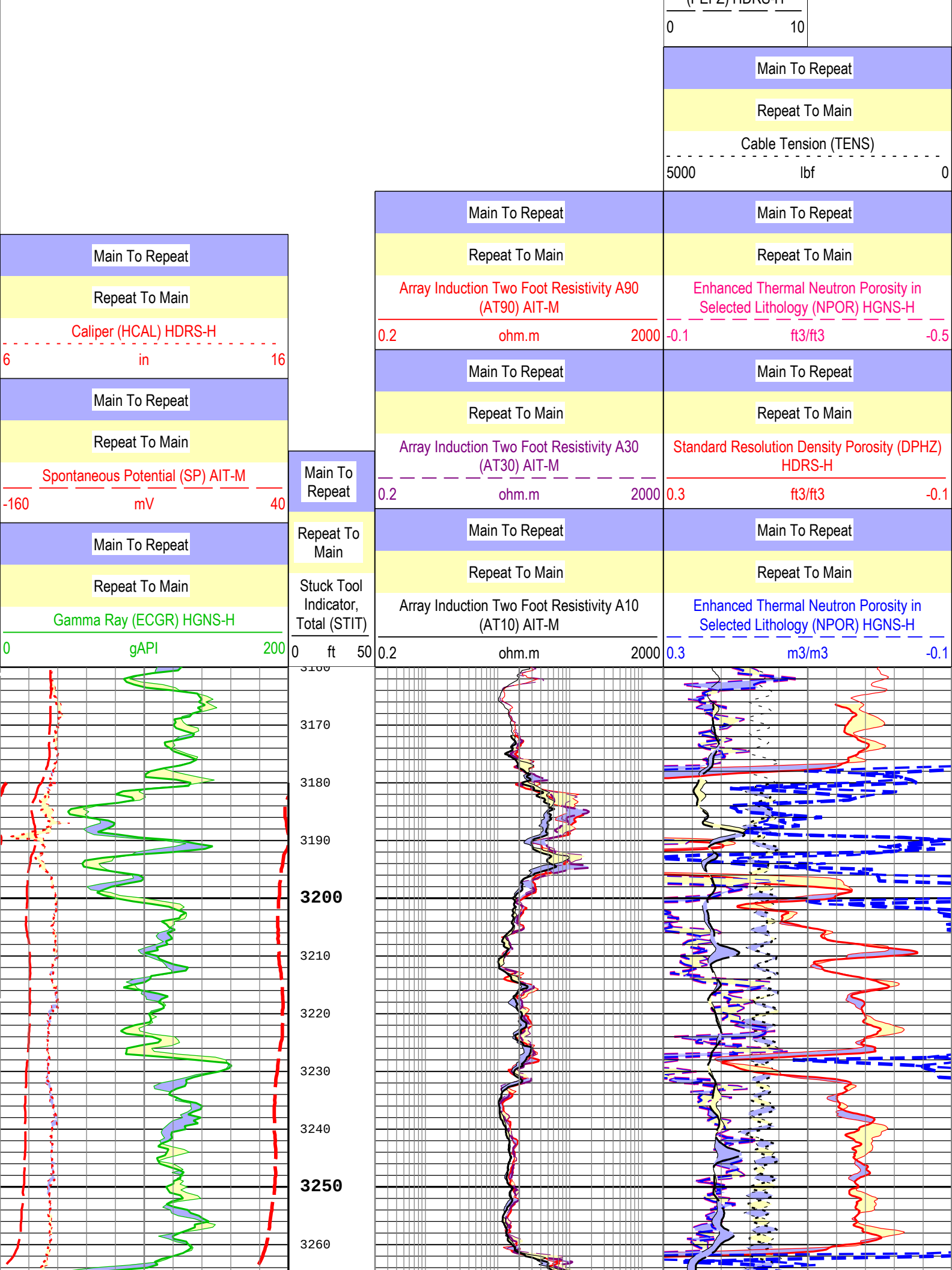
Company:BP America Production Company Well:Ford H1

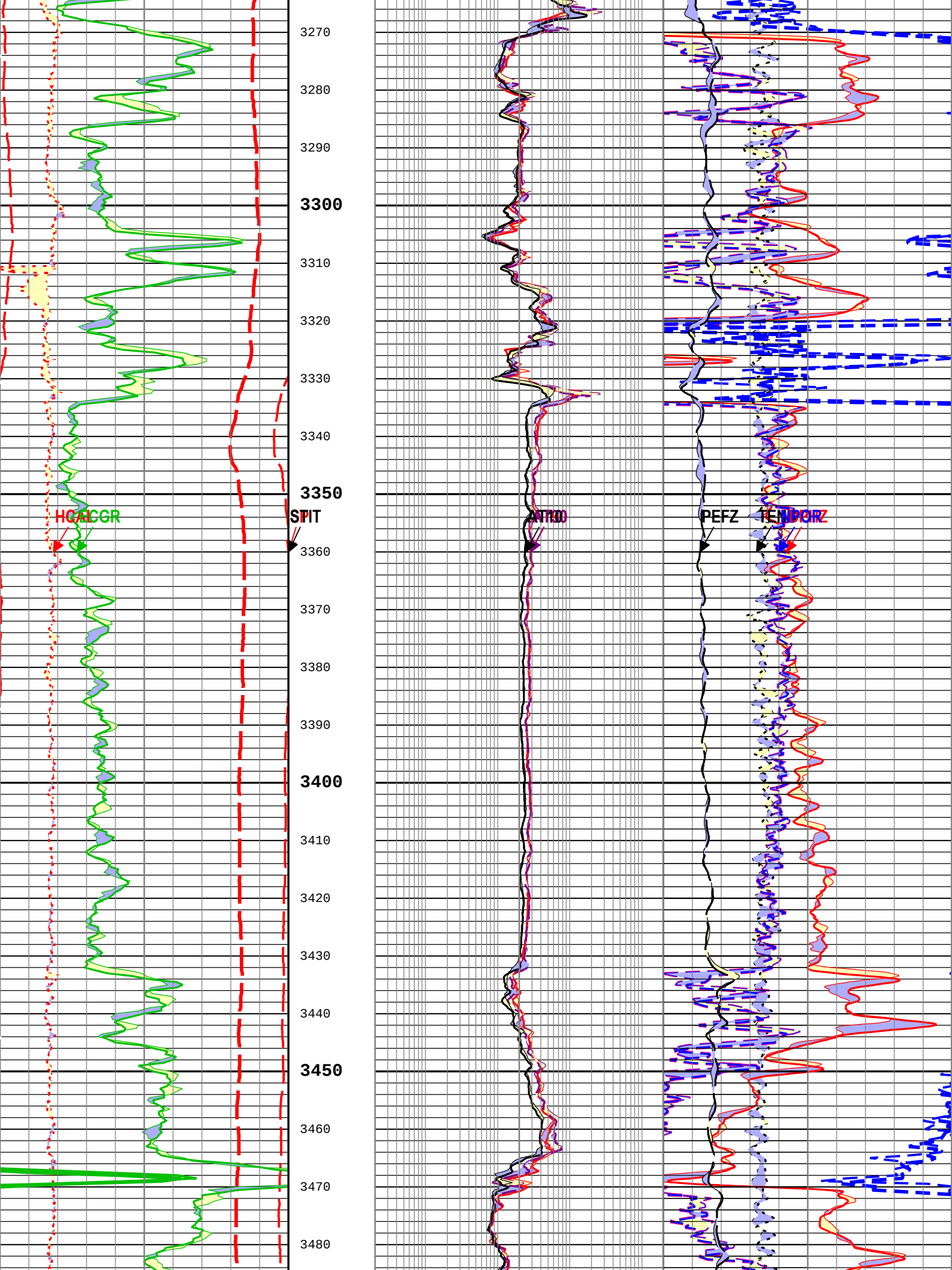
Run 1: Main[3]:Up:S006

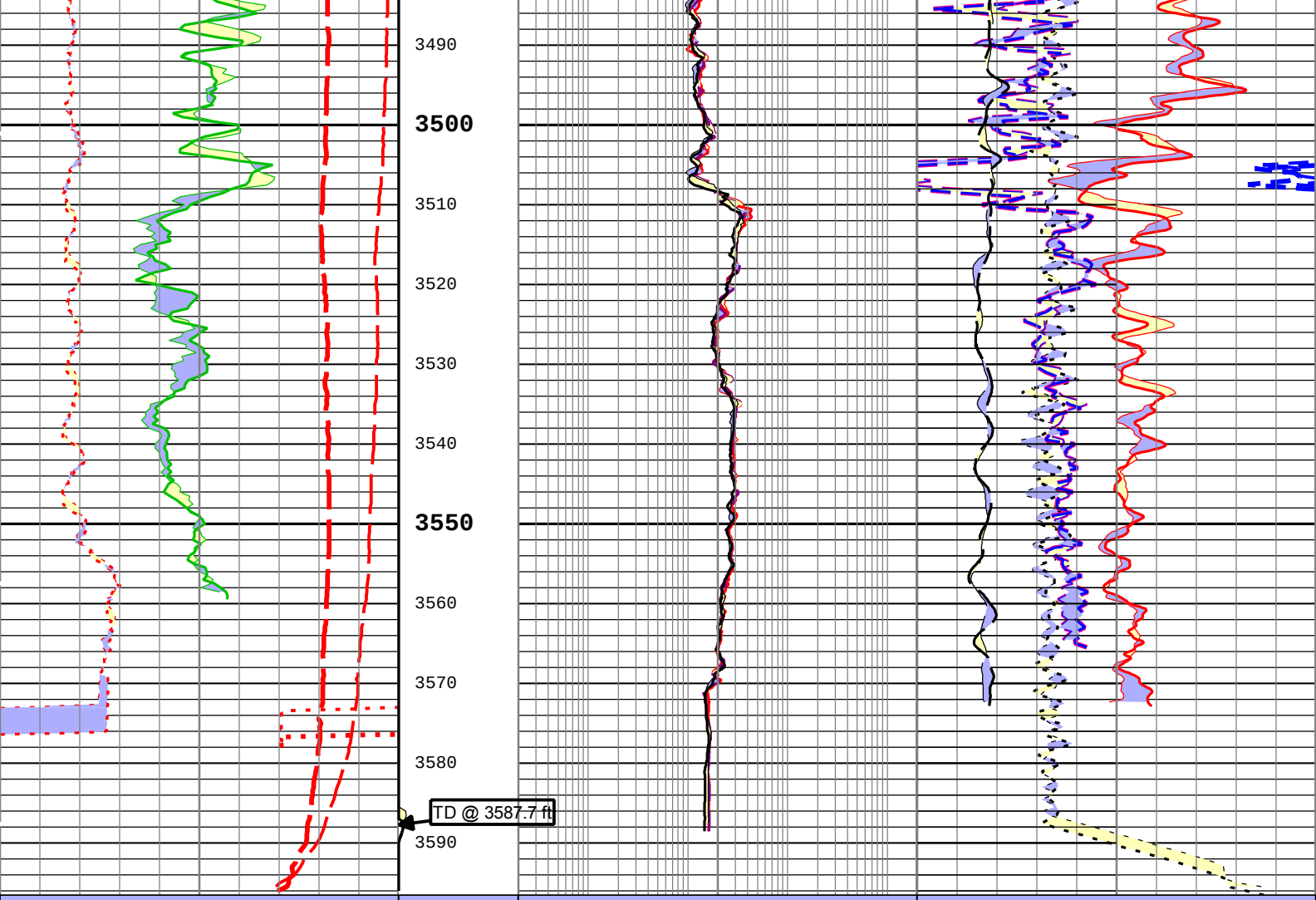
Description: HGNS standard resolution porosities for Platform Express Format: Log (KM 5in Triple Combo RA) Index Scale: 5 in per 100 ft Index Unit: ft
Index Type: Measured Depth Creation Date: 08-Jan-2016 13:11:47

TIME_1900 - Time Marked every 60.00 (s)




(PEFZ) HDRS-H
0
10
Main To Repeat
Repeat To Main
Cable Tension (TENS)
5000
lbf
0
Main To Repeat
Repeat To Main
Array Induction Two Foot Resistivity A90 (AT90) AIT-M
0.2
ohm.m
2000
Main To Repeat
Repeat To Main
Enhanced Thermal Neutron Porosity in Selected Lithology (NPOR) HGNS-H
-0.1
ft3/ft3
-0.5
Main To Repeat
Repeat To Main
Caliper (HCAL) HDRS-H
6
in
16
Main To Repeat
Repeat To Main
Array Induction Two Foot Resistivity A30 (AT30) AIT-M
0.2
ohm.m
2000
Main To Repeat
Repeat To Main
Standard Resolution Density Porosity (DPHZ) HDRS-H
0.3
ft3/ft3
-0.1
Main To Repeat
Repeat To Main
Spontaneous Potential (SP) AIT-M
-160
mV
40
Main To Repeat
Repeat To Main
Stuck Tool Indicator, Total (STIT)
0
ft
50
Main To Repeat
Repeat To Main
Array Induction Two Foot Resistivity A10 (AT10) AIT-M
0.2
ohm.m
2000
Main To Repeat
Repeat To Main
Enhanced Thermal Neutron Porosity in Selected Lithology (NPOR) HGNS-H
0.3
m3/m3
-0.1
Main To Repeat
Repeat To Main
Gamma Ray (ECGR) HGNS-H
0
gAPI
200
3160
3170
3180
3190
3200
3210
3220
3230
3240
3250
3260


3270
3280
3290
3300
3310
3320
3330
3340
3350
3360
3370
3380
3390
3400
3410
3420
3430
3440
3450
3460
3470
3480
HCALCGR
STIT
ATR10
PEFZ
TENSPORZ



Main To Repeat

Repeat To Main

Caliper (HCAL) HDRS-H

6 in 16

Main To Repeat

Repeat To Main

Spontaneous Potential (SP) AIT-M

-160 mV 40

Main To Repeat

Repeat To Main

Gamma Ray (ECGR) HGNS-H

0 gAPI 200

Main To Repeat

Repeat To Main

Stuck Tool Indicator, Total (STIT)

0 ft 50

Main To Repeat

Repeat To Main

Array Induction Two Foot Resistivity A90 (AT90) AIT-M

0.2 ohm.m 2000

Main To Repeat

Repeat To Main

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

0.2 ohm.m 2000

Main To Repeat

Repeat To Main

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

0.2 ohm.m 2000

Main To Repeat

Repeat To Main

Cable Tension (TENS)

5000 lbf 0

Main To Repeat

Repeat To Main

Enhanced Thermal Neutron Porosity in Selected Lithology (NPOR) HGNS-H

-0.1 ft3/ft3 -0.5

Main To Repeat

Repeat To Main

Standard Resolution Density Porosity (DPHZ) HDRS-H

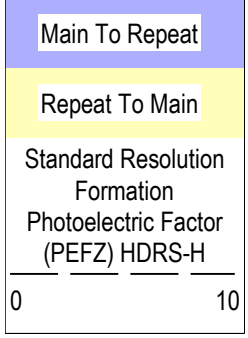
0.3 ft3/ft3 -0.1

Main To Repeat

Repeat To Main

Enhanced Thermal Neutron Porosity in Selected Lithology (NPOR) HGNS-H

0.3 m3/m3 -0.1



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: 08-Jan-2016 13:11:47

Calibration Report

AIT-M (Array Induction Tool - M) Calibration - Run 1

Primary Equipment :

File code for AIT-MA Sonde Tool Element	AMIS	50

Auxiliary Equipment :

AITM Rm/SP Bottom Nose	AMRM	50

AIT Sonde Calibration - Test Loop Gain

Master (EEPROM): 12:30:25 10-Nov-2015

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit
Test Loop Gain - 0		Master	1.000	0.950	1.014	1.050
Test Loop Phase - 0	deg	Master	0	-3.000	2.474	3.000
Test Loop Gain - 1		Master	1.000	0.950	1.015	1.050
Test Loop Phase - 1	deg	Master	0	-3.000	0.324	3.000
Test Loop Gain - 2		Master	1.000	0.950	1.012	1.050
Test Loop Phase - 2	deg	Master	0	-3.000	-0.075	3.000
Test Loop Gain - 3		Master	1.000	0.950	1.011	1.050
Test Loop Phase - 3	deg	Master	0	-3.000	-0.100	3.000
Test Loop Gain - 4		Master	1.000	0.950	0.996	1.050
Test Loop Phase - 4	deg	Master	0	-3.000	-0.128	3.000
Test Loop Gain - 5		Master	1.000	0.950	0.987	1.050
Test Loop Phase - 5	deg	Master	0	-3.000	-0.020	3.000
Test Loop Gain - 6		Master	1.000	0.950	0.996	1.050
Test Loop Phase - 6	deg	Master	0	-3.000	0.240	3.000
Test Loop Gain - 7		Master	1.000	0.950	1.006	1.050
Test Loop Phase - 7	deg	Master	0	-3.000	-0.102	3.000

AIT Sonde Calibration - Sonde Error Correction

Master (EEPROM): 12:30:25 10-Nov-2015

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit
Sonde Error Correction Real - 0	mS/m	Master	-----	-231.000	-83.342	119.000
Sonde Error Correction Quad - 0		Master	-----	-2250.000	-605.669	2250.000
Sonde Error Correction Real - 1	mS/m	Master	-----	114.000	163.070	204.000
Sonde Error Correction Quad - 1		Master	-----	-625.000	-188.487	625.000
Sonde Error Correction Real - 2	mS/m	Master	-----	66.000	115.559	156.000
Sonde Error Correction Quad - 2		Master	-----	-350.000	112.557	350.000
Sonde Error Correction Real - 3	mS/m	Master	-----	39.000	68.945	89.000
Sonde Error Correction Quad - 3		Master	-----	-250.000	-160.718	250.000
Sonde Error Correction Real - 4	mS/m	Master	-----	15.000	25.373	35.000
Sonde Error Correction Quad - 4		Master	-----	-63.000	6.221	63.000
Sonde Error Correction Real - 5	mS/m	Master	-----	4.000	14.856	24.000
Sonde Error Correction Quad - 5		Master	-----	-50.000	-31.241	50.000
Sonde Error Correction Real - 6	mS/m	Master	-----	5.000	9.114	15.000
Sonde Error Correction Quad - 6		Master	-----	-30.000	-4.927	30.000
Sonde Error Correction Real - 7	mS/m	Master	-----	-5.000	-0.825	5.000
Sonde Error Correction Quad - 7		Master	-----	-30.000	-3.846	30.000

AIT Mud Calibration - Mud Calibration Gain

Master (EEPROM): 12:30:25 10-Nov-2015

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit
Coarse Gain		Master	1.000	0.800	0.807	1.200
Fine Gain		Master	1.000	0.800	0.808	1.200

AIT Electronics Check - Thru Calibration Check

Master (EEPROM): 12:30:25 10-Nov-2015 Before (Measured): 14:39:25 06-Jan-2016 Expired by 1 days

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	-165.900	-103.000
		Before	-----	137.000	-164.347	-103.000
		Before-Master	-----	-----	1.553	-----
Thru Cal Mag - 1	V	Master	-----	0.762	1.237	1.778
		Before	-----	0.762	1.236	1.778
		Before-Master	-----	-----	-0.001	-----
Thru Cal Phase - 1	deg	Master	-----	136.000	-166.854	-104.000
		Before	-----	136.000	-165.300	-104.000
		Before-Master	-----	-----	1.554	-----
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	-170.338	-108.000
		Before	-----	132.000	-168.785	-108.000
		Before-Master	-----	-----	1.553	-----
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	-171.074	-109.000
		Before	-----	131.000	-169.519	-109.000
		Before-Master	-----	-----	1.555	-----
Thru Cal Mag - 4	V	Master	-----	0.804	1.297	1.876
		Before	-----	0.804	1.296	1.876
		Before-Master	-----	-----	-0.001	-----
Thru Cal Phase - 4	deg	Master	-----	125.000	-177.044	-115.000
		Before	-----	125.000	-175.477	-115.000
		Before-Master	-----	-----	1.567	-----
Thru Cal Mag - 5	V	Master	-----	1.176	1.888	2.744
		Before	-----	1.176	1.886	2.744
		Before-Master	-----	-----	-0.002	-----
Thru Cal Phase - 5	deg	Master	-----	122.000	-178.576	-118.000
		Before	-----	122.000	-177.002	-118.000
		Before-Master	-----	-----	1.574	-----
Thru Cal Mag - 6	V	Master	-----	1.176	1.887	2.744
		Before	-----	1.176	1.885	2.744
		Before-Master	-----	-----	-0.002	-----
Thru Cal Phase - 6	deg	Master	-----	121.000	-178.554	-119.000
		Before	-----	121.000	-176.978	-119.000
		Before-Master	-----	-----	1.576	-----
Thru Cal Mag - 7	V	Master	-----	0.846	1.358	1.974
		Before	-----	0.846	1.357	1.974
		Before-Master	-----	-----	-0.001	-----
Thru Cal Phase - 7	deg	Master	-----	115.000	-179.343	-125.000
		Before	-----	115.000	-177.707	-125.000
		Before-Master	-----	-----	1.636	-----
SPA Zero	mV	Master		-50.000	0.151	50.000
		Before		-50.000	0.215	50.000
		Before-Master	-----	-----	0.064	-----
SPA Plus	mV	Master		941.000	988.045	1040.000
		Before		941.000	987.987	1040.000
		Before-Master	-----	-----	-0.058	-----
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 1

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	5094
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): 14:46:09 06-Jan-2016 Expired by 1 days

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit
Small Ring	in	Before	8.00	6.00	8.33	10.00
Large Ring	in	Before	12.00	9.00	12.66	15.00

HDRS Density Calibration - Inversion Results

Master (EEPROM): 23:30:16 06-Jan-2016

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit
Rho Aluminum	g/cm3	Master	2.596	2.586	2.596	2.606
Rho Magnesium	g/cm3	Master	1.686	1.676	1.690	1.696
Pe Aluminum		Master	2.570	2.470	2.577	2.670
Pe Magnesium		Master	2.650	2.550	2.600	2.750

HDRS Density Calibration - Deviation Summary

Master (EEPROM): 23:30:16 06-Jan-2016

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit
BS Average Deviation	%	Master	0	-0.6000	0.3369	0.6000
BS Max Deviation	%	Master	0	-1.6000	0.8348	1.6000
SS Average Deviation	%	Master	0	-1.0000	0.4034	1.0000
SS Max Deviation	%	Master	0	-2.5000	0.9450	2.5000
LS Average Deviation	%	Master	0	-1.5000	0.5291	1.5000
LS Max Deviation	%	Master	0	-3.5000	1.3734	3.5000

HDRS Density Calibration - Background Summary

Master (EEPROM): 23:30:16 06-Jan-2016 Before (Measured): 14:40:29 06-Jan-2016 Expired by 1 days

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit
BS Window Ratio		Master	1.0000		0.7392	
		Before	0.7376	0.7007	0.7390	0.7745
		Before-Master	-----	-----	-0.0002	-----
BS Window Sum	1/s	Master	1		24263	
		Before	24261	23048	24277	25474
		Before-Master	-----	-----	14	-----
SS Window Ratio		Master	1.0000		0.4906	
		Before	0.4896	0.4652	0.4888	0.5141
		Before-Master	-----	-----	-0.0018	-----
SS Window Sum	1/s	Master	1		11632	
		Before	11665	11082	11638	12249
		Before-Master	-----	-----	6	-----

LS Window Ratio		Master	1.0000		0.3001	
		Before	0.2986	0.2836	0.3007	0.3135
		Before-Master	-----	-----	0.0006	-----
LS Window Sum	1/s	Master	1		1315	
		Before	1318	1252	1318	1384
		Before-Master	-----	-----	3	-----

HDRS Density Calibration - Photo-multiplier High Voltages

Master (EEPROM): 23:30:16 06-Jan-2016 Before (Measured): 14:40:29 06-Jan-2016 Expired by 1 days

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit
BS PM High Voltage	V	Master		1000	1554	2400
		Before		1000	1531	2400
		Before-Master	-----	-100	-23	100
SS PM High Voltage	V	Master		1000	1914	2400
		Before		1000	1875	2400
		Before-Master	-----	-100	-39	100
LS PM High Voltage	V	Master		1000	1278	2400
		Before		1000	1275	2400
		Before-Master	-----	-100	-3	100

HDRS Density Calibration - Crystal Quality Resolutions

Master (EEPROM): 23:30:16 06-Jan-2016 Before (Measured): 14:40:29 06-Jan-2016 Expired by 1 days

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit
BS Crystal Resolution	%	Master		5.00	10.68	25.00
		Before		5.00	10.68	25.00
		Before-Master	-----	-1.00	0.00	1.00
SS Crystal Resolution	%	Master		5.00	9.90	20.00
		Before		5.00	9.97	20.00
		Before-Master	-----	-1.00	0.07	1.00
LS Crystal Resolution	%	Master		5.00	8.29	20.00
		Before		5.00	8.33	20.00
		Before-Master	-----	-1.00	0.04	1.00

HDRS MCFL Calibration - MCFL Accumulations

Before (Measured): 14:45:39 06-Jan-2016 Expired by 1 days

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit
Main Resistivity	ohm.m	Before	3875	3565	3889	4185
Deep Resistivity	ohm.m	Before	3830	3524	3823	4136
Shallow Resistivity	ohm.m	Before	3830	3524	3846	4136

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

Primary Equipment :

HILT Gamma-Ray and Neutron Sonde, 150 degC	HGNS-H	4736

Auxiliary Equipment :

HGNS Accelerometer, 150 degC	HACCZ-H	5118
AmBe Neutron Logging Source	NSR-F	5069

Calibration Parameter :

Water Temperature	
Housing Size	
JIG-BKG (Jig minus background reference)	165

HGNS Accelerometer Calibration - Accelerometer Accumulations

Before (Measured): 04:33:00 08-Jan-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-2006

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit
Accelerometer Manufacturer		Master			QAT_160	

Accelerometer Manufacturer		Master			QAT_100	
Accelerometer Reference Temperature	degF	Master		30.2	77.0	122.0
Accelerometer Coefficients - 0		Master	-----	-----	2900.000	-----
Accelerometer Coefficients - 1		Master	-----	-----	19.000	-----
Accelerometer Coefficients - 2		Master	-----	-----	0.002	-----
Accelerometer Coefficients - 3		Master	-----	-----	0.000	-----
Accelerometer Coefficients - 4		Master	-----	-----	2.747	-----
Accelerometer Coefficients - 5		Master	-----	-----	0.000	-----
Accelerometer Coefficients - 6		Master	-----	-----	0.000	-----
Accelerometer Coefficients - 7		Master	-----	-----	0.000	-----
Accelerometer Coefficients - 8		Master	-----	-----	299.100	-----
Accelerometer Coefficients - 9		Master	-----	-----	0.993	-----

HGNS Neutron Calibration - HGNS Neutron Accumulations

Master (EEPROM): 13:38:56 23-Oct-2015 Before (Measured): 14:38:48 06-Jan-2016 Expired by 1 days

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit
Near Zero Measurement	1/s	Master	0	5.0	27.4	40.0
		Before	0	5.0	26.3	40.0
		Before-Master	-----	-4.1	-1.1	4.1
Far Zero Measurement	1/s	Master	0	5.0	28.6	40.0
		Before	0	5.0	27.6	40.0
		Before-Master	-----	-4.3	-1.0	4.3
Near Plus Measurement	1/s	Master	6031.0	4700.0	4949.0	6900.0
		Before	-----	-----	-----	-----
		Before-Master	-----	-----	-----	-----
Far Plus Measurement	1/s	Master	2793.0	1900.0	2031.0	2900.0
		Before	-----	-----	-----	-----
		Before-Master	-----	-----	-----	-----
Near Corrected Plus Measurement	1/s	Master		4700.0	4997.0	6900.0
		Before	-----	-----	-----	-----
		Before-Master	-----	-----	-----	-----
Far Corrected Plus Measurement	1/s	Master		1900.0	2049.0	2900.0
		Before	-----	-----	-----	-----
		Before-Master	-----	-----	-----	-----

HGNS Gamma-Ray Calibration - Gamma-Ray Accumulations

Before (Measured): 14:57:49 06-Jan-2016 Expired by 1 days

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit
RGR Zero Measurement	gAPI	Before	30.0	0	115.1	120.0
RGR Plus Measurement	gAPI	Before	185.4	157.1	168.4	206.3
GR Calibration Gain		Before	0.89	0.80	0.98	1.05

Company:	BP America Production Company
Well:	Ford H1
Field:	Ignacio Blanco
County:	La Plata
State:	Colorado

Schlumberger

Platform Express

Platform Express

Triple Combo