Schlumberger

Company: CHEVRON AMBU

Well: CURRY 8H

Field: FORT BEELER

County: MARSHALL State: WEST VIRGINIA

PLATFORM EXPRESS

LITHO-DENSITY / COMPENSATED NEUTRON

GAMMA RAY / CALIPER

County: MARSHALL
Field: FORT BEELER
Location: LAT: 39-54-35.730 N
Well: CURRY 8H
Company: CHEVRON AMBU

Location:
LAT: 39-54-35.730 N
LONG: 80-39-58.821 W

Elev.: K.B. 1350.10 ft
G.L. 1317.00 ft
D.F. 1350.10 ft

Permanent Datum: Ground Level Elev.: 1317.00 f
Log Measured From: Kelly Bushing 33.10 ft above Perm.Datum
Drilling Measured From: Kelly Bushing

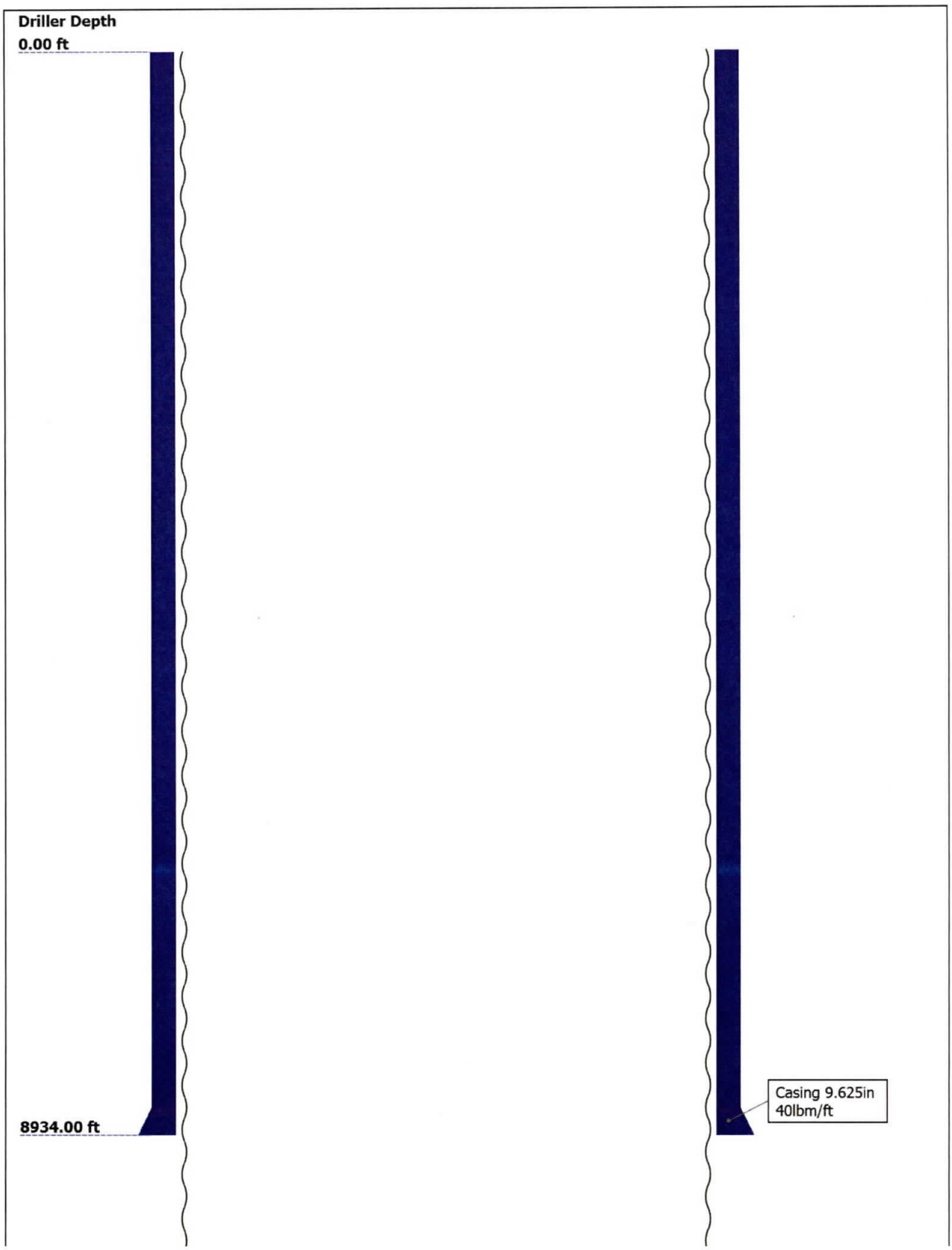
API Serial No.	Section:	Township:	Quad:
47-5101784		WASHINGTON	

Logging Date			12-Feb-2016			
Run Number			RUN1A			
Depth Driller			11720.00 ft			
Schlumberger Depth			11732.00 ft			
Bottom Log Interval			11732.00 ft			
Top Log Interval			8918.00 ft			
Casing Driller Size @ Depth			9.625 in @ 8934.00 ft			
Casing Schlumberger			8957 ft			
Bit Size			8.5 in			
Type Fluid In Hole			Synthetic Oil			
MUD	Density	Viscosity	12.5 lbm/gal	85 s		
	Fluid Loss	PH				
	Source of Sample		N/A			
RM @ Meas Temp			N/A			
RMF @ Meas Temp			N/A			
RMC @ Meas Temp			N/A			
Source RMF		RMC	N/A	N/A		
RM @ BHT		RMF @ BHT	N/A	N/A		
Max Recorded Temperatures			191 degF			
Circulation Stopped	Time		12-Feb-2016	04:00:00		
Logger on Bottom	Time		12-Feb-2016	18:07:00		
Unit Number	Location:		2134	BRADFORD, PA		
Recorded By			BUZZEO			
Witnessed By			JUSTIN DEAN			

Disclaimer

Contents

Well Sketch



Borehole Size/Casing/Tubing Record

Bit						
Bit Size (in)	8.5					
Top Driller (ft)	0					
Top Logger (ft)	0					
Bottom Driller (ft)	11720					
Bottom Logger (ft)	11732					
Casing						
Size (in)	9.625					
Weight (lbm/ft)	40					
Inner Diameter (in)	8.835					
Grade	N/A					
Top Driller (ft)	0					
Top Logger (ft)	0					
Bottom Driller (ft)	8934					
Bottom Logger (ft)	8957					

Remarks and Equipment Summary

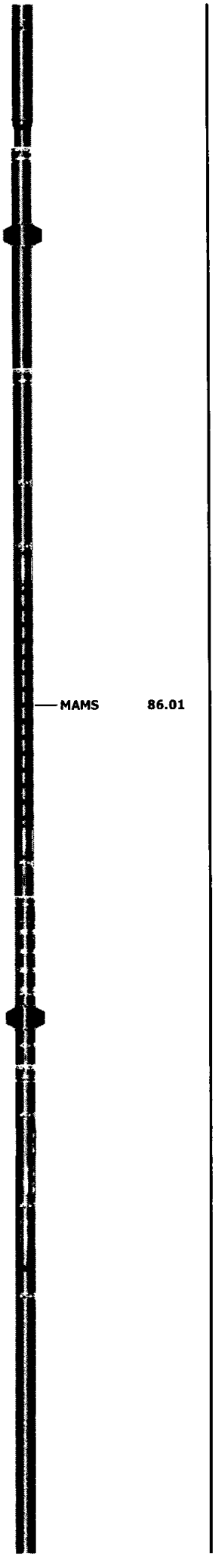
RUN1A: Toolstring

Equip name	Length
LEH-MT	**117.62**
LEH-MT	
EDTC-B:8001	**114.47**
EDTH-B:8001	
EDTG-A:77244	
EDTC-B:8001	
PPC-B[2]:8732	**107.97**
PPC-B:8732	

MP name	Offset
Mud Temperature	**115.68**
CTEM	**110.97**
ACCZ	**0.00**
HV	**0.00**
Gamma Ray	**109.1**
TelStatus	**107.97**
PPC-B Calipers	**106.82**

RUN1A: Remarks
THANK YOU FOR CHOOSING SCHLUMBERGER!
ALL LOGGING INTERVALS AS PER CLIENT REQUEST
LIMITED MUD PROPERTIES AVAILABLE. LOGGED IN OIL BASED MUD.
TOOLS RAN AS PER TOOL SKETCH
FORMATION AND WELL PROPERTIES AS PER CLIENT REQUEST
ALL HEADER INFORMATION PROVIDED CLIENT
RIG: NABORS X07
LIMESTONE MATRIX USED. DENSITY OF 2.68 USED.
BARITE CORRECTION APPLIED.
PER CLIENT SOP, CALIPERS CLOSED BEFORE CASING.

MAST-B:857 101.45
7
ECH-SF:8381
MAPC-BA:839
4
MAMS-CA:85
77
MASS-BA:815
5
MAXS-BA:835
5



MAMS **86.01**

PPC-B[1]:8227 60.17
PPC-B:8227

Adaptor_Head[2] 53.65

GPIT-F:1875 49.65
GPIH-B:3703
GPIC-F:1875
DHRU-F:1981

Adaptor_Head[1] 45.65

AH-107[2] 41.65

AH-107[1] 39.65

HGNS-H:4887 37.65
HGNH:4712
NPV-N
NSR-F:5159
HACCZ-H:7079
HGNS-H:4887
HMCA-H

HDRS-H:860 28.24
ECH-MEB:4916
HRCC-H:4769
HRMS-H:860
GSR-J:5541
Backscatter:41150
Short Spacing:42161
HRGD-H:4901
Long Spacing:43095
GPV-Q

Lengths are in ft
Maximum Outer Diameter = 9.000 in
Line: Sensor Location, Value: Gating Offset
All measurements are relative to TOOL_ZERO

Depth Summary

	RUN1A		
Depth Measuring Device			
Type	IDW-JA		
Serial Number	6442		
Calibration Date	12-JAN-2016		
Calibrator Serial Number			
Calibration Cable Type	7-46 AXS		
Wheel Correction 1	-7		
Wheel Correction 2	-5		
Tension Device			
Type	CMTD-B/A		
Serial Number	2016		
Calibration Date	03-FEB-2016		
Calibrator Serial Number	78796A		
Number of Calibration Points	10		
Calibration Root Mean Square Error	53		
Calibration Peak Error	82		
Logging Cable			

Type	7-46A-XS		
Serial Number	U715044		
Length	22840.00 ft		
Conveyance Type	Wireline		
Rig Type	LAND		

RUN1A:Depth Control Parameters		Depth Control Remarks
Log Sequence	First Log In the Well	ALL SCHLUMBERGER FIRST RUN IN HOLE PROCEDURES FOLLOWED.
Rig Up Length At Surface		IDW USED AS PRIMARY DEPTH CONTROL
Rig Up Length At Bottom		ZCHART USED AS SECONDARY CONTROL
Rig Up Length Correction		EDTC GAMMA RAY FROM LOG DOWN USED TO PUT ON DEPTH.
Stretch Correction	10.00 ft	
Tool Zero Check At Surface		

Composite 1

MAIN PASS 2"

Integration Summary

Output Channel(s)	Output Description	Input Parameter	Output Value	Unit
IHV	Integrated Hole Volume	GCSE_UP_PASS, GCSE_DOWN_PASS:RUN1A	989.81	ft3
ICV	Integrated Cement Volume	GCSE_UP_PASS, GCSE_DOWN_PASS:RUN1A, FCD	537.95	ft3

Software Version

Acquisition System	Version
Maxwell 2016 SP1	6.1.58882.3100

Composite Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
RUN1A	Log[8]:Up	Up	9046.84 ft	11748.05 ft	12-Feb-2016 6:58:23 PM	12-Feb-2016 9:08:29 PM	ON	10.70 ft	No
RUN1A	Log[9]:Up	Up	8449.75 ft	9312.09 ft	12-Feb-2016 9:24:58 PM	12-Feb-2016 9:40:25 PM	ON	9.92 ft	No
RUN1A	Log[11]:Up	Up	209.49 ft	8689.33 ft	12-Feb-2016 10:01:48 PM	12-Feb-2016 11:46:31 PM	ON	9.66 ft	No

All depths are referenced to toolstring zero

Log

Company:CHEVRON AMBU Well:CURRY 8H

Composite 1:S004

Description: Triple Combo standard resolution template for Platform Express Format: Log (RANGE PEX NUC 2IN) Index Scale: 2 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 13-Feb-2016 01:44:35

Channel	Source	Sampling
BS	Borehole	6in
CALI	HDRS[1]:HRCC-H[1]:HRCC-H[1]	1in
DPH8	HDRS[1]:HRMS-H[1]:HRGD-H[1]	2in
GR	EDTC-B[1]:EDTC-B[1]:EDTC-B[1]	6in
HDRA	HDRS[1]:HRMS-H[1]:HRGD-H[1]	2in
ICV	Borehole	6in
IHV	Borehole	6in
NPHI	HGNS[1]:HGNS-H[1]:HGNS-H[1]	6in
PEF8	HDRS[1]:HRMS-H[1]:HRGD-H[1]	2in
RHO8	HDRS[1]:HRMS-H[1]:HRGD-H[1]	2in
TENS	WLWorkflow	6in

TIME_1900 WLWorkflow 0.1in

IHV - Integrated Hole Volume every 100.00 (ft3)

ICV - Integrated Cement Volume every 10.00 (ft3)

TIME_1900 - Time Marked every 60.00 (s)

IHV - Integrated Hole Volume every 10.00 (ft3)

GR > 200 GAPI

GR > 400 GAPI

Caliper (HCAL) HDRS[1]

6 in 16

Cable Tension (TENS)

6000 lbf 0

Bit Size (BS)

6 in 16

Gamma Ray (ECGR_EDTC) EDTC-B[1]

0 gAPI 200

Density Standoff Correction (HDRA) HDRS[1]

-0.05 g/cm3 0.45

GAS EFFECT

Thermal Neutron Porosity (original Ratio Method) in Selected Lithology (NPHI) HGNS[1]

0.3 ft3/ft3 -0.1

High Resolution Density Porosity (DPH8) HDRS[1]

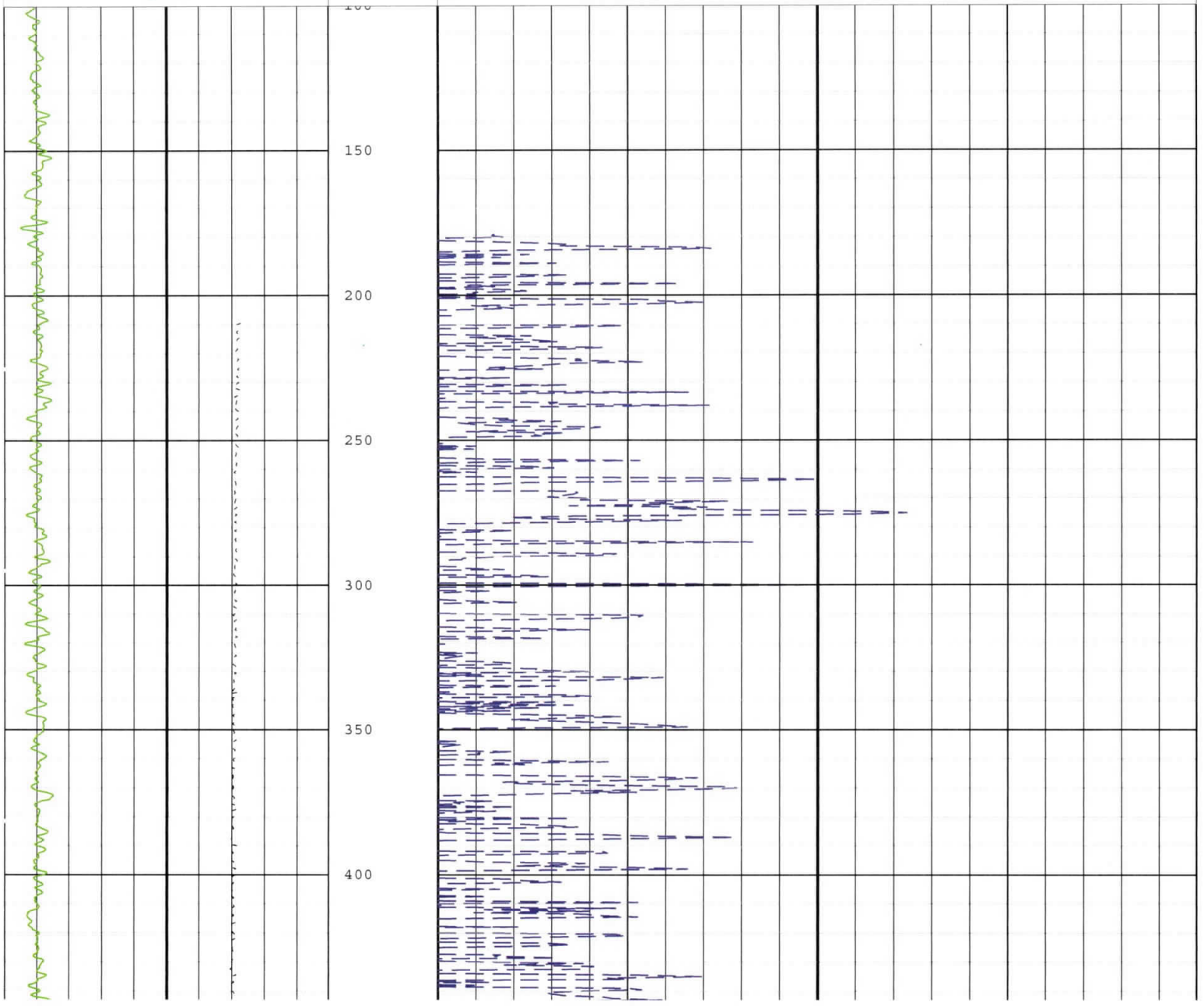
0.45 ft3/ft3 -0.15

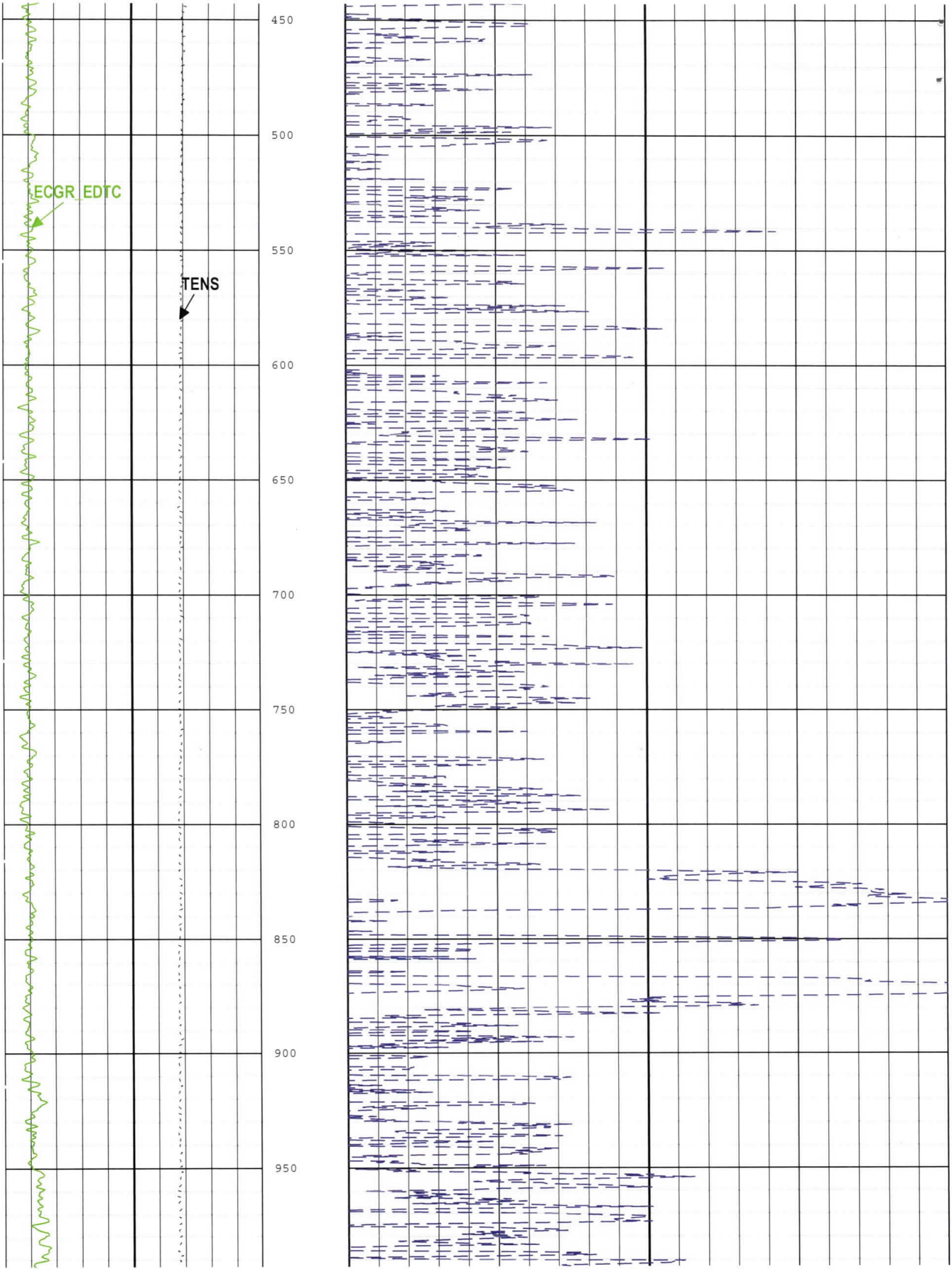
High Resolution Formation Photoelectric Factor (PEF8) HDRS[1]

0 10

High Resolution Formation Density (RHO8) HDRS[1]

2 g/cm3 3

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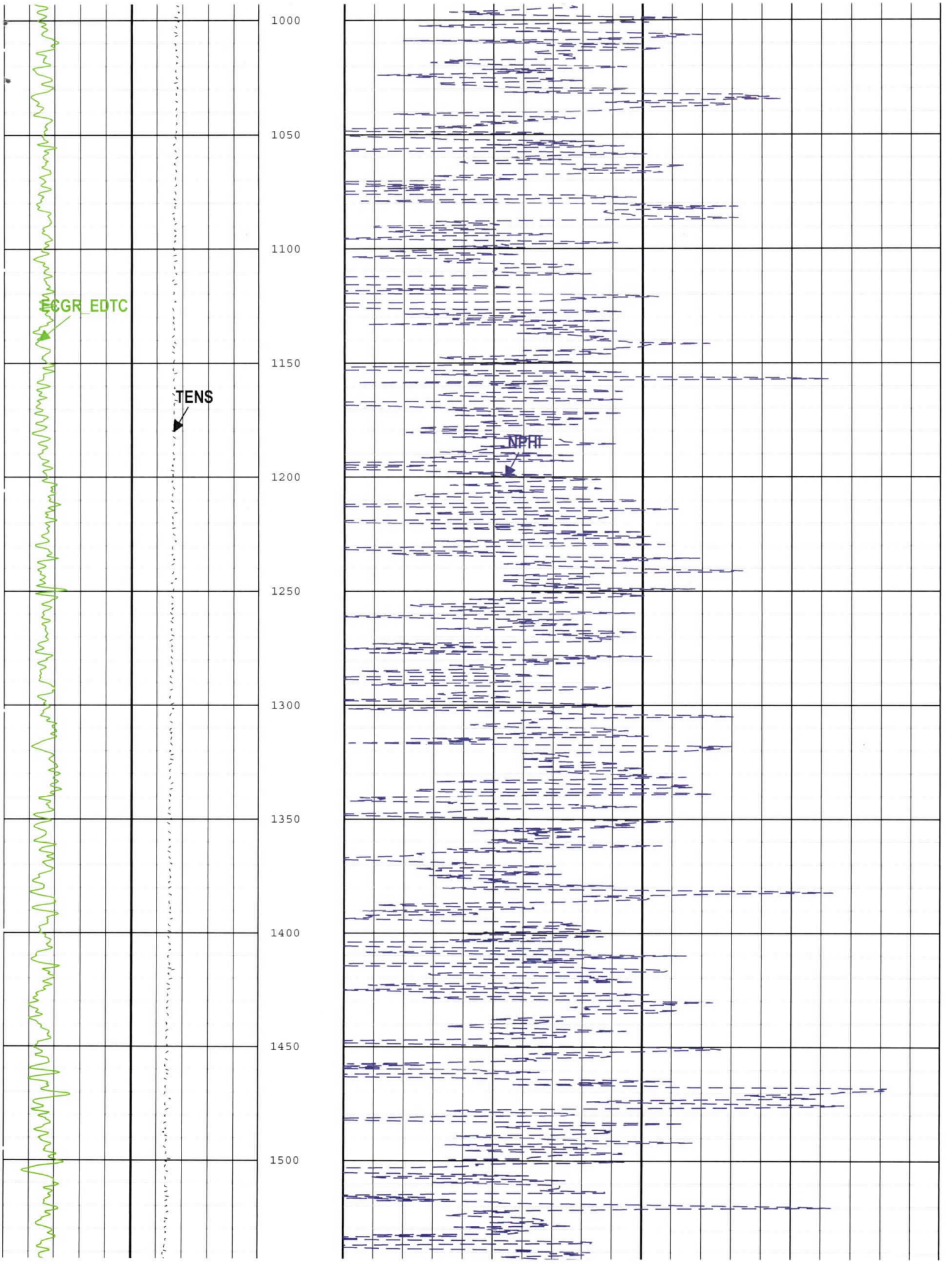
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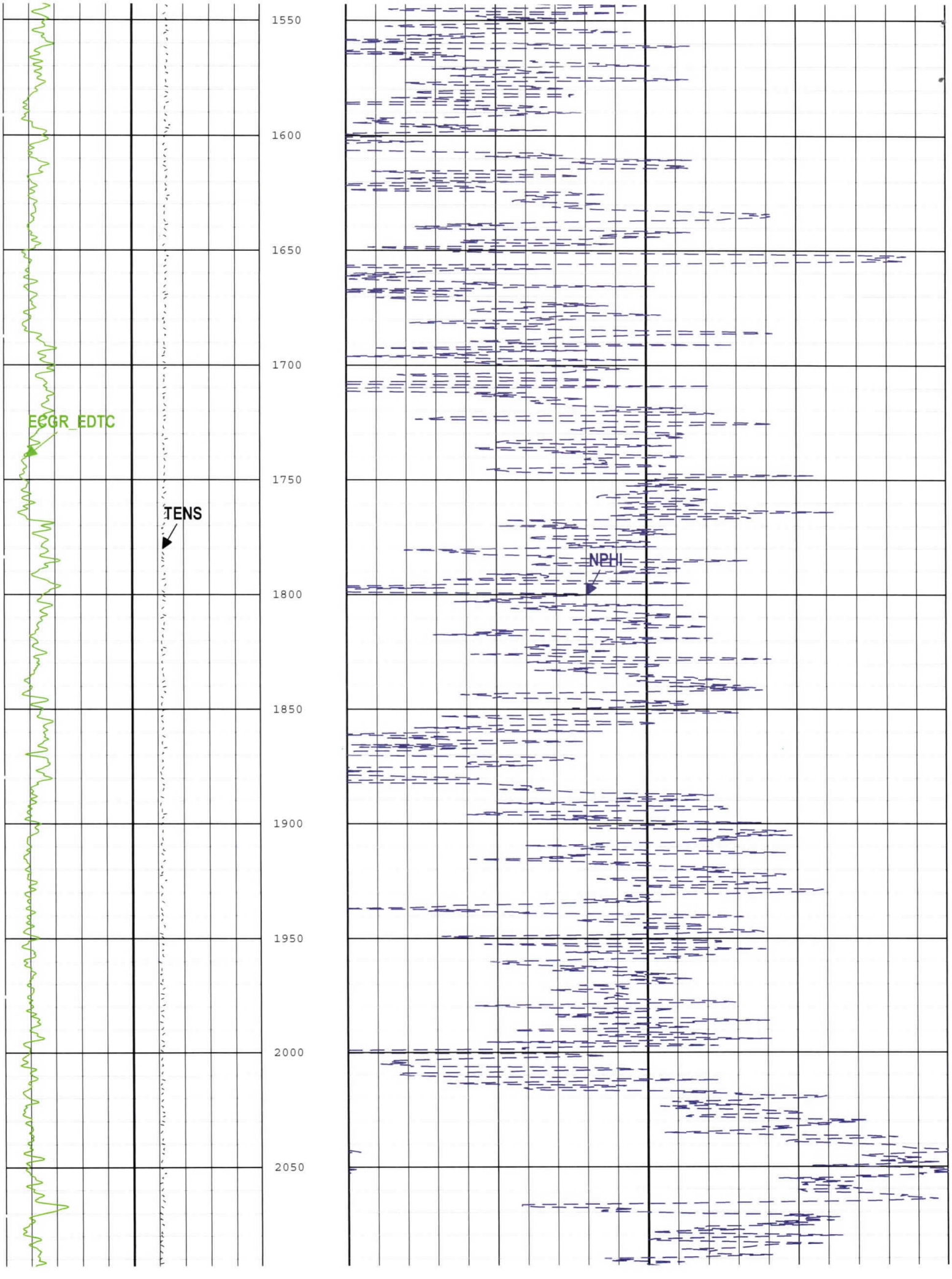
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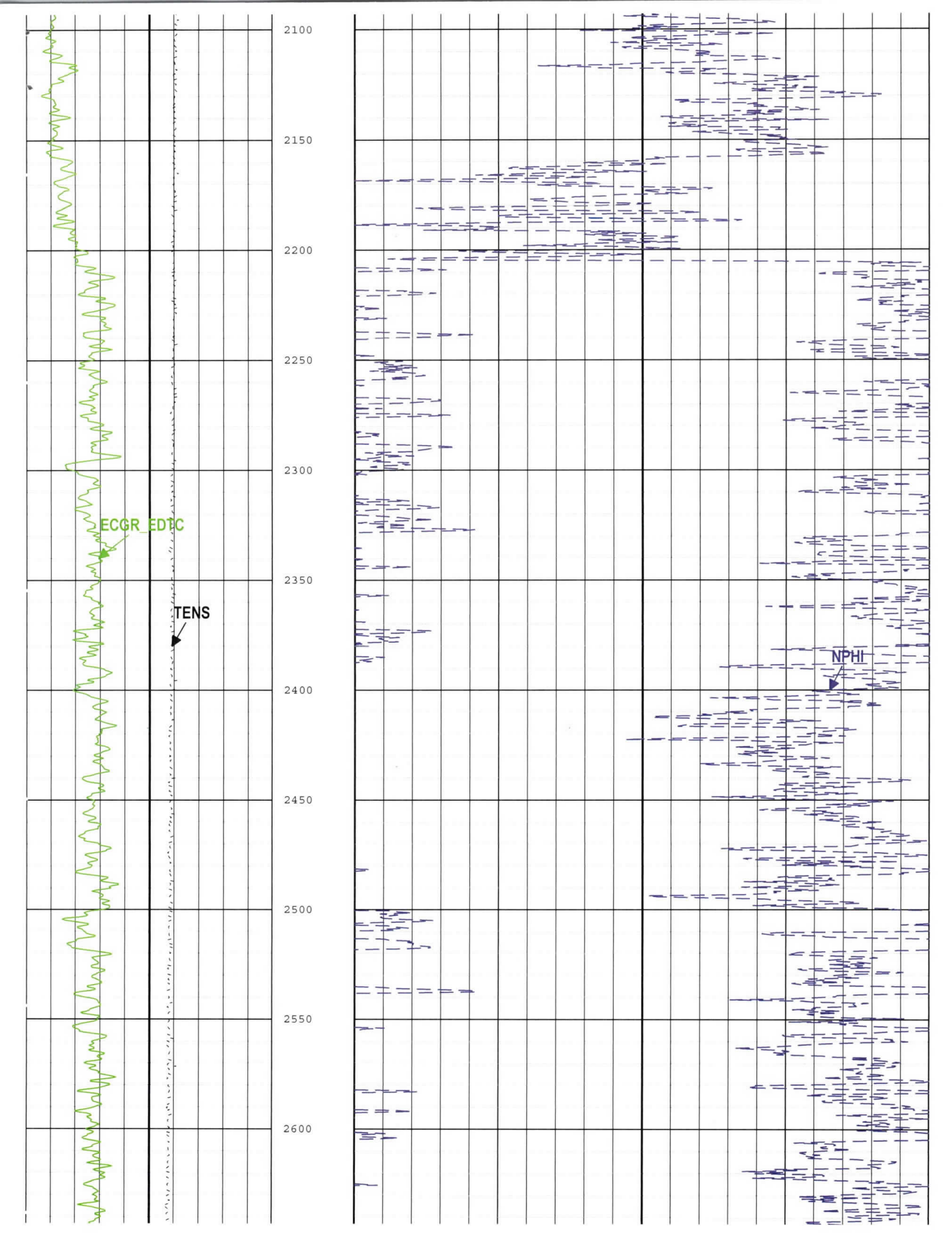
NPHI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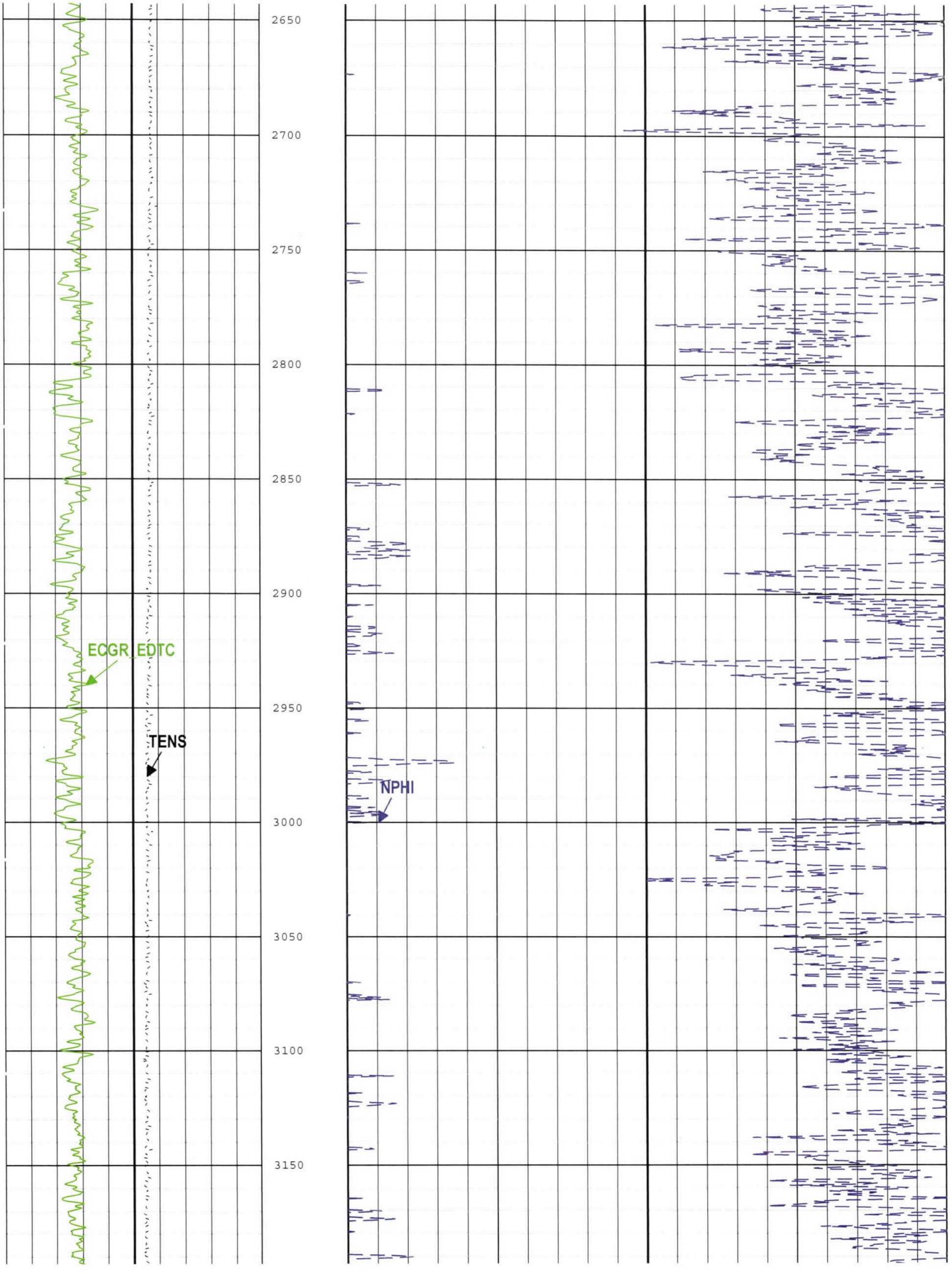
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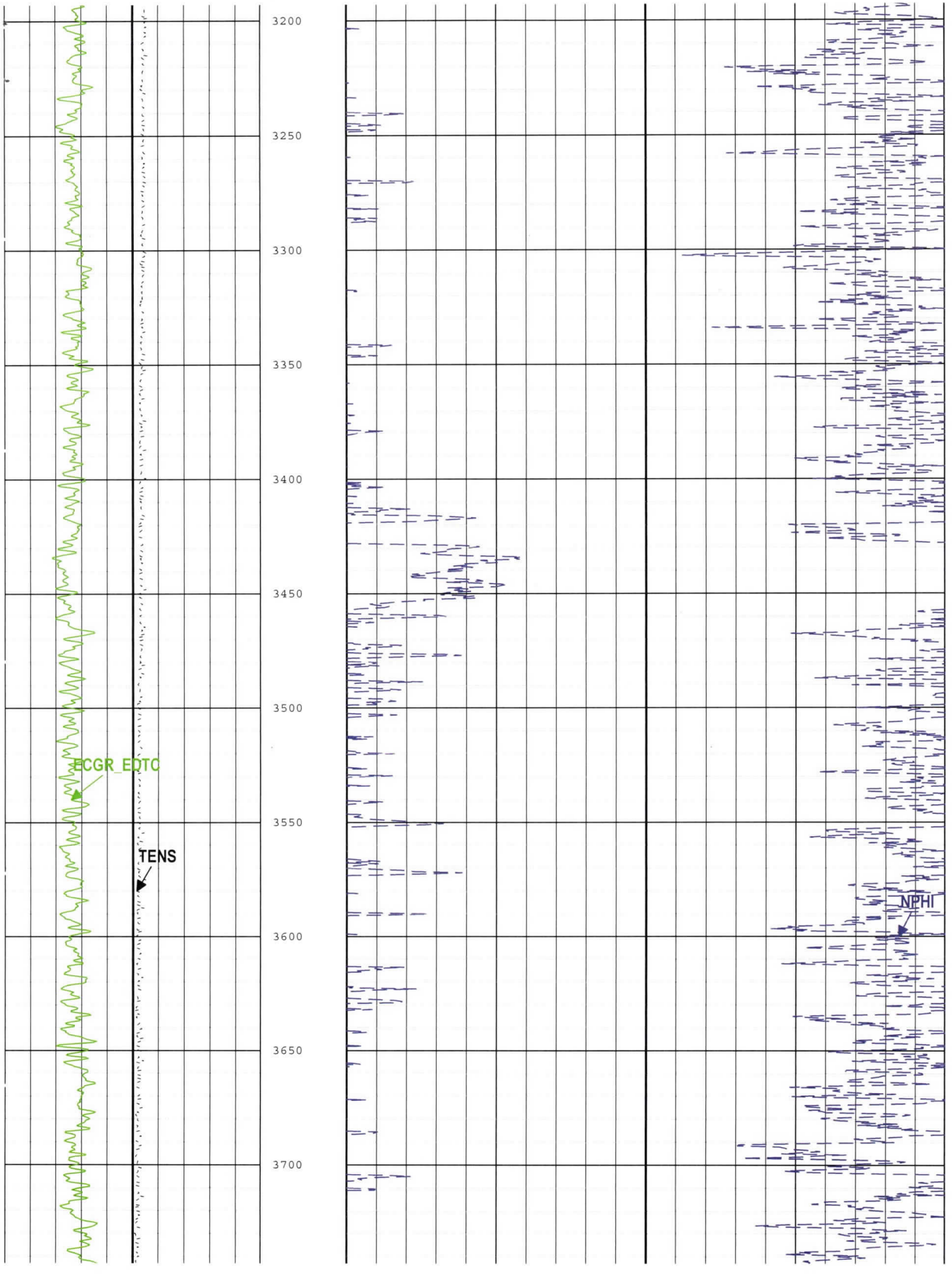
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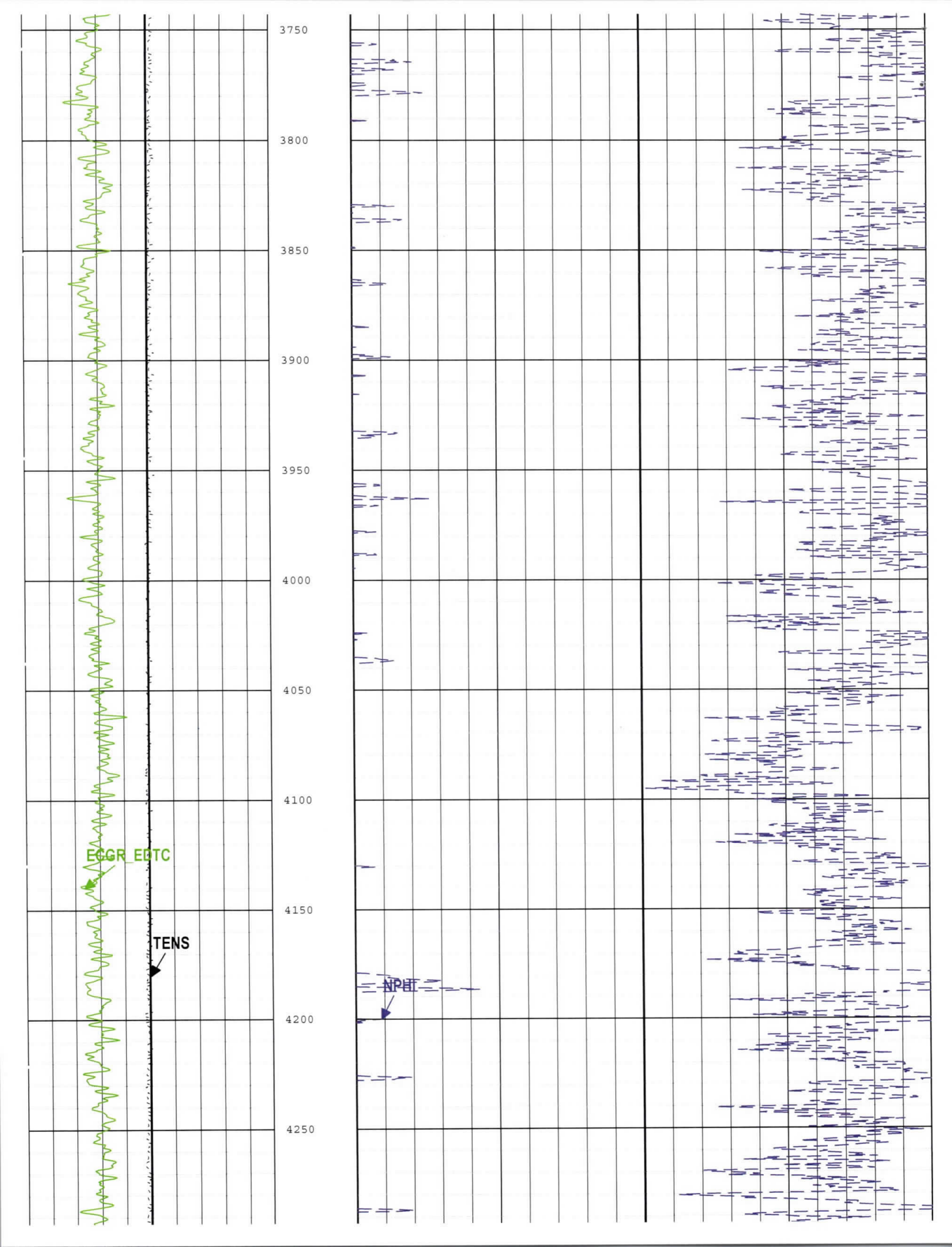
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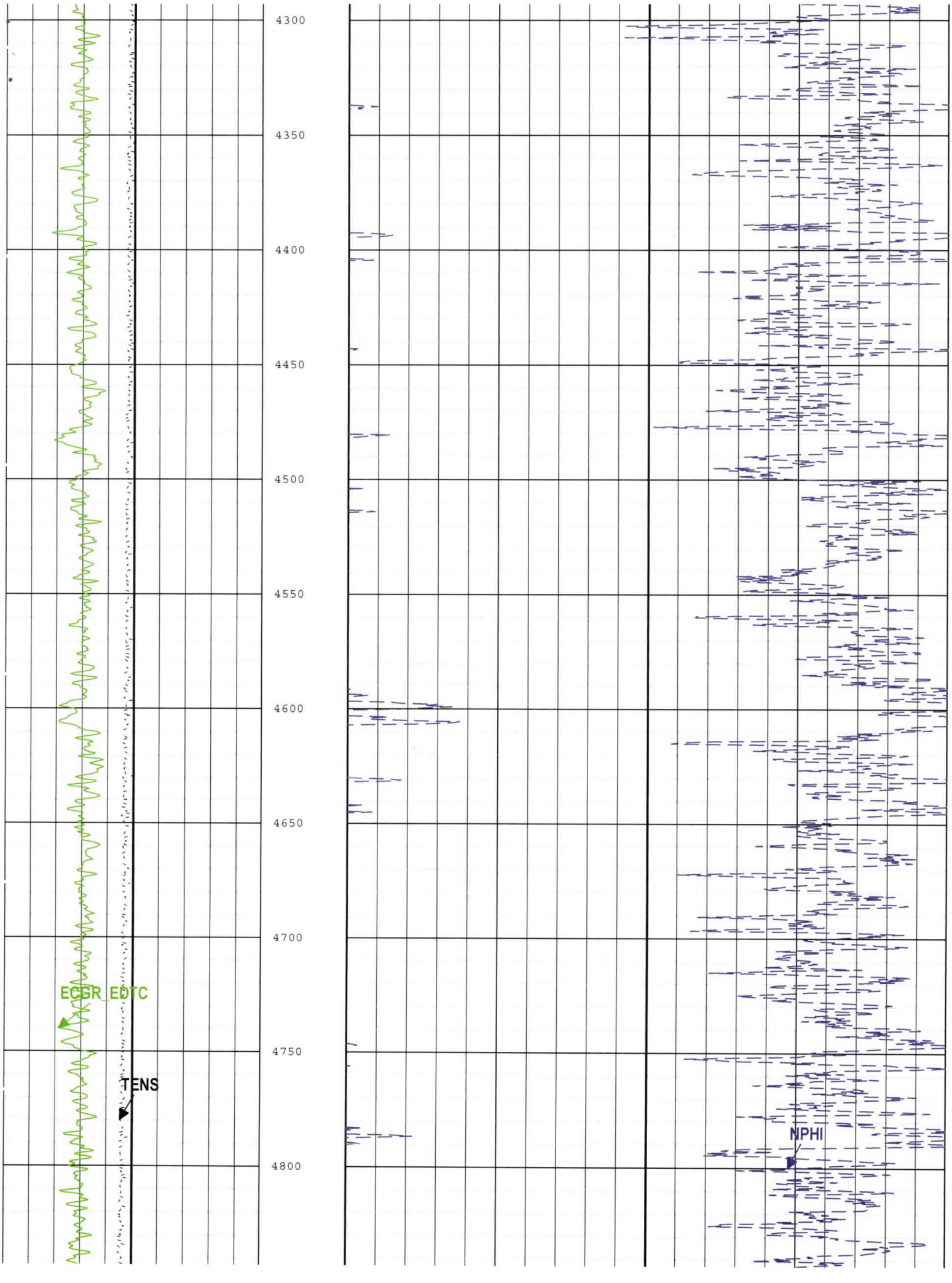
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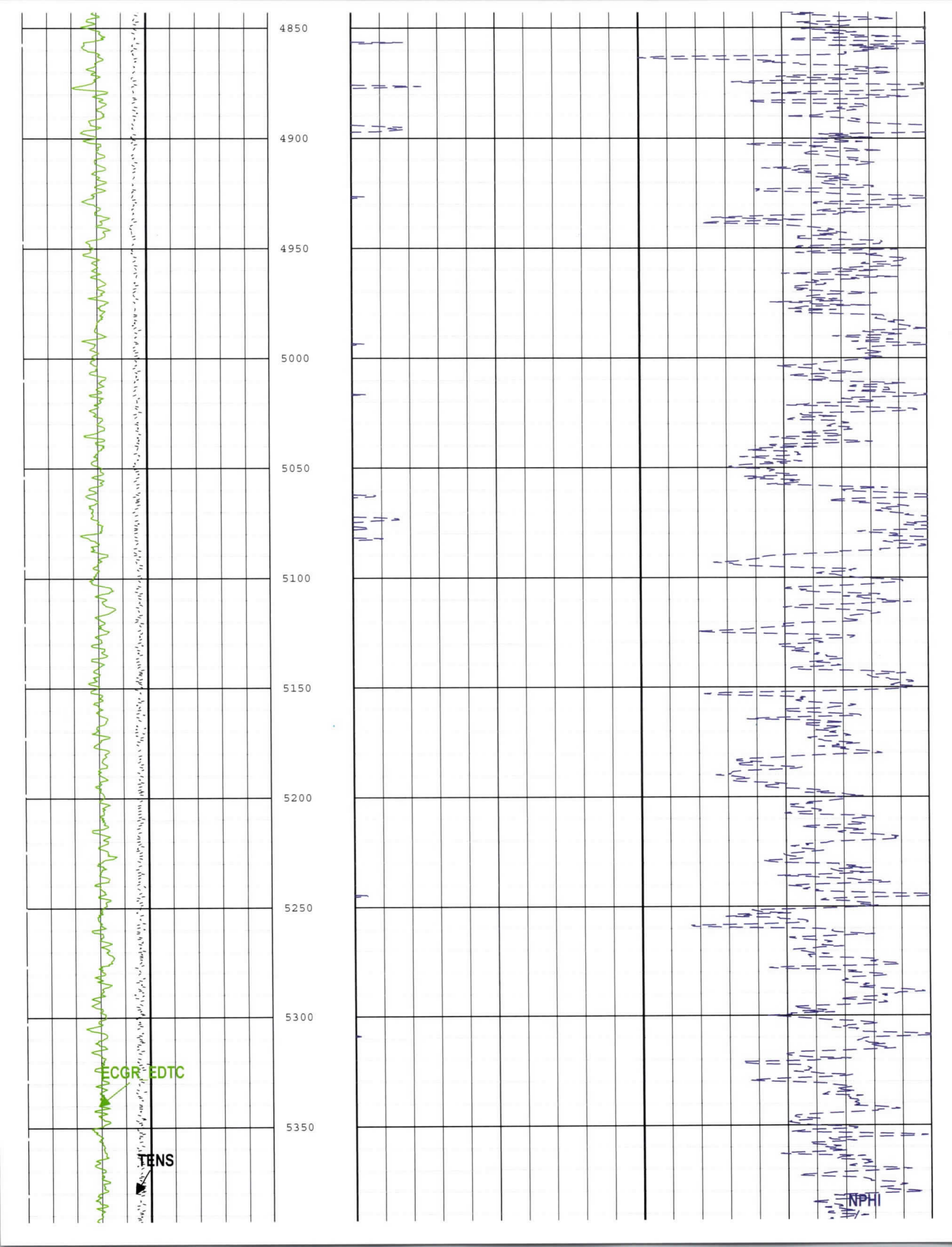
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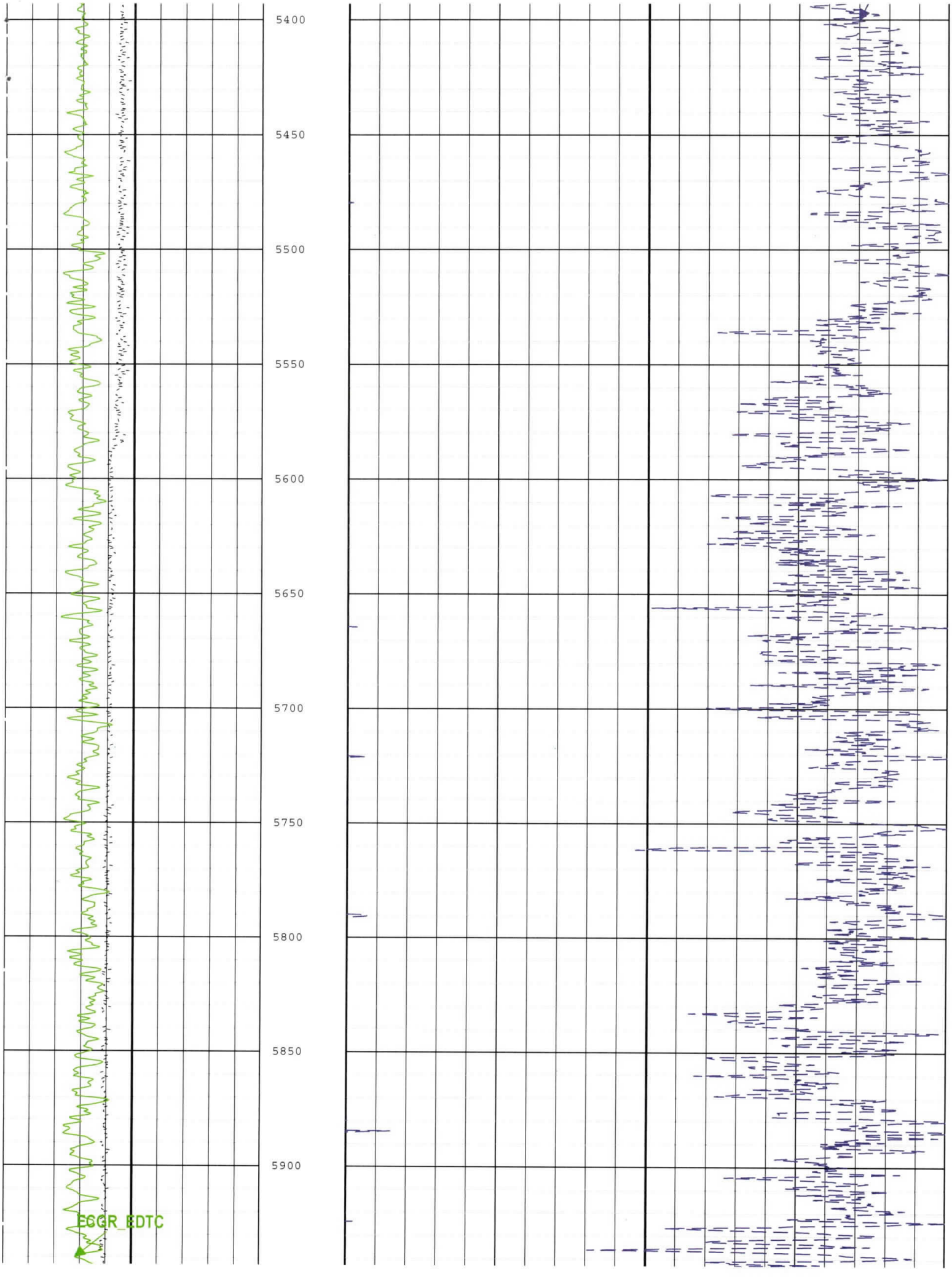
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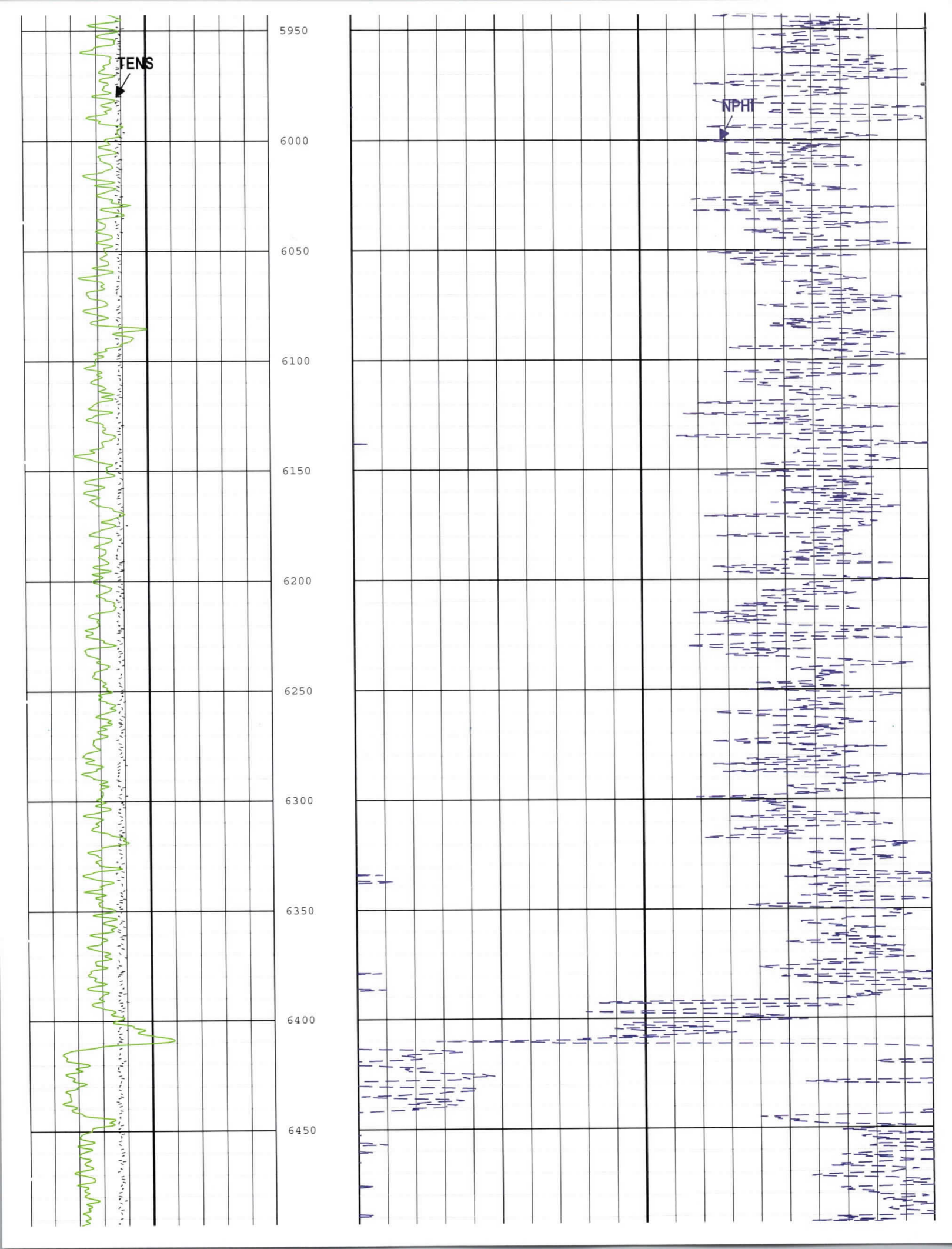
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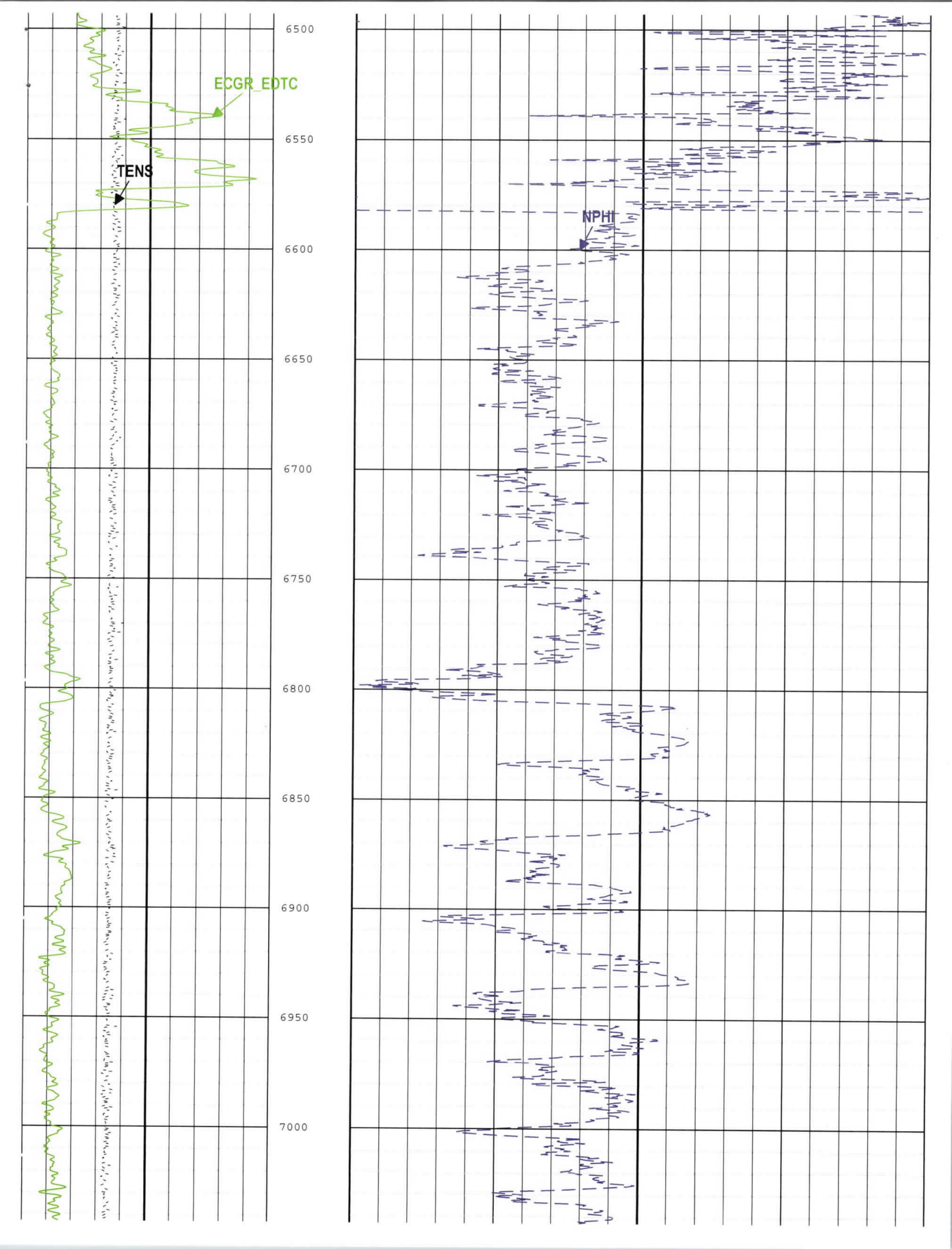
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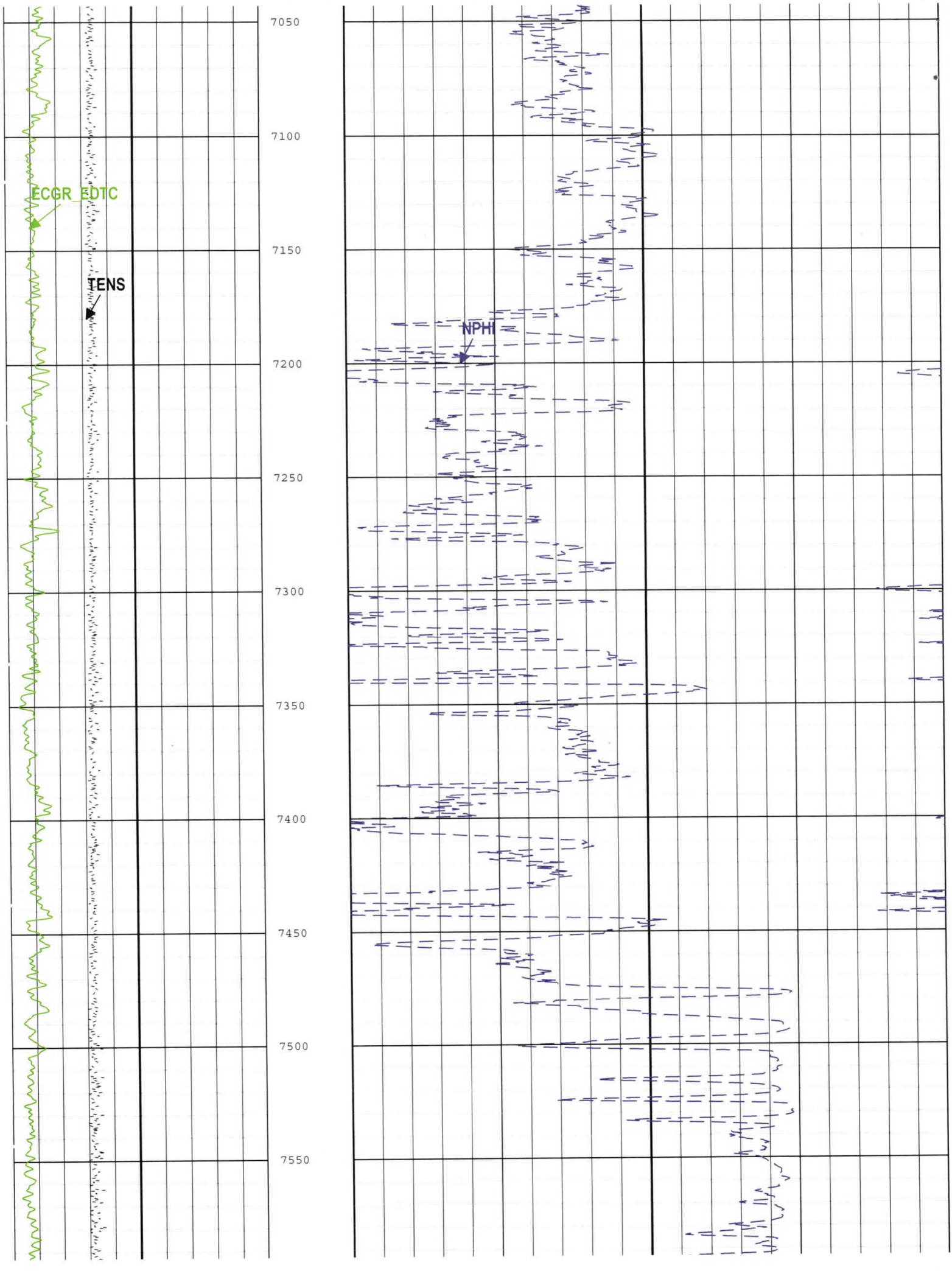
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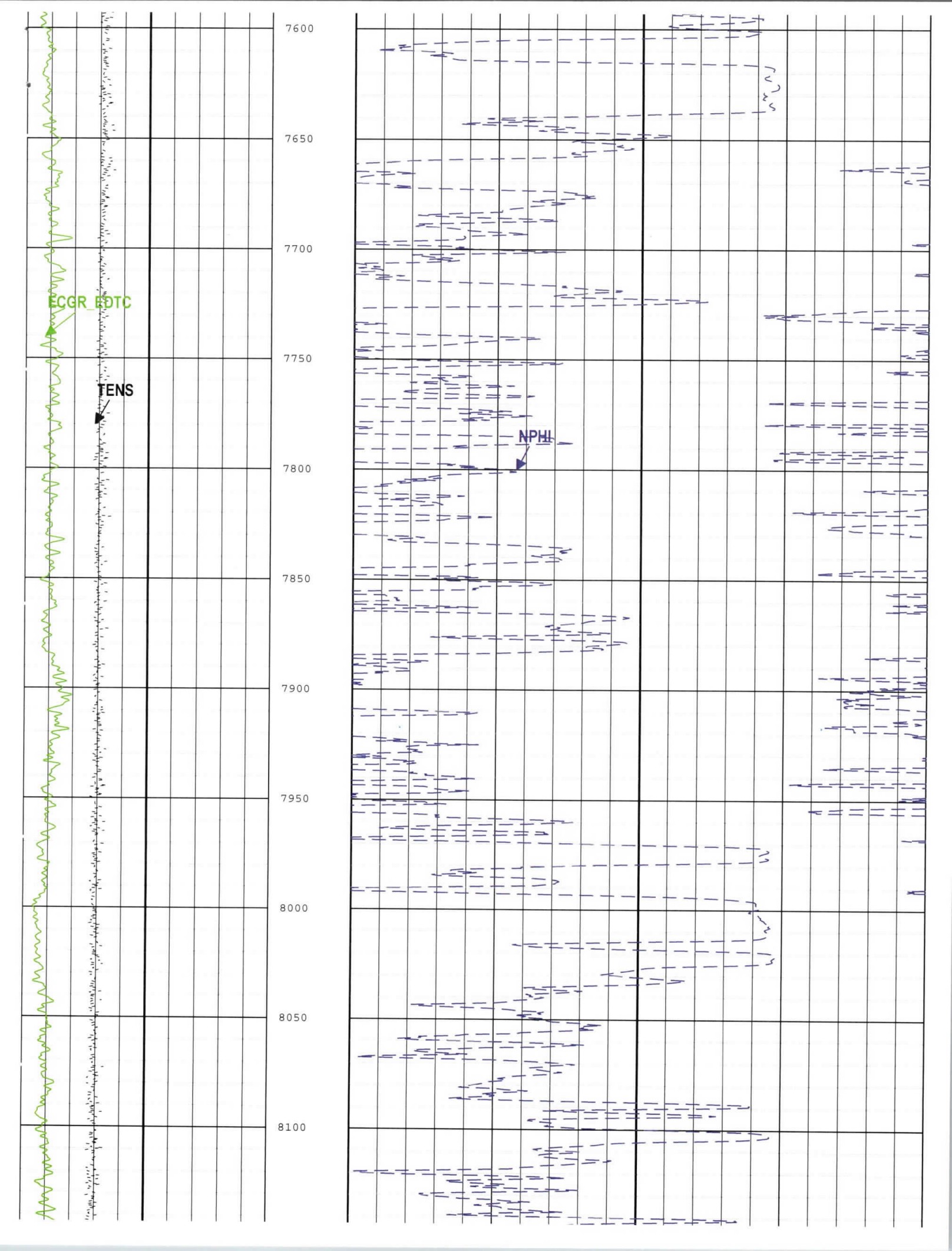
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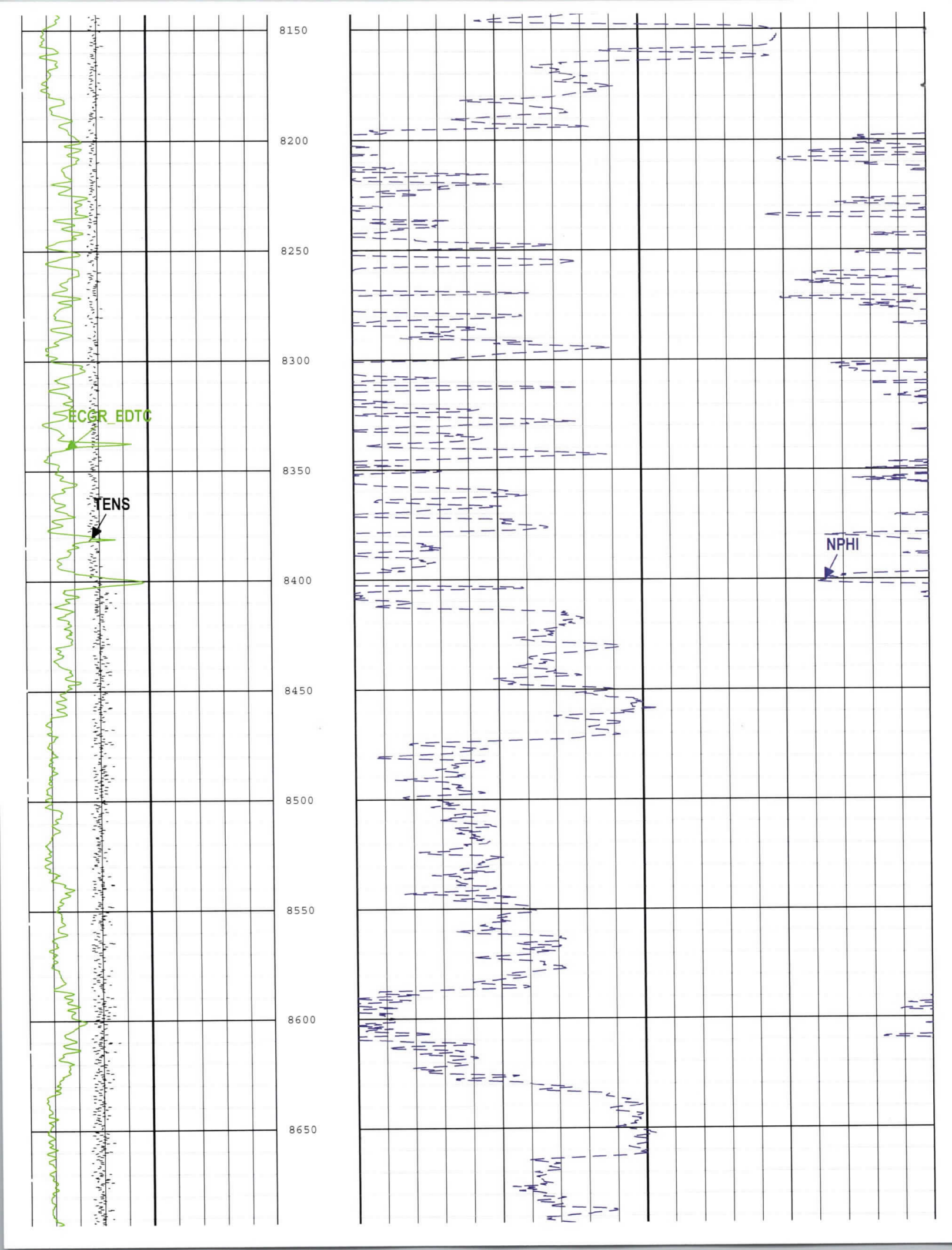
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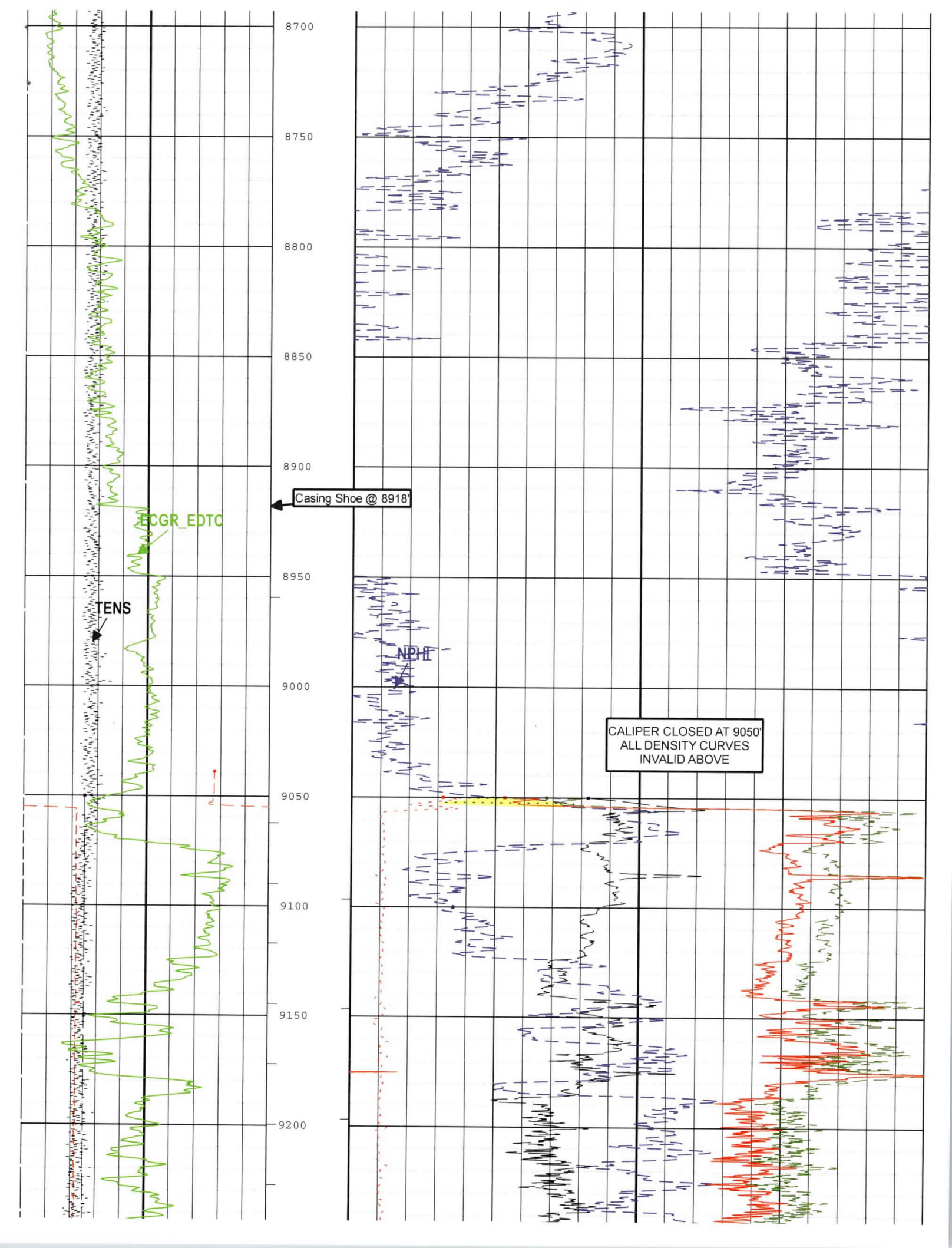
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Casing Shoe @ 8918'
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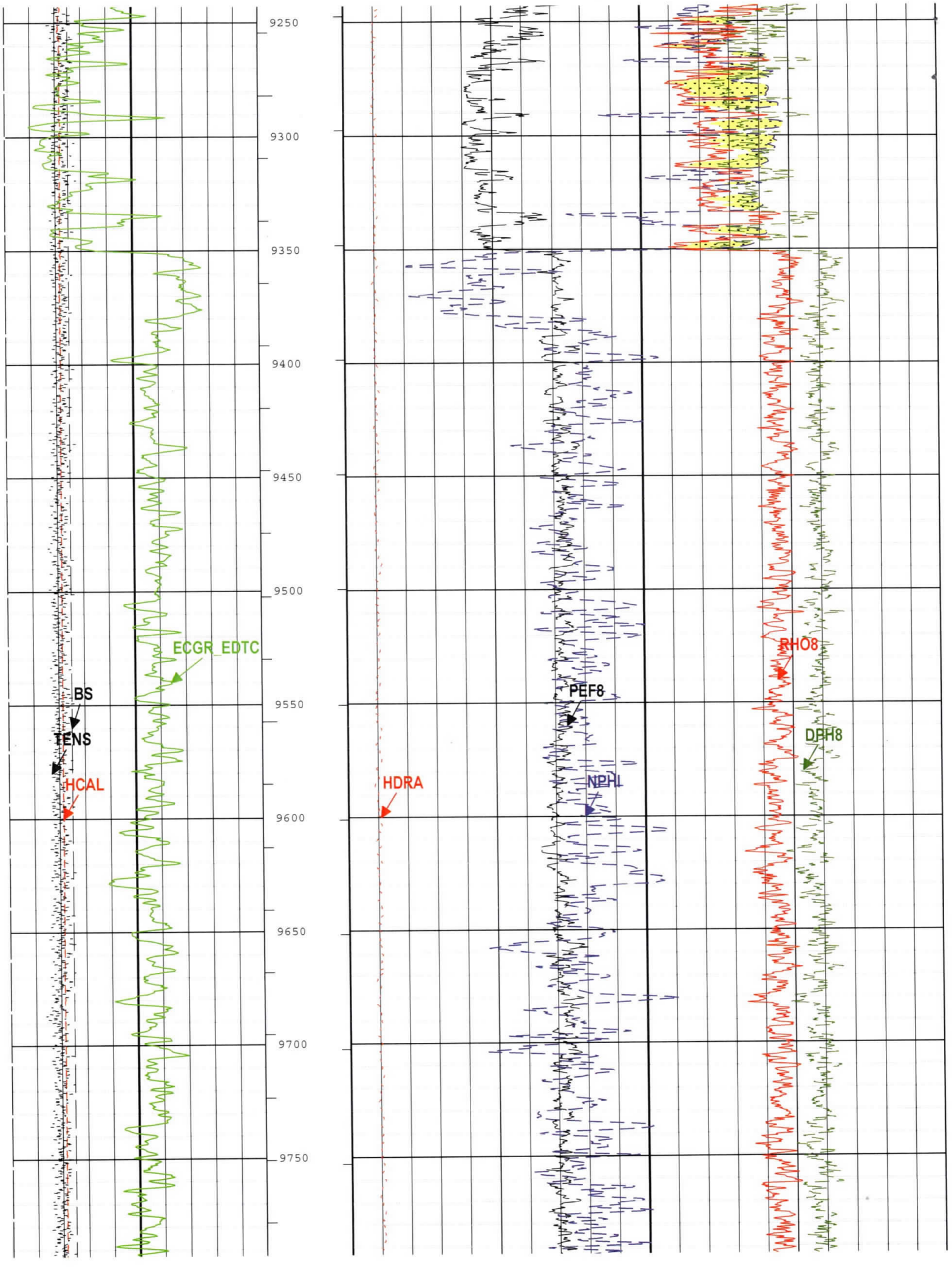
TENS
NPHI
CALIPER CLOSED AT 9050'
ALL DENSITY CURVES
INVALID ABOVE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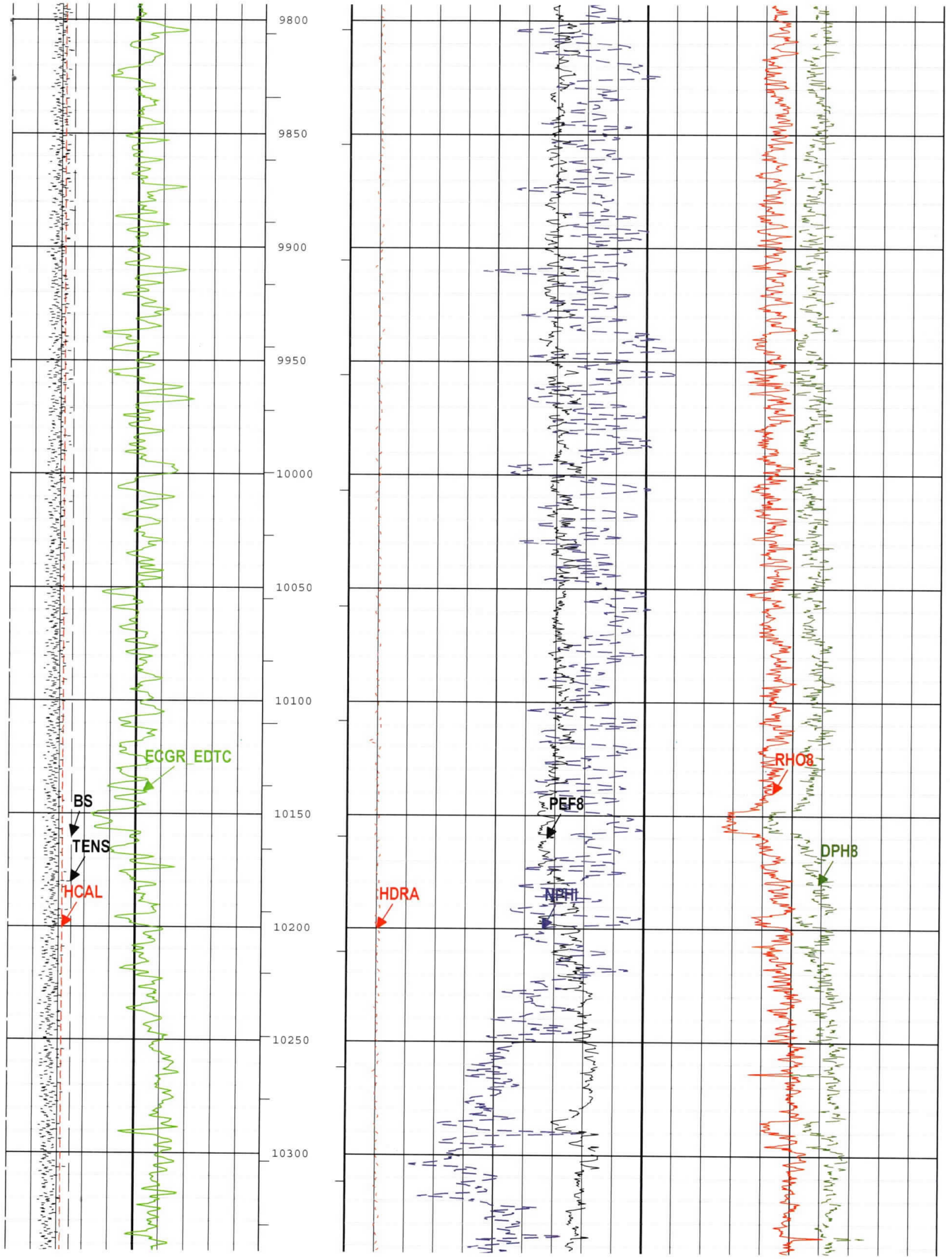
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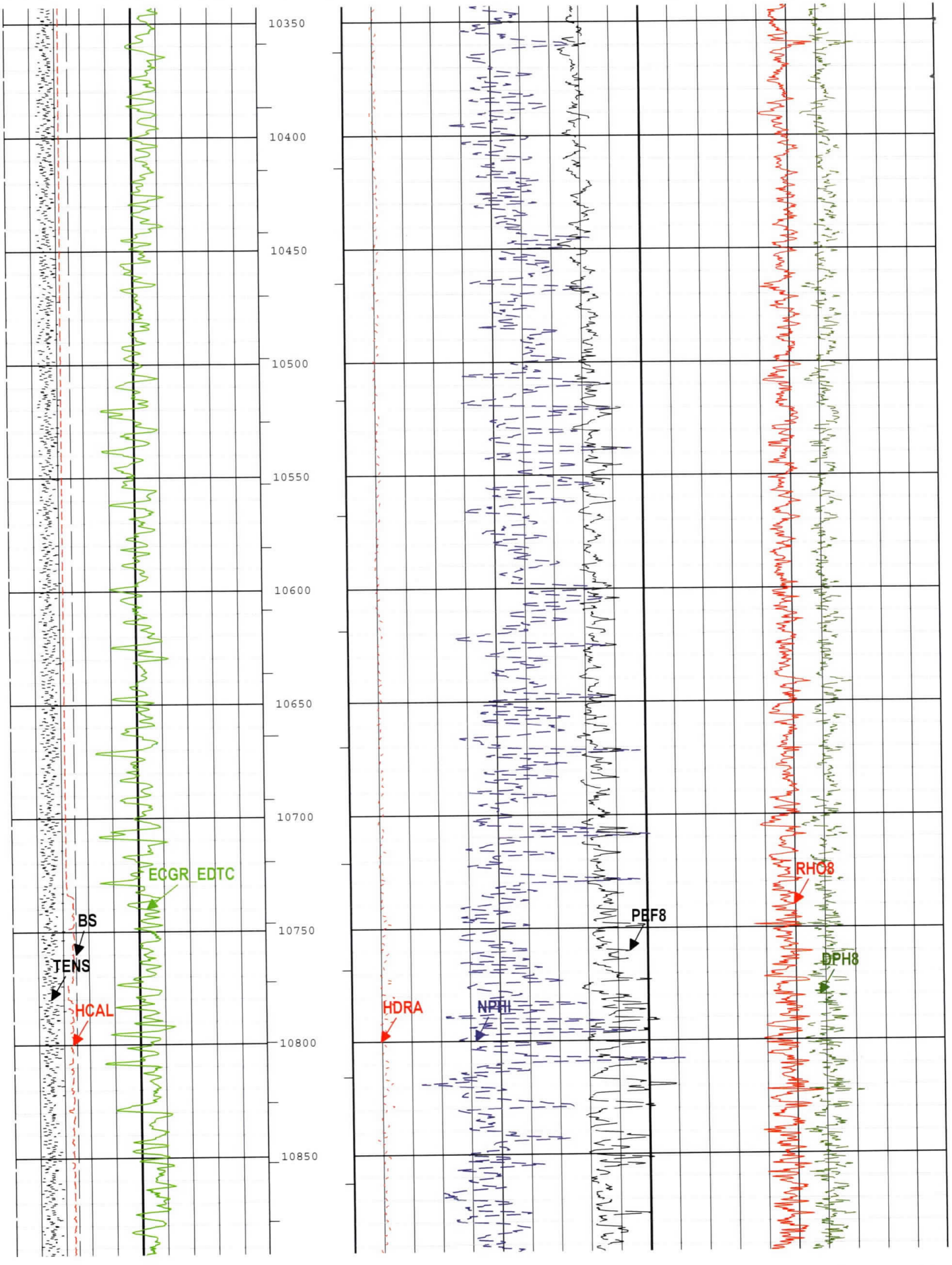
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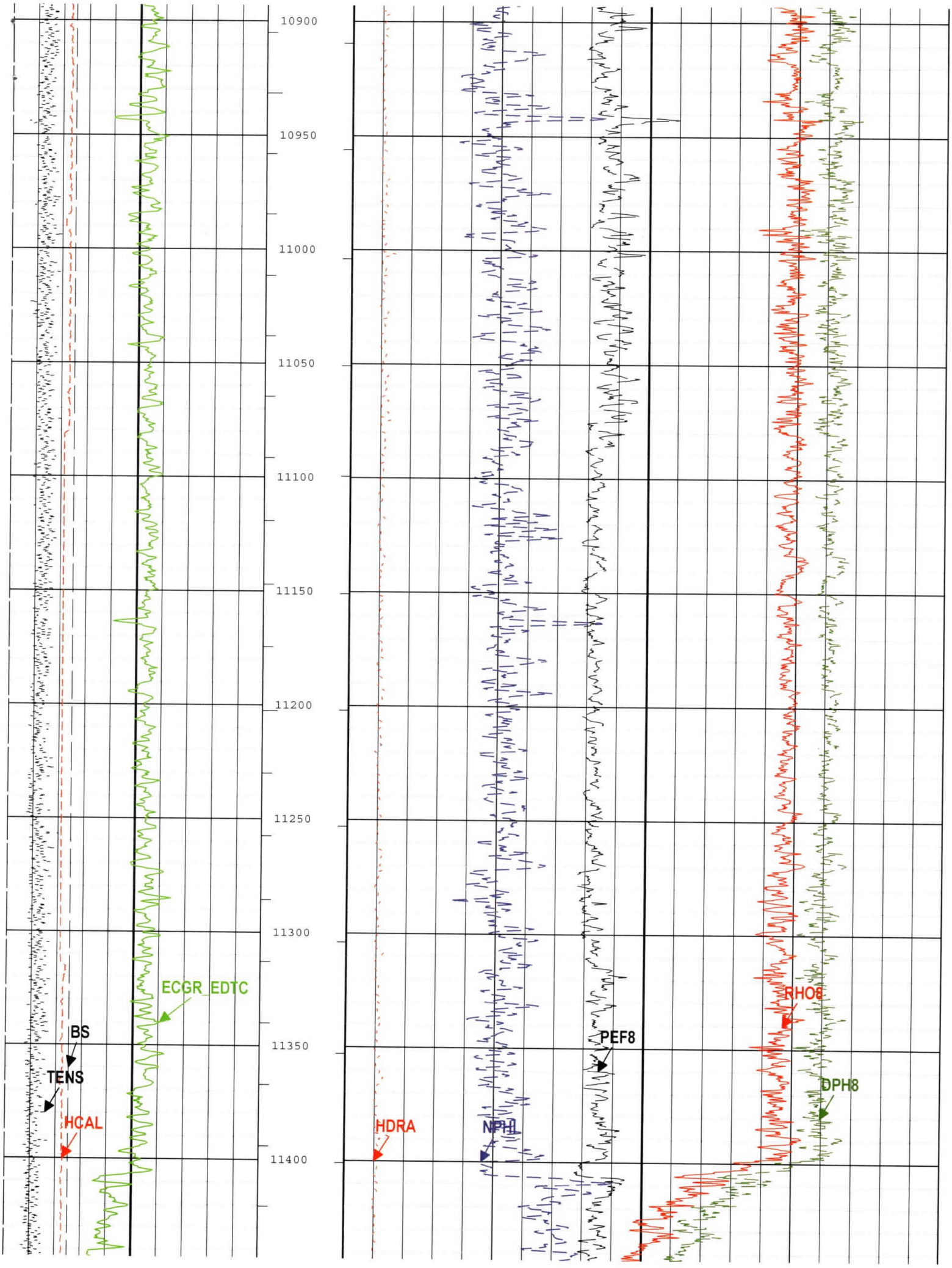
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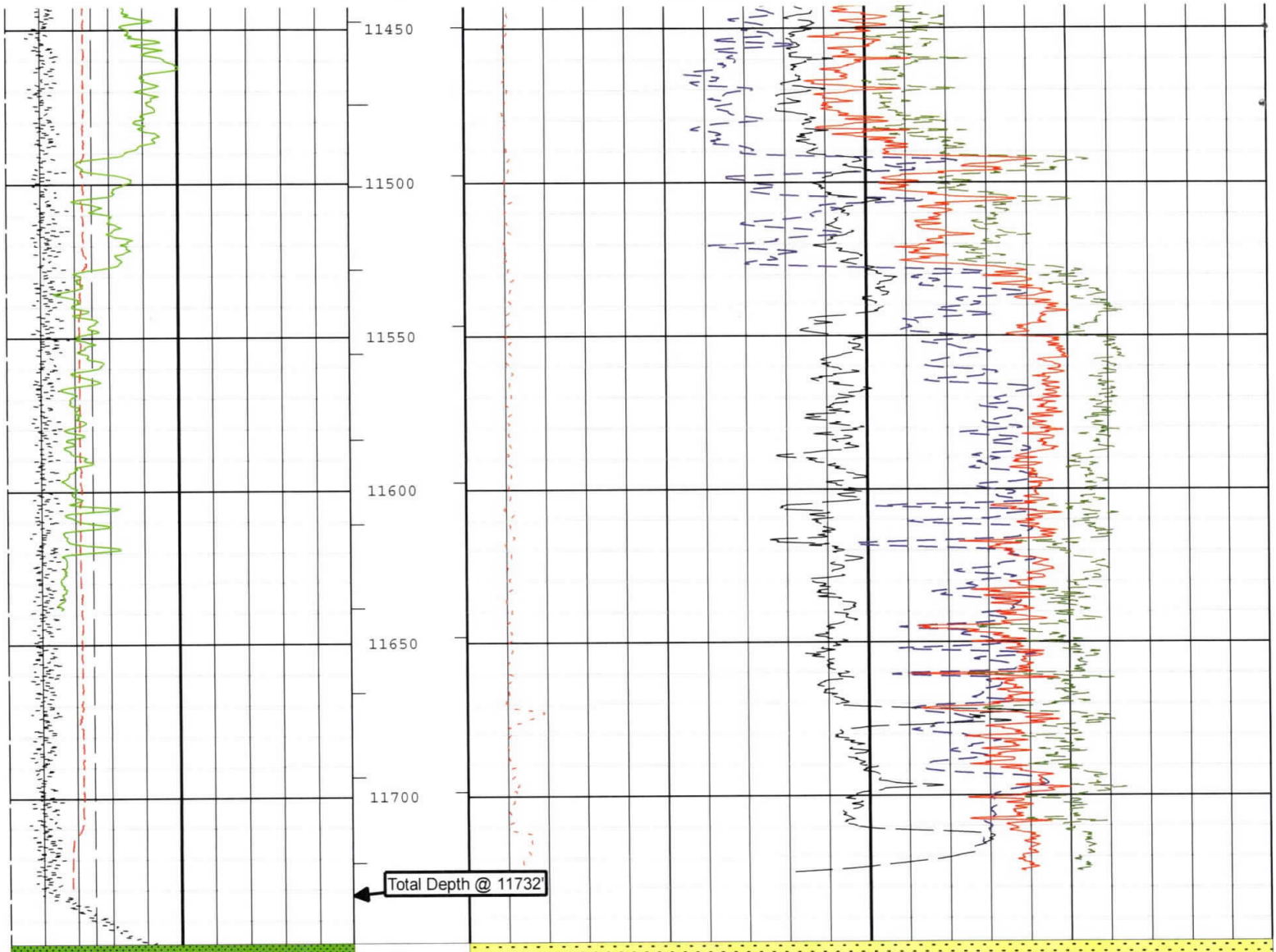


GR > 200 GAPI

GR > 400 GAPI

Caliper (HCAL) HDRS[1]

6 in 16

Cable Tension (TENS)

6000 lbf 0

Bit Size (BS)

6 in 16

Gamma Ray (ECGR_EDTC) EDTC-B[1]

0 gAPI 200

GAS EFFECT

Thermal Neutron Porosity (original Ratio Method) in Selected Lithology (NPHI) HGNS[1]

0.3 ft3/ft3 -0.1

High Resolution Density Porosity (DPH8) HDRS[1]

0.45 ft3/ft3 -0.15

High Resolution Formation Photoelectric Factor (PEF8) HDRS[1]

0 10

High Resolution Formation Density (RHO8) HDRS[1]

2 g/cm3 3

Density Standoff Correction (HDRA) HDRS[1]

-0.05 g/cm3 0.45

IHV - Integrated Hole Volume every 10.00 (ft3)

TIME_1900 - Time Marked every 60.00 (s)

ICV - Integrated Cement Volume every 10.00 (ft3)

IHV - Integrated Hole Volume every 100.00 (ft3)

Description: Triple Combo standard resolution template for Platform Express Format: Log (RANGE PEX NUC 2IN) Index Scale: 2 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 13-Feb-2016 01:44:35

Channel Processing Parameters

RUN1A: Parameters

Parameter	Description	Tool	Value	Unit

Parameter	Description	Tool	Value	Unit
ISSBAR	Barite Mud Presence Flag	Borehole	Yes	
BHS	Borehole Status (Open or Cased Hole)	Borehole	Open	
BS	Bit Size	WLSESSION	8.5	in
CALI_SHIFT	CALI Supplementary Offset	HDRS-H	0	in
CBLO	Casing Bottom (Logger)	WLSESSION	8957	ft
CDEN	Cement Density	EDTC-B	2	g/cm3
CSODDRL	Casing Outer Diameter - Zoned along driller depths	WLSESSION	9.625	in
DC_MODE	Depth Correction Mode	DepthCorrection	Real-time	
DFD	Drilling Fluid Density	Borehole	12.5	lbm/gal
DFT	Drilling Fluid Type	Borehole	Oil	
DHC	Density Hole Correction	HDRS-H	Bit Size	
FCD	Future Casing (Outer) Diameter	WLSESSION	5.5	in
FD	Fluid Density	Borehole	1	g/cm3
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	
MATR	Rock Matrix for Neutron Porosity Corrections	Borehole	LIMESTONE	
MDEN	Matrix Density for Density Porosity	Borehole	2.68	g/cm3
NPRM	HRDD Nuclear Processing Mode	HDRS-H	Time Zoned	
TPOS_EDTC	Tool Position: Centered or Eccentered	EDTC-B	Centered	

RUN1ATime Zoned Parameters

Pass Log[8]:Up

Parameter	Value	Start Time	Stop Time	Start Depth (ft)	Stop Depth (ft)
NPRM	High Resolution	12-Feb-2016 18:58:34	12-Feb-2016 21:08:29	11747.6	9050.39

Pass Log[9]:Up

NPRM	High Resolution	12-Feb-2016 21:28:52	12-Feb-2016 21:40:25	9088.93	8489.94

All depth are at tool zero.

Tool Control Parameters

RUN1A: Parameters

Parameter	Description	Tool	Value	Unit
HRGD_BOARD_TYPE	HRGD Board Type	HDRS-H	WITH_HET	
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	Time Zoned	ft/h

RUN1ATime Zoned Parameters

Pass Log[8]:Up

Parameter	Value	Start Time	Stop Time	Start Depth (ft)	Stop Depth (ft)
MAX_LOG_SPEED	1443	12-Feb-2016 18:58:23	12-Feb-2016 19:13:31	11747.6	11461.7
MAX_LOG_SPEED	1528	12-Feb-2016 19:13:31	12-Feb-2016 20:48:03	11461.7	9385.71
MAX_LOG_SPEED	1425	12-Feb-2016 20:48:03	12-Feb-2016 20:57:18	9385.71	9192.53
MAX_LOG_SPEED	1516	12-Feb-2016 20:57:18	12-Feb-2016 21:08:29	9192.53	9050.39

Pass Log[9]:Up

MAX_LOG_SPEED	1516	12-Feb-2016 21:28:52	12-Feb-2016 21:40:25	9088.93	8489.94

Pass Log[11]:Up

MAX_LOG_SPEED	1516	12-Feb-2016 22:04:56	12-Feb-2016 23:46:31	8509.74	209.6

All depth are at tool zero.

Composite 1

MAIN PASS 5"

Integration Summary

Output Channel(s)	Output Description	Input Parameter	Output Value	Unit
IHV	Integrated Hole Volume	GCSE_UP_PASS, GCSE_DOWN_PASS:RUN1A	989.81	ft3
ICV	Integrated Cement Volume	GCSE_UP_PASS, GCSE_DOWN_PASS:RUN1A, FCD	537.95	ft3

Software Version

Acquisition System	Version
Maxwell 2016 SP1	6.1.58882.3100

Composite Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
RUN1A	Log[8]:Up	Up	9046.84 ft	11748.05 ft	12-Feb-2016 6:58:23 PM	12-Feb-2016 9:08:29 PM	ON	10.70 ft	No
RUN1A	Log[9]:Up	Up	8449.75 ft	9312.09 ft	12-Feb-2016 9:24:58 PM	12-Feb-2016 9:40:25 PM	ON	9.92 ft	No
RUN1A	Log[11]:Up	Up	209.49 ft	8689.33 ft	12-Feb-2016 10:01:48 PM	12-Feb-2016 11:46:31 PM	ON	9.66 ft	No

All depths are referenced to toolstring zero

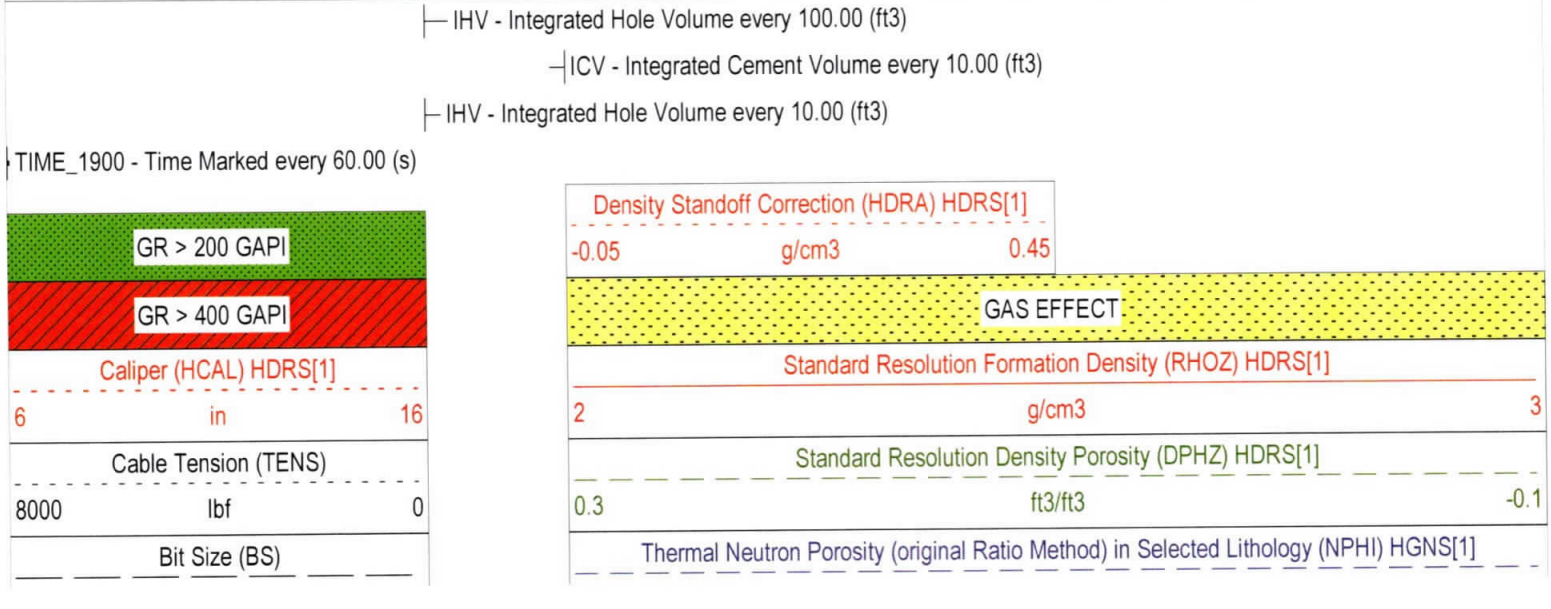
Log

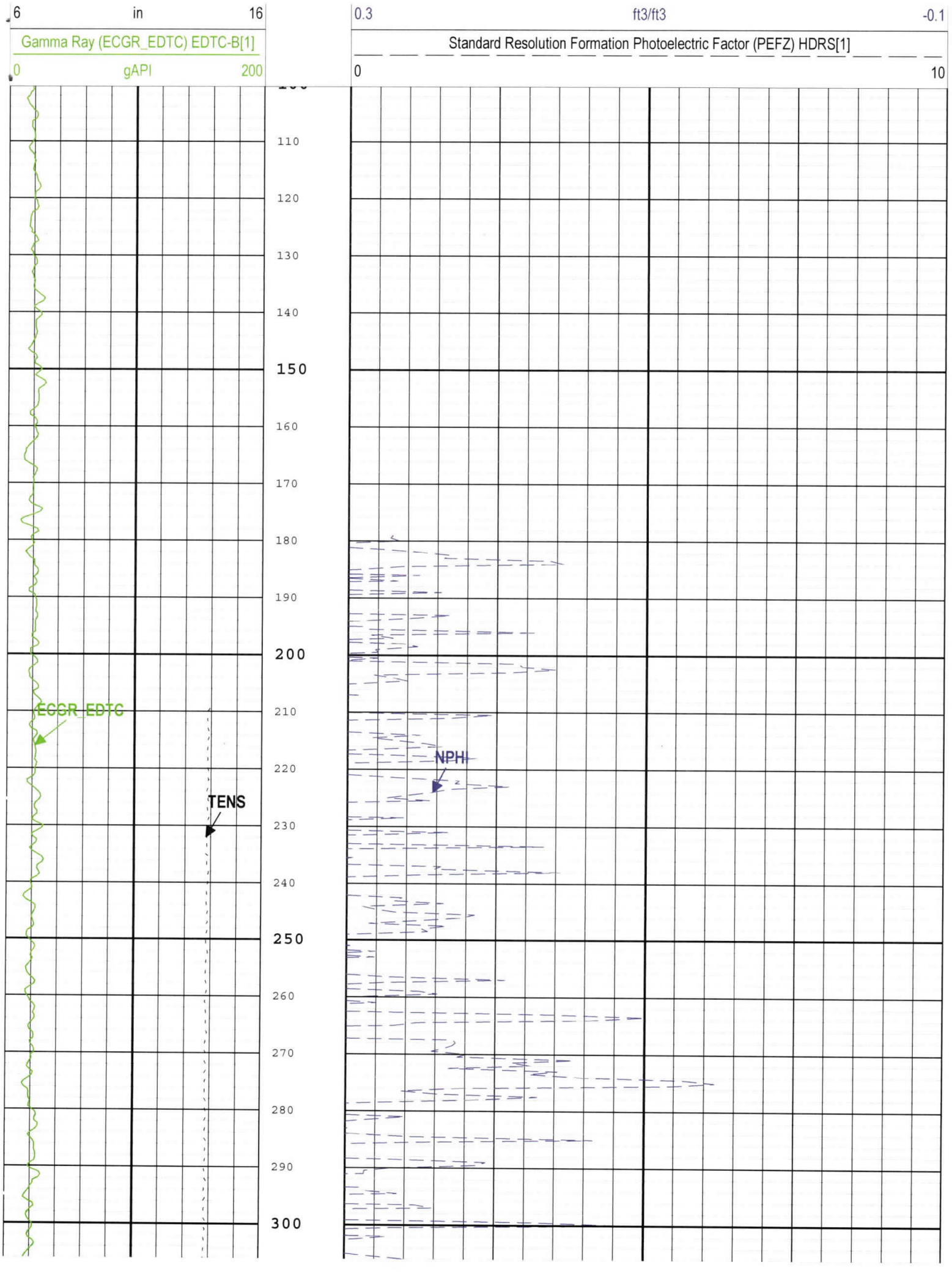
Company:CHEVRON AMBU Well:CURRY 8H

Composite 1:S004

Description: Triple Combo standard resolution template for Platform Express Format: Log (RANGE PEX NUC 5IN) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 13-Feb-2016 01:44:40

Channel	Source	Sampling
BS	Borehole	6in
CALI	HDRS[1]:HRCC-H[1]:HRCC-H[1]	1in
DPHZ	HDRS[1]:HRMS-H[1]:HRGD-H[1]	2in
GR	EDTC-B[1]:EDTC-B[1]:EDTC-B[1]	6in
HDRA	HDRS[1]:HRMS-H[1]:HRGD-H[1]	2in
ICV	Borehole	6in
IHV	Borehole	6in
NPHI	HGNS[1]:HGNS-H[1]:HGNS-H[1]	6in
PEFZ	HDRS[1]:HRMS-H[1]:HRGD-H[1]	2in
RHOZ	HDRS[1]:HRMS-H[1]:HRGD-H[1]	2in
TENS	WLWorkflow	6in
TIME_1900	WLWorkflow	0.1in

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in
16
Gamma Ray (ECGR_EDTC) EDTC-B[1]
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gAPI
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0.3
ft3/ft3
-0.1
Standard Resolution Formation Photoelectric Factor (PEFZ) HDRS[1]
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110
120
130
140
150
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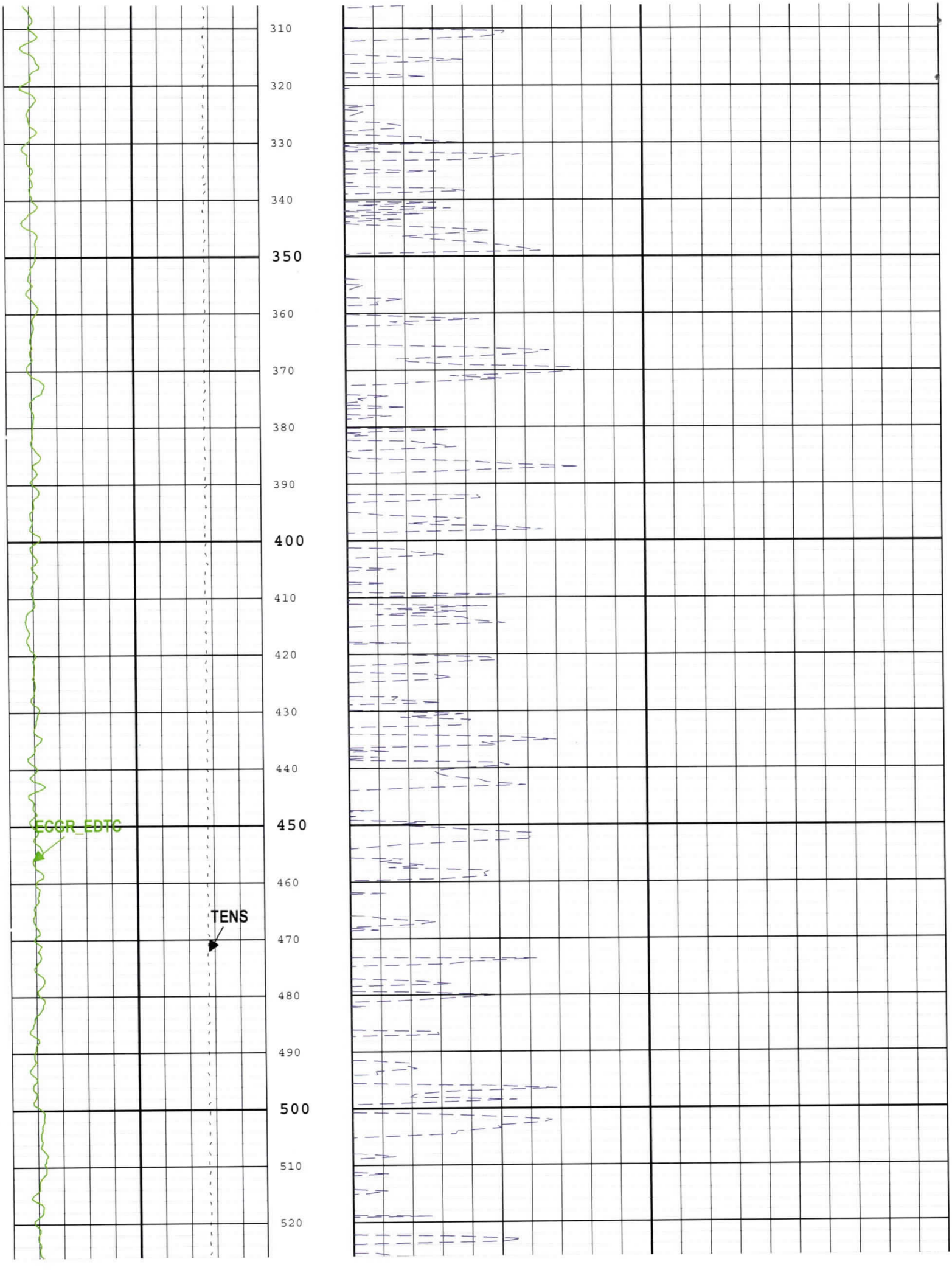
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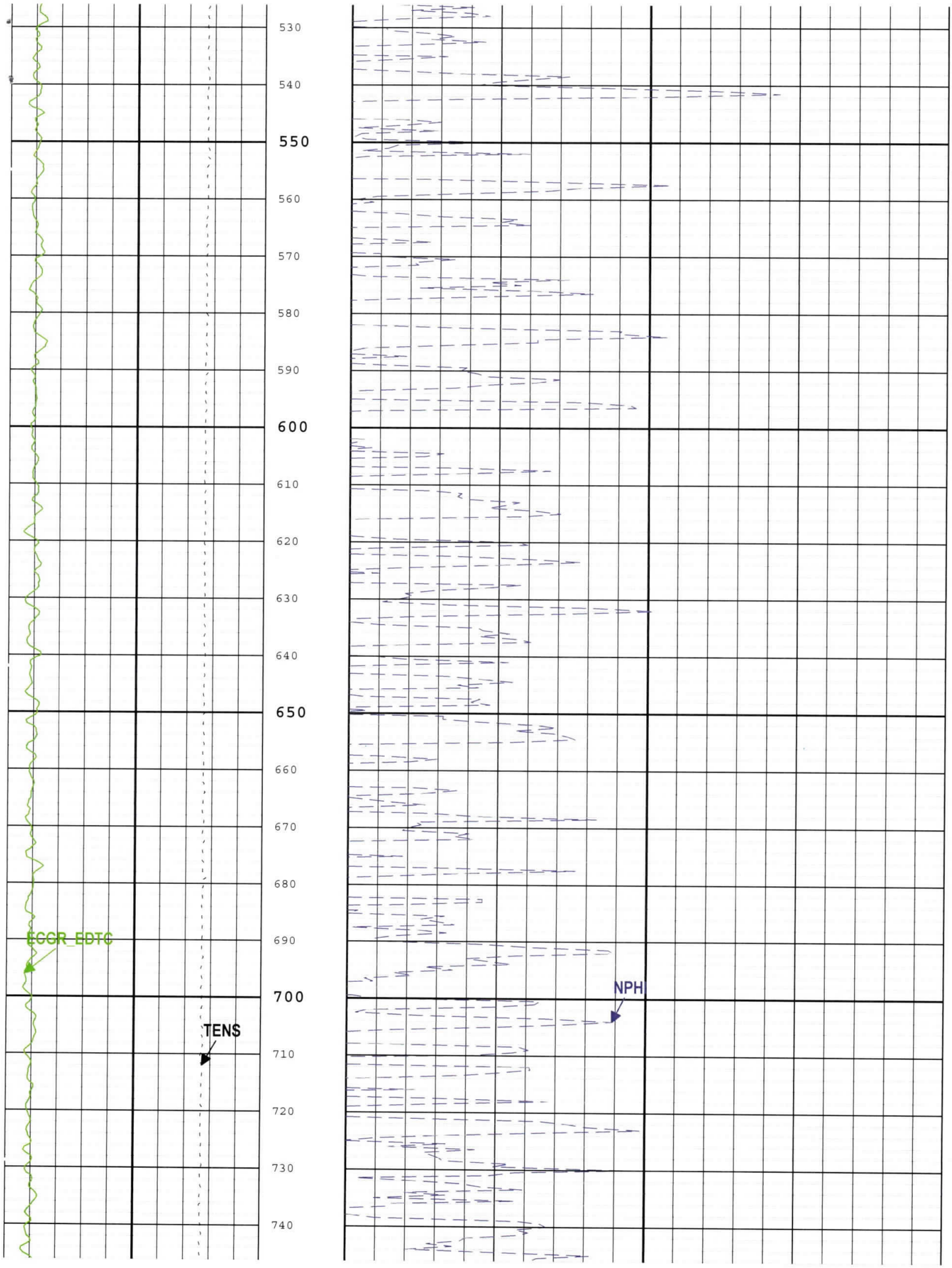
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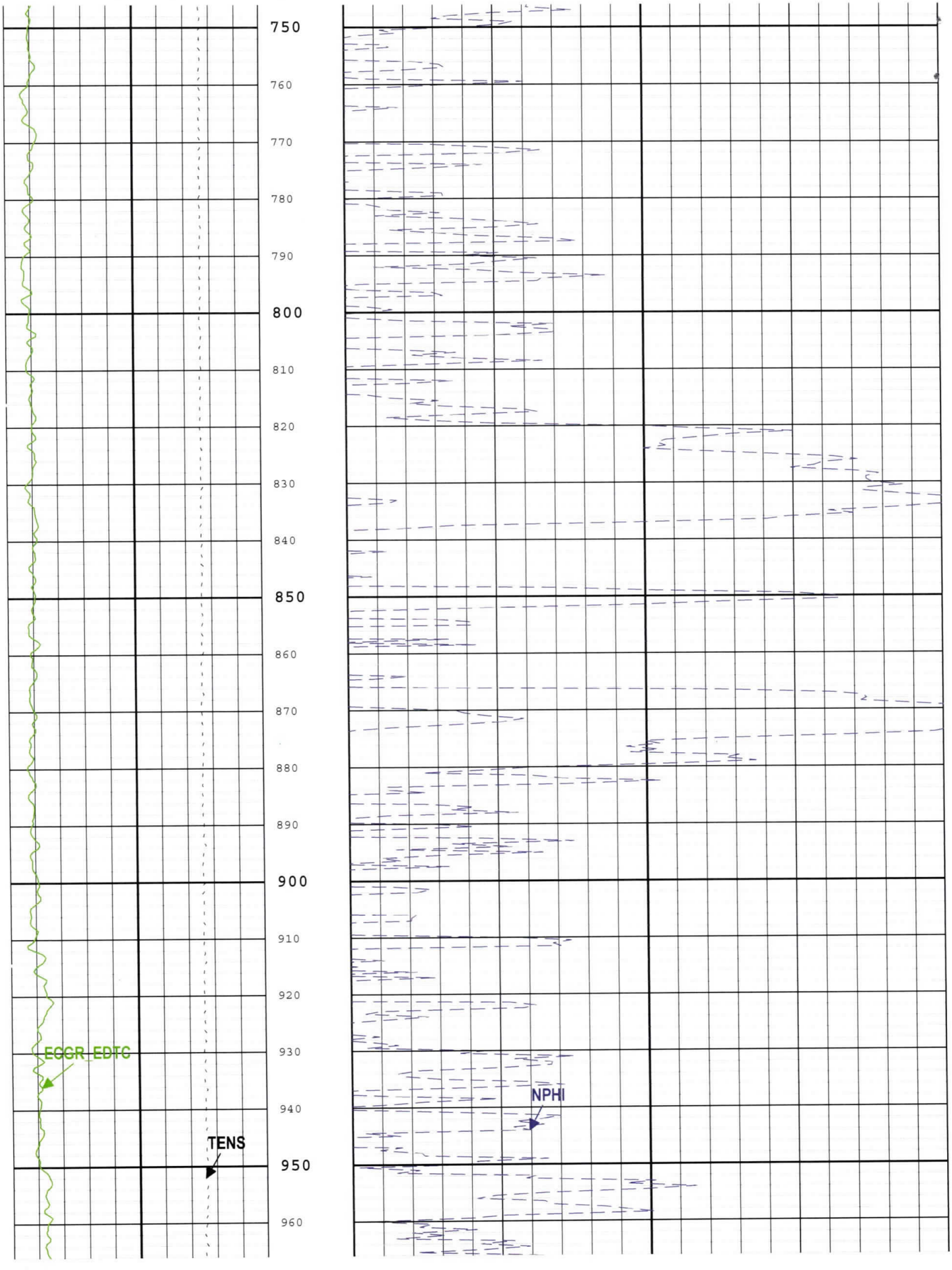
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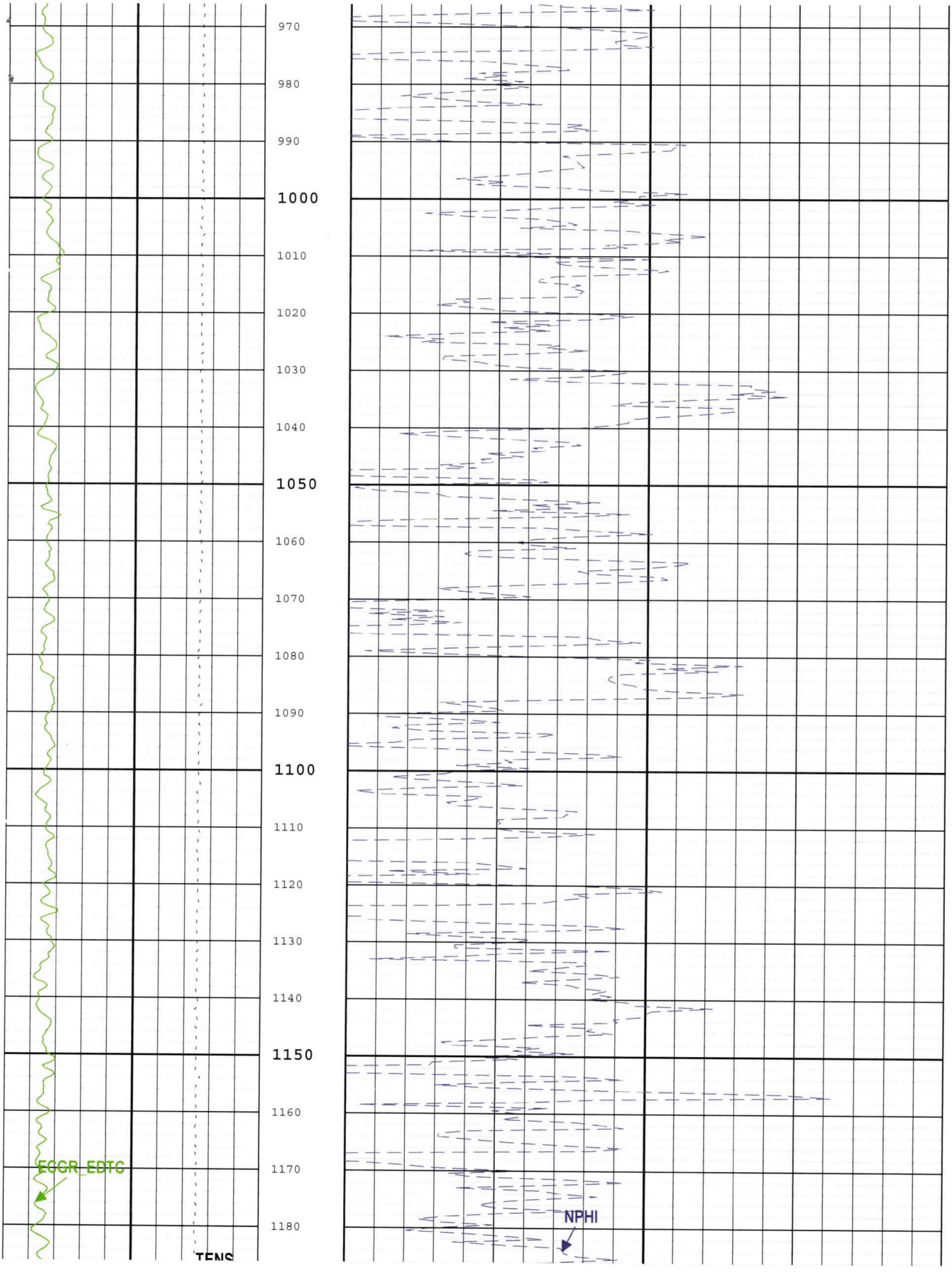
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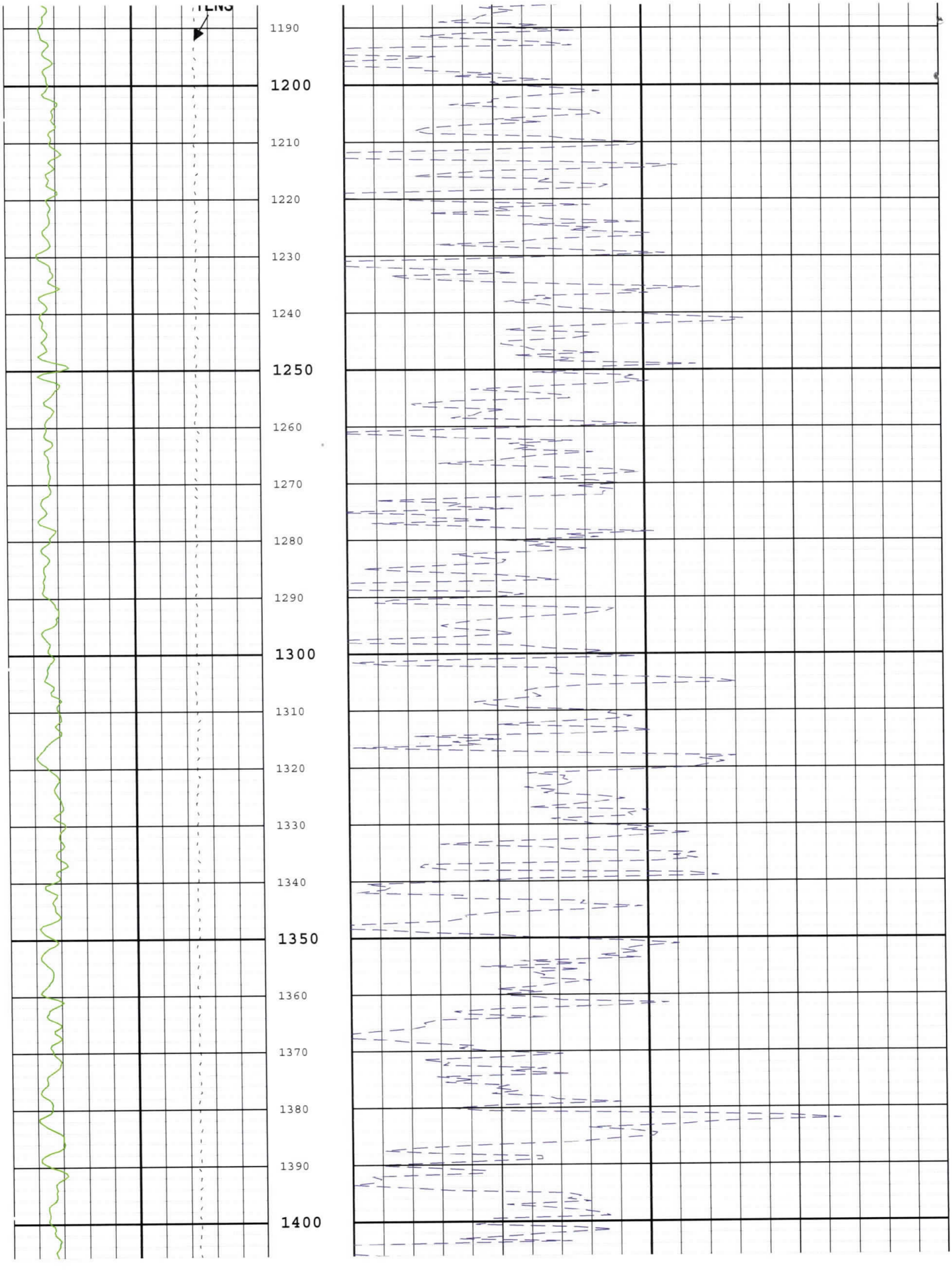
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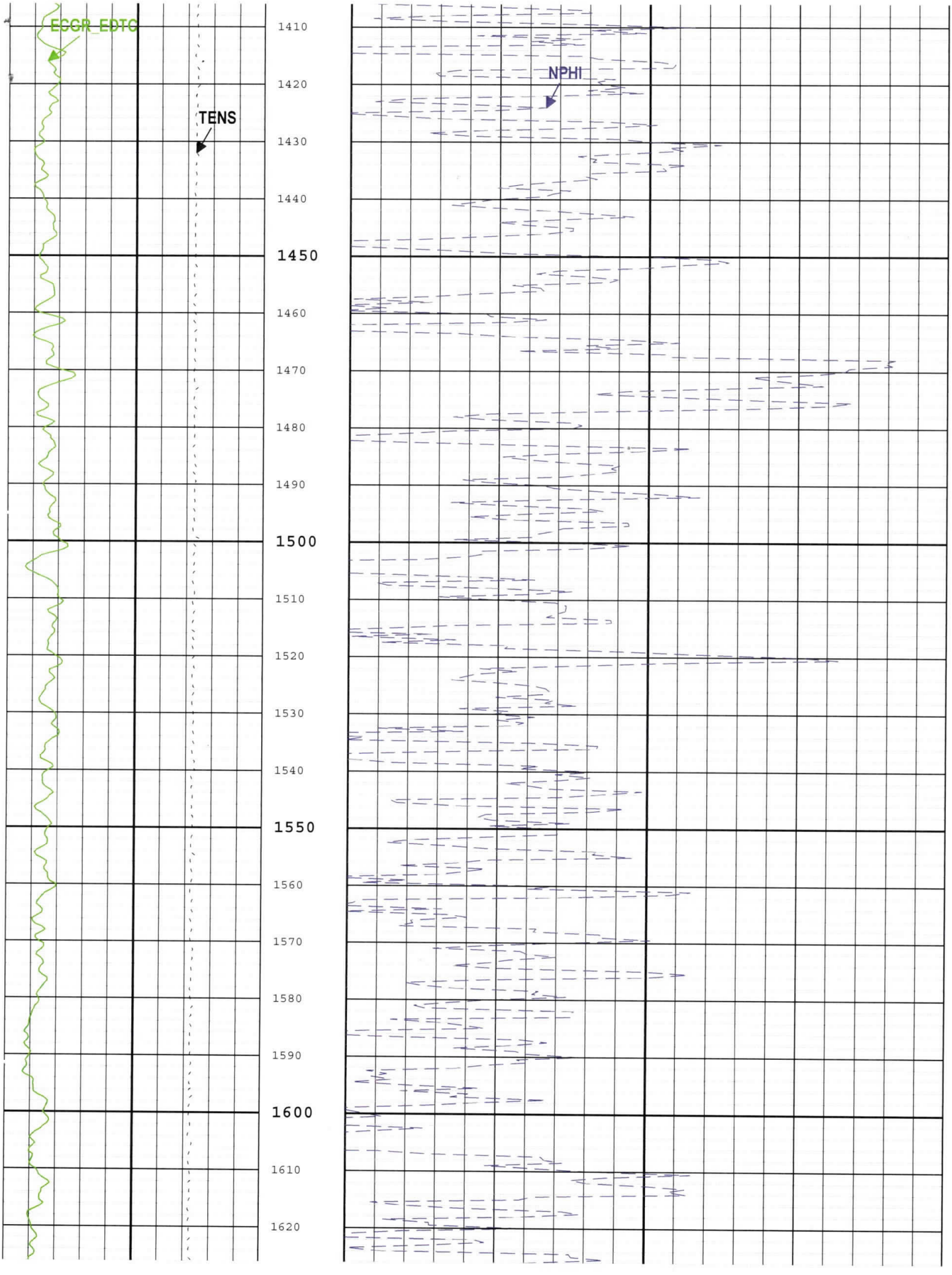
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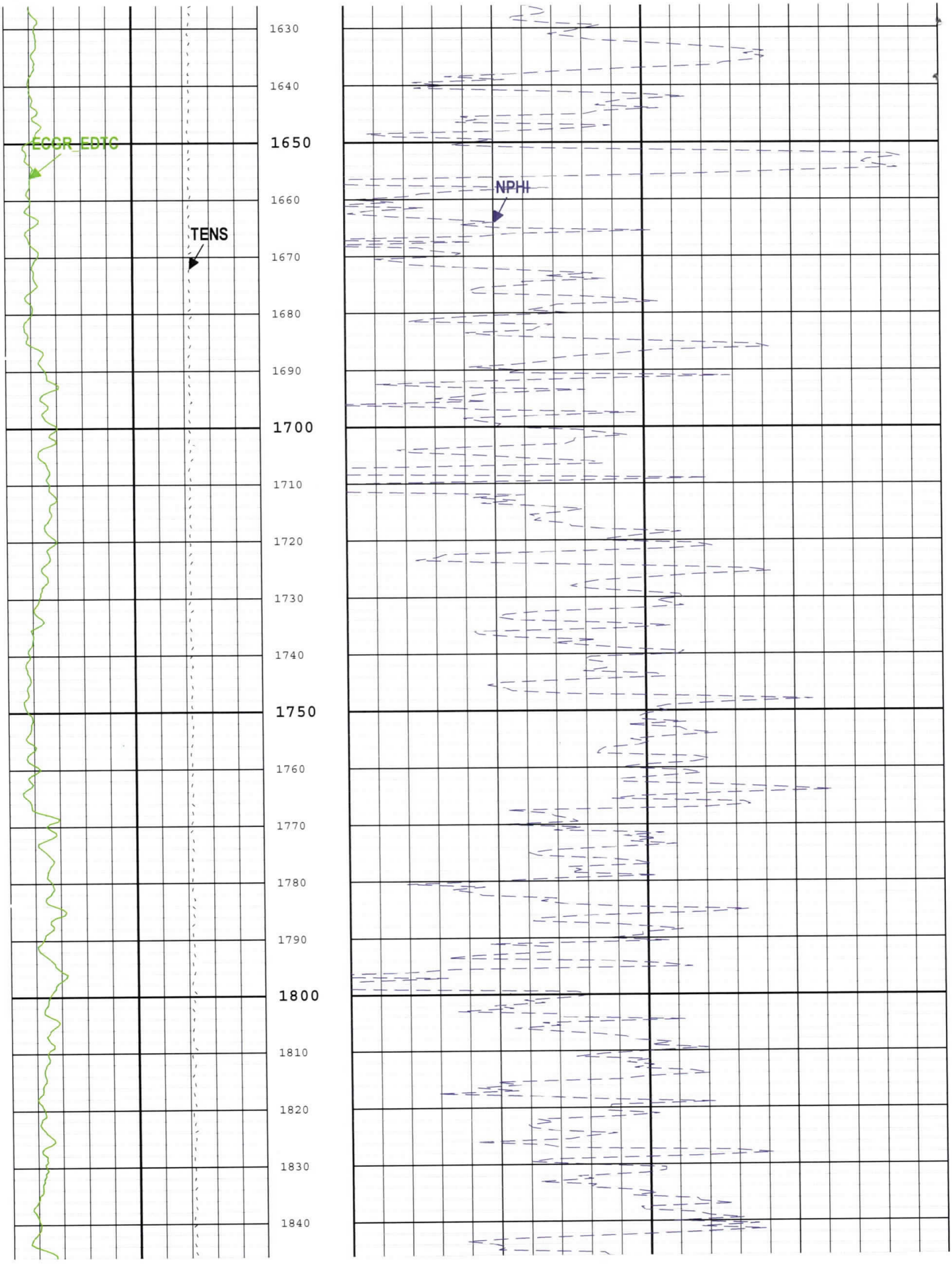
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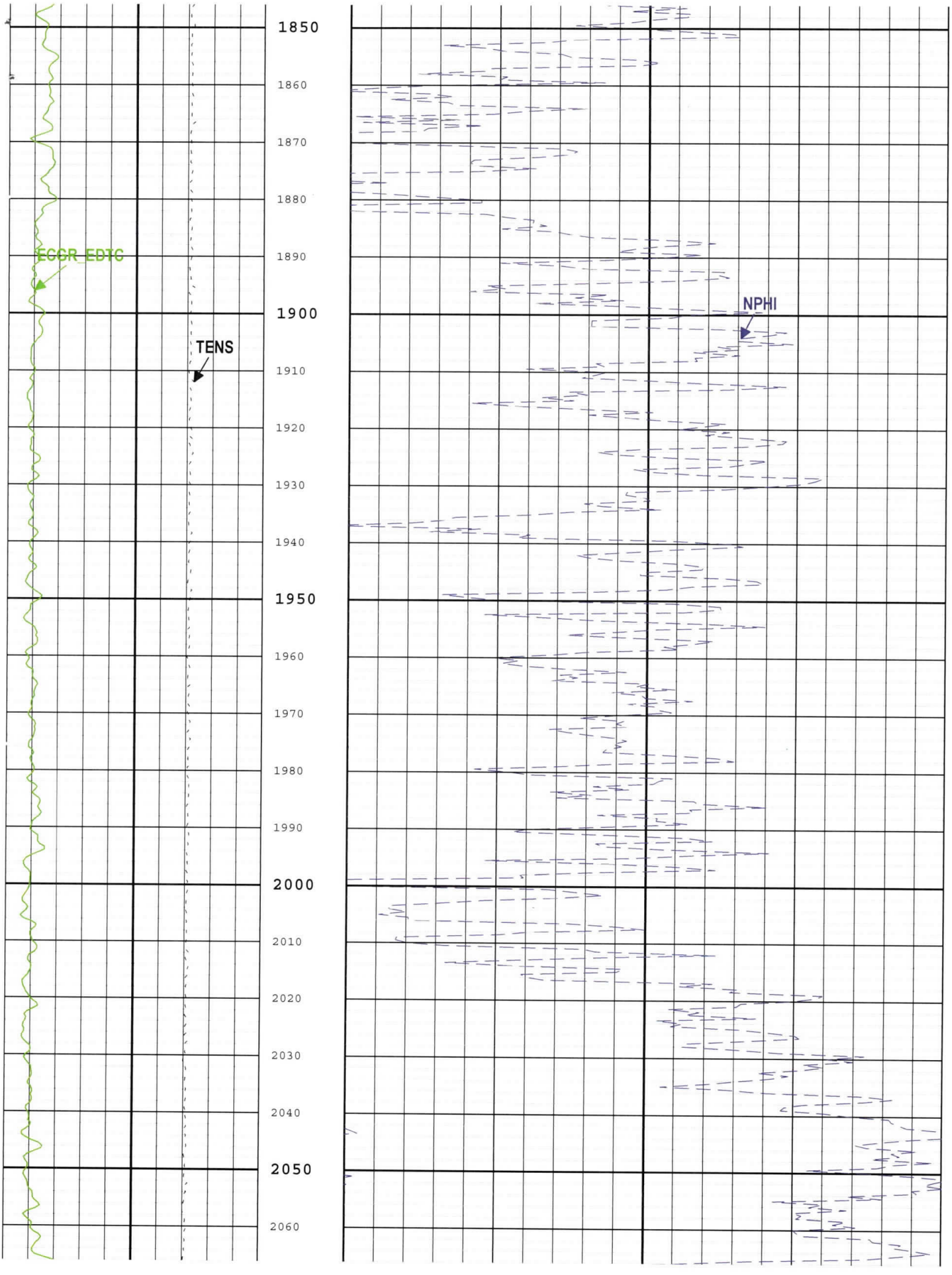
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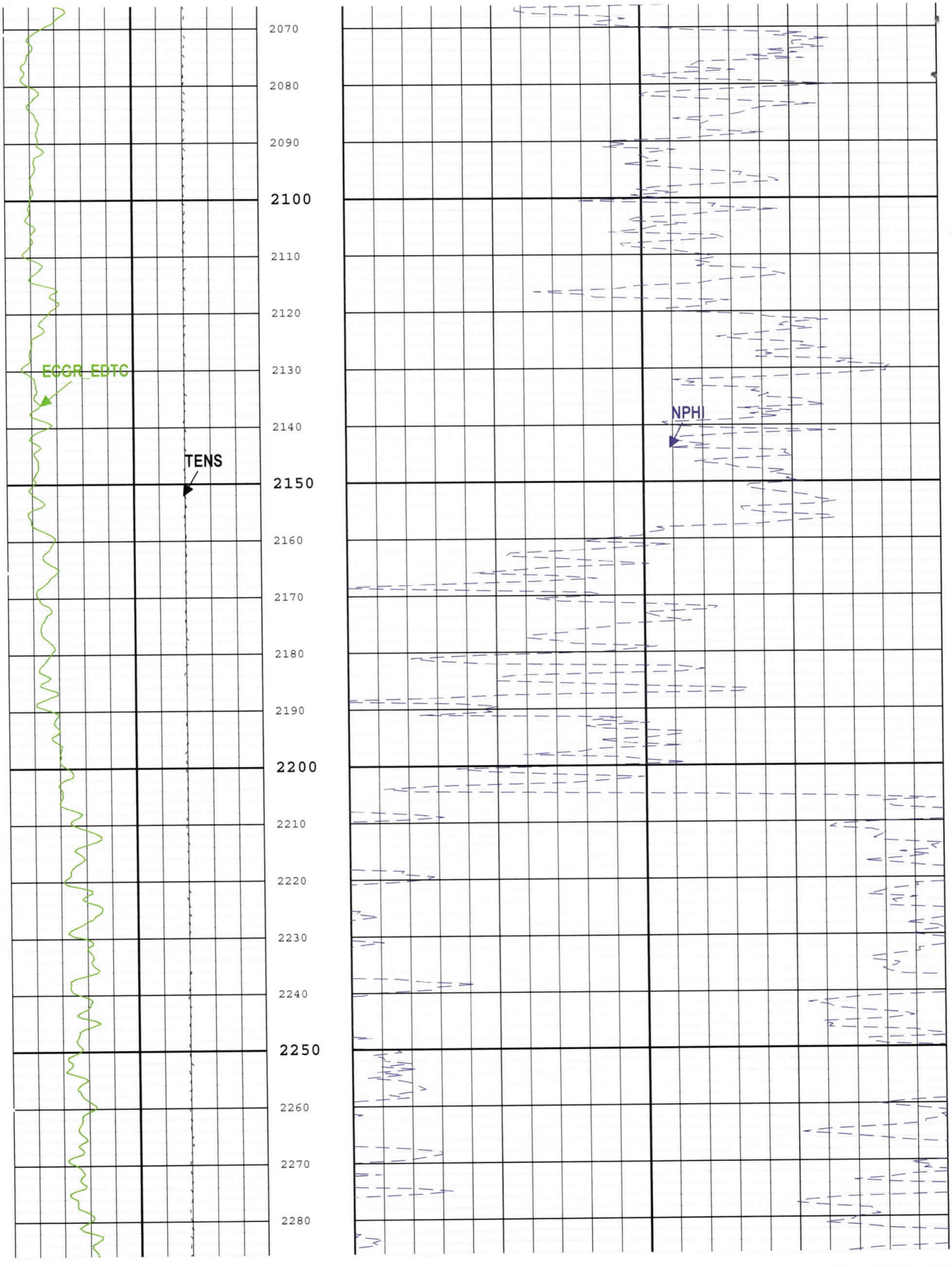
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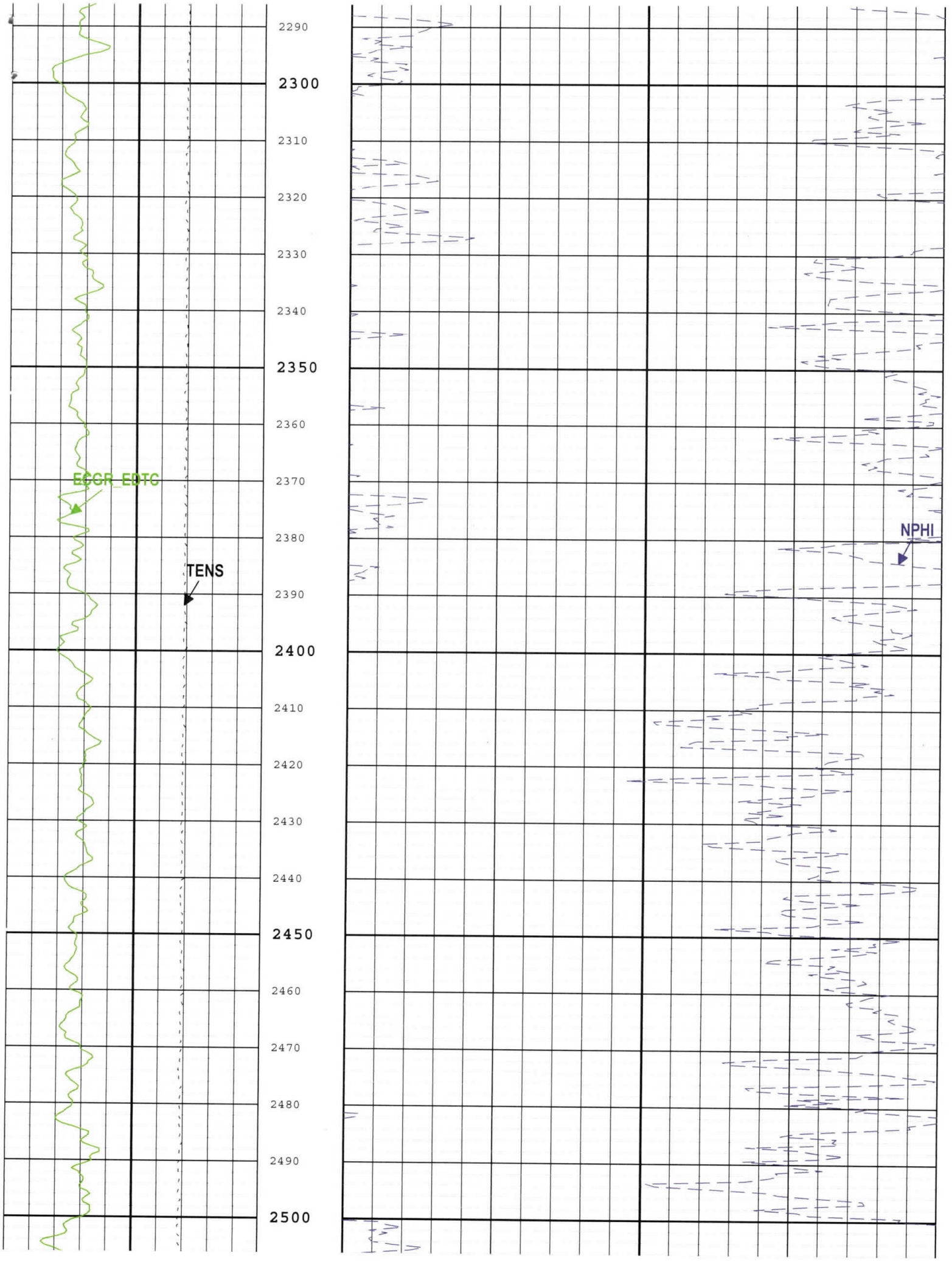
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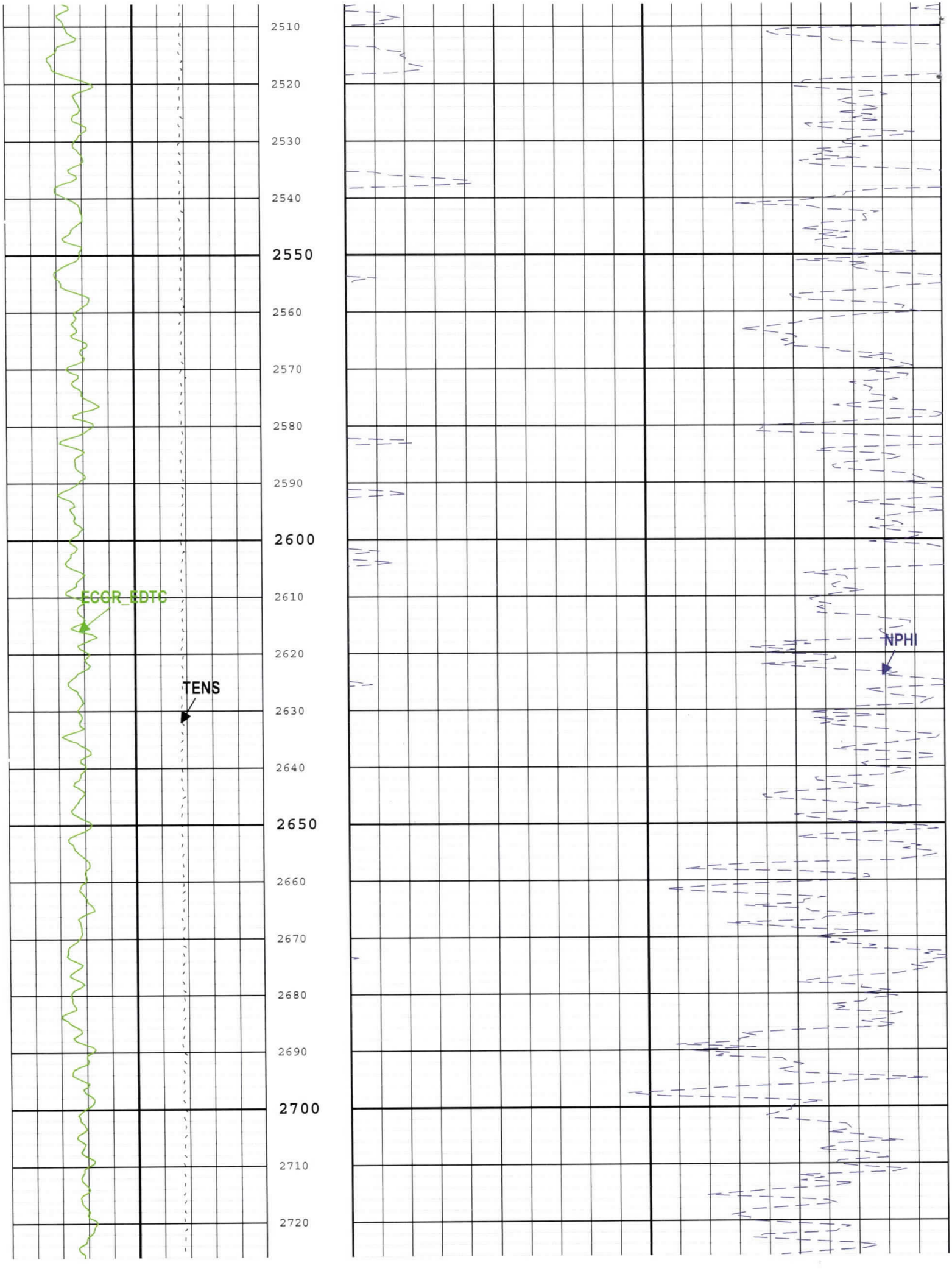
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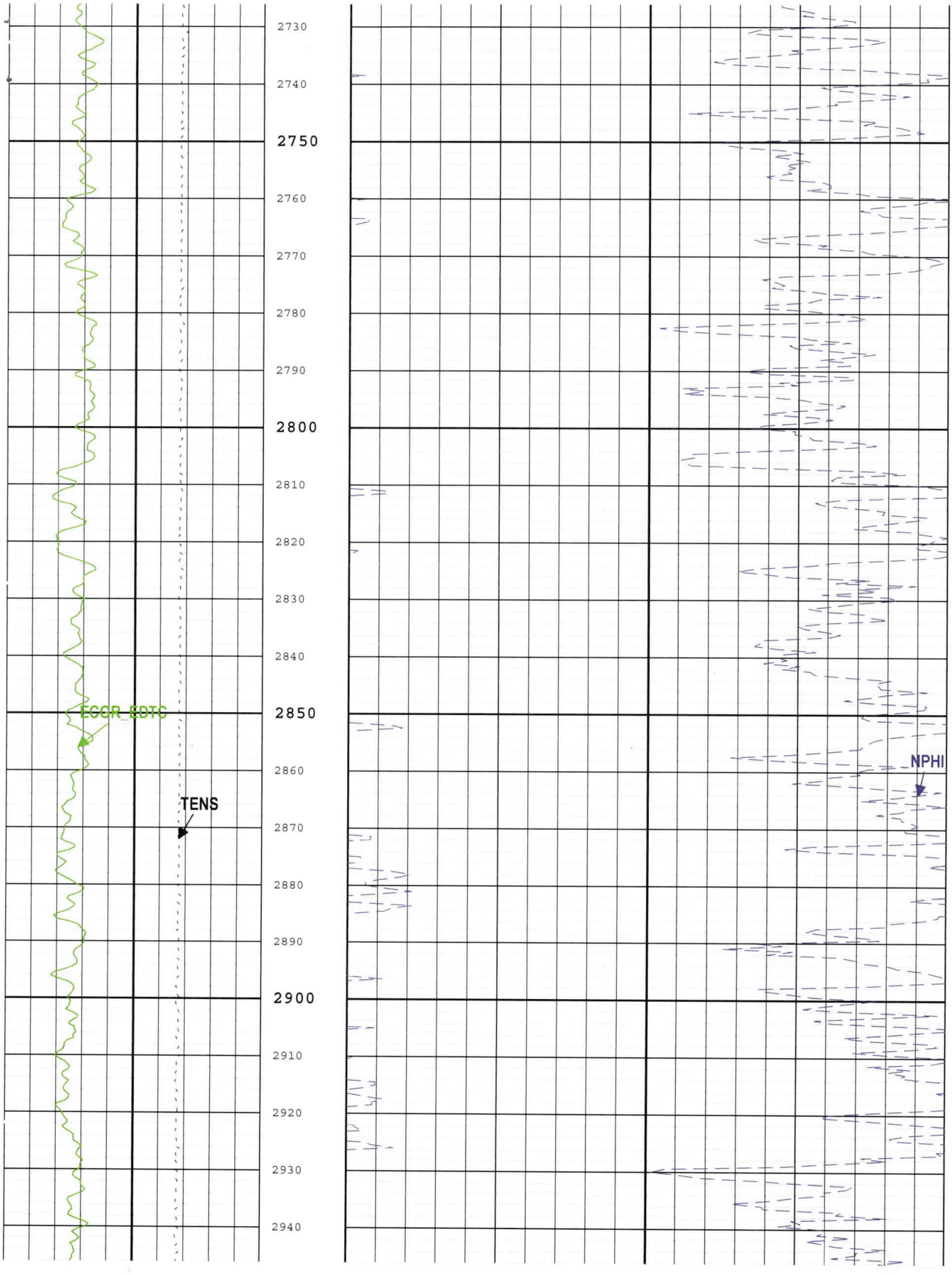
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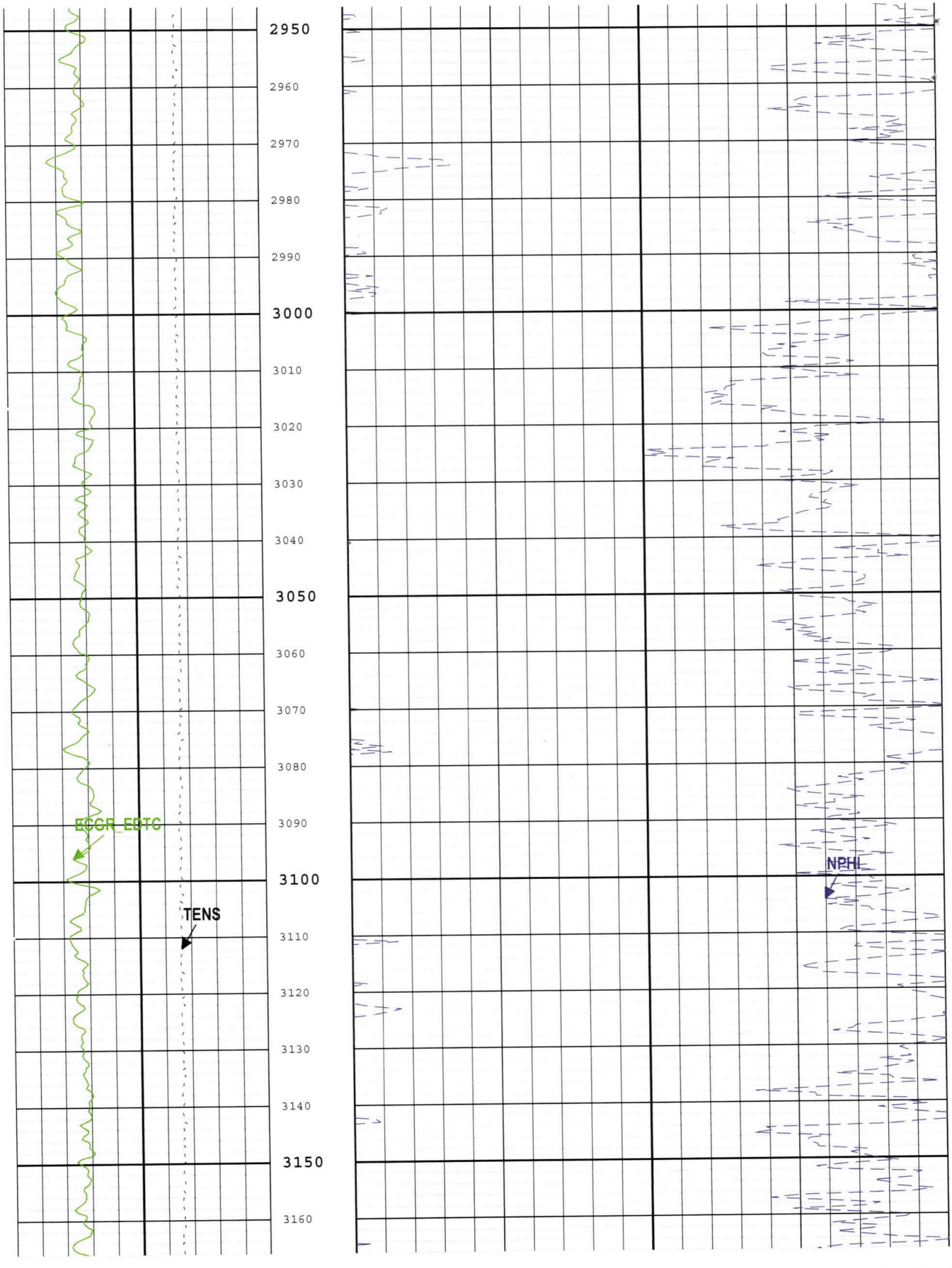
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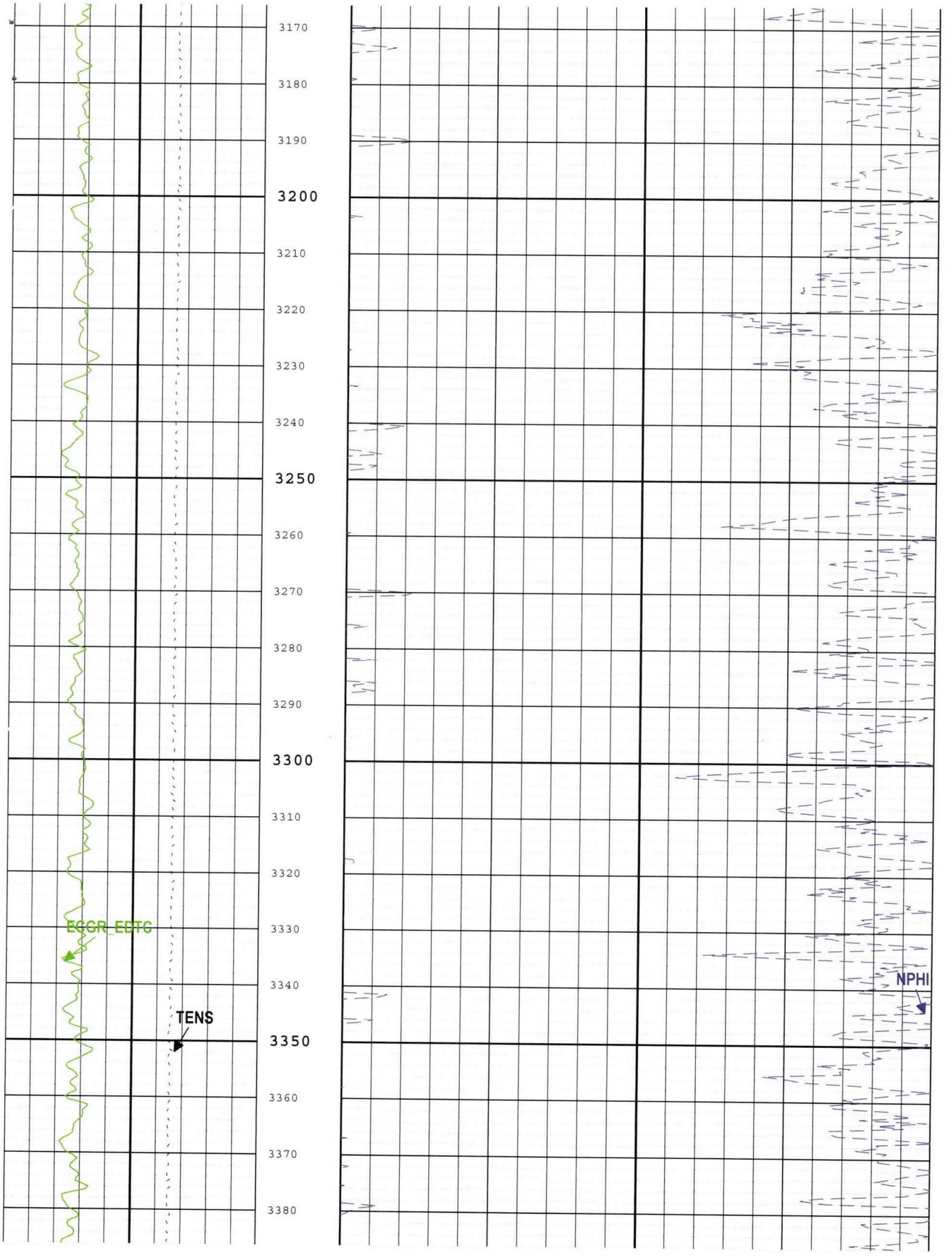
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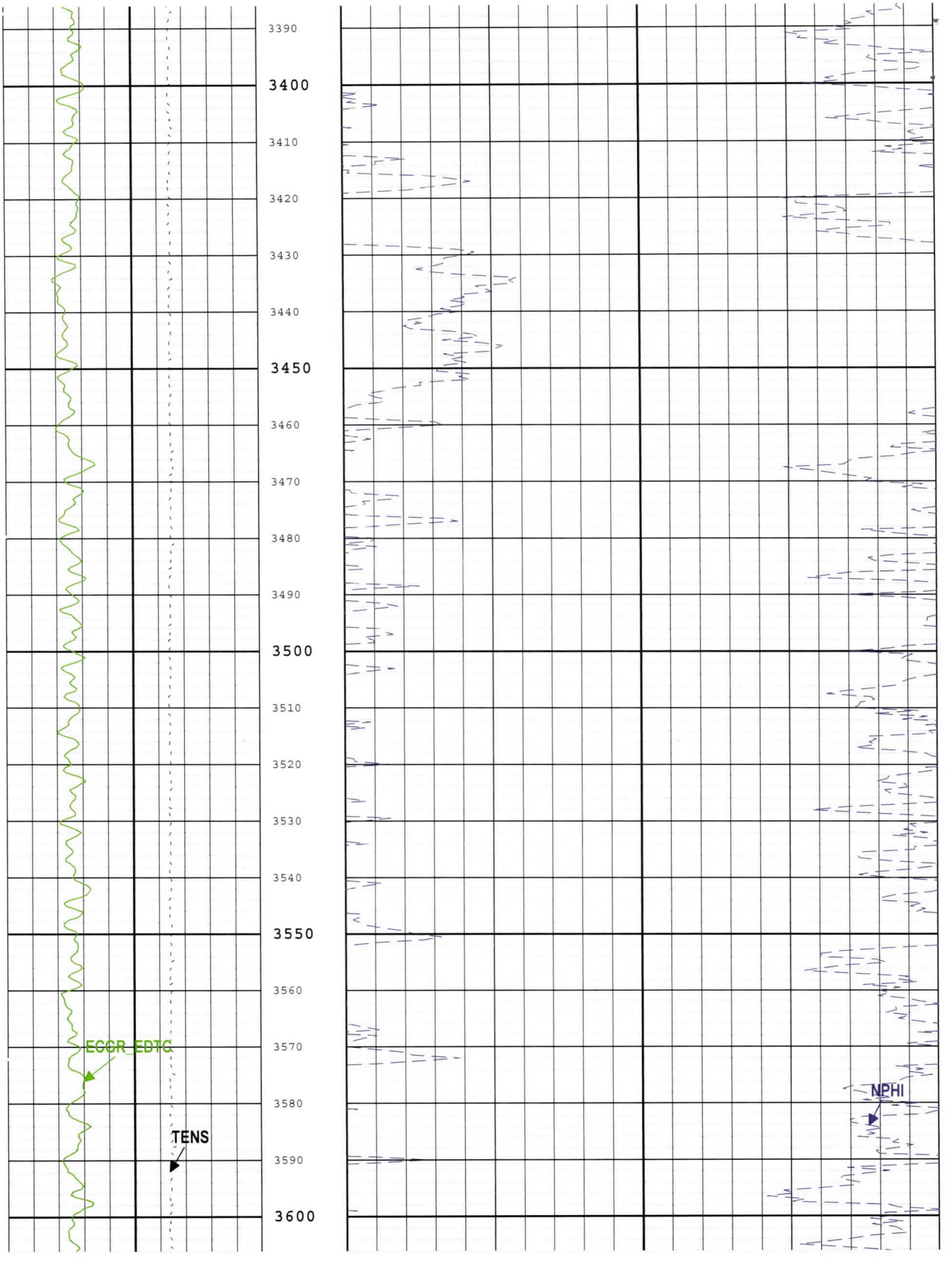
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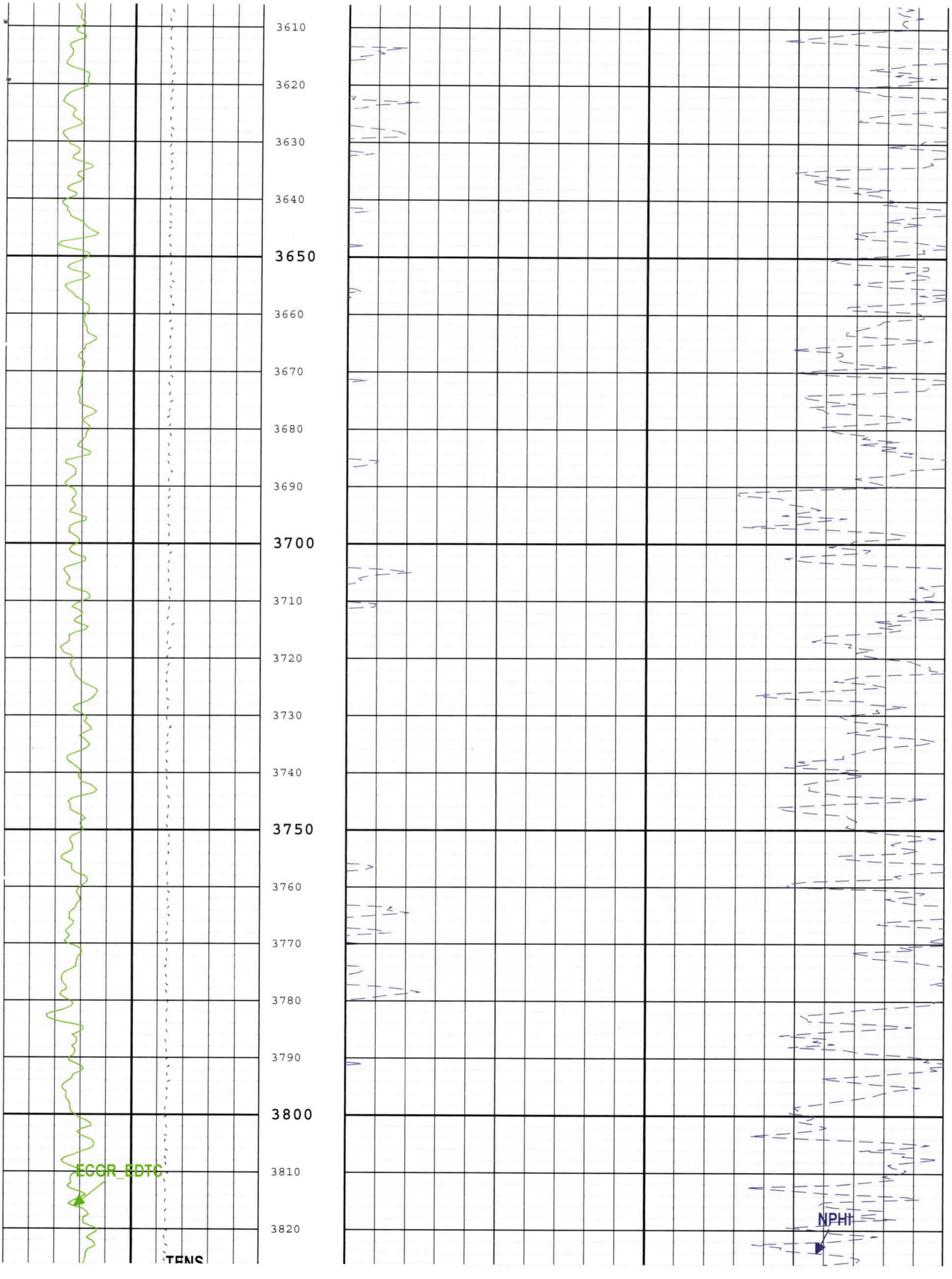
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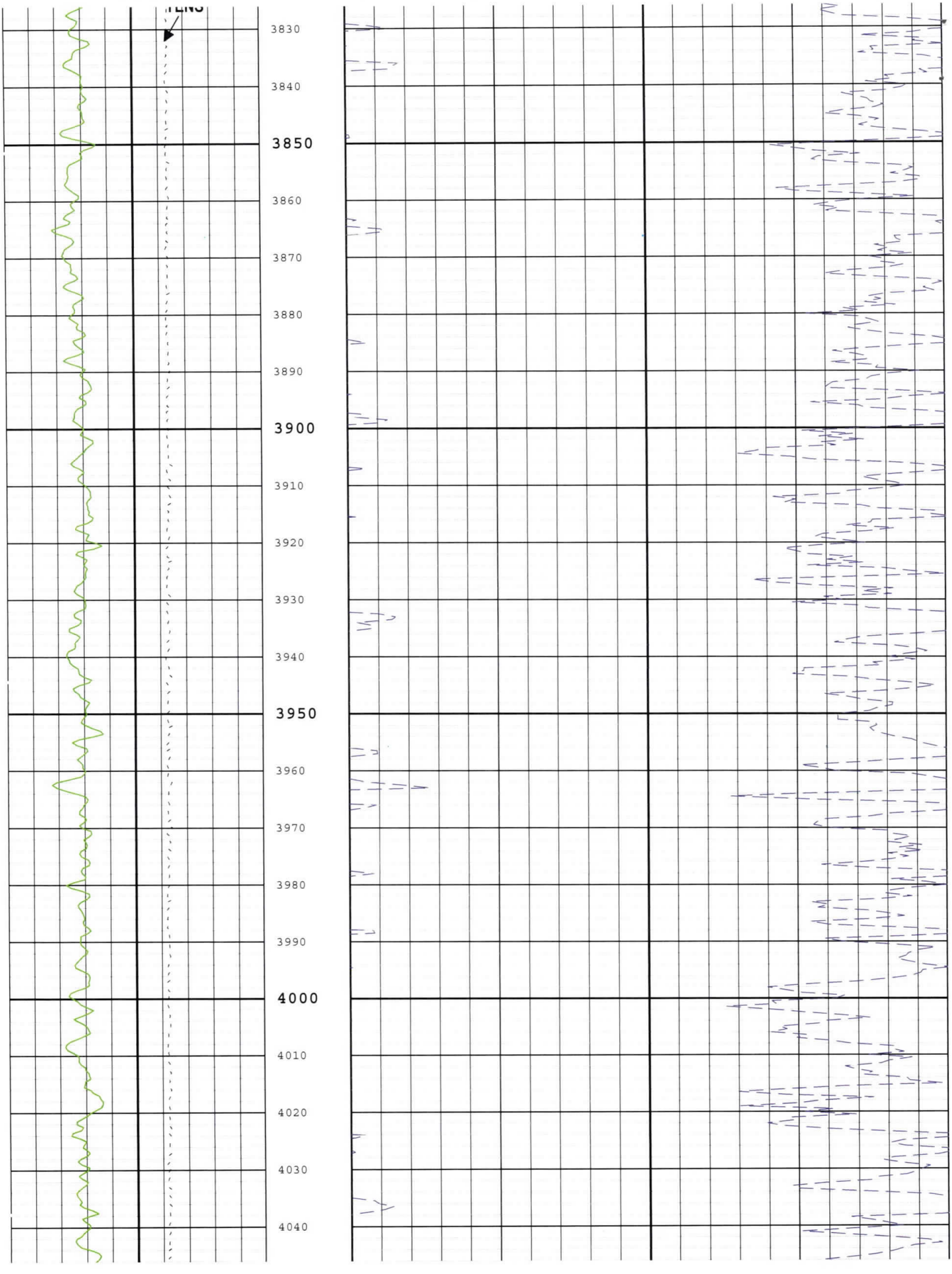
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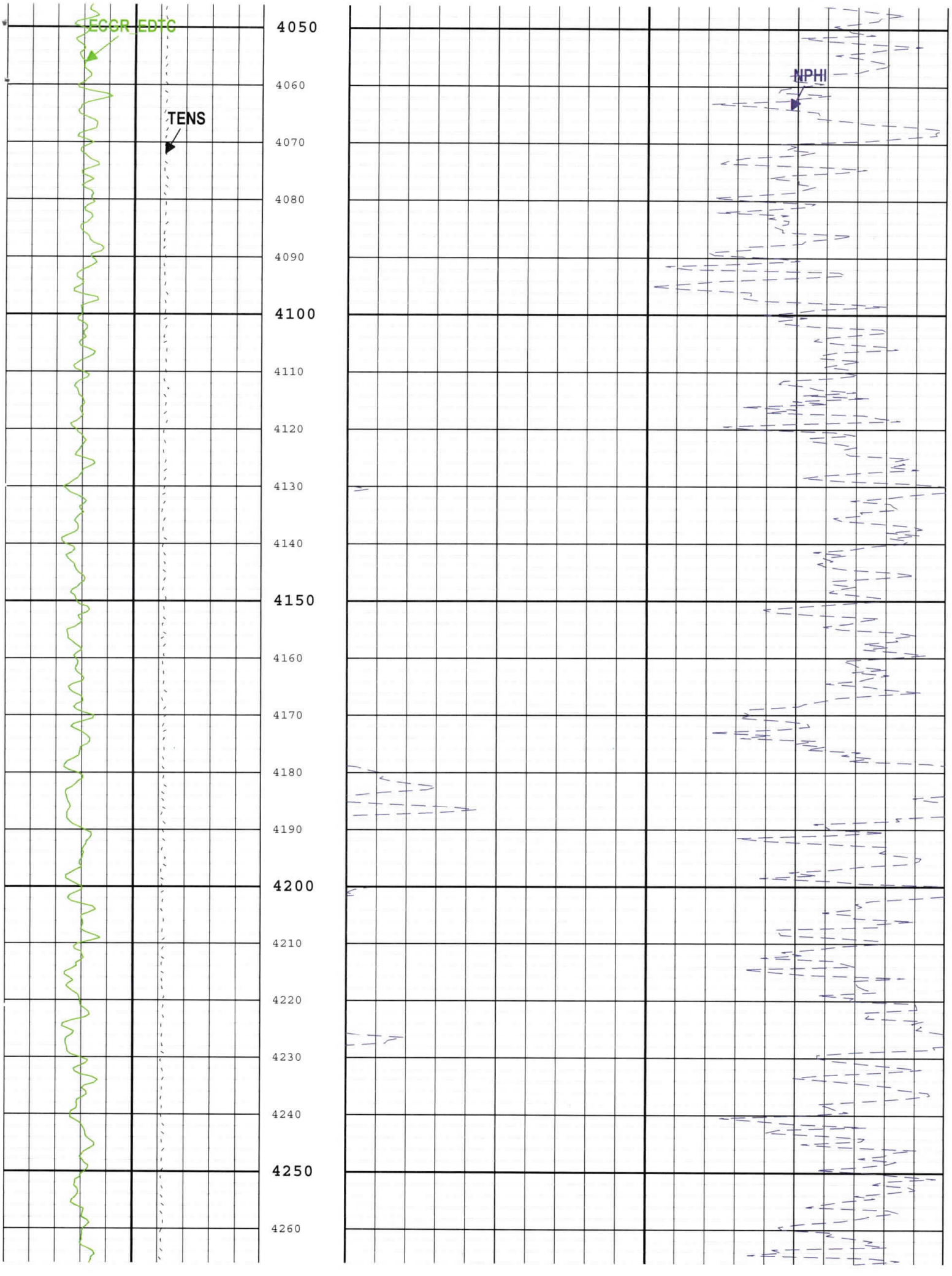
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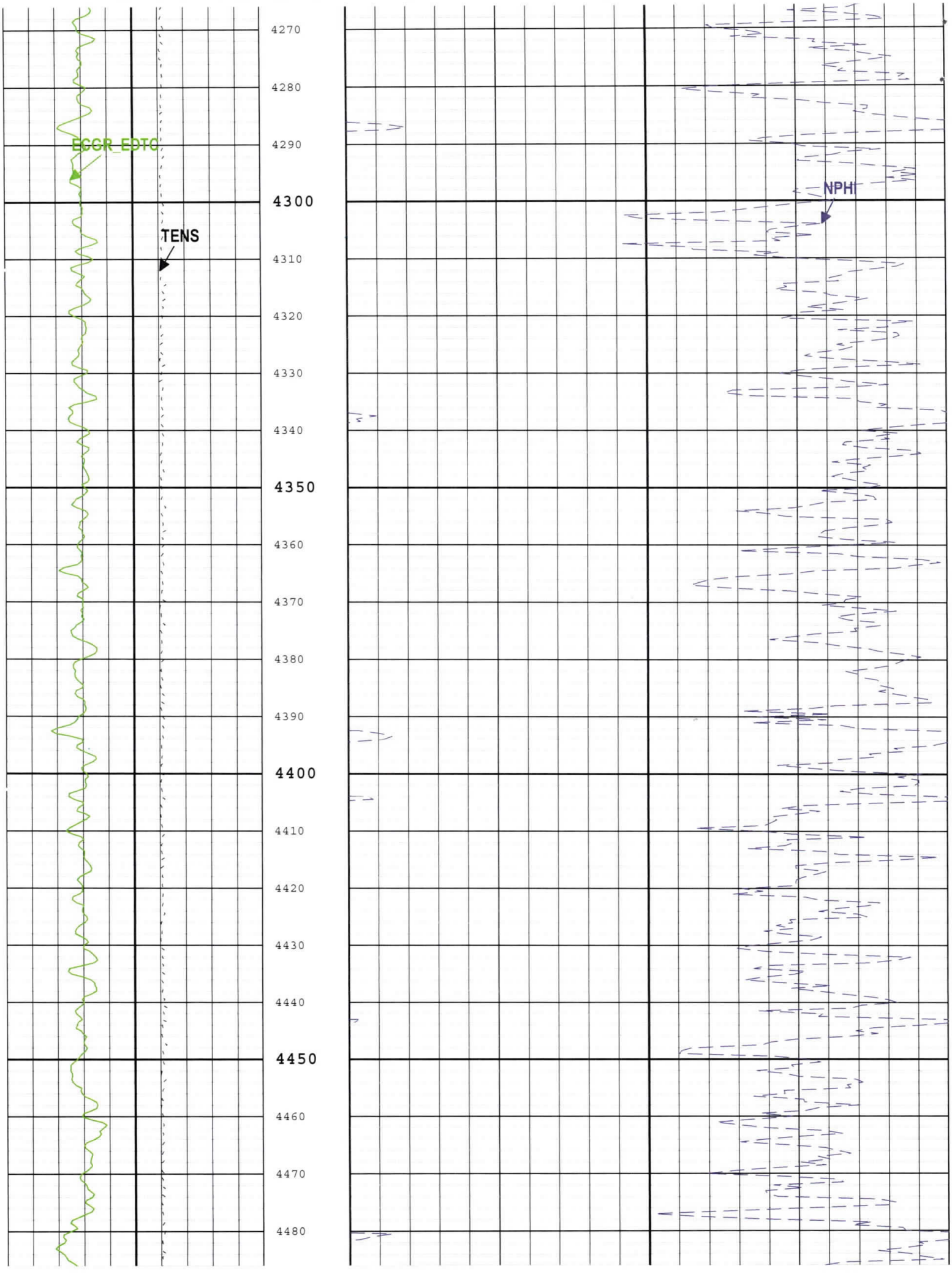
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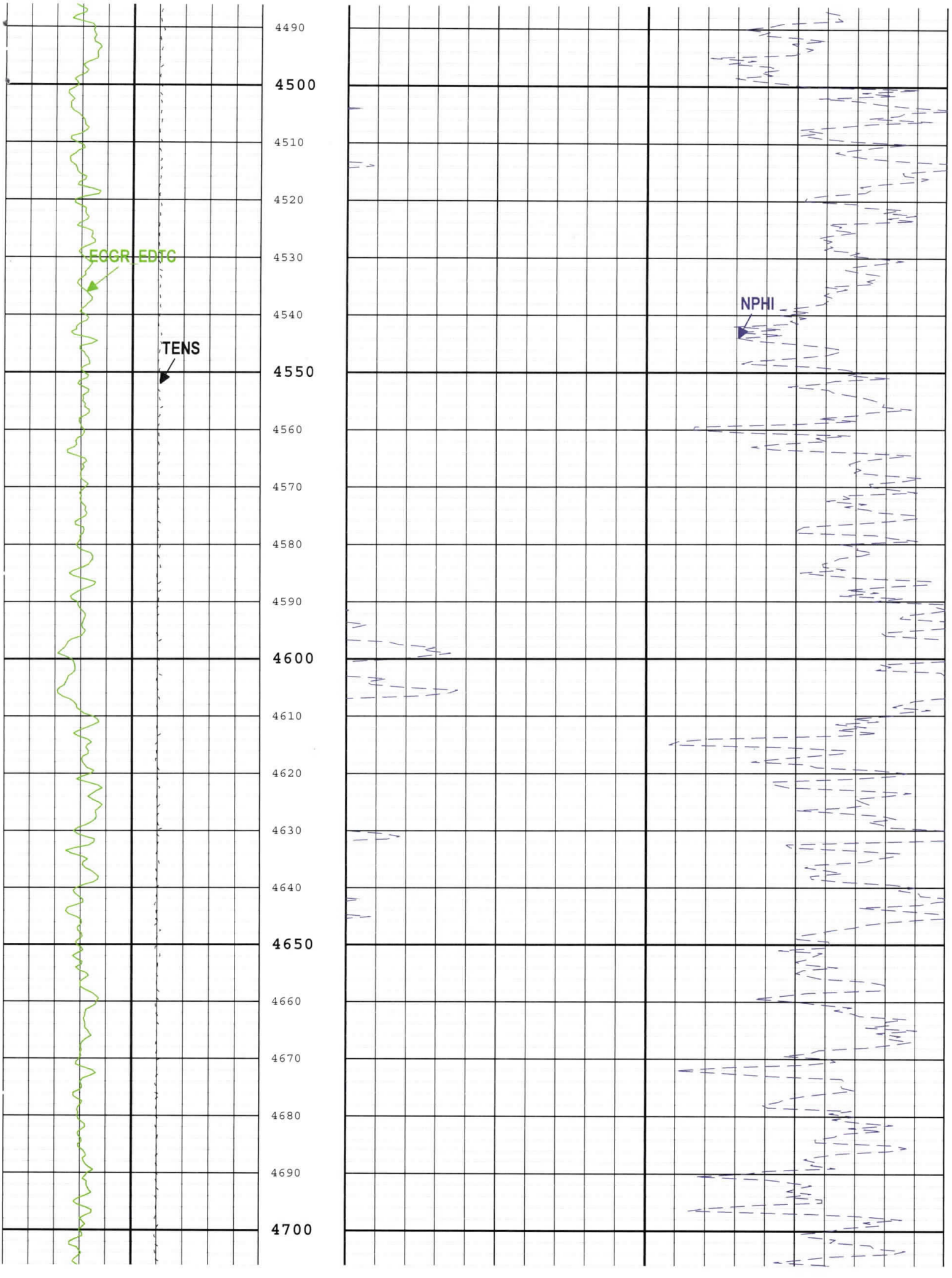
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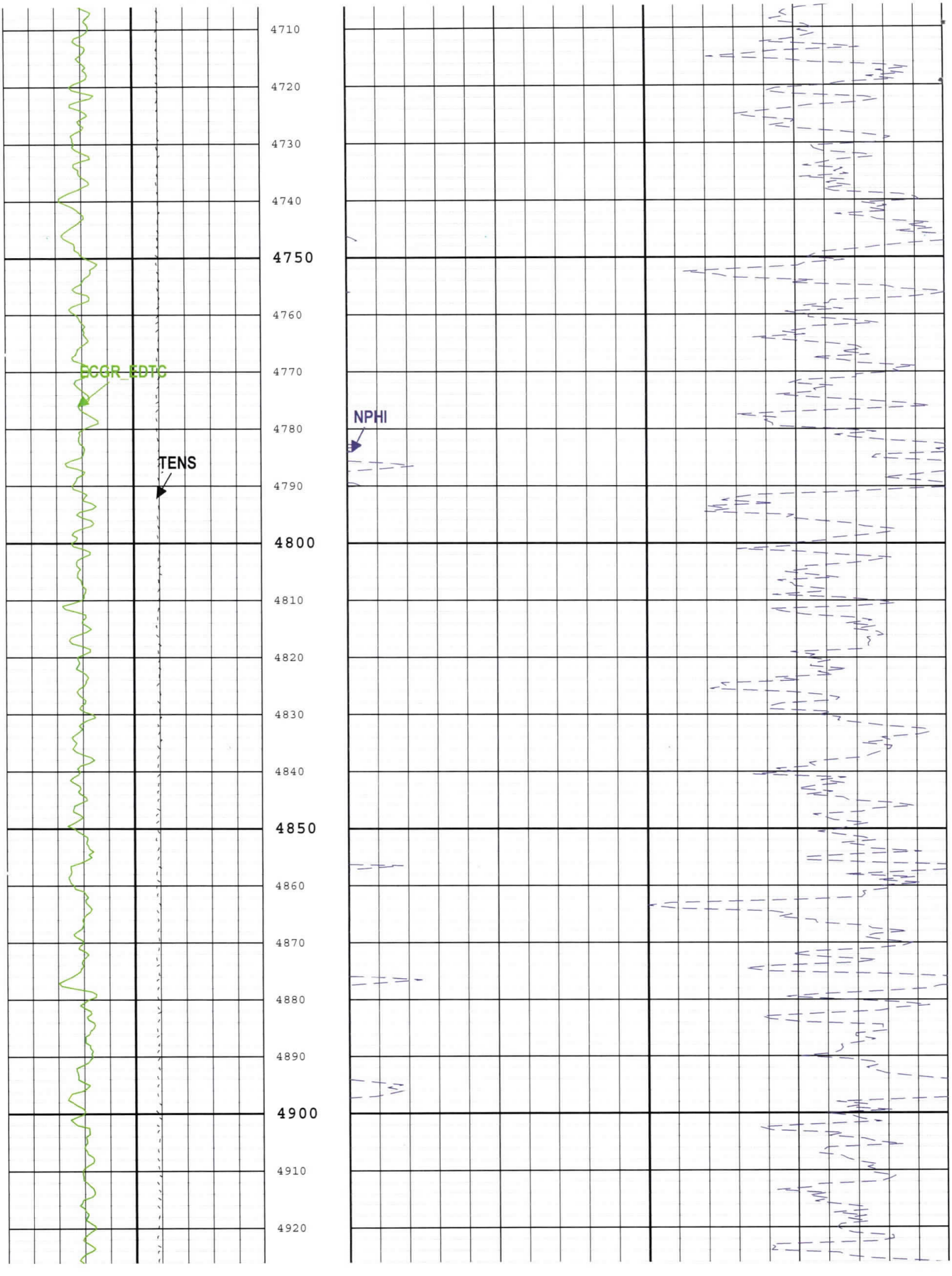
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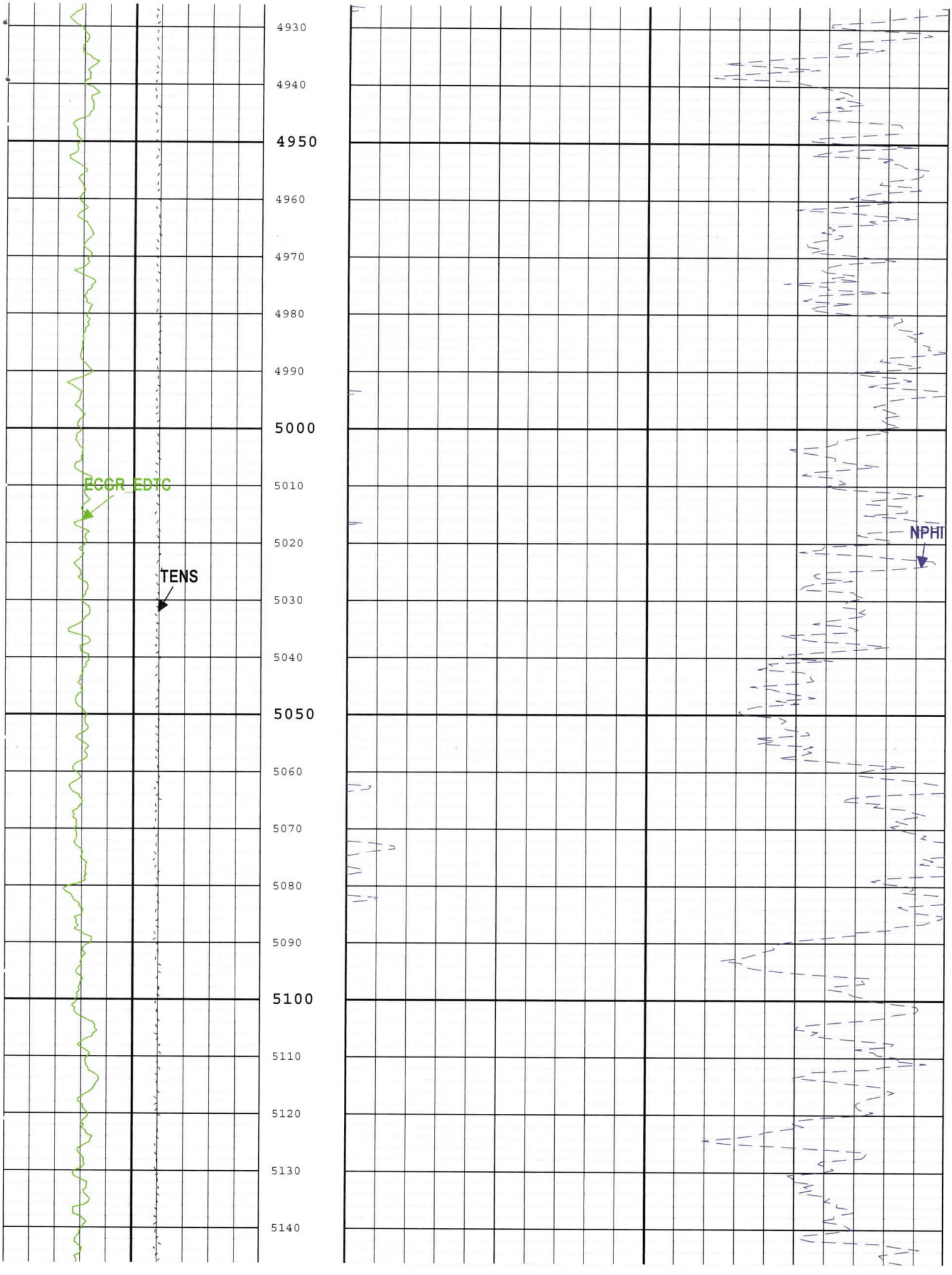
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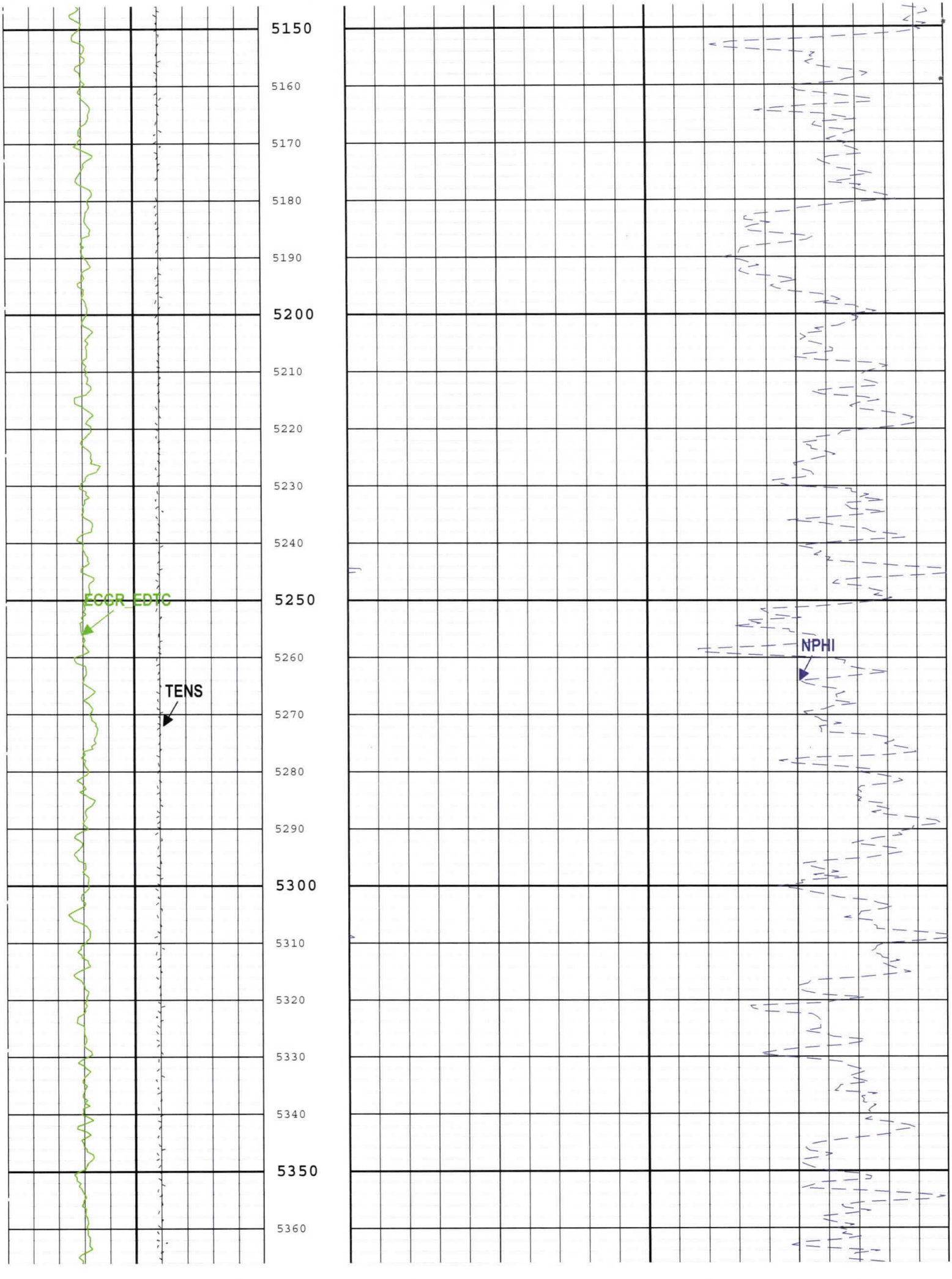
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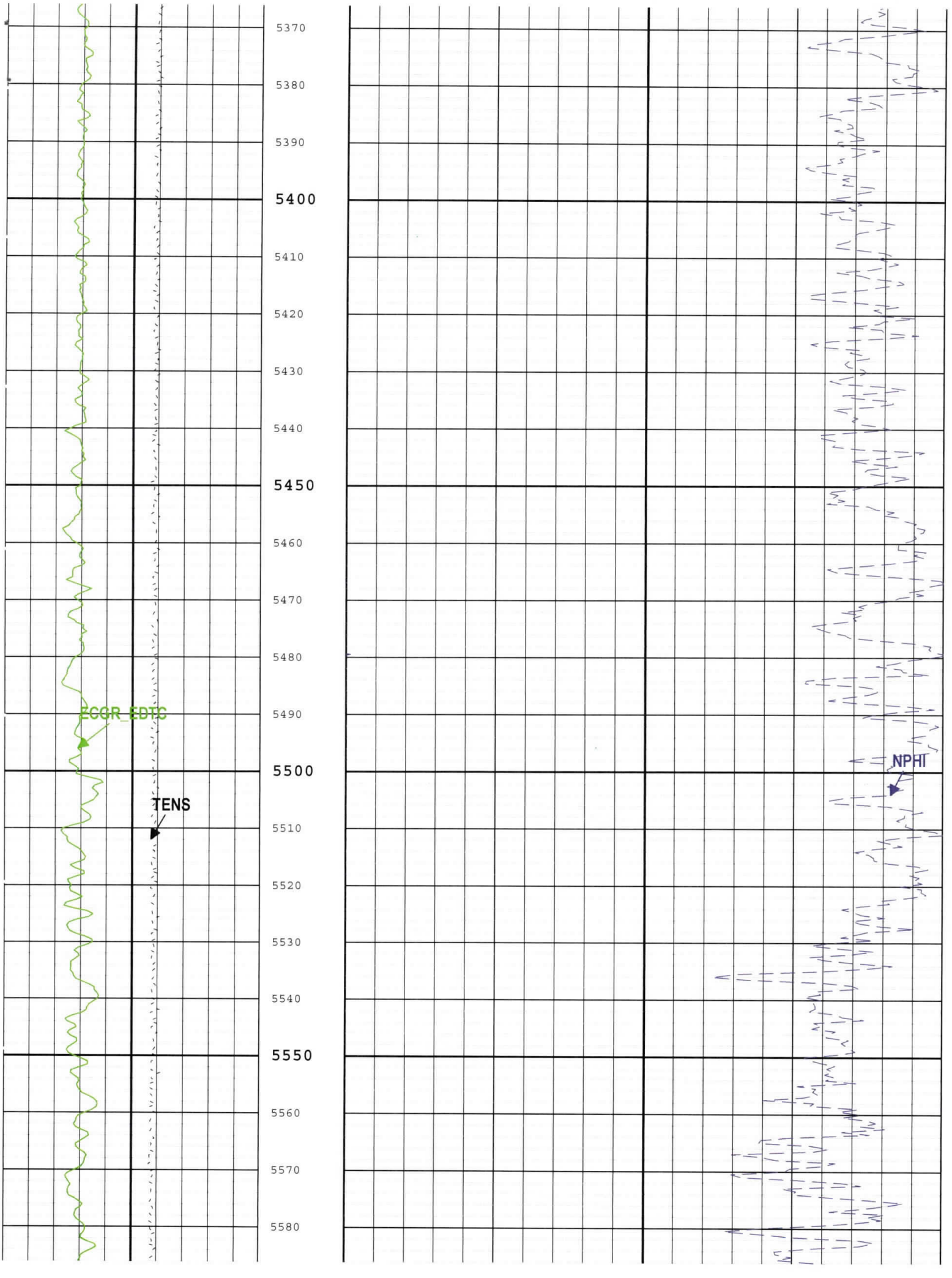
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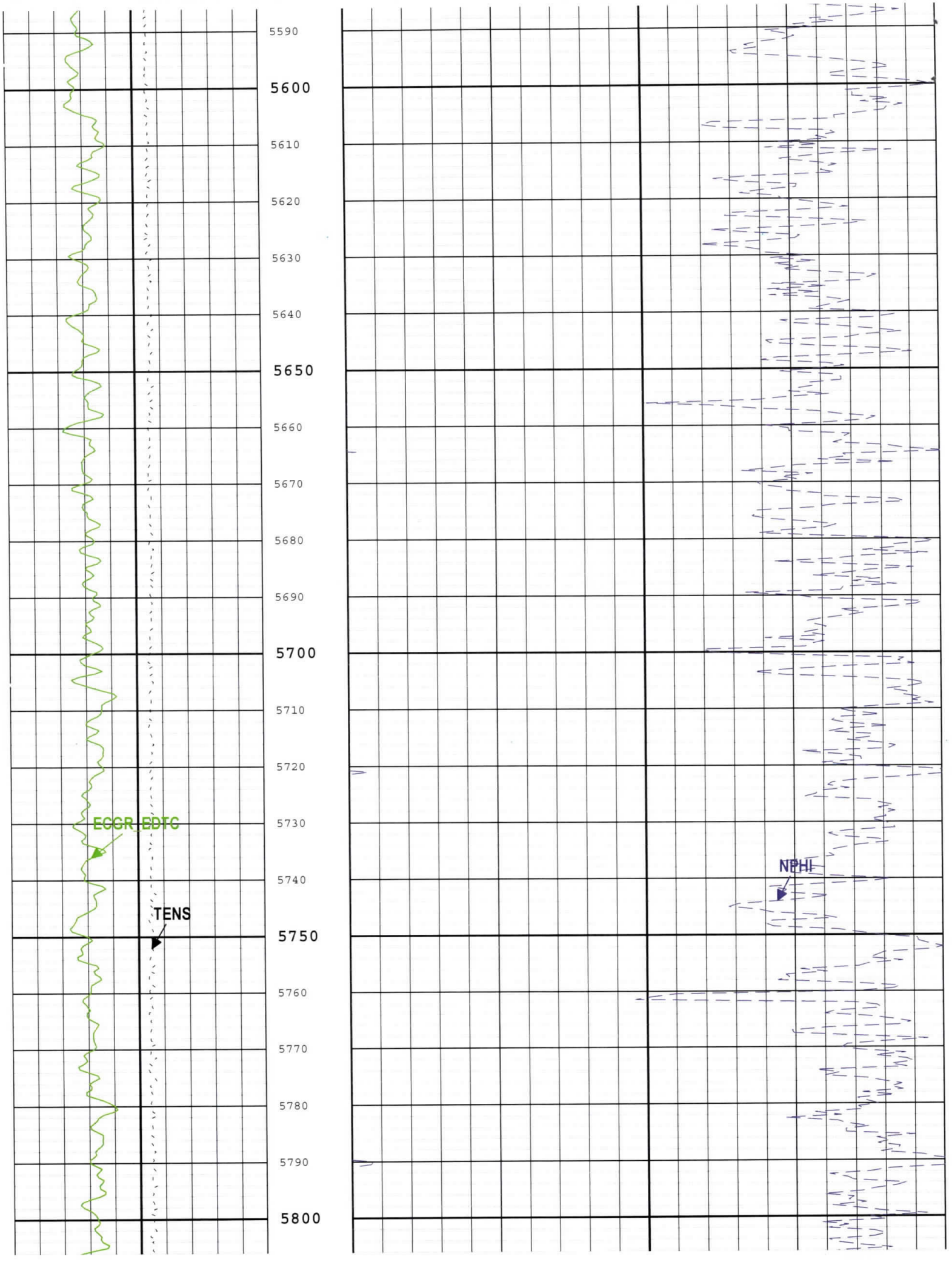
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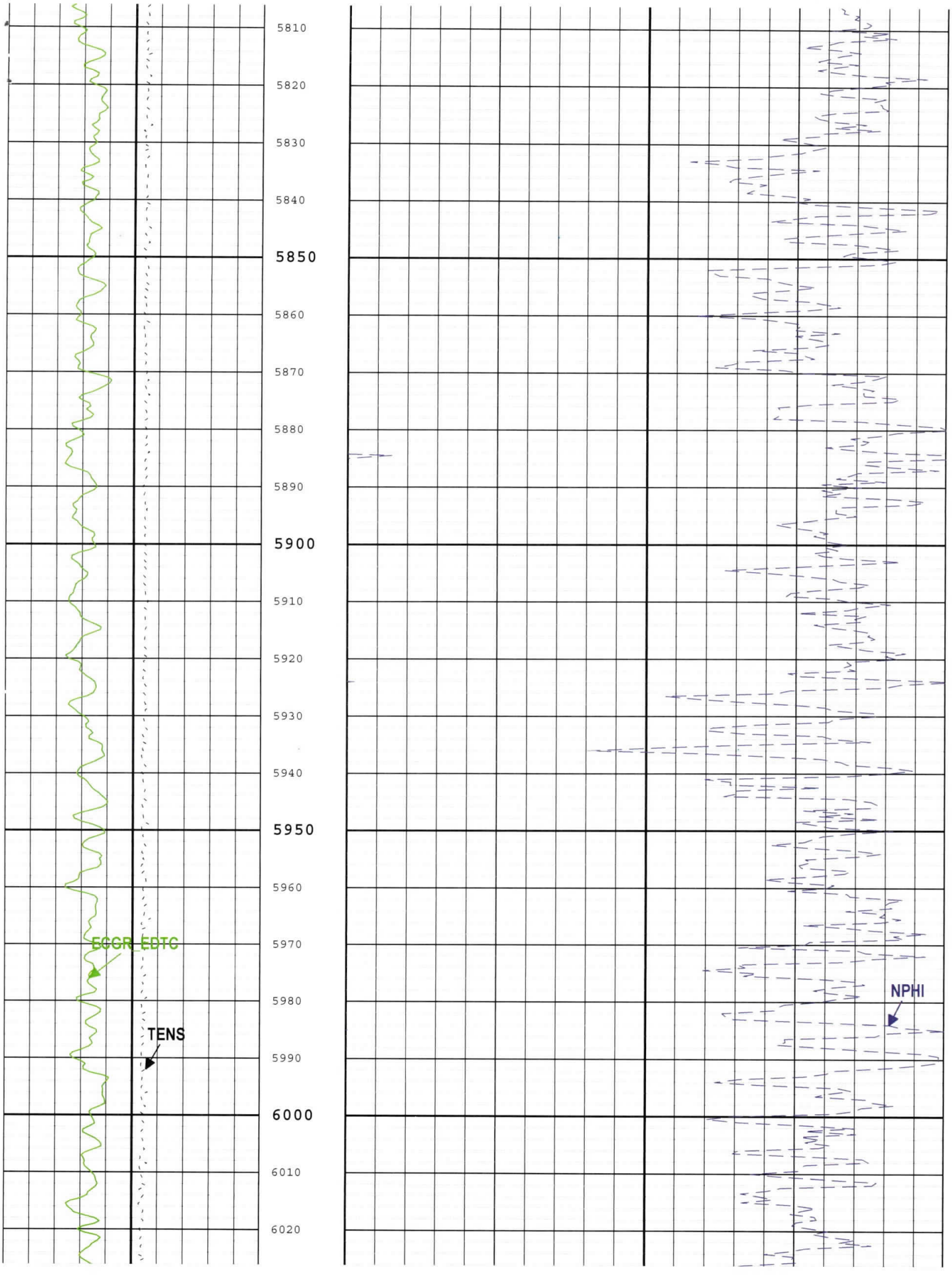
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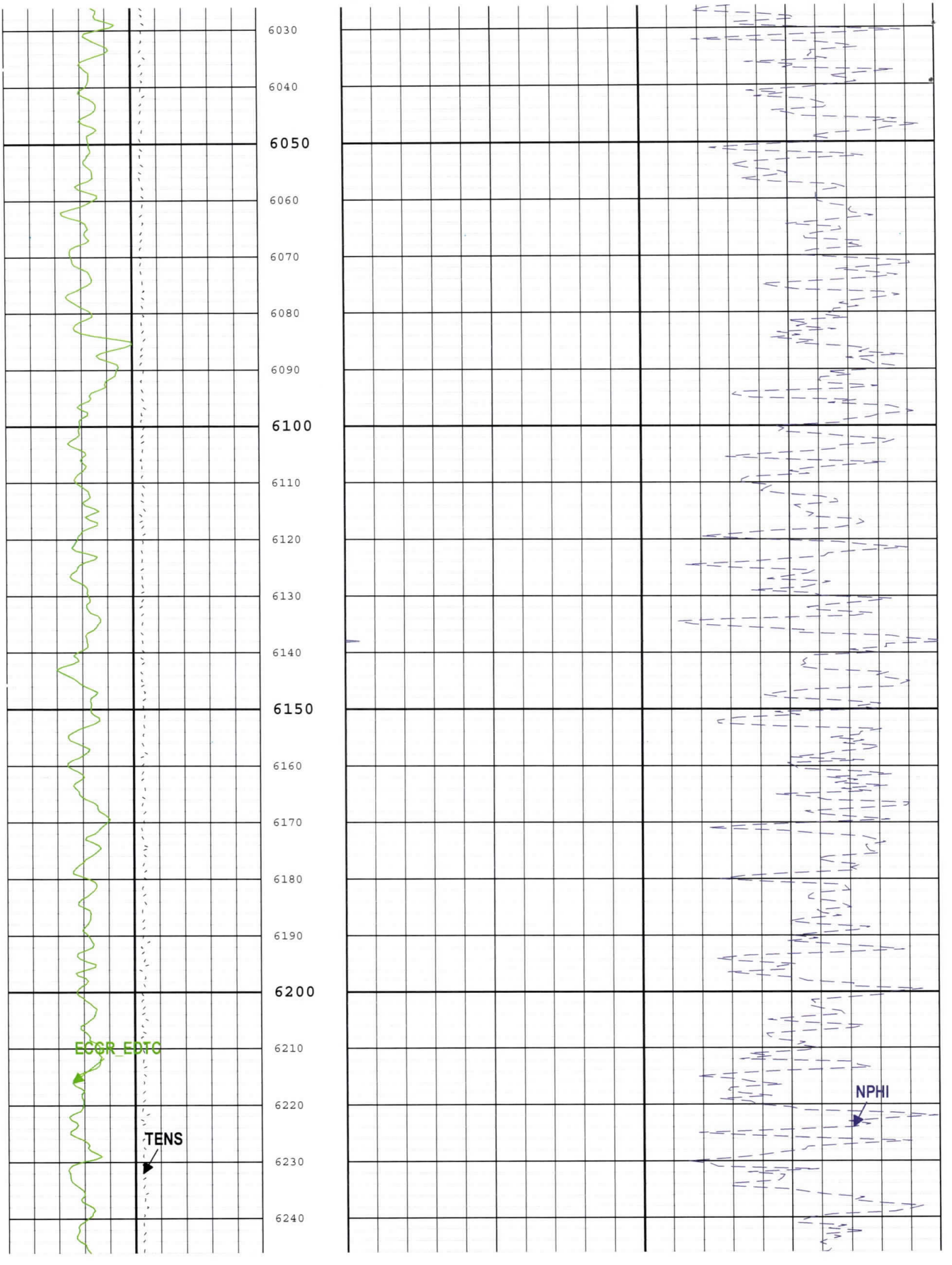
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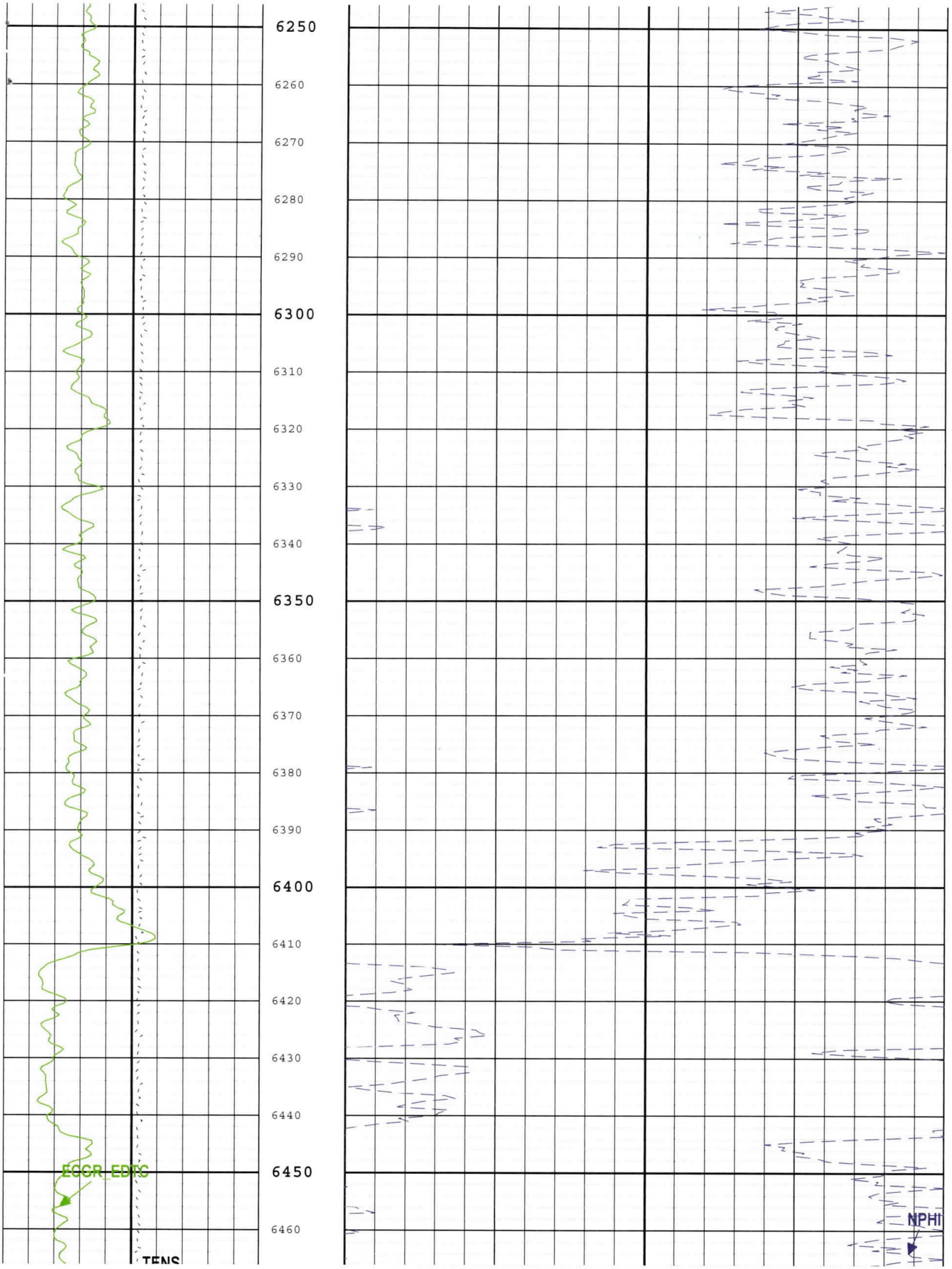
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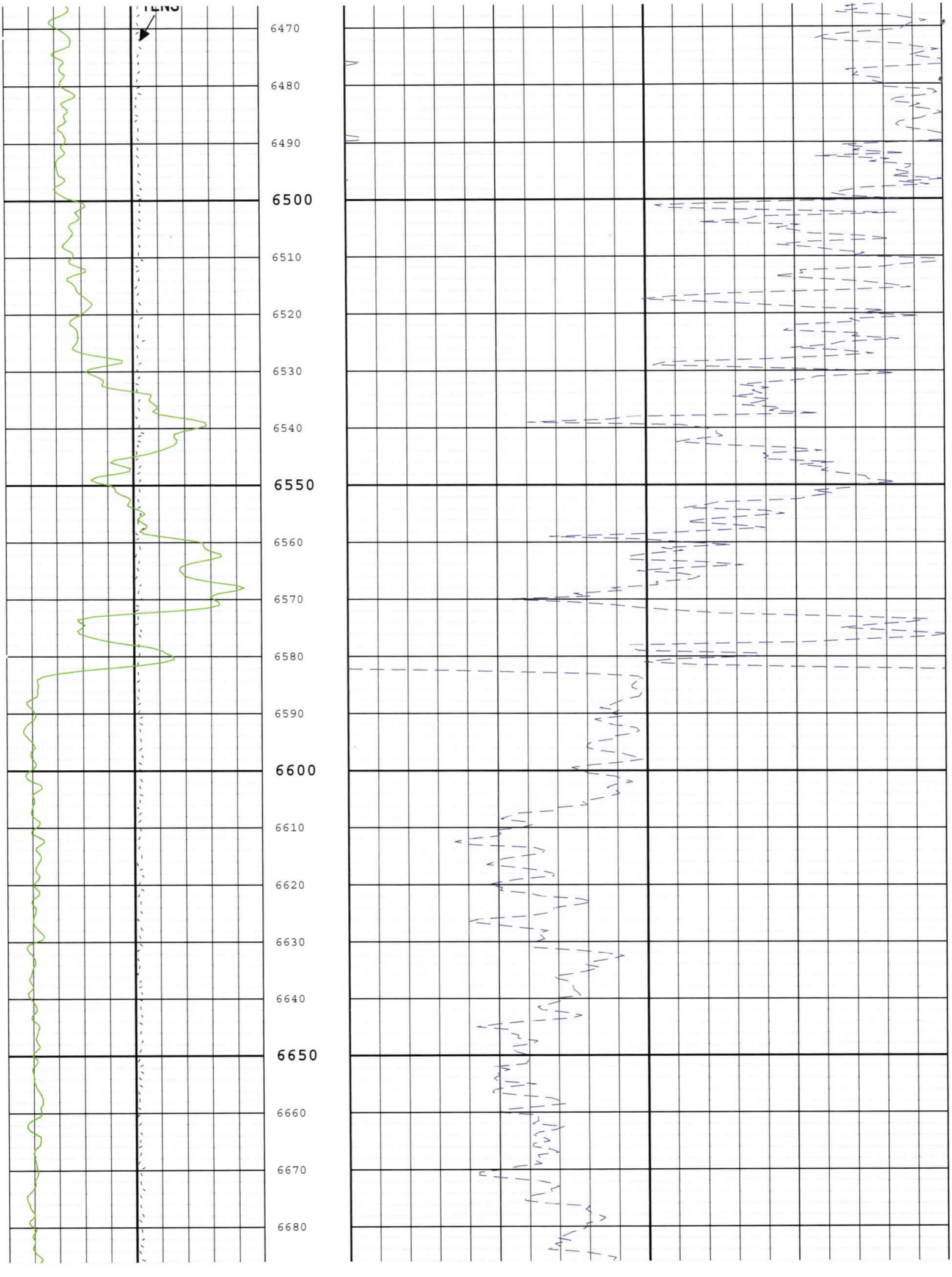
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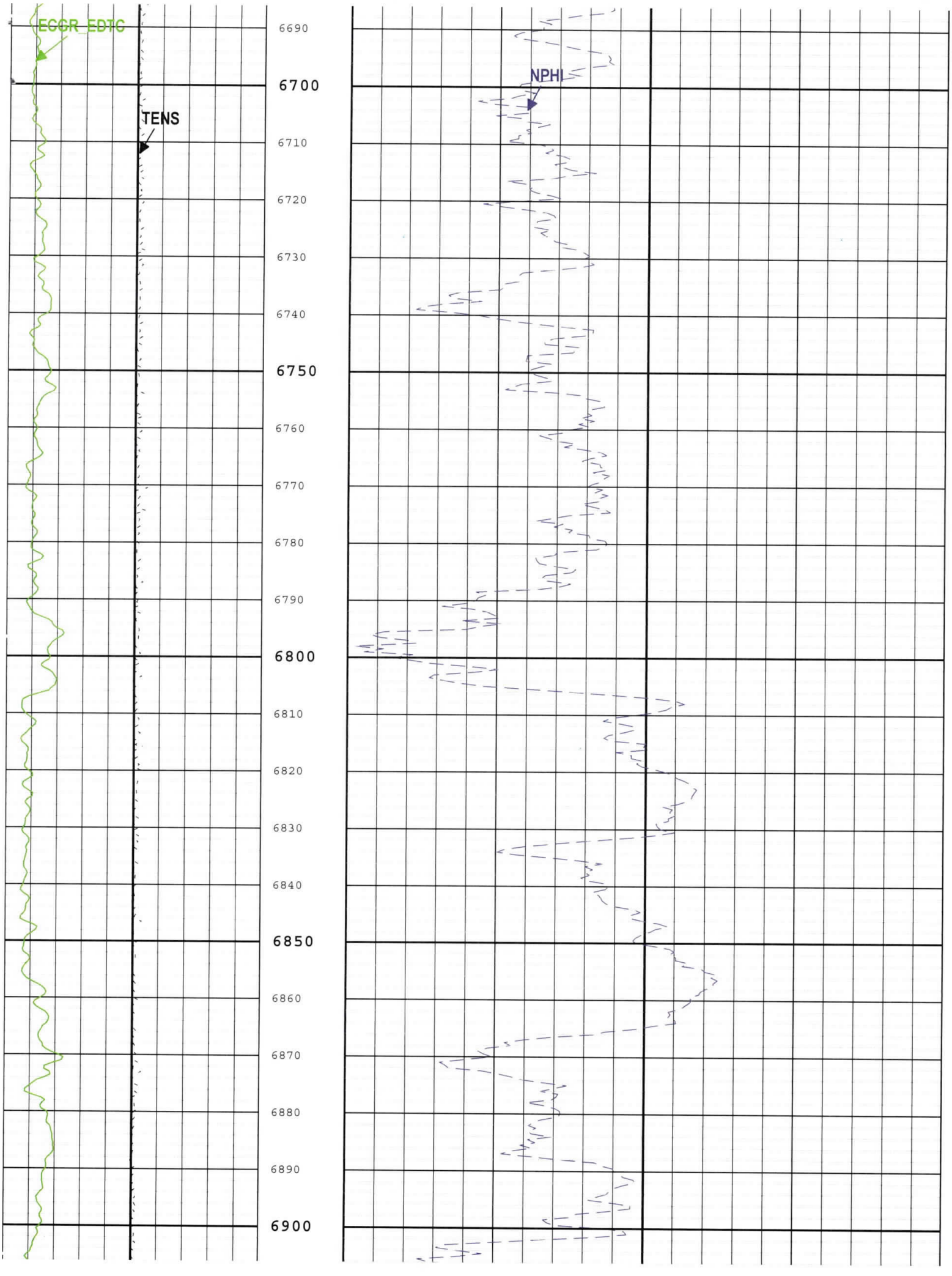
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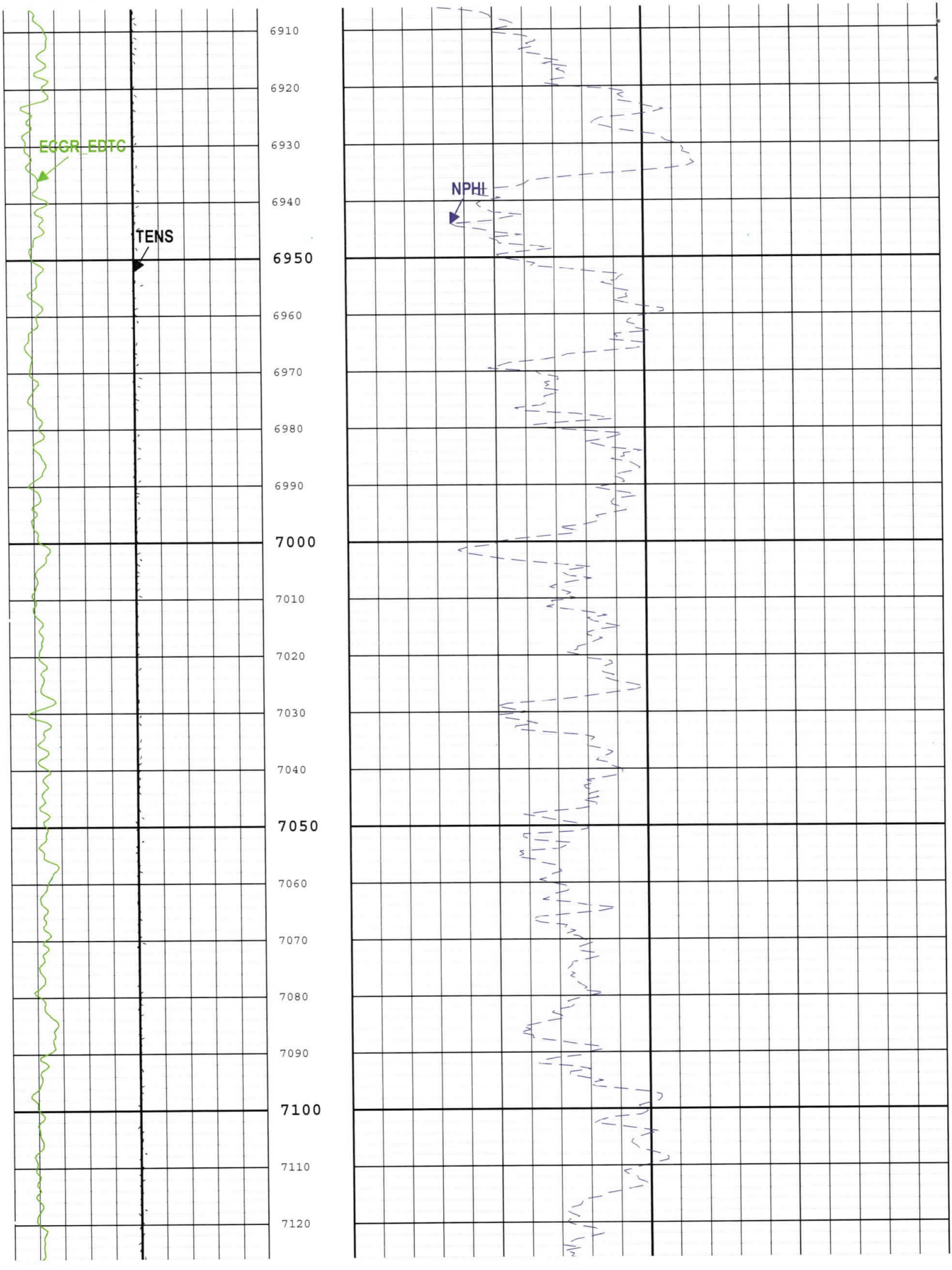
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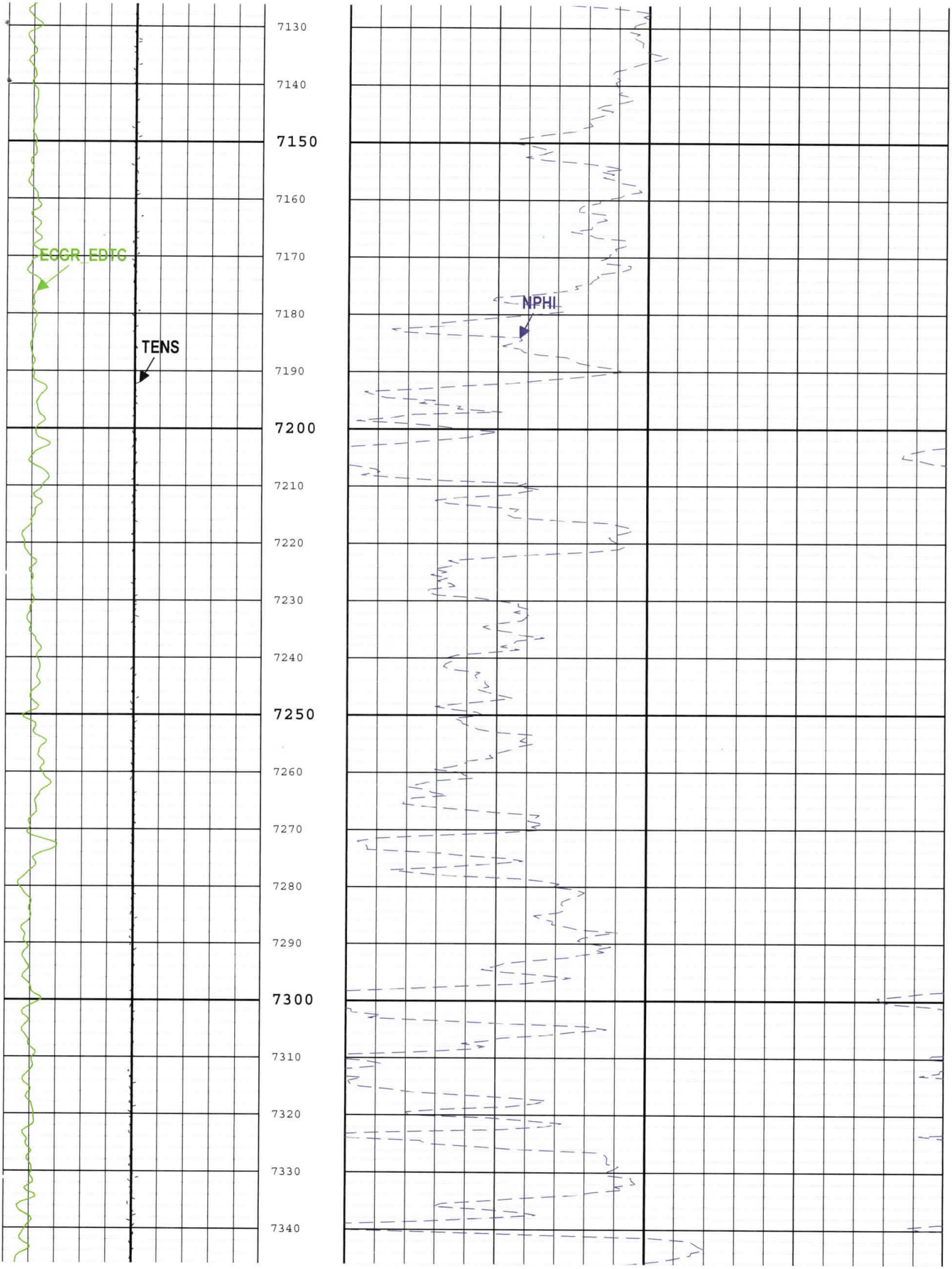
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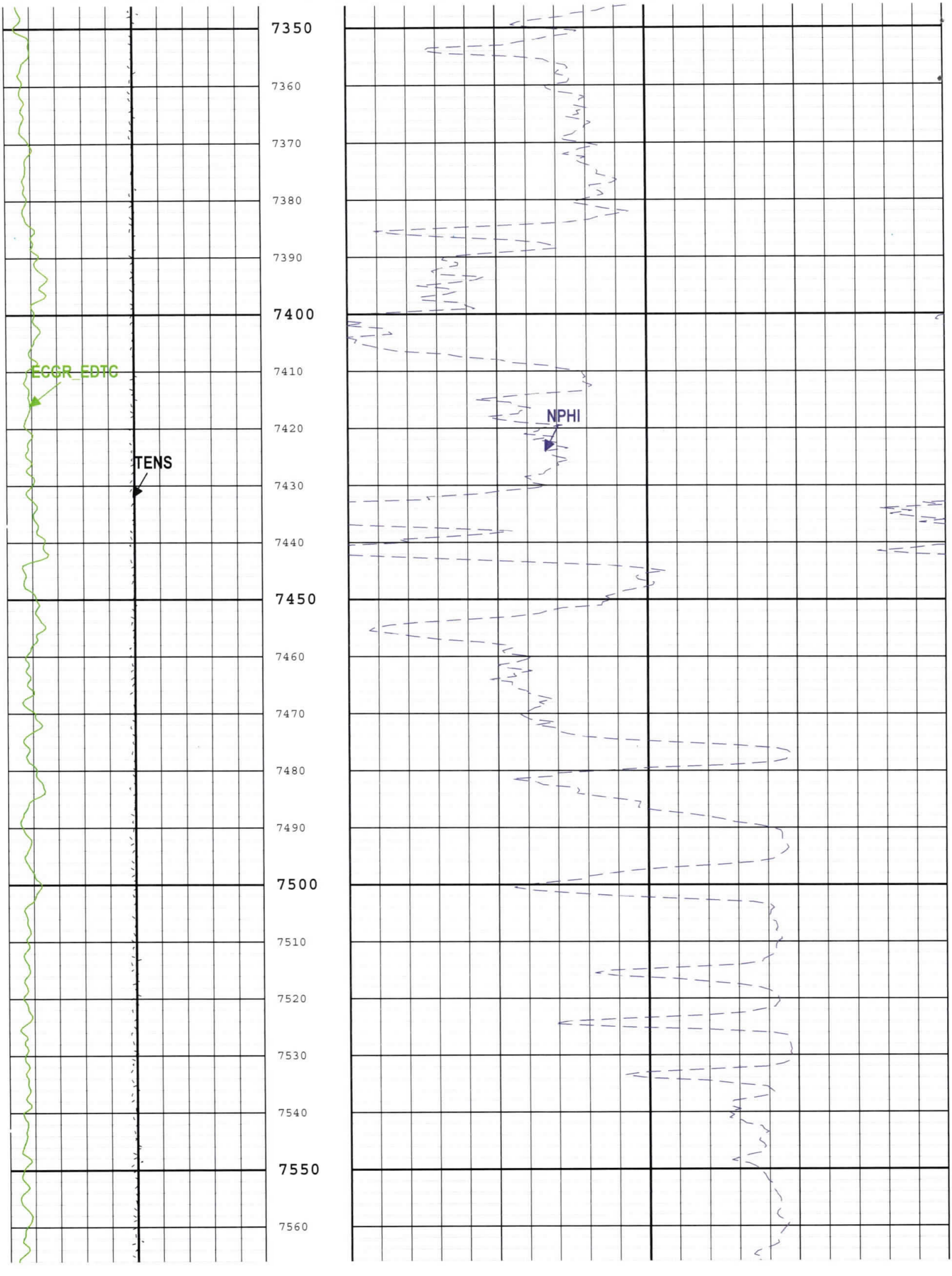
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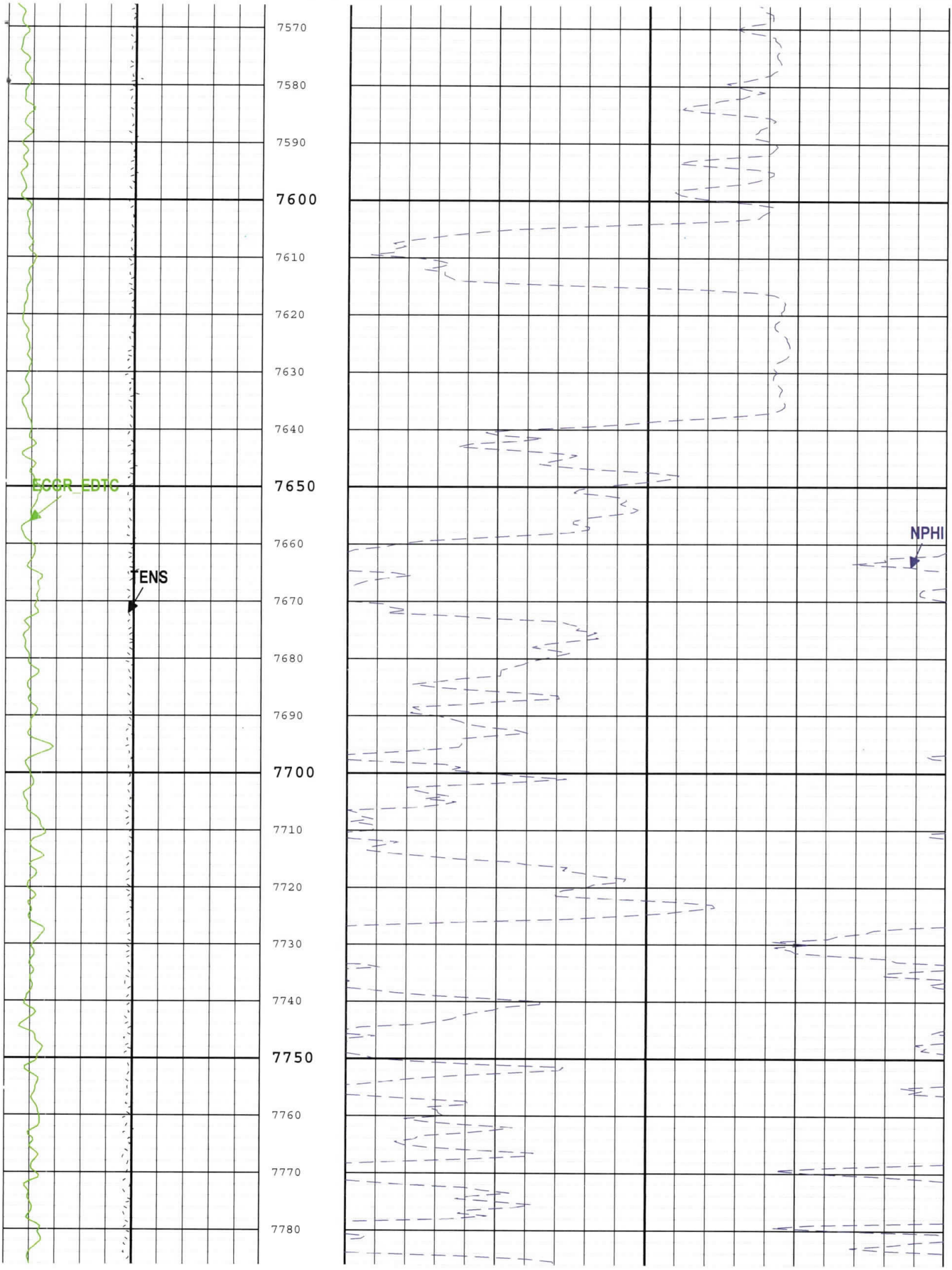
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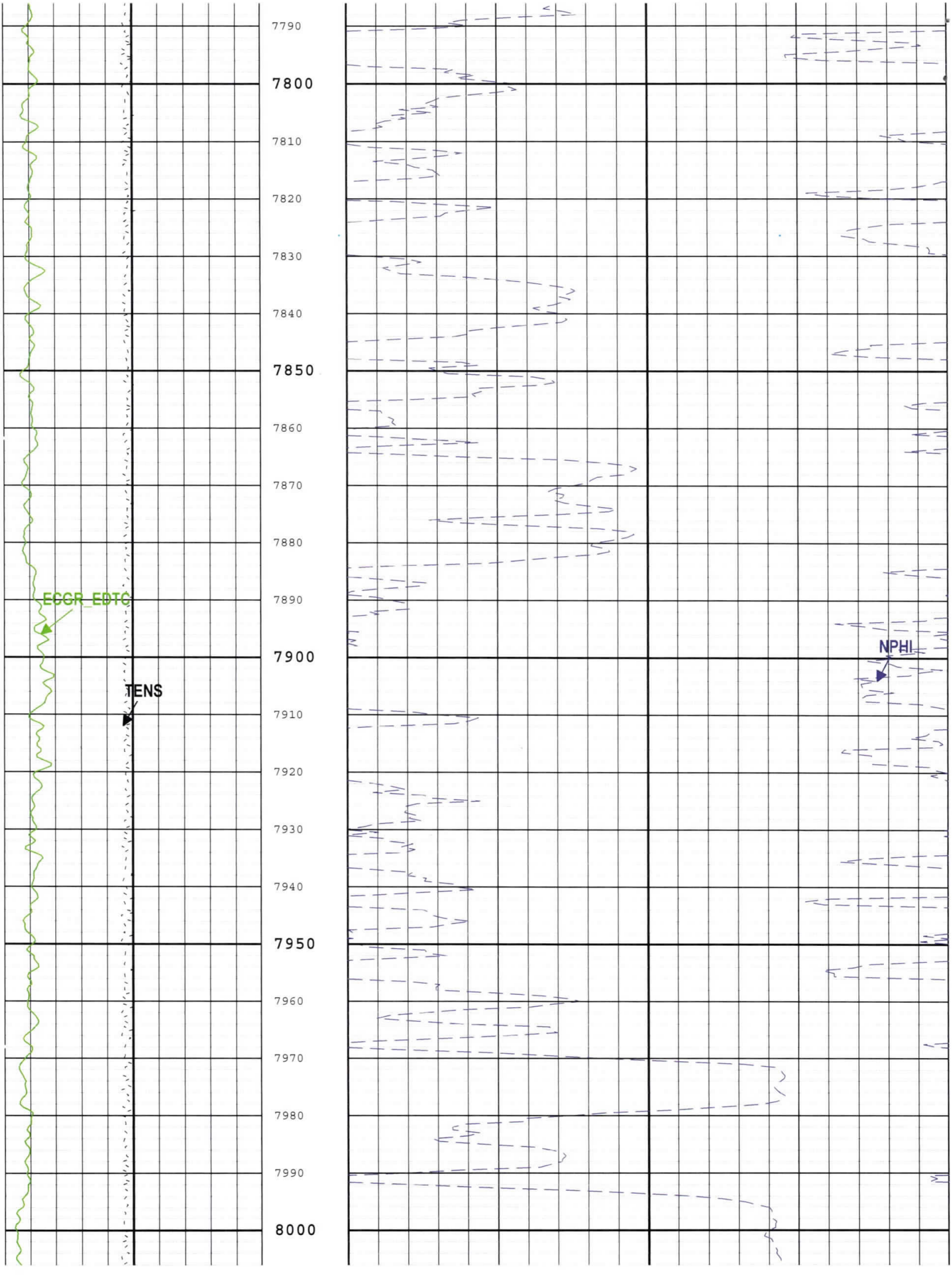
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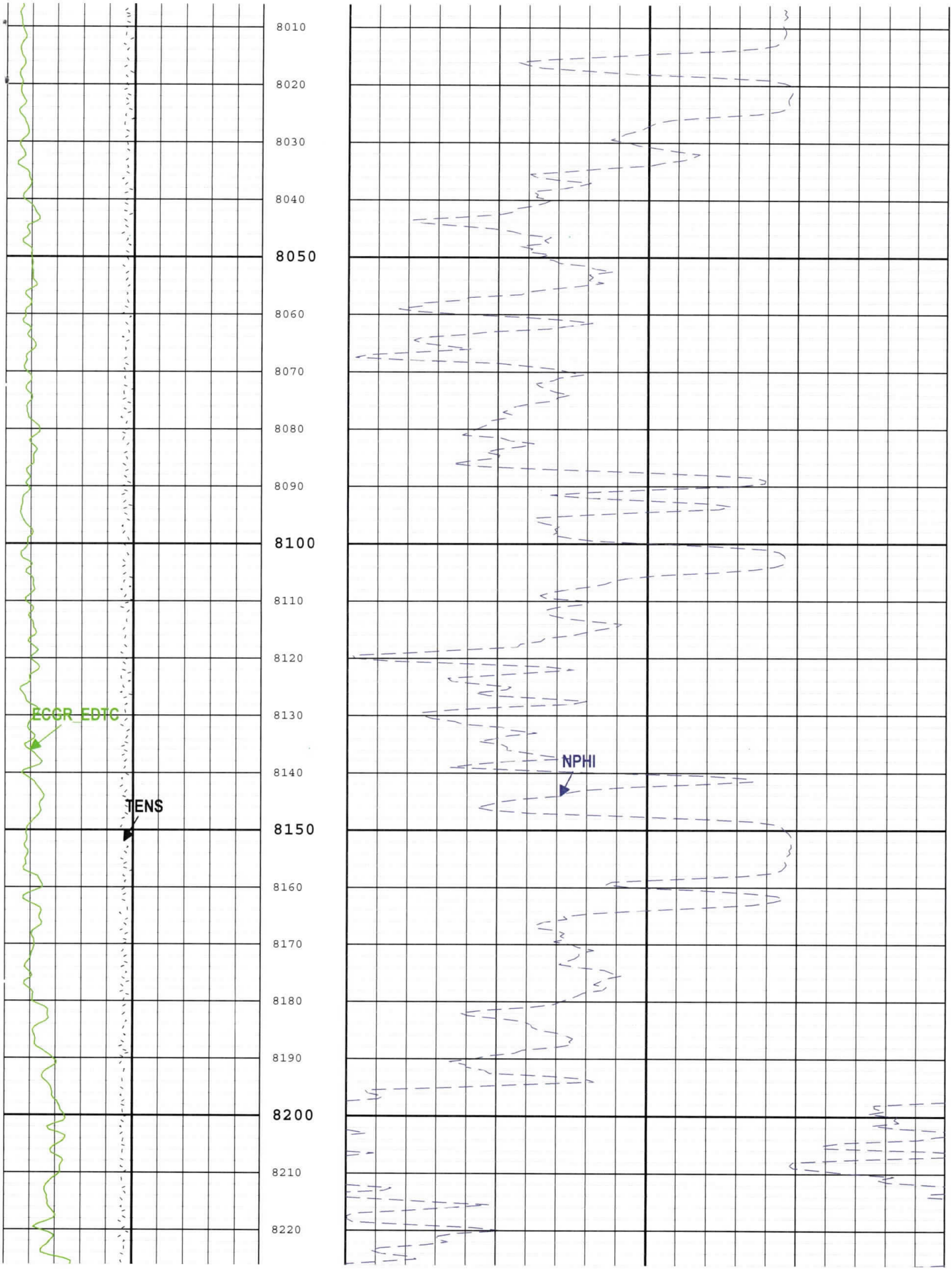
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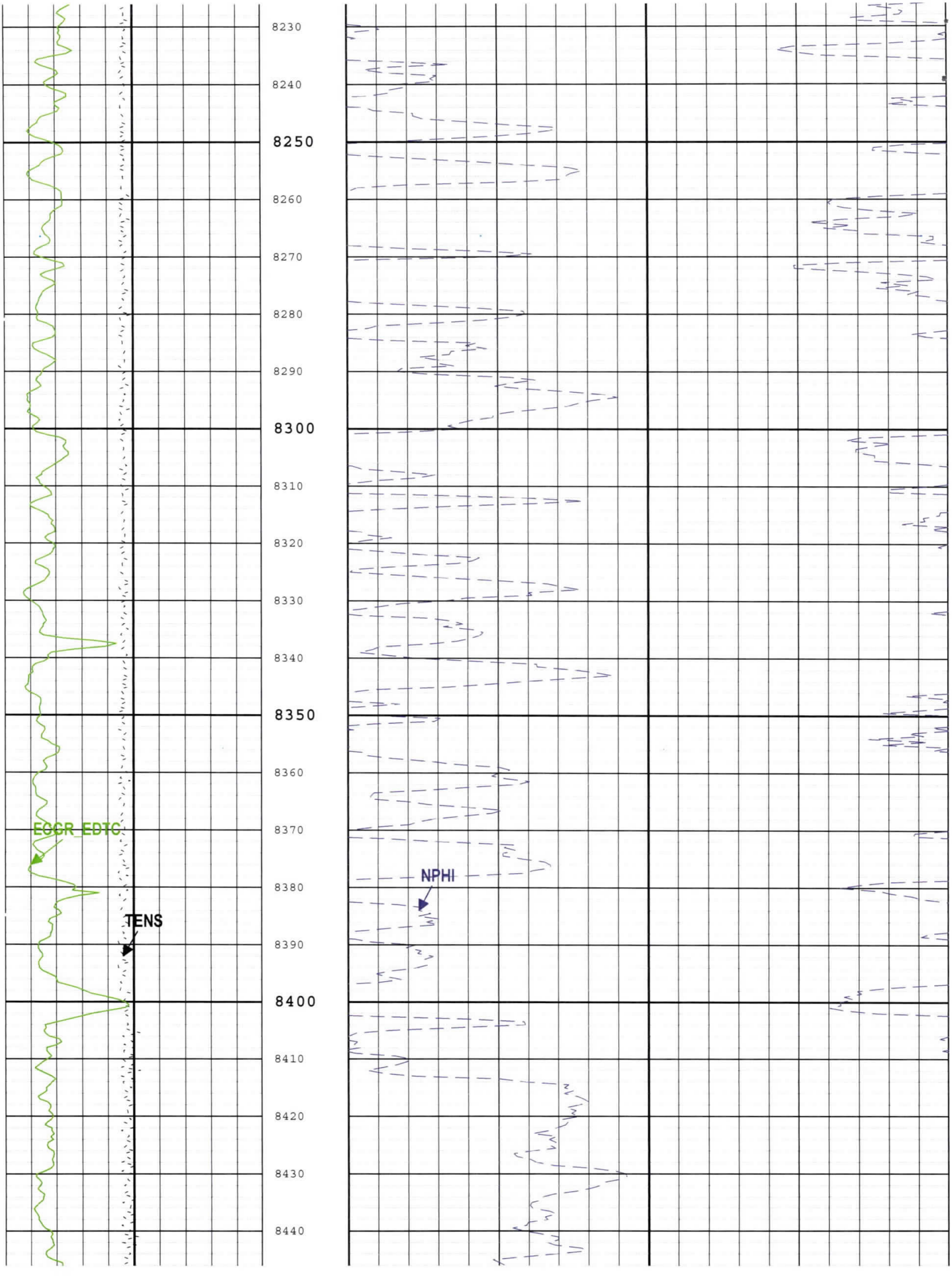
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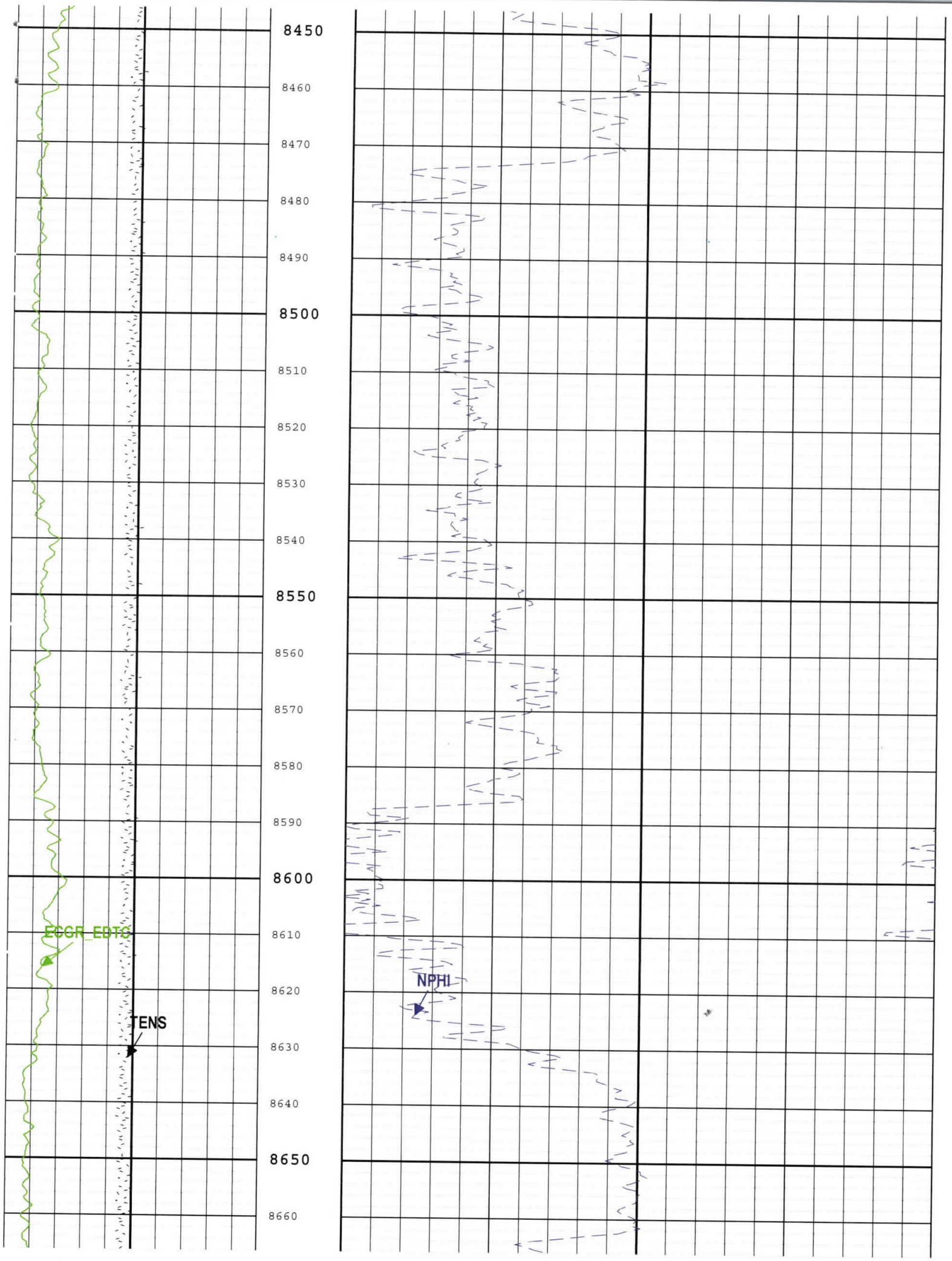
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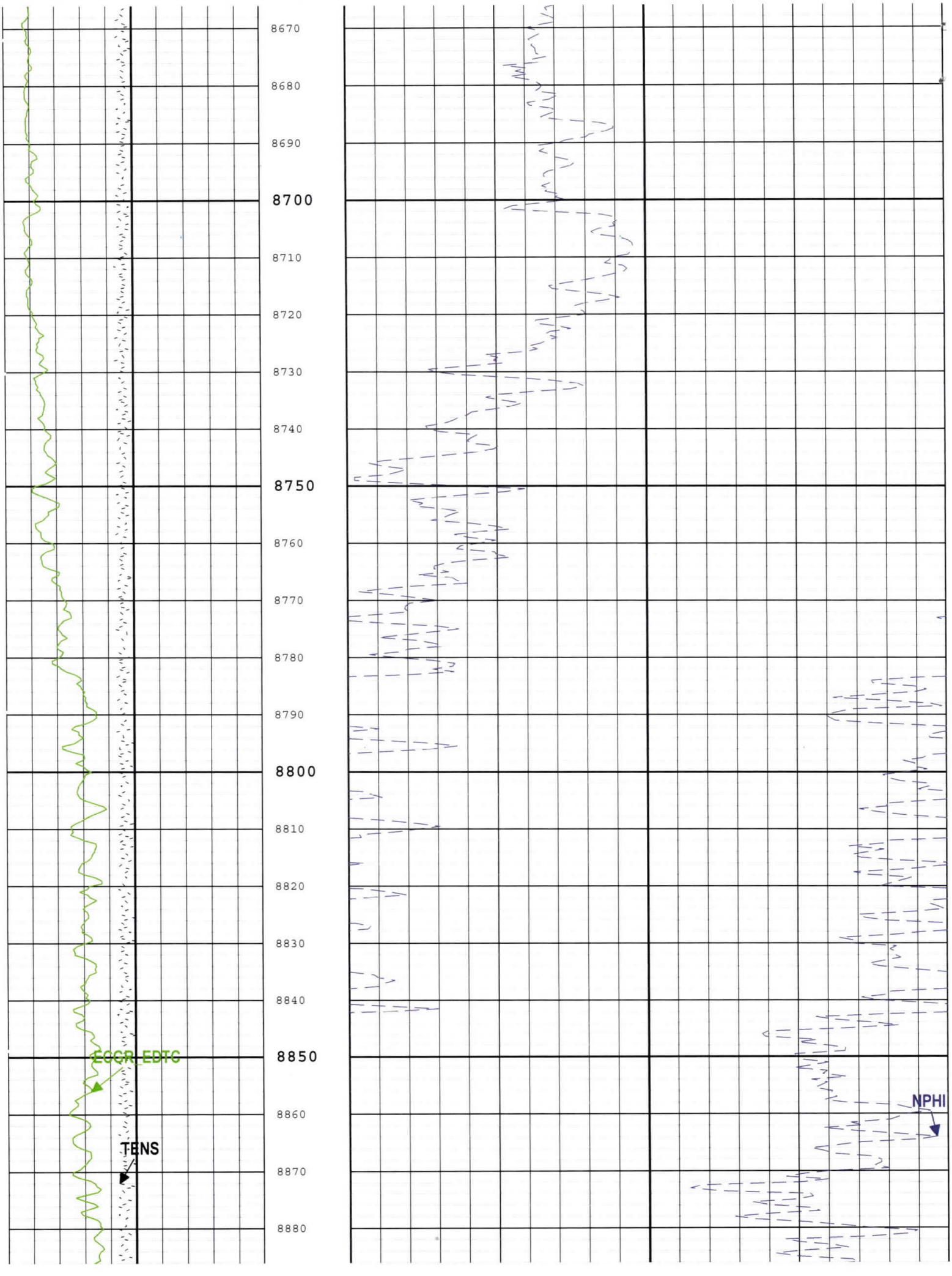
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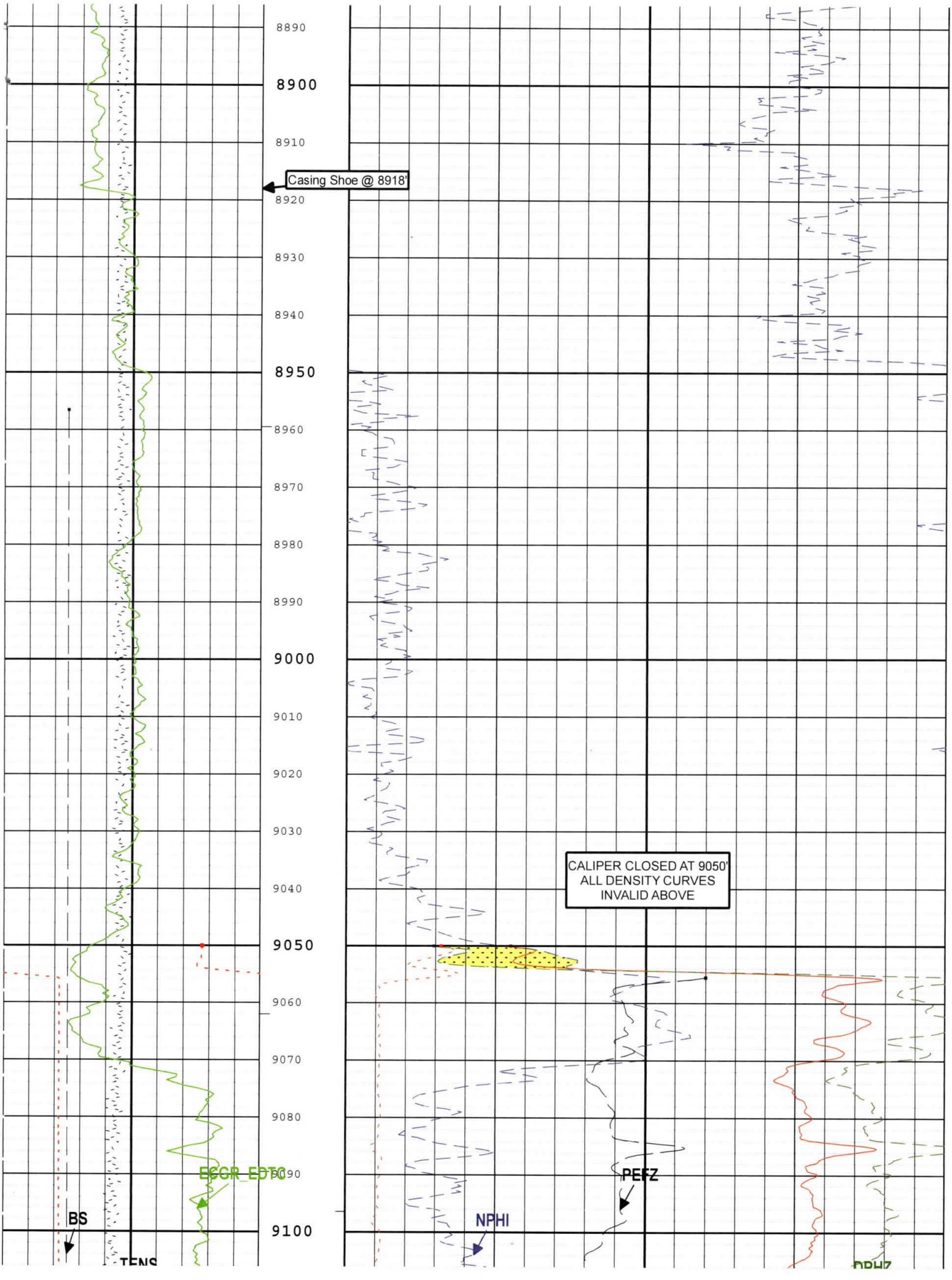
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CALIPER CLOSED AT 9050'
ALL DENSITY CURVES
INVALID ABOVE
BS
TENS
ECGR_EDTC
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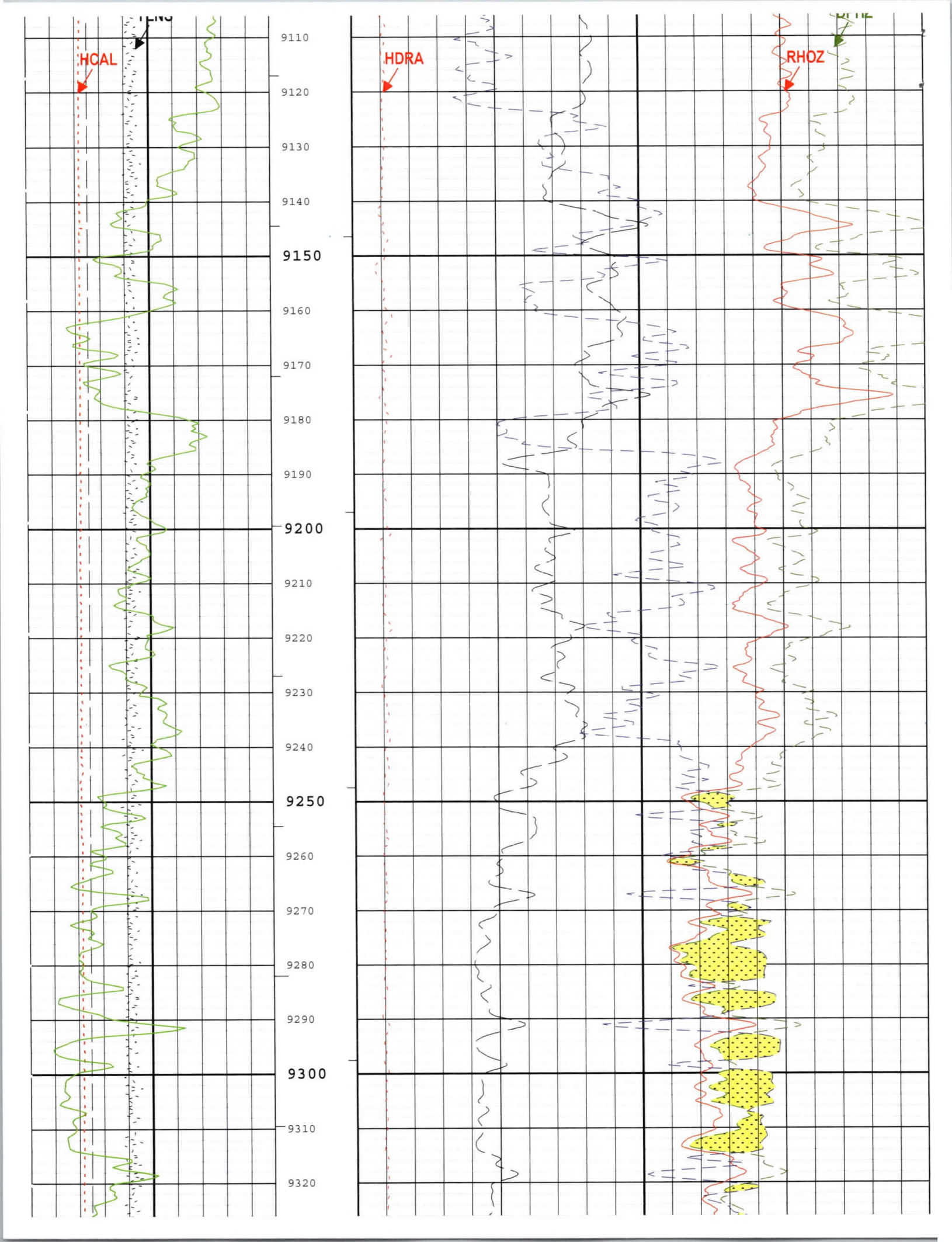
PEFZ
DPHZ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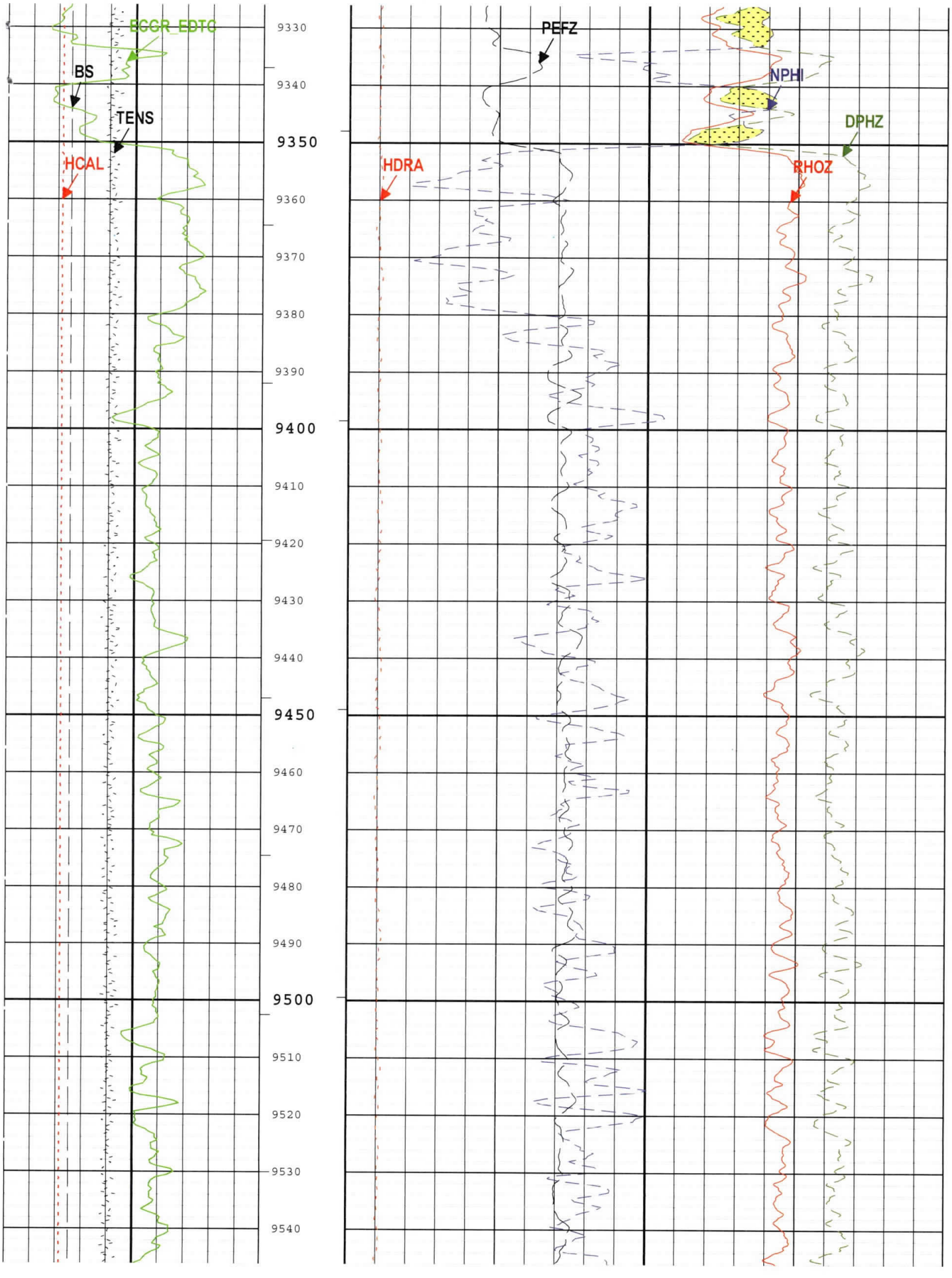
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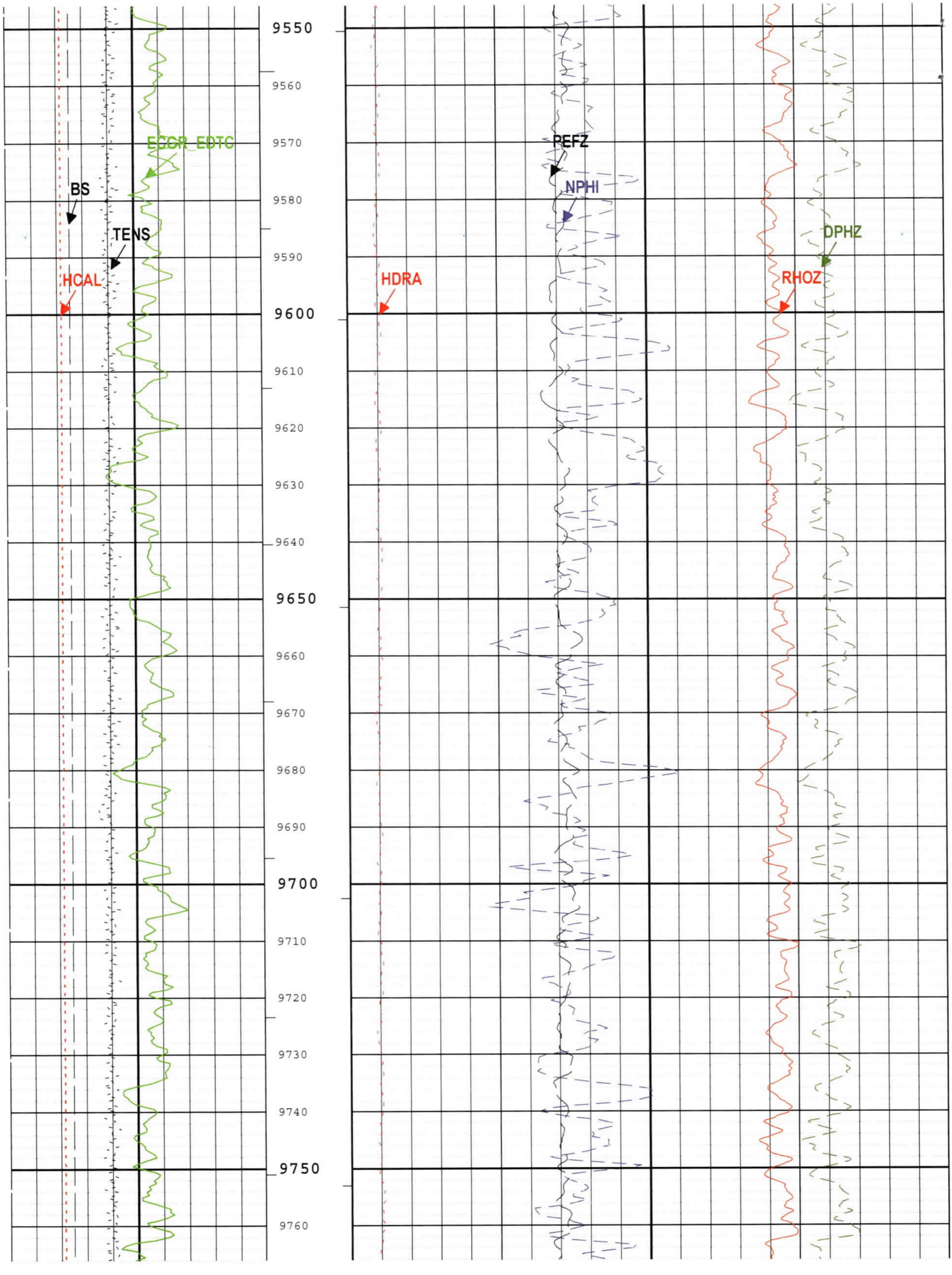
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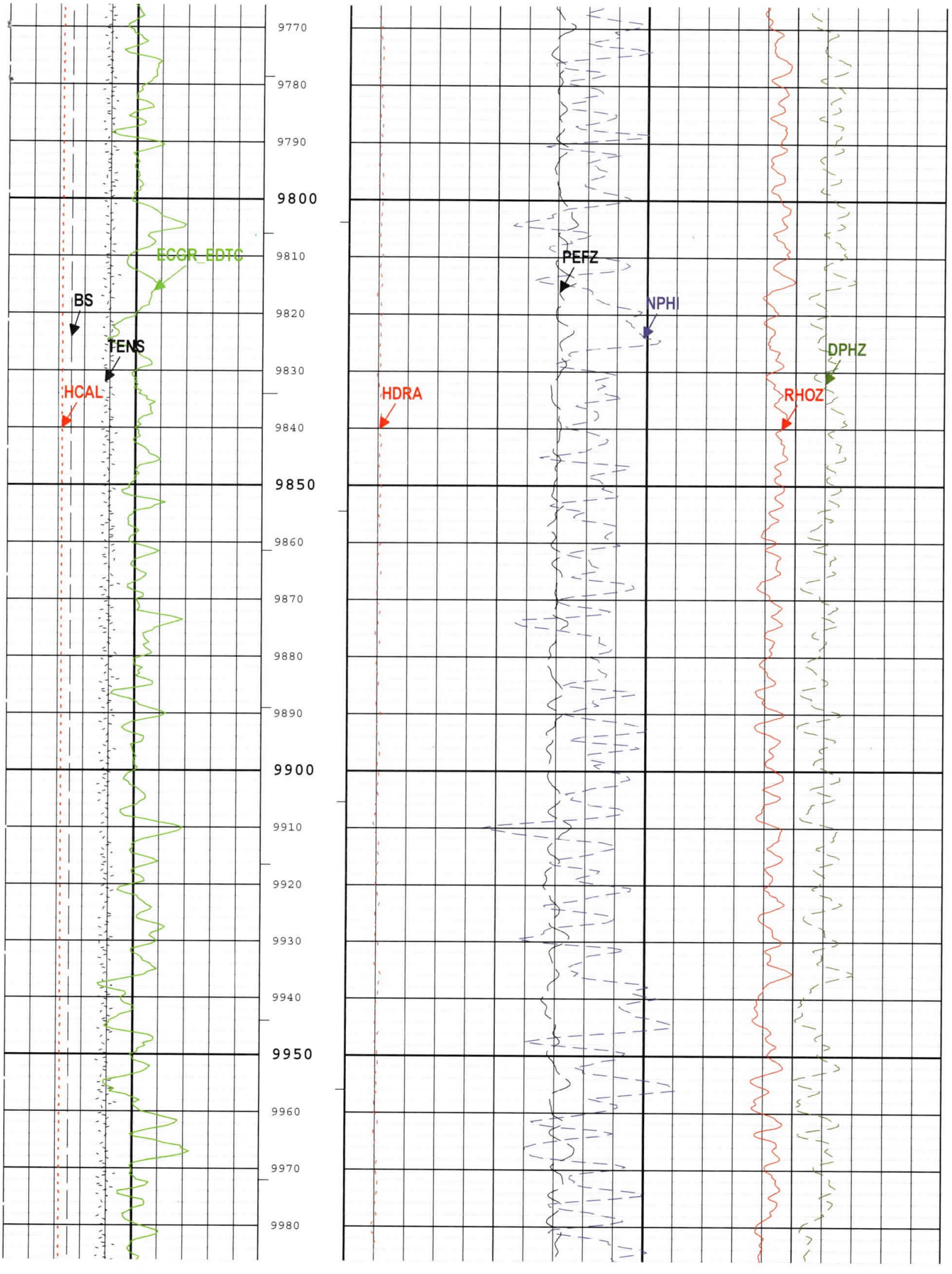
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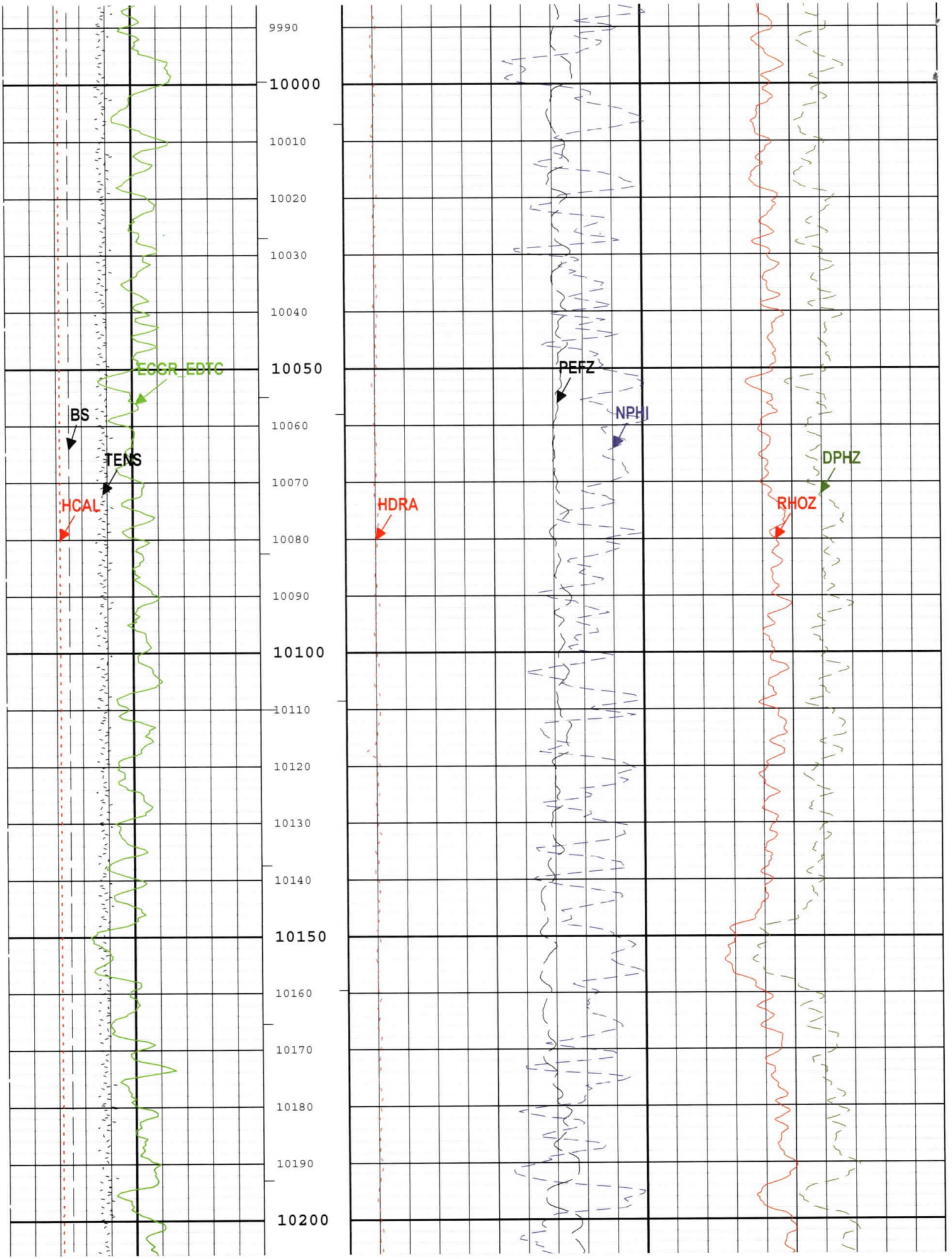
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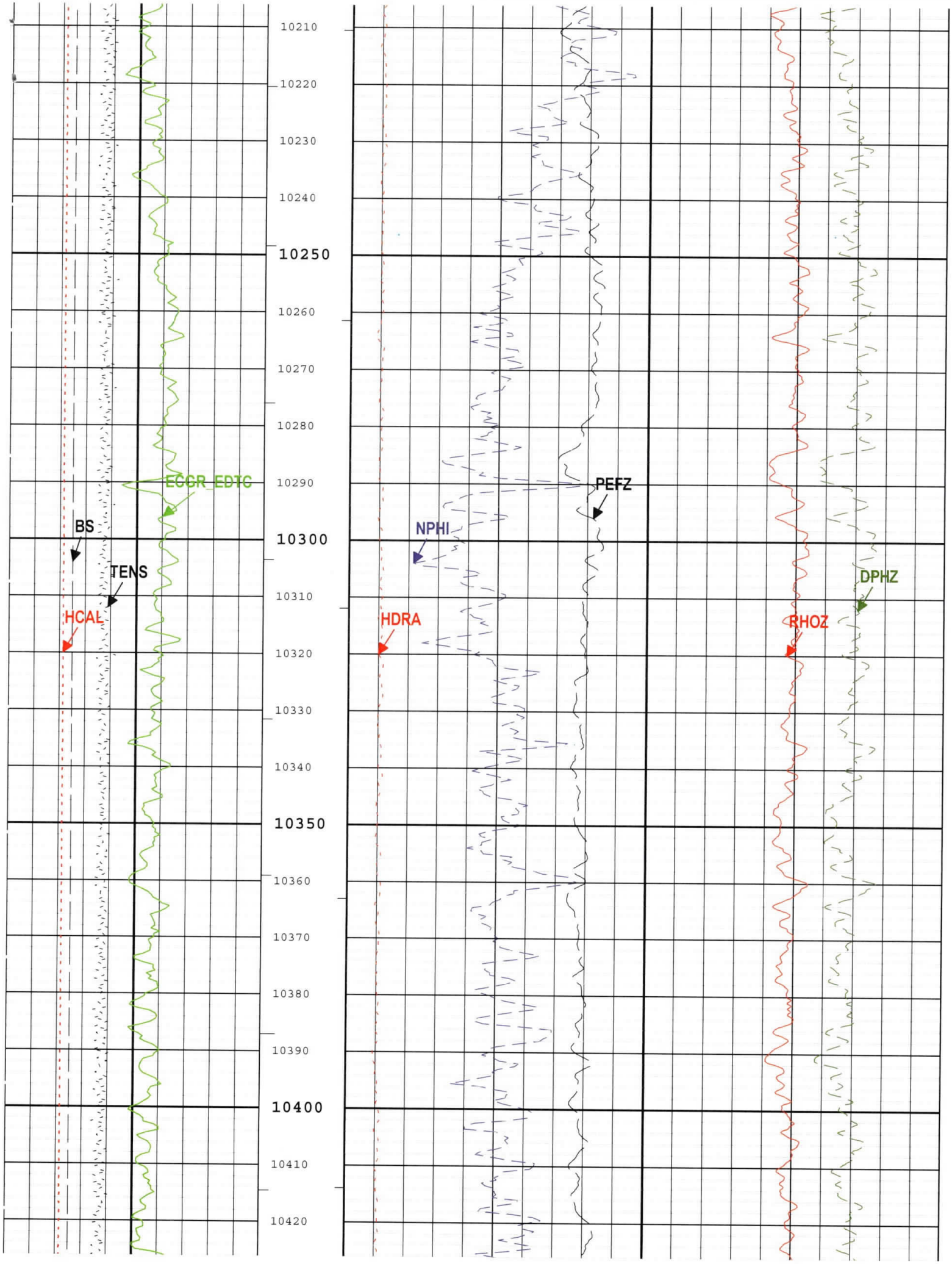
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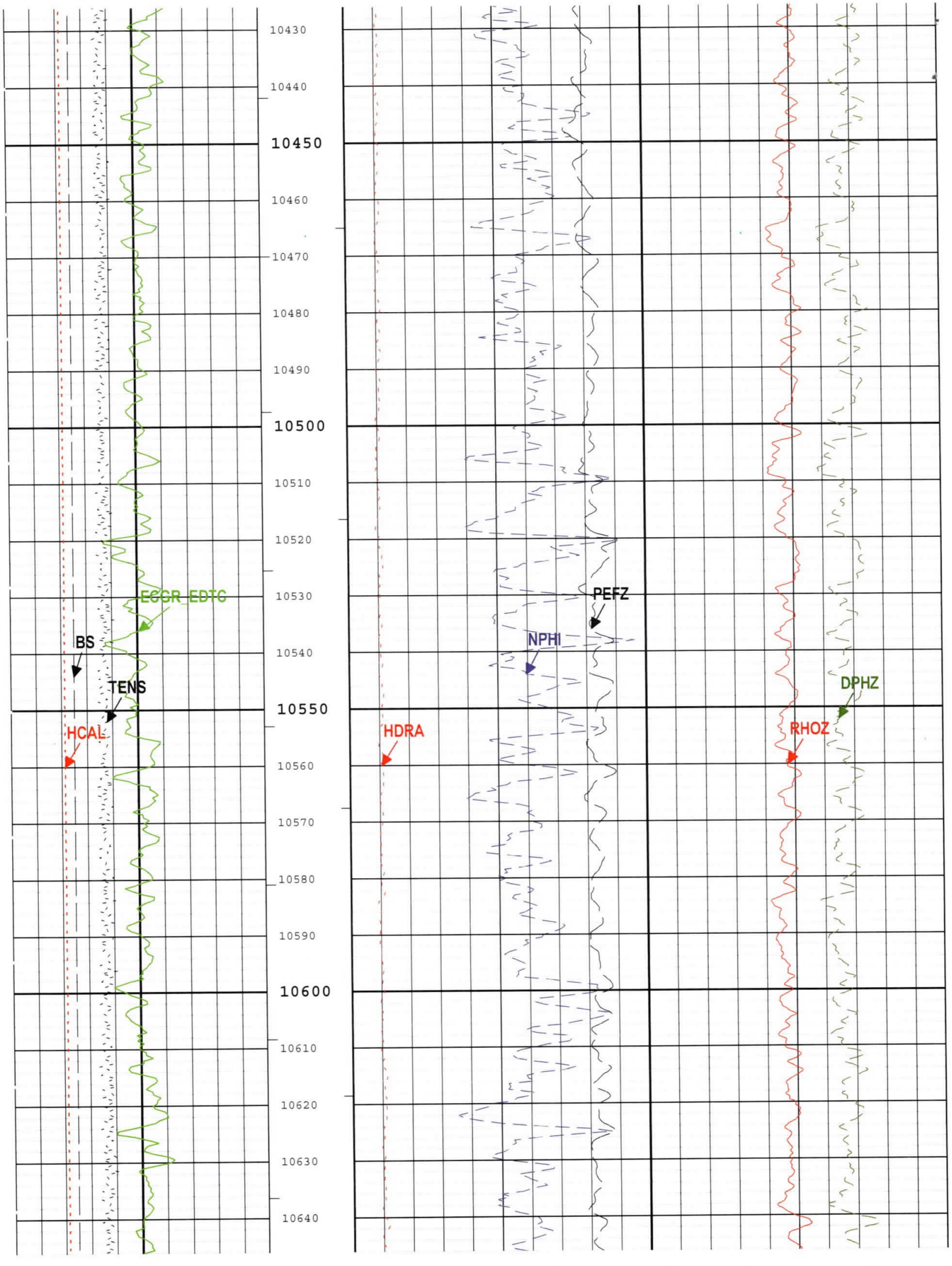
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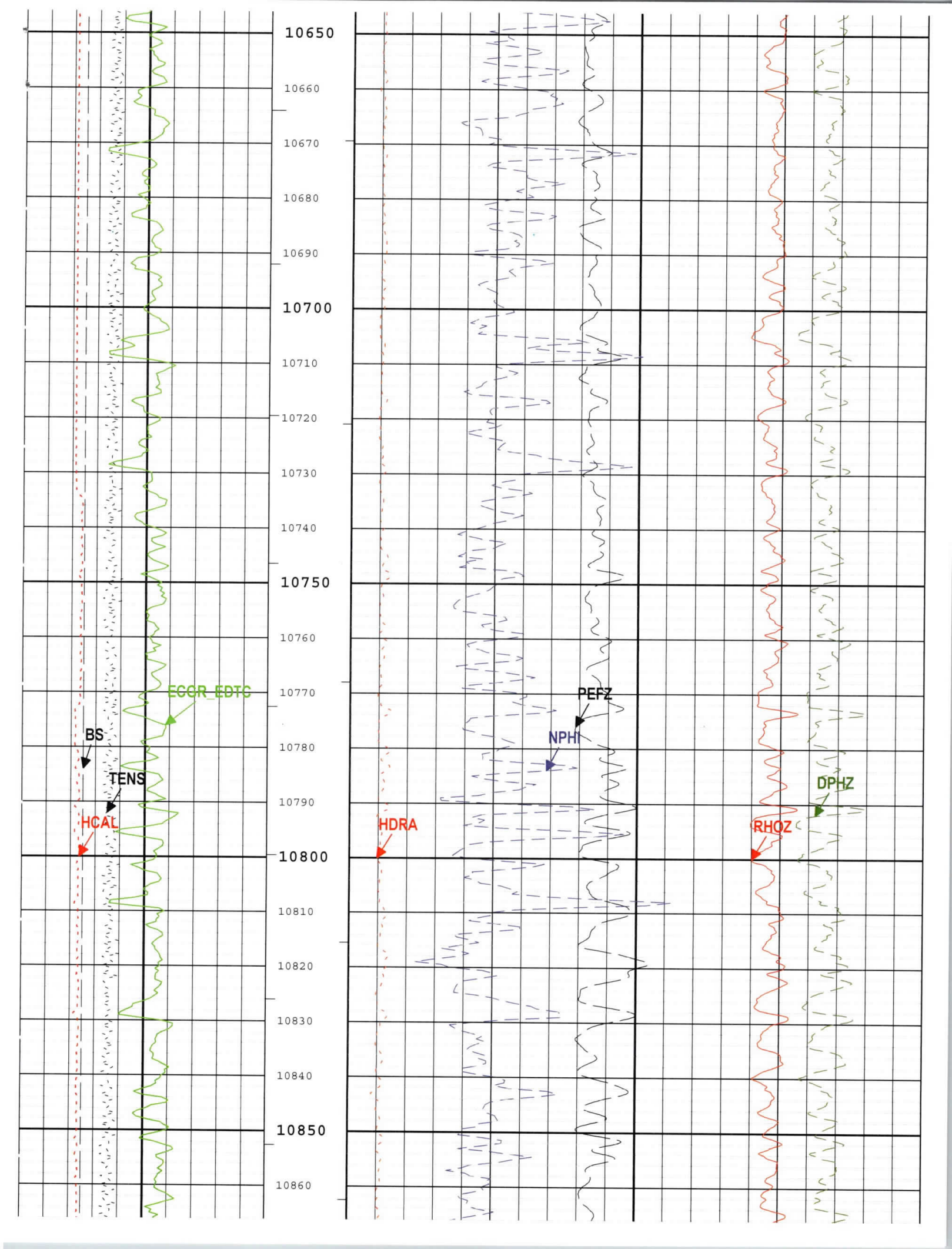
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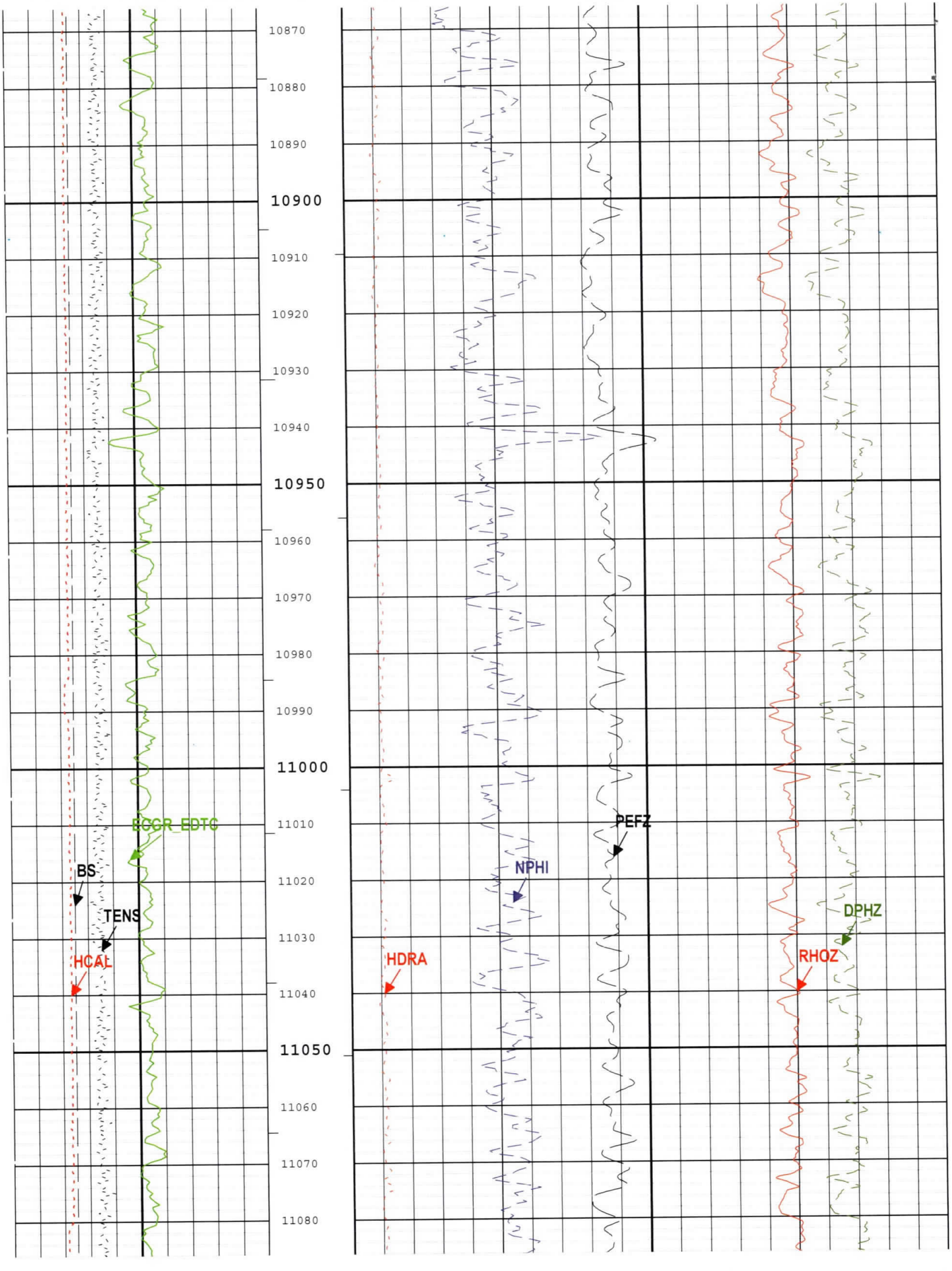
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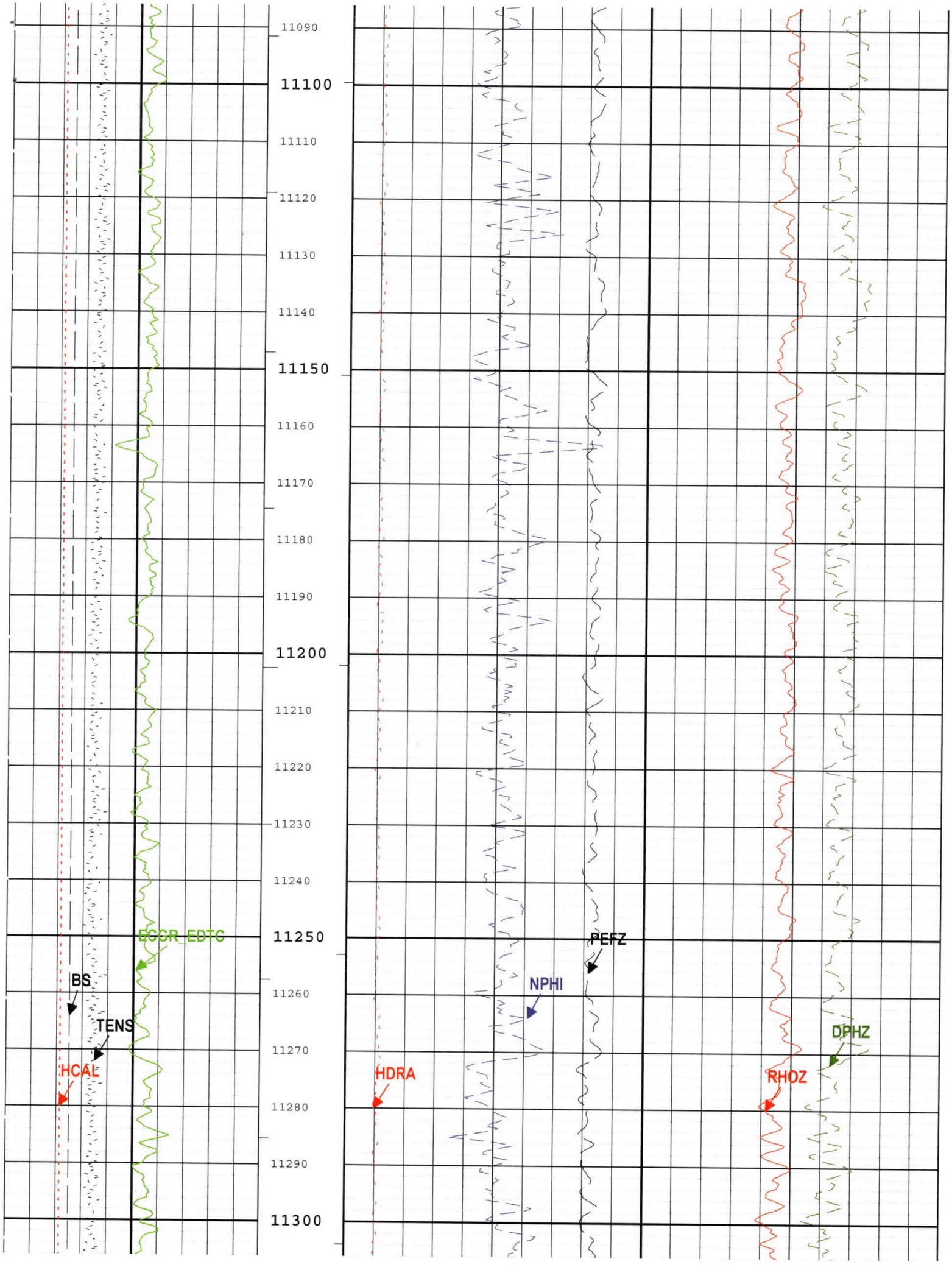
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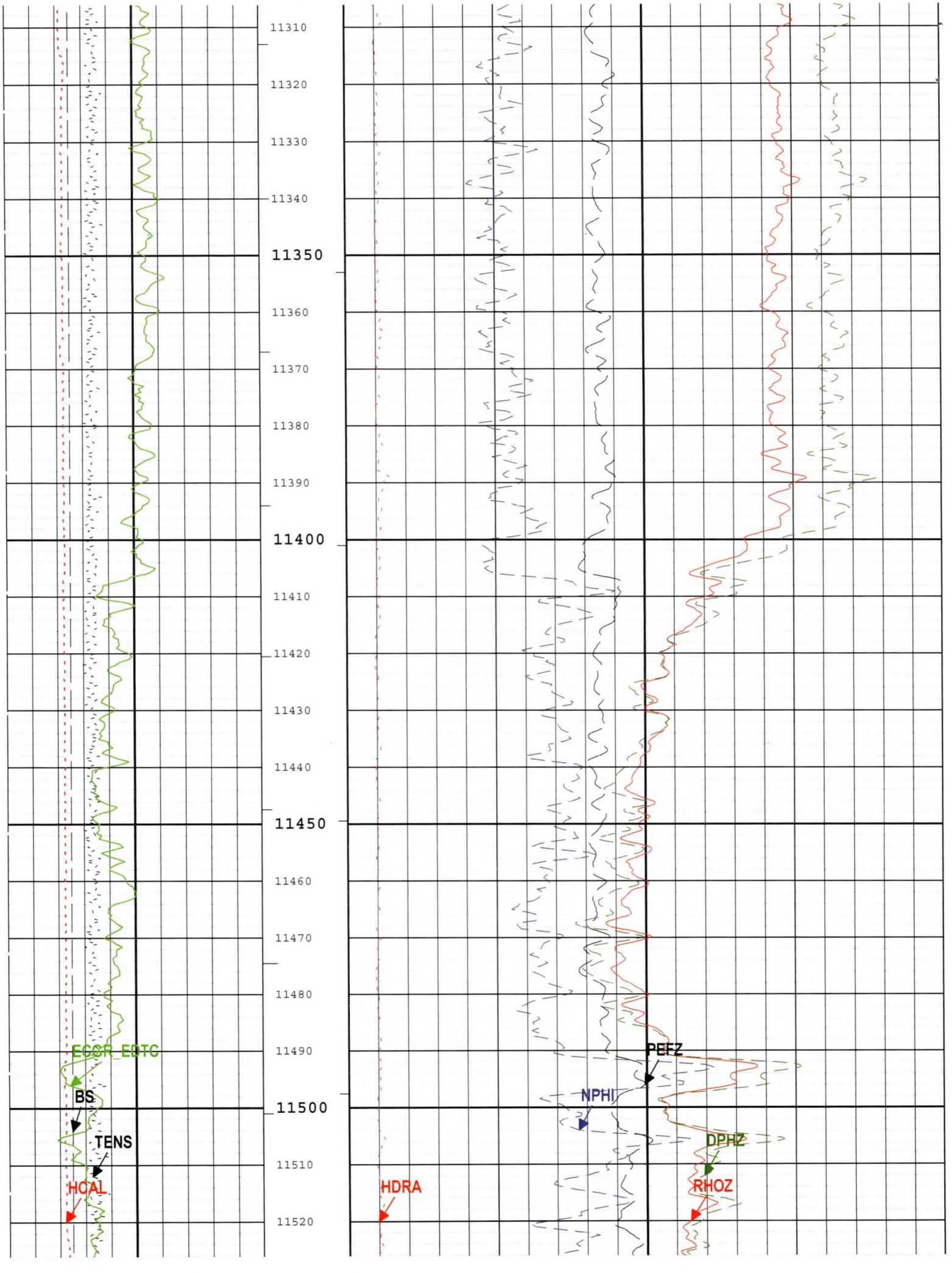
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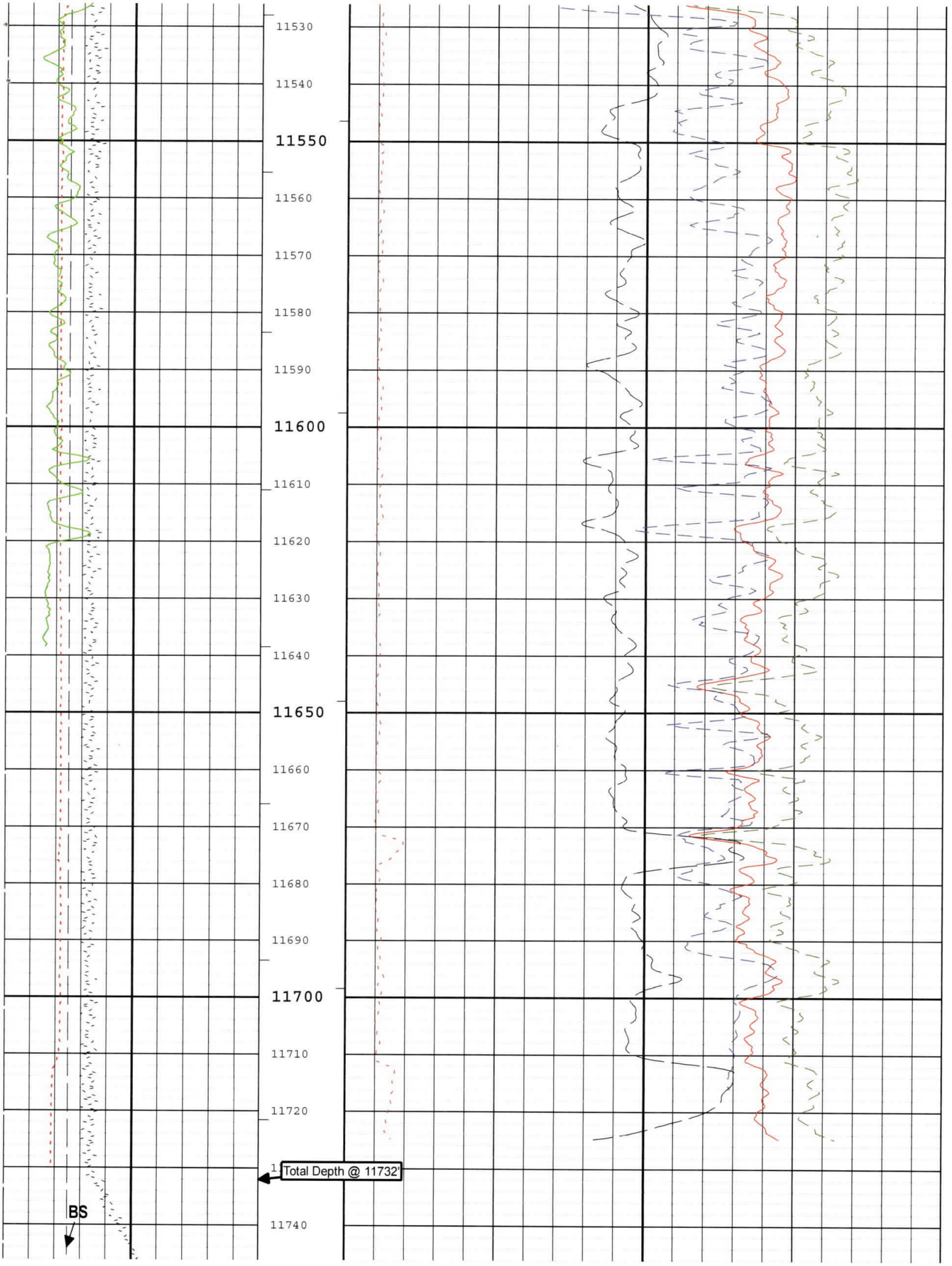
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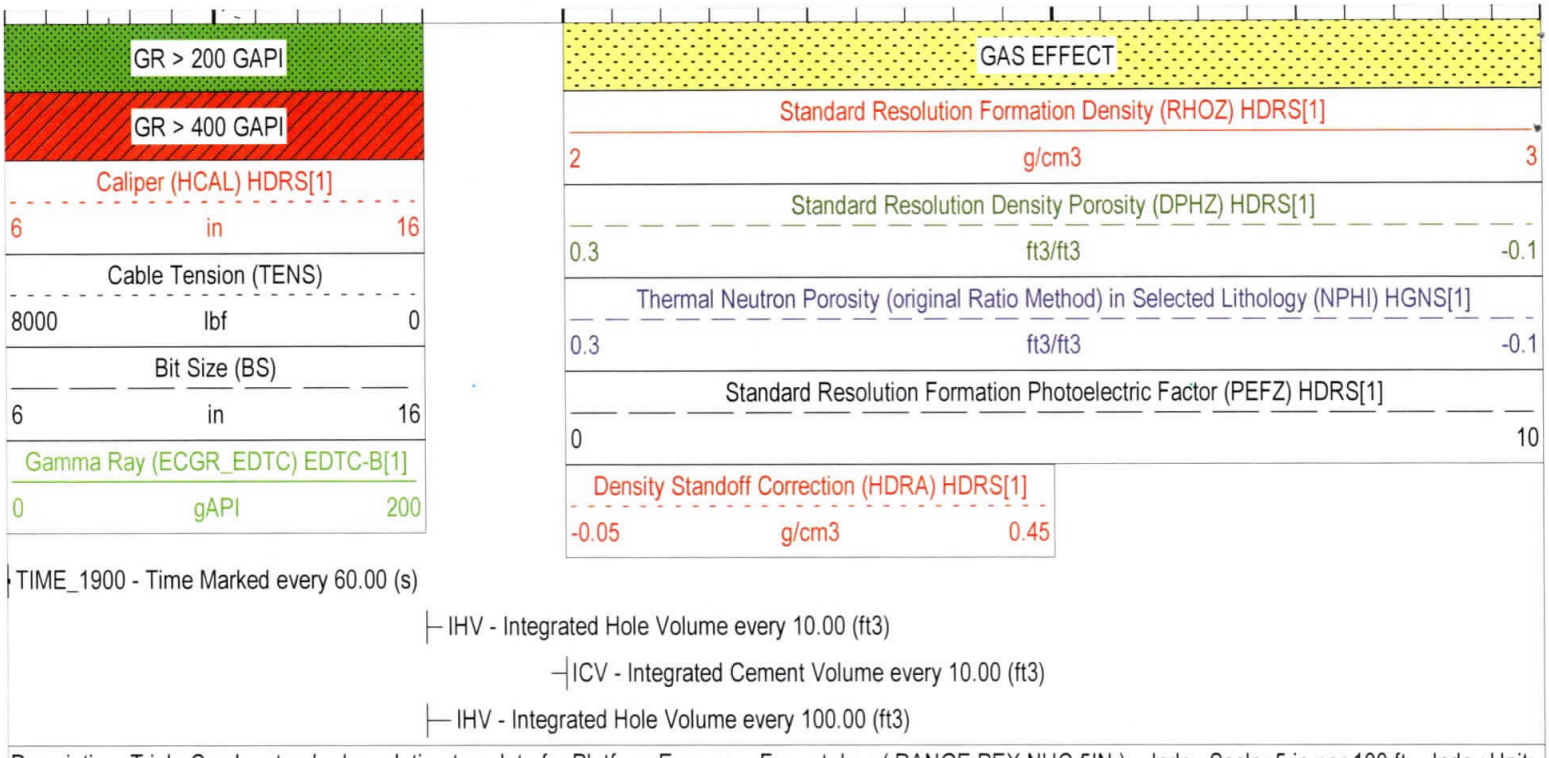
Total Depth @ 11732'
11740
BS



Description: Triple Combo standard resolution template for Platform Express Format: Log (RANGE PEX NUC 5IN) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 13-Feb-2016 01:44:40

Channel Processing Parameters

RUN1A: Parameters

Parameter	Description	Tool	Value	Unit
ISSBAR	Barite Mud Presence Flag	Borehole	Yes	
BHS	Borehole Status (Open or Cased Hole)	Borehole	Open	
BS	Bit Size	WLSESSION	8.5	in
CALI_SHIFT	CALI Supplementary Offset	HDRS-H	0	in
CBLO	Casing Bottom (Logger)	WLSESSION	8957	ft
CDEN	Cement Density	EDTC-B	2	g/cm3
CSODDRL	Casing Outer Diameter - Zoned along driller depths	WLSESSION	9.625	in
DC_MODE	Depth Correction Mode	DepthCorrection	Real-time	
DFD	Drilling Fluid Density	Borehole	12.5	lbm/gal
DFT	Drilling Fluid Type	Borehole	Oil	
DHC	Density Hole Correction	HDRS-H	Bit Size	
FCD	Future Casing (Outer) Diameter	WLSESSION	5.5	in
FD	Fluid Density	Borehole	1	g/cm3
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	
MATR	Rock Matrix for Neutron Porosity Corrections	Borehole	LIMESTONE	
MDEN	Matrix Density for Density Porosity	Borehole	2.68	g/cm3
NPRM	HRDD Nuclear Processing Mode	HDRS-H	Time Zoned	
TPOS_EDTC	Tool Position: Centered or Eccentered	EDTC-B	Centered	

RUN1ATime Zoned Parameters

Pass Log[8]:Up

Parameter	Value	Start Time	Stop Time	Start Depth (ft)	Stop Depth (ft)
NPRM	High Resolution	12-Feb-2016 18:58:34	12-Feb-2016 21:08:29	11747.6	9050.39

Pass Log[9]:Up

NPRM	High Resolution	12-Feb-2016 21:28:52	12-Feb-2016 21:40:25	9088.93	8489.94

All depth are at tool zero.

Tool Control Parameters

RUN1A: Parameters

Parameter	Description	Tool	Value	Unit
HRGD_BOARD_TYPE	HRGD Board Type	HDRS-H	WITH_HET	
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	Time Zoned	ft/h

RUN1ATime Zoned Parameters

Pass Log[8]:Up

Parameter	Value	Start Time	Stop Time	Start Depth (ft)	Stop Depth (ft)
MAX_LOG_SPEED	1443	12-Feb-2016 18:58:23	12-Feb-2016 19:13:31	11747.6	11461.7
MAX_LOG_SPEED	1528	12-Feb-2016 19:13:31	12-Feb-2016 20:48:03	11461.7	9385.71
MAX_LOG_SPEED	1425	12-Feb-2016 20:48:03	12-Feb-2016 20:57:18	9385.71	9192.53
MAX_LOG_SPEED	1516	12-Feb-2016 20:57:18	12-Feb-2016 21:08:29	9192.53	9050.39

Pass Log[9]:Up

MAX_LOG_SPEED	1516	12-Feb-2016 21:28:52	12-Feb-2016 21:40:25	9088.93	8489.94

Pass Log[11]:Up

MAX_LOG_SPEED	1516	12-Feb-2016 22:04:56	12-Feb-2016 23:46:31	8509.74	209.6

All depth are at tool zero.

RUN1A

REPEAT PASS 5"

Integration Summary

Output Channel(s)	Output Description	Input Parameter	Output Value	Unit
IHV	Integrated Hole Volume	GCSE_UP_PASS	231.18	ft3
ICV	Integrated Cement Volume	GCSE_UP_PASS, FCD	127.13	ft3

Software Version

Acquisition System	Version
Maxwell 2016 SP1	6.1.58882.3100

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
RUN1A	Repeat[5]:Up	Up	11101.15 ft	11751.78 ft	12-Feb-2016 6:07:36 PM	12-Feb-2016 6:40:53 PM	ON	9.91 ft	No

All depths are referenced to toolstring zero

Log

Company:CHEVRON AMBU Well:CURRY 8H

RUN1A: Repeat[5]:Up:S004

Description: Triple Combo standard resolution template for Platform Express Format: Log (RANGE PEX NUC 5IN) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 13-Feb-2016 01:44:45

Channel	Source	Sampling
BS	Borehole	6in
CALI	HDRS-H:HRCC-H:HRCC-H	1in
DPHZ	HDRS-H:HRMS-H:HRGD-H	2in
GR	EDTC-B:EDTC-B:EDTC-B	6in
HDRA	HDRS-H:HRMS-H:HRGD-H	2in
ICV	Borehole	6in
IHV	Borehole	6in
NPHI	HGNS-H:HGNS-H:HGNS-H	6in

PEFZ	HDRS-H:HRMS-H:HRGD-H	2in
RHOZ	HDRS-H:HRMS-H:HRGD-H	2in
TENS	WLWorkflow	6in
TIME_1900	WLWorkflow	0.1in

IHV - Integrated Hole Volume every 100.00 (ft3)

ICV - Integrated Cement Volume every 10.00 (ft3)

IHV - Integrated Hole Volume every 10.00 (ft3)

TIME_1900 - Time Marked every 60.00 (s)

GR > 200 GAPI

GR > 400 GAPI

Caliper (HCAL) HDRS-H

6 in 16

Cable Tension (TENS)

8000 lbf 0

Bit Size (BS)

6 in 16

Gamma Ray (ECGR_EDTC) EDTC-B

0 gAPI 200

Density Standoff Correction (HDRA) HDRS-H

-0.05 g/cm3 0.45

GAS EFFECT

Standard Resolution Formation Density (RHOZ) HDRS-H

2 g/cm3 3

Standard Resolution Density Porosity (DPHZ) HDRS-H

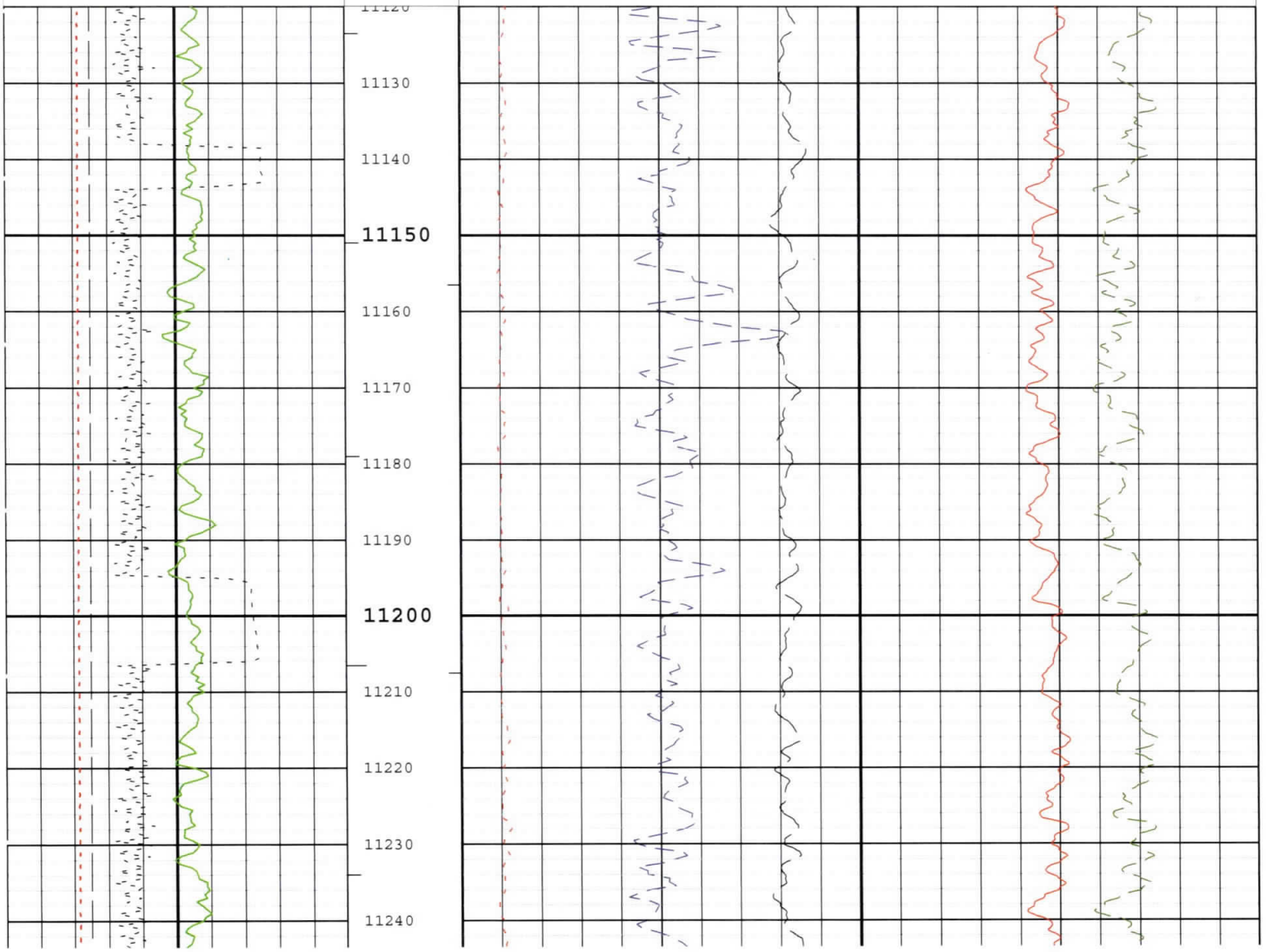
0.3 ft3/ft3 -0.1

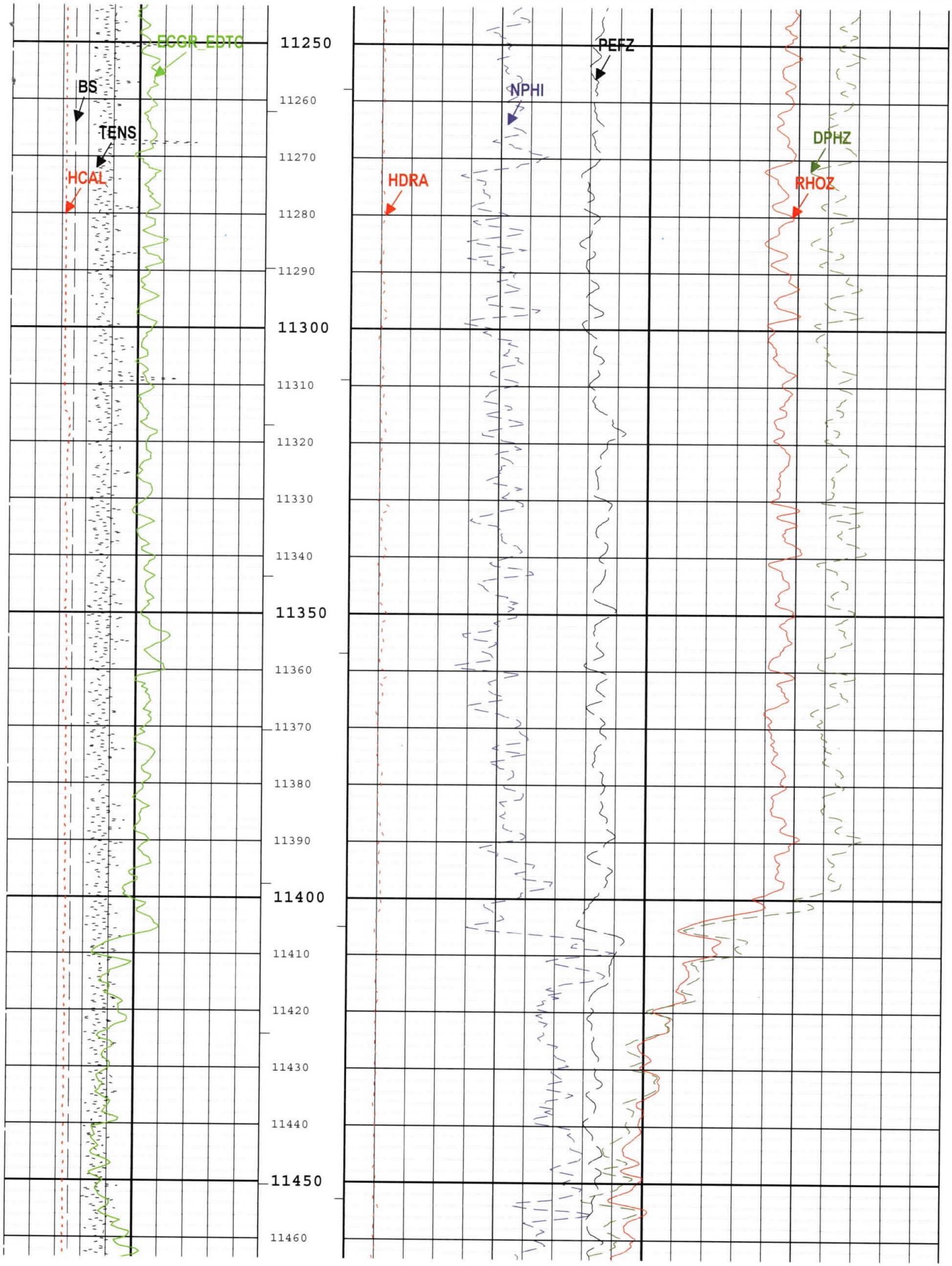
Thermal Neutron Porosity (original Ratio Method) in Selected Lithology (NPHI) HGNS-H

0.3 ft3/ft3 -0.1

Standard Resolution Formation Photoelectric Factor (PEFZ) HDRS-H

0 10

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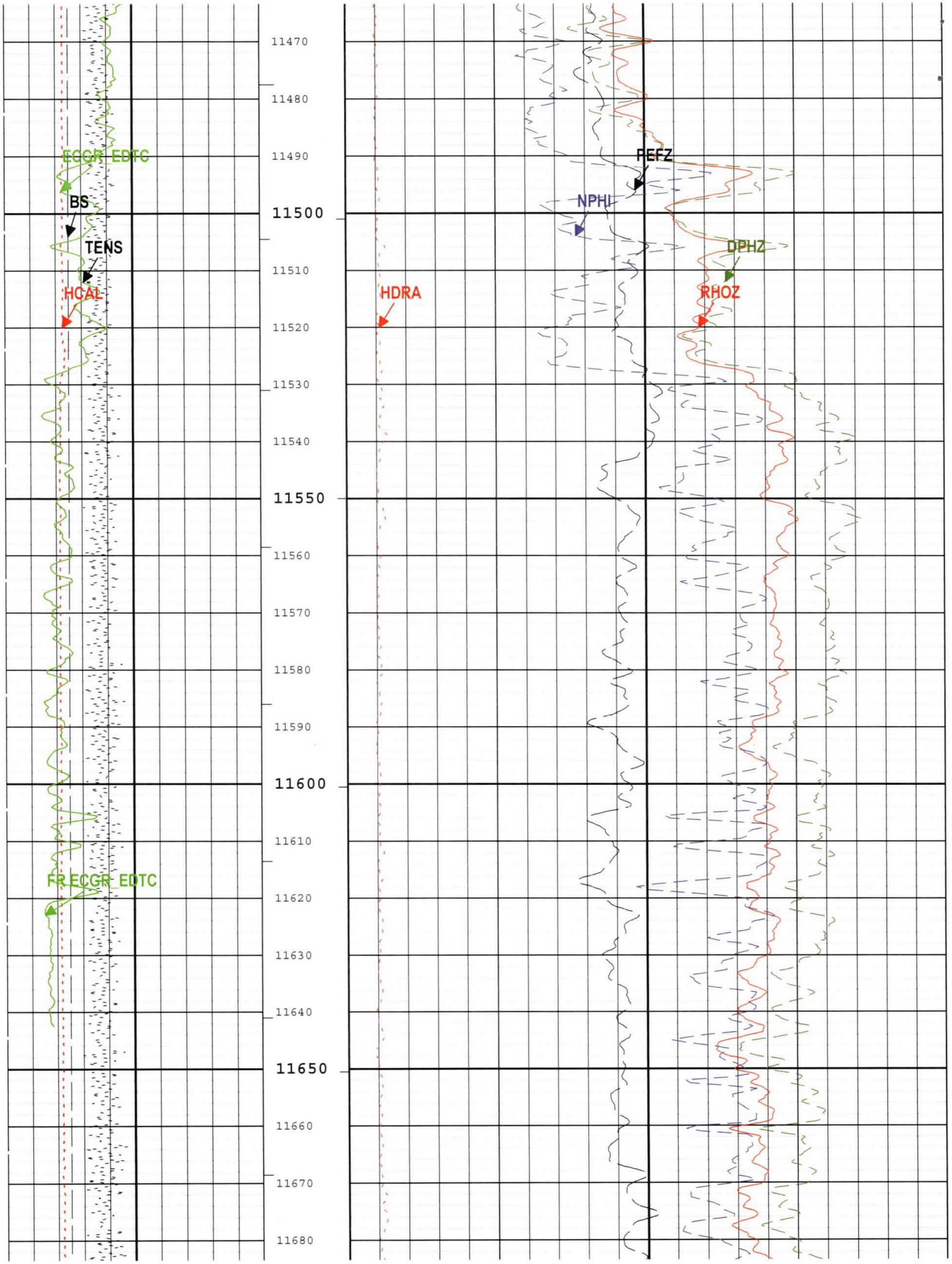
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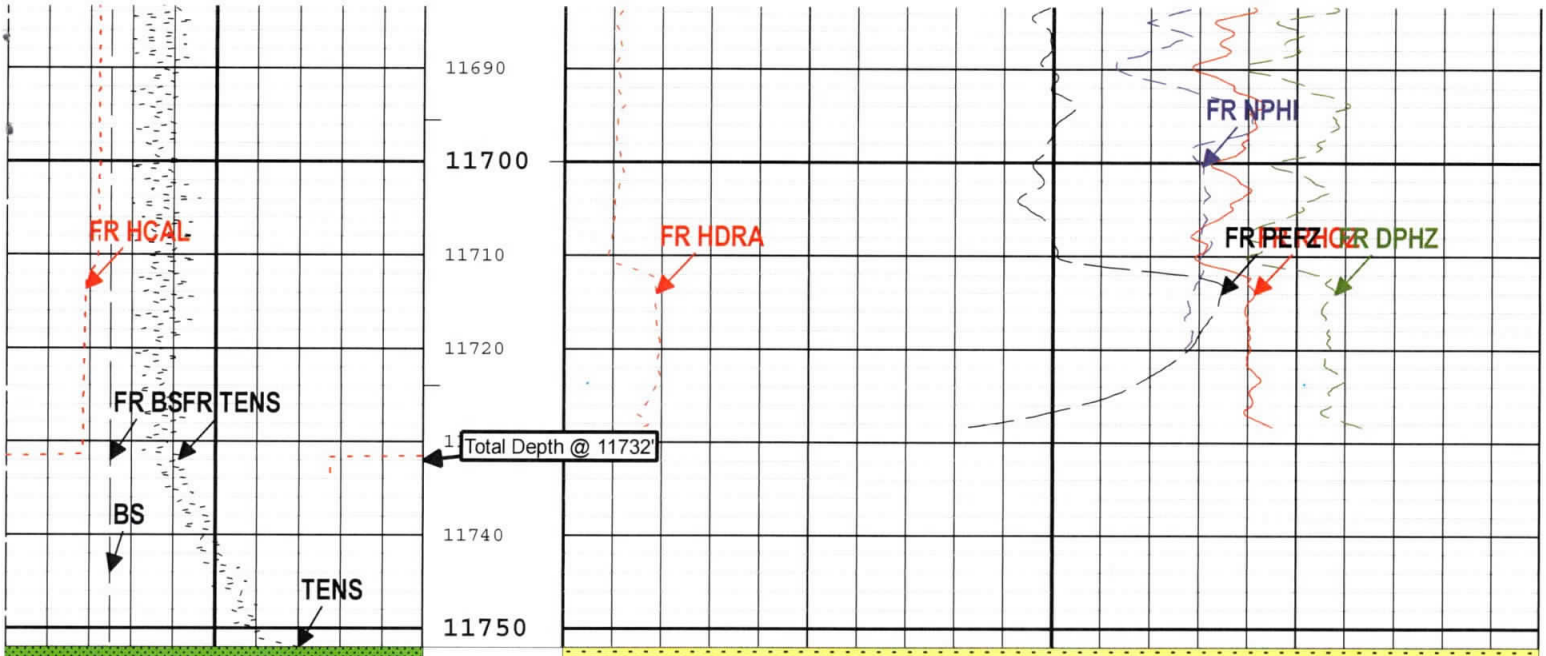


GR > 200 GAPI

GR > 400 GAPI

Caliper (HCAL) HDRS-H

6 in 16

Cable Tension (TENS)

8000 lbf 0

Bit Size (BS)

6 in 16

Gamma Ray (ECGR_EDTC) EDTC-B

0 gAPI 200

GAS EFFECT

Standard Resolution Formation Density (RHOZ) HDRS-H

2 g/cm3 3

Standard Resolution Density Porosity (DPHZ) HDRS-H

0.3 ft3/ft3 -0.1

Thermal Neutron Porosity (original Ratio Method) in Selected Lithology (NPHI) HGNS-H

0.3 ft3/ft3 -0.1

Standard Resolution Formation Photoelectric Factor (PEFZ) HDRS-H

0 10

Density Standoff Correction (HDRA) HDRS-H

-0.05 g/cm3 0.45

TIME_1900 - Time Marked every 60.00 (s)

IHV - Integrated Hole Volume every 10.00 (ft3)

ICV - Integrated Cement Volume every 10.00 (ft3)

IHV - Integrated Hole Volume every 100.00 (ft3)

Description: Triple Combo standard resolution template for Platform Express Format: Log (RANGE PEX NUC 5IN) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 13-Feb-2016 01:44:45

Channel Processing Parameters

RUN1A: Parameters

Parameter	Description	Tool	Value	Unit
ISSBAR	Barite Mud Presence Flag	Borehole	Yes	
BHS	Borehole Status (Open or Cased Hole)	Borehole	Open	
BS	Bit Size	WLSESSION	8.5	in
CALI_SHIFT	CALI Supplementary Offset	HDRS-H	0	in
CBLO	Casing Bottom (Logger)	WLSESSION	8957	ft
CDEN	Cement Density	EDTC-B	2	g/cm3
DC_MODE	Depth Correction Mode	DepthCorrection	Real-time	
DFD	Drilling Fluid Density	Borehole	12.5	lbm/gal
DFT	Drilling Fluid Type	Borehole	Oil	
DHC	Density Hole Correction	HDRS-H	Bit Size	
FCD	Future Casing (Outer) Diameter	WLSESSION	5.5	in
FD	Fluid Density	Borehole	1	g/cm3

FD	Fluid Density	Borehole	1	g/cm3
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	
MATR	Rock Matrix for Neutron Porosity Corrections	Borehole	LIMESTONE	
MDEN	Matrix Density for Density Porosity	Borehole	2.68	g/cm3
NPRM	HRDD Nuclear Processing Mode	HDRS-H	High Resolution	
TPOS_EDTC	Tool Position: Centered or Eccentered	EDTC-B	Centered	

Tool Control Parameters

RUN1A: Parameters

Parameter	Description	Tool	Value	Unit
HRGD_BOARD_TYPE	HRGD Board Type	HDRS-H	WITH_HET	
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	Time Zoned	ft/h

Time Zone Parameters

Parameter	Value	Start Time	Stop Time	Start Depth (ft)	Stop Depth (ft)
MAX_LOG_SPEED	1426	12-Feb-2016 18:07:36	12-Feb-2016 18:24:14	11751.78	11456.92
MAX_LOG_SPEED	1510	12-Feb-2016 18:24:14	12-Feb-2016 18:40:53	11456.92	11101.15

All depth are at tool zero.

RUN1A

HiRes REPEAT PASS

Integration Summary

Output Channel(s)	Output Description	Input Parameter	Output Value	Unit
IHV	Integrated Hole Volume	GCSE_UP_PASS	231.18	ft3
ICV	Integrated Cement Volume	GCSE_UP_PASS, FCD	127.13	ft3

Software Version

Acquisition System	Version
Maxwell 2016 SP1	6.1.58882.3100

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
RUN1A	Repeat[5]:Up	Up	11101.15 ft	11751.78 ft	12-Feb-2016 6:07:36 PM	12-Feb-2016 6:40:53 PM	ON	9.91 ft	No

All depths are referenced to toolstring zero

Log

Company:CHEVRON AMBU Well:CURRY 8H

RUN1A: Repeat[5]:Up:S004

Description: Triple Combo standard resolution template for Platform Express Format: Log (HIRES NUC 5IN) Index Scale: 10 in per 100 ft Index Unit: ft
Index Type: Measured Depth Creation Date: 13-Feb-2016 01:44:48

Channel	Source	Sampling
BS	Borehole	6in
CALI	HDRS-H:HRCC-H:HRCC-H	1in
DPH8	HDRS-H:HRMS-H:HRGD-H	2in
GR	EDTC-B:EDTC-B:EDTC-B	6in
HDRA	HDRS-H:HRMS-H:HRGD-H	2in
ICV	Borehole	6in
IHV	Borehole	6in
NPOR	HGNS-H:HGNS-H:HGNS-H	6in
PEF8	HDRS-H:HRMS-H:HRGD-H	2in
RHO8	HDRS-H:HRMS-H:HRGD-H	2in
TENS	WLWorkflow	6in

TIME_1900 WLWorkflow 0.1in

IHV - Integrated Hole Volume every 100.00 (ft3)

ICV - Integrated Cement Volume every 10.00 (ft3)

IHV - Integrated Hole Volume every 10.00 (ft3)

TIME_1900 - Time Marked every 60.00 (s)

GR > 200 GAPI

GR > 400 GAPI

Caliper (HCAL) HDRS-H

10 in 20

Cable Tension (TENS)

6000 lbf 0

Gamma Ray (ECGR_EDTC) EDTC-B

0 gAPI 200

Bit Size (BS)

6 in 16

Density Standoff Correction (HDRA) HDRS-H

-0.05 g/cm3 0.45

GAS EFFECT

High Resolution Formation Density (RHO8) HDRS-H

2 g/cm3 3

High Resolution Formation Photoelectric Factor (PEF8) HDRS-H

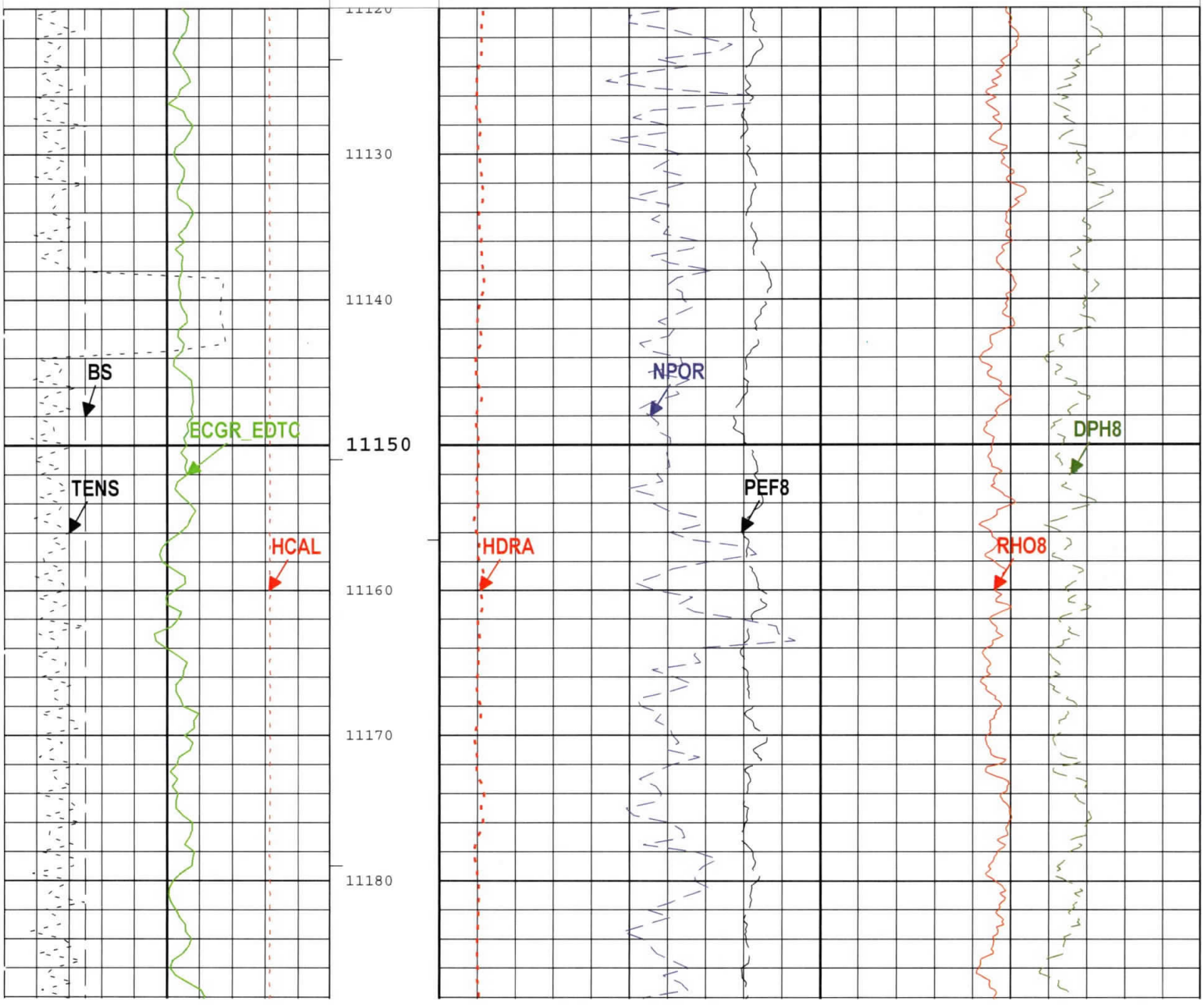
0 10

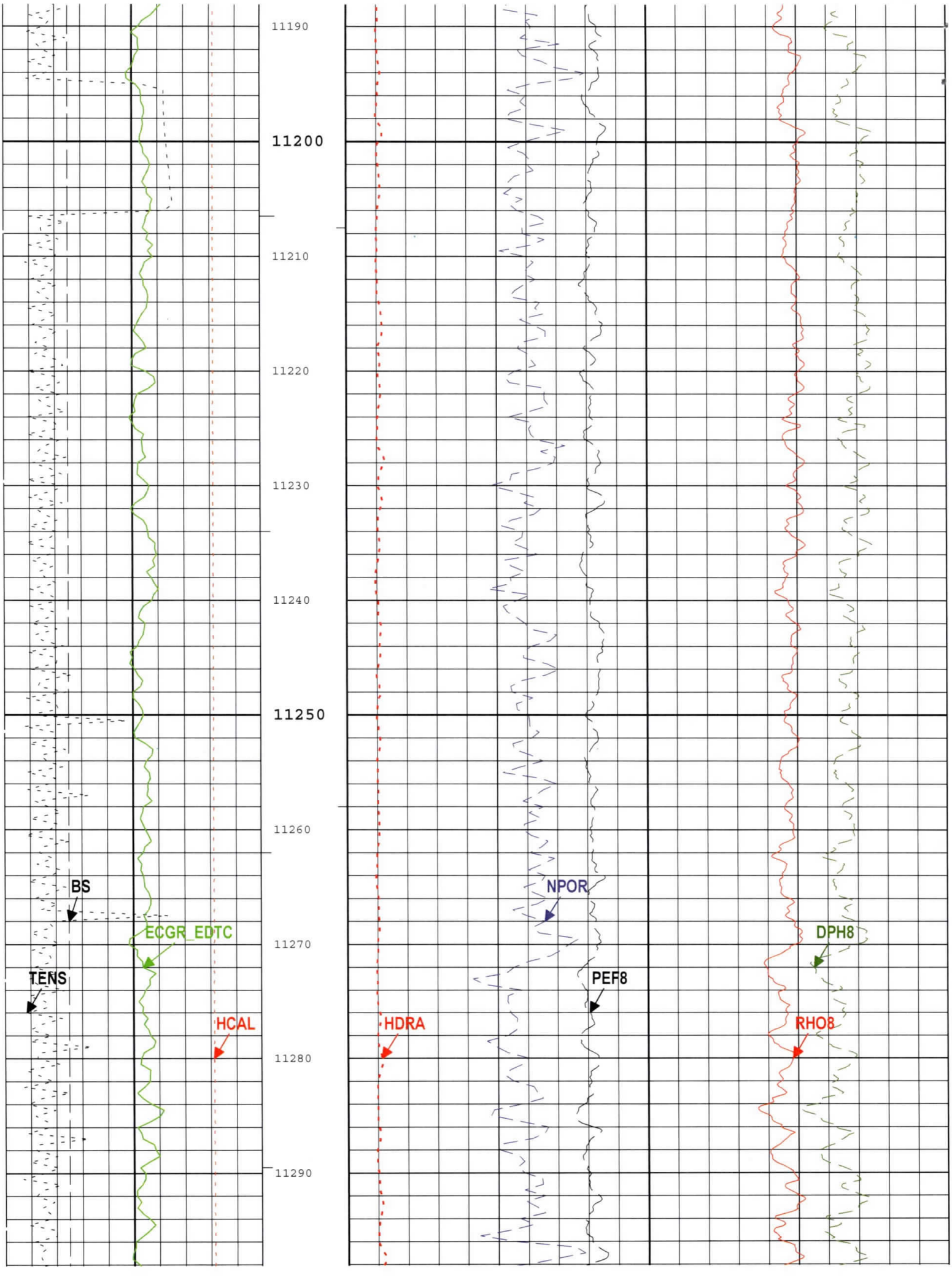
High Resolution Density Porosity (DPH8) HDRS-H

0.3 ft3/ft3 -0.1

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

0.3 ft3/ft3 -0.1

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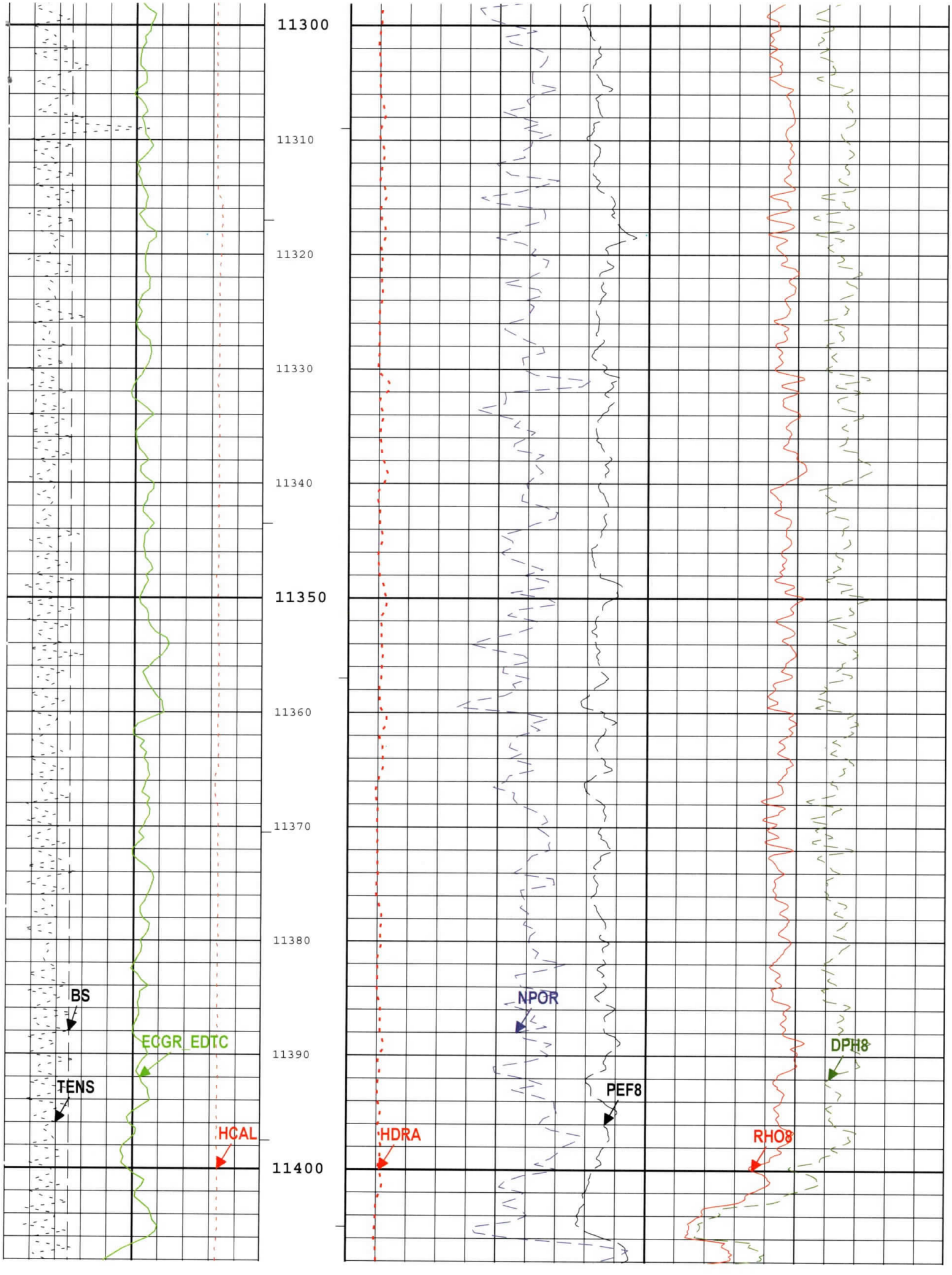
11200
11210
11220
11230
11240
11250
11260
11270
11280
11290
BS
ECGR_EDTC
TENS
HCAL
HDRA
NPOR
PEF8
DPH8
RHO8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11310
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11330
11340
11350
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11400
BS
TENS
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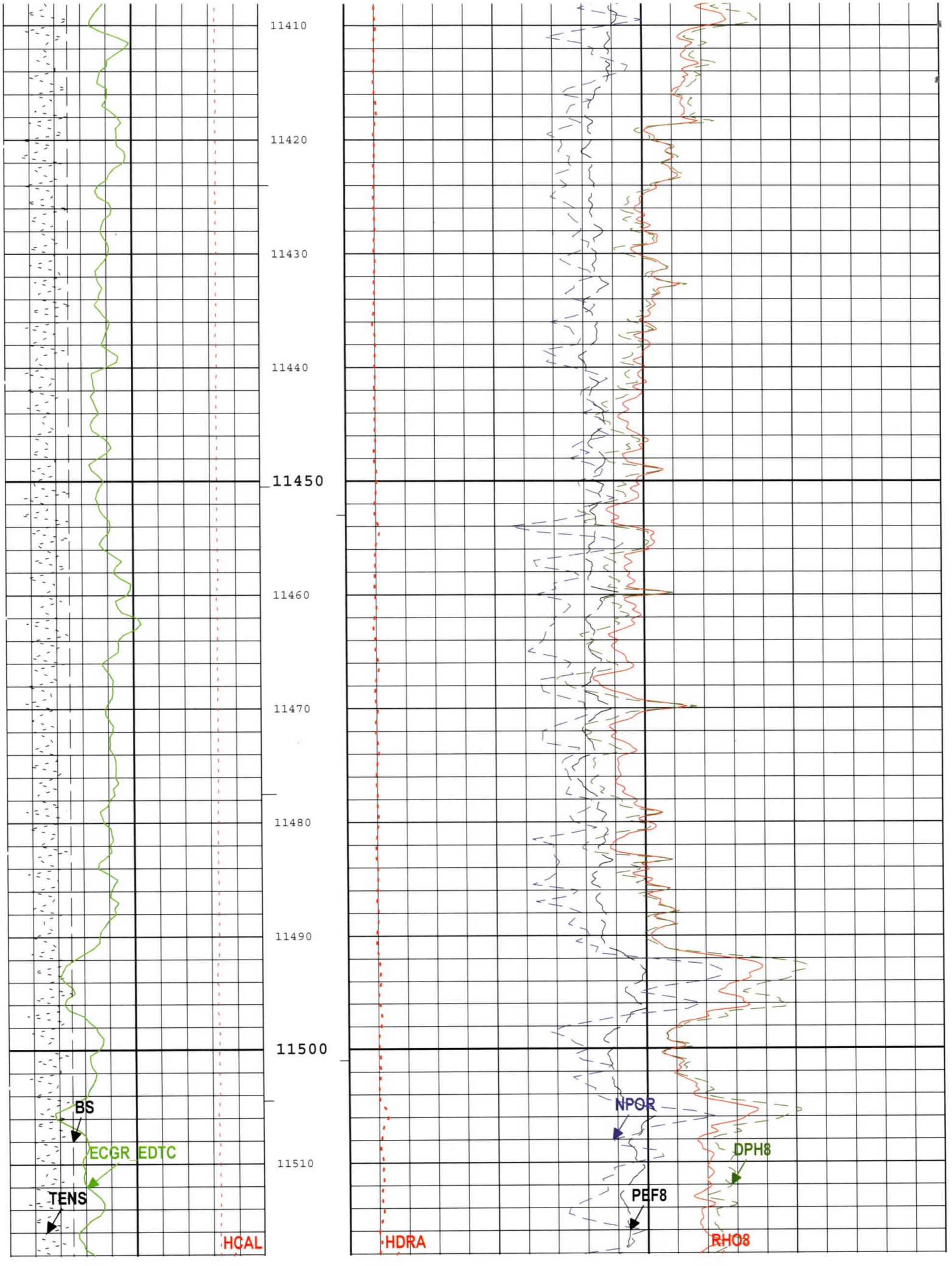
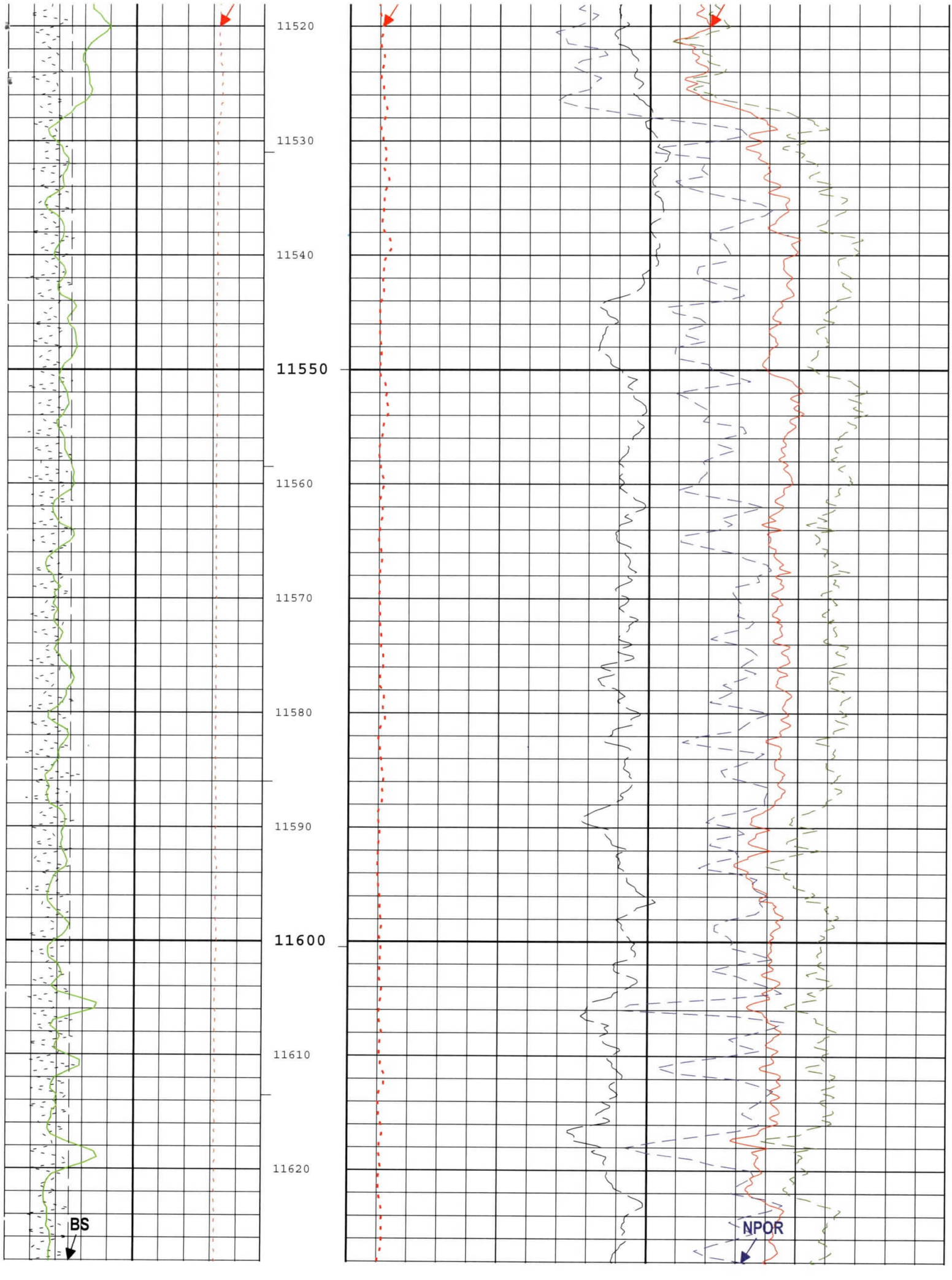
HCAL
HDRA
NPOR
PEF8
RHO8
DPH8


11410
11420
11430
11440
11450
11460
11470
11480
11490
11500
11510
BS
ECGR_EDTC
TENS
HCAL
HDRA
NPOR
DPH8
PEF8
RHO8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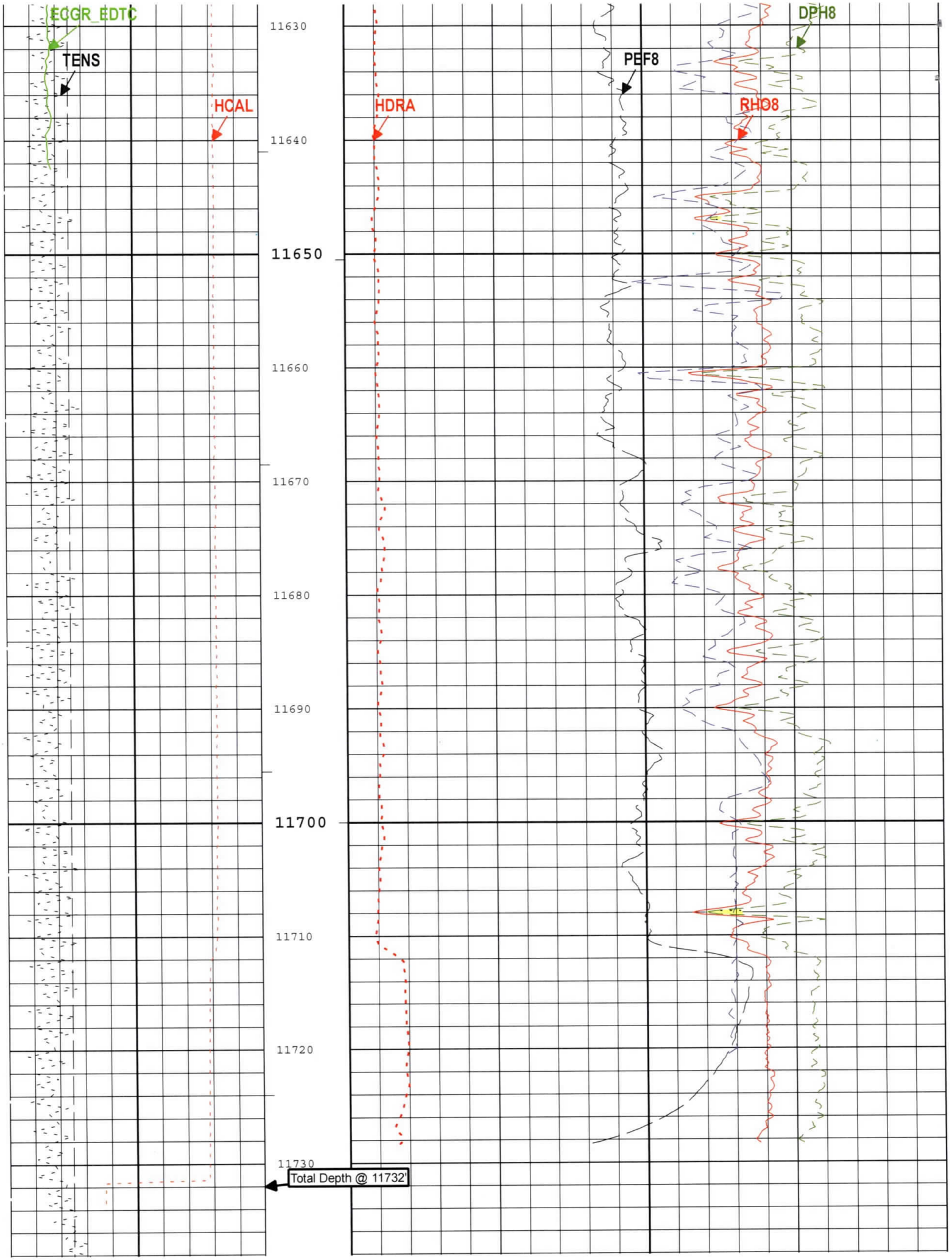
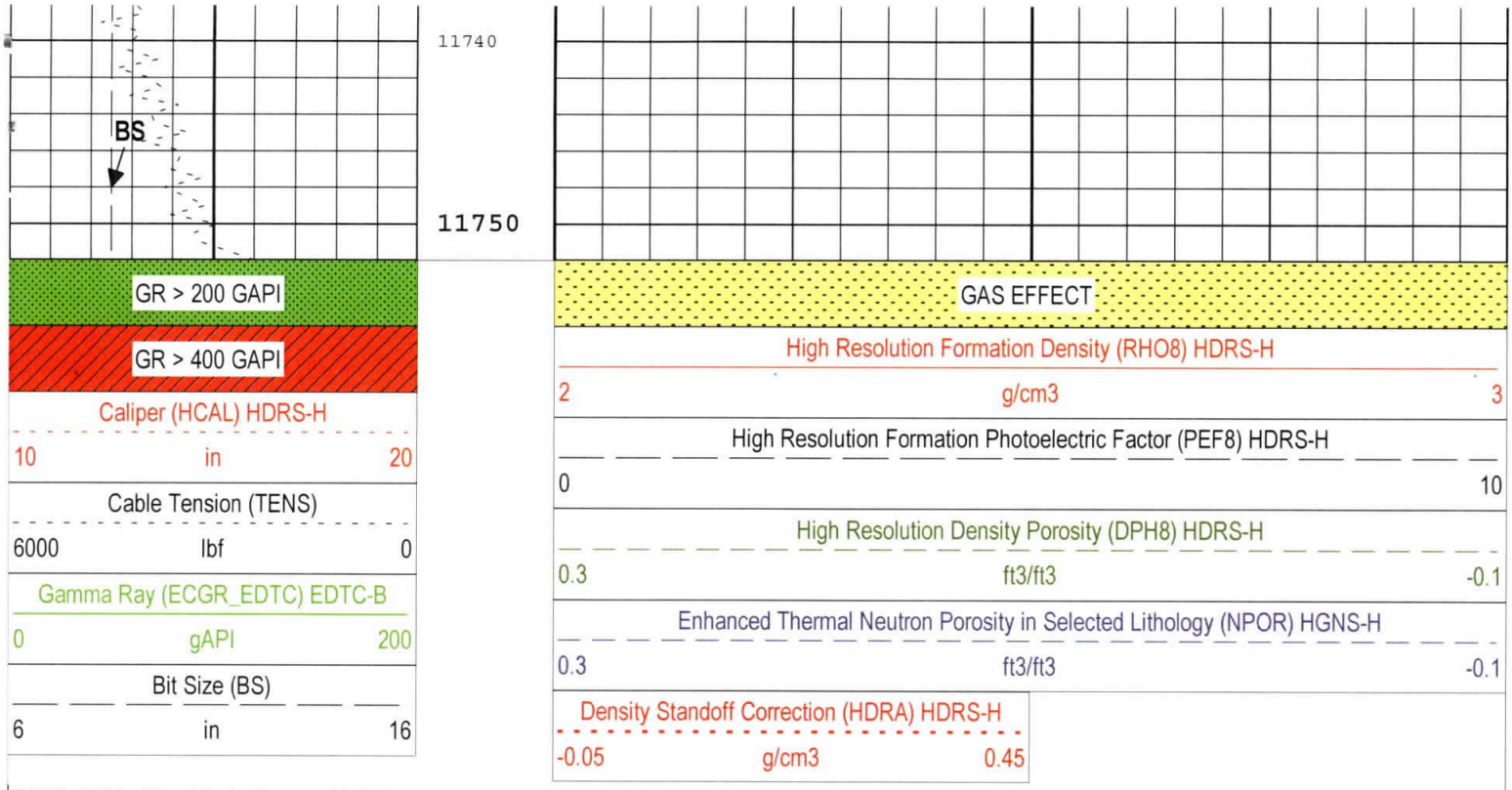
11530
11540
11550
11560
11570
11580
11590
11600
11610
11620
BS
NPOR


ECGR_EDTC
TENS
HCAL
HDRA
PEF8
DPH8
RHO8
11630
11640
11650
11660
11670
11680
11690
11700
11710
11720
11730
Total Depth @ 11732'



Description: Triple Combo standard resolution template for Platform Express Format: Log (HIRES NUC 5IN) Index Scale: 10 in per 100 ft Index Unit: ft
Index Type: Measured Depth Creation Date: 13-Feb-2016 01:44:48

Channel Processing Parameters

RUN1A: Parameters

Parameter	Description	Tool	Value	Unit
ISSBAR	Barite Mud Presence Flag	Borehole	Yes	
BHS	Borehole Status (Open or Cased Hole)	Borehole	Open	
BHT	Bottom Hole Temperature	Borehole	191	degF
BS	Bit Size	WLSESSION	8.5	in
BSAL	Borehole Salinity	Borehole	0	ppm
CALI_SHIFT	CALI Supplementary Offset	HDRS-H	0	in
CBLO	Casing Bottom (Logger)	WLSESSION	8957	ft
CDEN	Cement Density	EDTC-B	2	g/cm3
DC_MODE	Depth Correction Mode	DepthCorrection	Real-time	
DFD	Drilling Fluid Density	Borehole	12.5	lbm/gal
DFT	Drilling Fluid Type	Borehole	Oil	
DHC	Density Hole Correction	HDRS-H	Bit Size	
FCD	Future Casing (Outer) Diameter	WLSESSION	5.5	in
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	LIMESTONE	
MDEN	Matrix Density for Density Porosity	Borehole	2.68	g/cm3
NPRM	HRDD Nuclear Processing Mode	HDRS-H	High Resolution	
SOCO	Standoff Correction Option	HGNS-H	Yes	
TPOS_EDTC	Tool Position: Centered or Eccentered	EDTC-B	Centered	

Tool Control Parameters

RUN1A: 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	Time Zoned	ft/h

Time Zone Parameters

Parameter	Value	Start Time	Stop Time	Start Depth (ft)	Stop Depth (ft)
MAX_LOG_SPEED	1426	12-Feb-2016 18:07:36	12-Feb-2016 18:24:14	11751.78	11456.92
MAX_LOG_SPEED	1510	12-Feb-2016 18:24:14	12-Feb-2016 18:40:53	11456.92	11101.15

All depth are at tool zero.

Calibration Report

HDRS-H (HILT Density and Rxo Sonde, 150 degC) Calibration - Run RUN1A

Primary Equipment :

HILT High-Resolution Control Cartridge, 150 degC	HRCC-H	4769
HILT Resistivity Gamma-Ray Density Device, 150 degC	HRGD-H	4901

Auxiliary Equipment :

HRDD Backscatter Detector	Backscatter	41150
HRDD Long Spacing Detector	Long Spacing	43095
HRDD Short Spacing Detector	Short Spacing	42161
Cesium 137 Gamma-Ray Logging Source	GSR-J	5541
HILT High-Resolution Control Cartridge, 150 degC	HRCC-H	4769
HILT High-Resolution Mechanical Sonde, 150 degC	HRMS-H	860

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): 13:26:09 04-Feb-2016 Expired by 7 days

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit
Small Ring	in	Before	8.00	6.00	7.91	10.00
Large Ring	in	Before	12.00	9.00	12.20	15.00

HDRS Density Calibration - Inversion Results

Master (EEPROM): 14:12:16 01-Feb-2016

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit
Rho Aluminum	g/cm3	Master	2.596	2.586	2.592	2.606
Rho Magnesium	g/cm3	Master	1.686	1.676	1.689	1.696
Pe Aluminum		Master	2.570	2.470	2.510	2.670
Pe Magnesium		Master	2.650	2.550	2.639	2.750

HDRS Density Calibration - Deviation Summary

Master (EEPROM): 14:12:16 01-Feb-2016

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit
BS Average Deviation	%	Master	0	-0.6000	0.2445	0.6000
BS Max Deviation	%	Master	0	-1.6000	0.5918	1.6000
SS Average Deviation	%	Master	0	-1.0000	0.7086	1.0000
SS Max Deviation	%	Master	0	-2.5000	1.4504	2.5000

LS Average Deviation	%	Master	0	-1.5000	1.3918	1.5000
LS Max Deviation	%	Master	0	-3.5000	3.3688	3.5000

HDRS Density Calibration - Background Summary

Master (EEPROM): 14:12:16 01-Feb-2016 Before (Measured): 13:28:55 04-Feb-2016 Expired by 7 days

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit
BS Window Ratio		Master	1.0000		0.7503	
		Before	0.7503	0.7128	0.7510	0.7878
		Before-Master	-----	-----	0.0007	-----
BS Window Sum	1/s	Master	1		24711	
		Before	24711	23476	24712	25947
		Before-Master	-----	-----	1	-----
SS Window Ratio		Master	1.0000		0.4870	
		Before	0.4870	0.4626	0.4863	0.5113
		Before-Master	-----	-----	-0.0007	-----
SS Window Sum	1/s	Master	1		11039	
		Before	11039	10487	11039	11591
		Before-Master	-----	-----	0	-----
LS Window Ratio		Master	1.0000		0.2967	
		Before	0.2967	0.2819	0.2995	0.3116
		Before-Master	-----	-----	0.0028	-----
LS Window Sum	1/s	Master	1		1233	
		Before	1233	1172	1226	1295
		Before-Master	-----	-----	-7	-----

HDRS Density Calibration - Photo-multiplier High Voltages

Master (EEPROM): 14:12:16 01-Feb-2016 Before (Measured): 13:28:55 04-Feb-2016 Expired by 7 days

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit
BS PM High Voltage	V	Master		1000	1545	2400
		Before		1000	1540	2400
		Before-Master	-----	-100	-5	100
SS PM High Voltage	V	Master		1000	1668	2400
		Before		1000	1664	2400
		Before-Master	-----	-100	-4	100
LS PM High Voltage	V	Master		1000	1570	2400
		Before		1000	1583	2400
		Before-Master	-----	-100	13	100

HDRS Density Calibration - Crystal Quality Resolutions

Master (EEPROM): 14:12:16 01-Feb-2016 Before (Measured): 13:28:55 04-Feb-2016 Expired by 7 days

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit
BS Crystal Resolution	%	Master		5.00	11.77	25.00
		Before		5.00	11.80	25.00
		Before-Master	-----	-1.00	0.03	1.00
SS Crystal Resolution	%	Master		5.00	9.16	20.00
		Before		5.00	9.20	20.00
		Before-Master	-----	-1.00	0.04	1.00
LS Crystal Resolution	%	Master		5.00	8.81	20.00
		Before		5.00	9.03	20.00
		Before-Master	-----	-1.00	0.22	1.00

HDRS MCFL Calibration - MCFL Accumulations

Before (Measured): 20:44:56 08-Feb-2016 Expired by 2 days

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit
Main Resistivity	ohm.m	Before	3875	3565	3844	4185
Deep Resistivity	ohm.m	Before	3830	3524	3800	4136
Shallow Resistivity	ohm.m	Before	3830	3524	3830	4136

HGNS-H (HILT Gamma-Ray and Neutron Sonde, 150 degC) Calibration - Run RUN1A

Primary Equipment :

HILT Gamma-Ray and Neutron Sonde, 150 degC	HGNS-H	4887

Auxiliary Equipment :

HGNS Accelerometer, 150 degC	HACCZ-H	7079

AmBe Neutron Logging Source	NSR-F	5159

Calibration Parameter :

Water Temperature (Calibration Tank Water Temperature)	60.7
Housing Size (Thermal Housing Size)	3.38
JIG-BKG (Jig minus background reference)	165

HGNS Accelerometer Calibration - Accelerometer Accumulations

Before (Measured): 16:48:39 12-Feb-2016

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit
AZ Vertical Measurement	ft/s2	Before	32.2	31.5	32.0	32.8

HGNS Accelerometer EEPROM - Accelerometer EEPROM Read

Master (EEPROM): 00:00:00 15-Jun-2007

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit
Accelerometer Manufacturer		Master			QAT_160	
Accelerometer Reference Temperature	degF	Master		30.2	77.0	122.0
Accelerometer Coefficients - 0		Master	-----	-----	2244.000	-----
Accelerometer Coefficients - 1		Master	-----	-----	26.450	-----
Accelerometer Coefficients - 2		Master	-----	-----	0.002	-----
Accelerometer Coefficients - 3		Master	-----	-----	0.000	-----
Accelerometer Coefficients - 4		Master	-----	-----	2.725	-----
Accelerometer Coefficients - 5		Master	-----	-----	0.000	-----
Accelerometer Coefficients - 6		Master	-----	-----	0.000	-----
Accelerometer Coefficients - 7		Master	-----	-----	0.000	-----
Accelerometer Coefficients - 8		Master	-----	-----	298.800	-----
Accelerometer Coefficients - 9		Master	-----	-----	1.007	-----

HGNS Neutron Calibration - HGNS Neutron Accumulations

Master (EEPROM): 16:09:48 01-Feb-2016 Before (Measured): 13:12:11 04-Feb-2016 Expired by 7 days

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit
Near Zero Measurement	1/s	Master	0	5.0	28.2	40.0
		Before	0	5.0	28.2	40.0
		Before-Master	-----	-4.2	0.0	4.2
Far Zero Measurement	1/s	Master	0	5.0	28.2	40.0
		Before	0	5.0	33.8	40.0
		Before-Master	-----	-4.2	5.6	4.2
Near Plus Measurement	1/s	Master	6031.0	4700.0	5018.0	6900.0
		Before	-----	-----	-----	-----
		Before-Master	-----	-----	-----	-----
Far Plus Measurement	1/s	Master	2793.0	1900.0	2143.0	2900.0
		Before	-----	-----	-----	-----
		Before-Master	-----	-----	-----	-----
Near Corrected Plus Measurement	1/s	Master		4700.0	5061.0	6900.0
		Before	-----	-----	-----	-----
		Before-Master	-----	-----	-----	-----
Far Corrected Plus Measurement	1/s	Master		1900.0	2162.0	2900.0
		Before	-----	-----	-----	-----
		Before-Master	-----	-----	-----	-----

HGNS Gamma-Ray Calibration - Gamma-Ray Accumulations

Before (Measured): 14:05:42 04-Feb-2016 Expired by 6 days

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit
RGR Zero Measurement	gAPI	Before	30.0	0	86.6	120.0
RGR Plus Measurement	gAPI	Before	185.4	157.1	175.0	206.3
GR Calibration Gain		Before	0.89	0.80	0.94	1.05

EDTC-B (Enhanced Digital Telemetry Cartridge - Version B) Calibration - Run RUN1A

Primary Equipment :

EDTC-B	EDTC-B	8001

Calibration Parameter :

Plus Reference (Jig minus background reference) 165

EDTC-B Accelerometer Calibration - EDTC-B Accelerometer Calibration

Before (Measured): 16:39:54 12-Feb-2016

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit
AZ Vertical Measurement	ft/s2	Before	32.19	31.53	31.95	32.84

EDTC-B Memory Data - EDTC-B Memory Data

Master (EEPROM): 21:50:51 12-Feb-2016

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit
Initial PMT HV	V	Master			1549.000	
Accelerometer Serial Number		Master			40	
Accelerometer Coefficients - 0		Master	----	----	2.945	----
Accelerometer Coefficients - 1		Master	----	----	0.000	----
Accelerometer Coefficients - 2		Master	----	----	0.000	----
Accelerometer Coefficients - 3		Master	----	----	0.000	----
Accelerometer Coefficients - 4		Master	----	----	0.000	----
Accelerometer Coefficients - 5		Master	----	----	0.000	----
Accelerometer Coefficients - 6		Master	----	----	0.000	----
Accelerometer Coefficients - 7		Master	----	----	-0.005	----
Accelerometer Coefficients - 8		Master	----	----	0.000	----
Accelerometer Coefficients - 9		Master	----	----	0.000	----
Accelerometer Coefficients - 10		Master	----	----	0.000	----
Accelerometer Coefficients - 11		Master	----	----	0.000	----
Gamma-Ray Detector Serial Number		Master			77244	

EDTC-B Gamma-Ray Calibration - Gamma Ray Coefficients

Before (Measured): 13:56:30 04-Feb-2016

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit
Gamma Ray Gain		Before	1.000	0.900	0.978	1.100

EDTC-B Gamma-Ray Calibration - Gamma Ray Accumulations

Before (Measured): 13:56:30 04-Feb-2016

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit
RGR Zero Measurement	gAPI	Before		0	48.731	120.000
RGR Plus Measurement	gAPI	Before	165.000	150.000	168.739	180.000

Well:	CURRY 8H
Field:	FORT BEELER
County:	MARSHALL
State:	WEST VIRGINIA

PLATFORM EXPRESS

LITHO-DENSITY / COMPENSATED NEUTRON

GAMMA RAY / CALIPER