STEP energy services

BOREHOLE COMPENSATED SONIC LOG

Company MERIT ENERGY COMPANY
Well WENU #603
Field EUBANK NORTH
County HASKELL
State KANSAS
Country USA
API No. 15-081-22212-00-00

File No : HAYS-70389
Company : MERIT ENERGY COMPANY
Well : WENU #603
Field : EUBANK NORTH
County : HASKELL
State : KANSAS
Country : USA
API No : 15-081-22212-00-00

Location :
2003' FWL & 2108' FSL
SW NE NE SW

LSD : **Sect :** 4 **Twp :** 28S **Rge :** 34W

Permanent Datum:	GL	**Elevations:**		**Services:**	
Drilling Measured From:	KB	**KB**	3090.60 Ft	CNP	MLT
Log Measured From:	KB	**DF**	3089.60 Ft	LDP	PIT
Above Permanent Datum:	12.00 Ft	**GL**	3078.60 Ft	CST	

Date	12-11-2019						
Run Number	1						
Depth--Driller	5578.0	Ft					
Depth--Logger	5584.0	Ft					
First Reading	5552.0	Ft					
Last Reading	1746.0	Ft					
Casing--Driller	1764.0	Ft					
Casing--Logger	1764.0	Ft					
Bit Size	7.875	In					
Casing Size	8.625	In					
Hole Fluid Type	WBM						
Density	9.3						
Fluid Loss	6.8						
PH/Viscosity	10.0	52.0					
Sample Source	MEASURED						
RM@Measured Temp.	3.000 @ 62 F						
RMF@Measured Temp	2.550 @ 62 F						
RMC@Measured Temp.	3.450 @ 62 F						
Source RMF/RMC	CALCULATED	CALCULATED					
RM@BHT	1.570 @ 121 F						
Time Circulation Stopped	12-11-2019 17:00						
Max Recorded Temp.	121 F						
Equipment/Base	TRK-137	HAYS					
Recorded By	B.BAILEY						
Witnessed By	K.ROBINSON, R. GONZALES						

Bitsize Intervals

Size (In)	Bottom (Ft)
7.875	5578.00

Casing Strings

Size (In)	Weight (Lbs)	Bottom (Ft)	Top (Ft)
8.625	32.00	1764.00	0.00

Run Number	1
Date	12-11-2019
Date/Time On Bottom	12-11-2019 1849
Depth to Fluid	0.0 Ft
Salinity	1800.000
RMF@BHT	1.330 @ 121 F
RMC@BHT	1.800 @ 121 F

Run Number 1

Comments

ALL PRESENTATIONS AS PER CUSTOMER REQUEST.

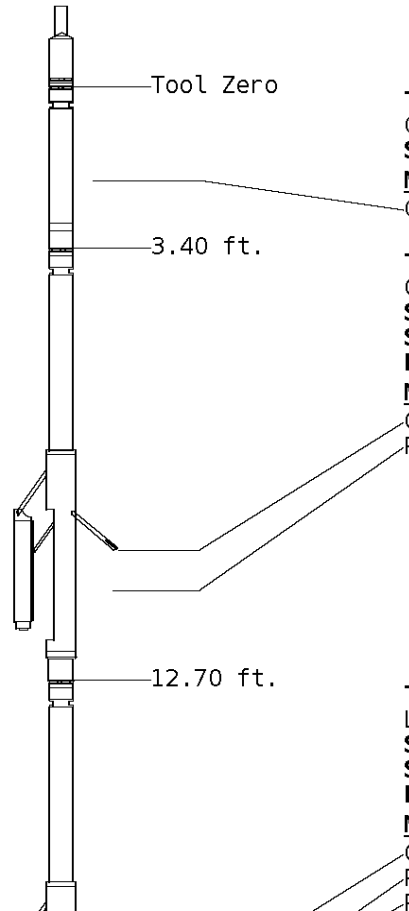
GRT, CNT, LDT, CST, MLT, AND PIT RUN IN COMBINATION.
2.71 G/CC DENSITY MATRIX USED TO CALCULATE POROSITY.
5.5" PRODUCTION CASING USED TO CALCULATE ANNULAR HOLE VOLUME.
CALIPERS ORIENTED ON X-Y AXIS.
PHIN IS CALIPER CORRECTED
DETAIL TO 3800 FT AS PER CLIENT REQUESTED

GRT: GRP
CNT: PHIN, PHINDOL, CLCNIN
LDT: PORL, PORLDOL, LCORN, LDENN, PECLN, CLLDIN
MLT: MSFI, MSFN, CLMRIN.
PIT: ILD, ILM, SFLAEC, SPU, CIRD

OPERATORS:
D.LEGLEGITER
D.RAGSDALE
J.VAUGHN

Tool String Schematic

Total Tool Length - 68.31 **ft.**
Maximum Outside diameter - 6.00 **in.**
Net Weight in Air - 1171.00 **lbs.**



Tool: GRT-B **Length:** 3.40 **ft.** **O.D.** 3.60 **in.**
Gamma Ray Controller
Sonde ID :GRT-BC-038

Measure Point	Tool Offset	Stack Offset	Bottom Offset
GRP	2.00	2.00	66.31

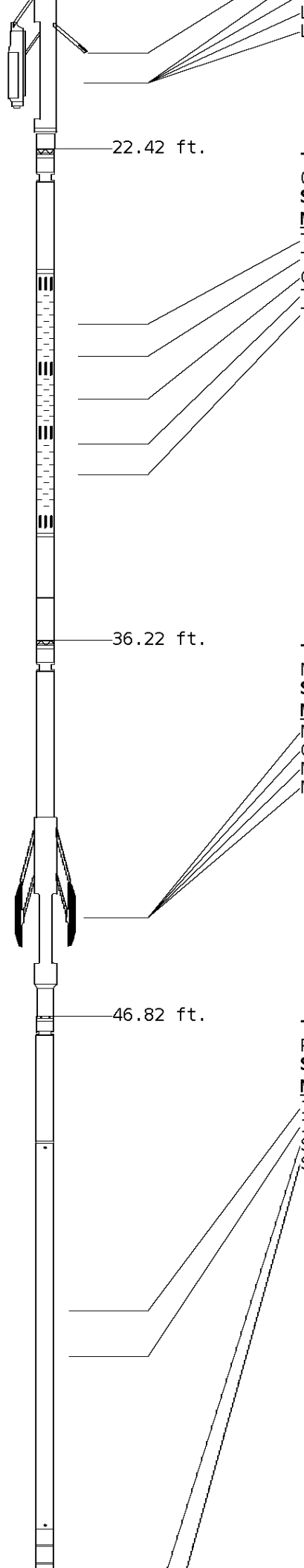
Tool: CNT-AA **Length:** 9.30 **ft.** **O.D.** 4.36 **in.**
Compensated Neutron A Pad on NDT-A
Sonde ID :NDT-AF-104
Source ID :N-1104
Pad ID :CNP-AE-41

Measure Point	Tool Offset	Stack Offset	Bottom Offset
CLCN	6.00	9.40	58.91
PHIN	6.80	10.20	58.11

Tool: LDT-DF **Length:** 9.72 **ft.** **O.D.** 4.80 **in.**
Litho Density D Pad on NDT-F
Sonde ID :NDT-FA-404
Source ID :1637GW
Pad ID :LDP-DA-062

Measure Point	Tool Offset	Stack Offset	Bottom Offset
CLLD	6.42	19.12	49.19
PEL	7.42	20.12	48.19
PES	7.82	20.52	47.79

LDEN	7.62	20.32	47.99
LCOR	7.62	20.32	47.99



Tool: CST-AD **Length:** 13.80 **ft.** **O.D.** 3.60 **in.**
Open Hole Sonic
Sonde ID :CST-AB-24

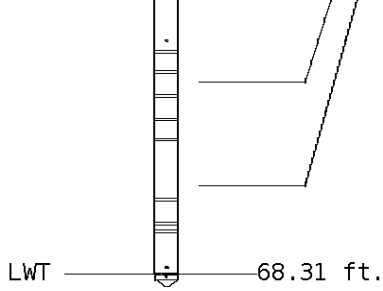
Measure Point	Tool Offset	Stack Offset	Bottom Offset
TT1	4.80	27.22	41.09
TT3	5.80	28.22	40.09
CDT	7.30	29.72	38.59
TT4	8.80	31.22	37.09
TT2	9.80	32.22	36.09

Tool: MLT-AB **Length:** 10.60 **ft.** **O.D.** 6.00 **in.**
Micro Log Tool
Sonde ID :MLT-012

Measure Point	Tool Offset	Stack Offset	Bottom Offset
MSFL	8.90	45.12	23.19
CLMR	7.60	43.82	24.49
MSFN	8.90	45.12	23.19
MSFI	8.90	45.12	23.19

Tool: PIT-CA **Length:** 21.49 **ft.** **O.D.** 3.62 **in.**
Phased Dual Induction w/ RM & D
Sonde ID :PIT-AC-043

Measure Point	Tool Offset	Stack Offset	Bottom Offset
ILD	8.92	55.74	12.56
ILM	10.10	56.92	11.39
SFLU	17.49	64.31	4.00
SP	20.60	67.42	0.88



Well File: merit_wenu_603_dec11_qst **Scale:** 1:240 **Format:** CST-240
Segment: V1.D1.S14 MAIN **Acquired:** Not Available
Reference: 0 **Processed:** Not Available

NEUTRON (Y) CALIPER
INCHES (IN)
16 — 26
6 — 16

DENSITY (X) CALIPER
INCHES (IN)
16 — 26
6 — 16

BIT SIZE
INCHES (IN)
6 — 16

TENSION
LBS
10000 — 0

GAMMA RAY
API UNITS
150 — 300
0 — 150

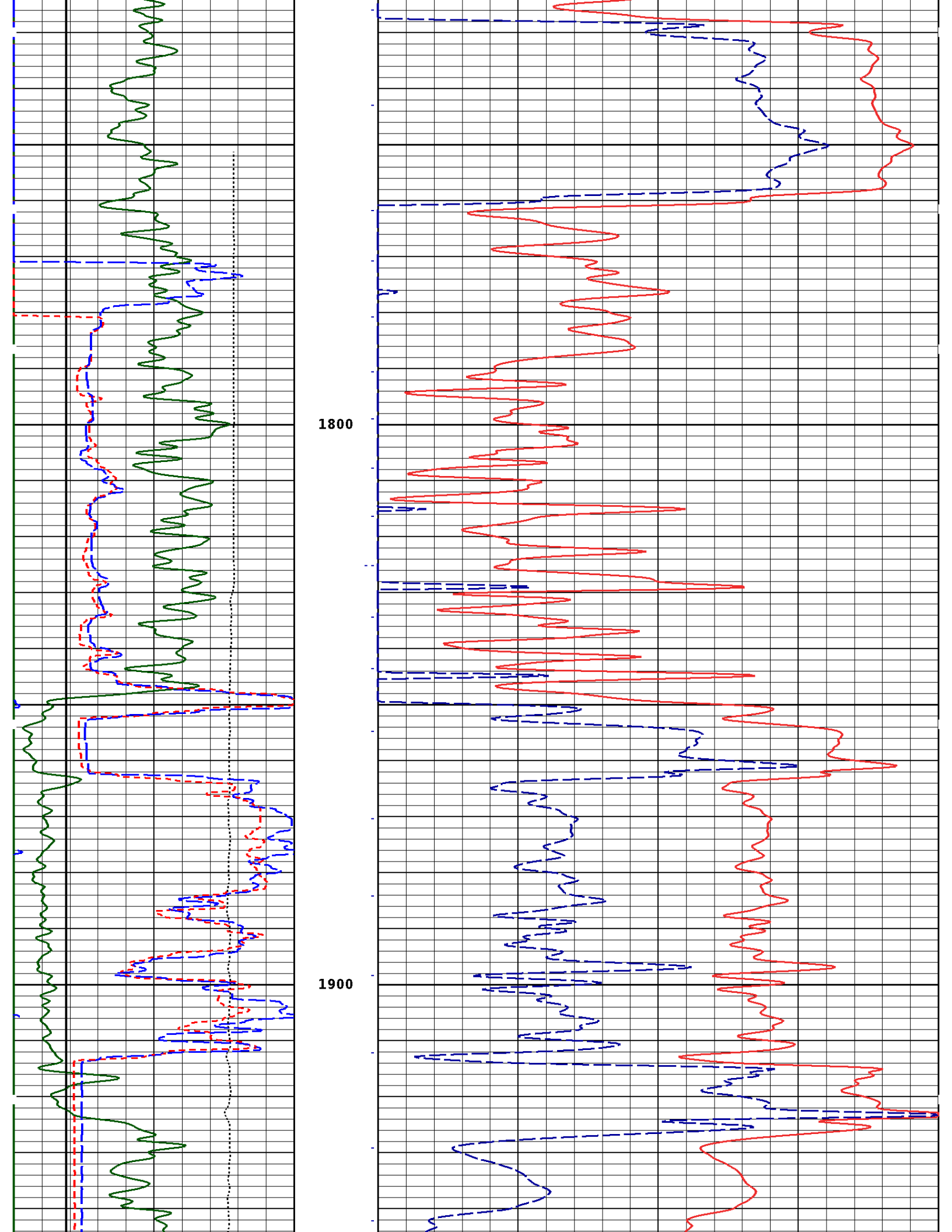
COMPENSATED SONIC TRAVEL TIME
uSEC/FT
240 — 140
140 — 40

SONIC POROSITY
PERCENT
30 — -10

1:240 MAIN SECTION

File #1.1.14

1700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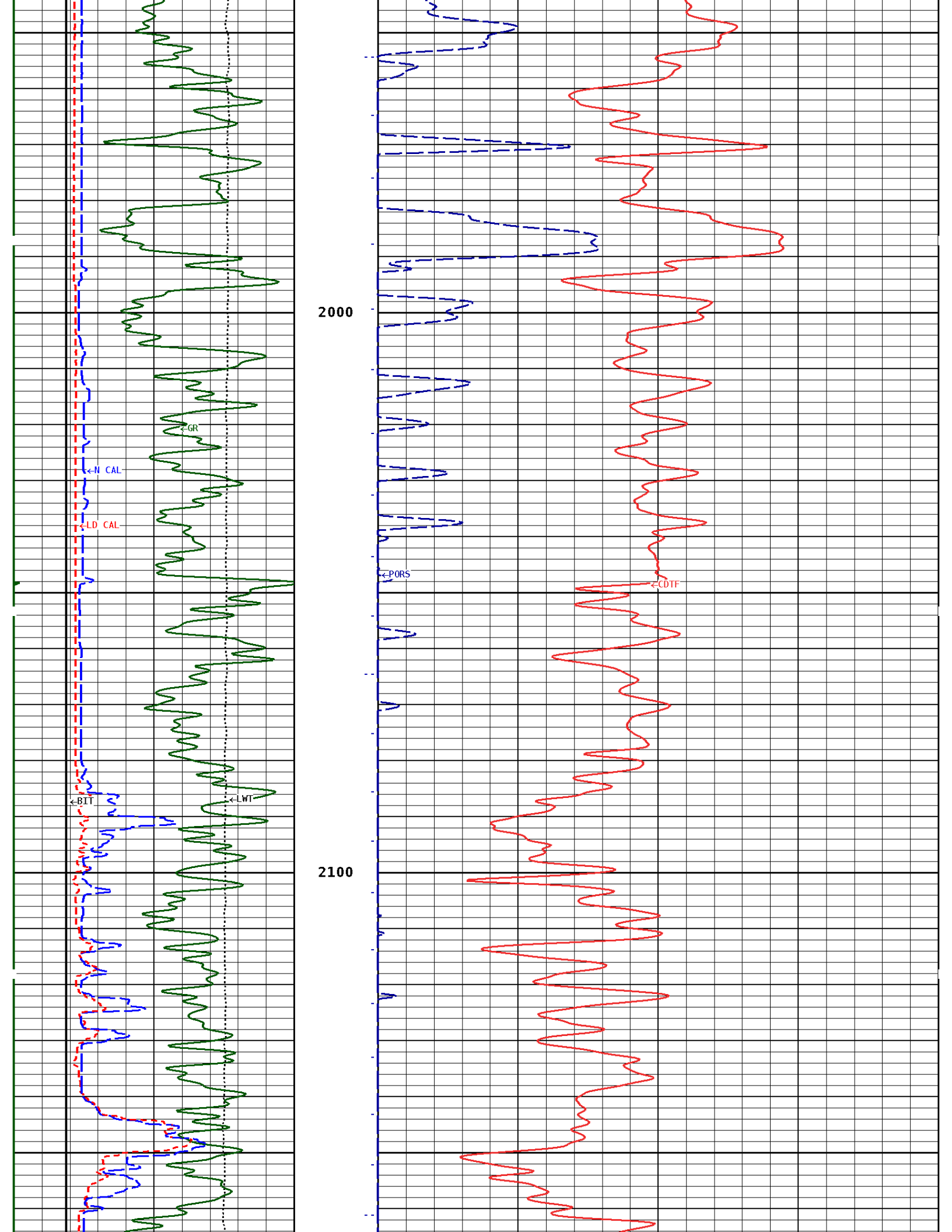
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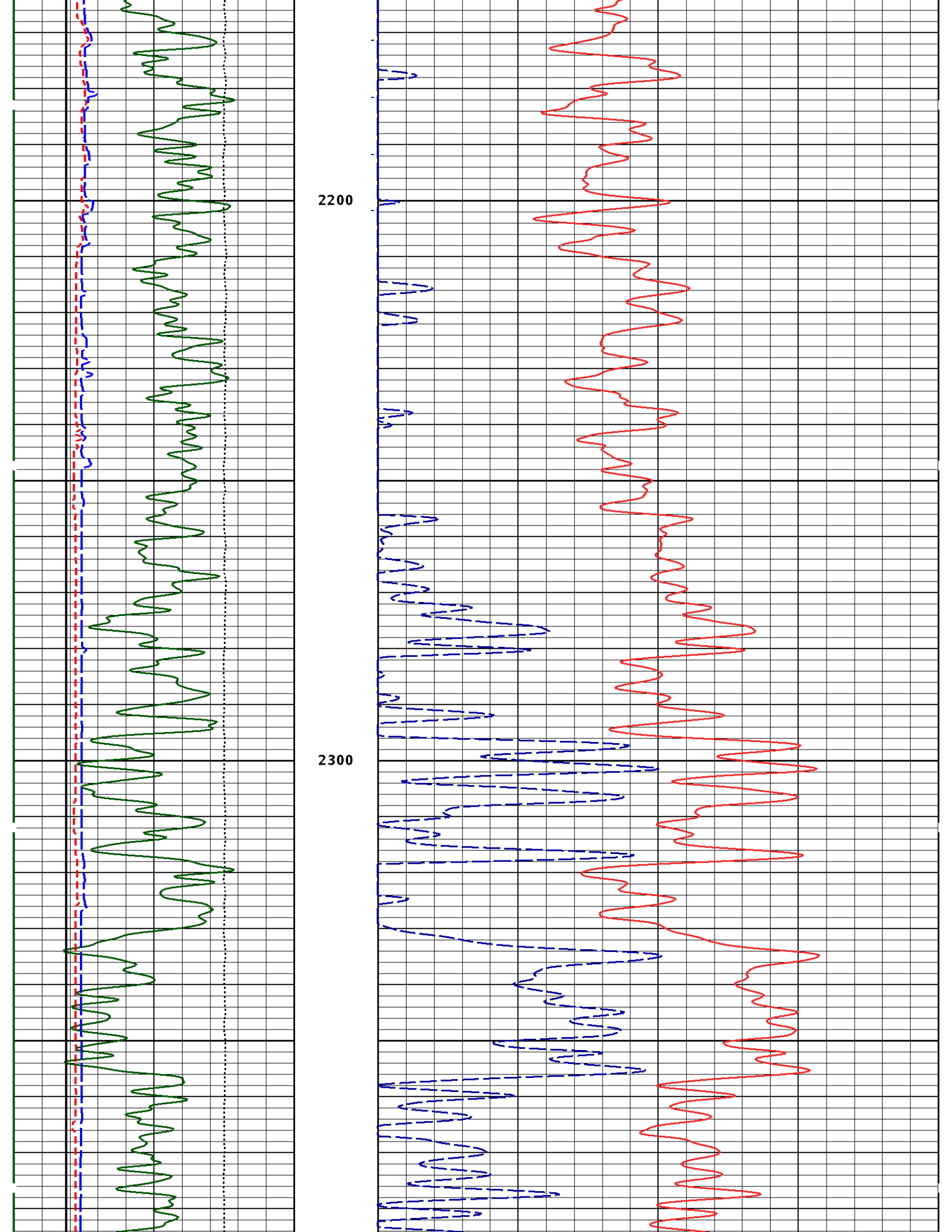
LD CAL
BIT
LWT
PORS
CDTF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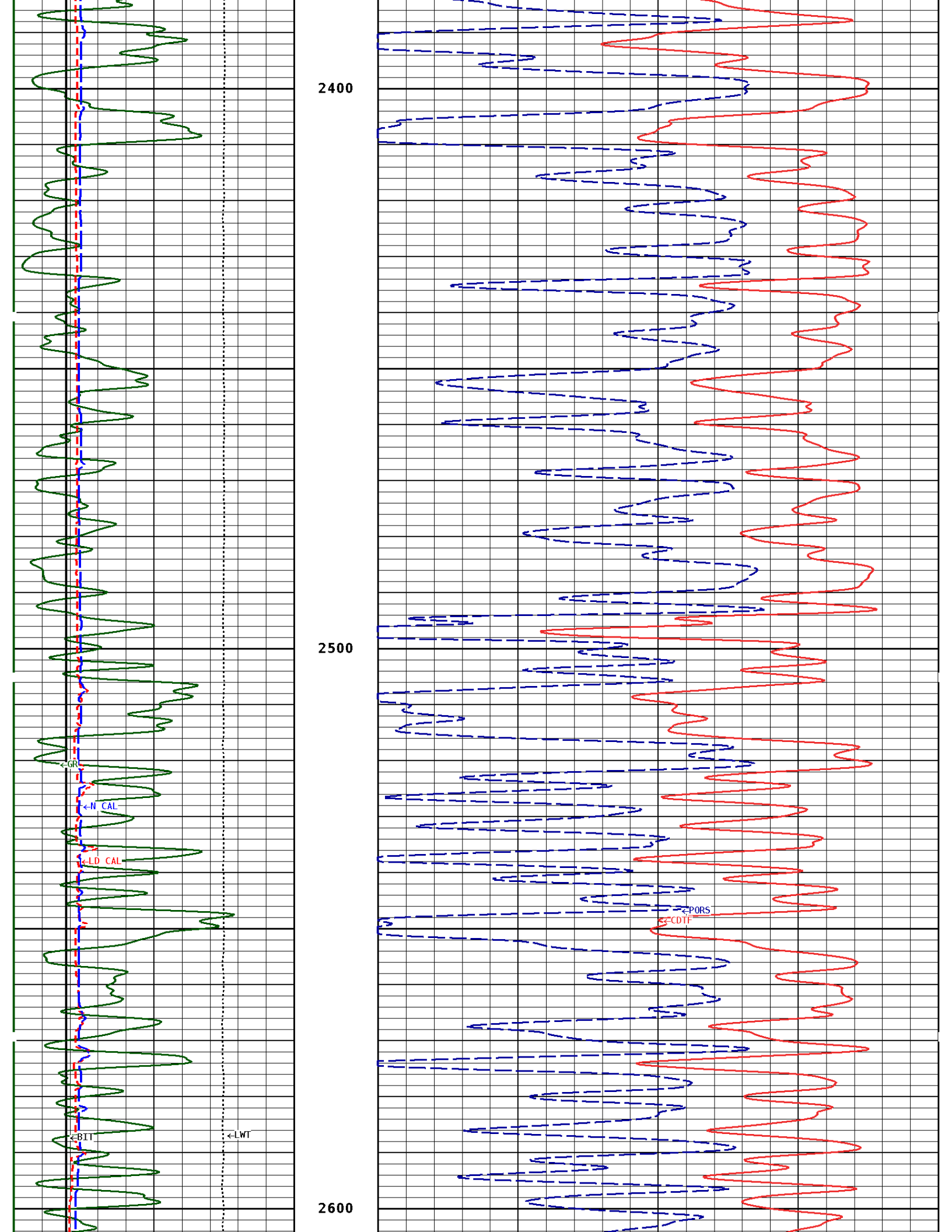
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←BIT
←LWT
←PORS
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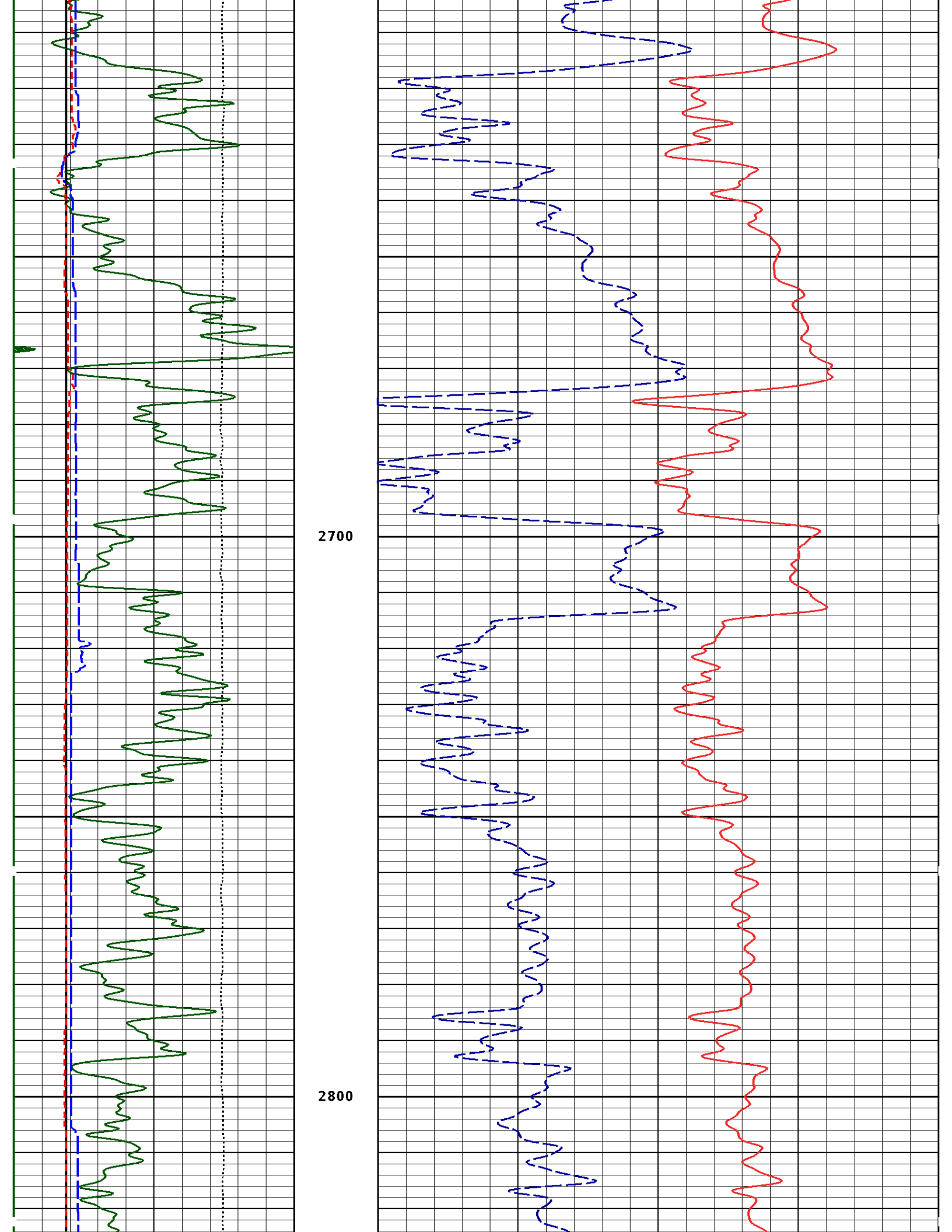
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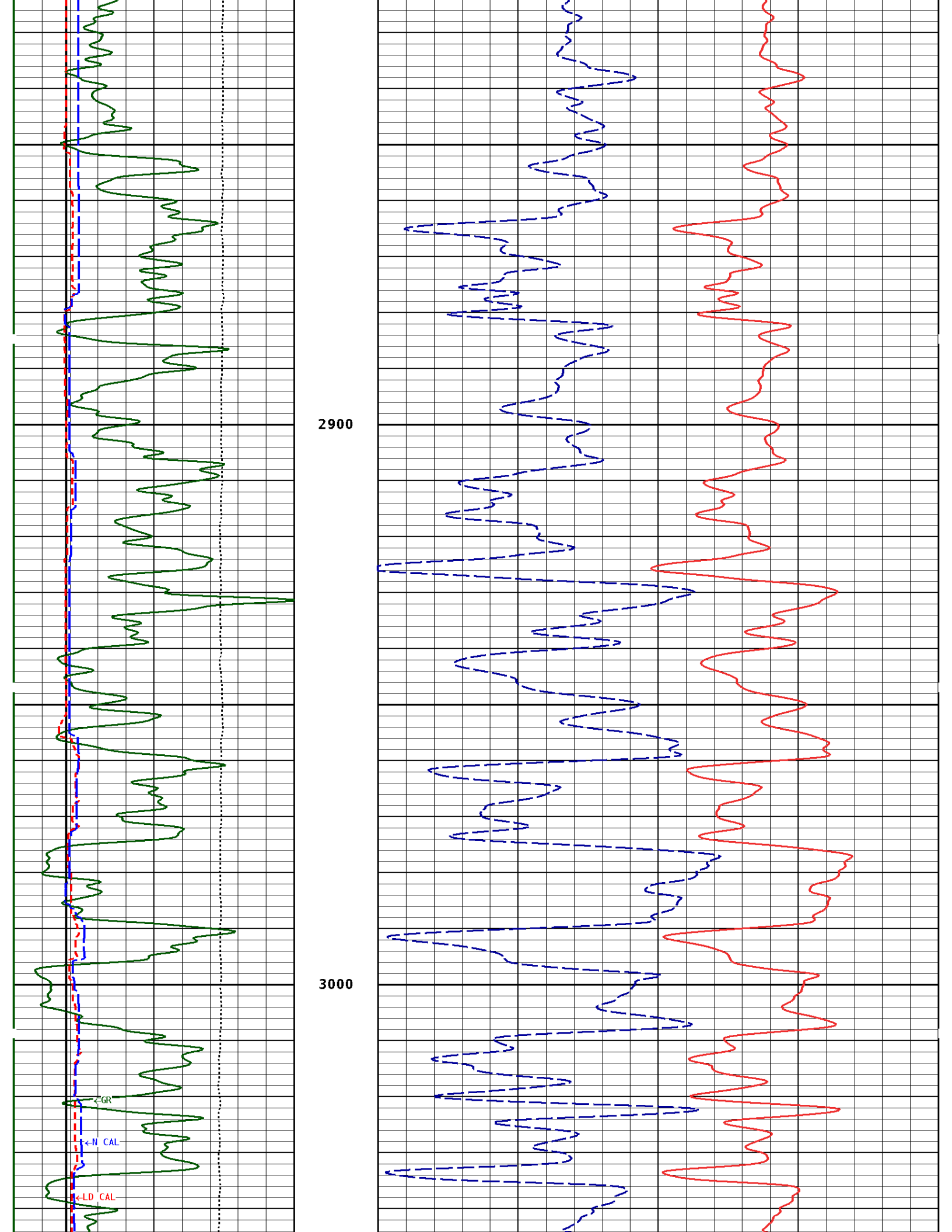
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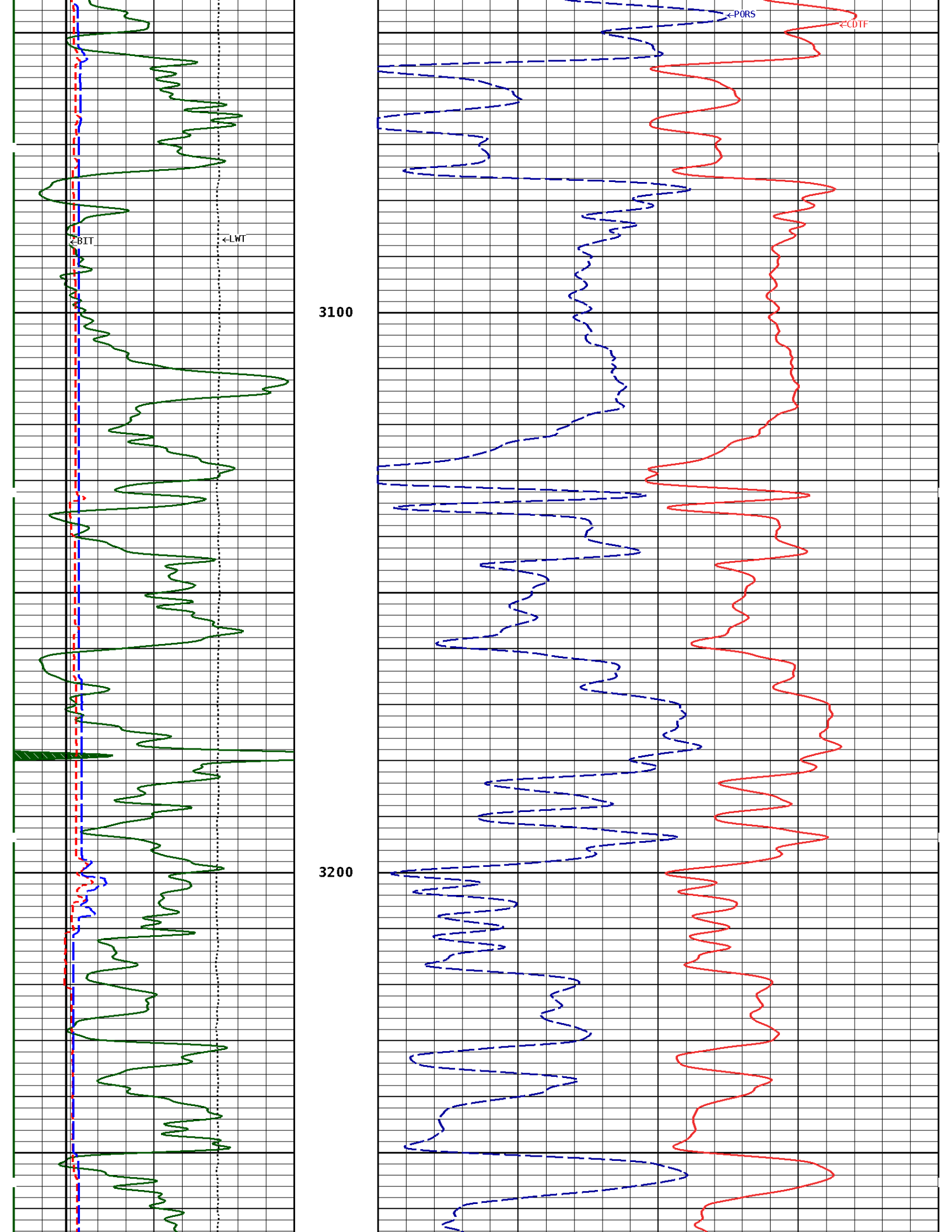
3000
GR
N CAL
LD CAL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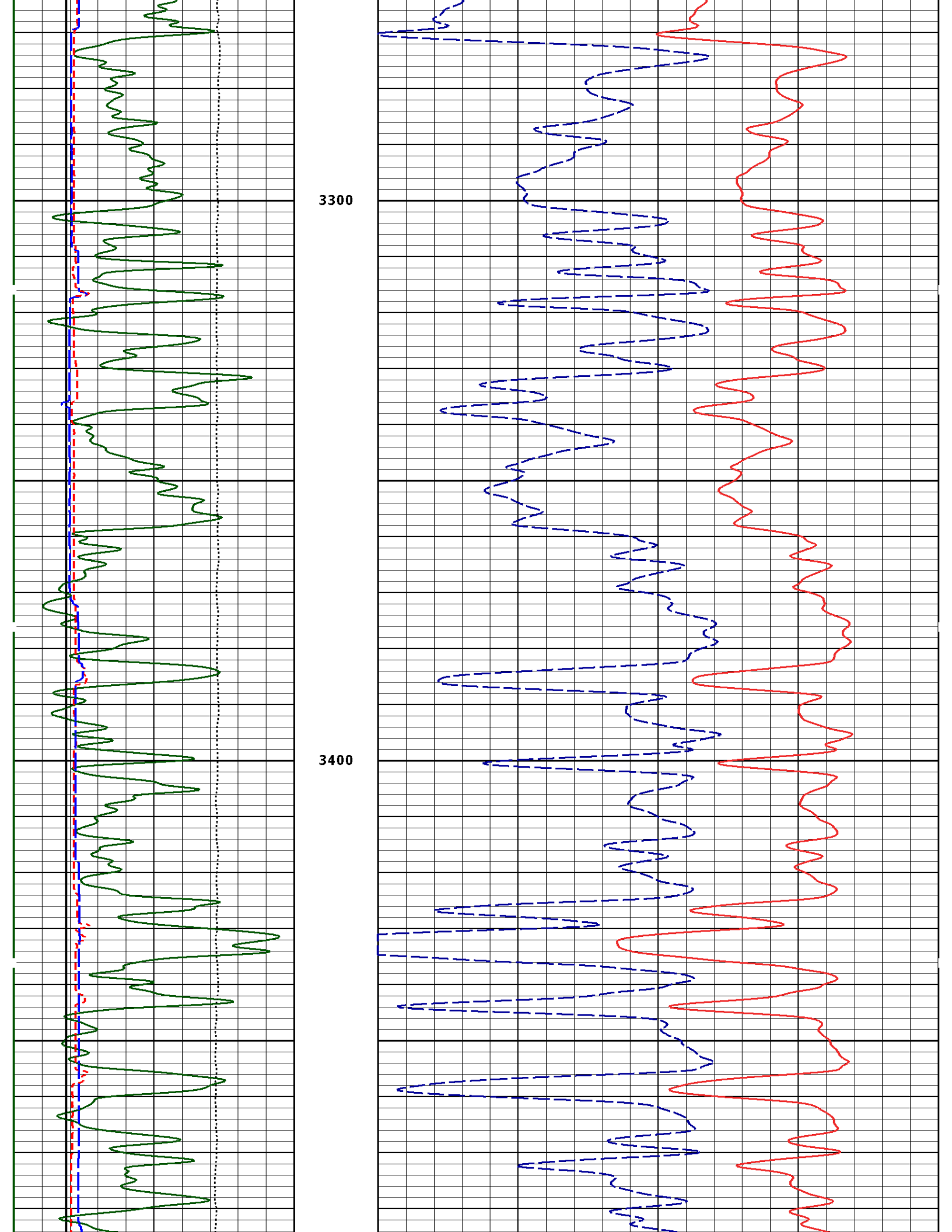
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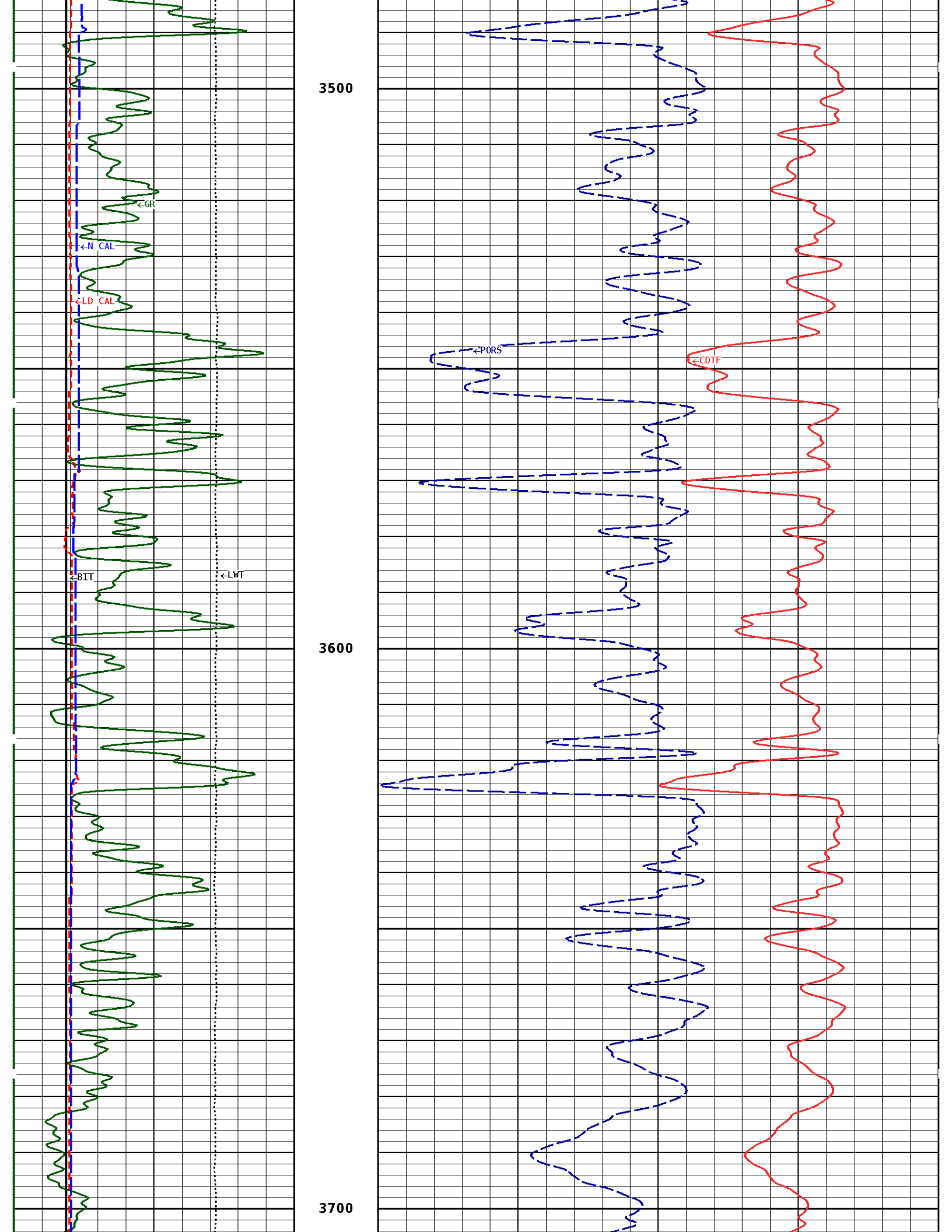
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3600
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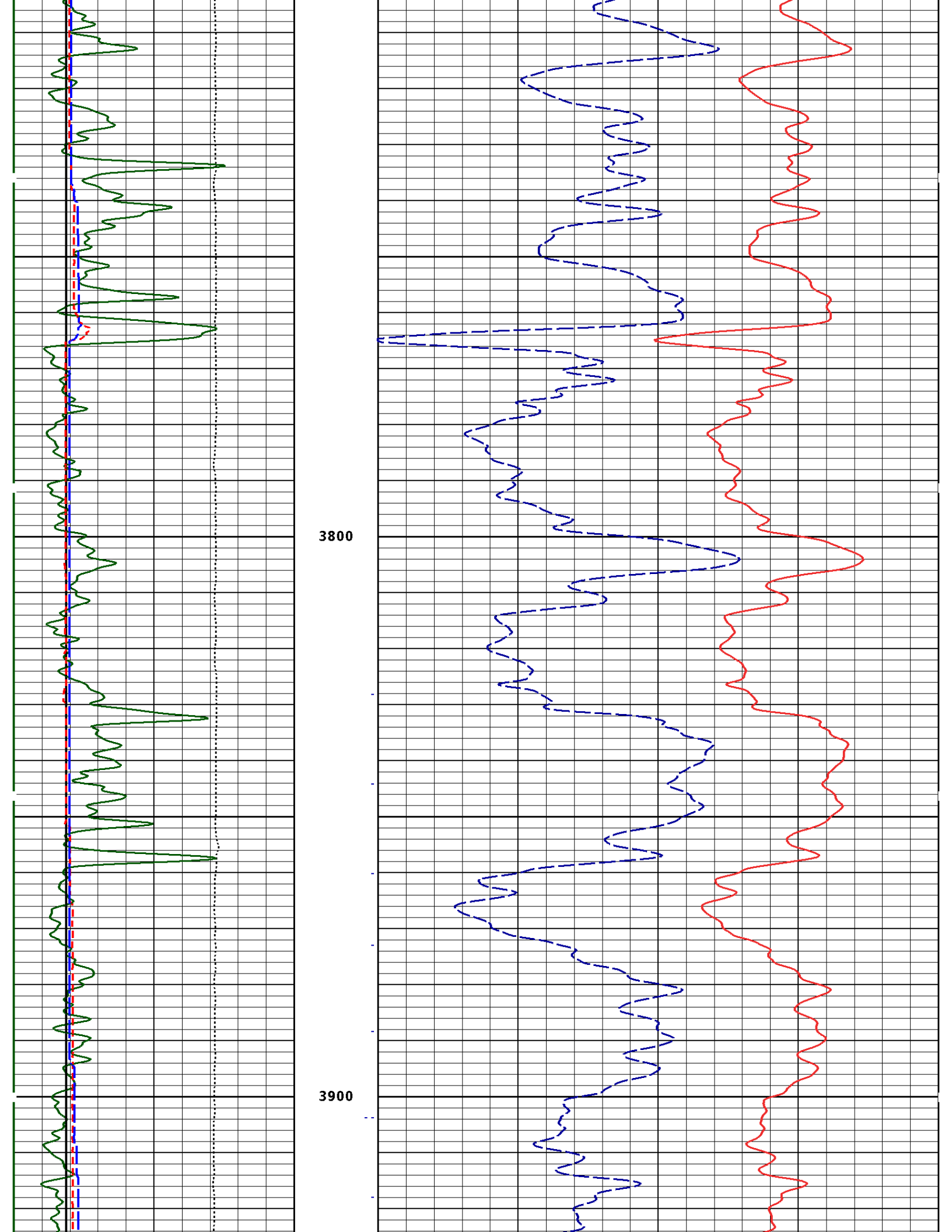
←LD CAL
←BIT
←LWT
←PORS
←CDTF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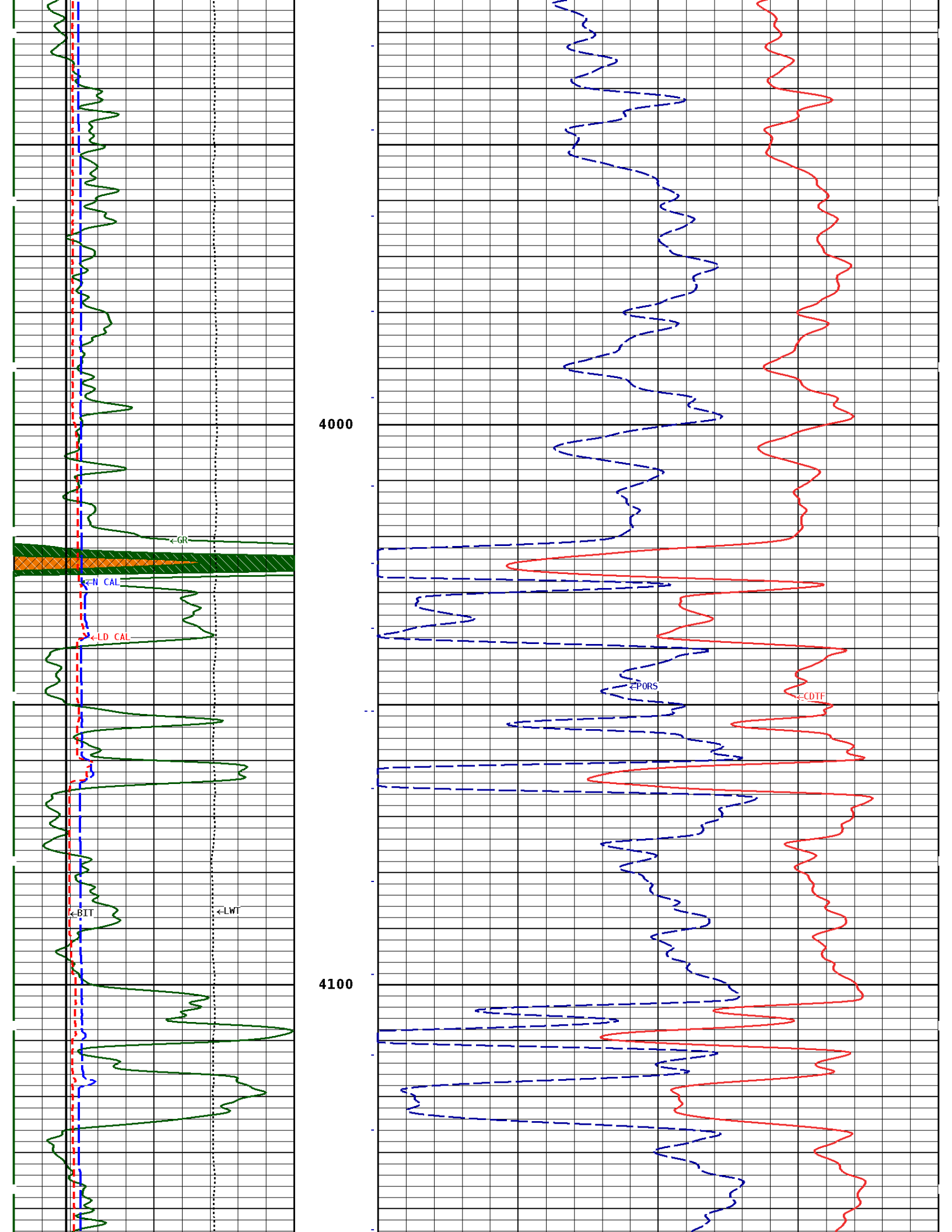
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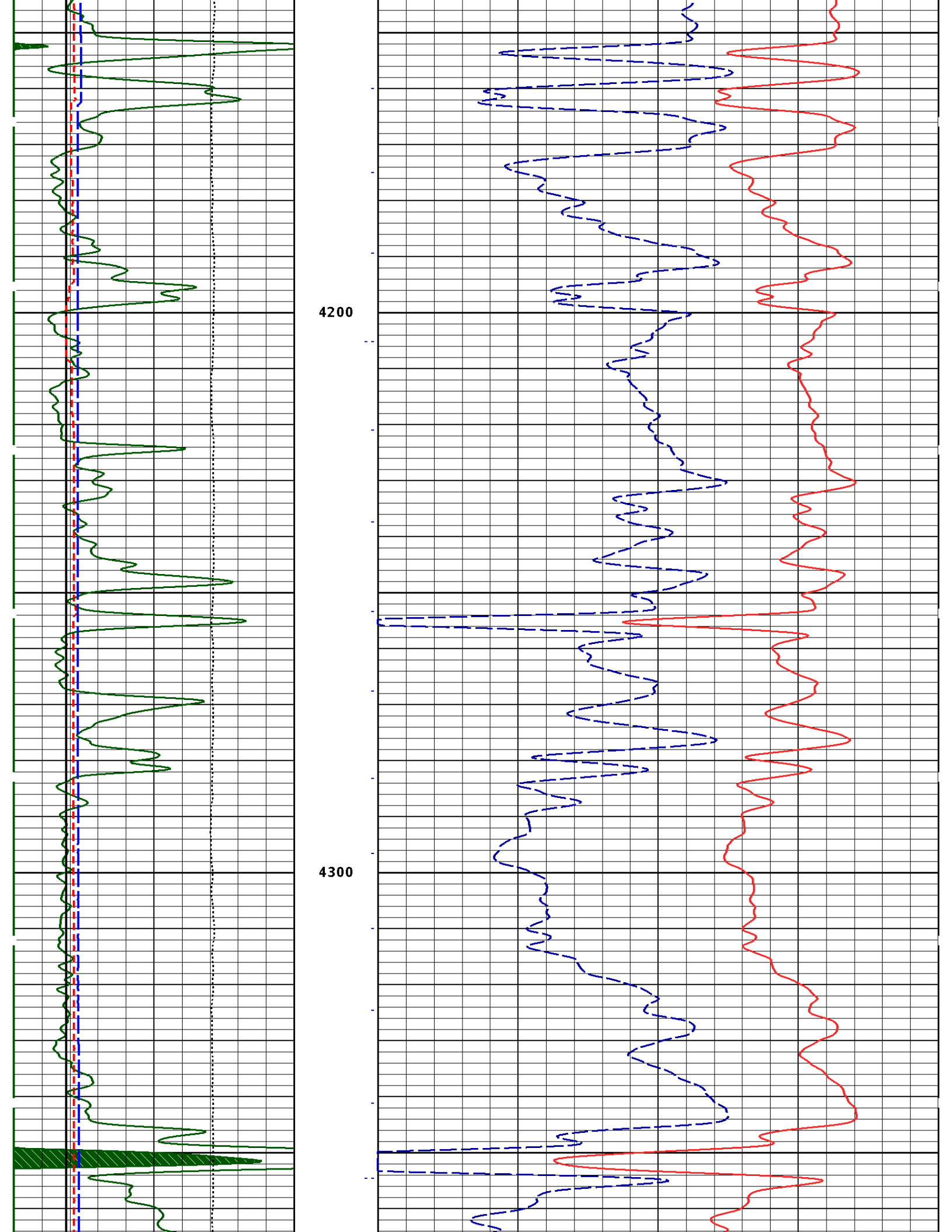
4100
GR
N CAL
LD CAL
BIT
LWT
PORS
CDTF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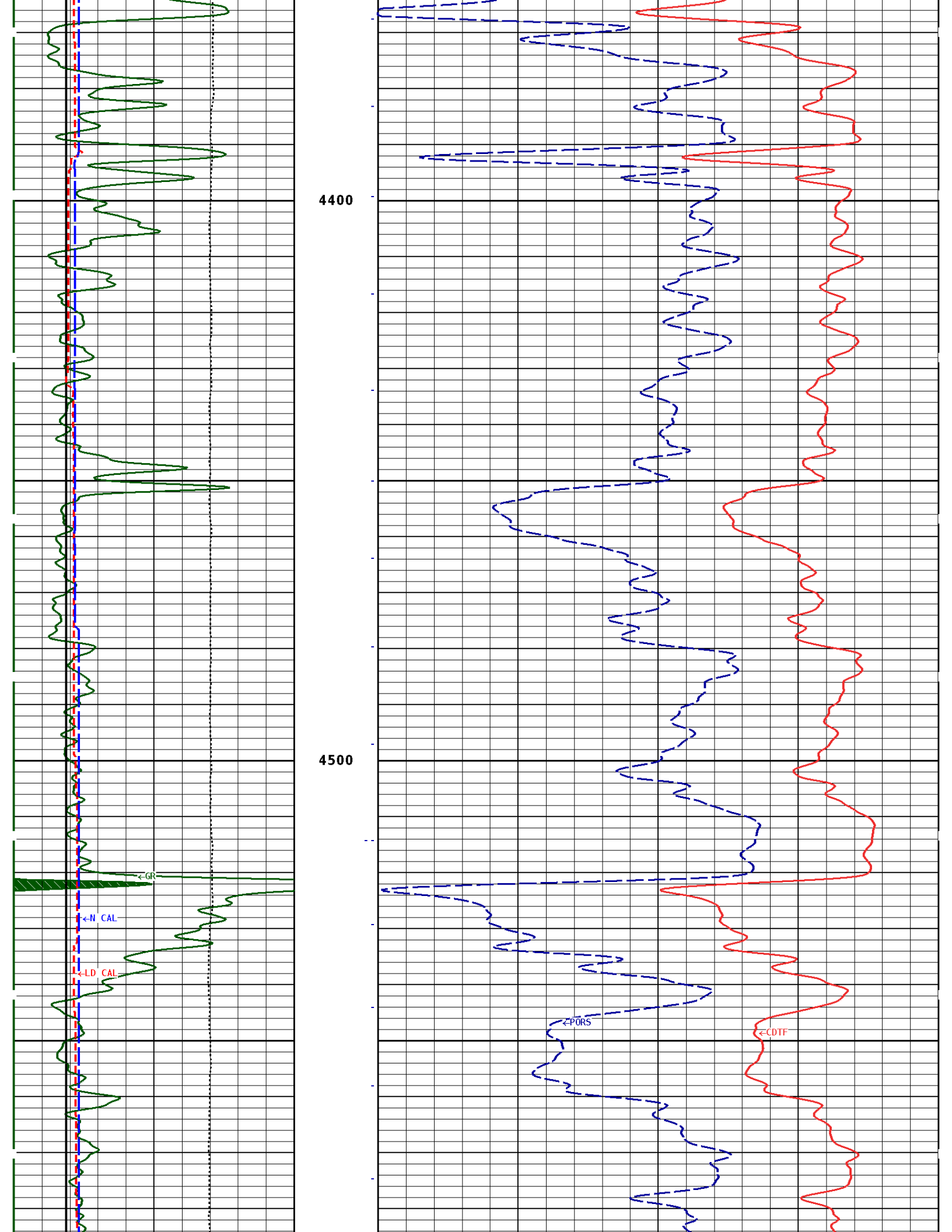
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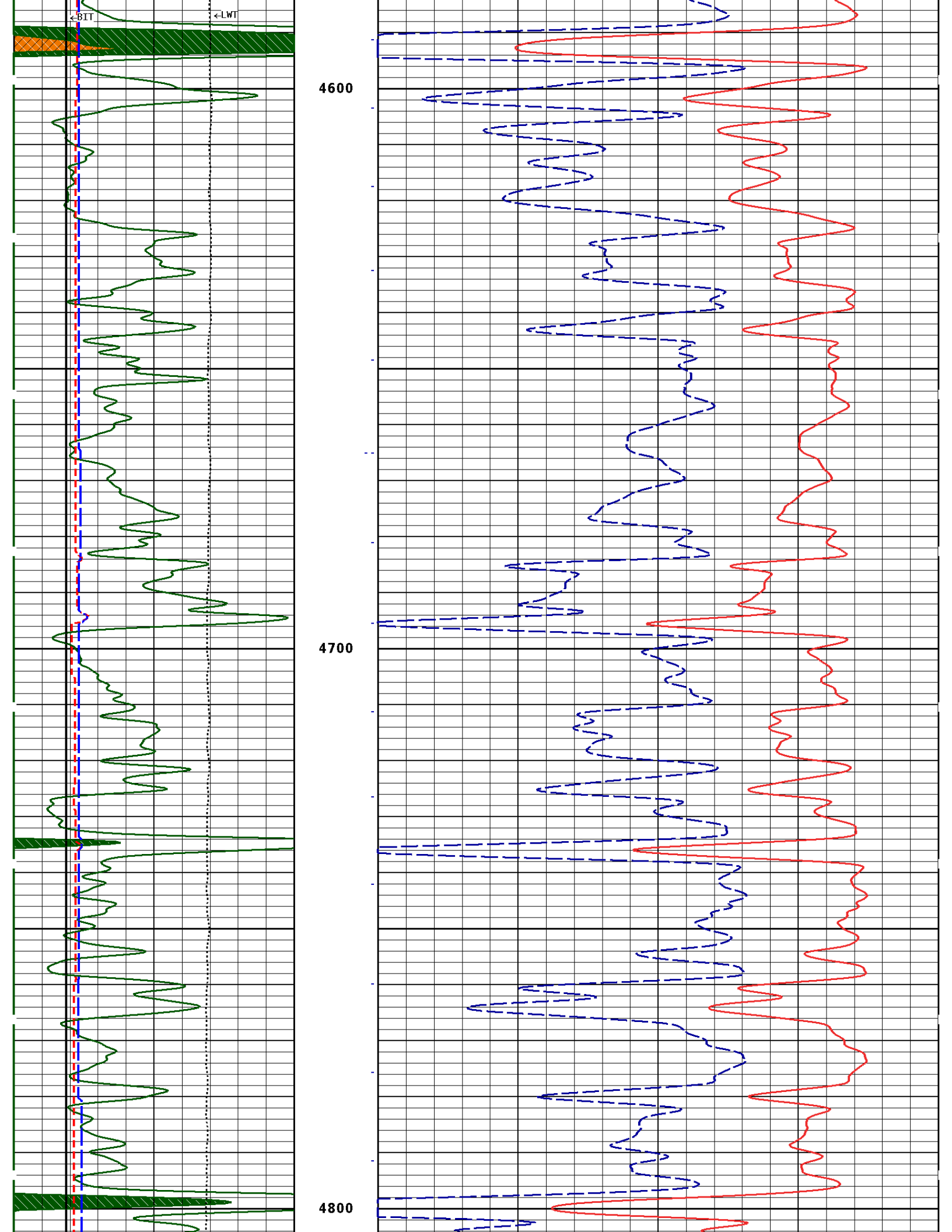
←BIT
←LWT
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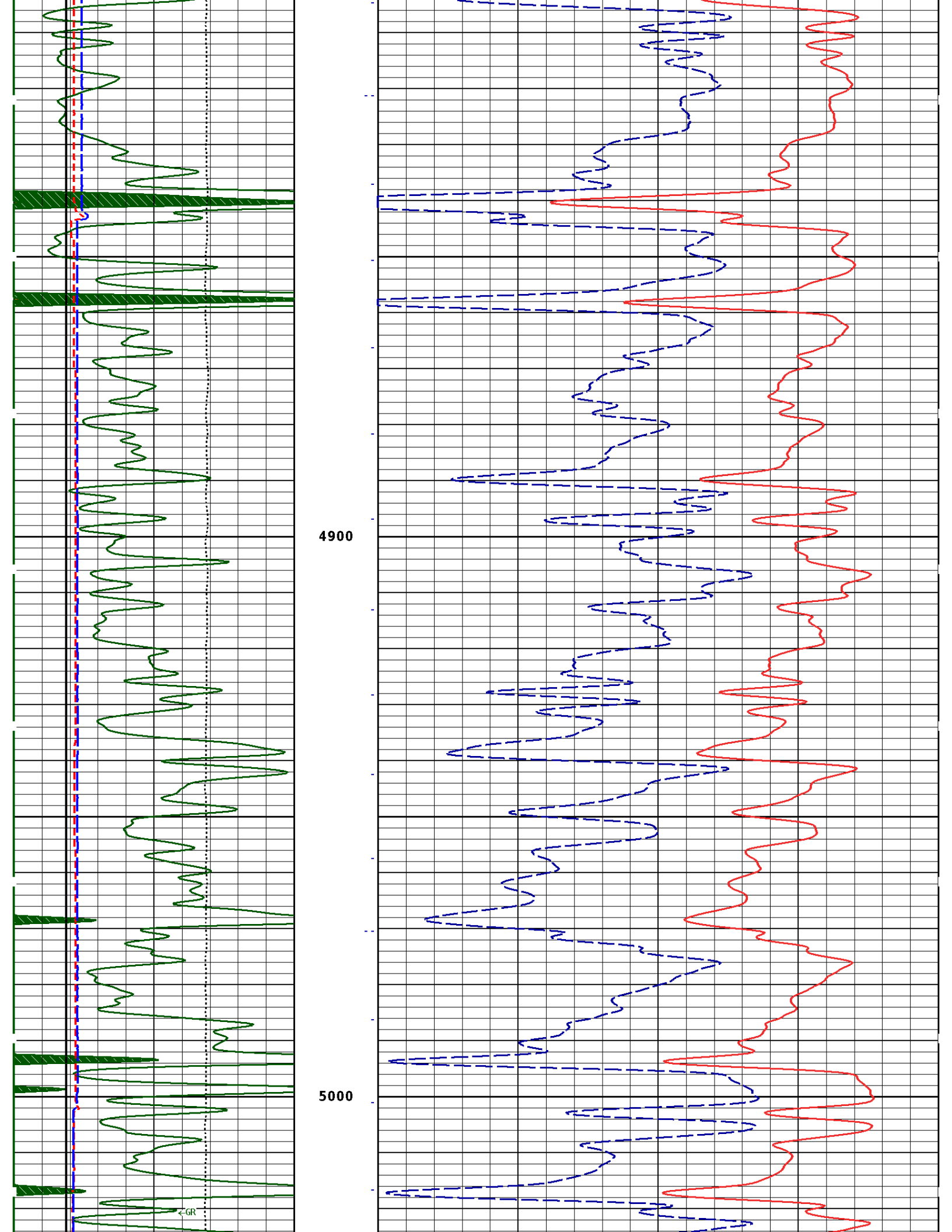
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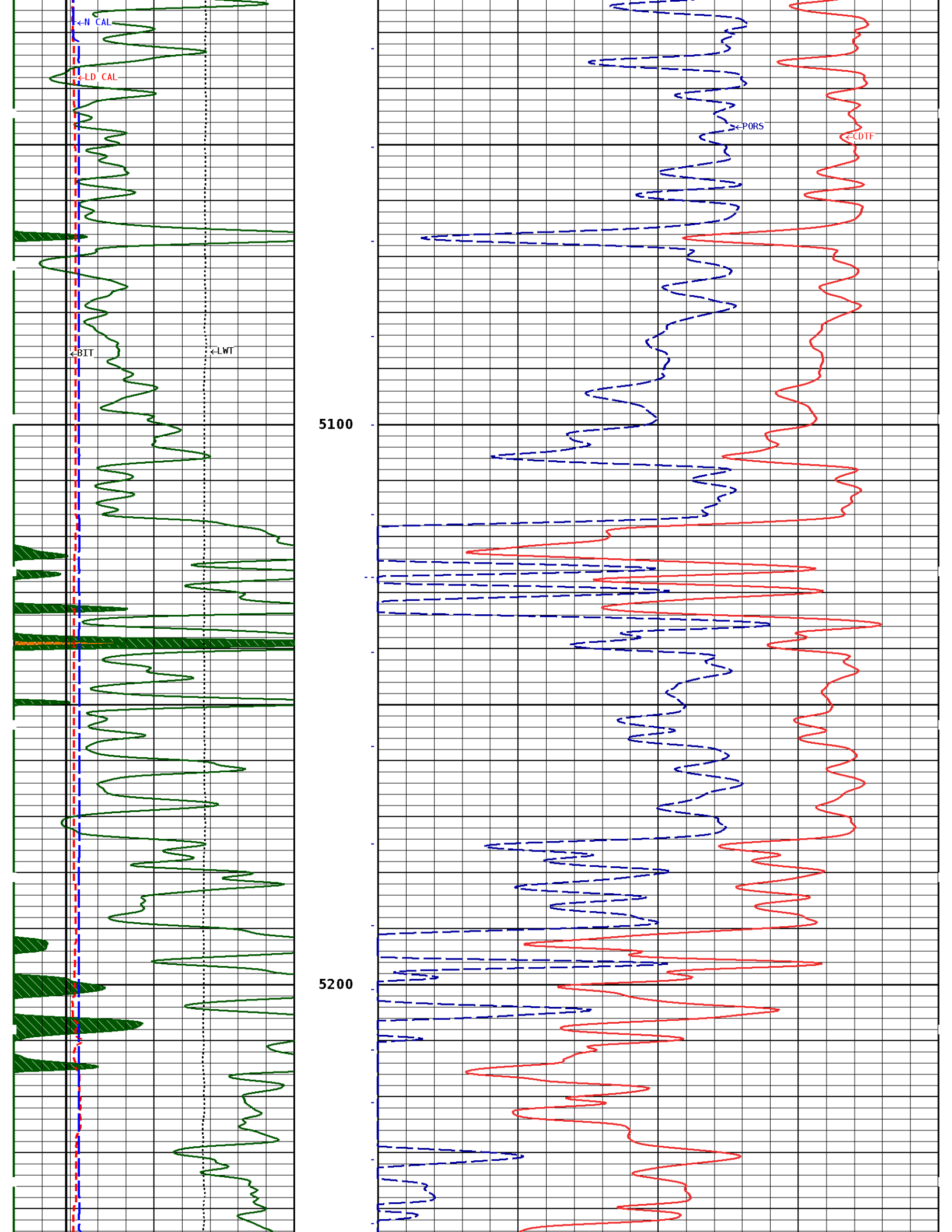
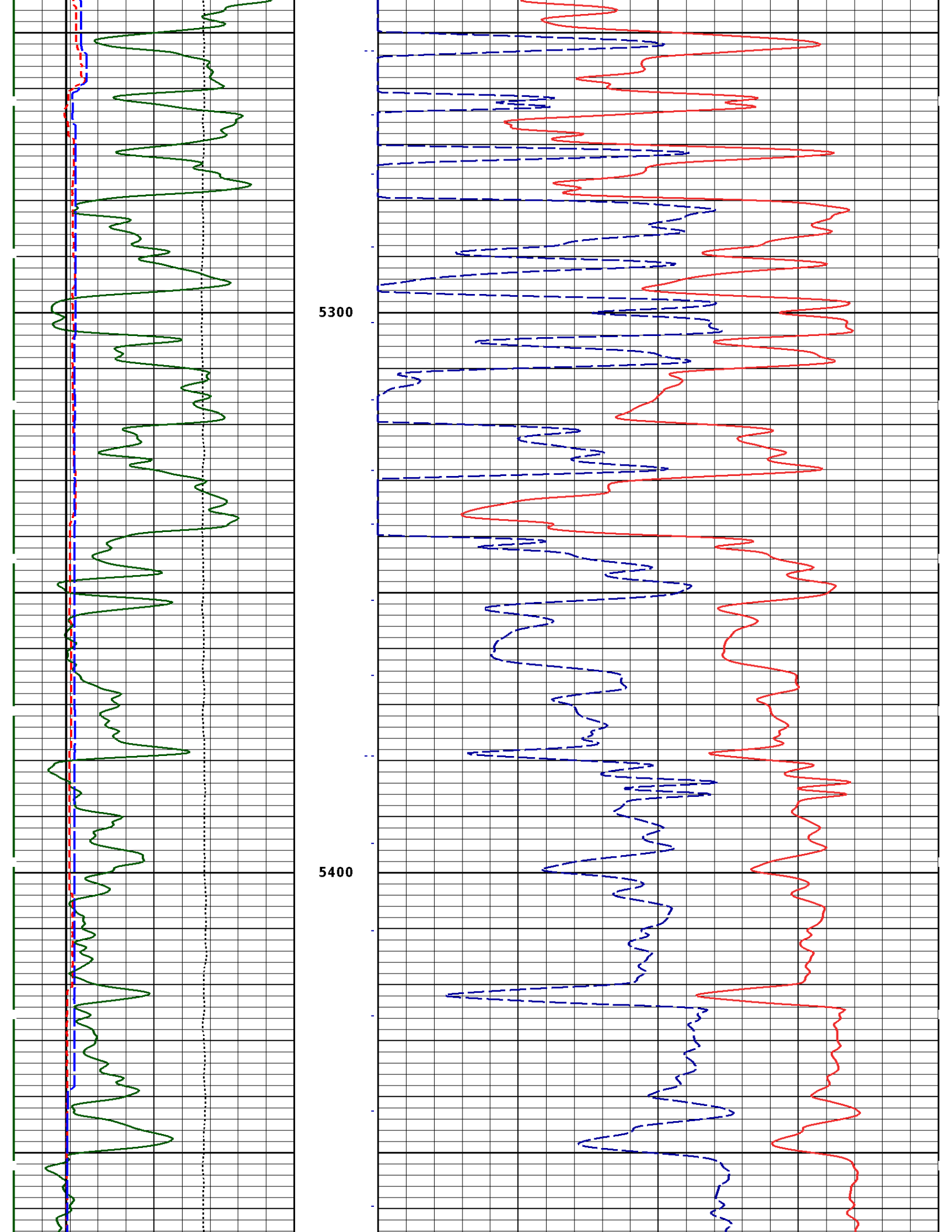
5000
GR


N CAL
LD CAL
BIT
LWT
PORS
CDTF
5100
5200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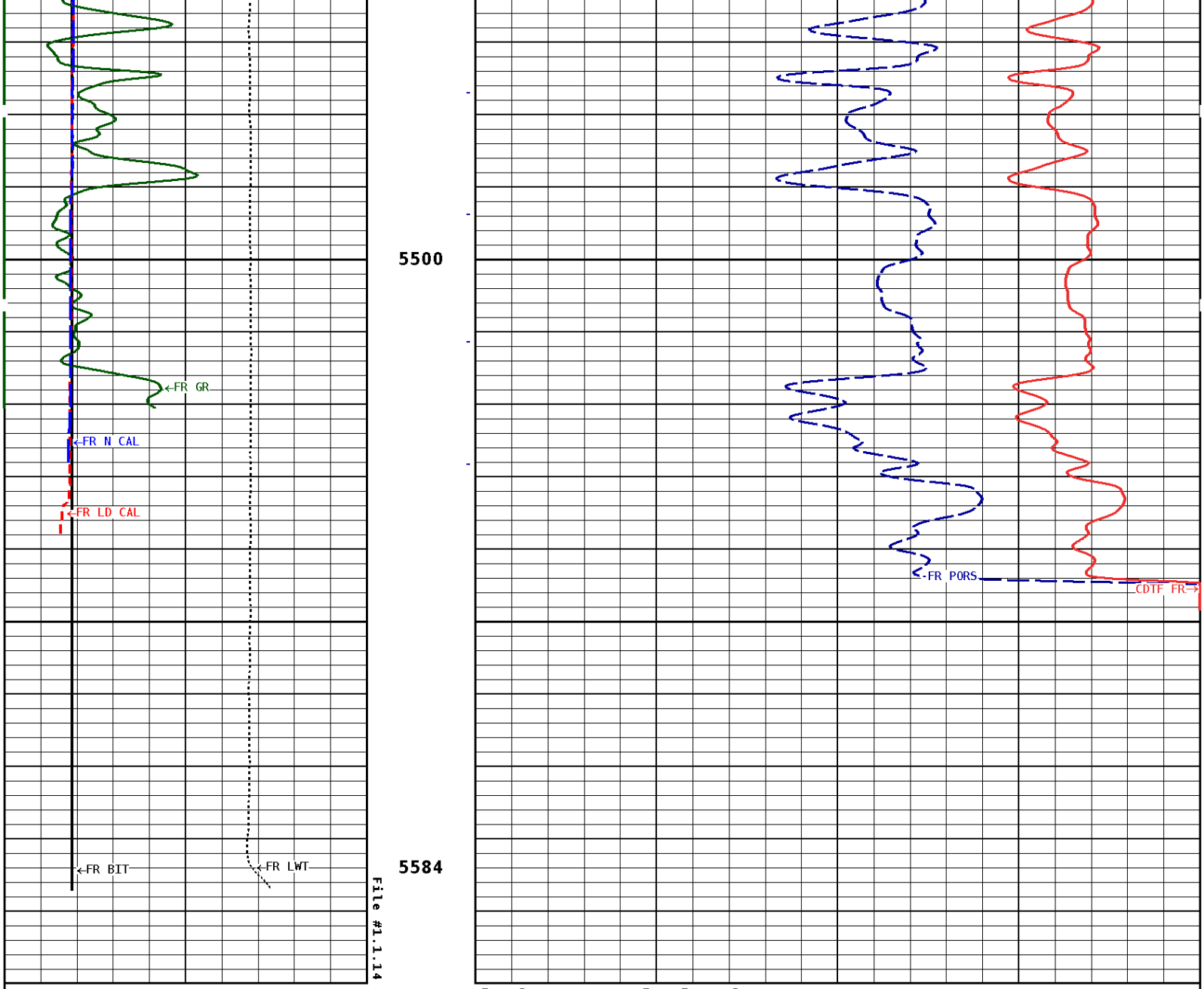


1:240 MAIN SECTION

GAMMA RAY
API UNITS
150 300
0 150

TENSION
LBS
10000 0

BIT SIZE
INCHES (IN)
6 16

DENSITY (X) CALIPER
INCHES (IN)
16 26
6 16

SONIC POROSITY
PERCENT
30 -10

COMPENSATED SONIC TRAVEL TIME
uSEC/FT
240 140
140 40

NEUTRON (Y) CALIPER
INCHES (IN)
16 26
6 16

* Borehole Zone Factors *

Zone 1 99999.0 to 0.0 Feet

Matrix Transit Time	47.5	us/ft
Fluid Transit Time	189.0	us/ft

Well File: merit_wenu_603_dec11_qst **Scale:** 1:240 **Format:** CST-240
Segment: V1.D1.S13 REPEAT **Acquired:** Not Available
Reference: 0 **Processed:** Not Available

NEUTRON (Y) CALIPER
INCHES (IN)
16 26
6 16

DENSITY (X) CALIPER
INCHES (IN)
16 26
6 16

BIT SIZE
INCHES (IN)
6 16

TENSION
LBS
10000 0

COMPENSATED SONIC TRAVEL TIME
uSEC/FT
240 140
140 40

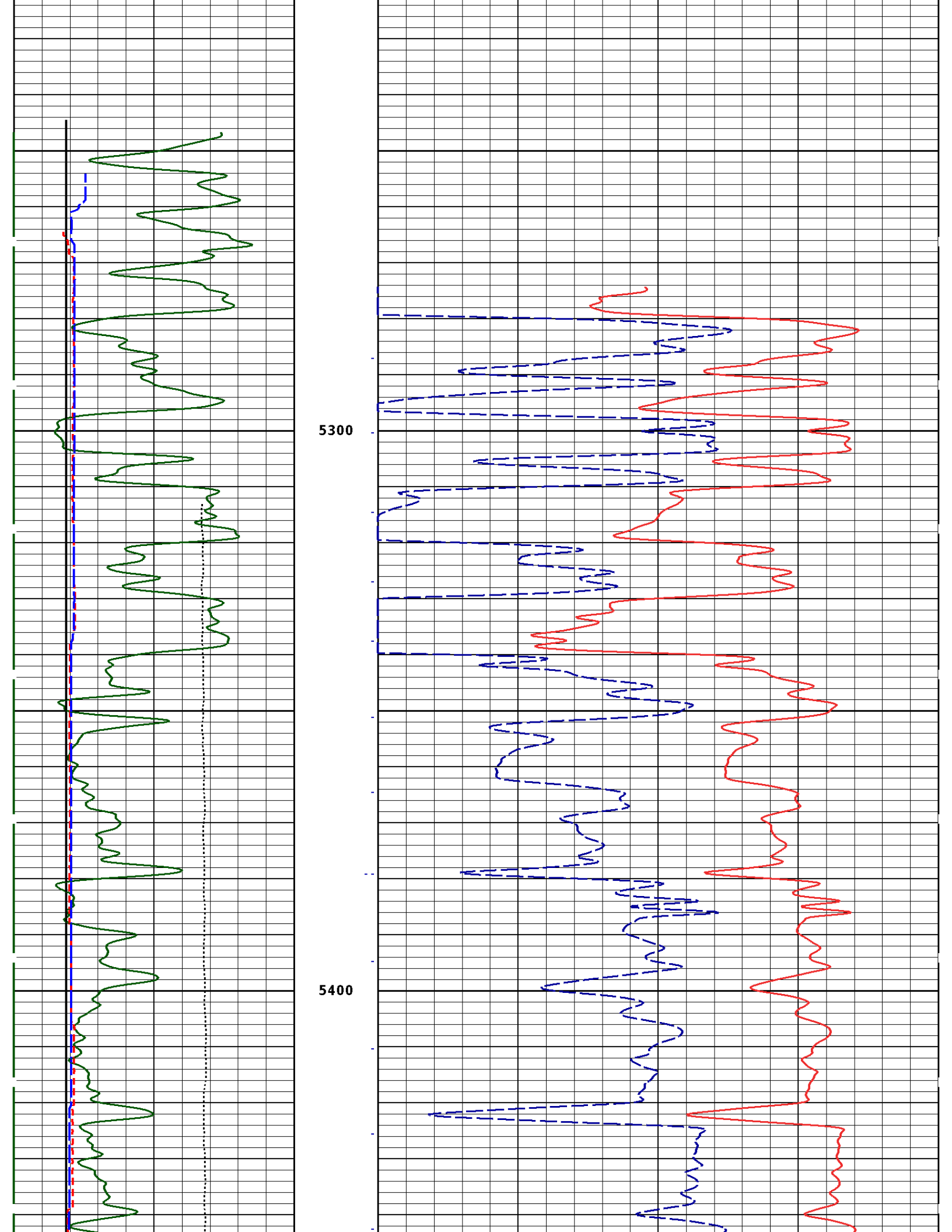
GAMMA RAY
API UNITS
150 300
0 150

SONIC POROSITY
PERCENT
30 -10

1:240 REPEAT SECTION

File #1.1.13

5200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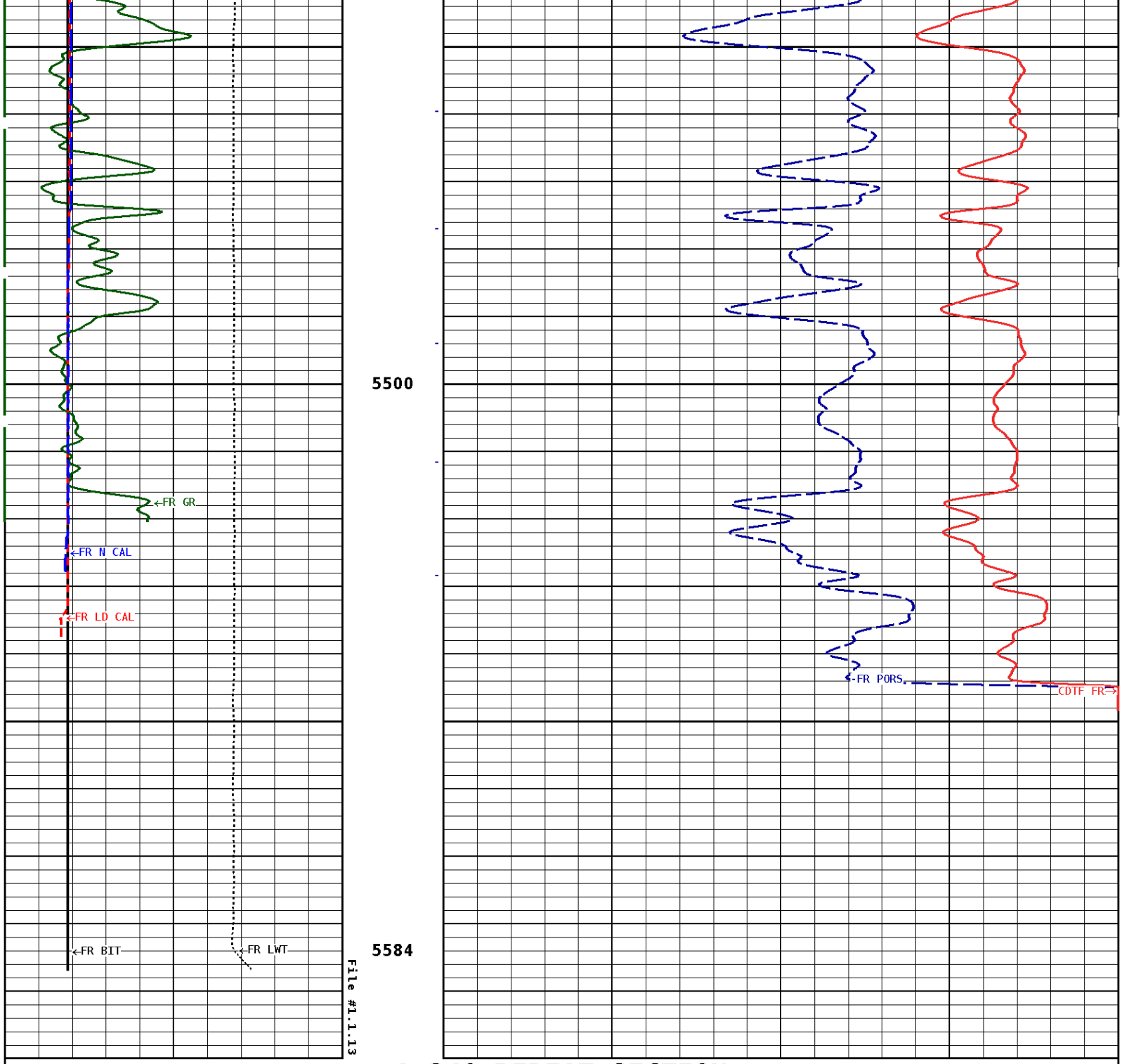


1:240 REPEAT SECTION

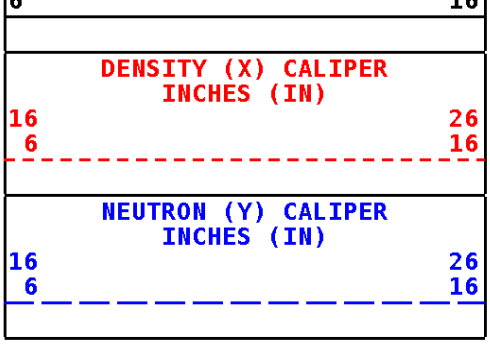
GAMMA RAY
API UNITS
150 300
0 150

TENSION
LBS
10000 0

BIT SIZE
INCHES (IN)
6 16

SONIC POROSITY
PERCENT
30 -10

COMPENSATED SONIC TRAVEL TIME
uSEC/FT
240 140
140 40



* Calibration Summary *

Shop Calibration
GRT-B

Performed : 24-JUN-2019 Time : 12:20
Sensor Suite : GR-GR5 ID : GRT-BC-038

	Measured Background	Measured Jig	Units	Calibrated Jig	Units
GR	36	266	CPS	160	GRAPI

Shop Calibration
CST-AD

Performed : 26-MAY-2003 Time : 16:03
Sensor Suite : SON-ANA ID : CST-AB-24

Transit Time

T/R Pair	Measured	Calibrated	Units
T1R1	208.5	208.5	uS
T2R2	208.5	208.5	uS
T1R2	322.5	322.5	uS
T2R1	322.5	322.5	uS

Amplitude

T/R Pair	Measured	Calibrated	Units
T1R1	90.00	90.00	mV
T2R2	90.00	90.00	mV
T1R2	78.00	78.00	mV
T2R1	78.00	78.00	mV