



Company: **WHITING OIL & GAS CORP.**

Well: **RAZOR 21 SWD #1**

Field: REDTAIL

County: **WELD** State: **COLORADO**

COUNTY: WELD				
FIELD: REDTAIL				
LOCATION: 2317' FEL & 2595' FSL				
WELL: RAZOR 21 SWD #1				
COMPANY: WHITING OIL & GAS CORP.				
ARRAY INDUCTION DENSITY / NEUTRON GAMMA RAY MEMORY LOG				
LOCATION				
2317' FEL & 2595' FSL AT SURFACE.		Elev.: K.B. 4842.00 ft G.L. 4819.00 ft D.F. 4841.00 ft		
Permanent Datum: _____		GROUND LEVEL _____		
Log Measured From: _____		KELLY BUSHING _____		
Drilling Measured From: _____		KELLY BUSHING _____		
API Serial No. 05123407770000		Section 21		Township 10N
				Range 58W

[illegible]

Logging Date	11-Feb-2015				
Run Number	1				
Depth Driller	8550 ft				
Schlumberger Depth	8530 ft				
Bottom Log Interval	8490 ft				
Top Log Interval	200 ft				
Casing Driller Size @ Depth	7.000 in @ 1584 ft			@	
Casing Schlumberger	1588 ft				
Bit Size	8.750 in				
Type Fluid In Hole	WBM				
Density	10.2 lbm/gal	41 s			
Fluid Loss	9.2 cm3	8			
Source Of Sample	FLOW LINE				
RM @ Measured Temperature	1.799 ohm.m	@	116 degF	@	
RMF @ Measured Temperature	1.349 ohm.m	@	116 degF	@	
RMC @ Measured Temperature	2.699 ohm.m	@	116 degF	@	
Source RMF	RMC	CALCULATED			
RM @ MRT	RMF @ MRT	0.964 @ 222	0.723 @ 222	@	@
Maximum Recorded Temperatures	222 degF				
Circulation Stopped	Time	10-Feb-2015	19:45		
Logger On Bottom	Time	10-Feb-2015	22:30		
Unit Number	Location	16	BRIGHTON, CO		
Recorded By	P. BROOKENS				
Witnessed By	BU HONNEYCUTT / C. NEUROTH				

Logging Date						
Run Number						
Depth Driller						
Schlumberger Depth						
Bottom Log Interval						
Top Log Interval						
Casing Driller Size @ Depth	@					
Casing Schlumberger						
Bit Size						
Type Fluid In Hole						
Density	Viscosity					
Fluid Loss	PH					
Source Of Sample						
RM @ Measured Temperature		@				
RMF @ Measured Temperature		@				
RMC @ Measured Temperature		@				
Source RMF	RMC					
RM @ MRT	RMF @ MRT	@		@		
Maximum Recorded Temperatures						
Circulation Stopped	Time					
Logger On Bottom	Time					
Unit Number	Location					
Recorded By						
Witnessed By						

THE USE OF AND RELIANCE UPON THIS RECORDED-DATA BY THE HEREIN NAMED COMPANY (AND ANY OF ITS AFFILIATES, PARTNERS, REPRESENTATIVES, AGENTS, CONSULTANTS AND EMPLOYEES) IS SUBJECT TO THE TERMS AND CONDITIONS AGREED UPON BETWEEN SCHLUMBERGER AND THE COMPANY, INCLUDING: (a) RESTRICTIONS ON USE OF THE RECORDED-DATA; (b) DISCLAIMERS AND WAIVERS OF WARRANTIES AND REPRESENTATIONS REGARDING COMPANY'S USE OF AND RELIANCE UPON THE RECORDED-DATA; AND (c) CUSTOMER'S FULL AND SOLE RESPONSIBILITY FOR ANY INFERENCE DRAWN OR DECISION MADE IN CONNECTION WITH THE USE OF THIS RECORDED-DATA.

OS1: SONIC
OS2: SGR
OS3:
OS4:
OS5:

OS1:
OS2:
OS3:
OS4:
OS5:

VERTICAL MEMORY LOG BIT DEPTH: 8449' LOGGED TO SURFACE (200').

REMARKS: RUN NUMBER 2

LIMESTONE MATRIX, 2.71 G/CC USED FOR POROSITY MEASUREMENTS.

IHV REPRESENTS INTEGRATED HOLE VOLUME, FT^3.

DEPTH REFERENCE: PIPE TALLY.

CREW: T. HATCH, D. HUNTER

TBIRD # 3577

SERVICE ORDER #: D7FE-00005
PROGRAM VERSION: 19C2-270
FLUID LEVEL: 0 ft

STOP

SERVICE ORDER #:
PROGRAM VERSION:
FLUID LEVEL:

STOP

RUN 2

WITM (ThruBit)

TBT-A
THEAD 2113
CCL 46972
BDOT-B 5
THOT 5
T10_1
TBUJ1
TBAT1 14

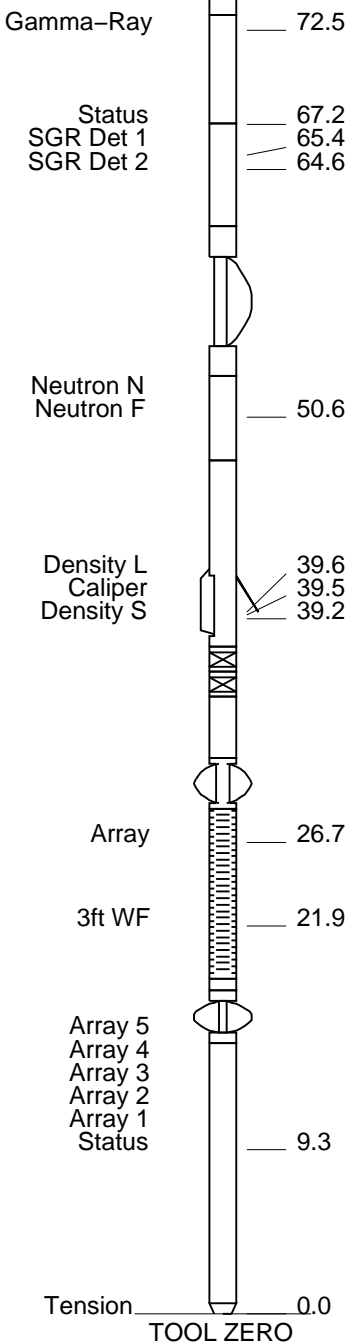
97.5

100.4

Hang-Off

91.1

TBAT2 21
TMG-A 38
TBSG-A 5
TILE-B 13
TBN-A 5
NNLS-EWA 4481
TBD-A 12
GGLS-FZ 3436
KAH-TB_2 6
KAH-TB_1 13
TBS-A 29
TCME-A
TBI-A 23



MAXIMUM STRING DIAMETER 2.13 IN
MEASUREMENTS RELATIVE TO TOOL ZERO
ALL LENGTHS IN FEET

Schlumberger

MAIN PASS

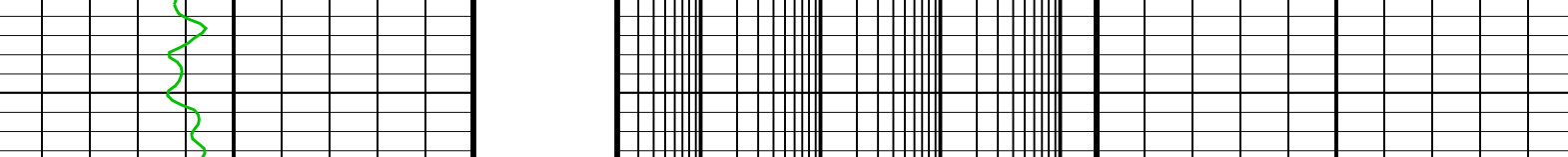
MAXIS Field Log

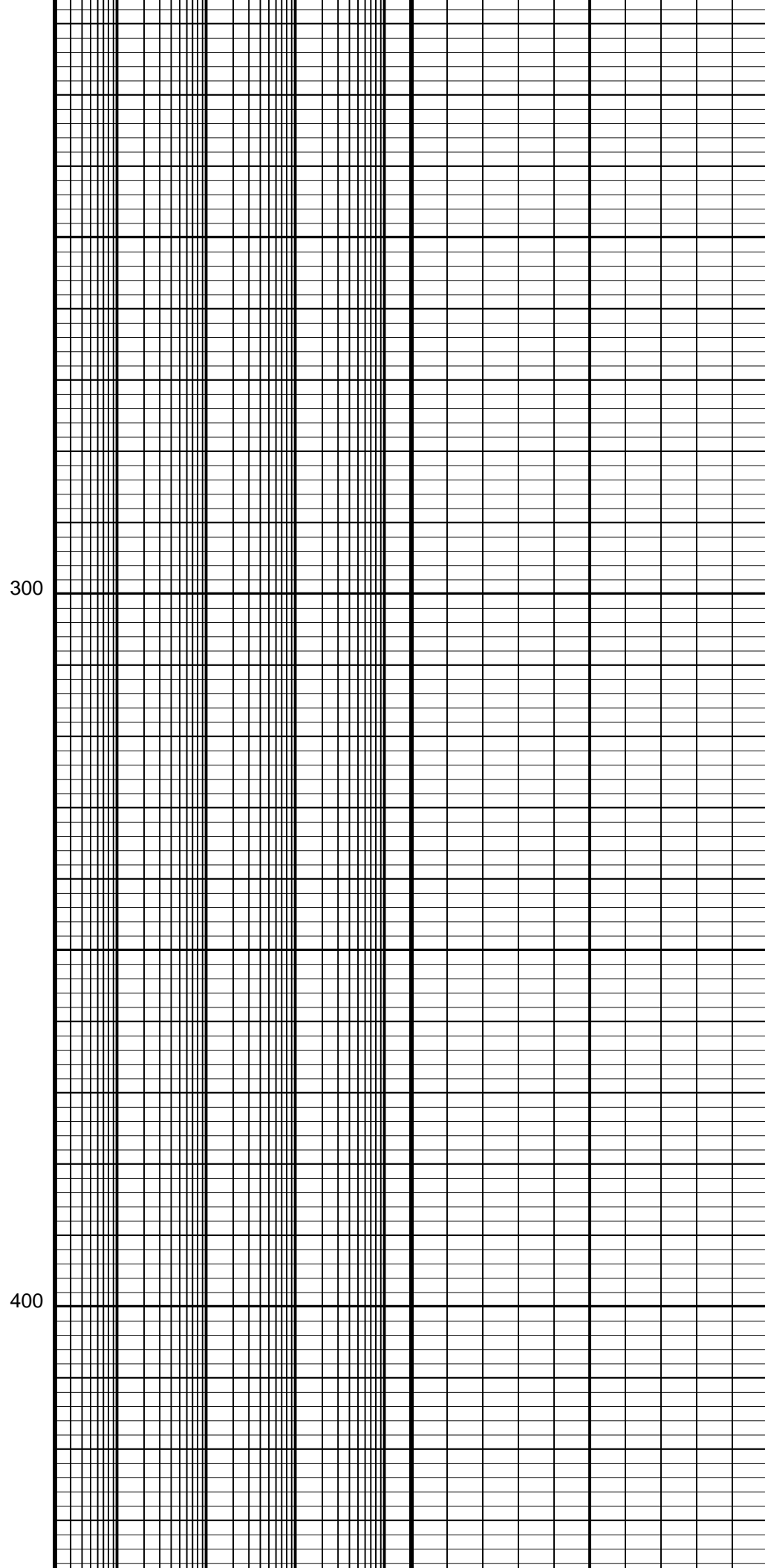
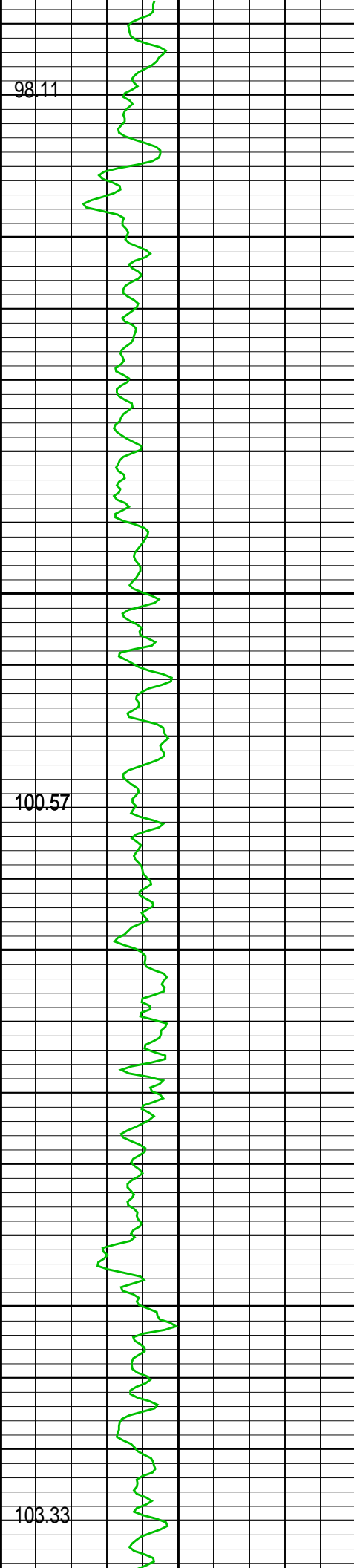
Company: WHITING OIL & GAS CORP. Well: RAZOR 21 SWD #1

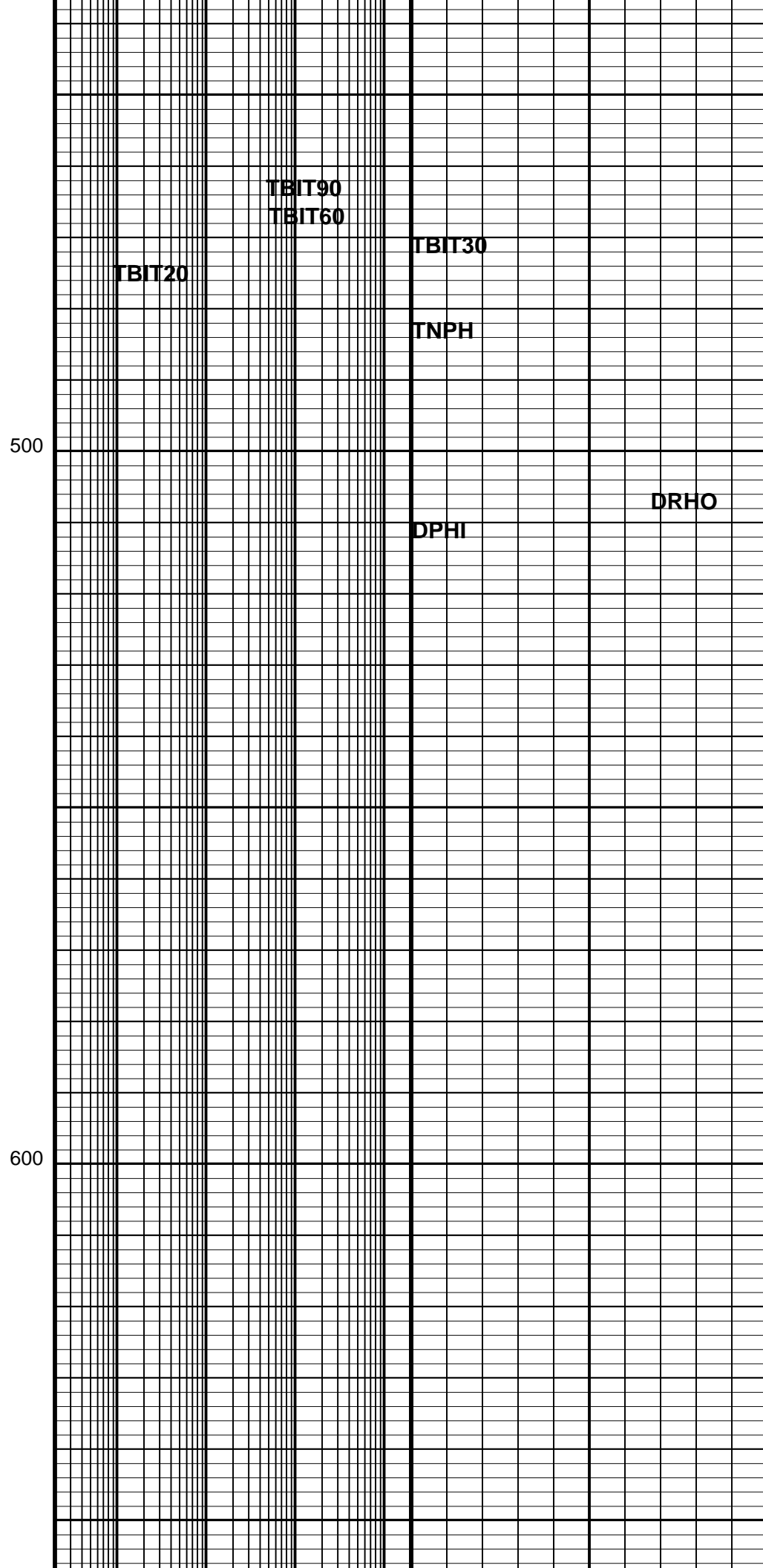
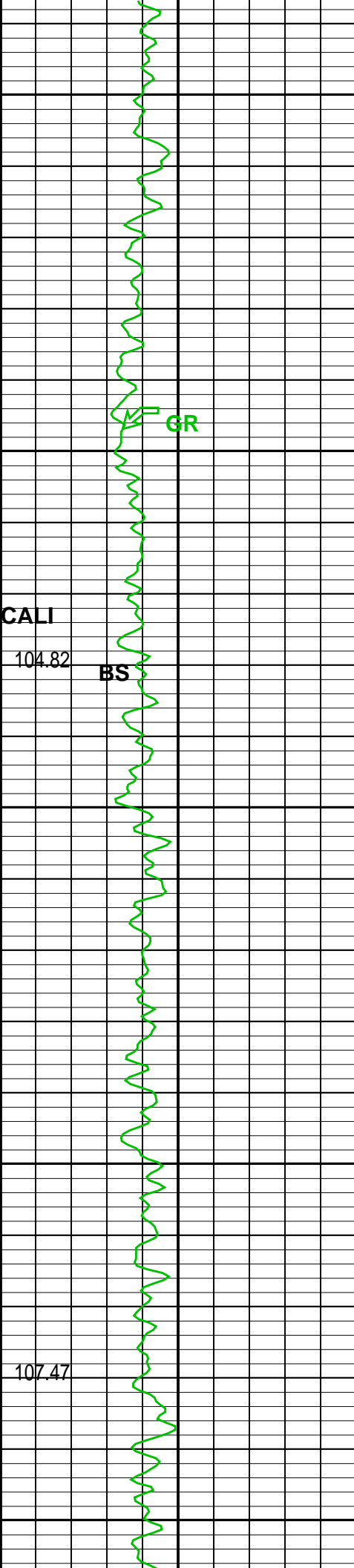
Input DLIS Files						
DEFAULT	ThruBit_016PUP	FN:15	PRODUCER	11-Feb-2015 14:35	8530.2 FT	84.2 FT

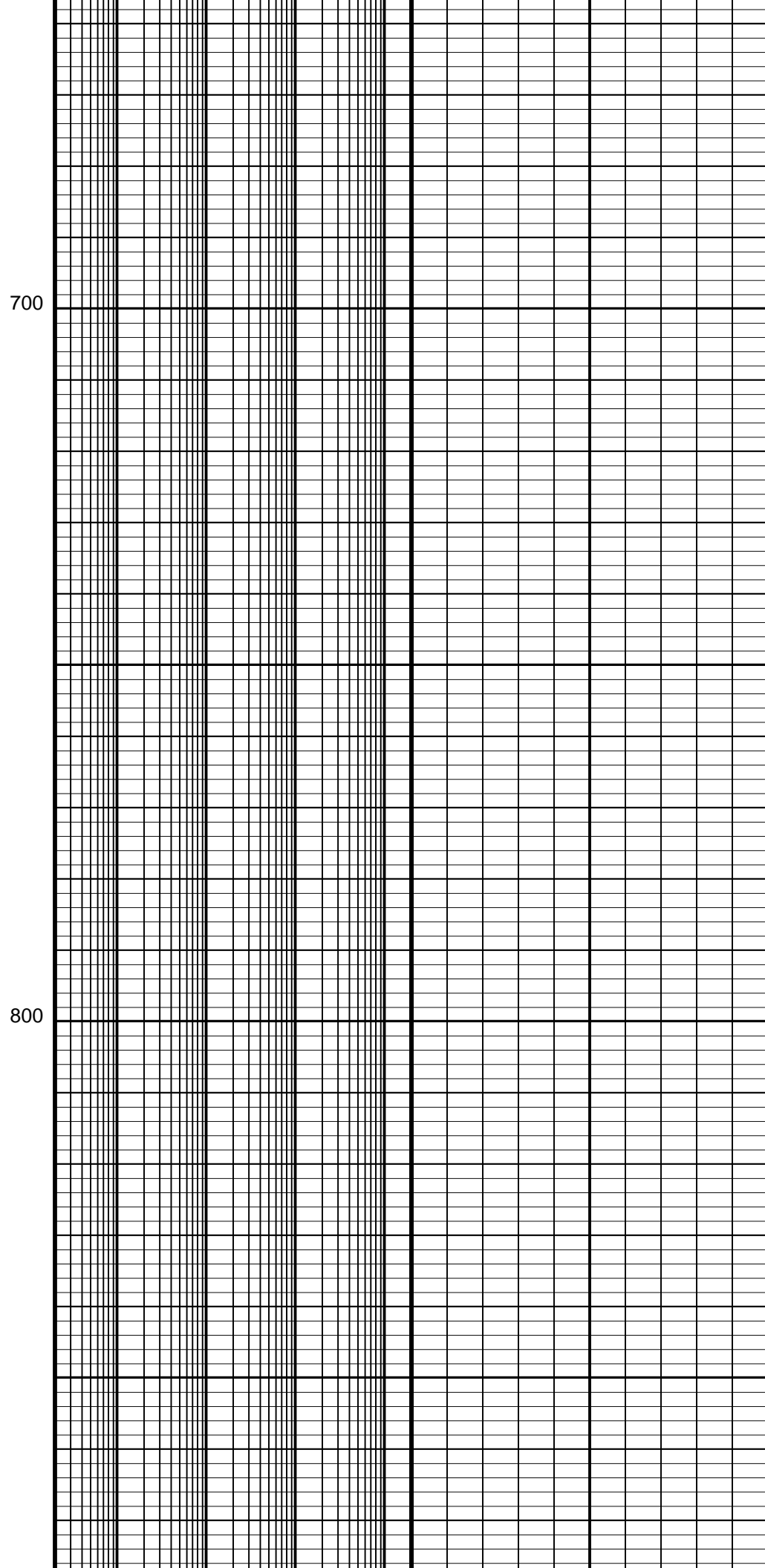
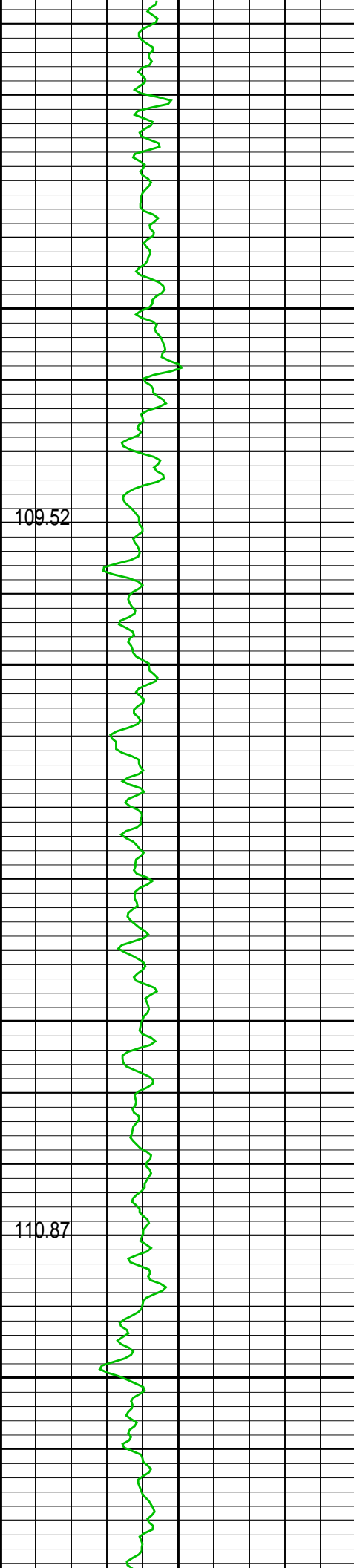
OP System Version: 19C2-270						
TBT	SRPC-5307-ThruBit					

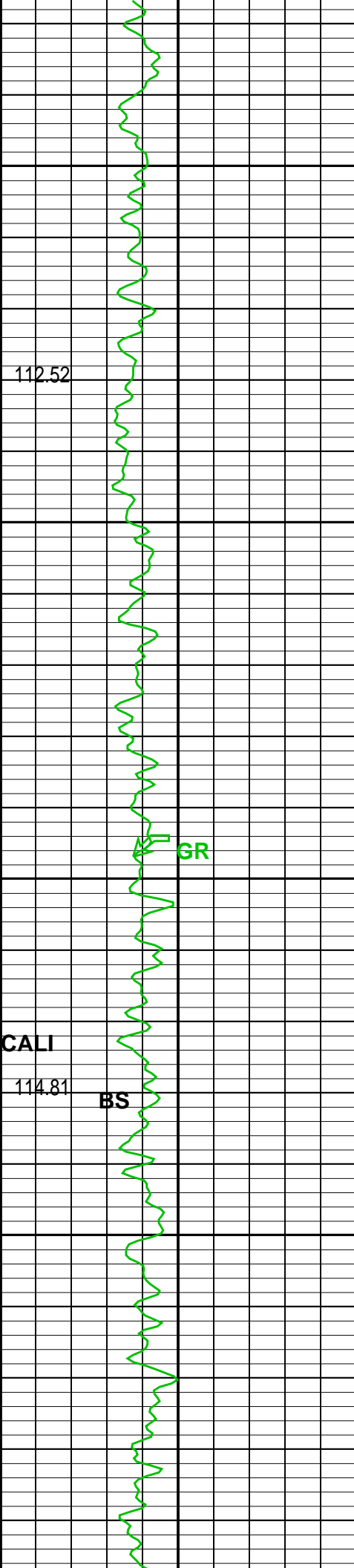
Caliper (CALI) (IN)		TBI 90 Inch Investigation (TBIT90) (OHMM)		TNPH (TNPH) (%)	
6	16	0.2	2000	30	-10
Gamma Ray (GR) (GAPI)		TBI 60 Inch Investigation (TBIT60) (OHMM)		PEF (PEF) (-----)	
0	150	0.2	2000	0	10
Bit Size (BS) (IN)		TBI 30 Inch Investigation (TBIT30) (OHMM)		DRHO (DRHO) (G/C3)	
6	16	0.2	2000	-1.8	0.2
Well Temp (WTEP) (DEGF)		TBI 20 Inch Investigation (TBIT20) (OHMM)		DPHI (DPHI) (%)	
		0.2	2000	30	-10











900

TBIT90
TBIT60
TBIT30
TBIT20
TNPH

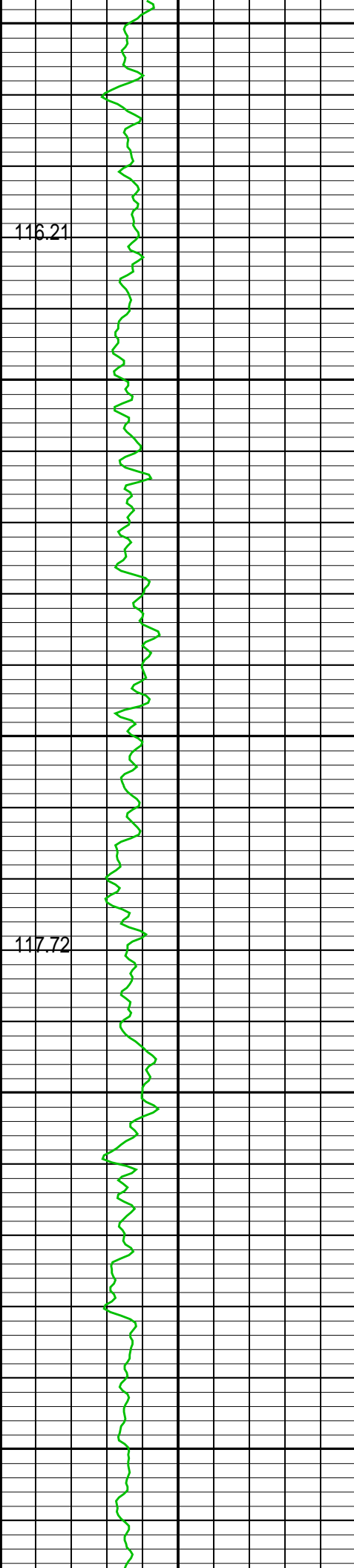
1000

DPHI
DRHO

CALI

BS

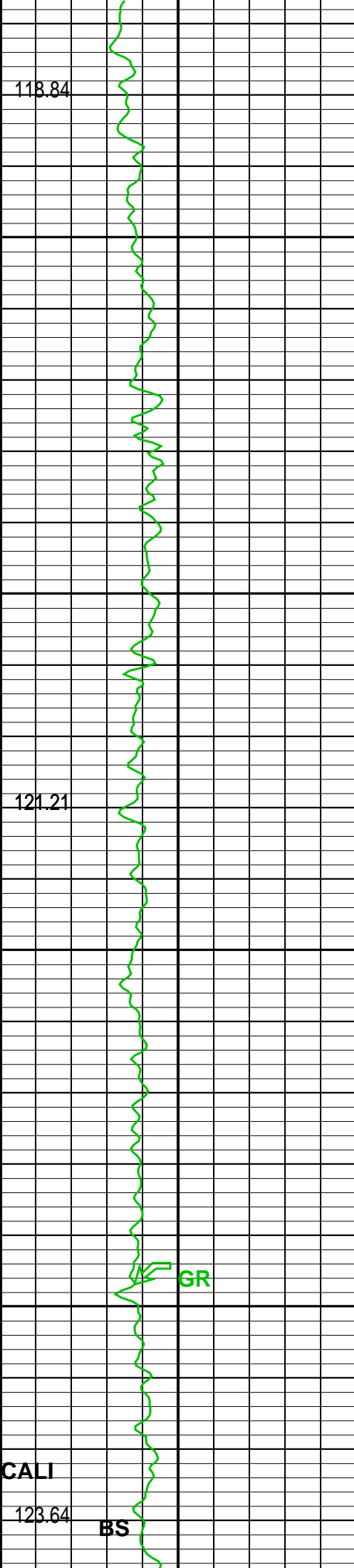
114.81



1100

1200

1300



1400

TBIT90

TBIT60

TBIT30

TBIT20

TNPH

1500

DPHI

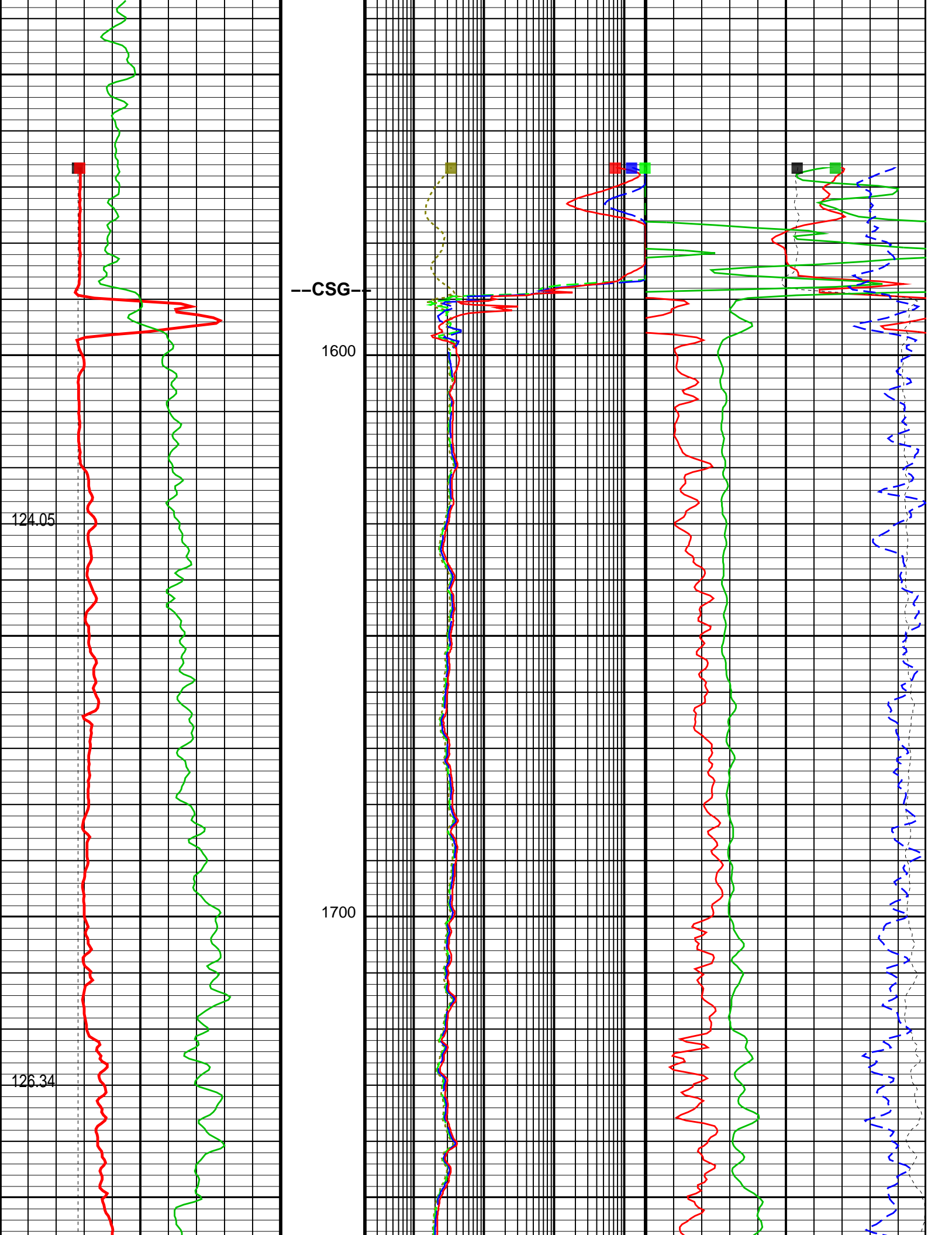
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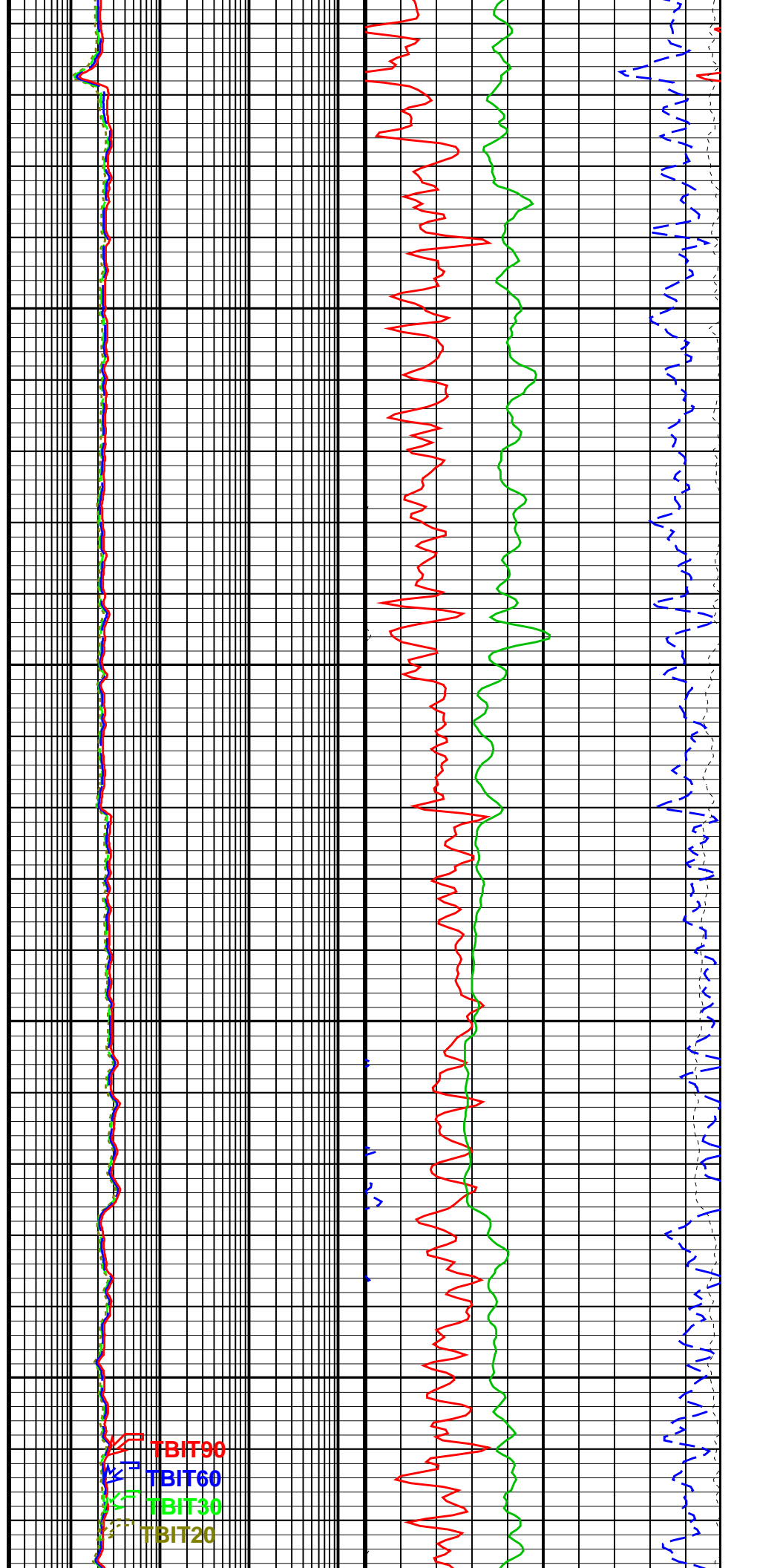
CALI

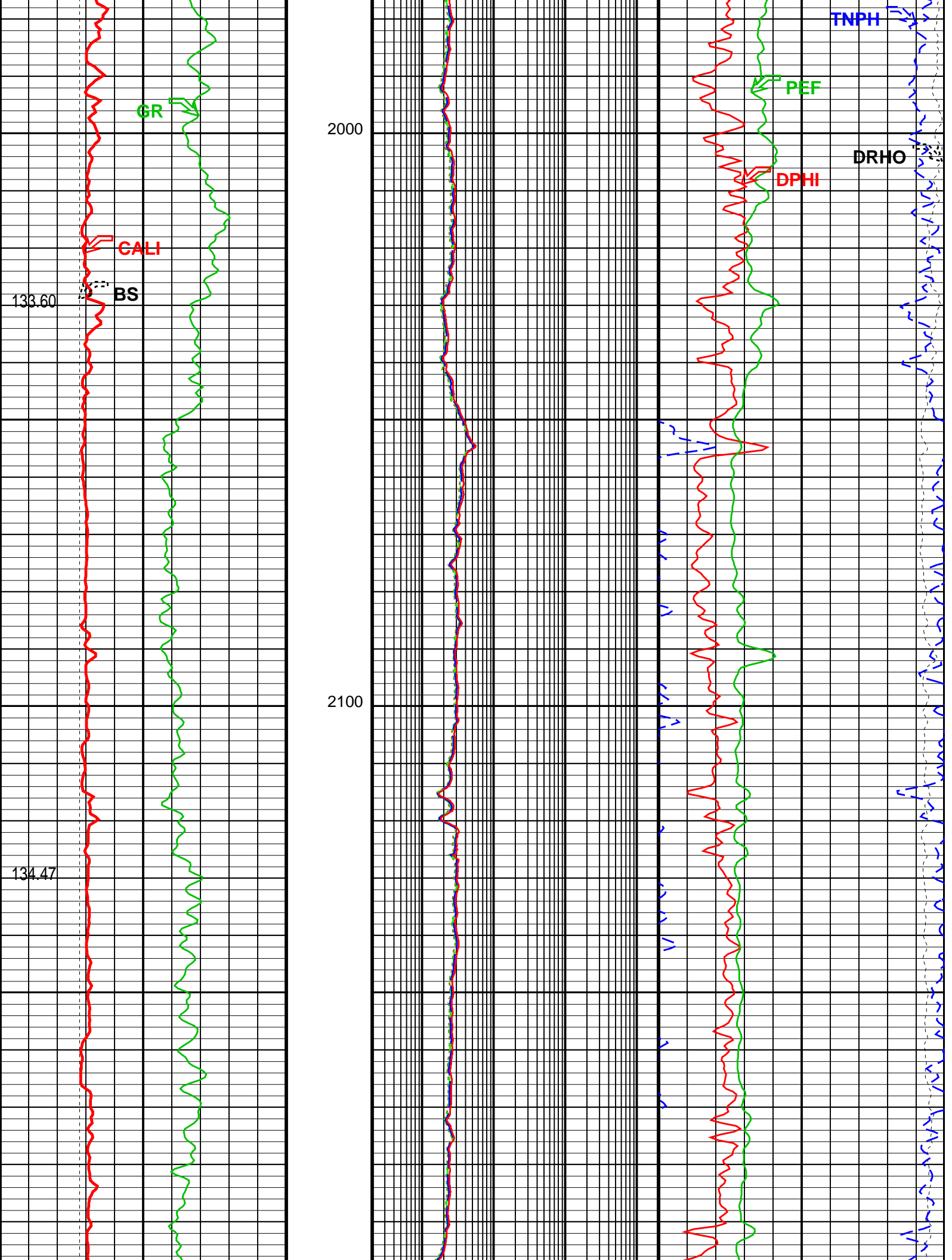
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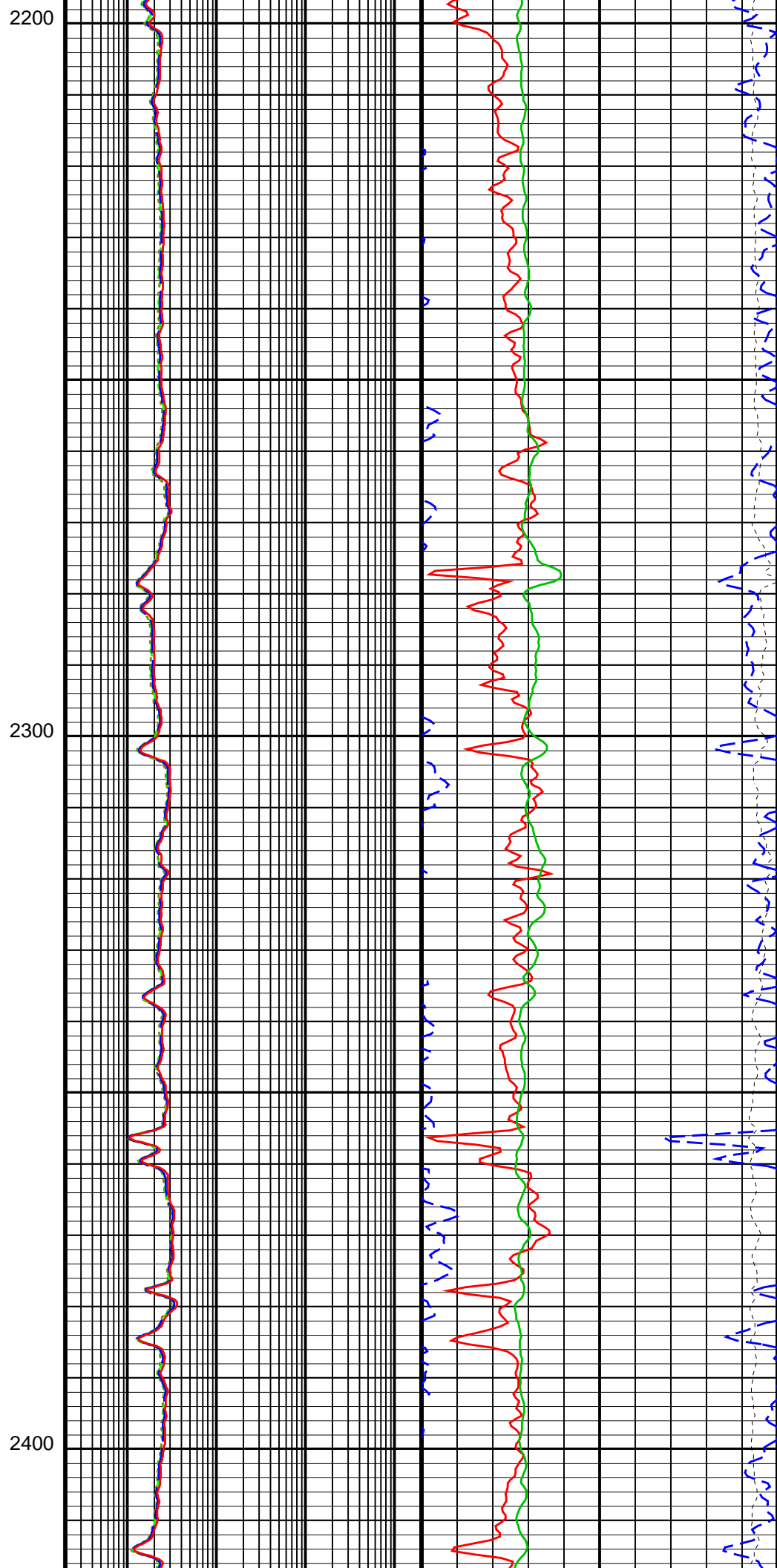
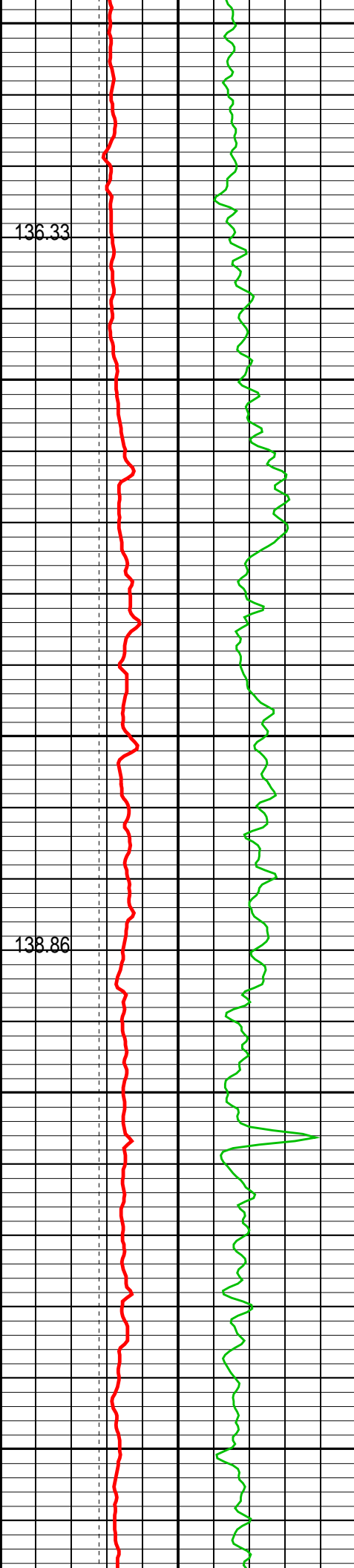
BS

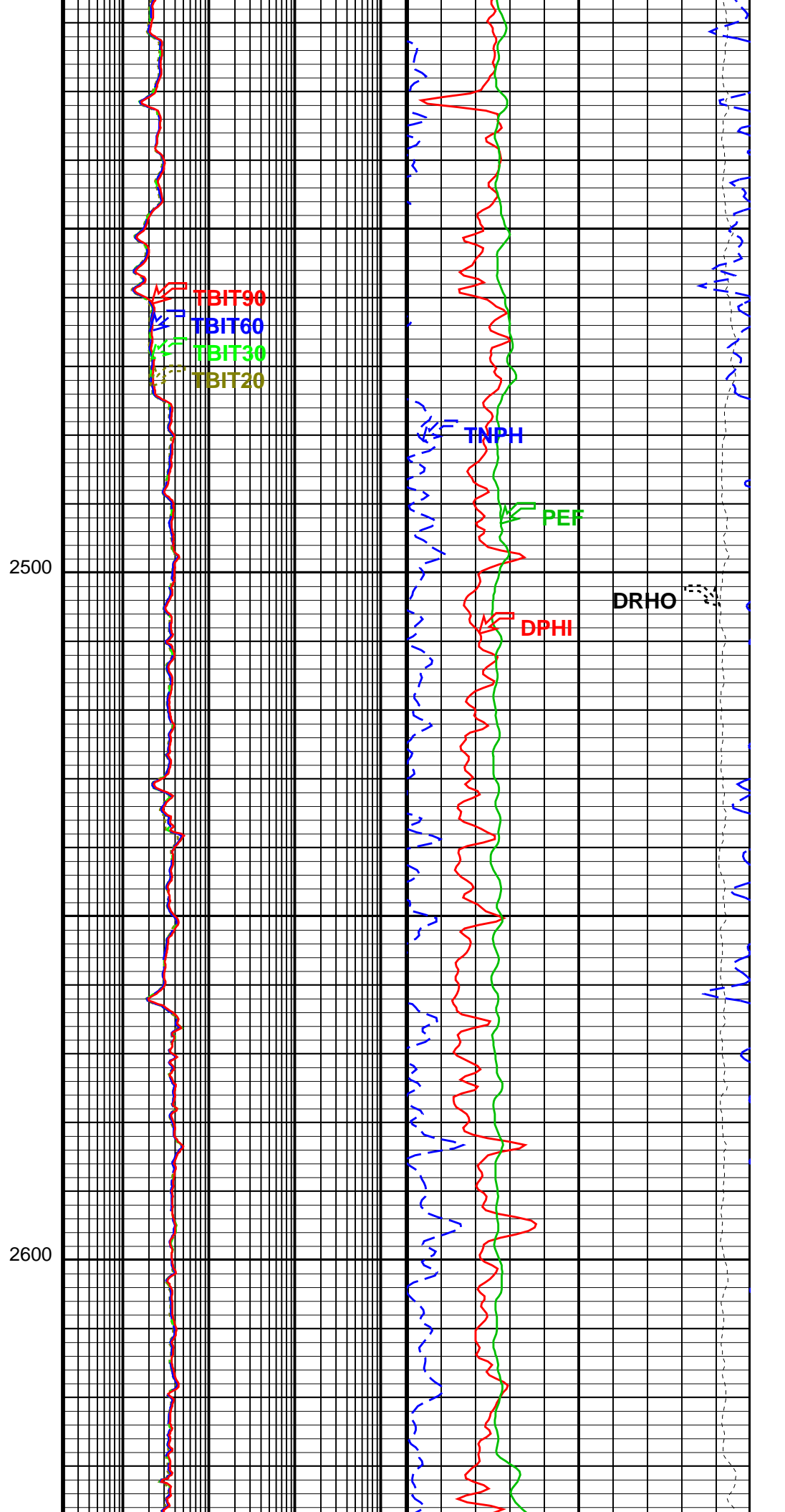
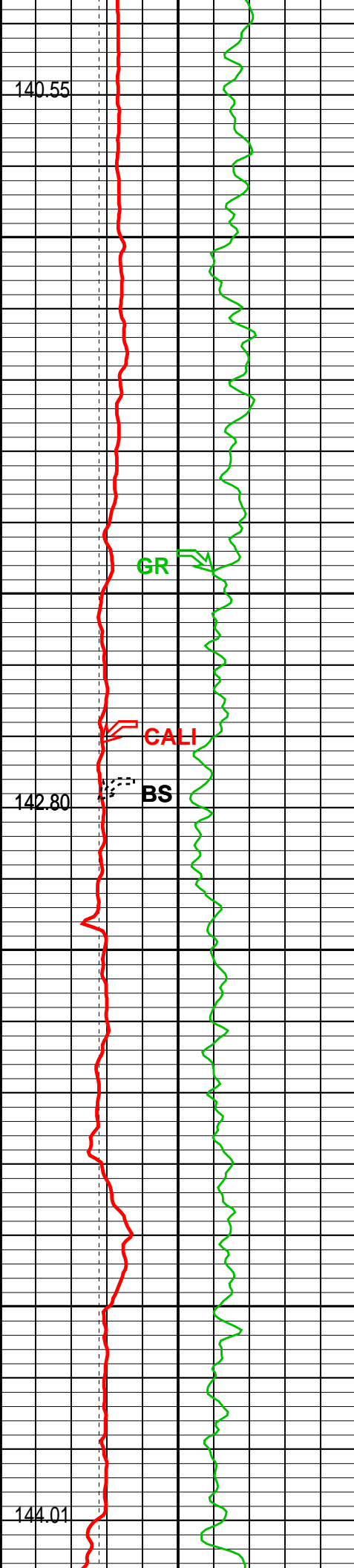
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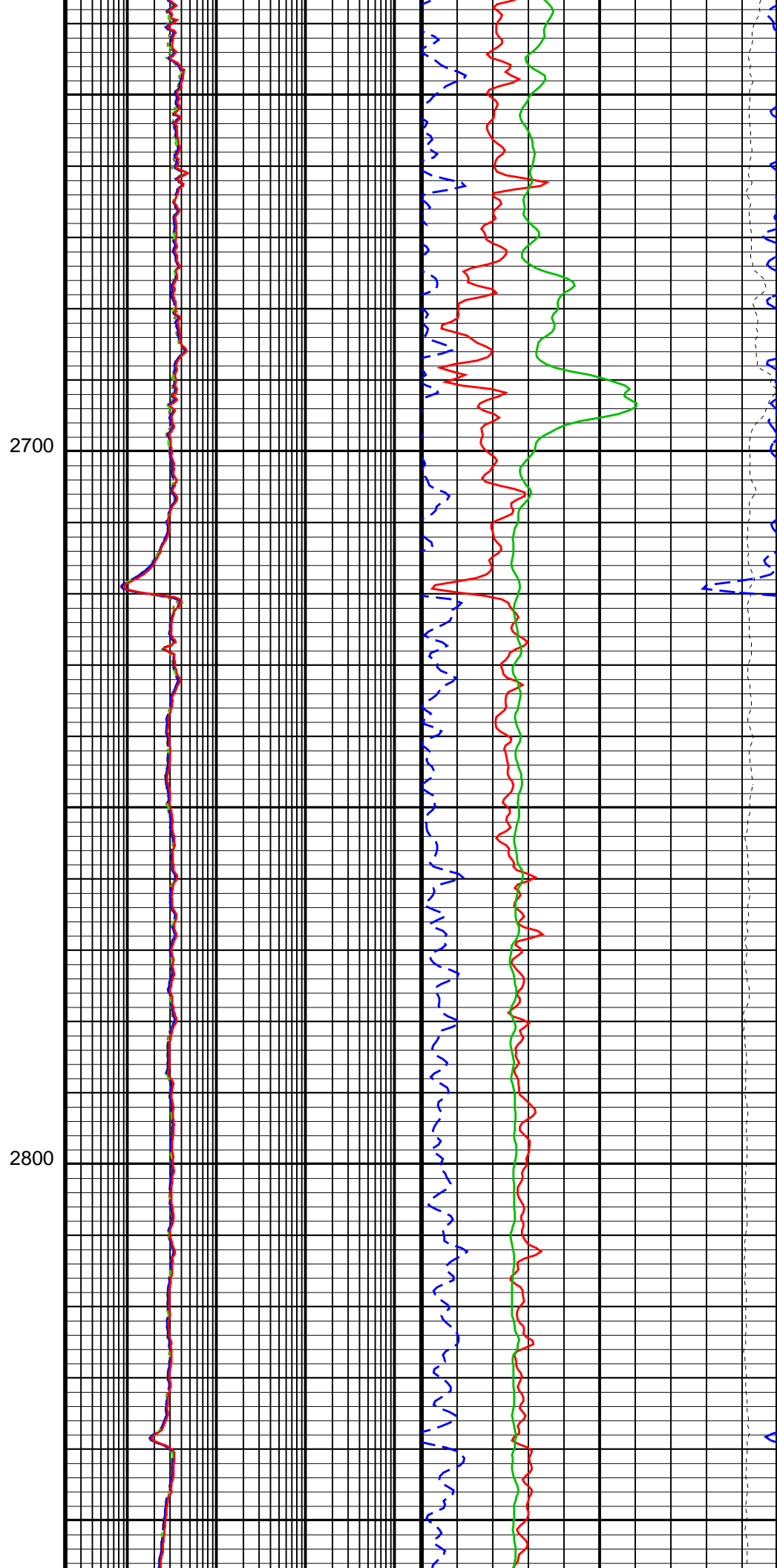
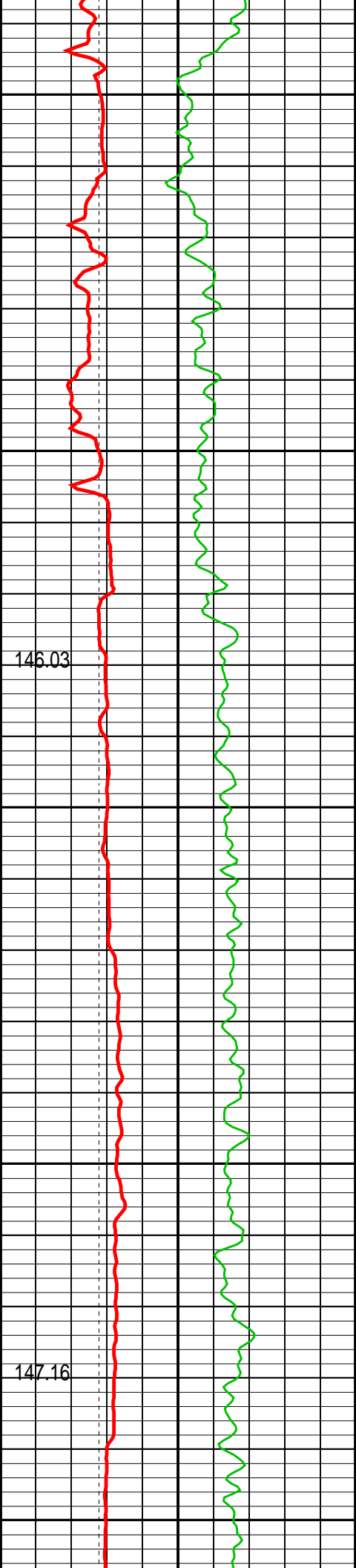


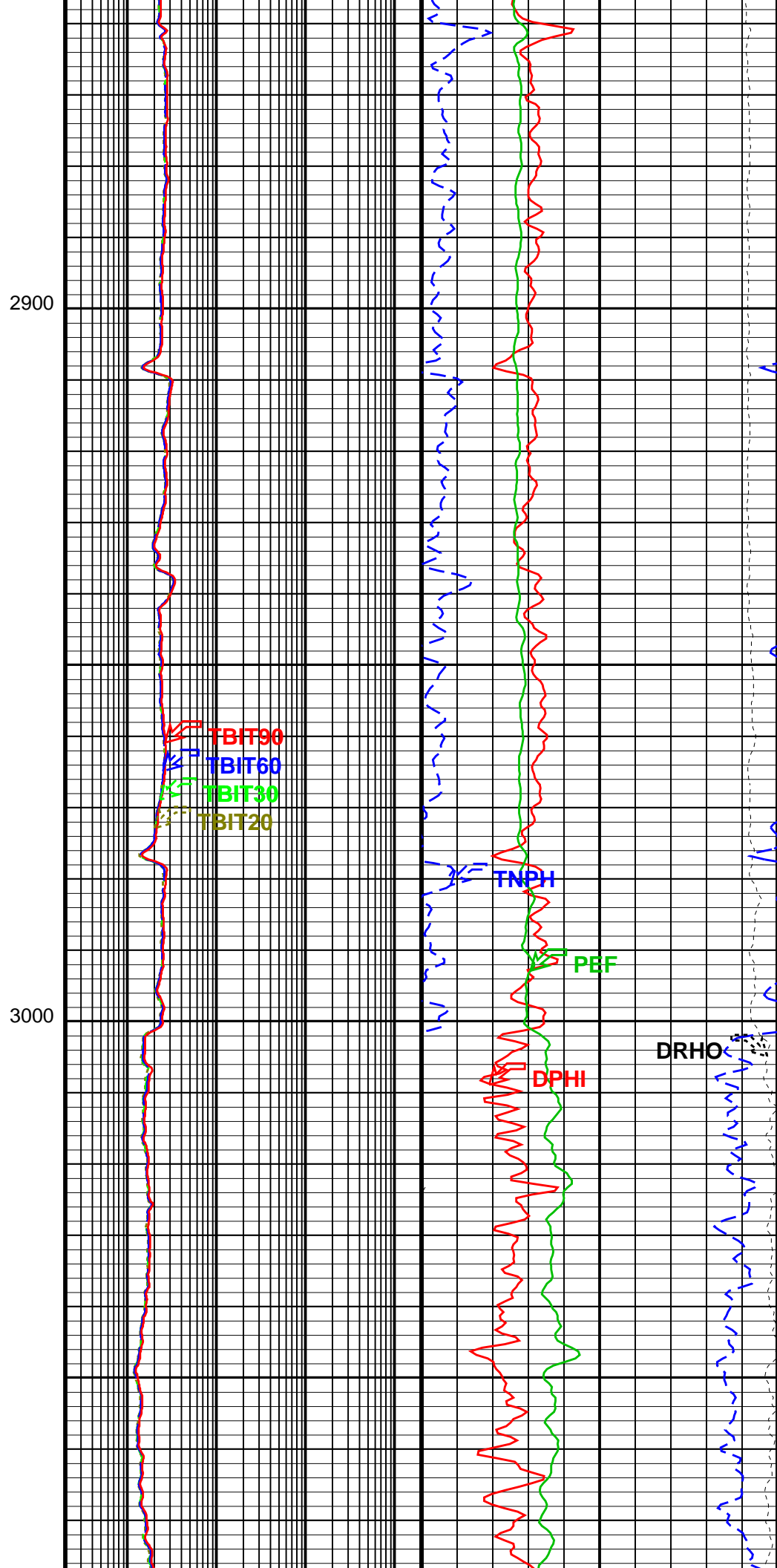


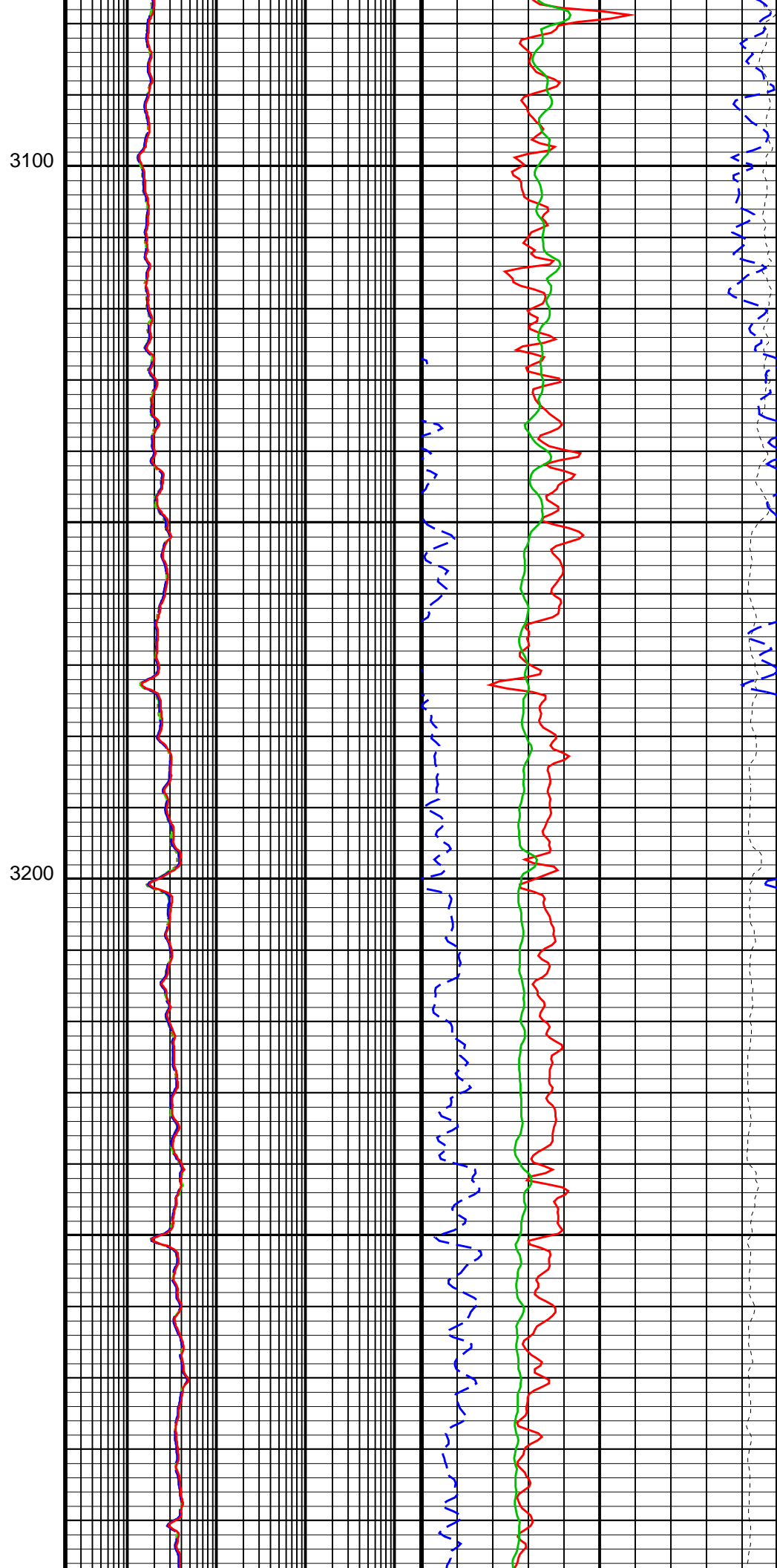
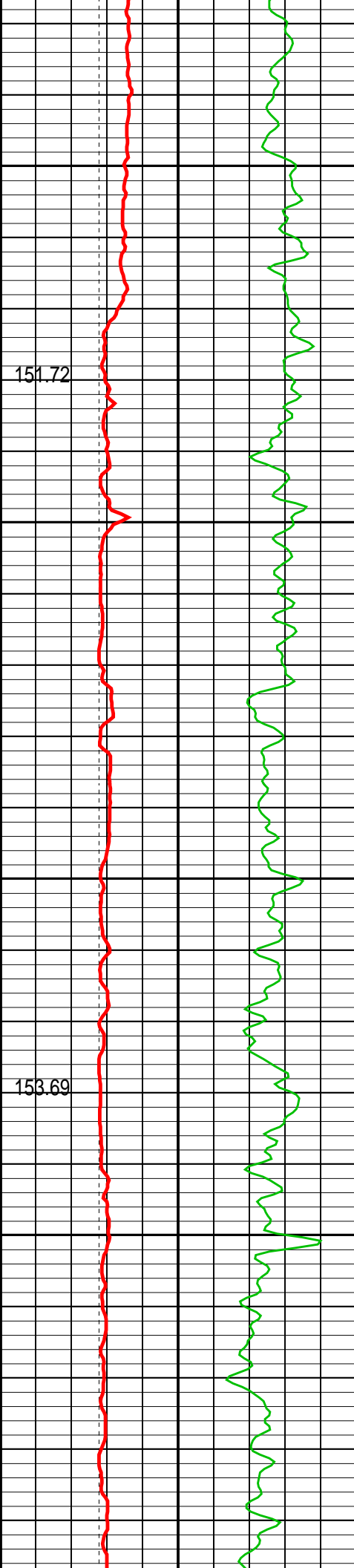


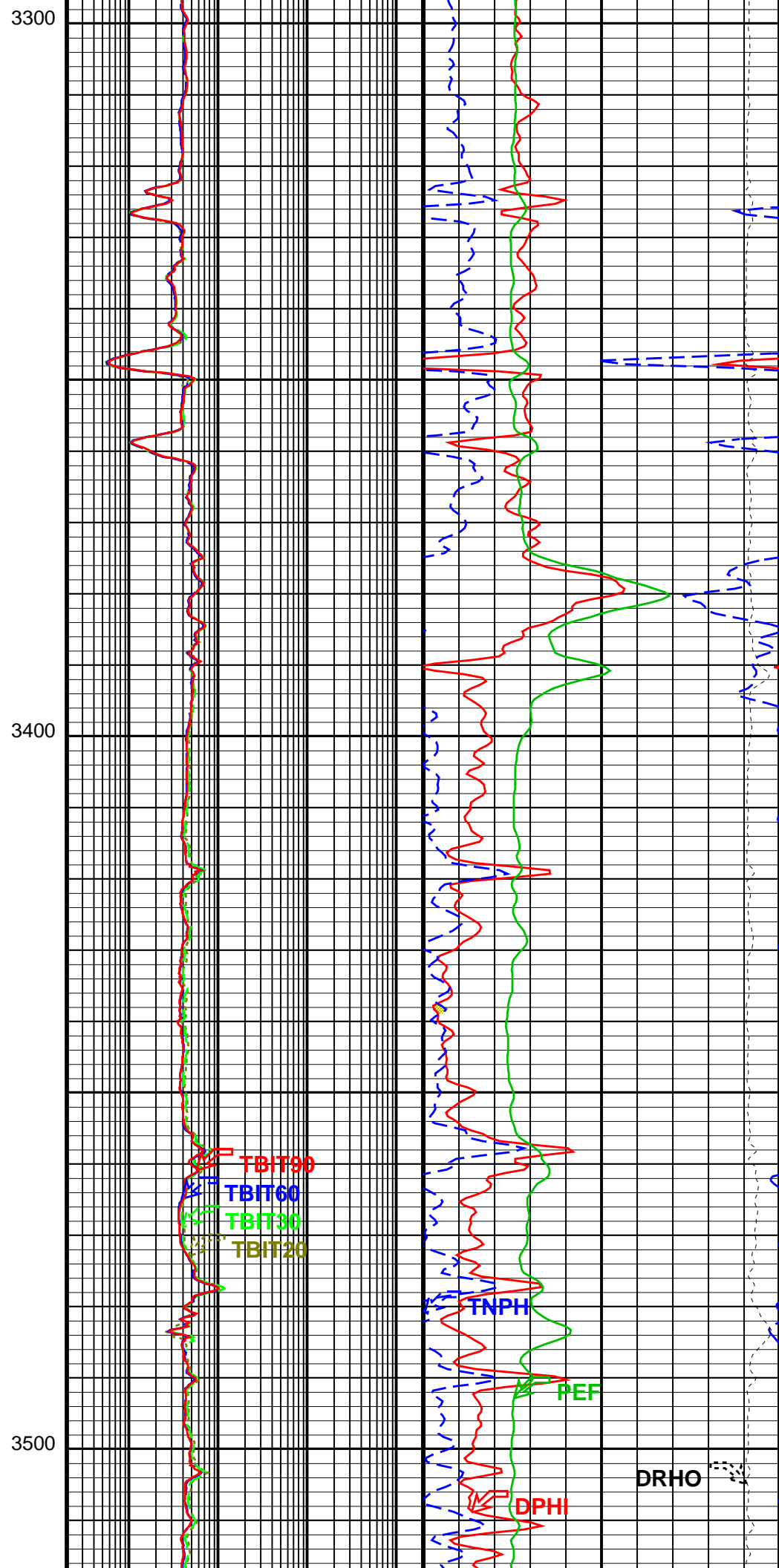
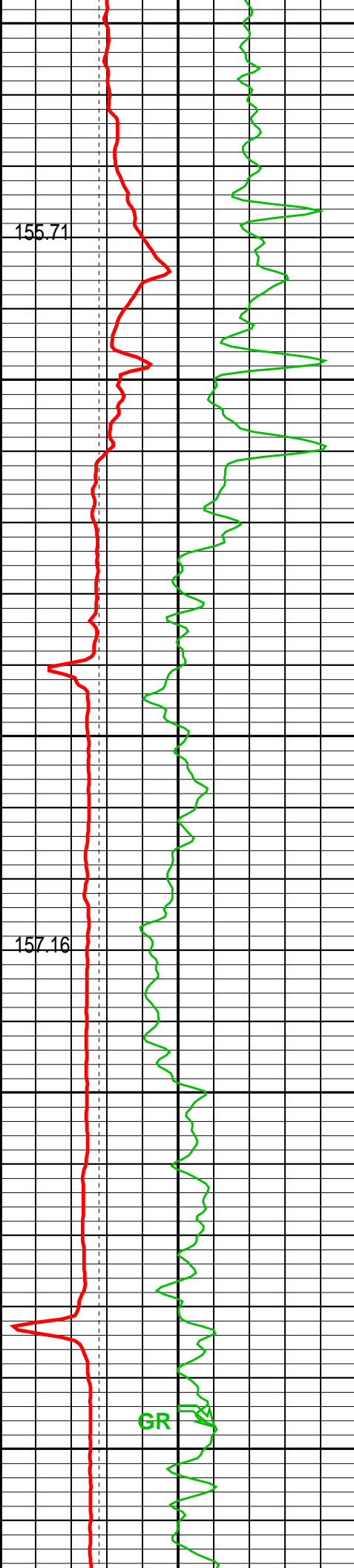


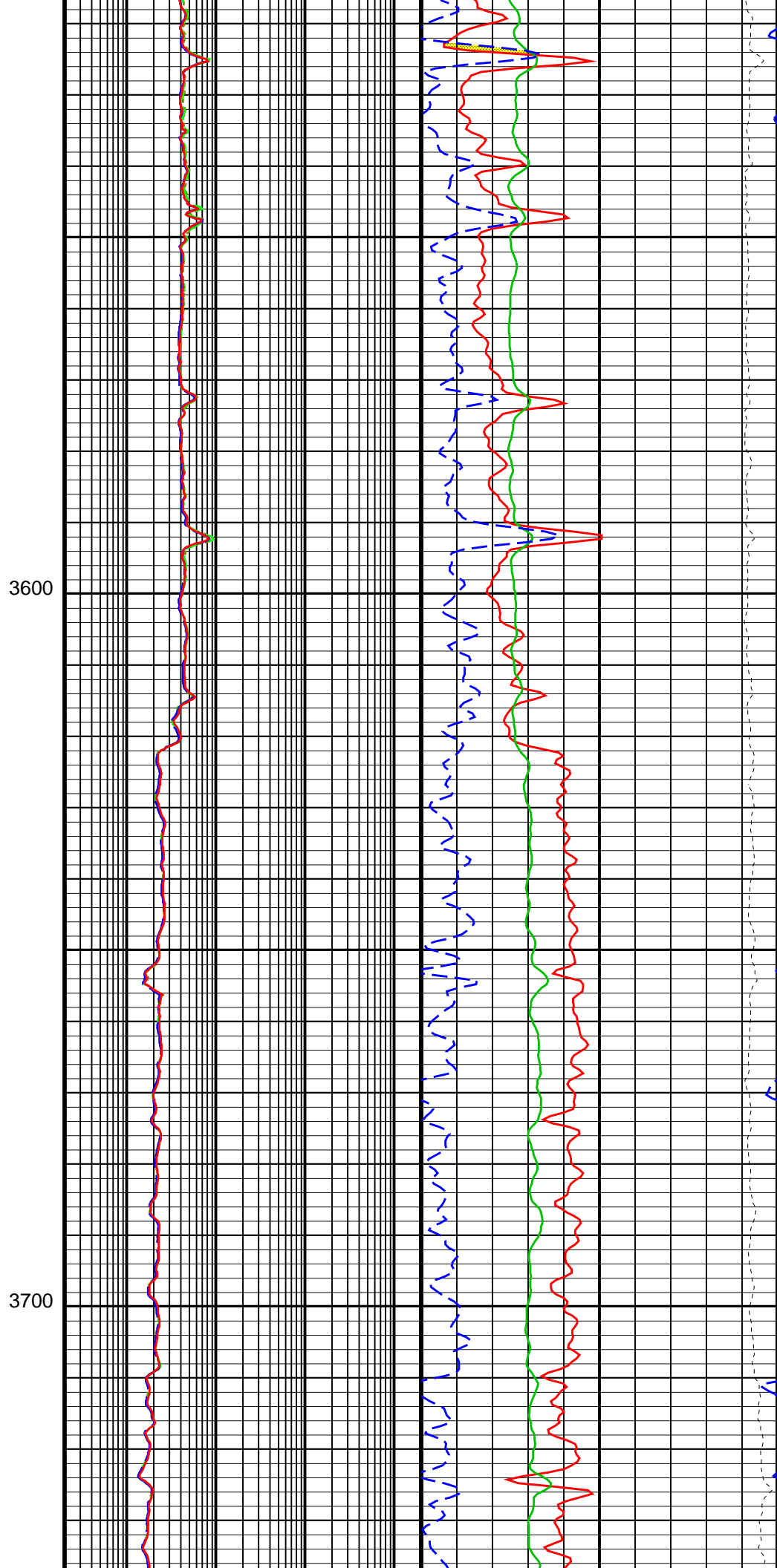
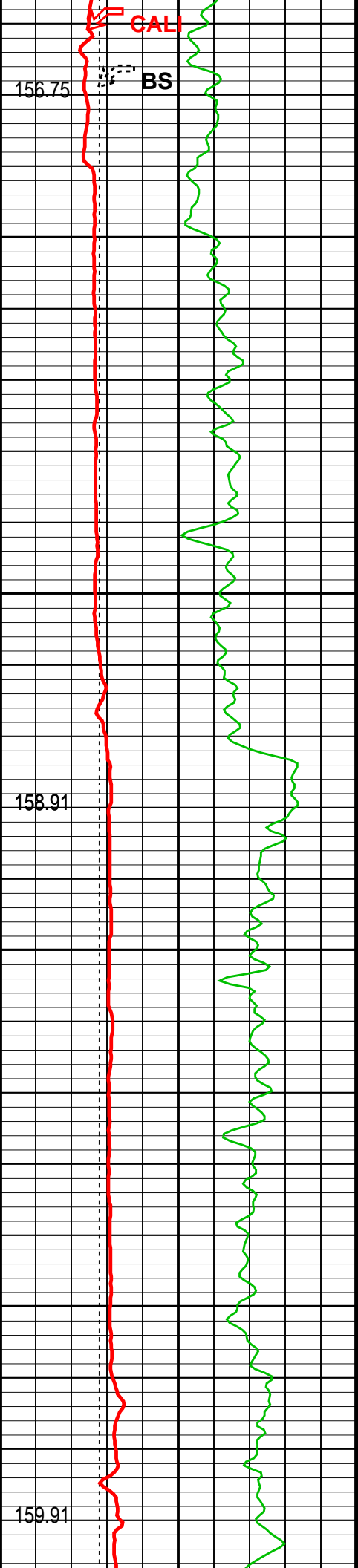


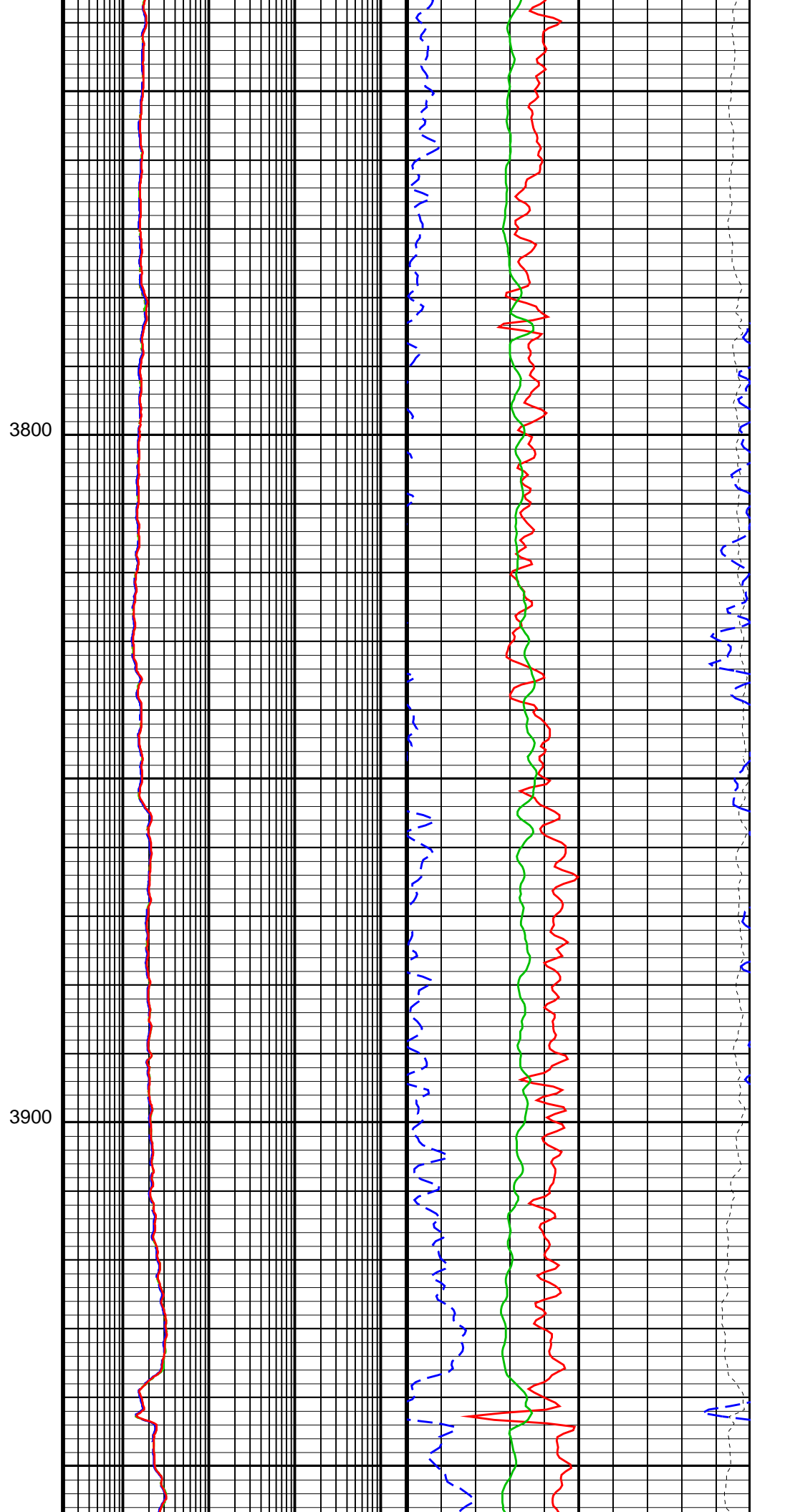
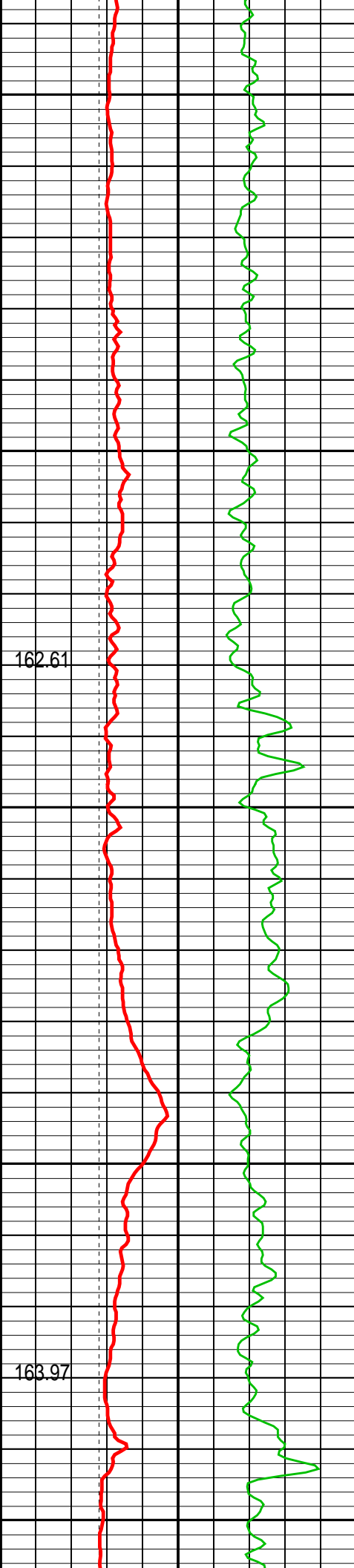


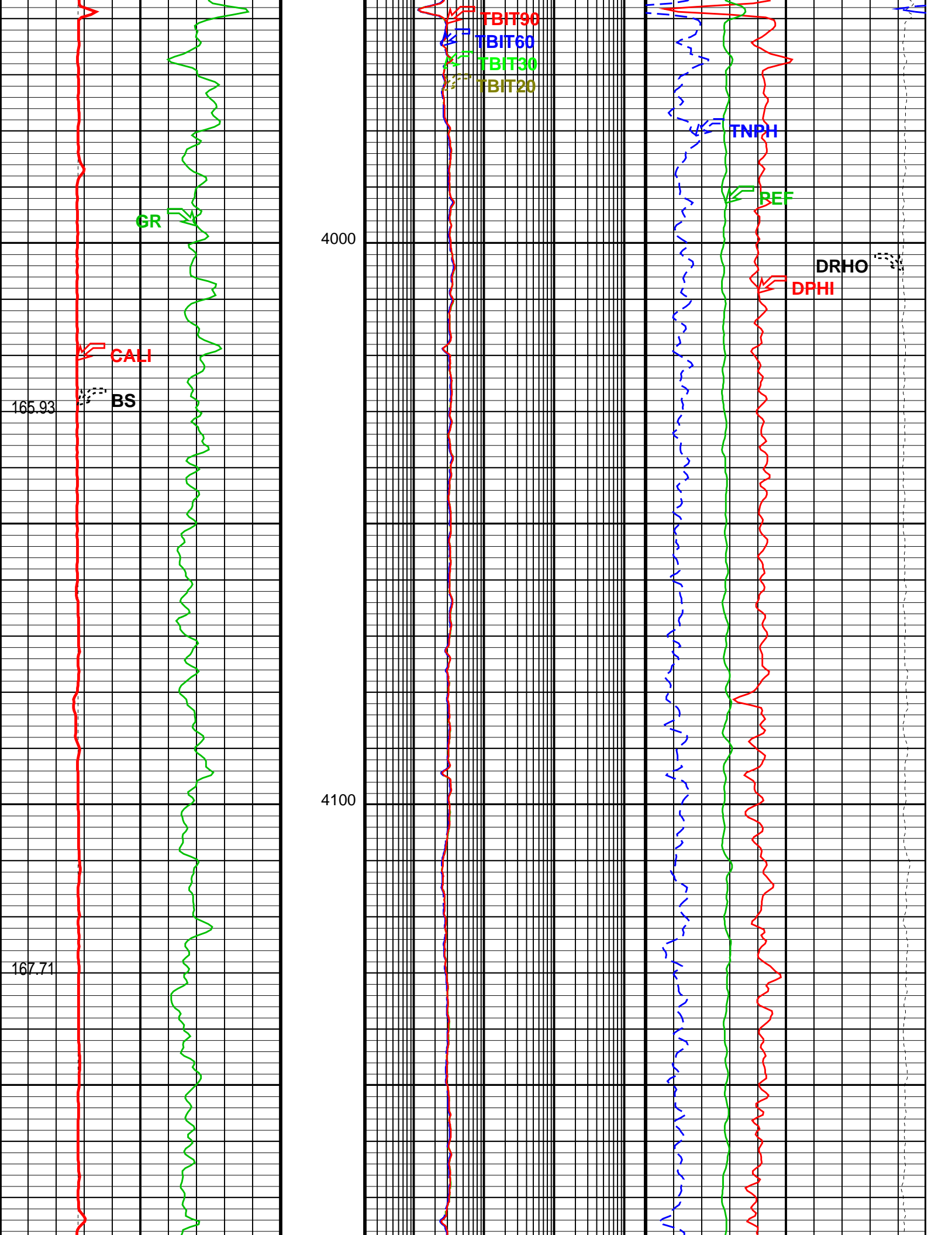








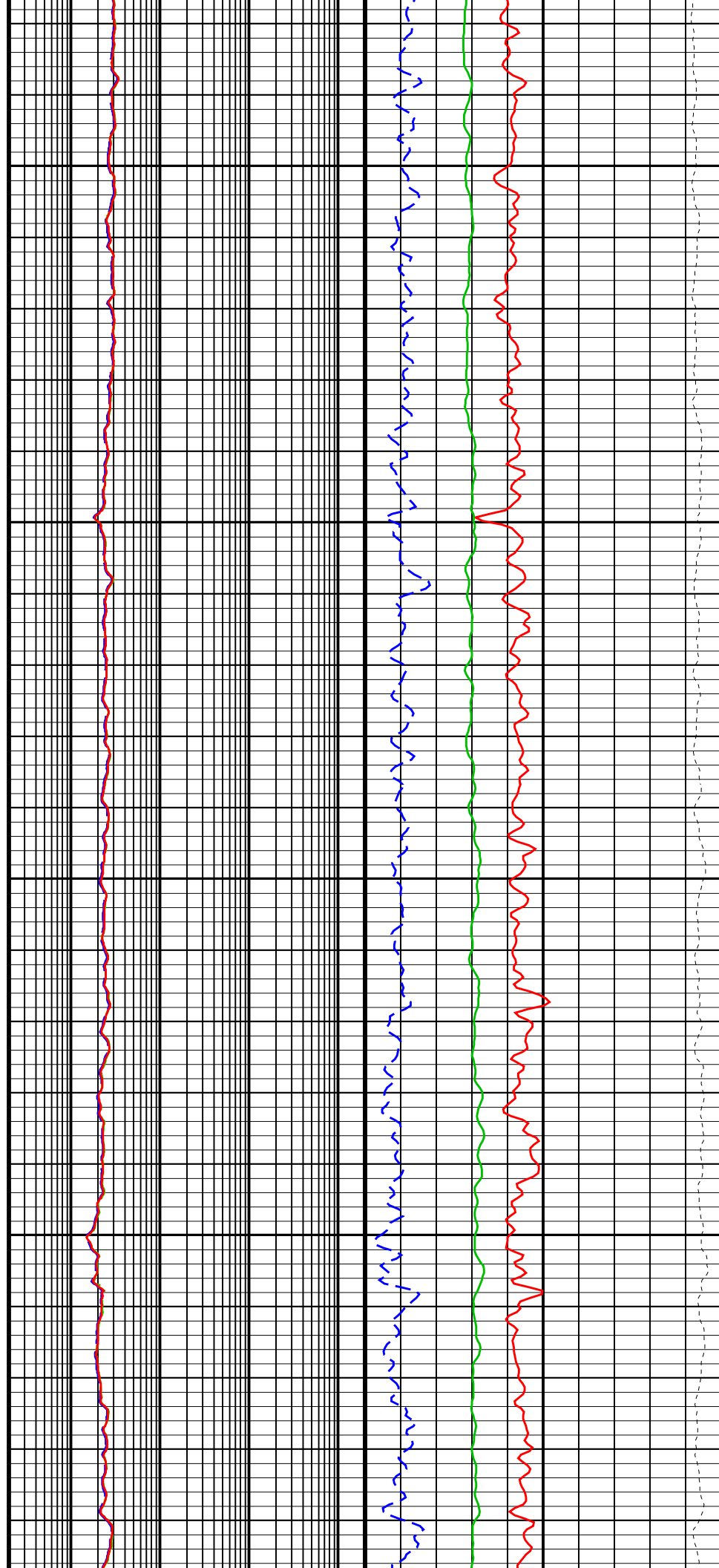


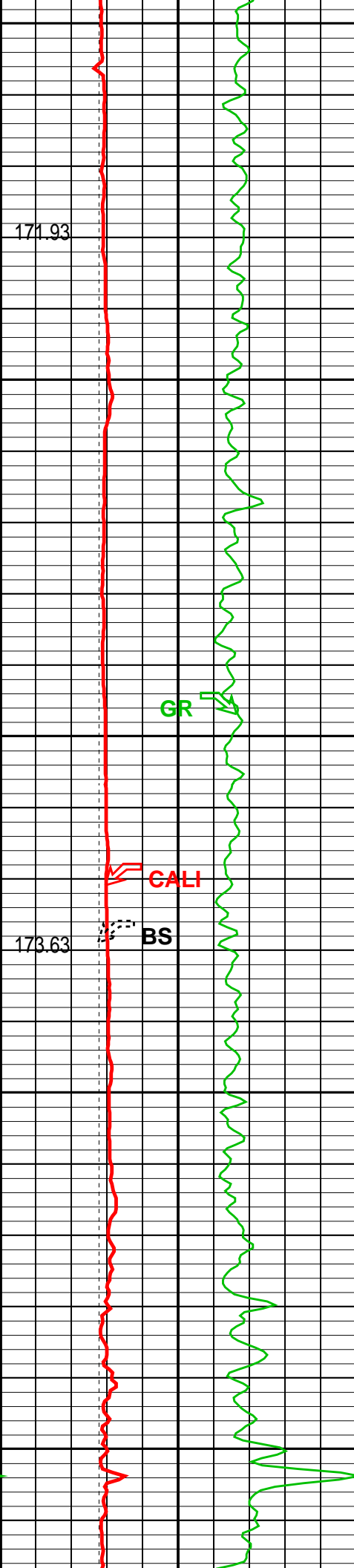




4200

4300

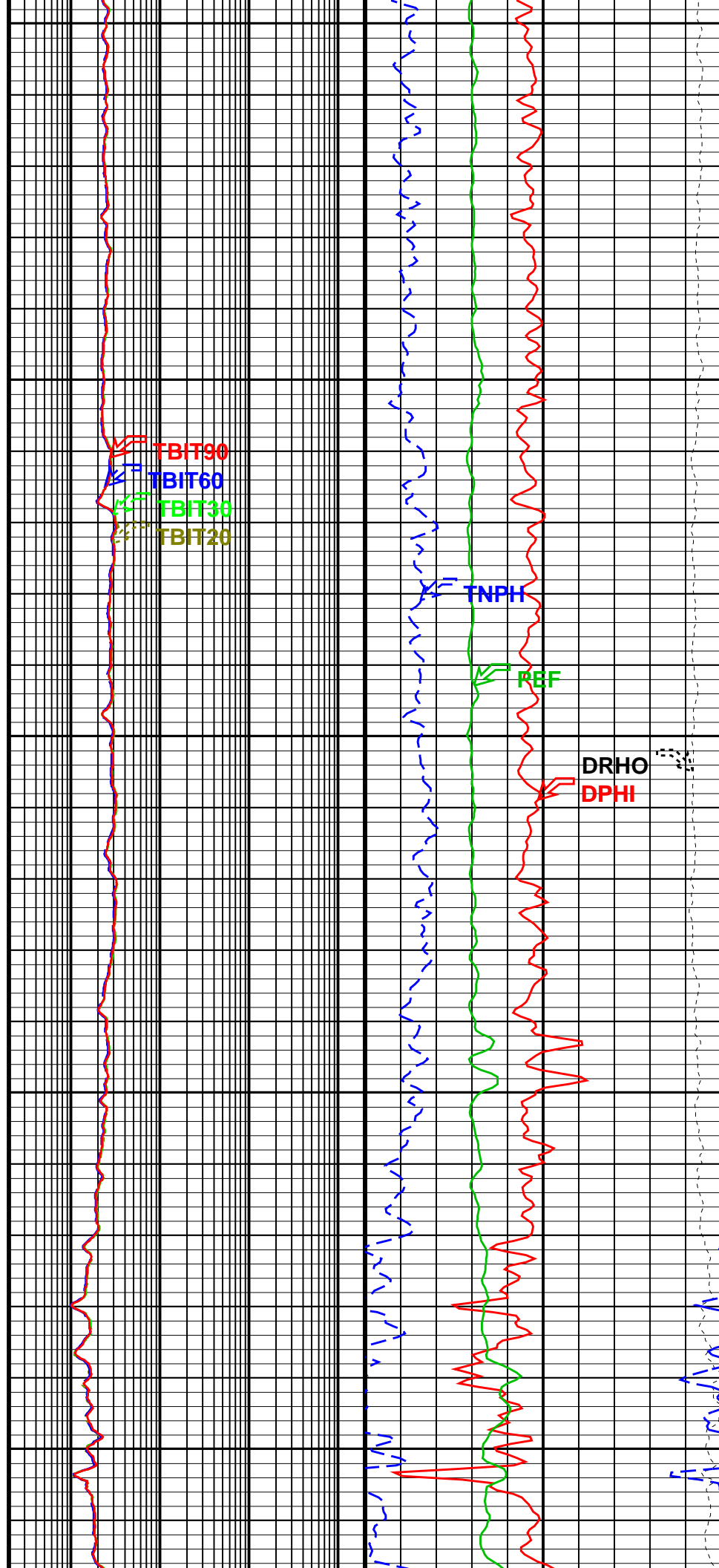


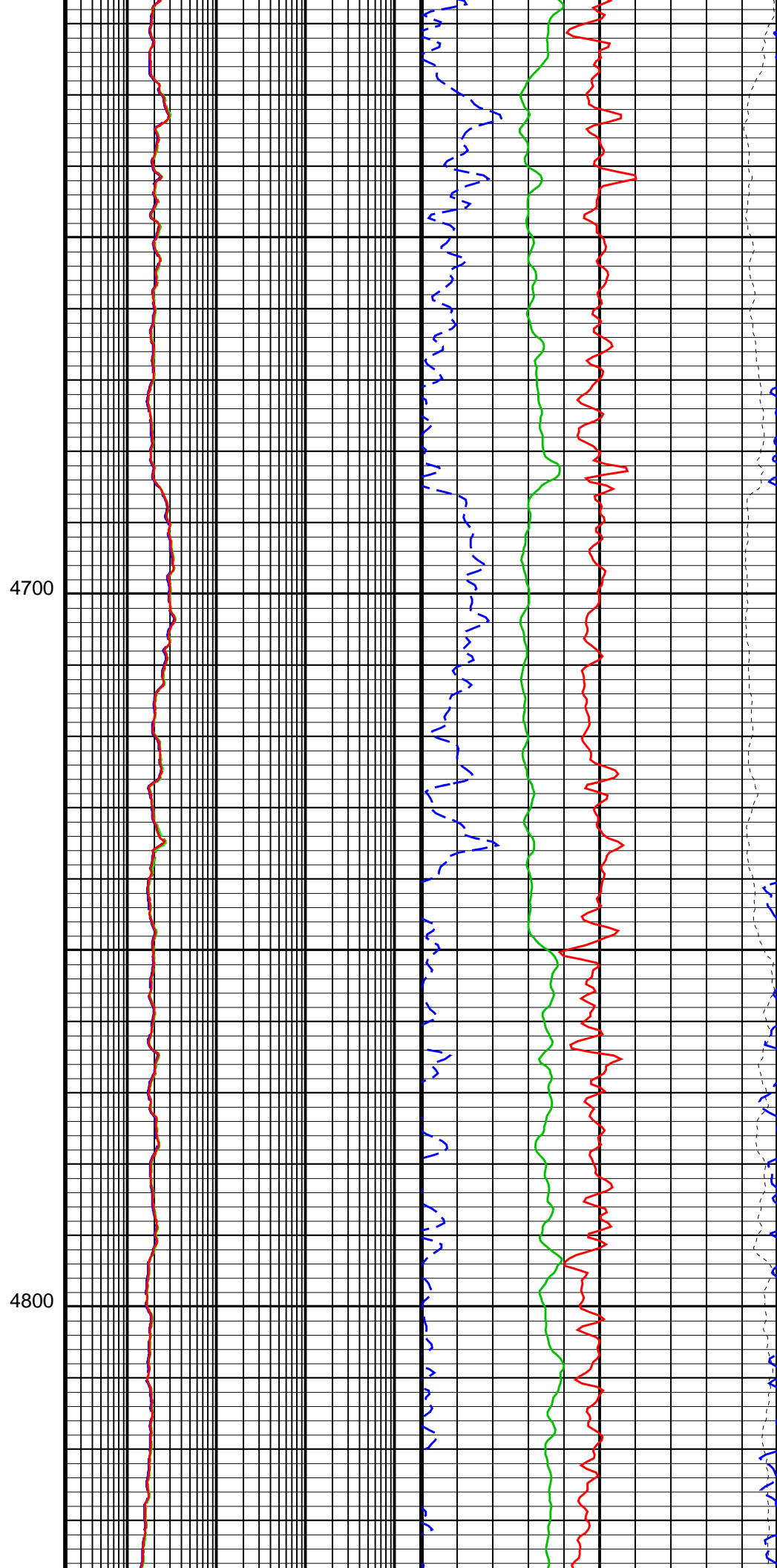
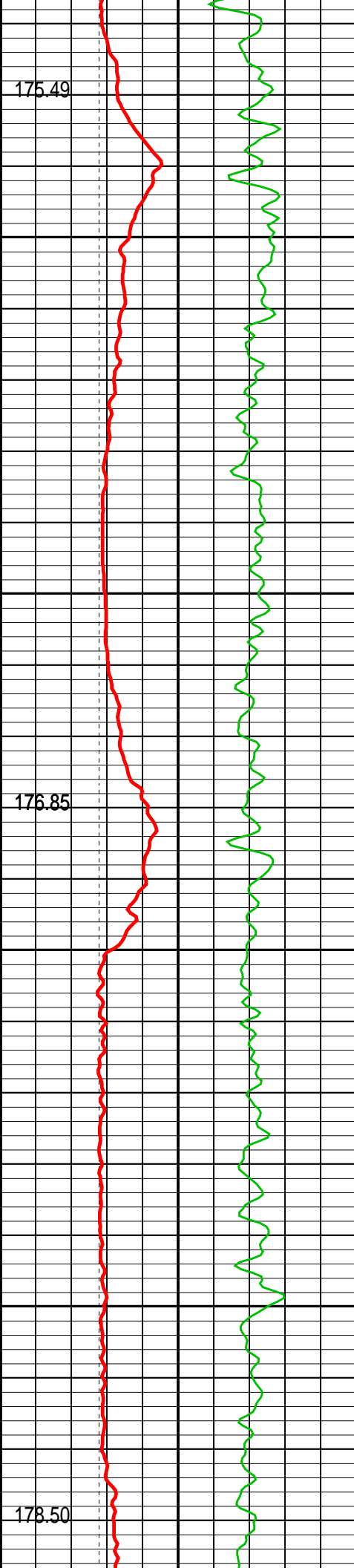


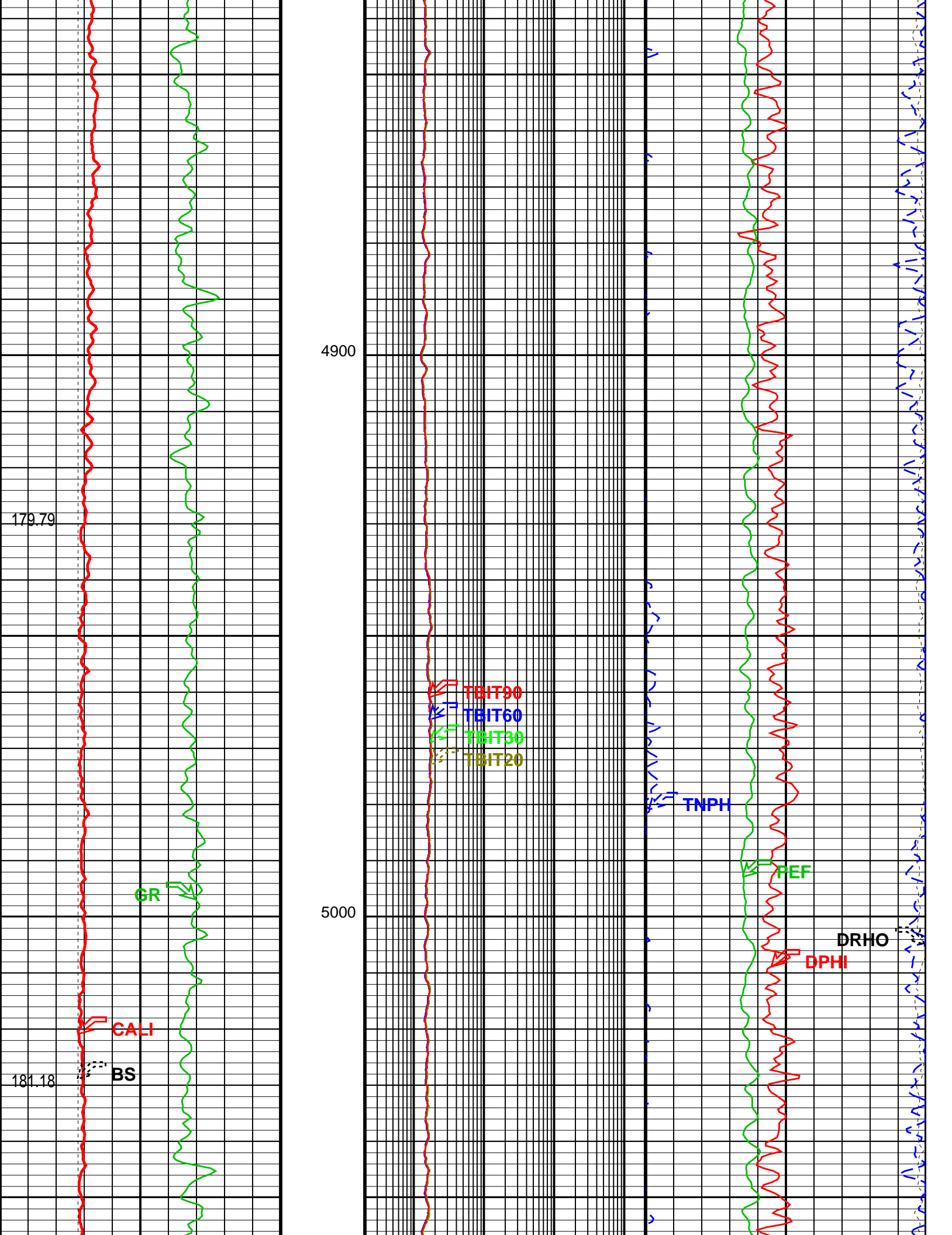
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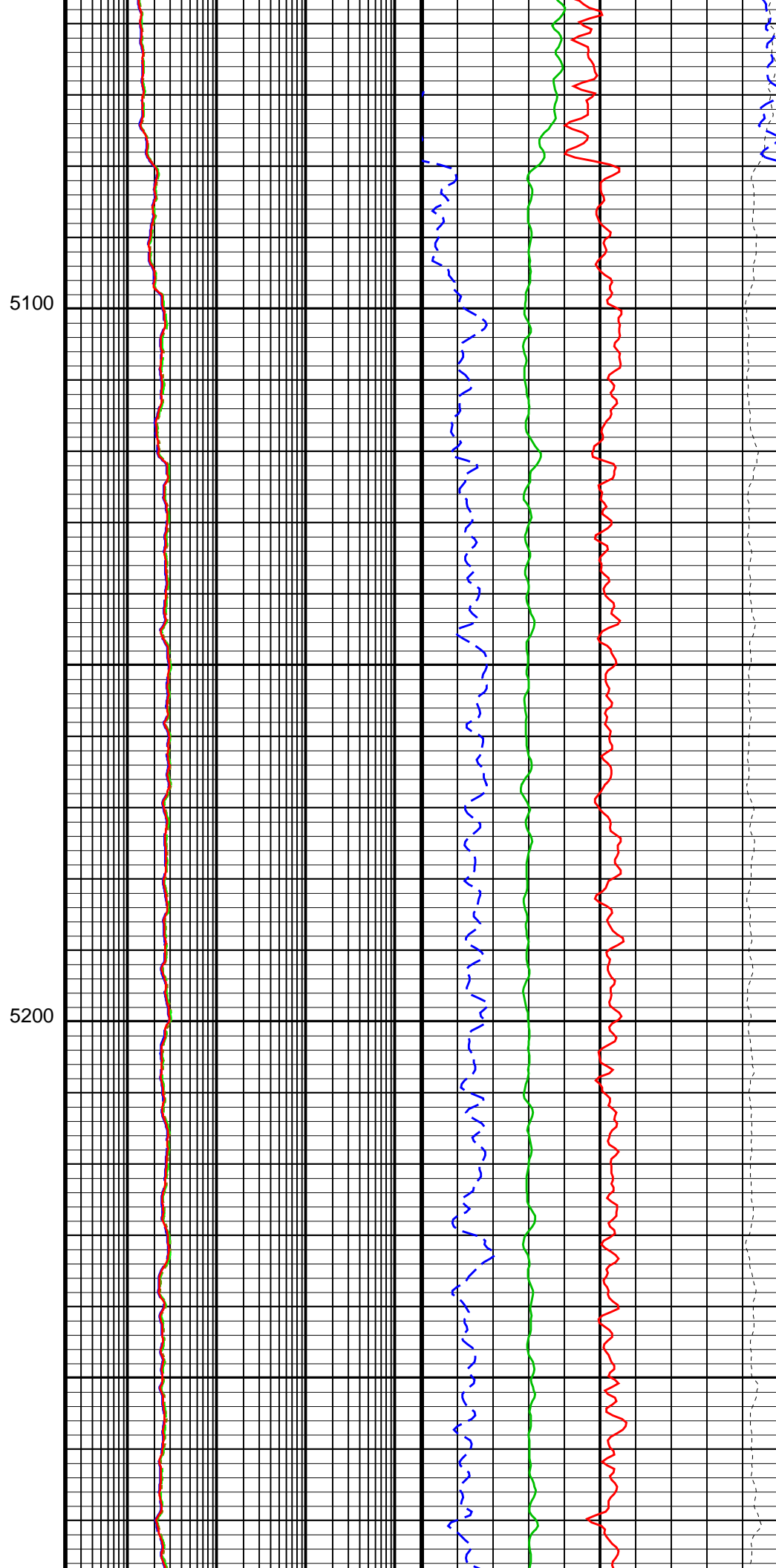
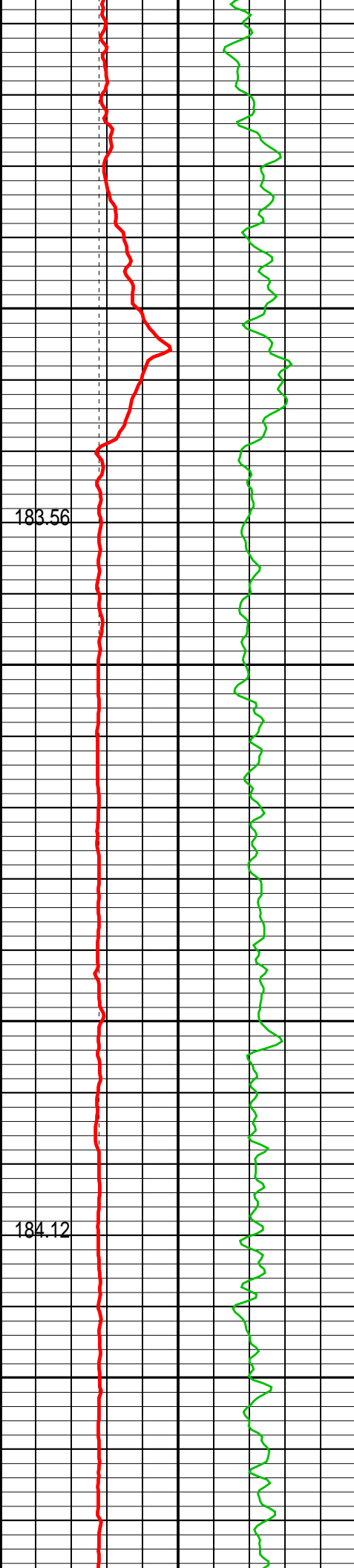
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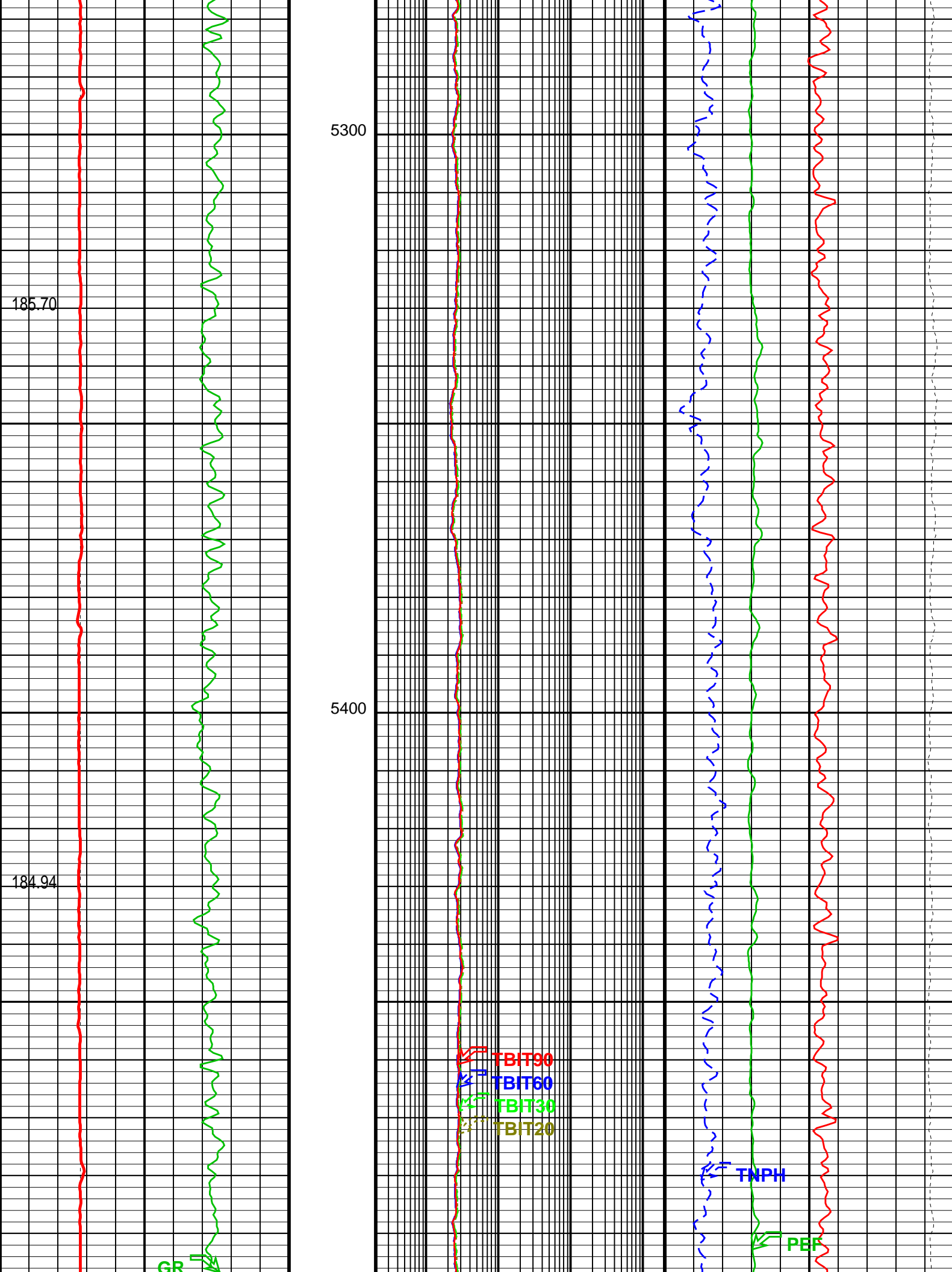
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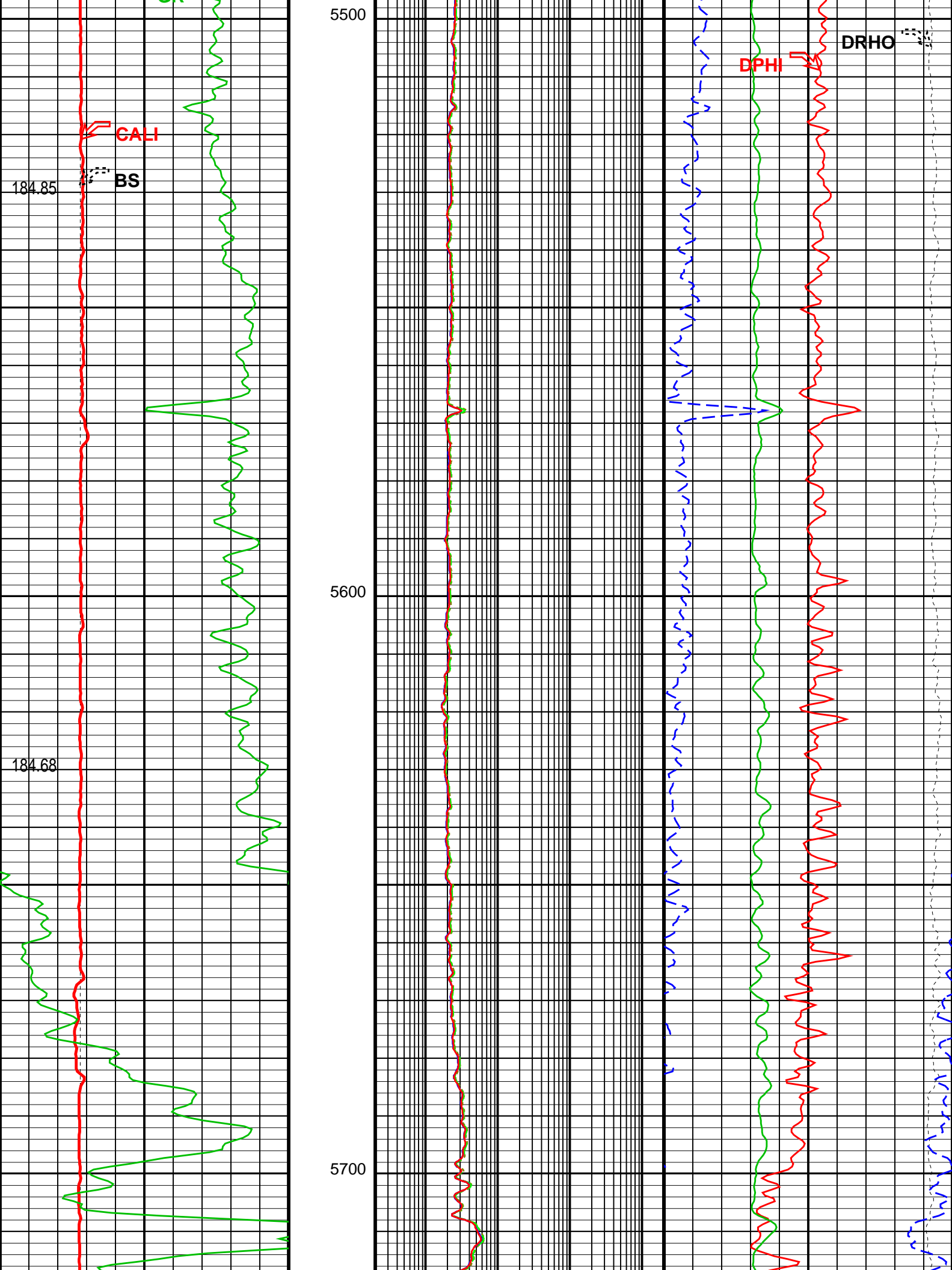


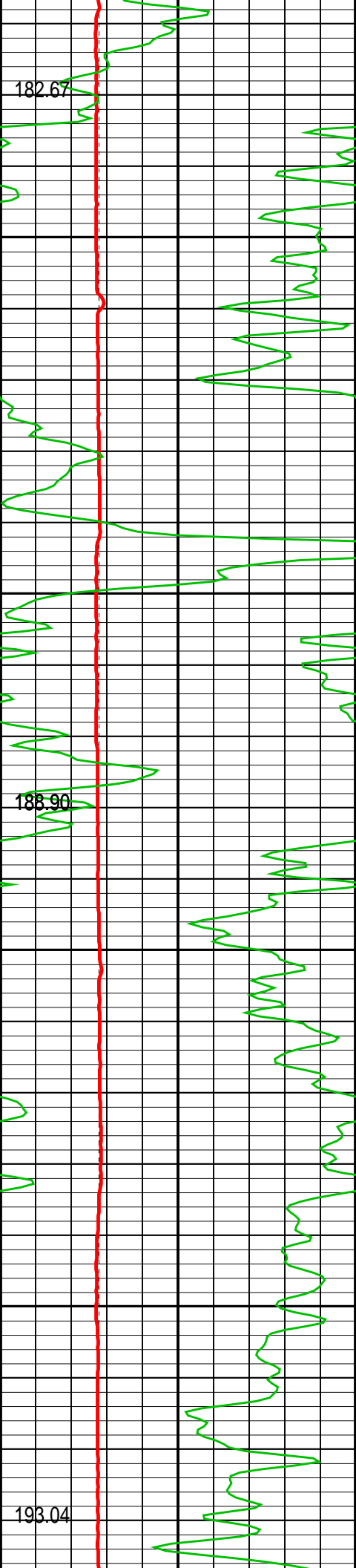






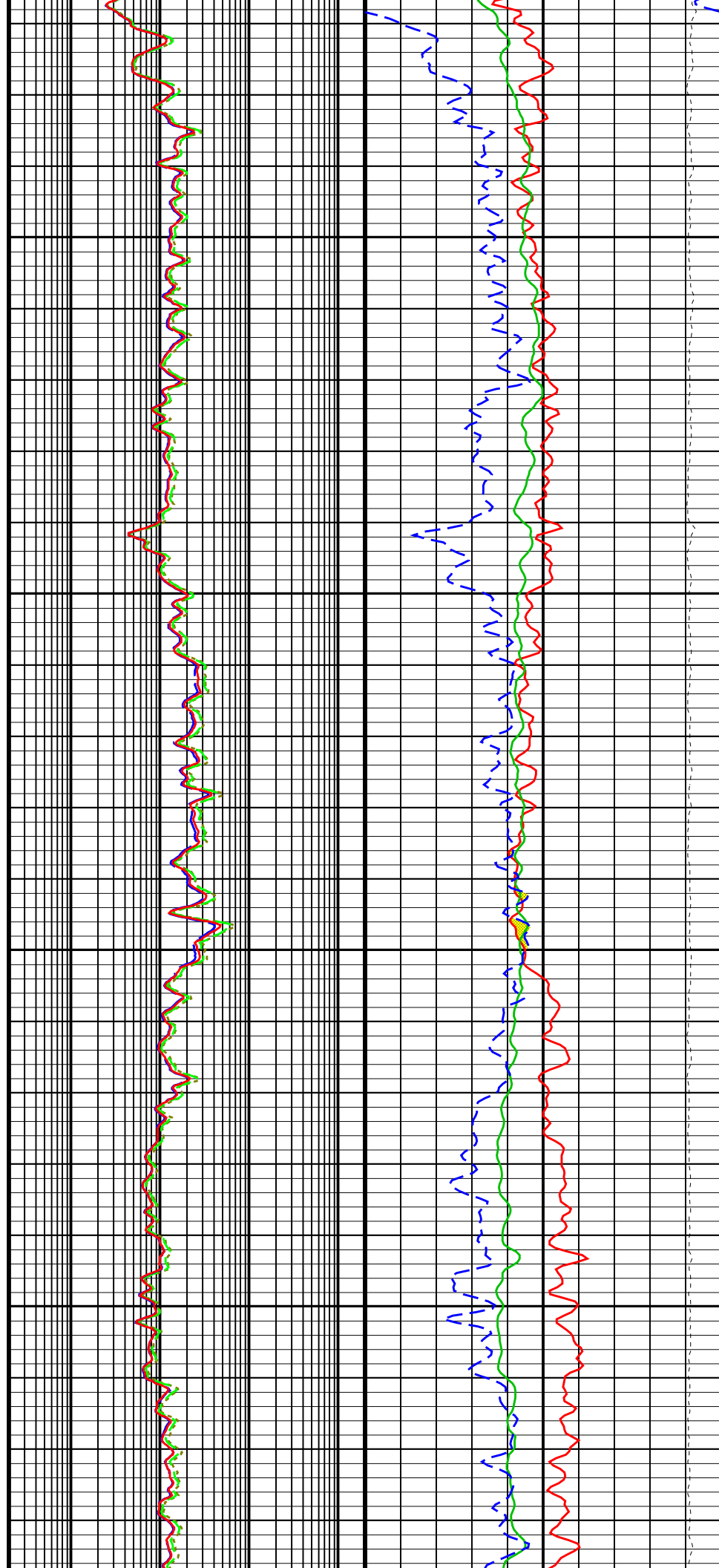


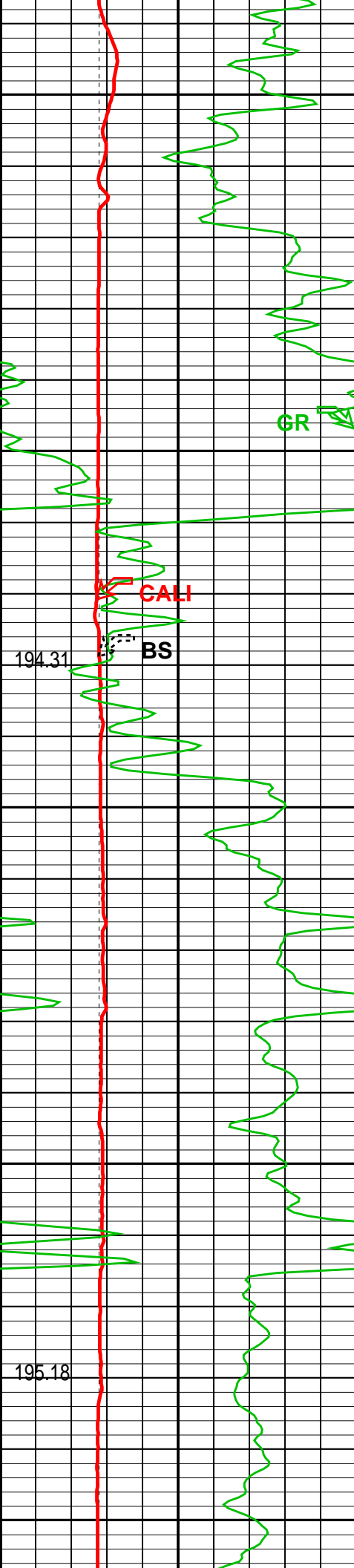




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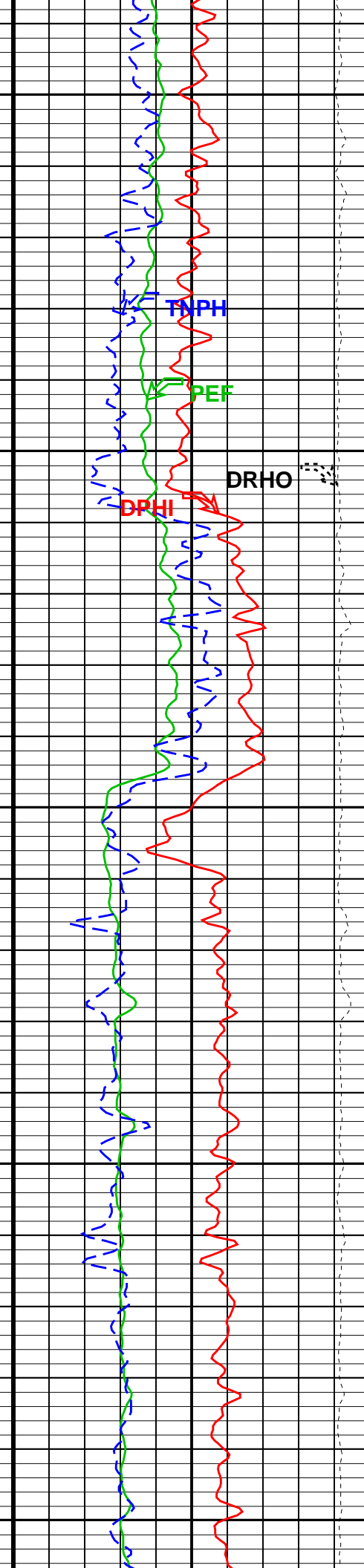
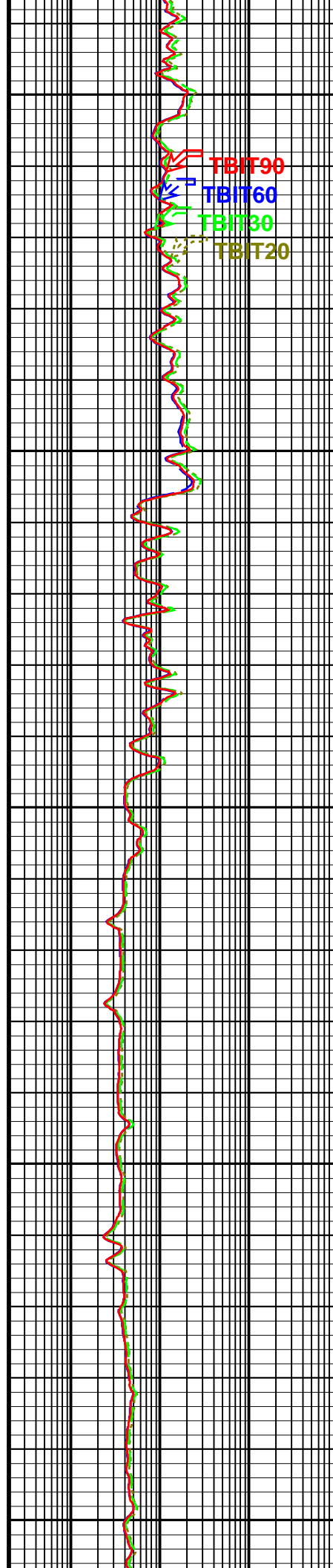
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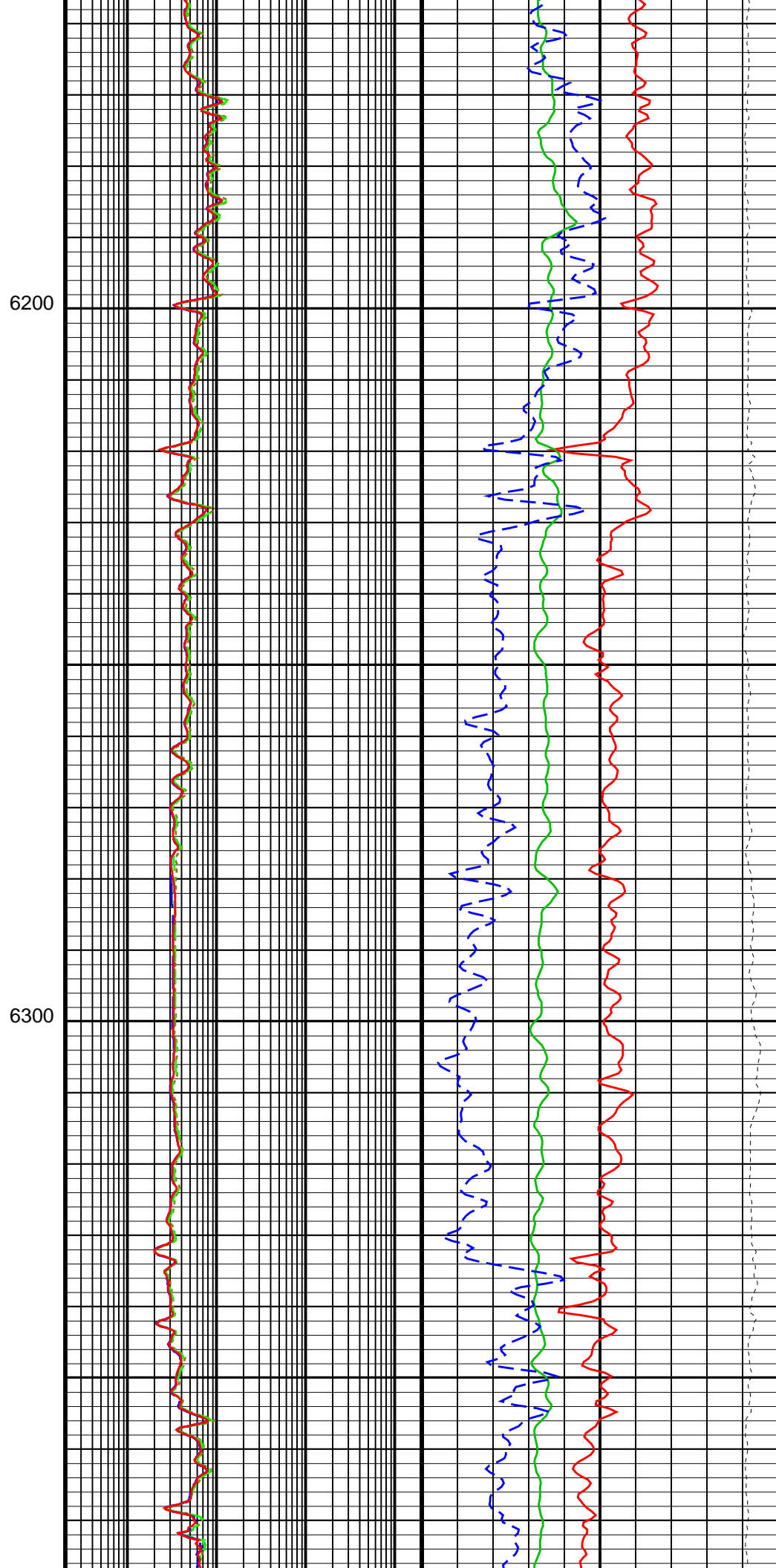
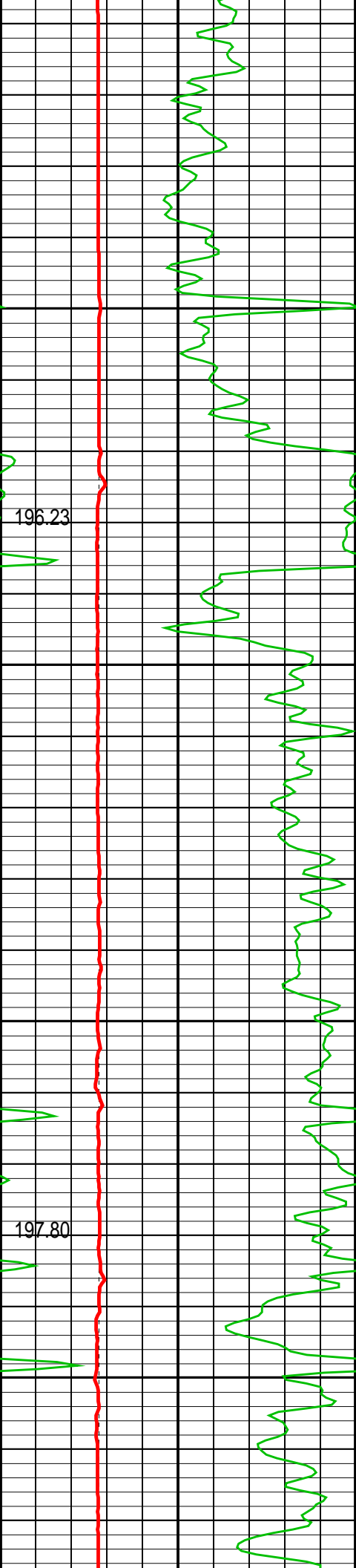


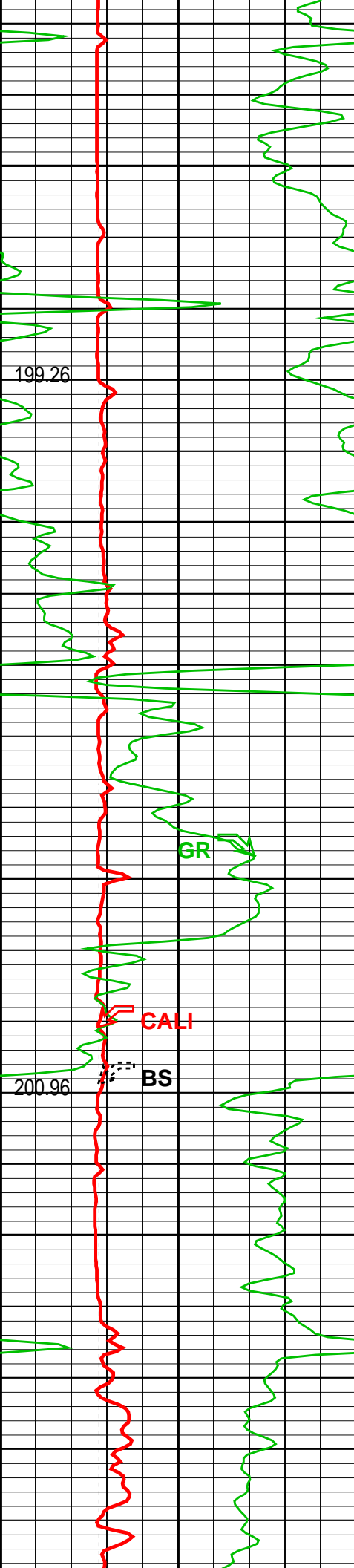


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6100

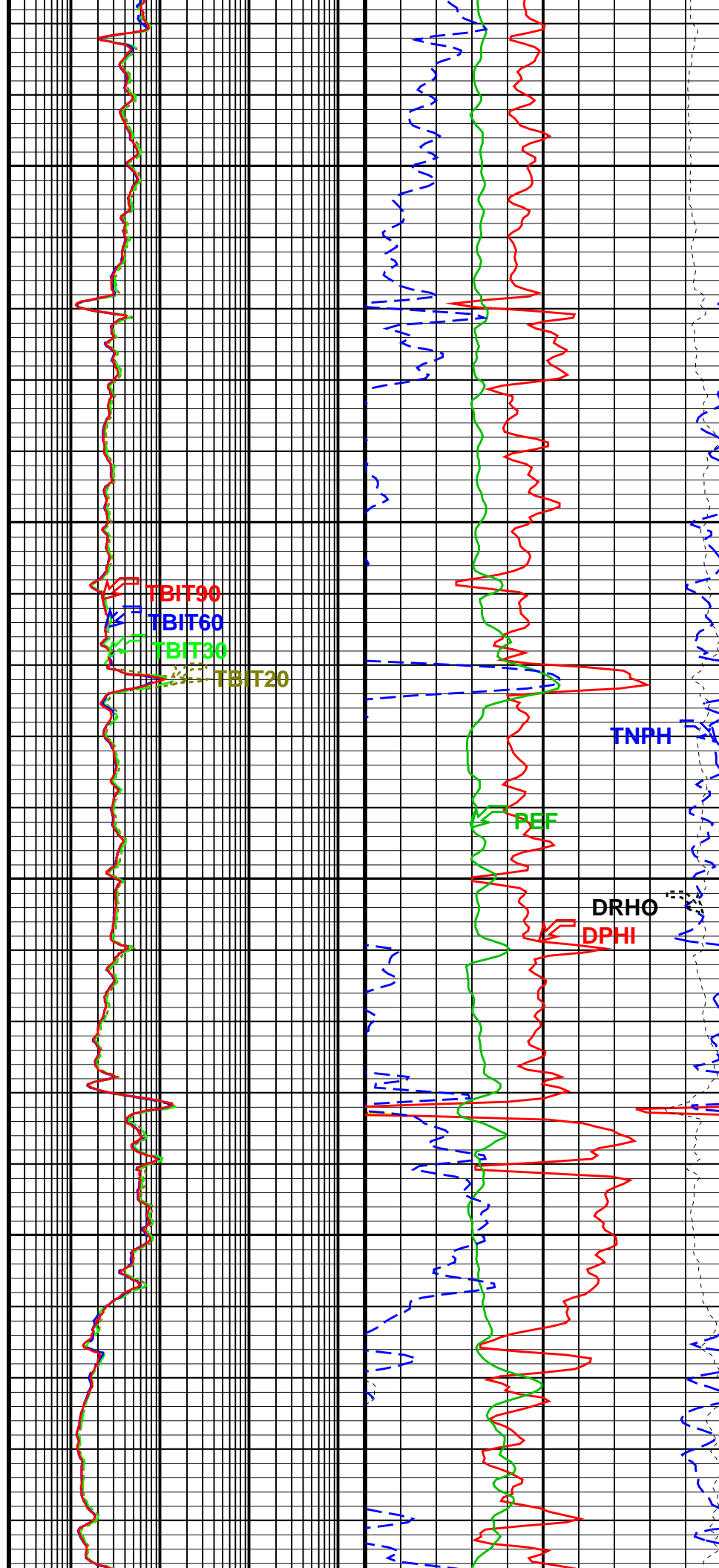


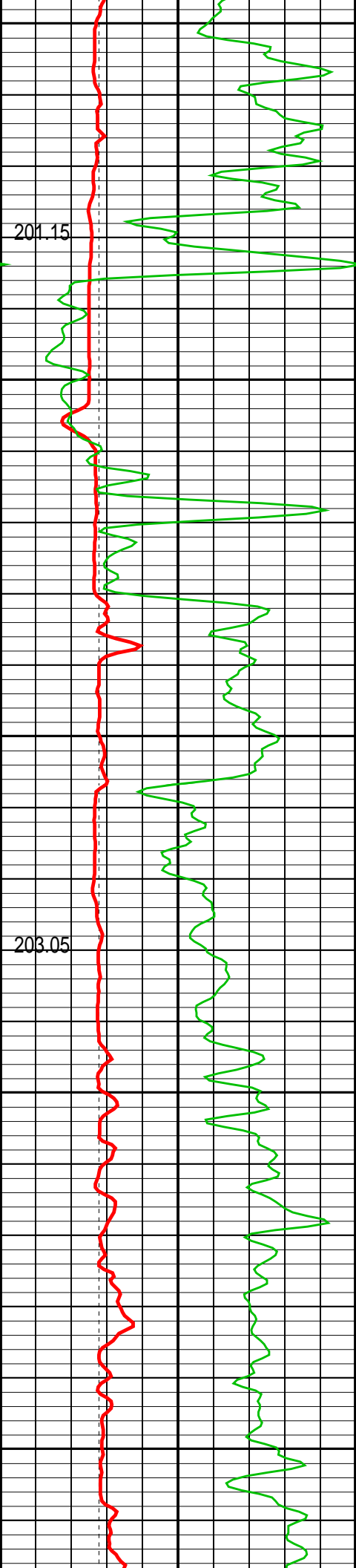




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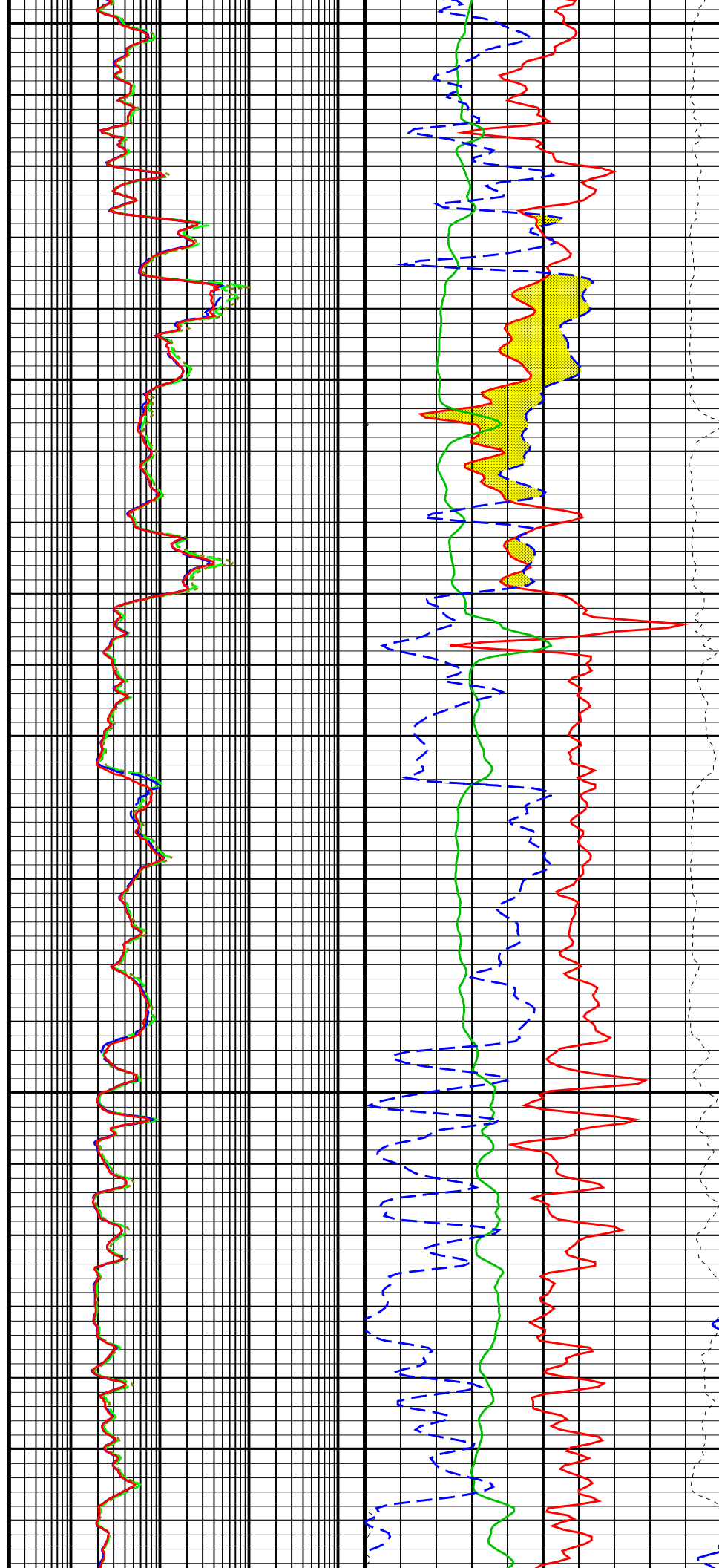


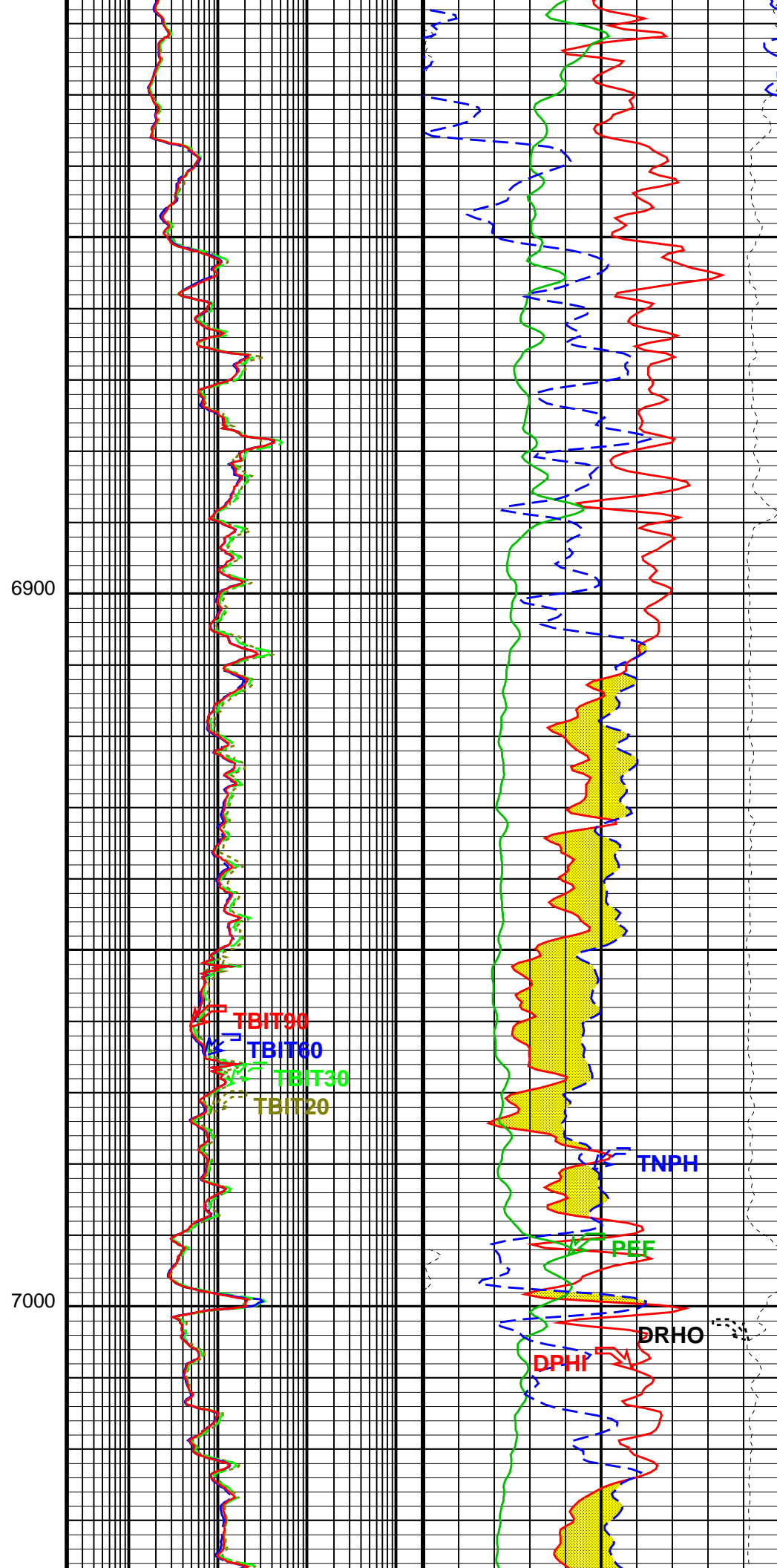
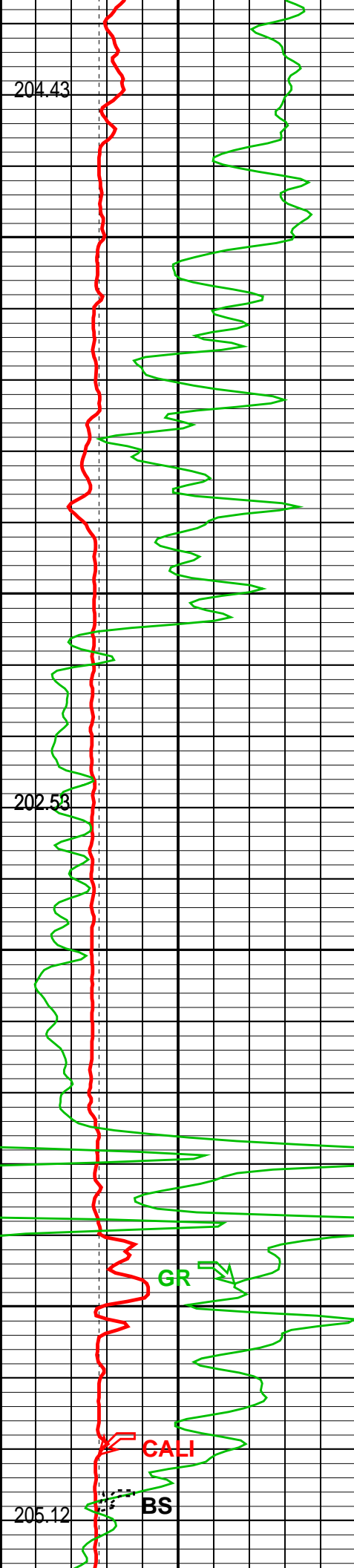


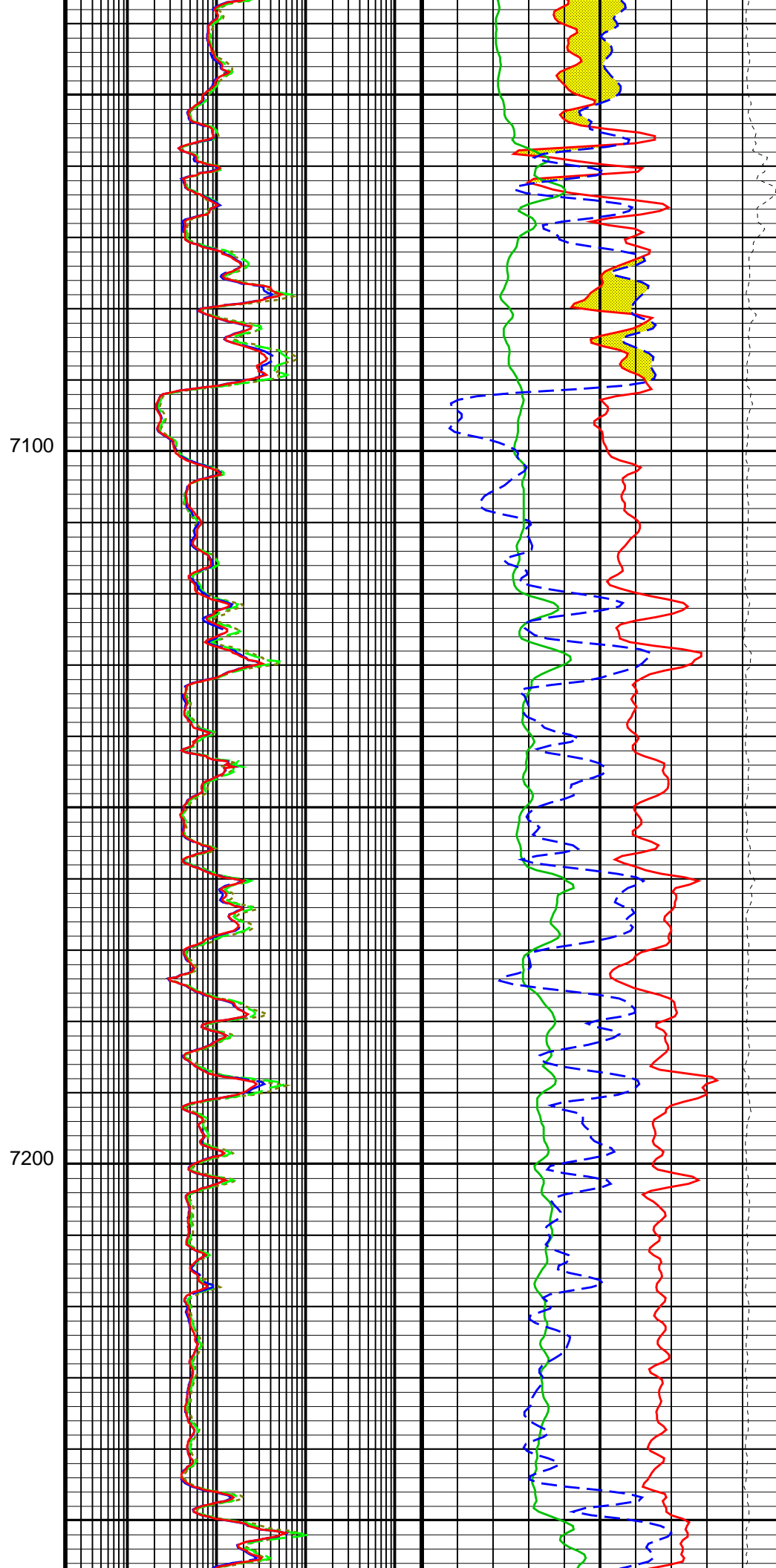
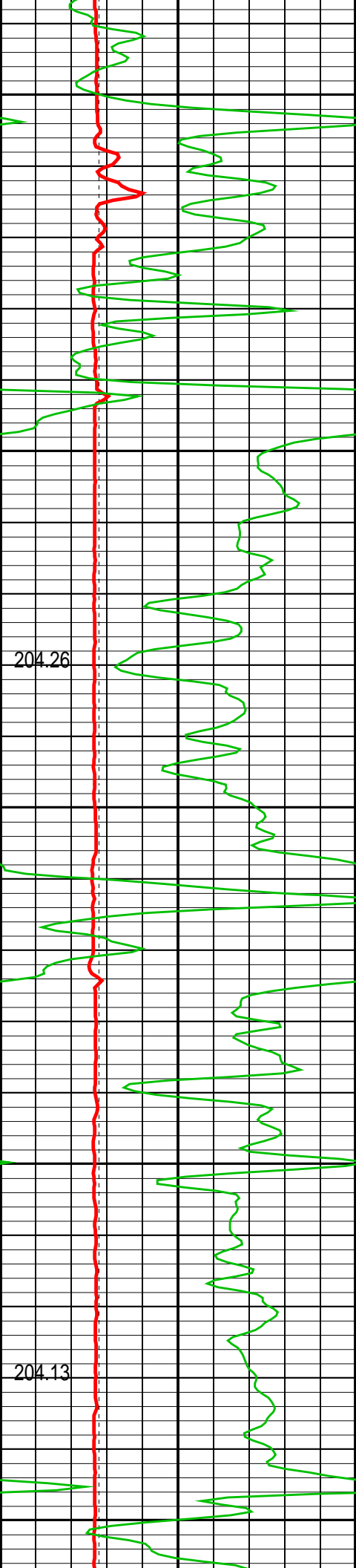
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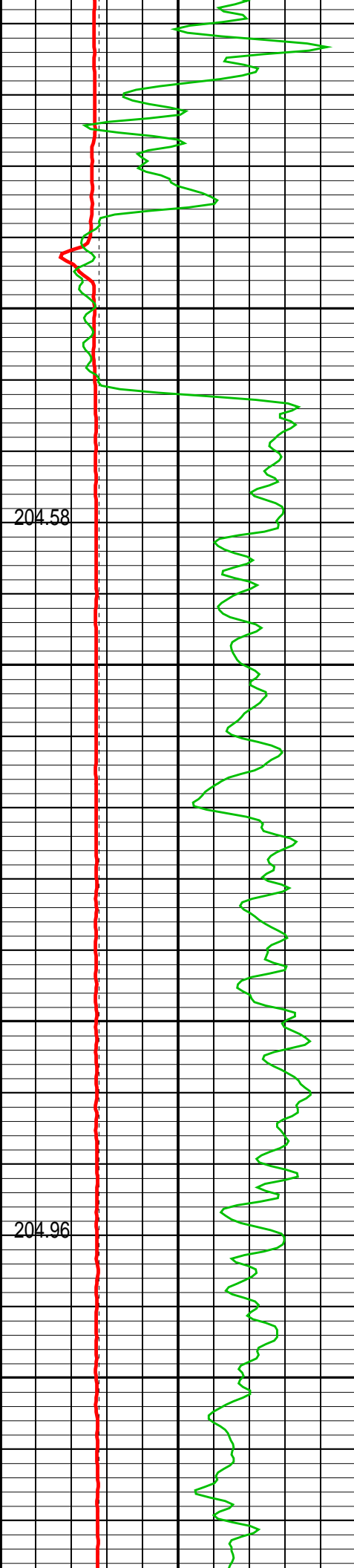
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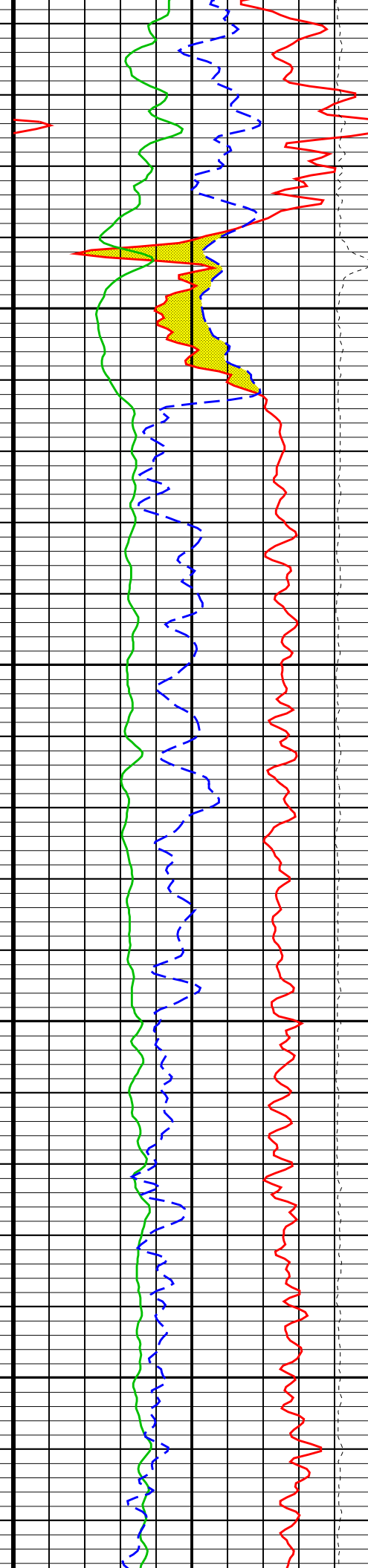
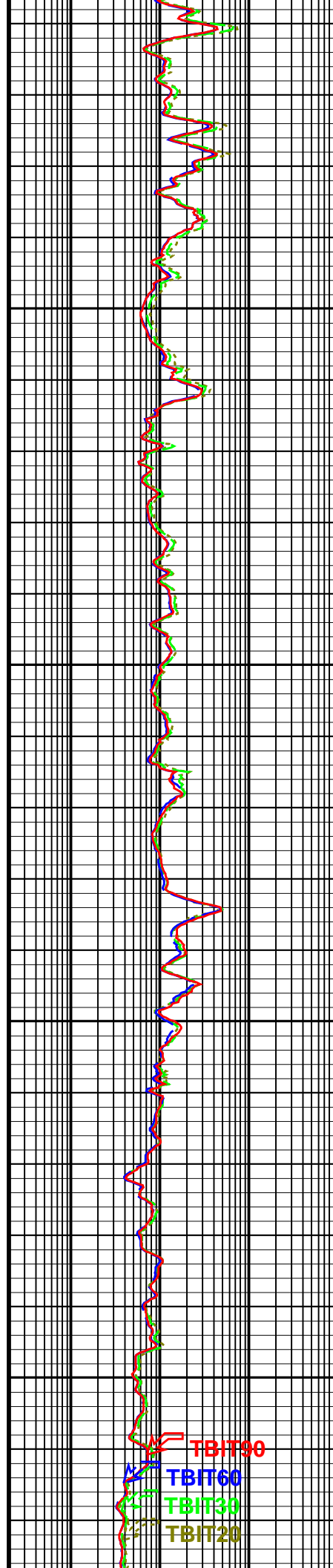






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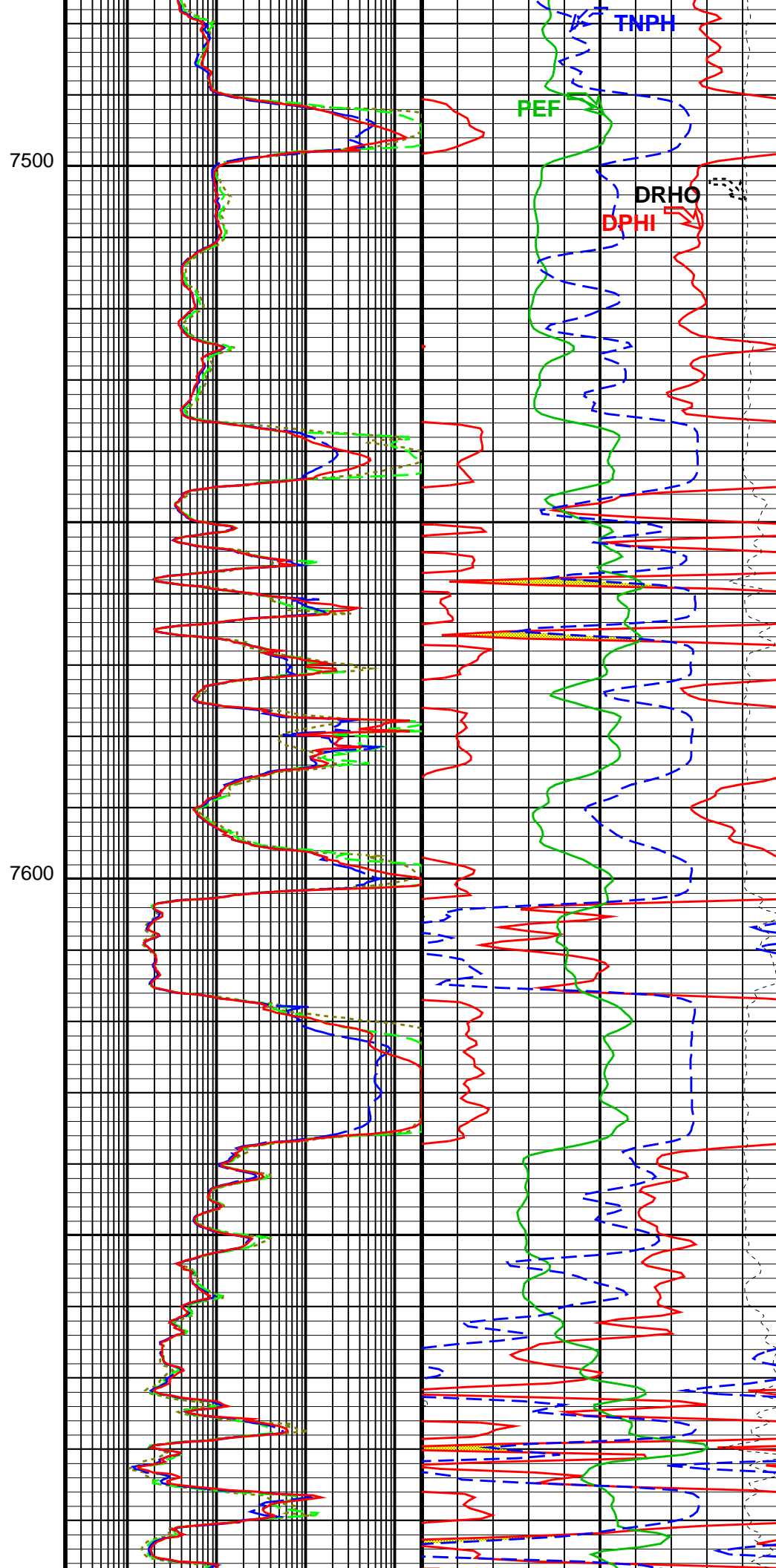
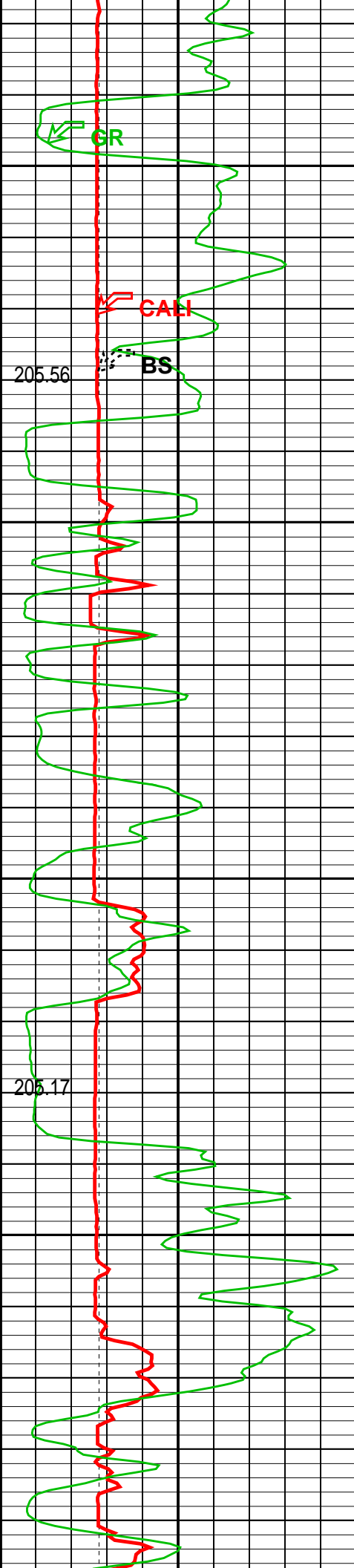


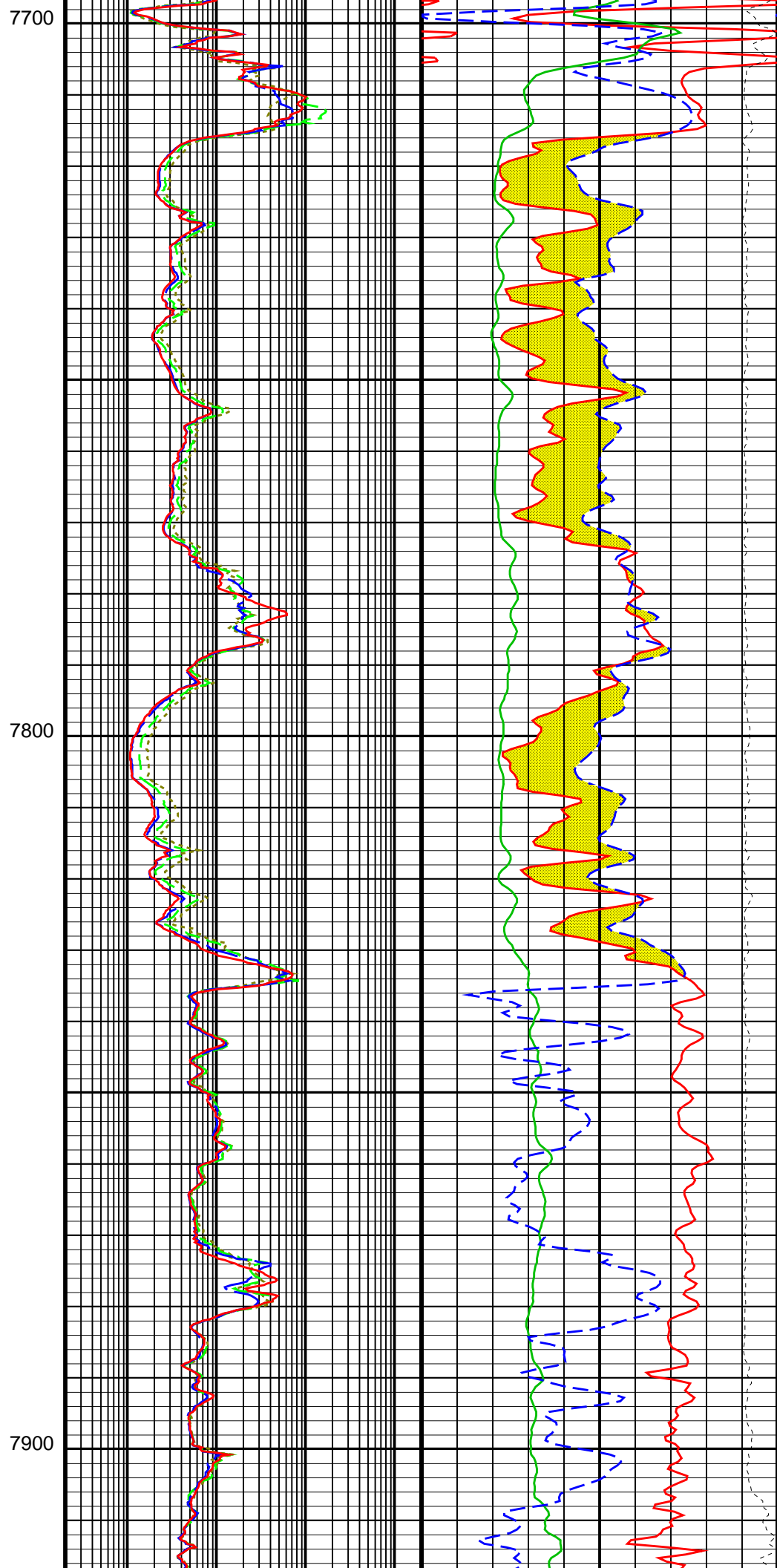
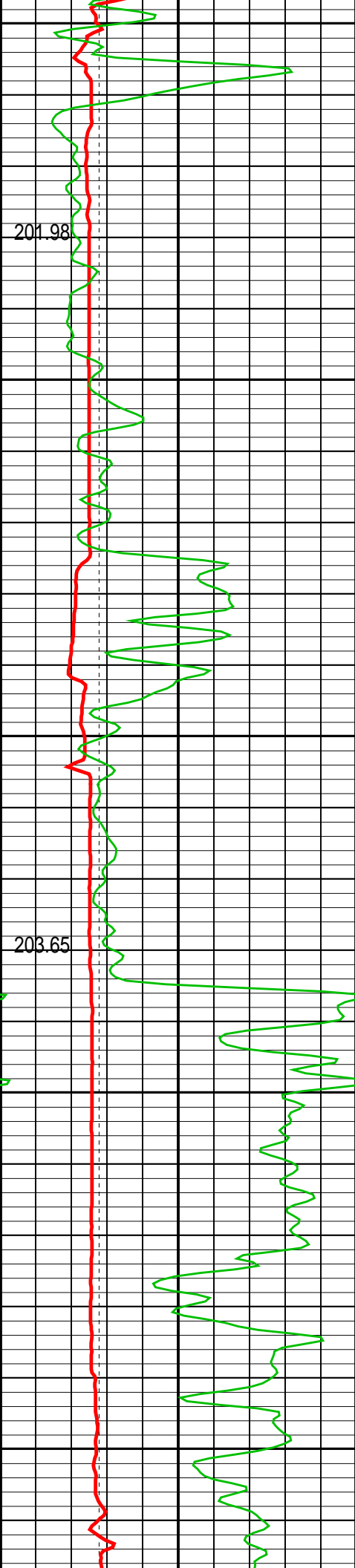
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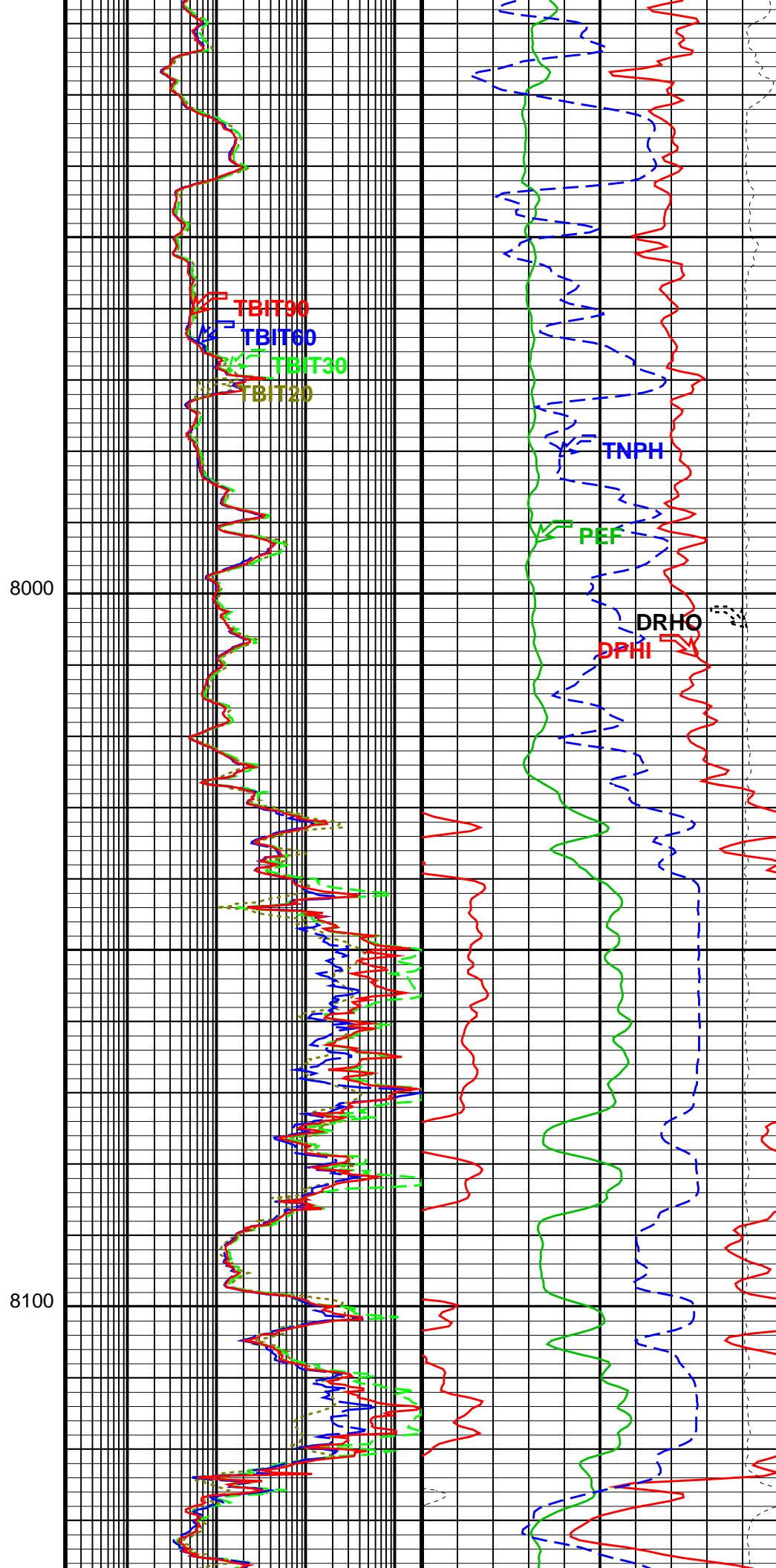
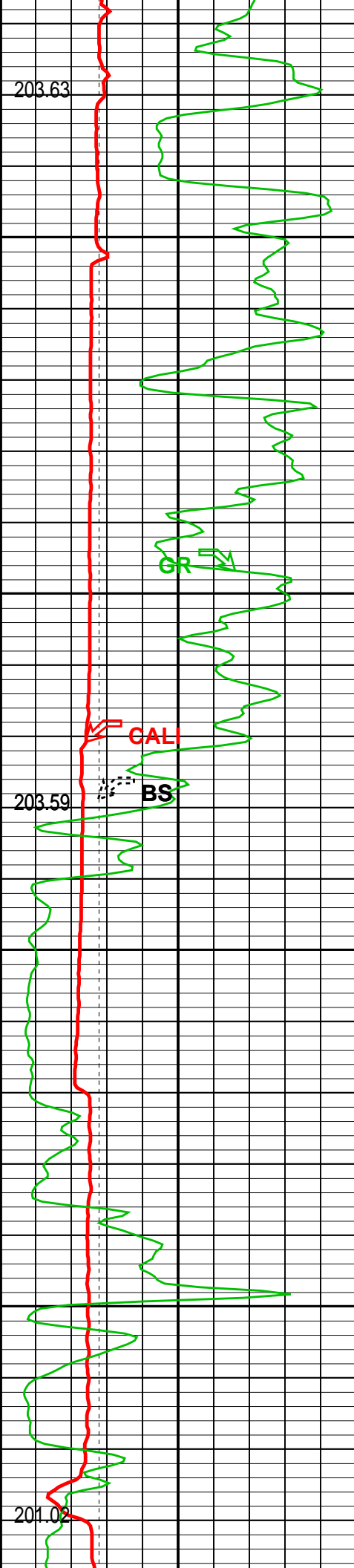
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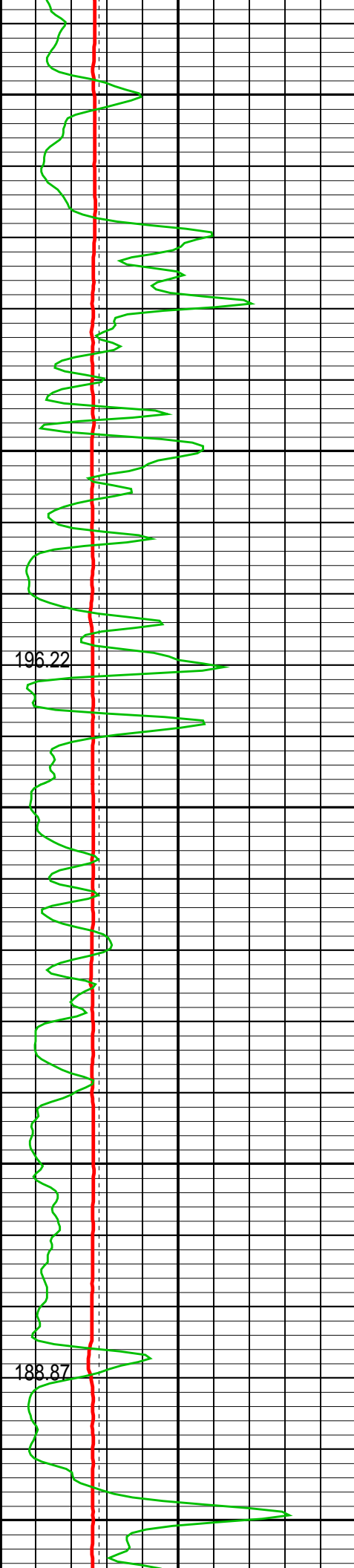
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TBIT20



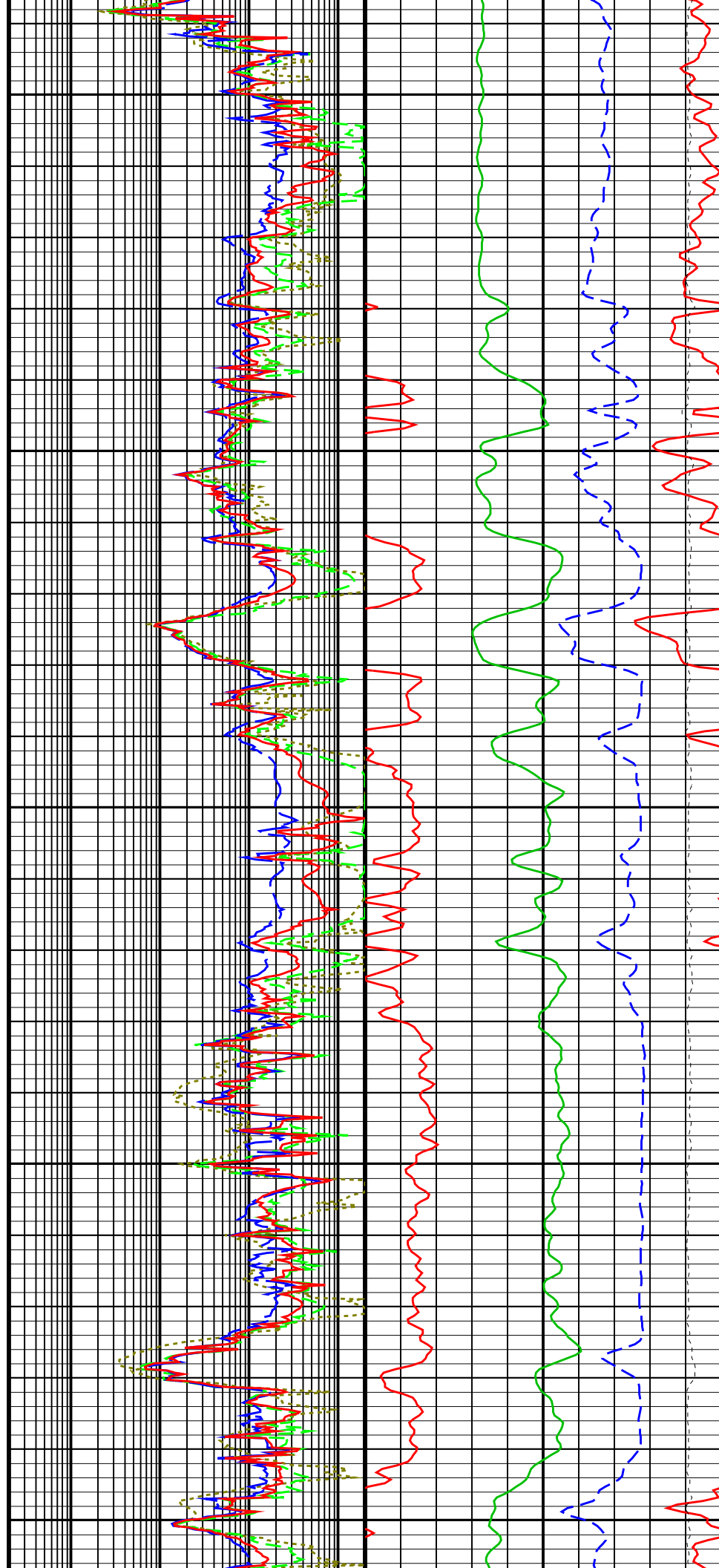


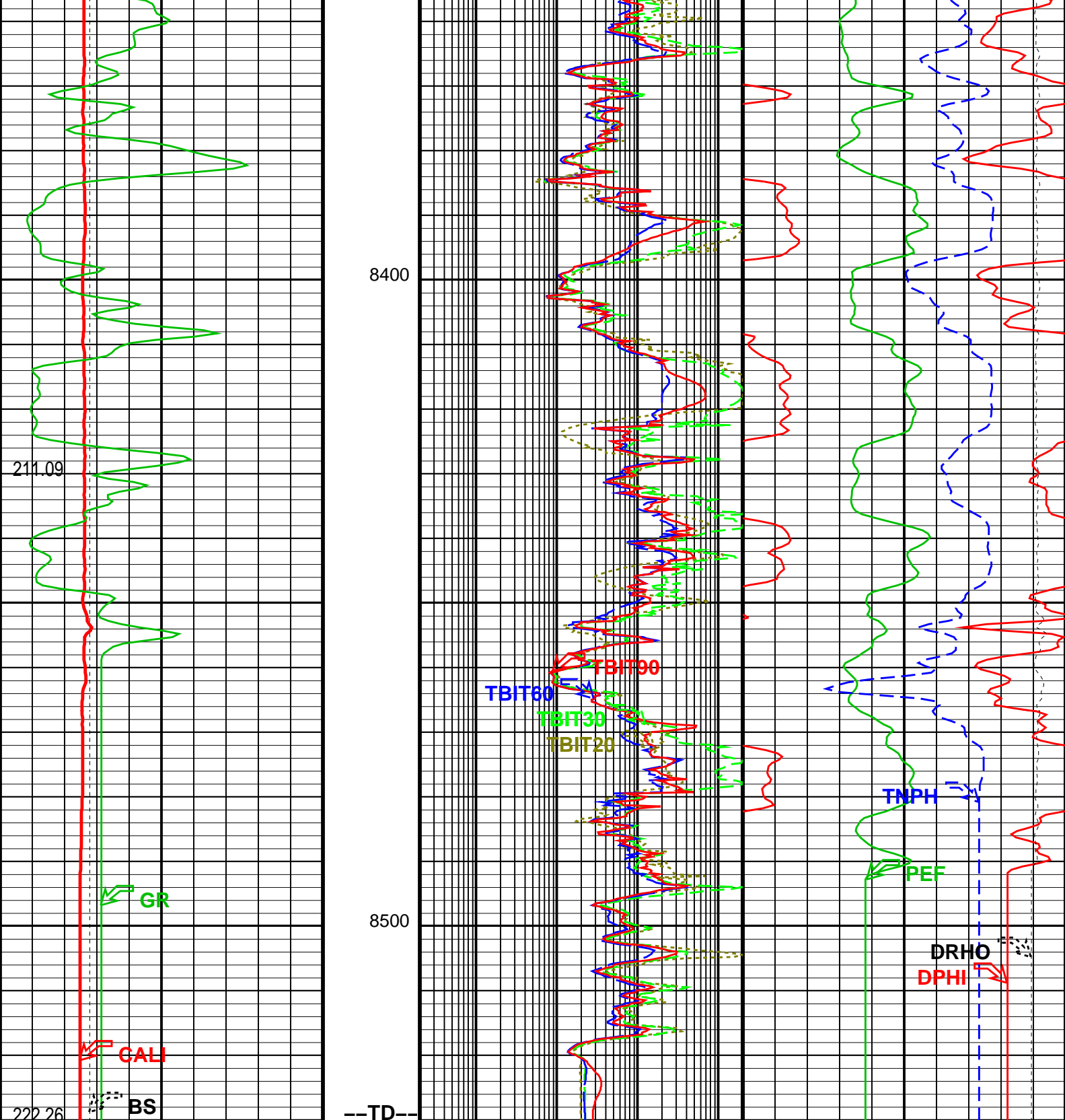




8200

8300





Well Temp (WTEP) (DEGF)		TBI 20 Inch Investigation (TBIT20) (OHMM)		DPHI (DPHI) (%)	
		0.2	2000	30	-10
Bit Size (BS) (IN)		TBI 30 Inch Investigation (TBIT30) (OHMM)		DRHO (DRHO) (G/C3)	
6		0.2	2000	-1.8	0.2
Gamma Ray (GR) (GAPI)		TBI 60 Inch Investigation (TBIT60) (OHMM)		PEF (PEF) (----)	
0		0.2	2000	0	10
Caliper (CALI) (IN)		TBI 90 Inch Investigation (TBIT90) (OHMM)		TNPH (TNPH) (%)	
6		0.2	2000	30	-10

Parameters

DLIS Name	Description	Value	
TBT-A: ThruBit String			
BHS	Borehole Status	OPEN	
BSCO	Borehole Salinity Correction Enabled? (for TBN)	NO	
CSAL	Cement Salinity	0.000	ppm
CSID	Casing Size I.D.	8.921	in
DHC	Density Hole Correction	CALIPER	
FD	Fluid Density	1.000	g/cm3
FSAL	Formation Salinity	0.000	ppm
FSCO	Formation Salinity Correction Enabled? (for TBN)	NO	
MATR	Rock Matrix for Neutron Porosity Corrections	LIME	
MDEN	Matrix Density	2.710	g/cm3
MT	Mud Type (for TBN and TBI correction)	WBM	
MWCO	Mud Weight Correction Enabled? (for TBN)	NO	
SOCO	Stand-Off Correction Enabled? (for TBN)	NO	
SOFF	TBN Standoff	0.000	in
TBD_CAL_BLOCK	TBD Calibration Block Type	THRUBIT	
TBD_SPIKE_REJECT	TBD Spike Detection Option	CORRECT	
TBD_SPIKE_THRESHOLD	TBD Attenuation Change Threshold for Spike Detection	5.000	%
TBI_ALGO	TBI Algorithm Selection	AIT	
TBI_BHC_OP	Borehole Correction Option (for TBI)	CALIPER	
TBI_CALTYP	TBI Mastercal Type	THRUBIT	
TBI_REPL_ARRAY_DEST	TBI: Replace This Array	NONE	
TBI_REPL_ARRAY_SOURCE	TBI: With This Array	NONE	
TBI_TC_OP	Induction Temperature Correction Option	LOWER	
TBN_ALGO	Porosity Algorithm	SCHMID	
TBN_BHC_OP	Borehole Correction Option (for TBN)	CALIPER	
TBN_CAL_TANK	TBN Calibration Tank Type	THRUBIT	
TBN_FILTER	Filter Length	3_POINT	
TBN_PRES_OP	Pressure Correction Enabled? (for TBN)	NO	
TBN_TEMP_OP	Temperature Correction Enabled? (for TBN)	NO	
TBN_WPRE	Well Pressure (for TBN)	14.696	psi
WMUD	Mud Weight	10.200	lbm/gal
HOLEV: Integrated Hole/Cement Volume			
BHS	Borehole Status	OPEN	
MATR	Rock Matrix for Neutron Porosity Corrections	LIME	
System and Miscellaneous			
BS	Bit Size	8.750	in
BSAL	Borehole Salinity	900.0	ppm
CSIZ	Current Casing Size	7.000	in

Format: TB_TCOM Vertical Scale: 5" per 100' Graphics File Created: 11-Feb-2015 15:05

OP System Version: 19C2-270

TBT SRPC-5307-ThruBit

Input DLIS Files

DEFAULT	ThruBit_016PUP	FN:15	PRODUCER	11-Feb-2015 14:35	8530.2 FT	84.2 FT
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Schlumberger

CALIBRATIONS




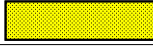


























MAXIS Field Log











ThruBit String / Equipment Identification









































Primary Equipment:




Induction Resistivity
Sonic
Density
Gamma-Ray Logging Source
Thermal Neutron
Neutron Logging Source
Spectral GR
Telemetry Memory GR

TBI - A
TBS - A
TBD - A
GGLS - FZ
TBN - A
NNLS - EWA
TBSG - A
TMG - A



























ThruBit String Master Calibration					
TBI Master Calibration Sonde Errors					
Freq 1, A1, R	Value	Nominal	Freq 1, A1, X	Value	Nominal
	-463.745	-457.000		21.6895	300.000
-556.000 (Minimum)	(Nominal)	-387.000 (Maximum)	-500.000 (Minimum)	(Nominal)	1100.00 (Maximum)
Freq 1, A2, R	Value	Nominal	Freq 1, A2, X	Value	Nominal
	-147.974	-141.000		23.8014	320.000
-182.000 (Minimum)	(Nominal)	-120.000 (Maximum)	-75.0000 (Minimum)	(Nominal)	700.000 (Maximum)
Freq 1, A3, R	Value	Nominal	Freq 1, A3, X	Value	Nominal
	-30.9365	-28.0000		-60.2282	50.0000
-38.0000 (Minimum)	(Nominal)	-18.0000 (Maximum)	-375.000 (Minimum)	(Nominal)	475.000 (Maximum)
Freq 1, A4, R	Value	Nominal	Freq 1, A4, X	Value	Nominal
	-15.7389	-16.0000		246.869	300.000
-24.0000 (Minimum)	(Nominal)	-8.00000 (Maximum)	25.0000 (Minimum)	(Nominal)	575.000 (Maximum)
Freq 1, A5, R	Value	Nominal	Freq 1, A5, X	Value	Nominal
	-13.2952	-14.0000		125.977	150.000
-21.0000 (Minimum)	(Nominal)	-7.00000 (Maximum)	25.0000 (Minimum)	(Nominal)	300.000 (Maximum)
Freq 2, A1, R	Value	Nominal	Freq 2, A1, X	Value	Nominal
	-242.609	-237.000		-15.4109	150.000
-313.000 (Minimum)	(Nominal)	-186.000 (Maximum)	-375.000 (Minimum)	(Nominal)	675.000 (Maximum)
Freq 2, A2, R	Value	Nominal	Freq 2, A2, X	Value	Nominal
	-95.0302	-92.0000		-13.1811	160.000
-126.000 (Minimum)	(Nominal)	-76.0000 (Maximum)	-100.000 (Minimum)	(Nominal)	425.000 (Maximum)
Freq 2, A3, R	Value	Nominal	Freq 2, A3, X	Value	Nominal
	-22.5481	-21.0000		-91.7764	-20.0000
-28.0000 (Minimum)	(Nominal)	-13.0000 (Maximum)	-325.000 (Minimum)	(Nominal)	250.000 (Maximum)
Freq 2, A4, R	Value	Nominal	Freq 2, A4, X	Value	Nominal
	-18.5681	-20.0000		76.9623	100.000
-28.0000 (Minimum)	(Nominal)	-10.0000 (Maximum)	-75.0000 (Minimum)	(Nominal)	275.000 (Maximum)
Freq 2, A5, R	Value	Nominal	Freq 2, A5, X	Value	Nominal
	-18.1662	-20.0000		-13.6644	-25.0000
-27.0000 (Minimum)	(Nominal)	-10.0000 (Maximum)	-125.000 (Minimum)	(Nominal)	100.000 (Maximum)
Freq 3, A1, R	Value	Nominal	Freq 3, A1, X	Value	Nominal
	-152.267	-149.000		-79.2011	25.0000
-213.000 (Minimum)	(Nominal)	-108.000 (Maximum)	-375.000 (Minimum)	(Nominal)	425.000 (Maximum)
Freq 3, A2, R	Value	Nominal	Freq 3, A2, X	Value	Nominal
	-71.7259	-70.0000		-51.9323	70.0000
-101.000 (Minimum)	(Nominal)	-57.0000 (Maximum)	-125.000 (Minimum)	(Nominal)	250.000 (Maximum)
Freq 3, A3, R	Value	Nominal	Freq 3, A3, X	Value	Nominal
	-18.1412	-17.0000		-126.563	-90.0000
-23.0000 (Minimum)	(Nominal)	-11.0000 (Maximum)	-300.000 (Minimum)	(Nominal)	125.000 (Maximum)
Freq 3, A4, R	Value	Nominal	Freq 3, A4, X	Value	Nominal
	-20.0402	-22.0000		-35.7218	-50.0000
-31.0000 (Minimum)	(Nominal)	-11.0000 (Maximum)	-200.000 (Minimum)	(Nominal)	100.000 (Maximum)
Freq 3, A5, R	Value	Nominal	Freq 3, A5, X	Value	Nominal
	-20.8150	-22.0000		-115.638	-110.000

-32.0000 (Minimum)	(Nominal)	-11.0000 (Maximum)		-250.000 (Minimum)	(Nominal)	0 (Maximum)	
Freq 4, A1, R			Value	Nominal	Freq 4, A1, X		
			-81.0738	-80.0000			
-128.000 (Minimum)	(Nominal)	-54.0000 (Maximum)		-450.000 (Minimum)	(Nominal)	75.0000 (Maximum)	
Freq 4, A2, R			Value	Nominal	Freq 4, A2, X		
			-51.1084	-50.0000			
-80.0000 (Minimum)	(Nominal)	-41.0000 (Maximum)		-200.000 (Minimum)	(Nominal)	50.0000 (Maximum)	
Freq 4, A3, R			Value	Nominal	Freq 4, A3, X		
			-14.3587	-14.0000			
-19.0000 (Minimum)	(Nominal)	-8.00000 (Maximum)		-350.000 (Minimum)	(Nominal)	-25.0000 (Maximum)	
Freq 4, A4, R			Value	Nominal	Freq 4, A4, X		
			-22.6574	-25.0000			
-37.0000 (Minimum)	(Nominal)	-11.0000 (Maximum)		-400.000 (Minimum)	(Nominal)	-75.0000 (Maximum)	
Freq 4, A5, R			Value	Nominal	Freq 4, A5, X		
			-26.3123	-28.0000			
-43.0000 (Minimum)	(Nominal)	-12.0000 (Maximum)		-475.000 (Minimum)	(Nominal)	-100.000 (Maximum)	
Master: 17-Dec-2014 12:15							

ThruBit String Master Calibration							
TBI Master Calibration COMPLEX GAINS							
Freq 1, R			Value	Nominal	Freq 1, X		
			0.9913	1.000			
			0.9936	1.000			
			1.001	1.000			
			0.9905	1.000			
			0.9958	1.000			
0.9500 (Minimum)	(Nominal)	1.050 (Maximum)			-0.05000 (Minimum)	(Nominal)	0.05000 (Maximum)
Freq 2, R			Value	Nominal	Freq 2, X		
			0.9856	1.000			
			0.9877	1.000			
			0.9895	1.000			
			0.9857	1.000			
			0.9923	1.000			
0.9500 (Minimum)	(Nominal)	1.050 (Maximum)			-0.05000 (Minimum)	(Nominal)	0.05000 (Maximum)
Freq 3, R			Value	Nominal	Freq 3, X		
			0.9909	1.000			
			0.9934	1.000			
			0.9949	1.000			
			0.9901	1.000			
			0.9991	1.000			
0.9500 (Minimum)	(Nominal)	1.050 (Maximum)			-0.05000 (Minimum)	(Nominal)	0.05000 (Maximum)
Freq 4, R			Value	Nominal	Freq 4, X		
			1.002	1.000			
			1.004	1.000			
			1.008	1.000			
			1.001	1.000			
			1.021	1.000			
0.9300 (Minimum)	(Nominal)	1.070 (Maximum)			-0.05000 (Minimum)	(Nominal)	0.05000 (Maximum)

ThruBit String Master Calibration								
TBD Caliper Master Calibration								
Caliper 12in Ring IN	Value	Nominal	Caliper 9in Ring IN	Value	Nominal	Caliper 6in Ring IN	Value	Nominal
	1909.2	1949.8		2070.9	2096.7		2237.1	2285.7
1799.8 (Minimum) (Nominal)	2099.8 (Maximum)		1946.7 (Minimum) (Nominal)	2246.7 (Maximum)		2135.7 (Minimum) (Nominal)	2435.7 (Maximum)	

Master: 6-Feb-2015 14:00

ThruBit String Master Calibration						
TBD Density Master Calibration. Ti Window, ThruBit blocks						
LS1 Background CPS	Value	Nominal	SS1 Background CPS	Value	Nominal	
	129.49	143.00		137.37	143.00	
100.00 (Minimum) (Nominal)	186.00 (Maximum)		100.00 (Minimum) (Nominal)	186.00 (Maximum)		
LS2 Background CPS	Value	Nominal	SS2 Background CPS	Value	Nominal	
	32.8639	37.0000		36.4400	38.0000	
26.0000 (Minimum) (Nominal)	48.0000 (Maximum)		27.0000 (Minimum) (Nominal)	50.0000 (Maximum)		
LS3 Background CPS	Value	Nominal	SS3 Background CPS	Value	Nominal	
	19.7968	22.0000		22.1248	23.0000	
15.0000 (Minimum) (Nominal)	29.0000 (Maximum)		16.0000 (Minimum) (Nominal)	30.0000 (Maximum)		
LS4 Background CPS	Value	Nominal	SS4 Background CPS	Value	Nominal	
	27.07	30.00		30.8240	31.0000	
20.00 (Minimum) (Nominal)	40.00 (Maximum)		22.0000 (Minimum) (Nominal)	40.0000 (Maximum)		
LS1 Aluminium CPS	Value	Nominal	SS1 Aluminium CPS	Value	Nominal	
	1232.4	1210.0		7228.16	7850.00	
850.00 (Minimum) (Nominal)	1570.0 (Maximum)		5500.00 (Minimum) (Nominal)	10200.0 (Maximum)		
LS2 Aluminium CPS	Value	Nominal	SS2 Aluminium CPS	Value	Nominal	
	1131.12	1110.00		3649.52	4000.00	
780.000 (Minimum) (Nominal)	1440.00 (Maximum)		2800.00 (Minimum) (Nominal)	5200.00 (Maximum)		
LS3 Aluminium CPS	Value	Nominal	SS3 Aluminium CPS	Value	Nominal	
	1059.88	1010.00		3001.41	3350.00	
710.000 (Minimum) (Nominal)	1300.00 (Maximum)		2350.00 (Minimum) (Nominal)	4360.00 (Maximum)		
LS4 Aluminium CPS	Value	Nominal	SS4 Aluminium CPS	Value	Nominal	
	771.27	760.00		2885.1079	3230.0000	
530.00 (Minimum) (Nominal)	990.00 (Maximum)		2260.0000 (Minimum) (Nominal)	4200.0000 (Maximum)		
LS1 Al + Sleeve CPS	Value	Nominal	SS1 Al + Sleeve CPS	Value	Nominal	
	990.46	970.00		5771.24	6160.00	
680.00 (Minimum) (Nominal)	1260.0 (Maximum)		4300.00 (Minimum) (Nominal)	8000.00 (Maximum)		
LS2 Al + Sleeve CPS	Value	Nominal	SS2 Al + Sleeve CPS	Value	Nominal	
	827.752	830.000		2800.52	3050.00	
580.000 (Minimum) (Nominal)	1080.00 (Maximum)		2130.00 (Minimum) (Nominal)	4000.00 (Maximum)		
LS3 Al + Sleeve CPS	Value	Nominal	SS3 Al + Sleeve CPS	Value	Nominal	
	619.842	650.000		1976.16	2190.00	
460.000 (Minimum) (Nominal)	850.000 (Maximum)		1533.00 (Minimum) (Nominal)	2850.00 (Maximum)		
LS4 Al + Sleeve CPS	Value	Nominal	SS4 Al + Sleeve CPS	Value	Nominal	
	383.30	420.00		1587.77	1700.00	
300.00 (Minimum) (Nominal)	550.00 (Maximum)		1190.00 (Minimum) (Nominal)	2200.00 (Maximum)		
LS1 Magnesium CPS	Value	Nominal	SS1 Magnesium CPS	Value	Nominal	
	8418.67	8100.00		11871.4	12740.0	
5670.00 (Minimum) (Nominal)	10530.0 (Maximum)		8920.00 (Minimum) (Nominal)	16560.0 (Maximum)		

Company: **WHITING OIL & GAS CORP.**

Well: **RAZOR 21 SWD #1**

Field: **REDTAIL**

County: **WELD**

State: **COLORADO**



ARRAY INDUCTION
DENSITY / NEUTRON
GAMMA RAY MEMORY LOG