Schlumberger

Company: **Vecta Oil & Gas Ltd**

Well: **Cottonwood Grazing 3−22**
Field: **Wildcat**
County: **Lincoln** State: **Colorado**

County: Lincoln
Field: Wildcat
Location: SWSW, Sec. 22, T12S, R52W
Well: Cottonwood Grazing 3−22
Company: Vecta Oil & Gas Ltd

Platform Express
Array Induction
Linear Correlation

LOCATION

SWSW, Sec. 22, T12S, R52W
SHL: 660' FSL X 880' FWL
Lat / Long: 38.981850 N / 103.215410 W

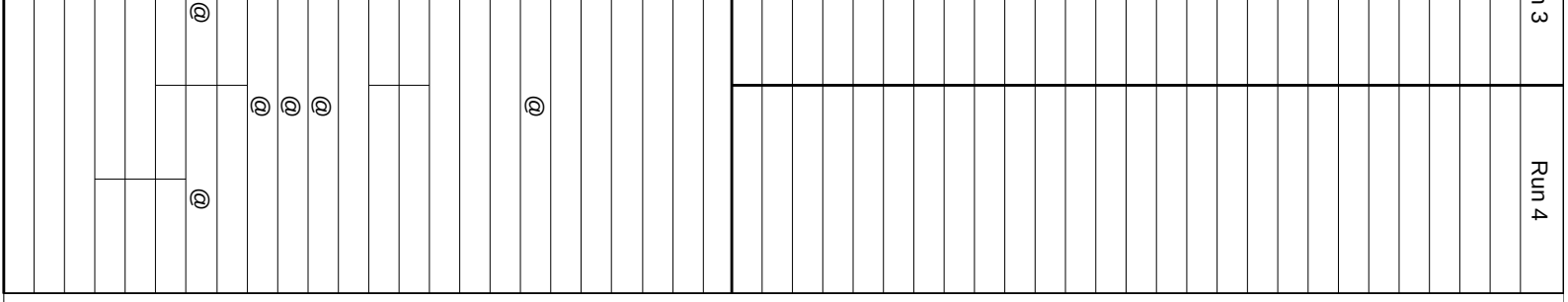
Elev.: K.B. 4850.52 ft
G.L. 4839.52 ft
D.F. 4849.52 ft

Permanent Datum: Ground Level Elev.: 4839.52 ft
Log Measured From: Kelly Bushing 11.00 ft above Perm. Datum
Drilling Measured From: Kelly Bushing

API Serial No.	Section	Township	Range
05−073−06444−0000	22	12S	52W

	Run 1	Run 2	Run
Logging Date	3−Apr−2011		
Run Number	1		
Depth Driller	6623 ft		
Schlumberger Depth	6622 ft		
Bottom Log Interval	6614 ft		
Top Log Interval	417 ft		
Casing Driller Size @ Depth	9.625 in @ 420 ft	@	@
Casing Schlumberger	417 ft		
Bit Size	7.875 in		
Type Fluid In Hole	Gel & Chemical		
MUD Density / Viscosity	9.2 lbm/gal / 60 s		
MUD Fluid Loss / PH	8.8 cm3 / 10		
MUD Source Of Sample	Flowline		
RM @ Measured Temperature	1.790 ohm.m @ 131 degF	@	@
RMF @ Measured Temperature	1.342 ohm.m @ 131 degF	@	@
RMC @ Measured Temperature	2.685 ohm.m @ 131 degF	@	@
Source RMF / RMC	Calculated / Calculated		
RM @ MRT / RMF @ MRT	1.486 @ 160 / 1.115 @ 160	@ / @	@ / @
Maximum Recorded Temperatures	160 degF		
Circulation Stopped / Time	2−Apr−2011 / 23:00		
Logger On Bottom / Time	3−Apr−2011 / 3:20		
Unit Number / Location	3021 / Ft. Morgan, CO		
Recorded By	Heather Bennett		
Witnessed By	Mathew Goolsby		

	Run 1	Run 2	Run
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			
MUD Density / Viscosity			
MUD Fluid Loss / PH			
MUD 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			



DEPTH SUMMARY LISTING

Date Created: 3−APR−2011 3:39:10

Depth System Equipment

Depth Measuring Device		Tension Device		Logging Cable	
Type:	IDW−B	Type:	CMTD−B/A	Type:	7−39P LXS
Serial Number:	5845	Serial Number:	1223	Serial Number:	6171
Calibration Date:	31−Jan−2011	Calibration Date:	28−Feb−2011	Length:	17550 FT
Calibrator Serial Number:	33	Calibrator Serial Number:	100513		
Calibration Cable Type:	7−39P LXS	Number of Calibration Points:	10	Conveyance Method:	Wireline
Wheel Correction 1:	−1	Calibration RMS:	19	Rig Type:	LAND
Wheel Correction 2:	−1	Calibration Peak Error:	33		

Depth Control Parameters

Log Sequence:	First Log In the Well
Rig Up Length At Surface:	0.00 FT
Rig Up Length At Bottom:	0.00 FT
Rig Up Length Correction:	0.00 FT
Stretch Correction:	5.00 FT
Tool Zero Check At Surface:	0.00 FT

Depth Control Remarks

1. All Schlumberger depth policy procedures applied
2. This is the primary depth reference
3.
4.
5.
6.

OTHER SERVICES1	OTHER SERVICES2
OS1:	OS1:
OS2:	OS2:
OS3:	OS3:
OS4:	OS4:
OS5:	OS5:
REMARKS: RUN NUMBER 1	REMARKS: RUN NUMBER 2
This is the first run in the hole.	
Toolstring run as per tool sketch.	
Matrix: Limestone (2.71 g/cc)	

Rig: Black Gold 69

Crew: Ian Derry, Gary Lapp

RUN 1		RUN 2	
SERVICE ORDER #:	BHDJ−00092	SERVICE ORDER #:	
PROGRAM VERSION:	18C0−147	PROGRAM VERSION:	
FLUID LEVEL:	25 ft	FLUID LEVEL:	

LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP

EQUIPMENT DESCRIPTION

RUN 1 RUN 2

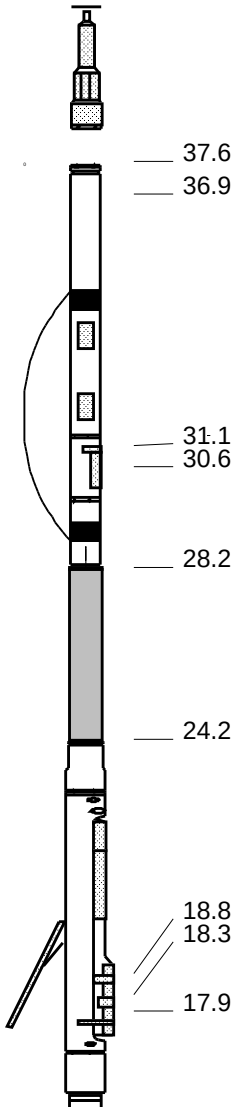
SURFACE EQUIPMENT

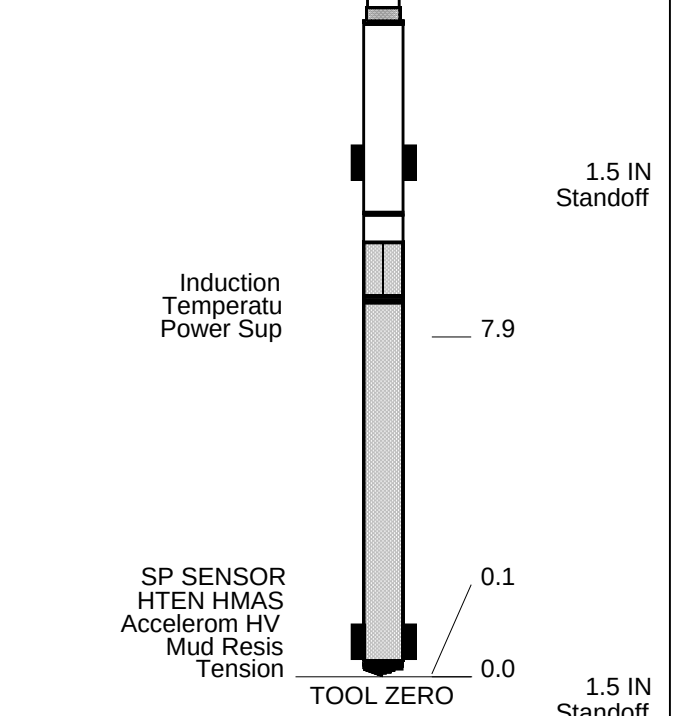
WITM (CTS)−A
GSR−U/Y
NCT−B
CNB−AB
NCS−VB

DOWNHOLE EQUIPMENT

LEH−QT 40.6
LEH−QT

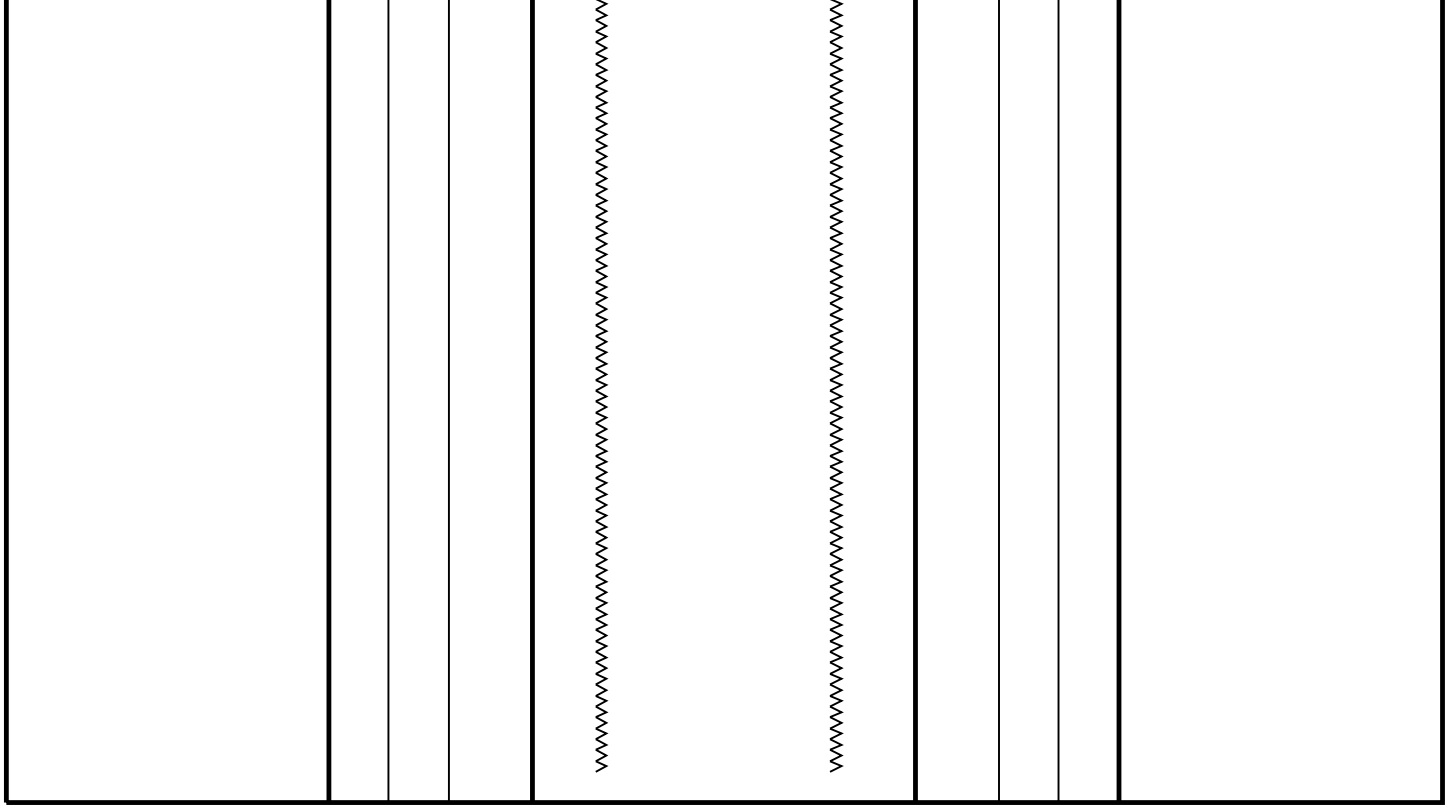
HILTB−CTS 37.6
HGNSC−B
HMCA
TCC−B
HGNH
NLS−KL
NSR−F 5168
HACCZ 749
HCNT
HGR
HRCC−B
HRMS−B
HRGD−B
GLS−VJ 5363
MCFL Device
HILT Nucl. LS 42767
HILT Nucl. SS 42767
HILT Nucl. BS 42767
AIT−H
AHIS−BA 216
AHRM−A
BOW−SPR
NPV−N





MAXIMUM STRING DIAMETER 6.88 IN
MEASUREMENTS RELATIVE TO TOOL ZERO
ALL LENGTHS IN FEET

Production String	(in) OD	(in) ID	(ft) MD	Well Schematic	(ft) MD	(in) OD	(in) ID	Casing String
					0.0	9.625		Casing String
					420.0	9.625		Casing Shoe
					420.0	7.875		Borehole Segment



All Depths are Driller's
Depths

Schlumberger

RESISTIVITY LINEAR 2" = 100'

MAXIS Field Log

Output DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_007LUP	FN:6	PRODUCER	03−Apr−2011 03:18	6642.0 FT	348.5 FT

Integrated Hole/Cement Volume Summary

Hole Volume = 2664.46 F3
Cement Volume = 1640.70 F3 (assuming 5.50 IN casing O.D.)
Computed from 6622.0 FT to 417.0 FT using data channel(s) HCAL

OP System Version: 18C0−147

HILTB−CTS	18C0−147

PIP SUMMARY

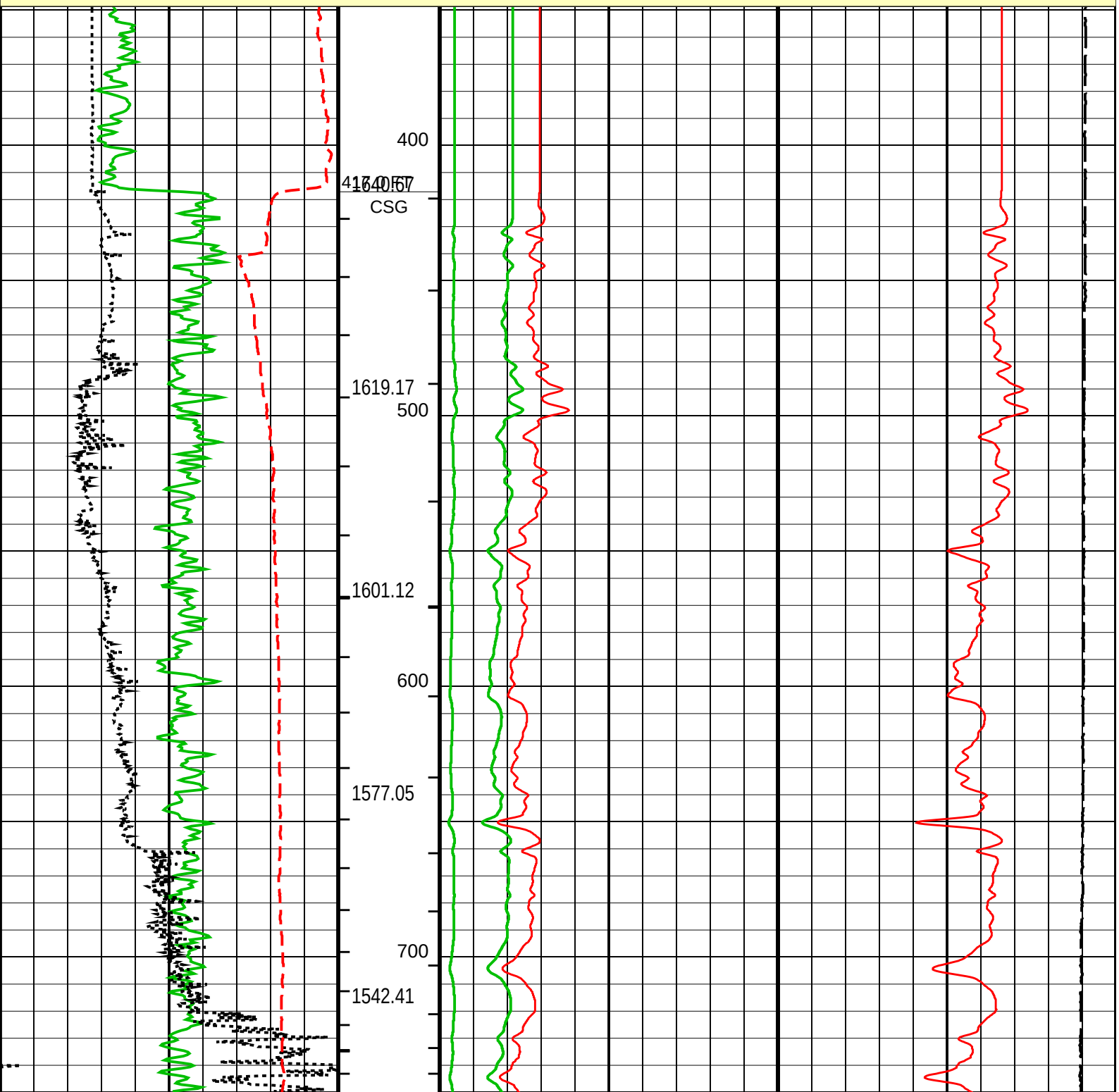
Integrated Cement Volume Major Pip Every 100 F3

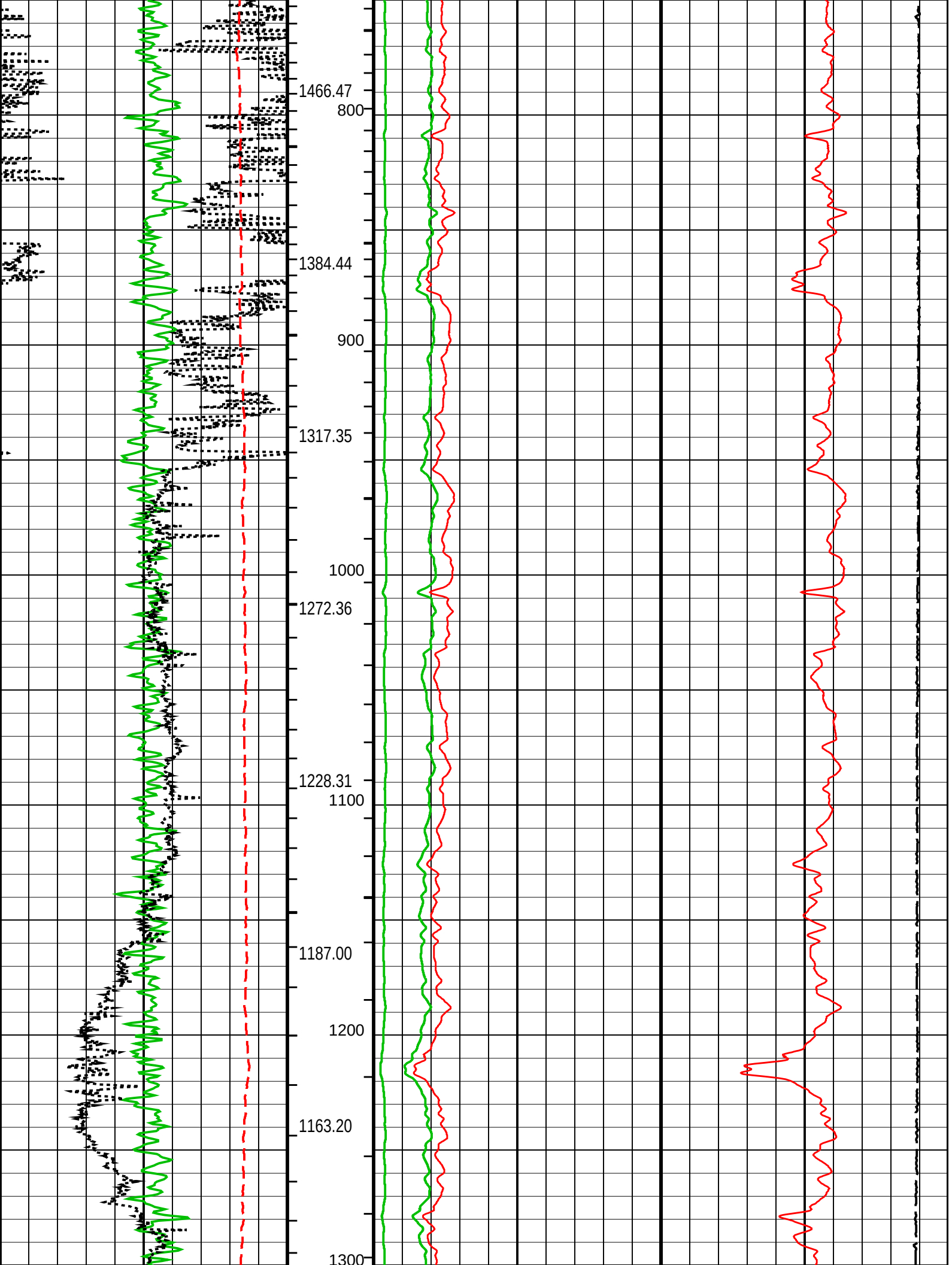
Integrated Cement Volume Major Pip Every 100 F3
Integrated Cement Volume Minor Pip Every 10 F3
Integrated Hole Volume Major Pip Every 100 F3
Integrated Hole Volume Minor Pip Every 10 F3

SP (AHSCA) −160 (MV) 40		
Caliper (HCAL) 6 (IN) 16		AIT−H 90 Inch Investigation (AHF90) 0 (OHMM) 10
Gamma Ray (GR) 0 (GAPI) 200		AIT−H 10 Inch Investigation (AHF10) 0 (OHMM) 10
Gamma Ray Backup	Cement Volume (ICV) (F3)	AIT−H 10 Inch Investigation (AHF10) 0 (OHMM) 50

	Tension (TENS) 10000 (LBF) 0
	AIT−H 90 Inch Investigation Conductivity (AHFCO90) 1000 (MM/M) 0

MAIN PASS: *** PLATFORM EXPRESS − ARRAY INDUCTION ***

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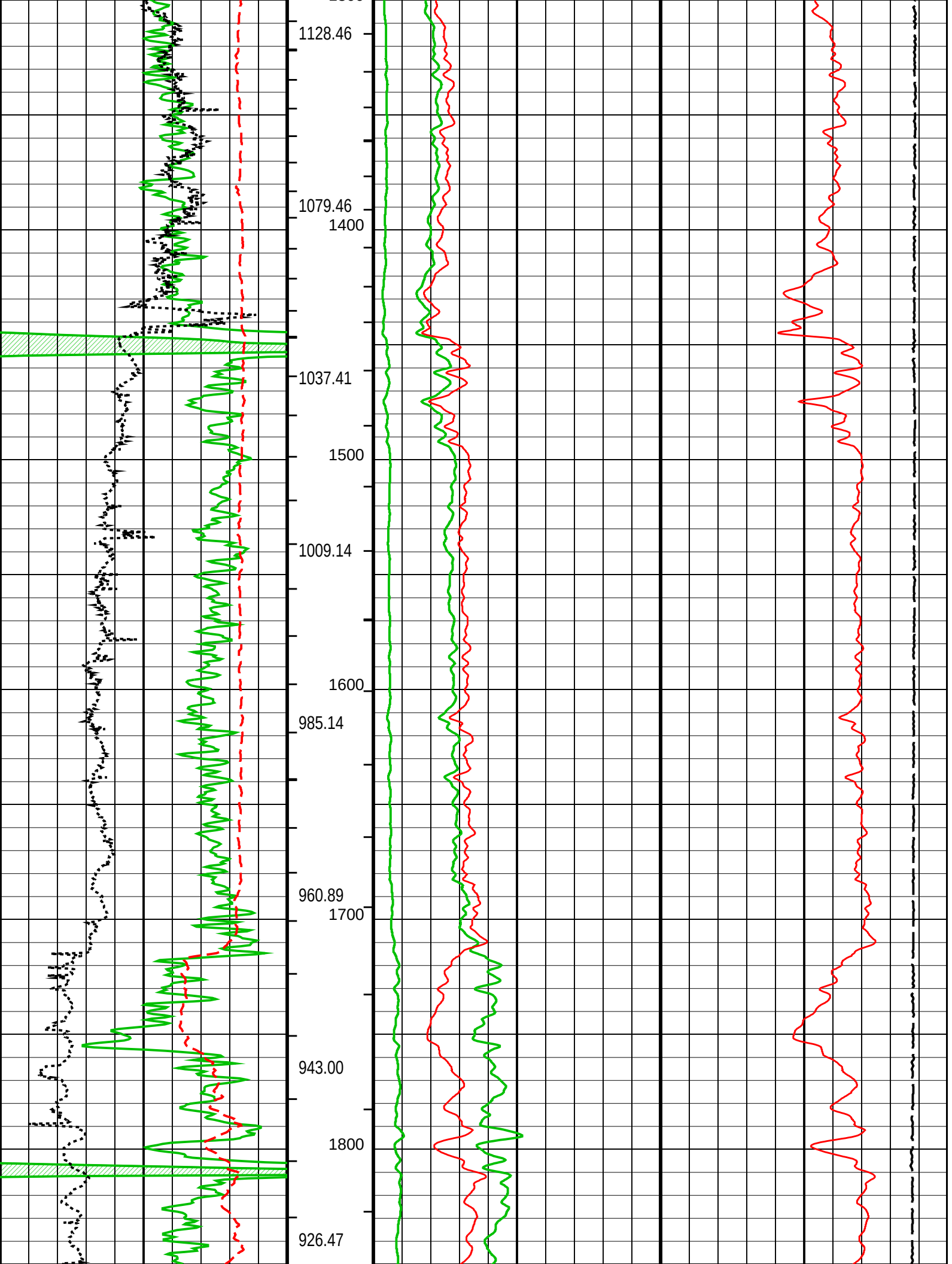
1384.44
900
1317.35
1000
1272.36
1228.31
1100
1187.00
1200
1163.20
1300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1400
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1009.14
1600
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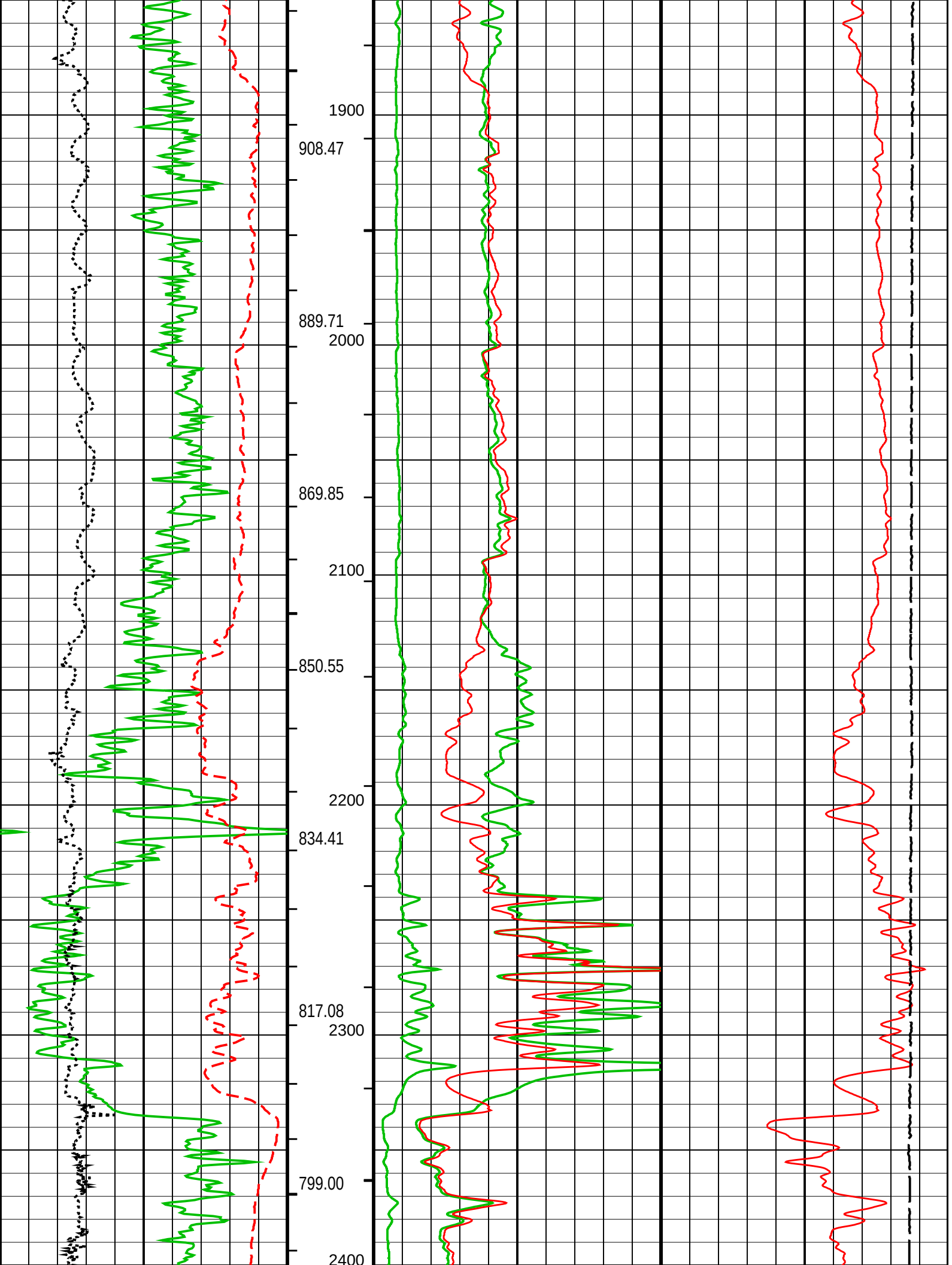
960.89
1700
943.00
1800
926.47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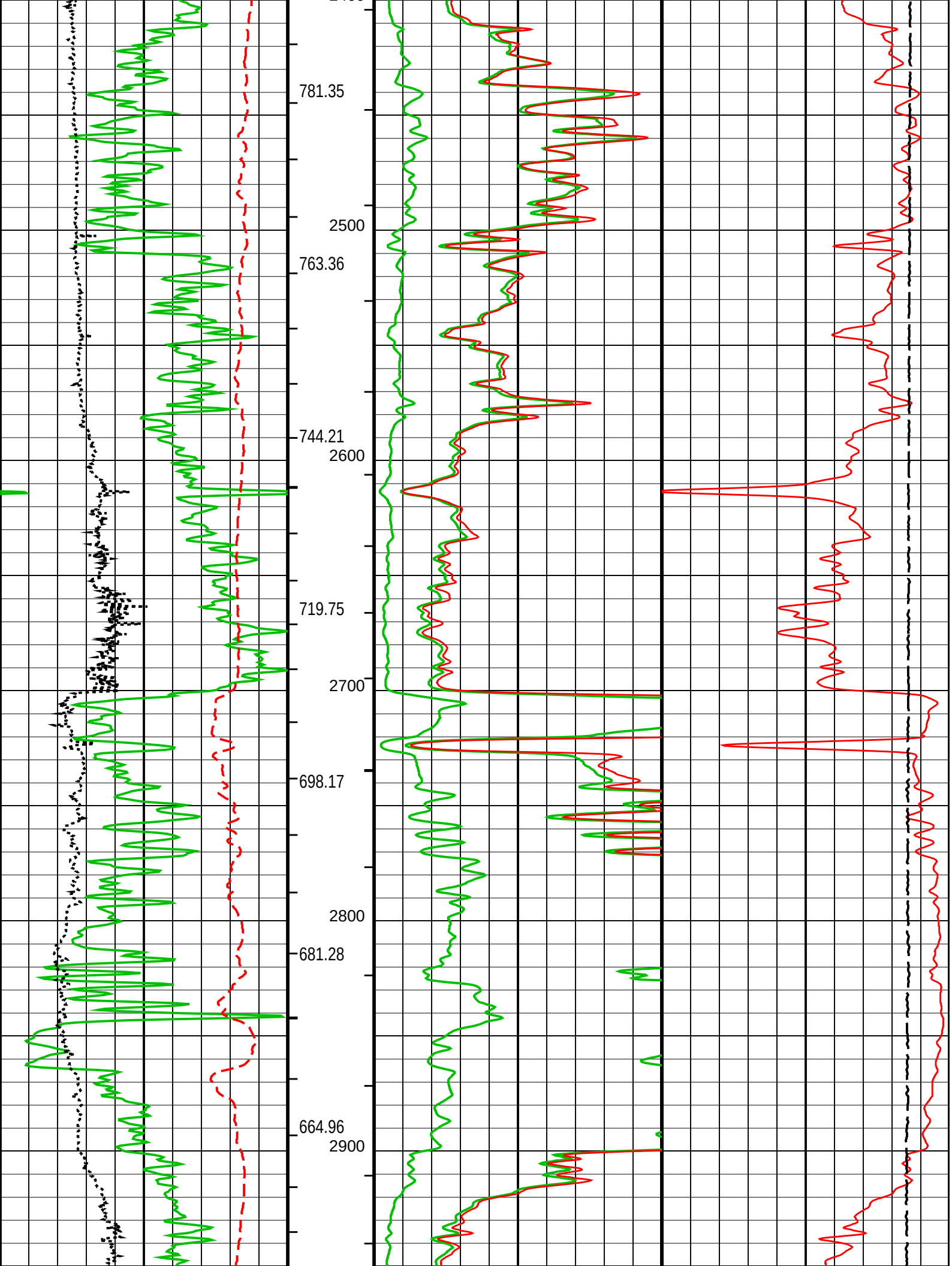
834.41
817.08
2300
799.00
2400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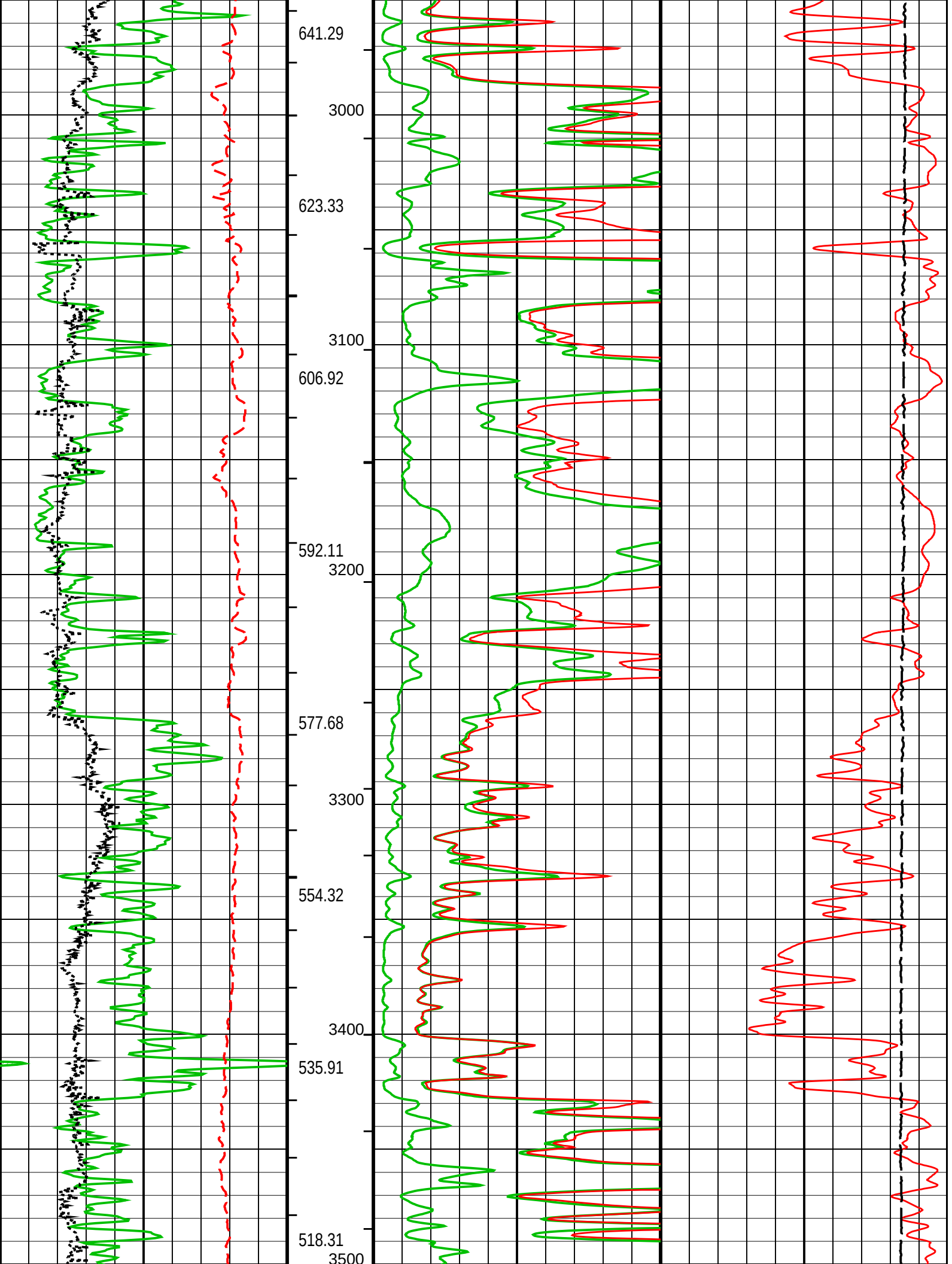
2500
763.36
744.21
2600
719.75
2700
698.17
2800
681.28
664.96
2900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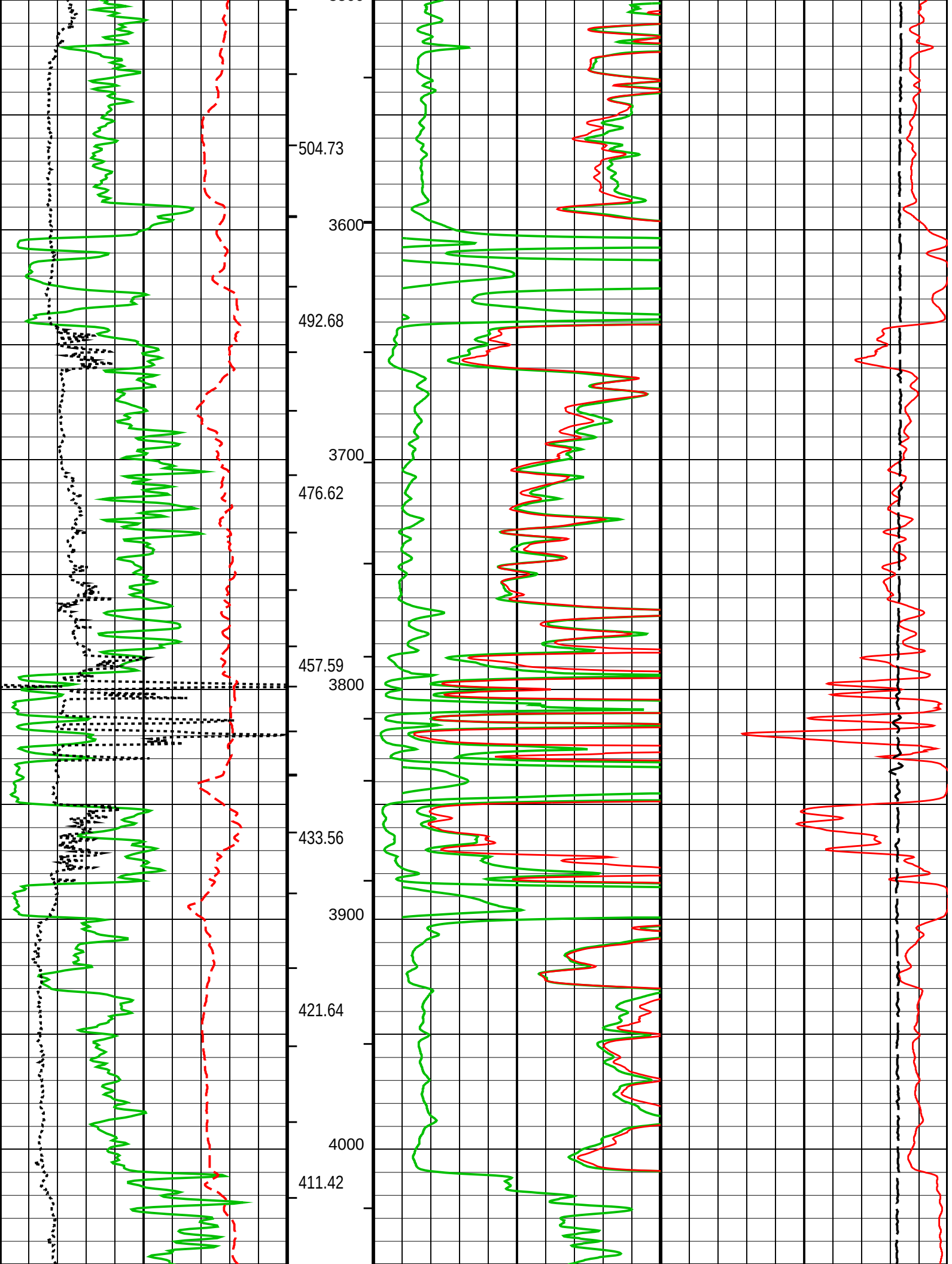
577.68
3300
554.32
3400
535.91
518.31
3500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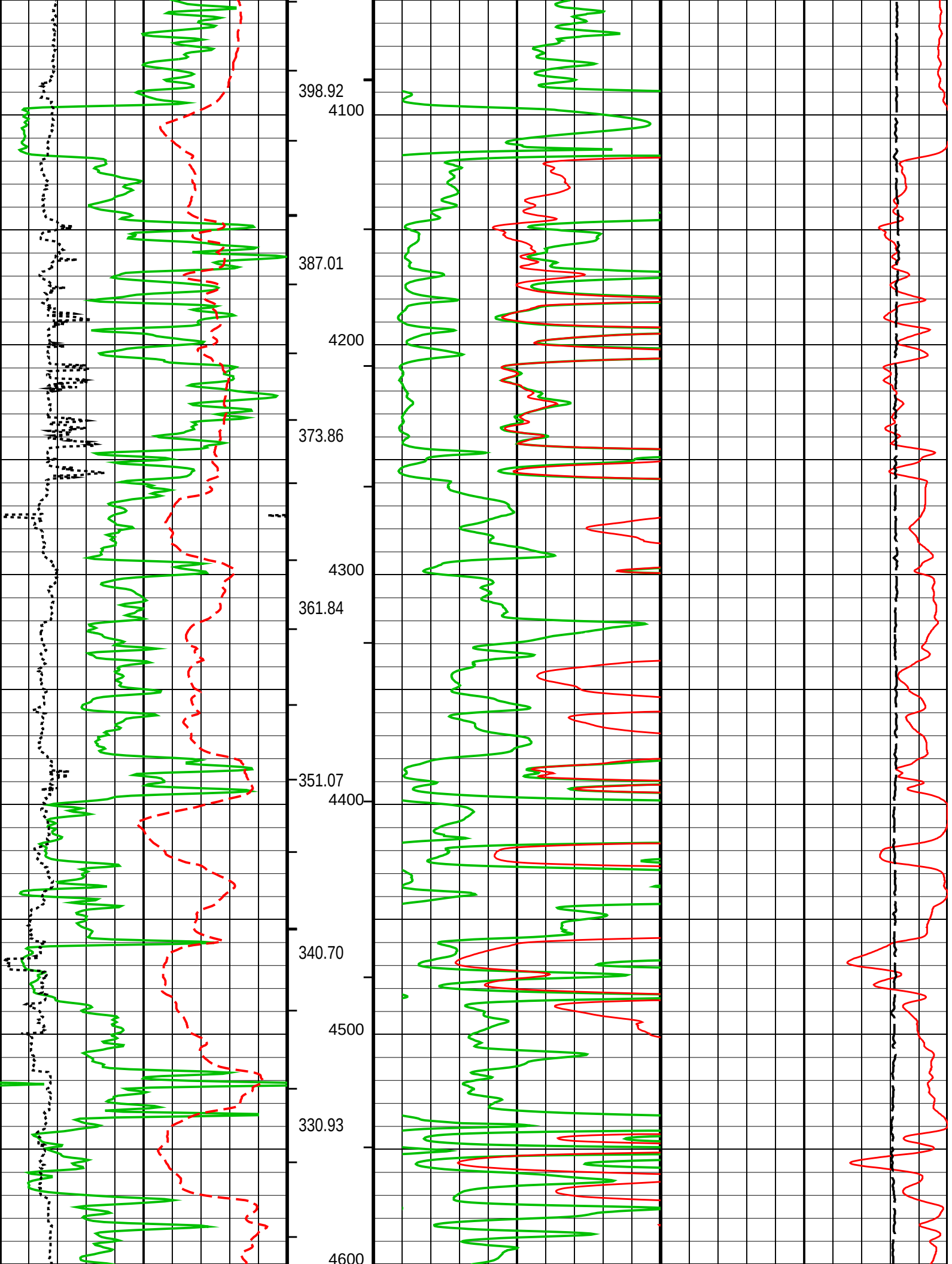
411.42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4400
340.70
4500
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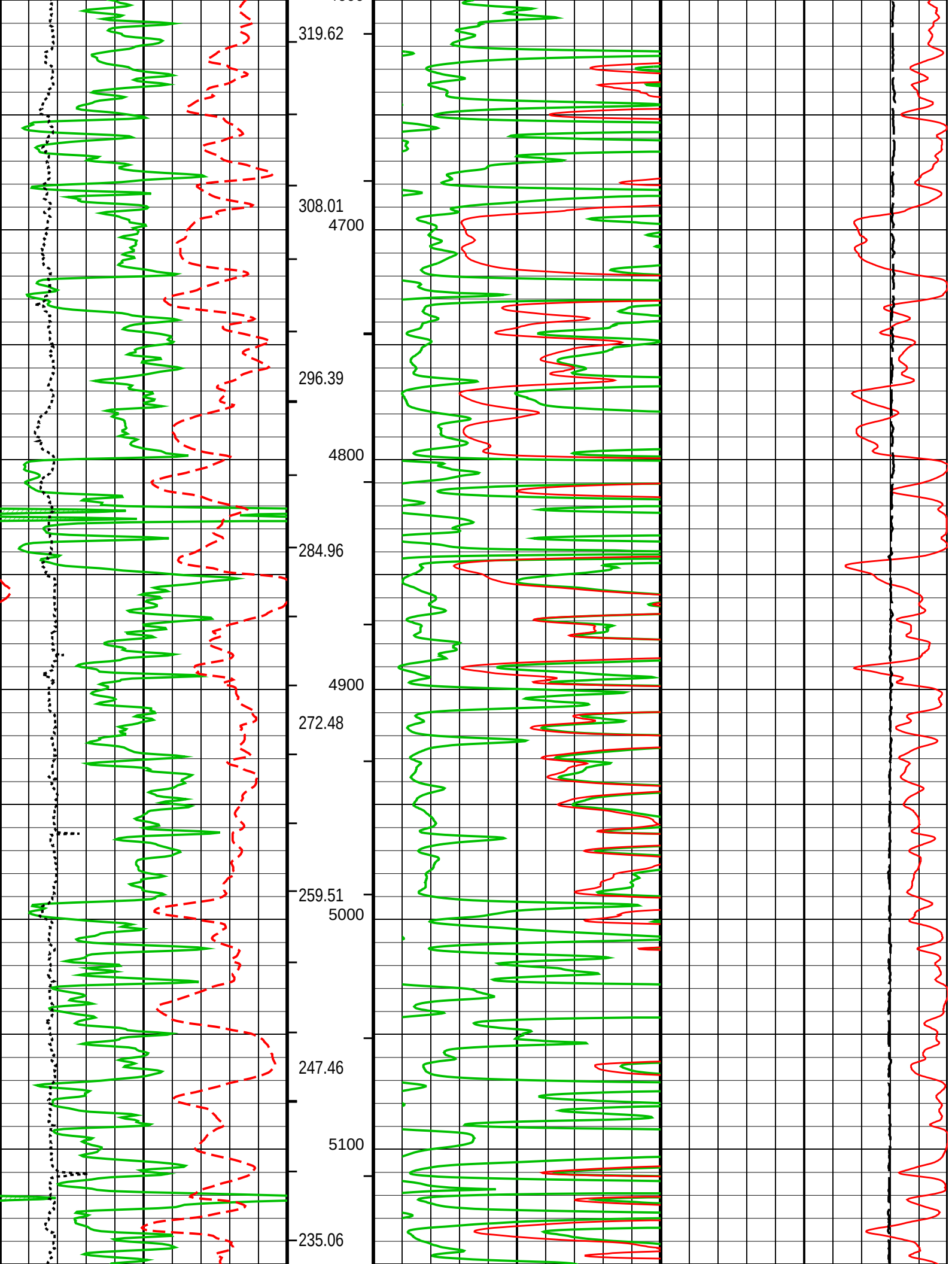
4600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284.96
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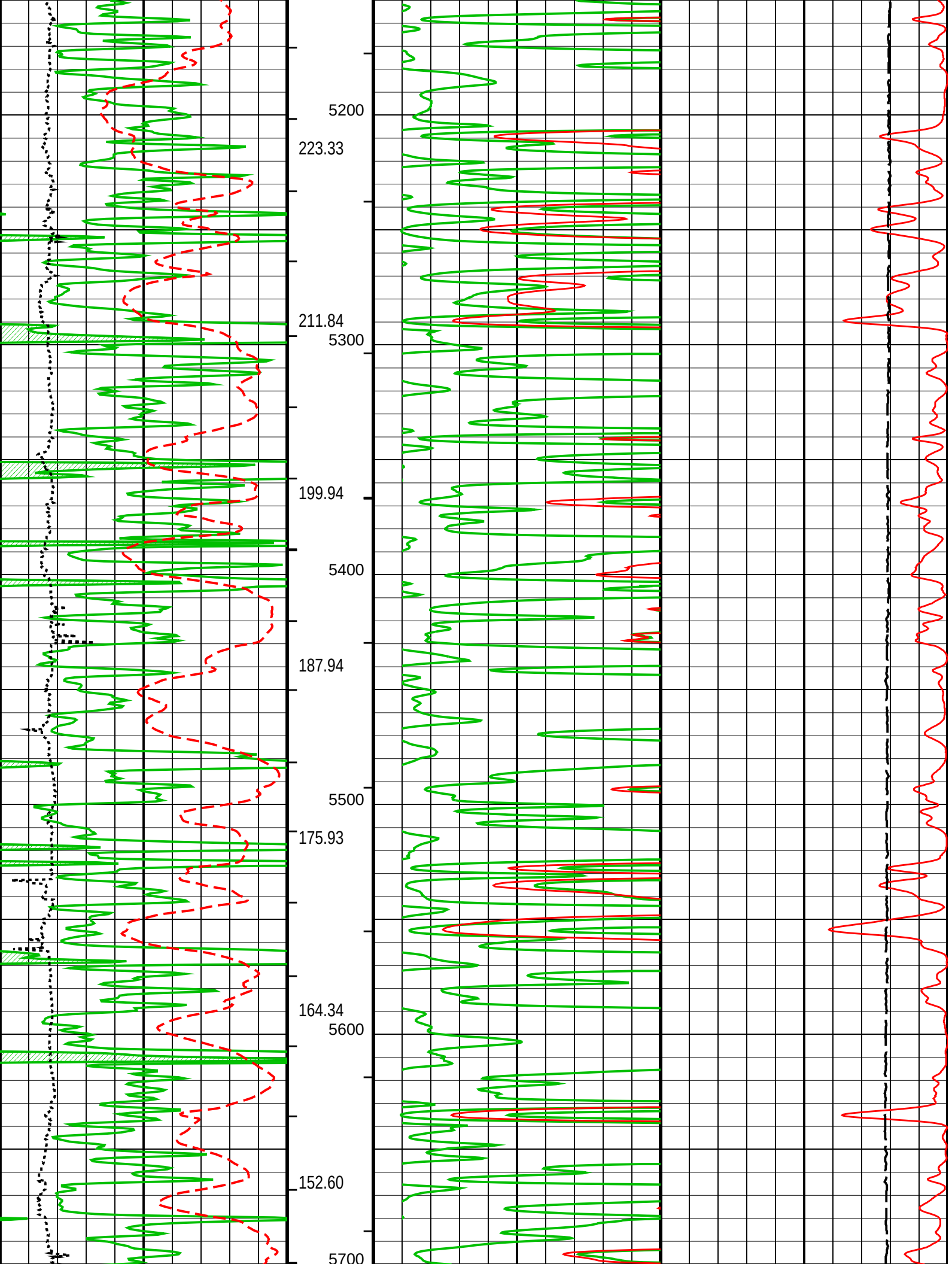
272.48
259.51
5000
247.46
5100
235.06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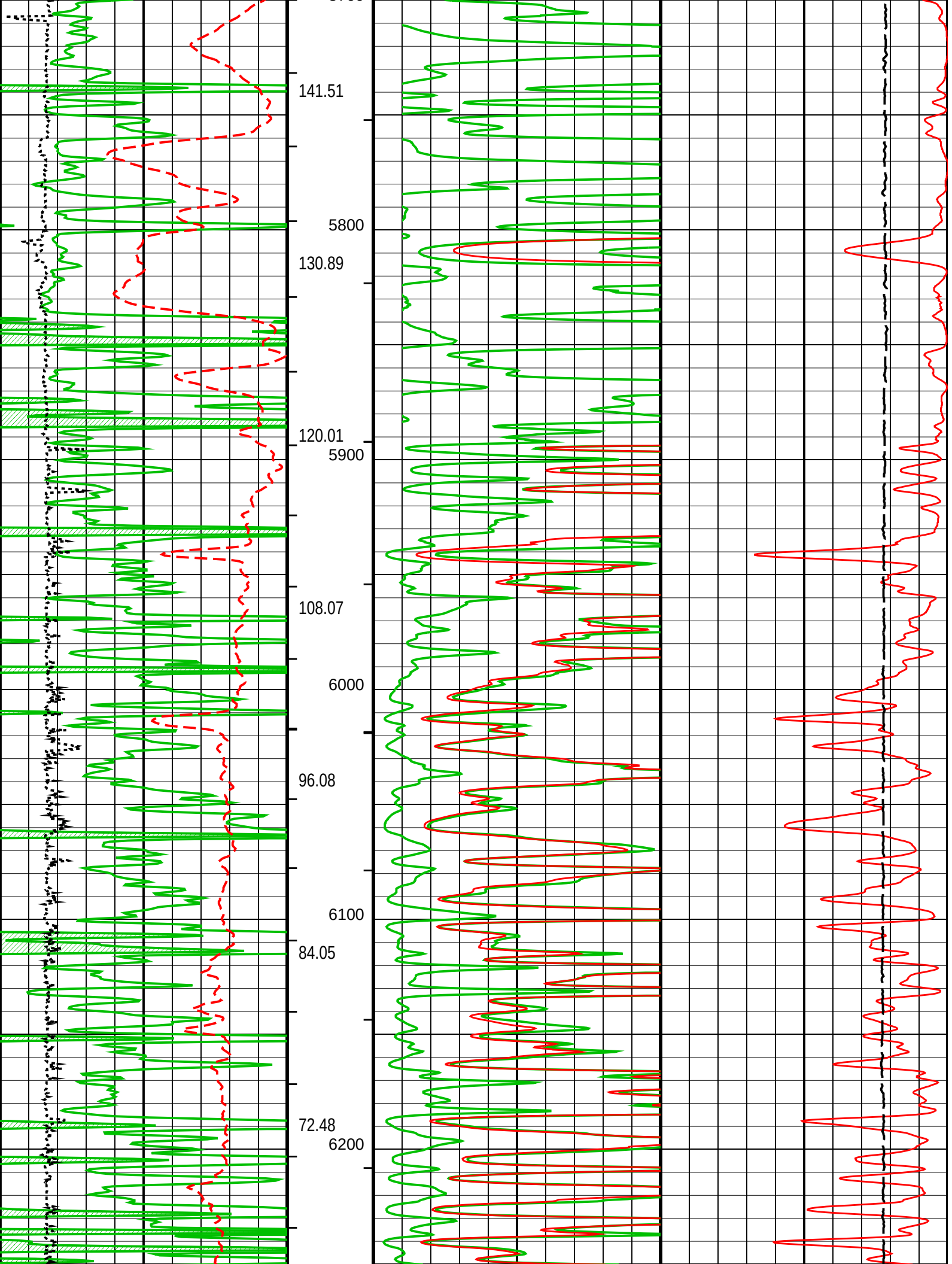
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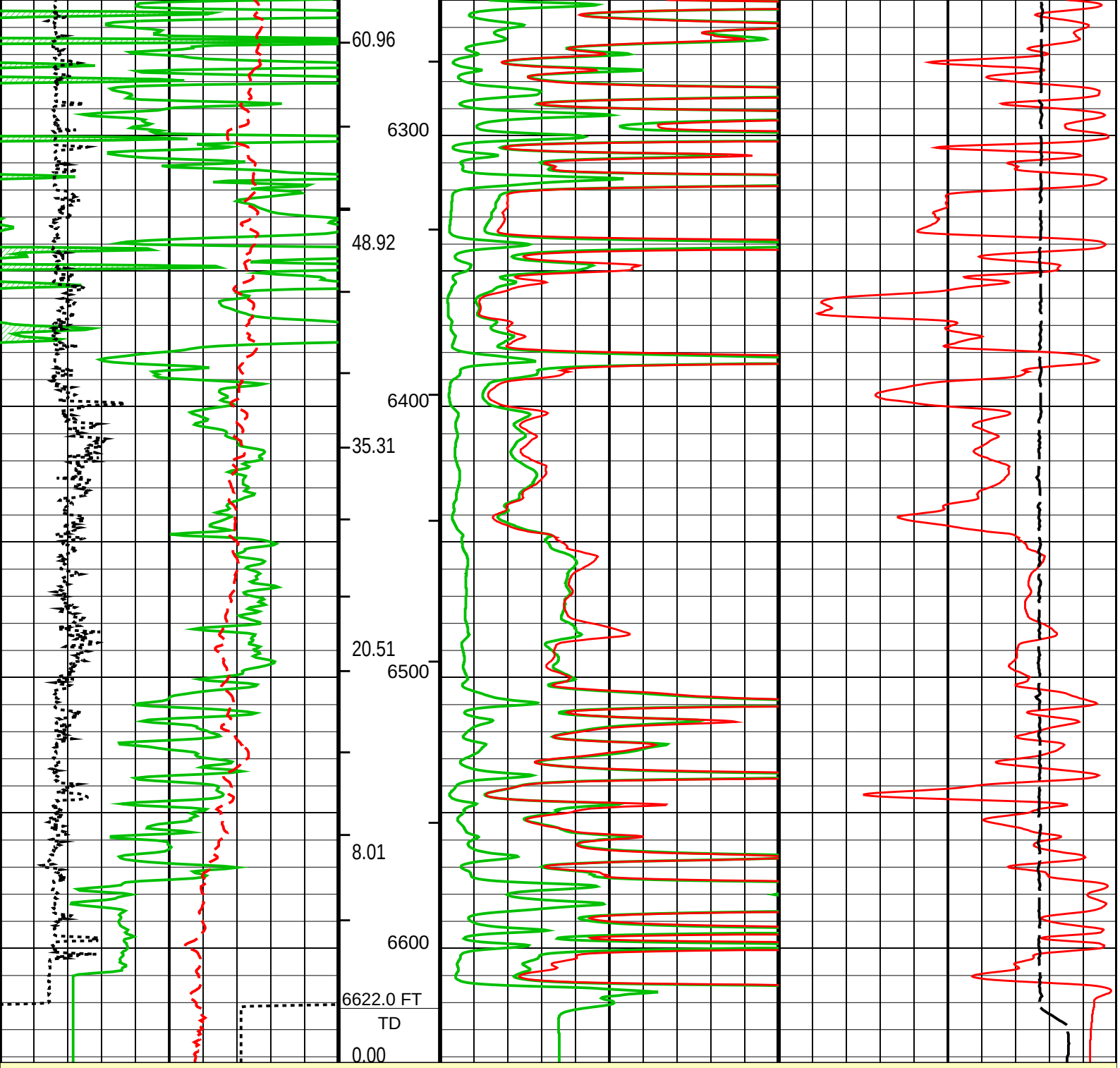


MAIN PASS: * PLATFORM EXPRESS − ARRAY INDUCTION ***

Gamma Ray Backup	**Cement Volume (ICV) (F3)**	**AIT−H 10 Inch Investigation (AHF10)** 0 (OHMM) 50	**AIT−H 90 Inch Investigation Conductivity (AHFCO90)** 1000 (MM/M) 0
Gamma Ray (GR) 0 (GAPI) 200		**AIT−H 10 Inch Investigation (AHF10)** 0 (OHMM) 10	**Tension (TENS)** 10000 (LBF) 0
Caliper (HCAL) 6 (IN) 16		**AIT−H 90 Inch Investigation (AHF90)** 0 (OHMM) 10	
SP (AHSCA) −160 (MV) 40			

PIP SUMMARY

Integrated Cement Volume Major Pip Every 100 F3
Integrated Cement Volume Minor Pip Every 10 F3
Integrated Hole Volume Major Pip Every 100 F3
Integrated Hole Volume Minor Pip Every 10 F3

Parameters

DLIS Name	Description	Value	
	HILTB−CTS: High resolution Integrated Logging Tool−CTS		
AHBHM	Array Induction Borehole Correction Mode	2_ComputeStandoff	
AHBHV	Array Induction Borehole Correction Code Version Number	900	
AHBLM	Array Induction Basic Logs Mode	6_One_Two_and_Four	
AHBLV	Array Induction Basic Logs Code Version Number	223	
AHCDE	Array Induction Casing Detection Enable	Yes	
AHCEN	Array Induction Tool Centering Flag (in Borehole)	Eccentered	
AHFRSV	Array Induction Response Set Version for Four ft Resolution	41.70.24.20	
AHMRF	Array Induction Mud Resistivity Factor	1	
AHORSV	Array Induction Response Set Version for One ft Resolution	41.70.24.20	
AHRFV	Array Induction Radial Profiling Code Version Number	701	
AHRPV	Array Induction Radial Parametrization Code Version Number	232	
AHSTA	Array Induction Tool Standoff	0.125	IN
AHTRSV	Array Induction Response Set Version for Two ft Resolution	41.70.24.20	
BHT	Bottom Hole Temperature (used in calculations)	159.6	DEGF
FEXP	Form Factor Exponent	2	
FNUM	Form Factor Numerator	1	
GCSE	Generalized Caliper Selection	HCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	AITH_RESIST	
GTSE	Generalized Temperature Selection	HSTS_HTEM	
SHT	Surface Hole Temperature	68	DEGF
	PERT: Preliminary Evaluation − Real Time		
BHT	Bottom Hole Temperature (used in calculations)	159.6	DEGF
FEXP	Form Factor Exponent	2	
FNUM	Form Factor Numerator	1	
GCSE	Generalized Caliper Selection	HCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	AITH_RESIST	
GTSE	Generalized Temperature Selection	HSTS_HTEM	
SHT	Surface Hole Temperature	68	DEGF
	HOLEV: Integrated Hole/Cement Volume		
BHT	Bottom Hole Temperature (used in calculations)	159.6	DEGF
FCD	Future Casing (Outer) Diameter	5.5	IN
GCSE	Generalized Caliper Selection	HCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	AITH_RESIST	
GTSE	Generalized Temperature Selection	HSTS_HTEM	
HVCS	Integrated Hole Volume Caliper Selection	AUTOMATIC	
SHT	Surface Hole Temperature	68	DEGF
	FEQL: Formation Evaluation Quick Look		
FEXP	Form Factor Exponent	2	
FNUM	Form Factor Numerator	1	
	System and Miscellaneous		
BS	Bit Size	7.875	IN
DFD	Drilling Fluid Density	9.20	LB/G
DORL	Depth Offset for Repeat Analysis	0.0	FT
FLEV	Fluid Level	25.00	FT
MST	Mud Sample Temperature	131.36	DEGF
TD	Total Depth	6622	FT

Format: ERES_S2 Vertical Scale: 2" per 100’ Graphics File Created: 03−Apr−2011 03:18

OP System Version: 18C0−147

HILTB−CTS	18C0−147

Output DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_007LUP	FN:6	PRODUCER	03−Apr−2011 03:18

Schlumberger

MAIN RESISTIVITY LOG 5" = 100’

MAXIS Field Log

Output DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_007LUP	FN:6	PRODUCER	03−Apr−2011 03:18	6642.0 FT	348.5 FT

Integrated Hole/Cement Volume Summary

Hole Volume = 2664.46 F3

Cement Volume = 1640.70 F3 (assuming 5.50 IN casing O.D.)

Computed from 6622.0 FT to 417.0 FT using data channel(s) HCAL

OP System Version: 18C0−147

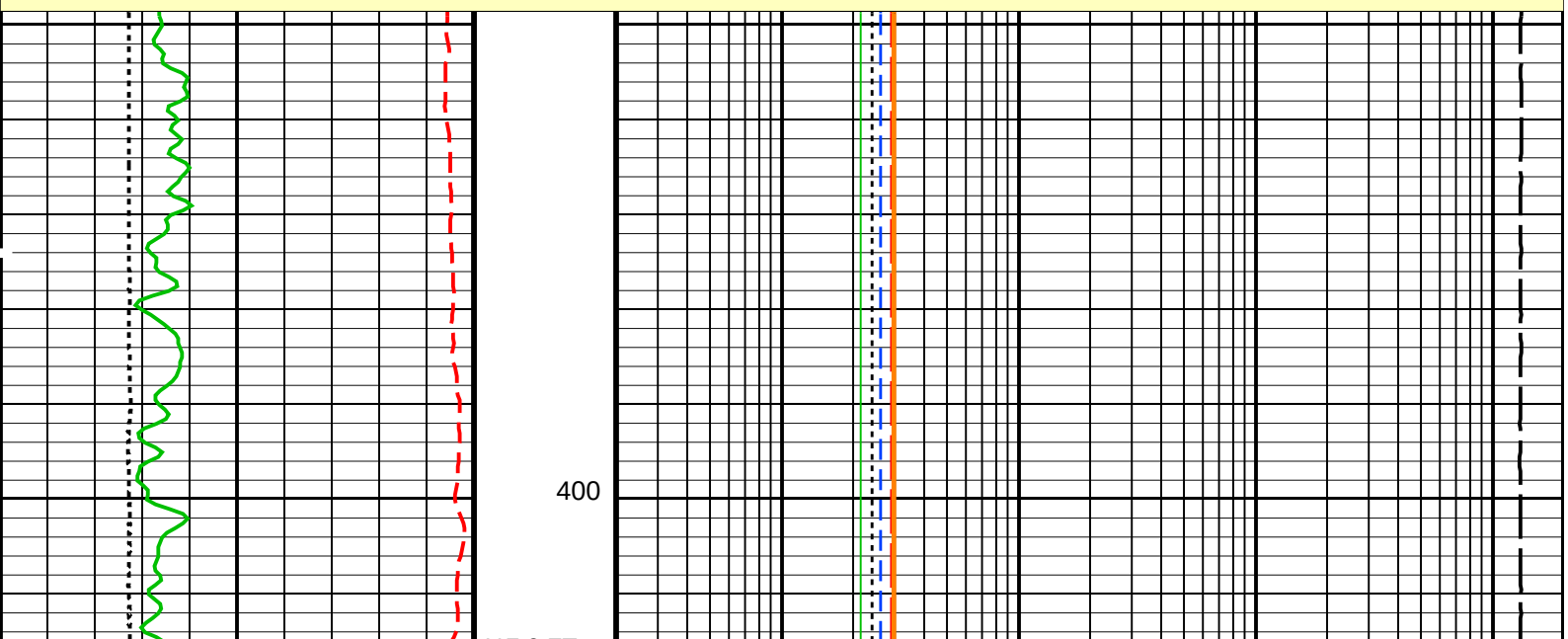
HILTB−CTS 18C0−147

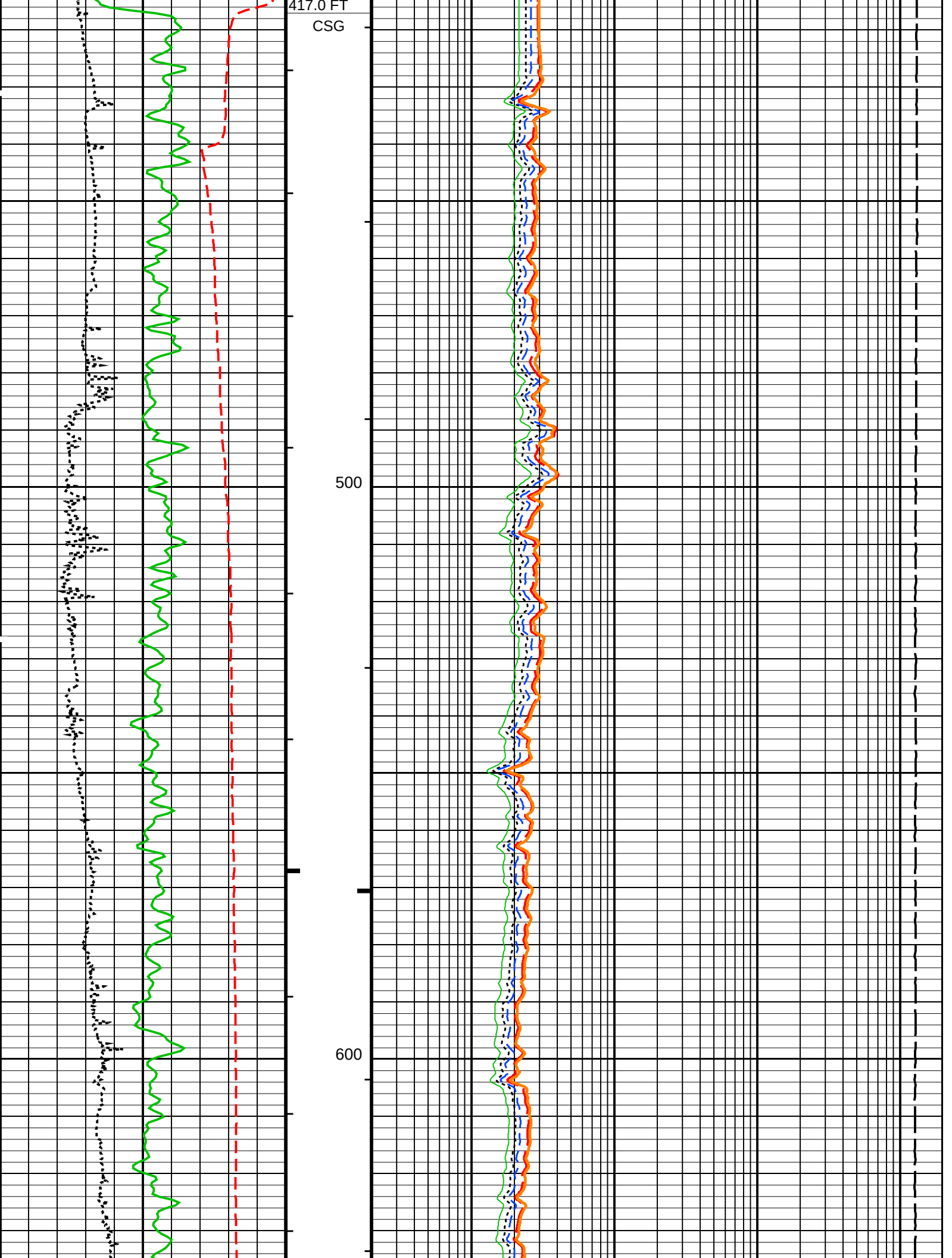
PIP SUMMARY

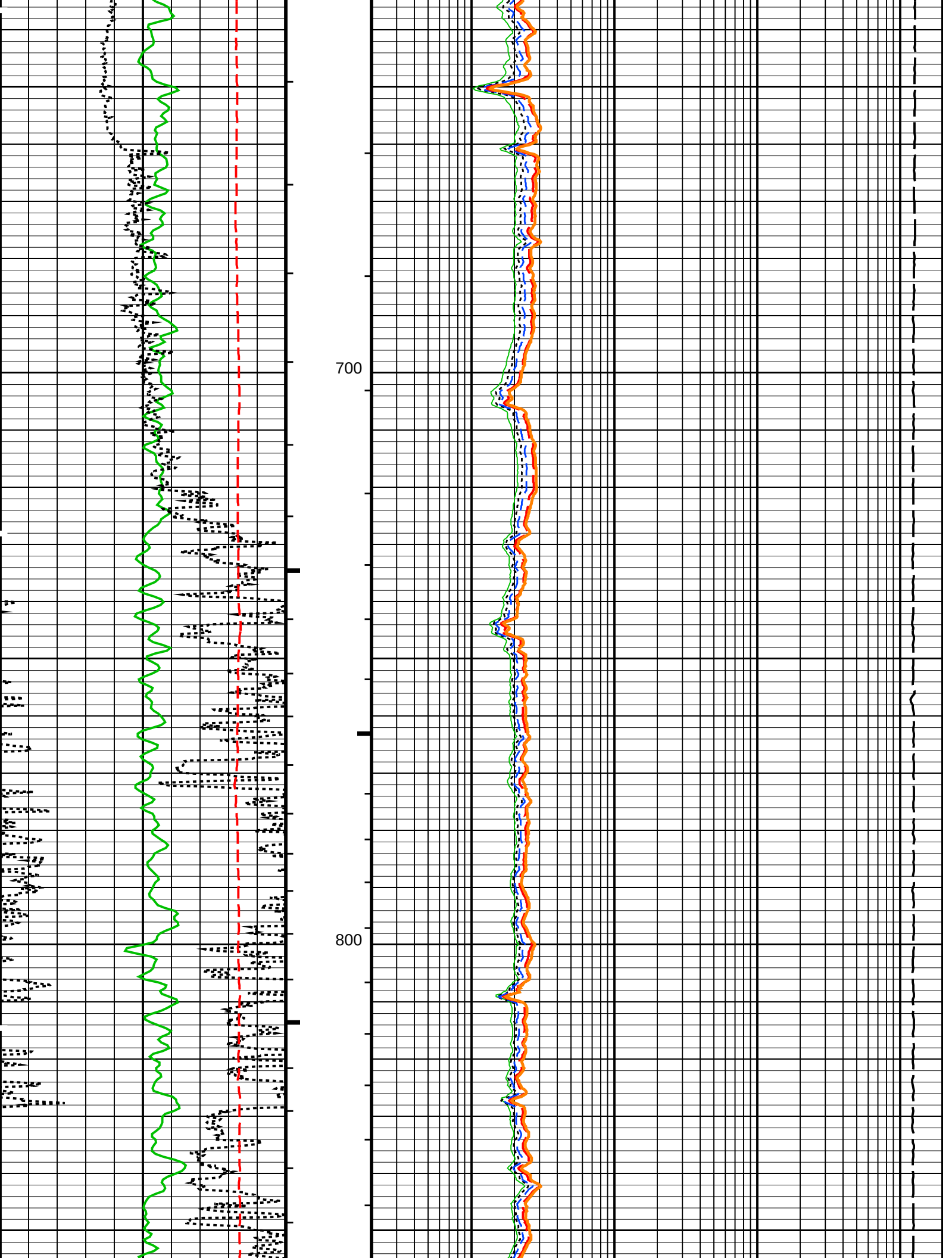
- Integrated Hole Volume Minor Pip Every 10 F3
- Integrated Hole Volume Major Pip Every 100 F3
- Integrated Cement Volume Minor Pip Every 10 F3
- Integrated Cement Volume Major Pip Every 100 F3
- Time Mark Every 60 S

		Tension (TENS) 10000 (LBF) 0
		AIT−H 90 Inch Investigation (AHT90) 0.2 (OHMM) 2000
SP (AHSCA) −160 (MV) 40		AIT−H 60 Inch Investigation (AHT60) 0.2 (OHMM) 2000
Caliper (HCAL) 6 (IN) 16	Stuck Stretch (STIT) 0 (F) 50	AIT−H 30 Inch Investigation (AHT30) 0.2 (OHMM) 2000
Gamma Ray (GR) 0 (GAPI) 200	Tool/Tot. Drag	AIT−H 20 Inch Investigation (AHT20) 0.2 (OHMM) 2000
Gamma Ray Backup	Cable Drag	AIT−H 10 Inch Investigation (AHT10) 0.2 (OHMM) 2000

MAIN PASS: * PLATFORM EXPRESS − ARRAY INDUCTION ***




417.0 FT
CSG
500
600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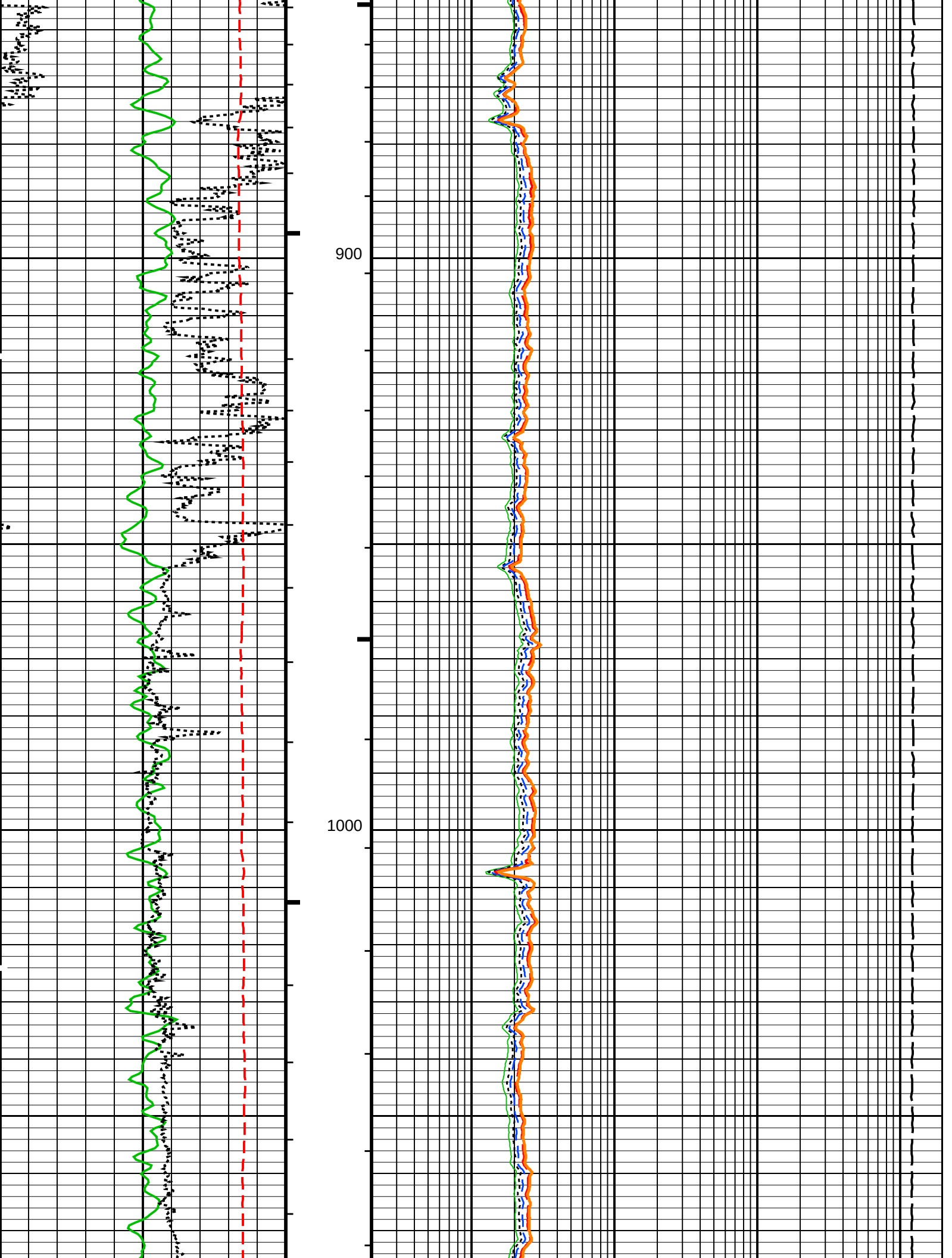
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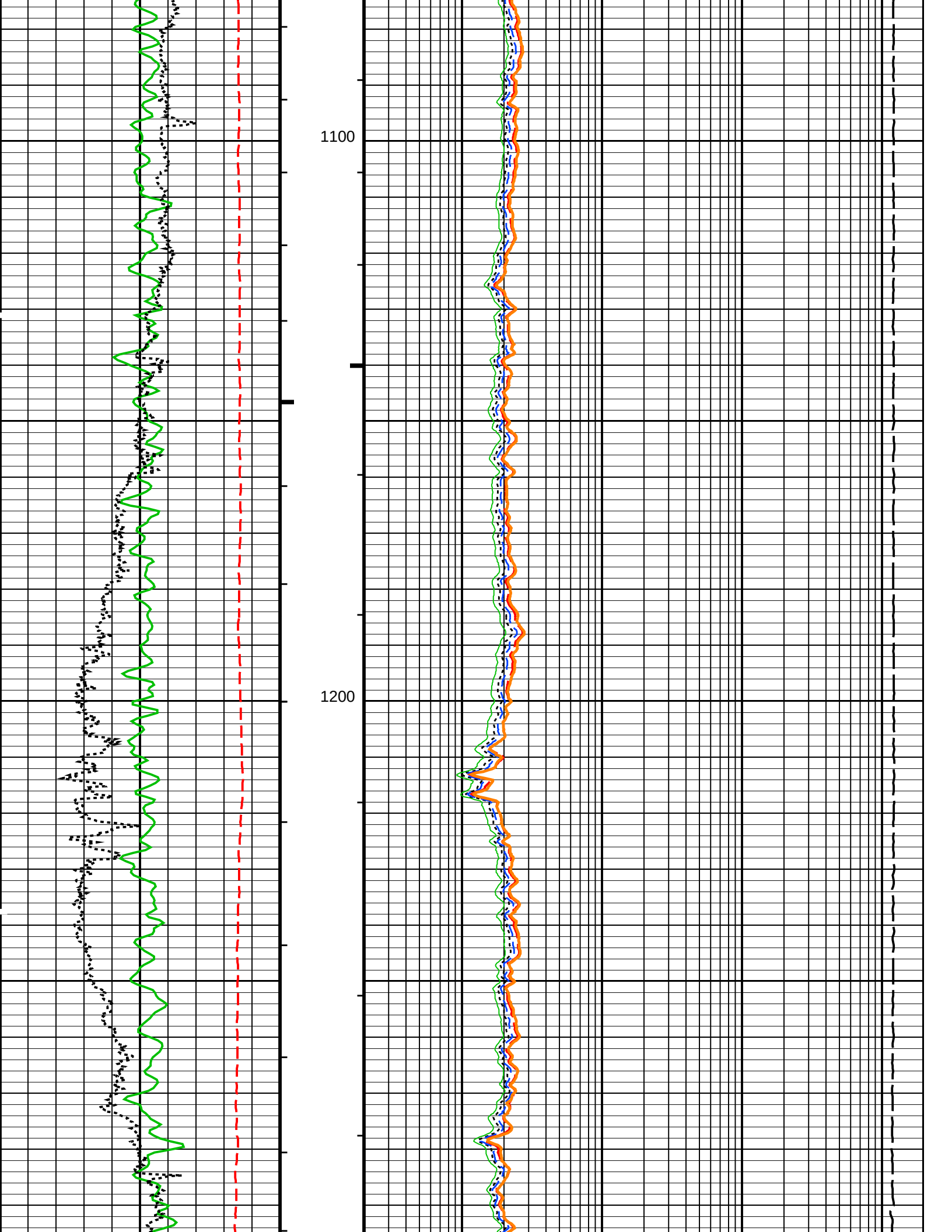
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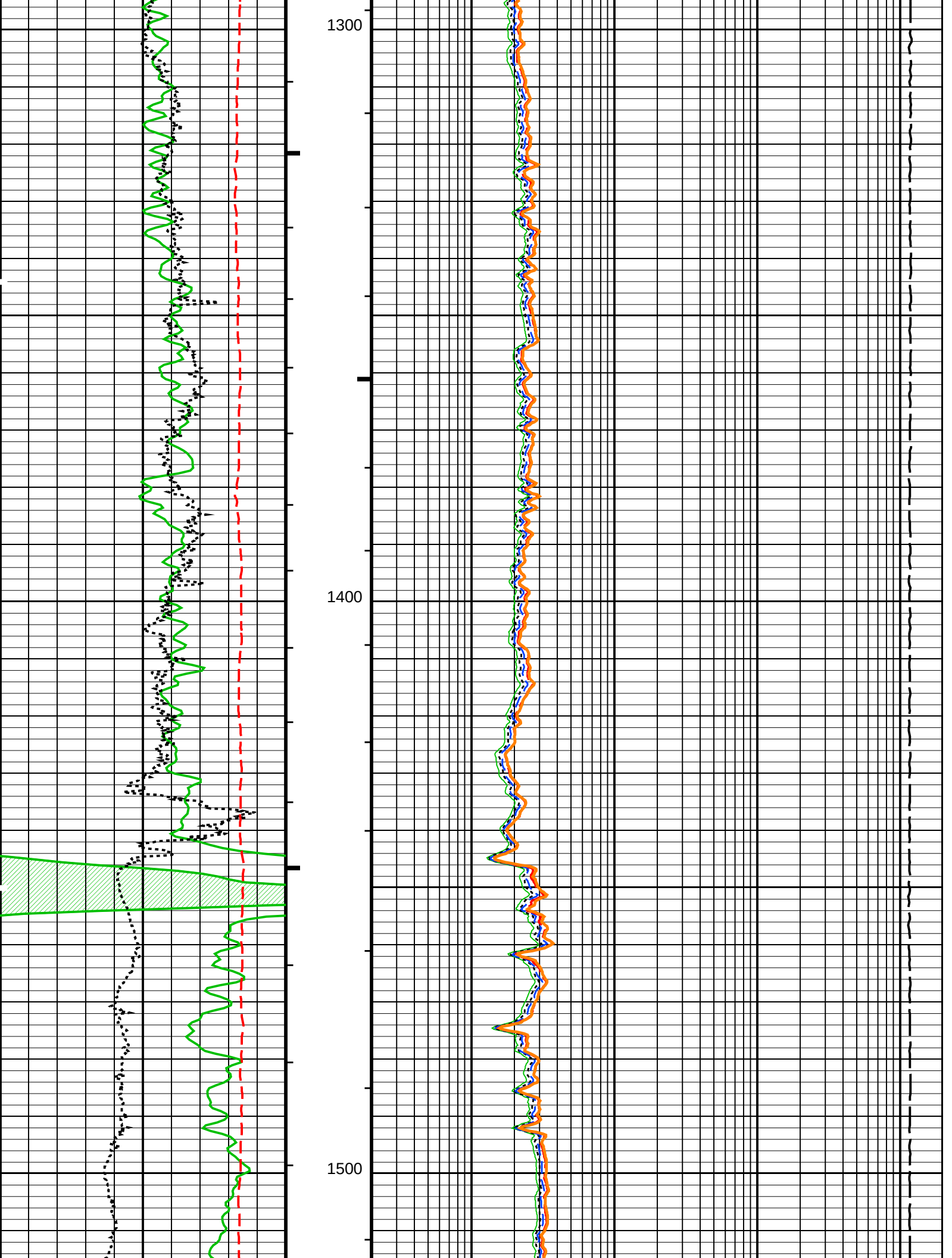
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1400
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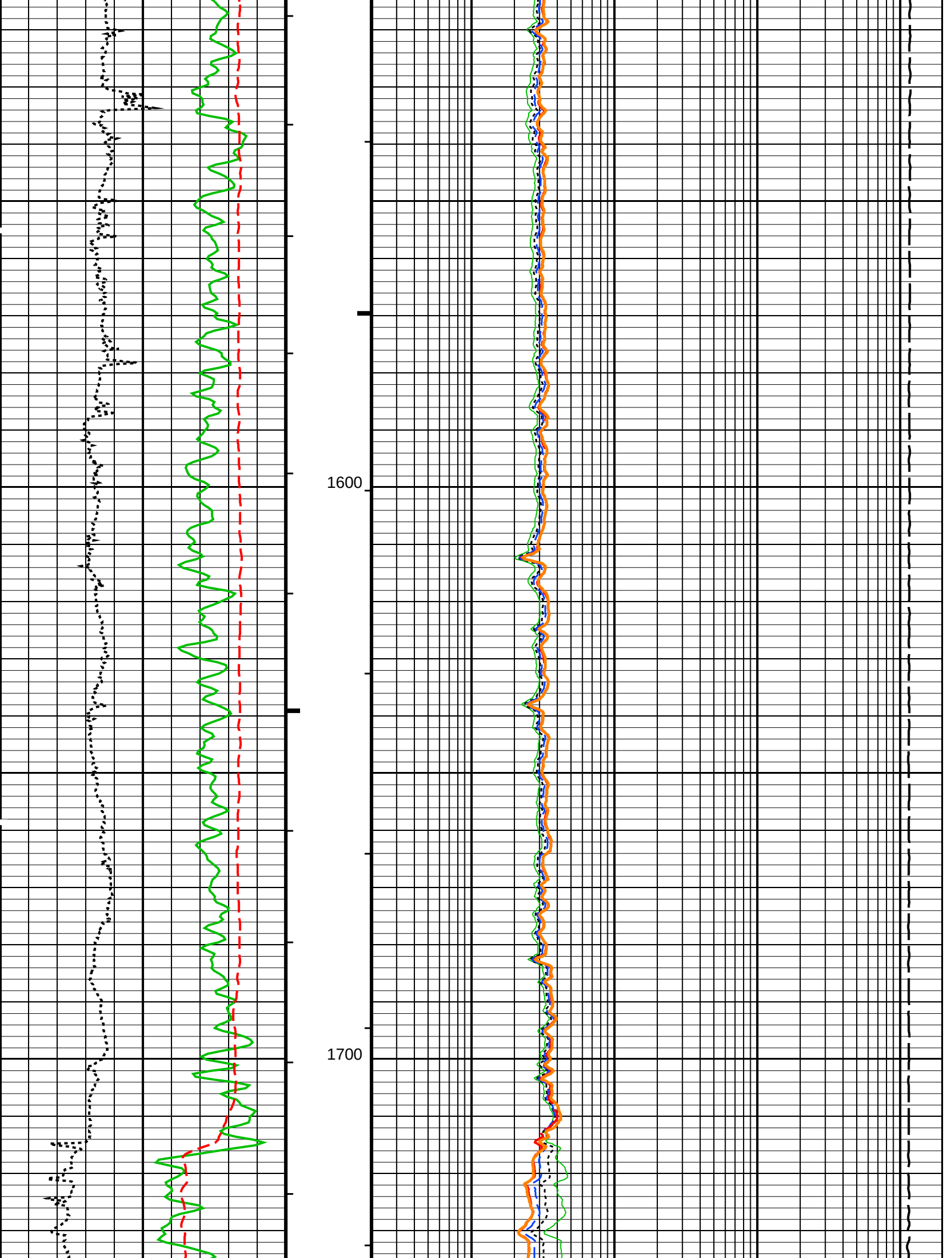
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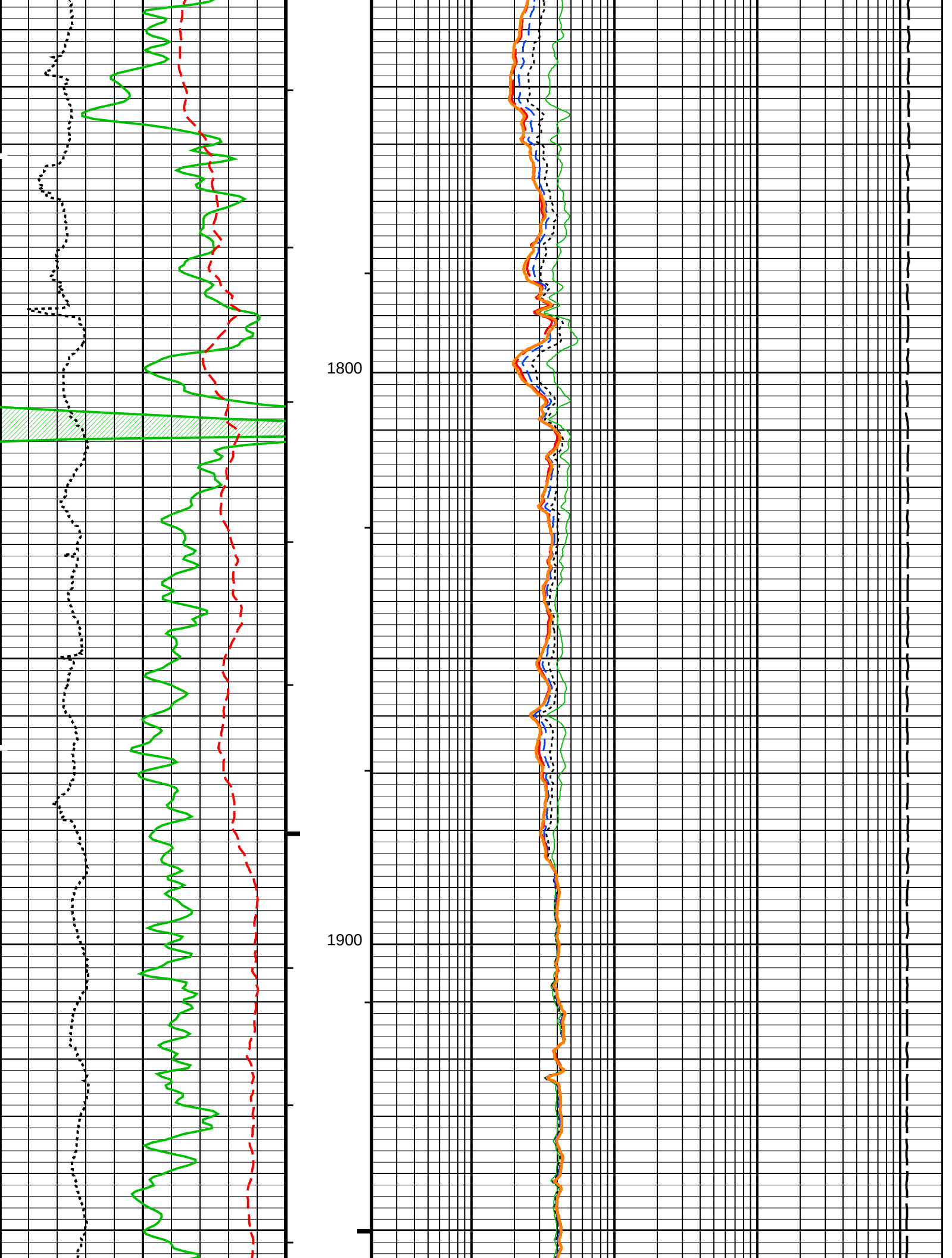
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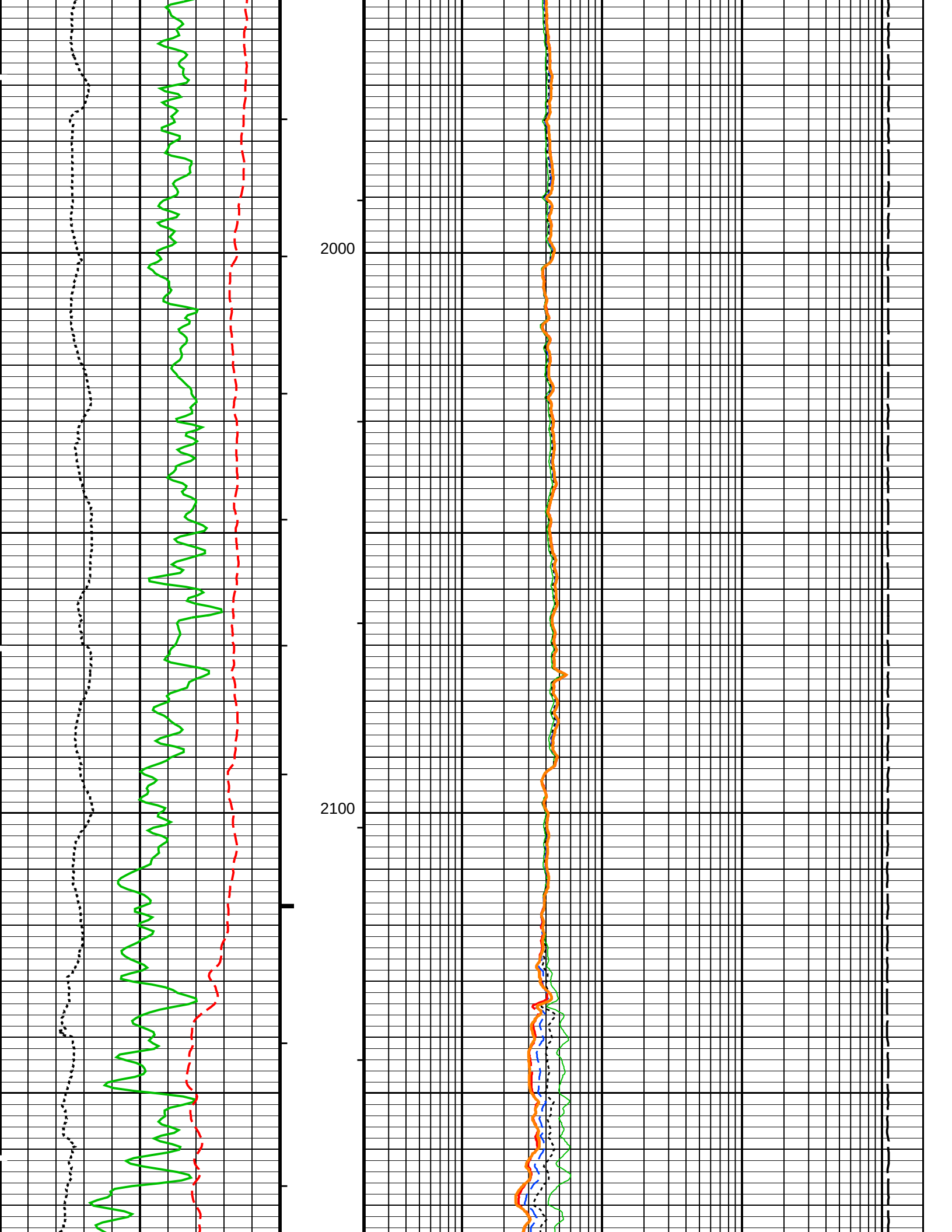
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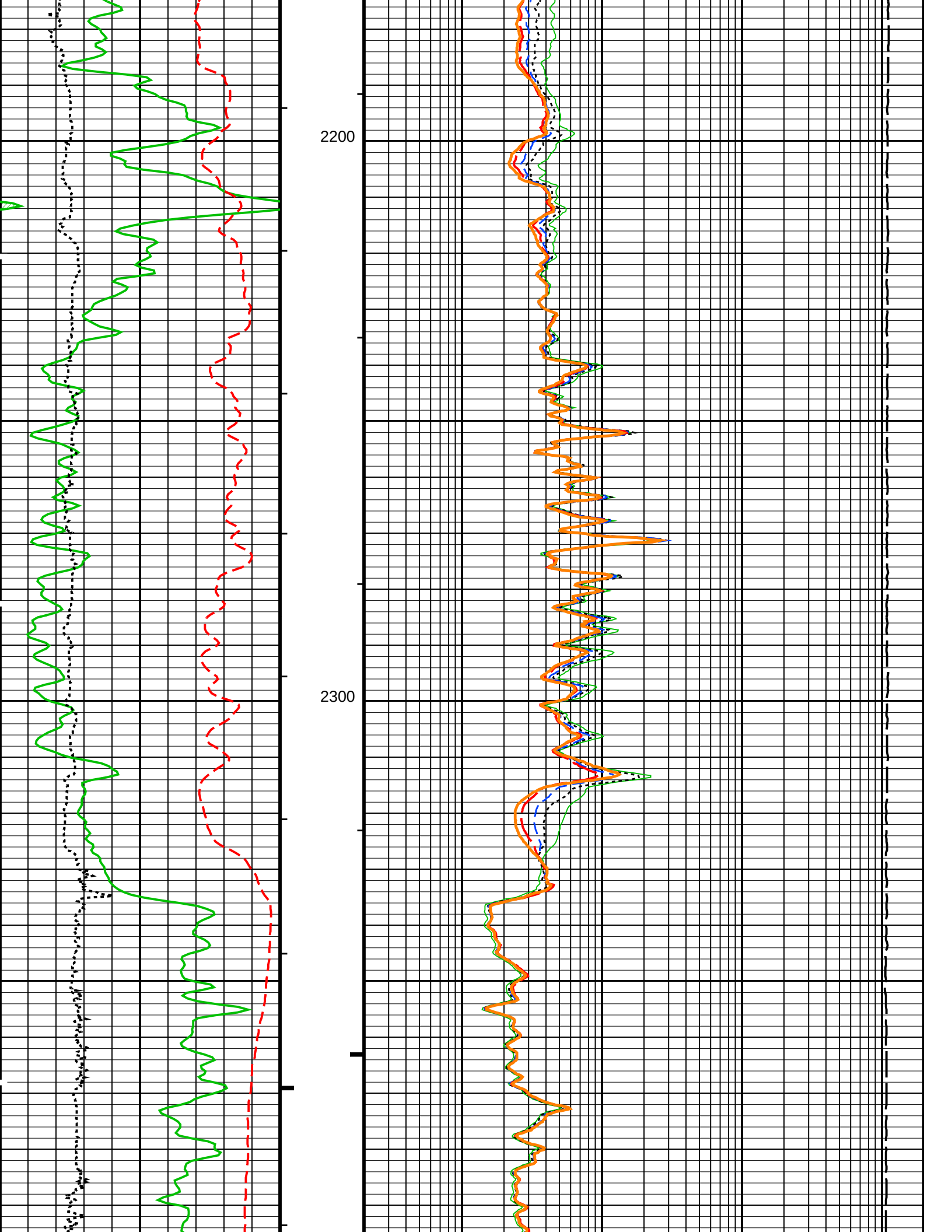
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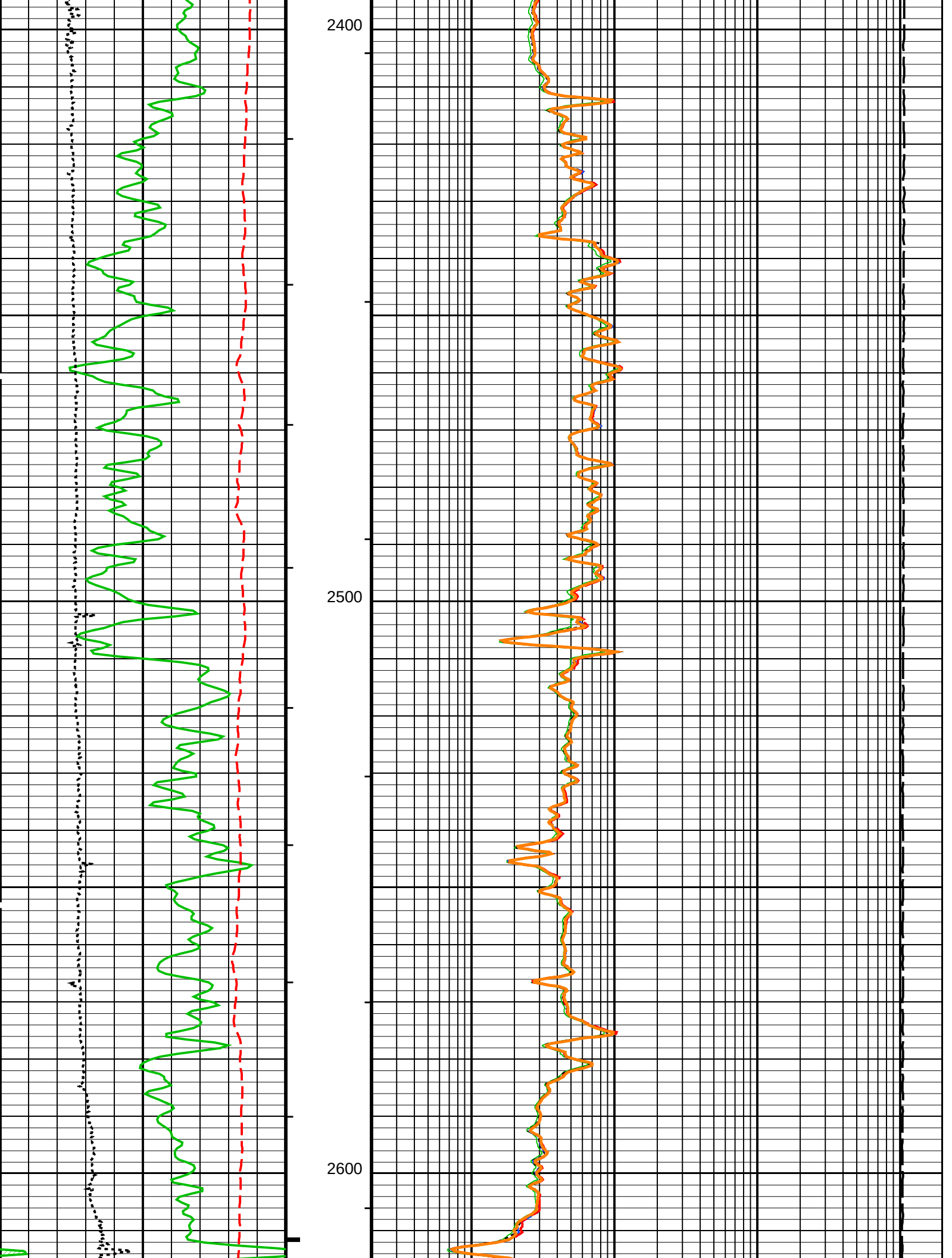
2400
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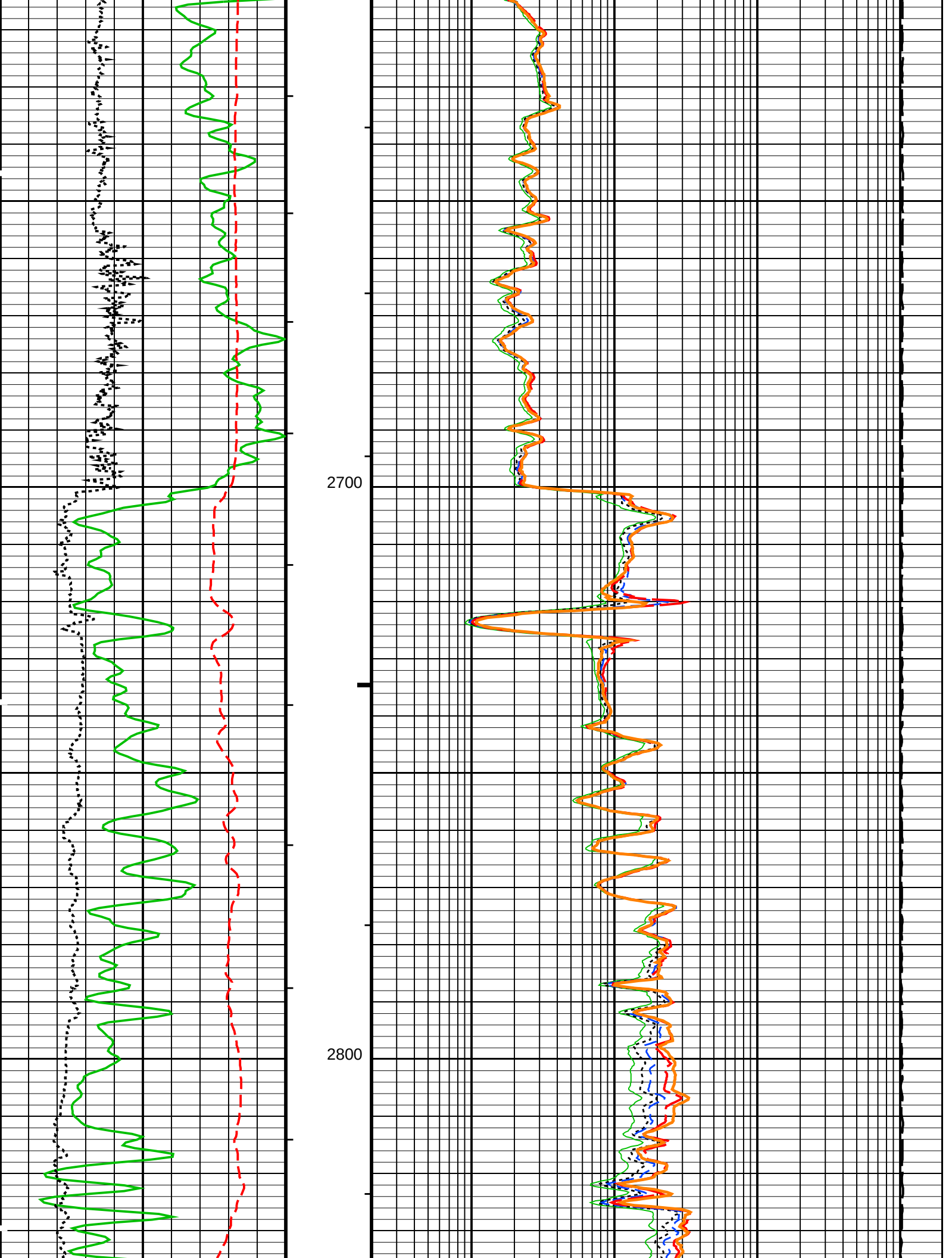
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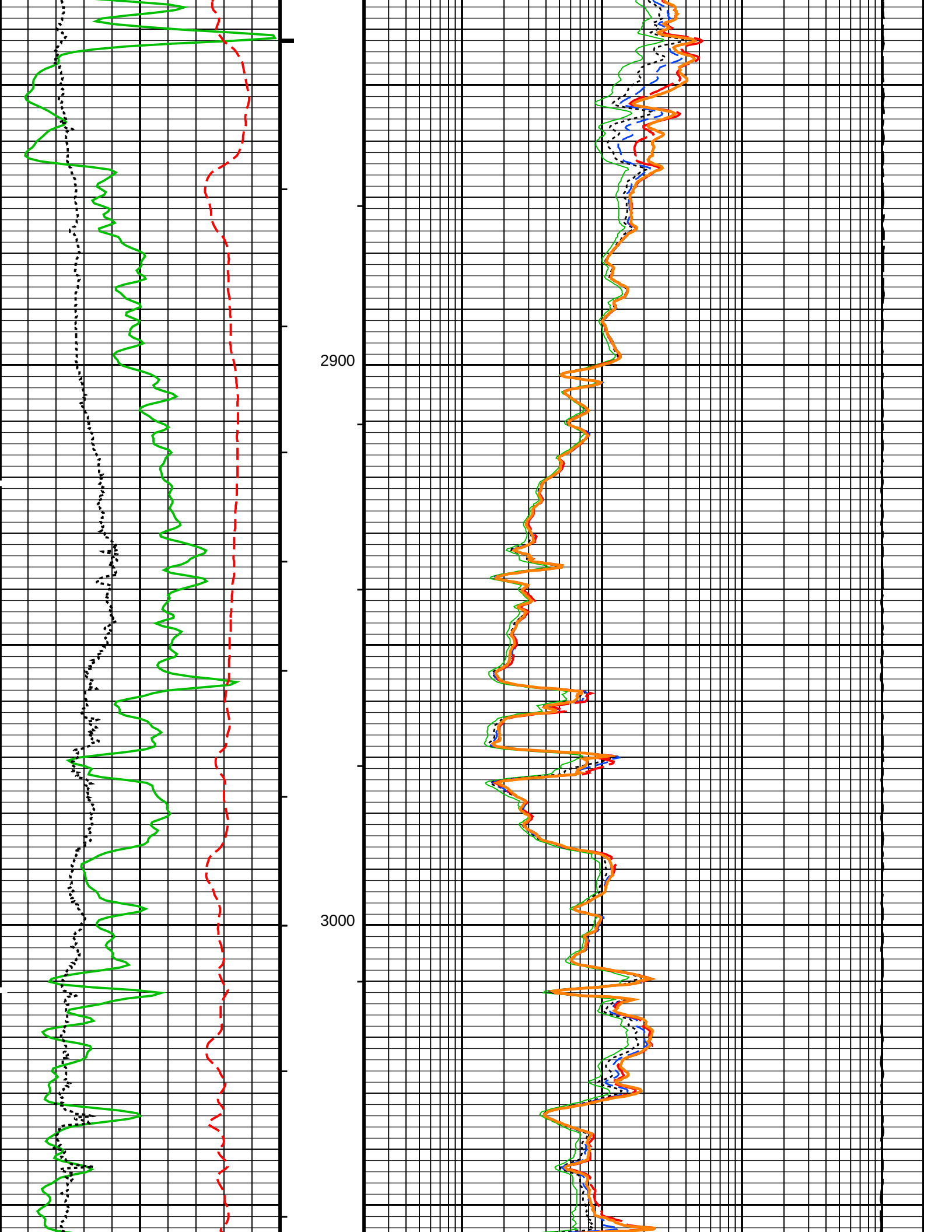
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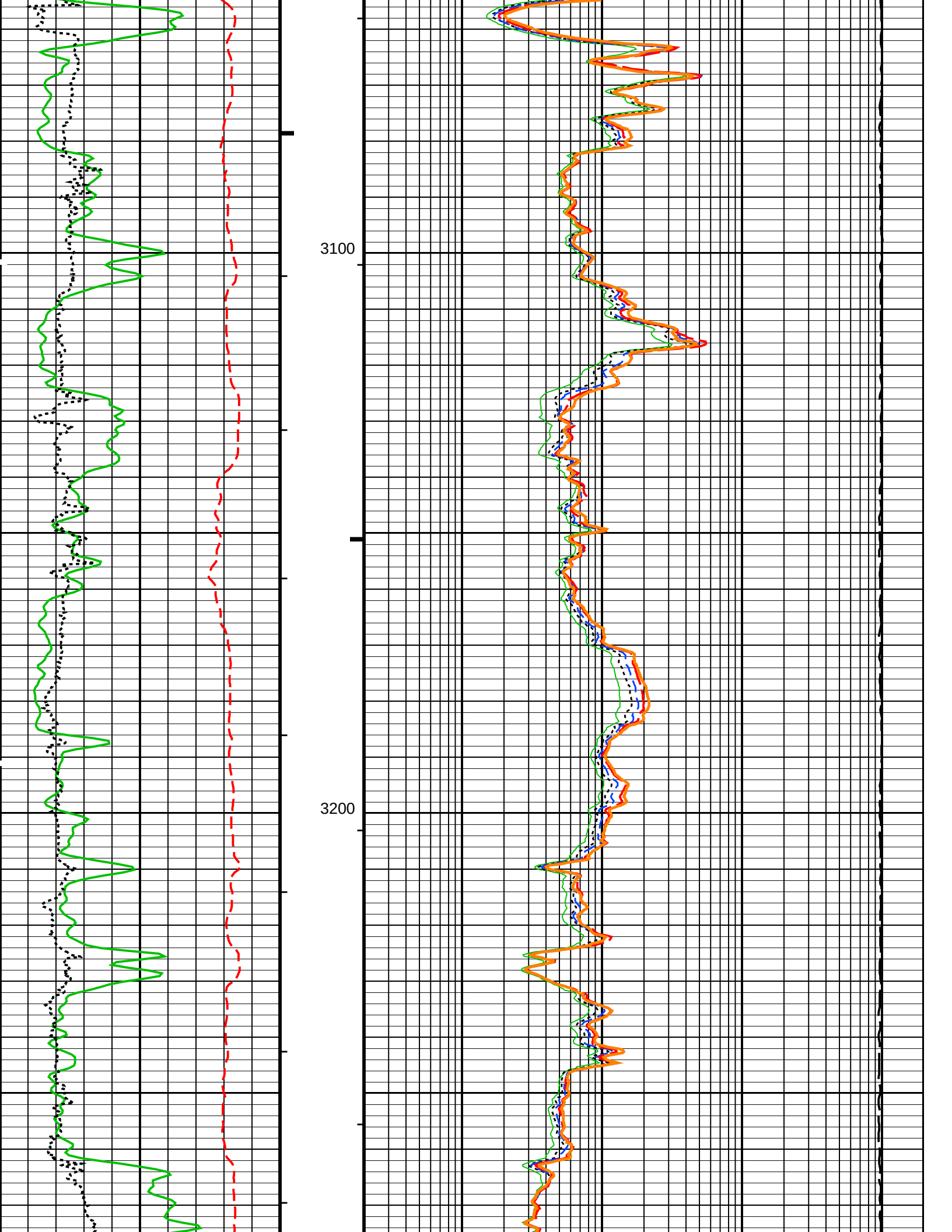
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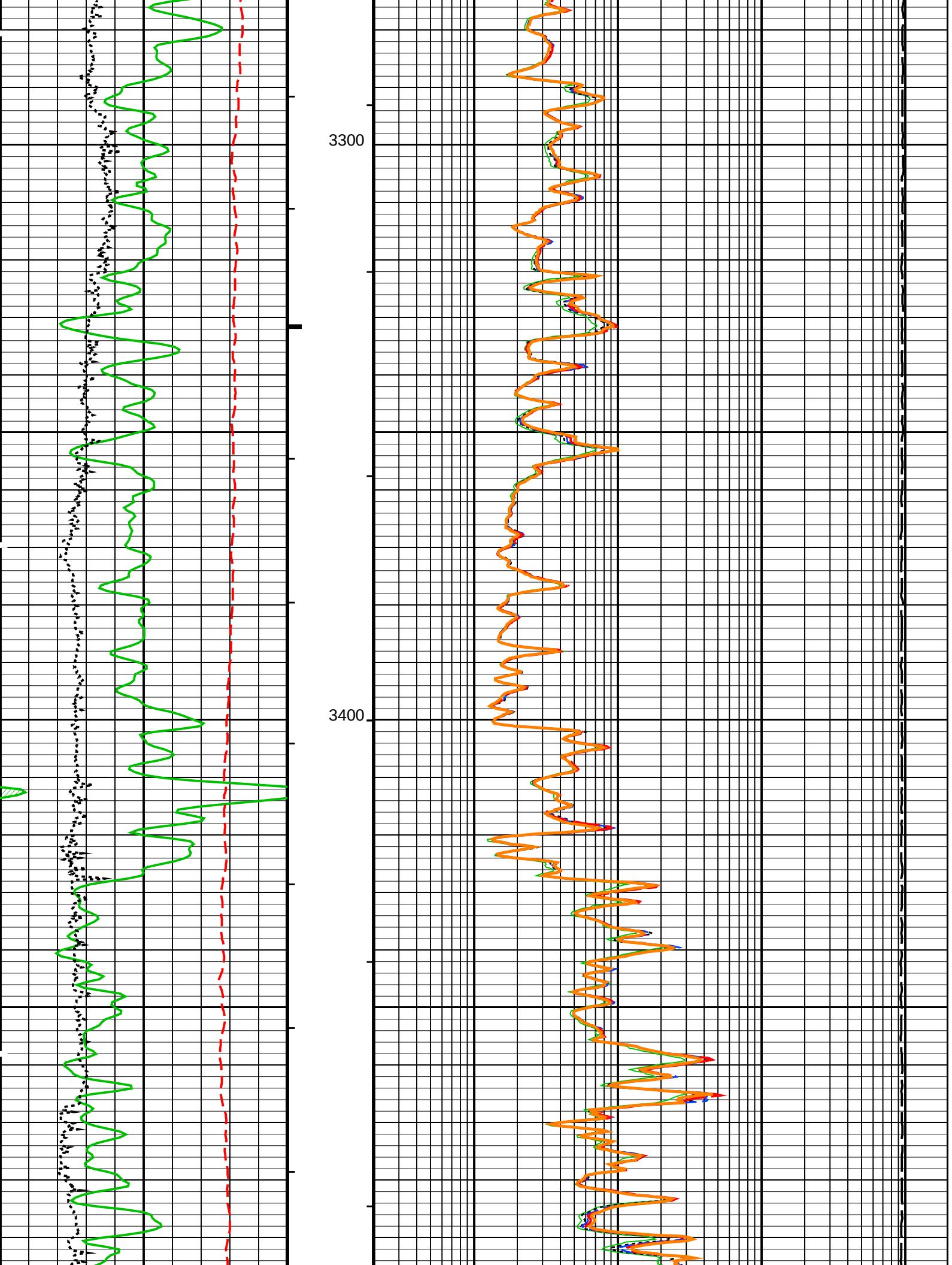
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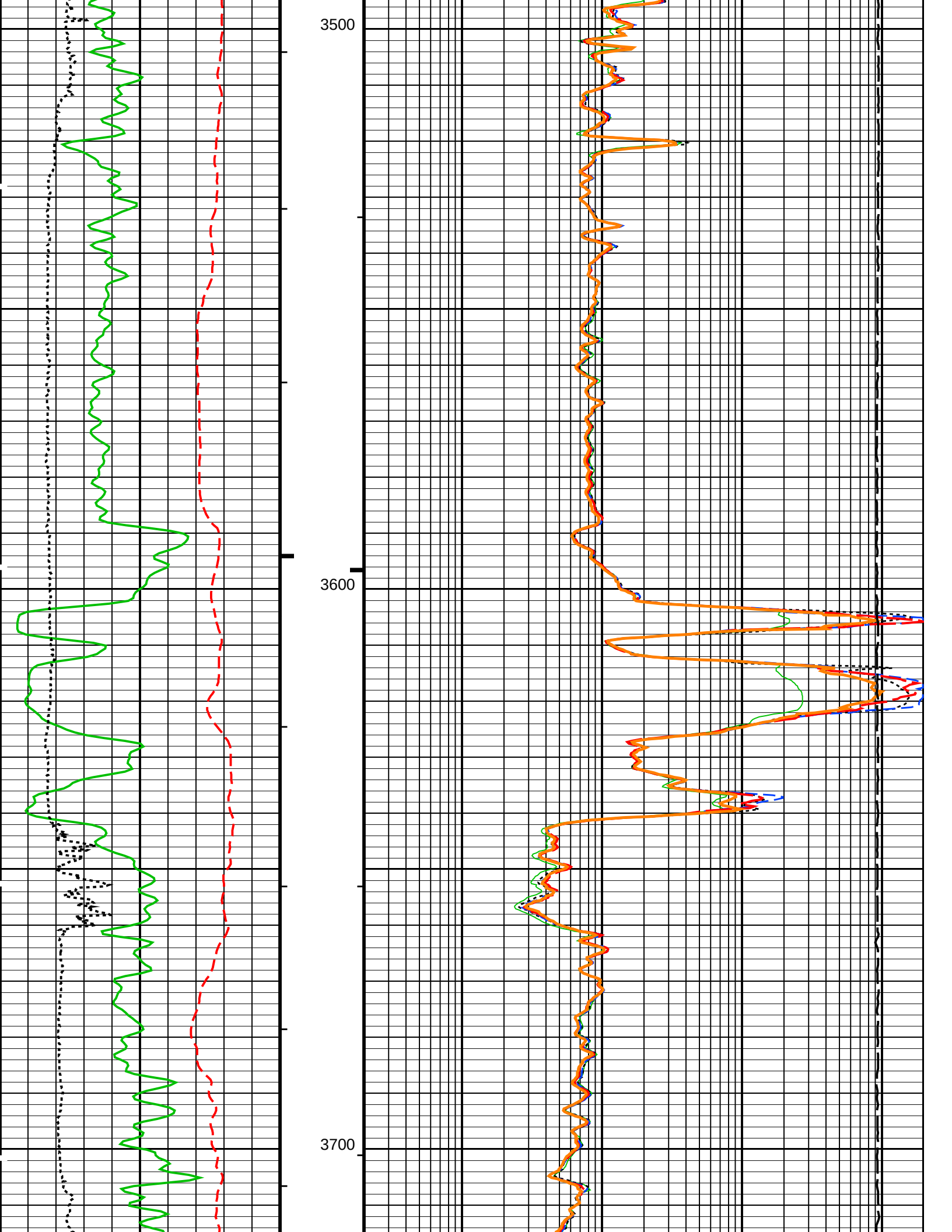
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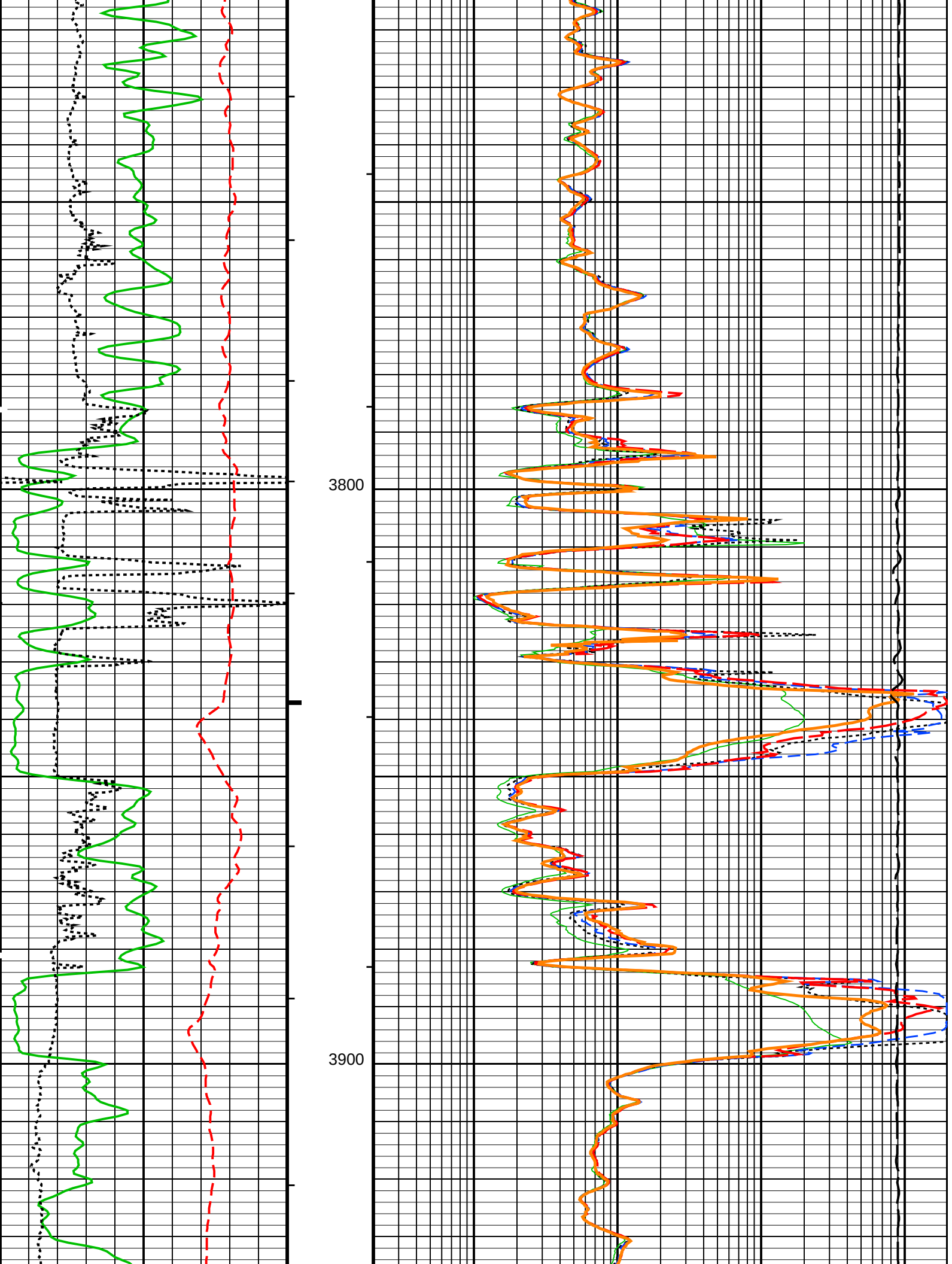
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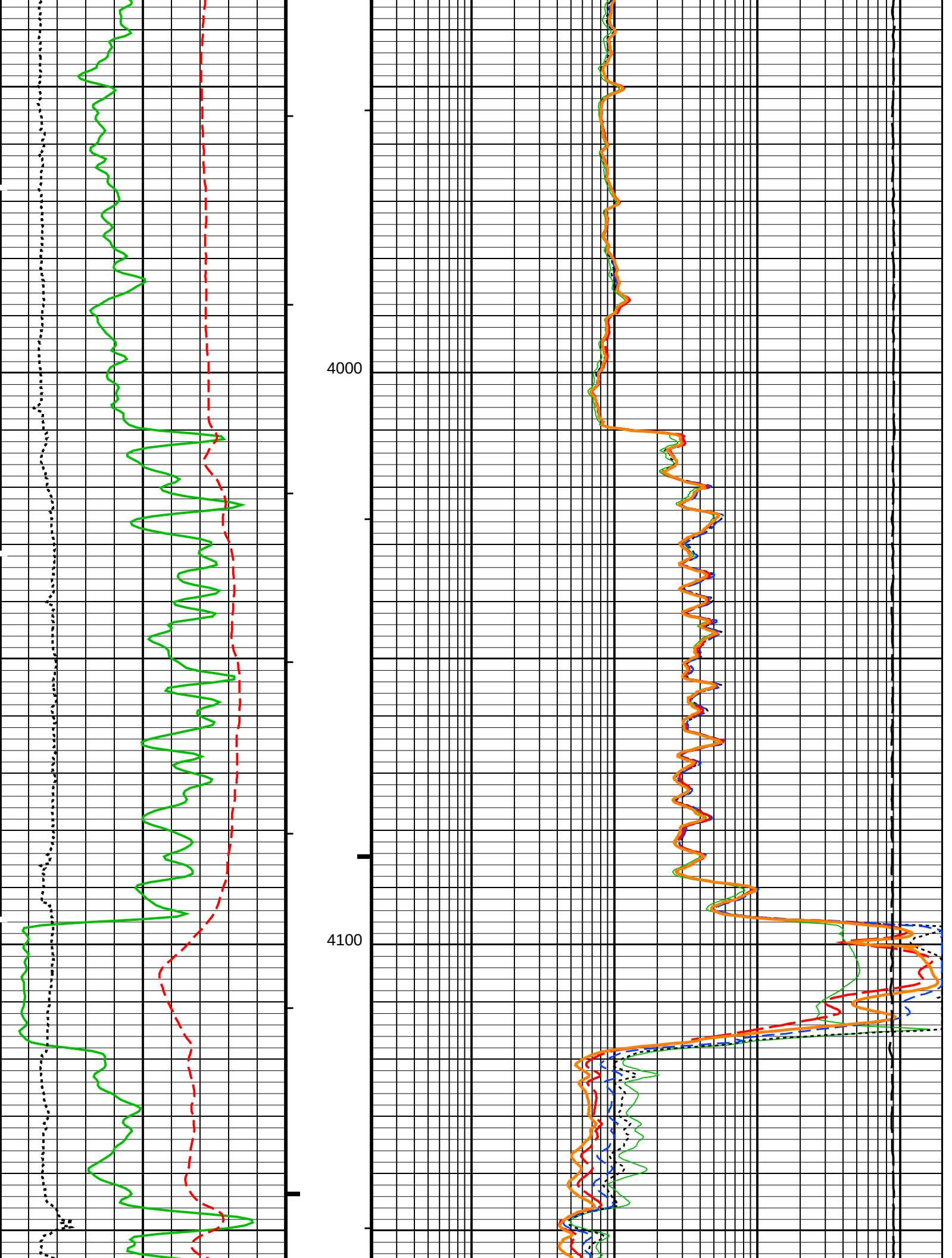
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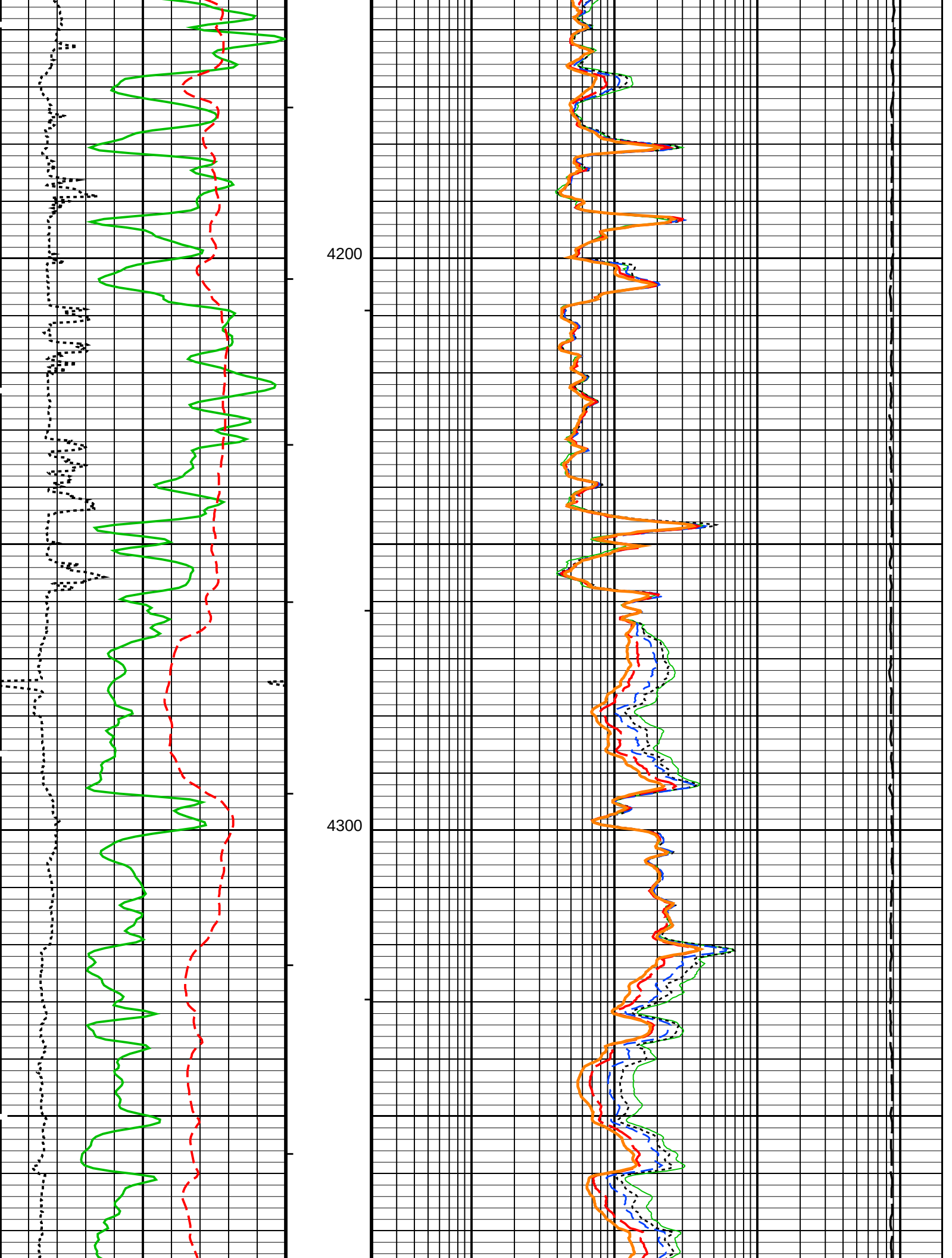
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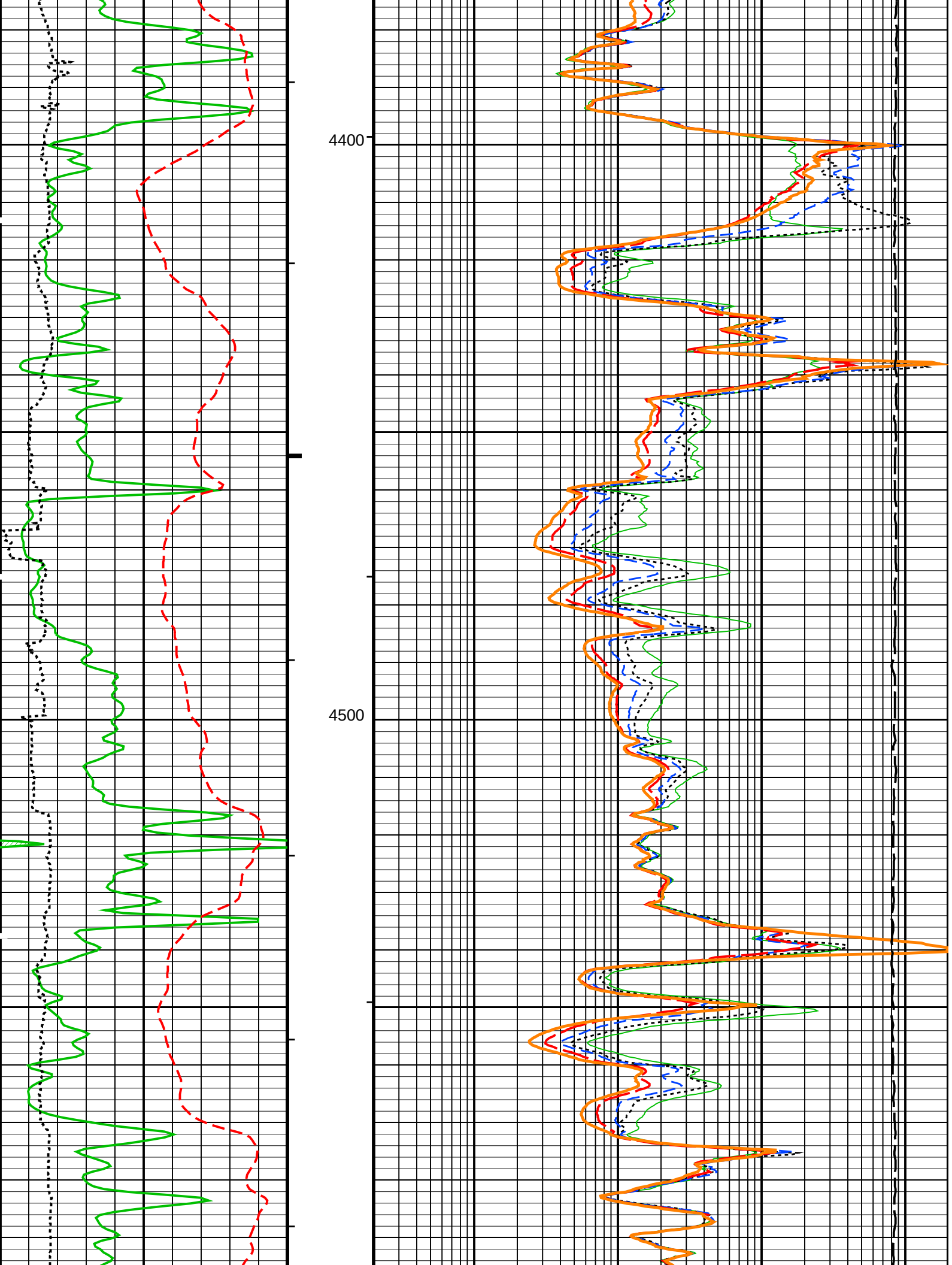
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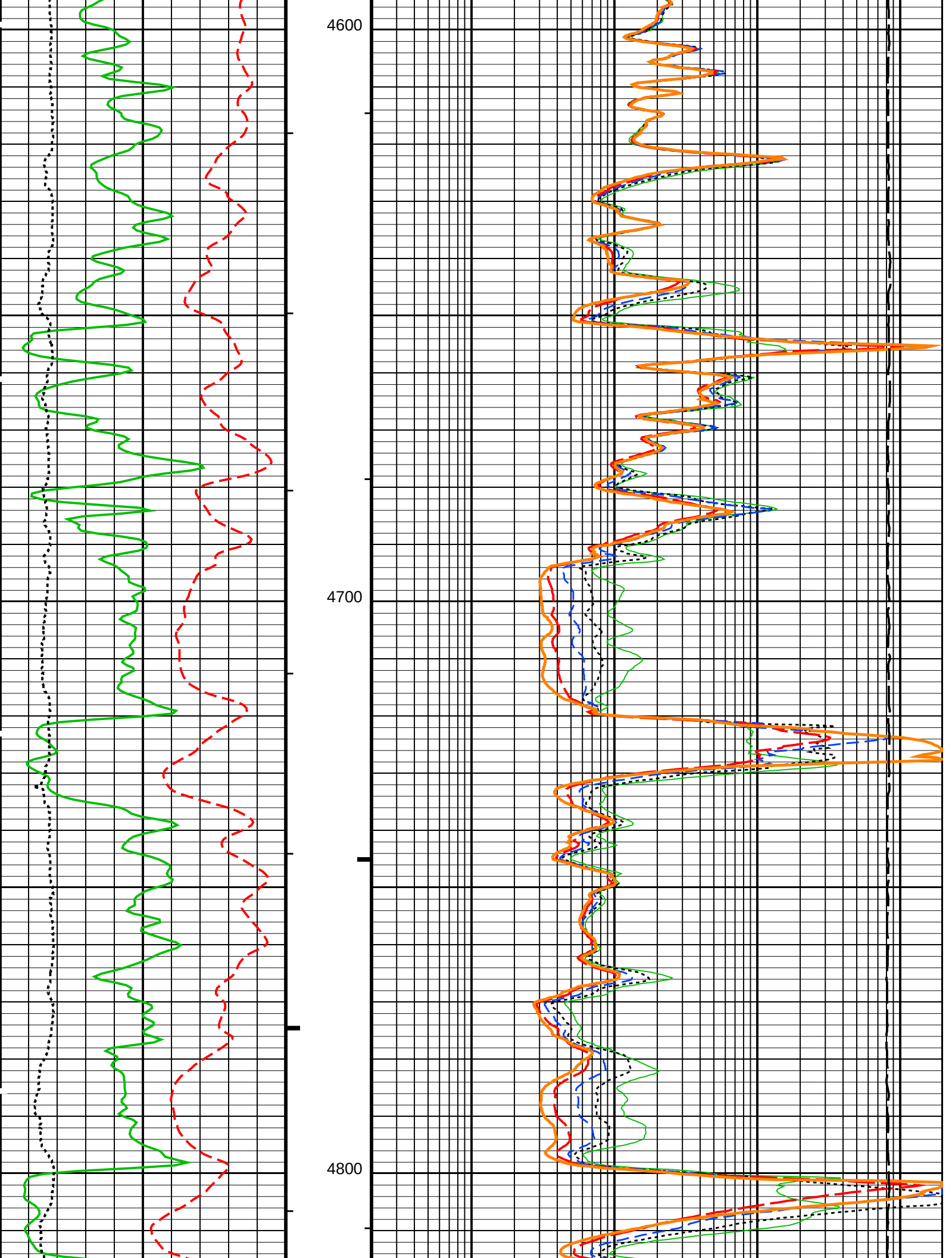
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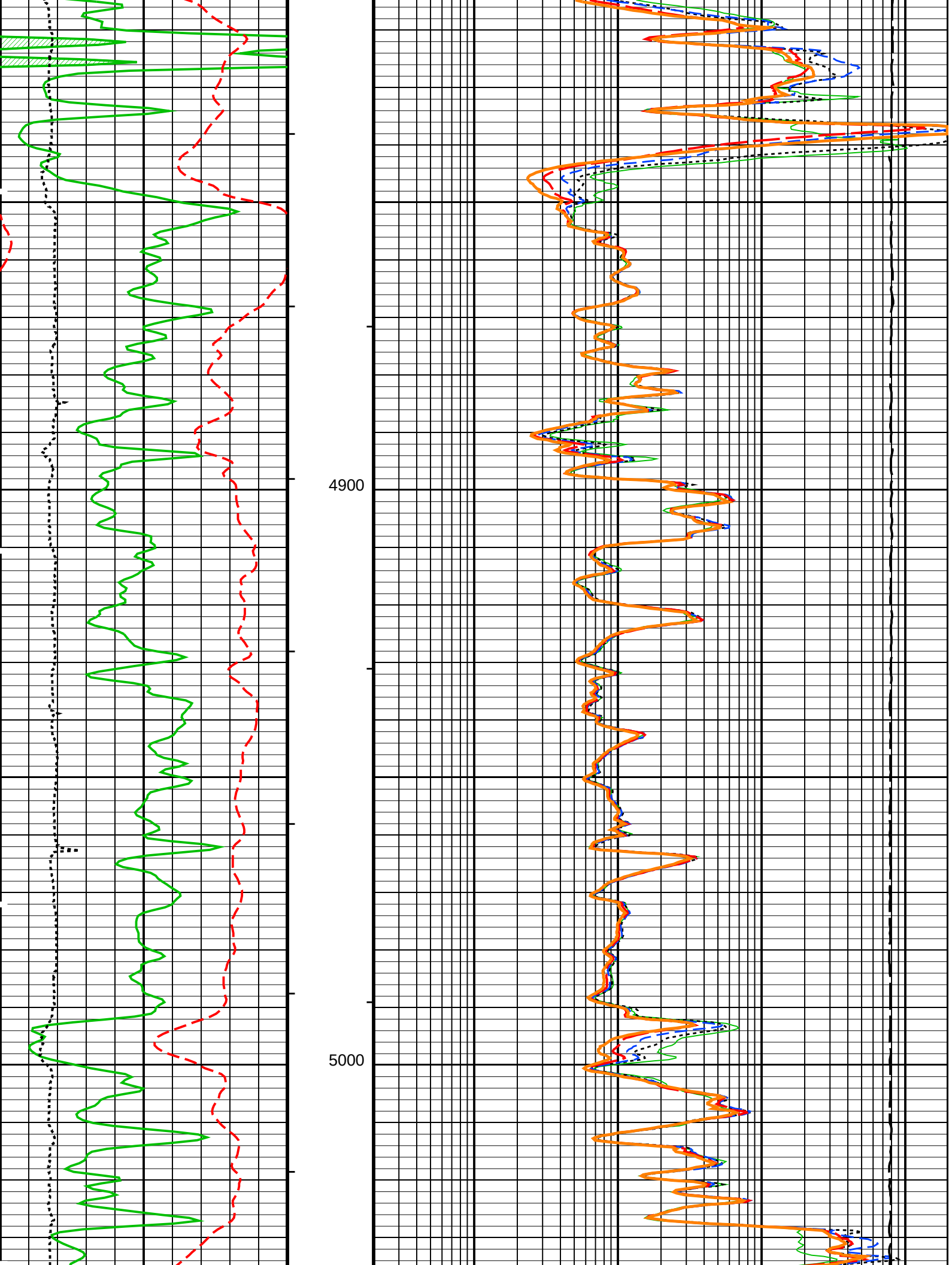
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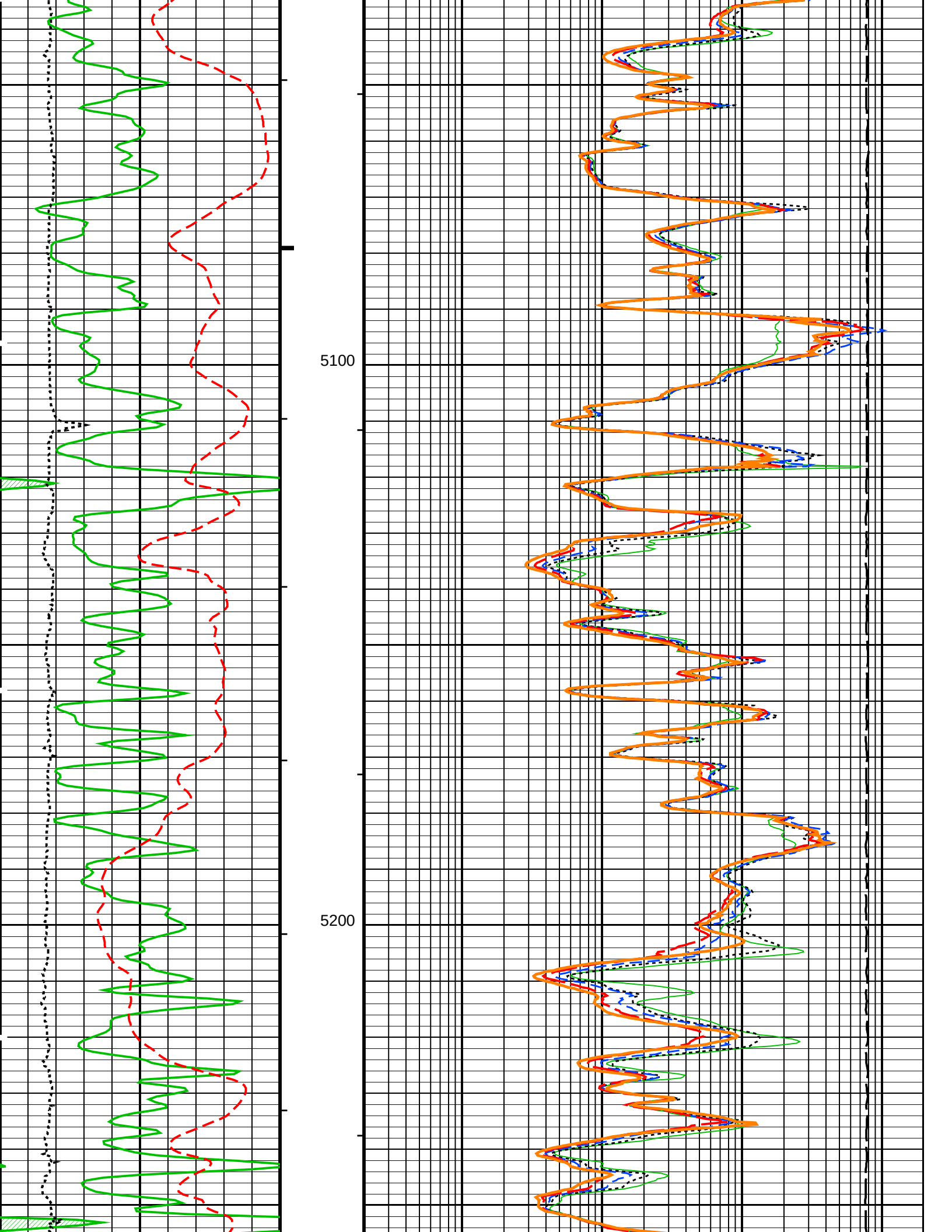
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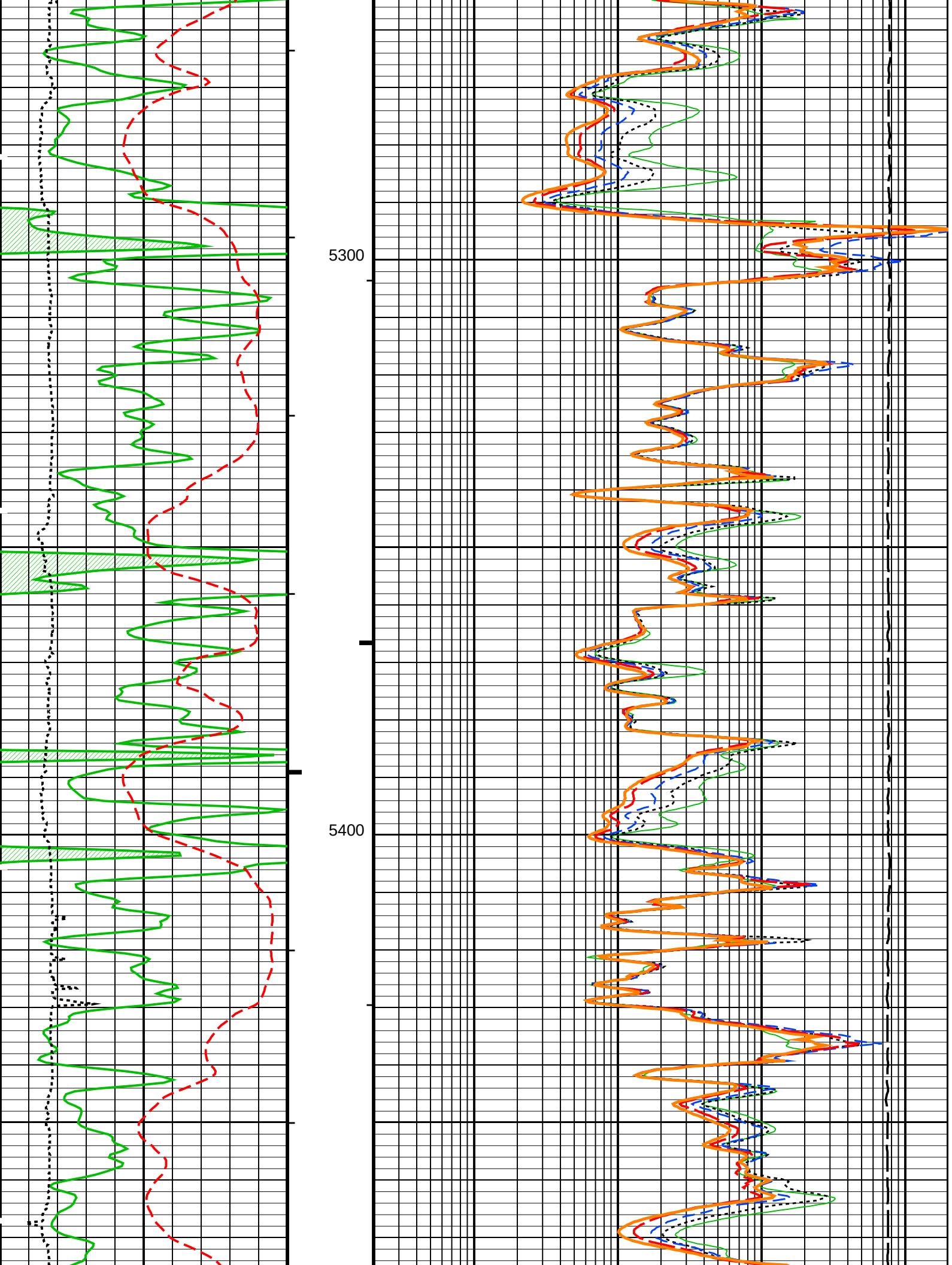
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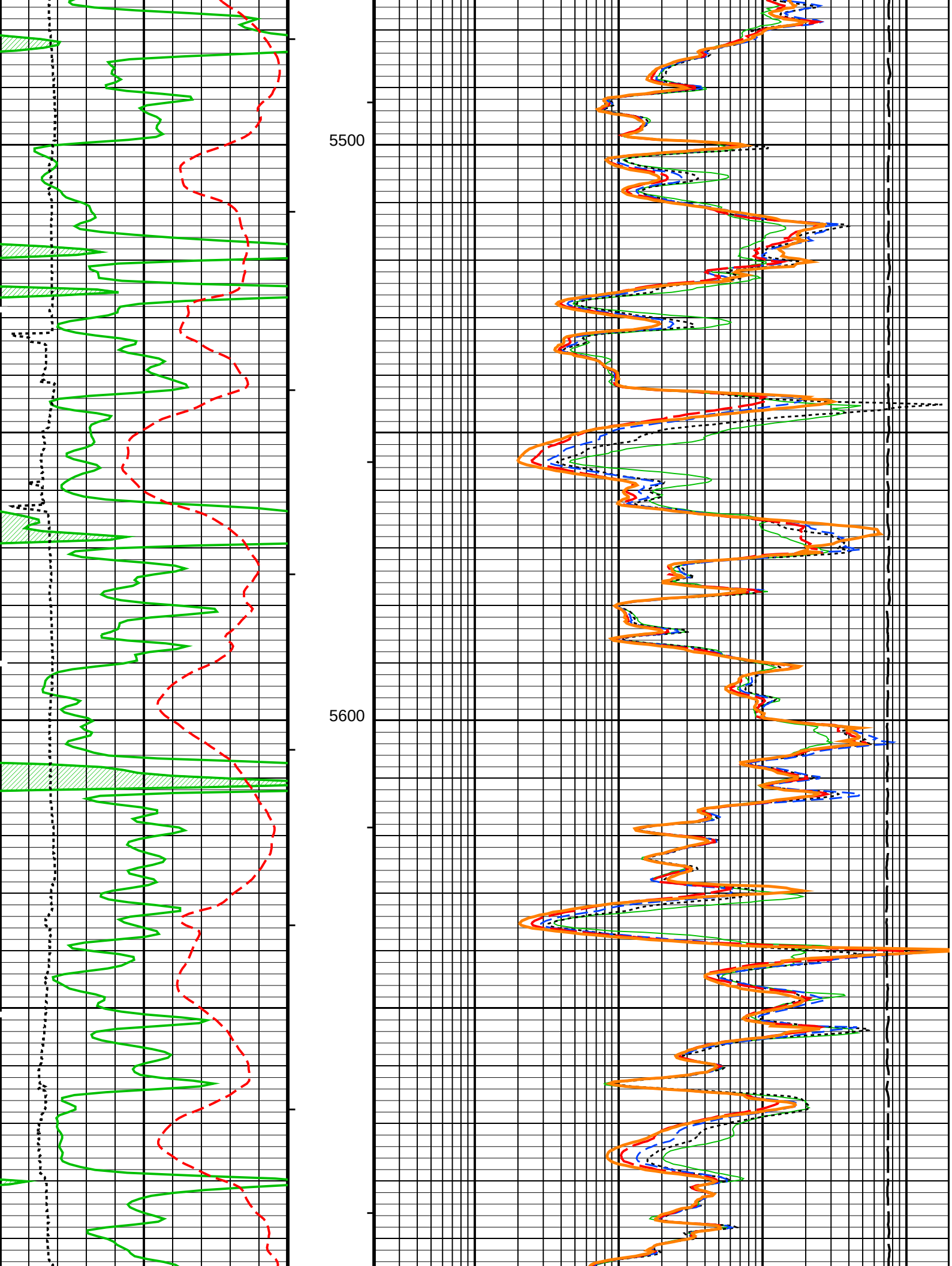
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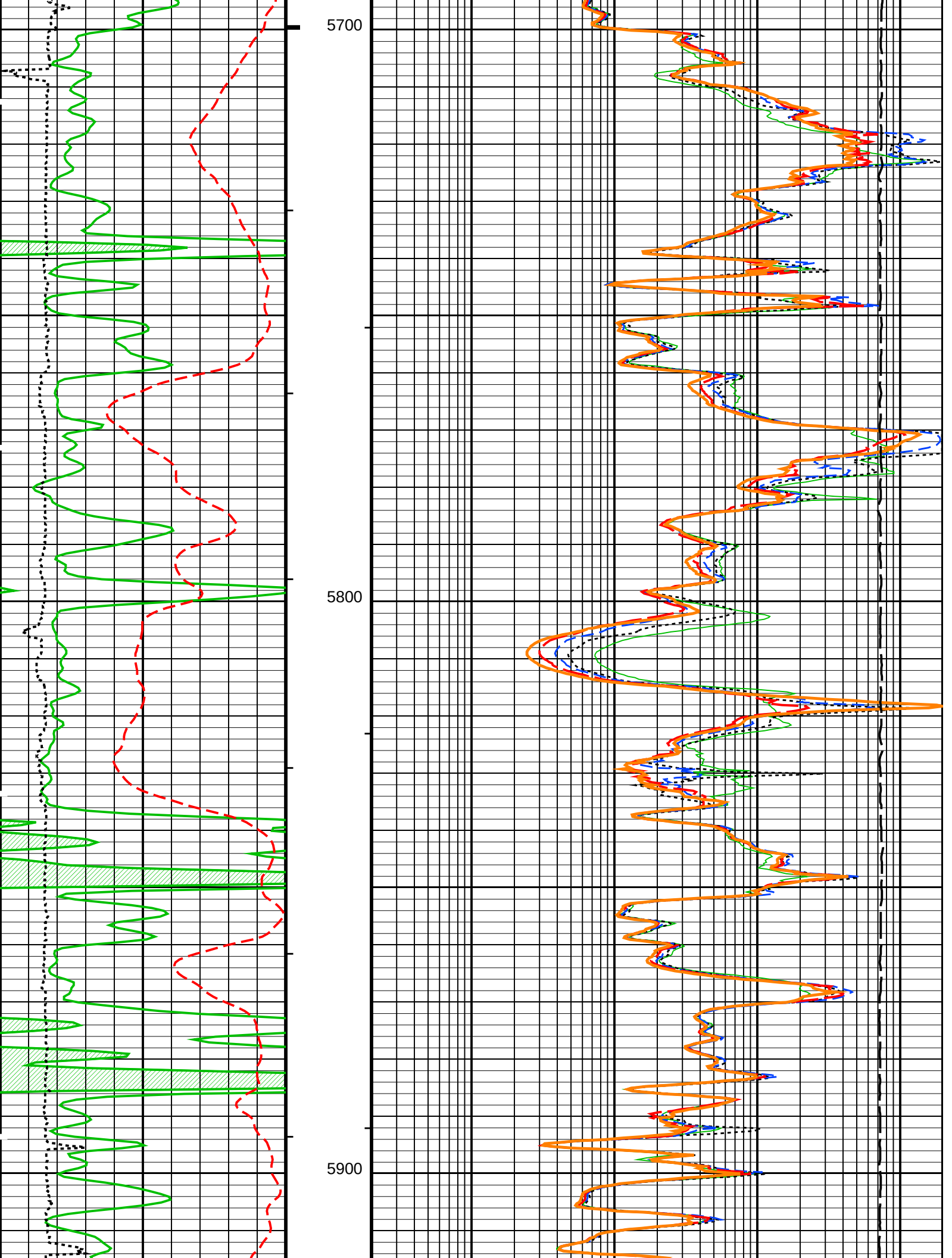
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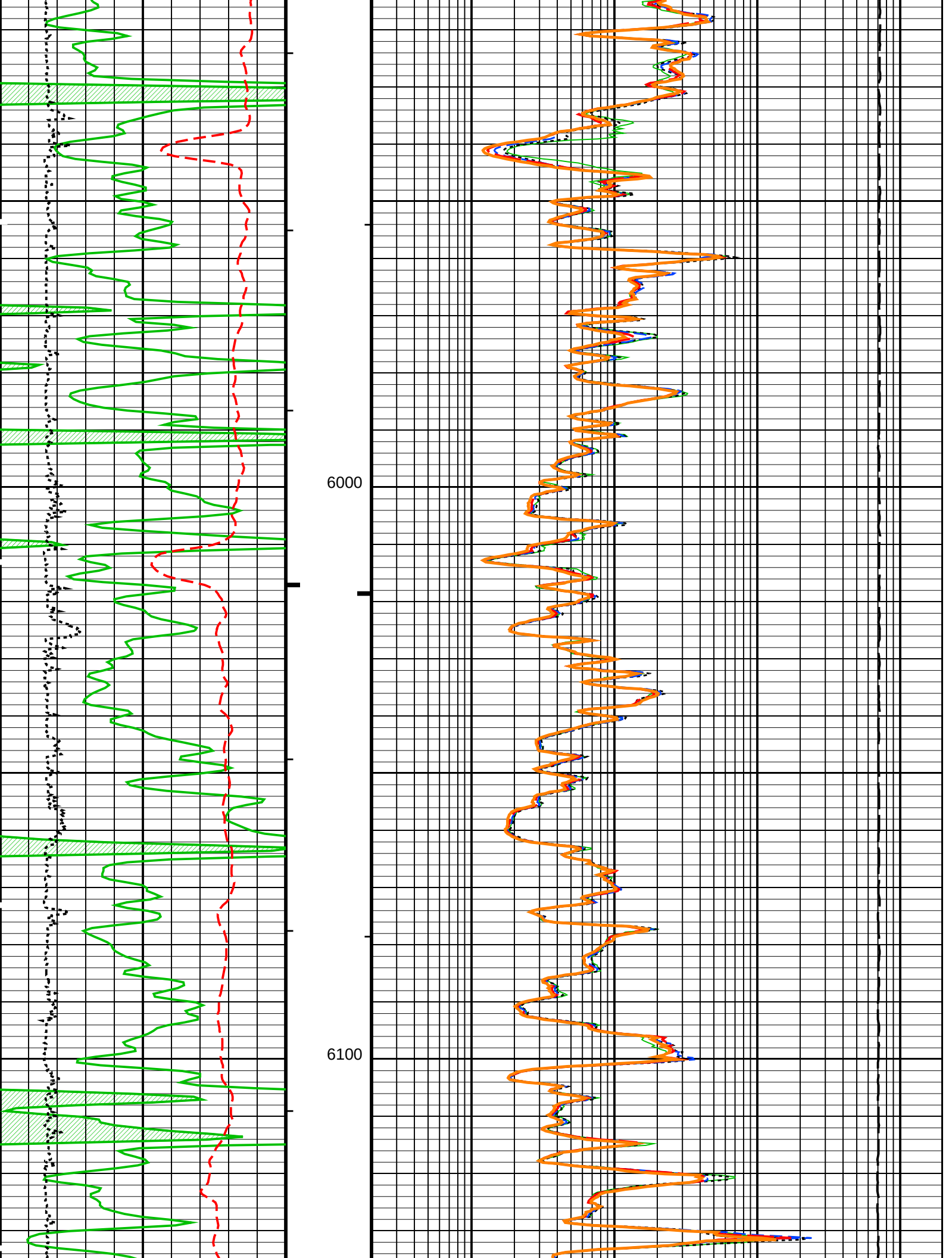
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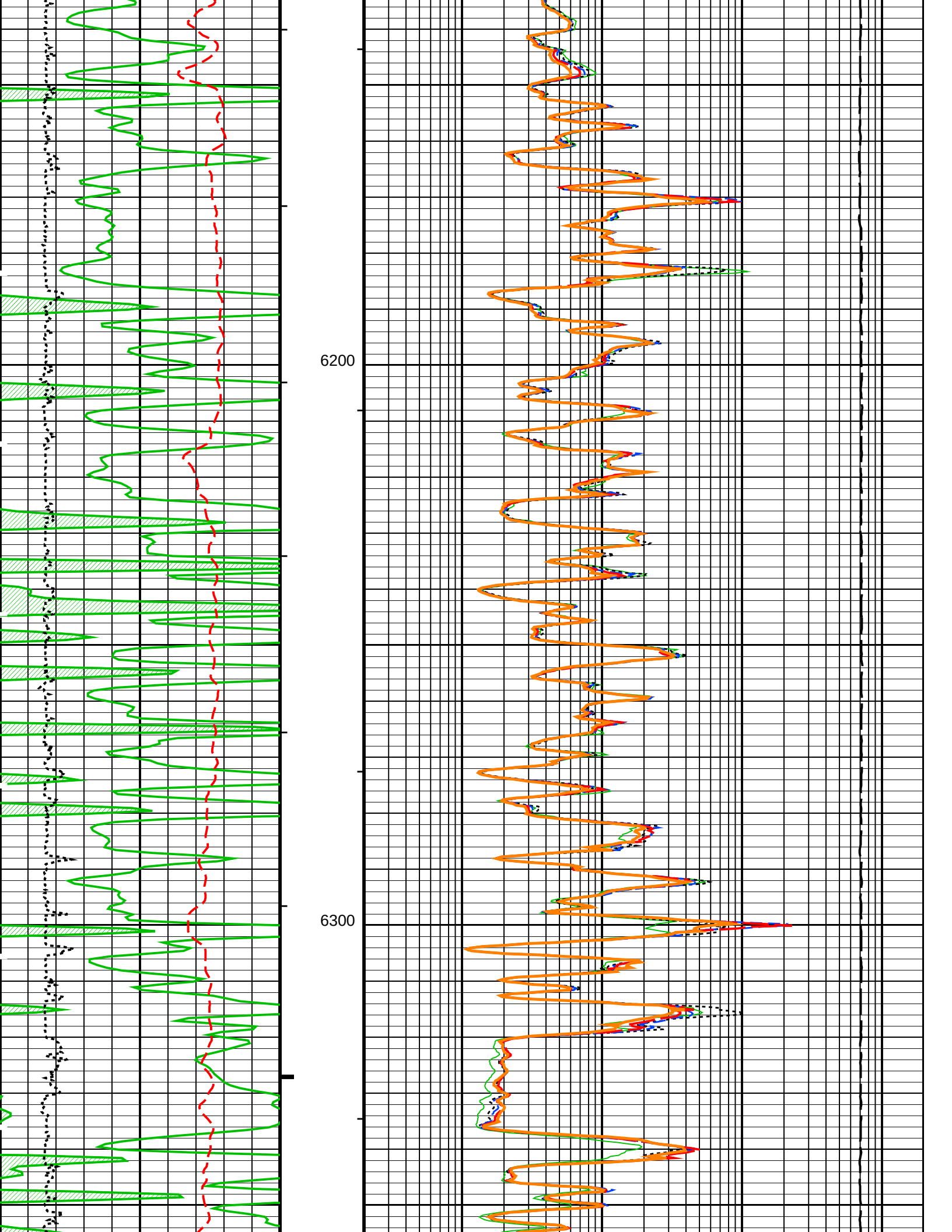
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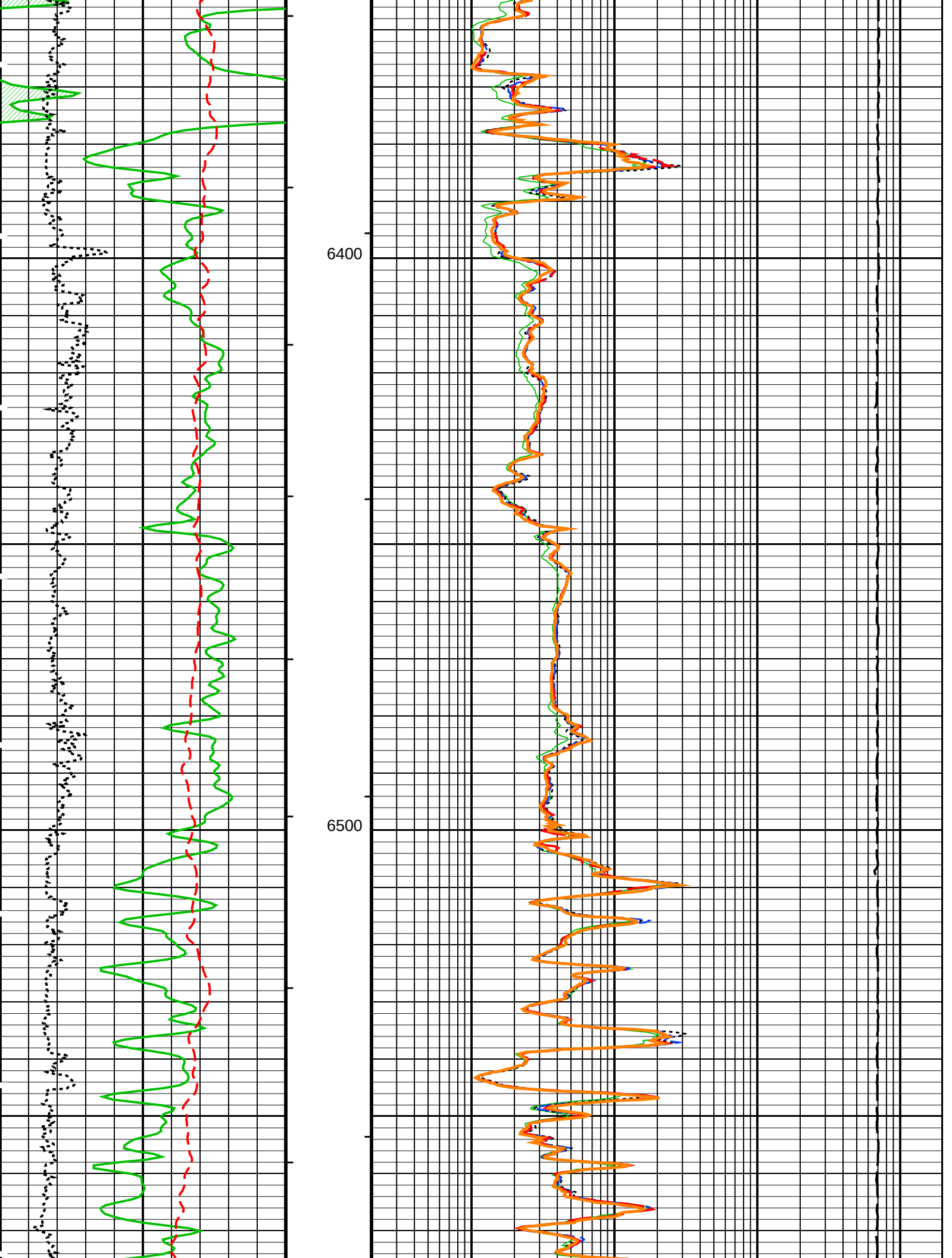
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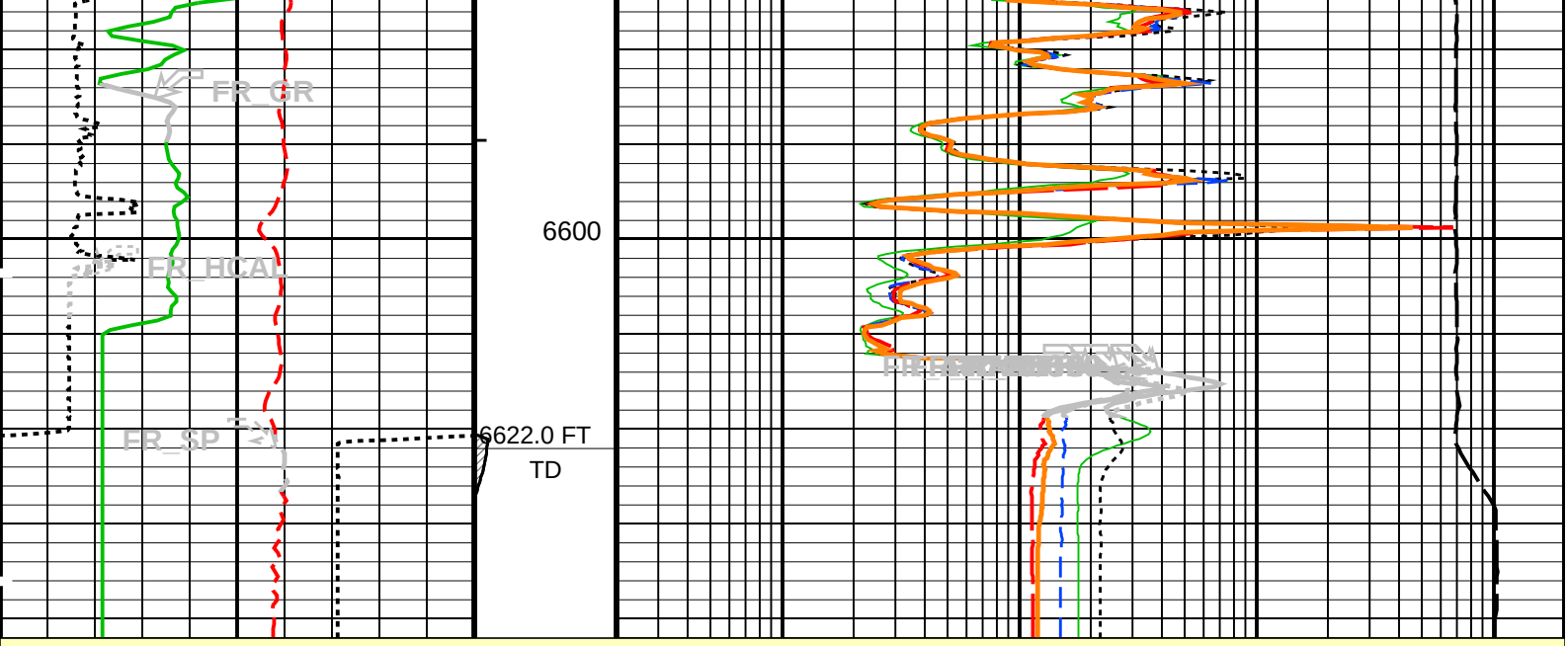

MAIN PASS: * PLATFORM EXPRESS − ARRAY INDUCTION ***

Gamma Ray Backup	Cable Drag	AIT−H 10 Inch Investigation (AHT10) 0.2 (OHMM) 2000
Gamma Ray (GR) 0 (GAPI) 200	Tool/Tot. Drag	AIT−H 20 Inch Investigation (AHT20) 0.2 (OHMM) 2000
Caliper (HCAL) 6 (IN) 16	Stuck Stretch (STIT) 0 (F) 50	AIT−H 30 Inch Investigation (AHT30) 0.2 (OHMM) 2000
SP (AHSCA) −160 (MV) 40		AIT−H 60 Inch Investigation (AHT60) 0.2 (OHMM) 2000
		AIT−H 90 Inch Investigation (AHT90) 0.2 (OHMM) 2000
		Tension (TENS) 10000 (LBF) 0

PIP SUMMARY

- Integrated Hole Volume Minor Pip Every 10 F3
- Integrated Hole Volume Major Pip Every 100 F3
- Integrated Cement Volume Minor Pip Every 10 F3
- Integrated Cement Volume Major Pip Every 100 F3
- Time Mark Every 60 S

AIT−H Answer Product Processing Summary. Data taken with Tool # 216 (AHTNO)

...Acquired data from HILT/HAIT

***** Borehole Correction *****

Effective Tool Standoff computed. Borehole diameter and mud res. taken as input (see GCSE and GRSE parameters)

Tool is run in ECCENTERED mode with a tool stand−off of 0.13 IN. Bit Size is 7.88 IN.

***** Input Selections to AIT−H Answer Product Processing *****

Caliper (GCSE): HCAL Mud Resistivity (GRSE): AHMF Temperature (GTSE): HTEM Porosity (FPHI): DPHZ

***** Other Parameters used by AIT−H Answer Product Processing *****

Form Factor Exponent (FEXP)	2.000	Form Factor Numerator (FNUM)	1.000
Mud Filtrate Sample Resistivity (RMFS)	1.342 OHMM	Mud Filtrate Sample Temperature (MFST)	131.360 DEGF
Resitivity Connate Water (RW)	1.000 OHMM		

***** AIT−H Answer Product Processing Control Parameters *****

(AHAPL): 3_BholeCorr_BasicLogs_Radial_Processing

(AHBHM): 2_ComputeStandoff (AHBLM): 6_One_Two_and_Four (AHRPM): 6_One_Two_and_Four

Parameters

DLIS Name	Description	Value	
	HILTB−CTS: High resolution Integrated Logging Tool−CTS		
AHBHM	Array Induction Borehole Correction Mode	2_ComputeStandoff	
AHBHV	Array Induction Borehole Correction Code Version Number	900	
AHBLM	Array Induction Basic Logs Mode	6_One_Two_and_Four	
AHBLV	Array Induction Basic Logs Code Version Number	223	
AHCDE	Array Induction Casing Detection Enable	Yes	
AHCEN	Array Induction Tool Centering Flag (in Borehole)	Eccentered	
AHFRSV	Array Induction Response Set Version for Four ft Resolution	41.70.24.20	
AHMRF	Array Induction Mud Resistivity Factor	1	
AHORSV	Array Induction Response Set Version for One ft Resolution	41.70.24.20	
AHRFV	Array Induction Radial Profiling Code Version Number	701	
AHRPV	Array Induction Radial Parametrization Code Version Number	232	
AHSTA	Array Induction Tool Standoff	0.125	IN
AHTRSV	Array Induction Response Set Version for Two ft Resolution	41.70.24.20	
BHT	Bottom Hole Temperature (used in calculations)	159.6	DEGF
FEXP	Form Factor Exponent	2	
FNUM	Form Factor Numerator	1	
GCSE	Generalized Caliper Selection	HCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	AITH_RESIST	
GTSE	Generalized Temperature Selection	HSTS_HTEM	
SHT	Surface Hole Temperature	68	DEGF
	STI: Stuck Tool Indicator		
LBFR	Trigger for MAXIS First Reading Label	TDL	
STKT	STI Stuck Threshold	2.5	FT
TDD	Total Depth − Driller	6623.00	FT
TDL	Total Depth − Logger	6622.00	FT
	PERT: Preliminary Evaluation − Real Time		
BHT	Bottom Hole Temperature (used in calculations)	159.6	DEGF
FEXP	Form Factor Exponent	2	
FNUM	Form Factor Numerator	1	
GCSE	Generalized Caliper Selection	HCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	AITH_RESIST	
GTSE	Generalized Temperature Selection	HSTS_HTEM	
SHT	Surface Hole Temperature	68	DEGF
	HOLEV: Integrated Hole/Cement Volume		
BHT	Bottom Hole Temperature (used in calculations)	159.6	DEGF
FCD	Future Casing (Outer) Diameter	5.5	IN
GCSE	Generalized Caliper Selection	HCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	AITH_RESIST	
GTSE	Generalized Temperature Selection	HSTS_HTEM	
HVCS	Integrated Hole Volume Caliper Selection	AUTOMATIC	
SHT	Surface Hole Temperature	68	DEGF
	FEQL: Formation Evaluation Quick Look		
FEXP	Form Factor Exponent	2	
FNUM	Form Factor Numerator	1	
	System and Miscellaneous		
BS	Bit Size	7.875	IN
DFD	Drilling Fluid Density	9.20	LB/G
DORL	Depth Offset for Repeat Analysis	0.0	FT
FLEV	Fluid Level	25.00	FT
MST	Mud Sample Temperature	131.36	DEGF
TD	Total Depth	6622	FT

Format: GRES **Vertical Scale: 5" per 100'** **Graphics File Created: 03−Apr−2011 03:18**

OP System Version: 18C0−147

HILTB−CTS **18C0−147**

Output DLIS Files

DEFAULT **AIT_TLD_MCFL_CNL_007LUP** **FN:6** **PRODUCER** **03−Apr−2011 03:18**

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REPEAT ANALYSIS

Input DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_006PUP	FN:5	PRODUCER	03−Apr−2011 03:16	6640.5 FT	6036.5 FT

Output DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_007LUP	FN:6	PRODUCER	03−Apr−2011 03:18		

OP System Version: 18C0−147

HILTB−CTS	18C0−147

PIP SUMMARY

- Integrated Hole Volume Minor Pip Every 10 F3
- Integrated Hole Volume Major Pip Every 100 F3
- Integrated Cement Volume Minor Pip Every 10 F3
- Integrated Cement Volume Major Pip Every 100 F3
- Time Mark Every 60 S

TENS_REP Curve (TENS_REP)
10000 (LBF) 0

AHT90_REP Curve (AHT90_REP)
0.2 (OHMM) 2000

SP_REP Curve (AHSCA)
−160 (MV) 40

AHT60_REP Curve (AHT60_REP)
0.2 (OHMM) 2000

HCAL_REP Curve (HCAL_REP)
6 (IN) 16

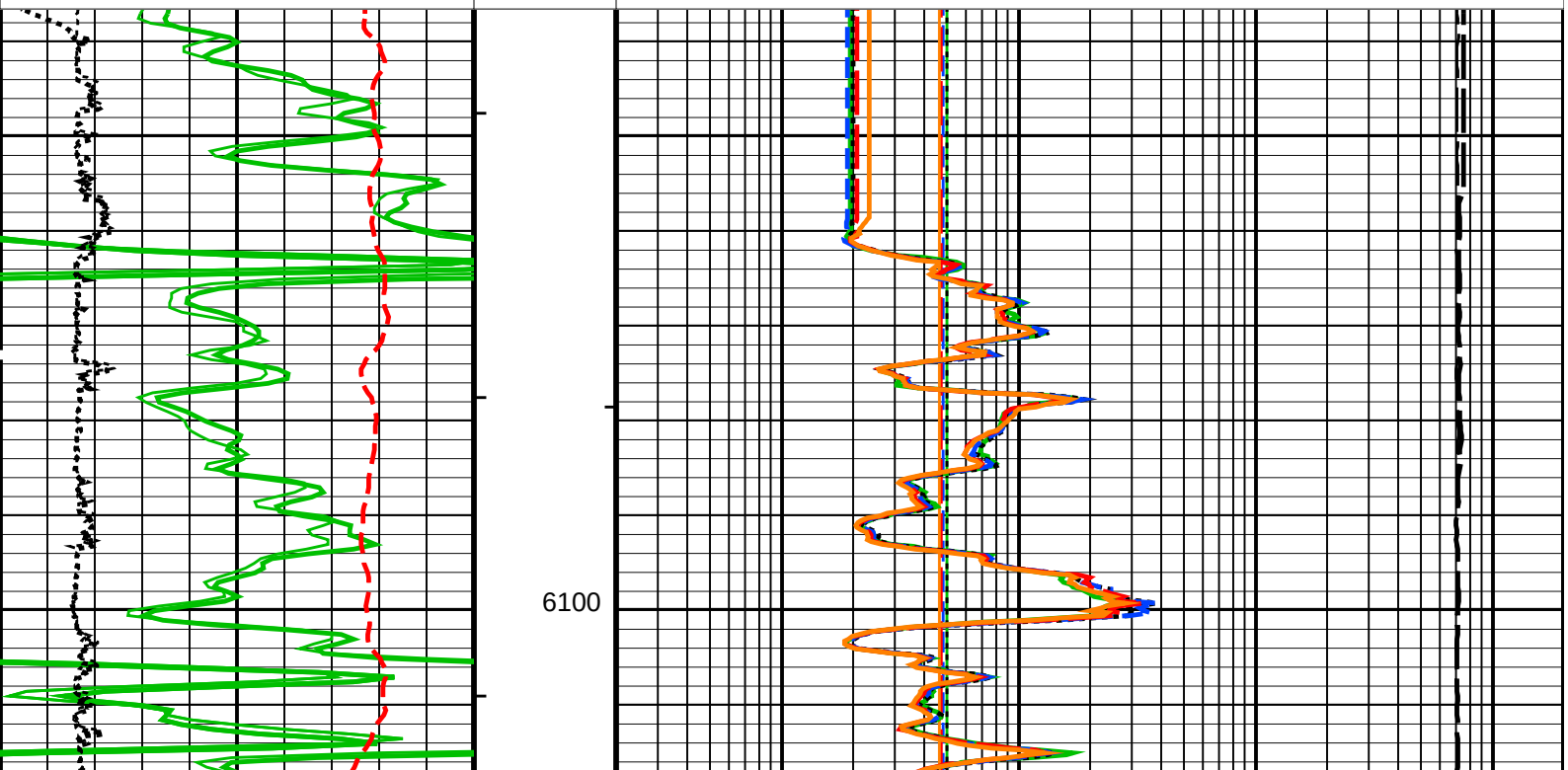
AHT30_REP Curve (AHT30_REP)
0.2 (OHMM) 2000

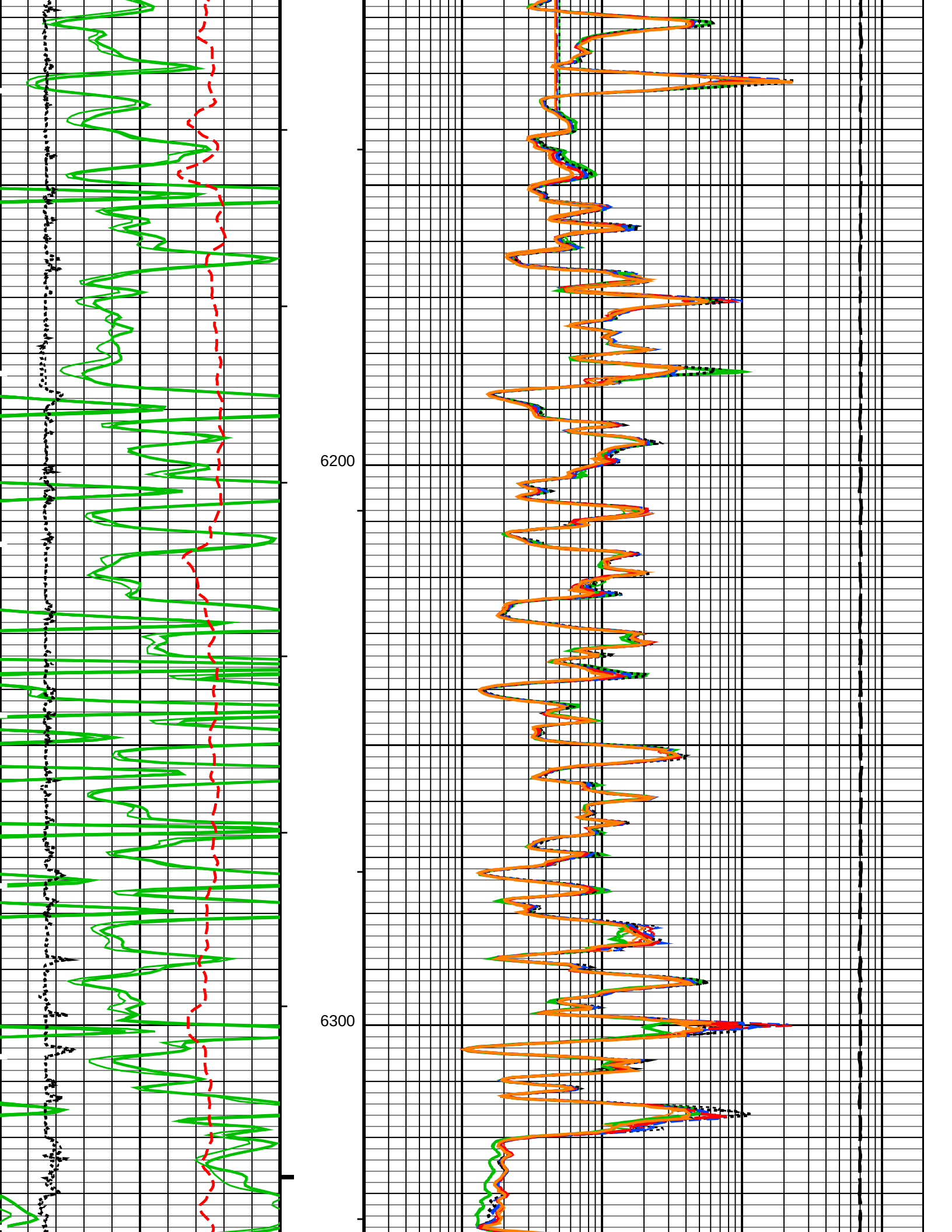
GR1_REP Curve (GR_REP)
200 (GAPI) 400

AHT20_REP Curve (AHT20_REP)
0.2 (OHMM) 2000

GR_REP Curve (GR_REP)
0 (GAPI) 200

AHT10_REP Curve (AHT10_REP)
0.2 (OHMM) 2000

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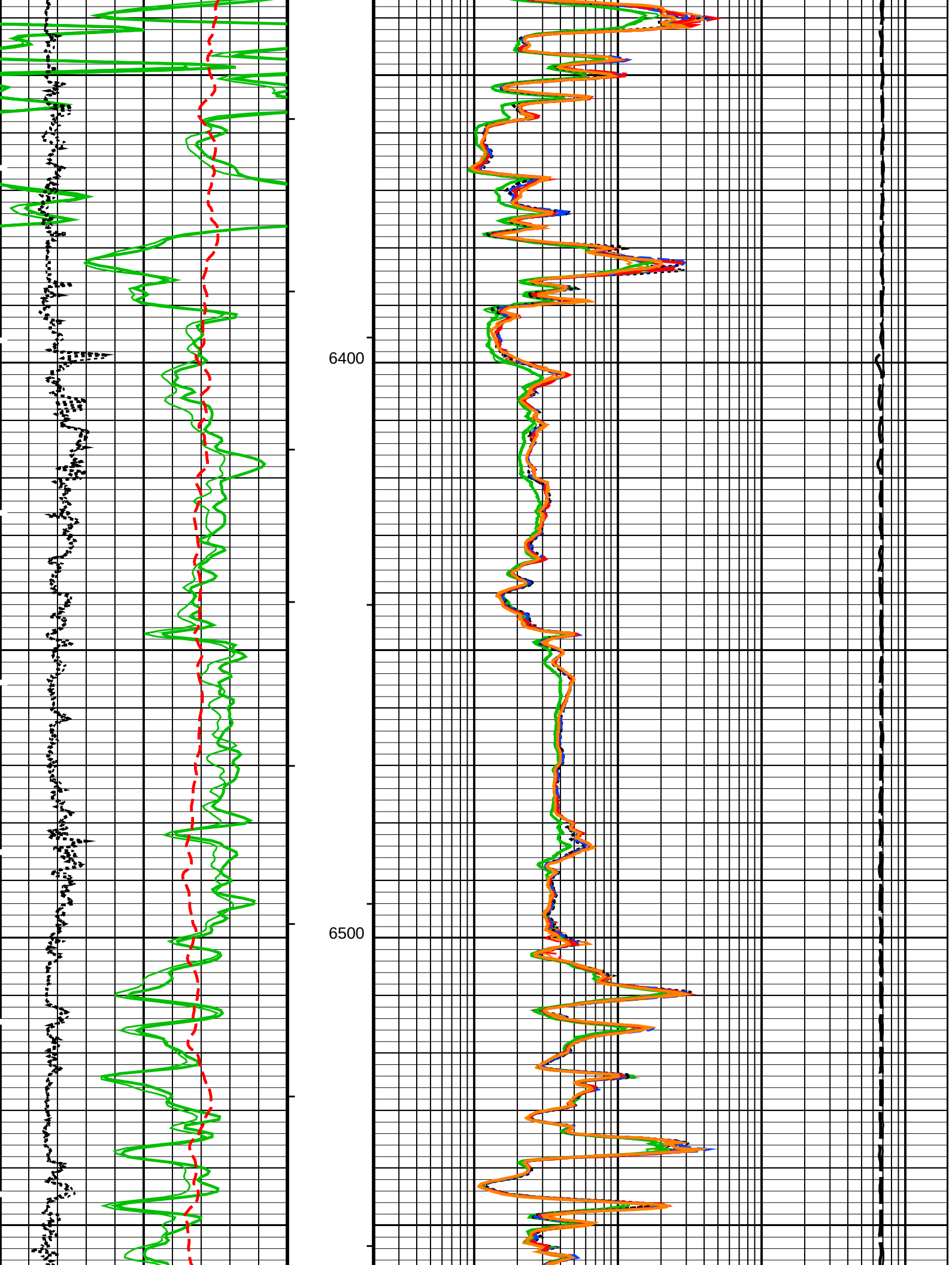
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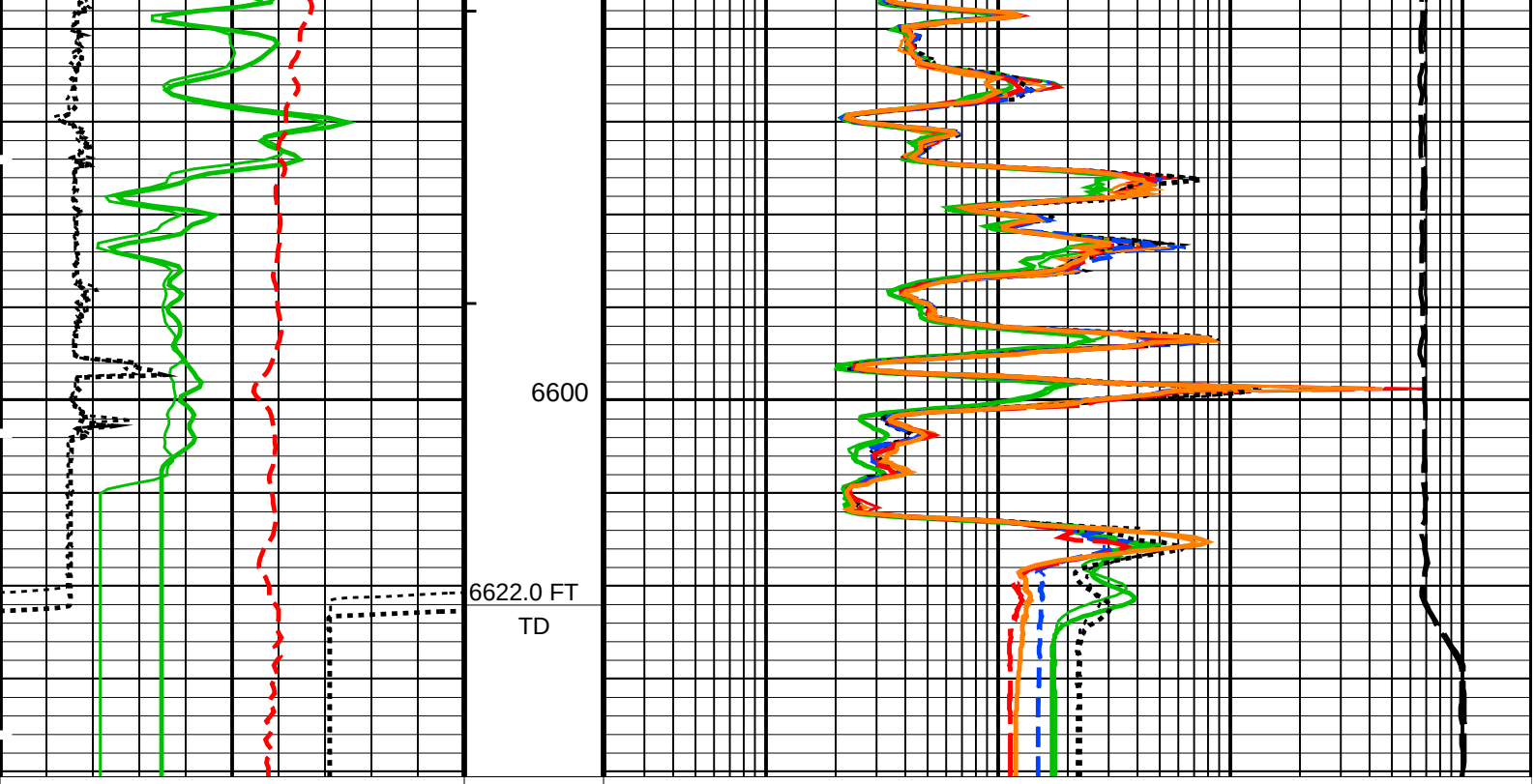

GR_REP Curve (GR_REP)
0 (GAPI) 200

GR1_REP Curve (GR_REP)
200 (GAPI) 400

HCAL_REP Curve (HCAL_REP)
6 (IN) 16

SP_REP Curve (AHSCA)
−160 (MV) 40

AHT10_REP Curve (AHT10_REP)
0.2 (OHMM) 2000

AHT20_REP Curve (AHT20_REP)
0.2 (OHMM) 2000

AHT30_REP Curve (AHT30_REP)
0.2 (OHMM) 2000

AHT60_REP Curve (AHT60_REP)
0.2 (OHMM) 2000

AHT90_REP Curve (AHT90_REP)
0.2 (OHMM) 2000

TENS_REP Curve (TENS_REP)
10000 (LBF) 0

PIP SUMMARY

Integrated Hole Volume Minor Pip Every 10 F3
Integrated Hole Volume Major Pip Every 100 F3
Integrated Cement Volume Minor Pip Every 10 F3
Integrated Cement Volume Major Pip Every 100 F3
Time Mark Every 60 S

AIT−H Answer Product Processing Summary. Data taken with Tool # 216 (AHTNO)
...Acquired data from HILT/HAIT
***** Borehole Correction *****
Effective Tool Standoff computed. Borehole diameter and mud res. taken as input (see GCSE and GRSE parameters)
Tool is run in ECCENTERED mode with a tool stand−off of 0.13 IN. Bit Size is 7.88 IN.
***** Input Selections to AIT−H Answer Product Processing *****
Caliper (GCSE): HCAL Mud Resistivity (GRSE): AHMF Temperature (GTSE): HTEM Porosity (FPHI): DPHZ
***** Other Parameters used by AIT−H Answer Product Processing *****

Form Factor Exponent (FEXP)	2.000	Form Factor Numerator (FNUM)	1.000
Mud Filtrate Sample Resistivity (RMFS)	1.342 OHMM	Mud Filtrate Sample Temperature (MFST)	131.360 DEGF
Resitivity Connate Water (RW)	1.000 OHMM		

***** AIT−H Answer Product Processing Control Parameters *****
Playback Mode: NORMAL

Parameters

DLIS Name	Description	Value	
	HILTB−CTS: High resolution Integrated Logging Tool−CTS		
AHBHM	Array Induction Borehole Correction Mode	2_ComputeStandoff	
AHBHV	Array Induction Borehole Correction Code Version Number	900	
AHBLM	Array Induction Basic Logs Mode	6_One_Two_and_Four	
AHBLV	Array Induction Basic Logs Code Version Number	223	
AHCDE	Array Induction Casing Detection Enable	Yes	
AHCEN	Array Induction Tool Centering Flag (in Borehole)	Eccentered	
AHFRSV	Array Induction Response Set Version for Four ft Resolution	41.70.24.20	
AHMRF	Array Induction Mud Resistivity Factor	1	
AHORSV	Array Induction Response Set Version for One ft Resolution	41.70.24.20	
AHRFV	Array Induction Radial Profiling Code Version Number	701	
AHRPV	Array Induction Radial Parametrization Code Version Number	232	
AHSTA	Array Induction Tool Standoff	0.125	IN
AHTRSV	Array Induction Response Set Version for Two ft Resolution	41.70.24.20	
BHT	Bottom Hole Temperature (used in calculations)	159.6	DEGF
FEXP	Form Factor Exponent	2	
FNUM	Form Factor Numerator	1	
GCSE	Generalized Caliper Selection	HCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	AITH_RESIST	
GTSE	Generalized Temperature Selection	HSTS_HTEM	
SHT	Surface Hole Temperature	68	DEGF
	PERT: Preliminary Evaluation − Real Time		
BHT	Bottom Hole Temperature (used in calculations)	159.6	DEGF
FEXP	Form Factor Exponent	2	
FNUM	Form Factor Numerator	1	
GCSE	Generalized Caliper Selection	HCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	AITH_RESIST	
GTSE	Generalized Temperature Selection	HSTS_HTEM	
SHT	Surface Hole Temperature	68	DEGF
	HOLEV: Integrated Hole/Cement Volume		
BHT	Bottom Hole Temperature (used in calculations)	159.6	DEGF
FCD	Future Casing (Outer) Diameter	5.5	IN
GCSE	Generalized Caliper Selection	HCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	AITH_RESIST	
GTSE	Generalized Temperature Selection	HSTS_HTEM	
HVCS	Integrated Hole Volume Caliper Selection	AUTOMATIC	
SHT	Surface Hole Temperature	68	DEGF
	FEQL: Formation Evaluation Quick Look		
FEXP	Form Factor Exponent	2	
FNUM	Form Factor Numerator	1	
	System and Miscellaneous		
BS	Bit Size	7.875	IN
DFD	Drilling Fluid Density	9.20	LB/G
DORL	Depth Offset for Repeat Analysis	0.0	FT
FLEV	Fluid Level	25.00	FT
MST	Mud Sample Temperature	131.36	DEGF
TD	Total Depth	6622	FT

Format: GRES_REP Vertical Scale: 5" per 100' Graphics File Created: 03−Apr−2011 03:18

OP System Version: 18C0−147

HILTB−CTS	18C0−147

Input DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_006PUP	FN:5	PRODUCER	03−Apr−2011 03:16	6640.5 FT	6036.5 FT

Output DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_007LUP	FN:6	PRODUCER	03−Apr−2011 03:18

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BEFORE CALIBRATIONS

Calibration and Check Summary

Measurement	Nominal	Master	Before	After	Change	Limit	Units
High resolution Integrated Logging Tool−CTS Wellsite Calibration − Electronics Calibration Check − Thru Cal Mag. & Phase							
Master: 19−Jan−2011 13:04 Before: 2−Apr−2011 20:19							
Thru Cal Magnitude − 0	0	0.6296	0.6289	N/A	N/A	N/A	V
Thru Cal Magnitude − 1	0	1.290	1.289	N/A	N/A	N/A	V
Thru Cal Magnitude − 2	0	0.6393	0.6391	N/A	N/A	N/A	V
Thru Cal Magnitude − 3	0	0.7227	0.7221	N/A	N/A	N/A	V
Thru Cal Magnitude − 4	0	1.359	1.358	N/A	N/A	N/A	V
Thru Cal Magnitude − 5	0	1.973	1.970	N/A	N/A	N/A	V
Thru Cal Magnitude − 6	0	1.972	1.970	N/A	N/A	N/A	V
Thru Cal Magnitude − 7	0	1.411	1.408	N/A	N/A	N/A	V
Phase − 0	0	51.97	51.63	N/A	N/A	N/A	DEG
Phase − 1	0	50.95	50.60	N/A	N/A	N/A	DEG
Phase − 2	0	47.20	46.83	N/A	N/A	N/A	DEG
Phase − 3	0	46.41	46.04	N/A	N/A	N/A	DEG
Phase − 4	0	40.06	39.65	N/A	N/A	N/A	DEG
Phase − 5	0	38.17	37.74	N/A	N/A	N/A	DEG
Phase − 6	0	38.16	37.73	N/A	N/A	N/A	DEG
Phase − 7	0	34.45	33.82	N/A	N/A	N/A	DEG
High resolution Integrated Logging Tool−CTS Wellsite Calibration − Electronics Calibration Check − Auxilliary							
Master: 19−Jan−2011 13:04 Before: 2−Apr−2011 20:19							
Array Induction SPA Plus	990.5	993.8	993.4	N/A	N/A	N/A	MV
Array Induction SPA Zero	0	−0.05445	−0.04840	N/A	N/A	N/A	MV
Array Induction Temperature Pl	0.9150	0.9219	0.9216	N/A	N/A	N/A	V
Array Induction Temperature Ze	0	−0.00005082	−0.00004719	N/A	N/A	N/A	V
High resolution Integrated Logging Tool−CTS Wellsite Calibration − Test Loop Gain Correction							
Master: 19−Jan−2011 13:04							
Test Loop Gain Magnitude − 0	0	1.008	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude − 1	0	1.010	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude − 2	0	1.010	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude − 3	0	1.010	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude − 4	0	0.9926	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude − 5	0	0.9849	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude − 6	0	0.9857	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude − 7	0	0.9991	N/A	N/A	N/A	N/A	V
Phase − 0	0	−0.6562	N/A	N/A	N/A	N/A	DEG
Phase − 1	0	0.9957	N/A	N/A	N/A	N/A	DEG
Phase − 2	0	−0.03108	N/A	N/A	N/A	N/A	DEG
Phase − 3	0	−0.01144	N/A	N/A	N/A	N/A	DEG
Phase − 4	0	−0.2043	N/A	N/A	N/A	N/A	DEG
Phase − 5	0	−0.1739	N/A	N/A	N/A	N/A	DEG
Phase − 6	0	1.290	N/A	N/A	N/A	N/A	DEG
Phase − 7	0	−0.1598	N/A	N/A	N/A	N/A	DEG
High resolution Integrated Logging Tool−CTS Wellsite Calibration − Sonde Error Correction							
Master: 19−Jan−2011 13:04							
R Sonde Error Correction − 0	0	−93.49	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction − 1	0	167.9	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction − 2	0	115.7	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction − 3	0	59.53	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction − 4	0	27.36	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction − 5	0	14.17	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction − 6	0	10.80	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction − 7	0	−1.341	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction − 0	0	−229.8	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction − 1	0	8.961	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction − 2	0	−193.6	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction − 3	0	−81.11	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction − 4	0	−13.84	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction − 5	0	−14.82	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction − 6	0	−5.303	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction − 7	0	2.499	N/A	N/A	N/A	N/A	MM/M
High resolution Integrated Logging Tool−CTS Wellsite Calibration − Mud Gain Correction							

High resolution Integrated Logging Tool−CTS Wellsite Calibration − Mud Cake Correction
Master: 19−Jan−2011 13:04

Coarse − Mag, Real, Imag − 0	0	0.8308	N/A	N/A	N/A	N/A	
Coarse − Mag, Real, Imag − 1	0	0.8308	N/A	N/A	N/A	N/A	
Coarse − Mag, Real, Imag − 2	0	0.8308	N/A	N/A	N/A	N/A	
Fine − Mag, Real, Imag − 0	0	0.8306	N/A	N/A	N/A	N/A	
Fine − Mag, Real, Imag − 1	0	0.8306	N/A	N/A	N/A	N/A	
Fine − Mag, Real, Imag − 2	0	0.8306	N/A	N/A	N/A	N/A	

High resolution Integrated Logging Tool−CTS Wellsite Calibration − Stab Measurement Summary
Before: 2−Apr−2011 20:15

BS Window Ratio	0.7424	N/A	0.7438	N/A	N/A	N/A	
BS Window Sum	10030	N/A	10020	N/A	N/A	N/A	CPS
SS Window Ratio	0.4767	N/A	0.4782	N/A	N/A	N/A	
SS Window Sum	10210	N/A	10200	N/A	N/A	N/A	CPS
LS Window Ratio	0.2975	N/A	0.2939	N/A	N/A	N/A	
LS Window Sum	1105	N/A	1099	N/A	N/A	N/A	CPS

High resolution Integrated Logging Tool−CTS Wellsite Calibration − Photo−multiplier High Voltages Calibrations
Before: 2−Apr−2011 20:15

BS PM High Voltage (Command)	1511	N/A	1534	N/A	N/A	N/A	V
SS PM High Voltage (Command)	1653	N/A	1652	N/A	N/A	N/A	V
LS PM High Voltage (Command)	1551	N/A	1566	N/A	N/A	N/A	V

High resolution Integrated Logging Tool−CTS Wellsite Calibration − Crystal Quality Resolutions Calibration
Before: 2−Apr−2011 20:15

BS Crystal Resolution	11.52	N/A	11.56	N/A	N/A	N/A	%
SS Crystal Resolution	10.46	N/A	10.48	N/A	N/A	N/A	%
LS Crystal Resolution	9.578	N/A	9.263	N/A	N/A	N/A	%

High resolution Integrated Logging Tool−CTS Wellsite Calibration − MCFL Calibration
Before: 2−Apr−2011 20:18

Raw B0 Resistivity	3875	N/A	3834	N/A	N/A	N/A	OHMM
Raw B1 Resistivity	3830	N/A	3792	N/A	N/A	N/A	OHMM
Raw B2 Resistivity	3830	N/A	3797	N/A	N/A	N/A	OHMM

High resolution Integrated Logging Tool−CTS Wellsite Calibration − HILT Caliper Calibration
Before: 2−Apr−2011 20:12

HILT Caliper Zero Measurement	8.000	N/A	8.124	N/A	N/A	N/A	IN
HILT Caliper Plus Measurement	12.00	N/A	12.25	N/A	N/A	N/A	IN

High resolution Integrated Logging Tool−CTS Wellsite Calibration − Detector Calibration
Before: 2−Apr−2011 20:17

Gamma Ray Background	30.00	N/A	72.34	N/A	N/A	N/A	GAPI
Gamma Ray (Jig − Bkgd)	165.0	N/A	166.5	N/A	N/A	15.00	GAPI

High resolution Integrated Logging Tool−CTS Wellsite Calibration − Zero Measurement
Master: 31−Jan−2011 13:40 Before: 2−Apr−2011 20:13

CNTC Background	25.85	25.85	26.70	N/A	N/A	3.878	CPS
CFTC Background	27.22	27.22	26.65	N/A	N/A	4.083	CPS

High resolution Integrated Logging Tool−CTS Wellsite Calibration − Ratio Measurement
Master: 31−Jan−2011 13:40

Thermal Near Corr. (Tank)	5800	5290	N/A	N/A	N/A	N/A	CPS
Thermal Far Corr. (Tank)	2400	2218	N/A	N/A	N/A	N/A	CPS
CNTC/CFTC (Tank)	2.159	2.385	N/A	N/A	N/A	N/A	

High resolution Integrated Logging Tool−CTS Wellsite Calibration − Accelerometer Calibration
Before: 3−Apr−2011 2:31

Z−Axis Acceleration	32.19	N/A	32.24	N/A	N/A	N/A	F/S2

The GLS−VJ source activity is acceptable.

The HGNS Neutron Master Calibration was done with the following parameters :

NCT−B Water Temperature 42.0 DEGF.
Thermal Housing Size 3.369 IN.
NSR−F serial number 5168

High resolution Integrated Logging Tool−CTS / Equipment Identification

Primary Equipment:

Array Induction Tool − H	AIT − H
Rm/SP Bottom Nose	AHRM − A
Array Induction Sonde	AHIS − BA 216

Array Induction Sonde	AHIS − BA	216
HILT high−Resolution Mechanical Sonde	HRMS − B	
HILT Rxo Gamma−ray Device	HRGD − B	
HILT Micro Cylindrically Focused Log Dev	MCFL −	
GR Logging Source	GLS − VJ	5363
HILT High Res. Control Cartridge	HRCC − B	

Auxiliary Equipment:

High resolution Integrated Logging Tool−CTS Wellsite Calibration

Electronics Calibration Check − Thru Cal Mag. & Phase

Idx	Phase	Value	Thru Cal Magnitude V	Nominal	Value	Phase DEG	Nominal
0	Master	0.6296		0.6050	51.97		71.00
	Before	0.6289			51.63		
1	Master	1.290		1.270	50.95		70.00
	Before	1.289			50.60		
2	Master	0.6393		0.6230	47.20		66.00
	Before	0.6391			46.83		
3	Master	0.7227		0.7040	46.41		65.00
	Before	0.7221			46.04		
4	Master	1.359		1.337	40.06		59.00
	Before	1.358			39.65		
5	Master	1.973		1.955	38.17		57.00
	Before	1.970			37.74		
6	Master	1.972		1.955	38.16		57.00
	Before	1.970			37.73		
7	Master	1.411		**1.415**	34.45		**53.00**
	Before	1.408			33.82		
		60.00 % (Minimum)	140.0 % (Maximum) (Nominal)		Nom −60.00 (Minimum)	Nom + 60.00 (Maximum) (Nominal)	

Master: 19−Jan−2011 13:04 Before: 2−Apr−2011 20:19

High resolution Integrated Logging Tool−CTS Wellsite Calibration

Electronics Calibration Check − Auxilliary

Phase	Array Induction SPA Plus MV	Value
Master		993.8
Before		993.4
	941.0 (Minimum) 990.5 (Nominal) 1040 (Maximum)	

Phase	Array Induction SPA Zero MV	Value
Master		−0.05445
Before		−0.04840
	−50.00 (Minimum) 0 (Nominal) 50.00 (Maximum)	

Phase	Array Induction Temperature Plus V	Value
Master		0.9219
Before		0.9216
	0.8700 (Minimum) 0.9150 (Nominal) 0.9600 (Maximum)	

Phase	Array Induction Temperature Zero V	Value
Master		−5.082E−00
Before		−4.719E−00
	−0.05000 (Minimum) 0 (Nominal) 0.05000 (Maximum)	

Master: 19−Jan−2011 13:04 Before: 2−Apr−2011 20:19

High resolution Integrated Logging Tool−CTS Wellsite Calibration

Test Loop Gain Correction

Idx	Value	Test Loop Gain Magnitude V	Value	Phase DEG
0	1.008		−0.6562	
	0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum)		−3.000 (Minimum) 0 (Nominal) 3.000 (Maximum)	
1	1.010		0.9957	
	0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum)		−3.000 (Minimum) 0 (Nominal) 3.000 (Maximum)	
2	1.010		−0.03108	
	0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum)		−3.000 (Minimum) 0 (Nominal) 3.000 (Maximum)	

3	1.010				−0.01144			
	0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)		−3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)	
4	0.9926				−0.2043			
	0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)		−3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)	
5	0.9849				−0.1739			
	0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)		−3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)	
6	0.9857				1.290			
	0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)		−3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)	
7	0.9991				−0.1598			
	0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)		−3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)	

Master: 19−Jan−2011 13:04

High resolution Integrated Logging Tool−CTS Wellsite Calibration

Sonde Error Correction

Idx	Value	R Sonde Error Correction MM/M			Value	X Sonde Error Correction MM/M		
0	−93.49				−229.8			
	−231.0 (Minimum)	−56.00 (Nominal)	119.0 (Maximum)		−2250 (Minimum)	0 (Nominal)	2250 (Maximum)	
1	167.9				8.961			
	114.0 (Minimum)	159.0 (Nominal)	204.0 (Maximum)		−625.0 (Minimum)	0 (Nominal)	625.0 (Maximum)	
2	115.7				−193.6			
	66.00 (Minimum)	111.0 (Nominal)	156.0 (Maximum)		−350.0 (Minimum)	0 (Nominal)	350.0 (Maximum)	
3	59.53				−81.11			
	39.00 (Minimum)	64.00 (Nominal)	89.00 (Maximum)		−250.0 (Minimum)	0 (Nominal)	250.0 (Maximum)	
4	27.36				−13.84			
	15.00 (Minimum)	25.00 (Nominal)	35.00 (Maximum)		−63.00 (Minimum)	0 (Nominal)	63.00 (Maximum)	
5	14.17				−14.82			
	4.000 (Minimum)	14.00 (Nominal)	24.00 (Maximum)		−50.00 (Minimum)	0 (Nominal)	50.00 (Maximum)	
6	10.80				−5.303			
	5.000 (Minimum)	10.00 (Nominal)	15.00 (Maximum)		−30.00 (Minimum)	0 (Nominal)	30.00 (Maximum)	
7	−1.341				2.499			
	−5.000 (Minimum)	0 (Nominal)	5.000 (Maximum)		−30.00 (Minimum)	0 (Nominal)	30.00 (Maximum)	

Master: 19−Jan−2011 13:04

High resolution Integrated Logging Tool−CTS Wellsite Calibration

Mud Gain Correction

Idx	Value	Coarse − Mag, Real, Imag			Value	Fine − Mag, Real, Imag		
0	0.8308				0.8306			
	0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)		0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)	
1	0.8308				0.8306			
	0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)		0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)	
2	0.8308				0.8306			
	0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)		0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)	

Master: 19−Jan−2011 13:04

High resolution Integrated Logging Tool−CTS Wellsite Calibration

Stab Measurement Summary

Phase	BS Window Ratio			Value	Phase	SS Window Ratio			Value	Phase	LS Window Ratio			Value
Before				0.7438	Before				0.4782	Before				0.2939
0.7053 (Minimum)	0.7424 (Nominal)	0.7795 (Maximum)			0.4529 (Minimum)	0.4767 (Nominal)	0.5006 (Maximum)			0.2827 (Minimum)	0.2975 (Nominal)	0.3124 (Maximum)		

Phase	BS Window Sum CPS	Value
Before		10020
	9526 (Minimum) 10030 (Nominal) 10530 (Maximum)	

Phase	SS Window Sum CPS	Value
Before		10200
	9696 (Minimum) 10210 (Nominal) 10720 (Maximum)	

Phase	LS Window Sum CPS	Value
Before		1099
	1050 (Minimum) 1105 (Nominal) 1161 (Maximum)	

Before: 2−Apr−2011 20:15

High resolution Integrated Logging Tool−CTS Wellsite Calibration

Photo−multiplier High Voltages Calibrations

Phase	BS PM High Voltage (Command) V	Value
Before		1534
	1411 (Minimum) 1511 (Nominal) 1611 (Maximum)	

Phase	SS PM High Voltage (Command) V	Value
Before		1652
	1553 (Minimum) 1653 (Nominal) 1753 (Maximum)	

Phase	LS PM High Voltage (Command) V	Value
Before		1566
	1451 (Minimum) 1551 (Nominal) 1651 (Maximum)	

Before: 2−Apr−2011 20:15

High resolution Integrated Logging Tool−CTS Wellsite Calibration

Crystal Quality Resolutions Calibration

Phase	BS Crystal Resolution %	Value
Before		11.56
	10.52 (Minimum) 11.52 (Nominal) 12.52 (Maximum)	

Phase	SS Crystal Resolution %	Value
Before		10.48
	9.462 (Minimum) 10.46 (Nominal) 11.46 (Maximum)	

Phase	LS Crystal Resolution %	Value
Before		9.263
	8.578 (Minimum) 9.578 (Nominal) 10.58 (Maximum)	

Before: 2−Apr−2011 20:15

High resolution Integrated Logging Tool−CTS Wellsite Calibration

MCFL Calibration

Phase	Raw B0 Resistivity OHMM	Value
Before		3834
	3565 (Minimum) 3875 (Nominal) 4185 (Maximum)	

Phase	Raw B1 Resistivity OHMM	Value
Before		3792
	3524 (Minimum) 3830 (Nominal) 4136 (Maximum)	

Phase	Raw B2 Resistivity OHMM	Value
Before		3797
	3524 (Minimum) 3830 (Nominal) 4136 (Maximum)	

Before: 2−Apr−2011 20:18

High resolution Integrated Logging Tool−CTS Wellsite Calibration

HILT Caliper Calibration

Phase	HILT Caliper Zero Measurement IN	Value
Before		8.124
	6.000 (Minimum) 8.000 (Nominal) 10.00 (Maximum)	

Phase	HILT Caliper Plus Measurement IN	Value
Before		12.25
	9.000 (Minimum) 12.00 (Nominal) 15.00 (Maximum)	

Before: 2−Apr−2011 20:12

High resolution Integrated Logging Tool−CTS Wellsite Calibration

Detector Calibration

Phase	Gamma Ray Background GAPI	Value
Before		72.34
	0 (Minimum) 30.00 (Nominal) 120.0 (Maximum)	

Phase	Gamma Ray (Jig − Bkgd) GAPI	Value
Before		166.5
	157.1 (Minimum) 165.0 (Nominal) 206.3 (Maximum)	

Before: 2−Apr−2011 20:17

High resolution Integrated Logging Tool−CTS Wellsite Calibration

Zero Measurement

Phase	CNTC Background CPS	Value
Master		25.85
Before		26.70
	5.000 (Minimum) 25.85 (Nominal) 40.00 (Maximum)	

Phase	CFTC Background CPS	Value
Master		27.22
Before		26.65
	5.000 (Minimum) 27.22 (Nominal) 40.00 (Maximum)	

Master: 31−Jan−2011 13:40 Before: 2−Apr−2011 20:13

High resolution Integrated Logging Tool−CTS Wellsite Calibration

Ratio Measurement

Phase	Thermal Near Corr. (Tank) CPS	Value
Master		5290
	4700 (Minimum) 5800 (Nominal) 6900 (Maximum)	

Phase	Thermal Far Corr. (Tank) CPS	Value
Master		2218
	1900 (Minimum) 2400 (Nominal) 2900 (Maximum)	

Phase	CNTC/CFTC (Tank)	Value
Master		2.385
	2.120 (Minimum) 2.159 (Nominal) 2.540 (Maximum)	

Master: 31−Jan−2011 13:40

High resolution Integrated Logging Tool−CTS Wellsite Calibration

Wellsite Calibration

Accelerometer Calibration

Phase	Z−Axis Acceleration F/S2			Value
Before				32.24
	31.53 (Minimum)	32.19 (Nominal)	32.84 (Maximum)	

Before: 3−Apr−2011 2:31

Company: **Vecta Oil & Gas Ltd**

Schlumberger

Well: **Cottonwood Grazing 3−22**
Field: **Wildcat**
County: **Lincoln**
State: **Colorado**

Platform Express
Array Induction
Linear Correlation