Schlumberger

Company: **International Ocean Discovery Program**

Well: **Expedition 359, Site U1468B**
Field: **Maldives Monsoon & Sea Level**
Rig: **JOIDES Resolution** Country:

Rig: JOIDES Resolution
Field: Maldives Monsoon & Sea Level
Location: Latitude: N 4* 55.9'
Well: Expedition 359, Site U1468B
Company: International Ocean Discovery Pr

High Resolution Laterolog Array (HRLA)
Nuclear (HNGS, HLDS, APS)
Magnetic Susceptibility (MSS)

LOCATION

Latitude: N 4* 55.9'
Longitude: E 73* 4.2'

Elev.: K.B. 0.00 m
G.L. 532.50 m
D.F. 0.00 m

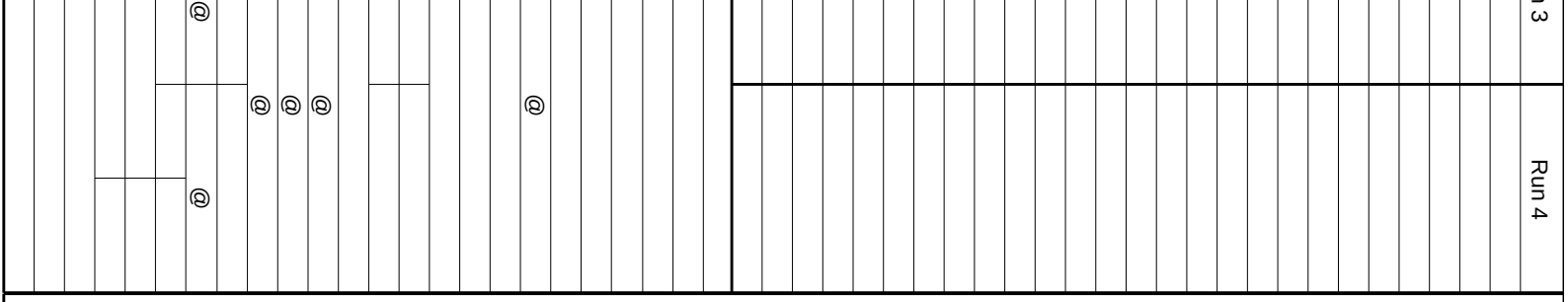
Permanent Datum: Sea Floor — Elev.: 532.50 m
Log Measured From: Rig Floor — −532.50 m above Perm. Datum
Drilling Measured From: Rig Floor

Ocean:	Max. Well Deviation	Longitude	Latitude
Indian	0 deg	E 73.07	N 4.931667

	Run 1	Run 2	Run

Logging Date	13−Nov−2015		
Run Number	1		
Depth Driller	1407.6 m		
Schlumberger Depth	1365 m		
Bottom Log Interval	1365 m		
Top Log Interval	532.5 m		
Casing Driller Size @ Depth	5.500 in @ 673 m	@	
Casing Schlumberger	671 m		
Bit Size	9.875 in		
Type Fluid In Hole	Seawater		
MUD Density / Viscosity	1.05 g/cm3		
MUD Fluid Loss / PH	8.07		
MUD Source Of Sample	Mudpit		
RM @ Measured Temperature	0.220 ohm.m @ 23 degC	@	
RMF @ Measured Temperature	@	@	
RMC @ Measured Temperature	@	@	
Source RMF / RMC	N/A / N/A		
RM @ MRT / RMF @ MRT	0.078 @ 104 / @ 104	@ / @	
Maximum Recorded Temperatures	104 degC		
Circulation Stopped / Time	12−Nov−2015 / 20:00		
Logger On Bottom / Time	12−Nov−2015 / 20:00		
Unit Number / Location	627314 / Houma, LA		
Recorded By	C. Furman		
Witnessed By	A. Slagle		

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		



DISCLAIMER

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OTHER SERVICES1	OTHER SERVICES2
OS1:	OS1:
OS2:	OS2:
OS3:	OS3:
OS4:	OS4:
OS5:	OS5:

REMARKS: RUN NUMBER 1	REMARKS: RUN NUMBER 2
Hole drilled with tricone bottom hole assembly (BHA) specifically for logging. 9−7/8" BS	
Bit dropped at bottom of hole using MBR.	
Drilled TD was 1407.6mbrf (875.1mbsf), drilled and logged with sea water as borehole fluid.	
Drill pipe set at 673mbrf (140.5mbsf) prior to logging.	
Triple−combo run with upper part eccentered using bowsprings and lower part centralized using MCDs.	
Fluid type was sea water; no barite corrections applied.	
Depth recorded from drill floor; logs presented as−logged without depth corrections or shifts, as per client instructions.	
All logs presented in wireline measured depth below rig floor (MDBRF).	
Caliper opened during upward passes; closed prior to re−entering pipe.	
Hole size corrections made using caliper measurements for upward passes; bit size for downlog.	
APS minitron off during downlog and repeat pass to avoid formation activation; turned on during main upward pass.	
Adverse hole conditions encountered above 960mbrf −− caliper had to be closed until 810mbrf.	
APS minitron powered down between 893mbrf and 823mbrf, so no valid neutron porosity was recorded in that interval.	
Hole abandoned due to collapse after this run; no further logging was possible at this site.	

RUN 1

SERVICE ORDER #:
PROGRAM VERSION: 19C0−187
FLUID LEVEL:

LOGGED INTERVAL	START	STOP

RUN 2

SERVICE ORDER #:
PROGRAM VERSION:
FLUID LEVEL:

LOGGED INTERVAL	START	STOP

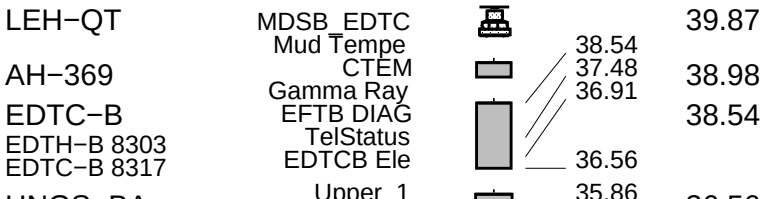
EQUIPMENT DESCRIPTION

RUN 1 RUN 2

SURFACE EQUIPMENT

SFT−281 1
SFT−178 1
GSR−U 616008
WITM (EDTS)−A

DOWNHOLE EQUIPMENT



HNGS−BA
HNGS−BA 177
HNSH−BA 174
Upper_2
Lower_2
35.65
36.56

HNGC−B
HNGC Stat
33.53
34.06

ILE−F
ILE−F 72
33.00

Status
Minitron
Near TD
Near Arr
AH−191
30.56

APS−C
APH−AC 121
APS−C 65535
MNTR−F 65535
Near
Far Arr
Far
Far TD
27.81
27.73
27.60
27.50
30.25

AH−190
26.31

LDSC−B
LDSC Stat
25.47
26.00

HLDS
GSR−Z 8113
HLDV−D 45
HLDS−D 45
HEH−H 47
HLDP−C 45
Caliper
SS LS Status
20.88
24.94

AH−184_NonMagKnuckleJoint
20.12

AH−NonMagSpacer
AH−NonMagSpacer 2
19.51

AH−184_NonMagKnuckleJoint
16.61

AH−MCD2
AH−MCD2 2
16.00

HRLT−B
HRUH−B 978
HRUC−B 764
HRLS−B 768
HRLH−B 968
HRLC−B 974
AH−270 1708
High Res.
10.14
13.72

AH−MCD1
AH−MCD1 1
6.35

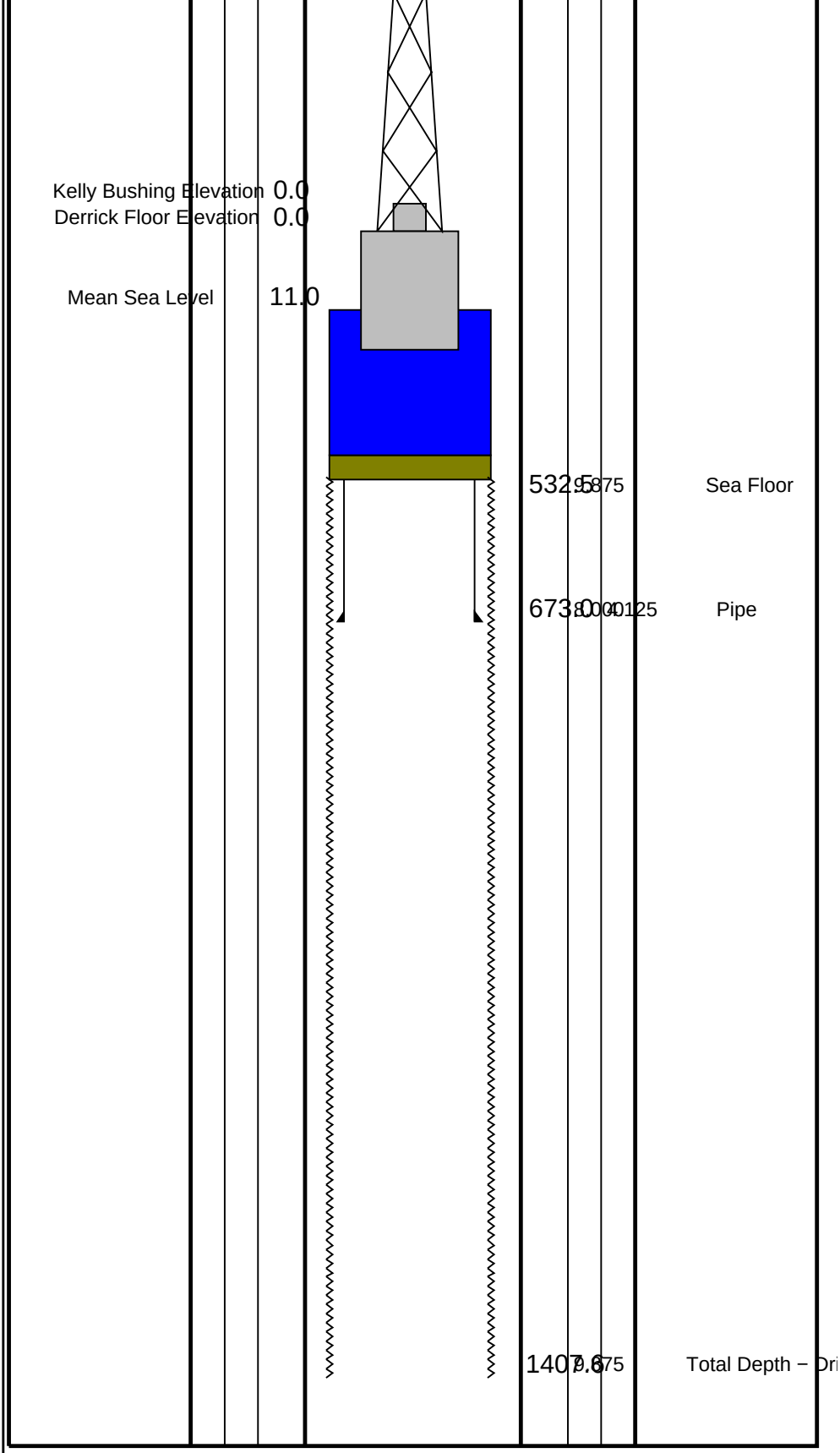
AH−230
4.07

MSS_LDEO−A
ELIC−A 1
MSS_LDEO−A 3
Hi−Res
3.36
Dual Coil
DF ACCZ
0.39
Tension HV
0.00
3.67

TOOL ZERO

MAXIMUM STRING DIAMETER 3.75 IN
MEASUREMENTS RELATIVE TO TOOL ZERO
ALL LENGTHS IN METERS

Production String Well Schematic					Casing St			
	(in) OD	(in) ID	(m) MD			(m) MD	(in) OD	(in) ID


Kelly Bushing Elevation 0.0
Derrick Floor Elevation 0.0
Mean Sea Level 11.0
532.5 5.875 Sea Floor
673.0 8.000125 Pipe
1407.6 7.675 Total Depth − Dri

Schlumberger

Main Pass

MAXIS Field Log

Output DLIS Files

DEFAULT	MSS_LDEO_HRLA_LDL_013LUP	FN:12	PRODUCER	12−Nov−2015 23:58	1364.7 M	514.2 M

OP System Version: 19C0−187

MSS_LDEO−A	19C0−187	HRLT−B	19C0−187
HLDS	19C0−187	LDSC−B	19C0−187
APS−C	19C0−187	HNGC−B	19C0−187
HNGS−BA	19C0−187	EDTC−B	SKK−5169−EDTCB

PIP SUMMARY

Time Mark Every 60 S

HNGS Spectroscopy Gamma Ray (HSGR)		
0	(GAPI)	50

Area1
From HCGR to HSGR

HNGS Borehole Potassium (HBHK)
−0.05 (−−−−) 0.05

HNGS Computed Gamma Ray (HCGR)
0 (GAPI) 100

Calibrated Downhole Force (CDF) (LBF)
3000 0

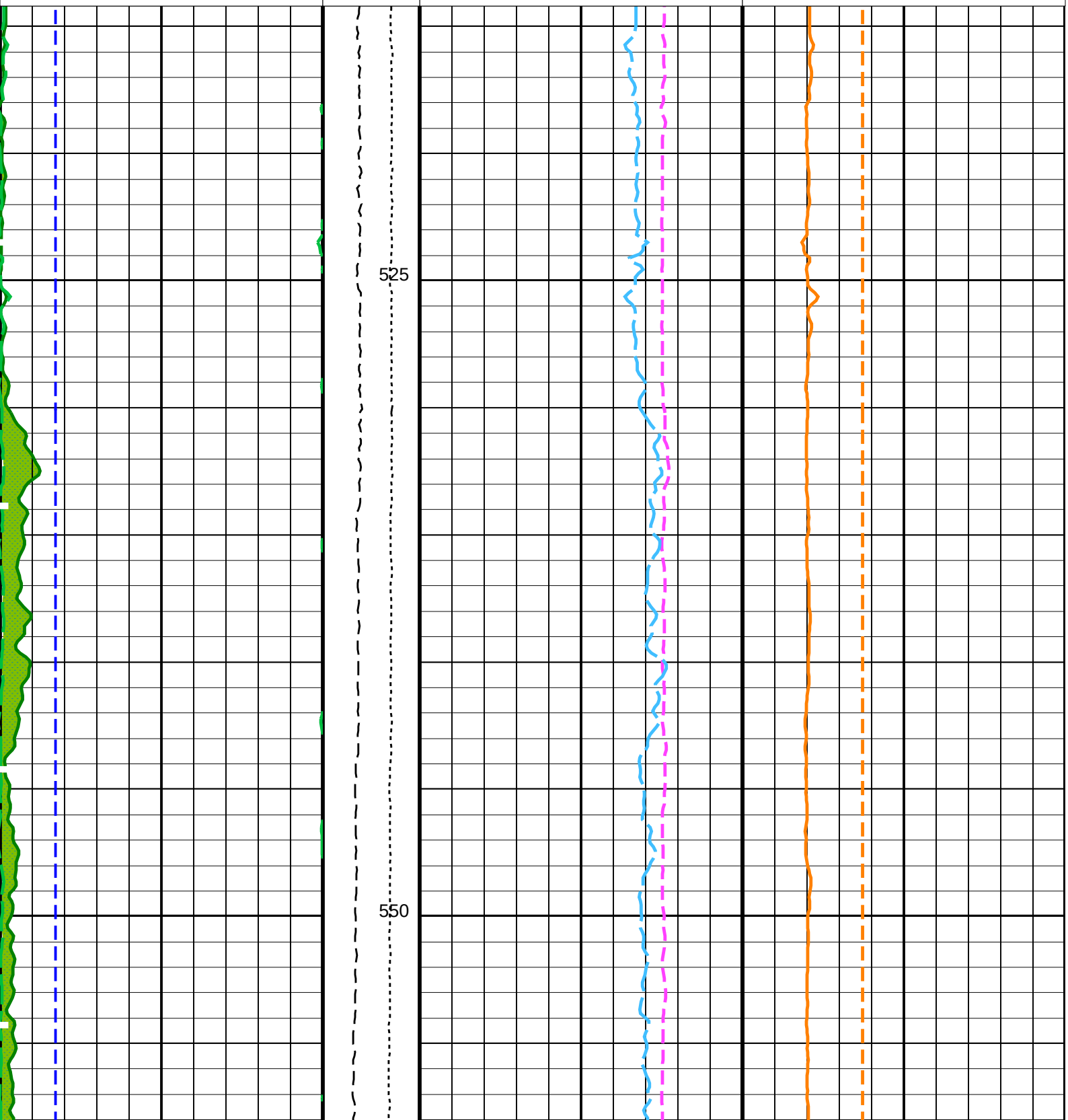
HNGS Uranium (HURA)
−5 (PPM) 10

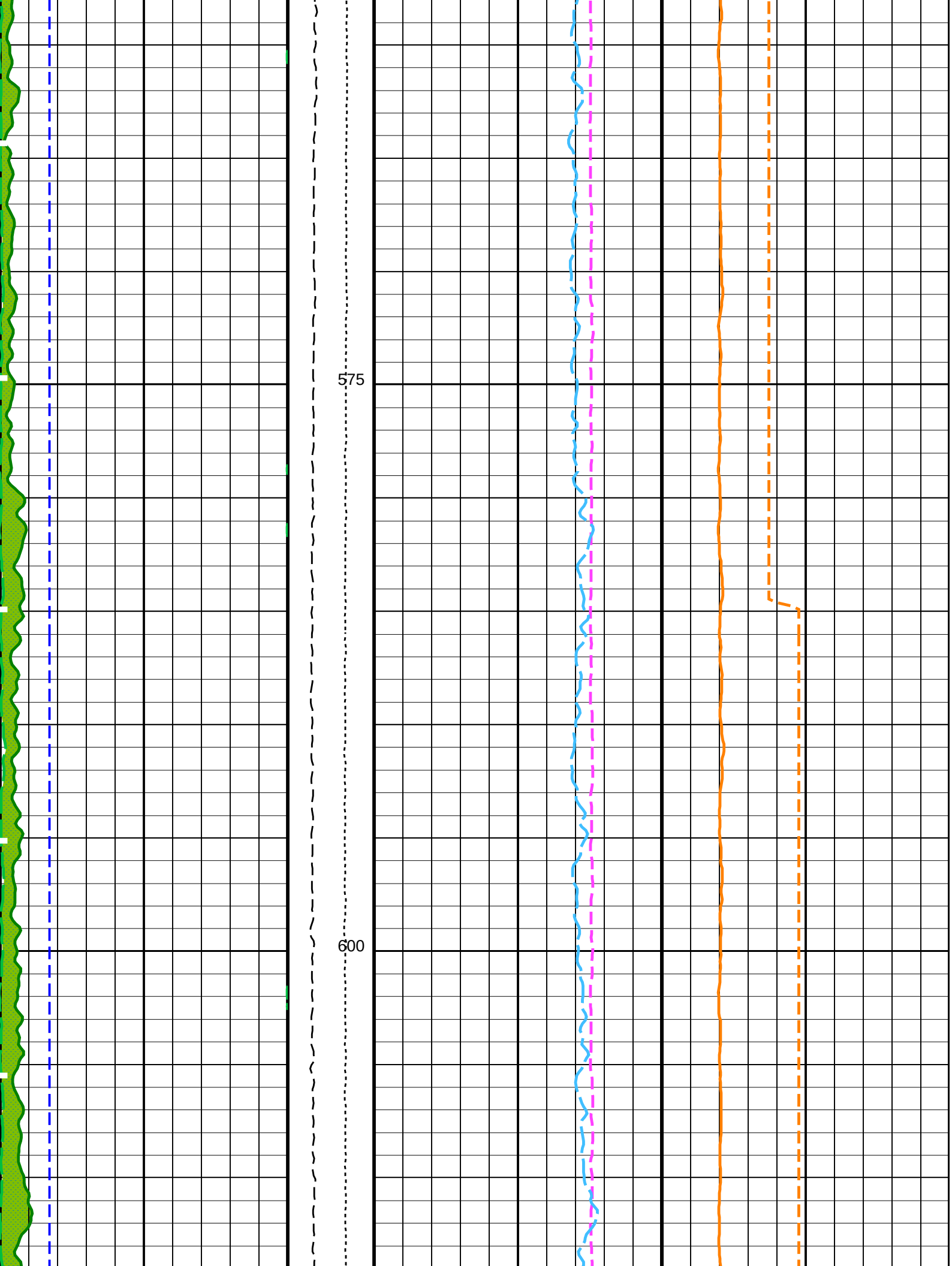
HLDS Caliper (LCAL)
0 (IN) 20

Tension (TENS) (LBF)
10000 0

HNGS Thorium (HTHO)
5 (PPM) 25

HNGS Potassium (HFK)
−0.01 (−−−−) 0.04

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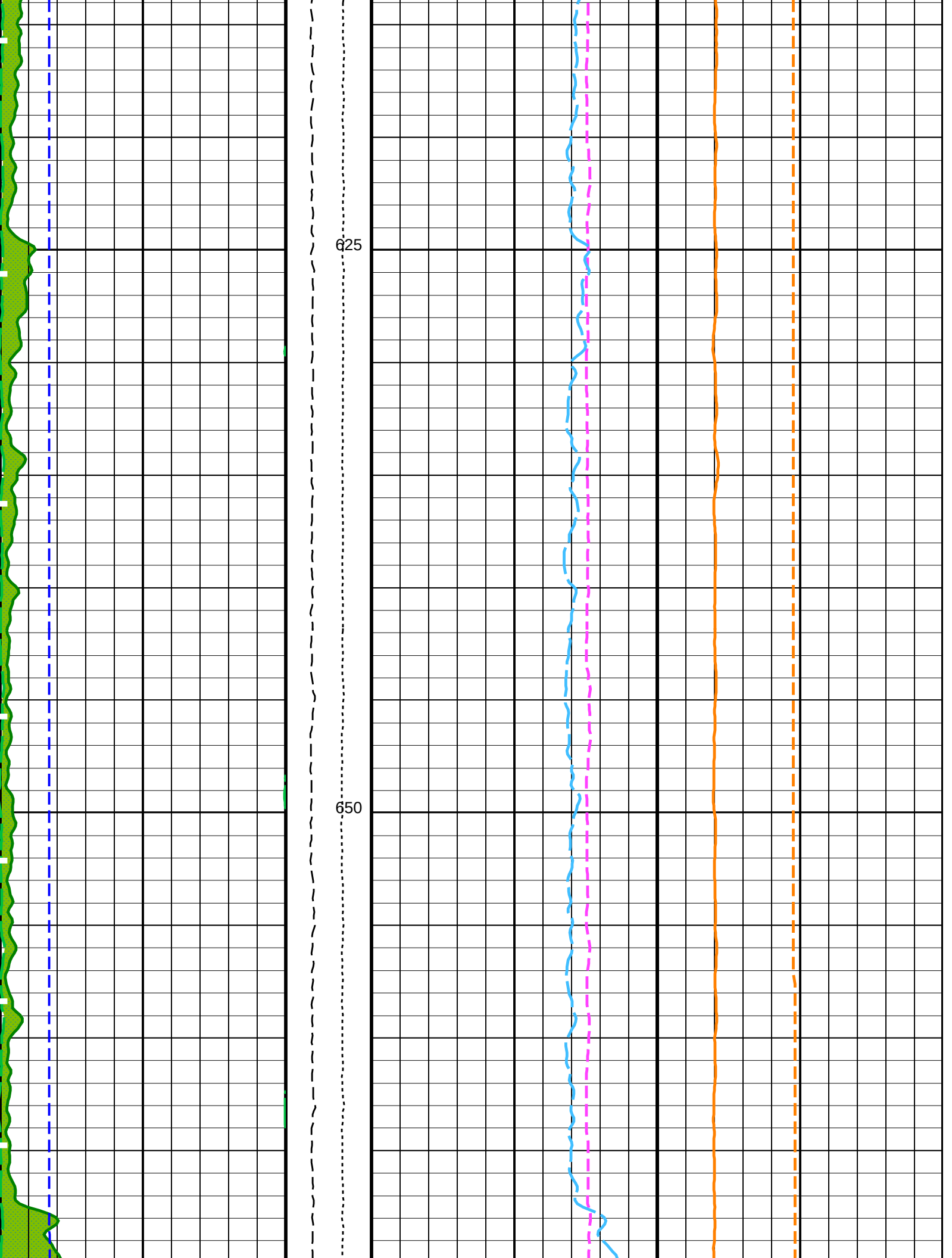
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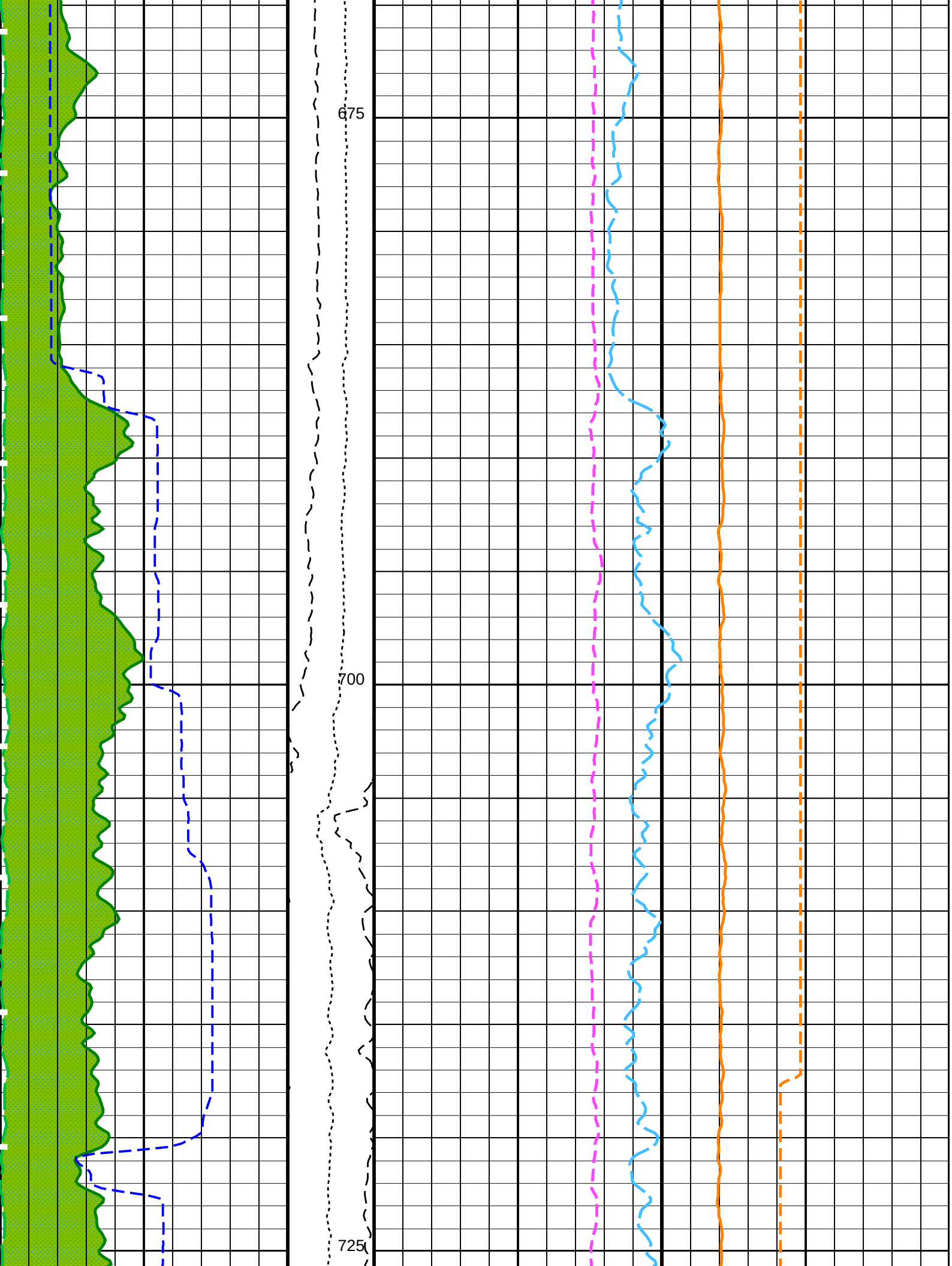
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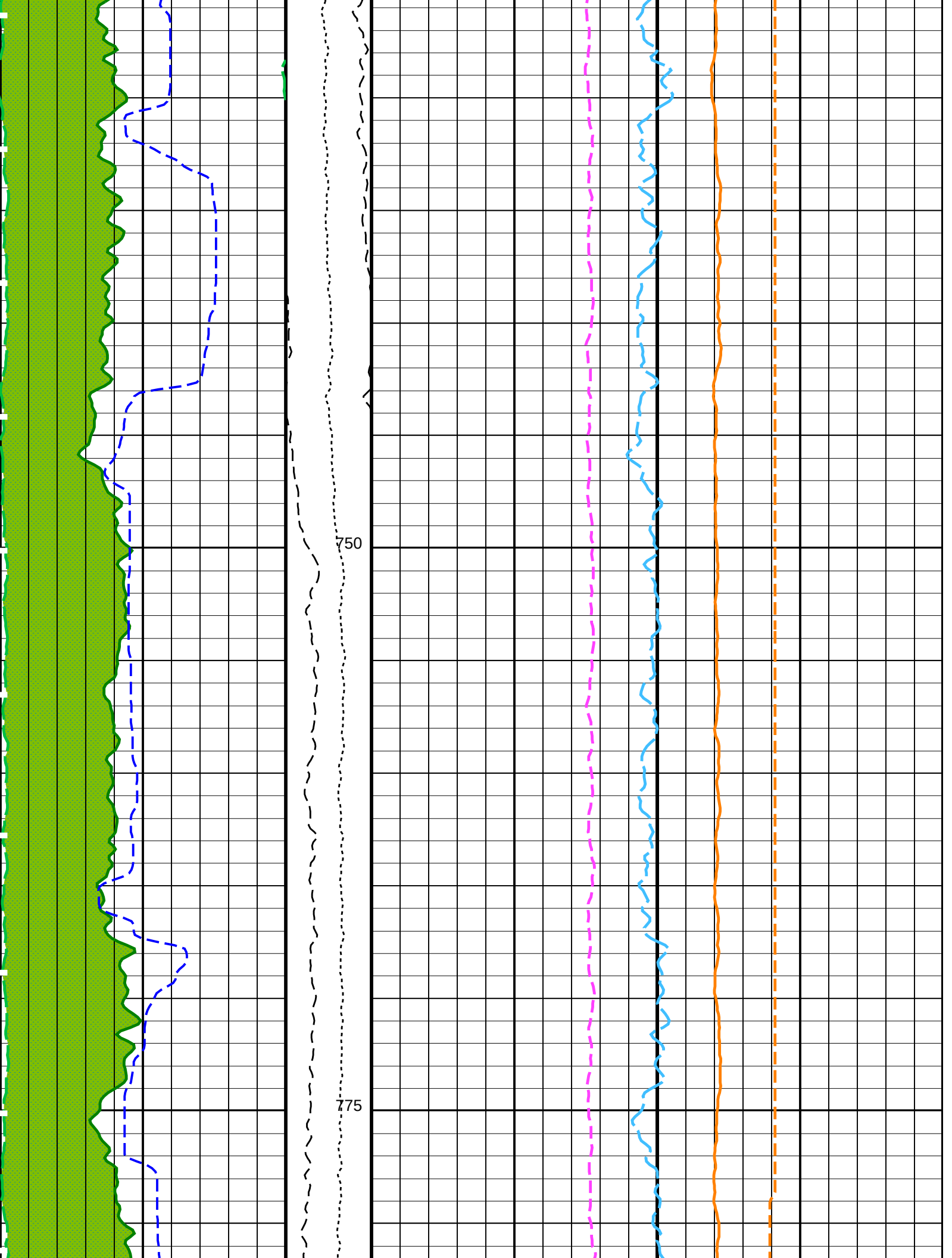
700
725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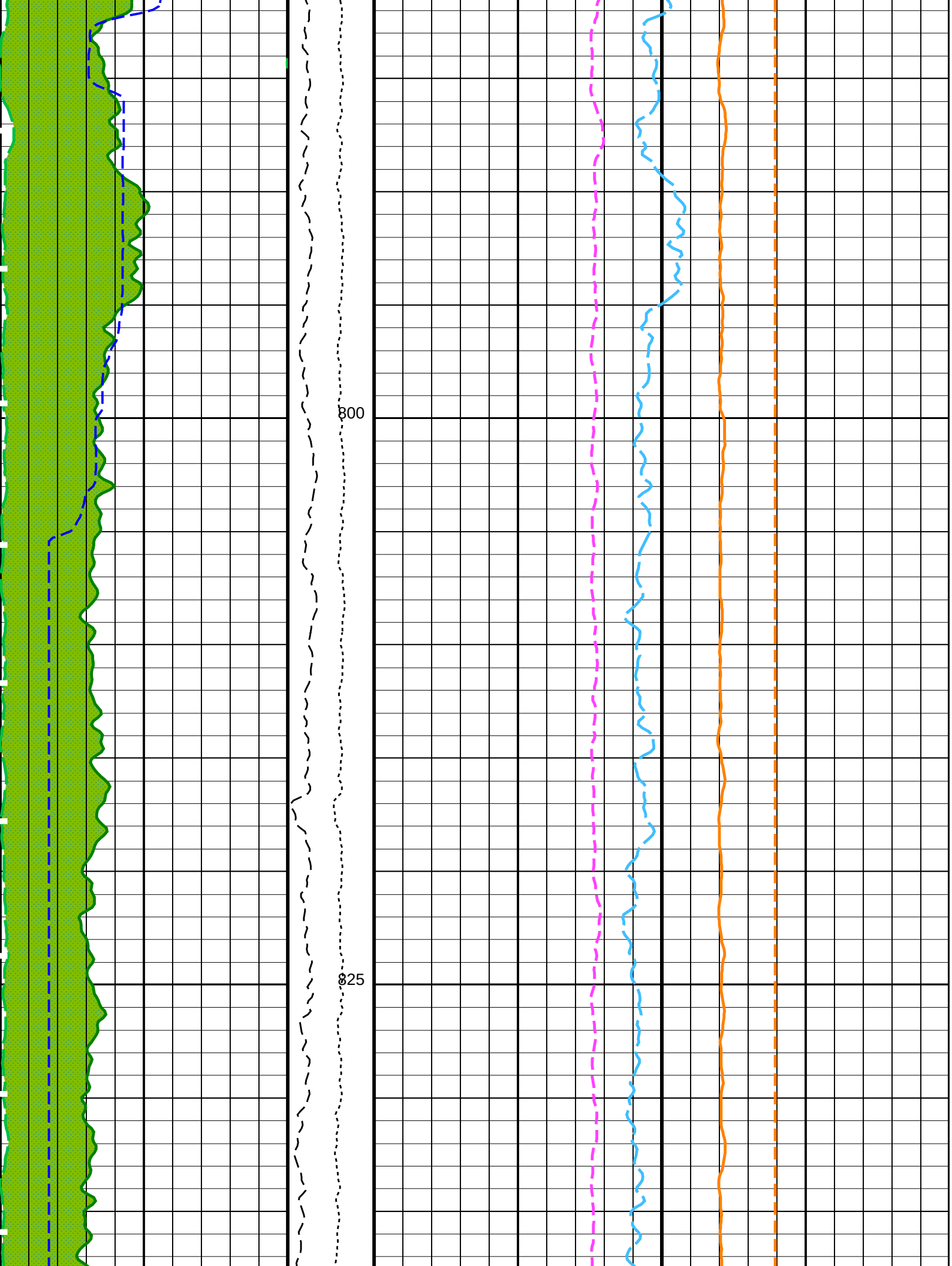
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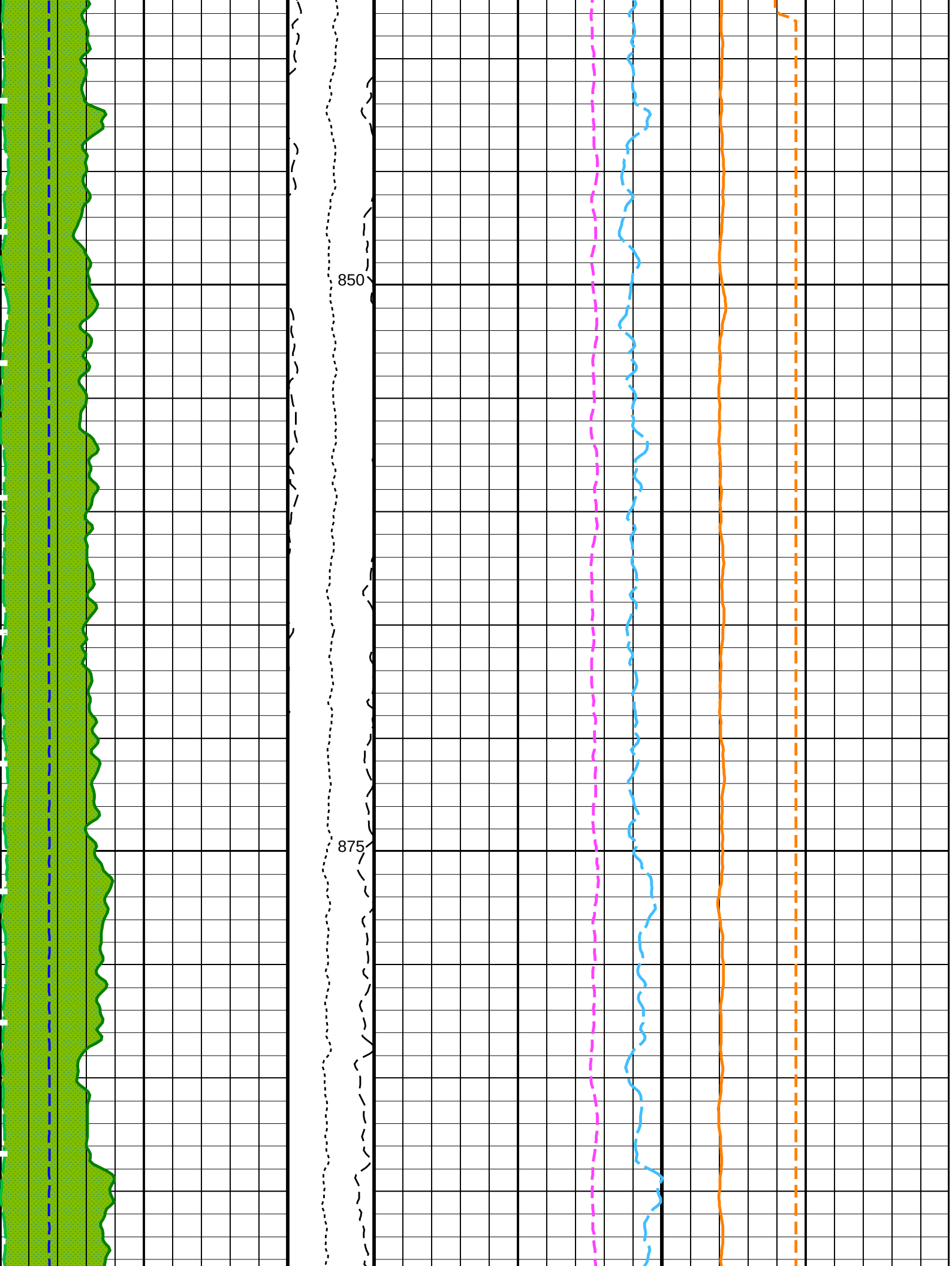
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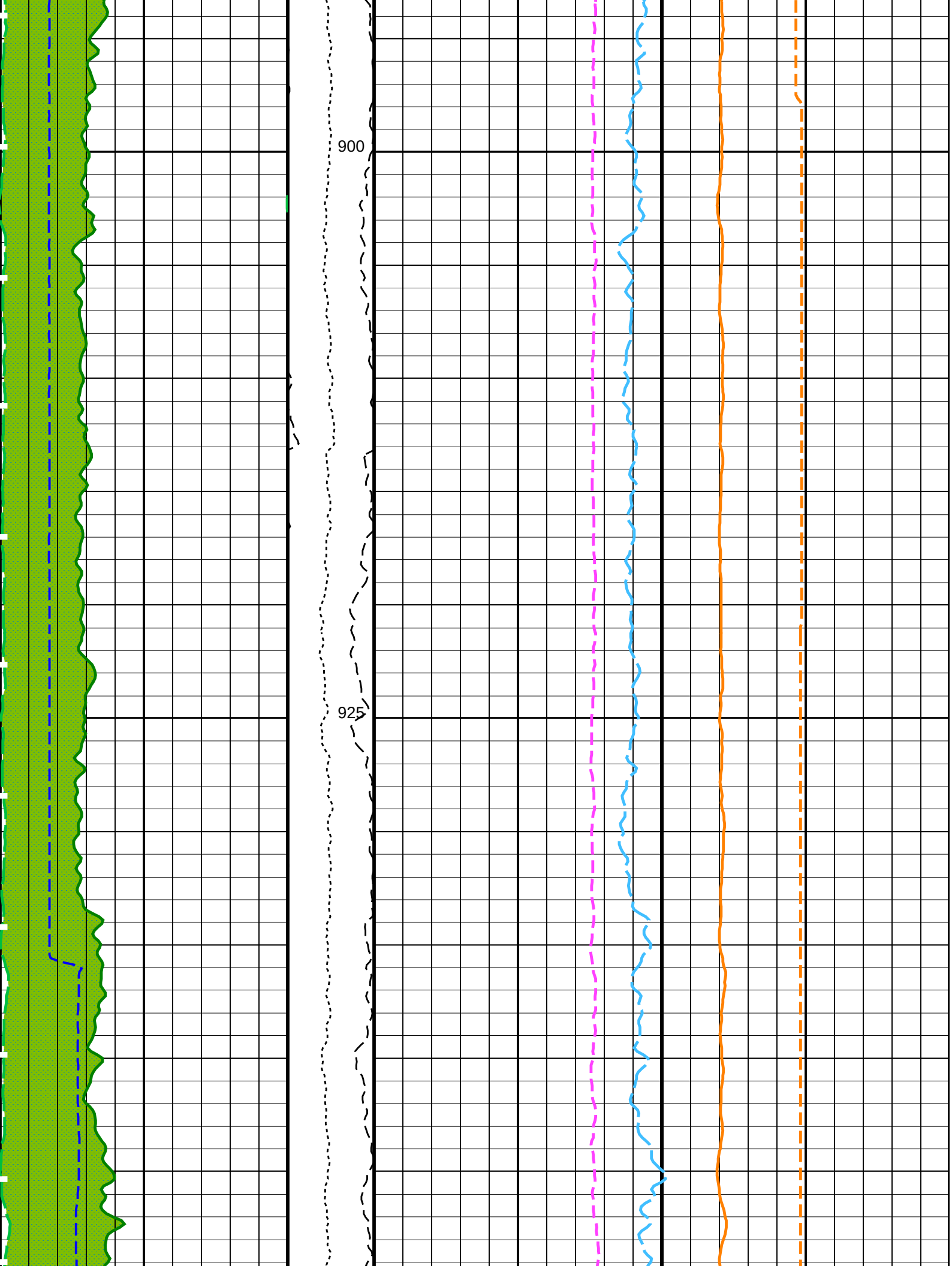
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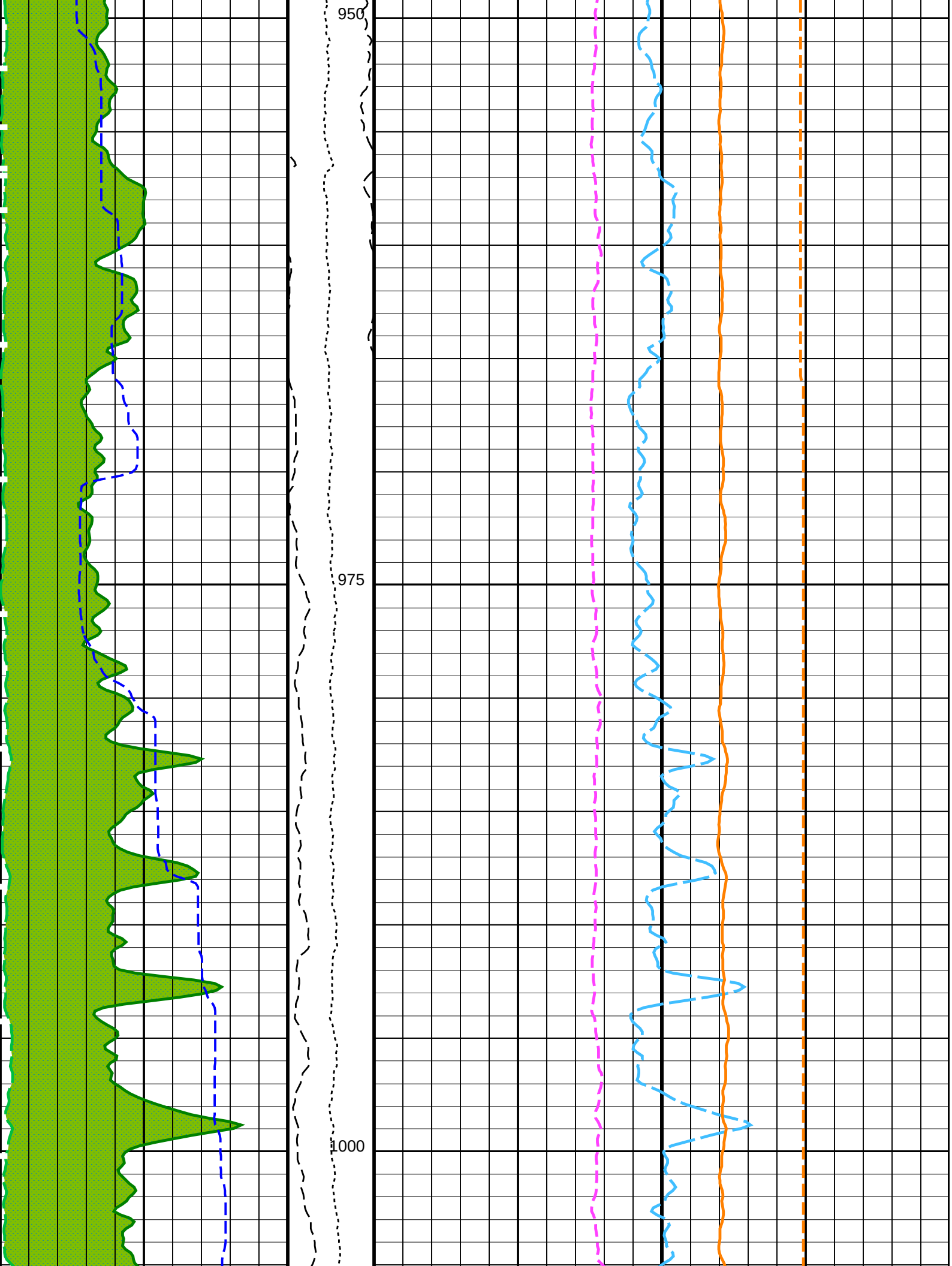
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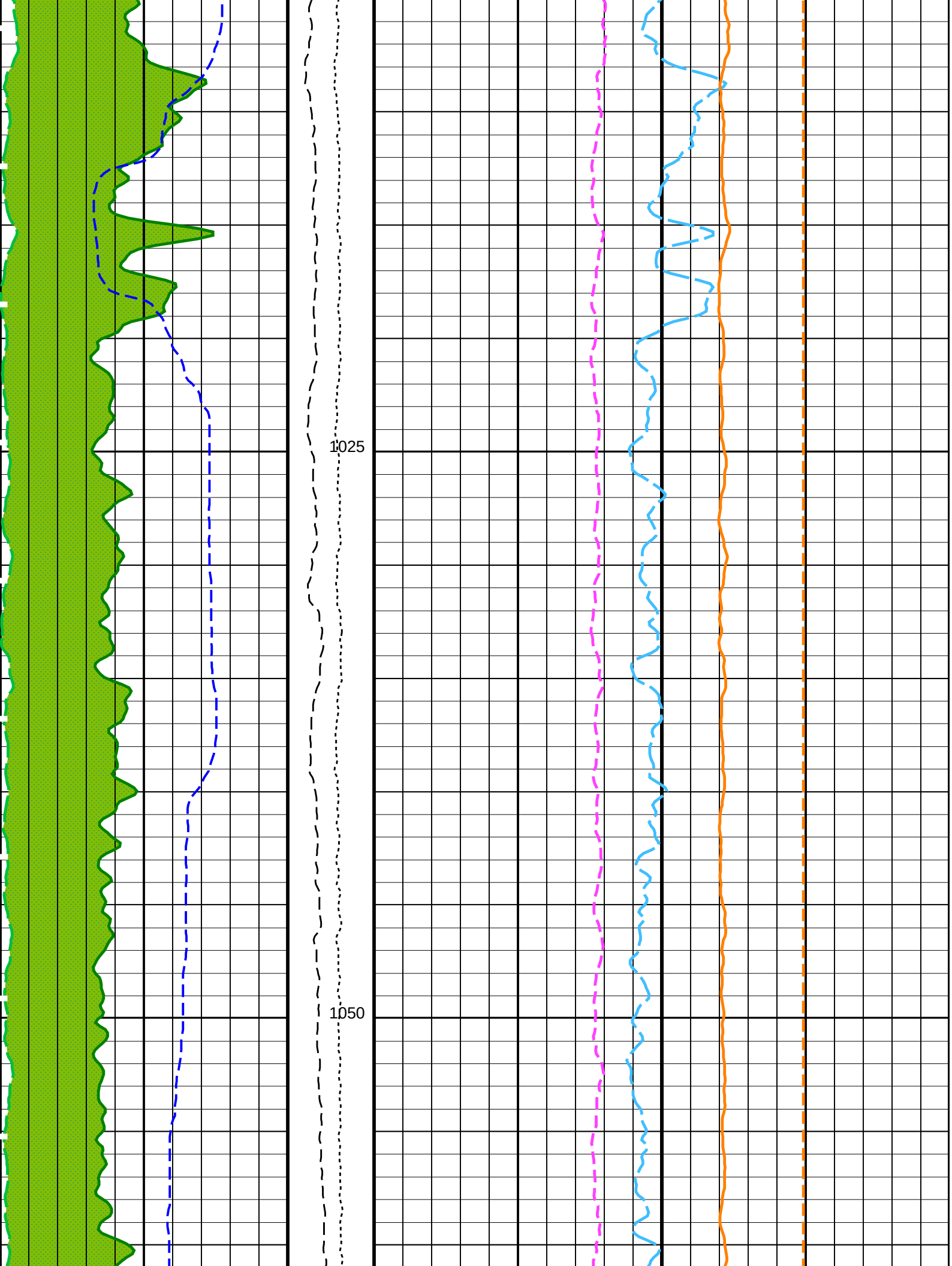
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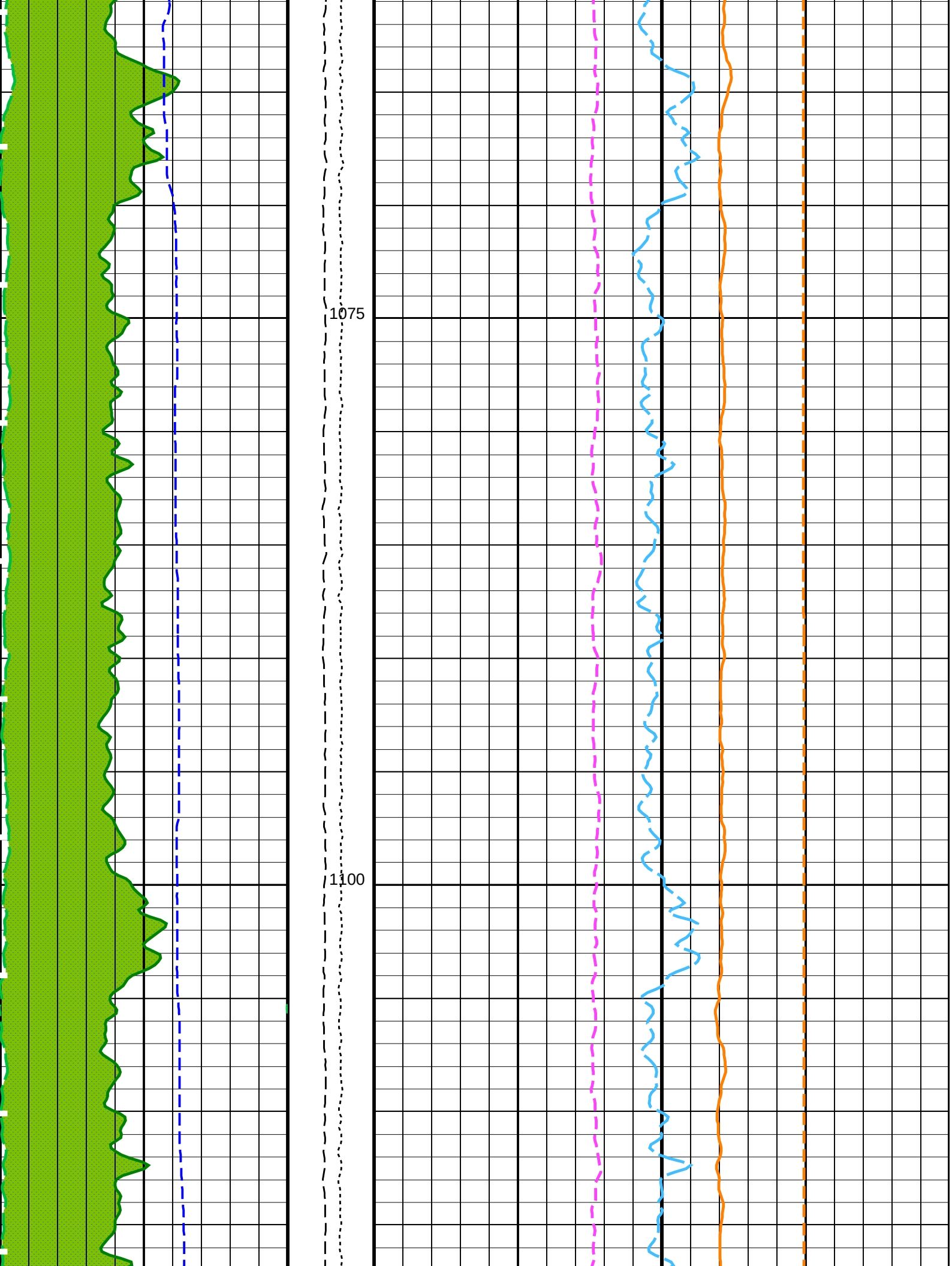
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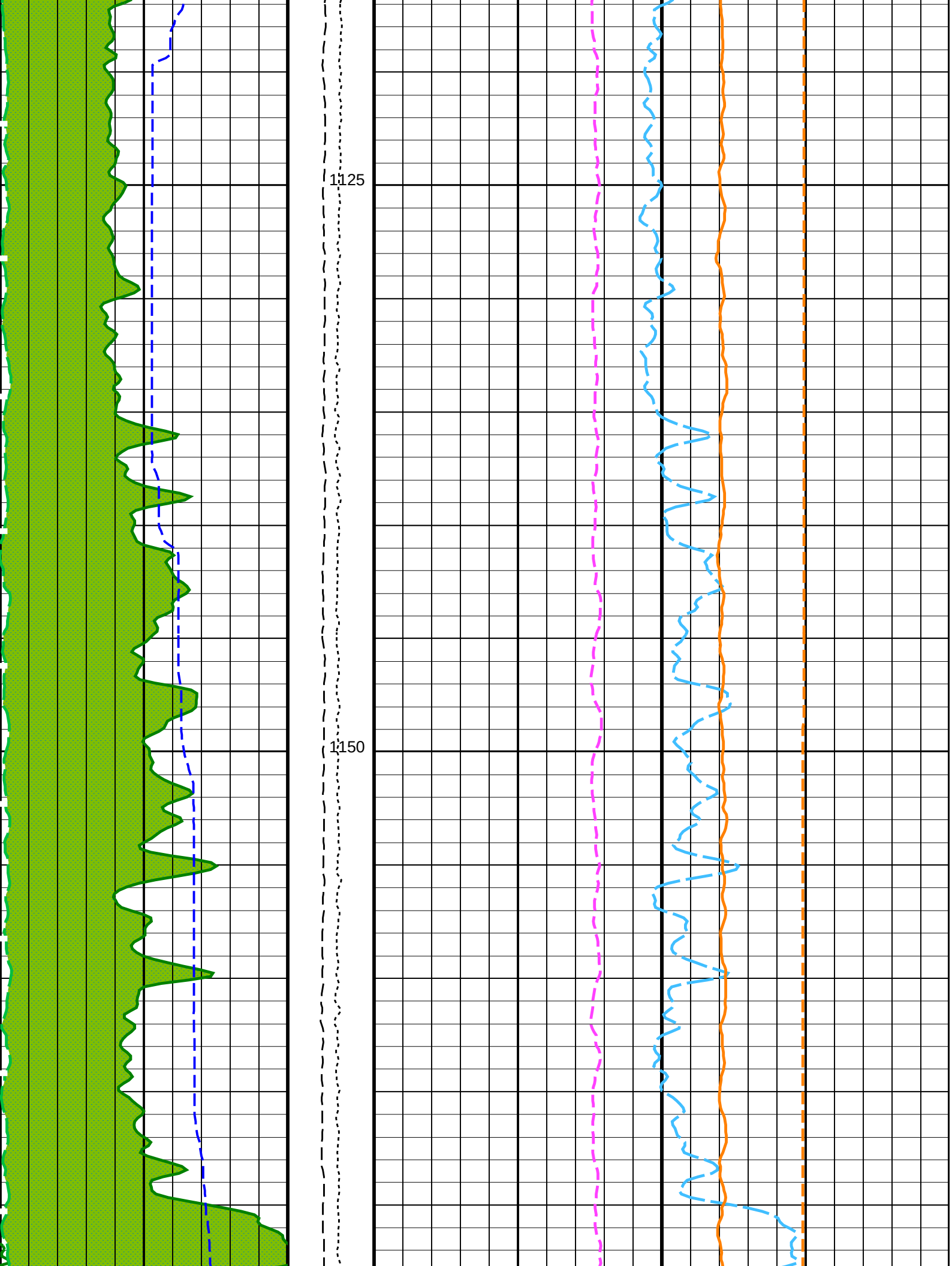
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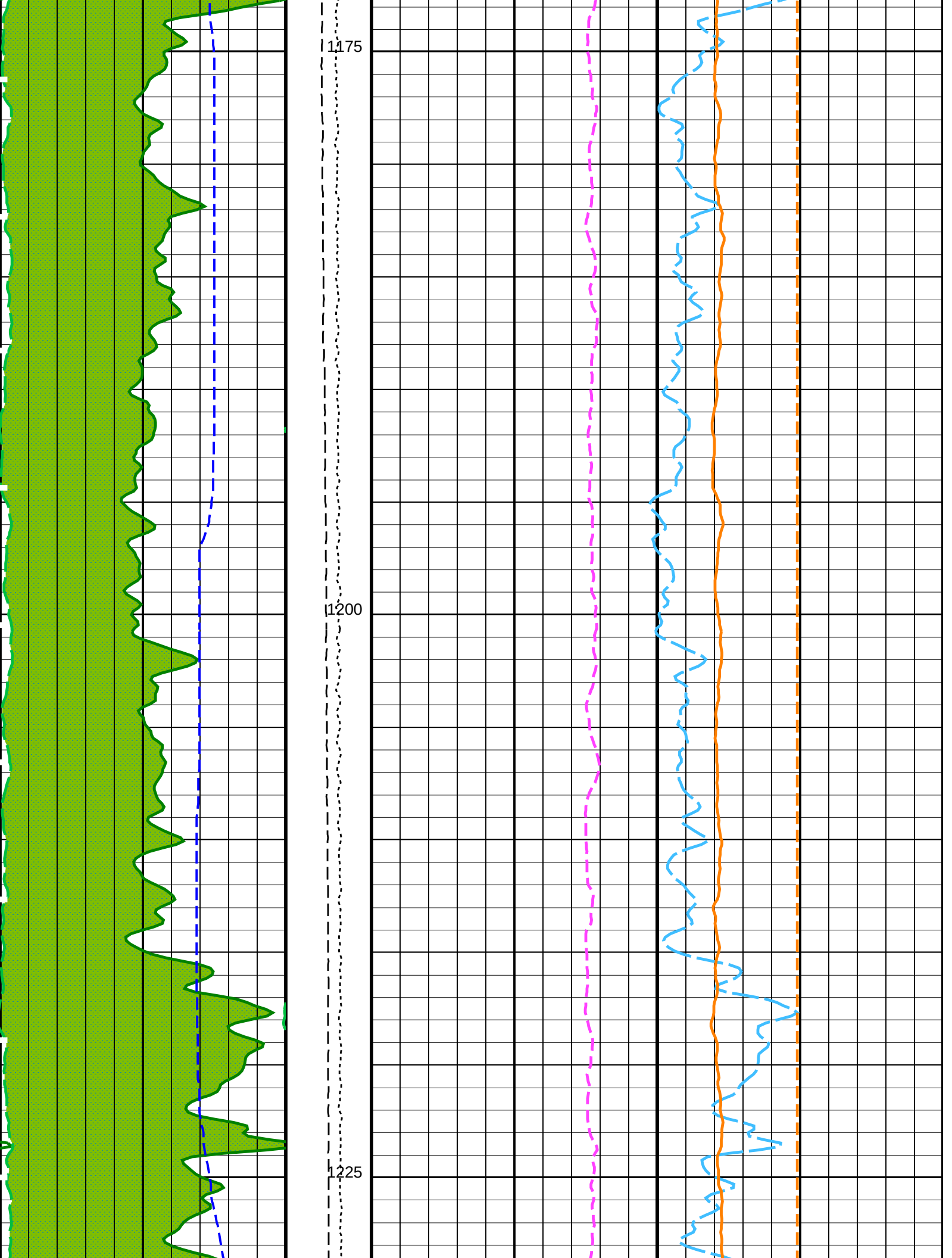
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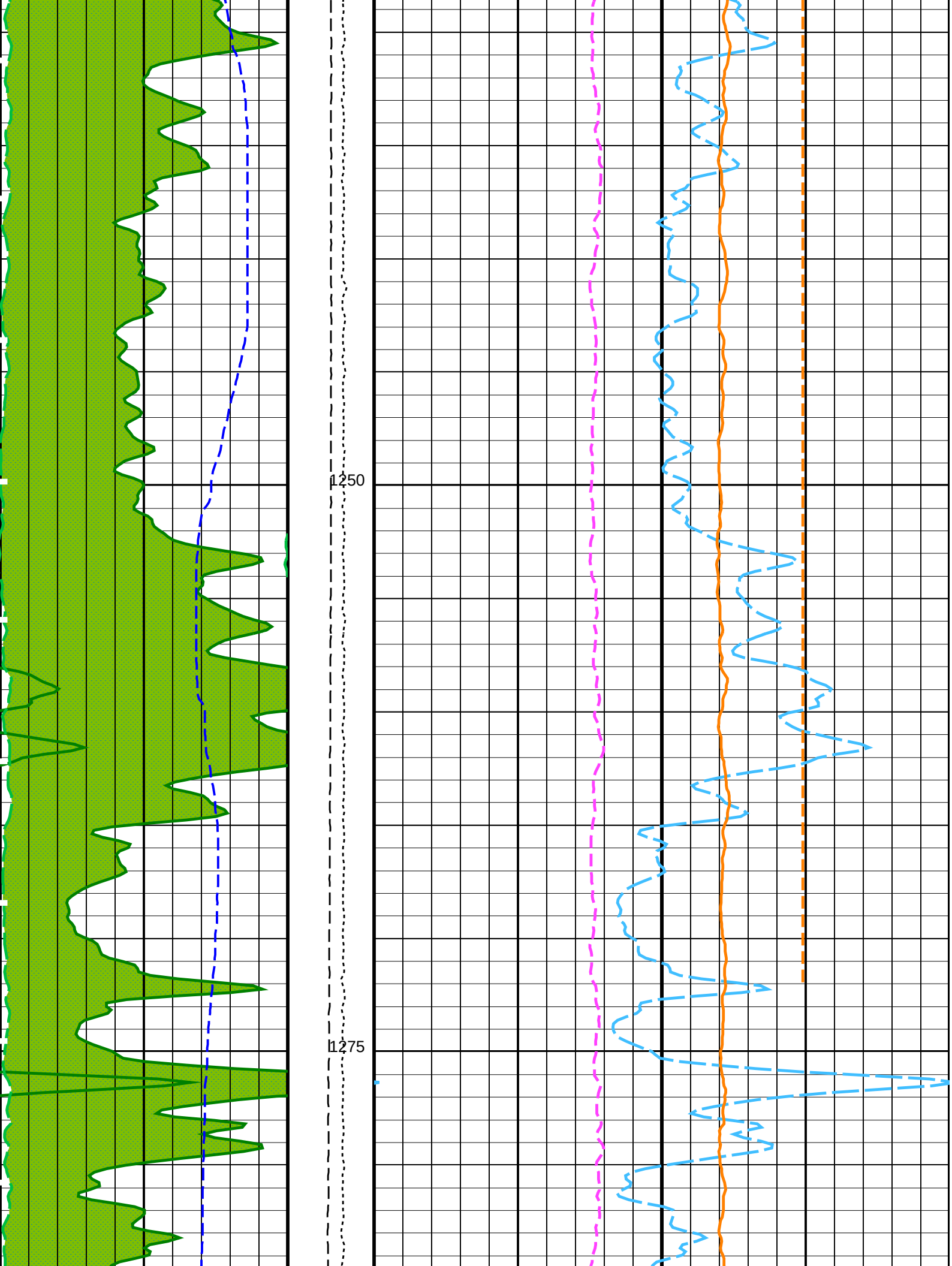
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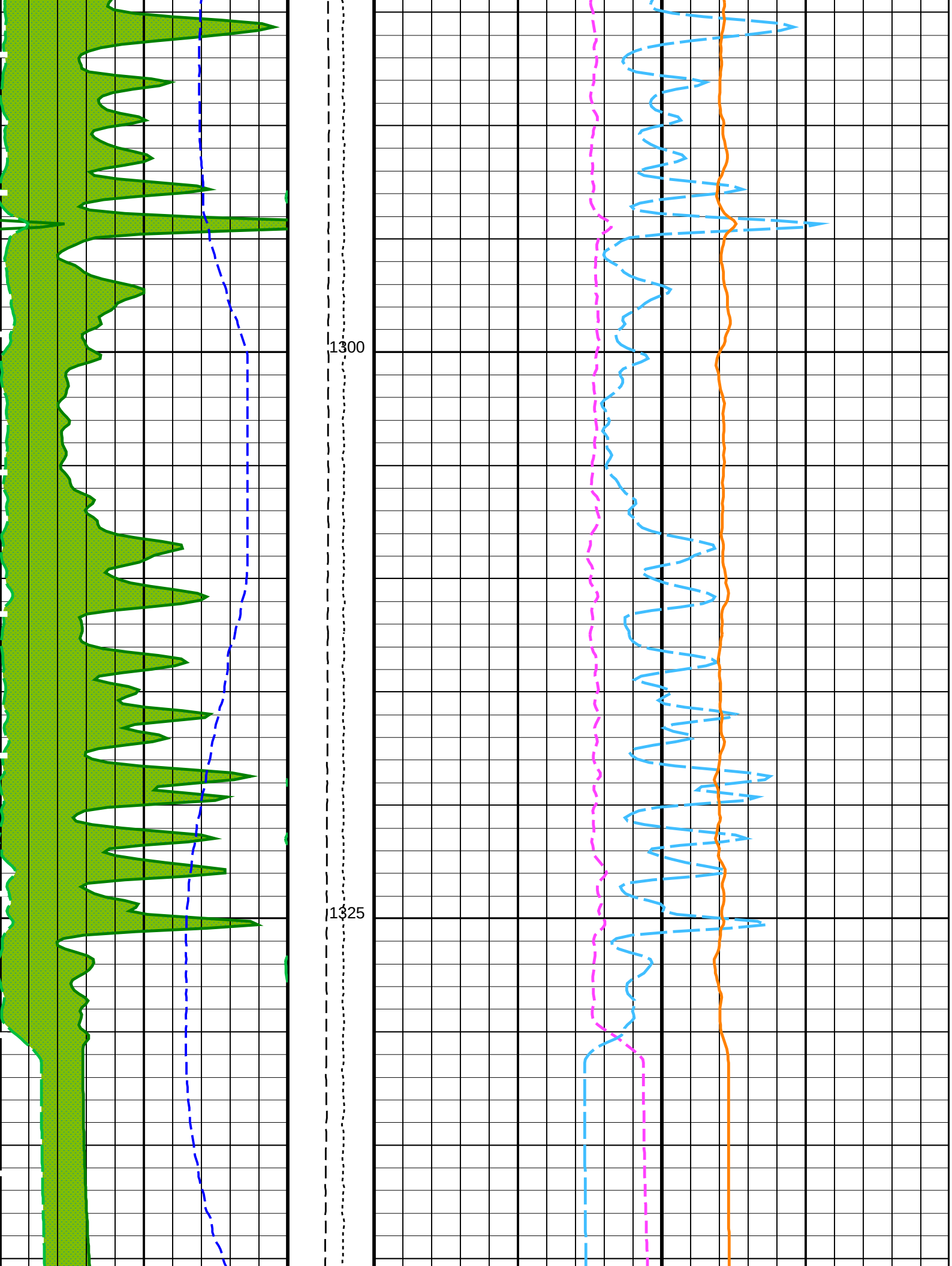
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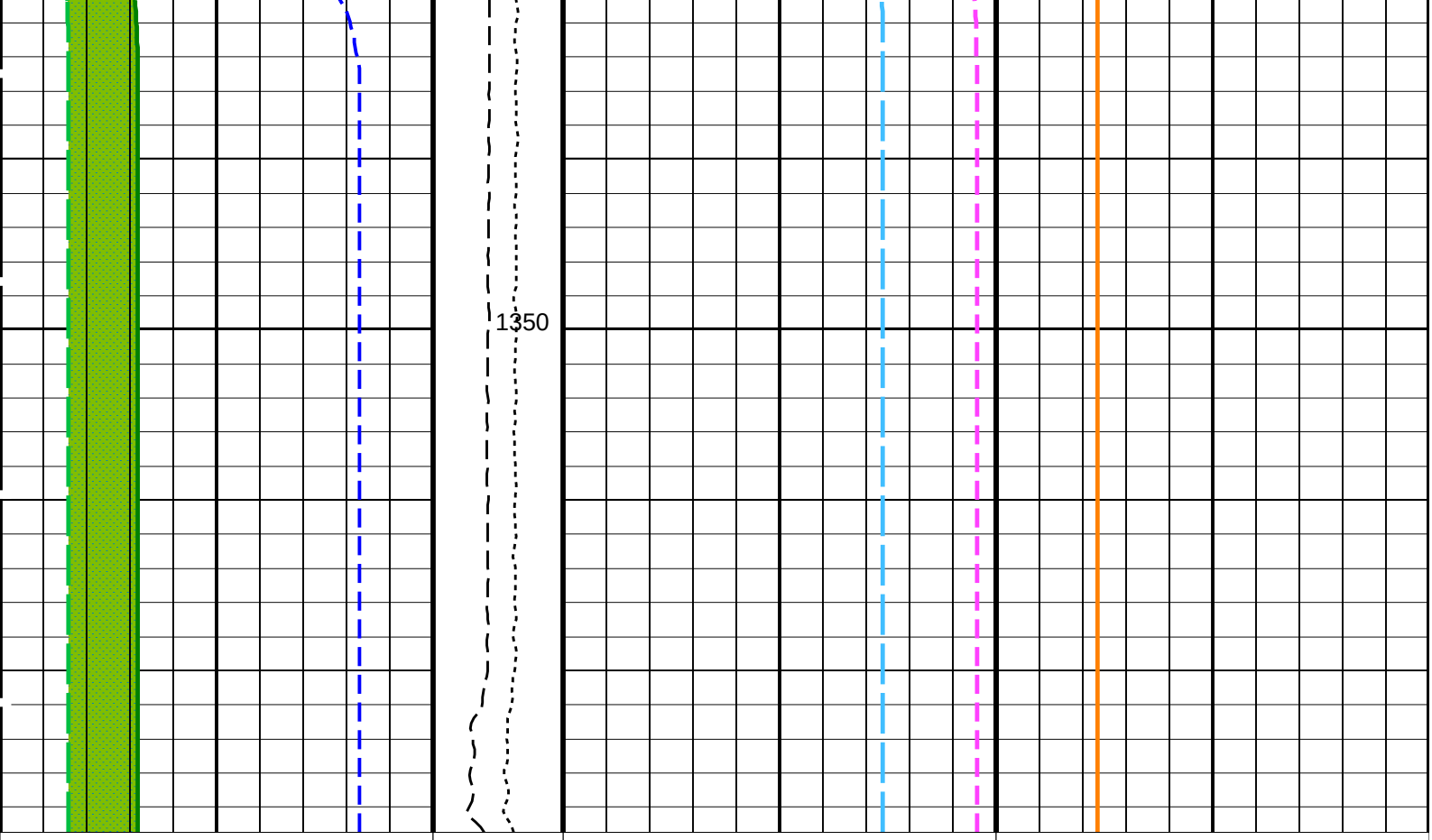


HLDS Caliper (LCAL)
0 (IN) 20

Tension (TENS) (LBF)
10000 0

HNGS Thorium (HTHO)
5 (PPM) 25

HNGS Potassium (HFK)
−0.01 (−−−−) 0.04

HNGS Computed Gamma Ray (HCGR)
0 (GAPI) 100

Calibrated Downhole Force (CDF) (LBF)
3000 0

HNGS Uranium (HURA)
−5 (PPM) 10

Area1
From HCGR to HSGR

HNGS Spectroscopy Gamma Ray (HSGR)
0 (GAPI) 50

HNGS Borehole Potassium (HBHK)
−0.05 (−−−−) 0.05

PIP SUMMARY

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
	HRLT−B: High Resolution Laterolog Array − B		
BHS	Borehole Status	OPEN	
GCSE	Generalized Caliper Selection	LCAL	
	APS−C: Accelerator−Porosity Tool		
BHS	Borehole Status	OPEN	
GCSE	Generalized Caliper Selection	LCAL	
	HNGS−BA: Hostile Natural Gamma Ray Sonde		
BAR1	HNGS Detector 1 Barite Constant	1	
BAR2	HNGS Detector 2 Barite Constant	1	
BHK	HNGS Borehole Potassium Correction Concentration	0	
BHS	Borehole Status	OPEN	
CSD1	Inner Casing Outer Diameter	0	IN
CSD2	Outer Casing Outer Diameter	0	IN
CSW1	Inner Casing Weight	0	LB/F
CSW2	Outer Casing Weight	0	LB/F
DBCC	HNGS Barite Constant Correction Flag	NONE	
GCSE	Generalized Caliper Selection	LCAL	

H1P	HNGS Detector 1 Allow/Disallow In Processing	ALLOW	
H2P	HNGS Detector 2 Allow/Disallow In Processing	ALLOW	
HABK	HNGS Borehole Potassium Running Average	−0.00168484	
HALF	HNGS Alpha Filter Length	60	IN
HCRB	HNGS Apply Borehole Potassium Correction	NONE	
HMWM	Mud Weighting Material	NATU	
HNPE	HNGS Processing Enable	YES	
S1BI	HNGS Detector 1 Calibration Bismuth Count Rate	1.3	CPS
S2BI	HNGS Detector 2 Calibration Bismuth Count Rate	1.3	CPS
SGRC	HNGS Standard Gamma−Ray Correction Flag	YES	
TPOS	Tool Position	ECCE	
VBA1	HNGS Detector 1 Variable Barite Factor Running Average	1.03761	
VBA2	HNGS Detector 2 Variable Barite Factor Running Average	1.01409	
	EDTC−B: Enhanced DTS Cartridge		
BHS	Borehole Status	OPEN	
GCSE	Generalized Caliper Selection	LCAL	
	System and Miscellaneous		
BS	Bit Size	9.875	IN
DFD	Drilling Fluid Density	1.05	G/C3

Format: HNGSYields Vertical Scale: 1:200 Graphics File Created: 12−Nov−2015 23:58

OP System Version: 19C0−187

MSS_LDEO−A	19C0−187	HRLT−B	19C0−187
HLDS	19C0−187	LDSC−B	19C0−187
APS−C	19C0−187	HNGC−B	19C0−187
HNGS−BA	19C0−187	EDTC−B	SKK−5169−EDTCB

Output DLIS Files

DEFAULT MSS_LDEO_HRLA_LDL_013LUP FN:12 PRODUCER 12−Nov−2015 23:58

Output DLIS Files

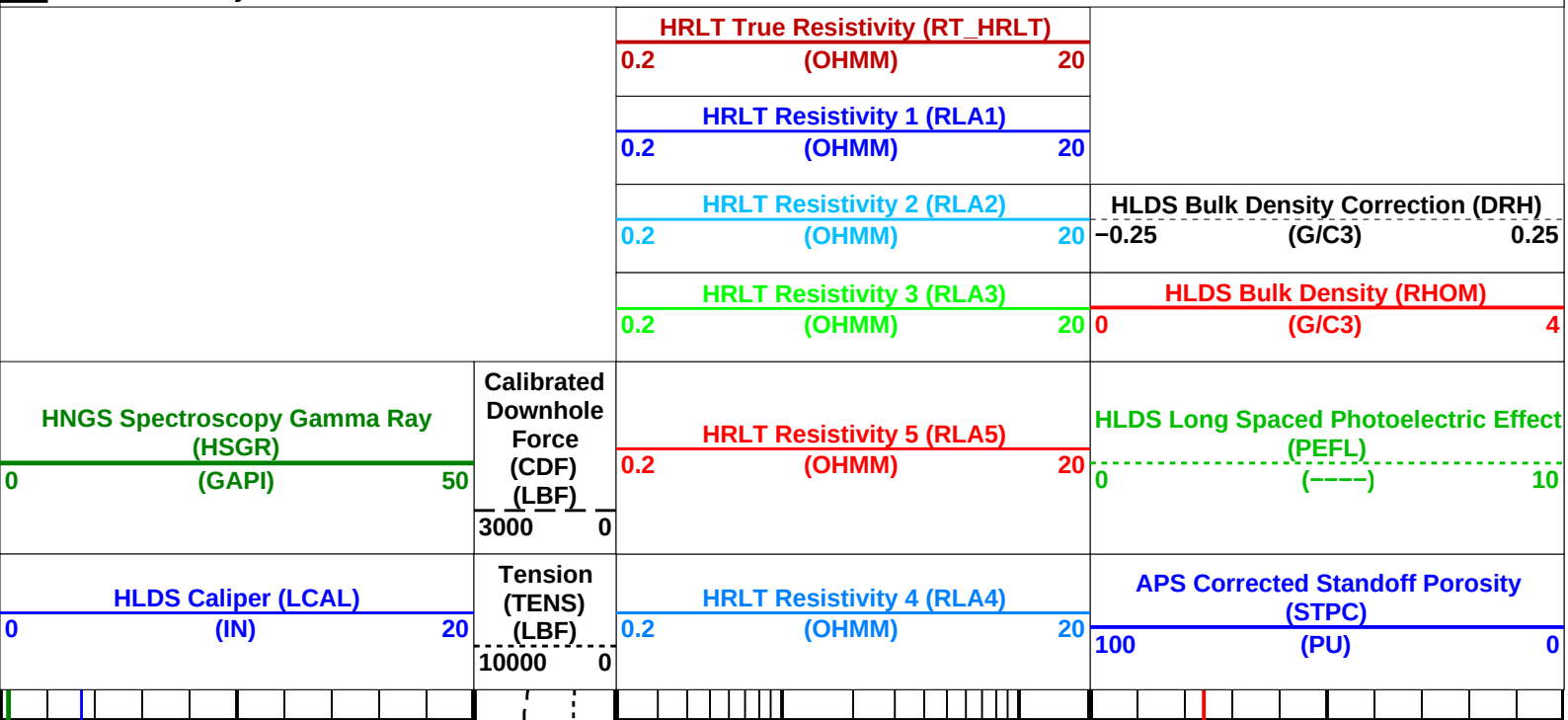
DEFAULT MSS_LDEO_HRLA_LDL_013LUP FN:12 PRODUCER 12−Nov−2015 23:58 1364.7 M 514.2 M

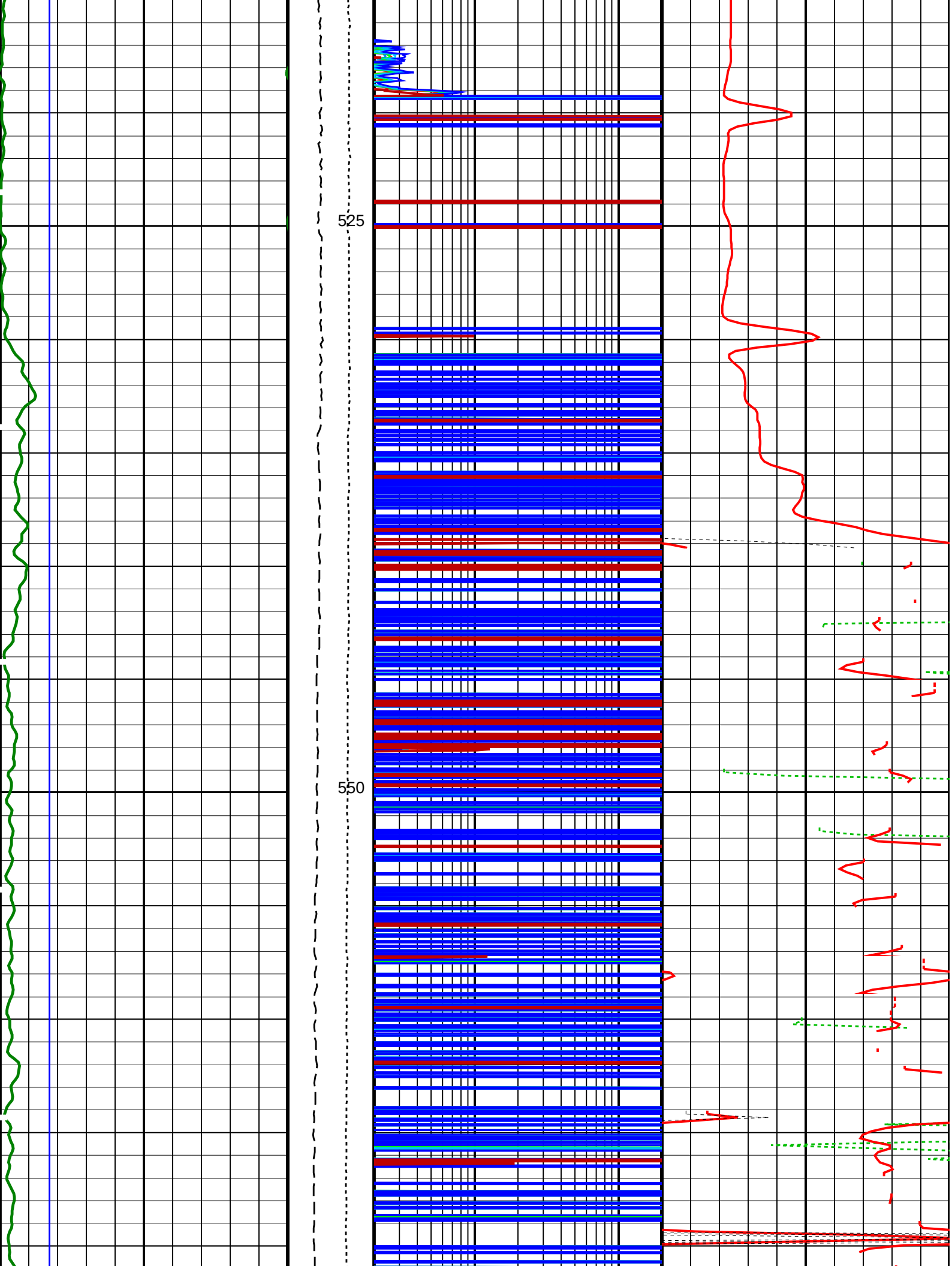
OP System Version: 19C0−187

MSS_LDEO−A	19C0−187	HRLT−B	19C0−187
HLDS	19C0−187	LDSC−B	19C0−187
APS−C	19C0−187	HNGC−B	19C0−187
HNGS−BA	19C0−187	EDTC−B	SKK−5169−EDTCB

PIP SUMMARY

Time Mark Every 60 S

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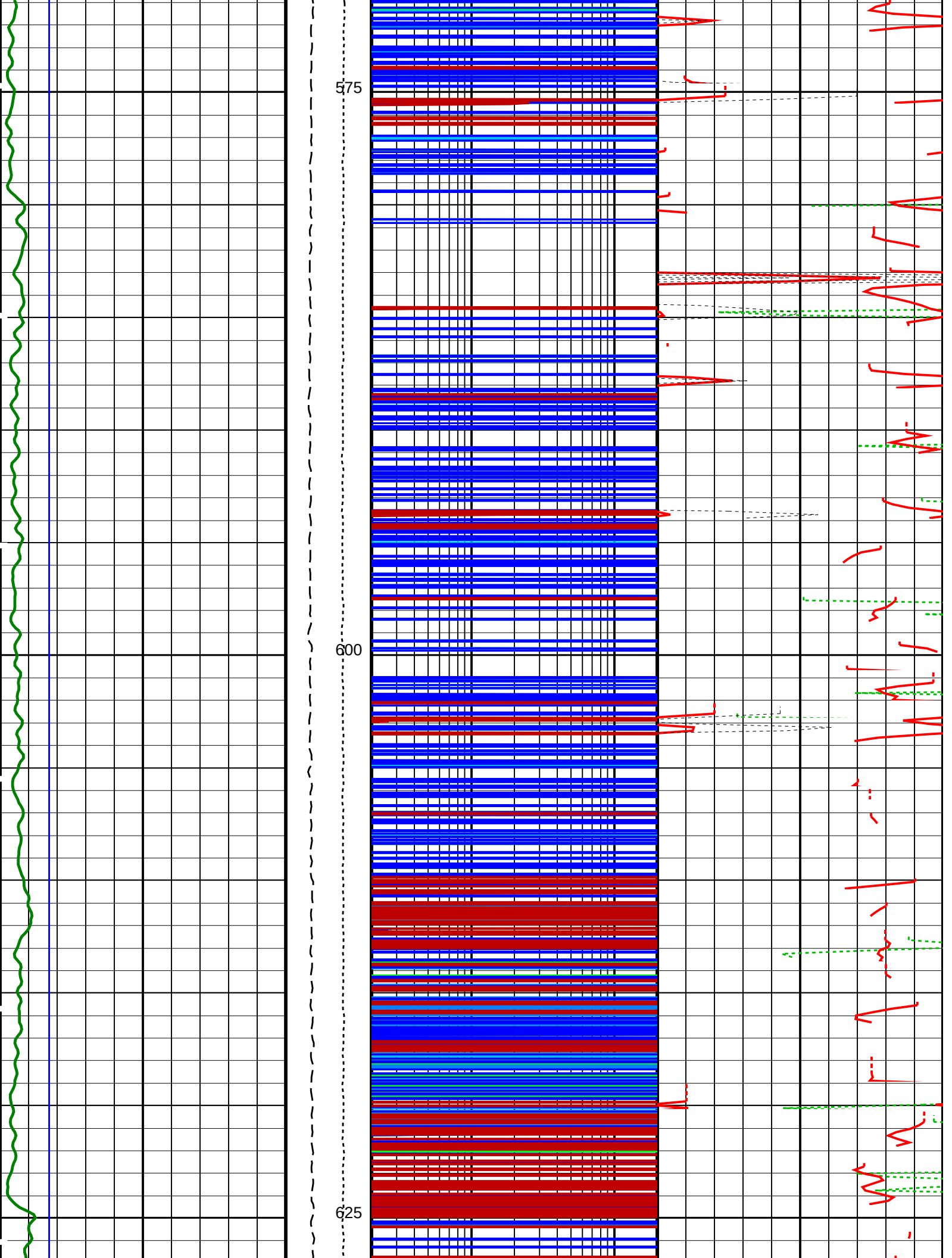
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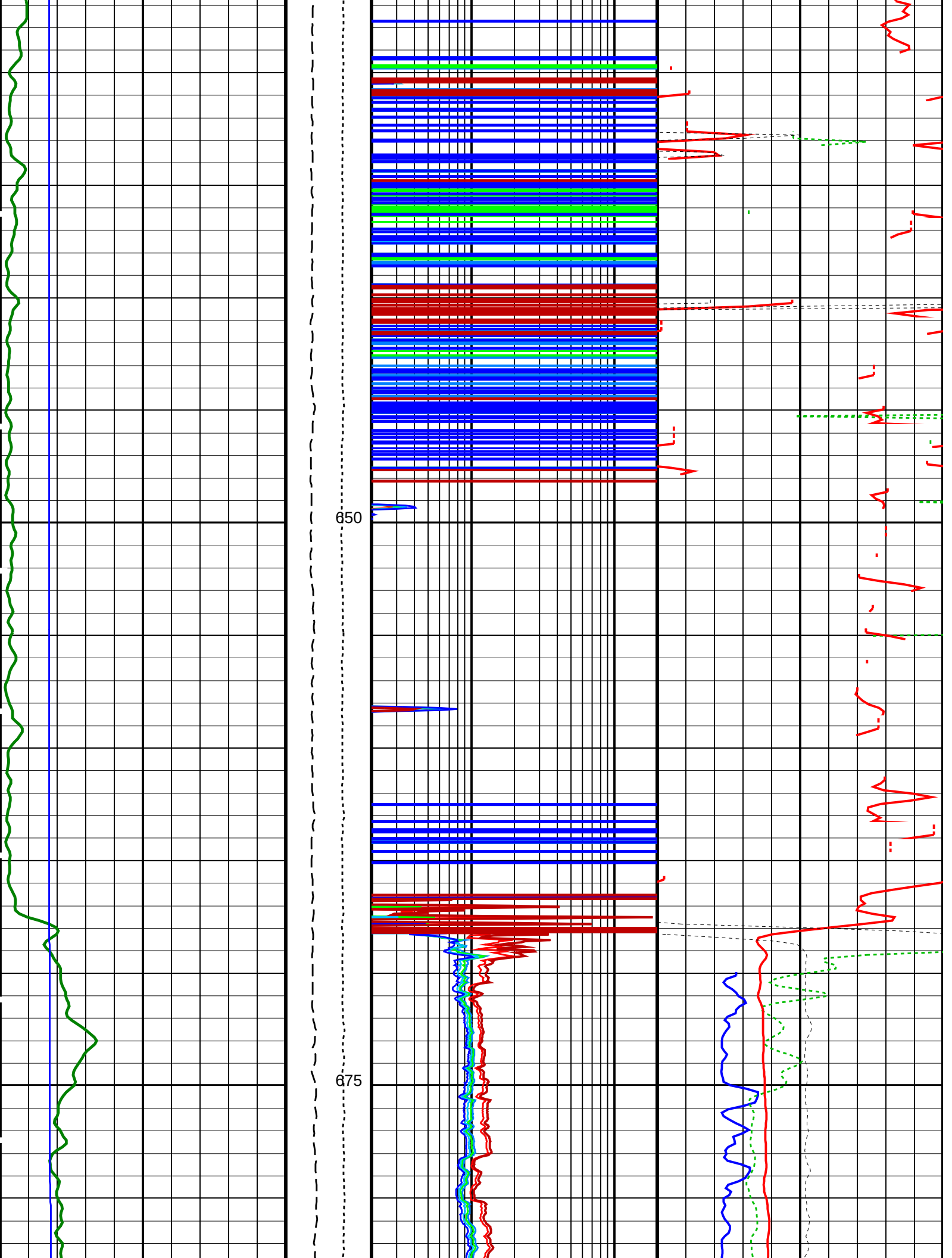
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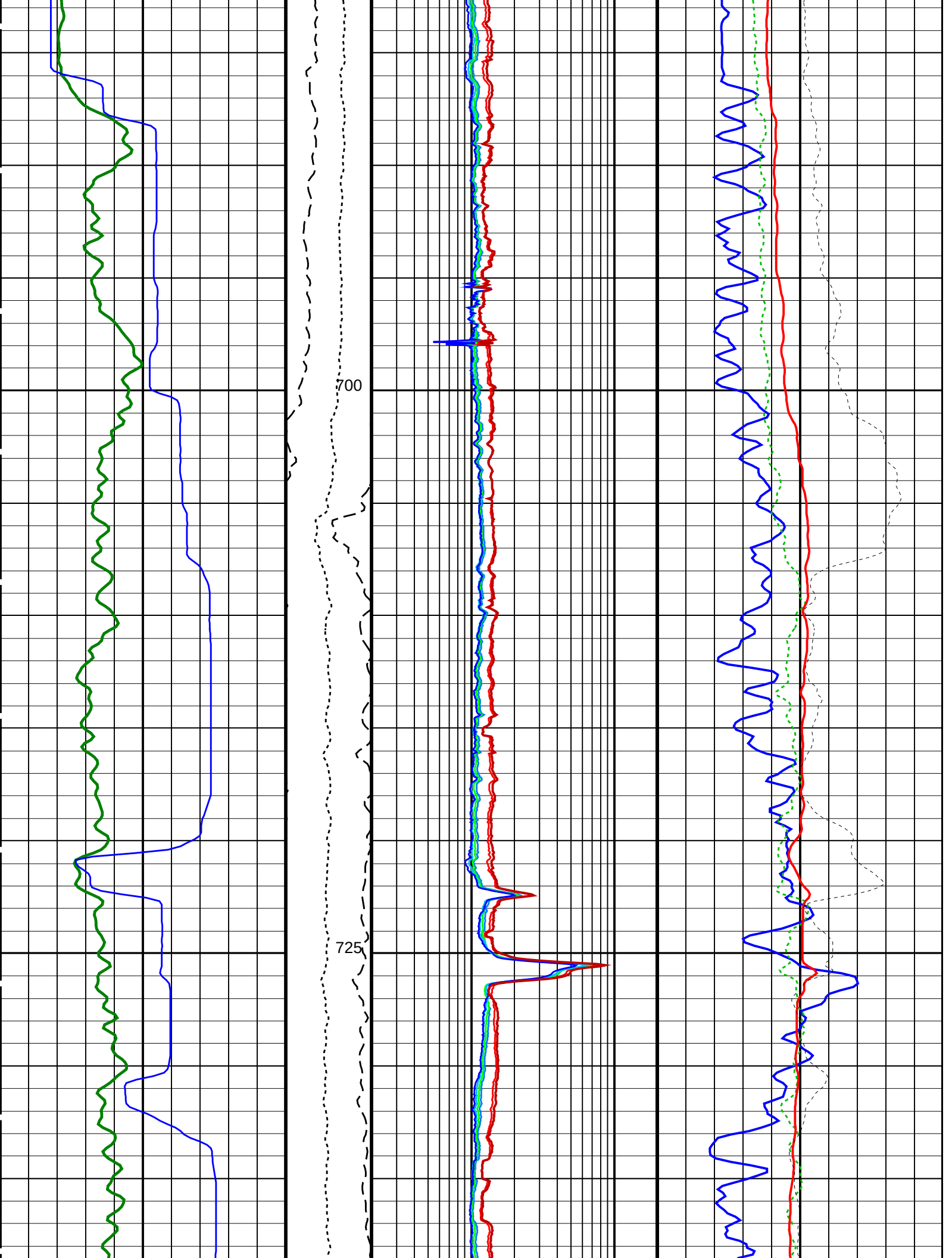
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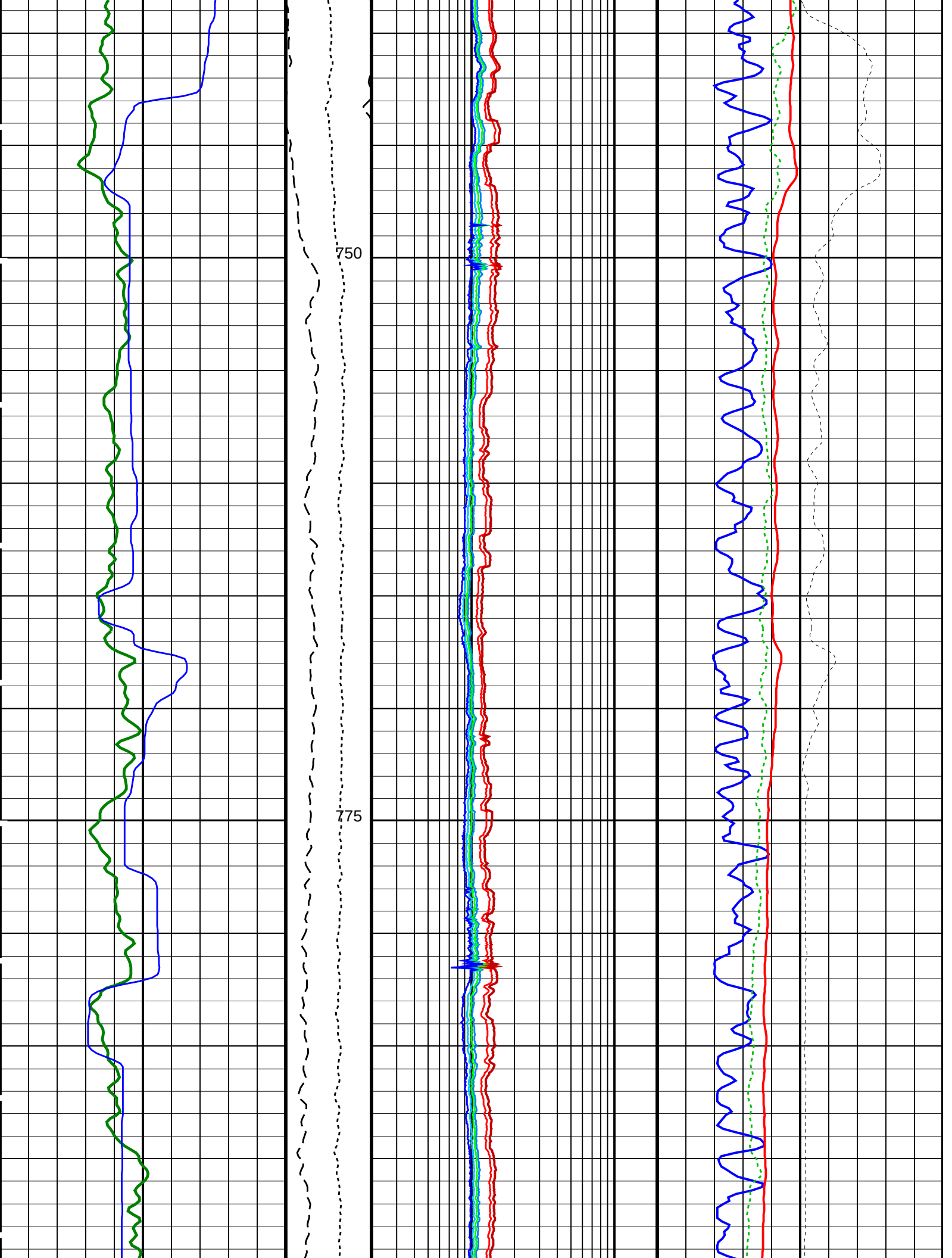
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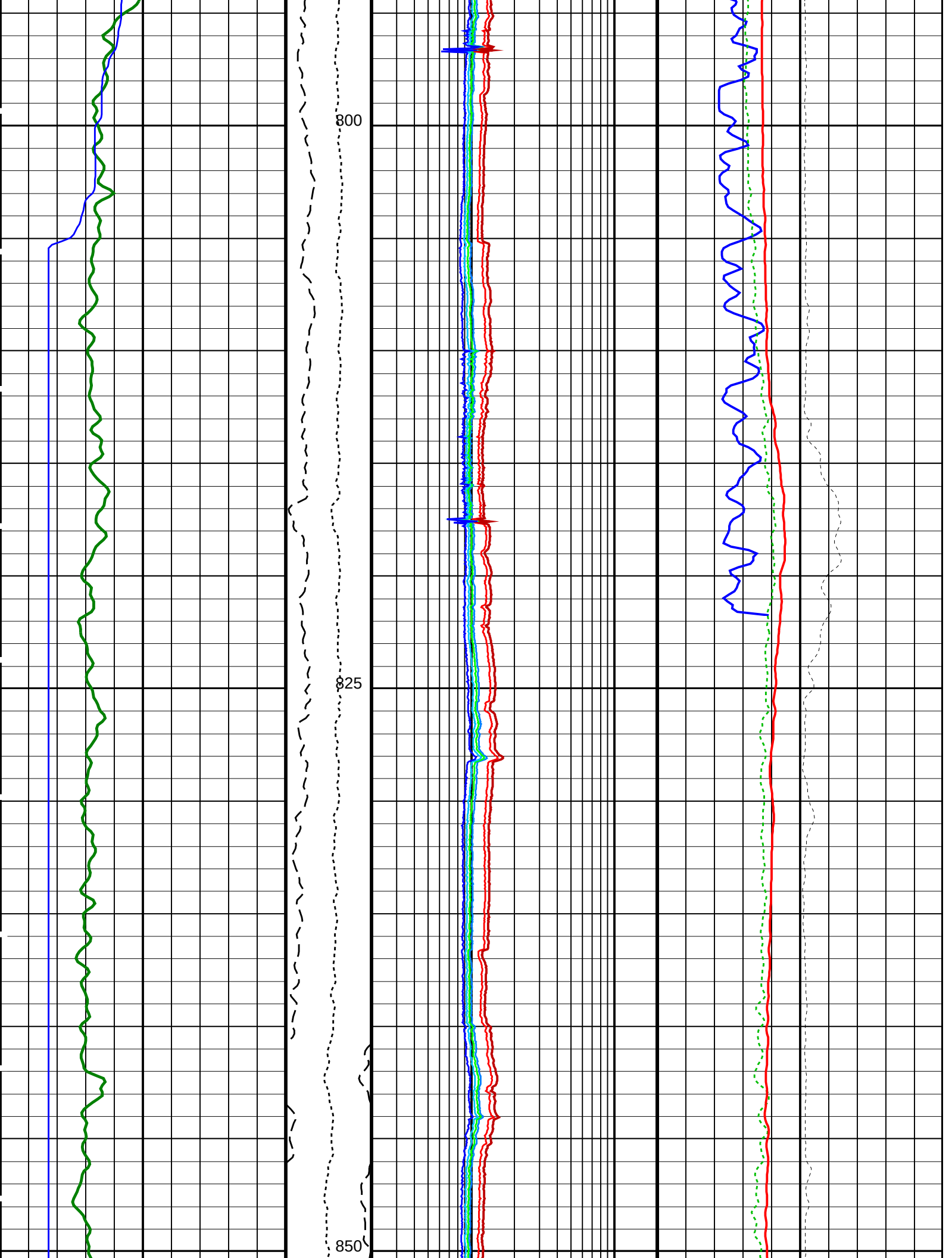
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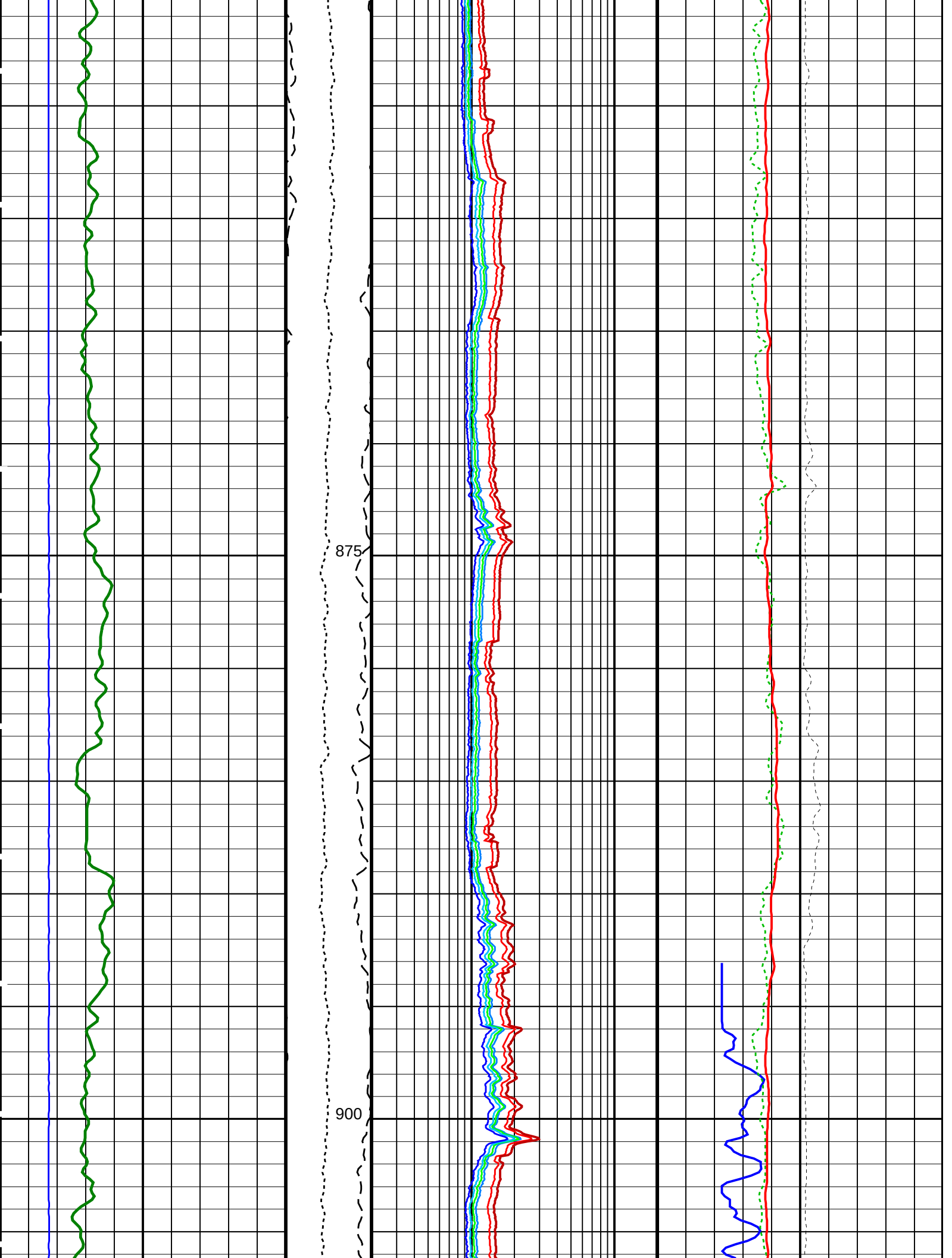
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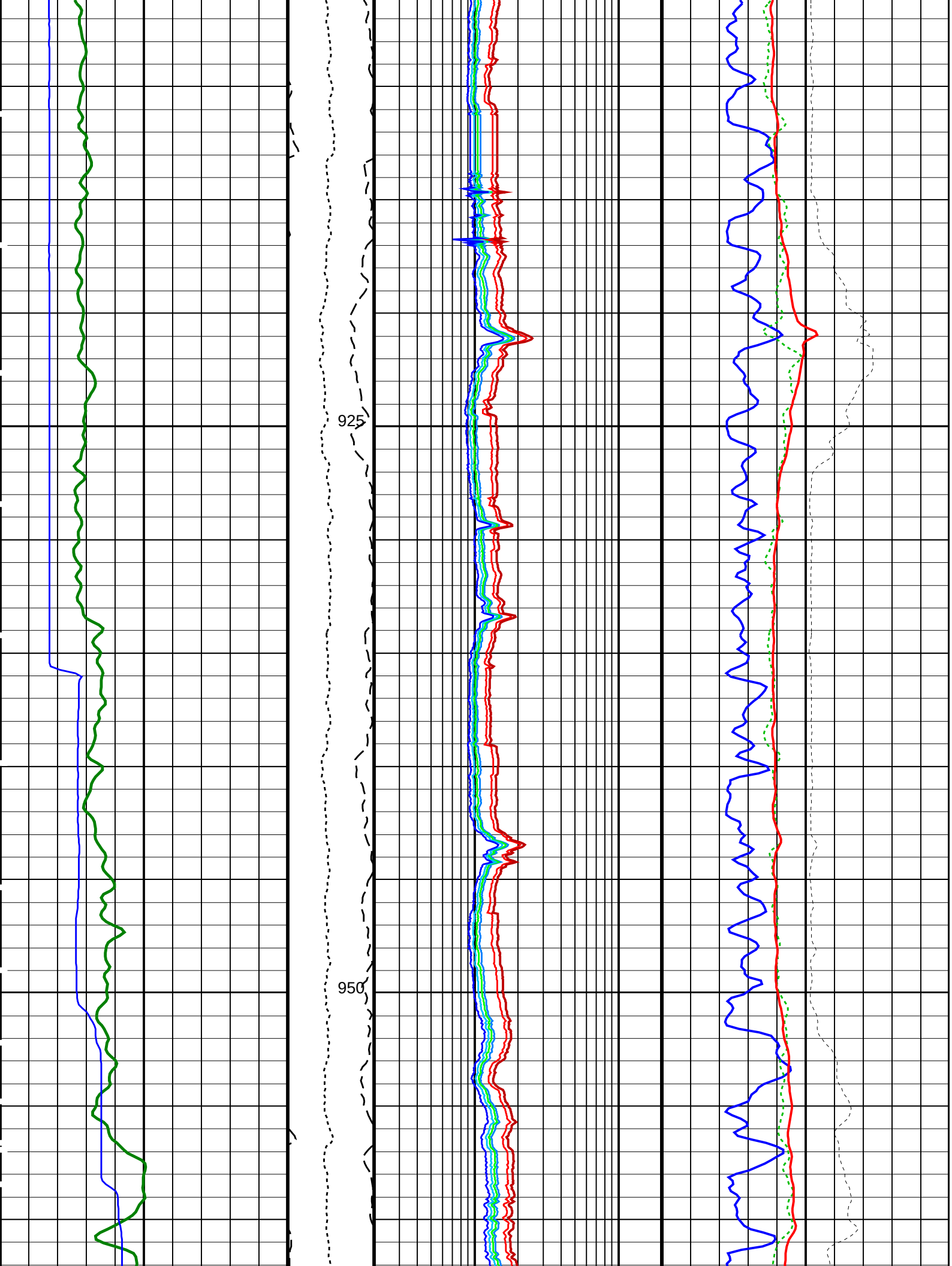
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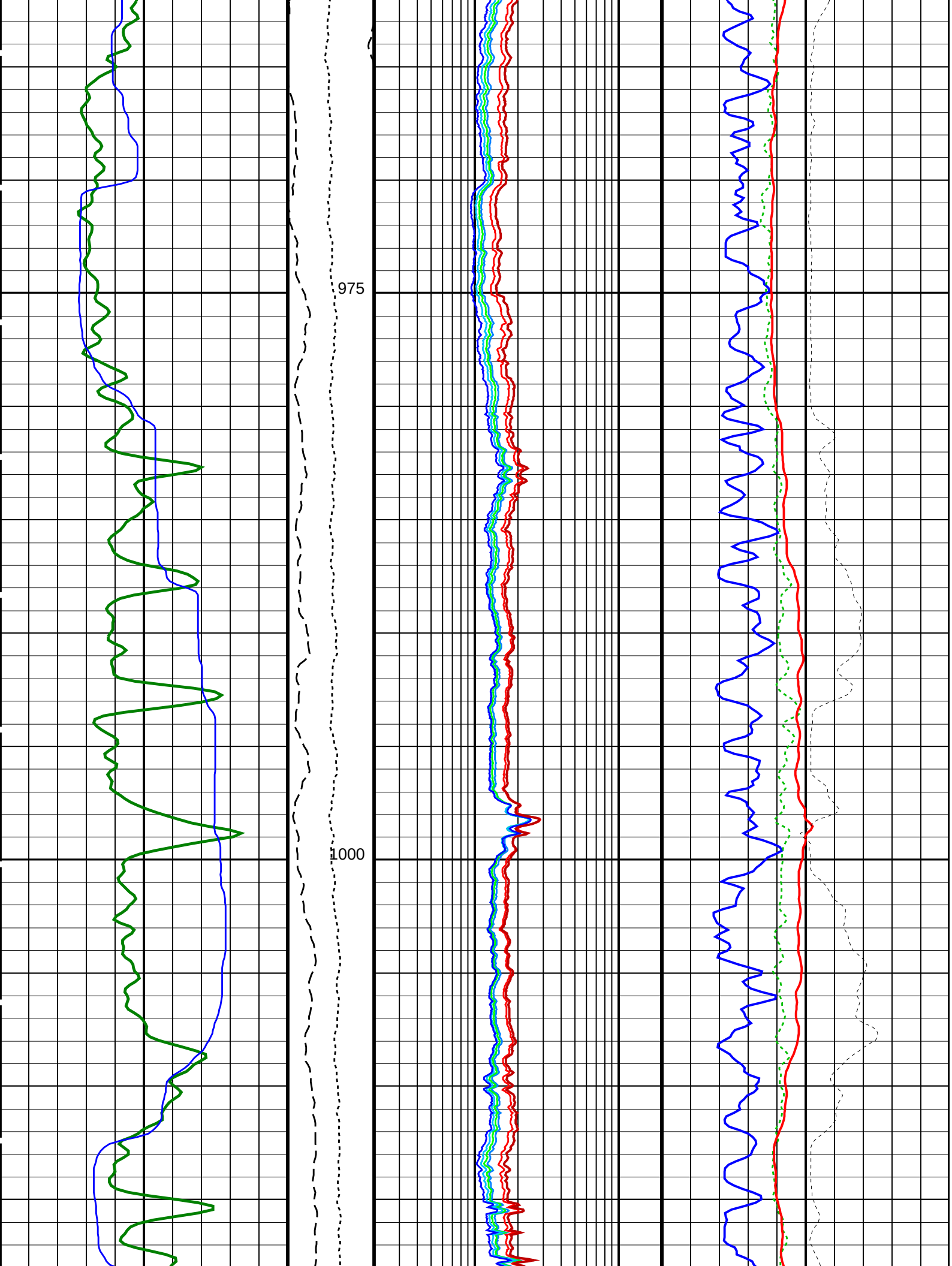
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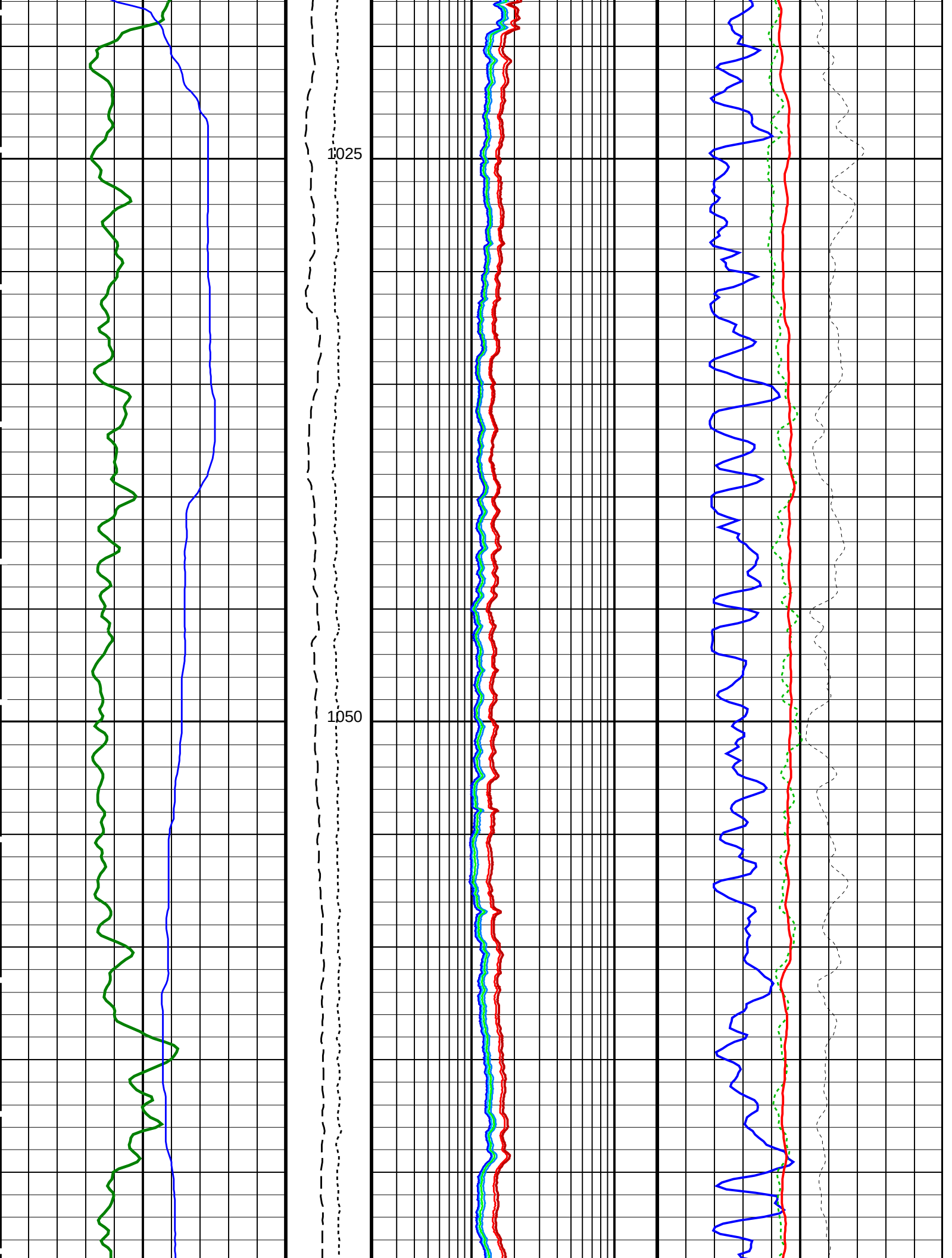
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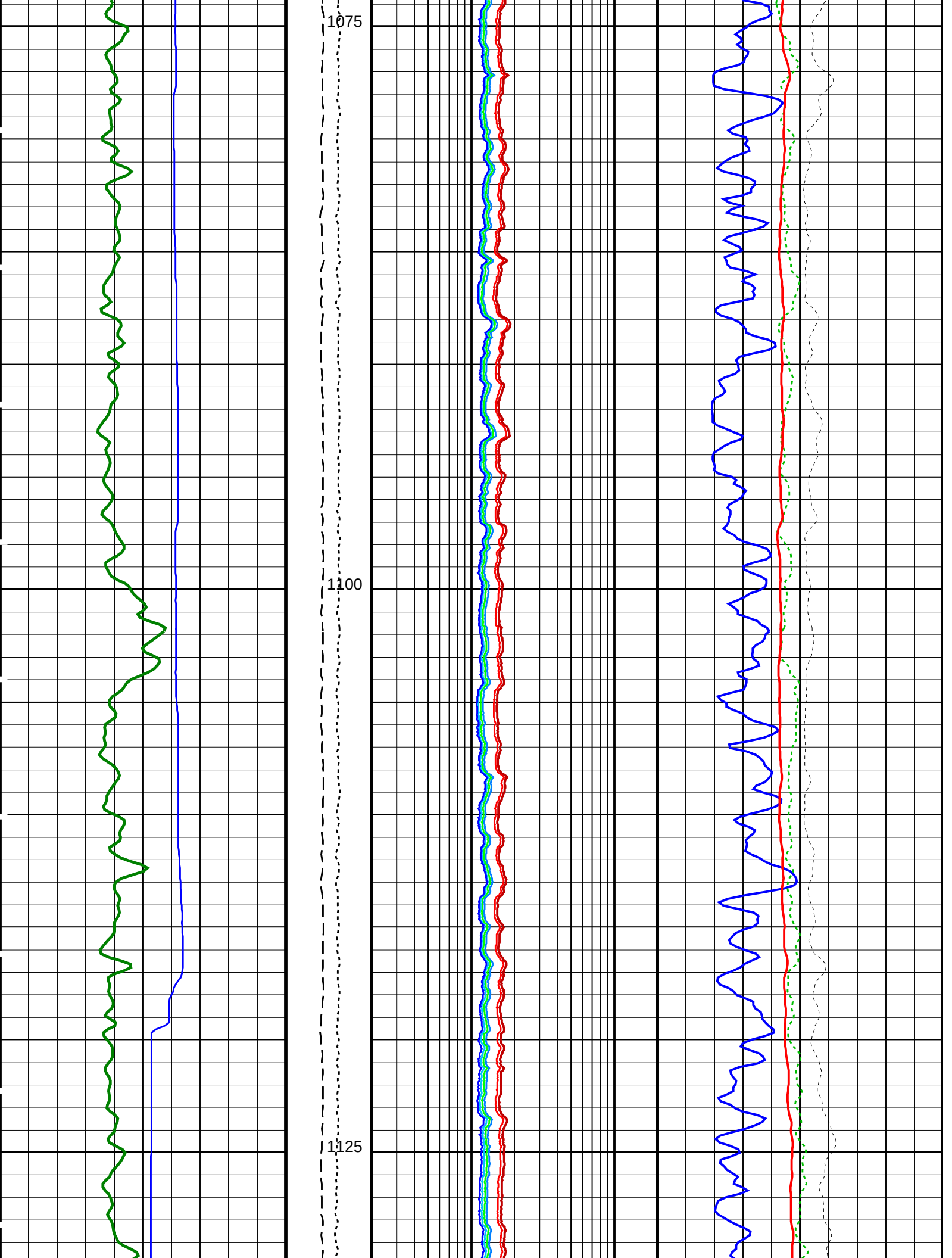
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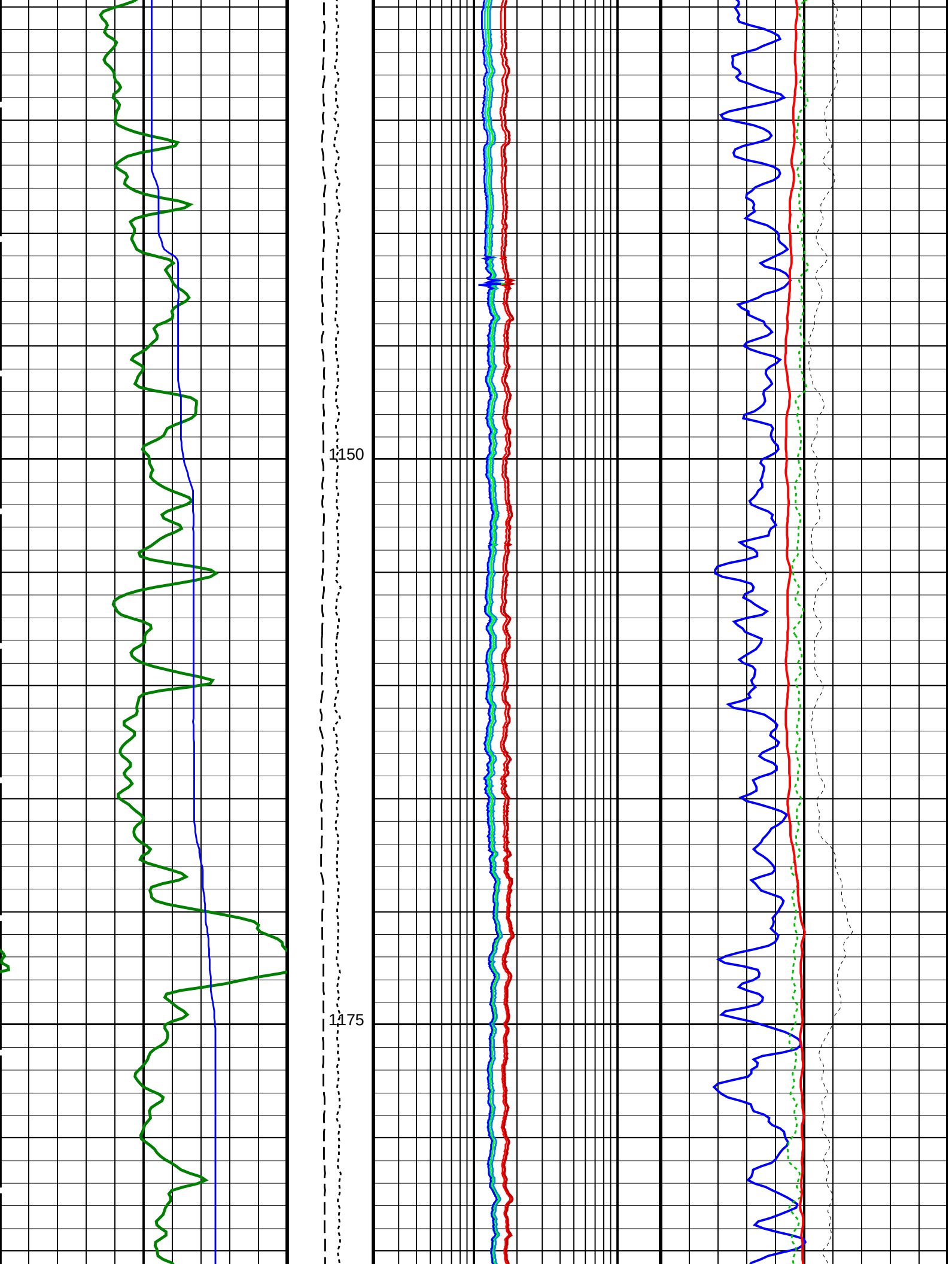
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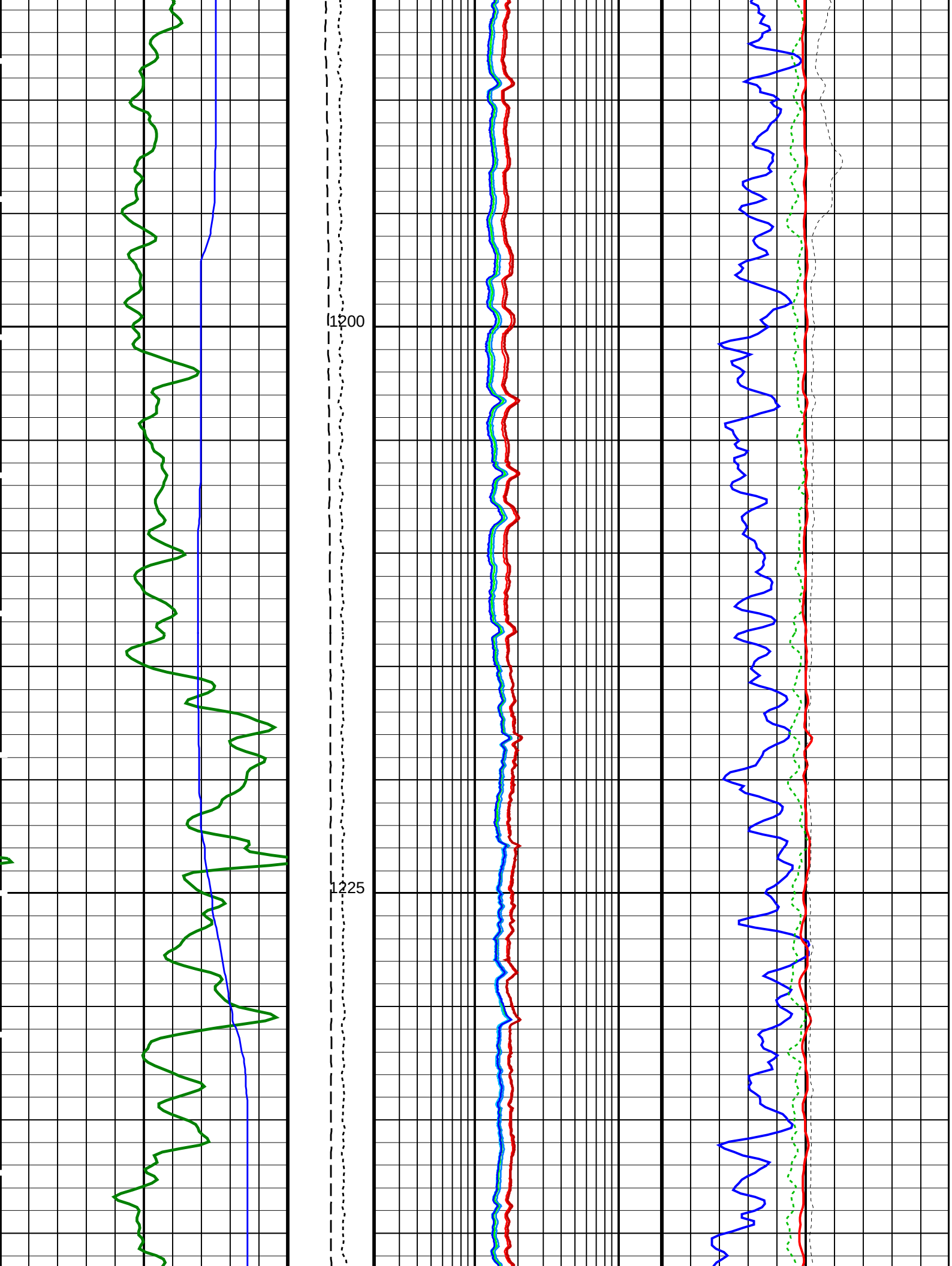
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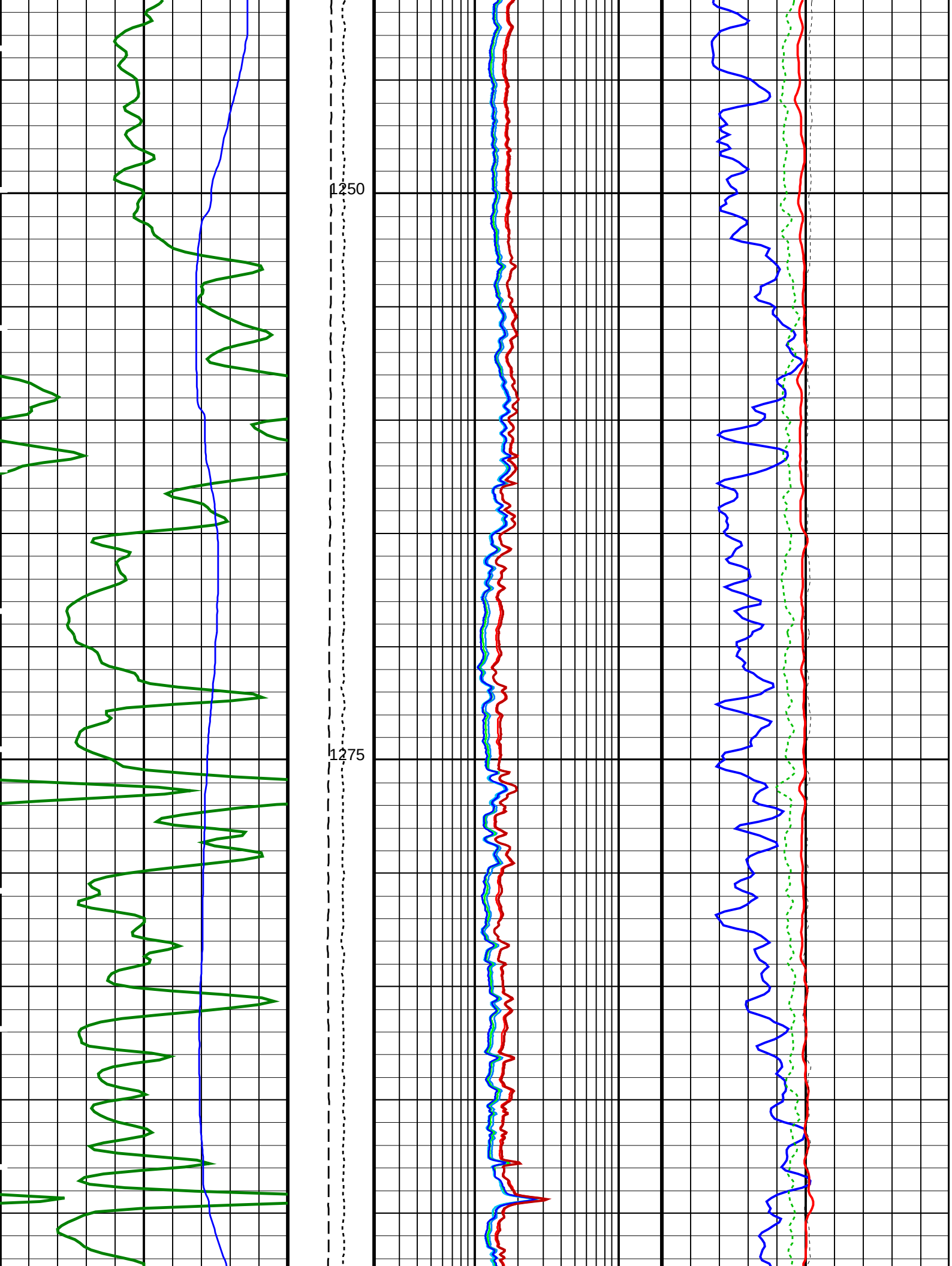
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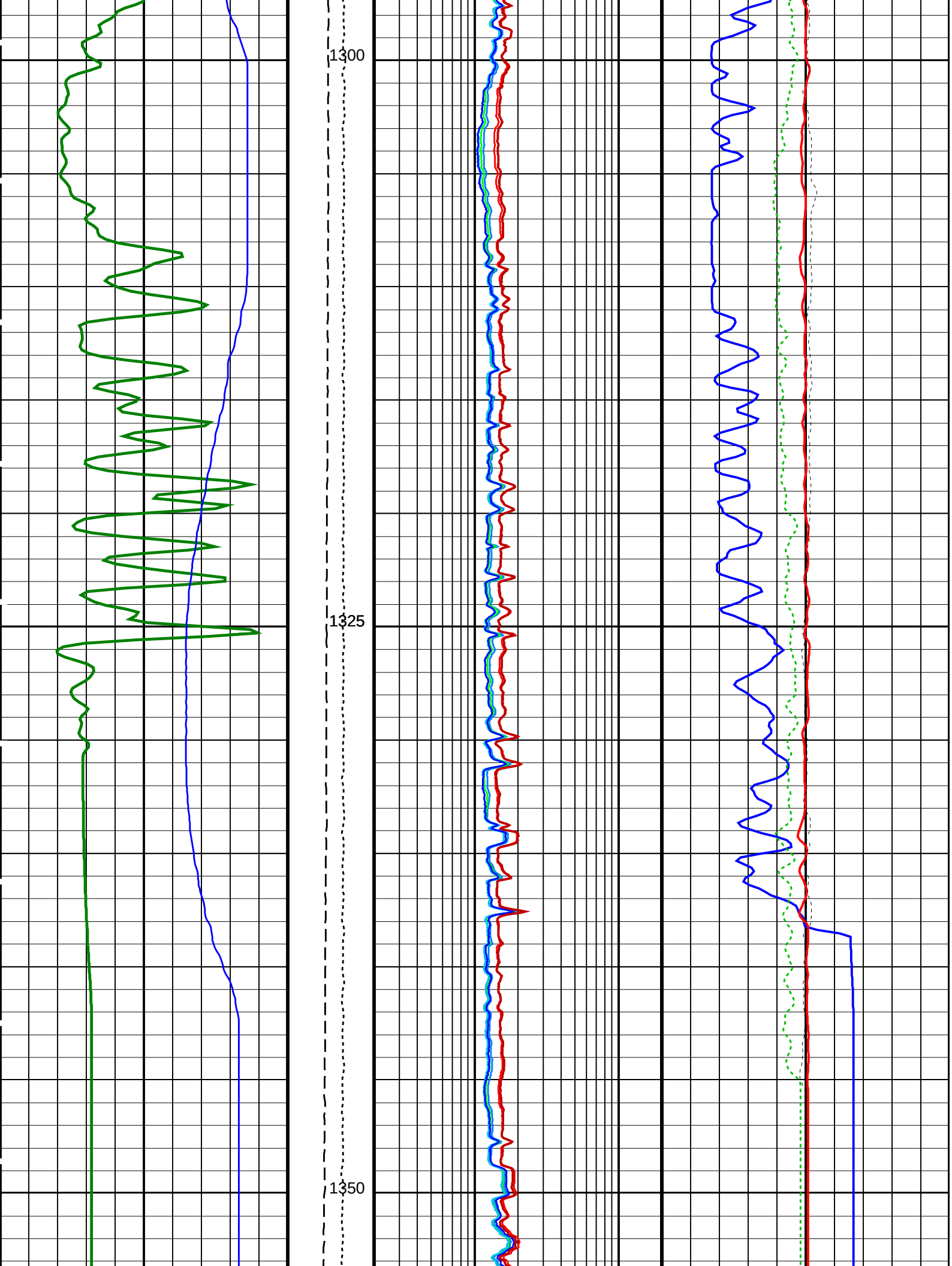
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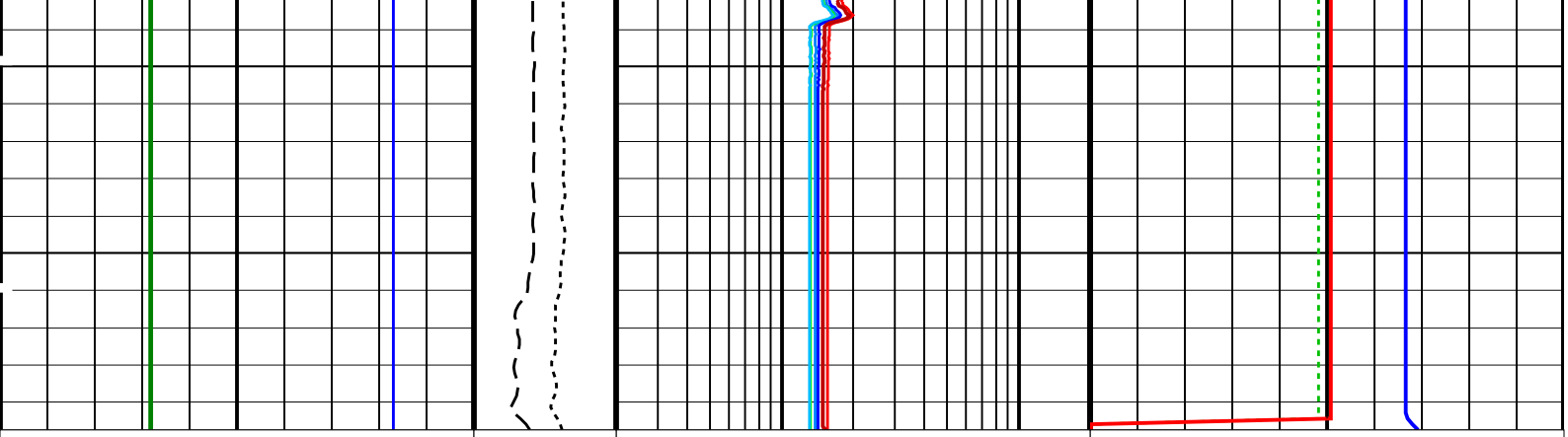


HLDS Caliper (LCAL)	Tension (TENS) (LBF)	HRLT Resistivity 4 (RLA4)	APS Corrected Standoff Porosity (STPC)
0 (IN) 20	10000 0	0.2 (OHMM) 20	100 (PU) 0
HNGS Spectroscopy Gamma Ray (HSGR)	**Calibrated Downhole Force (CDF) (LBF)**	**HRLT Resistivity 5 (RLA5)**	**HLDS Long Spaced Photoelectric Effect (PEFL)**
0 (GAPI) 50	3000 0	0.2 (OHMM) 20	0 (----) 10
		HRLT Resistivity 3 (RLA3)	HLDS Bulk Density (RHOM)
		0.2 (OHMM) 20	0 (G/C3) 4
		HRLT Resistivity 2 (RLA2)	HLDS Bulk Density Correction (DRH)
		0.2 (OHMM) 20	−0.25 (G/C3) 0.25
		HRLT Resistivity 1 (RLA1)	
		0.2 (OHMM) 20	
		HRLT True Resistivity (RT_HRLT)	
		0.2 (OHMM) 20	

PIP SUMMARY

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
	HRLT−B: High Resolution Laterolog Array − B		
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	40	DEGC
CALSTAT	HRLTB Calibration Status	SHALLOW_DONE	
CALTEMP	HRLTB Calibration Temperature	25.3401	DEGC
FREQ0	HRLT Frequency Index for Mode 0	32	
FREQ1	HRLT Frequency Index for Mode 1	128	
FREQ2	HRLT Frequency Index for Mode 2	104	
FREQ3	HRLT Frequency Index for Mode 3	86	
FREQ4	HRLT Frequency Index for Mode 4	56	
FREQ5	HRLT Frequency Index for Mode 5	44	
FREQ6	HRLT Frequency Index for Mode 6	116	
GCSE	Generalized Caliper Selection	LCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
ISSBAR	Barite Mud Switch	NOBARITE	
KFAC_HRLT	HRLT K Factor Option	SONDE	
LOOPCOEF_S	HRLT Loop Coefficient for Shallow Modes	LOW	
LOOPMOD0	HRLT Mode 0 Loop Mode	AUTO	
LOOPMOD1	HRLT Mode 1 Loop Mode	AUTO	
LOOPMOD2	HRLT Mode 2 Loop Mode	AUTO	
LOOPMOD3	HRLT Mode 3 Loop Mode	AUTO	
LOOPMOD4	HRLT Mode 4 Loop Mode	AUTO	
LOOPMOD5	HRLT Mode 5 Loop Mode	AUTO	
LOOPMOD6	HRLT Mode 6 Loop Mode	AUTO	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
PROCINV	Inversion Selection	ON	
PROCMFL	Inversion Micro−Resistivity Selection	NO_EXTERNAL_RXO	
PROCMSO	Mechanical Standoff Fin Size	0	IN

PROCRM	Processing Mud Resistivity Select	HRLT_Compute	
PROCSPO	Sonde Position	Centered	
SHT	Surface Hole Temperature	20	DEGC
HLDS: Hostile Litho−Density Sonde			
CLCL	HLDS LS Control Loop Controller Mode	AUTO_DEFAULT	
CLCS	HLDS SS Control Loop Controller Mode	AUTO_DEFAULT	
CLLS	HLDS Mode Loop Long Spacing	AUTO	
CLSS	HLDS Mode Loop Short Spacing	AUTO	
DHC	Density Hole Correction	BS	
DPPM	Density Porosity Processing Mode	HIRS	
FD	Fluid Density	1	G/C3
LATC	HLDS Activation Correction	ON	
LLDL	HLDS LS Low Level Discriminator DAC	14000	
LLDS	HLDS SS Low Level Discriminator DAC	14000	
LLML	HLDS LS Low Level Discriminator Mode	AUTO	
LLMS	HLDS SS Low Level Discriminator Mode	AUTO	
MDEN	Matrix Density	2.6	G/C3
PHVL	HLDS Long Spacing High Voltage Setting	1000	V
PHVS	HLDS Short Spacing High Voltage Setting	1000	V
PSDL	HLDS LS Pulse Shape Compensation DAC	30000	
PSDS	HLDS SS Pulse Shape Compensation DAC	30000	
PSML	HLDS LS Pulse Shape Compensation Mode	AUTO	
PSMS	HLDS SS Pulse Shape Compensation Mode	AUTO	
APS−C: Accelerator−Porosity Tool			
	APS Software Version	5	
AASD	APS Thermal and Array Detectors High Voltage Setting	1941.83	V
ADSO	APS Array Detectors Data Source Switch	Both	
AFSD	APS Far Detector High Voltage Setting	2032.14	V
AHCS	APS Holesize Correction Source	GCSE	
AHSS	APS Holesize Correction Switch	ON	
AMTY	APS Environmental Corrections Mud Type	WaterBaseBarite	
ANSD	APS Near Detector High Voltage Setting	1700.66	V
ASOS	APS Standoff Correction Switch	ON	
ATSS	APS Temperature−Pressure−Salinity Correction Switch	OFF	
BHFL_APS	APS TNPH Borehole Fluid Type	WATER	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	40	DEGC
BSCO_APS	APS TNPH Borehole Salinity Correction Option	NO	
DPPM	Density Porosity Processing Mode	HIRS	
DSCO_APS	APS TNPH Density Source Correction Option	MEASURED	
FSAL	Formation Salinity	−50000	PPM
FSCO_APS	APS TNPH Formation Salinity Correction Option	NO	
GCSE	Generalized Caliper Selection	LCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
HSCO_APS	APS TNPH Hole Size Correction Option	YES	
ISSBAR	Barite Mud Switch	NOBARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
MCCO_APS	APS TNPH Mud Cake Correction Option	NO	
MCOR_APS	APS TNPH Mud Correction	NATU	
MWCO_APS	APS TNPH Mud Weight Correction Option	YES	
NARC	APS Near/Array Calibration Ratio	1.08475	
NFRC	APS Near/Far Calibration Ratio	0.978244	
PTCO_APS	APS TNPH Pressure/Temperature Correction Option	NO	
SHT	Surface Hole Temperature	20	DEGC
TNCO_APS	APS TNPH Computation Option	YES	
HNGS−BA: Hostile Natural Gamma Ray Sonde			
BAR1	HNGS Detector 1 Barite Constant	1	
BAR2	HNGS Detector 2 Barite Constant	1	
BHK	HNGS Borehole Potassium Correction Concentration	0	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	40	DEGC
CSD1	Inner Casing Outer Diameter	0	IN
CSD2	Outer Casing Outer Diameter	0	IN
CSW1	Inner Casing Weight	0	LB/F
CSW2	Outer Casing Weight	0	LB/F
DBCC	HNGS Barite Constant Correction Flag	NONE	
GCSE	Generalized Caliper Selection	LCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
H1P	HNGS Detector 1 Allow/Disallow In Processing	ALLOW	
H2P	HNGS Detector 2 Allow/Disallow In Processing	ALLOW	
HABK	HNGS Borehole Potassium Running Average	−0.00168484	
HALF	HNGS Alpha Filter Length	60	IN
HCRB	HNGS Apply Borehole Potassium Correction	NONE	
HMWM	Mud Weighting Material	NATU	
HNPE	HNGS Processing Enable	YES	
ISSBAR	Barite Mud Switch	NOBARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
S1BI	HNGS Detector 1 Calibration Bismuth Count Rate	1.3	CPS

S2BI	HNGS Detector 2 Calibration Bismuth Count Rate	1.3	CPS
SGRC	HNGS Standard Gamma−Ray Correction Flag	YES	
SHT	Surface Hole Temperature	20	DEGC
TPOS	Tool Position	ECCE	
VBA1	HNGS Detector 1 Variable Barite Factor Running Average	1.03761	
VBA2	HNGS Detector 2 Variable Barite Factor Running Average	1.01409	
EDTC−B: Enhanced DTS Cartridge			
BHFL	Borehole Fluid Type	WATER	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	40	DEGC
BSCO	Borehole Salinity Correction Option	NO	
CCCO	Casing & Cement Thickness Correction Option	NO	
DPPM	Density Porosity Processing Mode	HIRS	
FSAL	Formation Salinity	−50000	PPM
FSCO	Formation Salinity Correction Option	NO	
GCSE	Generalized Caliper Selection	LCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
HSCO	Hole Size Correction Option	YES	
ISSBAR	Barite Mud Switch	NOBARITE	
ISSBAR_EDTC	Nuclear Mud Type	NOBARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
MCCO	Mud Cake Correction Option	NO	
MCOR	Mud Correction	NATU	
MWCO	Mud Weight Correction Option	YES	
PTCO	Pressure/Temperature Correction Option	NO	
SDAT	Standoff Data Source	SOCN	
SHT	Surface Hole Temperature	20	DEGC
SOCN	Standoff Distance	0.5	IN
SOCO	Standoff Correction Option	NO	
TPOS_EDTC	EDTC Tool Centered/Eccentered	Eccentered	
U−ETELM_EDTS	Telemetry Mode for eWAFE	Standard_EDTS	
U−TELM_EDTS	Telemetry Mode for WAFE	Standard_EDTS	
System and Miscellaneous			
ALTDPCHAN	Name of alternate depth channel	SpeedCorrectedDepth	
BS	Bit Size	9.875	IN
BSAL	Borehole Salinity	38000.00	PPM
CSIZ	Current Casing Size	5.500	IN
CWEI	Casing Weight	168.00	LB/F
DFD	Drilling Fluid Density	1.05	G/C3
FLEV	Fluid Level	−50000.00	M
MST	Mud Sample Temperature	23.00	DEGC
PBVSADP	Use alternate depth channel for playback	NO	
RMFS	Resistivity of Mud Filtrate Sample	−50000.0000	OHMM
RW	Resistivity of Connate Water	1.0000	OHMM
TD	Total Depth	1407.6	M
TDD	Total Depth − Driller	1407.60	M
TDL	Total Depth − Logger	1407.60	M
TWS	Temperature of Connate Water Sample	37.78	DEGC

Format: TripleCombo Vertical Scale: 1:200 Graphics File Created: 12−Nov−2015 23:58

OP System Version: 19C0−187

MSS_LDEO−A	19C0−187	HRLT−B	19C0−187
HLDS	19C0−187	LDSC−B	19C0−187
APS−C	19C0−187	HNGC−B	19C0−187
HNGS−BA	19C0−187	EDTC−B	SKK−5169−EDTCB

Output DLIS Files

DEFAULT	MSS_LDEO_HRLA_LDL_013LUP	FN:12	PRODUCER	12−Nov−2015 23:58		

Company: International Ocean Discovery Program Well: Expedition 359, Site U1468B

Output DLIS Files

DEFAULT	MSS_LDEO_HRLA_LDL_013LUP	FN:12	PRODUCER	12−Nov−2015 23:58	1364.7 M	514.2 M

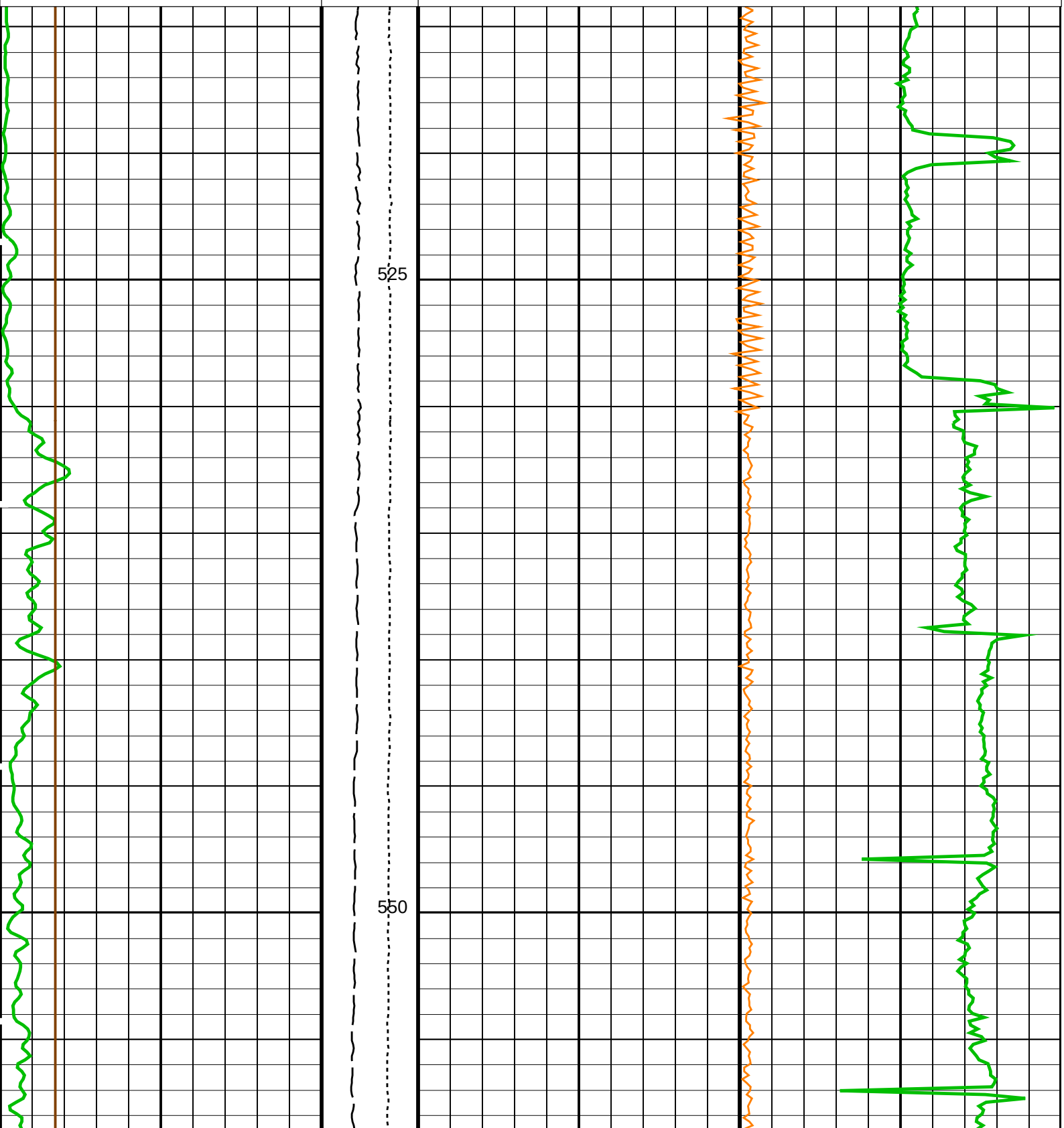
OP System Version: 19C0−187

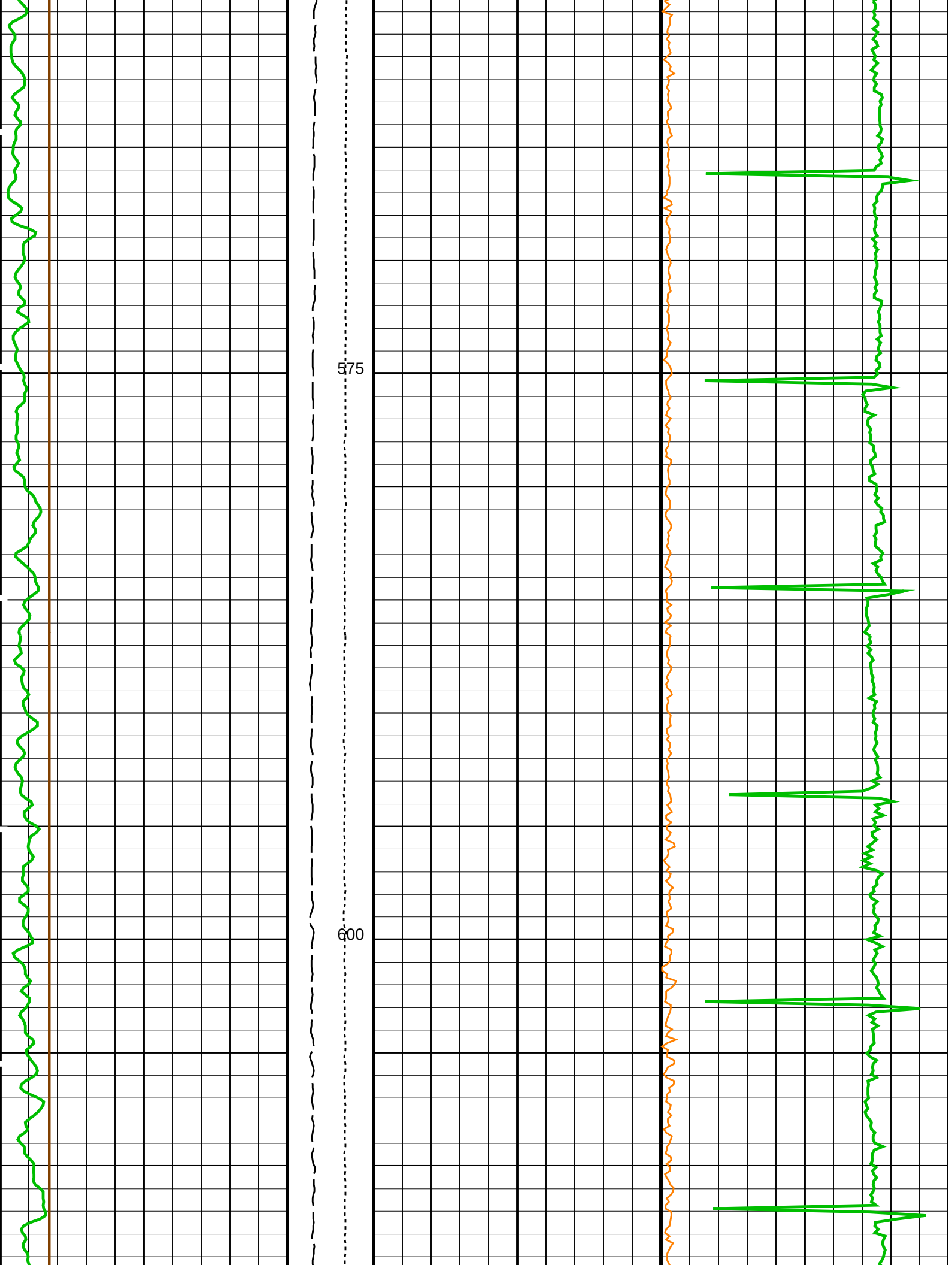
MSS_LDEO−A	19C0−187	HRLT−B	19C0−187
HLDS	19C0−187	LDSC−B	19C0−187
APS−C	19C0−187	HNGC−B	19C0−187
HNGS−BA	19C0−187	EDTC−B	SKK−5169−EDTCB

PIP SUMMARY

Time Mark Every 60 S

Gamma Ray (GR_EDTC)	Calibrated Downhole Force (CDF) (LBF)	Dual−Coil Susceptibility (MSSLSUS_LDEO)
0 (GAPI) 50	3000 0	0 (PPM) 5000
HLDS Caliper (LCAL)	**Tension (TENS) (LBF)**	**Axial Acceleration (MSSZACC_LDEO)**
0 (IN) 20	10000 0	0 (M/S2) 20

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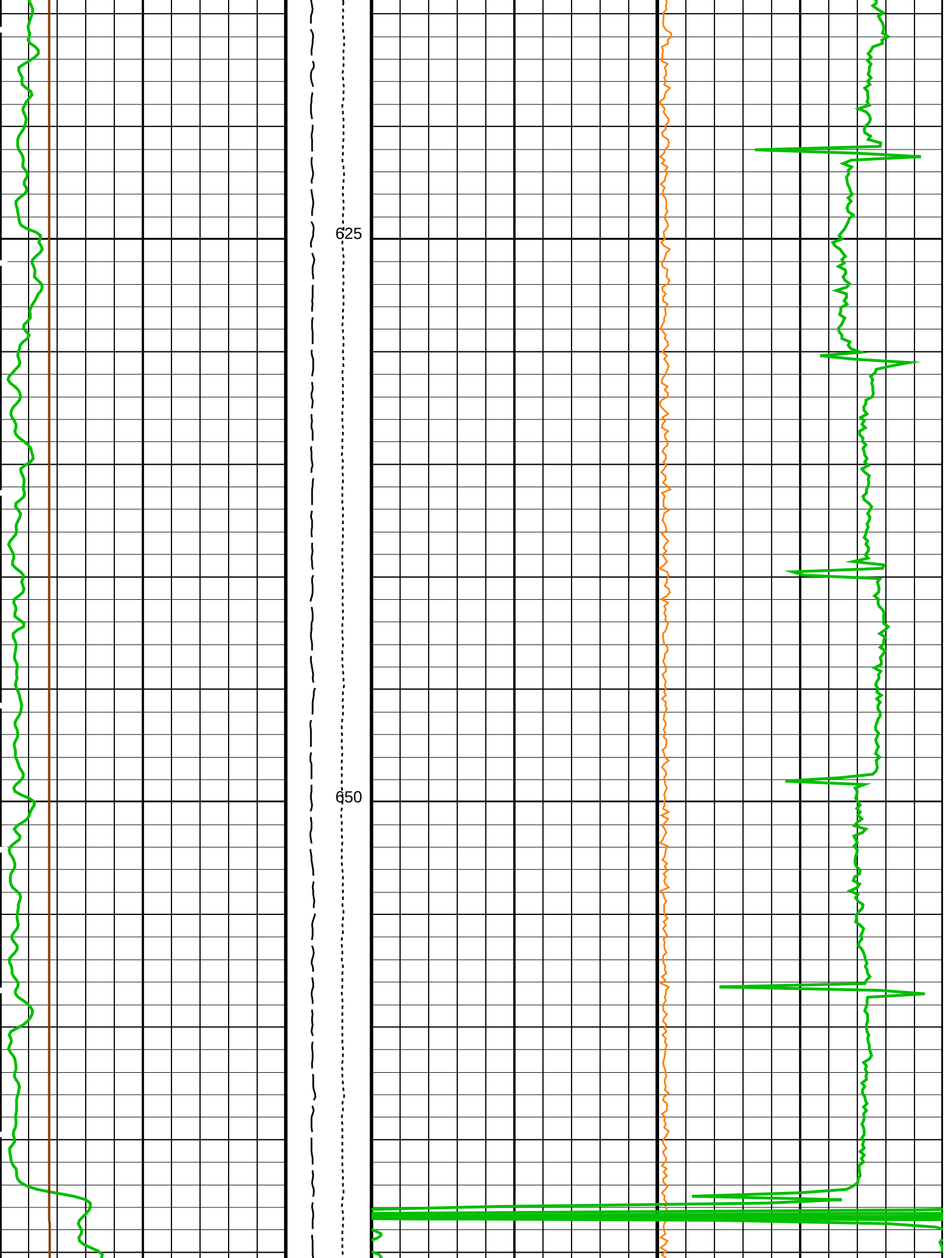
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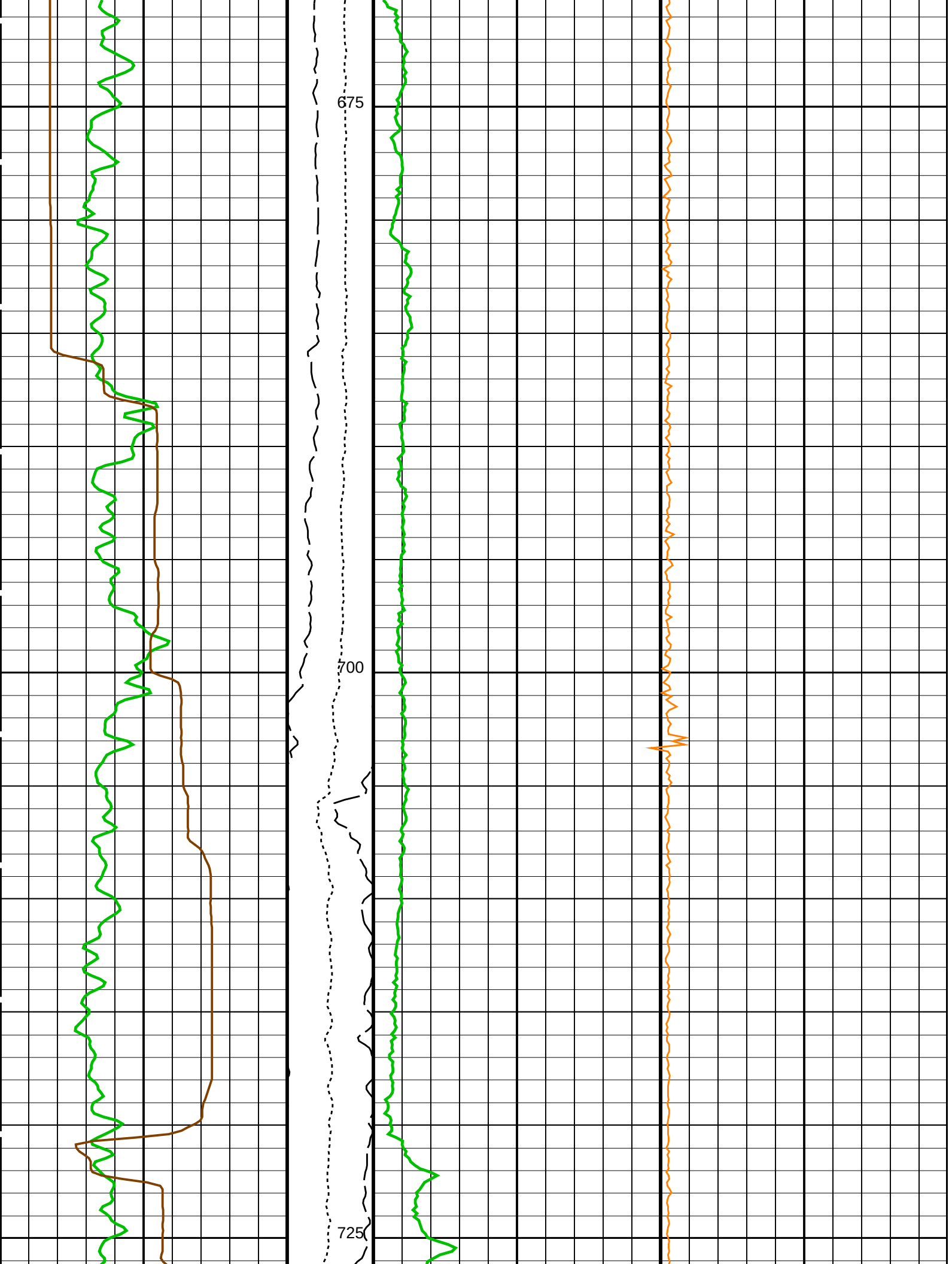
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725


750
775


800
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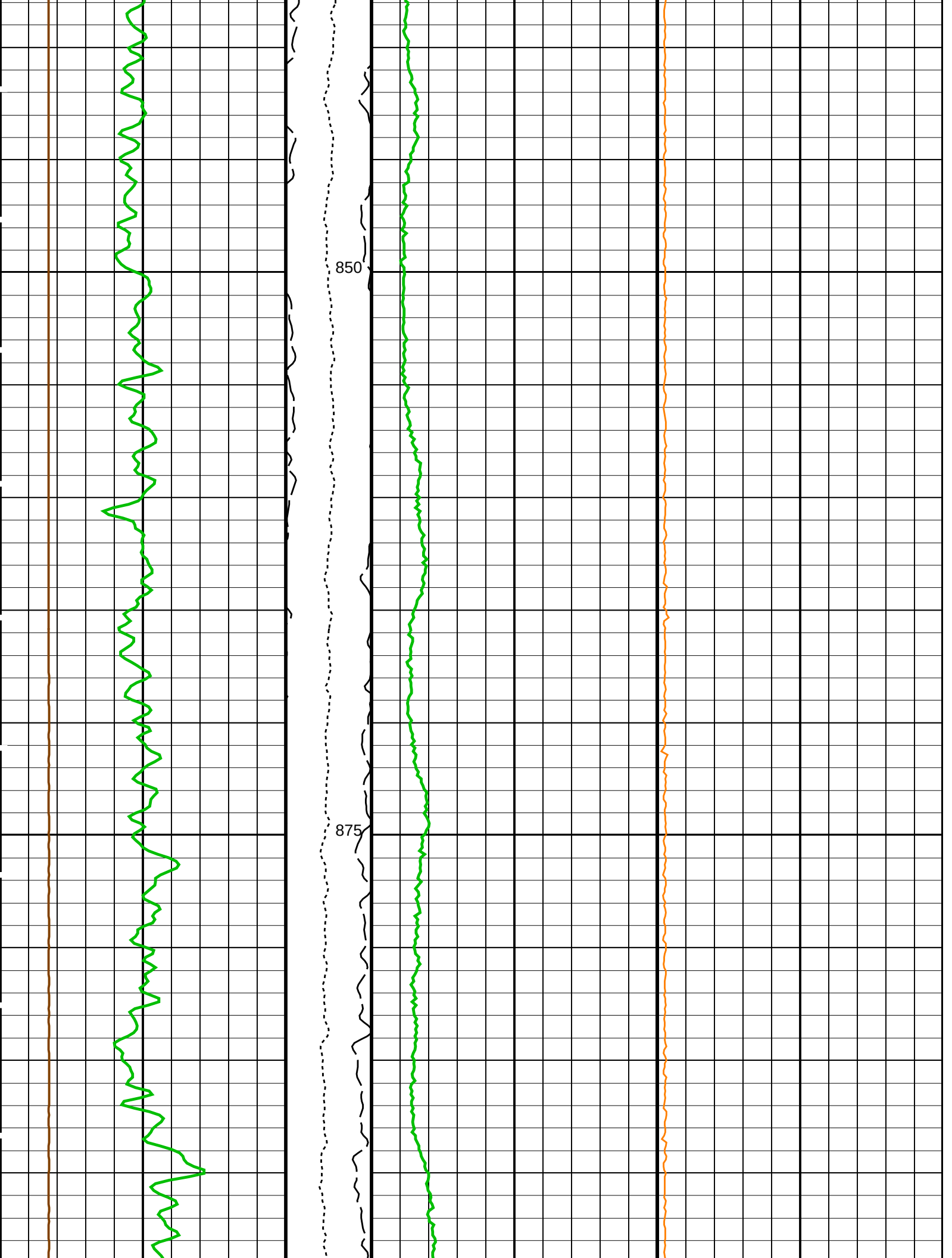
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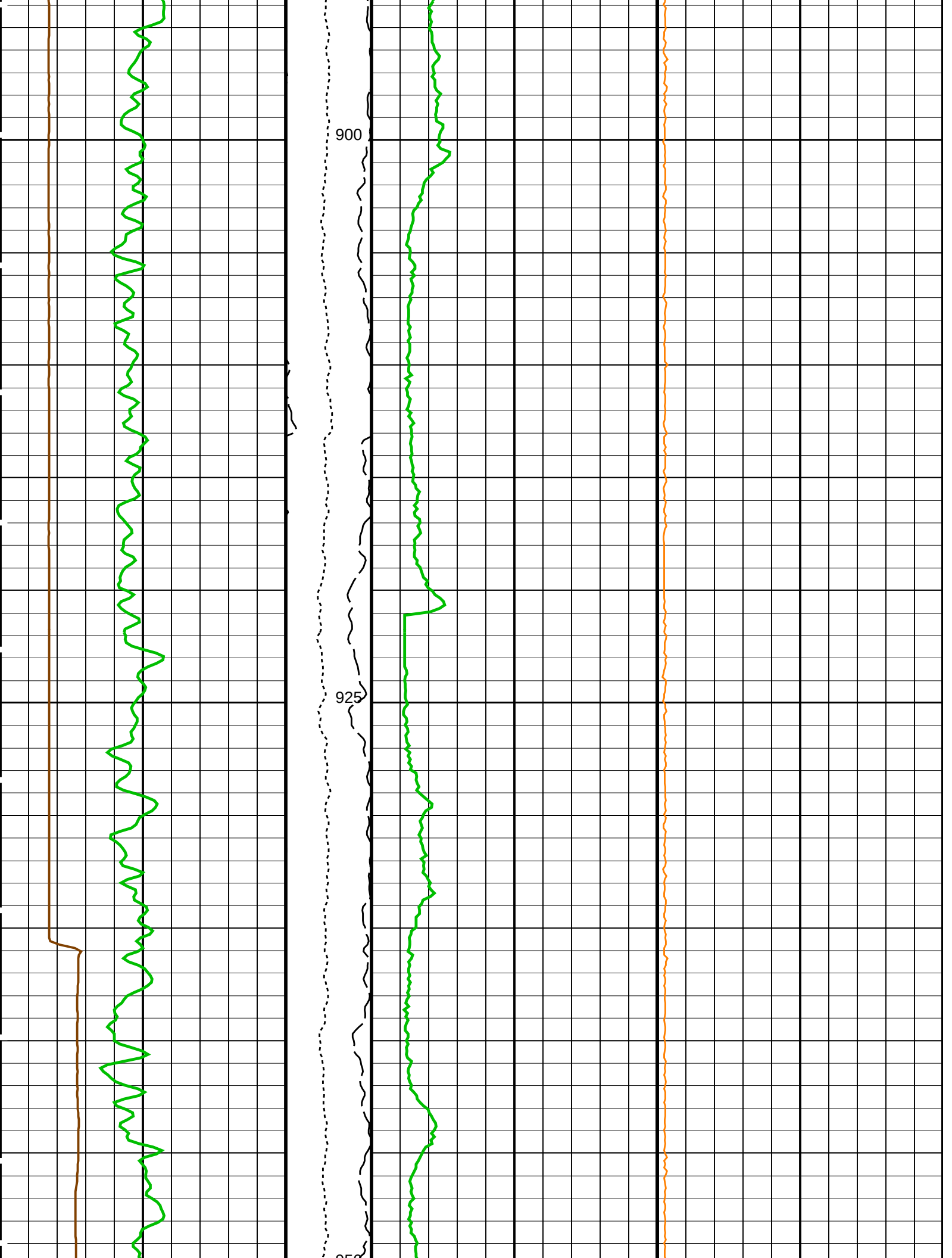
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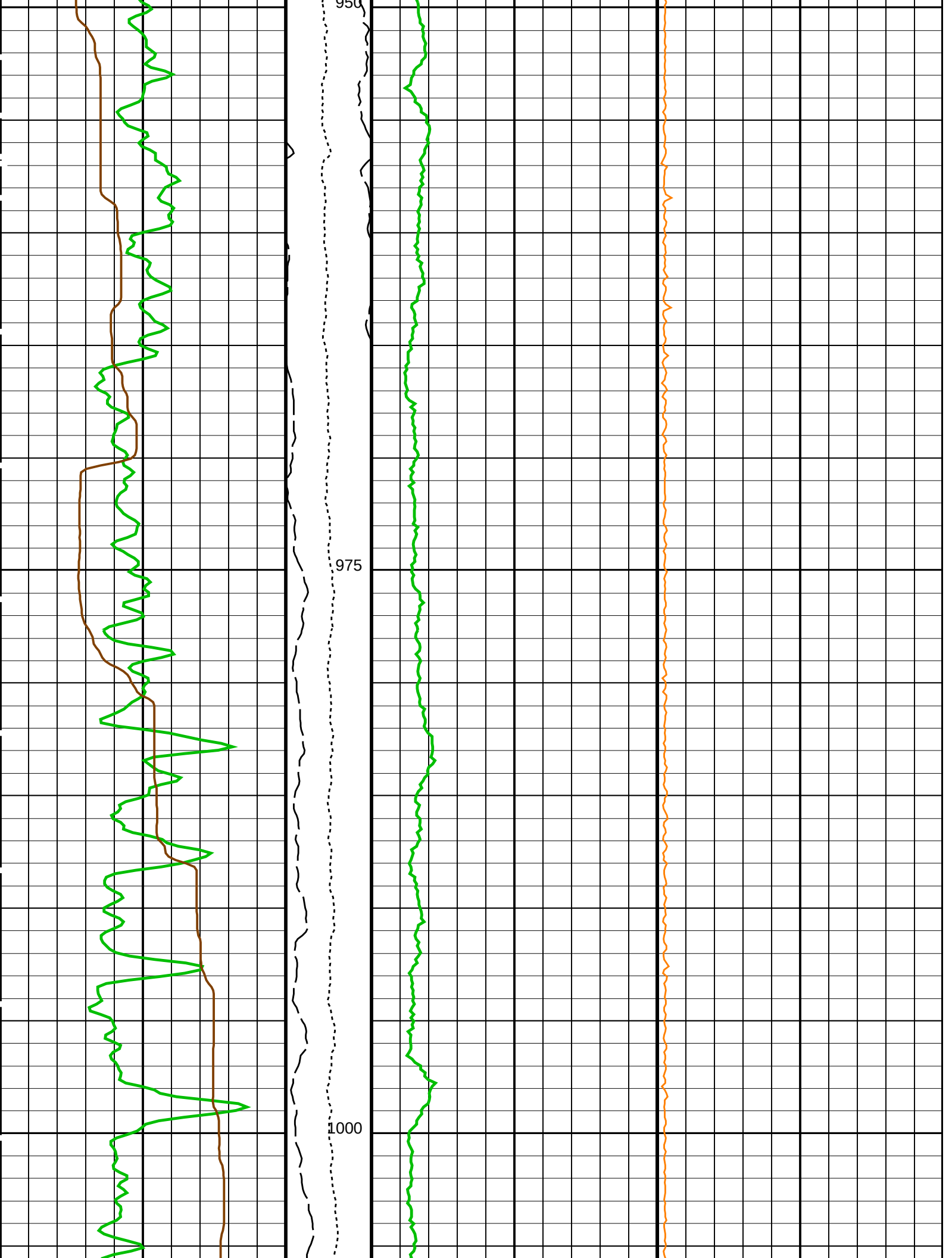
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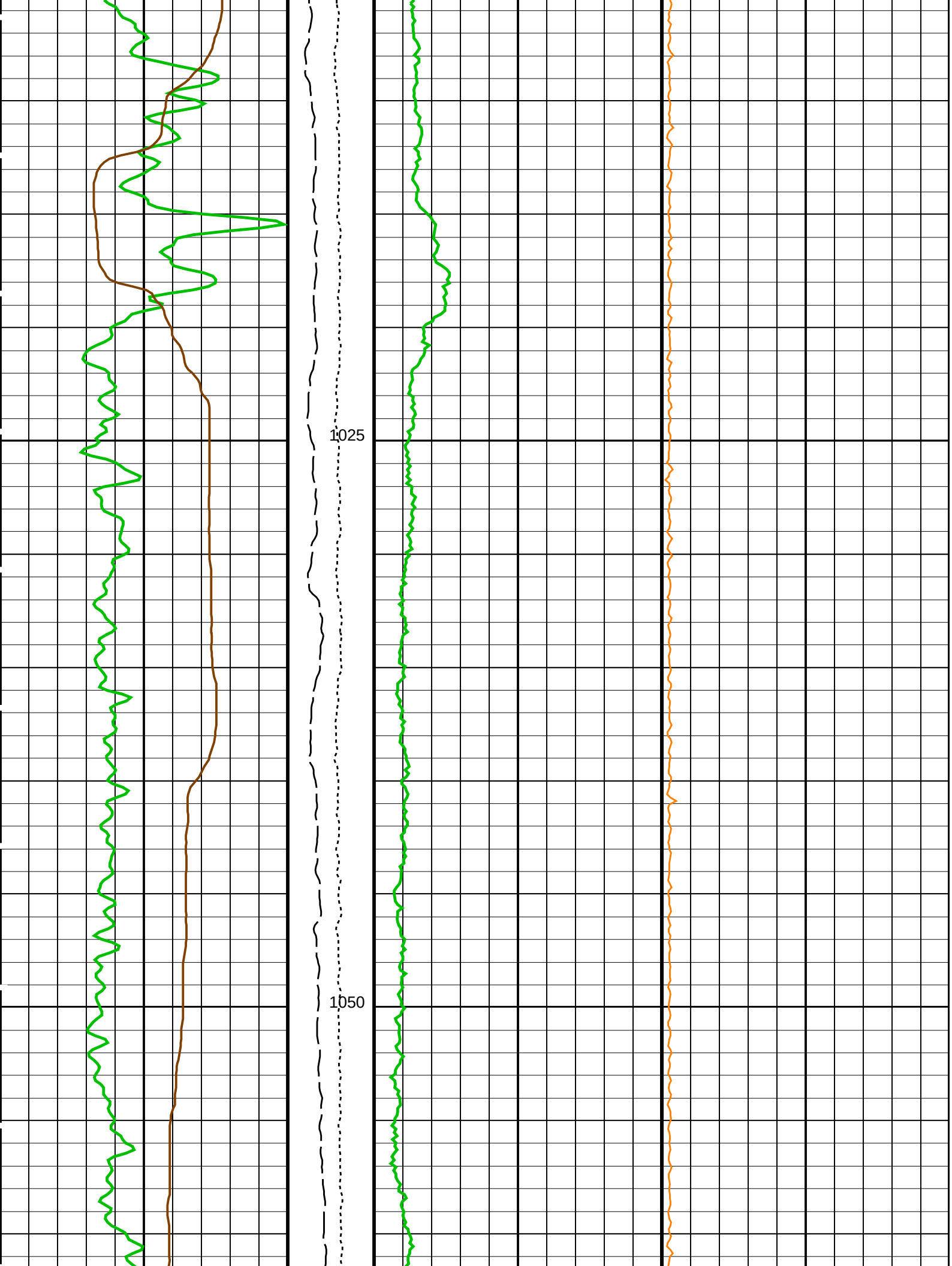
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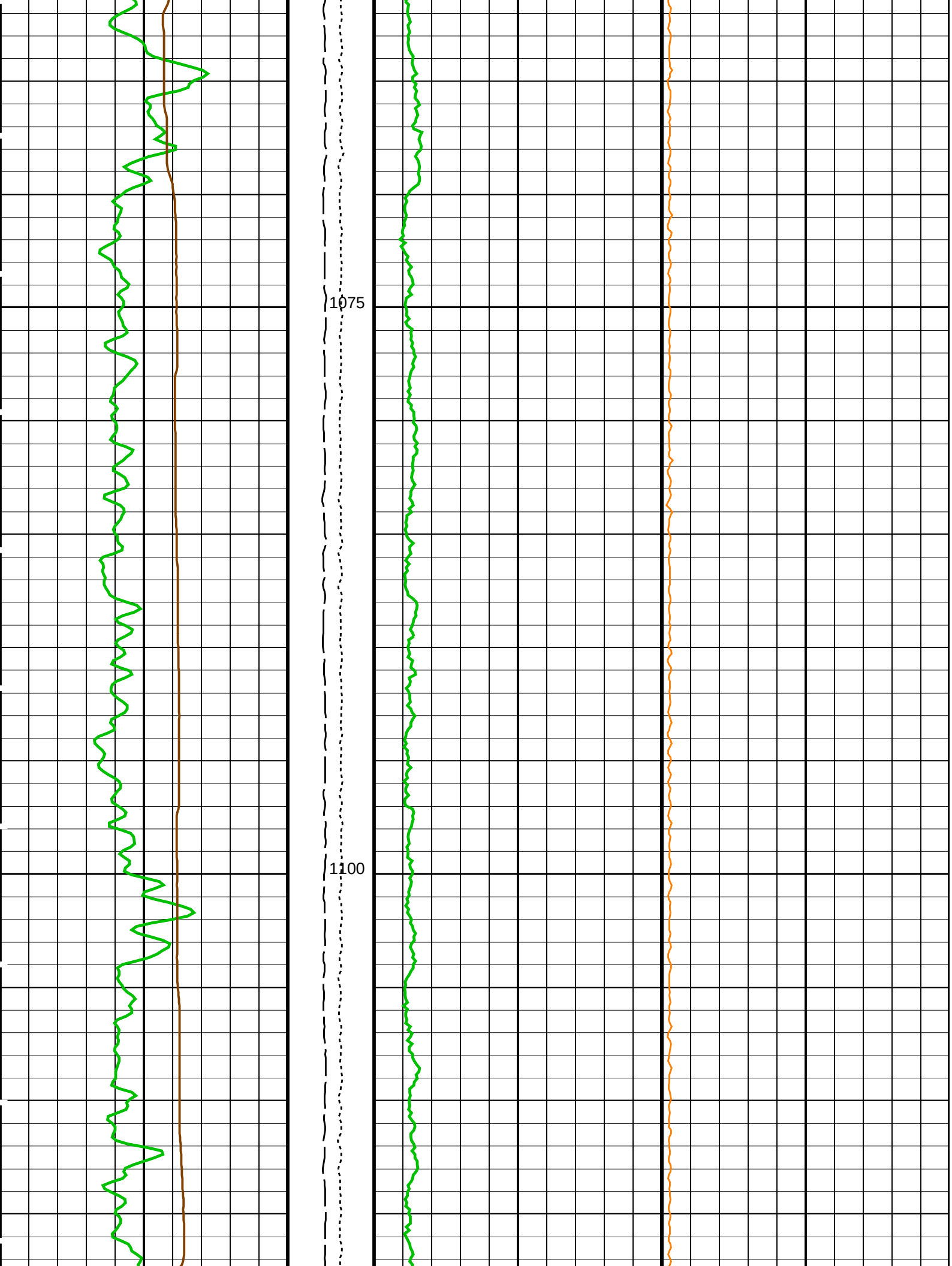
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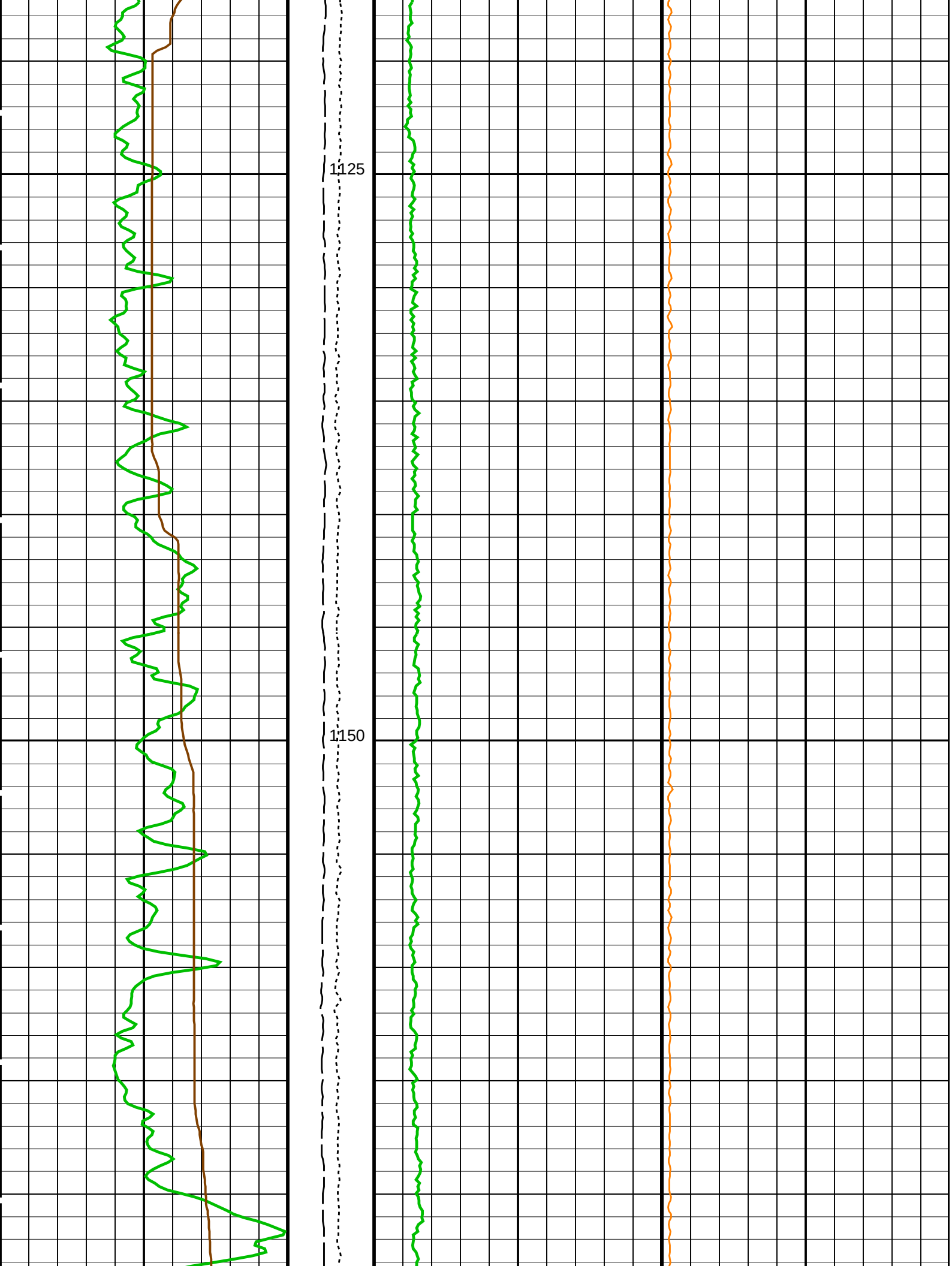
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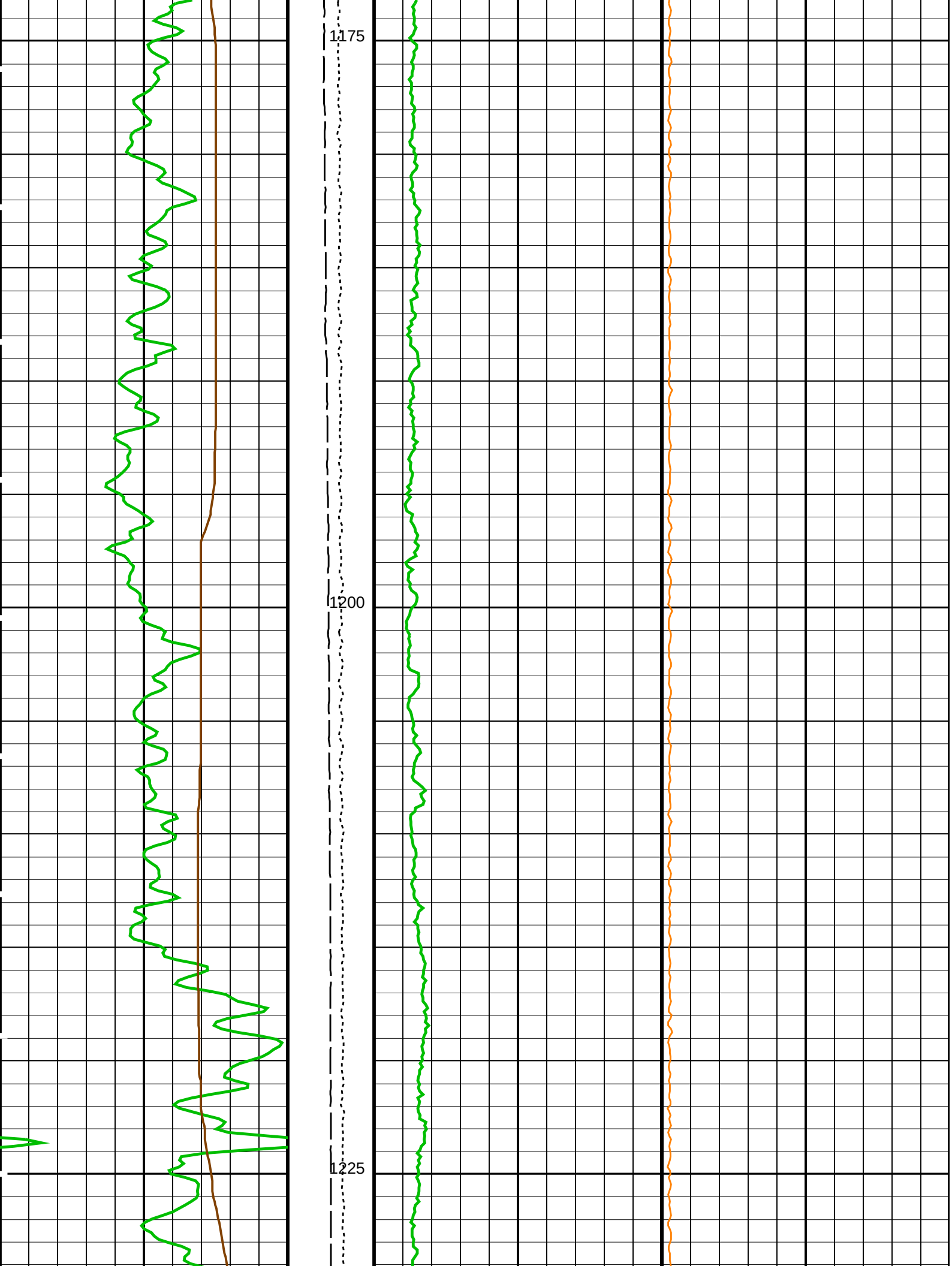
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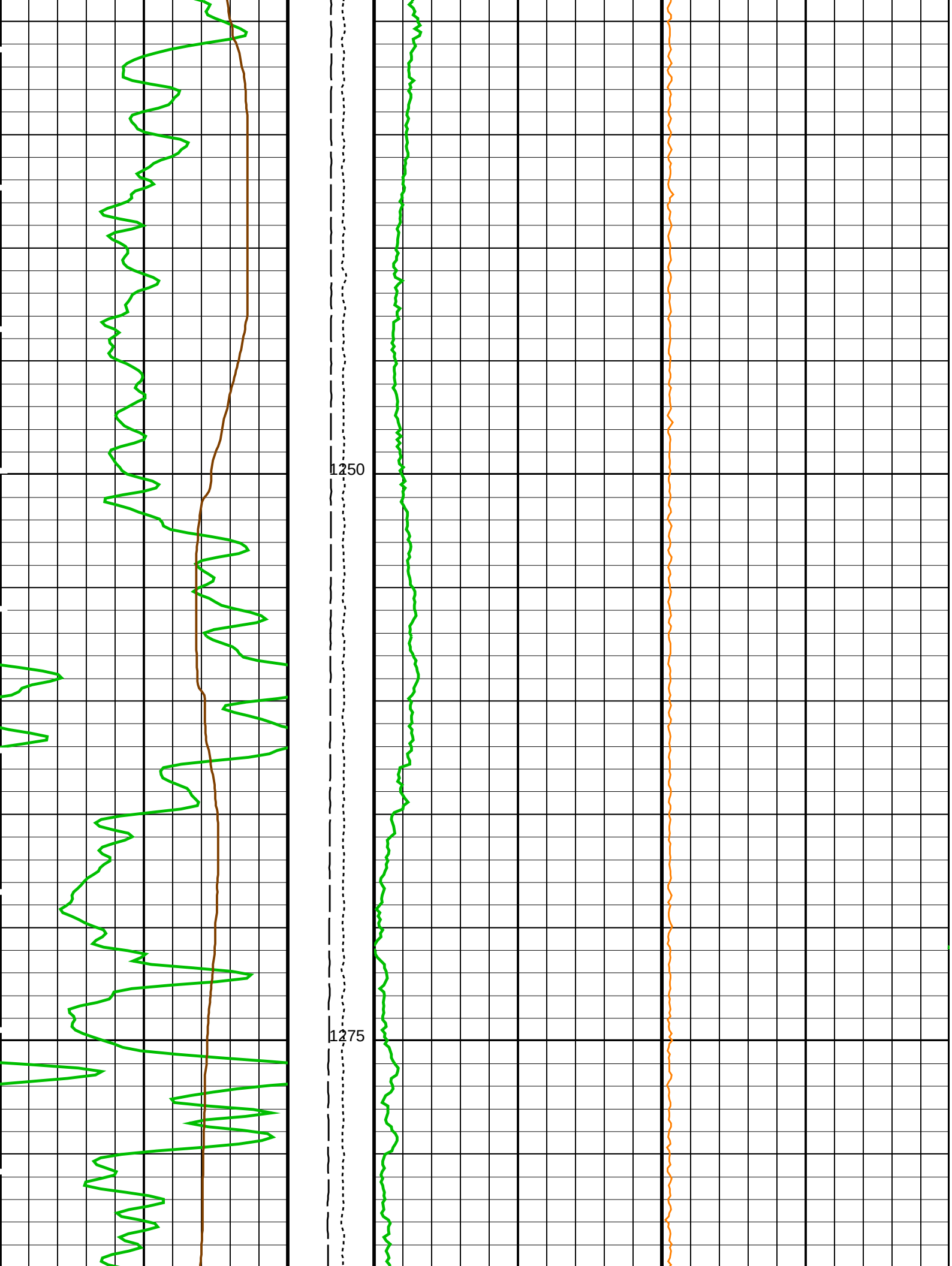
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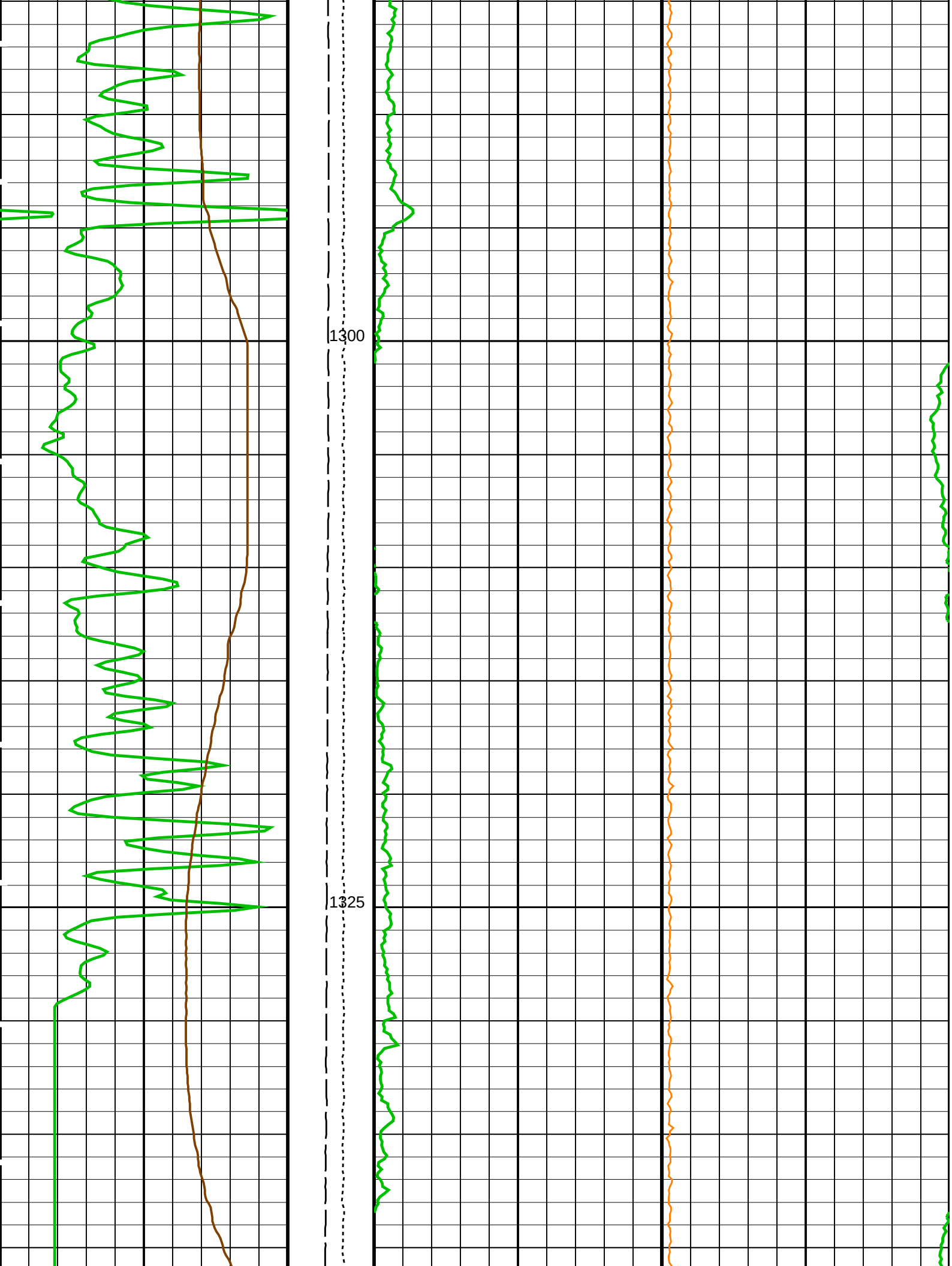
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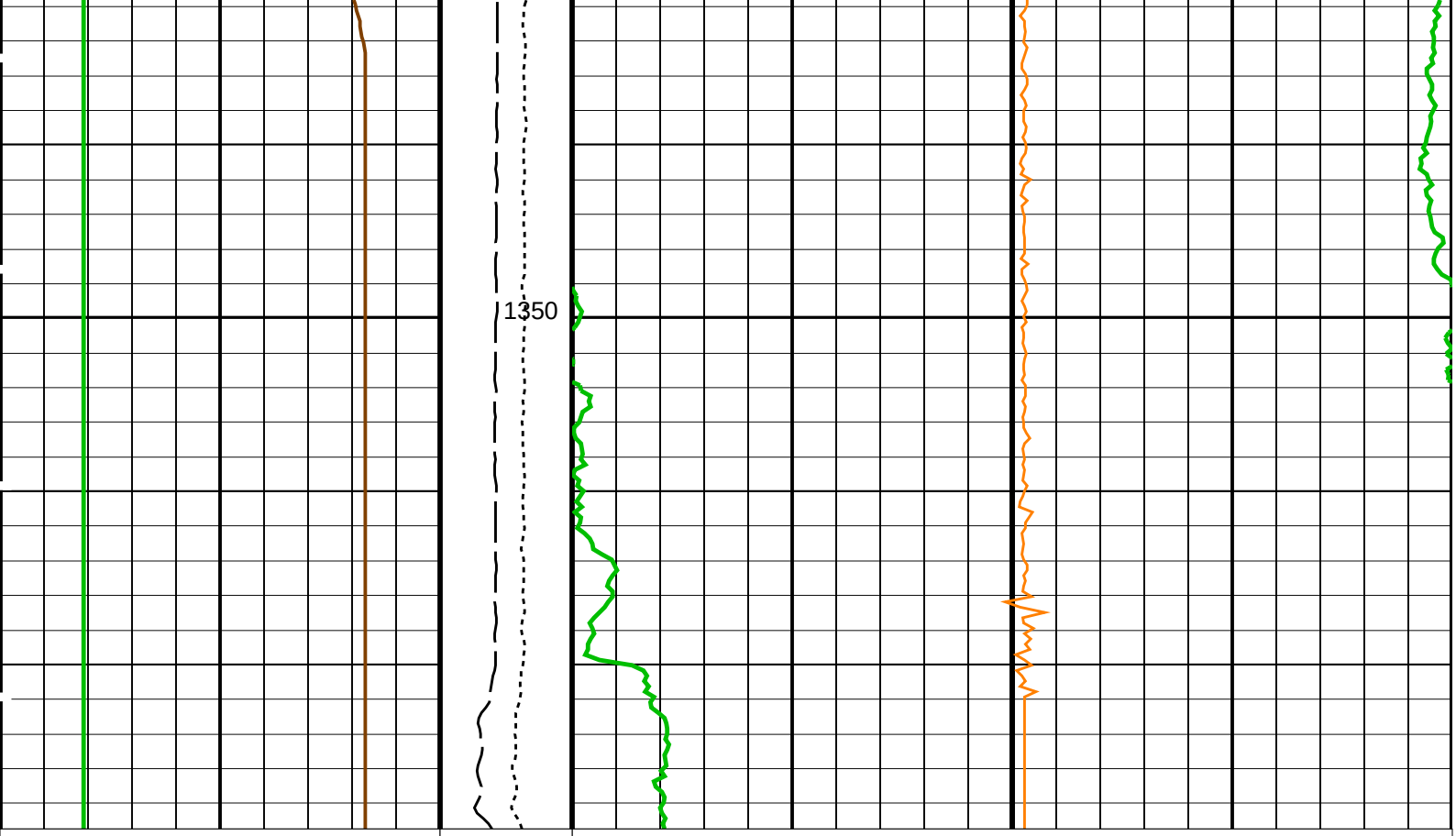


HLDS Caliper (LCAL)	Tension (TENS)	Axial Acceleration (MSSZACC_LDEO)
0 (IN) 20	(LBF) 10000 0	0 (M/S2) 20
Gamma Ray (GR_EDTC)	**Calibrated Downhole Force (CDF) (LBF)**	**Dual−Coil Susceptibility (MSSLSUS_LDEO)**
0 (GAPI) 50	3000 0	0 (PPM) 5000

PIP SUMMARY

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
	HRLT−B: High Resolution Laterolog Array − B		
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	40	DEGC
CALSTAT	HRLTB Calibration Status	SHALLOW_DONE	
CALTEMP	HRLTB Calibration Temperature	25.3401	DEGC
FREQ0	HRLT Frequency Index for Mode 0	32	
FREQ1	HRLT Frequency Index for Mode 1	128	
FREQ2	HRLT Frequency Index for Mode 2	104	
FREQ3	HRLT Frequency Index for Mode 3	86	
FREQ4	HRLT Frequency Index for Mode 4	56	
FREQ5	HRLT Frequency Index for Mode 5	44	
FREQ6	HRLT Frequency Index for Mode 6	116	
GCSE	Generalized Caliper Selection	LCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
ISSBAR	Barite Mud Switch	NOBARITE	
KFAC_HRLT	HRLT K Factor Option	SONDE	
LOOPCOEF_S	HRLT Loop Coefficient for Shallow Modes	LOW	
LOOPMOD0	HRLT Mode 0 Loop Mode	AUTO	
LOOPMOD1	HRLT Mode 1 Loop Mode	AUTO	
LOOPMOD2	HRLT Mode 2 Loop Mode	AUTO	
LOOPMOD3	HRLT Mode 3 Loop Mode	AUTO	
LOOPMOD4	HRLT Mode 4 Loop Mode	AUTO	
LOOPMOD5	HRLT Mode 5 Loop Mode	AUTO	

LOOPMOD6	HRLT Mode 6 Loop Mode	AUTO	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
PROCINV	Inversion Selection	ON	
PROCMFL	Inversion Micro−Resistivity Selection	NO_EXTERNAL_RXO	
PROCMSO	Mechanical Standoff Fin Size	0	IN
PROCRM	Processing Mud Resistivity Select	HRLT_Compute	
PROCSPO	Sonde Position	Centered	
SHT	Surface Hole Temperature	20	DEGC
HLDS: Hostile Litho−Density Sonde			
CLCL	HLDS LS Control Loop Controller Mode	AUTO_DEFAULT	
CLCS	HLDS SS Control Loop Controller Mode	AUTO_DEFAULT	
CLLS	HLDS Mode Loop Long Spacing	AUTO	
CLSS	HLDS Mode Loop Short Spacing	AUTO	
DHC	Density Hole Correction	BS	
DPPM	Density Porosity Processing Mode	HIRS	
FD	Fluid Density	1	G/C3
LATC	HLDS Activation Correction	ON	
LLDL	HLDS LS Low Level Discriminator DAC	14000	
LLDS	HLDS SS Low Level Discriminator DAC	14000	
LLML	HLDS LS Low Level Discriminator Mode	AUTO	
LLMS	HLDS SS Low Level Discriminator Mode	AUTO	
MDEN	Matrix Density	2.6	G/C3
PHVL	HLDS Long Spacing High Voltage Setting	1000	V
PHVS	HLDS Short Spacing High Voltage Setting	1000	V
PSDL	HLDS LS Pulse Shape Compensation DAC	30000	
PSDS	HLDS SS Pulse Shape Compensation DAC	30000	
PSML	HLDS LS Pulse Shape Compensation Mode	AUTO	
PSMS	HLDS SS Pulse Shape Compensation Mode	AUTO	
APS−C: Accelerator−Porosity Tool			
	APS Software Version	5	
AASD	APS Thermal and Array Detectors High Voltage Setting	1941.83	V
ADSO	APS Array Detectors Data Source Switch	Both	
AFSD	APS Far Detector High Voltage Setting	2032.14	V
AHCS	APS Holesize Correction Source	GCSE	
AHSS	APS Holesize Correction Switch	ON	
AMTY	APS Environmental Corrections Mud Type	WaterBaseBarite	
ANSD	APS Near Detector High Voltage Setting	1700.66	V
ASOS	APS Standoff Correction Switch	ON	
ATSS	APS Temperature−Pressure−Salinity Correction Switch	OFF	
BHFL_APS	APS TNPH Borehole Fluid Type	WATER	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	40	DEGC
BSCO_APS	APS TNPH Borehole Salinity Correction Option	NO	
DPPM	Density Porosity Processing Mode	HIRS	
DSCO_APS	APS TNPH Density Source Correction Option	MEASURED	
FSAL	Formation Salinity	−50000	PPM
FSCO_APS	APS TNPH Formation Salinity Correction Option	NO	
GCSE	Generalized Caliper Selection	LCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
HSCO_APS	APS TNPH Hole Size Correction Option	YES	
ISSBAR	Barite Mud Switch	NOBARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
MCCO_APS	APS TNPH Mud Cake Correction Option	NO	
MCOR_APS	APS TNPH Mud Correction	NATU	
MWCO_APS	APS TNPH Mud Weight Correction Option	YES	
NARC	APS Near/Array Calibration Ratio	1.08475	
NFRC	APS Near/Far Calibration Ratio	0.978244	
PTCO_APS	APS TNPH Pressure/Temperature Correction Option	NO	
SHT	Surface Hole Temperature	20	DEGC
TNCO_APS	APS TNPH Computation Option	YES	
HNGS−BA: Hostile Natural Gamma Ray Sonde			
BAR1	HNGS Detector 1 Barite Constant	1	
BAR2	HNGS Detector 2 Barite Constant	1	
BHK	HNGS Borehole Potassium Correction Concentration	0	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	40	DEGC
CSD1	Inner Casing Outer Diameter	0	IN
CSD2	Outer Casing Outer Diameter	0	IN
CSW1	Inner Casing Weight	0	LB/F
CSW2	Outer Casing Weight	0	LB/F
DBCC	HNGS Barite Constant Correction Flag	NONE	
GCSE	Generalized Caliper Selection	LCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
H1P	HNGS Detector 1 Allow/Disallow In Processing	ALLOW	
H2P	HNGS Detector 2 Allow/Disallow In Processing	ALLOW	
HABK	HNGS Borehole Potassium Running Average	−0.00168484	
HALF	HNGS Alpha Filter Length	60	IN
HCRB	HNGS Apply Borehole Potassium Correction	NONE	
HMWM	Mud Weighting Material	NATU	

HNPE	HNGS Processing Enable	YES	
ISSBAR	Barite Mud Switch	NOBARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
S1BI	HNGS Detector 1 Calibration Bismuth Count Rate	1.3	CPS
S2BI	HNGS Detector 2 Calibration Bismuth Count Rate	1.3	CPS
SGRC	HNGS Standard Gamma−Ray Correction Flag	YES	
SHT	Surface Hole Temperature	20	DEGC
TPOS	Tool Position	ECCE	
VBA1	HNGS Detector 1 Variable Barite Factor Running Average	1.03761	
VBA2	HNGS Detector 2 Variable Barite Factor Running Average	1.01409	
EDTC−B: Enhanced DTS Cartridge			
BHFL	Borehole Fluid Type	WATER	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	40	DEGC
BSCO	Borehole Salinity Correction Option	NO	
CCCO	Casing & Cement Thickness Correction Option	NO	
DPPM	Density Porosity Processing Mode	HIRS	
FSAL	Formation Salinity	−50000	PPM
FSCO	Formation Salinity Correction Option	NO	
GCSE	Generalized Caliper Selection	LCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
HSCO	Hole Size Correction Option	YES	
ISSBAR	Barite Mud Switch	NOBARITE	
ISSBAR_EDTC	Nuclear Mud Type	NOBARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
MCCO	Mud Cake Correction Option	NO	
MCOR	Mud Correction	NATU	
MWCO	Mud Weight Correction Option	YES	
PTCO	Pressure/Temperature Correction Option	NO	
SDAT	Standoff Data Source	SOCN	
SHT	Surface Hole Temperature	20	DEGC
SOCN	Standoff Distance	0.5	IN
SOCO	Standoff Correction Option	NO	
TPOS_EDTC	EDTC Tool Centered/Eccentered	Eccentered	
U−ETELM_EDTS	Telemetry Mode for eWAFE	Standard_EDTS	
U−TELM_EDTS	Telemetry Mode for WAFE	Standard_EDTS	
System and Miscellaneous			
ALTDPCHAN	Name of alternate depth channel	SpeedCorrectedDepth	
BS	Bit Size	9.875	IN
BSAL	Borehole Salinity	38000.00	PPM
CSIZ	Current Casing Size	5.500	IN
CWEI	Casing Weight	168.00	LB/F
DFD	Drilling Fluid Density	1.05	G/C3
FLEV	Fluid Level	−50000.00	M
MST	Mud Sample Temperature	23.00	DEGC
PBVSADP	Use alternate depth channel for playback	NO	
RMFS	Resistivity of Mud Filtrate Sample	−50000.0000	OHMM
RW	Resistivity of Connate Water	1.0000	OHMM
TD	Total Depth	1407.6	M
TDD	Total Depth − Driller	1407.60	M
TDL	Total Depth − Logger	1407.60	M
TWS	Temperature of Connate Water Sample	37.78	DEGC

Format: MSS_Logging Vertical Scale: 1:200 Graphics File Created: 12−Nov−2015 23:58

OP System Version: 19C0−187

MSS_LDEO−A	19C0−187	HRLT−B	19C0−187
HLDS	19C0−187	LDSC−B	19C0−187
APS−C	19C0−187	HNGC−B	19C0−187
HNGS−BA	19C0−187	EDTC−B	SKK−5169−EDTCB

Output DLIS Files

DEFAULT MSS_LDEO_HRLA_LDL_013LUP FN:12 PRODUCER 12−Nov−2015 23:58

Schlumberger

Repeat Pass

Output DLIS Files

DEFAULT	MSS_LDEO_HRLA_LDL_012LUP	FN:11	PRODUCER	12−Nov−2015 23:24	1367.0 M	1264.2 M

OP System Version: 19C0−187

MSS_LDEO−A	19C0−187	HRLT−B	19C0−187
HLDS	19C0−187	LDSC−B	19C0−187
APS−C	19C0−187	HNGC−B	19C0−187
HNGS−BA	19C0−187	EDTC−B	SKK−5169−EDTCB

PIP SUMMARY

Time Mark Every 60 S

HNGS Spectroscopy Gamma Ray (HSGR)
0 (GAPI) 50

Area1
From HCGR to HSGR

HNGS Borehole Potassium (HBHK)
−0.05 (−−−−) 0.05

HNGS Computed Gamma Ray (HCGR)
0 (GAPI) 100

Calibrated Downhole Force (CDF) (LBF)
3000 0

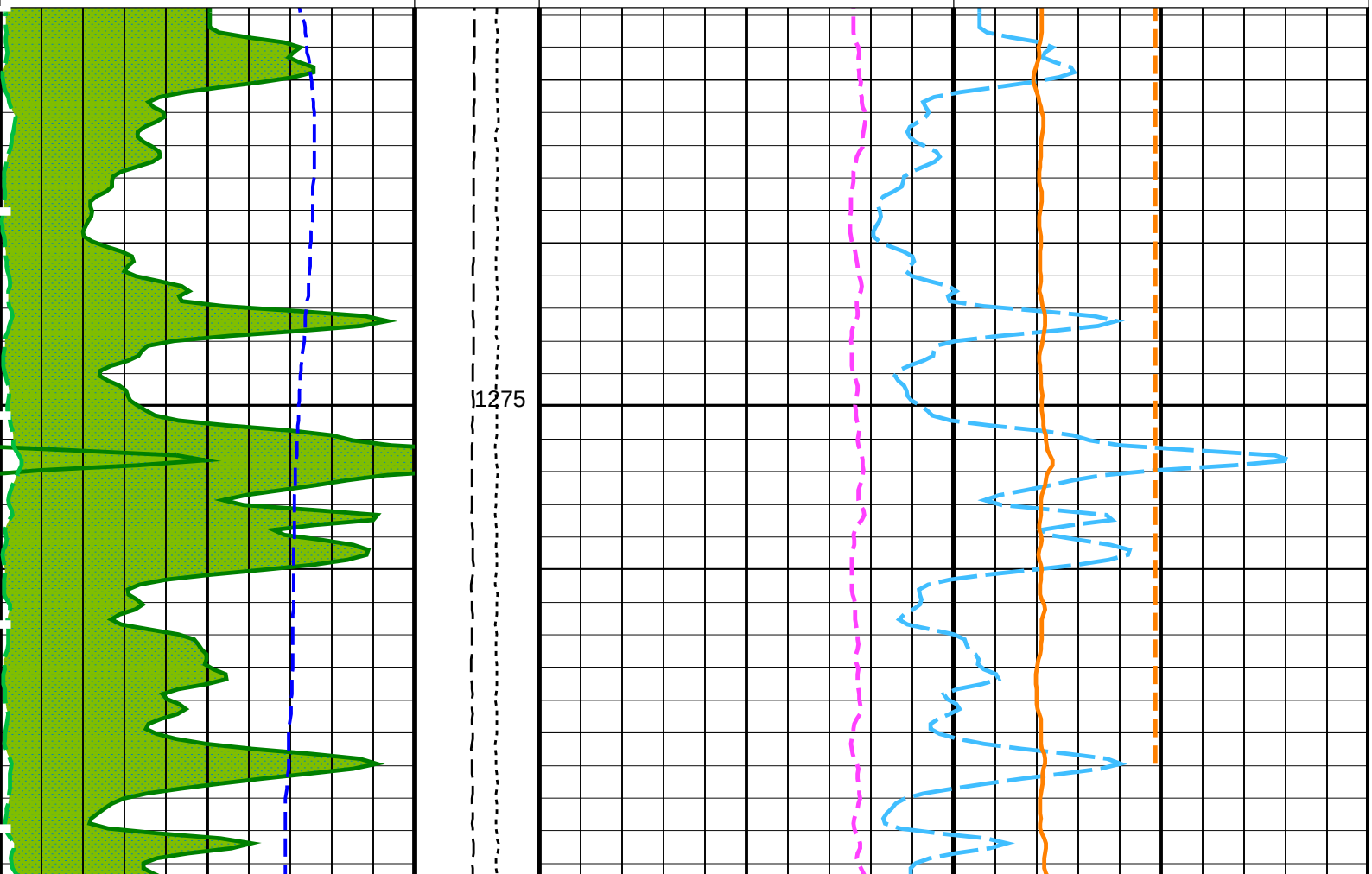
HNGS Uranium (HURA)
−5 (PPM) 10

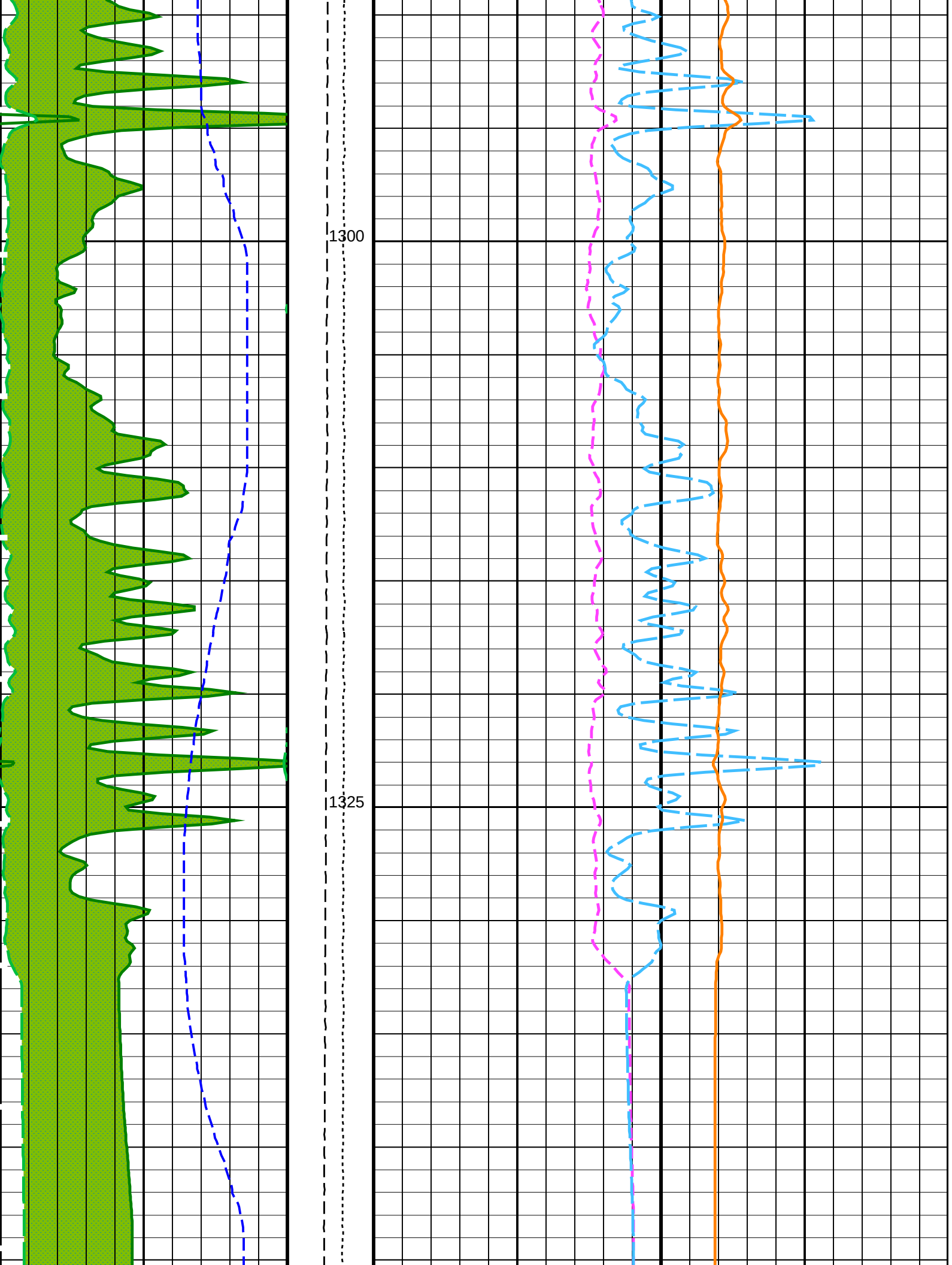
HLDS Caliper (LCAL)
0 (IN) 20

Tension (TENS) (LBF)
10000 0

HNGS Thorium (HTHO)
5 (PPM) 25

HNGS Potassium (HFK)
−0.01 (−−−−) 0.04

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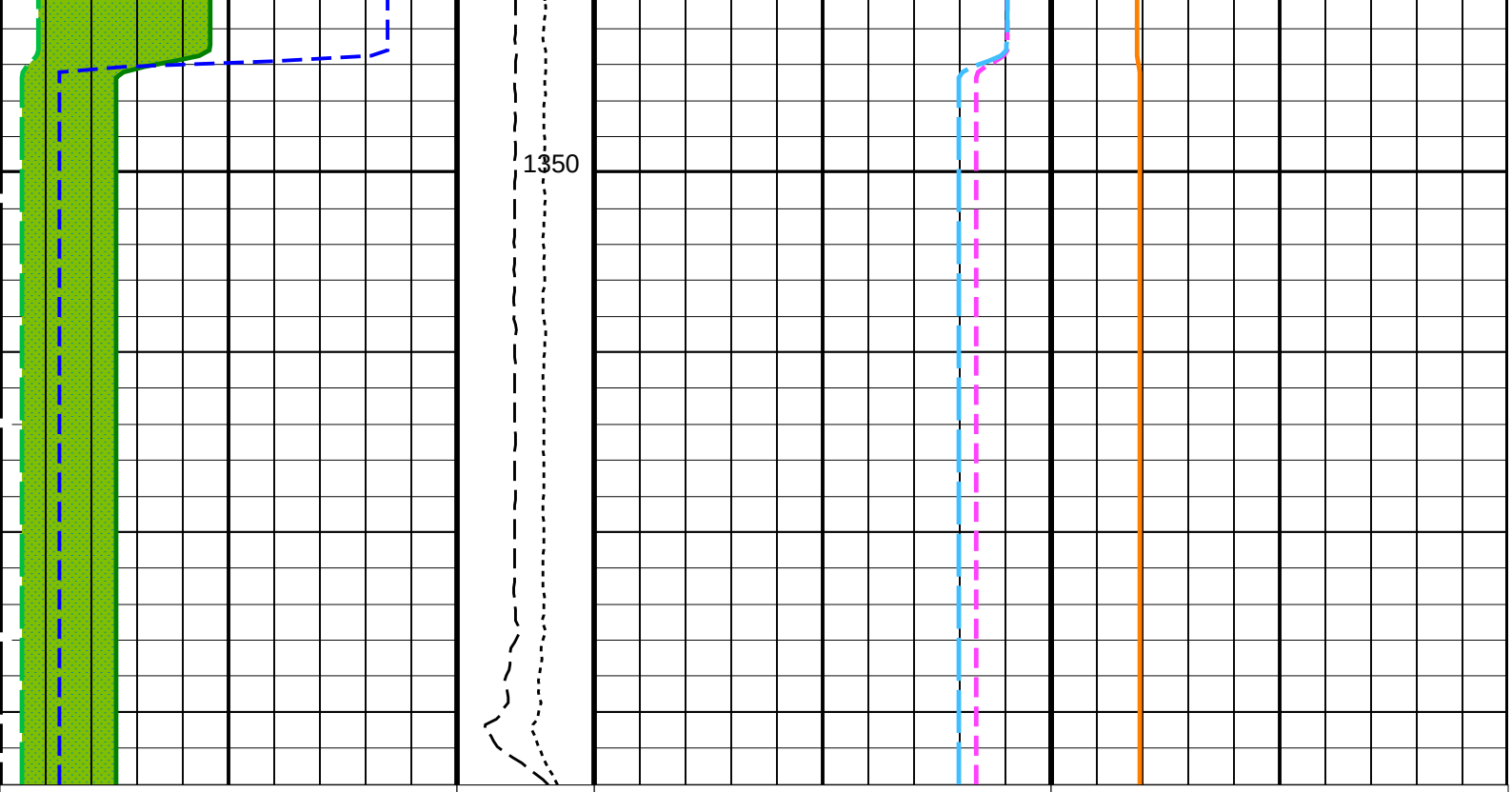


HLDS Caliper (LCAL)
0 (IN) 20

Tension (TENS) (LBF)
10000 0

HNGS Thorium (HTHO)
5 (PPM) 25

HNGS Potassium (HFK)
−0.01 (−−−−) 0.04

HNGS Computed Gamma Ray (HCGR)
0 (GAPI) 100

Calibrated Downhole Force (CDF) (LBF)
3000 0

HNGS Uranium (HURA)
−5 (PPM) 10

Area1
From HCGR to HSGR

HNGS Borehole Potassium (HBHK)
−0.05 (−−−−) 0.05

HNGS Spectroscopy Gamma Ray (HSGR)
0 (GAPI) 50

PIP SUMMARY

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
	HRLT−B: High Resolution Laterolog Array − B		
BHS	Borehole Status	OPEN	
GCSE	Generalized Caliper Selection	LCAL	
	APS−C: Accelerator−Porosity Tool		
BHS	Borehole Status	OPEN	
GCSE	Generalized Caliper Selection	LCAL	
	HNGS−BA: Hostile Natural Gamma Ray Sonde		
BAR1	HNGS Detector 1 Barite Constant	1	
BAR2	HNGS Detector 2 Barite Constant	1	
BHK	HNGS Borehole Potassium Correction Concentration	0	
BHS	Borehole Status	OPEN	
CSD1	Inner Casing Outer Diameter	0	IN
CSD2	Outer Casing Outer Diameter	0	IN
CSW1	Inner Casing Weight	0	LB/F
CSW2	Outer Casing Weight	0	LB/F
DBCC	HNGS Barite Constant Correction Flag	NONE	
GCSE	Generalized Caliper Selection	LCAL	
H1P	HNGS Detector 1 Allow/Disallow In Processing	ALLOW	
H2P	HNGS Detector 2 Allow/Disallow In Processing	ALLOW	
HABK	HNGS Borehole Potassium Running Average	−0.0124918	
HALF	HNGS Alpha Filter Length	60	IN

HCRB	HNGS Apply Borehole Potassium Correction	NONE	
HMWM	Mud Weighting Material	NATU	
HNPE	HNGS Processing Enable	YES	
S1BI	HNGS Detector 1 Calibration Bismuth Count Rate	1.3	CPS
S2BI	HNGS Detector 2 Calibration Bismuth Count Rate	1.3	CPS
SGRC	HNGS Standard Gamma−Ray Correction Flag	YES	
TPOS	Tool Position	ECCE	
VBA1	HNGS Detector 1 Variable Barite Factor Running Average	1.03067	
VBA2	HNGS Detector 2 Variable Barite Factor Running Average	0.98862	
	EDTC−B: Enhanced DTS Cartridge		
BHS	Borehole Status	OPEN	
GCSE	Generalized Caliper Selection	LCAL	
	System and Miscellaneous		
BS	Bit Size	9.875	IN
DFD	Drilling Fluid Density	1.05	G/C3

Format: HNGSYields Vertical Scale: 1:200 Graphics File Created: 12−Nov−2015 23:24

OP System Version: 19C0−187

MSS_LDEO−A	19C0−187	HRLT−B	19C0−187
HLDS	19C0−187	LDSC−B	19C0−187
APS−C	19C0−187	HNGC−B	19C0−187
HNGS−BA	19C0−187	EDTC−B	SKK−5169−EDTCB

Output DLIS Files

DEFAULT	MSS_LDEO_HRLA_LDL_012LUP	FN:11	PRODUCER	12−Nov−2015 23:24		

Output DLIS Files

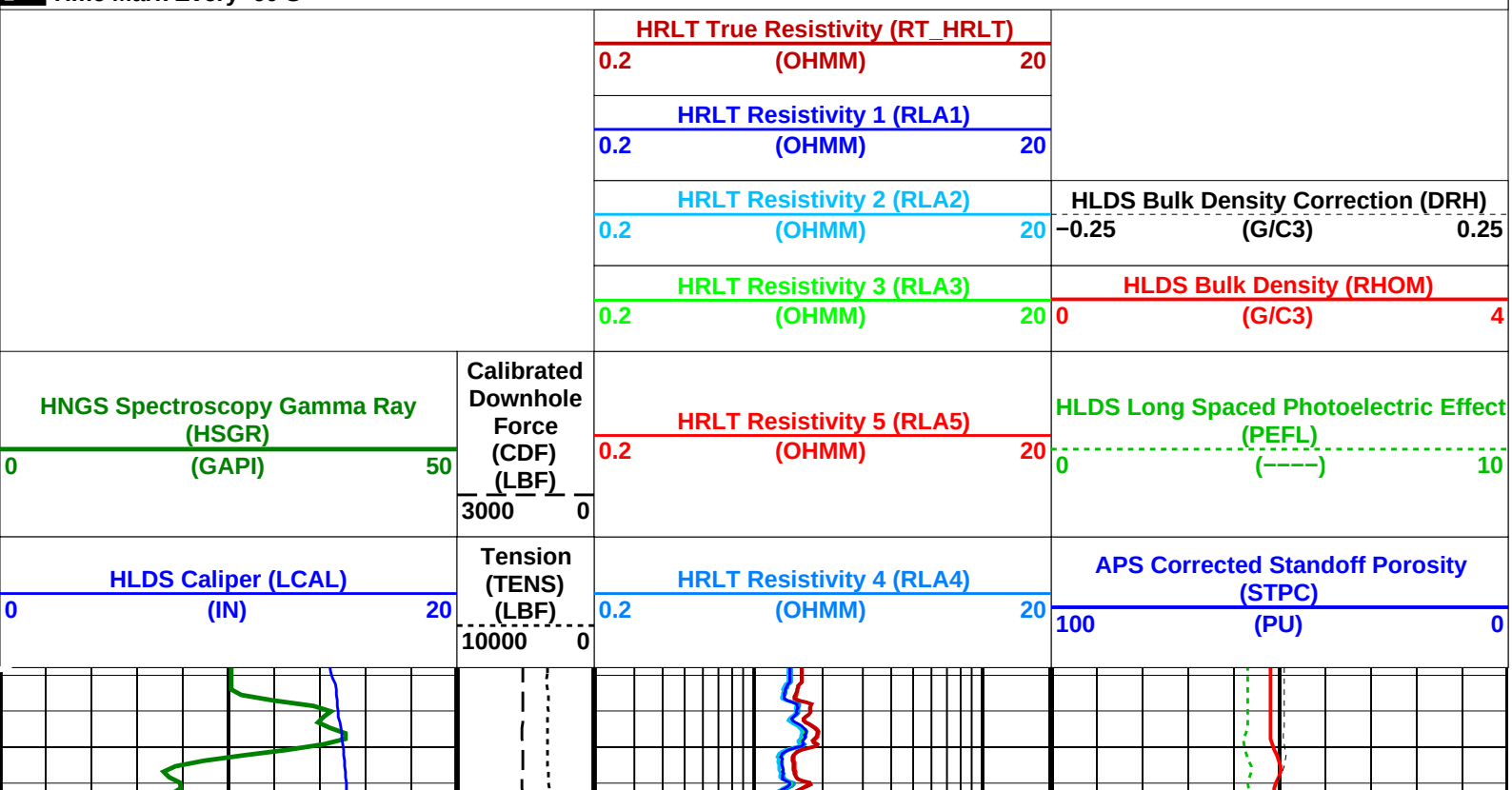
DEFAULT	MSS_LDEO_HRLA_LDL_012LUP	FN:11	PRODUCER	12−Nov−2015 23:24	1367.0 M	1264.2 M

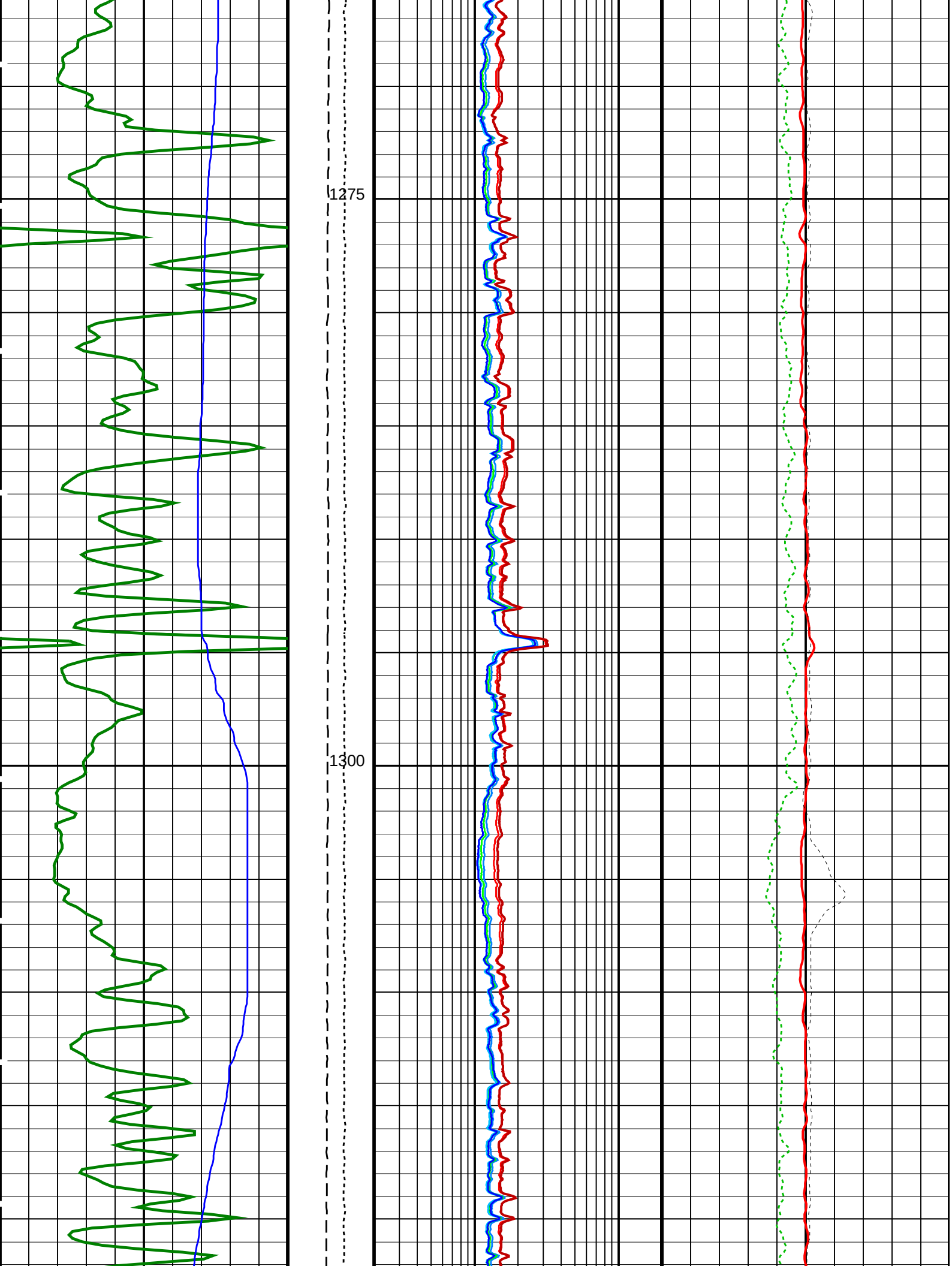
OP System Version: 19C0−187

MSS_LDEO−A	19C0−187	HRLT−B	19C0−187
HLDS	19C0−187	LDSC−B	19C0−187
APS−C	19C0−187	HNGC−B	19C0−187
HNGS−BA	19C0−187	EDTC−B	SKK−5169−EDTCB

PIP SUMMARY

Time Mark Every 60 S

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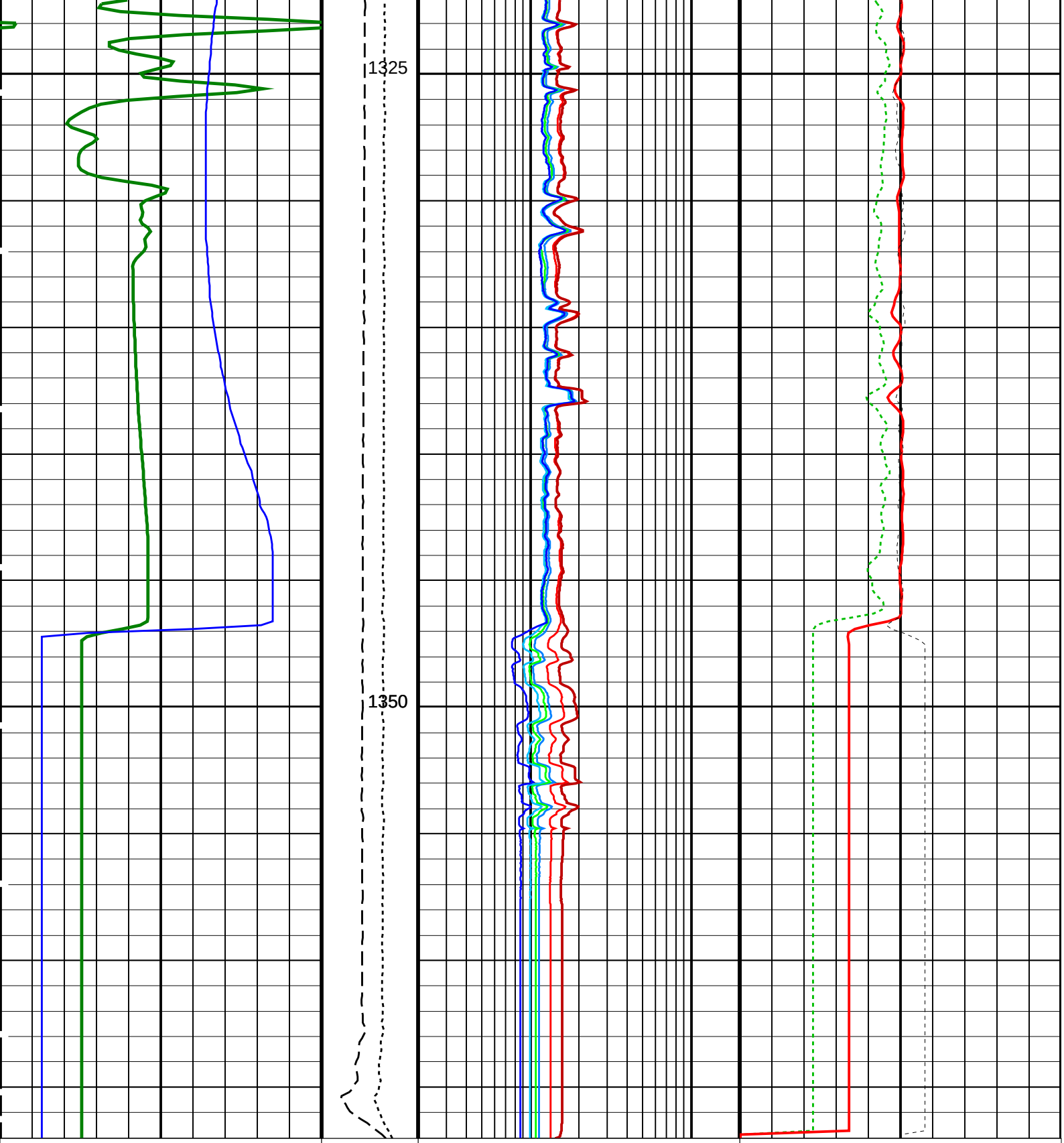


HLDS Caliper (LCAL) 0 (IN) 20	Tension (TENS) (LBF) 10000 0	HRLT Resistivity 4 (RLA4) 0.2 (OHMM) 20
HNGS Spectroscopy Gamma Ray (HSGR) 0 (GAPI) 50	Calibrated Downhole Force (CDF) (LBF) 3000 0	HRLT Resistivity 5 (RLA5) 0.2 (OHMM) 20
		HRLT Resistivity 3 (RLA3) 0.2 (OHMM) 20

APS Corrected Standoff Porosity (STPC) 100 (PU) 0
HLDS Long Spaced Photoelectric Effect (PEFL) 0 (−−−−) 10
HLDS Bulk Density (RHOM) 0 (G/C3) 4

HRLT Resistivity 2 (RLA2)			HLDS Bulk Density Correction (DRH)		
0.2	(OHMM)	20	−0.25	(G/C3)	0.25
HRLT Resistivity 1 (RLA1)					
0.2	(OHMM)	20			
HRLT True Resistivity (RT_HRLT)					
0.2	(OHMM)	20			

PIP SUMMARY

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
	HRLT−B: High Resolution Laterolog Array − B		
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	40	DEGC
CALSTAT	HRLTB Calibration Status	SHALLOW_DONE	
CALTEMP	HRLTB Calibration Temperature	25.3401	DEGC
FREQ0	HRLT Frequency Index for Mode 0	32	
FREQ1	HRLT Frequency Index for Mode 1	128	
FREQ2	HRLT Frequency Index for Mode 2	104	
FREQ3	HRLT Frequency Index for Mode 3	86	
FREQ4	HRLT Frequency Index for Mode 4	56	
FREQ5	HRLT Frequency Index for Mode 5	44	
FREQ6	HRLT Frequency Index for Mode 6	116	
GCSE	Generalized Caliper Selection	LCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
ISSBAR	Barite Mud Switch	NOBARITE	
KFAC_HRLT	HRLT K Factor Option	SONDE	
LOOPCOEF_S	HRLT Loop Coefficient for Shallow Modes	LOW	
LOOPMOD0	HRLT Mode 0 Loop Mode	AUTO	
LOOPMOD1	HRLT Mode 1 Loop Mode	AUTO	
LOOPMOD2	HRLT Mode 2 Loop Mode	AUTO	
LOOPMOD3	HRLT Mode 3 Loop Mode	AUTO	
LOOPMOD4	HRLT Mode 4 Loop Mode	AUTO	
LOOPMOD5	HRLT Mode 5 Loop Mode	AUTO	
LOOPMOD6	HRLT Mode 6 Loop Mode	AUTO	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
PROCINV	Inversion Selection	ON	
PROCMFL	Inversion Micro−Resistivity Selection	NO_EXTERNAL_RXO	
PROCMSO	Mechanical Standoff Fin Size	0	IN
PROCRM	Processing Mud Resistivity Select	HRLT_Compute	
PROCSPO	Sonde Position	Centered	
SHT	Surface Hole Temperature	20	DEGC
	HLDS: Hostile Litho−Density Sonde		
CLCL	HLDS LS Control Loop Controller Mode	AUTO_DEFAULT	
CLCS	HLDS SS Control Loop Controller Mode	AUTO_DEFAULT	
CLLS	HLDS Mode Loop Long Spacing	AUTO	
CLSS	HLDS Mode Loop Short Spacing	AUTO	
DHC	Density Hole Correction	BS	
DPPM	Density Porosity Processing Mode	HIRS	
FD	Fluid Density	1	G/C3
LATC	HLDS Activation Correction	ON	
LLDL	HLDS LS Low Level Discriminator DAC	14000	
LLDS	HLDS SS Low Level Discriminator DAC	14000	
LLML	HLDS LS Low Level Discriminator Mode	AUTO	
LLMS	HLDS SS Low Level Discriminator Mode	AUTO	
MDEN	Matrix Density	2.6	G/C3
PHVL	HLDS Long Spacing High Voltage Setting	1000	V
PHVS	HLDS Short Spacing High Voltage Setting	1000	V
PSDL	HLDS LS Pulse Shape Compensation DAC	30000	
PSDS	HLDS SS Pulse Shape Compensation DAC	30000	
PSML	HLDS LS Pulse Shape Compensation Mode	AUTO	
PSMS	HLDS SS Pulse Shape Compensation Mode	AUTO	
	APS−C: Accelerator−Porosity Tool		
	APS Software Version	5	
AASD	APS Thermal and Array Detectors High Voltage Setting	1941.83	V
ADSO	APS Array Detectors Data Source Switch	Both	
AFSD	APS Far Detector High Voltage Setting	2032.14	V
AHCS	APS Holesize Correction Source	GCSE	
AHSS	APS Holesize Correction Switch	ON	
AMTY	APS Environmental Corrections Mud Type	WaterBaseBarite	
ANSD	APS Near Detector High Voltage Setting	1700.66	V
ASOS	APS Standoff Correction Switch	ON	
ATSS	APS Temperature−Pressure−Salinity Correction Switch	OFF	

ATSC	APS Temperature Pressure Salinity Correction Switch	OFF	
BHFL_APS	APS TNPH Borehole Fluid Type	WATER	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	40	DEGC
BSCO_APS	APS TNPH Borehole Salinity Correction Option	NO	
DPPM	Density Porosity Processing Mode	HIRS	
DSCO_APS	APS TNPH Density Source Correction Option	MEASURED	
FSAL	Formation Salinity	−50000	PPM
FSCO_APS	APS TNPH Formation Salinity Correction Option	NO	
GCSE	Generalized Caliper Selection	LCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
HSCO_APS	APS TNPH Hole Size Correction Option	YES	
ISSBAR	Barite Mud Switch	NOBARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
MCCO_APS	APS TNPH Mud Cake Correction Option	NO	
MCOR_APS	APS TNPH Mud Correction	NATU	
MWCO_APS	APS TNPH Mud Weight Correction Option	YES	
NARC	APS Near/Array Calibration Ratio	1.08475	
NFRC	APS Near/Far Calibration Ratio	0.978244	
PTCO_APS	APS TNPH Pressure/Temperature Correction Option	NO	
SHT	Surface Hole Temperature	20	DEGC
TNCO_APS	APS TNPH Computation Option	YES	
HNGS−BA: Hostile Natural Gamma Ray Sonde			
BAR1	HNGS Detector 1 Barite Constant	1	
BAR2	HNGS Detector 2 Barite Constant	1	
BHK	HNGS Borehole Potassium Correction Concentration	0	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	40	DEGC
CSD1	Inner Casing Outer Diameter	0	IN
CSD2	Outer Casing Outer Diameter	0	IN
CSW1	Inner Casing Weight	0	LB/F
CSW2	Outer Casing Weight	0	LB/F
DBCC	HNGS Barite Constant Correction Flag	NONE	
GCSE	Generalized Caliper Selection	LCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
H1P	HNGS Detector 1 Allow/Disallow In Processing	ALLOW	
H2P	HNGS Detector 2 Allow/Disallow In Processing	ALLOW	
HABK	HNGS Borehole Potassium Running Average	−0.0124918	
HALF	HNGS Alpha Filter Length	60	IN
HCRB	HNGS Apply Borehole Potassium Correction	NONE	
HMWM	Mud Weighting Material	NATU	
HNPE	HNGS Processing Enable	YES	
ISSBAR	Barite Mud Switch	NOBARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
S1BI	HNGS Detector 1 Calibration Bismuth Count Rate	1.3	CPS
S2BI	HNGS Detector 2 Calibration Bismuth Count Rate	1.3	CPS
SGRC	HNGS Standard Gamma−Ray Correction Flag	YES	
SHT	Surface Hole Temperature	20	DEGC
TPOS	Tool Position	ECCE	
VBA1	HNGS Detector 1 Variable Barite Factor Running Average	1.03067	
VBA2	HNGS Detector 2 Variable Barite Factor Running Average	0.98862	
EDTC−B: Enhanced DTS Cartridge			
BHFL	Borehole Fluid Type	WATER	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	40	DEGC
BSCO	Borehole Salinity Correction Option	NO	
CCCO	Casing & Cement Thickness Correction Option	NO	
DPPM	Density Porosity Processing Mode	HIRS	
FSAL	Formation Salinity	−50000	PPM
FSCO	Formation Salinity Correction Option	NO	
GCSE	Generalized Caliper Selection	LCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
HSCO	Hole Size Correction Option	YES	
ISSBAR	Barite Mud Switch	NOBARITE	
ISSBAR_EDTC	Nuclear Mud Type	NOBARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
MCCO	Mud Cake Correction Option	NO	
MCOR	Mud Correction	NATU	
MWCO	Mud Weight Correction Option	YES	
PTCO	Pressure/Temperature Correction Option	NO	
SDAT	Standoff Data Source	SOCN	
SHT	Surface Hole Temperature	20	DEGC
SOCN	Standoff Distance	0.5	IN
SOCO	Standoff Correction Option	NO	
TPOS_EDTC	EDTC Tool Centered/Eccentered	Eccentered	
U−ETELM_EDTS	Telemetry Mode for eWAFE	Standard_EDTS	

U−TELM_EDTS	Telemetry Mode for WAFE	Standard_EDTS	
System and Miscellaneous			
ALTDPCHAN	Name of alternate depth channel	SpeedCorrectedDepth	
BS	Bit Size	9.875	IN
BSAL	Borehole Salinity	38000.00	PPM
CSIZ	Current Casing Size	5.500	IN
CWEI	Casing Weight	168.00	LB/F
DFD	Drilling Fluid Density	1.05	G/C3
FLEV	Fluid Level	−50000.00	M
MST	Mud Sample Temperature	23.00	DEGC
PBVSADP	Use alternate depth channel for playback	NO	
RMFS	Resistivity of Mud Filtrate Sample	−50000.0000	OHMM
RW	Resistivity of Connate Water	1.0000	OHMM
TD	Total Depth	1407.6	M
TDD	Total Depth − Driller	1407.60	M
TDL	Total Depth − Logger	1407.60	M
TWS	Temperature of Connate Water Sample	37.78	DEGC

Format: TripleCombo Vertical Scale: 1:200 Graphics File Created: 12−Nov−2015 23:24

OP System Version: 19C0−187

MSS_LDEO−A	19C0−187	HRLT−B	19C0−187
HLDS	19C0−187	LDSC−B	19C0−187
APS−C	19C0−187	HNGC−B	19C0−187
HNGS−BA	19C0−187	EDTC−B	SKK−5169−EDTCB

Output DLIS Files

DEFAULT	MSS_LDEO_HRLA_LDL_012LUP	FN:11	PRODUCER	12−Nov−2015 23:24	1367.0 M	1264.2 M

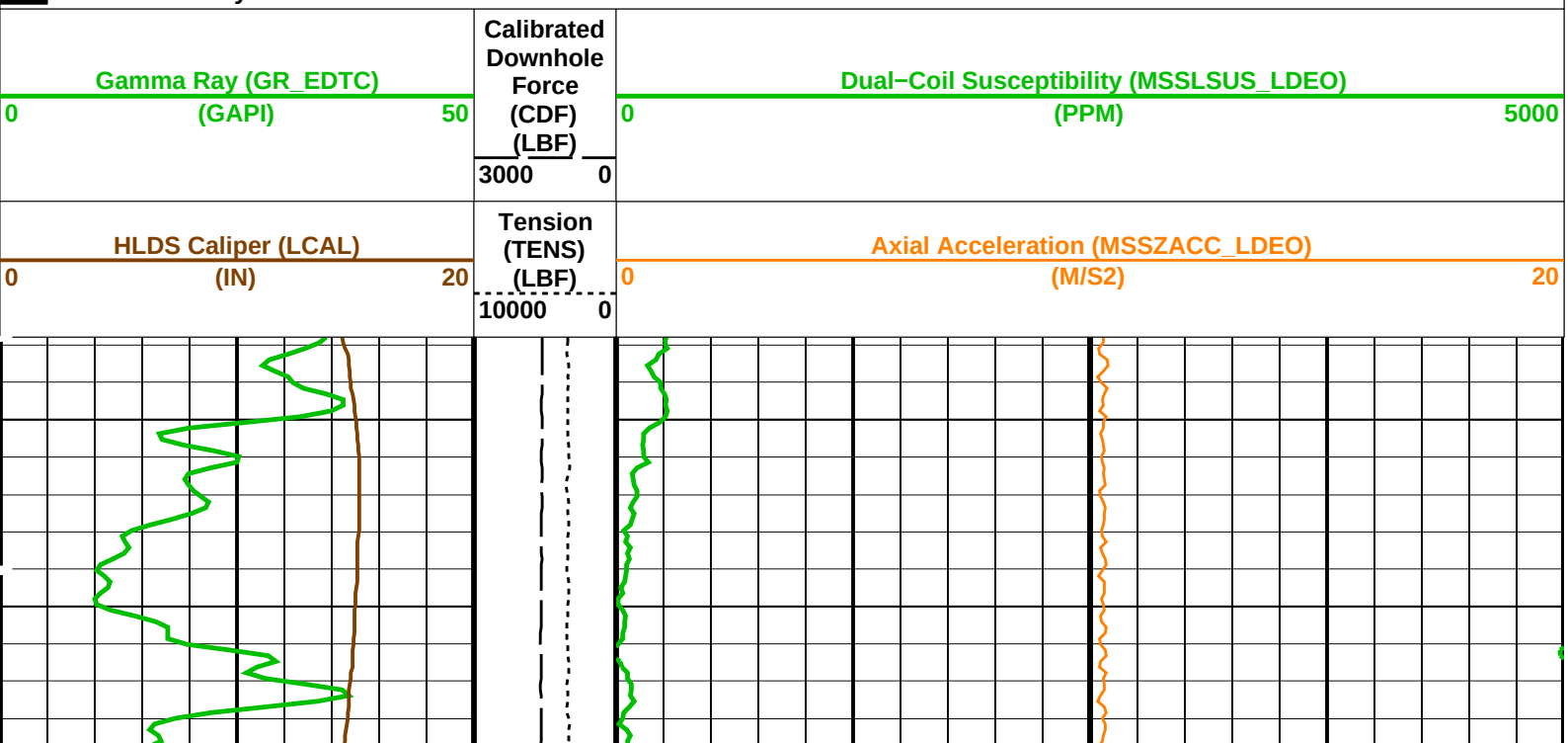
OP System Version: 19C0−187

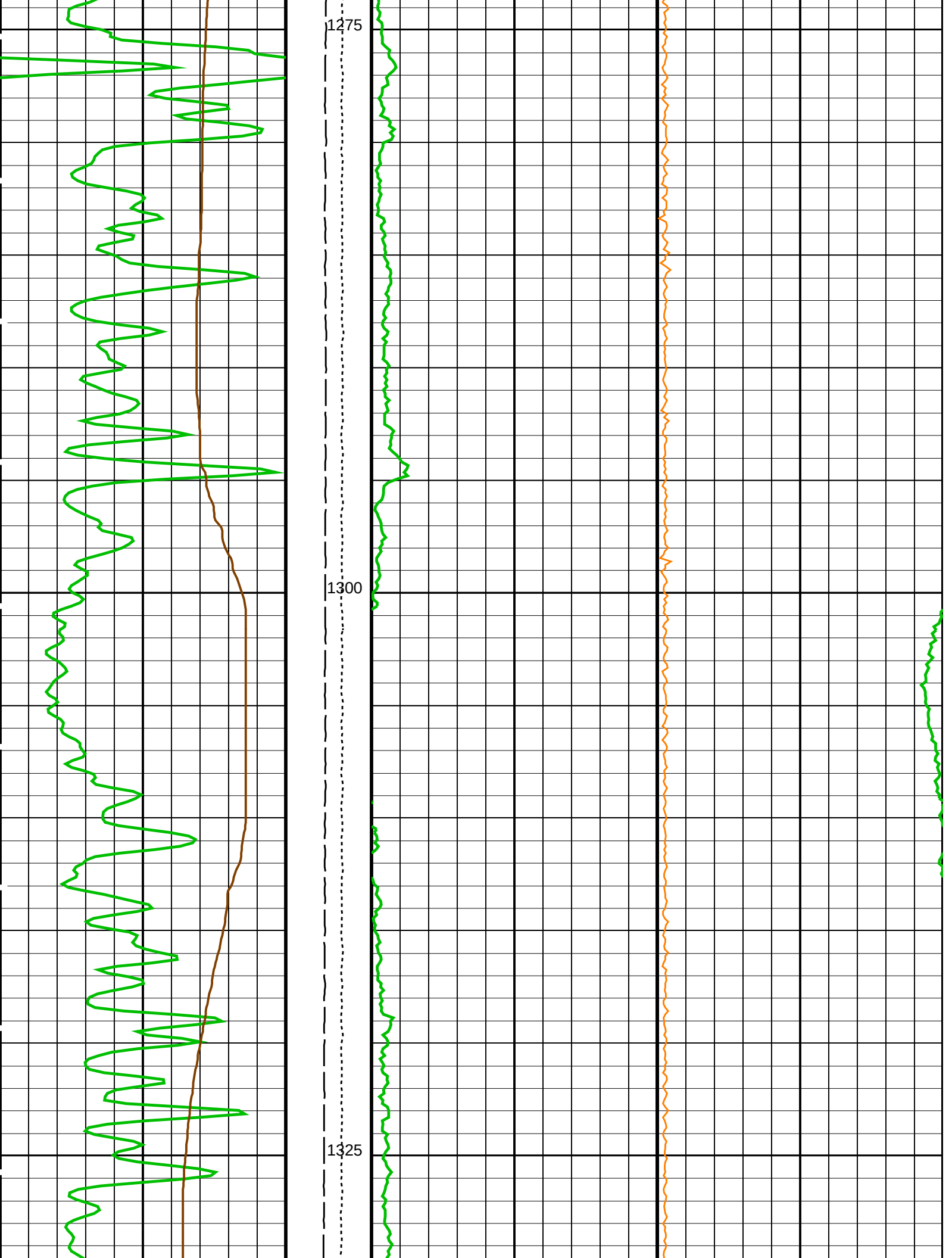
MSS_LDEO−A	19C0−187	HRLT−B	19C0−187
HLDS	19C0−187	LDSC−B	19C0−187
APS−C	19C0−187	HNGC−B	19C0−187
HNGS−BA	19C0−187	EDTC−B	SKK−5169−EDTCB

Company: International Ocean Discovery Program Well: Expedition 359, Site U1468B

PIP SUMMARY

Time Mark Every 60 S




1275
1300
1325

HLDS Caliper (LCAL)	Tension (TENS)	Axial Acceleration (MSSZACC_LDEO)
0 (IN) 20	10000 (LBF) 0	0 (M/S2) 20
Gamma Ray (GR_EDTC)	**Calibrated Downhole Force (CDF)**	**Dual−Coil Susceptibility (MSSLSUS_LDEO)**
0 (GAPI) 50	3000 (LBF) 0	0 (PPM) 5000

PIP SUMMARY

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
	HRLT−B: High Resolution Laterolog Array − B		
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	40	DEGC
CALSTAT	HRLTB Calibration Status	SHALLOW_DONE	
CALTEMP	HRLTB Calibration Temperature	25.3401	DEGC
FREQ0	HRLT Frequency Index for Mode 0	32	

FREQ1	HRLT Frequency Index for Mode 1	128	
FREQ2	HRLT Frequency Index for Mode 2	104	
FREQ3	HRLT Frequency Index for Mode 3	86	
FREQ4	HRLT Frequency Index for Mode 4	56	
FREQ5	HRLT Frequency Index for Mode 5	44	
FREQ6	HRLT Frequency Index for Mode 6	116	
GCSE	Generalized Caliper Selection	LCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
ISSBAR	Barite Mud Switch	NOBARITE	
KFAC_HRLT	HRLT K Factor Option	SONDE	
LOOPCOEF_S	HRLT Loop Coefficient for Shallow Modes	LOW	
LOOPMOD0	HRLT Mode 0 Loop Mode	AUTO	
LOOPMOD1	HRLT Mode 1 Loop Mode	AUTO	
LOOPMOD2	HRLT Mode 2 Loop Mode	AUTO	
LOOPMOD3	HRLT Mode 3 Loop Mode	AUTO	
LOOPMOD4	HRLT Mode 4 Loop Mode	AUTO	
LOOPMOD5	HRLT Mode 5 Loop Mode	AUTO	
LOOPMOD6	HRLT Mode 6 Loop Mode	AUTO	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
PROCINV	Inversion Selection	ON	
PROCMFL	Inversion Micro−Resistivity Selection	NO_EXTERNAL_RXO	
PROCMSO	Mechanical Standoff Fin Size	0	IN
PROCRM	Processing Mud Resistivity Select	HRLT_Compute	
PROCSPO	Sonde Position	Centered	
SHT	Surface Hole Temperature	20	DEGC
HLDS: Hostile Litho−Density Sonde			
CLCL	HLDS LS Control Loop Controller Mode	AUTO_DEFAULT	
CLCS	HLDS SS Control Loop Controller Mode	AUTO_DEFAULT	
CLLS	HLDS Mode Loop Long Spacing	AUTO	
CLSS	HLDS Mode Loop Short Spacing	AUTO	
DHC	Density Hole Correction	BS	
DPPM	Density Porosity Processing Mode	HIRS	
FD	Fluid Density	1	G/C3
LATC	HLDS Activation Correction	ON	
LLDL	HLDS LS Low Level Discriminator DAC	14000	
LLDS	HLDS SS Low Level Discriminator DAC	14000	
LLML	HLDS LS Low Level Discriminator Mode	AUTO	
LLMS	HLDS SS Low Level Discriminator Mode	AUTO	
MDEN	Matrix Density	2.6	G/C3
PHVL	HLDS Long Spacing High Voltage Setting	1000	V
PHVS	HLDS Short Spacing High Voltage Setting	1000	V
PSDL	HLDS LS Pulse Shape Compensation DAC	30000	
PSDS	HLDS SS Pulse Shape Compensation DAC	30000	
PSML	HLDS LS Pulse Shape Compensation Mode	AUTO	
PSMS	HLDS SS Pulse Shape Compensation Mode	AUTO	
APS−C: Accelerator−Porosity Tool			
	APS Software Version	5	
AASD	APS Thermal and Array Detectors High Voltage Setting	1941.83	V
ADSO	APS Array Detectors Data Source Switch	Both	
AFSD	APS Far Detector High Voltage Setting	2032.14	V
AHCS	APS Holesize Correction Source	GCSE	
AHSS	APS Holesize Correction Switch	ON	
AMTY	APS Environmental Corrections Mud Type	WaterBaseBarite	
ANSD	APS Near Detector High Voltage Setting	1700.66	V
ASOS	APS Standoff Correction Switch	ON	
ATSS	APS Temperature−Pressure−Salinity Correction Switch	OFF	
BHFL_APS	APS TNPH Borehole Fluid Type	WATER	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	40	DEGC
BSCO_APS	APS TNPH Borehole Salinity Correction Option	NO	
DPPM	Density Porosity Processing Mode	HIRS	
DSCO_APS	APS TNPH Density Source Correction Option	MEASURED	
FSAL	Formation Salinity	−50000	PPM
FSCO_APS	APS TNPH Formation Salinity Correction Option	NO	
GCSE	Generalized Caliper Selection	LCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
HSCO_APS	APS TNPH Hole Size Correction Option	YES	
ISSBAR	Barite Mud Switch	NOBARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
MCCO_APS	APS TNPH Mud Cake Correction Option	NO	
MCOR_APS	APS TNPH Mud Correction	NATU	
MWCO_APS	APS TNPH Mud Weight Correction Option	YES	
NARC	APS Near/Array Calibration Ratio	1.08475	
NFRC	APS Near/Far Calibration Ratio	0.978244	
PTCO_APS	APS TNPH Pressure/Temperature Correction Option	NO	
SHT	Surface Hole Temperature	20	DEGC
TNCO_APS	APS TNPH Computation Option	YES	
HNGS−BA: Hostile Natural Gamma Ray Sonde			
BAR1	HNGS Detector 1 Barite Constant	1	

BAR1	HNGS Detector 1 Barite Constant	1	
BAR2	HNGS Detector 2 Barite Constant	1	
BHK	HNGS Borehole Potassium Correction Concentration	0	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	40	DEGC
CSD1	Inner Casing Outer Diameter	0	IN
CSD2	Outer Casing Outer Diameter	0	IN
CSW1	Inner Casing Weight	0	LB/F
CSW2	Outer Casing Weight	0	LB/F
DBCC	HNGS Barite Constant Correction Flag	NONE	
GCSE	Generalized Caliper Selection	LCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
H1P	HNGS Detector 1 Allow/Disallow In Processing	ALLOW	
H2P	HNGS Detector 2 Allow/Disallow In Processing	ALLOW	
HABK	HNGS Borehole Potassium Running Average	−0.0124918	
HALF	HNGS Alpha Filter Length	60	IN
HCRB	HNGS Apply Borehole Potassium Correction	NONE	
HMWM	Mud Weighting Material	NATU	
HNPE	HNGS Processing Enable	YES	
ISSBAR	Barite Mud Switch	NOBARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
S1BI	HNGS Detector 1 Calibration Bismuth Count Rate	1.3	CPS
S2BI	HNGS Detector 2 Calibration Bismuth Count Rate	1.3	CPS
SGRC	HNGS Standard Gamma−Ray Correction Flag	YES	
SHT	Surface Hole Temperature	20	DEGC
TPOS	Tool Position	ECCE	
VBA1	HNGS Detector 1 Variable Barite Factor Running Average	1.03067	
VBA2	HNGS Detector 2 Variable Barite Factor Running Average	0.98862	
EDTC−B: Enhanced DTS Cartridge			
BHFL	Borehole Fluid Type	WATER	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	40	DEGC
BSCO	Borehole Salinity Correction Option	NO	
CCCO	Casing & Cement Thickness Correction Option	NO	
DPPM	Density Porosity Processing Mode	HIRS	
FSAL	Formation Salinity	−50000	PPM
FSCO	Formation Salinity Correction Option	NO	
GCSE	Generalized Caliper Selection	LCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
HSCO	Hole Size Correction Option	YES	
ISSBAR	Barite Mud Switch	NOBARITE	
ISSBAR_EDTC	Nuclear Mud Type	NOBARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
MCCO	Mud Cake Correction Option	NO	
MCOR	Mud Correction	NATU	
MWCO	Mud Weight Correction Option	YES	
PTCO	Pressure/Temperature Correction Option	NO	
SDAT	Standoff Data Source	SOCN	
SHT	Surface Hole Temperature	20	DEGC
SOCN	Standoff Distance	0.5	IN
SOCO	Standoff Correction Option	NO	
TPOS_EDTC	EDTC Tool Centered/Eccentered	Eccentered	
U−ETELM_EDTS	Telemetry Mode for eWAFE	Standard_EDTS	
U−TELM_EDTS	Telemetry Mode for WAFE	Standard_EDTS	
System and Miscellaneous			
ALTDPCHAN	Name of alternate depth channel	SpeedCorrectedDepth	
BS	Bit Size	9.875	IN
BSAL	Borehole Salinity	38000.00	PPM
CSIZ	Current Casing Size	5.500	IN
CWEI	Casing Weight	168.00	LB/F
DFD	Drilling Fluid Density	1.05	G/C3
FLEV	Fluid Level	−50000.00	M
MST	Mud Sample Temperature	23.00	DEGC
PBVSADP	Use alternate depth channel for playback	NO	
RMFS	Resistivity of Mud Filtrate Sample	−50000.0000	OHMM
RW	Resistivity of Connate Water	1.0000	OHMM
TD	Total Depth	1407.6	M
TDD	Total Depth − Driller	1407.60	M
TDL	Total Depth − Logger	1407.60	M
TWS	Temperature of Connate Water Sample	37.78	DEGC

Format: MSS_Logging Vertical Scale: 1:200 Graphics File Created: 12−Nov−2015 23:24

OP System Version: 19C0−187

MSS_LDEO−A	19C0−187	HRLT−B	19C0−187
HLDS	19C0−187	LDSC−B	19C0−187
APS−C	19C0−187	HNGC−B	19C0−187

APS−C	19C0−187	HNGC−B	19C0−187
HNGS−BA	19C0−187	EDTC−B	SKK−5169−EDTCB

Output DLIS Files

DEFAULT **MSS_LDEO_HRLA_LDL_012LUP** **FN:11** **PRODUCER** **12−Nov−2015 23:24**

Schlumberger

Calibrations

MAXIS Field Log

Calibration and Check Summary

Measurement	Nominal	Master	Before	After	Change	Limit	Units
High Resolution Laterolog Array − B Wellsite Calibration − HRLT M01							
Before: 12−Nov−2015 21:22 After: 13−Nov−2015 2:51							
HRLT M0−M1 Voltage Plus − 0	0	N/A	−318.8	−318.8	0.04138	9.681	UV
HRLT M0−M1 Voltage Plus − 1	0	N/A	−332.0	−331.7	0.3275	9.681	UV
HRLT M0−M1 Voltage Plus − 2	0	N/A	−339.5	−339.3	0.1080	9.681	UV
HRLT M0−M1 Voltage Plus − 3	0	N/A	−329.8	−329.6	0.2346	9.681	UV
HRLT M0−M1 Voltage Plus − 4	0	N/A	−320.1	−320.0	0.1557	9.681	UV
HRLT M0−M1 Voltage Plus − 5	0	N/A	−322.1	−321.9	0.1915	9.681	UV
HRLT M0−M1 Voltage Plus − 6	0	N/A	322.3	321.8	−0.5393	9.681	UV
HRLT M0−M1 Voltage Plus − 7	**0**	**N/A**	**−322.7**	**−322.7**	**0**	**9.681**	**UV**
High Resolution Laterolog Array − B Wellsite Calibration − HRLT M12							
Before: 12−Nov−2015 21:22 After: 13−Nov−2015 2:51							
HRLT M1−M2 Voltage Plus − 0	0	N/A	1743	1742	−1.145	53.42	UV
HRLT M1−M2 Voltage Plus − 1	0	N/A	1822	1820	−2.354	53.42	UV
HRLT M1−M2 Voltage Plus − 2	0	N/A	1856	1854	−1.425	53.42	UV
HRLT M1−M2 Voltage Plus − 3	0	N/A	1801	1799	−2.205	53.42	UV
HRLT M1−M2 Voltage Plus − 4	0	N/A	1747	1745	−1.974	53.42	UV
HRLT M1−M2 Voltage Plus − 5	0	N/A	1758	1756	−2.015	53.42	UV
HRLT M1−M2 Voltage Plus − 6	0	N/A	−1777	−1773	3.439	53.42	UV
HRLT M1−M2 Voltage Plus − 7	0	N/A	1781	1781	0	53.42	UV
High Resolution Laterolog Array − B Wellsite Calibration − HRLT M23							
Before: 12−Nov−2015 21:22 After: 13−Nov−2015 2:51							
HRLT M2−M3 Voltage Plus − 0	0	N/A	1734	1733	−1.402	53.42	UV
HRLT M2−M3 Voltage Plus − 1	0	N/A	1824	1820	−3.206	53.42	UV
HRLT M2−M3 Voltage Plus − 2	0	N/A	1859	1858	−1.628	53.42	UV
HRLT M2−M3 Voltage Plus − 3	0	N/A	1809	1807	−2.654	53.42	UV
HRLT M2−M3 Voltage Plus − 4	0	N/A	1749	1747	−2.424	53.42	UV
HRLT M2−M3 Voltage Plus − 5	0	N/A	1761	1759	−2.136	53.42	UV
HRLT M2−M3 Voltage Plus − 6	0	N/A	−1768	−1763	4.457	53.42	UV
HRLT M2−M3 Voltage Plus − 7	0	N/A	1781	1781	0	53.42	UV
High Resolution Laterolog Array − B Wellsite Calibration − HRLT V34							
Before: 12−Nov−2015 21:22 After: 13−Nov−2015 2:51							
HRLT A3−A4 Voltage Plus − 0	0	N/A	68710	68690	−20.70	2100	UV
HRLT A3−A4 Voltage Plus − 1	0	N/A	72060	72010	−53.95	2100	UV
HRLT A3−A4 Voltage Plus − 2	0	N/A	73770	73770	−4.102	2100	UV
HRLT A3−A4 Voltage Plus − 3	0	N/A	72020	71960	−53.13	2100	UV
HRLT A3−A4 Voltage Plus − 4	0	N/A	69600	69550	−50.14	2100	UV
HRLT A3−A4 Voltage Plus − 5	0	N/A	70090	70050	−47.89	2100	UV
HRLT A3−A4 Voltage Plus − 6	0	N/A	−68850	−68740	107.5	2100	UV
HRLT A3−A4 Voltage Plus − 7	0	N/A	70000	70000	0	2100	UV
High Resolution Laterolog Array − B Wellsite Calibration − HRLT V45							
Before: 12−Nov−2015 21:22 After: 13−Nov−2015 2:51							
HRLT A4−A5 Voltage Plus − 0	0	N/A	68800	68780	−23.21	2100	UV
HRLT A4−A5 Voltage Plus − 1	0	N/A	72270	72210	−64.01	2100	UV
HRLT A4−A5 Voltage Plus − 2	0	N/A	73960	73960	−5.750	2100	UV
HRLT A4−A5 Voltage Plus − 3	0	N/A	72180	72120	−57.69	2100	UV

HRLT A4−A5 Voltage Plus − 4	0	N/A	69710	69670	−43.45	2100	UV
HRLT A4−A5 Voltage Plus − 5	0	N/A	70190	70140	−47.25	2100	UV
HRLT A4−A5 Voltage Plus − 6	0	N/A	−69060	−68950	112.7	2100	UV
HRLT A4−A5 Voltage Plus − 7	0	N/A	70000	70000	0	2100	UV

High Resolution Laterolog Array − B Wellsite Calibration − HRLT V56
Before: 12−Nov−2015 21:22 After: 13−Nov−2015 2:51

HRLT A5−A6 Voltage Plus − 0	0	N/A	68660	68640	−20.70	2100	UV
HRLT A5−A6 Voltage Plus − 1	0	N/A	72110	72070	−44.80	2100	UV
HRLT A5−A6 Voltage Plus − 2	0	N/A	73800	73790	−10.68	2100	UV
HRLT A5−A6 Voltage Plus − 3	0	N/A	72020	71990	−36.44	2100	UV
HRLT A5−A6 Voltage Plus − 4	0	N/A	69580	69540	−36.10	2100	UV
HRLT A5−A6 Voltage Plus − 5	0	N/A	70050	70000	−43.37	2100	UV
HRLT A5−A6 Voltage Plus − 6	0	N/A	−68910	−68790	112.7	2100	UV
HRLT A5−A6 Voltage Plus − 7	0	N/A	70000	70000	0	2100	UV

High Resolution Laterolog Array − B Wellsite Calibration − HRLT VTP
Before: 12−Nov−2015 21:22 After: 13−Nov−2015 2:51

HRLT Torpedo−M0 Voltage − 0	0	N/A	−68170	−68160	9.586	2100	UV
HRLT Torpedo−M0 Voltage − 1	0	N/A	−71920	−71870	43.46	2100	UV
HRLT Torpedo−M0 Voltage − 2	0	N/A	−73640	−73640	2.344	2100	UV
HRLT Torpedo−M0 Voltage − 3	0	N/A	−71940	−71900	41.95	2100	UV
HRLT Torpedo−M0 Voltage − 4	0	N/A	−69520	−69490	37.66	2100	UV
HRLT Torpedo−M0 Voltage − 5	0	N/A	−70000	−69970	35.24	2100	UV
HRLT Torpedo−M0 Voltage − 6	0	N/A	68660	68560	−103.1	2100	UV
HRLT Torpedo−M0 Voltage − 7	0	N/A	−70000	−70000	0	2100	UV

High Resolution Laterolog Array − B Wellsite Calibration − HRLT VBD
Before: 12−Nov−2015 21:22 After: 13−Nov−2015 2:51

HRLT Bridle#9−M0 Voltage − 0	0	N/A	−68200	−68200	5.398	2100	UV
HRLT Bridle#9−M0 Voltage − 1	0	N/A	−72010	−71960	53.03	2100	UV
HRLT Bridle#9−M0 Voltage − 2	0	N/A	−73720	−73720	1.555	2100	UV
HRLT Bridle#9−M0 Voltage − 3	0	N/A	−72010	−71960	50.63	2100	UV
HRLT Bridle#9−M0 Voltage − 4	0	N/A	−69570	−69530	37.03	2100	UV
HRLT Bridle#9−M0 Voltage − 5	0	N/A	−70050	−70000	43.89	2100	UV
HRLT Bridle#9−M0 Voltage − 6	0	N/A	68760	68640	−113.8	2100	UV
HRLT Bridle#9−M0 Voltage − 7	0	N/A	−70000	−70000	0	2100	UV

High Resolution Laterolog Array − B Wellsite Calibration − HRLT ISO
Before: 12−Nov−2015 21:22 After: 13−Nov−2015 2:51

HRLT Source Current Plus − 0	0	N/A	284.4	284.5	0.02625	8.520	UA
HRLT Source Current Plus − 1	0	N/A	281.1	281.1	0	8.520	UA
HRLT Source Current Plus − 2	0	N/A	281.1	281.1	0	8.520	UA
HRLT Source Current Plus − 3	0	N/A	281.1	281.1	0	8.520	UA
HRLT Source Current Plus − 4	0	N/A	281.1	281.1	0	8.520	UA
HRLT Source Current Plus − 5	0	N/A	281.1	281.1	0	8.520	UA
HRLT Source Current Plus − 6	0	N/A	281.1	281.1	0	8.520	UA
HRLT Source Current Plus − 7	0	N/A	281.1	281.1	0	8.520	UA

High Resolution Laterolog Array − B Wellsite Calibration − HRLT MV
Before: 12−Nov−2015 21:22 After: 13−Nov−2015 2:51

HRLT Vertical Voltage Pl − 0	0	N/A	−320.7	−320.8	−0.08084	9.681	UV
HRLT Vertical Voltage Pl − 1	0	N/A	−326.8	−326.6	0.2089	9.681	UV
HRLT Vertical Voltage Pl − 2	0	N/A	−333.0	−332.9	0.1057	9.681	UV
HRLT Vertical Voltage Pl − 3	0	N/A	−321.7	−321.6	0.1305	9.681	UV
HRLT Vertical Voltage Pl − 4	0	N/A	−309.3	−309.3	0.06876	9.681	UV
HRLT Vertical Voltage Pl − 5	0	N/A	−326.1	−326.0	0.1300	9.681	UV
HRLT Vertical Voltage Pl − 6	0	N/A	330.0	329.6	−0.3297	9.681	UV
HRLT Vertical Voltage Pl − 7	0	N/A	−322.7	−322.7	0	9.681	UV

Hostile Litho−Density Sonde Wellsite Calibration − Background Measurement
Master: 22−Sep−2015 14:04 Before: 12−Nov−2015 21:25 After: 13−Nov−2015 2:54

SS Cs Resolution Bkg	9.000	7.976	8.144	8.025	−0.1184	1.800	%
LS Cs Resolution Bkg	9.000	8.193	8.274	8.195	−0.07921	1.800	%
LSW1 Background	100.0	66.90	66.41	66.39	−0.02809	3.000	CPS
LSW2 Background	100.0	62.57	61.51	62.36	0.8556	3.000	CPS
LSW3 Background	200.0	137.5	136.4	137.1	0.6883	6.000	CPS
LSW4 Background	250.0	168.1	167.1	166.4	−0.6541	7.500	CPS
LSW5 Background	600.0	381.5	381.1	381.8	0.6391	18.00	CPS
SSW1 Background	100.0	76.27	75.97	75.12	−0.8479	3.000	CPS
SSW2 Background	200.0	135.1	134.4	134.8	0.3525	6.000	CPS
SSW3 Background	500.0	363.6	362.3	362.2	−0.1157	15.00	CPS
SSW4 Background	270.0	191.2	187.8	189.0	1.234	8.100	CPS
SSW5 Background	200.0	137.5	137.6	136.4	−1.209	6.000	CPS

Hostile Litho−Density Sonde Wellsite Calibration − Aluminum Measurement
Master: 22−Sep−2015 14:43

LSW1 Aluminum	600.0	535.9	N/A	N/A	N/A	N/A	CPS
LSW2 Aluminum	900.0	752.4	N/A	N/A	N/A	N/A	CPS
LSW3 Aluminum	1100	887.1	N/A	N/A	N/A	N/A	CPS
LSW4 Aluminum	580.0	436.0	N/A	N/A	N/A	N/A	CPS

LSW5 Aluminum	570.0	402.7	N/A	N/A	N/A	N/A	CPS
SSW1 Aluminum	2800	2334	N/A	N/A	N/A	N/A	CPS
SSW2 Aluminum	8000	6299	N/A	N/A	N/A	N/A	CPS
SSW3 Aluminum	11600	8758	N/A	N/A	N/A	N/A	CPS
SSW4 Aluminum	5000	3565	N/A	N/A	N/A	N/A	CPS
SSW5 Aluminum	660.0	429.1	N/A	N/A	N/A	N/A	CPS

Hostile Litho−Density Sonde Wellsite Calibration − Lithology Measurement
Master: 22−Sep−2015 14:38

LSW1 Iron	400.0	381.3	N/A	N/A	N/A	N/A	CPS
LSW2 Iron	730.0	637.5	N/A	N/A	N/A	N/A	CPS
LSW3 Iron	1000	840.0	N/A	N/A	N/A	N/A	CPS
LSW4 Iron	520.0	429.4	N/A	N/A	N/A	N/A	CPS
LSW5 Iron	470.0	395.7	N/A	N/A	N/A	N/A	CPS
SSW1 Iron	2100	1777	N/A	N/A	N/A	N/A	CPS
SSW2 Iron	6800	5489	N/A	N/A	N/A	N/A	CPS
SSW3 Iron	10800	8339	N/A	N/A	N/A	N/A	CPS
SSW4 Iron	4600	3429	N/A	N/A	N/A	N/A	CPS
SSW5 Iron	580.0	403.3	N/A	N/A	N/A	N/A	CPS

Hostile Litho−Density Sonde Wellsite Calibration − Caliper Calibration
Before: 22−Sep−2015 17:42

HLDS Caliper Small Ring	12.00	N/A	16.37	N/A	N/A	N/A	IN
HLDS Caliper Large Ring	15.19	N/A	20.15	N/A	N/A	N/A	IN

Accelerator−Porosity Tool Wellsite Calibration − Detector Background
Master: 22−Sep−2015 8:52 Before: 12−Nov−2015 21:25 After: 13−Nov−2015 2:54

Near Det Bkg Cntrate	30.00	26.37	26.93	26.13	−0.8008	N/A	CPS
Far Det Bkg Cntrate	30.00	27.82	27.85	26.35	−1.502	N/A	CPS
Array−1 Det Bkg Cntrate	30.00	25.57	27.01	26.56	−0.4504	N/A	CPS
Array−2 Det Bkg Cntrate	30.00	26.87	27.73	26.86	−0.8674	N/A	CPS
Array Therm Det Bkg Cntrate	30.00	25.48	26.39	26.65	0.2564	N/A	CPS

Accelerator−Porosity Tool Wellsite Calibration − Calibration Ratios
Master: 22−Sep−2015 8:52

Near/Far Calibration Ratio	0.9250	0.9782	N/A	N/A	N/A	N/A	
Near/Array Calibration Ratio	1.030	1.085	N/A	N/A	N/A	N/A	
Near/Array Cal Ratio Up/Down	1.000	1.007	N/A	N/A	N/A	N/A	

Accelerator−Porosity Tool Wellsite Calibration − Tank Check
Master: 22−Sep−2015 8:52

Array−1 Standoff Porosity	11.75	10.13	N/A	N/A	N/A	N/A	PU
Array−2 Standoff Porosity	11.75	10.30	N/A	N/A	N/A	N/A	PU
Average Slowing Down Time	6.000	6.081	N/A	N/A	N/A	N/A	US
Array−1 SDT Ratio Up/Down	1.000	0.9680	N/A	N/A	N/A	N/A	
Array−2 SDT Ratio Up/Down	1.000	0.9638	N/A	N/A	N/A	N/A	
Sigma Formation	27.50	35.35	N/A	N/A	N/A	N/A	CU

Accelerator−Porosity Tool Wellsite Calibration − CCR7 signal boxes
Master: 22−Sep−2015 7:57

Near Detector Plateau Setting	1650	1701	N/A	N/A	N/A	N/A	V
Far Detector Plateau Setting	2000	2032	N/A	N/A	N/A	N/A	V
Array Detector Plateau Setting	2000	1942	N/A	N/A	N/A	N/A	V

Hostile Natural Gamma Ray Sonde Wellsite Calibration − Detector 1 Check
Master: 28−Sep−2015 3:37 Before: 12−Nov−2015 21:26 After: 13−Nov−2015 2:56

Na 511 Peak Loc	40.00	37.67	37.45	37.47	0.01740	1.000	
Na 511 Peak Res	15.50	16.19	16.79	16.75	−0.04213	2.000	%
High Voltage	1150	1229	1225	1226	1.059	N/A	V
Na 1785 Peak Loc	142.6	136.2	136.5	136.5	0.04158	7.000	
Na 1785 Peak Res	8.500	9.111	9.617	8.543	−1.074	2.000	%
Temperature	15.50	32.00	32.73	31.92	−0.8129	N/A	DEGC
Na Count Rate	45.00	42.40	40.28	40.09	−0.1962	8.000	CPS

Hostile Natural Gamma Ray Sonde Wellsite Calibration − Detector 2 Check
Master: 28−Sep−2015 3:37 Before: 12−Nov−2015 21:26 After: 13−Nov−2015 2:56

Na 511 Peak Loc	40.00	39.57	39.51	39.42	−0.08842	1.000	
Na 511 Peak Res	15.50	16.65	16.41	17.21	0.8001	2.000	%
High Voltage	1150	1107	1105	1107	2.219	N/A	V
Na 1785 Peak Loc	142.6	143.5	142.7	142.4	−0.3200	7.000	
Na 1785 Peak Res	8.500	9.036	9.000	8.766	−0.2340	2.000	%
Temperature	15.50	31.75	32.56	32.55	−0.01301	N/A	DEGC
Na Count Rate	45.00	42.43	40.35	40.15	−0.1999	8.000	CPS

Hostile Natural Gamma Ray Sonde Wellsite Calibration − Ratio Of Detector 1 To Detector 2
Master: 28−Sep−2015 3:37 Before: 12−Nov−2015 21:26 After: 13−Nov−2015 2:56

Coincidence Count Rate Ratio	1.000	0.9929	0.9924	0.9896	−0.002845	0.05000	

Enhanced DTS Cartridge Wellsite Calibration − EDTC Accelerometer Calibration
Before: 12−Nov−2015 21:22

EDTC Z−Axis Acceleration	9.810	N/A	9.814	N/A	N/A	N/A	M/S2

Enhanced DTS Cartridge Wellsite Calibration − Detector Calibration
Before: 12−Nov−2015 21:23 After: 13−Nov−2015 2:52

Gamma Ray (Jig − Bkg)	162.3	N/A	162.3	160.5	−1.791	14.75	GAPI
Gamma Ray (Calibrated)	165.0	N/A	165.0	163.2	−1.821	15.00	GAPI

Accelerator−Porosity Tool − Detector Plateau Settings :

Near Detector Plateau Setting 1701 V
Far Detector Plateau Setting 2032 V
Array Detector Plateau Setting 1942 V

High Resolution Laterolog Array − B / Equipment Identification

Primary Equipment:		
HRLT Sonde	HRLS − B	768
Auxiliary Equipment:		
HRLT lower Housing	HRLH − B	968
HRLT Lower Cartridge	HRLC − B	974
HRLT upper Housing	HRUH − B	978
HRLT Upper Cartridge	HRUC − B	764

High Resolution Laterolog Array − B Wellsite Calibration
HRLT M01

Idx	Phase	HRLT M0−M1 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		−318.8	−322.7	−280.7	−379.7
	After		−318.8			
1	Before		−332.0	−322.7	−280.7	−379.7
	After		−331.7			
2	Before		−339.5	−322.7	−280.7	−379.7
	After		−339.3			
3	Before		−329.8	−322.7	−280.7	−379.7
	After		−329.6			
4	Before		−320.1	−322.7	−280.7	−379.7
	After		−320.0			
5	Before		−322.1	−322.7	−280.7	−379.7
	After		−321.9			
6	Before		322.3	322.7	379.7	280.7
	After		321.8			
7	Before		−322.7	−322.7	−280.7	−379.7
	After		−322.7			
		(Minimum) (Nominal) (Maximum)				

Before: 12−Nov−2015 21:22
After: 13−Nov−2015 2:51

High Resolution Laterolog Array − B Wellsite Calibration
HRLT M12

Idx	Phase	HRLT M1−M2 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		1743	1781	2095	1549
	After		1742			
1	Before		1822	1781	2095	1549
	After		1820			
2	Before		1856	1781	2095	1549

	After	1854			
3	Before	1801	1781	2095	1549
	After	1799			
4	Before	1747	1781	2095	1549
	After	1745			
5	Before	1758	1781	2095	1549
	After	1756			
6	Before	−1777	−1781	−1549	−2095
	After	−1773			
7	Before	1781	1781	2095	1549
	After	1781			
	(Minimum) (Nominal) (Maximum)				

Before: 12−Nov−2015 21:22

After: 13−Nov−2015 2:51

High Resolution Laterolog Array − B Wellsite Calibration

HRLT M23

Idx	Phase	HRLT M2−M3 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		1734	1781	2095	1549
	After		1733			
1	Before		1824	1781	2095	1549
	After		1820			
2	Before		1859	1781	2095	1549
	After		1858			
3	Before		1809	1781	2095	1549
	After		1807			
4	Before		1749	1781	2095	1549
	After		1747			
5	Before		1761	1781	2095	1549
	After		1759			
6	Before		−1768	−1781	−1549	−2095
	After		−1763			
7	Before		1781	1781	2095	1549
	After		1781			
	(Minimum) (Nominal) (Maximum)					

Before: 12−Nov−2015 21:22

After: 13−Nov−2015 2:51

High Resolution Laterolog Array − B Wellsite Calibration

HRLT V34

Idx	Phase	HRLT A3−A4 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		68710	70000	82360	60900
	After		68690			
1	Before		72060	70000	82360	60900
	After		72010			
2	Before		73770	70000	82360	60900
	After		73770			
3	Before		72020	70000	82360	60900

	After		71960			
4	Before		69600	70000	82360	60900
	After		69550			
5	Before		70090	70000	82360	60900
	After		70050			
6	Before		−68850	−70000	−60900	−82360
	After		−68740			
7	Before		70000	70000	82360	60900
	After		70000			
		(Minimum) (Nominal) (Maximum)				

Before: 12−Nov−2015 21:22

After: 13−Nov−2015 2:51

High Resolution Laterolog Array − B Wellsite Calibration

HRLT V45

Idx	Phase	HRLT A4−A5 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		68800	70000	82360	60900
	After		68780			
1	Before		72270	70000	82360	60900
	After		72210			
2	Before		73960	70000	82360	60900
	After		73960			
3	Before		72180	70000	82360	60900
	After		72120			
4	Before		69710	70000	82360	60900
	After		69670			
5	Before		70190	70000	82360	60900
	After		70140			
6	Before		−69060	−70000	−60900	−82360
	After		−68950			
7	Before		70000	70000	82360	60900
	After		70000			
		(Minimum) (Nominal) (Maximum)				

Before: 12−Nov−2015 21:22

After: 13−Nov−2015 2:51

High Resolution Laterolog Array − B Wellsite Calibration

HRLT V56

Idx	Phase	HRLT A5−A6 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		68660	70000	82360	60900
	After		68640			
1	Before		72110	70000	82360	60900
	After		72070			
2	Before		73800	70000	82360	60900
	After		73790			
3	Before		72020	70000	82360	60900
	After		71990			
4	Before		69580	70000	82360	60900

4	After	69540	70000	82360	60900
5	Before	70050	70000	82360	60900
	After	70000			
6	Before	−68910	−70000	−60900	−82360
	After	−68790			
7	Before	70000	70000	82360	60900
	After	70000			
	(Minimum) (Nominal) (Maximum)				

Before: 12−Nov−2015 21:22
After: 13−Nov−2015 2:51

High Resolution Laterolog Array − B Wellsite Calibration

HRLT VTP

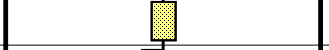
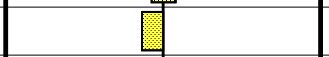
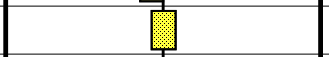
Idx	Phase	HRLT Torpedo−M0 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		−68170	−70000	−60900	−82360
	After		−68160			
1	Before		−71920	−70000	−60900	−82360
	After		−71870			
2	Before		−73640	−70000	−60900	−82360
	After		−73640			
3	Before		−71940	−70000	−60900	−82360
	After		−71900			
4	Before		−69520	−70000	−60900	−82360
	After		−69490			
5	Before		−70000	−70000	−60900	−82360
	After		−69970			
6	Before		68660	70000	82360	60900
	After		68560			
7	Before		−70000	−70000	−60900	−82360
	After		−70000			
	(Minimum) (Nominal) (Maximum)					

Before: 12−Nov−2015 21:22
After: 13−Nov−2015 2:51

High Resolution Laterolog Array − B Wellsite Calibration

HRLT VBD

Idx	Phase	HRLT Bridle#9−M0 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		−68200	−70000	−60900	−82360
	After		−68200			
1	Before		−72010	−70000	−60900	−82360
	After		−71960			
2	Before		−73720	−70000	−60900	−82360
	After		−73720			
3	Before		−72010	−70000	−60900	−82360
	After		−71960			
4	Before		−69570	−70000	−60900	−82360
	After		−69530			
5	Before		−70050	−70000	−60900	−82360

5	After		−70000	−70000	−60900	−82360
6	Before		68760	70000	82360	60900
	After		68640			
7	Before		−70000	−70000	−60900	−82360
	After		−70000			
	(Minimum) (Nominal) (Maximum)					

Before: 12−Nov−2015 21:22

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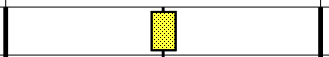
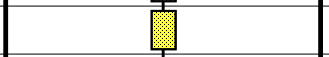
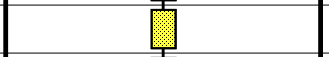
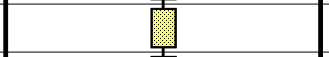
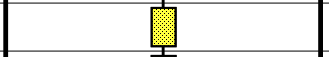
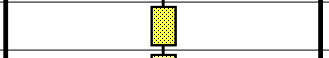
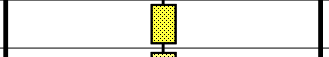
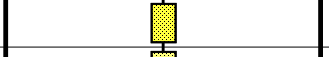
High Resolution Laterolog Array − B Wellsite Calibration

HRLT ISO

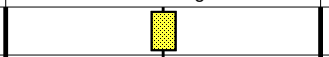
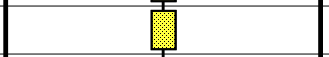
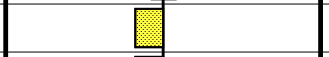
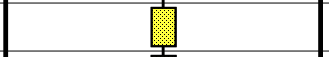
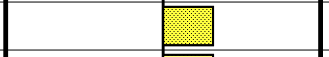
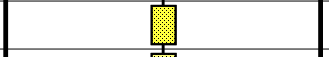
Idx	Phase	HRLT Source Current Plus UA	Value	Nominal	Maximum	Minimum
0	Before		284.4	284.0	334.1	247.0
	After		284.5			
1	Before		281.1	281.1	330.7	244.4
	After		281.1			
2	Before		281.1	281.1	330.7	244.4
	After		281.1			
3	Before		281.1	281.1	330.7	244.4
	After		281.1			
4	Before		281.1	281.1	330.7	244.4
	After		281.1			
5	Before		281.1	281.1	330.7	244.4
	After		281.1			
6	Before		281.1	281.1	330.7	244.4
	After		281.1			
7	Before		281.1	281.1	330.7	244.4
	After		281.1			
	(Minimum) (Nominal) (Maximum)					

Before: 12−Nov−2015 21:22

After: 13−Nov−2015 2:51

High Resolution Laterolog Array − B Wellsite Calibration

HRLT MV

Idx	Phase	HRLT Vertical Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		−320.7	−322.7	−280.7	−379.7
	After		−320.8			
1	Before		−326.8	−322.7	−280.7	−379.7
	After		−326.6			
2	Before		−333.0	−322.7	−280.7	−379.7
	After		−332.9			
3	Before		−321.7	−322.7	−280.7	−379.7
	After		−321.6			
4	Before		−309.3	−322.7	−280.7	−379.7
	After		−309.3			
5	Before		−326.1	−322.7	−280.7	−379.7
	After		−326.0			
6	Before		330.0			

6	After	329.6	322.7	379.7	280.7
7	Before	−322.7	−322.7	−280.7	−379.7
	After	−322.7			
	(Minimum) (Nominal) (Maximum)				

Before: 12−Nov−2015 21:22

After: 13−Nov−2015 2:51

Hostile Litho−Density Sonde / Equipment Identification

Primary Equipment:

Hostile Litho Density Sonde	HLDS − D	45
Hostile Litho Density High Voltage	HLDV − D	45
Gamma Source Radioactive	GSR − Z	8113

Auxiliary Equipment:

Hostile Litho Density Pad	HLDP − C	45
Hostile Litho Density High Voltage Housi	HEH − H	47

Hostile Litho−Density Sonde Wellsite Calibration

Background Measurement

Phase	SS Cs Resolution Bkg %	Value
Master		7.976
Before		8.144
After		8.025
	7.000 (Minimum) 9.000 (Nominal) 11.00 (Maximum)	

Phase	LS Cs Resolution Bkg %	Value
Master		8.193
Before		8.274
After		8.195
	7.000 (Minimum) 9.000 (Nominal) 11.00 (Maximum)	

Phase	LSW1 Background CPS	Value
Master		66.90
Before		66.41
After		66.39
	55.00 (Minimum) 100.0 (Nominal) 150.0 (Maximum)	

Phase	LSW2 Background CPS	Value
Master		62.57
Before		61.51
After		62.36
	50.00 (Minimum) 100.0 (Nominal) 140.0 (Maximum)	

Phase	LSW3 Background CPS	Value
Master		137.5
Before		136.4
After		137.1
	110.0 (Minimum) 200.0 (Nominal) 290.0 (Maximum)	

Phase	LSW4 Background CPS	Value
Master		168.1
Before		167.1
After		166.4
	140.0 (Minimum) 250.0 (Nominal) 360.0 (Maximum)	

Phase	LSW5 Background CPS	Value
Master		381.5
Before		381.1
After		381.8
	330.0 (Minimum) 600.0 (Nominal) 830.0 (Maximum)	

Phase	SSW1 Background CPS	Value
Master		76.27
Before		75.97
After		75.12
	55.00 (Minimum) 100.0 (Nominal) 150.0 (Maximum)	

Phase	SSW2 Background CPS	Value
Master		135.1
Before		134.4
After		134.8
	100.0 (Minimum) 200.0 (Nominal) 260.0 (Maximum)	

Phase	SSW3 Background CPS	Value
Master		363.6
Before		362.3
After		362.2
	280.0 (Minimum) 500.0 (Nominal) 700.0 (Maximum)	

Phase	SSW4 Background CPS	Value
Master		191.2
Before		187.8
After		189.0
	150.0 (Minimum) 270.0 (Nominal) 380.0 (Maximum)	

Phase	SSW5 Background CPS	Value
Master		137.5
Before		137.6
After		136.4
	110.0 (Minimum) 200.0 (Nominal) 270.0 (Maximum)	

Master: 22−Sep−2015 14:04 Before: 12−Nov−2015 21:25 After: 13−Nov−2015 2:54

Litho−Density Spectroscopy Cartridge − B / Equipment Identification

Primary Equipment:

LDSC Cartridge	LDSC − B	521

Auxiliary Equipment:

LDSC Housing	LDSH − A	319

Accelerator−Porosity Tool / Equipment Identification

Primary Equipment:

Accelerator−Porosity Sonde	APS − C	65535
APS Minitron	MNTR − F	65535

Auxiliary Equipment:

Accelerator−Porosity Housing	APH − AC	121
APS Calibration Water Tank	SFT − 178	1
APS Aluminum Calibrator Sleeve	SFT − 281	1

Accelerator−Porosity Tool Wellsite Calibration

Detector Background

Phase	Near Det Bkg Cntrate CPS	Value
Master		26.37
Before		26.93
After		26.13

1.000 (Minimum) 30.00 (Nominal) 50.00 (Maximum)

Phase	Far Det Bkg Cntrate CPS	Value
Master		27.82
Before		27.85
After		26.35

1.000 (Minimum) 30.00 (Nominal) 50.00 (Maximum)

Phase	Array−1 Det Bkg Cntrate CPS	Value
Master		25.57
Before		27.01
After		26.56

1.000 (Minimum) 30.00 (Nominal) 50.00 (Maximum)

Phase	Array−2 Det Bkg Cntrate CPS	Value
Master		26.87
Before		27.73
After		26.86

1.000 (Minimum) 30.00 (Nominal) 50.00 (Maximum)

Phase	Array Therm Det Bkg Cntrate CPS	Value
Master		25.48
Before		26.39
After		26.65

1.000 (Minimum) 30.00 (Nominal) 50.00 (Maximum)

Master: 22−Sep−2015 8:52 Before: 12−Nov−2015 21:25 After: 13−Nov−2015 2:54

Accelerator−Porosity Tool Wellsite Calibration

Calibration Ratios

Phase	Near/Far Calibration Ratio	Value
Master		0.9782

0.8000 (Minimum) 0.9250 (Nominal) 1.050 (Maximum)

Phase	Near/Array Calibration Ratio	Value
Master		1.085

0.9000 (Minimum) 1.030 (Nominal) 1.170 (Maximum)

Phase	Near/Array Cal Ratio Up/Down	Value
Master		1.007

0.9700 (Minimum) 1.000 (Nominal) 1.030 (Maximum)

Master: 22−Sep−2015 8:52

Accelerator−Porosity Tool Wellsite Calibration

Tank Check

Phase	Array−1 Standoff Porosity PU	Value
Master		10.13

9.900 (Minimum) 11.75 (Nominal) 13.60 (Maximum)

Phase	Array−2 Standoff Porosity PU	Value
Master		10.30

9.900 (Minimum) 11.75 (Nominal) 13.60 (Maximum)

Phase	Average Slowing Down Time US	Value
Master		6.081

5.500 (Minimum) 6.000 (Nominal) 6.250 (Maximum)

Phase	Array−1 SDT Ratio Up/Down	Value
Master		0.9680

0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum)

Phase	Array−2 SDT Ratio Up/Down	Value
Master		0.9638

0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum)

Phase	Sigma Formation CU	Value
Master	EXCEEDS LIMIT	35.35

20.00 (Minimum) 27.50 (Nominal) 35.00 (Maximum)

Master: 22−Sep−2015 8:52

Hostile Natural Gamma Ray Cartridge − B / Equipment Identification

Primary Equipment:

HNGC Cartridge	HNGC − B	439

Auxiliary Equipment:

HNGC Housing	HNGH − A	380

Hostile Natural Gamma Ray Sonde / Equipment Identification

Primary Equipment:

HNGS Sonde	HNGS − BA	177

Auxiliary Equipment:

HNGS Sonde Housing	HNSH − BA	174
Gamma Source Radioactive	GSR − U	616008

Hostile Natural Gamma Ray Sonde Wellsite Calibration

Detector 1 Check

Detector 1 Check

Phase	Na 511 Peak Loc	Value
Master		37.67
Before	EXCEEDS LIMIT	37.45
After	EXCEEDS LIMIT	37.47
	37.50 (Minimum) 40.00 (Nominal) 43.50 (Maximum)	

Phase	Na 511 Peak Res %	Value
Master		16.19
Before		16.79
After		16.75
	12.00 (Minimum) 15.50 (Nominal) 19.00 (Maximum)	

Phase	High Voltage V	Value
Master		1229
Before		1225
After		1226
	900.0 (Minimum) 1150 (Nominal) 1600 (Maximum)	

Phase	Na 1785 Peak Loc	Value
Master		136.2
Before		136.5
After		136.5
	135.0 (Minimum) 142.6 (Nominal) 150.3 (Maximum)	

Phase	Na 1785 Peak Res %	Value
Master		9.111
Before		9.617
After		8.543
	7.000 (Minimum) 8.500 (Nominal) 11.00 (Maximum)	

Phase	Temperature DEGC	Value
Master		32.00
Before		32.73
After		31.92
	−28.89 (Minimum) 15.50 (Nominal) 60.00 (Maximum)	

Phase	Na Count Rate CPS	Value
Master		42.40
Before		40.28
After		40.09
	10.00 (Minimum) 45.00 (Nominal) 100.0 (Maximum)	

Master: 28−Sep−2015 3:37 Before: 12−Nov−2015 21:26 After: 13−Nov−2015 2:56

Hostile Natural Gamma Ray Sonde Wellsite Calibration

Detector 2 Check

Phase	Na 511 Peak Loc	Value
Master		39.57
Before		39.51
After		39.42
	37.50 (Minimum) 40.00 (Nominal) 43.50 (Maximum)	

Phase	Na 511 Peak Res %	Value
Master		16.65
Before		16.41
After		17.21
	12.00 (Minimum) 15.50 (Nominal) 19.00 (Maximum)	

Phase	High Voltage V	Value
Master		1107
Before		1105
After		1107
	900.0 (Minimum) 1150 (Nominal) 1600 (Maximum)	

Phase	Na 1785 Peak Loc	Value
Master		143.5
Before		142.7
After		142.4
	135.0 (Minimum) 142.6 (Nominal) 150.3 (Maximum)	

Phase	Na 1785 Peak Res %	Value
Master		9.036
Before		9.000
After		8.766
	7.000 (Minimum) 8.500 (Nominal) 11.00 (Maximum)	

Phase	Temperature DEGC	Value
Master		31.75
Before		32.56
After		32.55
	−28.89 (Minimum) 15.50 (Nominal) 60.00 (Maximum)	

Phase	Na Count Rate CPS	Value
Master		42.43
Before		40.35
After		40.15
	10.00 (Minimum) 45.00 (Nominal) 100.0 (Maximum)	

Master: 28−Sep−2015 3:37 Before: 12−Nov−2015 21:26 After: 13−Nov−2015 2:56

Hostile Natural Gamma Ray Sonde Wellsite Calibration

Ratio Of Detector 1 To Detector 2

Phase	Coincidence Count Rate Ratio	Value
Master		0.9929
Before		0.9924
After		0.9896
	0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum)	

Master: 28−Sep−2015 3:37

Before: 12−Nov−2015 21:26

After: 13−Nov−2015 2:56

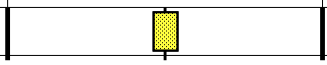
Enhanced DTS Cartridge / Equipment Identification

Primary Equipment:

EDTC Gamma Ray Detector	EDTG − A/B	8305
Enhanced DTS Cartridge	EDTC − B	8317
Auxiliary Equipment:		
EDTC Housing	EDTH − B	8303

Enhanced DTS Cartridge Wellsite Calibration

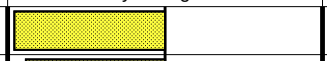
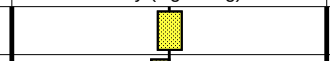
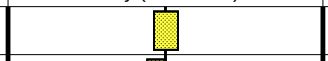
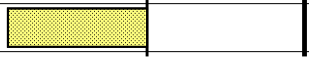
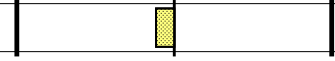
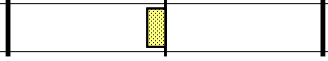
EDTC Accelerometer Calibration

Phase	EDTC Z−Axis Acceleration M/S2	Value
Before		9.814
	9.610 (Minimum) 9.810 (Nominal) 10.01 (Maximum)	

Before: 12−Nov−2015 21:22

Enhanced DTS Cartridge Wellsite Calibration

Detector Calibration

Phase	Gamma Ray Background GAPI	Value	Phase	Gamma Ray (Jig − Bkg) GAPI	Value	Phase	Gamma Ray (Calibrated) GAPI	Value
Before		1.235	Before		162.3	Before		165.0
After		3.316	After		160.5	After		163.2
	0 (Minimum) 30.00 (Nominal) 120.0 (Maximum)			147.5 (Minimum) 162.3 (Nominal) 177.0 (Maximum)			150.0 (Minimum) 165.0 (Nominal) 180.0 (Maximum)	

Before: 12−Nov−2015 21:23 After: 13−Nov−2015 2:52

Company: **International Ocean Discovery Program**

Schlumberger

Well: **Expedition 359, Site U1468B**
Field: **Maldives Monsoon & Sea Level**
Rig: **JOIDES Resolution**
Country:

High Resolution Laterolog Array (HRLA)
Nuclear (HNGS, HLDS, APS)
Magnetic Susceptibility (MSS)