

Well: **Expedition 402, Site U1616E (Lower)**  
Field: **Tyrrhenian Continent–Ocean Transition**  
Rig: **JOIDES Resolution** Country: **Italy**

Rig:	JOIDES Resolution	High Resolution Laterolog (HRLA) / HLDS			
Field:	Tyrrhenian Continent–Ocean Transect	Magnetic Susceptibility (MSS)			
Location:	Latitude: N 40° 11.0508'	Natural Gamma / MSS (HNGS)			
Well:	Expedition 402, Site U1616E (Lobos)				
Company:	International Ocean Discovery Program				
LOCATION		Latitude: N 40° 11.0508'		Elev.:	K.B. 0.00 m
		Longitude: E 12° 33.9972'			G.L. –3578.20 m
					D.F. 0.00 m
		Permanent Datum: Sea Floor		Elev.:	–3578.20 m
		Log Measured From: Rig Floor		3578.20 m above Perm. Datum	
		Drilling Measured From: Rig Floor			
Ocean: Mediterranean		Max. Well Deviation 5 deg		Longitude E 12.56662°	Latitude N 40.18418°

Logging Date			5-Apr-2024					
Run Number			1					
Depth Driller			4005.4 m					
Schlumberger Depth			4005.4 m					
Bottom Log Interval			3920 m					
Top Log Interval			3578.2 m					
Casing Driller Size @ Depth			13.375 in	@	3797 m		@	
Casing Schlumberger			3797 m					
Bit Size			9.875 in					
Type Fluid In Hole			Sea Water					
MUD	Density	Viscosity	1.023 g/cm3					
	Fluid Loss	PH		8.07				
	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	0.369 @ 5		@ 5	@		@
Maximum Recorded Temperatures			5 degC					
Circulation Stopped		Time	5-Apr-2024		8:00			
Logger On Bottom		Time	5-Apr-2024		13:00			
Unit Number		Location	627314	Larose, LA				
Recorded By			C. Furman					
Witnessed By			K. Grigar					

[illegible]

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	
	Fluid Loss	PH	
	Source Of Sample		
	RM @ Measured Temperature		@
RMF @ Measured Temperature		@	
RMC @ Measured Temperature		@	
Source RMF	RMC		
RM @ MRT	RMF @ MRT	@	@
Maximum Recorded Temperatures			
Circulation Stopped		Time	
Logger On Bottom		Time	
Unit Number	Location		
Recorded By			
Witnessed By			

Run 3	Run 4

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





Drill pipe set at 3895.3 mbrf (317.1mbsf).
Casing shoe at 3797mbrf (218.8mbsf).
Fluid type was seawater, as drilled.
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 closed for down log, as it cannot be used in that direction.

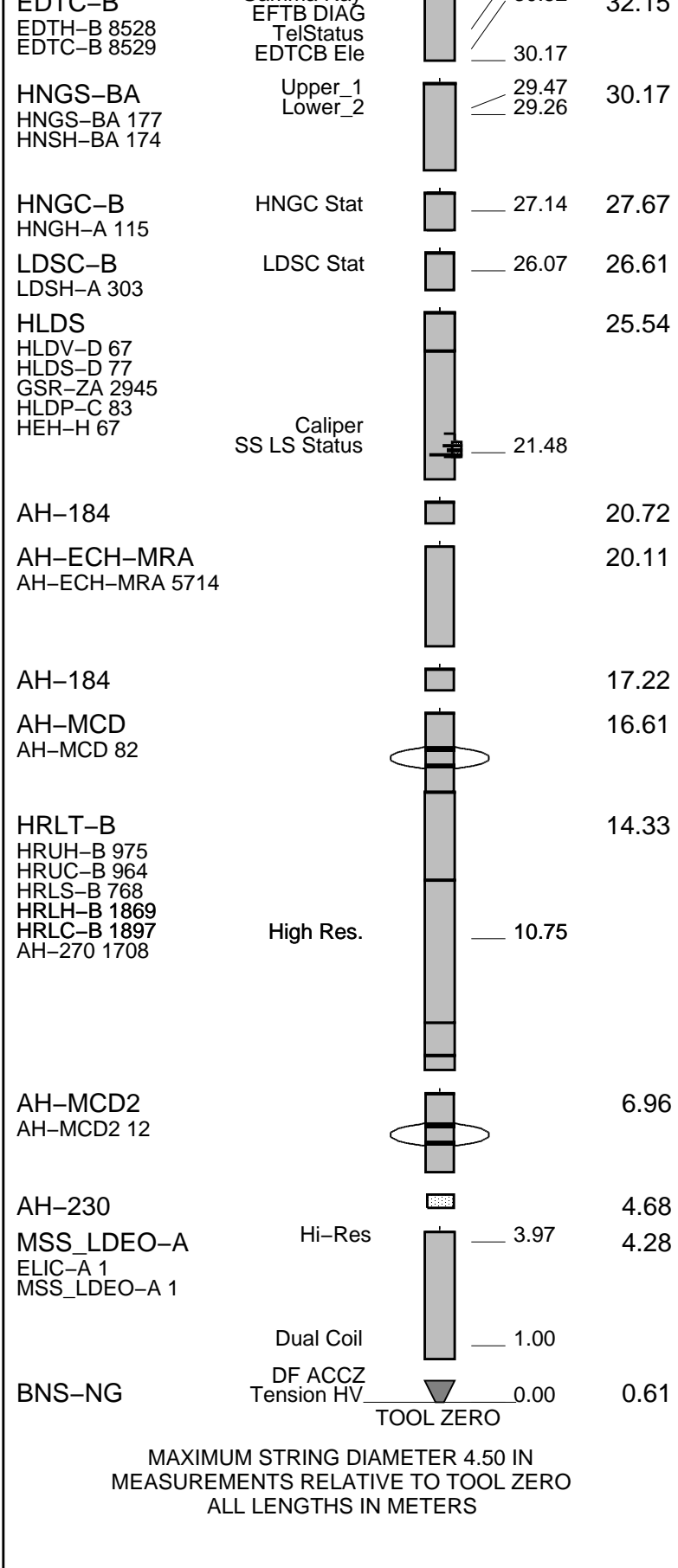
This hole was logged previously (26 MAR 2024) to a maximum depth of 308mbsf, but the tools were unable to descend further due to hole obstruction. Hole was subsequently deepened to 427.2 mbsf prior to this logging session.

Tools hung up at 3920mbrf; attempt was made to move pipe, but pipe got stuck, so further logging was aborted.

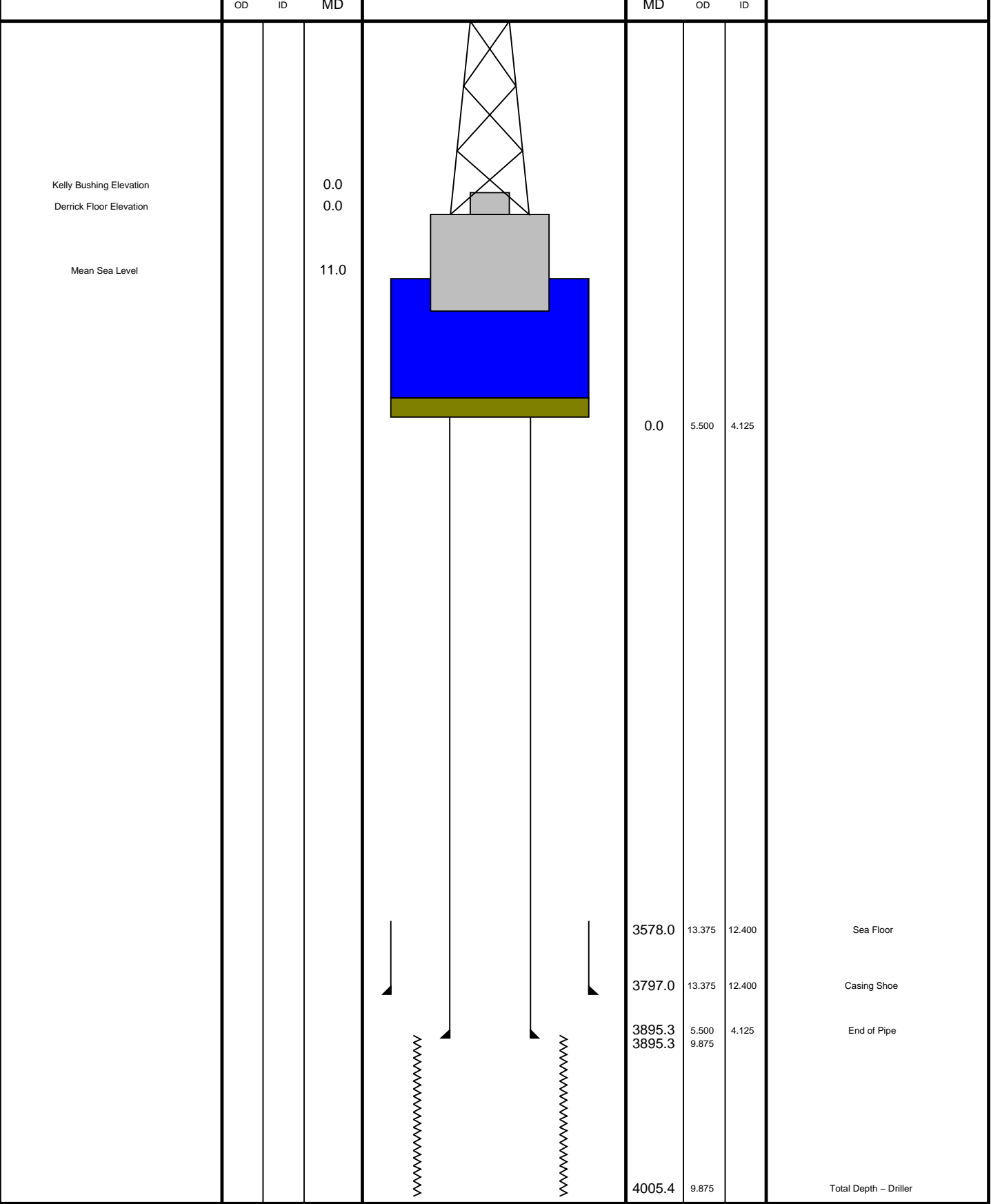
RUN 1			RUN 2		
SERVICE ORDER #: PROGRAM VERSION: 19C0-187 FLUID LEVEL:			SERVICE ORDER #: PROGRAM VERSION: FLUID LEVEL:		
LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP

RUN 1 RUN 2

SURFACE EQUIPMENT				
GSR-U 135				
WITM (EDTS)-A				
DOWNHOLE EQUIPMENT				
LEH-PT				33.90
LEH-PT 1060				
AH-233	MDSB_EDTC			32.96
AH-369	Mud Tempe		32.15	32.59
	CTEM		31.09	
EDTC B	Gamma Ray		30.52	32.15



Production String	(in)	(m)	Well Schematic	(m) (in)
Casing String				





Downlog  
1:200 Scale

MAXIS Field Log

Company: International Ocean Discovery Program Well: Expedition 402, Site U1616E (Lower)

Input DLIS Files

DEFAULT	Flip_MSS_LDEO_HRLA_040LUP	PRODUCER	05-Apr-2024 13:29	3923.2 M	3538.7 M
---------	---------------------------	----------	-------------------	----------	----------

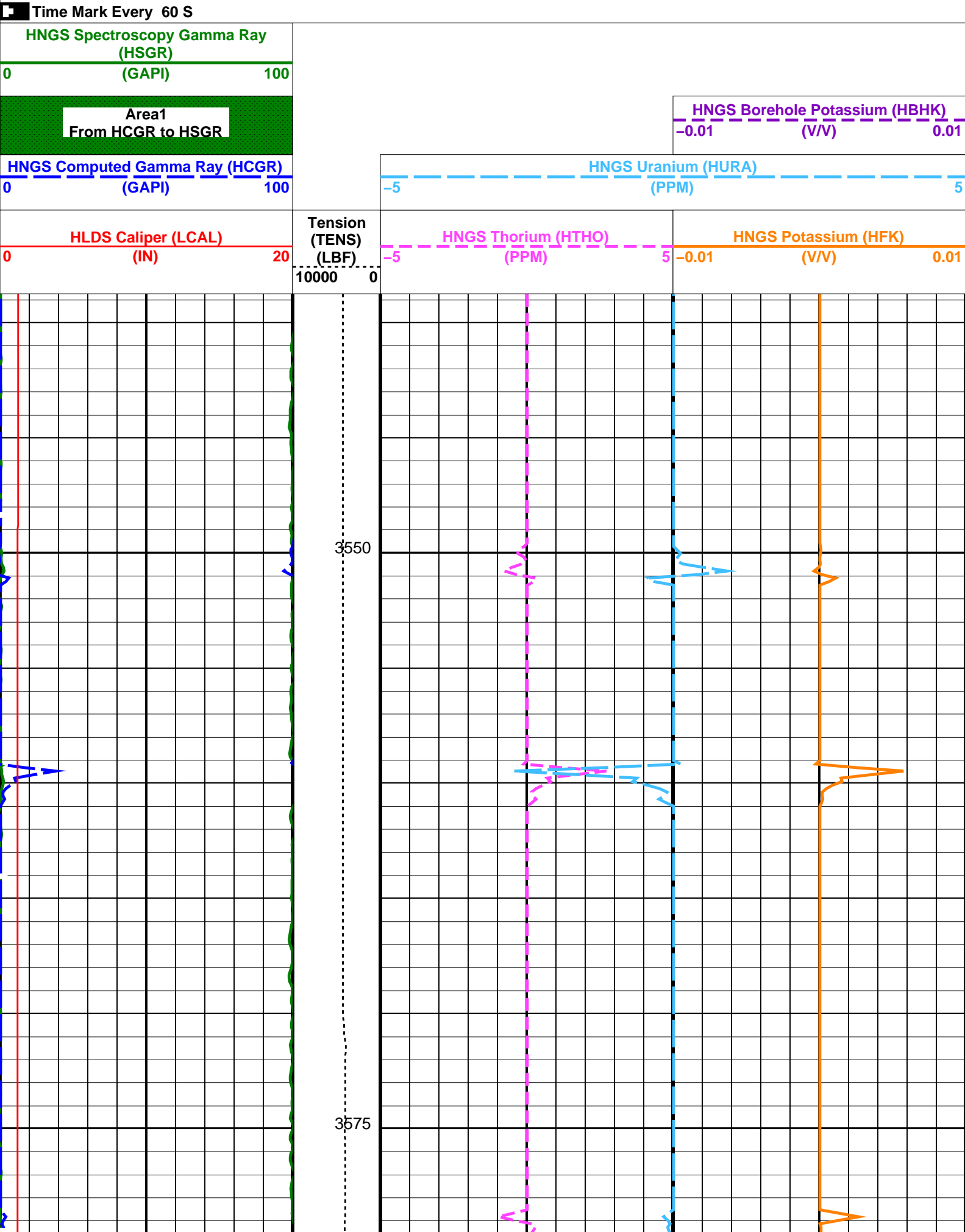
Output DLIS Files

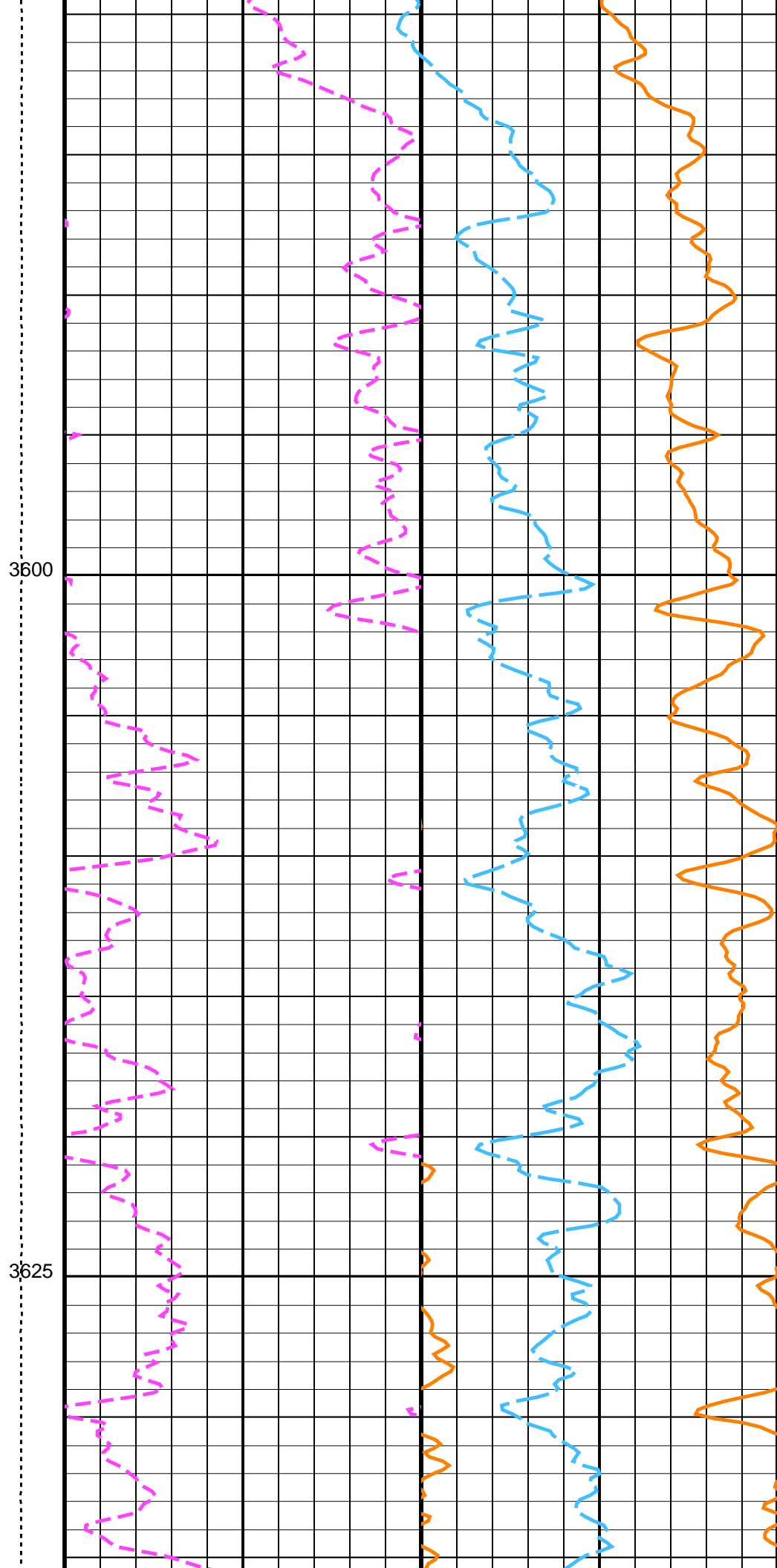
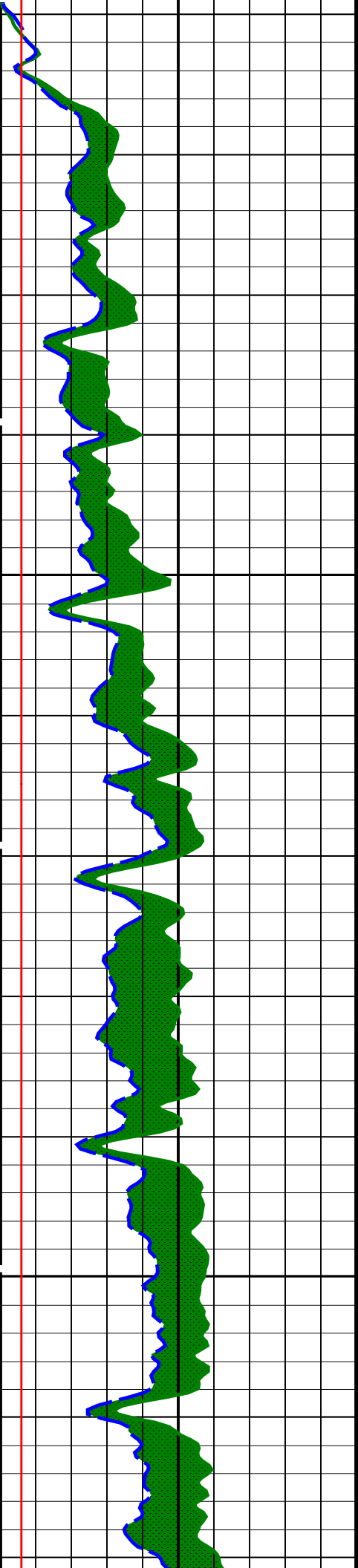
DEFAULT	MSS_LDEO_HRLA_LDL_041PUP	FN:9	PRODUCER	05-Apr-2024 13:30	3923.2 M	3538.7 M
RTB	MSS_LDEO_HRLA_LDL_041PUP	FN:10	PRODUCER	05-Apr-2024 13:30	3923.2 M	3538.7 M

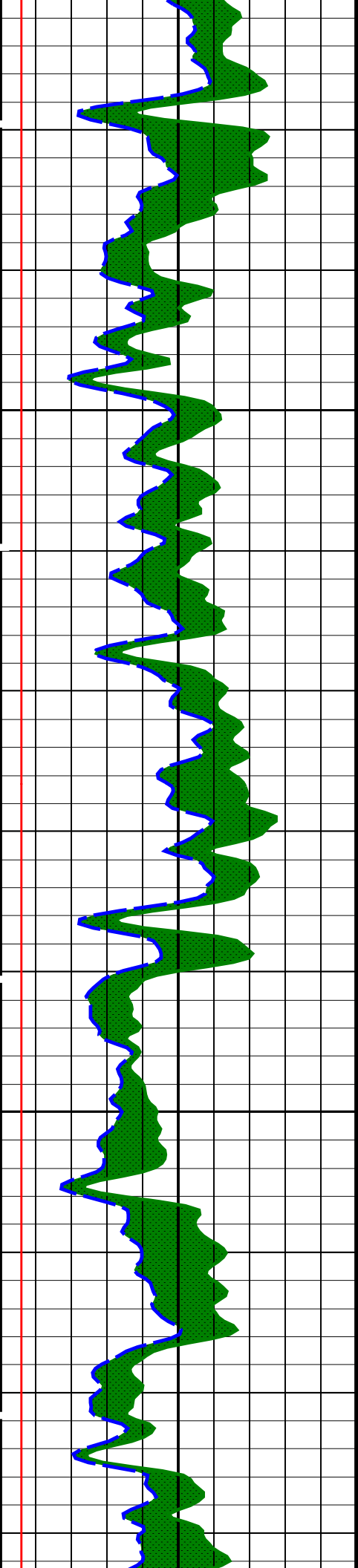
OP System Version: 19C0-187

MSS_LDEO-A	19C0-187	HRLT-B	19C0-187
HLDS	19C0-187	LDSC-B	19C0-187
HNGC-B	19C0-187	HNGS-BA	19C0-187

PIP SUMMARY

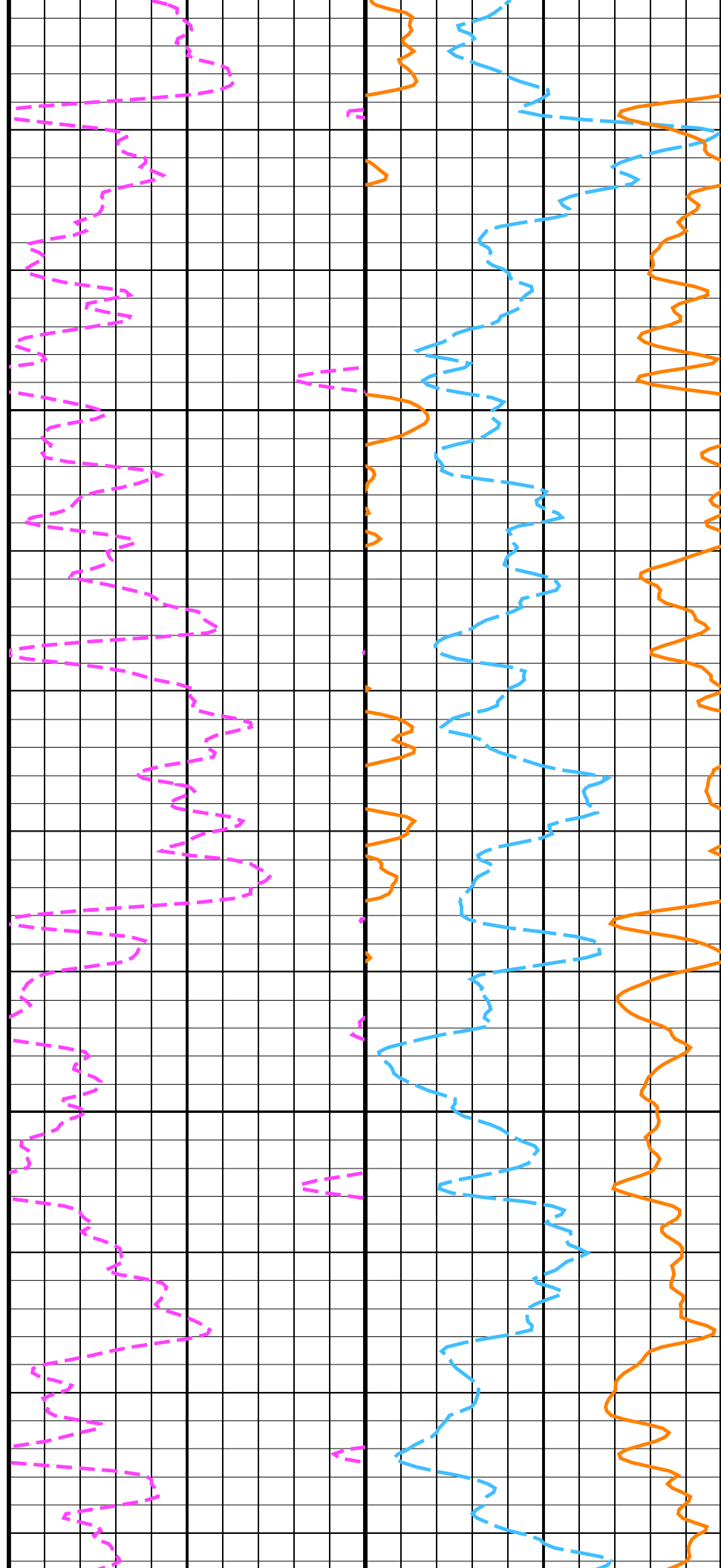




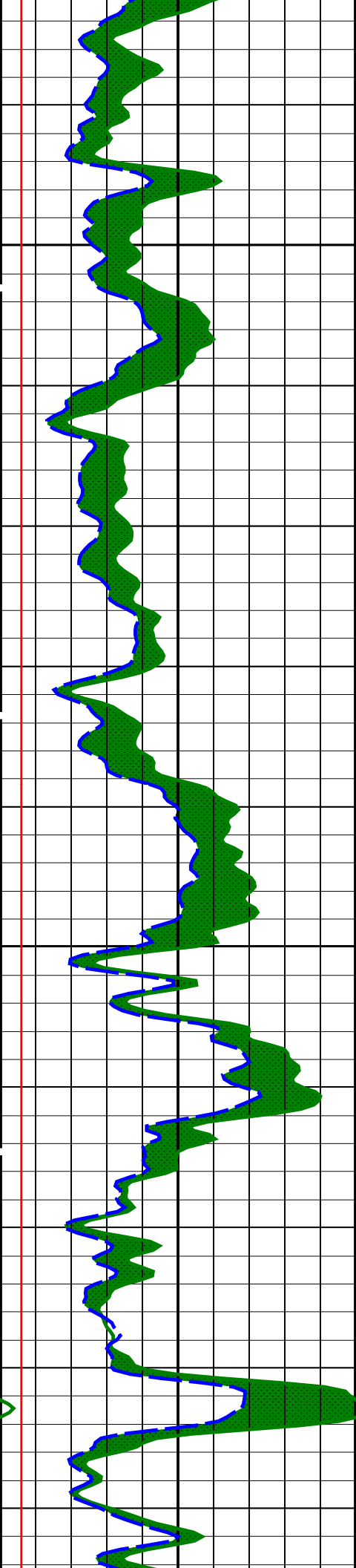


3650

3675

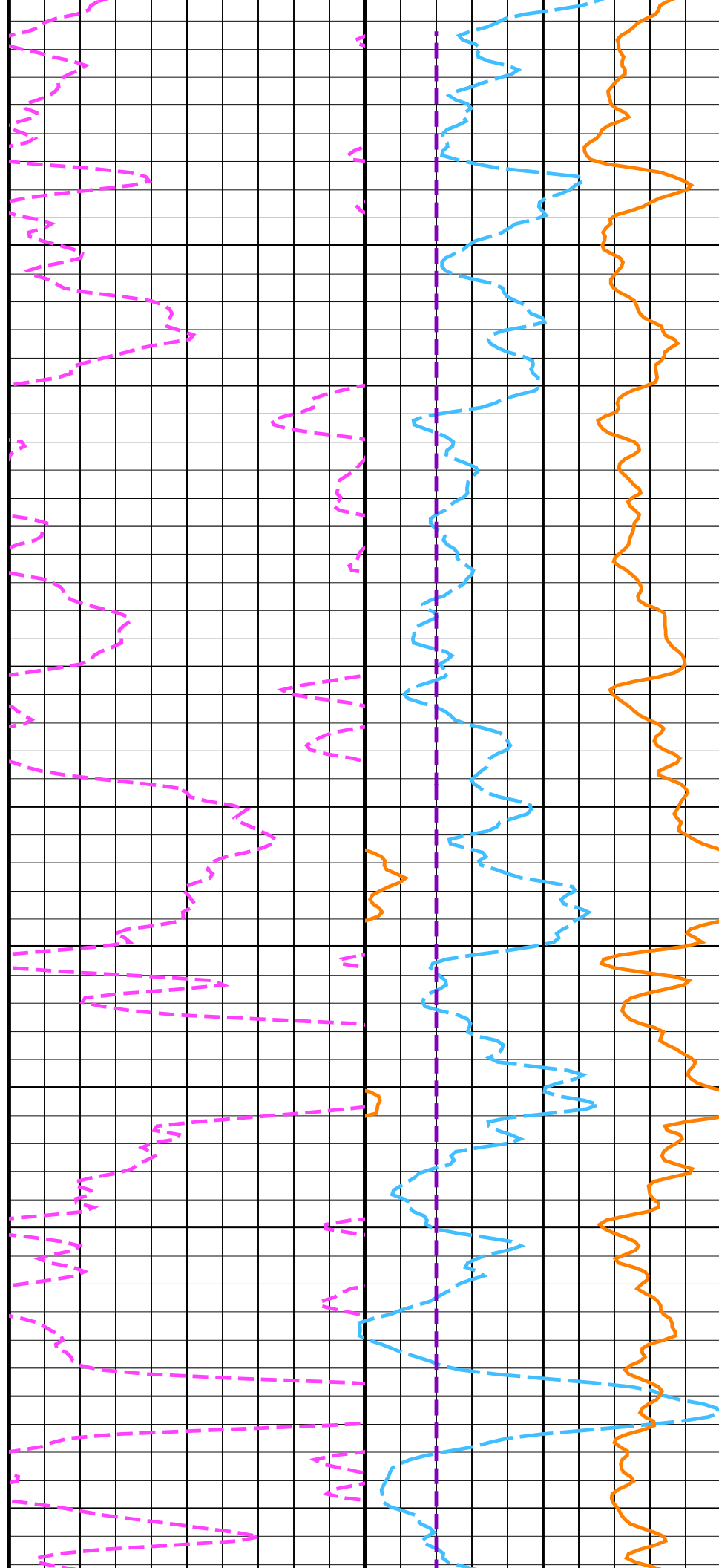


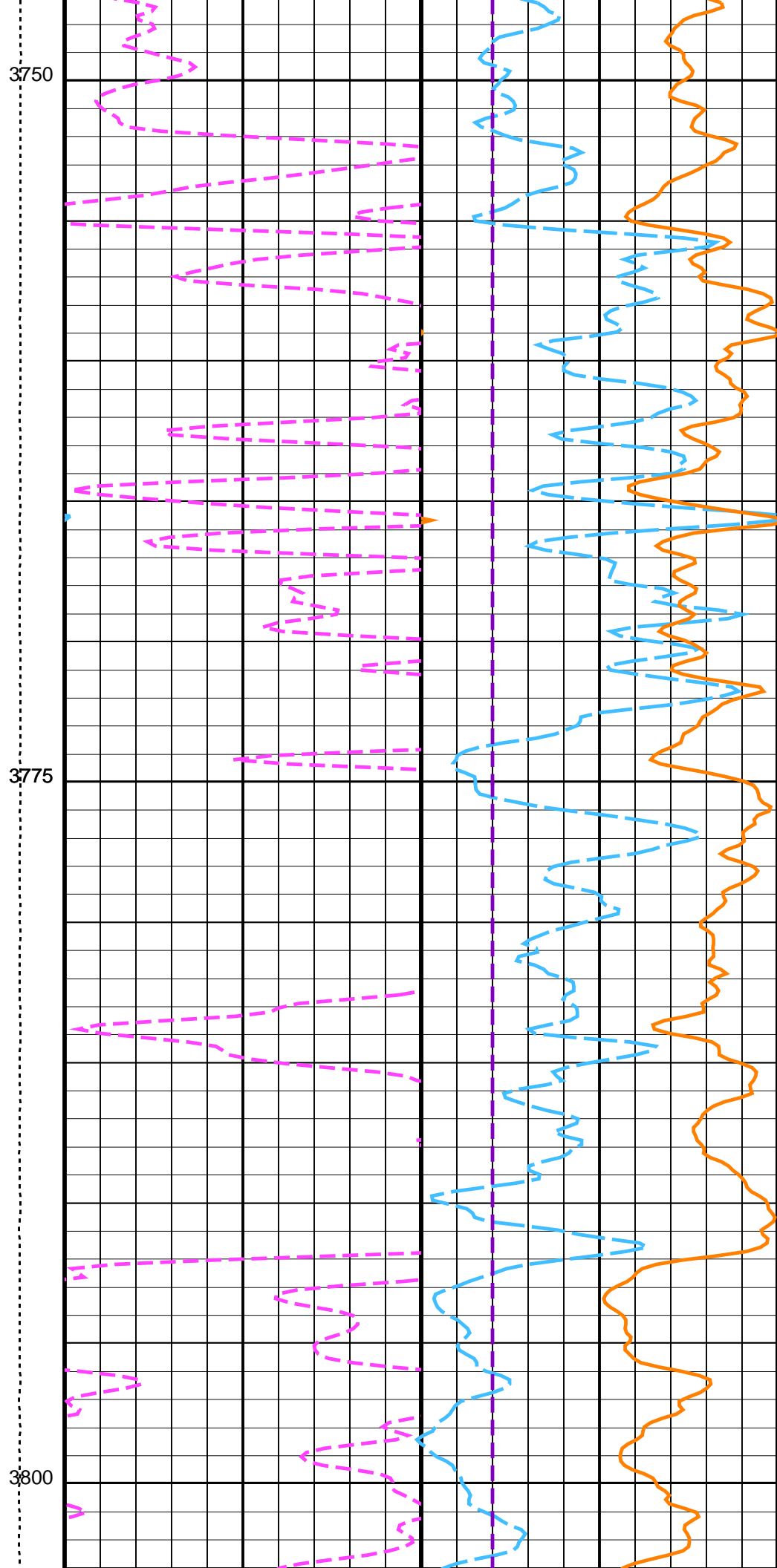
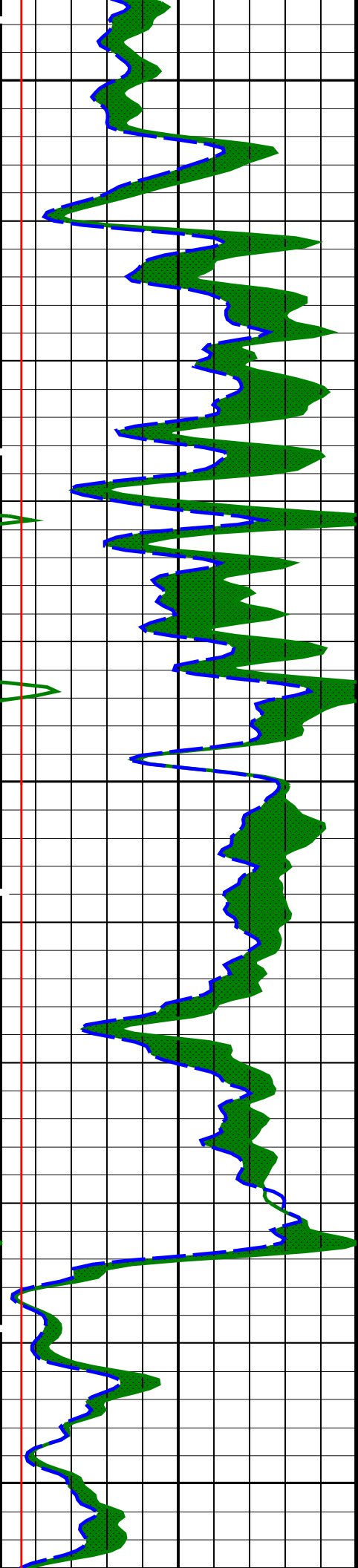


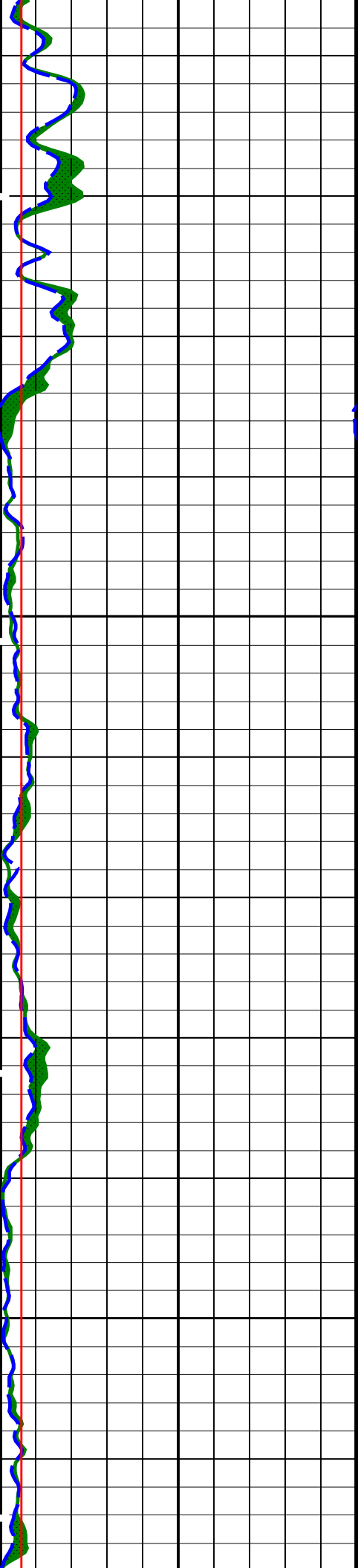


3700

3725

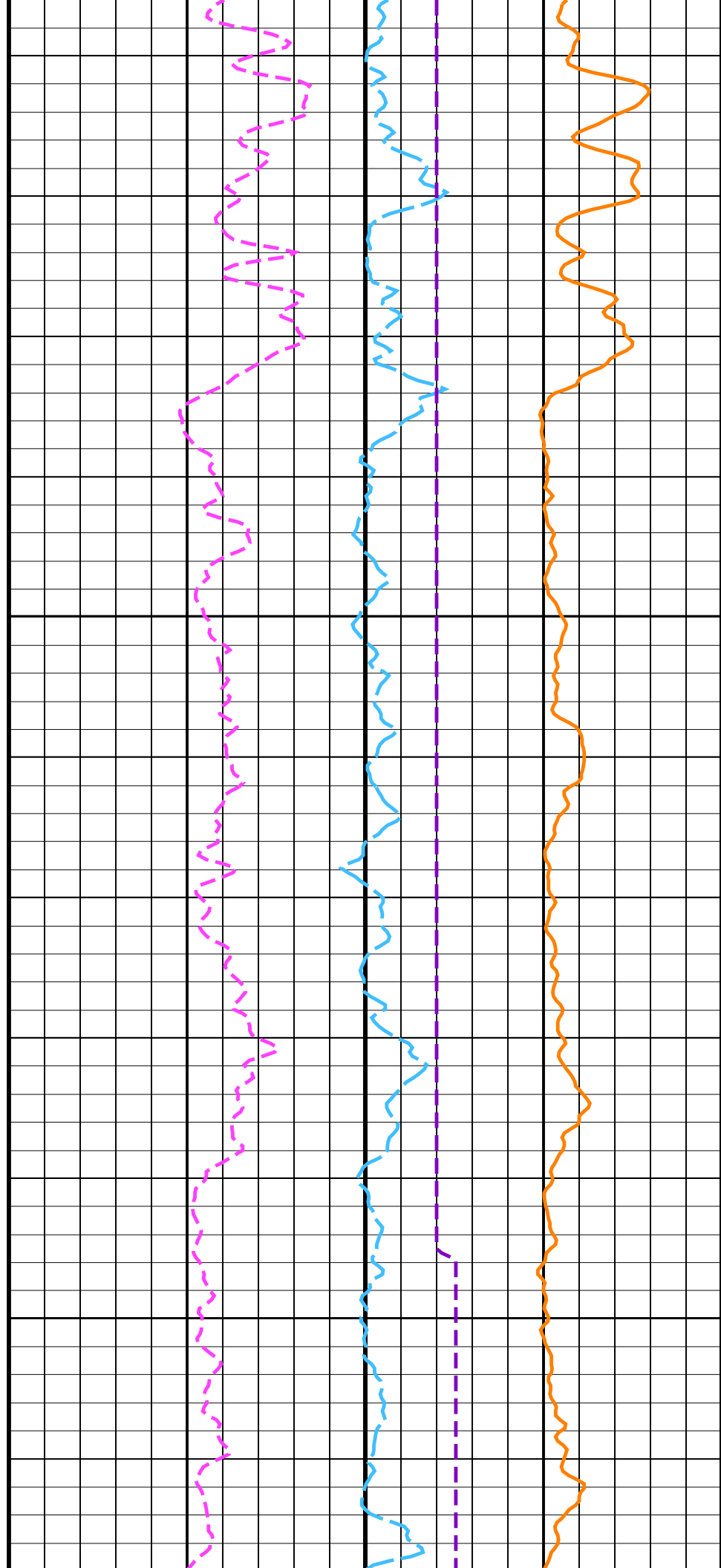


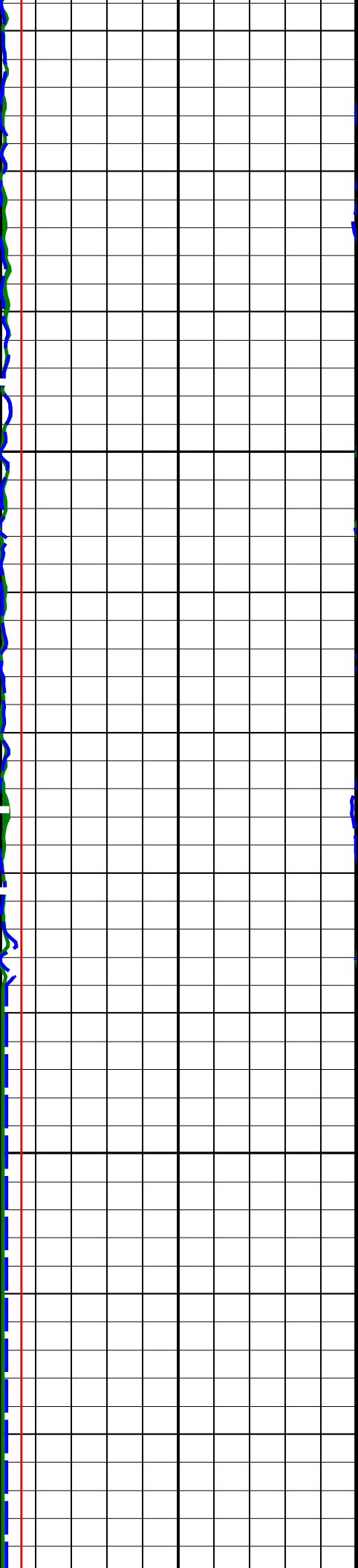




3825

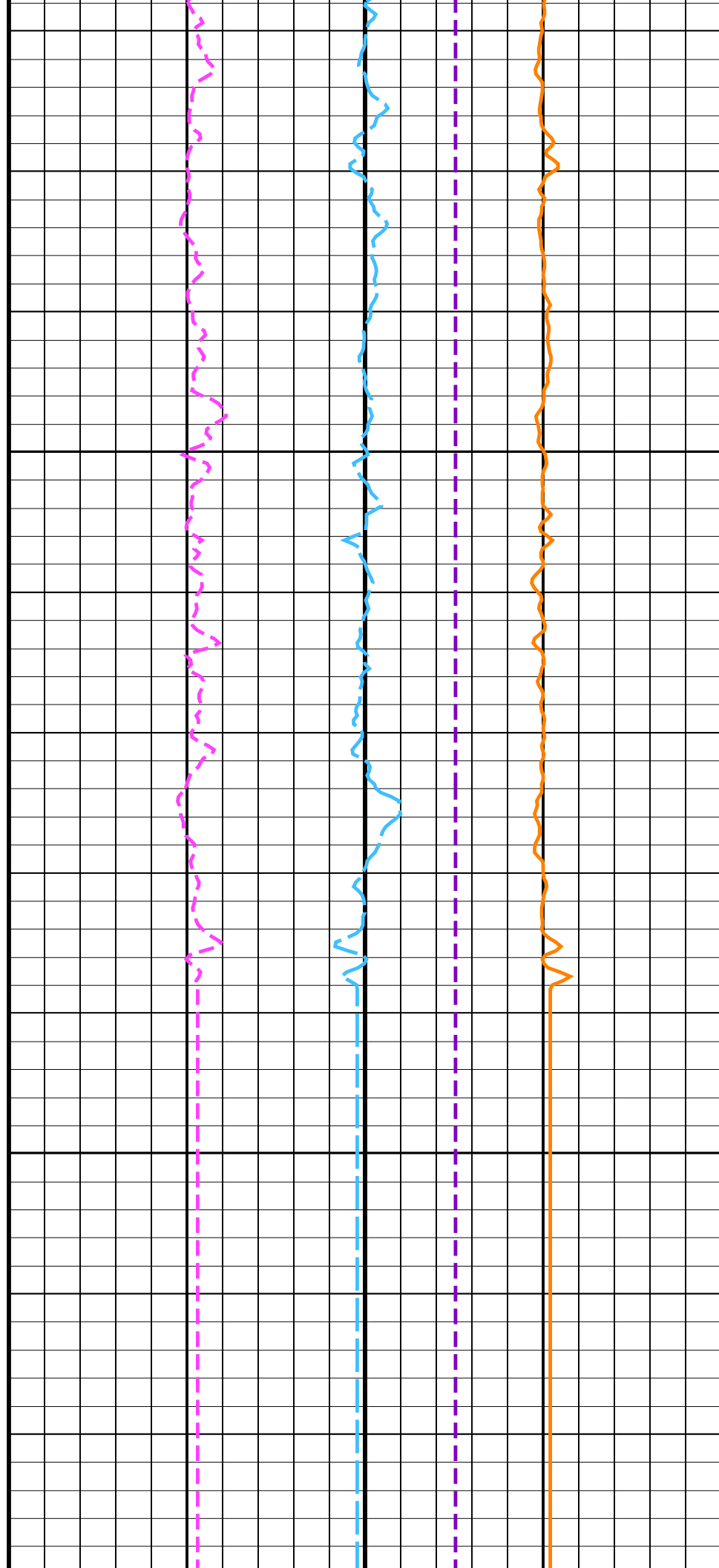
3850

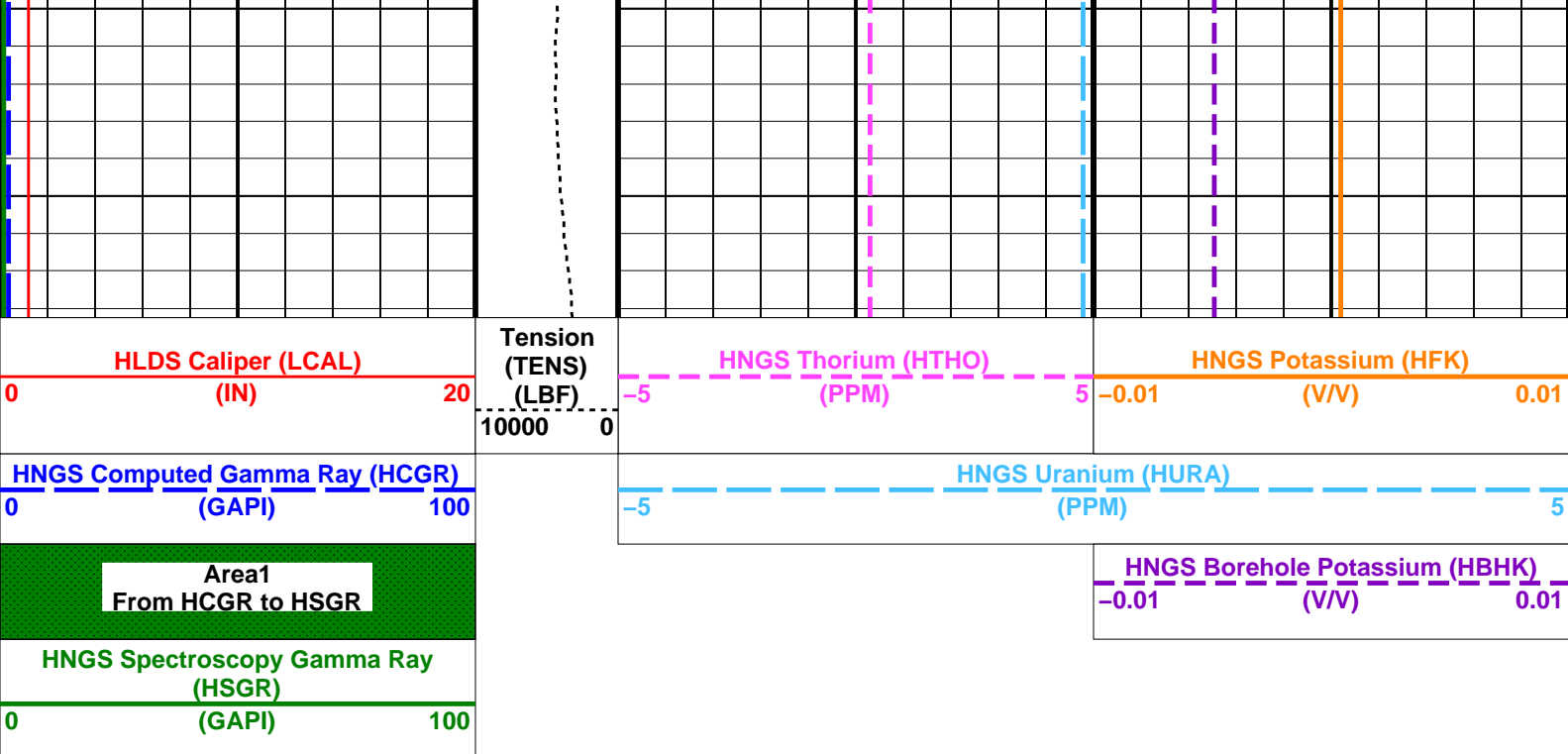




3875

3900





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	BS	
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	BS	
H1P	HNGS Detector 1 Allow/Disallow In Processing	ALLOW	
H2P	HNGS Detector 2 Allow/Disallow In Processing	ALLOW	
HABK	HNGS Borehole Potassium Running Average	-0.00291439	
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	1.02647	
VBA2	HNGS Detector 2 Variable Barite Factor Running Average	0.9767	
EDTC-B: Enhanced DTS Cartridge			
BHS	Borehole Status	OPEN	
GCSE	Generalized Caliper Selection	BS	
System and Miscellaneous			
BS	Bit Size	9.875	IN
DO	Depth Offset for Playback	0.0	M
PP	Playback Processing	NORMAL	

Format: HNGSYields Vertical Scale: 1:200 Graphics File Created: 05-Apr-2024 13:30

OP System Version: 19C0-187

MSS_LDEO-A	19C0-187	HRLT-B	19C0-187
HLDS	19C0-187	LDSC-B	19C0-187
HNGC-B	19C0-187	HNGS-BA	19C0-187
EDTC-B	19C0-187		

Input DLIS Files

DEFAULT Flip\_MSS\_LDEO\_HRLA\_040LUP PRODUCER 05-Apr-2024 13:29 3923.2 M 3538.7 M

Output DLIS Files

DEFAULT MSS\_LDEO\_HRLA\_LDL\_041PUP FN:9 PRODUCER 05-Apr-2024 13:30  
RTB MSS\_LDEO\_HRLA\_LDL\_041PUP FN:10 PRODUCER 05-Apr-2024 13:30

Company: International Ocean Discovery Program Well: Expedition 402, Site U1616E (Lower)

Input DLIS Files

DEFAULT Flip\_MSS\_LDEO\_HRLA\_040LUP PRODUCER 05-Apr-2024 13:29 3923.2 M 3538.7 M

Output DLIS Files

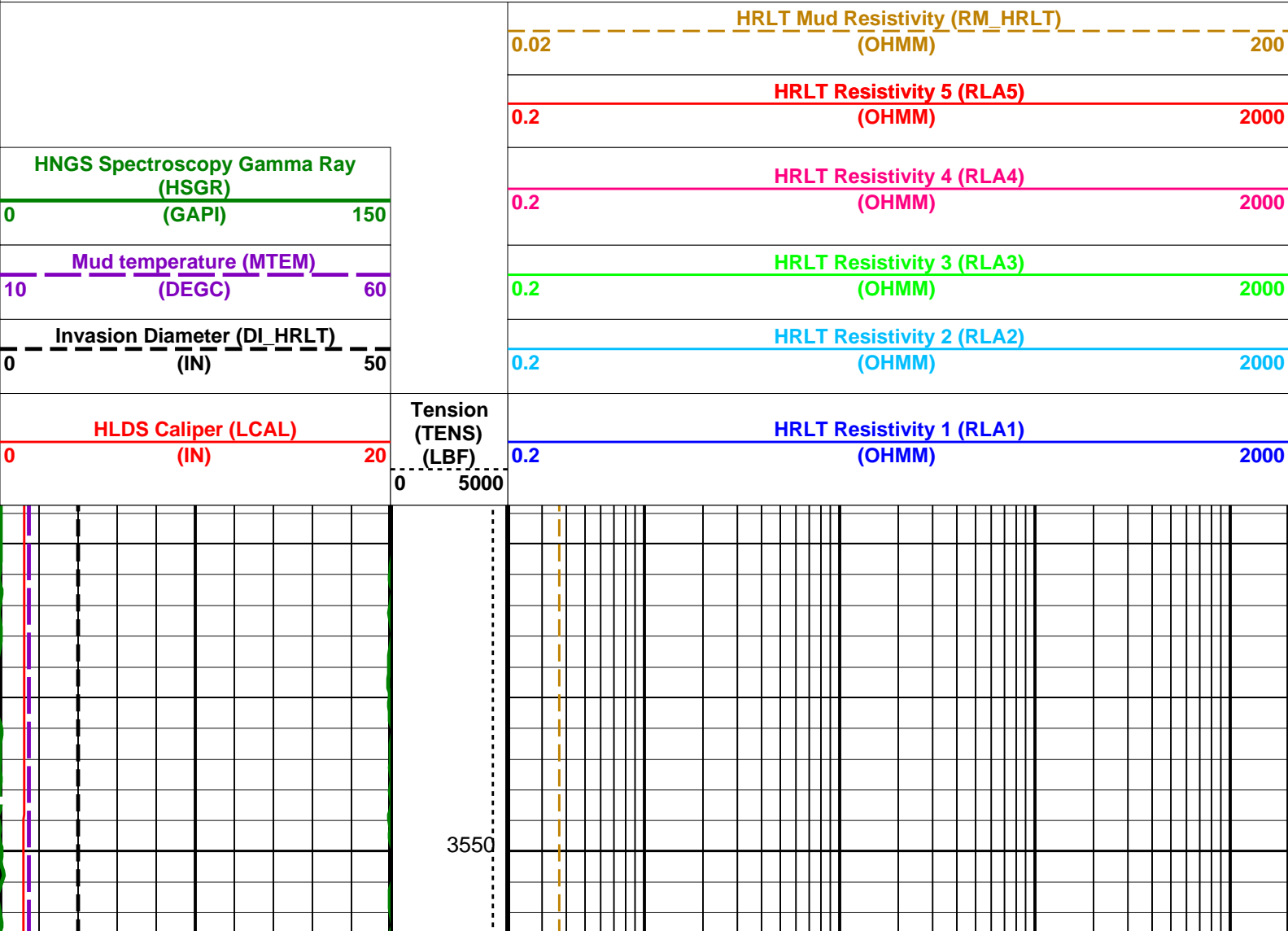
DEFAULT MSS\_LDEO\_HRLA\_LDL\_041PUP FN:9 PRODUCER 05-Apr-2024 13:30 3923.2 M 3538.7 M  
RTB MSS\_LDEO\_HRLA\_LDL\_041PUP FN:10 PRODUCER 05-Apr-2024 13:30 3923.2 M 3538.7 M

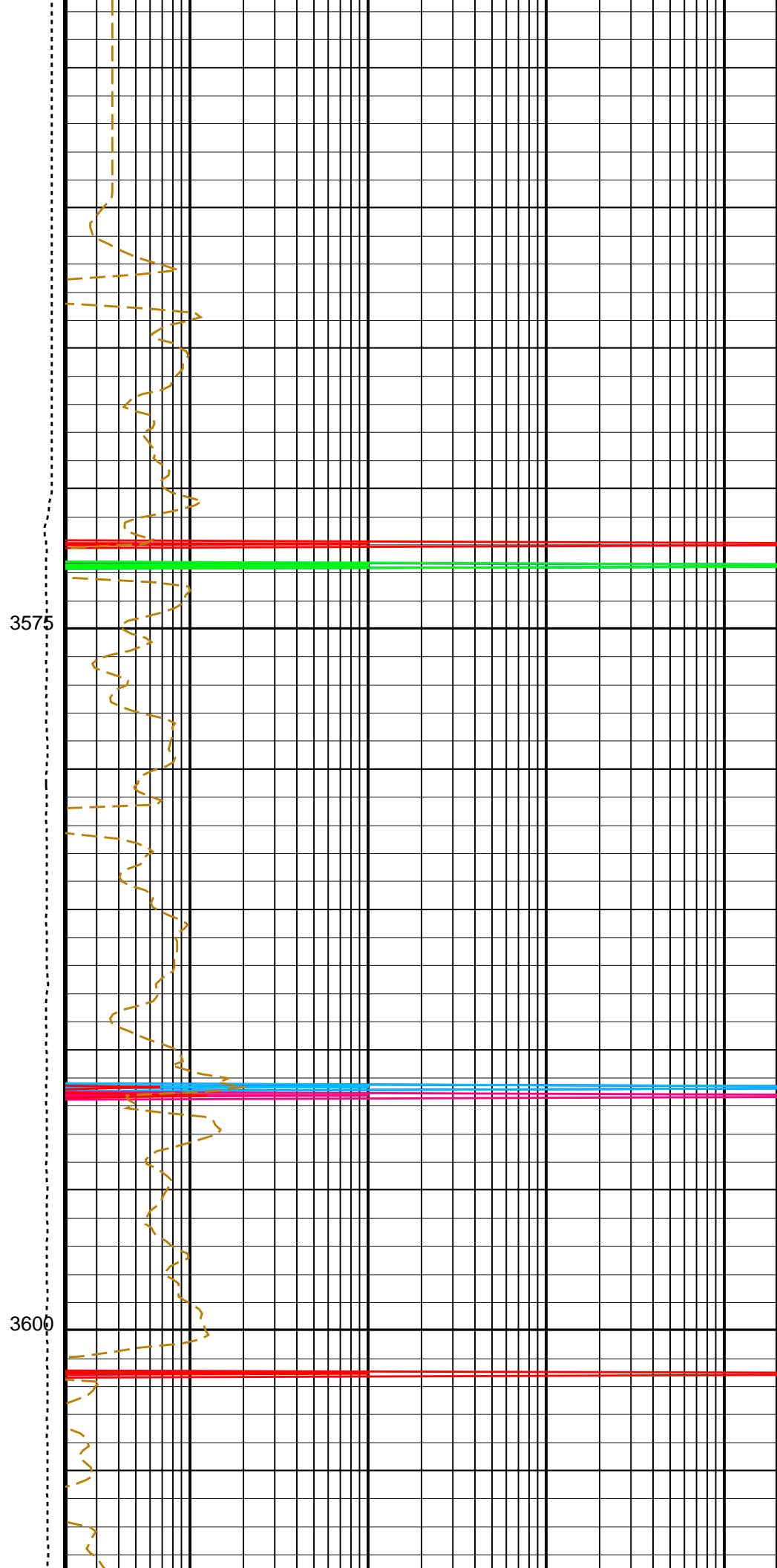
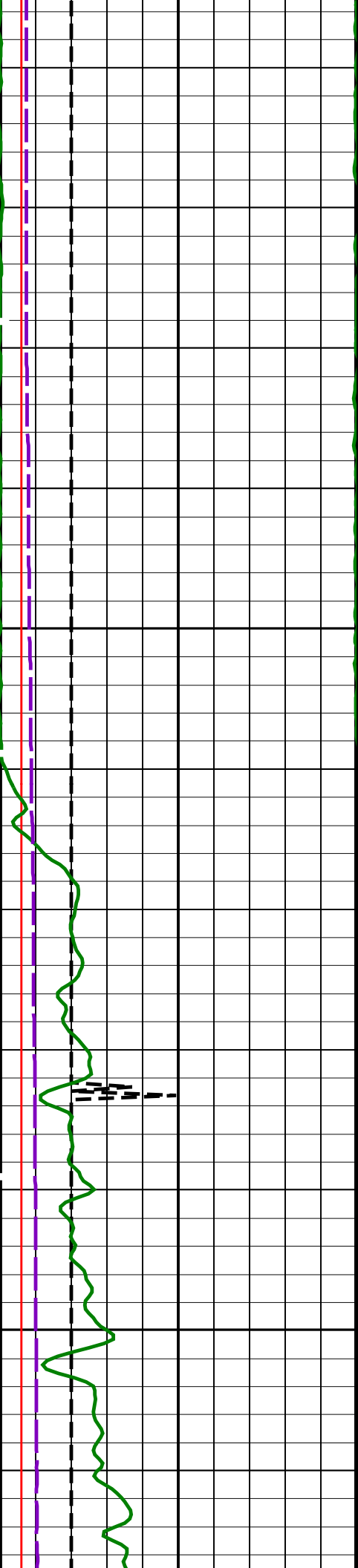
OP System Version: 19C0-187

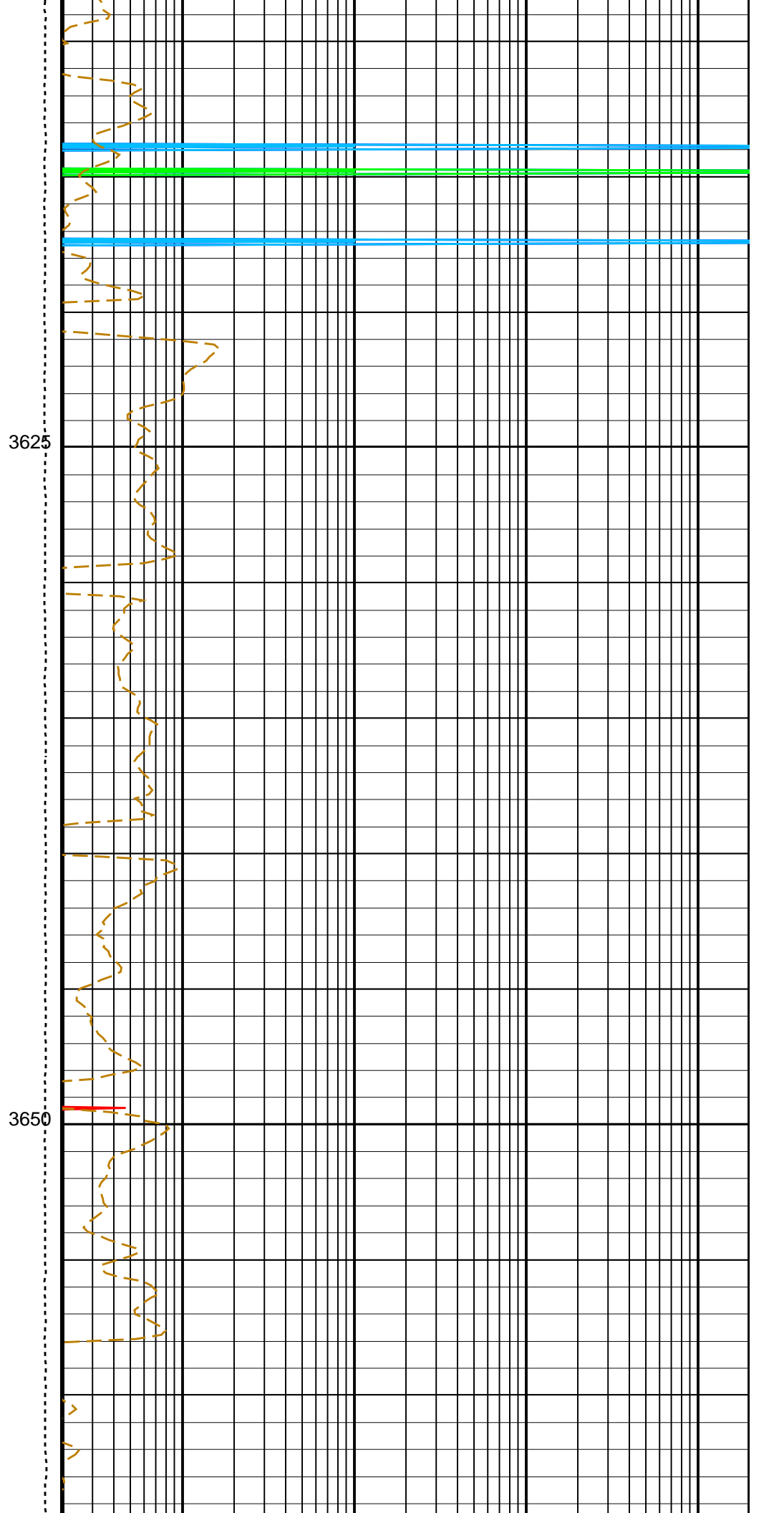
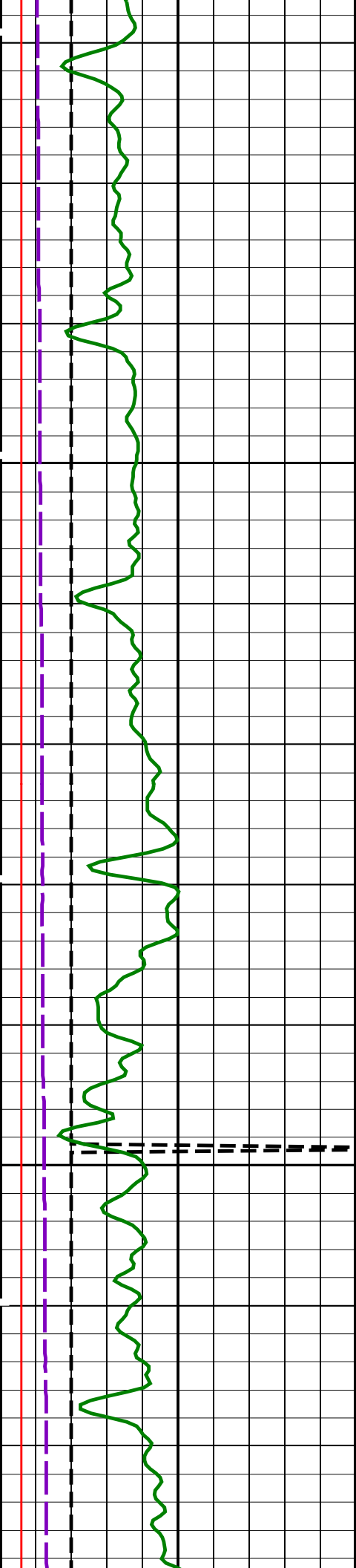
MSS\_LDEO-A 19C0-187 HRLT-B 19C0-187  
HLDS 19C0-187 LDSC-B 19C0-187  
HNGC-B 19C0-187 HNGS-BA 19C0-187  
EDTC-B 19C0-187

PIP SUMMARY

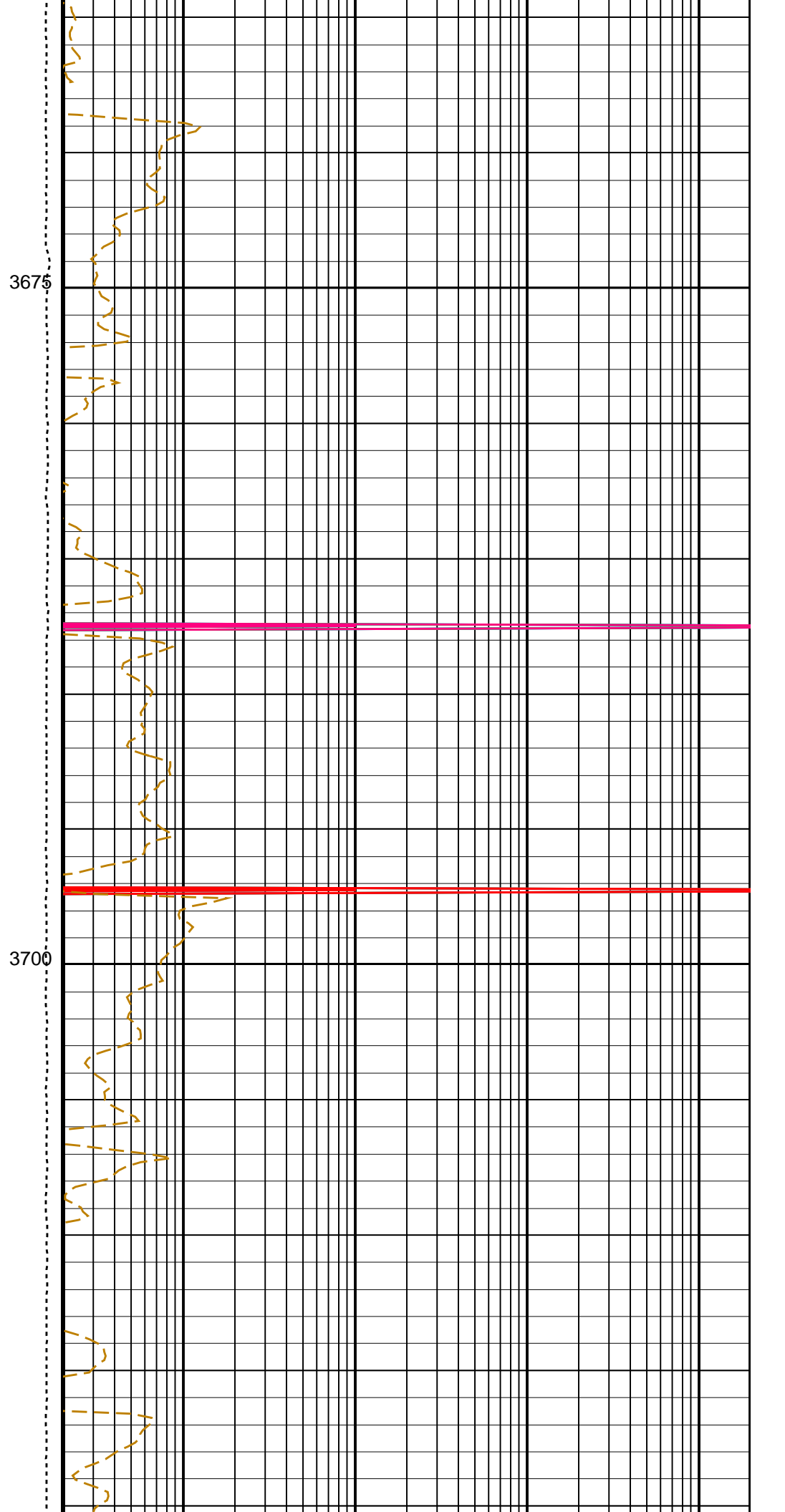
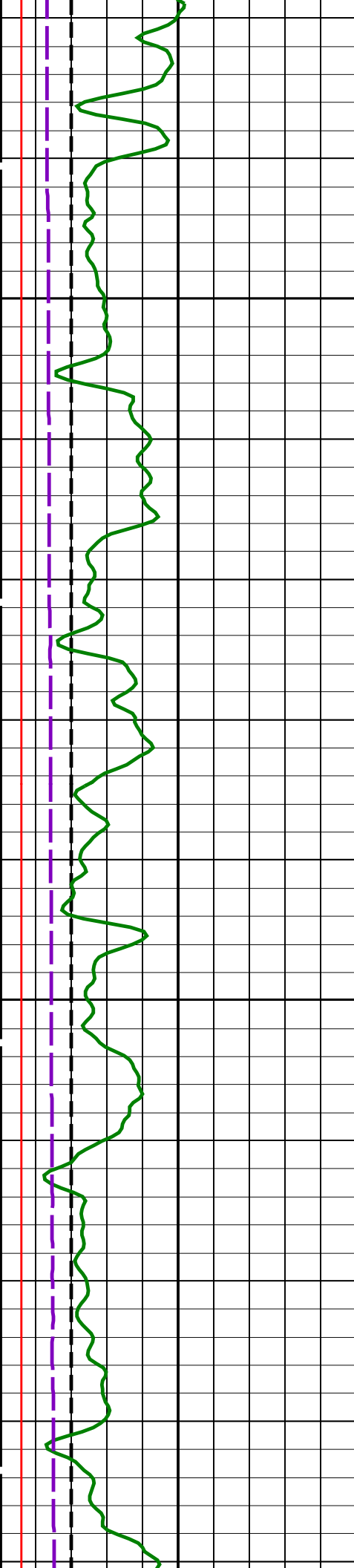
Time Mark Every 60 S

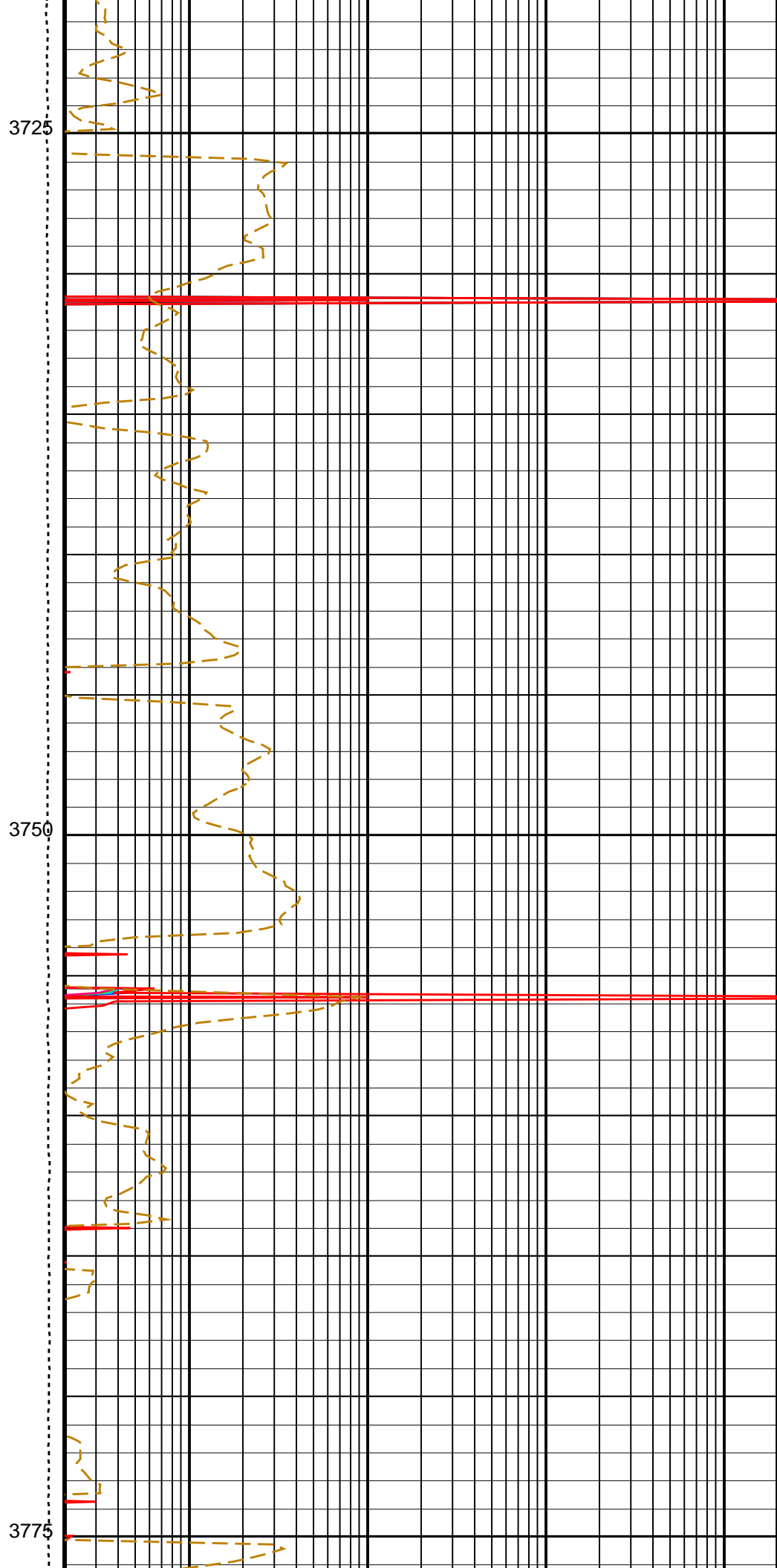
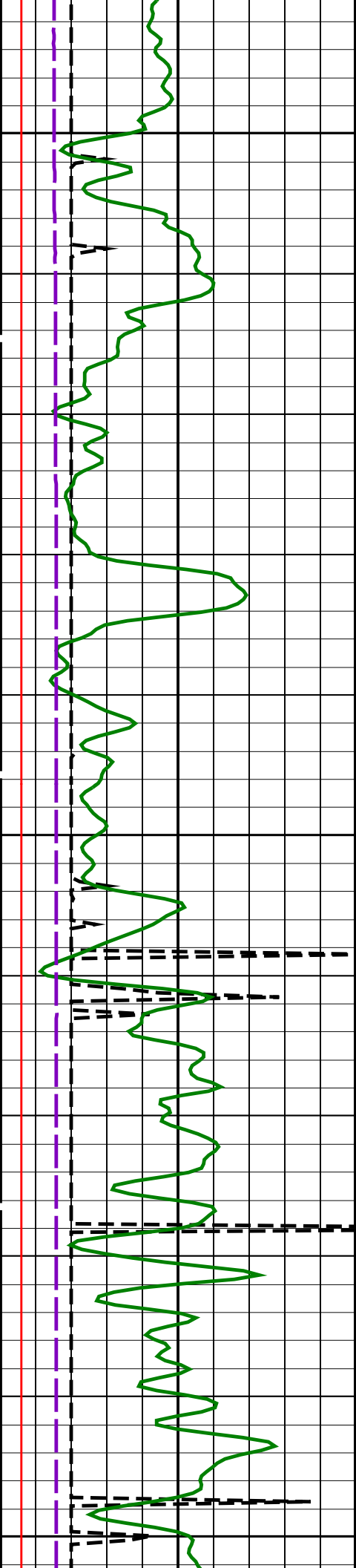


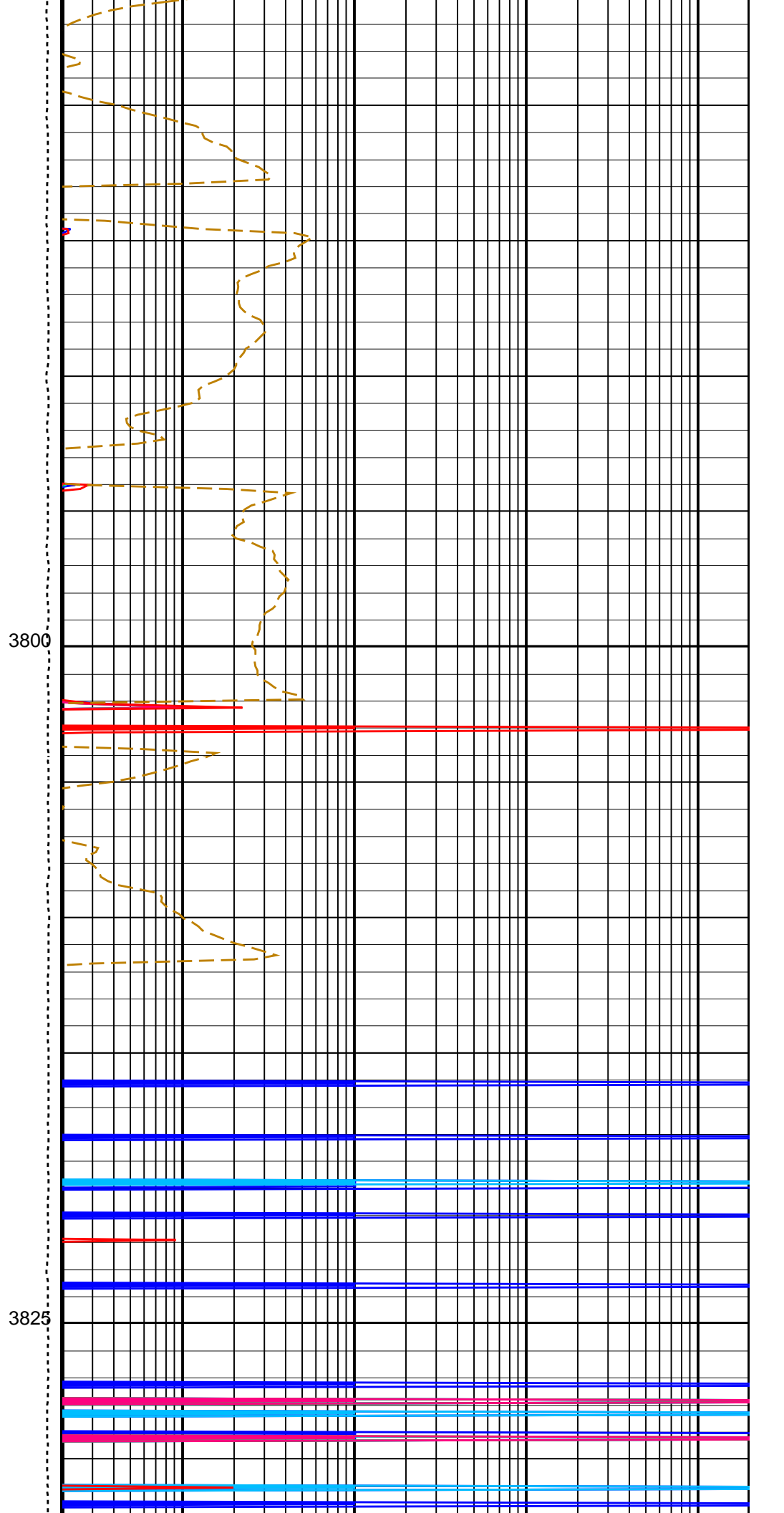
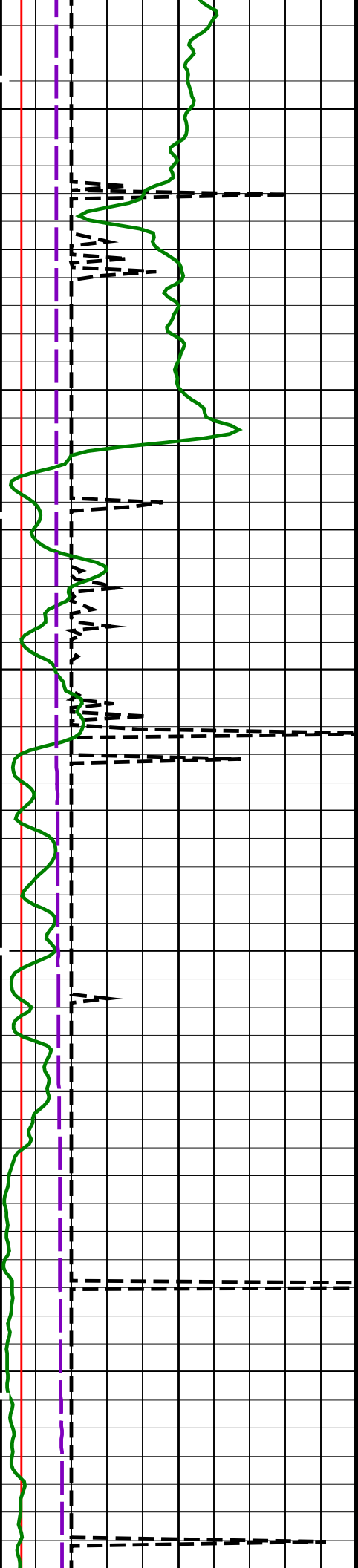


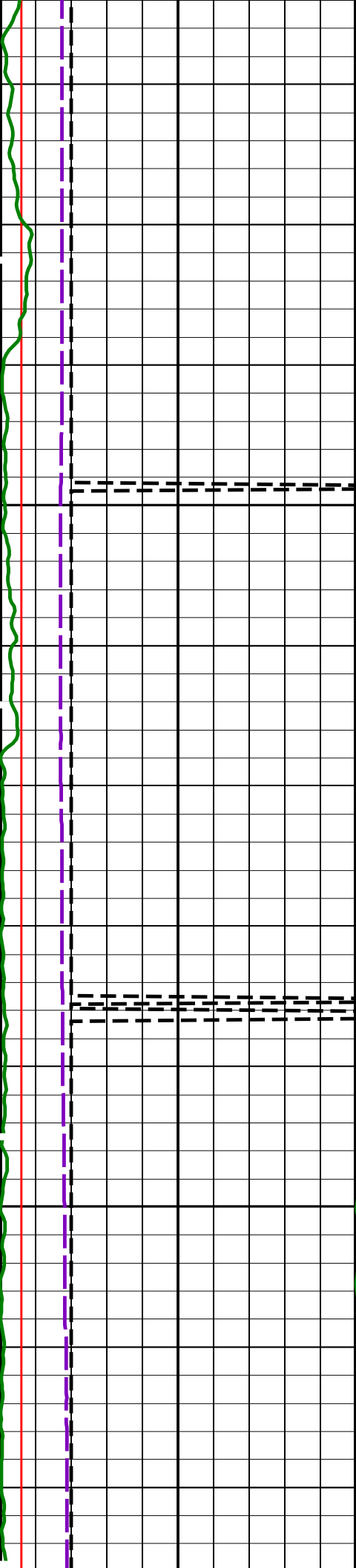






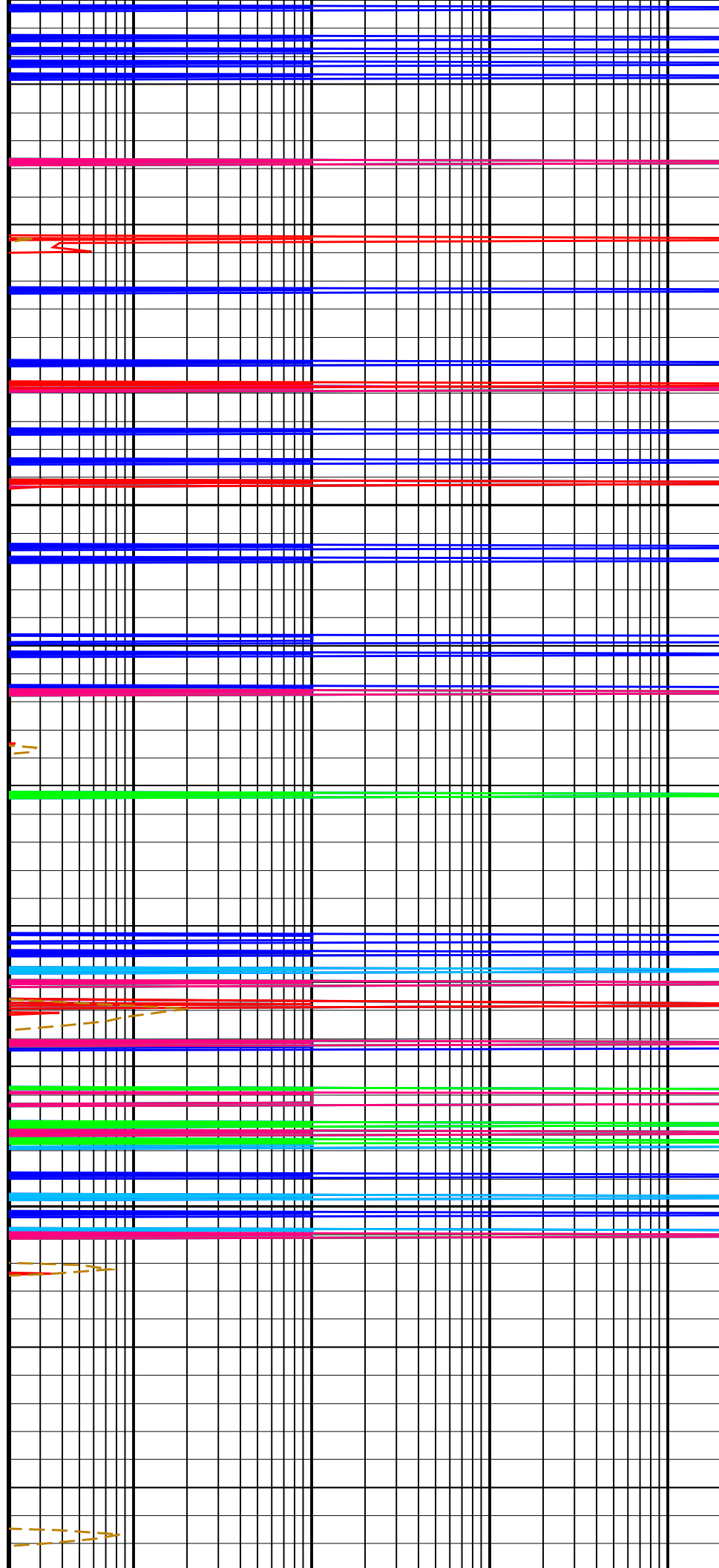


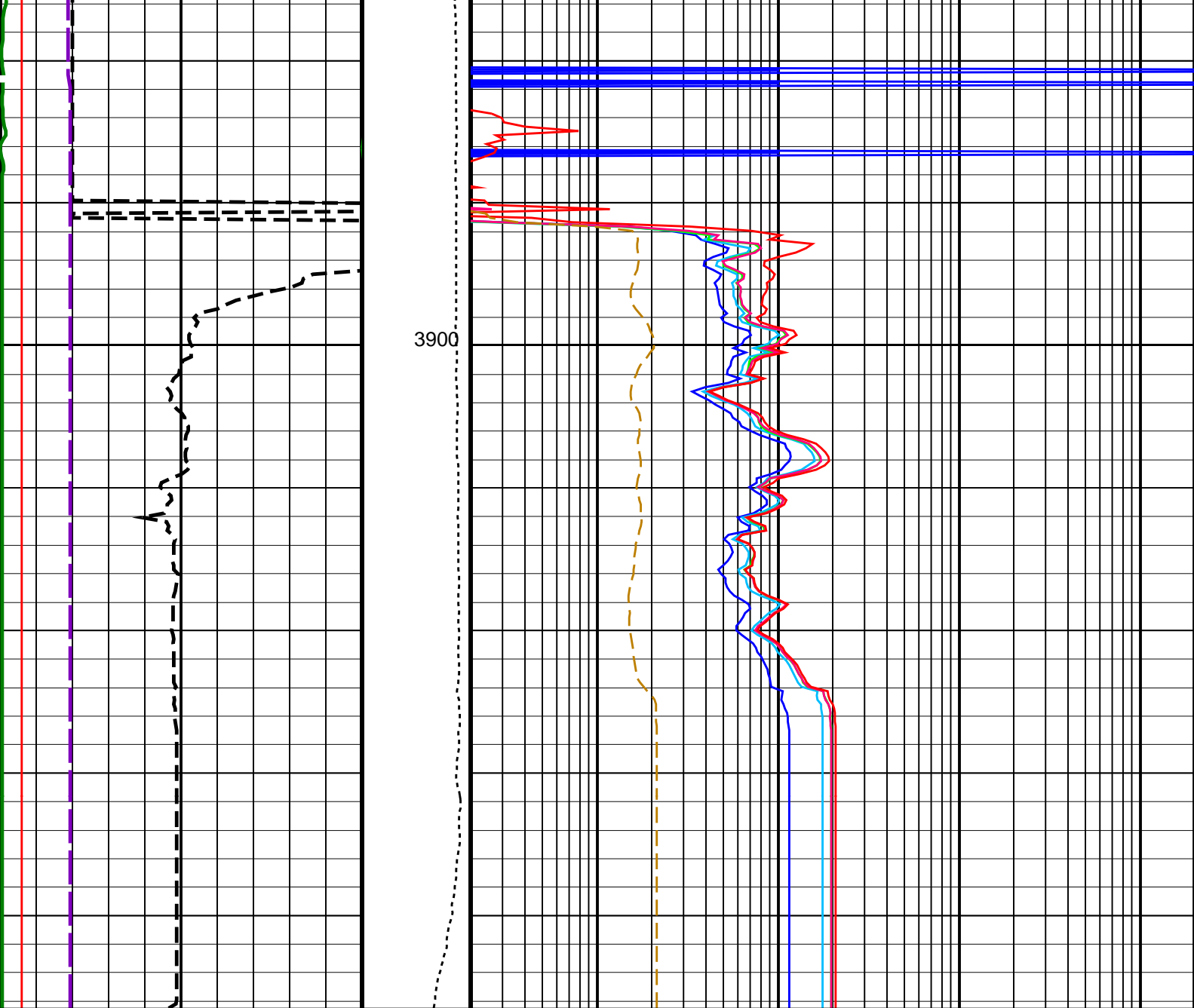




3850

3875





<div>HLDS Caliper (LCAL) (IN) 020</div>	<div>Tension (TENS) (LBF) 05000</div>	<div>HRLT Resistivity 1 (RLA1) (OHMM) 0.22000</div>
<div>Invasion Diameter (DI_HRLT) (IN) 050</div>		<div>HRLT Resistivity 2 (RLA2) (OHMM) 0.22000</div>
<div>Mud temperature (MTEM) (DEGC) 1060</div>		<div>HRLT Resistivity 3 (RLA3) (OHMM) 0.22000</div>
<div>HNGS Spectroscopy Gamma Ray (HSGR) (GAPI) 0150</div>		<div>HRLT Resistivity 4 (RLA4) (OHMM) 0.22000</div>
		<div>HRLT Resistivity 5 (RLA5) (OHMM) 0.22000</div>
		<div>HRLT Mud Resistivity (RM_HRLT) (OHMM) 0.02200</div>

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)	35	DEGF
GCSE		Generalized Caliper Selection	BS	
GGRD		Geothermal Gradient	0.01	DF/F
GRSE		Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE		Generalized Temperature Selection	LINEAR_ESTIMATE	
KFAC_HRLT		HRLT K Factor Option	SONDE	
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	
PROCSP0		Sonde Position	Centered	
SHT		Surface Hole Temperature	68	DEGF
HNGB-B: Hostile Natural Gamma Ray Sonde				
BAR1		HNGB Detector 1 Barite Constant	1	
BAR2		HNGB Detector 2 Barite Constant	1	
BHK		HNGB Borehole Potassium Correction Concentration	0	
BHS		Borehole Status	OPEN	
BHT		Bottom Hole Temperature (used in calculations)	35	DEGF
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		HNGB Barite Constant Correction Flag	NONE	
GCSE		Generalized Caliper Selection	BS	
GGRD		Geothermal Gradient	0.01	DF/F
GRSE		Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE		Generalized Temperature Selection	LINEAR_ESTIMATE	
H1P		HNGB Detector 1 Allow/Disallow In Processing	ALLOW	
H2P		HNGB Detector 2 Allow/Disallow In Processing	ALLOW	
HABK		HNGB Borehole Potassium Running Average	-0.00291439	
HALF		HNGB Alpha Filter Length	60	IN
HCRB		HNGB Apply Borehole Potassium Correction	NONE	
HMWM		Mud Weighting Material	NATU	
HNPE		HNGB Processing Enable	YES	
S1BI		HNGB Detector 1 Calibration Bismuth Count Rate	1.3	CPS
S2BI		HNGB Detector 2 Calibration Bismuth Count Rate	1.3	CPS
SGRC		HNGB Standard Gamma-Ray Correction Flag	YES	
SHT		Surface Hole Temperature	68	DEGF
TPOS		Tool Position	ECCE	
VBA1		HNGB Detector 1 Variable Barite Factor Running Average	1.02647	
VBA2		HNGB Detector 2 Variable Barite Factor Running Average	0.9767	
EDTC-B: Enhanced DTS Cartridge				
BHS		Borehole Status	OPEN	
BHT		Bottom Hole Temperature (used in calculations)	35	DEGF
GCSE		Generalized Caliper Selection	BS	
GGRD		Geothermal Gradient	0.01	DF/F
GRSE		Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE		Generalized Temperature Selection	LINEAR_ESTIMATE	
SHT		Surface Hole Temperature	68	DEGF
System and Miscellaneous				
BS		Bit Size	9.875	IN
DO		Depth Offset for Playback	0.0	M
MST		Mud Sample Temperature	23.00	DEGC
PP		Playback Processing	NORMAL	
TD		Total Depth	10190.3	FT

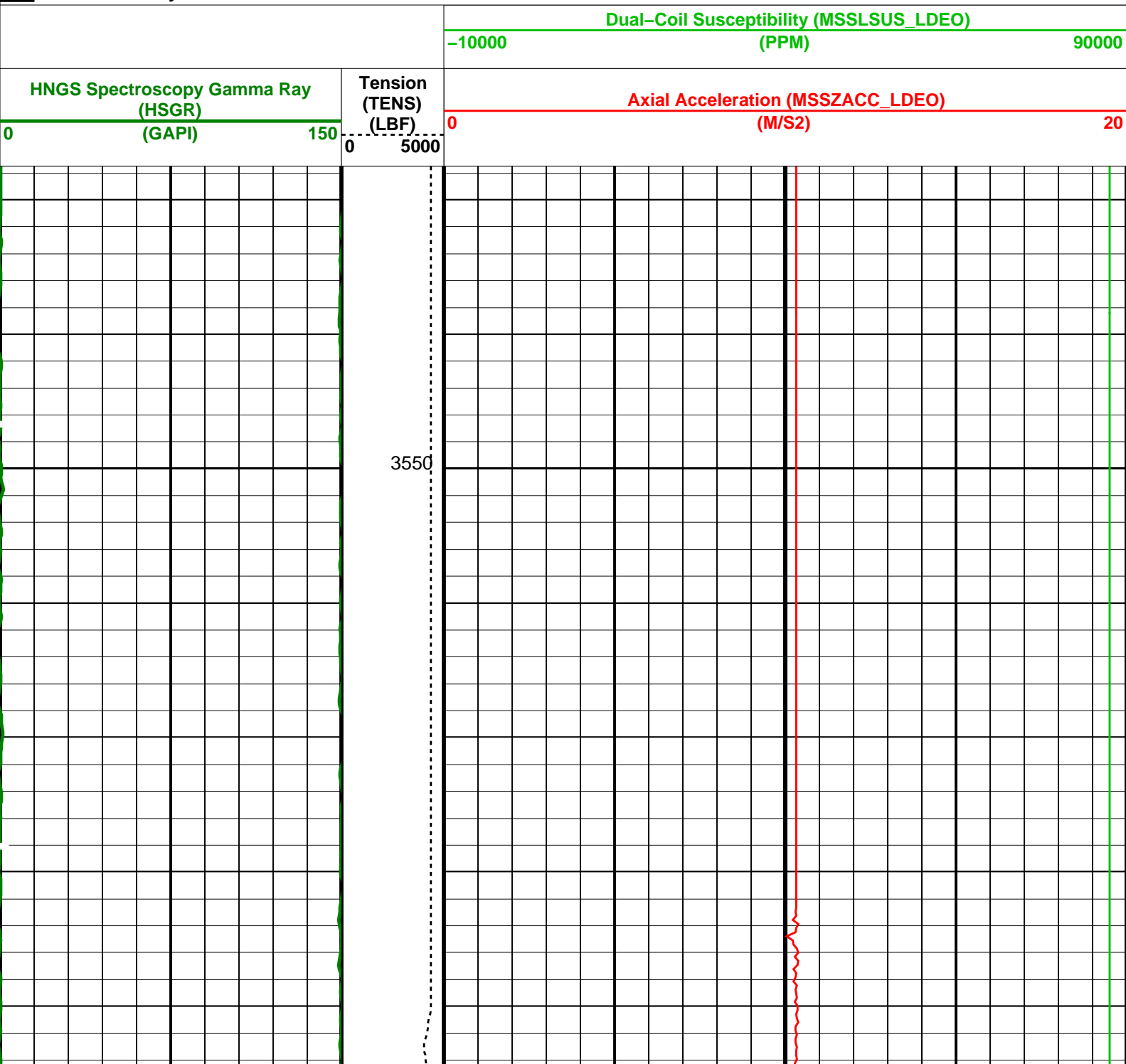
Format: HRLT		Vertical Scale: 1:200		Graphics File Created: 05-Apr-2024 13:30	
OP System Version: 19C0-187					
MSS_LDEO-A	19C0-187		HRLT-B	19C0-187	
HLDS	19C0-187		LDSC-B	19C0-187	
HNGC-B	19C0-187		HNGS-BA	19C0-187	
EDTC-B	19C0-187				
Input DLIS Files					
DEFAULT	Flip_MSS_LDEO_HRLA_040LUP		PRODUCER	05-Apr-2024 13:29	3923.2 M 3538.7 M
Output DLIS Files					
DEFAULT	MSS_LDEO_HRLA_LDL_041PUP	FN:9	PRODUCER	05-Apr-2024 13:30	
RTB	MSS_LDEO_HRLA_LDL_041PUP	FN:10	PRODUCER	05-Apr-2024 13:30	

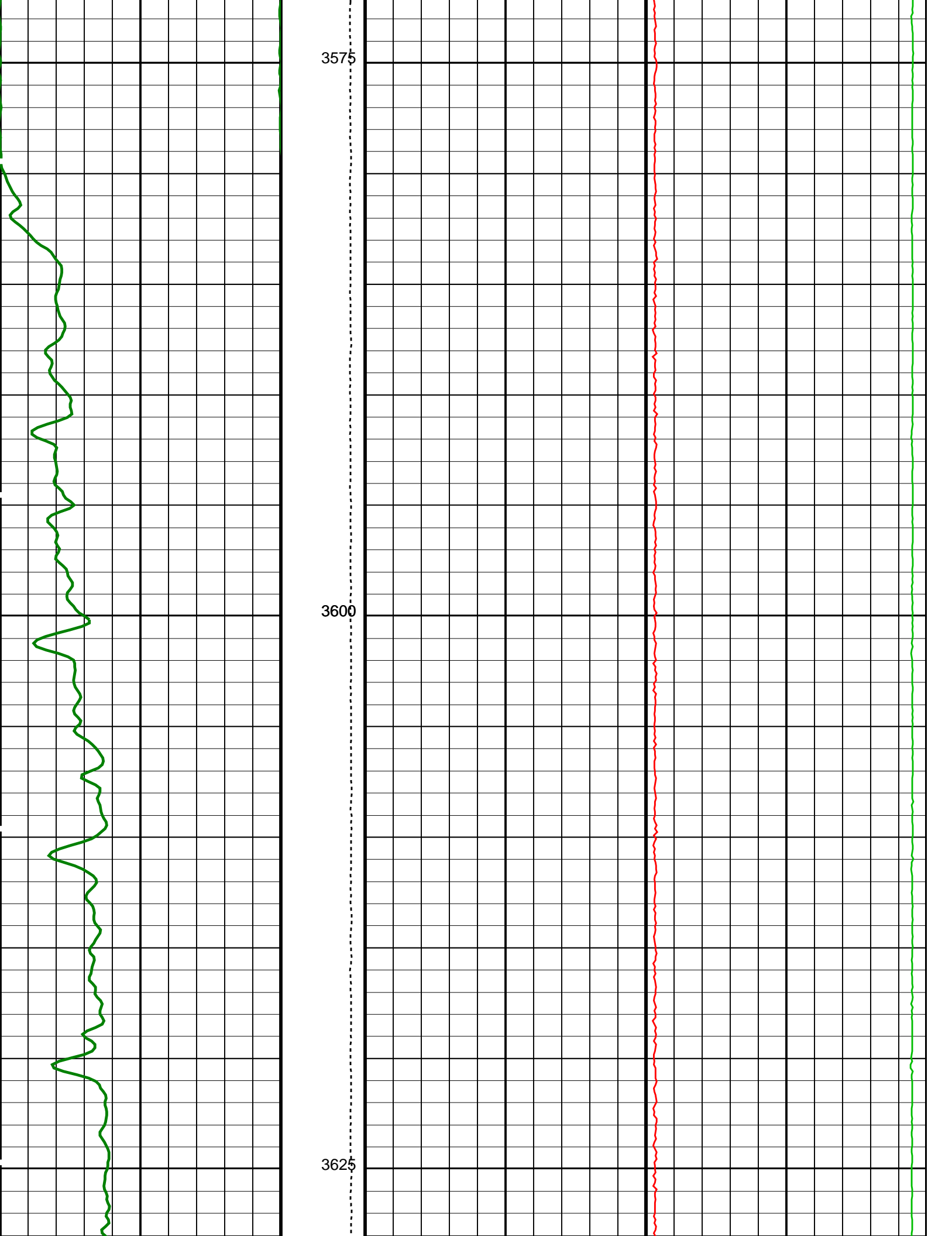
## Output DLIS Files

DEFAULT	MSS_LDEO_HRLA_LDL_041PUP	FN:9	PRODUCER	05-Apr-2024 13:30	3923.2 M	3538.7 M
RTB	MSS_LDEO_HRLA_LDL_041PUP	FN:10	PRODUCER	05-Apr-2024 13:30	3923.2 M	3538.7 M

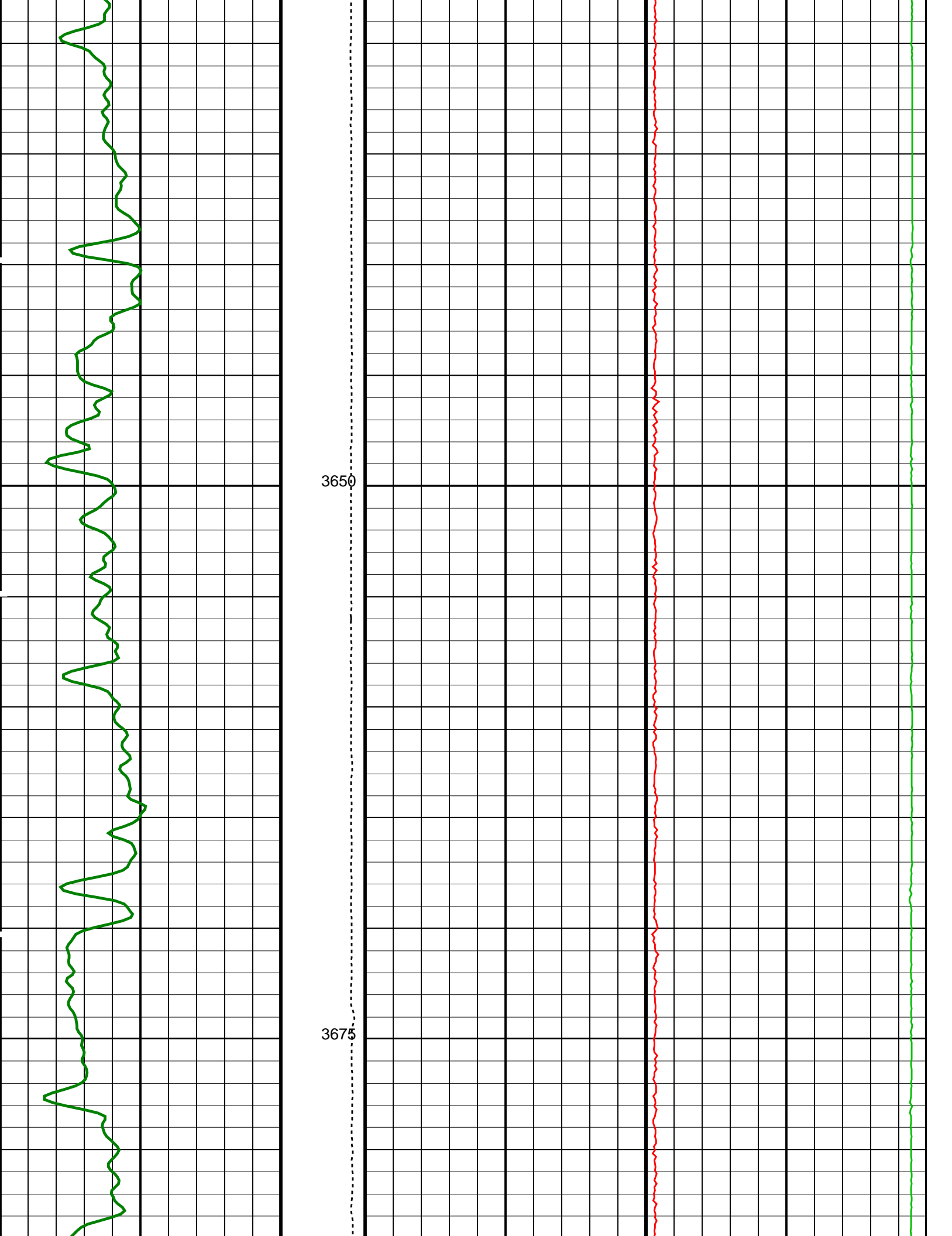
MSS_LDEO-A	19C0-187	HRLT-B	19C0-187
HLDS	19C0-187	LDSC-B	19C0-187
HNGC-B	19C0-187	HNGS-BA	19C0-187
EDTC-B	19C0-187		

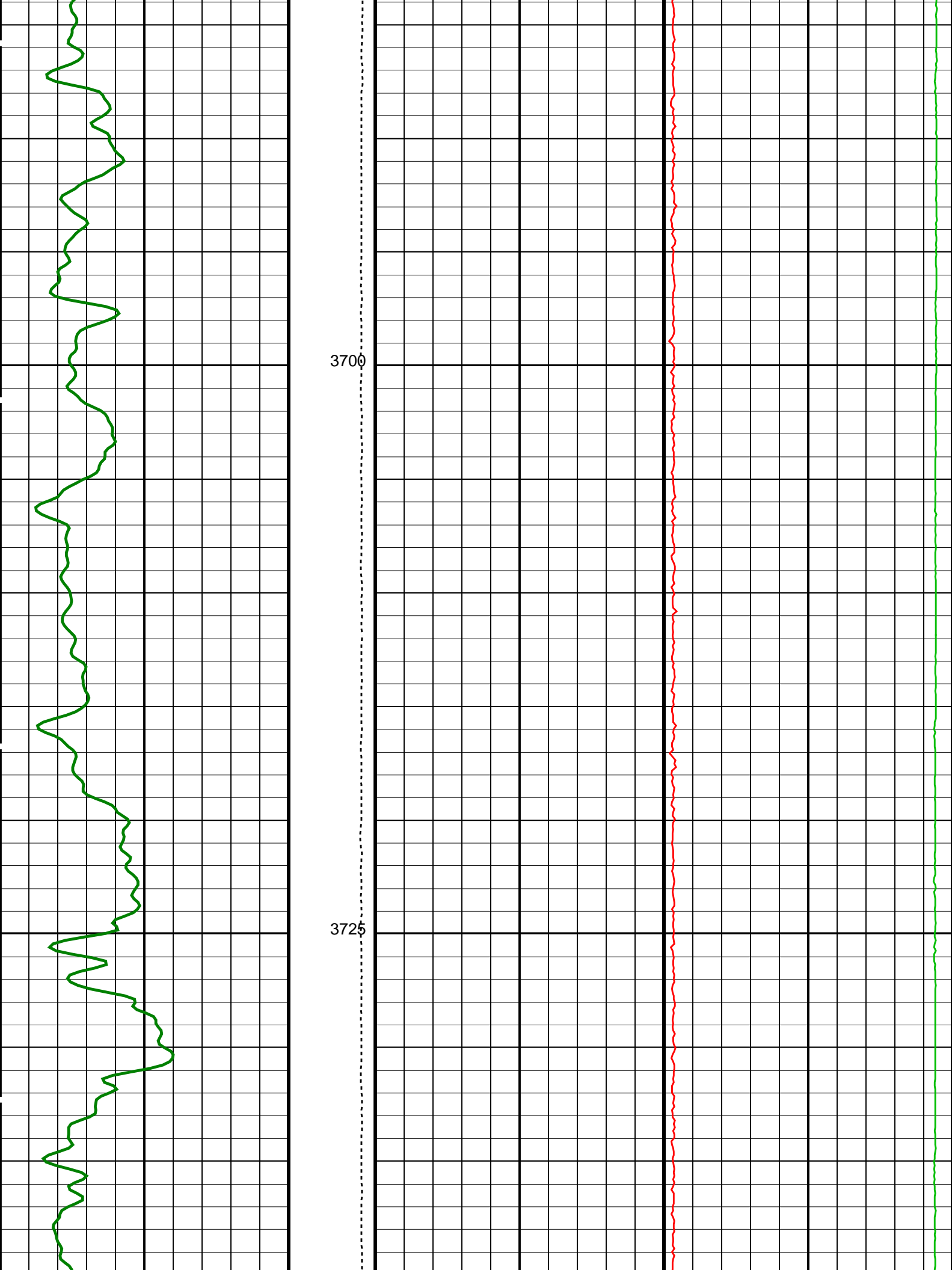
**Time Mark Every 60 S**

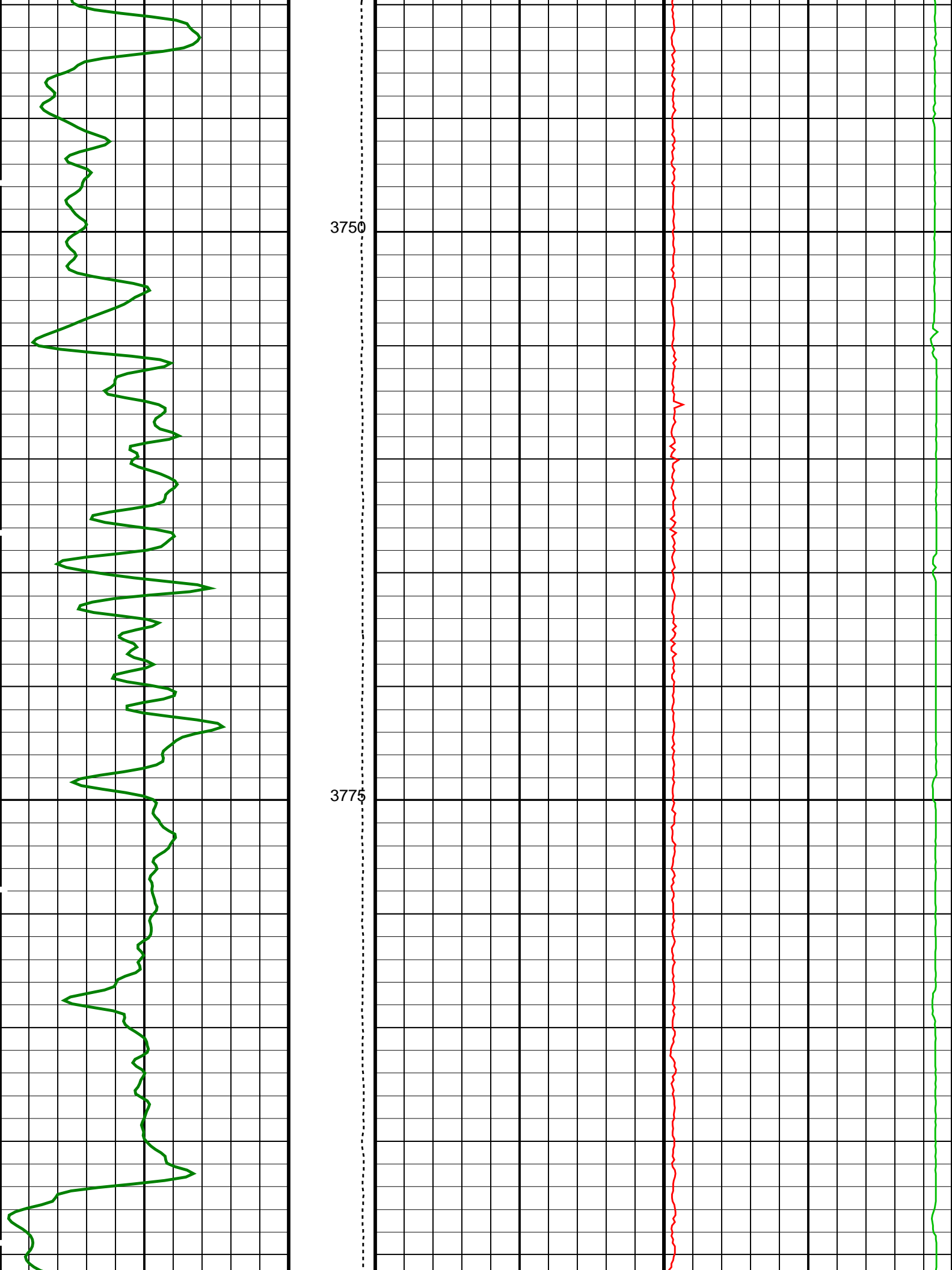


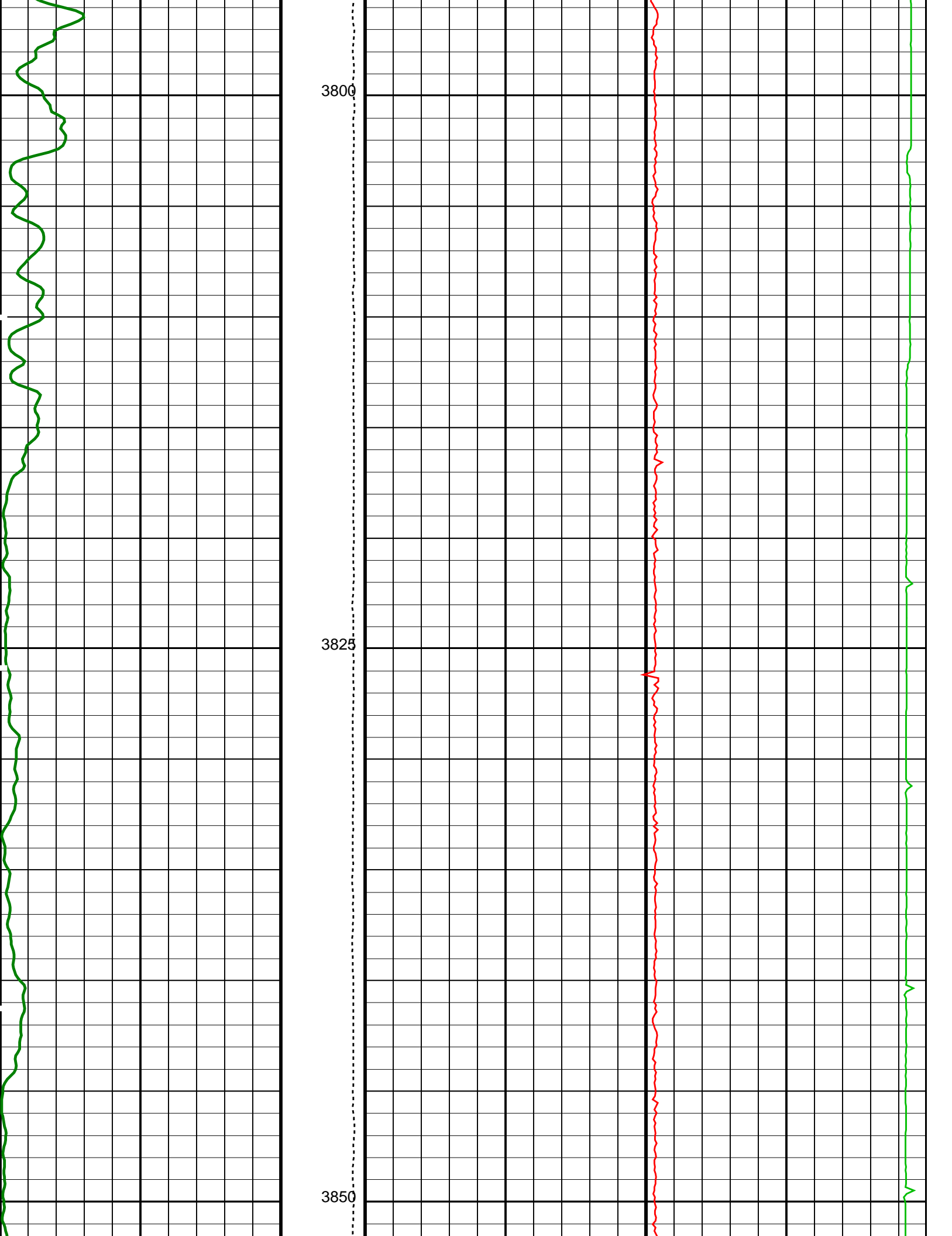


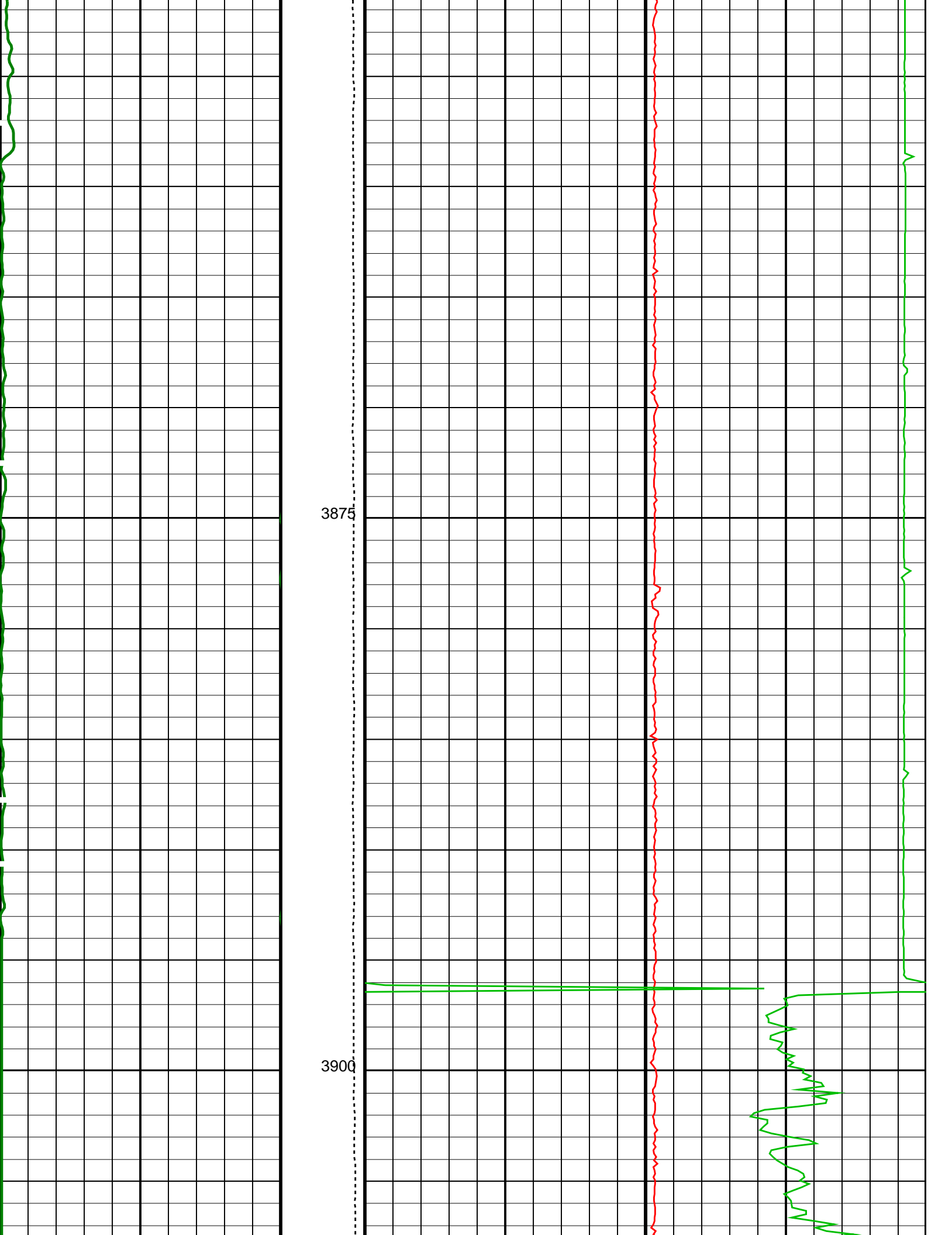


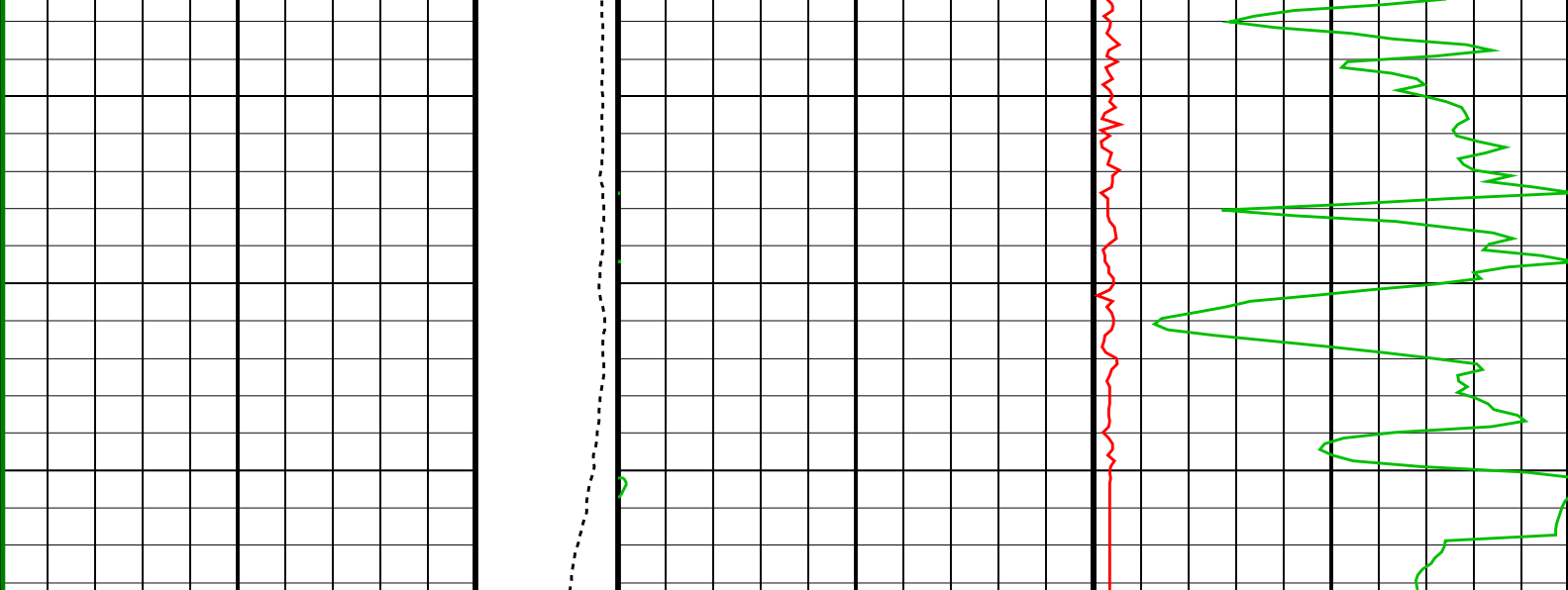












HNGS Spectroscopy Gamma Ray (HSGR) (GAPI)		Tension (TENS) (LBF)	Axial Acceleration (MSSZACC_LDEO) (M/S2)	
0	150	0 5000	0	20
			Dual-Coil Susceptibility (MSSLSUS_LDEO) (PPM)	
			-10000	90000

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	BS	
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	BS	
H1P	HNGS Detector 1 Allow/Disallow In Processing	ALLOW	
H2P	HNGS Detector 2 Allow/Disallow In Processing	ALLOW	
HABK	HNGS Borehole Potassium Running Average	-0.00291439	
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	1.02647	
VBA2	HNGS Detector 2 Variable Barite Factor Running Average	0.9767	
EDTC-B: Enhanced DTS Cartridge			
BHS	Borehole Status	OPEN	
GCSE	Generalized Caliper Selection	BS	
System and Miscellaneous			
BS	Bit Size	9.875	IN
DO	Depth Offset for Playback	0.0	M
PP	Playback Processing	NORMAL	

Format: MSS\_Logging    Vertical Scale: 1:200    Graphics File Created: 05-Apr-2024 13:30

OP System Version: 19C0-187

MSS_LDEO-A	19C0-187	HRLT-B	19C0-187
HLDS	19C0-187	LDSC-B	19C0-187
HNGS_B	19C0-187	HNGS_BA	19C0-187

HNGC-B	19C0-187	HNGS-BA	19C0-187
EDTC-B	19C0-187		
Input DLIS Files			
DEFAULT	Flip_MSS_LDEO_HRLA_040LUP	PRODUCER	05-Apr-2024 13:29 3923.2 M 3538.7 M
Output DLIS Files			
DEFAULT	MSS_LDEO_HRLA_LDL_041PUP	FN:9	PRODUCER 05-Apr-2024 13:30
RTB	MSS_LDEO_HRLA_LDL_041PUP	FN:10	PRODUCER 05-Apr-2024 13:30



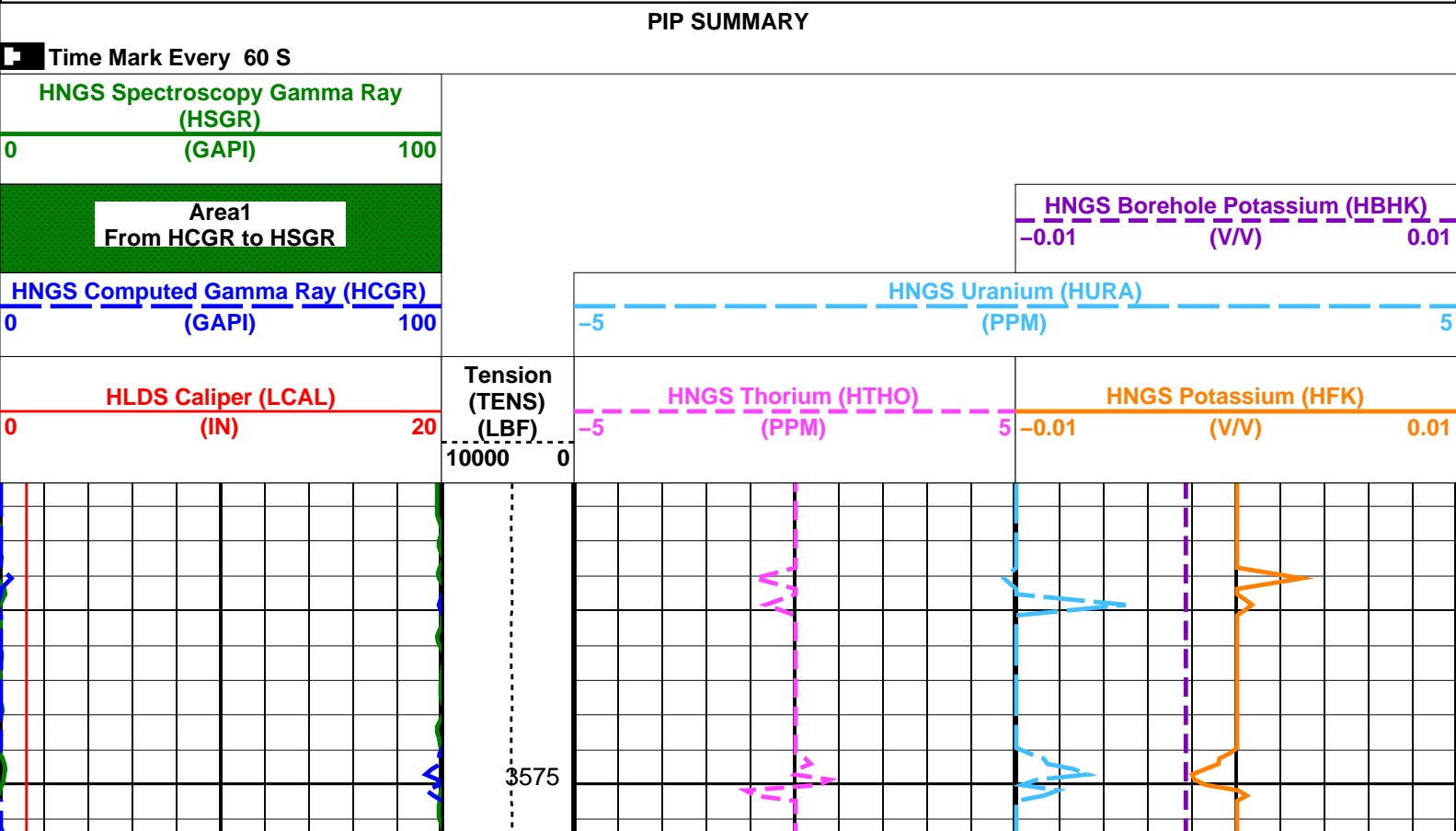
Uplong  
1:200 Scale

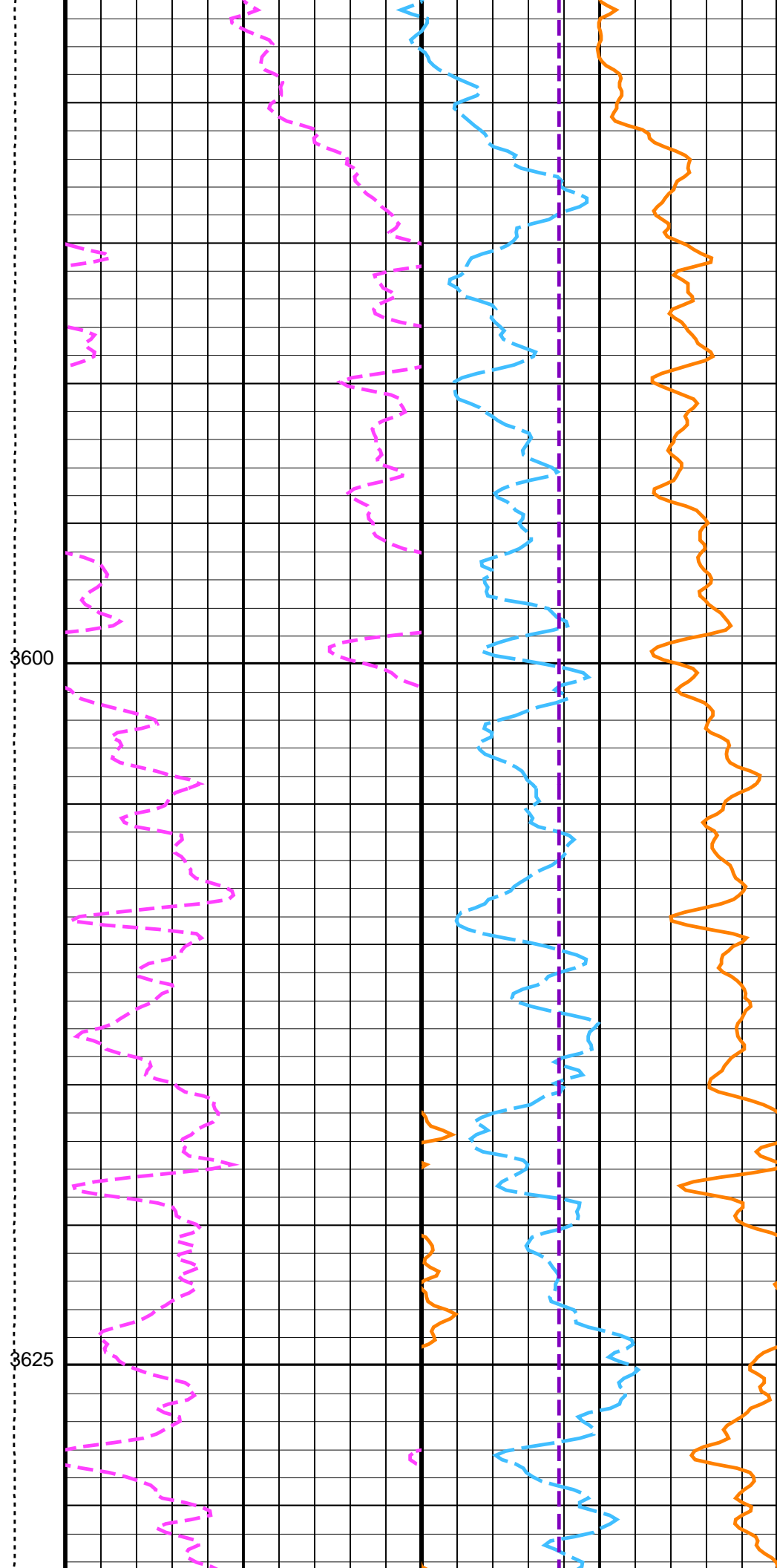
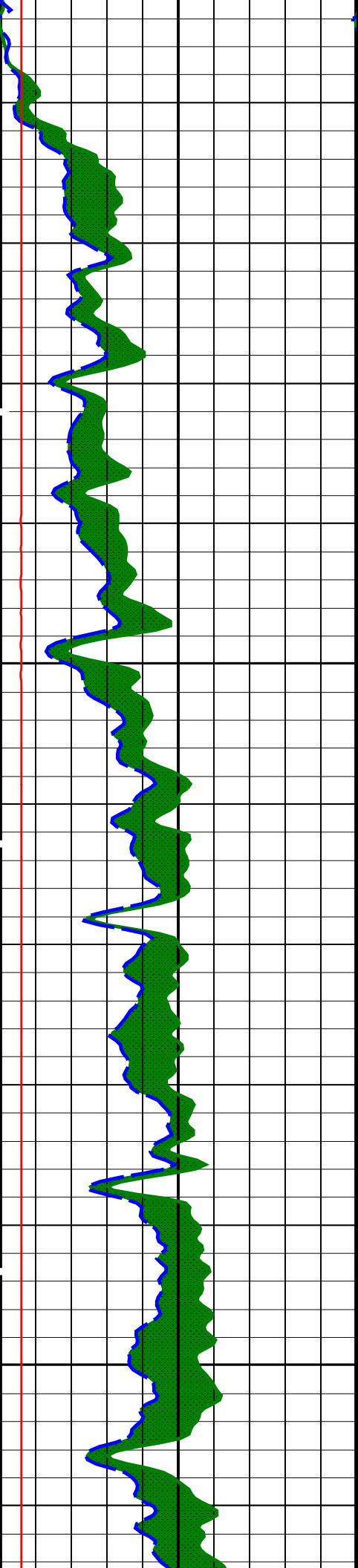
MAXIS Field Log

Company: International Ocean Discovery Program Well: Expedition 402, Site U1616E (Lower)

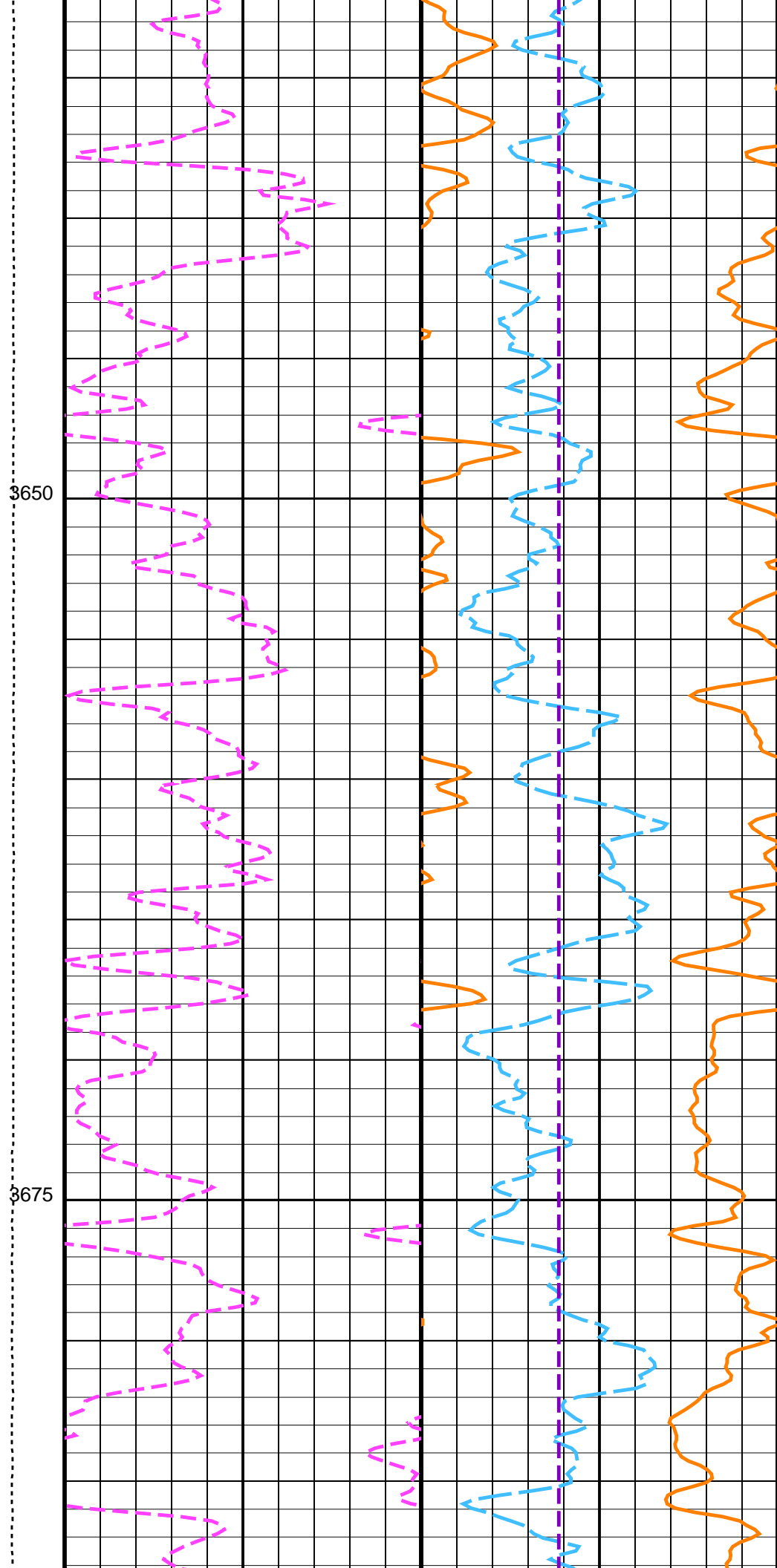
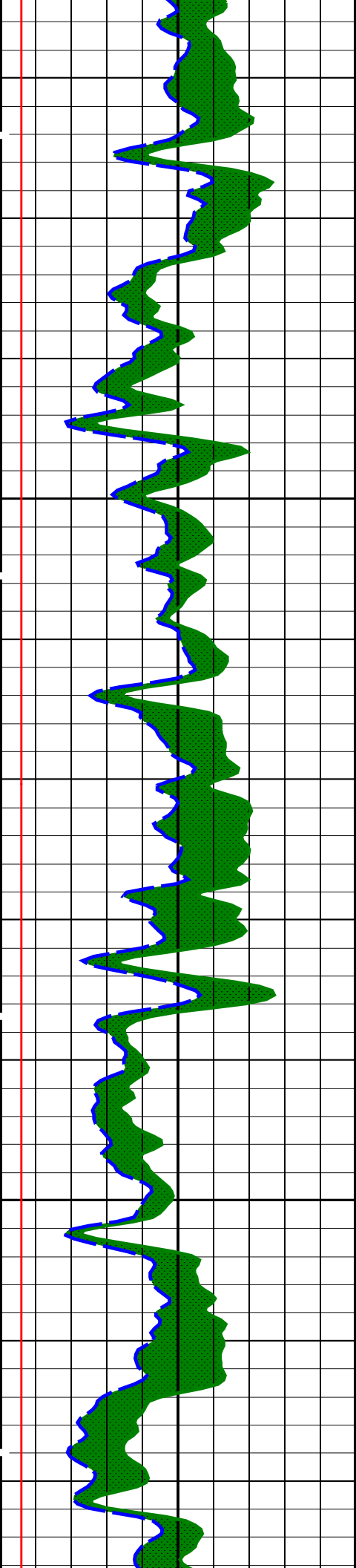
Output DLIS Files					
DEFAULT	MSS_LDEO_HRLA_LDL_039LUP	FN:7	PRODUCER	05-Apr-2024 12:54	3922.8 M 3568.4 M
RTB	MSS_LDEO_HRLA_LDL_039LUP	FN:8	PRODUCER	05-Apr-2024 12:54	3922.8 M 3568.4 M

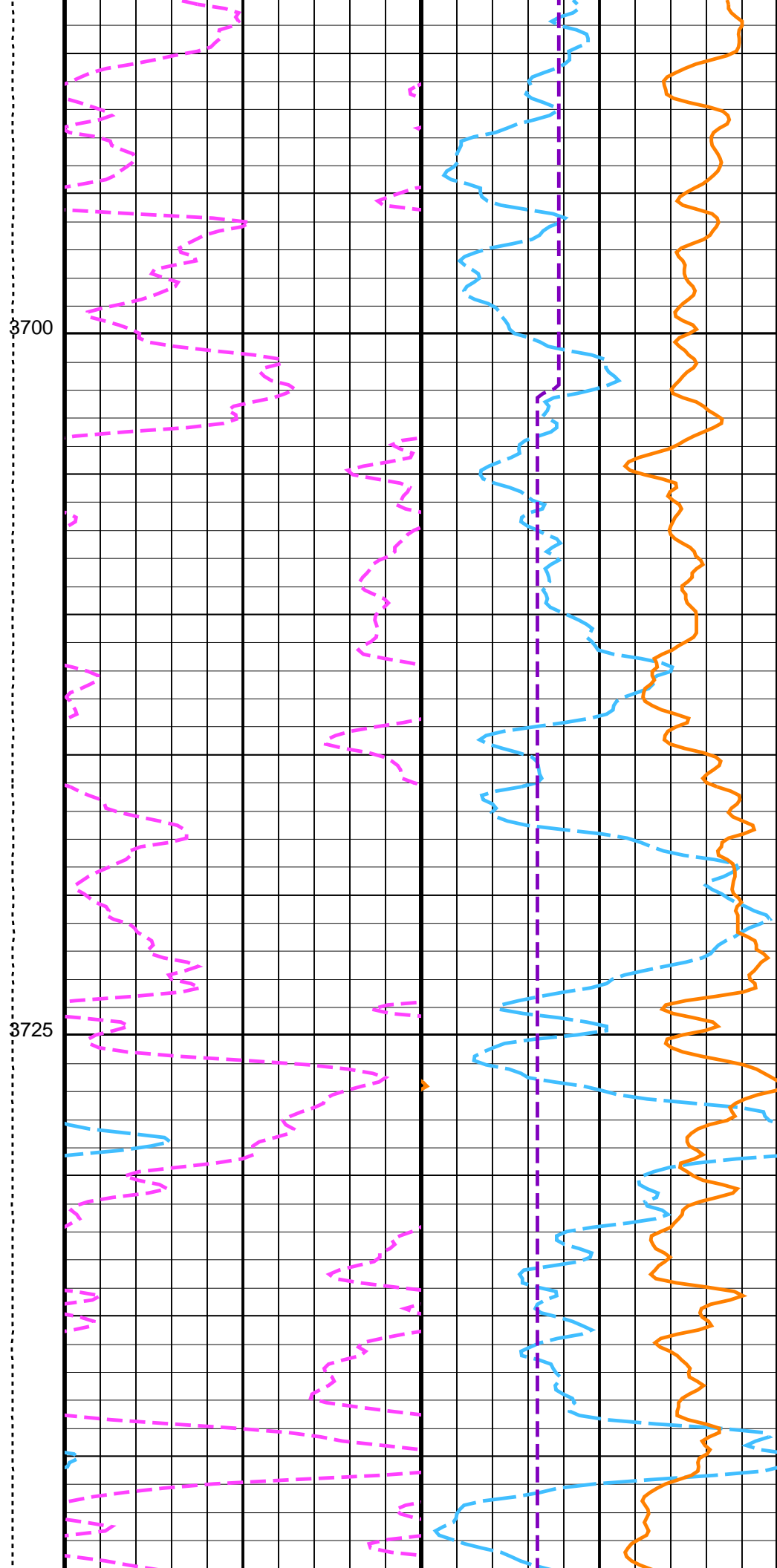
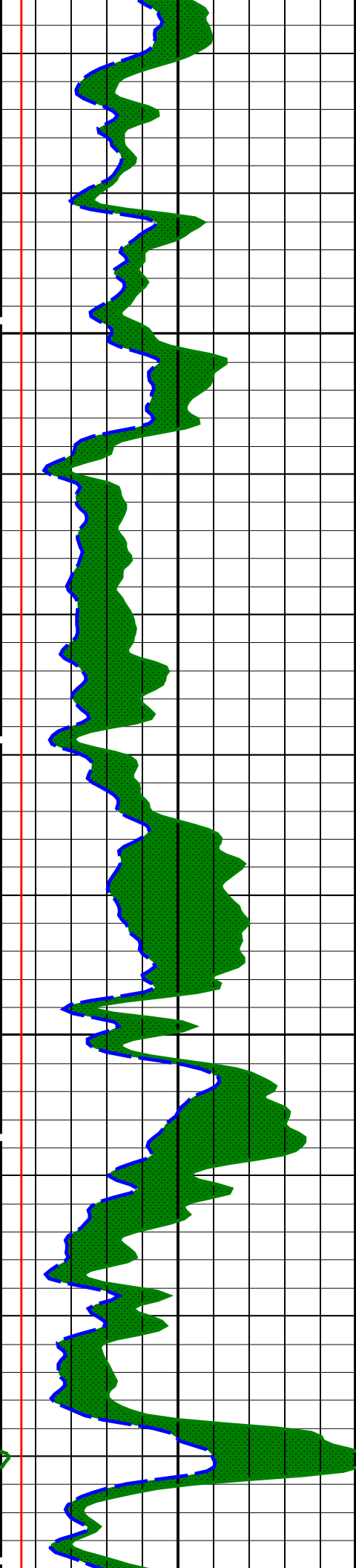
OP System Version: 19C0-187					
MSS_LDEO-A	19C0-187	HRLT-B	19C0-187		
HLDS	19C0-187	LDSC-B	19C0-187		
HNGC-B	19C0-187	HNGS-BA	19C0-187		
EDTC-B	19C0-187				

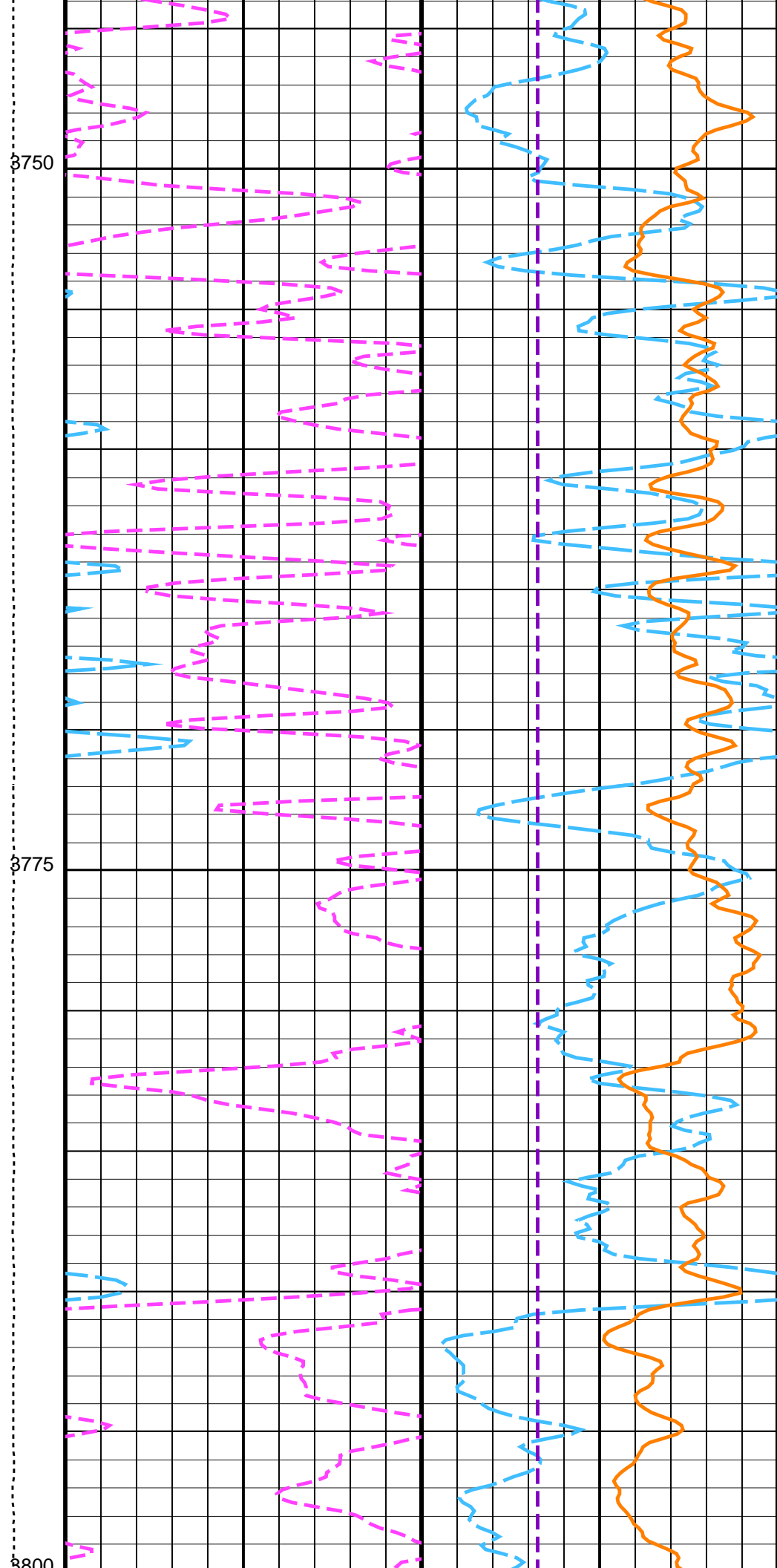
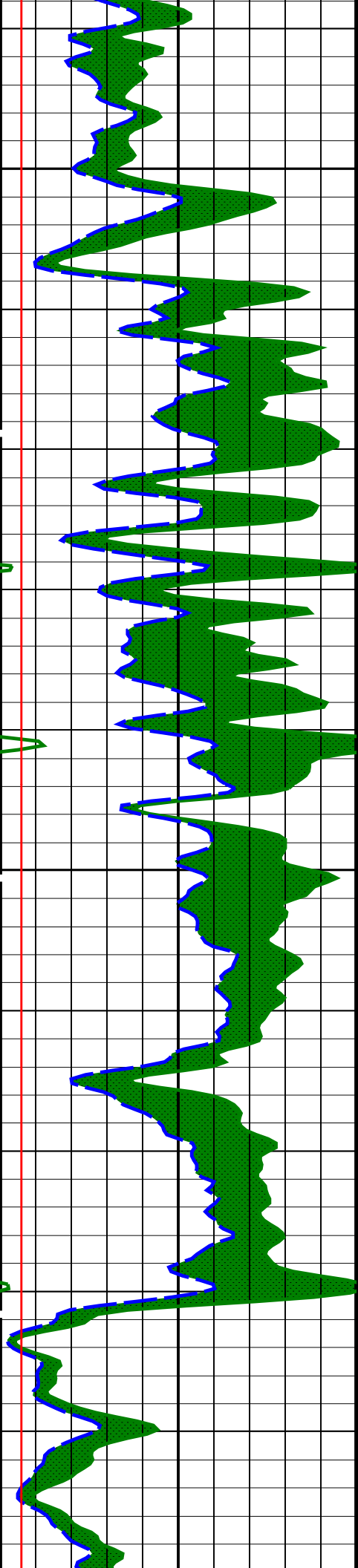


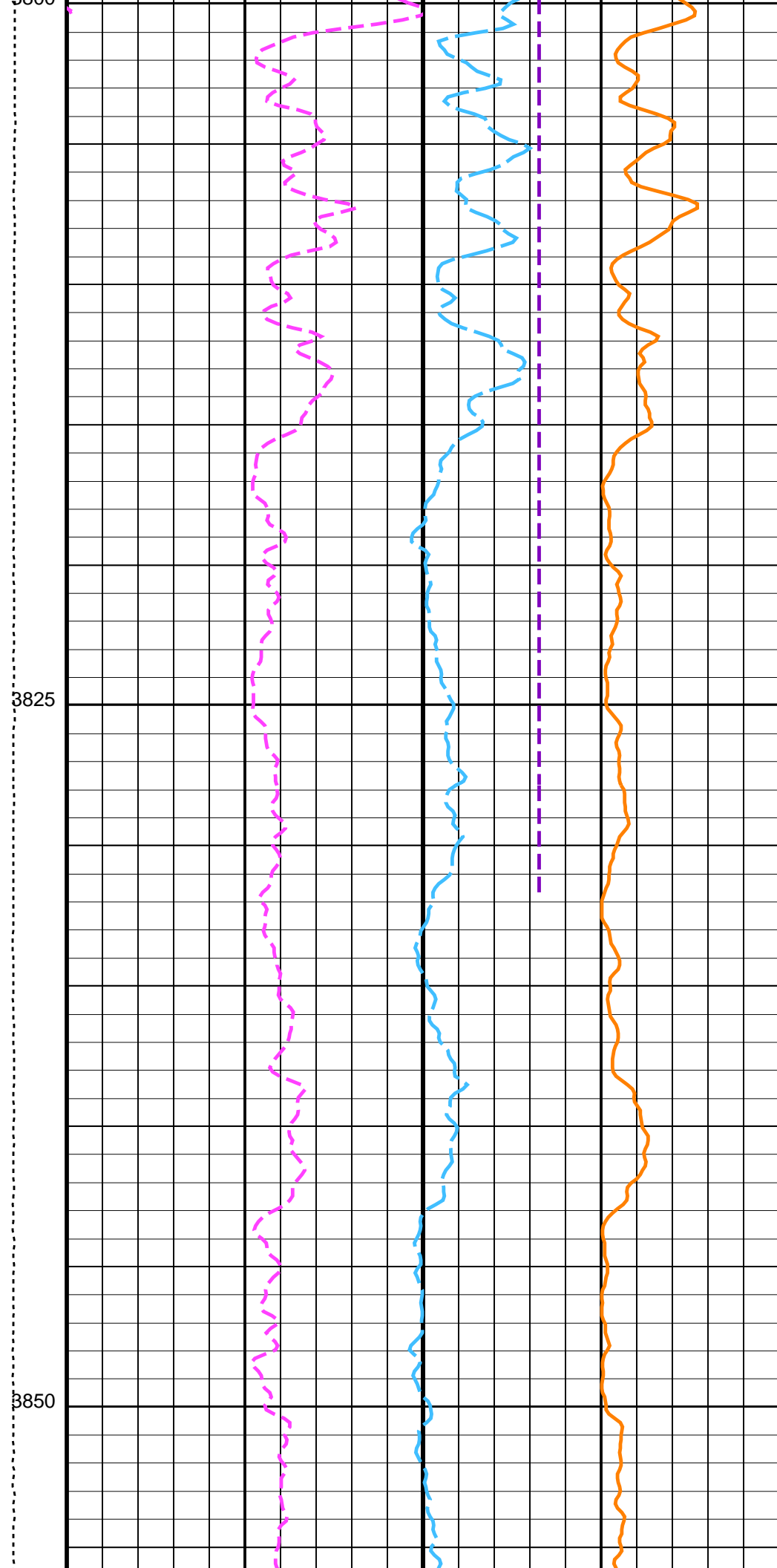
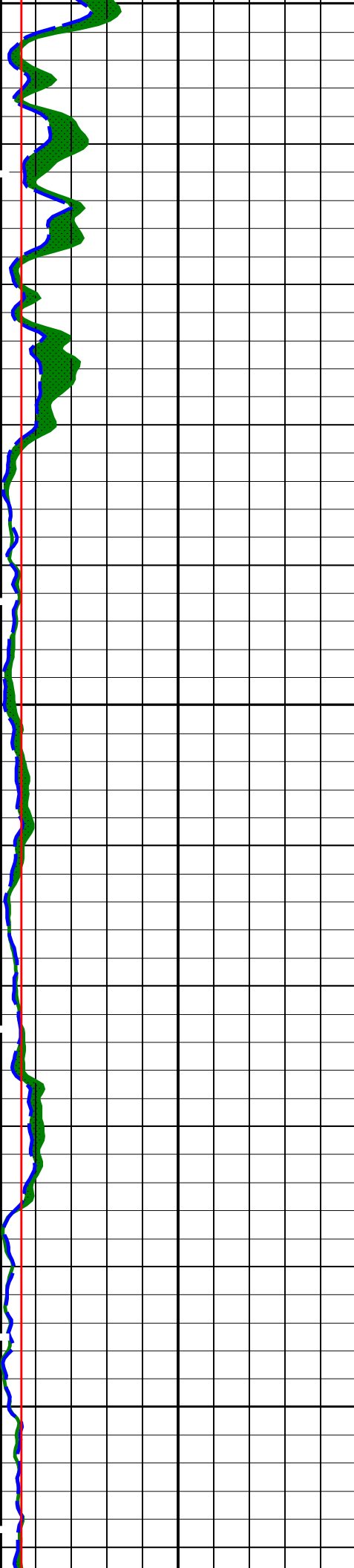


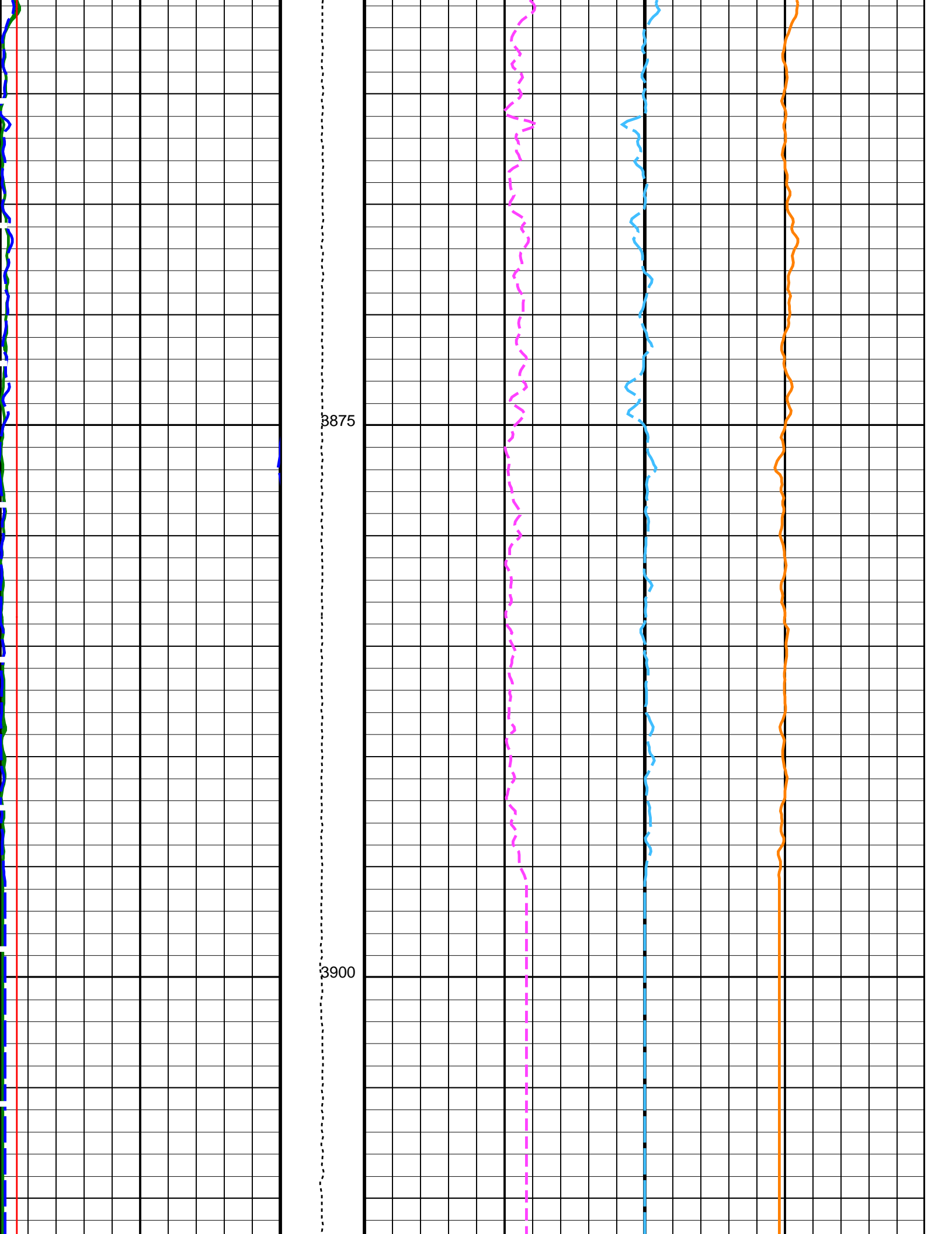


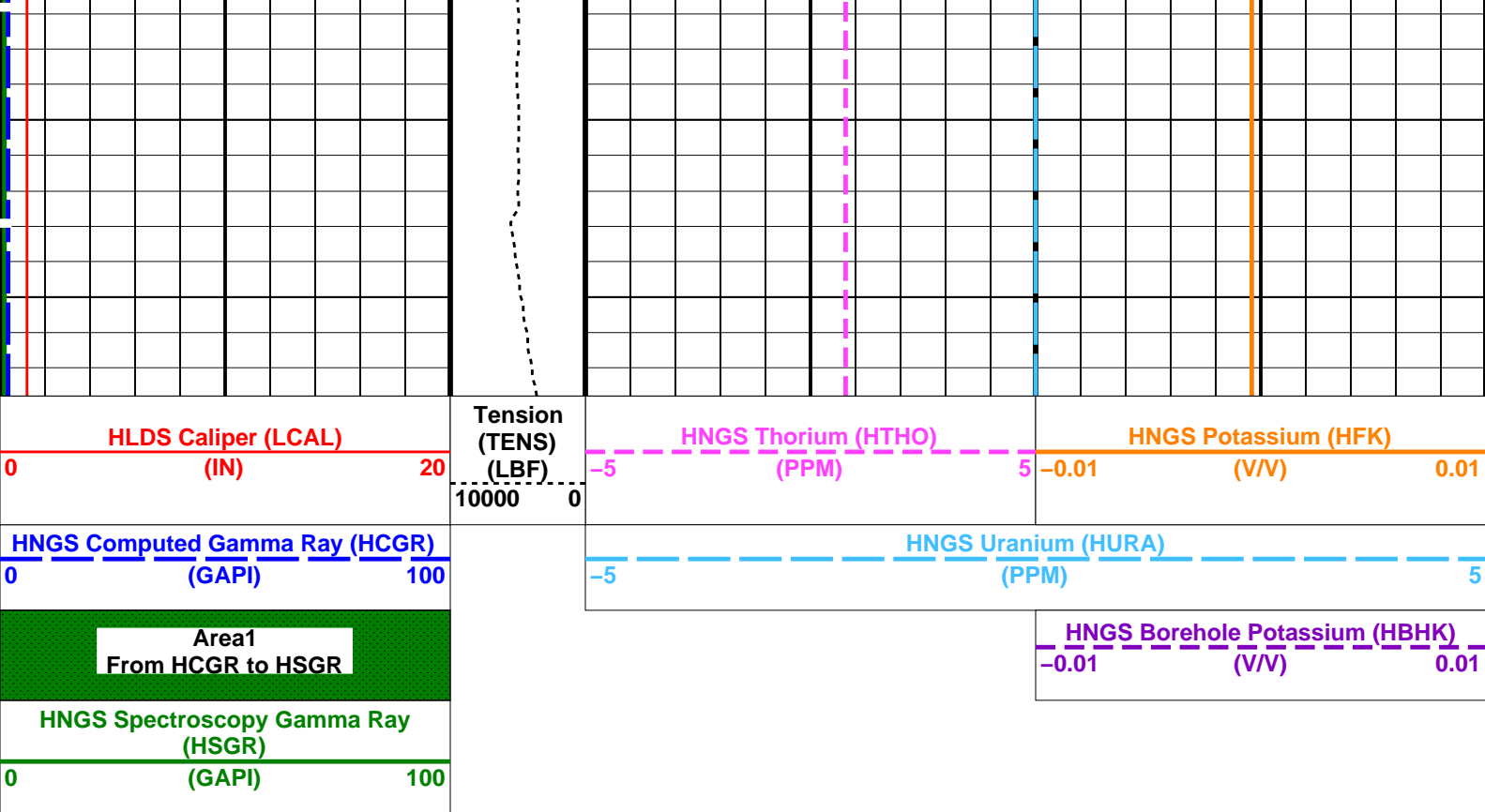












PIP SUMMARY

 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	BS	
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	BS	
H1P	HNGS Detector 1 Allow/Disallow In Processing	ALLOW	
H2P	HNGS Detector 2 Allow/Disallow In Processing	ALLOW	
HABK	HNGS Borehole Potassium Running Average	-0.00549151	
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	0.962564	
VBA2	HNGS Detector 2 Variable Barite Factor Running Average	0.927275	
EDTC-B: Enhanced DTS Cartridge			
BHS	Borehole Status	OPEN	
GCSE	Generalized Caliper Selection	BS	
System and Miscellaneous			
BS	Bit Size	9.875	IN

Format: HNGSYields      Vertical Scale: 1:200      Graphics File Created: 05-Apr-2024 12:54

OP System Version: 19C0-187

MSS_LDEO-A	19C0-187	HRLT-B	19C0-187
HLDS	19C0-187	LDSC-B	19C0-187
HNGC-B	19C0-187	HNGS-BA	19C0-187

EDTC-B	MSS_LDEO_HRLA_LDL_039LUP	FN:7	PRODUCER	05-Apr-2024 12:54
RTB	MSS_LDEO_HRLA_LDL_039LUP	FN:8	PRODUCER	05-Apr-2024 12:54

Company: International Ocean Discovery Program

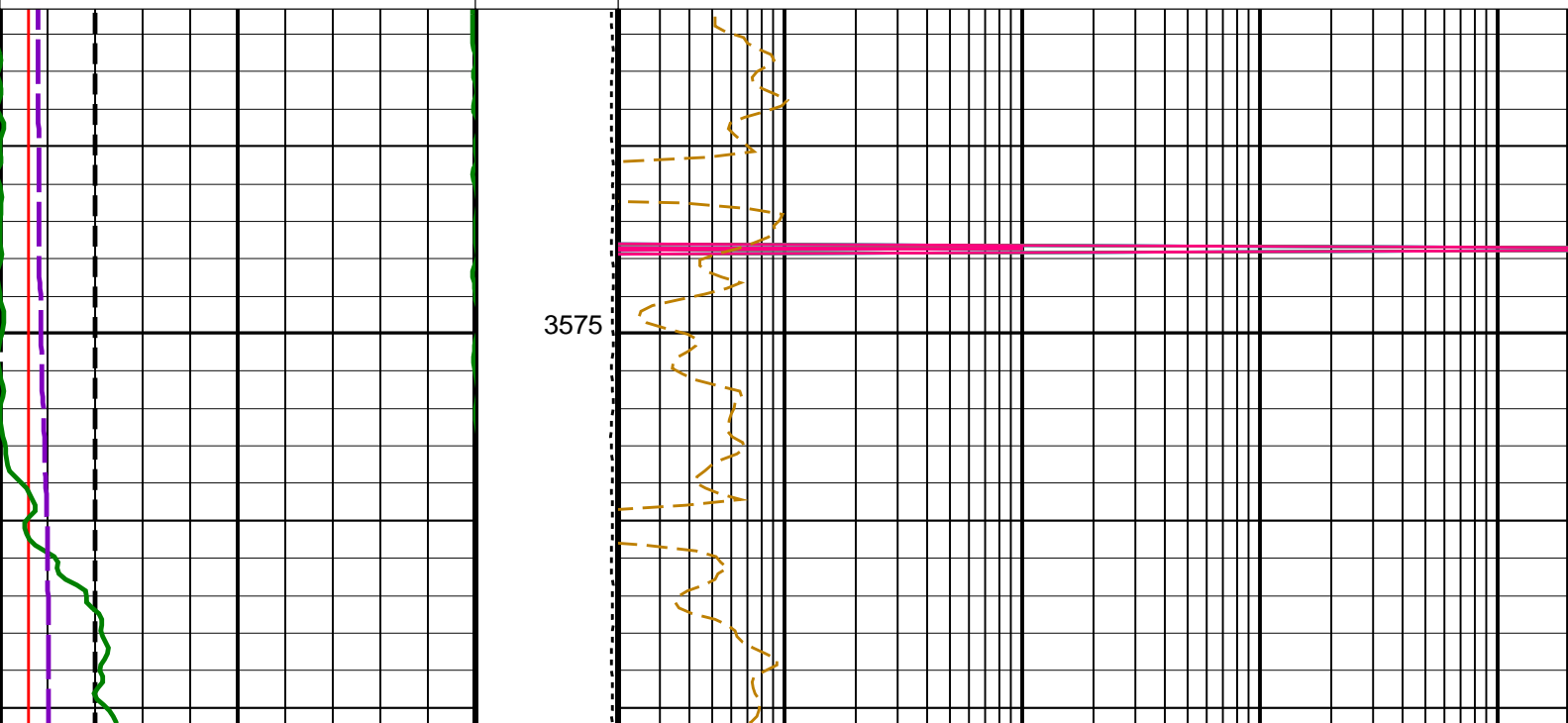
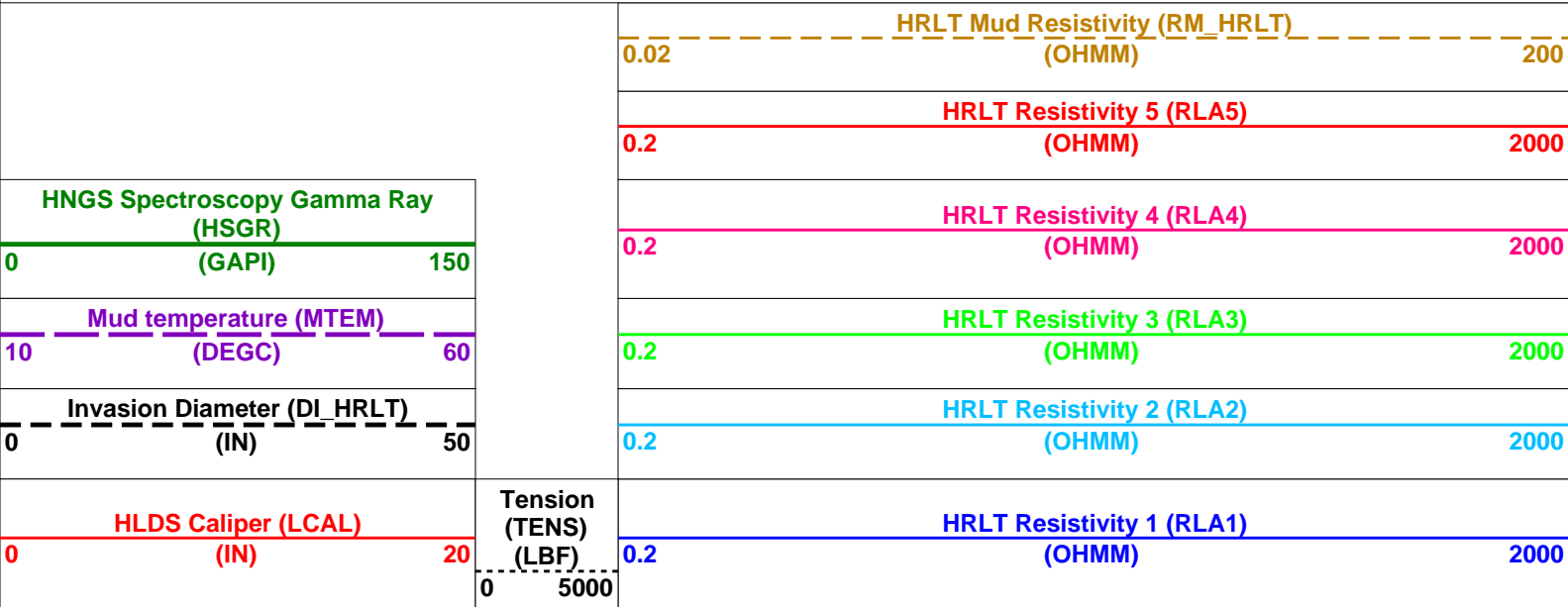
Well: Expedition 402, Site U1616E (Lower)

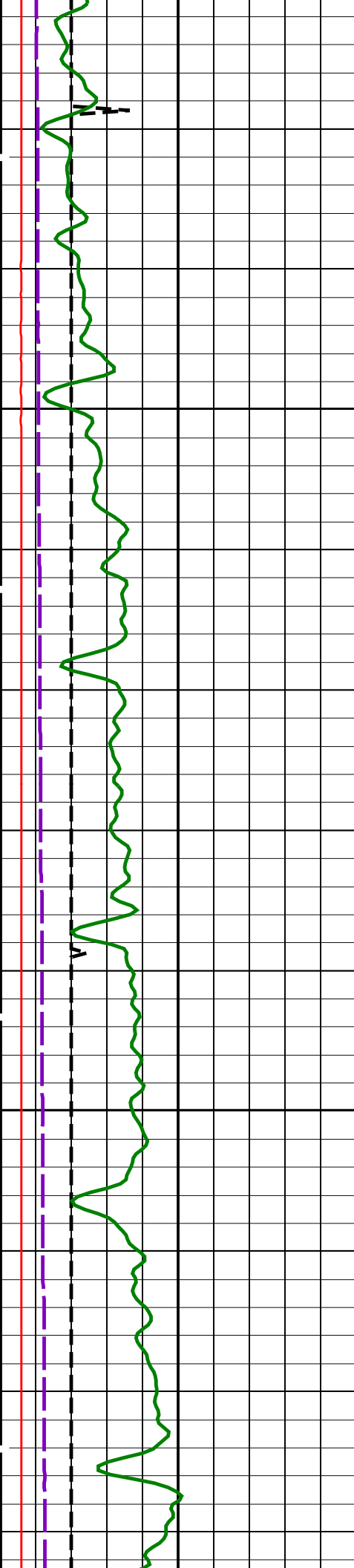
DEFAULT	MSS_LDEO_HRLA_LDL_039LUP	FN:7	PRODUCER	05-Apr-2024 12:54	3922.8 M	3568.4 M
RTB	MSS_LDEO_HRLA_LDL_039LUP	FN:8	PRODUCER	05-Apr-2024 12:54	3922.8 M	3568.4 M

OP System Version: 19C0-187			
MSS_LDEO-A	19C0-187	HRLT-B	19C0-187
HLDS	19C0-187	LDSC-B	19C0-187
HNGC-B	19C0-187	HNGS-BA	19C0-187
EDTC-B	19C0-187		

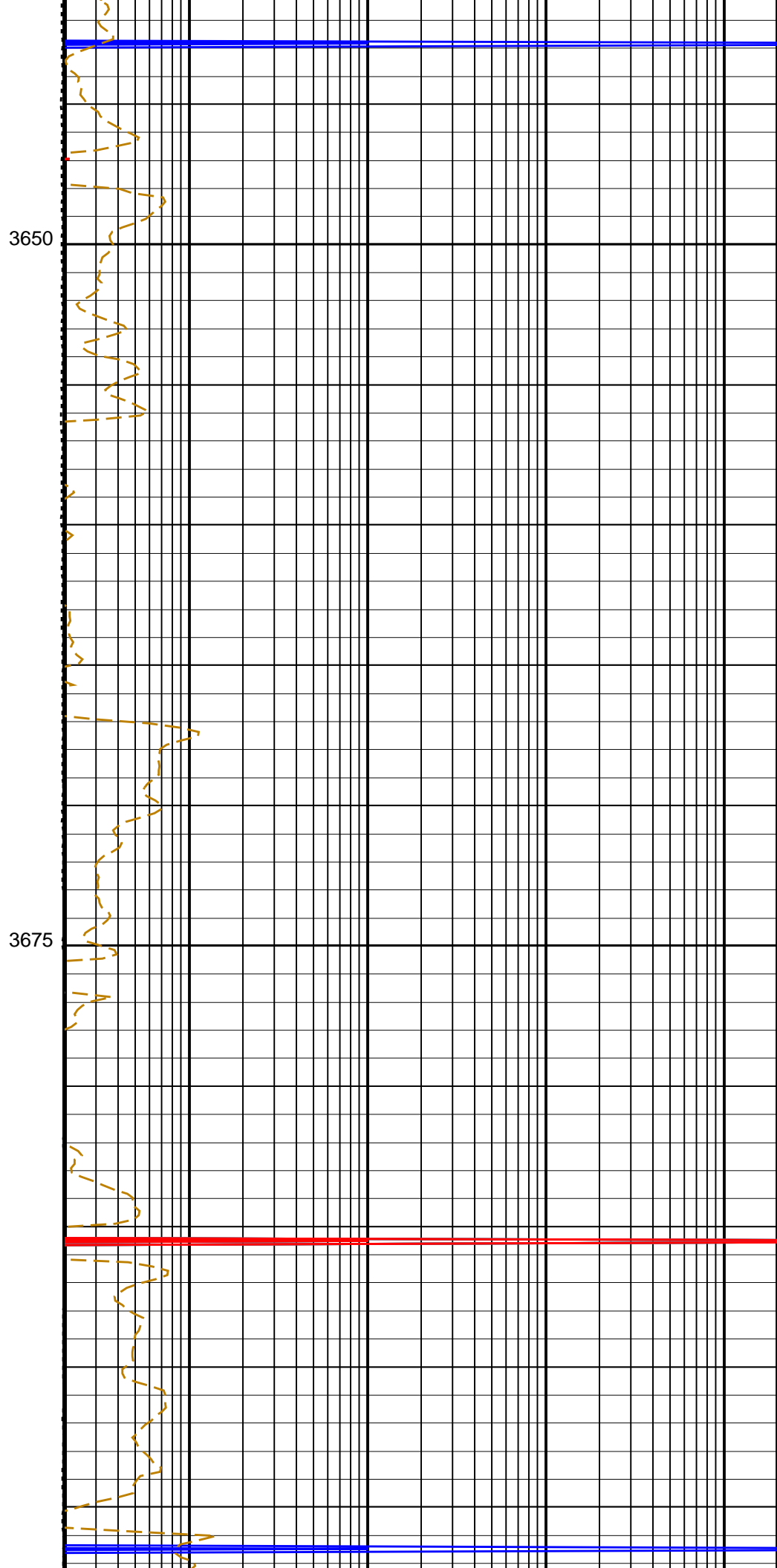
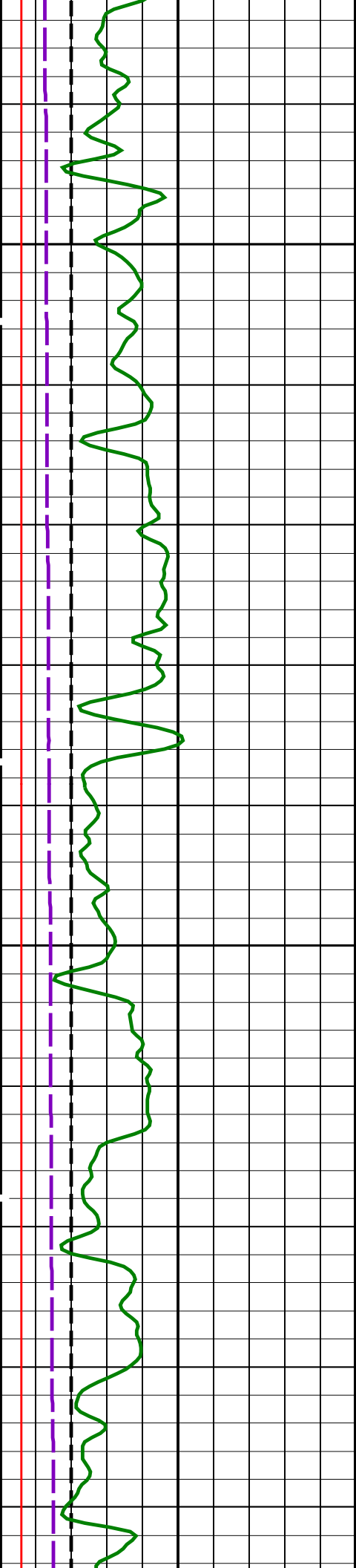
Time Mark Every 60 S

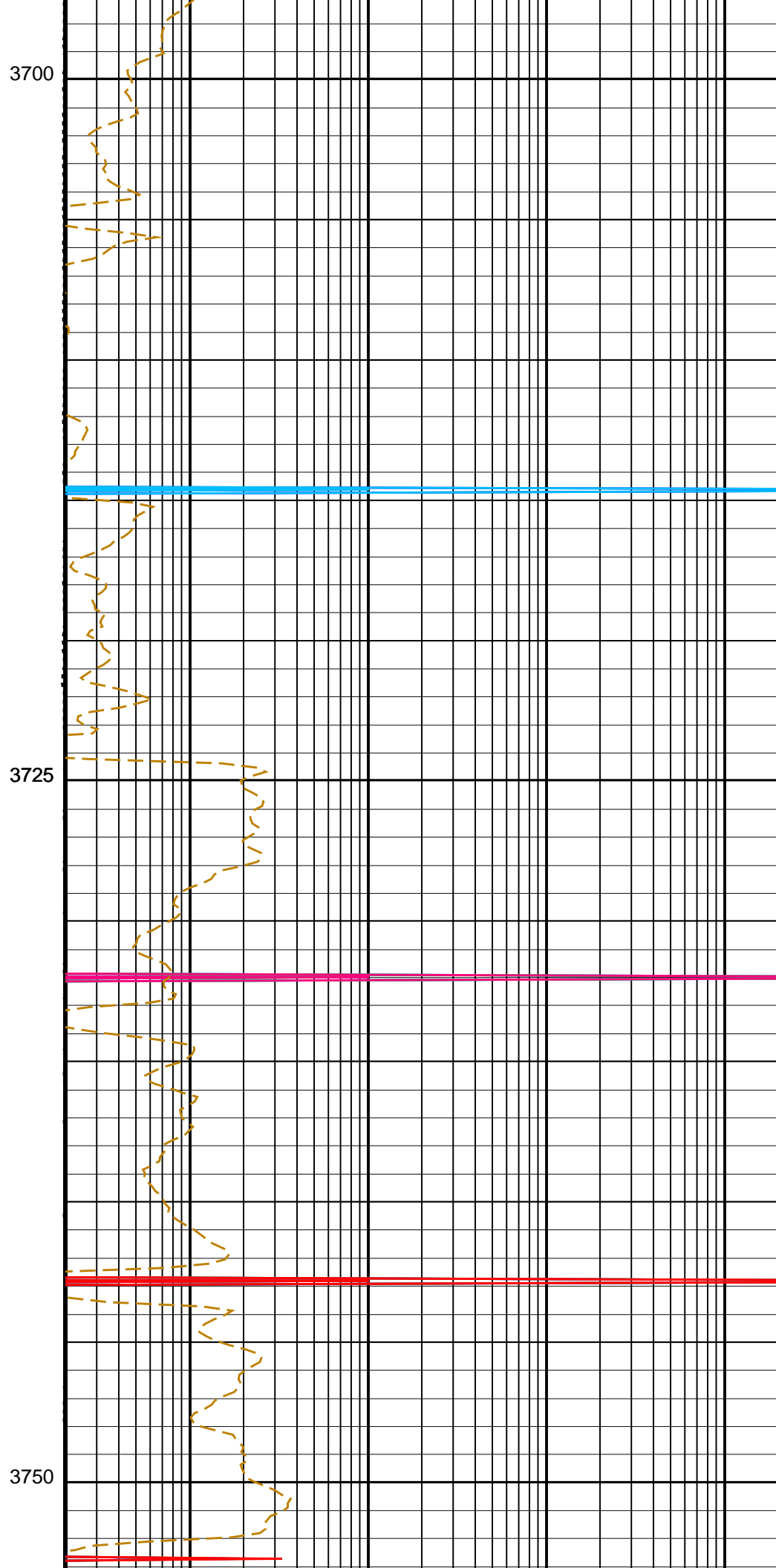
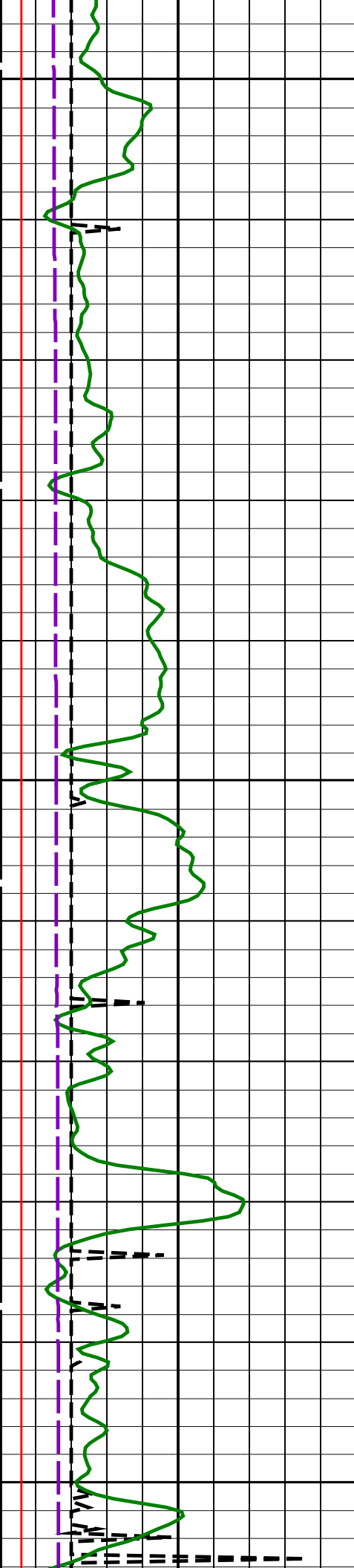
PIP SUMMARY

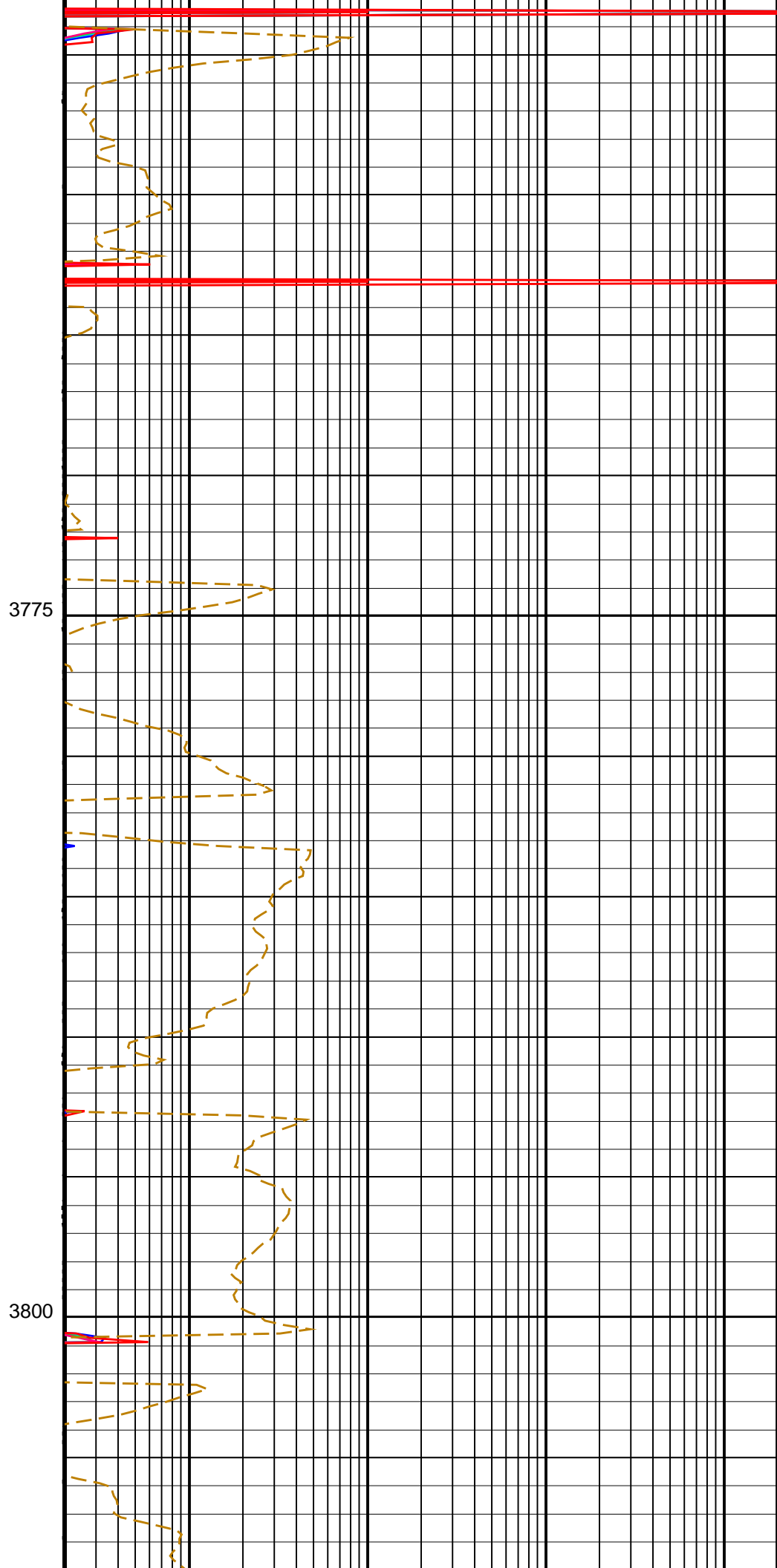
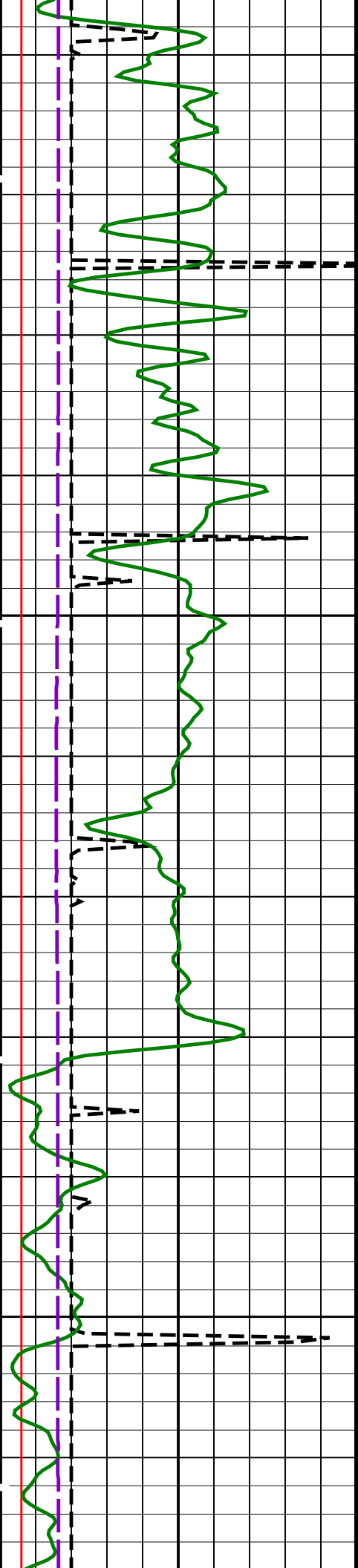


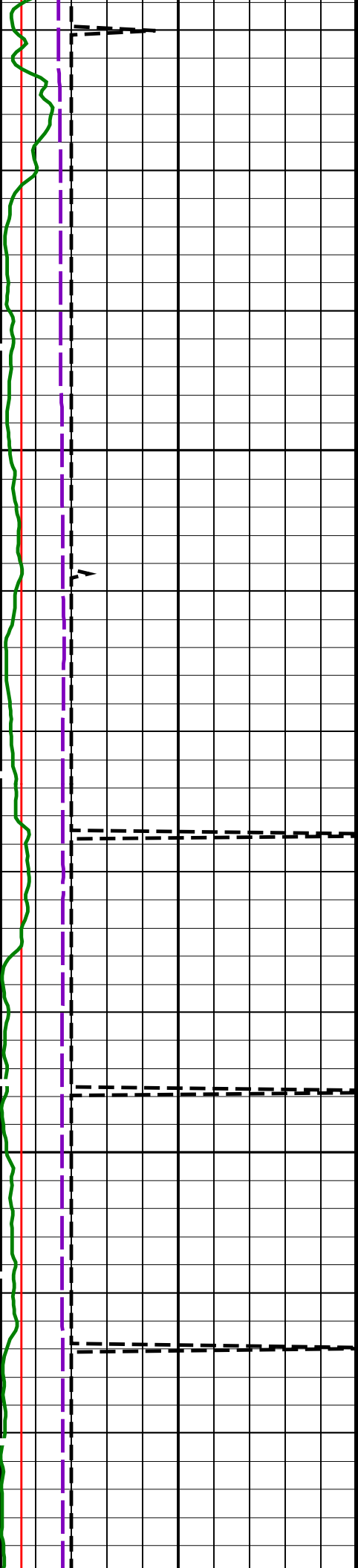






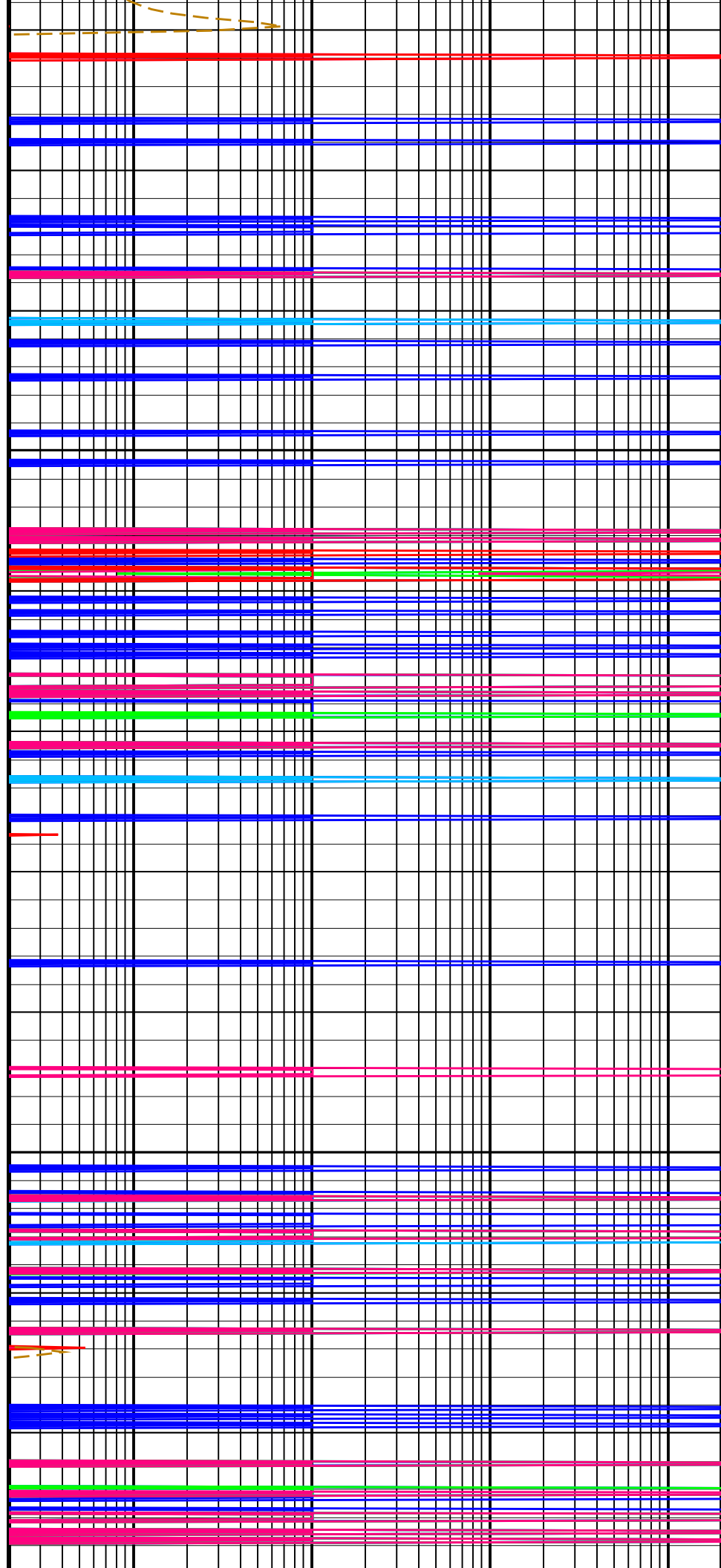


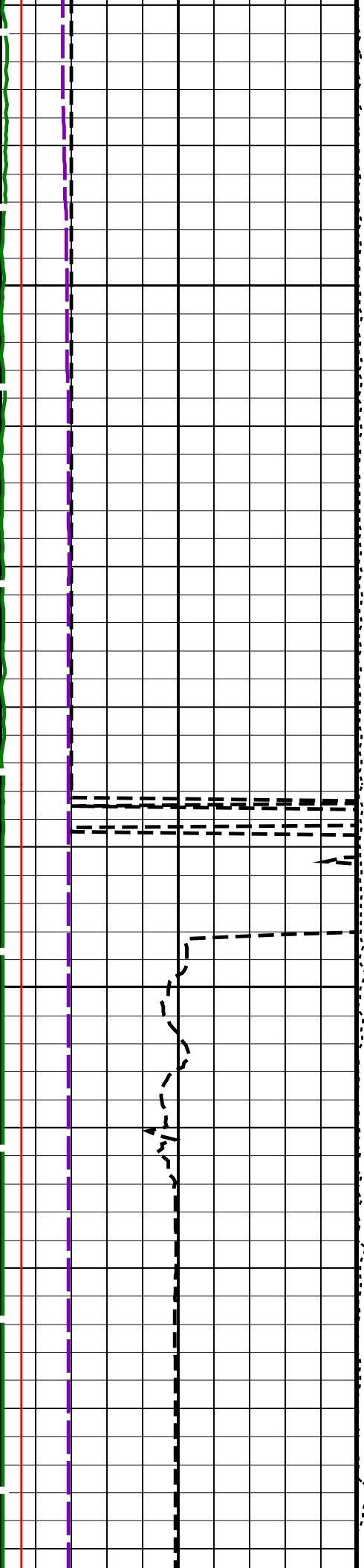




3825

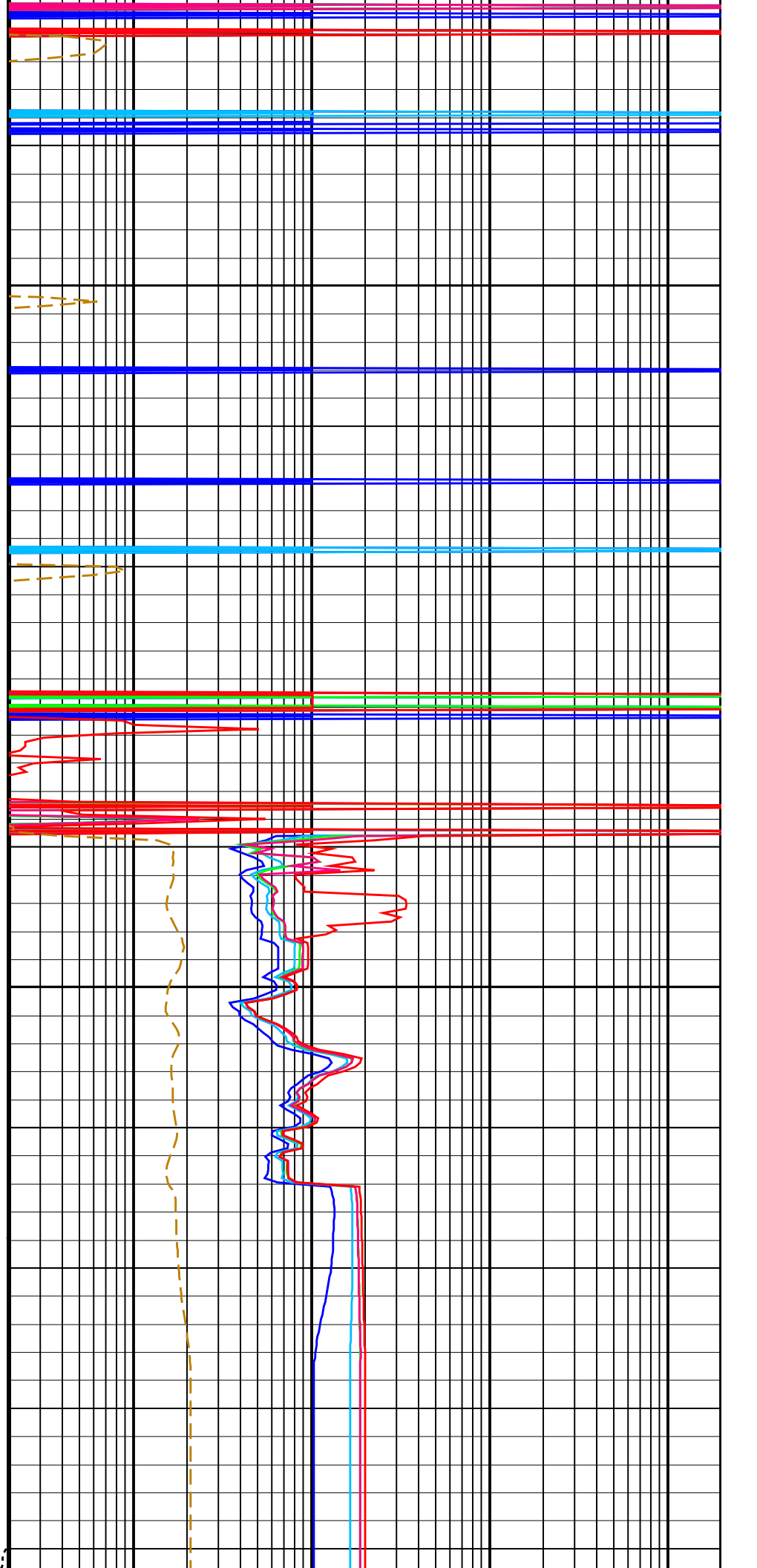
3850





3875

3900



<div>HLDS Caliper (LCAL)</div> <div>0 (IN) 20</div>		<div>Tension (TENS)</div> <div>(LBF)</div> <div>0 5000</div>	<div>HRLT Resistivity 1 (RLA1)</div> <div>0.2 (OHMM) 2000</div>	
<div>Invasion Diameter (DI_HRLT)</div> <div>0 (IN) 50</div>			<div>HRLT Resistivity 2 (RLA2)</div> <div>0.2 (OHMM) 2000</div>	
<div>Mud temperature (MTEM)</div> <div>10 (DEGC) 60</div>			<div>HRLT Resistivity 3 (RLA3)</div> <div>0.2 (OHMM) 2000</div>	
<div>HNGS Spectroscopy Gamma Ray (HSGR)</div> <div>0 (GAPI) 150</div>			<div>HRLT Resistivity 4 (RLA4)</div> <div>0.2 (OHMM) 2000</div>	
			<div>HRLT Resistivity 5 (RLA5)</div> <div>0.2 (OHMM) 2000</div>	
			<div>HRLT Mud Resistivity (RM_HRLT)</div> <div>0.02 (OHMM) 200</div>	

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)	35	DEGF
GCSE	Generalized Caliper Selection	BS	
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
KFAC_HRLT	HRLT K Factor Option	SONDE	
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	
PROCSP0	Sonde Position	Centered	
SHT	Surface Hole Temperature	68	DEGF
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)	35	DEGF
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	BS	
GGRD	Geothermal Gradient	0.01	DF/F
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	-0.00549151	
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	
SHT	Surface Hole Temperature	68	DEGF
TPOS	Tool Position	ECCE	
VBA1	HNGS Detector 1 Variable Barite Factor Running Average	0.962564	
VBA2	HNGS Detector 2 Variable Barite Factor Running Average	0.927275	
EDTC-B: Enhanced DTS Cartridge			
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	35	DEGF
GCSE	Generalized Caliper Selection	BS	
GGRD	Geothermal Gradient	0.01	DF/F

GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
SHT	Surface Hole Temperature	68	DEGF
System and Miscellaneous			
BS	Bit Size	9.875	IN
MST	Mud Sample Temperature	23.00	DEGC
TD	Total Depth	10190.3	FT

Format: HRLT

Vertical Scale: 1:200

Graphics File Created: 05-Apr-2024 12:54

OP System Version: 19C0-187

MSS_LDEO-A	19C0-187	HRLT-B	19C0-187
HLDS	19C0-187	LDSC-B	19C0-187
HNGC-B	19C0-187	HNGS-BA	19C0-187
EDTC-B	19C0-187		

Output DLIS Files

DEFAULT	MSS_LDEO_HRLA_LDL_039LUP	FN:7	PRODUCER	05-Apr-2024 12:54
RTB	MSS_LDEO_HRLA_LDL_039LUP	FN:8	PRODUCER	05-Apr-2024 12:54

Company: International Ocean Discovery Program

Well: Expedition 402, Site U1616E (Lower)

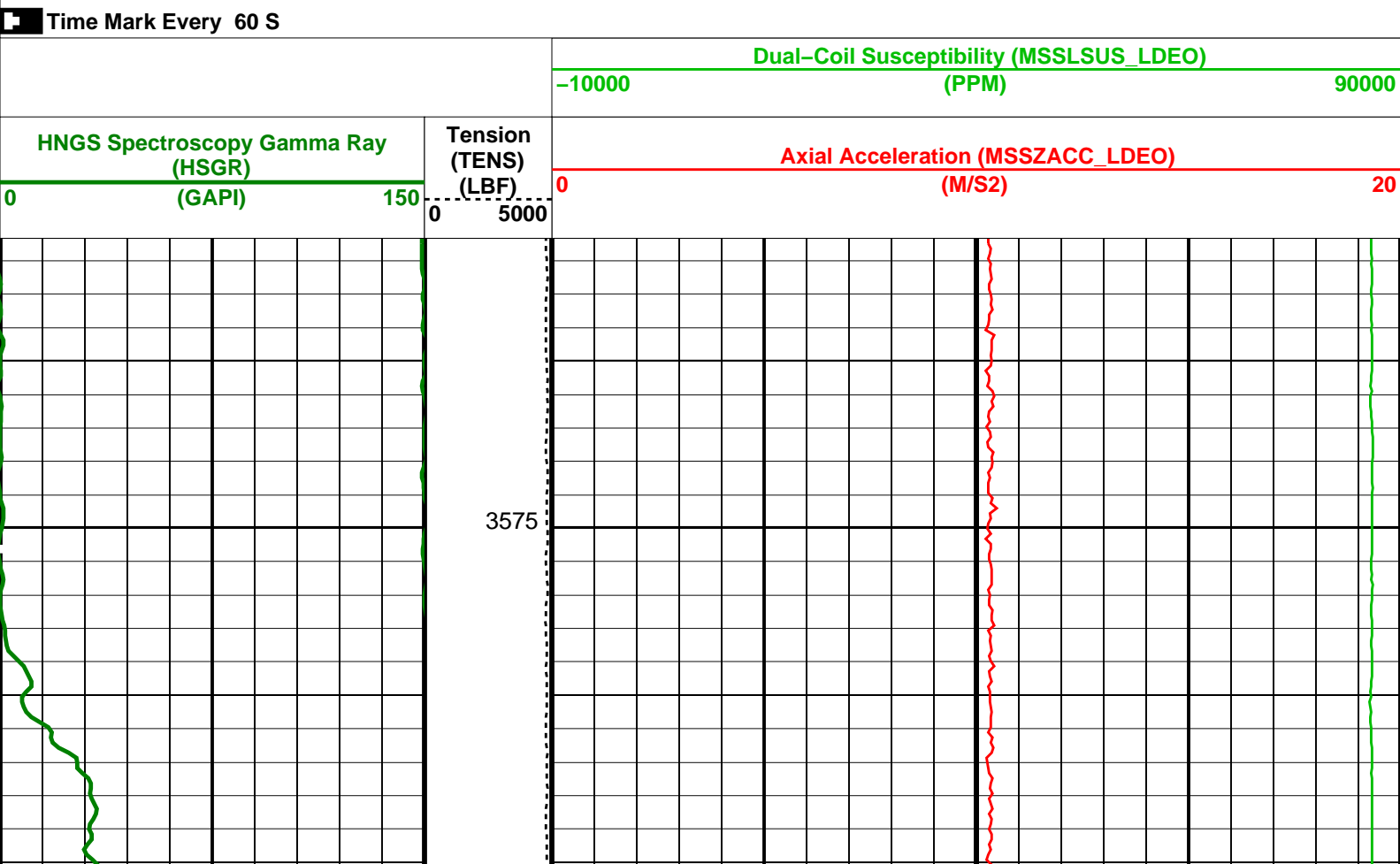
Output DLIS Files

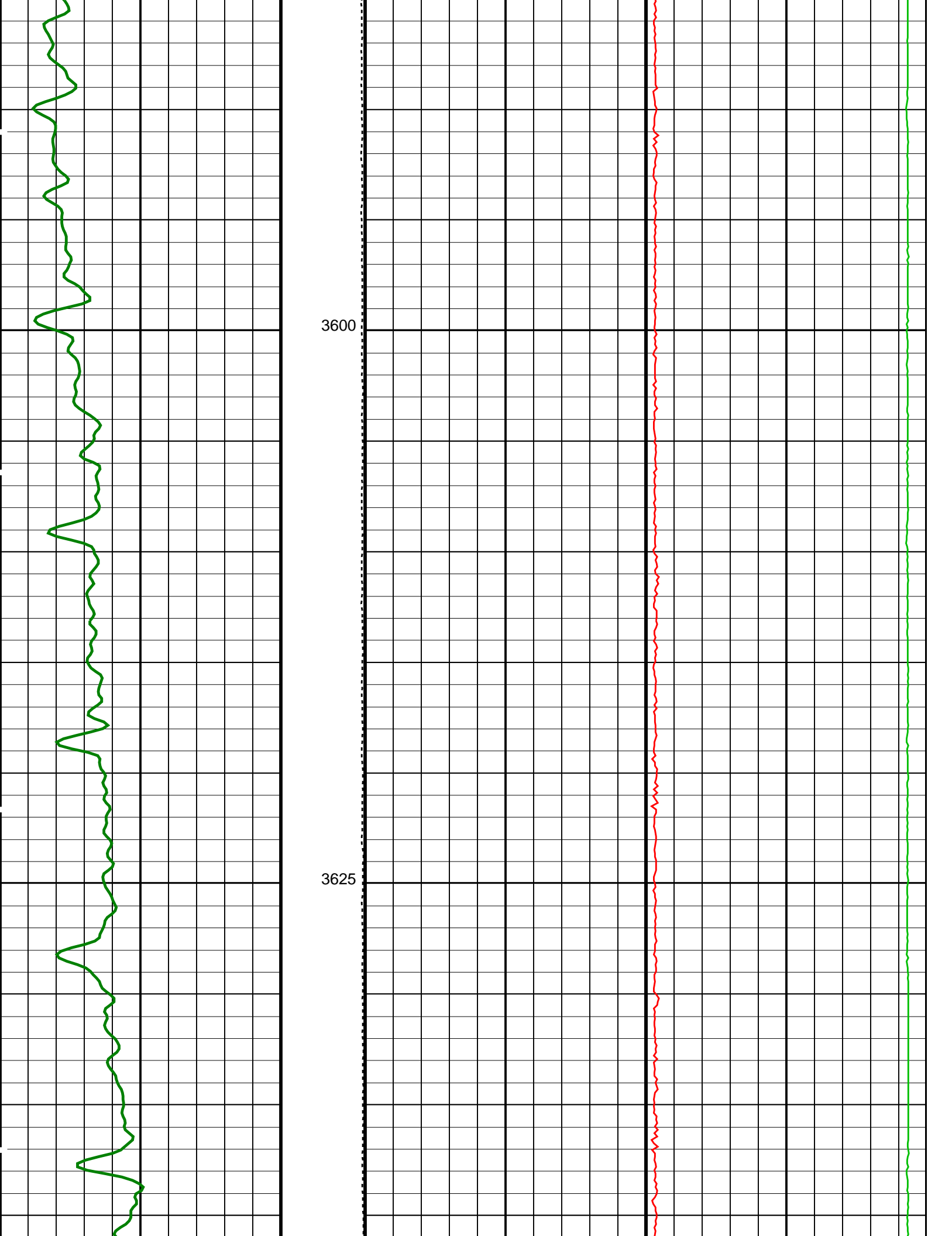
DEFAULT	MSS_LDEO_HRLA_LDL_039LUP	FN:7	PRODUCER	05-Apr-2024 12:54	3922.8 M	3568.4 M
RTB	MSS_LDEO_HRLA_LDL_039LUP	FN:8	PRODUCER	05-Apr-2024 12:54	3922.8 M	3568.4 M

OP System Version: 19C0-187

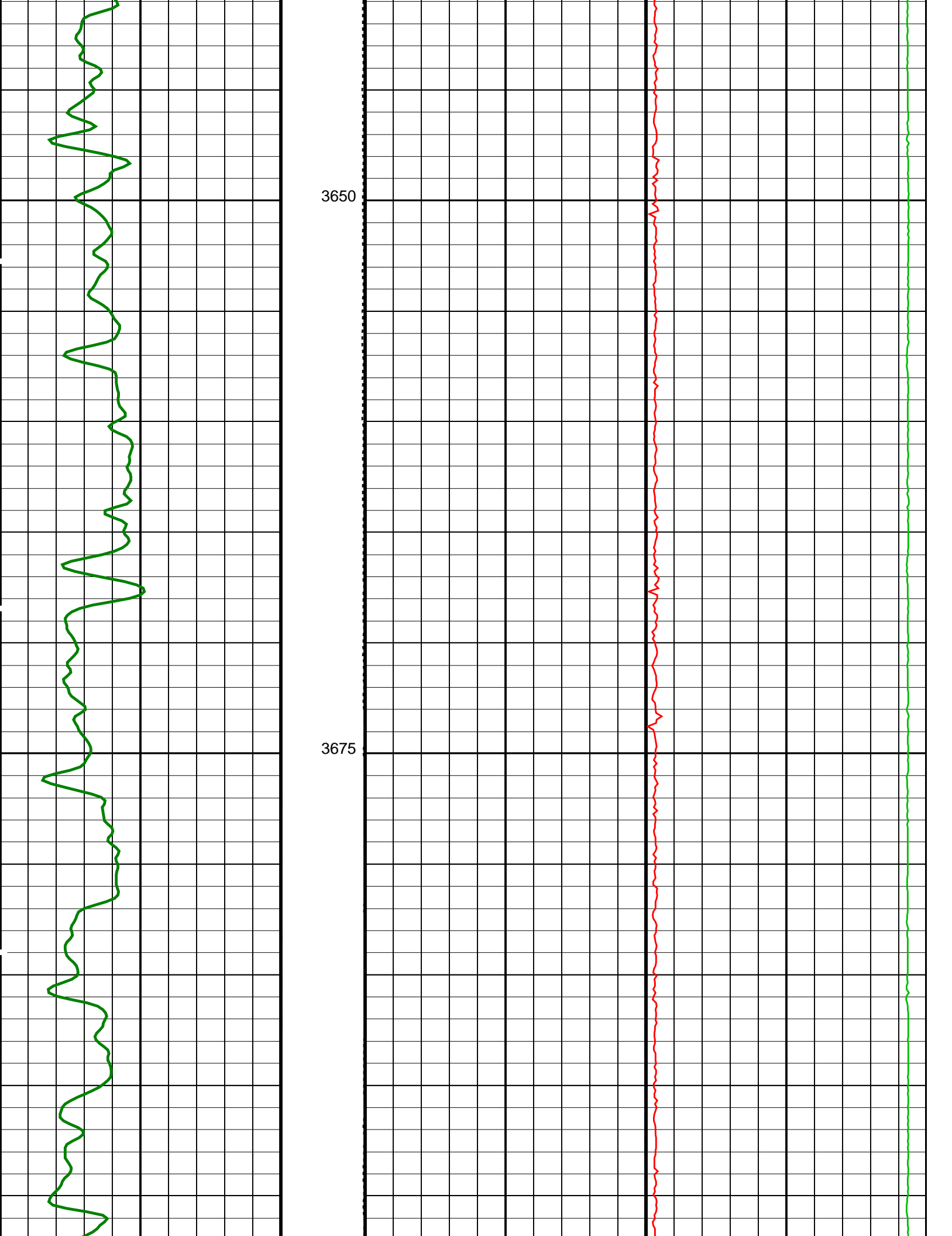
MSS_LDEO-A	19C0-187	HRLT-B	19C0-187
HLDS	19C0-187	LDSC-B	19C0-187
HNGC-B	19C0-187	HNGS-BA	19C0-187
EDTC-B	19C0-187		

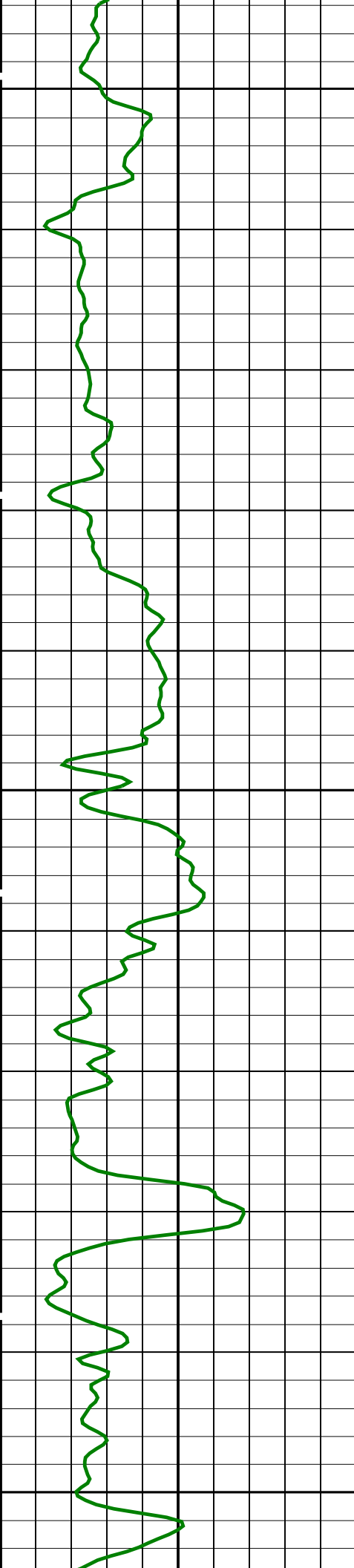
PIP SUMMARY







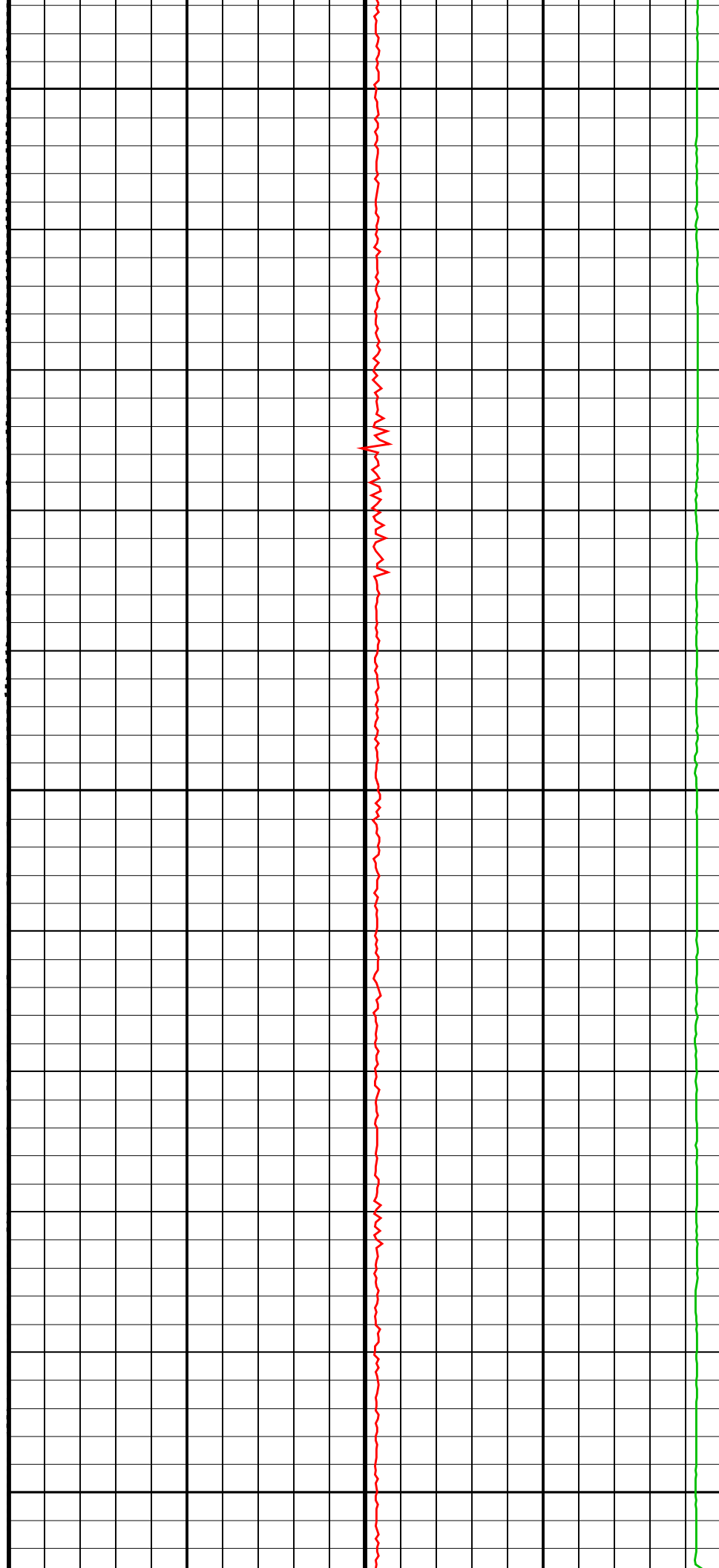


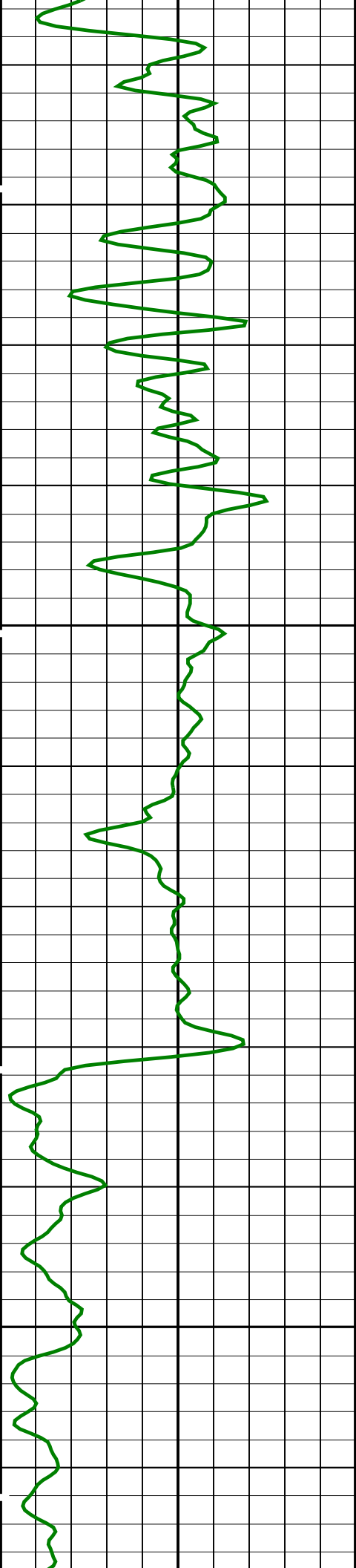


3700

3725

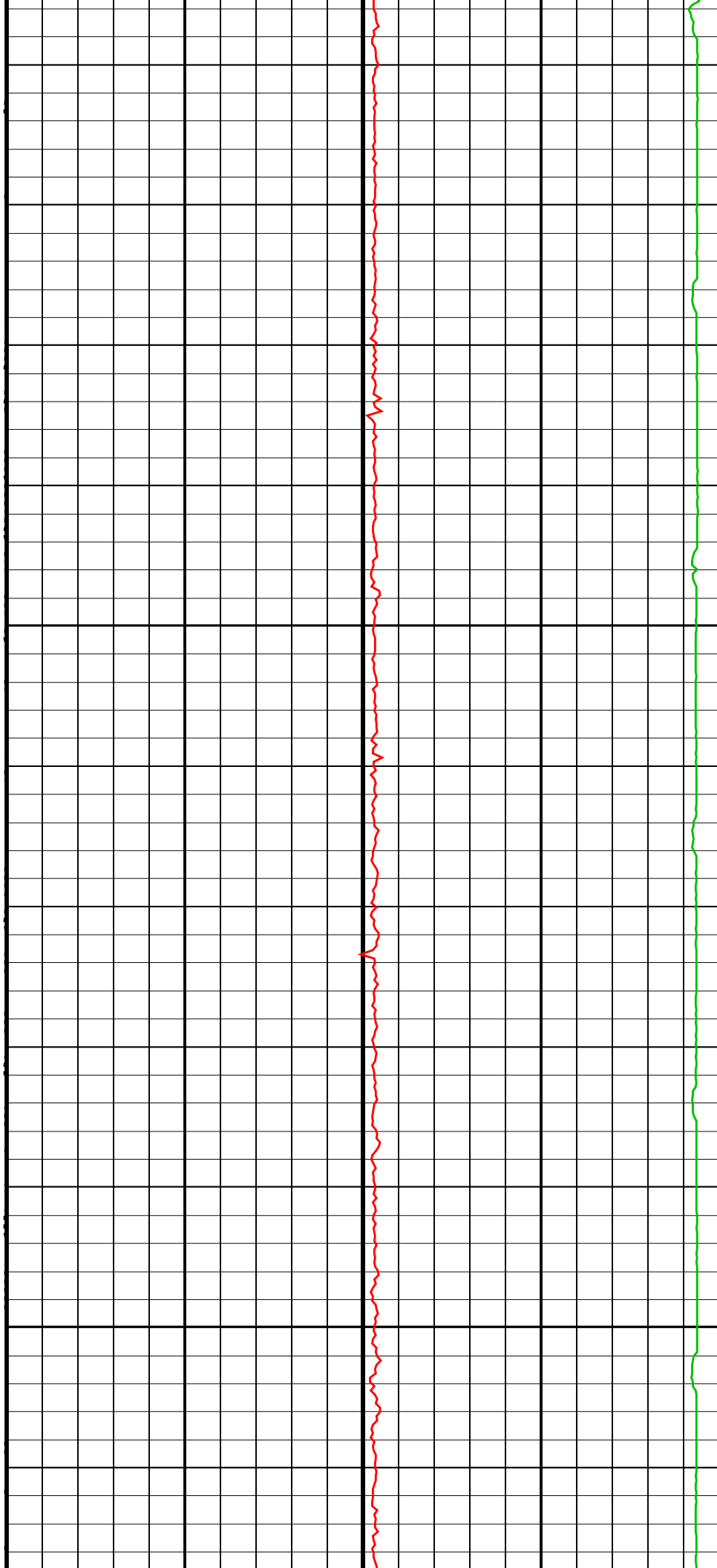
3750

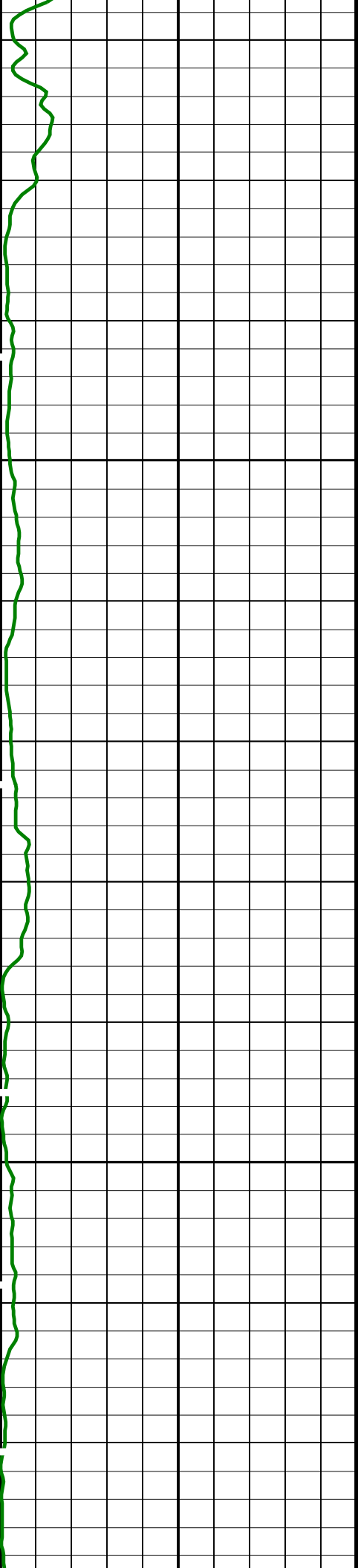




3775

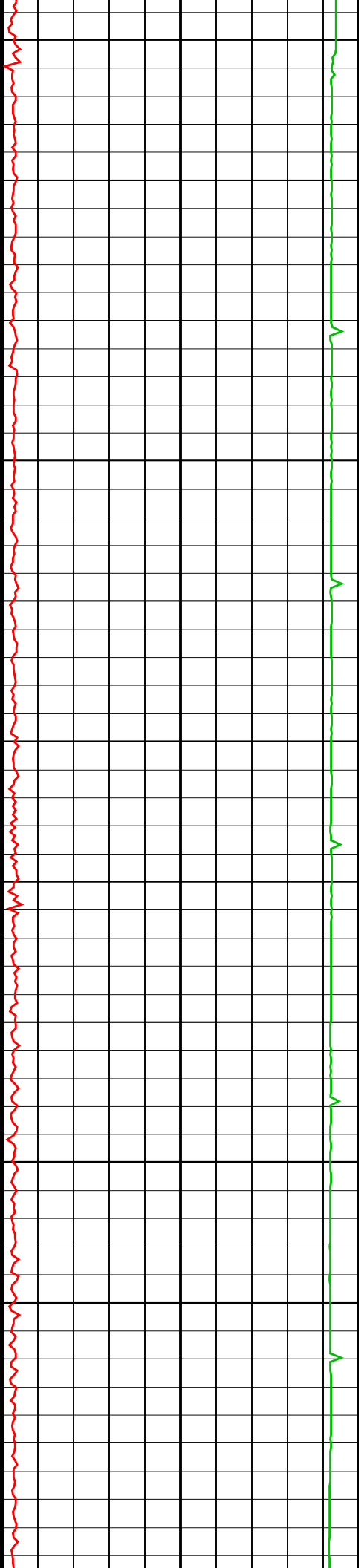
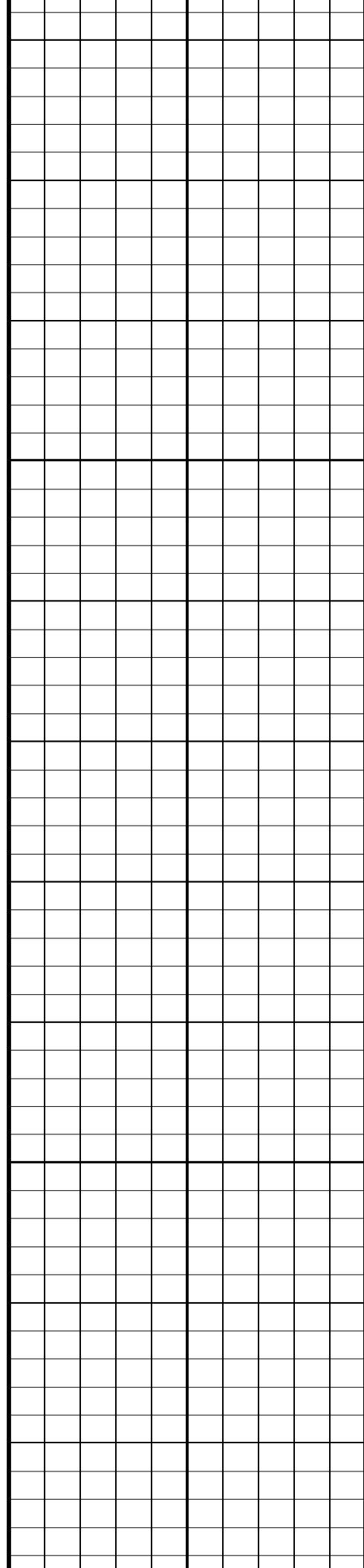
3800

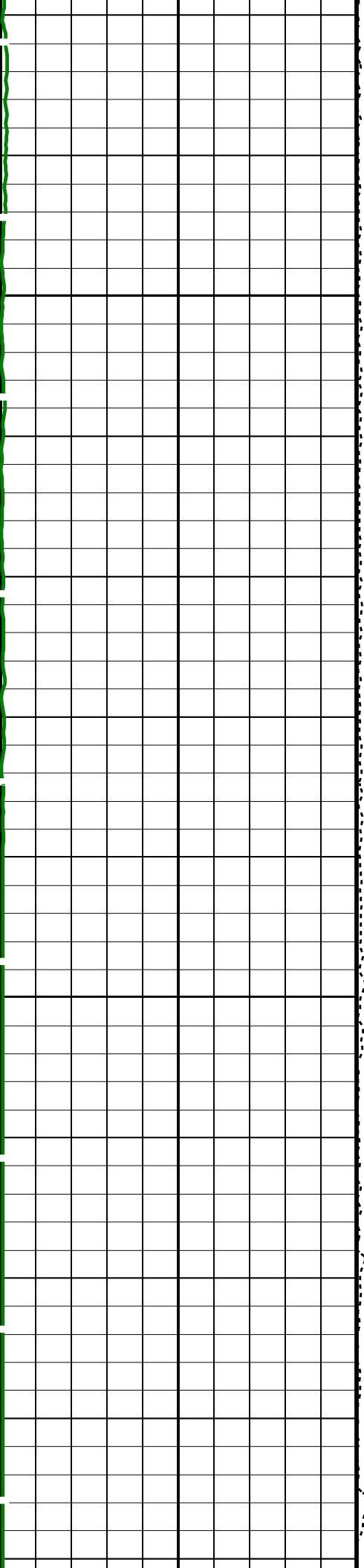




3825

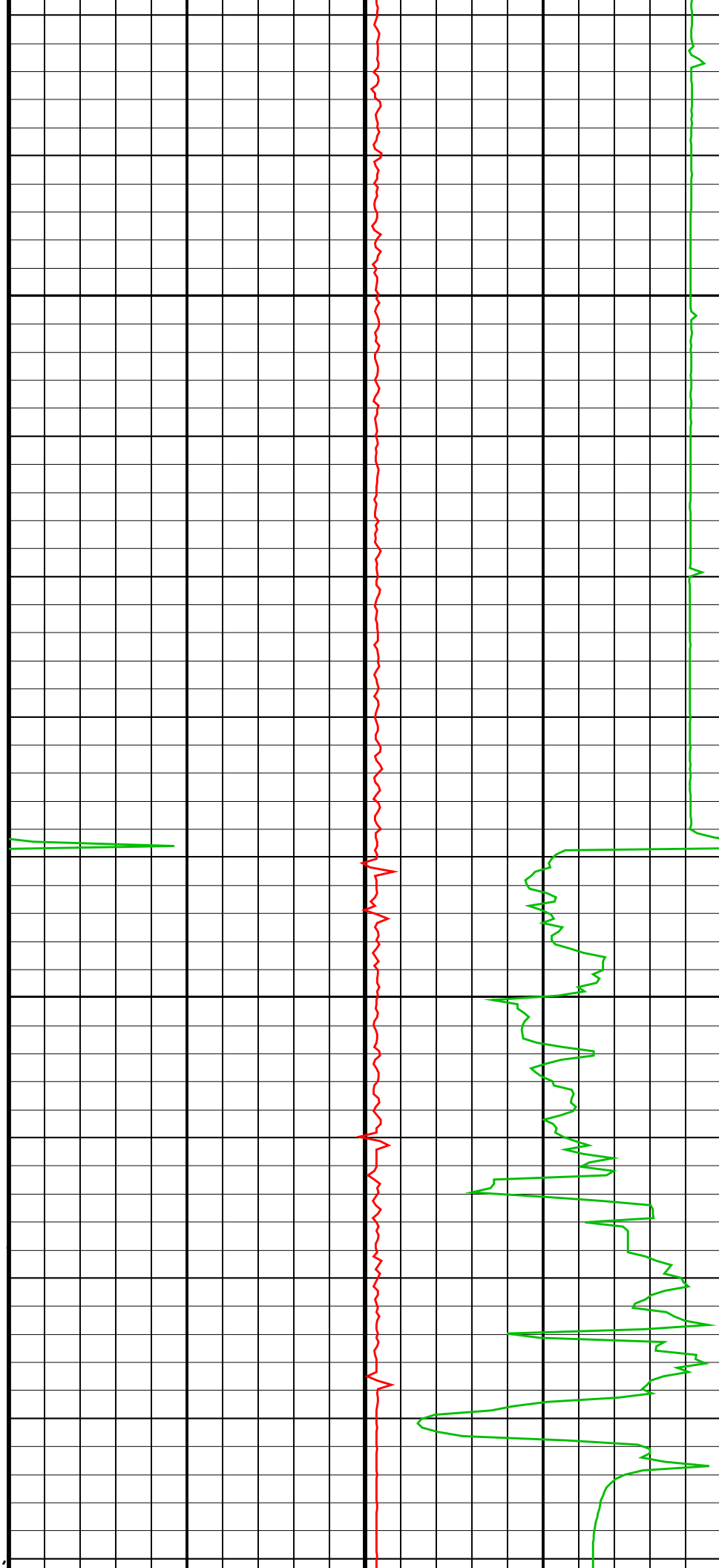
3850





3875

3900





# Calibration and Check Summary

Measurement	Nominal	Master	Before	After	Change	Limit	Units
-------------	---------	--------	--------	-------	--------	-------	-------

## High Resolution Laterolog Array – B Wellsite Calibration – HRLT M01

Before: 5-Apr-2024 10:10 After: 5-Apr-2024 13:35

HRLT M0-M1 Voltage Plus – 0	0	N/A	-318.5	-317.1	1.412	9.681	UV
HRLT M0-M1 Voltage Plus – 1	0	N/A	-332.2	-332.2	-0.01471	9.681	UV
HRLT M0-M1 Voltage Plus – 2	0	N/A	-339.5	-338.4	1.168	9.681	UV
HRLT M0-M1 Voltage Plus – 3	0	N/A	-329.4	-328.5	0.9259	9.681	UV
HRLT M0-M1 Voltage Plus – 4	0	N/A	-319.9	-318.2	1.733	9.681	UV
HRLT M0-M1 Voltage Plus – 5	0	N/A	-321.5	-319.7	1.800	9.681	UV
HRLT M0-M1 Voltage Plus – 6	0	N/A	321.5	321.4	-0.1304	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: 5-Apr-2024 10:10 After: 5-Apr-2024 13:35

HRLT M1-M2 Voltage Plus – 0	0	N/A	1739	1741	1.946	53.42	UV
HRLT M1-M2 Voltage Plus – 1	0	N/A	1816	1819	3.481	53.42	UV
HRLT M1-M2 Voltage Plus – 2	0	N/A	1850	1850	-0.7731	53.42	UV
HRLT M1-M2 Voltage Plus – 3	0	N/A	1795	1798	2.433	53.42	UV
HRLT M1-M2 Voltage Plus – 4	0	N/A	1745	1745	-0.2966	53.42	UV
HRLT M1-M2 Voltage Plus – 5	0	N/A	1755	1755	0.3651	53.42	UV
HRLT M1-M2 Voltage Plus – 6	0	N/A	-1764	-1766	-2.251	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: 5-Apr-2024 10:10 After: 5-Apr-2024 13:35

HRLT M2-M3 Voltage Plus – 0	0	N/A	1731	1732	1.171	53.42	UV
HRLT M2-M3 Voltage Plus – 1	0	N/A	1819	1822	2.908	53.42	UV
HRLT M2-M3 Voltage Plus – 2	0	N/A	1855	1854	-1.141	53.42	UV
HRLT M2-M3 Voltage Plus – 3	0	N/A	1804	1805	0.9467	53.42	UV
HRLT M2-M3 Voltage Plus – 4	0	N/A	1747	1746	-0.5890	53.42	UV
HRLT M2-M3 Voltage Plus – 5	0	N/A	1759	1758	-0.7297	53.42	UV
HRLT M2-M3 Voltage Plus – 6	0	N/A	-1756	-1757	-1.327	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: 5-Apr-2024 10:10 After: 5-Apr-2024 13:35

HRLT A3-A4 Voltage Plus – 0	0	N/A	68580	68670	85.94	2100	UV
HRLT A3-A4 Voltage Plus – 1	0	N/A	71860	72010	146.3	2100	UV
HRLT A3-A4 Voltage Plus – 2	0	N/A	73600	73590	-16.43	2100	UV
HRLT A3-A4 Voltage Plus – 3	0	N/A	71830	71950	111.6	2100	UV
HRLT A3-A4 Voltage Plus – 4	0	N/A	69530	69540	12.70	2100	UV
HRLT A3-A4 Voltage Plus – 5	0	N/A	70000	70010	16.19	2100	UV
HRLT A3-A4 Voltage Plus – 6	0	N/A	-68400	-68480	-81.48	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: 5-Apr-2024 10:10 After: 5-Apr-2024 13:35

HRLT A4-A5 Voltage Plus – 0	0	N/A	68650	68760	109.8	2100	UV
HRLT A4-A5 Voltage Plus – 1	0	N/A	72070	72210	148.1	2100	UV
HRLT A4-A5 Voltage Plus – 2	0	N/A	73780	73780	-8.211	2100	UV
HRLT A4-A5 Voltage Plus – 3	0	N/A	71960	72080	118.4	2100	UV
HRLT A4-A5 Voltage Plus – 4	0	N/A	69640	69640	8.023	2100	UV
HRLT A4-A5 Voltage Plus – 5	0	N/A	70090	70110	12.95	2100	UV
HRLT A4-A5 Voltage Plus – 6	0	N/A	-68610	-68690	-78.87	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: 5-Apr-2024 10:10 After: 5-Apr-2024 13:35

HRLT A5-A6 Voltage Plus – 0	0	N/A	68510	68620	116.7	2100	UV
HRLT A5-A6 Voltage Plus – 1	0	N/A	71930	72070	146.3	2100	UV
HRLT A5-A6 Voltage Plus – 2	0	N/A	73630	73630	-4.930	2100	UV
HRLT A5-A6 Voltage Plus – 3	0	N/A	71840	71950	113.1	2100	UV
HRLT A5-A6 Voltage Plus – 4	0	N/A	69500	69520	27.41	2100	UV
HRLT A5-A6 Voltage Plus – 5	0	N/A	69960	69990	31.71	2100	UV
HRLT A5-A6 Voltage Plus – 6	0	N/A	-68460	-68530	-78.01	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: 5-Apr-2024 10:10 After: 5-Apr-2024 13:35

HRLT Torpedo-M0 Voltage – 0	0	N/A	-68040	-68130	-94.05	2100	UV
HRLT Torpedo-M0 Voltage – 1	0	N/A	-71710	-71870	-153.9	2100	UV

HRLT Torpedo-M0 Voltage - 2	0	N/A	-73480	-73450	24.25	2100	UV
HRLT Torpedo-M0 Voltage - 3	0	N/A	-71740	-71840	-101.3	2100	UV
HRLT Torpedo-M0 Voltage - 4	0	N/A	-69460	-69460	-3.195	2100	UV
HRLT Torpedo-M0 Voltage - 5	0	N/A	-69920	-69930	-9.891	2100	UV
HRLT Torpedo-M0 Voltage - 6	0	N/A	68210	68290	79.16	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: 5-Apr-2024 10:10 After: 5-Apr-2024 13:35							
HRLT Bridle#9-M0 Voltage - 0	0	N/A	-68070	-68170	-94.05	2100	UV
HRLT Bridle#9-M0 Voltage - 1	0	N/A	-71810	-71960	-158.2	2100	UV
HRLT Bridle#9-M0 Voltage - 2	0	N/A	-73550	-73540	14.09	2100	UV
HRLT Bridle#9-M0 Voltage - 3	0	N/A	-71820	-71920	-104.2	2100	UV
HRLT Bridle#9-M0 Voltage - 4	0	N/A	-69500	-69520	-13.41	2100	UV
HRLT Bridle#9-M0 Voltage - 5	0	N/A	-69950	-69970	-14.84	2100	UV
HRLT Bridle#9-M0 Voltage - 6	0	N/A	68300	68380	81.63	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: 5-Apr-2024 10:10 After: 5-Apr-2024 13:35							
HRLT Source Current Plus - 0	0	N/A	284.0	284.4	0.3911	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: 5-Apr-2024 10:10 After: 5-Apr-2024 13:35							
HRLT Vertical Voltage PI - 0	0	N/A	-320.1	-320.2	-0.1078	9.681	UV
HRLT Vertical Voltage PI - 1	0	N/A	-326.0	-326.4	-0.3892	9.681	UV
HRLT Vertical Voltage PI - 2	0	N/A	-332.2	-331.8	0.4471	9.681	UV
HRLT Vertical Voltage PI - 3	0	N/A	-320.9	-321.0	-0.09595	9.681	UV
HRLT Vertical Voltage PI - 4	0	N/A	-309.0	-308.8	0.1925	9.681	UV
HRLT Vertical Voltage PI - 5	0	N/A	-325.7	-325.5	0.1932	9.681	UV
HRLT Vertical Voltage PI - 6	0	N/A	327.7	328.1	0.3128	9.681	UV
HRLT Vertical Voltage PI - 7	0	N/A	-322.7	-322.7	0	9.681	UV

Hostile Litho-Density Sonde Wellsite Calibration - Background Measurement

Master: 5-Feb-2024 14:31 Before: 5-Apr-2024 10:14 After: 5-Apr-2024 13:38							
SS Cs Resolution Bkg	9.000	7.740	7.807	7.805	-0.002032	1.800	%
LS Cs Resolution Bkg	9.000	8.164	8.078	8.001	-0.07769	1.800	%
LSW1 Background	100.0	67.09	66.20	66.91	0.7179	3.000	CPS
LSW2 Background	100.0	61.34	60.00	60.65	0.6535	3.000	CPS
LSW3 Background	200.0	139.1	137.1	137.9	0.7582	6.000	CPS
LSW4 Background	250.0	170.9	171.3	167.4	-3.834	7.500	CPS
LSW5 Background	600.0	398.8	397.1	397.6	0.5510	18.00	CPS
SSW1 Background	100.0	64.20	65.95	63.18	-2.773	3.000	CPS
SSW2 Background	200.0	111.7	112.4	111.6	-0.7398	6.000	CPS
SSW3 Background	500.0	309.0	310.4	312.1	1.662	15.00	CPS
SSW4 Background	270.0	168.1	166.4	166.5	0.1090	8.100	CPS
SSW5 Background	200.0	118.8	118.7	118.6	-0.1157	6.000	CPS

Hostile Litho-Density Sonde Wellsite Calibration - Aluminum Measurement

Master: 5-Feb-2024 15:19							
LSW1 Aluminum	600.0	404.4	N/A	N/A	N/A	N/A	CPS
LSW2 Aluminum	900.0	584.3	N/A	N/A	N/A	N/A	CPS
LSW3 Aluminum	1100	709.7	N/A	N/A	N/A	N/A	CPS
LSW4 Aluminum	580.0	358.1	N/A	N/A	N/A	N/A	CPS
LSW5 Aluminum	570.0	321.6	N/A	N/A	N/A	N/A	CPS
SSW1 Aluminum	2800	1939	N/A	N/A	N/A	N/A	CPS
SSW2 Aluminum	8000	5349	N/A	N/A	N/A	N/A	CPS
SSW3 Aluminum	11600	7472	N/A	N/A	N/A	N/A	CPS
SSW4 Aluminum	5000	2948	N/A	N/A	N/A	N/A	CPS
SSW5 Aluminum	660.0	328.7	N/A	N/A	N/A	N/A	CPS

Hostile Litho-Density Sonde Wellsite Calibration - Lithology Measurement














Master: 5-Feb-2024 15:12							
LSW1 Iron	400.0	282.3	N/A	N/A	N/A	N/A	CPS
LSW2 Iron	730.0	487.5	N/A	N/A	N/A	N/A	CPS
LSW3 Iron	1000	641.5	N/A	N/A	N/A	N/A	CPS
LSW4 Iron	520.0	332.1	N/A	N/A	N/A	N/A	CPS
LSW5 Iron	470.0	306.1	N/A	N/A	N/A	N/A	CPS
SSW1 Iron	2100	1464	N/A	N/A	N/A	N/A	CPS
SSW2 Iron	6800	4601	N/A	N/A	N/A	N/A	CPS
SSW3 Iron	10800	7020	N/A	N/A	N/A	N/A	CPS
SSW4 Iron	4600	2788	N/A	N/A	N/A	N/A	CPS
SSW5 Iron	580.0	307.0	N/A	N/A	N/A	N/A	CPS




Hostile Litho-Density Sonde Wellsite Calibration - Oxygen Calibration


































Hostile Litho-Density Sonde Wellsite Calibration – Detector Calibration								
Before: 5-Feb-2024 13:50								
HLDS Caliper Small Ring	12.00	N/A	16.56	N/A	N/A	N/A	N/A	IN
HLDS Caliper Large Ring	15.19	N/A	19.92	N/A	N/A	N/A	N/A	IN
Hostile Natural Gamma Ray Sonde Wellsite Calibration – Detector 1 Check								
Master: Calibration out of date 20-Apr-2023 3:22 Before: 5-Apr-2024 10:15 After: 5-Apr-2024 13:39								
Na 511 Peak Loc	40.00	38.56	38.50	38.60	0.09869	1.000		
Na 511 Peak Res	15.50	16.82	16.63	15.26	-1.362	2.000	%	
High Voltage	1150	1206	1198	1200	1.924	N/A	V	
Na 1785 Peak Loc	142.6	139.2	139.6	139.4	-0.1905	7.000		
Na 1785 Peak Res	8.500	9.087	8.114	8.899	0.7849	2.000	%	
Temperature	15.50	26.64	23.52	23.45	-0.07479	N/A	DEGC	
Na Count Rate	45.00	47.40	36.40	36.66	0.2671	8.000	CPS	
Hostile Natural Gamma Ray Sonde Wellsite Calibration – Detector 2 Check								
Master: Calibration out of date 20-Apr-2023 3:22 Before: 5-Apr-2024 10:15 After: 5-Apr-2024 13:39								
Na 511 Peak Loc	40.00	39.72	39.64	39.59	-0.04799	1.000		
Na 511 Peak Res	15.50	15.41	15.33	16.37	1.046	2.000	%	
High Voltage	1150	1089	1085	1087	2.045	N/A	V	
Na 1785 Peak Loc	142.6	142.9	141.9	142.7	0.8125	7.000		
Na 1785 Peak Res	8.500	8.753	9.256	8.505	-0.7506	2.000	%	
Temperature	15.50	25.53	22.93	23.54	0.6178	N/A	DEGC	
Na Count Rate	45.00	47.70	36.54	36.84	0.2976	8.000	CPS	
Hostile Natural Gamma Ray Sonde Wellsite Calibration – Ratio Of Detector 1 To Detector 2								
Master: Calibration out of date 20-Apr-2023 3:22 Before: 5-Apr-2024 10:15 After: 5-Apr-2024 13:39								
Coincidence Count Rate Ratio	1.000	0.9913	0.9923	0.9914	-0.0009898	0.05000		
Enhanced DTS Cartridge Wellsite Calibration – EDTC Accelerometer Calibration								
Before: 5-Apr-2024 10:09								
EDTC Z-Axis Acceleration	9.810	N/A	9.784	N/A	N/A	N/A	M/S2	
Enhanced DTS Cartridge Wellsite Calibration – Detector Calibration								
Before: 5-Apr-2024 10:11 After: 5-Apr-2024 13:35								
Gamma Ray (Jig – Bkg)	163.2	N/A	163.2	167.5	4.259	14.84	GAPI	
Gamma Ray (Calibrated)	165.0	N/A	165.0	169.3	4.304	15.00	GAPI	


High Resolution Laterolog Array – B / Equipment Identification		
Primary Equipment:		
HRLT Sonde	HRLS – B	768
Auxiliary Equipment:		
HRLT lower Housing	HRLH – B	1869
HRLT Lower Cartridge	HRLC – B	1897
HRLT upper Housing	HRUH – B	975
HRLT Upper Cartridge	HRUC – B	964

















High Resolution Laterolog Array – B Wellsite Calibration							
HRLT M01							
Idx	Phase	HRLT M0-M1 Voltage Plus UV	Value	Nominal	Maximum	Minimum	
0	Before		-318.5	-322.7	-280.7	-379.7	
	After		-317.1				
1	Before		-332.2	-322.7	-280.7	-379.7	
	After		-332.2				
2	Before		-339.5	-322.7	-280.7	-379.7	
	After		-338.4				
3	Before		-329.4	-322.7	-280.7	-379.7	
	After		-328.5				
4	Before		-319.9	-322.7	-280.7	-379.7	
	After		-318.2				
5	Before		-321.5	-322.7	-280.7	-379.7	
	After		-319.7				
6	Before		321.5	322.7	379.7	280.7	
















6	After		321.4	322.7	319.1	333.9
7	Before		-322.7	-322.7	-280.7	-379.7
	After		-322.7			
(Minimum)			(Nominal)	(Maximum)		
Before: 5-Apr-2024 10:10						
After: 5-Apr-2024 13:35						

High Resolution Laterolog Array – B Wellsite Calibration						
HRLT M12						
Idx	Phase	HRLT M1–M2 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		1739	1781	2095	1549
	After		1741			
1	Before		1816	1781	2095	1549
	After		1819			
2	Before		1850	1781	2095	1549
	After		1850			
3	Before		1795	1781	2095	1549
	After		1798			
4	Before		1745	1781	2095	1549
	After		1745			
5	Before		1755	1781	2095	1549
	After		1755			
6	Before		–1764	–1781	–1549	–2095
	After		–1766			
7	Before		1781	1781	2095	1549
	After		1781			
	(Minimum) (Nominal) (Maximum)					
Before: 5–Apr–2024 10:10						
After: 5–Apr–2024 13:35						

High Resolution Laterolog Array – B Wellsite Calibration						
HRLT M23						
Idx	Phase	HRLT M2–M3 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		1731	1781	2095	1549
	After		1732			
1	Before		1819	1781	2095	1549
	After		1822			
2	Before		1855	1781	2095	1549
	After		1854			
3	Before		1804	1781	2095	1549
	After		1805			
4	Before		1747	1781	2095	1549
	After		1746			
5	Before		1759	1781	2095	1549
	After		1758			
6	Before		-1756	-1781	-1549	-2095
	After		-1757			
7	Before		1781	1781	2095	1549

	After		1781	1781	2030	1349
		(Minimum) (Nominal) (Maximum)				
Before: 5-Apr-2024 10:10						
After: 5-Apr-2024 13:35						

High Resolution Laterolog Array – B Wellsite Calibration						
HRLT V34						
Idx	Phase	HRLT A3–A4 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		68580	70000	82360	60900
	After		68670			
1	Before		71860	70000	82360	60900
	After		72010			
2	Before		73600	70000	82360	60900
	After		73590			
3	Before		71830	70000	82360	60900
	After		71950			
4	Before		69530	70000	82360	60900
	After		69540			
5	Before		70000	70000	82360	60900
	After		70010			
6	Before		–68400	–70000	–60900	–82360
	After		–68480			
7	Before		70000	70000	82360	60900
	After		70000			
		(Minimum) (Nominal) (Maximum)				
Before: 5-Apr-2024 10:10						
After: 5-Apr-2024 13:35						

















High Resolution Laterolog Array – B Wellsite Calibration						
HRLT V45						
Idx	Phase	HRLT A4–A5 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		68650	70000	82360	60900
	After		68760			
1	Before		72070	70000	82360	60900
	After		72210			
2	Before		73780	70000	82360	60900
	After		73780			
3	Before		71960	70000	82360	60900
	After		72080			
4	Before		69640	70000	82360	60900
	After		69640			
5	Before		70090	70000	82360	60900
	After		70110			
6	Before		–68610	–70000	–60900	–82360
	After		–68690			
7	Before		70000	70000	82360	60900
	After		70000			
		(Minimum) (Nominal) (Maximum)				

After: 5-Apr-2024 13:35

After: 5-Apr-2024 13:35

After: 5-Apr-2024 13:35

















## High Resolution Laterolog Array – B Wellsite Calibration

HRLT VBD							
Idx	Phase	HRLT Bridge#9–M0 Voltage Plus UV	Value	Nominal	Maximum	Minimum	
0	Before		-68070	-70000	-60900	-82360	
	After		-68170				
1	Before		-71810	-70000	-60900	-82360	
	After		-71960				
2	Before		-73550	-70000	-60900	-82360	
	After		-73540				
3	Before		-71820	-70000	-60900	-82360	
	After		-71920				
4	Before		-69500	-70000	-60900	-82360	
	After		-69520				
5	Before		-69950	-70000	-60900	-82360	
	After		-69970				
6	Before		68300	70000	82360	60900	
	After		68380				
7	Before		-70000	-70000	-60900	-82360	
	After		-70000				
(Minimum) (Nominal) (Maximum)							

Before: 5–Apr–2024 10:10

After: 5–Apr–2024 13:35

## High Resolution Laterolog Array – B Wellsite Calibration

















HRLT ISO							
Idx	Phase	HRLT Source Current Plus UA	Value	Nominal	Maximum	Minimum	
0	Before		284.0	284.0	334.1	247.0	
	After		284.4				
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: 5–Apr–2024 10:10

After: 5–Apr–2024 13:35

## High Resolution Laterolog Array – B Wellsite Calibration

HRLT MV							
Idx	Phase	HRLT Vertical Voltage Plus UV	Value	Nominal	Maximum	Minimum	

0	Before		-320.1	-322.7	-280.7	-379.7
	After		-320.2			
1	Before		-326.0	-322.7	-280.7	-379.7
	After		-326.4			
2	Before		-332.2	-322.7	-280.7	-379.7
	After		-331.8			
3	Before		-320.9	-322.7	-280.7	-379.7
	After		-321.0			
4	Before		-309.0	-322.7	-280.7	-379.7
	After		-308.8			
5	Before		-325.7	-322.7	-280.7	-379.7
	After		-325.5			
6	Before		327.7	322.7	379.7	280.7
	After		328.1			
7	Before		-322.7	-322.7	-280.7	-379.7
	After		-322.7			
(Minimum) (Nominal) (Maximum)						
Before: 5-Apr-2024 10:10						
After: 5-Apr-2024 13:35						

### Hostile Litho-Density Sonde / Equipment Identification

#### Primary Equipment:

Gamma Source Radioactive

Hostile Litho Density Sonde

Hostile Litho Density High Voltage

GSR – ZA 2945

HLDS – D 77

HLDV – D 67

#### Auxiliary Equipment:

Hostile Litho Density High Voltage Housi



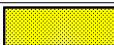



























Hostile Litho Density Pad

HEH – H 67

HLDP – C 83

### Hostile Litho-Density Sonde Wellsite Calibration

#### Background Measurement

Phase	SS Cs Resolution Bkg %	Value	Phase	LS Cs Resolution Bkg %	Value	Phase	LSW1 Background CPS	Value
Master		7.740	Master		8.164	Master		67.09
Before		7.807	Before		8.078	Before		66.20
After		7.805	After		8.001	After		66.91
7.000 (Minimum) 9.000 (Nominal) 11.00 (Maximum)			7.000 (Minimum) 9.000 (Nominal) 11.00 (Maximum)			55.00 (Minimum) 100.0 (Nominal) 150.0 (Maximum)		
Phase	LSW2 Background CPS	Value	Phase	LSW3 Background CPS	Value	Phase	LSW4 Background CPS	Value
Master		61.34	Master		139.1	Master		170.9
Before		60.00	Before		137.1	Before		171.3
After		60.65	After		137.9	After		167.4
50.00 (Minimum) 100.0 (Nominal) 140.0 (Maximum)			110.0 (Minimum) 200.0 (Nominal) 290.0 (Maximum)			140.0 (Minimum) 250.0 (Nominal) 360.0 (Maximum)		
Phase	LSW5 Background CPS	Value	Phase	SSW1 Background CPS	Value	Phase	SSW2 Background CPS	Value
Master		398.8	Master		64.20	Master		111.7
Before		397.1	Before		65.95	Before		112.4
After		397.6	After		63.18	After		111.6
330.0 (Minimum) 600.0 (Nominal) 830.0 (Maximum)			55.00 (Minimum) 100.0 (Nominal) 150.0 (Maximum)			100.0 (Minimum) 200.0 (Nominal) 260.0 (Maximum)		
Phase	SSW3 Background CPS	Value	Phase	SSW4 Background CPS	Value	Phase	SSW5 Background CPS	Value
Master		309.0	Master		168.1	Master		118.8

Before	<div></div>		310.4	Before	<div></div>		166.4	Before	<div></div>		118.7
After	<div></div>		312.1	After	<div></div>		166.5	After	<div></div>		118.6
280.0 (Minimum)			500.0 (Nominal)	150.0 (Minimum)			270.0 (Nominal)	110.0 (Minimum)			270.0 (Maximum)
Master: 5-Feb-2024 14:31				Before: 5-Apr-2024 10:14				After: 5-Apr-2024 13:38			

### Litho-Density Spectroscopy Cartridge – B / Equipment Identification

Primary Equipment:  
LDSC Cartridge

LDSC – B                      326

Auxiliary Equipment:  
LDSC Housing

LDSH – A                      303

### Hostile Natural Gamma Ray Cartridge – B / Equipment Identification

Primary Equipment:  
HNGC Cartridge

HNGC – B                      300

Auxiliary Equipment:  
HNGC Housing

HNGH – A                      115

### Hostile Natural Gamma Ray Sonde / Equipment Identification

Primary Equipment:  
HNGS Sonde

HNGS – BA                      177




Auxiliary Equipment:  
HNGS Sonde Housing  
Gamma Source Radioactive

HNSH – BA                      174  
GSR – U                          135


Hostile Natural Gamma Ray Sonde Wellsite Calibration											
Detector 1 Check											
Phase	Na 511 Peak Loc		Value	Phase	Na 511 Peak Res %		Value	Phase	High Voltage V		Value
Master	<div><div></div></div>		38.56	Master	<div><div></div></div>		16.82	Master	<div><div></div></div>		1206
Before	<div><div></div></div>		38.50	Before	<div><div></div></div>		16.63	Before	<div><div></div></div>		1198
After	<div><div></div></div>		38.60	After	<div><div></div></div>		15.26	After	<div><div></div></div>		1200
37.50 (Minimum)			40.00 (Nominal)	43.50 (Maximum)			12.00 (Minimum)	15.50 (Nominal)	19.00 (Maximum)		
Phase <th colspan="2">Na 1785 Peak Loc</th> <th>Value</th> <th>Phase</th> <th colspan="2">Na 1785 Peak Res %</th> <th>Value</th> <th>Phase</th> <th colspan="2">Temperature DEGC</th> <th>Value</th>	Na 1785 Peak Loc		Value	Phase	Na 1785 Peak Res %		Value	Phase	Temperature DEGC		Value
Master	<div><div></div></div>		139.2	Master	<div><div></div></div>		9.087	Master	<div><div></div></div>		26.64
Before	<div><div></div></div>		139.6	Before	<div><div></div></div>		8.114	Before	<div><div></div></div>		23.52
After	<div><div></div></div>		139.4	After	<div><div></div></div>		8.899	After	<div><div></div></div>		23.45
135.0 (Minimum)			142.6 (Nominal)	150.3 (Maximum)			7.000 (Minimum)	8.500 (Nominal)	11.00 (Maximum)		
Phase <th colspan="2">Na Count Rate CPS</th> <th>Value</th> <td colspan="8" rowspan="5"></td>	Na Count Rate CPS		Value								
Master	<div><div></div><div>MASTER-BEFORE LIMIT</div></div>		47.40								
Before	<div><div></div></div>		36.40								
After	<div><div></div></div>		36.66								
10.00 (Minimum)			45.00 (Nominal)								
Master: Calibration out of date    20-Apr-2023   3:22                      Before: 5-Apr-2024 10:15                      After: 5-Apr-2024 13:39											

Hostile Natural Gamma Ray Sonde Wellsite Calibration											
Detector 2 Check											
Phase	Na 511 Peak Loc		Value	Phase	Na 511 Peak Res %		Value	Phase	High Voltage V		Value
Master	<div><div></div></div>		39.72	Master	<div><div></div></div>		15.41	Master	<div><div></div></div>		1089
Before	<div><div></div></div>		39.64	Before	<div><div></div></div>		15.33	Before	<div><div></div></div>		1085
After	<div><div></div></div>		39.60	After	<div><div></div></div>		15.25	After	<div><div></div></div>		1085
37.50 (Minimum) 40.00 (Nominal) 12.00 (Minimum) 15.50 (Nominal) 900.0 (Minimum) 1600 (Maximum)											

After		39.59	After		16.37	After		1087			
	37.50 (Minimum)	40.00 (Nominal)	43.50 (Maximum)		12.00 (Minimum)	15.50 (Nominal)	19.00 (Maximum)		900.0 (Minimum)	1150 (Nominal)	1600 (Maximum)
Phase	Na 1785 Peak Loc		Value	Phase	Na 1785 Peak Res %		Value	Phase	Temperature DEGC		Value
Master			142.9	Master			8.753	Master			25.53
Before			141.9	Before			9.256	Before			22.93
After			142.7	After			8.505	After			23.54
	135.0 (Minimum)	142.6 (Nominal)	150.3 (Maximum)		7.000 (Minimum)	8.500 (Nominal)	11.00 (Maximum)		-28.89 (Minimum)	15.50 (Nominal)	60.00 (Maximum)
Phase	Na Count Rate CPS		Value								
Master			47.70								
Before			36.54								
After			36.84								
	10.00 (Minimum)	45.00 (Nominal)	100.0 (Maximum)								
Master: Calibration out of date 20-Apr-2023 3:22 Before: 5-Apr-2024 10:15 After: 5-Apr-2024 13:39											

Hostile Natural Gamma Ray Sonde Wellsite Calibration			
Ratio Of Detector 1 To Detector 2			
Phase	Coincidence Count Rate Ratio	Value	
Master		0.9913	
Before		0.9923	
After		0.9914	
	0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)
Master: Calibration out of date 20-Apr-2023 3:22			
Before: 5-Apr-2024 10:15			
After: 5-Apr-2024 13:39			

Enhanced DTS Cartridge / Equipment Identification		
Primary Equipment:		
EDTC Gamma Ray Detector	EDTG – A/B	77693
Enhanced DTS Cartridge	EDTC – B	8529
Auxiliary Equipment:		
EDTC Housing	EDTH – B	8528

Enhanced DTS Cartridge Wellsite Calibration			
EDTC Accelerometer Calibration			
Phase	EDTC Z-Axis Acceleration M/S2	Value	
Before		9.784	
	9.610 (Minimum)	9.810 (Nominal)	10.01 (Maximum)
Before: 5-Apr-2024 10:09			

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			1.429	Before			163.2	Before			165.0					
After			0.8827	After			167.5	After			169.3					
0 (Minimum)			30.00 (Nominal)	120.0 (Maximum)			148.4 (Minimum)			163.2 (Nominal)	178.1 (Maximum)	150.0 (Minimum)			165.0 (Nominal)	180.0 (Maximum)
Before: 5–Apr–2024 10:11							After: 5–Apr–2024 13:35									



Company:

Expedition 402, Site U1616E (Lower)

Field:

JOIDES Resolution

Rig:

Italy

Country:

Schlumberger

High Resolution Laterolog (HRLA) / HLDS

Magnetic Susceptibility (MSS)

Natural Gamma / MSS (HNGS)