Schlumberger

Company: **International Ocean Discovery Program**

Well: **Expedition 374, Site U1521A**
Field: **Ross Sea W. Antarctic Ice Sheet History**
Rig: **JOIDES Resolution** Ocean: **Southern**

Rig: JOIDES Resolution
Field: Ross Sea W. Antarctic Ice Sheet
Location: Latitude: S 75.6839*
Well: Expedition 374, Site U1521A
Company: International Ocean Discovery Pr

High Resolution Laterolog Array (HRLA)
Hostile Litho Density Sonde (HLDS)
Accelerator Porosity Sonde (APS), GR

LOCATION

Latitude: S 75.6839*
Longitude: W 179.67179*

Elev.: K.B. 0.00 m
G.L. −573.00 m
D.F. 0.00 m

Permanent Datum: Sea Floor
Log Measured From: Rig Floor
Drilling Measured From: Rig Floor

Elev.: −573.00 m
573.00 m above Perm. Datum

API Serial No.	Max. Hole Devi. 8.9 deg	Longitude W 179.67179	Latitude S 75.6839

	Run 1	Run 2	R
Logging Date	20−Jan−2018		
Run Number	1		
Depth Driller	1223 m		
Schlumberger Depth	1223 m		
Bottom Log Interval	1223 m		
Top Log Interval	572 m		
Casing Driller Size @ Depth	5.500 in @ 632 m	@	
Casing Schlumberger	615 m		
Bit Size	9.875 in		
Type Fluid In Hole	Sepiolite		
MUD Density / Viscosity	1.26 g/cm3		
MUD Fluid Loss / PH		8.07	
MUD Source Of Sample	N/A		
RM @ Measured Temperature	@ 23 degC	@	
RMF @ Measured Temperature	@	@	
RMC @ Measured Temperature	@	@	
Source RMF / RMC	N/a	N/A	
RM @ MRT / RMF @ MRT	@ 19	@ 19	@ @
Maximum Recorded Temperatures	19 degC		
Circulation Stopped / Time	20−Jan−2018	20:00	
Logger On Bottom / Time	20−Jan−2018	3:09	
Unit Number / Location	627314	Larose, LA	
Recorded By	K. Swain		
Witnessed By	J. Gales, B. Romans, L. De Santis		

	Run 1	Run 2	R
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			

@	@ @ @	@	Run 3
@			Run 4

DISCLAIMER

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.

OTHER SERVICES1	OTHER SERVICES2
OS1: FMS/DSI	OS1:
OS2: VSI	OS2:
OS3:	OS3:
OS4:	OS4:
OS5:	OS5:

REMARKS: RUN NUMBER 1	REMARKS: RUN NUMBER 2
Hole drilled with RCB bottom hole assembly (BHA) at 9−7/8" BS	
Bit dropped using Mechanical Bit Release (MBR) prior to logging.	
Drilled TD was 1223mbrf.	
Drill pipe set at 632mbrf.	
Fluid type was Sepeolite mud weighted with Barite to a density of ppg (g/cc)	
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 inside pipe.	
Hole size corrections made using caliper measurements for upward passes.	
APS run with inline eccentralizer. APS disabled for downlog or inside pipe	
AHC used from TD then switched off to facilitate pipe entry.	
10.5 lb/gal mud pumped in hole prior to logging.	

RUN 1		RUN 2	
SERVICE ORDER #:		SERVICE ORDER #:	
PROGRAM VERSION:	19C0−187	PROGRAM VERSION:	
FLUID LEVEL:		FLUID LEVEL:	

LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP

EQUIPMENT DESCRIPTION

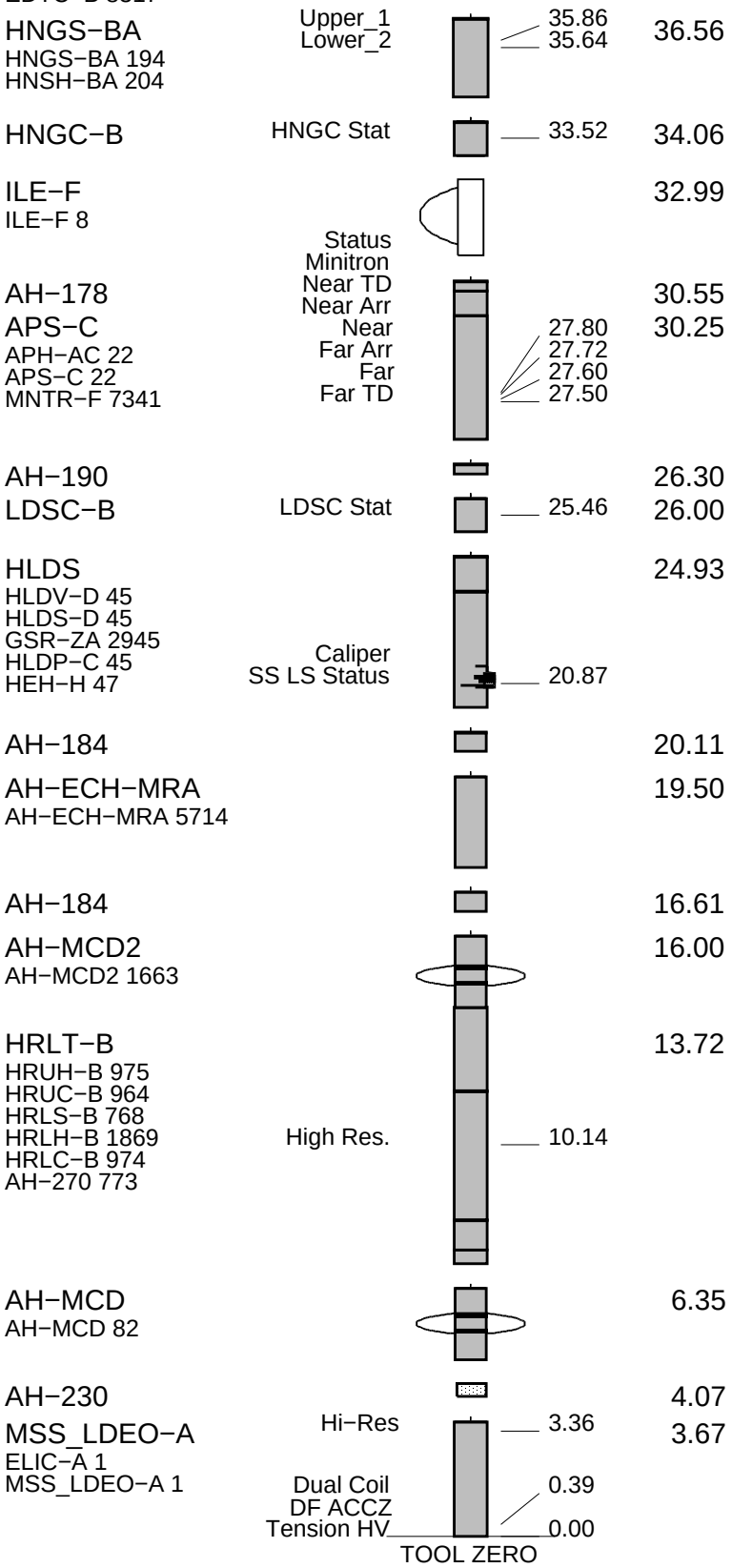
RUN 1 | RUN 2

SURFACE EQUIPMENT

SFT−281 1
SFT−178 1
GSR−U 6098
WITM (EDTS)−A 1

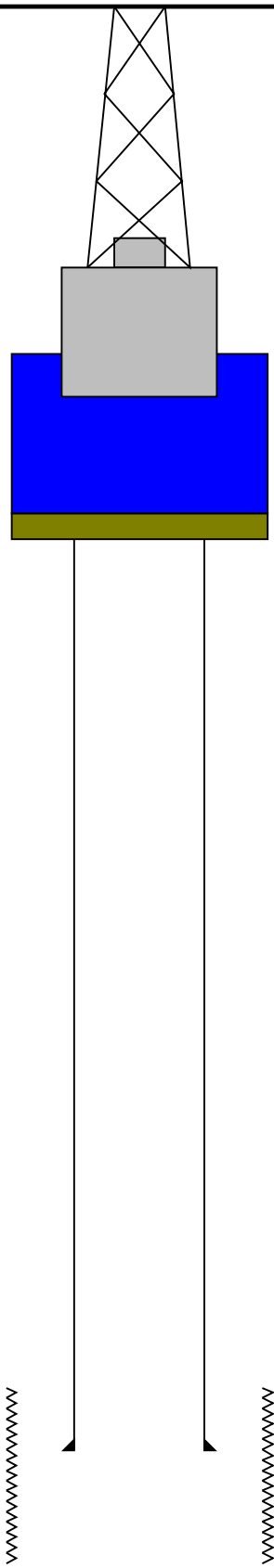
DOWNHOLE EQUIPMENT

LEH−QT	MDSB_EDTC		39.86
	Mud Tempe	38.54	
AH−369	CTEM	37.47	38.97
	Gamma Ray	36.90	
EDTC−B	EFTB DIAG		38.54
EDTH−B 8303	TelStatus		
EDTC−B 8317	EDTCB Ele	36.56	



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

Production String	(in) OD	(in) ID	(M) MD	Well Schematic	(M) MD	(in) OD	(in) ID	Casing String

	OD	ID	MD		MD	OD	ID	
Kelly Bushing Elevation			0					
Derrick Floor Elevation			0					
Mean Sea Level			11					
						4.1		
					573	4.1		Sea Floor
					632.1	9.875		Open Hole
					1223.1			Total Depth

Input DLIS Files

DEFAULT	Flip_MSS_LDEO_HRLA_035LUP	PRODUCER	22−Jan−2018 15:52	1222.7 M	530.4 M

Output DLIS Files

DEFAULT	MSS_LDEO_HRLA_LDL_036PUP	FN:61	PRODUCER	22−Jan−2018 15:55	1222.7 M	535.1 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) 100

Area1
From HCGR to HSGR

HNGS Borehole Potassium (HBHK)

−0.05 (−−−−) 0.05

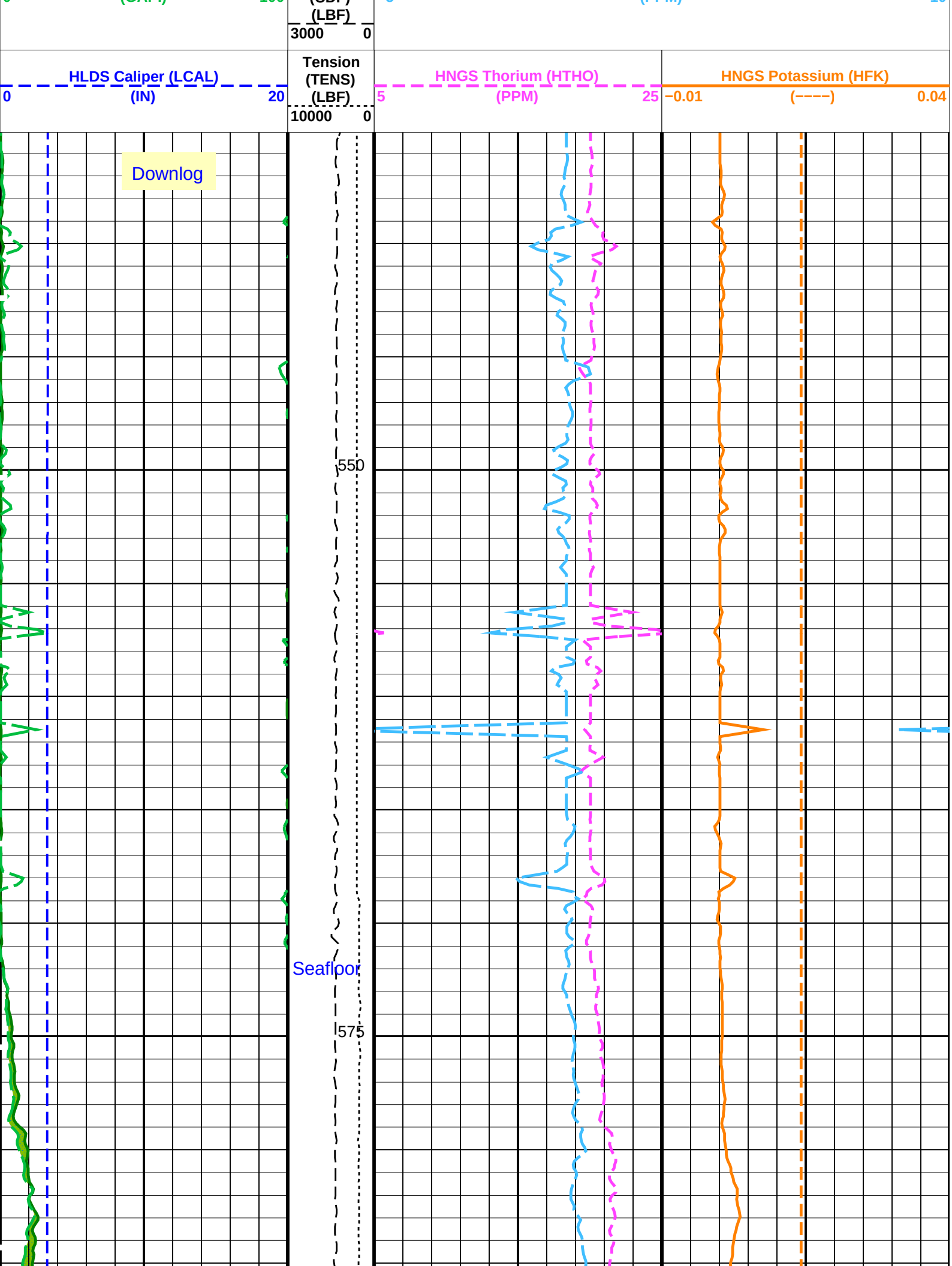
HNGS Computed Gamma Ray (HCGR)

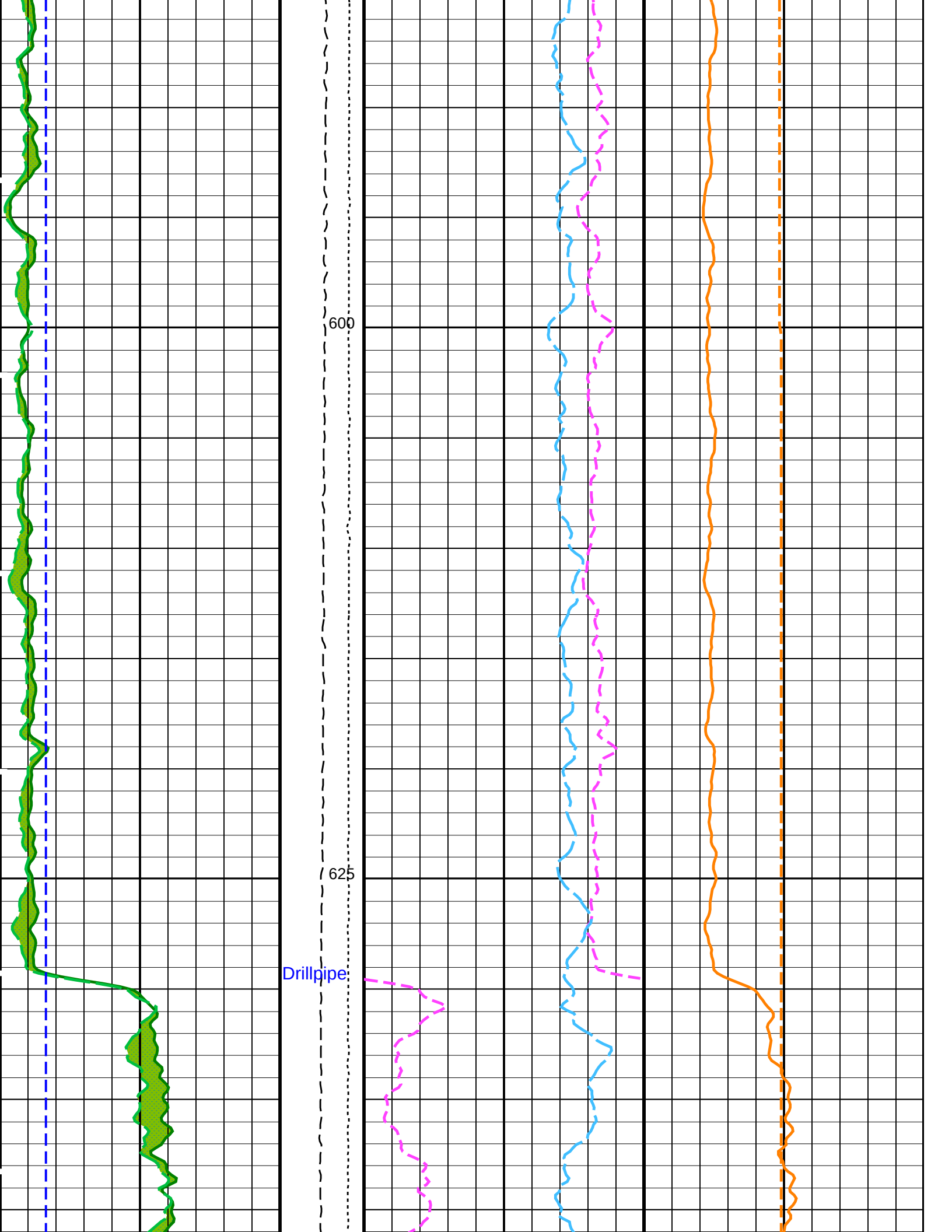
0 (GAPI) 100

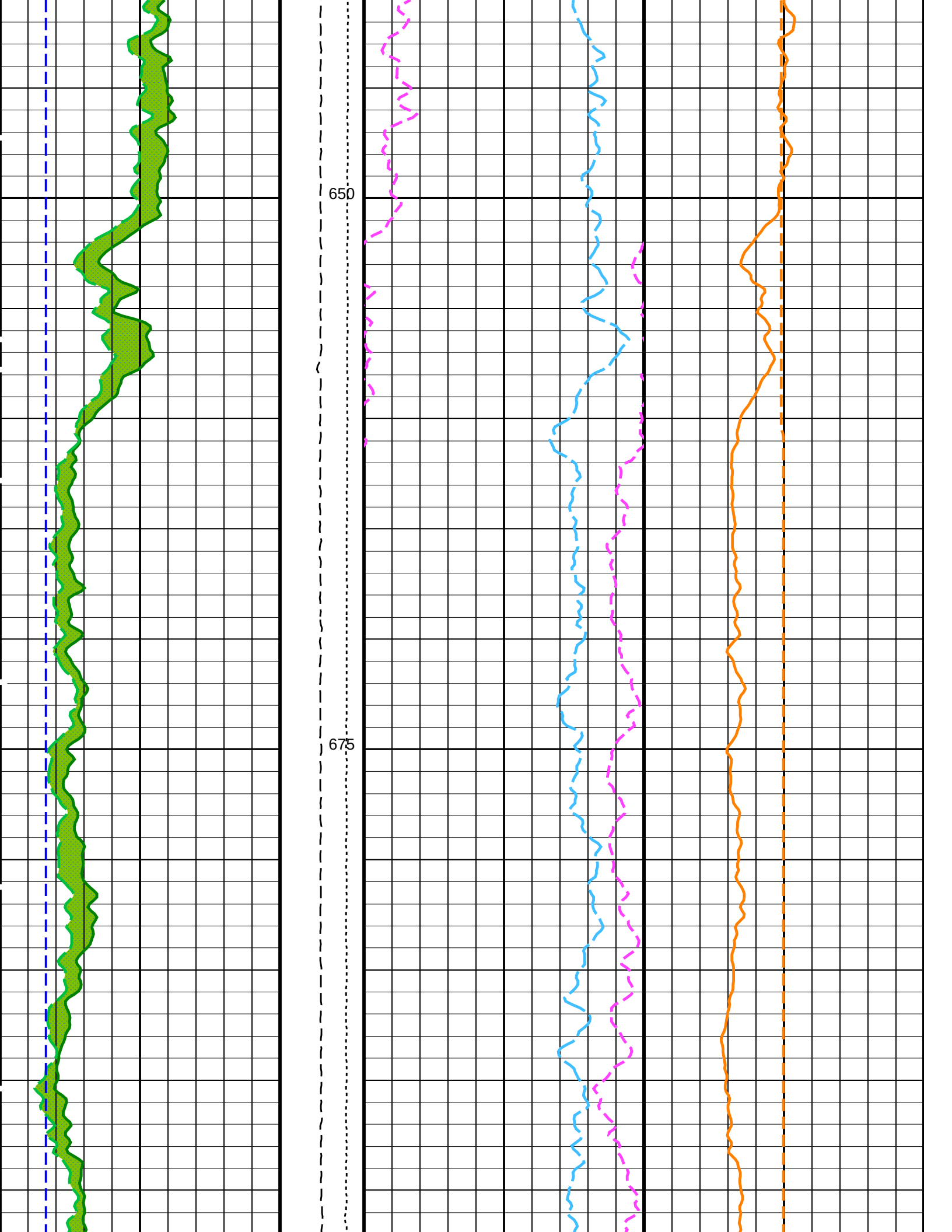
Calibrated Downhole Force (CDF)

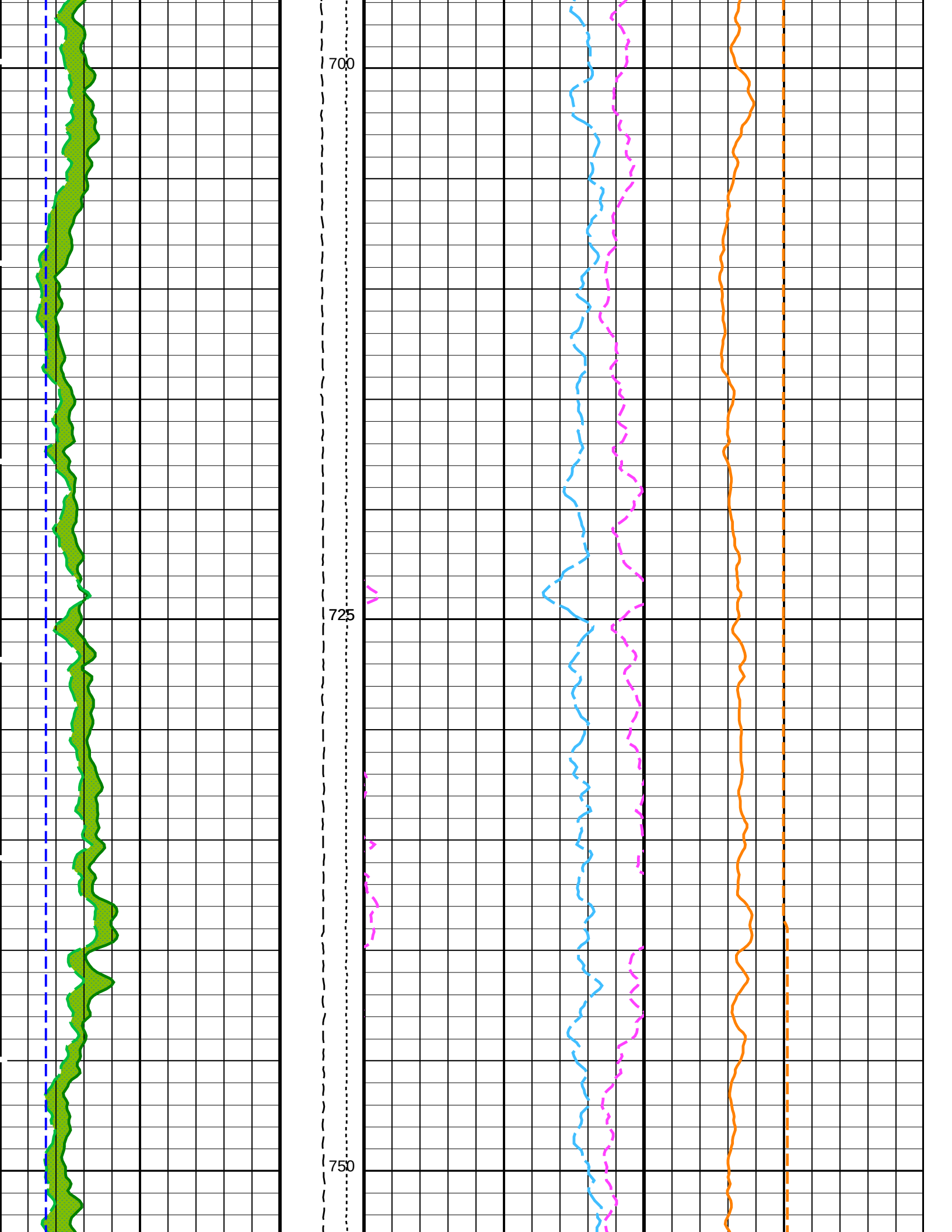
HNGS Uranium (HURA)

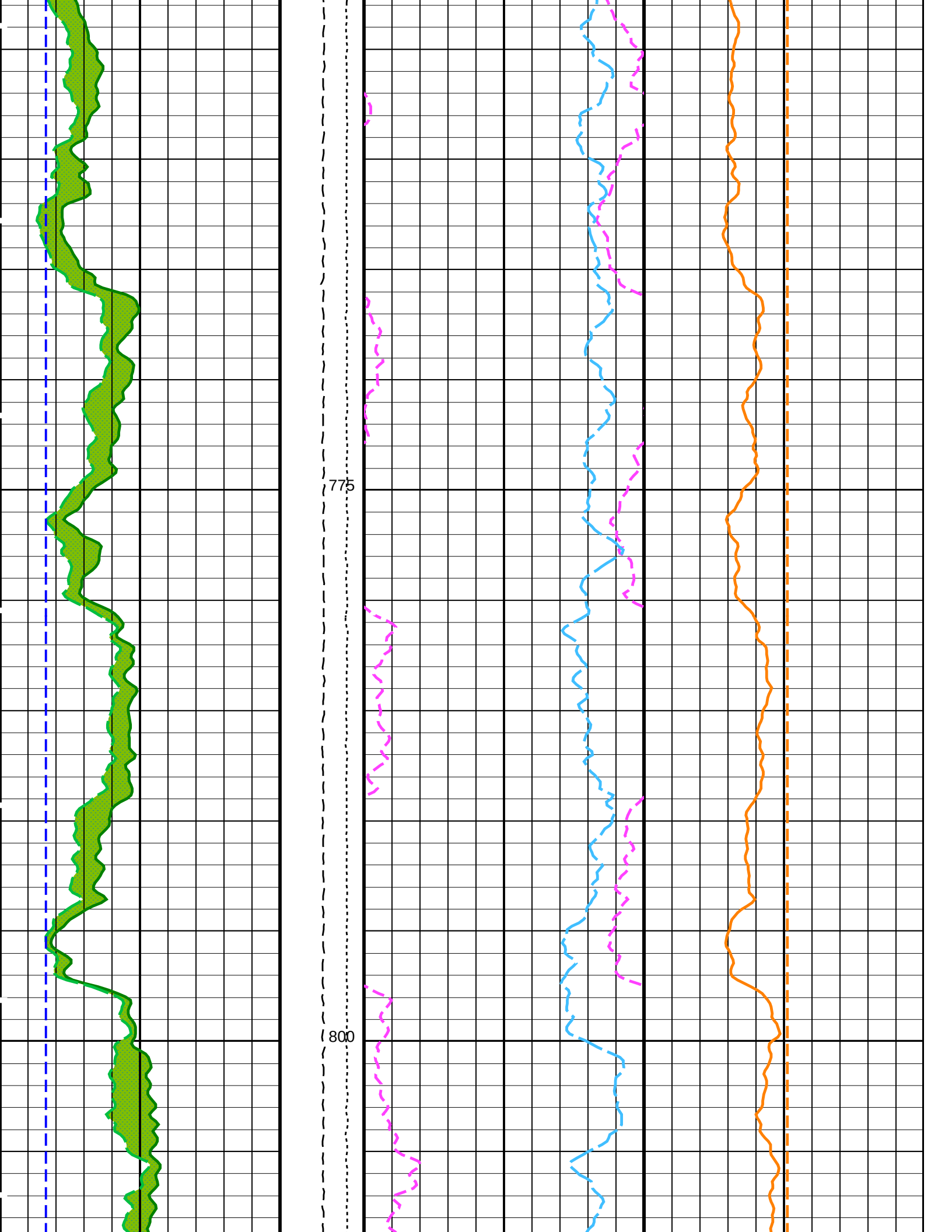
−5 (PPM) 10

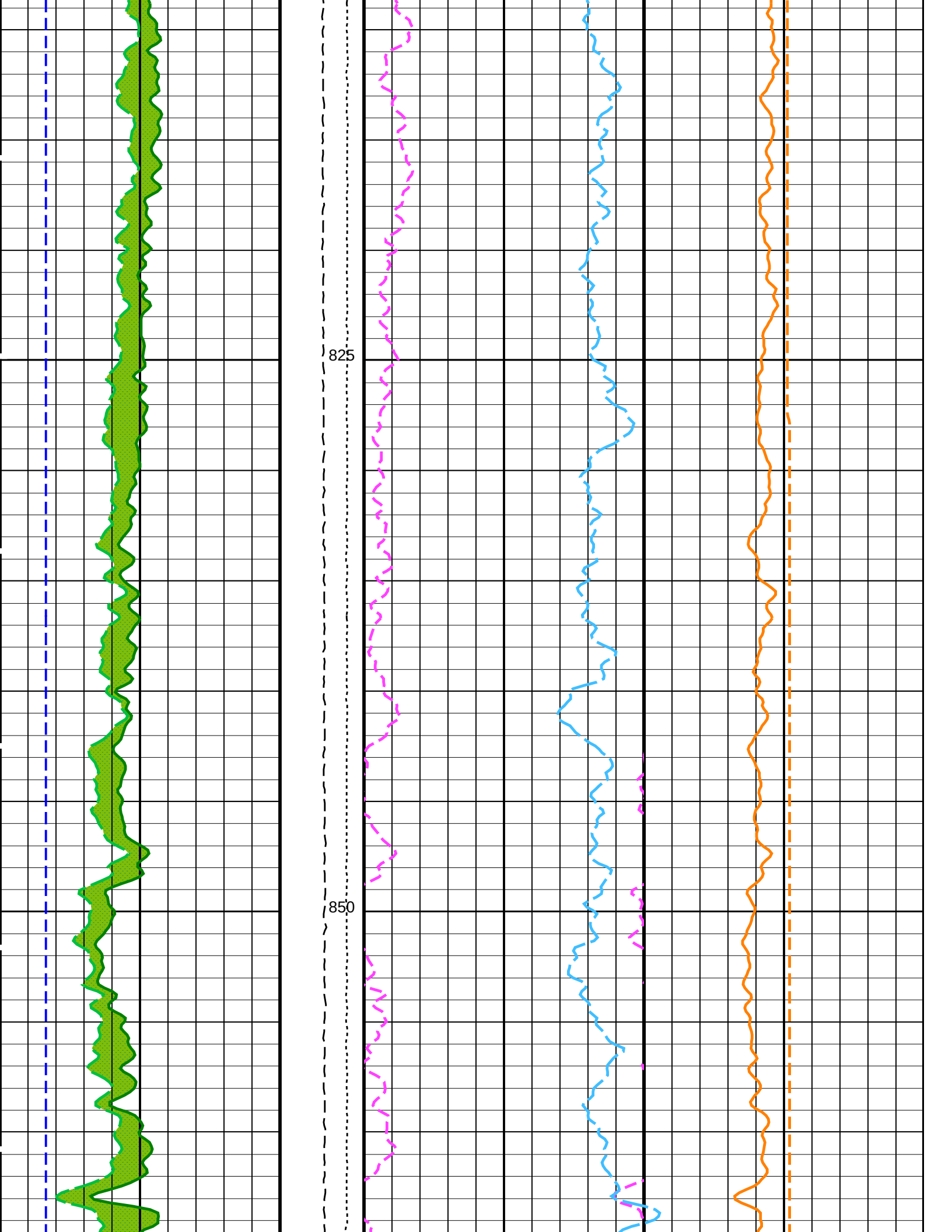

(LBF)
3000
0
HLDS Caliper (LCAL)
0
(IN)
20
Tension
(TENS)
(LBF)
10000
0
HNGS Thorium (HTHO)
5
(PPM)
25
HNGS Potassium (HFK)
−0.01
(−−−−)
0.04
Downlog
550
Seafloor
575

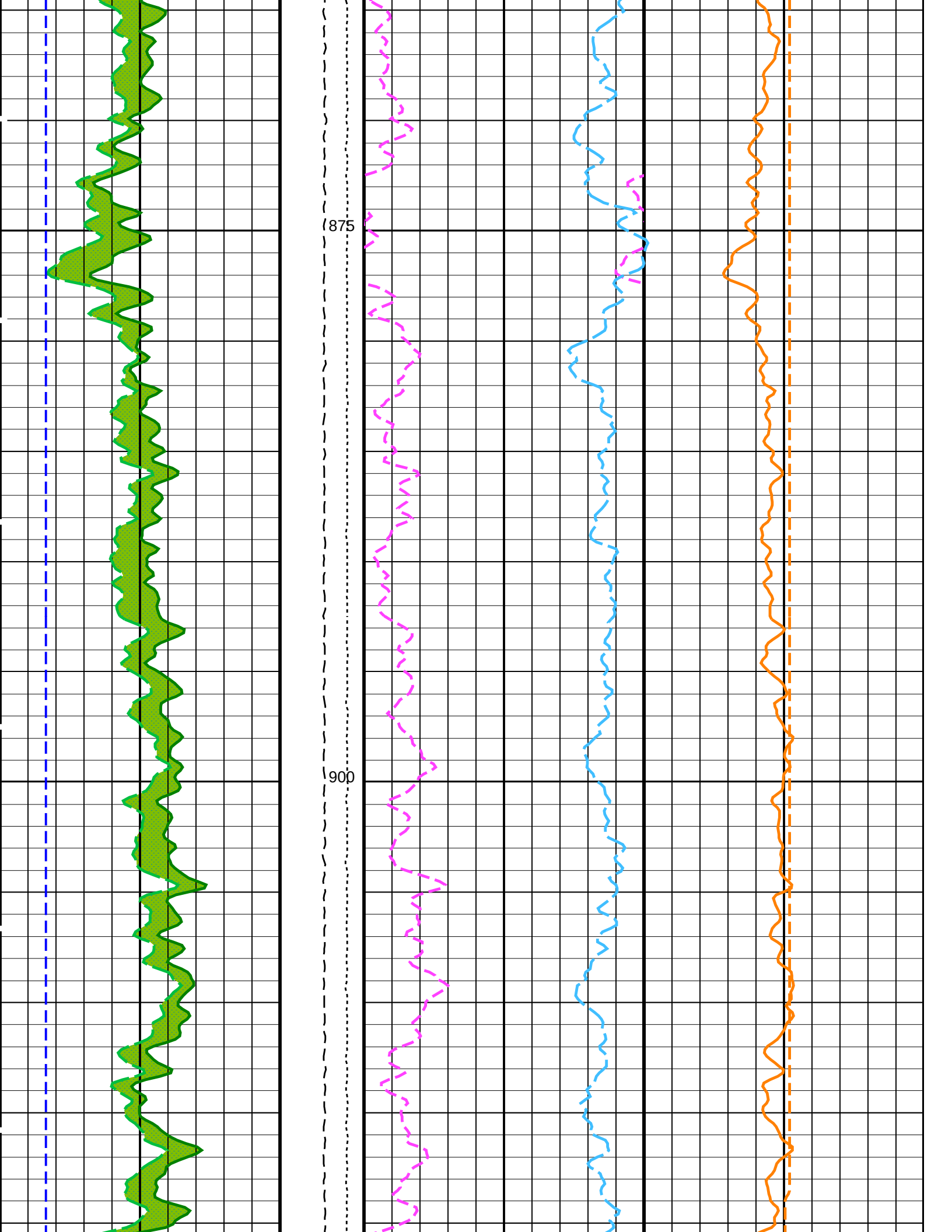

600
625
Drillpipe

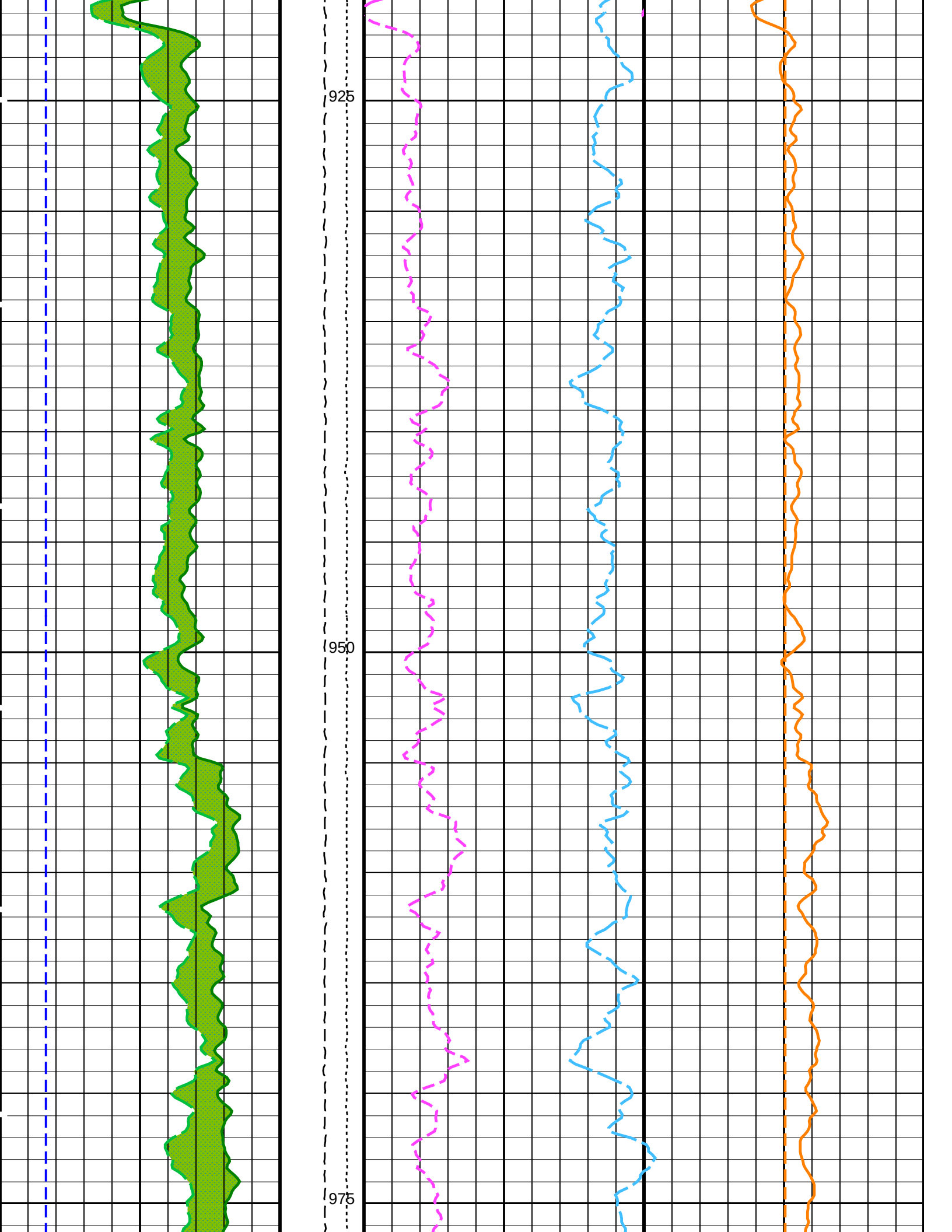

650
675

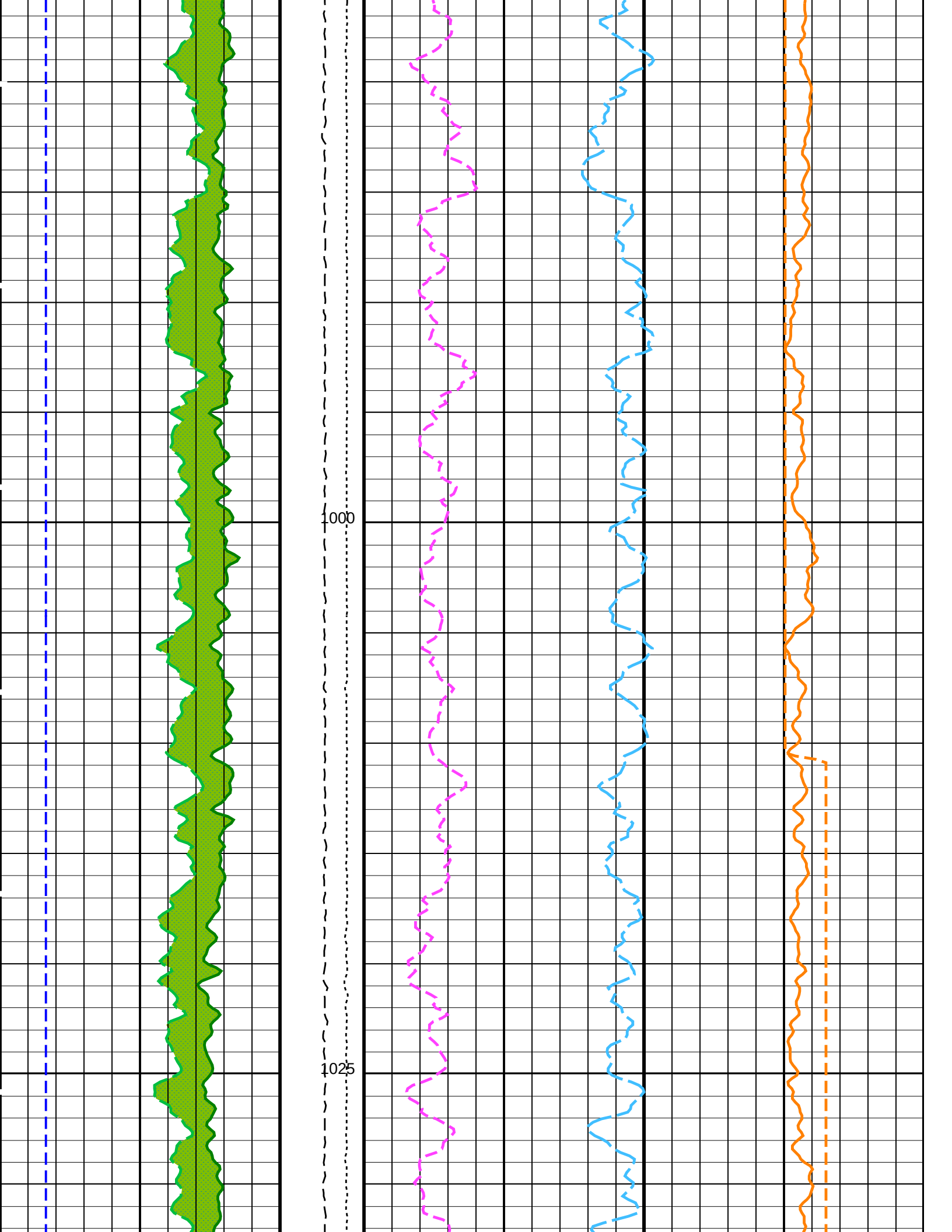

700
725
750

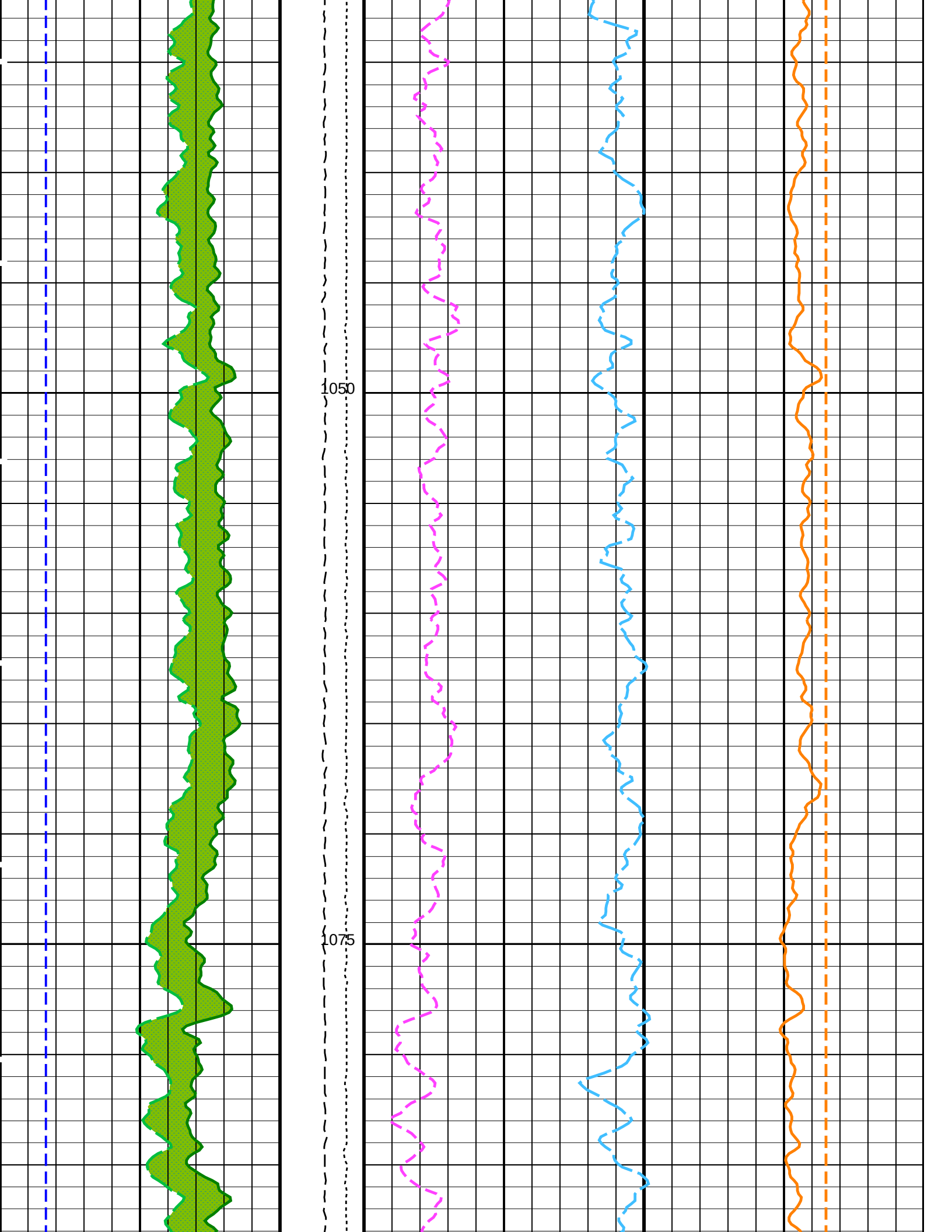

775
800

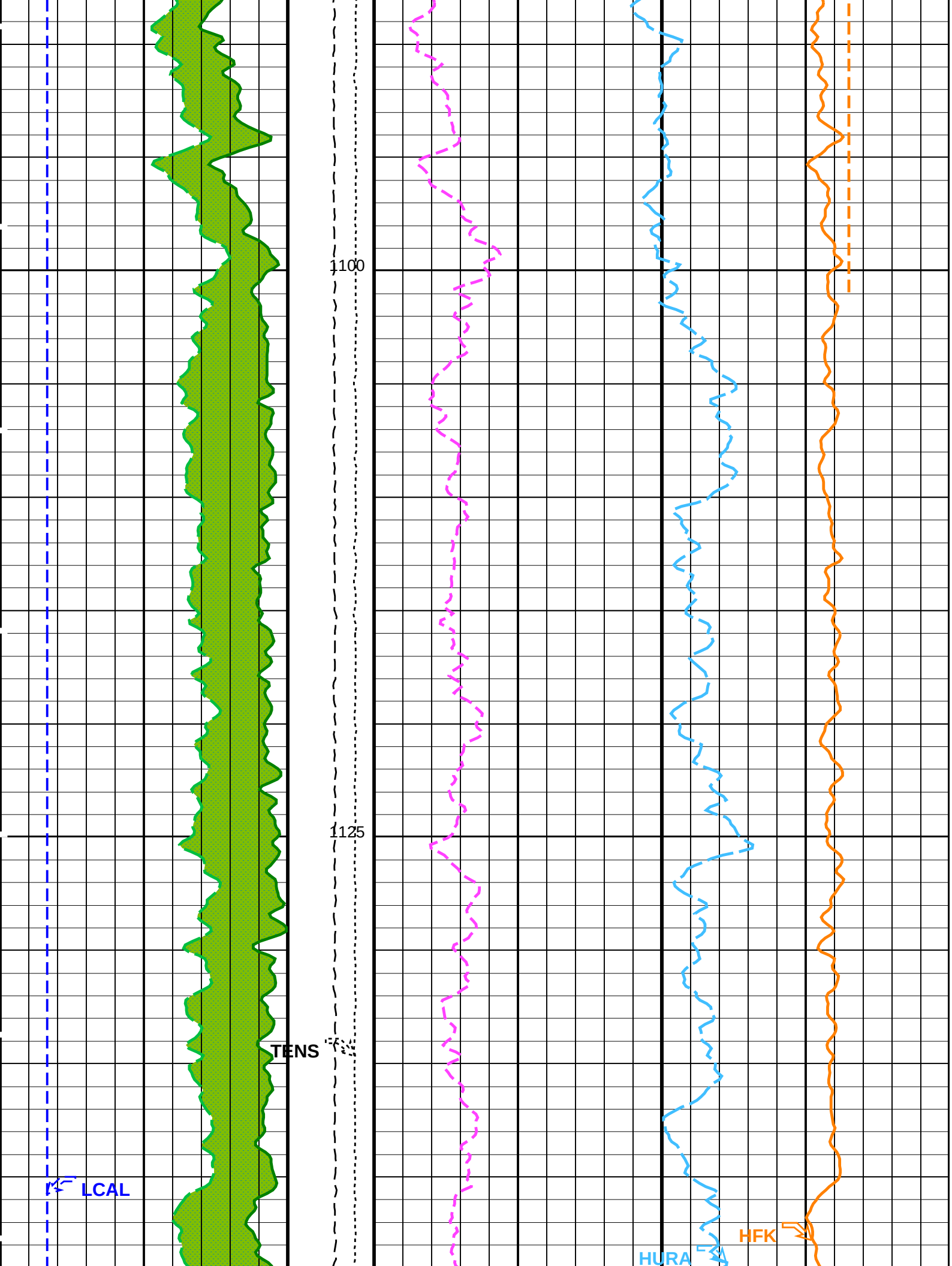

825
850

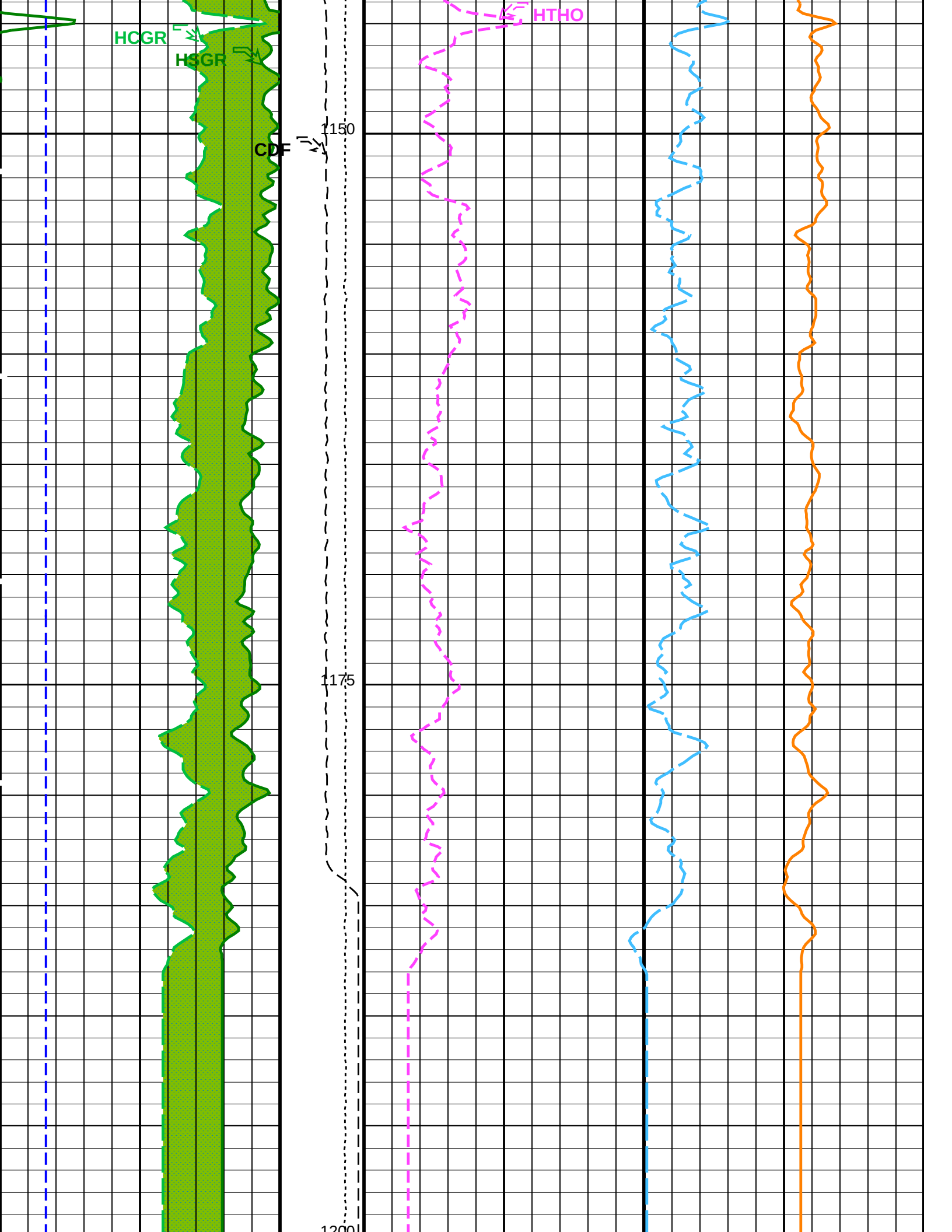

875
900

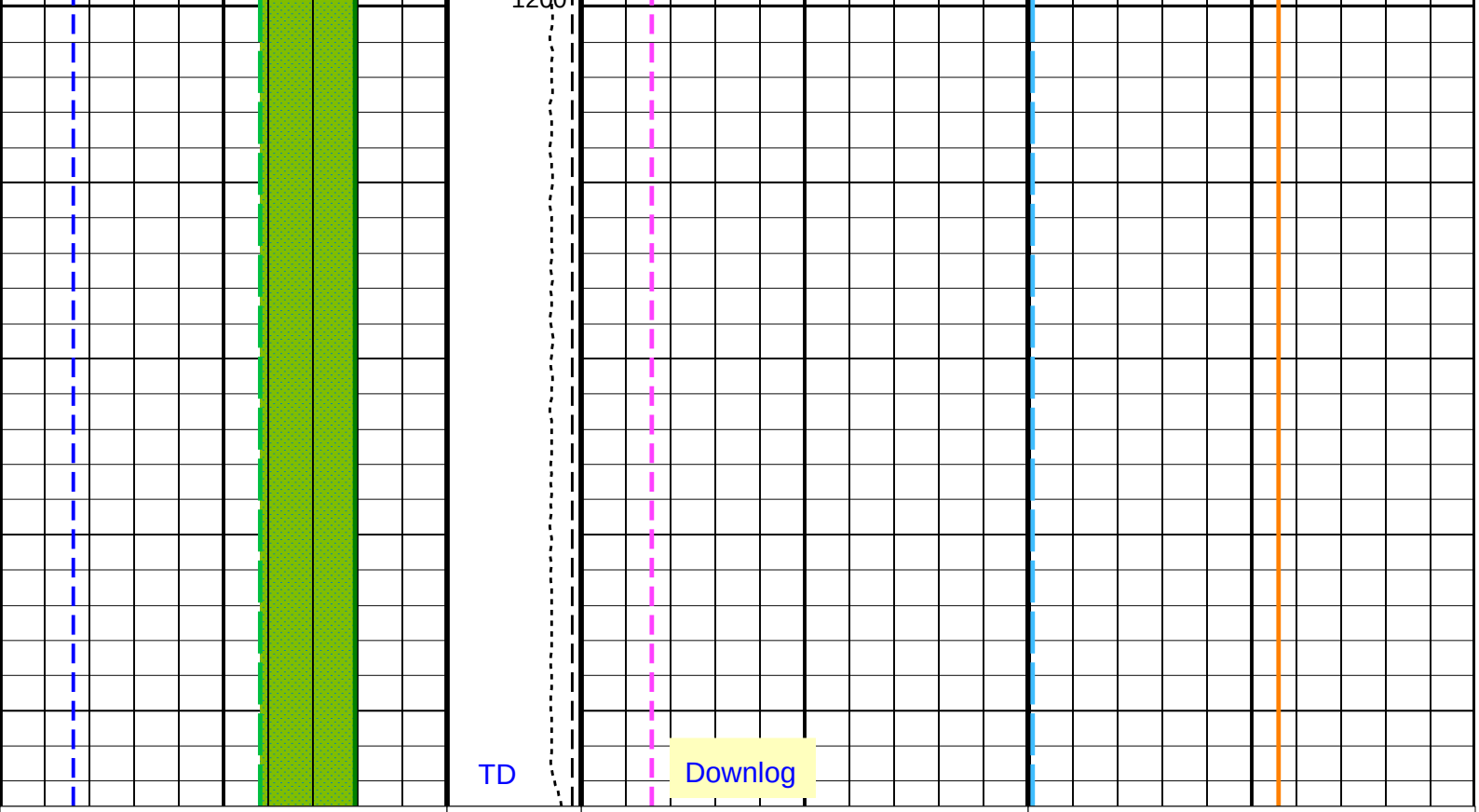

925
950
975


1000
1025


1050
1075


1100
1125
TENS
LCAL
HURA
HFK


HCGR
HSGR
CDF
HTHO
1150
1175
1200



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) 100		

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	
	APS−C: Accelerator−Porosity Tool		
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	−0.000195465	
HALF	HNGS Alpha Filter Length	60	IN
HCRB	HNGS Apply Borehole Potassium Correction	NONE	
HMWM	Mud Weighting Material	BARI	
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	0.976002	
VBA2	HNGS Detector 2 Variable Barite Factor Running Average	0.994936	
EDTC−B: Enhanced DTS Cartridge			
BHS	Borehole Status	OPEN	
GCSE	Generalized Caliper Selection	BS	
System and Miscellaneous			
BS	Bit Size	9.875	IN
DFD	Drilling Fluid Density	1.26	G/C3
DO	Depth Offset for Playback	0.0	M
PP	Playback Processing	RECOMPUTE	

Format: HNGSYields Vertical Scale: 1:200 Graphics File Created: 22−Jan−2018 15:55

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

Input DLIS Files

DEFAULT	Flip_MSS_LDEO_HRLA_035LUP	PRODUCER	22−Jan−2018 15:52	1222.7 M	530.4 M

Output DLIS Files

DEFAULT	MSS_LDEO_HRLA_LDL_036PUP	FN:61	PRODUCER	22−Jan−2018 15:55	

Company: International Ocean Discovery Program Well: Expedition 374, Site U1521A

Input DLIS Files

DEFAULT	Flip_MSS_LDEO_HRLA_035LUP	PRODUCER	22−Jan−2018 15:52	1222.7 M	530.4 M

Output DLIS Files

DEFAULT	MSS_LDEO_HRLA_LDL_036PUP	FN:61	PRODUCER	22−Jan−2018 15:55	1222.7 M	535.1 M

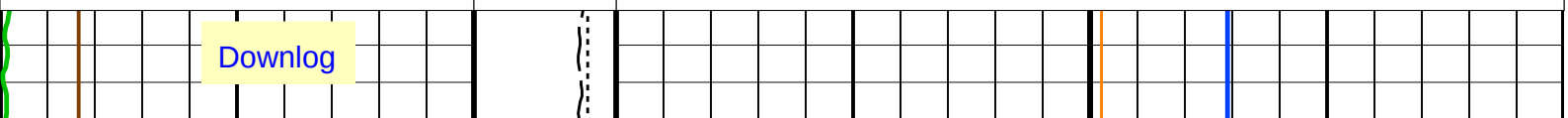
OP System Version: 19C0−187

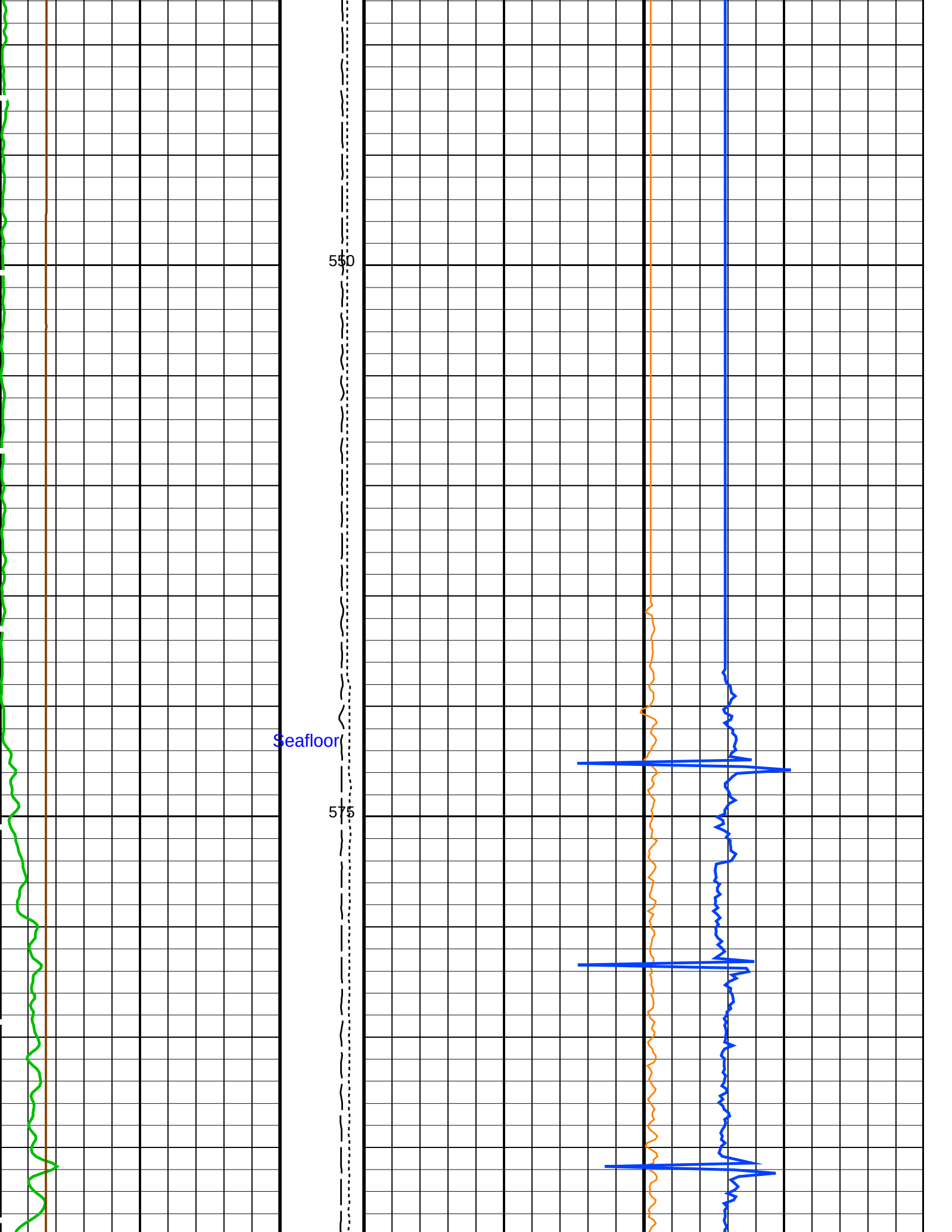
MSS_LDEO−A	19C0−187	HRLT−B	19C0−187
HLDS	19C0−187	LDSC−B	19C0−187
APS−C	19C0−187	HNGC−B	19C0−187
HNGS−BA	19C0−187	EDTC−B	SKK−5169−EDTCB

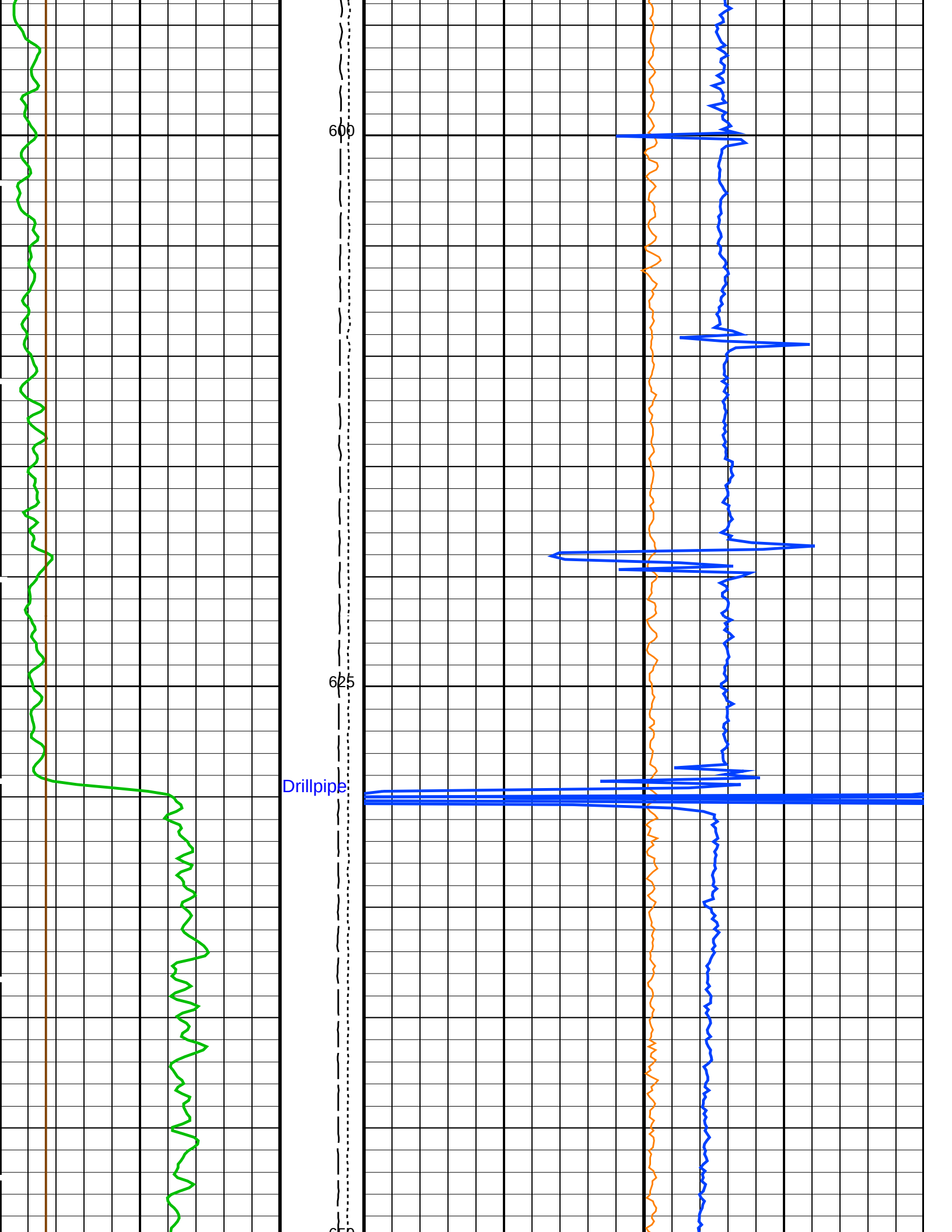
PIP SUMMARY

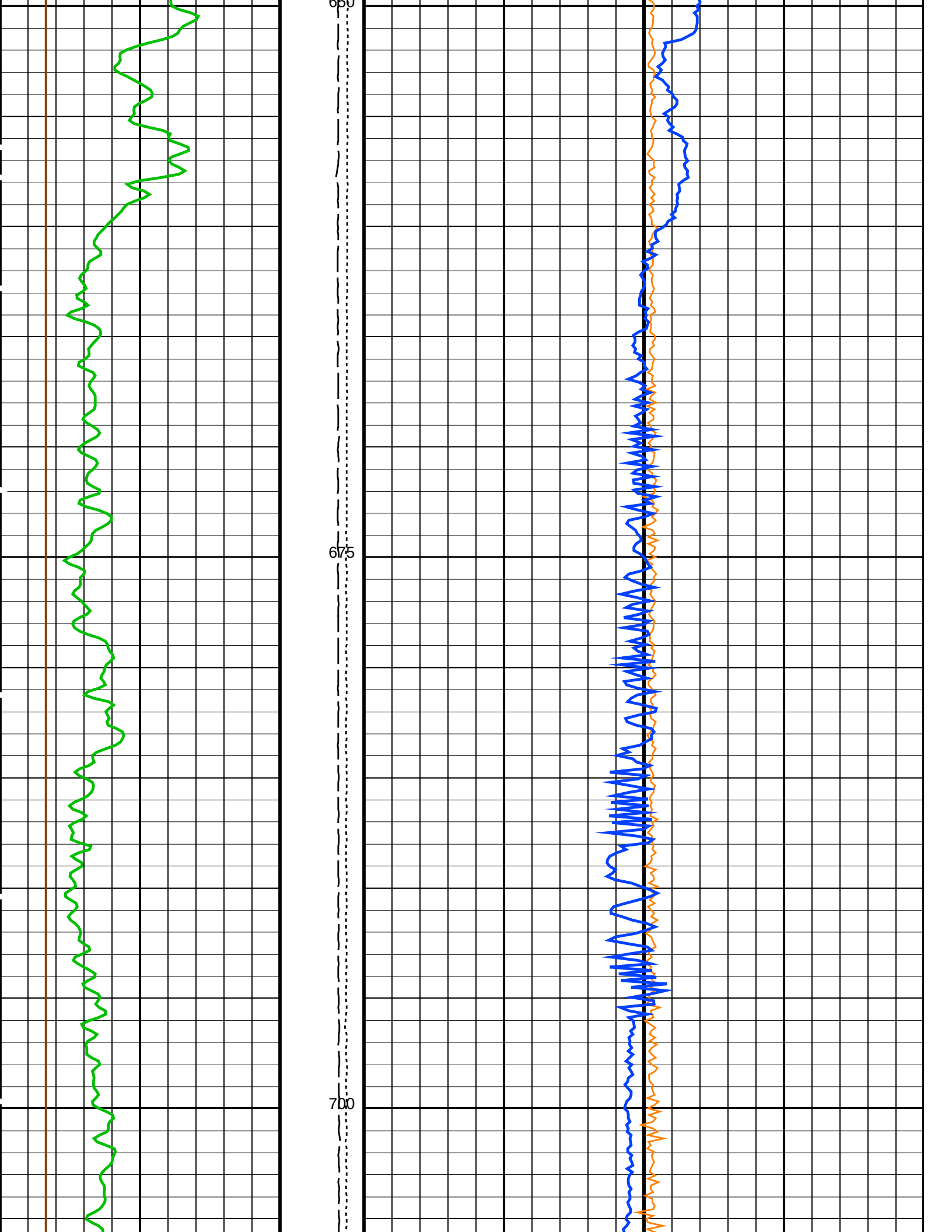
Time Mark Every 60 S

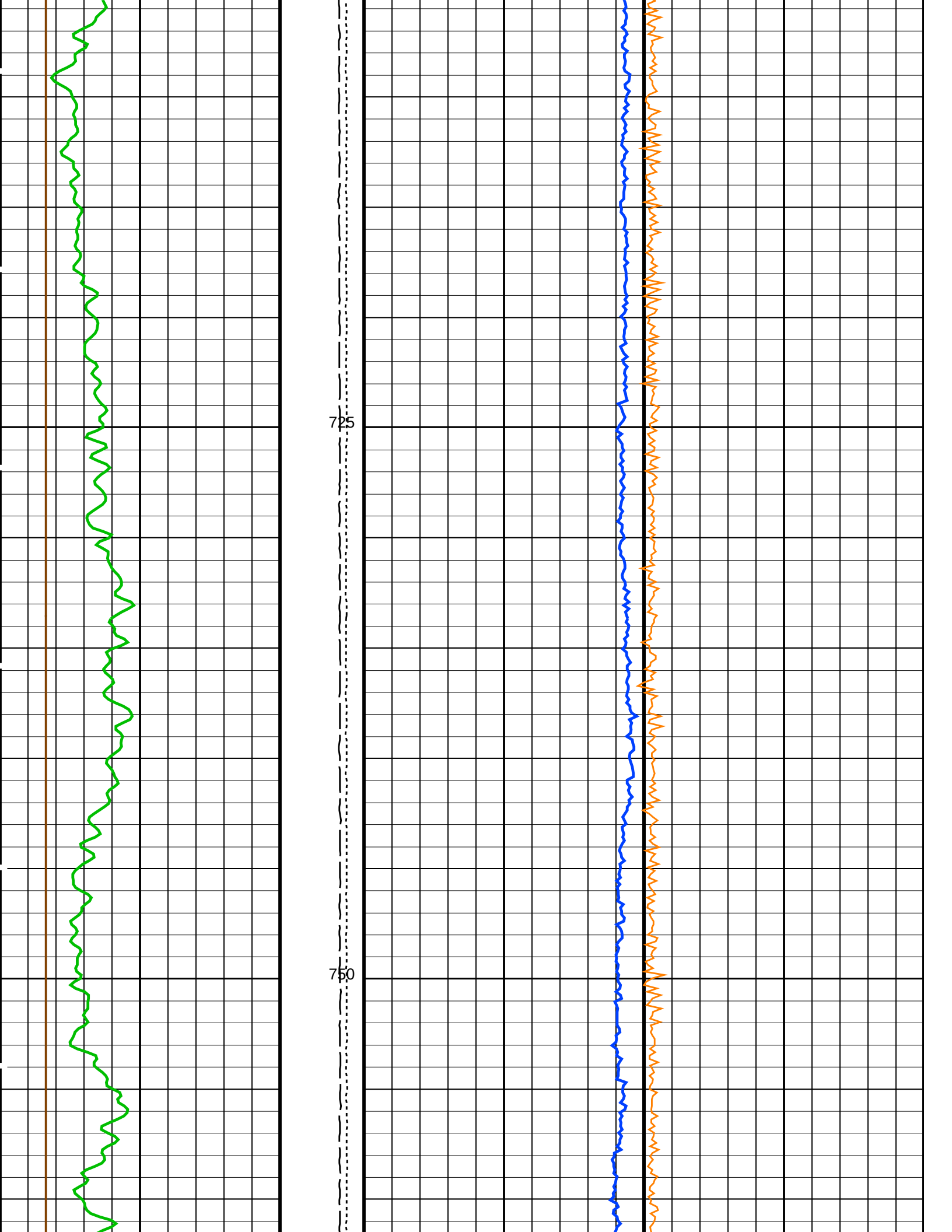
Gamma Ray (GR_EDTC)	Calibrated Downhole Force (CDF) (LBF)	Dual−Coil Susceptibility (MSSLSUS_LDEO)
0 (GAPI) 100	5000 0	0 (PPM) 5000
HLDS Caliper (LCAL)	Tension (TENS) (LBF)	Axial Acceleration (MSSZACC_LDEO)
0 (IN) 20	10000 0	0 (M/S2) 20

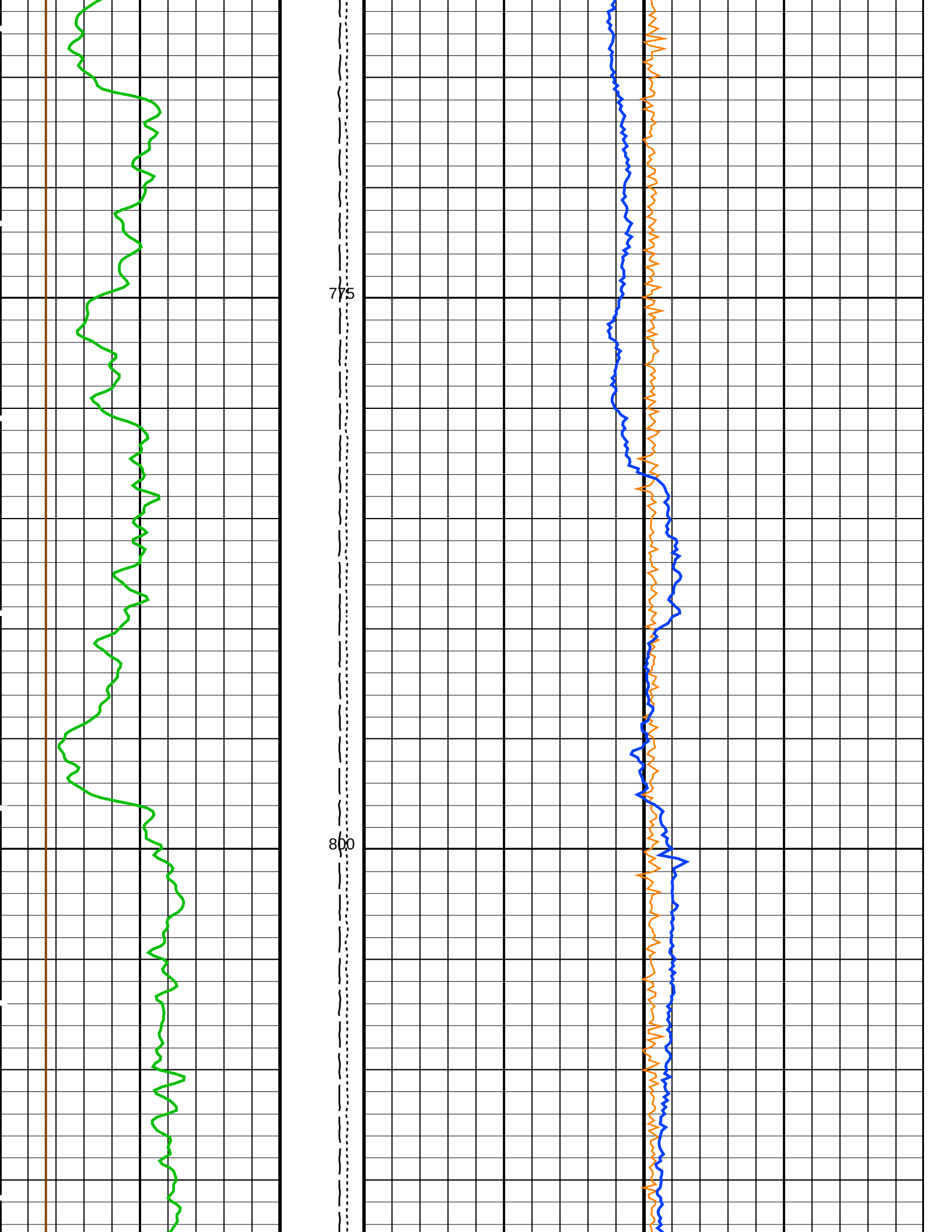


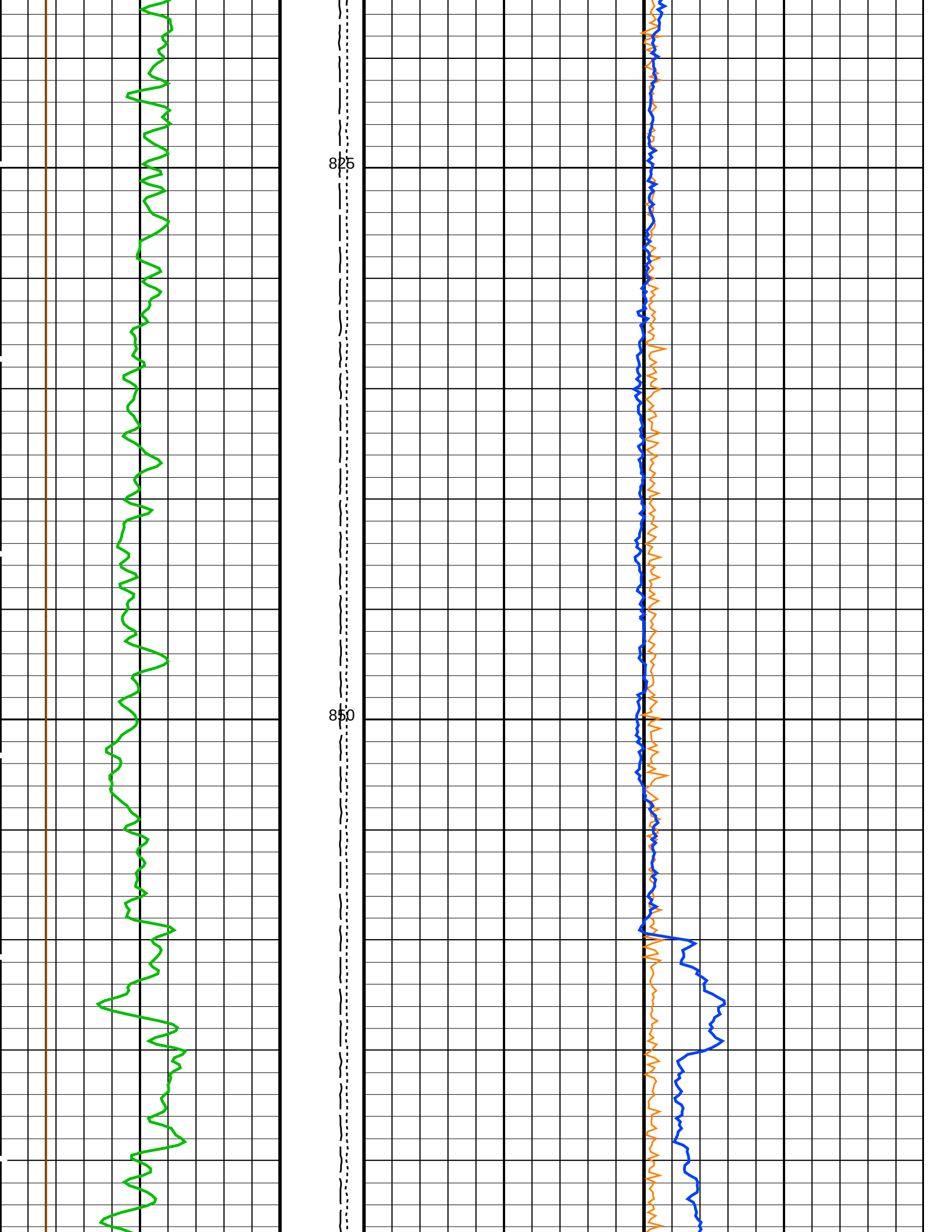

550
Seafloor
575

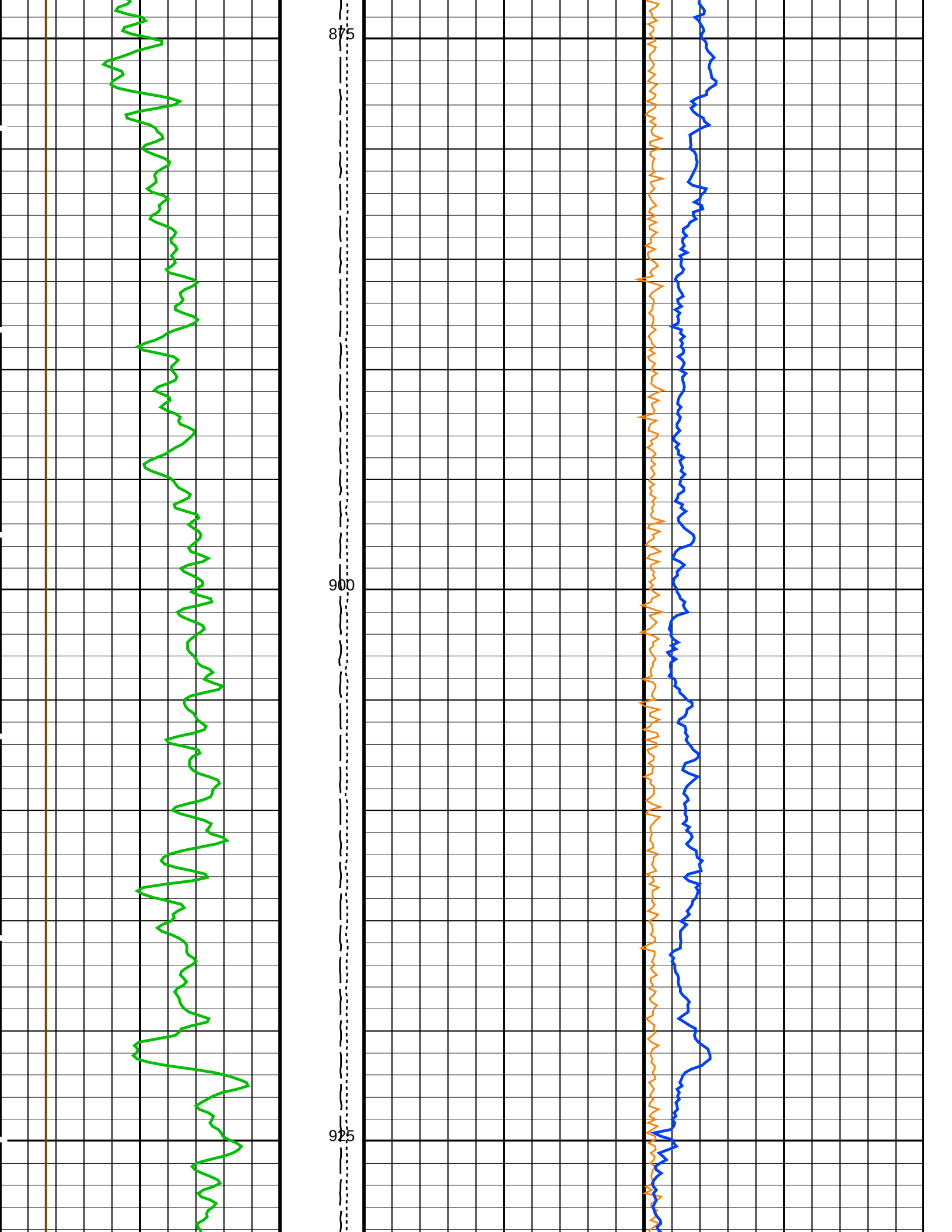

600
625
Drillpipe

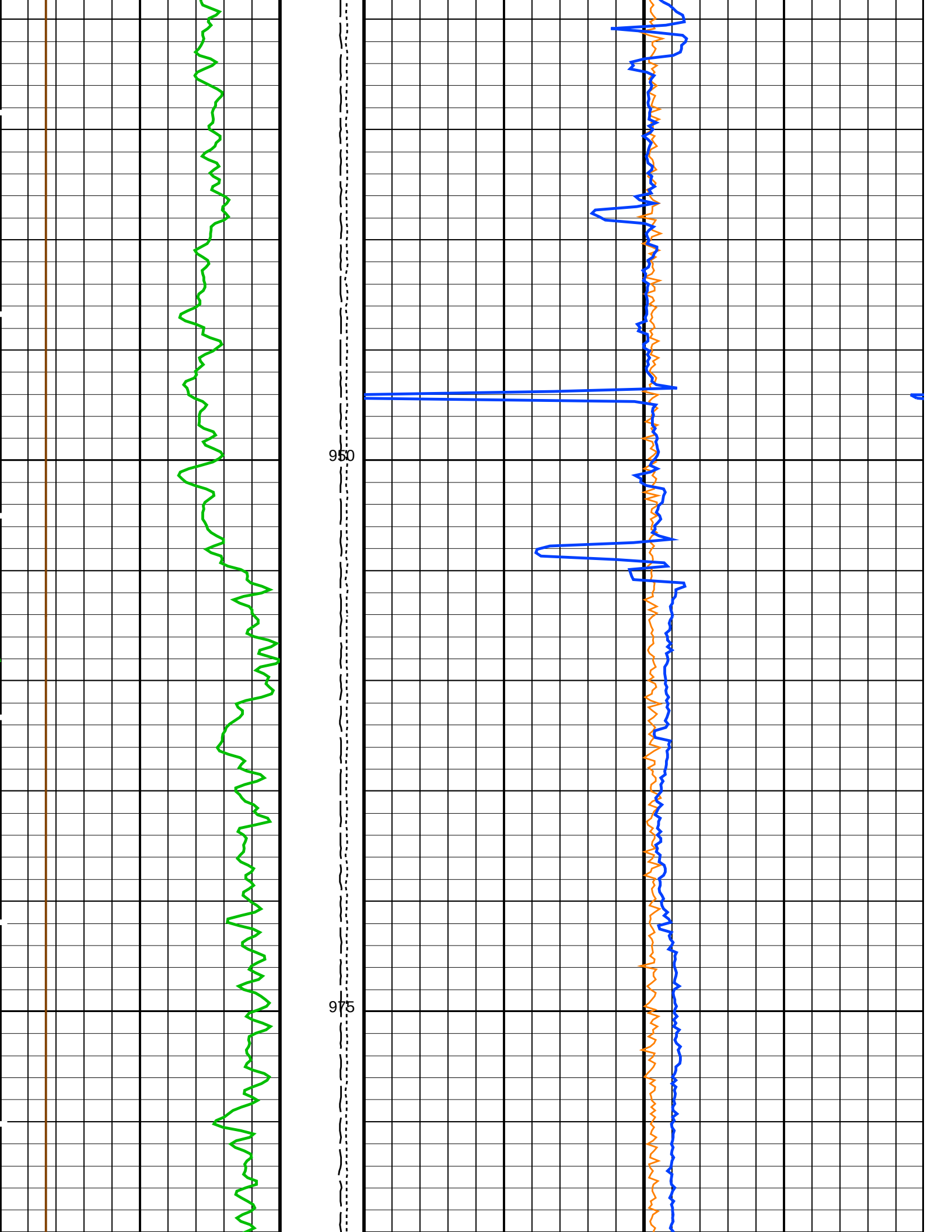

650
675
700

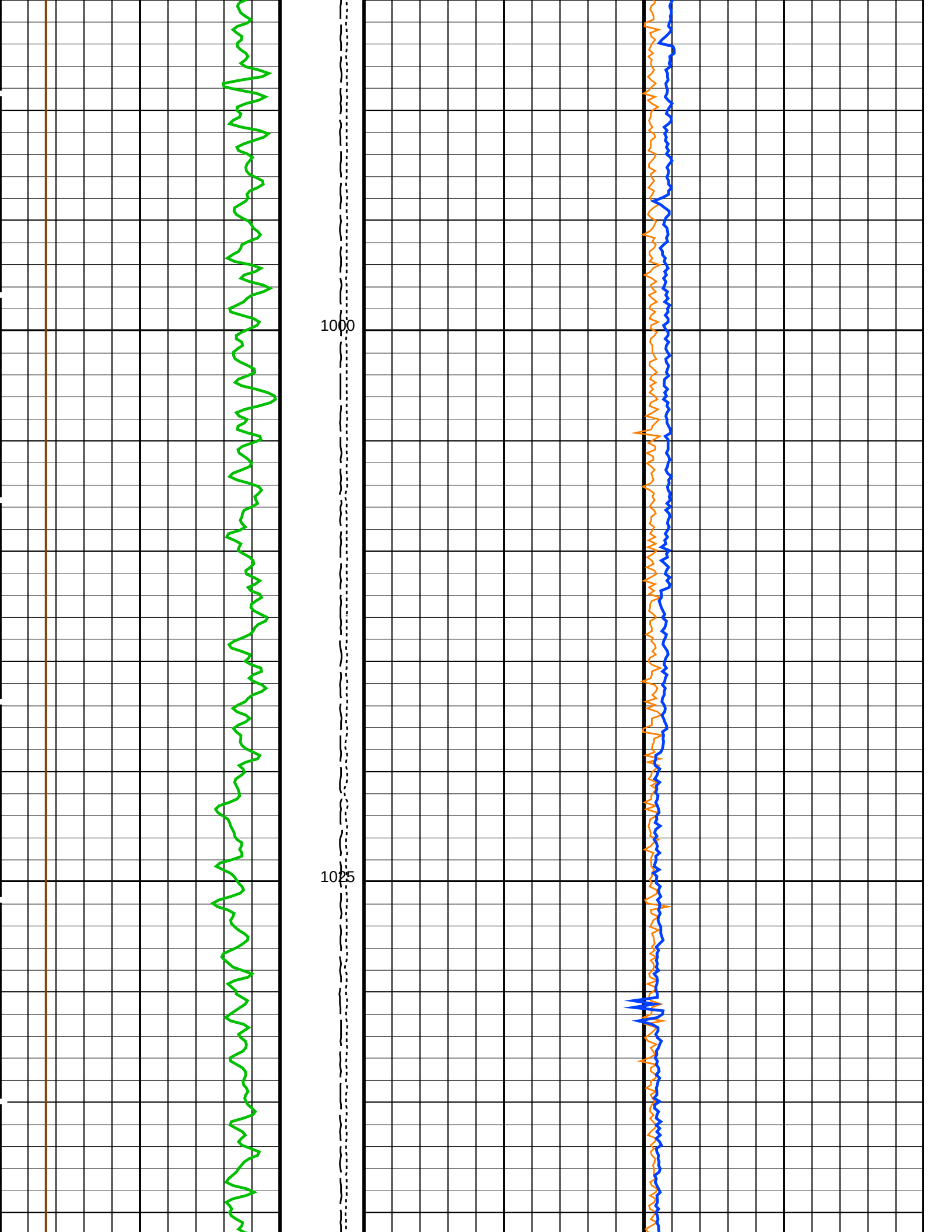

725
750

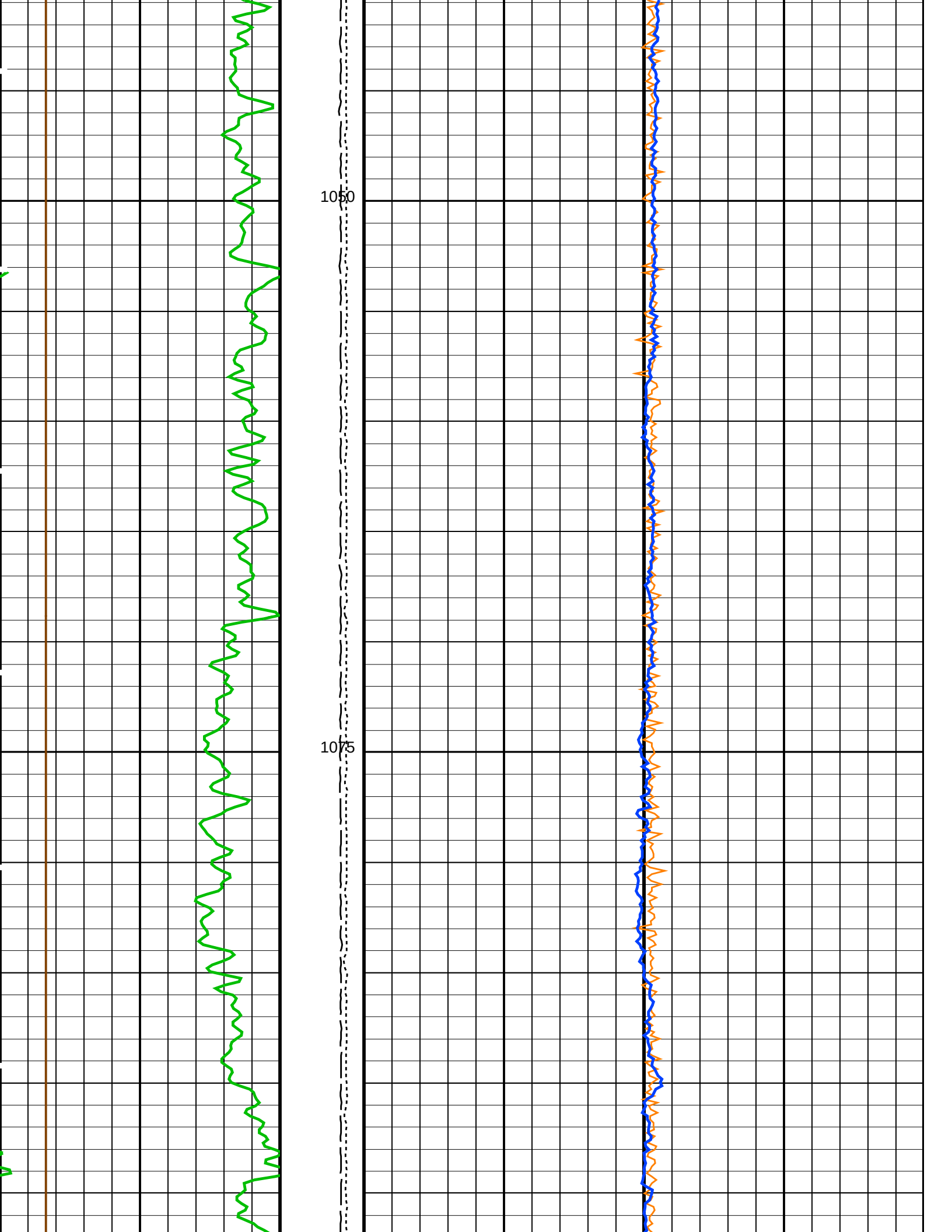

775
800

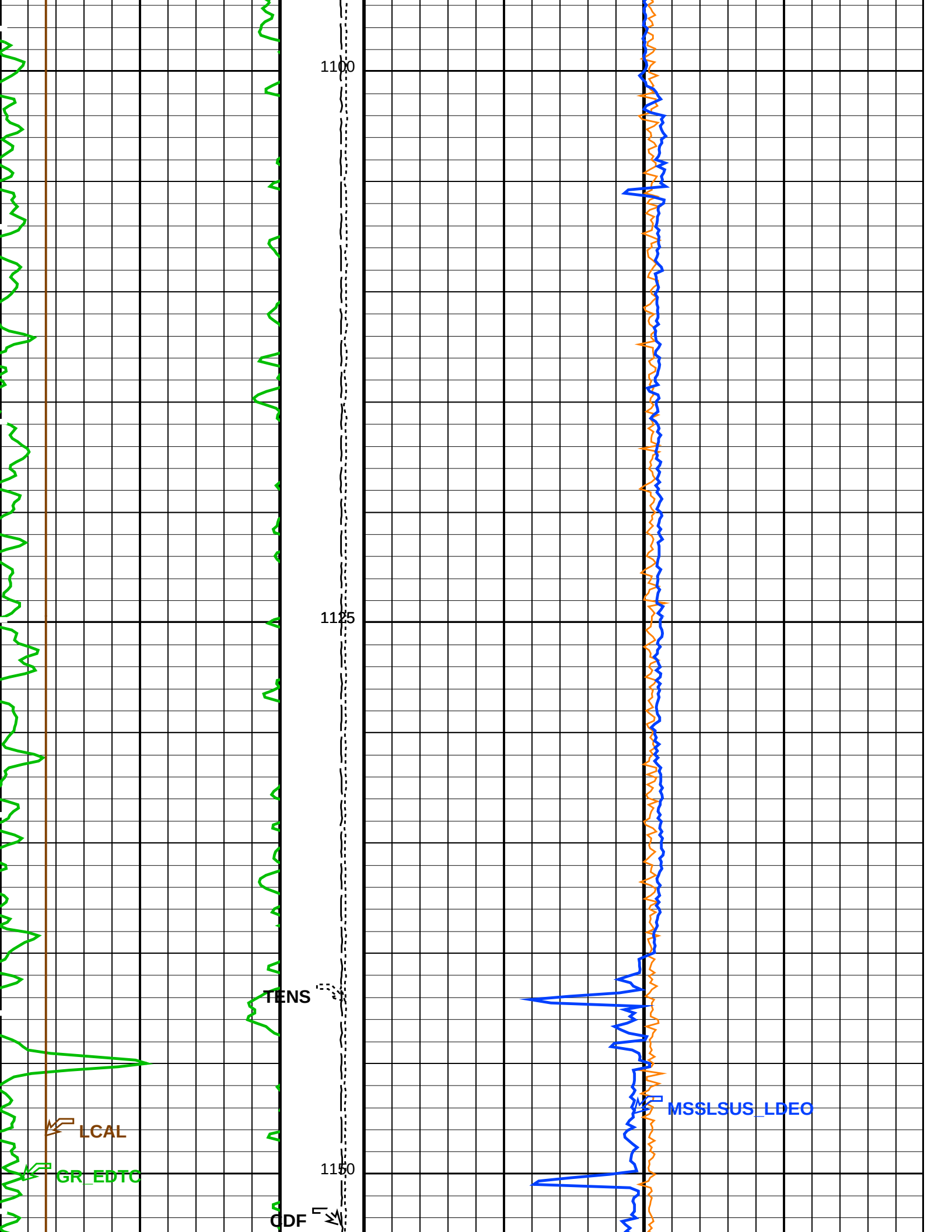

825
850

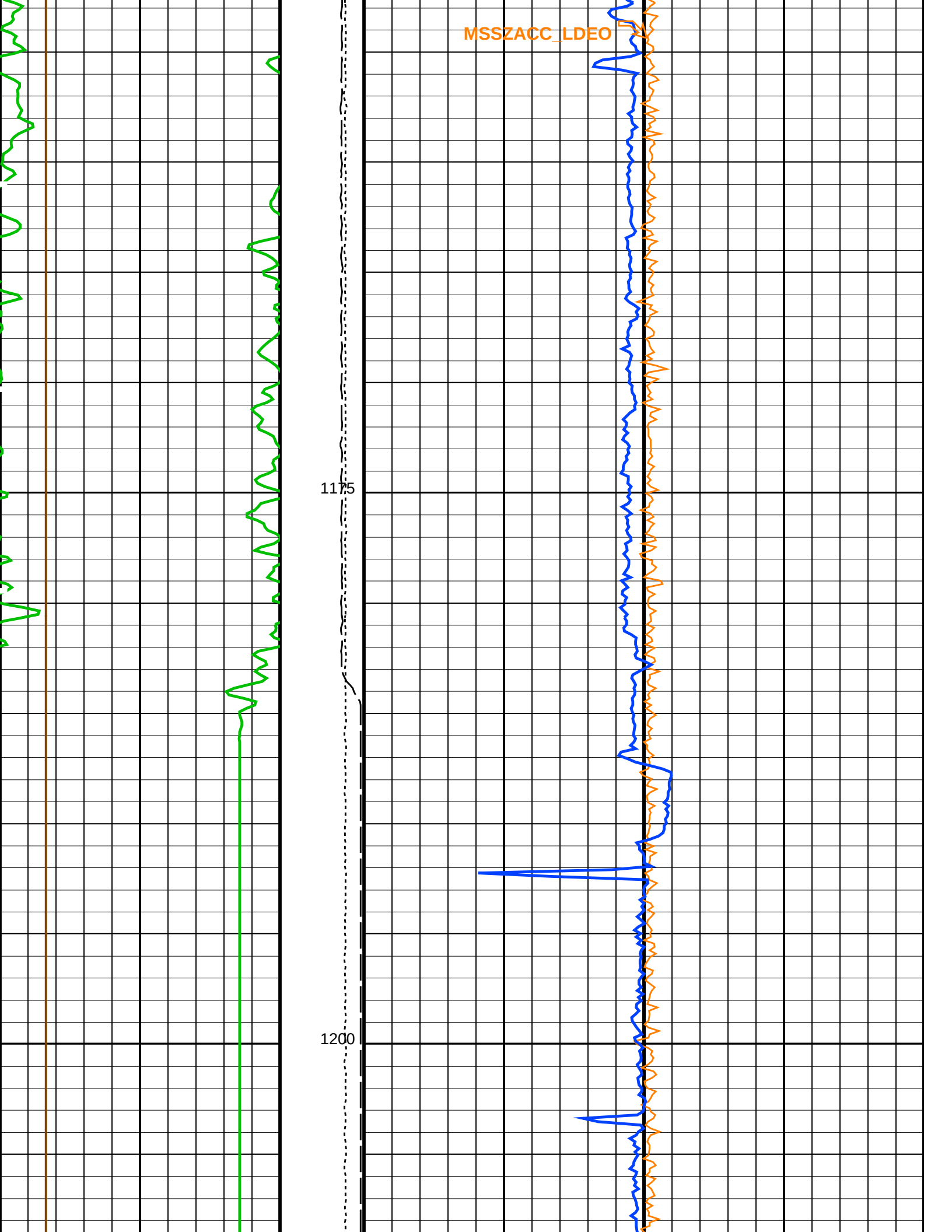

875
900
925

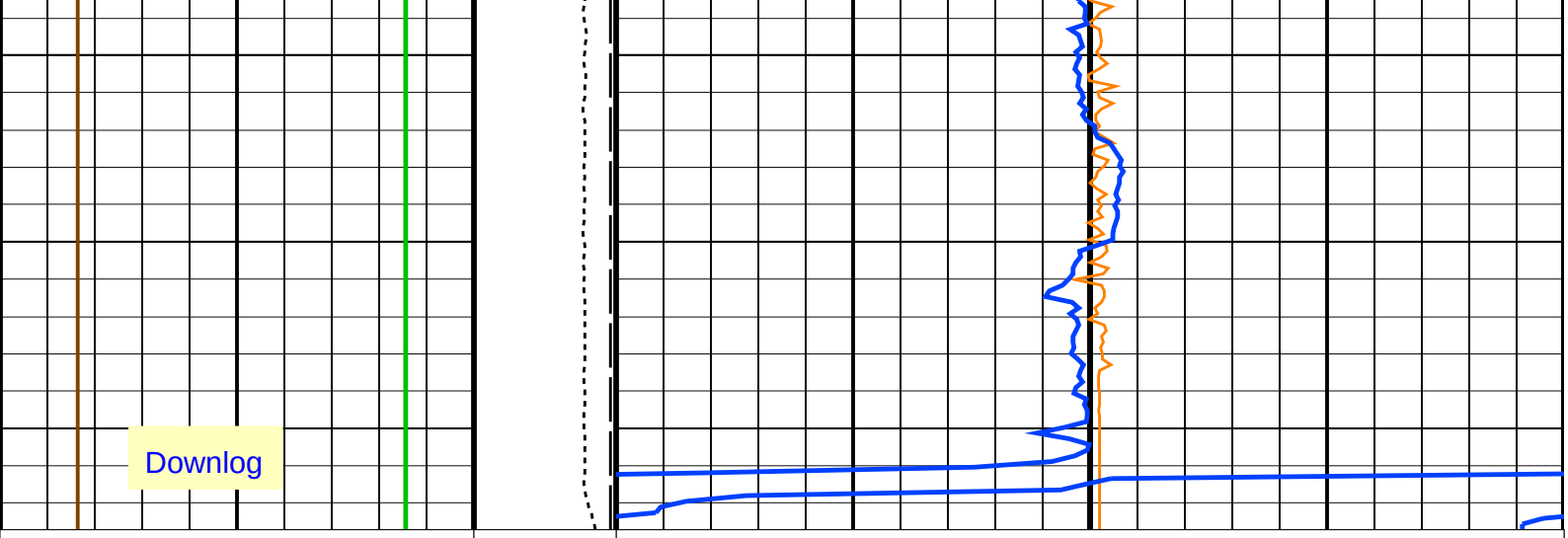

950
975


1000
1025


1050
1075


1100
1125
TENS
MSSLSUS_LDEO
LCAL
GR_EDTC
1150
CDF


MSSZACC_LDEO
1175
1200



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)**	**Dual−Coil Susceptibility (MSSLSUS_LDEO)**
0 (GAPI) 100	(LBF) 5000 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)	212	DEGF
CALSTAT	HRLTB Calibration Status	SHALLOW_DONE	
CALTEMP	HRLTB Calibration Temperature	−1.02714	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	BS	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
ISSBAR	Barite Mud Switch	BARITE	
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	55	DEGF
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	OFF	
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	1967.82	V
ADSO	APS Array Detectors Data Source Switch	Both	
AFSD	APS Far Detector High Voltage Setting	2075.82	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	1735.71	V
ASOS	APS Standoff Correction Switch	ON	
ATSS	APS Temperature−Pressure−Salinity Correction Switch	ON	
BHFL_APS	APS TNPH Borehole Fluid Type	WATER	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	212	DEGF
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	BS	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01	DF/F
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	BARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
MCCO_APS	APS TNPH Mud Cake Correction Option	NO	
MCOR_APS	APS TNPH Mud Correction	BARI	
MWCO_APS	APS TNPH Mud Weight Correction Option	YES	
NARC	APS Near/Array Calibration Ratio	1.06899	
NFRC	APS Near/Far Calibration Ratio	0.897215	
PTCO_APS	APS TNPH Pressure/Temperature Correction Option	YES	
SHT	Surface Hole Temperature	55	DEGF
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)	212	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	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
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	−0.000195465	
HALF	HNGS Alpha Filter Length	60	IN
HCRB	HNGS Apply Borehole Potassium Correction	NONE	
HMWM	Mud Weighting Material	BARI	
HNPE	HNGS Processing Enable	YES	
ISSBAR	Barite Mud Switch	BARITE	
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	55	DEGF
TPOS	Tool Position	ECCE	
VBA1	HNGS Detector 1 Variable Barite Factor Running Average	0.976002	
VBA2	HNGS Detector 2 Variable Barite Factor Running Average	0.994936	
EDTC−B: Enhanced DTS Cartridge			
BHFL	Borehole Fluid Type	WATER	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	212	DEGF
BSCO	Borehole Salinity Correction Option	NO	

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	BS	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
HSCO	Hole Size Correction Option	YES	
ISSBAR	Barite Mud Switch	BARITE	
ISSBAR_EDTC	Nuclear Mud Type	BARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
MCCO	Mud Cake Correction Option	NO	
MCOR	Mud Correction	BARI	
MWCO	Mud Weight Correction Option	YES	
PTCO	Pressure/Temperature Correction Option	NO	
SDAT	Standoff Data Source	SOCN	
SHT	Surface Hole Temperature	55	DEGF
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	1.26	G/C3
DO	Depth Offset for Playback	0.0	M
FLEV	Fluid Level	−50000.00	M
MST	Mud Sample Temperature	23.00	DEGC
PBVSADP	Use alternate depth channel for playback	NO	
PP	Playback Processing	RECOMPUTE	
RMFS	Resistivity of Mud Filtrate Sample	−50000.0000	OHMM
RW	Resistivity of Connate Water	1.0000	OHMM
TD	Total Depth	4012.4	FT
TDD	Total Depth − Driller	1223.00	M
TDL	Total Depth − Logger	1223.00	M
TWS	Temperature of Connate Water Sample	37.78	DEGC

Format: MSS_Logging **Vertical Scale: 1:200** **Graphics File Created: 22−Jan−2018 15:55**

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

Input DLIS Files

DEFAULT	Flip_MSS_LDEO_HRLA_035LUP	PRODUCER	22−Jan−2018 15:52	1222.7 M	530.4 M

Output DLIS Files

DEFAULT	MSS_LDEO_HRLA_LDL_036PUP	FN:61	PRODUCER	22−Jan−2018 15:55

Input DLIS Files

DEFAULT	Flip_MSS_LDEO_HRLA_035LUP	PRODUCER	22−Jan−2018 15:52	1222.7 M	530.4 M

Output DLIS Files

DEFAULT	MSS_LDEO_HRLA_LDL_036PUP	FN:61	PRODUCER	22−Jan−2018 15:55	1222.7 M	535.1 M

OP System Version: 19C0−187

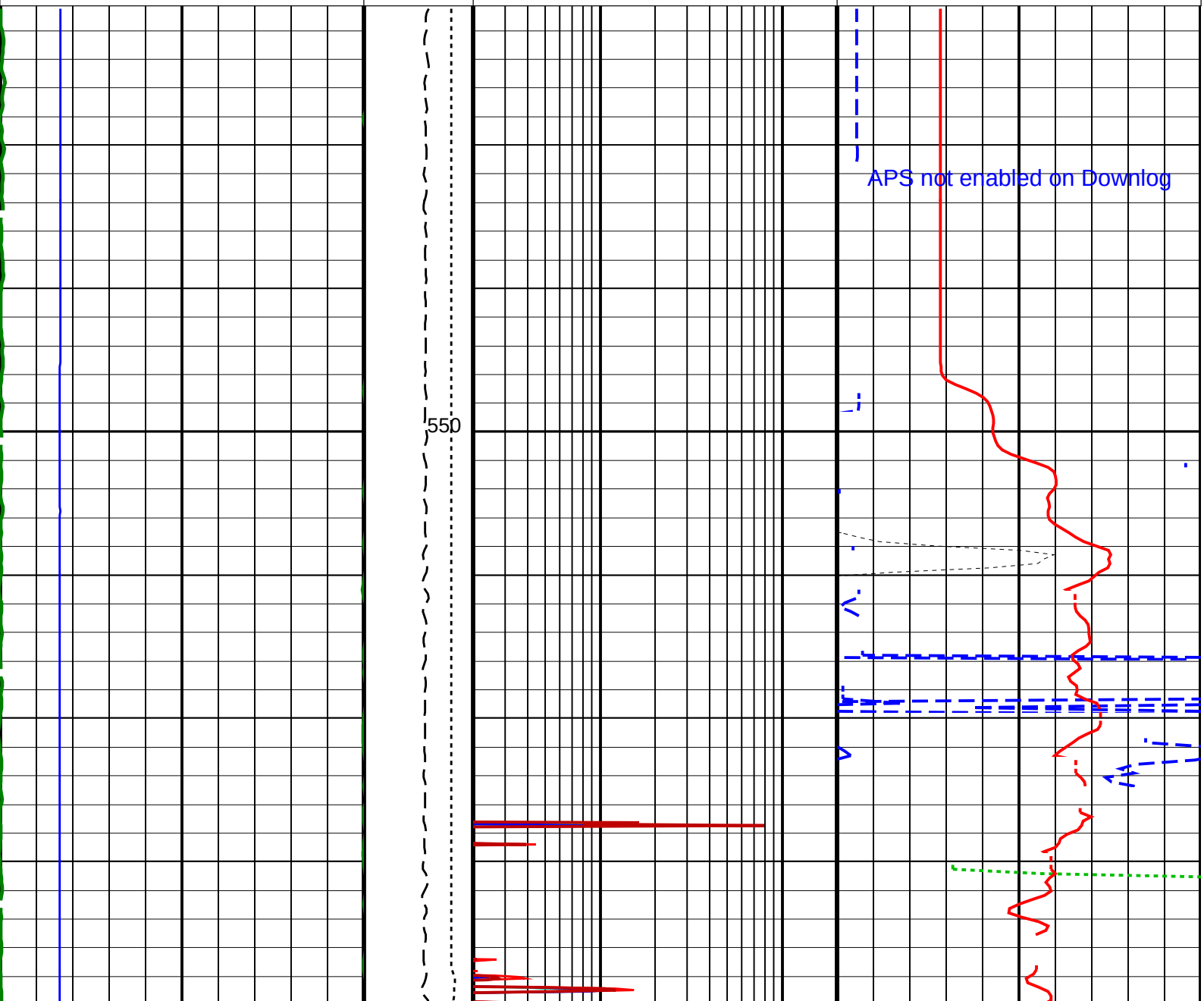
MSS_LDEO−A	19C0−187	HRLT−B	19C0−187
HLDS	19C0−187	LDSC−B	19C0−187
APS−C	19C0−187	HNGC−B	19C0−187
HNGS−BA	19C0−187	EDTC−B	SKK−5169−EDTCB

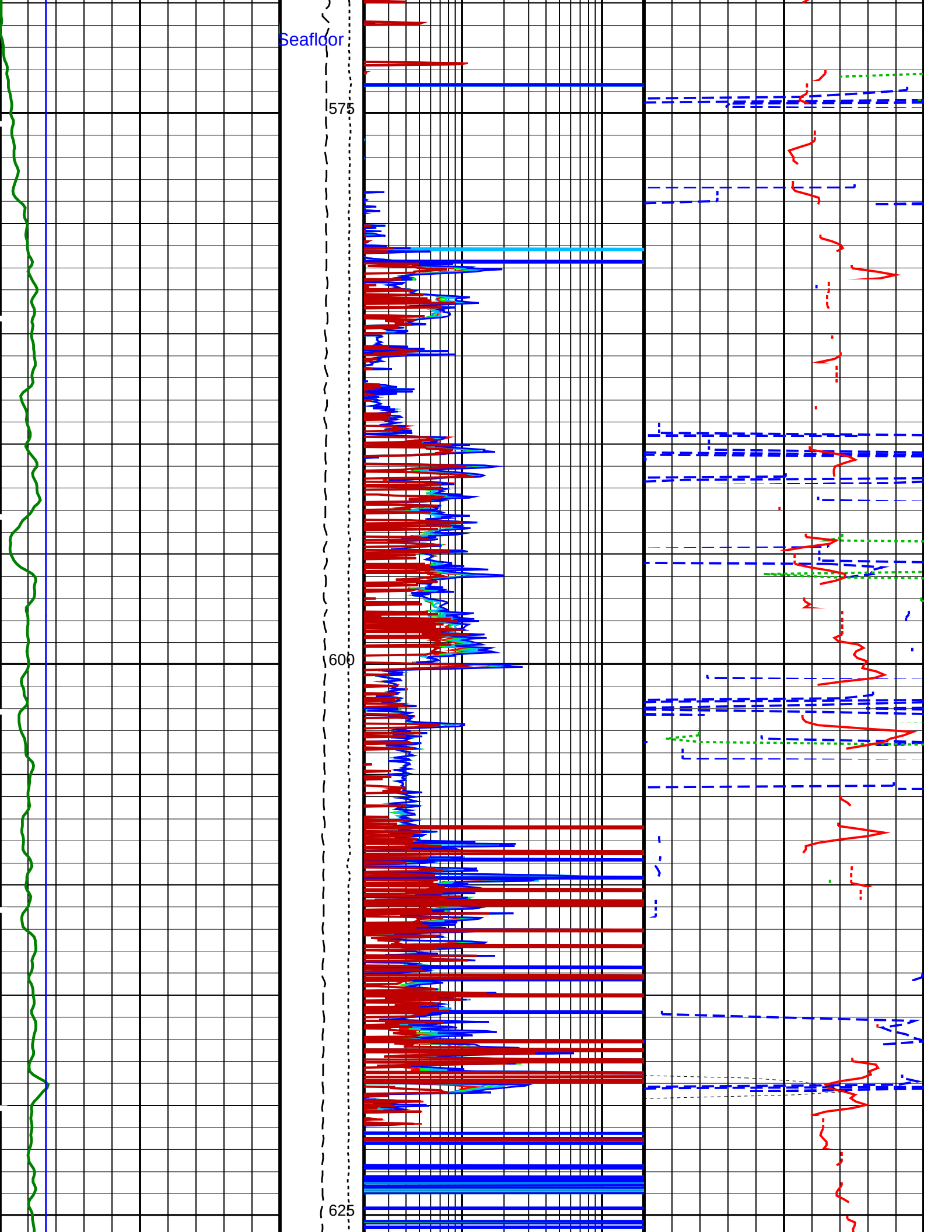
PIP SUMMARY

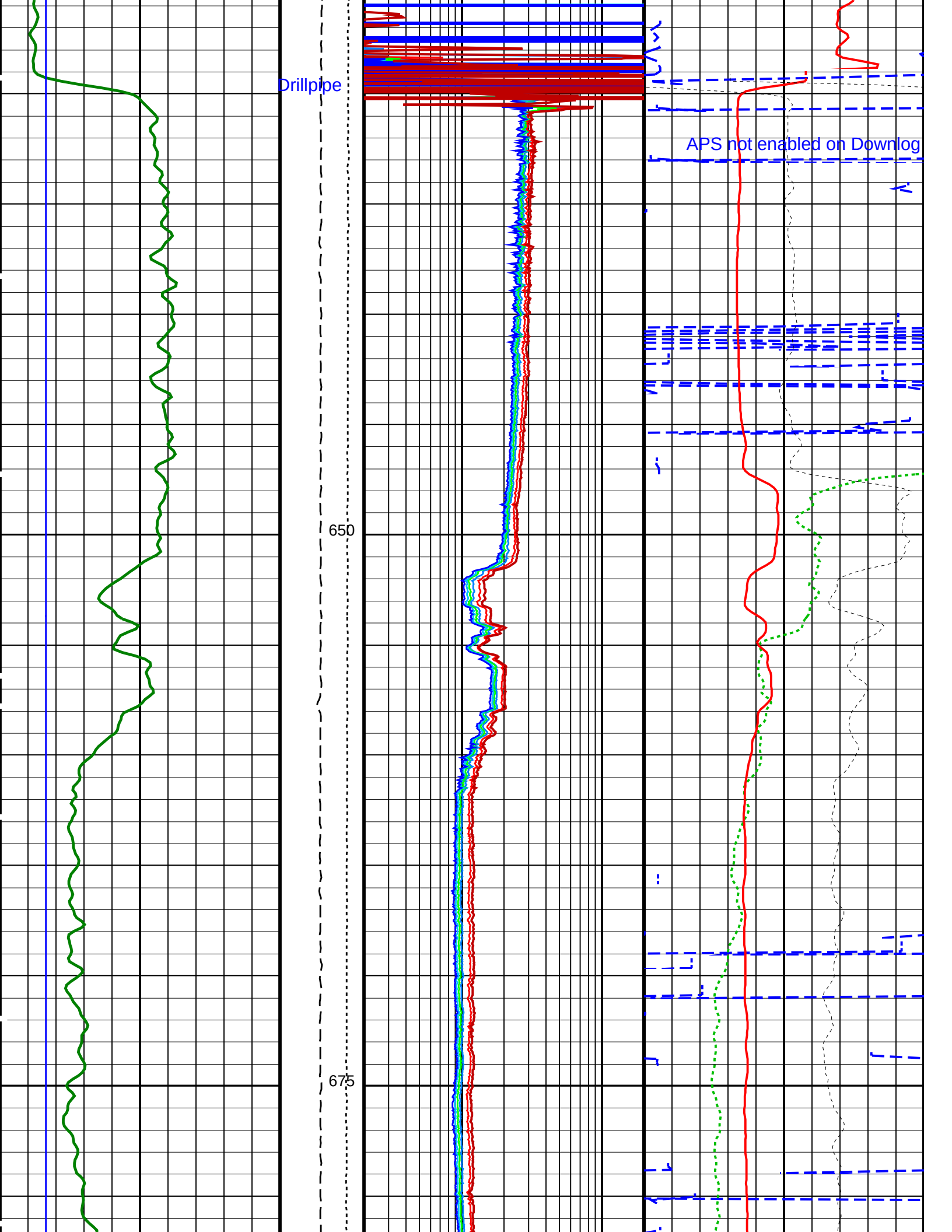
Time Mark Every 60 S

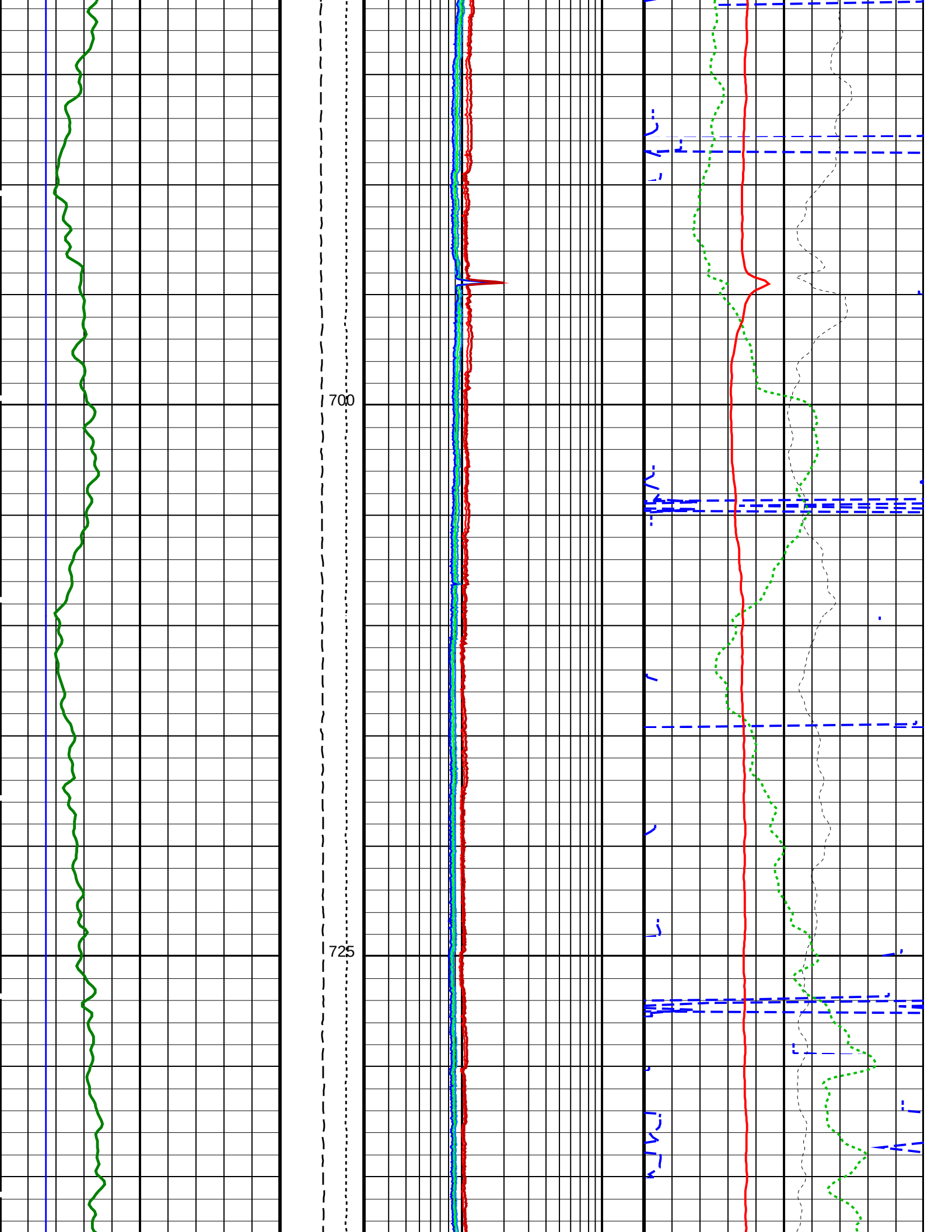
Downlog

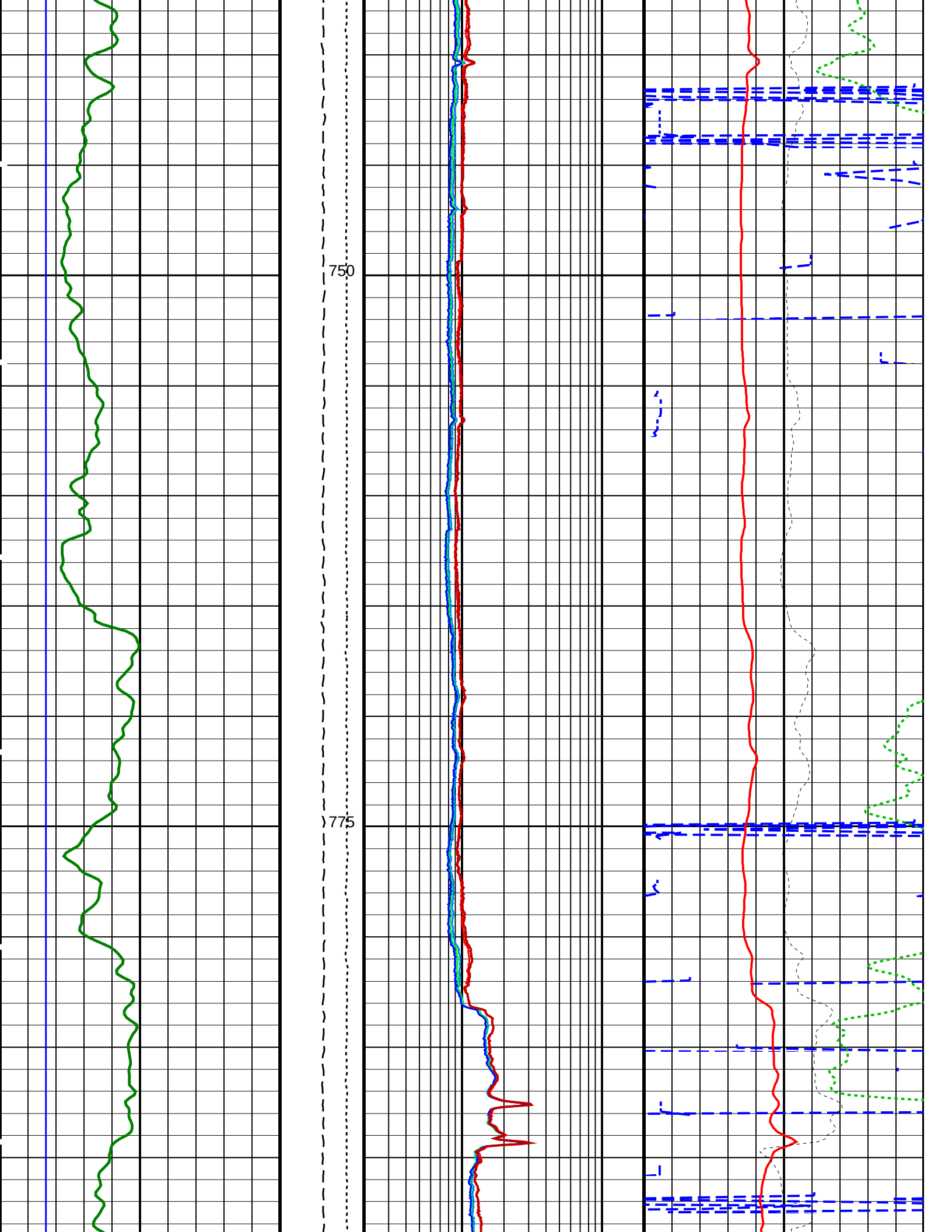
		HRLT True Resistivity (RT_HRLT) 0.2 (OHMM) 20	
		HRLT Resistivity 1 (RLA1) 0.2 (OHMM) 20	
		HRLT Resistivity 2 (RLA2) 0.2 (OHMM) 20	HLDS Bulk Density Correction (DRH) −0.25 (G/C3) 0.25
		HRLT Resistivity 3 (RLA3) 0.2 (OHMM) 20	HLDS Bulk Density (RHOM) 0 (G/C3) 4
HNGS Spectroscopy Gamma Ray (HSGR) 0 (GAPI)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

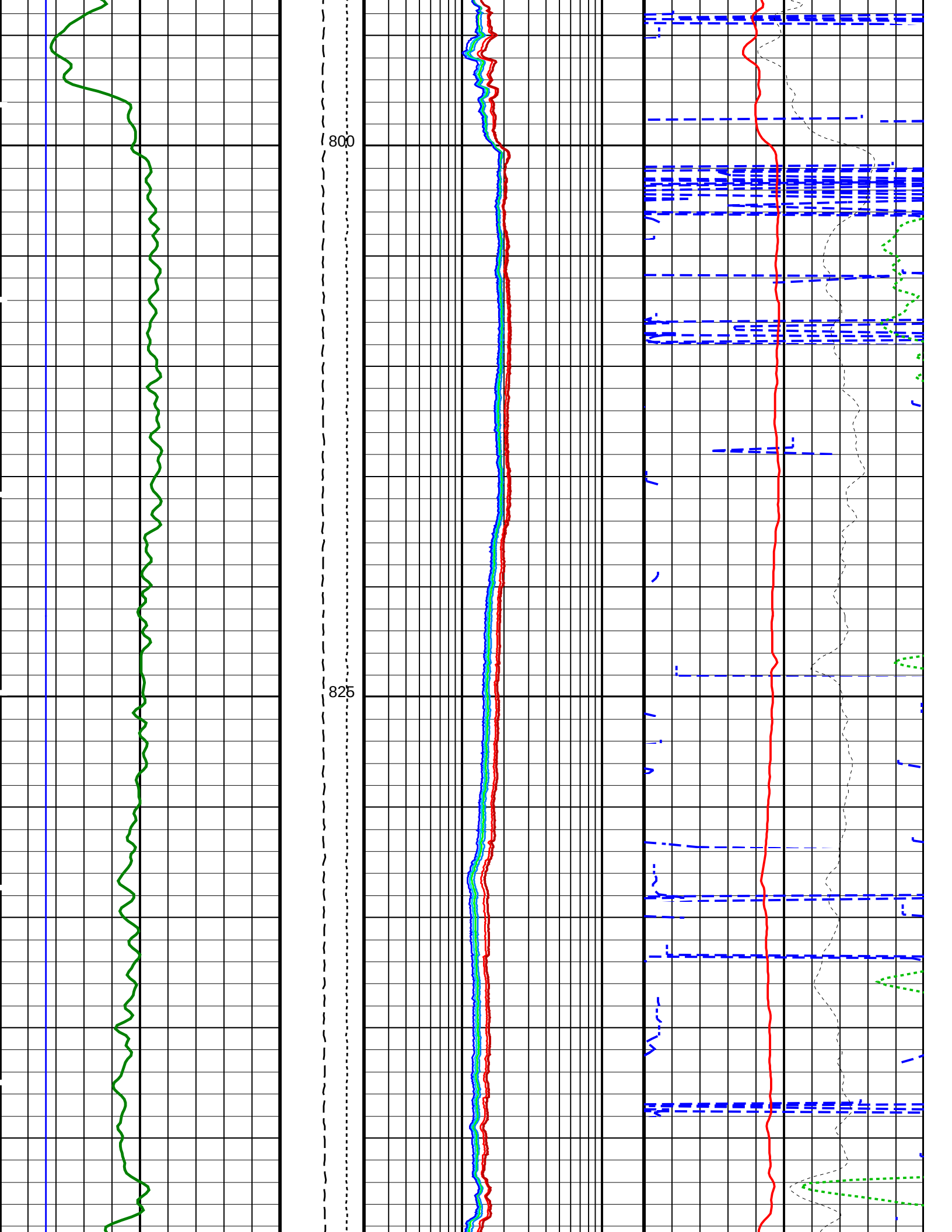


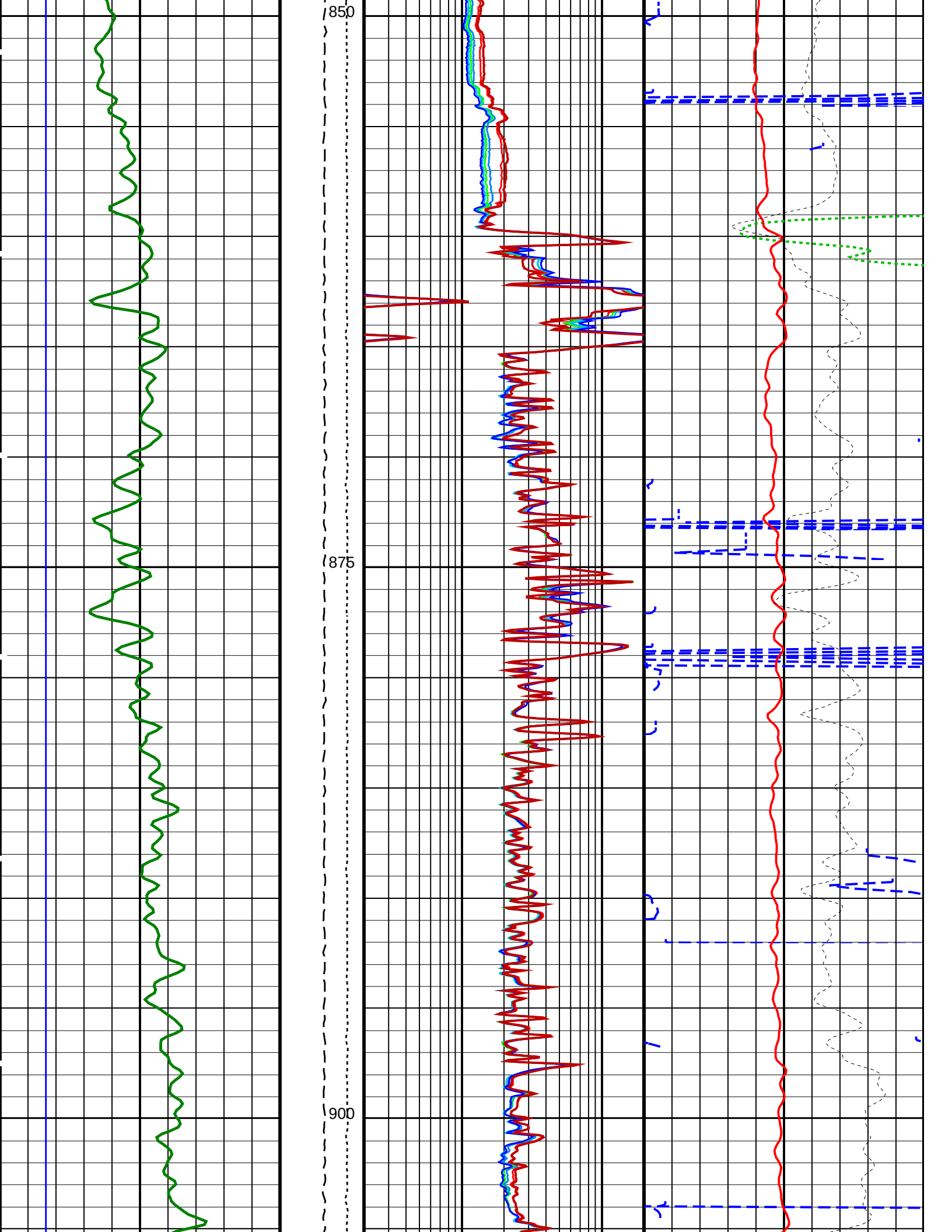

Seafloor
575
600
625

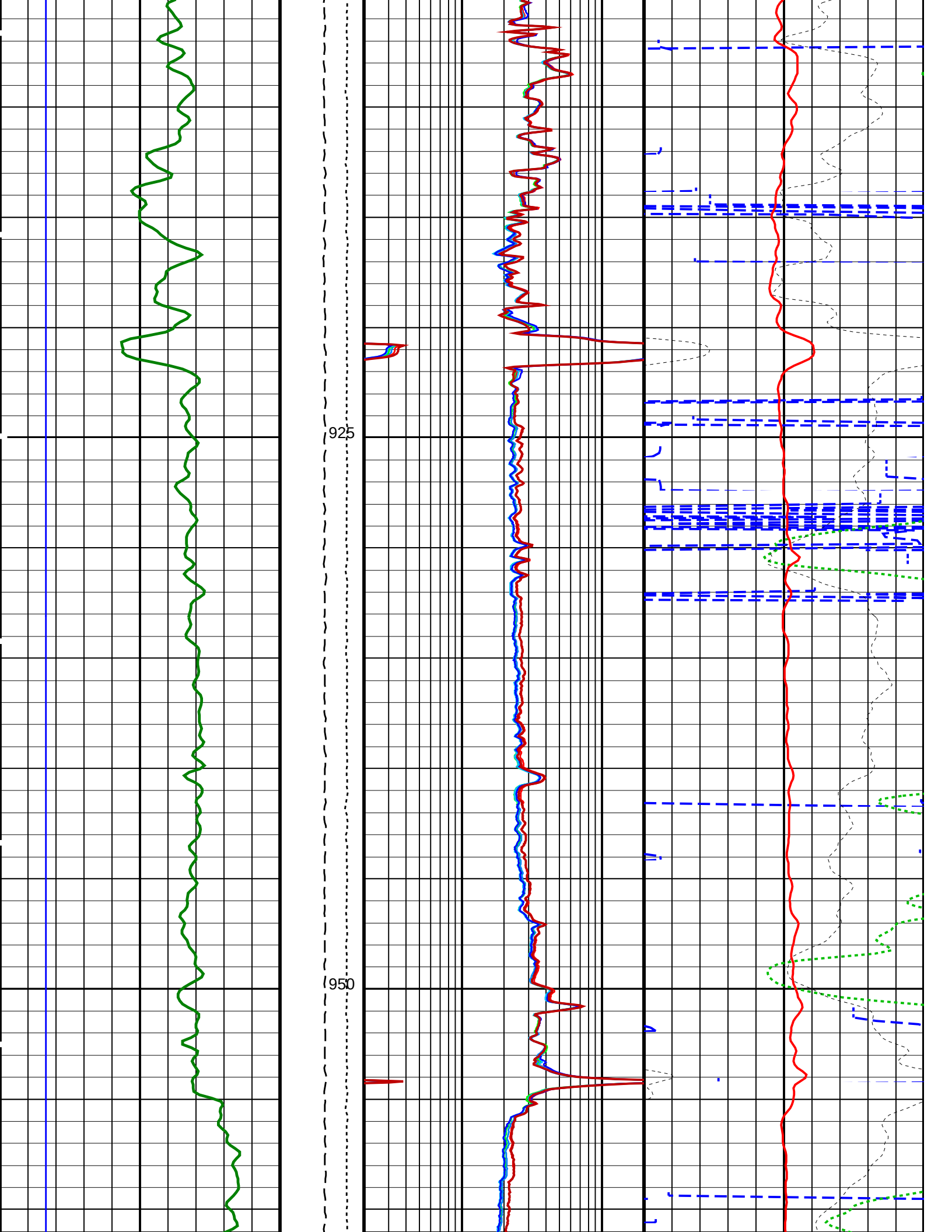

Drillpipe
APS not enabled on Downlog
650
675

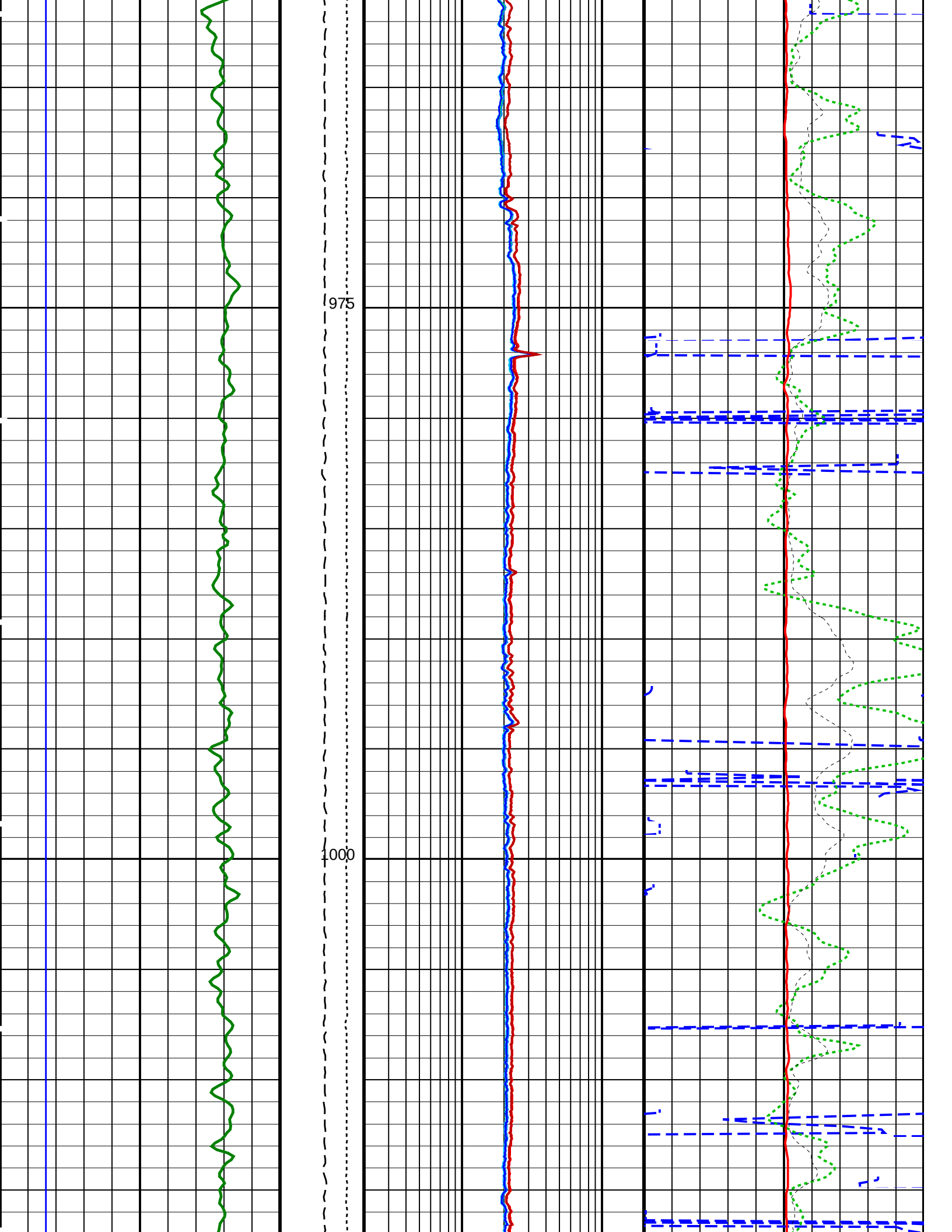

700
725

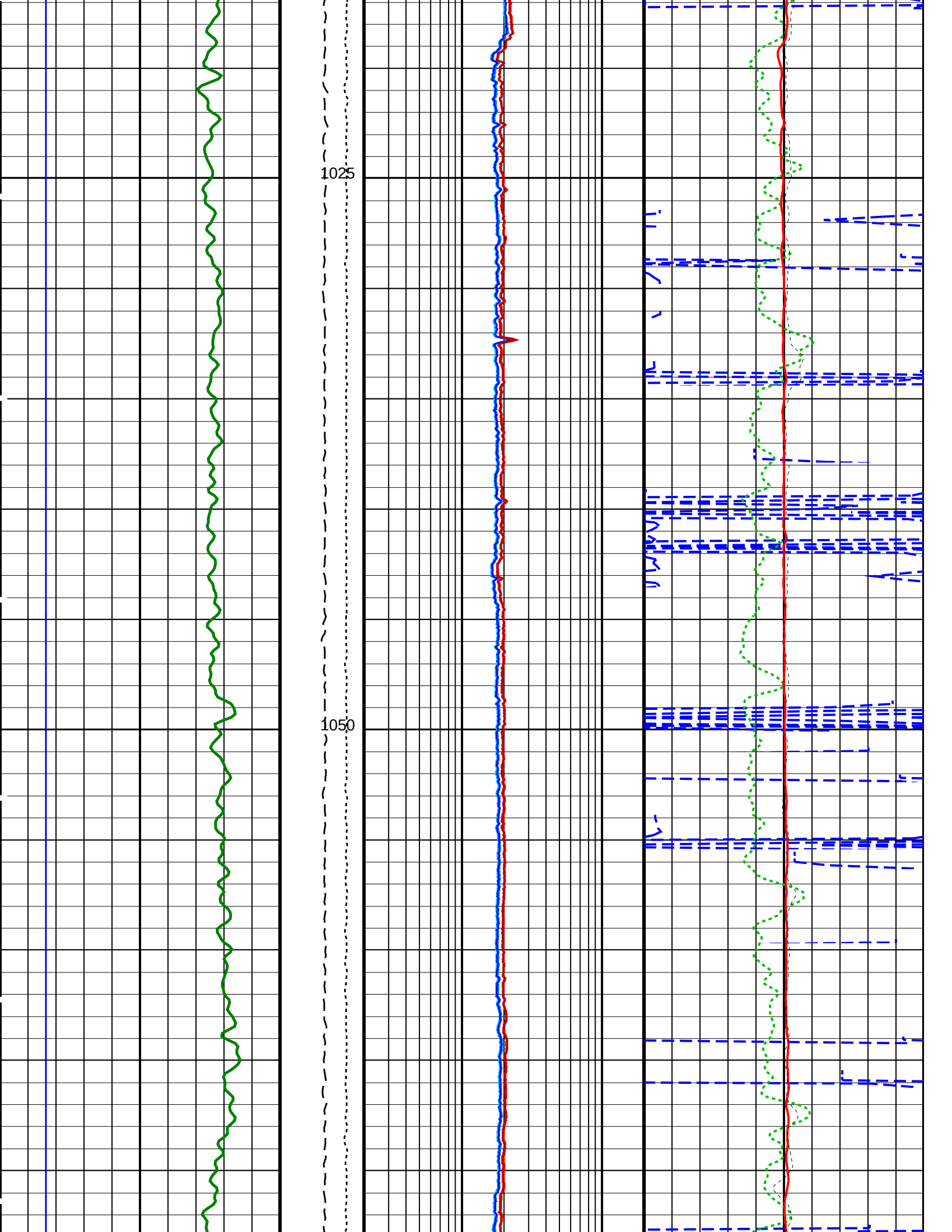

750
775

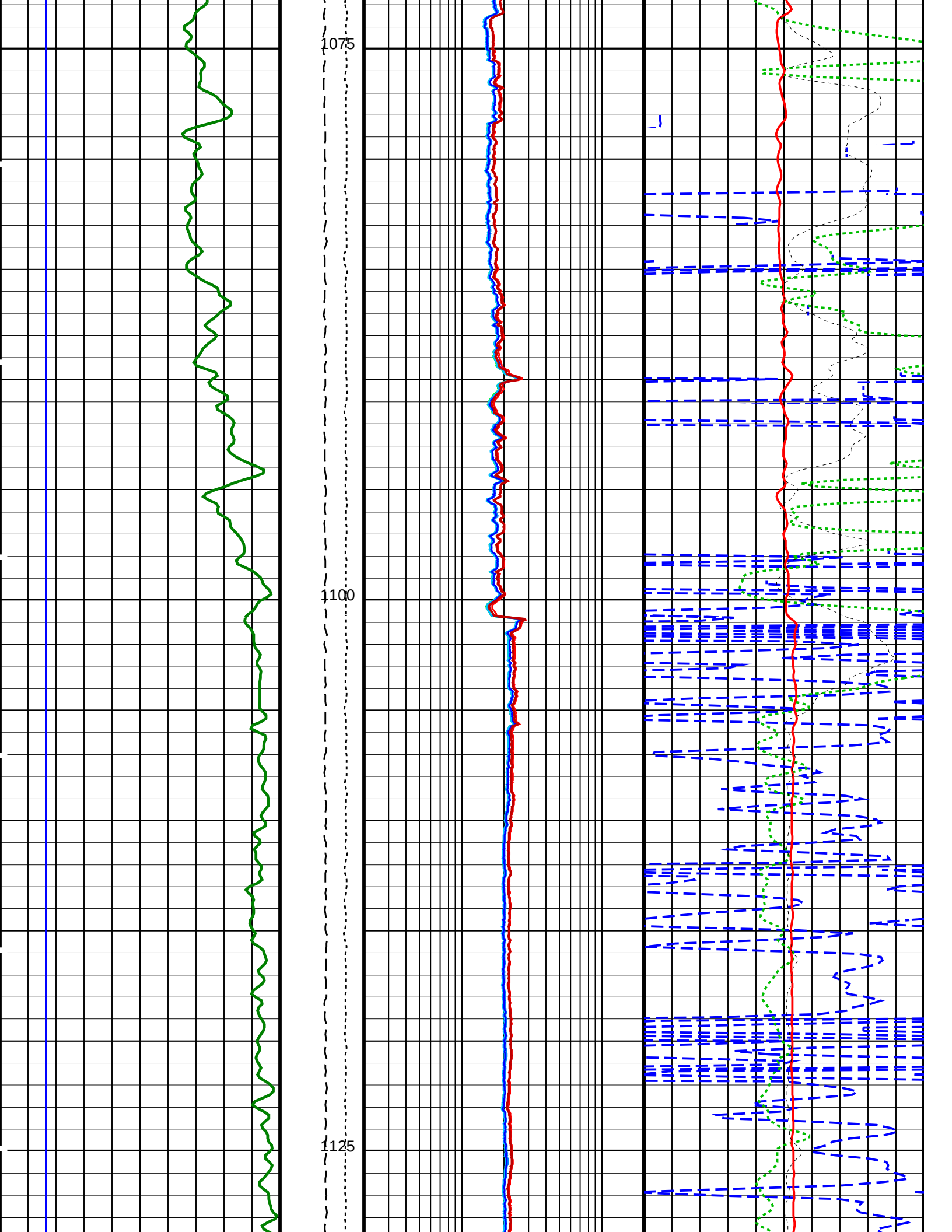

800
825

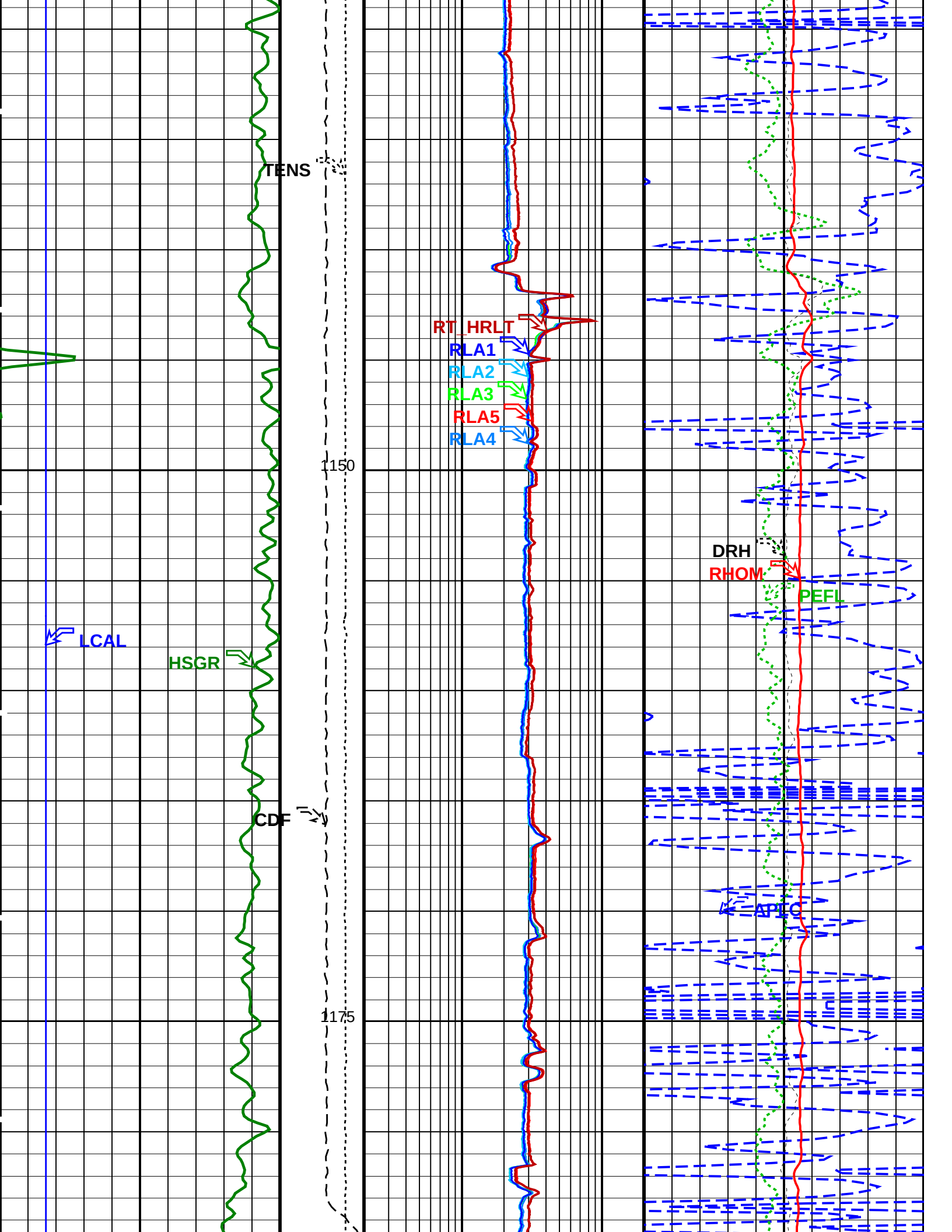

850
875
900

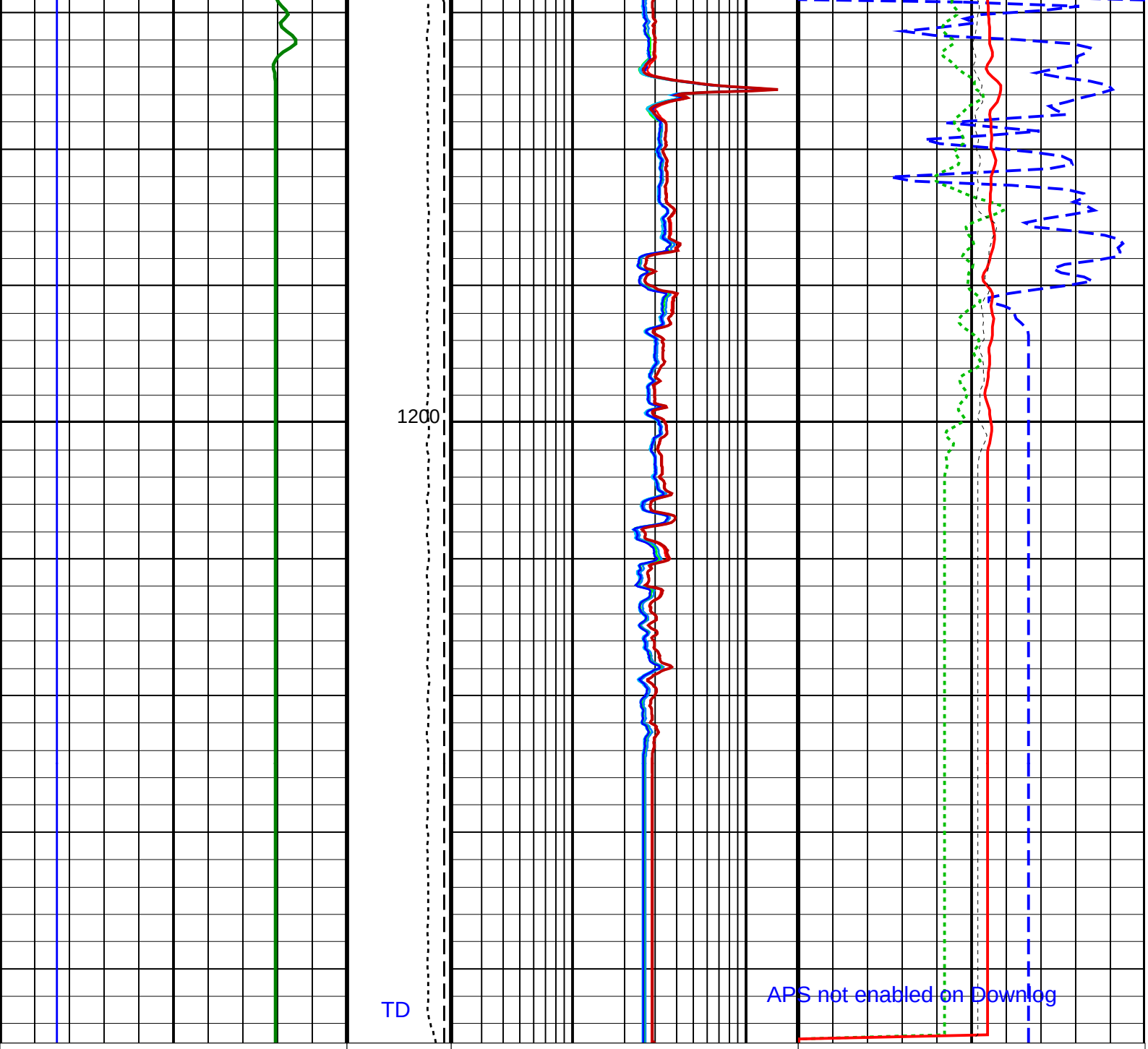

925
950


975
1000


1025
1050


1075
1100
1125


TENS
RT_HRLT
RLA1
RLA2
RLA3
RLA5
RLA4
1150
DRH
RHOM
PEFL
LCAL
HSGR
CDF
APLC
1175



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

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)	212	DEGF
CALSTAT	HRLTB Calibration Status	SHALLOW_DONE	
CALTEMP	HRLTB Calibration Temperature	−1.02714	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	BS	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
ISSBAR	Barite Mud Switch	BARITE	
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	55	DEGF
	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	OFF	
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	1967.82	V
ADSO	APS Array Detectors Data Source Switch	Both	
AFSD	APS Far Detector High Voltage Setting	2075.82	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	1735.71	V
ASOS	APS Standoff Correction Switch	ON	
ATSS	APS Temperature−Pressure−Salinity Correction Switch	ON	
BHFL_APS	APS TNPH Borehole Fluid Type	WATER	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	212	DEGF
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	BS	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG

GGRD	Geothermal Gradient	0.01	DF/F
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	BARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
MCCO_APS	APS TNPH Mud Cake Correction Option	NO	
MCOR_APS	APS TNPH Mud Correction	BARI	
MWCO_APS	APS TNPH Mud Weight Correction Option	YES	
NARC	APS Near/Array Calibration Ratio	1.06899	
NFRC	APS Near/Far Calibration Ratio	0.897215	
PTCO_APS	APS TNPH Pressure/Temperature Correction Option	YES	
SHT	Surface Hole Temperature	55	DEGF
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)	212	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	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
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	−0.000195465	
HALF	HNGS Alpha Filter Length	60	IN
HCRB	HNGS Apply Borehole Potassium Correction	NONE	
HMWM	Mud Weighting Material	BARI	
HNPE	HNGS Processing Enable	YES	
ISSBAR	Barite Mud Switch	BARITE	
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	55	DEGF
TPOS	Tool Position	ECCE	
VBA1	HNGS Detector 1 Variable Barite Factor Running Average	0.976002	
VBA2	HNGS Detector 2 Variable Barite Factor Running Average	0.994936	
EDTC−B: Enhanced DTS Cartridge			
BHFL	Borehole Fluid Type	WATER	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	212	DEGF
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	BS	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
HSCO	Hole Size Correction Option	YES	
ISSBAR	Barite Mud Switch	BARITE	
ISSBAR_EDTC	Nuclear Mud Type	BARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
MCCO	Mud Cake Correction Option	NO	
MCOR	Mud Correction	BARI	
MWCO	Mud Weight Correction Option	YES	
PTCO	Pressure/Temperature Correction Option	NO	
SDAT	Standoff Data Source	SOCN	
SHT	Surface Hole Temperature	55	DEGF
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	1.26	G/C3
DO	Depth Offset for Playback	0.0	M
FLEV	Fluid Level	−50000.00	M
MST	Mud Sample Temperature	23.00	DEGC

MST	Mud Sample Temperature	23.00	DEGC
PBVSADP	Use alternate depth channel for playback	NO	
PP	Playback Processing	RECOMPUTE	
RMFS	Resistivity of Mud Filtrate Sample	−50000.0000	OHMM
RW	Resistivity of Connate Water	1.0000	OHMM
TD	Total Depth	4012.4	FT
TDD	Total Depth − Driller	1223.00	M
TDL	Total Depth − Logger	1223.00	M
TWS	Temperature of Connate Water Sample	37.78	DEGC

Format: TripleCombo Vertical Scale: 1:200 Graphics File Created: 22−Jan−2018 15:55

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

Input DLIS Files

DEFAULT	Flip_MSS_LDEO_HRLA_035LUP	PRODUCER	22−Jan−2018 15:52	1222.7 M	530.4 M

Output DLIS Files

DEFAULT	MSS_LDEO_HRLA_LDL_036PUP	FN:61	PRODUCER	22−Jan−2018 15:55

Output DLIS Files

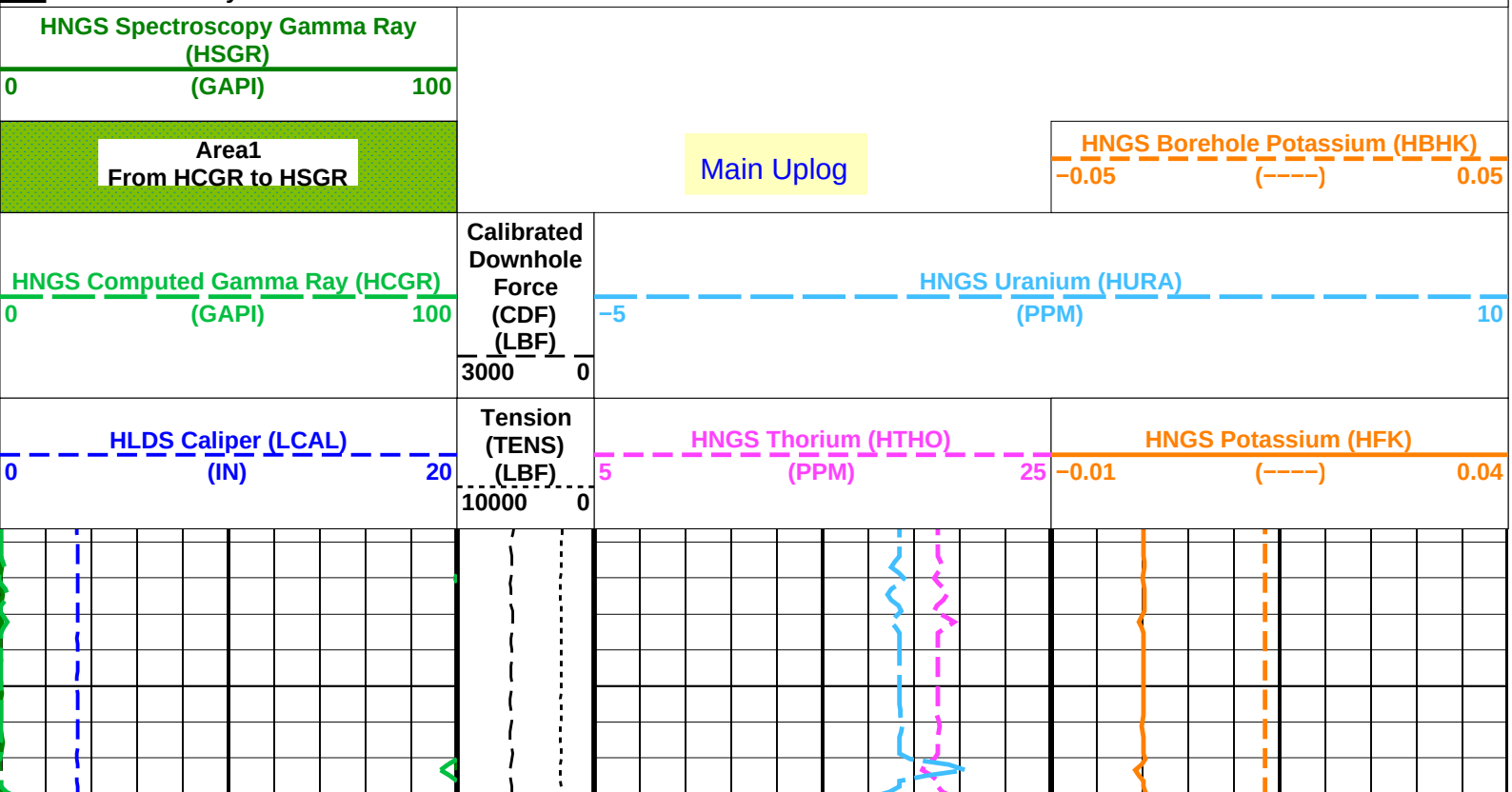
DEFAULT	MSS_LDEO_HRLA_LDL_015LUP	FN:21	PRODUCER	20−Jan−2018 23:57	1223.0 M	550.9 M
BACKUP_	MSS_LDEO_HRLA_LDL_015LUP	FN:22	PRODUCER	20−Jan−2018 23:57	1223.0 M	550.9 M

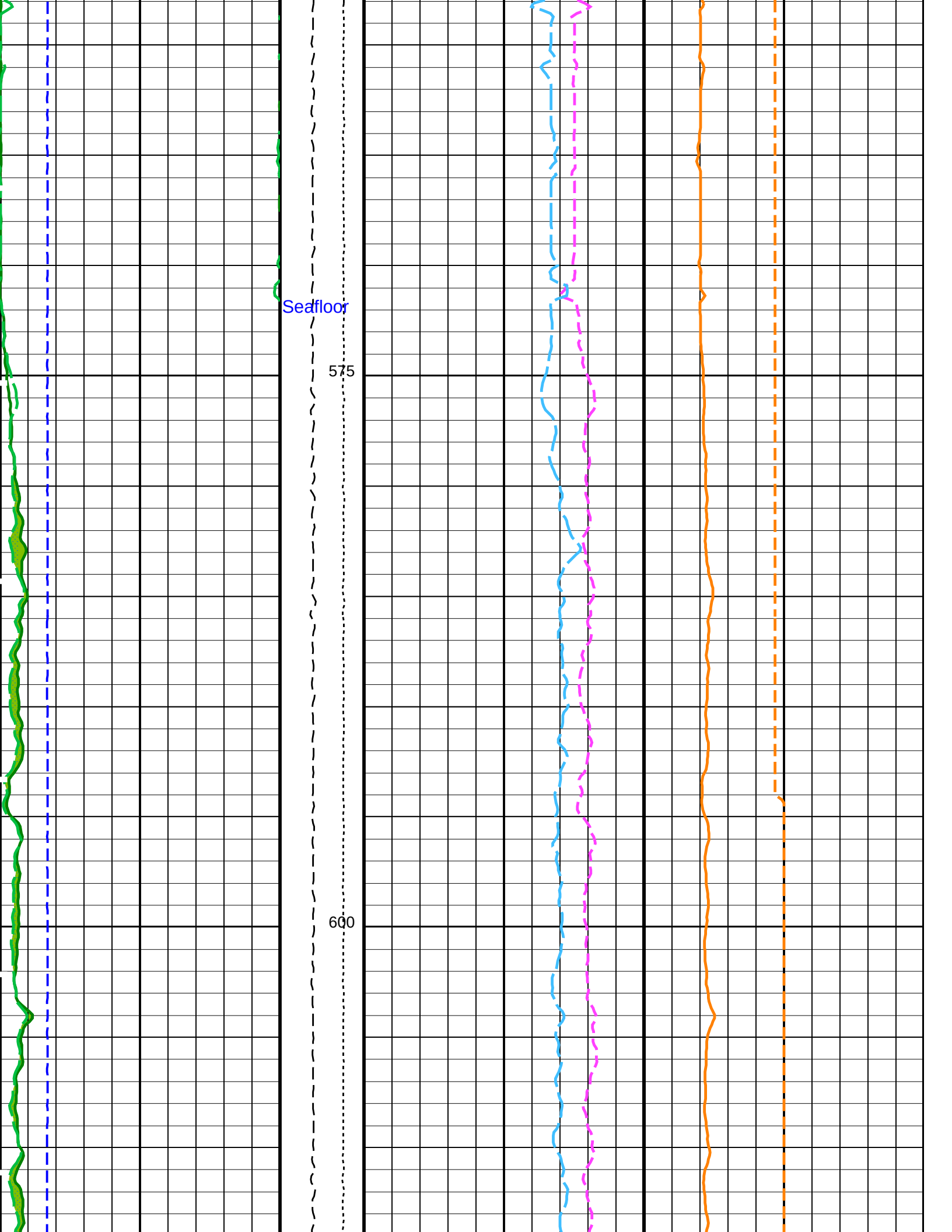
OP System Version: 19C0−187

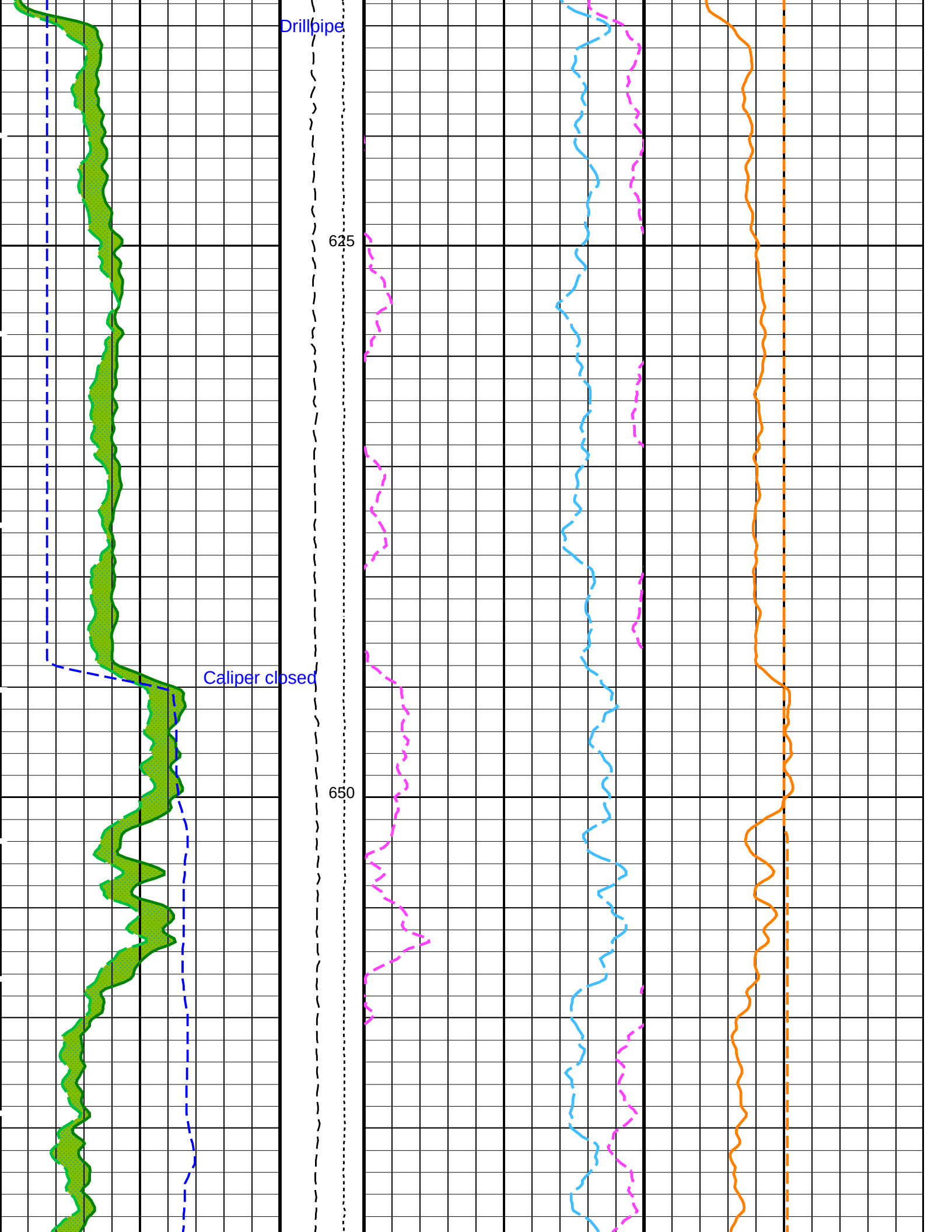
MSS_LDEO−A	19C0−187	HRLT−B	19C0−187
HLDS	19C0−187	LDSC−B	19C0−187
APS−C	19C0−187	HNGC−B	19C0−187
HNGS−BA	19C0−187	EDTC−B	SKK−5169−EDTCB

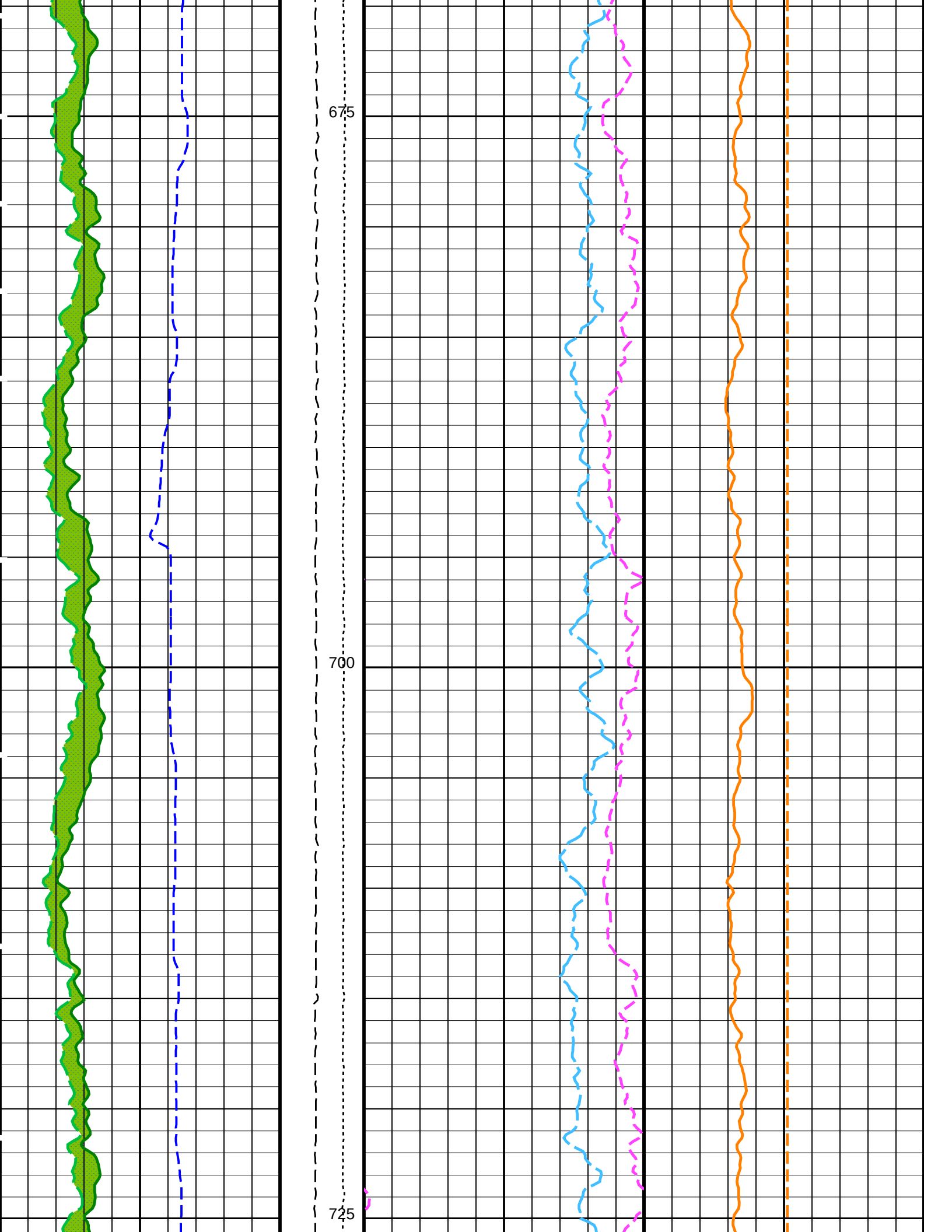
PIP SUMMARY

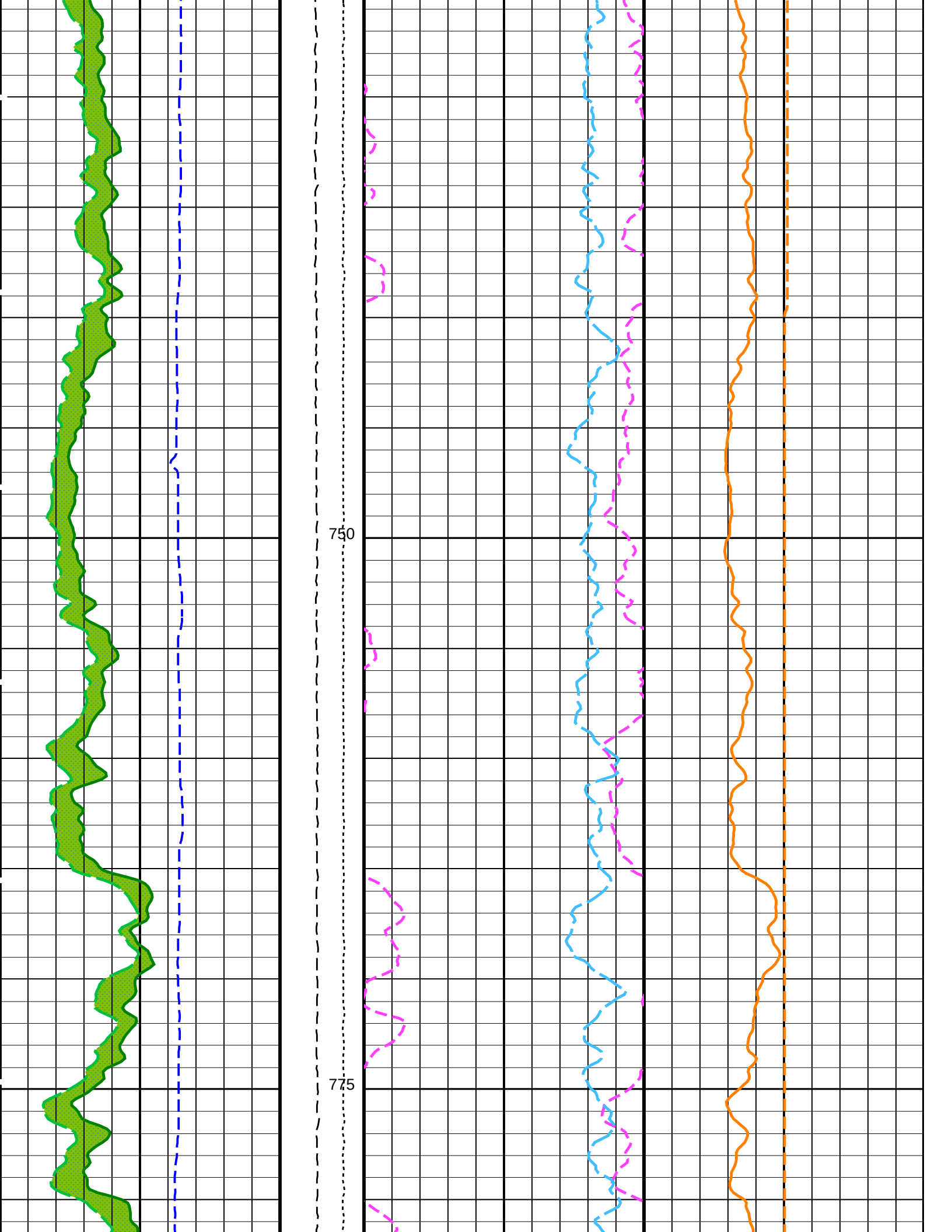
Time Mark Every 60 S

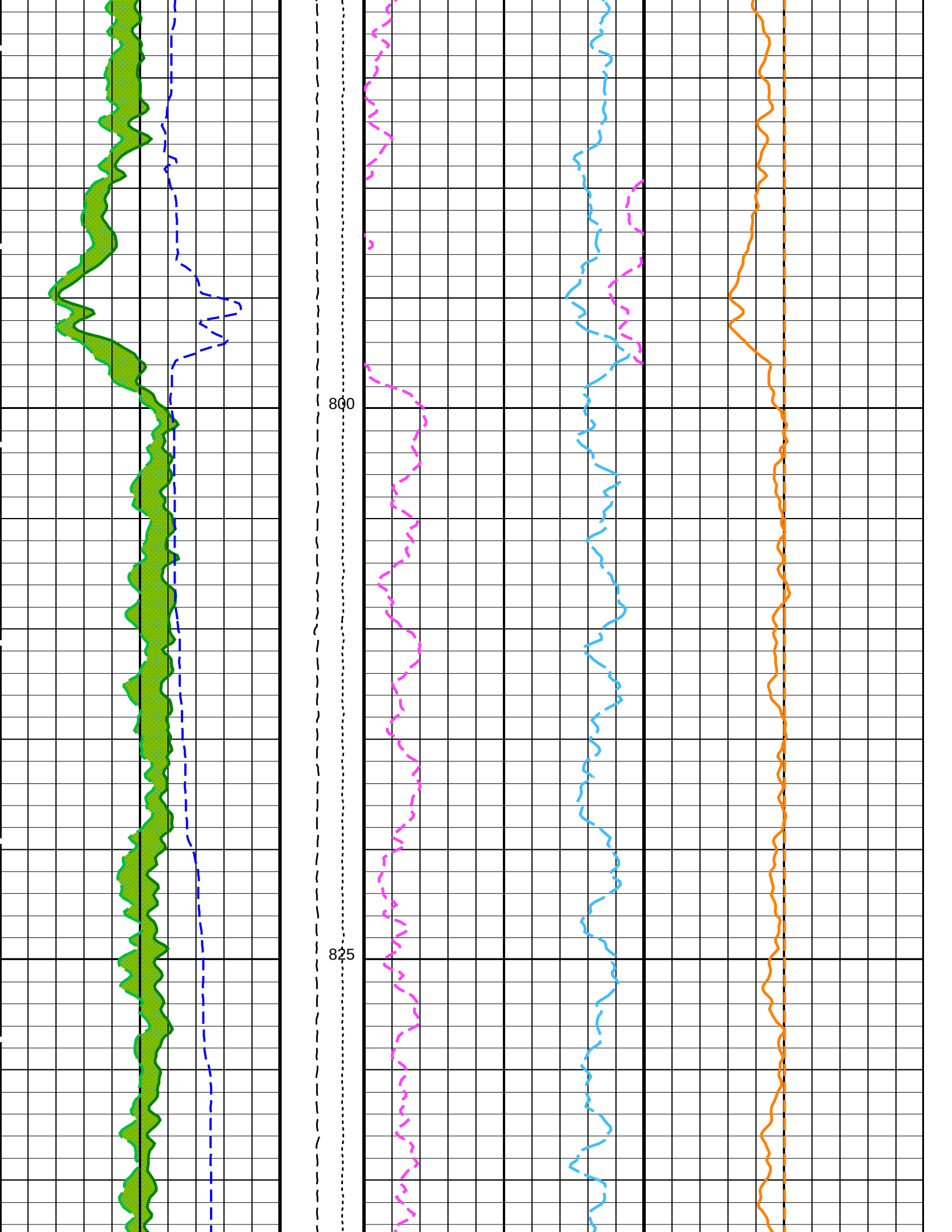


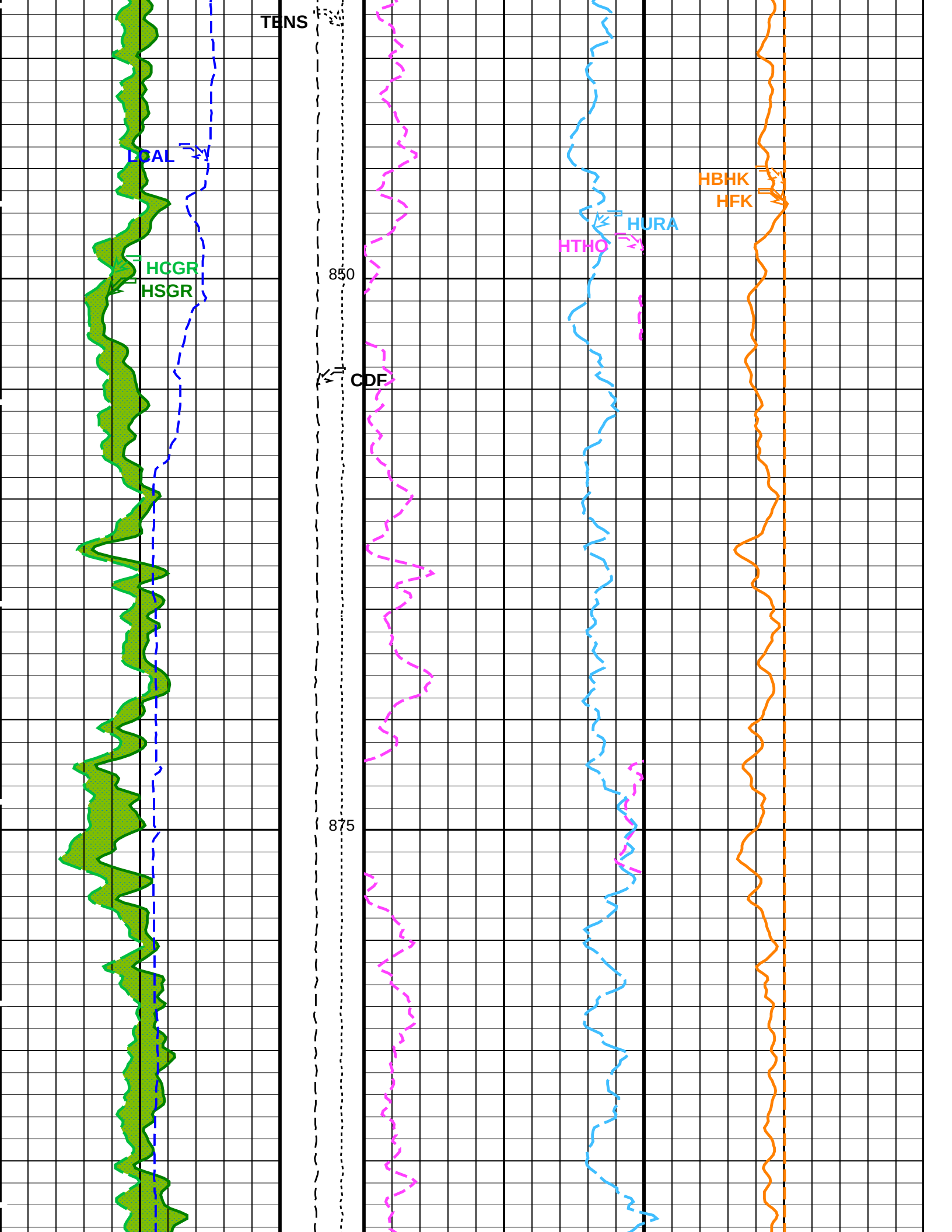

Seafloor
575
600

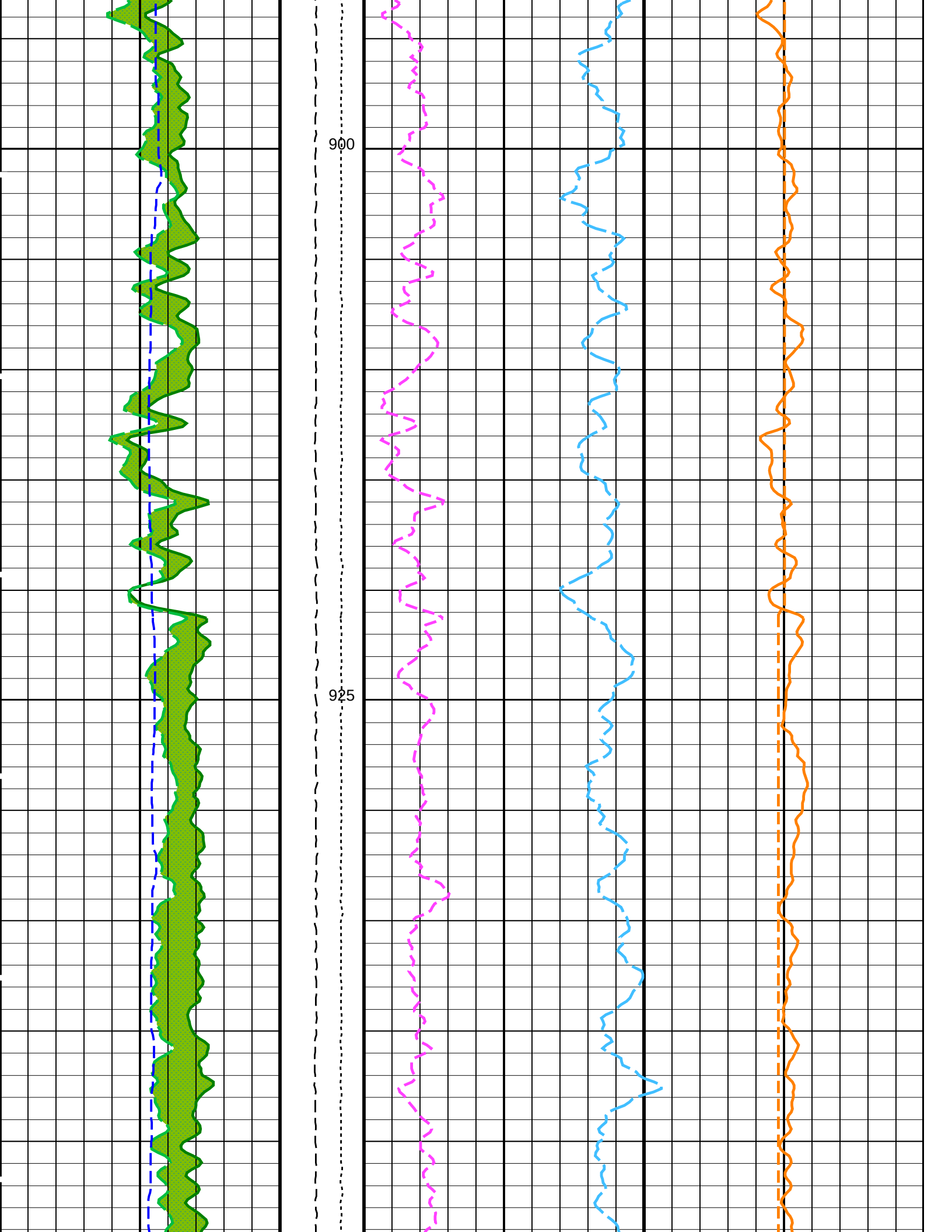

Drillpipe
625
Caliper closed
650

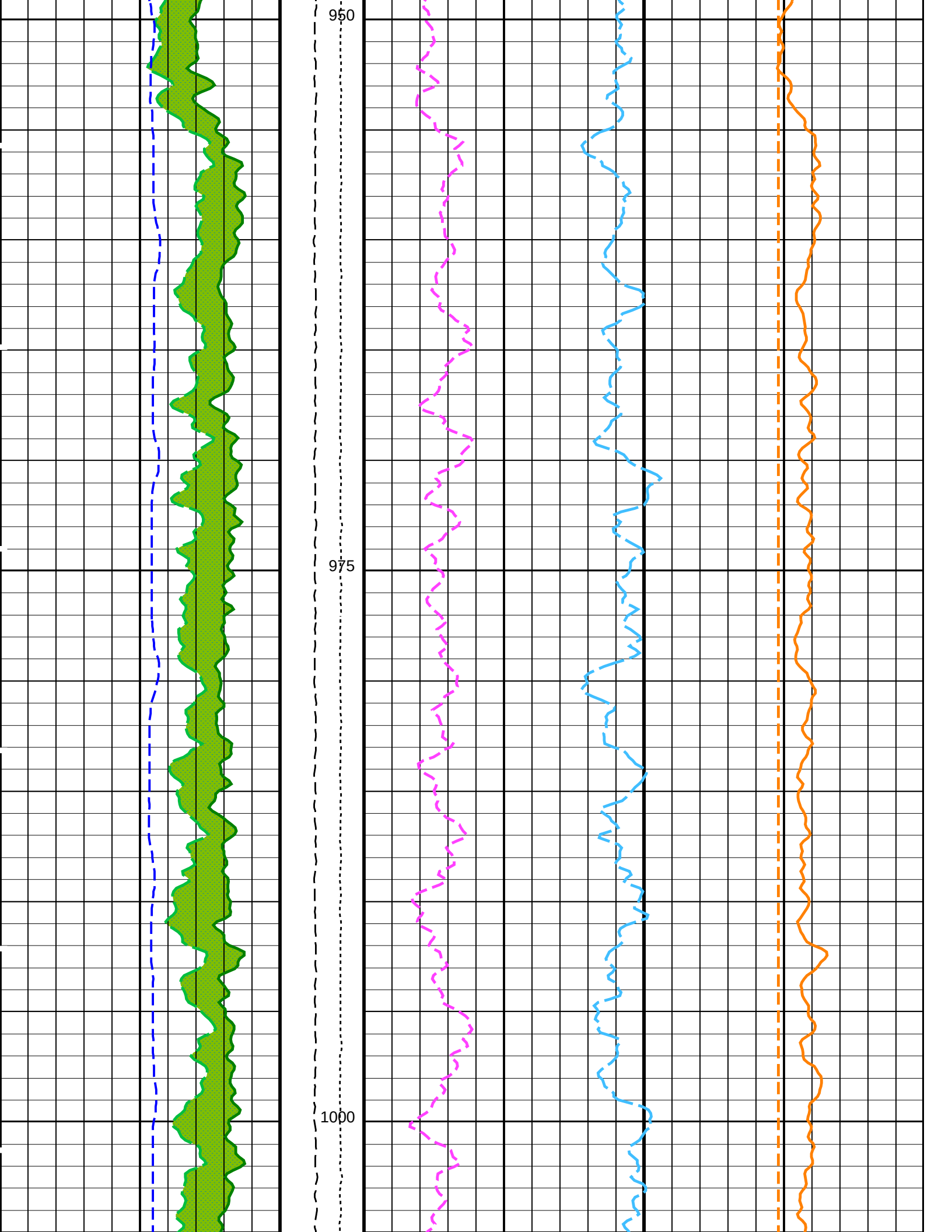

675
700
725

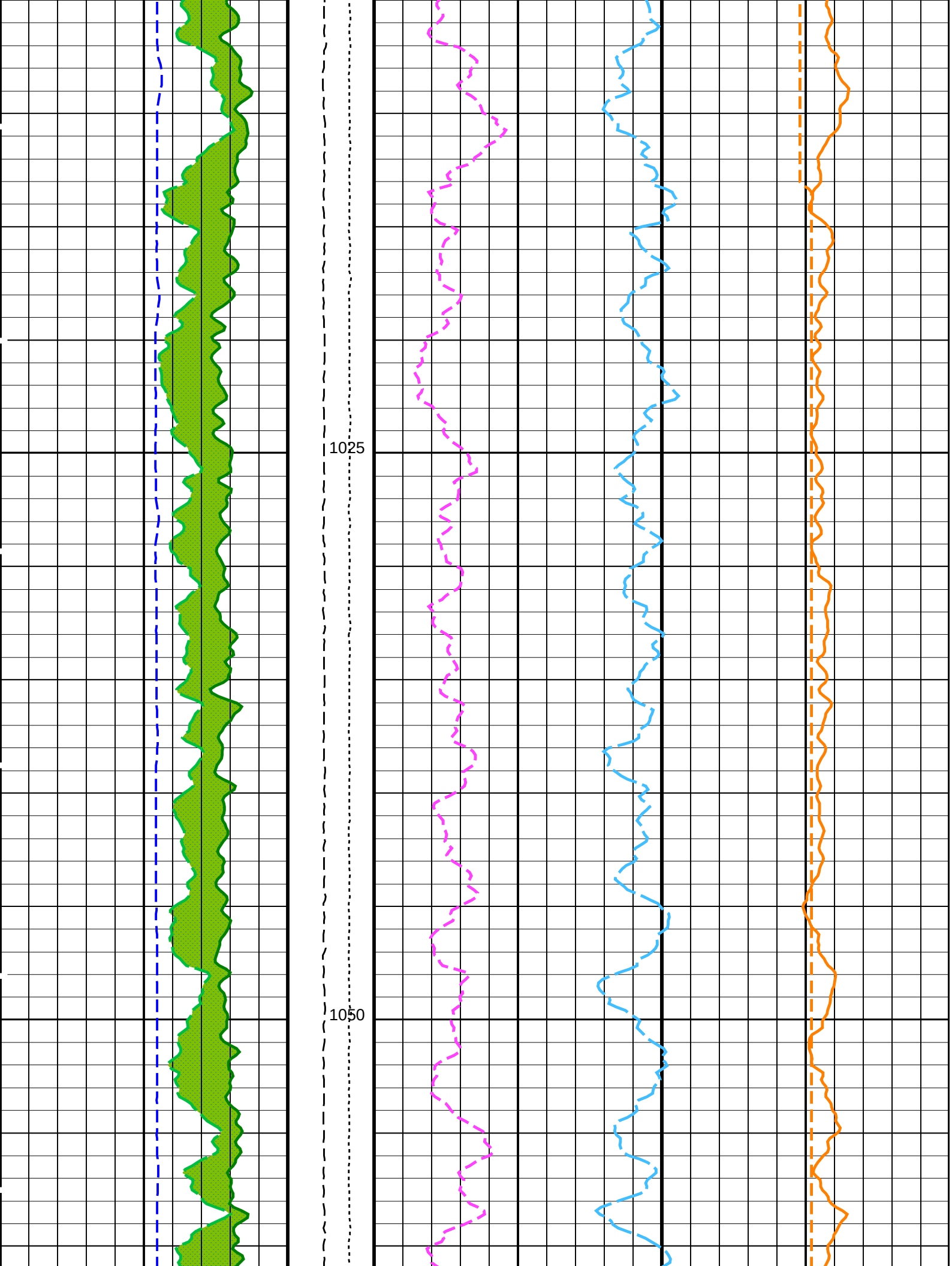

750
775

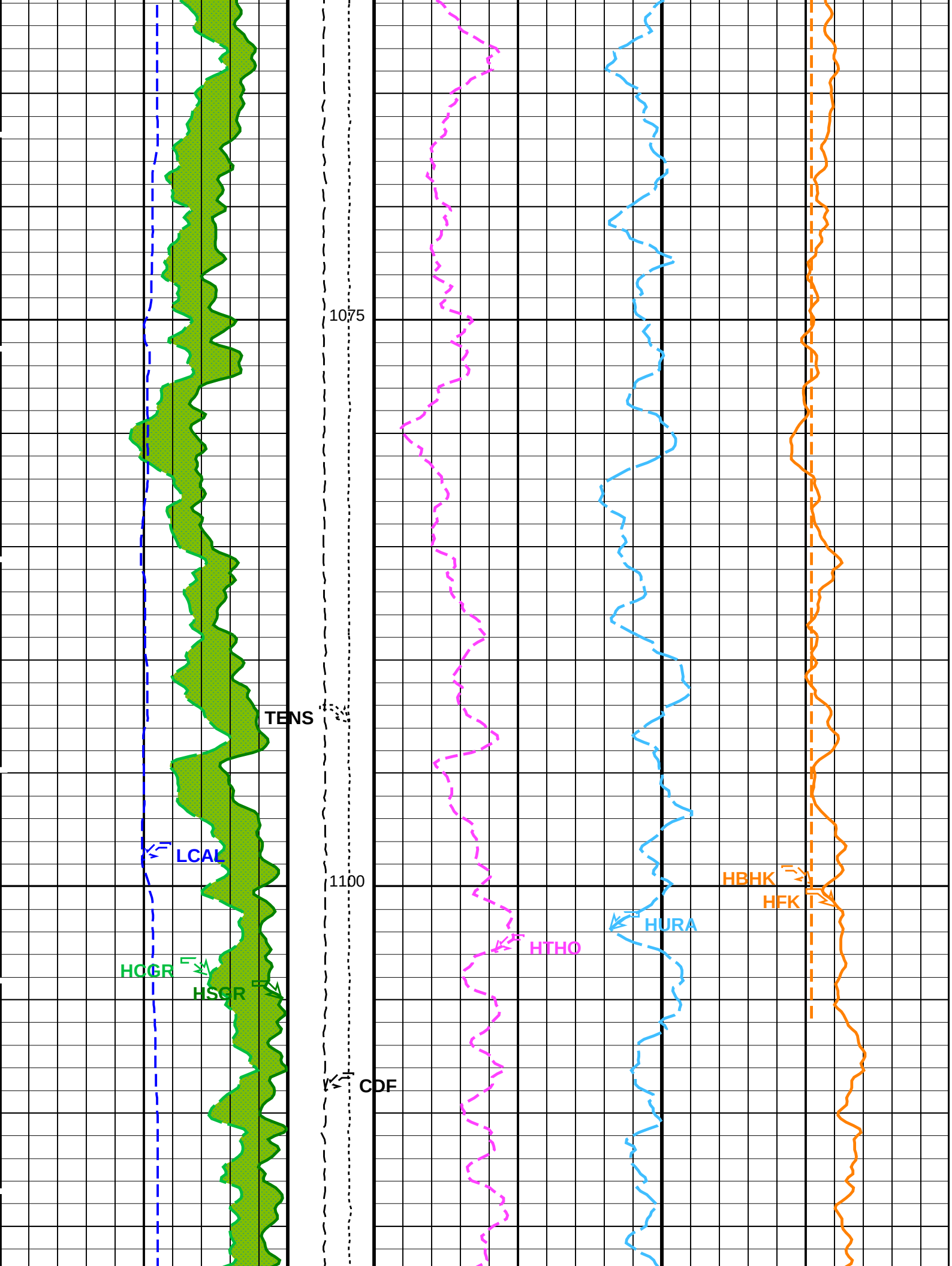

800
825

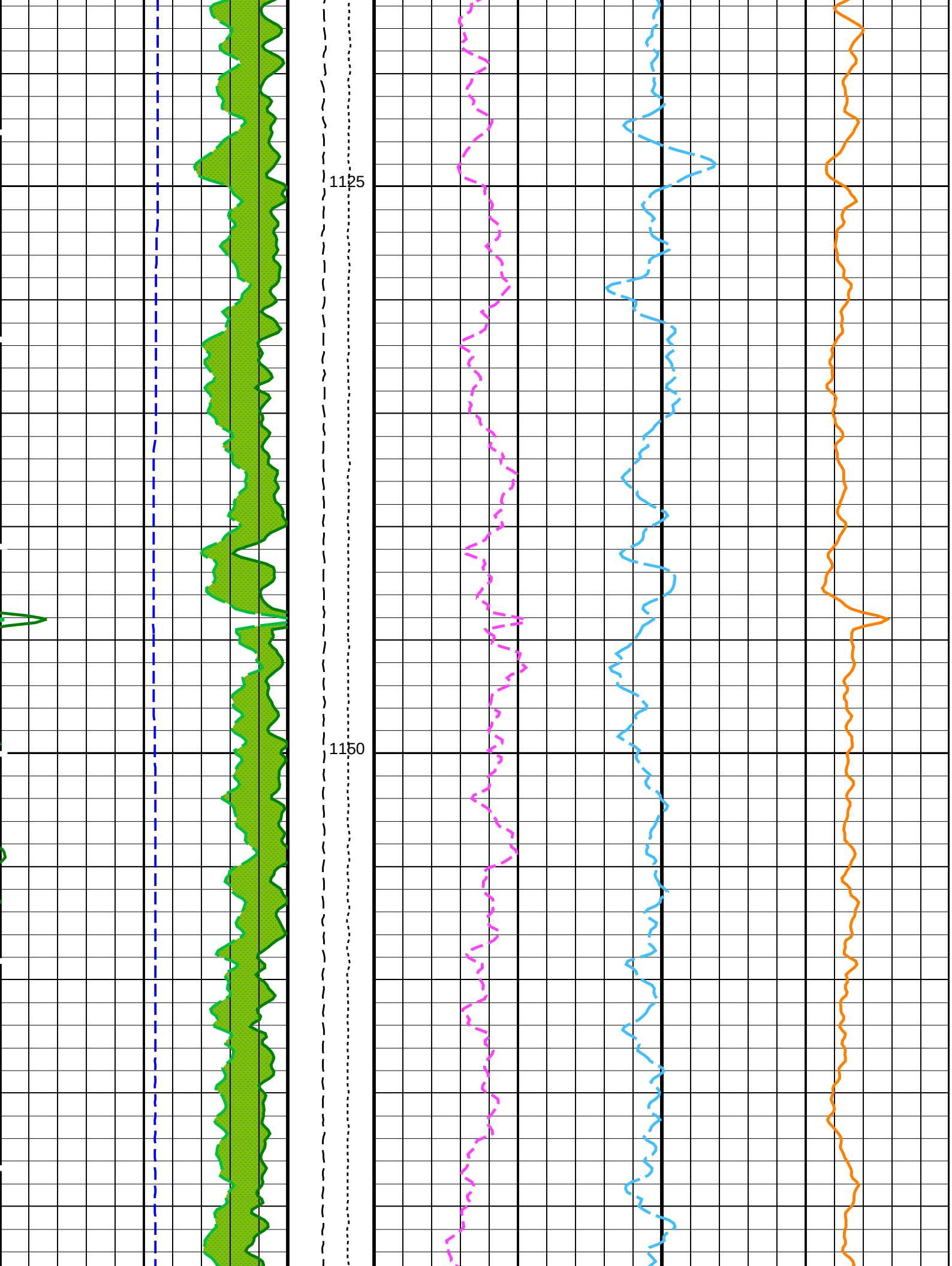

TENS
LCAL
HCGR
HSGR
850
CDF
875
HTHO
HURA
HBHK
HFK

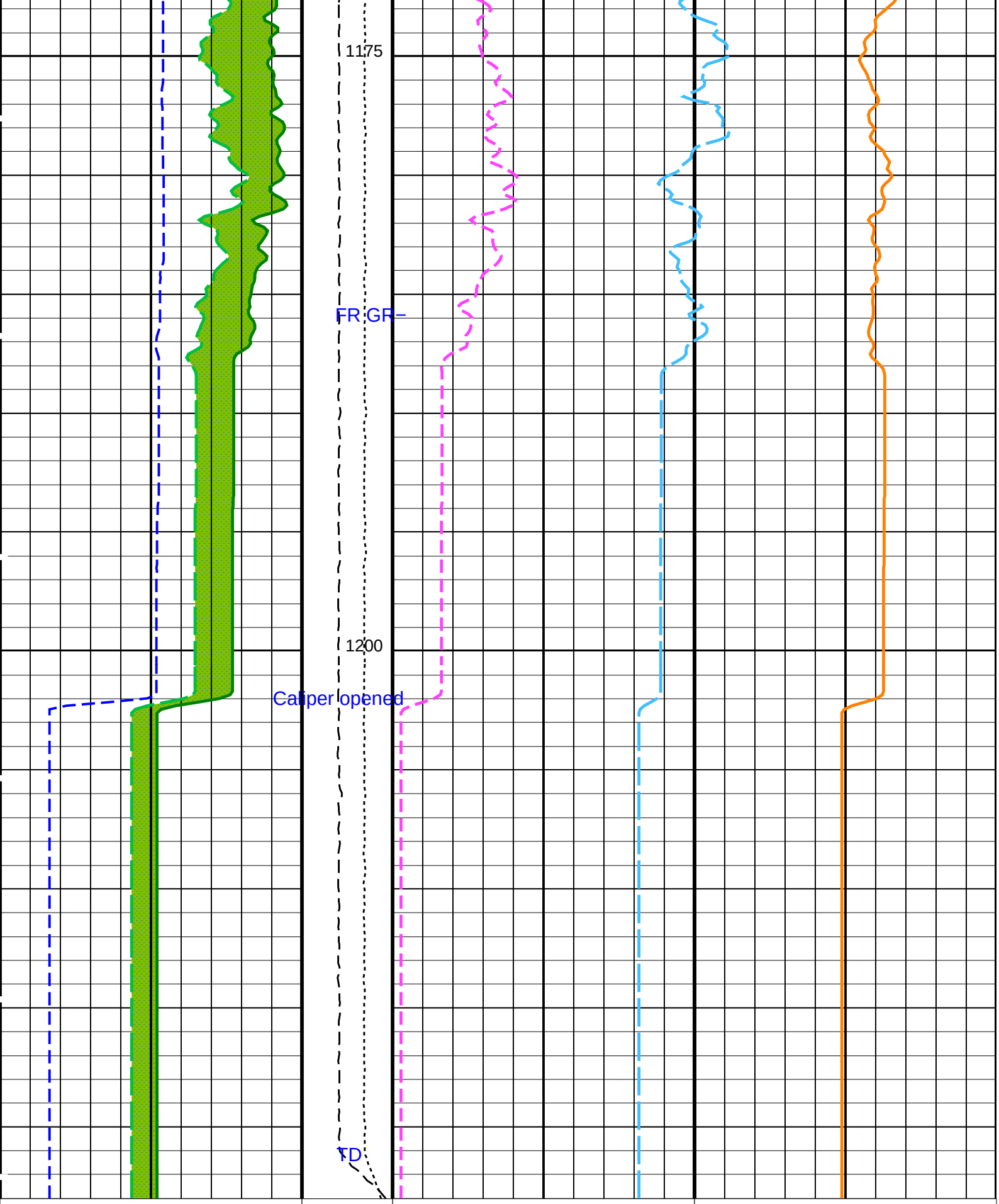

900
925


950
975
1000


1025
1050


1075
TENS
LCAL
1100
HCGR
HSGR
CDF
HTHO
HURA
HBHK
HFK


1125
1150



HLDS Caliper (LCAL)	Tension (TENS) (LBF)	HNGS Thorium (HTHO)	HNGS Potassium (HFK)
0 (IN) 20	10000 0	5 (PPM) 25	−0.01 (−−−−) 0.04

HNGS Computed Gamma Ray (HCGR)	Calibrated Downhole	HNGS Uranium (HURA)

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

Force (CDF) (LBF)
3000 0

HNGS Uranium (HURA)
−5 (PPM) 10

Area1
From HCGR to HSGR

Main Uplog

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

HNGS Spectroscopy Gamma Ray (HSGR)
0 (GAPI) 100

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	0.000207609	
HALF	HNGS Alpha Filter Length	60	IN
HCRB	HNGS Apply Borehole Potassium Correction	NONE	
HMWM	Mud Weighting Material	BARI	
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	0.973678	
VBA2	HNGS Detector 2 Variable Barite Factor Running Average	0.98098	
	EDTC−B: Enhanced DTS Cartridge		
BHS	Borehole Status	OPEN	
GCSE	Generalized Caliper Selection	LCAL	
	System and Miscellaneous		
BS	Bit Size	9.875	IN

Format: HNGSYields Vertical Scale: 1:200 Graphics File Created: 20−Jan−2018 23:57

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_015LUP	FN:21	PRODUCER	20−Jan−2018 23:57
BACKUP_	MSS_LDEO_HRLA_LDL_015LUP	FN:22	PRODUCER	20−Jan−2018 23:57

Company: International Ocean Discovery Program Well: Expedition 374, Site U1521A

Output DLIS Files

DEFAULT	MSS_LDEO_HRLA_LDL_015LUP	FN:21	PRODUCER	20−Jan−2018 23:57	1223.0 M	550.9 M
BACKUP_	MSS_LDEO_HRLA_LDL_015LUP	FN:22	PRODUCER	20−Jan−2018 23:57	1223.0 M	550.9 M

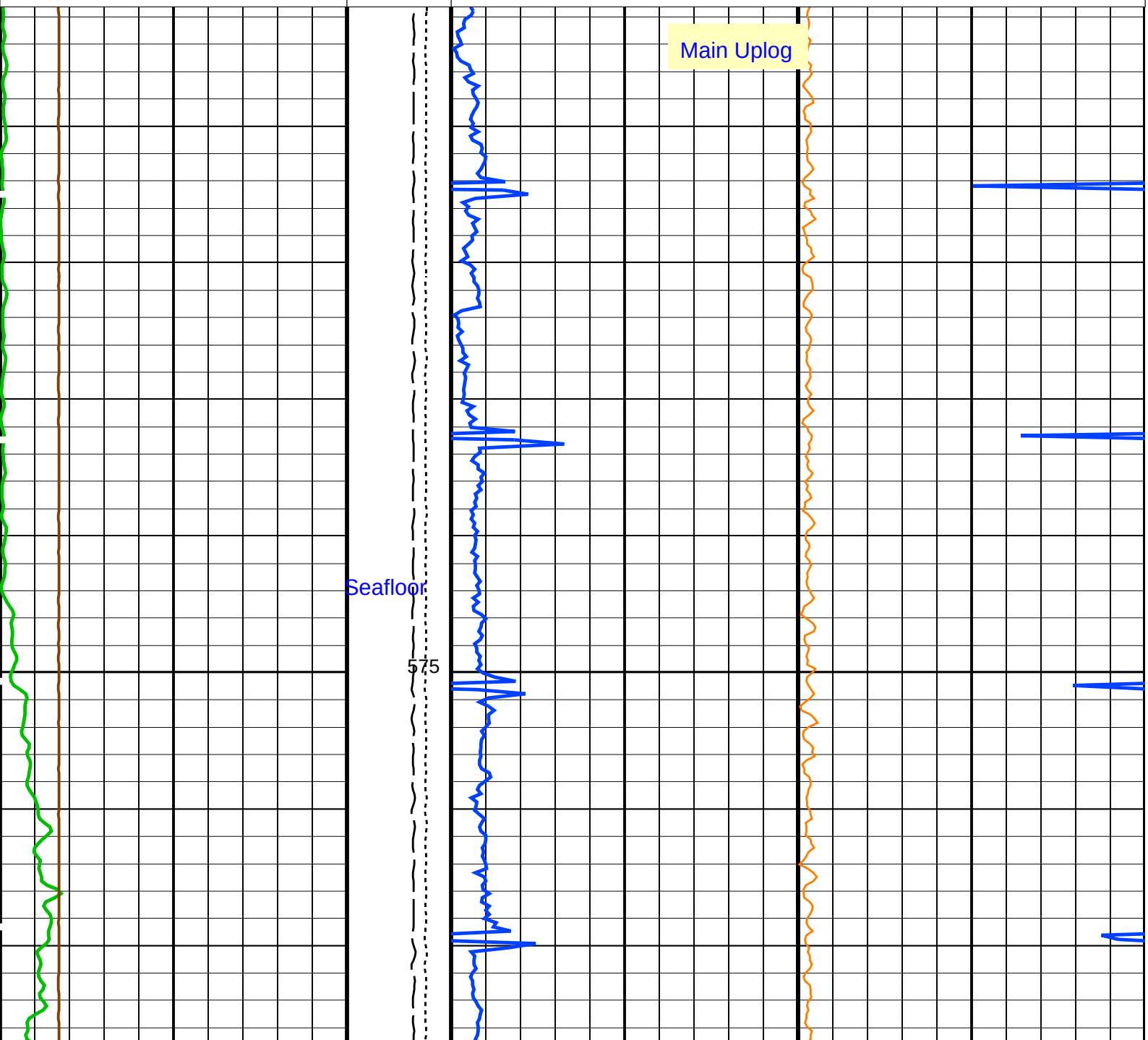
OP System Version: 19C0−187

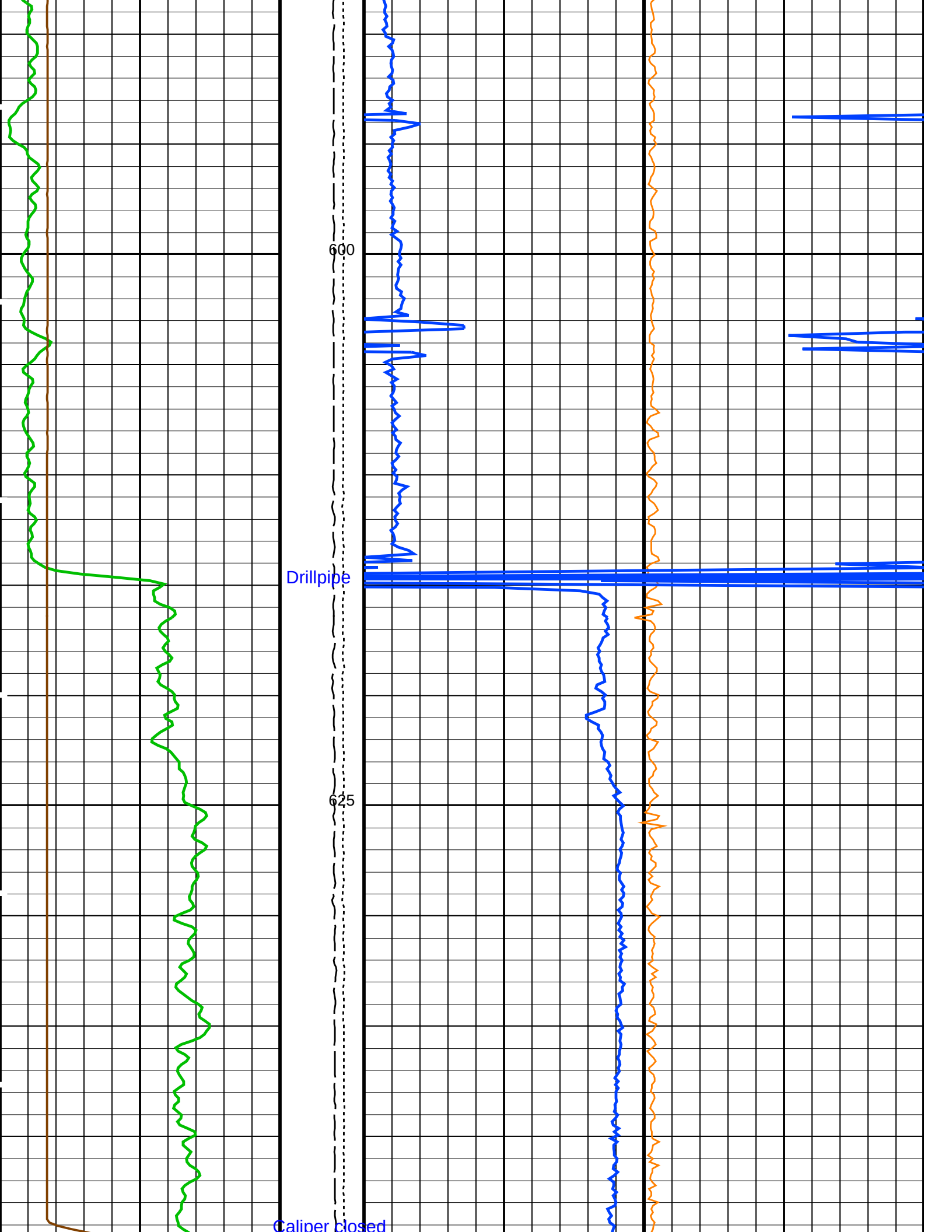
MSS_LDEO−A	19C0−187	HRLT−B	19C0−187
HLDS	19C0−187	LDSC−B	19C0−187
APS−C	19C0−187	HNGC−B	19C0−187
HNGS−BA	19C0−187	EDTC−B	SKK−5169−EDTCB

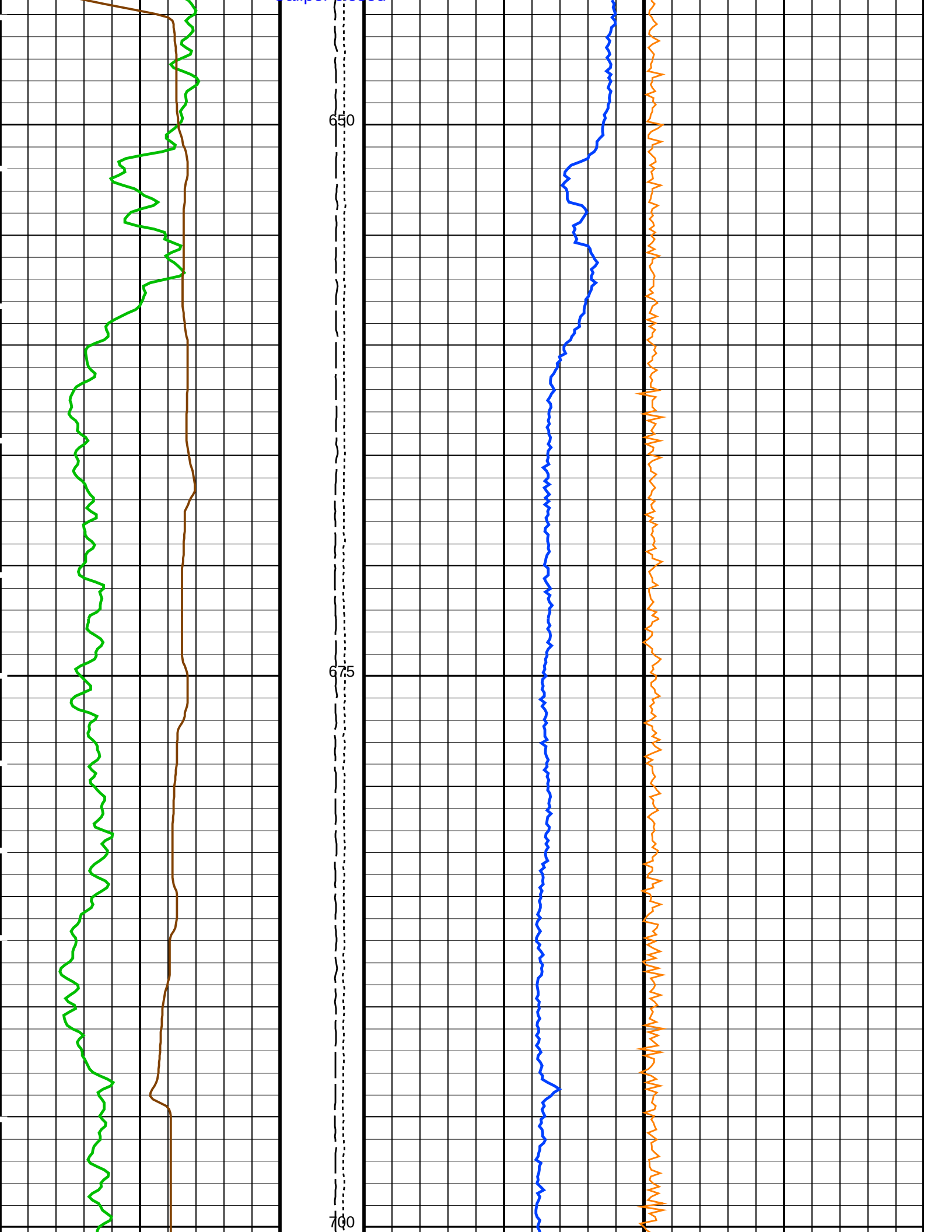
PIP SUMMARY

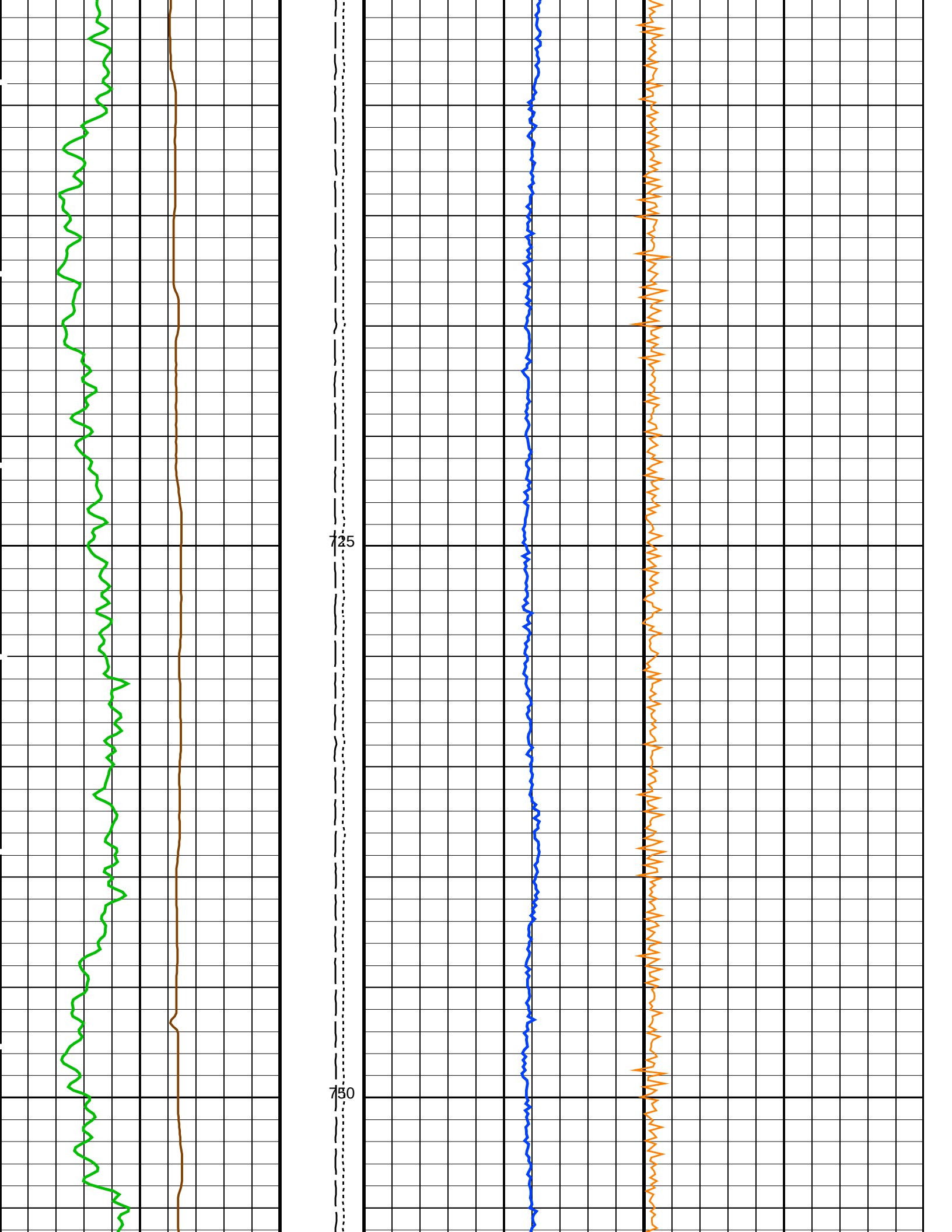
Time Mark Every 60 S

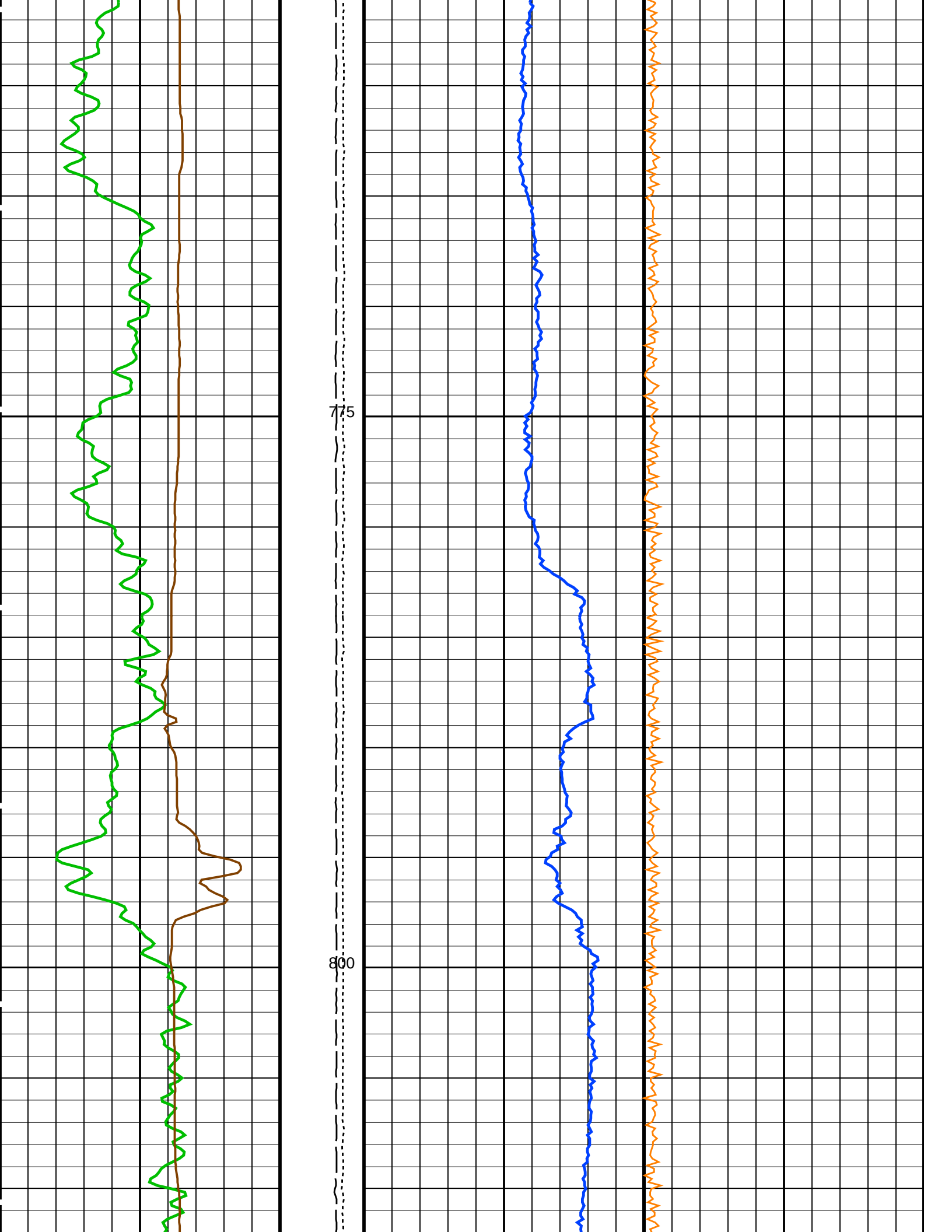
Gamma Ray (GR_EDTC)	Calibrated Downhole Force (CDF) (LBF)	Dual−Coil Susceptibility (MSSLSUS_LDEO)
0 (GAPI) 100	5000 0	0 (PPM) 5000
HLDS Caliper (LCAL)	**Tension (TENS) (LBF)**	**Axial Acceleration (MSSZACC_LDEO)**
0 (IN) 20	10000 0	0 (M/S2) 20

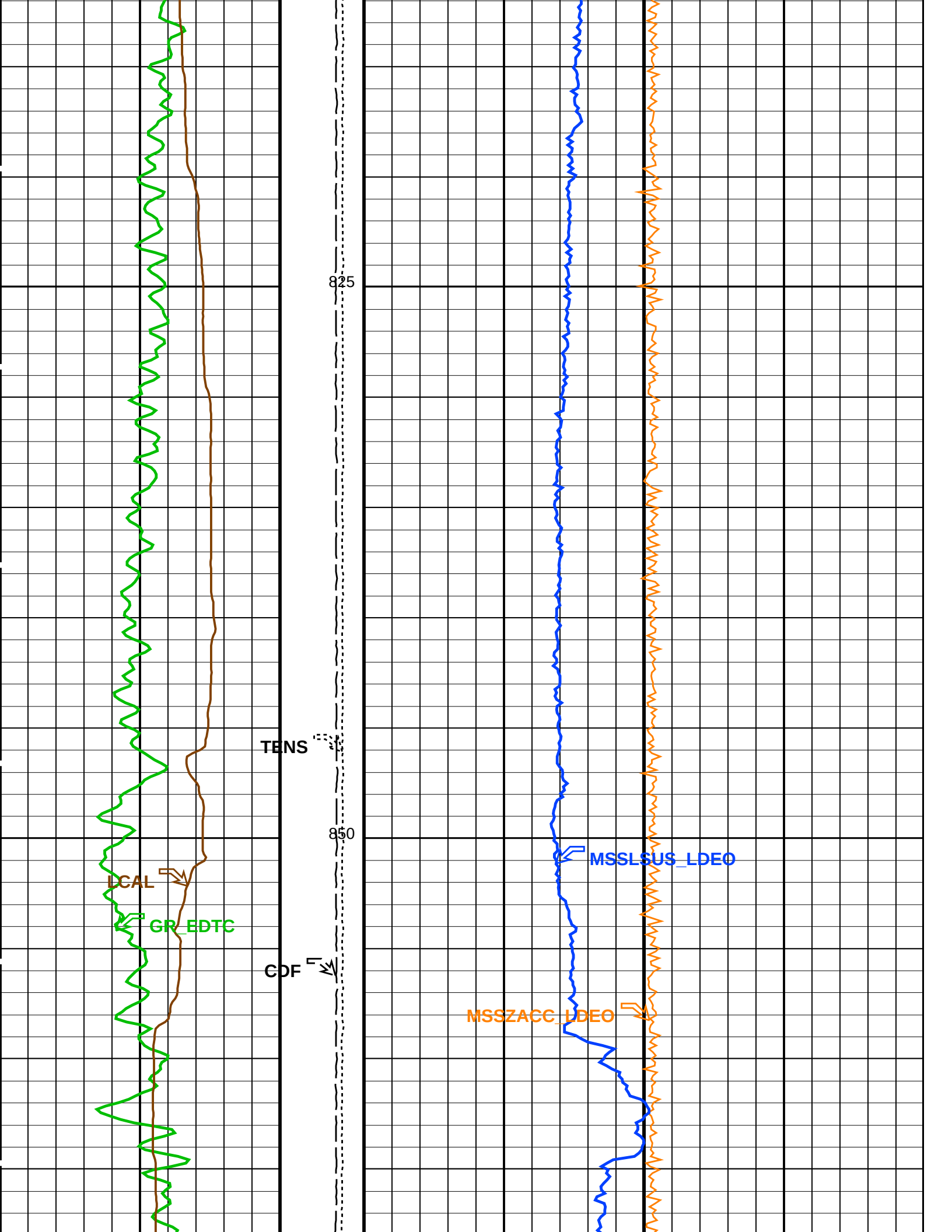


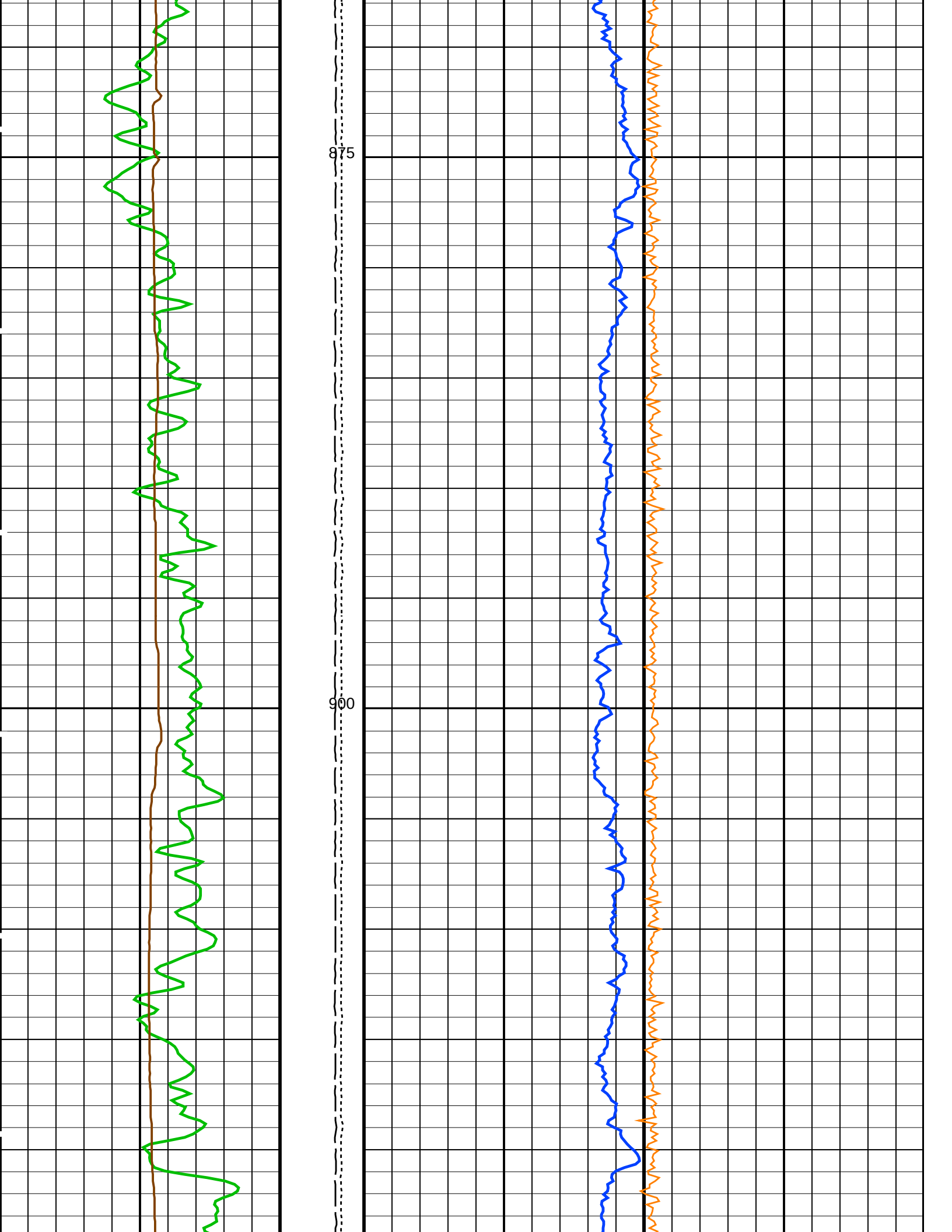

600
Drillpipe
625
Caliper closed

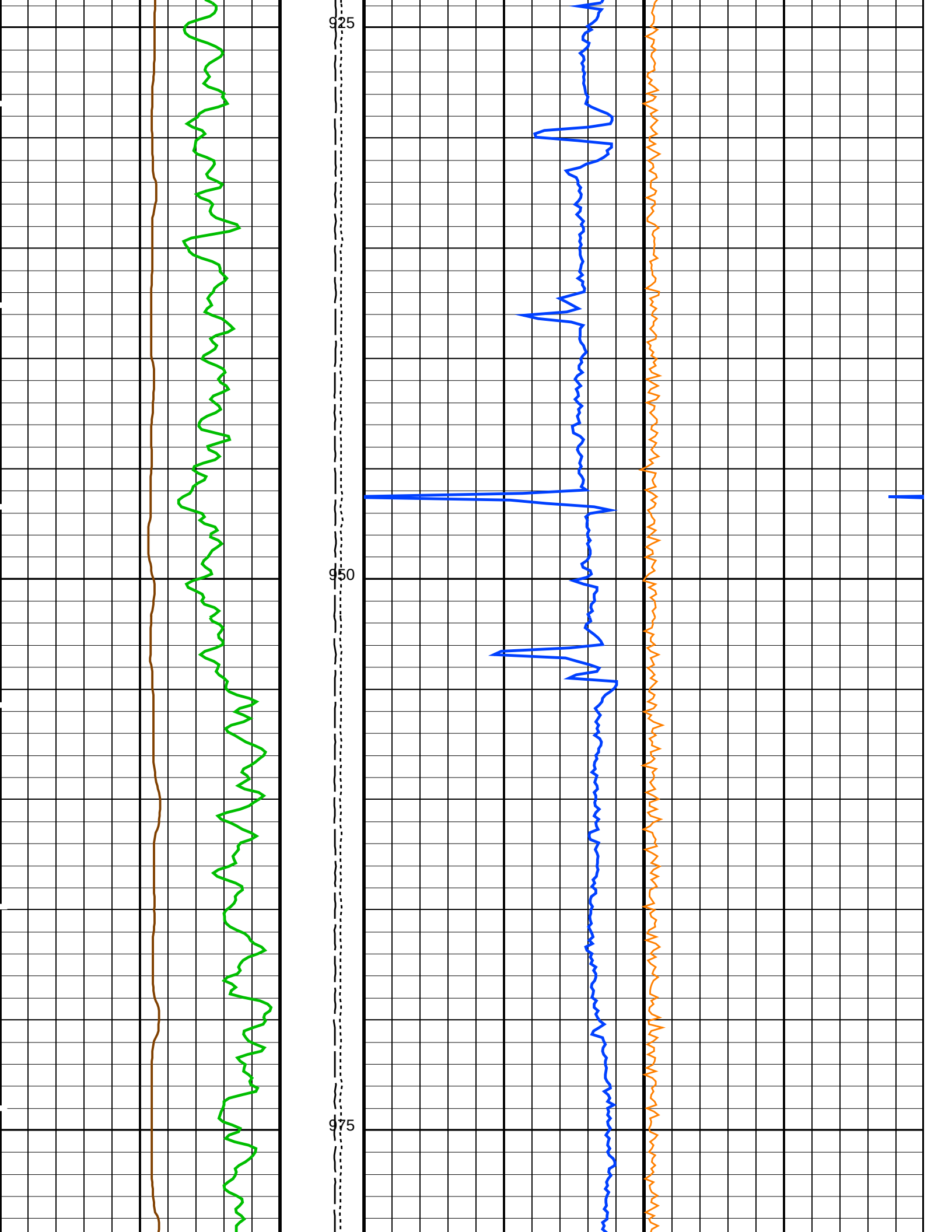

650
675
700

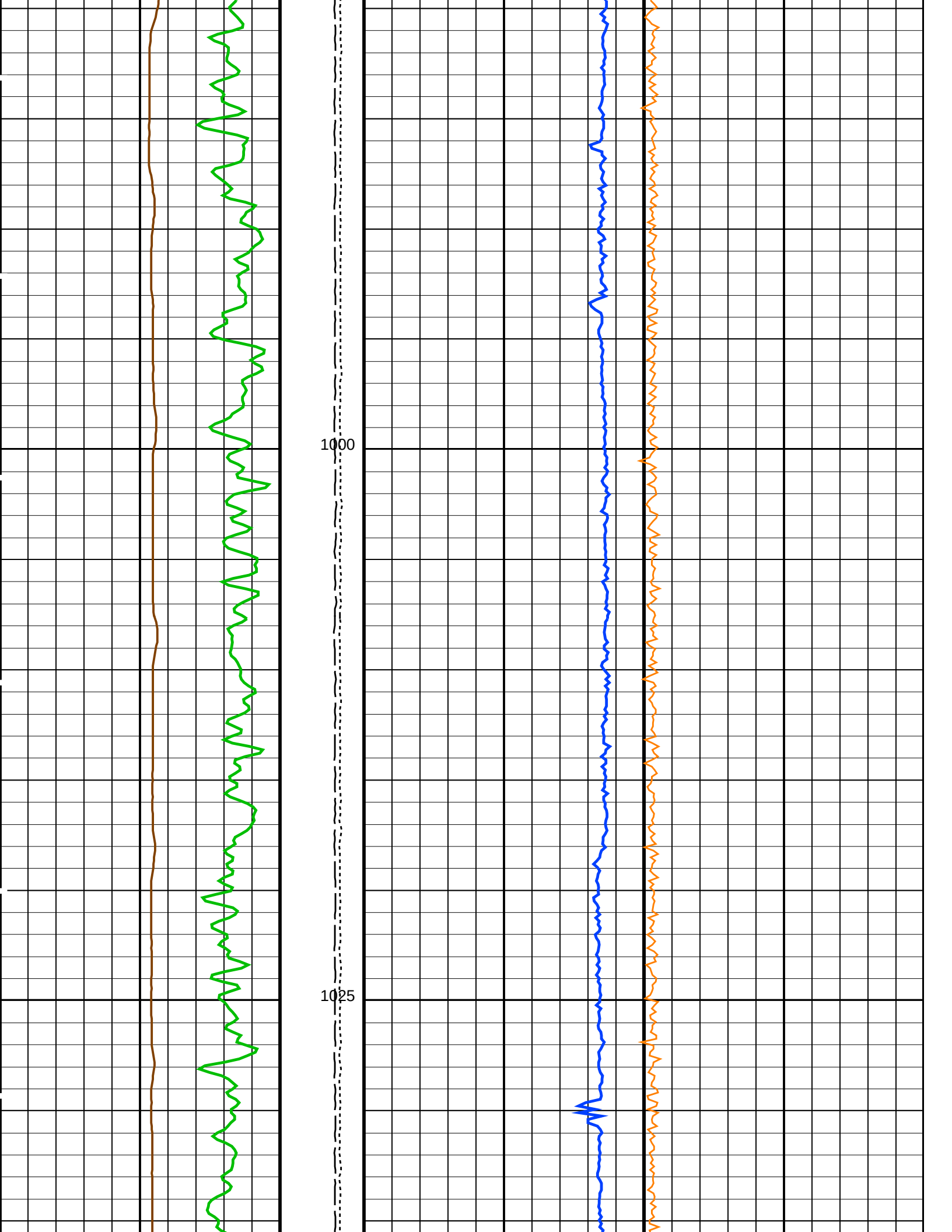

725
750

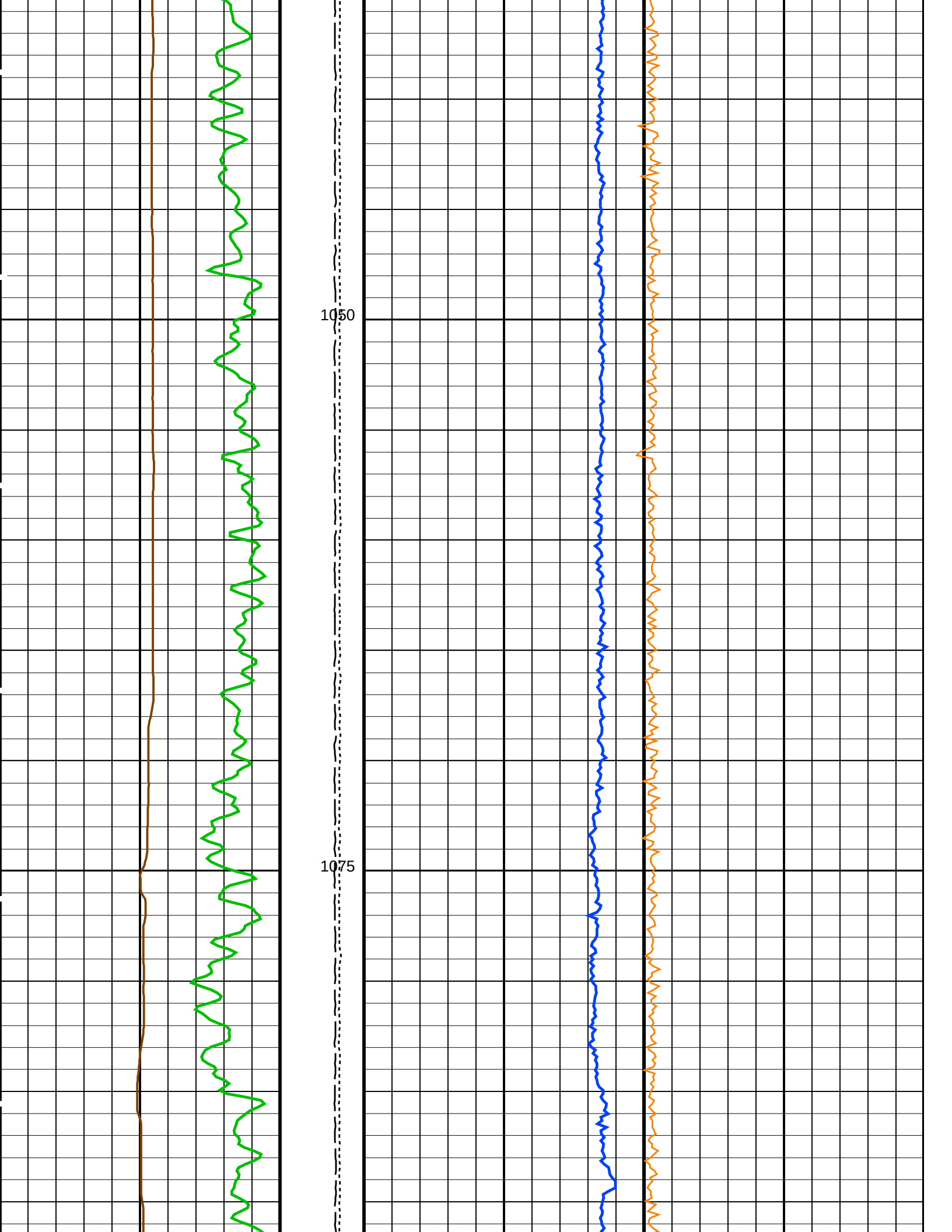

775
800

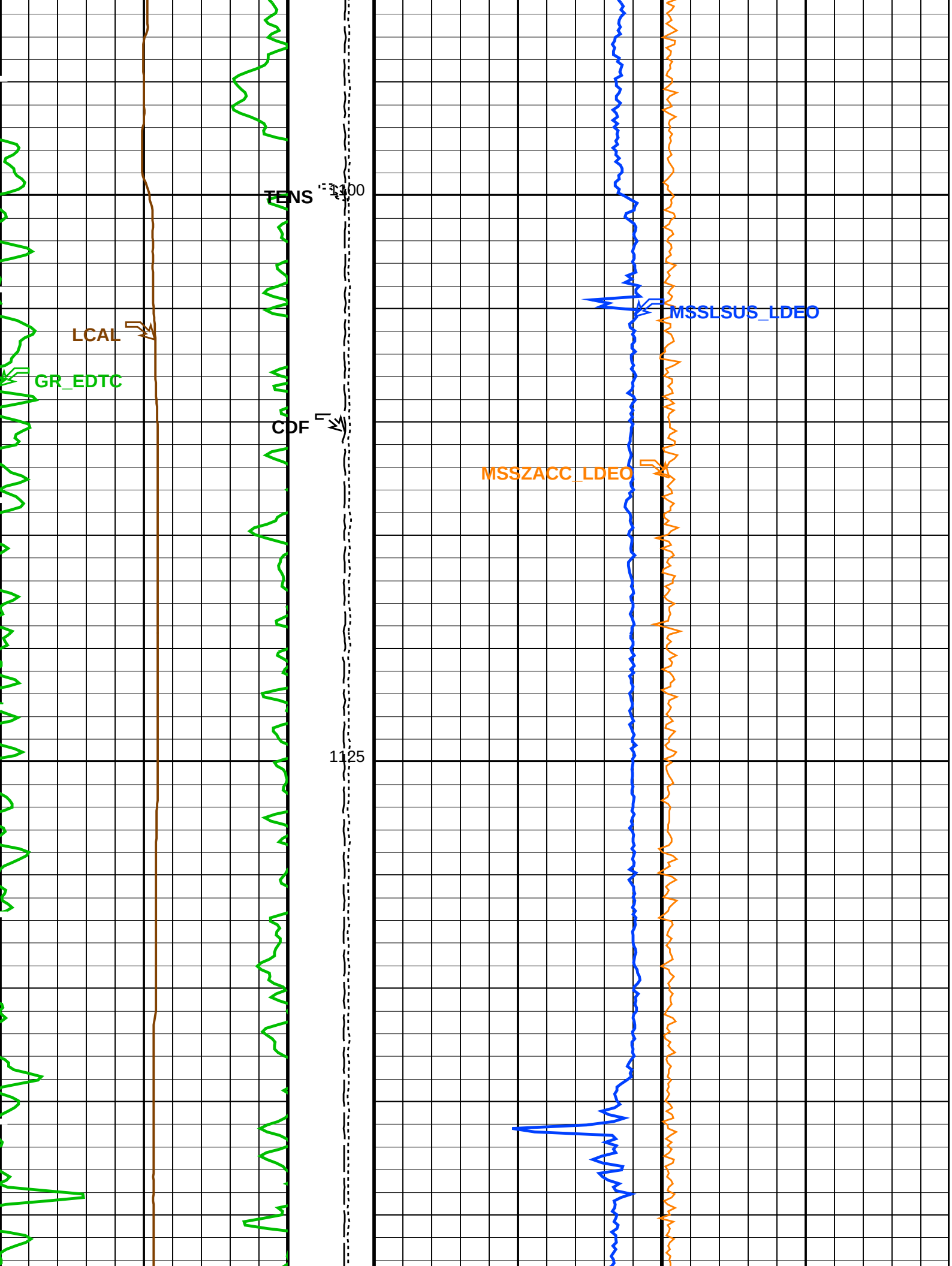

825
TENS
850
LCAL
GR_EDTC
CDF
MSSLSUS_LDEO
MSSZACC_LDEO

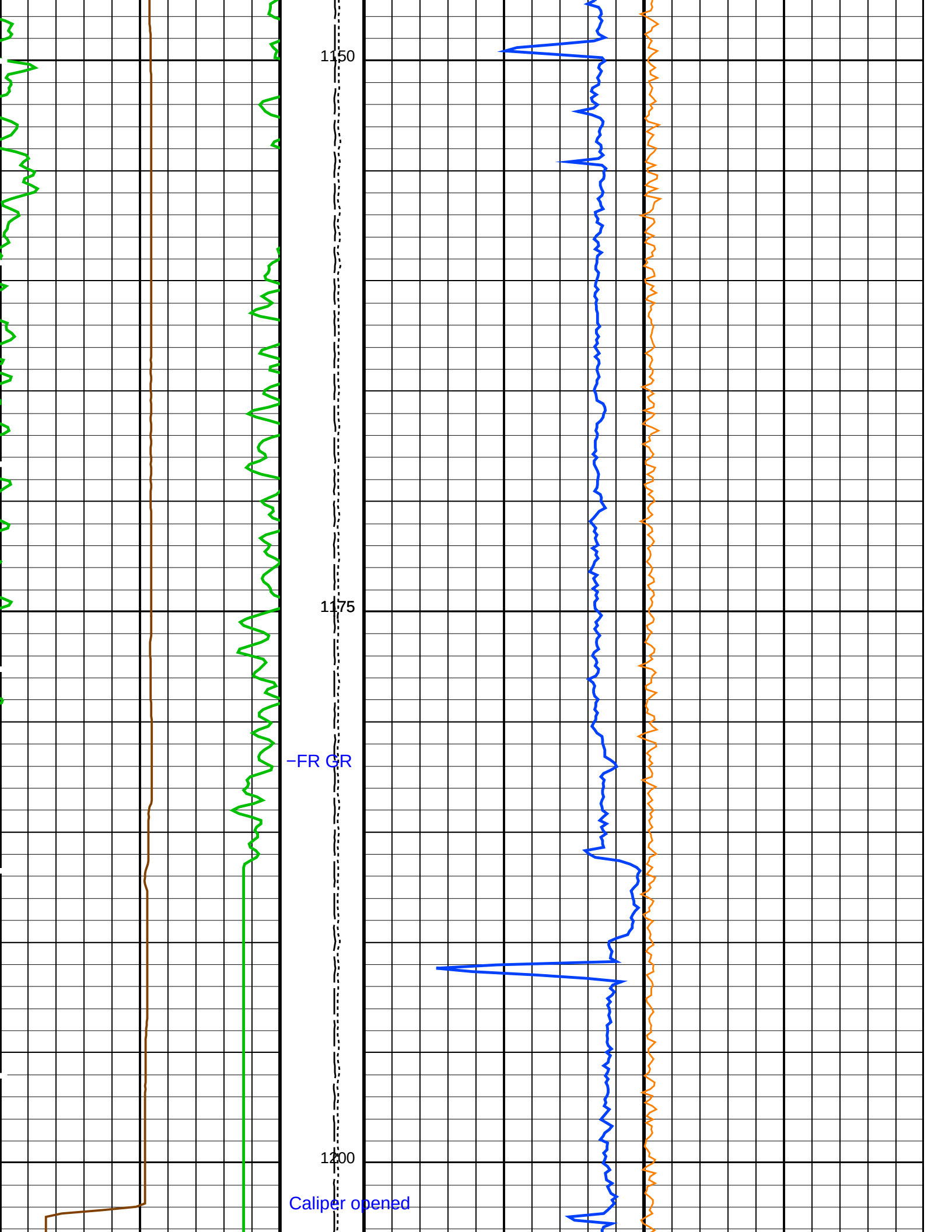

875
900

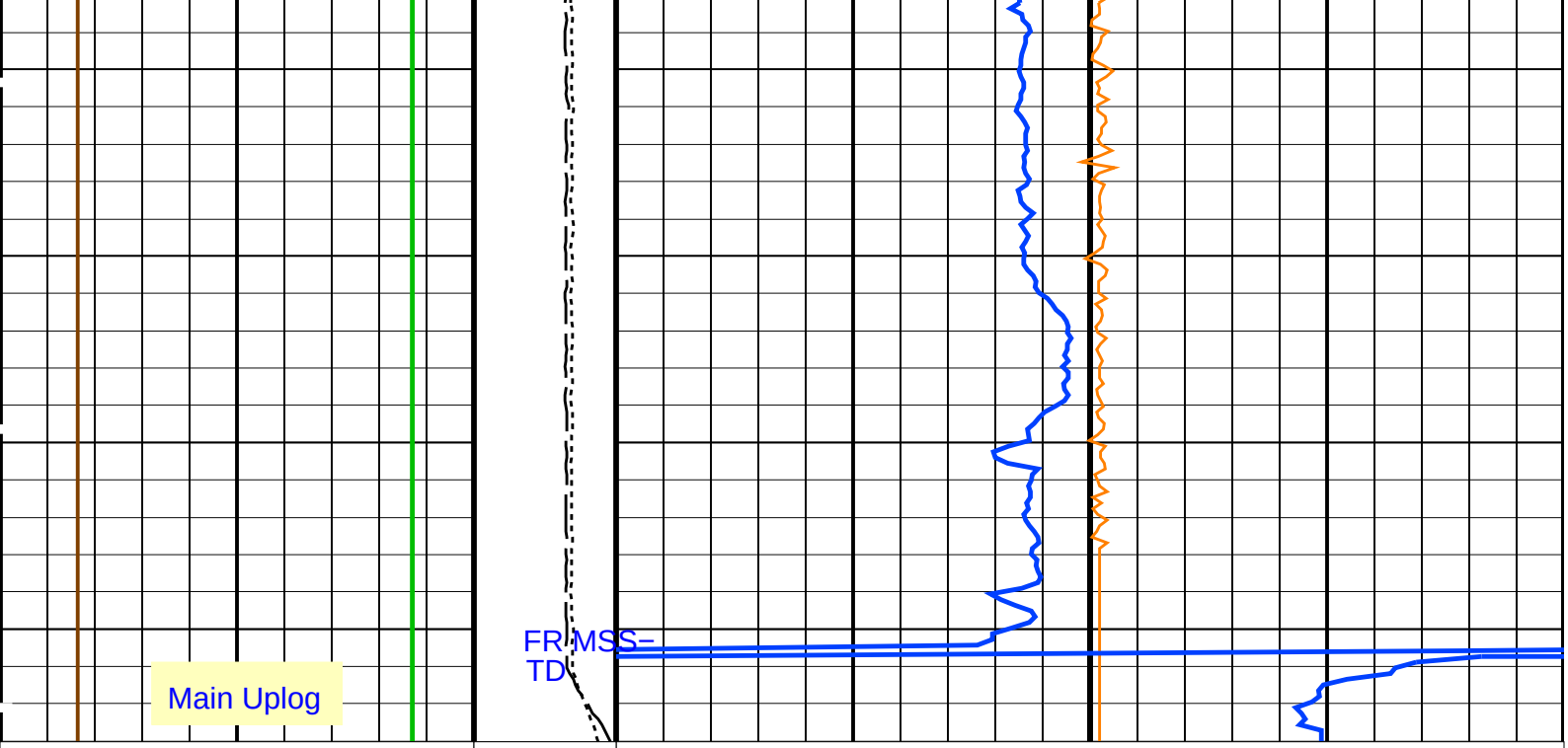

925
950
975


1000
1025


1050
1075


TENS
1100
LCAL
GR_EDTC
CDF
MSSLSUS_LDEO
MSSZACC_LDEO
1125


1150
1175
−FR GR
1200
Caliper opened



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)**	**Dual−Coil Susceptibility (MSSLSUS_LDEO)**
0 (GAPI) 100	(LBF) 5000 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)	212	DEGF
CALSTAT	HRLTB Calibration Status	SHALLOW_DONE	
CALTEMP	HRLTB Calibration Temperature	−1.02714	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	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
ISSBAR	Barite Mud Switch	BARITE	
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	

PROCSPO	Sonde Position	Centered	
SHT	Surface Hole Temperature	55	DEGF
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	OFF	
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	1967.82	V
ADSO	APS Array Detectors Data Source Switch	Both	
AFSD	APS Far Detector High Voltage Setting	2075.82	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	1735.71	V
ASOS	APS Standoff Correction Switch	ON	
ATSS	APS Temperature−Pressure−Salinity Correction Switch	ON	
BHFL_APS	APS TNPH Borehole Fluid Type	WATER	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	212	DEGF
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	0.01	DF/F
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	BARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
MCCO_APS	APS TNPH Mud Cake Correction Option	NO	
MCOR_APS	APS TNPH Mud Correction	BARI	
MWCO_APS	APS TNPH Mud Weight Correction Option	YES	
NARC	APS Near/Array Calibration Ratio	1.06899	
NFRC	APS Near/Far Calibration Ratio	0.897215	
PTCO_APS	APS TNPH Pressure/Temperature Correction Option	YES	
SHT	Surface Hole Temperature	55	DEGF
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)	212	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	LCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
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	0.000207609	
HALF	HNGS Alpha Filter Length	60	IN
HCRB	HNGS Apply Borehole Potassium Correction	NONE	
HMWM	Mud Weighting Material	BARI	
HNPE	HNGS Processing Enable	YES	
ISSBAR	Barite Mud Switch	BARITE	
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	55	DEGF
TPOS	Tool Position	ECCE	
VBA1	HNGS Detector 1 Variable Barite Factor Running Average	0.973678	
VBA2	HNGS Detector 2 Variable Barite Factor Running Average	0.98098	
EDTC−B: Enhanced DTS Cartridge			
BHFL	Borehole Fluid Type	WATER	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	212	DEGF
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	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
HSCO	Hole Size Correction Option	YES	
ISSBAR	Barite Mud Switch	BARITE	
ISSBAR_EDTC	Nuclear Mud Type	BARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
MCCO	Mud Cake Correction Option	NO	
MCOR	Mud Correction	BARI	
MWCO	Mud Weight Correction Option	YES	
PTCO	Pressure/Temperature Correction Option	NO	
SDAT	Standoff Data Source	SOCN	
SHT	Surface Hole Temperature	55	DEGF
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	1.26	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	4012.4	FT
TDD	Total Depth − Driller	1223.00	M
TDL	Total Depth − Logger	1223.00	M
TWS	Temperature of Connate Water Sample	37.78	DEGC

Format: MSS_Logging Vertical Scale: 1:200 Graphics File Created: 20−Jan−2018 23:57

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_015LUP	FN:21	PRODUCER	20−Jan−2018 23:57
BACKUP_	MSS_LDEO_HRLA_LDL_015LUP	FN:22	PRODUCER	20−Jan−2018 23:57

Output DLIS Files

DEFAULT	MSS_LDEO_HRLA_LDL_015LUP	FN:21	PRODUCER	20−Jan−2018 23:57	1223.0 M	550.9 M
BACKUP_	MSS_LDEO_HRLA_LDL_015LUP	FN:22	PRODUCER	20−Jan−2018 23:57	1223.0 M	550.9 M

OP System Version: 19C0−187

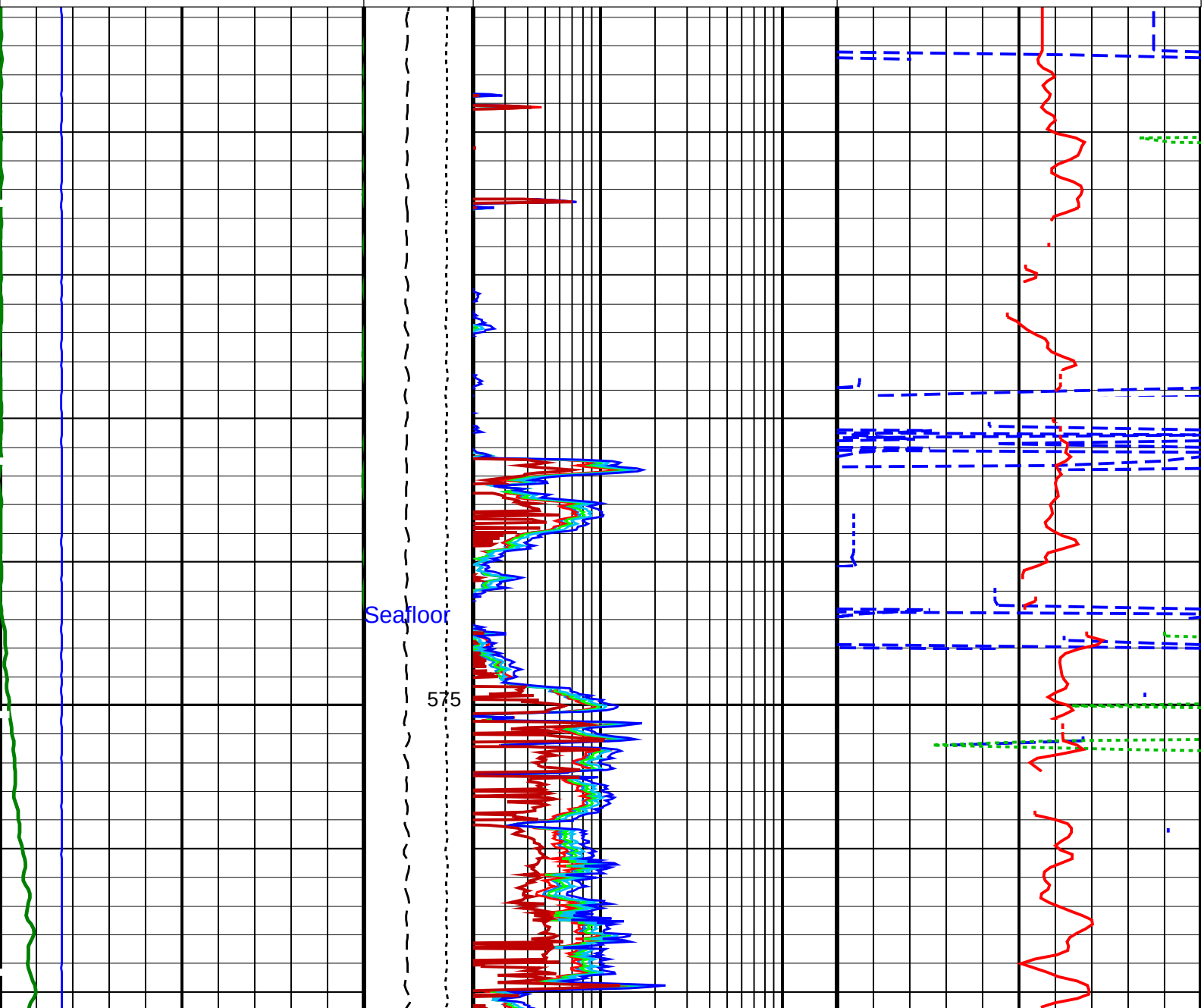
MSS_LDEO−A	19C0−187	HRLT−B	19C0−187
HLDS	19C0−187	LDSC−B	19C0−187
APS−C	19C0−187	HNGC−B	19C0−187
HNGS−BA	19C0−187	EDTC−B	SKK−5169−EDTCB

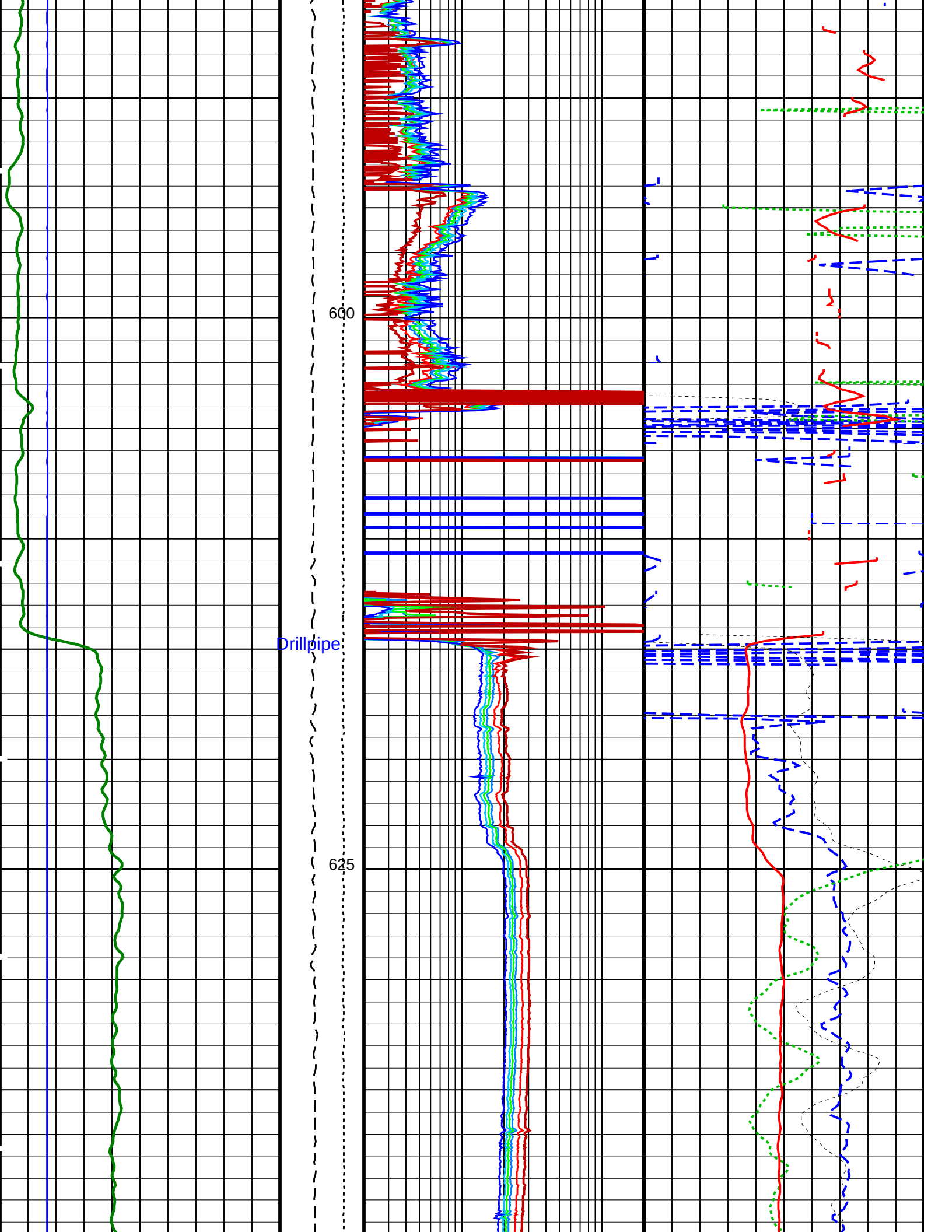
PIP SUMMARY

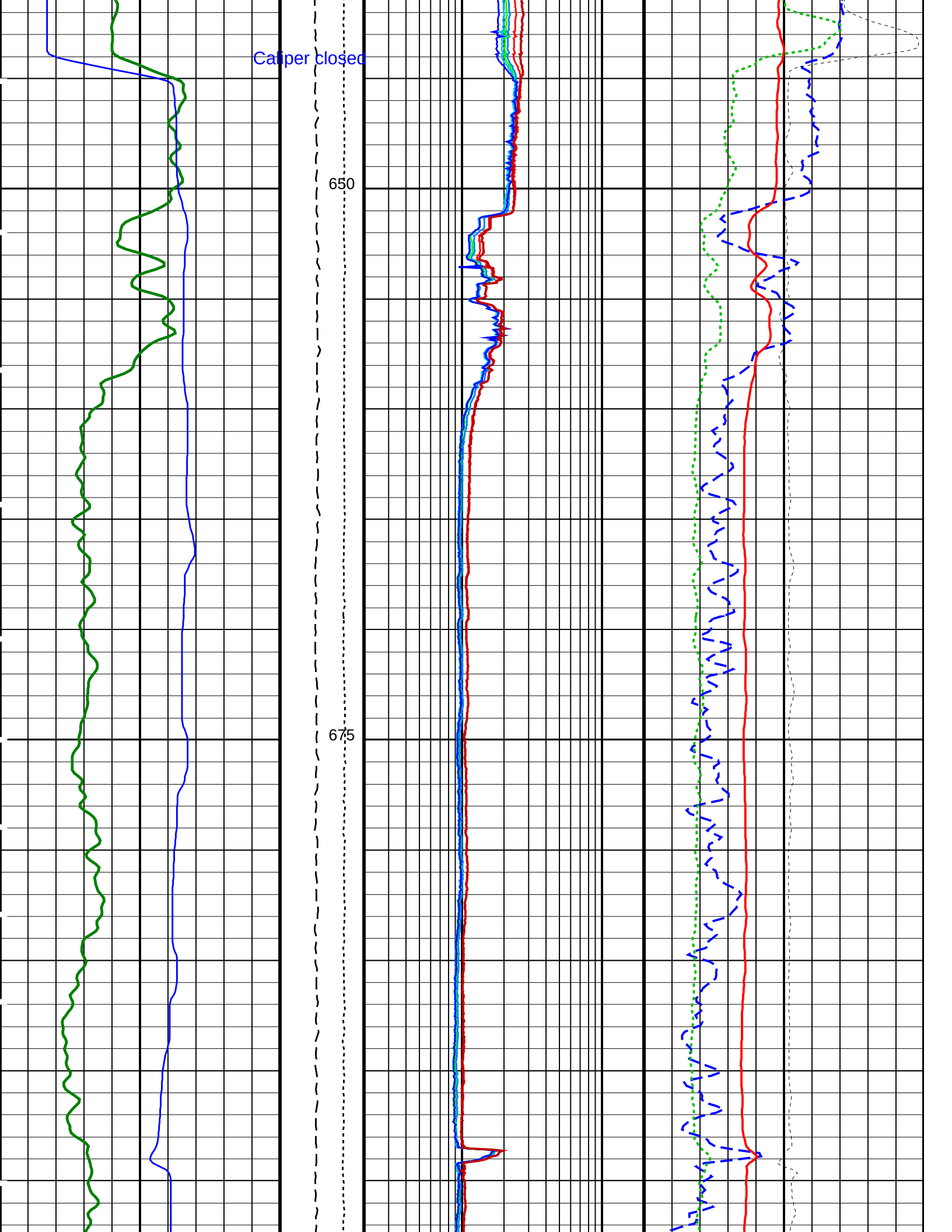
Time Mark Every 60 S

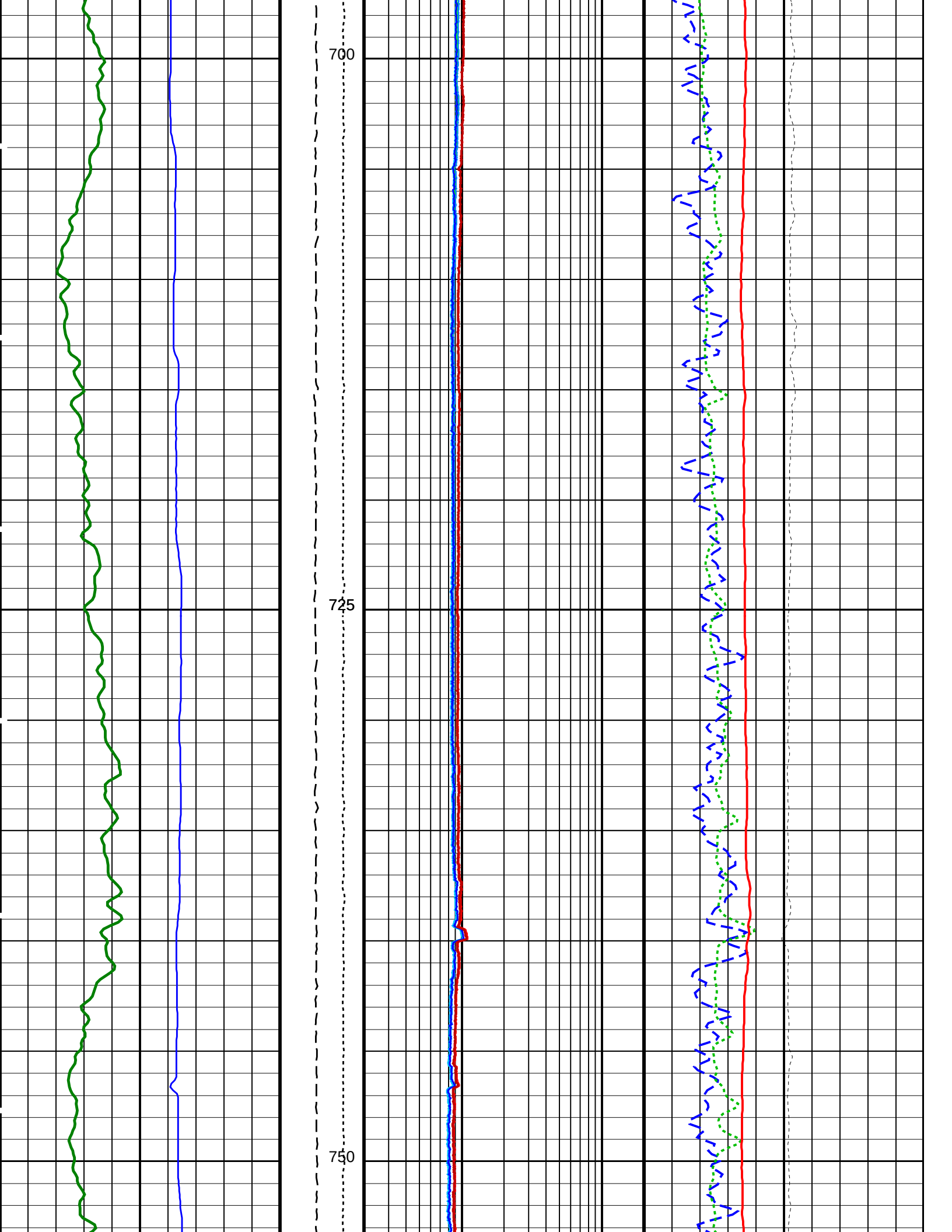
Main Uplog

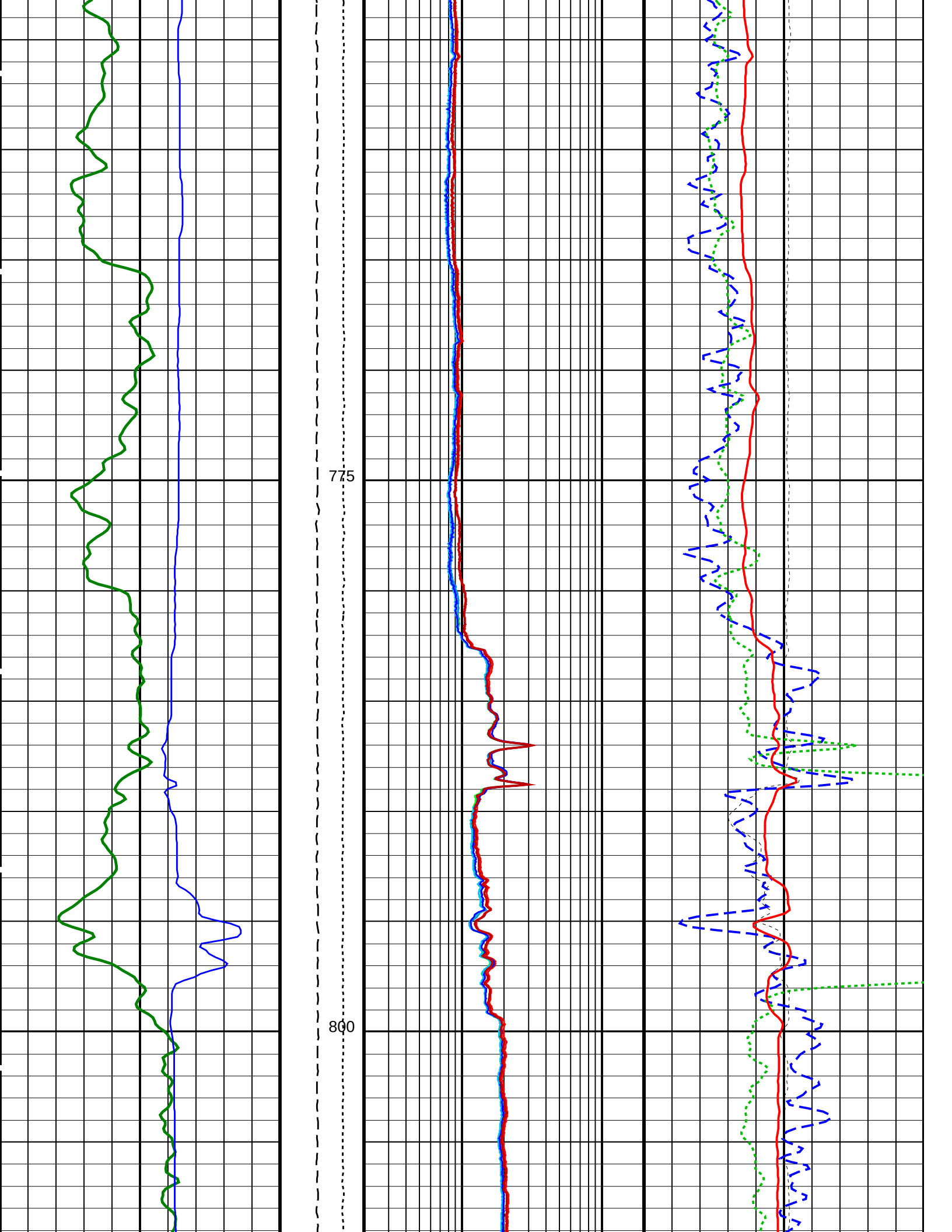
		HRLT True Resistivity (RT_HRLT) 0.2 (OHMM) 20	
		HRLT Resistivity 1 (RLA1) 0.2 (OHMM) 20	
		HRLT Resistivity 2 (RLA2) 0.2 (OHMM) 20	HLDS Bulk Density Correction (DRH) −0.25 (G/C3) 0.25
		HRLT Resistivity 3 (RLA3) 0.2 (OHMM) 20	HLDS Bulk Density (RHOM) 0 (G/C3) 4
HNGS Spectroscopy Gamma Ray (HSGR) 0 (GAPI)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

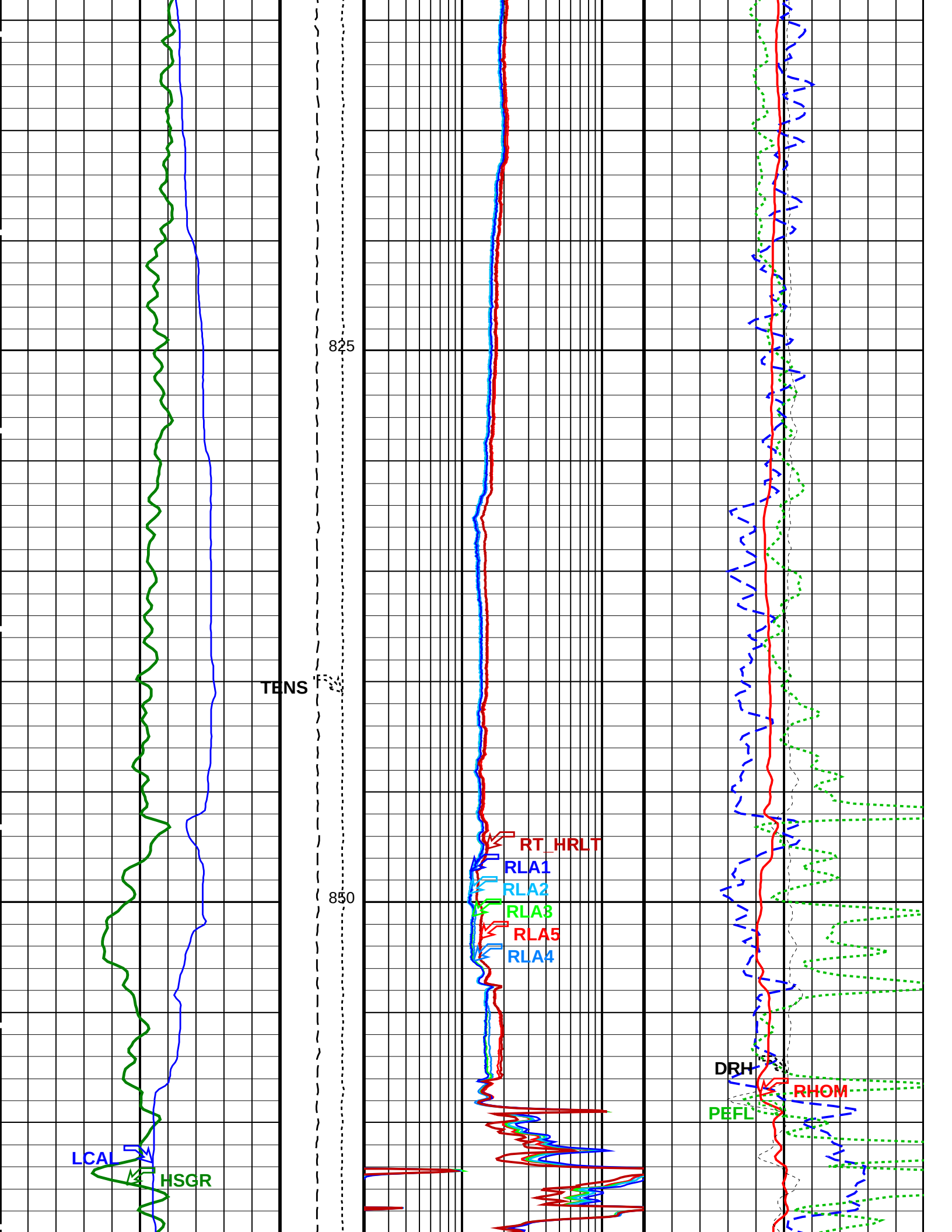


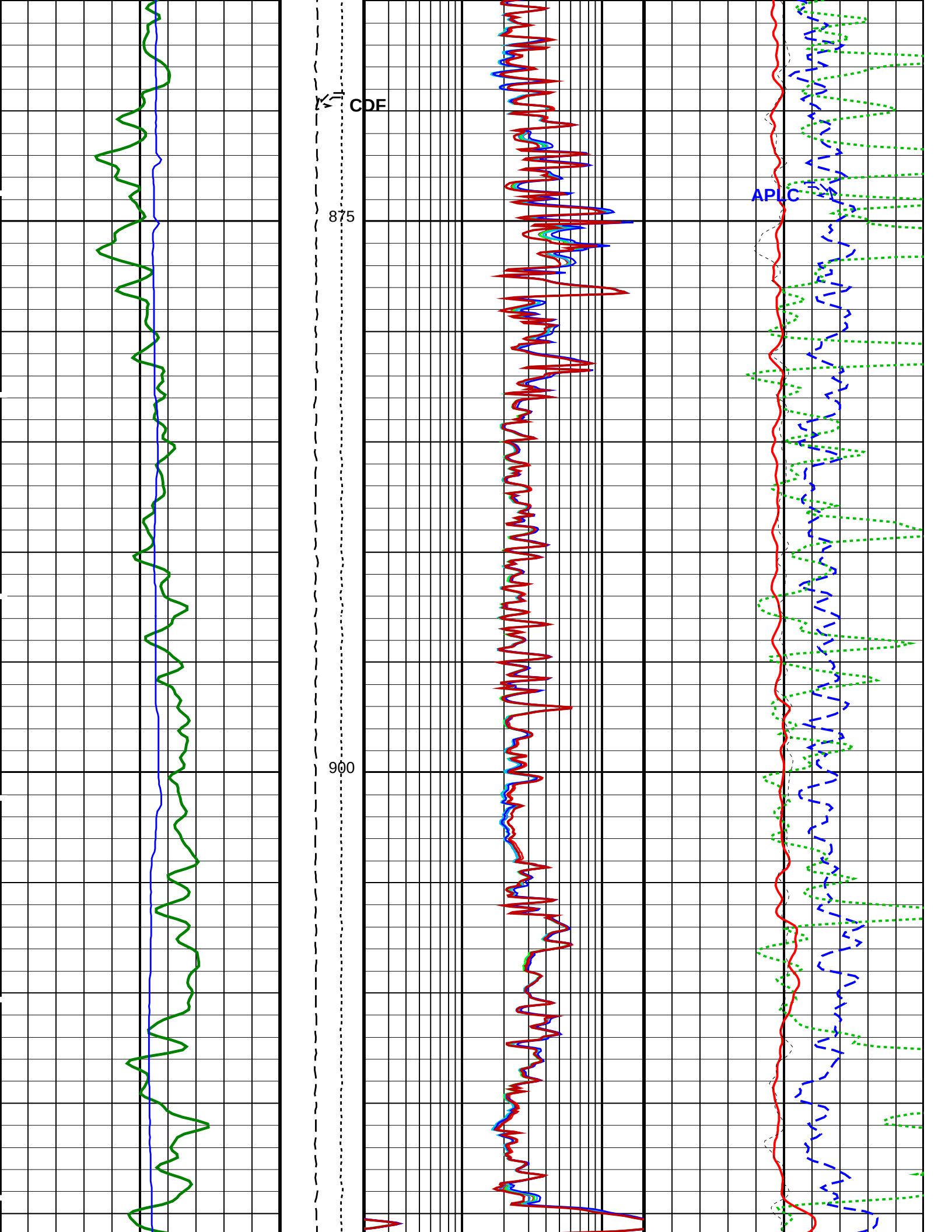

600
Drillpipe
625

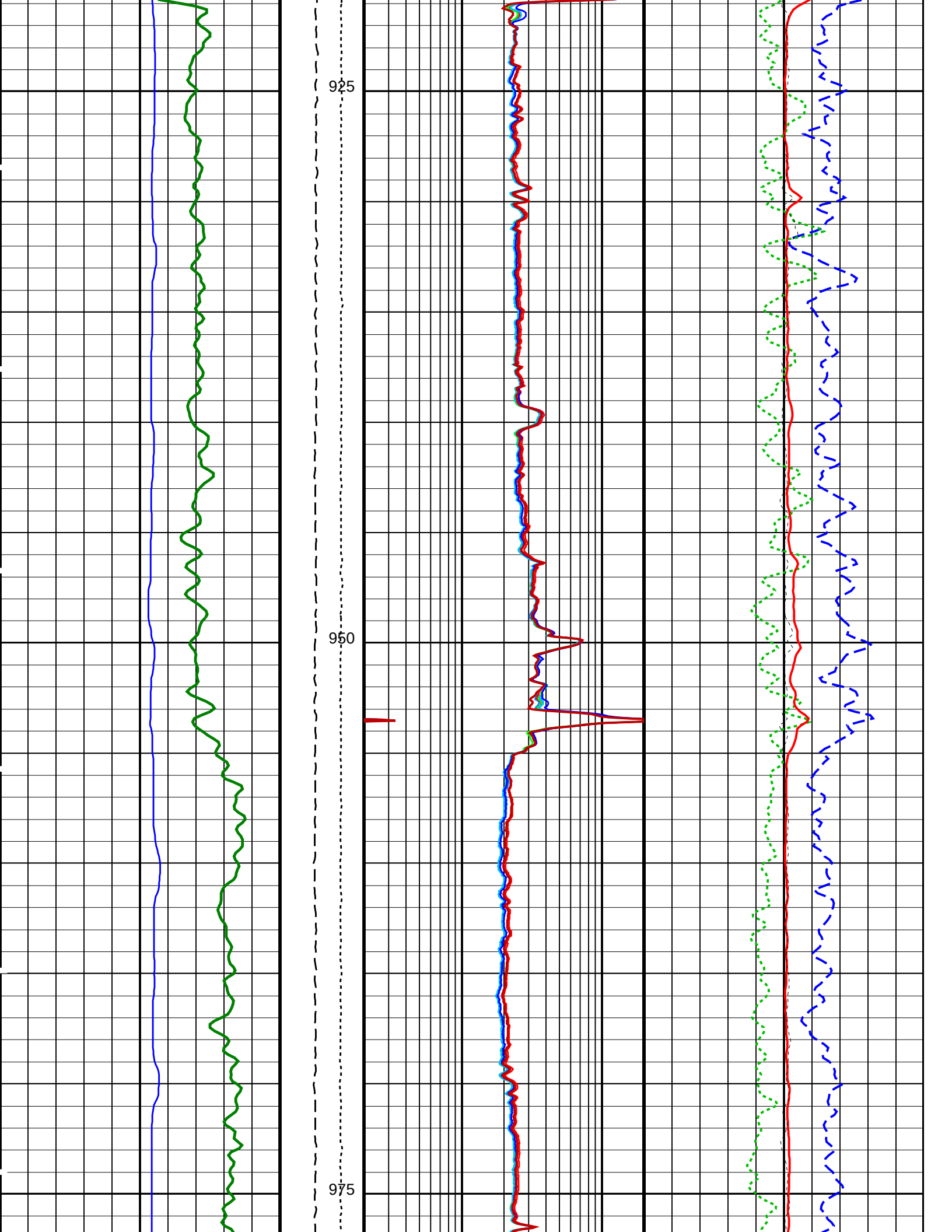

Caliper closed
650
675

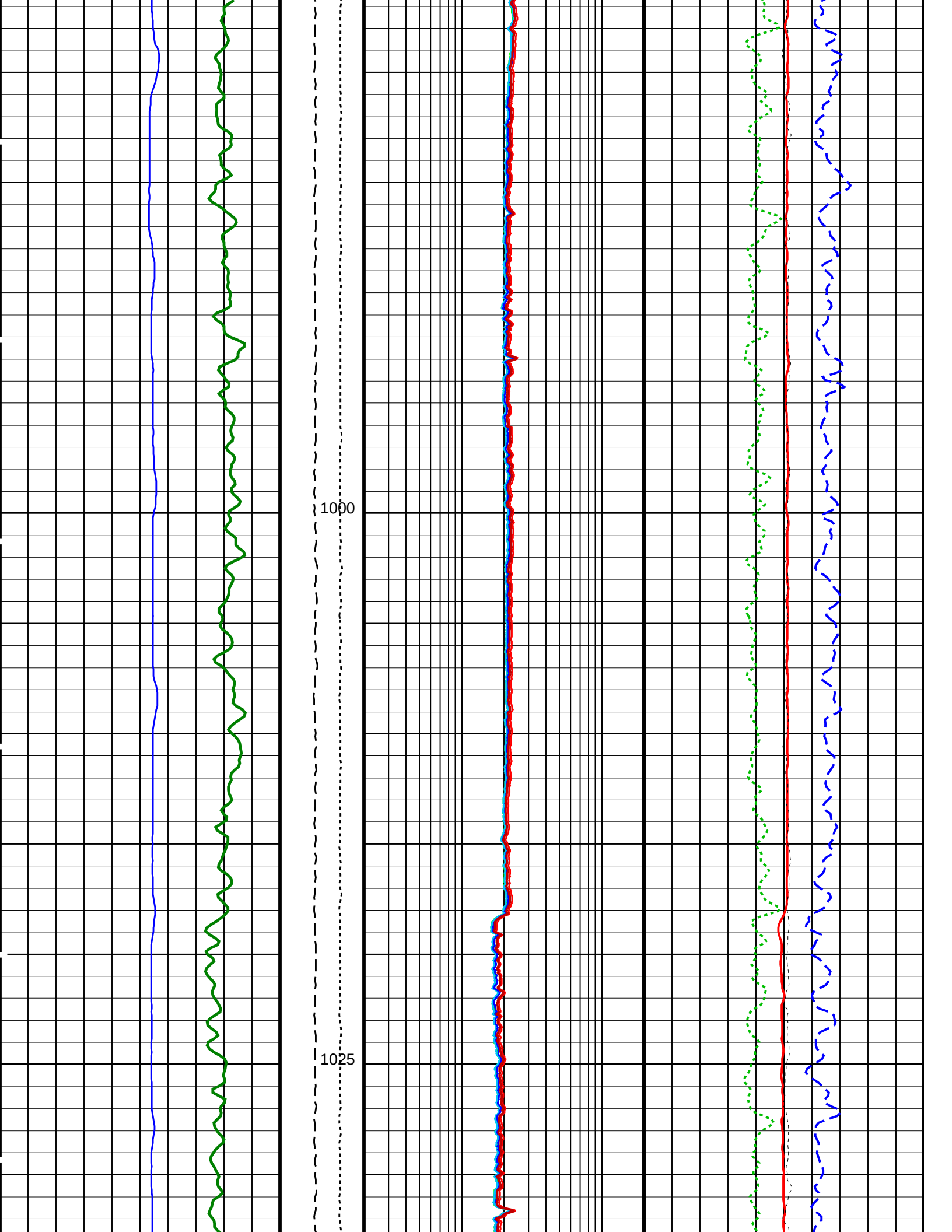

700
725
750

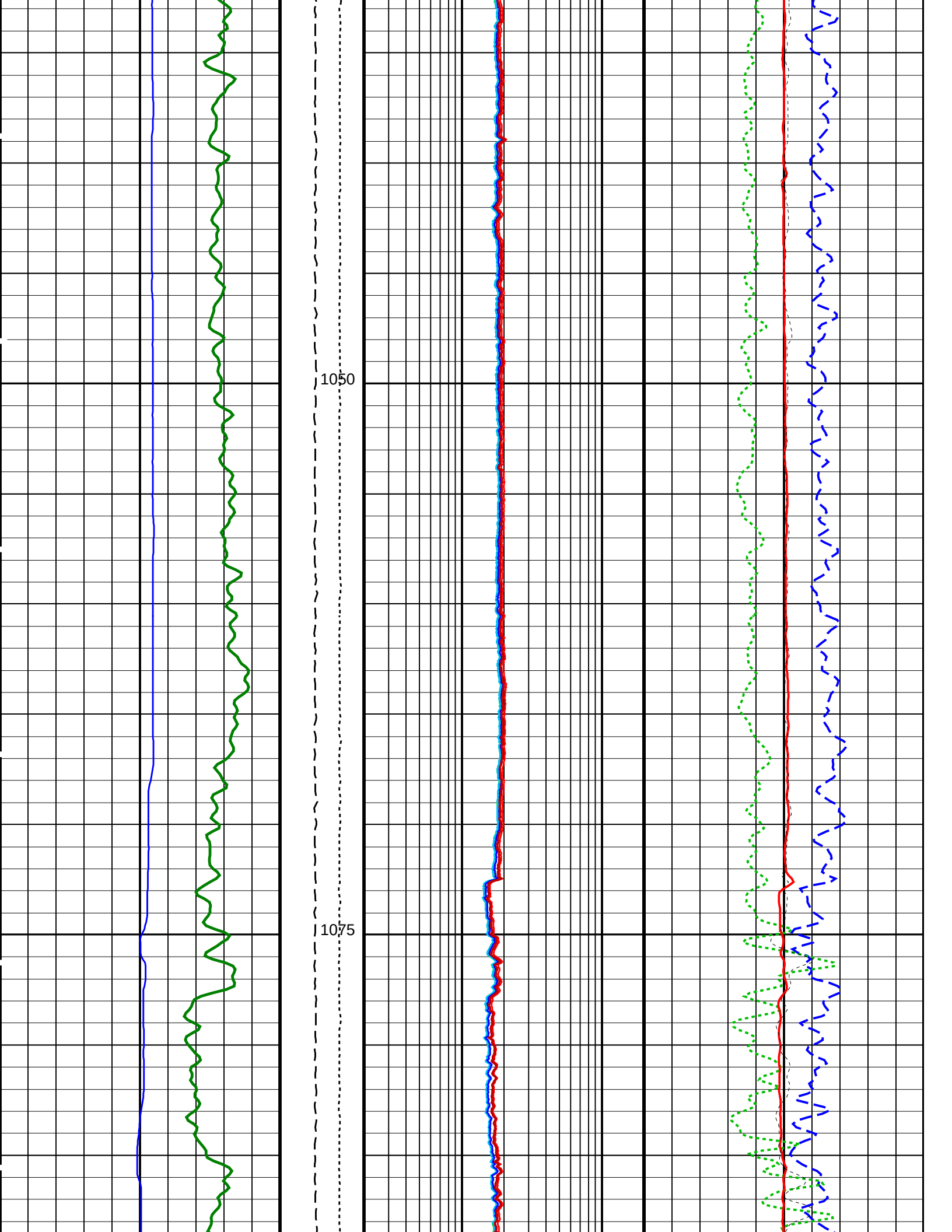

775
800

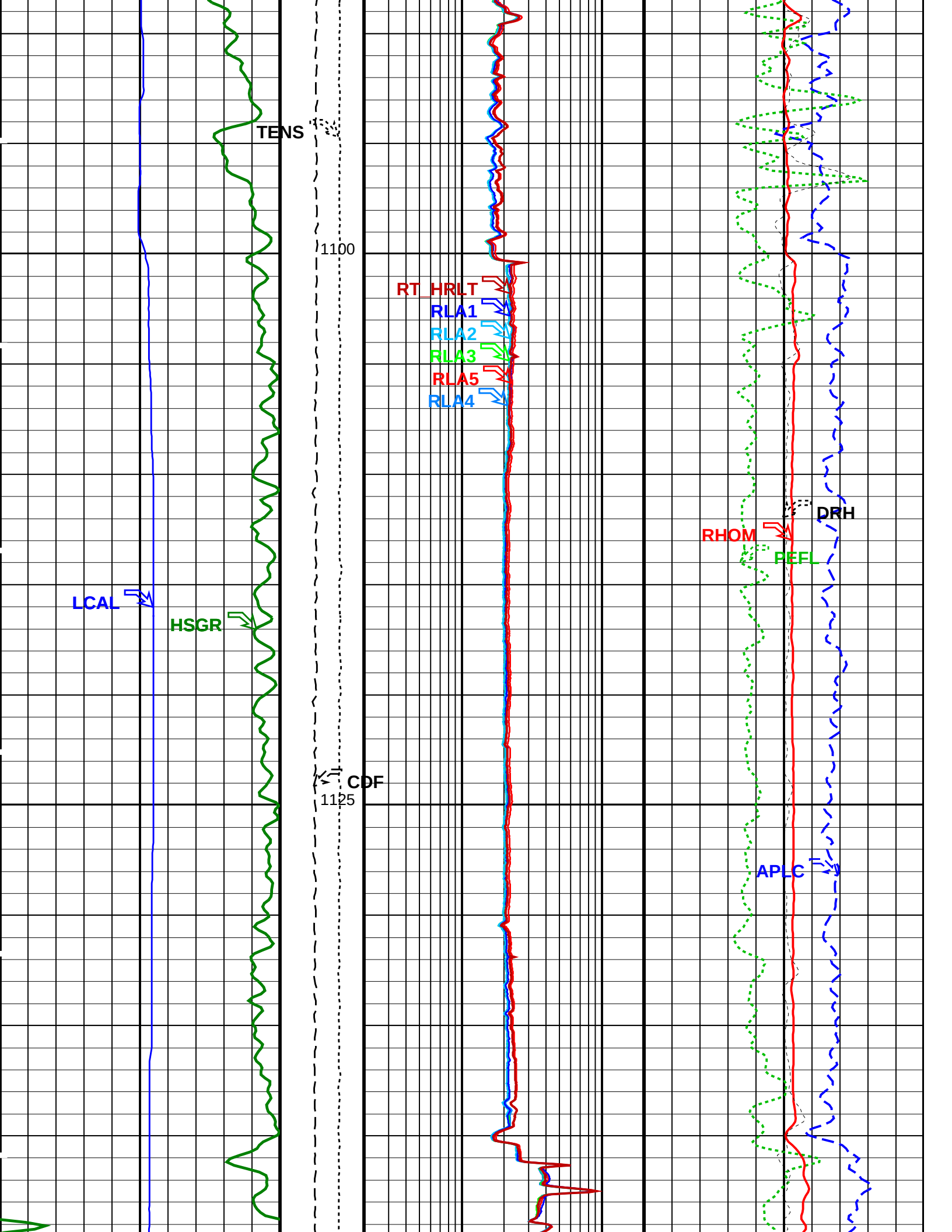

825
TENS
850
RT_HRLT
RLA1
RLA2
RLA3
RLA5
RLA4
DRH
RHOM
PEFL
LCAL
HSGR

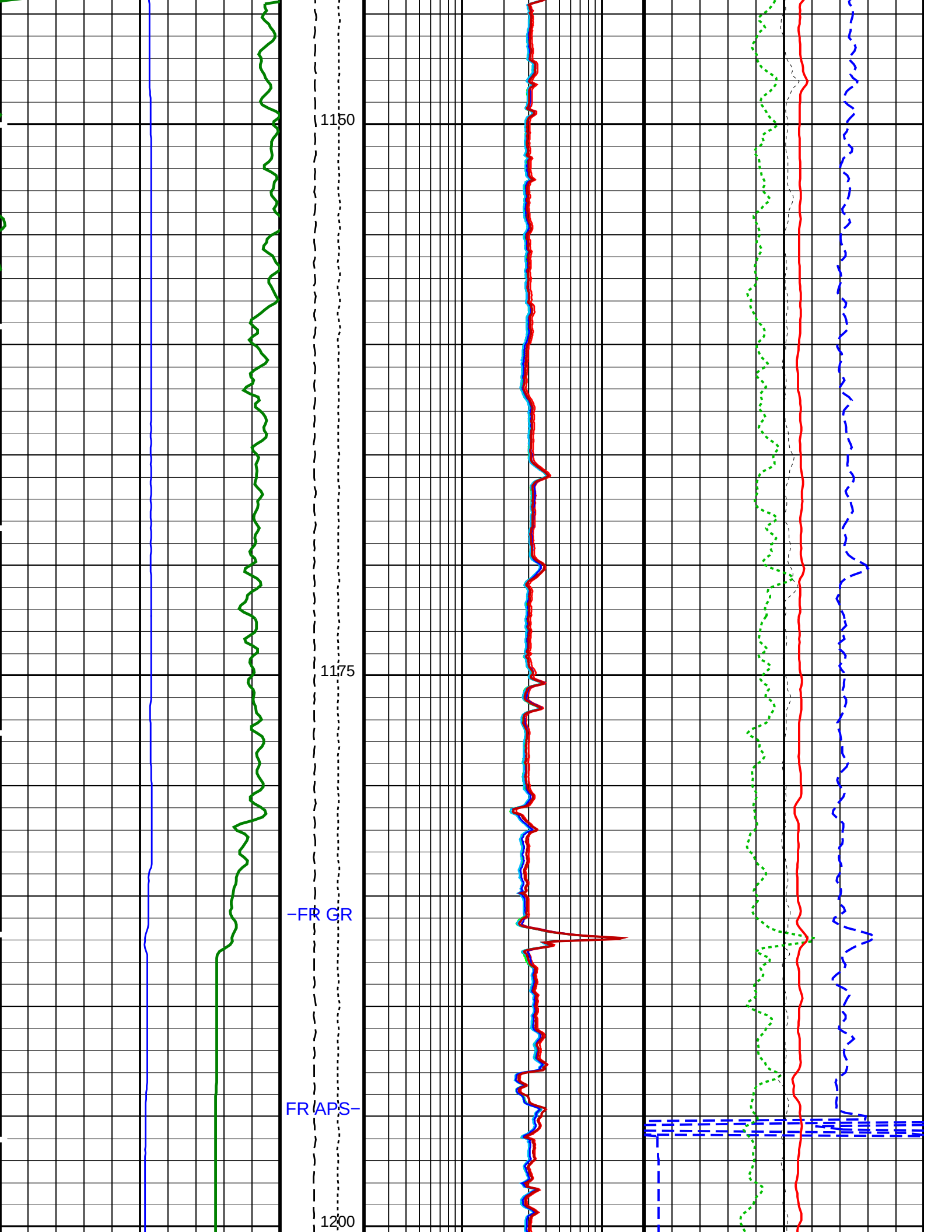

CDF
875
900
APLC

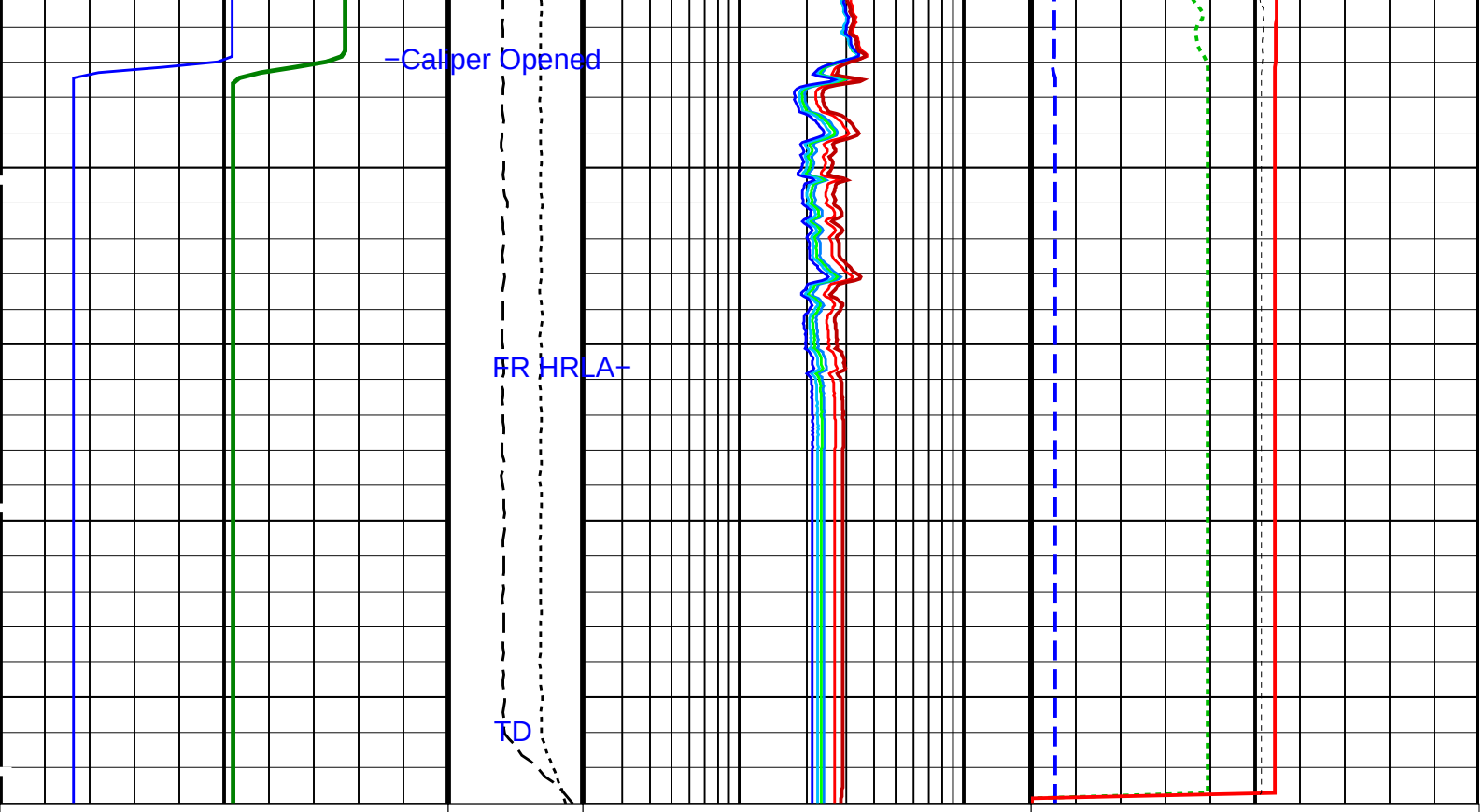

925
950
975


1000
1025


1050
1075


TENS
1100
RT_HRLT
RLA1
RLA2
RLA3
RLA5
RLA4
DRH
RHOM
PEFL
LCAL
HSGR
CDF
1125
APLC


1150
1175
−FR GR
FR APS−
1200



HLDS Caliper (LCAL) 0 (IN) 20	Tension (TENS) (LBF) 10000 0	HRLT Resistivity 4 (RLA4) 0.2 (OHMM) 20	APS Near/Array Corrected Limestone Porosity (APLC) 100 (PU) 0
HNGS Spectroscopy Gamma Ray (HSGR) 0 (GAPI) 100	Calibrated Downhole Force (CDF) (LBF) 3000 0	HRLT Resistivity 5 (RLA5) 0.2 (OHMM) 20	HLDS Long Spaced Photoelectric Effect (PEFL) 0 (−−−−) 10
Main Uplog		HRLT Resistivity 3 (RLA3) 0.2 (OHMM) 20	HLDS Bulk Density (RHOM) 0 (G/C3) 4
		HRLT Resistivity 2 (RLA2) 0.2 (OHMM) 20	HLDS Bulk Density Correction (DRH) −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)	212	DEGF
CALSTAT	HRLTB Calibration Status	SHALLOW_DONE	
CALTEMP	HRLTB Calibration Temperature	−1.02714	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

GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
ISSBAR	Barite Mud Switch	BARITE	
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	55	DEGF
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	OFF	
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	1967.82	V
ADSO	APS Array Detectors Data Source Switch	Both	
AFSD	APS Far Detector High Voltage Setting	2075.82	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	1735.71	V
ASOS	APS Standoff Correction Switch	ON	
ATSS	APS Temperature−Pressure−Salinity Correction Switch	ON	
BHFL_APS	APS TNPH Borehole Fluid Type	WATER	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	212	DEGF
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	0.01	DF/F
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	BARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
MCCO_APS	APS TNPH Mud Cake Correction Option	NO	
MCOR_APS	APS TNPH Mud Correction	BARI	
MWCO_APS	APS TNPH Mud Weight Correction Option	YES	
NARC	APS Near/Array Calibration Ratio	1.06899	
NFRC	APS Near/Far Calibration Ratio	0.897215	
PTCO_APS	APS TNPH Pressure/Temperature Correction Option	YES	
SHT	Surface Hole Temperature	55	DEGF
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)	212	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

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	0.01	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	0.000207609	
HALF	HNGS Alpha Filter Length	60	IN
HCRB	HNGS Apply Borehole Potassium Correction	NONE	
HMWM	Mud Weighting Material	BARI	
HNPE	HNGS Processing Enable	YES	
ISSBAR	Barite Mud Switch	BARITE	
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	55	DEGF
TPOS	Tool Position	ECCE	
VBA1	HNGS Detector 1 Variable Barite Factor Running Average	0.973678	
VBA2	HNGS Detector 2 Variable Barite Factor Running Average	0.98098	
EDTC−B: Enhanced DTS Cartridge			
BHFL	Borehole Fluid Type	WATER	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	212	DEGF
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	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
HSCO	Hole Size Correction Option	YES	
ISSBAR	Barite Mud Switch	BARITE	
ISSBAR_EDTC	Nuclear Mud Type	BARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
MCCO	Mud Cake Correction Option	NO	
MCOR	Mud Correction	BARI	
MWCO	Mud Weight Correction Option	YES	
PTCO	Pressure/Temperature Correction Option	NO	
SDAT	Standoff Data Source	SOCN	
SHT	Surface Hole Temperature	55	DEGF
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	1.26	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	4012.4	FT
TDD	Total Depth − Driller	1223.00	M
TDL	Total Depth − Logger	1223.00	M
TWS	Temperature of Connate Water Sample	37.78	DEGC

Format: TripleCombo Vertical Scale: 1:200 Graphics File Created: 20−Jan−2018 23:57

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_015LUP	FN:21	PRODUCER	20−Jan−2018 23:57
BACKUP	MSS_LDEO_HRLA_LDL_015LUP	FN:22	PRODUCER	20−Jan−2018 23:57

BACKUP_	MSS_LDEO_HRLA_LDL_015LUP	FN:22	PRODUCER	20−Jan−2018 23:57

Output DLIS Files

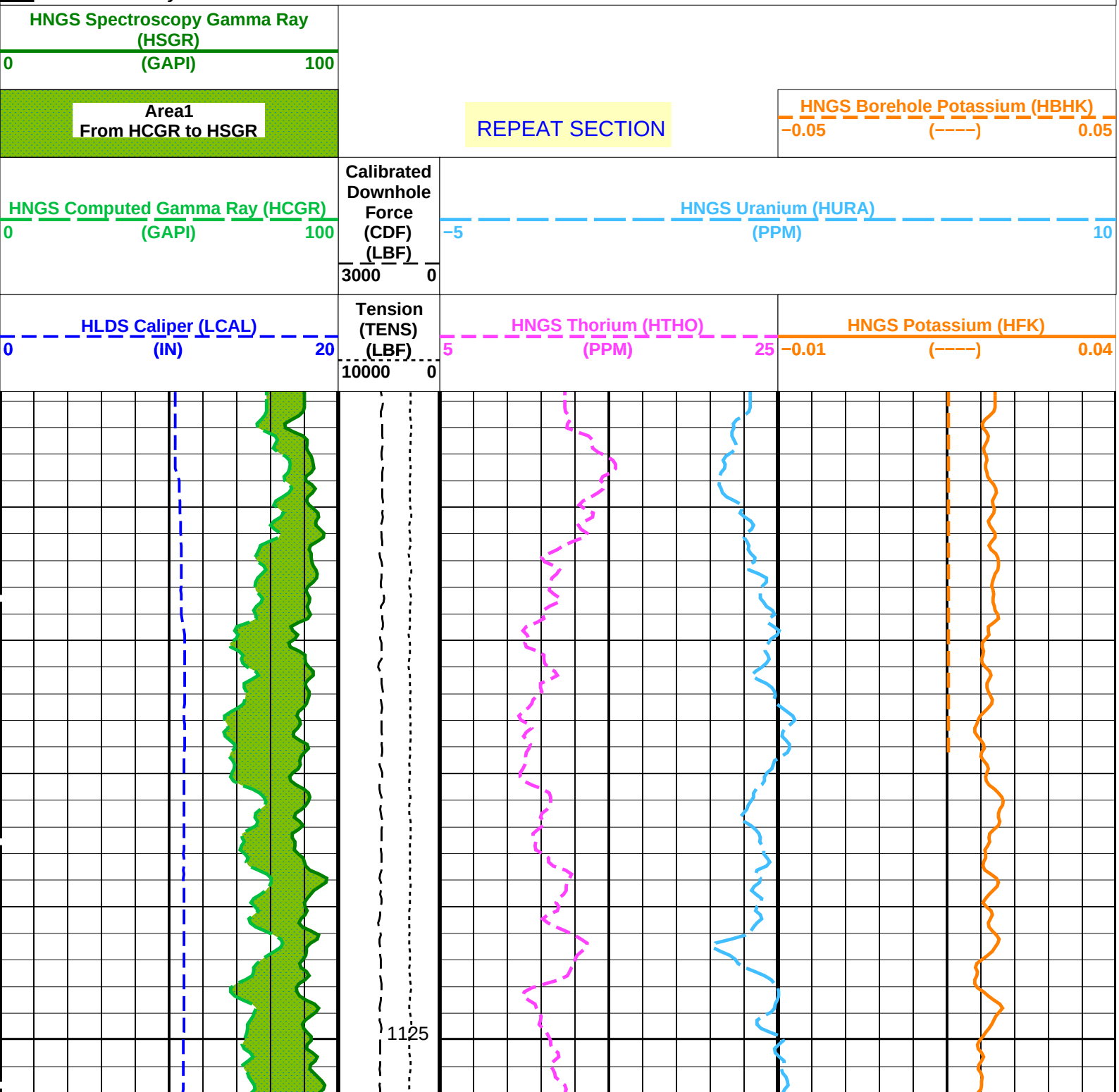
DEFAULT	MSS_LDEO_HRLA_LDL_014LUP	FN:19	PRODUCER	20−Jan−2018 23:20	1223.0 M	1100.6 M
BACKUP_	MSS_LDEO_HRLA_LDL_014LUP	FN:20	PRODUCER	20−Jan−2018 23:20	1223.0 M	1100.6 M

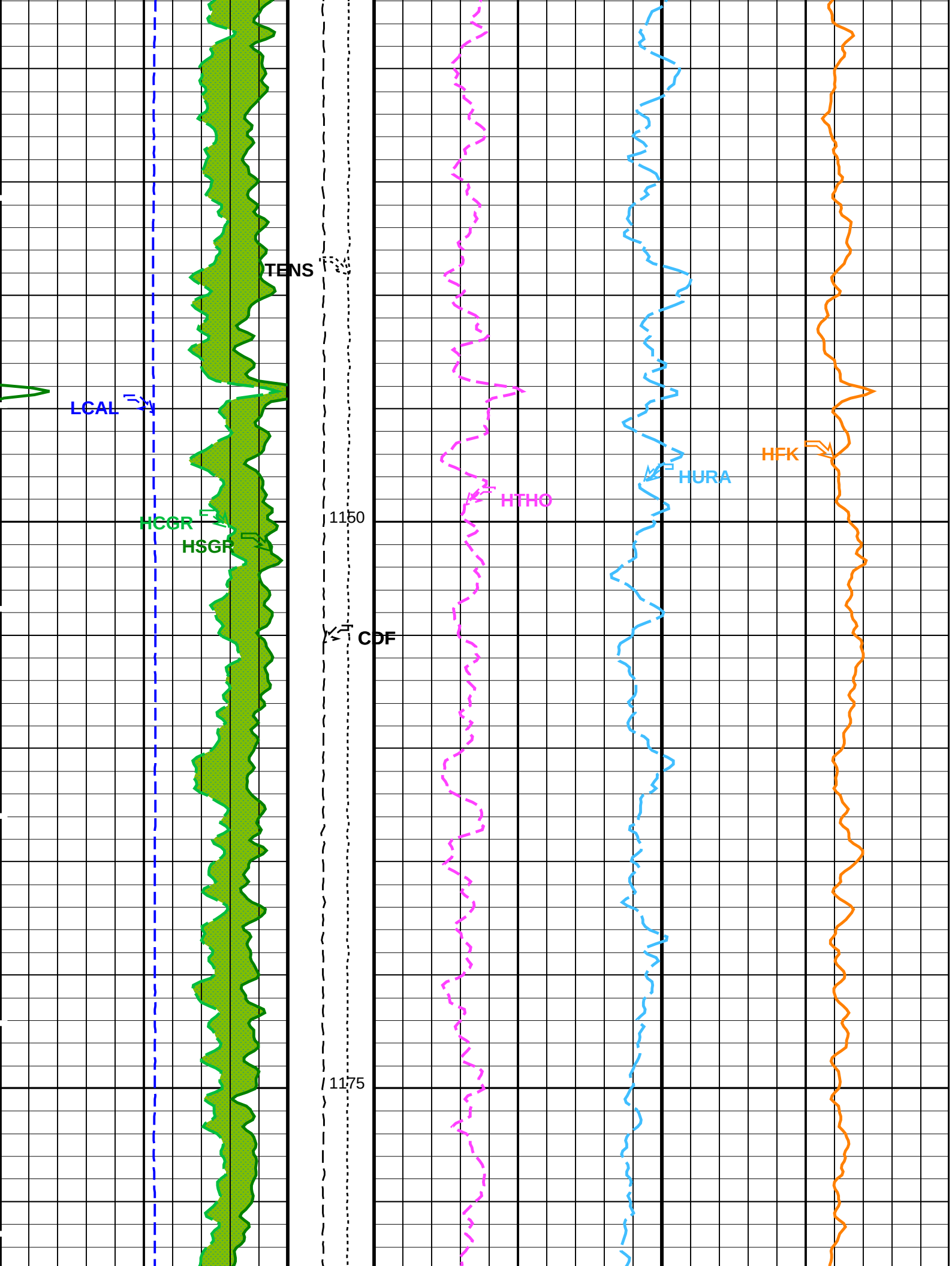
OP System Version: 19C0−187

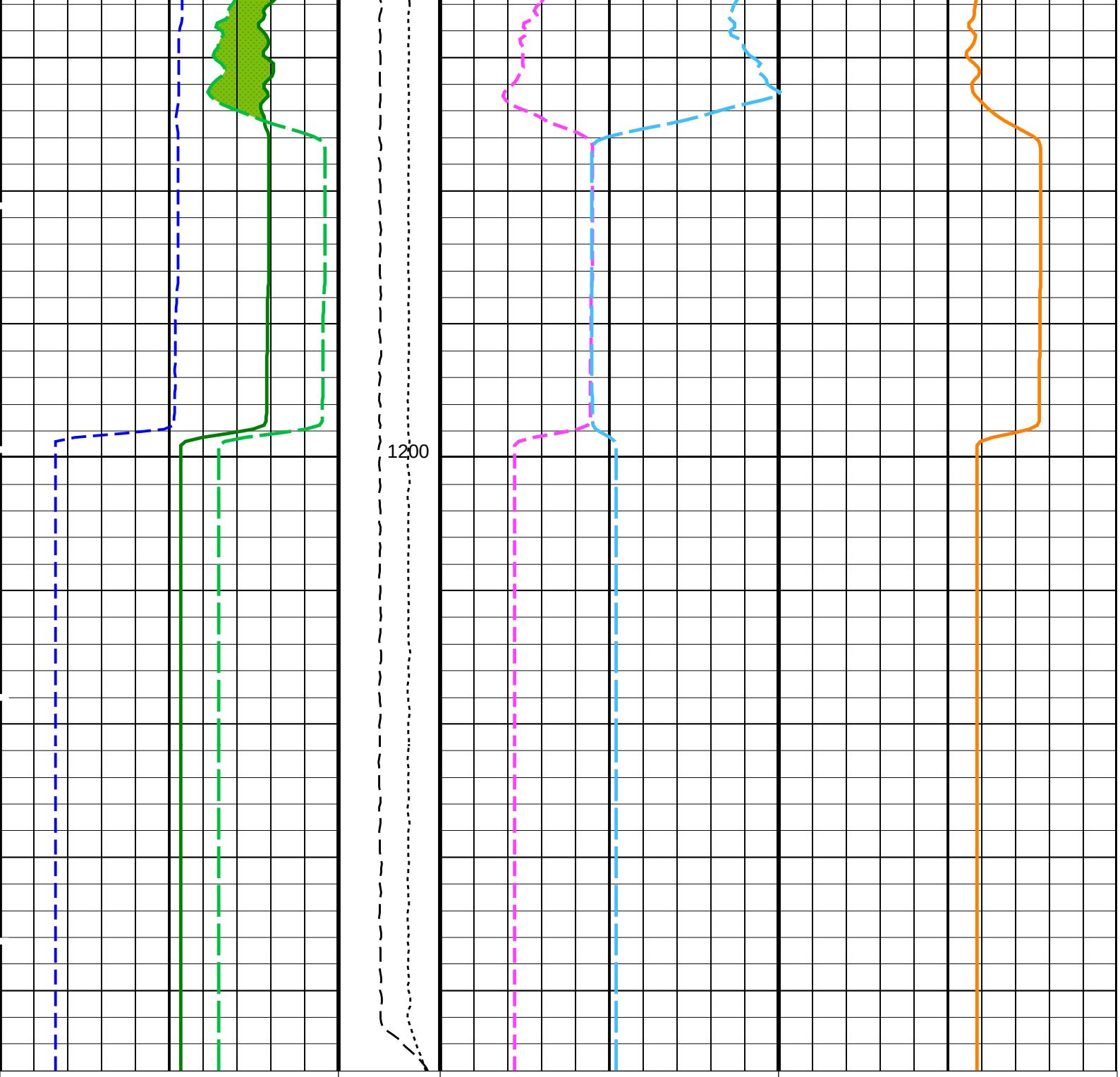
MSS_LDEO−A	19C0−187	HRLT−B	19C0−187
HLDS	19C0−187	LDSC−B	19C0−187
APS−C	19C0−187	HNGC−B	19C0−187
HNGS−BA	19C0−187	EDTC−B	SKK−5169−EDTCB

PIP SUMMARY

Time Mark Every 60 S




TENS
LCAL
HCGR
HSGR
1150
CDF
HTHO
HURA
HFK
1175



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

REPEAT SECTION

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

HNGS Spectroscopy Gamma Ray (HSGR)
0 (GAPI) 100

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	0.000532997	
HALF	HNGS Alpha Filter Length	60	IN
HCRB	HNGS Apply Borehole Potassium Correction	NONE	
HMWM	Mud Weighting Material	BARI	
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	0.973887	
VBA2	HNGS Detector 2 Variable Barite Factor Running Average	0.976017	
	EDTC−B: Enhanced DTS Cartridge		
BHS	Borehole Status	OPEN	
GCSE	Generalized Caliper Selection	LCAL	
	System and Miscellaneous		
BS	Bit Size	9.875	IN

Format: HNGSYields Vertical Scale: 1:200 Graphics File Created: 20−Jan−2018 23:20

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_014LUP	FN:19	PRODUCER	20−Jan−2018 23:20
BACKUP_	MSS_LDEO_HRLA_LDL_014LUP	FN:20	PRODUCER	20−Jan−2018 23:20

Company: International Ocean Discovery Program Well: Expedition 374, Site U1521A

Output DLIS Files

DEFAULT	MSS_LDEO_HRLA_LDL_014LUP	FN:19	PRODUCER	20−Jan−2018 23:20	1223.0 M	1100.6 M
BACKUP_	MSS_LDEO_HRLA_LDL_014LUP	FN:20	PRODUCER	20−Jan−2018 23:20	1223.0 M	1100.6 M

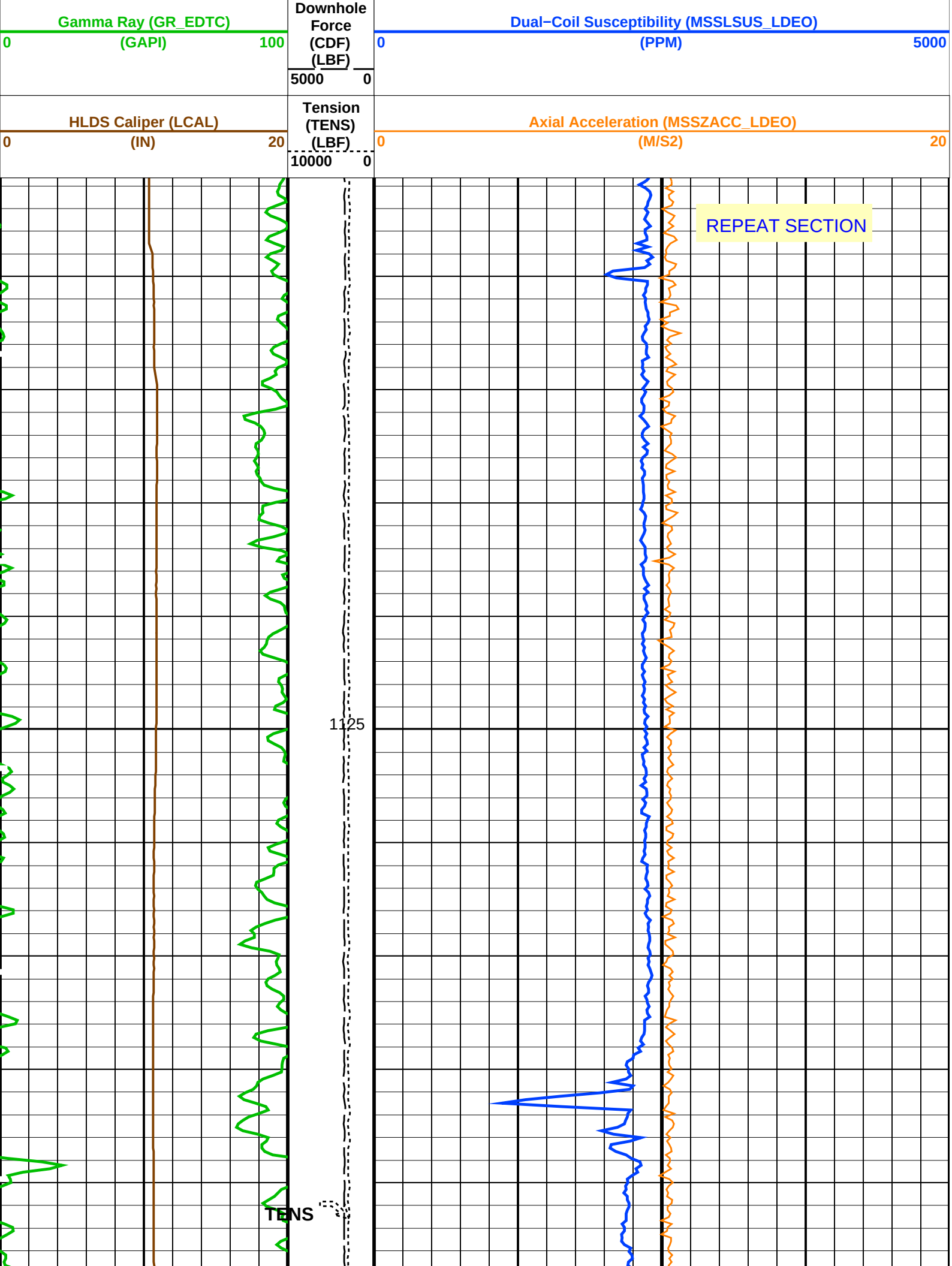
OP System Version: 19C0−187

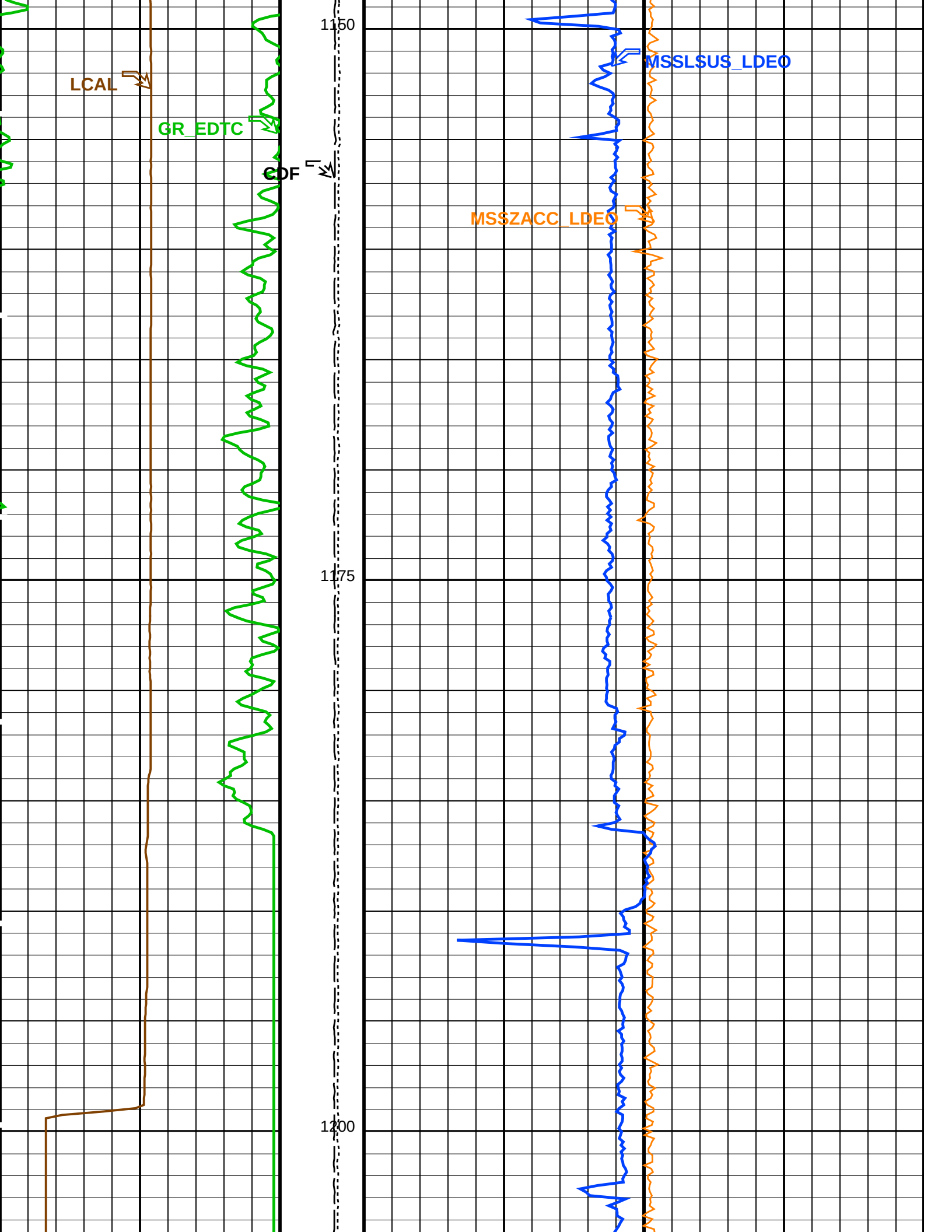
MSS_LDEO−A	19C0−187	HRLT−B	19C0−187
HLDS	19C0−187	LDSC−B	19C0−187
APS−C	19C0−187	HNGC−B	19C0−187
HNGS−BA	19C0−187	EDTC−B	SKK−5169−EDTCB

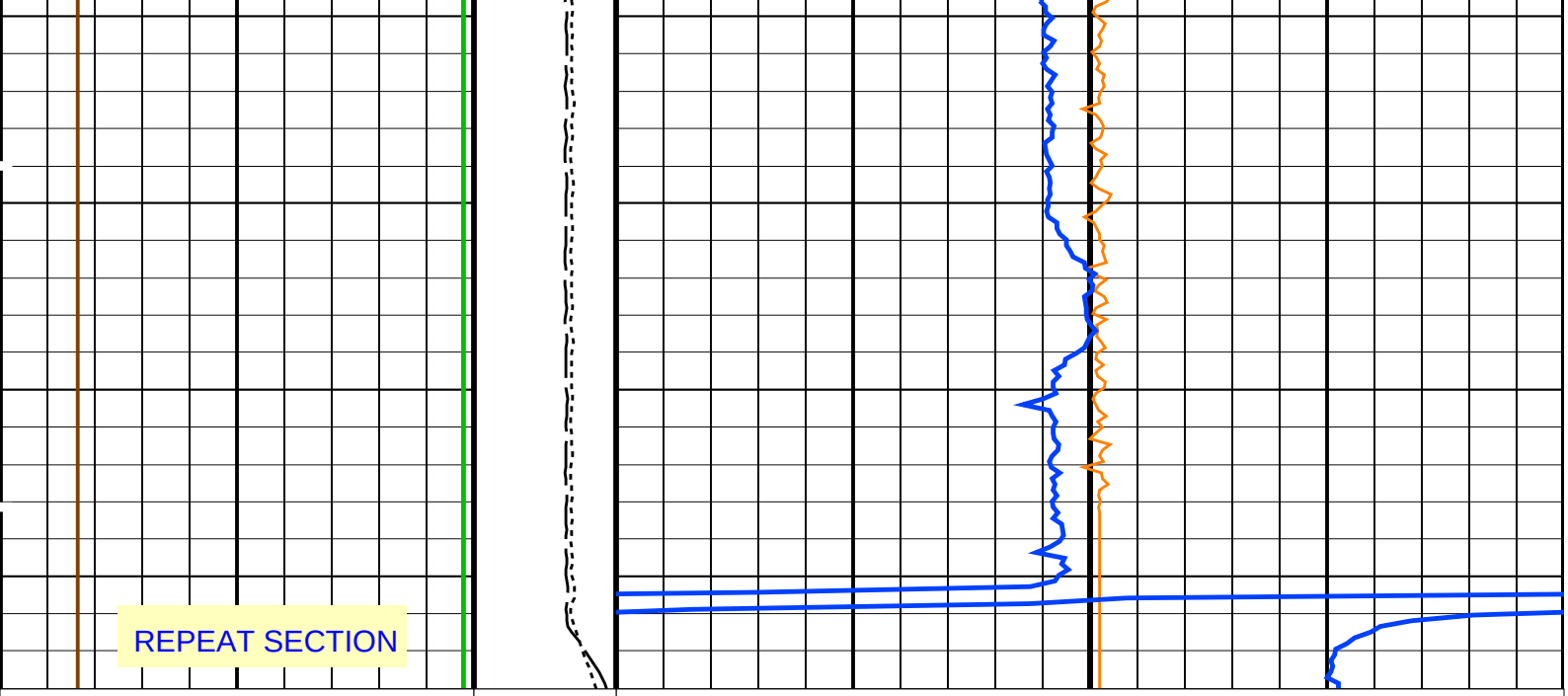
PIP SUMMARY

Time Mark Every 60 S

	Calibrated	


Gamma Ray (GR_EDTC)
0
(GAPI)
100
Downhole Force (CDF) (LBF)
5000
0
Dual−Coil Susceptibility (MSSLSUS_LDEO)
0
(PPM)
5000
HLDS Caliper (LCAL)
0
(IN)
20
Tension (TENS) (LBF)
10000
0
Axial Acceleration (MSSZACC_LDEO)
0
(M/S2)
20
REPEAT SECTION
1125
TENS


LCAL
GR_EDTC
CDF
MSSLSUS_LDEO
MSSZACC_LDEO
1150
1175
1200



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)**	**Dual−Coil Susceptibility (MSSLSUS_LDEO)**
0 (GAPI) 100	(LBF) 5000 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)	212	DEGF
CALSTAT	HRLTB Calibration Status	SHALLOW_DONE	
CALTEMP	HRLTB Calibration Temperature	−1.02714	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	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
ISSBAR	Barite Mud Switch	BARITE	
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	55	DEGF
	HLDS: Hostile Litho−Density Sonde		

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	OFF	
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	1967.82	V
ADSO	APS Array Detectors Data Source Switch	Both	
AFSD	APS Far Detector High Voltage Setting	2075.82	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	1735.71	V
ASOS	APS Standoff Correction Switch	ON	
ATSS	APS Temperature−Pressure−Salinity Correction Switch	ON	
BHFL_APS	APS TNPH Borehole Fluid Type	WATER	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	212	DEGF
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	0.01	DF/F
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	BARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
MCCO_APS	APS TNPH Mud Cake Correction Option	NO	
MCOR_APS	APS TNPH Mud Correction	BARI	
MWCO_APS	APS TNPH Mud Weight Correction Option	YES	
NARC	APS Near/Array Calibration Ratio	1.06899	
NFRC	APS Near/Far Calibration Ratio	0.897215	
PTCO_APS	APS TNPH Pressure/Temperature Correction Option	YES	
SHT	Surface Hole Temperature	55	DEGF
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)	212	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	LCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
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	0.000532997	
HALF	HNGS Alpha Filter Length	60	IN
HCRB	HNGS Apply Borehole Potassium Correction	NONE	
HMWM	Mud Weighting Material	BARI	
HNPE	HNGS Processing Enable	YES	
ISSBAR	Barite Mud Switch	BARITE	
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	55	DEGF
TPOS	Tool Position	ECCE	

VBA1	HNGS Detector 1 Variable Barite Factor Running Average	0.973887	
VBA2	HNGS Detector 2 Variable Barite Factor Running Average	0.976017	
EDTC−B: Enhanced DTS Cartridge			
BHFL	Borehole Fluid Type	WATER	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	212	DEGF
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	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
HSCO	Hole Size Correction Option	YES	
ISSBAR	Barite Mud Switch	BARITE	
ISSBAR_EDTC	Nuclear Mud Type	BARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
MCCO	Mud Cake Correction Option	NO	
MCOR	Mud Correction	BARI	
MWCO	Mud Weight Correction Option	YES	
PTCO	Pressure/Temperature Correction Option	NO	
SDAT	Standoff Data Source	SOCN	
SHT	Surface Hole Temperature	55	DEGF
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	1.26	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	4012.4	FT
TDD	Total Depth − Driller	1223.00	M
TDL	Total Depth − Logger	1223.00	M
TWS	Temperature of Connate Water Sample	37.78	DEGC

Format: MSS_Logging Vertical Scale: 1:200 Graphics File Created: 20−Jan−2018 23:20

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_014LUP	FN:19	PRODUCER	20−Jan−2018 23:20
BACKUP_	MSS_LDEO_HRLA_LDL_014LUP	FN:20	PRODUCER	20−Jan−2018 23:20

Output DLIS Files

DEFAULT	MSS_LDEO_HRLA_LDL_014LUP	FN:19	PRODUCER	20−Jan−2018 23:20	1223.0 M	1100.6 M
BACKUP_	MSS_LDEO_HRLA_LDL_014LUP	FN:20	PRODUCER	20−Jan−2018 23:20	1223.0 M	1100.6 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

REPEAT SECTION

HRLT True Resistivity (RT_HRLT)
0.2 (OHMM) 20

HRLT Resistivity 1 (RLA1)
0.2 (OHMM) 20

HRLT Resistivity 2 (RLA2)
0.2 (OHMM) 20

HRLT Resistivity 3 (RLA3)
0.2 (OHMM) 20

HLDS Bulk Density Correction (DRH)
−0.25 (G/C3) 0.25

HLDS Bulk Density (RHOM)
0 (G/C3) 4

HNGS Spectroscopy Gamma Ray (HSGR)
0 (GAPI) 100

Calibrated Downhole Force (CDF) (LBF)
3000 0

HRLT Resistivity 5 (RLA5)
0.2 (OHMM) 20

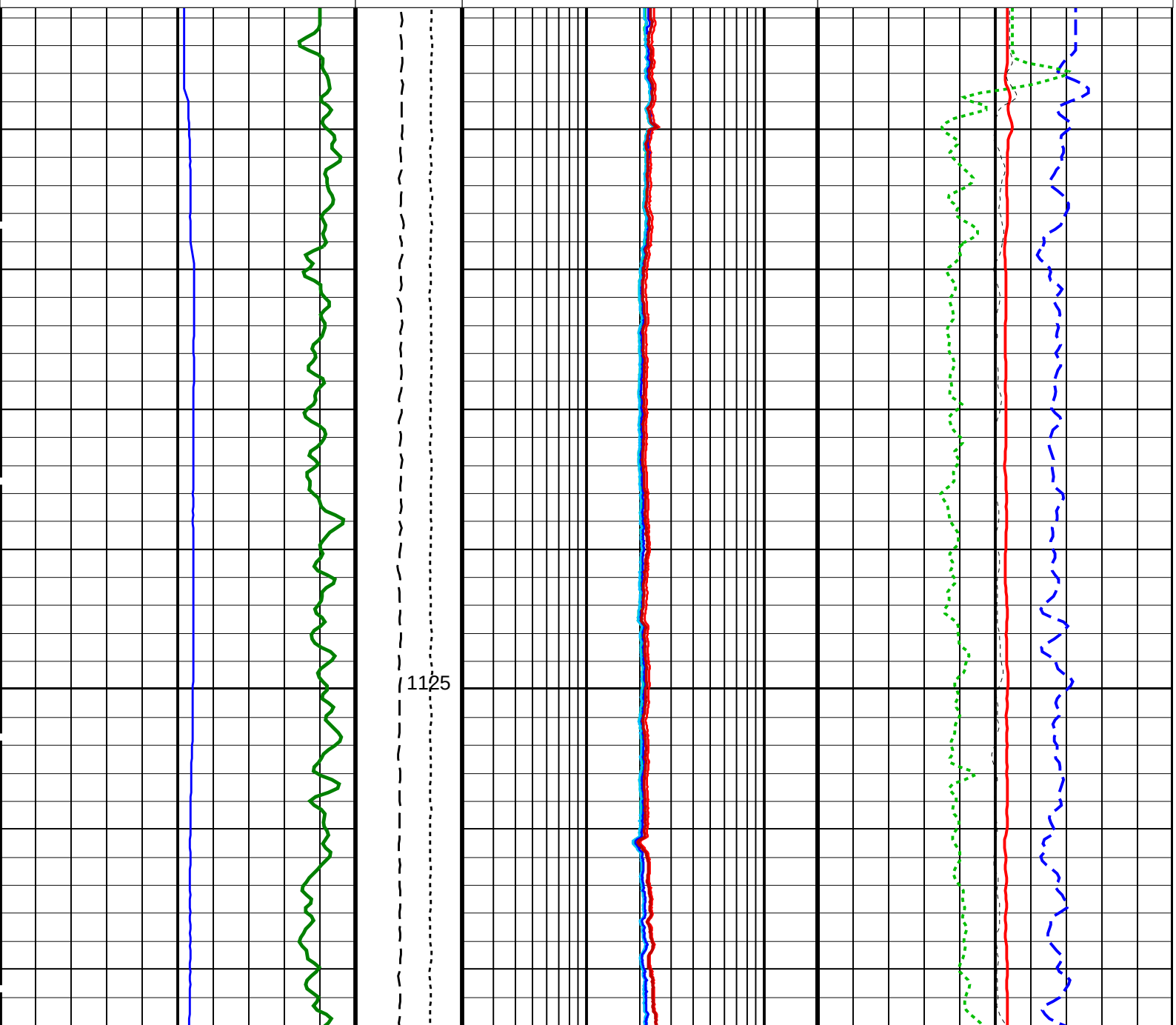
HLDS Long Spaced Photoelectric Effect (PEFL)
0 (−−−−) 10

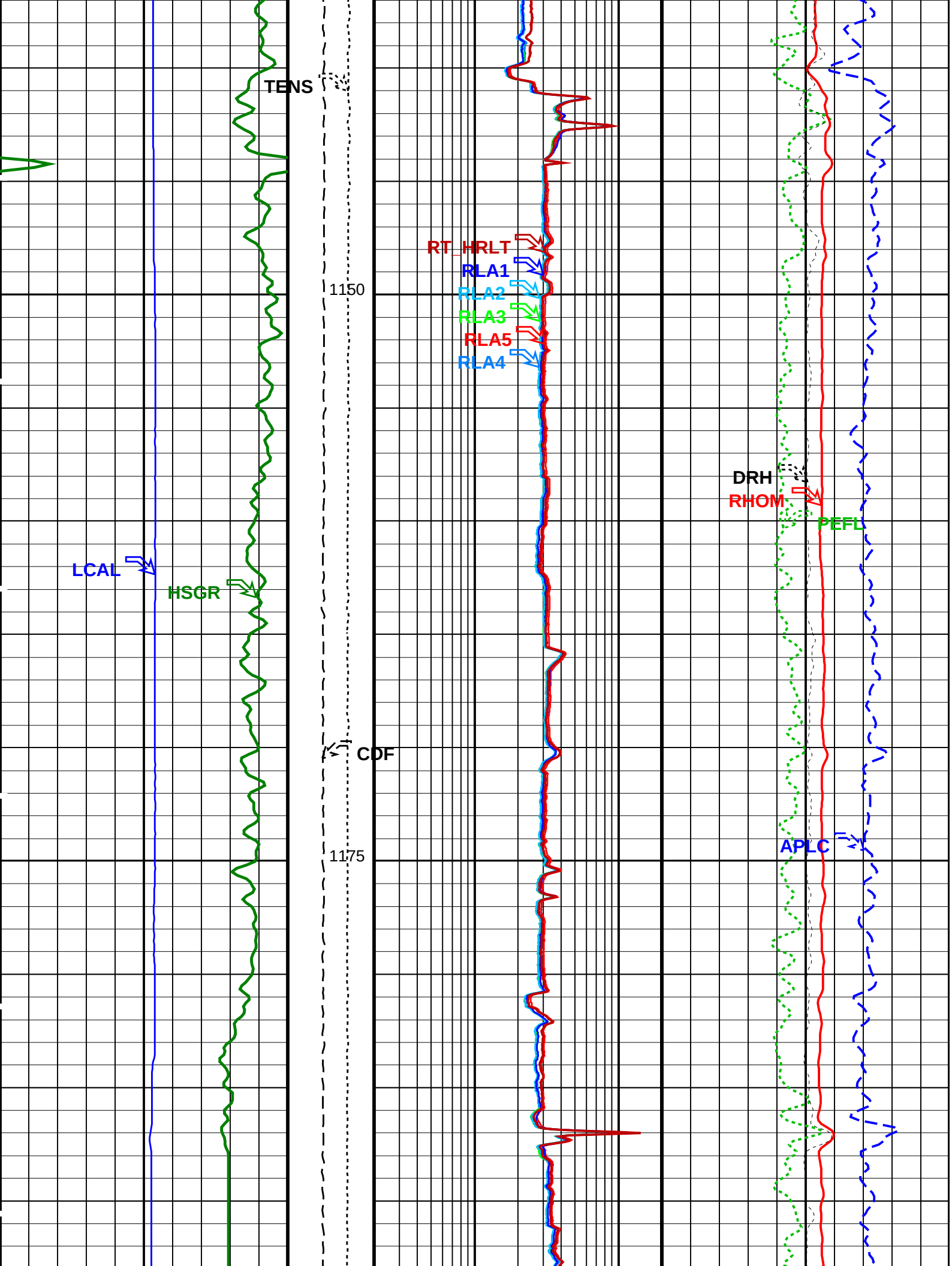
HLDS Caliper (LCAL)
0 (IN) 20

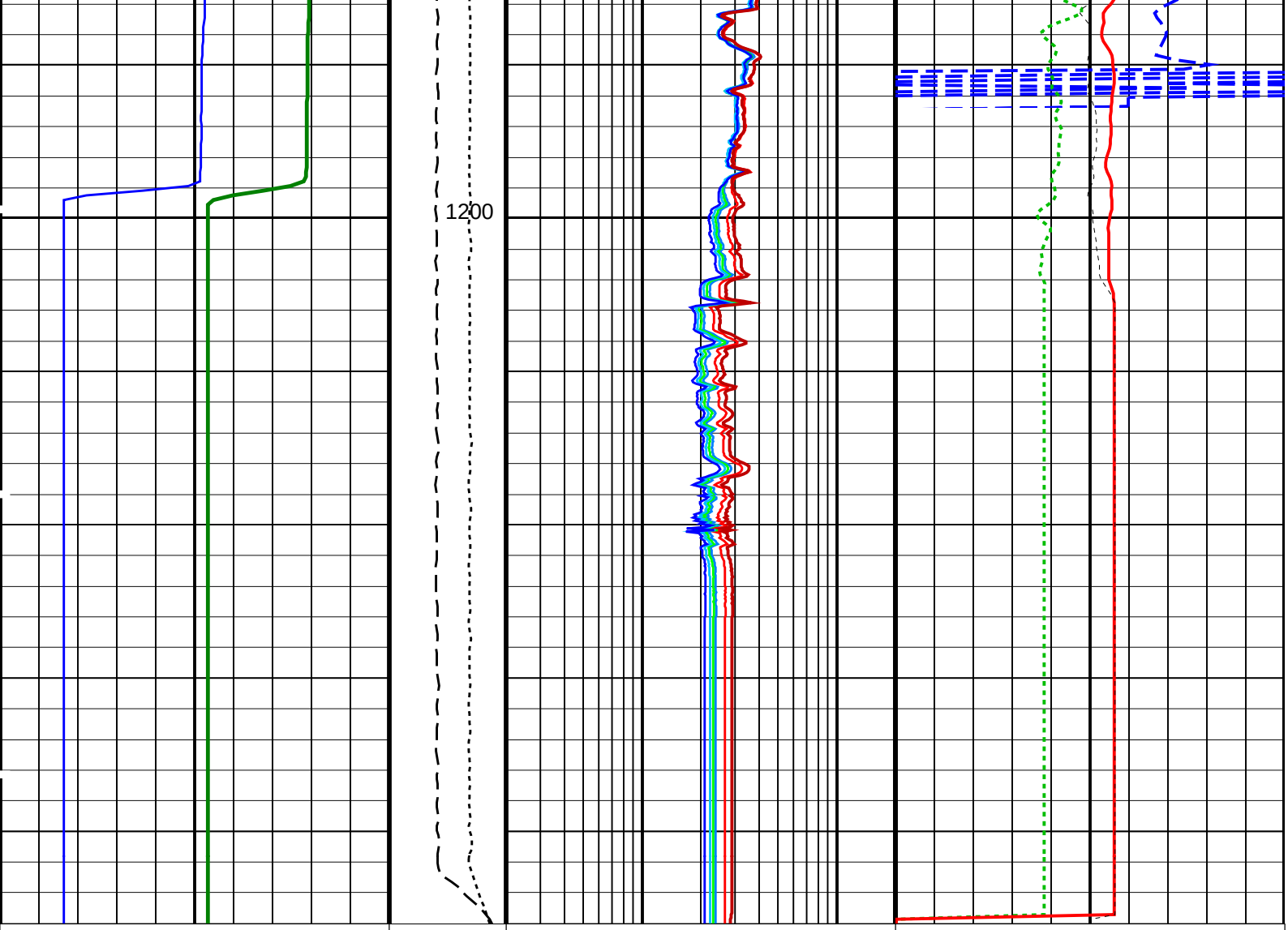
Tension (TENS) (LBF)
10000 0

HRLT Resistivity 4 (RLA4)
0.2 (OHMM) 20

APS Near/Array Corrected Limestone Porosity (APLC)
100 (PU) 0




TENS
RT_HRLT
RLA1
RLA2
RLA3
RLA5
RLA4
1150
DRH
RHOM
PEFL
LCAL
HSGR
CDF
1175
APLC



HLDS Caliper (LCAL) 0 (IN) 20	Tension (TENS) (LBF) 10000 0	HRLT Resistivity 4 (RLA4) 0.2 (OHMM) 20	APS Near/Array Corrected Limestone Porosity (APLC) 100 (PU) 0
HNGS Spectroscopy Gamma Ray (HSGR) 0 (GAPI) 100	Calibrated Downhole Force (CDF) (LBF) 3000 0	HRLT Resistivity 5 (RLA5) 0.2 (OHMM) 20	HLDS Long Spaced Photoelectric Effect (PEFL) 0 (−−−−) 10
REPEAT SECTION		HRLT Resistivity 3 (RLA3) 0.2 (OHMM) 20	HLDS Bulk Density (RHOM) 0 (G/C3) 4
		HRLT Resistivity 2 (RLA2) 0.2 (OHMM) 20	HLDS Bulk Density Correction (DRH) −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)	212 DEGF

BHT	Bottom Hole Temperature (used in calculations)	212	DEGF
CALSTAT	HRLTB Calibration Status	SHALLOW_DONE	
CALTEMP	HRLTB Calibration Temperature	−1.02714	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	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
ISSBAR	Barite Mud Switch	BARITE	
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	55	DEGF
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	OFF	
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	1967.82	V
ADSO	APS Array Detectors Data Source Switch	Both	
AFSD	APS Far Detector High Voltage Setting	2075.82	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	1735.71	V
ASOS	APS Standoff Correction Switch	ON	
ATSS	APS Temperature−Pressure−Salinity Correction Switch	ON	
BHFL_APS	APS TNPH Borehole Fluid Type	WATER	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	212	DEGF
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	0.01	DF/F
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	BARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
MCCO_APS	APS TNPH Mud Cake Correction Option	NO	
MCOR_APS	APS TNPH Mud Correction	BARI	
MWCO_APS	APS TNPH Mud Weight Correction Option	YES	
NARC	APS Near/Array Calibration Ratio	1.06899	
NFRC	APS Near/Far Calibration Ratio	0.897215	
PTCO_APS	APS TNPH Pressure/Temperature Correction Option	YES	

SHT	Surface Hole Temperature	55	DEGF
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)	212	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	LCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
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	0.000532997	
HALF	HNGS Alpha Filter Length	60	IN
HCRB	HNGS Apply Borehole Potassium Correction	NONE	
HMWM	Mud Weighting Material	BARI	
HNPE	HNGS Processing Enable	YES	
ISSBAR	Barite Mud Switch	BARITE	
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	55	DEGF
TPOS	Tool Position	ECCE	
VBA1	HNGS Detector 1 Variable Barite Factor Running Average	0.973887	
VBA2	HNGS Detector 2 Variable Barite Factor Running Average	0.976017	
EDTC−B: Enhanced DTS Cartridge			
BHFL	Borehole Fluid Type	WATER	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	212	DEGF
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	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
HSCO	Hole Size Correction Option	YES	
ISSBAR	Barite Mud Switch	BARITE	
ISSBAR_EDTC	Nuclear Mud Type	BARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
MCCO	Mud Cake Correction Option	NO	
MCOR	Mud Correction	BARI	
MWCO	Mud Weight Correction Option	YES	
PTCO	Pressure/Temperature Correction Option	NO	
SDAT	Standoff Data Source	SOCN	
SHT	Surface Hole Temperature	55	DEGF
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	1.26	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	4012.4	FT
TDD	Total Depth − Driller	1223.00	M
TDL	Total Depth − Logger	1223.00	M
TWS	Temperature of Connate Water Sample	37.78	DEGC

Format: TripleCombo Vertical Scale: 1:200 Graphics File Created: 20−Jan−2018 23:20

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_014LUP	FN:19	PRODUCER	20−Jan−2018 23:20
BACKUP_	MSS_LDEO_HRLA_LDL_014LUP	FN:20	PRODUCER	20−Jan−2018 23:20

Calibration and Check Summary

Measurement	Nominal	Master	Before	After	Change	Limit	Units
High Resolution Laterolog Array − B Wellsite Calibration − HRLT M01							
Before: 20−Jan−2018 20:36 After: 21−Jan−2018 1:23							
HRLT M0−M1 Voltage Plus − 0	0	N/A	−318.4	−318.2	0.2262	9.681	UV
HRLT M0−M1 Voltage Plus − 1	0	N/A	−328.1	−328.7	−0.5666	9.681	UV
HRLT M0−M1 Voltage Plus − 2	0	N/A	−335.4	−336.2	−0.7391	9.681	UV
HRLT M0−M1 Voltage Plus − 3	0	N/A	−326.6	−327.3	−0.7071	9.681	UV
HRLT M0−M1 Voltage Plus − 4	0	N/A	−319.1	−319.2	−0.09512	9.681	UV
HRLT M0−M1 Voltage Plus − 5	0	N/A	−320.9	−321.2	−0.2620	9.681	UV
HRLT M0−M1 Voltage Plus − 6	0	N/A	316.7	318.0	1.283	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: 20−Jan−2018 20:36 After: 21−Jan−2018 1:23							
HRLT M1−M2 Voltage Plus − 0	0	N/A	1735	1735	0.1848	53.42	UV
HRLT M1−M2 Voltage Plus − 1	0	N/A	1796	1800	3.996	53.42	UV
HRLT M1−M2 Voltage Plus − 2	0	N/A	1828	1834	5.610	53.42	UV
HRLT M1−M2 Voltage Plus − 3	0	N/A	1778	1784	5.222	53.42	UV
HRLT M1−M2 Voltage Plus − 4	0	N/A	1737	1738	1.729	53.42	UV
HRLT M1−M2 Voltage Plus − 5	0	N/A	1746	1749	3.036	53.42	UV
HRLT M1−M2 Voltage Plus − 6	0	N/A	−1741	−1750	−8.274	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: 20−Jan−2018 20:36 After: 21−Jan−2018 1:23							
HRLT M2−M3 Voltage Plus − 0	0	N/A	1729	1728	−1.351	53.42	UV
HRLT M2−M3 Voltage Plus − 1	0	N/A	1799	1801	2.535	53.42	UV
HRLT M2−M3 Voltage Plus − 2	0	N/A	1834	1838	4.262	53.42	UV
HRLT M2−M3 Voltage Plus − 3	0	N/A	1788	1792	4.206	53.42	UV
HRLT M2−M3 Voltage Plus − 4	0	N/A	1740	1741	0.4794	53.42	UV
HRLT M2−M3 Voltage Plus − 5	0	N/A	1752	1753	1.340	53.42	UV
HRLT M2−M3 Voltage Plus − 6	0	N/A	−1733	−1741	−7.146	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: 20−Jan−2018 20:36 After: 21−Jan−2018 1:23							
HRLT A3−A4 Voltage Plus − 0	0	N/A	68490	68490	−1.258	2100	UV
HRLT A3−A4 Voltage Plus − 1	0	N/A	71130	71290	153.6	2100	UV
HRLT A3−A4 Voltage Plus − 2	0	N/A	72790	73020	222.6	2100	UV
HRLT A3−A4 Voltage Plus − 3	0	N/A	71200	71400	201.1	2100	UV
HRLT A3−A4 Voltage Plus − 4	0	N/A	69250	69330	78.88	2100	UV
HRLT A3−A4 Voltage Plus − 5	0	N/A	69710	69830	121.7	2100	UV
HRLT A3−A4 Voltage Plus − 6	0	N/A	−67580	−67880	−300.8	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: 20−Jan−2018 20:36 After: 21−Jan−2018 1:23							
HRLT A4−A5 Voltage Plus − 0	0	N/A	68580	68580	−4.383	2100	UV
HRLT A4−A5 Voltage Plus − 1	0	N/A	71340	71490	151.8	2100	UV
HRLT A4−A5 Voltage Plus − 2	0	N/A	72970	73200	225.9	2100	UV
HRLT A4−A5 Voltage Plus − 3	0	N/A	71350	71560	212.5	2100	UV
HRLT A4−A5 Voltage Plus − 4	0	N/A	69360	69440	78.88	2100	UV
HRLT A4−A5 Voltage Plus − 5	0	N/A	69810	69930	122.3	2100	UV
HRLT A4−A5 Voltage Plus − 6	0	N/A	−67780	−68090	−310.3	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: 20−Jan−2018 20:36 After: 21−Jan−2018 1:23							
HRLT A5−A6 Voltage Plus − 0	0	N/A	68420	68440	18.20	2100	UV
HRLT A5−A6 Voltage Plus − 1	0	N/A	71190	71340	149.0	2100	UV
HRLT A5−A6 Voltage Plus − 2	0	N/A	72840	73020	177.5	2100	UV

HRLT A5−A6 Voltage Plus − 3	0	N/A	71210	71410	205.7	2100	UV
HRLT A5−A6 Voltage Plus − 4	0	N/A	69220	69300	78.22	2100	UV
HRLT A5−A6 Voltage Plus − 5	0	N/A	69670	69800	131.4	2100	UV
HRLT A5−A6 Voltage Plus − 6	0	N/A	−67630	−67930	−303.4	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: 20−Jan−2018 20:36 After: 21−Jan−2018 1:23

HRLT Torpedo−M0 Voltage − 0	0	N/A	−67980	−67980	4.195	2100	UV
HRLT Torpedo−M0 Voltage − 1	0	N/A	−71000	−71140	−142.6	2100	UV
HRLT Torpedo−M0 Voltage − 2	0	N/A	−72690	−72880	−184.6	2100	UV
HRLT Torpedo−M0 Voltage − 3	0	N/A	−71140	−71340	−200.4	2100	UV
HRLT Torpedo−M0 Voltage − 4	0	N/A	−69210	−69270	−62.55	2100	UV
HRLT Torpedo−M0 Voltage − 5	0	N/A	−69660	−69760	−104.5	2100	UV
HRLT Torpedo−M0 Voltage − 6	0	N/A	67410	67690	282.8	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: 20−Jan−2018 20:36 After: 21−Jan−2018 1:23

HRLT Bridle#9−M0 Voltage − 0	0	N/A	−68020	−68020	4.789	2100	UV
HRLT Bridle#9−M0 Voltage − 1	0	N/A	−71090	−71240	−155.6	2100	UV
HRLT Bridle#9−M0 Voltage − 2	0	N/A	−72780	−72970	−184.6	2100	UV
HRLT Bridle#9−M0 Voltage − 3	0	N/A	−71220	−71410	−196.0	2100	UV
HRLT Bridle#9−M0 Voltage − 4	0	N/A	−69250	−69320	−67.03	2100	UV
HRLT Bridle#9−M0 Voltage − 5	0	N/A	−69700	−69800	−105.7	2100	UV
HRLT Bridle#9−M0 Voltage − 6	0	N/A	67490	67780	291.1	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: 20−Jan−2018 20:36 After: 21−Jan−2018 1:23

HRLT Source Current Plus − 0	0	N/A	283.8	283.8	0.02362	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: 20−Jan−2018 20:36 After: 21−Jan−2018 1:23

HRLT Vertical Voltage Pl − 0	0	N/A	−320.3	−319.8	0.4582	9.681	UV
HRLT Vertical Voltage Pl − 1	0	N/A	−323.2	−323.4	−0.1693	9.681	UV
HRLT Vertical Voltage Pl − 2	0	N/A	−328.9	−329.5	−0.6137	9.681	UV
HRLT Vertical Voltage Pl − 3	0	N/A	−318.5	−319.0	−0.5142	9.681	UV
HRLT Vertical Voltage Pl − 4	0	N/A	−308.3	−308.2	0.08594	9.681	UV
HRLT Vertical Voltage Pl − 5	0	N/A	−324.9	−325.0	−0.07376	9.681	UV
HRLT Vertical Voltage Pl − 6	0	N/A	324.4	325.5	1.027	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: 30−Nov−2017 7:34 Before: 20−Jan−2018 20:41 After: 21−Jan−2018 1:57

SS Cs Resolution Bkg	9.000	8.081	8.130	7.955	−0.1743	1.800	%
LS Cs Resolution Bkg	9.000	8.109	8.233	8.196	−0.03675	1.800	%
LSW1 Background	100.0	65.60	63.45	63.66	0.2190	3.000	CPS
LSW2 Background	100.0	60.23	59.06	59.14	0.08215	3.000	CPS
LSW3 Background	200.0	131.4	130.3	130.2	−0.06862	6.000	CPS
LSW4 Background	250.0	156.8	158.7	157.2	−1.521	7.500	CPS
LSW5 Background	600.0	364.3	364.1	365.0	0.9017	18.00	CPS
SSW1 Background	100.0	72.68	73.49	72.14	−1.348	3.000	CPS
SSW2 Background	200.0	129.0	128.0	127.3	−0.7247	6.000	CPS
SSW3 Background	500.0	346.2	344.2	347.4	3.212	15.00	CPS
SSW4 Background	270.0	177.6	180.9	178.5	−2.415	8.100	CPS
SSW5 Background	200.0	132.1	129.3	131.4	2.162	6.000	CPS

Hostile Litho−Density Sonde Wellsite Calibration − Aluminum Measurement
Master: 30−Nov−2017 8:00

LSW1 Aluminum	600.0	519.1	N/A	N/A	N/A	N/A	CPS
LSW2 Aluminum	900.0	746.8	N/A	N/A	N/A	N/A	CPS
LSW3 Aluminum	1100	899.8	N/A	N/A	N/A	N/A	CPS
LSW4 Aluminum	580.0	457.7	N/A	N/A	N/A	N/A	CPS
LSW5 Aluminum	570.0	414.7	N/A	N/A	N/A	N/A	CPS
SSW1 Aluminum	2800	2406	N/A	N/A	N/A	N/A	CPS
SSW2 Aluminum	8000	6494	N/A	N/A	N/A	N/A	CPS
SSW3 Aluminum	11600	8978	N/A	N/A	N/A	N/A	CPS
SSW4 Aluminum	5000	3692	N/A	N/A	N/A	N/A	CPS
SSW5 Aluminum	660.0	447.6	N/A	N/A	N/A	N/A	CPS

Hostile Litho−Density Sonde Wellsite Calibration − Lithology Measurement
Master: 30−Nov−2017 7:55

LSW1 Iron	400.0	353.1	N/A	N/A	N/A	N/A	CPS

LSW2 Iron	730.0	601.8	N/A	N/A	N/A	N/A	CPS
LSW3 Iron	1000	791.8	N/A	N/A	N/A	N/A	CPS
LSW4 Iron	520.0	414.2	N/A	N/A	N/A	N/A	CPS
LSW5 Iron	470.0	380.9	N/A	N/A	N/A	N/A	CPS
SSW1 Iron	2100	1741	N/A	N/A	N/A	N/A	CPS
SSW2 Iron	6800	5384	N/A	N/A	N/A	N/A	CPS
SSW3 Iron	10800	8153	N/A	N/A	N/A	N/A	CPS
SSW4 Iron	4600	3353	N/A	N/A	N/A	N/A	CPS
SSW5 Iron	580.0	394.4	N/A	N/A	N/A	N/A	CPS

Hostile Litho−Density Sonde Wellsite Calibration − Caliper Calibration
Before: 30−Nov−2017 8:30

HLDS Caliper Small Ring	12.00	N/A	16.03	N/A	N/A	N/A	IN
HLDS Caliper Large Ring	15.19	N/A	20.03	N/A	N/A	N/A	IN

Accelerator−Porosity Tool Wellsite Calibration − Detector Background
Master: 30−Nov−2017 5:21 Before: 20−Jan−2018 20:40 After: 21−Jan−2018 1:26

Near Det Bkg Cntrate	30.00	31.33	31.07	30.67	−0.4005	N/A	CPS
Far Det Bkg Cntrate	30.00	33.09	31.61	32.01	0.4006	N/A	CPS
Array−1 Det Bkg Cntrate	30.00	29.38	27.18	28.75	1.568	N/A	CPS
Array−2 Det Bkg Cntrate	30.00	29.68	29.15	28.80	−0.3503	N/A	CPS
Array Therm Det Bkg Cntrate	30.00	32.29	31.48	30.45	−1.026	N/A	CPS

Accelerator−Porosity Tool Wellsite Calibration − Calibration Ratios
Master: 30−Nov−2017 5:21

Near/Far Calibration Ratio	0.9250	0.8972	N/A	N/A	N/A	N/A	
Near/Array Calibration Ratio	1.030	1.069	N/A	N/A	N/A	N/A	
Near/Array Cal Ratio Up/Down	1.000	1.012	N/A	N/A	N/A	N/A	

Accelerator−Porosity Tool Wellsite Calibration − Tank Check
Master: 30−Nov−2017 5:21

Array−1 Standoff Porosity	11.75	10.18	N/A	N/A	N/A	N/A	PU
Array−2 Standoff Porosity	11.75	10.15	N/A	N/A	N/A	N/A	PU
Average Slowing Down Time	6.000	6.122	N/A	N/A	N/A	N/A	US
Array−1 SDT Ratio Up/Down	1.000	0.9756	N/A	N/A	N/A	N/A	
Array−2 SDT Ratio Up/Down	1.000	0.9749	N/A	N/A	N/A	N/A	
Sigma Formation	27.50	34.13	N/A	N/A	N/A	N/A	CU

Accelerator−Porosity Tool Wellsite Calibration − CCR7 signal boxes
Master: 30−Nov−2017 4:44

Near Detector Plateau Setting	1650	1736	N/A	N/A	N/A	N/A	V
Far Detector Plateau Setting	2000	2076	N/A	N/A	N/A	N/A	V
Array Detector Plateau Setting	2000	1968	N/A	N/A	N/A	N/A	V

Hostile Natural Gamma Ray Sonde Wellsite Calibration − Detector 1 Check
Master: 8−Jan−2018 8:17 Before: 18−Jan−2018 15:02 After: 8−Jan−2018 8:28

Na 511 Peak Loc	40.00	39.59	39.55	39.53	−0.01984	1.000	
Na 511 Peak Res	15.50	15.64	14.43	15.55	1.119	2.000	%
High Voltage	1150	1167	1135	1167	32.27	N/A	V
Na 1785 Peak Loc	142.6	142.6	142.3	141.4	−0.9036	7.000	
Na 1785 Peak Res	8.500	7.971	7.766	8.609	0.8427	2.000	%
Temperature	15.50	23.45	6.172	23.47	17.30	N/A	DEGC
Na Count Rate	45.00	25.59	25.18	25.12	−0.06201	8.000	CPS

Hostile Natural Gamma Ray Sonde Wellsite Calibration − Detector 2 Check
Master: 8−Jan−2018 8:17 Before: 18−Jan−2018 15:02 After: 8−Jan−2018 8:28

Na 511 Peak Loc	40.00	39.56	39.62	39.54	−0.08187	1.000	
Na 511 Peak Res	15.50	15.96	14.71	16.21	1.496	2.000	%
High Voltage	1150	1099	1064	1099	34.71	N/A	V
Na 1785 Peak Loc	142.6	141.9	140.7	141.4	0.6870	7.000	
Na 1785 Peak Res	8.500	8.488	8.077	8.675	0.5976	2.000	%
Temperature	15.50	24.00	6.628	24.04	17.41	N/A	DEGC
Na Count Rate	45.00	25.29	25.36	24.99	−0.3764	8.000	CPS

Hostile Natural Gamma Ray Sonde Wellsite Calibration − Ratio Of Detector 1 To Detector 2
Master: 8−Jan−2018 8:17 Before: 18−Jan−2018 15:02 After: 8−Jan−2018 8:28

Coincidence Count Rate Ratio	1.000	1.012	0.9949	1.005	0.01014	0.05000

Hostile Natural Gamma Ray Sonde Master Calibration − Detector 1 Calibration
Master: 8−Jan−2018 8:08

Na 511 Peak Set Point	40.00	41.00	−−	−−	−−	−−	
Th Peak Loc	209.6	209.5	−−	−−	−−	−−	
Th Peak Res	7.000	6.944	−−	−−	−−	−−	%
Background Count Rate	142.5	28.74	−−	−−	−−	−−	CPS
Gain Ratio	1.000	1.006	−−	−−	−−	−−	

Hostile Natural Gamma Ray Sonde Master Calibration − Detector 2 Calibration
Master: 8−Jan−2018 8:08

Na 511 Peak Set Point	40.00	41.00	−−	−−	−−	−−	
Th Peak Loc	209.6	209.2	−−	−−	−−	−−	
Th Peak Res	7.000	6.965	−−	−−	−−	−−	%
Background Count Rate	142.5	27.70	−−	−−	−−	−−	CPS

Gain Ratio	1.000	1.006	−−	−−	−−	−−	

Enhanced DTS Cartridge Wellsite Calibration − EDTC Accelerometer Calibration
Before: 20−Jan−2018 20:36

EDTC Z−Axis Acceleration	9.810	N/A	9.793	N/A	N/A	N/A	M/S2

Enhanced DTS Cartridge Wellsite Calibration − Detector Calibration
Before: 8−Jan−2018 7:48 After: 8−Jan−2018 8:26

Gamma Ray (Jig − Bkg)	139.2	N/A	139.2	139.5	0.3707	12.65	GAPI
Gamma Ray (Calibrated)	164.0	N/A	164.0	164.4	0.4368	15.00	GAPI

Accelerator−Porosity Tool − Detector Plateau Settings :

Near Detector Plateau Setting 1736 V
Far Detector Plateau Setting 2076 V
Array Detector Plateau Setting 1968 V

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	974
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		−318.4	−322.7	−280.7	−379.7
	After		−318.2			
1	Before		−328.1	−322.7	−280.7	−379.7
	After		−328.7			
2	Before		−335.4	−322.7	−280.7	−379.7
	After		−336.2			
3	Before		−326.6	−322.7	−280.7	−379.7
	After		−327.3			
4	Before		−319.1	−322.7	−280.7	−379.7
	After		−319.2			
5	Before		−320.9	−322.7	−280.7	−379.7
	After		−321.2			
6	Before		316.7	322.7	379.7	280.7
	After		318.0			
7	Before		−322.7	−322.7	−280.7	−379.7
	After		−322.7			
		(Minimum) (Nominal) (Maximum)				

Before: 20−Jan−2018 20:36
After: 21−Jan−2018 1:23

High Resolution Laterolog Array − B Wellsite Calibration
HRLT M12

Idx	Phase	HRLT M1−M2 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		1735	1781	2095	1549
	After		1735			

1	Before	1796	1781	2095	1549
	After	1800			
2	Before	1828	1781	2095	1549
	After	1834			
3	Before	1778	1781	2095	1549
	After	1784			
4	Before	1737	1781	2095	1549
	After	1738			
5	Before	1746	1781	2095	1549
	After	1749			
6	Before	−1741	−1781	−1549	−2095
	After	−1750			
7	Before	1781	1781	2095	1549
	After	1781			
	(Minimum) (Nominal) (Maximum)				

Before: 20−Jan−2018 20:36

After: 21−Jan−2018 1:23

High Resolution Laterolog Array − B Wellsite Calibration

HRLT M23

Idx	Phase	HRLT M2−M3 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before	1729	1781	2095	1549
	After	1728			
1	Before	1799	1781	2095	1549
	After	1801			
2	Before	1834	1781	2095	1549
	After	1838			
3	Before	1788	1781	2095	1549
	After	1792			
4	Before	1740	1781	2095	1549
	After	1741			
5	Before	1752	1781	2095	1549
	After	1753			
6	Before	−1733	−1781	−1549	−2095
	After	−1741			
7	Before	1781	1781	2095	1549
	After	1781			
	(Minimum) (Nominal) (Maximum)				

Before: 20−Jan−2018 20:36

After: 21−Jan−2018 1:23

High Resolution Laterolog Array − B Wellsite Calibration

HRLT V34

Idx	Phase	HRLT A3−A4 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before	68490	70000	82360	60900
	After	68490			
1	Before	71130	70000	82360	60900
	After	71290			

2	Before		72790	70000	82360	60900
	After		73020			
3	Before		71200	70000	82360	60900
	After		71400			
4	Before		69250	70000	82360	60900
	After		69330			
5	Before		69710	70000	82360	60900
	After		69830			
6	Before		−67580	−70000	−60900	−82360
	After		−67880			
7	Before		70000	70000	82360	60900
	After		70000			
	(Minimum)	(Nominal)	(Maximum)			

Before: 20−Jan−2018 20:36

After: 21−Jan−2018 1:23

High Resolution Laterolog Array − B Wellsite Calibration

HRLT V45

Idx	Phase	HRLT A4−A5 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		68580	70000	82360	60900
	After		68580			
1	Before		71340	70000	82360	60900
	After		71490			
2	Before		72970	70000	82360	60900
	After		73200			
3	Before		71350	70000	82360	60900
	After		71560			
4	Before		69360	70000	82360	60900
	After		69440			
5	Before		69810	70000	82360	60900
	After		69930			
6	Before		−67780	−70000	−60900	−82360
	After		−68090			
7	Before		70000	70000	82360	60900
	After		70000			
	(Minimum)	(Nominal)	(Maximum)			

Before: 20−Jan−2018 20:36

After: 21−Jan−2018 1:23

High Resolution Laterolog Array − B Wellsite Calibration

HRLT V56

Idx	Phase	HRLT A5−A6 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		68420	70000	82360	60900
	After		68440			
1	Before		71190	70000	82360	60900
	After		71340			
2	Before		72840	70000	82360	60900
	After		73020			

3	Before	71210	70000	82360	60900
	After	71410			
4	Before	69220	70000	82360	60900
	After	69300			
5	Before	69670	70000	82360	60900
	After	69800			
6	Before	−67630	−70000	−60900	−82360
	After	−67930			
7	Before	70000	70000	82360	60900
	After	70000			
	(Minimum) (Nominal) (Maximum)				

Before: 20−Jan−2018 20:36

After: 21−Jan−2018 1:23

High Resolution Laterolog Array − B Wellsite Calibration

HRLT VTP

Idx	Phase	HRLT Torpedo−M0 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		−67980	−70000	−60900	−82360
	After		−67980			
1	Before		−71000	−70000	−60900	−82360
	After		−71140			
2	Before		−72690	−70000	−60900	−82360
	After		−72880			
3	Before		−71140	−70000	−60900	−82360
	After		−71340			
4	Before		−69210	−70000	−60900	−82360
	After		−69270			
5	Before		−69660	−70000	−60900	−82360
	After		−69760			
6	Before		67410	70000	82360	60900
	After		67690			
7	Before		−70000	−70000	−60900	−82360
	After		−70000			
	(Minimum) (Nominal) (Maximum)					

Before: 20−Jan−2018 20:36

After: 21−Jan−2018 1:23

High Resolution Laterolog Array − B Wellsite Calibration

HRLT VBD

Idx	Phase	HRLT Bridle#9−M0 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		−68020	−70000	−60900	−82360
	After		−68020			
1	Before		−71090	−70000	−60900	−82360
	After		−71240			
2	Before		−72780	−70000	−60900	−82360
	After		−72970			
3	Before		−71220	−70000	−60900	−82360
	After		−71410			

4	Before		−69250	−70000	−60900	−82360
	After		−69320			
5	Before		−69700	−70000	−60900	−82360
	After		−69800			
6	Before		67490	70000	82360	60900
	After		67780			
7	Before		−70000	−70000	−60900	−82360
	After		−70000			
	(Minimum)	(Nominal)	(Maximum)			

Before: 20−Jan−2018 20:36

After: 21−Jan−2018 1:23

High Resolution Laterolog Array − B Wellsite Calibration

HRLT ISO

Idx	Phase	HRLT Source Current Plus UA	Value	Nominal	Maximum	Minimum
0	Before		283.8	284.0	334.1	247.0
	After		283.8			
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: 20−Jan−2018 20:36

After: 21−Jan−2018 1:23

High Resolution Laterolog Array − B Wellsite Calibration

HRLT MV

Idx	Phase	HRLT Vertical Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		−320.3	−322.7	−280.7	−379.7
	After		−319.8			
1	Before		−323.2	−322.7	−280.7	−379.7
	After		−323.4			
2	Before		−328.9	−322.7	−280.7	−379.7
	After		−329.5			
3	Before		−318.5	−322.7	−280.7	−379.7
	After		−319.0			
4	Before		−308.3	−322.7	−280.7	−379.7
	After		−308.2			

5	Before	−324.9	−322.7	−280.7	−379.7
	After	−325.0			
6	Before	324.4	322.7	379.7	280.7
	After	325.5			
7	Before	−322.7	−322.7	−280.7	−379.7
	After	−322.7			
	(Minimum) (Nominal) (Maximum)				

Before: 20−Jan−2018 20:36

After: 21−Jan−2018 1:23

Hostile Litho−Density Sonde / Equipment Identification

Primary Equipment:		
Gamma Source Radioactive	GSR − ZA	2945
Hostile Litho Density Sonde	HLDS − D	45
Hostile Litho Density High Voltage	HLDV − D	45
Auxiliary Equipment:		
Hostile Litho Density High Voltage Housi	HEH − H	47
Hostile Litho Density Pad	HLDP − C	45

Hostile Litho−Density Sonde Wellsite Calibration

Background Measurement

Phase	SS Cs Resolution Bkg %	Value
Master		8.081
Before		8.130
After		7.955
	7.000 (Minimum) 9.000 (Nominal) 11.00 (Maximum)	

Phase	LS Cs Resolution Bkg %	Value
Master		8.109
Before		8.233
After		8.196
	7.000 (Minimum) 9.000 (Nominal) 11.00 (Maximum)	

Phase	LSW1 Background CPS	Value
Master		65.60
Before		63.45
After		63.66
	55.00 (Minimum) 100.0 (Nominal) 150.0 (Maximum)	

Phase	LSW2 Background CPS	Value
Master		60.23
Before		59.06
After		59.14
	50.00 (Minimum) 100.0 (Nominal) 140.0 (Maximum)	

Phase	LSW3 Background CPS	Value
Master		131.4
Before		130.3
After		130.2
	110.0 (Minimum) 200.0 (Nominal) 290.0 (Maximum)	

Phase	LSW4 Background CPS	Value
Master		156.8
Before		158.7
After		157.2
	140.0 (Minimum) 250.0 (Nominal) 360.0 (Maximum)	

Phase	LSW5 Background CPS	Value
Master		364.3
Before		364.1
After		365.0
	330.0 (Minimum) 600.0 (Nominal) 830.0 (Maximum)	

Phase	SSW1 Background CPS	Value
Master		72.68
Before		73.49
After		72.14
	55.00 (Minimum) 100.0 (Nominal) 150.0 (Maximum)	

Phase	SSW2 Background CPS	Value
Master		129.0
Before		128.0
After		127.3
	100.0 (Minimum) 200.0 (Nominal) 260.0 (Maximum)	

Phase	SSW3 Background CPS	Value
Master		346.2
Before		344.2
After		347.4
	280.0 (Minimum) 500.0 (Nominal) 700.0 (Maximum)	

Phase	SSW4 Background CPS	Value
Master		177.6
Before		180.9
After		178.5
	150.0 (Minimum) 270.0 (Nominal) 380.0 (Maximum)	

Phase	SSW5 Background CPS	Value
Master		132.1
Before		129.3
After		131.4
	110.0 (Minimum) 200.0 (Nominal) 270.0 (Maximum)	

Master: 30−Nov−2017 7:34 Before: 20−Jan−2018 20:41 After: 21−Jan−2018 1:57

Hostile Litho−Density Sonde Master Calibration

Detector Background Measurement

Phase	LSW1 Background CPS	Value
Master		65.60
	55.00 (Minimum) 100.0 (Nominal) 150.0 (Maximum)	

Phase	LSW2 Background CPS	Value
Master		60.23
	50.00 (Minimum) 100.0 (Nominal) 140.0 (Maximum)	

Phase	LSW3 Background CPS	Value
Master		131.4
	110.0 (Minimum) 200.0 (Nominal) 290.0 (Maximum)	

Phase	LSW4 Background CPS	Value
Master		156.8

Phase	LSW5 Background CPS	Value
Master		364.3

Phase	LS Cs Resolution Bkg %	Value
Master		8.109

140.0 (Minimum)	250.0 (Nominal)	360.0 (Maximum)	330.0 (Minimum)	600.0 (Nominal)	830.0 (Maximum)	7.000 (Minimum)	9.000 (Nominal)	11.00 (Maximum)

Phase	SSW1 Background CPS	Value	Phase	SSW2 Background CPS	Value	Phase	SSW3 Background CPS	Value
Master		72.68	Master		129.0	Master		346.2
55.00 (Minimum)	100.0 (Nominal)	150.0 (Maximum)	100.0 (Minimum)	200.0 (Nominal)	260.0 (Maximum)	280.0 (Minimum)	500.0 (Nominal)	700.0 (Maximum)

Phase	SSW4 Background CPS	Value	Phase	SSW5 Background CPS	Value	Phase	SS Cs Resolution Bkg %	Value
Master		177.6	Master		132.1	Master		8.081
150.0 (Minimum)	270.0 (Nominal)	380.0 (Maximum)	110.0 (Minimum)	200.0 (Nominal)	270.0 (Maximum)	7.000 (Minimum)	9.000 (Nominal)	11.00 (Maximum)

Master: 30−Nov−2017 7:34

Hostile Litho−Density Sonde Master Calibration

Detector Aluminum Measurement (bkgd−subtracted)

Phase	LSW1 Aluminum CPS	Value	Phase	LSW2 Aluminum CPS	Value	Phase	LSW3 Aluminum CPS	Value
Master		519.1	Master		746.8	Master		899.8
420.0 (Minimum)	600.0 (Nominal)	770.0 (Maximum)	650.0 (Minimum)	900.0 (Nominal)	1150 (Maximum)	800.0 (Minimum)	1100 (Nominal)	1450 (Maximum)

Phase	LSW4 Aluminum CPS	Value	Phase	LSW5 Aluminum CPS	Value	Phase	SSW1 Aluminum CPS	Value
Master		457.7	Master		414.7	Master		2406
410.0 (Minimum)	580.0 (Nominal)	740.0 (Maximum)	410.0 (Minimum)	570.0 (Nominal)	740.0 (Maximum)	2000 (Minimum)	2800 (Nominal)	3200 (Maximum)

Phase	SSW2 Aluminum CPS	Value	Phase	SSW3 Aluminum CPS	Value	Phase	SSW4 Aluminum CPS	Value
Master		6494	Master		8978	Master		3692
5800 (Minimum)	8000 (Nominal)	9300 (Maximum)	8300 (Minimum)	11600 (Nominal)	13500 (Maximum)	3500 (Minimum)	5000 (Nominal)	5800 (Maximum)

Phase	SSW5 Aluminum CPS	Value
Master		447.6
430.0 (Minimum)	660.0 (Nominal)	770.0 (Maximum)

Master: 30−Nov−2017 8:00

Hostile Litho−Density Sonde Master Calibration

Detector Litholog Measurement (bkgd−subtracted)

Phase	LSW1 Iron CPS	Value	Phase	LSW2 Iron CPS	Value	Phase	LSW3 Iron CPS	Value
Master		353.1	Master		601.8	Master		791.8
290.0 (Minimum)	400.0 (Nominal)	560.0 (Maximum)	520.0 (Minimum)	730.0 (Nominal)	950.0 (Maximum)	720.0 (Minimum)	1000 (Nominal)	1350 (Maximum)

Phase	LSW4 Iron CPS	Value	Phase	LSW5 Iron CPS	Value	Phase	SSW1 Iron CPS	Value
Master		414.2	Master		380.9	Master		1741
370.0 (Minimum)	520.0 (Nominal)	700.0 (Maximum)	340.0 (Minimum)	470.0 (Nominal)	750.0 (Maximum)	1500 (Minimum)	2100 (Nominal)	2400 (Maximum)

Phase	SSW2 Iron CPS	Value	Phase	SSW3 Iron CPS	Value	Phase	SSW4 Iron CPS	Value
Master		5384	Master		8153	Master		3353
4900 (Minimum)	6800 (Nominal)	7900 (Maximum)	7800 (Minimum)	10800 (Nominal)	12600 (Maximum)	3300 (Minimum)	4600 (Nominal)	5400 (Maximum)

Phase	SSW5 Iron CPS	Value
Master	EXCEEDS LIMIT	394.4
420.0 (Minimum)	580.0 (Nominal)	680.0 (Maximum)

Master: 30−Nov−2017 7:55

Hostile Litho−Density Sonde Master Calibration

Quality Ratios

Phase	AL CALIBRATION RATIO 1	Value	Phase	AL CALIBRATION RATIO 2	Value	Phase	AL CALIBRATION RATIO 3	Value
Master		1.031	Master		2.169	Master		0.5950
0.9000 (Minimum)	1.000 (Nominal)	1.100 (Maximum)	1.900 (Minimum)	2.100 (Nominal)	2.300 (Maximum)	0.4500 (Minimum)	0.5500 (Nominal)	0.6500 (Maximum)

Phase	AL CALIBRATION RATIO 4	Value	Phase	Pad−Wear SS Ratio	Value	Phase	Pad−Wear LS Ratio	Value
Master		0.5813	Master		0.9867	Master		0.9811
0.4000 (Minimum)	0.5500 (Nominal)	0.6500 (Maximum)	0.9800 (Minimum)	0.9880 (Nominal)	0.9960 (Maximum)	0.9800 (Minimum)	0.9880 (Nominal)	0.9960 (Maximum)

Phase	Pad−Position SS Ratio	Value	Phase	Pad−Position LS Ratio	Value
Master		1.004	Master		0.9878
0.9000 (Minimum)	0.9940 (Nominal)	1.015 (Maximum)	0.9850 (Minimum)	0.9940 (Nominal)	1.010 (Maximum)

0.9900 (Minimum)	0.9940 (Nominal)	1.015 (Maximum)	0.9850 (Minimum)	0.9940 (Nominal)	1.010 (Maximum)

Master: 30−Nov−2017 7:49

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	22
APS Minitron	MNTR − F	7341
Auxiliary Equipment:		
Accelerator−Porosity Housing	APH − AC	22
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	Phase	Far Det Bkg Cntrate CPS	Value	Phase	Array−1 Det Bkg Cntrate CPS	Value
Master		31.33	Master		33.09	Master		29.38
Before		31.07	Before		31.61	Before		27.18
After		30.67	After		32.01	After		28.75
1.000 (Minimum)	30.00 (Nominal)	50.00 (Maximum)	1.000 (Minimum)	30.00 (Nominal)	50.00 (Maximum)	1.000 (Minimum)	30.00 (Nominal)	50.00 (Maximum)

Phase	Array−2 Det Bkg Cntrate CPS	Value	Phase	Array Therm Det Bkg Cntrate CPS	Value
Master		29.68	Master		32.29
Before		29.15	Before		31.48
After		28.80	After		30.45
1.000 (Minimum)	30.00 (Nominal)	50.00 (Maximum)	1.000 (Minimum)	30.00 (Nominal)	50.00 (Maximum)

Master: 30−Nov−2017 5:21 Before: 20−Jan−2018 20:40 After: 21−Jan−2018 1:26

Accelerator−Porosity Tool Wellsite Calibration
Calibration Ratios

Phase	Near/Far Calibration Ratio	Value	Phase	Near/Array Calibration Ratio	Value	Phase	Near/Array Cal Ratio Up/Down	Value
Master		0.8972	Master		1.069	Master		1.012
0.8000 (Minimum)	0.9250 (Nominal)	1.050 (Maximum)	0.9000 (Minimum)	1.030 (Nominal)	1.170 (Maximum)	0.9700 (Minimum)	1.000 (Nominal)	1.030 (Maximum)

Master: 30−Nov−2017 5:21

Accelerator−Porosity Tool Wellsite Calibration
Tank Check

Phase	Array−1 Standoff Porosity PU	Value	Phase	Array−2 Standoff Porosity PU	Value	Phase	Average Slowing Down Time US	Value
Master		10.18	Master		10.15	Master		6.122
9.900 (Minimum)	11.75 (Nominal)	13.60 (Maximum)	9.900 (Minimum)	11.75 (Nominal)	13.60 (Maximum)	5.500 (Minimum)	6.000 (Nominal)	6.250 (Maximum)

Phase	Array−1 SDT Ratio Up/Down	Value	Phase	Array−2 SDT Ratio Up/Down	Value	Phase	Sigma Formation CU	Value
Master		0.9756	Master		0.9749	Master		34.13
0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	20.00 (Minimum)	27.50 (Nominal)	35.00 (Maximum)

Master: 30−Nov−2017 5:21

Accelerator−Porosity Tool Master Calibration
Detector Calibration

Phase	Near/Far Calibration Ratio	Value	Phase	Near/Array Calibration Ratio	Value	Phase	Near/Array Cal Ratio Up/Down	Value
Master		0.8972	Master		1.069	Master		1.012

0.8000 (Minimum)	0.9250 (Nominal)	1.050 (Maximum)	0.9000 (Minimum)	1.030 (Nominal)	1.170 (Maximum)	0.9700 (Minimum)	1.000 (Nominal)	1.030 (Maximum)

Master: 30−Nov−2017 5:21

Accelerator−Porosity Tool Master Calibration

Tank Check

Phase	Array−1 Standoff Porosity PU	Value	Phase	Array−2 Standoff Porosity PU	Value	Phase	Average Slowing Down Time US	Value
Master		10.18	Master		10.15	Master		6.122
	9.900 (Minimum) / 11.75 (Nominal) / 13.60 (Maximum)			9.900 (Minimum) / 11.75 (Nominal) / 13.60 (Maximum)			5.500 (Minimum) / 6.000 (Nominal) / 6.250 (Maximum)	
Phase	Array−1 SDT Ratio Up/Down	Value	Phase	Array−2 SDT Ratio Up/Down	Value	Phase	Sigma Formation CU	Value
Master		0.9756	Master		0.9749	Master		34.13
	0.9500 (Minimum) / 1.000 (Nominal) / 1.050 (Maximum)			0.9500 (Minimum) / 1.000 (Nominal) / 1.050 (Maximum)			20.00 (Minimum) / 27.50 (Nominal) / 35.00 (Maximum)	

Master: 30−Nov−2017 5:21

Hostile Natural Gamma Ray Cartridge − B / Equipment Identification

Primary Equipment:		
HNGC Cartridge	HNGC − B	304
Auxiliary Equipment:		
HNGC Housing	HNGH − A	3

Hostile Natural Gamma Ray Sonde / Equipment Identification

Primary Equipment:		
HNGS Sonde	HNGS − BA	194
Auxiliary Equipment:		
HNGS Sonde Housing	HNSH − BA	204
Gamma Source Radioactive	GSR − U	6098

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		39.59	Master		15.64	Master		1167
Before		39.55	Before		14.43	Before		1135
After		39.53	After		15.55	After		1167
	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		142.6	Master		7.971	Master		23.45
Before		142.3	Before		7.766	Before		6.172
After		141.4	After		8.609	After		23.47
	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		25.59						
Before		25.18						
After		25.12						
	10.00 (Minimum) / 45.00 (Nominal) / 100.0 (Maximum)							

Master: 8−Jan−2018 8:17 Before: 18−Jan−2018 15:02 After: 8−Jan−2018 8:28

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		39.56	Master		15.96	Master		1099
Before		39.62	Before		14.71	Before		1064

After	39.54	
37.50 (Minimum)	40.00 (Nominal)	43.50 (Maximum)

After	16.21	
12.00 (Minimum)	15.50 (Nominal)	19.00 (Maximum)

After	1099	
900.0 (Minimum)	1150 (Nominal)	1600 (Maximum)

Phase	Na 1785 Peak Loc	Value
Master		141.9
Before		140.7
After		141.4
135.0 (Minimum)	142.6 (Nominal)	150.3 (Maximum)

Phase	Na 1785 Peak Res %	Value
Master		8.488
Before		8.077
After		8.675
7.000 (Minimum)	8.500 (Nominal)	11.00 (Maximum)

Phase	Temperature DEGC	Value
Master		24.00
Before		6.628
After		24.04
−28.89 (Minimum)	15.50 (Nominal)	60.00 (Maximum)

Phase	Na Count Rate CPS	Value
Master		25.29
Before		25.36
After		24.99
10.00 (Minimum)	45.00 (Nominal)	100.0 (Maximum)

Master: 8−Jan−2018 8:17 Before: 18−Jan−2018 15:02 After: 8−Jan−2018 8:28

Hostile Natural Gamma Ray Sonde Wellsite Calibration

Ratio Of Detector 1 To Detector 2

Phase	Coincidence Count Rate Ratio	Value
Master		1.012
Before		0.9949
After		1.005
0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)

Master: 8−Jan−2018 8:17
Before: 18−Jan−2018 15:02
After: 8−Jan−2018 8:28

Hostile Natural Gamma Ray Sonde Master Calibration

Detector 1 Calibration

Phase	Na 511 Peak Set Point	Value
Master		41.00
38.00 (Minimum)	40.00 (Nominal)	43.00 (Maximum)

Phase	Th Peak Loc	Value
Master		209.5
201.0 (Minimum)	209.6 (Nominal)	218.3 (Maximum)

Phase	Th Peak Res %	Value
Master		6.944
5.000 (Minimum)	7.000 (Nominal)	9.000 (Maximum)

Phase	Background Count Rate CPS	Value
Master		28.74
10.00 (Minimum)	142.5 (Nominal)	265.0 (Maximum)

Phase	Gain Ratio	Value
Master		1.006
0.9400 (Minimum)	1.000 (Nominal)	1.060 (Maximum)

Master: 8−Jan−2018 8:08

Hostile Natural Gamma Ray Sonde Master Calibration

Detector 2 Calibration

Phase	Na 511 Peak Set Point	Value
Master		41.00
38.00 (Minimum)	40.00 (Nominal)	43.00 (Maximum)

Phase	Th Peak Loc	Value
Master		209.2
201.0 (Minimum)	209.6 (Nominal)	218.3 (Maximum)

Phase	Th Peak Res %	Value
Master		6.965
5.000 (Minimum)	7.000 (Nominal)	9.000 (Maximum)

Phase	Background Count Rate CPS	Value
Master		27.70
10.00 (Minimum)	142.5 (Nominal)	265.0 (Maximum)

Phase	Gain Ratio	Value
Master		1.006
0.9400 (Minimum)	1.000 (Nominal)	1.060 (Maximum)

Master: 8−Jan−2018 8:08

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		9.793
	9.610 (Minimum) 9.810 (Nominal) 10.01 (Maximum)	
Before: 20−Jan−2018 20:36		

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		8.772	Before		139.2	Before		164.0
After		8.903	After		139.5	After		164.4
	0 (Minimum) 30.00 (Nominal) 120.0 (Maximum)			126.5 (Minimum) 139.2 (Nominal) 151.8 (Maximum)			149.0 (Minimum) 164.0 (Nominal) 179.0 (Maximum)	
Before: 8−Jan−2018 7:48			After: 8−Jan−2018 8:26					

Company: **International Ocean Discovery Program**

Schlumberger

Well: **Expedition 374, Site U1521A**
Field: **Ross Sea W. Antarctic Ice Sheet History**
Rig: **JOIDES Resolution**
Ocean: **Southern**

High Resolution Laterolog Array (HRLA)
Hostile Litho Density Sonde (HLDS)
Accelerator Porosity Sonde (APS), GR