



Company: International Ocean Discovery Program

Well: Expedition 360, Site U1473A
Field: SW Indian Ridge Lower Crust and Moho
Rig: JOIDES Resolution Ocean: Indian

Table with 4 columns: RIG, FIELD, LOCATION, and COMPANY. Contains details for JOIDES Resolution, SW Indian Ridge Lower Crust and Moho, Expedition 360, Site U1473A, and International Ocean Discovery Program. Includes location coordinates and equipment details like HRLA, HLDS, and HNGS.

Table with 4 columns: Run 1, Run 2, Run 3, Run 4. Currently empty.

Table with 4 columns: 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, 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.

Table with 4 columns: 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, RM @ MEASURED TEMPERATURE, RMF @ MEASURED TEMPERATURE, RMC @ MEASURED TEMPERATURE, SOURCE RMF, RMC, RM @ MRT, RMF @ MRT, MAXIMUM RECORDED TEMPERATURES, CIRCULATION STOPPED, TIME, LOGGER ON BOTTOM, TIME, UNIT NUMBER, LOCATION, RECORDED BY, WITNESSED BY.

DISCLAIMER
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OTHER SERVICES1
 OS1: FMS/DSI
 OS2:
 OS3: UBI
 OS4:
 OS5:

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

REMARKS: RUN NUMBER 1
 Hole drilled with RCB coring bit and bottom hole assembly (BHA). 9.875" BS
 Bit removed by bit release on sea floor outside of hole.
 Drill pipe set at 766.51 mbrf for wireline logging.
 Lower tool centralized with 2 MCD (Mechanical Caliper Device) tools for HRLA
 Upper tool eccentralized with HLDS caliper and 2 knuckle joints and thru wired
 housing between HRLA and HLDS. See tool string diagram.
 HLDS cal values low count rates due to source strength but unaffacts density.
 Fluid type was fresh water at 1.0 g/cc
 Depth recorded at drill floor.
 All logs presented in measured depth below drill floor (MBRF).

REMARKS: RUN NUMBER 2

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

RUN 2		
SERVICE ORDER #:		
PROGRAM VERSION:		
FLUID LEVEL:		
LOGGED INTERVAL	START	STOP




EQUIPMENT DESCRIPTION

RUN 1

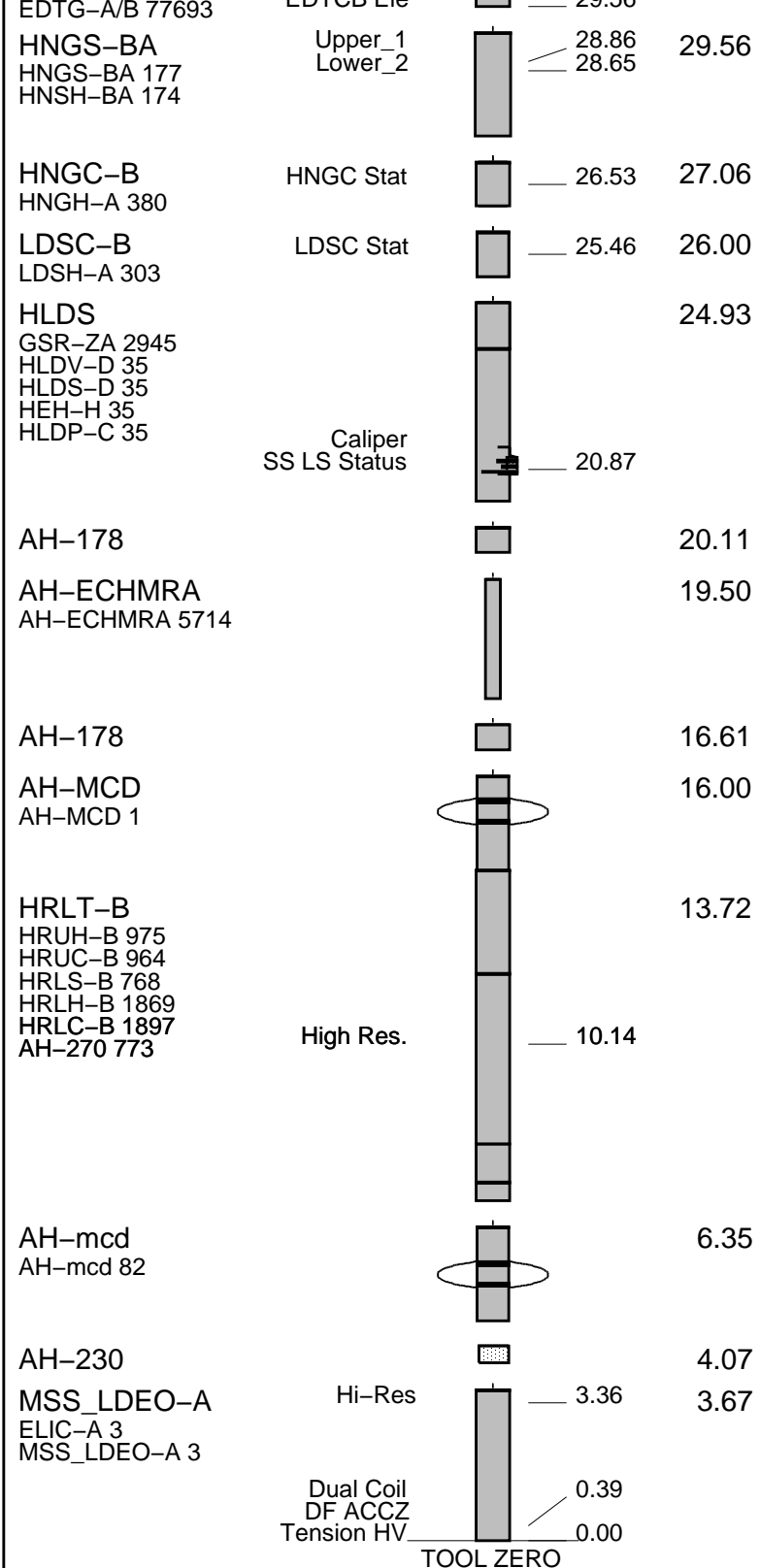
SURFACE EQUIPMENT

GSR-U 616008
 WITM (EDTS)-A 1

DOWNHOLE EQUIPMENT

LEH-MT_101				32.94
LEH-MT_101 101	MDSB_EDTC			
AH-369	Mud Tempe		31.54	31.98
	CTEM		30.48	
EDTC-B	Gamma Ray		29.91	31.54
EDTH-B 8528	EFTB DIAG			
EDTC-B 8529	TelStatus			
	EDTCB Fla		29.56	

RUN 2



MAXIMUM STRING DIAMETER 4.50 IN
 MEASUREMENTS RELATIVE TO TOOL ZERO
 ALL LENGTHS IN METERS

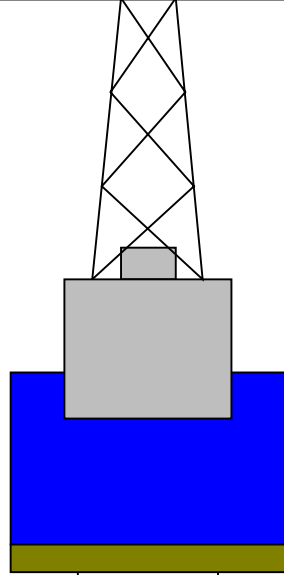
Production String	(in)	(M)	Well Schematic	(M)	(in)	Casing String
	OD	ID		MD	MD	

Kelly Bushing Elevation
Derrick Floor Elevation

Mean Sea Level

0
0

11



4.1

721 4.1

766.51 11.4375

1510.2

Sea Floor

Open Hole

Total Depth

Input DLIS Files

DEFAULT	Splice_MSS_LDEO_043CUP	FN:1	PRODUCER	24-Jan-2016 05:18	1506.5 M	705.7 M
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Output DLIS Files

DEFAULT	MSS_LDEO_HRLA_LDL_044PUP	FN:54	PRODUCER	24-Jan-2016 05:19	1506.5 M	705.9 M
BACKUP	MSS_LDEO_HRLA_LDL_044PUP	FN:55	PRODUCER	24-Jan-2016 05:19	1506.5 M	705.9 M

OP System Version: 19C0-187

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

PIP SUMMARY

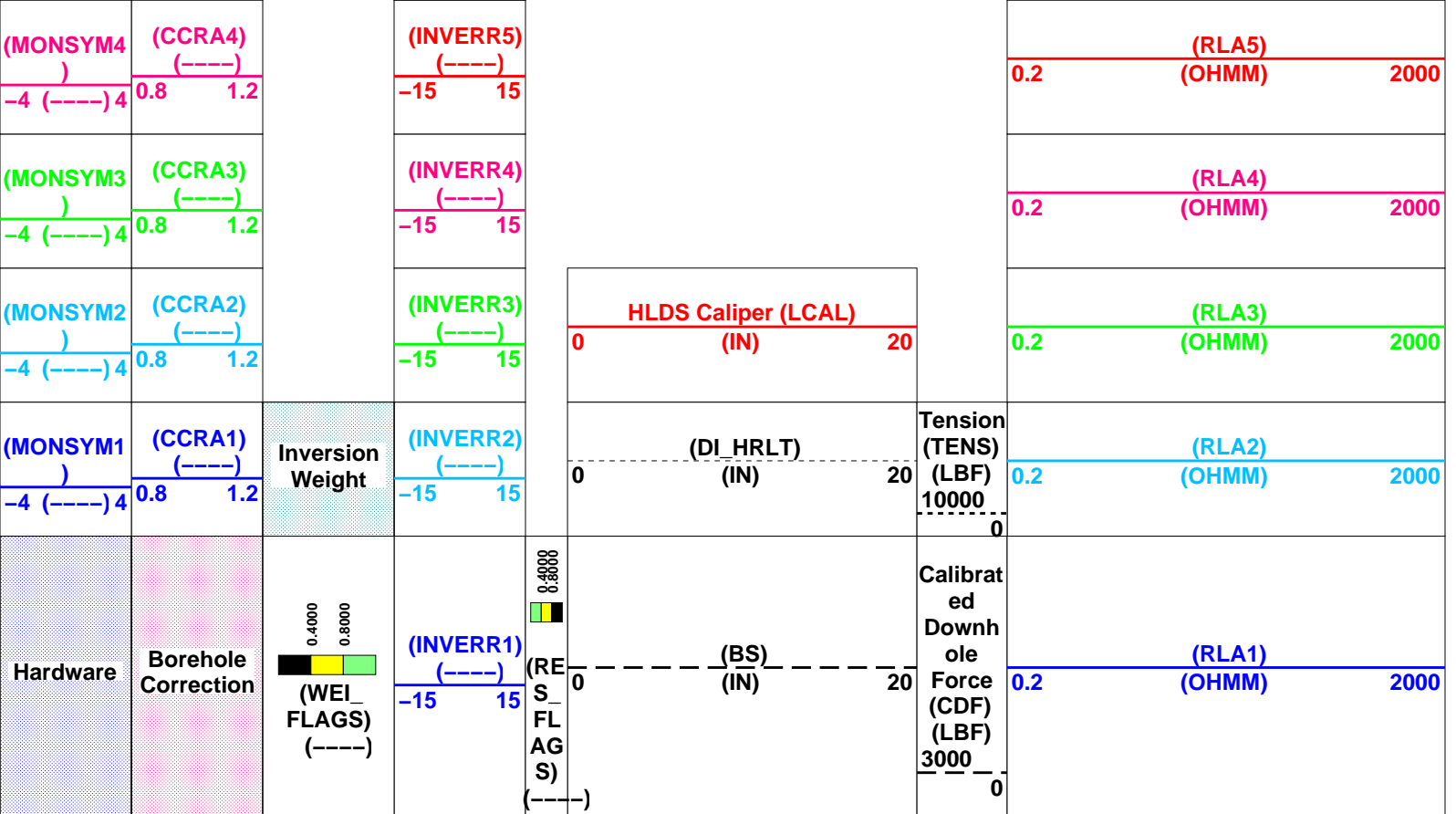
Time Mark Every 60 S

Main Log M below Drill Floor

(MONSYM5)	(CCRA5)
-4 (-----) 4	0.8 1.2

Inversion

(RT_HRLT)		
0.2	(OHMM)	2000
(RM_HRLT)		
0.02	(OHMM)	200
(RXO_HRLT)		
0.2	(OHMM)	2000



*** HRLT FLAG TRACKS ***

BLACK areas show that the corresponding error flag is set.

TRACK R3_LQC

INVERSION WEIGHT

Contribution from each hrlt channel in Inversion algorithm, and from left to right :

| Wei1 | Wei2 | Wei3 | Wei4 | Wei5 |

GREEN = OK

YELLOW = Contribution QUESTIONABLE

BLACK = Contribution UNRELIABLE

TRACK R5_LQC

RESISTIVITY QUALITY INDICATOR

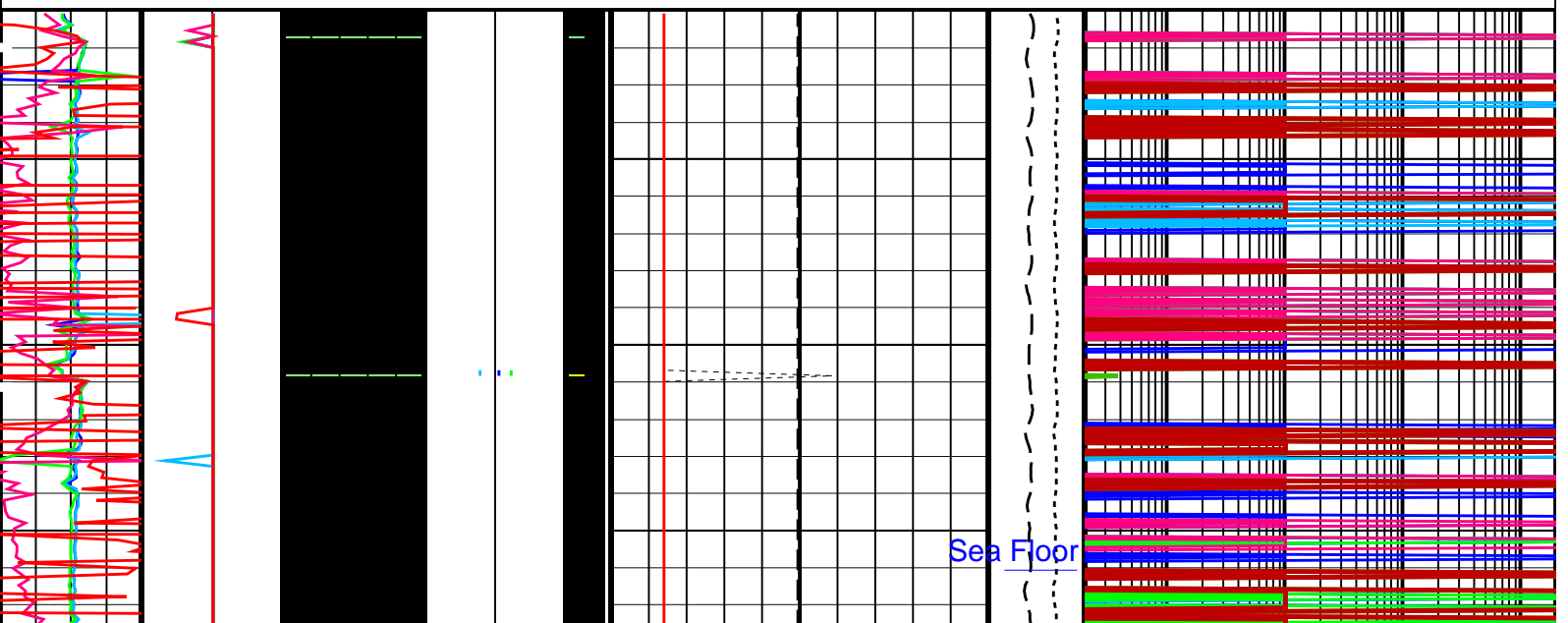
LQC flags on RXO_HRLT & RT_HRLT, and from left to right :

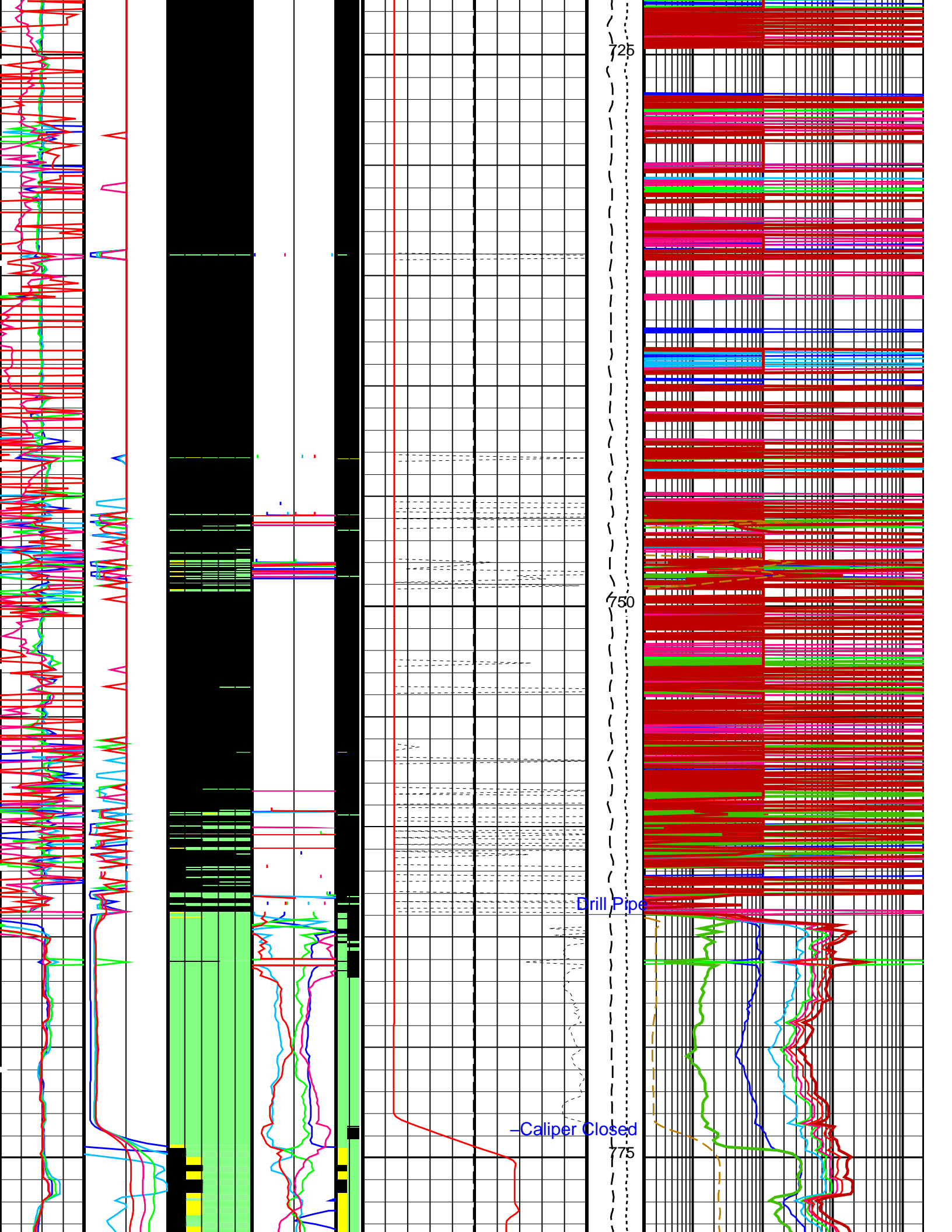
| RxoFlag | RTFlag |

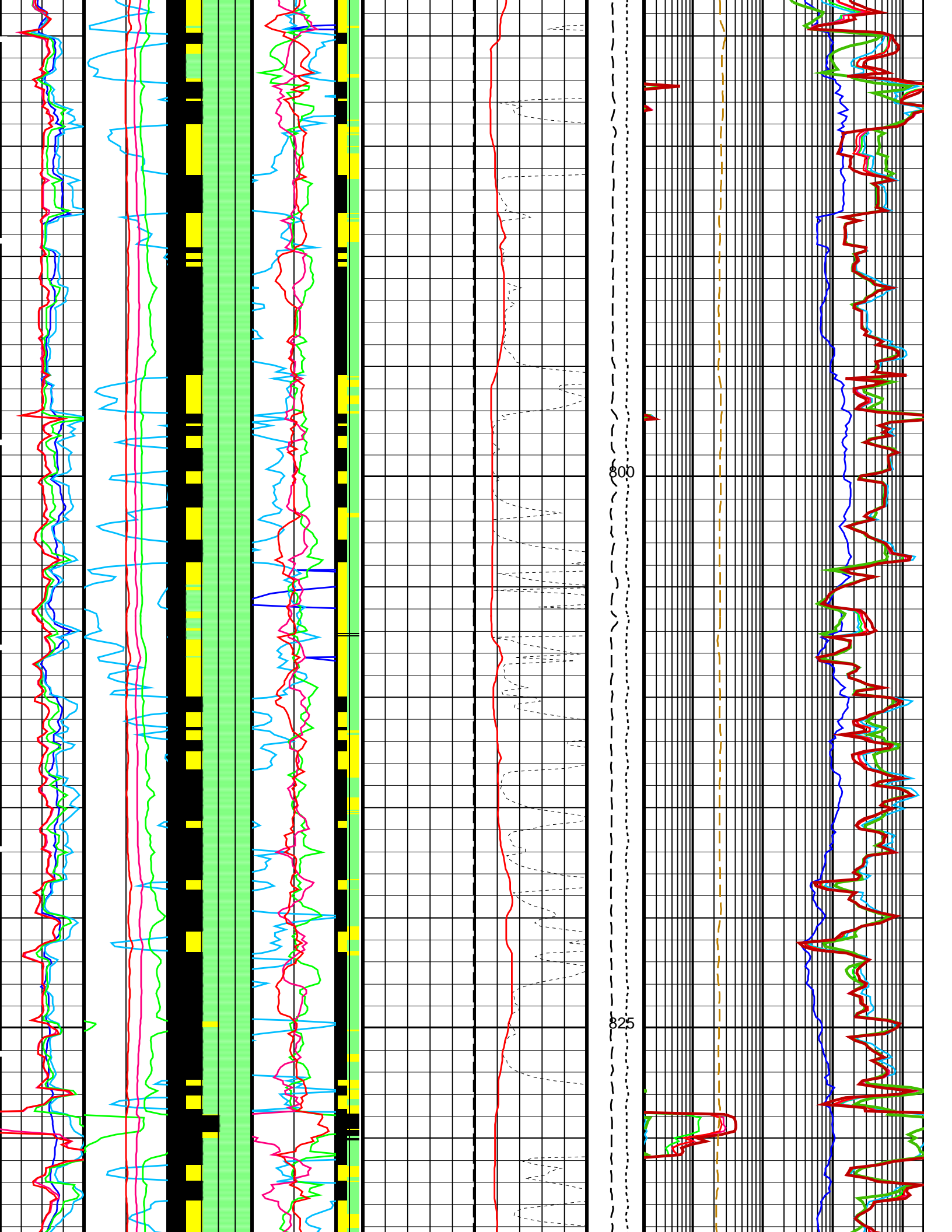
GREEN = OK

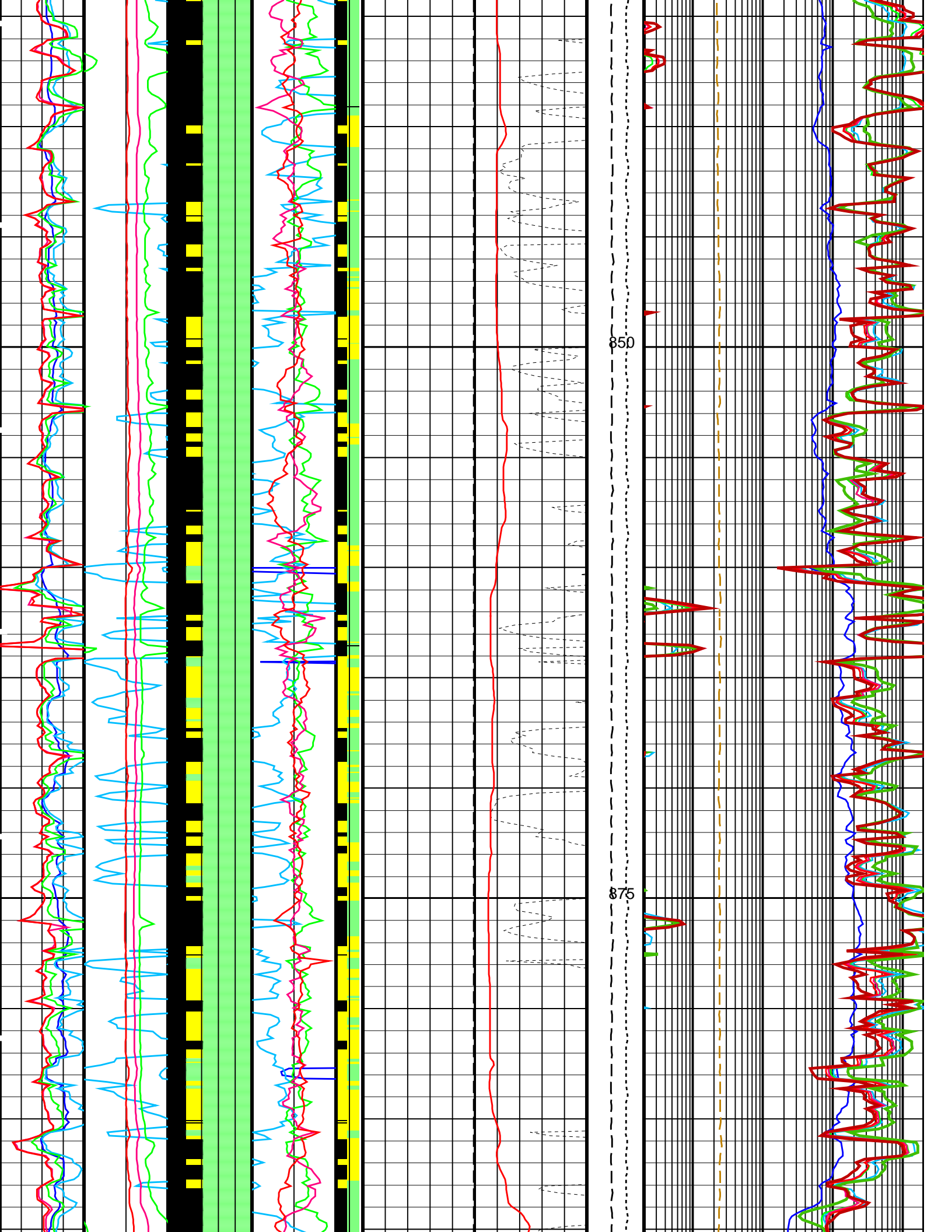
YELLOW = SHOULDER BED EFFECT

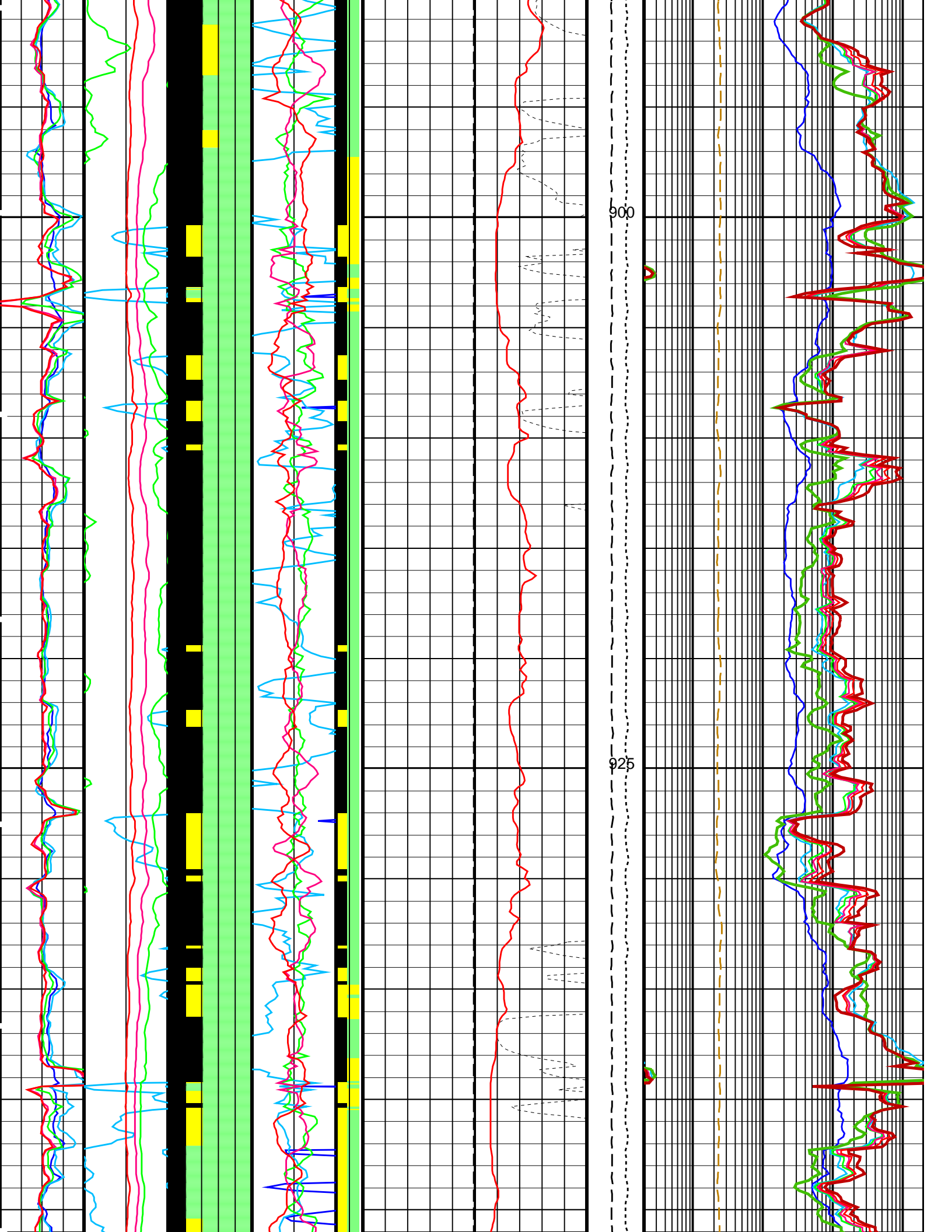
BLACK = NOK

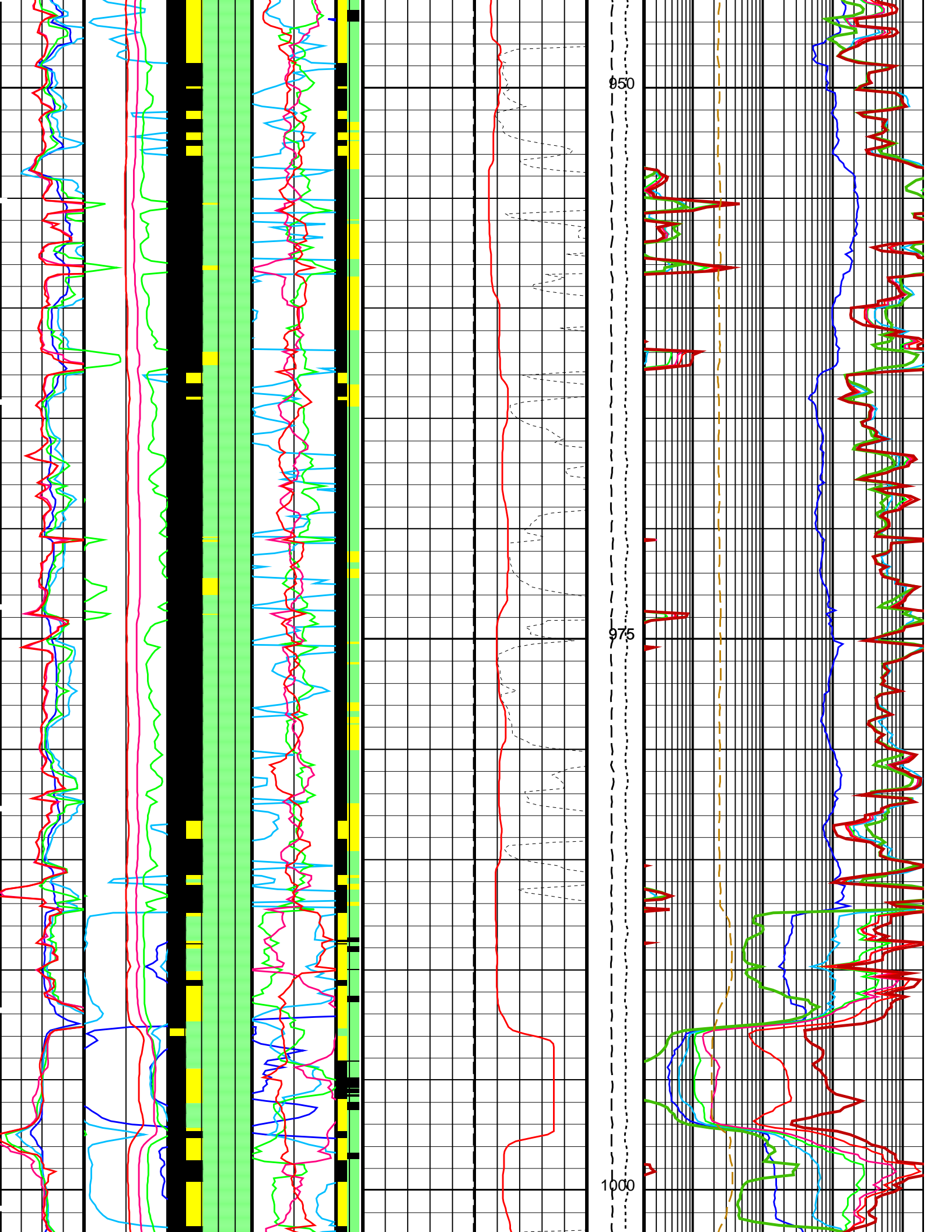


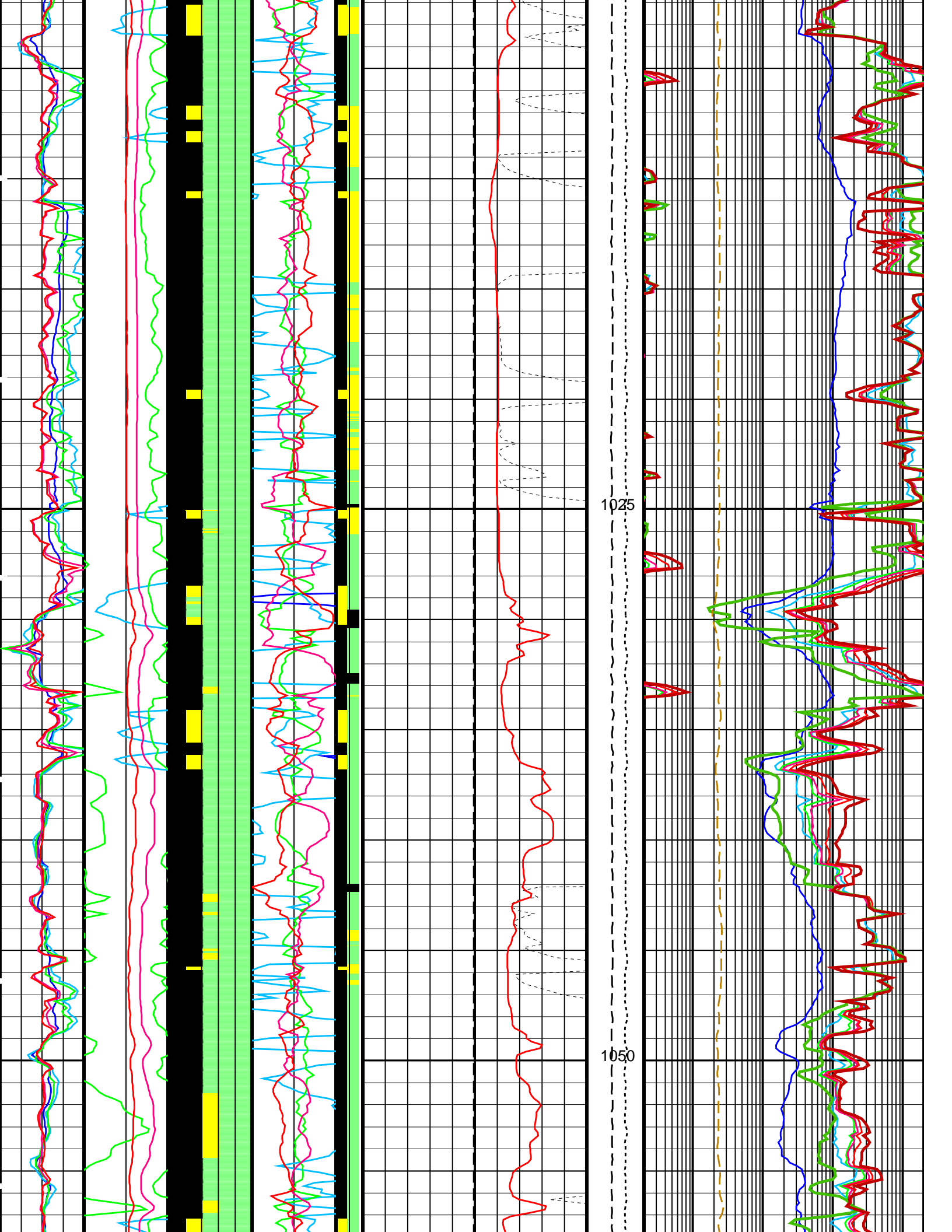


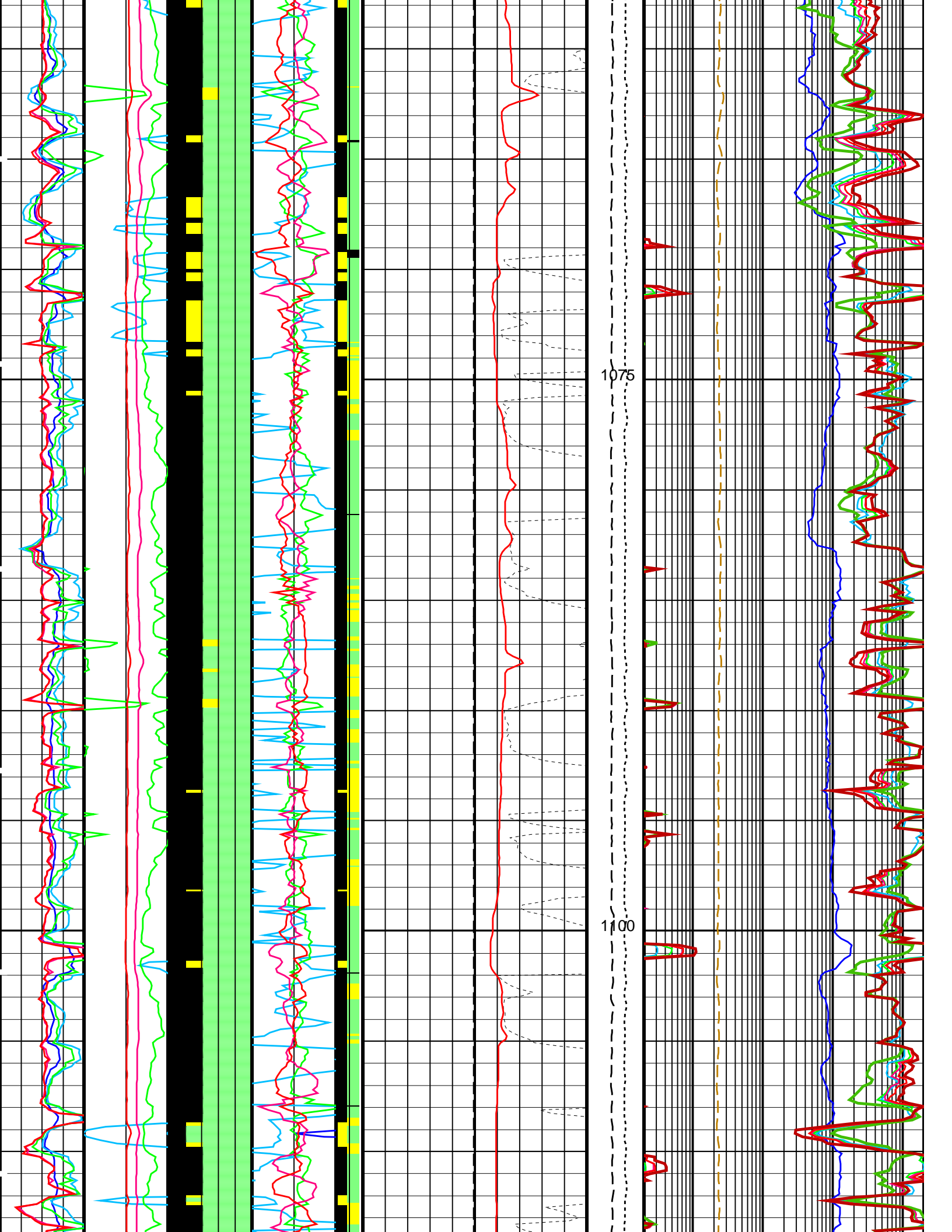


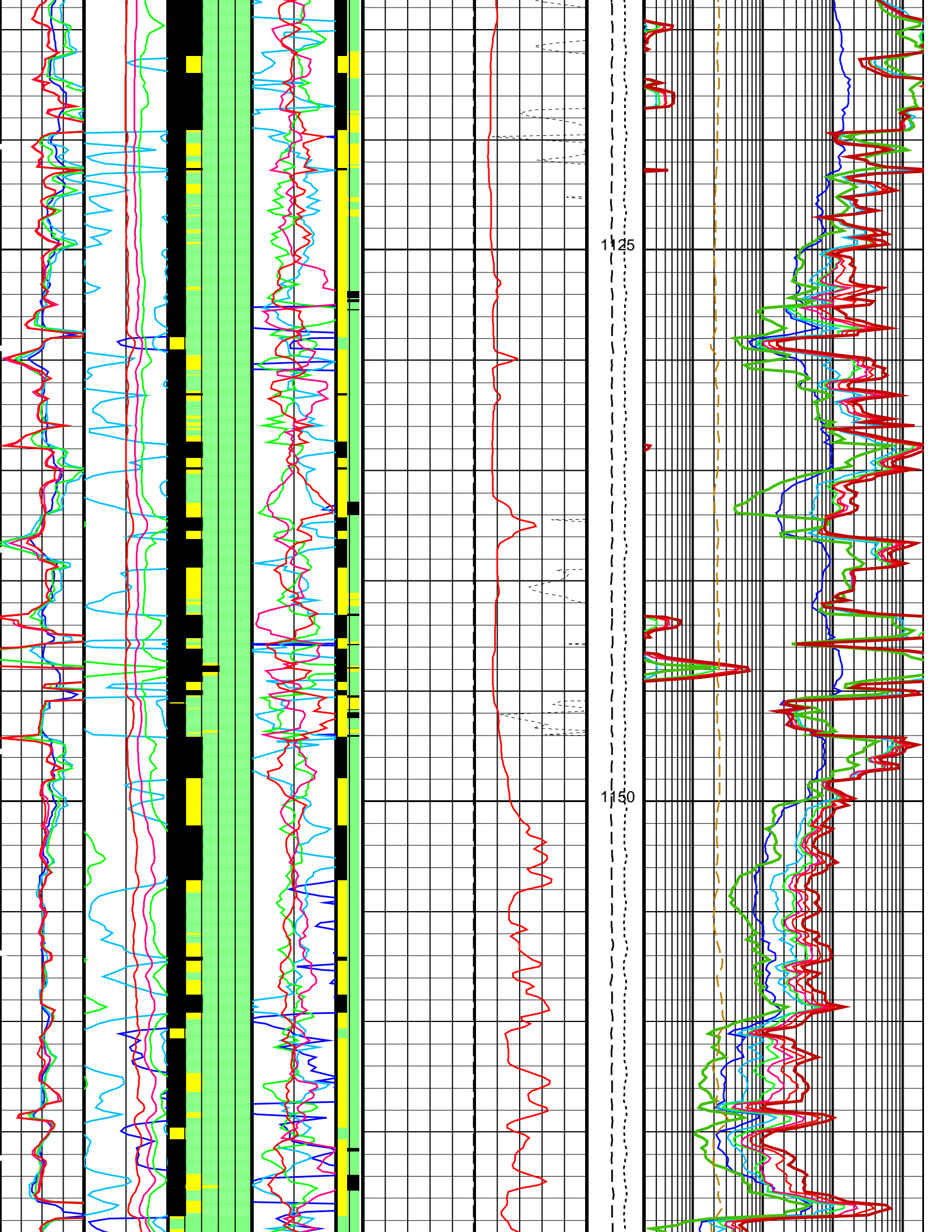


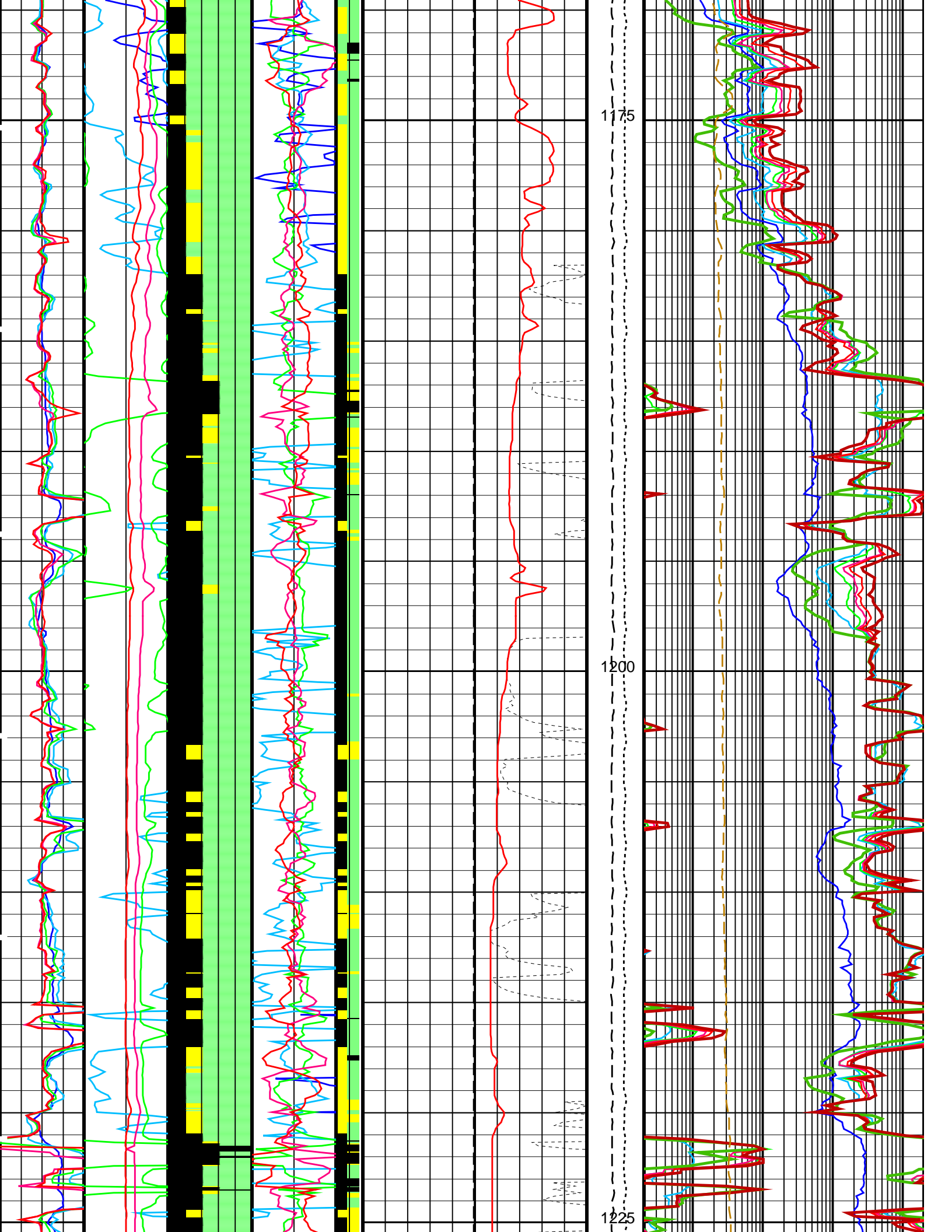


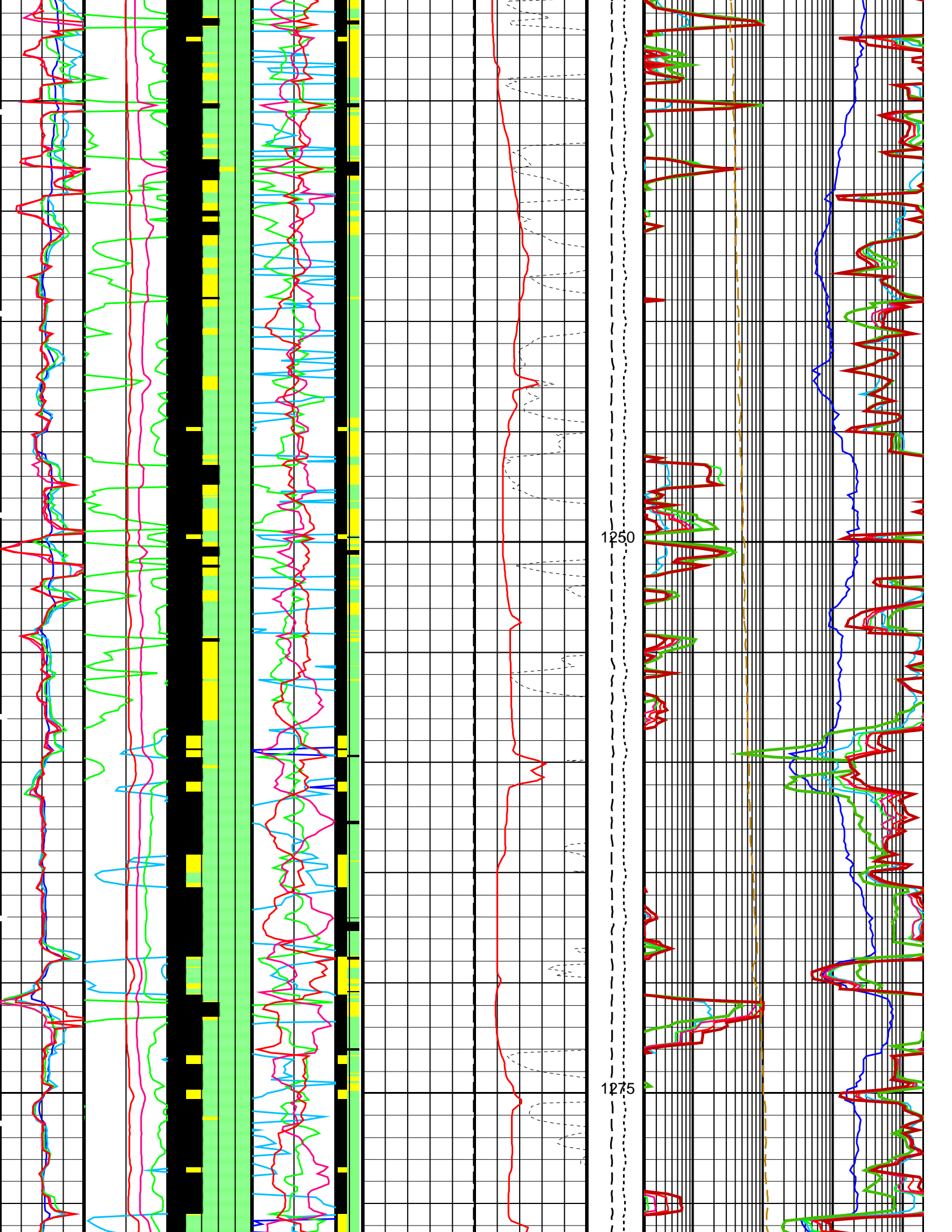


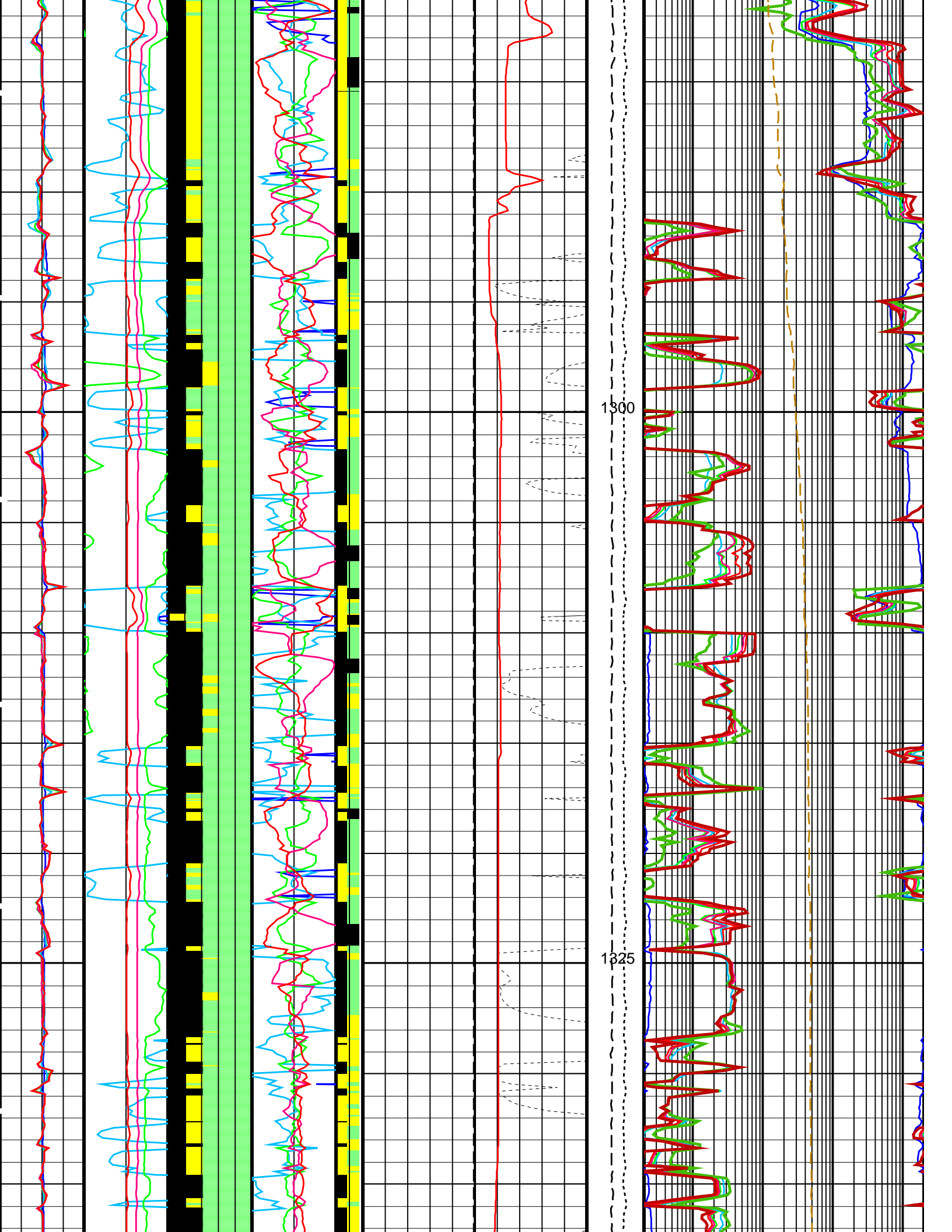


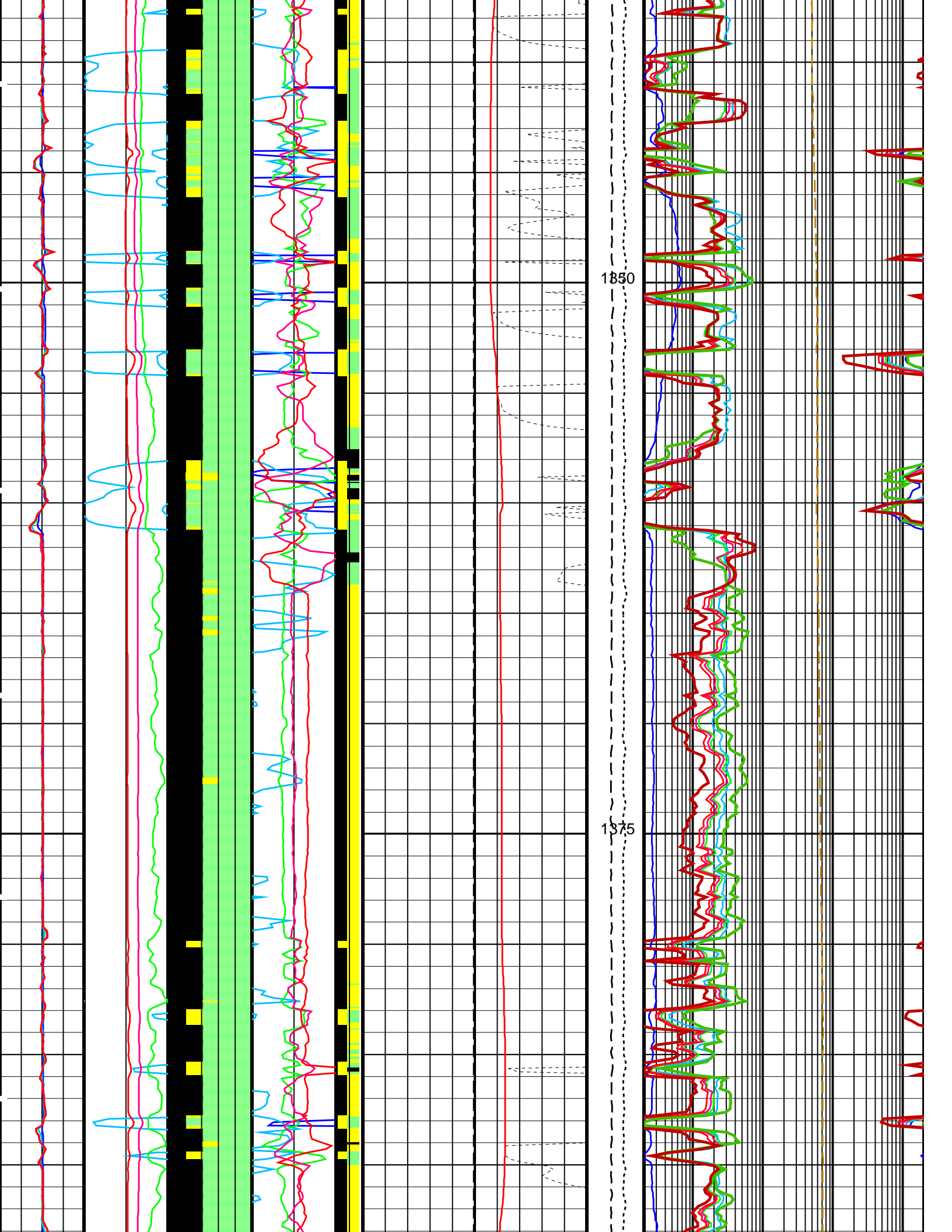


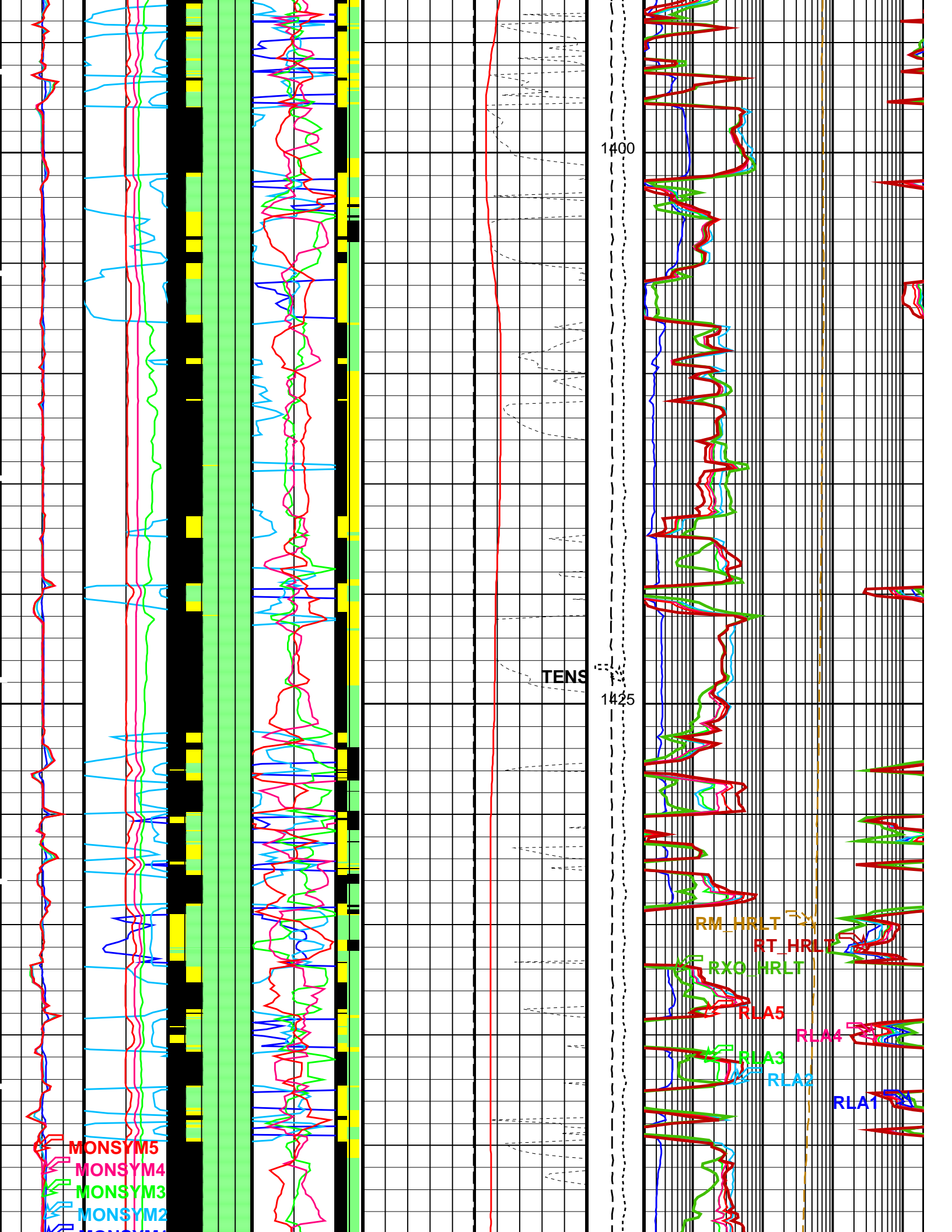


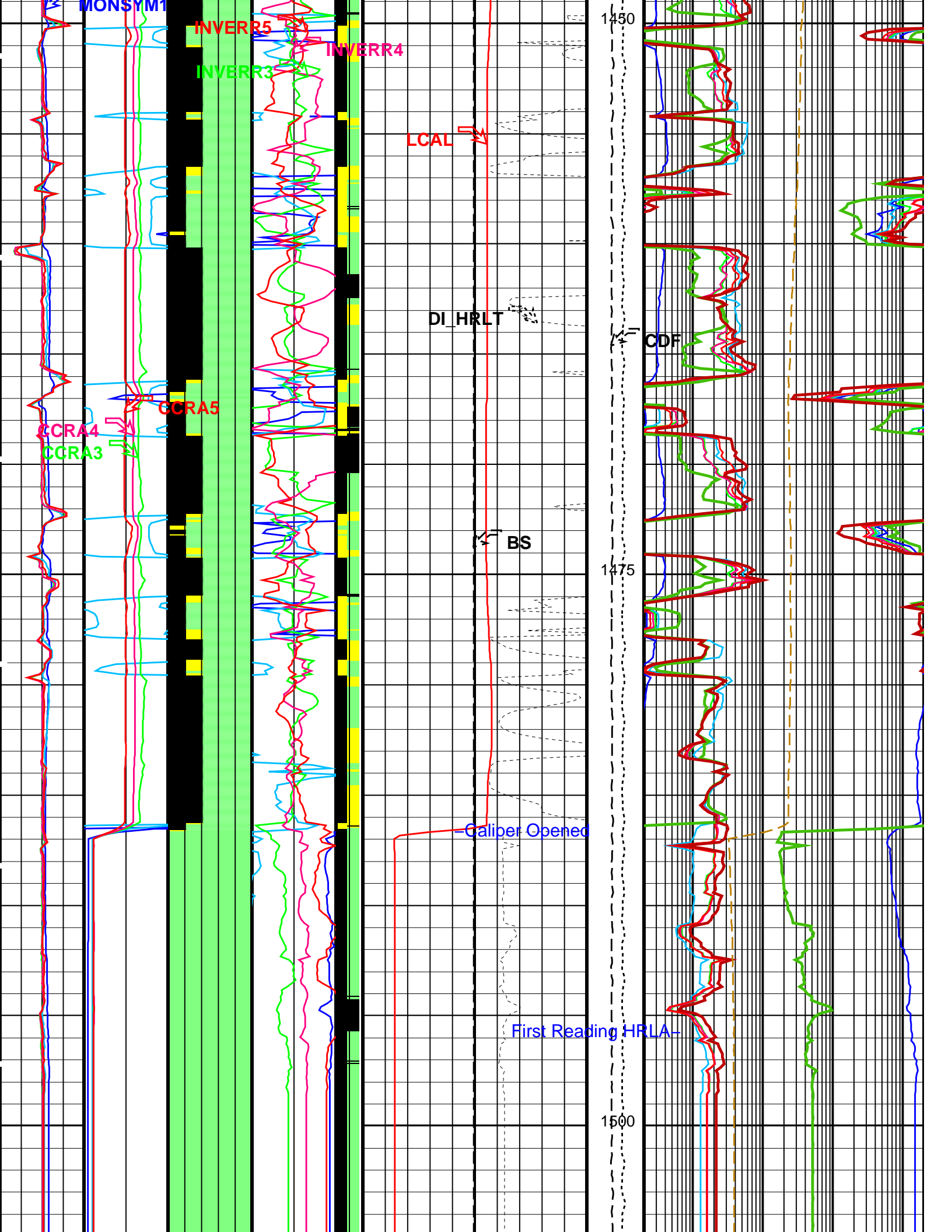












*** HRLT FLAG TRACKS ***

BLACK areas show that the corresponding error flag is set.

TRACK R3_LQC

INVERSION WEIGHT

Contribution from each hrlt channel in Inversion algorithm, and from left to right :

| Wei1 | Wei2 | Wei3 | Wei4 | Wei5 |

GREEN = OK

YELLOW = Contribution QUESTIONABLE

BLACK = Contribution UNRELIABLE

TRACK R5_LQC

RESISTIVITY QUALITY INDICATOR

LQC flags on RXO_HRLT & RT_HRLT, and from left to right :

| RxoFlag | RTFlag |

GREEN = OK

YELLOW = SHOULDER BED EFFECT

BLACK = NOK

Hardware	Borehole Correction		(INVERR1) (-----) -15 15	(RE S F L A G S) (-----)	(BS) (IN) 20	Calibrated Downhole Force (CDF) (LBF) 3000 0	(RLA1) (OHMM) 2000
(MONSYM1) (-----) -4 (-----) 4	(CCRA1) (-----) 0.8 1.2	Inversion Weight	(INVERR2) (-----) -15 15	(DI_HRLT) (IN) 20	Tension (TENS) (LBF) 10000 0	(RLA2) (OHMM) 2000	
(MONSYM2) (-----) -4 (-----) 4	(CCRA2) (-----) 0.8 1.2		(INVERR3) (-----) -15 15	HLDS Caliper (LCAL) (IN) 20	(RLA3) (OHMM) 2000		
(MONSYM3) (-----) -4 (-----) 4	(CCRA3) (-----) 0.8 1.2		(INVERR4) (-----) -15 15	(RLA4) (OHMM) 2000			
(MONSYM4) (-----) -4 (-----) 4	(CCRA4) (-----) 0.8 1.2		(INVERR5) (-----) -15 15	(RLA5) (OHMM) 2000			
(MONSYM5) (-----) -4 (-----) 4	(CCRA5) (-----) 0.8 1.2	Inversion		(RXO_HRLT) (OHMM) 2000			
				(RM_HRLT) (OHMM) 200			
				(RT_HRLT) (OHMM) 2000			

Main Log M below Drill Floor

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)	30	DEGC
CALSTAT	HRLTB Calibration Status	SHALLOW_DONE	
CALTEMP	HRLTB Calibration Temperature	18.9924	DEGC
FREQ0	HRLT Frequency Index for Mode 0	32	
FREQ1	HRLT Frequency Index for Mode 1	128	
FREQ2	HRLT Frequency Index for Mode 2	104	
FREQ3	HRLT Frequency Index for Mode 3	86	
FREQ4	HRLT Frequency Index for Mode 4	56	
FREQ5	HRLT Frequency Index for Mode 5	44	
FREQ6	HRLT Frequency Index for Mode 6	116	
GCSE	Generalized Caliper Selection	LCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
ISSBAR	Barite Mud Switch	NOBARITE	
KFAC_HRLT	HRLT K Factor Option	SONDE	
LOOPCOEF_S	HRLT Loop Coefficient for Shallow Modes	LOW	
LOOPMOD0	HRLT Mode 0 Loop Mode	OFF	
LOOPMOD1	HRLT Mode 1 Loop Mode	OFF	
LOOPMOD2	HRLT Mode 2 Loop Mode	OFF	
LOOPMOD3	HRLT Mode 3 Loop Mode	OFF	
LOOPMOD4	HRLT Mode 4 Loop Mode	OFF	
LOOPMOD5	HRLT Mode 5 Loop Mode	OFF	
LOOPMOD6	HRLT Mode 6 Loop Mode	OFF	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
PROGINV	Inversion Selection	ON	
PROCMFL	Inversion Micro-Resistivity Selection	NO_EXTERNAL_RXO	
PROCMSO	Mechanical Standoff Fin Size	0	IN
PROCRM	Processing Mud Resistivity Select	HRLT_Compute	
PROCSPO	Sonde Position	Centered	
SHT	Surface Hole Temperature	20	DEGC
HLDS: Hostile Litho-Density Sonde			
CLCL	HLDS LS Control Loop Controller Mode	AUTO_DEFAULT	
CLCS	HLDS SS Control Loop Controller Mode	AUTO_DEFAULT	
CLLS	HLDS Mode Loop Long Spacing	AUTO	
CLSS	HLDS Mode Loop Short Spacing	AUTO	
DHC	Density Hole Correction	BS	
DPPM	Density Porosity Processing Mode	HIRS	
FD	Fluid Density	1	G/C3
LATC	HLDS Activation Correction	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	
HNGBS-BA: Hostile Natural Gamma Ray Sonde			
BAR1	HNGBS Detector 1 Barite Constant	1	
BAR2	HNGBS Detector 2 Barite Constant	1	
BHK	HNGBS Borehole Potassium Correction Concentration	0	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	30	DEGC
CSD1	Inner Casing Outer Diameter	0	IN
CSD2	Outer Casing Outer Diameter	0	IN
CSW1	Inner Casing Weight	0	LB/F
CSW2	Outer Casing Weight	0	LB/F
DBCC	HNGBS Barite Constant Correction Flag	NONE	
GCSE	Generalized Caliper Selection	LCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
H1P	HNGBS Detector 1 Allow/Disallow In Processing	ALLOW	
H2P	HNGBS Detector 2 Allow/Disallow In Processing	ALLOW	
HABK	HNGBS Borehole Potassium Running Average	-0.00118174	
HALF	HNGBS Alpha Filter Length	60	IN
HCRB	HNGBS Apply Borehole Potassium Correction	NONE	
HMWM	Mud Weighting Material	NATU	
HNPE	HNGBS Processing Enable	YES	
ISSBAR	Barite Mud Switch	NOBARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
S1BI	HNGBS Detector 1 Calibration Bismuth Count Rate	1.3	CPS
S2BI	HNGBS Detector 2 Calibration Bismuth Count Rate	1.3	CPS
SGRC	HNGBS Standard Gamma-Ray Correction Flag	YES	
SHT	Surface Hole Temperature	20	DEGC
TPOS	Tool Position	CENT	
VBA1	HNGBS Detector 1 Variable Barite Factor Running Average	1.32021	

Parameter	Description	Value	Unit
VBA2	HNGS Detector 2 Variable Barite Average	1.10767	
EDTC-B: Enhanced DTS Cartridge			
BHFL	Borehole Fluid Type	WATER	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	30	DEGC
BSCO	Borehole Salinity Correction Option	NO	
CCCO	Casing & Cement Thickness Correction Option	NO	
DPPM	Density Porosity Processing Mode	HIRS	
FSAL	Formation Salinity	-50000	PPM
FSCO	Formation Salinity Correction Option	NO	
GCSE	Generalized Caliper Selection	LCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
HSCO	Hole Size Correction Option	YES	
ISSBAR	Barite Mud Switch	NOBARITE	
ISSBAR_EDTC	Nuclear Mud Type	NOBARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
MCCO	Mud Cake Correction Option	NO	
MCOR	Mud Correction	NATU	
MWCO	Mud Weight Correction Option	NO	
PTCO	Pressure/Temperature Correction Option	NO	
SDAT	Standoff Data Source	SOCN	
SHT	Surface Hole Temperature	20	DEGC
SOCN	Standoff Distance	0.5	IN
SOCO	Standoff Correction Option	NO	
TPOS_EDTC	EDTC Tool Centered/Eccentered	Centered	
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	1.00	G/C3
DO	Depth Offset for Playback	0.0	M
FLEV	Fluid Level	-50000.00	M
MST	Mud Sample Temperature	73.40	DEGC
PBVSADP	Use alternate depth channel for playback	NO	
PP	Playback Processing	NORMAL	
RMFS	Resistivity of Mud Filtrate Sample	-50000.0000	OHMM
RW	Resistivity of Connate Water	1.0000	OHMM
TD	Total Depth	1515	M
TDD	Total Depth - Driller	1510.20	M
TDL	Total Depth - Logger	1515.00	M
TWS	Temperature of Connate Water Sample	37.78	DEGC

Format: HRLT_LQC Vertical Scale: 1:200 Graphics File Created: 24-Jan-2016 05:19

OP System Version: 19C0-187

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

Input DLIS Files

DEFAULT	Splice_MSS_LDEO_043CUP	FN:1	PRODUCER	24-Jan-2016 05:18	1506.5 M	705.7 M
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Output DLIS Files

DEFAULT	MSS_LDEO_HRLA_LDL_044PUP	FN:54	PRODUCER	24-Jan-2016 05:19		
BACKUP	MSS_LDEO_HRLA_LDL_044PUP	FN:55	PRODUCER	24-Jan-2016 05:19		

Input DLIS Files

DEFAULT	Splice_MSS_LDEO_043CUP	FN:1	PRODUCER	24-Jan-2016 05:18	1506.5 M	705.7 M
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Output DLIS Files

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BACKUP	MSS_LDEO_HRLA_LDL_044PUP	FN:55	PRODUCER	24-Jan-2016 05:19	1506.5 M	705.9 M

OP System Version: 19C0-187

MSS_LDEO-A 19C0-187
 HLDS 19C0-187
 HNGC-B 19C0-187
 EDTC-B SKK-5169-EDTCB

HRLT-B 19C0-187
 LDSC-B 19C0-187
 HNGS-BA 19C0-187

PIP SUMMARY

Time Mark Every 60 S

HNGS Spectroscopy Gamma Ray (HSGR)
 (GAPI) 0 25

Main Log M below Drill Floor

Area1
 From HCGR to HSGR

HNGS Borehole Potassium (HBHK)
 -0.05 (----) 0.05

HNGS Computed Gamma Ray (HCGR)
 (GAPI) 0 25

Calibrated Downhole Force (CDF) (LBF)
 3000 0

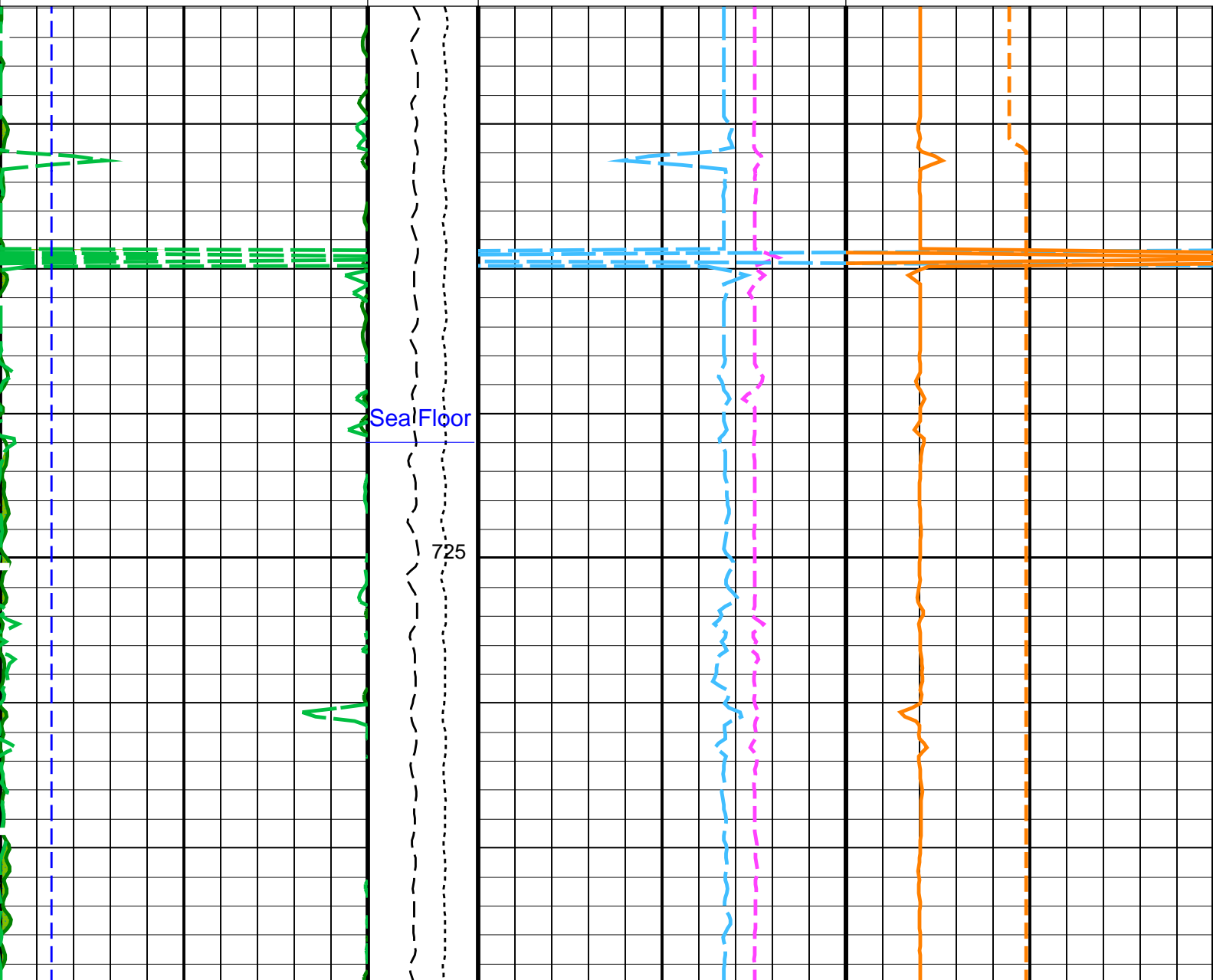
HNGS Uranium (HURA) (PPM)
 -5 10

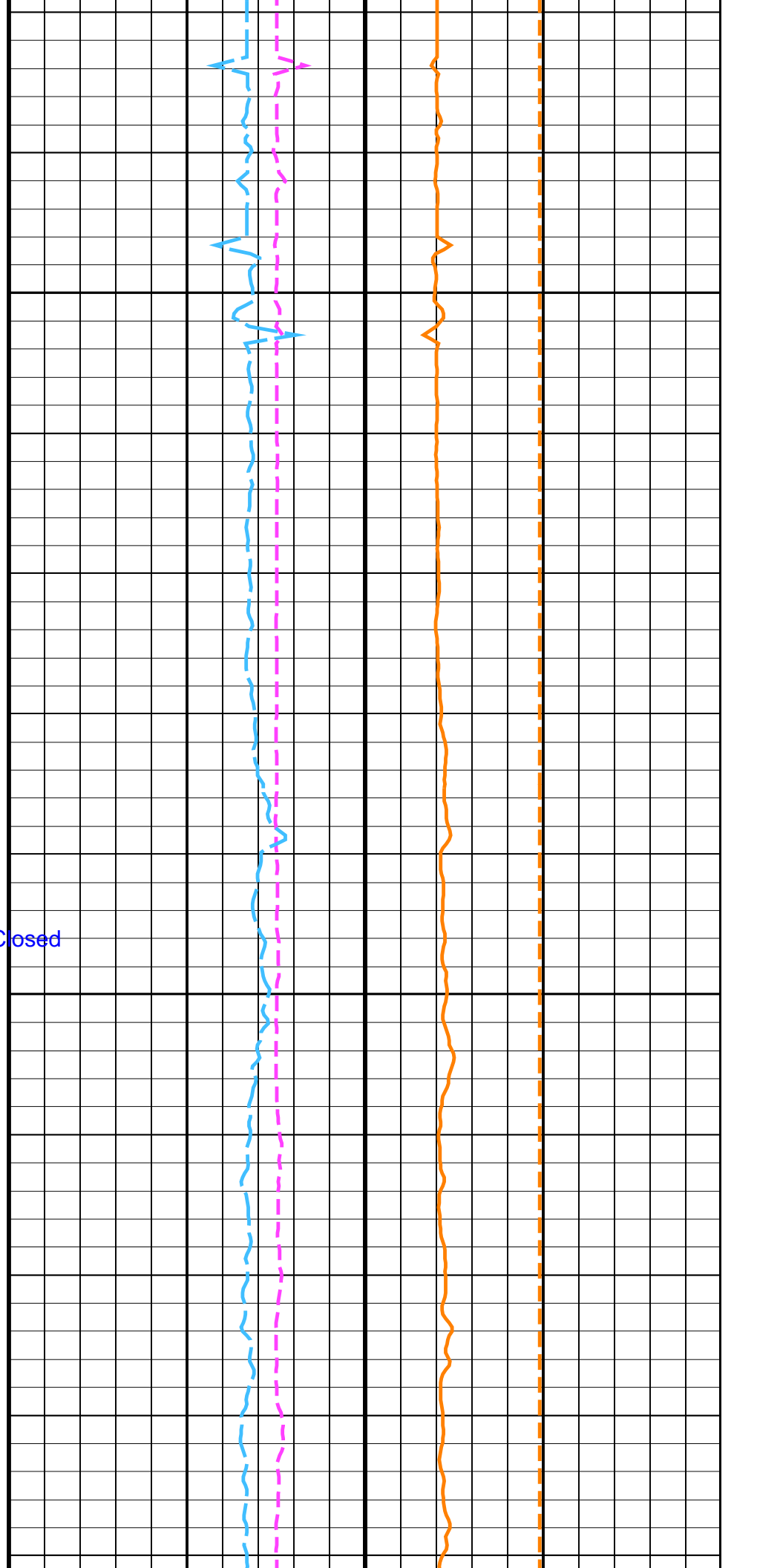
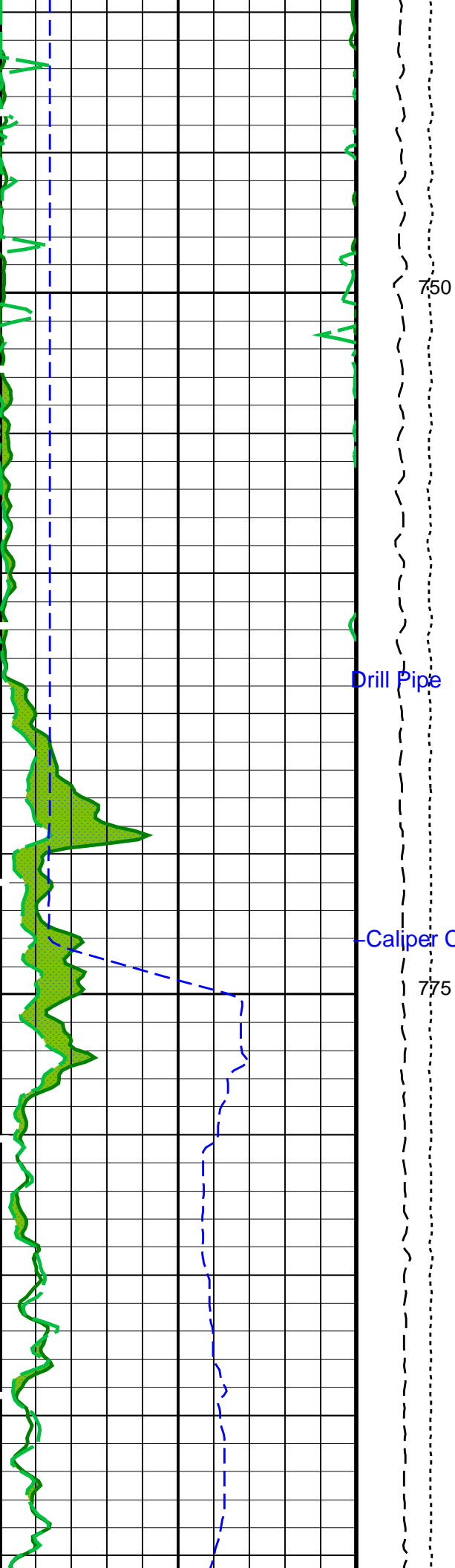
HLDS Caliper (LCAL) (IN) 0 20

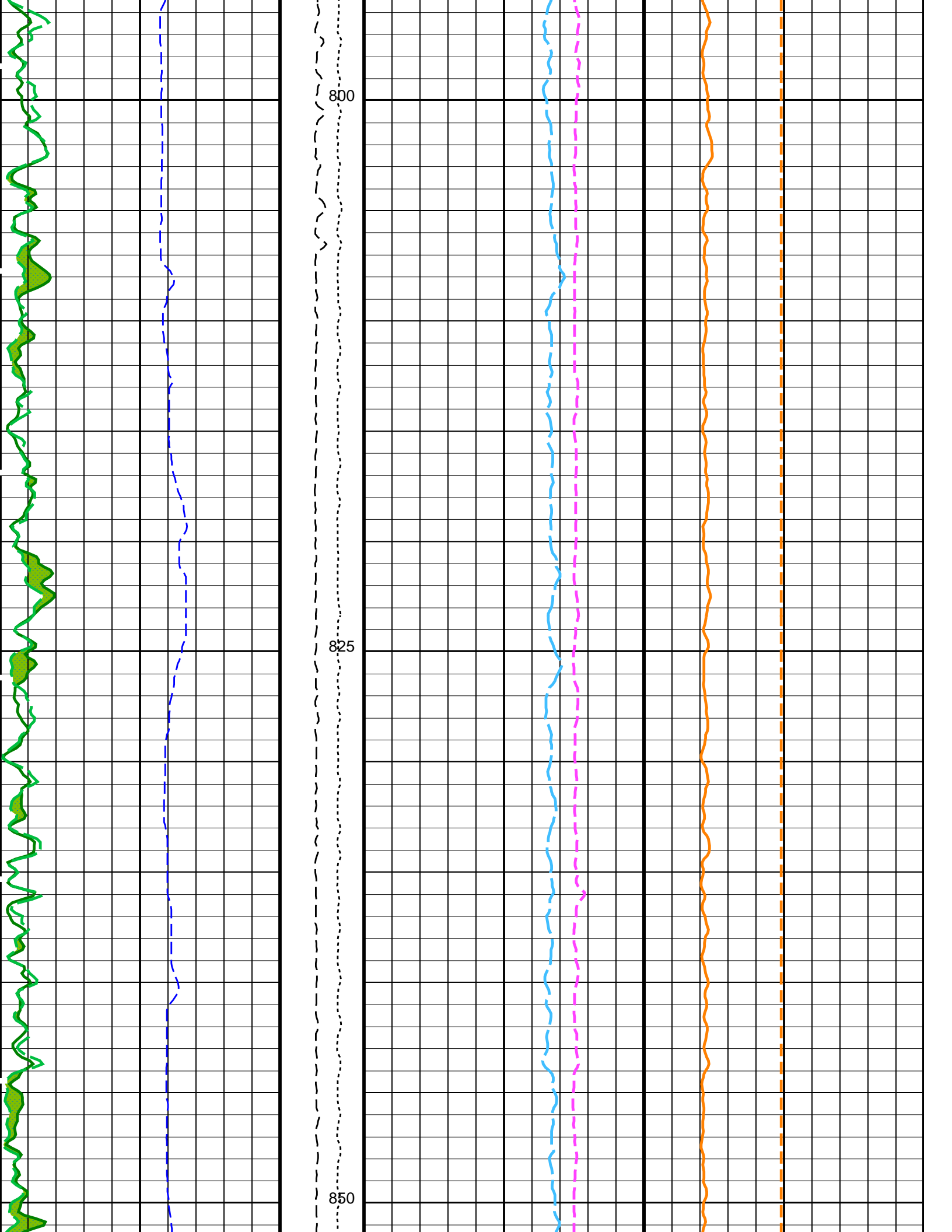
Tension (TENS) (LBF)
 10000 0

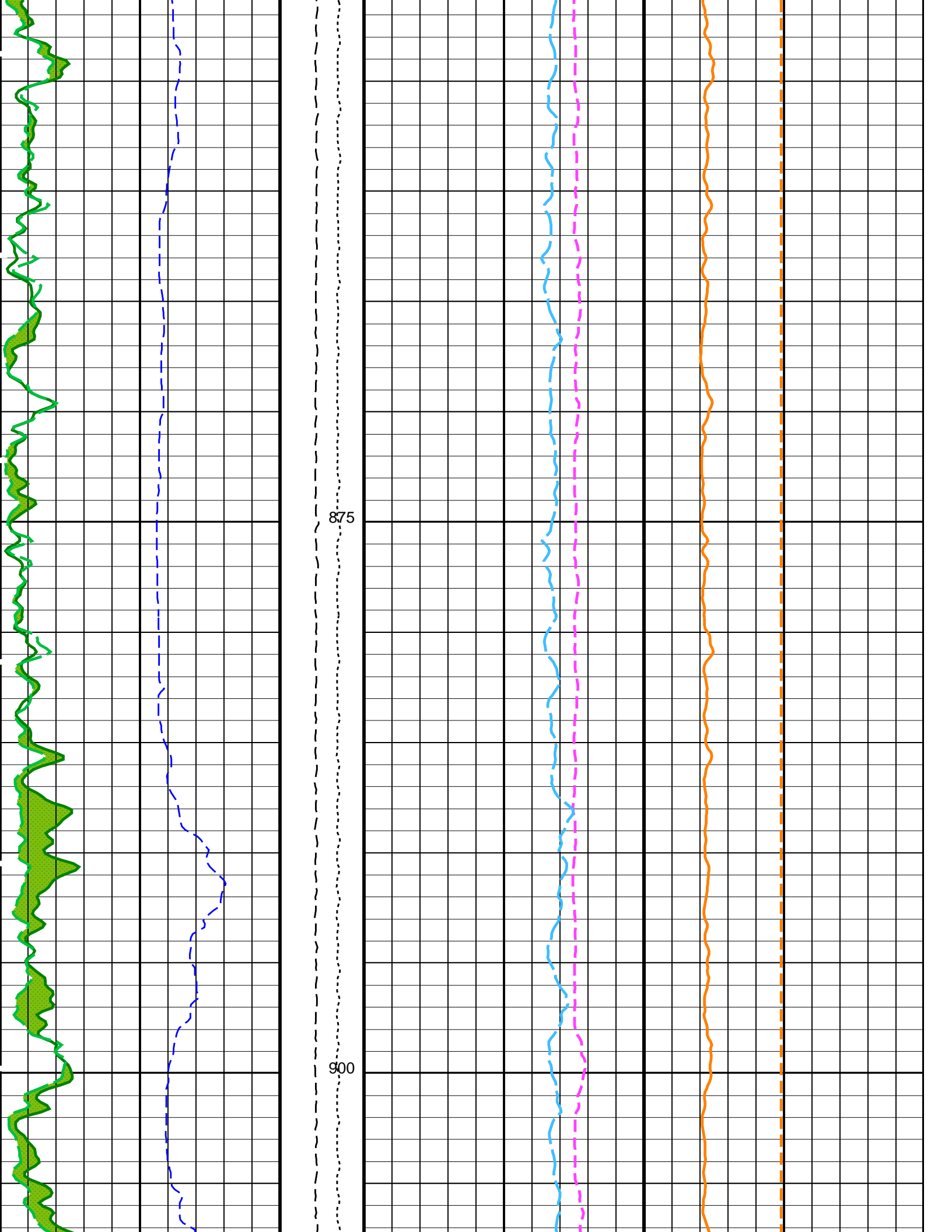
HNGS Thorium (HTHO) (PPM) 5 25

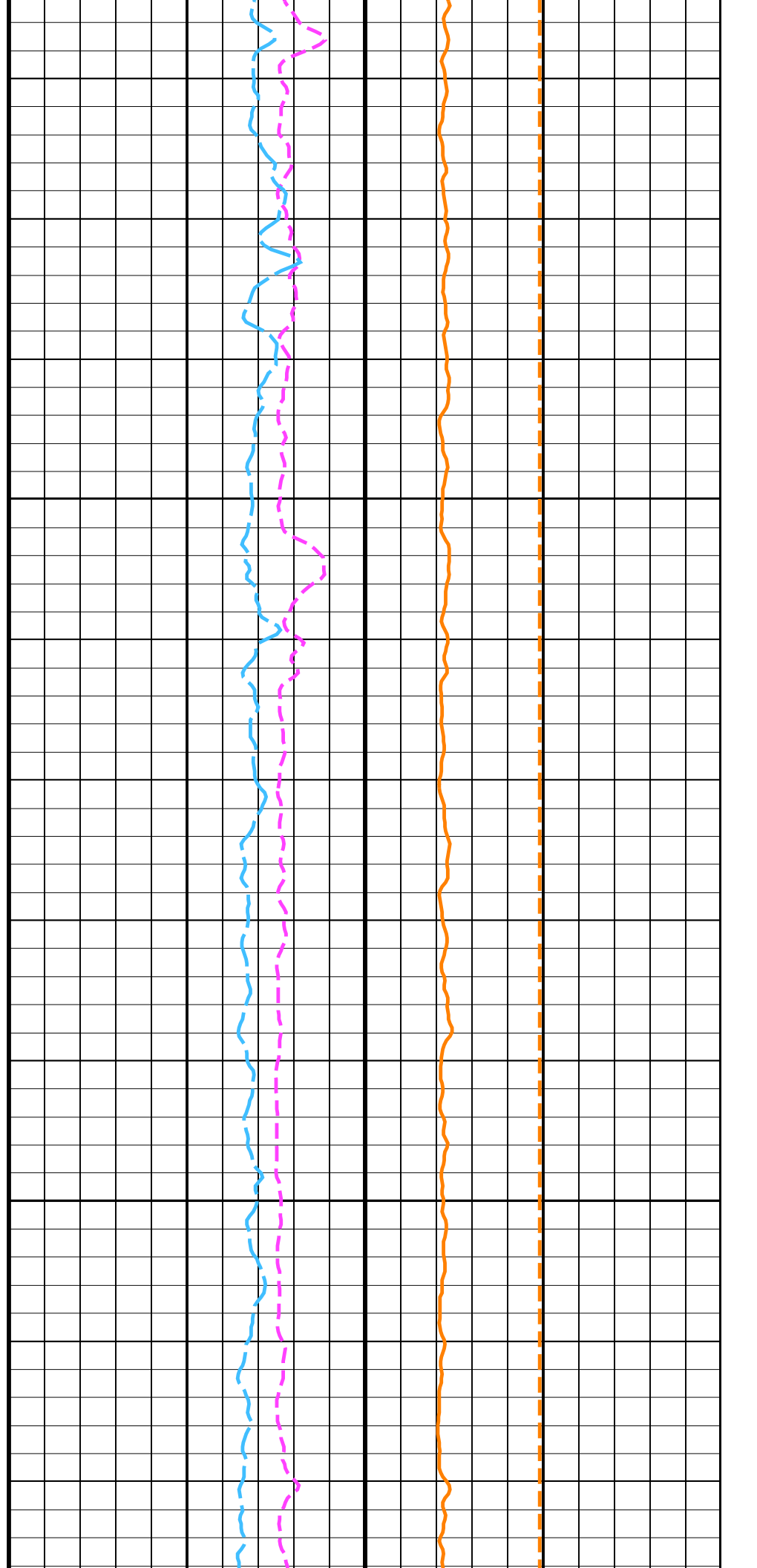
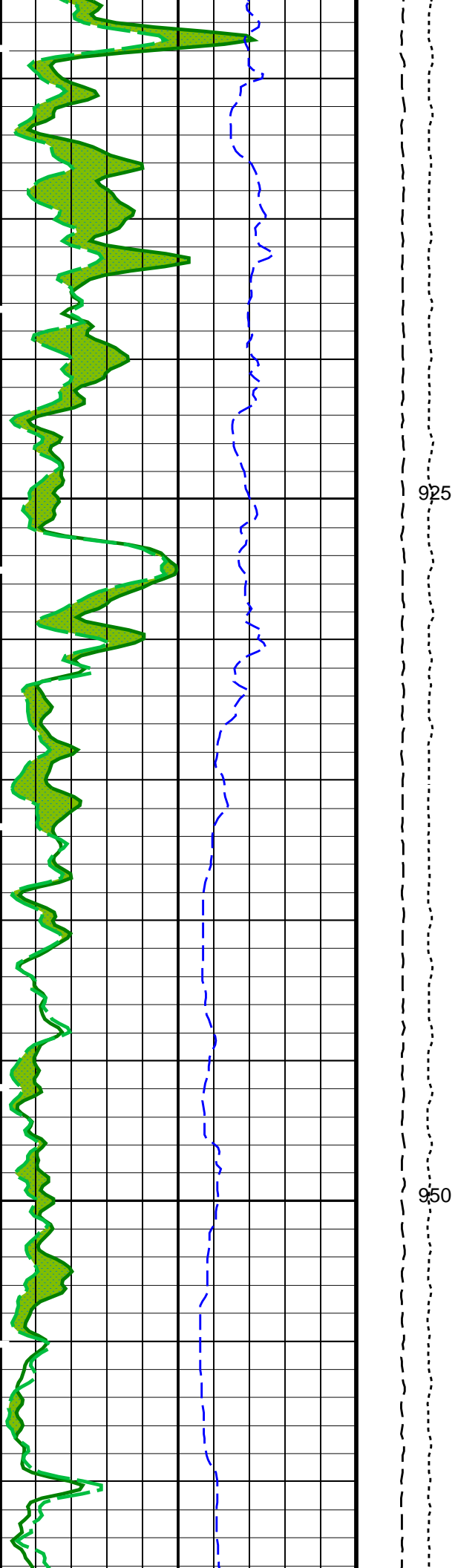
HNGS Potassium (HFK) -0.01 (----) 0.04

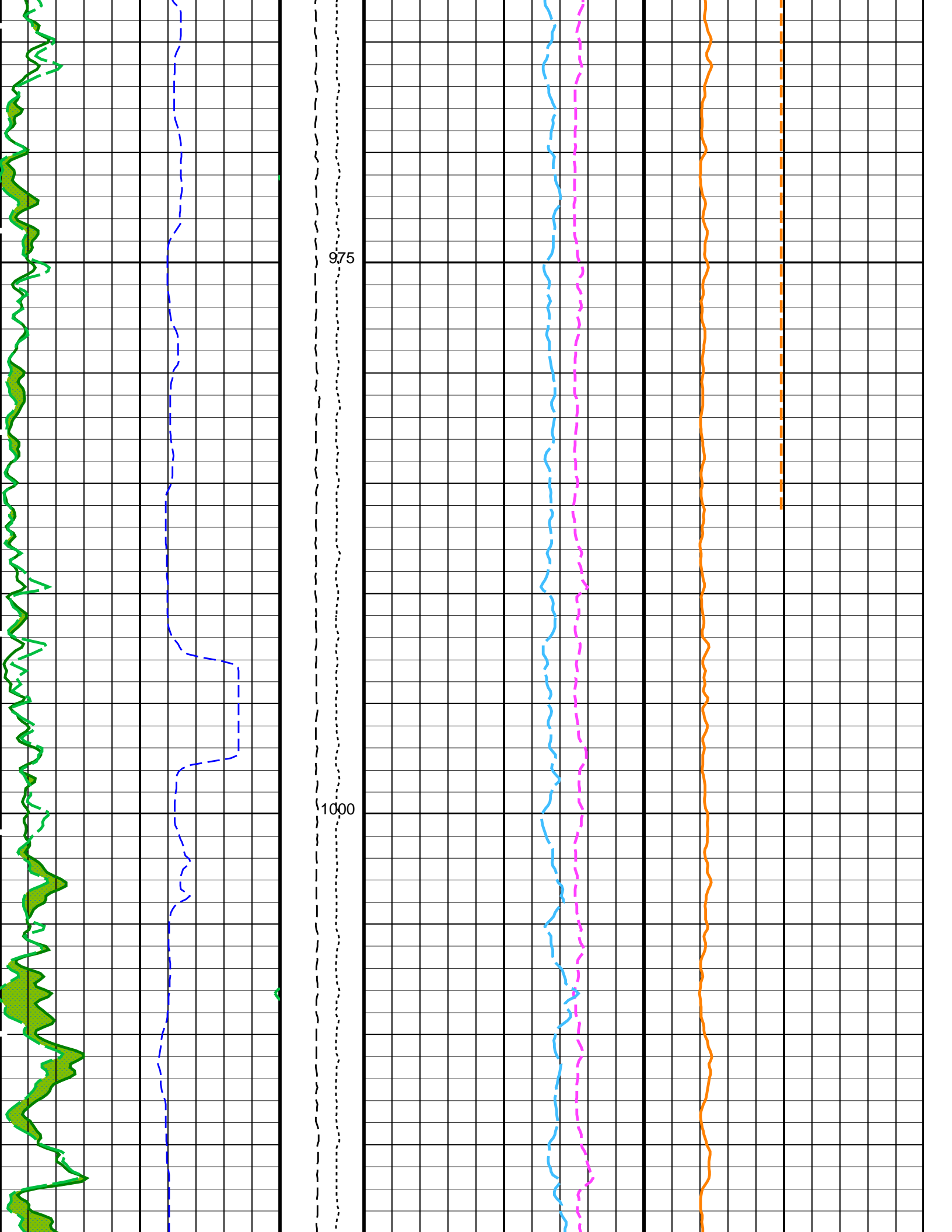


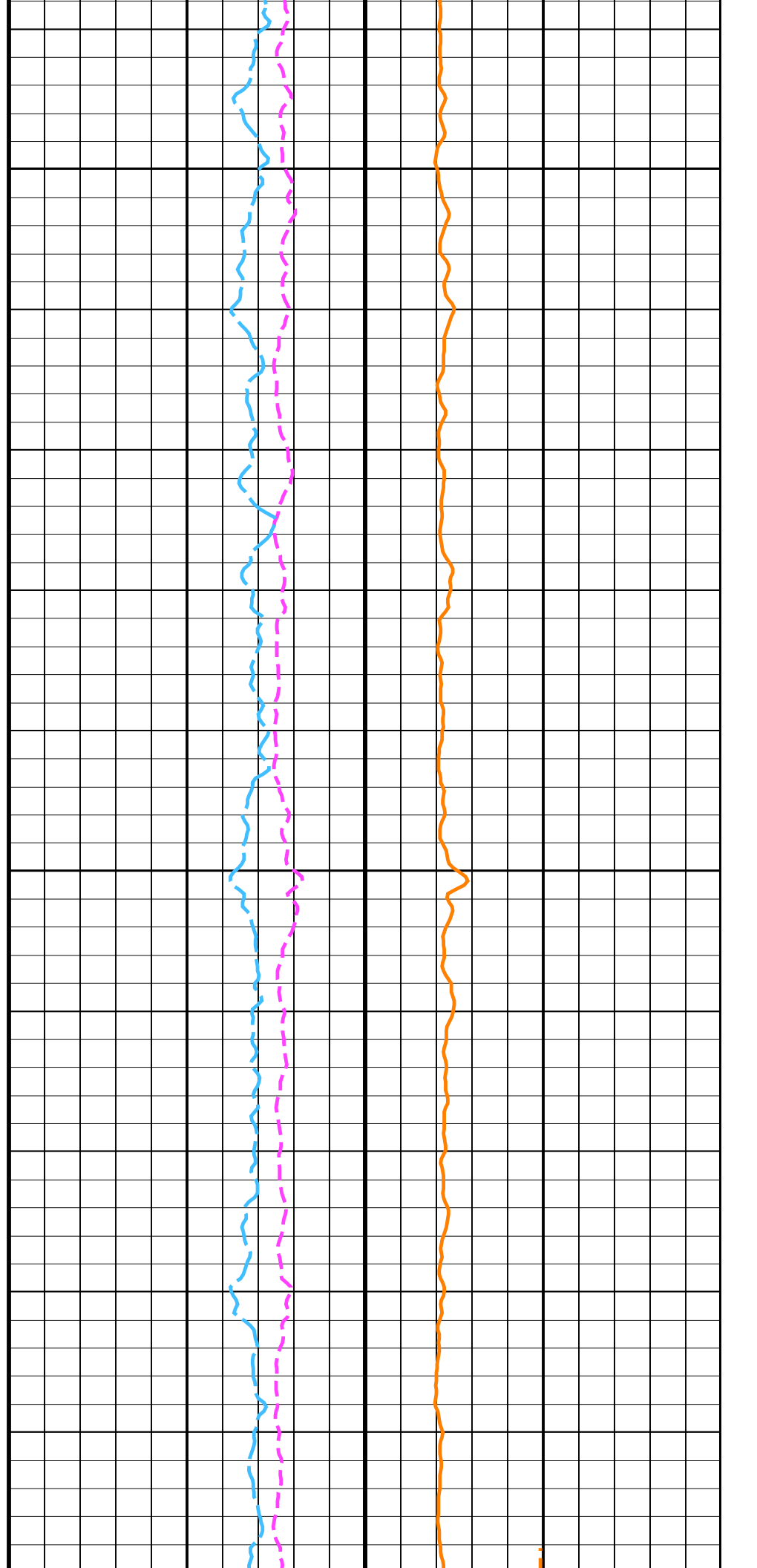
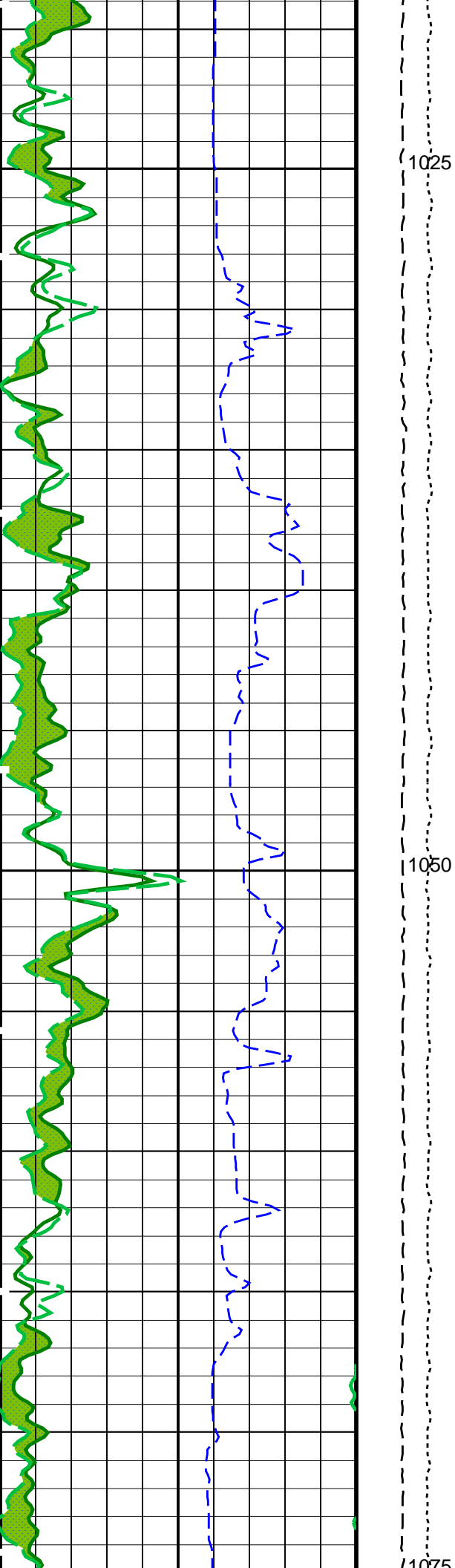


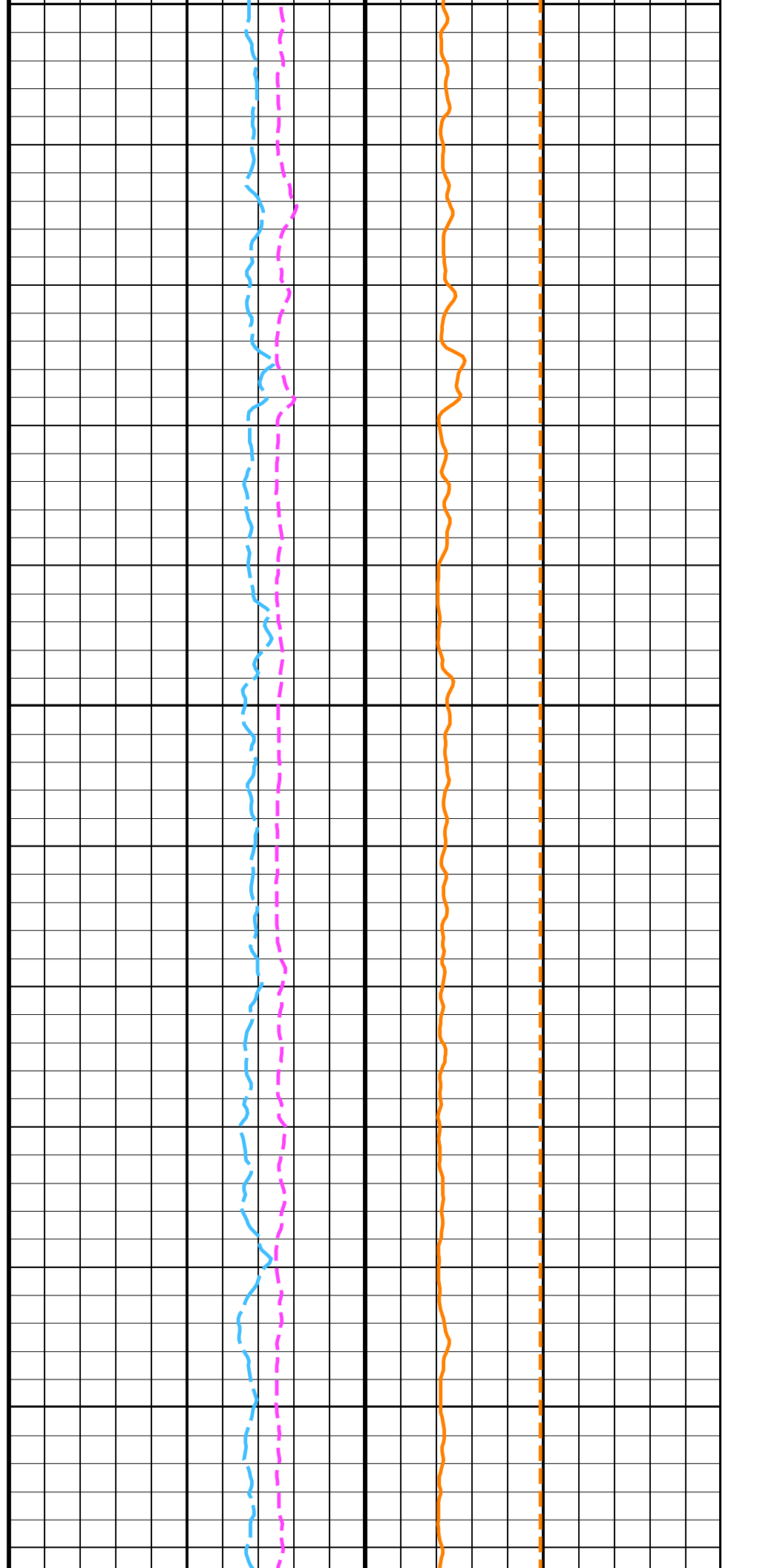
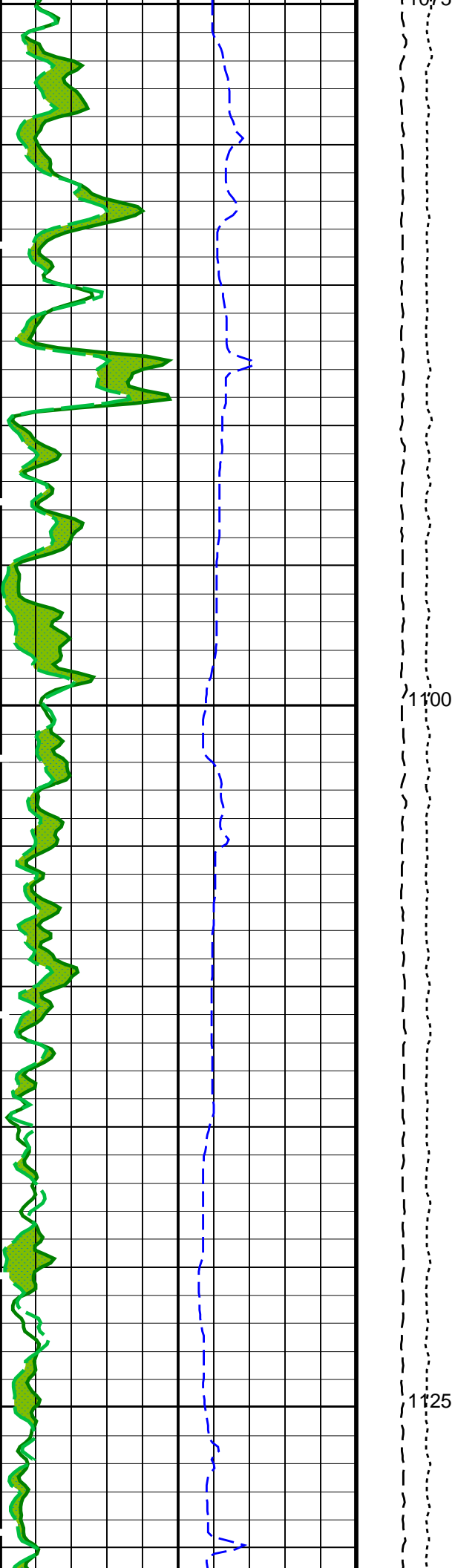


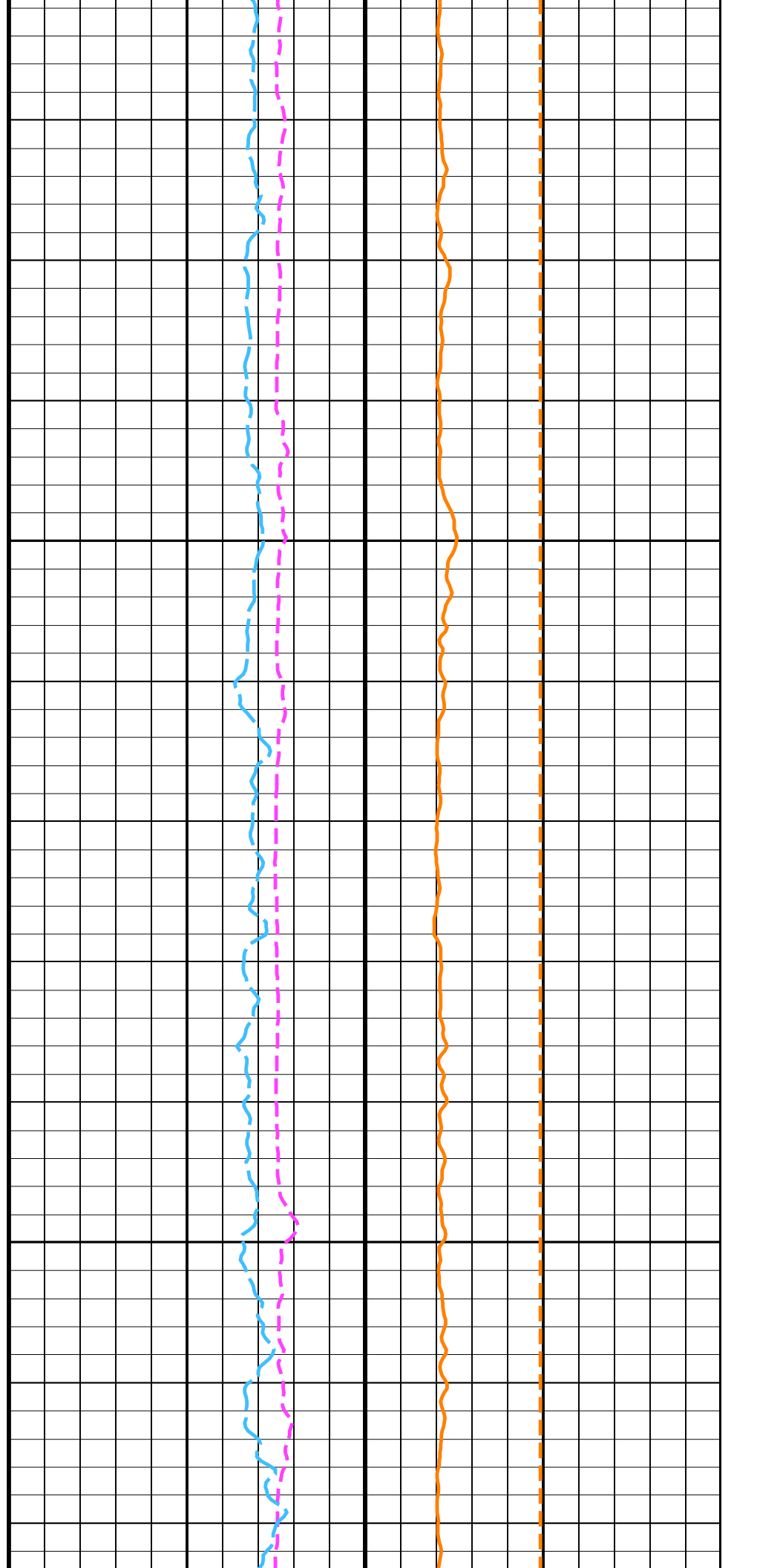
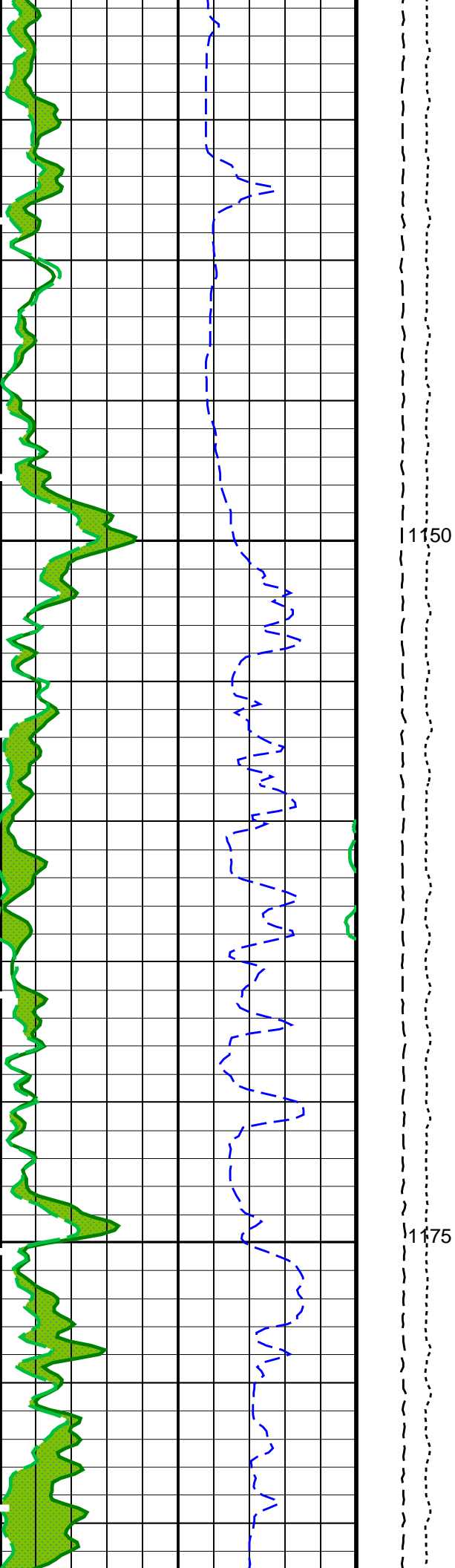


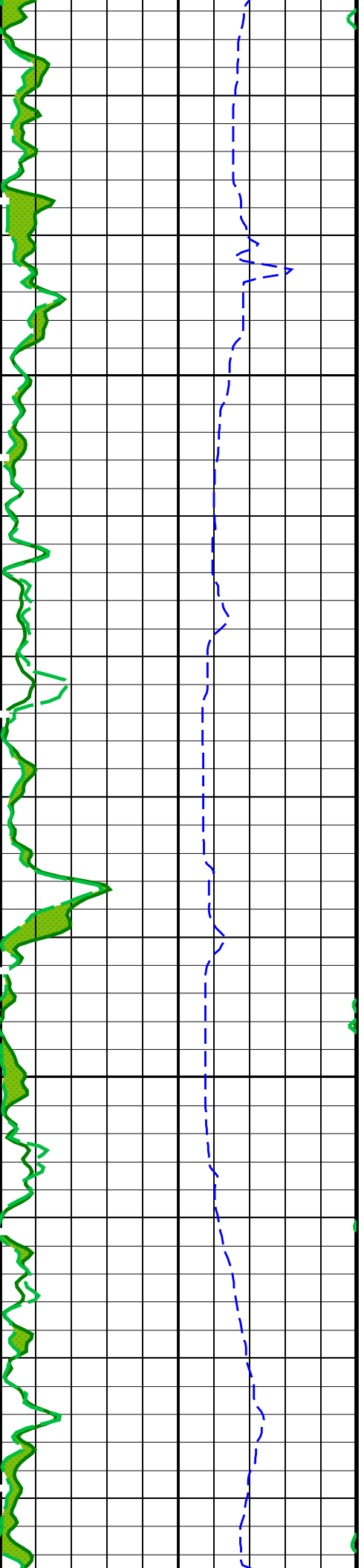






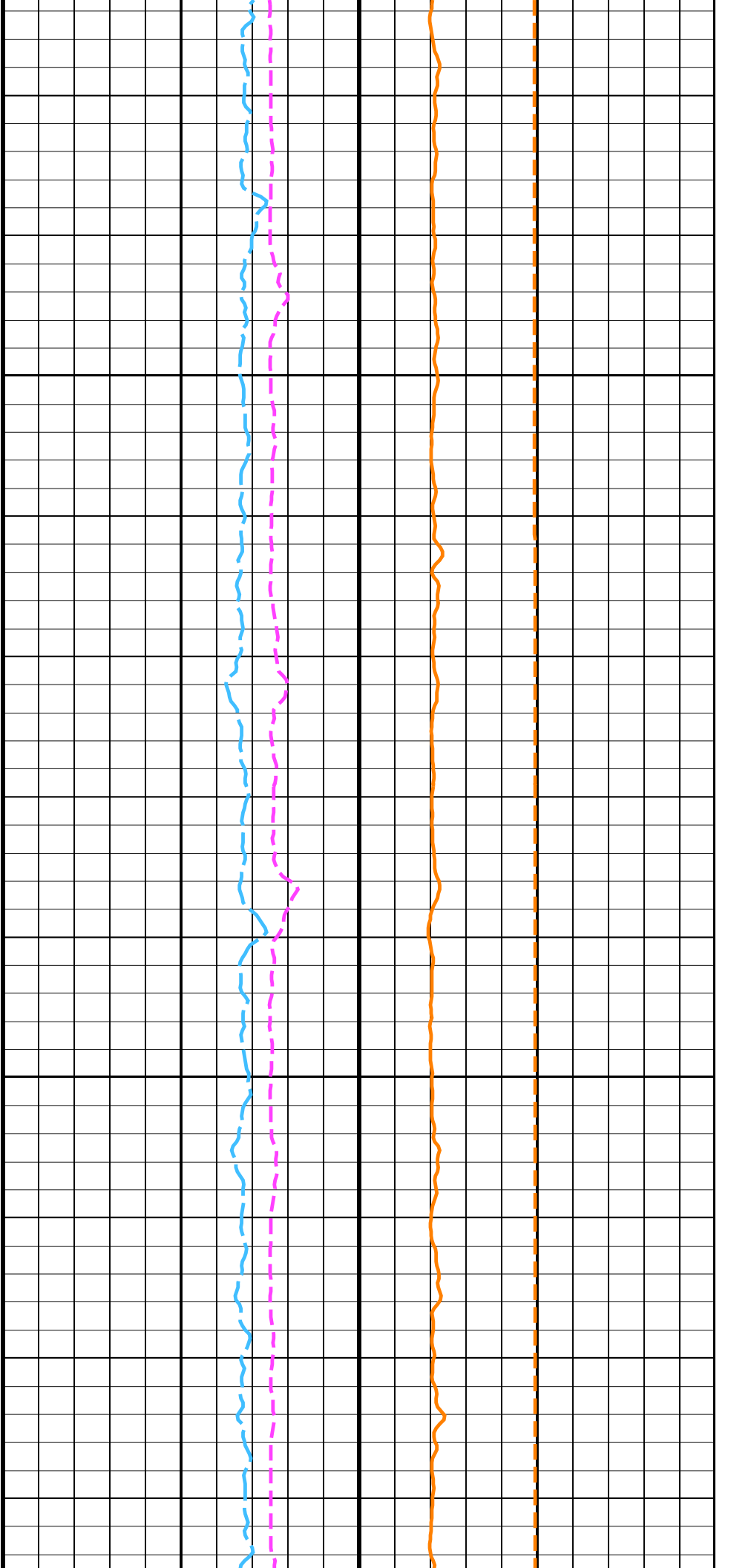


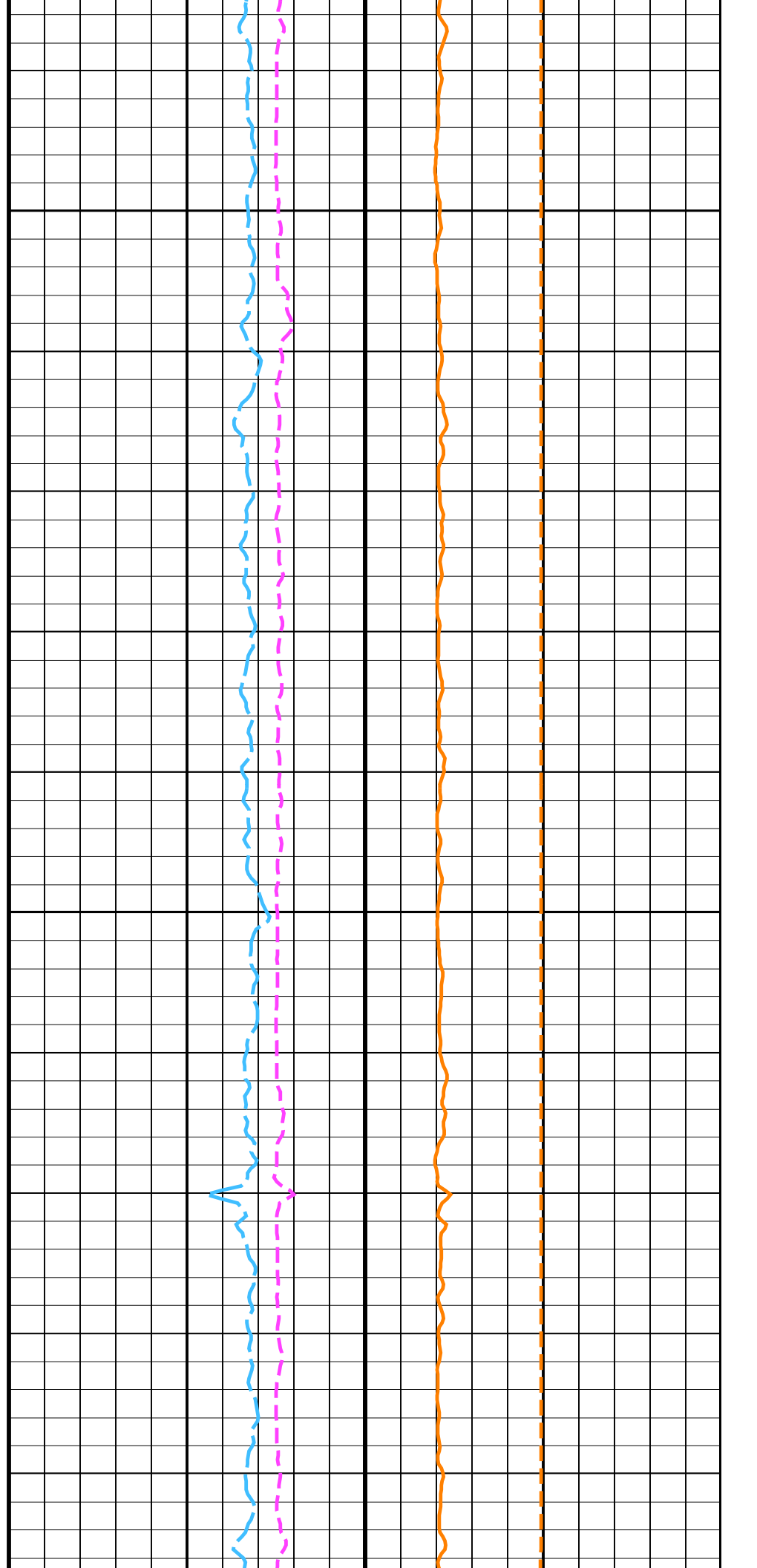
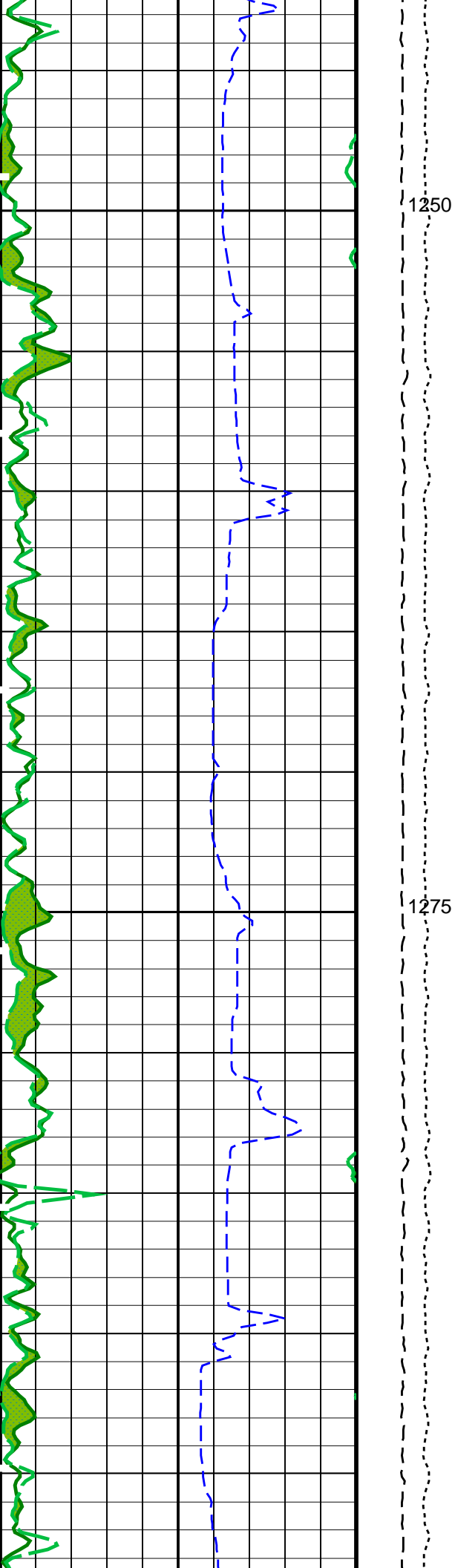


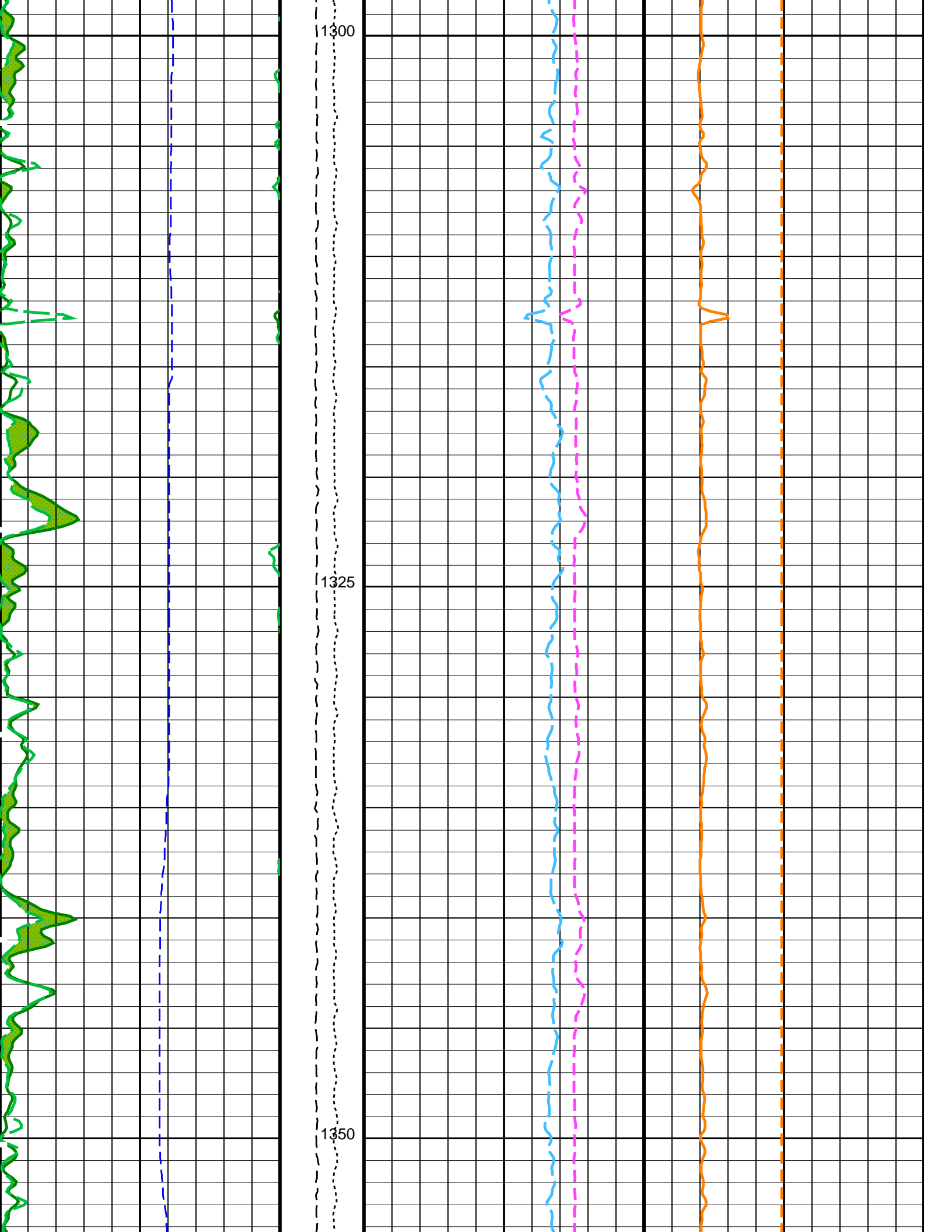


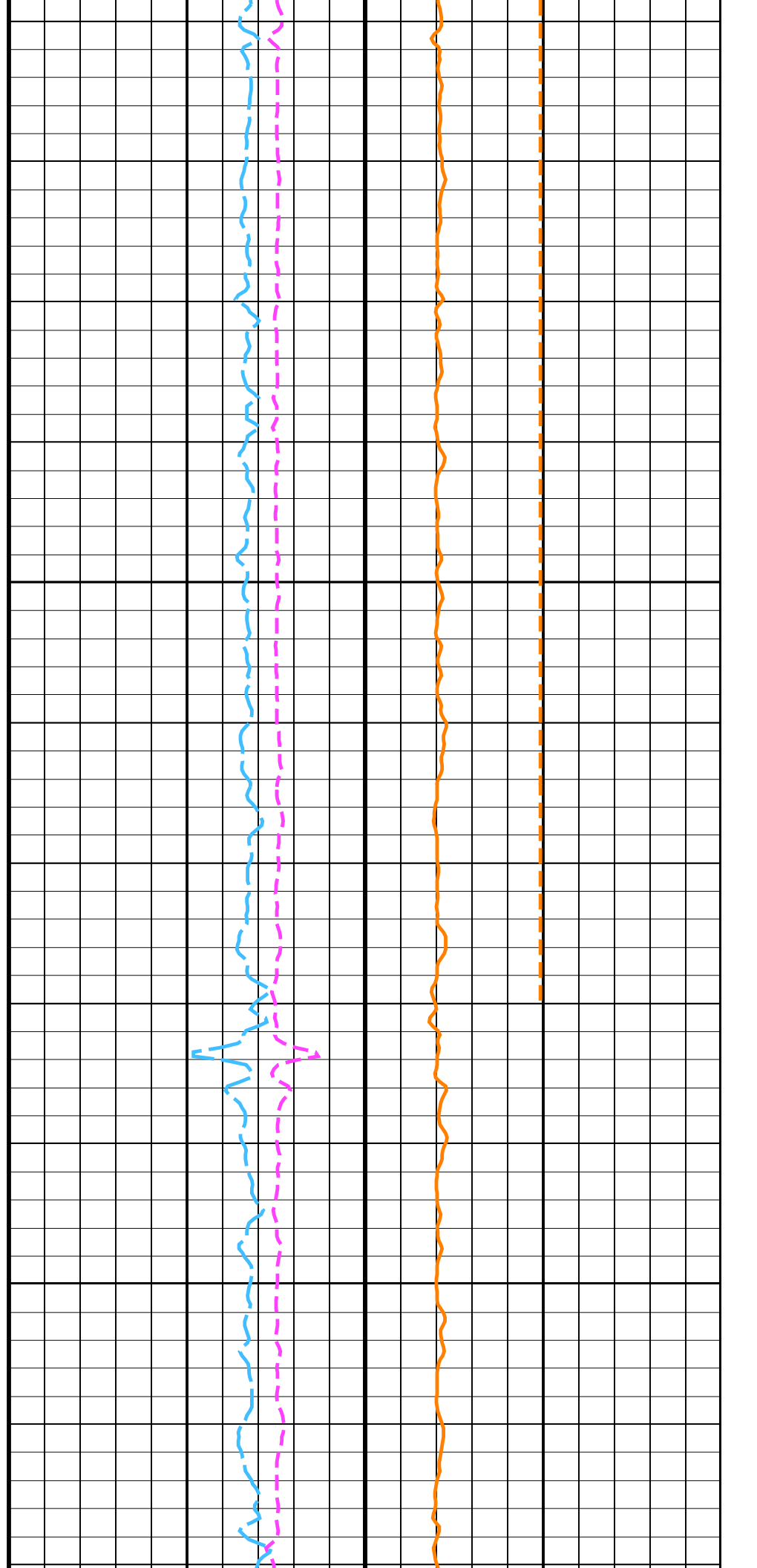
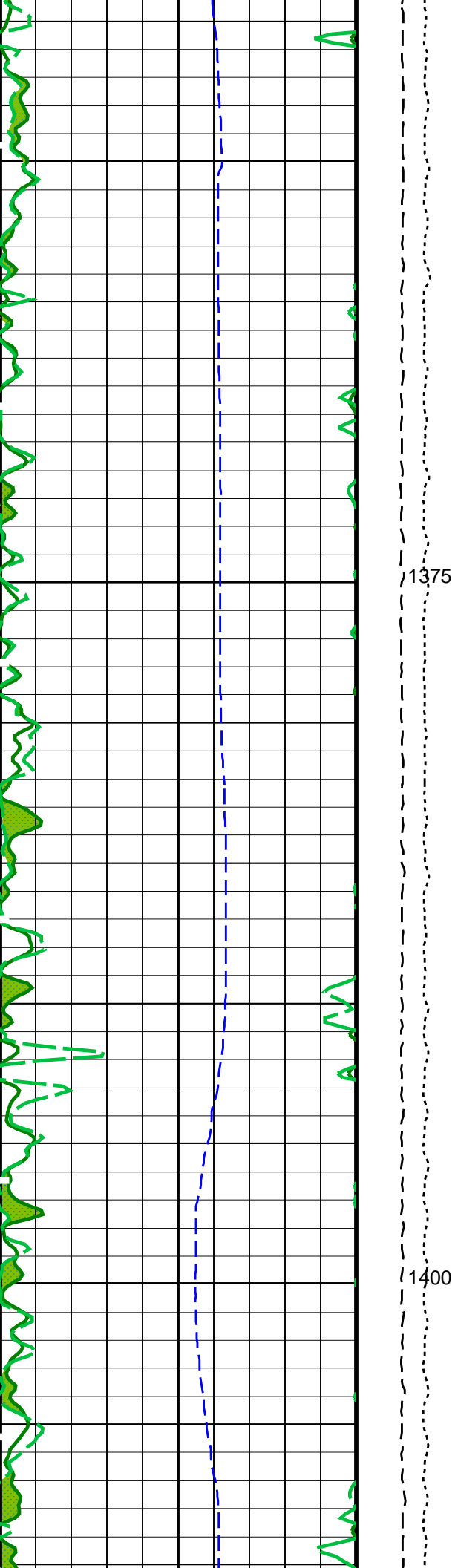
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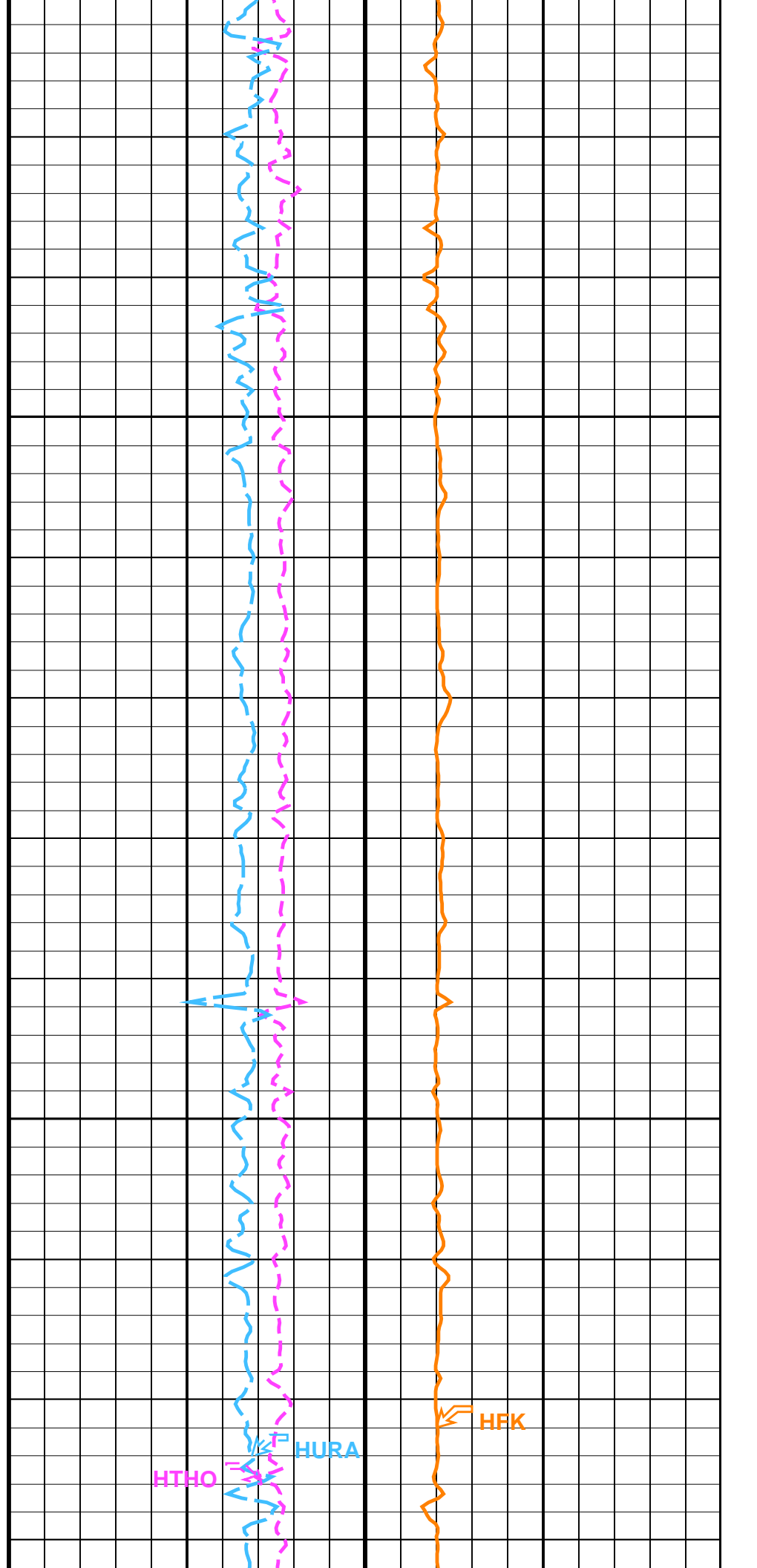
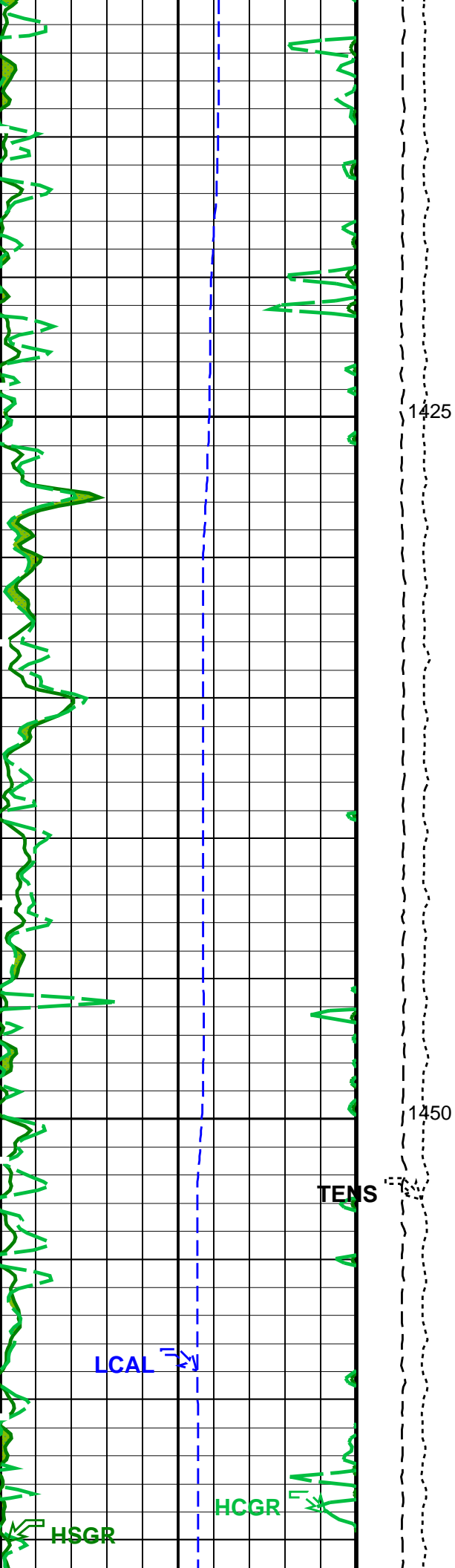
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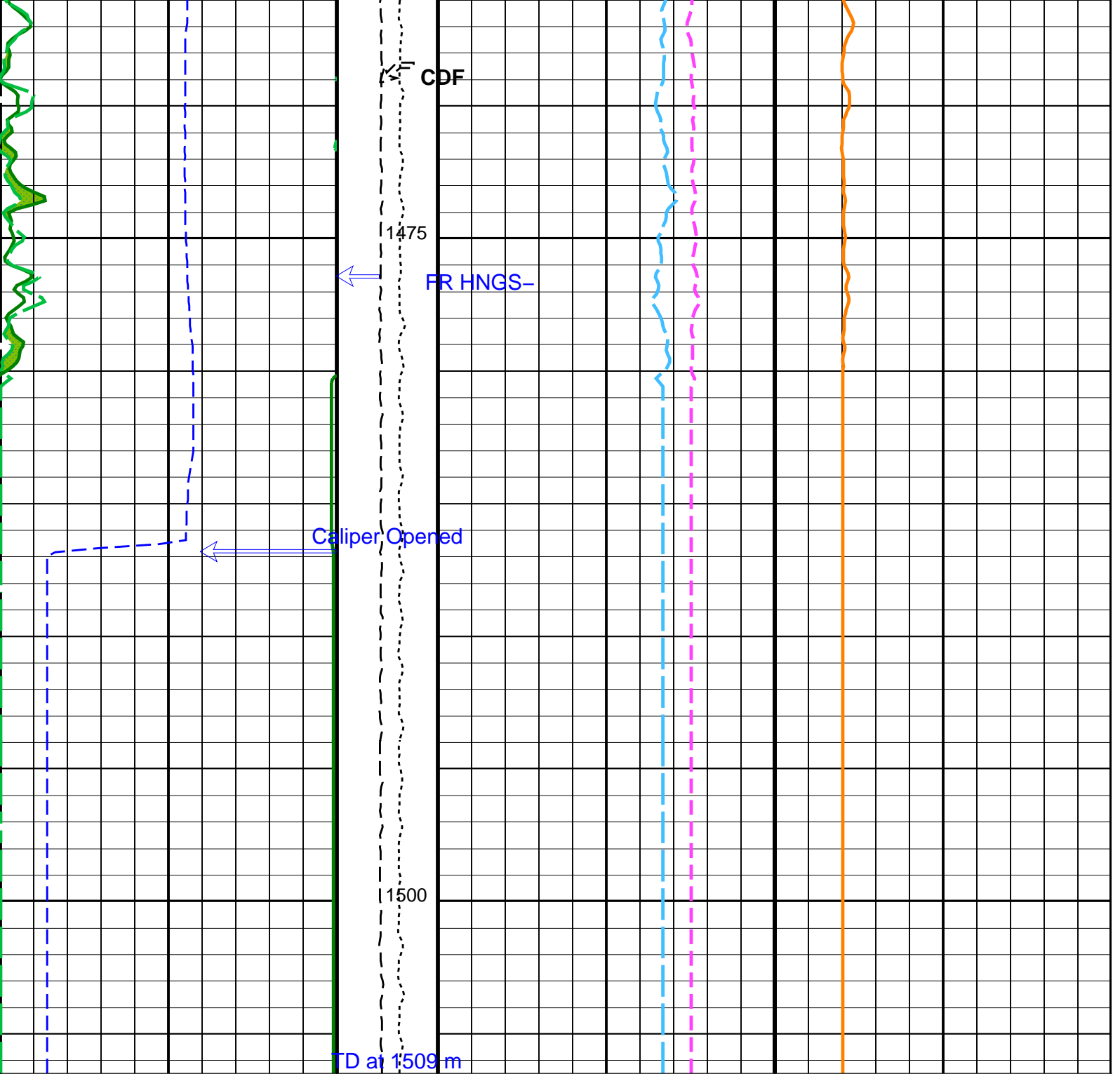












<p>HLDS Caliper (LCAL) (IN)</p> <p>0 20</p>	<p>Tension (TENS) (LBF)</p> <p>10000 0</p>	<p>HNGS Thorium (HTHO) (PPM)</p> <p>5 25</p>	<p>HNGS Potassium (HFK) (-----)</p> <p>-0.01 0.04</p>
<p>HNGS Computed Gamma Ray (HCGR) (GAPI)</p> <p>0 25</p>	<p>Calibrated Downhole Force (CDF) (LBF)</p> <p>3000 0</p>	<p>HNGS Uranium (HURA) (PPM)</p> <p>-5 10</p>	
<p>Area1 From HCGR to HSGR</p> <p>HNGS Spectroscopy Gamma Ray (HSGR) (GAPI)</p> <p>0 25</p>		<p>HNGS Borehole Potassium (HBHK) (-----)</p> <p>-0.05 0.05</p> <p>Main Log M below Drill Floor</p>	

Parameters

DLIS Name	Description	Value	
HRLT-B: High Resolution Laterolog Array - B			
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	-0.00118174	
HALF	HNGS Alpha Filter Length	60	IN
HCRB	HNGS Apply Borehole Potassium Correction	NONE	
HMWM	Mud Weighting Material	NATU	
HNPE	HNGS Processing Enable	YES	
S1BI	HNGS Detector 1 Calibration Bismuth Count Rate	1.3	CPS
S2BI	HNGS Detector 2 Calibration Bismuth Count Rate	1.3	CPS
SGRC	HNGS Standard Gamma-Ray Correction Flag	YES	
TPOS	Tool Position	CENT	
VBA1	HNGS Detector 1 Variable Barite Factor Running Average	1.32021	
VBA2	HNGS Detector 2 Variable Barite Factor Running Average	1.10767	
EDTC-B: Enhanced DTS Cartridge			
BHS	Borehole Status	OPEN	
GCSE	Generalized Caliper Selection	LCAL	
System and Miscellaneous			
BS	Bit Size	9.875	IN
DFD	Drilling Fluid Density	1.00	G/C3
DO	Depth Offset for Playback	0.0	M
PP	Playback Processing	NORMAL	

Format: HNGSYields Vertical Scale: 1:200 Graphics File Created: 24-Jan-2016 05:19

OP System Version: 19C0-187

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

Input DLIS Files

DEFAULT	Splice_MSS_LDEO_043CUP	FN:1	PRODUCER	24-Jan-2016 05:18	1506.5 M	705.7 M
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Output DLIS Files

DEFAULT	MSS_LDEO_HRLA_LDL_044PUP	FN:54	PRODUCER	24-Jan-2016 05:19		
BACKUP	MSS_LDEO_HRLA_LDL_044PUP	FN:55	PRODUCER	24-Jan-2016 05:19		

Input DLIS Files

DEFAULT	Splice_MSS_LDEO_043CUP	FN:1	PRODUCER	24-Jan-2016 05:18	1506.5 M	705.7 M
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Output DLIS Files

DEFAULT	MSS_LDEO_HRLA_LDL_044PUP	FN:54	PRODUCER	24-Jan-2016 05:19	1506.5 M	705.9 M
BACKUP	MSS_LDEO_HRLA_LDL_044PUP	FN:55	PRODUCER	24-Jan-2016 05:19	1506.5 M	705.9 M

OP System Version: 19C0-187

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

PIP SUMMARY

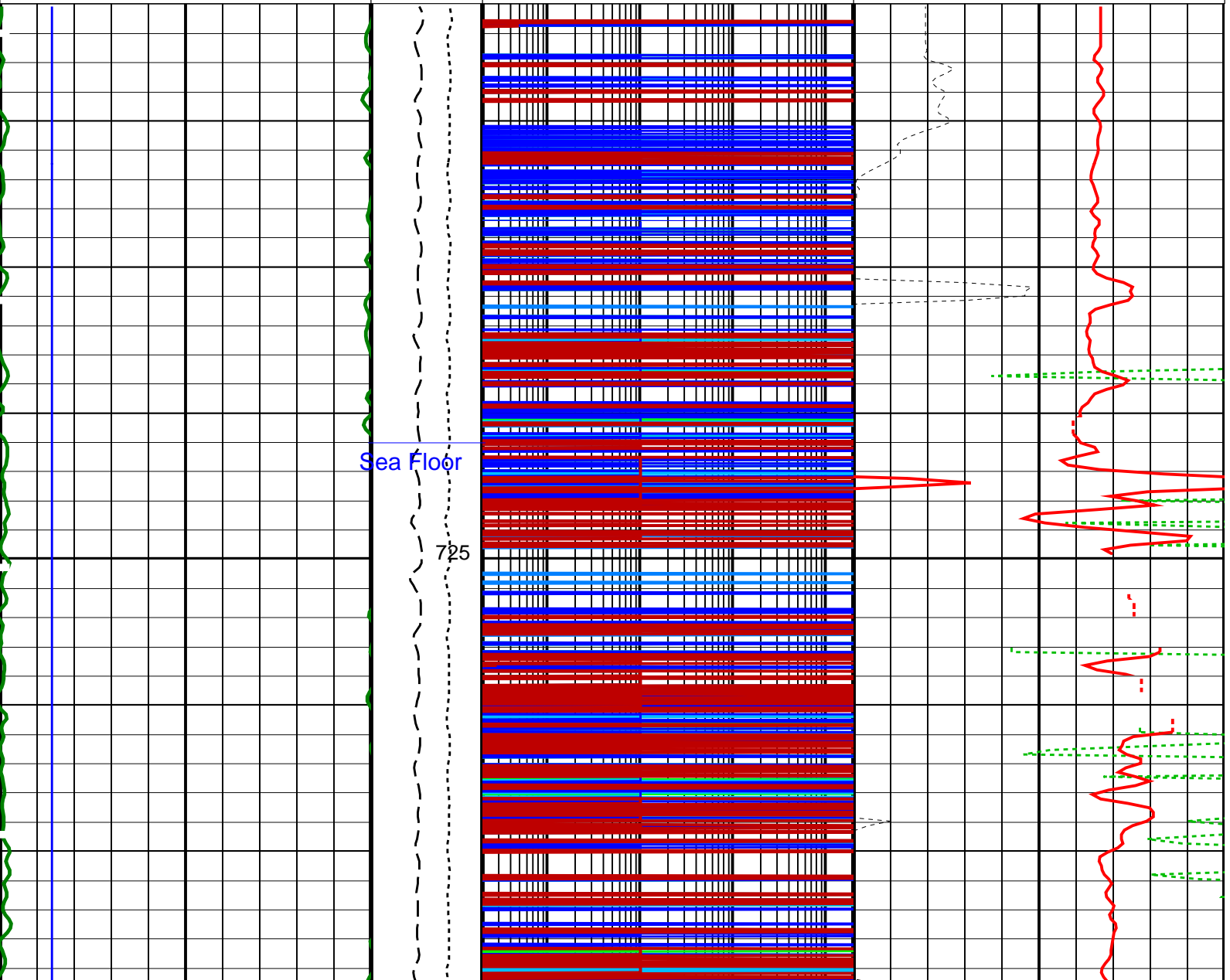
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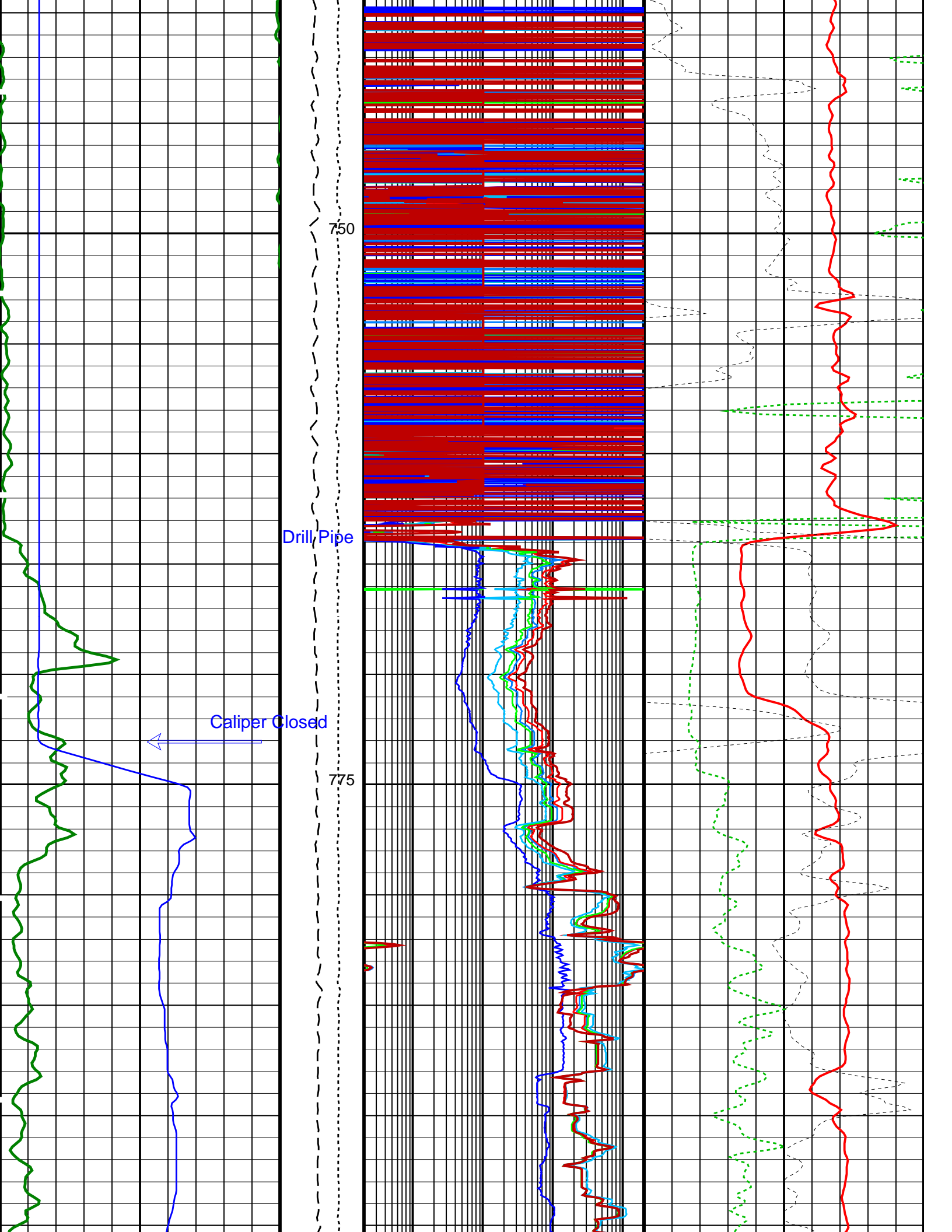
Main Log M below Drill Floor

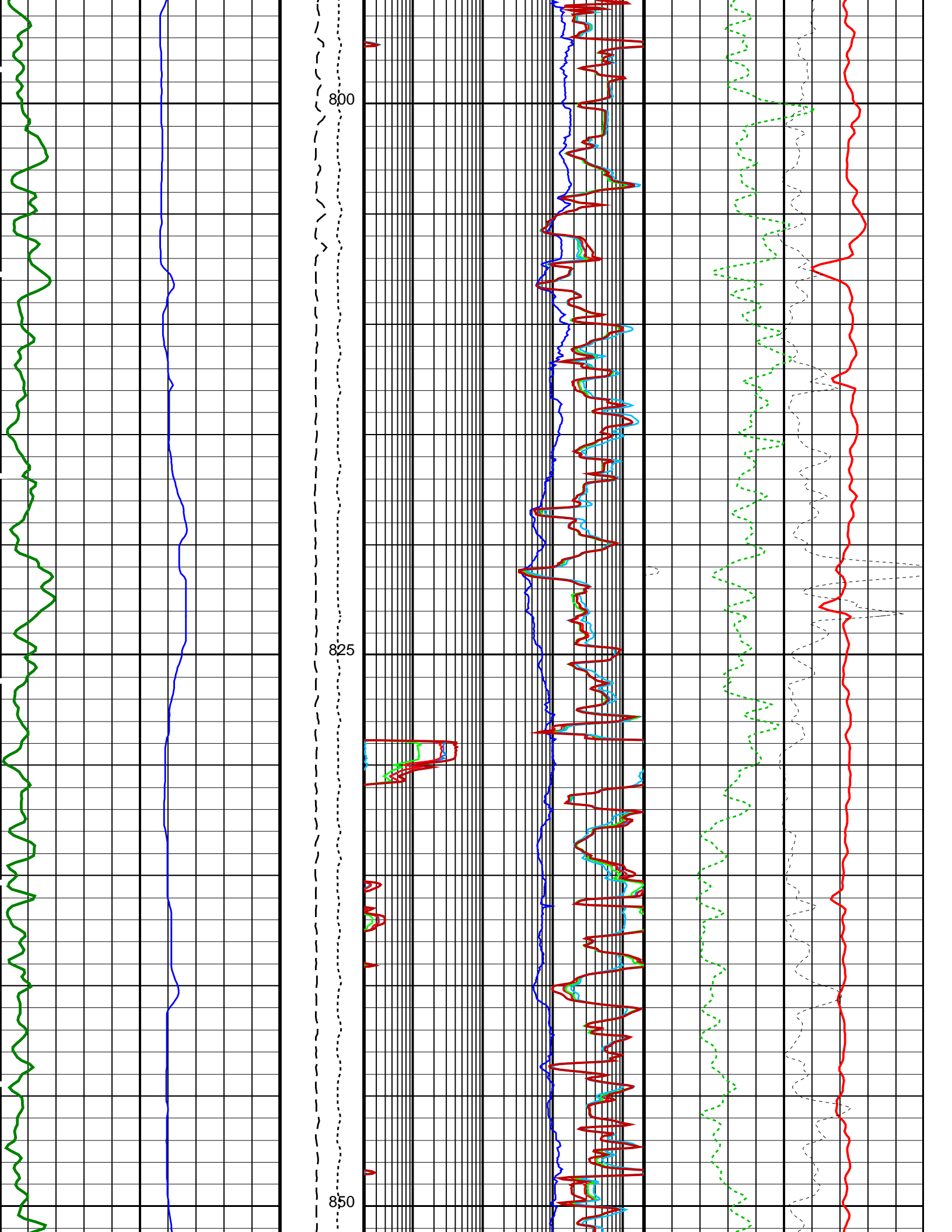
	HRLT True Resistivity (RT_HRLT)	
	0.2 (OHMM) 2000	
	HRLT Resistivity 1 (RLA1)	
	0.2 (OHMM) 2000	
	HRLT Resistivity 2 (RLA2)	
	0.2 (OHMM) 2000	
	HRLT Resistivity 3 (RLA3)	
	0.2 (OHMM) 2000	HLDS Bulk Density Correction (DRH)
		-0.25 (G/C3) 0.25

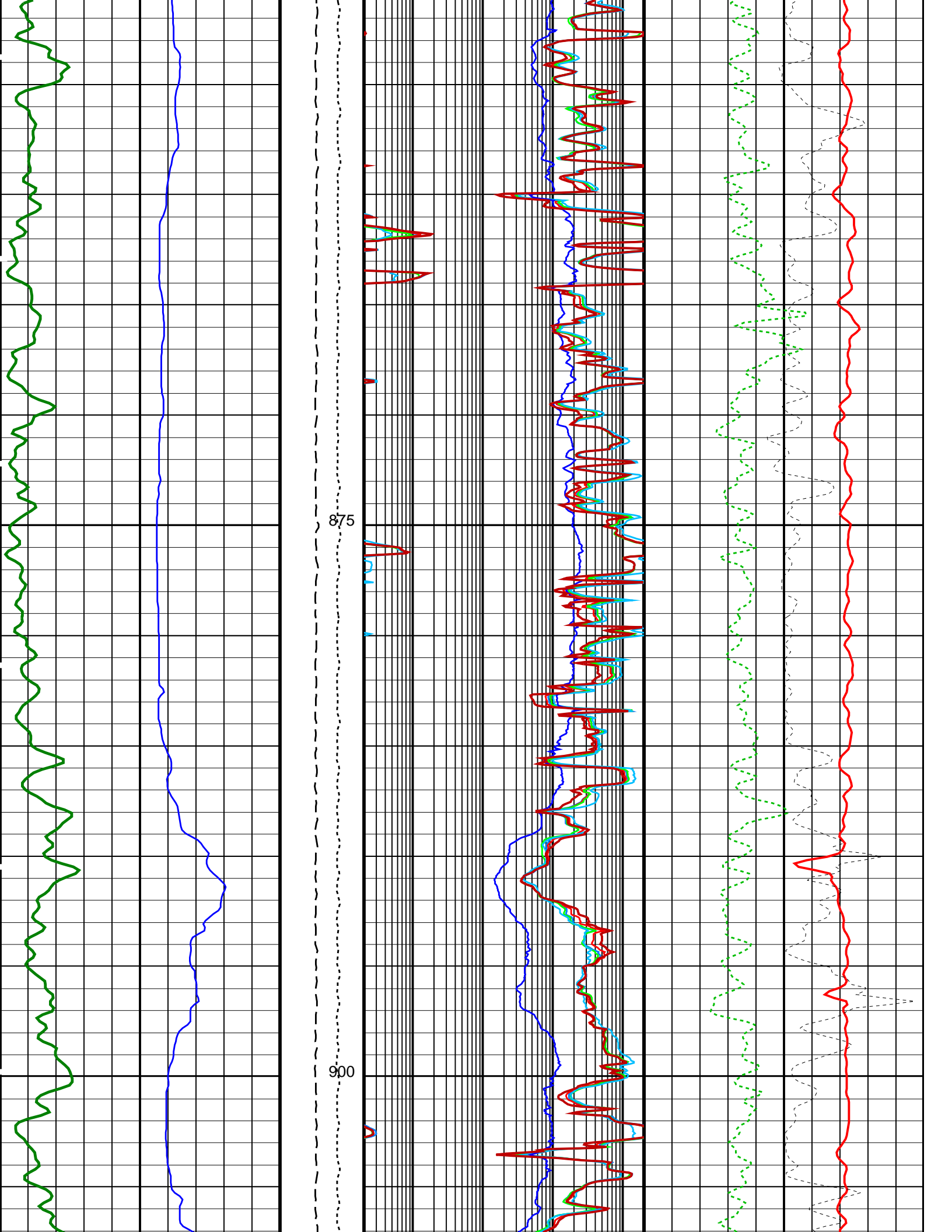
HNGS Spectroscopy Gamma Ray (HSGR) (GAPI)	0 25	Calibrated Downhole Force (CDF) (LBF) 3000 0	HRLT Resistivity 5 (RLA5)		HLDS Bulk Density (RHOM)	
			0.2 (OHMM) 2000		0 (G/C3) 4	

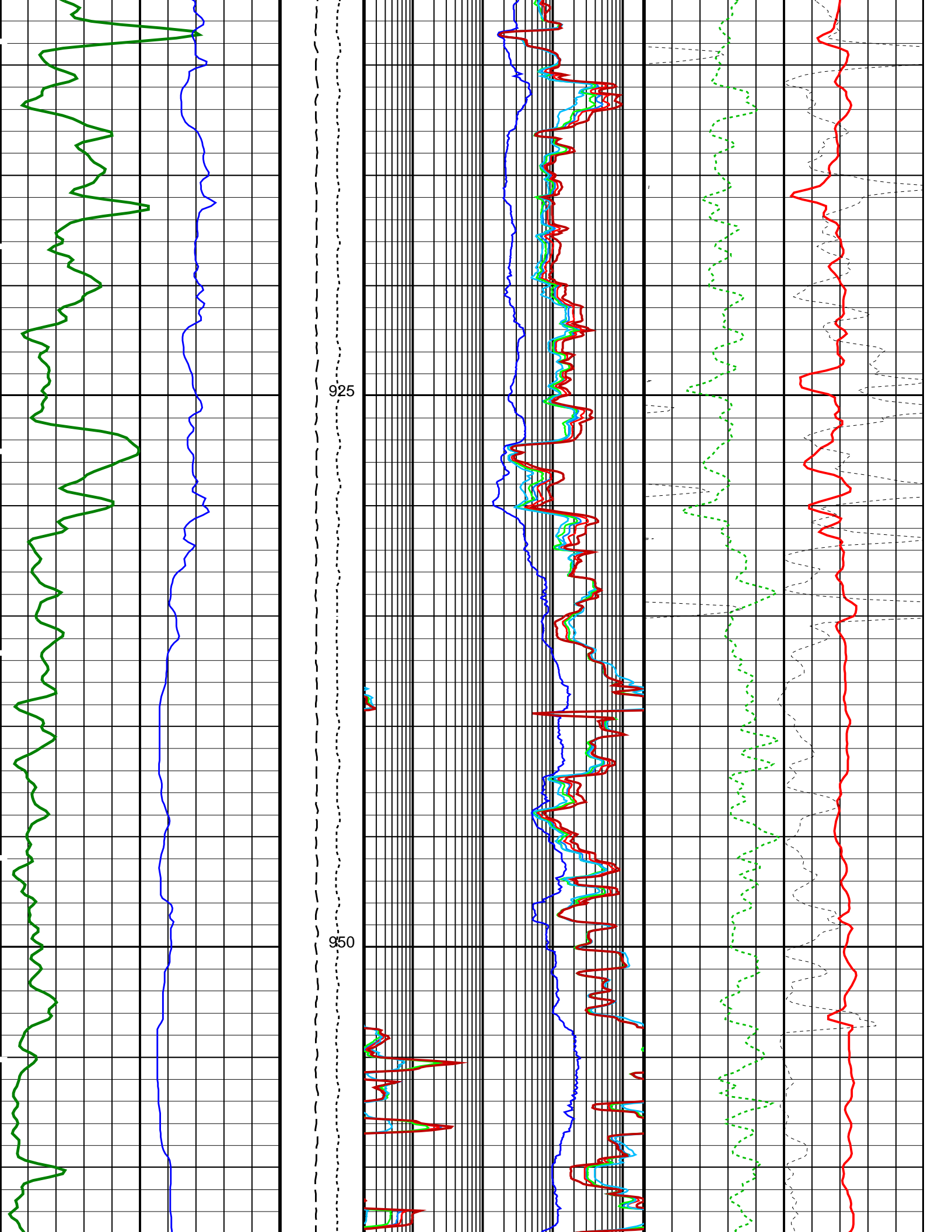
HLDS Caliper (LCAL) (IN)	0 20	Tension (TENS) (LBF) 10000 0	HRLT Resistivity 4 (RLA4)		HLDS Long Spaced Photoelectric Effect (PEFL) (-----)	
			0.2 (OHMM) 2000		0 (-----) 10	

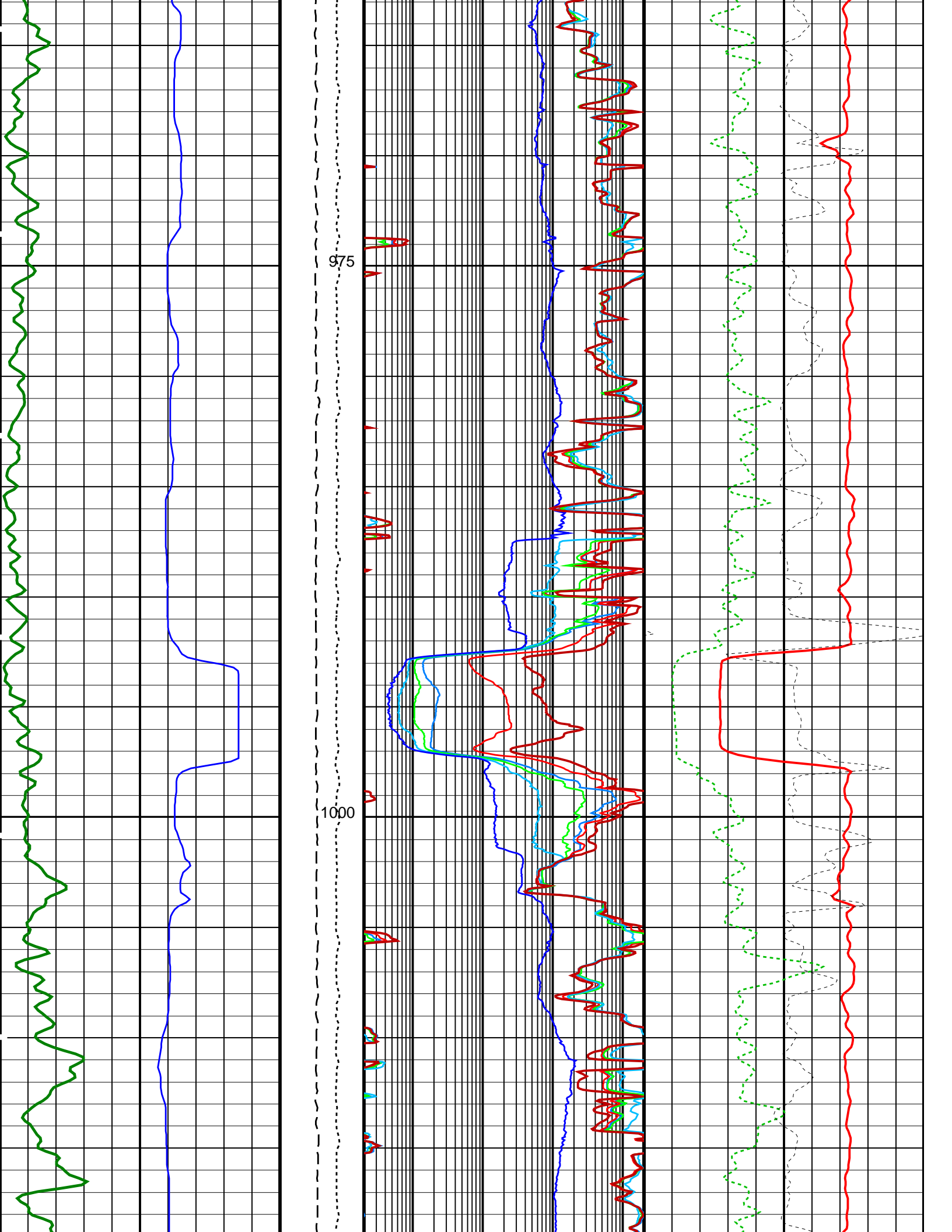


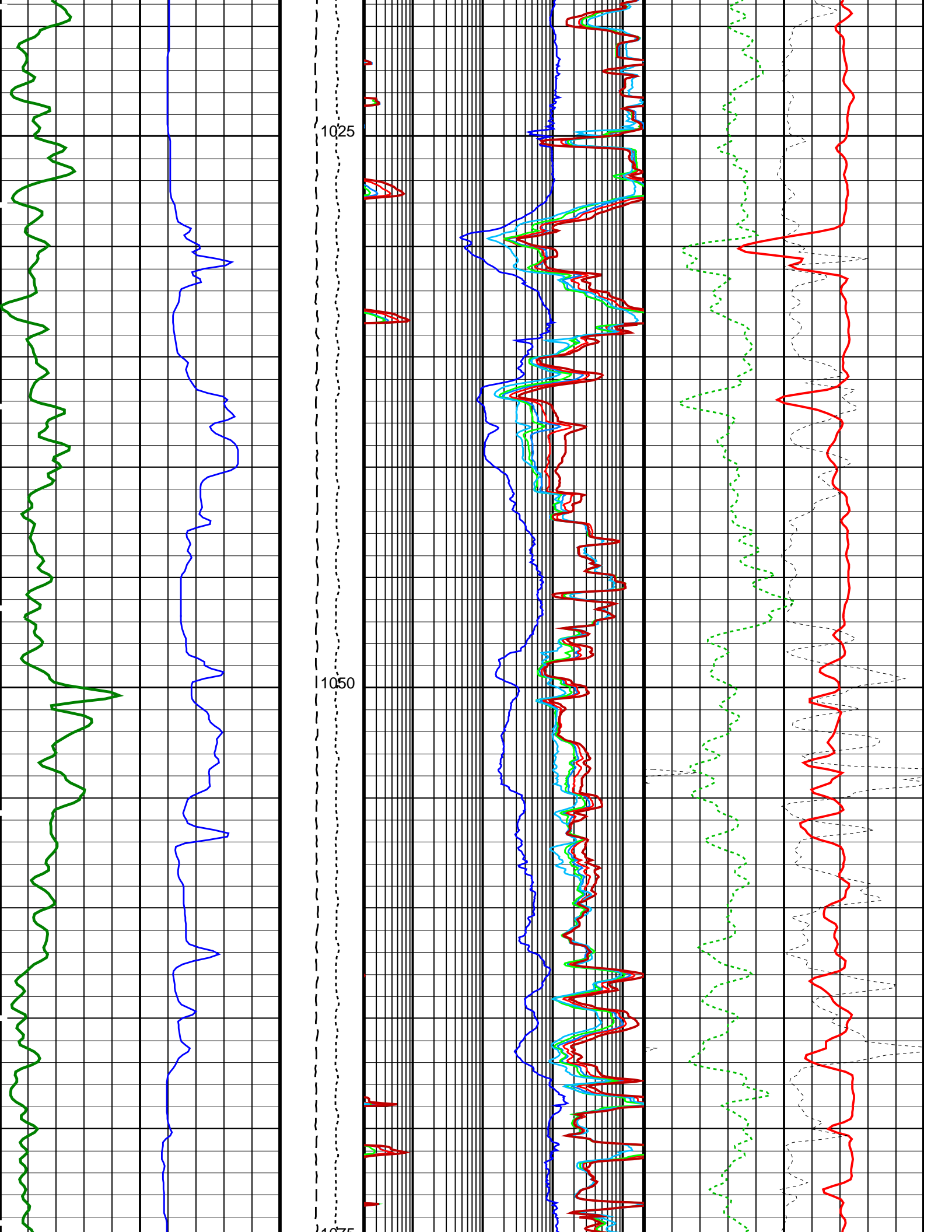


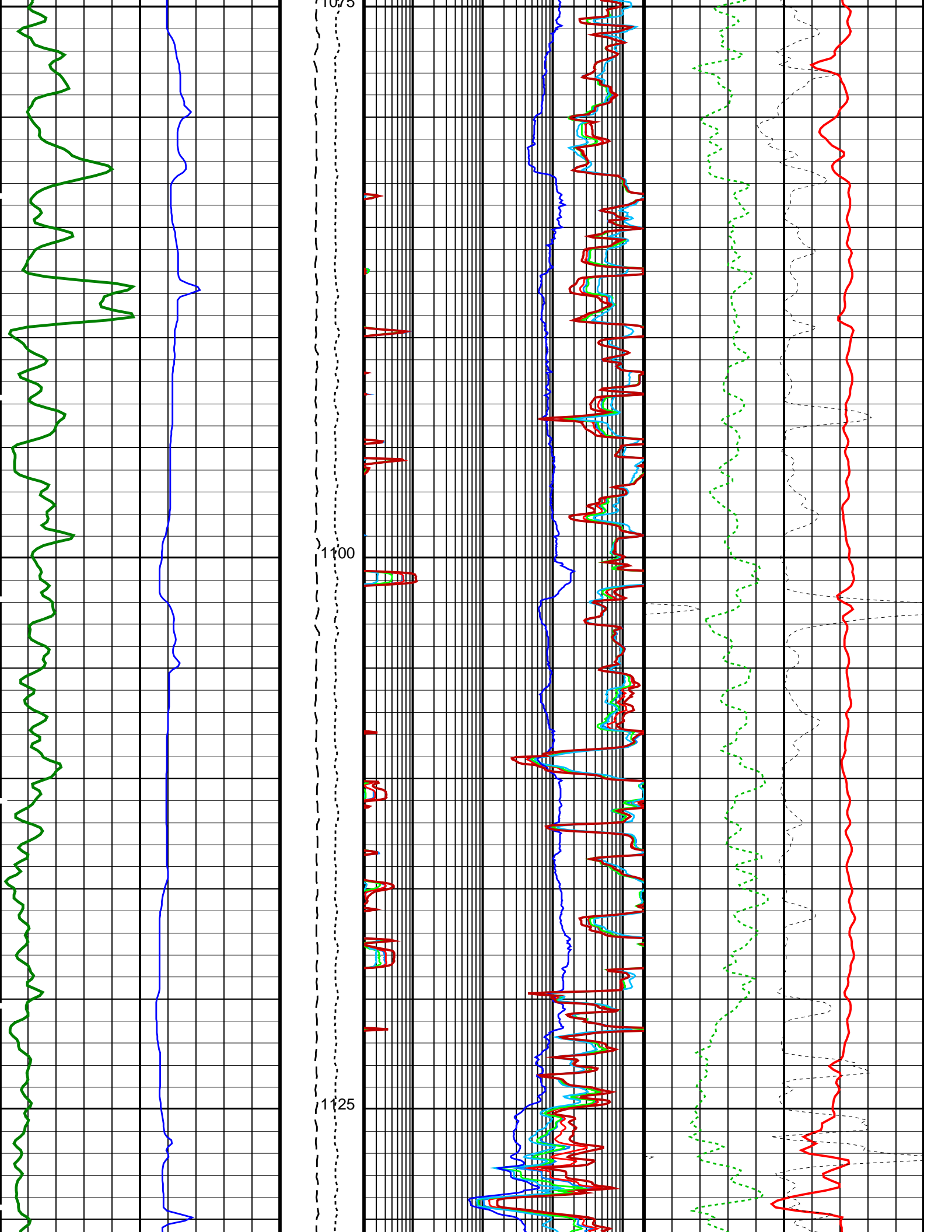


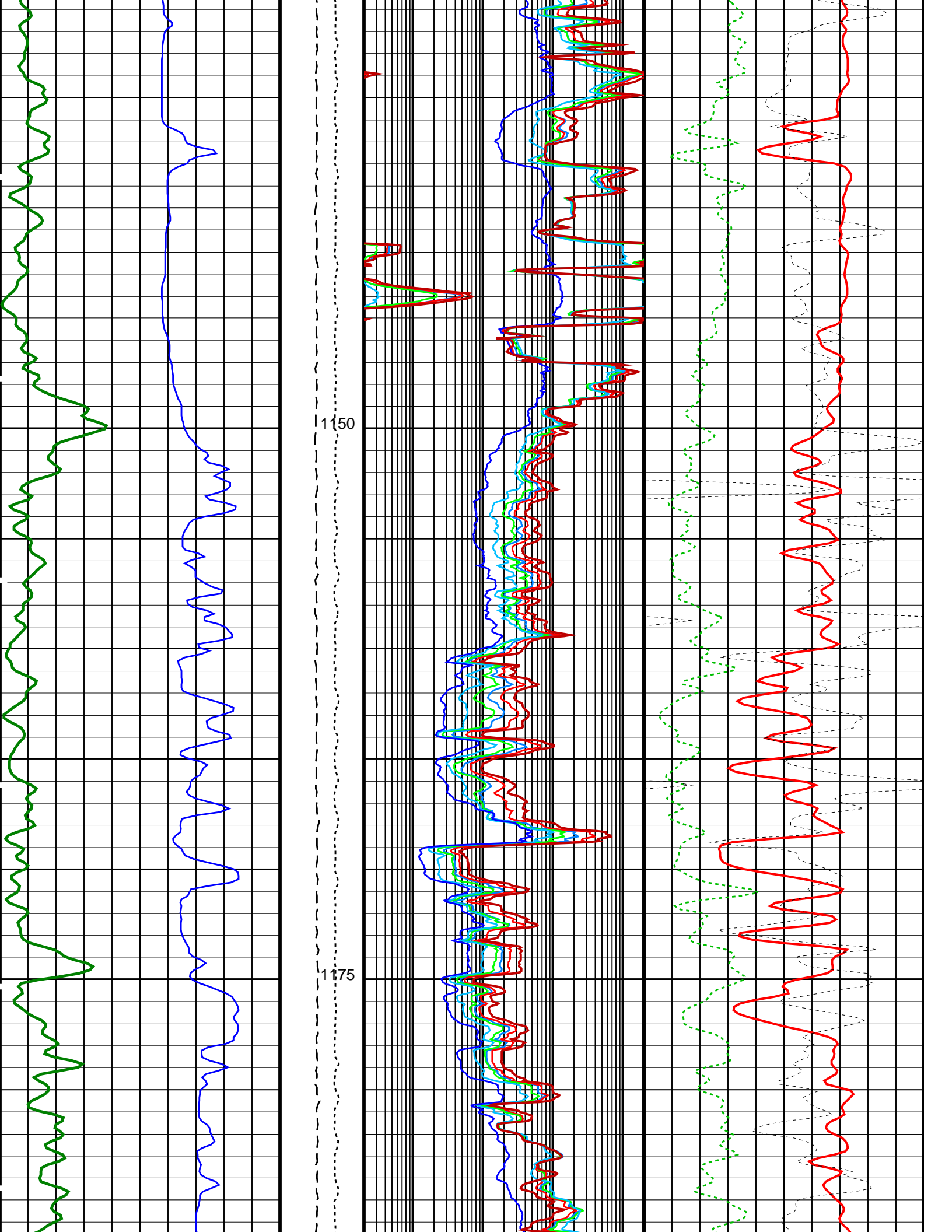


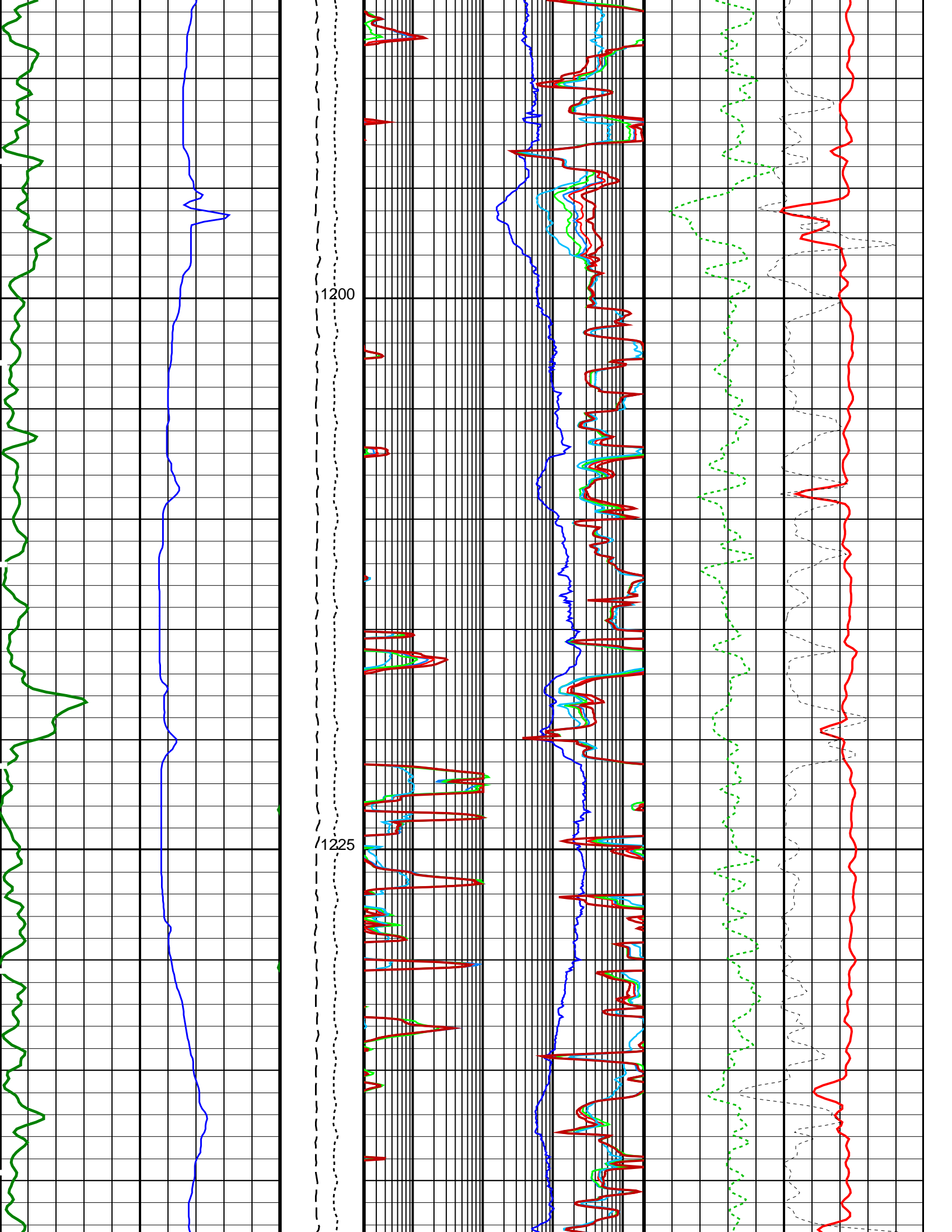


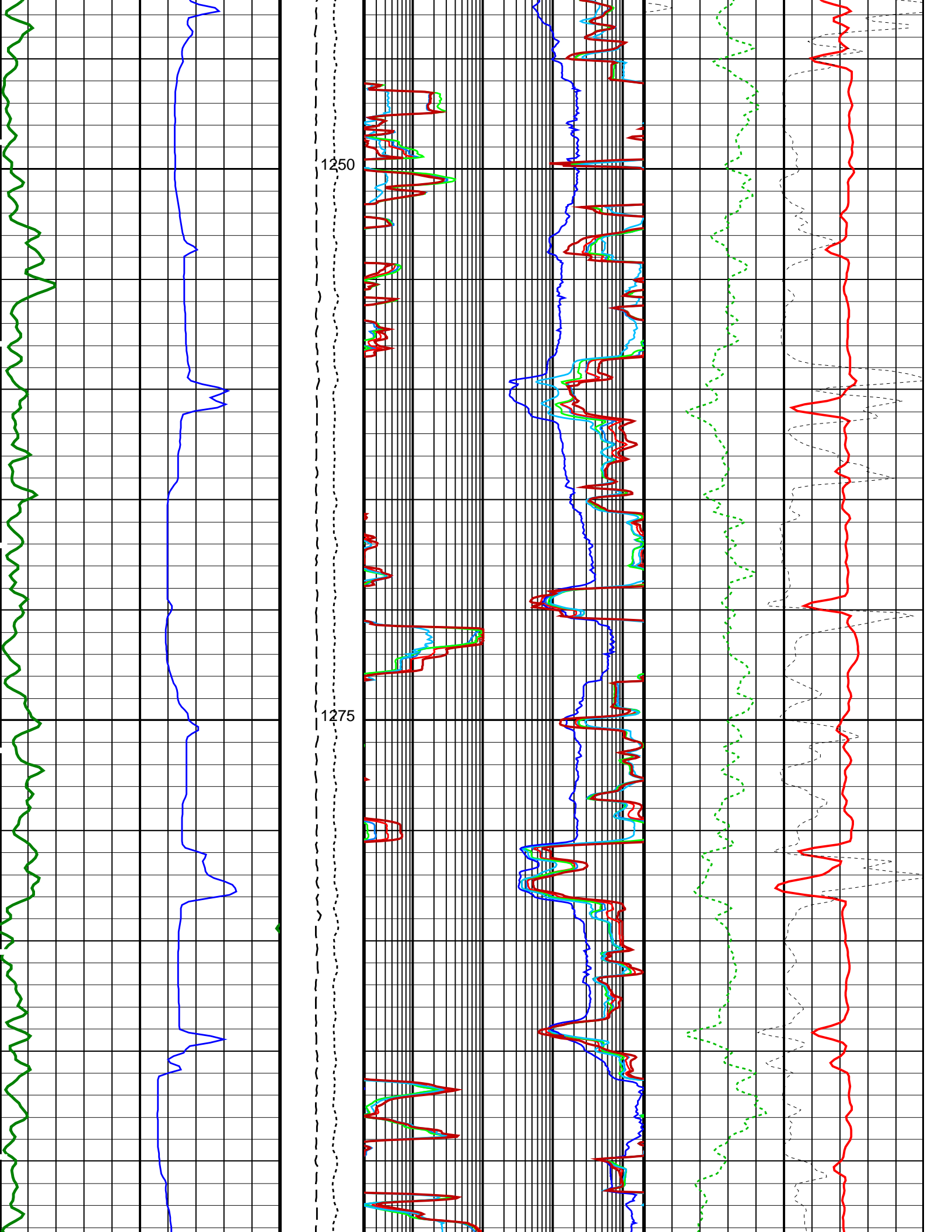


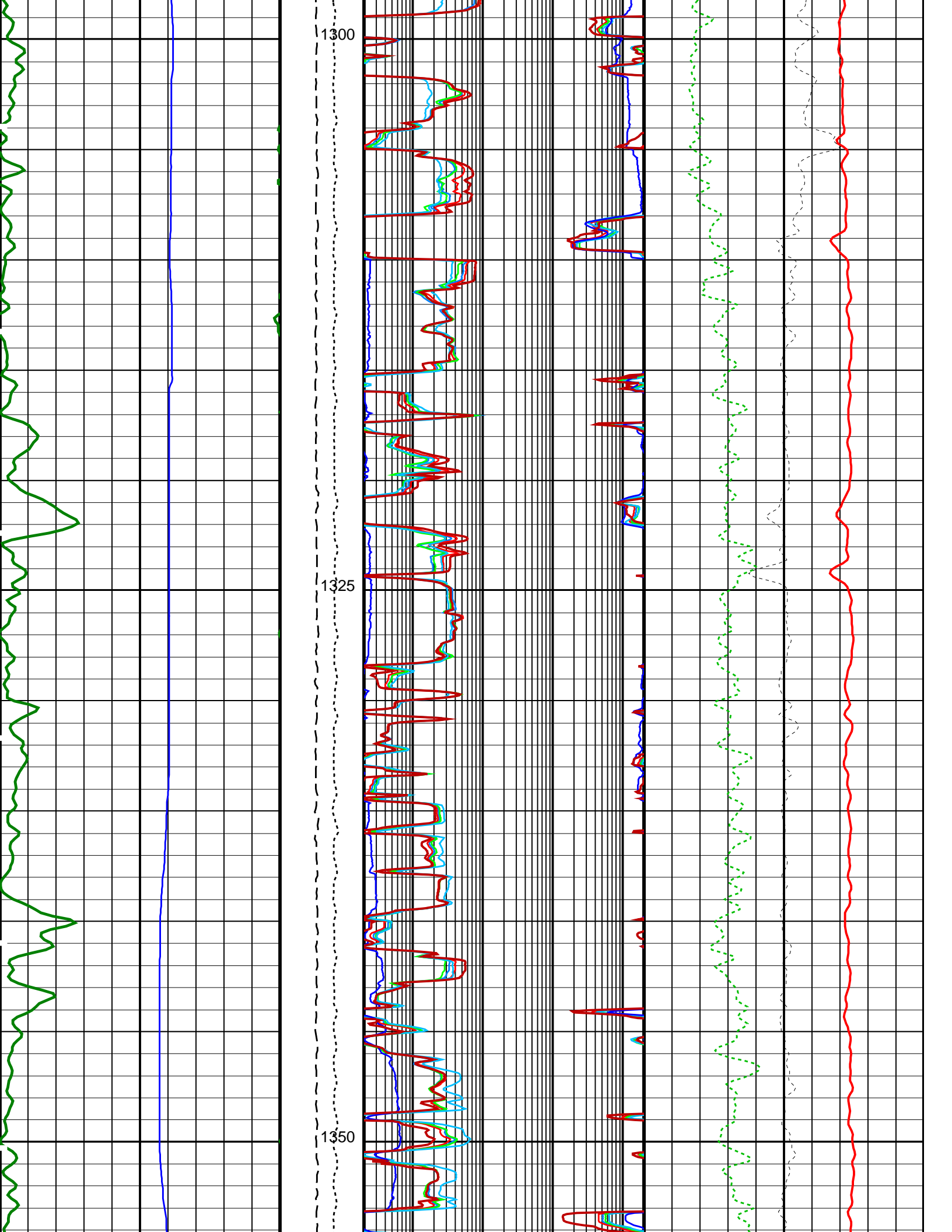


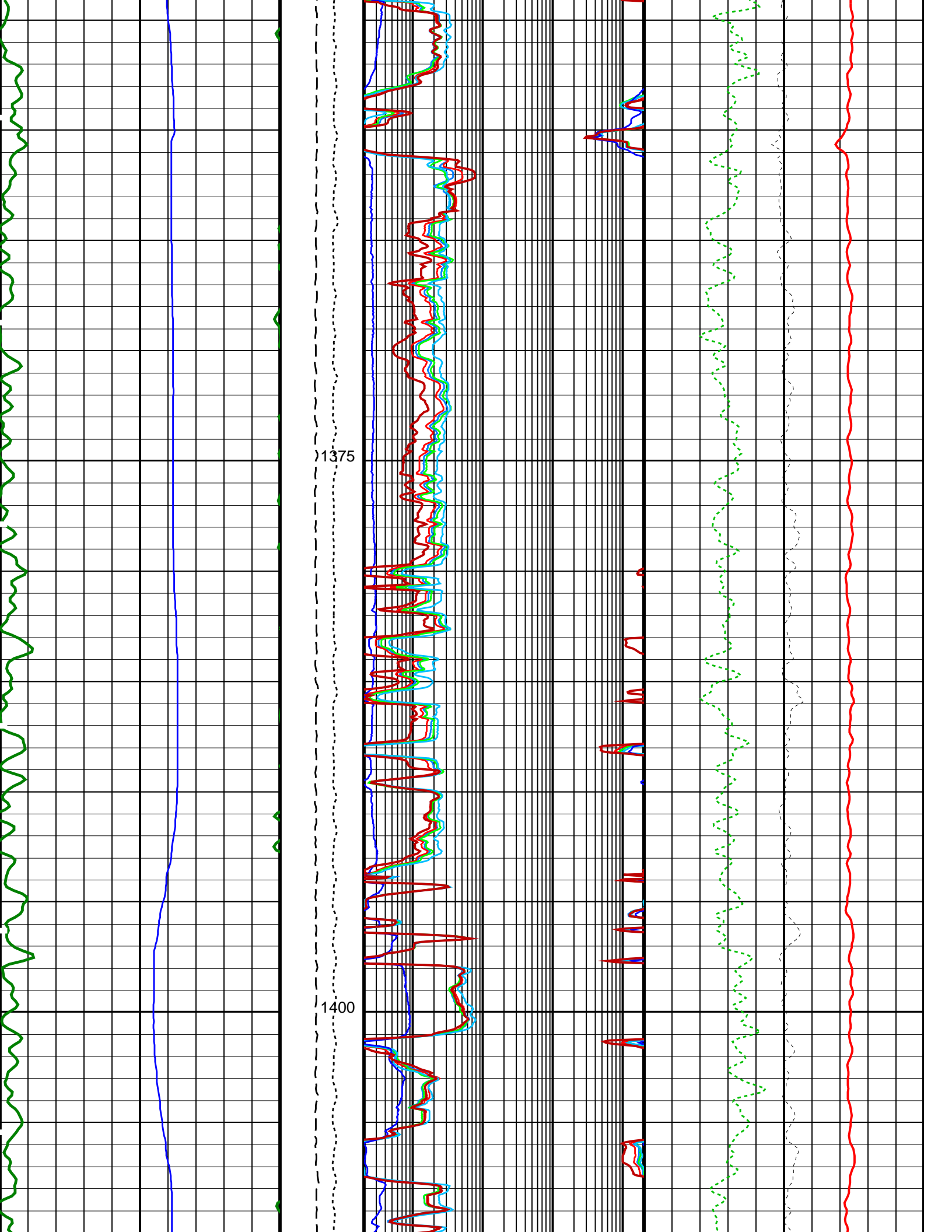


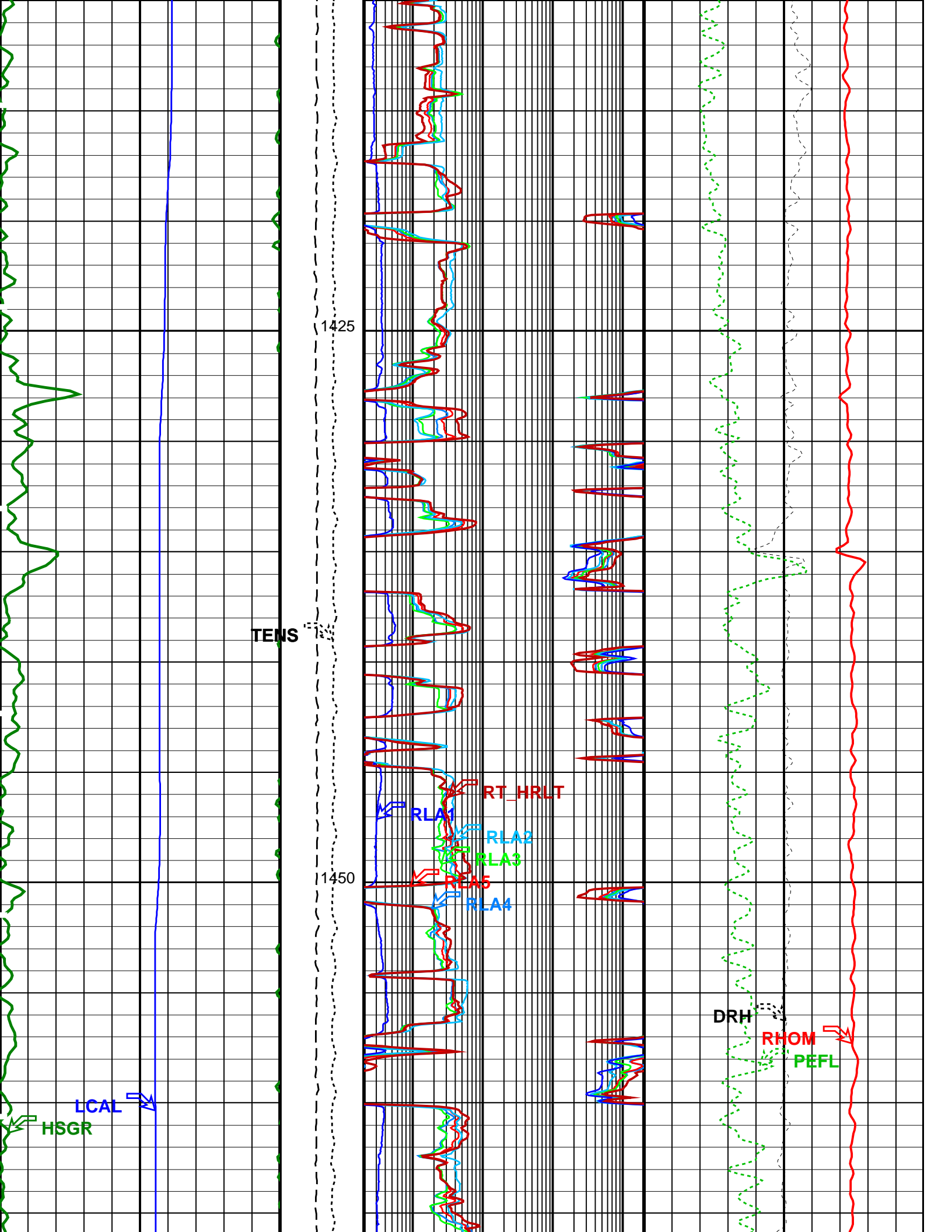


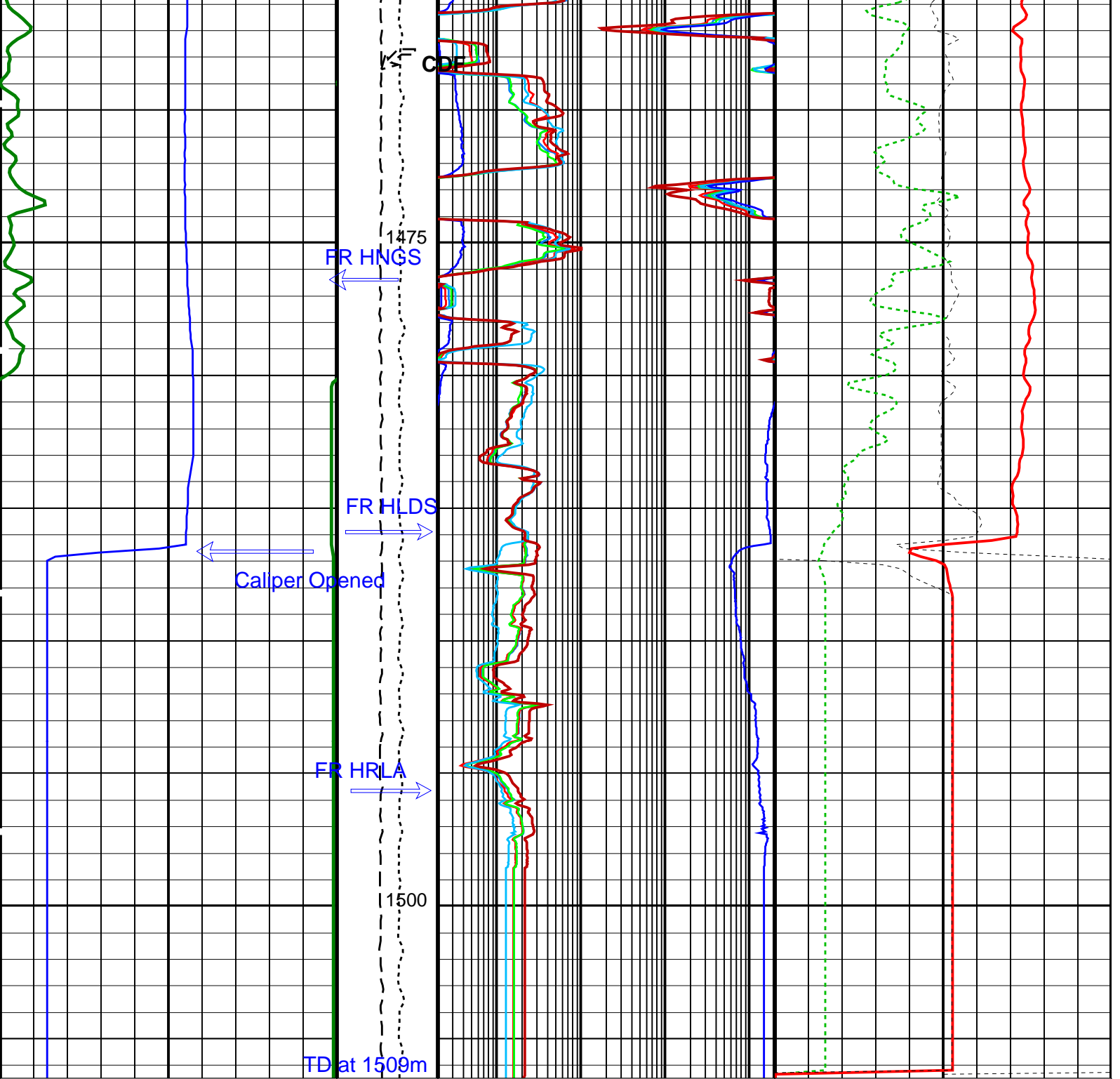












<p>HLDS Caliper (LCAL) (IN)</p> <p>0 20</p>	<p>Tension (TENS) (LBF)</p> <p>10000 0</p>	<p>HRLT Resistivity 4 (RLA4) (OHMM)</p> <p>0.2 2000</p>	<p>HLDS Long Spaced Photoelectric Effect (PEFL) (-----)</p> <p>0 10</p>
<p>HNGS Spectroscopy Gamma Ray (HSGR) (GAPI)</p> <p>0 25</p>	<p>Calibrated Downhole Force (CDF) (LBF)</p> <p>3000 0</p>	<p>HRLT Resistivity 5 (RLA5) (OHMM)</p> <p>0.2 2000</p>	<p>HLDS Bulk Density (RHOM) (G/C3)</p> <p>0 4</p>
<p>Main Log M below Drill Floor</p>		<p>HRLT Resistivity 3 (RLA3) (OHMM)</p> <p>0.2 2000</p>	<p>HLDS Bulk Density Correction (DRH) (G/C3)</p> <p>-0.25 0.25</p>
		<p>HRLT Resistivity 2 (RLA2) (OHMM)</p> <p>0.2 2000</p>	
		<p>HRLT Resistivity 1 (RLA1) (OHMM)</p> <p>0.2 2000</p>	

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)	30	DEGC
CALSTAT	HRLTB Calibration Status	SHALLOW_DONE	
CALTEMP	HRLTB Calibration Temperature	18.9924	DEGC
FREQ0	HRLT Frequency Index for Mode 0	32	
FREQ1	HRLT Frequency Index for Mode 1	128	
FREQ2	HRLT Frequency Index for Mode 2	104	
FREQ3	HRLT Frequency Index for Mode 3	86	
FREQ4	HRLT Frequency Index for Mode 4	56	
FREQ5	HRLT Frequency Index for Mode 5	44	
FREQ6	HRLT Frequency Index for Mode 6	116	
GCSE	Generalized Caliper Selection	LCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
ISSBAR	Barite Mud Switch	NOBARITE	
KFAC_HRLT	HRLT K Factor Option	SONDE	
LOOPCOEF_S	HRLT Loop Coefficient for Shallow Modes	LOW	
LOOPMOD0	HRLT Mode 0 Loop Mode	OFF	
LOOPMOD1	HRLT Mode 1 Loop Mode	OFF	
LOOPMOD2	HRLT Mode 2 Loop Mode	OFF	
LOOPMOD3	HRLT Mode 3 Loop Mode	OFF	
LOOPMOD4	HRLT Mode 4 Loop Mode	OFF	
LOOPMOD5	HRLT Mode 5 Loop Mode	OFF	
LOOPMOD6	HRLT Mode 6 Loop Mode	OFF	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
PROCINV	Inversion Selection	ON	
PROCMFL	Inversion Micro-Resistivity Selection	NO_EXTERNAL_RXO	
PROCM50	Mechanical Standoff Fin Size	0	IN
PROCRM	Processing Mud Resistivity Select	HRLT_Compute	
PROCSO	Sonde Position	Centered	
SHT	Surface Hole Temperature	20	DEGC
HLDS: Hostile Litho-Density Sonde			
CLCL	HLDS LS Control Loop Controller Mode	AUTO_DEFAULT	
CLCS	HLDS SS Control Loop Controller Mode	AUTO_DEFAULT	
CLLS	HLDS Mode Loop Long Spacing	AUTO	
CLSS	HLDS Mode Loop Short Spacing	AUTO	
DHC	Density Hole Correction	BS	
DPPM	Density Porosity Processing Mode	HIRS	
FD	Fluid Density	1	G/C3
LATC	HLDS Activation Correction	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	
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)	30	DEGC
CSD1	Inner Casing Outer Diameter	0	IN
CSD2	Outer Casing Outer Diameter	0	IN
CSW1	Inner Casing Weight	0	LB/F
CSW2	Outer Casing Weight	0	LB/F
DBCC	HNGS Barite Constant Correction Flag	NONE	
GCSE	Generalized Caliper Selection	LCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
H1P	HNGS Detector 1 Allow/DDisallow In Processing	ALLOW	

H2P	HNGS Detector 2 Allow/Disallow in Processing	-0.00118174	
HABK	HNGS Borehole Potassium Running Average	60	IN
HALF	HNGS Alpha Filter Length	NONE	
HCRB	HNGS Apply Borehole Potassium Correction	NATU	
HMWM	Mud Weighting Material	YES	
HNPE	HNGS Processing Enable	NOBARITE	
ISSBAR	Barite Mud Switch	LIMESTONE	
MATR	Rock Matrix for Neutron Porosity Corrections	1.3	CPS
S1BI	HNGS Detector 1 Calibration Bismuth Count Rate	1.3	CPS
S2BI	HNGS Detector 2 Calibration Bismuth Count Rate	YES	
SGRC	HNGS Standard Gamma-Ray Correction Flag	20	DEGC
SHT	Surface Hole Temperature	CENT	
TPOS	Tool Position	1.32021	
VBA1	HNGS Detector 1 Variable Barite Factor Running Average	1.10767	
VBA2	HNGS Detector 2 Variable Barite Factor Running Average		
EDTC-B: Enhanced DTS Cartridge			
BHFL	Borehole Fluid Type	WATER	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	30	DEGC
BSCO	Borehole Salinity Correction Option	NO	
CCCO	Casing & Cement Thickness Correction Option	NO	
DPPM	Density Porosity Processing Mode	HIRS	
FSAL	Formation Salinity	-50000	PPM
FSCO	Formation Salinity Correction Option	NO	
GCSE	Generalized Caliper Selection	LCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GRSE	Generalized Mud Resistivity Selection	CHART_GEN 9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
HSCO	Hole Size Correction Option	YES	
ISSBAR	Barite Mud Switch	NOBARITE	
ISSBAR_EDTC	Nuclear Mud Type	NOBARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
MCCO	Mud Cake Correction Option	NO	
MCOR	Mud Correction	NATU	
MWCO	Mud Weight Correction Option	NO	
PTCO	Pressure/Temperature Correction Option	NO	
SDAT	Standoff Data Source	SOCN	
SHT	Surface Hole Temperature	20	DEGC
SOCN	Standoff Distance	0.5	IN
SOCO	Standoff Correction Option	NO	
TPOS_EDTC	EDTC Tool Centered/Eccentered	Centered	
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	1.00	G/C3
DO	Depth Offset for Playback	0.0	M
FLEV	Fluid Level	-50000.00	M
MST	Mud Sample Temperature	73.40	DEGC
PBVSADP	Use alternate depth channel for playback	NO	
PP	Playback Processing	NORMAL	
RMFS	Resistivity of Mud Filtrate Sample	-50000.0000	OHMM
RW	Resistivity of Connate Water	1.0000	OHMM
TD	Total Depth	1515	M
TDD	Total Depth - Driller	1510.20	M
TDL	Total Depth - Logger	1515.00	M
TWS	Temperature of Connate Water Sample	37.78	DEGC

Format: TripleCombo Vertical Scale: 1:200 Graphics File Created: 24-Jan-2016 05:19

OP System Version: 19C0-187

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

Input DLIS Files

DEFAULT	Splice_MSS_LDEO_043CUP	FN:1	PRODUCER	24-Jan-2016 05:18	1506.5 M	705.7 M
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Output DLIS Files

DEFAULT	MSS_LDEO_HRLA_LDL_044PUP	FN:54	PRODUCER	24-Jan-2016 05:19		
BACKUP	MSS_LDEO_HRLA_LDL_044PUP	FN:55	PRODUCER	24-Jan-2016 05:19		

Output DLIS Files

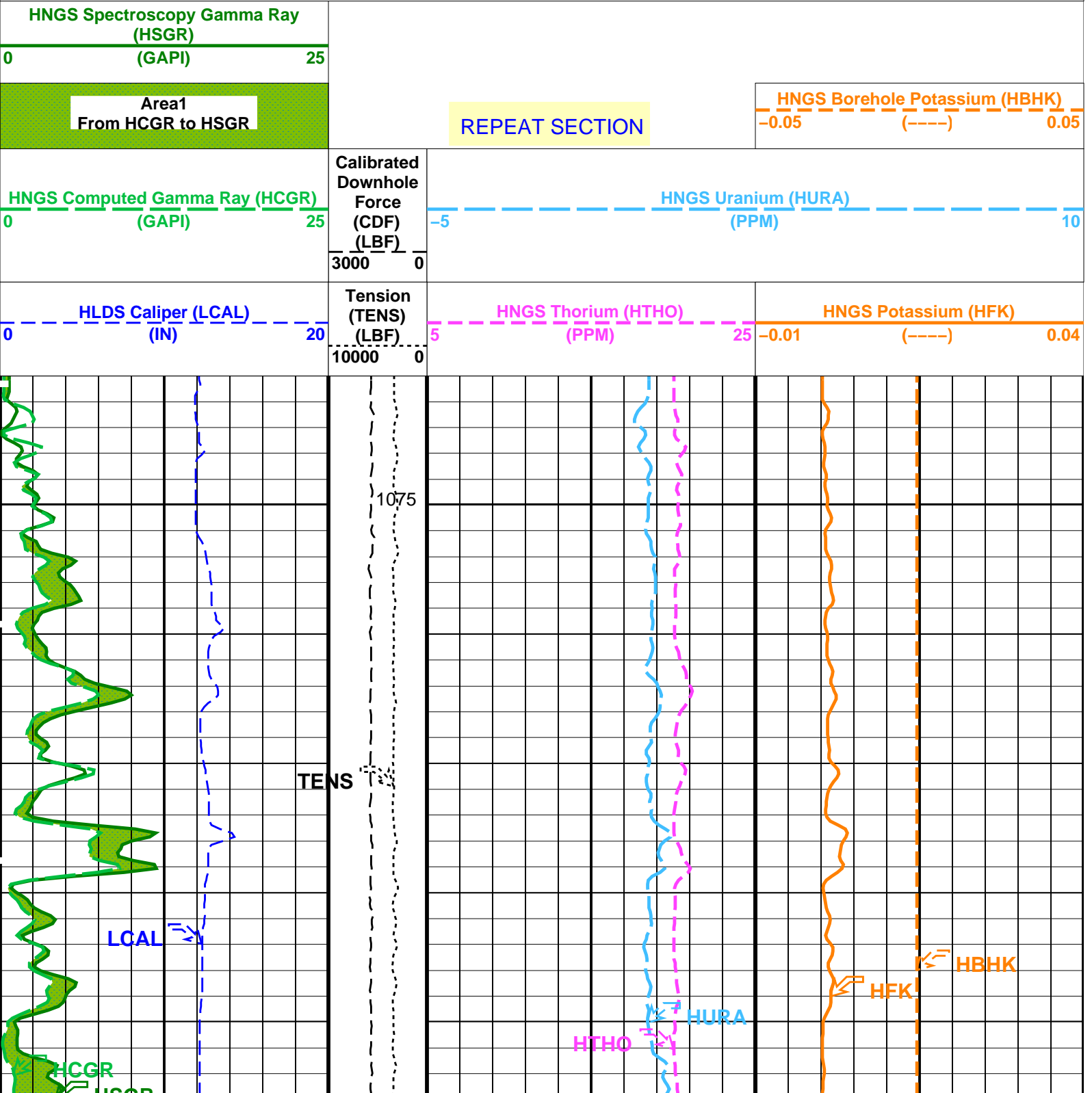
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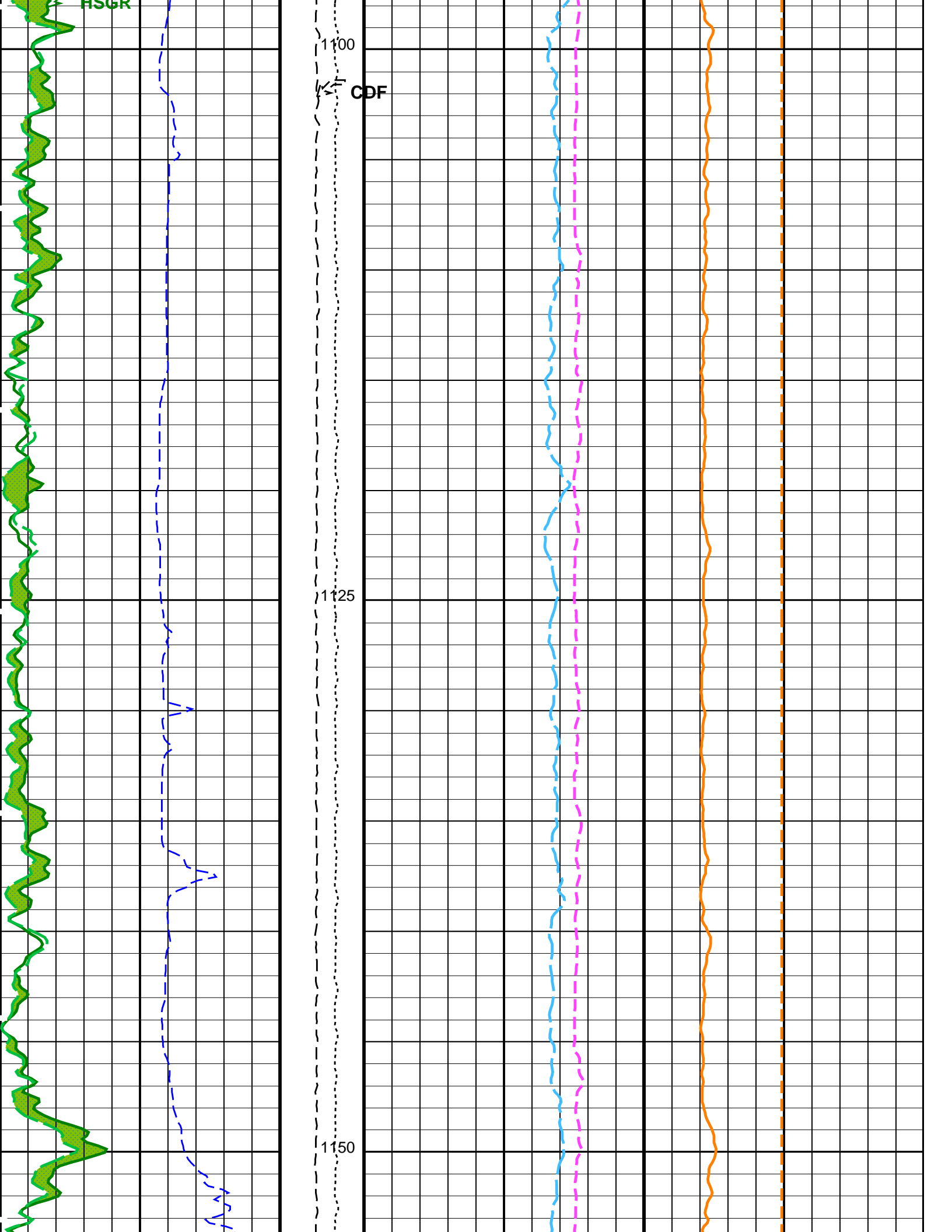
OP System Version: 19C0-187

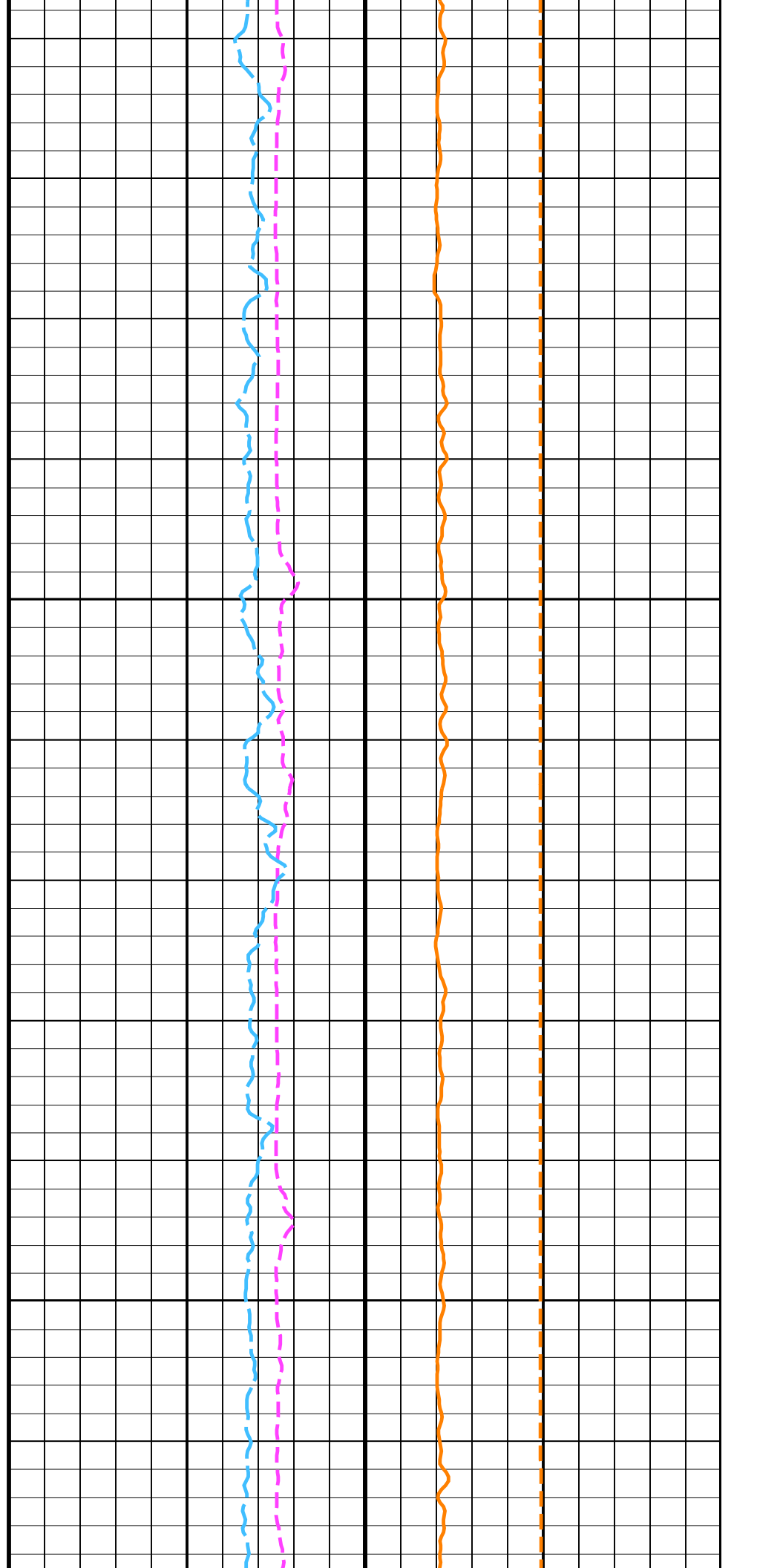
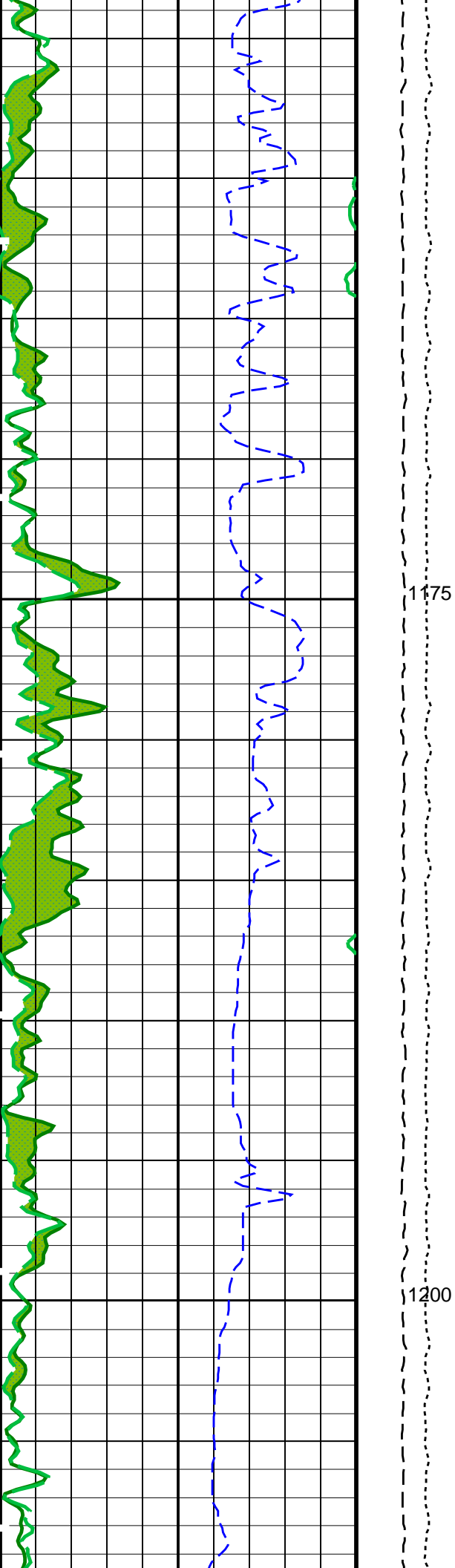
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HLDS	19C0-187	LDSC-B	19C0-187
HNGC-B	19C0-187	HNGS-BA	19C0-187
EDTC-B	SKK-5169-EDTCB		

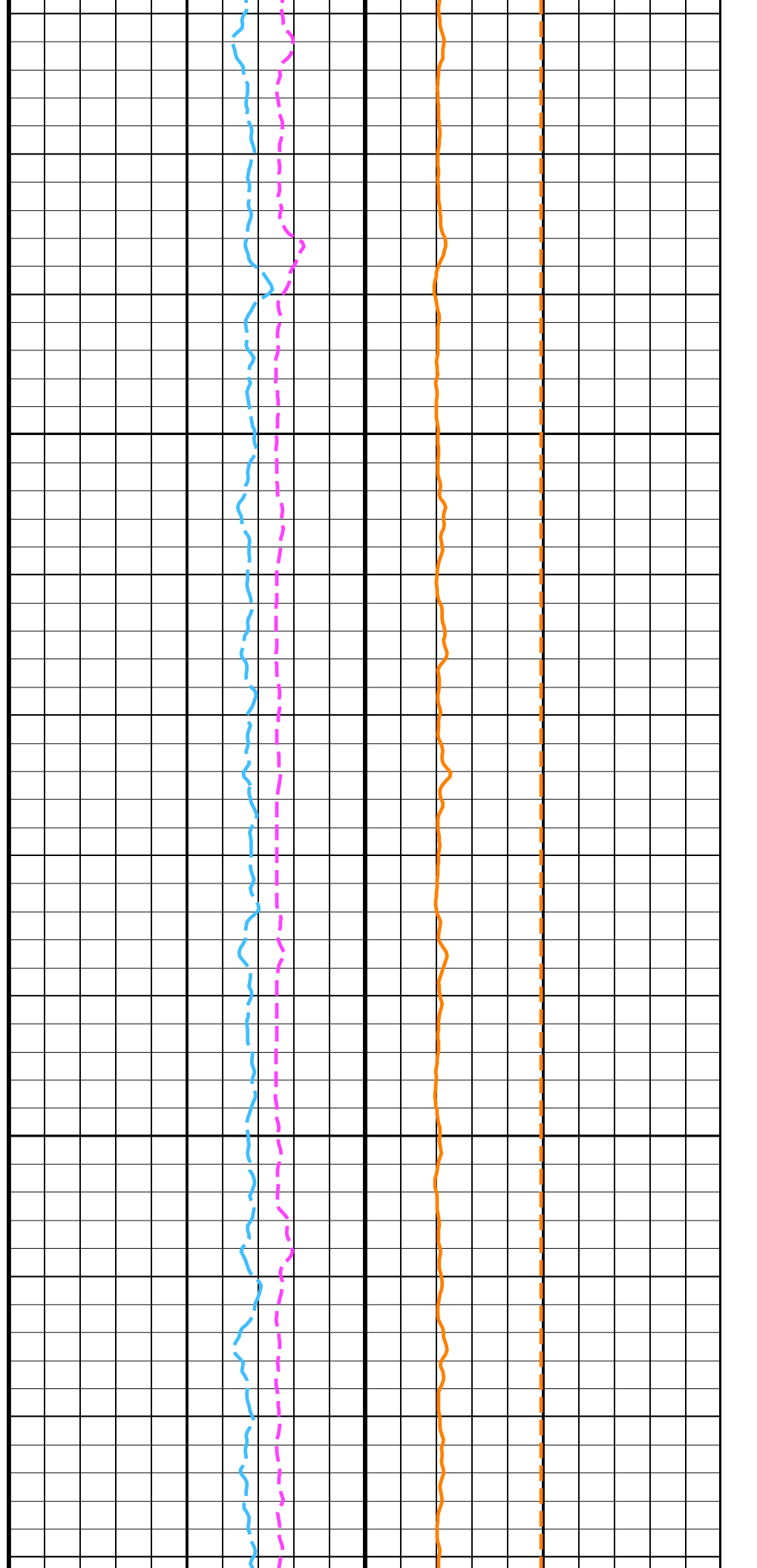
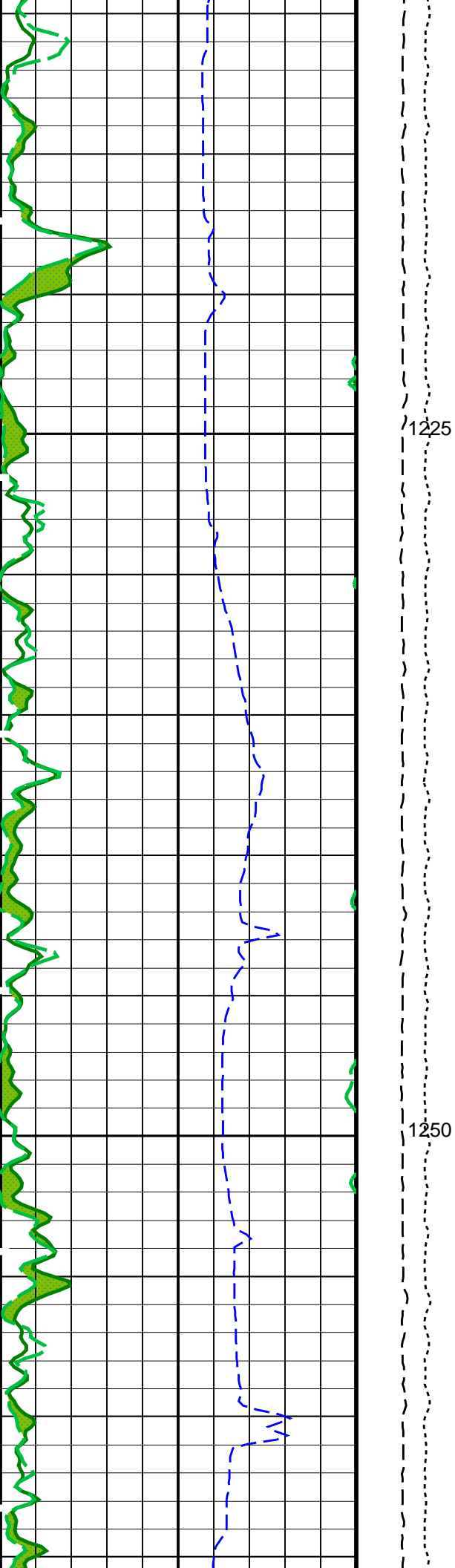
PIP SUMMARY

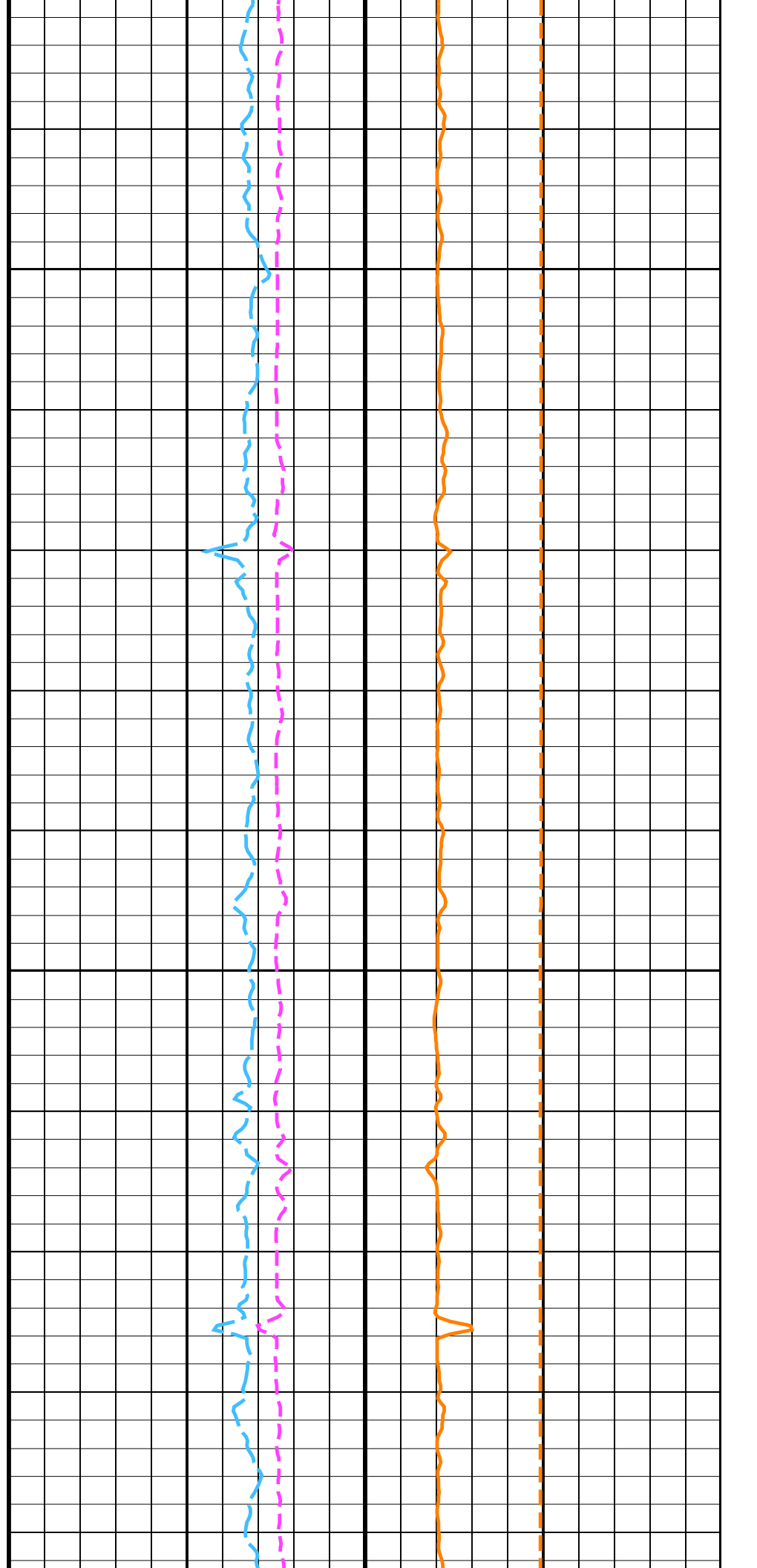
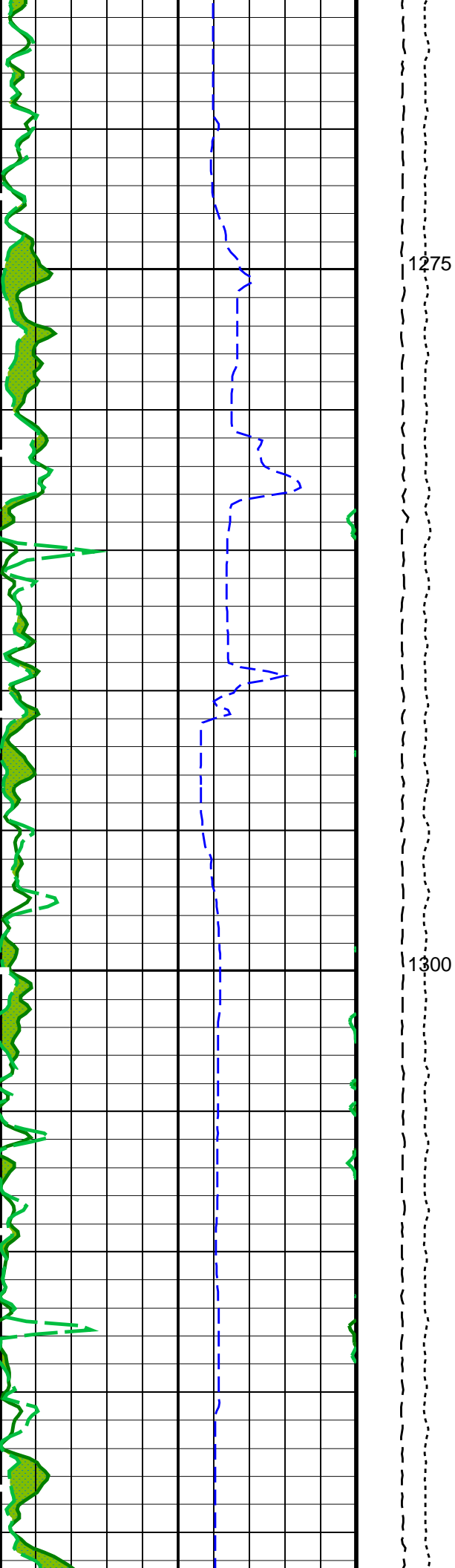
Time Mark Every 60 S

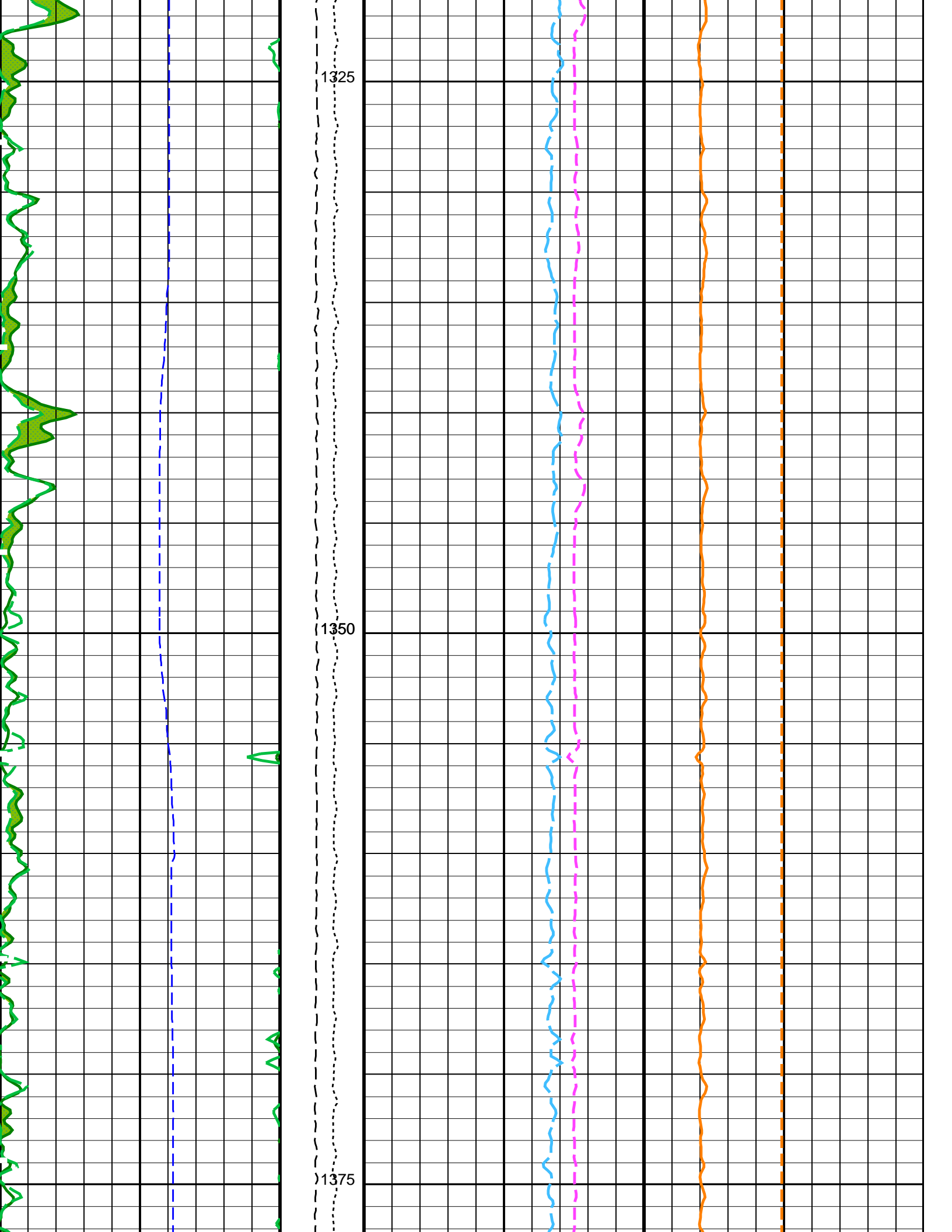


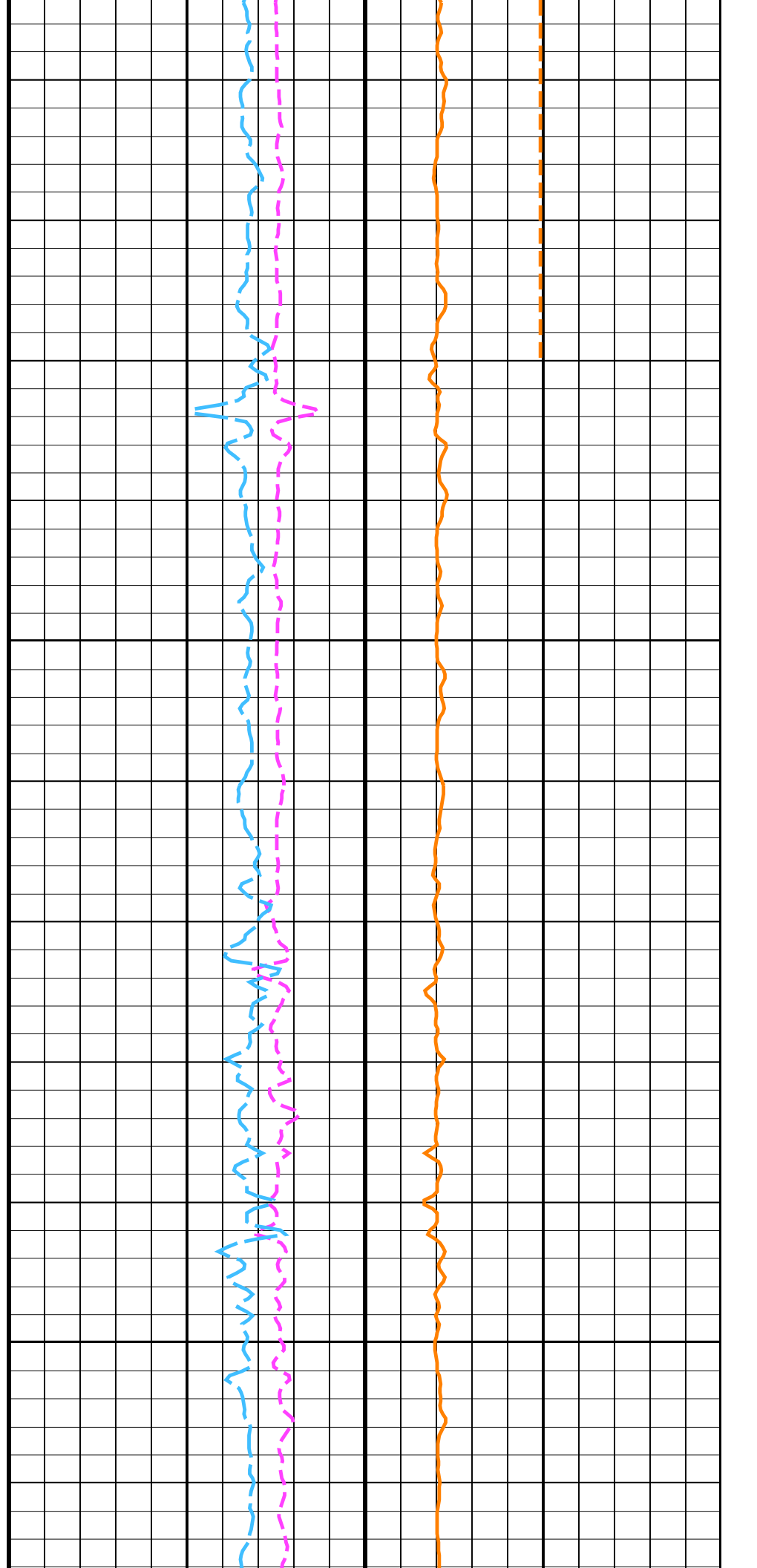
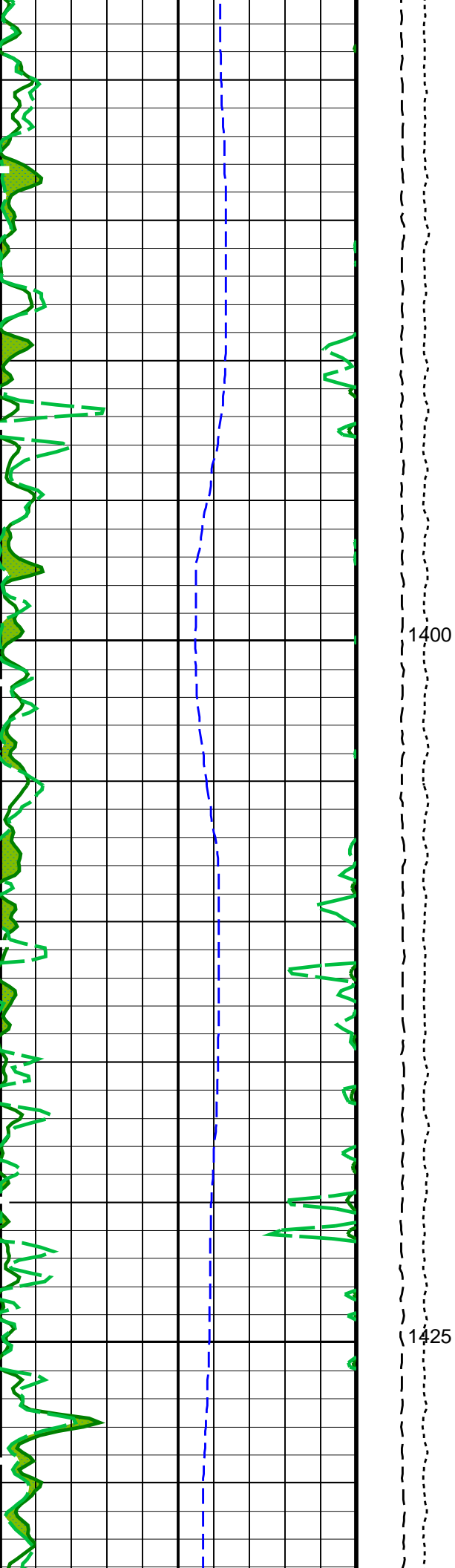


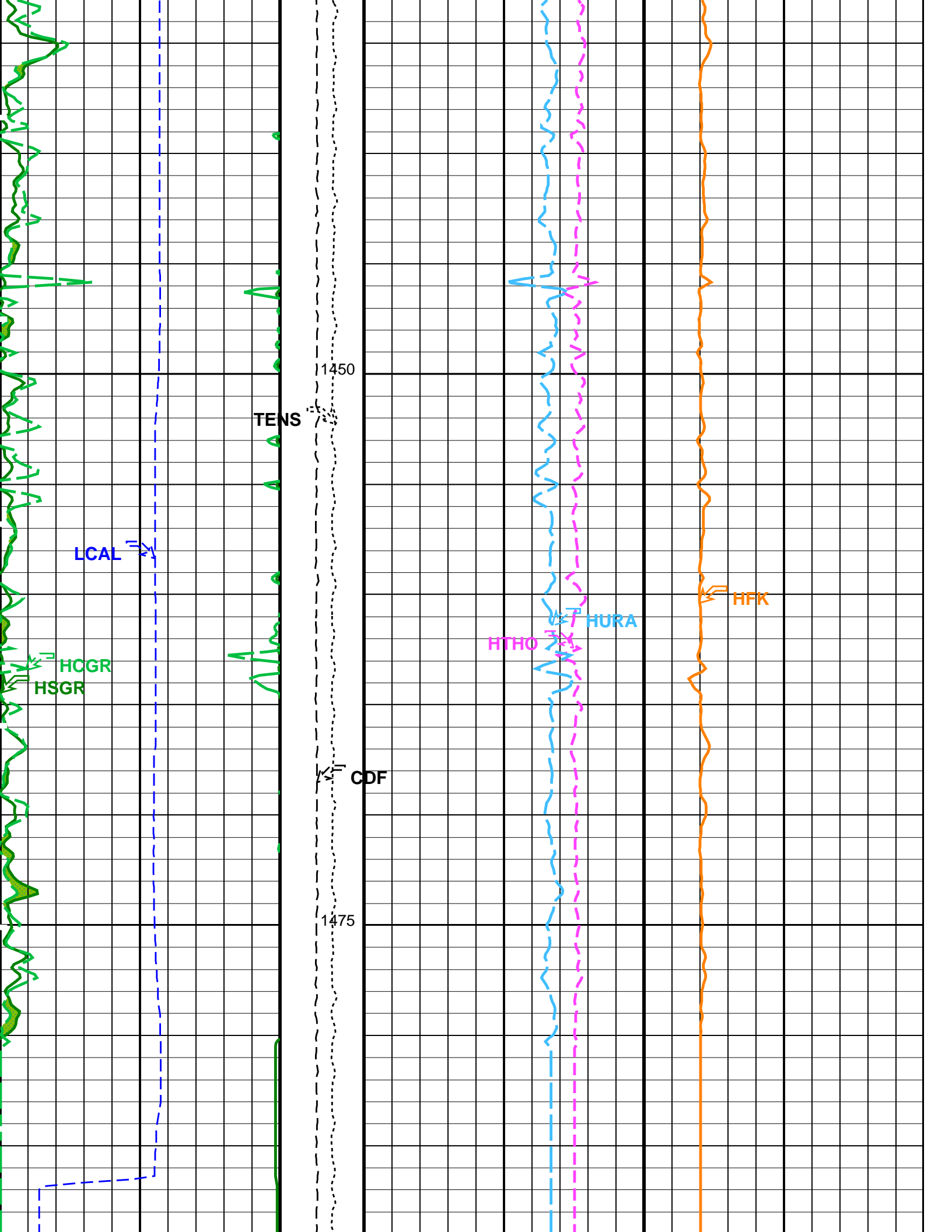


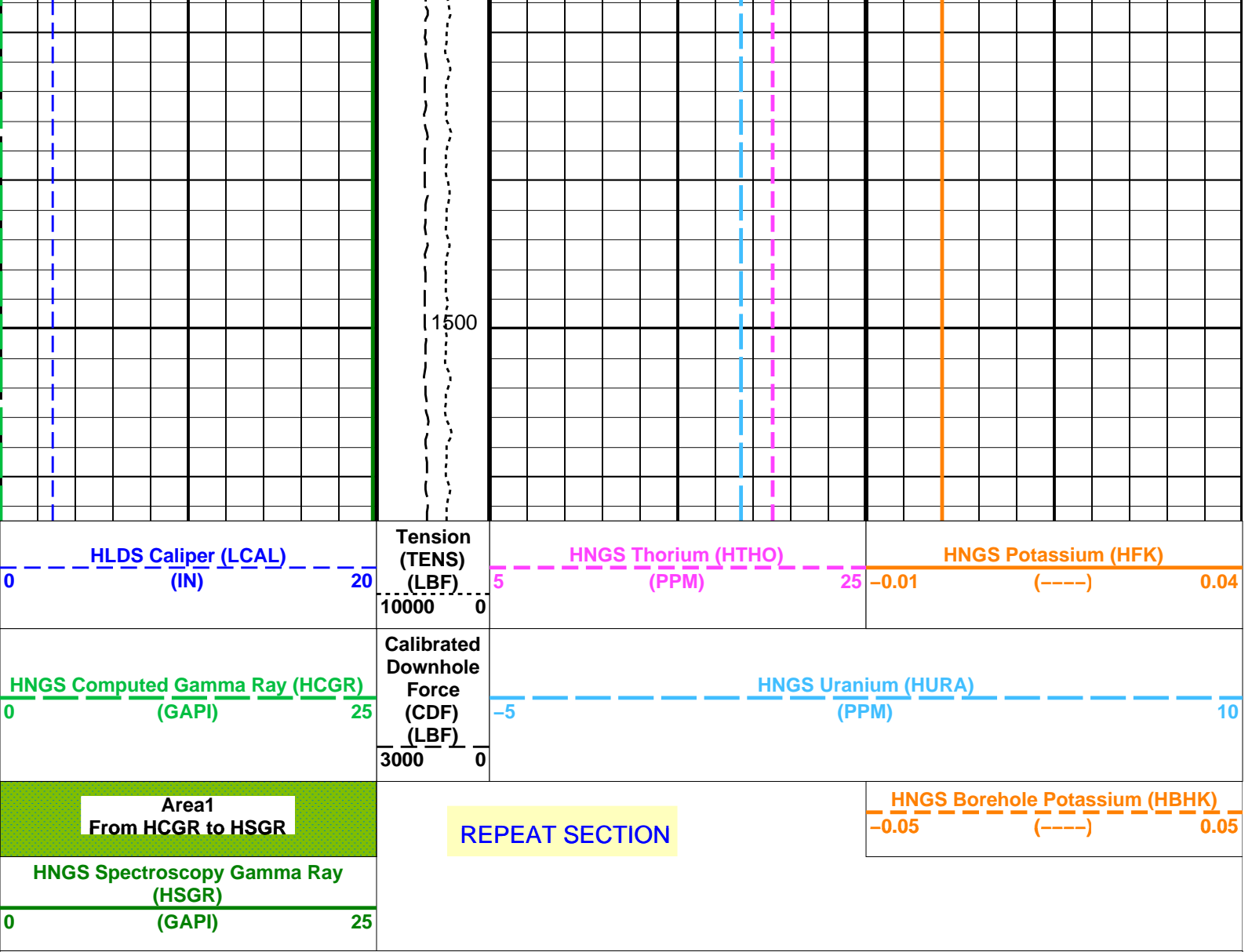












PIP SUMMARY

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	
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	-0.000937969	
HALF	HNGS Alpha Filter Length	60	IN
HCRB	HNGS Apply Borehole Potassium Correction	NONE	
HMWM	Mud Weighting Material	NATU	
HNPE	HNGS Processing Enable	YES	
S1BI	HNGS Detector 1 Calibration Bismuth Count Rate	1.3	CPS
S2BI	HNGS Detector 2 Calibration Bismuth Count Rate	1.3	CPS
SGRC	HNGS Standard Gamma-Ray Correction Flag	YES	
TPOS	Tool Position	CENT	
VBA1	HNGS Detector 1 Variable Barite Factor Running Average	1.65796	
VBA2	HNGS Detector 2 Variable Barite Factor Running Average	1.67819	

BHS	EDTC-B: Enhanced DLS Cartridge	Borehole Status	OPEN
GCSE	System and Miscellaneous	Generalized Caliper Selection	LCAL
BS	Bit Size	9.875	IN
DFD	Drilling Fluid Density	1.00	G/C3

Format: HNGSYields Vertical Scale: 1:200 Graphics File Created: 24-Jan-2016 03:13

OP System Version: 19C0-187

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

Output DLIS Files

DEFAULT	MSS_LDEO_HRLA_LDL_033LUP	FN:44	PRODUCER	24-Jan-2016 03:13
BACKUP	MSS_LDEO_HRLA_LDL_033LUP	FN:45	PRODUCER	24-Jan-2016 03:13

Output DLIS Files

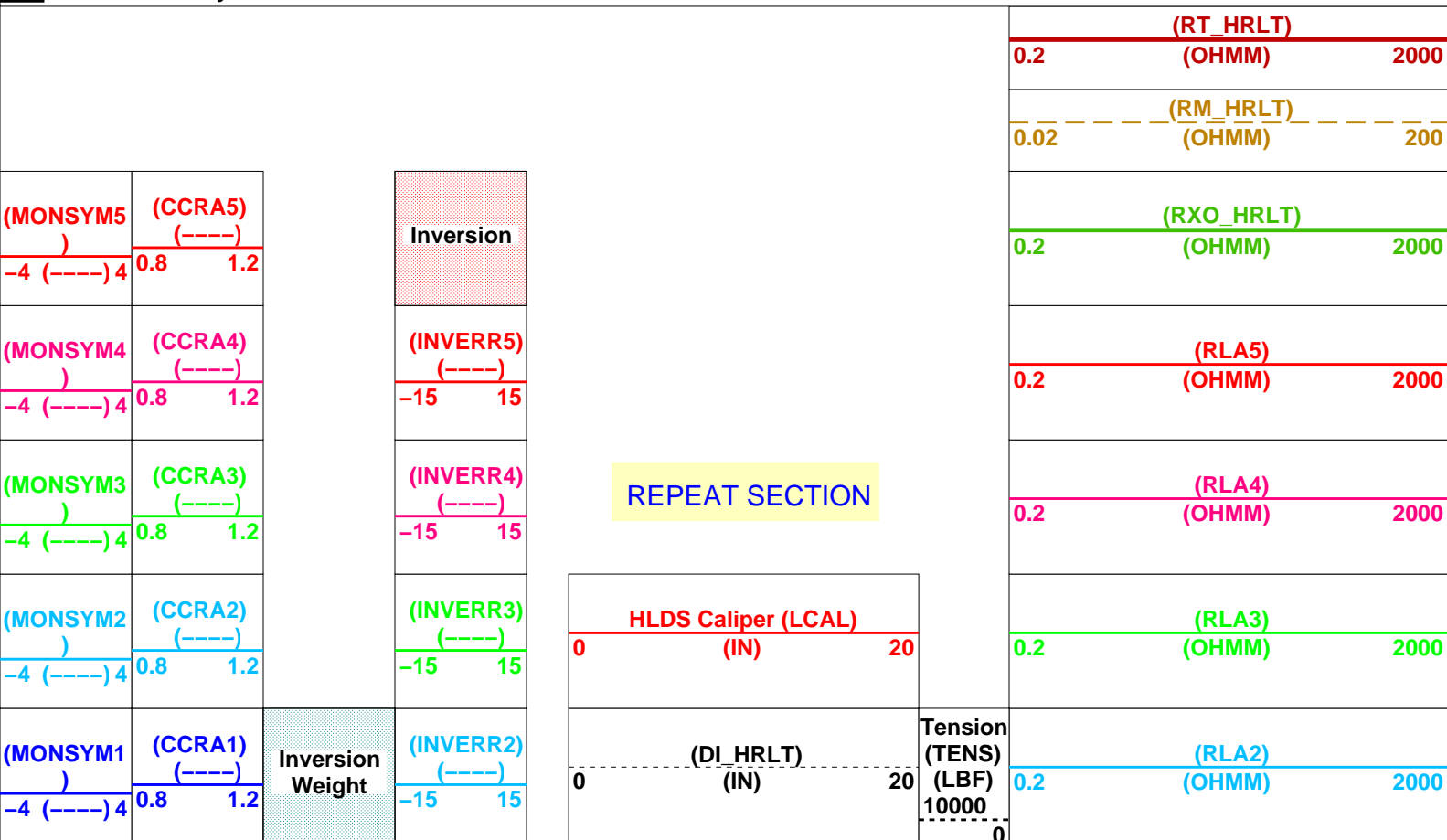
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BACKUP	MSS_LDEO_HRLA_LDL_033LUP	FN:45	PRODUCER	24-Jan-2016 03:13	1506.5 M	1072.1 M

OP System Version: 19C0-187

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

PIP SUMMARY

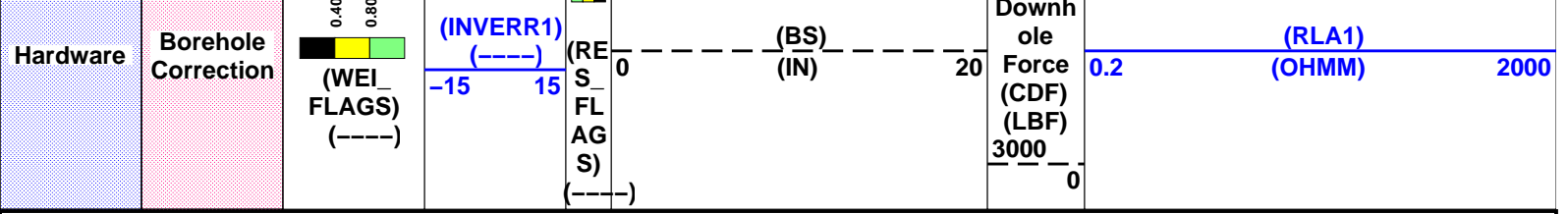
Time Mark Every 60 S



0-8000

100 100

Calibrat ed



*** HRLT FLAG TRACKS ***

BLACK areas show that the corresponding error flag is set.

TRACK R3_LQC

INVERSION WEIGHT

Contribution from each hrlt channel in Inversion algorithm, and from left to right :

| Wei1 | Wei2 | Wei3 | Wei4 | Wei5 |

GREEN = OK

YELLOW = Contribution QUESTIONABLE

BLACK = Contribution UNRELIABLE

TRACK R5_LQC

RESISTIVITY QUALITY INDICATOR

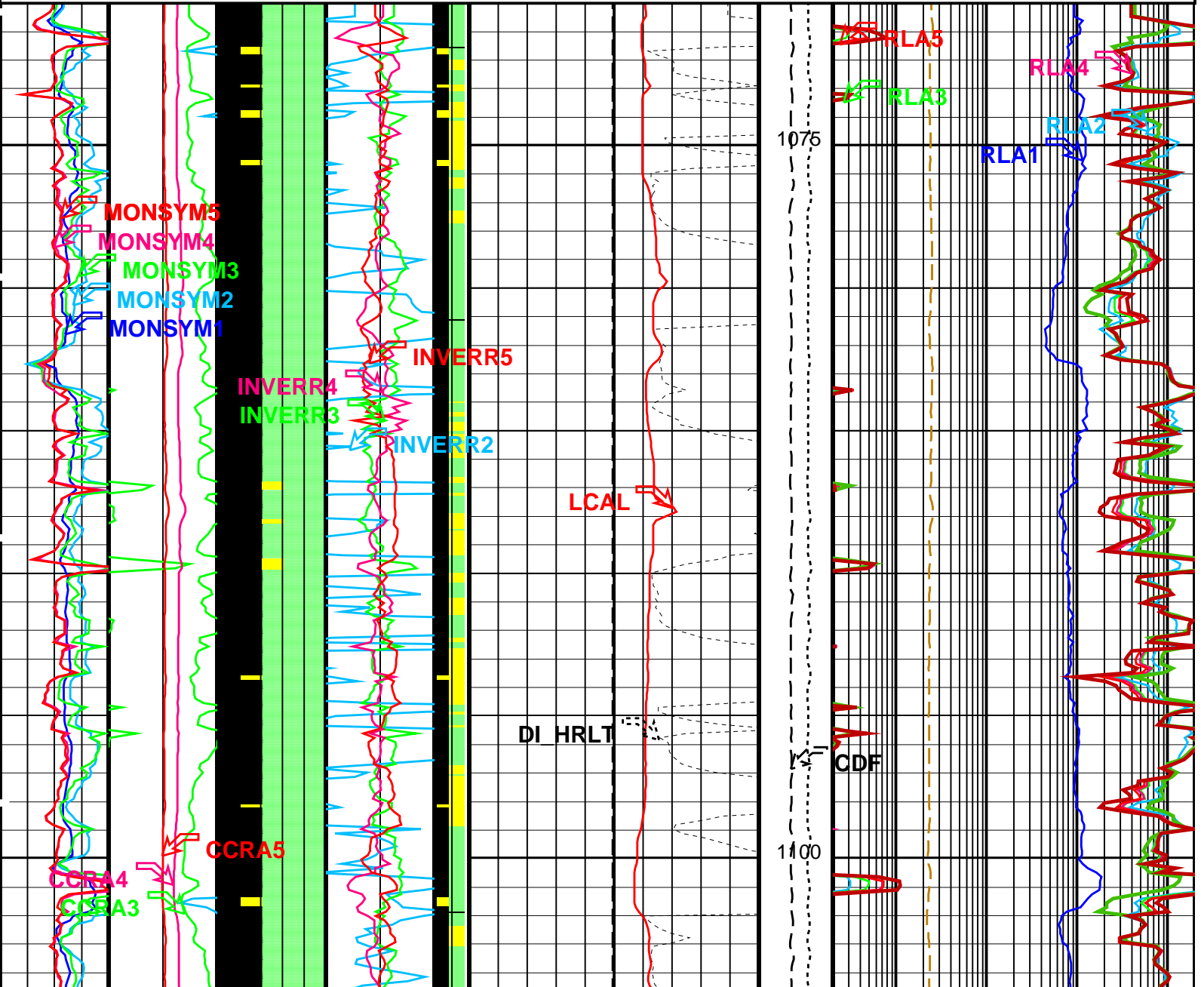
LQC flags on RXO_HRLT & RT_HRLT, and from left to right :

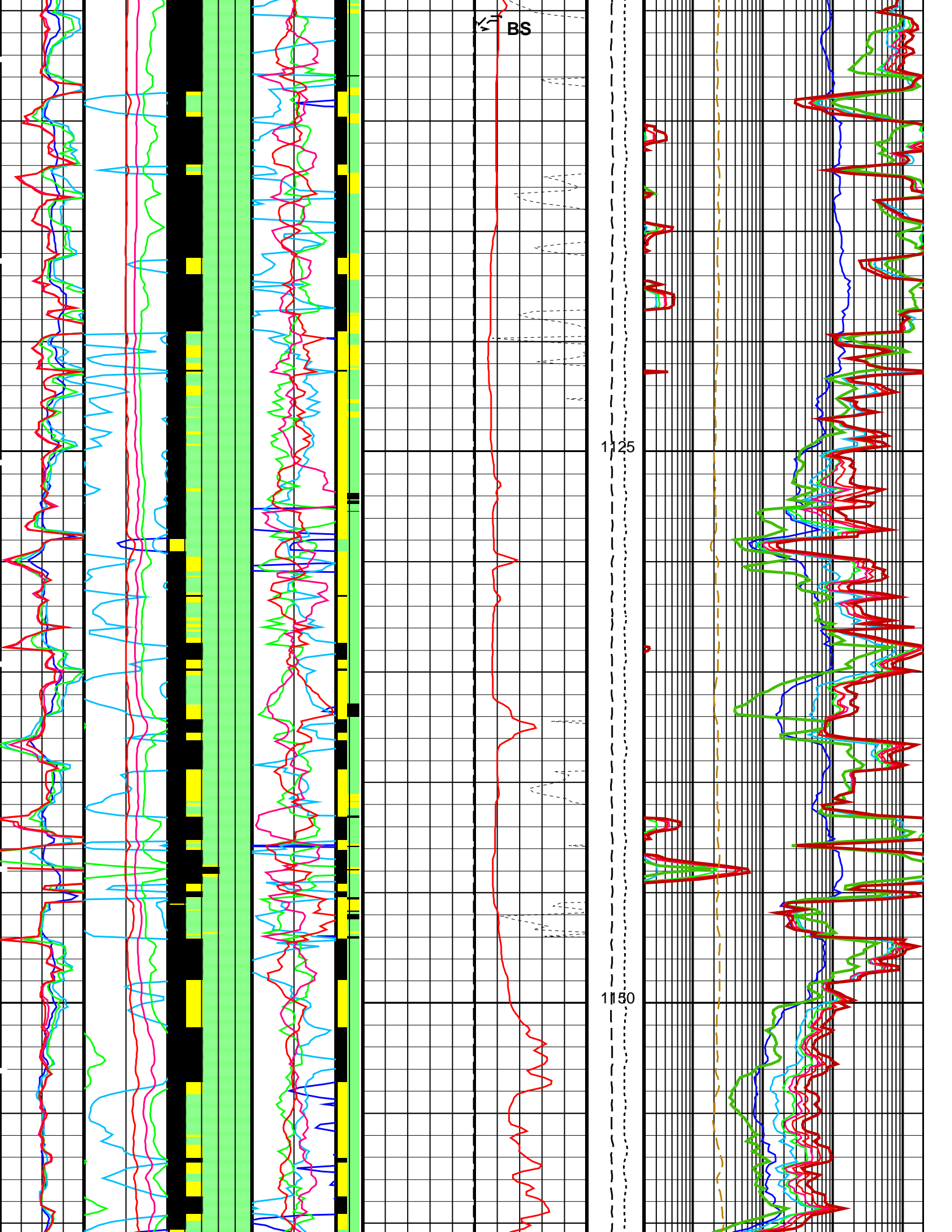
| RxoFlag | RTFlag |

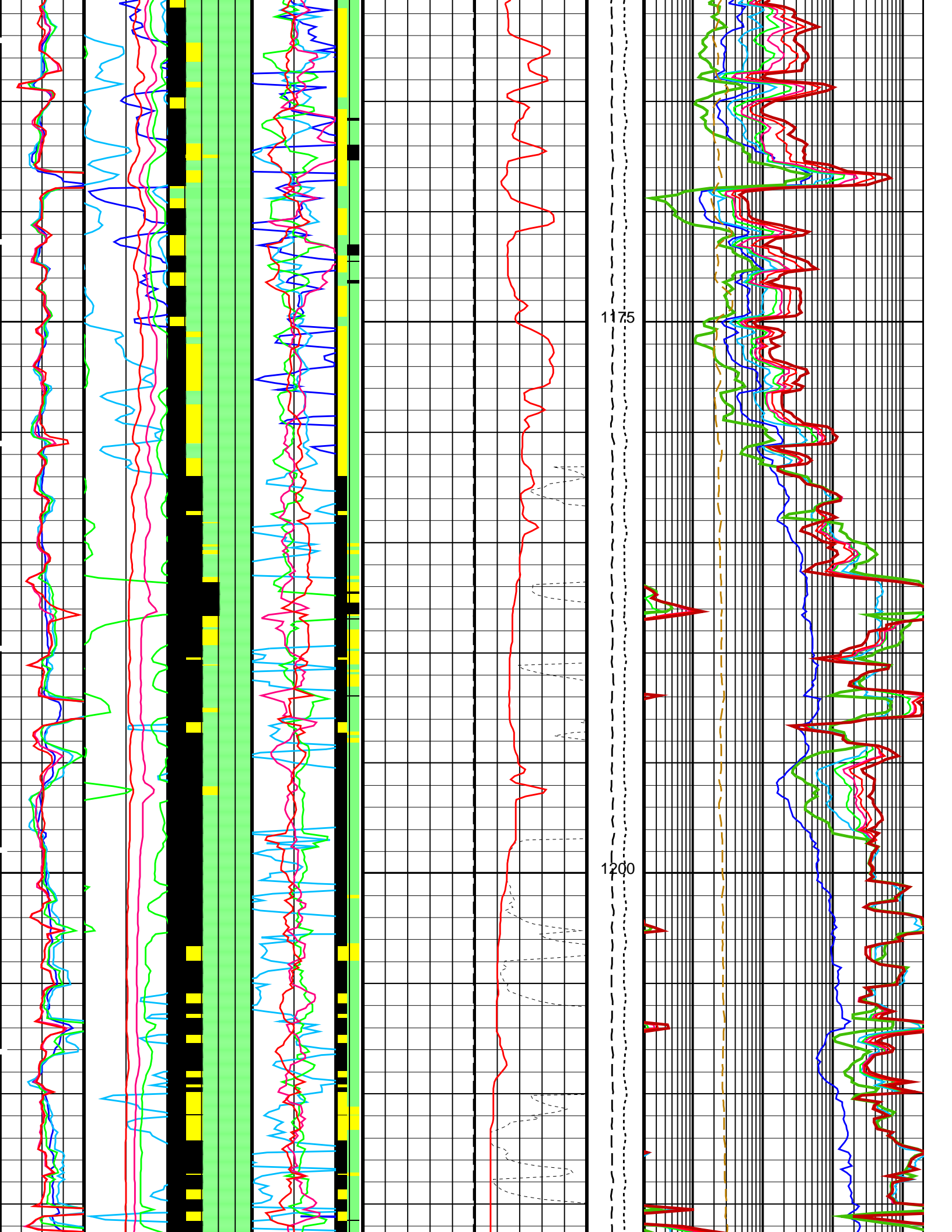
GREEN = OK

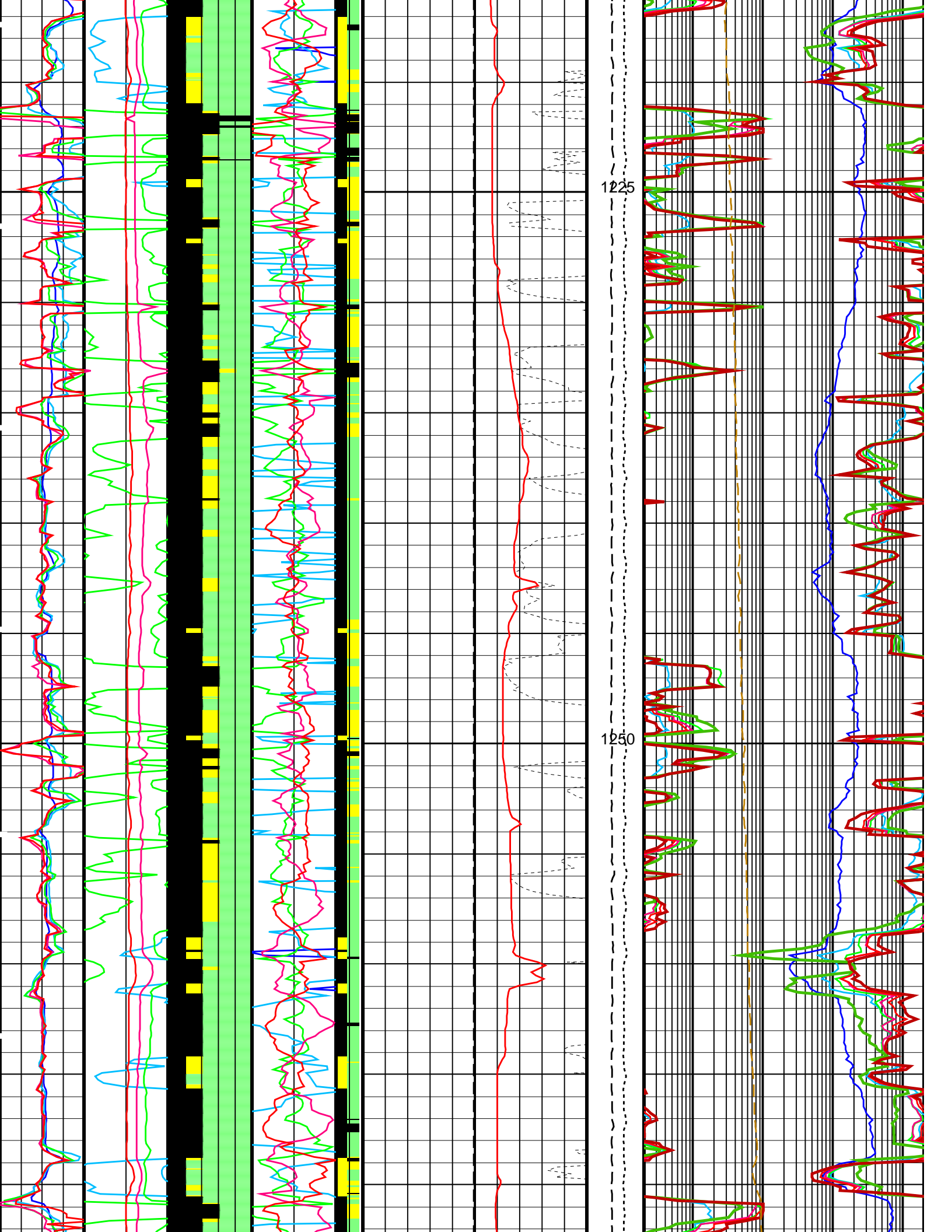
YELLOW = SHOULDER BED EFFECT

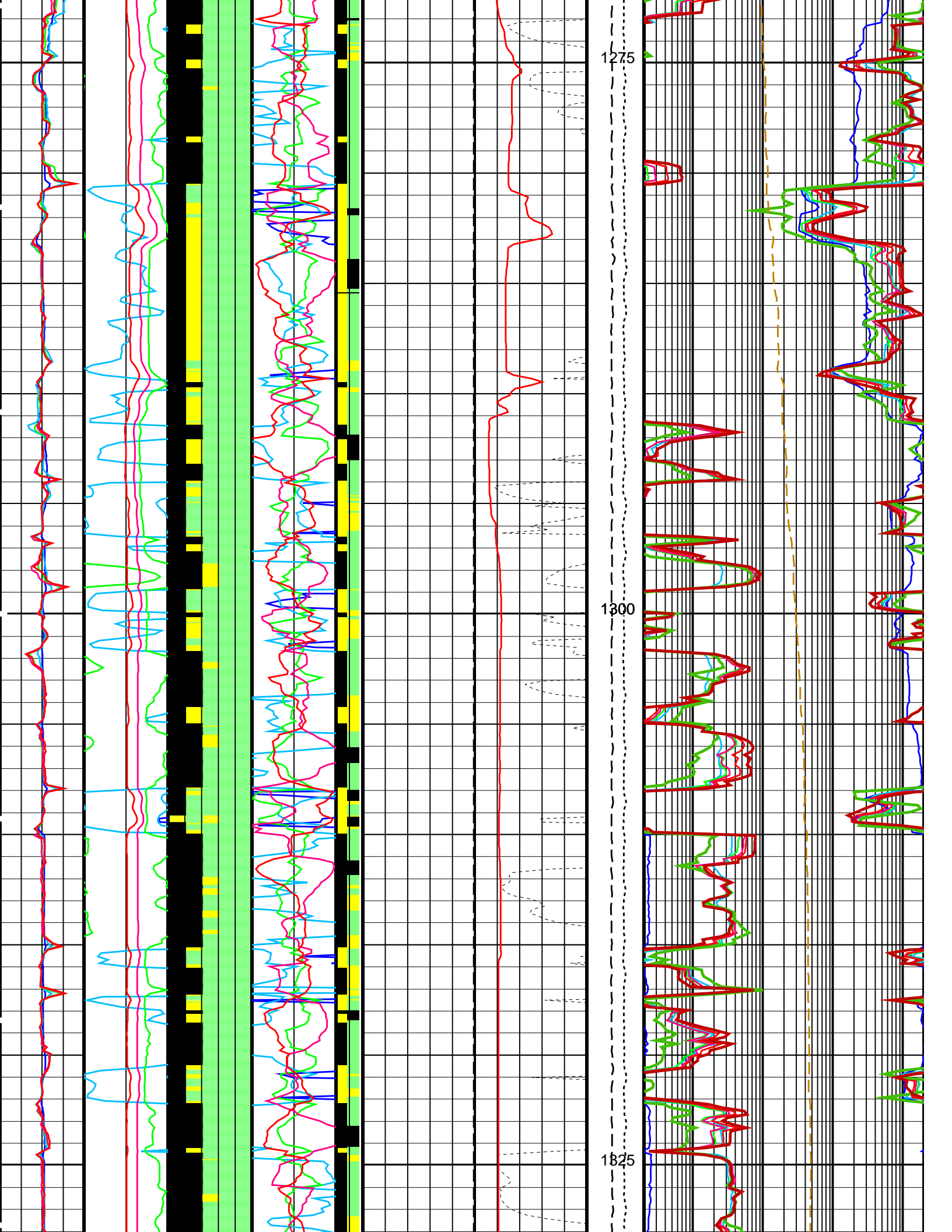
BLACK = NOK

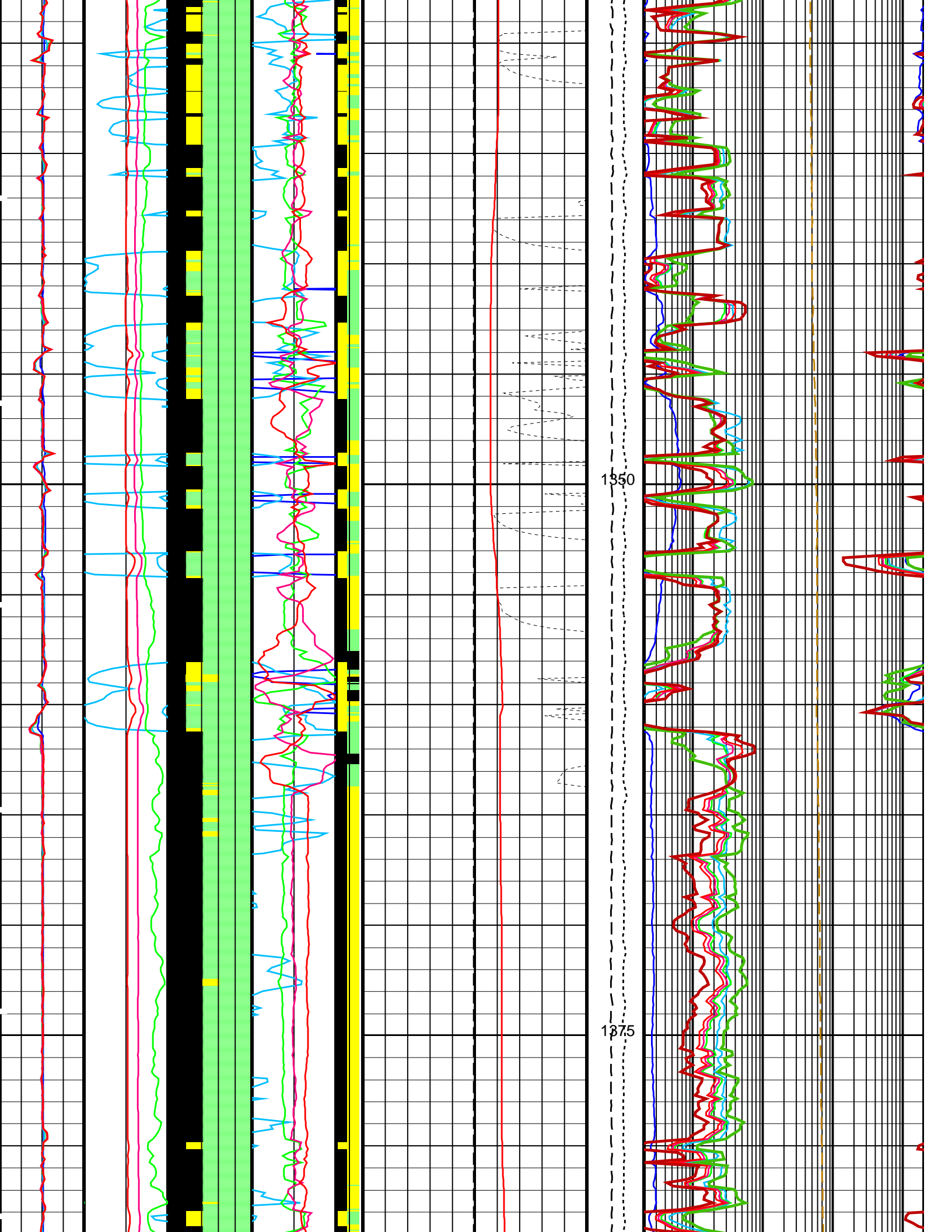


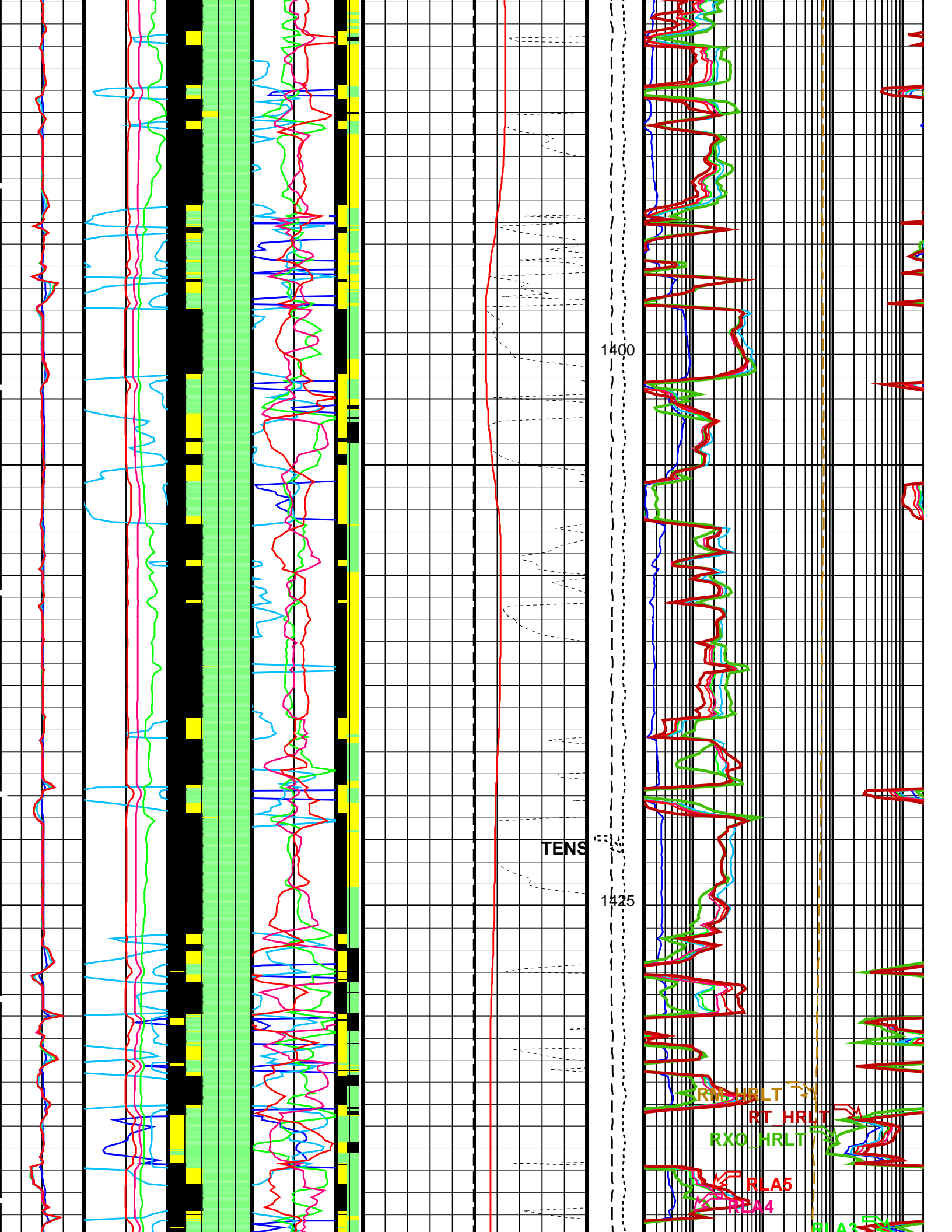


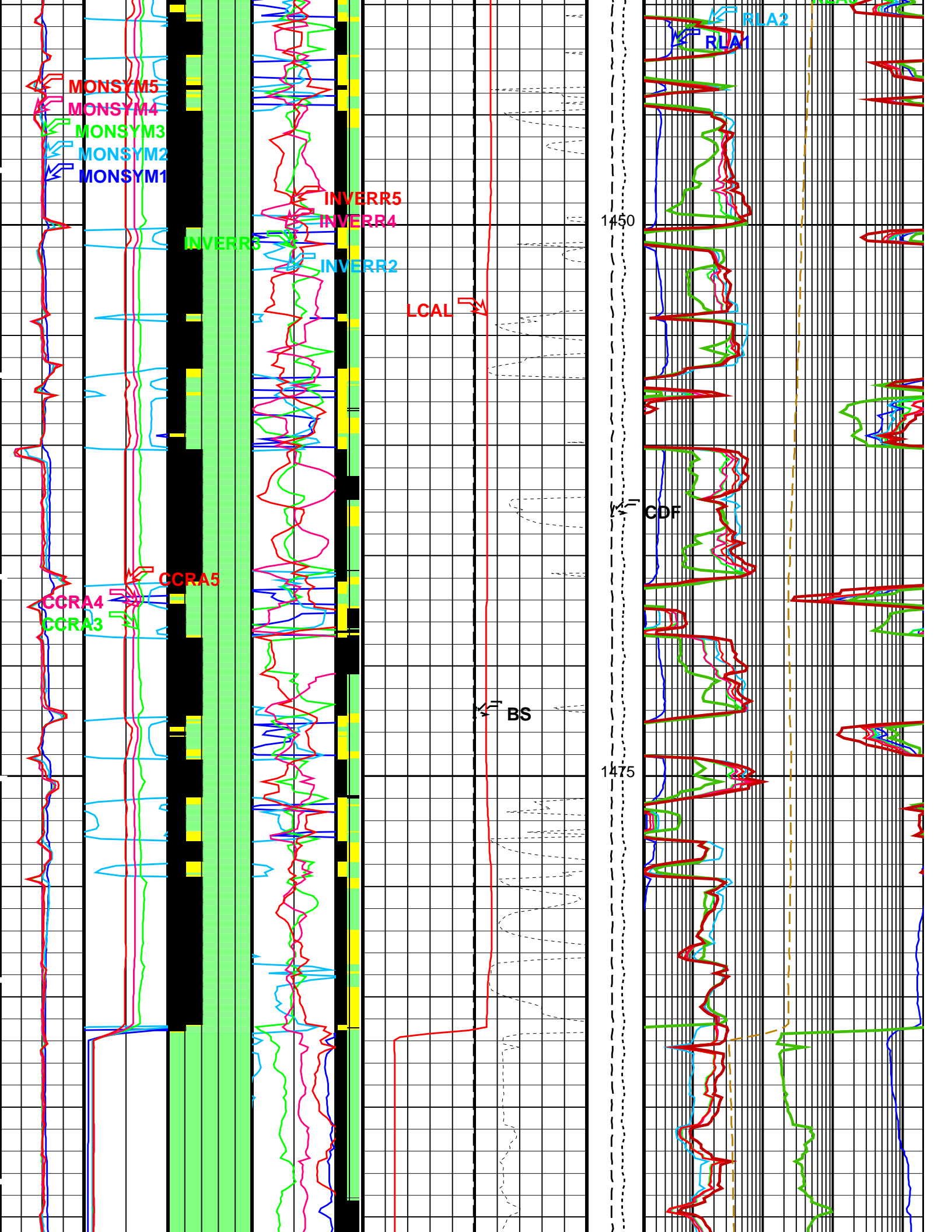


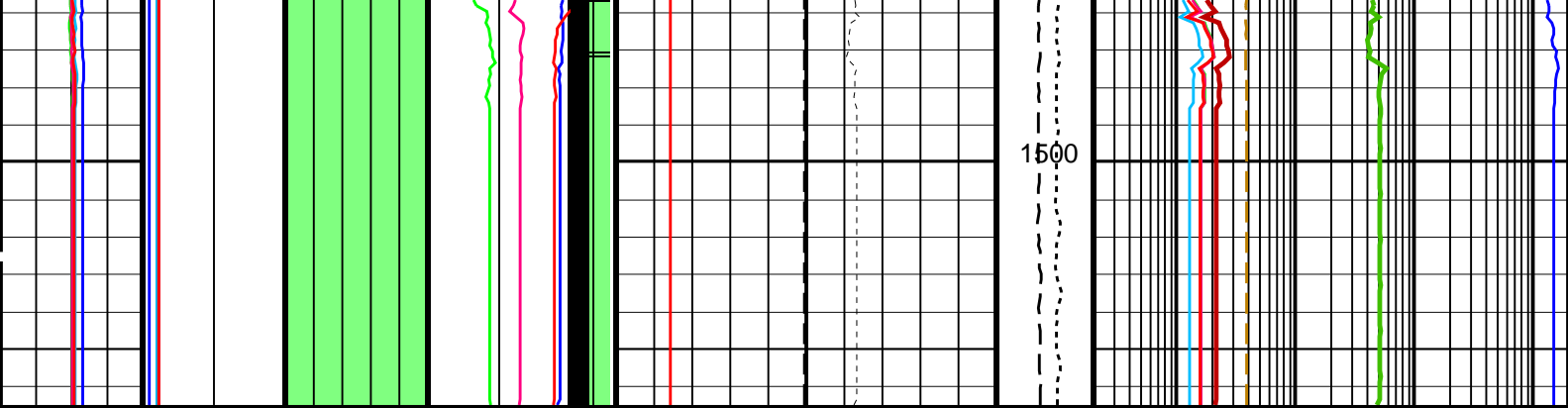












*** HRLT FLAG TRACKS ***

BLACK areas show that the corresponding error flag is set.

TRACK R3_LQC INVERSION WEIGHT

Contribution from each hrlt channel in Inversion algorithm, and from left to right :

| Wei1 | Wei2 | Wei3 | Wei4 | Wei5 |

GREEN = OK YELLOW = Contribution QUESTIONABLE BLACK = Contribution UNRELIABLE

TRACK R5_LQC RESISTIVITY QUALITY INDICATOR

LQC flags on RXO_HRLT & RT_HRLT, and from left to right :

| RxoFlag | RTFlag |

GREEN = OK YELLOW = SHOULDER BED EFFECT BLACK = NOK

Hardware	Borehole Correction	(WEL FLAGS) (----)	(INVERR1) (----)	(RES FL AG S) (----)	(BS) (IN)	Calibrated Downhole Force (CDF) (LBF)	(RLA1) (OHMM)	2000
(MONSYM1) (----)	(CCRA1) (----)	Inversion Weight	(INVERR2) (----)		(DI_HRLT) (IN)	Tension (TENS) (LBF)	(RLA2) (OHMM)	2000
(MONSYM2) (----)	(CCRA2) (----)		(INVERR3) (----)		HLDS Caliper (LCAL) (IN)		(RLA3) (OHMM)	2000
(MONSYM3) (----)	(CCRA3) (----)		(INVERR4) (----)		REPEAT SECTION		(RLA4) (OHMM)	2000
(MONSYM4) (----)	(CCRA4) (----)		(INVERR5) (----)				(RLA5) (OHMM)	2000
(MONSYM5) (----)	(CCRA5) (----)		Inversion				(RXO_HRLT) (OHMM)	2000
							(RM_HRLT) (OHMM)	200

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)	30	DEGC
CALSTAT	HRLTB Calibration Status	SHALLOW_DONE	
CALTEMP	HRLTB Calibration Temperature	20.4572	DEGC
FREQ0	HRLT Frequency Index for Mode 0	32	
FREQ1	HRLT Frequency Index for Mode 1	128	
FREQ2	HRLT Frequency Index for Mode 2	104	
FREQ3	HRLT Frequency Index for Mode 3	86	
FREQ4	HRLT Frequency Index for Mode 4	56	
FREQ5	HRLT Frequency Index for Mode 5	44	
FREQ6	HRLT Frequency Index for Mode 6	116	
GCSE	Generalized Caliper Selection	LCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
ISSBAR	Barite Mud Switch	NOBARITE	
KFAC_HRLT	HRLT K Factor Option	SONDE	
LOOPCOEF_S	HRLT Loop Coefficient for Shallow Modes	LOW	
LOOPMOD0	HRLT Mode 0 Loop Mode	AUTO	
LOOPMOD1	HRLT Mode 1 Loop Mode	AUTO	
LOOPMOD2	HRLT Mode 2 Loop Mode	AUTO	
LOOPMOD3	HRLT Mode 3 Loop Mode	AUTO	
LOOPMOD4	HRLT Mode 4 Loop Mode	AUTO	
LOOPMOD5	HRLT Mode 5 Loop Mode	AUTO	
LOOPMOD6	HRLT Mode 6 Loop Mode	AUTO	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
PROCINV	Inversion Selection	ON	
PROCMFL	Inversion Micro-Resistivity Selection	NO_EXTERNAL_RXO	
PROCMSO	Mechanical Standoff Fin Size	0	IN
PROCRM	Processing Mud Resistivity Select	HRLT_Compute	
PROCSPO	Sonde Position	Centered	
SHT	Surface Hole Temperature	20	DEGC
HLDS: Hostile Litho-Density Sonde			
CLCL	HLDS LS Control Loop Controller Mode	AUTO_DEFAULT	
CLCS	HLDS SS Control Loop Controller Mode	AUTO_DEFAULT	
CLLS	HLDS Mode Loop Long Spacing	AUTO	
CLSS	HLDS Mode Loop Short Spacing	AUTO	
DHC	Density Hole Correction	BS	
DPPM	Density Porosity Processing Mode	HIRS	
FD	Fluid Density	1	G/C3
LATC	HLDS Activation Correction	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	
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)	30	DEGC
CSD1	Inner Casing Outer Diameter	0	IN
CSD2	Outer Casing Outer Diameter	0	IN
CSW1	Inner Casing Weight	0	LB/F
CSW2	Outer Casing Weight	0	LB/F
DBCC	HNGS Barite Constant Correction Flag	NONE	
GCSE	Generalized Caliper Selection	LCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
H1P	HNGS Detector 1 Allow/Disallow In Processing	ALLOW	
H2P	HNGS Detector 2 Allow/Disallow In Processing	ALLOW	

H2P	HNGS Detector 2 Allow/Disallow in Processing	-0.000937969	
HABK	HNGS Borehole Potassium Running Average	60	IN
HALF	HNGS Alpha Filter Length	NONE	
HCRB	HNGS Apply Borehole Potassium Correction	NATU	
HMWM	Mud Weighting Material	YES	
HNPE	HNGS Processing Enable	NOBARITE	
ISSBAR	Barite Mud Switch	LIMESTONE	
MATR	Rock Matrix for Neutron Porosity Corrections	1.3	CPS
S1BI	HNGS Detector 1 Calibration Bismuth Count Rate	1.3	CPS
S2BI	HNGS Detector 2 Calibration Bismuth Count Rate	YES	
SGRC	HNGS Standard Gamma-Ray Correction Flag	20	DEGC
SHT	Surface Hole Temperature	CENT	
TPOS	Tool Position	1.65796	
VBA1	HNGS Detector 1 Variable Barite Factor Running Average	1.67819	
VBA2	HNGS Detector 2 Variable Barite Factor Running Average		
EDTC-B: Enhanced DTS Cartridge			
BHFL	Borehole Fluid Type	WATER	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	30	DEGC
BSCO	Borehole Salinity Correction Option	NO	
CCCO	Casing & Cement Thickness Correction Option	NO	
DPPM	Density Porosity Processing Mode	HIRS	
FSAL	Formation Salinity	-50000	PPM
FSCO	Formation Salinity Correction Option	NO	
GCSE	Generalized Caliper Selection	LCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GRSE	Generalized Mud Resistivity Selection	CHART_GEN 9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
HSCO	Hole Size Correction Option	YES	
ISSBAR	Barite Mud Switch	NOBARITE	
ISSBAR_EDTC	Nuclear Mud Type	NOBARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
MCCO	Mud Cake Correction Option	NO	
MCOR	Mud Correction	NATU	
MWCO	Mud Weight Correction Option	NO	
PTCO	Pressure/Temperature Correction Option	NO	
SDAT	Standoff Data Source	SOCN	
SHT	Surface Hole Temperature	20	DEGC
SOCN	Standoff Distance	0.5	IN
SOCO	Standoff Correction Option	NO	
TPOS_EDTC	EDTC Tool Centered/Eccentered	Centered	
U-ETELM_EDTS	Telemetry Mode for eWAFE	Standard_EDTS	
U-TELM_EDTS	Telemetry Mode for WAFE	Standard_EDTS	
System and Miscellaneous			
ALTDPCAN	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	1.00	G/C3
FLEV	Fluid Level	-50000.00	M
MST	Mud Sample Temperature	73.40	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	1515	M
TDD	Total Depth - Driller	1510.20	M
TDL	Total Depth - Logger	1515.00	M
TWS	Temperature of Connate Water Sample	37.78	DEGC

Format: HRLT_LQC Vertical Scale: 1:200 Graphics File Created: 24-Jan-2016 03:13

OP System Version: 19C0-187

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

Output DLIS Files

DEFAULT	MSS_LDEO_HRLA_LDL_033LUP	FN:44	PRODUCER	24-Jan-2016 03:13
BACKUP	MSS_LDEO_HRLA_LDL_033LUP	FN:45	PRODUCER	24-Jan-2016 03:13

Output DLIS Files

DEFAULT	MSS_LDEO_HRLA_LDL_033LUP	FN:44	PRODUCER	24-Jan-2016 03:13	1506.5 M	1072.1 M
BACKUP	MSS_LDEO_HRLA_LDL_033LUP	FN:45	PRODUCER	24-Jan-2016 03:13	1506.5 M	1072.1 M

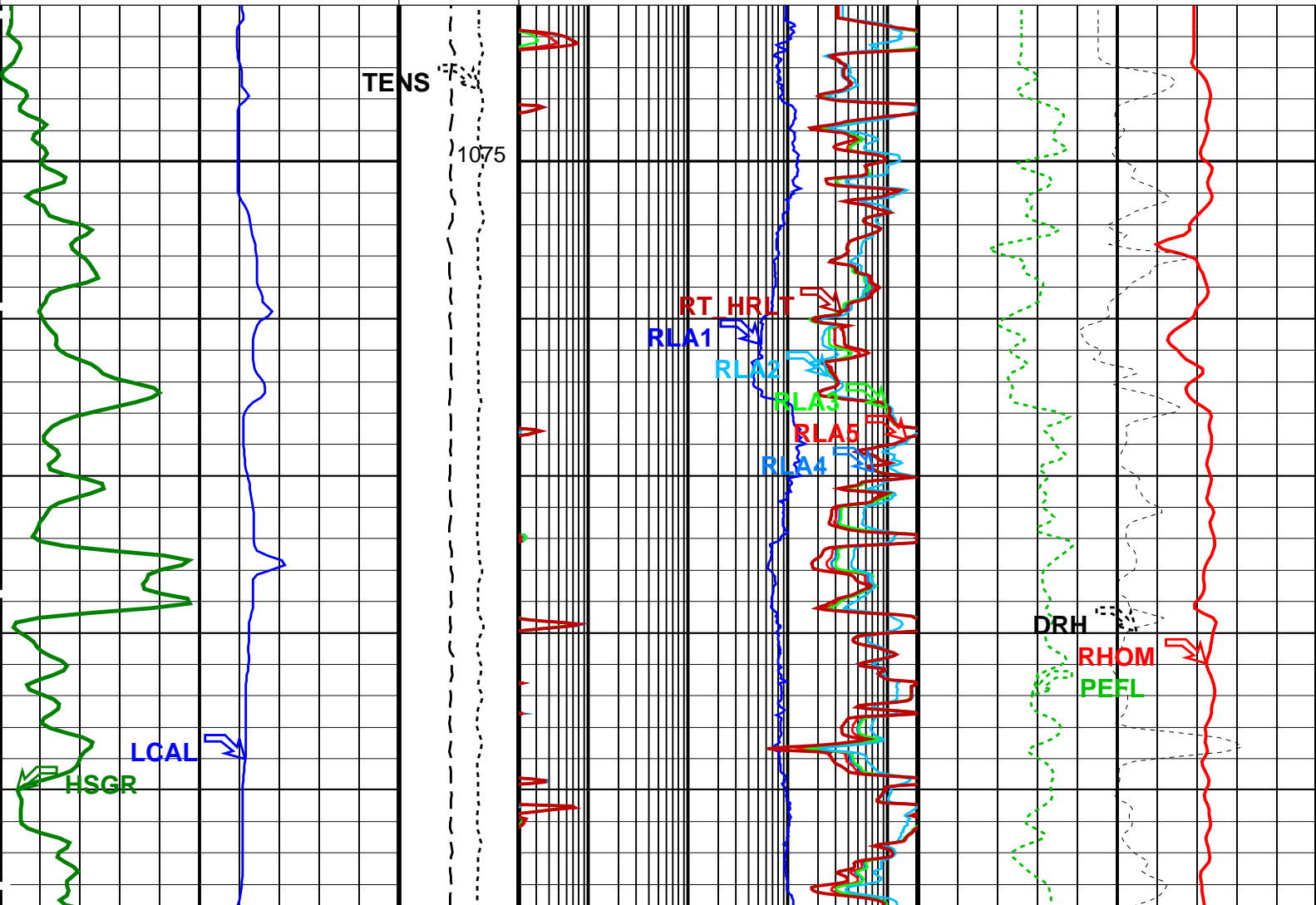
OP System Version: 19C0-187

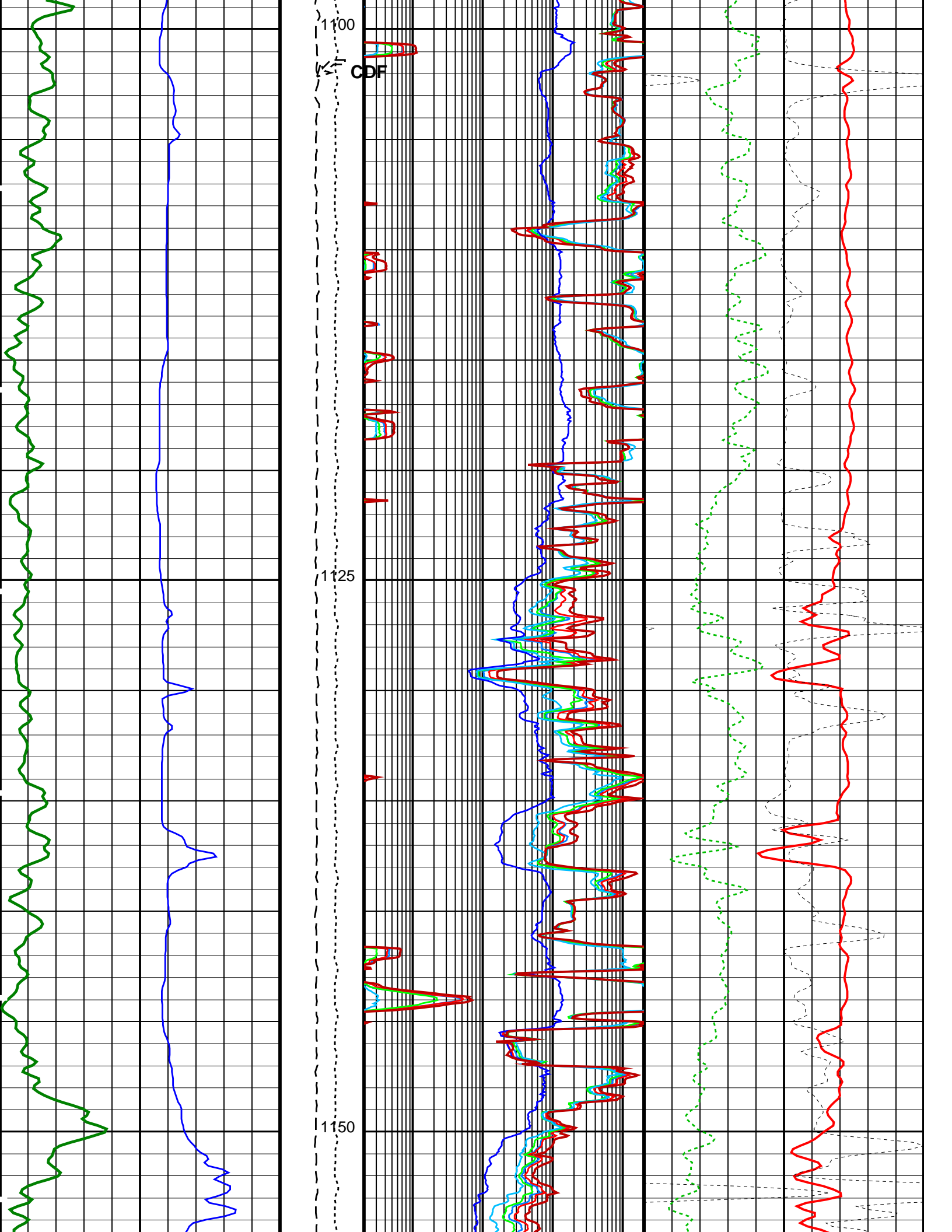
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HLDS	19C0-187	LDSC-B	19C0-187
HNGC-B	19C0-187	HNGS-BA	19C0-187
EDTC-B	SKK-5169-EDTCB		

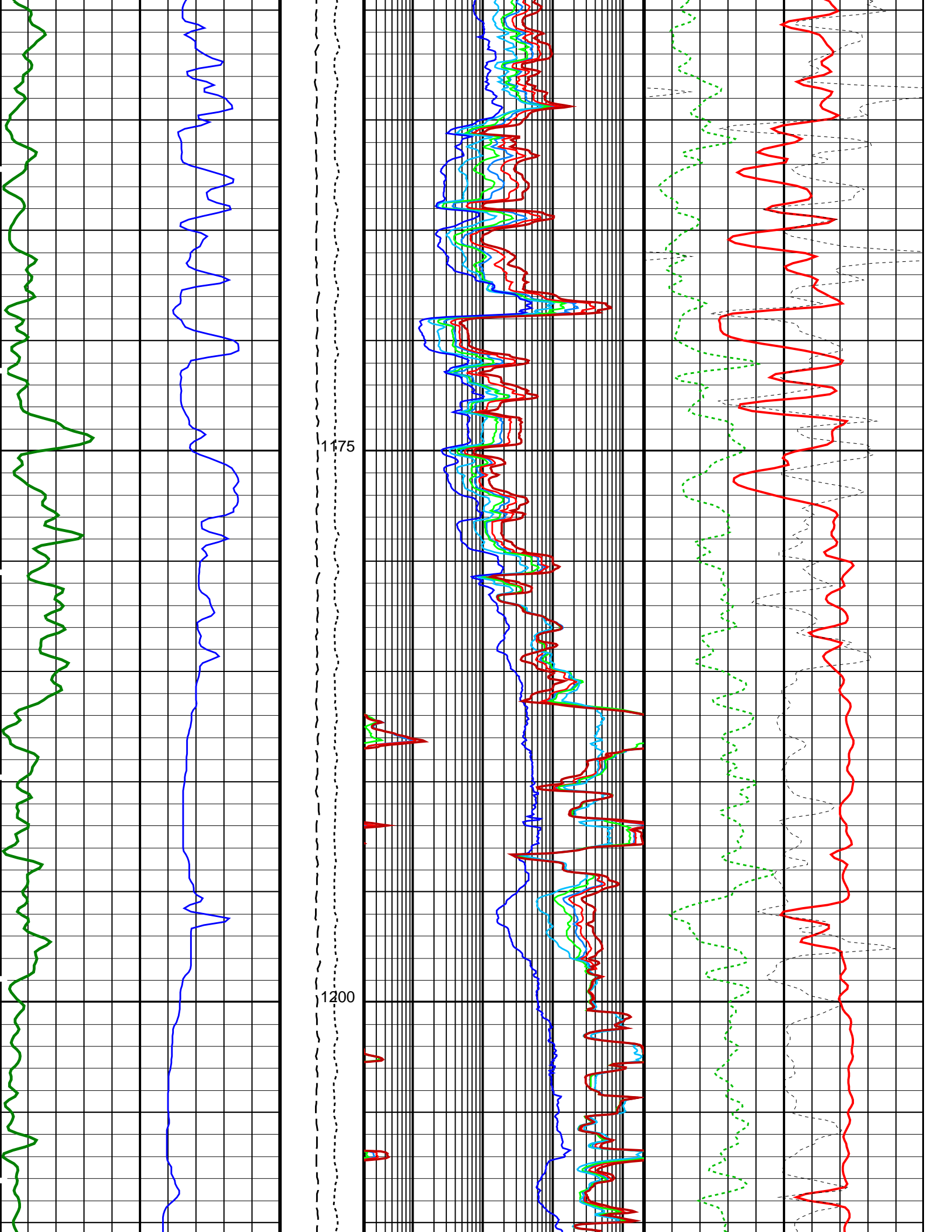
PIP SUMMARY

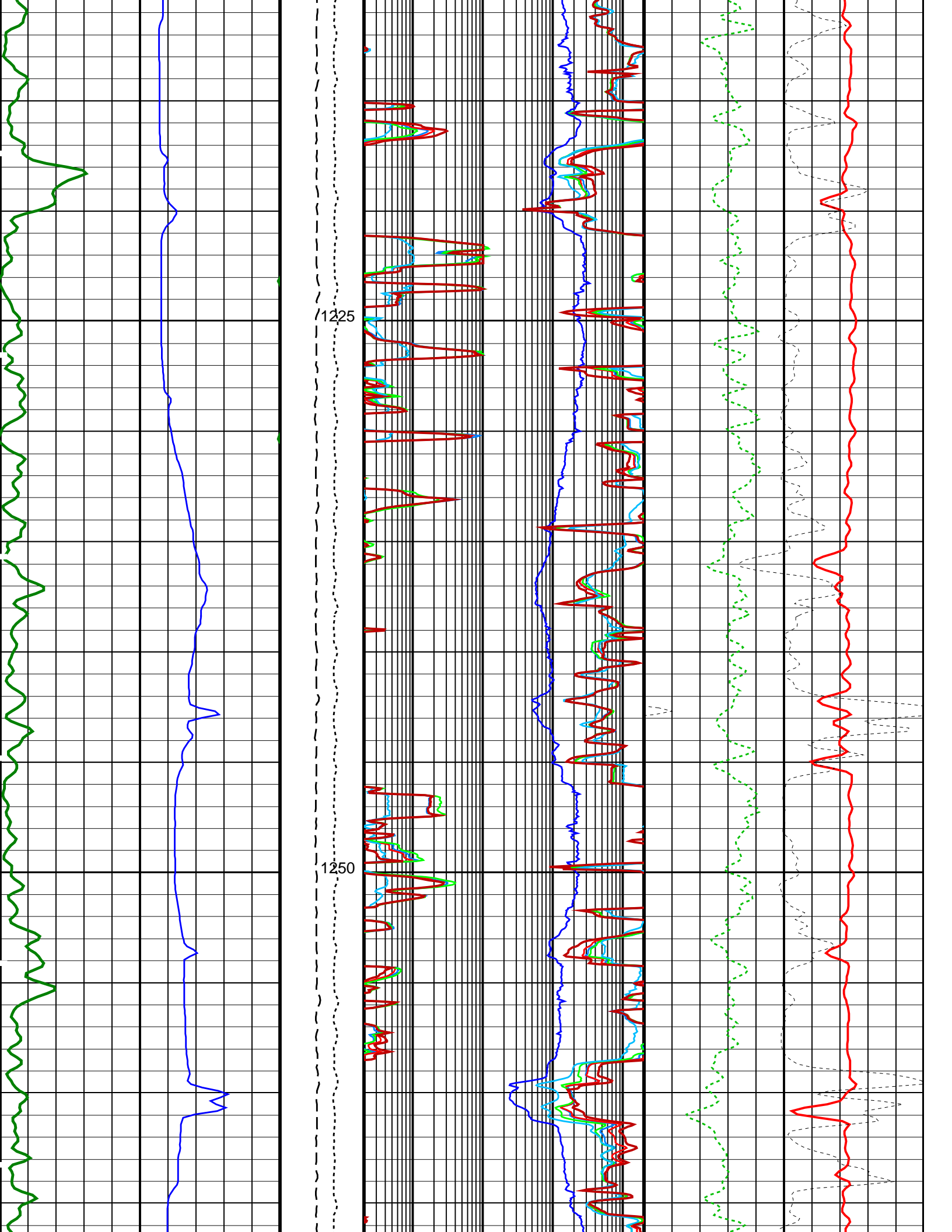
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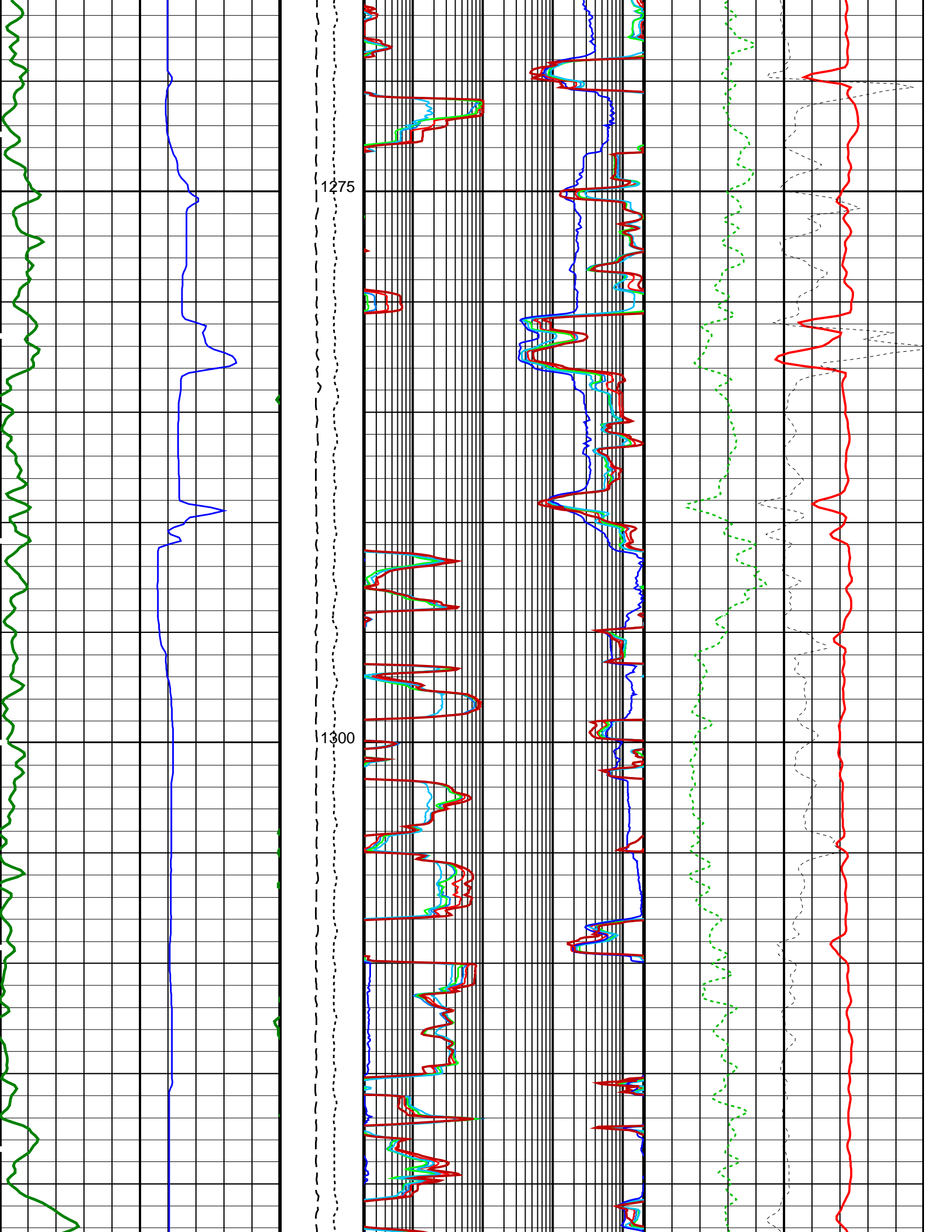
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	HRLT Resistivity 2 (RLA2) 0.2 (OHMM) 2000				
	HRLT Resistivity 3 (RLA3) 0.2 (OHMM) 2000		HLDS Bulk Density Correction (DRH) -0.25 (G/C3) 0.25		
	HRLT Resistivity 5 (RLA5) 0.2 (OHMM) 2000		HLDS Bulk Density (RHOM) 0 (G/C3) 4		
HNGS Spectroscopy Gamma Ray (HSGR) 0 (GAPI) 25	Calibrated Downhole Force (CDF) (LBF) 3000 0	HRLT Resistivity 4 (RLA4) 0.2 (OHMM) 2000		HLDS Long Spaced Photoelectric Effect (PEFL) 0 (----) 10	
HLDS Caliper (LCAL) 0 (IN) 20	Tension (TENS) (LBF) 10000 0				

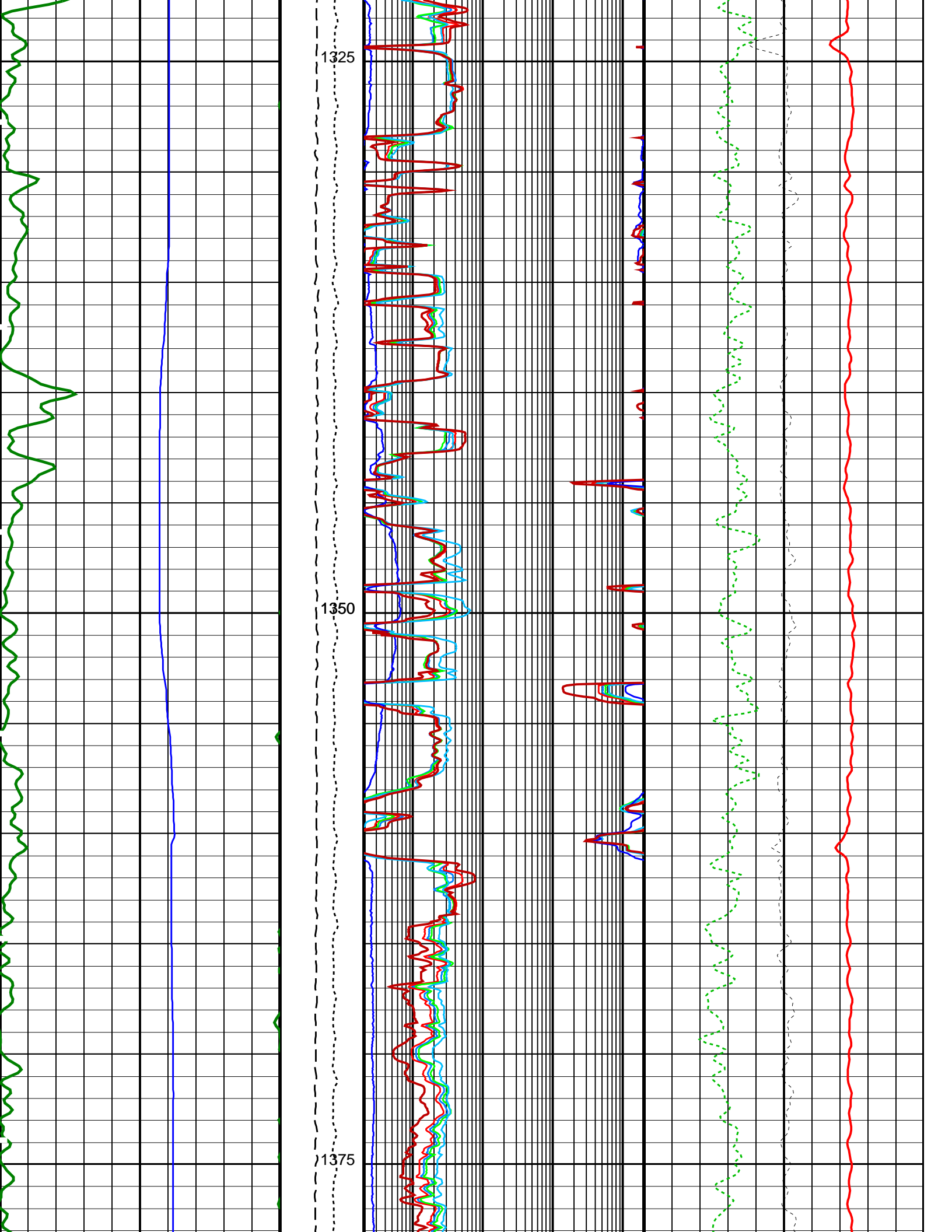


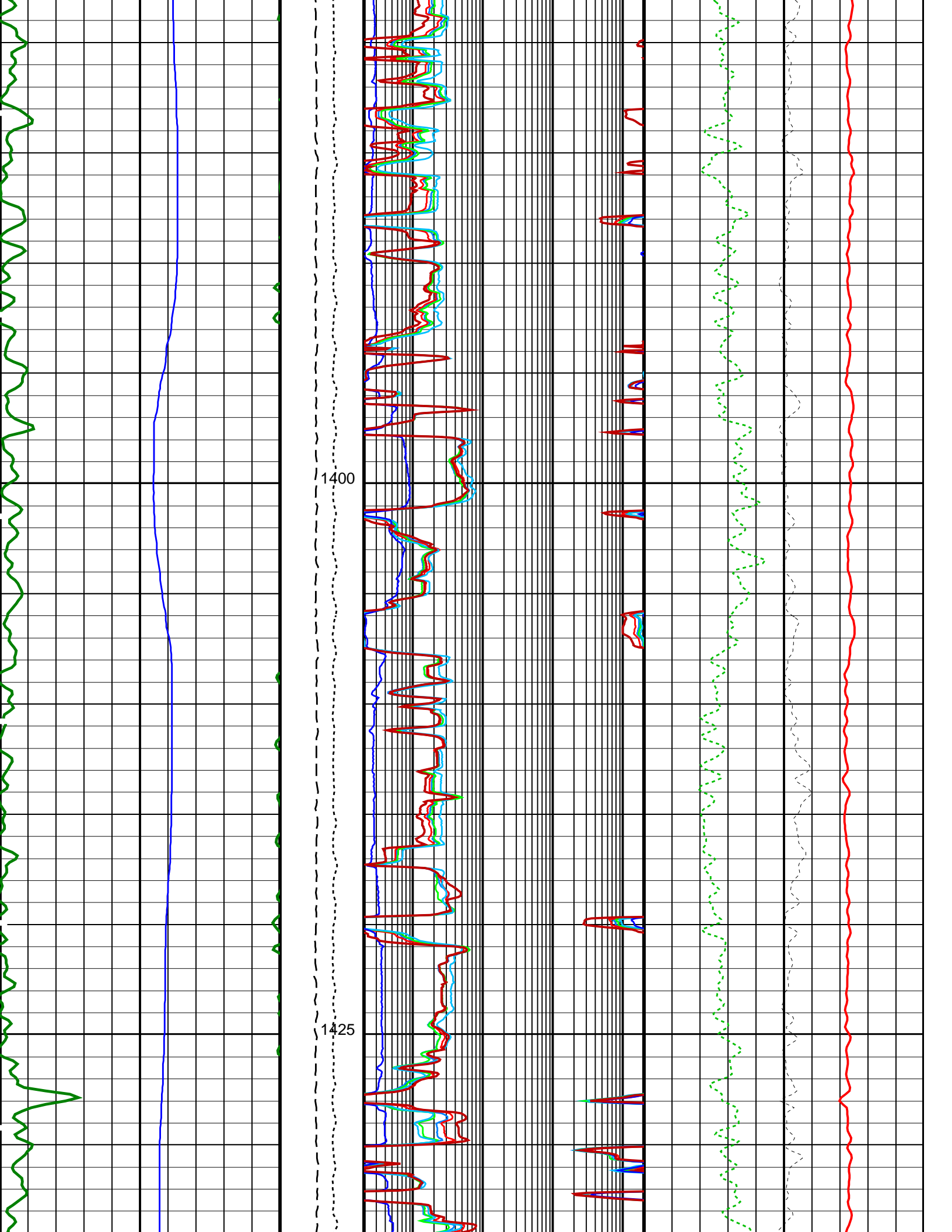


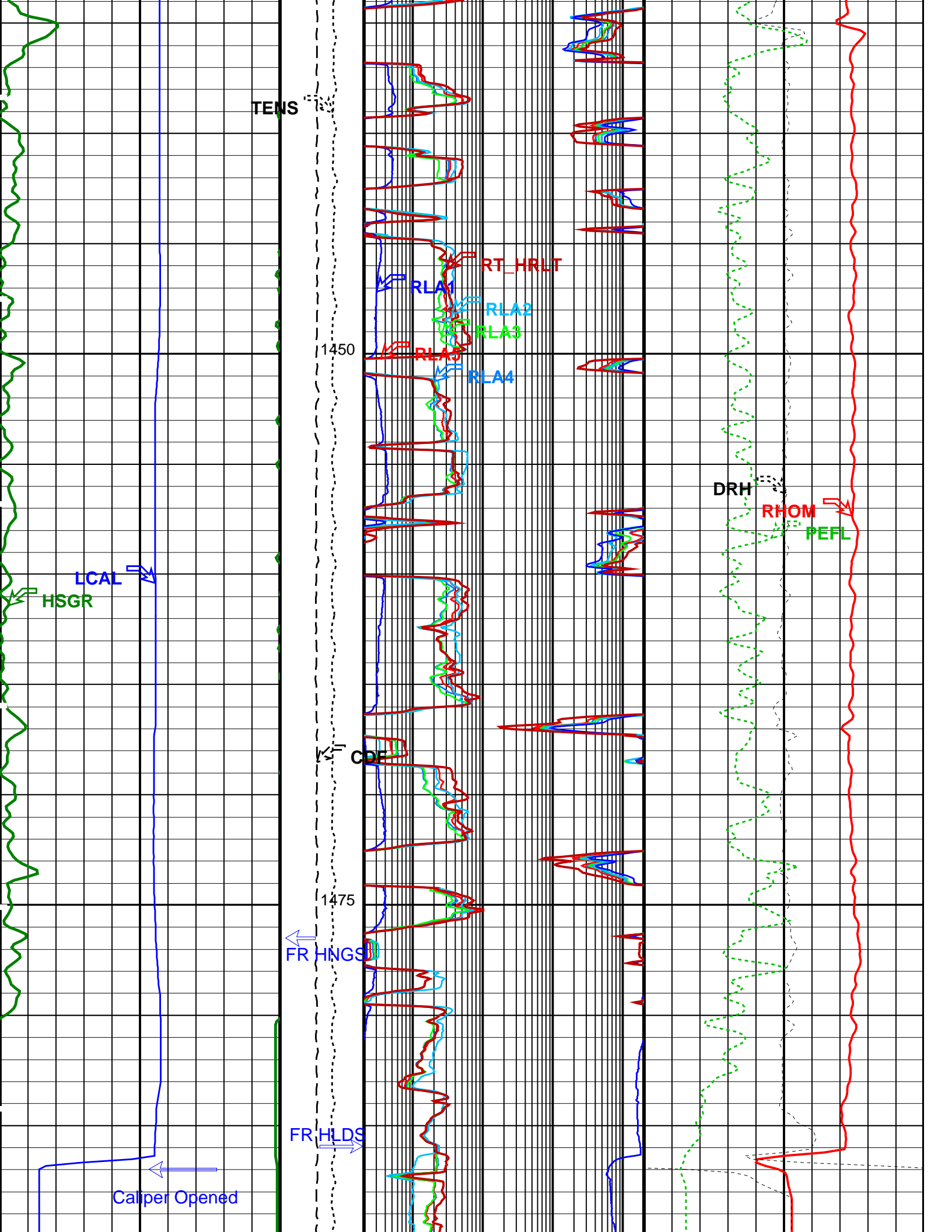


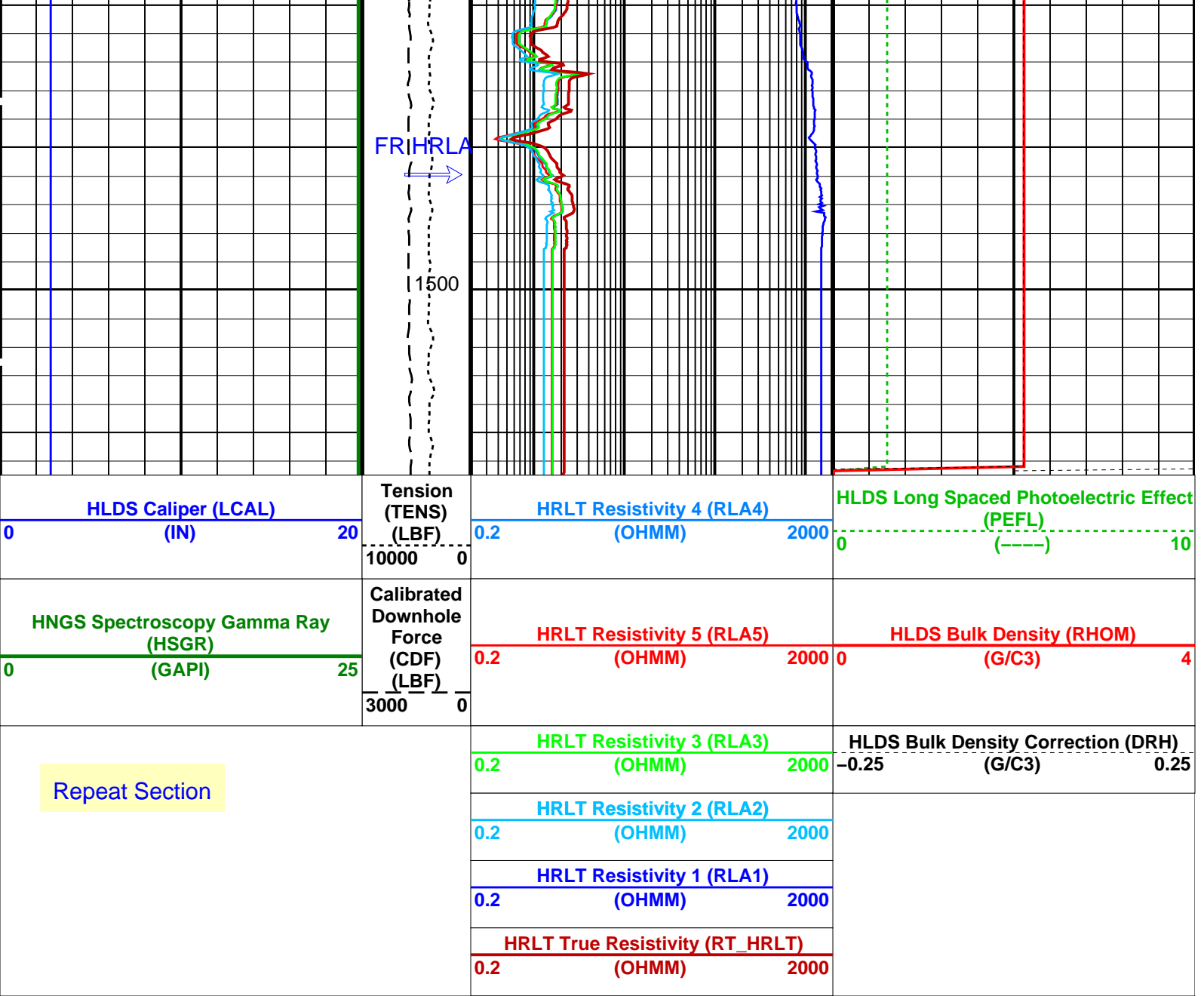












PIP SUMMARY

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)	30 DEGC
CALSTAT	HRLTB Calibration Status	SHALLOW_DONE
CALTEMP	HRLTB Calibration Temperature	20.4572 DEGC
FREQ0	HRLT Frequency Index for Mode 0	32
FREQ1	HRLT Frequency Index for Mode 1	128
FREQ2	HRLT Frequency Index for Mode 2	104
FREQ3	HRLT Frequency Index for Mode 3	86
FREQ4	HRLT Frequency Index for Mode 4	56
FREQ5	HRLT Frequency Index for Mode 5	44
FREQ6	HRLT Frequency Index for Mode 6	116
GCSE	Generalized Caliper Selection	LCAL
GDEV	Average Angular Deviation of Borehole from Normal	0 DEG
GGRD	Geothermal Gradient	0.018227 DC/M
GRSE	Generalized Mud Resistivity Selection	CHART_GEN 9
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE
ISSBAR	Barite Mud Switch	NOBARITE
KFAC_HRLT	HRLT K Factor Option	SONDE
LOOPCOEF_S	HRLT Loop Coefficient for Shallow Modes	LOW
LOOPMOD0	HRLT Mode 0 Loop Mode	AUTO
LOOPMOD1	HRLT Mode 1 Loop Mode	AUTO
LOOPMOD2	HRLT Mode 2 Loop Mode	AUTO

LOOPMOD3	HRLT Mode 3 Loop Mode	AUTO	
LOOPMOD4	HRLT Mode 4 Loop Mode	AUTO	
LOOPMOD5	HRLT Mode 5 Loop Mode	AUTO	
LOOPMOD6	HRLT Mode 6 Loop Mode	AUTO	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
PROCINV	Inversion Selection	ON	
PROCMFL	Inversion Micro-Resistivity Selection	NO_EXTERNAL_RXO	
PROCMSO	Mechanical Standoff Fin Size	0	IN
PROCRM	Processing Mud Resistivity Select	HRLT_Compute	
PROCSPO	Sonde Position	Centered	
SHT	Surface Hole Temperature	20	DEGC
HLDS: Hostile Litho-Density Sonde			
CLCL	HLDS LS Control Loop Controller Mode	AUTO_DEFAULT	
CLCS	HLDS SS Control Loop Controller Mode	AUTO_DEFAULT	
CLLS	HLDS Mode Loop Long Spacing	AUTO	
CLSS	HLDS Mode Loop Short Spacing	AUTO	
DHC	Density Hole Correction	BS	
DPPM	Density Porosity Processing Mode	HIRS	
FD	Fluid Density	1	G/C3
LATC	HLDS Activation Correction	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	
HNGBA: Hostile Natural Gamma Ray Sonde			
BAR1	HNGBA Detector 1 Barite Constant	1	
BAR2	HNGBA Detector 2 Barite Constant	1	
BHK	HNGBA Borehole Potassium Correction Concentration	0	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	30	DEGC
CSD1	Inner Casing Outer Diameter	0	IN
CSD2	Outer Casing Outer Diameter	0	IN
CSW1	Inner Casing Weight	0	LB/F
CSW2	Outer Casing Weight	0	LB/F
DBCC	HNGBA Barite Constant Correction Flag	NONE	
GCSE	Generalized Caliper Selection	LCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
H1P	HNGBA Detector 1 Allow/Disallow In Processing	ALLOW	
H2P	HNGBA Detector 2 Allow/Disallow In Processing	ALLOW	
HABK	HNGBA Borehole Potassium Running Average	-0.000937969	
HALF	HNGBA Alpha Filter Length	60	IN
HCRB	HNGBA Apply Borehole Potassium Correction	NONE	
HMWM	Mud Weighting Material	NATU	
HNPE	HNGBA Processing Enable	YES	
ISSBAR	Barite Mud Switch	NOBARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
S1BI	HNGBA Detector 1 Calibration Bismuth Count Rate	1.3	CPS
S2BI	HNGBA Detector 2 Calibration Bismuth Count Rate	1.3	CPS
SGRC	HNGBA Standard Gamma-Ray Correction Flag	YES	
SHT	Surface Hole Temperature	20	DEGC
TPOS	Tool Position	CENT	
VBA1	HNGBA Detector 1 Variable Barite Factor Running Average	1.65796	
VBA2	HNGBA Detector 2 Variable Barite Factor Running Average	1.67819	
EDTC-B: Enhanced DTS Cartridge			
BHFL	Borehole Fluid Type	WATER	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	30	DEGC
BSCO	Borehole Salinity Correction Option	NO	
CCCO	Casing & Cement Thickness Correction Option	NO	
DPPM	Density Porosity Processing Mode	HIRS	
FSAL	Formation Salinity	-50000	PPM
FSCO	Formation Salinity Correction Option	NO	
GCSE	Generalized Caliper Selection	LCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
HSCO	Hole Size Correction Option	YES	
ISSBAR	Barite Mud Switch	NOBARITE	
ISSBAR_EDTC	Nuclear Mud Type	NOBARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
MCCO	Mud Cake Correction Option	NO	
MCOR	Mud Correction	NATU	
MWCO	Mud Weight Correction Option	NO	
PTCO	Pressure/Temperature Correction Option	NO	

PTCO	Pressure/Temperature Correction Option	NO	
SDAT	Standoff Data Source	NO	
SHT	Surface Hole Temperature	20	DEGC
SOCN	Standoff Distance	0.5	IN
SOCO	Standoff Correction Option	NO	
TPOS_EDTC	EDTC Tool Centered/Eccentered	Centered	
U-ETELM_EDTS	Telemetry Mode for eWAFE	Standard_EDTS	
U-TELM_EDTS	Telemetry Mode for WAFE	Standard_EDTS	
System and Miscellaneous			
ALTDPCCHAN	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	1.00	G/C3
FLEV	Fluid Level	-50000.00	M
MST	Mud Sample Temperature	73.40	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	1515	M
TDD	Total Depth - Driller	1510.20	M
TDL	Total Depth - Logger	1515.00	M
TWS	Temperature of Connate Water Sample	37.78	DEGC

Format: TripleCombo Vertical Scale: 1:200 Graphics File Created: 24-Jan-2016 03:13

OP System Version: 19C0-187

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

Output DLIS Files

DEFAULT	MSS_LDEO_HRLA_LDL_033LUP	FN:44	PRODUCER	24-Jan-2016 03:13
BACKUP	MSS_LDEO_HRLA_LDL_033LUP	FN:45	PRODUCER	24-Jan-2016 03:13

Calibration and Check Summary

Measurement	Nominal	Master	Before	After	Change	Limit	Units
High Resolution Laterolog Array - B Wellsite Calibration - HRLT M01							
Before: 24-Jan-2016 0:31 After: 24-Jan-2016 5:07							
HRLT M0-M1 Voltage Plus - 0	0	N/A	-318.3	-318.4	-0.08548	9.681	UV
HRLT M0-M1 Voltage Plus - 1	0	N/A	-330.4	-329.8	0.6328	9.681	UV
HRLT M0-M1 Voltage Plus - 2	0	N/A	-338.1	-338.1	0.01013	9.681	UV
HRLT M0-M1 Voltage Plus - 3	0	N/A	-328.9	-328.6	0.3107	9.681	UV
HRLT M0-M1 Voltage Plus - 4	0	N/A	-319.8	-319.5	0.2999	9.681	UV
HRLT M0-M1 Voltage Plus - 5	0	N/A	-321.6	-321.5	0.1521	9.681	UV
HRLT M0-M1 Voltage Plus - 6	0	N/A	320.0	319.3	-0.6698	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: 24-Jan-2016 0:31 After: 24-Jan-2016 5:07							
HRLT M1-M2 Voltage Plus - 0	0	N/A	1739	1739	0.02466	53.42	UV
HRLT M1-M2 Voltage Plus - 1	0	N/A	1813	1808	-4.824	53.42	UV
HRLT M1-M2 Voltage Plus - 2	0	N/A	1847	1846	-1.046	53.42	UV
HRLT M1-M2 Voltage Plus - 3	0	N/A	1796	1793	-2.903	53.42	UV
HRLT M1-M2 Voltage Plus - 4	0	N/A	1744	1742	-2.567	53.42	UV
HRLT M1-M2 Voltage Plus - 5	0	N/A	1756	1753	-2.091	53.42	UV
HRLT M1-M2 Voltage Plus - 6	0	N/A	-1763	-1759	4.501	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: 24-Jan-2016 0:31 After: 24-Jan-2016 5:07							
HRLT M2-M3 Voltage Plus - 0	0	N/A	1730	1730	0.4889	53.42	UV
HRLT M2-M3 Voltage Plus - 1	0	N/A	1814	1809	-4.585	53.42	UV
HRLT M2-M3 Voltage Plus - 2	0	N/A	1850	1850	-0.1846	53.42	UV
HRLT M2-M3 Voltage Plus - 3	0	N/A	1802	1800	-1.925	53.42	UV
HRLT M2-M3 Voltage Plus - 4	0	N/A	1745	1743	-1.849	53.42	UV
HRLT M2-M3 Voltage Plus - 5	0	N/A	1757	1756	-1.579	53.42	UV
HRLT M2-M3 Voltage Plus - 6	0	N/A	-1753	-1749	4.050	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: 24-Jan-2016 0:31 After: 24-Jan-2016 5:07

HRLT A3-A4 Voltage Plus – 0	0	N/A	68570	68590	20.70	2100	UV
HRLT A3-A4 Voltage Plus – 1	0	N/A	71730	71550	-178.3	2100	UV
HRLT A3-A4 Voltage Plus – 2	0	N/A	73450	73460	3.289	2100	UV
HRLT A3-A4 Voltage Plus – 3	0	N/A	71780	71720	-59.20	2100	UV
HRLT A3-A4 Voltage Plus – 4	0	N/A	69490	69420	-64.84	2100	UV
HRLT A3-A4 Voltage Plus – 5	0	N/A	69990	69940	-49.19	2100	UV
HRLT A3-A4 Voltage Plus – 6	0	N/A	-68330	-68190	136.1	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: 24-Jan-2016 0:31 After: 24-Jan-2016 5:07

HRLT A4-A5 Voltage Plus – 0	0	N/A	68660	68680	16.94	2100	UV
HRLT A4-A5 Voltage Plus – 1	0	N/A	71940	71770	-164.6	2100	UV
HRLT A4-A5 Voltage Plus – 2	0	N/A	73640	73650	9.039	2100	UV
HRLT A4-A5 Voltage Plus – 3	0	N/A	71950	71880	-72.11	2100	UV
HRLT A4-A5 Voltage Plus – 4	0	N/A	69600	69530	-64.18	2100	UV
HRLT A4-A5 Voltage Plus – 5	0	N/A	70090	70040	-53.72	2100	UV
HRLT A4-A5 Voltage Plus – 6	0	N/A	-68540	-68400	137.8	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: 24-Jan-2016 0:31 After: 24-Jan-2016 5:07

HRLT A5-A6 Voltage Plus – 0	0	N/A	68520	68540	19.45	2100	UV
HRLT A5-A6 Voltage Plus – 1	0	N/A	71790	71610	-177.4	2100	UV
HRLT A5-A6 Voltage Plus – 2	0	N/A	73490	73490	-3.289	2100	UV
HRLT A5-A6 Voltage Plus – 3	0	N/A	71800	71730	-71.34	2100	UV
HRLT A5-A6 Voltage Plus – 4	0	N/A	69470	69400	-73.53	2100	UV
HRLT A5-A6 Voltage Plus – 5	0	N/A	69950	69900	-49.18	2100	UV
HRLT A5-A6 Voltage Plus – 6	0	N/A	-68390	-68240	145.6	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: 24-Jan-2016 0:31 After: 24-Jan-2016 5:07

HRLT Torpedo-M0 Voltage – 0	0	N/A	-68030	-68060	-31.15	2100	UV
HRLT Torpedo-M0 Voltage – 1	0	N/A	-71580	-71420	166.0	2100	UV
HRLT Torpedo-M0 Voltage – 2	0	N/A	-73330	-73330	-2.344	2100	UV
HRLT Torpedo-M0 Voltage – 3	0	N/A	-71720	-71650	67.27	2100	UV
HRLT Torpedo-M0 Voltage – 4	0	N/A	-69410	-69350	61.27	2100	UV
HRLT Torpedo-M0 Voltage – 5	0	N/A	-69900	-69850	53.16	2100	UV
HRLT Torpedo-M0 Voltage – 6	0	N/A	68150	68000	-147.6	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: 24-Jan-2016 0:31 After: 24-Jan-2016 5:07

HRLT Bridle#9-M0 Voltage – 0	0	N/A	-68070	-68100	-34.14	2100	UV
HRLT Bridle#9-M0 Voltage – 1	0	N/A	-71670	-71520	142.6	2100	UV
HRLT Bridle#9-M0 Voltage – 2	0	N/A	-73420	-73420	5.469	2100	UV
HRLT Bridle#9-M0 Voltage – 3	0	N/A	-71790	-71720	67.27	2100	UV
HRLT Bridle#9-M0 Voltage – 4	0	N/A	-69460	-69400	65.11	2100	UV
HRLT Bridle#9-M0 Voltage – 5	0	N/A	-69950	-69880	64.30	2100	UV
HRLT Bridle#9-M0 Voltage – 6	0	N/A	68230	68100	-131.1	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: 24-Jan-2016 0:31 After: 24-Jan-2016 5:07

HRLT Source Current Plus – 0	0	N/A	284.0	284.1	0.1286	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: 24-Jan-2016 0:31 After: 24-Jan-2016 5:07

HRLT Vertical Voltage PI – 0	0	N/A	-319.9	-320.1	-0.1516	9.681	UV
HRLT Vertical Voltage PI – 1	0	N/A	-325.0	-324.4	0.6377	9.681	UV
HRLT Vertical Voltage PI – 2	0	N/A	-331.4	-331.3	0.07721	9.681	UV
HRLT Vertical Voltage PI – 3	0	N/A	-320.5	-320.2	0.2456	9.681	UV
HRLT Vertical Voltage PI – 4	0	N/A	-308.6	-308.4	0.2406	9.681	UV
HRLT Vertical Voltage PI – 5	0	N/A	-325.4	-325.3	0.1370	9.681	UV
HRLT Vertical Voltage PI – 6	0	N/A	327.2	326.7	-0.5537	9.681	UV
HRLT Vertical Voltage PI – 7	0	N/A	-322.7	-322.7	0	9.681	UV

Hostile Litho-Density Sonde Wellsite Calibration – Background Measurement

Master: 19-Jan-2016 22:17 Before: 20-Jan-2016 0:40 After: 20-Jan-2016 0:44

SS Cs Resolution Bkg	9.000	7.829	7.745	7.710	-0.03454	1.800	%
LS Cs Resolution Bkg	9.000	8.056	7.946	8.081	0.1356	1.800	%

LSW1 Background	100.0	81.08	81.08	80.62	-0.4549	3.000	CPS
LSW2 Background	100.0	73.67	73.86	72.99	-0.8758	3.000	CPS
LSW3 Background	200.0	165.1	165.7	166.4	0.6655	6.000	CPS
LSW4 Background	250.0	202.7	204.2	203.2	-0.9911	7.500	CPS
LSW5 Background	600.0	475.8	473.6	473.0	-0.6364	18.00	CPS
SSW1 Background	100.0	80.35	77.40	77.65	0.2496	3.000	CPS
SSW2 Background	200.0	133.5	134.4	133.3	-1.035	6.000	CPS
SSW3 Background	500.0	373.7	373.8	372.3	-1.516	15.00	CPS
SSW4 Background	270.0	201.4	200.2	202.8	2.614	8.100	CPS
SSW5 Background	200.0	144.7	143.6	144.3	0.6657	6.000	CPS

Hostile Litho-Density Sonde Wellsite Calibration - Aluminum Measurement

Master: 20-Jan-2016 0:26

LSW1 Aluminum	600.0	495.9	N/A	N/A	N/A	N/A	CPS
LSW2 Aluminum	900.0	716.2	N/A	N/A	N/A	N/A	CPS
LSW3 Aluminum	1100	869.9	N/A	N/A	N/A	N/A	CPS
LSW4 Aluminum	580.0	438.2	N/A	N/A	N/A	N/A	CPS
LSW5 Aluminum	570.0	401.3	N/A	N/A	N/A	N/A	CPS
SSW1 Aluminum	2800	2264	N/A	N/A	N/A	N/A	CPS
SSW2 Aluminum	8000	6251	N/A	N/A	N/A	N/A	CPS
SSW3 Aluminum	11600	8740	N/A	N/A	N/A	N/A	CPS
SSW4 Aluminum	5000	3607	N/A	N/A	N/A	N/A	CPS
SSW5 Aluminum	660.0	433.0	N/A	N/A	N/A	N/A	CPS

Hostile Litho-Density Sonde Wellsite Calibration - Lithology Measurement

Master: 20-Jan-2016 0:21

LSW1 Iron	400.0	336.9	N/A	N/A	N/A	N/A	CPS
LSW2 Iron	730.0	577.6	N/A	N/A	N/A	N/A	CPS
LSW3 Iron	1000	762.8	N/A	N/A	N/A	N/A	CPS
LSW4 Iron	520.0	395.5	N/A	N/A	N/A	N/A	CPS
LSW5 Iron	470.0	366.2	N/A	N/A	N/A	N/A	CPS
SSW1 Iron	2100	1652	N/A	N/A	N/A	N/A	CPS
SSW2 Iron	6800	5195	N/A	N/A	N/A	N/A	CPS
SSW3 Iron	10800	7958	N/A	N/A	N/A	N/A	CPS
SSW4 Iron	4600	3281	N/A	N/A	N/A	N/A	CPS
SSW5 Iron	580.0	384.0	N/A	N/A	N/A	N/A	CPS

Hostile Litho-Density Sonde Wellsite Calibration - Caliper Calibration

Before: 20-Jan-2016 5:28

HLDS Caliper Small Ring	12.00	N/A	14.43	N/A	N/A	N/A	IN
HLDS Caliper Large Ring	15.19	N/A	18.22	N/A	N/A	N/A	IN

Hostile Natural Gamma Ray Sonde Wellsite Calibration - Detector 1 Check

Master: 12-Jan-2016 5:26 Before: 12-Jan-2016 5:40 After: 12-Jan-2016 5:59

Na 511 Peak Loc	40.00	38.59	38.75	38.59	-0.1653	1.000	
Na 511 Peak Res	15.50	16.84	16.24	17.57	1.331	2.000	%
High Voltage	1150	1233	1233	1233	-0.2458	N/A	V
Na 1785 Peak Loc	142.6	140.5	140.0	140.6	0.6059	7.000	
Na 1785 Peak Res	8.500	8.705	9.174	9.118	-0.05565	2.000	%
Temperature	15.50	33.02	32.90	32.78	-0.1249	N/A	DEGC
Na Count Rate	45.00	38.61	39.06	39.55	0.4917	8.000	CPS

Hostile Natural Gamma Ray Sonde Wellsite Calibration - Detector 2 Check

Master: 12-Jan-2016 5:26 Before: 12-Jan-2016 5:40 After: 12-Jan-2016 5:59

Na 511 Peak Loc	40.00	39.61	39.56	39.57	0.01316	1.000	
Na 511 Peak Res	15.50	16.54	16.68	16.75	0.06909	2.000	%
High Voltage	1150	1109	1109	1109	-0.0002441	N/A	V
Na 1785 Peak Loc	142.6	143.6	143.4	142.9	-0.5370	7.000	
Na 1785 Peak Res	8.500	9.385	9.834	9.283	-0.5511	2.000	%
Temperature	15.50	32.68	32.68	32.68	-0.001621	N/A	DEGC
Na Count Rate	45.00	38.61	39.32	39.56	0.2372	8.000	CPS

Hostile Natural Gamma Ray Sonde Wellsite Calibration - Ratio Of Detector 1 To Detector 2

Master: 12-Jan-2016 5:26 Before: 12-Jan-2016 5:40 After: 12-Jan-2016 5:59

Coincidence Count Rate Ratio	1.000	0.9981	0.9913	0.9969	0.005584	0.05000	
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Hostile Natural Gamma Ray Sonde Master Calibration - Detector 1 Calibration

Master: 12-Jan-2016 5:21

Na 511 Peak Set Point	40.00	40.00	--	--	--	--	
Th Peak Loc	209.6	211.3	--	--	--	--	
Th Peak Res	7.000	8.531	--	--	--	--	%
Background Count Rate	142.5	29.22	--	--	--	--	CPS
Gain Ratio	1.000	1.040	--	--	--	--	

Hostile Natural Gamma Ray Sonde Master Calibration - Detector 2 Calibration

Master: 12-Jan-2016 5:21

Na 511 Peak Set Point	40.00	41.00	--	--	--	--	
Th Peak Loc	209.6	210.7	--	--	--	--	
Th Peak Res	7.000	7.393	--	--	--	--	%
Background Count Rate	142.5	29.42	--	--	--	--	CPS
Gain Ratio	1.000	1.011	--	--	--	--	

Enhanced DTS Cartridge Wellsite Calibration – EDTC Accelerometer Calibration

Before: 24-Jan-2016 0:30

EDTC Z-Axis Acceleration	9.810	N/A	9.824	N/A	N/A	N/A	M/S2
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Enhanced DTS Cartridge Wellsite Calibration – Detector Calibration

Before: 12-Jan-2016 5:47 After: 12-Jan-2016 5:56

Gamma Ray (Jig – Bkg)	154.5	N/A	154.5	153.6	-0.9230	14.04	GAPI
Gamma Ray (Calibrated)	164.0	N/A	164.0	163.0	-0.9799	15.00	GAPI

High Resolution Laterolog Array – B / Equipment Identification

Primary Equipment:

HRLT Sonde HRLS – B 768

Auxiliary Equipment:

HRLT lower Housing HRLH – B 1869
 HRLT Lower Cartridge HRLC – B 1897
 HRLT upper Housing HRUH – B 975
 HRLT Upper Cartridge HRUC – B 964

High Resolution Laterolog Array – B Wellsite Calibration

HRLT M01

Idx	Phase	HRLT M0-M1 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		-318.3	-322.7	-280.7	-379.7
	After		-318.4			
1	Before		-330.4	-322.7	-280.7	-379.7
	After		-329.8			
2	Before		-338.1	-322.7	-280.7	-379.7
	After		-338.1			
3	Before		-328.9	-322.7	-280.7	-379.7
	After		-328.6			
4	Before		-319.8	-322.7	-280.7	-379.7
	After		-319.5			
5	Before		-321.6	-322.7	-280.7	-379.7
	After		-321.5			
6	Before		320.0	322.7	379.7	280.7
	After		319.3			
7	Before		-322.7	-322.7	-280.7	-379.7
	After		-322.7			

(Minimum) (Nominal) (Maximum)










Before: 24-Jan-2016 0:31

















After: 24-Jan-2016 5:07











High Resolution Laterolog Array – B Wellsite Calibration

HRLT M12

Idx	Phase	HRLT M1-M2 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		1739	1781	2095	1549
	After		1739			
1	Before		1813	1781	2095	1549
	After		1808			
2	Before		1847	1781	2095	1549
	After		1846			
3	Before		1796	1781	2095	1549
	After		1796			

	After		1793	1781	2095	1549
4	Before		1744	1781	2095	1549
	After		1742			
5	Before		1756	1781	2095	1549
	After		1753			
6	Before		-1763	-1781	-1549	-2095
	After		-1759			
7	Before		1781	1781	2095	1549
	After		1781			
(Minimum) (Nominal) (Maximum)						
Before: 24-Jan-2016 0:31						
After: 24-Jan-2016 5:07						

High Resolution Laterolog Array – B Wellsite Calibration						
HRLT M23						
Idx	Phase	HRLT M2-M3 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		1730	1781	2095	1549
	After		1730			
1	Before		1814	1781	2095	1549
	After		1809			
2	Before		1850	1781	2095	1549
	After		1850			
3	Before		1802	1781	2095	1549
	After		1800			
4	Before		1745	1781	2095	1549
	After		1743			
5	Before		1757	1781	2095	1549
	After		1756			
6	Before		-1753	-1781	-1549	-2095
	After		-1749			
7	Before		1781	1781	2095	1549
	After		1781			
(Minimum) (Nominal) (Maximum)						
Before: 24-Jan-2016 0:31						
After: 24-Jan-2016 5:07						

High Resolution Laterolog Array – B Wellsite Calibration						
HRLT V34						
Idx	Phase	HRLT A3-A4 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		68570	70000	82360	60900
	After		68590			
1	Before		71730	70000	82360	60900
	After		71550			
2	Before		73450	70000	82360	60900
	After		73460			
3	Before		71780	70000	82360	60900
	After		71720			
4	Before		69490	70000	82360	60900
	After					

	After		69420	70000	82360	60900
5	Before		69990	70000	82360	60900
	After		69940			
6	Before		-68330	-70000	-60900	-82360
	After		-68190			
7	Before		70000	70000	82360	60900
	After		70000			
(Minimum) (Nominal) (Maximum)						

Before: 24-Jan-2016 0:31
 After: 24-Jan-2016 5:07

High Resolution Laterolog Array – B Wellsite Calibration						
HRLT V45						
Idx	Phase	HRLT A4–A5 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		68660	70000	82360	60900
	After		68680			
1	Before		71940	70000	82360	60900
	After		71770			
2	Before		73640	70000	82360	60900
	After		73650			
3	Before		71950	70000	82360	60900
	After		71880			
4	Before		69600	70000	82360	60900
	After		69530			
5	Before		70090	70000	82360	60900
	After		70040			
6	Before		-68540	-70000	-60900	-82360
	After		-68400			
7	Before		70000	70000	82360	60900
	After		70000			
(Minimum) (Nominal) (Maximum)						

Before: 24-Jan-2016 0:31
 After: 24-Jan-2016 5:07

High Resolution Laterolog Array – B Wellsite Calibration						
HRLT V56						
Idx	Phase	HRLT A5–A6 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		68520	70000	82360	60900
	After		68540			
1	Before		71790	70000	82360	60900
	After		71610			
2	Before		73490	70000	82360	60900
	After		73490			
3	Before		71800	70000	82360	60900
	After		71730			
4	Before		69470	70000	82360	60900
	After		69400			
5	Before		69950	70000	82360	60900

	Phase	(Minimum)	(Nominal)	(Maximum)			
6	After			69900			
	Before			-68390			
	After			-68240	-70000	-60900	-82360
7	Before			70000			
	After			70000	70000	82360	60900
Before: 24-Jan-2016 0:31 After: 24-Jan-2016 5:07							

High Resolution Laterolog Array – B Wellsite Calibration							
HRLT VTP							
Idx	Phase	HRLT Torpedo-M0 Voltage Plus UV	Value	Nominal	Maximum	Minimum	
0	Before		-68030				
	After		-68060	-70000	-60900	-82360	
1	Before		-71580				
	After		-71420	-70000	-60900	-82360	
2	Before		-73330				
	After		-73330	-70000	-60900	-82360	
3	Before		-71720				
	After		-71650	-70000	-60900	-82360	
4	Before		-69410				
	After		-69350	-70000	-60900	-82360	
5	Before		-69900				
	After		-69850	-70000	-60900	-82360	
6	Before		68150				
	After		68000	70000	82360	60900	
7	Before		-70000				
	After		-70000	-70000	-60900	-82360	
Before: 24-Jan-2016 0:31 After: 24-Jan-2016 5:07							

High Resolution Laterolog Array – B Wellsite Calibration							
HRLT VBD							
Idx	Phase	HRLT Bridle#9-M0 Voltage Plus UV	Value	Nominal	Maximum	Minimum	
0	Before		-68070				
	After		-68100	-70000	-60900	-82360	
1	Before		-71670				
	After		-71520	-70000	-60900	-82360	
2	Before		-73420				
	After		-73420	-70000	-60900	-82360	
3	Before		-71790				
	After		-71720	-70000	-60900	-82360	
4	Before		-69460				
	After		-69400	-70000	-60900	-82360	
5	Before		-69950				
	After		-69880	-70000	-60900	-82360	
6	Before		68230				

	After		68100	70000	82360	60900
7	Before		-70000	-70000	-60900	-82360
	After		-70000			
			(Minimum)	(Nominal)	(Maximum)	

Before: 24-Jan-2016 0:31
After: 24-Jan-2016 5:07

High Resolution Laterolog Array – B Wellsite Calibration						
HRLT ISO						
Idx	Phase	HRLT Source Current Plus UA	Value	Nominal	Maximum	Minimum
0	Before		284.0	284.0	334.1	247.0
	After		284.1			
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: 24-Jan-2016 0:31
After: 24-Jan-2016 5:07

High Resolution Laterolog Array – B Wellsite Calibration						
HRLT MV						
Idx	Phase	HRLT Vertical Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		-319.9	-322.7	-280.7	-379.7
	After		-320.1			
1	Before		-325.0	-322.7	-280.7	-379.7
	After		-324.4			
2	Before		-331.4	-322.7	-280.7	-379.7
	After		-331.3			
3	Before		-320.5	-322.7	-280.7	-379.7
	After		-320.2			
4	Before		-308.6	-322.7	-280.7	-379.7
	After		-308.4			
5	Before		-325.4	-322.7	-280.7	-379.7
	After		-325.3			
6	Before		327.2	322.7	379.7	280.7
	After		326.7			
7	Before		-322.7	-322.7	-280.7	-379.7

After		-322.7	-322.7	-280.7	-379.7
	(Minimum)	(Nominal)	(Maximum)		
Before: 24-Jan-2016 0:31					
After: 24-Jan-2016 5:07					

Hostile Litho-Density Sonde / Equipment Identification

Primary Equipment:

Hostile Litho Density Sonde	HLDS - D	35
Hostile Litho Density High Voltage	HLDV - D	35
Gamma Source Radioactive	GSR - ZA	2945

Auxiliary Equipment:

Hostile Litho Density Pad	HLDP - C	35
Hostile Litho Density High Voltage Housi	HEH - H	35

Hostile Litho-Density Sonde Wellsite Calibration									
Background Measurement									
Phase	SS Cs Resolution Bkg %	Value	Phase	LS Cs Resolution Bkg %	Value	Phase	LSW1 Background CPS	Value	
Master		7.829	Master		8.056	Master		80.13	
Before		7.745	Before		7.946	Before		81.08	
After		7.710	After		8.081	After		80.62	
	7.000 (Minimum)	9.000 (Nominal)	11.000 (Maximum)	7.000 (Minimum)	9.000 (Nominal)	11.000 (Maximum)	55.00 (Minimum)	100.0 (Nominal)	150.0 (Maximum)
Phase	LSW2 Background CPS	Value	Phase	LSW3 Background CPS	Value	Phase	LSW4 Background CPS	Value	
Master		73.67	Master		165.1	Master		202.7	
Before		73.86	Before		165.7	Before		204.2	
After		72.99	After		166.4	After		203.2	
	50.00 (Minimum)	100.0 (Nominal)	140.0 (Maximum)	110.0 (Minimum)	200.0 (Nominal)	290.0 (Maximum)	140.0 (Minimum)	250.0 (Nominal)	360.0 (Maximum)
Phase	LSW5 Background CPS	Value	Phase	SSW1 Background CPS	Value	Phase	SSW2 Background CPS	Value	
Master		475.8	Master		80.35	Master		133.5	
Before		473.6	Before		77.40	Before		134.4	
After		473.0	After		77.65	After		133.3	
	330.0 (Minimum)	600.0 (Nominal)	830.0 (Maximum)	55.00 (Minimum)	100.0 (Nominal)	150.0 (Maximum)	100.0 (Minimum)	200.0 (Nominal)	260.0 (Maximum)
Phase	SSW3 Background CPS	Value	Phase	SSW4 Background CPS	Value	Phase	SSW5 Background CPS	Value	
Master		373.7	Master		201.4	Master		144.7	
Before		373.8	Before		200.2	Before		143.6	
After		372.3	After		202.8	After		144.3	
	280.0 (Minimum)	500.0 (Nominal)	700.0 (Maximum)	150.0 (Minimum)	270.0 (Nominal)	380.0 (Maximum)	110.0 (Minimum)	200.0 (Nominal)	270.0 (Maximum)
Master: 19-Jan-2016 22:17			Before: 20-Jan-2016 0:40			After: 20-Jan-2016 0:44			

Hostile Litho-Density Sonde Master Calibration									
Detector Background Measurement									
Phase	LSW1 Background CPS	Value	Phase	LSW2 Background CPS	Value	Phase	LSW3 Background CPS	Value	
Master		80.13	Master		73.67	Master		165.1	
	55.00 (Minimum)	100.0 (Nominal)	150.0 (Maximum)	50.00 (Minimum)	100.0 (Nominal)	140.0 (Maximum)	110.0 (Minimum)	200.0 (Nominal)	290.0 (Maximum)
Phase	LSW4 Background CPS	Value	Phase	LSW5 Background CPS	Value	Phase	LS Cs Resolution Bkg %	Value	
Master		202.7	Master		475.8	Master		8.056	
	140.0 (Minimum)	250.0 (Nominal)	360.0 (Maximum)	330.0 (Minimum)	600.0 (Nominal)	830.0 (Maximum)	7.000 (Minimum)	9.000 (Nominal)	11.000 (Maximum)
Phase	SSW1 Background CPS	Value	Phase	SSW2 Background CPS	Value	Phase	SSW3 Background CPS	Value	
Master		80.35	Master		133.5	Master		373.7	
	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		201.4	Master		144.7	Master		7.829	

Master	150.0 (Minimum)	270.0 (Nominal)	380.0 (Maximum)	201.4	Master	110.0 (Minimum)	200.0 (Nominal)	270.0 (Maximum)	144.7	Master	7.000 (Minimum)	9.000 (Nominal)	11.00 (Maximum)	7.829
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Master: 19-Jan-2016 22:17

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				495.9	Master				716.2	Master				869.9
	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				438.2	Master				401.3	Master				2264
	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				6251	Master				8740	Master				3607
	5800 (Minimum)	8000 (Nominal)	9300 (Maximum)			8300 (Minimum)	11600 (Nominal)	13500 (Maximum)			3500 (Minimum)	5000 (Nominal)	5800 (Maximum)	
Phase	SSW5 Aluminum CPS			Value										
Master				433.0										
	430.0 (Minimum)	660.0 (Nominal)	770.0 (Maximum)											

Master: 20-Jan-2016 0:26

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				336.9	Master				577.6	Master				762.8
	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				395.5	Master				366.2	Master				1652
	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				5195	Master				7958	Master				3281
	4900 (Minimum)	6800 (Nominal)	7900 (Maximum)			7800 (Minimum)	10800 (Nominal)	12600 (Maximum)			3300 (Minimum)	4600 (Nominal)	5400 (Maximum)	
Phase	SSW5 Iron CPS			Value										
Master				384.0										
	420.0 (Minimum)	580.0 (Nominal)	680.0 (Maximum)											

Master: 20-Jan-2016 0:21

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				1.036	Master				2.164	Master				0.5908
	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				0.5604	Master				0.9914	Master				0.9856
	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				0.9988	Master				0.9802					
	0.9900 (Minimum)	0.9940 (Nominal)	1.015 (Maximum)			0.9850 (Minimum)	0.9940 (Nominal)	1.010 (Maximum)						

Master: 20-Jan-2016 0:13

Litho-Density Spectroscopy Cartridge - B / Equipment Identification

Primary Equipment:
LDSC Cartridge

LDSC - B

326

Auxiliary Equipment:
LDSC Housing

LDSH - A

303

Hostile Natural Gamma Ray Cartridge - B / Equipment Identification

Primary Equipment:
HNGC Cartridge

HNGC - B

439

Auxiliary Equipment:
HNGC Housing

HNGH - A

380

Hostile Natural Gamma Ray Sonde / Equipment Identification

Primary Equipment:
HNGS Sonde

HNGS - BA

177

Auxiliary Equipment:
HNGS Sonde Housing
Gamma Source Radioactive

HNSH - BA

174

GSR - U

616008

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		38.59	Master		16.84	Master		1233
Before		38.75	Before		16.24	Before		1233
After		38.59	After		17.57	After		1233
	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		140.5	Master		8.705	Master		33.02
Before		140.0	Before		9.174	Before		32.90
After		140.6	After		9.118	After		32.78
	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		38.61						
Before		39.06						
After		39.55						
	10.00 (Minimum) 45.00 (Nominal) 100.0 (Maximum)							
Master: 12-Jan-2016 5:26			Before: 12-Jan-2016 5:40			After: 12-Jan-2016 5:59		

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		39.61	Master		16.54	Master		1109
Before		39.56	Before		16.68	Before		1109
After		39.57	After		16.75	After		1109
	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		143.6	Master		9.385	Master		32.68
Before		143.4	Before		9.834	Before		32.68
After		142.9	After		9.283	After		32.68
	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		38.61						
Before		39.06						
After		39.55						
	10.00 (Minimum) 45.00 (Nominal) 100.0 (Maximum)							

Master		38.61
Before		39.32
After		39.56
	10.00 (Minimum) 45.00 (Nominal) 100.0 (Maximum)	

Master: 12-Jan-2016 5:26 Before: 12-Jan-2016 5:40 After: 12-Jan-2016 5:59

Hostile Natural Gamma Ray Sonde Wellsite Calibration		
Ratio Of Detector 1 To Detector 2		
Phase	Coincidence Count Rate Ratio	Value
Master		0.9981
Before		0.9913
After		0.9969
	0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum)	
Master: 12-Jan-2016 5:26		
Before: 12-Jan-2016 5:40		
After: 12-Jan-2016 5:59		







Hostile Natural Gamma Ray Sonde Master Calibration								
Detector 1 Calibration								
Phase	Na 511 Peak Set Point	Value	Phase	Th Peak Loc	Value	Phase	Th Peak Res %	Value
Master		40.00	Master		211.3	Master		8.531
	38.00 (Minimum) 40.00 (Nominal) 43.00 (Maximum)			201.0 (Minimum) 209.6 (Nominal) 218.3 (Maximum)			5.000 (Minimum) 7.000 (Nominal) 9.000 (Maximum)	
Phase	Background Count Rate CPS	Value	Phase	Gain Ratio	Value			
Master		29.22	Master		1.040			
	10.00 (Minimum) 142.5 (Nominal) 265.0 (Maximum)			0.9400 (Minimum) 1.000 (Nominal) 1.060 (Maximum)				
Master: 12-Jan-2016 5:21								

Hostile Natural Gamma Ray Sonde Master Calibration								
Detector 2 Calibration								
Phase	Na 511 Peak Set Point	Value	Phase	Th Peak Loc	Value	Phase	Th Peak Res %	Value
Master		41.00	Master		210.7	Master		7.393
	38.00 (Minimum) 40.00 (Nominal) 43.00 (Maximum)			201.0 (Minimum) 209.6 (Nominal) 218.3 (Maximum)			5.000 (Minimum) 7.000 (Nominal) 9.000 (Maximum)	
Phase	Background Count Rate CPS	Value	Phase	Gain Ratio	Value			
Master		29.42	Master		1.011			
	10.00 (Minimum) 142.5 (Nominal) 265.0 (Maximum)			0.9400 (Minimum) 1.000 (Nominal) 1.060 (Maximum)				
Master: 12-Jan-2016 5:21								

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

Enhanced DTS Cartridge Wellsite Calibration		
EDTC Accelerometer Calibration		
Phase	EDTC Z-Axis Acceleration M/S2	Value
Before		9.824
	9.610 (Minimum) 9.810 (Nominal) 10.01 (Maximum)	
Before: 24-Jan-2016 0:30		

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		7.668	Before		154.5	Before		164.0
After		7.153	After		153.6	After		163.0
0 (Minimum)	30.00 (Nominal)	120.0 (Maximum)	140.4 (Minimum)	154.5 (Nominal)	168.5 (Maximum)	149.0 (Minimum)	164.0 (Nominal)	179.0 (Maximum)
Before: 12-Jan-2016 5:47			After: 12-Jan-2016 5:56					

Company: **International Ocean Discovery Program**

Schlumberger

Well: **Expedition 360, Site U1473A**

Field: **SW Indian Ridge Lower Crust and Moho**

Rig: **JOIDES Resolution**

Ocean: **Indian**

High Resolution Laterolog Array (HRLA)

Hostile Litho Density Sonde (HLDS)

Natural Gamma Ray Spectroscopy (HNGS)