Schlumberger

Company: **Lamont Doherty**

Well: **Expedition 339, Site U1389 GC−11A Hole E**
Field: **Mediterranean Outflow (Portugal)**
Rig: **JOIDES Resolution** Ocean: **Atlantic**

Rig: JOIDES Resolution
Field: Mediterranean Outflow (Portugal)
Location: Latitude: N 36* 25.517'
Well: Expedition 339, Site U1389 GC−
Company: Lamont Doherty

High Resolution Laterolog Array
Log Quality Control

LOCATION

Latitude: N 36* 25.517'
Longitude: W 7* 16.688'

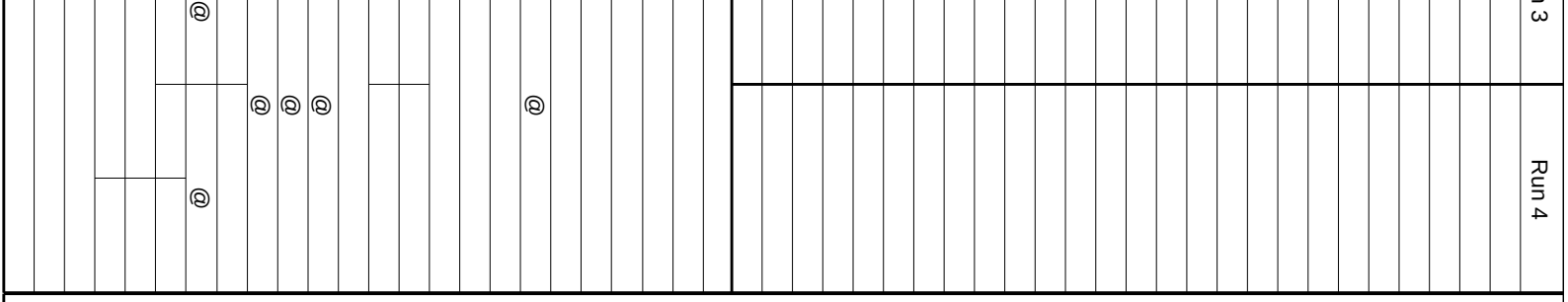
Elev.: K.B. 11.00 m
G.L. −644.00 m
D.F. 11.00 m

Permanent Datum: Mean Sea Level — Elev.: 0.00 m
Log Measured From: Drill Floor — 11.00 m above Perm. Datum
Drilling Measured From: Drill Floor

API Serial No.	Max. Hole Devi. 0 deg	Longitude W 7.2781*	Latitude N 36.42528*

	Run 1	Run 2	Run 3
Logging Date	2−Jan−2012		
Run Number	1		
Depth Driller	990 m		
Schlumberger Depth	567 m		
Bottom Log Interval	567 m		
Top Log Interval	0 m		
Casing Driller Size @ Depth	10.750 in @ 102 m	@	@
Casing Schlumberger	102 m		
Bit Size	9.875 in		
Type Fluid In Hole	Seawater Gel		
MUD Density / Viscosity	1.25 g/cm3 /	/	/
MUD Fluid Loss / PH	/	/	/
MUD Source Of Sample	N/A		
RM @ Measured Temperature	@	@	@
RMF @ Measured Temperature	@	@	@
RMC @ Measured Temperature	@	@	@
Source RMF / RMC	N/A / N/A	/	/
RM @ MRT / RMF @ MRT	@ 21 / @ 21	@ / @	@ / @
Maximum Recorded Temperatures	21 degC		
Circulation Stopped / Time	1−Jan−2012 / 21:00		
Logger On Bottom / Time	2−Jan−2012 / 2:30		
Unit Number / Location	625003 / Houston		
Recorded By	K. Swain		
Witnessed By	T. Williams, J. Lofi		

	Run 1	Run 2	Run 3
Logging Date			
Run Number			
Depth Driller			
Schlumberger Depth			
Bottom Log Interval			
Top Log Interval			
Casing Driller Size @ Depth	@		
Casing Schlumberger			
Bit Size			
Type Fluid In Hole			
MUD Density / Viscosity	/		
MUD Fluid Loss / PH	/		
MUD Source Of Sample			
RM @ Measured Temperature	@		
RMF @ Measured Temperature	@		
RMC @ Measured Temperature	@		
Source RMF / RMC	/		
RM @ MRT / RMF @ MRT	@ / @		
Maximum Recorded Temperatures			
Circulation Stopped / Time	/		
Logger On Bottom / Time	/		
Unit Number / Location	/		
Recorded By			
Witnessed By			



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

REMARKS: RUN NUMBER 1	REMARKS: RUN NUMBER 2
Hole GC−11A Hole E was drilled with a 9 7/8" RCB bit to TDD of 990 mbsf.	
This log orginally acquired in measured depth from rig floor but played back	
for sea floor reference.	
HRLA spikes just before drill pipe are related to a tool return issue and	
not due to formation resistivity.	
A playback was produced and listed on the log for caliper input for hole size.	
The original logs were acquired with bit size as the hole size assumption.	
Barite mud ID was used in the playback and not on the original log.	
All logs recorded via wireline thru 5−5.5" drillpipe and RCB coring BHA	
consisting of a bit release sub, Kinley sub, drill collars. The bit was release	
d prior to logging.	
TD of 990mbsf was not reached due to hole conditions. Tool could not descend	
lower than 567mbsf and was logged up from there.	

RUN 1

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

LOGGED INTERVAL	START	STOP

RUN 2

SERVICE ORDER #:
PROGRAM VERSION:
FLUID LEVEL:

LOGGED INTERVAL	START	STOP

EQUIPMENT DESCRIPTION

RUN 1 RUN 2

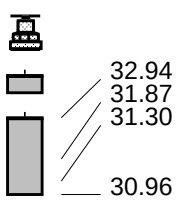
SURFACE EQUIPMENT

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

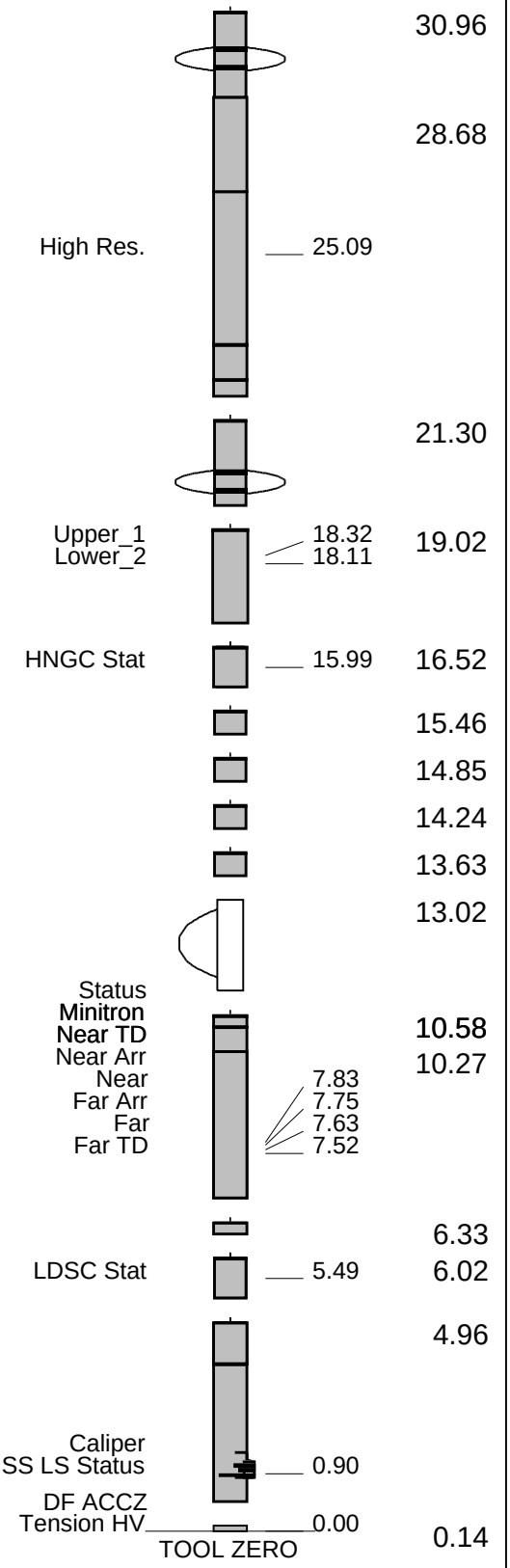
DOWNHOLE EQUIPMENT

LEH−QT
AH−369
EDTC−B
EDTH−B 8303
EDTC−B 8317

MDSB_EDTC
Mud Tempe
CTEM
Gamma Ray
EFTB DIAG
TelStatus
EDTCB Ele

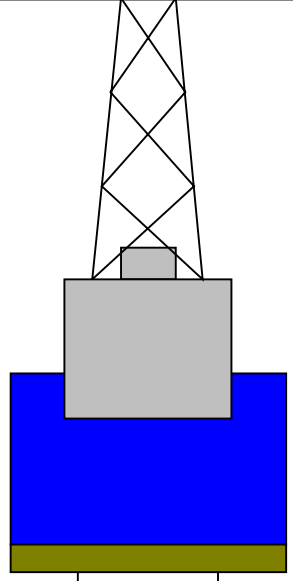


34.26
33.37
32.94



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

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



Kelly Bushing Elevation	−655		
Derrick Floor Elevation	−655		
Mean Sea Level	−645		
		4.1	
	0	3.80	Sea Floor
	102.2	9.875	Open Hole
	990		Total Depth

Input DLIS Files

DEFAULT	LDL_APS_NGS_HRLA_027LUP	FN:21	PRODUCER	02−Jan−2012 03:40	1220.7 M	643.0 M

Output DLIS Files

DEFAULT	LDL_APS_NGS_HRLA_030PUP	FN:25	PRODUCER	02−Jan−2012 06:00	566.9 M	−11.0 M
BACKUPDLIS	LDL_APS_NGS_HRLA_030PUP	FN:26	PRODUCER	02−Jan−2012 06:00	566.9 M	−11.0 M

OP System Version: 19C0−187

HLDS	19C0−187	LDSC−B	19C0−187
APS−C	19C0−187	HNGC−B	19C0−187
HNGS−BA	19C0−187	HRLT−B	19C0−187
EDTC−B	19C0−187		

PIP SUMMARY

Time Mark Every 60 S

(RT_HRLT)
0.2 (OHMM) 2000

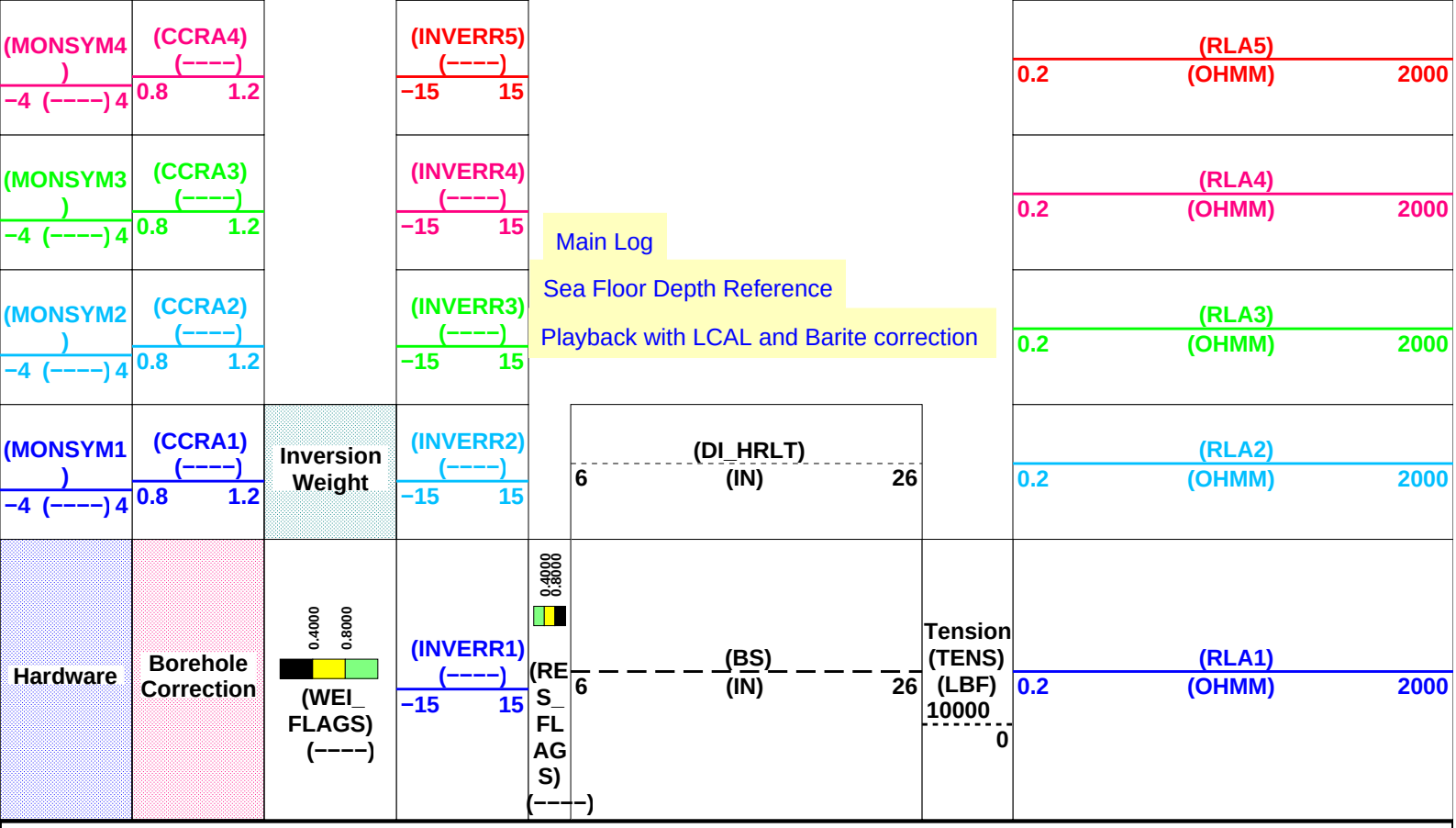
(RM_HRLT)
0.02 (OHMM) 200

(RXO_HRLT)
0.2 (OHMM) 2000

(MONSYM5)
−4 (−−−−) 4

(CCRA5) (−−−−)
0.8 1.2

Inversion



***** 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 algorythm, and from left to right :

| Wei1 | Wei2 | Wei3 | Wei4 | Wei5 |

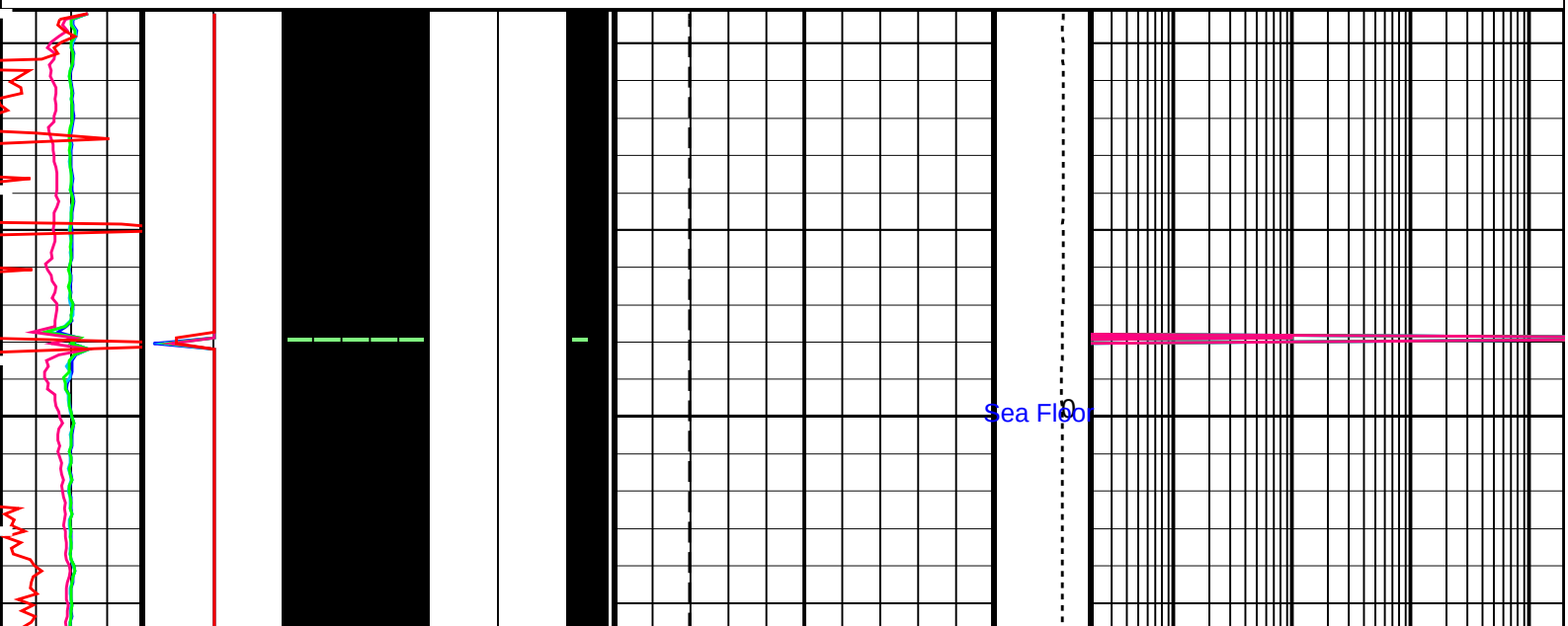
GREEN = OK YELLOW = Contribution QUESTIONABLE BLACK = Contribution UNRELIABLE

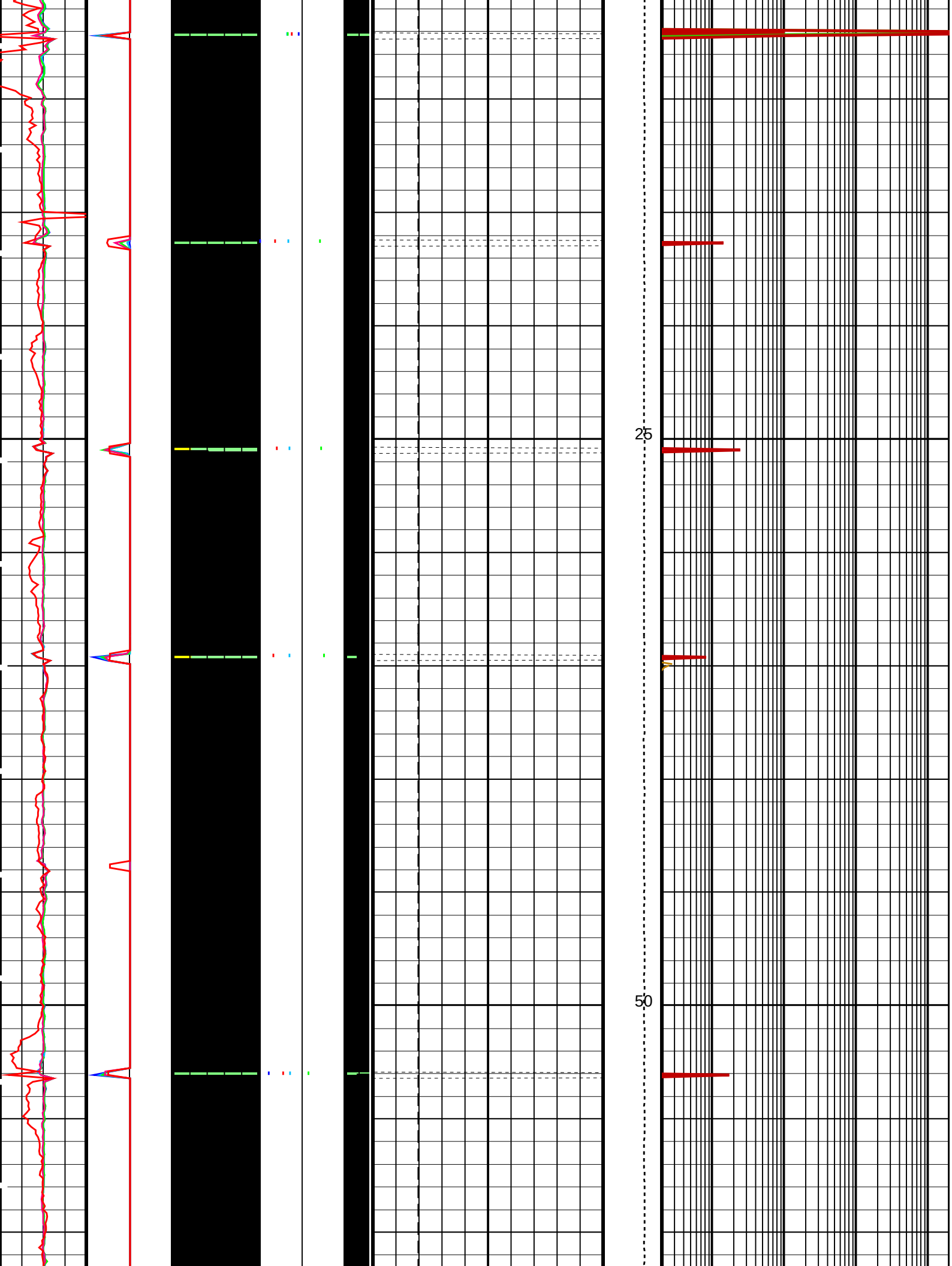
TRACK R5_LQC RESISTIVITY QUALITY INDICATOR

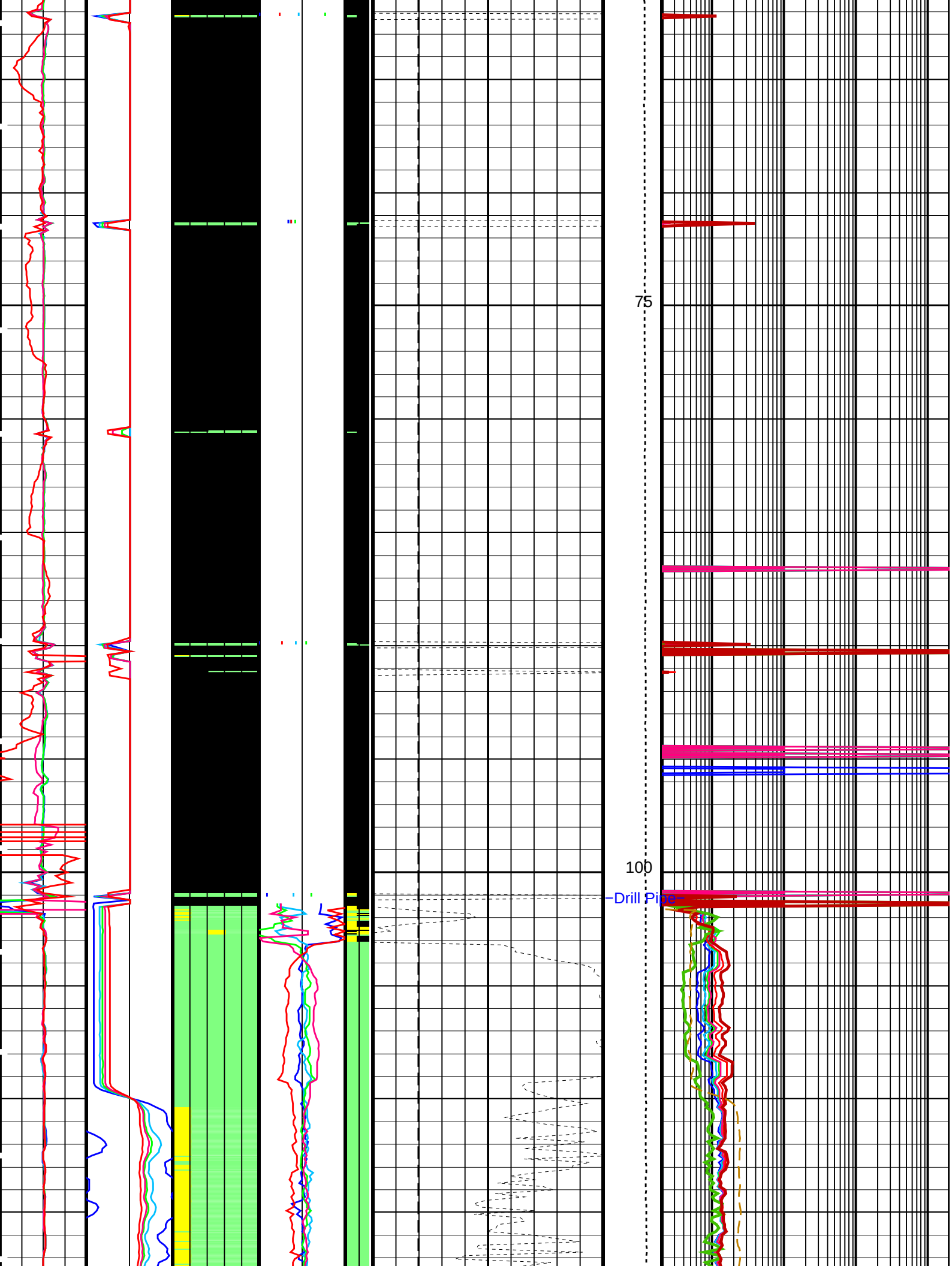
LQC flags on RXO_HRLT & RT_HRLT, and from left to right :

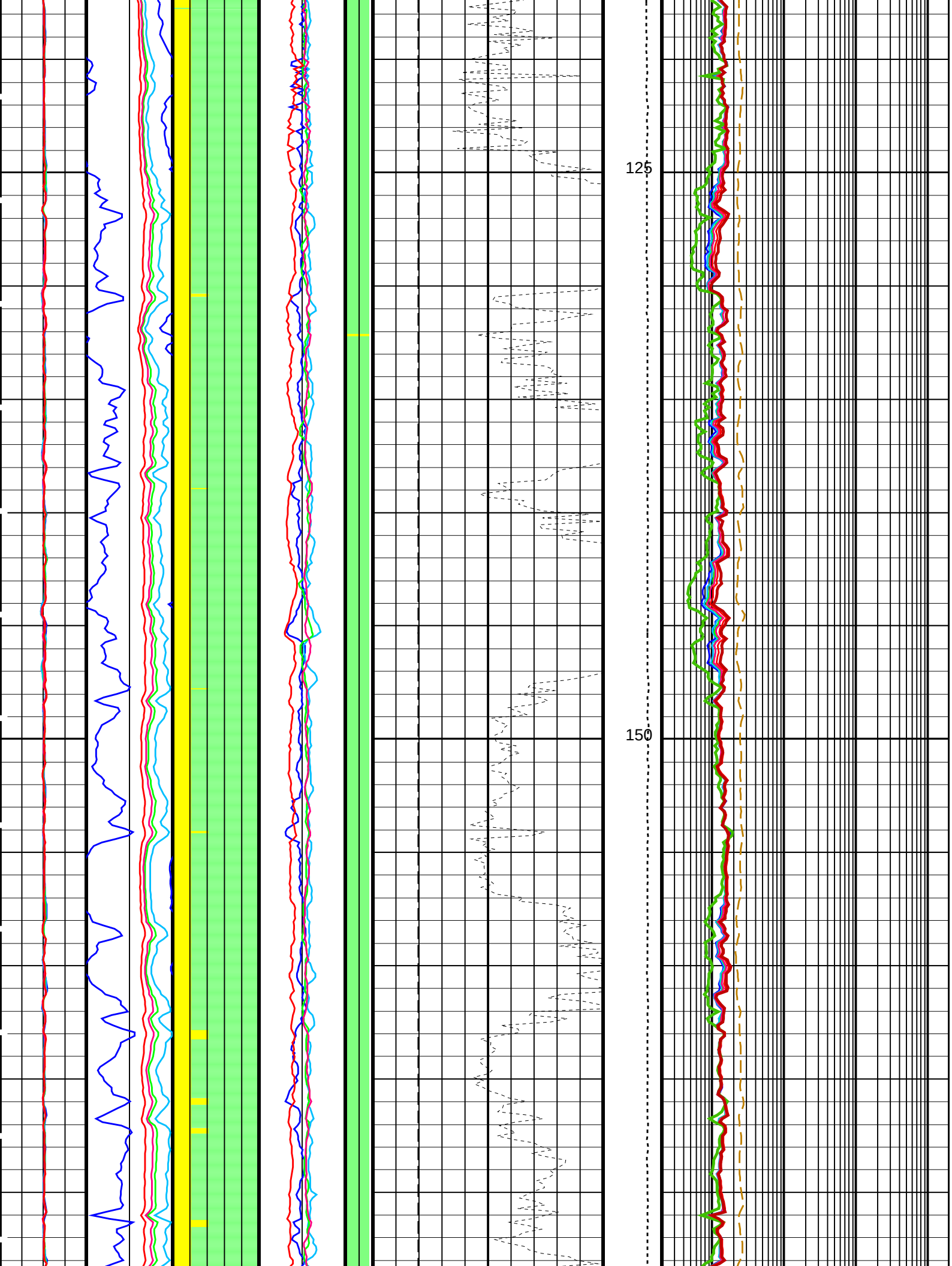
| RxoFlag | RTFlag |

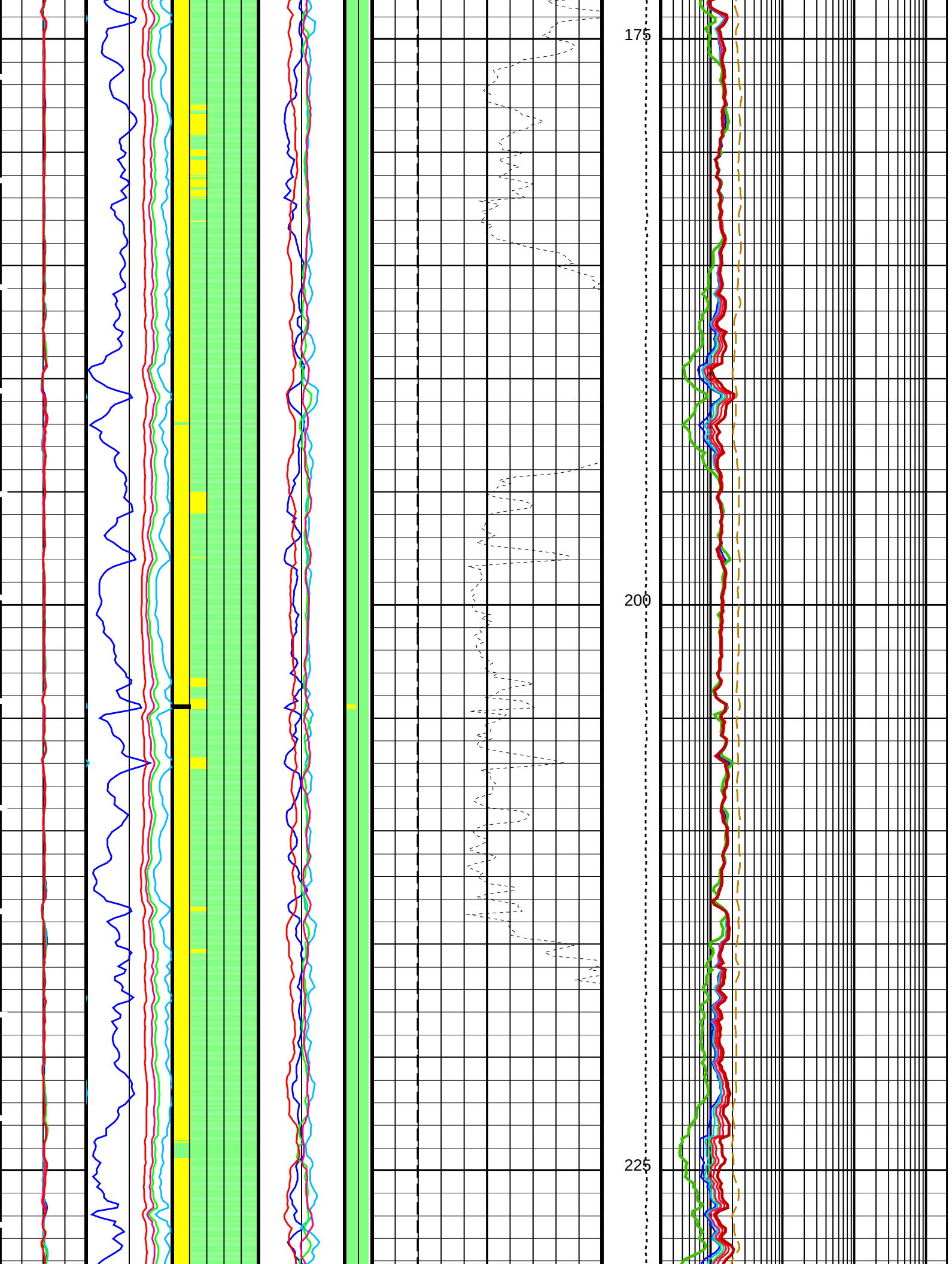
GREEN = OK YELLOW = SHOULDER BED EFFECT BLACK = NOK

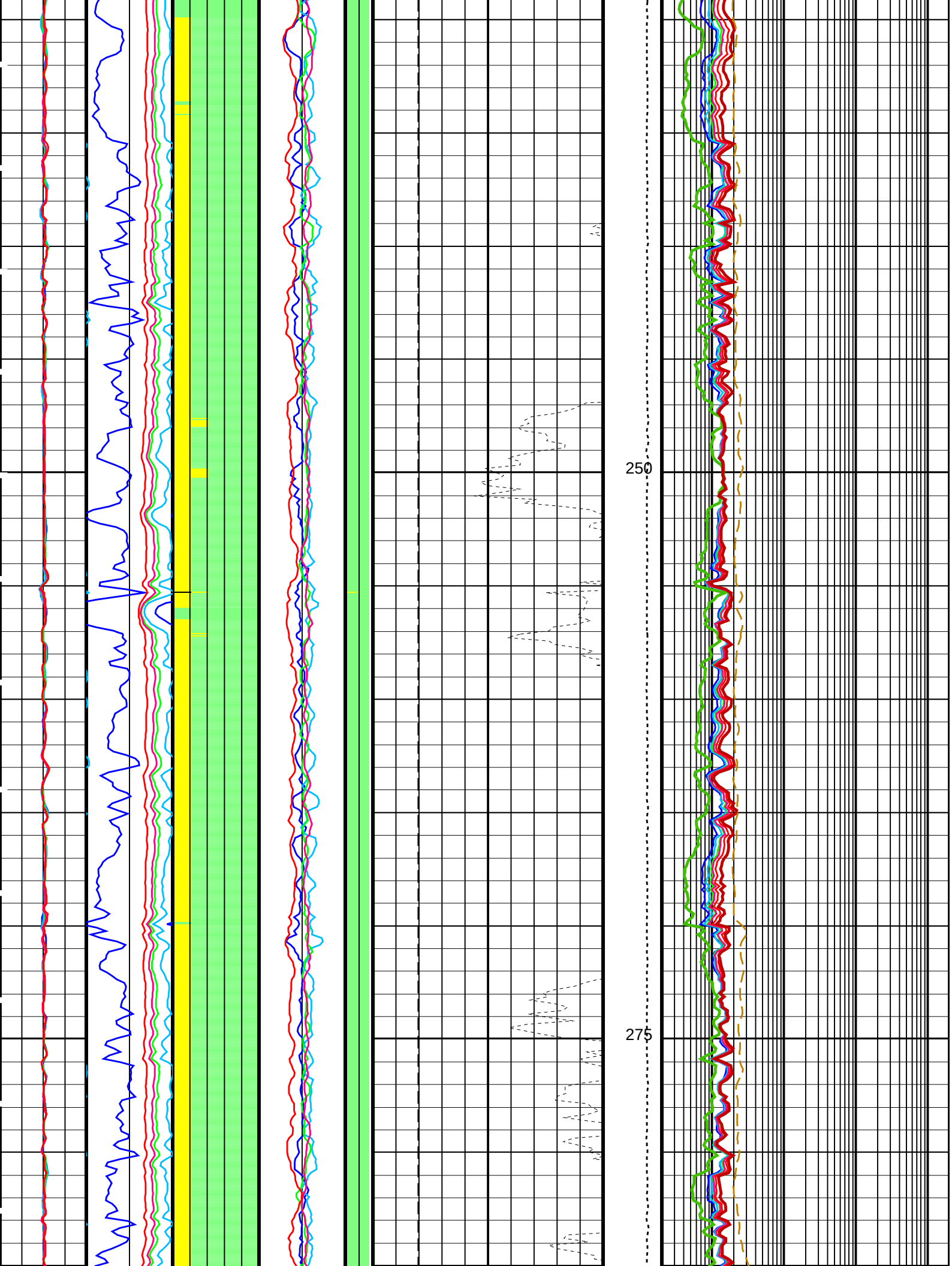


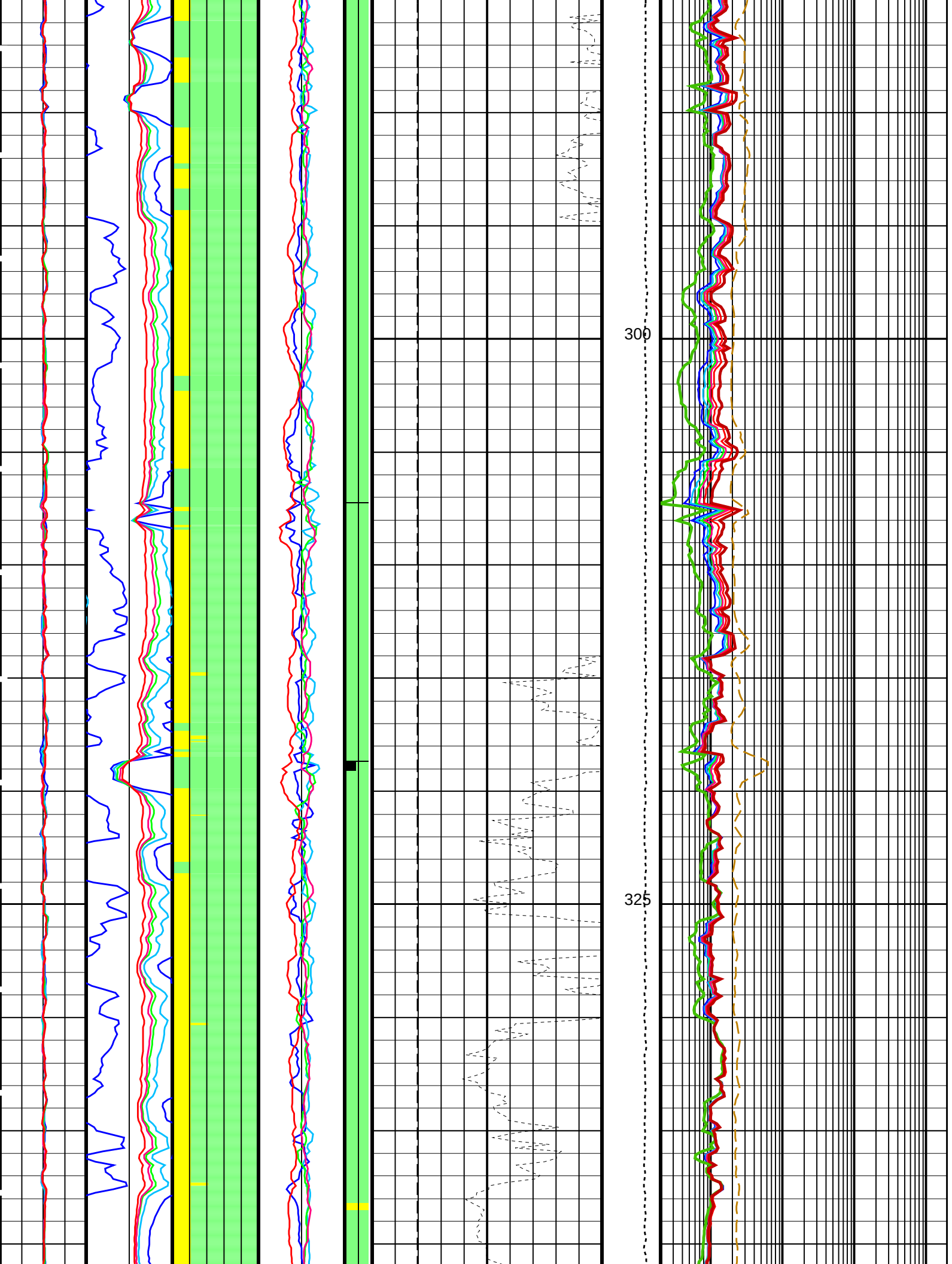

25
50

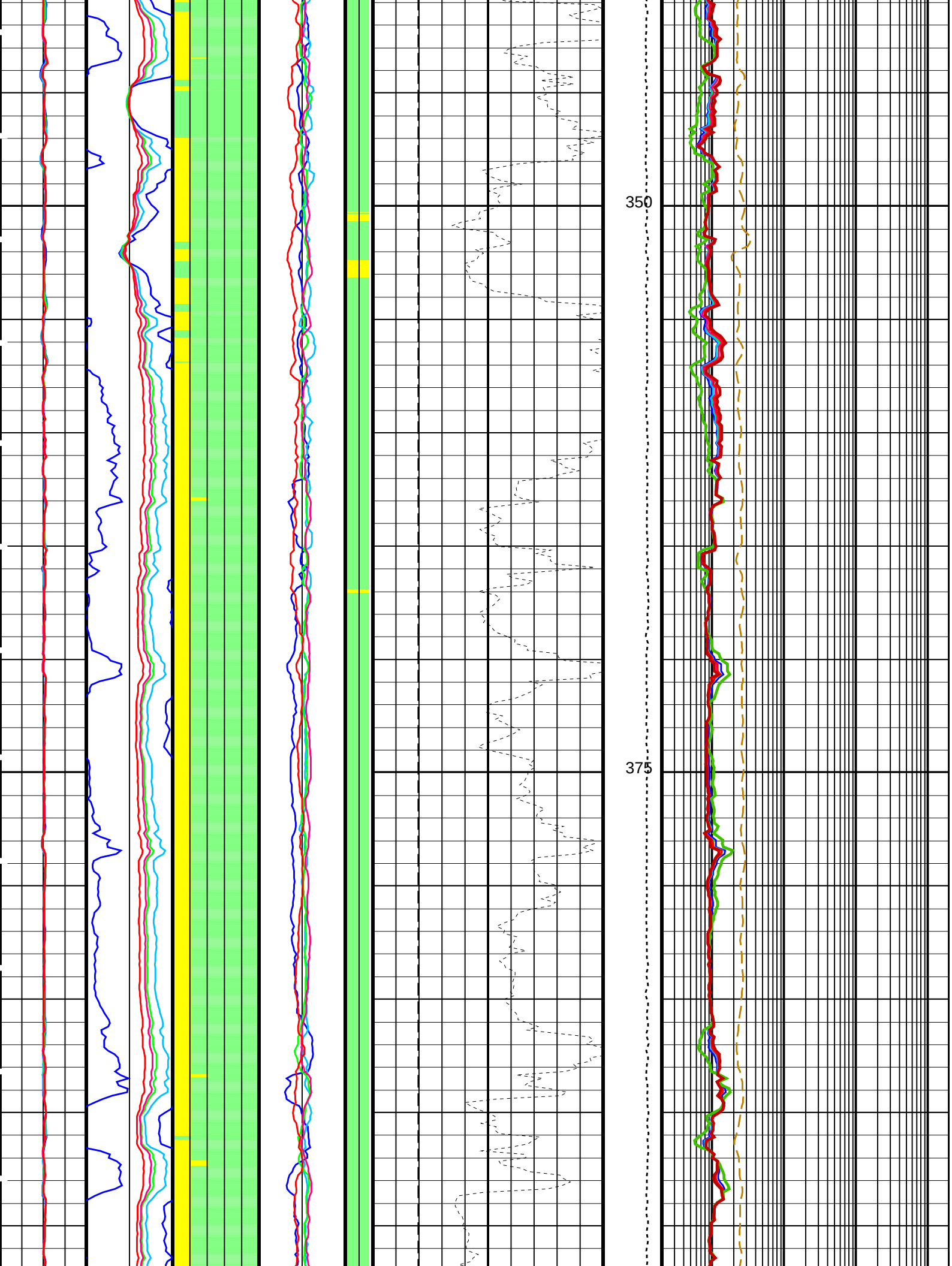

75
100
Drill Pipe

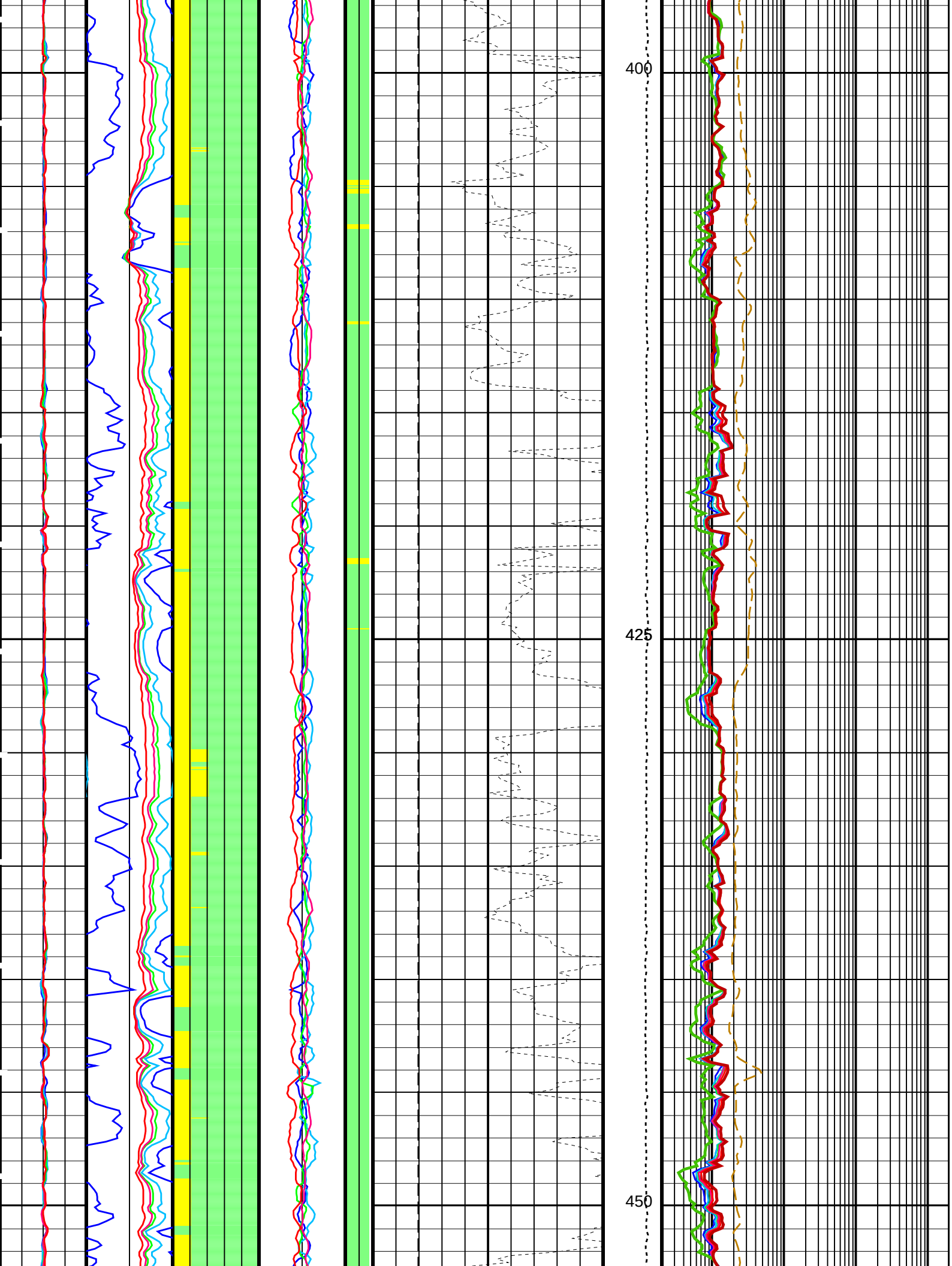

125
150

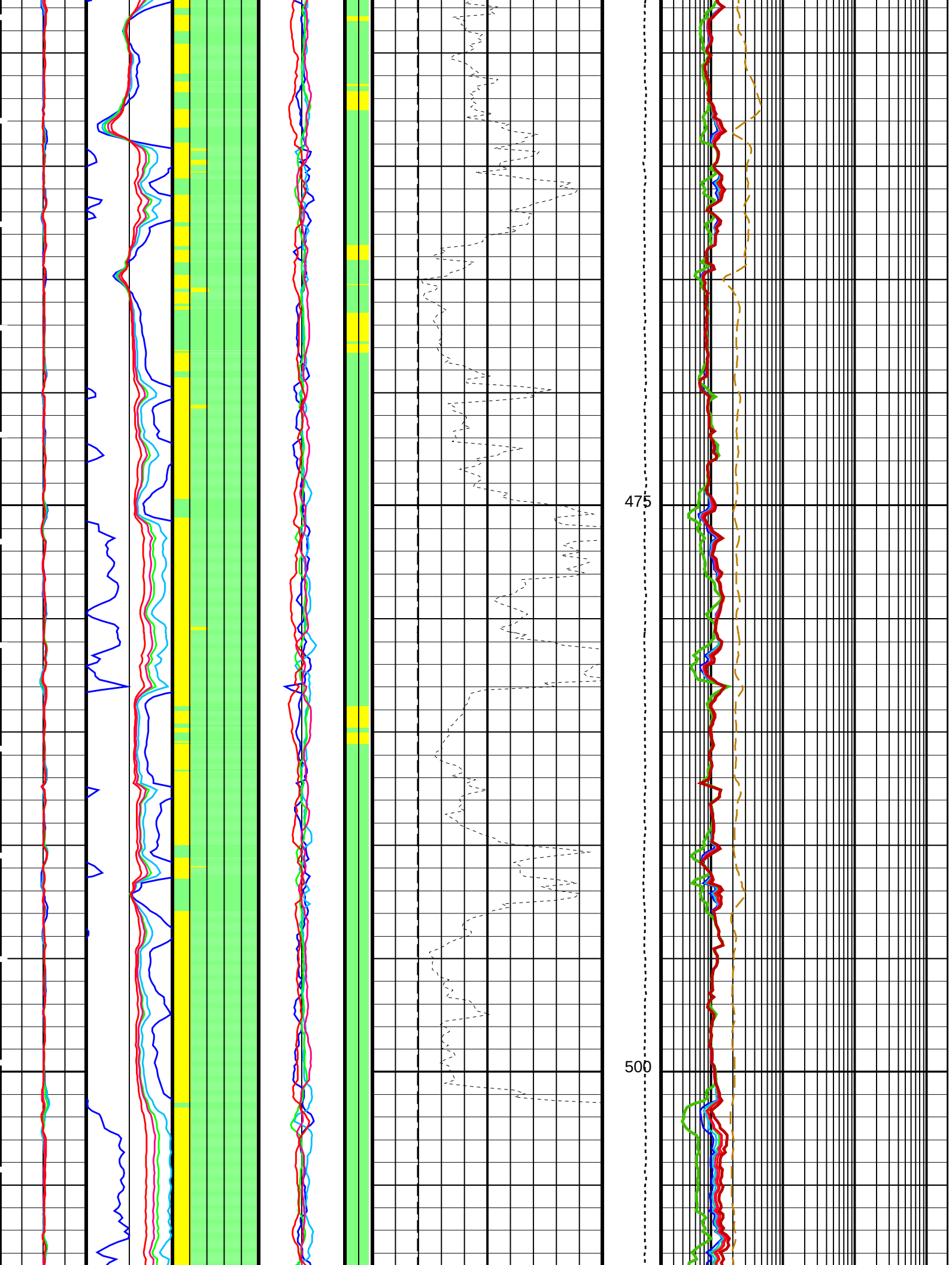

175
200
225

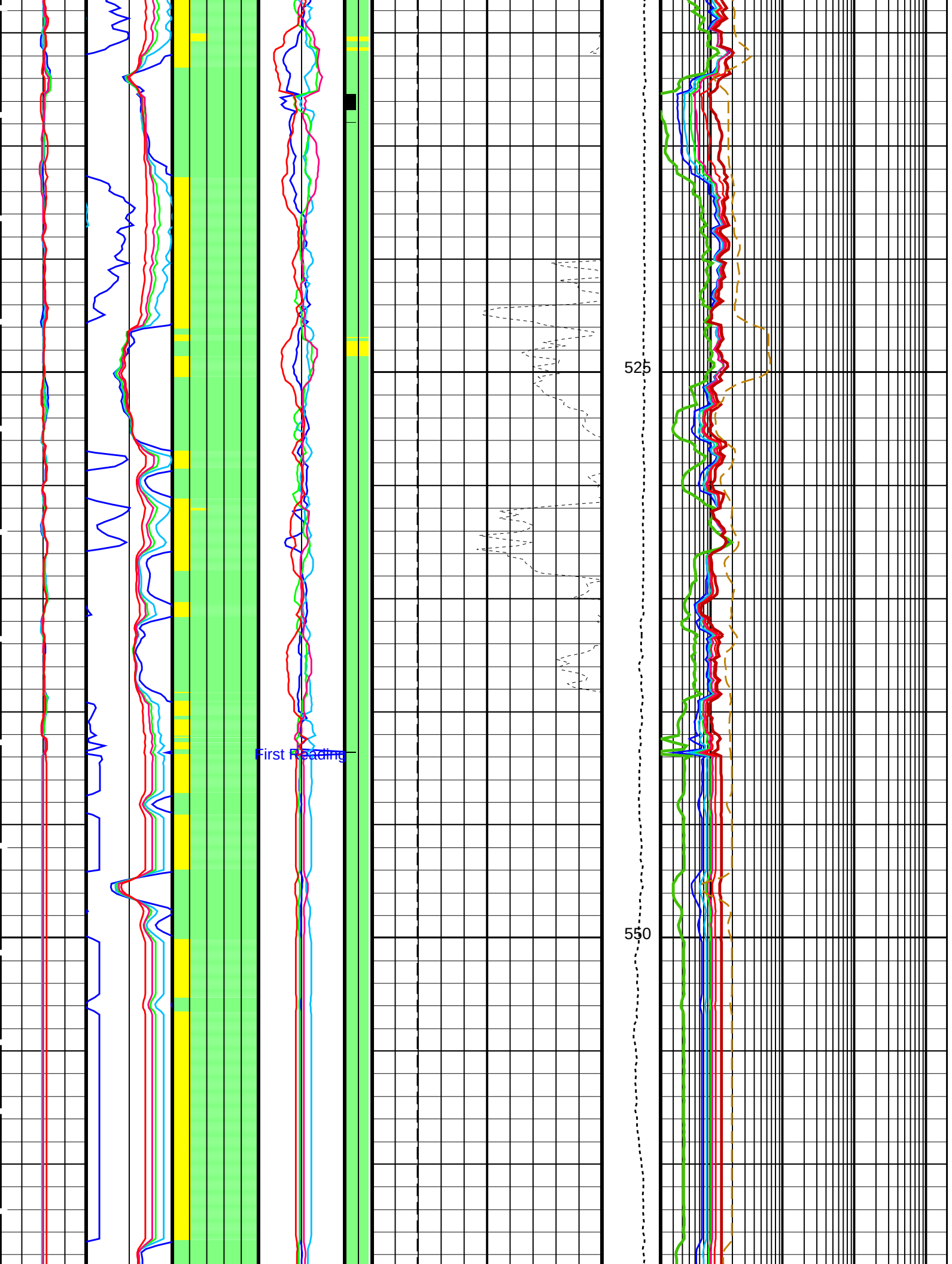

250
275

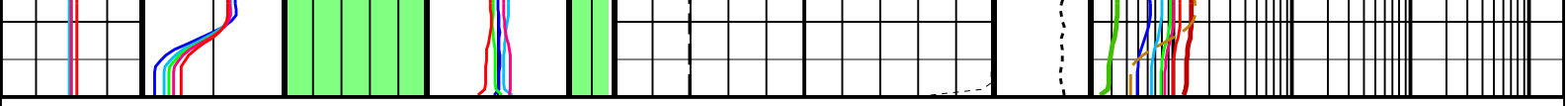

300
325


350
375


400
425
450


475
500


First Reading
525
550



***** HRLT FLAG TRACKS *****

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TRACK R3_LQC INVERSION WEIGHT

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

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TRACK R5_LQC RESISTIVITY QUALITY INDICATOR

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

| RxoFlag | RTFlag |

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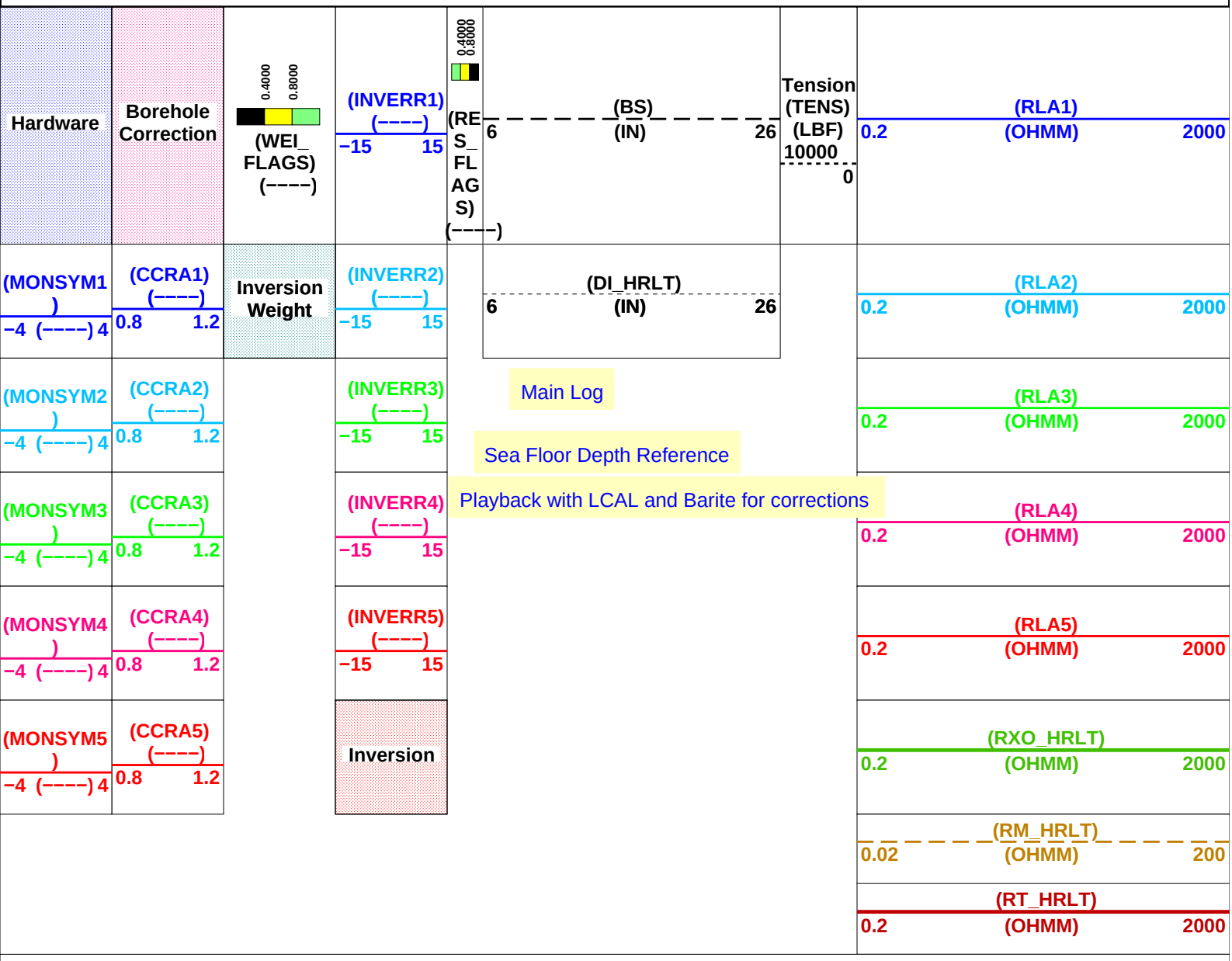


PIP SUMMARY

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value

	HLDS: Hostile Litho−Density Sonde		
CLCL	**HLDS LS Control Loop Controller Mode**	**AUTO_DEFAULT**	
CLCS	**HLDS SS Control Loop Controller Mode**	**AUTO_DEFAULT**	
CLLS	**HLDS Mode Loop Long Spacing**	**AUTO**	
CLSS	**HLDS Mode Loop Short Spacing**	**AUTO**	
DHC	**Density Hole Correction**	**BS**	
DPPM	**Density Porosity Processing Mode**	**HIRS**	
FD	**Fluid Density**	**1**	**G/C3**
LATC	**HLDS Activation Correction**	**ON**	
LLDL	**HLDS LS Low Level Discriminator DAC**	**14000**	
LLDS	**HLDS SS Low Level Discriminator DAC**	**14000**	
LLML	**HLDS LS Low Level Discriminator Mode**	**AUTO**	
LLMS	**HLDS SS Low Level Discriminator Mode**	**AUTO**	
MDEN	**Matrix Density**	**2.71**	**G/C3**
PHVL	**HLDS Long Spacing High Voltage Setting**	**1000**	**V**
PHVS	**HLDS Short Spacing High Voltage Setting**	**1000**	**V**
PSDL	**HLDS LS Pulse Shape Compensation DAC**	**30000**	
PSDS	**HLDS SS Pulse Shape Compensation DAC**	**30000**	
PSML	**HLDS LS Pulse Shape Compensation Mode**	**AUTO**	
PSMS	**HLDS SS Pulse Shape Compensation Mode**	**AUTO**	
	APS−C: Accelerator−Porosity Tool		
	APS Software Version	**5**	
AASD	**APS Thermal and Array Detectors High Voltage Setting**	**1962.18**	**V**
ADSO	**APS Array Detectors Data Source Switch**	**Both**	
AFSD	**APS Far Detector High Voltage Setting**	**2082.06**	**V**
AHCS	**APS Holesize Correction Source**	**GCSE**	
AHSS	**APS Holesize Correction Switch**	**ON**	
AMTY	**APS Environmental Corrections Mud Type**	**WaterBaseBarite**	
ANSD	**APS Near Detector High Voltage Setting**	**1731.78**	**V**
ASOS	**APS Standoff Correction Switch**	**ON**	
ATSS	**APS Temperature−Pressure−Salinity Correction Switch**	**ON**	
BHFL_APS	**APS TNPH Borehole Fluid Type**	**WATER**	
BHS	**Borehole Status**	**OPEN**	
BHT	**Bottom Hole Temperature (used in calculations)**	**50**	**DEGF**
BSCO_APS	**APS TNPH Borehole Salinity Correction Option**	**NO**	
DPPM	**Density Porosity Processing Mode**	**HIRS**	
DSCO_APS	**APS TNPH Density Source Correction Option**	**COMPUTED**	
FSAL	**Formation Salinity**	**−50000**	**PPM**
FSCO_APS	**APS TNPH Formation Salinity Correction Option**	**NO**	
GCSE	**Generalized Caliper Selection**	**LCAL**	
GDEV	**Average Angular Deviation of Borehole from Normal**	**0**	**DEG**
GGRD	**Geothermal Gradient**	**0.01**	**DF/F**
GRSE	**Generalized Mud Resistivity Selection**	**CHART_GEN_9**	
GTSE	**Generalized Temperature Selection**	**LINEAR_ESTIMATE**	
HSCO_APS	**APS TNPH Hole Size Correction Option**	**YES**	
ISSBAR	**Barite Mud Switch**	**BARITE**	
MATR	**Rock Matrix for Neutron Porosity Corrections**	**LIMESTONE**	
MCCO_APS	**APS TNPH Mud Cake Correction Option**	**YES**	
MCOR_APS	**APS TNPH Mud Correction**	**BARI**	
MWCO_APS	**APS TNPH Mud Weight Correction Option**	**YES**	
NARC	**APS Near/Array Calibration Ratio**	**1.05701**	
NFRC	**APS Near/Far Calibration Ratio**	**0.887966**	
PTCO_APS	**APS TNPH Pressure/Temperature Correction Option**	**NO**	
SHT	**Surface Hole Temperature**	**68**	**DEGF**
TNCO_APS	**APS TNPH Computation Option**	**NO**	
	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)**	**50**	**DEGF**
CSD1	**Inner Casing Outer Diameter**	**0**	**IN**
CSD2	**Outer Casing Outer Diameter**	**0**	**IN**
CSW1	**Inner Casing Weight**	**0**	**LB/F**
CSW2	**Outer Casing Weight**	**0**	**LB/F**
DBCC	**HNGS Barite Constant Correction Flag**	**NONE**	
GCSE	**Generalized Caliper Selection**	**LCAL**	
GDEV	**Average Angular Deviation of Borehole from Normal**	**0**	**DEG**
GGRD	**Geothermal Gradient**	**0.01**	**DF/F**
GRSE	**Generalized Mud Resistivity Selection**	**CHART_GEN_9**	
GTSE	**Generalized Temperature Selection**	**LINEAR_ESTIMATE**	
H1P	**HNGS Detector 1 Allow/Disallow In Processing**	**ALLOW**	
H2P	**HNGS Detector 2 Allow/Disallow In Processing**	**ALLOW**	
HABK	**HNGS Borehole Potassium Running Average**	**−0.00518472**	
HALF	**HNGS Alpha Filter Length**	**60**	**IN**
HCRB	**HNGS Apply Borehole Potassium Correction**	**NONE**	
HMWM	**Mud Weighting Material**	**BARI**	
HNPE	**HNGS Processing Enable**	**YES**	
ISSBAR	**Barite Mud Switch**	**BARITE**	
MATR	**Rock Matrix for Neutron Porosity Corrections**	**LIMESTONE**	
S1BI	**HNGS Detector 1 Calibration Bismuth Count Rate**	**1.3**	**CPS**
S2BI	**HNGS Detector 2 Calibration Bismuth Count Rate**	**1.3**	**CPS**
SGRC	**HNGS Standard Gamma−Ray Correction Flag**	**YES**	
SHT	**Surface Hole Temperature**	**68**	**DEGF**

TPOS	Tool Position	ECCE	
VBA1	HNGS Detector 1 Variable Barite Factor Running Average	0.992678	
VBA2	HNGS Detector 2 Variable Barite Factor Running Average	0.983861	
HRLT−B: High Resolution Laterolog Array − B			
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	50	DEGF
CALSTAT	HRLTB Calibration Status	SHALLOW_DONE	
CALTEMP	HRLTB Calibration Temperature	17.0393	DEGC
FREQ0	HRLT Frequency Index for Mode 0	32	
FREQ1	HRLT Frequency Index for Mode 1	128	
FREQ2	HRLT Frequency Index for Mode 2	104	
FREQ3	HRLT Frequency Index for Mode 3	86	
FREQ4	HRLT Frequency Index for Mode 4	56	
FREQ5	HRLT Frequency Index for Mode 5	44	
FREQ6	HRLT Frequency Index for Mode 6	116	
GCSE	Generalized Caliper Selection	LCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
ISSBAR	Barite Mud Switch	BARITE	
KFAC_HRLT	HRLT K Factor Option	SONDE	
LOOPCOEF_S	HRLT Loop Coefficient for Shallow Modes	LOW	
LOOPMOD0	HRLT Mode 0 Loop Mode	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	
PROCMSO	Mechanical Standoff Fin Size	0	IN
PROCRM	Processing Mud Resistivity Select	HRLT_Compute	
PROCSPO	Sonde Position	Centered	
SHT	Surface Hole Temperature	68	DEGF
EDTC−B: Enhanced DTS Cartridge			
BHFL	Borehole Fluid Type	WATER	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	50	DEGF
BSCO	Borehole Salinity Correction Option	NO	
CCCO	Casing & Cement Thickness Correction Option	NO	
DPPM	Density Porosity Processing Mode	HIRS	
FSAL	Formation Salinity	−50000	PPM
FSCO	Formation Salinity Correction Option	NO	
GCSE	Generalized Caliper Selection	LCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
HSCO	Hole Size Correction Option	YES	
ISSBAR	Barite Mud Switch	BARITE	
ISSBAR_EDTC	Nuclear Mud Type	BARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
MCCO	Mud Cake Correction Option	NO	
MCOR	Mud Correction	NATU	
MWCO	Mud Weight Correction Option	YES	
PTCO	Pressure/Temperature Correction Option	NO	
SDAT	Standoff Data Source	SOCN	
SHT	Surface Hole Temperature	68	DEGF
SOCN	Standoff Distance	0	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	−50000.00	PPM
CSIZ	Current Casing Size	10.750	IN
CWEI	Casing Weight	43.00	LB/F
DFD	Drilling Fluid Density	1.25	G/C3
DO	Depth Offset for Playback	−654.0	M
FLEV	Fluid Level	−50000.00	M
MST	Mud Sample Temperature	−50000.00	DEGC
PBVSADP	Use alternate depth channel for playback	NO	
PP	Playback Processing	RECOMPUTE	
RMFS	Resistivity of Mud Filtrate Sample	−50000.0000	OHMM
RW	Resistivity of Connate Water	1.0000	OHMM
TD	Total Depth	3330	FT
TDD	Total Depth − Driller	990.00	M
TDL	Total Depth − Logger	567.00	M
TWS	Temperature of Connate Water Sample	37.78	DEGC

Format: HRLT_LQC Vertical Scale: 1:200 Graphics File Created: 02−Jan−2012 06:00

OP System Version: 19C0−187

HLDS	19C0−187	LDSC−B	19C0−187
APS−C	19C0−187	HNGC−B	19C0−187
HNGS−BA	19C0−187	HRLT−B	19C0−187
EDTC−B	19C0−187		

Input DLIS Files

DEFAULT	LDL_APS_NGS_HRLA_027LUP	FN:21	PRODUCER	02−Jan−2012 03:40	1220.7 M	643.0 M

Output DLIS Files

DEFAULT	LDL_APS_NGS_HRLA_030PUP	FN:25	PRODUCER	02−Jan−2012 06:00		
BACKUPDLIS	LDL_APS_NGS_HRLA_030PUP	FN:26	PRODUCER	02−Jan−2012 06:00		

Input DLIS Files

DEFAULT	LDL_APS_NGS_HRLA_027LUP	FN:21	PRODUCER	02−Jan−2012 03:40	1220.7 M	643.0 M

Output DLIS Files

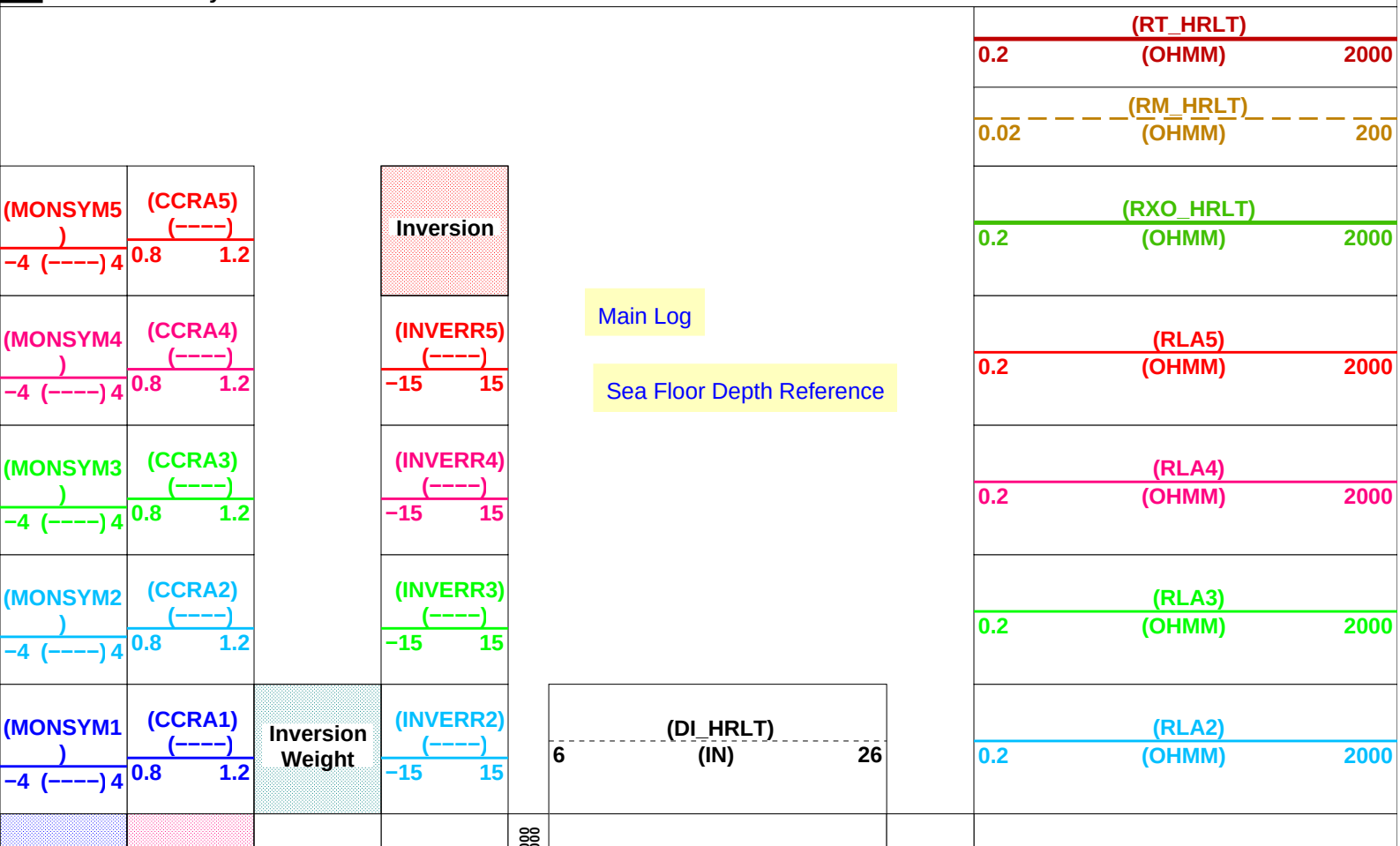
DEFAULT	LDL_APS_NGS_HRLA_042PUP	FN:46	PRODUCER	10−Jan−2012 02:40	566.9 M	−11.0 M

OP System Version: 19C0−187

HLDS	19C0−187	LDSC−B	19C0−187
APS−C	19C0−187	HNGC−B	19C0−187
HNGS−BA	19C0−187	HRLT−B	19C0−187
EDTC−B	19C0−187		

PIP SUMMARY

Time Mark Every 60 S



Hardware	Borehole Correction	0.4000 0.8000 (WEI_ FLAGS) (----)	(INVERR1) (----) −15 15	0.400 0.800 (RES_ FLAGS) (----)	(BS) (IN) 6 26	Tension (TENS) (LBF) 10000 0	(RLA1) (OHMM) 0.2 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 algorythm, and from left to right :

| Wei1 | Wei2 | Wei3 | Wei4 | Wei5 |

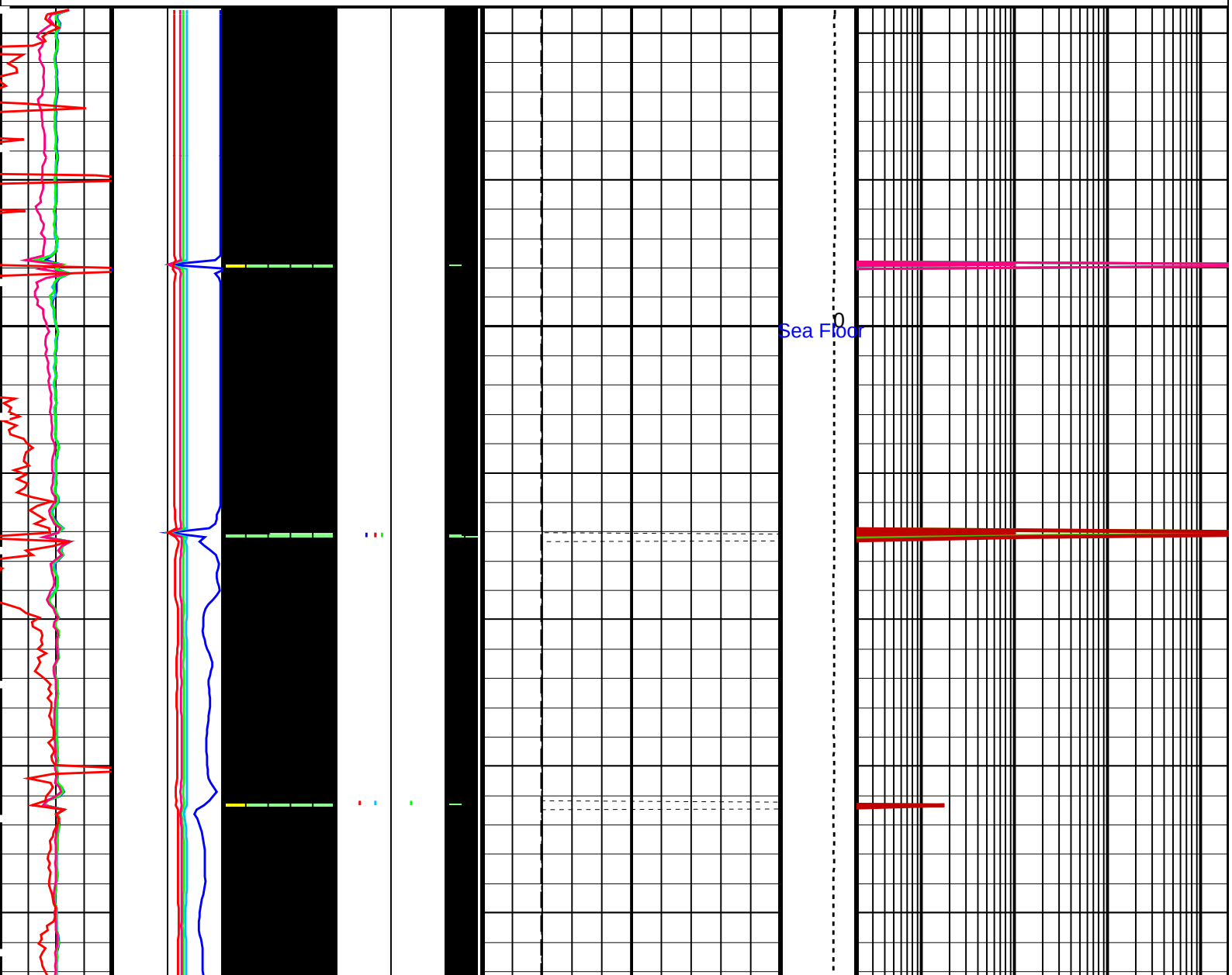
GREEN = OK YELLOW = Contribution QUESTIONABLE BLACK = Contribution UNRELIABLE

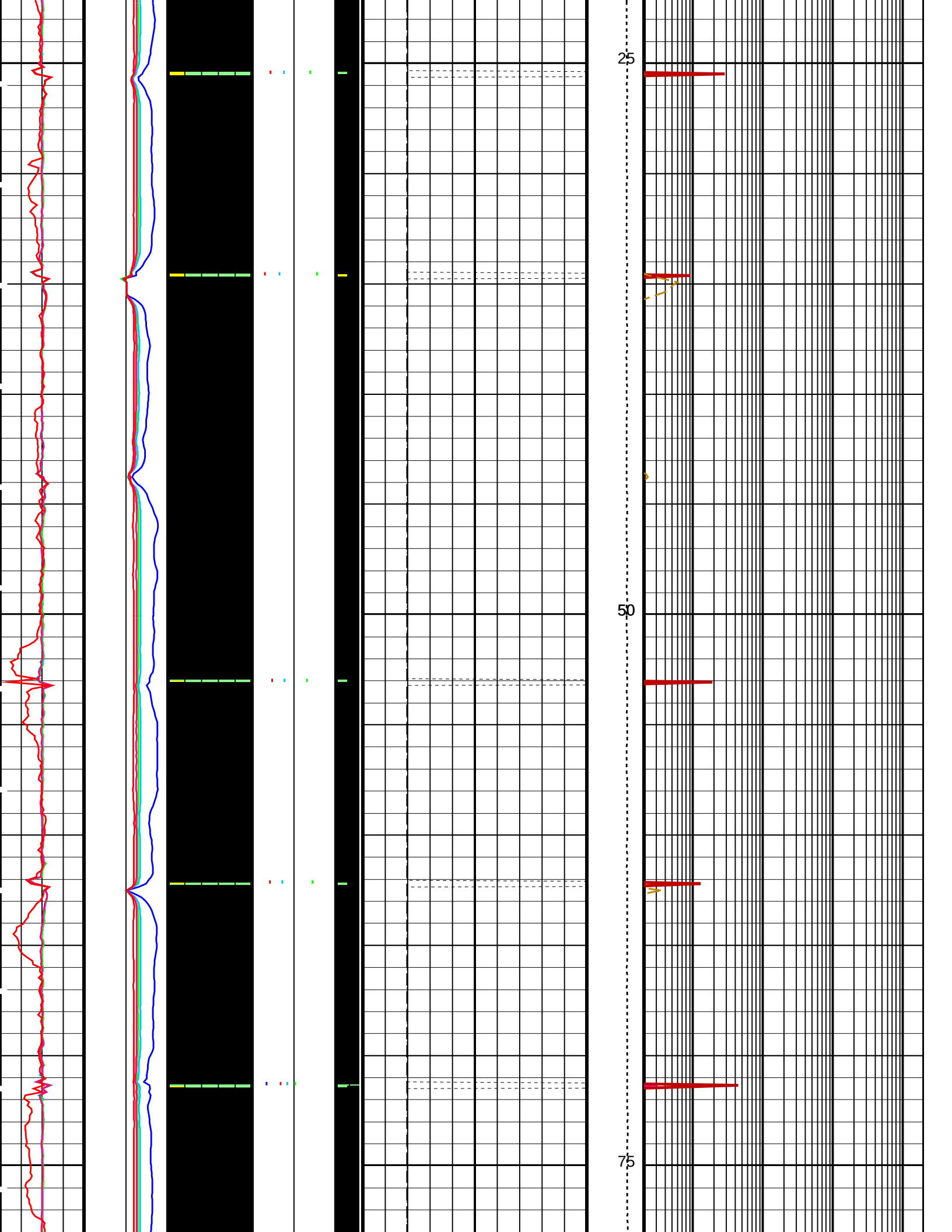
TRACK R5_LQC RESISTIVITY QUALITY INDICATOR

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

| RxoFlag | RTFlag |

GREEN = OK YELLOW = SHOULDER BED EFFECT BLACK = NOK

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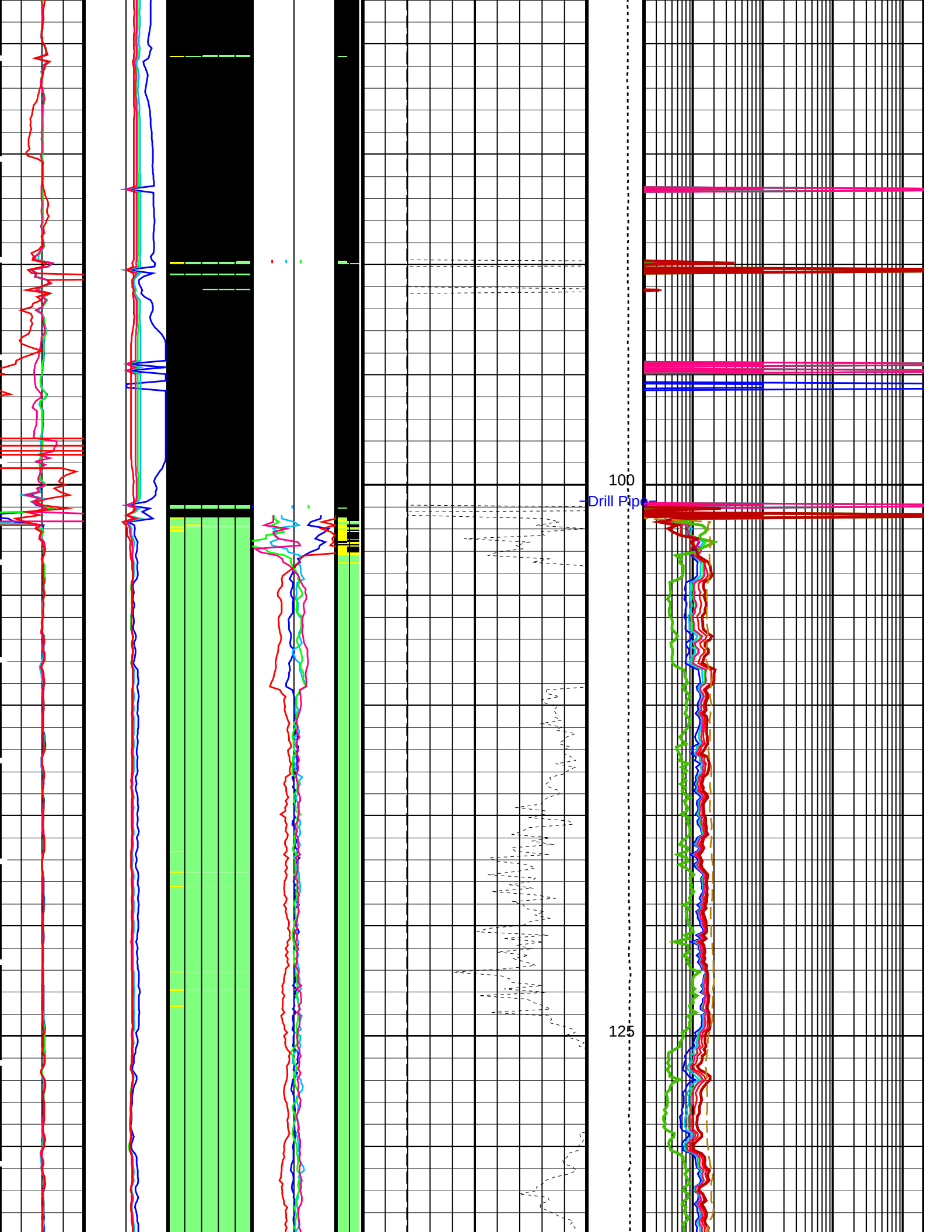
75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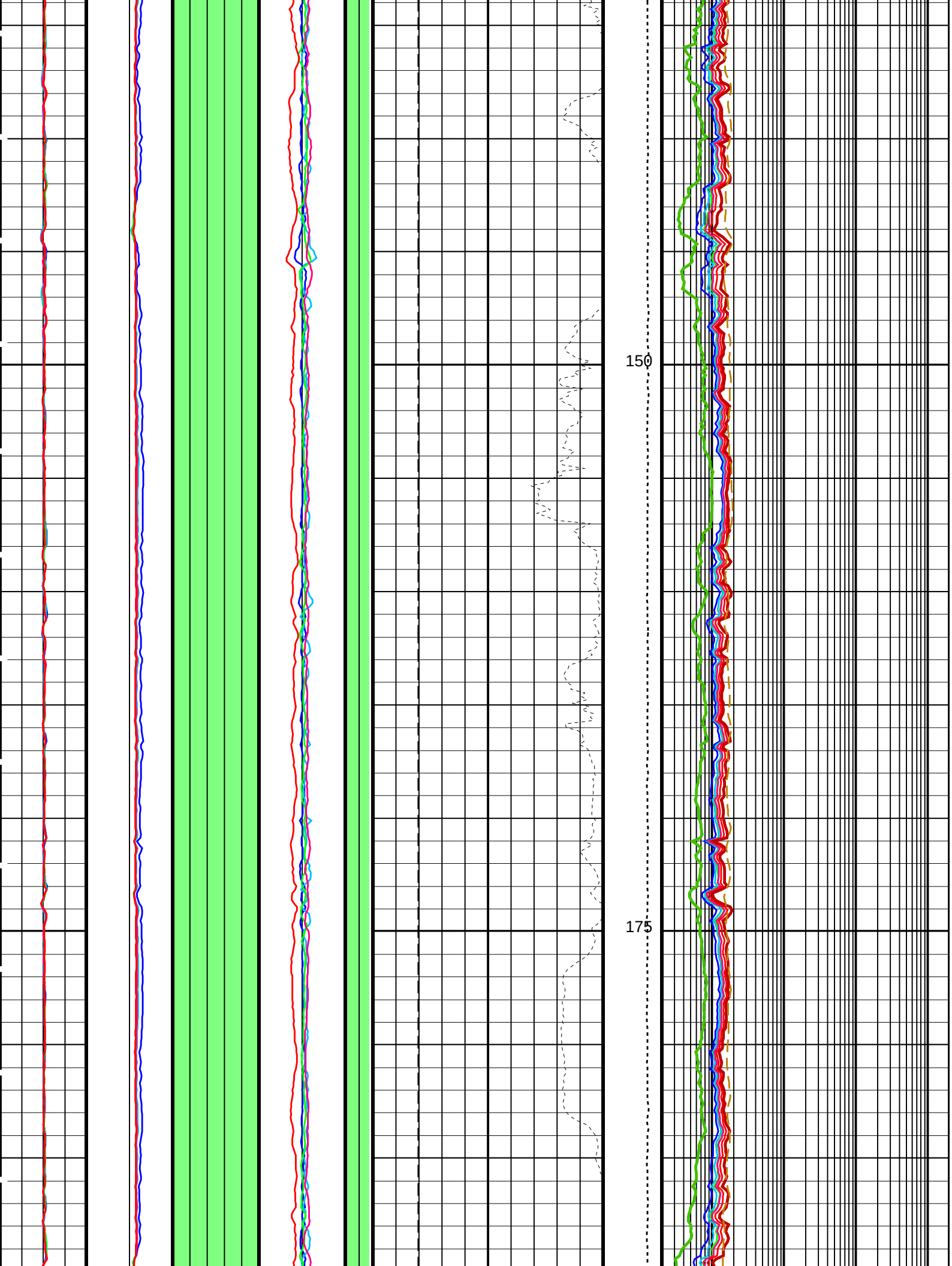
Drill Pipe
125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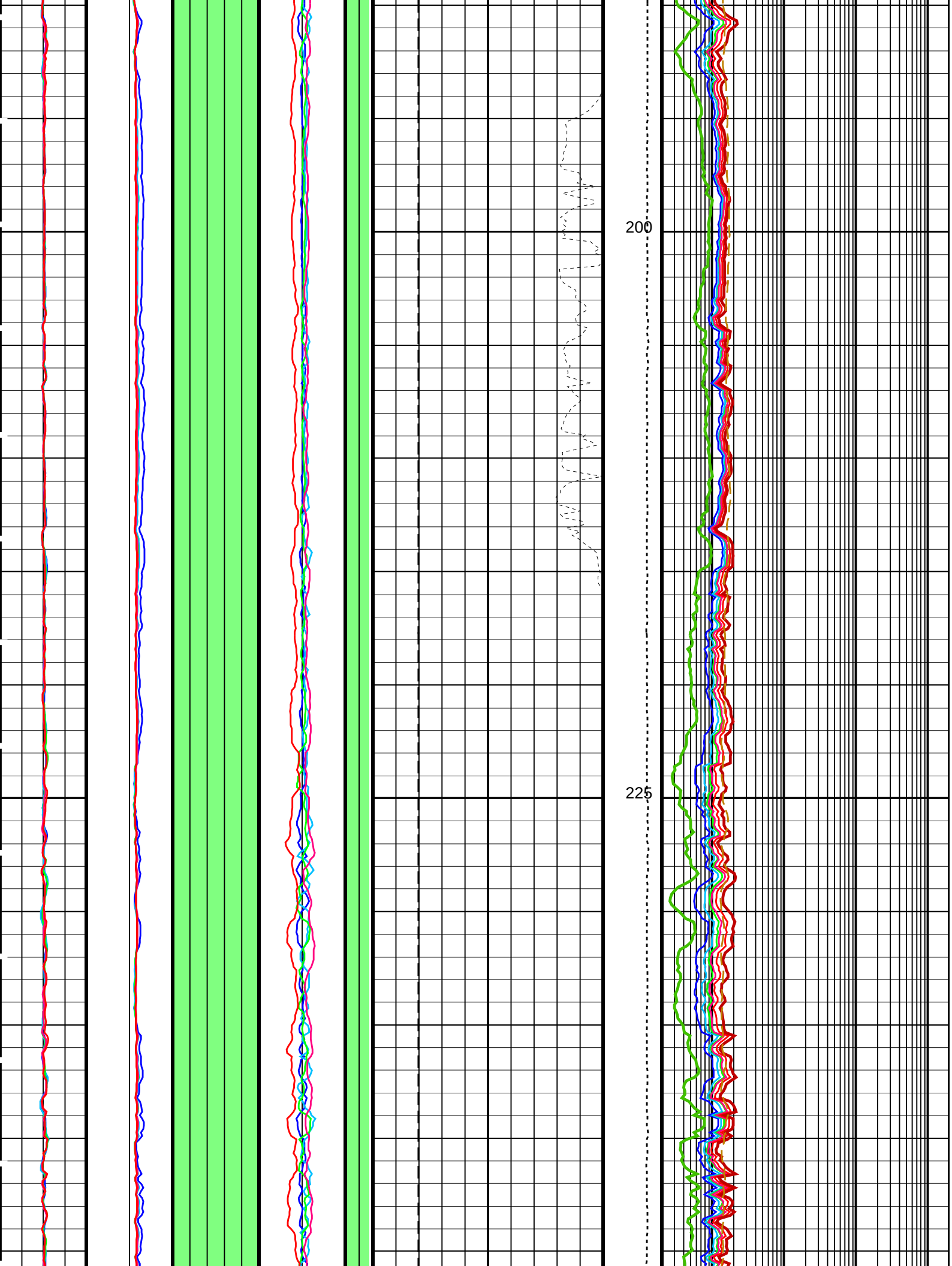
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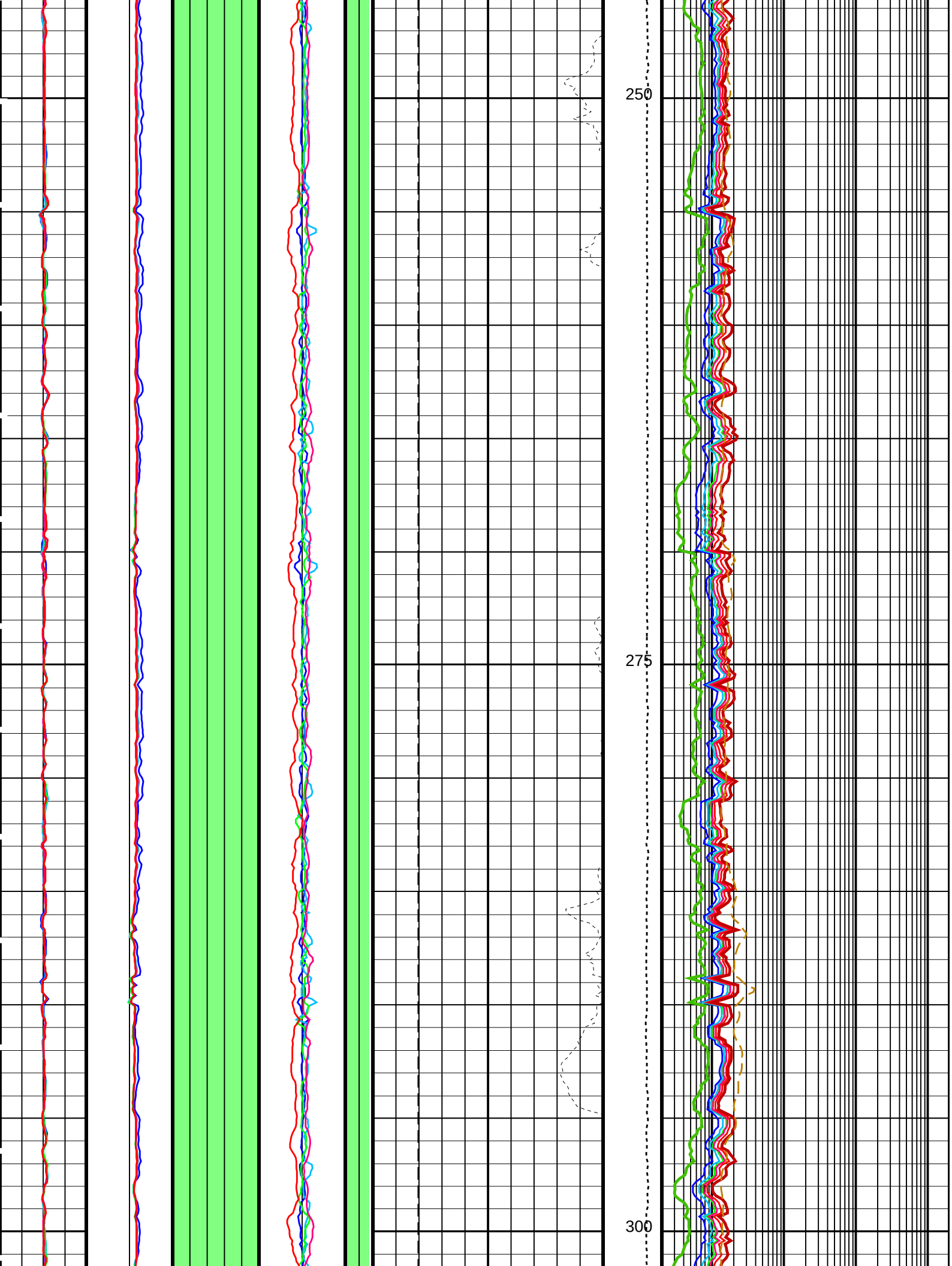
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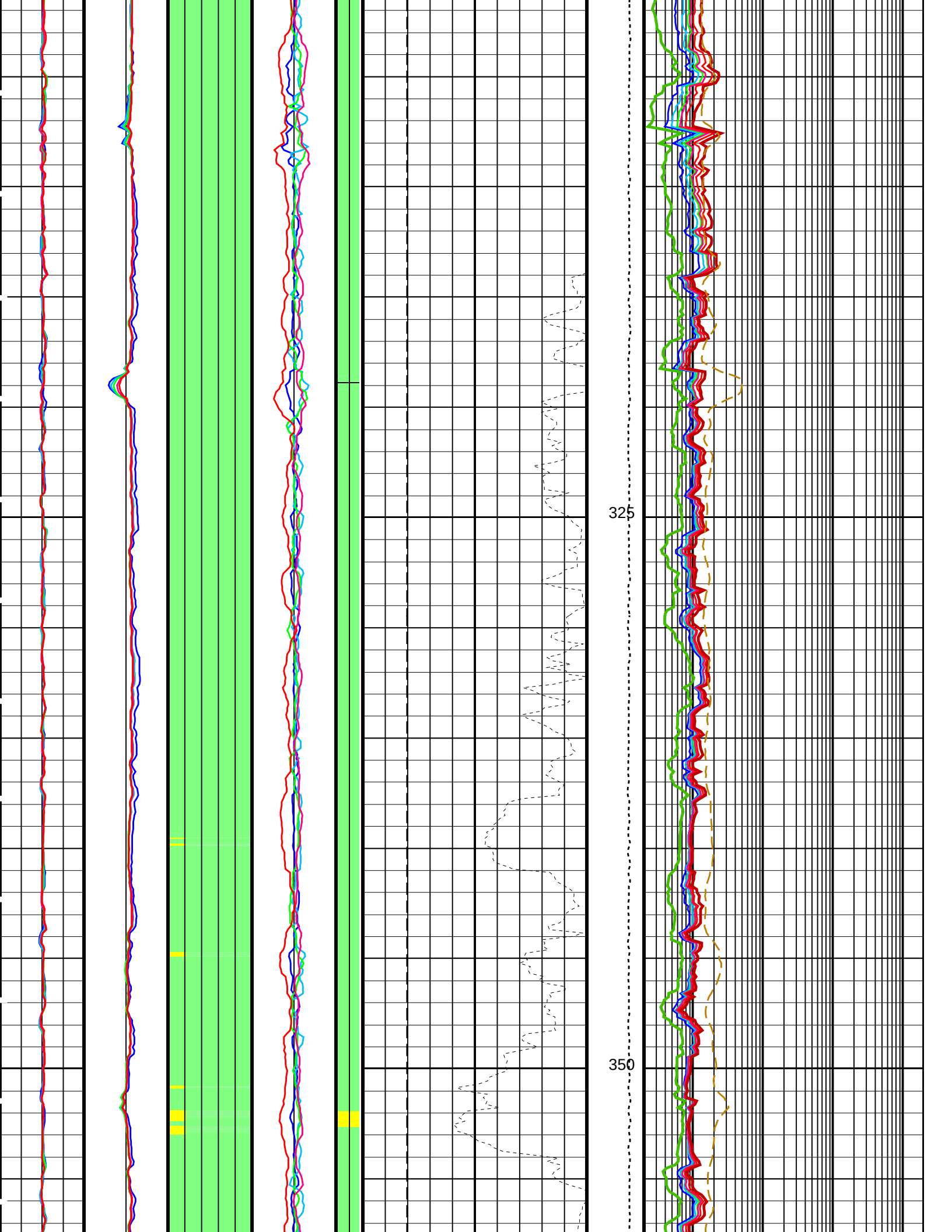
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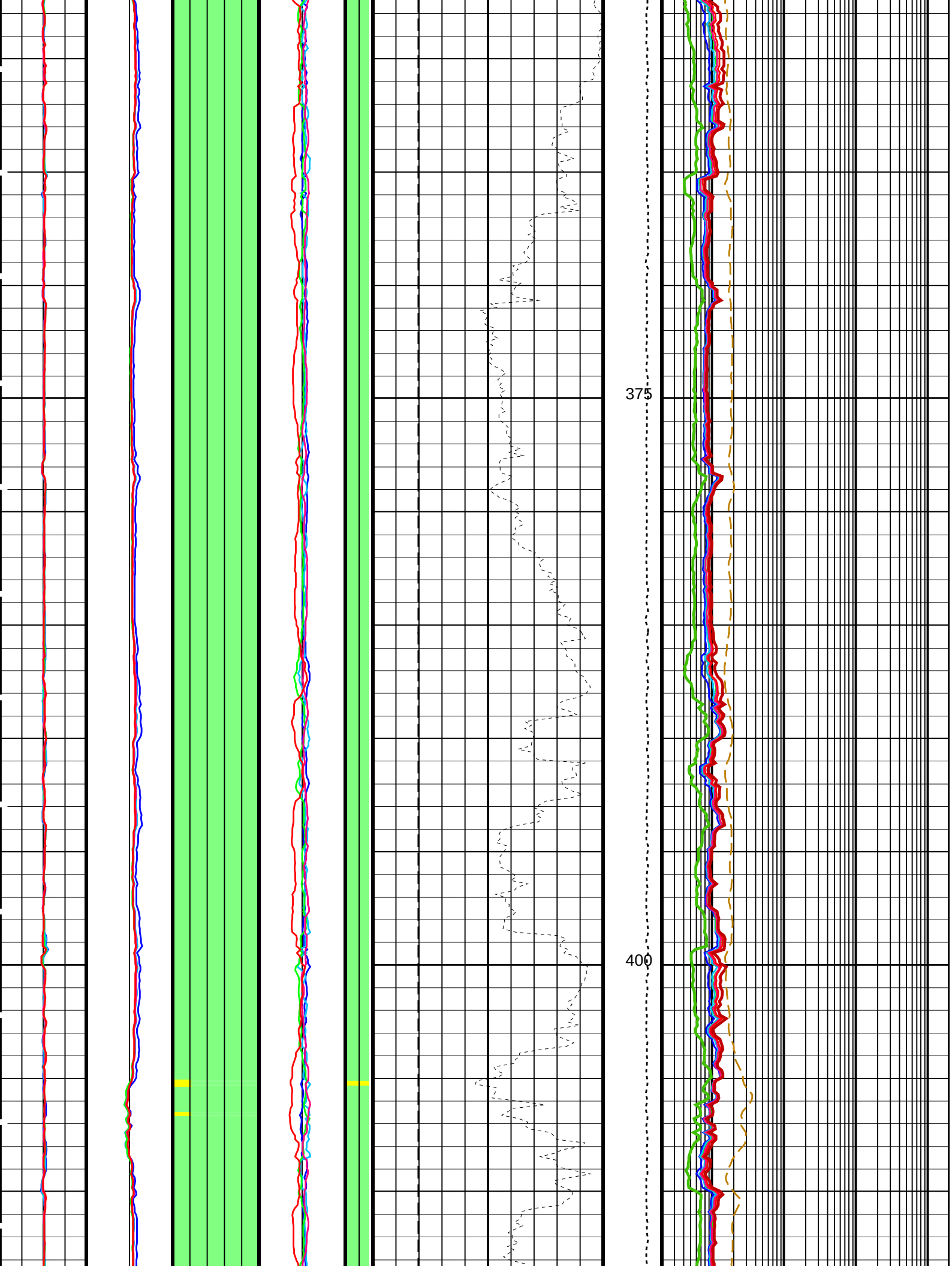
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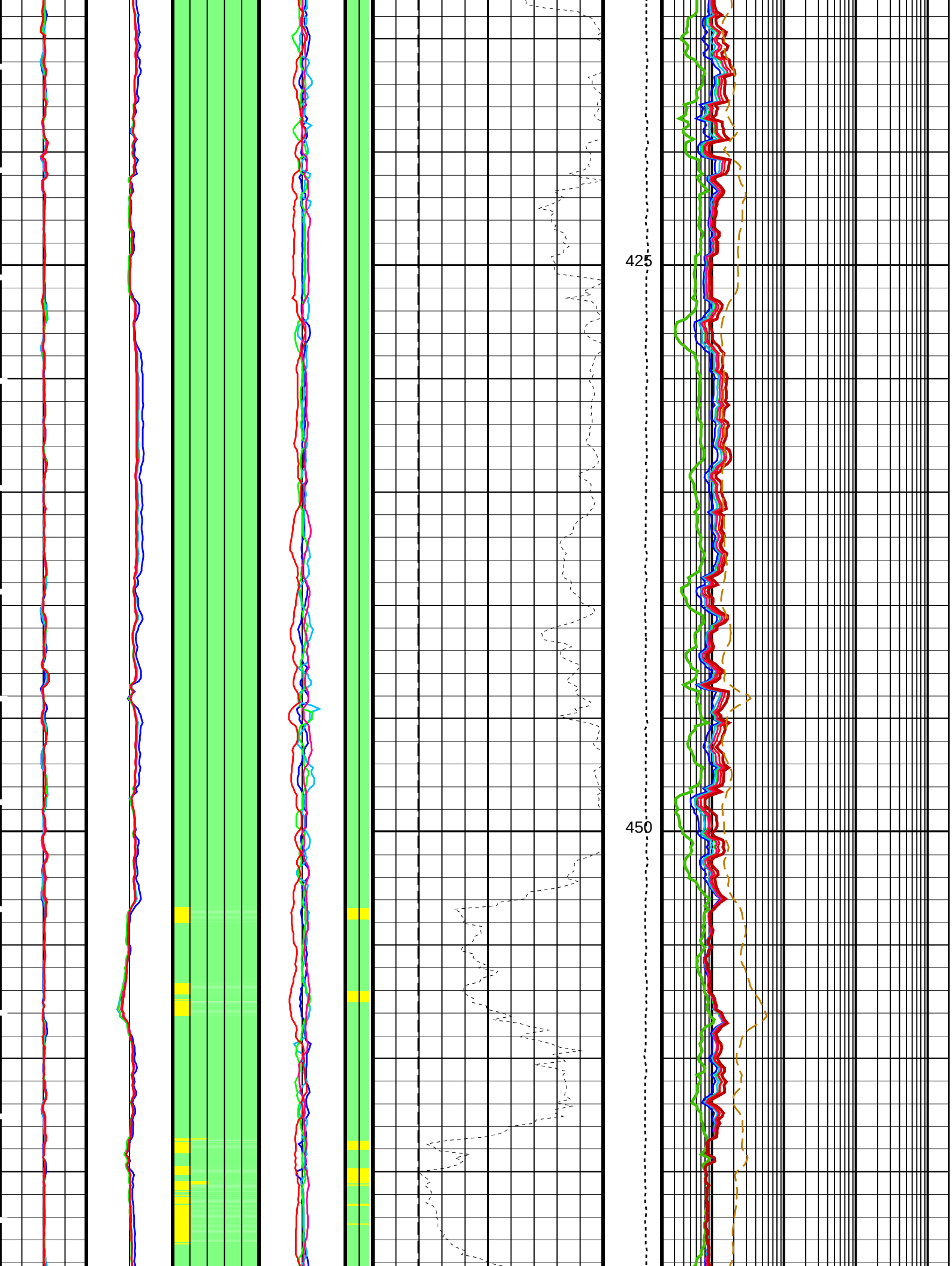
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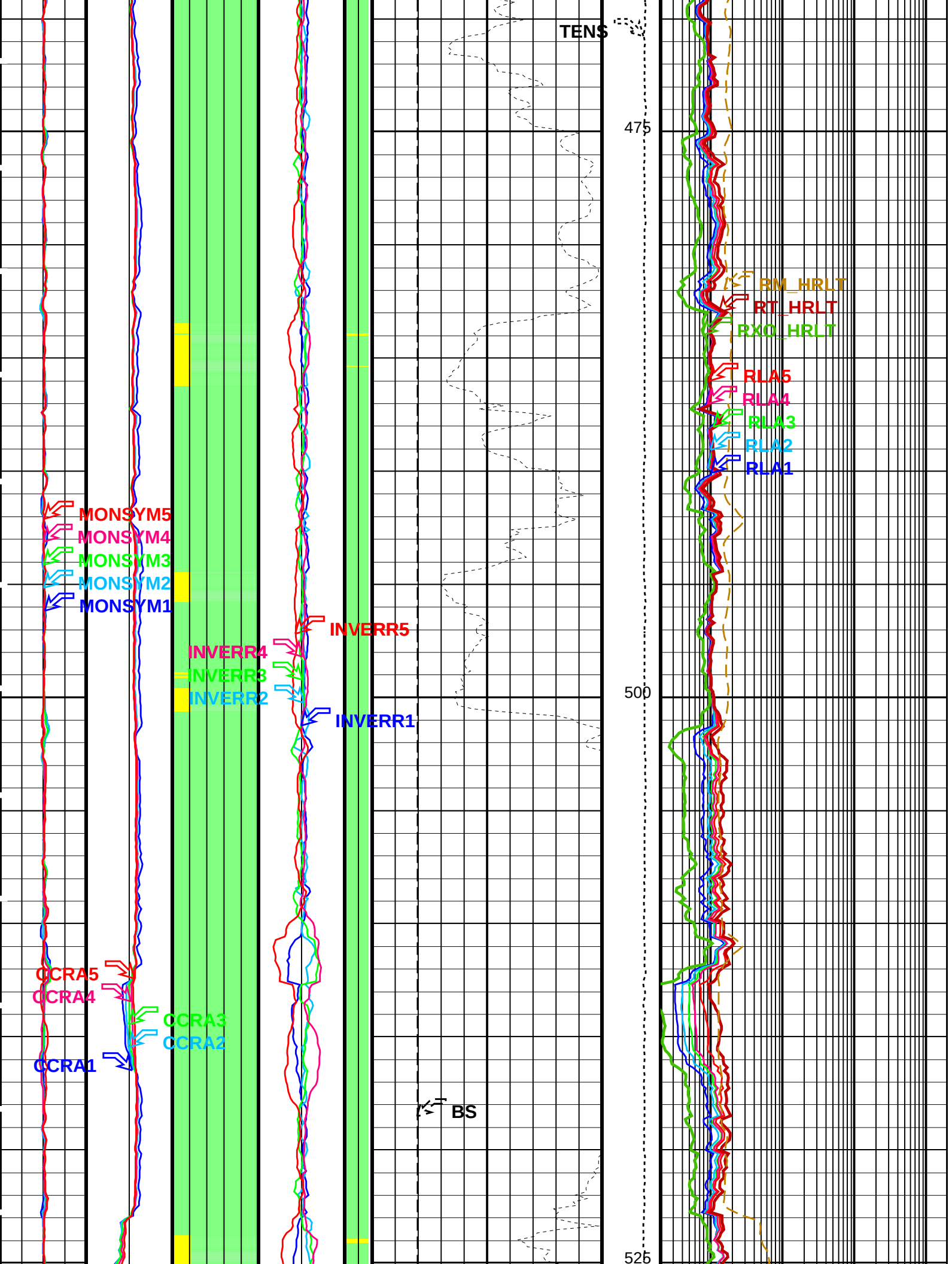
TENS
475
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RM_HRLT
RT_HRLT
RXO_HRLT
RLA5
RLA4
RLA3
RLA2
RLA1
MONSYM5
MONSYM4
MONSYM3
MONSYM2
MONSYM1
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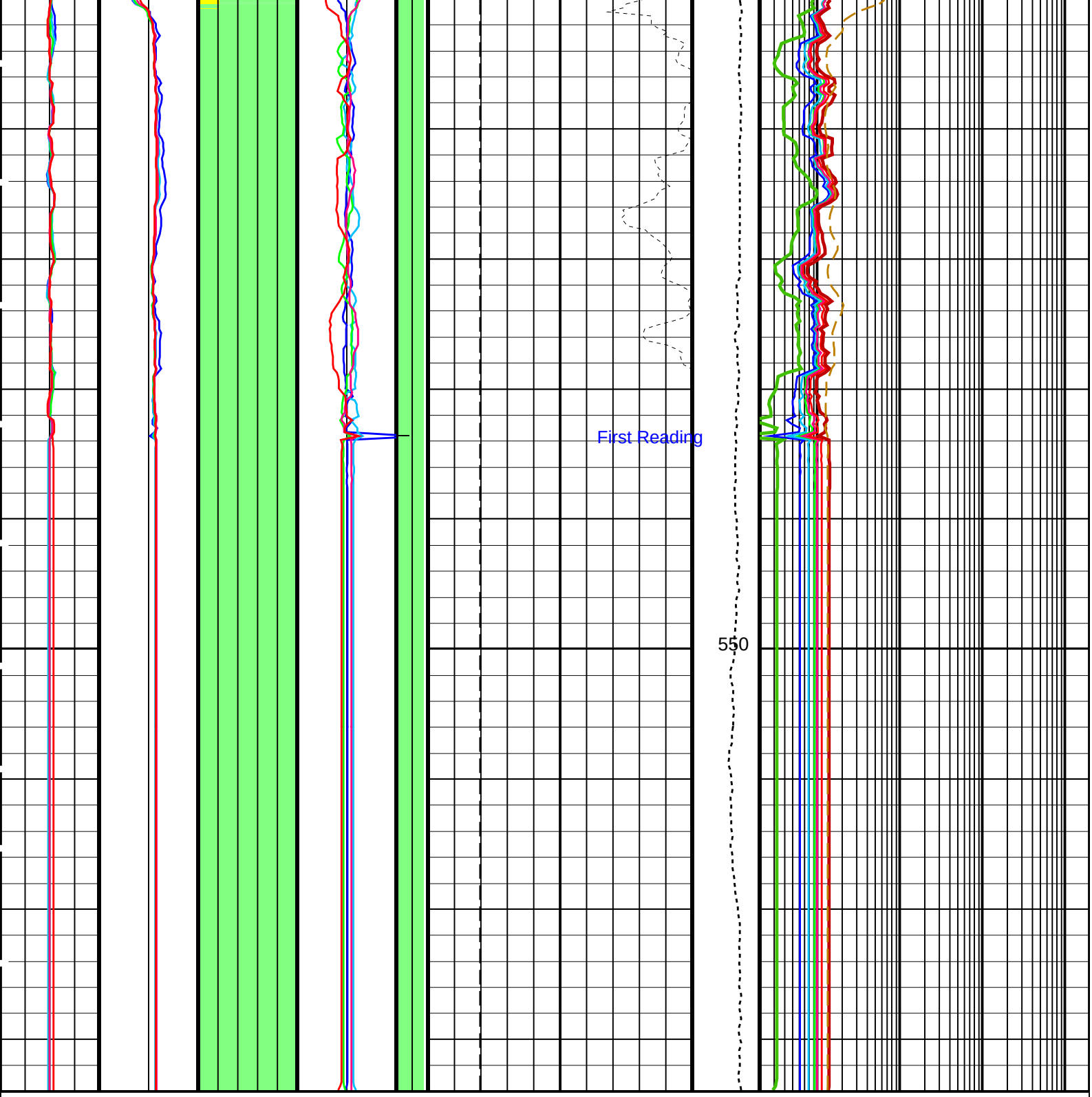
CCRA5
CCRA4
CCRA3
CCRA2
CCRA1
BS



***** 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 algorythm, and from left to right :

| Wei1 | Wei2 | Wei3 | Wei4 | Wei5 |

GREEN = OK YELLOW = Contribution QUESTIONABLE BLACK = Contribution UNRELIABLE

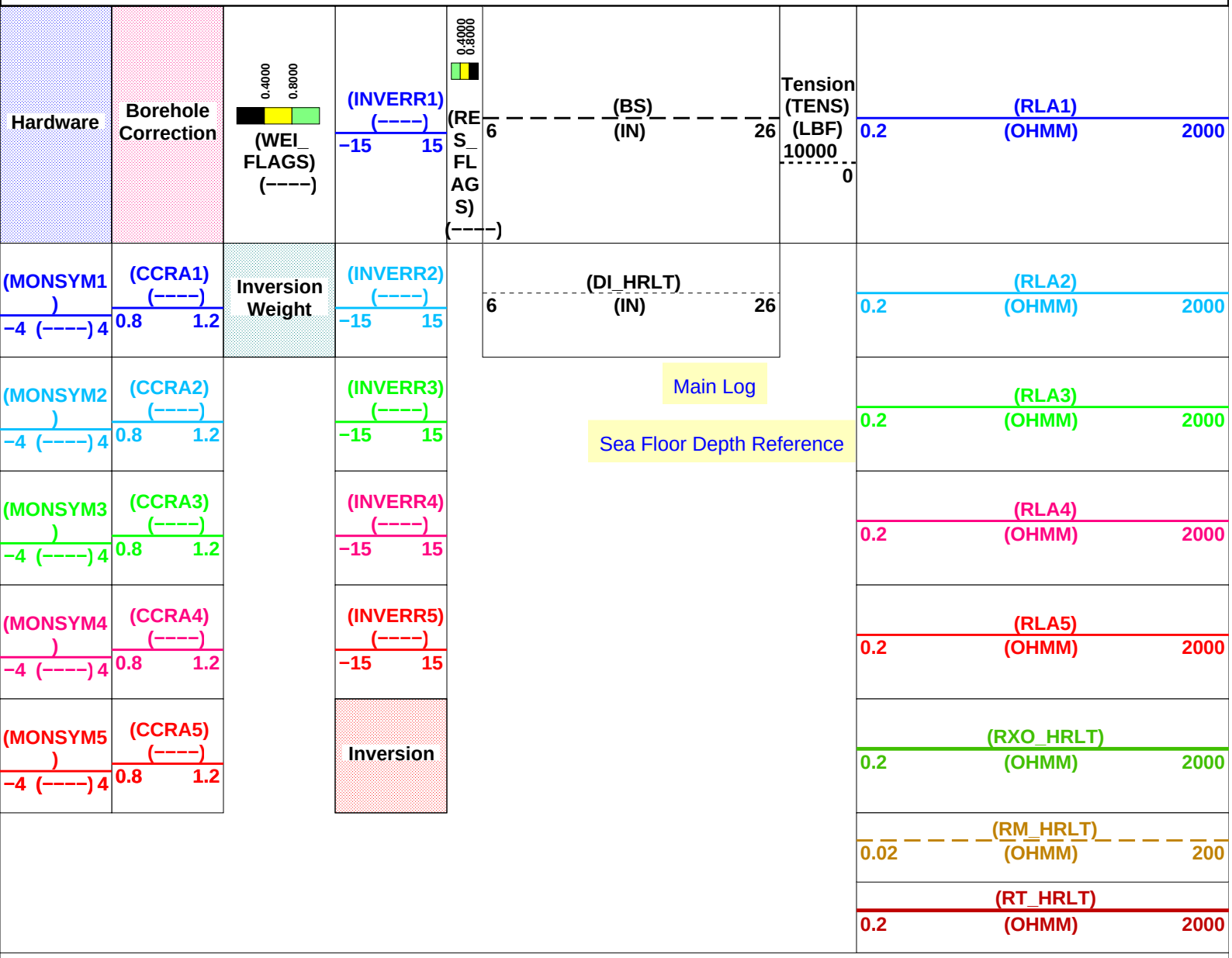
TRACK R5_LQC RESISTIVITY QUALITY INDICATOR

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

| RxoFlag | RTFlag |

GREEN = OK YELLOW = SHOULDER BED EFFECT BLACK = NOK

GREEN – OK YELLOW – SHOULDER BED EFFECT BLACK – NOK



PIP SUMMARY

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
	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	2.71	G/C3
PHVL	HLDS Long Spacing High Voltage Setting	1000	V
PHVS	HLDS Short Spacing High Voltage Setting	1000	V
PSDL	HLDS LS Pulse Shape Compensation DAC	30000	
PSDS	HLDS SS Pulse Shape Compensation DAC	30000	
PSML	HLDS LS Pulse Shape Compensation Mode	AUTO	
PSMS	HLDS SS Pulse Shape Compensation Mode	AUTO	
	APS−C: Accelerator−Porosity Tool		
	APS Software Version	0	
AASD	APS Thermal and Array Detectors High Voltage Setting	1962.18	V
ADSO	APS Array Detectors Data Source Switch	Both	

AFSD	APS Far Detector High Voltage Setting	2082.06	V
AHCS	APS Holesize Correction Source	BS	
AHSS	APS Holesize Correction Switch	ON	
AMTY	APS Environmental Corrections Mud Type	WaterBaseBarite	
ANSD	APS Near Detector High Voltage Setting	1731.78	V
ASOS	APS Standoff Correction Switch	ON	
ATSS	APS Temperature−Pressure−Salinity Correction Switch	ON	
BHFL_APS	APS TNPH Borehole Fluid Type	WATER	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	50	DEGF
BSCO_APS	APS TNPH Borehole Salinity Correction Option	YES	
DPPM	Density Porosity Processing Mode	HIRS	
DSCO_APS	APS TNPH Density Source Correction Option	COMPUTED	
FSAL	Formation Salinity	−50000	PPM
FSCO_APS	APS TNPH Formation Salinity Correction Option	NO	
GCSE	Generalized Caliper Selection	BS	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
HSCO_APS	APS TNPH Hole Size Correction Option	YES	
ISSBAR	Barite Mud Switch	NOBARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
MCCO_APS	APS TNPH Mud Cake Correction Option	YES	
MCOR_APS	APS TNPH Mud Correction	NATU	
MWCO_APS	APS TNPH Mud Weight Correction Option	YES	
NARC	APS Near/Array Calibration Ratio	1.05701	
NFRC	APS Near/Far Calibration Ratio	0.887966	
PTCO_APS	APS TNPH Pressure/Temperature Correction Option	NO	
SHT	Surface Hole Temperature	68	DEGF
TNCO_APS	APS TNPH Computation Option	NO	
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)	50	DEGF
CSD1	Inner Casing Outer Diameter	0	IN
CSD2	Outer Casing Outer Diameter	0	IN
CSW1	Inner Casing Weight	0	LB/F
CSW2	Outer Casing Weight	0	LB/F
DBCC	HNGS Barite Constant Correction Flag	NONE	
GCSE	Generalized Caliper Selection	BS	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
H1P	HNGS Detector 1 Allow/Disallow In Processing	ALLOW	
H2P	HNGS Detector 2 Allow/Disallow In Processing	ALLOW	
HABK	HNGS Borehole Potassium Running Average	−0.00279021	
HALF	HNGS Alpha Filter Length	60	IN
HCRB	HNGS Apply Borehole Potassium Correction	NONE	
HMWM	Mud Weighting Material	NATU	
HNPE	HNGS Processing Enable	YES	
ISSBAR	Barite Mud Switch	NOBARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
S1BI	HNGS Detector 1 Calibration Bismuth Count Rate	1.3	CPS
S2BI	HNGS Detector 2 Calibration Bismuth Count Rate	1.3	CPS
SGRC	HNGS Standard Gamma−Ray Correction Flag	YES	
SHT	Surface Hole Temperature	68	DEGF
TPOS	Tool Position	ECCE	
VBA1	HNGS Detector 1 Variable Barite Factor Running Average	0.960045	
VBA2	HNGS Detector 2 Variable Barite Factor Running Average	0.971544	
HRLT−B: High Resolution Laterolog Array − B			
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	50	DEGF
CALSTAT	HRLTB Calibration Status	SHALLOW_DONE	
CALTEMP	HRLTB Calibration Temperature	17.0393	DEGC
FREQ0	HRLT Frequency Index for Mode 0	32	
FREQ1	HRLT Frequency Index for Mode 1	128	
FREQ2	HRLT Frequency Index for Mode 2	104	
FREQ3	HRLT Frequency Index for Mode 3	86	
FREQ4	HRLT Frequency Index for Mode 4	56	
FREQ5	HRLT Frequency Index for Mode 5	44	
FREQ6	HRLT Frequency Index for Mode 6	116	
GCSE	Generalized Caliper Selection	BS	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
ISSBAR	Barite Mud Switch	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	68	DEGF
EDTC−B: Enhanced DTS Cartridge			
BHFL	Borehole Fluid Type	WATER	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	50	DEGF
BSCO	Borehole Salinity Correction Option	NO	
CCCO	Casing & Cement Thickness Correction Option	NO	
DPPM	Density Porosity Processing Mode	HIRS	
FSAL	Formation Salinity	−50000	PPM
FSCO	Formation Salinity Correction Option	NO	
GCSE	Generalized Caliper Selection	BS	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
HSCO	Hole Size Correction Option	YES	
ISSBAR	Barite Mud Switch	NOBARITE	
ISSBAR_EDTC	Nuclear Mud Type	NOBARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
MCCO	Mud Cake Correction Option	NO	
MCOR	Mud Correction	NATU	
MWCO	Mud Weight Correction Option	YES	
PTCO	Pressure/Temperature Correction Option	NO	
SDAT	Standoff Data Source	SOCN	
SHT	Surface Hole Temperature	68	DEGF
SOCN	Standoff Distance	0	IN
SOCO	Standoff Correction Option	NO	
TPOS_EDTC	EDTC Tool Centered/Eccentered	Eccentered	
U−ETELM_EDTS	Telemetry Mode for eWAFE	Standard_EDTS	
U−TELM_EDTS	Telemetry Mode for WAFE	Standard_EDTS	
System and Miscellaneous			
ALTDPCHAN	Name of alternate depth channel	SpeedCorrectedDepth	
BS	Bit Size	9.875	IN
BSAL	Borehole Salinity	−50000.00	PPM
CSIZ	Current Casing Size	10.750	IN
CWEI	Casing Weight	43.00	LB/F
DFD	Drilling Fluid Density	1.25	G/C3
DO	Depth Offset for Playback	−654.0	M
FLEV	Fluid Level	−50000.00	M
MST	Mud Sample Temperature	−50000.00	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	3330	FT
TDD	Total Depth − Driller	990.00	M
TDL	Total Depth − Logger	990.00	M
TWS	Temperature of Connate Water Sample	37.78	DEGC

Format: HRLT_LQC Vertical Scale: 1:200 Graphics File Created: 10−Jan−2012 02:40

OP System Version: 19C0−187

HLDS	19C0−187	LDSC−B	19C0−187
APS−C	19C0−187	HNGC−B	19C0−187
HNGS−BA	19C0−187	HRLT−B	19C0−187
EDTC−B	19C0−187		

Input DLIS Files

DEFAULT	LDL_APS_NGS_HRLA_027LUP	FN:21	PRODUCER	02−Jan−2012 03:40	1220.7 M	643.0 M

Output DLIS Files

DEFAULT	LDL_APS_NGS_HRLA_042PUP	FN:46	PRODUCER	10−Jan−2012 02:40

Input DLIS Files

DEFAULT	Flip_LDL_APS_NGS_028LUP		PRODUCER	02−Jan−2012 05:48	1190.5 M	594.4 M

Output DLIS Files

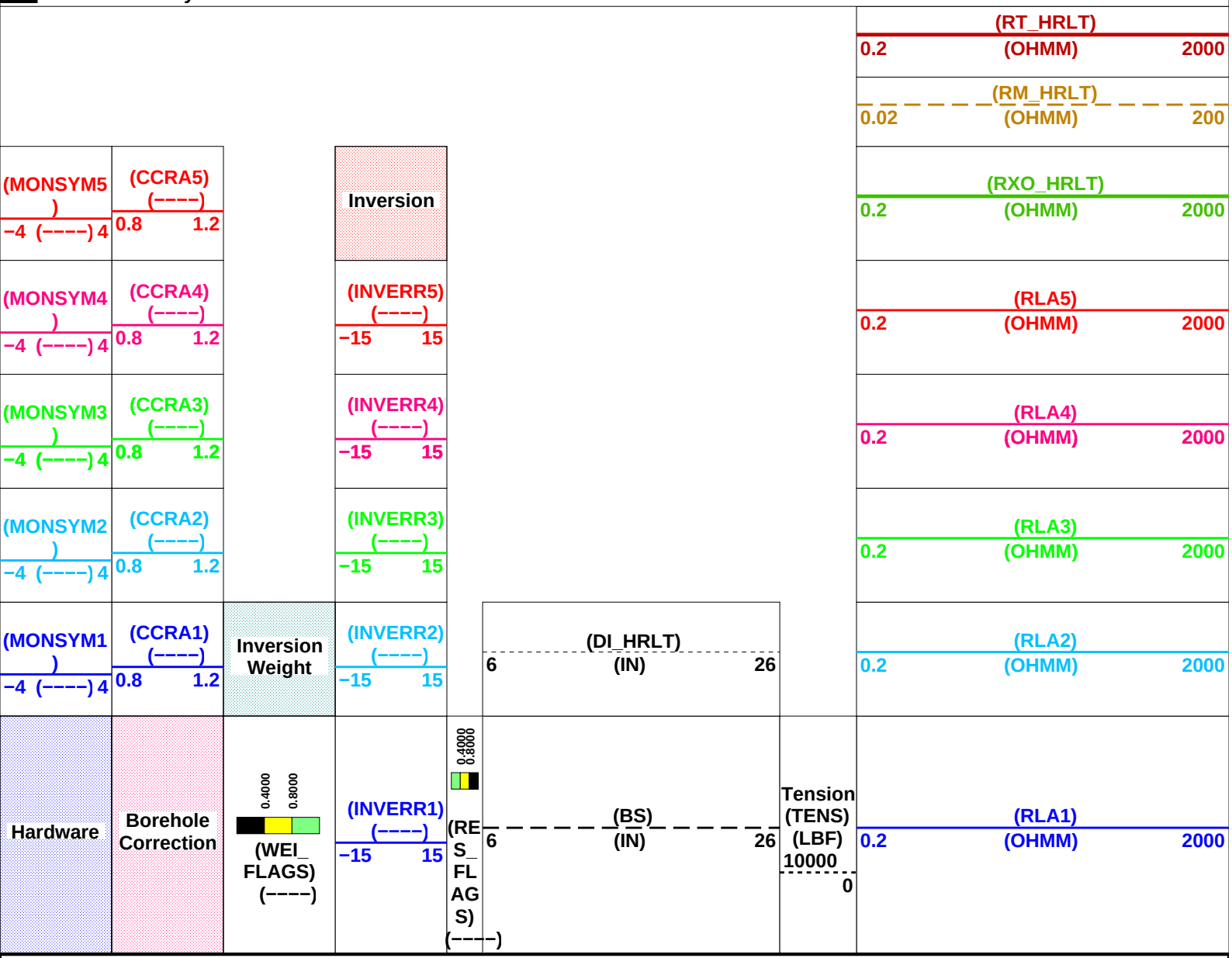
DEFAULT	LDL_APS_NGS_HRLA_041PUP	FN:45	PRODUCER	10−Jan−2012 02:25	535.4 M	−60.7 M

OP System Version: 19C0−187

HLDS	19C0−187	LDSC−B	19C0−187
APS−C	19C0−187	HNGC−B	19C0−187
HNGS−BA	19C0−187	HRLT−B	19C0−187
EDTC−B	19C0−187		

PIP SUMMARY

Time Mark Every 60 S



*** HRLT FLAG TRACKS ***

BLACK areas show that the corresponding error flag is set

Sea Floor Depth Reference

Downlog

TRACK R3_LQC INV EIGHT

Contribution from each hrlt channel in inversion algorythm, and from left to right :

| Wei1 | Wei2 | Wei3 | Wei4 | Wei5 |

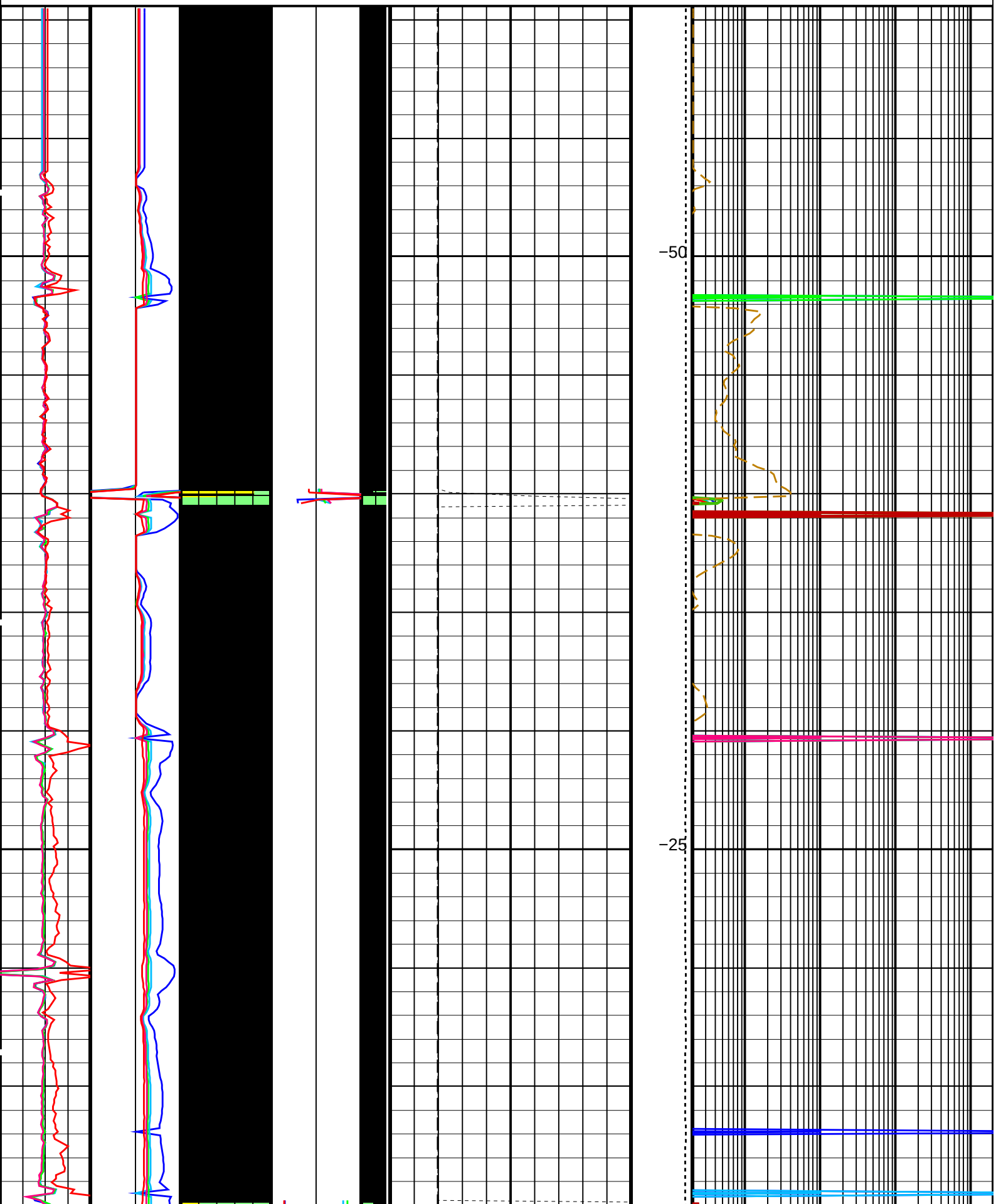
GREEN = OK YELLOW = Contribution QUESTIONABLE BLACK = Contribution UNRELIABLE

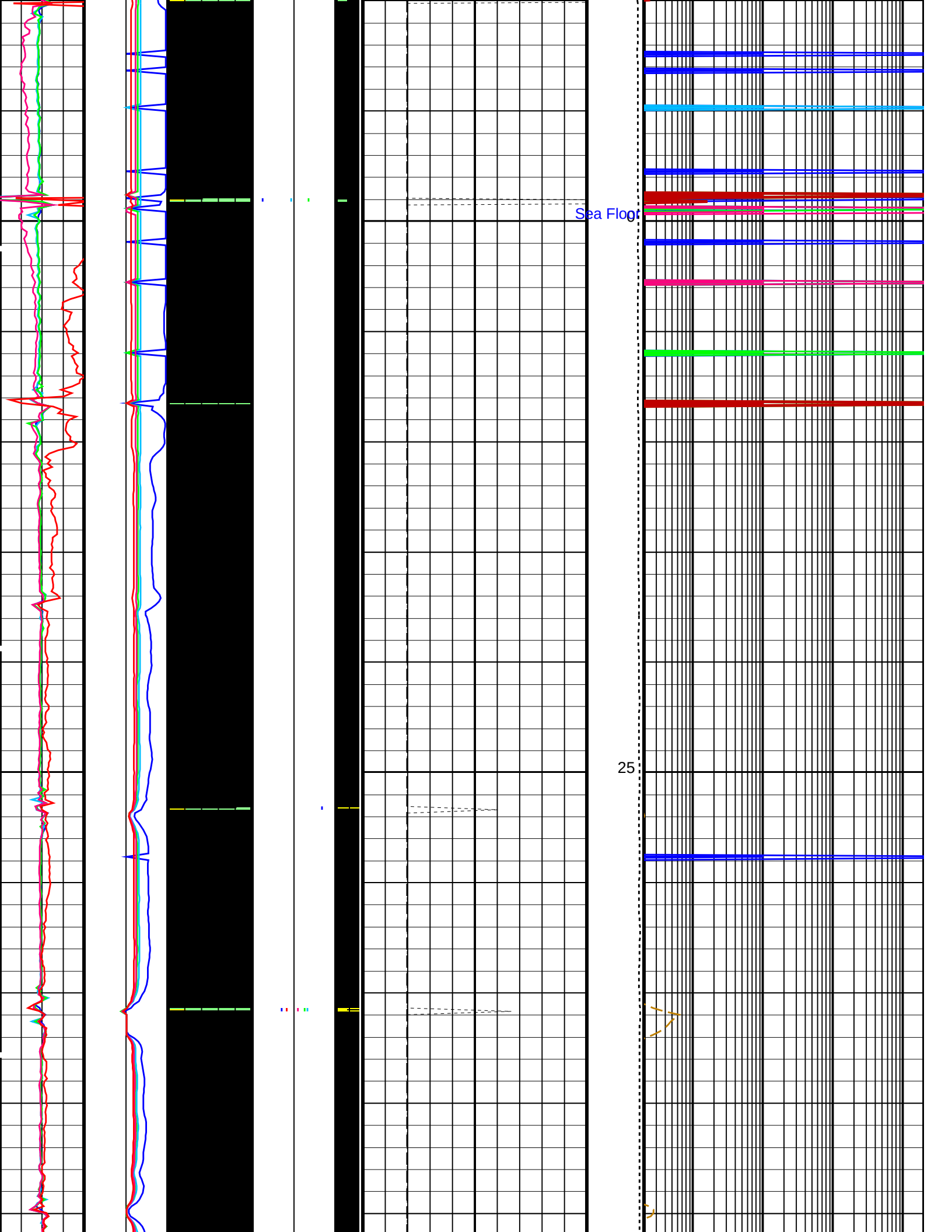
TRACK R5_LQC RESISTIVITY QUALITY INDICATOR

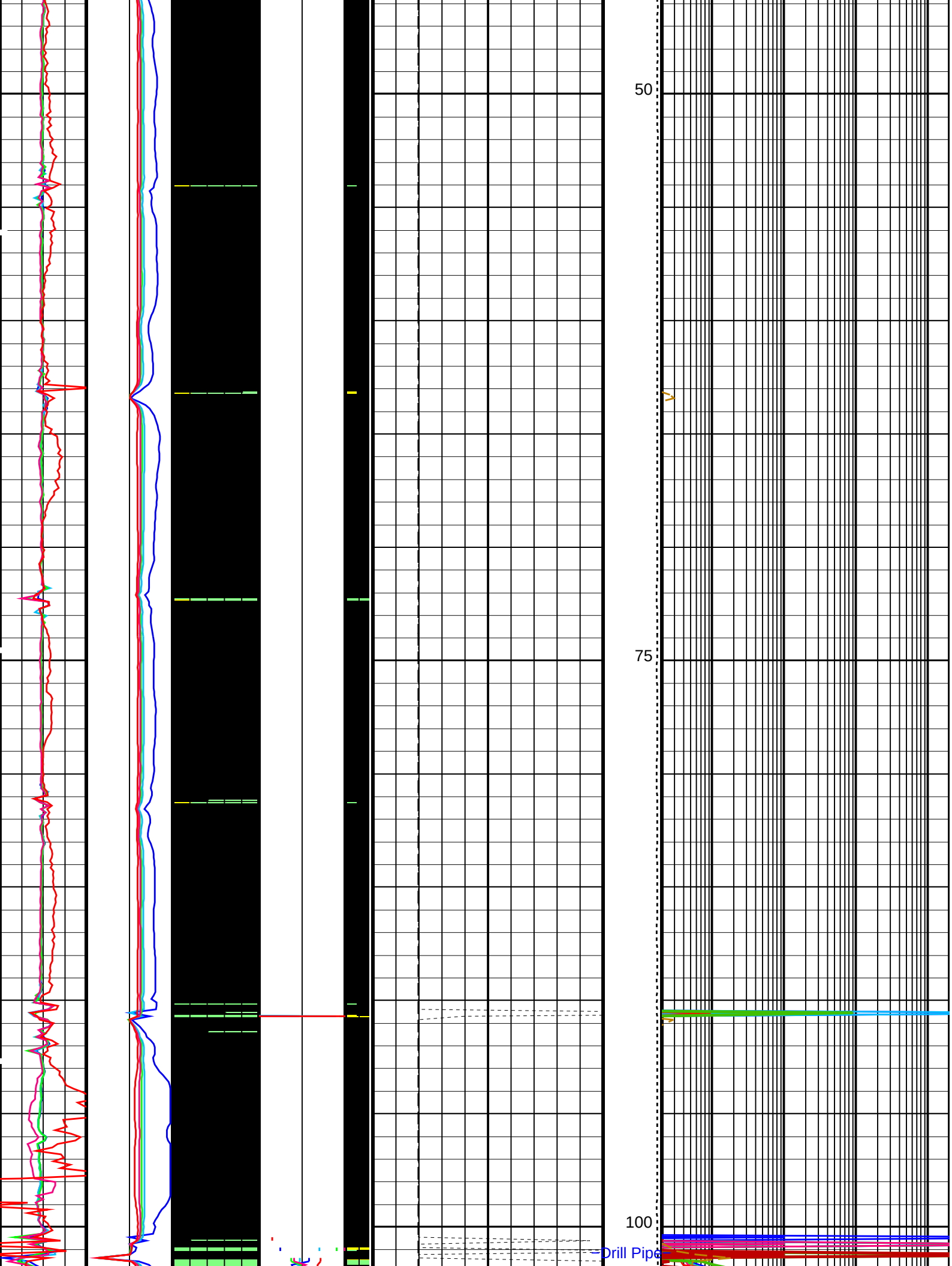
LQC flags on RXO_HRLT & RT_HRLT, and from left to right :

| RxoFlag | RTFlag |

GREEN = OK **YELLOW = SHOULDER BED EFFECT** **BLACK = NOK**




Sea Floor
25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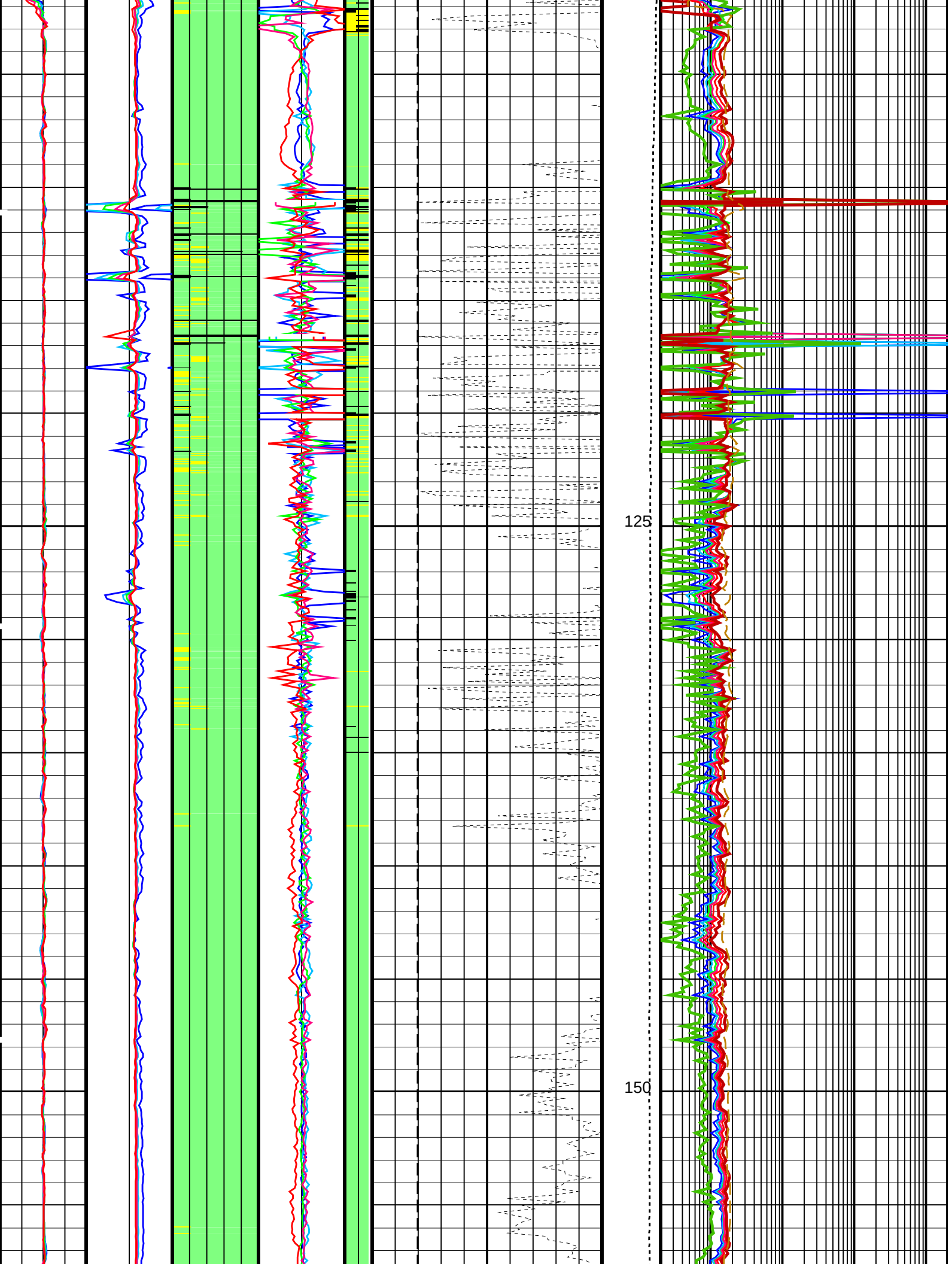
75
100
Drill Pipe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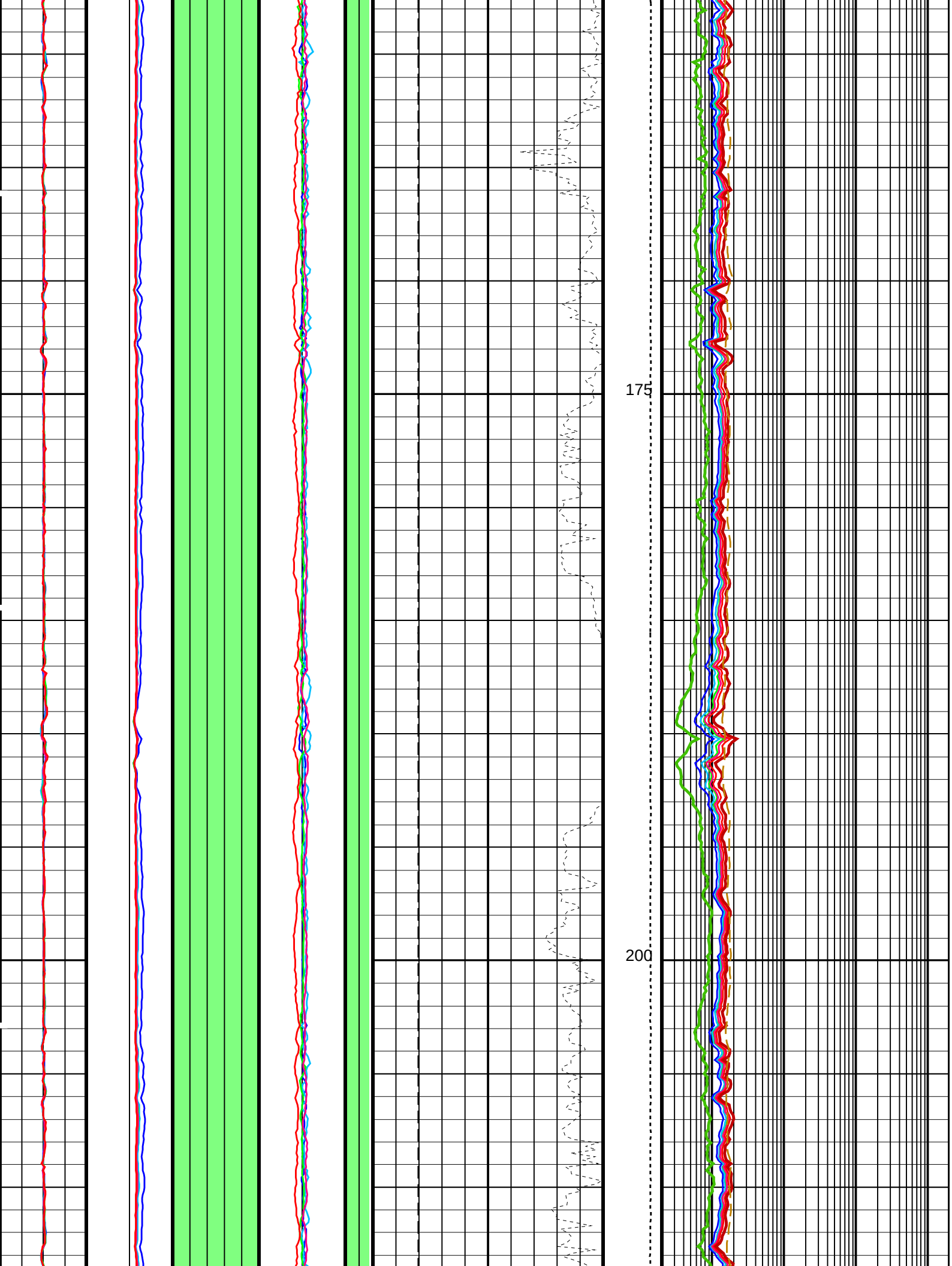
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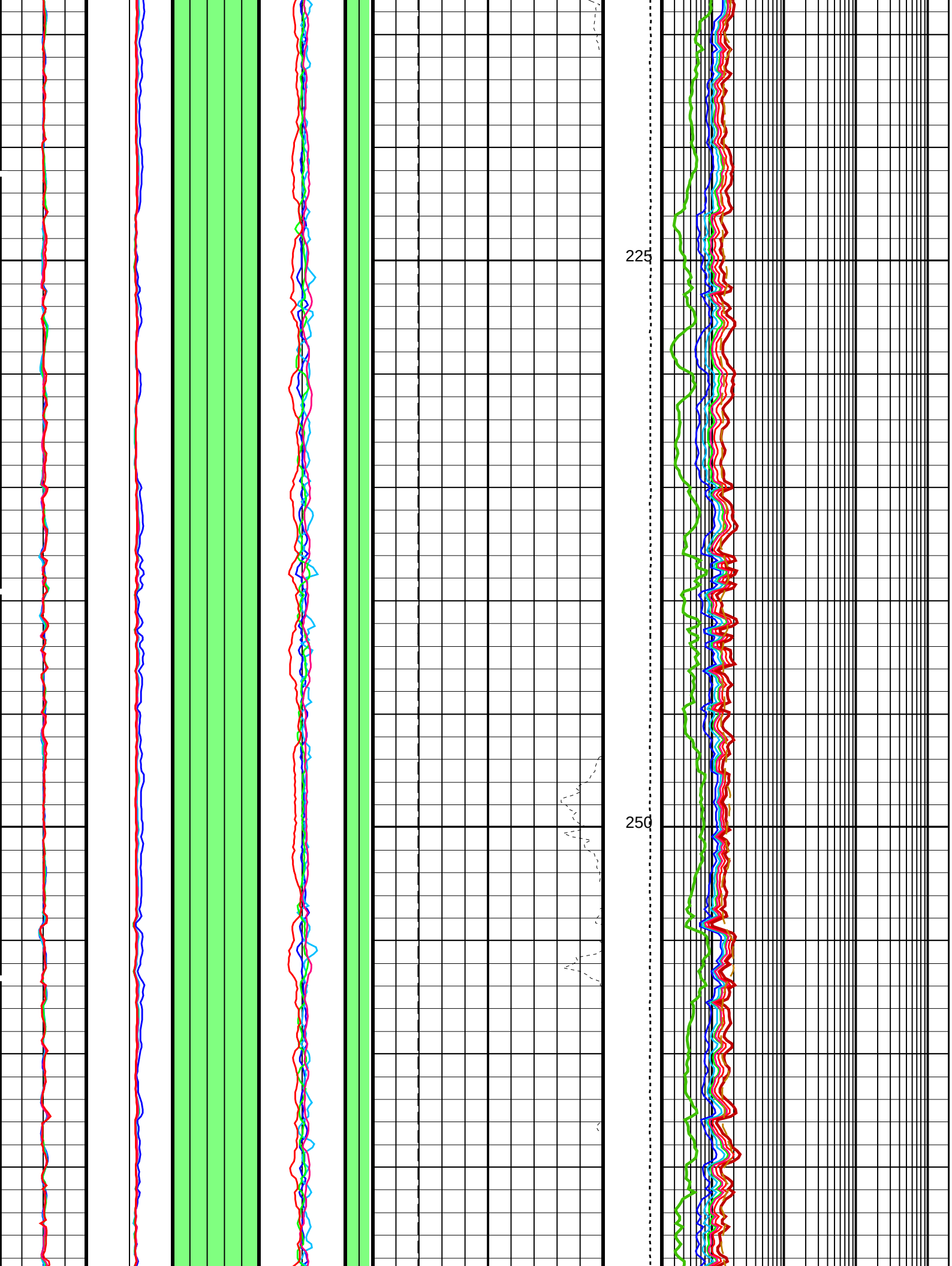
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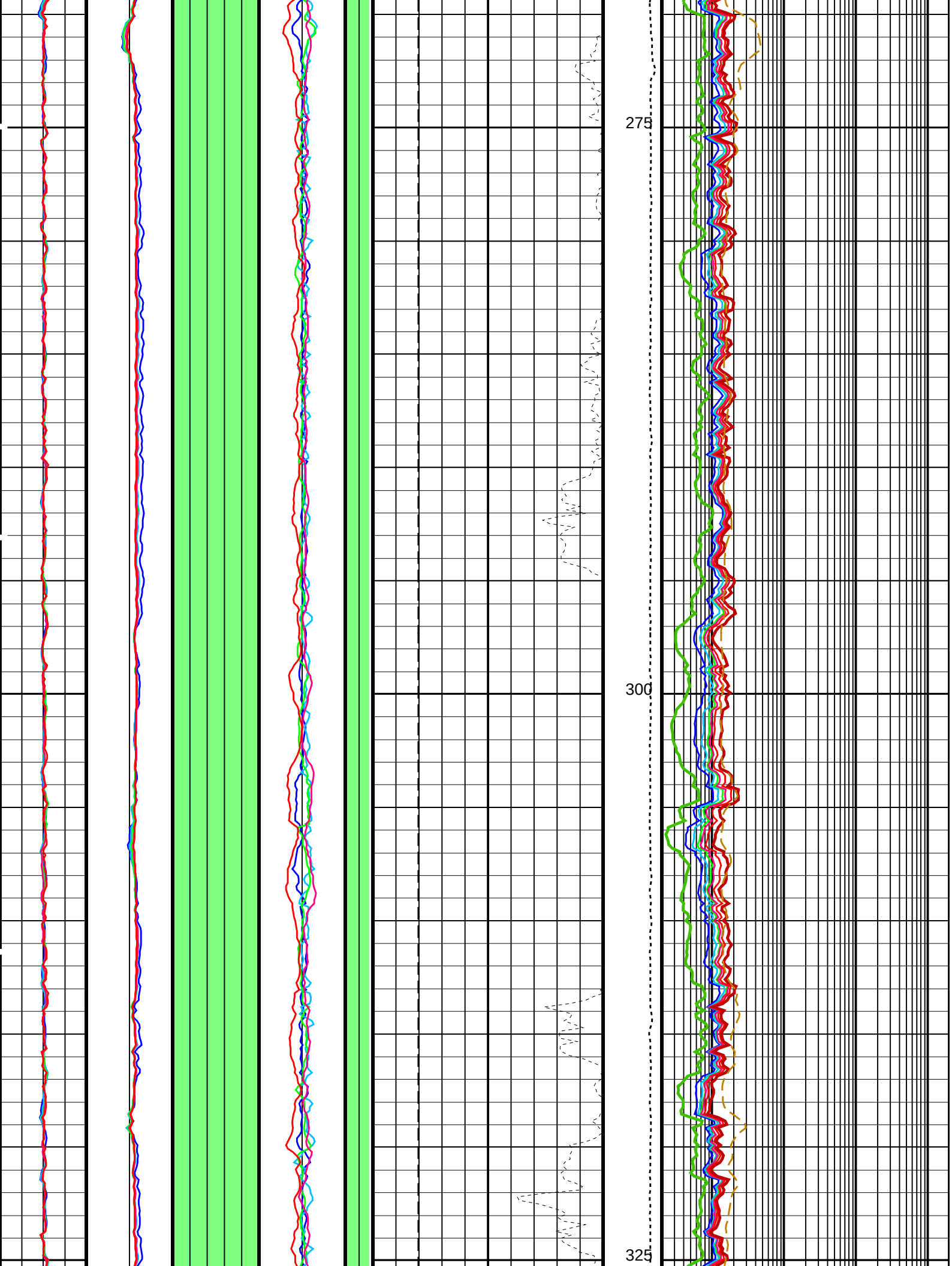
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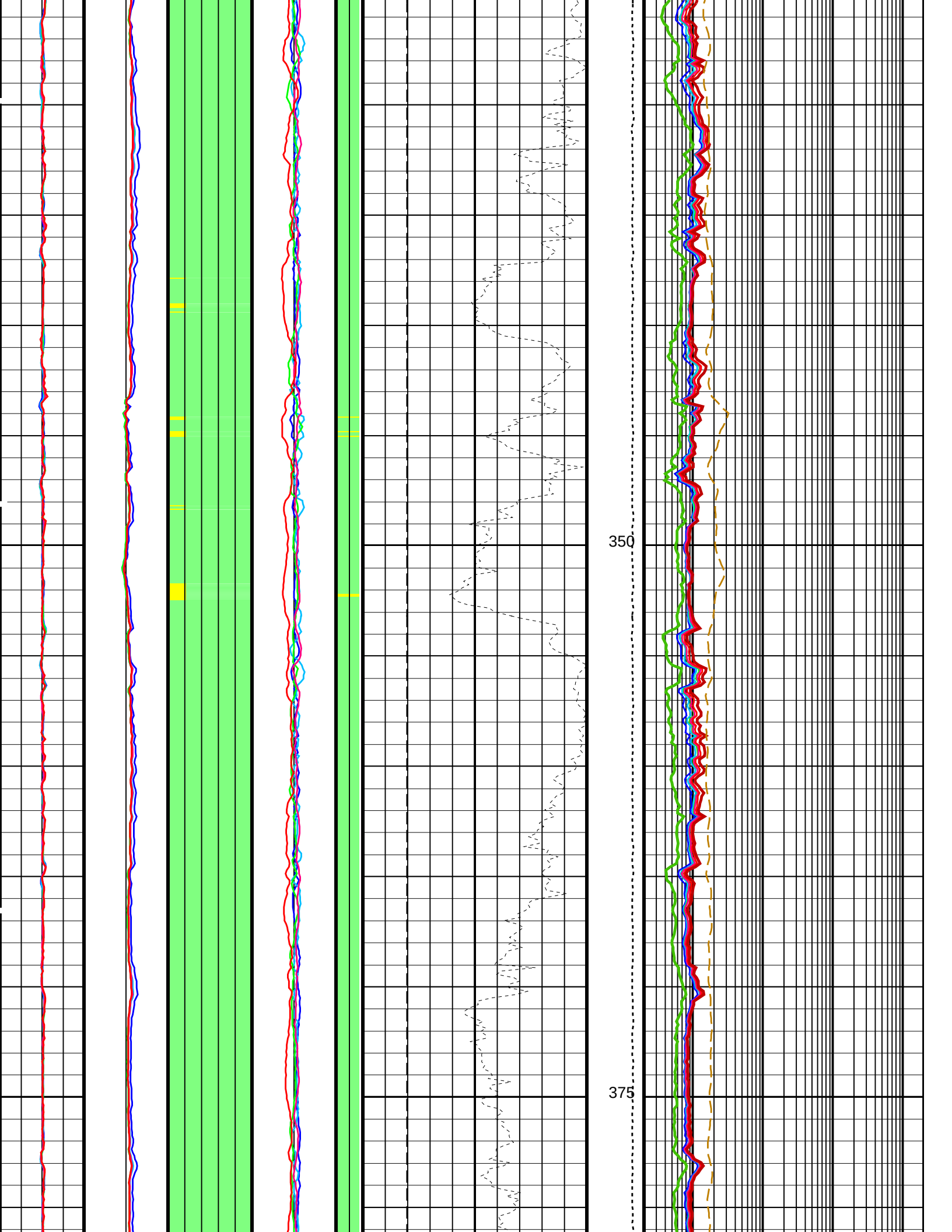
300
325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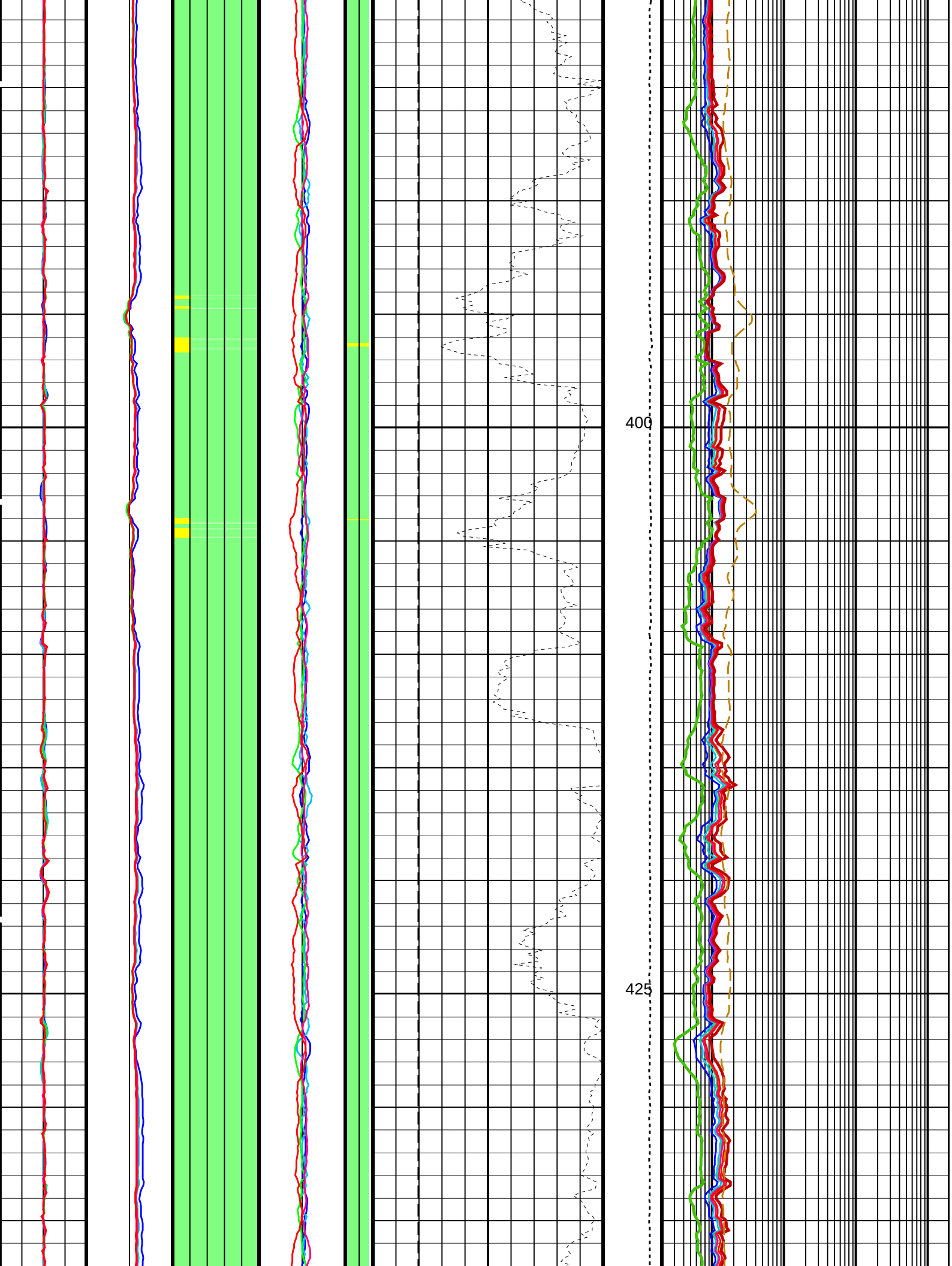
375


400
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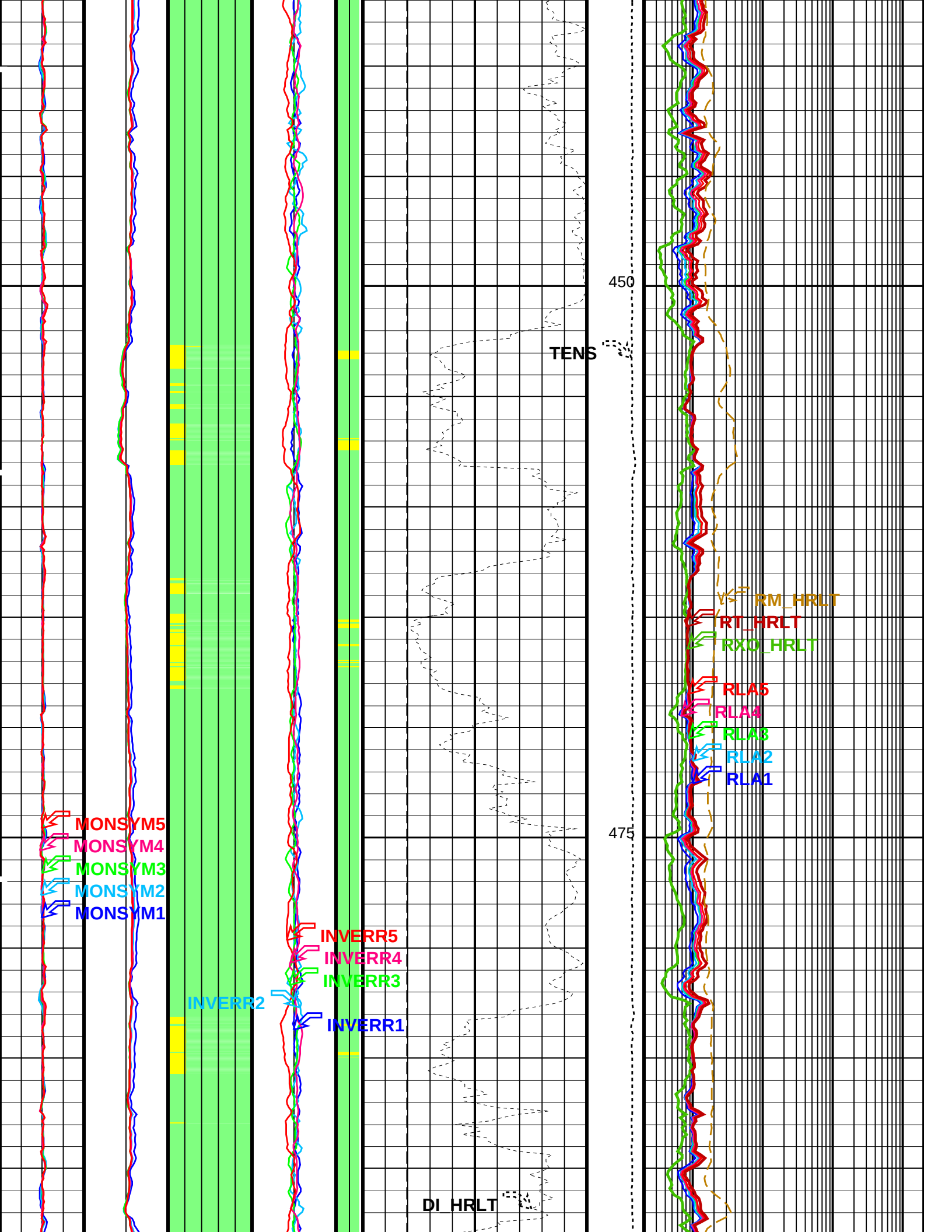
450
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RT_HRLT
RXO_HRLT
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RLA4
RLA3
RLA2
RLA1
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MONSYM4
MONSYM3
MONSYM2
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INVERR3
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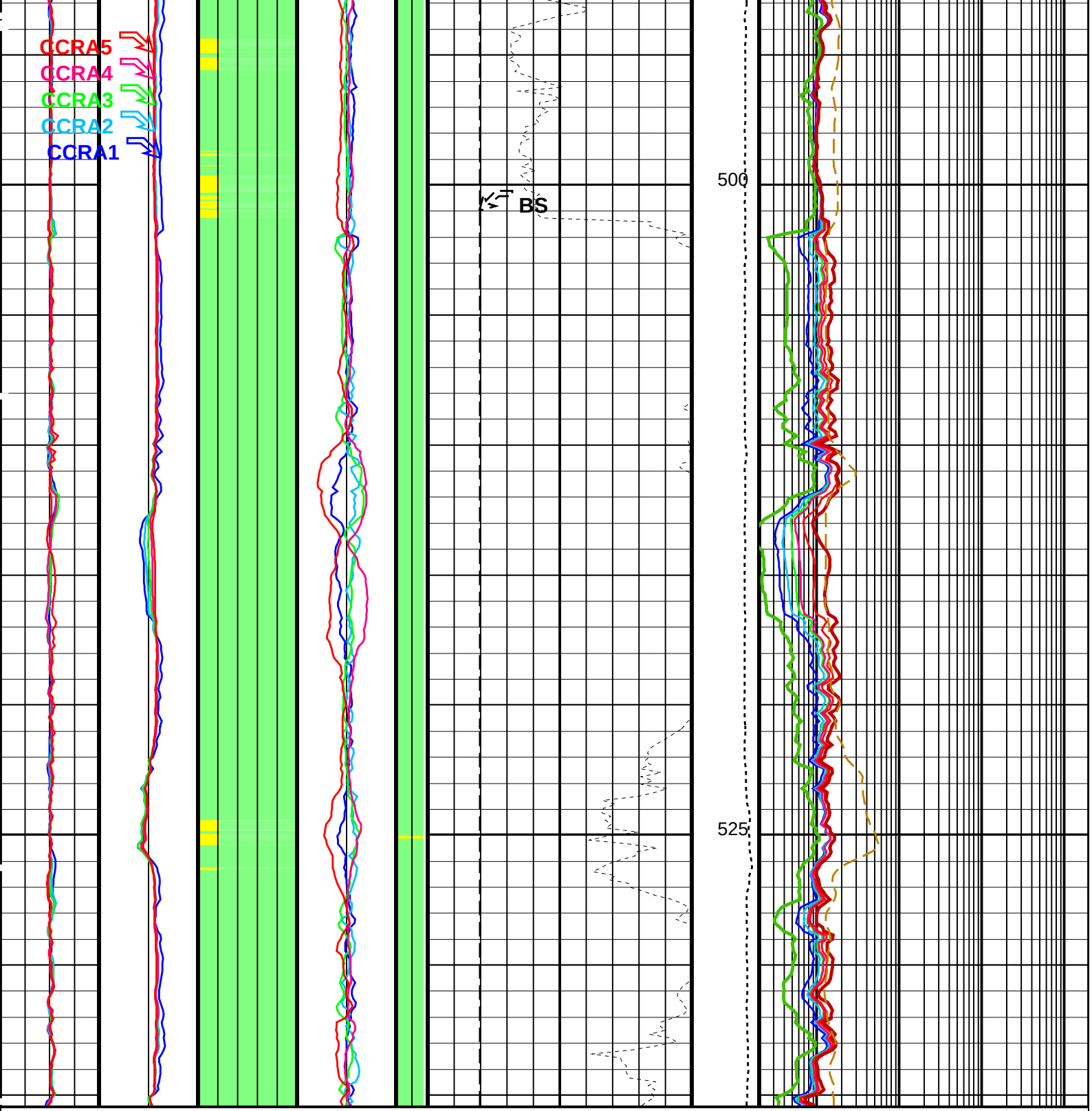
DI_HRLT



***** 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 algorythm, 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	(WEI_FLAGS) (----)	(INVERR1) (----)	(RES_FLAGS) (----)	(BS) (IN)	Tension (TENS) (LBF)	(RLA1) (OHMM)
		0.4000 0.8000	−15 15	0.4000 0.8000	6 26	10000 0	0.2 2000
(MONSYM1) −4 (----) 4	(CCRA1) (----) 0.8 1.2	Inversion Weight	(INVERR2) (----) −15 15		(DI_HRLT) 6 (IN) 26		(RLA2) 0.2 (OHMM) 2000
(MONSYM2) −4 (----) 4	(CCRA2) (----) 0.8 1.2		(INVERR3) (----) −15 15				(RLA3) 0.2 (OHMM) 2000
(MONSYM3) −4 (----) 4	(CCRA3) (----) 0.8 1.2		(INVERR4) (----) −15 15				(RLA4) 0.2 (OHMM) 2000
(MONSYM4) −4 (----) 4	(CCRA4) (----) 0.8 1.2		(INVERR5) (----) −15 15				(RLA5) 0.2 (OHMM) 2000
(MONSYM5) −4 (----) 4	(CCRA5) (----) 0.8 1.2		Inversion				(RXO_HRLT) 0.2 (OHMM) 2000
							(RM_HRLT) 0.02 (OHMM) 200
							(RT_HRLT) 0.2 (OHMM) 2000

Downlog

Sea Floor Depth Reference

PIP SUMMARY

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
	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	2.71	G/C3
PHVL	HLDS Long Spacing High Voltage Setting	1000	V
PHVS	HLDS Short Spacing High Voltage Setting	1000	V
PSDL	HLDS LS Pulse Shape Compensation DAC	30000	
PSDS	HLDS SS Pulse Shape Compensation DAC	30000	
PSML	HLDS LS Pulse Shape Compensation Mode	AUTO	
PSMS	HLDS SS Pulse Shape Compensation Mode	AUTO	
	APS−C: Accelerator−Porosity Tool		
	APS Software Version	0	
AASD	APS Thermal and Array Detectors High Voltage Setting	1962.18	V

ADSO	APS Array Detectors Data Source Switch	Both	
AFSD	APS Far Detector High Voltage Setting	2082.06	V
AHCS	APS Holesize Correction Source	BS	
AHSS	APS Holesize Correction Switch	ON	
AMTY	APS Environmental Corrections Mud Type	WaterBaseBarite	
ANSD	APS Near Detector High Voltage Setting	1731.78	V
ASOS	APS Standoff Correction Switch	ON	
ATSS	APS Temperature−Pressure−Salinity Correction Switch	ON	
BHFL_APS	APS TNPH Borehole Fluid Type	WATER	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	50	DEGF
BSCO_APS	APS TNPH Borehole Salinity Correction Option	YES	
DPPM	Density Porosity Processing Mode	HIRS	
DSCO_APS	APS TNPH Density Source Correction Option	COMPUTED	
FSAL	Formation Salinity	−50000	PPM
FSCO_APS	APS TNPH Formation Salinity Correction Option	NO	
GCSE	Generalized Caliper Selection	BS	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
HSCO_APS	APS TNPH Hole Size Correction Option	YES	
ISSBAR	Barite Mud Switch	NOBARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
MCCO_APS	APS TNPH Mud Cake Correction Option	YES	
MCOR_APS	APS TNPH Mud Correction	NATU	
MWCO_APS	APS TNPH Mud Weight Correction Option	YES	
NARC	APS Near/Array Calibration Ratio	1.05701	
NFRC	APS Near/Far Calibration Ratio	0.887966	
PTCO_APS	APS TNPH Pressure/Temperature Correction Option	NO	
SHT	Surface Hole Temperature	68	DEGF
TNCO_APS	APS TNPH Computation Option	NO	
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)	50	DEGF
CSD1	Inner Casing Outer Diameter	0	IN
CSD2	Outer Casing Outer Diameter	0	IN
CSW1	Inner Casing Weight	0	LB/F
CSW2	Outer Casing Weight	0	LB/F
DBCC	HNGS Barite Constant Correction Flag	NONE	
GCSE	Generalized Caliper Selection	BS	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
H1P	HNGS Detector 1 Allow/Disallow In Processing	ALLOW	
H2P	HNGS Detector 2 Allow/Disallow In Processing	ALLOW	
HABK	HNGS Borehole Potassium Running Average	−0.00279021	
HALF	HNGS Alpha Filter Length	60	IN
HCRB	HNGS Apply Borehole Potassium Correction	NONE	
HMWM	Mud Weighting Material	NATU	
HNPE	HNGS Processing Enable	YES	
ISSBAR	Barite Mud Switch	NOBARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
S1BI	HNGS Detector 1 Calibration Bismuth Count Rate	1.3	CPS
S2BI	HNGS Detector 2 Calibration Bismuth Count Rate	1.3	CPS
SGRC	HNGS Standard Gamma−Ray Correction Flag	YES	
SHT	Surface Hole Temperature	68	DEGF
TPOS	Tool Position	ECCE	
VBA1	HNGS Detector 1 Variable Barite Factor Running Average	0.960045	
VBA2	HNGS Detector 2 Variable Barite Factor Running Average	0.971544	
HRLT−B: High Resolution Laterolog Array − B			
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	50	DEGF
CALSTAT	HRLTB Calibration Status	SHALLOW_DONE	
CALTEMP	HRLTB Calibration Temperature	17.0393	DEGC
FREQ0	HRLT Frequency Index for Mode 0	32	
FREQ1	HRLT Frequency Index for Mode 1	128	
FREQ2	HRLT Frequency Index for Mode 2	104	
FREQ3	HRLT Frequency Index for Mode 3	86	
FREQ4	HRLT Frequency Index for Mode 4	56	
FREQ5	HRLT Frequency Index for Mode 5	44	
FREQ6	HRLT Frequency Index for Mode 6	116	
GCSE	Generalized Caliper Selection	BS	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
ISSBAR	Barite Mud Switch	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	68	DEGF
EDTC−B: Enhanced DTS Cartridge			
BHFL	Borehole Fluid Type	WATER	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	50	DEGF
BSCO	Borehole Salinity Correction Option	NO	
CCCO	Casing & Cement Thickness Correction Option	NO	
DPPM	Density Porosity Processing Mode	HIRS	
FSAL	Formation Salinity	−50000	PPM
FSCO	Formation Salinity Correction Option	NO	
GCSE	Generalized Caliper Selection	BS	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
HSCO	Hole Size Correction Option	YES	
ISSBAR	Barite Mud Switch	NOBARITE	
ISSBAR_EDTC	Nuclear Mud Type	NOBARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
MCCO	Mud Cake Correction Option	NO	
MCOR	Mud Correction	NATU	
MWCO	Mud Weight Correction Option	YES	
PTCO	Pressure/Temperature Correction Option	NO	
SDAT	Standoff Data Source	SOCN	
SHT	Surface Hole Temperature	68	DEGF
SOCN	Standoff Distance	0	IN
SOCO	Standoff Correction Option	NO	
TPOS_EDTC	EDTC Tool Centered/Eccentered	Eccentered	
U−ETELM_EDTS	Telemetry Mode for eWAFE	Standard_EDTS	
U−TELM_EDTS	Telemetry Mode for WAFE	Standard_EDTS	
System and Miscellaneous			
ALTDPCHAN	Name of alternate depth channel	SpeedCorrectedDepth	
BS	Bit Size	9.875	IN
BSAL	Borehole Salinity	−50000.00	PPM
CSIZ	Current Casing Size	10.750	IN
CWEI	Casing Weight	43.00	LB/F
DFD	Drilling Fluid Density	1.25	G/C3
DO	Depth Offset for Playback	−655.0	M
FLEV	Fluid Level	−50000.00	M
MST	Mud Sample Temperature	−50000.00	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	3330	FT
TDD	Total Depth − Driller	990.00	M
TDL	Total Depth − Logger	990.00	M
TWS	Temperature of Connate Water Sample	37.78	DEGC

Format: HRLT_LQC **Vertical Scale: 1:200** **Graphics File Created: 10−Jan−2012 02:25**

OP System Version: 19C0−187

HLDS	19C0−187	LDSC−B	19C0−187
APS−C	19C0−187	HNGC−B	19C0−187
HNGS−BA	19C0−187	HRLT−B	19C0−187
EDTC−B	19C0−187		

Input DLIS Files

DEFAULT	Flip_LDL_APS_NGS_028LUP	PRODUCER	02−Jan−2012 05:48	1190.5 M	594.4 M

Output DLIS Files

DEFAULT	LDL_APS_NGS_HRLA_041PUP	FN:45	PRODUCER	10−Jan−2012 02:25

Calibration and Check Summary

Measurement	Nominal	Master	Before	After	Change	Limit	Units
Hostile Litho−Density Sonde Wellsite Calibration − Background Measurement							
Master: 17−Nov−2011 16:03 Before: 17−Nov−2011 15:55 After: 17−Dec−2011 8:50							
SS Cs Resolution Bkg	9.000	7.741	7.618	7.594	−0.02418	1.800	%
LS Cs Resolution Bkg	9.000	8.089	8.025	8.065	0.04037	1.800	%
LSW1 Background	100.0	87.45	87.45	87.53	0.08757	0.03000	CPS
LSW2 Background	100.0	80.38	80.38	79.58	−0.7984	0.03000	CPS
LSW3 Background	200.0	180.0	180.0	180.4	0.3738	0.03000	CPS
LSW4 Background	250.0	224.8	224.8	226.5	1.701	0.03000	CPS
LSW5 Background	600.0	526.0	526.0	519.3	−6.693	0.03000	CPS
SSW1 Background	100.0	85.28	85.28	84.82	−0.4580	0.03000	CPS
SSW2 Background	200.0	147.3	147.3	146.1	−1.170	0.03000	CPS
SSW3 Background	500.0	409.2	409.2	411.5	2.230	0.03000	CPS
SSW4 Background	270.0	221.7	221.7	221.2	−0.4445	0.03000	CPS
SSW5 Background	200.0	158.7	158.7	157.7	−1.014	0.03000	CPS
Hostile Litho−Density Sonde Wellsite Calibration − Aluminum Measurement							
Master: 17−Nov−2011 16:33							
LSW1 Aluminum	600.0	560.2	N/A	N/A	N/A	N/A	CPS
LSW2 Aluminum	900.0	815.4	N/A	N/A	N/A	N/A	CPS
LSW3 Aluminum	1100	984.8	N/A	N/A	N/A	N/A	CPS
LSW4 Aluminum	580.0	493.4	N/A	N/A	N/A	N/A	CPS
LSW5 Aluminum	570.0	450.2	N/A	N/A	N/A	N/A	CPS
SSW1 Aluminum	2800	2639	N/A	N/A	N/A	N/A	CPS
SSW2 Aluminum	8000	7196	N/A	N/A	N/A	N/A	CPS
SSW3 Aluminum	11600	10050	N/A	N/A	N/A	N/A	CPS
SSW4 Aluminum	5000	4135	N/A	N/A	N/A	N/A	CPS
SSW5 Aluminum	660.0	504.7	N/A	N/A	N/A	N/A	CPS
Hostile Litho−Density Sonde Wellsite Calibration − Lithology Measurement							
Master: 17−Nov−2011 16:29							
LSW1 Iron	400.0	389.4	N/A	N/A	N/A	N/A	CPS
LSW2 Iron	730.0	674.0	N/A	N/A	N/A	N/A	CPS
LSW3 Iron	1000	897.0	N/A	N/A	N/A	N/A	CPS
LSW4 Iron	520.0	464.0	N/A	N/A	N/A	N/A	CPS
LSW5 Iron	470.0	424.7	N/A	N/A	N/A	N/A	CPS
SSW1 Iron	2100	1967	N/A	N/A	N/A	N/A	CPS
SSW2 Iron	6800	6145	N/A	N/A	N/A	N/A	CPS
SSW3 Iron	10800	9395	N/A	N/A	N/A	N/A	CPS
SSW4 Iron	4600	3871	N/A	N/A	N/A	N/A	CPS
SSW5 Iron	580.0	460.2	N/A	N/A	N/A	N/A	CPS
Hostile Litho−Density Sonde Wellsite Calibration − Caliper Calibration							
Before: 17−Dec−2011 9:53							
HLDS Caliper Small Ring	12.00	N/A	14.33	N/A	N/A	N/A	IN
HLDS Caliper Large Ring	15.19	N/A	18.10	N/A	N/A	N/A	IN
Accelerator−Porosity Tool Wellsite Calibration − Detector Background							
Master: 16−Nov−2011 15:14 Before: 2−Jan−2012 1:16 After: 16−Nov−2011 15:18							
Near Det Bkg Cntrate	30.00	31.42	32.02	31.77	−0.2503	N/A	CPS
Far Det Bkg Cntrate	30.00	33.69	32.37	32.51	0.1335	N/A	CPS
Array−1 Det Bkg Cntrate	30.00	30.06	28.73	28.01	−0.7173	N/A	CPS
Array−2 Det Bkg Cntrate	30.00	29.35	29.78	29.48	−0.3003	N/A	CPS
Array Therm Det Bkg Cntrate	30.00	30.97	32.42	31.05	−1.368	N/A	CPS
Accelerator−Porosity Tool Wellsite Calibration − Calibration Ratios							
Master: 16−Nov−2011 15:12							
Near/Far Calibration Ratio	0.9250	0.8880	N/A	N/A	N/A	N/A	
Near/Array Calibration Ratio	1.030	1.057	N/A	N/A	N/A	N/A	
Near/Array Cal Ratio Up/Down	1.000	1.006	N/A	N/A	N/A	N/A	
Accelerator−Porosity Tool Wellsite Calibration − Tank Check							
Master: 16−Nov−2011 15:14							
Array−1 Standoff Porosity	11.75	11.83	N/A	N/A	N/A	N/A	PU
Array−2 Standoff Porosity	11.75	11.78	N/A	N/A	N/A	N/A	PU
Average Slowing Down Time	6.000	5.843	N/A	N/A	N/A	N/A	US
Array−1 SDT Ratio Up/Down	1.000	0.9874	N/A	N/A	N/A	N/A	
Array−2 SDT Ratio Up/Down	1.000	1.012	N/A	N/A	N/A	N/A	
Sigma Formation	27.50	29.40	N/A	N/A	N/A	N/A	CU
Accelerator−Porosity Tool Wellsite Calibration − CCR7 signal boxes							
Master: 16−Nov−2011 14:29							
Near Detector Plateau Setting	1650	1732	N/A	N/A	N/A	N/A	V
Far Detector Plateau Setting	2000	2082	N/A	N/A	N/A	N/A	V
Array Detector Plateau Setting	2000	1962	N/A	N/A	N/A	N/A	V

Hostile Natural Gamma Ray Sonde Wellsite Calibration − Detector 1 Check
Master: 17−Nov−2011 7:57 Before: 26−Nov−2011 0:21 After: 8−Dec−2011 1:11

Na 511 Peak Loc	40.00	39.70	39.69	39.60	−0.09224	1.000	
Na 511 Peak Res	15.50	15.50	15.07	14.85	−0.2178	2.000	%
High Voltage	1150	1176	1168	1164	−3.540	N/A	V
Na 1785 Peak Loc	142.6	142.1	141.8	143.0	1.198	7.000	
Na 1785 Peak Res	8.500	8.309	8.731	7.037	−1.693	2.000	%
Temperature	15.50	29.76	21.55	20.40	−1.158	N/A	DEGC
Na Count Rate	45.00	20.77	21.01	20.72	−0.2956	8.000	CPS

Hostile Natural Gamma Ray Sonde Wellsite Calibration − Detector 2 Check
Master: 17−Nov−2011 7:57 Before: 26−Nov−2011 0:21 After: 8−Dec−2011 1:11

Na 511 Peak Loc	40.00	39.60	39.49	39.54	0.04988	1.000	
Na 511 Peak Res	15.50	16.99	15.91	15.93	0.01764	2.000	%
High Voltage	1150	1109	1091	1088	−3.384	N/A	V
Na 1785 Peak Loc	142.6	142.6	142.3	140.3	−1.968	7.000	
Na 1785 Peak Res	8.500	9.914	8.591	8.815	0.2231	2.000	%
Temperature	15.50	29.91	21.84	22.02	0.1821	N/A	DEGC
Na Count Rate	45.00	21.44	20.97	21.04	0.06492	8.000	CPS

Hostile Natural Gamma Ray Sonde Wellsite Calibration − Ratio Of Detector 1 To Detector 2
Master: 17−Nov−2011 7:57 Before: 26−Nov−2011 0:21 After: 8−Dec−2011 1:11

Coincidence Count Rate Ratio	1.000	0.9705	1.004	0.9862	−0.01783	0.05000	

High Resolution Laterolog Array − B Wellsite Calibration − HRLT M01
Before: 2−Jan−2012 1:09

HRLT M0−M1 Voltage Plus − 0	0	N/A	−319.5	N/A	N/A	9.681	UV
HRLT M0−M1 Voltage Plus − 1	0	N/A	−336.1	N/A	N/A	9.681	UV
HRLT M0−M1 Voltage Plus − 2	0	N/A	−336.5	N/A	N/A	9.681	UV
HRLT M0−M1 Voltage Plus − 3	0	N/A	−339.4	N/A	N/A	9.681	UV
HRLT M0−M1 Voltage Plus − 4	0	N/A	−326.6	N/A	N/A	9.681	UV
HRLT M0−M1 Voltage Plus − 5	0	N/A	−322.4	N/A	N/A	9.681	UV
HRLT M0−M1 Voltage Plus − 6	0	N/A	326.6	N/A	N/A	9.681	UV
HRLT M0−M1 Voltage Plus − 7	0	N/A	−322.7	N/A	N/A	9.681	UV

High Resolution Laterolog Array − B Wellsite Calibration − HRLT M12
Before: 2−Jan−2012 1:09

HRLT M1−M2 Voltage Plus − 0	0	N/A	1756	N/A	N/A	53.42	UV
HRLT M1−M2 Voltage Plus − 1	0	N/A	1846	N/A	N/A	53.42	UV
HRLT M1−M2 Voltage Plus − 2	0	N/A	1844	N/A	N/A	53.42	UV
HRLT M1−M2 Voltage Plus − 3	0	N/A	1860	N/A	N/A	53.42	UV
HRLT M1−M2 Voltage Plus − 4	0	N/A	1792	N/A	N/A	53.42	UV
HRLT M1−M2 Voltage Plus − 5	0	N/A	1770	N/A	N/A	53.42	UV
HRLT M1−M2 Voltage Plus − 6	0	N/A	−1802	N/A	N/A	53.42	UV
HRLT M1−M2 Voltage Plus − 7	0	N/A	1781	N/A	N/A	53.42	UV

High Resolution Laterolog Array − B Wellsite Calibration − HRLT M23
Before: 2−Jan−2012 1:09

HRLT M2−M3 Voltage Plus − 0	0	N/A	1743	N/A	N/A	53.42	UV
HRLT M2−M3 Voltage Plus − 1	0	N/A	1845	N/A	N/A	53.42	UV
HRLT M2−M3 Voltage Plus − 2	0	N/A	1844	N/A	N/A	53.42	UV
HRLT M2−M3 Voltage Plus − 3	0	N/A	1864	N/A	N/A	53.42	UV
HRLT M2−M3 Voltage Plus − 4	0	N/A	1789	N/A	N/A	53.42	UV
HRLT M2−M3 Voltage Plus − 5	0	N/A	1768	N/A	N/A	53.42	UV
HRLT M2−M3 Voltage Plus − 6	0	N/A	−1789	N/A	N/A	53.42	UV
HRLT M2−M3 Voltage Plus − 7	0	N/A	1781	N/A	N/A	53.42	UV

High Resolution Laterolog Array − B Wellsite Calibration − HRLT V34
Before: 2−Jan−2012 1:09

HRLT A3−A4 Voltage Plus − 0	0	N/A	68490	N/A	N/A	2100	UV
HRLT A3−A4 Voltage Plus − 1	0	N/A	72290	N/A	N/A	2100	UV
HRLT A3−A4 Voltage Plus − 2	0	N/A	72560	N/A	N/A	2100	UV
HRLT A3−A4 Voltage Plus − 3	0	N/A	73600	N/A	N/A	2100	UV
HRLT A3−A4 Voltage Plus − 4	0	N/A	70610	N/A	N/A	2100	UV
HRLT A3−A4 Voltage Plus − 5	0	N/A	69800	N/A	N/A	2100	UV
HRLT A3−A4 Voltage Plus − 6	0	N/A	−69100	N/A	N/A	2100	UV
HRLT A3−A4 Voltage Plus − 7	0	N/A	70000	N/A	N/A	2100	UV

High Resolution Laterolog Array − B Wellsite Calibration − HRLT V45
Before: 2−Jan−2012 1:09

HRLT A4−A5 Voltage Plus − 0	0	N/A	68770	N/A	N/A	2100	UV
HRLT A4−A5 Voltage Plus − 1	0	N/A	72670	N/A	N/A	2100	UV
HRLT A4−A5 Voltage Plus − 2	0	N/A	72910	N/A	N/A	2100	UV
HRLT A4−A5 Voltage Plus − 3	0	N/A	73940	N/A	N/A	2100	UV
HRLT A4−A5 Voltage Plus − 4	0	N/A	70910	N/A	N/A	2100	UV
HRLT A4−A5 Voltage Plus − 5	0	N/A	70080	N/A	N/A	2100	UV
HRLT A4−A5 Voltage Plus − 6	0	N/A	−69490	N/A	N/A	2100	UV
HRLT A4−A5 Voltage Plus − 7	0	N/A	70000	N/A	N/A	2100	UV

High Resolution Laterolog Array − B Wellsite Calibration − HRLT V56
Before: 2−Jan−2012 1:09

HRLT A5−A6 Voltage Plus − 0	0	N/A	68670	N/A	N/A	2100	UV

HRLT A5−A6 Voltage Plus − 1	0	N/A	72400	N/A	N/A	2100	UV
HRLT A5−A6 Voltage Plus − 2	0	N/A	72670	N/A	N/A	2100	UV
HRLT A5−A6 Voltage Plus − 3	0	N/A	73730	N/A	N/A	2100	UV
HRLT A5−A6 Voltage Plus − 4	0	N/A	70780	N/A	N/A	2100	UV
HRLT A5−A6 Voltage Plus − 5	0	N/A	69960	N/A	N/A	2100	UV
HRLT A5−A6 Voltage Plus − 6	0	N/A	−69200	N/A	N/A	2100	UV
HRLT A5−A6 Voltage Plus − 7	0	N/A	70000	N/A	N/A	2100	UV

High Resolution Laterolog Array − B Wellsite Calibration − HRLT VTP
Before: 2−Jan−2012 1:09

HRLT Torpedo−M0 Voltage − 0	0	N/A	−68330	N/A	N/A	2100	UV
HRLT Torpedo−M0 Voltage − 1	0	N/A	−72720	N/A	N/A	2100	UV
HRLT Torpedo−M0 Voltage − 2	0	N/A	−72960	N/A	N/A	2100	UV
HRLT Torpedo−M0 Voltage − 3	0	N/A	−74020	N/A	N/A	2100	UV
HRLT Torpedo−M0 Voltage − 4	0	N/A	−70960	N/A	N/A	2100	UV
HRLT Torpedo−M0 Voltage − 5	0	N/A	−70120	N/A	N/A	2100	UV
HRLT Torpedo−M0 Voltage − 6	0	N/A	69470	N/A	N/A	2100	UV
HRLT Torpedo−M0 Voltage − 7	0	N/A	−70000	N/A	N/A	2100	UV

High Resolution Laterolog Array − B Wellsite Calibration − HRLT VBD
Before: 2−Jan−2012 1:09

HRLT Bridle#9−M0 Voltage − 0	0	N/A	−68330	N/A	N/A	2100	UV
HRLT Bridle#9−M0 Voltage − 1	0	N/A	−72710	N/A	N/A	2100	UV
HRLT Bridle#9−M0 Voltage − 2	0	N/A	−72950	N/A	N/A	2100	UV
HRLT Bridle#9−M0 Voltage − 3	0	N/A	−74010	N/A	N/A	2100	UV
HRLT Bridle#9−M0 Voltage − 4	0	N/A	−70960	N/A	N/A	2100	UV
HRLT Bridle#9−M0 Voltage − 5	0	N/A	−70120	N/A	N/A	2100	UV
HRLT Bridle#9−M0 Voltage − 6	0	N/A	69450	N/A	N/A	2100	UV
HRLT Bridle#9−M0 Voltage − 7	0	N/A	−70000	N/A	N/A	2100	UV

High Resolution Laterolog Array − B Wellsite Calibration − HRLT ISO
Before: 2−Jan−2012 1:09

HRLT Source Current Plus − 0	0	N/A	285.0	N/A	N/A	8.520	UA
HRLT Source Current Plus − 1	0	N/A	281.1	N/A	N/A	8.520	UA
HRLT Source Current Plus − 2	0	N/A	281.1	N/A	N/A	8.520	UA
HRLT Source Current Plus − 3	0	N/A	281.1	N/A	N/A	8.520	UA
HRLT Source Current Plus − 4	0	N/A	281.1	N/A	N/A	8.520	UA
HRLT Source Current Plus − 5	0	N/A	281.1	N/A	N/A	8.520	UA
HRLT Source Current Plus − 6	0	N/A	281.1	N/A	N/A	8.520	UA
HRLT Source Current Plus − 7	0	N/A	281.1	N/A	N/A	8.520	UA

High Resolution Laterolog Array − B Wellsite Calibration − HRLT MV
Before: 2−Jan−2012 1:09

HRLT Vertical Voltage Pl − 0	0	N/A	−321.5	N/A	N/A	9.681	UV
HRLT Vertical Voltage Pl − 1	0	N/A	−329.9	N/A	N/A	9.681	UV
HRLT Vertical Voltage Pl − 2	0	N/A	−329.6	N/A	N/A	9.681	UV
HRLT Vertical Voltage Pl − 3	0	N/A	−330.8	N/A	N/A	9.681	UV
HRLT Vertical Voltage Pl − 4	0	N/A	−315.8	N/A	N/A	9.681	UV
HRLT Vertical Voltage Pl − 5	0	N/A	−326.8	N/A	N/A	9.681	UV
HRLT Vertical Voltage Pl − 6	0	N/A	333.4	N/A	N/A	9.681	UV
HRLT Vertical Voltage Pl − 7	0	N/A	−322.7	N/A	N/A	9.681	UV

Enhanced DTS Cartridge Wellsite Calibration − EDTC Accelerometer Calibration
Before: 2−Jan−2012 1:11

EDTC Z−Axis Acceleration	9.810	N/A	9.755	N/A	N/A	N/A	M/S2

Enhanced DTS Cartridge Wellsite Calibration − Detector Calibration
Before: 27−Dec−2011 9:12 After: Calibration not done

Gamma Ray (Jig − Bkg)	160.1	N/A	160.1	N/A	N/A	0.09091	GAPI
Gamma Ray (Calibrated)	164.0	N/A	164.0	N/A	N/A	15.00	GAPI

Accelerator−Porosity Tool − Detector Plateau Settings :

Near Detector Plateau Setting 1732 V
Far Detector Plateau Setting 2082 V
Array Detector Plateau Setting 1962 V

Hostile Litho−Density Sonde / Equipment Identification

Primary Equipment:

Hostile Litho Density Sonde	HLDS − D	45
Hostile Litho Density High Voltage	HLDV − D	45
Gamma Source Radioactive	GSR − Z	2397

Auxiliary Equipment:

Hostile Litho Density Pad	HLDP − C	45

Hostile Litho Density High Voltage Housi	HEH − H	47

Litho−Density Spectroscopy Cartridge − B / Equipment Identification

Primary Equipment:		
LDSC Cartridge	LDSC − B	521
Auxiliary Equipment:		
LDSC Housing	LDSH − A	319

Accelerator−Porosity Tool / Equipment Identification

Primary Equipment:		
Accelerator−Porosity Sonde	APS − C	22
APS Minitron	MNTR − F	5978
Auxiliary Equipment:		
Accelerator−Porosity Housing	APH − AC	22
APS Calibration Water Tank	SFT − 178	1
APS Aluminum Calibrator Sleeve	SFT − 281	1

Hostile Natural Gamma Ray Cartridge − B / Equipment Identification

Primary Equipment:		
HNGC Cartridge	HNGC − B	300
Auxiliary Equipment:		
HNGC Housing	HNGH − A	115

Hostile Natural Gamma Ray Sonde / Equipment Identification

Primary Equipment:		
HNGS Sonde	HNGS − BA	194
Auxiliary Equipment:		
HNGS Sonde Housing	HNSH − BA	205
Gamma Source Radioactive	GSR − U	616008

High Resolution Laterolog Array − B / Equipment Identification

Primary Equipment:		
HRLT Sonde	HRLS − B	969
Auxiliary Equipment:		
HRLT lower Housing	HRLH − B	759
HRLT Lower Cartridge	HRLC − B	759
HRLT upper Housing	HRUH − B	769
HRLT Upper Cartridge	HRUC − B	769

High Resolution Laterolog Array − B Wellsite Calibration

HRLT M01

Idx	Phase	HRLT M0−M1 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		−319.5	−322.7	−280.7	−379.7
1	Before		−336.1	−322.7	−280.7	−379.7
2	Before		−336.5	−322.7	−280.7	−379.7
3	Before		−339.4	−322.7	−280.7	−379.7
4	Before		−326.6	−322.7	−280.7	−379.7
5	Before		−322.4	−322.7	−280.7	−379.7

6	Before		326.6	322.7	379.7	280.7
7	Before		−322.7	−322.7	−280.7	−379.7
		(Minimum) (Nominal) (Maximum)				

Before: 2−Jan−2012 1:09

High Resolution Laterolog Array − B Wellsite Calibration

HRLT M12

Idx	Phase	HRLT M1−M2 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		1756	1781	2095	1549
1	Before		1846	1781	2095	1549
2	Before		1844	1781	2095	1549
3	Before		1860	1781	2095	1549
4	Before		1792	1781	2095	1549
5	Before		1770	1781	2095	1549
6	Before		−1802	−1781	−1549	−2095
7	Before		1781	1781	2095	1549
		(Minimum) (Nominal) (Maximum)				

Before: 2−Jan−2012 1:09

High Resolution Laterolog Array − B Wellsite Calibration

HRLT M23

Idx	Phase	HRLT M2−M3 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		1743	1781	2095	1549
1	Before		1845	1781	2095	1549
2	Before		1844	1781	2095	1549
3	Before		1864	1781	2095	1549
4	Before		1789	1781	2095	1549
5	Before		1768	1781	2095	1549
6	Before		−1789	−1781	−1549	−2095
7	Before		1781	1781	2095	1549
		(Minimum) (Nominal) (Maximum)				

Before: 2−Jan−2012 1:09

High Resolution Laterolog Array − B Wellsite Calibration

HRLT V34

Idx	Phase	HRLT A3−A4 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		68490	70000	82360	60900
1	Before		72290	70000	82360	60900
2	Before		72560	70000	82360	60900
3	Before		73600	70000	82360	60900
4	Before		70610	70000	82360	60900
5	Before		69800	70000	82360	60900
6	Before		−69100	−70000	−60900	−82360
7	Before		70000	70000	82360	60900
		(Minimum) (Nominal) (Maximum)				

Before: 2−Jan−2012 1:09

High Resolution Laterolog Array − B Wellsite Calibration

HRLT V45

Idx	Phase	HRLT A4−A5 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		68770	70000	82360	60900

1	Before		72670	70000	82360	60900
2	Before		72910	70000	82360	60900
3	Before		73940	70000	82360	60900
4	Before		70910	70000	82360	60900
5	Before		70080	70000	82360	60900
6	Before		−69490	−70000	−60900	−82360
7	Before		70000	70000	82360	60900
		(Minimum) (Nominal) (Maximum)				

Before: 2−Jan−2012 1:09

High Resolution Laterolog Array − B Wellsite Calibration

HRLT V56

Idx	Phase	HRLT A5−A6 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		68670	70000	82360	60900
1	Before		72400	70000	82360	60900
2	Before		72670	70000	82360	60900
3	Before		73730	70000	82360	60900
4	Before		70780	70000	82360	60900
5	Before		69960	70000	82360	60900
6	Before		−69200	−70000	−60900	−82360
7	Before		70000	70000	82360	60900
		(Minimum) (Nominal) (Maximum)				

Before: 2−Jan−2012 1:09

High Resolution Laterolog Array − B Wellsite Calibration

HRLT VTP

Idx	Phase	HRLT Torpedo−M0 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		−68330	−70000	−60900	−82360
1	Before		−72720	−70000	−60900	−82360
2	Before		−72960	−70000	−60900	−82360
3	Before		−74020	−70000	−60900	−82360
4	Before		−70960	−70000	−60900	−82360
5	Before		−70120	−70000	−60900	−82360
6	Before		69470	70000	82360	60900
7	Before		−70000	−70000	−60900	−82360
		(Minimum) (Nominal) (Maximum)				

Before: 2−Jan−2012 1:09

High Resolution Laterolog Array − B Wellsite Calibration

HRLT VBD

Idx	Phase	HRLT Bridle#9−M0 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		−68330	−70000	−60900	−82360
1	Before		−72710	−70000	−60900	−82360
2	Before		−72950	−70000	−60900	−82360
3	Before		−74010	−70000	−60900	−82360
4	Before		−70960	−70000	−60900	−82360
5	Before		−70120	−70000	−60900	−82360
6	Before		69450	70000	82360	60900
7	Before		−70000	−70000	−60900	−82360

7	Before		79000	79000	80500	82500
		(Minimum) (Nominal) (Maximum)				

Before: 2−Jan−2012 1:09

High Resolution Laterolog Array − B Wellsite Calibration

HRLT ISO

Idx	Phase	HRLT Source Current Plus UA	Value	Nominal	Maximum	Minimum
0	Before		285.0	284.0	334.1	247.0
1	Before		281.1	281.1	330.7	244.4
2	Before		281.1	281.1	330.7	244.4
3	Before		281.1	281.1	330.7	244.4
4	Before		281.1	281.1	330.7	244.4
5	Before		281.1	281.1	330.7	244.4
6	Before		281.1	281.1	330.7	244.4
7	Before		281.1	281.1	330.7	244.4
		(Minimum) (Nominal) (Maximum)				

Before: 2−Jan−2012 1:09

High Resolution Laterolog Array − B Wellsite Calibration

HRLT MV

Idx	Phase	HRLT Vertical Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		−321.5	−322.7	−280.7	−379.7
1	Before		−329.9	−322.7	−280.7	−379.7
2	Before		−329.6	−322.7	−280.7	−379.7
3	Before		−330.8	−322.7	−280.7	−379.7
4	Before		−315.8	−322.7	−280.7	−379.7
5	Before		−326.8	−322.7	−280.7	−379.7
6	Before		333.4	322.7	379.7	280.7
7	Before		−322.7	−322.7	−280.7	−379.7
		(Minimum) (Nominal) (Maximum)				

Before: 2−Jan−2012 1:09

Enhanced DTS Cartridge / Equipment Identification

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

Company: **Lamont Doherty**

Schlumberger

Well: **Expedition 339, Site U1389 GC−11A Hole E**

Field: **Mediterranean Outflow (Portugal)**

Rig: **JOIDES Resolution**

Rig:	**JOIDES Resolution**
Ocean:	**Atlantic**

High Resolution Laterolog Array
Log Quality Control