Company: Beach Petroleum Ltd | Well: Fermat−1

Input DLIS Files

DEFAULT	HRLA_MAXS_MAPC_TLD_056LUP	FN:64	PRODUCER	08−Jan−2009 03:46	3584.4 M	2732.2 M

Output DLIS Files

DEFAULT	HRLA_MAXS_MAPC_TLD_068PUP	FN:79	PRODUCER	08−Jan−2009 08:34	3589.0 M	2736.8 M

Integrated Hole/Cement Volume Summary

Hole Volume = 34.74 M3

Cement Volume = 15.25 M3 (assuming 7.00 IN casing O.D.)

Computed from 3586.4 M to 2801.6 M using data channel(s) HCAL

OP System Version: 16C0−147

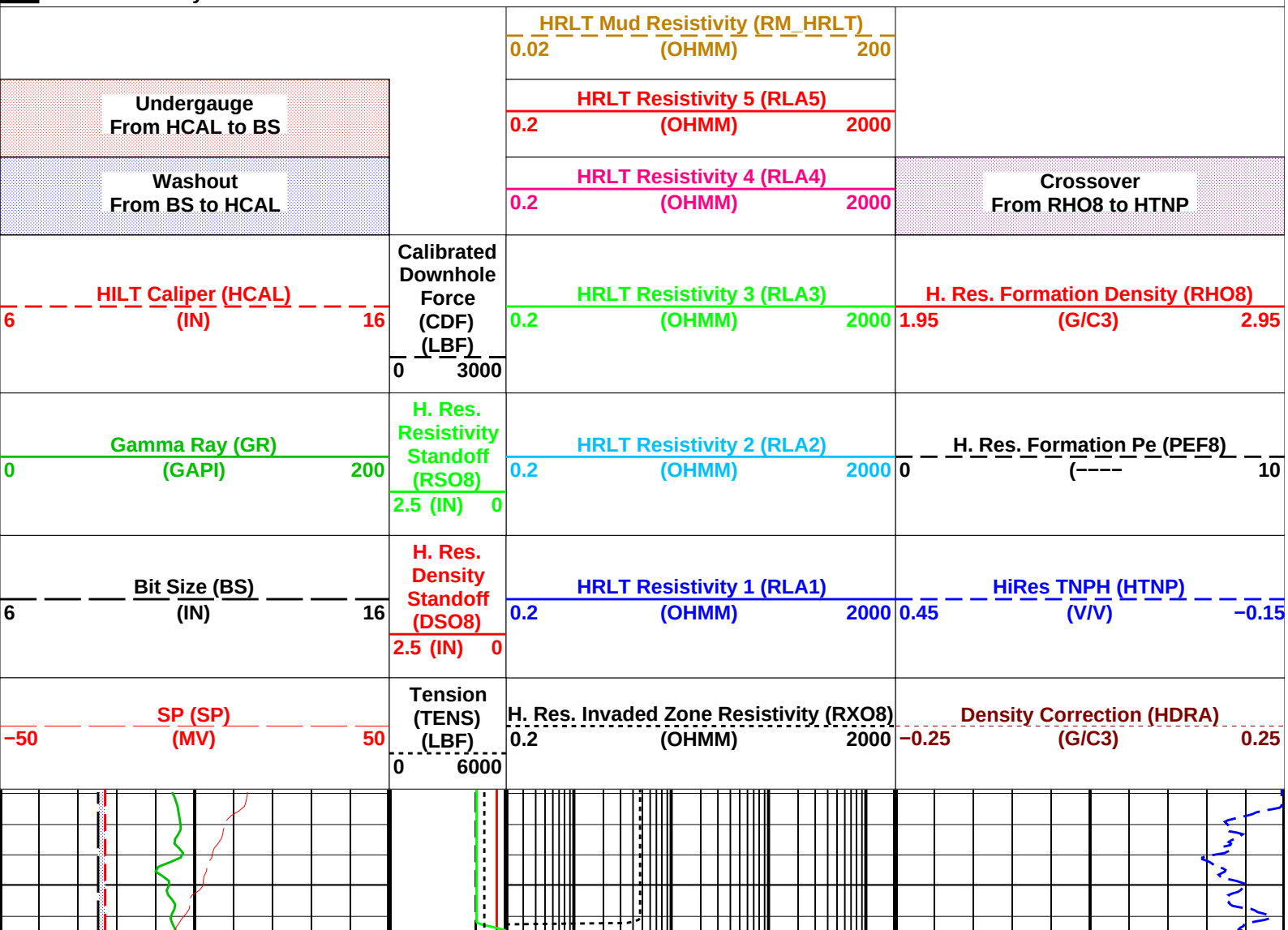
MCM

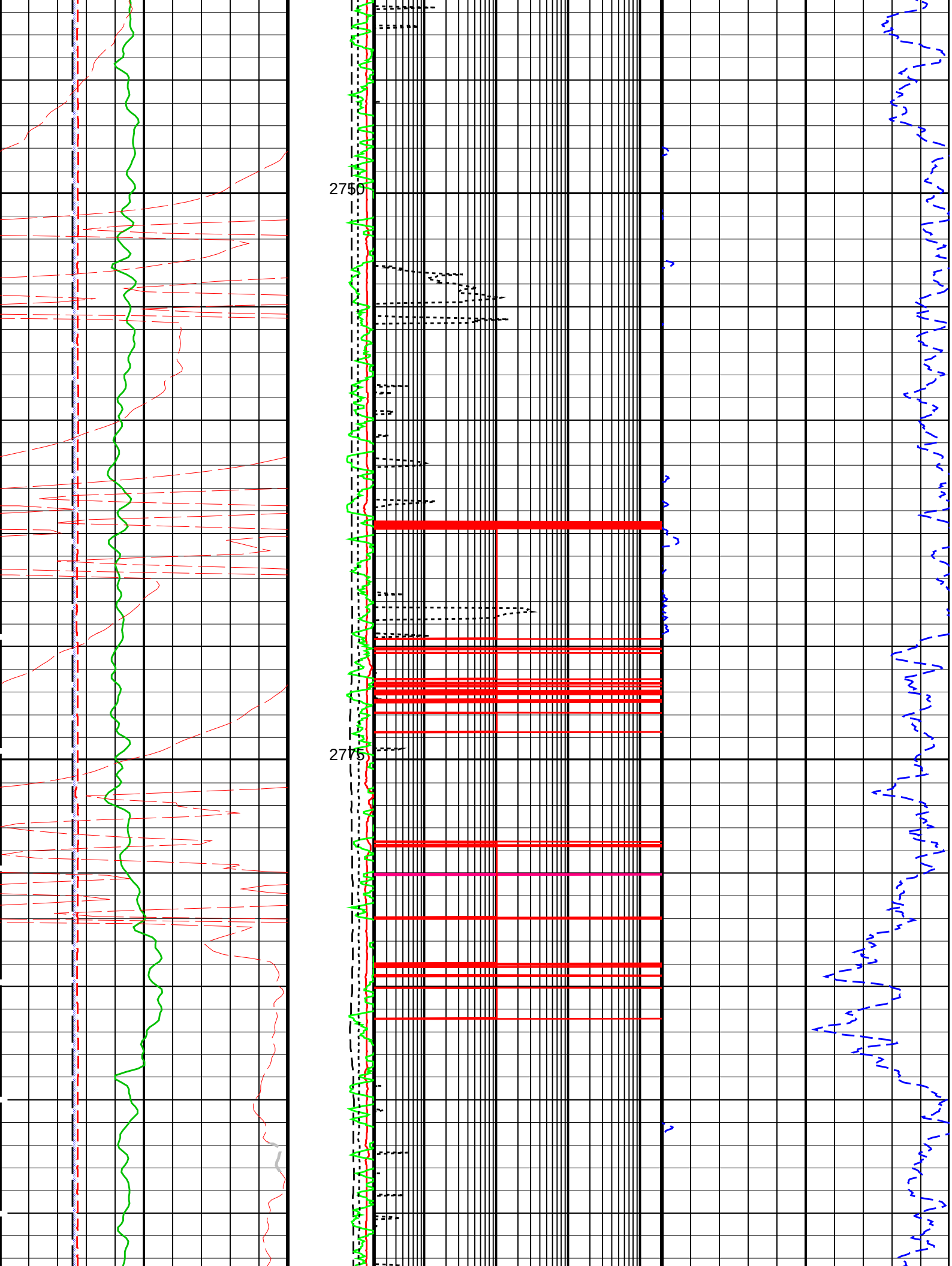
HRLT−B	16C0−147	MAXS−B	SKK−3703−MAST
MAPC−B	SKK−3703−MAST	HILTB−FTB	SRPC−3624−Q2_2008_OP16
HNGC−B	16C0−147	HNGS−BA	SPC−3692−NUCL
EDTC−B	SKK−3494−EDTCB	SPA−A	16C0−147

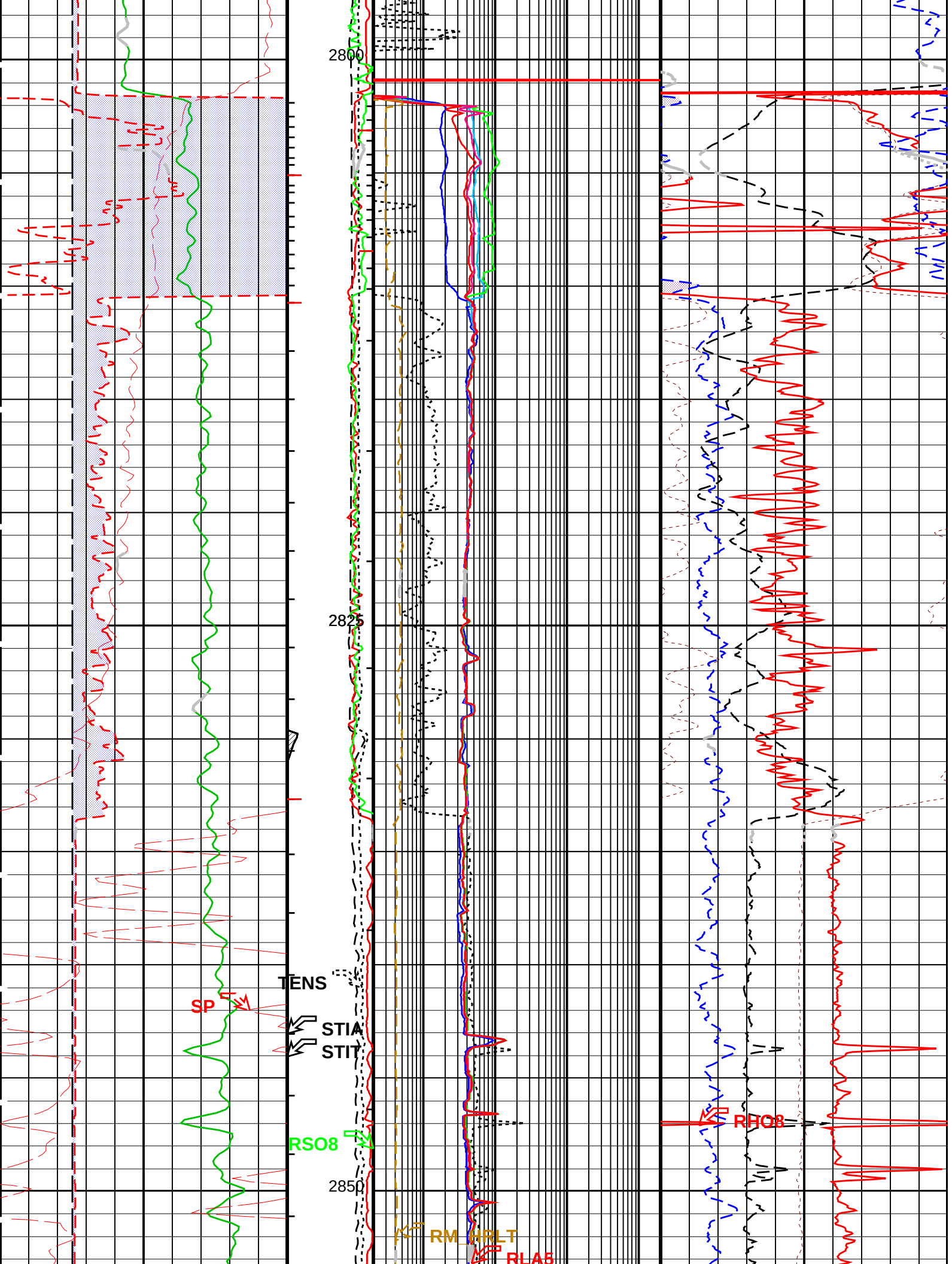
PIP SUMMARY

- Integrated Hole Volume Minor Pip Every 0.1 M3
- Integrated Hole Volume Major Pip Every 1 M3
- Integrated Cement Volume Minor Pip Every 0.1 M3
- Integrated Cement Volume Major Pip Every 1 M3

Time Mark Every 60 S




2750
2775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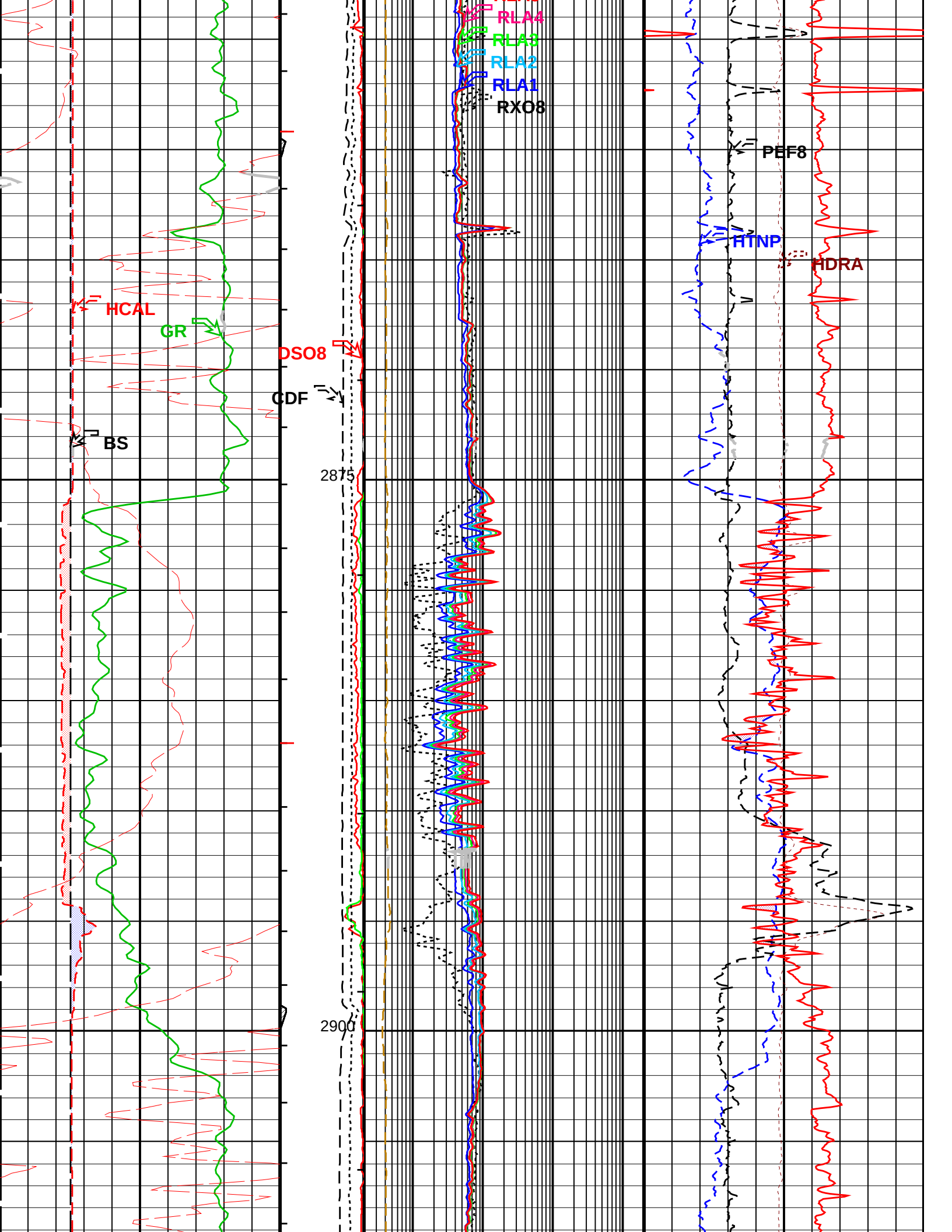
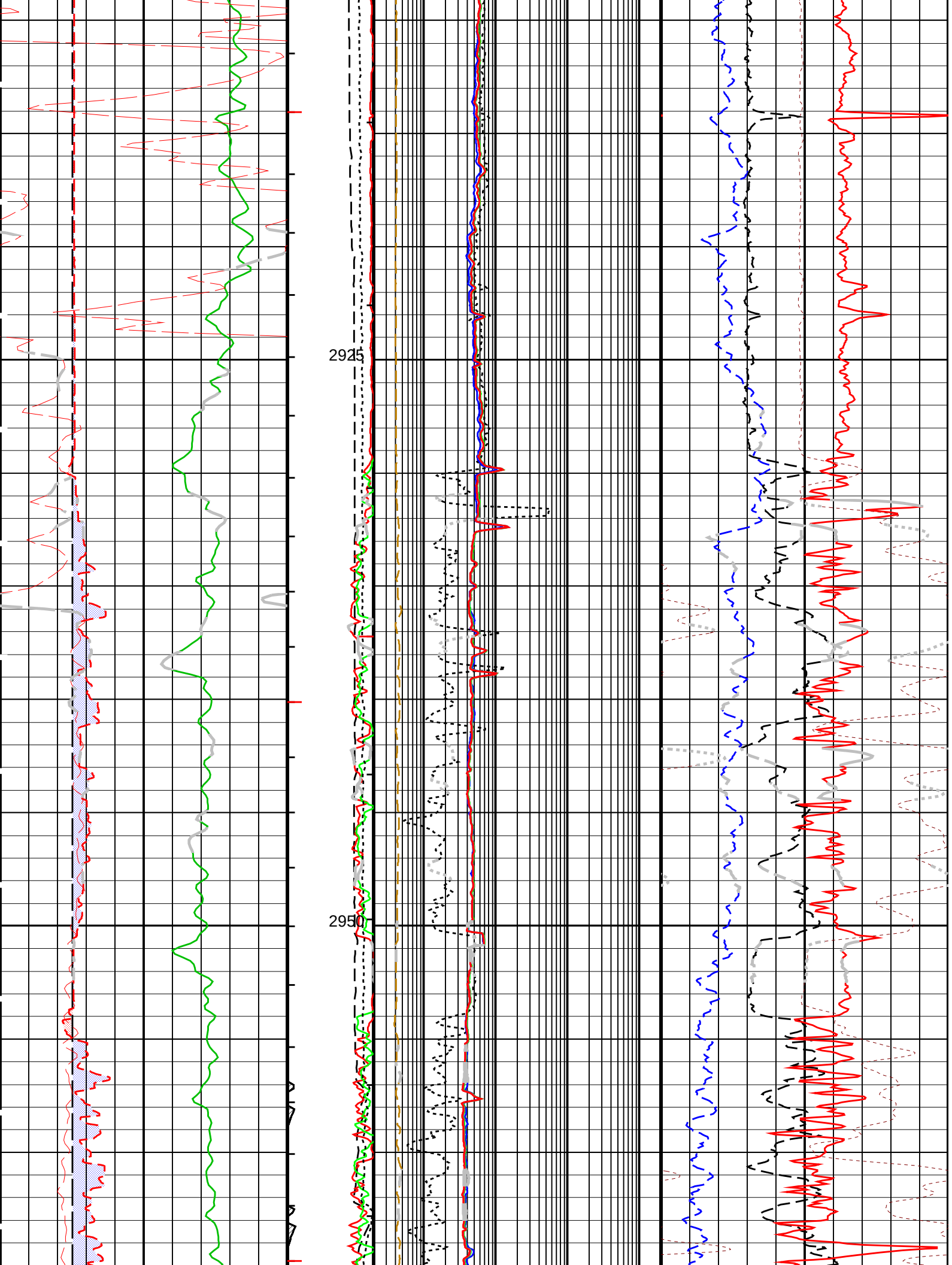
2825
2850
TENS
SP
STIA
STIT
RSO8
RHO8
RM_HRLT
RLA5


RLA4
RLA3
RLA2
RLA1
RXO8
PEF8
HTNP
HDRA
HCAL
GR
DSO8
CDF
BS
2875
2900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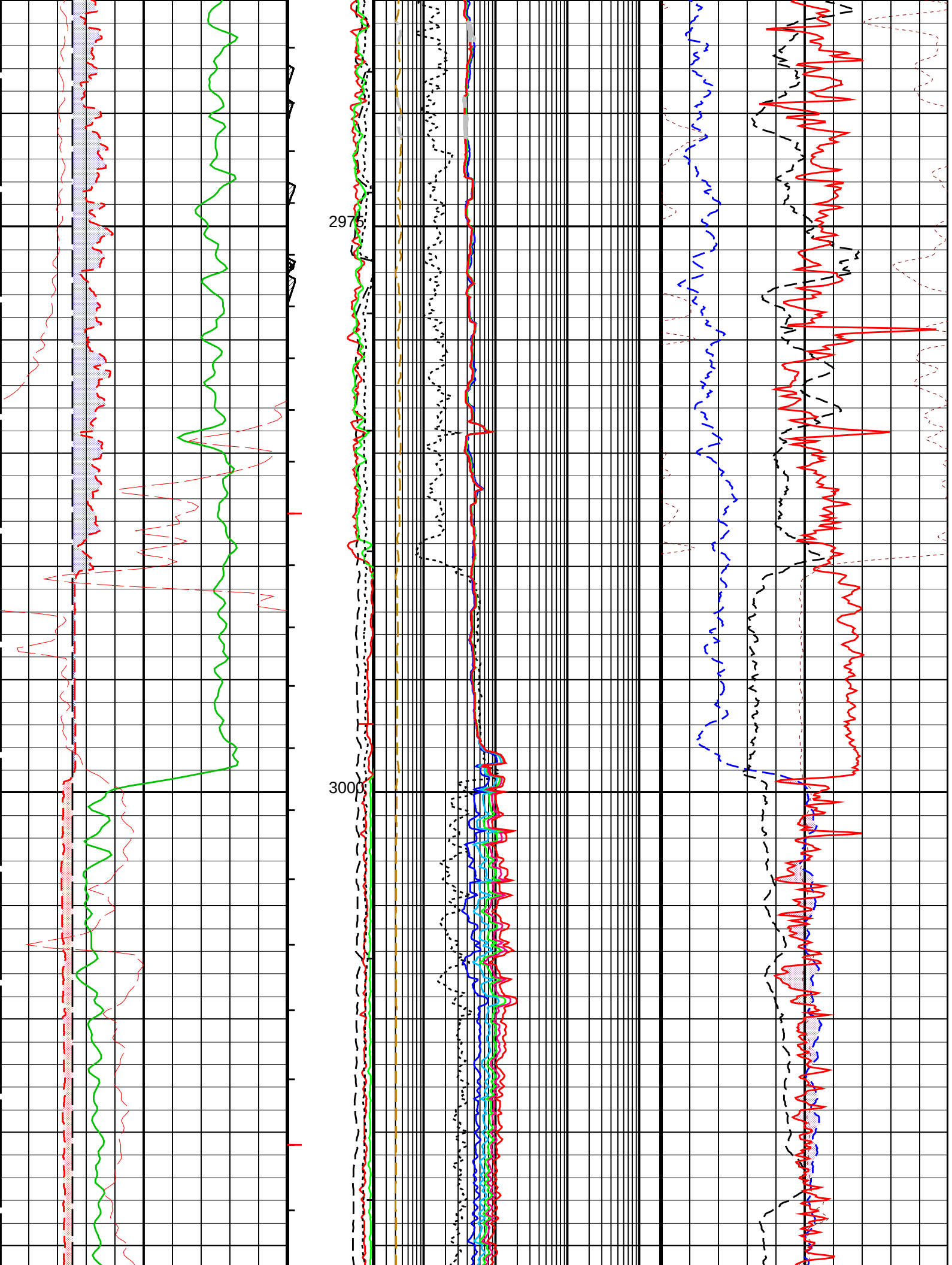
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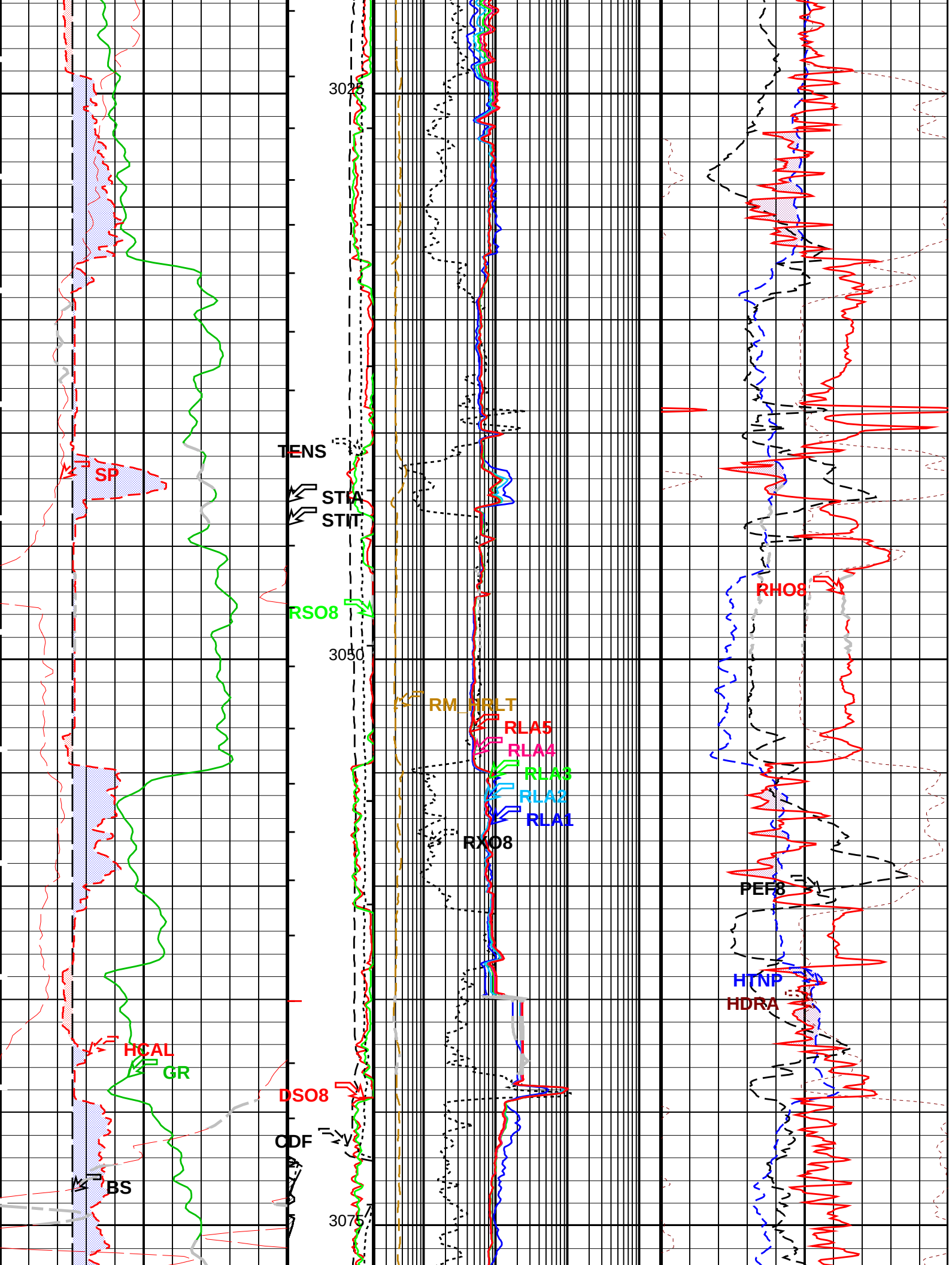
3025
TENS
SP
STDA
STIT
RSO8
3050
RM_HRLT
RLA5
RLA4
RLA3
RLA2
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PEF8
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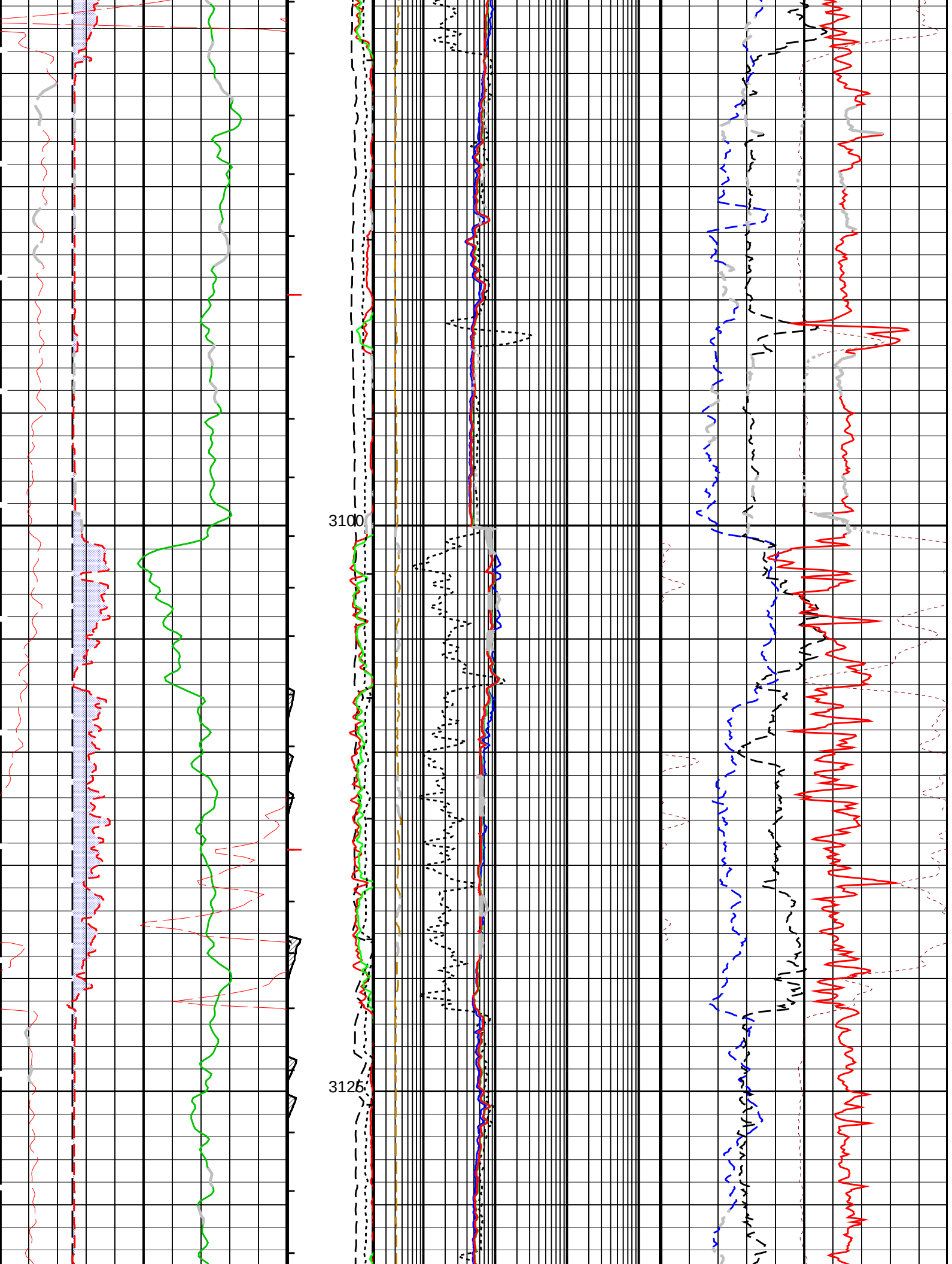
HCAL
GR
DSO8
CDF
BS
3075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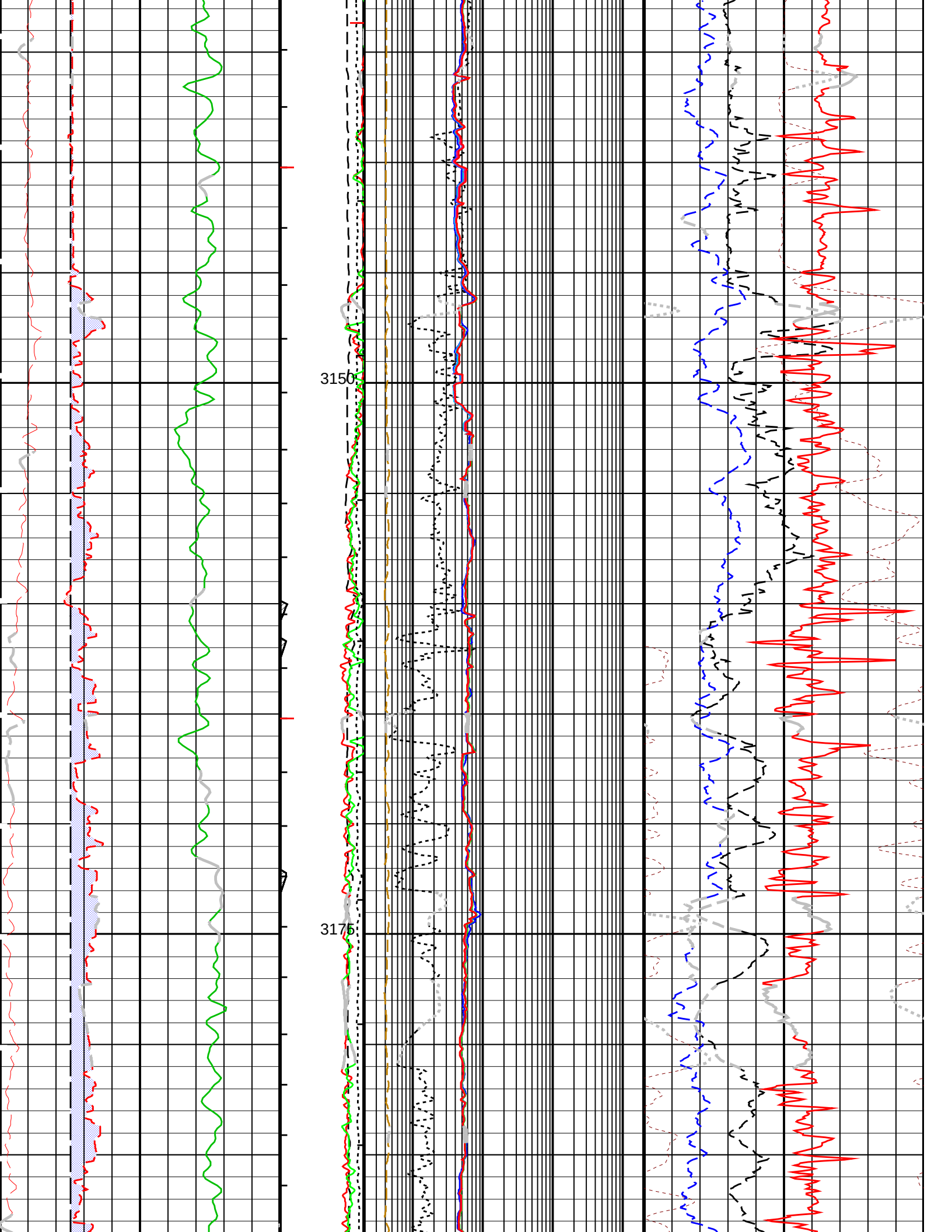
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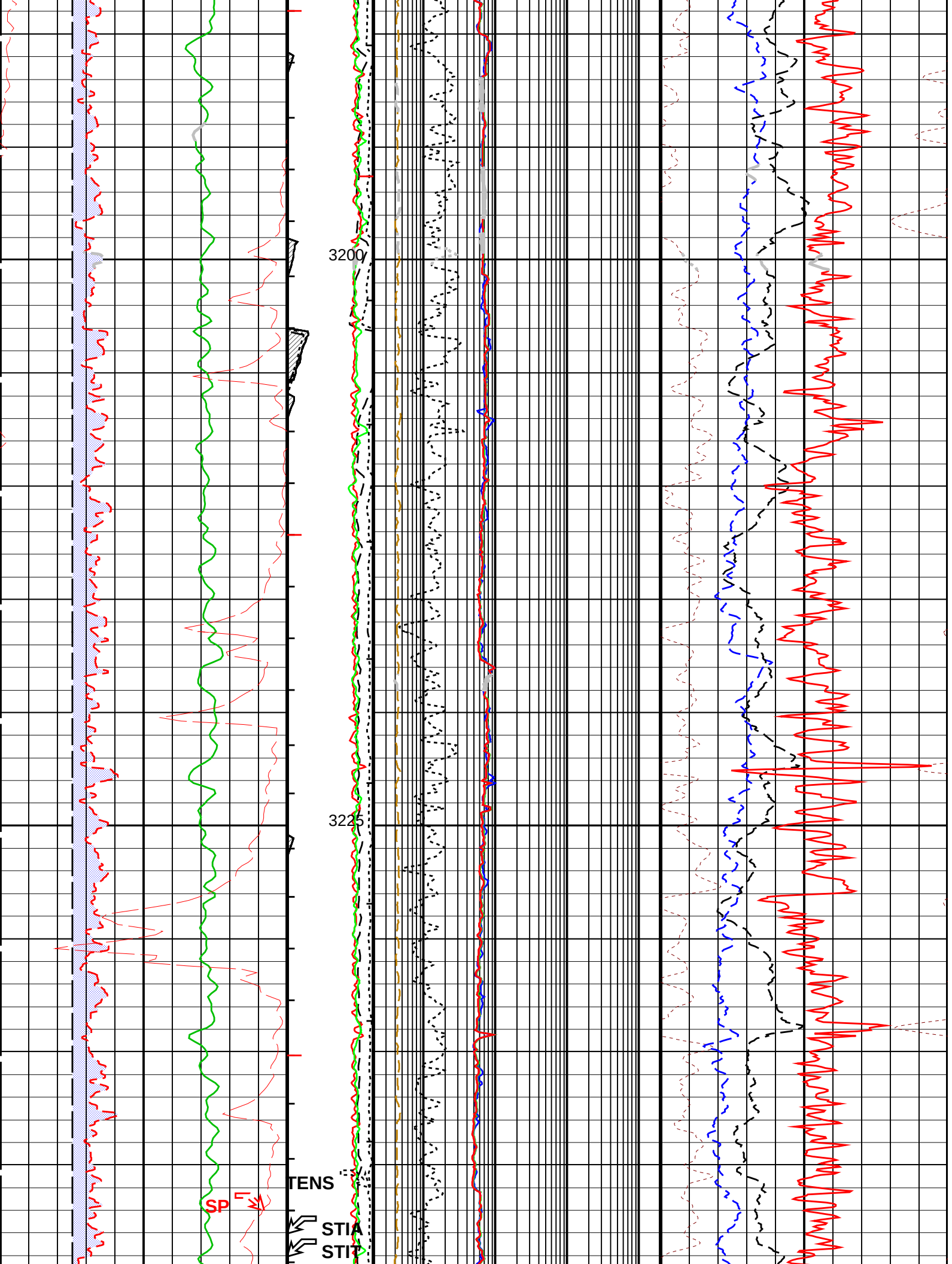
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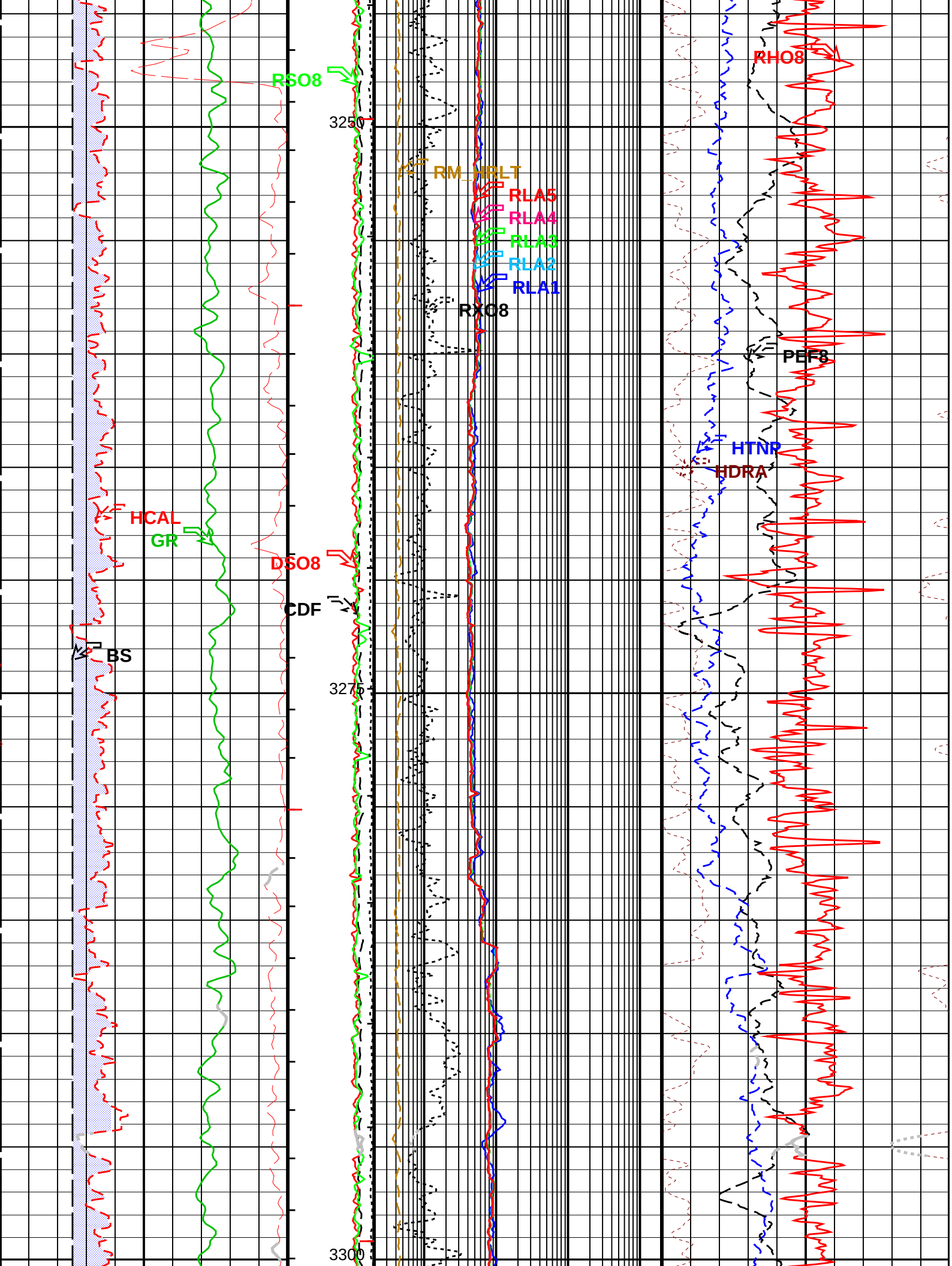
3225
TENS
SP
STIA
STIT


RSO8
RHO8
3250
RM_HRLT
RLA5
RLA4
RLA3
RLA2
RLA1
RXO8
PEF8
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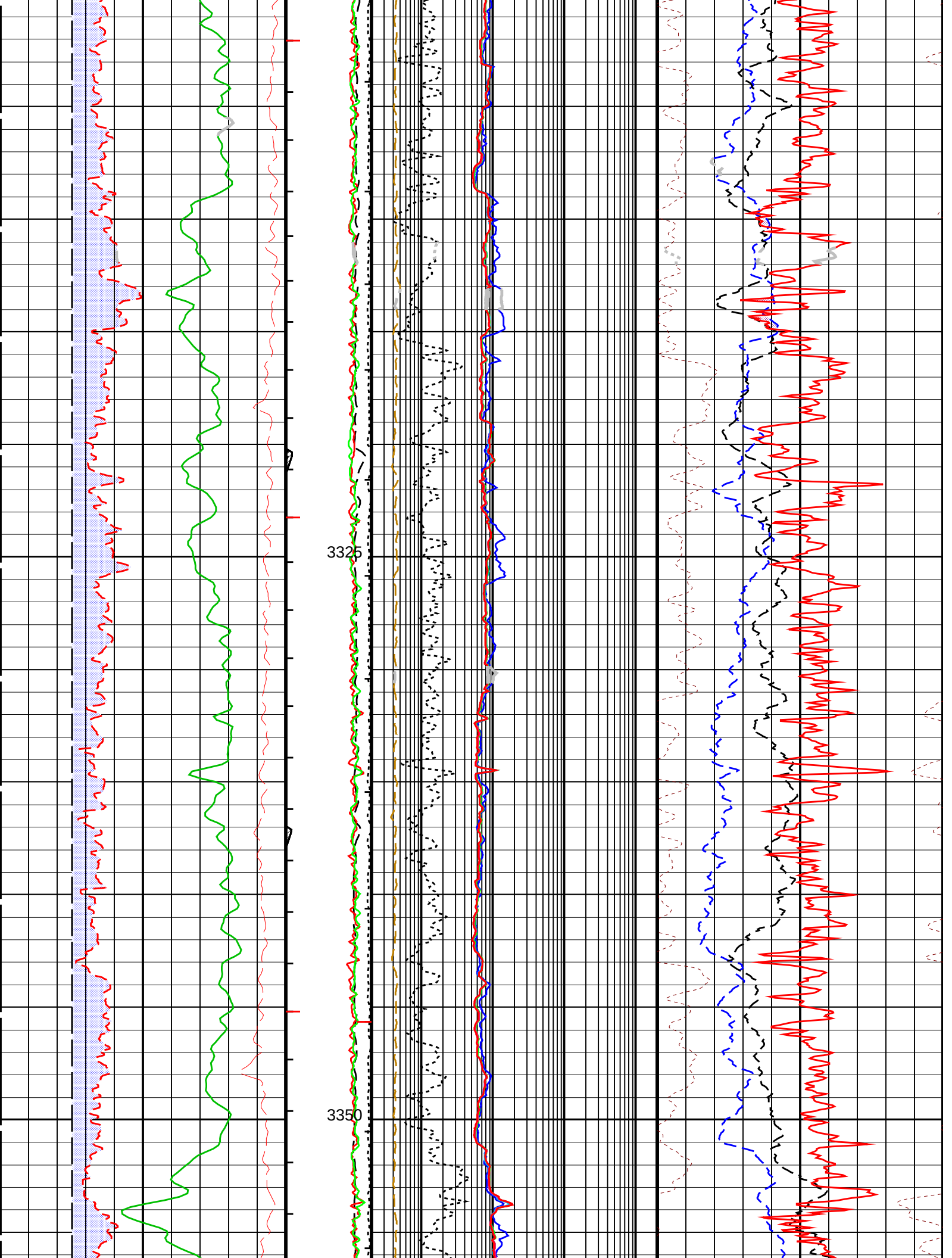
HCAL
GR
DSO8
CDF
BS
3275
3300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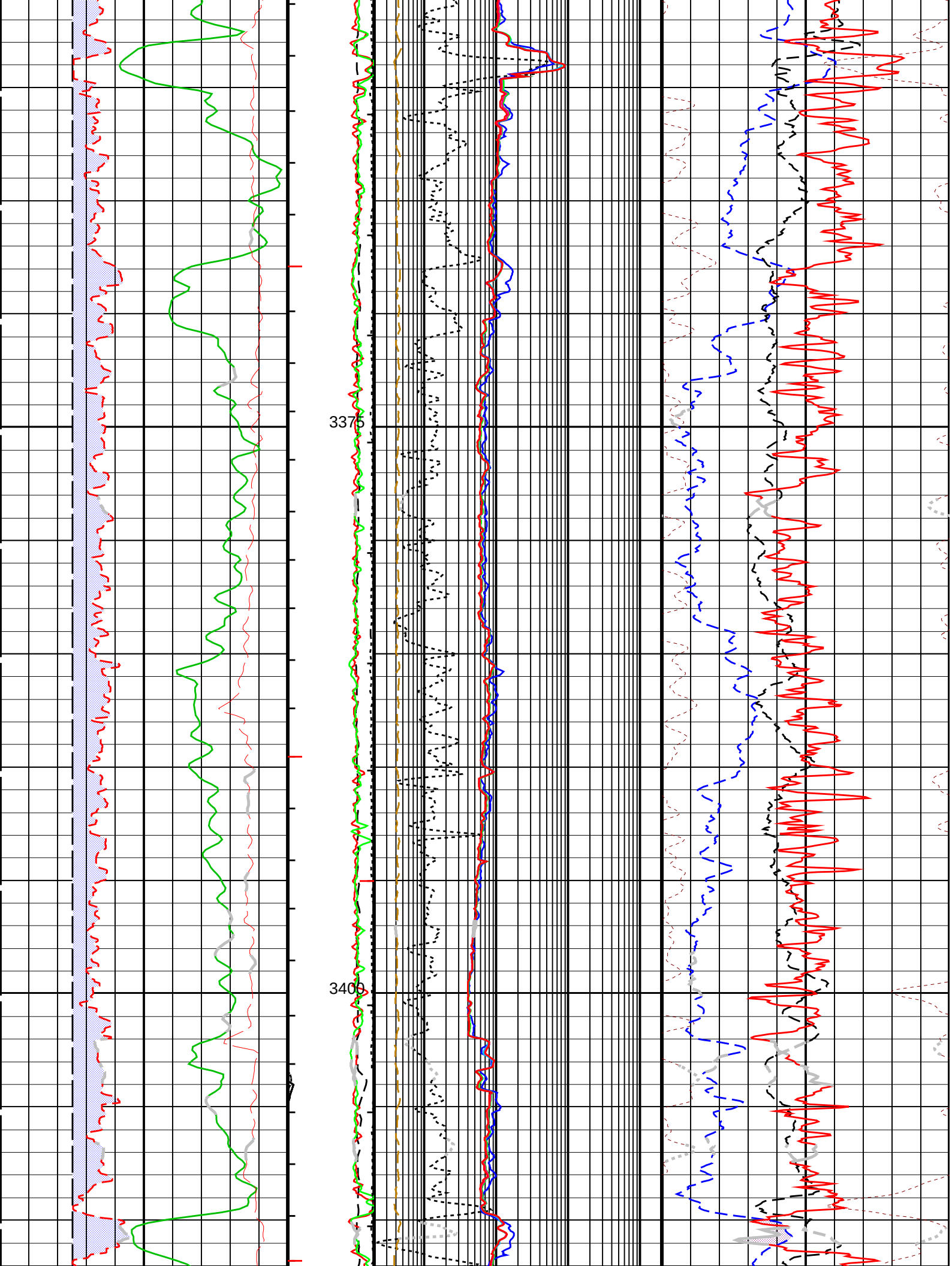
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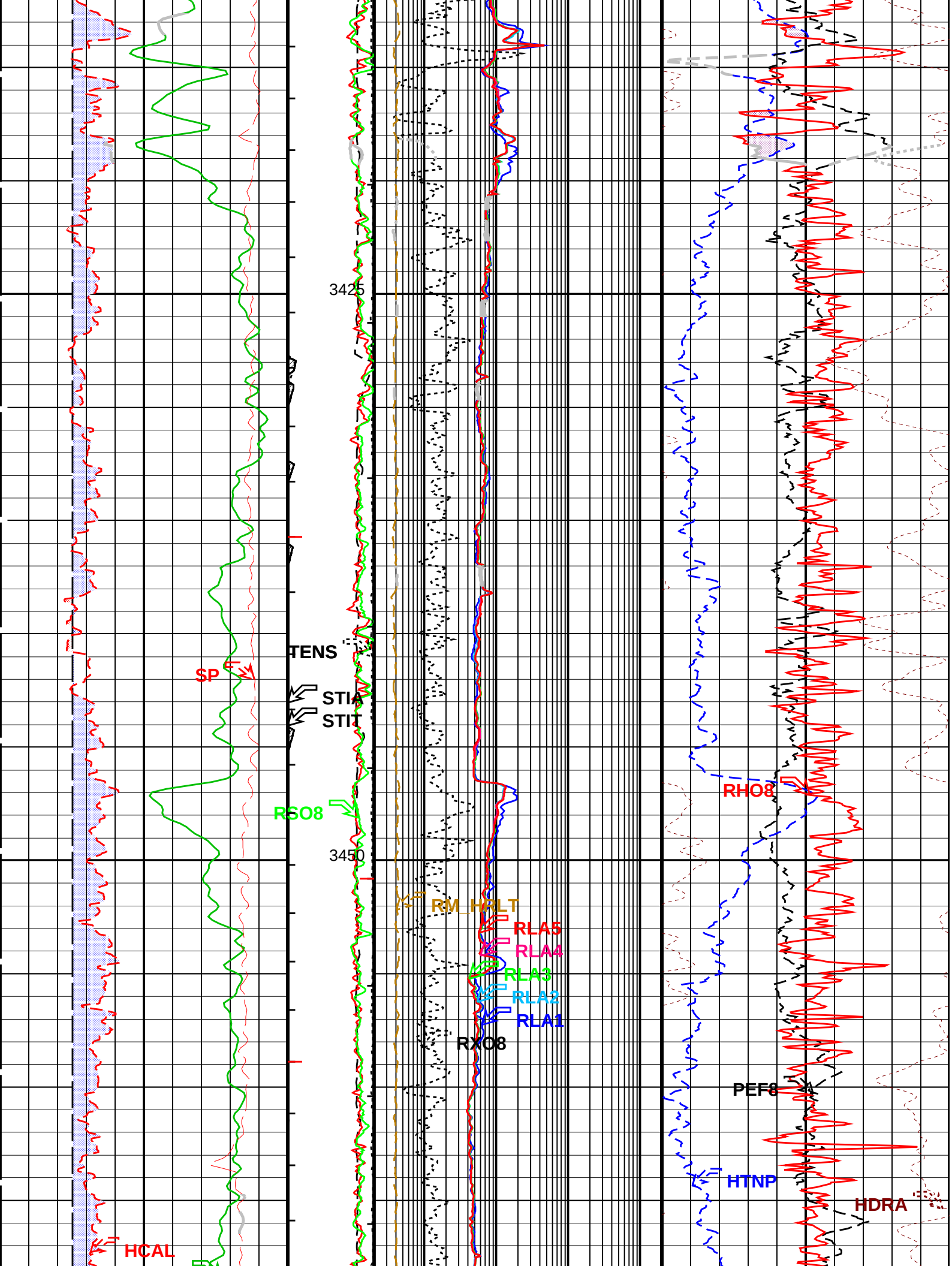
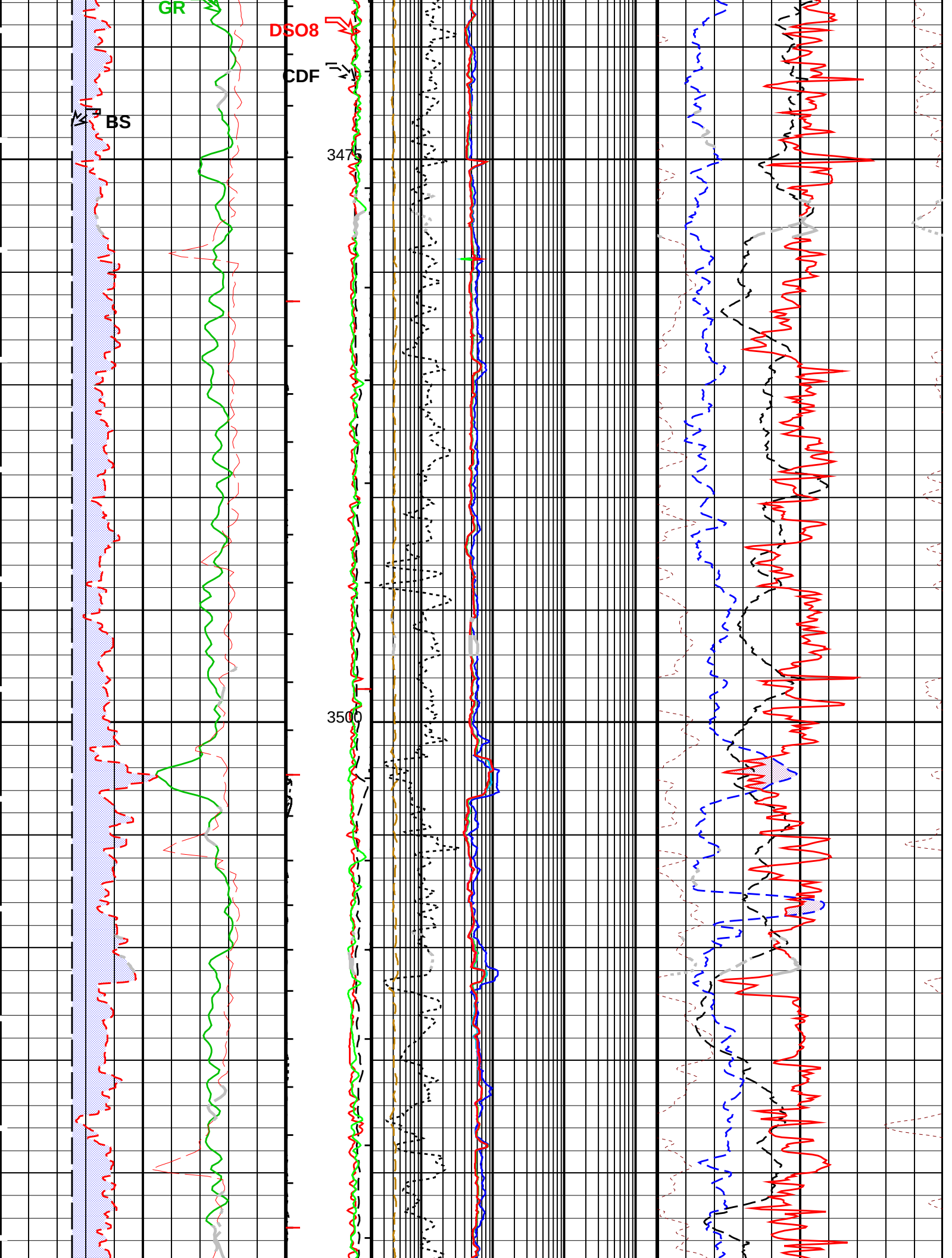
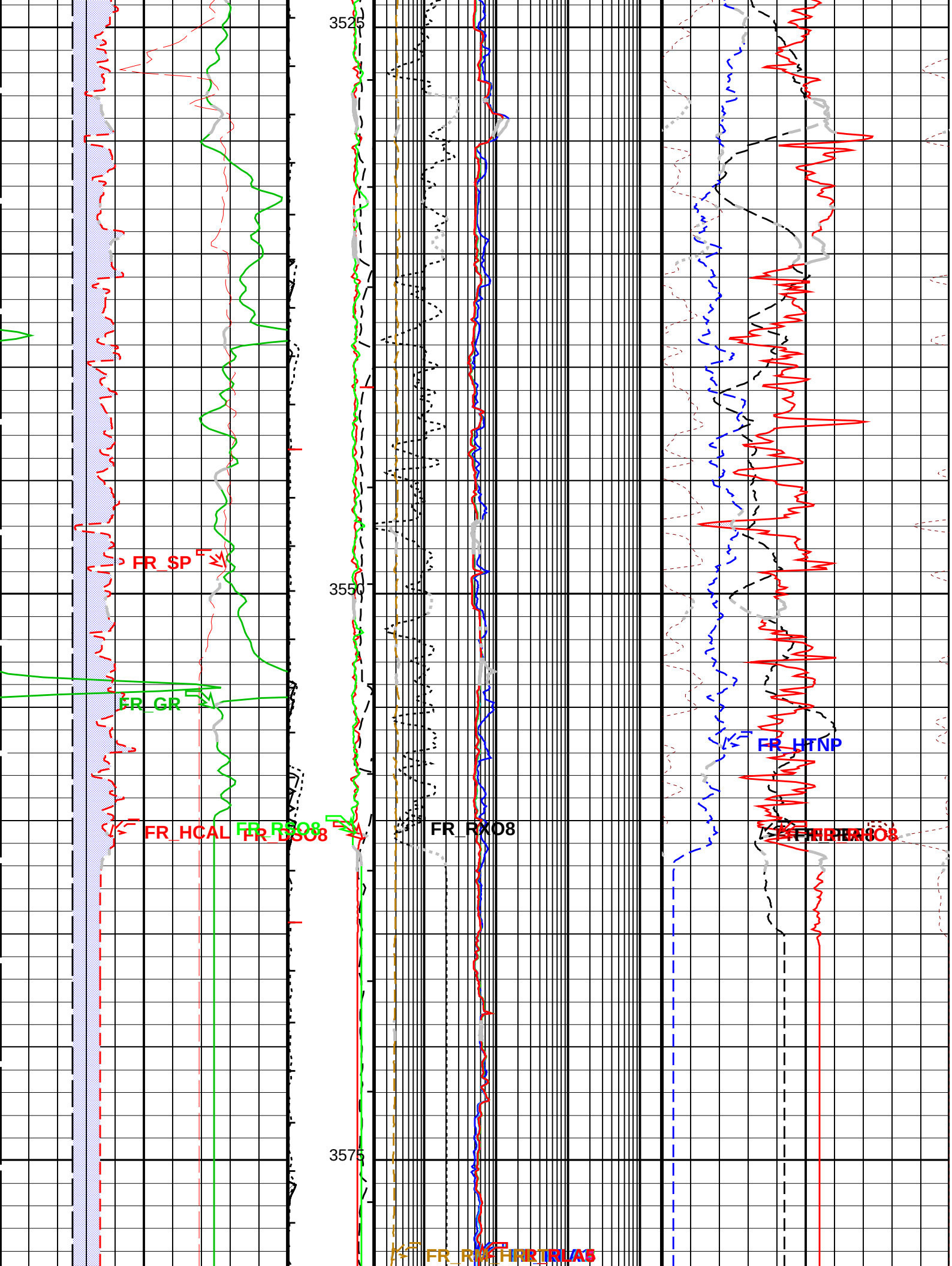

3425
TENS
SP
STIA
STIT
RSO8
3450
RM_HRLT
RLA5
RLA4
RLA3
RLA2
RLA1
RXO8
RHO8
PEF8
HTNP
HDRA
HCAL


GR
DSO8
CDF
BS
3475
3500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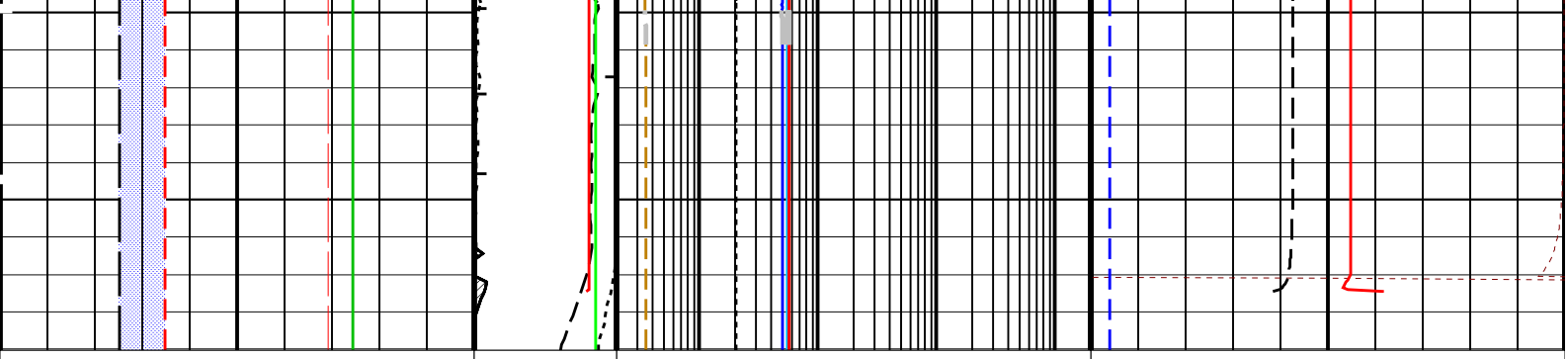
3550
3575
FR_SP
FR_GR
FR_HCAL
FR_RSO8
FR_RXO8
FR_HTNP



SP (SP) −50 (MV) 50	Tension (TENS) (LBF) 0 6000	H. Res. Invaded Zone Resistivity (RXO8) 0.2 (OHMM) 2000	Density Correction (HDRA) −0.25 (G/C3) 0.25
Bit Size (BS) 6 (IN) 16	H. Res. Density Standoff (DSO8) 2.5 (IN) 0	HRLT Resistivity 1 (RLA1) 0.2 (OHMM) 2000	HiRes TNPH (HTNP) 0.45 (V/V) −0.15
Gamma Ray (GR) 0 (GAPI) 200	H. Res. Resistivity Standoff (RSO8) 2.5 (IN) 0	HRLT Resistivity 2 (RLA2) 0.2 (OHMM) 2000	H. Res. Formation Pe (PEF8) 0 (−−−− 10
HILT Caliper (HCAL) 6 (IN) 16	Calibrated Downhole Force (CDF) (LBF) 0 3000	HRLT Resistivity 3 (RLA3) 0.2 (OHMM) 2000	H. Res. Formation Density (RHO8) 1.95 (G/C3) 2.95
Washout From BS to HCAL		HRLT Resistivity 4 (RLA4) 0.2 (OHMM) 2000	Crossover From RHO8 to HTNP
Undergauge From HCAL to BS		HRLT Resistivity 5 (RLA5) 0.2 (OHMM) 2000	
		HRLT Mud Resistivity (RM_HRLT) 0.02 (OHMM) 200	

PIP SUMMARY

- Integrated Hole Volume Minor Pip Every 0.1 M3
- Integrated Hole Volume Major Pip Every 1 M3
- Integrated Cement Volume Minor Pip Every 0.1 M3
- Integrated Cement Volume Major Pip Every 1 M3

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
HRLT−B: High Resolution Laterolog Array − E			
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	108	DEGC
CALSTAT	HRLTB Calibration Status	SHALLOW_DONE	
CALTEMP	HRLTB Calibration Temperature	93.6995	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	HCAL	
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	BARITE	
KFAC_HRLT	HRLT K-Factor Option	SONDE	

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	1.5	IN
PROCRM	Processing Mud Resistivity Select	HRLT_Compute	
PROCSPO	Sonde Position	Eccentered	
SHT	Surface Hole Temperature	30	DEGC
MAXS−B: Multimode Array Sonic Xmitter Sonde			
FIRING_TABLE	MAST Firing Table	** V **	
TX_AMP	Transmitter Amplitude Factor	** V **	
U_CE_CBLG7	CBL Gate Width 7 for Cement Evaluation	80	US
U_CE_CBLG8	CBL Gate Width 8 for Cement Evaluation	80	US
U_CE_NMSG7	Near Minimum Sliding Gate 7 for Cement Evaluation	220	US
U_CE_NMSG8	Near Minimum Sliding Gate 8 for Cement Evaluation	220	US
U_CE_SGDT7	Sliding Gate Delta−T 7 for Cement Evaluation	57	US/F
U_CE_SGDT8	Sliding Gate Delta−T 8 for Cement Evaluation	57	US/F
MAPC−B: Multimode Array Sonic Power Cartridge			
AZIM_SELECT	Azimuth Reference Selection	P1AZ	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	108	DEGC
BS	Bit Size	8.500	IN
CDTS	C−Delta−T Shale	100	US/F
CE_DCBLSEL	DCBL Selection for Cement Evaluation	3_5FT	
CE_VDLGRA	VDL Manual Gain Rate Array for Cement Evaluation	** V **	
CE_VDLSEL	VDL Selection for Cement Evaluation	MU_5FT	
CE_VDL_MODE	DCBL/VDL Mode for Cement Evaluation	STANDARD	
CE_VFILSWA	VDL Filter Switch Array for Cement Evaluation	** V **	
CLASSAL	Classification Algorithm	** V **	
CRVIN_MF	Alteration Detection Input Number for Monopole Far	DISALLOW	
CRVIN_ML	Alteration Detection Input Number for Monopole Lower	DISALLOW	
CRVIN_MU	Alteration Detection Input Number for Monopole Upper	DISALLOW	
DCRMVL	DC Offset Removal Option	DC_MULTIPLE	
DLHS	Hole Diameter Source for SOBS Channel	AUTO	
DTCO_SELECT	Delta−T Compressional Selection for Finalization	MF	
DTF	Delta−T Fluid	204.5	US/F
DTM	Delta−T Matrix	56	US/F
DTSH_SELECT	Delta−T Shear Selection for Finalization	XD	
DWF7_SPEC	Channel/Station/Azimuth for VDL (DWF7) of Measurement 7	WFA7/9/1	
DWF8_SPEC	Channel/Station/Azimuth for VDL (DWF8) of Measurement 8	WFA8/5/1	
FIRING_TABLE	MAST Firing Table	** V **	
GCSE	Generalized Caliper Selection	HCAL	
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	
IMG_DTCO_SEL_MAST	Imaging Input DT Compressional Selection	CONSTANT_DTCO	
IMG_EST_DTCO_MAST	Imaging Estimated DT Compressional	120	US/F
IMG_RBS	Imaging Relative Bearing Selection	RB1	
ISSBAR	Barite Mud Switch	BARITE	
ITTS	Integrated Transit Time Source	DTCO	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
NFPI_ML	Free Pipe Amplitude for ML	0	
NFPI_MU	Free Pipe Amplitude for MU	0	
NRSA	Number of Receivers in Sub−Array	** V **	
RBC	Relative Bearing Correction Allow/Disallow	DISALLOW	
ROTIN_XD	Alford Rotation X Dipole Measurement Number	DISALLOW	
ROTIN_YD	Alford Rotation Y Dipole Measurement Number	DISALLOW	
ROTWINDOW_CTRL	Alford Rotation Window Control	ON	
ROT_AI	Dipole Waveform Rotation Averaging Depth Interval	0	M
ROT_FIL_LENG	Alford Rotation Filter Length	0	
ROT_TWD	Alford Rotation Window Time Width	0	US
ROT_TWO	Alford Rotation Window Time Offset	0	US
ROT_XFH	Alford Rotation Filter High Cutoff	0	HZ
ROT_XFL	Alford Rotation Filter Low Cutoff	0	HZ
SHT	Surface Hole Temperature	30	DEGC
SPFS	Sonic Porosity Formula	RAYMER_HUNT	
SPSO	Sonic Porosity Source	DTCO	
STCAL	STC Algorithm	** V **	
STCSEL1	Station Selection for STC for Measurement 1	** V **	
STCSEL2	Station Selection for STC for Measurement 2	** V **	
STCSEL3	Station Selection for STC for Measurement 3	** V **	
STCSEL4	Station Selection for STC for Measurement 4	** V **	
STCSEL5	Station Selection for STC for Measurement 5	** V **	
STCSEL6	Station Selection for STC for Measurement 6	** V **	
STCSEL_FAST	Station Selection for STC for DT_FAST	** V **	
STCSEL_SLOW	Station Selection for STC for DT_SLOW	** V **	

TRMIN	Alteration Detection Minimum Transmitter Receiver Spacing for Processing	3.0	FT
TX_AMP	Transmitter Amplitude Factor	** V **	
U_CE_CBLG7	CBL Gate Width 7 for Cement Evaluation	80	US
U_CE_CBLG8	CBL Gate Width 8 for Cement Evaluation	80	US
U_CE_NMSG7	Near Minimum Sliding Gate 7 for Cement Evaluation	220	US
U_CE_NMSG8	Near Minimum Sliding Gate 8 for Cement Evaluation	220	US
U_CE_SGDT7	Sliding Gate Delta−T 7 for Cement Evaluation	57	US/F
U_CE_SGDT8	Sliding Gate Delta−T 8 for Cement Evaluation	57	US/F
U_SLL1_MAST	MAST DSTC Slowness Lower Limit 1	0	US/F
U_SLL2_MAST	MAST DSTC Slowness Lower Limit 2	0	US/F
U_SLL3_MAST	MAST DSTC Slowness Lower Limit 3	40	US/F
U_SLL4_MAST	MAST DSTC Slowness Lower Limit 4	0	US/F
U_SLL5_MAST	MAST DSTC Slowness Lower Limit 5	80	US/F
U_SLL6_MAST	MAST DSTC Slowness Lower Limit 6	80	US/F
U_SLL_FAST_MAST	MAST DSTC Slowness Lower Limit Fast	0	US/F
U_SLL_SLOW_MAST	MAST DSTC Slowness Lower Limit Slow	0	US/F
U_SUL1_MAST	MAST DSTC Slowness Upper Limit 1	0	US/F
U_SUL2_MAST	MAST DSTC Slowness Upper Limit 2	0	US/F
U_SUL3_MAST	MAST DSTC Slowness Upper Limit 3	240	US/F
U_SUL4_MAST	MAST DSTC Slowness Upper Limit 4	0	US/F
U_SUL5_MAST	MAST DSTC Slowness Upper Limit 5	540	US/F
U_SUL6_MAST	MAST DSTC Slowness Upper Limit 6	540	US/F
U_SUL_FAST_MAST	MAST DSTC Slowness Upper Limit Fast	0	US/F
U_SUL_SLOW_MAST	MAST DSTC Slowness Upper Limit Slow	0	US/F
HILTB−FTB: High resolution Integrated Logging Tool−DTS			
BHFL	Borehole Fluid Type	WATER	
BHFL_TLD	HILT Nuclear Mud Base	WATER	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	108	DEGC
BSCO	Borehole Salinity Correction Option	YES	
CCCO	Casing & Cement Thickness Correction Option	NO	
DHC	Density Hole Correction	BS	
DPPM	Density Porosity Processing Mode	HIRS	
EXSICL	External Shale Indicator Clean Value	20	
EXSISH	External Shale Indicator Shale Value	150	
FD	Fluid Density	1	G/C3
FEXP	Form Factor Exponent	2	
FNUM	Form Factor Numerator	1	
FPHI	Form Factor Porosity Source	DPHZ	
FSAL	Formation Salinity	−50000	PPM
FSCO	Formation Salinity Correction Option	NO	
GCLF	Germany Coal−like Formation Option	NO	
GCSE	Generalized Caliper Selection	HCAL	
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	
HACPP	Accelerometer PROM Presence	PRESENT_FILE	
HART	Accelerometer Reference Temperature	20	DEGC
HDCOD	HILT Density Coal detection	2	G/C3
HDSAD	HILT Density Salt detection	2.1	G/C3
HILT_GAS_DENSITY	HILT Gas Downhole Density	0	G/C3
HILT_GAS_OPTION	HILT Gas Computation Option	OFF	
HNCOD	HILT Neutron Coal detection	45	PU
HNSAD	HILT Neutron Salt detection	5	PU
HPHIECUT	HILT effective Porosity Cutoff	5	PU
HSCO	Hole Size Correction Option	YES	
HSIS	HILT Shale Indicator Selection	GR	
HSSO	HRDD Nuclear Source Strength Option	NORMAL	
HSWCUT	HILT Water Saturation from AITH cutoff	50	%
ISSBAR	Barite Mud Switch	BARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
MCCO	Mud Cake Correction Option	YES	
MCOR	Mud Correction	BARI	
MDEN	Matrix Density	2.71	G/C3
MHC0	MCFL B0 Contrast Correction Coefficient	2.2e−005	OHMS
MHC1	MCFL B1 Contrast Correction Coefficient	3.2e−005	OHMS
MHCC	MCFL High Contrast Correction Switch	NO	
MPOF	MCFL Processing Operation Mode	ON	
MWCO	Mud Weight Correction Option	YES	
NAAC	HRDD APS Activation Correction	OFF	
NMT	HILT Nuclear Mud Type	BARITE	
NPRM	HRDD Processing Mode	HiRes	
NSAR	HRDD Depth Sampling Rate	1	IN
PEA_FILTER	PEA Filter	NO_FILTER	
PEFC_FILTER	PEFC Filter	NO_FILTER	
PHIMAX	HILT max porosity	35	PU
PTCO	Pressure/Temperature Correction Option	YES	
SDAT	Standoff Data Source	SOCN	
SEXP_HILT	HILT Saturation Exponent	2	
SHT	Surface Hole Temperature	30	DEGC
SOCN	Standoff Distance	0.125	IN
SOCO	Standoff Correction Option	NO	
HNGS−BA: Hostile Natural Gamma Ray Sonde			

	HNGS−BA: Hostile Natural Gamma Ray Sonde		
BAR1	HNGS Detector 1 Barite Constant	0.972506	
BAR2	HNGS Detector 2 Barite Constant	0.971764	
BHK	HNGS Borehole Potassium Correction Concentration	0.0269102	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	108	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	USER	
GCSE	Generalized Caliper Selection	HCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
H1P	HNGS Detector 1 Allow/Disallow In Processing	ALLOW	
H2P	HNGS Detector 2 Allow/Disallow In Processing	ALLOW	
HABK	HNGS Borehole Potassium Running Average	0.0284296	
HALF	HNGS Alpha Filter Length	60	IN
HCRB	HNGS Apply Borehole Potassium Correction	USER	
HMWM	Mud Weighting Material	NATU	
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	0.4	CPS
S2BI	HNGS Detector 2 Calibration Bismuth Count Rate	1.3	CPS
SGRC	HNGS Standard Gamma−Ray Correction Flag	YES	
SHT	Surface Hole Temperature	30	DEGC
TPOS	Tool Position	ECCE	
VBA1	HNGS Detector 1 Variable Barite Factor Running Average	0.94848	
VBA2	HNGS Detector 2 Variable Barite Factor Running Average	0.953954	
	EDTC−B: Enhanced DTS Cartridge		
BHFL	Borehole Fluid Type	WATER	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	108	DEGC
BSCO	Borehole Salinity Correction Option	YES	
CCCO	Casing & Cement Thickness Correction Option	NO	
DPPM	Density Porosity Processing Mode	HIRS	
FSCO	Formation Salinity Correction Option	NO	
GCSE	Generalized Caliper Selection	HCAL	
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	BARITE	
ISSBAR_EDTC	Nuclear Mud Type	NOBARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
MCCO	Mud Cake Correction Option	YES	
MCOR	Mud Correction	BARI	
MWCO	Mud Weight Correction Option	YES	
PTCO	Pressure/Temperature Correction Option	YES	
SDAT	Standoff Data Source	SOCN	
SHT	Surface Hole Temperature	30	DEGC
SOCN	Standoff Distance	0.125	IN
SOCO	Standoff Correction Option	NO	
TPOS_EDTC	EDTC Tool Centered/Eccentered	Eccentered	
	SPA−A: SP ADAPTOR		
SPNV	SP Next Value	0	MV
	DIR: Directional Survey Computation		
SPED	East Departure of Starting Point	0	M
SPND	North Departure of Starting Point	0	M
SPVD	TVD of Starting Point	0	M
TAZI	Vertical Section Azimuth	0	DEG
TIED	East Departure of Tie−in Point	0	M
TIMD	Along−hole depth of Tie−in Point	0	M
TIND	North Departure of Tie−in Point	0	M
TIVD	TVD of Tie−in Point	0	M
	HOLEV: Integrated Hole/Cement Volume		
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	108	DEGC
FCD	Future Casing (Outer) Diameter	7	IN
GCSE	Generalized Caliper Selection	HCAL	
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	
HVCS	Integrated Hole Volume Caliper Selection	HCAL	
ISSBAR	Barite Mud Switch	BARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
SHT	Surface Hole Temperature	30	DEGC
	STI: Stuck Tool Indicator		
LBFR	Trigger for MAXIS First Reading Label	TDL	
STKT	STI Stuck Threshold	0.762	M

TDD	Total Depth − Driller	3585.00	M
TDL	Total Depth − Logger	3586.50	M
System and Miscellaneous			
ALTDPCHAN	Name of alternate depth channel	SpeedCorrectedDepth	
BSAL	Borehole Salinity	69300.00	PPM
CSIZ	Current Casing Size	9.625	IN
CWEI	Casing Weight	53.50	LB/F
DFD	Drilling Fluid Density	10.60	LB/G
DO	Depth Offset for Playback	4.5	M
FLEV	Fluid Level	−50000.00	M
MST	Mud Sample Temperature	74.30	DEGF
PBVSADP	Use alternate depth channel for playback	NO	
PP	Playback Processing	RECOMPUTE	
RMFS	Resistivity of Mud Filtrate Sample	0.0870	OHMM
RW	Resistivity of Connate Water	1.0000	OHMM
TD	Total Depth	11766.7	FT
TWS	Temperature of Connate Water Sample	104.78	DEGF

Format: Combo_200_HiRes **Vertical Scale: 1:200** **Graphics File Created: 08−Jan−2009 08:34**

OP System Version: 16C0−147

MCM

HRLT−B	16C0−147	MAXS−B	SKK−3703−MAST
MAPC−B	SKK−3703−MAST	HILTB−FTB	SRPC−3624−Q2_2008_OP16
HNGC−B	16C0−147	HNGS−BA	SPC−3692−NUCL
EDTC−B	SKK−3494−EDTCB	SPA−A	16C0−147

Input DLIS Files

DEFAULT	HRLA_MAXS_MAPC_TLD_056LUP	FN:64	PRODUCER	08−Jan−2009 03:46	3584.4 M	2732.2 M

Output DLIS Files

DEFAULT	HRLA_MAXS_MAPC_TLD_068PUP	FN:79	PRODUCER	08−Jan−2009 08:34