

Schlumberger

Company: **Essential Petroleum Resources Limited**

Well: Killarney EPRL 1

Field: PEP 152

Rig: Hunt Rig #2

Country: **Australia**

54	HALS-BHC-PEX-HNG
----	------------------

Nuclear Print

Scale 1:200

Datum GDA94 MGA94 Zone 54

DA9.	EPR	Petr	N	Easting 609803.3
------	-----	------	---	------------------

Northing 5753917.

PEP 152

Datum GDA94 MGA94 Zone 54

Killarney EPRL 1

Field:	PEP 152
Location:	Datum GDA94 MGA94 Zone 54
Well:	Killarney EPRL 1
Company:	Essential Petroleum Resources Ltd

<h1>HALS-BHC-PEX-HNG</h1> <h2>Nuclear Print</h2> <h3>Scale 1:200</h3>			
Datum GDA94 MGA94 Zone 54 Easting 609803.3 Northing 5753917.2		Elev.: K.B. 5.49 m G.L. 1.6 m D.F. 5.49 m	
Permanent Datum: <u>AHD</u> Log Measured From: <u>ROTARY TABLE</u> Drilling Measured From: <u>ROTARY TABLE</u>		Elev.: <u>0 m</u> 5.5 m above Perm. Datum	
State: Victoria	Max. Well Deviation 2 deg	Longitude 142° 15' 24.22" E	Latitude 38° 21' 22.24" S

[illegible]

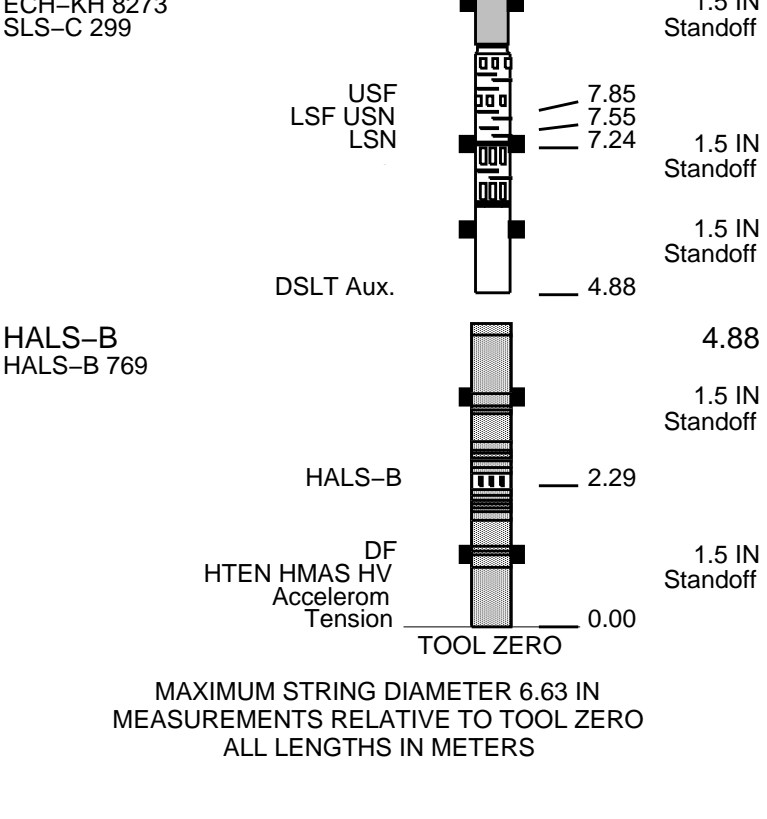
Logging Date	18-Jun-2004				Logging Date				
Run Number	1				Run Number				
Depth Driller	1640 m				Depth Driller				
Schlumberger Depth	1634.8 m				Schlumberger Depth				
Bottom Log Interval	1632.4 m				Bottom Log Interval				
Top Log Interval	255.5 m				Top Log Interval				
Casing Driller Size @ Depth	9.625 in @ 255.8 m				Casing Driller Size @ Depth	@			
Casing Schlumberger	255.5 m				Casing Schlumberger				
Bit Size	8.500 in				Bit Size				
Type Fluid In Hole	4% KCl-PHPA				Type Fluid In Hole				
Density	1.128 g/cm3	43 s			Density				
Fluid Loss	PH	8.5			Fluid Loss	PH			
Source Of Sample	PIT				Source Of Sample				
RM @ Measured Temperature	0.231 ohm.m @ 13 degC				RM @ Measured Temperature	@			
RMF @ Measured Temperature	0.201 ohm.m @ 12 degC				RMF @ Measured Temperature	@			
RMC @ Measured Temperature	0.243 ohm.m @ 13 degC				RMC @ Measured Temperature	@			
Source RMF	PRESS	PRESS			Source RMF				
RM @ MRT	0.093 @ 63	0.080 @ 63	@	@	RM @ MRT	@	@	@	@
Maximum Recorded Temperatures	63 degC				Maximum Recorded Temperatures				
Circulation Stopped	18-Jun-2004			0:00	Circulation Stopped				
Logger On Bottom	18-Jun-2004			16:30	Logger On Bottom				
Unit Number	3170	QEA			Unit Number				
Recorded By	G. Jonsson				Recorded By				
Witnessed By	G. Wakelin-King				Witnessed By				

Maximum recorded temperature of 63degC from thermometers in LEH-QT					
Caliper Check in casing reads 8.5364 inch. 8.834 expected. Corrected for in final (this) log.					
Additional Mud information:					
Chloride: 21500 mg/L, Calcium: 320 mg/L, Sulphite: 80mg/L, KCl: 4.1%					
Barite present in mud					
Elevation Rotary Table= 3.89m above Ground Level (GL= 1.6m AHD)					
RUN 1			RUN 2		
SERVICE ORDER #:			SERVICE ORDER #:		
PROGRAM VERSION:			PROGRAM VERSION:		
FLUID LEVEL:			FLUID LEVEL:		
LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP

EQUIPMENT DESCRIPTION					
RUN 1			RUN 2		

SURFACE EQUIPMENT	
LCM-AA 2747	NCS-VB
GSR-U/Y	GSR-U
NCT-B	WITM (DTS)-A
CNB-AB	

DOWNHOLE EQUIPMENT	
BSP	40.84
BRT-S 22	
SP SPARC	28.73
LEH-QT 1570	22.56
LEH-QT 1570	
DTC-H	21.67
ECH-KC	20.75
CTEM	21.39
TelStatus	
ToolStatu	
HNGS-BA	20.75
HNGS-BA 129	20.05
HNSH-BA 3	19.84
Upper_1	
Lower_2	
HNGC-A	18.25
HNGH-A	17.72
HNGC-A 10	17.19
HNGC Stat	
HGNS HTEM	
HMCA	
HILTB-FTB	17.19
HGNSD-B 1751	16.96
HMCA	
HGNS-H 1775	
NLS-KL	15.18
NSR-F 2111	15.03
HACCZ	
HCNT	14.32
HGR	
HRCC-B 1769	
HRMS-B 1765	13.10
HRGD-B 1760	11.44
GLS-VJ 3739	11.30
MCFL Device	
HILT Nucl. LS	
HILT Nucl. SS	
HILT Nucl. BS	11.18
BOW-SPR	
HRCC cart	
MCFL	
HILT cali	
HRDD-LS	
HRDD-SS	
HRDD-BS	
Neutron F	
Neutron N	
HGNS sens	
DSLT-H	10.59
DSLC-HA 8223	
FOU-111	1.5 IN



Client: Essential
Well: Kilarney-1
Field: Wildcat
State: Victoria
Country: Australia

Drawing Date: 6/18/2004
API #:
Rig Name: Hunt Rig 2
Reference Datum: KB
Elevation: 6.9 m

Production String	(in)		(m)	Well Schematic	(m)		(in)		Casing String
	OD	ID			MD	MD	OD	ID	
					0.0	17.500	Borehole Segment Casing String Casing Shoe Borehole Segment Casing String		
					0.0	13.375			
					45.6	13.375			
					45.9	12.250			
					0.0	9.625			
					255.8	9.625	Casing Shoe Borehole Segment		
					258.0	8.500			

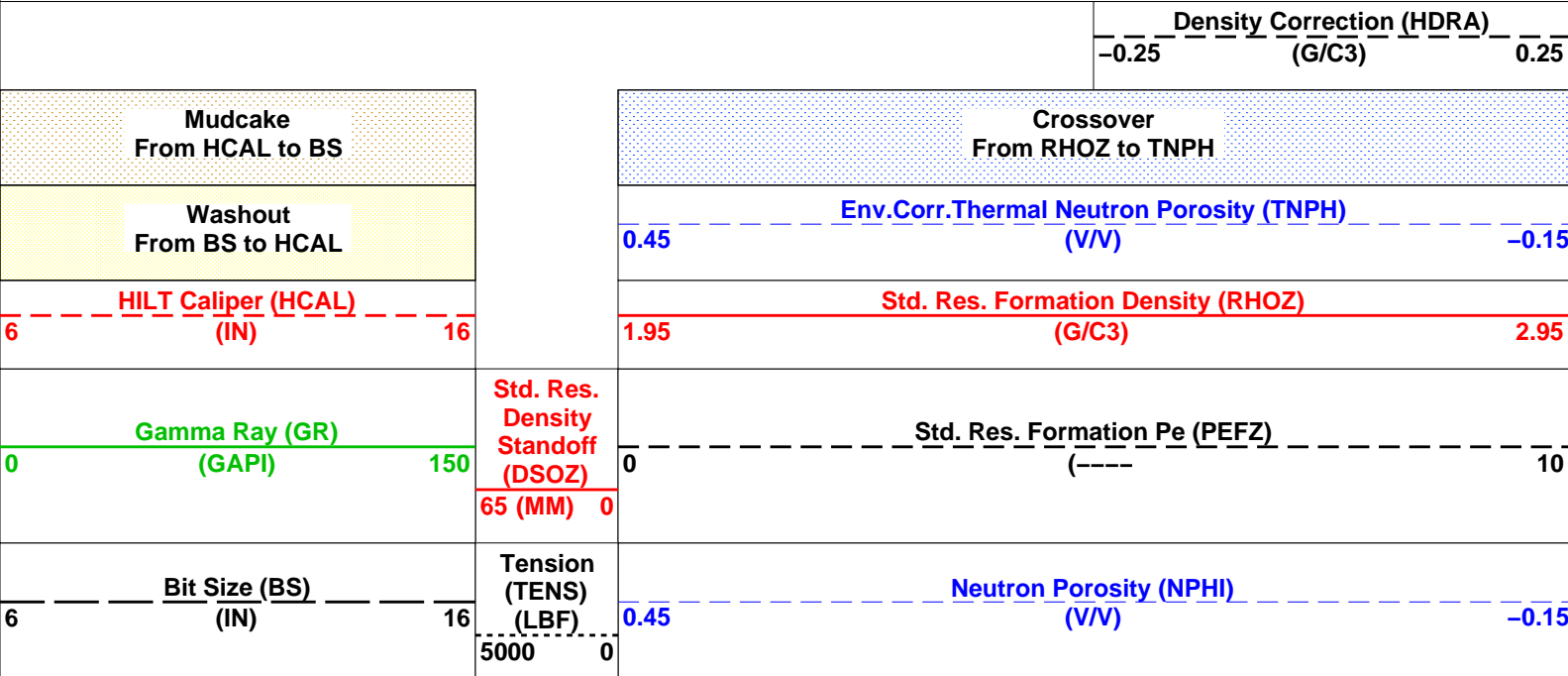
Changed Parameter Summary

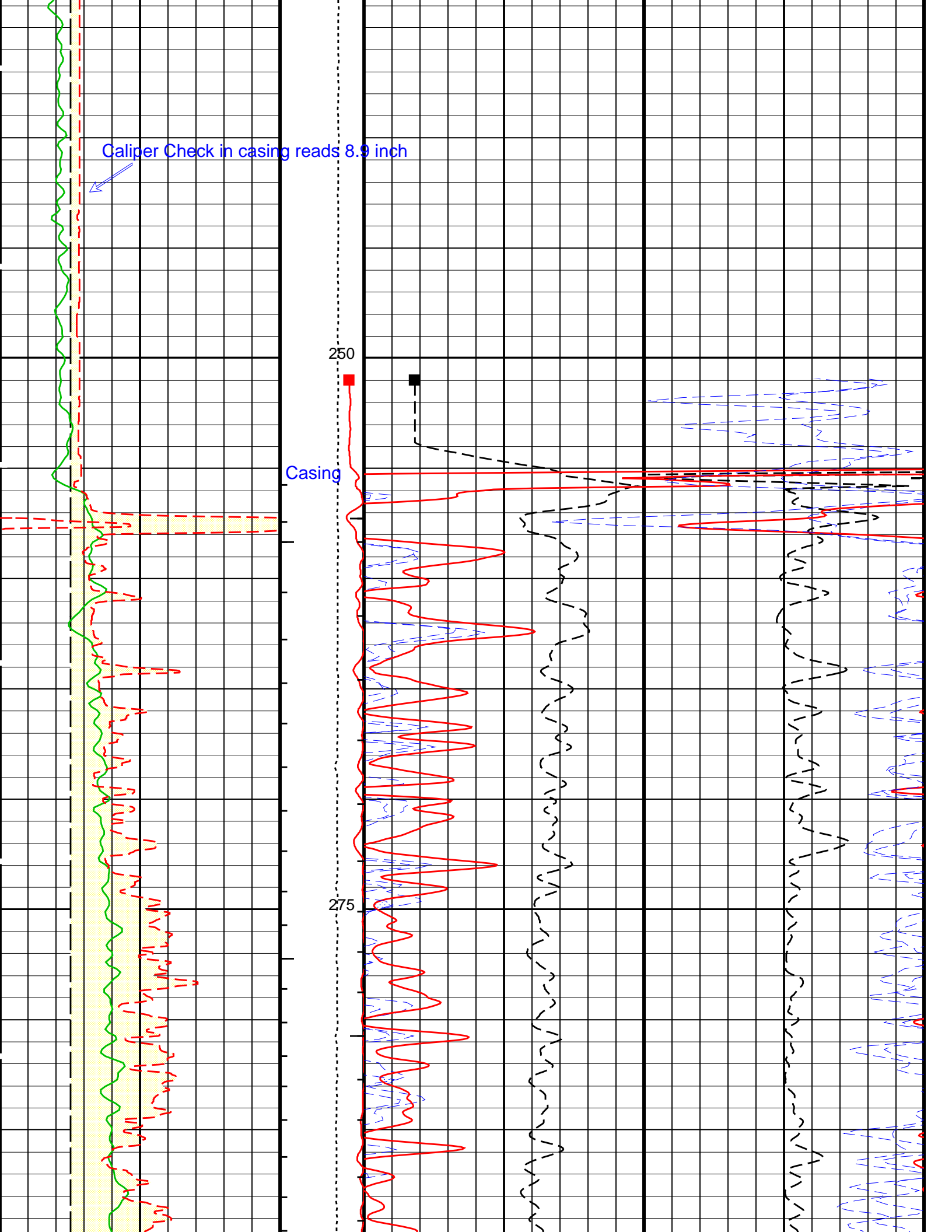
DLIS Name	New Value	Previous Value	Depth & Time
MAHTR	120	150	1636.8 10:46:19
MNHTR	100	140	1636.8 10:46:19
SGCL	100 US/F	135 US/F	1636.8 10:46:19
SLEV	2003	3000	1636.8 10:46:18

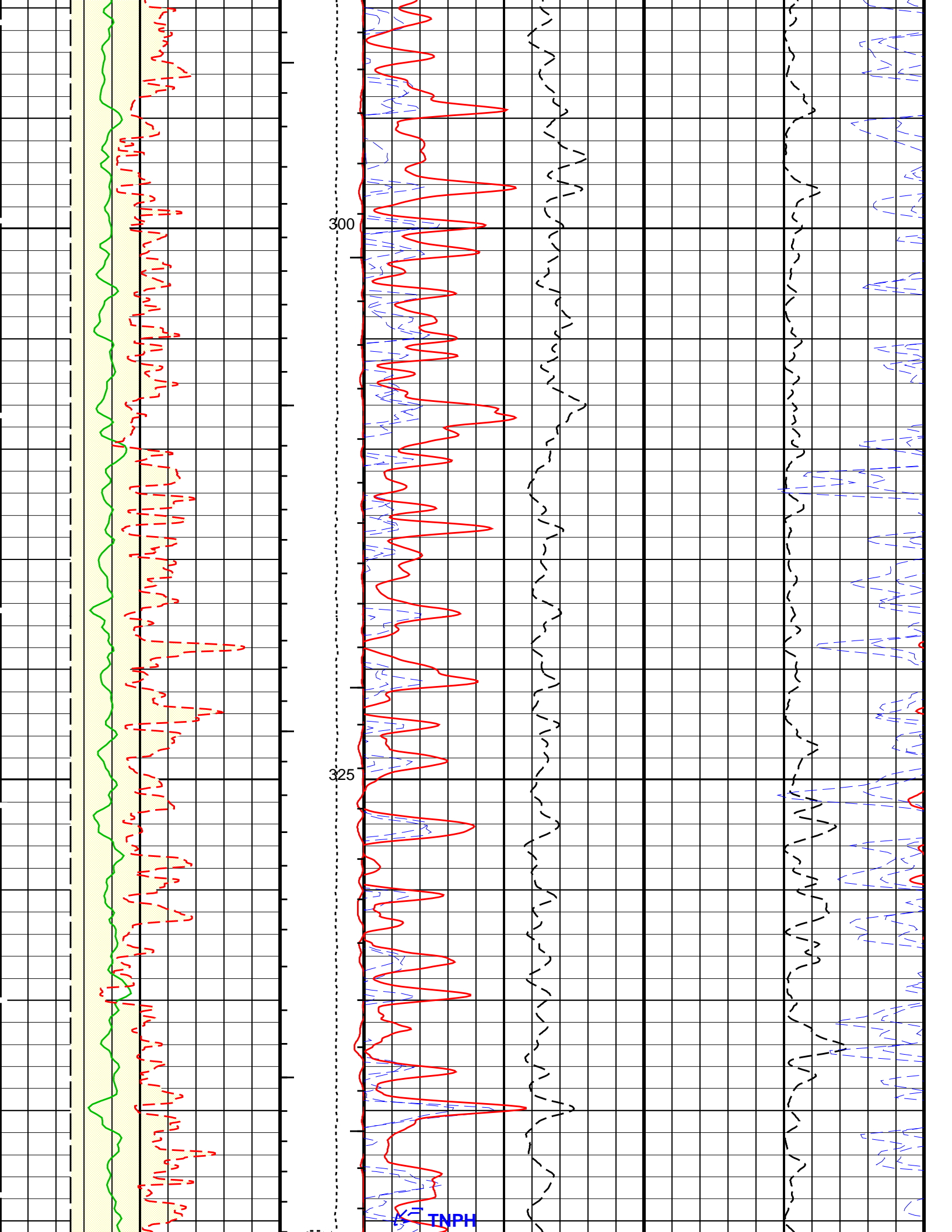
PIP SUMMARY

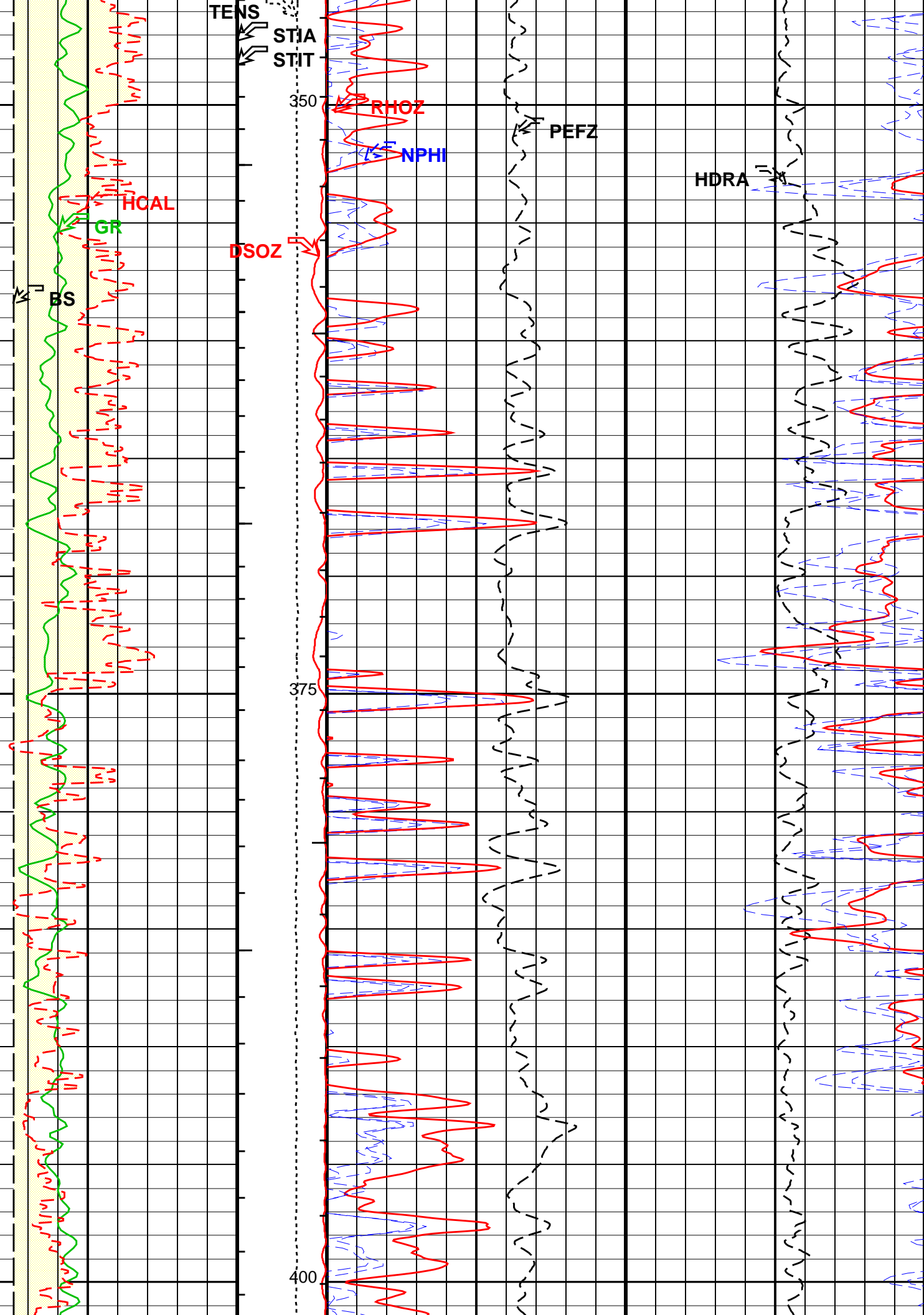
- └ Integrated Hole Volume Minor Pip Every 0.1 M3
- └ Integrated Hole Volume Major Pip Every 1 M3
 - └ Integrated Cement Volume Minor Pip Every 0.1 M3
 - └ Integrated Cement Volume Major Pip Every 1 M3

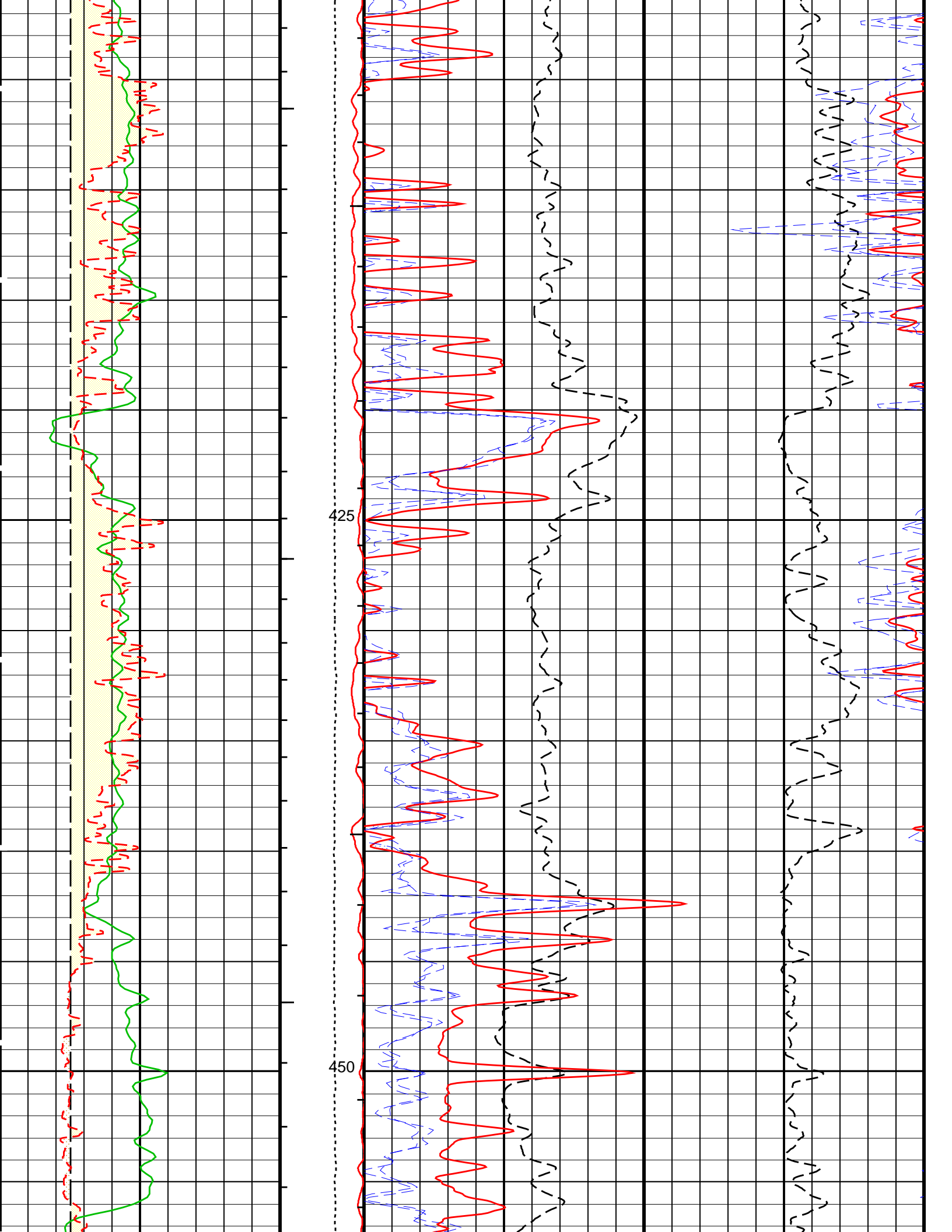
Time Mark Every 60 S

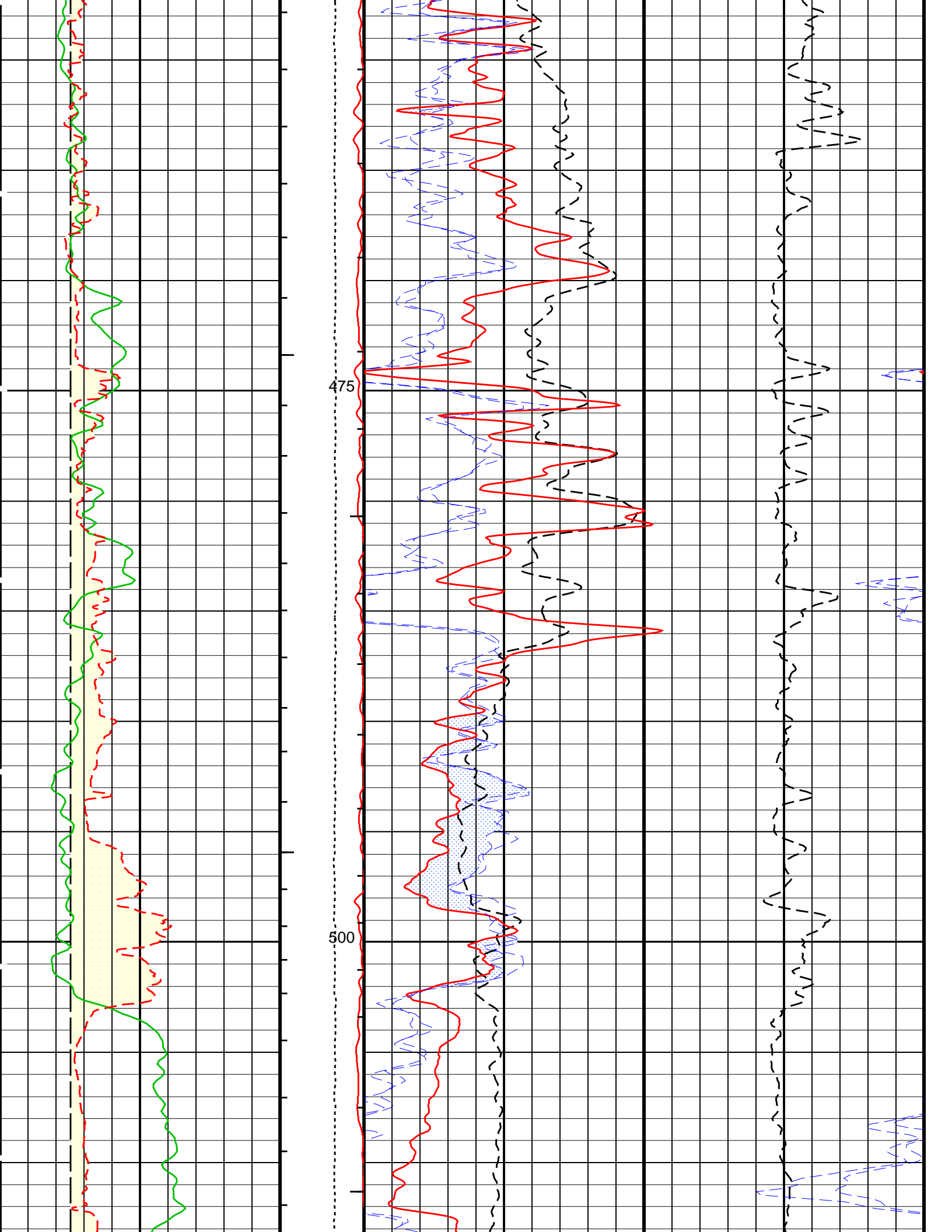


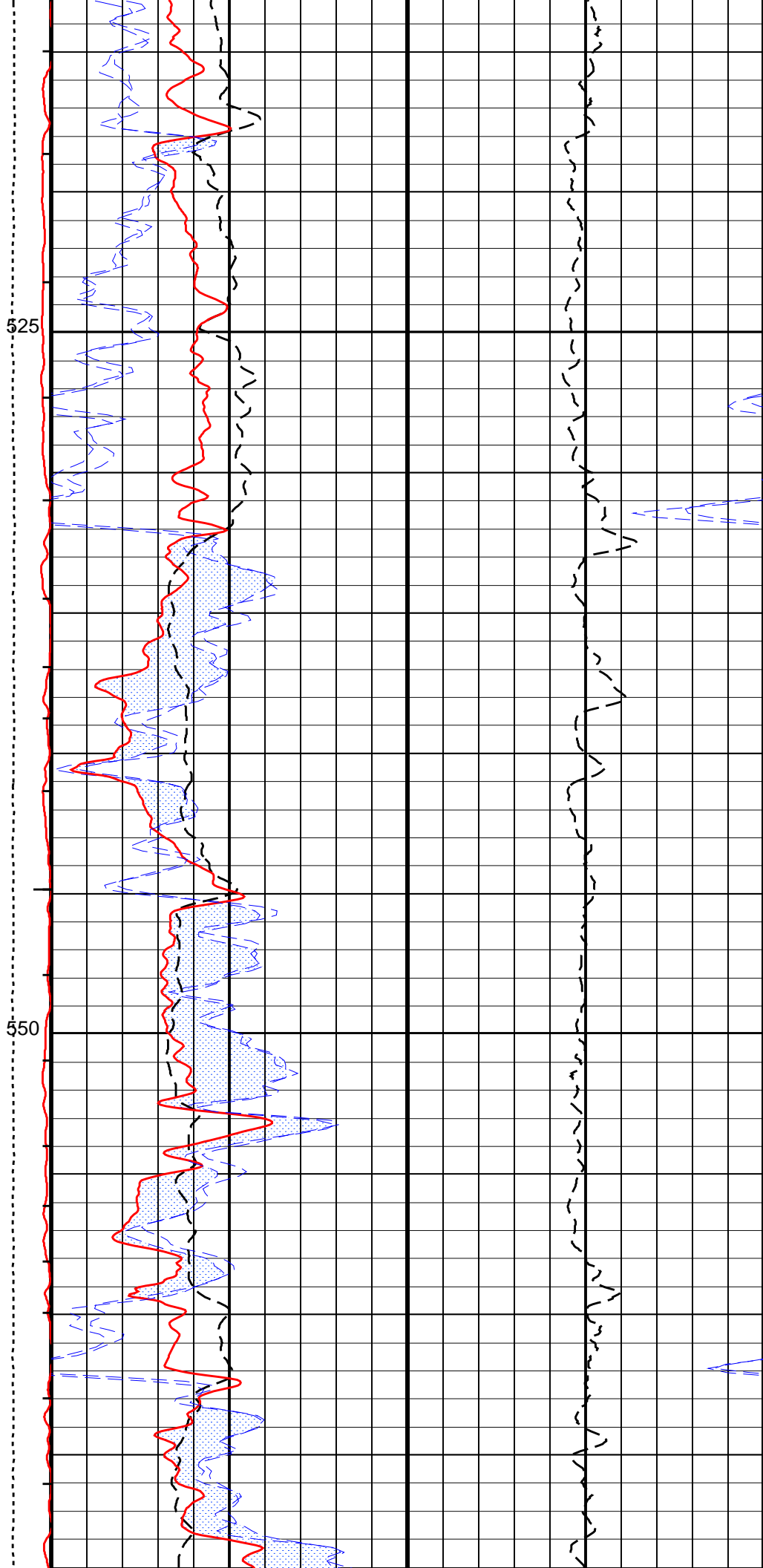
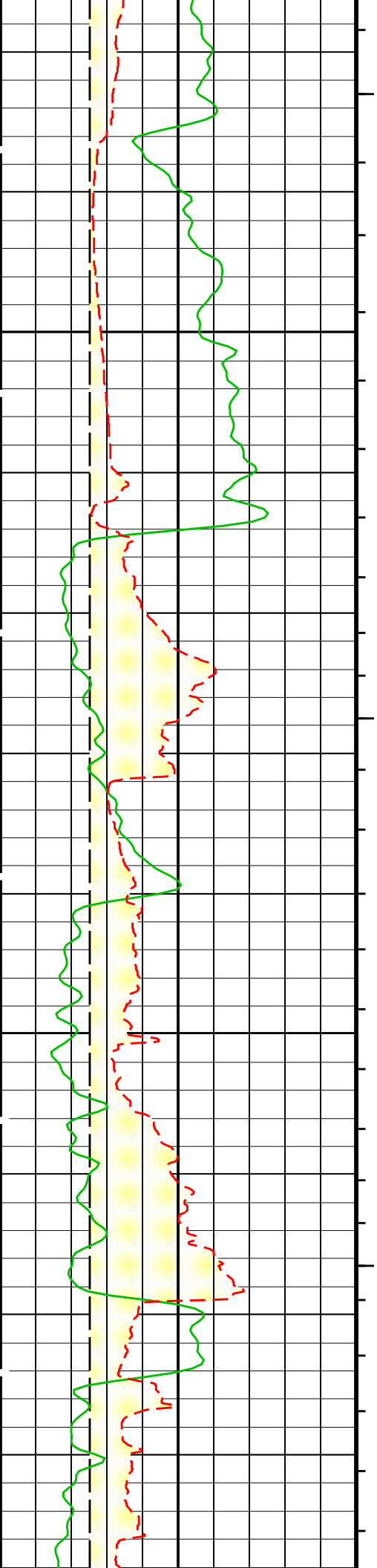


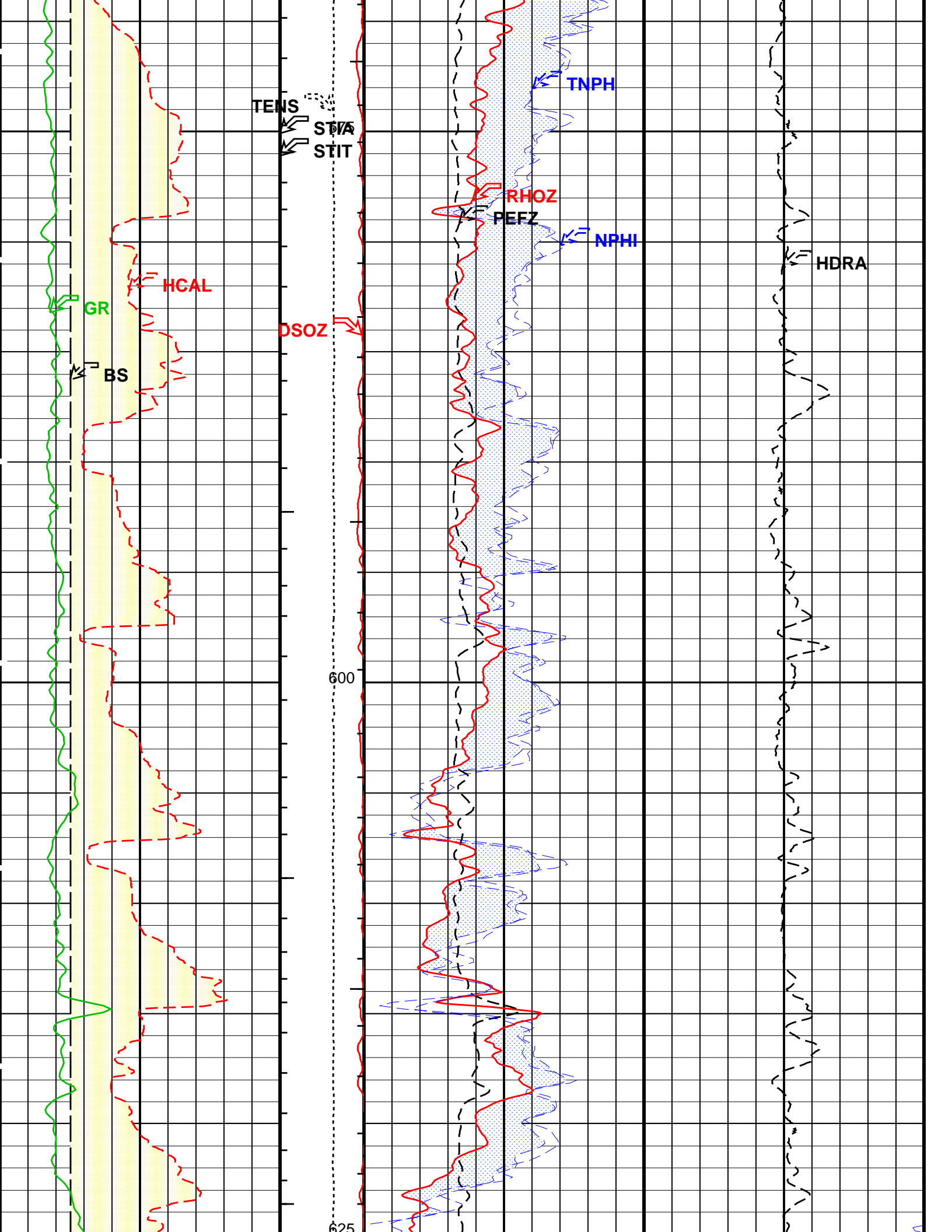


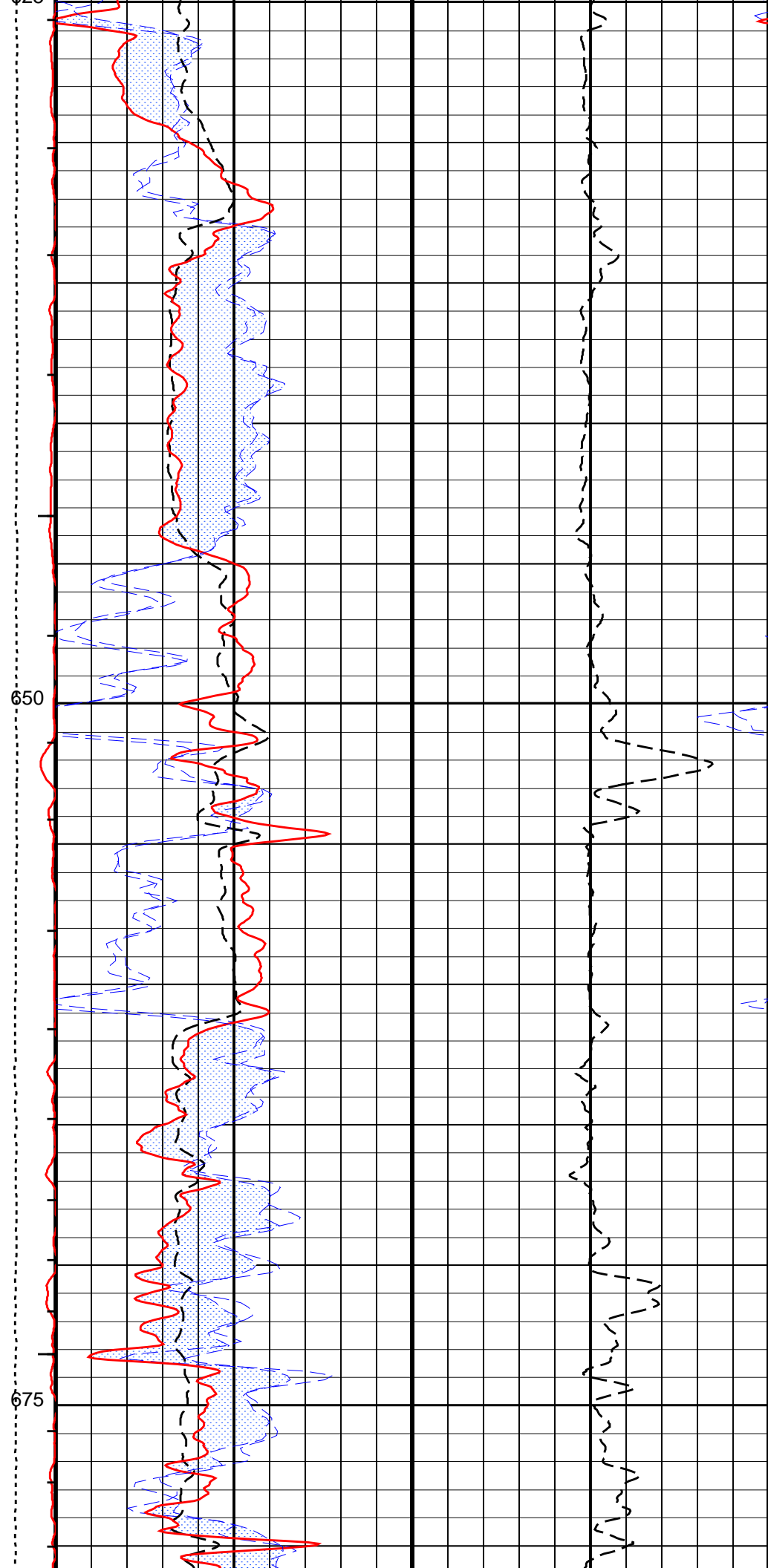
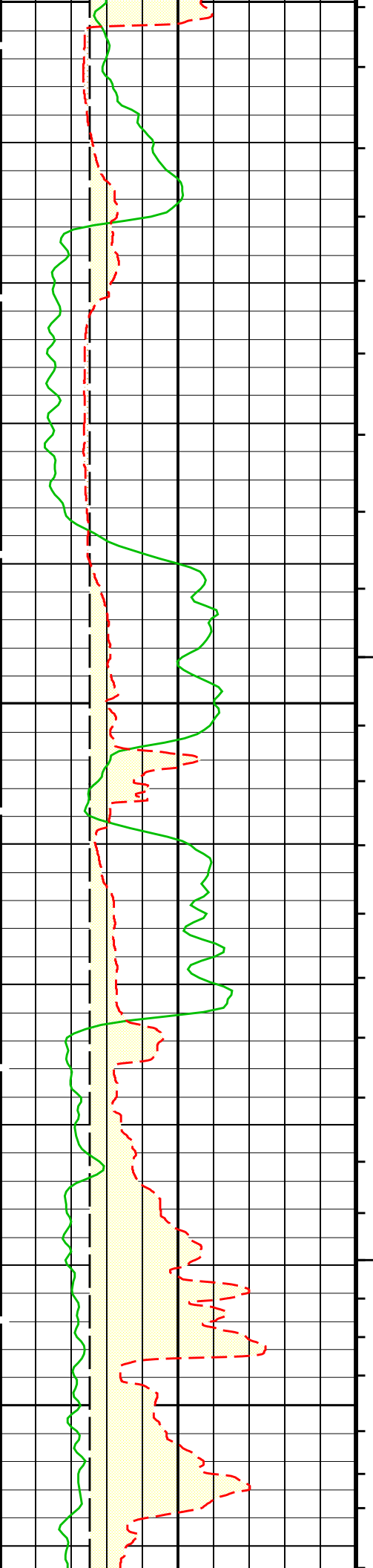


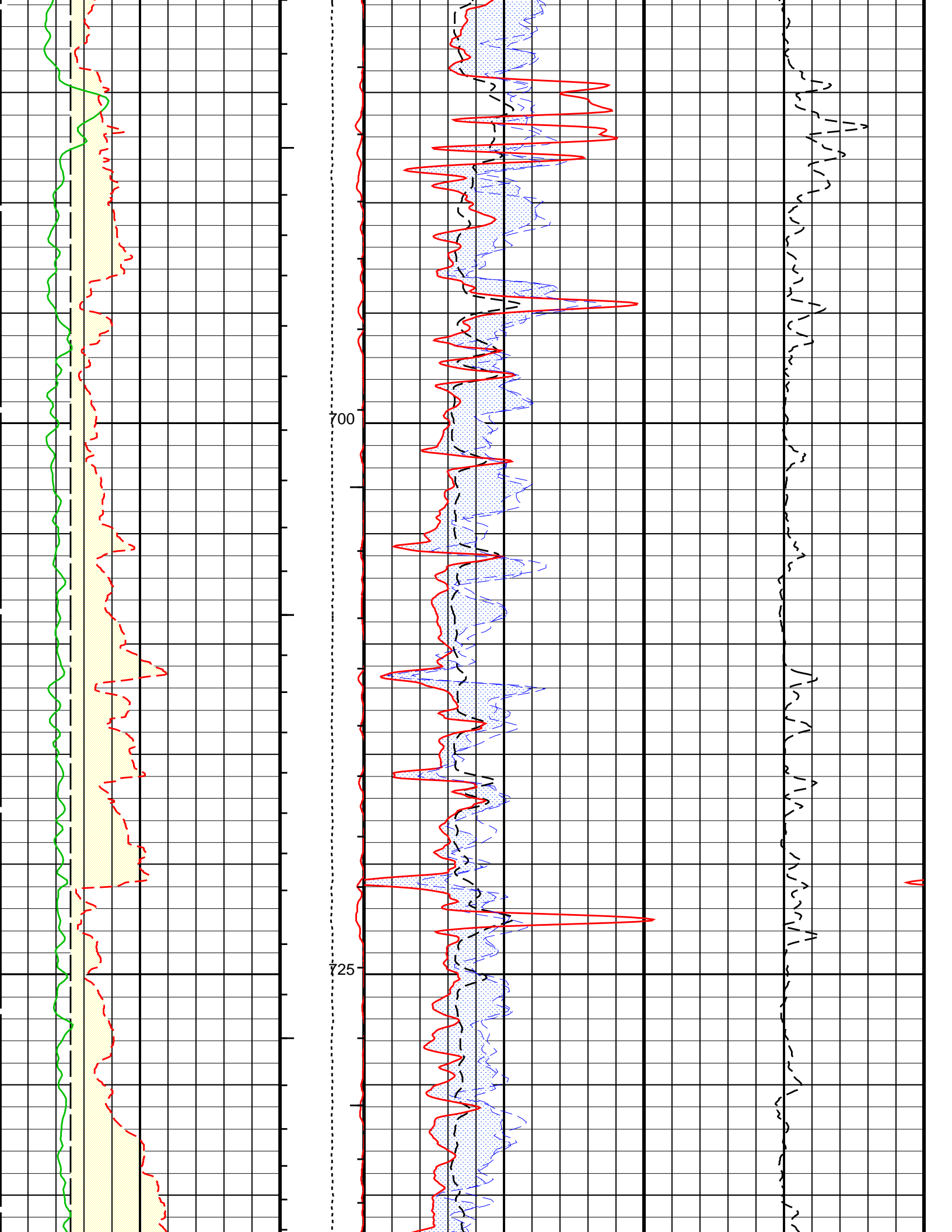


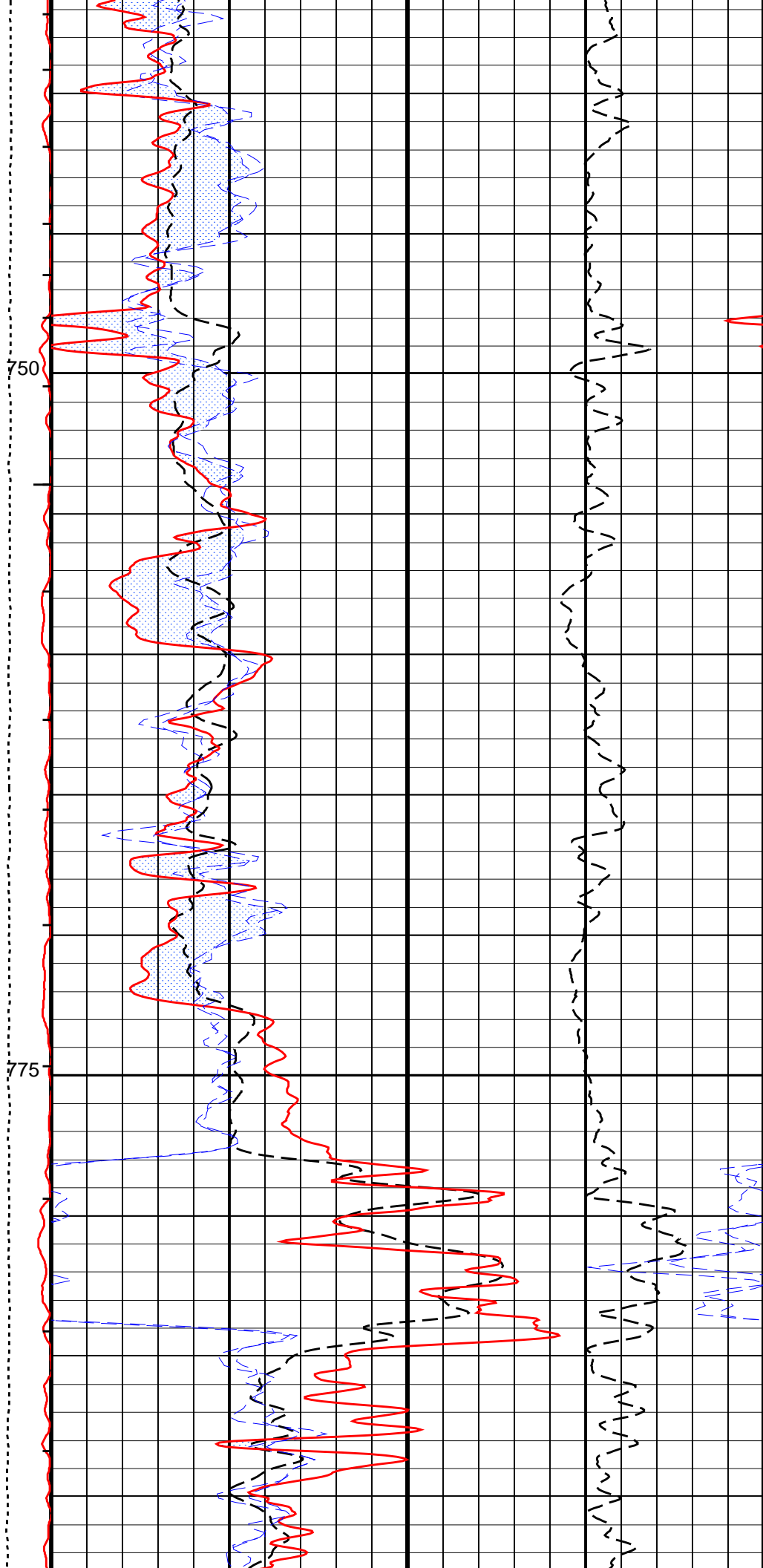
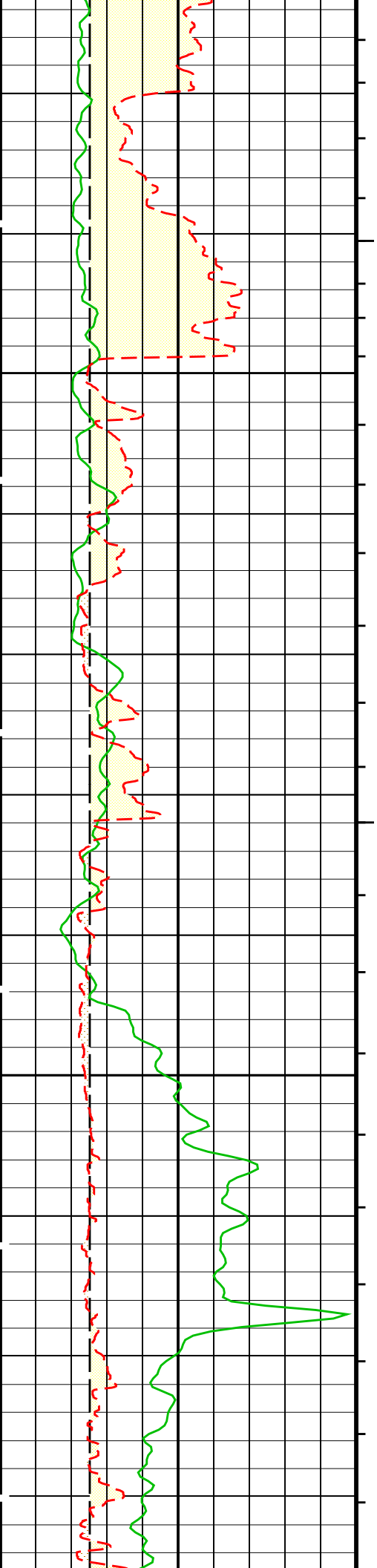


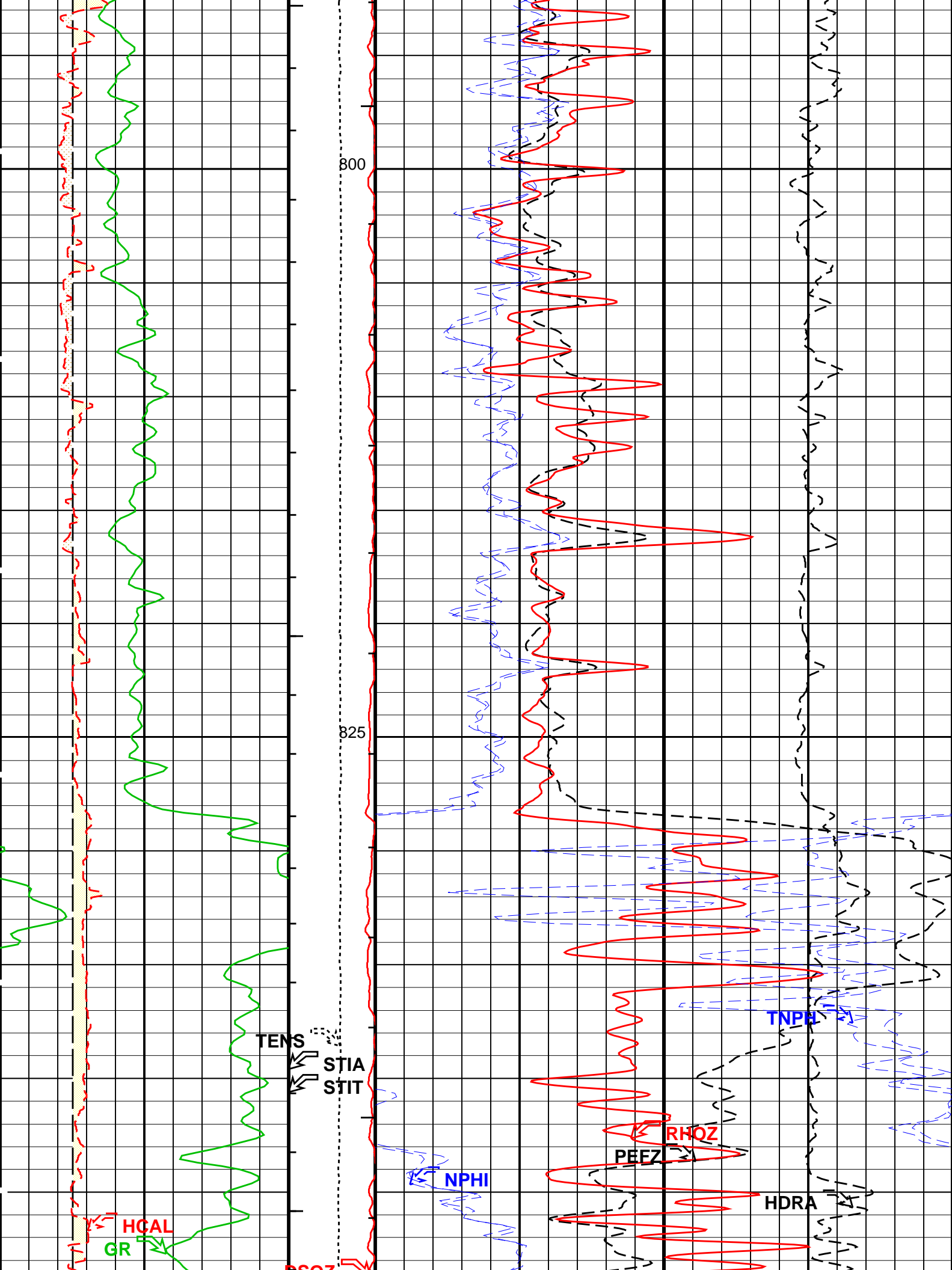


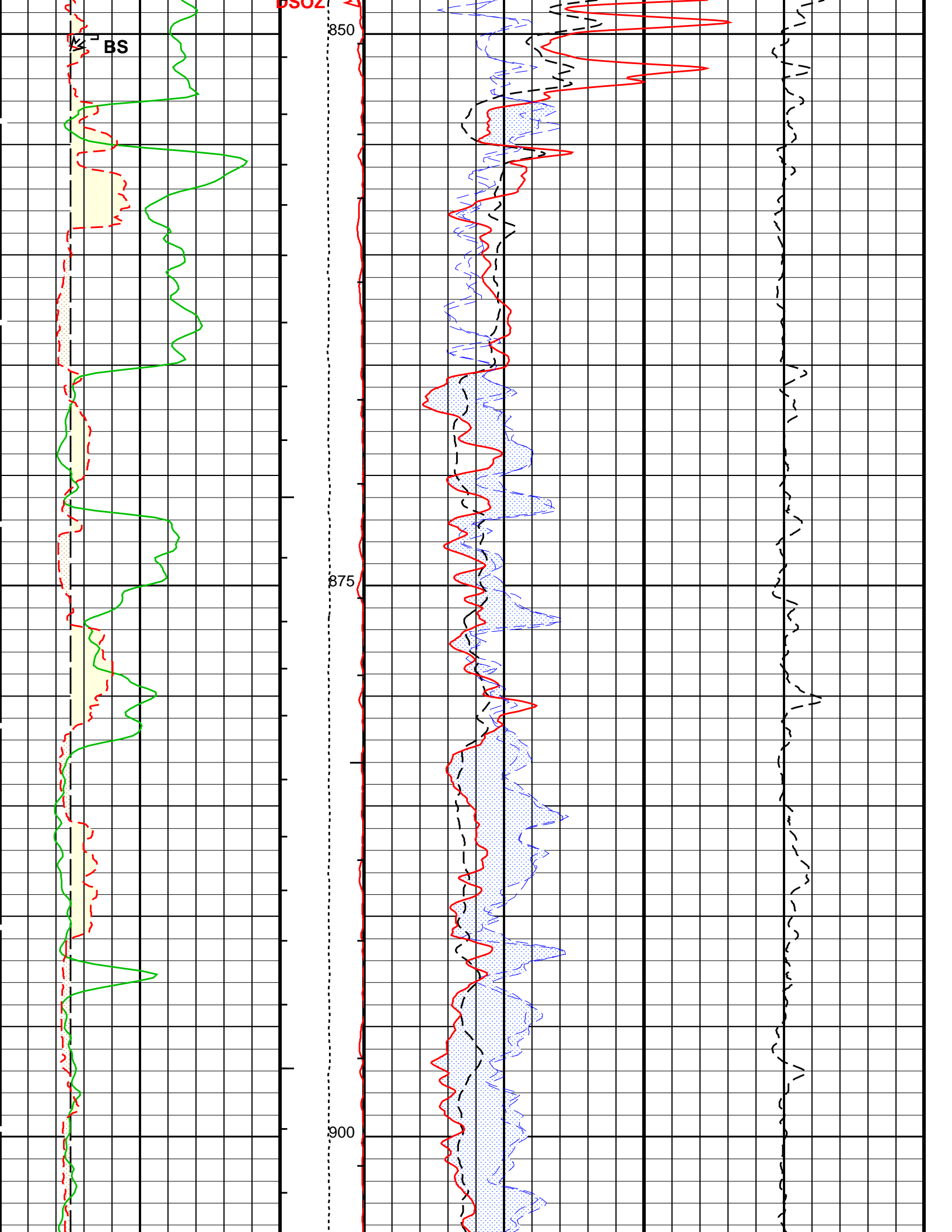


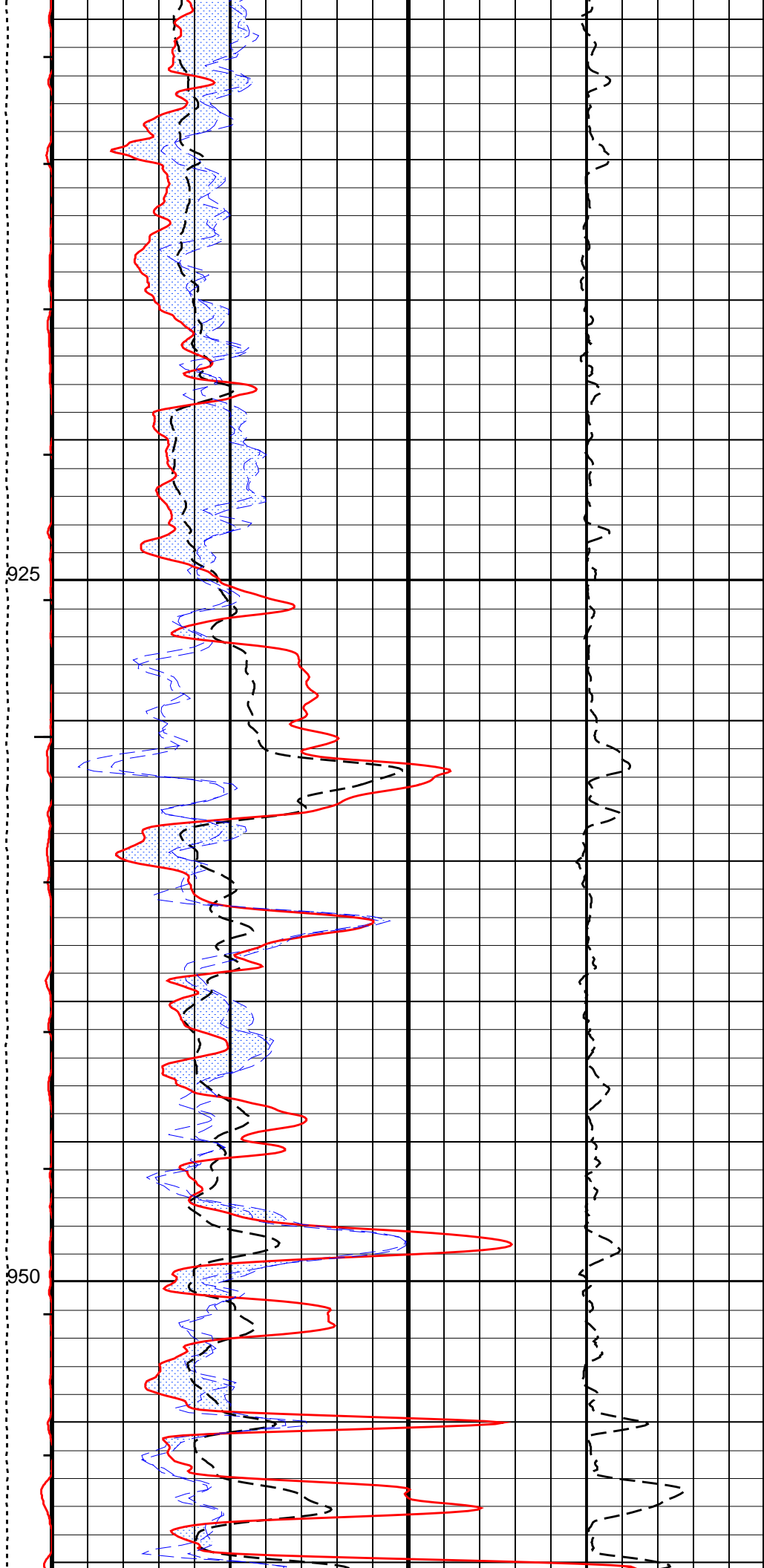


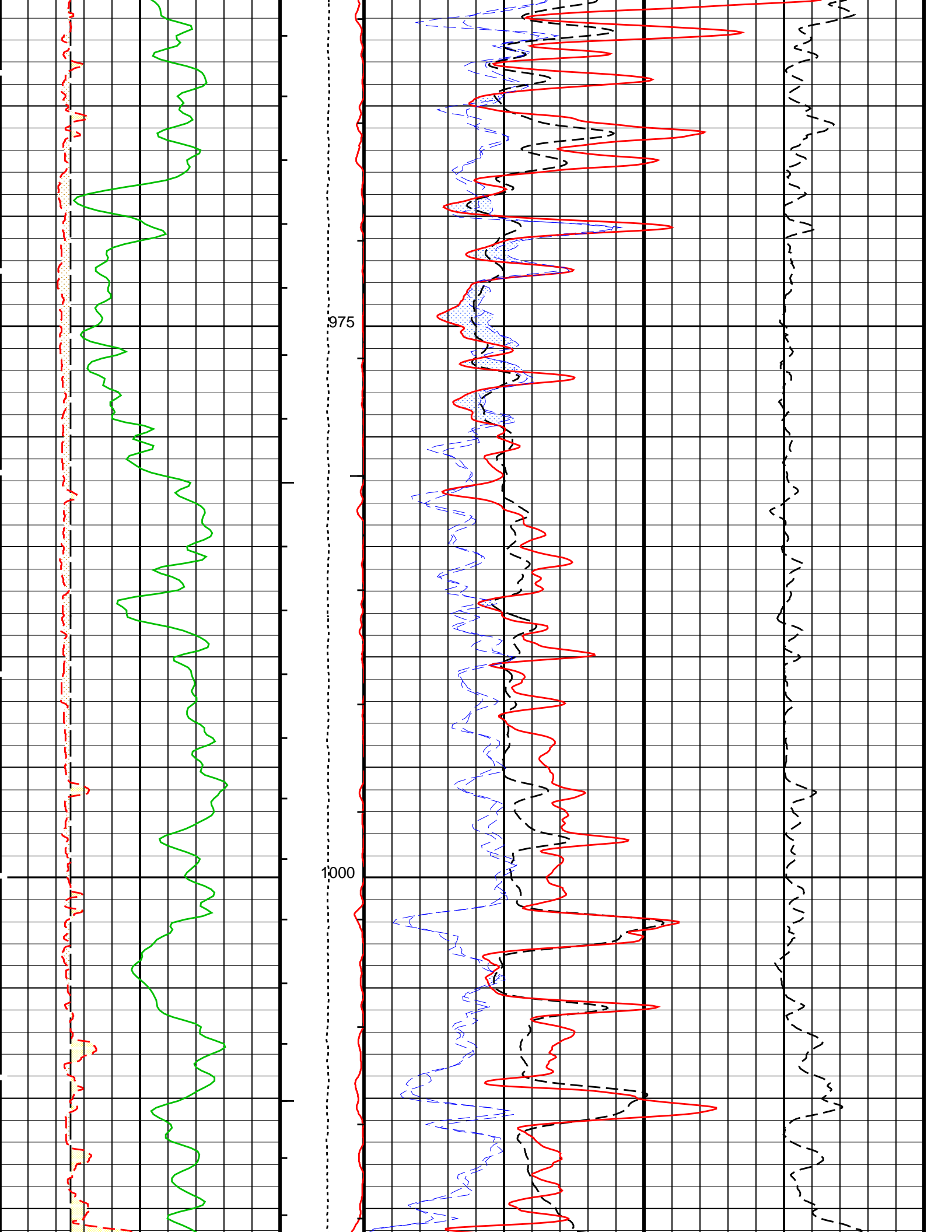


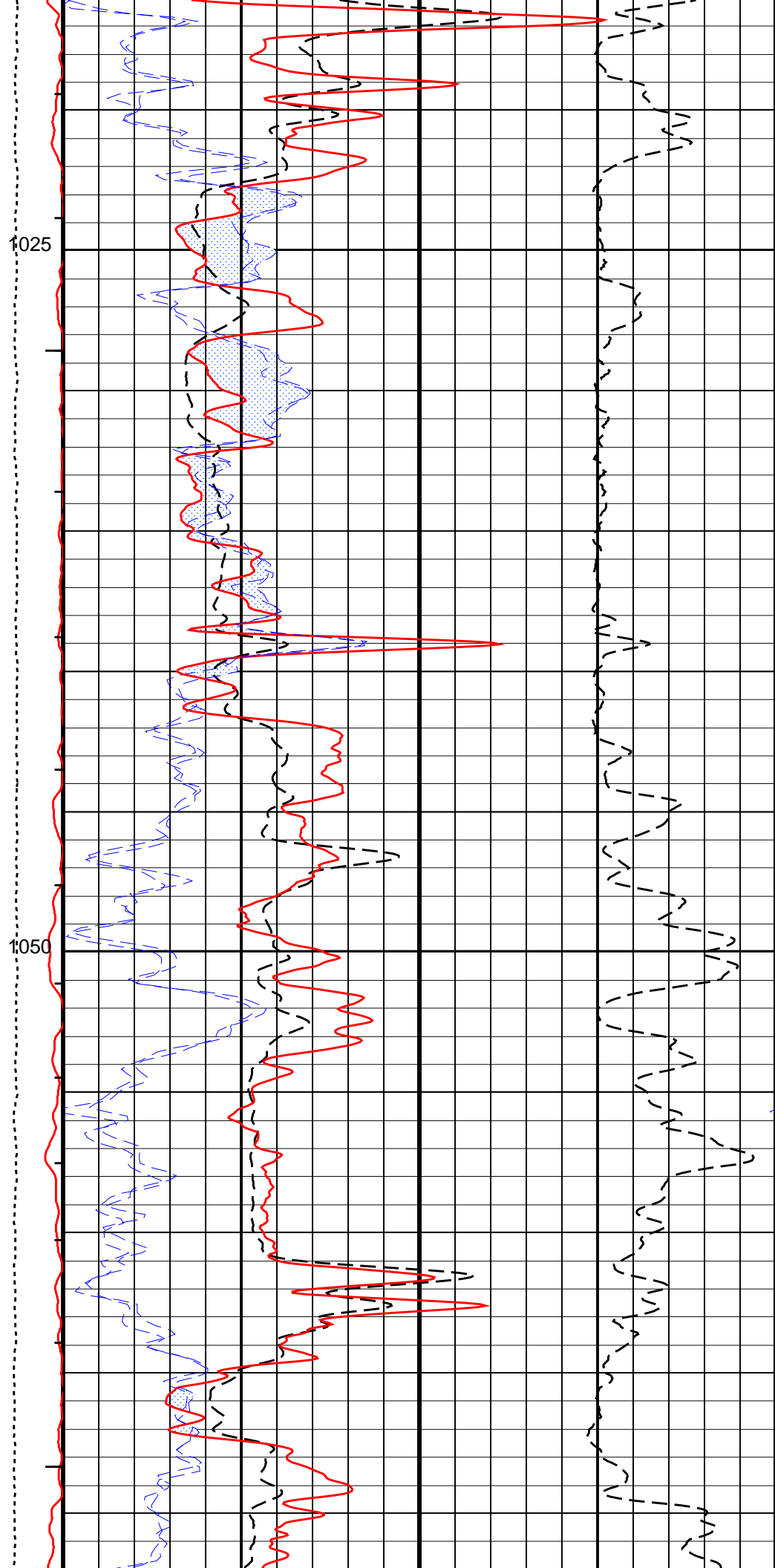
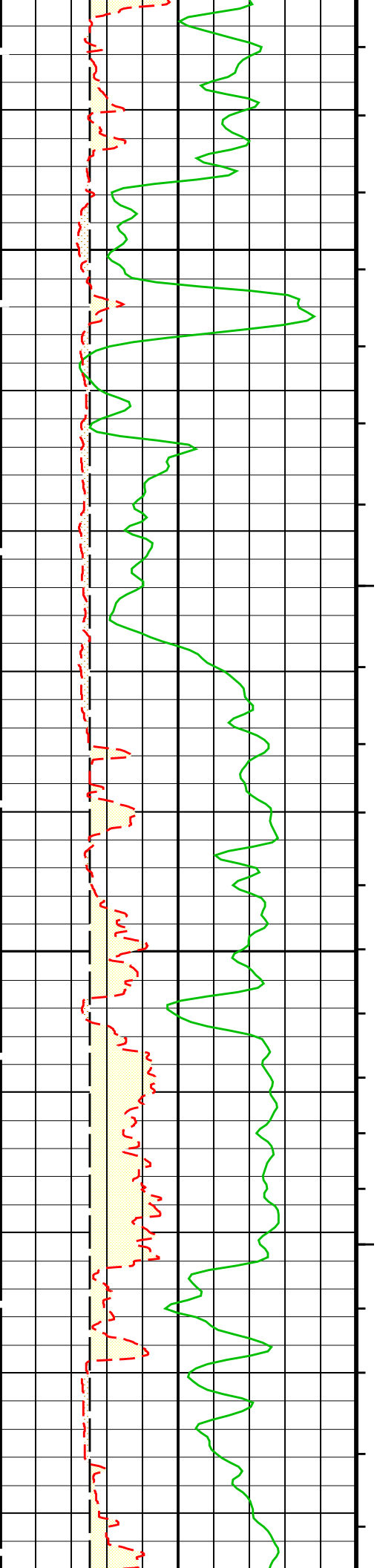


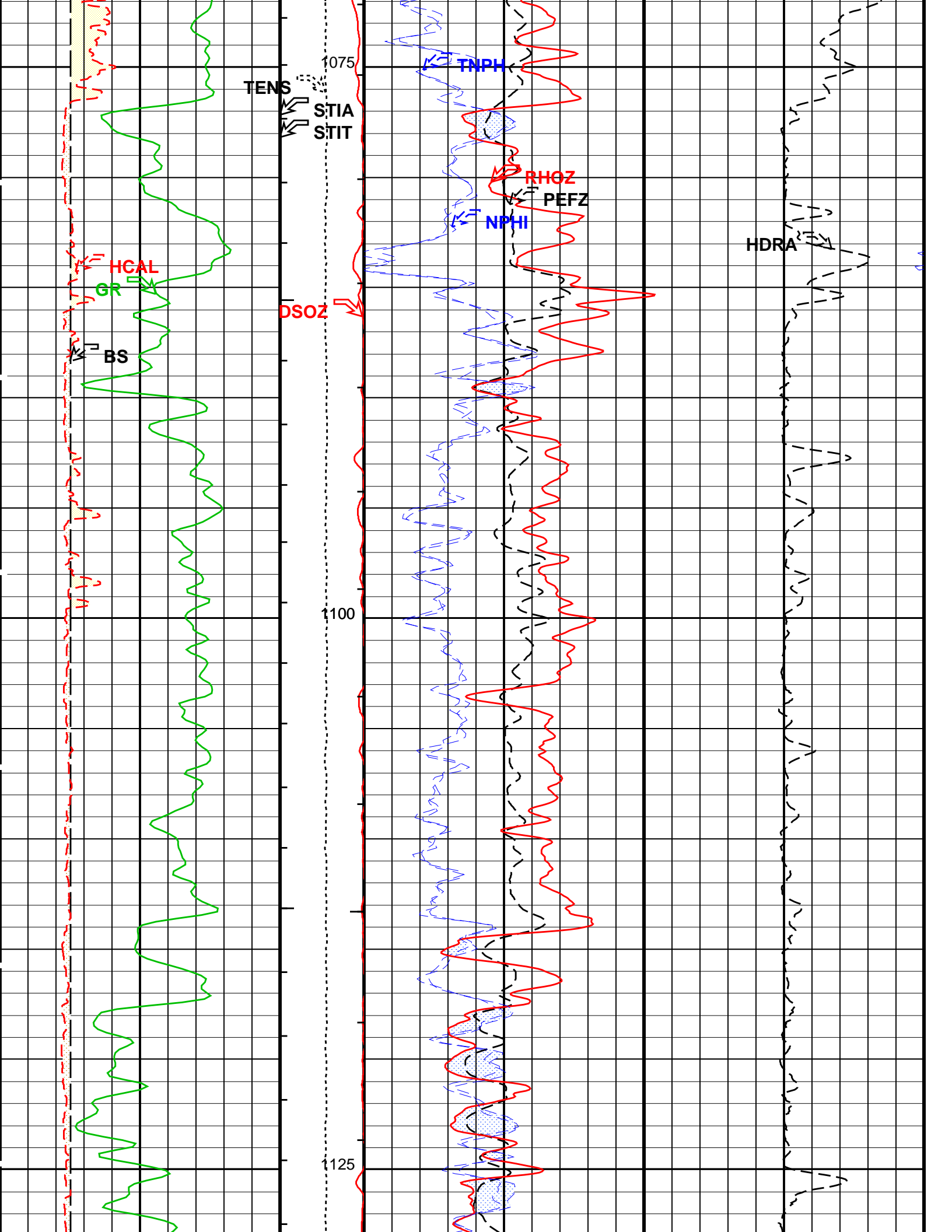


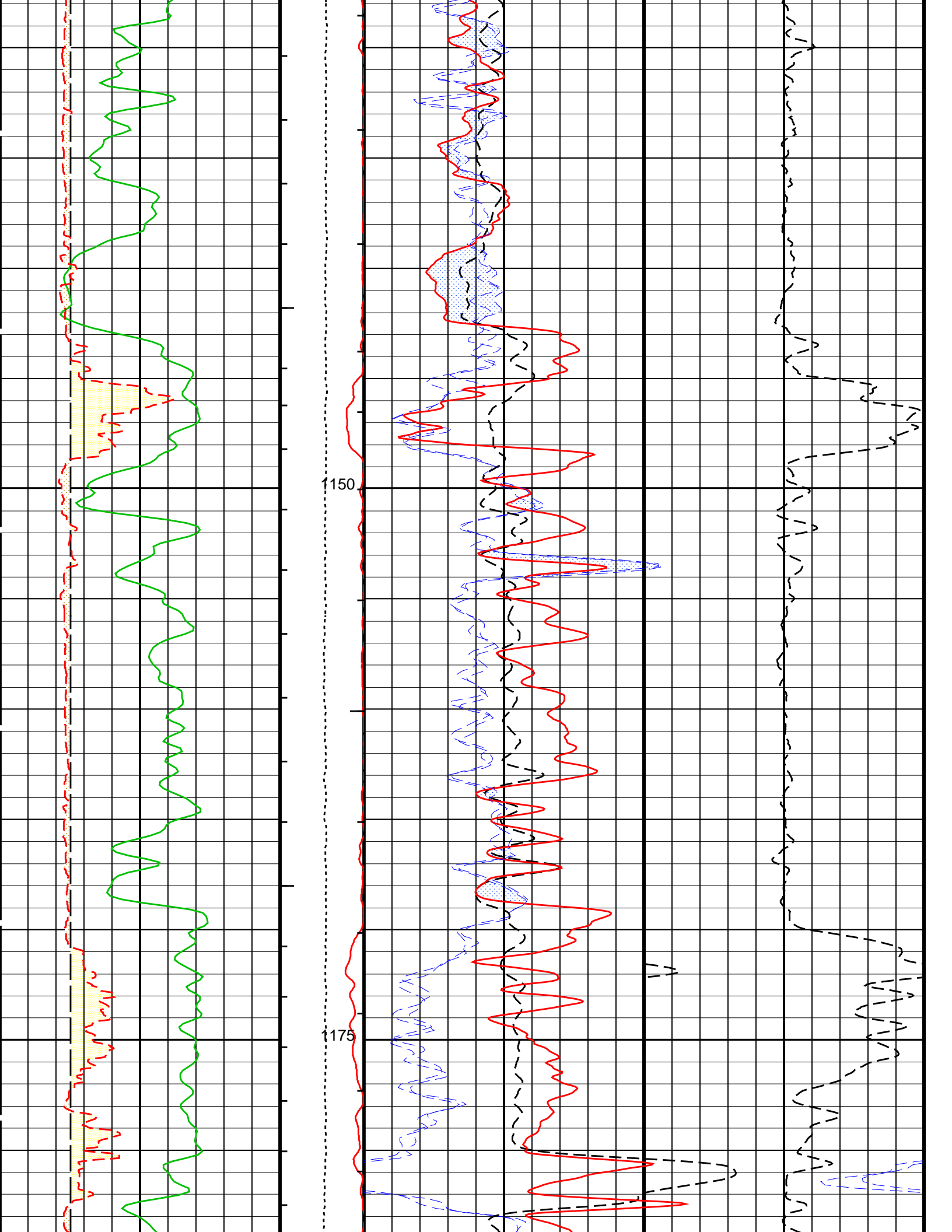


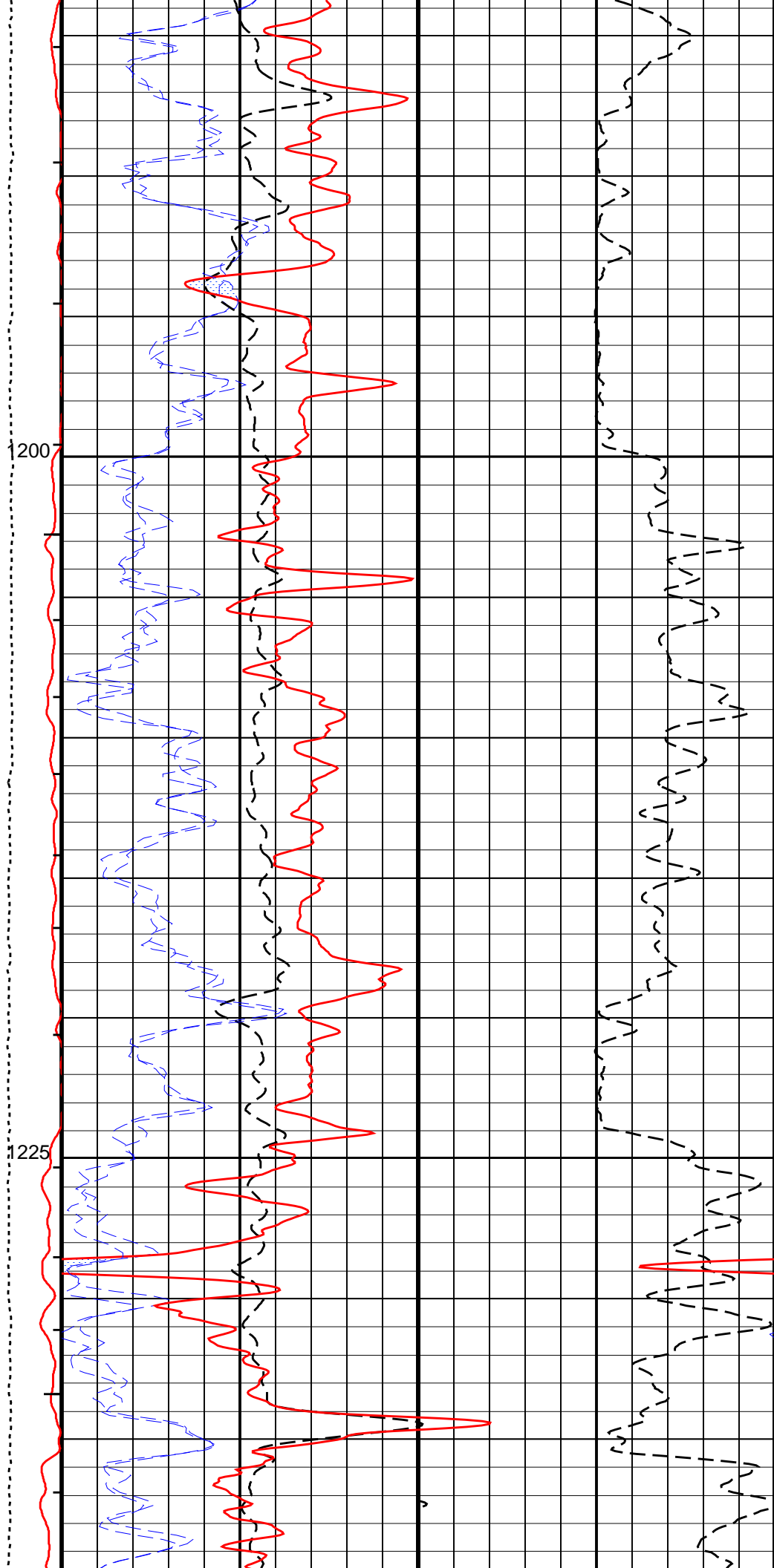
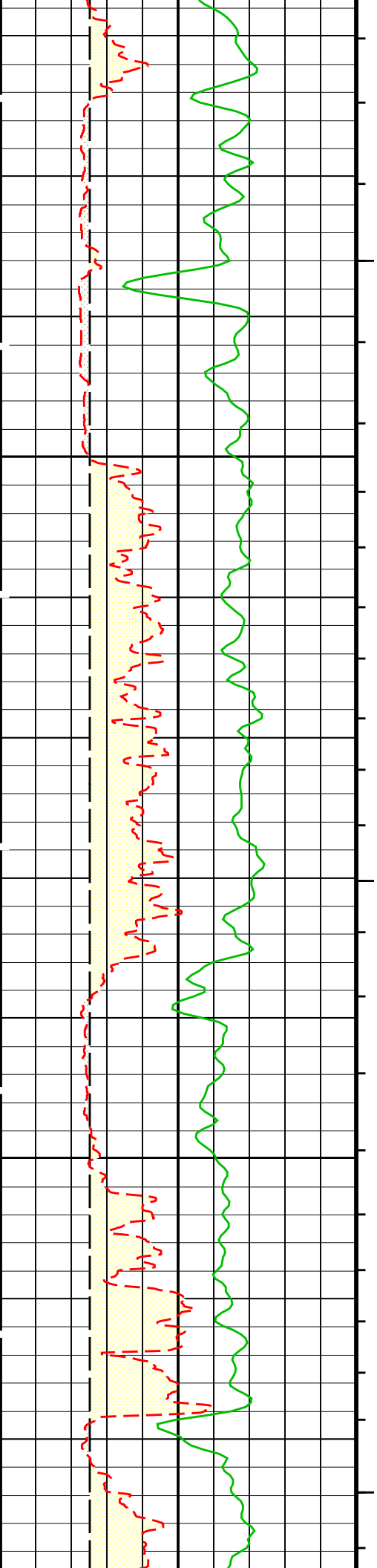


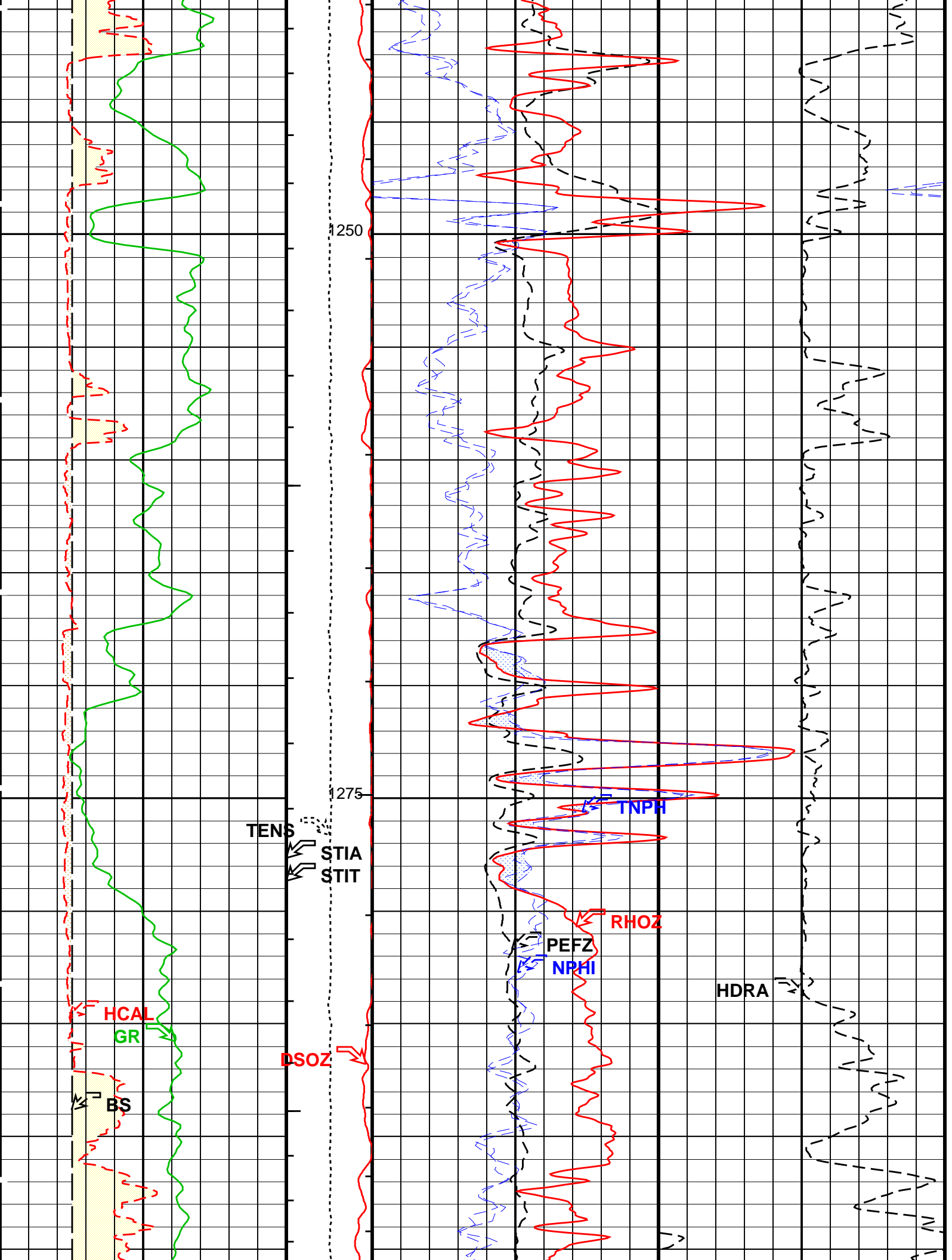


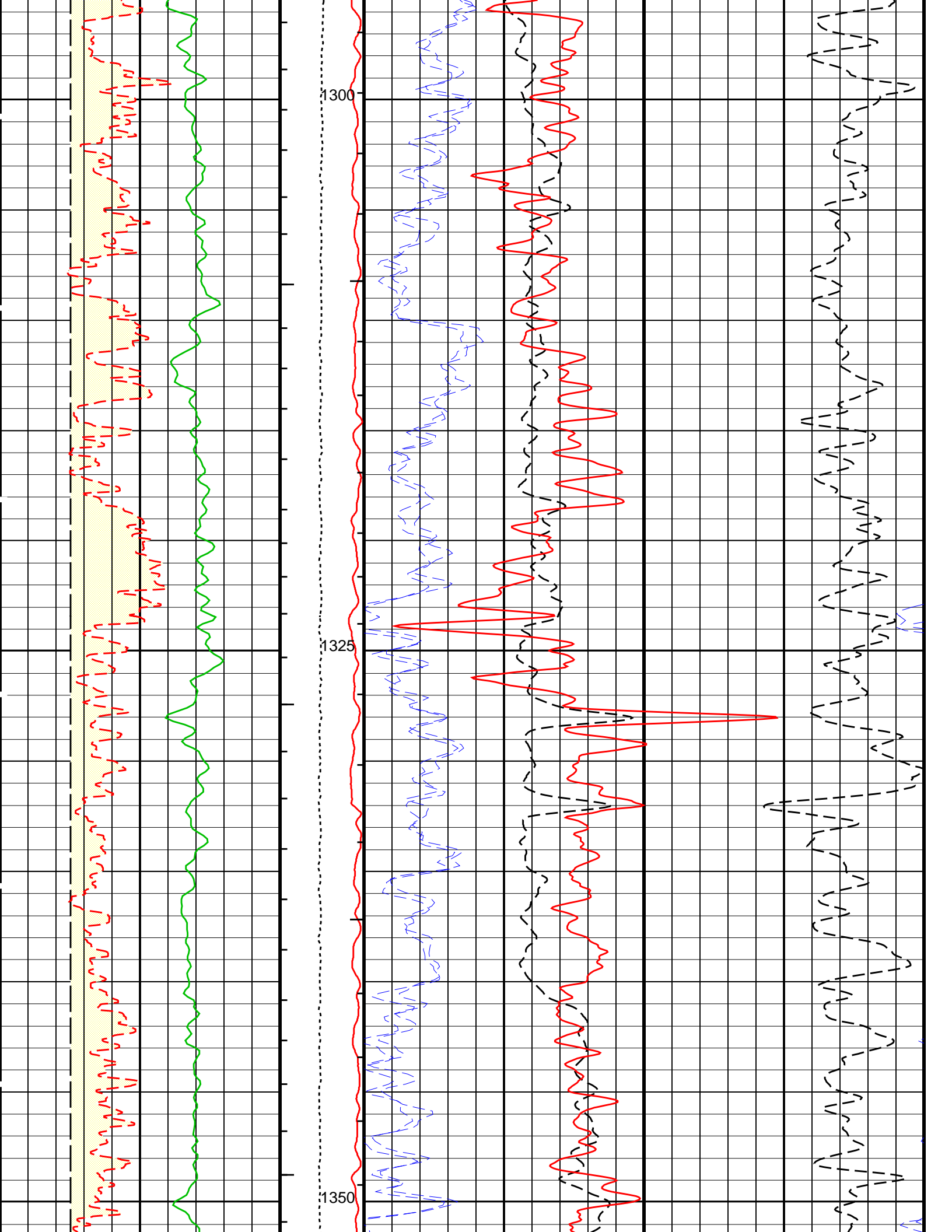


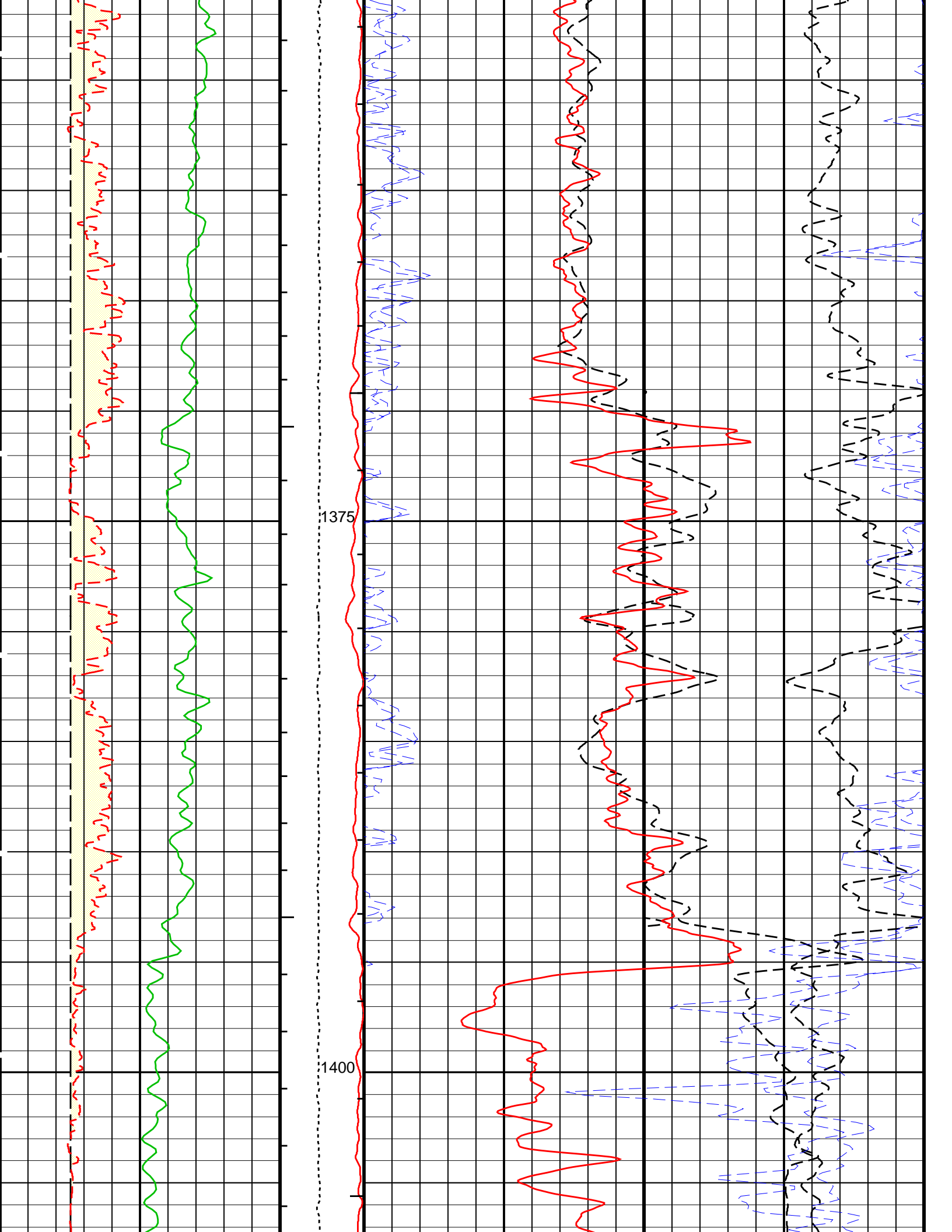


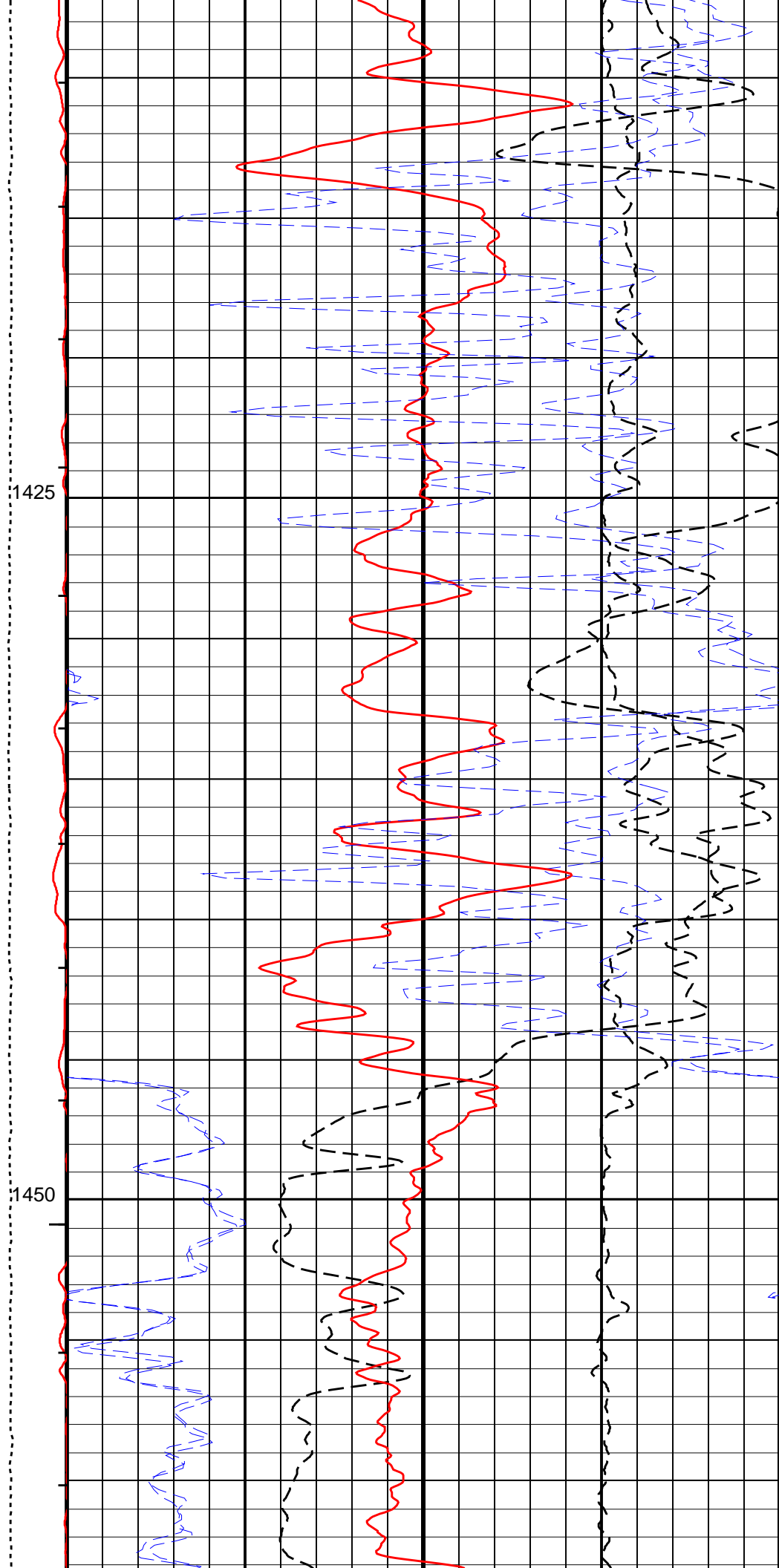
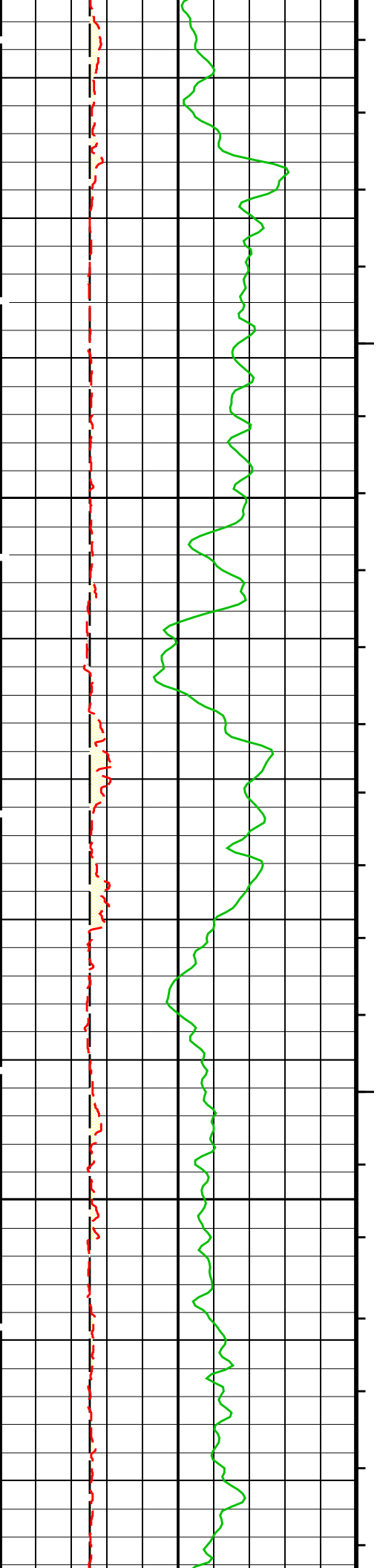


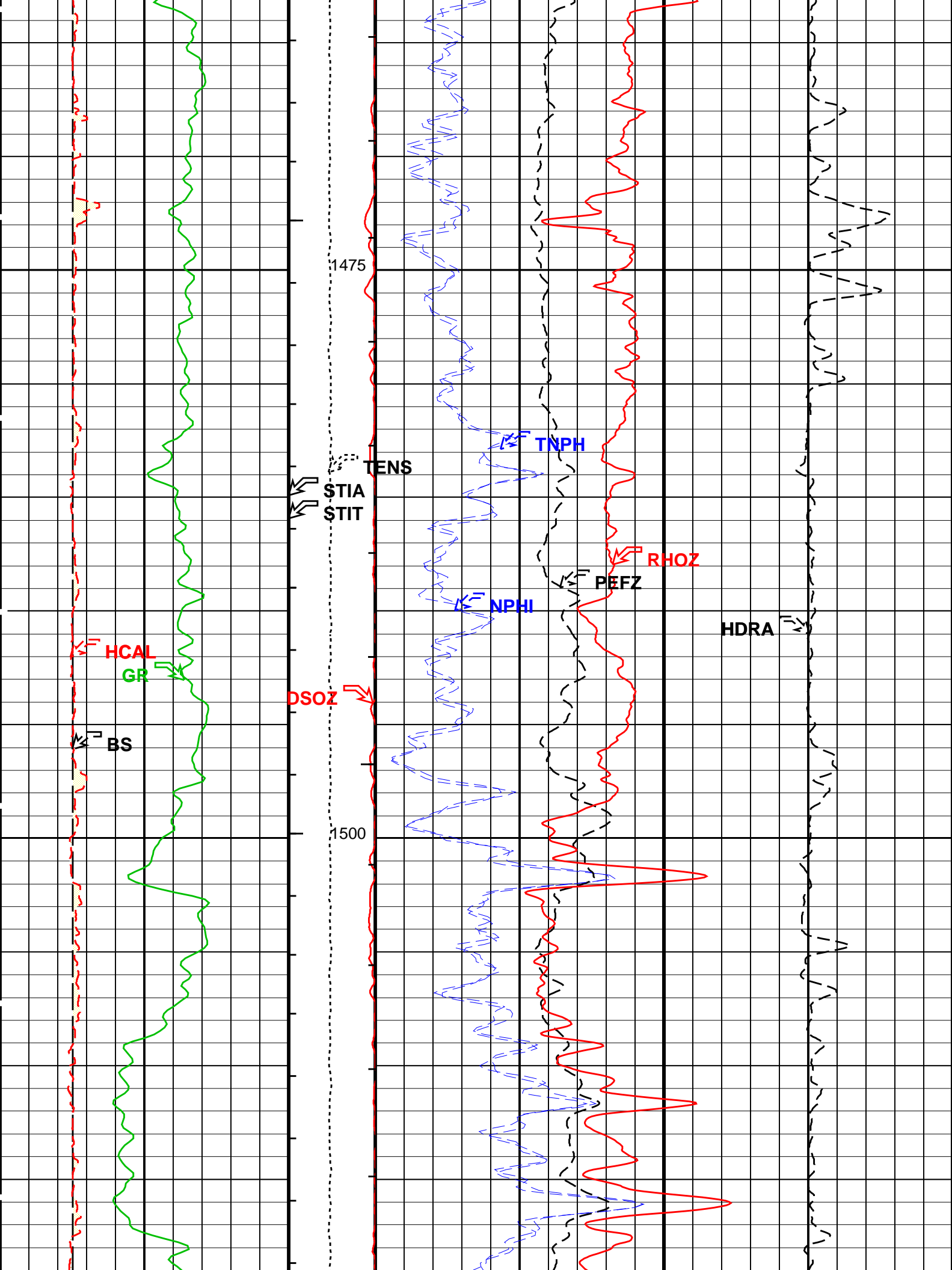


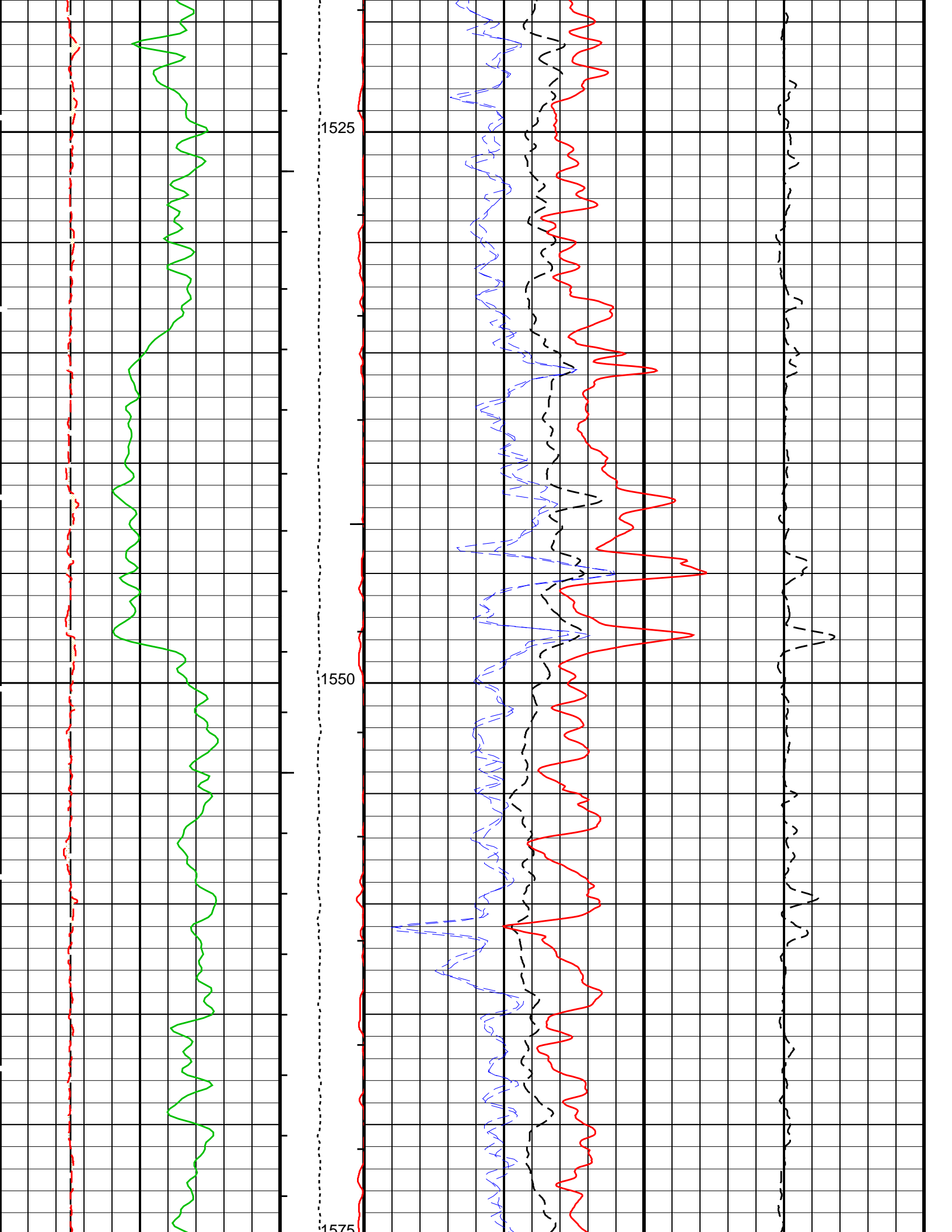


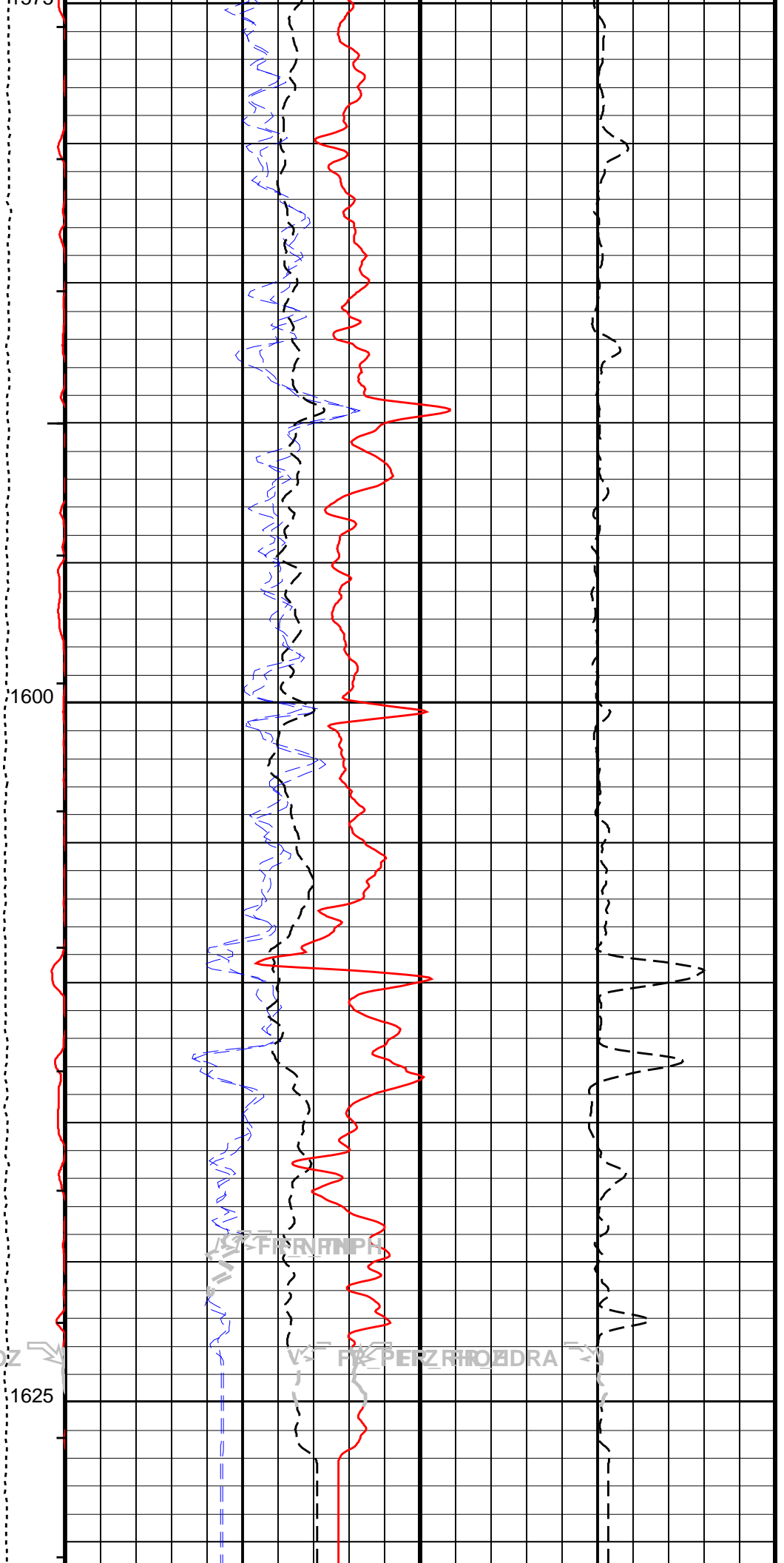
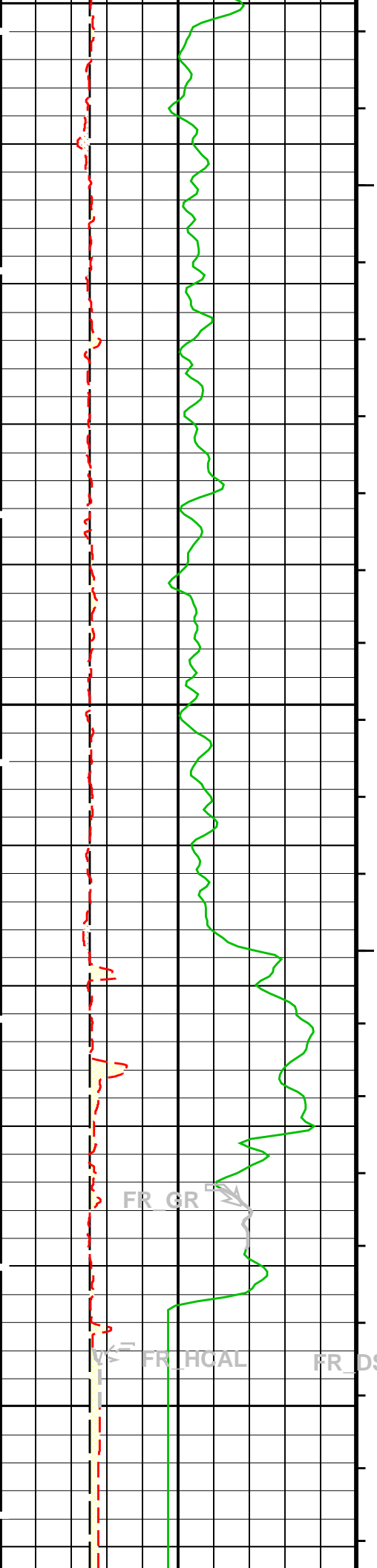


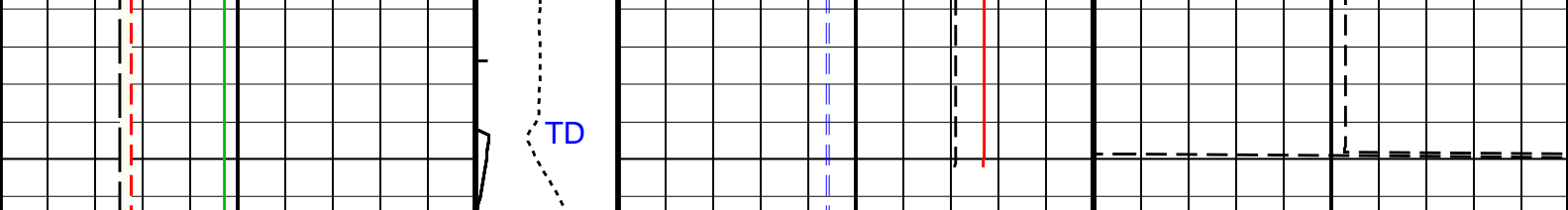












6	Bit Size (BS) (IN)	16	Tension (TENS) (LBF)	5000	0	0.45	Neutron Porosity (NPHI) (V/V)	-0.15
0	Gamma Ray (GR) (GAPI)	150	Std. Res. Density Standoff (DSOZ)	65 (MM)	0	0	Std. Res. Formation Pe (PEFZ) (----	10
6	HILT Caliper (HCAL) (IN)	16				1.95	Std. Res. Formation Density (RHOZ) (G/C3)	2.95
	Washout From BS to HCAL					0.45	Env. Corr. Thermal Neutron Porosity (TNPH) (V/V)	-0.15
	Mudcake From HCAL to BS						Crossover From RHOZ to TNPH	
						-0.25	Density Correction (HDRA) (G/C3)	0.25

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
HALS-B: HILT Azimuthal Laterolog Sonde B		
A2EX	HALS Type of Image	Conductivities
AGOS	HALS-B A2 Extended (Groningen effect)	OFF
ARIP_LTS	HALS-GPIT OFFSET	-90 IN
ARIP_SHOULDER	HALS Long Tool String Correction	OFF
BHCC	HALS Shoulder Correction	OFF
BHS	HALS Borehole Correction	ON
BHT	Borehole Status	OPEN
DHOP	Bottom Hole Temperature (used in calculations)	63.3334 DEGC
	Diameter & Eccentering used in HALS Borehole Corrections	
	Caliper_Eccentered	
GCSE	Generalized Caliper Selection	HCAL
GDEV	Average Angular Deviation of Borehole from Normal	2 DEG
GGRD	Geothermal Gradient	0.018227 DC/M
GRCC	HALS Groningen Correction	OFF
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE
HLAC	HALS-B Loop A Coefficient	LOW
HLMO	HALS Logging Mode	HIRES
HMSO	HALS Mechanical Standoff	1.5 IN
HRUN	HALS-B Record Uncalibrated Channels	NO
IMOS	HALS Image Orientation	OFF
LIMP	HALS Left Image Processing	DeepRaw
LOP1	HALS-B Mode 1 Loop Mode	OFF
LOP2	HALS-B Mode 2 Loop Mode	OFF
LOP3	HALS-B Mode 3 Loop Mode	OFF
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE
RIMP	HALS Right Image Processing	ShallowRaw
RTCOMP	HALS Rt Computation	Hals_Highres
RTRE	HALS Resistivity Threshold	100000 OHMM
SHT	Surface Hole Temperature	20 DEGC
SPCO	HALS-B Special Power Connection	OFF
TCOR	HALS TLC Correction	OFF
UNSPK	HALS Despiking Filter Option	OFF
UNSPK_THRESHOLD	HALS Despiking Filter Threshold (in %)	20 %

UNSPK_WINDOW	DSLT-H: Digitizing Sonic Logging Tool	6	IN
	DSLT Firing Mode	SDDB	
AGC	Telemetry Mode	DSLC_FTB	
AMSG	Automatic Gain Control Status	ON	
BILI	Auxiliary Minimum Sliding Gate	140	US
CBAF	Bond Index Level for Zone Isolation	0.8	
CBCF	CBL Adjustment Factor	1	
CBLG	CBL Correction Factor	4	
CDTS	CBL Gate Width	45	US
CSTR	C-Delta-T Shale	100	US/F
DDEL	Compressive Strength of Cement	0	KPAA
DETE	Digitizing Delay	0	US
DFAD	Delta-T Detection	E2	
DFAD_TYPE	Digital First Arrival Detection Switch	HOST	
DIVL	DFAD type	DFAD2	
DRCS	DSLT Depth Sampling Interval	20	
DSIN	DSLT DLIS Recording Size	140	
DTCM	Digitizing Sample Interval	10	
DTF	Delta-T Computation Mode	FULL	
DTFS	Delta-T Fluid	189	US/F
DTM	DSLC Telemetry Frame Size	316	
DWCO	Delta-T Matrix	56	US/F
FCF	Digitizing Word Count	140	
GAI	CBL Fluid Compensation Factor	1	
GOBO	Manual Gain	40	
ITTS	Good Bond	2	MV
MAHTR	Integrated Transit Time Source	DT	
MCI	Manual High Threshold Reference	150	
MGAI	Minimum Cemented Interval for Isolation	4.51523	M
MIGA	Maximum Gain	60	
MNHTR	Minimum Gain	1	
MODE	Minimum High Threshold Reference	140	
MSA	Sonic Firing Mode	SDDB	
NMSG	Minimum Sonic Amplitude	15.924	MV
NMXG	Near Minimum Sliding Gate	140	US
NUMP	Near Maximum Sliding Gate	850	US
RATE	Number of Detection Passes	2	
RDFA	Firing Rate	R15	
SDTH	Reset DFAD	OFF	
SFAF	Switch Down Threshold	20000	
SGAD	Sonic Formation Attenuation Factor	7	DB/M
SGAI	Sliding Gate Status	ON	
SGCL	Selectable Acquisition Gain	AUTO	
SGCW	Sliding Gate Closing Delta-T	135	US/F
SGDT	Sliding Gate Closing Width	55	US
SGW	Sliding Gate Delta-T	60	US/F
SLEV	Sliding Gate Width	100	US
SPFS	Signal Level for AGC	3000	
SPSO	Sonic Porosity Formula	RAYMER_HUNT	
SUTH	Sonic Porosity Source	DT	
VDLG	Switch Up Threshold	1000	
WAGC	VDL Manual Gain	40	
WGAJ	Waveform AGC Allow/Disallow	OFF	
WGDT	Waveform Manual Gain	20	
WGIN	Waveform Gain Delta-T	240	US/F
WMOD	Waveform Gain Interval	2540	US
	Waveform Firing Mode	FULL	
	HILTB-FTB: High resolution Integrated Logging Tool-DTS		
BHFL	Borehole Fluid Type	WATER	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	63.3334	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	
GCSE	Generalized Caliper Selection	HCAL	
GDEV	Average Angular Deviation of Borehole from Normal	2	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	

HILT_GAS_OPTION	HILT Gas Computation Option		
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	
HSWCUT	HILT Water Saturation from AITH cutoff	50	%
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	YES	
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	StdRes	
NSAR	HRDD Depth Sampling Rate	1	IN
PHIMAX	HILT max porosity	35	PU
PTCO	Pressure/Temperature Correction Option	NO	
SDAT	Standoff Data Source	SOCN	
SEXP_HILT	HILT Saturation Exponent	2	
SHT	Surface Hole Temperature	20	DEGC
SOCN	Standoff Distance	0.125	IN
SOCO	Standoff Correction Option	NO	
HNGBA: Hostile Natural Gamma Ray Sonde			
BAR1	HNGB Detector 1 Barite Constant	0.953764	
BAR2	HNGB Detector 2 Barite Constant	0.972514	
BHK	HNGB Borehole Potassium Correction Concentration	0.041	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	63.3334	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	HNGB Barite Constant Correction Flag	USER	
GCSE	Generalized Caliper Selection	HCAL	
GDEV	Average Angular Deviation of Borehole from Normal	2	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
H1P	HNGB Detector 1 Allow/Disallow In Processing	ALLOW	
H2P	HNGB Detector 2 Allow/Disallow In Processing	ALLOW	
HABK	HNGB Borehole Potassium Running Average	0.0102828	
HALF	HNGB Alpha Filter Length	60	IN
HCRB	HNGB Apply Borehole Potassium Correction	USER	
HMWM	Mud Weighting Material	BARI	
HNPE	HNGB Processing Enable	YES	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
S1BI	HNGB Detector 1 Calibration Bismuth Count Rate	-999.25	CPS
S2BI	HNGB Detector 2 Calibration Bismuth Count Rate	-999.25	CPS
SGRC	HNGB Standard Gamma-Ray Correction Flag	YES	
SHT	Surface Hole Temperature	20	DEGC
TPOS	Tool Position	ECCE	
VBA1	HNGB Detector 1 Variable Barite Factor Running Average	0.975731	
VBA2	HNGB Detector 2 Variable Barite Factor Running Average	0.994675	
BSP: Bridle SP			
SPNV	SP Next Value	0	MV
HOLEV: Integrated Hole/Cement Volume			
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	63.3334	DEGC
FCD	Future Casing (Outer) Diameter	5.5	IN
GCSE	Generalized Caliper Selection	HCAL	
GDEV	Average Angular Deviation of Borehole from Normal	2	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	LCAL	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
SHT	Surface Hole Temperature	20	DEGC
STI: Stuck Tool Indicator			
LBFR	Trigger for MAXIS First Reading Label	TDL	
STKT	STI Stuck Threshold	0.762	M
TDD	Total Depth - Driller	1640.00	M
TDL	Total Depth - Logger	1634.80	M
System and Miscellaneous			
ALTDCHAN	Name of alternate depth channel	SpeedCorrectedDepth	
BS	Bit Size	8.500	IN
BSAL	Borehole Salinity	41000.00	PPM
CSIZ	Current Casing Size	9.625	IN
CWEI	Casing Weight	40.00	LB/F
DFD	Drilling Fluid Density	1.13	G/C3
DO	Depth Offset for Playback	0.0	M

MST	Mud Sample Temperature	12.50	DEGC
PBVSADP	Use alternate depth channel for playback	NO	
PP	Playback Processing	RECOMPUTE	
RMFS	Resistivity of Mud Filtrate Sample	0.2010	OHMM
RW	Resistivity of Connate Water	1.0000	OHMM
TD	Total Depth	1634.8	M
TWS	Temperature of Connate Water Sample	37.78	DEGC

Format: Nuclear_200 Vertical Scale: 1:200 Graphics File Created: 22-Jun-2004 10:46

OP System Version: 10C0-306

MCM

HALS-B	OP10-KP1	DSLT-H	OP10-KP1
HILTB-FTB	OP10-KP1	HNGC-A	OP10-KP1
HNGS-BA	OP10-KP1	DTC-H	10C0-306
BSP	10C0-306		

Input DLIS Files

DEFAULT	HALS_SONIC_TLD_MCFL_017LUP	FN:16	PRODUCER	21-Jun-2004 14:42	1636.8 M	20.8 M
---------	----------------------------	-------	----------	-------------------	----------	--------

Output DLIS Files

DEFAULT	HALS_SONIC_TLD_MCFL_101PUP	FN:100	PRODUCER	22-Jun-2004 10:45
---------	----------------------------	--------	----------	-------------------

Schlumberger

Calibrations

MAXIS Field Log

Calibration and Check Summary

Measurement	Nominal	Master	Before	After	Change	Limit	Units
HILT Azimuthal Laterolog Sonde B Wellsite Calibration – HALSB Total current mode 1							
Before: 18-Jun-2004 13:50							
Itot 1 Gain	1.000	N/A	0.998	N/A	N/A	0.026	MA
Itot 1 Phase	0.000	N/A	0.000	N/A	N/A	0.100	DEG
HILT Azimuthal Laterolog Sonde B Wellsite Calibration – HALSB Aux current mode 1							
Before: 18-Jun-2004 13:50							
Iaux 1 Gain	1.000	N/A	0.994	N/A	N/A	0.035	MA
Iaux 1 Phase	0.000	N/A	-0.144	N/A	N/A	1.900	DEG
HILT Azimuthal Laterolog Sonde B Wellsite Calibration – HALSB Aux current mode 2							
Before: 18-Jun-2004 13:50							
Iaux 2 Gain	1.000	N/A	0.975	N/A	N/A	0.048	MA
Iaux 2 Phase	0.000	N/A	0.000	N/A	N/A	0.100	DEG
HILT Azimuthal Laterolog Sonde B Wellsite Calibration – HALSB A0 current mode 3A							
Before: 18-Jun-2004 13:50							
I0 3A Gain	1.000	N/A	0.984	N/A	N/A	0.036	UA
I0 3A Phase	0.000	N/A	0.000	N/A	N/A	0.100	DEG
HILT Azimuthal Laterolog Sonde B Wellsite Calibration – HALSB A0 current mode 3B							
Before: 18-Jun-2004 13:50							
I0 3B Gain	1.000	N/A	0.979	N/A	N/A	0.036	UA
I0 3B Phase	0.000	N/A	-0.000	N/A	N/A	0.100	DEG
HILT Azimuthal Laterolog Sonde B Wellsite Calibration – HALSB Torpedo Voltage gains							
Before: 18-Jun-2004 13:50							
Zvt 1 Gain	1.000	N/A	0.994	N/A	N/A	0.025	MV
Zvt 2 Gain	1.000	N/A	0.997	N/A	N/A	0.045	MV
Zvt 3 Gain	1.000	N/A	1.004	N/A	N/A	0.045	MV

HILT Azimuthal Laterolog Sonde B Wellsite Calibration – HALSB Torpedo Voltage Phases							
Before: 18–Jun–2004 13:50							
Zvt 1 Phase	0.000	N/A	–0.098	N/A	N/A	2.300	DEG
Zvt 2 Phase	0.000	N/A	–0.000	N/A	N/A	0.800	DEG
Zvt 3 Phase	0.000	N/A	–0.128	N/A	N/A	0.500	DEG
HILT Azimuthal Laterolog Sonde B Wellsite Calibration – HALSB Upper Bridle Voltage mode 1							
Before: 18–Jun–2004 13:50							
Zvb 1 Gain	1.000	N/A	0.994	N/A	N/A	0.025	MV
Zvb 1 Phase	0.000	N/A	–0.125	N/A	N/A	2.300	DEG
HILT Azimuthal Laterolog Sonde B Wellsite Calibration – HALSB M1–M2 Voltage gains							
Before: 18–Jun–2004 13:50							
ZVM 1 Gain	1.000	N/A	0.996	N/A	N/A	0.039	UV
ZVM 2 Gain	1.000	N/A	0.992	N/A	N/A	0.019	UV
ZVM 3 Gain	1.000	N/A	0.991	N/A	N/A	0.019	UV
HILT Azimuthal Laterolog Sonde B Wellsite Calibration – HALSB M1–M2 Voltage Phases							
Before: 18–Jun–2004 13:50							
ZVM 1 Phase	0.000	N/A	0.229	N/A	N/A	3.800	DEG
ZVM 2 Phase	0.000	N/A	1.869	N/A	N/A	1.300	DEG
ZVM 3 Phase	0.000	N/A	1.017	N/A	N/A	1.000	DEG
HILT Azimuthal Laterolog Sonde B Wellsite Calibration – HALSB M1–A0* Voltage gains							
Before: 18–Jun–2004 13:50							
ZVH 1 Gain	1.000	N/A	0.997	N/A	N/A	0.013	UV
ZVH 2 Gain	1.000	N/A	0.990	N/A	N/A	0.046	UV
ZVH 3 Gain	1.000	N/A	0.990	N/A	N/A	0.046	UV
HILT Azimuthal Laterolog Sonde B Wellsite Calibration – HALSB M1–A0* Voltage Phases							
Before: 18–Jun–2004 13:50							
ZVH 1 Phase	0.000	N/A	0.111	N/A	N/A	3.800	DEG
ZVH 2 Phase	0.000	N/A	2.000	N/A	N/A	1.300	DEG
ZVH 3 Phase	0.000	N/A	1.019	N/A	N/A	1.000	DEG
HILT Azimuthal Laterolog Sonde B Wellsite Calibration – HALSB Aux Voltage gains							
Before: 18–Jun–2004 13:50							
ZVA 1 Gain	1.000	N/A	1.086	N/A	N/A	0.032	MV
ZVA 2 Gain	1.000	N/A	1.063	N/A	N/A	0.045	MV
ZVA 3 Gain	1.000	N/A	1.015	N/A	N/A	0.045	MV
HILT Azimuthal Laterolog Sonde B Wellsite Calibration – HALSB Aux Voltage Phases							
Before: 18–Jun–2004 13:50							
ZVA 1 Phase	0.000	N/A	0.572	N/A	N/A	2.300	DEG
ZVA 2 Phase	0.000	N/A	0.026	N/A	N/A	0.800	DEG
ZVA 3 Phase	0.000	N/A	0.128	N/A	N/A	0.500	DEG
HILT Azimuthal Laterolog Sonde B Wellsite Calibration – HALSB A0*–A0** Diff. Voltage mode 1							
Before: 18–Jun–2004 13:50							
ZVD 1 Gain	1.000	N/A	0.997	N/A	N/A	0.047	UV
ZVD 1 Phase	0.000	N/A	0.093	N/A	N/A	3.800	DEG
HILT Azimuthal Laterolog Sonde B Wellsite Calibration – HALSB A0*–A0** Diff. Voltage mode 2							
Before: 18–Jun–2004 13:50							
ZVD 2 Gain	1.000	N/A	0.983	N/A	N/A	0.056	UV
ZVD 2 Phase	0.000	N/A	1.294	N/A	N/A	1.300	DEG
HILT Azimuthal Laterolog Sonde B Wellsite Calibration – HALSB A0*–A0** Diff. Voltage mode 3A							
Before: 18–Jun–2004 13:50							
ZVD 3A Gain	1.000	N/A	0.987	N/A	N/A	0.056	UV
ZVD 3A Phase	0.000	N/A	0.601	N/A	N/A	1.000	DEG
HILT Azimuthal Laterolog Sonde B Wellsite Calibration – HALSB A0*–A0** Diff. Voltage mode 3B							
Before: 18–Jun–2004 13:50							
ZVD 3B Gain	1.000	N/A	1.000	N/A	N/A	0.054	UV
ZVD 3B Phase	0.000	N/A	–0.028	N/A	N/A	1.000	DEG
HILT Azimuthal Laterolog Sonde B Wellsite Calibration – HALSB vertical Voltage mode 1							
Before: 18–Jun–2004 13:50							
ZVV 1 Gain	1.000	N/A	0.997	N/A	N/A	0.022	UV
ZVV 1 Phase	0.000	N/A	0.164	N/A	N/A	2.800	DEG
HILT Azimuthal Laterolog Sonde B Wellsite Calibration – HALSB vertical Voltage mode 2							
Before: 18–Jun–2004 13:50							
ZVV 2 Gain	1.000	N/A	0.983	N/A	N/A	0.036	UV
ZVV 2 Phase	0.000	N/A	2.642	N/A	N/A	1.300	DEG
HILT Azimuthal Laterolog Sonde B Wellsite Calibration – HALSB Azimuthal Voltages mode 1							
Before: 18–Jun–2004 13:50							
Az 1 Gain – 0	1.000	N/A	0.999	N/A	N/A	0.047	UV
Az 1 Phase – 0	0.000	N/A	0.093	N/A	N/A	3.800	DEG

Az 1 Gain – 1	1.000	N/A	0.998	N/A	N/A	0.047	UV
Az 1 Gain – 2	1.000	N/A	0.999	N/A	N/A	0.047	UV
Az 1 Gain – 3	1.000	N/A	0.994	N/A	N/A	0.047	UV
Az 1 Gain – 4	1.000	N/A	1.000	N/A	N/A	0.047	UV
Az 1 Gain – 5	1.000	N/A	0.999	N/A	N/A	0.047	UV
Az 1 Gain – 6	1.000	N/A	0.997	N/A	N/A	0.047	UV
Az 1 Gain – 7	1.000	N/A	0.999	N/A	N/A	0.047	UV
Az 1 Gain – 8	1.000	N/A	0.997	N/A	N/A	0.047	UV
Az 1 Gain – 9	1.000	N/A	0.997	N/A	N/A	0.047	UV
Az 1 Gain – 10	1.000	N/A	1.001	N/A	N/A	0.047	UV
Az 1 Gain – 11	1.000	N/A	0.997	N/A	N/A	0.047	UV
AZ 1 Phase – 0	0.000	N/A	–0.004	N/A	N/A	3.800	DEG
AZ 1 Phase – 1	0.000	N/A	0.129	N/A	N/A	3.800	DEG
AZ 1 Phase – 2	0.000	N/A	0.100	N/A	N/A	3.800	DEG
AZ 1 Phase – 3	0.000	N/A	0.103	N/A	N/A	3.800	DEG
AZ 1 Phase – 4	0.000	N/A	0.205	N/A	N/A	3.800	DEG
AZ 1 Phase – 5	0.000	N/A	0.089	N/A	N/A	3.800	DEG
AZ 1 Phase – 6	0.000	N/A	0.067	N/A	N/A	3.800	DEG
AZ 1 Phase – 7	0.000	N/A	0.008	N/A	N/A	3.800	DEG
AZ 1 Phase – 8	0.000	N/A	0.122	N/A	N/A	3.800	DEG
AZ 1 Phase – 9	0.000	N/A	0.012	N/A	N/A	3.800	DEG
AZ 1 Phase – 10	0.000	N/A	0.123	N/A	N/A	3.800	DEG
AZ 1 Phase – 11	0.000	N/A	0.102	N/A	N/A	3.800	DEG

HILT Azimuthal Laterolog Sonde B Wellsite Calibration – HALSB Azimuthal Voltages mode 2

Before: 18–Jun–2004 13:50

Az 2 Gain – 0	1.000	N/A	0.984	N/A	N/A	0.056	UV
Az 2 Gain – 1	1.000	N/A	0.983	N/A	N/A	0.056	UV
Az 2 Gain – 2	1.000	N/A	0.984	N/A	N/A	0.056	UV
Az 2 Gain – 3	1.000	N/A	0.979	N/A	N/A	0.056	UV
Az 2 Gain – 4	1.000	N/A	0.985	N/A	N/A	0.056	UV
Az 2 Gain – 5	1.000	N/A	0.984	N/A	N/A	0.056	UV
Az 2 Gain – 6	1.000	N/A	0.982	N/A	N/A	0.056	UV
Az 2 Gain – 7	1.000	N/A	0.984	N/A	N/A	0.056	UV
Az 2 Gain – 8	1.000	N/A	0.983	N/A	N/A	0.056	UV
Az 2 Gain – 9	1.000	N/A	0.982	N/A	N/A	0.056	UV
Az 2 Gain – 10	1.000	N/A	0.987	N/A	N/A	0.056	UV
Az 2 Gain – 11	1.000	N/A	0.982	N/A	N/A	0.056	UV
Az 2 Phase – 0	0.000	N/A	1.369	N/A	N/A	1.300	DEG
Az 2 Phase – 1	0.000	N/A	1.320	N/A	N/A	1.300	DEG
Az 2 Phase – 2	0.000	N/A	1.339	N/A	N/A	1.300	DEG
Az 2 Phase – 3	0.000	N/A	1.323	N/A	N/A	1.300	DEG
Az 2 Phase – 4	0.000	N/A	1.353	N/A	N/A	1.300	DEG
Az 2 Phase – 5	0.000	N/A	1.370	N/A	N/A	1.300	DEG
Az 2 Phase – 6	0.000	N/A	1.385	N/A	N/A	1.300	DEG
Az 2 Phase – 7	0.000	N/A	1.386	N/A	N/A	1.300	DEG
Az 2 Phase – 8	0.000	N/A	1.402	N/A	N/A	1.300	DEG
Az 2 Phase – 9	0.000	N/A	1.364	N/A	N/A	1.300	DEG
Az 2 Phase – 10	0.000	N/A	1.409	N/A	N/A	1.300	DEG
Az 2 Phase – 11	0.000	N/A	1.285	N/A	N/A	1.300	DEG

HILT Azimuthal Laterolog Sonde B Wellsite Calibration – HALSB Azimuthal Voltages mode 3A

Before: 18–Jun–2004 13:50

Az 3A Gain – 0	1.000	N/A	0.989	N/A	N/A	0.056	UV
Az 3A Gain – 1	1.000	N/A	0.988	N/A	N/A	0.056	UV
Az 3A Gain – 2	1.000	N/A	0.989	N/A	N/A	0.056	UV
Az 3A Gain – 3	1.000	N/A	0.984	N/A	N/A	0.056	UV
Az 3A Gain – 4	1.000	N/A	0.990	N/A	N/A	0.056	UV
Az 3A Gain – 5	1.000	N/A	0.989	N/A	N/A	0.056	UV
Az 3A Gain – 6	1.000	N/A	0.987	N/A	N/A	0.056	UV
Az 3A Gain – 7	1.000	N/A	0.988	N/A	N/A	0.056	UV
Az 3A Gain – 8	1.000	N/A	0.987	N/A	N/A	0.056	UV
Az 3A Gain – 9	1.000	N/A	0.987	N/A	N/A	0.056	UV
Az 3A Gain – 10	1.000	N/A	0.991	N/A	N/A	0.056	UV
Az 3A Gain – 11	1.000	N/A	0.987	N/A	N/A	0.056	UV
Az 3A Phase – 0	0.000	N/A	0.617	N/A	N/A	1.000	DEG
Az 3A Phase – 1	0.000	N/A	0.607	N/A	N/A	1.000	DEG
Az 3A Phase – 2	0.000	N/A	0.611	N/A	N/A	1.000	DEG
Az 3A Phase – 3	0.000	N/A	0.607	N/A	N/A	1.000	DEG
Az 3A Phase – 4	0.000	N/A	0.640	N/A	N/A	1.000	DEG
Az 3A Phase – 5	0.000	N/A	0.631	N/A	N/A	1.000	DEG
Az 3A Phase – 6	0.000	N/A	0.631	N/A	N/A	1.000	DEG
Az 3A Phase – 7	0.000	N/A	0.623	N/A	N/A	1.000	DEG
Az 3A Phase – 8	0.000	N/A	0.639	N/A	N/A	1.000	DEG
Az 3A Phase – 9	0.000	N/A	0.597	N/A	N/A	1.000	DEG
Az 3A Phase – 10	0.000	N/A	0.650	N/A	N/A	1.000	DEG
Az 3A Phase – 11	0.000	N/A	0.588	N/A	N/A	1.000	DEG

HILT Azimuthal Laterolog Sonde B Wellsite Calibration – HALSB Azimuthal Voltages mode 3B

Before: 18–Jun–2004 13:50

Az 3B Gain – 0	1.000	N/A	1.008	N/A	N/A	0.054	UV
Az 3B Gain – 1	1.000	N/A	1.003	N/A	N/A	0.054	UV

Az 3B Gain – 2	1.000	N/A	1.005	N/A	N/A	0.054	UV
Az 3B Gain – 3	1.000	N/A	0.998	N/A	N/A	0.054	UV
Az 3B Gain – 4	1.000	N/A	1.005	N/A	N/A	0.054	UV
Az 3B Gain – 5	1.000	N/A	1.006	N/A	N/A	0.054	UV
Az 3B Gain – 6	1.000	N/A	1.005	N/A	N/A	0.054	UV
Az 3B Gain – 7	1.000	N/A	1.007	N/A	N/A	0.054	UV
Az 3B Gain – 8	1.000	N/A	1.006	N/A	N/A	0.054	UV
Az 3B Gain – 9	1.000	N/A	1.003	N/A	N/A	0.054	UV
Az 3B Gain – 10	1.000	N/A	1.010	N/A	N/A	0.054	UV
Az 3B Gain – 11	1.000	N/A	0.997	N/A	N/A	0.054	UV
Az 3B Phase – 0	0.000	N/A	0.204	N/A	N/A	1.000	DEG
Az 3B Phase – 1	0.000	N/A	0.090	N/A	N/A	1.000	DEG
Az 3B Phase – 2	0.000	N/A	0.036	N/A	N/A	1.000	DEG
Az 3B Phase – 3	0.000	N/A	0.098	N/A	N/A	1.000	DEG
Az 3B Phase – 4	0.000	N/A	0.050	N/A	N/A	1.000	DEG
Az 3B Phase – 5	0.000	N/A	0.185	N/A	N/A	1.000	DEG
Az 3B Phase – 6	0.000	N/A	0.127	N/A	N/A	1.000	DEG
Az 3B Phase – 7	0.000	N/A	0.255	N/A	N/A	1.000	DEG
Az 3B Phase – 8	0.000	N/A	0.175	N/A	N/A	1.000	DEG
Az 3B Phase – 9	0.000	N/A	0.198	N/A	N/A	1.000	DEG
Az 3B Phase – 10	0.000	N/A	0.193	N/A	N/A	1.000	DEG
Az 3B Phase – 11	0.000	N/A	-0.017	N/A	N/A	1.000	DEG
High resolution Integrated Logging Tool–DTS Wellsite Calibration – Stab Measurement Summary							
Before: 17–Jun–2004 22:47							
BS Window Ratio	1.011	N/A	1.012	N/A	N/A	N/A	
BS Window Sum	16100	N/A	16100	N/A	N/A	N/A	CPS
SS Window Ratio	0.4808	N/A	0.4798	N/A	N/A	N/A	
SS Window Sum	10970	N/A	10980	N/A	N/A	N/A	CPS
LS Window Ratio	0.2955	N/A	0.2968	N/A	N/A	N/A	
LS Window Sum	1160	N/A	1161	N/A	N/A	N/A	CPS
High resolution Integrated Logging Tool–DTS Wellsite Calibration – Photo–multiplier High Voltages Calibrations							
Before: 17–Jun–2004 22:47							
BS PM High Voltage (Command)	1495	N/A	1502	N/A	N/A	N/A	V
SS PM High Voltage (Command)	1944	N/A	1945	N/A	N/A	N/A	V
LS PM High Voltage (Command)	1839	N/A	1850	N/A	N/A	N/A	V
High resolution Integrated Logging Tool–DTS Wellsite Calibration – Crystal Quality Resolutions Calibration							
Before: 17–Jun–2004 22:47							
BS Crystal Resolution	12.17	N/A	12.16	N/A	N/A	N/A	%
SS Crystal Resolution	11.48	N/A	11.68	N/A	N/A	N/A	%
LS Crystal Resolution	9.283	N/A	9.321	N/A	N/A	N/A	%
High resolution Integrated Logging Tool–DTS Wellsite Calibration – MCFL Calibration							
Before: 17–Jun–2004 22:27							
Raw B0 Resistivity	3875	N/A	3800	N/A	N/A	N/A	OHMM
Raw B1 Resistivity	3830	N/A	3774	N/A	N/A	N/A	OHMM
Raw B2 Resistivity	3830	N/A	3790	N/A	N/A	N/A	OHMM
High resolution Integrated Logging Tool–DTS Wellsite Calibration – HILT Caliper Calibration							
Before: 17–Jun–2004 22:30							
HILT Caliper Zero Measurement	8.000	N/A	8.227	N/A	N/A	N/A	IN
HILT Caliper Plus Measurement	12.00	N/A	12.35	N/A	N/A	N/A	IN
High resolution Integrated Logging Tool–DTS Wellsite Calibration – Detector Calibration							
Before: 17–Jun–2004 22:26							
Gamma Ray Background	30.00	N/A	37.15	N/A	N/A	N/A	GAPI
Gamma Ray (Jig – Bkg)	177.4	N/A	177.4	N/A	N/A	16.12	GAPI
Gamma Ray (Calibrated)	165.0	N/A	165.0	N/A	N/A	15.00	GAPI
High resolution Integrated Logging Tool–DTS Wellsite Calibration – Zero Measurement							
Master: 15–Jun–2004 17:21 Before: 17–Jun–2004 22:26							
CNTC Background	32.30	32.30	31.19	N/A	N/A	4.845	CPS
CFTC Background	29.13	29.13	28.55	N/A	N/A	4.370	CPS
High resolution Integrated Logging Tool–DTS Wellsite Calibration – Accelerometer Calibration							
Before: 18–Jun–2004 13:50							
Z–Axis Acceleration	9.810	N/A	9.803	N/A	N/A	N/A	M/S2
High resolution Integrated Logging Tool–DTS Master Calibration – Inversion results							
Master: 15–Jun–2004 11:26							
Rho Aluminum	2.596	2.599	--	--	--	--	G/C3
Rho Magnesium	1.686	1.688	--	--	--	--	G/C3
Pe Aluminum	2.570	2.561	--	--	--	--	
Pe Magnesium	2.650	2.615	--	--	--	--	
High resolution Integrated Logging Tool–DTS Master Calibration – Deviation Summary							
Master: 15–Jun–2004 11:26							
BS Average Deviation	0	0.4141	--	--	--	--	%
BS Max Deviation	0	0.9721	--	--	--	--	%
SS Average Deviation	0	0.0142	--	--	--	--	%

SS Average Deviation	0	0.2442	--	--	--	--	%
SS Max Deviation	0	1.285	--	--	--	--	%
LS Average Deviation	0	0.4543	--	--	--	--	%
LS Max Deviation	0	0.9733	--	--	--	--	%

High resolution Integrated Logging Tool-DTS Master Calibration – Tank Measurement

Master: 15-Jun-2004 17:21

Thermal Near Corr. (Tank)	6031	5825	--	--	--	--	CPS
Thermal Far Corr. (Tank)	2793	2452	--	--	--	--	CPS
CNTC/CFTC (Tank)	2.159	2.376	--	--	--	--	

High resolution Integrated Logging Tool-DTS Master Calibration – Tank Measurement

Master: 15-Jun-2004 17:21

Thermal Near Corr. (Tank)	6031	5825	--	--	--	--	CPS
Thermal Far Corr. (Tank)	2793	2452	--	--	--	--	CPS
CNTC/CFTC (Tank)	2.159	2.376	--	--	--	--	

Hostile Natural Gamma Ray Sonde Wellsite Calibration – Detector 1 Check

Master: 17-Jun-2004 21:58 Before: 18-Jun-2004 13:56

Na 511 Peak Loc	40.00	40.64	39.66	N/A	N/A	1.000	
Na 511 Peak Res	15.50	16.25	15.12	N/A	N/A	2.000	%
High Voltage	1150	1159	1153	N/A	N/A	N/A	V
Na 1785 Peak Loc	142.6	145.9	141.9	N/A	N/A	7.000	
Na 1785 Peak Res	8.500	8.737	8.471	N/A	N/A	2.000	%
Temperature	15.50	13.72	13.30	N/A	N/A	N/A	DEGC
Na Count Rate	45.00	42.07	43.20	N/A	N/A	8.000	CPS

Hostile Natural Gamma Ray Sonde Wellsite Calibration – Detector 2 Check

Master: 17-Jun-2004 21:58 Before: 18-Jun-2004 13:56

Na 511 Peak Loc	40.00	39.68	39.55	N/A	N/A	1.000	
Na 511 Peak Res	15.50	14.94	15.66	N/A	N/A	2.000	%
High Voltage	1150	1080	1081	N/A	N/A	N/A	V
Na 1785 Peak Loc	142.6	143.0	142.3	N/A	N/A	7.000	
Na 1785 Peak Res	8.500	8.683	7.777	N/A	N/A	2.000	%
Temperature	15.50	14.40	13.68	N/A	N/A	N/A	DEGC
Na Count Rate	45.00	41.97	42.79	N/A	N/A	8.000	CPS

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

Master: 17-Jun-2004 21:58 Before: 18-Jun-2004 13:56

Coincidence Count Rate Ratio	1.000	1.006	1.012	N/A	N/A	0.05000	
------------------------------	-------	-------	-------	-----	-----	---------	--

Hostile Natural Gamma Ray Sonde Master Calibration – Detector 1 Calibration

Master: 17-Jun-2004 21:53

Na 511 Peak Set Point	40.00	42.00	--	--	--	--	
Th Peak Loc	209.6	211.5	--	--	--	--	
Th Peak Res	7.000	7.826	--	--	--	--	%
Background Count Rate	142.5	140.0	--	--	--	--	CPS
Gain Ratio	1.000	0.9901	--	--	--	--	

Hostile Natural Gamma Ray Sonde Master Calibration – Detector 2 Calibration

Master: 17-Jun-2004 21:53

Na 511 Peak Set Point	40.00	41.00	--	--	--	--	
Th Peak Loc	209.6	207.7	--	--	--	--	
Th Peak Res	7.000	7.127	--	--	--	--	%
Background Count Rate	142.5	133.6	--	--	--	--	CPS
Gain Ratio	1.000	0.9954	--	--	--	--	

The GLS-VJ source activity is acceptable.

The HGNS Neutron Master Calibration was done with the following parameters :

NCT-B Water Temperature 11.1 DEGC.
Thermal Housing Size 3.369 IN.

HILT Azimuthal Laterolog Sonde B / Equipment Identification



Primary Equipment:

Auxiliary Equipment:

Laterolog Control Module

LCM – AA

2747

HILT Azimuthal Laterolog Sonde B Wellsite Calibration			
HALSB Total current mode 1			
Itot 1 Gain MA	Value	Itot 1 Phase DEG	Value
	0.000		0.000

0.926 (Minimum)	1.000 (Nominal)	1.081 (Maximum)	0.998	0.000 (Nominal)	0.100 (Maximum)
Before: 18-Jun-2004 13:50					

HILT Azimuthal Laterolog Sonde B Wellsite Calibration					
HALSB Aux current mode 1					
Iaux 1 Gain MA		Value	Iaux 1 Phase DEG		Value
		0.994			-0.144
0.854 (Minimum)	1.000 (Nominal)	1.180 (Maximum)	-4.600 (Minimum)	0.000 (Nominal)	4.600 (Maximum)
Before: 18-Jun-2004 13:50					

HILT Azimuthal Laterolog Sonde B Wellsite Calibration					
HALSB Aux current mode 2					
Iaux 2 Gain MA		Value	Iaux 2 Phase DEG		Value
		0.975			0.000
0.816 (Minimum)	1.000 (Nominal)	1.232 (Maximum)	-1.000 (Minimum)	0.000 (Nominal)	0.100 (Maximum)
Before: 18-Jun-2004 13:50					

HILT Azimuthal Laterolog Sonde B Wellsite Calibration					
HALSB A0 current mode 3A					
IO 3A Gain UA		Value	IO 3A Phase DEG		Value
		0.984			0.000
0.893 (Minimum)	1.000 (Nominal)	1.114 (Maximum)	-1.000 (Minimum)	0.000 (Nominal)	0.100 (Maximum)
Before: 18-Jun-2004 13:50					

HILT Azimuthal Laterolog Sonde B Wellsite Calibration					
HALSB A0 current mode 3B					
IO 3B Gain UA		Value	IO 3B Phase DEG		Value
		0.979			-0.000
0.893 (Minimum)	1.000 (Nominal)	1.114 (Maximum)	-1.000 (Minimum)	0.000 (Nominal)	0.100 (Maximum)
Before: 18-Jun-2004 13:50					

HILT Azimuthal Laterolog Sonde B Wellsite Calibration					
HALSB Torpedo Voltage gains					
Zvt 1 Gain MV		Value	Zvt 2 Gain MV		Value
		0.994			0.997
0.925 (Minimum)	1.000 (Nominal)	1.078 (Maximum)	0.865 (Minimum)	1.000 (Nominal)	1.153 (Maximum)
Before: 18-Jun-2004 13:50					

HILT Azimuthal Laterolog Sonde B Wellsite Calibration					
HALSB Torpedo Voltage Phases					
Zvt 1 Phase DEG		Value	Zvt 2 Phase DEG		Value
		-0.098			-0.000
-4.400 (Minimum)	0.000 (Nominal)	4.400 (Maximum)	-2.800 (Minimum)	0.000 (Nominal)	2.800 (Maximum)
Before: 18-Jun-2004 13:50					

HILT Azimuthal Laterolog Sonde B Wellsite Calibration					
HALSB Upper Bridle Voltage mode 1					
Zvb 1 Gain MV		Value	Zvb 1 Phase DEG		Value
		0.994			-0.125
0.925 (Minimum)	1.000 (Nominal)	1.078 (Maximum)	-4.400 (Minimum)	0.000 (Nominal)	4.400 (Maximum)
Before: 18-Jun-2004 13:50					

HILT Azimuthal Laterolog Sonde B Wellsite Calibration					
HALSB M1-M2 Voltage gains					
ZVM 1 Gain UV		Value	ZVM 2 Gain UV		Value
		0.996			0.992
0.895 (Minimum)	1.000 (Nominal)	1.117 (Maximum)	0.943 (Minimum)	1.000 (Nominal)	1.056 (Maximum)
Before: 18-Jun-2004 13:50					

HILT Azimuthal Laterolog Sonde B Wellsite Calibration					
HALSB M1-M2 Voltage Phases					
ZVM 1 Phase DEG		Value	ZVM 2 Phase DEG		Value
		0.229			1.869
-6.500 (Minimum)	0.000 (Nominal)	6.500 (Maximum)	-3.300 (Minimum)	0.000 (Nominal)	3.300 (Maximum)
Before: 18-Jun-2004 13:50					

HILT Azimuthal Laterolog Sonde B Wellsite Calibration					
HALSB M1-A0* Voltage gains					
ZVH 1 Gain UV		Value	ZVH 2 Gain UV		Value
		0.997			0.990
0.962 (Minimum)	1.000 (Nominal)	1.039 (Maximum)	0.864 (Minimum)	1.000 (Nominal)	1.154 (Maximum)
Before: 18-Jun-2004 13:50					

HILT Azimuthal Laterolog Sonde B Wellsite Calibration					
HALSB M1-A0* Voltage Phases					

HALSB W1-A0 Voltage 1 Phases			HALSB W2-A0 Voltage 2 Phases			HALSB W3-A0 Voltage 3 Phases		
ZVH 1 Phase DEG	Value		ZVH 2 Phase DEG	Value		ZVH 3 Phase DEG	Value	
	0.111			2.000			1.019	
-6.500 (Minimum)	0.000 (Nominal)	6.500 (Maximum)	-3.300 (Minimum)	0.000 (Nominal)	3.300 (Maximum)	-2.000 (Minimum)	0.000 (Nominal)	2.000 (Maximum)
Before: 18-Jun-2004 13:50								

HILT Azimuthal Laterolog Sonde B Wellsite Calibration					
HALSB Aux Voltage gains					
ZVA 1 Gain MV	Value		ZVA 2 Gain MV	Value	
	1.086			1.063	
0.905 (Minimum)	1.000 (Nominal)	1.103 (Maximum)	0.866 (Minimum)	1.000 (Nominal)	1.151 (Maximum)
Before: 18-Jun-2004 13:50					

HILT Azimuthal Laterolog Sonde B Wellsite Calibration					
HALSB Aux Voltage Phases					
ZVA 1 Phase DEG	Value		ZVA 2 Phase DEG	Value	
	0.572			0.026	
-4.100 (Minimum)	0.000 (Nominal)	4.100 (Maximum)	-2.300 (Minimum)	0.000 (Nominal)	2.300 (Maximum)
Before: 18-Jun-2004 13:50					

HILT Azimuthal Laterolog Sonde B Wellsite Calibration			
HALSB A0*-A0** Diff. Voltage mode 1			
ZVD 1 Gain UV	Value	ZVD 1 Phase DEG	Value
	0.997		0.093
0.874 (Minimum)	1.000 (Nominal)	1.147 (Maximum)	-6.300 (Minimum)
Before: 18-Jun-2004 13:50			

HILT Azimuthal Laterolog Sonde B Wellsite Calibration			
HALSB A0*-A0** Diff. Voltage mode 2			
ZVD 2 Gain UV	Value	ZVD 2 Phase DEG	Value
	0.983		1.294
0.842 (Minimum)	1.000 (Nominal)	1.187 (Maximum)	-3.300 (Minimum)
Before: 18-Jun-2004 13:50			

HILT Azimuthal Laterolog Sonde B Wellsite Calibration			
HALSB A0*-A0** Diff. Voltage mode 3A			
ZVD 3A Gain UV	Value	ZVD 3A Phase DEG	Value
	0.987		0.601
0.842 (Minimum)	1.000 (Nominal)	1.187 (Maximum)	-2.000 (Minimum)
Before: 18-Jun-2004 13:50			

HILT Azimuthal Laterolog Sonde B Wellsite Calibration			
HALSB A0*-A0** Diff. Voltage mode 3B			
ZVD 3B Gain UV	Value	ZVD 3B Phase DEG	Value
	1.000		-0.028
0.845 (Minimum)	1.000 (Nominal)	1.183 (Maximum)	-2.000 (Minimum)
Before: 18-Jun-2004 13:50			

HILT Azimuthal Laterolog Sonde B Wellsite Calibration			
HALSB vertical Voltage mode 1			
ZVV 1 Gain UV	Value	ZVV 1 Phase DEG	Value
	0.997		0.164
0.936 (Minimum)	1.000 (Nominal)	1.065 (Maximum)	-4.600 (Minimum)
Before: 18-Jun-2004 13:50			

HILT Azimuthal Laterolog Sonde B Wellsite Calibration			
HALSB vertical Voltage mode 2			
ZVV 2 Gain UV	Value	ZVV 2 Phase DEG	Value
	0.983		2.642
0.895 (Minimum)	1.000 (Nominal)	1.112 (Maximum)	-2.800 (Minimum)
Before: 18-Jun-2004 13:50			

HILT Azimuthal Laterolog Sonde B Wellsite Calibration					
HALSB Azimuthal Voltages mode 1					
Idx	Az 1 Gain UV	Value	Idx	AZ 1 Phase DEG	Value
0		0.999	0		-0.004
1		0.998	1		0.129
2		0.999	2		0.100
3		0.994	3		0.103
4		1.000	4		0.205
5		0.999	5		0.089
6		0.997	6		0.067
7		0.999	7		0.008
8		0.997	8		0.122
9		0.997	9		0.012
10		1.001	10		0.123
11		0.997	11		0.102

HILT Azimuthal Laterolog Sonde B Wellsite Calibration					
HALSB Azimuthal Voltages mode 2					
Idx	Az 2 Gain UV	Value	Idx	Az 2 Phase DEG	Value
0		0.984	0		1.369
1		0.983	1		1.320
2		0.984	2		1.339
3		0.979	3		1.323
4		0.985	4		1.353
5		0.984	5		1.370
6		0.982	6		1.385
7		0.984	7		1.386
8		0.983	8		1.402
9		0.982	9		1.364
10		0.987	10		1.409
11		0.982	11		1.285

0.874 (Minimum)	1.000 (Nominal)	1.147 (Maximum)	-6.300 (Minimum)	0.000 (Nominal)	6.300 (Maximum)
Before: 18-Jun-2004 13:50					

HILT Azimuthal Laterolog Sonde B Wellsite Calibration							
HALSB Azimuthal Voltages mode 3A							
Idx	Az 3A Gain UV	Value	Idx	Az 3A Phase DEG	Value		
0		0.989	0		0.617		
1		0.988	1		0.607		
2		0.989	2		0.611		
3		0.984	3		0.607		
4		0.990	4		0.640		
5		0.989	5		0.631		
6		0.987	6		0.631		
7		0.988	7		0.623		
8		0.987	8		0.639		
9		0.987	9		0.597		
10		0.991	10		0.650		
11		0.987	11		0.588		
0.842 (Minimum)		1.000 (Nominal)	1.187 (Maximum)	-2.000 (Minimum)		0.000 (Nominal)	2.000 (Maximum)
Before: 18-Jun-2004 13:50							

0.842 (Minimum)	1.000 (Nominal)	1.187 (Maximum)	-3.300 (Minimum)	0.000 (Nominal)	3.300 (Maximum)
Before: 18-Jun-2004 13:50					

HILT Azimuthal Laterolog Sonde B Wellsite Calibration					
HALSB Azimuthal Voltages mode 3B					
Idx	Az 3B Gain UV	Value	Idx	Az 3B Phase DEG	Value
0		1.008	0		0.204
1		1.003	1		0.090
2		1.005	2		0.036
3		0.998	3		0.098
4		1.005	4		0.050
5		1.006	5		0.185
6		1.005	6		0.127
7		1.007	7		0.255
8		1.006	8		0.175
9		1.003	9		0.198
10		1.010	10		0.193
11		0.997	11		-0.017
0.845 (Minimum)		1.000 (Nominal)	-2.000 (Minimum)		0.000 (Nominal)
		1.183 (Maximum)	2.000 (Maximum)		
Before: 18-Jun-2004 13:50					

High resolution Integrated Logging Tool-DTS / Equipment Identification

Primary Equipment:

HILT high-Resolution Mechanical Sonde
HILT Rxo Gamma-ray Device
HILT Nuclear Back-Scatter Detector
HILT Nuclear Short-Spacing Detector
HILT Nuclear Long-Spacing Detector
Micro Cylindrically Focused Log Device
GR Logging Source
HILT High Res. Control Cartridge

HRMS - B 1765
HRGD - B 1760
HILT -
HILT -
HILT -
MCFL -
GLS - VJ 3739
HRCC - B 1769

Auxiliary Equipment:




High resolution Integrated Logging Tool-DTS Wellsite Calibration																										
Stab Measurement Summary																										
Phase	BS Window Ratio			Value	Phase	SS Window Ratio			Value	Phase	LS Window Ratio			Value												
Before				1.012	Before				0.4798	Before				0.2968												
0.9600 (Minimum)				1.011 (Nominal)	1.061 (Maximum)				0.4567 (Minimum)				0.4808 (Nominal)	0.5048 (Maximum)				0.2808 (Minimum)				0.2955 (Nominal)	0.3103 (Maximum)			
Phase	BS Window Sum CPS			Value	Phase	SS Window Sum CPS			Value	Phase	LS Window Sum CPS			Value												
Before				16100	Before				10980	Before				1161												
15290 (Minimum)				16100 (Nominal)	16900 (Maximum)				10420 (Minimum)				10970 (Nominal)	11520 (Maximum)				1102 (Minimum)				1160 (Nominal)	1218 (Maximum)			
Before: 17-Jun-2004 22:47																										



High resolution Integrated Logging Tool-DTS Wellsite Calibration																						
Photo-multiplier High Voltages Calibrations																						
Phase	BS PM High Voltage (Command) V			Value	Phase	SS PM High Voltage (Command) V			Value	Phase	LS PM High Voltage (Command) V			Value								
Before				1502	Before				1945	Before				1850								
1395 (Minimum)				1495 (Nominal)	1595 (Maximum)				1844 (Minimum)				1944 (Nominal)	2044 (Maximum)		1739 (Minimum)				1839 (Nominal)	1939 (Maximum)	
Before: 17-Jun-2004 22:47																						




High resolution Integrated Logging Tool–DTS Wellsite Calibration											
Crystal Quality Resolutions Calibration											
Phase	BS Crystal Resolution %		Value	Phase	SS Crystal Resolution %		Value	Phase	LS Crystal Resolution %		Value
Before			12.16	Before			11.68	Before			9.321





11.17 (Minimum)	12.17 (Nominal)	13.17 (Maximum)	10.48 (Minimum)	11.48 (Nominal)	12.48 (Maximum)	8.283 (Minimum)	9.283 (Nominal)	10.28 (Maximum)
--------------------	--------------------	--------------------	--------------------	--------------------	--------------------	--------------------	--------------------	--------------------


Before: 17-Jun-2004 22:47

High resolution Integrated Logging Tool–DTS Wellsite Calibration														
MCFL Calibration														
Phase	Raw B0 Resistivity OHMM			Value	Phase	Raw B1 Resistivity OHMM			Value	Phase	Raw B2 Resistivity OHMM			Value
Before				3800	Before				3774	Before				3790
	3565 (Minimum)	3875 (Nominal)	4185 (Maximum)		3524 (Minimum)	3830 (Nominal)	4136 (Maximum)		3524 (Minimum)	3830 (Nominal)	4136 (Maximum)			
Before: 17–Jun–2004 22:27														





High resolution Integrated Logging Tool–DTS Wellsite Calibration							
HILT Caliper Calibration							
Phase	HILT Caliper Zero Measurement IN		Value	Phase	HILT Caliper Plus Measurement IN		Value
Before			8.227	Before			12.35
	6.000 (Minimum)	8.000 (Nominal)	10.00 (Maximum)		9.000 (Minimum)	12.00 (Nominal)	15.00 (Maximum)
Before: 17–Jun–2004 22:30							

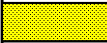


High resolution Integrated Logging Tool–DTS Wellsite Calibration														
Detector Calibration														
Phase	Gamma Ray Background GAPI			Value	Phase	Gamma Ray (Jig – Bkg) GAPI			Value	Phase	Gamma Ray (Calibrated) GAPI			Value
Before				37.15	Before				177.4	Before				165.0
	0 (Minimum)	30.00 (Nominal)	120.0 (Maximum)		161.2 (Minimum)	177.4 (Nominal)	193.5 (Maximum)		150.0 (Minimum)	165.0 (Nominal)	180.0 (Maximum)			
Before: 17–Jun–2004 22:26														




High resolution Integrated Logging Tool–DTS Wellsite Calibration								
Zero Measurement								
Phase	CNTC Background CPS		Value	Phase	CFTC Background CPS		Value	
Master			32.30	Master			29.13	
Before			31.19	Before			28.55	
5.000 (Minimum)			32.30 (Nominal)	5.000 (Minimum)			29.13 (Nominal)	40.00 (Maximum)
Master: 15–Jun–2004 17:21				Before: 17–Jun–2004 22:26				




High resolution Integrated Logging Tool-DTS			
Wellsite Calibration			
Accelerometer Calibration			
Phase	Z-Axis Acceleration M/S2	Value	
Before		9.803	
	9.610 (Minimum)	9.810 (Nominal)	10.01 (Maximum)




Before: 18-Jun-2004 13:50

High resolution Integrated Logging Tool–DTS Master Calibration									
Inversion results									
Phase	Rho Aluminum G/C3			Value	Phase	Rho Magnesium G/C3			Value
Master				2.599	Master				1.688
	2.586 (Minimum)	2.596 (Nominal)	2.606 (Maximum)			1.676 (Minimum)	1.686 (Nominal)	1.696 (Maximum)	
Phase	Pe Aluminum			Value	Phase	Pe Magnesium			Value
Master				2.561	Master				2.615
	2.470 (Minimum)	2.570 (Nominal)	2.670 (Maximum)			2.550 (Minimum)	2.650 (Nominal)	2.750 (Maximum)	
Master: 15–Jun–2004 11:26									

High resolution Integrated Logging Tool–DTS Master Calibration																										
Deviation Summary																										
Phase	BS Average Deviation %			Value	Phase	SS Average Deviation %			Value	Phase	LS Average Deviation %			Value												
Master				0.4141	Master				0.2442	Master				0.4543												
–0.6000 (Minimum)				0 (Nominal)	0.6000 (Maximum)				–1.000 (Minimum)				0 (Nominal)	1.000 (Maximum)				–1.500 (Minimum)				0 (Nominal)	1.500 (Maximum)			
Phase	BS Max Deviation %			Value	Phase	SS Max Deviation %			Value	Phase	LS Max Deviation %			Value												















Master		0.9721	Master		1.285	Master		0.9733
-1.600 (Minimum) 0 (Nominal) 1.600 (Maximum)			-2.500 (Minimum) 0 (Nominal) 2.500 (Maximum)			-3.500 (Minimum) 0 (Nominal) 3.500 (Maximum)		
Master: 15-Jun-2004 11:26								




High resolution Integrated Logging Tool–DTS Master Calibration																	
Tank Measurement																	
Phase	Thermal Near Corr. (Tank) CPS			Value	Phase	Thermal Far Corr. (Tank) CPS			Value	Phase	CNTC/CFTC (Tank)			Value			
Master				5825	Master				2452	Master				2.376			
5000 (Minimum)				6031 (Nominal)	7200 (Maximum)	2075 (Minimum)				2793 (Nominal)	3125 (Maximum)	2.120 (Minimum)				2.159 (Nominal)	2.540 (Maximum)
Master: 15–Jun–2004 17:21																	

High resolution Integrated Logging Tool–DTS Master Calibration														
Tank Measurement														
Phase	Thermal Near Corr. (Tank) CPS			Value	Phase	Thermal Far Corr. (Tank) CPS			Value	Phase	CNTC/CFTC (Tank)			Value
Master				5825	Master				2452	Master				2.376
5000 (Minimum)			6031 (Nominal)	7200 (Maximum)	2075 (Minimum)			2793 (Nominal)	3125 (Maximum)	2.120 (Minimum)			2.159 (Nominal)	2.540 (Maximum)
Master: 15–Jun–2004 17:21														

Hostile Natural Gamma Ray Cartridge – A / Equipment Identification		
Primary Equipment: HNGC Cartridge	HNGC – A	10
Auxiliary Equipment: HNGC Housing	HNGH – A	






Hostile Natural Gamma Ray Sonde / Equipment Identification		
Primary Equipment: HNGS Sonde	HNGS – BA	129
Auxiliary Equipment: HNGS Sonde Housing Gamma Source Radioactive	HNSH – BA GSR – U	3






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				40.64	Master				16.25	Master				1159
Before				39.66	Before				15.12	Before				1153
37.50 (Minimum) 40.00 (Nominal) 42.50 (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				145.9	Master				8.737	Master				13.72
Before				141.9	Before				8.471	Before				13.30
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				42.07										
Before				43.20										
10.00 (Minimum) 45.00 (Nominal) 100.0 (Maximum)														
Master: 17-Jun-2004 21:58					Before: 18-Jun-2004 13:56									

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		39.68	Master		14.94	Master		1080

Before		39.55	Before		15.66	Before		1081
	37.50 (Minimum) 40.00 (Nominal) 42.50 (Maximum)			12.00 (Minimum) 15.00 (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		143.0	Master		8.683	Master		14.40
Before		142.3	Before		7.777	Before		13.68
	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		41.97						
Before		42.79						
	10.00 (Minimum) 45.00 (Nominal) 100.0 (Maximum)							
Master: 17-Jun-2004 21:58			Before: 18-Jun-2004 13:56					

Hostile Natural Gamma Ray Sonde Wellsite Calibration		
Ratio Of Detector 1 To Detector 2		
Phase	Coincidence Count Rate Ratio	Value
Master		1.006
Before		1.012
	0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum)	
Master: 17-Jun-2004 21:58		
Before: 18-Jun-2004 13:56		

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			42.00	Master			211.5	Master			7.826
	38.00 (Minimum)	40.00 (Nominal)	42.00 (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			140.0	Master			0.9901				
	20.00 (Minimum)	142.5 (Nominal)	265.0 (Maximum)		0.9400 (Minimum)	1.000 (Nominal)	1.060 (Maximum)				
Master: 17-Jun-2004 21:53											

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			207.7	Master			7.127
	38.00 (Minimum)	40.00 (Nominal)	42.00 (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			133.6	Master			0.9954				
	20.00 (Minimum)	142.5 (Nominal)	265.0 (Maximum)		0.9400 (Minimum)	1.000 (Nominal)	1.060 (Maximum)				
Master: 17-Jun-2004 21:53											

Company: **Essential Petroleum Resources Limited**

Schlumberger

Well: **Killarney EPRL 1**

Field: **PEP 152**

Rig: **Hunt Rig #2**

Country: **Australia**

HALS-BHC-PEX-HNG

Nuclear Print

Scale 1:200