

Rig: **JOIDES Resolution** Ocean: **Indian**

Rig: JOIDES Resolution Field: Arabian Sea Monsoon Location: Latitude: N16.621565983 Deg Well: Expedition 355, Site U1456 C Company: Integrated Ocean Discovery Program	Density (HLDS) Porosity (APS) Natural Gamma Ray (HNGS)			
	LOCATION	Latitude: N16.621565983 Deg Longitude: E68.8389434 Deg		Elev.: K.B. 3649.20 m G.L. 0.00 m D.F. 3649.20 m
		Permanent Datum: <u>Sea Floor</u>		Elev.: <u>0.00 m</u>
		Log Measured From: <u>Sea Floor</u>		3649.20 m above Perm. Datum
Drilling Measured From: <u>Sea Floor</u>				
API Serial No.		N16.621565983 *	E68.8389434 *	

Logging Date			17-Apr-2015					
Run Number			1					
Depth Driller			465.2 m					
Schlumberger Depth			465 m					
Bottom Log Interval			465 m					
Top Log Interval			0 m					
Casing Driller Size @ Depth			5.500 in @ 81.19 m			@		
Casing Schlumberger			81 m					
Bit Size			11.438 in					
Type Fluid In Hole			Sepiolite with Barite					
MUD	Density	Viscosity	1.209 g/cm3					
	Fluid Loss	PH		8.07				
	Source Of Sample		Mudpit					
	RM @ Measured Temperature		0.220 ohm.m @ 22 degC			@		
	RMF @ Measured Temperature		@			@		
RMC @ Measured Temperature		@			@			
Source RMF	RMC	N/A	N/A					
RM @ MRT	RMF @ MRT	0.271 @ 14	@ 14	@	@	@		
Maximum Recorded Temperatures		10 degC	12	14				
Circulation Stopped		Time	17-Apr-2015		10:30			
Logger On Bottom		Time	18-Apr-2015		7:36			
Unit Number	Location	627314 Houma, LA						
Recorded By		K. Swain						
Witnessed By		E. Griffith, R. Saxena						

[illegible]

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	
	Fluid Loss	PH	
	Source Of Sample		
	RM @ Measured Temperature		@
RMF @ Measured Temperature		@	
RMC @ Measured Temperature		@	
Source RMF	RMC		
RM @ MRT	RMF @ MRT	@	@
Maximum Recorded Temperatures			
Circulation Stopped		Time	
Logger On Bottom		Time	
Unit Number	Location		
Recorded By			
Witnessed By			

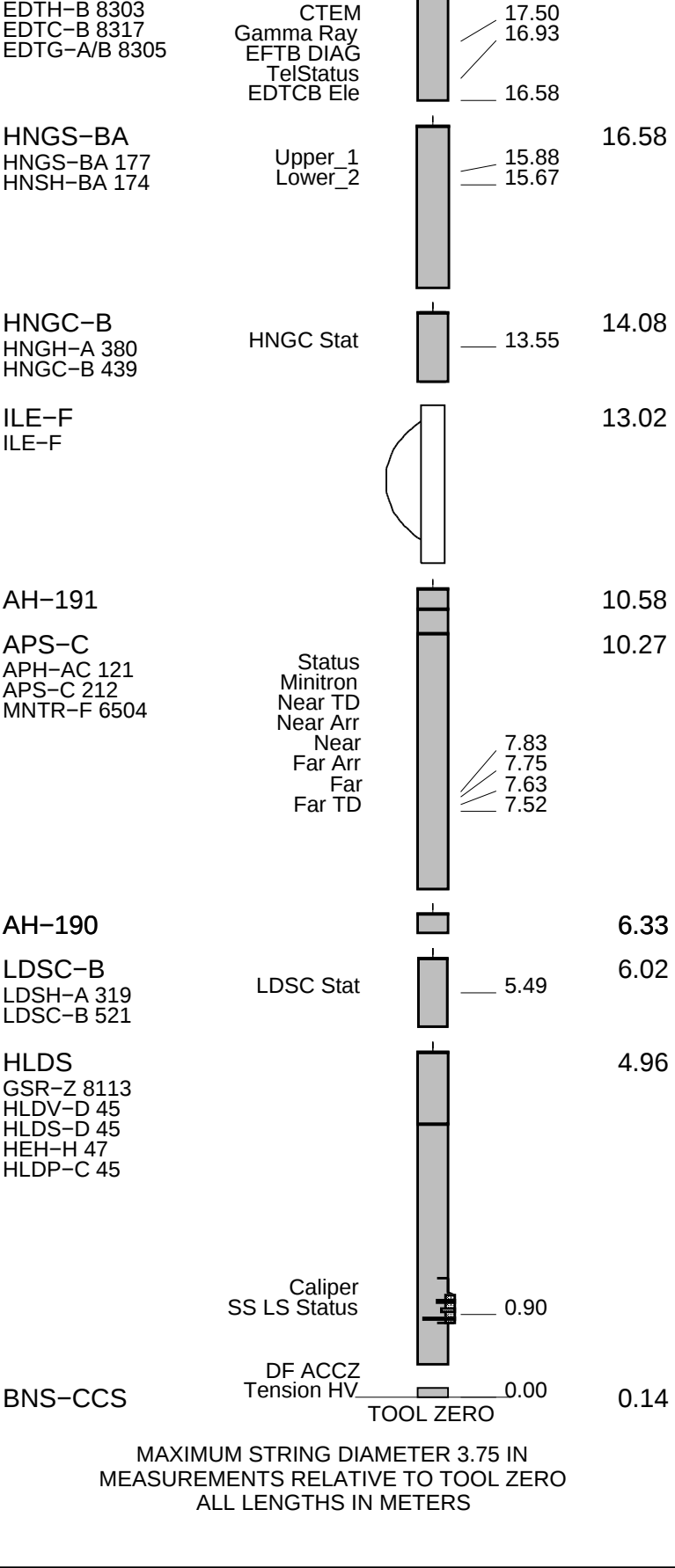
Run 4

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OTHER SERVICES1			OTHER SERVICES2		
OS1: DSI/FMS			OS1:		
OS2: MSS			OS2:		
OS3: HRLA			OS3:		
OS4:			OS4:		
OS5:			OS5:		
REMARKS: RUN NUMBER 1			REMARKS: RUN NUMBER 2		
Hole drilled with APC/XCB coring bit and bottom hole assembly (BHA). 11 7/16 " BS					
Run #1 has no sources...the HLDS/APS with sources were run on Run #3.					
Drill pipe set at 81.19 mbsf with a logging bit installed for wireline logging.					
Downlog run with corrections computed using bit size; uplogs corrected for actual hole size using caliper.					
Splice at 254m (3900mbrf) for main uplog to splice 2 uplog files.					
Upper part of toolstring (HLDS, APS, HNGS) eccentered using HLDS caliper and bowspring, as per toolsketch.					
APS minitron remained off during downlog and pipeto avoid formation activation.					
Depth originally recorded from drill floor; played back with sea floor as reference zero.					
All logs presented in measured depth below sea floor (MDBSF).					
Maximum observed temperature was 14degC for hole C.					
Mud Data: Barite (vol/vol): 8.42%					
Barite (Wt/Vol): 30.98%					
RUN 1			RUN 2		
SERVICE ORDER #:			SERVICE ORDER #:		
PROGRAM VERSION: 19C0-187			PROGRAM VERSION:		
FLUID LEVEL:			FLUID LEVEL:		
LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP

RUN 1 RUN 2

SURFACE EQUIPMENT			
SFT-281	1		
SFT-178	1		
GSR-U	616008		
WITM (EDTS)-A	1		
DOWNHOLE EQUIPMENT			
LEH-MT			19.96
LEH-MT	101		
AH-369			19.00
EDTC-B			18.56
	MDSB EDTC Mud Tempe		18.56



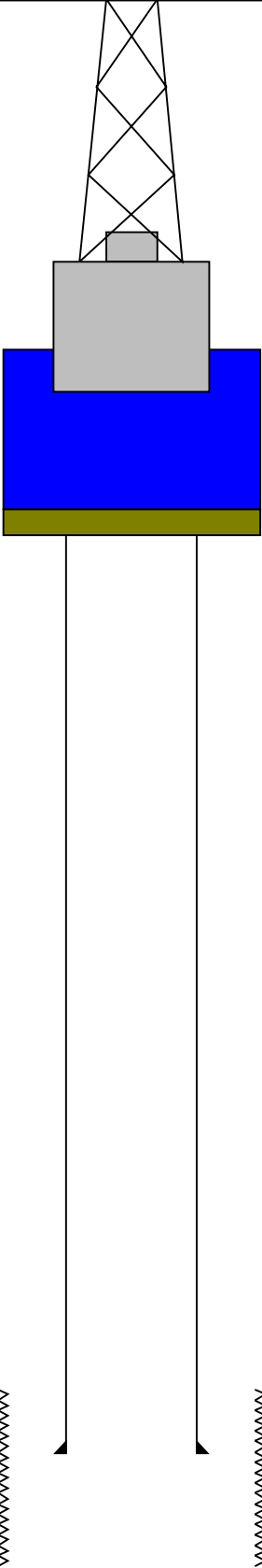
Production String	(in)	(M)	Well Schematic	(M)	(in)	Casing String
	OD	ID	MD	MD	OD	ID

Kelly Bushing Elevation
Derrick Floor Elevation

Mean Sea Level

-3649.2
-3649.2

-3638.2



4.1

0
81.19

465.2

4.1
9.875

Sea Floor
Open Hole

Total Depth



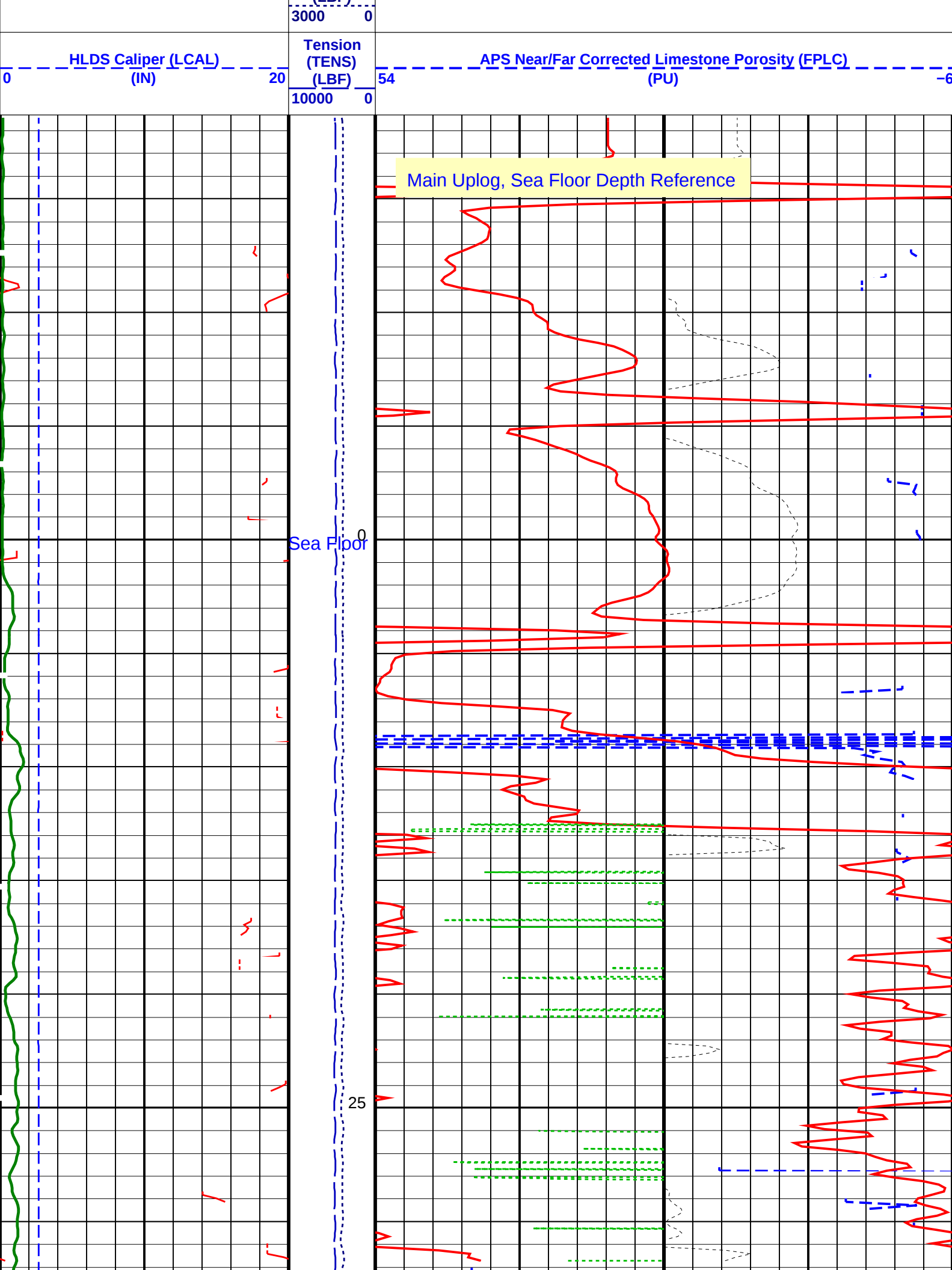
Input DLIS Files						
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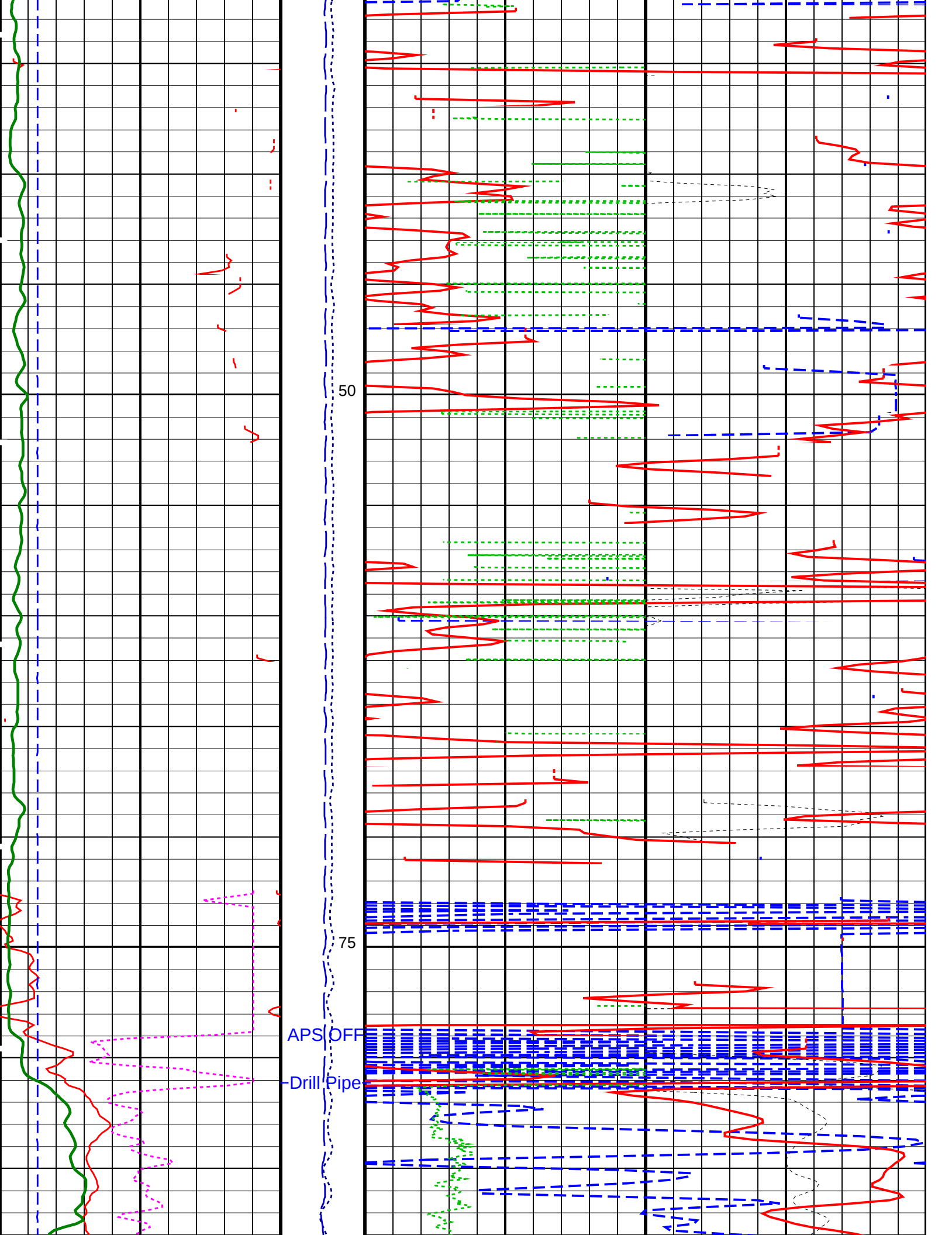
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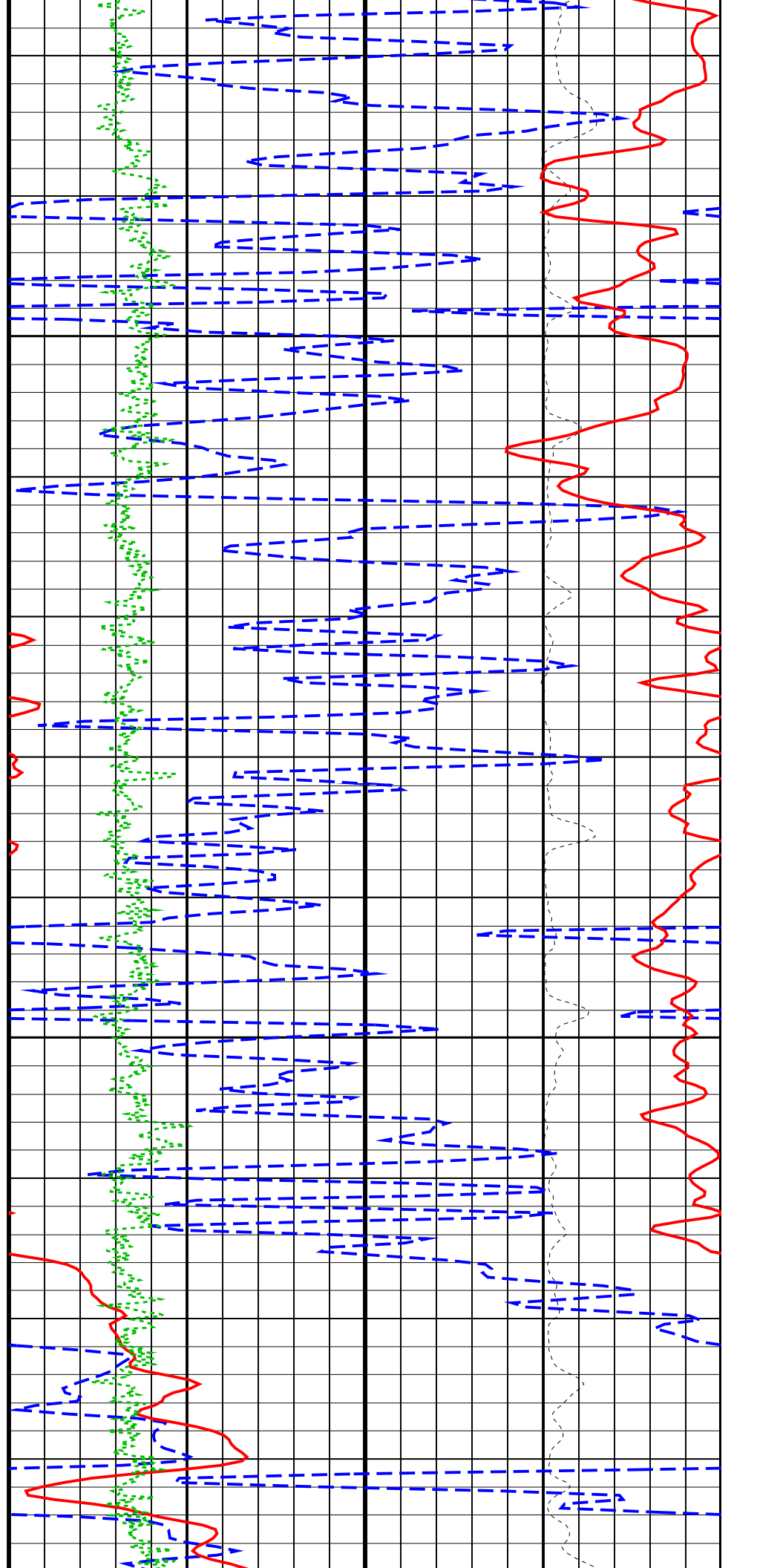
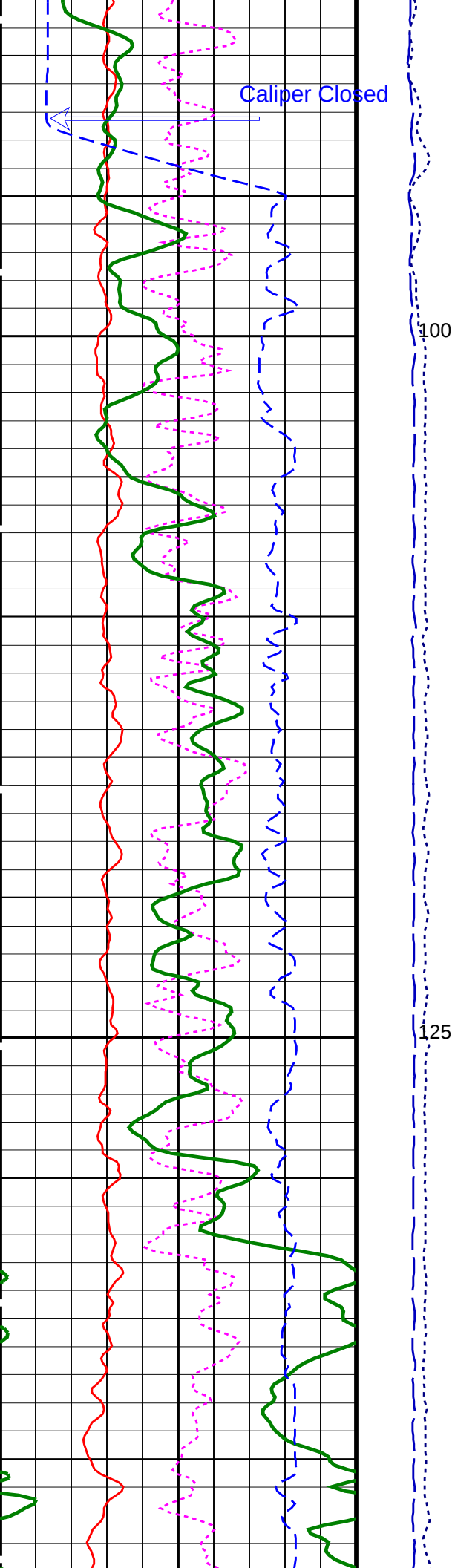
OP System Version: 19C0-187						
HLDS	19C0-187		LDSC-B	19C0-187		
APS-C	19C0-187		HNGC-B	19C0-187		
HNGS-BA	19C0-187		EDTC-B	SKK-5169-EDTCB		

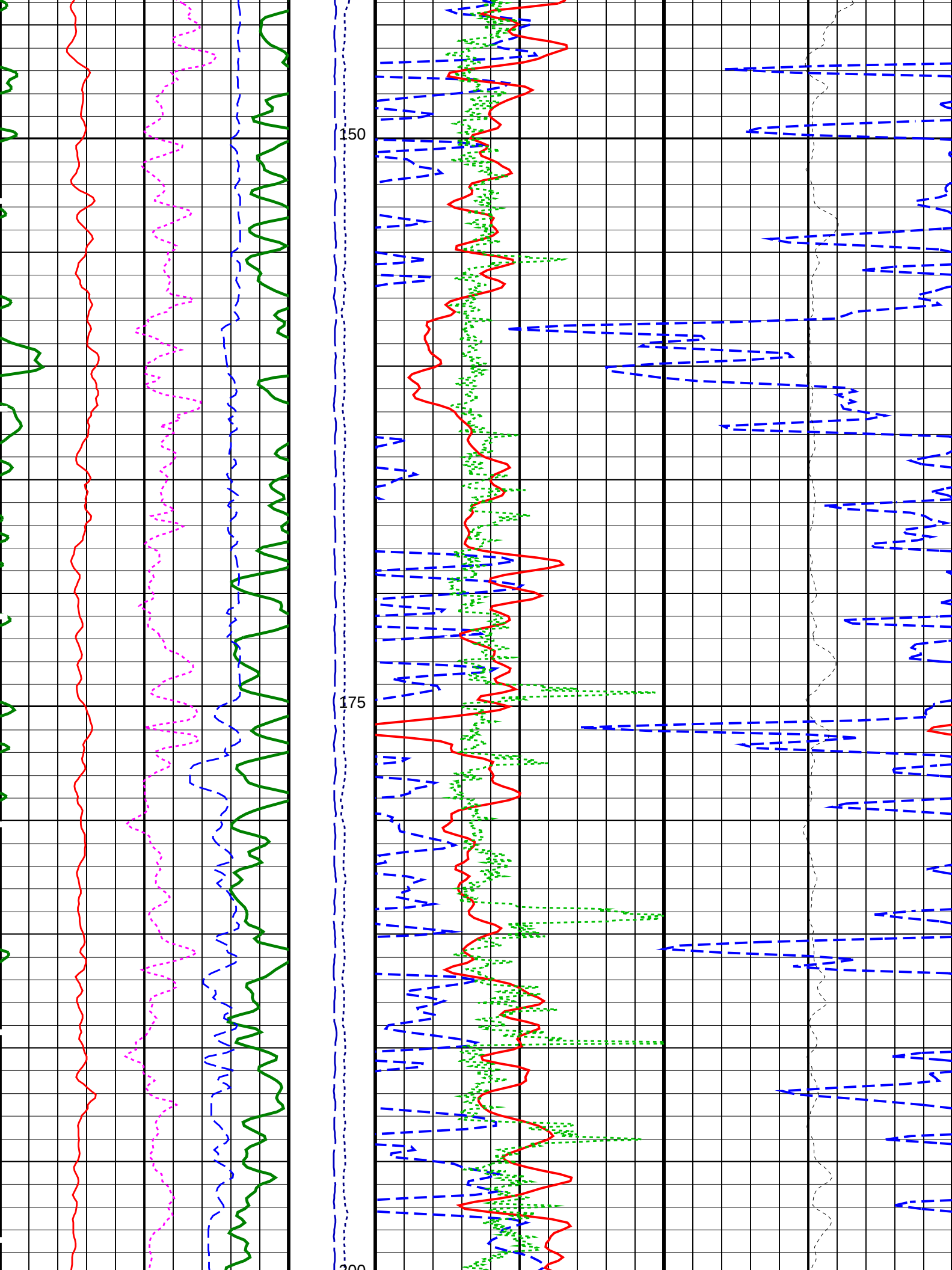
PIP SUMMARY						
 Time Mark Every 60 S						

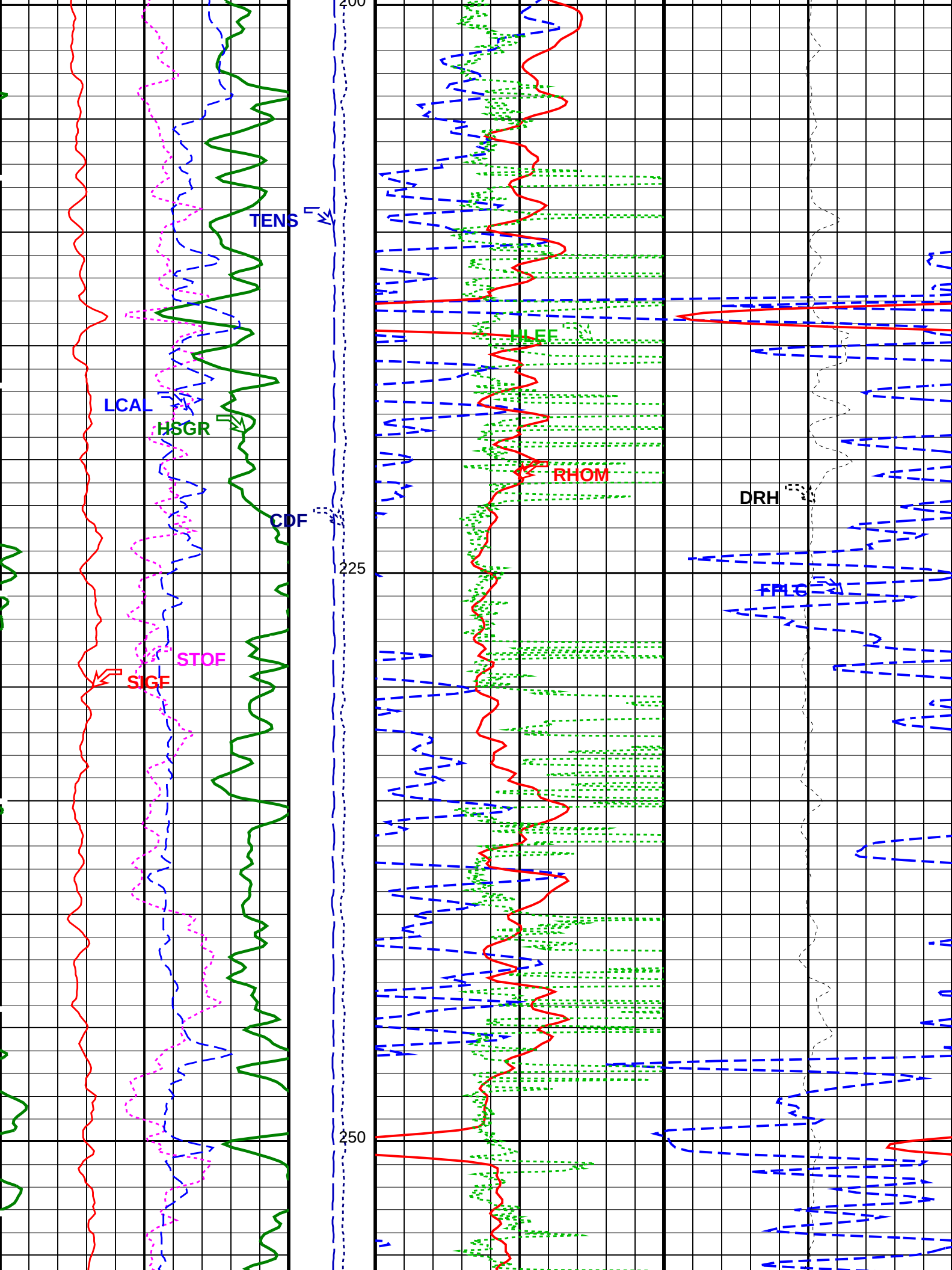
HNGS Spectroscopy Gamma Ray (HSGR)						
0	(GAPI)	100				
APS Effective Standoff in Limestone (STOF)		HLDS HR Long Spaced Photoelectric Effect (HLEF)		HLDS Bulk Density Correction (DRH)		
-2.5	(IN)	2.5	0	(----	10	-0.25 (G/C3) 0.25
APS Formation Capture Cross-Section (SIGF)		Calibrated Downhole Force (CDF) (L BE)	HLDS Bulk Density (RHOM)			
0	(CU)		1.8	(G/C3)	2.8	

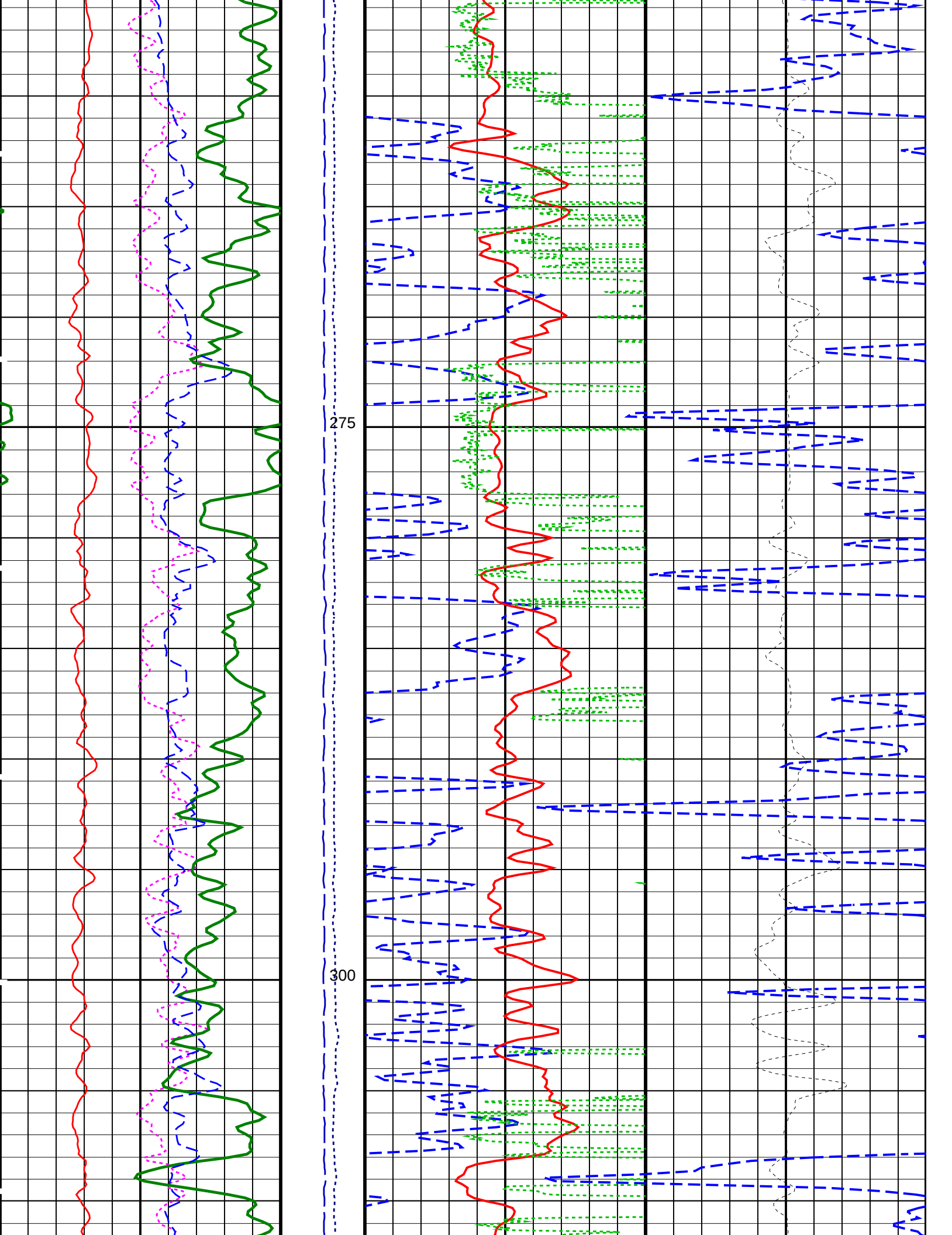


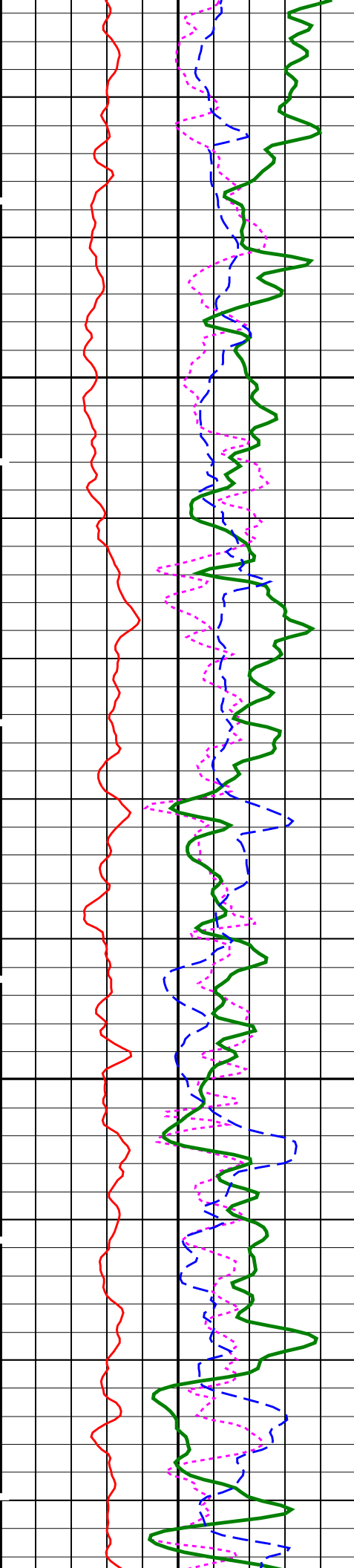






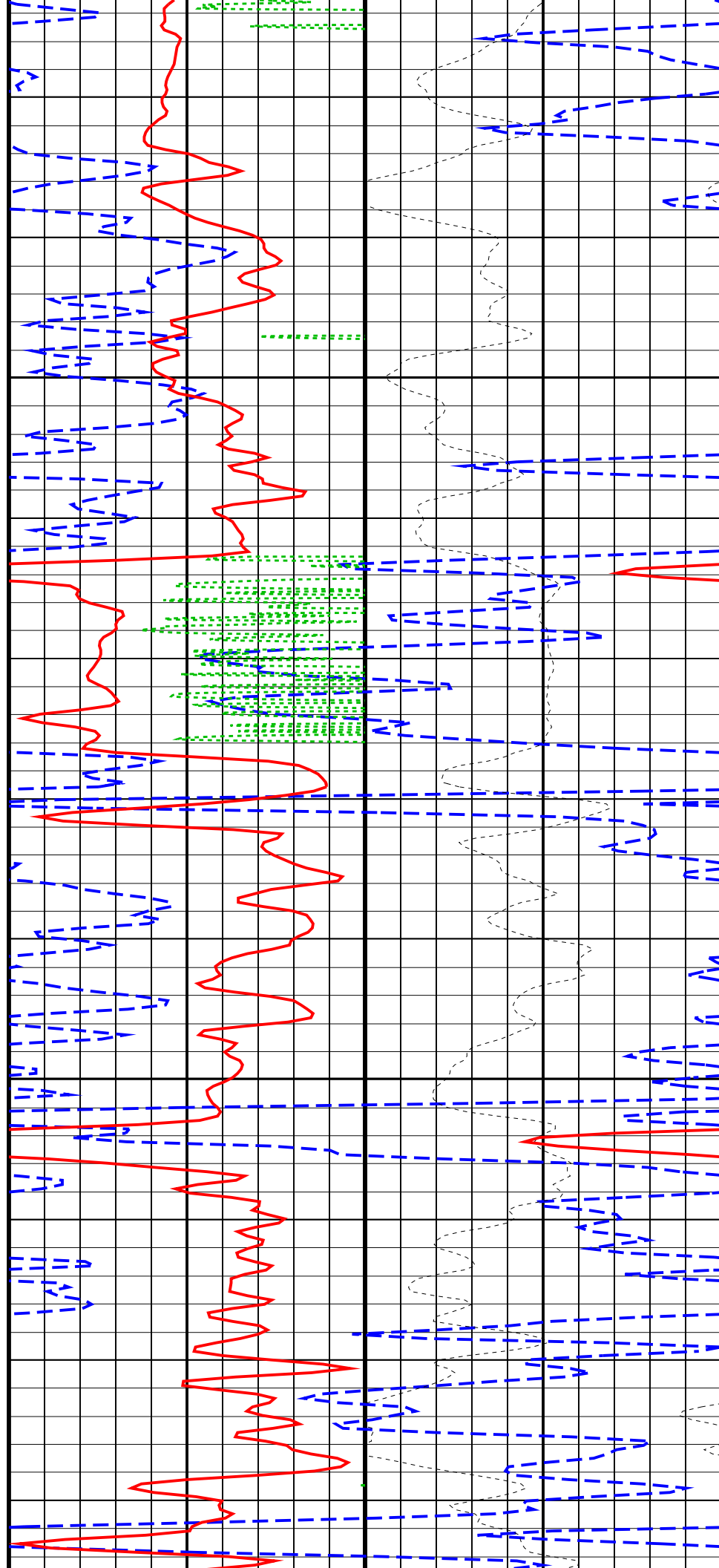


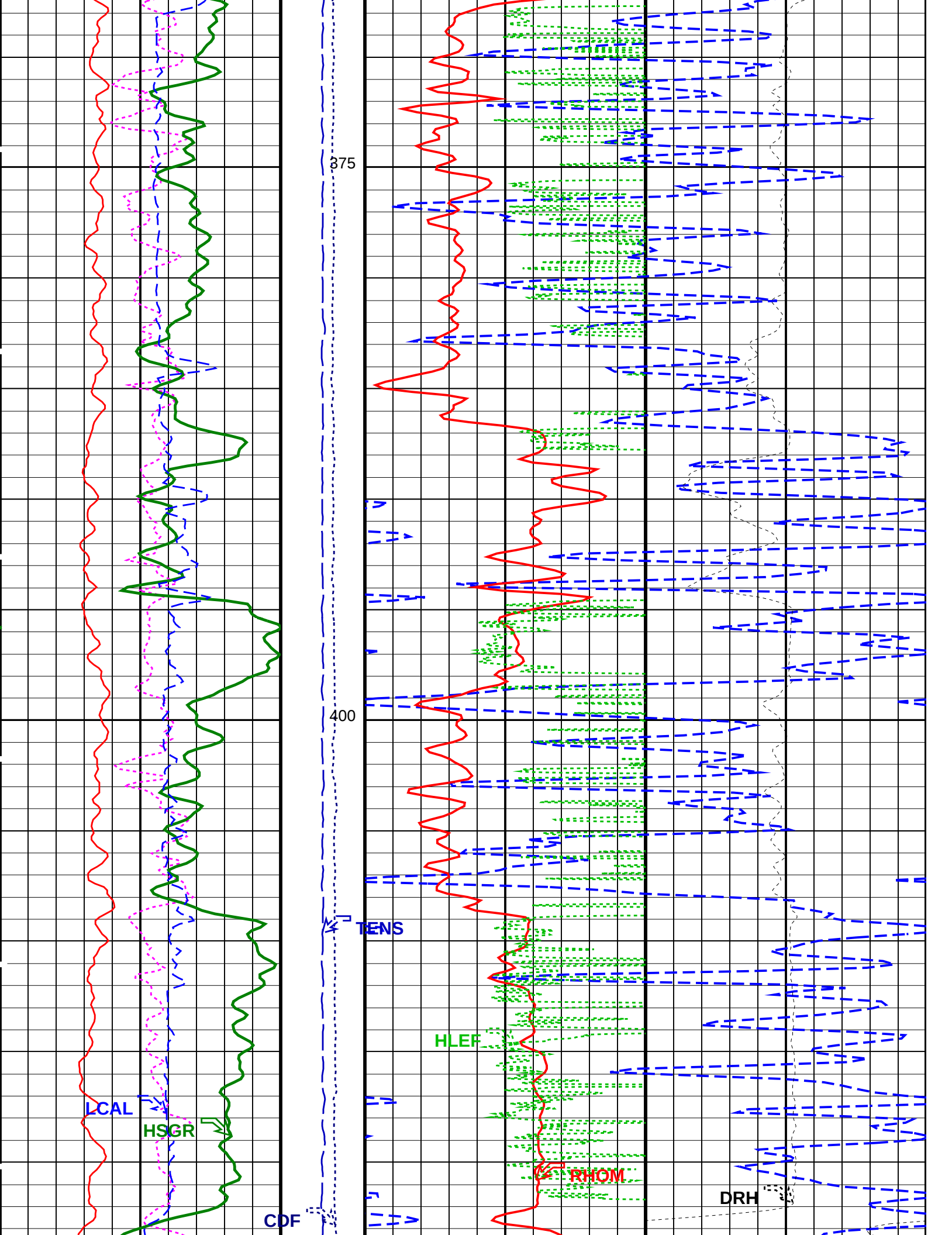


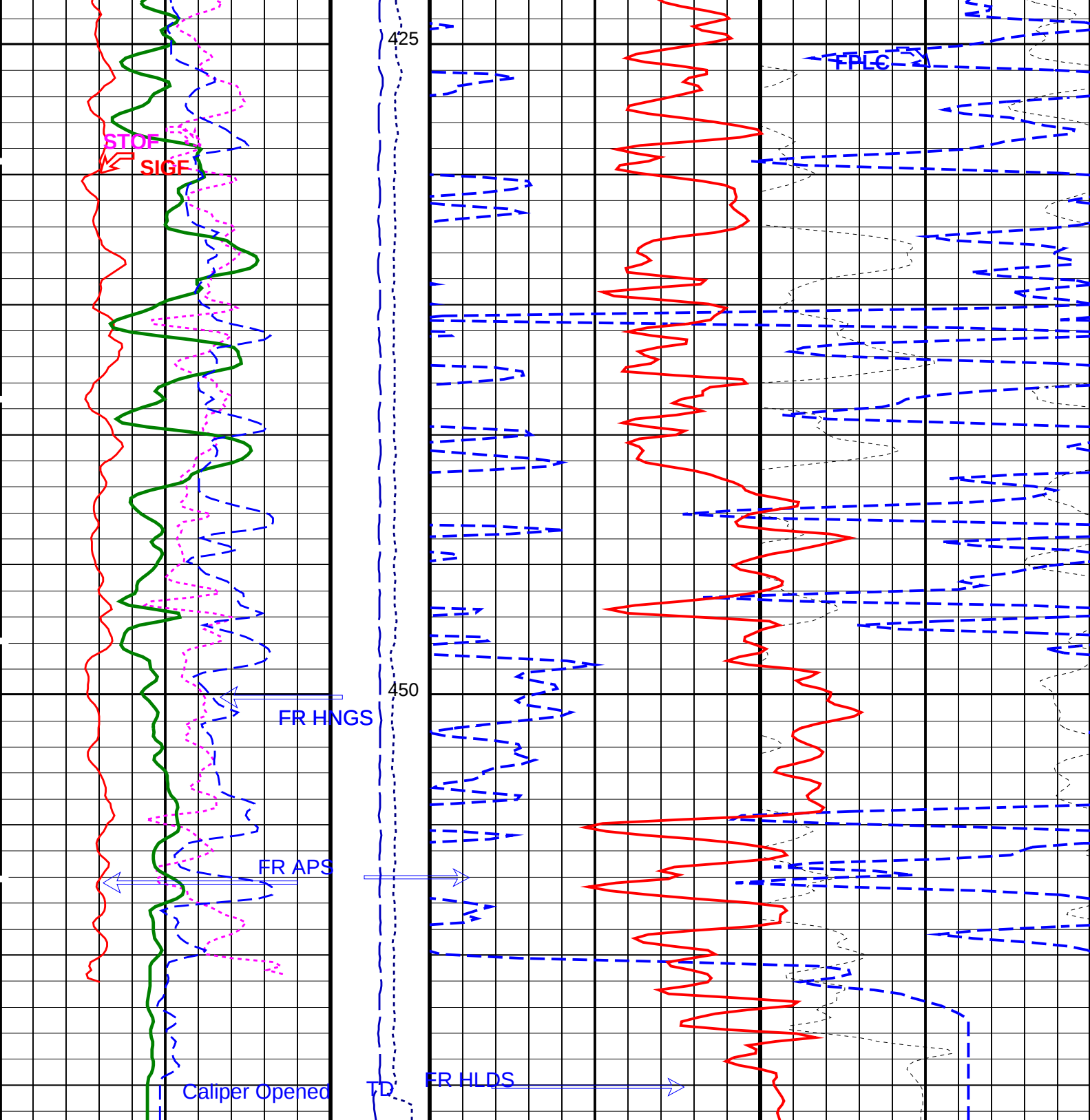


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HLDS Caliper (LCAL) (IN) 0 20	Tension (TENS) (LBF) 10000 0	APS Near/Far Corrected Limestone Porosity (FPLC) (PU) 54 -6
APS Formation Capture Cross-Section (SIGF) (CU) 0 100	Calibrated Downhole Force (CDF) (LBF) 3000 0	HLDS Bulk Density (RHOM) (G/C3) 1.8 2.8
APS Effective Standoff in Limestone (STOF) (IN) -2.5 2.5	HLDS HR Long Spaced Photoelectric Effect (HLEF) (----) 0 10	HLDS Bulk Density Correction (DRH) (G/C3) -0.25 0.25
HNGS Spectroscopy Gamma Ray		

(HSGR)		Main Uplog, Sea Floor Depth Reference	
0	(GAPI)	100	
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	2.6	G/C3
PHVL	HLDS Long Spacing High Voltage Setting	1000	V
PHVS	HLDS Short Spacing High Voltage Setting	1000	V
PSDL	HLDS LS Pulse Shape Compensation DAC	30000	
PSDS	HLDS SS Pulse Shape Compensation DAC	30000	
PSML	HLDS LS Pulse Shape Compensation Mode	AUTO	
PSMS	HLDS SS Pulse Shape Compensation Mode	AUTO	
APS-C: Accelerator-Porosity Tool			
	APS Software Version	0	
AASD	APS Thermal and Array Detectors High Voltage Setting	1935.8	V
ADSO	APS Array Detectors Data Source Switch	Both	
AFSD	APS Far Detector High Voltage Setting	2032.65	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	1698.84	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)	21	DEGC
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	LCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GRSE	Generalized Mud Resistivity Selection	CHART_GEN 9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
HSCO_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	1.08599	
NFRC	APS Near/Far Calibration Ratio	0.977453	
PTCO_APS	APS TNPH Pressure/Temperature Correction Option	YES	
SHT	Surface Hole Temperature	20	DEGC
TNCO_APS	APS TNPH Computation Option	YES	
HNGS-BA: Hostile Natural Gamma Ray Sonde			
BAR1	HNGS Detector 1 Barite Constant	1	
BAR2	HNGS Detector 2 Barite Constant	1	
BHK	HNGS Borehole Potassium Correction Concentration	0	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	21	DEGC
CSD1	Inner Casing Outer Diameter	0	IN
CSD2	Outer Casing Outer Diameter	0	IN
CSW1	Inner Casing Weight	0	LB/F
CSW2	Outer Casing Weight	0	LB/F
DBCC	HNGS Barite Constant Correction Flag	NONE	
GCSE	Generalized Caliper Selection	LCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GRSE	Generalized Mud Resistivity Selection	CHART_GEN 9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
H1P	HNGS Detector 1 Allow/Disallow In Processing	ALLOW	
H2P	HNGS Detector 2 Allow/Disallow In Processing	ALLOW	

H2P	HNGS Detector 2 Allow/Disallow in Processing	-0.00265981	
HABK	HNGS Borehole Potassium Running Average	60	IN
HALF	HNGS Alpha Filter Length	NONE	
HCRB	HNGS Apply Borehole Potassium Correction	BARI	
HMWM	Mud Weighting Material	YES	
HNPE	HNGS Processing Enable	NOBARITE	
ISSBAR	Barite Mud Switch	LIMESTONE	
MATR	Rock Matrix for Neutron Porosity Corrections	1.3	CPS
S1BI	HNGS Detector 1 Calibration Bismuth Count Rate	1.3	CPS
S2BI	HNGS Detector 2 Calibration Bismuth Count Rate	YES	
SGRC	HNGS Standard Gamma-Ray Correction Flag	20	DEGC
SHT	Surface Hole Temperature	ECCE	
TPOS	Tool Position	0.953116	
VBA1	HNGS Detector 1 Variable Barite Factor Running Average	0.961581	
VBA2	HNGS Detector 2 Variable Barite Factor Running Average		
EDTC-B: Enhanced DTS Cartridge			
BHFL	Borehole Fluid Type	WATER	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	21	DEGC
BSCO	Borehole Salinity Correction Option	NO	
CCCO	Casing & Cement Thickness Correction Option	NO	
DPPM	Density Porosity Processing Mode	HIRS	
FSAL	Formation Salinity	-50000	PPM
FSCO	Formation Salinity Correction Option	NO	
GCSE	Generalized Caliper Selection	LCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GRSE	Generalized Mud Resistivity Selection	CHART_GEN 9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
HSCO	Hole Size Correction Option	YES	
ISSBAR	Barite Mud Switch	NOBARITE	
ISSBAR_EDTC	Nuclear Mud Type	BARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
MCCO	Mud Cake Correction Option	NO	
MCOR	Mud Correction	NATU	
MWCO	Mud Weight Correction Option	NO	
PTCO	Pressure/Temperature Correction Option	NO	
SDAT	Standoff Data Source	SOCN	
SHT	Surface Hole Temperature	20	DEGC
SOCN	Standoff Distance	0.5	IN
SOCO	Standoff Correction Option	NO	
TPOS_EDTC	EDTC Tool Centered/Eccentered	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	11.438	IN
BSAL	Borehole Salinity	38000.00	PPM
CSIZ	Current Casing Size	5.500	IN
CWEI	Casing Weight	168.00	LB/F
DFD	Drilling Fluid Density	1.21	G/C3
DO	Depth Offset for Playback	-3646.0	M
FLEV	Fluid Level	-50000.00	M
MST	Mud Sample Temperature	22.30	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	466	M
TDD	Total Depth - Driller	4114.40	M
TDL	Total Depth - Logger	4114.40	M
TWS	Temperature of Connate Water Sample	37.78	DEGC

Format: APSLiquidPorosity_1 Vertical Scale: 1:200 Graphics File Created: 26-Apr-2015 22:24

OP System Version: 19C0-187

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

Input DLIS Files

DEFAULT	Splice_LDL_APS_NGS_002CUP	FN:1	PRODUCER	18-Apr-2015 21:38	4112.5 M	3627.1 M
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Output DLIS Files

DEFAULT	LDL_APS_NGS_082PUP	FN:71	PRODUCER	26-Apr-2015 22:24
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Input DLIS Files

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Output DLIS Files

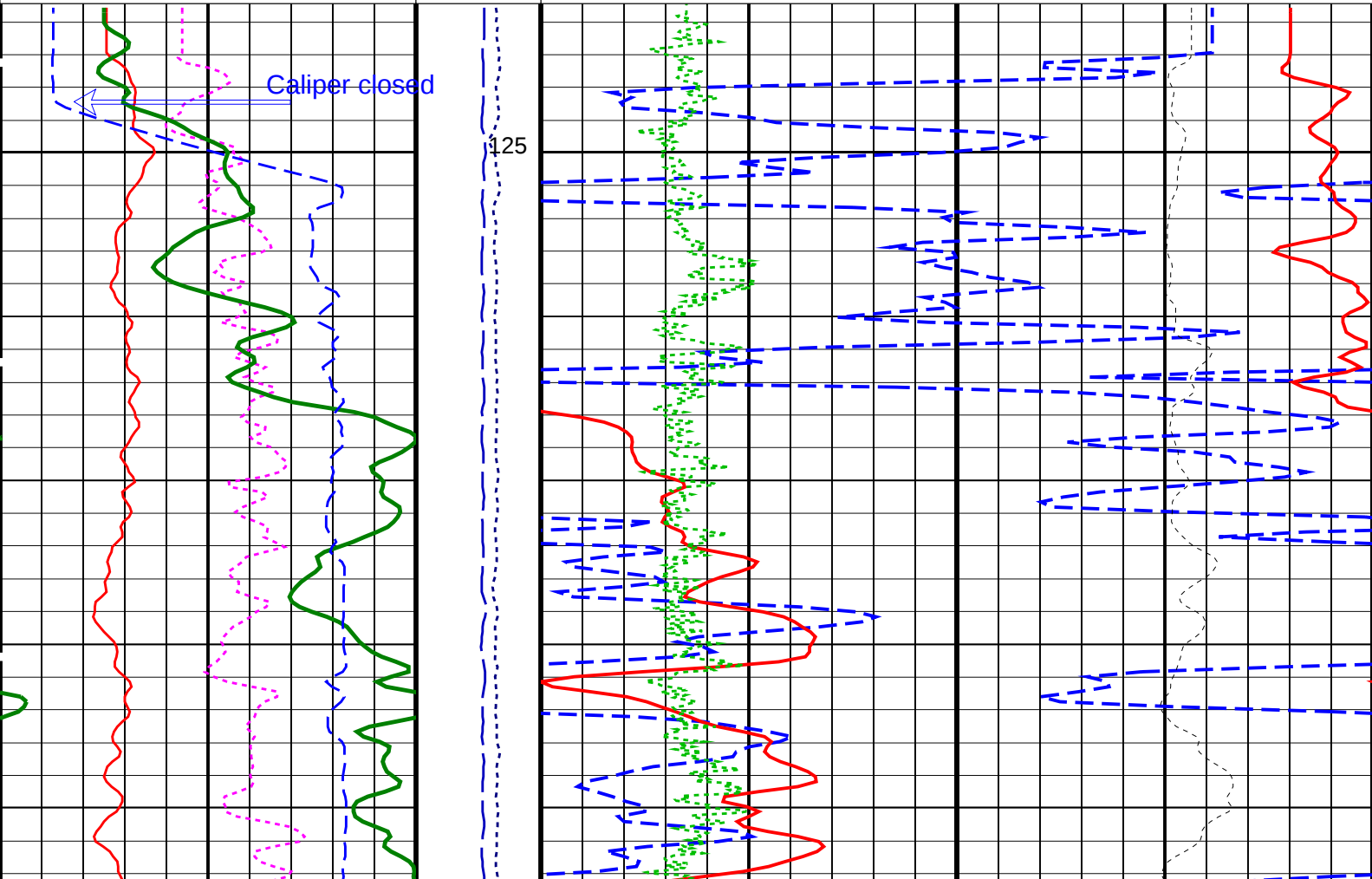
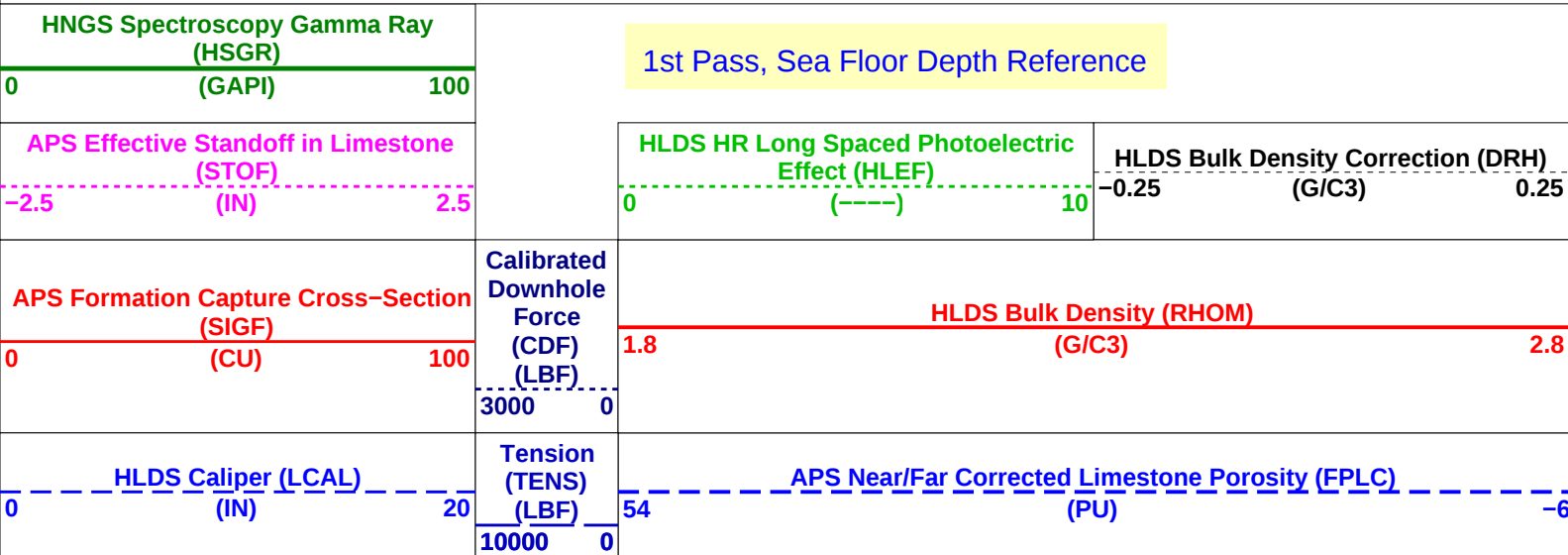
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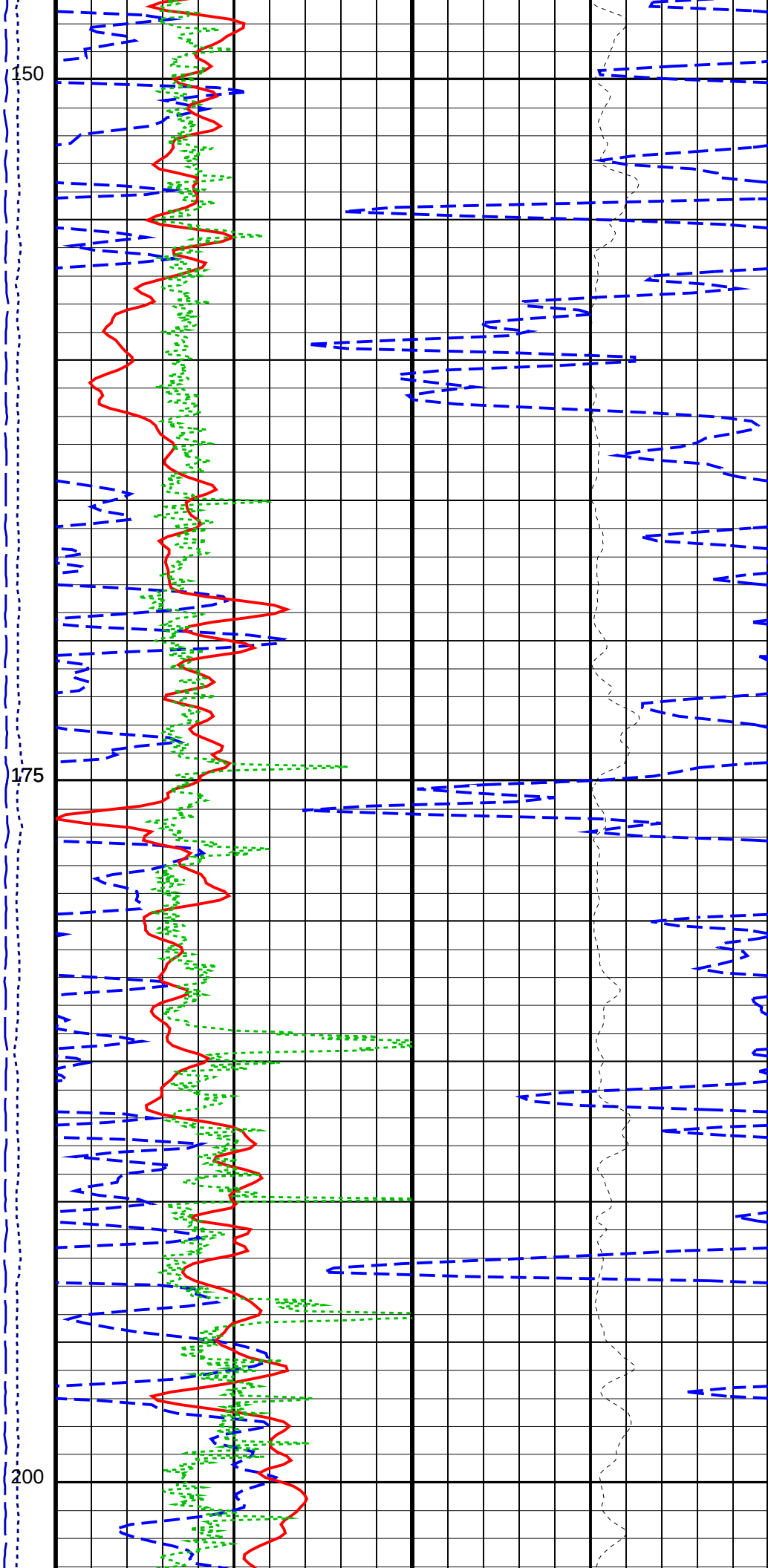
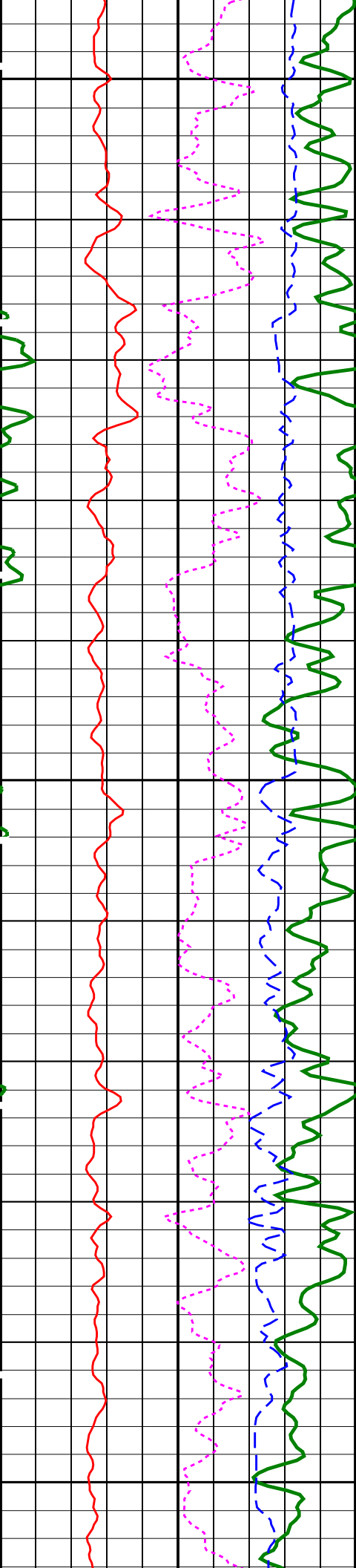
OP System Version: 19C0-187

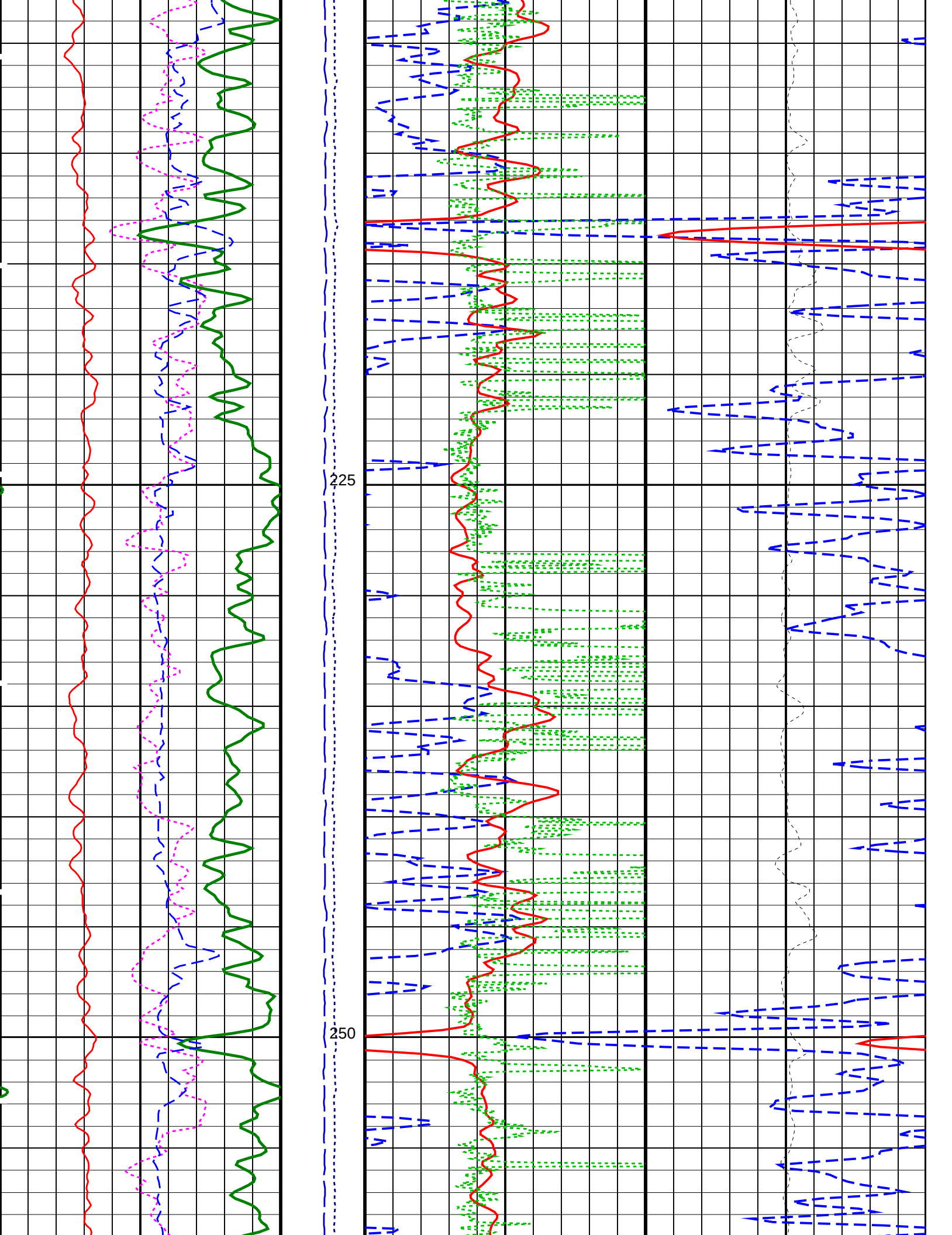
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APS-C 19C0-187 HNGC-B 19C0-187
HNGS-BA 19C0-187 EDTC-B SKK-5169-EDTCB

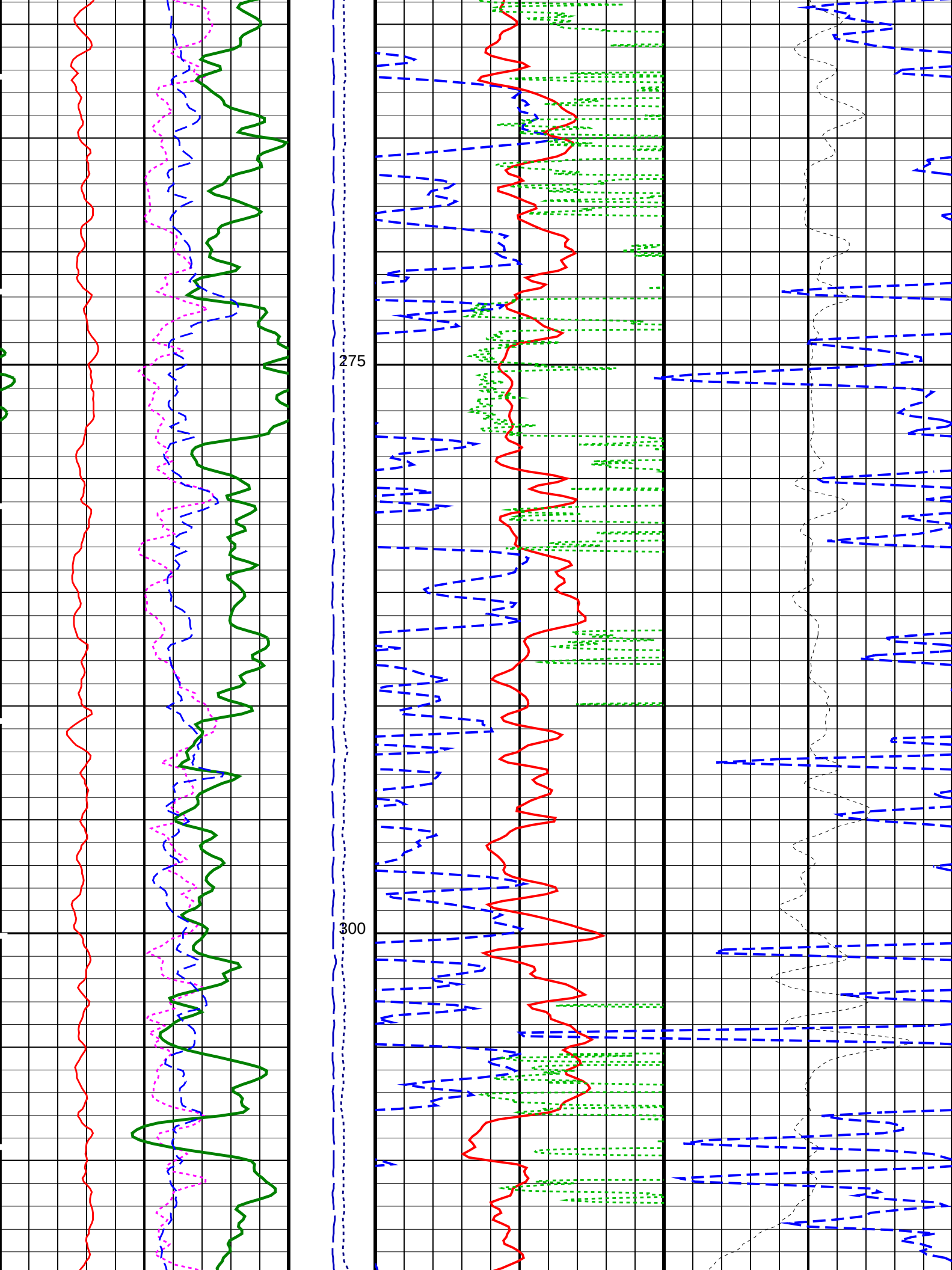
PIP SUMMARY

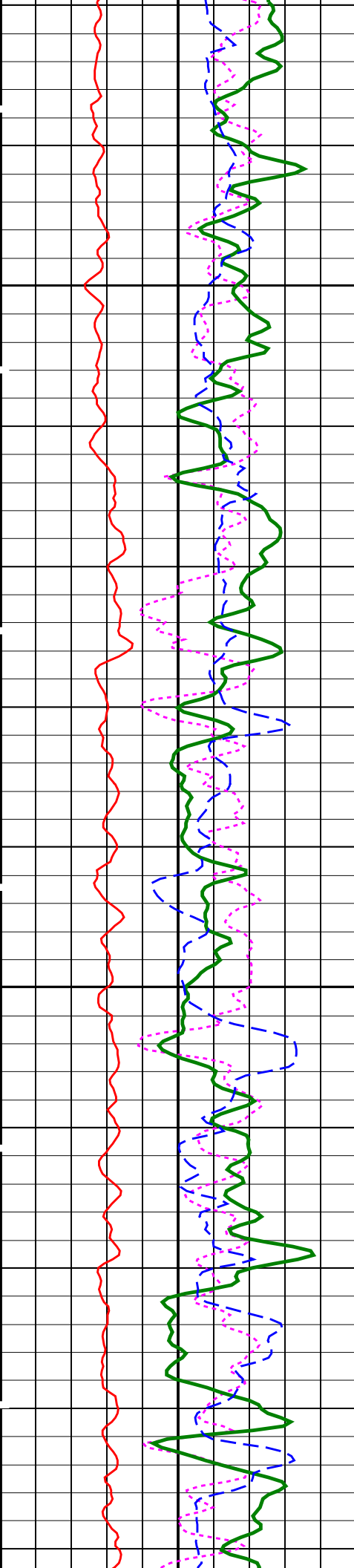
Time Mark Every 60 S





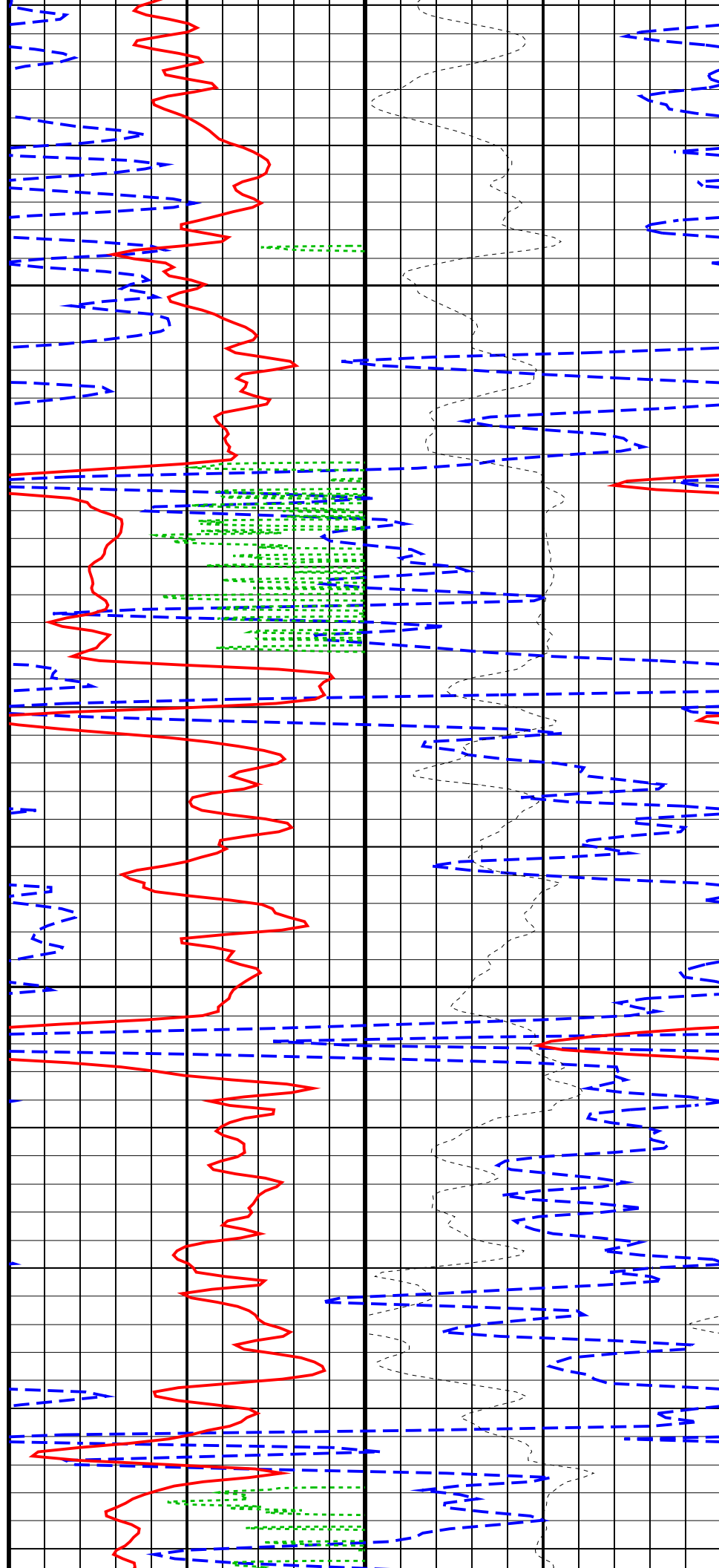


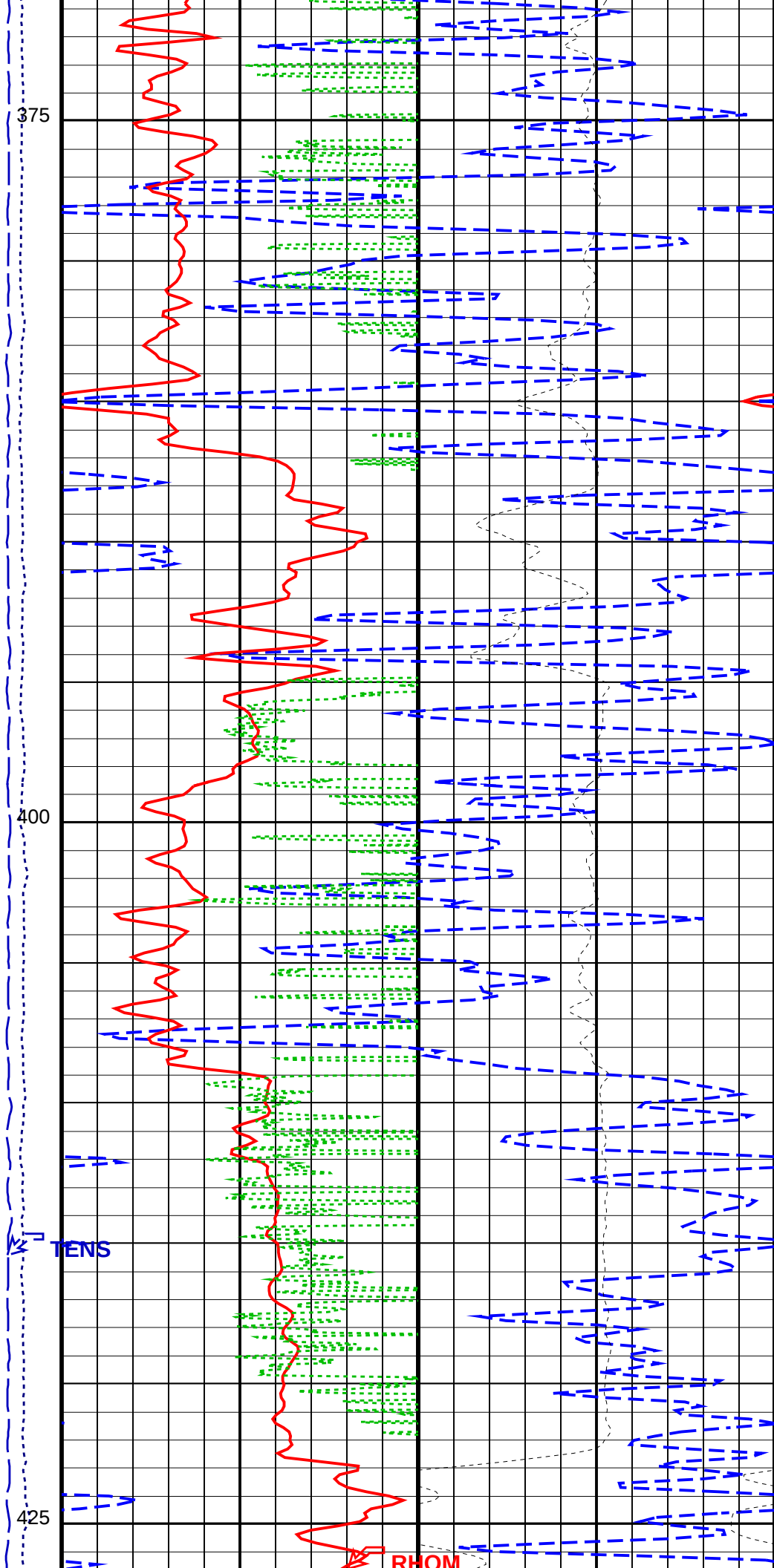
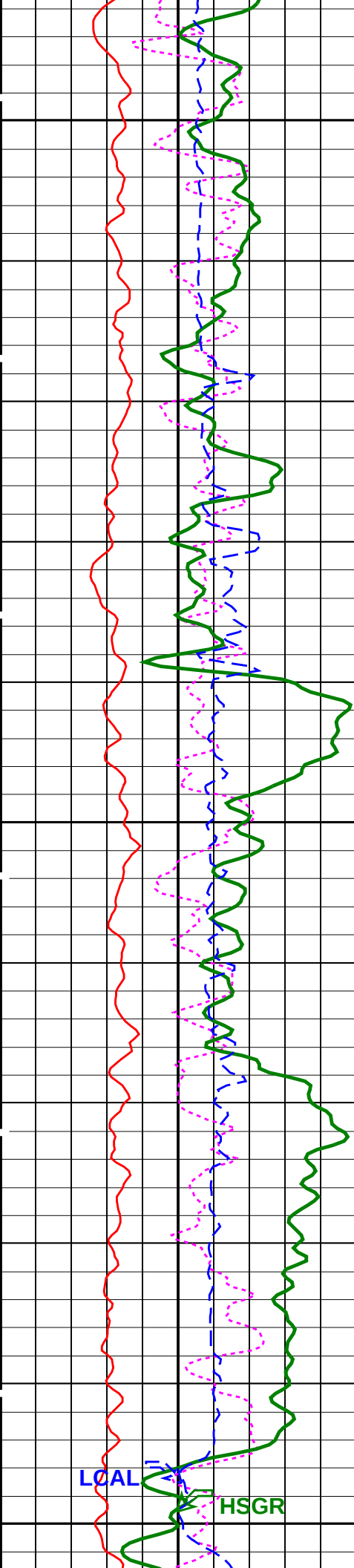


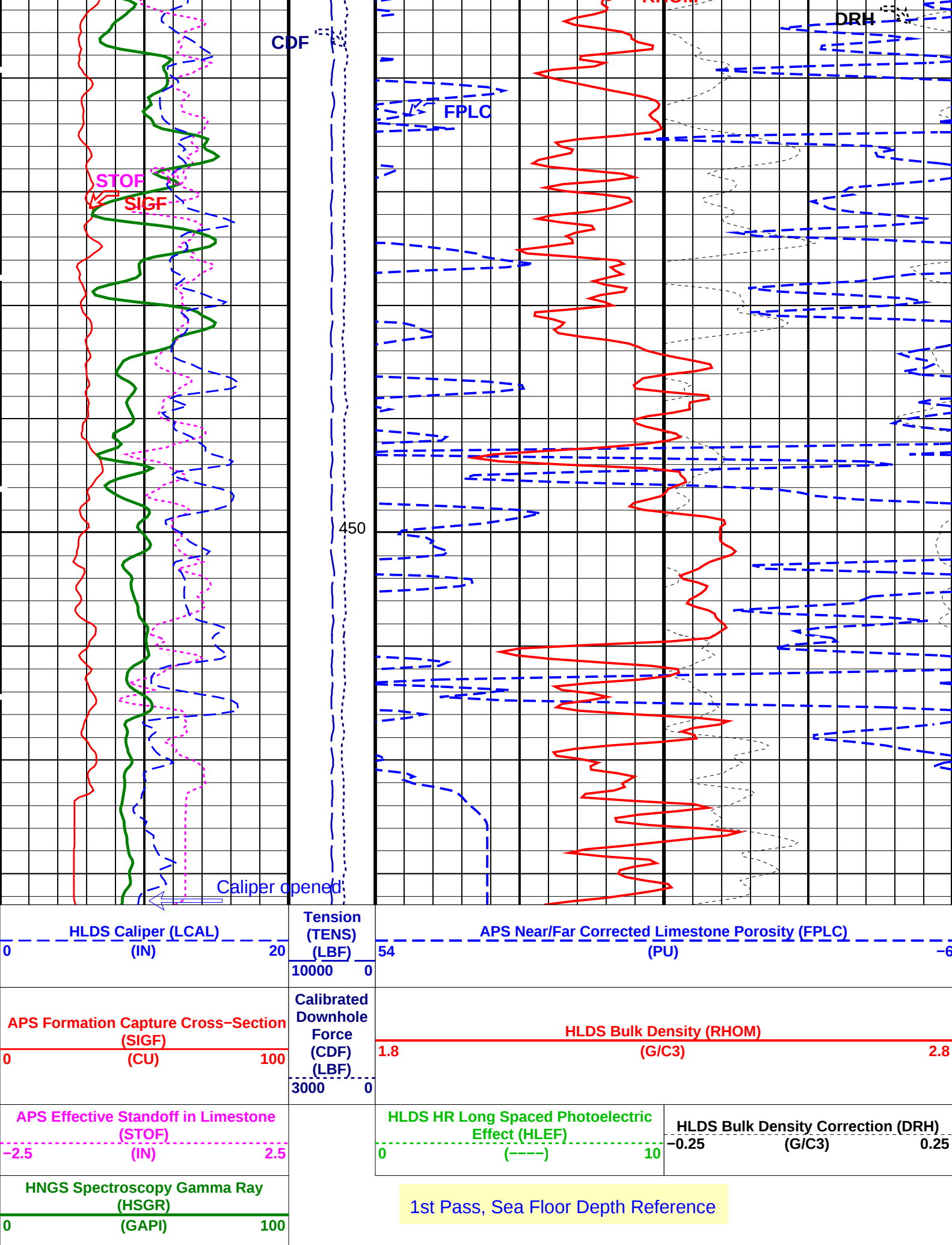


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Parameters

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	2.6	G/C3
PHVL	HLDS Long Spacing High Voltage Setting	1000	V
PHVS	HLDS Short Spacing High Voltage Setting	1000	V
PSDL	HLDS LS Pulse Shape Compensation DAC	30000	
PSDS	HLDS SS Pulse Shape Compensation DAC	30000	
PSML	HLDS LS Pulse Shape Compensation Mode	AUTO	
PSMS	HLDS SS Pulse Shape Compensation Mode	AUTO	
APS-C: Accelerator-Porosity Tool			
	APS Software Version	0	
AASD	APS Thermal and Array Detectors High Voltage Setting	1935.8	V
ADSO	APS Array Detectors Data Source Switch	Both	
AFSD	APS Far Detector High Voltage Setting	2032.65	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	1698.84	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)	21	DEGC
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	LCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
HSCO_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	1.08599	
NFRC	APS Near/Far Calibration Ratio	0.977453	
PTCO_APS	APS TNPH Pressure/Temperature Correction Option	YES	
SHT	Surface Hole Temperature	20	DEGC
TNCO_APS	APS TNPH Computation Option	YES	
HNGS-BA: Hostile Natural Gamma Ray Sonde			
BAR1	HNGS Detector 1 Barite Constant	1	
BAR2	HNGS Detector 2 Barite Constant	1	
BHK	HNGS Borehole Potassium Correction Concentration	0	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	21	DEGC
CSD1	Inner Casing Outer Diameter	0	IN
CSD2	Outer Casing Outer Diameter	0	IN
CSW1	Inner Casing Weight	0	LB/F
CSW2	Outer Casing Weight	0	LB/F
DBCC	HNGS Barite Constant Correction Flag	NONE	
GCSE	Generalized Caliper Selection	LCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
H1P	HNGS Detector 1 Allow/Disallow In Processing	ALLOW	
H2P	HNGS Detector 2 Allow/Disallow In Processing	ALLOW	
HABK	HNGS Borehole Potassium Running Average	-0.00265981	
HALF	HNGS Alpha Filter Length	60	IN
HCRB	HNGS Apply Borehole Potassium Correction	NONE	
HMWM	Mud Weighting Material	BARI	
HNPF	HNGS Borehole Potassium Enable	YES	

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	20	DEGC
TPOS	Tool Position	ECCE	
VBA1	HNGS Detector 1 Variable Barite Factor Running Average	0.953116	
VBA2	HNGS Detector 2 Variable Barite Factor Running Average	0.961581	
EDTC-B: Enhanced DTS Cartridge			
BHFL	Borehole Fluid Type	WATER	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	21	DEGC
BSCO	Borehole Salinity Correction Option	NO	
CCCO	Casing & Cement Thickness Correction Option	NO	
DPPM	Density Porosity Processing Mode	HIRS	
FSAL	Formation Salinity	-50000	PPM
FSCO	Formation Salinity Correction Option	NO	
GCSE	Generalized Caliper Selection	LCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GRSE	Generalized Mud Resistivity Selection	CHART_GEN 9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
HSCO	Hole Size Correction Option	YES	
ISSBAR	Barite Mud Switch	NOBARITE	
ISSBAR_EDTC	Nuclear Mud Type	BARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
MCCO	Mud Cake Correction Option	NO	
MCOR	Mud Correction	NATU	
MWCO	Mud Weight Correction Option	NO	
PTCO	Pressure/Temperature Correction Option	NO	
SDAT	Standoff Data Source	SOCN	
SHT	Surface Hole Temperature	20	DEGC
SOCN	Standoff Distance	0.5	IN
SOCO	Standoff Correction Option	NO	
TPOS_EDTC	EDTC Tool Centered/Eccentered	Eccentered	
U-ETELM_EDTS	Telemetry Mode for eWAFE	Standard_EDTS	
U-TELM_EDTS	Telemetry Mode for WAFE	Standard_EDTS	
System and Miscellaneous			
ALTDPCCHAN	Name of alternate depth channel	SpeedCorrectedDepth	
BS	Bit Size	11.438	IN
BSAL	Borehole Salinity	38000.00	PPM
CSIZ	Current Casing Size	5.500	IN
CWEI	Casing Weight	168.00	LB/F
DFD	Drilling Fluid Density	1.21	G/C3
DO	Depth Offset for Playback	-3646.0	M
FLEV	Fluid Level	-50000.00	M
MST	Mud Sample Temperature	22.30	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	466	M
TDD	Total Depth - Driller	4114.40	M
TDL	Total Depth - Logger	4114.40	M
TWS	Temperature of Connate Water Sample	37.78	DEGC

Format: APSLiquidPorosity_1 Vertical Scale: 1:200 Graphics File Created: 26-Apr-2015 22:16

OP System Version: 19C0-187

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

Input DLIS Files

DEFAULT	LDL_APS_NGS_027LUP	FN:46	PRODUCER	18-Apr-2015 03:06	4112.5 M	3766.4 M
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Output DLIS Files

DEFAULT	LDL_APS_NGS_081PUP	FN:70	PRODUCER	26-Apr-2015 22:16		
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Input DLIS Files

DEFAULT	Flip_LDL_APS_NGS_076LUP		PRODUCER	26-Apr-2015 22:01	4114.2 M	3614.2 M
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Output DLIS Files

DEFAULT LDL_APS_NGS_078PUP FN:67 PRODUCER 26-Apr-2015 22:03 468.2 M -27.9 M

OP System Version: 19C0-187

HLDS
APS-C
HNGS-BA

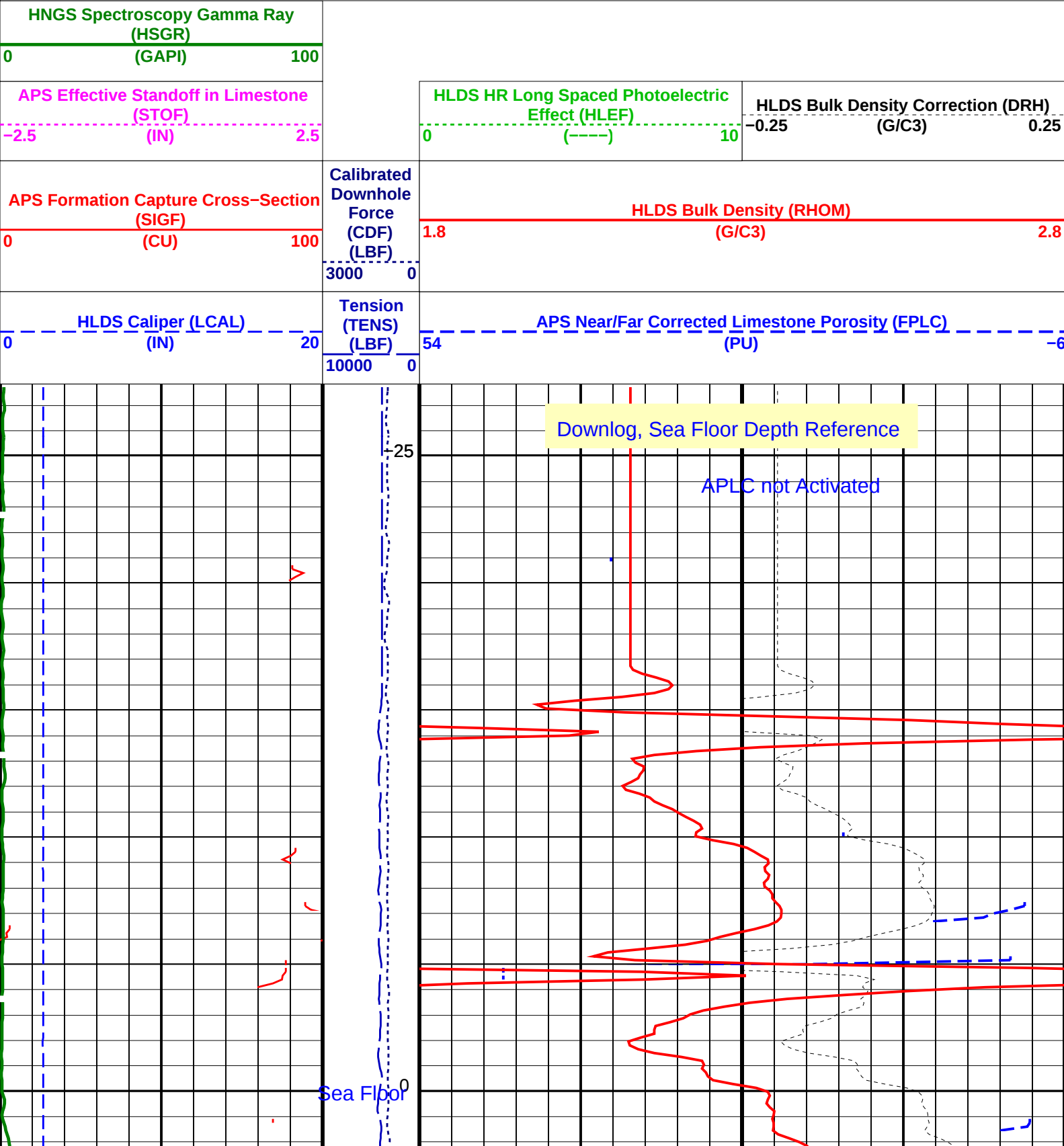
19C0-187
19C0-187
19C0-187

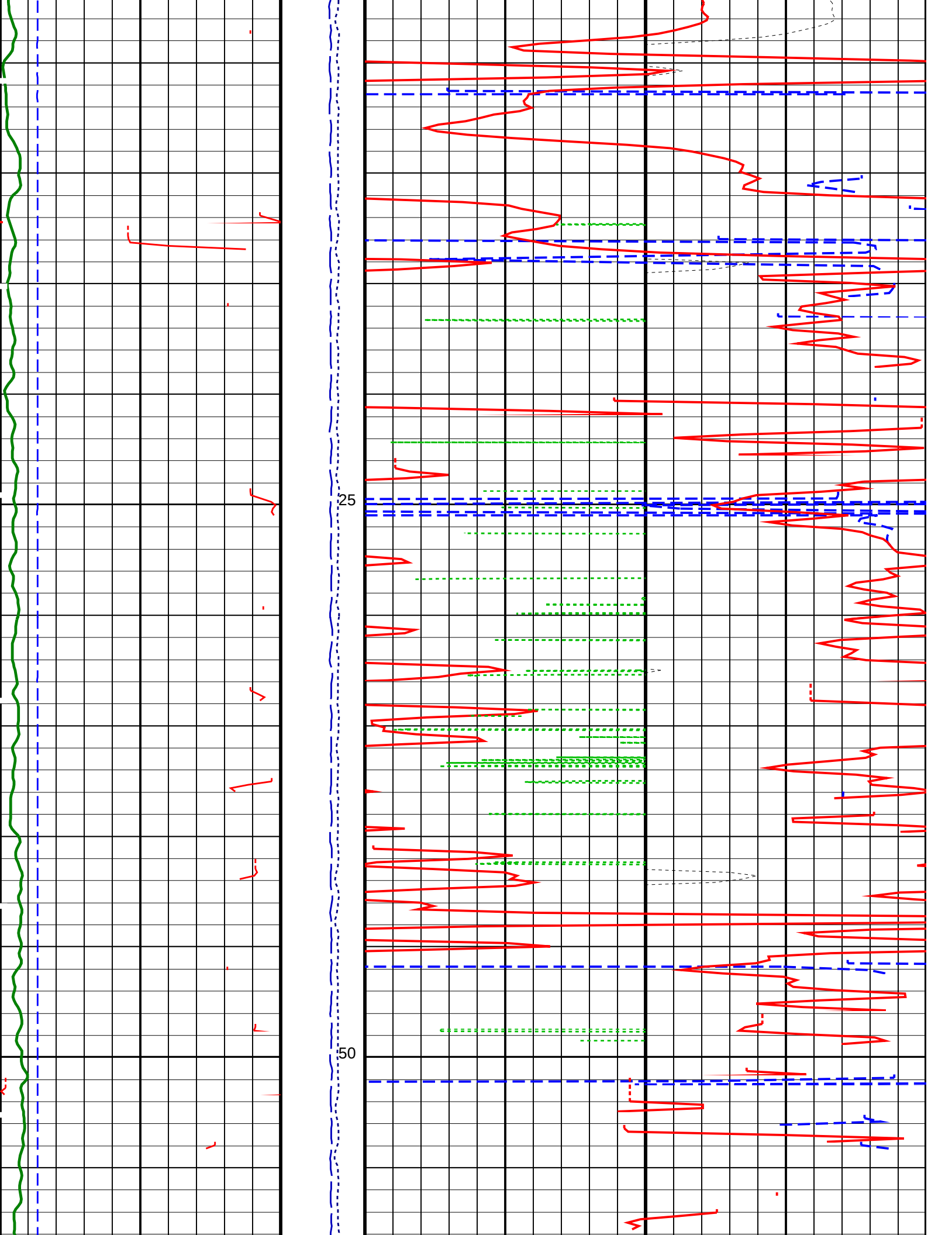
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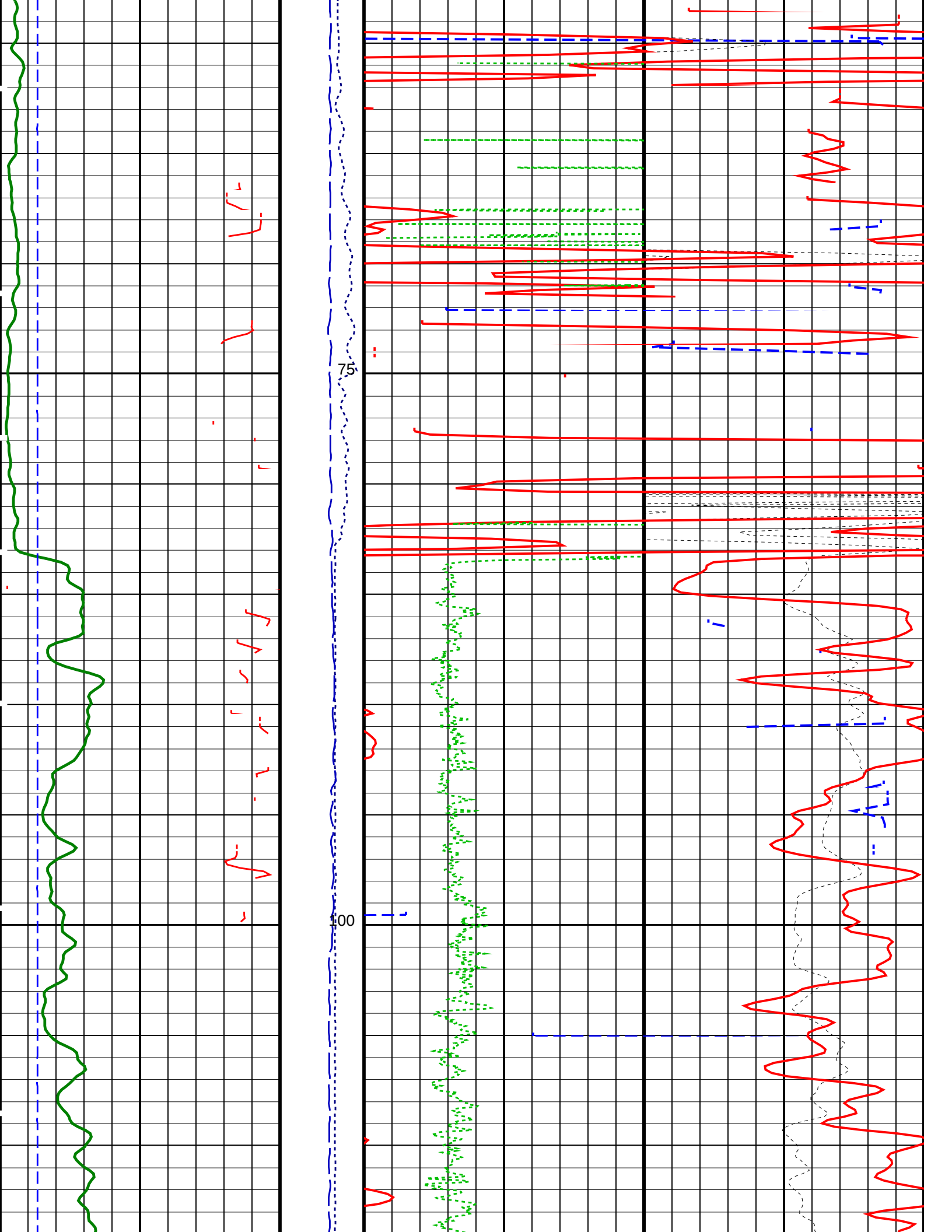
19C0-187
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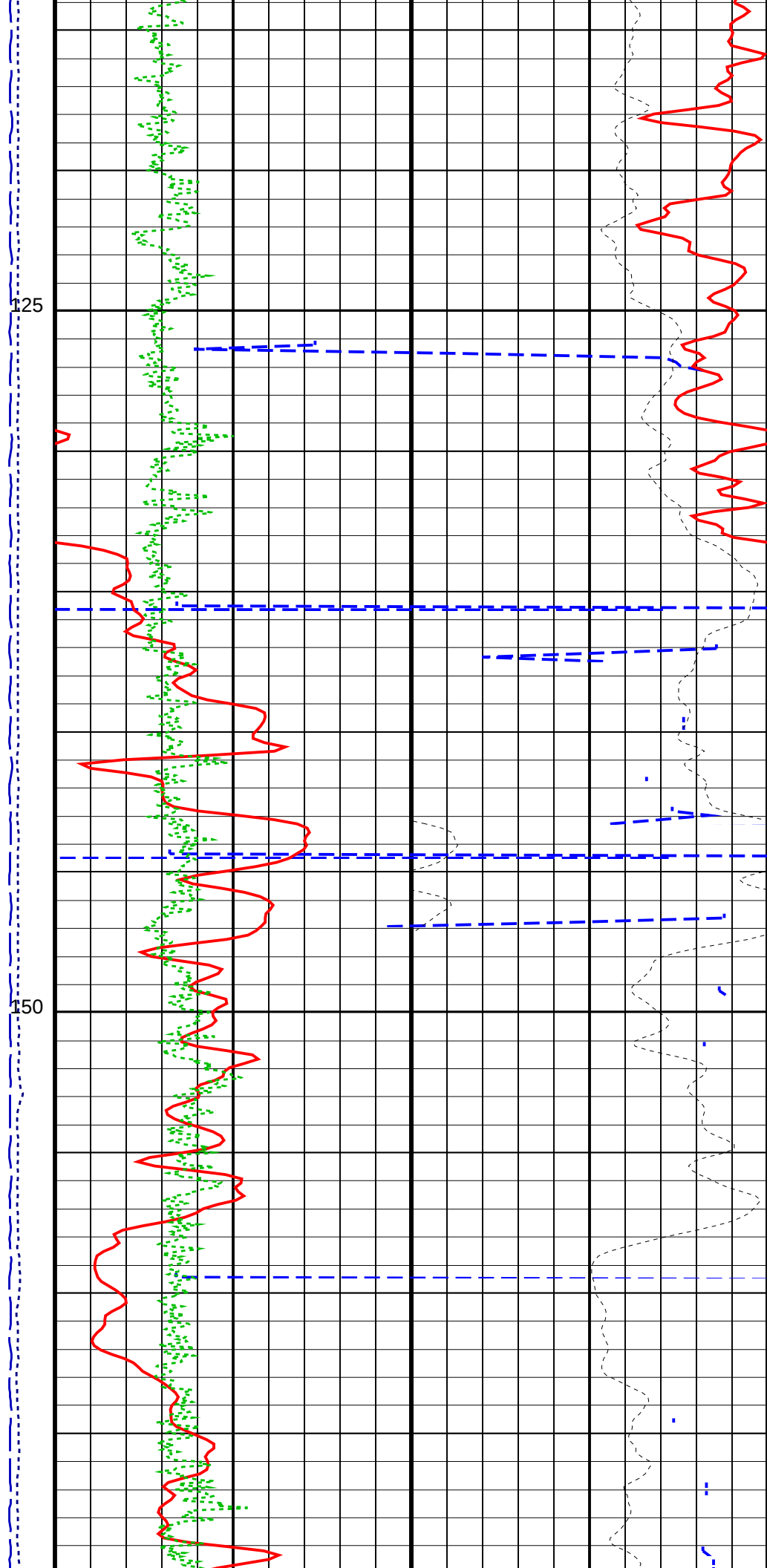
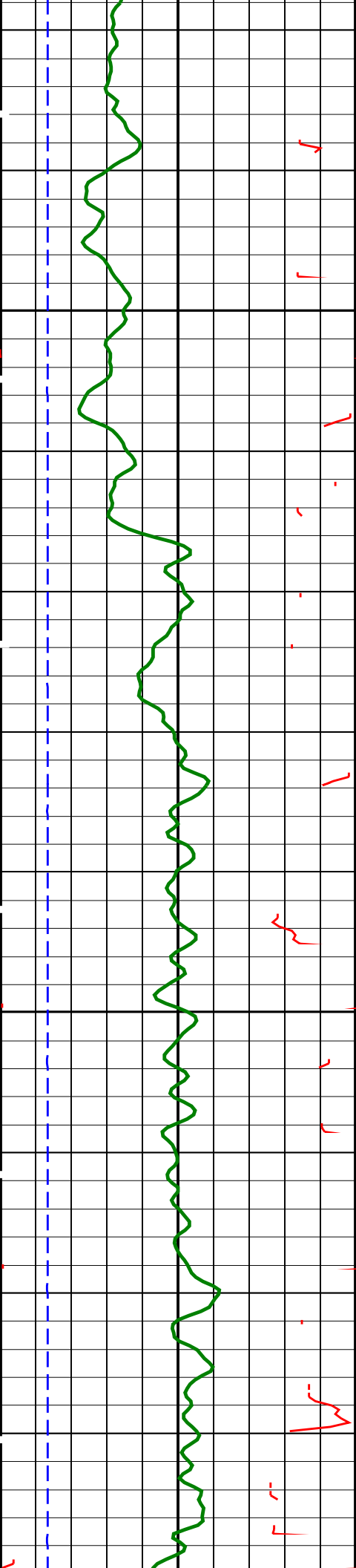
PIP SUMMARY

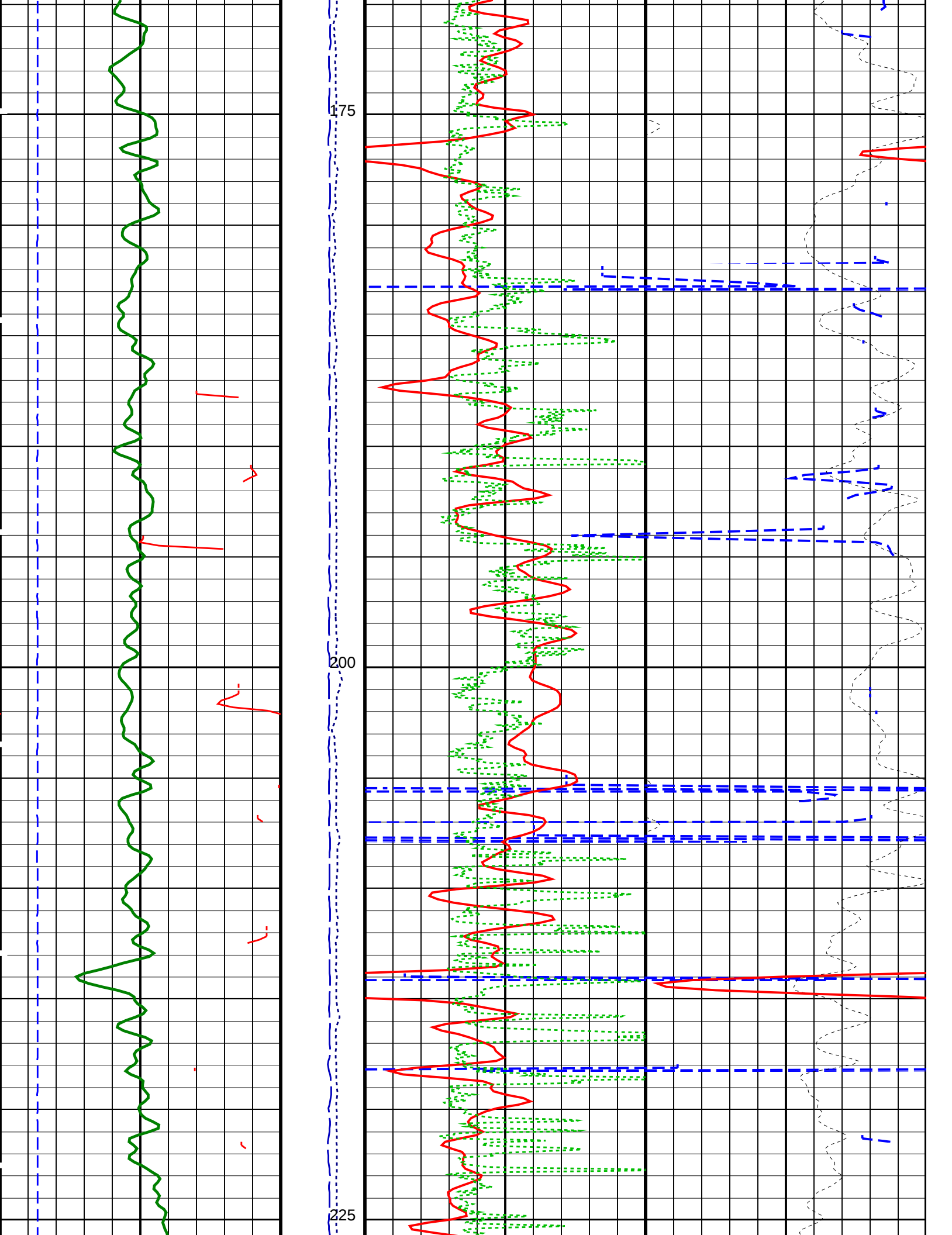
Time Mark Every 60 S

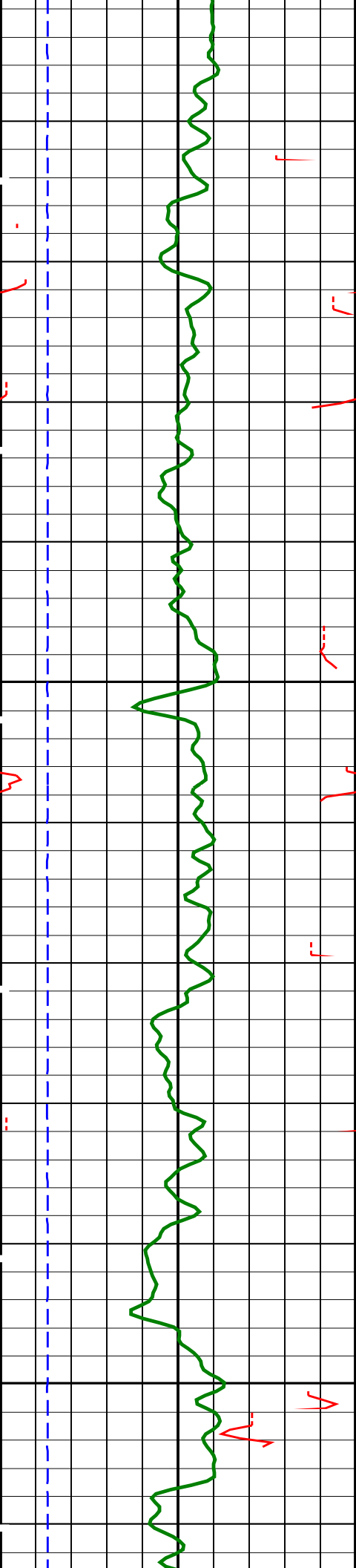






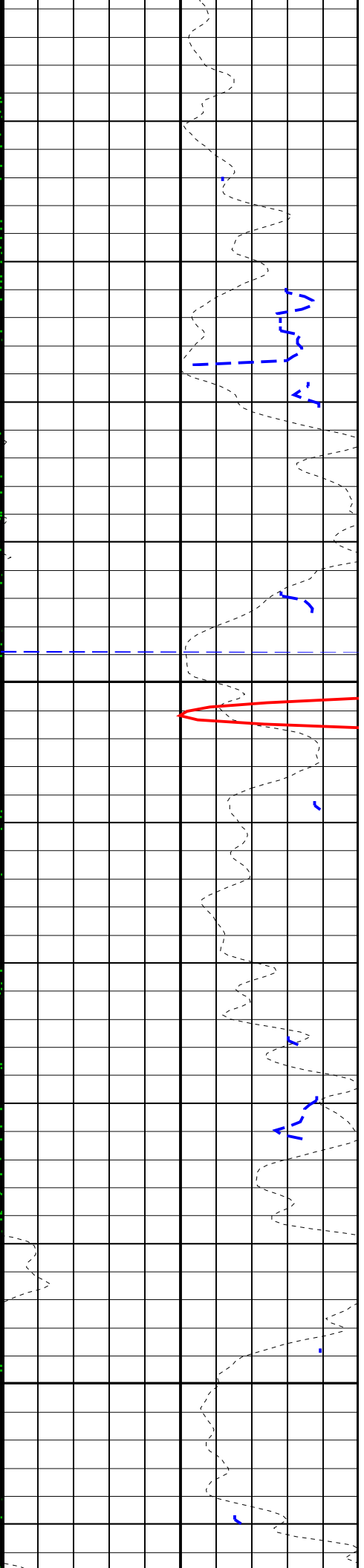
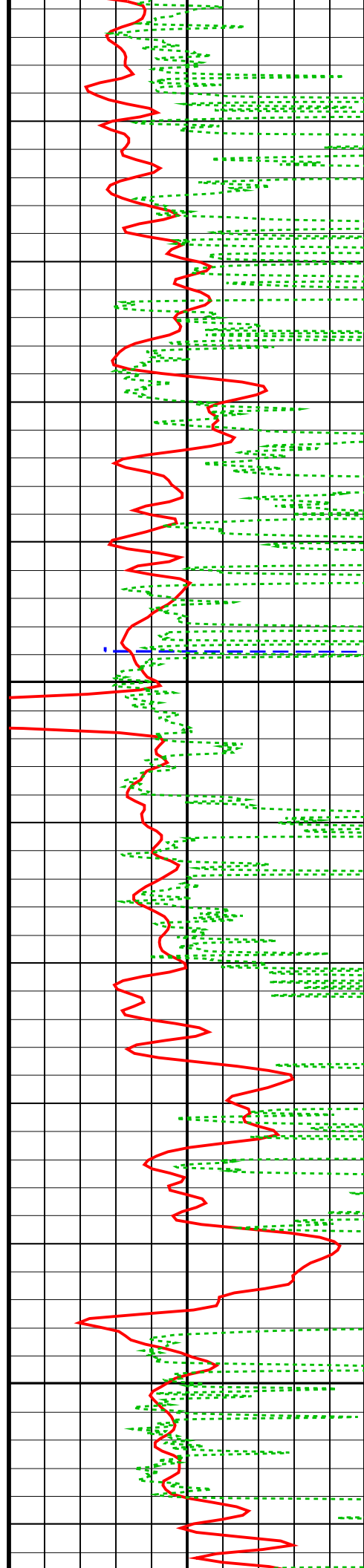


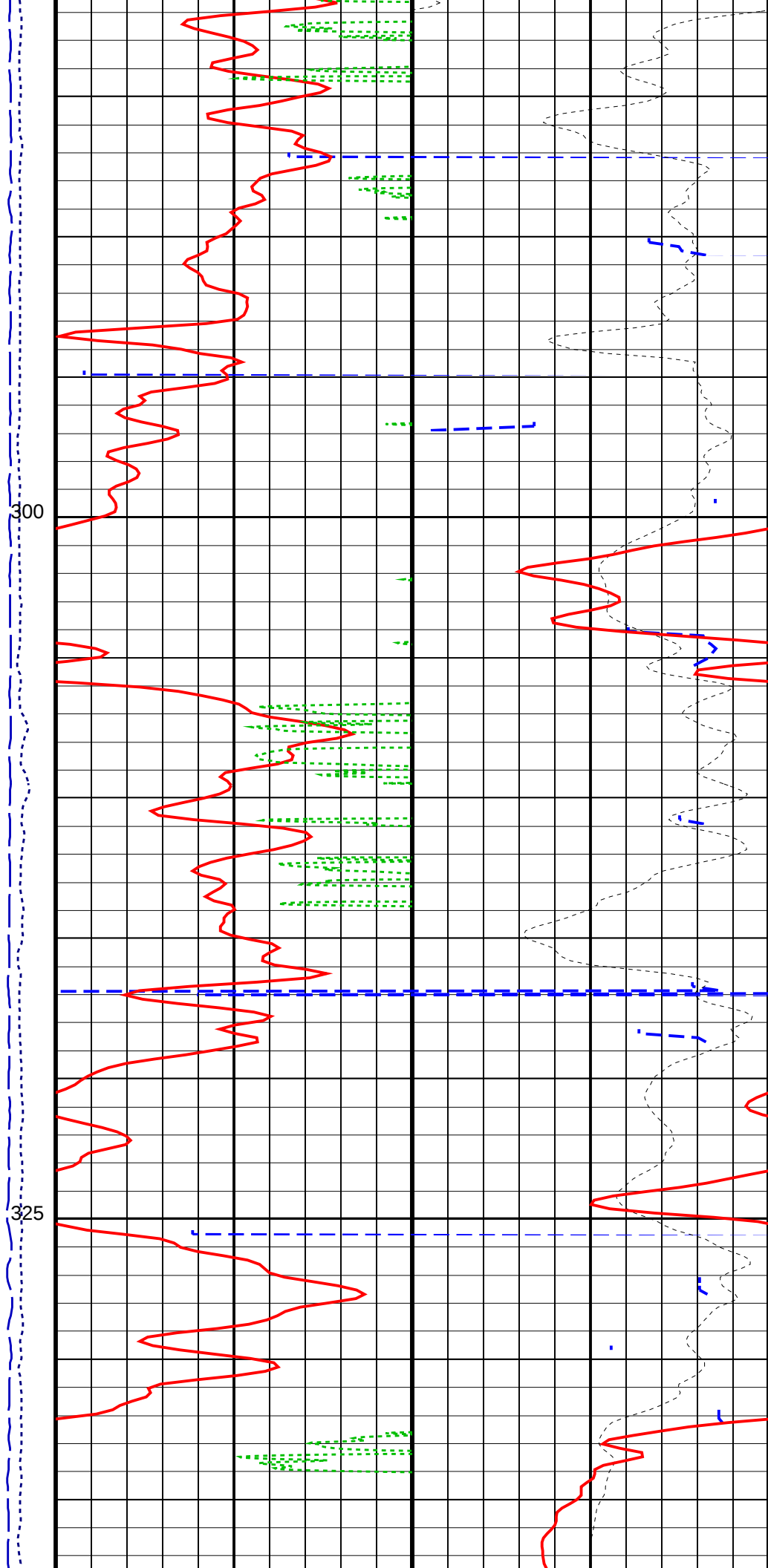
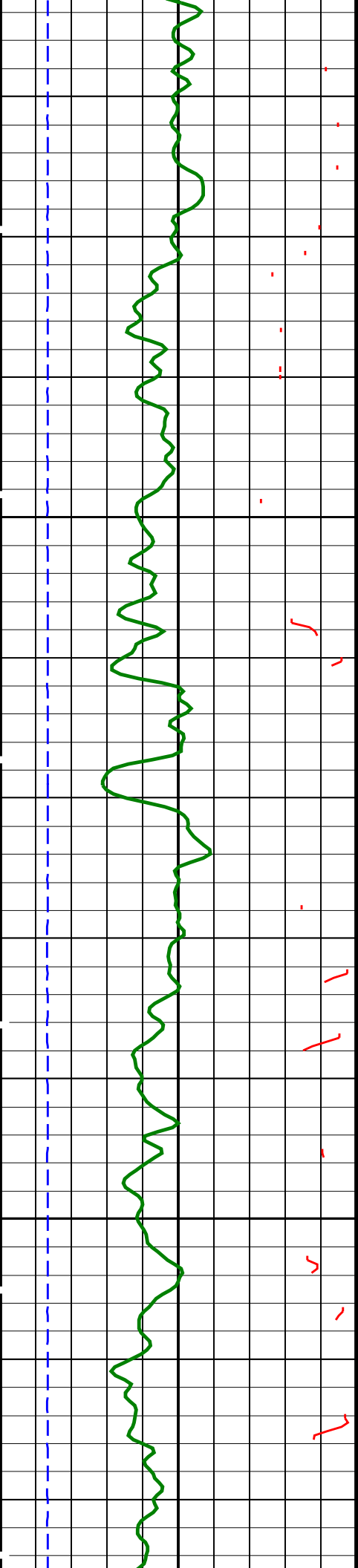


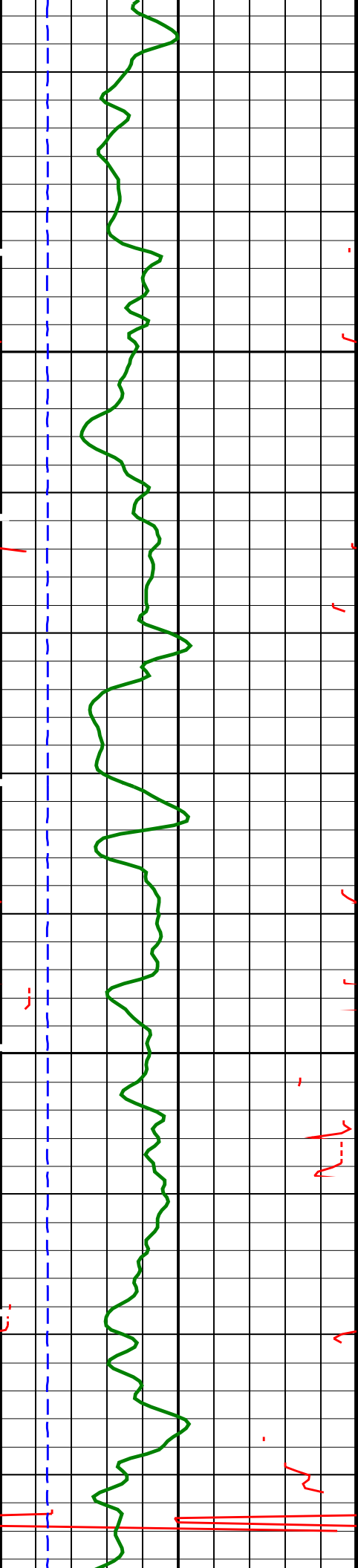


250

275

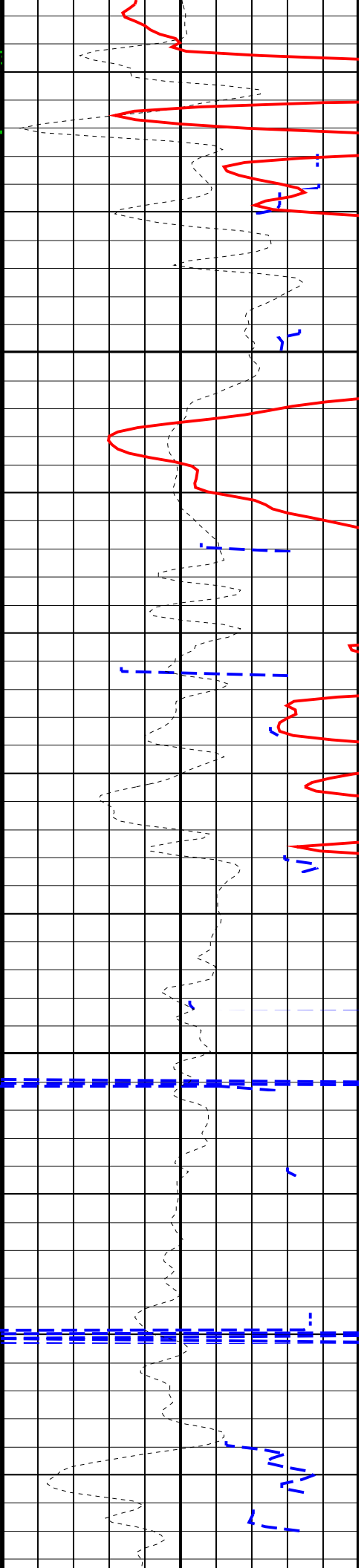
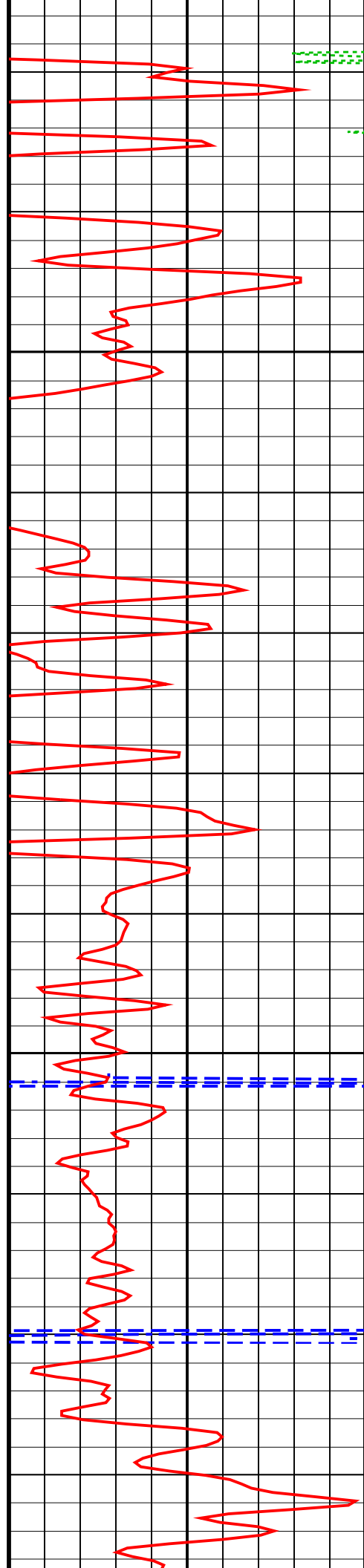


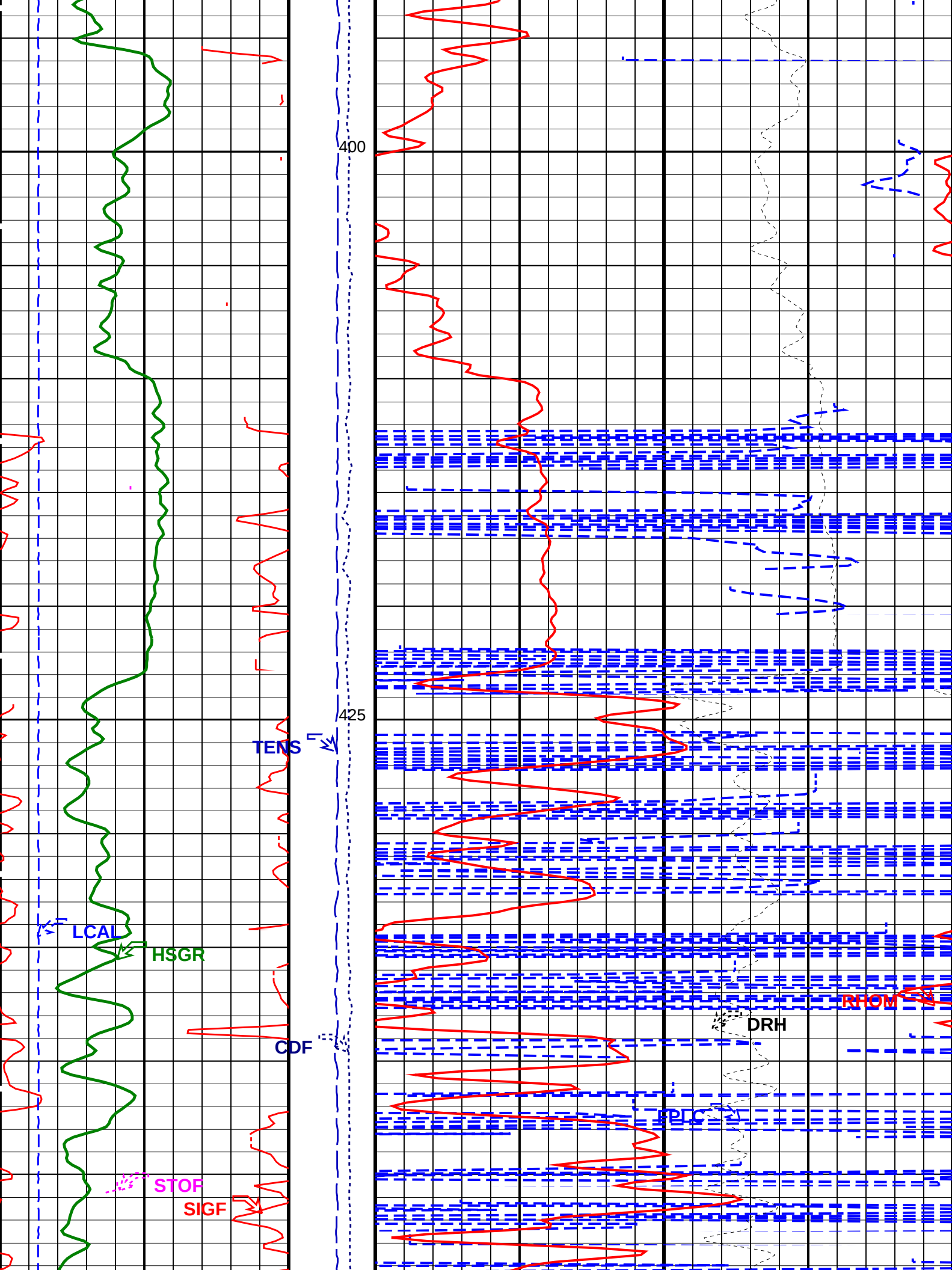


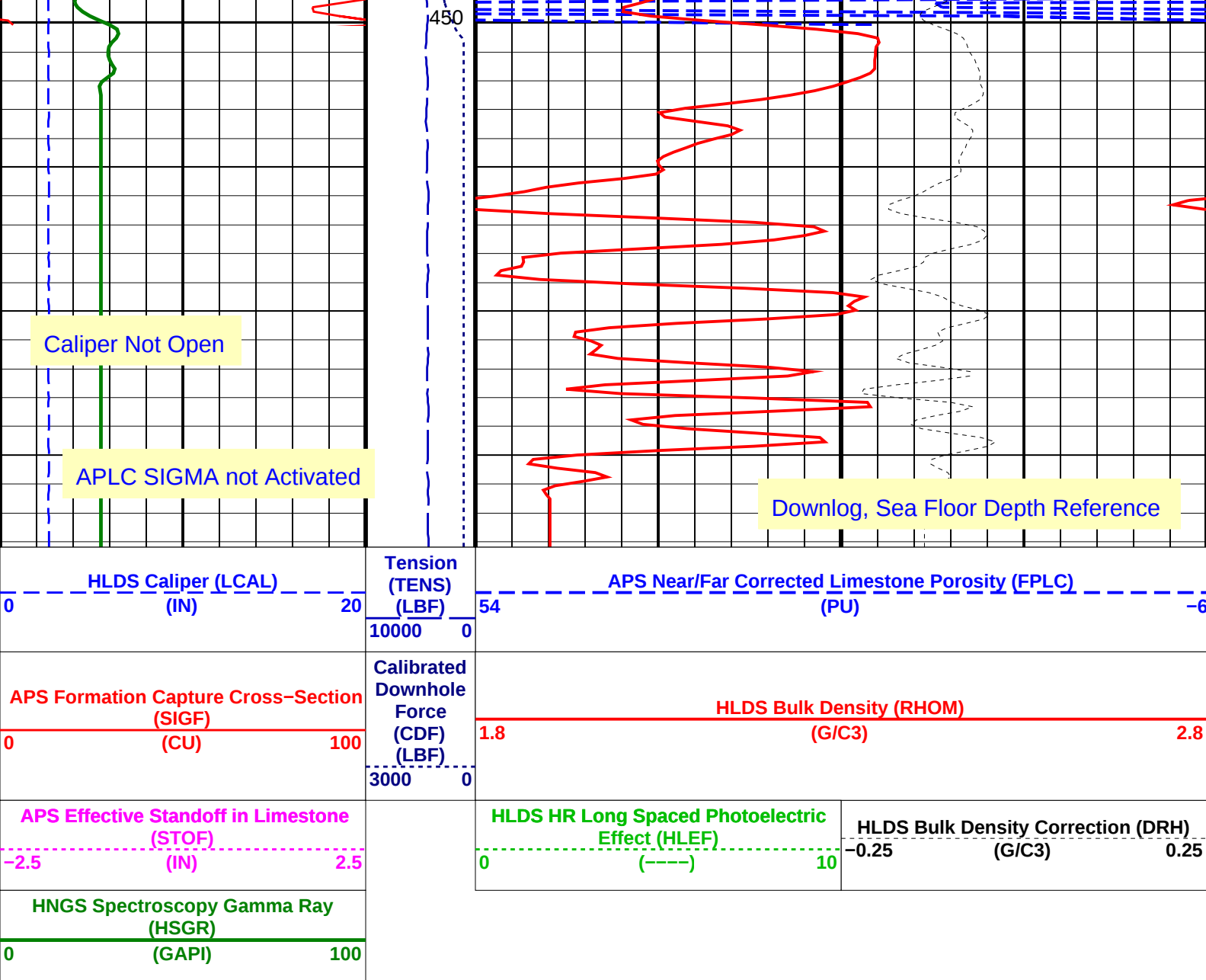


350

375







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	2.6 G/C3
PHVL	HLDS Long Spacing High Voltage Setting	1000 V
PHVS	HLDS Short Spacing High Voltage Setting	1000 V
PSDL	HLDS LS Pulse Shape Compensation DAC	30000
PSDS	HLDS SS Pulse Shape Compensation DAC	30000
PSML	HLDS LS Pulse Shape Compensation Mode	AUTO
PSMS	HLDS SS Pulse Shape Compensation Mode	AUTO
APS-C: Accelerator-Porosity Tool		
	APS Software Version	0
AASD	APS Thermal and Array Detectors High Voltage Setting	1935.8 V
ADSO	APS Array Detectors Data Source Switch	Both

AFSD	APS Far Detector High Voltage Setting	2032.65	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	1698.84	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)	21	DEGC
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	0.018227	DC/M
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	1.08599	
NFRC	APS Near/Far Calibration Ratio	0.977453	
PTCO_APS	APS TNPH Pressure/Temperature Correction Option	YES	
SHT	Surface Hole Temperature	20	DEGC
TNCO_APS	APS TNPH Computation Option	YES	
HNGBS-BA: Hostile Natural Gamma Ray Sonde			
BAR1	HNGBS Detector 1 Barite Constant	1	
BAR2	HNGBS Detector 2 Barite Constant	1	
BHK	HNGBS Borehole Potassium Correction Concentration	0	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	21	DEGC
CSD1	Inner Casing Outer Diameter	0	IN
CSD2	Outer Casing Outer Diameter	0	IN
CSW1	Inner Casing Weight	0	LB/F
CSW2	Outer Casing Weight	0	LB/F
DBCC	HNGBS Barite Constant Correction Flag	NONE	
GCSE	Generalized Caliper Selection	BS	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GRSE	Generalized Mud Resistivity Selection	CHART_GEN 9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
H1P	HNGBS Detector 1 Allow/Disallow In Processing	ALLOW	
H2P	HNGBS Detector 2 Allow/Disallow In Processing	ALLOW	
HABK	HNGBS Borehole Potassium Running Average	-0.00265981	
HALF	HNGBS Alpha Filter Length	60	IN
HCRB	HNGBS Apply Borehole Potassium Correction	NONE	
HMWM	Mud Weighting Material	BARI	
HNPE	HNGBS Processing Enable	YES	
ISSBAR	Barite Mud Switch	NOBARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
S1BI	HNGBS Detector 1 Calibration Bismuth Count Rate	1.3	CPS
S2BI	HNGBS Detector 2 Calibration Bismuth Count Rate	1.3	CPS
SGRC	HNGBS Standard Gamma-Ray Correction Flag	YES	
SHT	Surface Hole Temperature	20	DEGC
TPOS	Tool Position	ECCE	
VBA1	HNGBS Detector 1 Variable Barite Factor Running Average	0.953116	
VBA2	HNGBS Detector 2 Variable Barite Factor Running Average	0.961581	
EDTC-B: Enhanced DTS Cartridge			
BHFL	Borehole Fluid Type	WATER	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	21	DEGC
BSCO	Borehole Salinity Correction Option	NO	
CCCO	Casing & Cement Thickness Correction Option	NO	
DPPM	Density Porosity Processing Mode	HIRS	
FSAL	Formation Salinity	-50000	PPM
FSCO	Formation Salinity Correction Option	NO	
GCSE	Generalized Caliper Selection	BS	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GRSE	Generalized Mud Resistivity Selection	CHART_GEN 9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
HSCO	Hole Size Correction Option	YES	
ISSBAR	Barite Mud Switch	NOBARITE	
ISSBAR_EDTC	Nuclear Mud Type	BARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
MCCO	Mud Cake Correction Option	NO	
MCOR	Mud Correction	NATU	
MWCO	Mud Weight Correction Option	NO	
PTCO	Pressure/Temperature Correction Option	NO	

SDAT	Standoff Data Source	SOCN	
SHT	Surface Hole Temperature	20	DEGC
SOCN	Standoff Distance	0.5	IN
SOCO	Standoff Correction Option	NO	
TPOS_EDTC	EDTC Tool Centered/Eccentered	Eccentered	
U-ETELM_EDTS	Telemetry Mode for eWAFE	Standard_EDTS	
U-TELM_EDTS	Telemetry Mode for WAFE	Standard_EDTS	
System and Miscellaneous			
ALTDCHAN	Name of alternate depth channel	SpeedCorrectedDepth	
BS	Bit Size	11.438	IN
BSAL	Borehole Salinity	38000.00	PPM
CSIZ	Current Casing Size	5.500	IN
CWEI	Casing Weight	168.00	LB/F
DFD	Drilling Fluid Density	1.21	G/C3
DO	Depth Offset for Playback	-3646.0	M
FLEV	Fluid Level	-50000.00	M
MST	Mud Sample Temperature	22.30	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	466	M
TDD	Total Depth - Driller	4114.40	M
TDL	Total Depth - Logger	4114.40	M
TWS	Temperature of Connate Water Sample	37.78	DEGC

Format: APSLiquidPorosity_1 Vertical Scale: 1:200 Graphics File Created: 26-Apr-2015 22:03

OP System Version: 19C0-187

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

Input DLIS Files

DEFAULT	Flip_LDL_APS_NGS_076LUP	PRODUCER	26-Apr-2015 22:01	4114.2 M	3614.2 M
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Output DLIS Files

DEFAULT	LDL_APS_NGS_078PUP	FN:67	PRODUCER	26-Apr-2015 22:03
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Calibration and Check Summary

Measurement	Nominal	Master	Before	After	Change	Limit	Units
Hostile Litho-Density Sonde Wellsite Calibration - Background Measurement							
Master: 30-Mar-2015 16:19 Before: 11-Apr-2015 3:34 After: 30-Mar-2015 17:23							
SS Cs Resolution Bkg	9.000	8.036	8.060	8.051	-0.008831	1.800	%
LS Cs Resolution Bkg	9.000	8.174	8.153	8.226	0.07256	1.800	%
LSW1 Background	100.0	69.29	67.79	66.52	-1.277	3.000	CPS
LSW2 Background	100.0	63.27	61.54	62.04	0.4981	3.000	CPS
LSW3 Background	200.0	138.4	137.3	138.4	1.011	6.000	CPS
LSW4 Background	250.0	170.3	166.4	167.6	1.237	7.500	CPS
LSW5 Background	600.0	386.3	388.1	388.6	0.4585	18.00	CPS
SSW1 Background	100.0	77.28	76.15	77.11	0.9534	3.000	CPS
SSW2 Background	200.0	136.4	135.7	136.4	0.7706	6.000	CPS
SSW3 Background	500.0	368.2	370.1	367.6	-2.539	15.00	CPS
SSW4 Background	270.0	191.5	190.8	190.8	-0.04315	8.100	CPS
SSW5 Background	200.0	137.6	136.4	139.2	2.766	6.000	CPS
Hostile Litho-Density Sonde Wellsite Calibration - Aluminum Measurement							
Master: 30-Mar-2015 16:58							
LSW1 Aluminum	600.0	519.6	N/A	N/A	N/A	N/A	CPS
LSW2 Aluminum	900.0	745.4	N/A	N/A	N/A	N/A	CPS
LSW3 Aluminum	1100	900.9	N/A	N/A	N/A	N/A	CPS
LSW4 Aluminum	580.0	451.4	N/A	N/A	N/A	N/A	CPS
LSW5 Aluminum	570.0	419.2	N/A	N/A	N/A	N/A	CPS
SSW1 Aluminum	2800	2400	N/A	N/A	N/A	N/A	CPS
SSW2 Aluminum	8000	6451	N/A	N/A	N/A	N/A	CPS
SSW3 Aluminum	11600	8943	N/A	N/A	N/A	N/A	CPS
SSW4 Aluminum	5000	3672	N/A	N/A	N/A	N/A	CPS
SSW5 Aluminum	660.0	456.4	N/A	N/A	N/A	N/A	CPS

Hostile Litho–Density Sonde Wellsite Calibration – Lithology Measurement								
Master: 30–Mar–2015 16:40								
LSW1 Iron	400.0	402.6	N/A	N/A	N/A	N/A	CPS	
LSW2 Iron	730.0	672.2	N/A	N/A	N/A	N/A	CPS	
LSW3 Iron	1000	877.7	N/A	N/A	N/A	N/A	CPS	
LSW4 Iron	520.0	448.6	N/A	N/A	N/A	N/A	CPS	
LSW5 Iron	470.0	415.0	N/A	N/A	N/A	N/A	CPS	
SSW1 Iron	2100	1840	N/A	N/A	N/A	N/A	CPS	
SSW2 Iron	6800	5631	N/A	N/A	N/A	N/A	CPS	
SSW3 Iron	10800	8495	N/A	N/A	N/A	N/A	CPS	
SSW4 Iron	4600	3504	N/A	N/A	N/A	N/A	CPS	
SSW5 Iron	580.0	422.6	N/A	N/A	N/A	N/A	CPS	

Hostile Litho–Density Sonde Wellsite Calibration – Caliper Calibration								
Before: 30–Mar–2015 17:15								
HLDS Caliper Small Ring	12.00	N/A	15.00	N/A	N/A	N/A	IN	
HLDS Caliper Large Ring	15.19	N/A	18.66	N/A	N/A	N/A	IN	

Accelerator–Porosity Tool Wellsite Calibration – Detector Background								
Master: 30–Mar–2015 14:34 Before: 18–Apr–2015 0:23 After: 30–Mar–2015 15:06								
Near Det Bkg Cntrate	30.00	26.12	25.43	25.95	0.5257	N/A	CPS	
Far Det Bkg Cntrate	30.00	28.43	27.22	28.03	0.8176	N/A	CPS	
Array–1 Det Bkg Cntrate	30.00	26.57	27.11	27.26	0.1532	N/A	CPS	
Array–2 Det Bkg Cntrate	30.00	26.47	26.98	26.83	–0.1452	N/A	CPS	
Array Therm Det Bkg Cntrate	30.00	27.82	24.98	28.24	3.258	N/A	CPS	

Accelerator–Porosity Tool Wellsite Calibration – Calibration Ratios								
Master: 30–Mar–2015 15:38								
Near/Far Calibration Ratio	0.9250	0.9775	N/A	N/A	N/A	N/A		
Near/Array Calibration Ratio	1.030	1.086	N/A	N/A	N/A	N/A		
Near/Array Cal Ratio Up/Down	1.000	1.014	N/A	N/A	N/A	N/A		

Accelerator–Porosity Tool Wellsite Calibration – Tank Check								
Master: 30–Mar–2015 14:34								
Array–1 Standoff Porosity	11.75	10.48	N/A	N/A	N/A	N/A	PU	
Array–2 Standoff Porosity	11.75	10.91	N/A	N/A	N/A	N/A	PU	
Average Slowing Down Time	6.000	6.021	N/A	N/A	N/A	N/A	US	
Array–1 SDT Ratio Up/Down	1.000	0.9685	N/A	N/A	N/A	N/A		
Array–2 SDT Ratio Up/Down	1.000	0.9934	N/A	N/A	N/A	N/A		
Sigma Formation	27.50	34.85	N/A	N/A	N/A	N/A	CU	

Accelerator–Porosity Tool Wellsite Calibration – CCR7 signal boxes								
Master: 30–Mar–2015 13:50								
Near Detector Plateau Setting	1650	1699	N/A	N/A	N/A	N/A	V	
Far Detector Plateau Setting	2000	2033	N/A	N/A	N/A	N/A	V	
Array Detector Plateau Setting	2000	1936	N/A	N/A	N/A	N/A	V	

Hostile Natural Gamma Ray Sonde Wellsite Calibration – Detector 1 Check								
Master: 29–Mar–2015 13:32 Before: 11–Apr–2015 2:56 After: 30–Mar–2015 8:02								
Na 511 Peak Loc	40.00	38.70	38.78	38.69	–0.09856	1.000		
Na 511 Peak Res	15.50	17.69	15.73	17.49	1.764	2.000	%	
High Voltage	1150	1236	1230	1232	2.260	N/A	V	
Na 1785 Peak Loc	142.6	140.4	139.4	140.2	0.7782	7.000		
Na 1785 Peak Res	8.500	9.516	10.20	9.362	–0.8329	2.000	%	
Temperature	15.50	37.95	37.13	37.61	0.4763	N/A	DEGC	
Na Count Rate	45.00	21.35	20.83	21.14	0.3081	8.000	CPS	

Hostile Natural Gamma Ray Sonde Wellsite Calibration – Detector 2 Check								
Master: 29–Mar–2015 13:32 Before: 11–Apr–2015 2:56 After: 30–Mar–2015 8:02								
Na 511 Peak Loc	40.00	39.76	39.51	39.65	0.1403	1.000		
Na 511 Peak Res	15.50	17.06	16.29	17.05	0.7659	2.000	%	
High Voltage	1150	1116	1110	1113	2.464	N/A	V	
Na 1785 Peak Loc	142.6	143.1	141.9	142.6	0.6722	7.000		
Na 1785 Peak Res	8.500	8.404	8.844	9.434	0.5905	2.000	%	
Temperature	15.50	37.73	37.05	36.91	–0.1431	N/A	DEGC	
Na Count Rate	45.00	21.25	20.76	21.09	0.3293	8.000	CPS	

Hostile Natural Gamma Ray Sonde Wellsite Calibration – Ratio Of Detector 1 To Detector 2								
Master: 29–Mar–2015 13:32 Before: 11–Apr–2015 2:56 After: 30–Mar–2015 8:02								
Coincidence Count Rate Ratio	1.000	1.000	0.9996	1.002	0.002439	0.05000		

Hostile Natural Gamma Ray Sonde Master Calibration – Detector 1 Calibration								
Master: 29–Mar–2015 13:28								
Na 511 Peak Set Point	40.00	40.00	--	--	--	--		
Th Peak Loc	209.6	211.8	--	--	--	--		
Th Peak Res	7.000	7.979	--	--	--	--	%	
Background Count Rate	142.5	27.76	--	--	--	--	CPS	
Gain Ratio	1.000	1.041	--	--	--	--		

Hostile Natural Gamma Ray Sonde Master Calibration – Detector 2 Calibration								
Master: 29–Mar–2015 13:28								
Na 511 Peak Set Point	40.00	41.00	--	--	--	--		

Na 511 Peak Set Point	40.00	41.00	--	--	--	--	
Th Peak Loc	209.6	211.2	--	--	--	--	
Th Peak Res	7.000	7.951	--	--	--	--	%
Background Count Rate	142.5	26.71	--	--	--	--	CPS
Gain Ratio	1.000	1.010	--	--	--	--	
Enhanced DTS Cartridge Wellsite Calibration – EDTC Accelerometer Calibration							
Before: 17-Apr-2015 7:18							
EDTC Z-Axis Acceleration	9.810	N/A	9.750	N/A	N/A	N/A	M/S2
Enhanced DTS Cartridge Wellsite Calibration – Detector Calibration							
Before: 11-Apr-2015 3:47 After: 30-Mar-2015 7:59							
Gamma Ray (Jig – Bkg)	150.3	N/A	150.3	154.6	4.255	13.67	GAPI
Gamma Ray (Calibrated)	164.0	N/A	164.0	168.6	4.642	15.00	GAPI
Accelerator-Porosity Tool – Detector Plateau Settings :							
Near Detector Plateau Setting	1699 V						
Far Detector Plateau Setting	2033 V						
Array Detector Plateau Setting	1936 V						

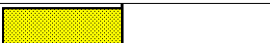
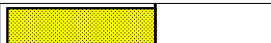
Hostile Litho-Density Sonde / Equipment Identification			
Primary Equipment:			
Hostile Litho Density Sonde	HLDS – D	45	
Hostile Litho Density High Voltage	HLDV – D	45	
Gamma Source Radioactive	GSR – Z	8113	
Auxiliary Equipment:			
Hostile Litho Density Pad	HLDP – C	45	
Hostile Litho Density High Voltage Housi	HEH – H	47	

Hostile Litho-Density Sonde Wellsite Calibration								
Background Measurement								
Phase	SS Cs Resolution Bkg %	Value	Phase	LS Cs Resolution Bkg %	Value	Phase	LSW1 Background CPS	Value
Master		8.036	Master		8.174	Master		69.29
Before		8.060	Before		8.153	Before		67.79
After		8.051	After		8.226	After		66.52
	7.000 (Minimum) 9.000 (Nominal) 11.00 (Maximum)			7.000 (Minimum) 9.000 (Nominal) 11.00 (Maximum)			55.00 (Minimum) 100.0 (Nominal) 150.0 (Maximum)	
Phase	LSW2 Background CPS	Value	Phase	LSW3 Background CPS	Value	Phase	LSW4 Background CPS	Value
Master		63.27	Master		138.4	Master		170.3
Before		61.54	Before		137.3	Before		166.4
After		62.04	After		138.4	After		167.6
	50.00 (Minimum) 100.0 (Nominal) 140.0 (Maximum)			110.0 (Minimum) 200.0 (Nominal) 290.0 (Maximum)			140.0 (Minimum) 250.0 (Nominal) 360.0 (Maximum)	
Phase	LSW5 Background CPS	Value	Phase	SSW1 Background CPS	Value	Phase	SSW2 Background CPS	Value
Master		386.3	Master		77.28	Master		136.4
Before		388.1	Before		76.15	Before		135.7
After		388.6	After		77.11	After		136.4
	330.0 (Minimum) 600.0 (Nominal) 830.0 (Maximum)			55.00 (Minimum) 100.0 (Nominal) 150.0 (Maximum)			100.0 (Minimum) 200.0 (Nominal) 260.0 (Maximum)	
Phase	SSW3 Background CPS	Value	Phase	SSW4 Background CPS	Value	Phase	SSW5 Background CPS	Value
Master		368.2	Master		191.5	Master		137.6
Before		370.1	Before		190.8	Before		136.4
After		367.6	After		190.8	After		139.2
	280.0 (Minimum) 500.0 (Nominal) 700.0 (Maximum)			150.0 (Minimum) 270.0 (Nominal) 380.0 (Maximum)			110.0 (Minimum) 200.0 (Nominal) 270.0 (Maximum)	
Master: 30-Mar-2015 16:19			Before: 11-Apr-2015 3:34			After: 30-Mar-2015 17:23		

Hostile Litho-Density Sonde Master Calibration								
Detector Background Measurement								
Phase	LSW1 Background CPS	Value	Phase	LSW2 Background CPS	Value	Phase	LSW3 Background CPS	Value
Master		69.29	Master		138.4	Master		170.3
Before		67.79	Before		137.3	Before		166.4
After		66.52	After		138.4	After		167.6

Phase	LSW1 Background CPS		Value	Phase	LSW2 Background CPS		Value	Phase	LSW3 Background CPS		Value
Master			69.29	Master			63.27	Master			138.4
55.00 (Minimum) 100.0 (Nominal) 150.0 (Maximum)				50.00 (Minimum) 100.0 (Nominal) 140.0 (Maximum)				110.0 (Minimum) 200.0 (Nominal) 290.0 (Maximum)			
Phase	LSW4 Background CPS		Value	Phase	LSW5 Background CPS		Value	Phase	LS Cs Resolution Bkg %		Value
Master			170.3	Master			386.3	Master			8.174
140.0 (Minimum) 250.0 (Nominal) 360.0 (Maximum)				330.0 (Minimum) 600.0 (Nominal) 830.0 (Maximum)				7.000 (Minimum) 9.000 (Nominal) 11.00 (Maximum)			
Phase	SSW1 Background CPS		Value	Phase	SSW2 Background CPS		Value	Phase	SSW3 Background CPS		Value
Master			77.28	Master			136.4	Master			368.2
55.00 (Minimum) 100.0 (Nominal) 150.0 (Maximum)				100.0 (Minimum) 200.0 (Nominal) 260.0 (Maximum)				280.0 (Minimum) 500.0 (Nominal) 700.0 (Maximum)			
Phase	SSW4 Background CPS		Value	Phase	SSW5 Background CPS		Value	Phase	SS Cs Resolution Bkg %		Value
Master			191.5	Master			137.6	Master			8.036
150.0 (Minimum) 270.0 (Nominal) 380.0 (Maximum)				110.0 (Minimum) 200.0 (Nominal) 270.0 (Maximum)				7.000 (Minimum) 9.000 (Nominal) 11.00 (Maximum)			
Master: 30-Mar-2015 16:19											

Master: 30-Mar-2015 16:19

Hostile Litho-Density Sonde Master Calibration																	
Detector Aluminum Measurement (bkgd-subtracted)																	
Phase	LSW1 Aluminum CPS			Value	Phase	LSW2 Aluminum CPS			Value	Phase	LSW3 Aluminum CPS			Value			
Master				519.6	Master				745.4	Master				900.9			
420.0 (Minimum)				600.0 (Nominal)	770.0 (Maximum)				650.0 (Minimum)				900.0 (Nominal)	1150 (Maximum)			
Phase	LSW4 Aluminum CPS			Value	Phase	LSW5 Aluminum CPS			Value	Phase	SSW1 Aluminum CPS			Value			
Master				451.4	Master				419.2	Master				2400			
410.0 (Minimum)				580.0 (Nominal)	740.0 (Maximum)				410.0 (Minimum)				570.0 (Nominal)	740.0 (Maximum)			
Phase	SSW2 Aluminum CPS			Value	Phase	SSW3 Aluminum CPS			Value	Phase	SSW4 Aluminum CPS			Value			
Master				6451	Master				8943	Master				3672			
5800 (Minimum)				8000 (Nominal)	9300 (Maximum)				8300 (Minimum)				11600 (Nominal)	13500 (Maximum)			
Phase	SSW5 Aluminum CPS			Value													
Master				456.4													
430.0 (Minimum)				660.0 (Nominal)										770.0 (Maximum)			
Master: 30-Mar-2015 16:58																	

Master: 30-Mar-2015 16:58

Hostile Litho-Density Sonde Master Calibration																		
Detector Litholog Measurement (bkgd-subtracted)																		
Phase	LSW1 Iron CPS			Value	Phase	LSW2 Iron CPS			Value	Phase	LSW3 Iron CPS			Value				
Master				402.6	Master				672.2	Master				877.7				
290.0 (Minimum)				400.0 (Nominal)	560.0 (Maximum)				520.0 (Minimum)	730.0 (Nominal)	950.0 (Maximum)				720.0 (Minimum)	1000 (Nominal)	1350 (Maximum)	
Phase	LSW4 Iron CPS			Value	Phase	LSW5 Iron CPS			Value	Phase	SSW1 Iron CPS			Value				
Master				448.6	Master				415.0	Master				1840				
370.0 (Minimum)				520.0 (Nominal)	700.0 (Maximum)				340.0 (Minimum)	470.0 (Nominal)	750.0 (Maximum)				1500 (Minimum)	2100 (Nominal)	2400 (Maximum)	
Phase	SSW2 Iron CPS			Value	Phase	SSW3 Iron CPS			Value	Phase	SSW4 Iron CPS			Value				
Master				5631	Master				8495	Master				3504				
4900 (Minimum)				6800 (Nominal)	7900 (Maximum)				7800 (Minimum)	10800 (Nominal)	12600 (Maximum)				3300 (Minimum)	4600 (Nominal)	5400 (Maximum)	
Phase	SSW5 Iron CPS			Value														
Master				422.6														
420.0 (Minimum)				580.0 (Nominal)										680.0 (Maximum)				
Master: 30-Mar-2015 16:40																		

Master: 30-Mar-2015 16:40

Hostile Litho-Density Sonde Master Calibration																	
Quality Ratios																	
Phase	AL CALIBRATION RATIO 1			Value	Phase	AL CALIBRATION RATIO 2			Value	Phase	AL CALIBRATION RATIO 3			Value			
Master				1.035	Master				2.166	Master				0.5969			
0.9000 (Minimum)		1.000 (Nominal)		1.100 (Maximum)		1.900 (Minimum)		2.100 (Nominal)		2.300 (Maximum)		0.4500 (Minimum)		0.5500 (Nominal)		0.6500 (Maximum)	
Phase	AL CALIBRATION RATIO 4			Value	Phase	Pad-Wear SS Ratio			Value	Phase	Pad-Wear LS Ratio			Value			

Master		0.5814	Master		0.9840	Master		0.9809
0.4000 (Minimum)0.5500 (Nominal)0.6500 (Maximum)			0.9800 (Minimum)0.9880 (Nominal)0.9960 (Maximum)			0.9800 (Minimum)0.9880 (Nominal)0.9960 (Maximum)		
Phase	Pad-Position SS Ratio		Value	Phase	Pad-Position LS Ratio			
Master		1.003	Master		0.9869			
0.9900 (Minimum)0.9940 (Nominal)1.015 (Maximum)			0.9850 (Minimum)0.9940 (Nominal)1.010 (Maximum)					
Master: 30-Mar-2015 16:34								

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 Minitron	APS – C MNTR – F	212 6504
Auxiliary Equipment: Accelerator-Porosity Housing APS Calibration Water Tank APS Aluminum Calibrator Sleeve	APH – AC SFT – 178 SFT – 281	121 1 1

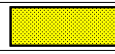
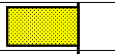
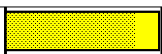
Accelerator-Porosity Tool Wellsite Calibration														
Detector Background														
Phase	Near Det Bkg Cntrate CPS			Value	Phase	Far Det Bkg Cntrate CPS			Value	Phase	Array-1 Det Bkg Cntrate CPS			Value
Master				26.12	Master				28.43	Master				26.57
Before				25.43	Before				27.22	Before				27.11
After				25.95	After				28.03	After				27.26
1.000 (Minimum) 30.00 (Nominal) 50.00 (Maximum)					1.000 (Minimum) 30.00 (Nominal) 50.00 (Maximum)					1.000 (Minimum) 30.00 (Nominal) 50.00 (Maximum)				
Phase	Array-2 Det Bkg Cntrate CPS			Value	Phase	Array Therm Det Bkg Cntrate CPS			Value					
Master				26.47	Master				27.82					
Before				26.98	Before				24.98					
After				26.83	After				28.24					
1.000 (Minimum) 30.00 (Nominal) 50.00 (Maximum)					1.000 (Minimum) 30.00 (Nominal) 50.00 (Maximum)									
Master: 30-Mar-2015 14:34				Before: 18-Apr-2015 0:23				After: 30-Mar-2015 15:06						

Accelerator-Porosity Tool Wellsite Calibration											
Calibration Ratios											
Phase	Near/Far Calibration Ratio		Value	Phase	Near/Array Calibration Ratio		Value	Phase	Near/Array Cal Ratio Up/Down	Value	
Master			0.9775	Master			1.086	Master			1.014
0.8000 (Minimum)				0.9000 (Minimum)				0.9700 (Minimum)			
0.9250 (Nominal)				1.030 (Nominal)				1.000 (Nominal)			
1.050 (Maximum)				1.170 (Maximum)				1.030 (Maximum)			
Master: 30-Mar-2015 15:38											

Accelerator-Porosity Tool Wellsite Calibration															
Tank Check															
Phase	Array-1 Standoff Porosity PU			Value	Phase	Array-2 Standoff Porosity PU			Value	Phase	Average Slowing Down Time US			Value	
Master				10.48	Master				10.91	Master				6.021	
9.900 (Minimum)				11.75 (Nominal)	13.60 (Maximum)					5.500 (Minimum)				6.000 (Nominal)	6.250 (Maximum)
Phase	Array-1 SDT Ratio Up/Down			Value	Phase	Array-2 SDT Ratio Up/Down			Value	Phase	Sigma Formation CU			Value	
Master				0.9685	Master				0.9934	Master				34.85	
0.9500 (Minimum)				1.000 (Nominal)	1.050 (Maximum)					20.00 (Minimum)				27.50 (Nominal)	35.00 (Maximum)

Accelerator-Porosity Tool Master Calibration											
Detector Calibration											
Phase	Near/Far Calibration Ratio		Value	Phase	Near/Array Calibration Ratio		Value	Phase	Near/Array Cal Ratio Up/Down	Value	
Master			0.9775	Master			1.086	Master			1.014
	0.8000 (Minimum)	0.9250 (Nominal)	1.050 (Maximum)		0.9000 (Minimum)	1.030 (Nominal)	1.170 (Maximum)		0.9700 (Minimum)	1.000 (Nominal)	1.030 (Maximum)
Master: 30-Mar-2015 15:38											

Master: 30-Mar-2015 15:38

Accelerator-Porosity Tool Master Calibration														
Tank Check														
Phase	Array-1 Standoff Porosity PU			Value	Phase	Array-2 Standoff Porosity PU			Value	Phase	Average Slowing Down Time US			Value
Master				10.48	Master				10.91	Master				6.021
	9.900 (Minimum)	11.75 (Nominal)	13.60 (Maximum)		9.900 (Minimum)	11.75 (Nominal)	13.60 (Maximum)		5.500 (Minimum)	6.000 (Nominal)	6.250 (Maximum)			
Phase	Array-1 SDT Ratio Up/Down			Value	Phase	Array-2 SDT Ratio Up/Down			Value	Phase	Sigma Formation CU			Value
Master				0.9685	Master				0.9934	Master				34.85
	0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)		20.00 (Minimum)	27.50 (Nominal)	35.00 (Maximum)			
Master: 30-Mar-2015 14:34														

Master: 30-Mar-2015 14:34

Hostile Natural Gamma Ray Cartridge - B / Equipment Identification

Primary Equipment:
HNGC Cartridge

HNGC - B 439

Auxiliary Equipment:
HNGC Housing

HNGH - A 380

Hostile Natural Gamma Ray Sonde / Equipment Identification

Primary Equipment:
HNGS Sonde

HNGS - BA 177

Auxiliary Equipment:
HNGS Sonde Housing
Gamma Source RadioactiveHNSH - BA 174
GSR - U 616008

Hostile Natural Gamma Ray Sonde Wellsite Calibration											
Detector 1 Check											
Phase	Na 511 Peak Loc		Value	Phase	Na 511 Peak Res %		Value	Phase	High Voltage V		Value
Master			38.70	Master			17.69	Master			1236
Before			38.78	Before			15.73	Before			1230
After			38.69	After			17.49	After			1232
37.50 (Minimum)40.00 (Nominal)43.50 (Maximum)				12.00 (Minimum)15.50 (Nominal)19.00 (Maximum)				900.0 (Minimum)1150 (Nominal)1600 (Maximum)			
Phase	Na 1785 Peak Loc		Value	Phase	Na 1785 Peak Res %		Value	Phase	Temperature DEGC		Value
Master			140.4	Master			9.516	Master			37.95
Before			139.4	Before			10.20	Before			37.13
After			140.2	After			9.362	After			37.61
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			21.35								
Before			20.83								
After			21.14								
10.00 (Minimum)45.00 (Nominal)100.0 (Maximum)											

Master: 29-Mar-2015 13:32

Before: 11-Apr-2015 2:56

After: 30-Mar-2015 8:02

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			39.76	Master			17.06	Master			1116
Before			39.51	Before			16.29	Before			1110
After			39.65	After			17.05	After			1113
37.50 (Minimum) 40.00 (Nominal) 43.50 (Maximum)				12.00 (Minimum) 15.50 (Nominal) 19.00 (Maximum)				900.0 (Minimum) 1150 (Nominal) 1600 (Maximum)			
Phase	Na 1785 Peak Loc		Value	Phase	Na 1785 Peak Res %		Value	Phase	Temperature DEGC		Value
Master			143.1	Master			8.404	Master			37.73
Before			141.9	Before			8.844	Before			37.05
After			142.6	After			9.434	After			36.91
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			21.25								
Before			20.76								
After			21.09								
10.00 (Minimum) 45.00 (Nominal) 100.0 (Maximum)											
Master: 29-Mar-2015 13:32				Before: 11-Apr-2015 2:56				After: 30-Mar-2015 8:02			

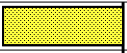
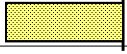
Hostile Natural Gamma Ray Sonde Wellsite Calibration			
Ratio Of Detector 1 To Detector 2			
Phase	Coincidence Count Rate Ratio	Value	
Master		1.000	
Before		0.9996	
After		1.002	
	0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)
Master: 29-Mar-2015 13:32			
Before: 11-Apr-2015 2:56			
After: 30-Mar-2015 8:02			

Hostile Natural Gamma Ray Sonde Master Calibration											
Detector 1 Calibration											
Phase	Na 511 Peak Set Point		Value	Phase	Th Peak Loc		Value	Phase	Th Peak Res %		Value
Master			40.00	Master			211.8	Master			7.979
	38.00 (Minimum)	40.00 (Nominal)	43.00 (Maximum)		201.0 (Minimum)	209.6 (Nominal)	218.3 (Maximum)		5.000 (Minimum)	7.000 (Nominal)	9.000 (Maximum)
Phase	Background Count Rate CPS		Value	Phase	Gain Ratio		Value				
Master			27.76	Master			1.041				
	10.00 (Minimum)	142.5 (Nominal)	265.0 (Maximum)		0.9400 (Minimum)	1.000 (Nominal)	1.060 (Maximum)				
Master: 29-Mar-2015 13:28											

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			211.2	Master			7.951
38.00 (Minimum)			40.00 (Nominal)	43.00 (Maximum)			201.0 (Minimum)	209.6 (Nominal)	218.3 (Maximum)		
Phase	Background Count Rate CPS		Value	Phase	Gain Ratio		Value				
Master			26.71	Master			1.010				
10.00 (Minimum)			142.5 (Nominal)	265.0 (Maximum)			0.9400 (Minimum)				
Master: 29-Mar-2015 13:28											

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

Enhanced DTS Cartridge Wellsite Calibration		
EDTC Accelerometer Calibration		
Phase	EDTC Z-Axis Acceleration M/S2	Value
Before		9.750
	9.610 (Minimum) 9.810 (Nominal) 10.01 (Maximum)	
Before: 17-Apr-2015 7:18		

Enhanced DTS Cartridge Wellsite Calibration									
Detector Calibration									
Phase	Gamma Ray Background GAPI	Value	Phase	Gamma Ray (Jig – Bkg) GAPI	Value	Phase	Gamma Ray (Calibrated) GAPI	Value	
Before		7.125	Before		150.3	Before		164.0	
After		7.658	After		154.6	After		168.6	
	0 (Minimum) 30.00 (Nominal) 120.0 (Maximum)			136.7 (Minimum) 150.3 (Nominal) 164.0 (Maximum)			149.0 (Minimum) 164.0 (Nominal) 179.0 (Maximum)		
Before: 11-Apr-2015 3:47			After: 30-Mar-2015 7:59						

Company: **Integrated Ocean Discovery Program**

Schlumberger

Well: **Expedition 355, Site U1456 C**

Field: **Arabian Sea Monsoon**

Rig: **JOIDES Resolution**

Ocean: **Indian**

Density (HLDS)

Porosity (APS)

Natural Gamma Ray (HNGS)