

Schlumberger

Company: Lamont Doherty

Well: Expedition 339, Site U1390 GC-02B

Field: Mediterranean Outflow (Portugal)

Rig: JOIDES Resolution Ocean: Atlantic

Schlumberger

Company: Lamont Doherty

Well: Expedition 339, Site U1390 GC-02B

Field: Mediterranean Outflow (Portugal)

Rig: JOIDES Resolution Ocean: Atlantic

Schlumberger

Company: Lamont Doherty

Well: Expedition 339, Site U1390 GC-02B

Field: Mediterranean Outflow (Portugal)

Rig: JOIDES Resolution Ocean: Atlantic

Schlumberger

Company: Lamont Doherty

Well: Expedition 339, Site U1390 GC-02B

Field: Mediterranean Outflow (Portugal)

Rig: JOIDES Resolution Ocean: Atlantic

Schlumberger

Company: Lamont Doherty

Well: Expedition 339, Site U1390 GC-02B

Field: Mediterranean Outflow (Portugal)

Rig: JOIDES Resolution Ocean: Atlantic

High Resolution Laterolog Array			
Hostile Litho Density Sonde			
Hostile Natural Gamma Ray			
Latitude: N 36° 19.04'	Elev.: K.B. 11.00 m		
Longitude: W 7° 43.08'	G.L. -994.10 m		
	D.F. 11.00 m		
Permanent Datum:	Elev.: 0.00 m		
Log Measured From:	11.00 m above Perm. Datum		
Drilling Measured From:			
API Serial No.	Max. Hole Devi. 0 deg	Longitude W 7.2781°	Latitude N 36.42528°

[illegible]

Logging Date	5-Jan-2012				
Run Number	1				
Depth Driller	350 m				
Schlumberger Depth	350 m				
Bottom Log Interval	350 m				
Top Log Interval	0 m				
Casing Driller Size @ Depth	10.750 in @ 96 m			@	
Casing Schlumberger	95 m				
Bit Size	9.875 in				
Type Fluid In Hole	Seawater Gel				
Density	Viscosity		1.25 g/cm3		
Fluid Loss	PH				
Source Of Sample	N/A				
RM @ Measured Temperature				@	@
RMF @ Measured Temperature				@	@
RMC @ Measured Temperature				@	@
Source RMF	RMC				
RM @ MRT	RMF @ MRT	N/A	N/A		
Maximum Recorded Temperatures		@ 21	@ 21	@	@
Circulation Stopped	Time	21 degC			
Logger On Bottom	Time	4-Jan-2012	21:00		
Unit Number	Location	5-Jan-2012	07:20		
Recorded By	625003 Houston				
Witnessed By	K. Swain				
	T. Williams, J. Lofi				

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				
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				




[illegible]

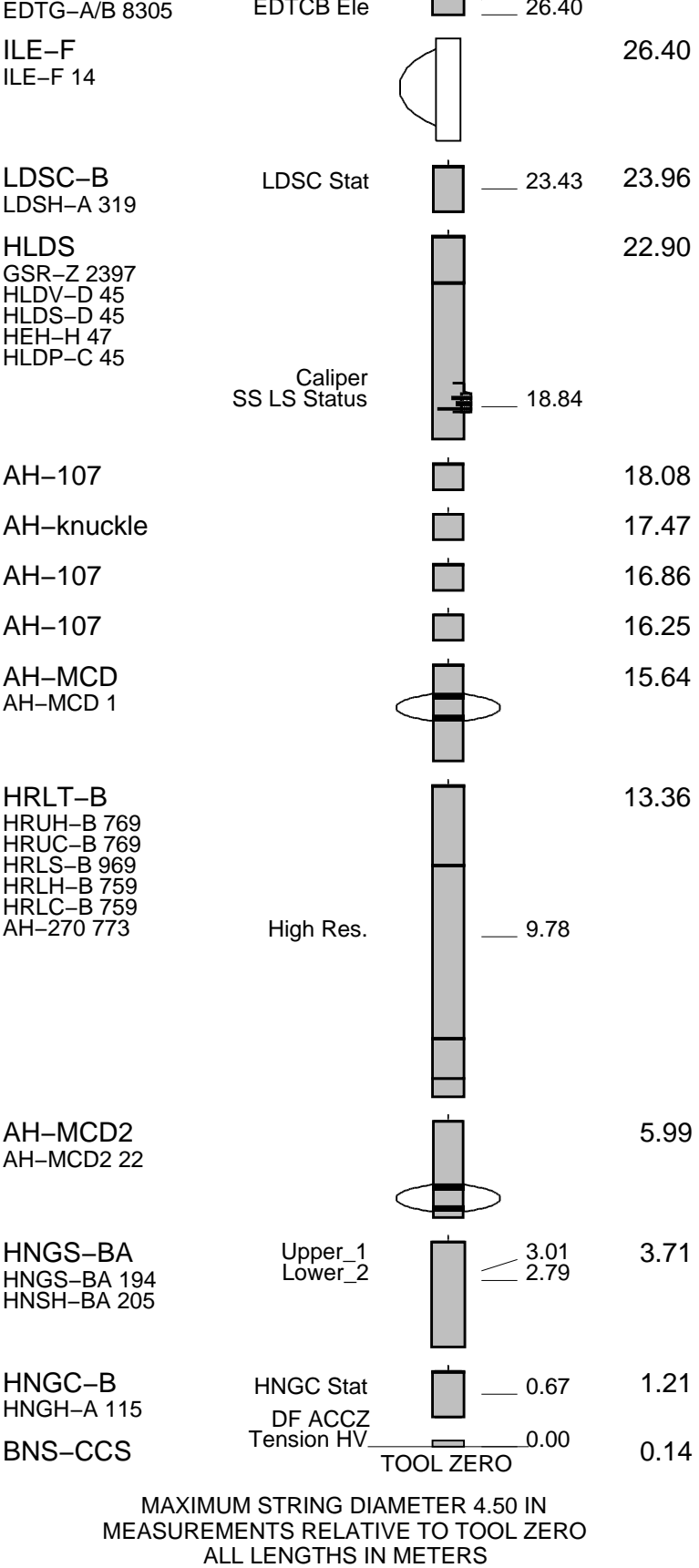
DISCLAIMER

THE USE OF AND RELIANCE UPON THIS RECORDED-DATA BY THE HEREIN NAMED COMPANY (AND ANY OF ITS AFFILIATES, PARTNERS, REPRESENTATIVES, AGENTS, CONSULTANTS AND EMPLOYEES) IS SUBJECT TO THE TERMS AND CONDITIONS AGREED UPON BETWEEN SCHLUMBERGER AND THE COMPANY, INCLUDING: (a) RESTRICTIONS ON USE OF THE RECORDED-DATA; (b) DISCLAIMERS AND WAIVERS OF WARRANTIES AND REPRESENTATIONS REGARDING COMPANY'S USE OF AND RELIANCE UPON THE RECORDED-DATA; AND (c) CUSTOMER'S FULL AND SOLE RESPONSIBILITY FOR ANY INFERENCE DRAWN OR DECISION MADE IN CONNECTION WITH THE USE OF THIS RECORDED-DATA.

OTHER SERVICES1 OS1: DSI OS2: FMS OS3: OS4: OS5:			OTHER SERVICES2 OS1: OS2: OS3: OS4: OS5:		
REMARKS: RUN NUMBER 1			REMARKS: RUN NUMBER 2		
Hole GC-02B Hole A was drilled with a 9 7/8" APC/XCB bit to TDD of 350 mbsf.					
This log originally acquired in measured depth from rig floor and played back for sea floor depth reference.					
HRLA experienced spiking on log curves on uplog near Drill pipe. This is not a formation response as it does not repeat exactly on the downlog.					
Playback of main pass uses barite for corrections of gamma ray.					
Playback of main pass uses caliper as input for borehole corrections.					
All logs recorded via wireline thru 5-5.5" drillpipe and RCB coring BHA consisting of a bit release sub, Kinley sub, drill collars, and lockable flapper valve.					
<div style="text-align: center;">RUN 1</div> <div> <div>SERVICE ORDER #:</div> <div>PROGRAM VERSION: 19C0-187</div> <div>FLUID LEVEL:</div> </div>			<div style="text-align: center;">RUN 2</div> <div> <div>SERVICE ORDER #:</div> <div>PROGRAM VERSION:</div> <div>FLUID LEVEL:</div> </div>		
LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP

[illegible]

RUN 1		RUN 2	
SURFACE EQUIPMENT			
GSR-U 616008 WITM (EDTS)-A 1			
DOWNHOLE EQUIPMENT			
LEH-QT			29.71
LEH-QT 301			
AH-369	MDSB_EDTC		28.82
	Mud Tempe		
	CTEM		
EDTC-B	Gamma Ray		28.38
EDTH-B 8303	EFTB DIAG		
EDTC-B 8317	TelStatus		



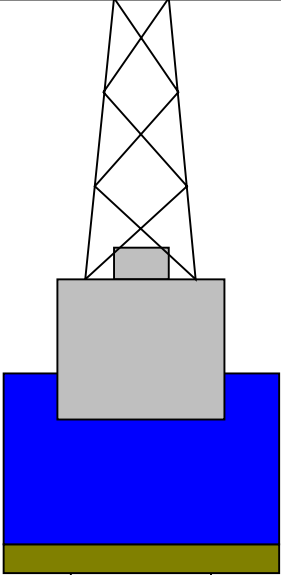
Production String	(in)	(M)	Well Schematic	(M)	(in)	Casing String
	OD	ID		MD	OD	

Kelly Bushing Elevation
Derrick Floor Elevation

Mean Sea Level

-1005.1
-1005.1

-994.1



4.1



0
96

350

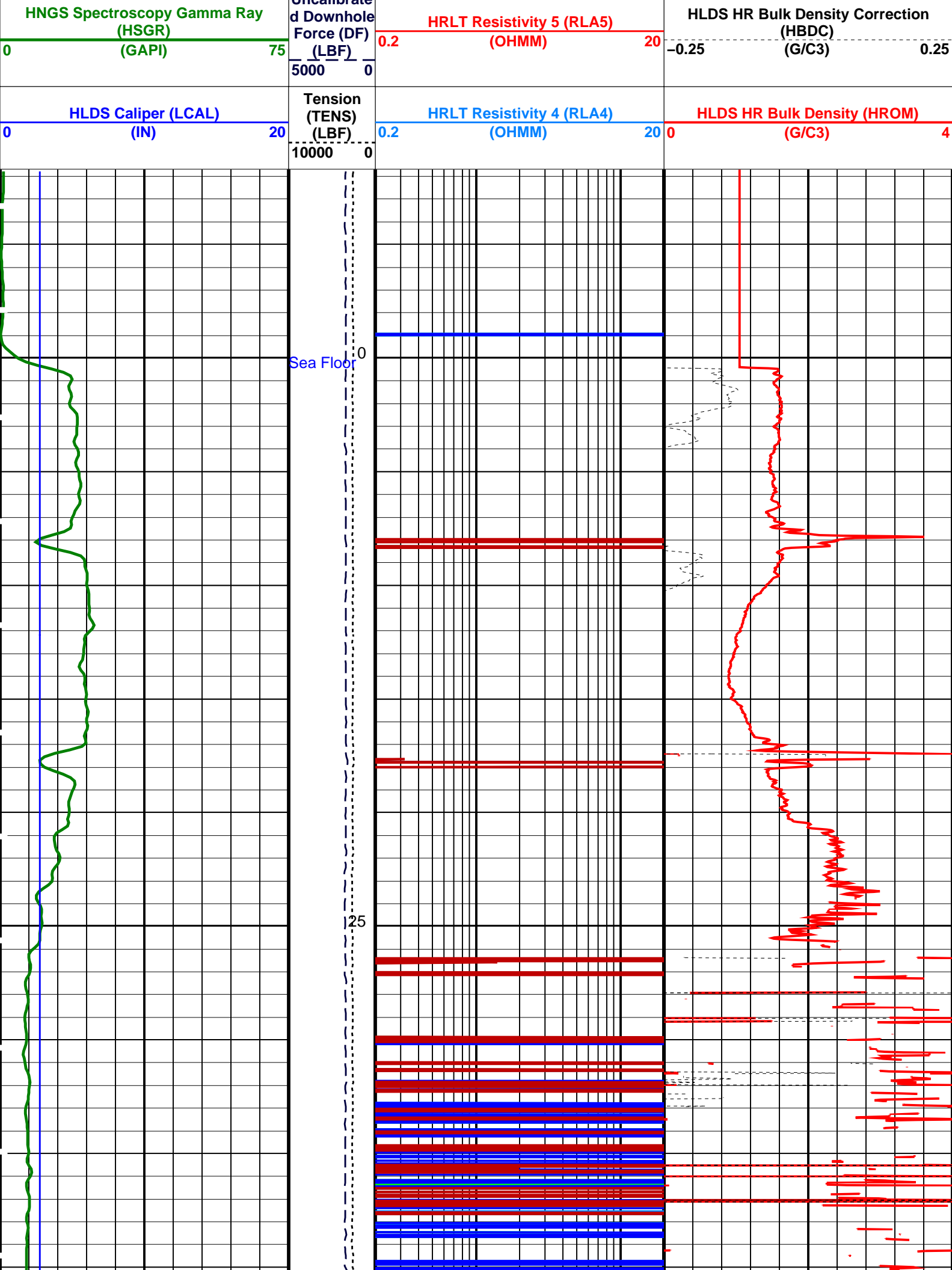
3.80
9.875

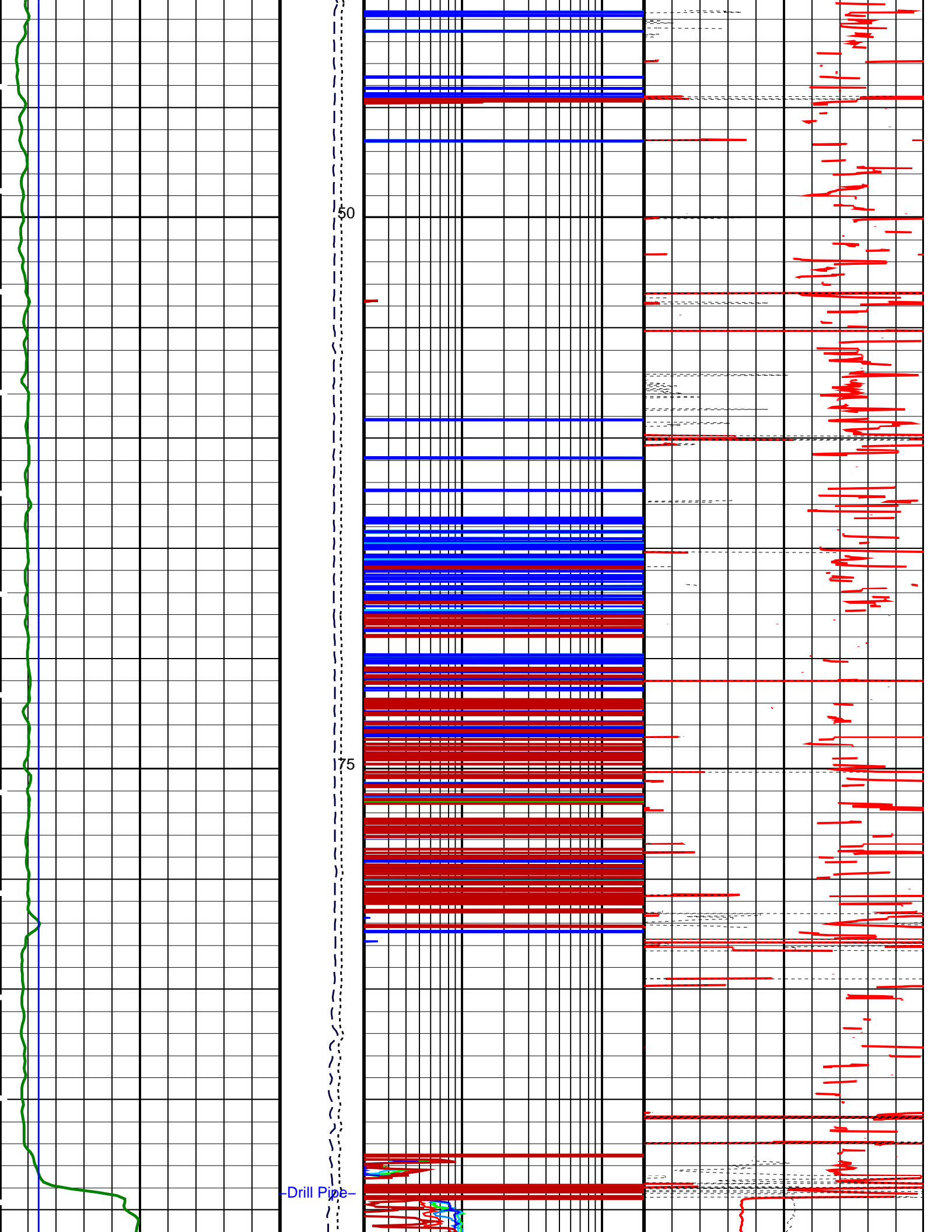
Sea Floor
Open Hole

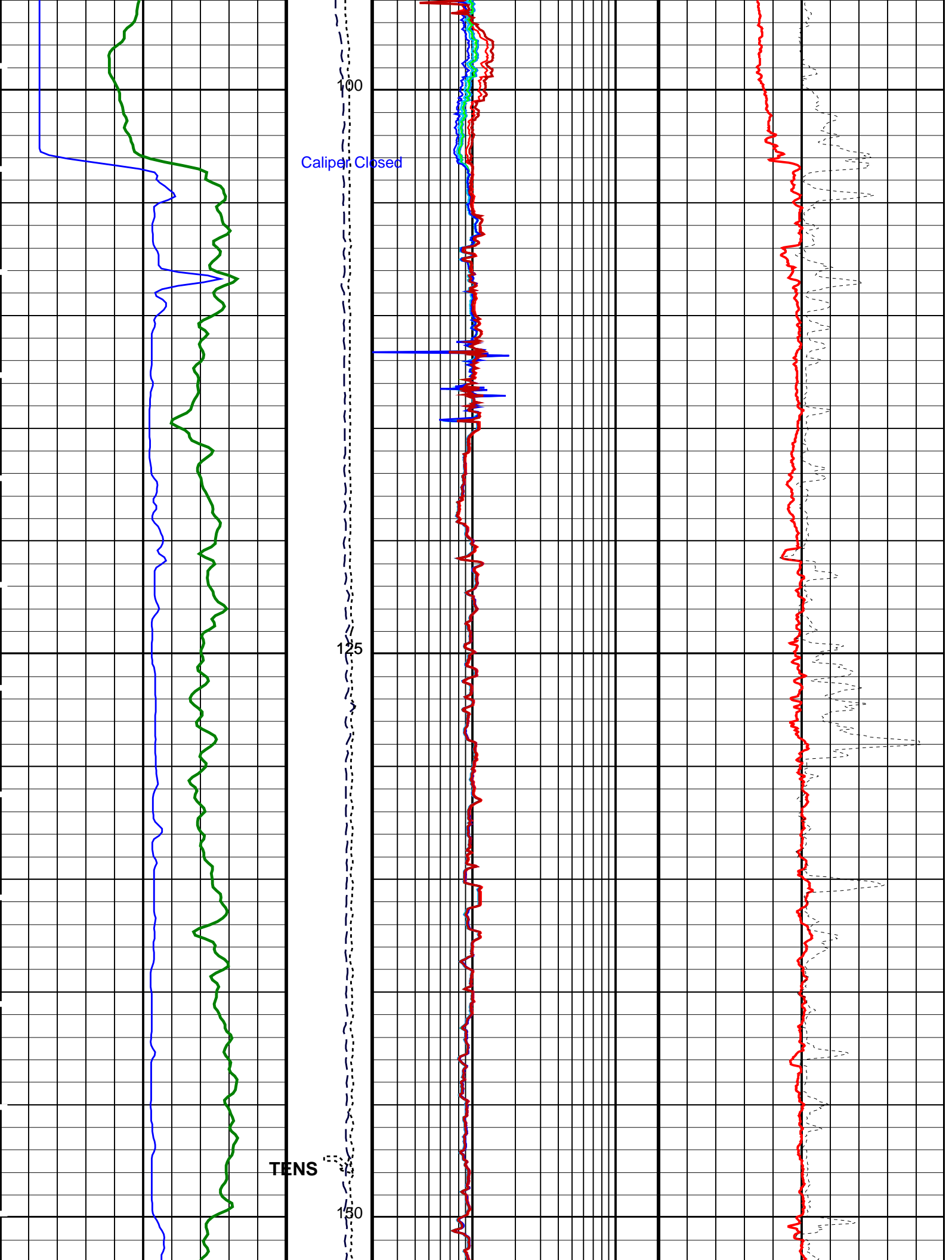
Total Depth

Input DLIS Files						
DEFAULT	NGS_HRLA_LDL_014LUP	FN:20	PRODUCER	05-Jan-2012 01:33	1353.3 M	996.5 M
Output DLIS Files						
DEFAULT	NGS_HRLA_LDL_034PUP	FN:46	PRODUCER	06-Jan-2012 09:39	347.5 M	-8.4 M
OP System Version: 19C0-187						
HNGC-B	19C0-187		HNGS-BA	19C0-187		
HRLT-B	19C0-187		HLDS	19C0-187		
LDSC-B	19C0-187		EDTC-B	19C0-187		

PIP SUMMARY		
<div> <div>Time Mark Every 60 S</div> <div> <div>Main Log</div> <div>Sea Floor Depth Reference</div> <div>Playback with LCAL and Barite for corrections</div> </div> </div>		
	<div> <div>HRLT True Resistivity (RT_HRLT)</div> <div>0.2 (OHMM) 20</div> </div>	
	<div> <div>HRLT Resistivity 1 (RLA1)</div> <div>0.2 (OHMM) 20</div> </div>	
	<div> <div>HRLT Resistivity 2 (RLA2)</div> <div>0.2 (OHMM) 20</div> </div>	
	<div> <div>HRLT Resistivity 3 (RLA3)</div> <div>0.2 (OHMM) 20</div> </div>	
Uncalibrate		







LCAL

HSGR

DF

175

200

RT_HRLT

RLA1

RLA2

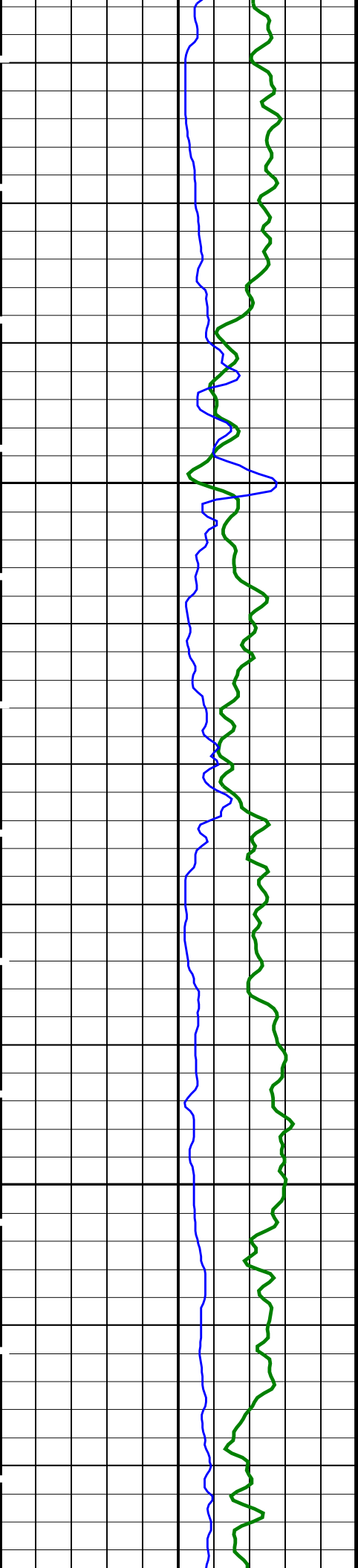
RLA3

RLA5

RLA4

HBDC

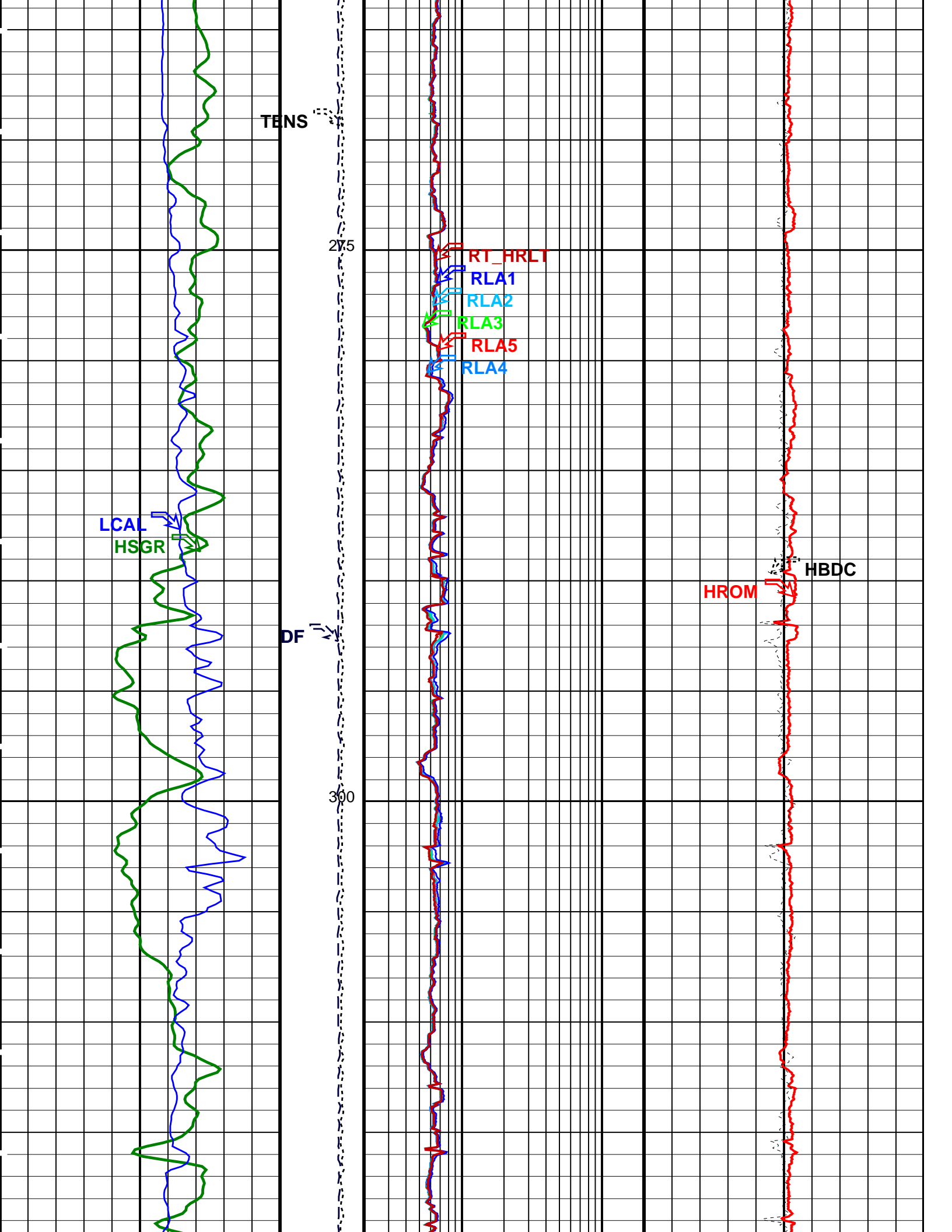
HROM

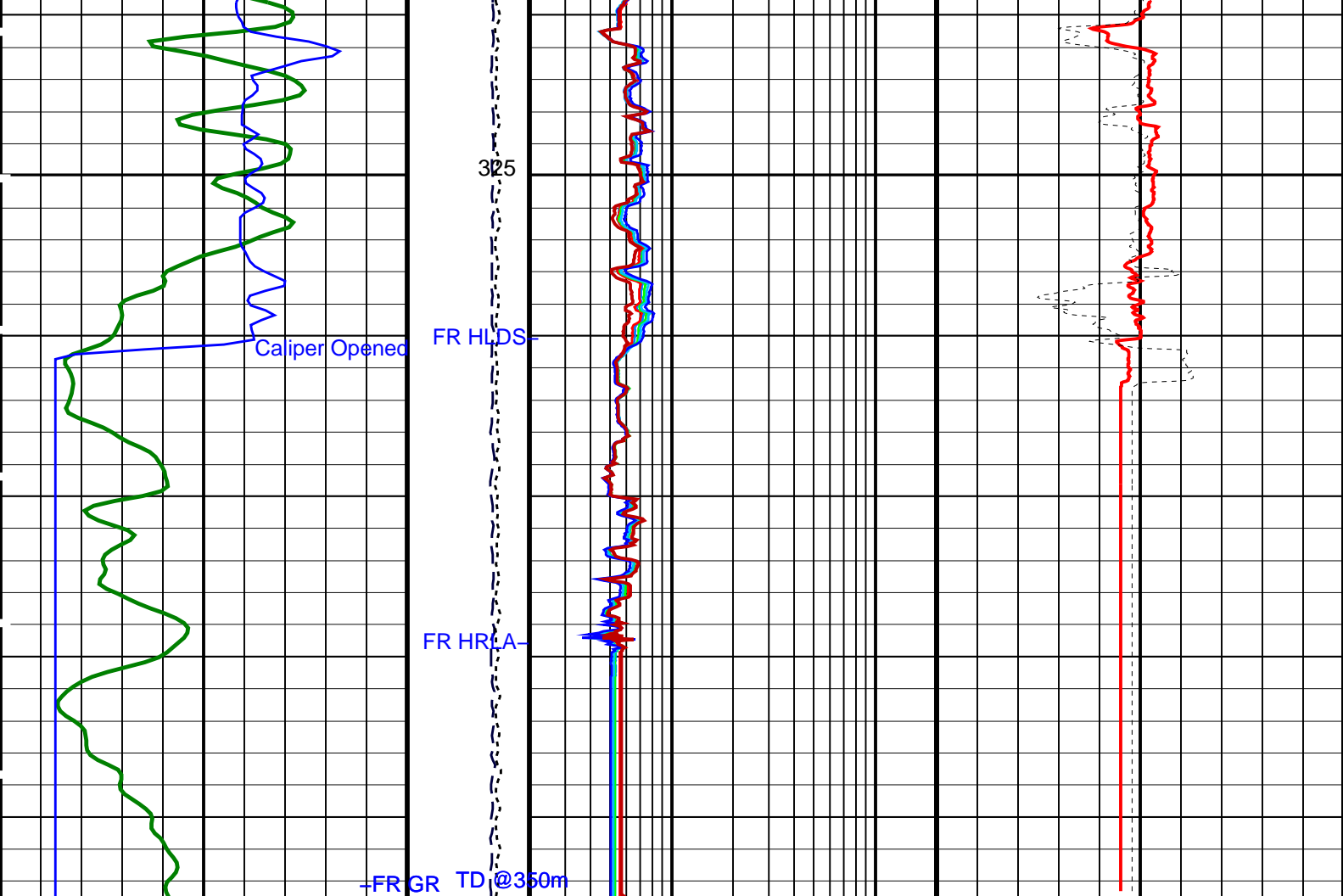


225

250







HLDS Caliper (LCAL) (IN)	Tension (TENS) (LBF)	HRLT Resistivity 4 (RLA4) (OHMM)	HLDS HR Bulk Density (HROM) (G/C3)
020	100000	0.220	04
HNGS Spectroscopy Gamma Ray (HSGR) (GAPI)	Uncalibrated Downhole Force (DF) (LBF)	HRLT Resistivity 5 (RLA5) (OHMM)	HLDS HR Bulk Density Correction (HBDC) (G/C3)
075	50000	0.220	-0.250.25
		HRLT Resistivity 3 (RLA3) (OHMM)	<div>Main Log</div> <div>Sea Floor Depth Reference</div>
		0.220	
		HRLT Resistivity 2 (RLA2) (OHMM)	
		0.220	
		HRLT Resistivity 1 (RLA1) (OHMM)	
		0.220	
		HRLT True Resistivity (RT_HRLT) (OHMM)	
		0.220	

PIP SUMMARY

Time Mark Every 60 S

Playback with LCAL and Barite for corrections

Parameters		
DLIS Name	Description	Value
HNGS-BA: Hostile Natural Gamma Ray Sonde		
BAR1	HNGS Detector 1 Barite Constant	1
BAR2	HNGS Detector 2 Barite Constant	1
BHK	HNGS Borehole Potassium Correction Concentration	0
BHS	Borehole Status	OPEN
BHT	Bottom Hole Temperature (used in calculations)	50 DEGF
CSD1	Inner Casing Outer Diameter	0 IN

CSD2	Outer Casing Outer Diameter	0	IN
CSW1	Inner Casing Weight	0	LB/F
CSW2	Outer Casing Weight	0	LB/F
DBCC	HNGS Barite Constant Correction Flag	NONE	
GCSE	Generalized Caliper Selection	LCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	CHART_GEN 9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
H1P	HNGS Detector 1 Allow/Disallow In Processing	ALLOW	
H2P	HNGS Detector 2 Allow/Disallow In Processing	ALLOW	
HABK	HNGS Borehole Potassium Running Average	-0.00194953	
HALF	HNGS Alpha Filter Length	60	IN
HCRB	HNGS Apply Borehole Potassium Correction	NONE	
HMWM	Mud Weighting Material	BARI	
HNPE	HNGS Processing Enable	YES	
ISSBAR	Barite Mud Switch	NOBARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
S1BI	HNGS Detector 1 Calibration Bismuth Count Rate	1.3	CPS
S2BI	HNGS Detector 2 Calibration Bismuth Count Rate	1.3	CPS
SGRC	HNGS Standard Gamma-Ray Correction Flag	YES	
SHT	Surface Hole Temperature	68	DEGF
TPOS	Tool Position	ECCE	
VBA1	HNGS Detector 1 Variable Barite Factor Running Average	0.968094	
VBA2	HNGS Detector 2 Variable Barite Factor Running Average	0.962571	
HRLT-B: High Resolution Laterolog Array - B			
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	50	DEGF
CALSTAT	HRLTB Calibration Status	SHALLOW_DONE	
CALTEMP	HRLTB Calibration Temperature	23.3869	DEGC
FREQ0	HRLT Frequency Index for Mode 0	32	
FREQ1	HRLT Frequency Index for Mode 1	128	
FREQ2	HRLT Frequency Index for Mode 2	104	
FREQ3	HRLT Frequency Index for Mode 3	86	
FREQ4	HRLT Frequency Index for Mode 4	56	
FREQ5	HRLT Frequency Index for Mode 5	44	
FREQ6	HRLT Frequency Index for Mode 6	116	
GCSE	Generalized Caliper Selection	LCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	CHART_GEN 9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
ISSBAR	Barite Mud Switch	NOBARITE	
KFAC_HRLT	HRLT K Factor Option	SONDE	
LOOPCOEF_S	HRLT Loop Coefficient for Shallow Modes	LOW	
LOOPMOD0	HRLT Mode 0 Loop Mode	AUTO	
LOOPMOD1	HRLT Mode 1 Loop Mode	AUTO	
LOOPMOD2	HRLT Mode 2 Loop Mode	AUTO	
LOOPMOD3	HRLT Mode 3 Loop Mode	AUTO	
LOOPMOD4	HRLT Mode 4 Loop Mode	AUTO	
LOOPMOD5	HRLT Mode 5 Loop Mode	AUTO	
LOOPMOD6	HRLT Mode 6 Loop Mode	AUTO	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
PROCI NV	Inversion Selection	ON	
PROCMFL	Inversion Micro-Resistivity Selection	NO_EXTERNAL_RXO	
PROCMSO	Mechanical Standoff Fin Size	0	IN
PROCRM	Processing Mud Resistivity Select	HRLT_Compute	
PROCSPO	Sonde Position	Centered	
SHT	Surface Hole Temperature	68	DEGF
HLDS: Hostile Litho-Density Sonde			
CLCL	HLDS LS Control Loop Controller Mode	AUTO_DEFAULT	
CLCS	HLDS SS Control Loop Controller Mode	AUTO_DEFAULT	
CLLS	HLDS Mode Loop Long Spacing	AUTO	
CLSS	HLDS Mode Loop Short Spacing	AUTO	
DHC	Density Hole Correction	BS	
DPPM	Density Porosity Processing Mode	HIRS	
FD	Fluid Density	1	G/C3
LATC	HLDS Activation Correction	OFF	
LLDL	HLDS LS Low Level Discriminator DAC	14000	
LLDS	HLDS SS Low Level Discriminator DAC	14000	
LLML	HLDS LS Low Level Discriminator Mode	AUTO	
LLMS	HLDS SS Low Level Discriminator Mode	AUTO	
MDEN	Matrix Density	2.71	G/C3
PHVL	HLDS Long Spacing High Voltage Setting	1000	V
PHVS	HLDS Short Spacing High Voltage Setting	1000	V
PSDL	HLDS LS Pulse Shape Compensation DAC	30000	
PSDS	HLDS SS Pulse Shape Compensation DAC	30000	
PSML	HLDS LS Pulse Shape Compensation Mode	AUTO	
PSMS	HLDS SS Pulse Shape Compensation Mode	AUTO	
EDTC-B: Enhanced DTS Cartridge			
BHFL	Borehole Fluid Type	WATER	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	50	DEGF
BSCO	Borehole Salinity Correction Option	NO	
CCCO	Casing & Cement Thickness Correction Option	NO	

CCCC	Casing & Cement Thickness Correction Option	NO	
DPPM	Density Porosity Processing Mode	HIRS	
FSAL	Formation Salinity	-50000	PPM
FSCO	Formation Salinity Correction Option	NO	
GCSE	Generalized Caliper Selection	LCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
HSCO	Hole Size Correction Option	YES	
ISSBAR	Barite Mud Switch	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	YES	
PTCO	Pressure/Temperature Correction Option	NO	
SDAT	Standoff Data Source	SOCN	
SHT	Surface Hole Temperature	68	DEGF
SOCN	Standoff Distance	0	IN
SOCO	Standoff Correction Option	NO	
TPOS_EDTC	EDTC Tool Centered/Eccentered	Eccentered	
U-ETELM_EDTS	Telemetry Mode for eWAFE	Standard_EDTS	
U-TELM_EDTS	Telemetry Mode for WAFE	Standard_EDTS	
System and Miscellaneous			
ALTDPCCHAN	Name of alternate depth channel	SpeedCorrectedDepth	
BS	Bit Size	9.875	IN
BSAL	Borehole Salinity	-50000.00	PPM
CSIZ	Current Casing Size	10.750	IN
CWEI	Casing Weight	43.00	LB/F
DFD	Drilling Fluid Density	1.25	G/C3
DO	Depth Offset for Playback	-1005.0	M
FLEV	Fluid Level	-50000.00	M
MST	Mud Sample Temperature	-50000.00	DEGC
PBVSADP	Use alternate depth channel for playback	NO	
PP	Playback Processing	RECOMPUTE	
RMFS	Resistivity of Mud Filtrate Sample	-50000.0000	OHMM
RW	Resistivity of Connate Water	1.0000	OHMM
TD	Total Depth	1364.89	M
TDD	Total Depth - Driller	1365.00	M
TDL	Total Depth - Logger	1365.00	M
TWS	Temperature of Connate Water Sample	37.78	DEGC

Format: TripleCombo Vertical Scale: 1:200 Graphics File Created: 06-Jan-2012 09:39

OP System Version: 19C0-187

HNGC-B	19C0-187	HNGS-BA	19C0-187
HRLT-B	19C0-187	HLDS	19C0-187
LDSC-B	19C0-187	EDTC-B	19C0-187

Input DLIS Files

DEFAULT	NGS_HRLA_LDL_014LUP	FN:20	PRODUCER	05-Jan-2012 01:33	1353.3 M	996.5 M
---------	---------------------	-------	----------	-------------------	----------	---------

Output DLIS Files

DEFAULT	NGS_HRLA_LDL_034PUP	FN:46	PRODUCER	06-Jan-2012 09:39		
---------	---------------------	-------	----------	-------------------	--	--

Input DLIS Files

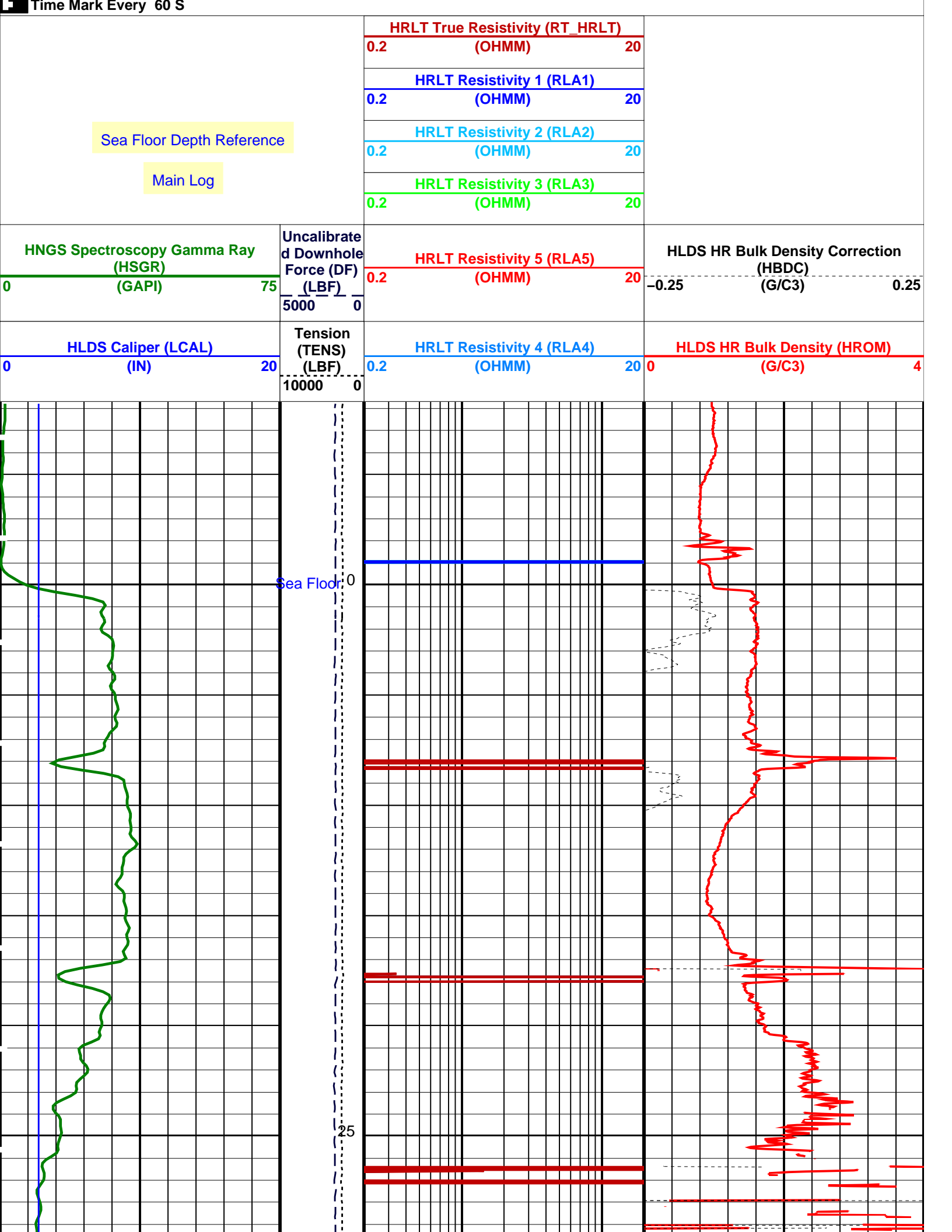
DEFAULT	NGS_HRLA_LDL_014LUP	FN:20	PRODUCER	05-Jan-2012 01:33	1353.3 M	996.5 M
---------	---------------------	-------	----------	-------------------	----------	---------

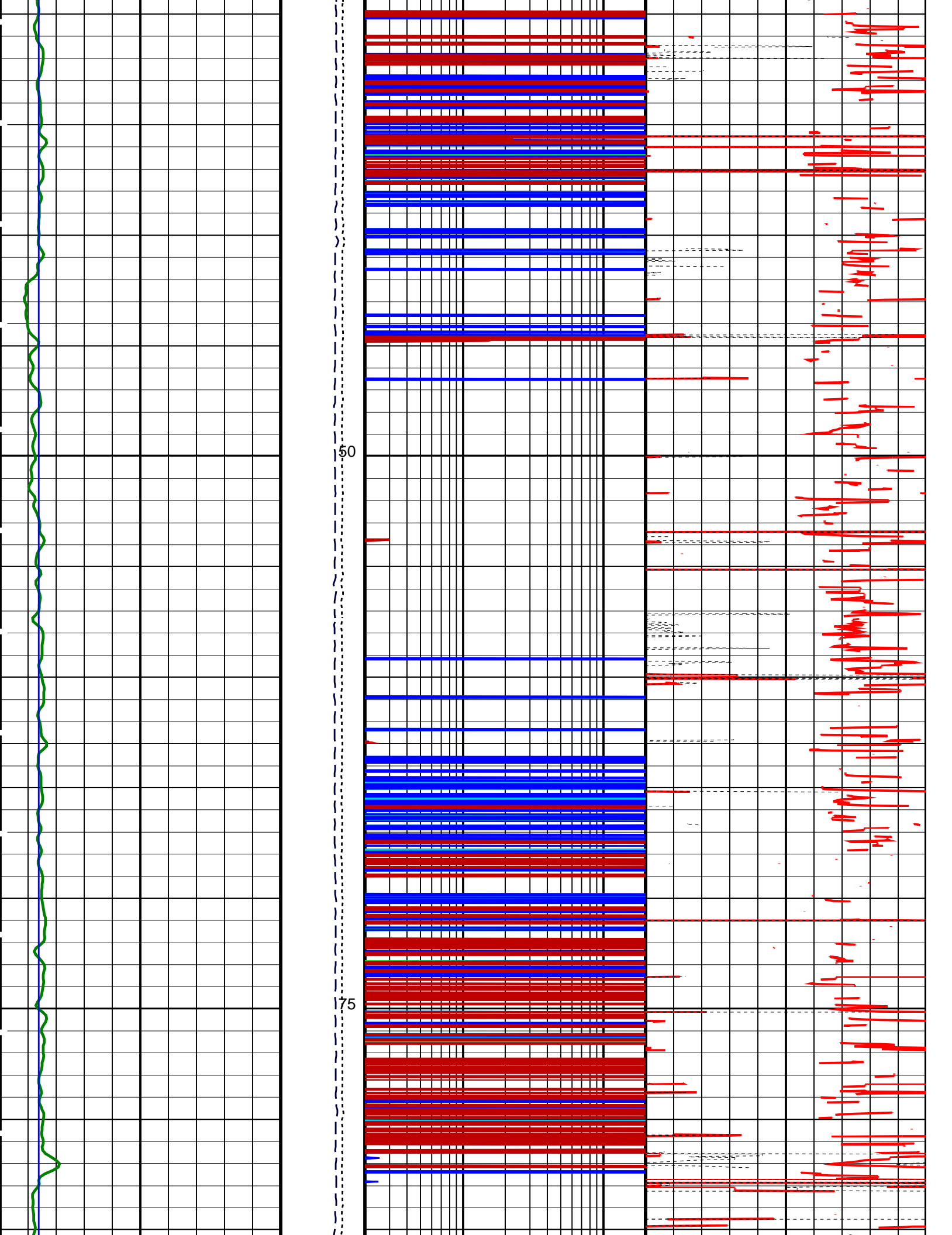
Output DLIS Files

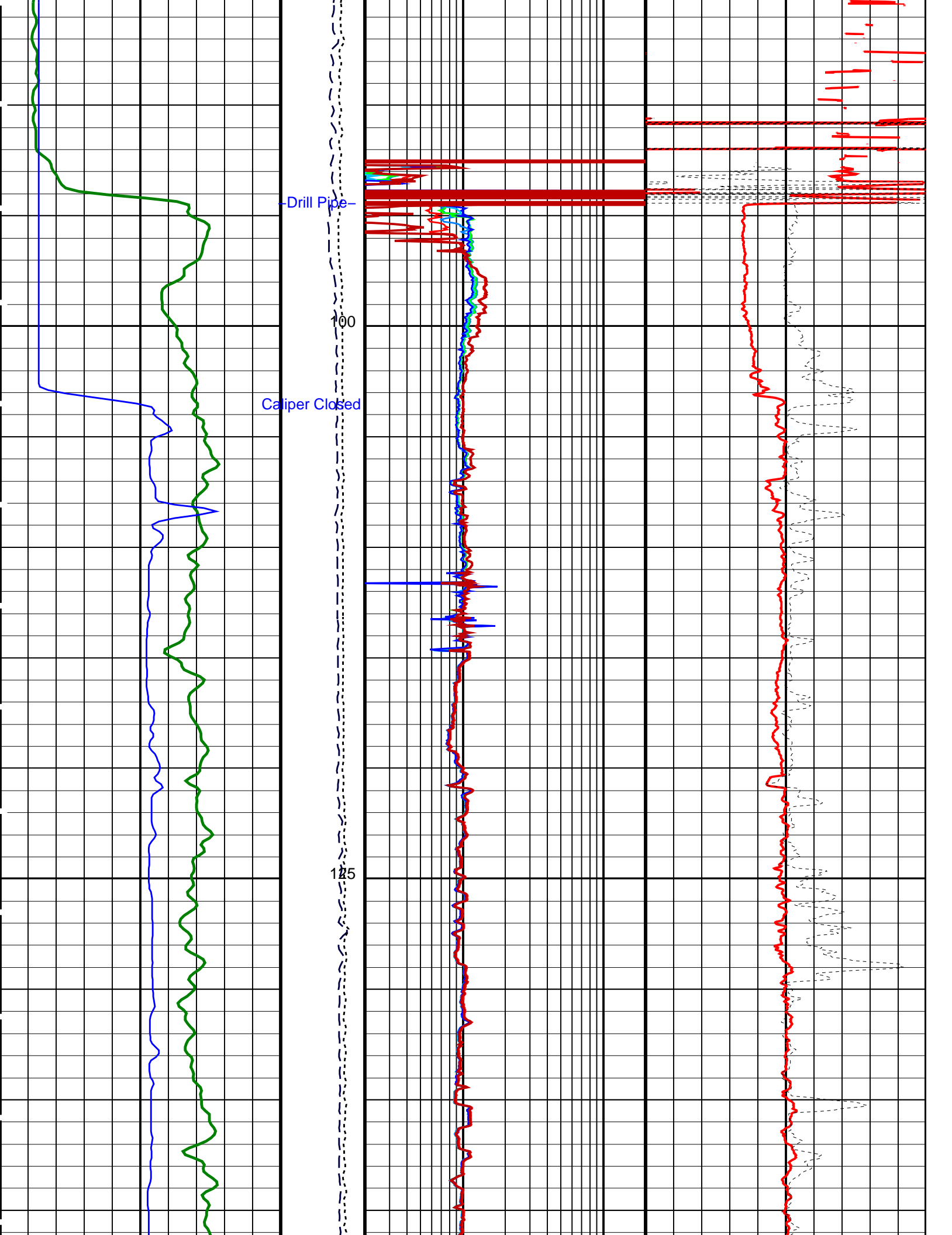
DEFAULT	NGS_HRLA_LDL_033PUP	FN:45	PRODUCER	06-Jan-2012 09:24	347.5 M	-8.4 M
---------	---------------------	-------	----------	-------------------	---------	--------

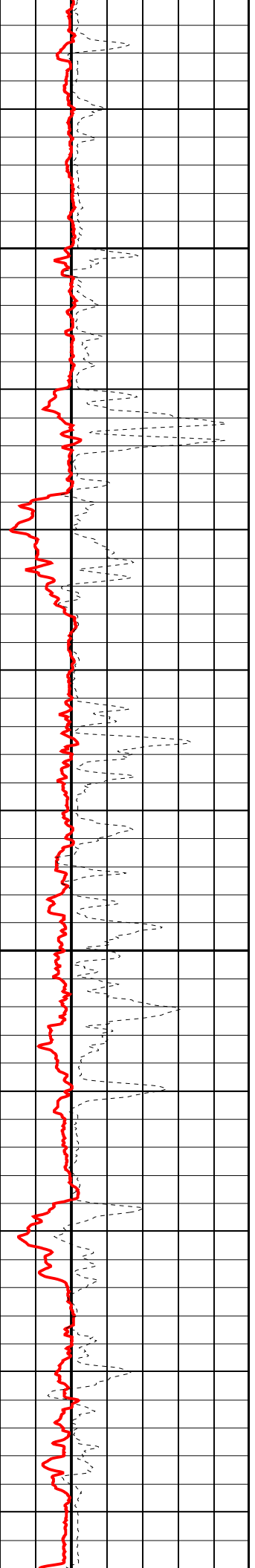
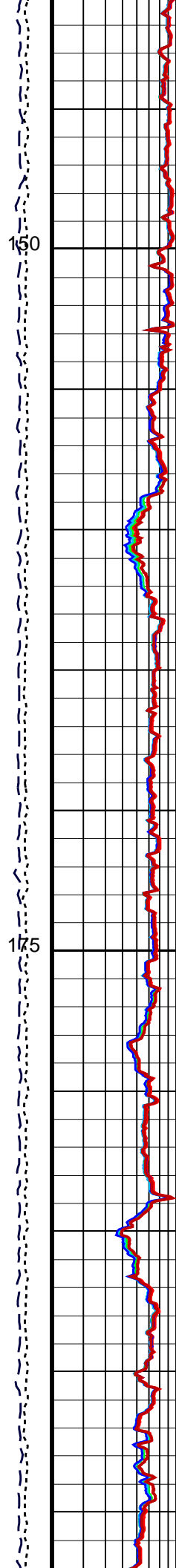
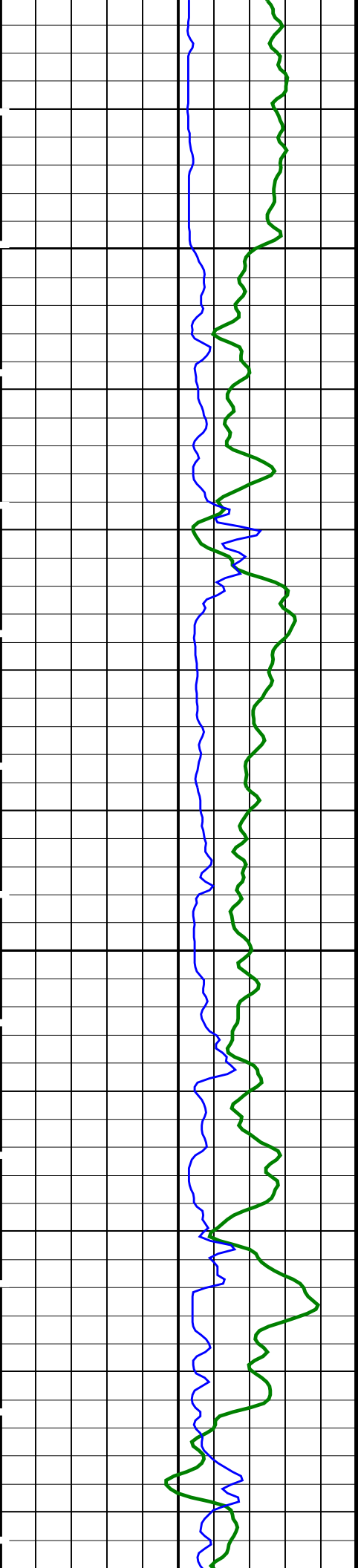
OP System Version: 19C0-187

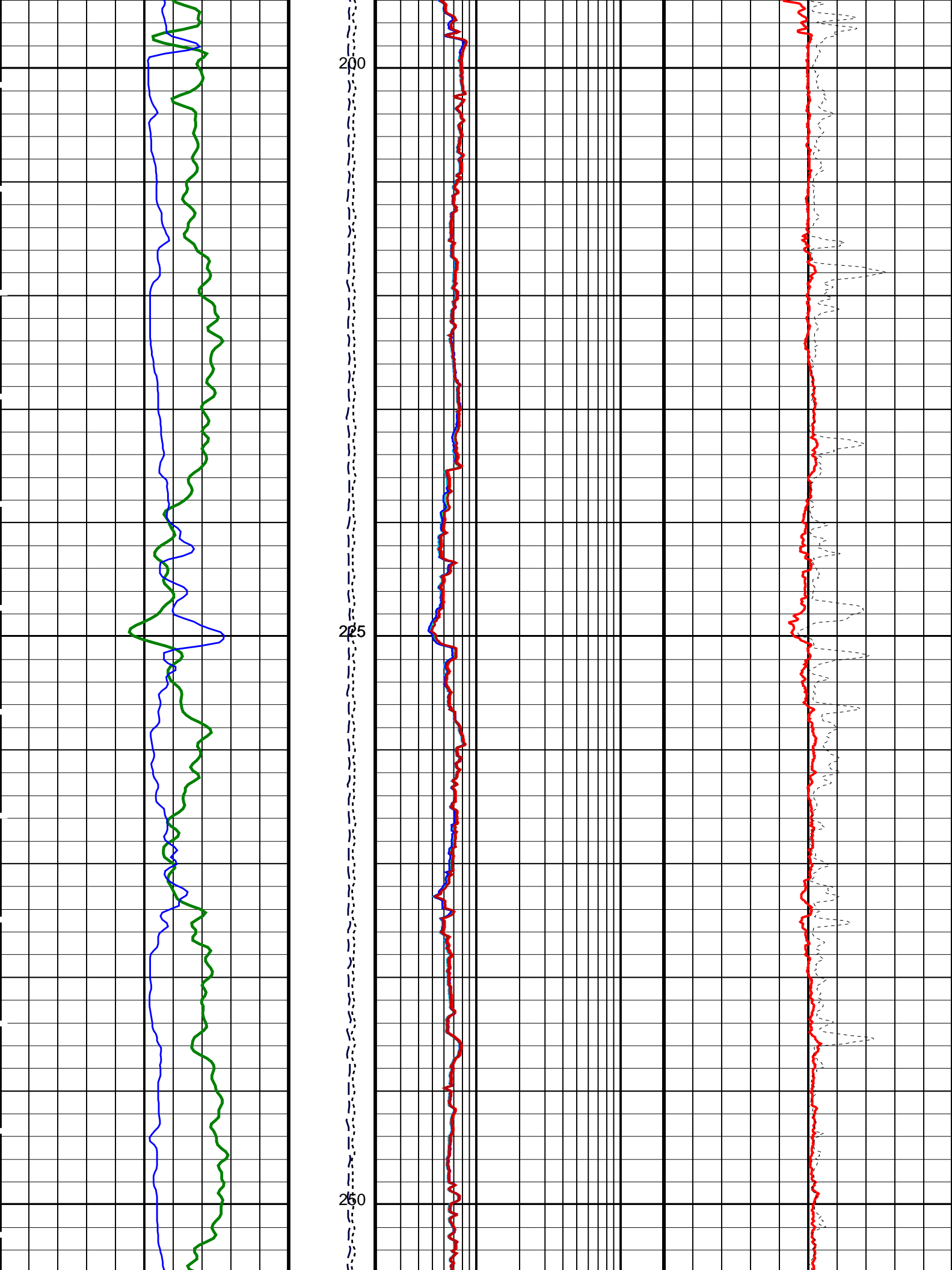
HNGC-B	19C0-187	HNGS-BA	19C0-187
HRLT-B	19C0-187	HLDS	19C0-187
LDSC-B	19C0-187	EDTC-B	19C0-187

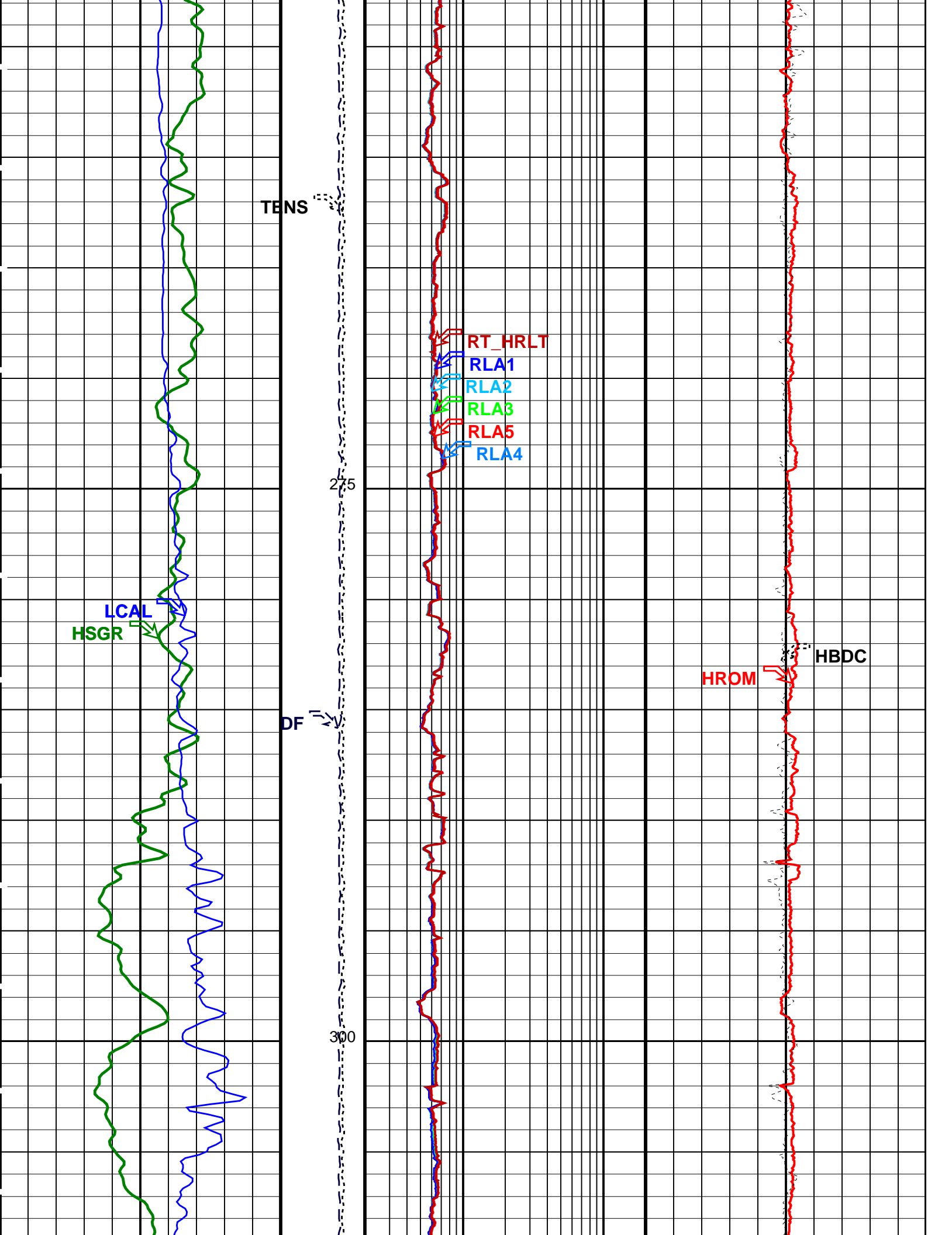


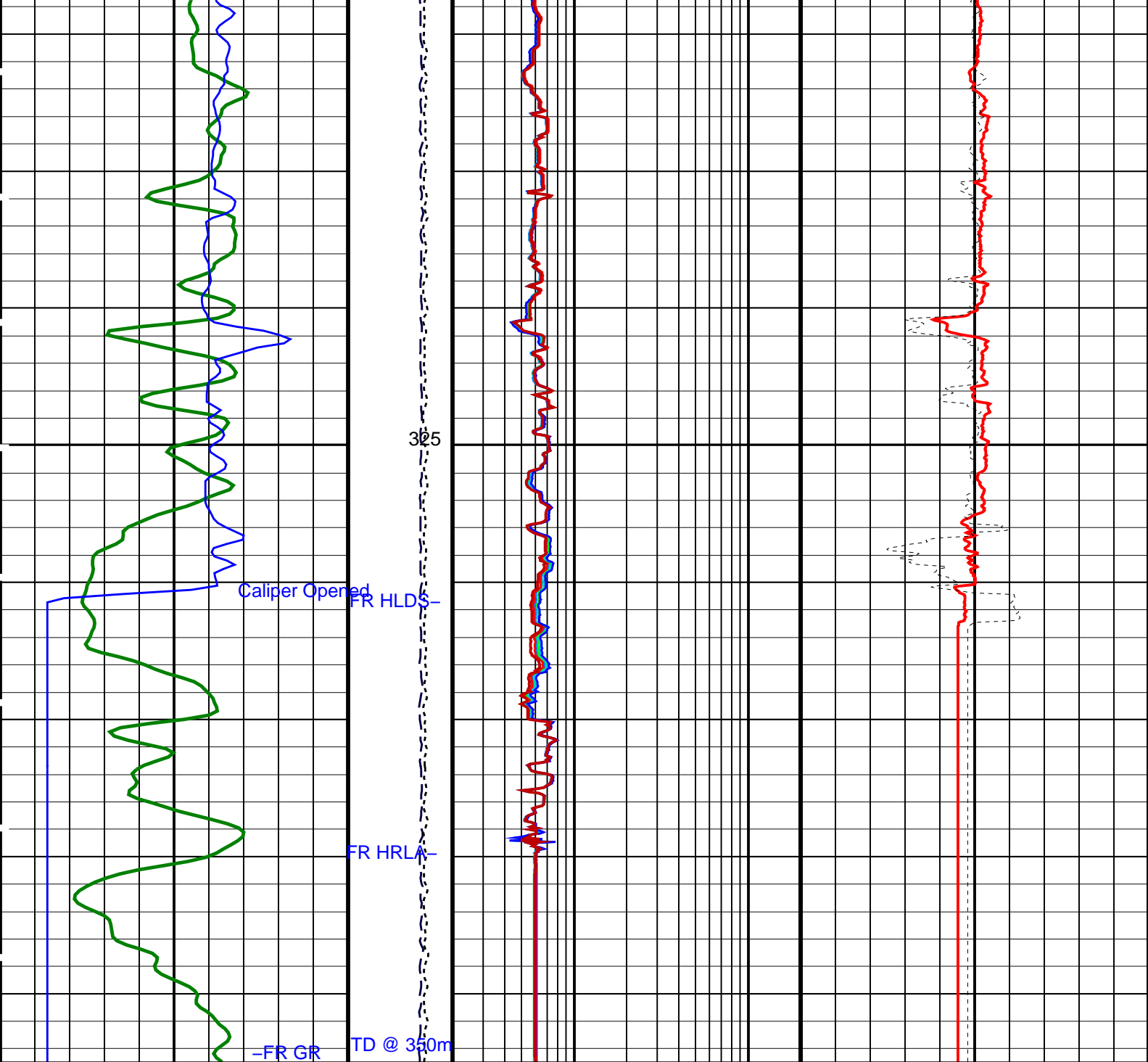












HLDS Caliper (LCAL) (IN) 0 20	Tension (TENS) (LBF) 10000 0	HRLT Resistivity 4 (RLA4) (OHMM) 0.2 20	HLDS HR Bulk Density (HROM) (G/C3) 0 4
HNGS Spectroscopy Gamma Ray (HSGR) (GAPI) 0 75	Uncalibrated Downhole Force (DF) (LBF) 5000 0	HRLT Resistivity 5 (RLA5) (OHMM) 0.2 20	HLDS HR Bulk Density Correction (HBDC) (G/C3) -0.25 0.25

HRLT Resistivity 3 (RLA3) (OHMM) 0.2 20	
HRLT Resistivity 2 (RLA2) (OHMM) 0.2 20	
HRLT Resistivity 1 (RLA1) (OHMM) 0.2 20	
HRLT True Resistivity (RT_HRLT) (OHMM) 0.2 20	

Main Log

Sea Floor Depth Reference

Parameters

DLIS Name	Description	Value	
HNGS-BA: Hostile Natural Gamma Ray Sonde			
BAR1	HNGS Detector 1 Barite Constant	1	
BAR2	HNGS Detector 2 Barite Constant	1	
BHK	HNGS Borehole Potassium Correction Concentration	0	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	50	DEGF
CSD1	Inner Casing Outer Diameter	0	IN
CSD2	Outer Casing Outer Diameter	0	IN
CSW1	Inner Casing Weight	0	LB/F
CSW2	Outer Casing Weight	0	LB/F
DBCC	HNGS Barite Constant Correction Flag	NONE	
GCSE	Generalized Caliper Selection	BS	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	CHART_GEN 9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
H1P	HNGS Detector 1 Allow/Disallow In Processing	ALLOW	
H2P	HNGS Detector 2 Allow/Disallow In Processing	ALLOW	
HABK	HNGS Borehole Potassium Running Average	-0.00194953	
HALF	HNGS Alpha Filter Length	60	IN
HCRB	HNGS Apply Borehole Potassium Correction	NONE	
HMWM	Mud Weighting Material	NATU	
HNPE	HNGS Processing Enable	YES	
ISSBAR	Barite Mud Switch	NOBARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
S1BI	HNGS Detector 1 Calibration Bismuth Count Rate	1.3	CPS
S2BI	HNGS Detector 2 Calibration Bismuth Count Rate	1.3	CPS
SGRC	HNGS Standard Gamma-Ray Correction Flag	YES	
SHT	Surface Hole Temperature	68	DEGF
TPOS	Tool Position	ECCE	
VBA1	HNGS Detector 1 Variable Barite Factor Running Average	0.968094	
VBA2	HNGS Detector 2 Variable Barite Factor Running Average	0.962571	
HRLT-B: High Resolution Laterolog Array - B			
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	50	DEGF
CALSTAT	HRLTB Calibration Status	SHALLOW_DONE	
CALTEMP	HRLTB Calibration Temperature	23.3869	DEGC
FREQ0	HRLT Frequency Index for Mode 0	32	
FREQ1	HRLT Frequency Index for Mode 1	128	
FREQ2	HRLT Frequency Index for Mode 2	104	
FREQ3	HRLT Frequency Index for Mode 3	86	
FREQ4	HRLT Frequency Index for Mode 4	56	
FREQ5	HRLT Frequency Index for Mode 5	44	
FREQ6	HRLT Frequency Index for Mode 6	116	
GCSE	Generalized Caliper Selection	BS	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	CHART_GEN 9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
ISSBAR	Barite Mud Switch	NOBARITE	
KFAC_HRLT	HRLT K Factor Option	SONDE	
LOOPCOEF_S	HRLT Loop Coefficient for Shallow Modes	LOW	
LOOPMOD0	HRLT Mode 0 Loop Mode	AUTO	
LOOPMOD1	HRLT Mode 1 Loop Mode	AUTO	
LOOPMOD2	HRLT Mode 2 Loop Mode	AUTO	
LOOPMOD3	HRLT Mode 3 Loop Mode	AUTO	
LOOPMOD4	HRLT Mode 4 Loop Mode	AUTO	
LOOPMOD5	HRLT Mode 5 Loop Mode	AUTO	
LOOPMOD6	HRLT Mode 6 Loop Mode	AUTO	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
PROCVN	Inversion Selection	ON	
PROCMFL	Inversion Micro-Resistivity Selection	NO_EXTERNAL_RXO	
PROCMSO	Mechanical Standoff Fin Size	0	IN
PROCRM	Processing Mud Resistivity Select	HRLT_Compute	
PROCSP0	Sonde Position	Centered	
SHT	Surface Hole Temperature	68	DEGF
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	
HLDS	HLDS LS Loop Long Spacing Discriminator P.A.C.	14222	

LLDL	HLDS LS Low Level Discriminator DAC	14000	
LLDS	HLDS SS Low Level Discriminator DAC	14000	
LLML	HLDS LS Low Level Discriminator Mode	AUTO	
LLMS	HLDS SS Low Level Discriminator Mode	AUTO	
MDEN	Matrix Density	2.71	G/C3
PHVL	HLDS Long Spacing High Voltage Setting	1000	V
PHVS	HLDS Short Spacing High Voltage Setting	1000	V
PSDL	HLDS LS Pulse Shape Compensation DAC	30000	
PSDS	HLDS SS Pulse Shape Compensation DAC	30000	
PSML	HLDS LS Pulse Shape Compensation Mode	AUTO	
PSMS	HLDS SS Pulse Shape Compensation Mode	AUTO	
EDTC-B: Enhanced DTS Cartridge			
BHFL	Borehole Fluid Type	WATER	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	50	DEGF
BSCO	Borehole Salinity Correction Option	NO	
CCCO	Casing & Cement Thickness Correction Option	NO	
DPPM	Density Porosity Processing Mode	HIRS	
FSAL	Formation Salinity	-50000	PPM
FSCO	Formation Salinity Correction Option	NO	
GCSE	Generalized Caliper Selection	BS	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	CHART_GEN 9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
HSCO	Hole Size Correction Option	YES	
ISSBAR	Barite Mud Switch	NOBARITE	
ISSBAR_EDTC	Nuclear Mud Type	NOBARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
MCCO	Mud Cake Correction Option	NO	
MCOR	Mud Correction	NATU	
MWCO	Mud Weight Correction Option	YES	
PTCO	Pressure/Temperature Correction Option	NO	
SDAT	Standoff Data Source	SOCN	
SHT	Surface Hole Temperature	68	DEGF
SOCN	Standoff Distance	0	IN
SOCO	Standoff Correction Option	NO	
TPOS_EDTC	EDTC Tool Centered/Eccentered	Eccentered	
U-ETELM_EDTS	Telemetry Mode for eWAFE	Standard_EDTS	
U-TELM_EDTS	Telemetry Mode for WAFE	Standard_EDTS	
System and Miscellaneous			
ALTDPCCHAN	Name of alternate depth channel	SpeedCorrectedDepth	
BS	Bit Size	9.875	IN
BSAL	Borehole Salinity	-50000.00	PPM
CSIZ	Current Casing Size	10.750	IN
CWEI	Casing Weight	43.00	LB/F
DFD	Drilling Fluid Density	1.25	G/C3
DO	Depth Offset for Playback	-1005.0	M
FLEV	Fluid Level	-50000.00	M
MST	Mud Sample Temperature	-50000.00	DEGC
PBVSADP	Use alternate depth channel for playback	NO	
PP	Playback Processing	NORMAL	
RMFS	Resistivity of Mud Filtrate Sample	-50000.0000	OHMM
RW	Resistivity of Connate Water	1.0000	OHMM
TD	Total Depth	1364.89	M
TDD	Total Depth - Driller	1365.00	M
TDL	Total Depth - Logger	1365.00	M
TWS	Temperature of Connate Water Sample	37.78	DEGC

Format: TripleCombo Vertical Scale: 1:200 Graphics File Created: 06-Jan-2012 09:24

OP System Version: 19C0-187

HNGC-B	19C0-187	HNGS-BA	19C0-187
HRLT-B	19C0-187	HLDS	19C0-187
LDSC-B	19C0-187	EDTC-B	19C0-187

Input DLIS Files

DEFAULT	NGS_HRLA_LDL_014LUP	FN:20	PRODUCER	05-Jan-2012 01:33	1353.3 M	996.5 M
---------	---------------------	-------	----------	-------------------	----------	---------

Output DLIS Files

DEFAULT	NGS_HRLA_LDL_033PUP	FN:45	PRODUCER	06-Jan-2012 09:24		
---------	---------------------	-------	----------	-------------------	--	--

Input DLIS Files

DEFAULT	NGS_HRLA_LDL_012LUP	FN:16	PRODUCER	05-Jan-2012 01:09	1353.3 M	1278.0 M
---------	---------------------	-------	----------	-------------------	----------	----------

Output DLIS Files

DEFAULT NGS_HRLA_LDL_032PUP FN:44 PRODUCER 06-Jan-2012 09:18 347.5 M 273.1 M

OP System Version: 19C0-187

HNGC-B 19C0-187

HRLT-B 19C0-187

LDSC-B 19C0-187

HNGS-BA 19C0-187

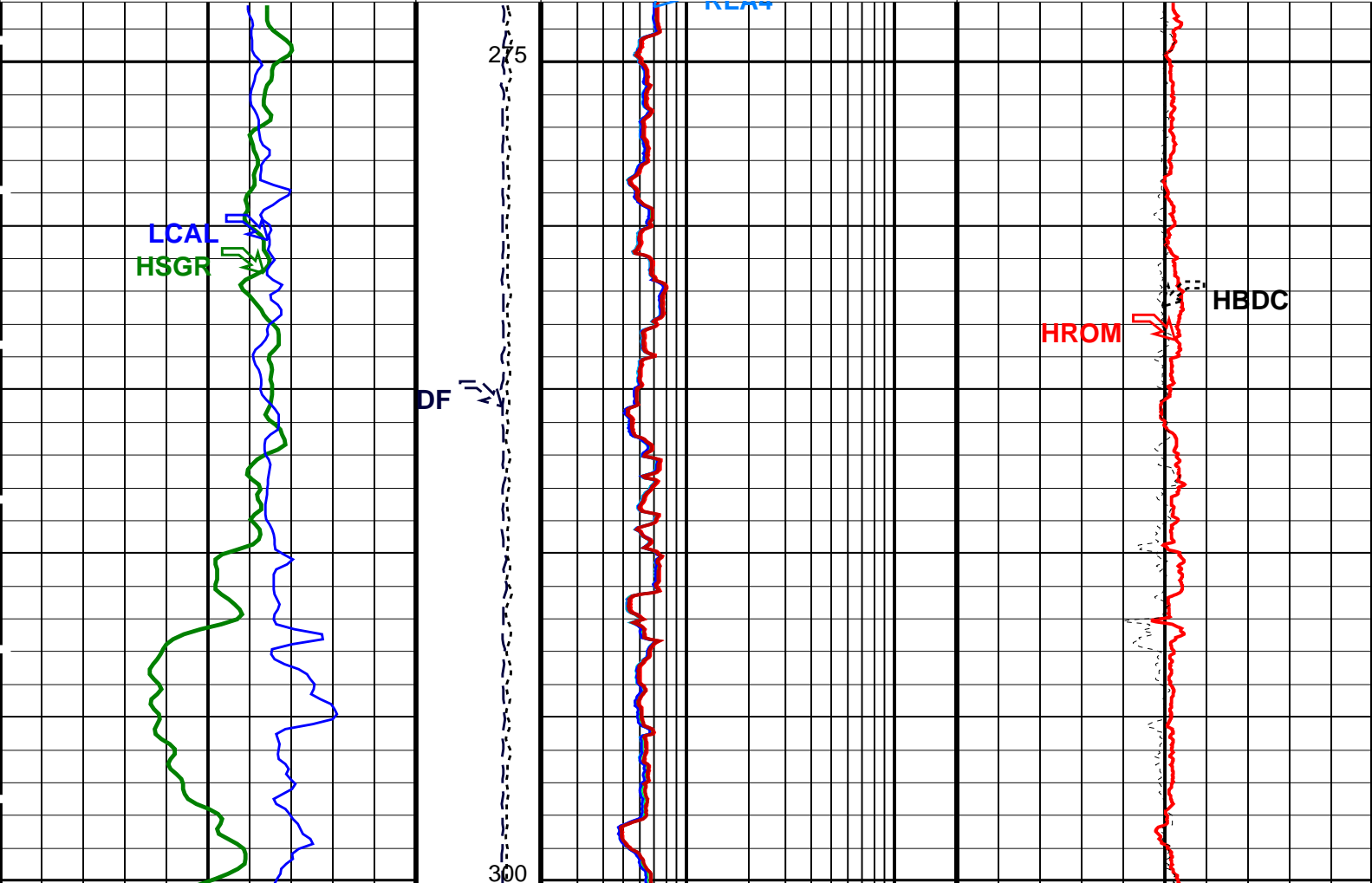
HLDS 19C0-187

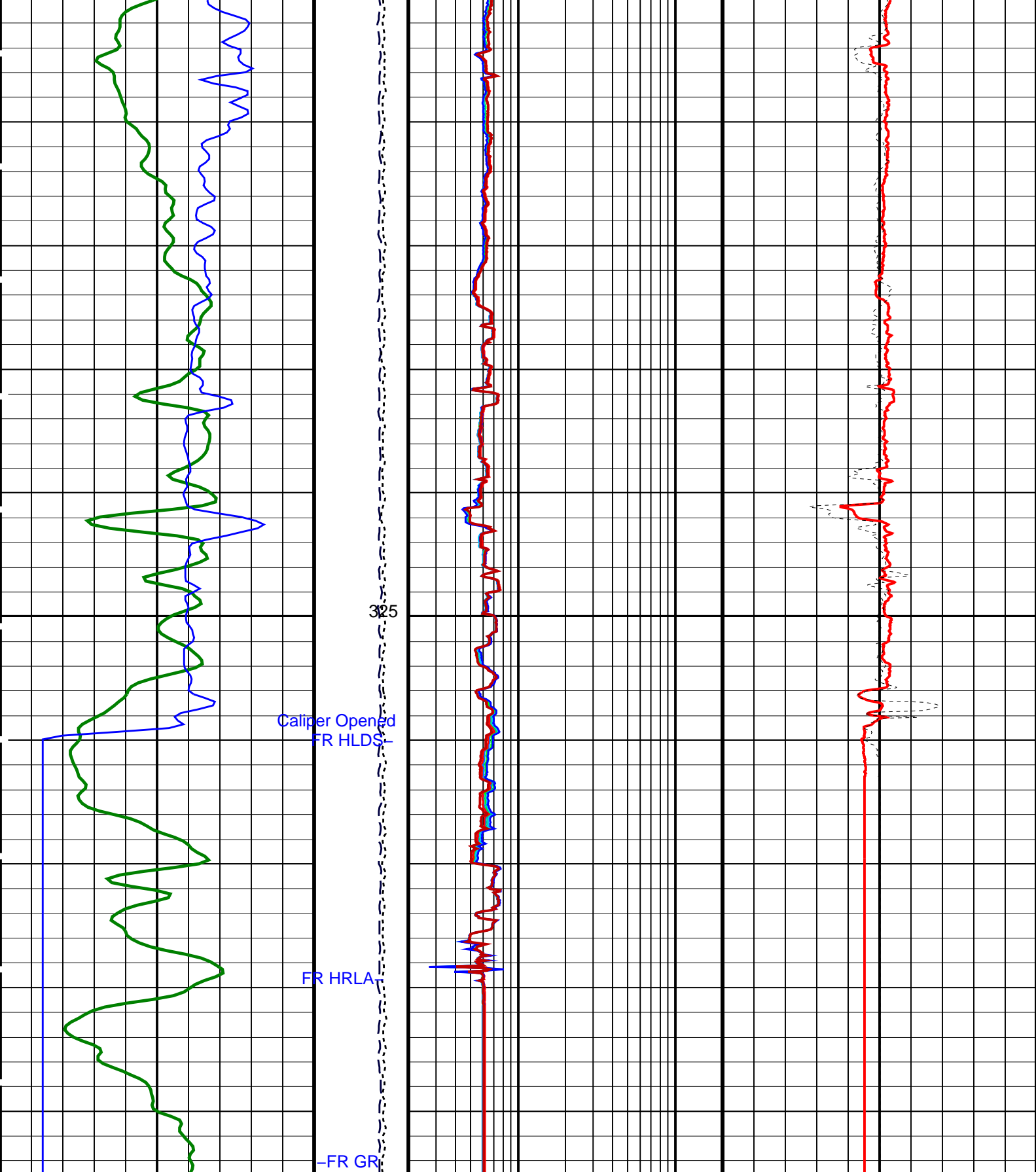
EDTC-B 19C0-187

PIP SUMMARY

Time Mark Every 60 S

<div>Sea Floor Depth Reference</div> <div>REPEAT SECTION</div>		HRLT True Resistivity (RT_HRLT)	
		0.2 (OHMM)	20
		HRLT Resistivity 1 (RLA1)	
		0.2 (OHMM)	20
		HRLT Resistivity 2 (RLA2)	
		0.2 (OHMM)	20
		HRLT Resistivity 3 (RLA3)	
		0.2 (OHMM)	20
HNGS Spectroscopy Gamma Ray (HSGR) (GAPI)		HRLT Resistivity 5 (RLA5) (OHMM)	
0	75	0.2	20
Uncalibrated Downhole Force (DF) (LBF)		HLDS HR Bulk Density Correction (HBDC) (G/C3)	
5000	0	-0.25	0.25
HLDS Caliper (LCAL) (IN)		HRLT Resistivity 4 (RLA4) (OHMM)	
0	20	0.2	20
Tension (TENS) (LBF)		HLDS HR Bulk Density (HROM) (G/C3)	
10000	0	0	4





HLDS Caliper (LCAL) (IN)	Tension (TENS) (LBF)	HRLT Resistivity 4 (RLA4) (OHMM)	HLDS HR Bulk Density (HROM) (G/C3)
0 20	10000 0	0.2 20	0 4
HNGS Spectroscopy Gamma Ray (HSGR) (GAPI)	Uncalibrated Downhole Force (DF) (LBF)	HRLT Resistivity 5 (RLA5) (OHMM)	HLDS HR Bulk Density Correction (HBDC) (G/C3)
0 75	5000 0	0.2 20	-0.25 0.25

REPEAT SECTION

Sea Floor Depth Reference

0.2	HRLT Resistivity 3 (RLA3) (OHMM)	20
HRLT Resistivity 2 (RLA2)		
0.2	(OHMM)	20
HRLT Resistivity 1 (RLA1)		
0.2	(OHMM)	20
HRLT True Resistivity (RT_HRLT)		
0.2	(OHMM)	20

PIP SUMMARY

Time Mark Every 60 S

Parameters

DLIS Name

Description

Value

HNGBA: Hostile Natural Gamma Ray Sonde

BAR1	HNGB Detector 1 Barite Constant	1	
BAR2	HNGB Detector 2 Barite Constant	1	
BHK	HNGB Borehole Potassium Correction Concentration	0	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	50	DEGF
CSD1	Inner Casing Outer Diameter	0	IN
CSD2	Outer Casing Outer Diameter	0	IN
CSW1	Inner Casing Weight	0	LB/F
CSW2	Outer Casing Weight	0	LB/F
DBCC	HNGB Barite Constant Correction Flag	NONE	
GCSE	Generalized Caliper Selection	BS	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	CHART_GEN 9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
H1P	HNGB Detector 1 Allow/Disallow In Processing	ALLOW	
H2P	HNGB Detector 2 Allow/Disallow In Processing	ALLOW	
HABK	HNGB Borehole Potassium Running Average	-0.00299249	
HALF	HNGB Alpha Filter Length	60	IN
HCRB	HNGB Apply Borehole Potassium Correction	NONE	
HMWM	Mud Weighting Material	NATU	
HNPE	HNGB Processing Enable	YES	
ISSBAR	Barite Mud Switch	NOBARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
S1BI	HNGB Detector 1 Calibration Bismuth Count Rate	1.3	CPS
S2BI	HNGB Detector 2 Calibration Bismuth Count Rate	1.3	CPS
SGRC	HNGB Standard Gamma-Ray Correction Flag	YES	
SHT	Surface Hole Temperature	68	DEGF
TPOS	Tool Position	ECCE	
VBA1	HNGB Detector 1 Variable Barite Factor Running Average	0.96889	
VBA2	HNGB Detector 2 Variable Barite Factor Running Average	0.965679	

HRLTB: High Resolution Laterolog Array - B

BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	50	DEGF
CALSTAT	HRLTB Calibration Status	SHALLOW_DONE	
CALTEMP	HRLTB Calibration Temperature	19.969	DEGC
FREQ0	HRLT Frequency Index for Mode 0	32	
FREQ1	HRLT Frequency Index for Mode 1	128	
FREQ2	HRLT Frequency Index for Mode 2	104	
FREQ3	HRLT Frequency Index for Mode 3	86	
FREQ4	HRLT Frequency Index for Mode 4	56	
FREQ5	HRLT Frequency Index for Mode 5	44	
FREQ6	HRLT Frequency Index for Mode 6	116	
GCSE	Generalized Caliper Selection	BS	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	CHART_GEN 9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
ISSBAR	Barite Mud Switch	NOBARITE	
KFAC_HRLT	HRLT K Factor Option	SONDE	
LOOPCOEF_S	HRLT Loop Coefficient for Shallow Modes	LOW	
LOOPMOD0	HRLT Mode 0 Loop Mode	AUTO	
LOOPMOD1	HRLT Mode 1 Loop Mode	AUTO	
LOOPMOD2	HRLT Mode 2 Loop Mode	AUTO	
LOOPMOD3	HRLT Mode 3 Loop Mode	AUTO	
LOOPMOD4	HRLT Mode 4 Loop Mode	AUTO	
LOOPMOD5	HRLT Mode 5 Loop Mode	AUTO	
LOOPMOD6	HRLT Mode 6 Loop Mode	AUTO	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
PROGINV	Inversion Selection	ON	
PROCMFL	Inversion Micro-Resistivity Selection	NO_EXTERNAL_RXO	

PROCMSO	Mechanical Standoff Fin Size	0	IN
PROCRM	Processing Mud Resistivity Select	HRLT_Compute	
PROCSPO	Sonde Position	Centered	
SHT	Surface Hole Temperature	68	DEGF
HLDS: Hostile Litho-Density Sonde			
CLCL	HLDS LS Control Loop Controller Mode	AUTO_DEFAULT	
CLCS	HLDS SS Control Loop Controller Mode	AUTO_DEFAULT	
CLLS	HLDS Mode Loop Long Spacing	AUTO	
CLSS	HLDS Mode Loop Short Spacing	AUTO	
DHC	Density Hole Correction	BS	
DPPM	Density Porosity Processing Mode	HIRS	
FD	Fluid Density	1	G/C3
LATC	HLDS Activation Correction	OFF	
LLDL	HLDS LS Low Level Discriminator DAC	14000	
LLDS	HLDS SS Low Level Discriminator DAC	14000	
LLML	HLDS LS Low Level Discriminator Mode	AUTO	
LLMS	HLDS SS Low Level Discriminator Mode	AUTO	
MDEN	Matrix Density	2.71	G/C3
PHVL	HLDS Long Spacing High Voltage Setting	1000	V
PHVS	HLDS Short Spacing High Voltage Setting	1000	V
PSDL	HLDS LS Pulse Shape Compensation DAC	30000	
PSDS	HLDS SS Pulse Shape Compensation DAC	30000	
PSML	HLDS LS Pulse Shape Compensation Mode	AUTO	
PSMS	HLDS SS Pulse Shape Compensation Mode	AUTO	
EDTC-B: Enhanced DTS Cartridge			
BHFL	Borehole Fluid Type	WATER	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	50	DEGF
BSCO	Borehole Salinity Correction Option	NO	
CCCO	Casing & Cement Thickness Correction Option	NO	
DPPM	Density Porosity Processing Mode	HIRS	
FSAL	Formation Salinity	-50000	PPM
FSCO	Formation Salinity Correction Option	NO	
GCSE	Generalized Caliper Selection	BS	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
HSCO	Hole Size Correction Option	YES	
ISSBAR	Barite Mud Switch	NOBARITE	
ISSBAR_EDTC	Nuclear Mud Type	NOBARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
MCCO	Mud Cake Correction Option	NO	
MCOR	Mud Correction	NATU	
MWCO	Mud Weight Correction Option	YES	
PTCO	Pressure/Temperature Correction Option	NO	
SDAT	Standoff Data Source	SOCN	
SHT	Surface Hole Temperature	68	DEGF
SOCN	Standoff Distance	0	IN
SOCO	Standoff Correction Option	NO	
TPOS_EDTC	EDTC Tool Centered/Eccentered	Eccentered	
U-ETELM_EDTS	Telemetry Mode for eWAFE	Standard_EDTS	
U-TELM_EDTS	Telemetry Mode for WAFE	Standard_EDTS	
System and Miscellaneous			
ALTDPCCHAN	Name of alternate depth channel	SpeedCorrectedDepth	
BS	Bit Size	9.875	IN
BSAL	Borehole Salinity	-50000.00	PPM
CSIZ	Current Casing Size	10.750	IN
CWEI	Casing Weight	43.00	LB/F
DFD	Drilling Fluid Density	1.25	G/C3
DO	Depth Offset for Playback	-1005.0	M
FLEV	Fluid Level	-50000.00	M
MST	Mud Sample Temperature	-50000.00	DEGC
PBVSADP	Use alternate depth channel for playback	NO	
PP	Playback Processing	NORMAL	
RMFS	Resistivity of Mud Filtrate Sample	-50000.0000	OHMM
RW	Resistivity of Connate Water	1.0000	OHMM
TD	Total Depth	1364.89	M
TDD	Total Depth - Driller	1365.00	M
TDL	Total Depth - Logger	1365.00	M
TWS	Temperature of Connate Water Sample	37.78	DEGC

Format: TripleCombo Vertical Scale: 1:200 Graphics File Created: 06-Jan-2012 09:18

OP System Version: 19C0-187

HNGC-B	19C0-187	HNGS-BA	19C0-187
HRLT-B	19C0-187	HLDS	19C0-187
LDSC-B	19C0-187	EDTC-B	19C0-187

Input DLIS Files

Output DLIS Files

DEFAULT NGS_HRLA_LDL_032PUP FN:44 PRODUCER 06-Jan-2012 09:18

Calibration and Check Summary

Measurement	Nominal	Master	Before	After	Change	Limit	Units
Hostile Natural Gamma Ray Sonde Wellsite Calibration – Detector 1 Check							
Master: 17-Nov-2011 7:57 Before: 26-Nov-2011 0:21							
Na 511 Peak Loc	40.00	39.70	39.69	N/A	N/A	1.000	
Na 511 Peak Res	15.50	15.50	15.07	N/A	N/A	2.000	%
High Voltage	1150	1176	1168	N/A	N/A	N/A	V
Na 1785 Peak Loc	142.6	142.1	141.8	N/A	N/A	7.000	
Na 1785 Peak Res	8.500	8.309	8.731	N/A	N/A	2.000	%
Temperature	15.50	29.76	21.55	N/A	N/A	N/A	DEGC
Na Count Rate	45.00	20.77	21.01	N/A	N/A	8.000	CPS
Hostile Natural Gamma Ray Sonde Wellsite Calibration – Detector 2 Check							
Master: 17-Nov-2011 7:57 Before: 26-Nov-2011 0:21							
Na 511 Peak Loc	40.00	39.60	39.49	N/A	N/A	1.000	
Na 511 Peak Res	15.50	16.99	15.91	N/A	N/A	2.000	%
High Voltage	1150	1109	1091	N/A	N/A	N/A	V
Na 1785 Peak Loc	142.6	142.6	142.3	N/A	N/A	7.000	
Na 1785 Peak Res	8.500	9.914	8.591	N/A	N/A	2.000	%
Temperature	15.50	29.91	21.84	N/A	N/A	N/A	DEGC
Na Count Rate	45.00	21.44	20.97	N/A	N/A	8.000	CPS
Hostile Natural Gamma Ray Sonde Wellsite Calibration – Ratio Of Detector 1 To Detector 2							
Master: 17-Nov-2011 7:57 Before: 26-Nov-2011 0:21							
Coincidence Count Rate Ratio	1.000	0.9705	1.004	N/A	N/A	0.05000	
Hostile Natural Gamma Ray Sonde Master Calibration – Detector 1 Calibration							
Master: 17-Nov-2011 7:52							
Na 511 Peak Set Point	40.00	41.00	--	--	--	--	
Th Peak Loc	209.6	210.8	--	--	--	--	
Th Peak Res	7.000	6.865	--	--	--	--	%
Background Count Rate	142.5	24.91	--	--	--	--	CPS
Gain Ratio	1.000	1.010	--	--	--	--	
Hostile Natural Gamma Ray Sonde Master Calibration – Detector 2 Calibration							
Master: 17-Nov-2011 7:52							
Na 511 Peak Set Point	40.00	41.00	--	--	--	--	
Th Peak Loc	209.6	208.5	--	--	--	--	
Th Peak Res	7.000	6.879	--	--	--	--	%
Background Count Rate	142.5	24.15	--	--	--	--	CPS
Gain Ratio	1.000	1.001	--	--	--	--	
High Resolution Laterolog Array – B Wellsite Calibration – HRLT M01							
Before: 5-Jan-2012 1:32							
HRLT M0-M1 Voltage Plus – 0	0	N/A	-318.4	N/A	N/A	9.681	UV
HRLT M0-M1 Voltage Plus – 1	0	N/A	-333.4	N/A	N/A	9.681	UV
HRLT M0-M1 Voltage Plus – 2	0	N/A	-334.7	N/A	N/A	9.681	UV
HRLT M0-M1 Voltage Plus – 3	0	N/A	-337.6	N/A	N/A	9.681	UV
HRLT M0-M1 Voltage Plus – 4	0	N/A	-325.3	N/A	N/A	9.681	UV
HRLT M0-M1 Voltage Plus – 5	0	N/A	-321.3	N/A	N/A	9.681	UV
HRLT M0-M1 Voltage Plus – 6	0	N/A	324.9	N/A	N/A	9.681	UV
HRLT M0-M1 Voltage Plus – 7	0	N/A	-322.7	N/A	N/A	9.681	UV
High Resolution Laterolog Array – B Wellsite Calibration – HRLT M12							
Before: 5-Jan-2012 1:32							
HRLT M1-M2 Voltage Plus – 0	0	N/A	1755	N/A	N/A	53.42	UV
HRLT M1-M2 Voltage Plus – 1	0	N/A	1833	N/A	N/A	53.42	UV
HRLT M1-M2 Voltage Plus – 2	0	N/A	1837	N/A	N/A	53.42	UV
HRLT M1-M2 Voltage Plus – 3	0	N/A	1854	N/A	N/A	53.42	UV
HRLT M1-M2 Voltage Plus – 4	0	N/A	1789	N/A	N/A	53.42	UV
HRLT M1-M2 Voltage Plus – 5	0	N/A	1769	N/A	N/A	53.42	UV
HRLT M1-M2 Voltage Plus – 6	0	N/A	-1794	N/A	N/A	53.42	UV
HRLT M1-M2 Voltage Plus – 7	0	N/A	1781	N/A	N/A	53.42	UV
High Resolution Laterolog Array – B Wellsite Calibration – HRLT M23							
Before: 5-Jan-2012 1:32							
HRLT M2-M3 Voltage Plus – 0	0	N/A	1741	N/A	N/A	53.42	UV
HRLT M2-M3 Voltage Plus – 1	0	N/A	1834	N/A	N/A	53.42	UV
HRLT M2-M3 Voltage Plus – 2	0	N/A	1837	N/A	N/A	53.42	UV
HRLT M2-M3 Voltage Plus – 3	0	N/A	1854	N/A	N/A	53.42	UV
HRLT M2-M3 Voltage Plus – 4	0	N/A	1789	N/A	N/A	53.42	UV
HRLT M2-M3 Voltage Plus – 5	0	N/A	1769	N/A	N/A	53.42	UV
HRLT M2-M3 Voltage Plus – 6	0	N/A	-1794	N/A	N/A	53.42	UV
HRLT M2-M3 Voltage Plus – 7	0	N/A	1781	N/A	N/A	53.42	UV

HRLT M2-M3 Voltage Plus - 1	0	N/A	1831	N/A	N/A	53.42	UV
HRLT M2-M3 Voltage Plus - 2	0	N/A	1835	N/A	N/A	53.42	UV
HRLT M2-M3 Voltage Plus - 3	0	N/A	1857	N/A	N/A	53.42	UV
HRLT M2-M3 Voltage Plus - 4	0	N/A	1785	N/A	N/A	53.42	UV
HRLT M2-M3 Voltage Plus - 5	0	N/A	1766	N/A	N/A	53.42	UV
HRLT M2-M3 Voltage Plus - 6	0	N/A	-1780	N/A	N/A	53.42	UV
HRLT M2-M3 Voltage Plus - 7	0	N/A	1781	N/A	N/A	53.42	UV

High Resolution Laterolog Array - B Wellsite Calibration - HRLT V34

Before: 5-Jan-2012 1:32

HRLT A3-A4 Voltage Plus - 0	0	N/A	68450	N/A	N/A	2100	UV
HRLT A3-A4 Voltage Plus - 1	0	N/A	71800	N/A	N/A	2100	UV
HRLT A3-A4 Voltage Plus - 2	0	N/A	72260	N/A	N/A	2100	UV
HRLT A3-A4 Voltage Plus - 3	0	N/A	73360	N/A	N/A	2100	UV
HRLT A3-A4 Voltage Plus - 4	0	N/A	70490	N/A	N/A	2100	UV
HRLT A3-A4 Voltage Plus - 5	0	N/A	69730	N/A	N/A	2100	UV
HRLT A3-A4 Voltage Plus - 6	0	N/A	-68800	N/A	N/A	2100	UV
HRLT A3-A4 Voltage Plus - 7	0	N/A	70000	N/A	N/A	2100	UV

High Resolution Laterolog Array - B Wellsite Calibration - HRLT V45

Before: 5-Jan-2012 1:32

HRLT A4-A5 Voltage Plus - 0	0	N/A	68730	N/A	N/A	2100	UV
HRLT A4-A5 Voltage Plus - 1	0	N/A	72160	N/A	N/A	2100	UV
HRLT A4-A5 Voltage Plus - 2	0	N/A	72610	N/A	N/A	2100	UV
HRLT A4-A5 Voltage Plus - 3	0	N/A	73700	N/A	N/A	2100	UV
HRLT A4-A5 Voltage Plus - 4	0	N/A	70790	N/A	N/A	2100	UV
HRLT A4-A5 Voltage Plus - 5	0	N/A	70010	N/A	N/A	2100	UV
HRLT A4-A5 Voltage Plus - 6	0	N/A	-69170	N/A	N/A	2100	UV
HRLT A4-A5 Voltage Plus - 7	0	N/A	70000	N/A	N/A	2100	UV

High Resolution Laterolog Array - B Wellsite Calibration - HRLT V56

Before: 5-Jan-2012 1:32

HRLT A5-A6 Voltage Plus - 0	0	N/A	68630	N/A	N/A	2100	UV
HRLT A5-A6 Voltage Plus - 1	0	N/A	71880	N/A	N/A	2100	UV
HRLT A5-A6 Voltage Plus - 2	0	N/A	72380	N/A	N/A	2100	UV
HRLT A5-A6 Voltage Plus - 3	0	N/A	73490	N/A	N/A	2100	UV
HRLT A5-A6 Voltage Plus - 4	0	N/A	70650	N/A	N/A	2100	UV
HRLT A5-A6 Voltage Plus - 5	0	N/A	69900	N/A	N/A	2100	UV
HRLT A5-A6 Voltage Plus - 6	0	N/A	-68910	N/A	N/A	2100	UV
HRLT A5-A6 Voltage Plus - 7	0	N/A	70000	N/A	N/A	2100	UV

High Resolution Laterolog Array - B Wellsite Calibration - HRLT VTP

Before: 5-Jan-2012 1:32

HRLT Torpedo-M0 Voltage - 0	0	N/A	-68290	N/A	N/A	2100	UV
HRLT Torpedo-M0 Voltage - 1	0	N/A	-72210	N/A	N/A	2100	UV
HRLT Torpedo-M0 Voltage - 2	0	N/A	-72650	N/A	N/A	2100	UV
HRLT Torpedo-M0 Voltage - 3	0	N/A	-73770	N/A	N/A	2100	UV
HRLT Torpedo-M0 Voltage - 4	0	N/A	-70840	N/A	N/A	2100	UV
HRLT Torpedo-M0 Voltage - 5	0	N/A	-70050	N/A	N/A	2100	UV
HRLT Torpedo-M0 Voltage - 6	0	N/A	69160	N/A	N/A	2100	UV
HRLT Torpedo-M0 Voltage - 7	0	N/A	-70000	N/A	N/A	2100	UV

High Resolution Laterolog Array - B Wellsite Calibration - HRLT VBD

Before: 5-Jan-2012 1:32

HRLT Bridle#9-M0 Voltage - 0	0	N/A	-68290	N/A	N/A	2100	UV
HRLT Bridle#9-M0 Voltage - 1	0	N/A	-72200	N/A	N/A	2100	UV
HRLT Bridle#9-M0 Voltage - 2	0	N/A	-72640	N/A	N/A	2100	UV
HRLT Bridle#9-M0 Voltage - 3	0	N/A	-73760	N/A	N/A	2100	UV
HRLT Bridle#9-M0 Voltage - 4	0	N/A	-70840	N/A	N/A	2100	UV
HRLT Bridle#9-M0 Voltage - 5	0	N/A	-70050	N/A	N/A	2100	UV
HRLT Bridle#9-M0 Voltage - 6	0	N/A	69140	N/A	N/A	2100	UV
HRLT Bridle#9-M0 Voltage - 7	0	N/A	-70000	N/A	N/A	2100	UV

High Resolution Laterolog Array - B Wellsite Calibration - HRLT ISO

Before: 5-Jan-2012 1:32

HRLT Source Current Plus - 0	0	N/A	284.7	N/A	N/A	8.520	UA
HRLT Source Current Plus - 1	0	N/A	281.1	N/A	N/A	8.520	UA
HRLT Source Current Plus - 2	0	N/A	281.1	N/A	N/A	8.520	UA
HRLT Source Current Plus - 3	0	N/A	281.1	N/A	N/A	8.520	UA
HRLT Source Current Plus - 4	0	N/A	281.1	N/A	N/A	8.520	UA
HRLT Source Current Plus - 5	0	N/A	281.1	N/A	N/A	8.520	UA
HRLT Source Current Plus - 6	0	N/A	281.1	N/A	N/A	8.520	UA
HRLT Source Current Plus - 7	0	N/A	281.1	N/A	N/A	8.520	UA

High Resolution Laterolog Array - B Wellsite Calibration - HRLT MV

Before: 5-Jan-2012 1:32

HRLT Vertical Voltage PI - 0	0	N/A	-321.4	N/A	N/A	9.681	UV
HRLT Vertical Voltage PI - 1	0	N/A	-327.6	N/A	N/A	9.681	UV
HRLT Vertical Voltage PI - 2	0	N/A	-328.3	N/A	N/A	9.681	UV
HRLT Vertical Voltage PI - 3	0	N/A	-329.8	N/A	N/A	9.681	UV
HRLT Vertical Voltage PI - 4	0	N/A	-315.3	N/A	N/A	9.681	UV
HRLT Vertical Voltage PI - 5	0	N/A	-326.6	N/A	N/A	9.681	UV

HRLT Vertical Voltage PI – 6	0	N/A	331.9	N/A	N/A	9.681	UV
HRLT Vertical Voltage PI – 7	0	N/A	-322.7	N/A	N/A	9.681	UV

Hostile Litho–Density Sonde Wellsite Calibration – Background Measurement

Master: 17–Nov–2011 16:03 Before: 17–Nov–2011 15:55

SS Cs Resolution Bkg	9.000	7.741	7.618	N/A	N/A	1.800	%
LS Cs Resolution Bkg	9.000	8.089	8.025	N/A	N/A	1.800	%
LSW1 Background	100.0	87.45	87.45	N/A	N/A	3.000	CPS
LSW2 Background	100.0	80.38	80.38	N/A	N/A	3.000	CPS
LSW3 Background	200.0	180.0	180.0	N/A	N/A	6.000	CPS
LSW4 Background	250.0	224.8	224.8	N/A	N/A	7.500	CPS
LSW5 Background	600.0	526.0	526.0	N/A	N/A	18.00	CPS
SSW1 Background	100.0	85.28	85.28	N/A	N/A	3.000	CPS
SSW2 Background	200.0	147.3	147.3	N/A	N/A	6.000	CPS
SSW3 Background	500.0	409.2	409.2	N/A	N/A	15.00	CPS
SSW4 Background	270.0	221.7	221.7	N/A	N/A	8.100	CPS
SSW5 Background	200.0	158.7	158.7	N/A	N/A	6.000	CPS

Hostile Litho–Density Sonde Wellsite Calibration – Aluminum Measurement

Master: 17–Nov–2011 16:33

LSW1 Aluminum	600.0	560.2	N/A	N/A	N/A	N/A	CPS
LSW2 Aluminum	900.0	815.4	N/A	N/A	N/A	N/A	CPS
LSW3 Aluminum	1100	984.8	N/A	N/A	N/A	N/A	CPS
LSW4 Aluminum	580.0	493.4	N/A	N/A	N/A	N/A	CPS
LSW5 Aluminum	570.0	450.2	N/A	N/A	N/A	N/A	CPS
SSW1 Aluminum	2800	2639	N/A	N/A	N/A	N/A	CPS
SSW2 Aluminum	8000	7196	N/A	N/A	N/A	N/A	CPS
SSW3 Aluminum	11600	10050	N/A	N/A	N/A	N/A	CPS
SSW4 Aluminum	5000	4135	N/A	N/A	N/A	N/A	CPS
SSW5 Aluminum	660.0	504.7	N/A	N/A	N/A	N/A	CPS

Hostile Litho–Density Sonde Wellsite Calibration – Lithology Measurement

Master: 17–Nov–2011 16:29

LSW1 Iron	400.0	389.4	N/A	N/A	N/A	N/A	CPS
LSW2 Iron	730.0	674.0	N/A	N/A	N/A	N/A	CPS
LSW3 Iron	1000	897.0	N/A	N/A	N/A	N/A	CPS
LSW4 Iron	520.0	464.0	N/A	N/A	N/A	N/A	CPS
LSW5 Iron	470.0	424.7	N/A	N/A	N/A	N/A	CPS
SSW1 Iron	2100	1967	N/A	N/A	N/A	N/A	CPS
SSW2 Iron	6800	6145	N/A	N/A	N/A	N/A	CPS
SSW3 Iron	10800	9395	N/A	N/A	N/A	N/A	CPS
SSW4 Iron	4600	3871	N/A	N/A	N/A	N/A	CPS
SSW5 Iron	580.0	460.2	N/A	N/A	N/A	N/A	CPS

Hostile Litho–Density Sonde Wellsite Calibration – Caliper Calibration

Before: 17–Dec–2011 9:53

HLDS Caliper Small Ring	12.00	N/A	14.33	N/A	N/A	N/A	IN
HLDS Caliper Large Ring	15.19	N/A	18.10	N/A	N/A	N/A	IN

Enhanced DTS Cartridge Wellsite Calibration – EDTC Accelerometer Calibration

Before: 4–Jan–2012 23:45

EDTC Z–Axis Acceleration	9.810	N/A	9.748	N/A	N/A	N/A	M/S2
--------------------------	-------	-----	-------	-----	-----	-----	------

Enhanced DTS Cartridge Wellsite Calibration – Detector Calibration

Before: 27–Dec–2011 9:12

Gamma Ray (Jig – Bkg)	160.1	N/A	160.1	N/A	N/A	14.56	GAPI
Gamma Ray (Calibrated)	164.0	N/A	164.0	N/A	N/A	15.00	GAPI

Hostile Natural Gamma Ray Cartridge – B / Equipment Identification

Primary Equipment:

HNGC Cartridge

HNGC – B

300

Auxiliary Equipment:

HNGC Housing

HNGH – A

115

Hostile Natural Gamma Ray Sonde / Equipment Identification

Primary Equipment:

HNGS Sonde

HNGS – BA

194

Auxiliary Equipment:

HNGS Sonde Housing






Gamma Source Radioactive

HNSH – BA




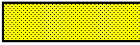

GSR – U

205

616008

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				41.00	Master				210.8	Master				6.865
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				24.91	Master				1.010					
10.00 (Minimum) 142.5 (Nominal) 265.0 (Maximum)					0.9400 (Minimum) 1.000 (Nominal) 1.060 (Maximum)									
Master: 17-Nov-2011 7:52														

Detector 2 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			208.5	Master			6.879
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			24.15	Master			1.001				
10.00 (Minimum) 142.5 (Nominal) 265.0 (Maximum)				0.9400 (Minimum) 1.000 (Nominal) 1.060 (Maximum)							
Master: 17-Nov-2011 7:52											

Master: 17-Nov-2011 7:52

High Resolution Laterolog Array – B / Equipment Identification

Primary Equipment:

HRLT Sonde

HRLS – B

969

Auxiliary Equipment:

HRLT lower Housing

HRLH – B

759

HRLT Lower Cartridge

HRLC – B

759

HRLT upper Housing

HRUH – B

769









HRLT Upper Cartridge

HRUC – B

769

High Resolution Laterolog Array – B Wellsite Calibration









HRLT M01

Idx	Phase	HRLT M0-M1 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		-318.4	-322.7	-280.7	-379.7
1	Before		-333.4	-322.7	-280.7	-379.7
2	Before		-334.7	-322.7	-280.7	-379.7
3	Before		-337.6	-322.7	-280.7	-379.7
4	Before		-325.3	-322.7	-280.7	-379.7
5	Before		-321.3	-322.7	-280.7	-379.7
6	Before		324.9	322.7	379.7	280.7
7	Before		-322.7	-322.7	-280.7	-379.7
		(Minimum) (Nominal) (Maximum)				

Before: 5-Jan-2012 1:32

High Resolution Laterolog Array – B Wellsite Calibration



HRLT M12

Idx	Phase	HRLT M1-M2 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		1755	1781	2095	1549
1	Before		1833	1781	2095	1549
2	Before		1837	1781	2095	1549
3	Before		1854	1781	2095	1549
4	Before		1789	1781	2095	1549
5	Before		1769	1781	2095	1549
6	Before		-1794	-1781	-1549	-2095
7	Before		1781	1781	2095	1549
		(Minimum) (Nominal) (Maximum)				

Before: 5-Jan-2012 1:32

High Resolution Laterolog Array – B Wellsite Calibration

HRLT M23

Idx	Phase	HRLT M2-M3 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		1741	1781	2095	1549
1	Before		1831	1781	2095	1549

2	Before		1835	1781	2095	1549
3	Before		1857	1781	2095	1549
4	Before		1785	1781	2095	1549
5	Before		1766	1781	2095	1549
6	Before		-1780	-1781	-1549	-2095
7	Before		1781	1781	2095	1549
(Minimum) (Nominal) (Maximum)						

Before: 5-Jan-2012 1:32









High Resolution Laterolog Array – B Wellsite Calibration						
HRLT V34						
Idx	Phase	HRLT A3–A4 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		68450	70000	82360	60900
1	Before		71800	70000	82360	60900
2	Before		72260	70000	82360	60900
3	Before		73360	70000	82360	60900
4	Before		70490	70000	82360	60900
5	Before		69730	70000	82360	60900
6	Before		-68800	-70000	-60900	-82360
7	Before		70000	70000	82360	60900
(Minimum) (Nominal) (Maximum)						









Before: 5-Jan-2012 1:32









High Resolution Laterolog Array – B Wellsite Calibration						
HRLT V45						
Idx	Phase	HRLT A4–A5 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		68730	70000	82360	60900
1	Before		72160	70000	82360	60900
2	Before		72610	70000	82360	60900
3	Before		73700	70000	82360	60900
4	Before		70790	70000	82360	60900
5	Before		70010	70000	82360	60900
6	Before		-69170	-70000	-60900	-82360
7	Before		70000	70000	82360	60900
(Minimum) (Nominal) (Maximum)						




Before: 5-Jan-2012 1:32

High Resolution Laterolog Array – B Wellsite Calibration						
HRLT V56						
Idx	Phase	HRLT A5–A6 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		68630	70000	82360	60900
1	Before		71880	70000	82360	60900
2	Before		72380	70000	82360	60900
3	Before		73490	70000	82360	60900
4	Before		70650	70000	82360	60900
5	Before		69900	70000	82360	60900
6	Before		-68910	-70000	-60900	-82360
7	Before		70000	70000	82360	60900

		(Minimum)	(Nominal)	(Maximum)			
Before: 5-Jan-2012 1:32							
High Resolution Laterolog Array – B Wellsite Calibration							
HRLT VTP							
Idx	Phase	HRLT Torpedo-M0 Voltage Plus UV	Value	Nominal	Maximum	Minimum	
0	Before		-68290	-70000	-60900	-82360	
1	Before		-72210	-70000	-60900	-82360	
2	Before		-72650	-70000	-60900	-82360	
3	Before		-73770	-70000	-60900	-82360	
4	Before		-70840	-70000	-60900	-82360	
5	Before		-70050	-70000	-60900	-82360	
6	Before		69160	70000	82360	60900	
7	Before		-70000	-70000	-60900	-82360	
		(Minimum) (Nominal) (Maximum)					
Before: 5-Jan-2012 1:32							

High Resolution Laterolog Array – B Wellsite Calibration							
HRLT VBD							
Idx	Phase	HRLT Bridle#9-M0 Voltage Plus UV	Value	Nominal	Maximum	Minimum	
0	Before		-68290	-70000	-60900	-82360	
1	Before		-72200	-70000	-60900	-82360	
2	Before		-72640	-70000	-60900	-82360	
3	Before		-73760	-70000	-60900	-82360	
4	Before		-70840	-70000	-60900	-82360	
5	Before		-70050	-70000	-60900	-82360	
6	Before		69140	70000	82360	60900	
7	Before		-70000	-70000	-60900	-82360	
		(Minimum) (Nominal) (Maximum)					
Before: 5-Jan-2012 1:32							

High Resolution Laterolog Array – B Wellsite Calibration							
HRLT ISO							
Idx	Phase	HRLT Source Current Plus UA	Value	Nominal	Maximum	Minimum	
0	Before		284.7	284.0	334.1	247.0	
1	Before		281.1	281.1	330.7	244.4	
2	Before		281.1	281.1	330.7	244.4	
3	Before		281.1	281.1	330.7	244.4	
4	Before		281.1	281.1	330.7	244.4	
5	Before		281.1	281.1	330.7	244.4	
6	Before		281.1	281.1	330.7	244.4	
7	Before		281.1	281.1	330.7	244.4	
		(Minimum) (Nominal) (Maximum)					
Before: 5-Jan-2012 1:32							

High Resolution Laterolog Array – B Wellsite Calibration							
HRLT MV							
Idx	Phase	HRLT Vertical Voltage Plus UV	Value	Nominal	Maximum	Minimum	
0	Before		-321.4	-322.7	-280.7	-379.7	
1	Before		-327.6	-322.7	-280.7	-379.7	
2	Before		-328.3	-322.7	-280.7	-379.7	

3	Before		-329.8	-322.7	-280.7	-379.7
4	Before		-315.3	-322.7	-280.7	-379.7
5	Before		-326.6	-322.7	-280.7	-379.7
6	Before		331.9	322.7	379.7	280.7
7	Before		-322.7	-322.7	-280.7	-379.7
(Minimum) (Nominal) (Maximum)						
Before: 5-Jan-2012 1:32						

Hostile Litho-Density Sonde / Equipment Identification

Primary Equipment:

Hostile Litho Density Sonde
Hostile Litho Density High Voltage
Gamma Source Radioactive

HLDS - D 45
HLDV - D 45
GSR - Z 2397











Auxiliary Equipment:











Hostile Litho Density Pad
Hostile Litho Density High Voltage Housi









HLDP - C 45
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	<div><div></div></div>		7.741	Master	<div><div></div></div>		8.089	Master	<div><div></div></div>		87.45
Before	<div><div></div></div>		7.618	Before	<div><div></div></div>		8.025	Before	<div><div></div></div>		87.45
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	<div><div></div></div>		80.38	Master	<div><div></div></div>		180.0	Master	<div><div></div></div>		224.8
Before	<div><div></div></div>		80.38	Before	<div><div></div></div>		180.0	Before	<div><div></div></div>		224.8
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	<div><div></div></div>		526.0	Master	<div><div></div></div>		85.28	Master	<div><div></div></div>		147.3
Before	<div><div></div></div>		526.0	Before	<div><div></div></div>		85.28	Before	<div><div></div></div>		147.3
330.0 (Minimum) 600.0 (Nominal) 830.0 (Maximum)				55.00 (Minimum) 100.0 (Nominal) 150.0 (Maximum)				100.0 (Minimum) 200.0 (Nominal) 260.0 (Maximum)			
Phase	SSW3 Background CPS		Value	Phase	SSW4 Background CPS		Value	Phase	SSW5 Background CPS		Value
Master	<div><div></div></div>		409.2	Master	<div><div></div></div>		221.7	Master	<div><div></div></div>		158.7
Before	<div><div></div></div>		409.2	Before	<div><div></div></div>		221.7	Before	<div><div></div></div>		158.7
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: 17-Nov-2011 16:03										Before: 17-Nov-2011 15:55	

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		87.45	Master		80.38	Master		180.0	
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		224.8	Master		526.0	Master		8.089	
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		85.28	Master		147.3	Master		409.2	
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		221.7	Master		158.7	Master		7.741	

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: 17-Nov-2011 16:03											
Hostile Litho-Density Sonde Master Calibration											
Detector Aluminum Measurement (bkqd-subtracted)											
Phase	LSW1 Aluminum CPS		Value	Phase	LSW2 Aluminum CPS		Value	Phase	LSW3 Aluminum CPS		Value
Master			560.2	Master			815.4	Master			984.8
	420.0 (Minimum)	600.0 (Nominal)	770.0 (Maximum)		650.0 (Minimum)	900.0 (Nominal)	1150 (Maximum)		800.0 (Minimum)	1100 (Nominal)	1450 (Maximum)
Phase	LSW4 Aluminum CPS		Value	Phase	LSW5 Aluminum CPS		Value	Phase	SSW1 Aluminum CPS		Value
Master			493.4	Master			450.2	Master			2639
	410.0 (Minimum)	580.0 (Nominal)	740.0 (Maximum)		410.0 (Minimum)	570.0 (Nominal)	740.0 (Maximum)		2000 (Minimum)	2800 (Nominal)	3200 (Maximum)
Phase	SSW2 Aluminum CPS		Value	Phase	SSW3 Aluminum CPS		Value	Phase	SSW4 Aluminum CPS		Value
Master			7196	Master			10050	Master			4135
	5800 (Minimum)	8000 (Nominal)	9300 (Maximum)		8300 (Minimum)	11600 (Nominal)	13500 (Maximum)		3500 (Minimum)	5000 (Nominal)	5800 (Maximum)
Phase	SSW5 Aluminum CPS		Value								
Master			504.7								
	430.0 (Minimum)	660.0 (Nominal)	770.0 (Maximum)								
Master: 17-Nov-2011 16:33											

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				389.4	Master				674.0	Master				897.0
	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				464.0	Master				424.7	Master				1967
	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				6145	Master				9395	Master				3871
	4900 (Minimum)	6800 (Nominal)	7900 (Maximum)		7800 (Minimum)	10800 (Nominal)	12600 (Maximum)		3300 (Minimum)	4600 (Nominal)	5400 (Maximum)			
Phase	SSW5 Iron CPS			Value										
Master				460.2										
	420.0 (Minimum)	580.0 (Nominal)	680.0 (Maximum)											
Master: 17-Nov-2011 16:29														

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			1.044	Master			2.167	Master			0.5937					
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			0.5690	Master			0.9915	Master			0.9856					
0.4000 (Minimum)			0.5500 (Nominal)	0.6500 (Maximum)			0.9800 (Minimum)			0.9880 (Nominal)	0.9960 (Maximum)	0.9800 (Minimum)			0.9880 (Nominal)	0.9960 (Maximum)
Phase	Pad-Position SS Ratio		Value	Phase	Pad-Position LS Ratio		Value									
Master			1.003	Master			0.9882									
0.9900 (Minimum)			0.9940 (Nominal)	1.015 (Maximum)			0.9850 (Minimum)					0.9940 (Nominal)	1.010 (Maximum)			
Master: 17-Nov-2011 16:35																

Litho-Density Spectroscopy Cartridge – B / Equipment Identification

Primary Equipment:
LDSC Cartridge

LDSC – B

521

Enhanced DTS Cartridge / Equipment Identification

Primary Equipment:

EDTC Gamma Ray Detector
Enhanced DTS Cartridge

EDTG – A/B 8305
EDTC – B 8317


Auxiliary Equipment:

EDTC Housing

EDTH – B 8303

Enhanced DTS Cartridge Wellsite Calibration

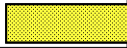


EDTC Accelerometer Calibration

Phase	EDTC Z-Axis Acceleration M/S2	Value
Before		9.748
	9.610 (Minimum) 9.810 (Nominal) 10.01 (Maximum)	

Before: 4-Jan-2012 23:45

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		6.619	Before		160.1	Before		164.0
	0 (Minimum) 30.00 (Nominal) 120.0 (Maximum)			145.6 (Minimum) 160.1 (Nominal) 174.7 (Maximum)			149.0 (Minimum) 164.0 (Nominal) 179.0 (Maximum)	

Before: 27-Dec-2011 9:12

Company: **Lamont Doherty**

Schlumberger

Well: **Expedition 339, Site U1390 GC-02B**

Field: **Mediterranean Outflow (Portugal)**

Rig: **JOIDES Resolution**

Ocean: **Atlantic**

High Resolution Laterolog Array

Hostile Litho Density Sonde

Hostile Natural Gamma Ray