Schlumberger

Company: **Lamont Doherty Earth Observatory**
Shell
Well: **Expedition 344S, U0070A (USC70)**
Field: **Baffin Bay**
Rig: **JOIDES Resolution** Country: **USA**

Rig: JOIDES Resolution
Field: Baffin Bay
Location: Latitude: N 75* 42' 21.85"
Well: Expedition 344S, U0070A (USC7
Company: Lamont Doherty Earth Observato

DSI Sonic Imager

Stoneley

LOCATION

Latitude: N 75* 42' 21.85"
Longitude: W 65* 43' 46.32"

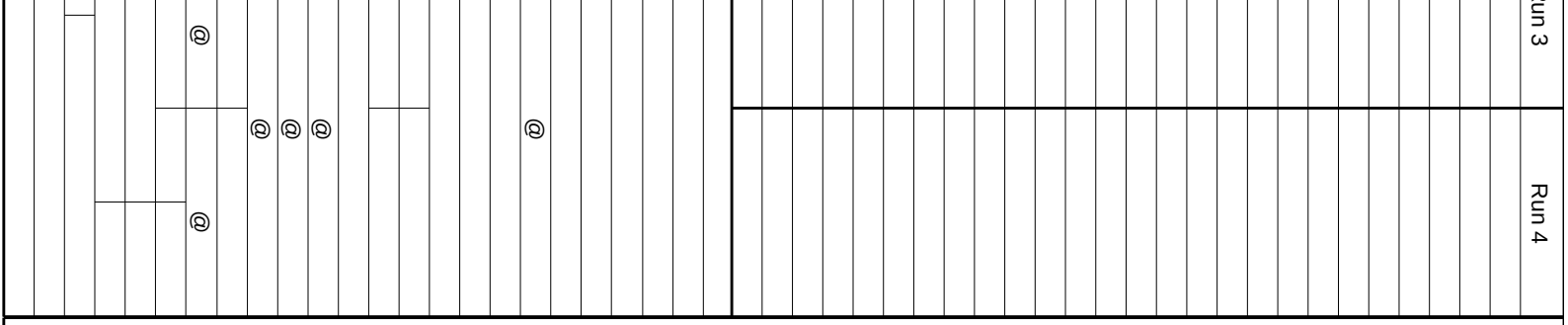
Elev.: K.B. −592.00 m
G.L. −603.00 m
D.F. −592.00 m

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

Ocean:	Max. Well Deviation	Longitude	Latitude
Atlantic	0 deg	N 75* 42' 21.85"	W 65* 43' 46.32"

	Run 1	Run 2	R
Logging Date	20−Sep−2012		
Run Number	1		
Depth Driller	303.6 m		
Schlumberger Depth	258.3 m		
Bottom Log Interval	236 m		
Top Log Interval	31 m		
Casing Driller Size @ Depth	7.000 in @ 33 m	@	
Casing Schlumberger	31 m		
Bit Size	9.875 in		
Type Fluid In Hole	Seawater		
MUD Density / Viscosity	1.05 g/cm3		
MUD Fluid Loss / PH			
MUD Source Of Sample	N/A		
RM @ Measured Temperature	@	@	
RMF @ Measured Temperature	@	@	
RMC @ Measured Temperature	@	@	
Source RMF / RMC	N/A / N/A		
RM @ MRT / RMF @ MRT	@ 9 / @ 9	@ / @	
Maximum Recorded Temperatures	9 degC		
Circulation Stopped / Time	20−Sep−2012 / 14:00		
Logger On Bottom / Time	20−Sep−2012 / 17:20		
Unit Number / Location	625003 / Houston		
Recorded By	C. Furman		
Witnessed By	G. Guerin, H. Evans		

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



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: MSS
OS2: HRLA
OS3: HLDS
OS4: FMS
OS5: HNGS

REMARKS: RUN NUMBER 1

Site U0070A, client designation USC 070, was cored for exploration using the RCB system.
This site is subcontracted to Shell from LDEO, not a standard USIO/IODP site!
Tools were not able to reach TD due to hole obstruction; maximum depth was 258.5mbsf.
Centralized tools run using modified MCD chasis as inline centralizer, as per tool sketch.
Eccentered / Centered tools decoupled using knuckle joints with a through−wired spacer.
HLDS Caliper used for applicable hole size corrections on up log; bit sized used for downlog.
Tools conveyed to hole on wireline through drill pipe, as is standard for this riser−less operation.
Logs recorded from Drill Floor, but played back with zero reference at sea bed for compatibility with core data.
Original sea bed, as measured from drill floor, was 603.0m uncorrected measured depth below drill floor.
Heave compensation was not required due to exceptionally calm sea state and favorable weather during logging.
DSI Run with typical modes as follows:
− P&S Monopole in Standard Frequency
− Upper Dipole in Low Frequency
− Lower Dipole in Standard Frequency
− Stoneley in Standard Frequency
DSI Centralized using two MCD inline centralizers.

RUN 1

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

LOGGED INTERVAL	START	STOP

RUN 2

SERVICE ORDER #:
PROGRAM VERSION:
FLUID LEVEL:

LOGGED INTERVAL	START	STOP

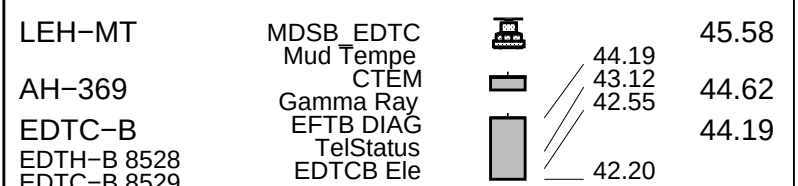
EQUIPMENT DESCRIPTION

RUN 1

SURFACE EQUIPMENT

WITM (EDTS)−A

DOWNHOLE EQUIPMENT



RUN 2

LDTC−B 8529

LDSC−B — LDSC Stat — 41.67 — 42.20

HLDS — 41.14
GSR−Z 8113
HLDV−D 45
HLDS−D 45
HEH−H 47
HLDP−C 45
Caliper
SS LS Status — 37.08

AH−184 — 36.32

AH−ECHMRA — 35.71
AH−ECHMRA 5714

AH−184 — 32.81

AH−MCD_D — 32.20
AH−MCD_D 1663

DSST−B — 29.93
SPAC−B 8194
ECH−SD 8183
SMDR−BD 8070
SSIJ−BA 8204
SMDX−AA 8147

PWF — 14.38

AH−MCD_GB — 14.38
AH−MCD_GB 22

HRLT−B — 12.10
HRUH−B 978
HRUC−B 764
HRLS−B 768
HRLH−B 968
HRLC−B 974
AH−270 1708
High Res. — 8.51

AH−SSIJ — 4.72

MSS_LDEO−A — 3.66
ELIC−A 3
MSS_LDEO−A 3
Hi−Res — 3.36
Dual Coil — 0.39
DF ACCZ
Tension HV — 0.00

TOOL ZERO

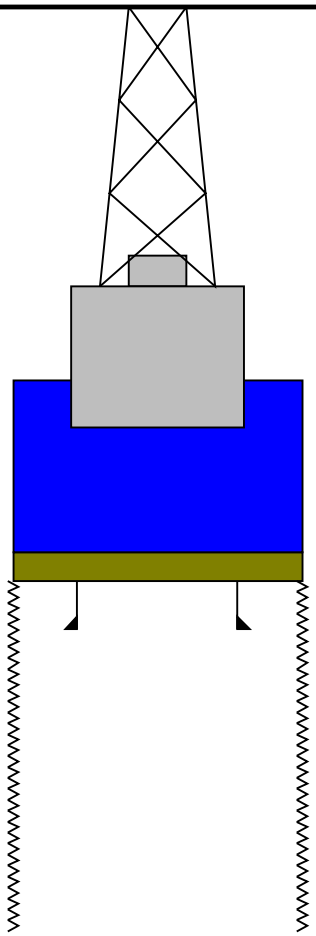
MAXIMUM STRING DIAMETER 4.50 IN
MEASUREMENTS RELATIVE TO TOOL ZERO
ALL LENGTHS IN METERS

Client: LDEO / Shell
Well: USC 70
Field: Baffin Bay
State:
Country: Greenland

Drawing Date: 9/23/2012
API #:

Rig Name: JOIDES Resolution
Reference Datum: Sea Floor
Elevation: −603.0 m

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

	OD	ID	MD		MD	OD	ID	
Kelly Bushing Elevation			−603.0					
Derrick Floor Elevation			−603.0					
Mean Sea Level			−592.0					
					0.0			Sea Floor
					33.0	5.500		Pipe Shoe
					303.6	9.875		Total Depth − Driller

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Up Log

MAXIS Field Log

Company: Lamont Doherty Earth Observatory **Well: Expedition 344S, U0080A (USC70)**

Input DLIS Files

DEFAULT	MSS_LDEO_HRLA_DSI_010LUP	FN:11	PRODUCER	20−Sep−2012 19:23	861.8 M	591.6 M

Output DLIS Files

DEFAULT	MSS_LDEO_HRLA_DSI_028PUP	FN:33	PRODUCER	23−Sep−2012 02:33	259.1 M	−11.4 M
CLIENT	MSS_LDEO_HRLA_DSI_028PUC	FN:34	CUSTOMER	23−Sep−2012 02:33	259.1 M	−11.4 M

OP System Version: 19C0−187

MSS_LDEO−A	19C0−187	HRLT−B	19C0−187
DSST−B	19C0−187	HLDS	19C0−187
LDSC−B	19C0−187	EDTC−B	SKK−5169−EDTCB

PIP SUMMARY

Time Mark Every 60 S

Delta−T Stoneley (DTST)
440 (US/F) 40

Gamma Ray (GR_EDTC)
0 (GAPI) 150

Delta−T Stoneley / RA (DT3R)
440 (US/F) 40

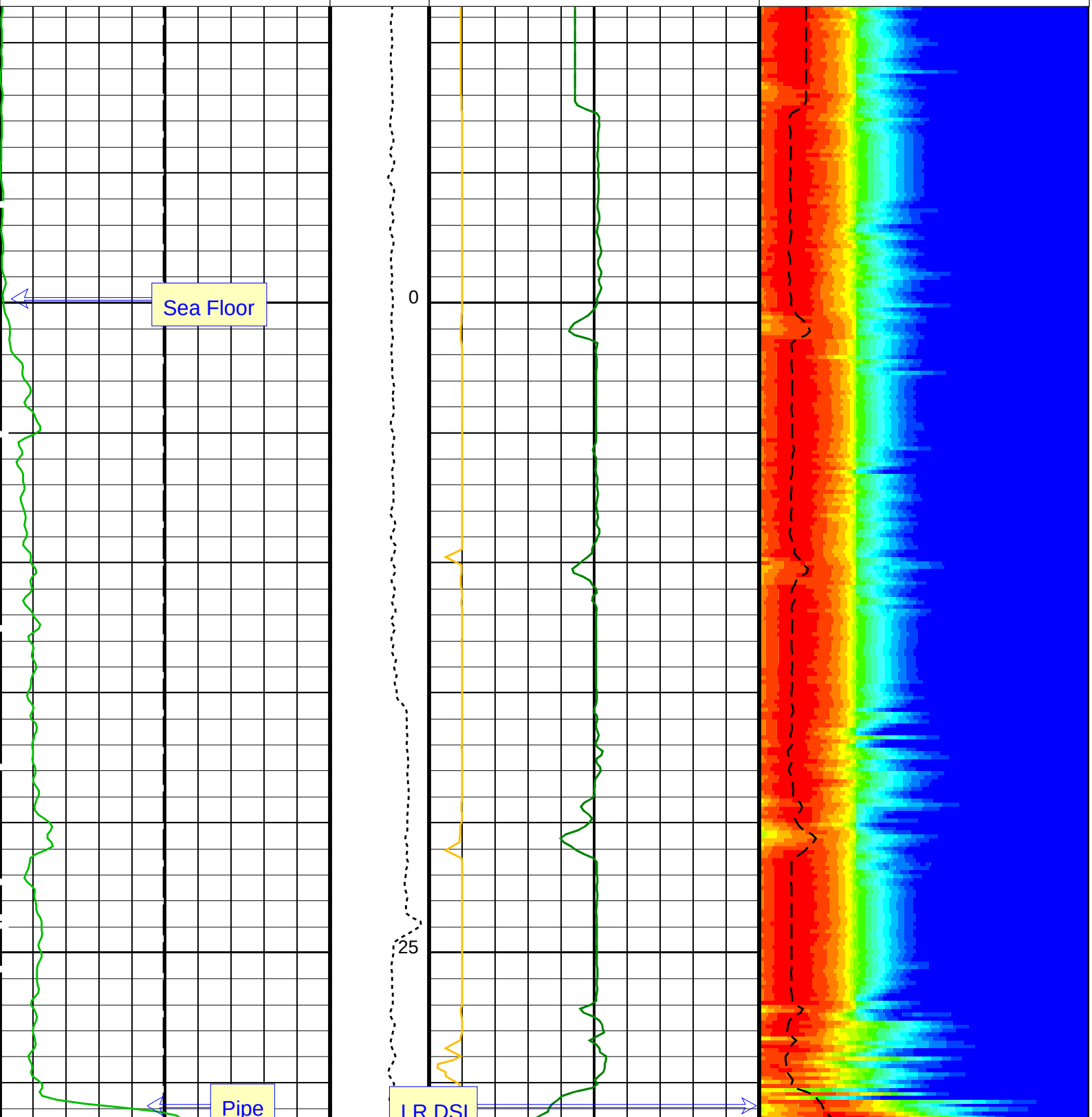
Min Amplitude Max
Rec.Array Stoneley Slow Proj. CVDL (SPR3)
180 (US/F) 780

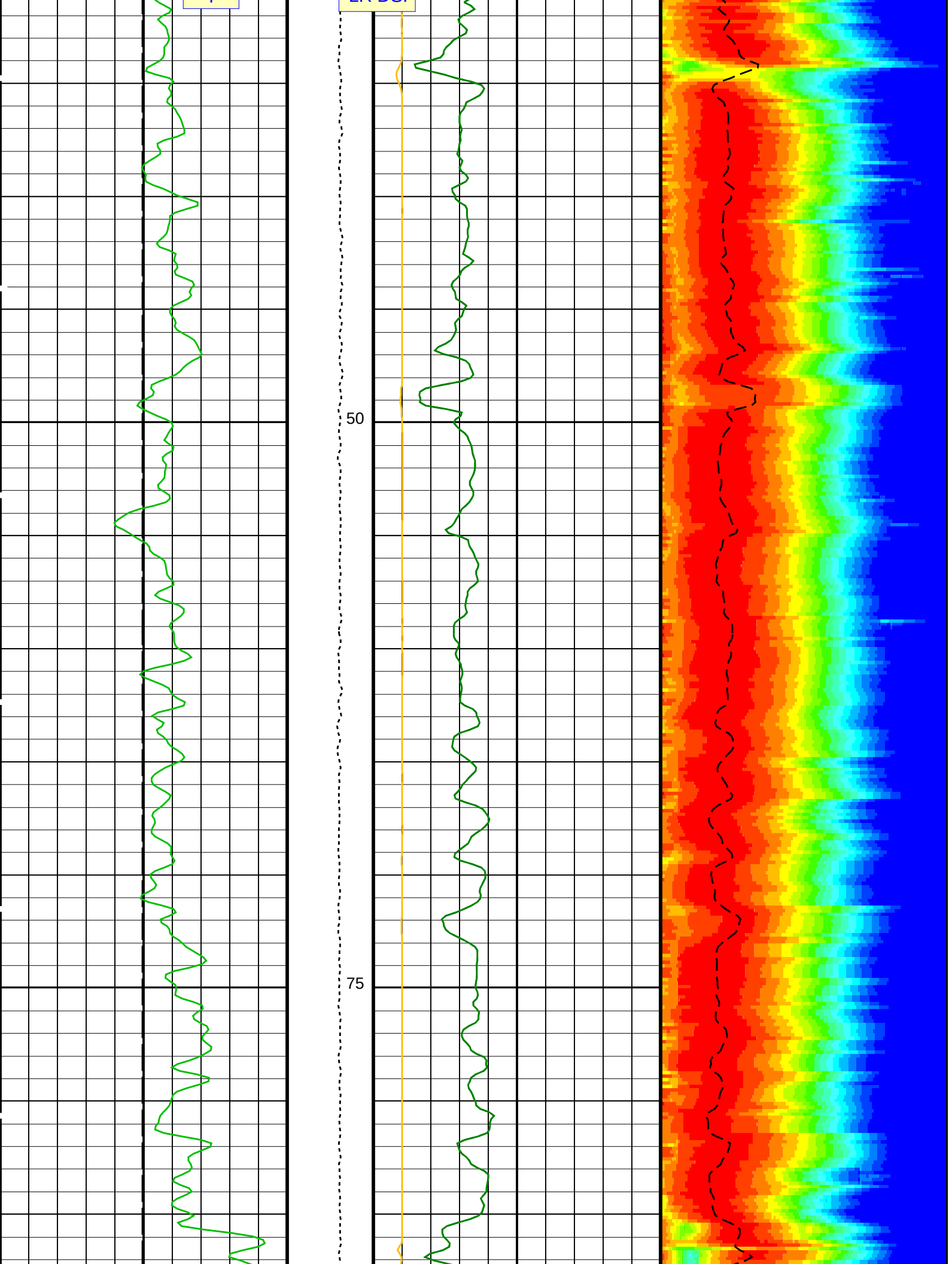
Bit Size (BS)
0 (IN) 20

Tension (TENS)
(LBF)
0 5000

Peak Coherence / RA − Stoneley (CHR3)
0 (−−−−) 10

Delta−T Stoneley / RA (DT3R)
180 (US/F) 780

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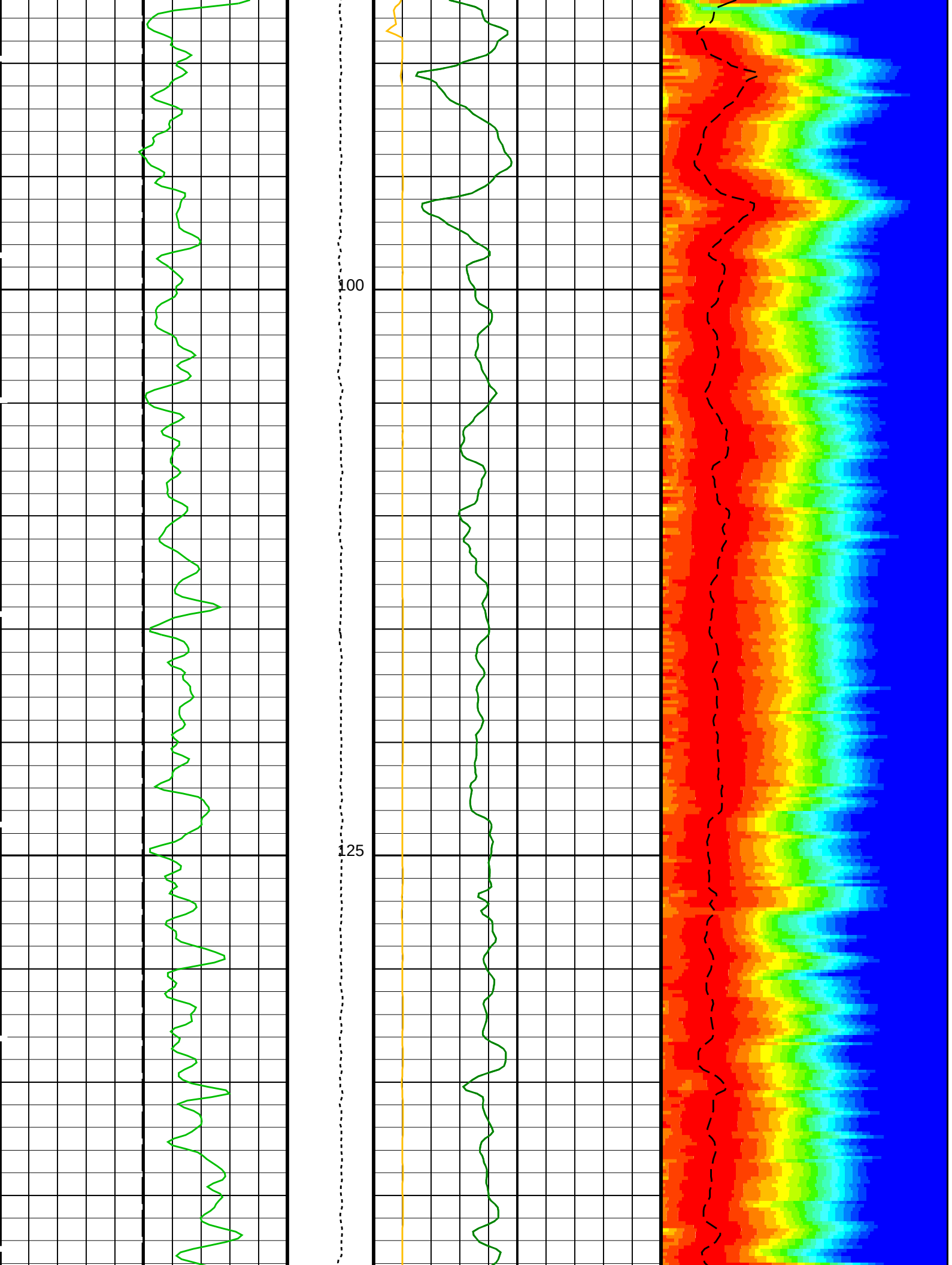
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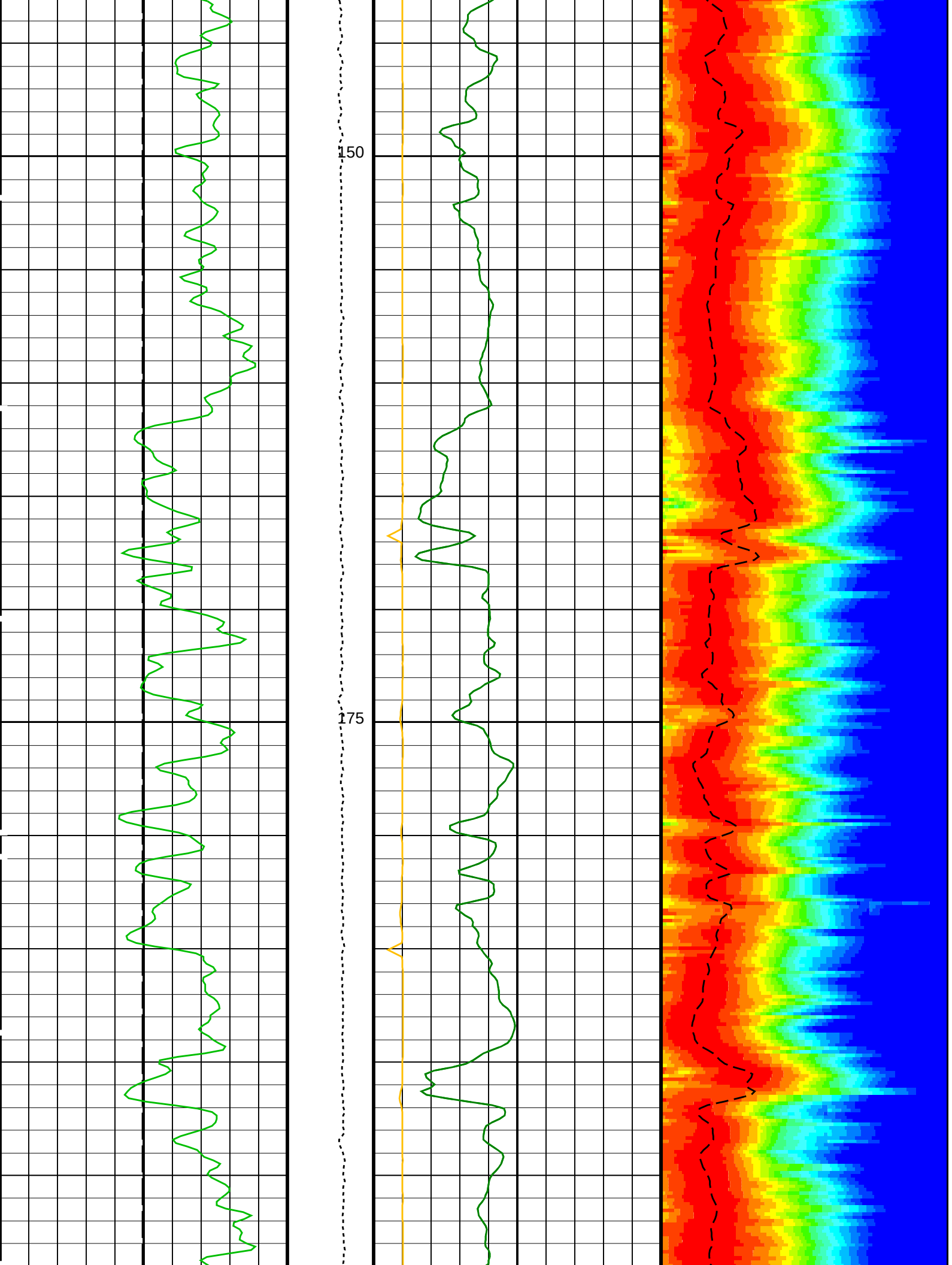
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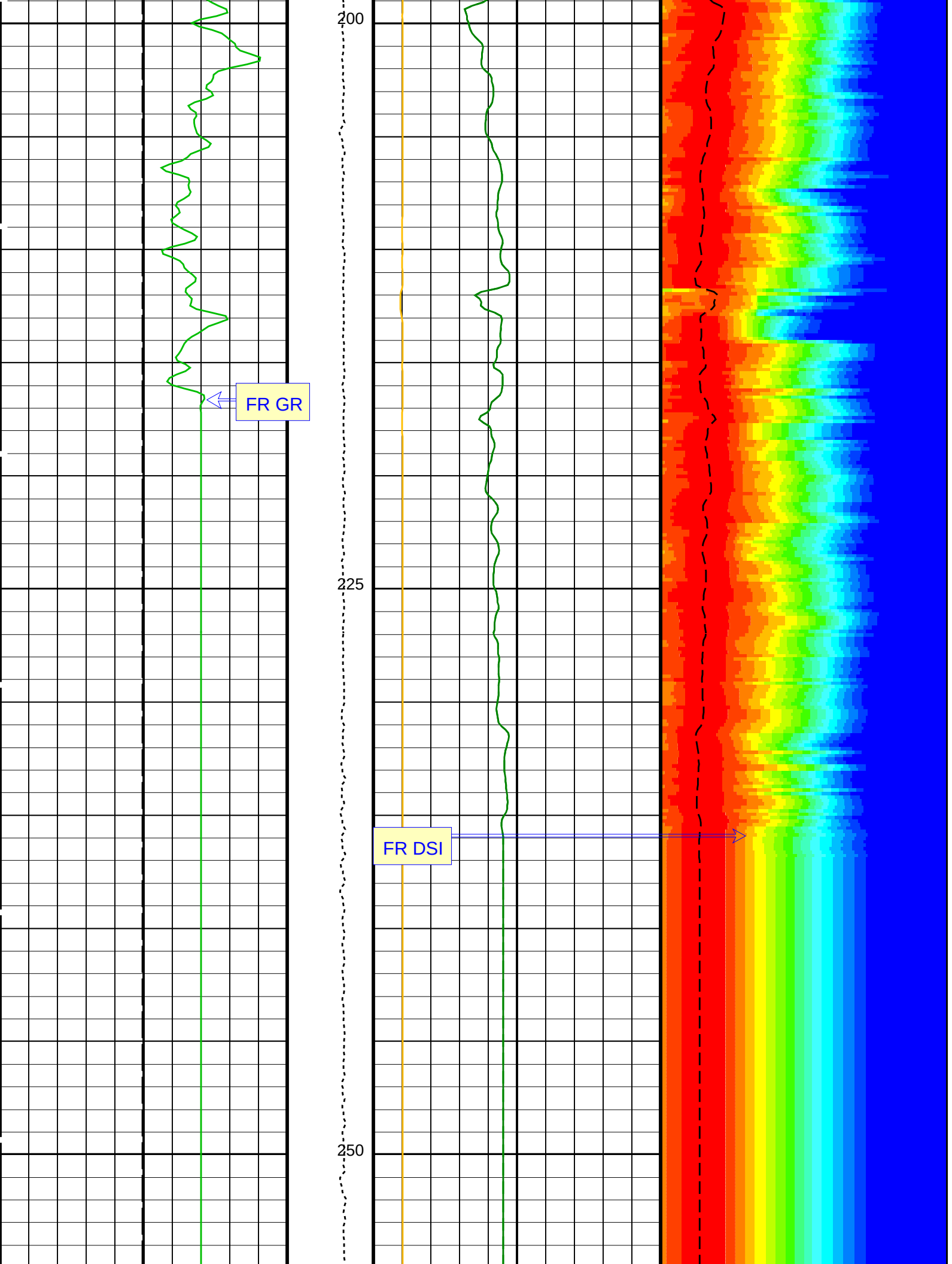
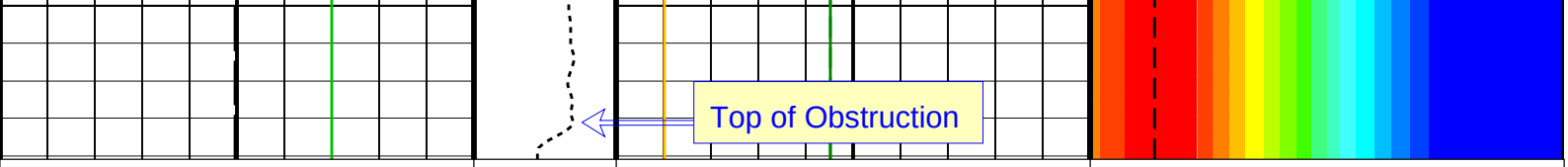

200
225
250
FR GR
FR DSI



Bit Size (BS)	Tension (TENS)	Peak Coherence / RA − Stoneley (CHR3)	Delta−T Stoneley / RA (DT3R)
0 (IN) 20	0 (LBF) 5000	0 (−−−−) 10	180 (US/F) 780

Gamma Ray (GR_EDTC)	Delta−T Stoneley / RA (DT3R)	Amplitude
0 (GAPI) 150	440 (US/F) 40	Min Max Rec.Array Stoneley Slow Proj. CVDL (SPR3) 180 (US/F) 780

Delta−T Stoneley (DTST)
440 (US/F) 40

PIP SUMMARY

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
	DSST−B: Dipole Shear Imager − B		
DDE3	Digitizing Delay 3	0	US
DDEX	Digitizing Delay X	0	US
DSI3	Digitizer Sample Interval 3	40	US
DSIX	Digitizer Sample Interval X	40	US
DTCS	Compressional Delta−T Source for DTCO Channel	PS_COMP	
DWC3	Digitizer Word Count 3	512	
DWCX	Digitizer Word Count X	512	
MTXG	Monopole Transmitter Geometry	186	IN
NWI3	Number Waveform Items 3	8	
NWIX	Number Waveform Items X	0	
RX1G	Receiver 1 Geometry	294	IN
RX2G	Receiver 2 Geometry	300	IN
RX3G	Receiver 3 Geometry	306	IN
RX4G	Receiver 4 Geometry	312	IN
RX5G	Receiver 5 Geometry	318	IN
RX6G	Receiver 6 Geometry	324	IN
RX7G	Receiver 7 Geometry	330	IN
RX8G	Receiver 8 Geometry	336	IN
SAM3	DSST Sonic Acquisition Mode 3 − Monopole Mode for Stoneley	EVEN	
SAMX	DSST Sonic Acquisition Mode X − Both Dipoles or Monopole Mode for Expert	OFF	
SAS3	STC Sonic Array Status − Monopole Stoneley	255	
SBO3	STC Search Band Offset − Monopole Stoneley	2000	US
SBW3	STC Search Bandwidth − Monopole Stoneley	6000	US
SFC3	STC Formation Character − Monopole Stoneley	SELECTABLE	
SFM3	STC Filter − Monopole Stoneley	B.5−1.5K	
SLL3	STC Slowness Lower Limit − Monopole Stoneley	180	US/F
SST3	STC Slowness Step − Monopole Stoneley	4	US/F
SSW3	STC Source Waveform − Monopole Stoneley	WF_SAM3	
STLL	Label Slowness Lower Limit − Monopole Stoneley	180	US/F
STUL	Label Slowness Upper Limit − Monopole Stoneley	780	US/F
SUL3	STC Slowness Upper Limit − Monopole Stoneley	780	US/F
SWD3	STC Slowness Width − Monopole Stoneley	40	US/F
TBF3	STC Time for Baseline Fill − Monopole Stoneley	0	US
TLL3	STC Time Lower Limit − Monopole Stoneley	620	US
TST3	STC Time Step − Monopole Stoneley	200	US
TUL3	STC Time Upper Limit − Monopole Stoneley	12020	US
TWD3	STC Time Width − Monopole Stoneley	2000	US
TWI3	STC Integration Time Window − Monopole Stoneley	1600	US
TWSX	Transmitter Waveform Select X	0	
	System and Miscellaneous		
BS	Bit Size	9.875	IN
DO	Depth Offset for Playback	−603.0	M
PP	Playback Processing	RECOMPUTE	

Format: DSST_STONELEY_VDL_COLOR **Vertical Scale: 1:200** **Graphics File Created: 23−Sep−2012 02:33**

OP System Version: 19C0−187

MSS_LDEO−A	19C0−187	HRLT−B	19C0−187
DSST−B	19C0−187	HLDS	19C0−187

LDSC−B	19C0−187	EDTC−B	SKK−5169−EDTCB

Input DLIS Files

DEFAULT	MSS_LDEO_HRLA_DSI_010LUP	FN:11	PRODUCER	20−Sep−2012 19:23	861.8 M	591.6 M

Output DLIS Files

DEFAULT	MSS_LDEO_HRLA_DSI_028PUP	FN:33	PRODUCER	23−Sep−2012 02:33		
CLIENT	MSS_LDEO_HRLA_DSI_028PUC	FN:34	CUSTOMER	23−Sep−2012 02:33		

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Down Log

MAXIS Field Log

Company: Lamont Doherty Earth Observatory **Well: Expedition 344S, U0080A (USC70)**

Input DLIS Files

DEFAULT	Flip_MSS_LDEO_HRLA_026LUP		PRODUCER	23−Sep−2012 02:30	862.6 M	506.7 M

Output DLIS Files

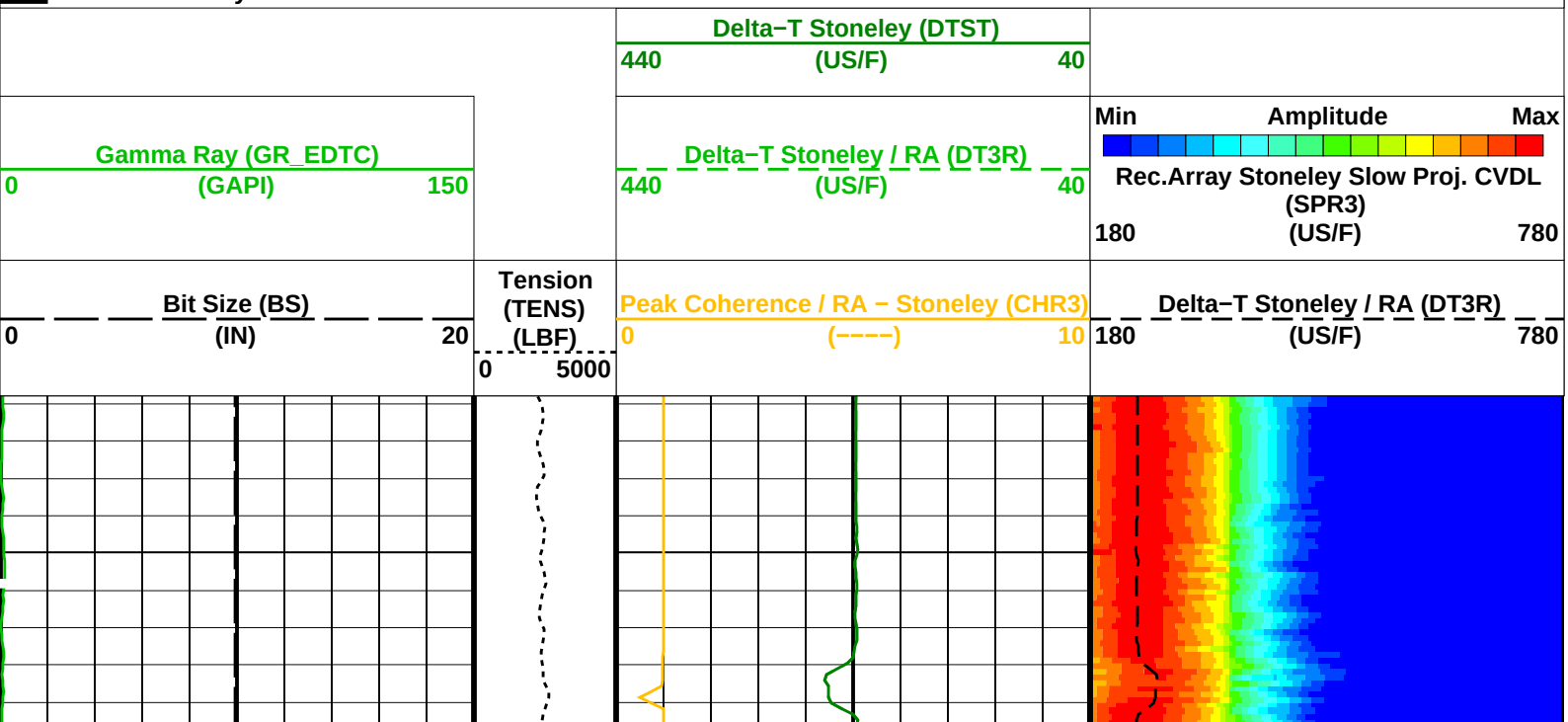
DEFAULT	MSS_LDEO_HRLA_DSI_029PUP	FN:35	PRODUCER	23−Sep−2012 02:41	259.2 M	−24.2 M
CLIENT	MSS_LDEO_HRLA_DSI_029PUC	FN:36	CUSTOMER	23−Sep−2012 02:41	259.2 M	−24.2 M

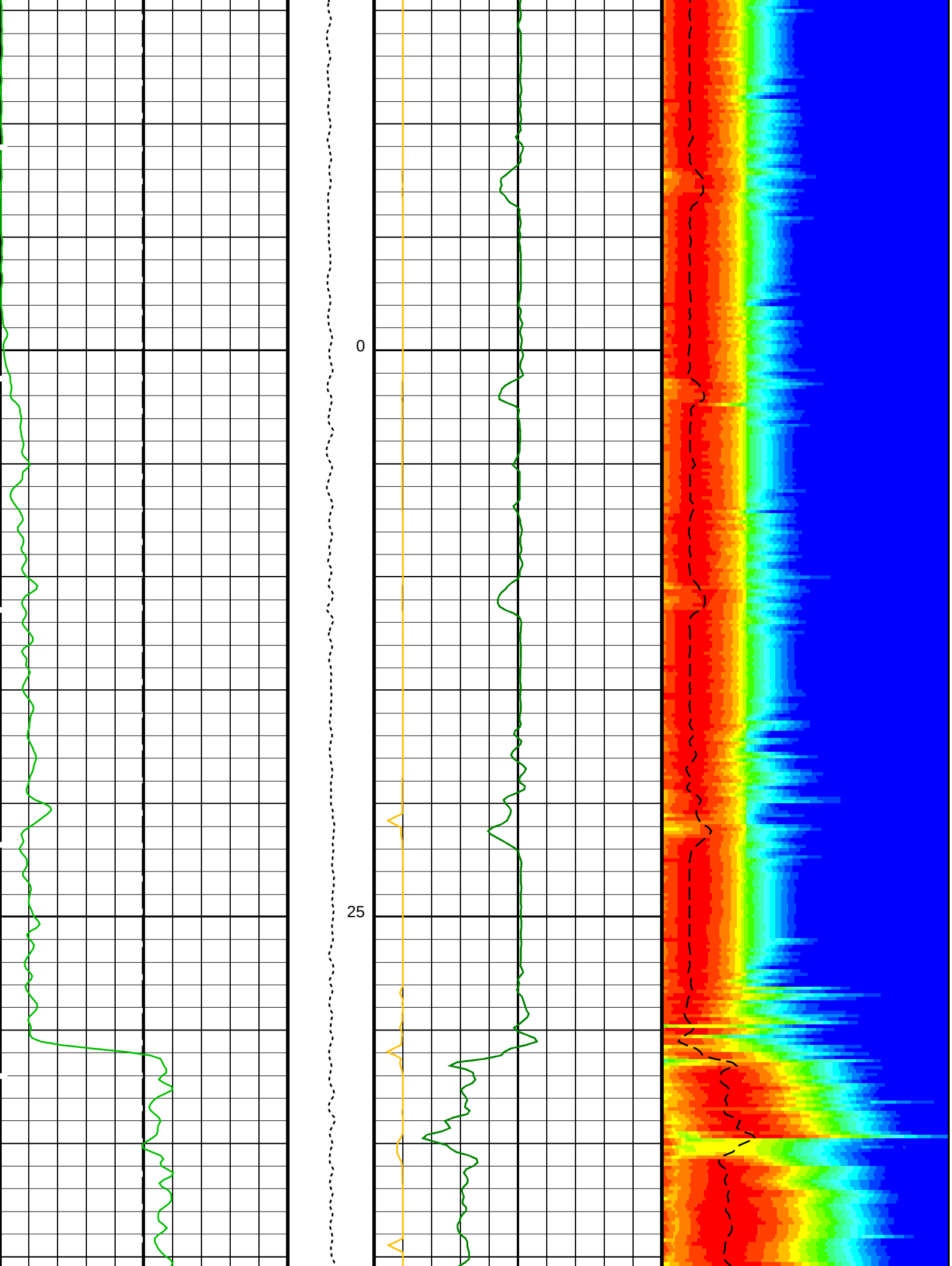
OP System Version: 19C0−187

MSS_LDEO−A	19C0−187	HRLT−B	19C0−187
DSST−B	19C0−187	HLDS	19C0−187
LDSC−B	19C0−187	EDTC−B	SKK−5169−EDTCB

PIP SUMMARY

Time Mark Every 60 S

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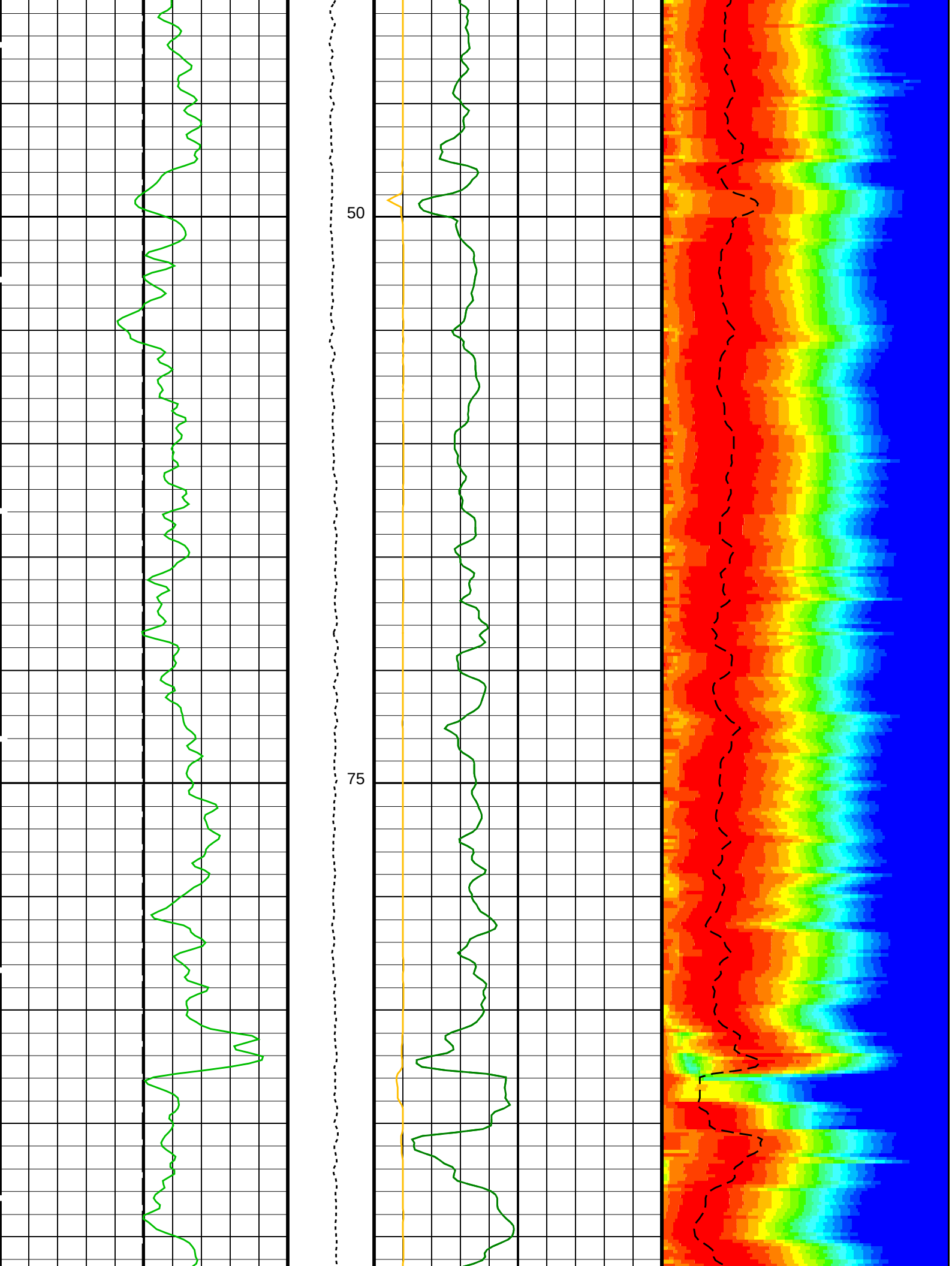
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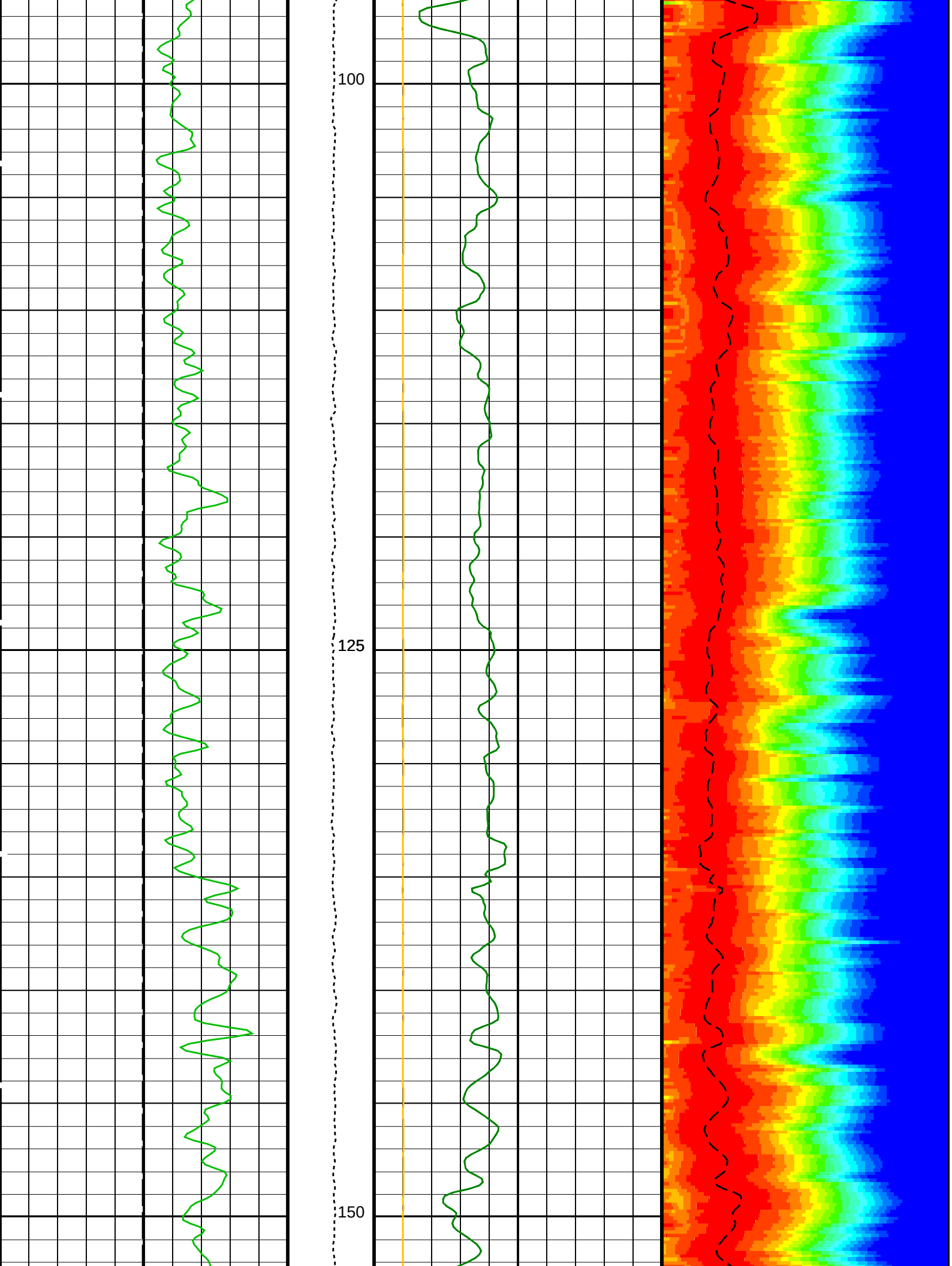
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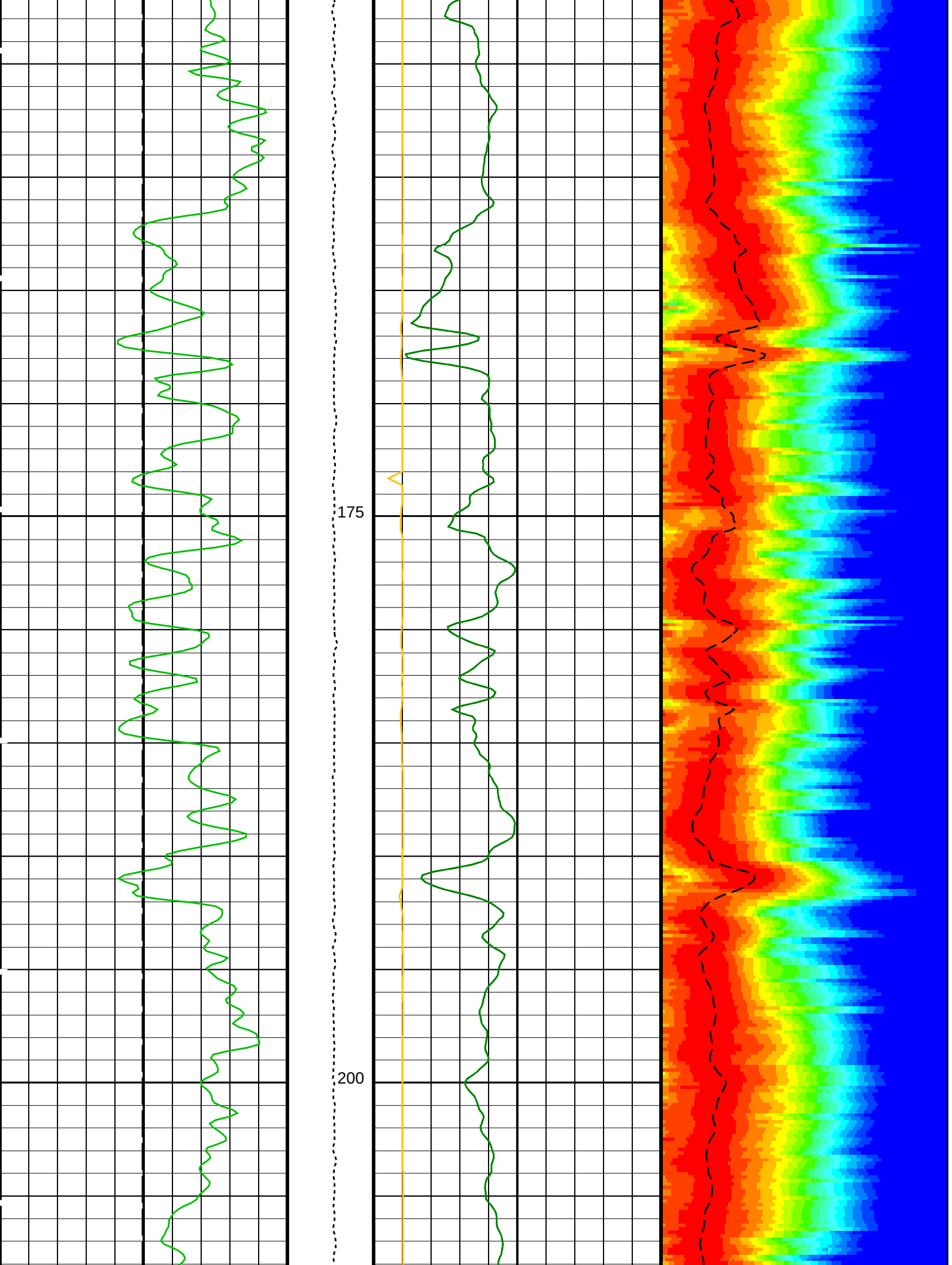
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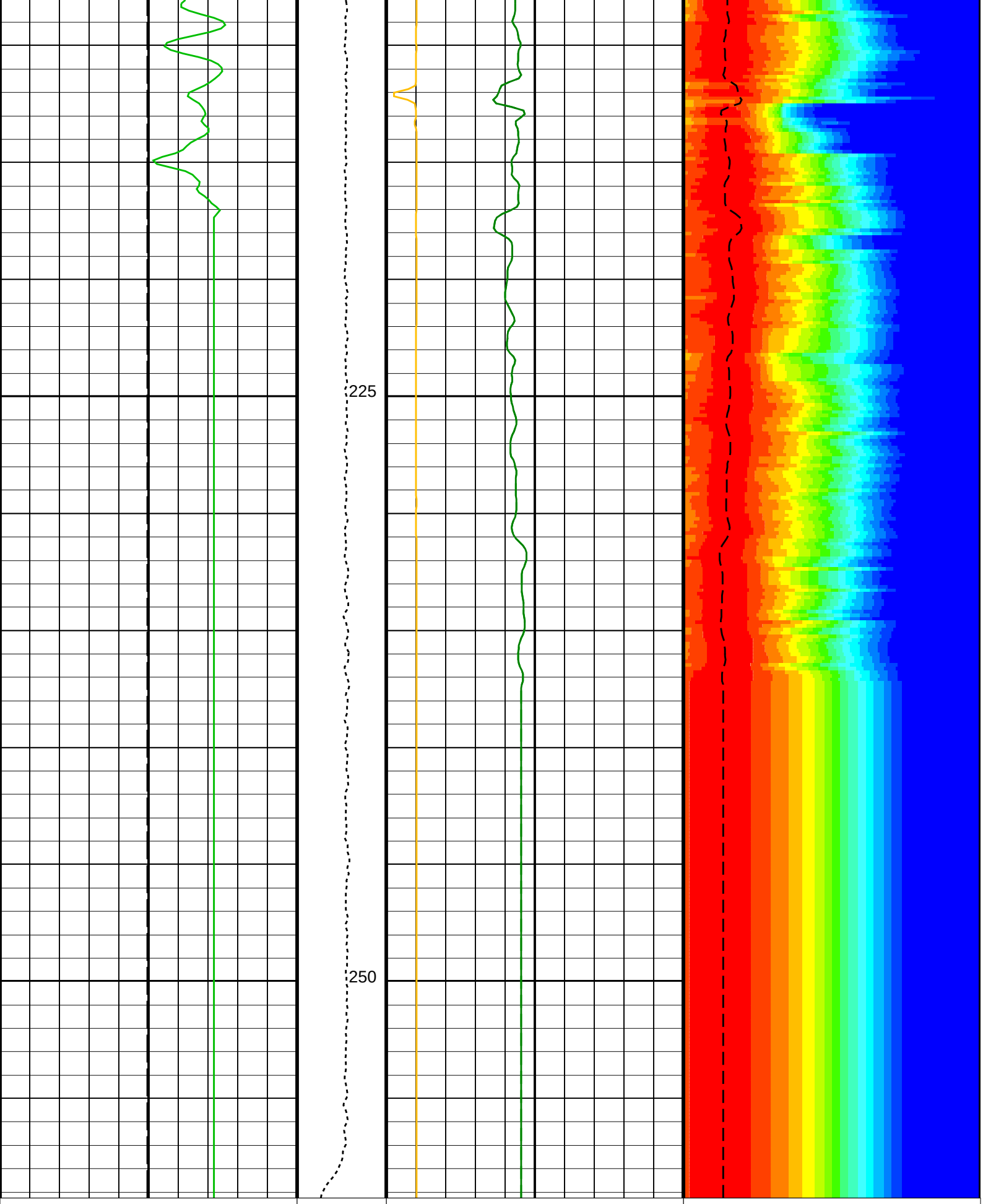


Bit Size (BS)	Tension (TENS)	Peak Coherence / RA − Stoneley (CHR3)	Delta−T Stoneley / RA (DT3R)
0 (IN) 20	0 (LBF) 5000	0 (−−−−) 10	180 (US/F) 780
			Min Amplitude Max

Gamma Ray (GR_EDTC)		
0	(GAPI)	150

Delta−T Stoneley / RA (DT3R)		
440	(US/F)	40

Rec.Array Stoneley Slow Proj. CVDL (SPR3)		
180	(US/F)	780

Delta−T Stoneley (DTST)		
440	(US/F)	40

PIP SUMMARY

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
	DSST−B: Dipole Shear Imager − B		
DDE3	Digitizing Delay 3	0	US
DDEX	Digitizing Delay X	0	US
DSI3	Digitizer Sample Interval 3	40	US
DSIX	Digitizer Sample Interval X	40	US
DTCS	Compressional Delta−T Source for DTCO Channel	PS_COMP	
DWC3	Digitizer Word Count 3	512	
DWCX	Digitizer Word Count X	512	
MTXG	Monopole Transmitter Geometry	186	IN
NWI3	Number Waveform Items 3	8	
NWIX	Number Waveform Items X	0	
RX1G	Receiver 1 Geometry	294	IN
RX2G	Receiver 2 Geometry	300	IN
RX3G	Receiver 3 Geometry	306	IN
RX4G	Receiver 4 Geometry	312	IN
RX5G	Receiver 5 Geometry	318	IN
RX6G	Receiver 6 Geometry	324	IN
RX7G	Receiver 7 Geometry	330	IN
RX8G	Receiver 8 Geometry	336	IN
SAM3	DSST Sonic Acquisition Mode 3 − Monopole Mode for Stoneley	EVEN	
SAMX	DSST Sonic Acquisition Mode X − Both Dipoles or Monopole Mode for Expert	OFF	
SAS3	STC Sonic Array Status − Monopole Stoneley	255	
SBO3	STC Search Band Offset − Monopole Stoneley	2000	US
SBW3	STC Search Bandwidth − Monopole Stoneley	6000	US
SFC3	STC Formation Character − Monopole Stoneley	SELECTABLE	
SFM3	STC Filter − Monopole Stoneley	B.5−1.5K	
SLL3	STC Slowness Lower Limit − Monopole Stoneley	180	US/F
SST3	STC Slowness Step − Monopole Stoneley	4	US/F
SSW3	STC Source Waveform − Monopole Stoneley	WF_SAM3	
STLL	Label Slowness Lower Limit − Monopole Stoneley	180	US/F
STUL	Label Slowness Upper Limit − Monopole Stoneley	780	US/F
SUL3	STC Slowness Upper Limit − Monopole Stoneley	780	US/F
SWD3	STC Slowness Width − Monopole Stoneley	40	US/F
TBF3	STC Time for Baseline Fill − Monopole Stoneley	0	US
TLL3	STC Time Lower Limit − Monopole Stoneley	620	US
TST3	STC Time Step − Monopole Stoneley	200	US
TUL3	STC Time Upper Limit − Monopole Stoneley	12020	US
TWD3	STC Time Width − Monopole Stoneley	2000	US
TWI3	STC Integration Time Window − Monopole Stoneley	1600	US
TWSX	Transmitter Waveform Select X	0	
	System and Miscellaneous		
BS	Bit Size	9.875	IN
DO	Depth Offset for Playback	−603.4	M
PP	Playback Processing	RECOMPUTE	

Format: DSST_STONELEY_VDL_COLOR Vertical Scale: 1:200 Graphics File Created: 23−Sep−2012 02:41

OP System Version: 19C0−187

MSS_LDEO−A	19C0−187	HRLT−B	19C0−187
DSST−B	19C0−187	HLDS	19C0−187
LDSC−B	19C0−187	EDTC−B	SKK−5169−EDTCB

Input DLIS Files

DEFAULT	Flip_MSS_LDEO_HRLA_026LUP	PRODUCER	23−Sep−2012 02:30	862.6 M	506.7 M

Output DLIS Files

DEFAULT	MSS_LDEO_HRLA_DSI_029PUP	FN:35	PRODUCER	23−Sep−2012 02:41
CLIENT	MSS_LDEO_HRLA_DSI_029PUC	FN:36	CUSTOMER	23−Sep−2012 02:41

Schlumberger

Calibrations

MAXIS Field Log

Calibration and Check Summary

Measurement	Nominal	Master	Before	After	Change	Limit	Units
High Resolution Laterolog Array − B Wellsite Calibration − HRLT M01							
Before: 20−Sep−2012 18:03 After: 20−Sep−2012 20:45							
HRLT M0−M1 Voltage Plus − 0	0	N/A	−320.1	−319.3	0.7999	9.681	UV
HRLT M0−M1 Voltage Plus − 1	0	N/A	−341.6	−338.6	2.980	9.681	UV
HRLT M0−M1 Voltage Plus − 2	0	N/A	−339.5	−337.3	2.248	9.681	UV
HRLT M0−M1 Voltage Plus − 3	0	N/A	−342.4	−340.5	1.922	9.681	UV
HRLT M0−M1 Voltage Plus − 4	0	N/A	−328.1	−327.0	1.090	9.681	UV
HRLT M0−M1 Voltage Plus − 5	0	N/A	−323.6	−322.7	0.8422	9.681	UV
HRLT M0−M1 Voltage Plus − 6	0	N/A	332.2	329.8	−2.436	9.681	UV
HRLT M0−M1 Voltage Plus − 7	0	N/A	−322.7	−322.7	0	9.681	UV
High Resolution Laterolog Array − B Wellsite Calibration − HRLT M12							
Before: 20−Sep−2012 18:03 After: 20−Sep−2012 20:45							
HRLT M1−M2 Voltage Plus − 0	0	N/A	1758	1755	−2.932	53.42	UV
HRLT M1−M2 Voltage Plus − 1	0	N/A	1876	1860	−16.31	53.42	UV
HRLT M1−M2 Voltage Plus − 2	0	N/A	1860	1848	−11.92	53.42	UV
HRLT M1−M2 Voltage Plus − 3	0	N/A	1876	1866	−9.832	53.42	UV
HRLT M1−M2 Voltage Plus − 4	0	N/A	1799	1794	−5.057	53.42	UV
HRLT M1−M2 Voltage Plus − 5	0	N/A	1776	1772	−3.489	53.42	UV
HRLT M1−M2 Voltage Plus − 6	0	N/A	−1832	−1820	12.60	53.42	UV
HRLT M1−M2 Voltage Plus − 7	0	N/A	1781	1781	0	53.42	UV
High Resolution Laterolog Array − B Wellsite Calibration − HRLT M23							
Before: 20−Sep−2012 18:03 After: 20−Sep−2012 20:45							
HRLT M2−M3 Voltage Plus − 0	0	N/A	1745	1741	−3.911	53.42	UV
HRLT M2−M3 Voltage Plus − 1	0	N/A	1875	1857	−17.45	53.42	UV
HRLT M2−M3 Voltage Plus − 2	0	N/A	1860	1847	−13.26	53.42	UV
HRLT M2−M3 Voltage Plus − 3	0	N/A	1879	1868	−10.97	53.42	UV
HRLT M2−M3 Voltage Plus − 4	0	N/A	1796	1789	−6.424	53.42	UV
HRLT M2−M3 Voltage Plus − 5	0	N/A	1773	1769	−4.405	53.42	UV
HRLT M2−M3 Voltage Plus − 6	0	N/A	−1819	−1805	13.85	53.42	UV
HRLT M2−M3 Voltage Plus − 7	0	N/A	1781	1781	0	53.42	UV
High Resolution Laterolog Array − B Wellsite Calibration − HRLT V34							
Before: 20−Sep−2012 18:03 After: 20−Sep−2012 20:45							
HRLT A3−A4 Voltage Plus − 0	0	N/A	68580	68470	−107.9	2100	UV
HRLT A3−A4 Voltage Plus − 1	0	N/A	73460	72830	−631.8	2100	UV
HRLT A3−A4 Voltage Plus − 2	0	N/A	73170	72710	−458.4	2100	UV
HRLT A3−A4 Voltage Plus − 3	0	N/A	74220	73830	−386.3	2100	UV
HRLT A3−A4 Voltage Plus − 4	0	N/A	70890	70690	−197.9	2100	UV
HRLT A3−A4 Voltage Plus − 5	0	N/A	70020	69890	−123.6	2100	UV
HRLT A3−A4 Voltage Plus − 6	0	N/A	−70280	−69810	468.9	2100	UV
HRLT A3−A4 Voltage Plus − 7	0	N/A	70000	70000	0	2100	UV
High Resolution Laterolog Array − B Wellsite Calibration − HRLT V45							
Before: 20−Sep−2012 18:03 After: 20−Sep−2012 20:45							
HRLT A4−A5 Voltage Plus − 0	0	N/A	68870	68760	−110.4	2100	UV
HRLT A4−A5 Voltage Plus − 1	0	N/A	73860	73240	−616.3	2100	UV
HRLT A4−A5 Voltage Plus − 2	0	N/A	73540	73080	−459.3	2100	UV
HRLT A4−A5 Voltage Plus − 3	0	N/A	74570	74180	−394.7	2100	UV
HRLT A4−A5 Voltage Plus − 4	0	N/A	71190	70990	−199.9	2100	UV
HRLT A4−A5 Voltage Plus − 5	0	N/A	70310	70180	−130.1	2100	UV
HRLT A4−A5 Voltage Plus − 6	0	N/A	−70670	−70200	471.5	2100	UV
HRLT A4−A5 Voltage Plus − 7	0	N/A	70000	70000	0	2100	UV
High Resolution Laterolog Array − B Wellsite Calibration − HRLT V56							
Before: 20−Sep−2012 18:03 After: 20−Sep−2012 20:45							

HRLT A5−A6 Voltage Plus − 0	0	N/A	68760	68650	−113.5	2100	UV
HRLT A5−A6 Voltage Plus − 1	0	N/A	73580	72960	−610.8	2100	UV
HRLT A5−A6 Voltage Plus − 2	0	N/A	73290	72840	−458.4	2100	UV
HRLT A5−A6 Voltage Plus − 3	0	N/A	74370	74000	−375.0	2100	UV
HRLT A5−A6 Voltage Plus − 4	0	N/A	71050	70850	−198.5	2100	UV
HRLT A5−A6 Voltage Plus − 5	0	N/A	70190	70050	−145.6	2100	UV
HRLT A5−A6 Voltage Plus − 6	0	N/A	−70390	−69900	494.1	2100	UV
HRLT A5−A6 Voltage Plus − 7	0	N/A	70000	70000	0	2100	UV

High Resolution Laterolog Array − B Wellsite Calibration − HRLT VTP
Before: 20−Sep−2012 18:03 After: 20−Sep−2012 20:45

HRLT Torpedo−M0 Voltage − 0	0	N/A	−68440	−68340	106.0	2100	UV
HRLT Torpedo−M0 Voltage − 1	0	N/A	−73930	−73290	640.7	2100	UV
HRLT Torpedo−M0 Voltage − 2	0	N/A	−73610	−73150	462.2	2100	UV
HRLT Torpedo−M0 Voltage − 3	0	N/A	−74670	−74280	396.4	2100	UV
HRLT Torpedo−M0 Voltage − 4	0	N/A	−71250	−71050	203.0	2100	UV
HRLT Torpedo−M0 Voltage − 5	0	N/A	−70360	−70210	147.7	2100	UV
HRLT Torpedo−M0 Voltage − 6	0	N/A	70680	70180	−490.6	2100	UV
HRLT Torpedo−M0 Voltage − 7	0	N/A	−70000	−70000	0	2100	UV

High Resolution Laterolog Array − B Wellsite Calibration − HRLT VBD
Before: 20−Sep−2012 18:03 After: 20−Sep−2012 20:45

HRLT Bridle#9−M0 Voltage − 0	0	N/A	−68430	−68320	110.2	2100	UV
HRLT Bridle#9−M0 Voltage − 1	0	N/A	−73910	−73280	637.2	2100	UV
HRLT Bridle#9−M0 Voltage − 2	0	N/A	−73590	−73130	456.7	2100	UV
HRLT Bridle#9−M0 Voltage − 3	0	N/A	−74650	−74260	384.8	2100	UV
HRLT Bridle#9−M0 Voltage − 4	0	N/A	−71250	−71040	204.3	2100	UV
HRLT Bridle#9−M0 Voltage − 5	0	N/A	−70340	−70210	134.8	2100	UV
HRLT Bridle#9−M0 Voltage − 6	0	N/A	70650	70160	−490.6	2100	UV
HRLT Bridle#9−M0 Voltage − 7	0	N/A	−70000	−70000	0	2100	UV

High Resolution Laterolog Array − B Wellsite Calibration − HRLT ISO
Before: 20−Sep−2012 18:03 After: 20−Sep−2012 20:45

HRLT Source Current Plus − 0	0	N/A	285.3	284.9	−0.3990	8.520	UA
HRLT Source Current Plus − 1	0	N/A	281.1	281.1	0	8.520	UA
HRLT Source Current Plus − 2	0	N/A	281.1	281.1	0	8.520	UA
HRLT Source Current Plus − 3	0	N/A	281.1	281.1	0	8.520	UA
HRLT Source Current Plus − 4	0	N/A	281.1	281.1	0	8.520	UA
HRLT Source Current Plus − 5	0	N/A	281.1	281.1	0	8.520	UA
HRLT Source Current Plus − 6	0	N/A	281.1	281.1	0	8.520	UA
HRLT Source Current Plus − 7	0	N/A	281.1	281.1	0	8.520	UA

High Resolution Laterolog Array − B Wellsite Calibration − HRLT MV
Before: 20−Sep−2012 18:03 After: 20−Sep−2012 20:45

HRLT Vertical Voltage Pl − 0	0	N/A	−322.3	−321.4	0.8523	9.681	UV
HRLT Vertical Voltage Pl − 1	0	N/A	−335.6	−332.5	3.175	9.681	UV
HRLT Vertical Voltage Pl − 2	0	N/A	−332.8	−330.4	2.353	9.681	UV
HRLT Vertical Voltage Pl − 3	0	N/A	−333.9	−331.9	2.034	9.681	UV
HRLT Vertical Voltage Pl − 4	0	N/A	−317.3	−316.2	1.169	9.681	UV
HRLT Vertical Voltage Pl − 5	0	N/A	−328.1	−327.2	0.9027	9.681	UV
HRLT Vertical Voltage Pl − 6	0	N/A	339.4	336.7	−2.633	9.681	UV
HRLT Vertical Voltage Pl − 7	0	N/A	−322.7	−322.7	0	9.681	UV

Hostile Litho−Density Sonde Wellsite Calibration − Background Measurement
Master: 3−Aug−2012 12:38 Before: 20−Sep−2012 18:06 After: 20−Sep−2012 21:14

SS Cs Resolution Bkg	9.000	7.952	8.050	8.000	−0.05026	1.800	%
LS Cs Resolution Bkg	9.000	8.109	8.189	8.101	−0.08724	1.800	%
LSW1 Background	100.0	71.68	71.68	71.86	0.1790	3.000	CPS
LSW2 Background	100.0	68.54	66.66	66.34	−0.3285	3.000	CPS
LSW3 Background	200.0	146.7	145.5	147.5	1.967	6.000	CPS
LSW4 Background	250.0	177.8	179.7	178.5	−1.147	7.500	CPS
LSW5 Background	600.0	409.7	409.8	411.6	1.815	18.00	CPS
SSW1 Background	100.0	81.22	80.50	80.07	−0.4239	3.000	CPS
SSW2 Background	200.0	145.7	143.5	142.3	−1.204	6.000	CPS
SSW3 Background	500.0	389.5	388.2	387.2	−0.9963	15.00	CPS
SSW4 Background	270.0	200.9	200.6	199.1	−1.489	8.100	CPS
SSW5 Background	200.0	146.3	146.0	145.3	−0.7189	6.000	CPS

Hostile Litho−Density Sonde Wellsite Calibration − Aluminum Measurement
Master: 3−Aug−2012 13:08

LSW1 Aluminum	600.0	531.2	N/A	N/A	N/A	N/A	CPS
LSW2 Aluminum	900.0	759.6	N/A	N/A	N/A	N/A	CPS
LSW3 Aluminum	1100	924.3	N/A	N/A	N/A	N/A	CPS
LSW4 Aluminum	580.0	467.3	N/A	N/A	N/A	N/A	CPS
LSW5 Aluminum	570.0	427.7	N/A	N/A	N/A	N/A	CPS
SSW1 Aluminum	2800	2539	N/A	N/A	N/A	N/A	CPS
SSW2 Aluminum	8000	6810	N/A	N/A	N/A	N/A	CPS
SSW3 Aluminum	11600	9419	N/A	N/A	N/A	N/A	CPS
SSW4 Aluminum	5000	3830	N/A	N/A	N/A	N/A	CPS
SSW5 Aluminum	660.0	469.0	N/A	N/A	N/A	N/A	CPS

Hostile Litho−Density Sonde Wellsite Calibration − Lithology Measurement

Hostile Litho−Density Sonde Wellsite Calibration − Lithology Measurement

Master: 3−Aug−2012 13:03							
LSW1 Iron	400.0	367.3	N/A	N/A	N/A	N/A	CPS
LSW2 Iron	730.0	618.0	N/A	N/A	N/A	N/A	CPS
LSW3 Iron	1000	815.0	N/A	N/A	N/A	N/A	CPS
LSW4 Iron	520.0	424.5	N/A	N/A	N/A	N/A	CPS
LSW5 Iron	470.0	392.6	N/A	N/A	N/A	N/A	CPS
SSW1 Iron	2100	1845	N/A	N/A	N/A	N/A	CPS
SSW2 Iron	6800	5678	N/A	N/A	N/A	N/A	CPS
SSW3 Iron	10800	8586	N/A	N/A	N/A	N/A	CPS
SSW4 Iron	4600	3500	N/A	N/A	N/A	N/A	CPS
SSW5 Iron	580.0	417.1	N/A	N/A	N/A	N/A	CPS

Hostile Litho−Density Sonde Wellsite Calibration − Caliper Calibration

Before: 3−Aug−2012 13:28							
HLDS Caliper Small Ring	12.00	N/A	15.62	N/A	N/A	N/A	IN
HLDS Caliper Large Ring	15.19	N/A	19.44	N/A	N/A	N/A	IN

Enhanced DTS Cartridge Wellsite Calibration − EDTC Accelerometer Calibration

Before: 20−Sep−2012 18:08							
EDTC Z−Axis Acceleration	9.810	N/A	9.852	N/A	N/A	N/A	M/S2

Enhanced DTS Cartridge Wellsite Calibration − Detector Calibration

Before: 20−Sep−2012 18:08 After: 20−Sep−2012 21:12							
Gamma Ray (Jig − Bkg)	159.7	N/A	159.7	162.2	2.544	14.52	GAPI
Gamma Ray (Calibrated)	165.0	N/A	165.0	167.6	2.629	15.00	GAPI

High Resolution Laterolog Array − B / Equipment Identification

Primary Equipment:		
HRLT Sonde	HRLS − B	768
Auxiliary Equipment:		
HRLT lower Housing	HRLH − B	968
HRLT Lower Cartridge	HRLC − B	974
HRLT upper Housing	HRUH − B	978
HRLT Upper Cartridge	HRUC − B	764

High Resolution Laterolog Array − B Wellsite Calibration

HRLT M01

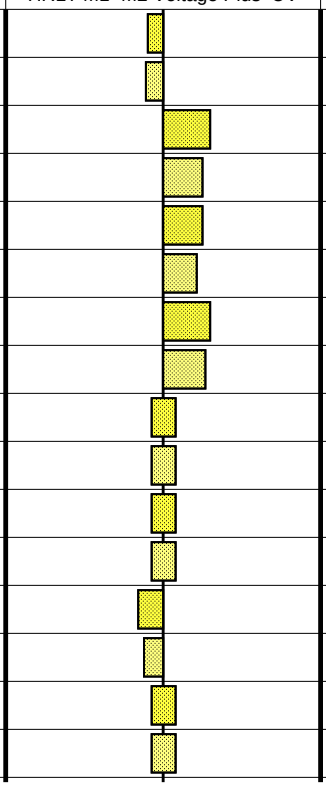
Idx	Phase	HRLT M0−M1 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		−320.1	−322.7	−280.7	−379.7
	After		−319.3			
1	Before		−341.6	−322.7	−280.7	−379.7
	After		−338.6			
2	Before		−339.5	−322.7	−280.7	−379.7
	After		−337.3			
3	Before		−342.4	−322.7	−280.7	−379.7
	After		−340.5			
4	Before		−328.1	−322.7	−280.7	−379.7
	After		−327.0			
5	Before		−323.6	−322.7	−280.7	−379.7
	After		−322.7			
6	Before		332.2	322.7	379.7	280.7
	After		329.8			
7	Before		−322.7	−322.7	−280.7	−379.7
	After		−322.7			
		(Minimum) (Nominal) (Maximum)				

Before: 20−Sep−2012 18:03

After: 20−Sep−2012 20:45

High Resolution Laterolog Array − B Wellsite Calibration

HRLT M12

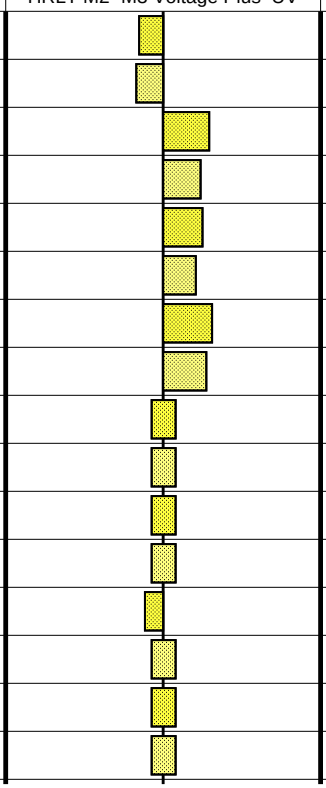
Idx	Phase	HRLT M1−M2 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		1758	1781	2095	1549
	After		1755			
1	Before		1876	1781	2095	1549
	After		1860			
2	Before		1860	1781	2095	1549
	After		1848			
3	Before		1876	1781	2095	1549
	After		1866			
4	Before		1799	1781	2095	1549
	After		1794			
5	Before		1776	1781	2095	1549
	After		1772			
6	Before		−1832	−1781	−1549	−2095
	After		−1820			
7	Before		1781	1781	2095	1549
	After		1781			
	(Minimum) (Nominal) (Maximum)					

Before: 20−Sep−2012 18:03

After: 20−Sep−2012 20:45

High Resolution Laterolog Array − B Wellsite Calibration

HRLT M23

Idx	Phase	HRLT M2−M3 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		1745	1781	2095	1549
	After		1741			
1	Before		1875	1781	2095	1549
	After		1857			
2	Before		1860	1781	2095	1549
	After		1847			
3	Before		1879	1781	2095	1549
	After		1868			
4	Before		1796	1781	2095	1549
	After		1789			
5	Before		1773	1781	2095	1549
	After		1769			
6	Before		−1819	−1781	−1549	−2095
	After		−1805			
7	Before		1781	1781	2095	1549
	After		1781			
	(Minimum) (Nominal) (Maximum)					

Before: 20−Sep−2012 18:03

After: 20−Sep−2012 20:45

High Resolution Laterolog Array − B Wellsite Calibration

HRLT V34

Idx	Phase	HRLT A3−A4 Voltage Plus UV	Value	Nominal	Maximum	Minimum

0	Before	68580	70000	82360	60900
	After	68470			
1	Before	73460	70000	82360	60900
	After	72830			
2	Before	73170	70000	82360	60900
	After	72710			
3	Before	74220	70000	82360	60900
	After	73830			
4	Before	70890	70000	82360	60900
	After	70690			
5	Before	70020	70000	82360	60900
	After	69890			
6	Before	−70280	−70000	−60900	−82360
	After	−69810			
7	Before	70000	70000	82360	60900
	After	70000			
	(Minimum) (Nominal) (Maximum)				

Before: 20−Sep−2012 18:03

After: 20−Sep−2012 20:45

High Resolution Laterolog Array − B Wellsite Calibration

HRLT V45

Idx	Phase	HRLT A4−A5 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		68870	70000	82360	60900
	After		68760			
1	Before		73860	70000	82360	60900
	After		73240			
2	Before		73540	70000	82360	60900
	After		73080			
3	Before		74570	70000	82360	60900
	After		74180			
4	Before		71190	70000	82360	60900
	After		70990			
5	Before		70310	70000	82360	60900
	After		70180			
6	Before		−70670	−70000	−60900	−82360
	After		−70200			
7	Before		70000	70000	82360	60900
	After		70000			
	(Minimum) (Nominal) (Maximum)					

Before: 20−Sep−2012 18:03

After: 20−Sep−2012 20:45

High Resolution Laterolog Array − B Wellsite Calibration

HRLT V56

Idx	Phase	HRLT A5−A6 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		68760	70000	82360	60900
	After		68650			

Idx	Phase	HRLT Torpedo−M0 Voltage Plus UV	Value	Nominal	Maximum	Minimum
1	Before		73580	70000	82360	60900
	After		72960			
2	Before		73290	70000	82360	60900
	After		72840			
3	Before		74370	70000	82360	60900
	After		74000			
4	Before		71050	70000	82360	60900
	After		70850			
5	Before		70190	70000	82360	60900
	After		70050			
6	Before		−70390	−70000	−60900	−82360
	After		−69900			
7	Before		70000	70000	82360	60900
	After		70000			
		(Minimum) (Nominal) (Maximum)				

Before: 20−Sep−2012 18:03

After: 20−Sep−2012 20:45

High Resolution Laterolog Array − B Wellsite Calibration

HRLT VTP

Idx	Phase	HRLT Torpedo−M0 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		−68440	−70000	−60900	−82360
	After		−68340			
1	Before		−73930	−70000	−60900	−82360
	After		−73290			
2	Before		−73610	−70000	−60900	−82360
	After		−73150			
3	Before		−74670	−70000	−60900	−82360
	After		−74280			
4	Before		−71250	−70000	−60900	−82360
	After		−71050			
5	Before		−70360	−70000	−60900	−82360
	After		−70210			
6	Before		70680	70000	82360	60900
	After		70180			
7	Before		−70000	−70000	−60900	−82360
	After		−70000			
		(Minimum) (Nominal) (Maximum)				

Before: 20−Sep−2012 18:03

After: 20−Sep−2012 20:45

High Resolution Laterolog Array − B Wellsite Calibration

HRLT VBD

Idx	Phase	HRLT Bridle#9−M0 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		−68430	−70000	−60900	−82360
	After		−68320			
1	Before		−73910	−70000	−60900	−82360
	After		−73280			

2	Before		−73590	−70000	−60900	−82360
	After		−73130			
3	Before		−74650	−70000	−60900	−82360
	After		−74260			
4	Before		−71250	−70000	−60900	−82360
	After		−71040			
5	Before		−70340	−70000	−60900	−82360
	After		−70210			
6	Before		70650	70000	82360	60900
	After		70160			
7	Before		−70000	−70000	−60900	−82360
	After		−70000			
	(Minimum) (Nominal) (Maximum)					

Before: 20−Sep−2012 18:03

After: 20−Sep−2012 20:45

High Resolution Laterolog Array − B Wellsite Calibration

HRLT ISO

Idx	Phase	HRLT Source Current Plus UA	Value	Nominal	Maximum	Minimum
0	Before		285.3	284.0	334.1	247.0
	After		284.9			
1	Before		281.1	281.1	330.7	244.4
	After		281.1			
2	Before		281.1	281.1	330.7	244.4
	After		281.1			
3	Before		281.1	281.1	330.7	244.4
	After		281.1			
4	Before		281.1	281.1	330.7	244.4
	After		281.1			
5	Before		281.1	281.1	330.7	244.4
	After		281.1			
6	Before		281.1	281.1	330.7	244.4
	After		281.1			
7	Before		281.1	281.1	330.7	244.4
	After		281.1			
	(Minimum) (Nominal) (Maximum)					

Before: 20−Sep−2012 18:03

After: 20−Sep−2012 20:45

High Resolution Laterolog Array − B Wellsite Calibration

HRLT MV

Idx	Phase	HRLT Vertical Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		−322.3	−322.7	−280.7	−379.7
	After		−321.4			
1	Before		−335.6	−322.7	−280.7	−379.7
	After		−332.5			
2	Before		−332.8	−322.7	−280.7	−379.7
	After		−330.4			

3	Before	−333.9	−322.7	−280.7	−379.7
	After	−331.9			
4	Before	−317.3	−322.7	−280.7	−379.7
	After	−316.2			
5	Before	−328.1	−322.7	−280.7	−379.7
	After	−327.2			
6	Before	339.4	322.7	379.7	280.7
	After	336.7			
7	Before	−322.7	−322.7	−280.7	−379.7
	After	−322.7			
	(Minimum) (Nominal) (Maximum)				

Before: 20−Sep−2012 18:03

After: 20−Sep−2012 20:45

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 %	LS Cs Resolution Bkg %	LSW1 Background CPS
Master	7.952	8.109	71.68
Before	8.050	8.189	71.68
After	8.000	8.101	71.86
(Minimum)	7.000	7.000	55.00
(Nominal)	9.000	9.000	100.0
(Maximum)	11.00	11.00	150.0

Phase	LSW2 Background CPS	LSW3 Background CPS	LSW4 Background CPS
Master	68.54	146.7	177.8
Before	66.66	145.5	179.7
After	66.34	147.5	178.5
(Minimum)	50.00	110.0	140.0
(Nominal)	100.0	200.0	250.0
(Maximum)	140.0	290.0	360.0

Phase	LSW5 Background CPS	SSW1 Background CPS	SSW2 Background CPS
Master	409.7	81.22	145.7
Before	409.8	80.50	143.5
After	411.6	80.07	142.3
(Minimum)	330.0	55.00	100.0
(Nominal)	600.0	100.0	200.0
(Maximum)	830.0	150.0	260.0

Phase	SSW3 Background CPS	SSW4 Background CPS	SSW5 Background CPS
Master	389.5	200.9	146.3
Before	388.2	200.6	146.0
After	387.2	199.1	145.3
(Minimum)	280.0	150.0	110.0
(Nominal)	500.0	270.0	200.0
(Maximum)	700.0	380.0	270.0

Master: 3−Aug−2012 12:38 Before: 20−Sep−2012 18:06 After: 20−Sep−2012 21:14

Litho−Density Spectroscopy Cartridge − B / Equipment Identification

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

Enhanced DTS Cartridge / Equipment Identification

Primary Equipment:		
EDTC Gamma Ray Detector	EDTG − A/B	77693
Enhanced DTS Cartridge	EDTC − B	8529
Auxiliary Equipment:		
EDTC Housing	EDTH − B	8528

Enhanced DTS Cartridge Wellsite Calibration

EDTC Accelerometer Calibration

Phase	EDTC Z−Axis Acceleration M/S2	Value
Before		9.852

9.610 (Minimum) 9.810 (Nominal) 10.01 (Maximum)

Before: 20−Sep−2012 18:08

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		4.007	Before		159.7	Before		165.0
After		4.426	After		162.2	After		167.6

0 (Minimum) 30.00 (Nominal) 120.0 (Maximum)

145.2 (Minimum) 159.7 (Nominal) 174.2 (Maximum)

150.0 (Minimum) 165.0 (Nominal) 180.0 (Maximum)

Before: 20−Sep−2012 18:08 After: 20−Sep−2012 21:12

Company: **Lamont Doherty Earth Observatory**
Shell

Well: **Expedition 344S, U0070A (USC70)**

Field: **Baffin Bay**

Rig: **JOIDES Resolution**

Country: **USA**

Schlumberger

DSI Sonic Imager
Stoneley