

**Company: Lamont Doherty**

**Well: Expedition 336, Site U1382A**

**Field: North Pond**

**Rig: JOIDES Resolution Country: USA**

## HLDS (Hostile Litho-Density Sonde)

Latitude: N 22° 45.3531'	Elev.: K.B. 11.00 m
Longitude: W 46° 4.8911'	G.L. -4494.00 m
	D.F. 11.00 m

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

Rig: JOIDES Resolution  
 Field: North Pond  
 Location: Latitude: N 22° 45.3531'  
 Well: Expedition 336, Site U1382A  
 Company: Lamont Doherty

LOCATION			
Ocean: Atlantic	Max. Well Deviation 0 deg	Longitude W 46° 4.8911'	Latitude N 22° 45.3531'

Logging Date	9-Oct-2011			
Run Number	1			
Depth Driller	204 m			
Schlumberger Depth	204.7 m			
Bottom Log Interval	190.1 m			
Top Log Interval	122 m			
Casing Driller Size @ Depth	10.750 in	@	102 m	@
Casing Schlumberger	100.5 m			
Bit Size	9.875 in			
Type Fluid In Hole	Seawater			
Density	1.05 g/cm3			
Fluid Loss	PH			
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	@ 15	@ 15	@
Maximum Recorded Temperatures	15 degC			
Circulation Stopped	8-Oct-2011		4:00	
Logger On Bottom	17-Nov-2010		6:30	
Unit Number	625003	Houston		
Recorded By	C. Fuman			
Witnessed By	L. Anderson			

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

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				
Fluid Loss				
Source Of Sample				
RM @ Measured Temperature		@		
RMF @ Measured Temperature		@		
RMC @ Measured Temperature		@		
Source RMF				
RM @ MRT		@		@
Maximum Recorded Temperatures				
Circulation Stopped				
Logger On Bottom				
Unit Number				
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: HRLA
- OS2: DEBI-T
- OS3: FMS
- OS4: HNGS

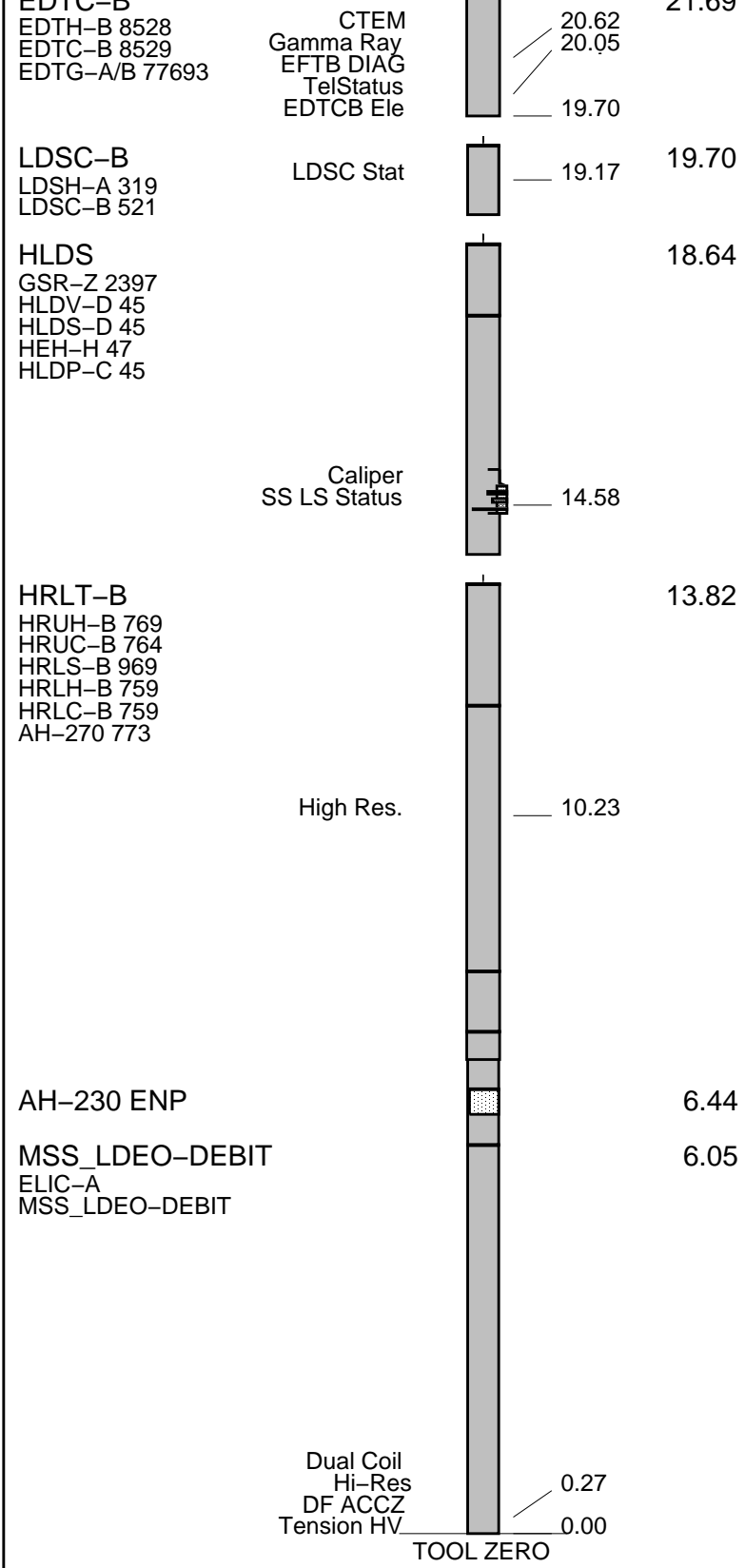
**REMARKS: RUN NUMBER 1**

Hole U1382A was drilled for the purpose of placing a CORK and collecting RCB cores.  
 10-3/4 in. Casing was placed from sea bed (4494mbrf) to 4596mbrf with open hole down to TD at 4704mbrf.  
 The tool string used for this run included the experimental "DEBI-T" tool from JPL/USC on the bottom.  
 DEBI-T was run to obtain a baseline measurement in a freshly drilled hole for comparison with the previous (shut-in) hole.  
 Gamma Ray was provided by a simple total GR sensor built into the EDTC telemetry cartridge; measurement similar to SGT-N tool.  
 The HRLA tool was included to record resistivity in lieu of the standard DIT, since DEBI-T is bottom-only.  
 HRLA was run slick and without knuckles in order to minimize string length for this short open-hole section.  
 HLDS was allowed to record data during the down pass, but the caliper remained closed.  
 The main pass was terminated prematurely (roughly 22m below casing shoe) due to a problem with tool power downhole.  
 Due to the problem, it was not possible to record a repeat section  
**Logs from this run were tied into the second run, which included a complete GR record from TD to sea bed.**  
 HRLA curves did not show significant processing flags on the down log.  
 HRLA shallow curves (RLA1 and RLA2) did show some processing flags (questionable data) during the up pass due to tool position.  
 Sea Bed and Casing Shoe were not clearly identified using GR and/or Caliper due to power problem during the first up pass.  
 DEBI-T real-time data provides only enough information to determine that the tool is functioning.  
 Main DEBI-T data is recorded on an internal memory card that is retrieved after the tool is rigged down.

RUN 1			RUN 2		
SERVICE ORDER #:			SERVICE ORDER #:		
PROGRAM VERSION: 19C0-187			PROGRAM VERSION:		
FLUID LEVEL:			FLUID LEVEL:		
LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP

**EQUIPMENT DESCRIPTION**

RUN 1		RUN 2	
SURFACE EQUIPMENT		SURFACE EQUIPMENT	
WITM (EDTS)-A			
DOWNHOLE EQUIPMENT		DOWNHOLE EQUIPMENT	
LEH-MT LEH-MT 101	 23.05		
AH-369	 22.09		
EDTC B	MDSB_EDTC Mud Tempe  21.69		



MAXIMUM STRING DIAMETER 3.63 IN  
 MEASUREMENTS RELATIVE TO TOOL ZERO  
 ALL LENGTHS IN METERS

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

Kelly Bushing Elevation

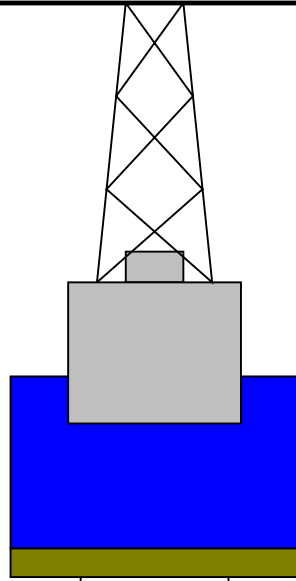
Derrick Floor Elevation

Mean Sea Level

0.0

0.0

11.0



4494.0

Sea Bed

4558.0

Bit Depth

4596.0

10.750

Casing Shoe

4704.0

9.875

Total Depth - Driller

**Schlumberger**

## Down Log

MAXIS Field Log

Company: Lamont Doherty

Well: Expedition 336, Site U1382A

### Input DLIS Files

DEFAULT	Flip_MSS_LDEO_HRLA_055LUP	PRODUCER	13-Oct-2011 12:57	4699.7 M	4569.0 M
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### Output DLIS Files

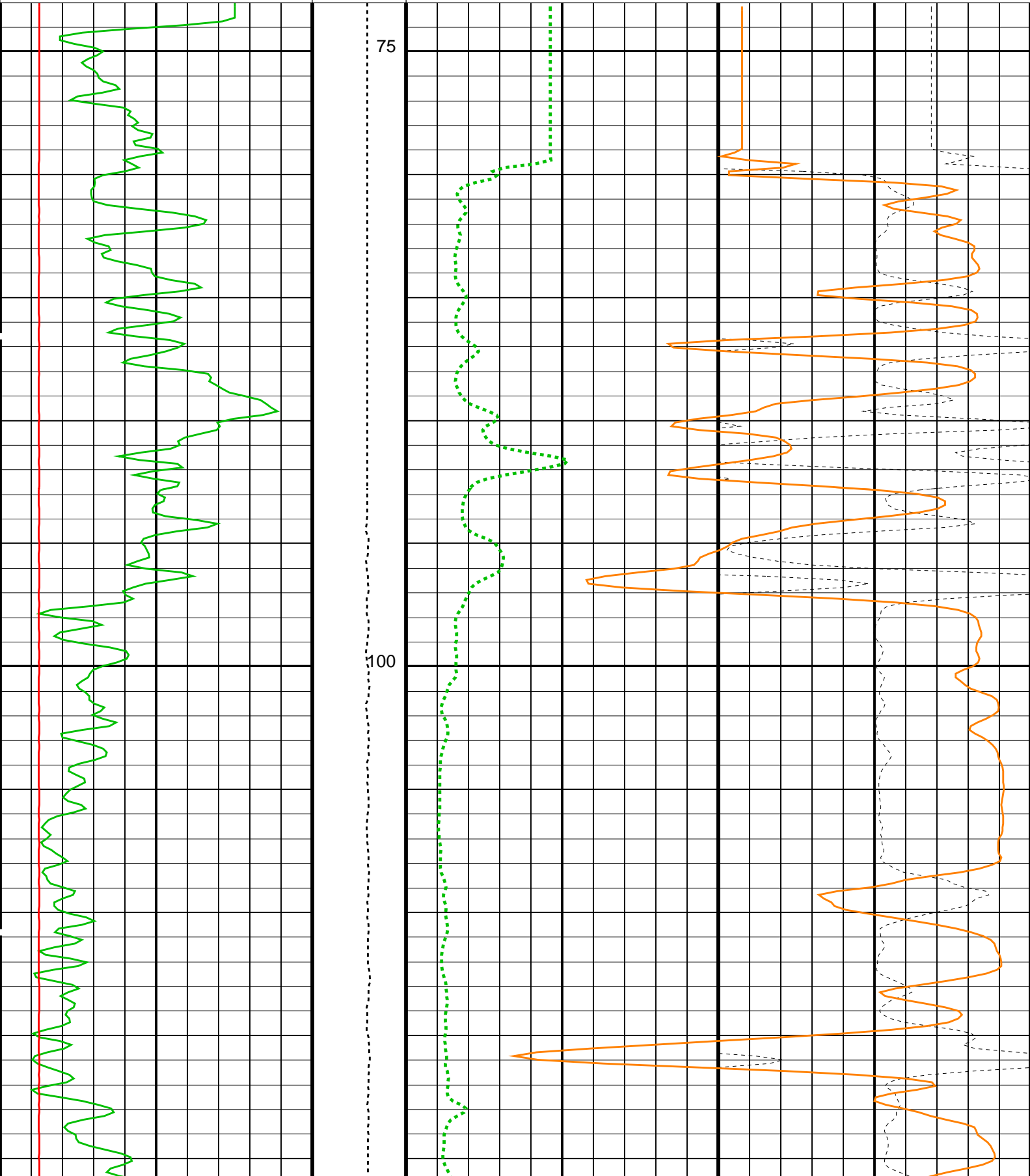
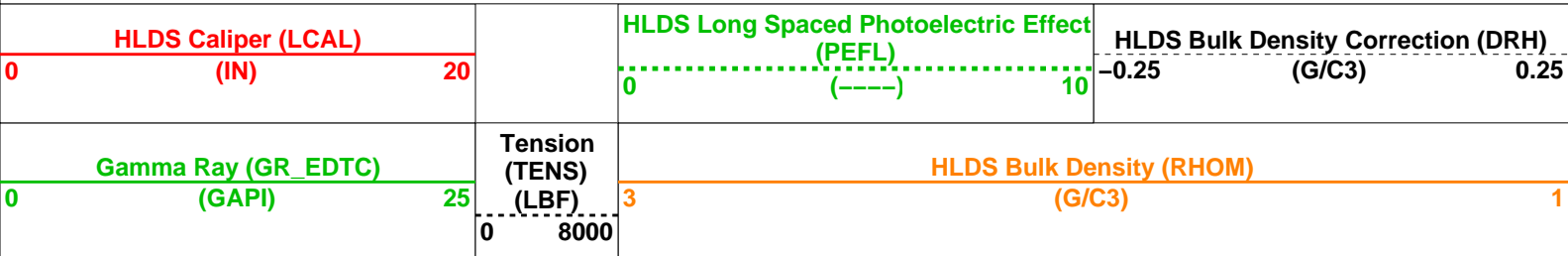
DEFAULT	MSS_LDEO_HRLA_LDL_060PUP	FN:57	PRODUCER	13-Oct-2011 13:11	203.8 M	73.0 M
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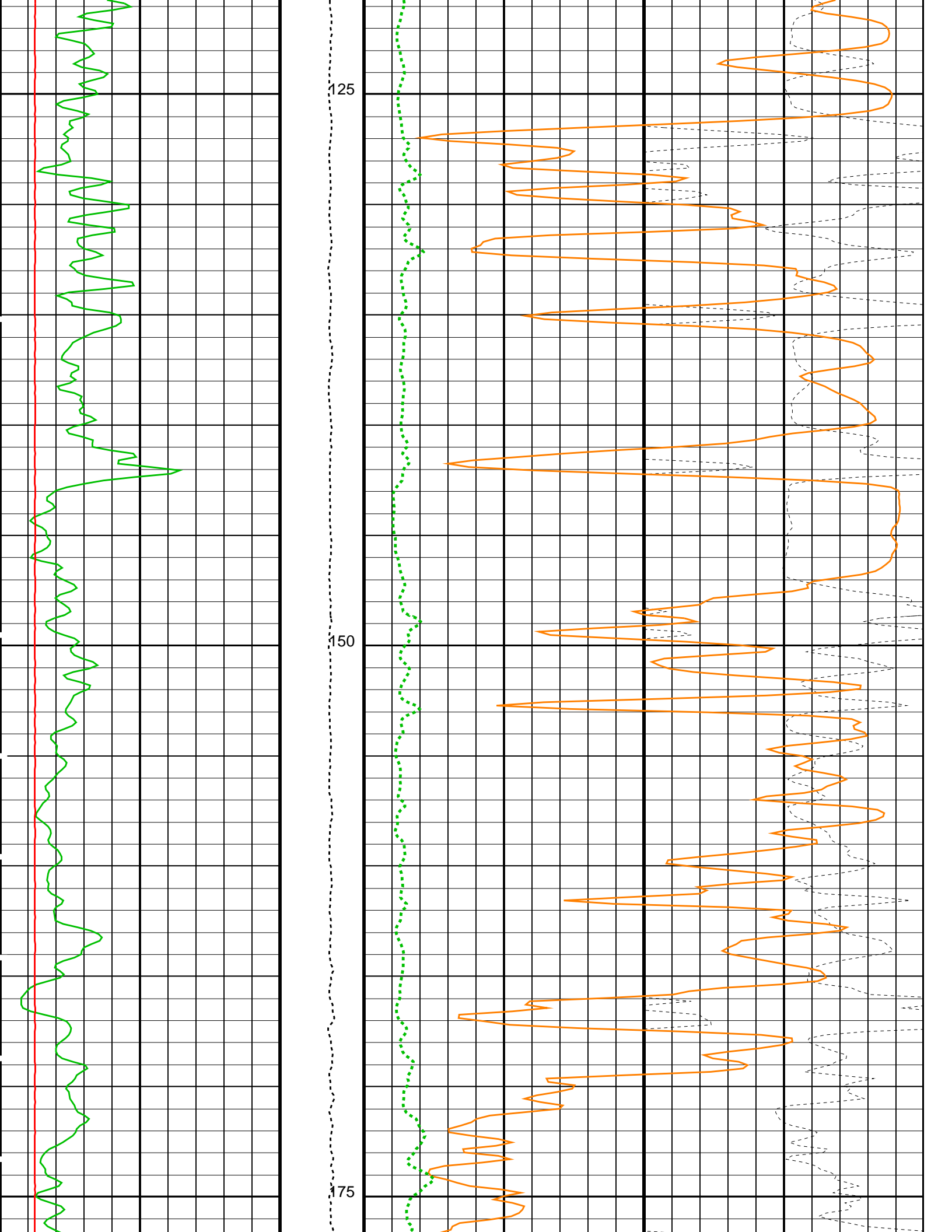
### OP System Version: 19C0-187

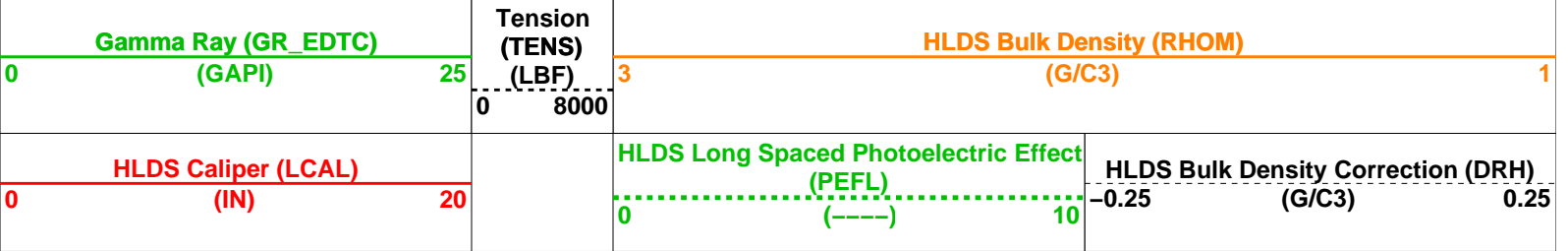
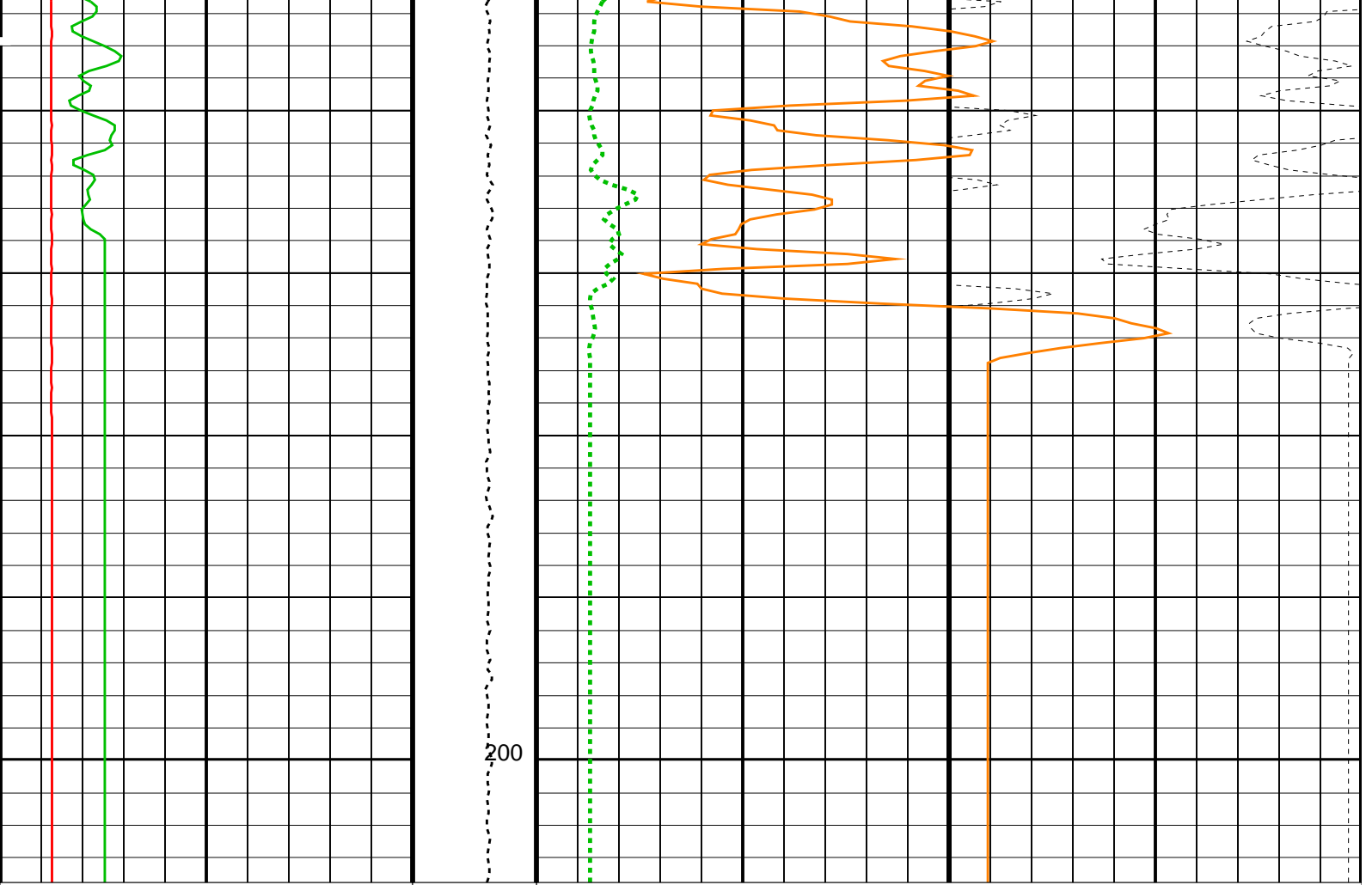
MSS_LDEO-DEBIT	19C0-187	HRLT-B	19C0-187
HLDS	19C0-187	LDSC-B	19C0-187
EDTC-B	19C0-187		

Time Mark Every 60 S

TOP SUMMARY







**PIP SUMMARY**

Time Mark Every 60 S

**Parameters**

DLIS Name	Description	Value
<b>HLDS: Hostile Litho-Density Sonde</b>		
DHC	Density Hole Correction	
DPPM	Density Porosity Processing Mode	HIRS
FD	Fluid Density	1 G/C3
LATC	HLDS Activation Correction	ON
MDEN	Matrix Density	2.71 G/C3
<b>EDTC-B: Enhanced DTS Cartridge</b>		
DPPM	Density Porosity Processing Mode	HIRS
<b>DIR: Directional Survey Computation</b>		
SPVD	TVD of Starting Point	0 M
TIMD	Along-hole depth of Tie-in Point	0 M
TIVD	TVD of Tie-in Point	0 M
<b>System and Miscellaneous</b>		
BS	Bit Size	9.875 IN
DFD	Drilling Fluid Density	1.05 G/C3
DO	Depth Offset for Playback	-4496.0 M
PP	Playback Processing	NORMAL

Format: HLDSDensityPE Vertical Scale: 1:200 Graphics File Created: 13-Oct-2011 13:11

**OP System Version: 19C0-187**



HLDS 19C0-187  
EDTC-B 19C0-187

LDSC-B

19C0-187

### Input DLIS Files

DEFAULT Flip\_MSS\_LDEO\_HRLA\_055LUP PRODUCER 13-Oct-2011 12:57 4699.7 M 4569.0 M

### Output DLIS Files

DEFAULT MSS\_LDEO\_HRLA\_LDL\_060PUP FN:57 PRODUCER 13-Oct-2011 13:11



## Up Log

MAXIS Field Log

Company: Lamont Doherty

Well: Expedition 336, Site U1382A

### Input DLIS Files

DEFAULT MSS\_LDEO\_HRLA\_LDL\_030LUP FN:29 PRODUCER 09-Oct-2011 09:52 4700.0 M 4617.6 M

### Output DLIS Files

DEFAULT MSS\_LDEO\_HRLA\_LDL\_057PUP FN:54 PRODUCER 13-Oct-2011 13:02 204.2 M 122.2 M

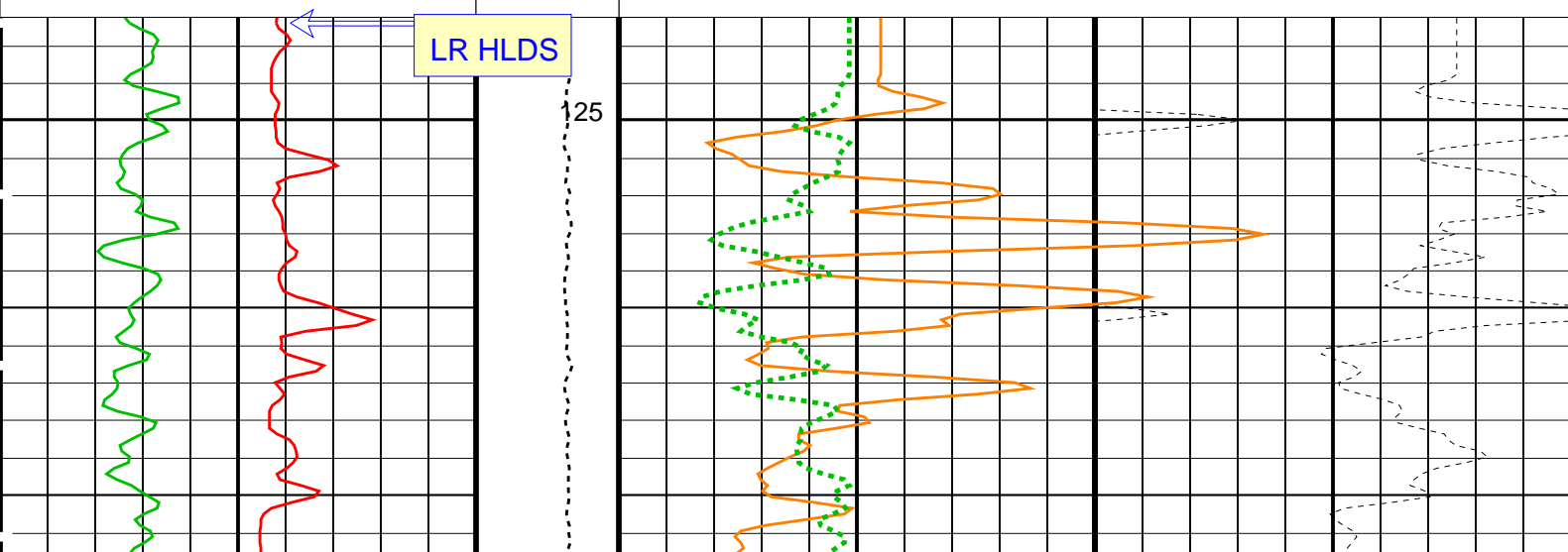
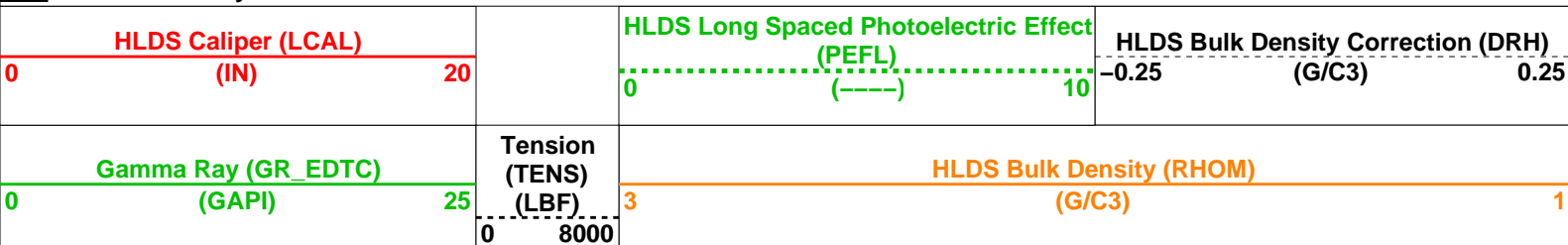
## OP System Version: 19C0-187

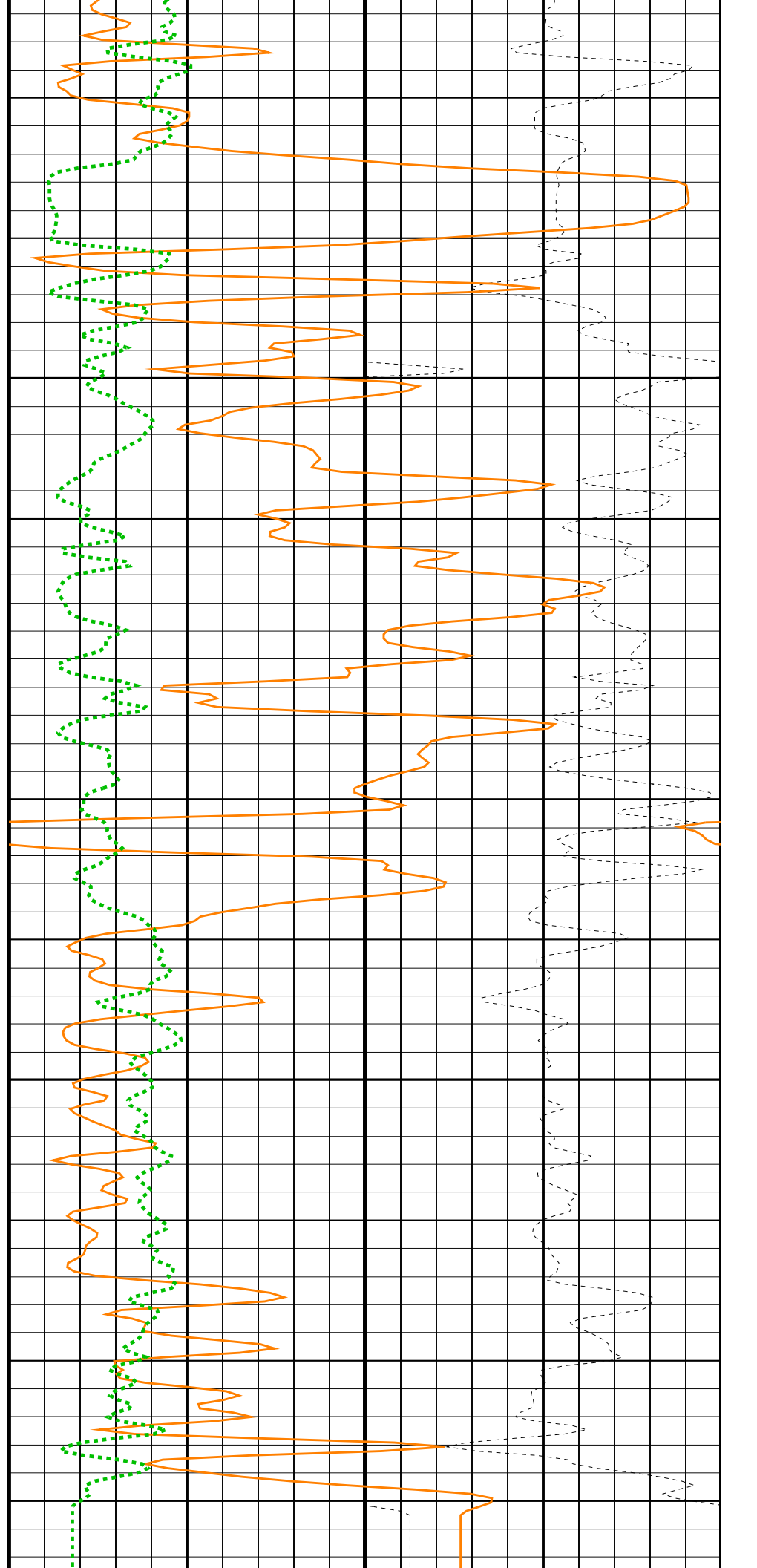
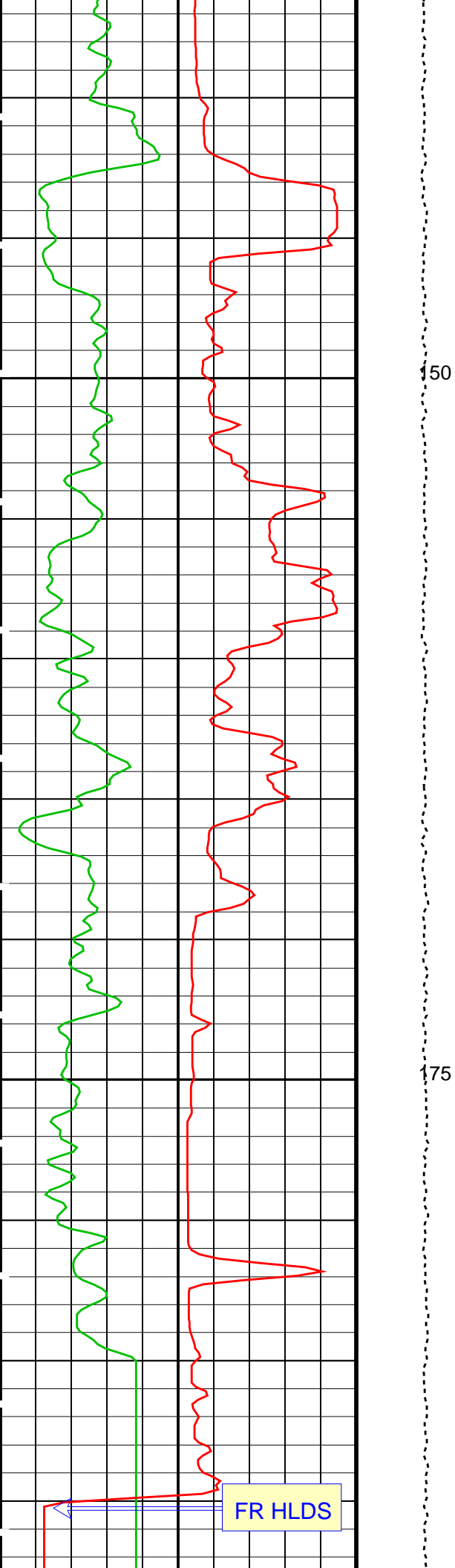
MSS\_LDEO-DEBIT 19C0-187  
HLDS 19C0-187  
EDTC-B 19C0-187

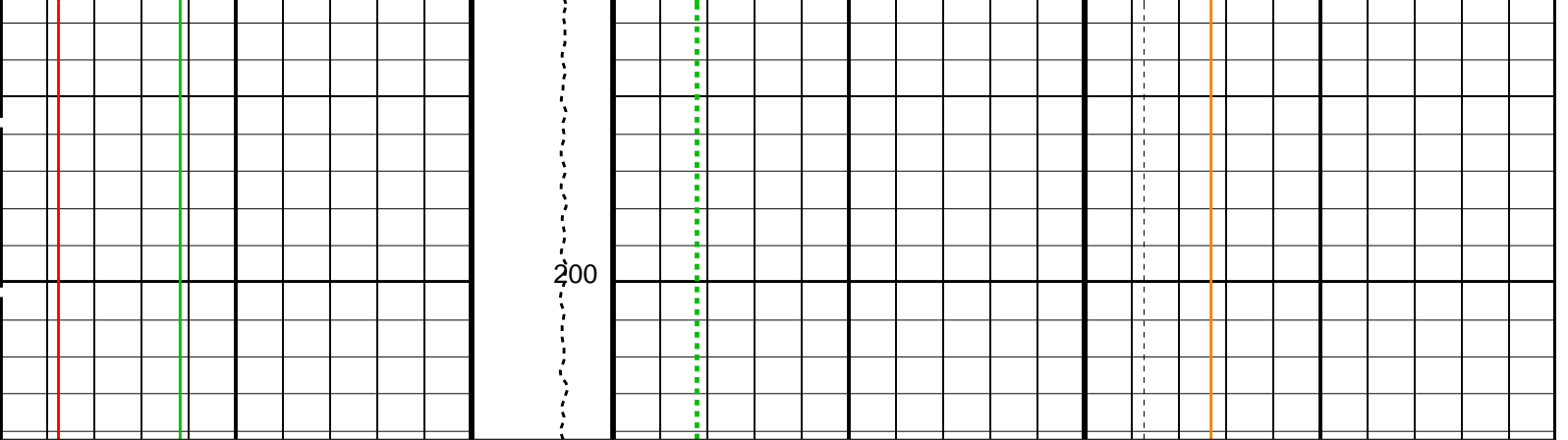
HRLT-B 19C0-187  
LDSC-B 19C0-187

### PIP SUMMARY

Time Mark Every 60 S







<b>Gamma Ray (GR_EDTC)</b> (GAPI) 0 25	<b>Tension (TENS)</b> (LBF) 0 8000	<b>HLDS Bulk Density (RHOM)</b> (G/C3) 3 1
<b>HLDS Caliper (LCAL)</b> (IN) 0 20		<b>HLDS Long Spaced Photoelectric Effect (PEFL)</b> (----) 0 10
		<b>HLDS Bulk Density Correction (DRH)</b> (G/C3) -0.25 0.25

**PIP SUMMARY**

Time Mark Every 60 S

**Parameters**

DLIS Name	Description	Value
HLDS	Hostile Litho-Density Sonde	
DHC	Density Hole Correction	CALIPER
DPPM	Density Porosity Processing Mode	HIRS
FD	Fluid Density	1 G/C3
LATC	HLDS Activation Correction	ON
MDEN	Matrix Density	2.71 G/C3
EDTC-B	Enhanced DTS Cartridge	
DPPM	Density Porosity Processing Mode	HIRS
DIR	Directional Survey Computation	
SPVD	TVD of Starting Point	0 M
TIMD	Along-hole depth of Tie-in Point	0 M
TIVD	TVD of Tie-in Point	0 M
<b>System and Miscellaneous</b>		
BS	Bit Size	9.875 IN
DFD	Drilling Fluid Density	1.05 G/C3
DO	Depth Offset for Playback	-4495.5 M
PP	Playback Processing	NORMAL

Format: HLDSDensityPE Vertical Scale: 1:200 Graphics File Created: 13-Oct-2011 13:02

**OP System Version: 19C0-187**

MSS_LDEO-DEBIT	19C0-187	HRLT-B	19C0-187
HLDS	19C0-187	LDSC-B	19C0-187
EDTC-B	19C0-187		

**Input DLIS Files**

DEFAULT	MSS_LDEO_HRLA_LDL_030LUP	FN:29	PRODUCER	09-Oct-2011 09:52	4700.0 M	4617.6 M
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**Output DLIS Files**

DEFAULT	MSS_LDEO_HRLA_LDL_057PUP	FN:54	PRODUCER	13-Oct-2011 13:02
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**Calibrations**

## Calibration and Check Summary

Measurement	Nominal	Master	Before	After	Change	Limit	Units
High Resolution Laterolog Array – B Wellsite Calibration – HRLT M01							
Before: 2-Oct-2011 13:21							
HRLT M0-M1 Voltage Plus – 0	0	N/A	-318.9	N/A	N/A	9.681	UV
HRLT M0-M1 Voltage Plus – 1	0	N/A	-328.5	N/A	N/A	9.681	UV
HRLT M0-M1 Voltage Plus – 2	0	N/A	-331.0	N/A	N/A	9.681	UV
HRLT M0-M1 Voltage Plus – 3	0	N/A	-335.3	N/A	N/A	9.681	UV
HRLT M0-M1 Voltage Plus – 4	0	N/A	-325.0	N/A	N/A	9.681	UV
HRLT M0-M1 Voltage Plus – 5	0	N/A	-321.5	N/A	N/A	9.681	UV
HRLT M0-M1 Voltage Plus – 6	0	N/A	320.9	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: 2-Oct-2011 13:21							
HRLT M1-M2 Voltage Plus – 0	0	N/A	1754	N/A	N/A	53.42	UV
HRLT M1-M2 Voltage Plus – 1	0	N/A	1806	N/A	N/A	53.42	UV
HRLT M1-M2 Voltage Plus – 2	0	N/A	1815	N/A	N/A	53.42	UV
HRLT M1-M2 Voltage Plus – 3	0	N/A	1839	N/A	N/A	53.42	UV
HRLT M1-M2 Voltage Plus – 4	0	N/A	1784	N/A	N/A	53.42	UV
HRLT M1-M2 Voltage Plus – 5	0	N/A	1767	N/A	N/A	53.42	UV
HRLT M1-M2 Voltage Plus – 6	0	N/A	-1771	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: 2-Oct-2011 13:21							
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	1805	N/A	N/A	53.42	UV
HRLT M2-M3 Voltage Plus – 2	0	N/A	1815	N/A	N/A	53.42	UV
HRLT M2-M3 Voltage Plus – 3	0	N/A	1843	N/A	N/A	53.42	UV
HRLT M2-M3 Voltage Plus – 4	0	N/A	1781	N/A	N/A	53.42	UV
HRLT M2-M3 Voltage Plus – 5	0	N/A	1764	N/A	N/A	53.42	UV
HRLT M2-M3 Voltage Plus – 6	0	N/A	-1759	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: 2-Oct-2011 13:21							
HRLT A3-A4 Voltage Plus – 0	0	N/A	68360	N/A	N/A	2100	UV
HRLT A3-A4 Voltage Plus – 1	0	N/A	70690	N/A	N/A	2100	UV
HRLT A3-A4 Voltage Plus – 2	0	N/A	71350	N/A	N/A	2100	UV
HRLT A3-A4 Voltage Plus – 3	0	N/A	72740	N/A	N/A	2100	UV
HRLT A3-A4 Voltage Plus – 4	0	N/A	70260	N/A	N/A	2100	UV
HRLT A3-A4 Voltage Plus – 5	0	N/A	69620	N/A	N/A	2100	UV
HRLT A3-A4 Voltage Plus – 6	0	N/A	-67930	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: 2-Oct-2011 13:21							
HRLT A4-A5 Voltage Plus – 0	0	N/A	68630	N/A	N/A	2100	UV
HRLT A4-A5 Voltage Plus – 1	0	N/A	71050	N/A	N/A	2100	UV
HRLT A4-A5 Voltage Plus – 2	0	N/A	71720	N/A	N/A	2100	UV
HRLT A4-A5 Voltage Plus – 3	0	N/A	73060	N/A	N/A	2100	UV
HRLT A4-A5 Voltage Plus – 4	0	N/A	70540	N/A	N/A	2100	UV
HRLT A4-A5 Voltage Plus – 5	0	N/A	69890	N/A	N/A	2100	UV
HRLT A4-A5 Voltage Plus – 6	0	N/A	-68290	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: 2-Oct-2011 13:21							
HRLT A5-A6 Voltage Plus – 0	0	N/A	68530	N/A	N/A	2100	UV
HRLT A5-A6 Voltage Plus – 1	0	N/A	70780	N/A	N/A	2100	UV
HRLT A5-A6 Voltage Plus – 2	0	N/A	71480	N/A	N/A	2100	UV
HRLT A5-A6 Voltage Plus – 3	0	N/A	72870	N/A	N/A	2100	UV
HRLT A5-A6 Voltage Plus – 4	0	N/A	70400	N/A	N/A	2100	UV
HRLT A5-A6 Voltage Plus – 5	0	N/A	69770	N/A	N/A	2100	UV
HRLT A5-A6 Voltage Plus – 6	0	N/A	-68010	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: 2-Oct-2011 13:21							

Before: 2-Oct-2011 13:21

HRLT Torpedo-M0 Voltage - 0	0	N/A	-68210	N/A	N/A	2100	UV
HRLT Torpedo-M0 Voltage - 1	0	N/A	-71110	N/A	N/A	2100	UV
HRLT Torpedo-M0 Voltage - 2	0	N/A	-71760	N/A	N/A	2100	UV
HRLT Torpedo-M0 Voltage - 3	0	N/A	-73150	N/A	N/A	2100	UV
HRLT Torpedo-M0 Voltage - 4	0	N/A	-70610	N/A	N/A	2100	UV
HRLT Torpedo-M0 Voltage - 5	0	N/A	-69930	N/A	N/A	2100	UV
HRLT Torpedo-M0 Voltage - 6	0	N/A	68280	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: 2-Oct-2011 13:21

HRLT Bridle#9-M0 Voltage - 0	0	N/A	-68210	N/A	N/A	2100	UV
HRLT Bridle#9-M0 Voltage - 1	0	N/A	-71080	N/A	N/A	2100	UV
HRLT Bridle#9-M0 Voltage - 2	0	N/A	-71750	N/A	N/A	2100	UV
HRLT Bridle#9-M0 Voltage - 3	0	N/A	-73130	N/A	N/A	2100	UV
HRLT Bridle#9-M0 Voltage - 4	0	N/A	-70600	N/A	N/A	2100	UV
HRLT Bridle#9-M0 Voltage - 5	0	N/A	-69930	N/A	N/A	2100	UV
HRLT Bridle#9-M0 Voltage - 6	0	N/A	68270	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: 2-Oct-2011 13:21

HRLT Source Current Plus - 0	0	N/A	284.5	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: 2-Oct-2011 13:21

HRLT Vertical Voltage PI - 0	0	N/A	-321.1	N/A	N/A	9.681	UV
HRLT Vertical Voltage PI - 1	0	N/A	-322.6	N/A	N/A	9.681	UV
HRLT Vertical Voltage PI - 2	0	N/A	-324.3	N/A	N/A	9.681	UV
HRLT Vertical Voltage PI - 3	0	N/A	-327.0	N/A	N/A	9.681	UV
HRLT Vertical Voltage PI - 4	0	N/A	-314.3	N/A	N/A	9.681	UV
HRLT Vertical Voltage PI - 5	0	N/A	-326.0	N/A	N/A	9.681	UV
HRLT Vertical Voltage PI - 6	0	N/A	327.7	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: 16-Sep-2011 9:31 Before: 9-Oct-2011 6:05

SS Cs Resolution Bkg	9.000	7.738	7.751	N/A	N/A	1.800	%
LS Cs Resolution Bkg	9.000	8.115	8.045	N/A	N/A	1.800	%
LSW1 Background	100.0	90.00	87.67	N/A	N/A	3.000	CPS
LSW2 Background	100.0	79.46	79.42	N/A	N/A	3.000	CPS
LSW3 Background	200.0	182.4	182.0	N/A	N/A	6.000	CPS
LSW4 Background	250.0	223.0	223.6	N/A	N/A	7.500	CPS
LSW5 Background	600.0	526.1	526.6	N/A	N/A	18.00	CPS
SSW1 Background	100.0	84.99	86.00	N/A	N/A	3.000	CPS
SSW2 Background	200.0	147.1	146.8	N/A	N/A	6.000	CPS
SSW3 Background	500.0	413.1	412.6	N/A	N/A	15.00	CPS
SSW4 Background	270.0	220.0	221.5	N/A	N/A	8.100	CPS
SSW5 Background	200.0	157.9	157.2	N/A	N/A	6.000	CPS

Hostile Litho-Density Sonde Wellsite Calibration - Aluminum Measurement

Master: 16-Sep-2011 9:31

LSW1 Aluminum	600.0	554.8	N/A	N/A	N/A	N/A	CPS
LSW2 Aluminum	900.0	809.5	N/A	N/A	N/A	N/A	CPS
LSW3 Aluminum	1100	975.9	N/A	N/A	N/A	N/A	CPS
LSW4 Aluminum	580.0	495.9	N/A	N/A	N/A	N/A	CPS
LSW5 Aluminum	570.0	452.5	N/A	N/A	N/A	N/A	CPS
SSW1 Aluminum	2800	2638	N/A	N/A	N/A	N/A	CPS
SSW2 Aluminum	8000	7210	N/A	N/A	N/A	N/A	CPS
SSW3 Aluminum	11600	10070	N/A	N/A	N/A	N/A	CPS
SSW4 Aluminum	5000	4124	N/A	N/A	N/A	N/A	CPS
SSW5 Aluminum	660.0	502.8	N/A	N/A	N/A	N/A	CPS

Hostile Litho-Density Sonde Wellsite Calibration - Lithology Measurement

Master: 16-Sep-2011 9:31

LSW1 Iron	400.0	383.3	N/A	N/A	N/A	N/A	CPS
LSW2 Iron	730.0	664.3	N/A	N/A	N/A	N/A	CPS
LSW3 Iron	1000	884.0	N/A	N/A	N/A	N/A	CPS
LSW4 Iron	520.0	466.3	N/A	N/A	N/A	N/A	CPS
LSW5 Iron	470.0	427.8	N/A	N/A	N/A	N/A	CPS
SSW1 Iron	2100	1972	N/A	N/A	N/A	N/A	CPS
SSW2 Iron	6800	6170	N/A	N/A	N/A	N/A	CPS
SSW3 Iron	10800	9403	N/A	N/A	N/A	N/A	CPS
SSW4 Iron	4600	3878	N/A	N/A	N/A	N/A	CPS

SSW5 Iron 580.0 460.6 N/A N/A N/A N/A CPS

Hostile Litho-Density Sonde Wellsite Calibration – Caliper Calibration

Before: 2-Oct-2011 12:06

HLDS Caliper Small Ring	12.00	N/A	13.51	N/A	N/A	N/A	IN
HLDS Caliper Large Ring	15.14	N/A	16.99	N/A	N/A	N/A	IN

Enhanced DTS Cartridge Wellsite Calibration – EDTC Accelerometer Calibration

Before: 9-Oct-2011 6:01

EDTC Z-Axis Acceleration	9.810	N/A	9.816	N/A	N/A	N/A	M/S2
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Enhanced DTS Cartridge Wellsite Calibration – Detector Calibration

Before: 2-Oct-2011 11:53

Gamma Ray (Jig – Bkg)	162.1	N/A	162.1	N/A	N/A	14.74	GAPI
Gamma Ray (Calibrated)	165.0	N/A	165.0	N/A	N/A	15.00	GAPI

High Resolution Laterolog Array – B / Equipment Identification

Primary Equipment:

HRLT Sonde

HRLS – B

Auxiliary Equipment:

HRLT lower Housing  
 HRLT Lower Cartridge  
 HRLT upper Housing  
 HRLT Upper Cartridge

HRLH – B  
 HRLC – B  
 HRUH – B  
 HRUC – B

High Resolution Laterolog Array – B Wellsite Calibration

HRLT M01

Idx	Phase	HRLT M0-M1 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		-318.9	-322.7	-280.7	-379.7
1	Before		-328.5	-322.7	-280.7	-379.7
2	Before		-331.0	-322.7	-280.7	-379.7
3	Before		-335.3	-322.7	-280.7	-379.7
4	Before		-325.0	-322.7	-280.7	-379.7
5	Before		-321.5	-322.7	-280.7	-379.7
6	Before		320.9	322.7	379.7	280.7
7	Before		-322.7	-322.7	-280.7	-379.7
		(Minimum) (Nominal) (Maximum)				

Before: 2-Oct-2011 13:21

High Resolution Laterolog Array – B Wellsite Calibration

HRLT M12

Idx	Phase	HRLT M1-M2 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		1754	1781	2095	1549
1	Before		1806	1781	2095	1549
2	Before		1815	1781	2095	1549
3	Before		1839	1781	2095	1549
4	Before		1784	1781	2095	1549
5	Before		1767	1781	2095	1549
6	Before		-1771	-1781	-1549	-2095
7	Before		1781	1781	2095	1549
		(Minimum) (Nominal) (Maximum)				

Before: 2-Oct-2011 13:21

High Resolution Laterolog Array – B Wellsite Calibration

HRLT M23

Idx	Phase	HRLT M2-M3 Voltage Plus UV	Value	Nominal	Maximum	Minimum
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0	Before		1741	1781	2095	1549
1	Before		1805	1781	2095	1549
2	Before		1815	1781	2095	1549
3	Before		1843	1781	2095	1549
4	Before		1781	1781	2095	1549
5	Before		1764	1781	2095	1549
6	Before		-1759	-1781	-1549	-2095
7	Before		1781	1781	2095	1549
(Minimum)                      (Nominal)                      (Maximum)						
Before: 2-Oct-2011 13:21						

High Resolution Laterolog Array – B Wellsite Calibration						
HRLT V34						
Idx	Phase	HRLT A3–A4 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		68360	70000	82360	60900
1	Before		70690	70000	82360	60900
2	Before		71350	70000	82360	60900
3	Before		72740	70000	82360	60900
4	Before		70260	70000	82360	60900
5	Before		69620	70000	82360	60900
6	Before		-67930	-70000	-60900	-82360
7	Before		70000	70000	82360	60900
(Minimum)                      (Nominal)                      (Maximum)						
Before: 2-Oct-2011 13:21						

High Resolution Laterolog Array – B Wellsite Calibration						
HRLT V45						
Idx	Phase	HRLT A4–A5 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		68630	70000	82360	60900
1	Before		71050	70000	82360	60900
2	Before		71720	70000	82360	60900
3	Before		73060	70000	82360	60900
4	Before		70540	70000	82360	60900
5	Before		69890	70000	82360	60900
6	Before		-68290	-70000	-60900	-82360
7	Before		70000	70000	82360	60900
(Minimum)                      (Nominal)                      (Maximum)						
Before: 2-Oct-2011 13:21						

High Resolution Laterolog Array – B Wellsite Calibration						
HRLT V56						
Idx	Phase	HRLT A5–A6 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		68530	70000	82360	60900
1	Before		70780	70000	82360	60900
2	Before		71480	70000	82360	60900
3	Before		72870	70000	82360	60900
4	Before		70400	70000	82360	60900
5	Before		69770	70000	82360	60900
6	Before		-68010	-70000	-60900	-82360

7	Before		70000	70000	82360	60900
		(Minimum) (Nominal) (Maximum)				

Before: 2-Oct-2011 13:21

High Resolution Laterolog Array – B Wellsite Calibration						
HRLT VTP						
Idx	Phase	HRLT Torpedo-M0 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		-68210	-70000	-60900	-82360
1	Before		-71110	-70000	-60900	-82360
2	Before		-71760	-70000	-60900	-82360
3	Before		-73150	-70000	-60900	-82360
4	Before		-70610	-70000	-60900	-82360
5	Before		-69930	-70000	-60900	-82360
6	Before		68280	70000	82360	60900
7	Before		-70000	-70000	-60900	-82360
		(Minimum) (Nominal) (Maximum)				

Before: 2-Oct-2011 13:21

High Resolution Laterolog Array – B Wellsite Calibration						
HRLT VBD						
Idx	Phase	HRLT Bridle#9-M0 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		-68210	-70000	-60900	-82360
1	Before		-71080	-70000	-60900	-82360
2	Before		-71750	-70000	-60900	-82360
3	Before		-73130	-70000	-60900	-82360
4	Before		-70600	-70000	-60900	-82360
5	Before		-69930	-70000	-60900	-82360
6	Before		68270	70000	82360	60900
7	Before		-70000	-70000	-60900	-82360
		(Minimum) (Nominal) (Maximum)				

Before: 2-Oct-2011 13:21

High Resolution Laterolog Array – B Wellsite Calibration						
HRLT ISO						
Idx	Phase	HRLT Source Current Plus UA	Value	Nominal	Maximum	Minimum
0	Before		284.5	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: 2-Oct-2011 13:21

High Resolution Laterolog Array – B Wellsite Calibration						
HRLT MV						
Idx	Phase	HRLT Vertical Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		-321.1	-322.7	-280.7	-379.7



1	Before		-322.6	-322.7	-280.7	-379.7
2	Before		-324.3	-322.7	-280.7	-379.7
3	Before		-327.0	-322.7	-280.7	-379.7
4	Before		-314.3	-322.7	-280.7	-379.7
5	Before		-326.0	-322.7	-280.7	-379.7
6	Before		327.7	322.7	379.7	280.7
7	Before		-322.7	-322.7	-280.7	-379.7
			(Minimum)	(Nominal)	(Maximum)	

Before: 2-Oct-2011 13:21

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	2397
Auxiliary Equipment:		
Hostile Litho Density Pad	HLDP - C	45
Hostile Litho Density High Voltage Housi	HEH - H	47

Hostile Litho-Density Sonde Wellsite Calibration									
Background Measurement									
Phase	SS Cs Resolution Bkg %	Value	Phase	LS Cs Resolution Bkg %	Value	Phase	LSW1 Background CPS	Value	
Master		7.738	Master		8.115	Master		90.00	
Before		7.751	Before		8.045	Before		87.67	
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		79.46	Master		182.4	Master		223.0	
Before		79.42	Before		182.0	Before		223.6	
50.00 (Minimum) 100.0 (Nominal) 140.0 (Maximum)			110.0 (Minimum) 200.0 (Nominal) 290.0 (Maximum)			140.0 (Minimum) 250.0 (Nominal) 360.0 (Maximum)			
Phase	LSW5 Background CPS	Value	Phase	SSW1 Background CPS	Value	Phase	SSW2 Background CPS	Value	
Master		526.1	Master		84.99	Master		147.1	
Before		526.6	Before		86.00	Before		146.8	
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		413.1	Master		220.0	Master		157.9	
Before		412.6	Before		221.5	Before		157.2	
280.0 (Minimum) 500.0 (Nominal) 700.0 (Maximum)			150.0 (Minimum) 270.0 (Nominal) 380.0 (Maximum)			110.0 (Minimum) 200.0 (Nominal) 270.0 (Maximum)			

Master: 16-Sep-2011 9:31 Before: 9-Oct-2011 6:05


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/S <sup>2</sup>	Value	
Before		9.816	
	9.610 (Minimum)	9.810 (Nominal)	10.01 (Maximum)
Before: 9-Oct-2011 6:01			

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			6.159	Before			162.1	Before			165.0
	0 (Minimum)	30.00 (Nominal)	120.0 (Maximum)		147.4 (Minimum)	162.1 (Nominal)	176.9 (Maximum)		150.0 (Minimum)	165.0 (Nominal)	180.0 (Maximum)
Before: 2-Oct-2011 11:53											

Company: **Lamont Doherty**

**Schlumberger**

Well: **Expedition 336, Site U1382A**

Field: **North Pond**

Rig: **JOIDES Resolution**

Country: **USA**

HLDS  
(Hostile Litho-Density Sonde)