Schlumberger

Company: Lamont Doherty

Well: IODP EXP 311 Site U1328C
Field: CAS-06A
Country: Canada Ocean: Pacific

Phasor Induction

Country: Canada
Field: CAS-06A
Location: Rig- Joides Resolution
Well: IODP EXP 311 Site U1328C
Company: Lamont Doherty

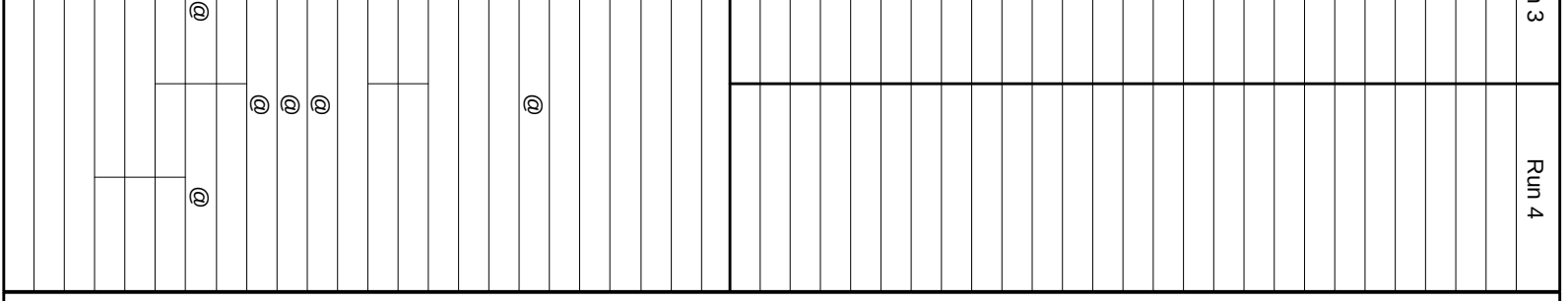
LOCATION

Rig- Joides Resolution	Elev.: K.B.	11.3 m
	G.L.	-1279 m
	D.F.	11 m
Permanent Datum: GROUND LEVEL	Elev.:	0 m
Log Measured From: DES	11.3 m	above Perm. Datum
Drilling Measured From: DES		

API Serial No.	Max. Hole Devi.	Longitude	Latitude
		126 51.043 W	48 40.0546 N

	Run 1	Run 2	Run 1	Run 2
Logging Date				
Run Number	1			
Depth Driller	1579 m			
Schlumberger Depth	1572 m			
Bottom Log Interval	1570 m			
Top Log Interval	1232 m			
Casing Driller Size @ Depth	0.000 in @ 1339.35 m	@	@	
Casing Schlumberger	1337 m			
Bit Size	9.875 in			
Type Fluid In Hole	Sepiolite with Barite			
MUD Density / Viscosity	1.26 g/cm3			
MUD Fluid Loss / PH	0 cm3			
MUD Source Of Sample				
RM @ Measured Temperature	0.177 ohm.m @ 23 degC	@	@	
RMF @ Measured Temperature	0.000 ohm.m @	@	@	
RMC @ Measured Temperature	0.000 ohm.m @	@	@	
Source RMF / RMC				
RM @ MRT / RMF @ MRT	0.199 @ 18	@ 18	@	@
Maximum Recorded Temperatures	18 degC			
Circulation Stopped / Time	10/14/05	1100		
Logger On Bottom / Time	10/14/05	See Log		
Unit Number / Location	99	Houston		
Recorded By	Steve Kittredge			
Witnessed By	Gilles Guerin, Alberto Malinverno			

	Run 1	Run 2	Run 1	Run 2
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	OTHER SERVICES2
OS1: DITE/HLDS	OS1:
OS2: APS/HNGS	OS2:
OS3: WSTA	OS3:
OS4:	OS4:
OS5:	OS5:

REMARKS: RUN NUMBER 1	REMARKS: RUN NUMBER 2
Hole drilled with APC/XCB.	
All depths in Meters Below Rig Floor (MBRF).	
Hole flushed with Sepiolite/Barite mud.	
Sea Floor Driller-1279 MBRF.	
Sea Floor Logger- 1279	
Total Depth Driller- 1579 MBRF.	
Total Depth Logger- 1572 MBRF.	
Casing Bottom Driller- 1339.35 MBRF	
Casing Bottom Logger- 1337 MBRF	
No Repeat due to time limitations.	
Heave was 2-3 meters.	

RUN 1

SERVICE ORDER #:
PROGRAM VERSION: 12C0-301
FLUID LEVEL:

LOGGED INTERVAL	START	STOP

RUN 2

SERVICE ORDER #:
PROGRAM VERSION:
FLUID LEVEL:

LOGGED INTERVAL	START	STOP

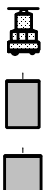
EQUIPMENT DESCRIPTION

RUN 1

SURFACE EQUIPMENT

SFT-281 6250
SFT-178 6250
GSR-U 135
WITM (DTS)-A

DOWNHOLE EQUIPMENT



LEH-QT LEH-QT 1726			28.99
DTC-H ECH-KC 9841	CTEM TelStatus ToolStatu	27.82 27.19	28.10
HNGS-BA HNGS-BA 194	Upper_1 Lower_2	26.49 26.27	27.19

RUN 2

HNGS-BA 194
HNSH-BA 205

HNGC-B
HNGH-A 115

AH-191

ILE-D
ILE-D

APS-C
APH-AC 104
APS-C 202
MNTR-F 5124

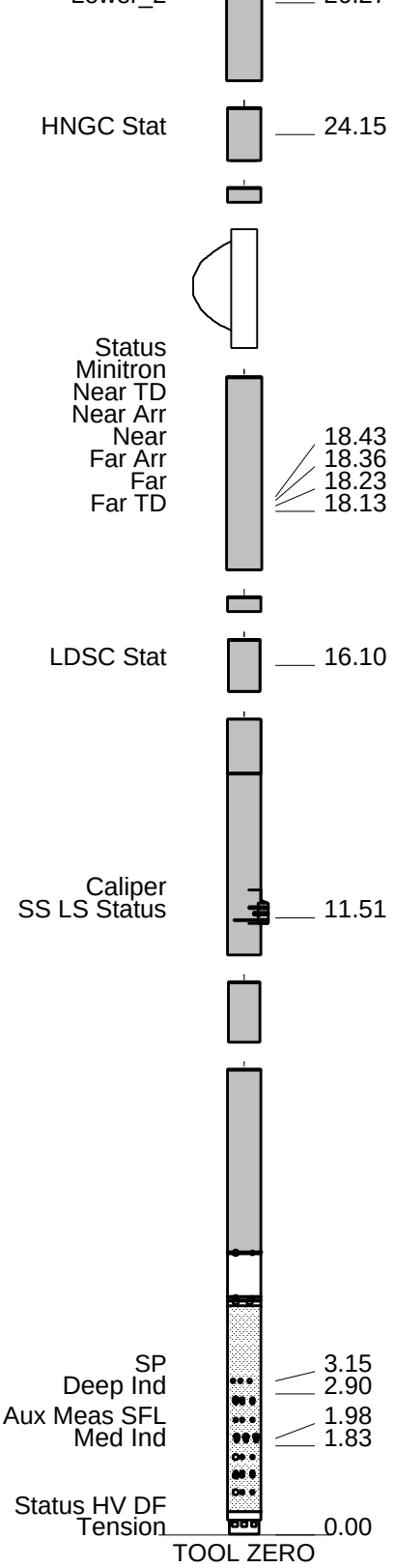
AH-190

LDSC-B
LDSH-A 333

HLDS
GSR-Z 2326
HLDV-D 10
HLDS-D 10
HEH-H 12
HLDP-C 10

DTA-A
ECH-KE
DTA-A 8261

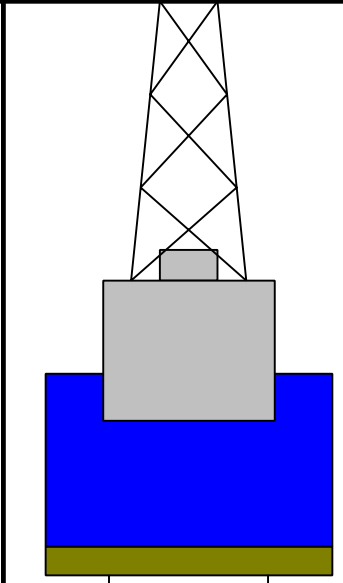
DIT-E
DIC-EB 438
MIH-ZA
DIS-HB 442



24.69
23.62
23.32
20.88
16.93
16.63
15.56
10.74
9.52

MAXIMUM STRING DIAMETER 3.88 IN
MEASUREMENTS RELATIVE TO TOOL ZERO
ALL LENGTHS IN METERS

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

Kelly Bushing Elevation			11.3					
Derrick Floor Elevation			11.0					
Mean Sea Level			0.0		0.0	5.500		Casing String
					1279.0	9.875		Borehole Segment
					1339.3	5.500		Casing Shoe
					1579.0	9.875		Borehole Segment Bottom

Schlumberger

Main Up Log

MAXIS Field Log

Output DLIS Files

DEFAULT	PI_LDL_APS_NGS_008LUP	FN:7	PRODUCER	14-Oct-2005 17:36	1572.8 M	1232.5 M

OP System Version: 12C0-301

MCM

DIT-E	12C0-301	DTA-A	12C0-301
HLDS	SPC-2602-NUCL	LDSC-B	SPC-2602-NUCL
APS-C	SPC-2602-NUCL	HNGC-B	SPC-2602-NUCL
HNGS-BA	SPC-2602-NUCL	DTC-H	12C0-301

Changed Parameter Summary

DLIS Name	New Value	Previous Value	Depth & Time
GCSE	BS	LCAL	1370.9 18:25:41

PIP SUMMARY

Time Mark Every 60 S

SFL_ QUAL From D3T to SFQF

IM_QUAL From SFQF to IMQF

SFL Unaveraged (SFLU)
0.2 (OHMM) 2000

HNGS Spectroscopy Gamma Ray (HSGR)
0 (GAPI) 150

ID_QUAL From IMQF to IDQF

Medium Induction Phasor-processed Resistivity (IMPH)
0.2 (OHMM) 2000

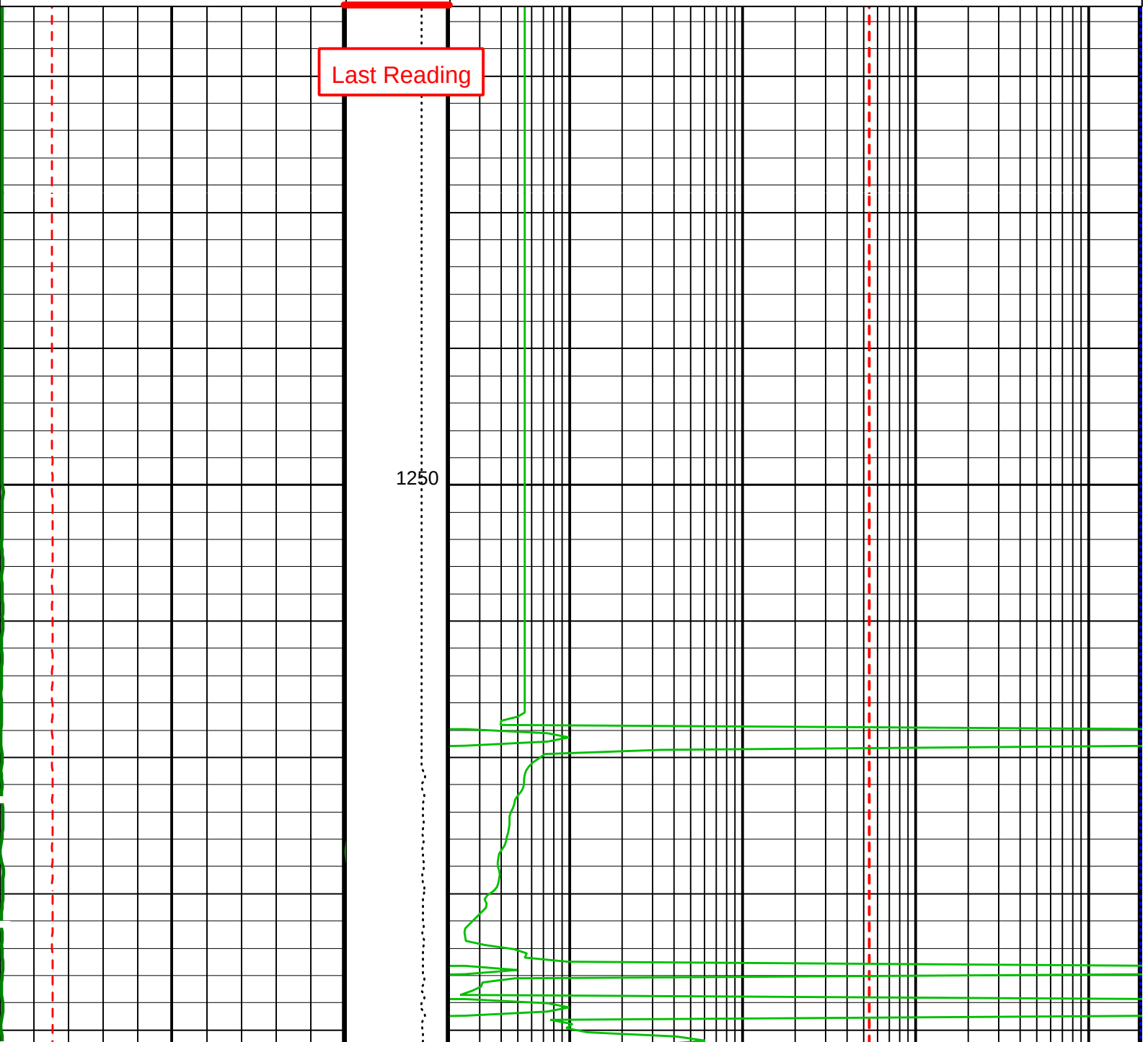
HLDS Caliper (LCAL)
0 (IN) 22

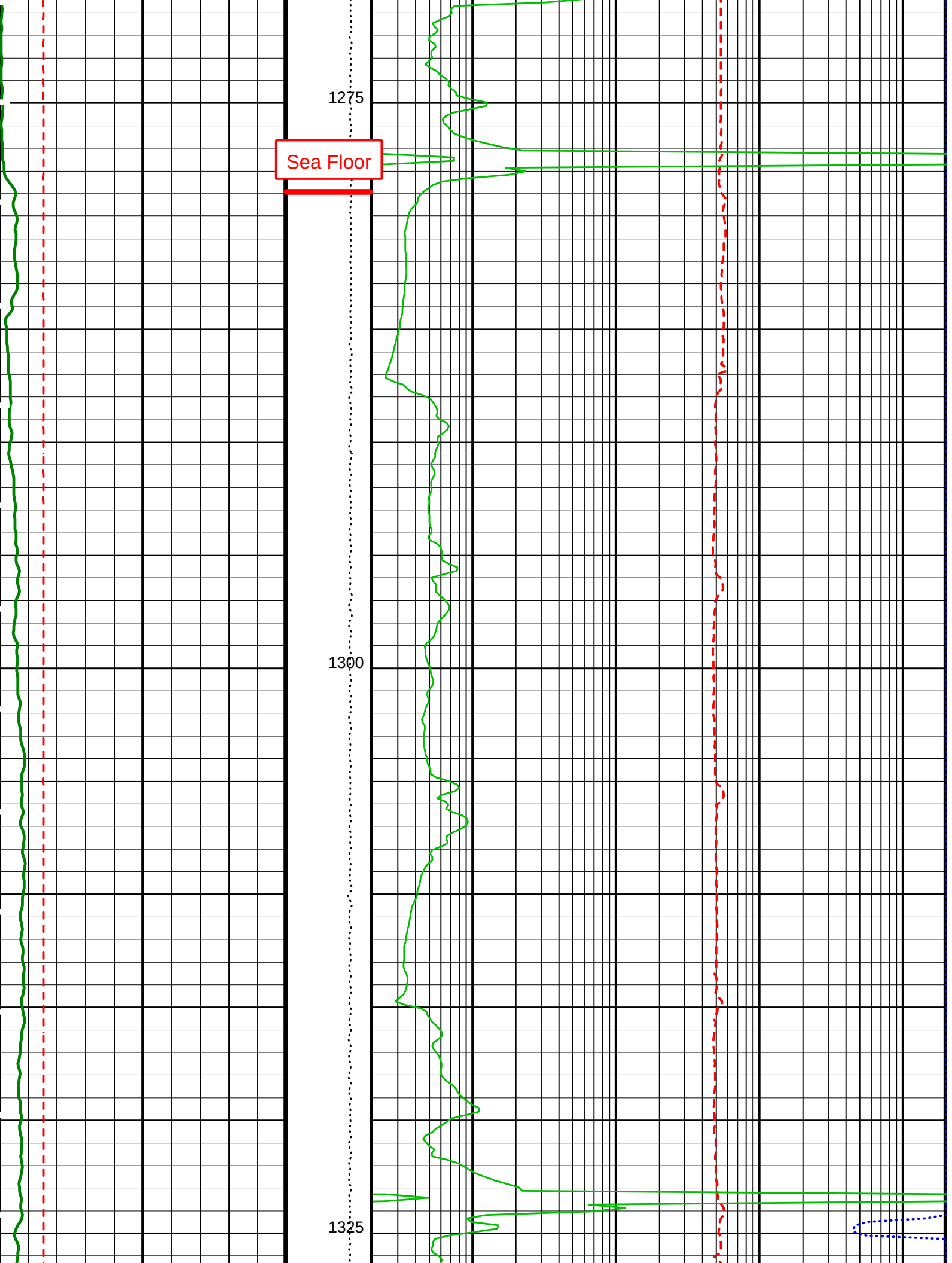
Tension (TENS) (LBF)
10000 0

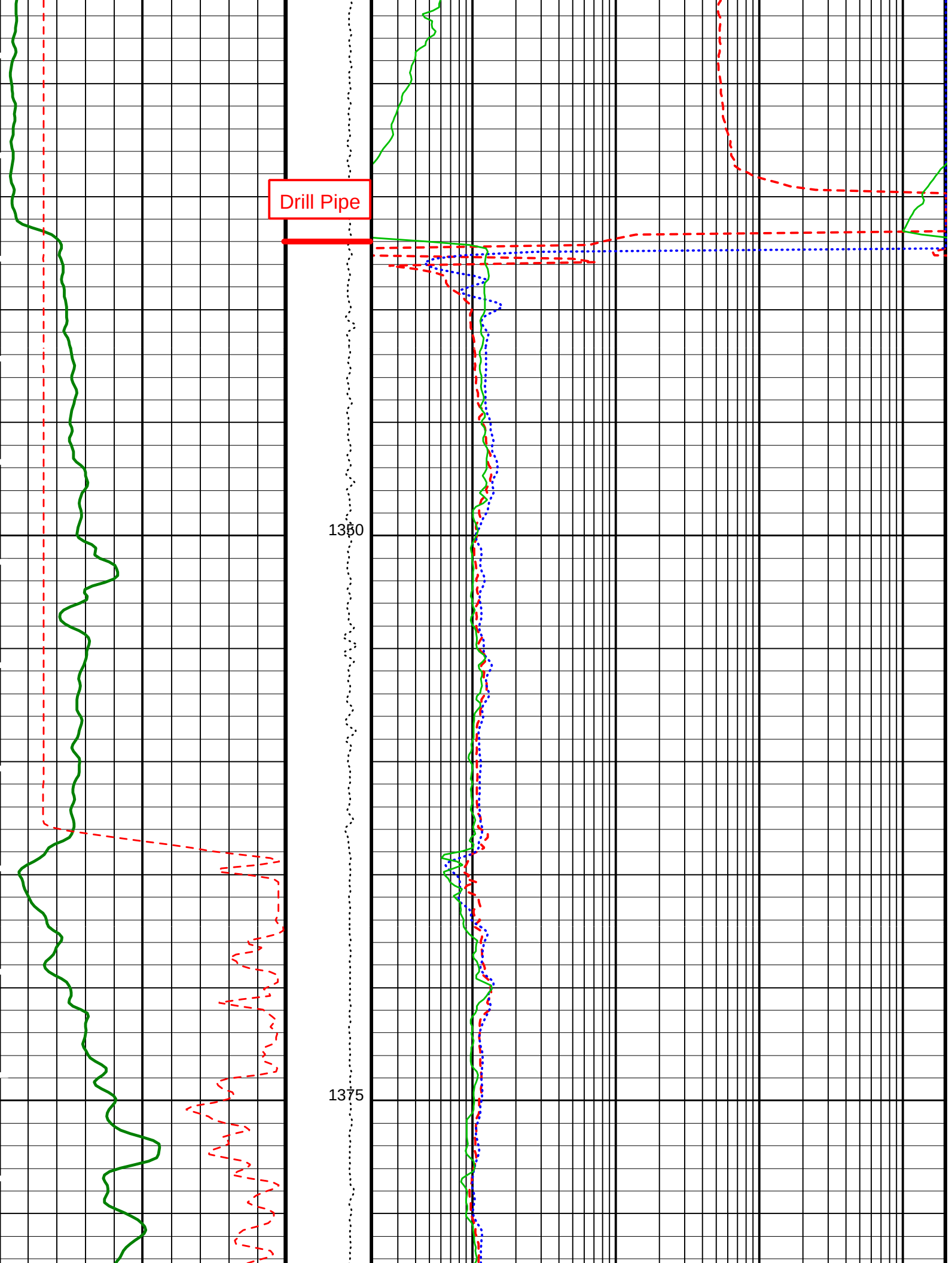
Deep Induction Phasor-processed Resistivity (IDPH)
0.2 (OHMM) 2000

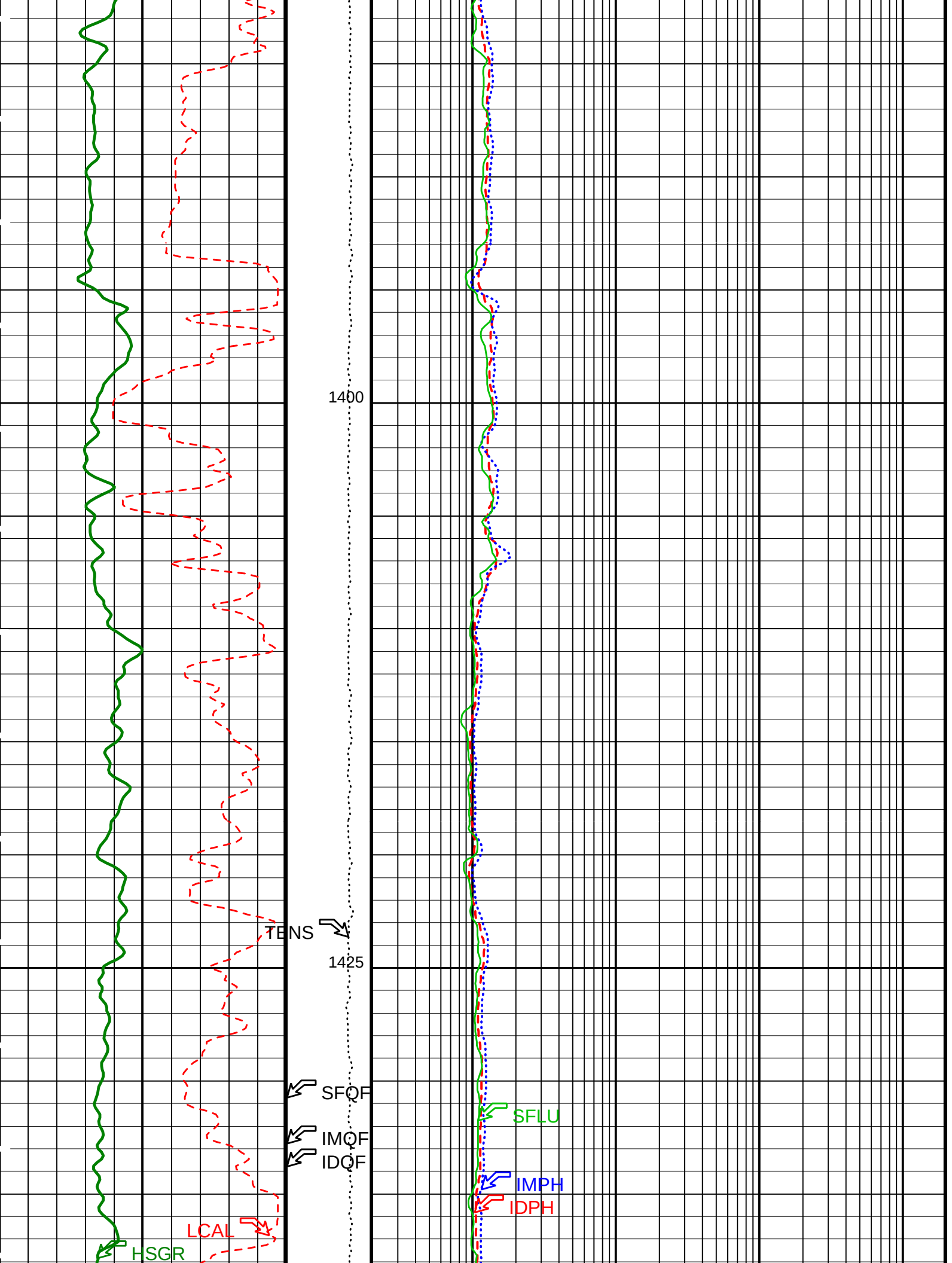
Last Reading

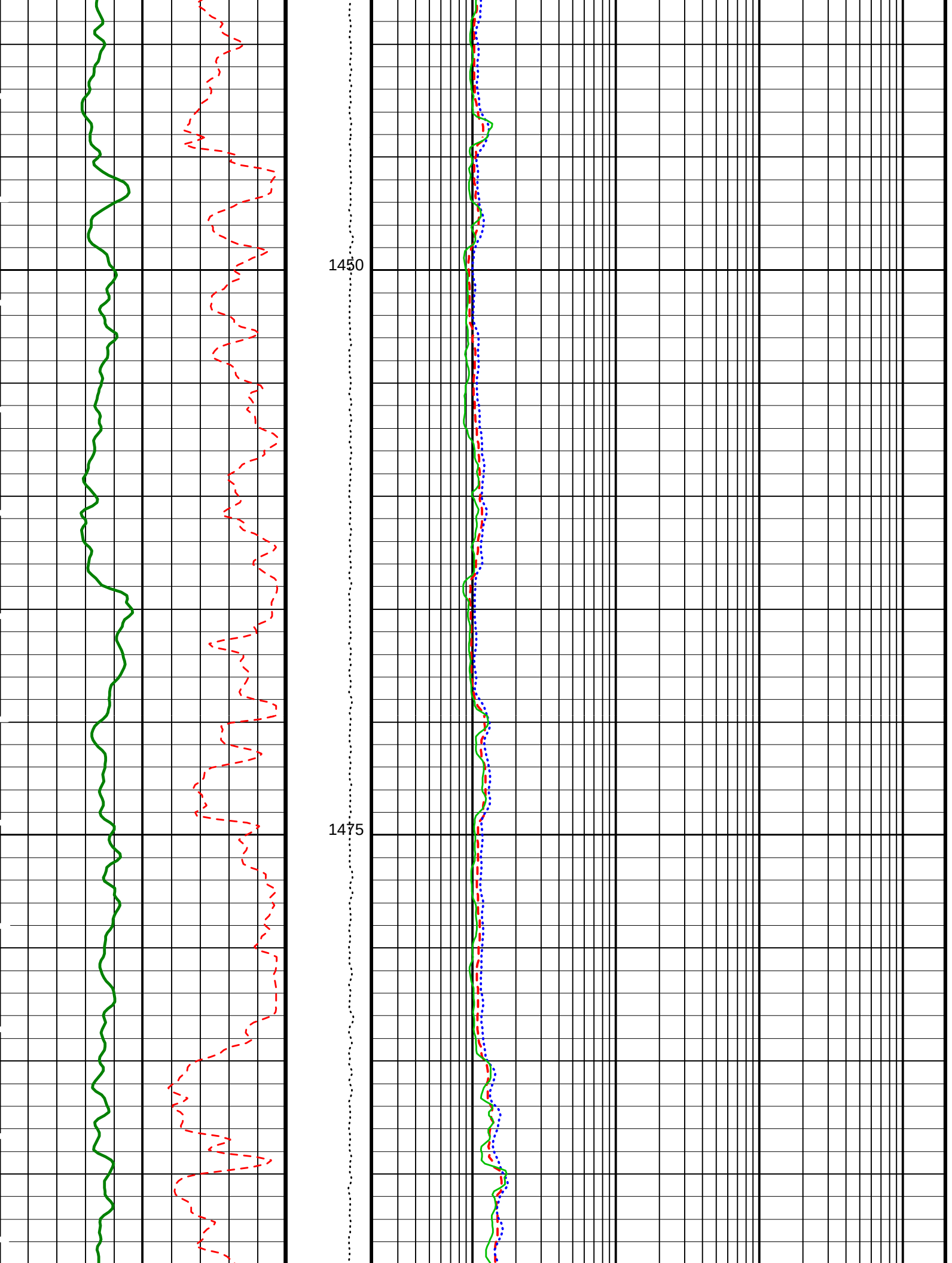
1250

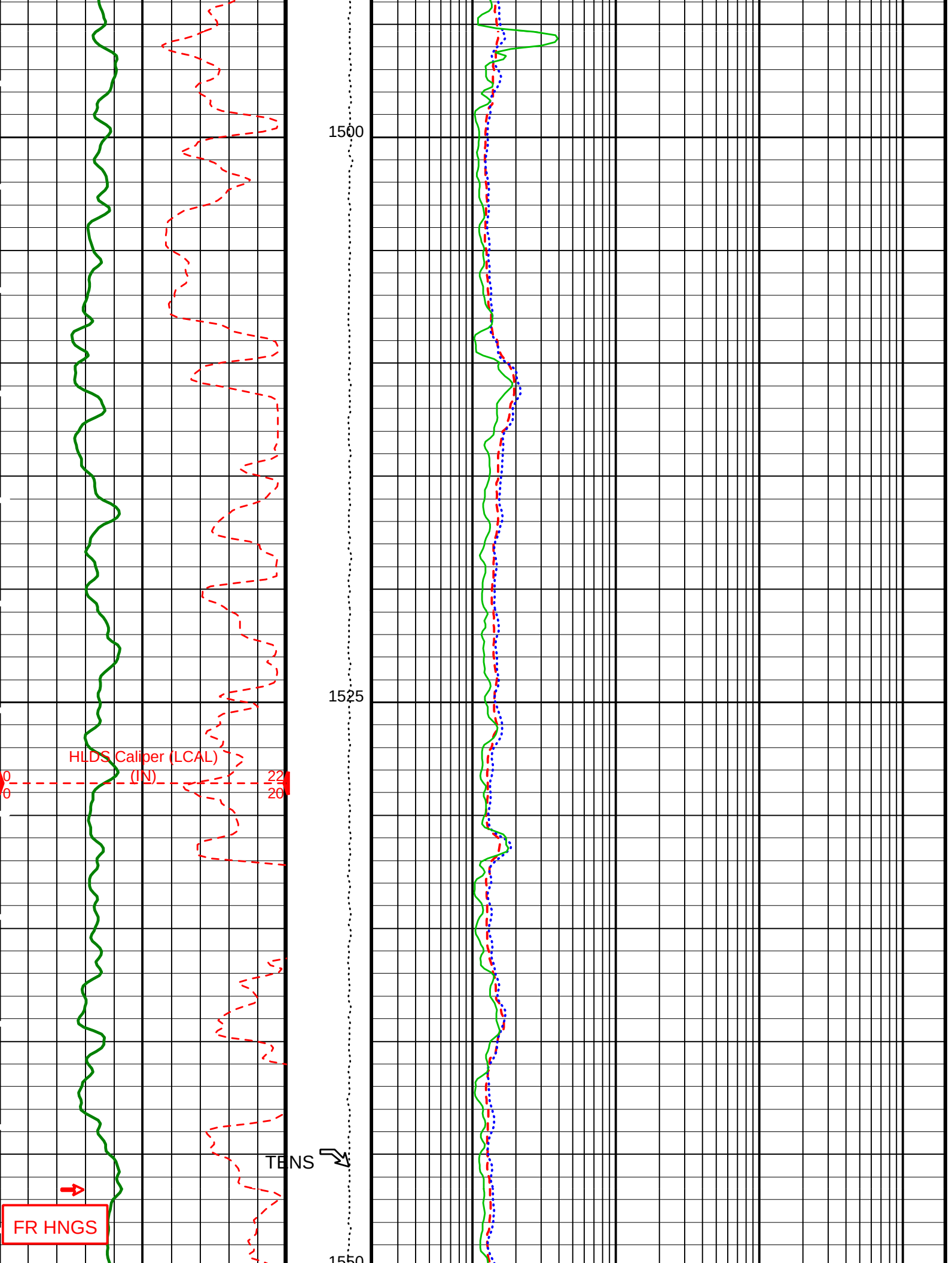


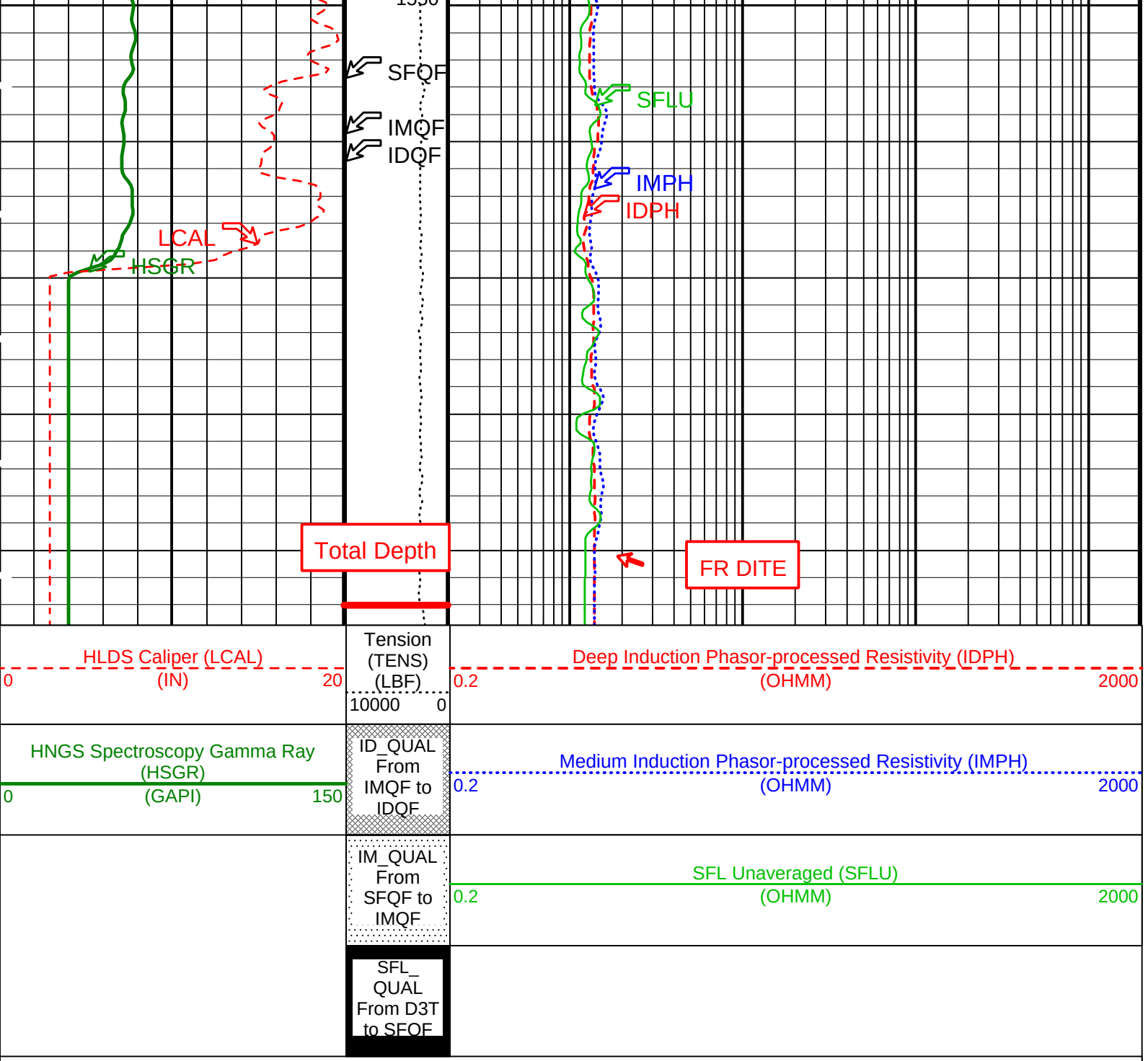

1275
Sea Floor
1300
1325


Drill Pipe
1350
1375


1400
TENS
1425
SFQF
SFLU
IMQF
IDQF
IMPH
IDPH
LCAL
HSGR


1450
1475


1500
1525
HLDS Caliper (LCAL)
(IN)
0
0
22
20
TENS
FR HNGS



Parameters

DLIS Name	Description	Value	
	DIT-E: Dual Induction - E		
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	60	DEGF
DGF2	Deep 20 kHz Gain Factor	1.02064	
DPH2	Deep 20 kHz Phase Shift	-0.243728	DEG
DRE2	Deep Real 20 kHz Sonde Error Correction	16.6208	MM/M
DSR2	Deep Sigma Reference (20 kHz)	1843	MM/M
DXE2	Deep Quad 20 kHz Sonde Error Correction	64.8082	MM/M
GCSE	Generalized Caliper Selection	LCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
IFRS	DIT-E Induction Frequency Selector	20	
IPHA	DIT-E Phasor Processing Mode	ALL	
IPRO	DIT-E Induction Processing Selector	PHASOR	
ITEN	DIT-E Temperature Enable	ENABLE	
MGF2	Medium 20 kHz Gain Factor	1	

MPH2	Medium 20 kHz Phase Shift	0	DEG
MRE2	Medium Real 20 kHz Sonde Error Correction	-2.31932	MM/M
MSR2	Medium Sigma Reference (20 kHz)	3250	MM/M
MXE2	Medium Quad 20 kHz Sonde Error Correction	-31.8992	MM/M
SFCR	SFL Channel Ratio	1000	
SHT	Surface Hole Temperature	68	DEGF
APS-C: Accelerator-Porosity Tool			
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	60	DEGF
GCSE	Generalized Caliper Selection	LCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
SHT	Surface Hole Temperature	68	DEGF
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)	60	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
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	-0.0007078	
HALF	HNGS Alpha Filter Length	60	IN
HCRB	HNGS Apply Borehole Potassium Correction	NONE	
HMWM	Mud Weighting Material	BARI	
HNPE	HNGS Processing Enable	YES	
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	0.96636	
VBA2	HNGS Detector 2 Variable Barite Factor Running Average	0.977963	
HOLEV: Integrated Hole/Cement Volume			
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	60	DEGF
GCSE	Generalized Caliper Selection	LCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
SHT	Surface Hole Temperature	68	DEGF
System and Miscellaneous			
BS	Bit Size	9.875	IN
DFD	Drilling Fluid Density	1.26	G/C3
TD	Total Depth	1579	M

Format: DITE_LogPhasor Vertical Scale: 1:200 Graphics File Created: 14-Oct-2005 17:36

OP System Version: 12C0-301

MCM

DIT-E	12C0-301	DTA-A	12C0-301
HLDS	SPC-2602-NUCL	LDSC-B	SPC-2602-NUCL
APS-C	SPC-2602-NUCL	HNGC-B	SPC-2602-NUCL
HNGS-BA	SPC-2602-NUCL	DTC-H	12C0-301

Output DLIS Files

DEFAULT	PI_LDL_APS_NGS_008LUP	FN:7	PRODUCER	14-Oct-2005 17:36

Schlumberger

Calibrations

Calibration and Check Summary

Measurement	Nominal	Master	Before	After	Change	Limit	Units
Hostile Litho-Density Sonde Wellsite Calibration - Background Measurement							
Master: 9-Oct-2005 18:02 Before: 9-Oct-2005 22:19 After: 14-Oct-2005 19:49							
SS Cs Resolution Bkg	9.000	8.399	8.405	8.334	-0.07193	1.800	%
LS Cs Resolution Bkg	9.000	8.873	8.954	8.914	-0.03974	1.800	%
LSW1 Background	100.0	86.10	84.68	85.04	0.3521	3.000	CPS
LSW2 Background	100.0	79.53	78.35	79.51	1.157	3.000	CPS
LSW3 Background	200.0	174.4	172.6	174.3	1.652	6.000	CPS
LSW4 Background	250.0	211.4	209.2	212.1	2.894	7.500	CPS
LSW5 Background	600.0	486.4	489.1	484.1	-4.913	18.00	CPS
SSW1 Background	100.0	86.47	84.80	85.18	0.3794	3.000	CPS
SSW2 Background	200.0	151.1	150.1	151.2	1.110	6.000	CPS
SSW3 Background	500.0	412.8	412.2	411.9	-0.2941	15.00	CPS
SSW4 Background	270.0	216.4	216.4	216.3	-0.06523	8.100	CPS
SSW5 Background	200.0	157.5	154.8	156.4	1.659	6.000	CPS
Hostile Litho-Density Sonde Wellsite Calibration - Aluminum Measurement							
Master: 9-Oct-2005 21:39							
LSW1 Aluminum	600.0	645.1	N/A	N/A	N/A	N/A	CPS
LSW2 Aluminum	900.0	924.7	N/A	N/A	N/A	N/A	CPS
LSW3 Aluminum	1100	1109	N/A	N/A	N/A	N/A	CPS
LSW4 Aluminum	580.0	555.7	N/A	N/A	N/A	N/A	CPS
LSW5 Aluminum	570.0	513.1	N/A	N/A	N/A	N/A	CPS
SSW1 Aluminum	2800	3020	N/A	N/A	N/A	N/A	CPS
SSW2 Aluminum	8000	8245	N/A	N/A	N/A	N/A	CPS
SSW3 Aluminum	11600	11450	N/A	N/A	N/A	N/A	CPS
SSW4 Aluminum	5000	4681	N/A	N/A	N/A	N/A	CPS
SSW5 Aluminum	660.0	588.1	N/A	N/A	N/A	N/A	CPS
Hostile Litho-Density Sonde Wellsite Calibration - Lithology Measurement							
Master: 9-Oct-2005 21:25							
LSW1 Iron	400.0	425.2	N/A	N/A	N/A	N/A	CPS
LSW2 Iron	730.0	724.0	N/A	N/A	N/A	N/A	CPS
LSW3 Iron	1000	962.0	N/A	N/A	N/A	N/A	CPS
LSW4 Iron	520.0	499.4	N/A	N/A	N/A	N/A	CPS
LSW5 Iron	470.0	470.9	N/A	N/A	N/A	N/A	CPS
SSW1 Iron	2100	2191	N/A	N/A	N/A	N/A	CPS
SSW2 Iron	6800	6796	N/A	N/A	N/A	N/A	CPS
SSW3 Iron	10800	10330	N/A	N/A	N/A	N/A	CPS
SSW4 Iron	4600	4212	N/A	N/A	N/A	N/A	CPS
SSW5 Iron	580.0	514.8	N/A	N/A	N/A	N/A	CPS
Hostile Litho-Density Sonde Wellsite Calibration - Caliper Calibration							
Before: 9-Oct-2005 22:31							
HLDS Caliper Small Ring	3.500	N/A	2.758	N/A	N/A	N/A	IN
HLDS Caliper Large Ring	20.00	N/A	21.33	N/A	N/A	N/A	IN
Accelerator-Porosity Tool Wellsite Calibration - Detector Background							
Master: 13-Oct-2005 22:30 Before: 13-Oct-2005 22:36 After: 14-Oct-2005 19:52							
Near Det Bkg Cntrate	30.00	24.81	23.55	25.07	1.528	N/A	CPS
Far Det Bkg Cntrate	30.00	25.71	25.76	26.47	0.7146	N/A	CPS
Array-1 Det Bkg Cntrate	30.00	27.51	28.86	27.46	-1.395	N/A	CPS
Array-2 Det Bkg Cntrate	30.00	25.44	26.15	25.16	-0.9967	N/A	CPS
Array Therm Det Bkg Cntrate	30.00	22.07	26.50	25.09	-1.404	N/A	CPS
Accelerator-Porosity Tool Wellsite Calibration - Calibration Ratios							
Master: 13-Oct-2005 22:31							
Near/Far Calibration Ratio	0.9250	0.9653	N/A	N/A	N/A	N/A	
Near/Array Calibration Ratio	1.030	0.9892	N/A	N/A	N/A	N/A	
Near/Array Cal Ratio Up/Down	1.000	1.003	N/A	N/A	N/A	N/A	
Accelerator-Porosity Tool Wellsite Calibration - Tank Check							
Master: 13-Oct-2005 22:31							
Array-1 Standoff Porosity	11.75	12.04	N/A	N/A	N/A	N/A	PU
Array-2 Standoff Porosity	11.75	11.85	N/A	N/A	N/A	N/A	PU
Average Slowing Down Time	6.000	5.800	N/A	N/A	N/A	N/A	US
Array-1 SDT Ratio Up/Down	1.000	0.9976	N/A	N/A	N/A	N/A	
Array-2 SDT Ratio Up/Down	1.000	0.9922	N/A	N/A	N/A	N/A	
Sigma Formation	27.50	27.46	N/A	N/A	N/A	N/A	CU
Accelerator-Porosity Tool Wellsite Calibration - CCR7 signal boxes							

Accelerator-Porosity Tool Wellsite Calibration - CCR7 signal boxes

Master: Calibration out of date 22-Mar-2005 19:02

Near Detector Plateau Setting	1650	1741	N/A	N/A	N/A	N/A	V
Far Detector Plateau Setting	2000	2082	N/A	N/A	N/A	N/A	V
Array Detector Plateau Setting	2000	1973	N/A	N/A	N/A	N/A	V

Hostile Natural Gamma Ray Sonde Wellsite Calibration - Detector 1 Check

Master: 19-Aug-2005 13:45 Before: 21-Sep-2005 14:13 After: 14-Oct-2005 19:50

Na 511 Peak Loc	40.00	39.55	39.73	39.65	-0.08838	1.000	
Na 511 Peak Res	15.50	16.41	15.03	15.24	0.2086	2.000	%
High Voltage	1150	1122	1093	1088	-5.194	N/A	V
Na 1785 Peak Loc	142.6	142.5	142.9	141.6	-1.229	7.000	
Na 1785 Peak Res	8.500	9.106	7.652	8.036	0.3840	2.000	%
Temperature	15.50	34.58	20.94	16.97	-3.964	N/A	DEGC
Na Count Rate	45.00	47.00	46.36	44.01	-2.348	8.000	CPS

Hostile Natural Gamma Ray Sonde Wellsite Calibration - Detector 2 Check

Master: 19-Aug-2005 13:45 Before: 21-Sep-2005 14:13 After: 14-Oct-2005 19:50

Na 511 Peak Loc	40.00	39.60	39.66	39.72	0.05347	1.000	
Na 511 Peak Res	15.50	16.71	14.86	15.13	0.2696	2.000	%
High Voltage	1150	1200	1169	1165	-4.367	N/A	V
Na 1785 Peak Loc	142.6	142.6	142.3	142.2	-0.01878	7.000	
Na 1785 Peak Res	8.500	8.264	8.291	8.386	0.09509	2.000	%
Temperature	15.50	33.67	19.78	17.08	-2.693	N/A	DEGC
Na Count Rate	45.00	46.77	46.71	44.53	-2.181	8.000	CPS

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

Master: 19-Aug-2005 13:45 Before: 21-Sep-2005 14:13 After: 14-Oct-2005 19:50

Coincidence Count Rate Ratio	1.000	1.005	0.9949	0.9836	-0.01126	0.05000

Accelerator-Porosity Tool - Detector Plateau Settings :

Near Detector Plateau Setting 1741 V
Far Detector Plateau Setting 2082 V
Array Detector Plateau Setting 1973 V

Dual Induction - E / Equipment Identification

Primary Equipment:

Dual Induction Sonde	DIS - HB	442
Dual Induction Cartridge	DIC - EB	438

Auxiliary Equipment:

Mass Isolated Housing	MIH - ZA

Dual Induction - E Wellsite Calibration

Induction Electronics (10 kHz)

Phase	ID Elect Real Offset 10 kHz MM/M	Value
Before		39.22
	-260.8 (Minimum) 39.24 (Nominal) 339.2 (Maximum)	

Phase	ID Elect Real Gain 10 kHz	Value
Before		1.019
	0.8596 (Minimum) 1.010 (Nominal) 1.214 (Maximum)	

Phase	ID Elect Phase 10 kHz DEG	Value
Before		8.428
	-0.7861 (Minimum) 9.214 (Nominal) 19.21 (Maximum)	

Phase	ID Elect Quad Offset 10 kHz MM/M	Value
Before		23.49
	-276.2 (Minimum) 23.78 (Nominal) 323.8 (Maximum)	

Phase	ID Elect Quad Gain 10 kHz	Value
Before		1.007
	0.8494 (Minimum) 0.9994 (Nominal) 1.199 (Maximum)	

Phase	IM Elect Phase 10 kHz DEG	Value
Before		12.96
	3.832 (Minimum) 13.83 (Nominal) 23.83 (Maximum)	

Phase	IM Elect Real Offset 10 kHz MM/M	Value
Before		96.59
	-453.1 (Minimum) 96.90 (Nominal) 646.9 (Maximum)	

Phase	IM Elect Real Gain 10 kHz	Value
Before		0.9577
	0.8089 (Minimum) 0.9589 (Nominal) 1.142 (Maximum)	

Phase	IM Elect Quad Offset 10 kHz MM/M	Value
Before		94.38
	-454.8 (Minimum) 95.22 (Nominal) 645.2 (Maximum)	

Phase	IM Elect Quad Gain 10 kHz	Value
Before		0.9544
	0.8065 (Minimum) 0.9565 (Nominal) 1.139 (Maximum)	

Before: 14-Oct-2005 17:28

Dual Induction - E Wellsite Calibration

Induction Electronics (20 kHz)

Phase	ID Elect Real Offset 20 kHz MM/M	Value
Before		15.19
	-260.8 (Minimum) 39.24 (Nominal) 339.2 (Maximum)	

Phase	ID Elect Real Gain 20 kHz	Value
Before		1.026
	0.8596 (Minimum) 1.010 (Nominal) 1.214 (Maximum)	

Phase	ID Elect Phase 20 kHz DEG	Value
Before		6.705
	-0.7861 (Minimum) 9.214 (Nominal) 19.21 (Maximum)	

	-109.9 (Minimum)	15.07 (Nominal)	140.1 (Maximum)		0.8601 (Minimum)	1.010 (Nominal)	1.214 (Maximum)		-7.449 (Minimum)	7.551 (Nominal)	22.55 (Maximum)
Phase	ID Elect Quad Offset 20 kHz MM/M		Value	Phase	ID Elect Quad Gain 20 kHz		Value	Phase	IM Elect Phase 20 kHz DEG		Value
Before			9.262	Before			1.013	Before			11.46
	-115.6 (Minimum)	9.373 (Nominal)	134.4 (Maximum)		0.8497 (Minimum)	0.9997 (Nominal)	1.200 (Maximum)		-2.658 (Minimum)	12.34 (Nominal)	27.34 (Maximum)
Phase	IM Elect Real Offset 20 kHz MM/M		Value	Phase	IM Elect Real Gain 20 kHz		Value				
Before			40.27	Before			1.017				
	-184.8 (Minimum)	40.18 (Nominal)	265.2 (Maximum)		0.8536 (Minimum)	1.004 (Nominal)	1.205 (Maximum)				
Phase	IM Elect Quad Offset 20 kHz MM/M		Value	Phase	IM Elect Quad Gain 20 kHz		Value				
Before			39.44	Before			1.013				
	-185.4 (Minimum)	39.62 (Nominal)	264.6 (Maximum)		0.8510 (Minimum)	1.001 (Nominal)	1.201 (Maximum)				

Before: 14-Oct-2005 17:29

Dual Induction - E Wellsite Calibration

Induction Electronics (40 kHz)

Phase	ID Elect Real Offset 40 kHz MM/M		Value	Phase	ID Elect Real Gain 40 kHz		Value	Phase	ID Elect Phase 40 kHz DEG		Value
Before			9.802	Before			0.9971	Before			25.28
	-75.27 (Minimum)	9.729 (Nominal)	94.73 (Maximum)		0.8369 (Minimum)	0.9869 (Nominal)	1.182 (Maximum)		7.238 (Minimum)	27.24 (Nominal)	47.24 (Maximum)
Phase	ID Elect Quad Offset 40 kHz MM/M		Value	Phase	ID Elect Quad Gain 40 kHz		Value	Phase	IM Elect Phase 40 kHz DEG		Value
Before			5.989	Before			0.9837	Before			29.86
	-78.94 (Minimum)	6.062 (Nominal)	91.06 (Maximum)		0.8259 (Minimum)	0.9759 (Nominal)	1.166 (Maximum)		11.87 (Minimum)	31.87 (Nominal)	51.87 (Maximum)
Phase	IM Elect Real Offset 40 kHz MM/M		Value	Phase	IM Elect Real Gain 40 kHz		Value				
Before			26.25	Before			1.031				
	-103.8 (Minimum)	26.23 (Nominal)	156.2 (Maximum)		0.8659 (Minimum)	1.016 (Nominal)	1.222 (Maximum)				
Phase	IM Elect Quad Offset 40 kHz MM/M		Value	Phase	IM Elect Quad Gain 40 kHz		Value				
Before			25.76	Before			1.027				
	-104.1 (Minimum)	25.93 (Nominal)	155.9 (Maximum)		0.8629 (Minimum)	1.013 (Nominal)	1.218 (Maximum)				

Before: 14-Oct-2005 17:30

Dual Induction - E Wellsite Calibration

SFL Electronics

Phase	SFL Voltage Offset MV		Value	Phase	SFL Voltage Gain		Value
Before			1.178	Before			1.013
	-15.00 (Minimum)	0 (Nominal)	15.00 (Maximum)		0.8500 (Minimum)	1.000 (Nominal)	1.200 (Maximum)
Phase	SFL Current Offset MA		Value	Phase	SFL Current Gain		Value
Before			0.008151	Before			0.9923
	-0.6000 (Minimum)	0 (Nominal)	0.6000 (Maximum)		0.8500 (Minimum)	1.000 (Nominal)	1.200 (Maximum)

Before: 14-Oct-2005 17:31

Dual Induction - E Wellsite Calibration

Electronics Calibration Changes Files/Depth Intervals: 8: 1572.8 - 1232.5 1: 1085.8 - 182.6

Phase	ID (R > 27 OHM-M) MM/M		Value	Phase	ID (R < 27 OHM-M) %		Value	Phase	SFL (R < 1 OHM-M) OHMM		Value
After			0	After			0.0001483	After			0.0006299
	0 (Minimum)	0 (Nominal)	0.7500 (Maximum)		0 (Minimum)	0 (Nominal)	2.000 (Maximum)		0 (Minimum)	0 (Nominal)	0.02000 (Maximum)
Phase	IM (R > 27 OHM-M) MM/M		Value	Phase	IM (R < 27 OHM-M) %		Value				
After			0	After			0.0001174				
	0 (Minimum)	0 (Nominal)	0.7500 (Maximum)		0 (Minimum)	0 (Nominal)	2.000 (Maximum)				
Phase	SFL (R > 27 OHM-M) MM/M		Value	Phase	SFL (R < 27 OHM-M) %		Value				
After			0	After			0.0005215				
	0 (Minimum)	0 (Nominal)	0.7500 (Maximum)		0 (Minimum)	0 (Nominal)	2.000 (Maximum)				

After: 14-Oct-2005 19:44

Hostile Litho-Density Sonde / Equipment Identification

Primary Equipment:		
Hostile Litho Density Sonde	HLDS - D	10
Hostile Litho Density High Voltage	HLDV - D	10
Gamma Source Radioactive	GSR - Z	2326
Auxiliary Equipment:		
Hostile Litho Density Pad	HLDP - C	10
Hostile Litho Density High Voltage Housi	HEH - H	12

Hostile Litho-Density Sonde Wellsite Calibration

Background Measurement

Phase	SS Cs Resolution Bkg %	Value
Master		8.399
Before		8.405
After		8.334

7.000 (Minimum) 9.000 (Nominal) 11.00 (Maximum)

Phase	LS Cs Resolution Bkg %	Value
Master		8.873
Before		8.954
After		8.914

7.000 (Minimum) 9.000 (Nominal) 11.00 (Maximum)

Phase	LSW1 Background CPS	Value
Master		86.10
Before		84.68
After		85.04

55.00 (Minimum) 100.0 (Nominal) 150.0 (Maximum)

Phase	LSW2 Background CPS	Value
Master		79.53
Before		78.35
After		79.51

50.00 (Minimum) 100.0 (Nominal) 140.0 (Maximum)

Phase	LSW3 Background CPS	Value
Master		174.4
Before		172.6
After		174.3

110.0 (Minimum) 200.0 (Nominal) 290.0 (Maximum)

Phase	LSW4 Background CPS	Value
Master		211.4
Before		209.2
After		212.1

140.0 (Minimum) 250.0 (Nominal) 360.0 (Maximum)

Phase	LSW5 Background CPS	Value
Master		486.4
Before		489.1
After		484.1

330.0 (Minimum) 600.0 (Nominal) 830.0 (Maximum)

Phase	SSW1 Background CPS	Value
Master		86.47
Before		84.80
After		85.18

55.00 (Minimum) 100.0 (Nominal) 150.0 (Maximum)

Phase	SSW2 Background CPS	Value
Master		151.1
Before		150.1
After		151.2

100.0 (Minimum) 200.0 (Nominal) 260.0 (Maximum)

Phase	SSW3 Background CPS	Value
Master		412.8
Before		412.2
After		411.9

280.0 (Minimum) 500.0 (Nominal) 700.0 (Maximum)

Phase	SSW4 Background CPS	Value
Master		216.4
Before		216.4
After		216.3

150.0 (Minimum) 270.0 (Nominal) 380.0 (Maximum)

Phase	SSW5 Background CPS	Value
Master		157.5
Before		154.8
After		156.4

110.0 (Minimum) 200.0 (Nominal) 270.0 (Maximum)

Master: 9-Oct-2005 18:02 Before: 9-Oct-2005 22:19 After: 14-Oct-2005 19:49

Litho-Density Spectroscopy Cartridge - B / Equipment Identification

Primary Equipment:		
LDSC Cartridge	LDSC - B	366
Auxiliary Equipment:		
LDSC Housing	LDSH - A	333

Accelerator-Porosity Tool / Equipment Identification

Primary Equipment:		
Accelerator-Porosity Sonde	APS - C	202
APS Minitron	MNTR - F	5124
Auxiliary Equipment:		
Accelerator-Porosity Housing	APH - AC	104
APS Calibration Water Tank	SFT - 178	6250
APS Aluminum Calibrator Sleeve	SFT - 281	6250

Accelerator-Porosity Tool Wellsite Calibration

Detector Background

Phase	Near Det Bkg Cntrate CPS	Value

Phase	Far Det Bkg Cntrate CPS	Value

Phase	Array 1 Det Bkg Cntrate CPS	Value

Phase	Near Det Bkg Cntrate CPS	Value
Master		24.81
Before		23.55
After		25.07
	1.000 (Minimum) 30.00 (Nominal) 50.00 (Maximum)	

Phase	Far Det Bkg Cntrate CPS	Value
Master		25.71
Before		25.76
After		26.47
	1.000 (Minimum) 30.00 (Nominal) 50.00 (Maximum)	

Phase	Array-1 Det Bkg Cntrate CPS	Value
Master		27.51
Before		28.86
After		27.46
	1.000 (Minimum) 30.00 (Nominal) 50.00 (Maximum)	

Phase	Array-2 Det Bkg Cntrate CPS	Value
Master		25.44
Before		26.15
After		25.16
	1.000 (Minimum) 30.00 (Nominal) 50.00 (Maximum)	

Phase	Array Therm Det Bkg Cntrate CPS	Value
Master		22.07
Before		26.50
After		25.09
	1.000 (Minimum) 30.00 (Nominal) 50.00 (Maximum)	

Master: 13-Oct-2005 22:30 Before: 13-Oct-2005 22:36 After: 14-Oct-2005 19:52

Accelerator-Porosity Tool Wellsite Calibration

Calibration Ratios

Phase	Near/Far Calibration Ratio	Value
Master		0.9653
	0.8000 (Minimum) 0.9250 (Nominal) 1.050 (Maximum)	

Phase	Near/Array Calibration Ratio	Value
Master		0.9892
	0.9000 (Minimum) 1.030 (Nominal) 1.170 (Maximum)	

Phase	Near/Array Cal Ratio Up/Down	Value
Master		1.003
	0.9700 (Minimum) 1.000 (Nominal) 1.030 (Maximum)	

Master: 13-Oct-2005 22:31

Accelerator-Porosity Tool Wellsite Calibration

Tank Check

Phase	Array-1 Standoff Porosity PU	Value
Master		12.04
	9.900 (Minimum) 11.75 (Nominal) 13.60 (Maximum)	

Phase	Array-2 Standoff Porosity PU	Value
Master		11.85
	9.900 (Minimum) 11.75 (Nominal) 13.60 (Maximum)	

Phase	Average Slowing Down Time US	Value
Master		5.800
	5.500 (Minimum) 6.000 (Nominal) 6.250 (Maximum)	

Phase	Array-1 SDT Ratio Up/Down	Value
Master		0.9976
	0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum)	

Phase	Array-2 SDT Ratio Up/Down	Value
Master		0.9922
	0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum)	

Phase	Sigma Formation CU	Value
Master		27.46
	20.00 (Minimum) 27.50 (Nominal) 35.00 (Maximum)	

Master: 13-Oct-2005 22:31

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	HNSH - BA	205
Gamma Source Radioactive	GSR - U	135

Hostile Natural Gamma Ray Sonde Wellsite Calibration

Detector 1 Check

Phase	Na 511 Peak Loc	Value
Master		39.55
Before		39.73
After		39.65
	37.50 (Minimum) 40.00 (Nominal) 42.50 (Maximum)	

Phase	Na 511 Peak Res %	Value
Master		16.41
Before		15.03
After		15.24
	12.00 (Minimum) 15.50 (Nominal) 19.00 (Maximum)	

Phase	High Voltage V	Value
Master		1122
Before		1093
After		1088
	900.0 (Minimum) 1150 (Nominal) 1600 (Maximum)	

Phase	Na 1785 Peak Loc	Value
Master		142.5

Phase	Na 1785 Peak Res %	Value
Master		9.106

Phase	Temperature DEGC	Value
Master		34.58

Phase	Value
Before	142.9
After	141.6

135.0 (Minimum) 142.6 (Nominal) 150.3 (Maximum)

Phase	Value
Before	7.652
After	8.036

7.000 (Minimum) 8.500 (Nominal) 11.00 (Maximum)

Phase	Value
Before	20.94
After	16.97

-28.89 (Minimum) 15.50 (Nominal) 60.00 (Maximum)

Phase	Na Count Rate CPS	Value
Master		47.00
Before		46.36
After		44.01

10.00 (Minimum) 45.00 (Nominal) 100.0 (Maximum)

Master: 19-Aug-2005 13:45 Before: 21-Sep-2005 14:13 After: 14-Oct-2005 19:50

Hostile Natural Gamma Ray Sonde Wellsite Calibration
Detector 2 Check

Phase	Na 511 Peak Loc	Value
Master		39.60
Before		39.66
After		39.72

37.50 (Minimum) 40.00 (Nominal) 42.50 (Maximum)

Phase	Na 511 Peak Res %	Value
Master		16.71
Before		14.86
After		15.13

12.00 (Minimum) 15.50 (Nominal) 19.00 (Maximum)

Phase	High Voltage V	Value
Master	MASTER-BEFORE LIMIT	1200
Before		1169
After		1165

900.0 (Minimum) 1150 (Nominal) 1600 (Maximum)

Phase	Na 1785 Peak Loc	Value
Master		142.6
Before		142.3
After		142.2

135.0 (Minimum) 142.6 (Nominal) 150.3 (Maximum)

Phase	Na 1785 Peak Res %	Value
Master		8.264
Before		8.291
After		8.386

7.000 (Minimum) 8.500 (Nominal) 11.00 (Maximum)

Phase	Temperature DEGC	Value
Master		33.67
Before		19.78
After		17.08

-28.89 (Minimum) 15.50 (Nominal) 60.00 (Maximum)

Phase	Na Count Rate CPS	Value
Master		46.77
Before		46.71
After		44.53

10.00 (Minimum) 45.00 (Nominal) 100.0 (Maximum)

Master: 19-Aug-2005 13:45 Before: 21-Sep-2005 14:13 After: 14-Oct-2005 19:50

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

Phase	Coincidence Count Rate Ratio	Value
Master		1.005
Before		0.9949
After		0.9836

0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum)

Master: 19-Aug-2005 13:45
Before: 21-Sep-2005 14:13
After: 14-Oct-2005 19:50

Company: Lamont Doherty

Schlumberger

Well: IODP EXP 311 Site U1328C
Field: CAS-06A

Country: Canada
Ocean: Pacific

Phasor Induction