

**Company:** Lamont Doherty  
**Well:** IODP EXP 311 Site U1325C  
**Field:** CAS-02C  
**Country:** Canada  
**Ocean:** Pacific

## Phasor Induction

<b>LOCATION</b>		
Rig- Joides Resolution		Elev.: K.B. 11.3 m G.L. -2206.2 m D.F. 11 m
Permanent Datum:	<u>GROUND LEVEL</u>	Elev.: 0 m
Log Measured From:	<u>DES</u>	11.3 m above Perm. Datum
Drilling Measured From:	<u>DES</u>	
API Serial No.	Max. Hole Devi.	Longitude 126 51.043 W Latitude 48 40.0546 N

Logging Date	
Run Number	1
Depth Driller	2510.5 m
Schlumberger Depth	2464.5 m
Bottom Log Interval	2463 m
Top Log Interval	2165.76 m
Casing Driller Size @ Depth	0.000 in @ 2267.03 m
Casing Schlumberger	2266 m
Bit Size	9.875 in
Type Fluid In Hole	Sepiolite with Barite
Density	1.26 g/cm <sup>3</sup>
Fluid Loss	0 cm <sup>3</sup>
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	0.199 @ 18 @ 18 @
Maximum Recorded Temperatures	18 degC
Circulation Stopped Time	10/11/05 1100
Logger On Bottom Time	10/22/05 See Log
Unit Number	99 Houston
Recorded By	Steve Kittredge
Witnessed By	Gilles Guerin, Alberto Malinverno

Logging Date		Run 1	Run 2	Run
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 RMC				
RM @ MRT	@			
Maximum Recorded Temperatures				
Circulation Stopped Time				
Logger On Bottom Time				
Unit Number				
Recorded By				
Witnessed By				

Logging Date		Run 1	Run 2	Run
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 RMC				
RM @ MRT	@			
Maximum Recorded Temperatures				
Circulation Stopped Time				
Logger On Bottom Time				
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: DSI/SGTN OS2: OS3: OS4: OS5:	OTHER SERVICES2 OS1: OS2: OS3: OS4: OS5:
--	---

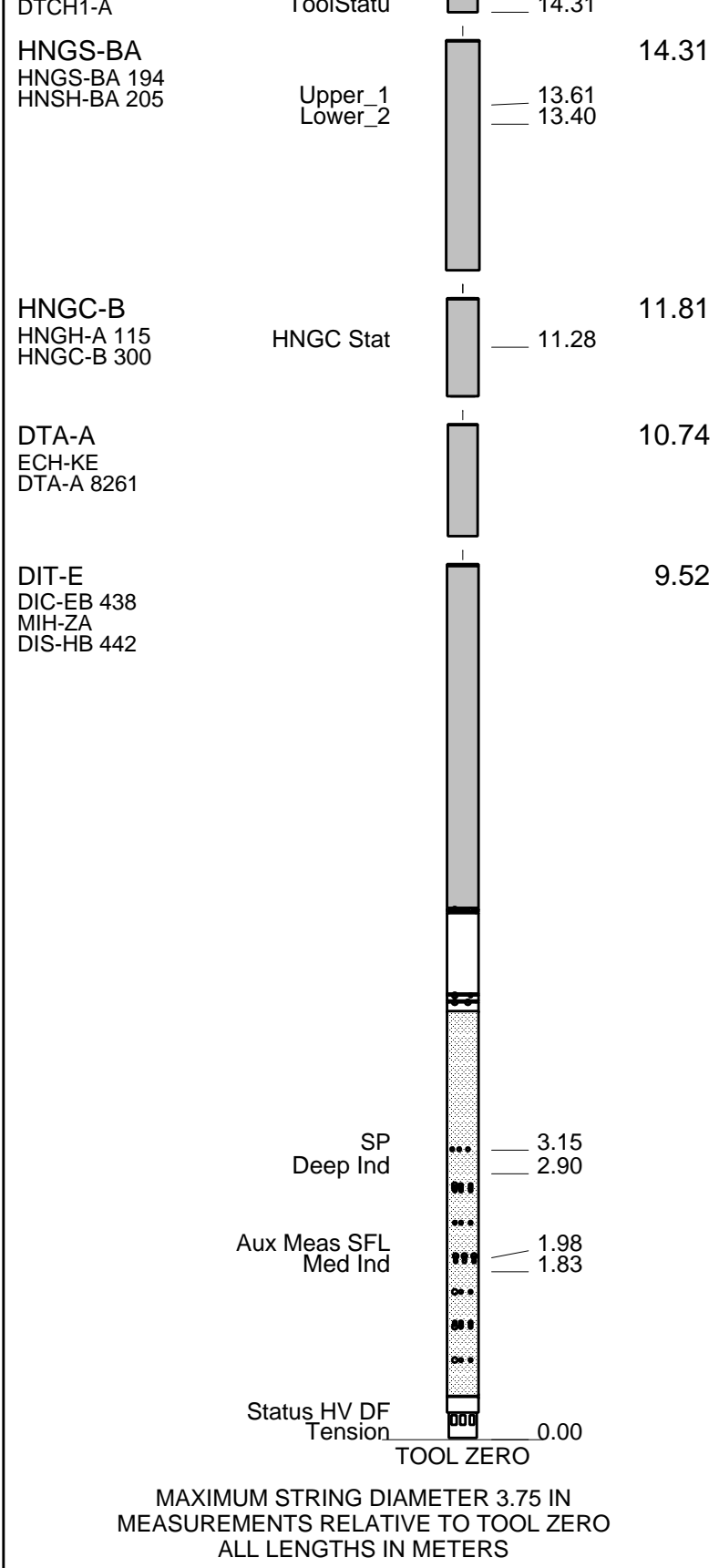
REMARKS: RUN NUMBER 1 Hole drilled with APC/XCB. All depths in Meters Below Rig Floor (MBRF). Hole flushed with Sepiolite/Barite mud. Sea Floor Driller 2206.2 MBRF. Sea Floor Logger- 2205 MBRF. Total Depth Driller- 2510.5 MBRF Total Depth Logger- 2464.5 MBRF Casing Bottom Driller- 2267.03 MBRF. Casing Bottom Logger- 2266 MBRF Heave was 5-7 meters. No calipers run due to heave Tool would not come into pipe. Pipe was lowered and flapper had to be pumped open. Schlumberger Heave compensator used.	REMARKS: RUN NUMBER 2
---	-----------------------

RUN 1			RUN 2		
SERVICE ORDER #:			SERVICE ORDER #:		
PROGRAM VERSION:		12C0-301	PROGRAM VERSION:		
FLUID LEVEL:			FLUID LEVEL:		
LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP

**EQUIPMENT DESCRIPTION**

RUN 1		RUN 2	
<b>SURFACE EQUIPMENT</b>			
GSR-U 135 WITM (DTS)-A			

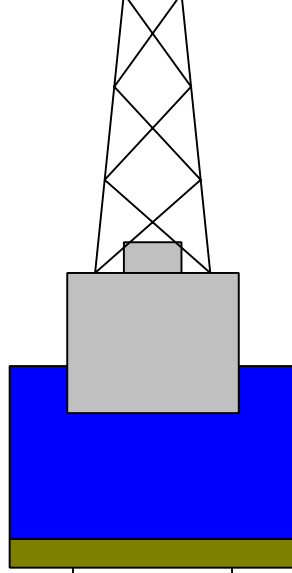
<b>DOWNHOLE EQUIPMENT</b>			
LEH-QT LEH-QT 1726		16.11	
DTC-H ECH-KC 9841 DTCH0-A 8764	CTEM TelStatus 	14.95	15.22



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

Kelly Bushing Elevation  
Derrick Floor Elevation  
  
Mean Sea Level

11.3  
11.0  
  
0.0



0.0 5.500

Casing String



2200.0 9.875

Borehole Segment

2510.5 9.875

Borehole Segment Bottom

**Schlumberger**

# Main Up Log

MAXIS Field Log

## Output DLIS Files

DEFAULT	PI_NGS_017LUP	FN:16	PRODUCER	22-Oct-2005 15:14	2464.3 M	2165.8 M
---------	---------------	-------	----------	-------------------	----------	----------

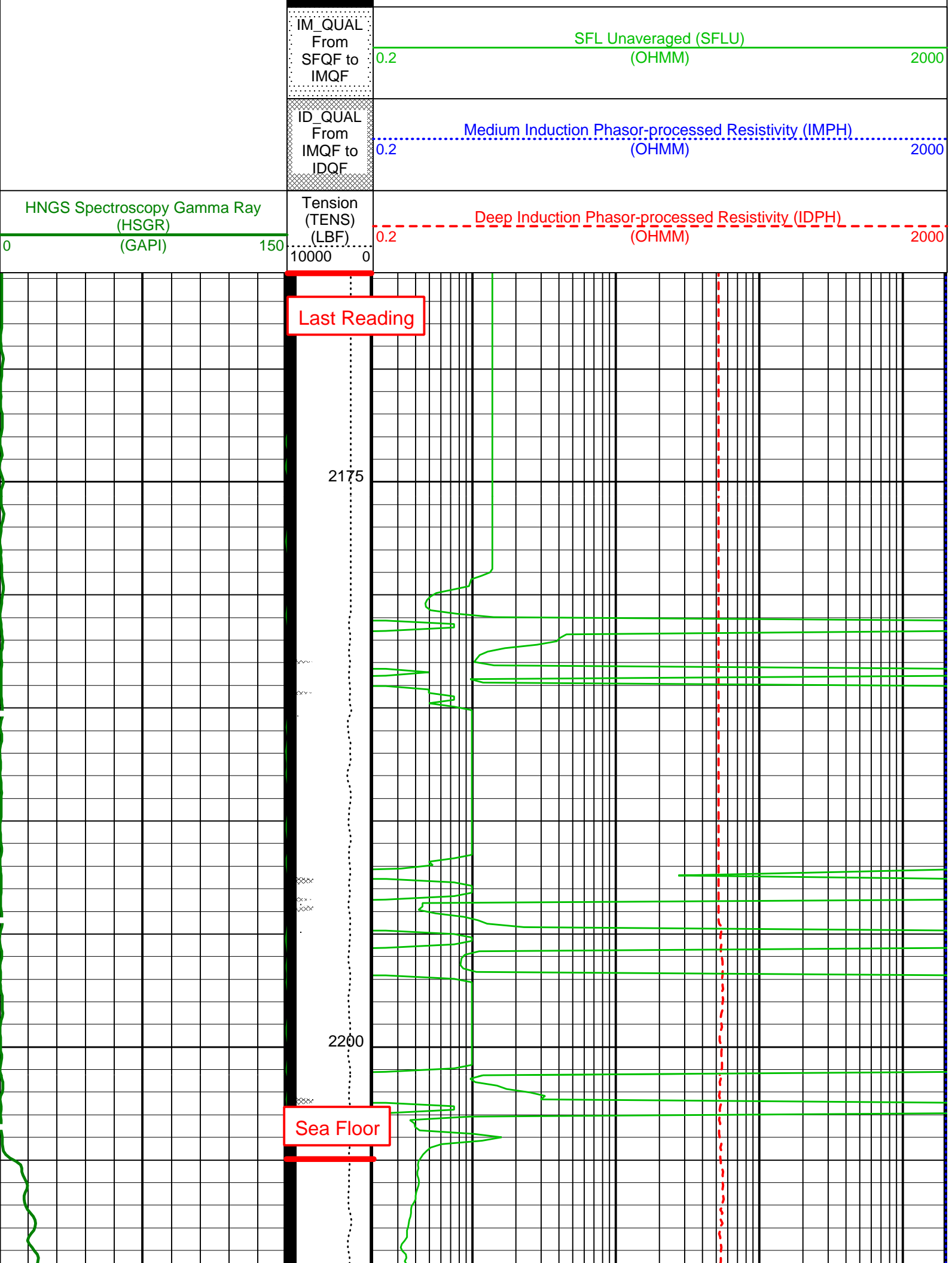
OP System Version: 12C0-301  
MCM

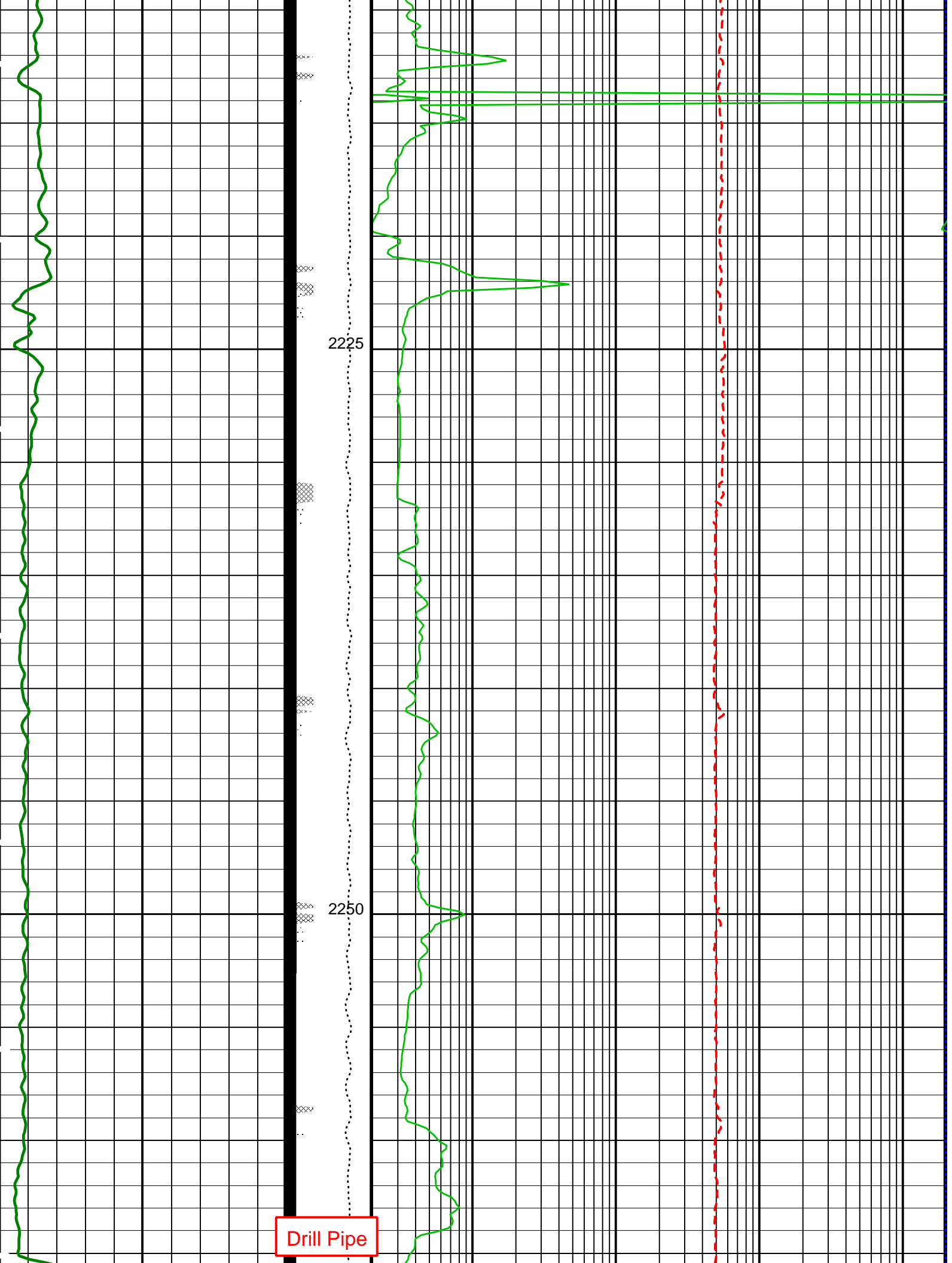
DIT-E	12C0-301	DTA-A	12C0-301
HNGC-B	SPC-2602-NUCL	HNGS-BA	SPC-2602-NUCL
DTC-H	12C0-301		

PIP SUMMARY

▶ Time Mark Every 60 S

SFL\_  
QUAL  
From D3T  
to SFQF

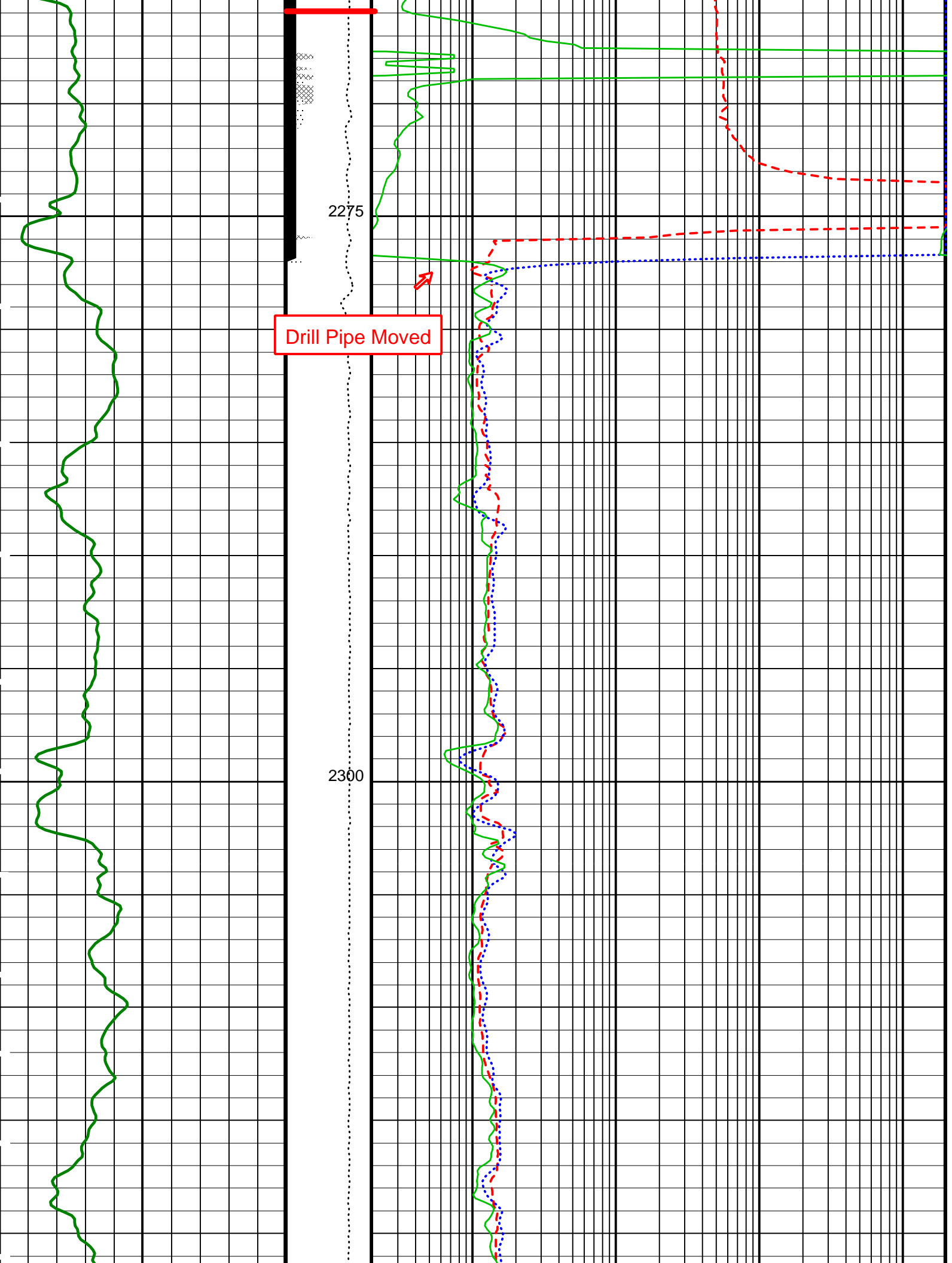




Drill Pipe

2225

2250

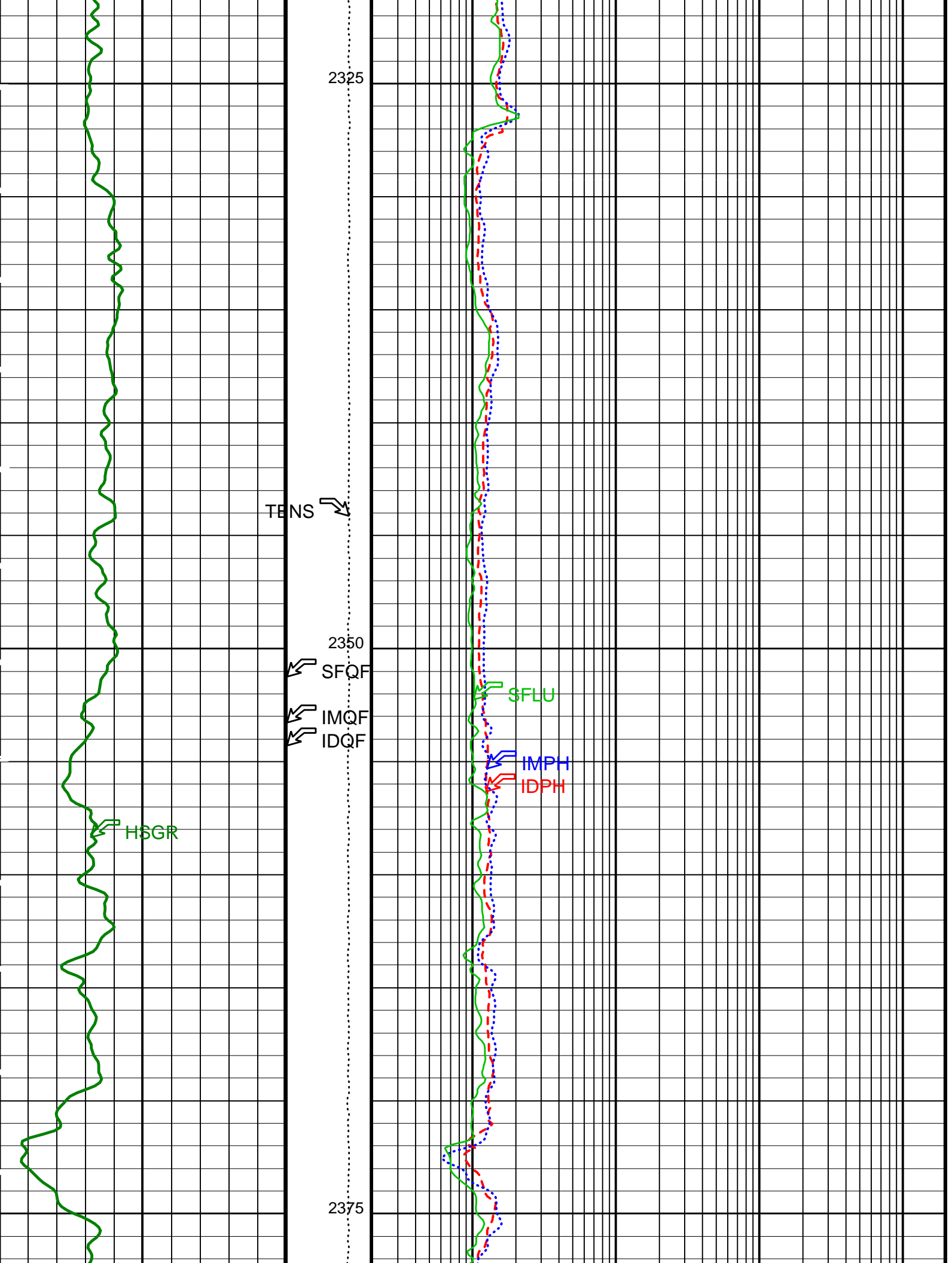


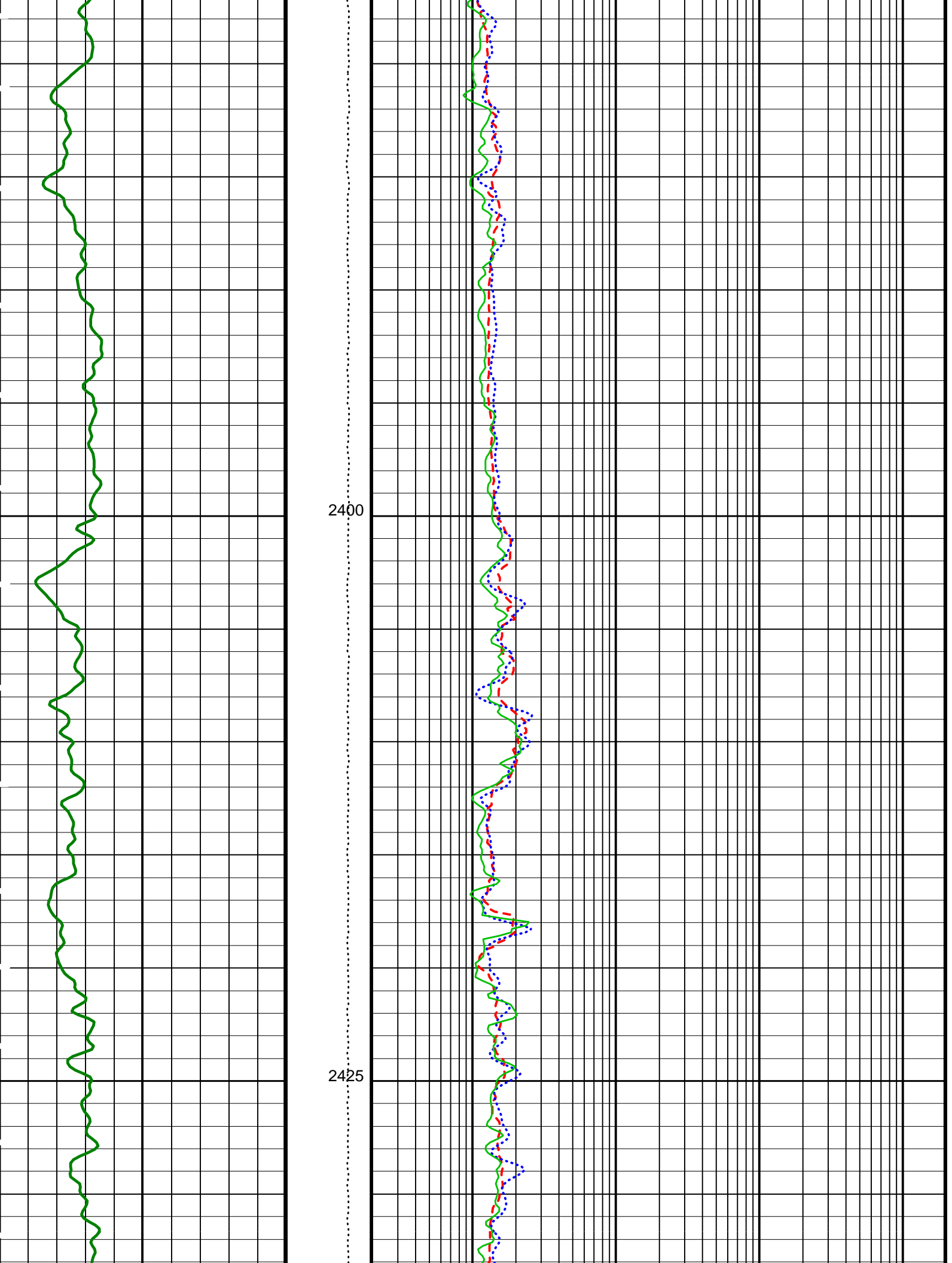
2275

Drill Pipe Moved

2300

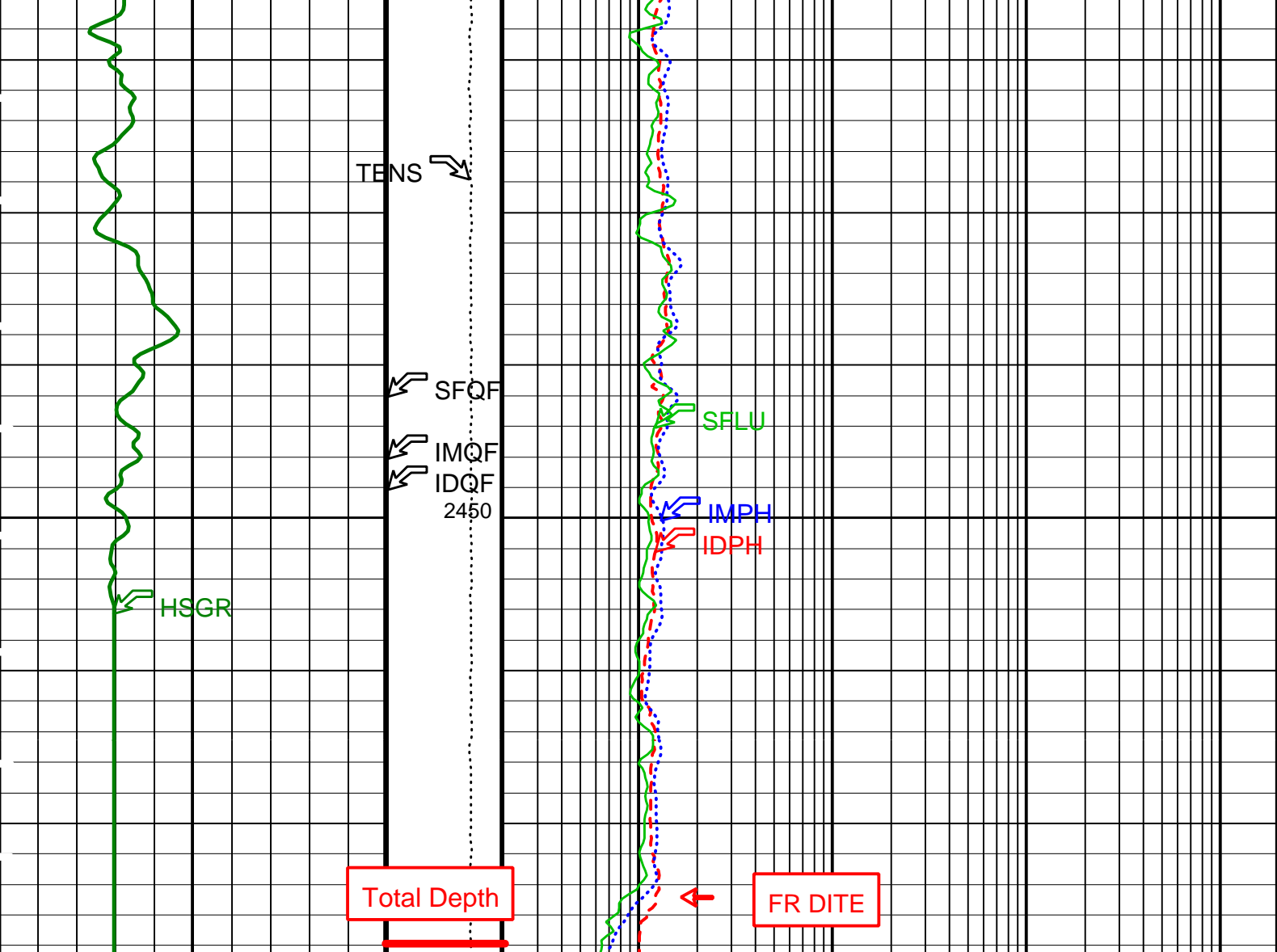






2400

2425



HNGS Spectroscopy Gamma Ray (HSGR) (GAPI)	0	150	Tension (TENS) (LBF)	10000	0
			Deep Induction Phasor-processed Resistivity (IDPH) (OHMM)	0.2	2000
			Medium Induction Phasor-processed Resistivity (IMPH) (OHMM)	0.2	2000
			SFL Unaveraged (SFLU) (OHMM)	0.2	2000
			ID_QUAL From IMQF to IDQF		
			IM_QUAL From SFQF to IMQF		
			SFL_QUAL From D3T to SFQF		

PIP SUMMARY

Time Mark Every 60 S

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	-0.213728 DEG

DTH2	Deep 20 kHz Phase Shift	-0.243720	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	BS	
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
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	BS	
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	CENT	
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	BS	
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	2510	M

Format: DITE\_LogPhasor      Vertical Scale: 1:200      Graphics File Created: 22-Oct-2005 15:14

## OP System Version: 12C0-301

MCM

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

## Output DLIS Files

DEFAULT	PI_NGS_017LUP	FN:16	PRODUCER	22-Oct-2005 15:14
---------	---------------	-------	----------	-------------------



Before		15.20	Before		1.027	Before		6.612	
	-109.9 (Minimum)	140.1 (Maximum)		0.8601 (Minimum)	1.214 (Maximum)		-7.449 (Minimum)	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			9.214	Before		1.015	Before		11.37
	-115.6 (Minimum)	134.4 (Maximum)		0.8497 (Minimum)	1.200 (Maximum)		-2.658 (Minimum)	27.34 (Maximum)	
Phase	IM Elect Real Offset 20 kHz	MM/M	Value	Phase	IM Elect Real Gain 20 kHz	Value			
Before			40.26	Before		1.018			
	-184.8 (Minimum)	265.2 (Maximum)		0.8536 (Minimum)	1.205 (Maximum)				
Phase	IM Elect Quad Offset 20 kHz	MM/M	Value	Phase	IM Elect Quad Gain 20 kHz	Value			
Before			39.41	Before		1.014			
	-185.4 (Minimum)	264.6 (Maximum)		0.8510 (Minimum)	1.201 (Maximum)				
Before: 22-Oct-2005 15:01									

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			9.811	Before		0.9984	Before		24.98
	-75.27 (Minimum)	94.73 (Maximum)		0.8369 (Minimum)	1.182 (Maximum)		7.238 (Minimum)	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			5.953	Before		0.9850	Before		29.57
	-78.94 (Minimum)	91.06 (Maximum)		0.8259 (Minimum)	1.166 (Maximum)		11.87 (Minimum)	51.87 (Maximum)	
Phase	IM Elect Real Offset 40 kHz	MM/M	Value	Phase	IM Elect Real Gain 40 kHz	Value			
Before			26.24	Before		1.031			
	-103.8 (Minimum)	156.2 (Maximum)		0.8659 (Minimum)	1.222 (Maximum)				
Phase	IM Elect Quad Offset 40 kHz	MM/M	Value	Phase	IM Elect Quad Gain 40 kHz	Value			
Before			25.74	Before		1.027			
	-104.1 (Minimum)	155.9 (Maximum)		0.8629 (Minimum)	1.218 (Maximum)				
Before: 22-Oct-2005 15:01									

Dual Induction - E Wellsite Calibration						
SFL Electronics						
Phase	SFL Voltage Offset	MV	Value	Phase	SFL Voltage Gain	Value
Before			1.166	Before		1.013
	-15.00 (Minimum)	15.00 (Maximum)		0.8500 (Minimum)	1.200 (Maximum)	
Phase	SFL Current Offset	MA	Value	Phase	SFL Current Gain	Value
Before			0.008091	Before		0.9921
	-0.6000 (Minimum)	0.6000 (Maximum)		0.8500 (Minimum)	1.200 (Maximum)	
Before: 22-Oct-2005 15:02						

Dual Induction - E Wellsite Calibration										
Electronics Calibration Changes Files/Depth Intervals: 17: 2464.3 - 2165.8										
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			0.3185	After		0.0001992	After			0.0005863
	0 (Minimum)	0.7500 (Maximum)		0 (Minimum)	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			0.2581	After		0.0001548				
	0 (Minimum)	0.7500 (Maximum)		0 (Minimum)	2.000 (Maximum)					
Phase	SFL (R > 27 OHM-M)	MM/M	Value	Phase	SFL (R < 27 OHM-M) %	Value				
After			0	After		0.0005095				
	0 (Minimum)	0.7500 (Maximum)		0 (Minimum)	2.000 (Maximum)					
After: 22-Oct-2005 17:10										

Hostile Natural Gamma Ray Cartridge - B / Equipment Identification

Primary Equipment: HNGC Cartridge	HNGC - B	300
Auxiliary Equipment: HNGC Housing	HNGH - A	115

Hostile Natural Gamma Ray Sonde / Equipment Identification

Primary Equipment: HNGS Sonde	HNGS - BA	194
Auxiliary Equipment: HNGS Sonde Housing Gamma Source Radioactive	HNSH - BA GSR - U	205 135

Hostile Natural Gamma Ray Sonde Wellsite Calibration

Detector 1 Check

Phase	Na 511 Peak Loc	Value	Phase	Na 511 Peak Res %	Value	Phase	High Voltage V	Value
Master		39.65	Master		15.15	Master		1087
Before		39.69	Before		14.83	Before		1087
After		39.66	After		15.39	After		1089
	37.50 (Minimum) 40.00 (Nominal) 42.50 (Maximum)			12.00 (Minimum) 15.50 (Nominal) 19.00 (Maximum)			900.0 (Minimum) 1150 (Nominal) 1600 (Maximum)	
Phase	Na 1785 Peak Loc	Value	Phase	Na 1785 Peak Res %	Value	Phase	Temperature DEGC	Value
Master		142.4	Master		8.066	Master		17.10
Before		142.4	Before		7.487	Before		17.10
After		142.1	After		7.661	After		16.90
	135.0 (Minimum) 142.6 (Nominal) 150.3 (Maximum)			7.000 (Minimum) 8.500 (Nominal) 11.000 (Maximum)			-28.89 (Minimum) 15.50 (Nominal) 60.00 (Maximum)	
Phase	Na Count Rate CPS	Value						
Master		46.15						
Before		44.45						
After		43.62						
	10.00 (Minimum) 45.00 (Nominal) 100.0 (Maximum)							
Master: 19-Oct-2005 14:33			Before: 19-Oct-2005 14:40			After: 22-Oct-2005 18:08		

Hostile Natural Gamma Ray Sonde Wellsite Calibration

Detector 2 Check




Phase	Na 511 Peak Loc	Value	Phase	Na 511 Peak Res %	Value	Phase	High Voltage V	Value
Master		39.64	Master		15.31	Master		1163
Before		39.63	Before		14.73	Before		1163
After		39.60	After		15.78	After		1165
	37.50 (Minimum) 40.00 (Nominal) 42.50 (Maximum)			12.00 (Minimum) 15.50 (Nominal) 19.00 (Maximum)			900.0 (Minimum) 1150 (Nominal) 1600 (Maximum)	
Phase	Na 1785 Peak Loc	Value	Phase	Na 1785 Peak Res %	Value	Phase	Temperature DEGC	Value
Master		142.1	Master		7.878	Master		16.19
Before		141.3	Before		8.313	Before		16.27
After		142.5	After		7.767	After		17.22
	135.0 (Minimum) 142.6 (Nominal) 150.3 (Maximum)			7.000 (Minimum) 8.500 (Nominal) 11.000 (Maximum)			-28.89 (Minimum) 15.50 (Nominal) 60.00 (Maximum)	
Phase	Na Count Rate CPS	Value						
Master		46.15						
Before		44.64						
After		43.88						

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

Master: 19-Oct-2005 14:33

Before: 19-Oct-2005 14:40

After: 22-Oct-2005 18:08

Hostile Natural Gamma Ray Sonde Wellsite Calibration		
Ratio Of Detector 1 To Detector 2		
Phase	Coincidence Count Rate Ratio	Value
Master		1.001
Before		0.9958
After		0.9938
0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)
Master: 19-Oct-2005 14:33		
Before: 19-Oct-2005 14:40		
After: 22-Oct-2005 18:08		

Company: Lamont Doherty

**Schlumberger**

Well: IODP EXP 311 Site U1325C

Field: CAS-02C

Country: Canada

Ocean: Pacific

Phasor Induction