

**Company:** Lamont Doherty

**Well:** IODP EXP 311 Site U1326D

**Field:** CAS-03C

**Country:** Canada Ocean: Pacific

## Phasor Induction

Country: Canada		Elev.: K.B. 11.3 m	
Field: CAS-03C		G.L. -1839.6 m	
Location: Rig- Joides Resolution		D.F. 11 m	
Well: IODP EXP 311 Site U1326D		Elev.: 0 m	
Company: Lamont Doherty		11.3 m above Perm. Datum	
<b>LOCATION</b>			
Rig- Joides Resolution			
Permanent Datum: _____		GROUND LEVEL _____	
Log Measured From: DES _____		DES _____	
Drilling Measured From: DES _____		DES _____	
API Serial No. _____	Max. Hole Devi. _____	Longitude 127 03.0419 W	Latitude 48 37.6268 N

Logging Date	
Run Number	1
Depth Driller	2139.6 m
Schlumberger Depth	2138 m
Bottom Log Interval	2136 m
Top Log Interval	1785.2 m
Casing Driller Size @ Depth	0.000 in @ 1896.8 m
Casing Schlumberger	1896 m
Bit Size	9.875 in
Type Fluid In Hole	Septolite with Barite

<b>MUD</b>	
Density	1.26 g/cm3
Fluid Loss	0 cm3
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	
Circulation Stopped	10/26/05 1100
Logger On Bottom	10/22/05 See Log
Unit Number	99 Houston
Recorded By	Steve Kittredge
Witnessed By	Gilles Guerin, Alberto Malinverno

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			
<b>MUD</b>			
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			
Logger On Bottom			
Unit Number			
Recorded By			
Witnessed By			

	Run 1	Run 2	Run
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**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: none OS2: OS3: OS4: OS5:	OTHER SERVICES2 OS1: OS2: OS3: OS4: OS5:
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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 1839.6 MBRF. Sea Floor Logger- 1837 MBRF. Total Depth Driller- 2139.6 MBRF Total Depth Logger- 2138 MBRF Casing Bottom Driller- 1896.8 MBRF. Casing Bottom Logger- 1896 MBRF Heave was 2-4 meters. No calipers run due to heave	REMARKS: RUN NUMBER 2
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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	
SURFACE EQUIPMENT			
GSR-U/Y 166 WITM (DTS)-A			

DOWNHOLE EQUIPMENT			
LEH-QT LEH-QT 1726			34.17
DTC-H ECH-KC	CTEM TelStatus ToolStatu		33.01 33.28
SGT-N SGH-K 2450	Gamma Ray		32.09 32.37

SGC-TB 9585

AH-MCD  
AH-MCD

30.69

DSST-B  
SPAC-B 16  
ECH-SD 16  
SMDR-BD 8232  
SSIJ-BA 8192  
SMDX-AA 66

28.57

PWF 13.02

AH-MCD  
AH-MCD

13.02

DTA-A  
ECH-KE

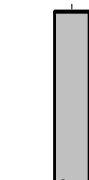
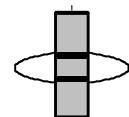
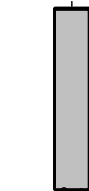
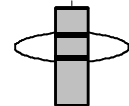
10.74

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

9.52

SP 3.15  
Deep Ind 2.90  
Aux Meas SFL 1.98  
Med Ind 1.83  
Status HV DF  
Tension 0.00  
TOOL ZERO

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



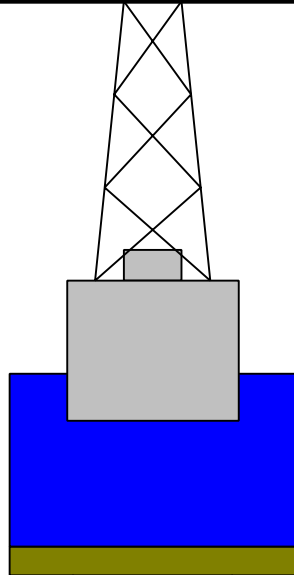
Production String	(in)	(m)	Well Schematic	(m)	(in)	Casing String
	OD	ID		MD	OD	

Kelly Bushing Elevation  
Derrick Floor Elevation

11.3  
11.0

Mean Sea Level

0.0



0.0 5.500

Casing String

1898.8 9.875

Borehole Segment  
Casing String

2139.6 9.875

Borehole Segment Bottom

**Schlumberger**

# Main Up Log

MAXIS Field Log

## Output DLIS Files

DEFAULT	PI_DSI_009LUP	FN:8	PRODUCER	27-Oct-2005 01:28	2139.4 M	1785.2 M
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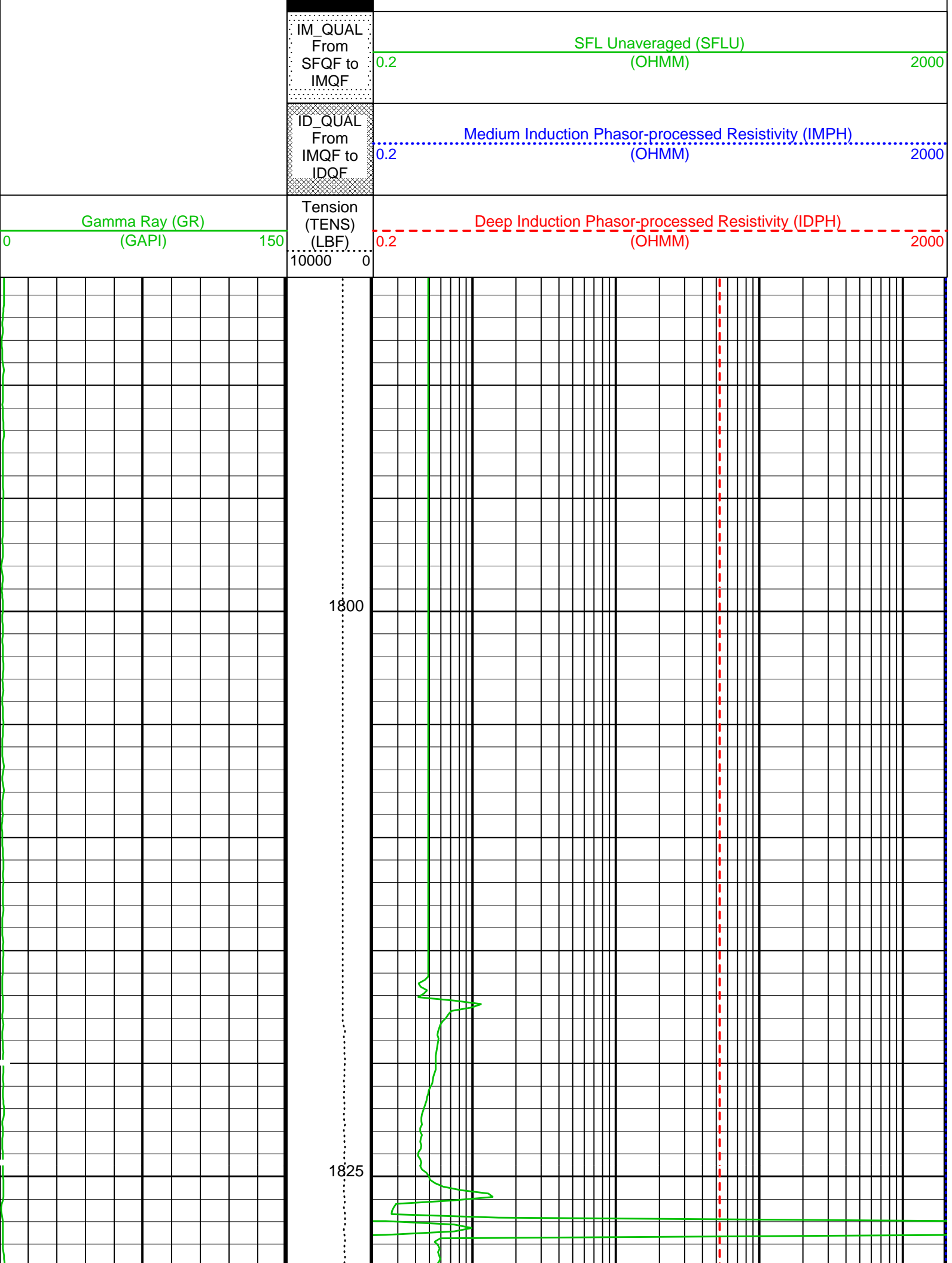
OP System Version: 12C0-301  
MCM

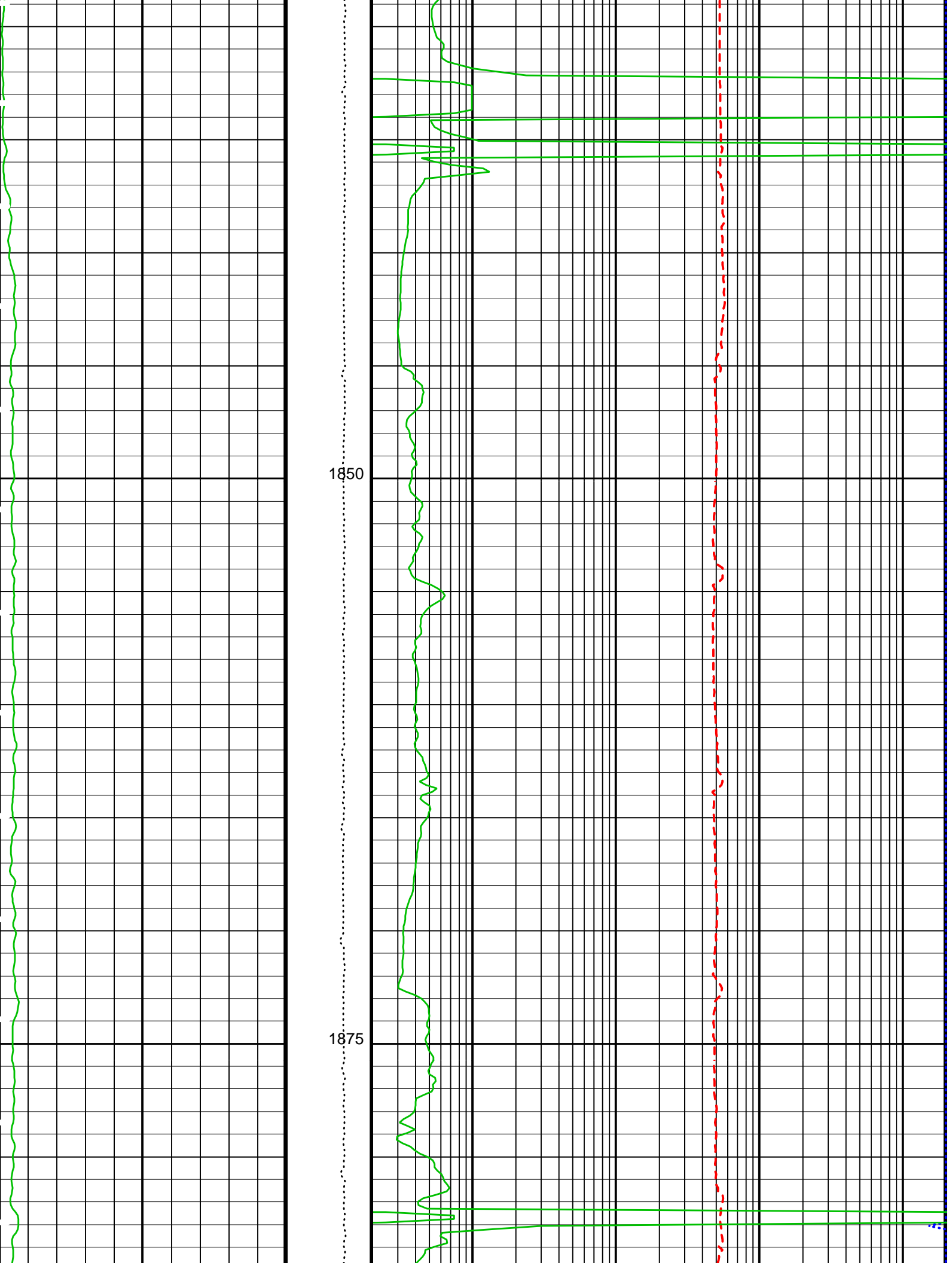
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DSST-B	12C0-301	SGT-N	12C0-301
DTC-H	12C0-301		

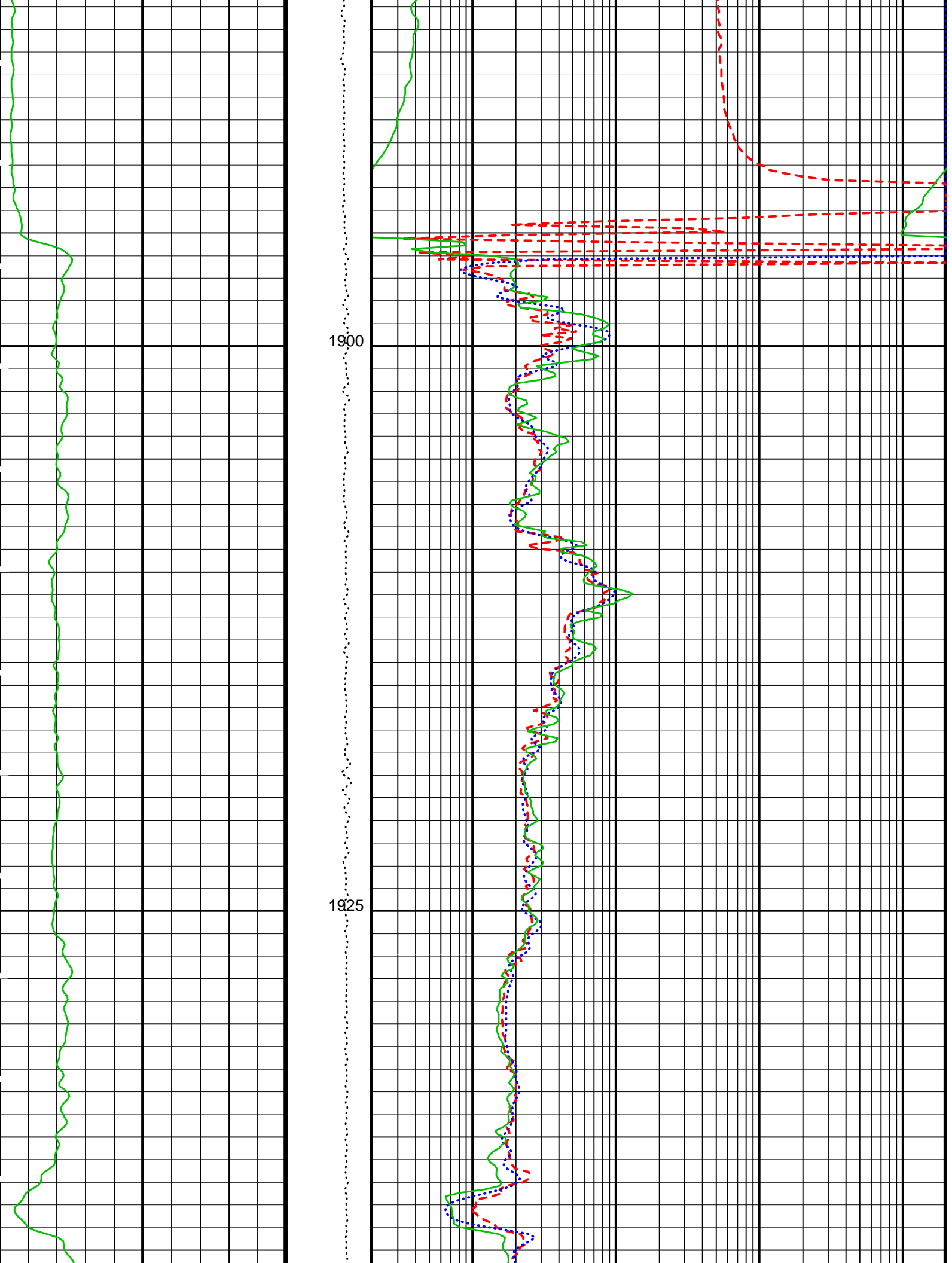
PIP SUMMARY

Time Mark Every 60 S

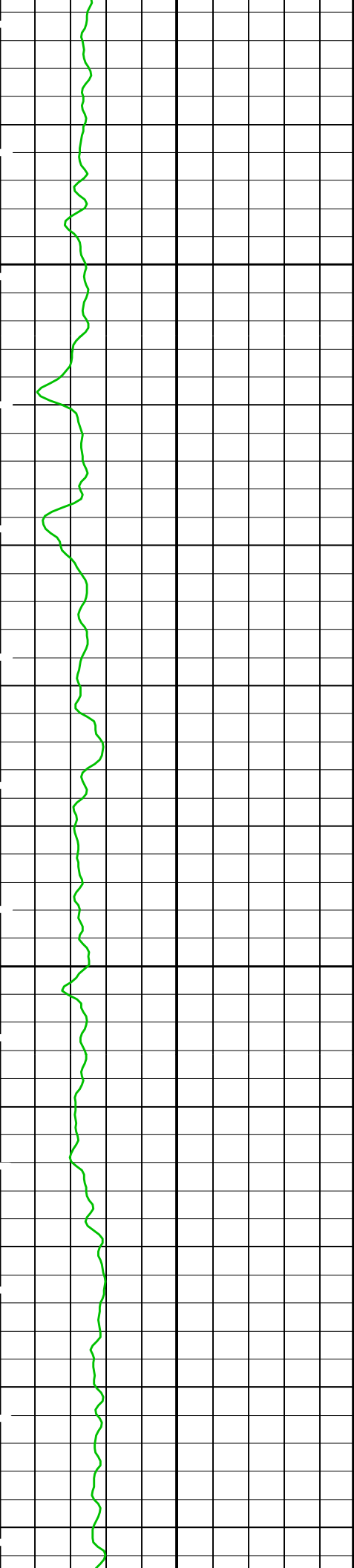
SFL\_  
QUAL  
From D3T  
to SEQE





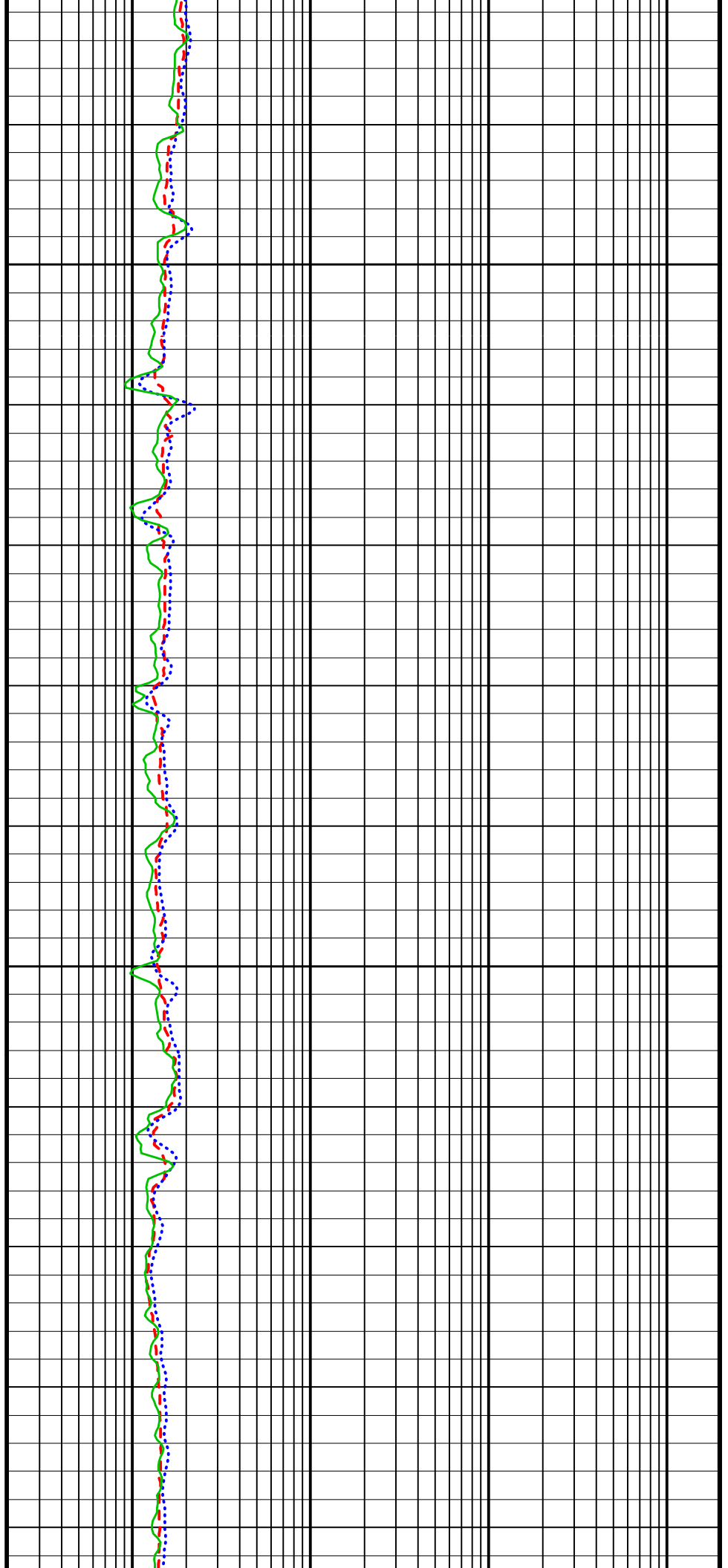


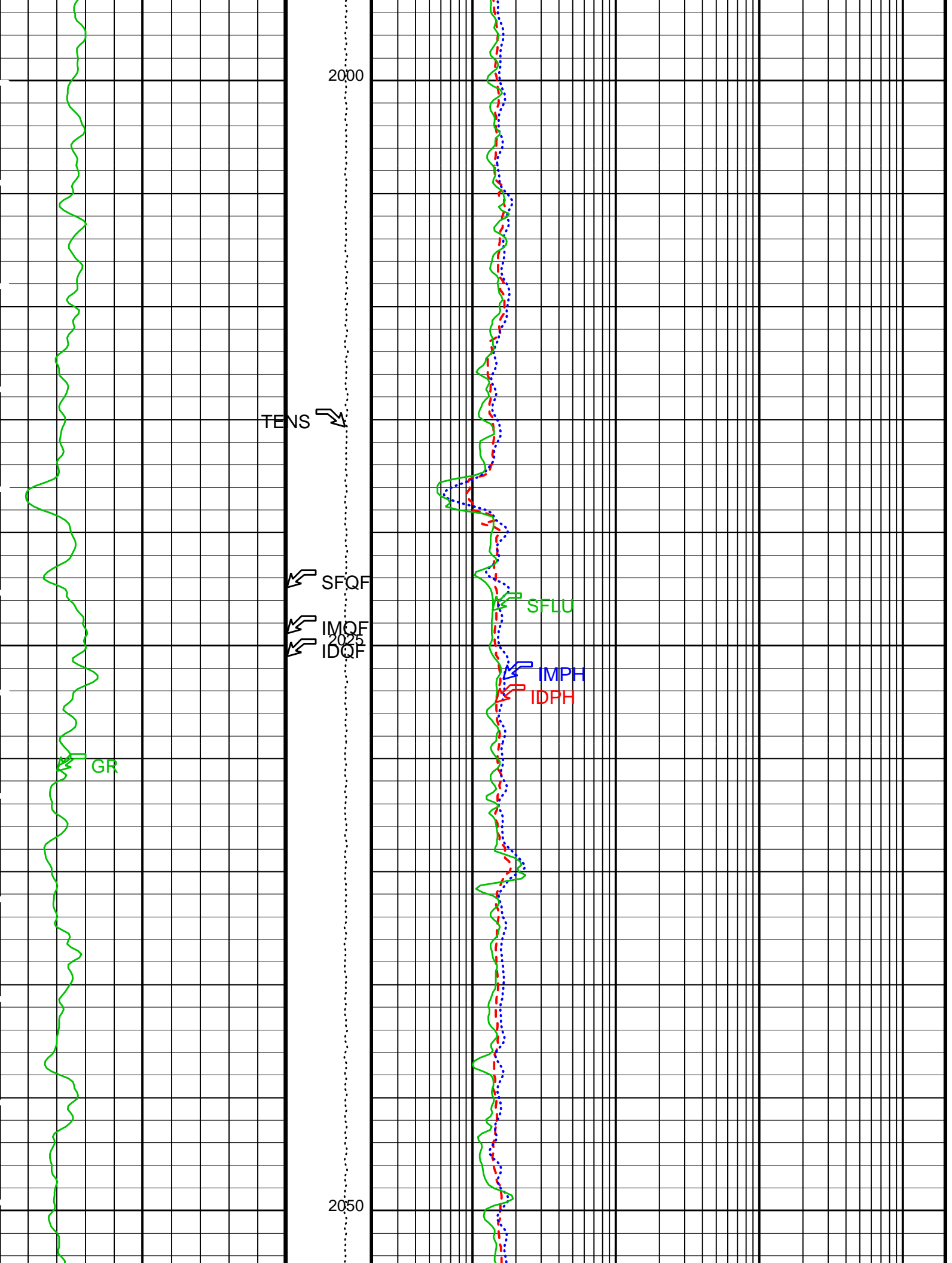


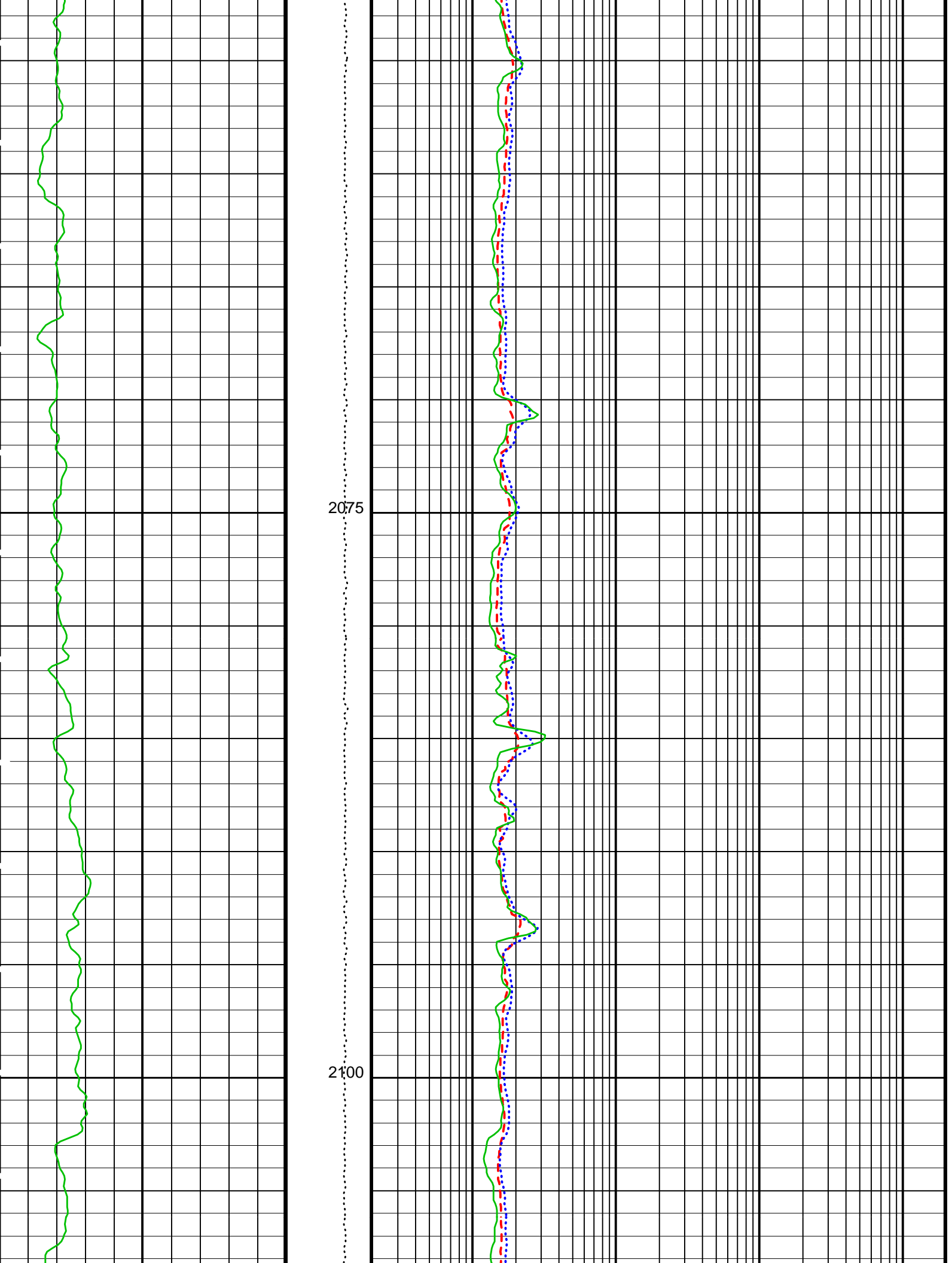


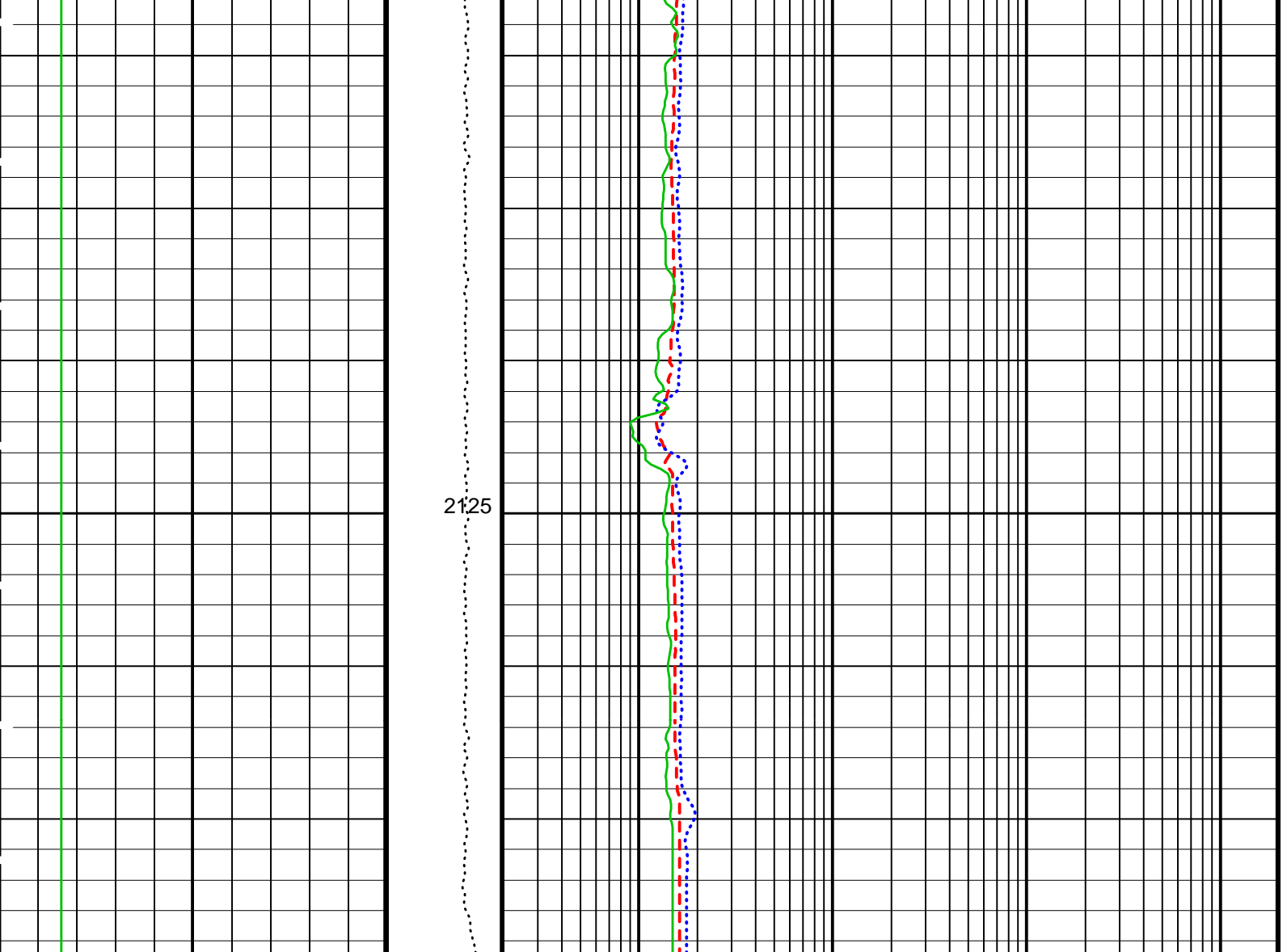
1950

1975









<p>Gamma Ray (GR) (GAPI)</p> <p>0 150</p>	<p>Tension (TENS) (LBF)</p> <p>10000 0</p>	<p>Deep Induction Phasor-processed Resistivity (IDPH) (OHMM)</p> <p>0.2 2000</p>
	<p>ID_QUAL From IMQF to IDQF</p>	<p>Medium Induction Phasor-processed Resistivity (IMPH) (OHMM)</p> <p>0.2 2000</p>
	<p>IM_QUAL From SFQF to IMQF</p>	<p>SFL Unaveraged (SFLU) (OHMM)</p> <p>0.2 2000</p>
	<p>SFL_QUAL From D3T to SEQF</p>	

PIP SUMMARY

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
DIT-E: Dual Induction - E			
BHT	Bottom Hole Temperature (used in calculations)	16	DEGC
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 Real 20 kHz Sonde Error Correction	18.0208	MM/M
DXE2	Deep Sigma Reference (20 kHz)	1843	MM/M
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
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	20	DEGC
DSST-B: Dipole Shear Imager - B			
BHT	Bottom Hole Temperature (used in calculations)	16	DEGC
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
SHT	Surface Hole Temperature	20	DEGC
SGT-N: Scintillation Gamma-Ray - N			
BHT	Bottom Hole Temperature (used in calculations)	16	DEGC
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
SHT	Surface Hole Temperature	20	DEGC
System and Miscellaneous			
DFD	Drilling Fluid Density	1.26	G/C3
TD	Total Depth	2139.6	M

Format: DITE\_LogPhasor    Vertical Scale: 1:200    Graphics File Created: 27-Oct-2005 01:28

**OP System Version: 12C0-301**  
MCM

DIT-E	12C0-301	DTA-A	12C0-301
DSST-B	12C0-301	SGT-N	12C0-301
DTC-H	12C0-301		

**Output DLIS Files**

DEFAULT    PI\_DSI\_009LUP    FN:8    PRODUCER    27-Oct-2005 01:28



**Repeat Up Log**

MAXIS Field Log

**Output DLIS Files**

DEFAULT    PI\_DSI\_008LUP    FN:7    PRODUCER    27-Oct-2005 00:34    2139.5 M    1903.0 M

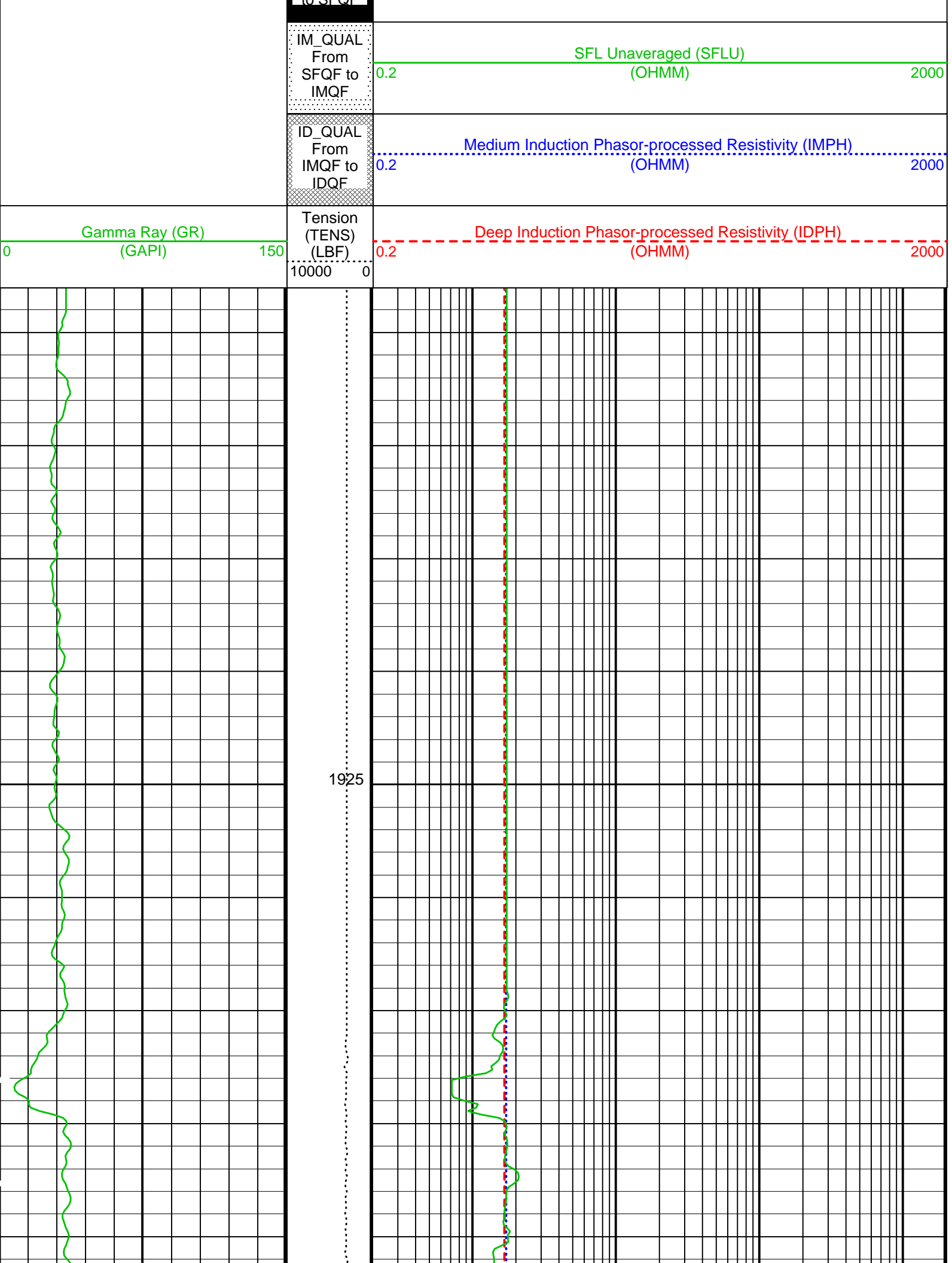
**OP System Version: 12C0-301**  
MCM

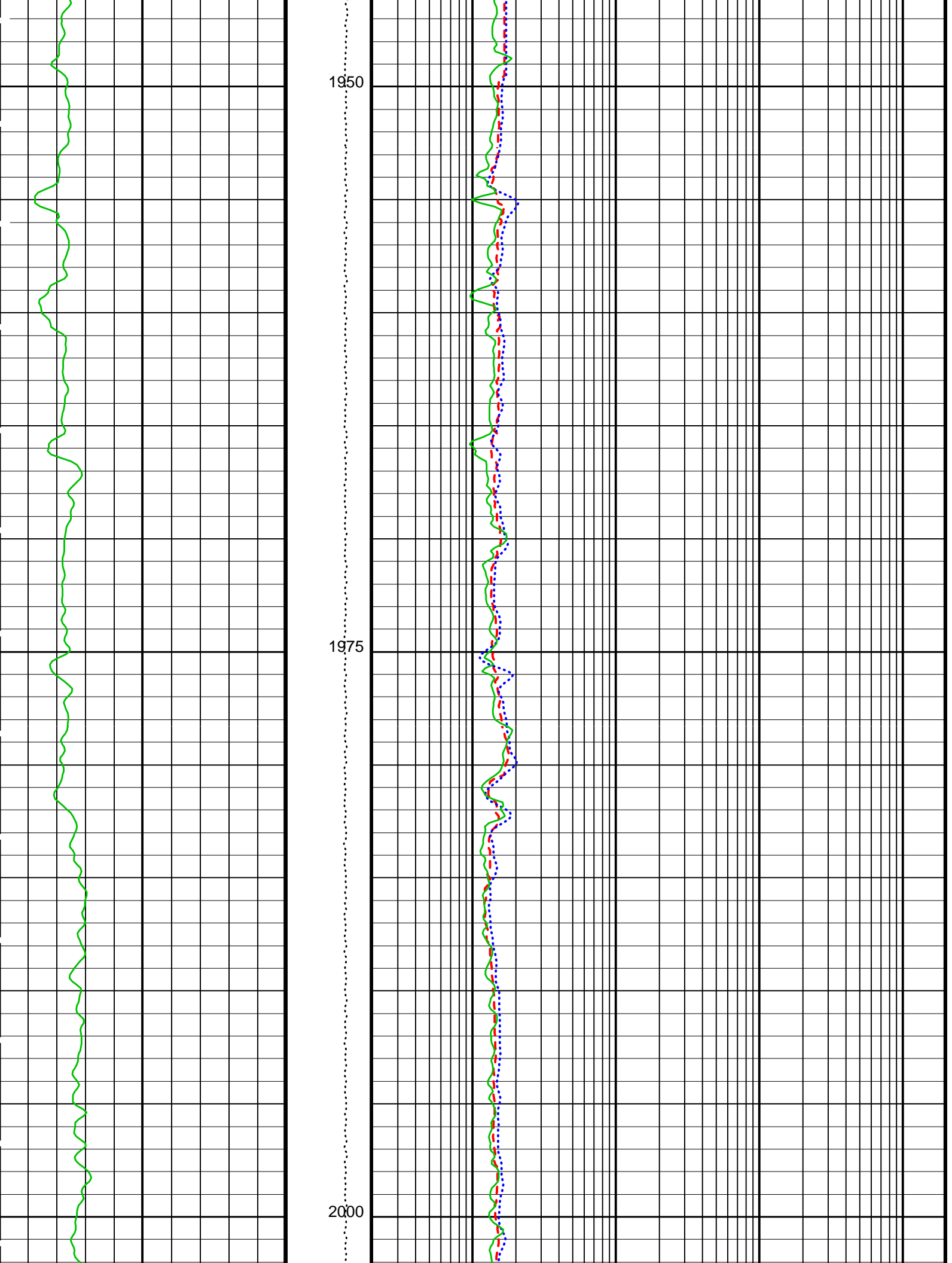
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DSST-B	12C0-301	SGT-N	12C0-301
DTC-H	12C0-301		

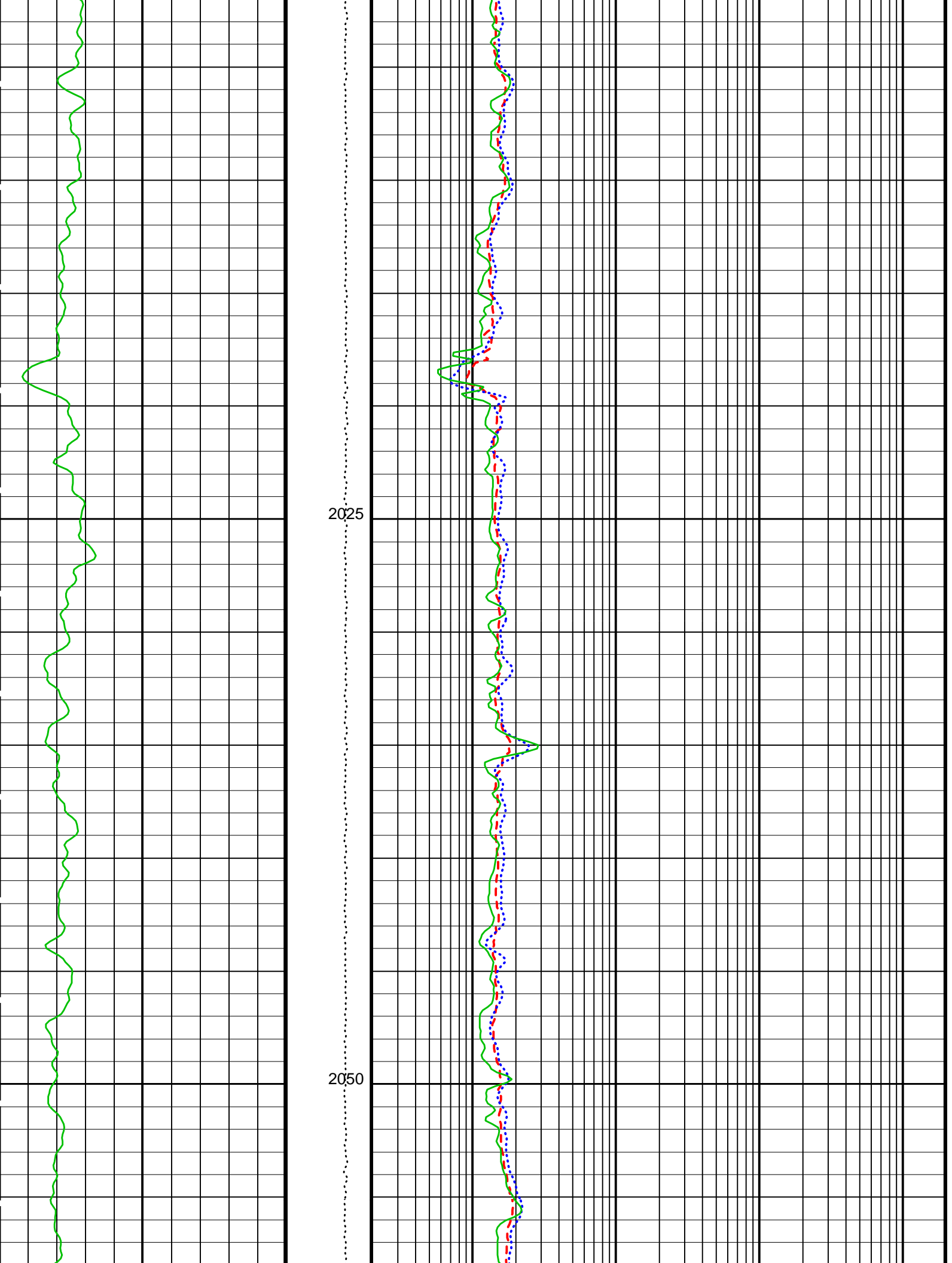
PIP SUMMARY

Time Mark Every 60 S

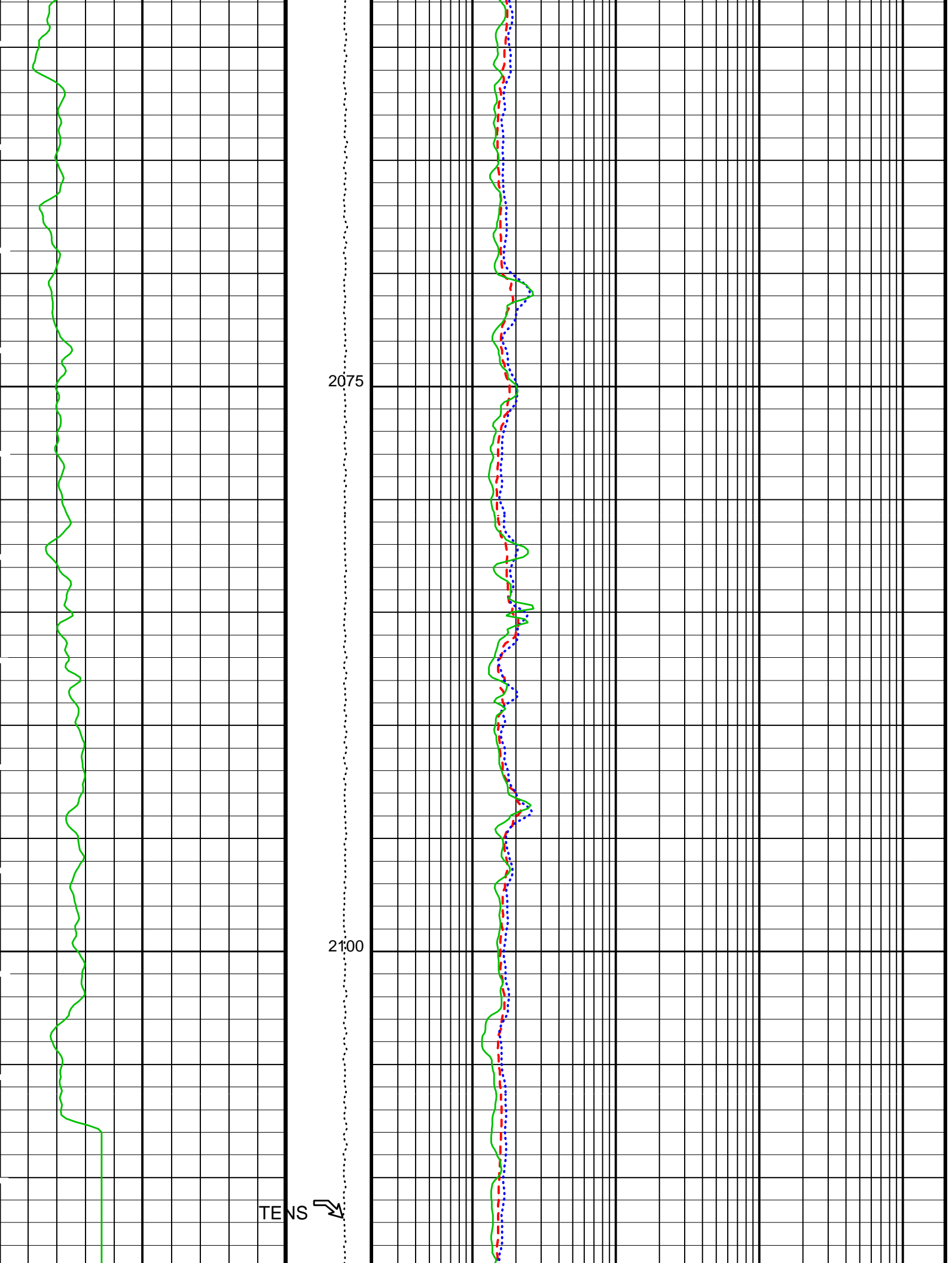
SFL\_  
QUAL  
From D3T  
to SFOE

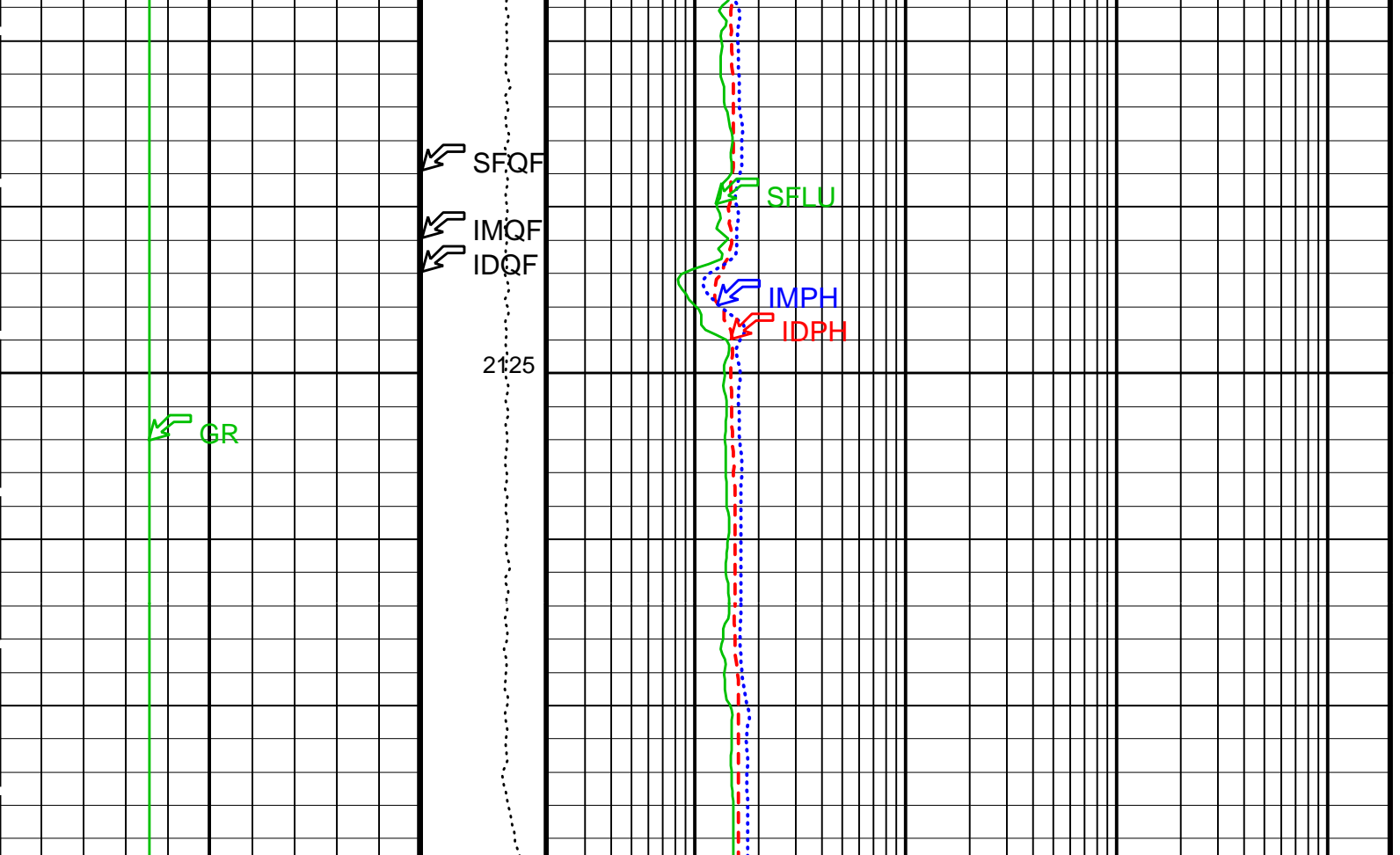












Gamma Ray (GR) (GAPI)	150	Tension (TENS) (LBF)	0.2	Deep Induction Phasor-processed Resistivity (IDPH) (OHMM)	2000
		ID_QUAL From IMQF to IDQF	0.2	Medium Induction Phasor-processed Resistivity (IMPH) (OHMM)	2000
		IM_QUAL From SFQF to IMQF	0.2	SFL Unaveraged (SFLU) (OHMM)	2000
		SFL_QUAL From D3T to SFQF			

PIP SUMMARY

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
DIT-E: Dual Induction - E			
BHT	Bottom Hole Temperature (used in calculations)	16	DEGC
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
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
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	1	
MGF2	Medium 20 kHz Gain Factor		0	DEG
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		20	DEGC
	DSST-B: Dipole Shear Imager - B			
BHT	Bottom Hole Temperature (used in calculations)		16	DEGC
GDEV	Average Angular Deviation of Borehole from Normal		0	DEG
GGRD	Geothermal Gradient		0.018227	DC/M
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE		
SHT	Surface Hole Temperature		20	DEGC
	SGT-N: Scintillation Gamma-Ray - N			
BHT	Bottom Hole Temperature (used in calculations)		16	DEGC
GDEV	Average Angular Deviation of Borehole from Normal		0	DEG
GGRD	Geothermal Gradient		0.018227	DC/M
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE		
SHT	Surface Hole Temperature		20	DEGC
	System and Miscellaneous			
DFD	Drilling Fluid Density		1.26	G/C3
TD	Total Depth		2139.6	M

Format: DITE\_LogPhasor Vertical Scale: 1:200 Graphics File Created: 27-Oct-2005 00:34

## OP System Version: 12C0-301 MCM

DIT-E	12C0-301	DTA-A	12C0-301
DSST-B	12C0-301	SGT-N	12C0-301
DTC-H	12C0-301		

## Output DLIS Files

DEFAULT PI\_DSI\_008LUP FN:7 PRODUCER 27-Oct-2005 00:34



# Calibrations

## MAXIS Field Log

### 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	Phase	ID Elect Real Gain 10 kHz	Value	Phase	ID Elect Phase 10 kHz DEG	Value
Before		39.19	Before		1.021	Before		8.439
	-260.8 (Minimum) 39.24 (Nominal) 339.2 (Maximum)			0.8596 (Minimum) 1.010 (Nominal) 1.214 (Maximum)			-0.7861 (Minimum) 9.214 (Nominal) 19.21 (Maximum)	
Phase	ID Elect Quad Offset 10 kHz MM/M	Value	Phase	ID Elect Quad Gain 10 kHz	Value	Phase	IM Elect Phase 10 kHz DEG	Value
Before		23.40	Before		1.008	Before		12.96
	-276.2 (Minimum) 23.78 (Nominal) 323.8 (Maximum)			0.8494 (Minimum) 0.9994 (Nominal) 1.199 (Maximum)			3.832 (Minimum) 13.83 (Nominal) 23.83 (Maximum)	
Phase	IM Elect Real Offset 10 kHz MM/M	Value	Phase	IM Elect Real Gain 10 kHz	Value			
Before		96.64	Before		0.9590			
	96.64 (Minimum) 96.64 (Nominal) 96.64 (Maximum)			0.9590 (Minimum) 0.9590 (Nominal) 0.9590 (Maximum)				

-453.1 (Minimum)	96.90 (Nominal)	646.9 (Maximum)	0.8089 (Minimum)	0.9589 (Nominal)	1.142 (Maximum)	
Phase	IM Elect Quad Offset 10 kHz	MM/M	Value	Phase	IM Elect Quad Gain 10 kHz	Value
Before			94.31	Before		0.9557
-454.8 (Minimum)	95.22 (Nominal)	645.2 (Maximum)	0.8065 (Minimum)	0.9565 (Nominal)	1.139 (Maximum)	

Before: 27-Oct-2005 0:27

Dual Induction - E Wellsite Calibration										
Induction Electronics (20 kHz)										
Phase	ID Elect Real Offset 20 kHz	MM/M	Value	Phase	ID Elect Real Gain 20 kHz	Value	Phase	ID Elect Phase 20 kHz	DEG	Value
Before			15.16	Before		1.027	Before			6.643
-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			9.220	Before		1.015	Before			11.39
-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			40.26	Before		1.018				
-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			39.37	Before		1.014				
-185.4 (Minimum)	39.62 (Nominal)	264.6 (Maximum)		0.8510 (Minimum)	1.001 (Nominal)	1.201 (Maximum)				

Before: 27-Oct-2005 0:28

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			9.793	Before		0.9981	Before			25.06
-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			5.950	Before		0.9848	Before			29.65
-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			26.23	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			25.71	Before		1.027				
-104.1 (Minimum)	25.93 (Nominal)	155.9 (Maximum)		0.8629 (Minimum)	1.013 (Nominal)	1.218 (Maximum)				

Before: 27-Oct-2005 0:29

Dual Induction - E Wellsite Calibration						
SFL Electronics						
Phase	SFL Voltage Offset	MV	Value	Phase	SFL Voltage Gain	Value
Before			1.167	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			0.008155	Before		0.9921
-0.6000 (Minimum)	0 (Nominal)	0.6000 (Maximum)		0.8500 (Minimum)	1.000 (Nominal)	1.200 (Maximum)

Before: 27-Oct-2005 0:30

Dual Induction - E Wellsite Calibration										
Electronics Calibration Changes Files/Depth Intervals: 8: 2139.5 - 1903.0 9: 2139.4 - 1785.2 10: 12192.0 - 11831.1										
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			0.06652	After		0.0001609	After			0.0005914
0	0	0.7500		0	0	2.000	0	0	0.02000	

(Minimum) (Nominal) (Maximum)			(Minimum) (Nominal) (Maximum)			
Phase	IM (R > 27 OHM-M)	MM/M	Value	Phase	IM (R < 27 OHM-M) %	Value
After			0.07559	After		0.0001291
0	0	0.7500		0	0	2.000
(Minimum)	(Nominal)	(Maximum)		(Minimum)	(Nominal)	(Maximum)
Phase	SFL (R > 27 OHM-M)	MM/M	Value	Phase	SFL (R < 27 OHM-M) %	Value
After			0	After		0.0004048
0	0	0.7500		0	0	2.000
(Minimum)	(Nominal)	(Maximum)		(Minimum)	(Nominal)	(Maximum)

After: 27-Oct-2005 2:59

Company: Lamont Doherty

**Schlumberger**

Well: IODP EXP 311 Site U1326D

Field: CAS-03C

Country: Canada

Ocean: Pacific

Phasor Induction