



**Weatherford**

**COMPENSATED SONIC  
WITH INTEGRATED TRANSIT TIME**

COMPANY				MURFIN DRILLING COMPANY, INC.			
WELL				MOONRAKER #6-27			
FIELD				WILDCAT			
PROVINCE/COUNTY				LINCOLN			
COUNTRY/STATE				U.S.A. / COLORADO			
LOCATION				2300' FNL & 1500' FWL			
SEC 27	TWP 10S	RGE 56W	Other Services		MPD/MDN		
Latitude	39.150720		MAI/MFE				
Longitude	-103.654100		MML				
API Number	05-073-06757						
Permanent Datum GL, Elevation 5462 feet					Elevations: feet		
Log Measured From KB, 13.00 feet above Permanent Datum					KB 5475.00		
Drilling Measured From KB					DF 5473.00		
					GL 5462.00		
Date	20-JAN-2019						
Run Number	ONE						
Service Order	17876-235128055						
Depth Driller	8300.00				feet		
Depth Logger	8303.00				feet		
First Reading	8300.00				feet		
Last Reading	443.00				feet		
Casing Driller	455.00				feet		
Casing Logger	443.00				feet		
Bit Size	7.875				inches		
Hole Fluid Type	CHEMICAL						
Density / Viscosity	9.40 lb/USg		90.00 sec/qt				
PH / Fluid Loss	10.50		8.00 ml/30Min				
Sample Source	FLOWLINE						
Rm @ Measured Temp	0.76 @ 94.0		ohm-m				
Rmf @ Measured Temp	0.57 @ 94.0		ohm-m				
Rmc @ Measured Temp	0.91 @ 94.0		ohm-m				
Source Rmf / Rmc	CALC		CALC				
Rm @ BHT	0.40 @179.0		ohm-m				
Time Since Circulation	5 HOURS						
Max Recorded Temp	179.00		deg F				
Equipment / Base	13096		LIB				
Recorded By	BANDAR BINOSFUR						
Witnessed By	GREGG SMITH						

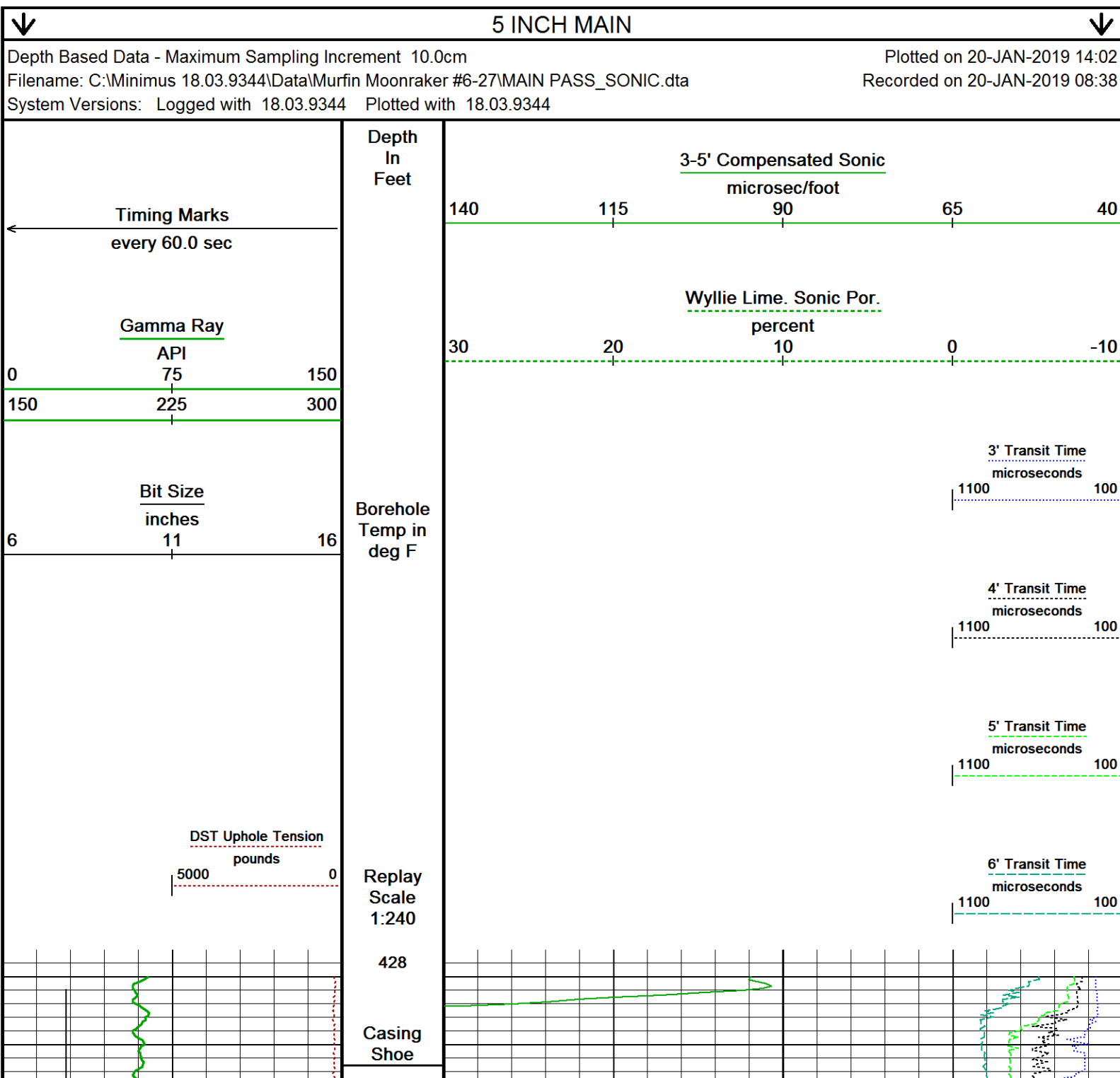
BOREHOLE RECORD					Last Edited: 20-JAN-2019 13:54
Bit Size inches		Depth From feet		Depth To feet	
7.875		455.00		8300.00	
CASING RECORD					
Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft	
SURFACE	8.625	0.00	455.00	24.00	

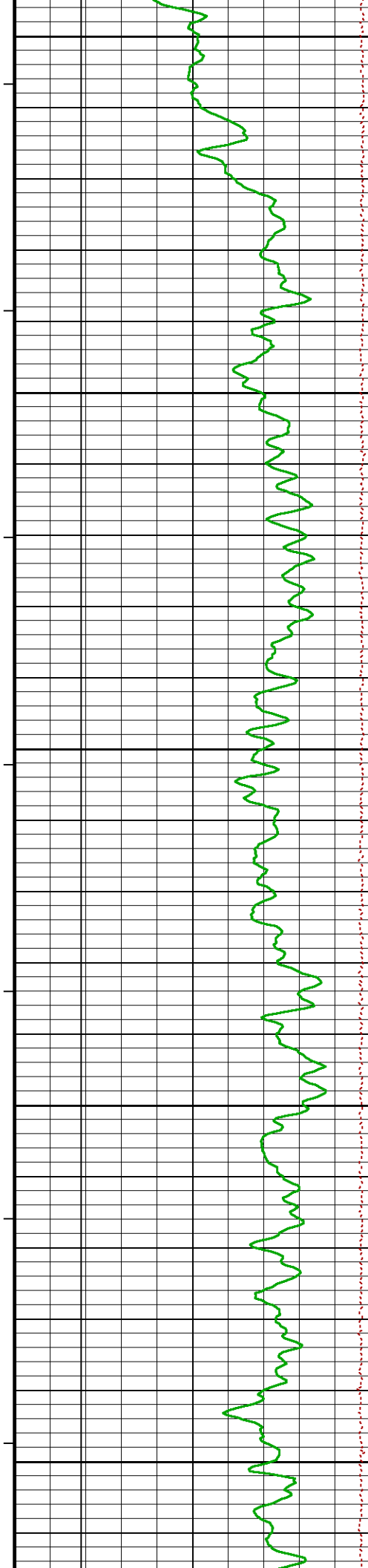
REMARKS
- SOFTWARE ISSUE: WLS 18.03.9344.
- RUN ONE: SHA, MCG, MML, MDN, MPD, SKJ, MFE, MSS, MAI RAN IN COMBINATION.
- RUN TWO: SHA, MCG, MSS RAN IN COMBINATION.
- HARDWARE: DUAL BOWSPRING USED ON MDN. 0.5 INCH STANDOFF USED ON MFE. TWO 0.5 INCH STANDOFFS USED ON MSS. 0.5 INCH STANDOFF USED ON MAI.
- 2.71 G/CC LIMESTONE DENSITY MATRIX USED TO CALCULATE POROSITY.
- BOREHOLE RUGOSITY, TIGHT PULLS, AND WASHOUTS WILL AFFECT DATA QUALITY.
- CALIPERS CLOSED FROM 5707' UNTIL 5594' DUE TO CLIENT REQUEST.
- ALL INTERVALS LOGGED AND SCALED PER CUSTOMER'S REQUEST.

- ENGINEER: B. BINOSFUR.

- OPERATOR: B. TOVAR, B. COPELAND.

In interpreting, communicating or providing information and/or making recommendations, either written or oral, as to logs or test or other data, type or amount of material, or Work or other service to be furnished, or manner of performance, or in predicting results to be obtained, the Contractor will give the Company the benefit of the Contractor's best judgment based on its experience and will perform all such Work in a good and workmanlike manner. Any interpretation of test or other data, and any recommendation or reservoir description based upon such interpretations, are opinions based upon inferences from measurements and empirical relationships and assumptions, which inferences and assumptions are not infallible, and with respect to which professional engineers and analysts may differ. ACCORDINGLY ANY INTERPRETATION OR RECOMMENDATION RESULTING FROM THE SERVICES WILL BE AT THE SOLE RISK OF THE COMPANY, AND THE CONTRACTOR CANNOT AND DOES NOT WARRANT THE ACCURACY, CORRECTNESS OR COMPLETENESS OF ANY SUCH INTERPRETATION OR RECOMMENDATION, WHICH INTERPRETATIONS AND RECOMMENDATIONS SHOULD NOT, THEREFORE, UNDER ANY CIRCUMSTANCES BE RELIED UPON AS THE SOLE OR MAIN BASIS FOR ANY DRILLING, COMPLETION, WELL TREATMENT, PRODUCTION OR FINANCIAL DECISION, OR ANY PROCEDURE INVOLVING ANY RISK TO THE SAFETY OF ANY DRILLING ACTIVITY, DRILLING RIG OR ITS CREW OR ANY OTHER INDIVIDUAL. THE COMPANY HAS FULL RESPONSIBILITY FOR ALL DECISIONS CONCERNING THE SERVICES.





450

94°

500

95°

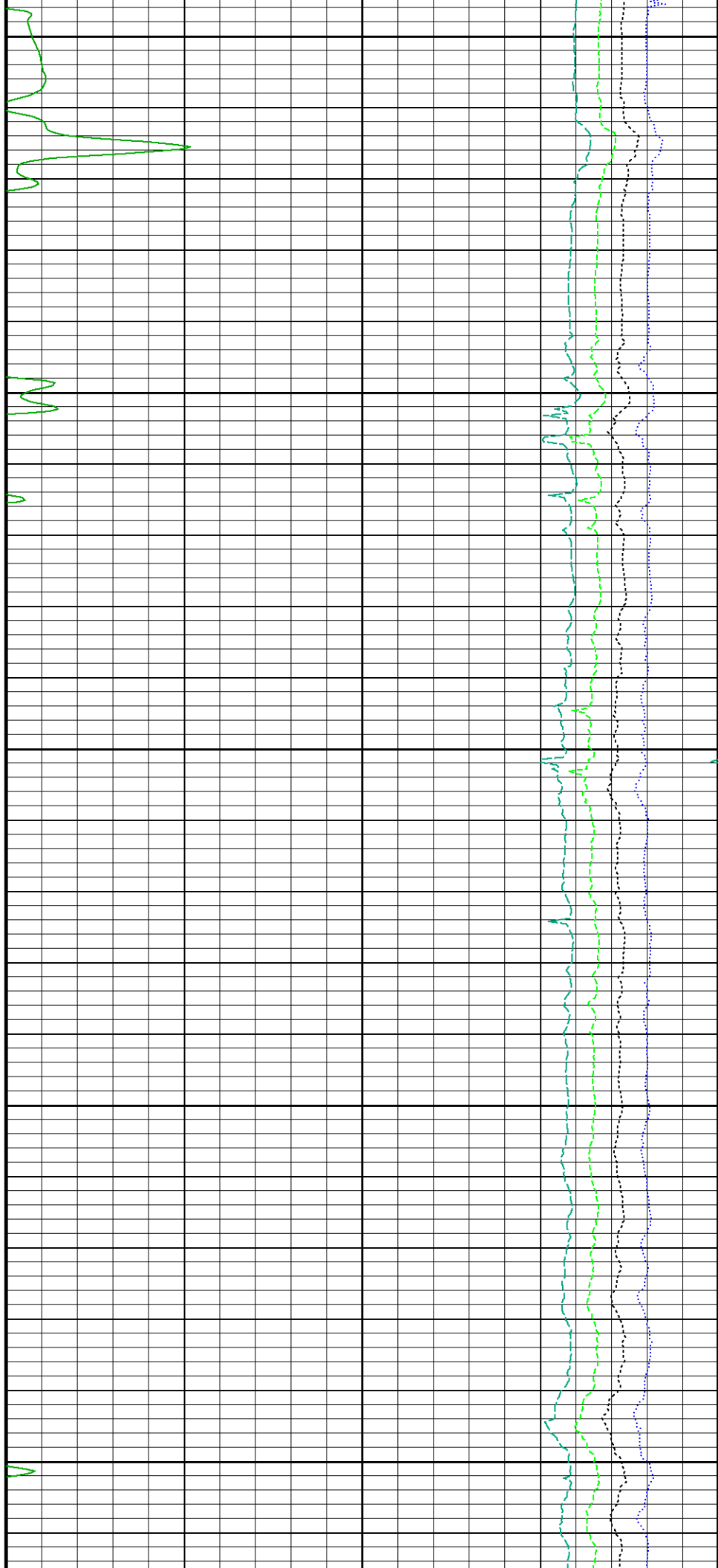
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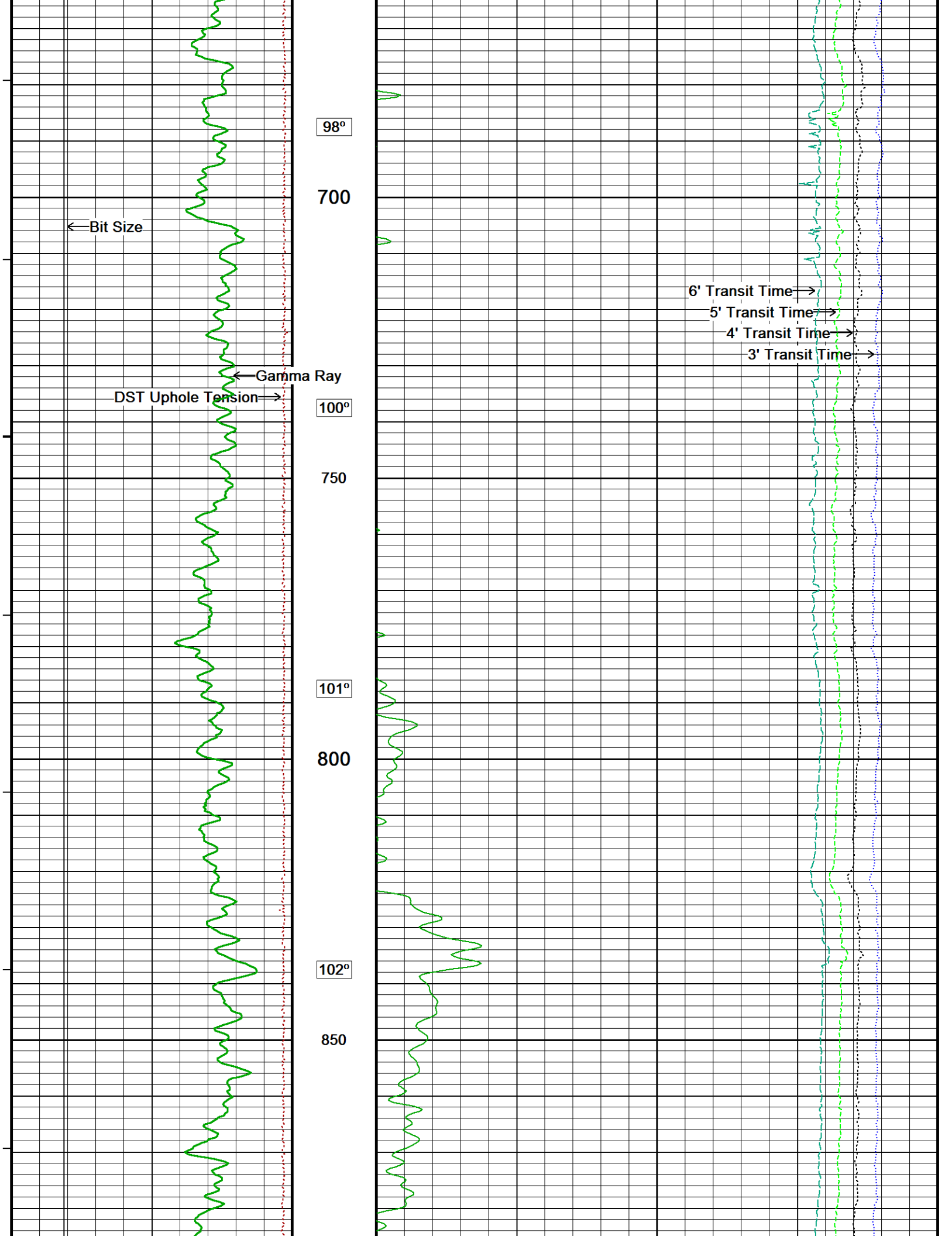
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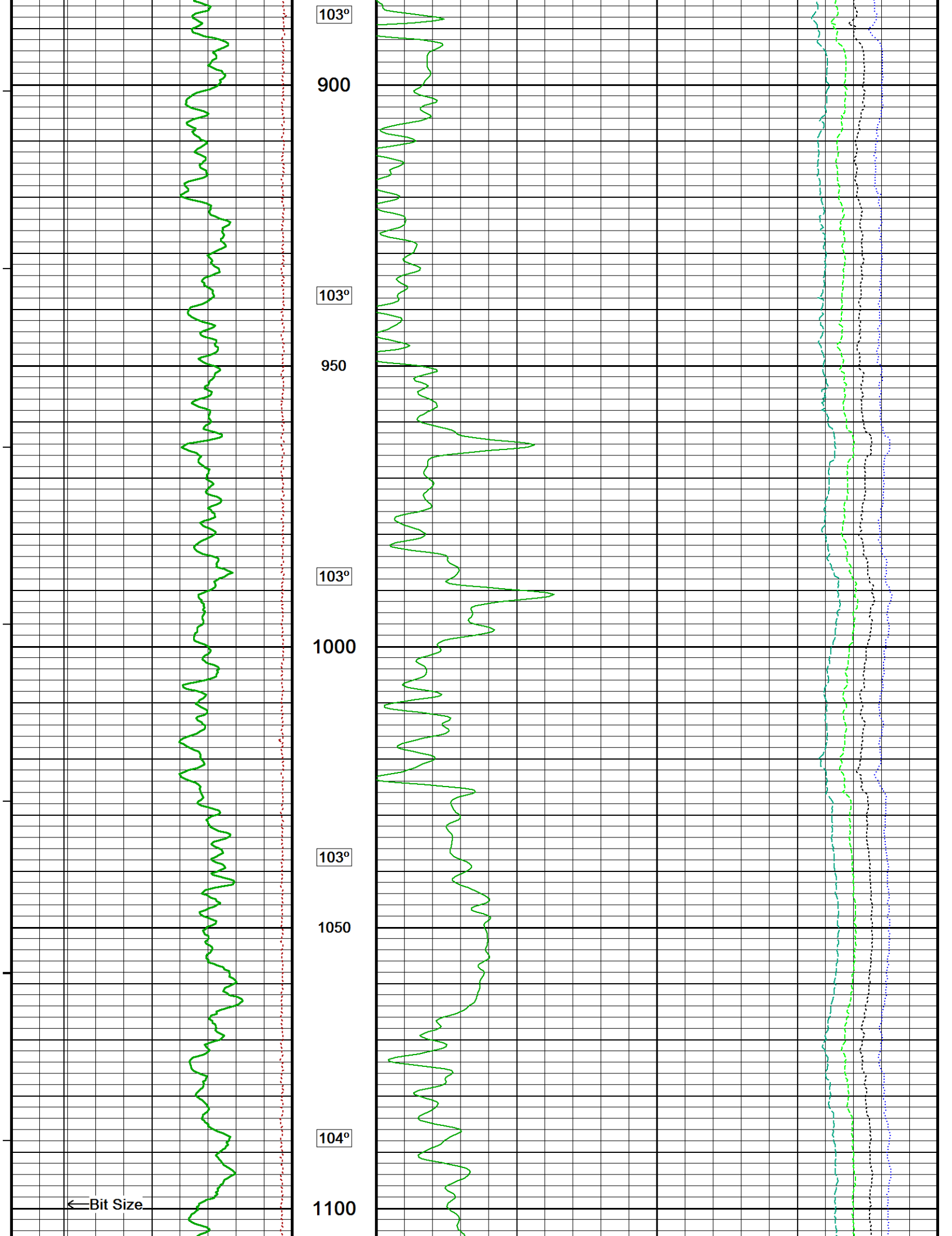
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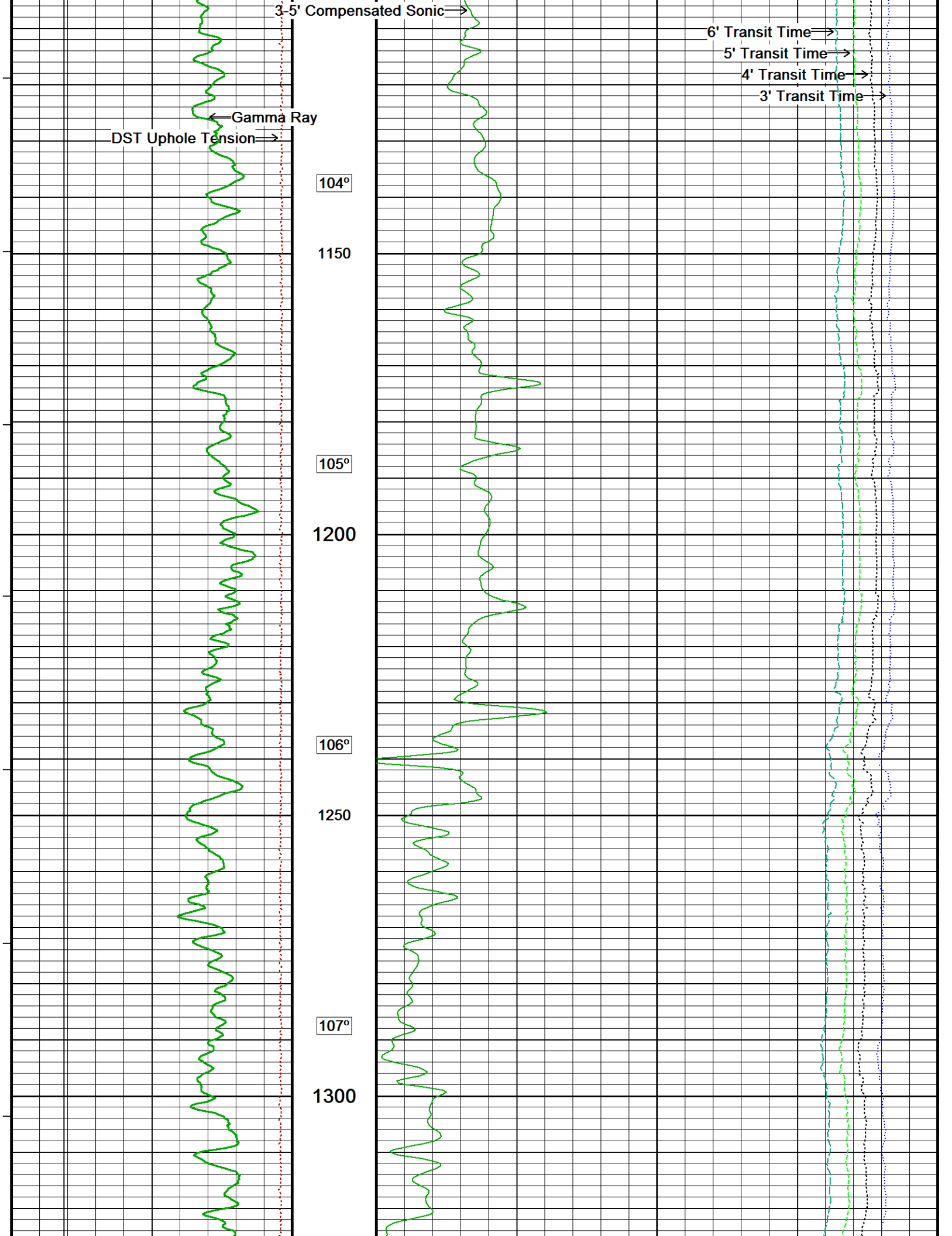
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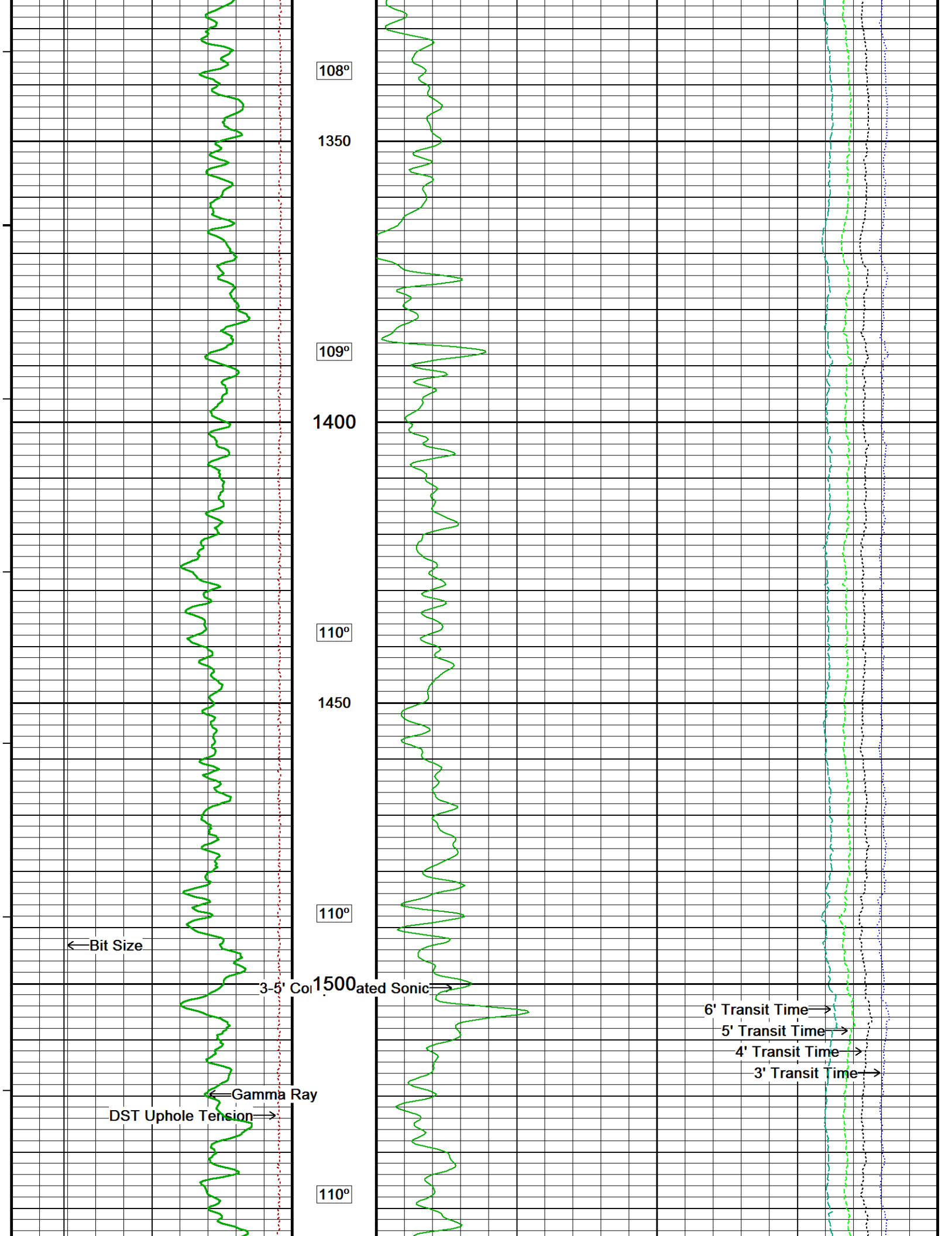
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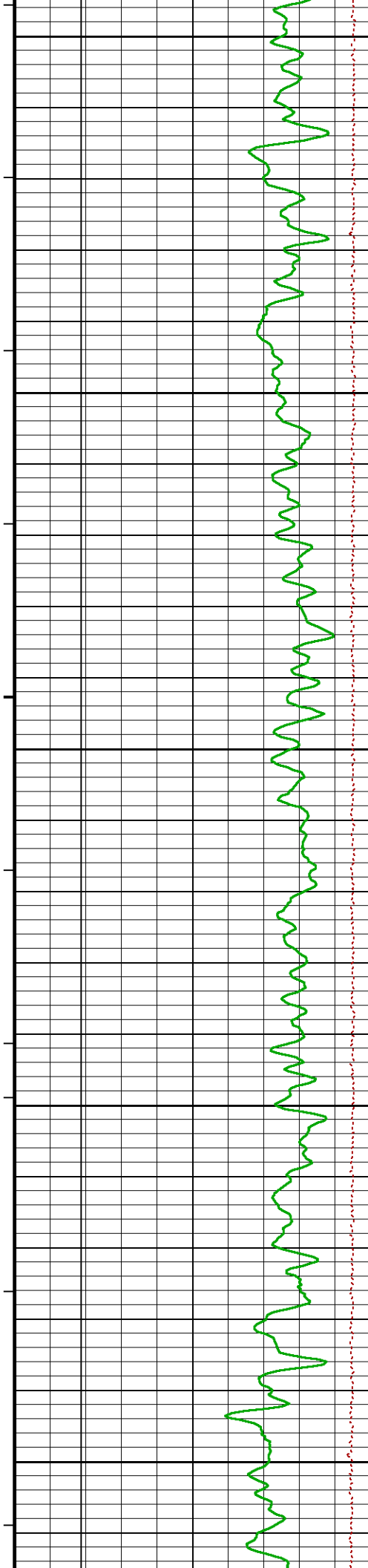












1550

110°

1600

111°

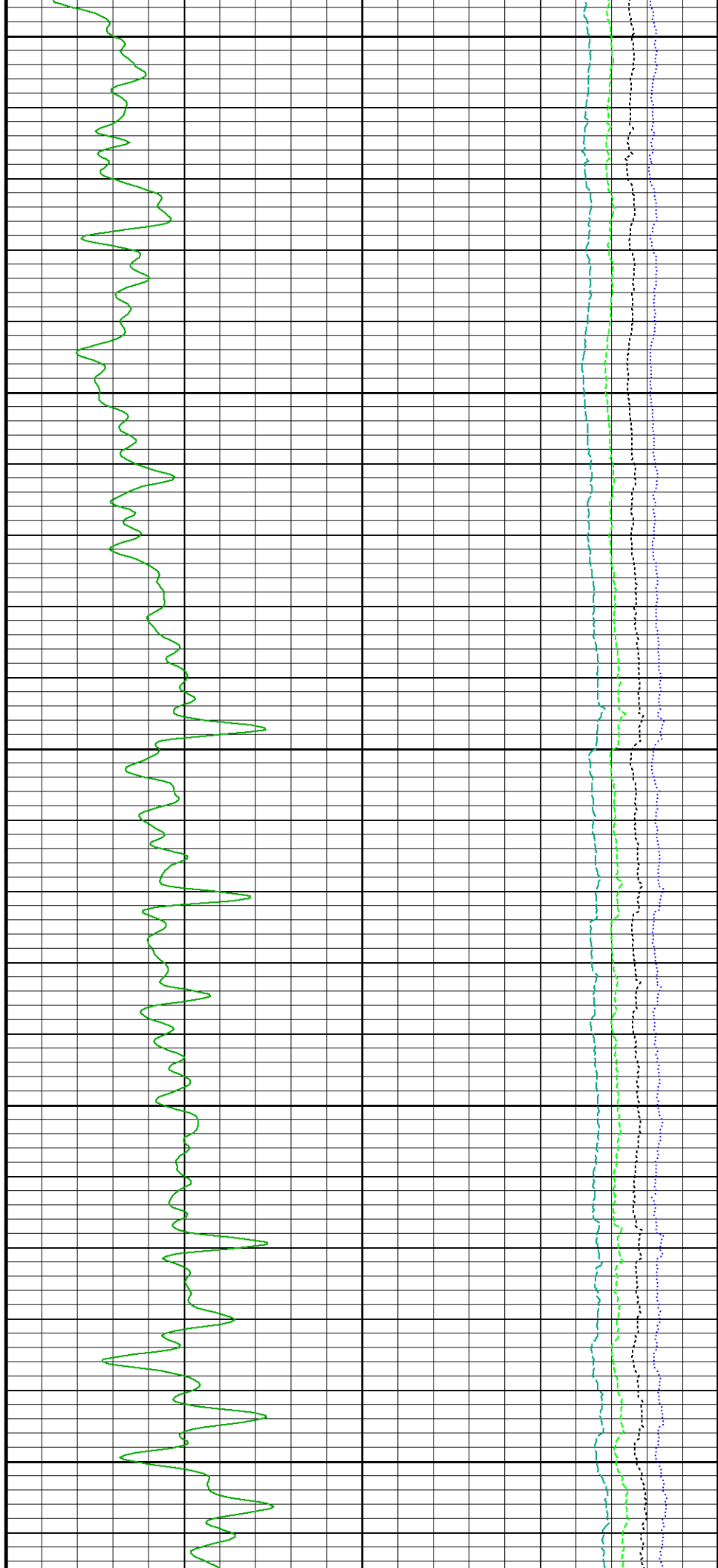
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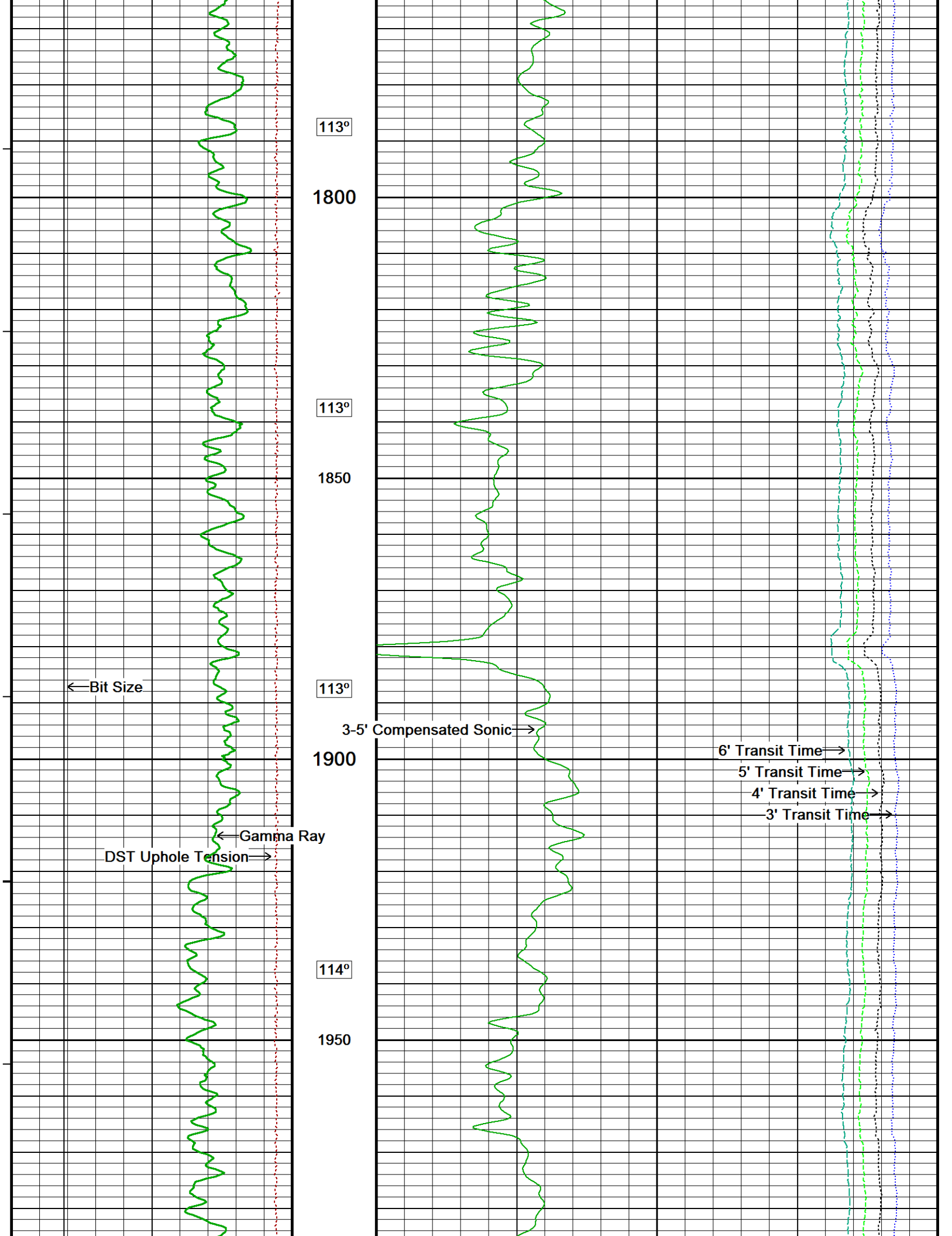
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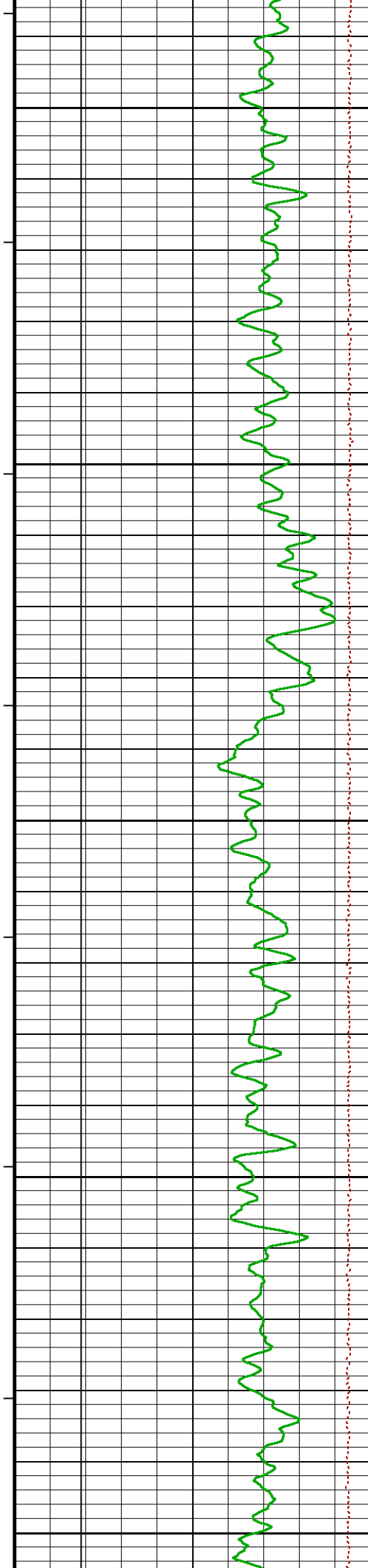
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1750









114°

2000

115°

2050

115°

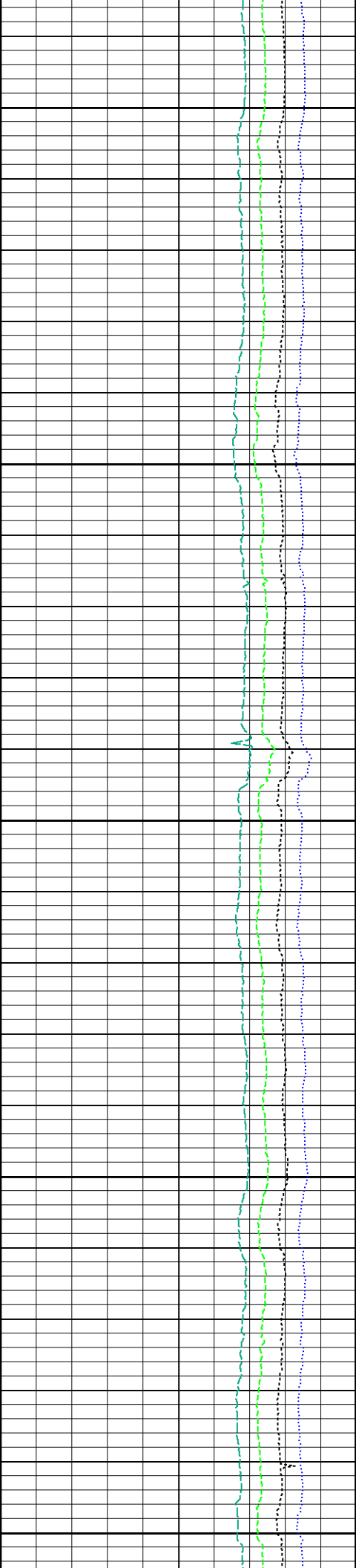
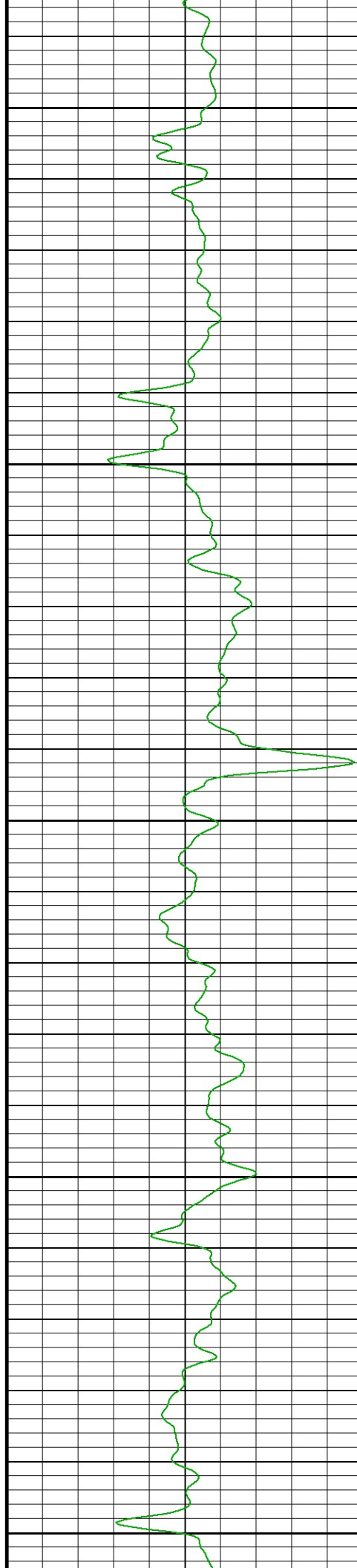
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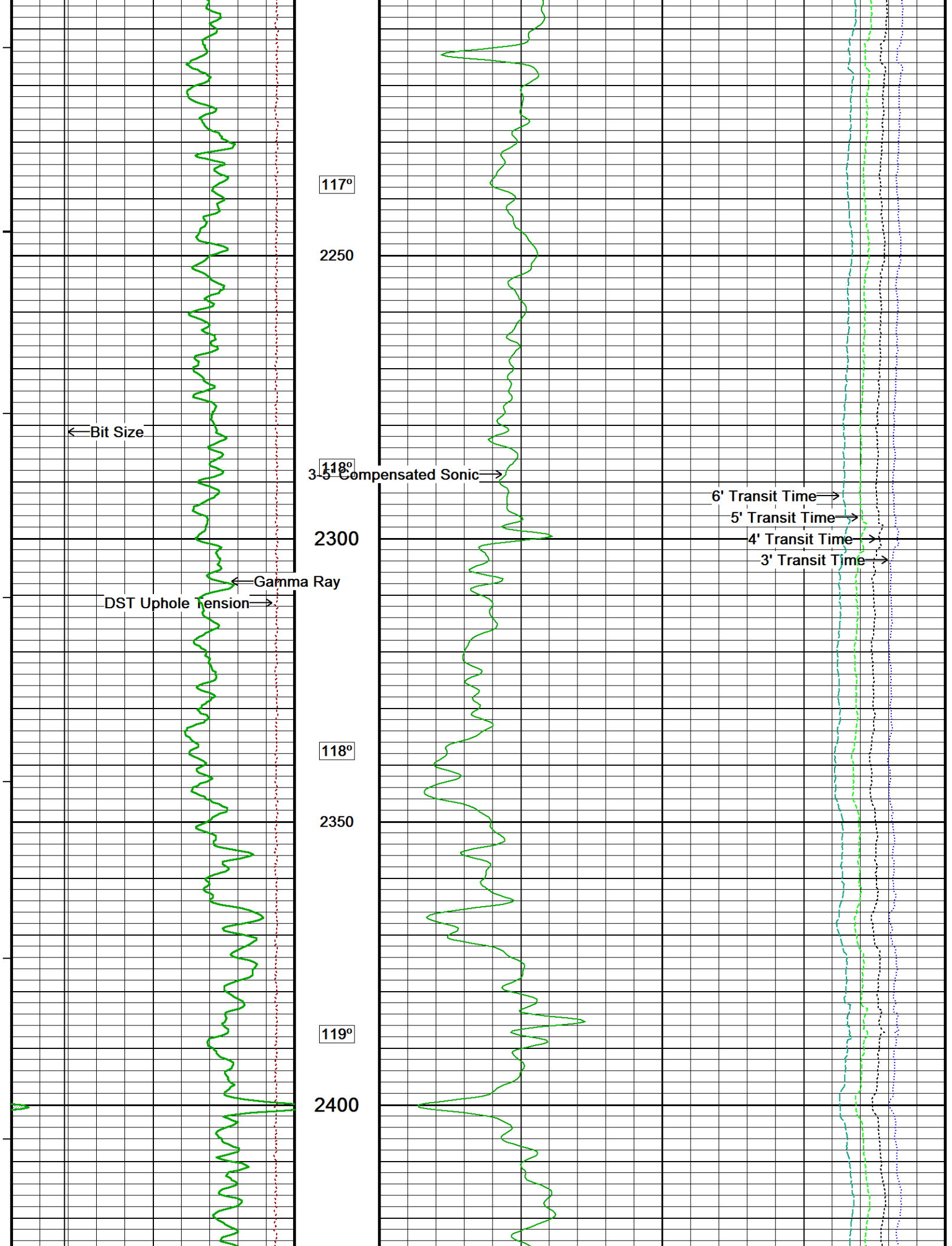
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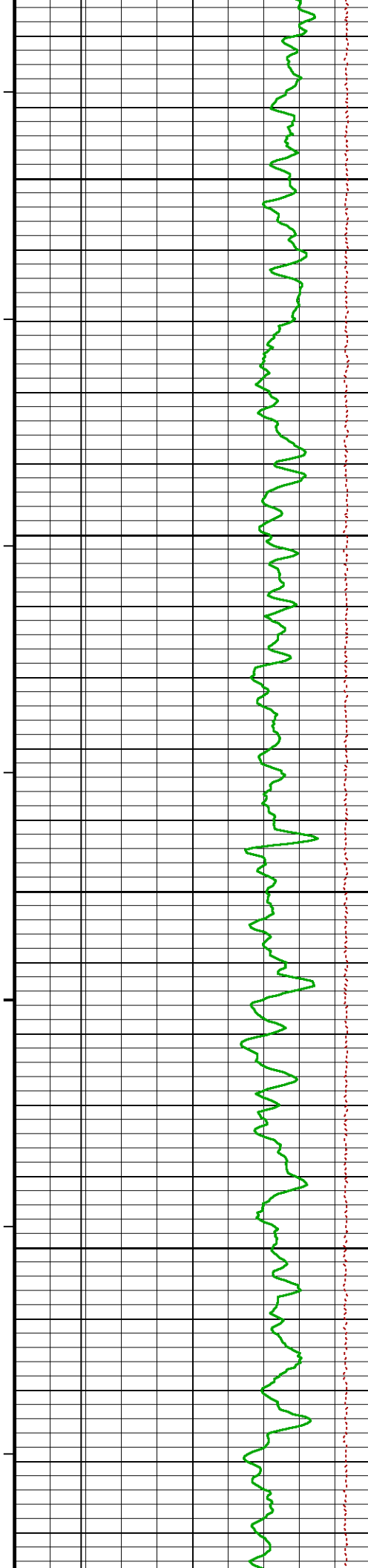
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117°

2200







120°

2450

120°

2500

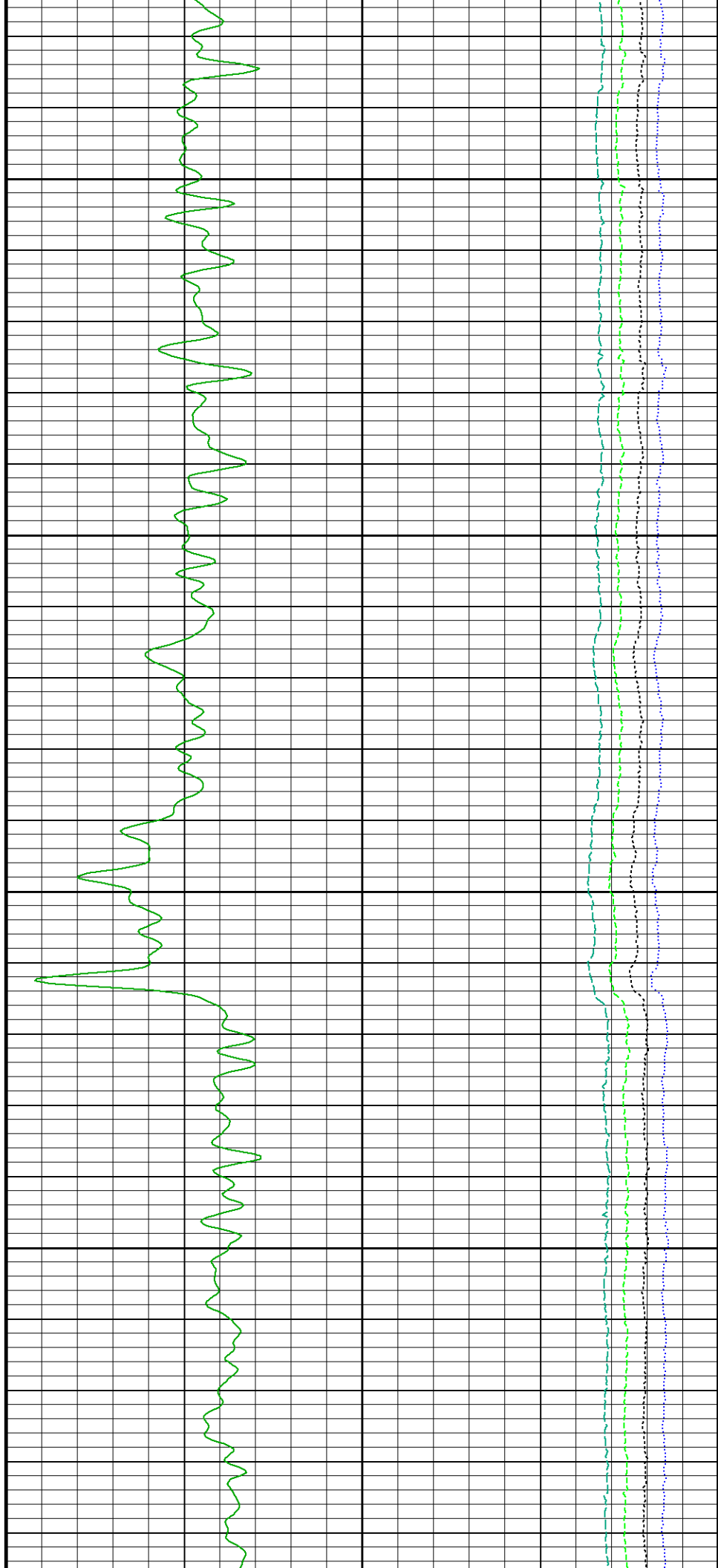
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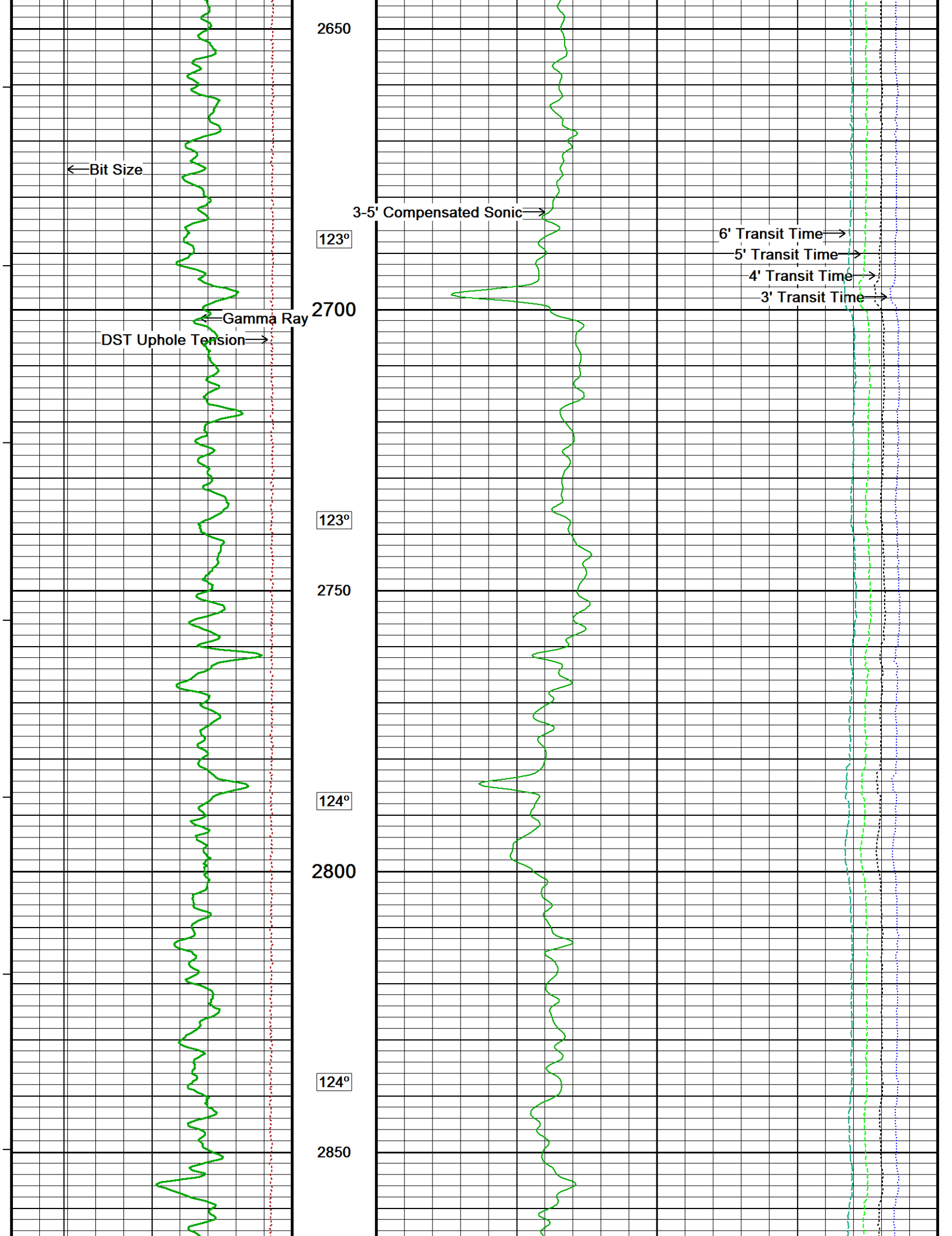
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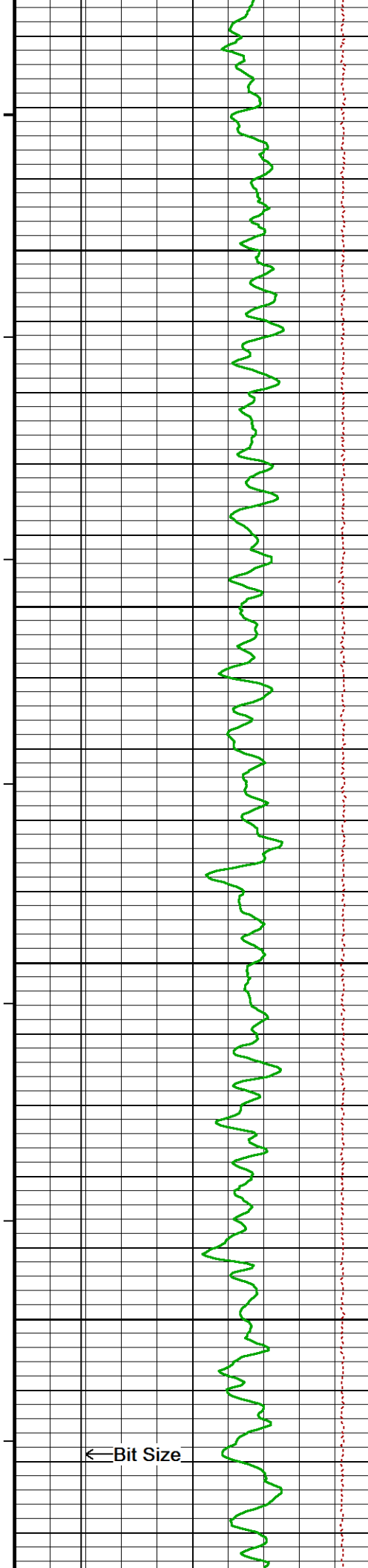
122°

2600

122°







125°

2900

126°

2950

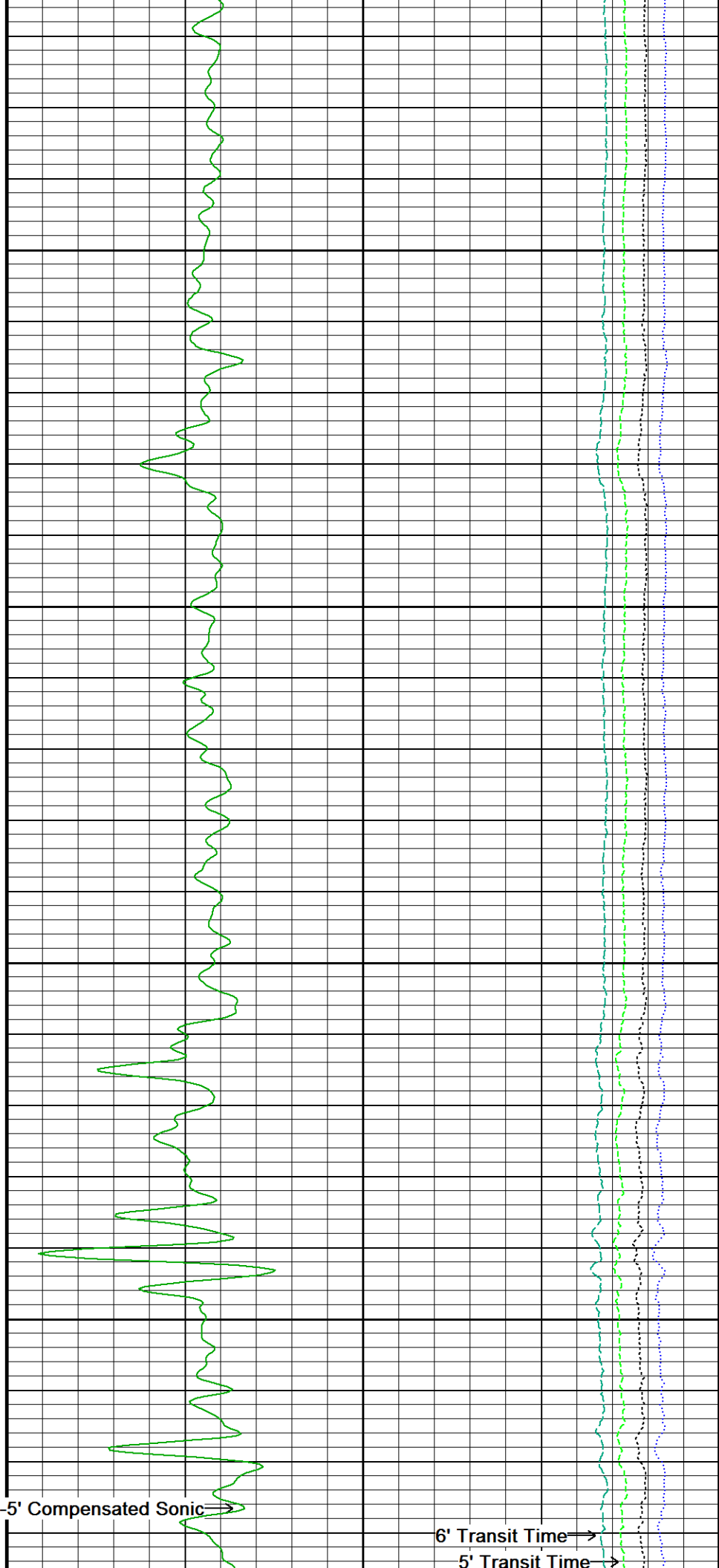
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3000

127°

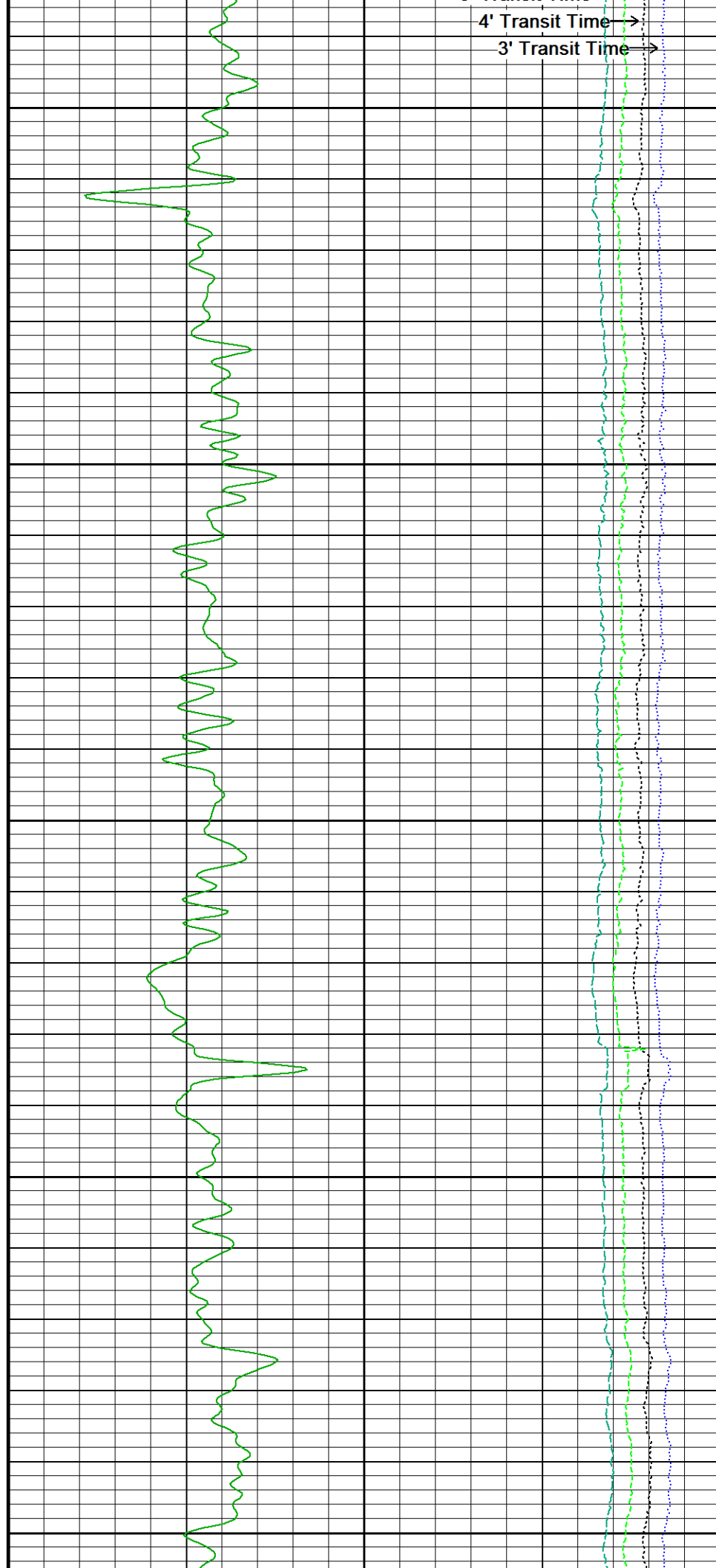
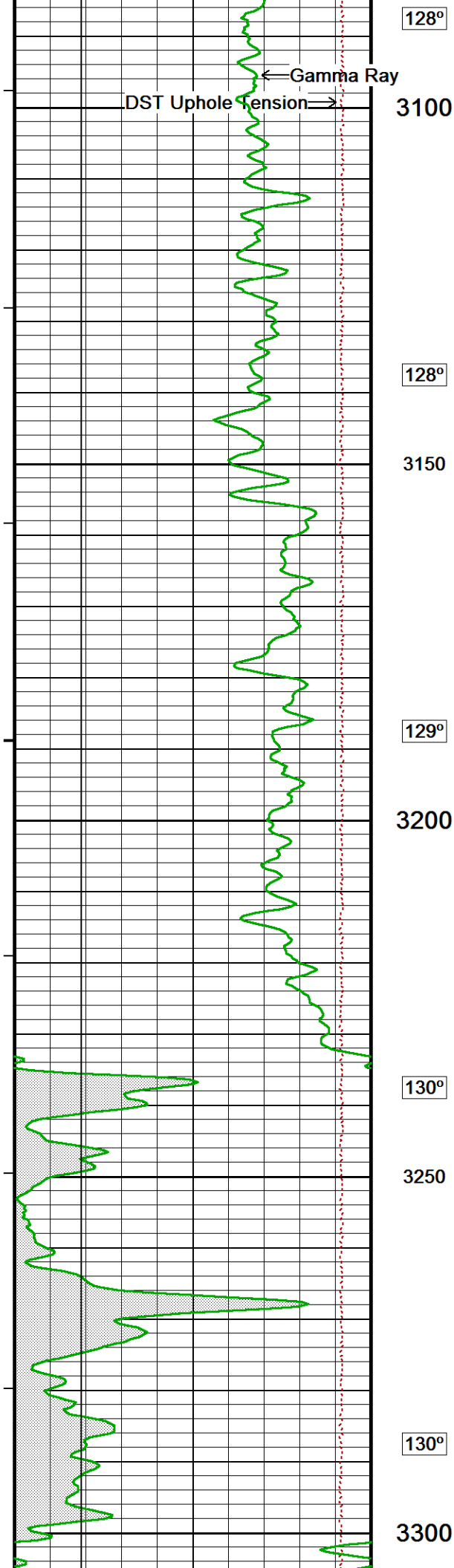
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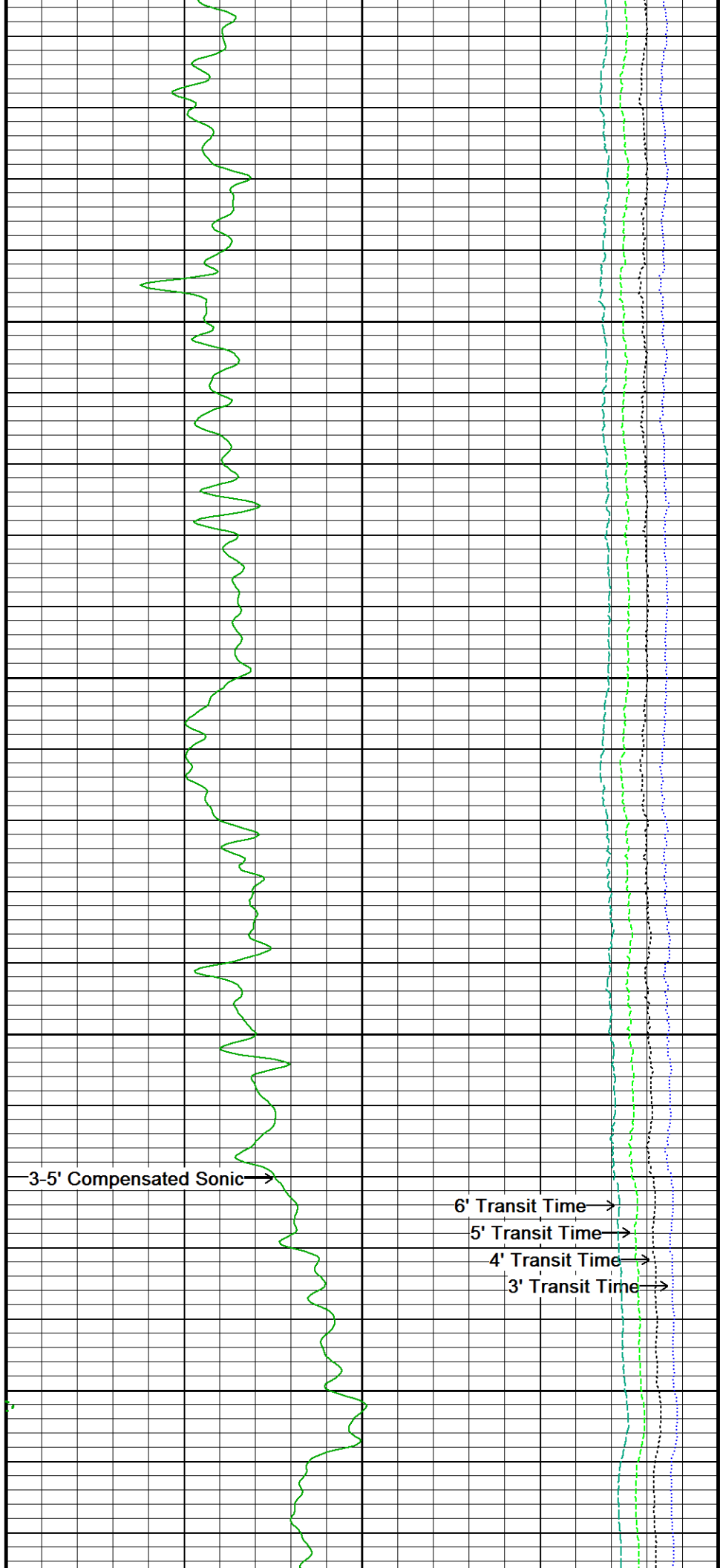
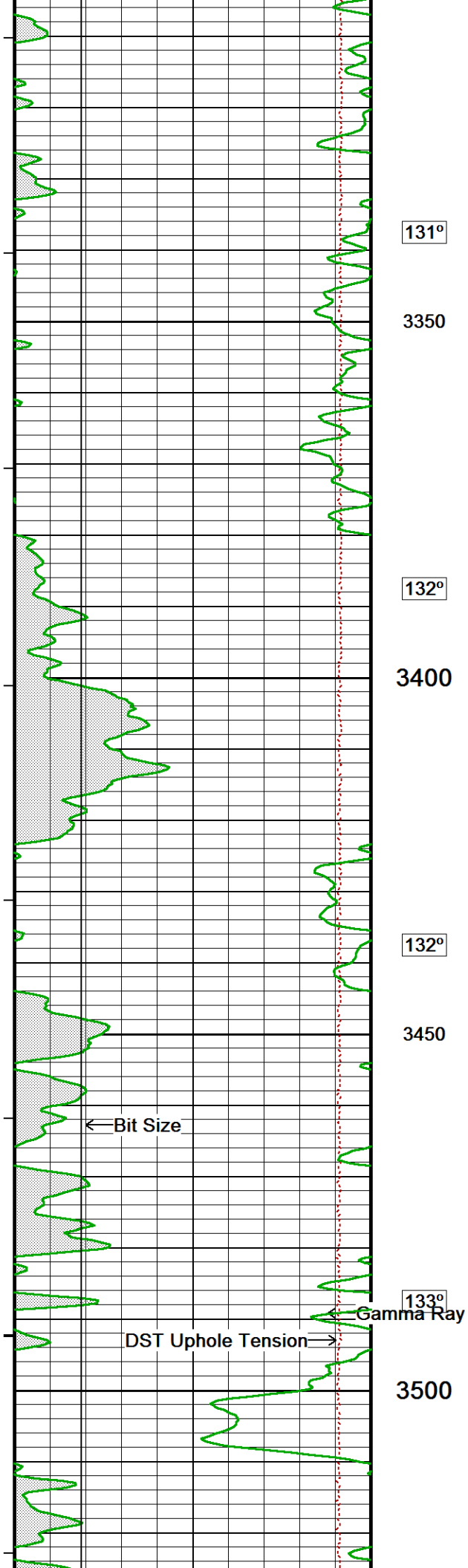
3-5' Compensated Sonic →



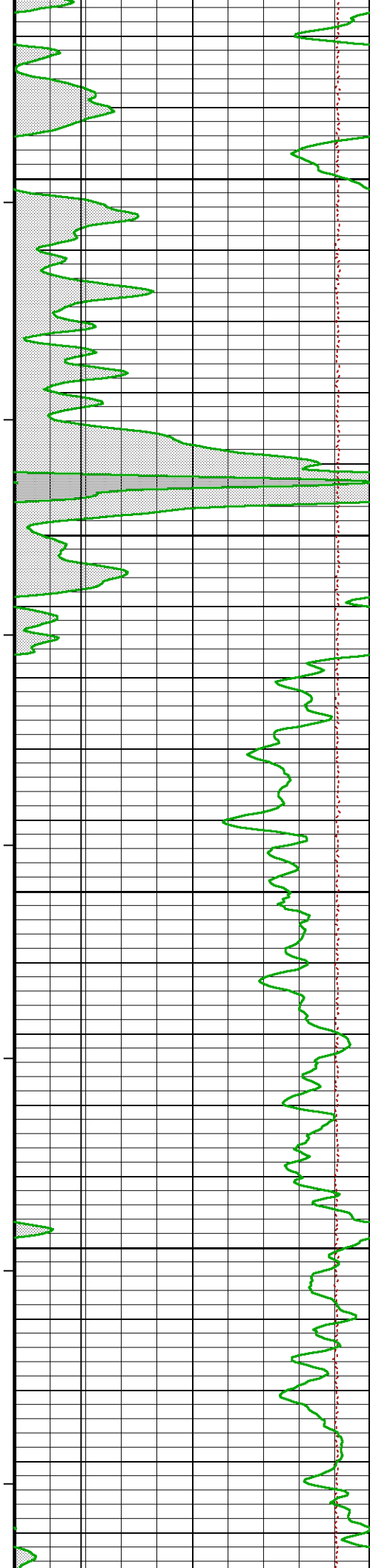
6' Transit Time →

5' Transit Time →









134°

3550

134°

3600

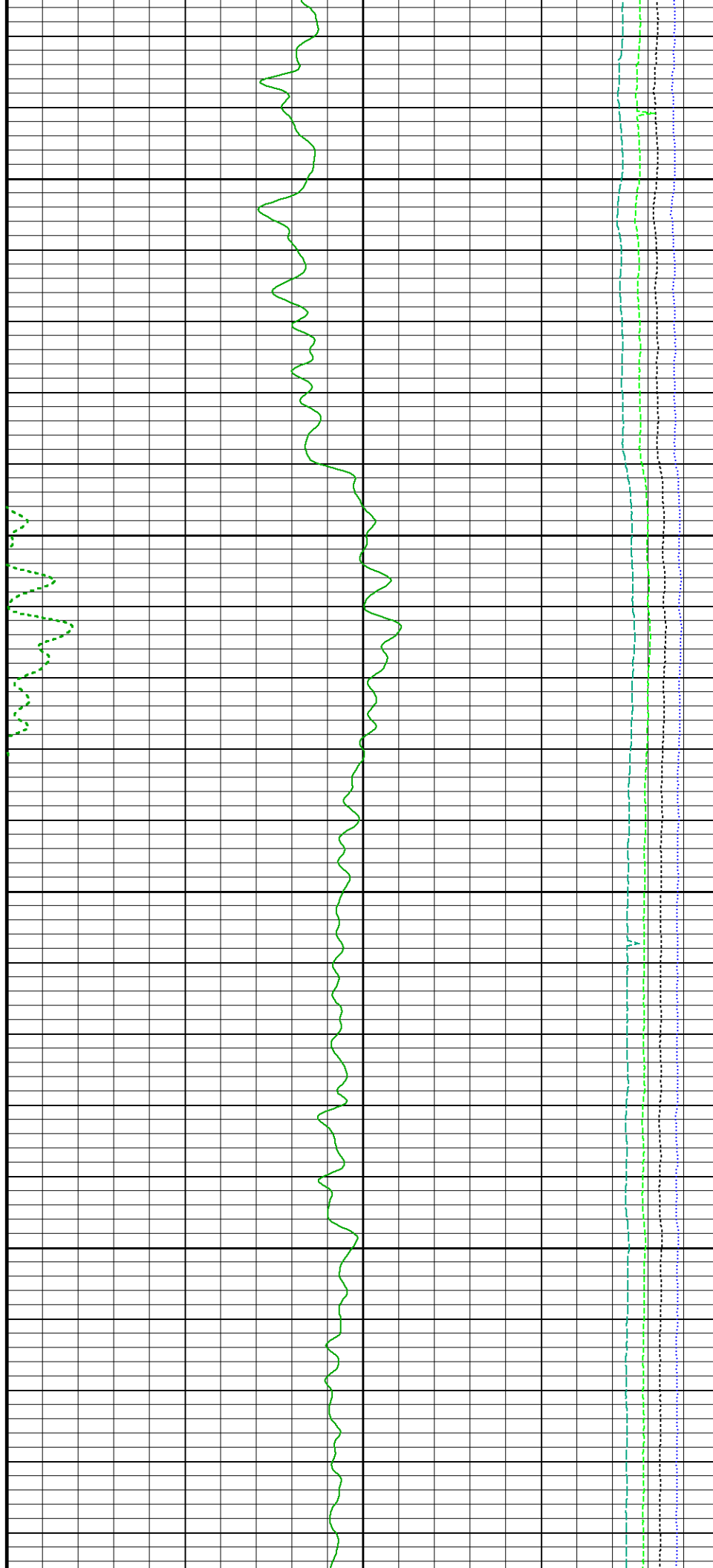
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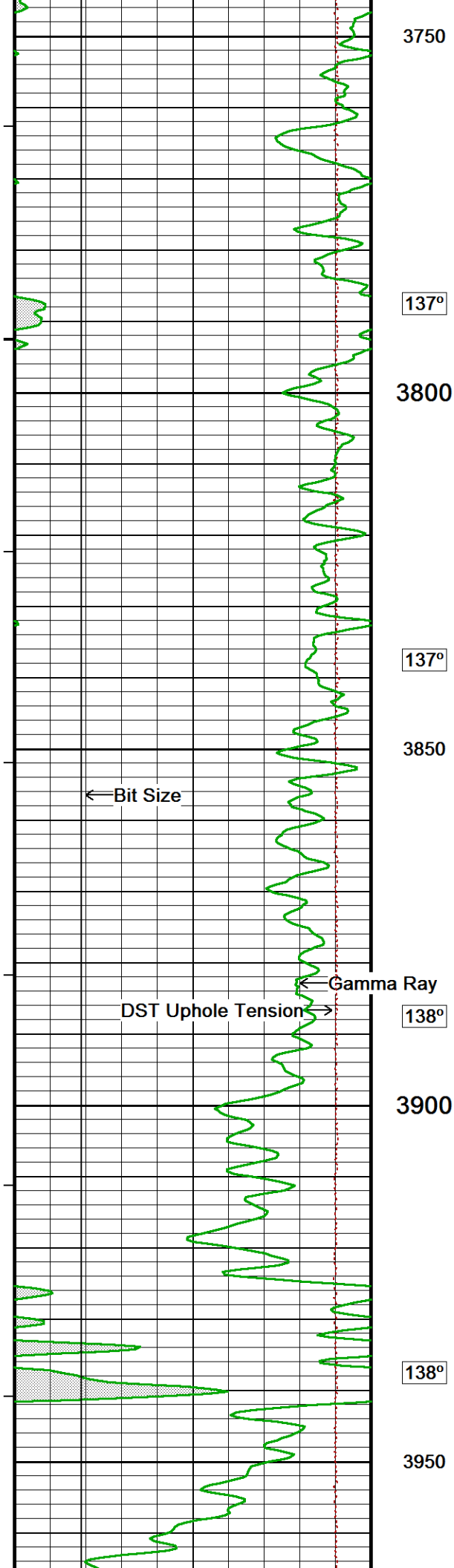
3650

135°

3700

136°





3750

137°

3800

137°

3850

← Bit Size

3-5' Compensated Sonic →

← Gamma Ray

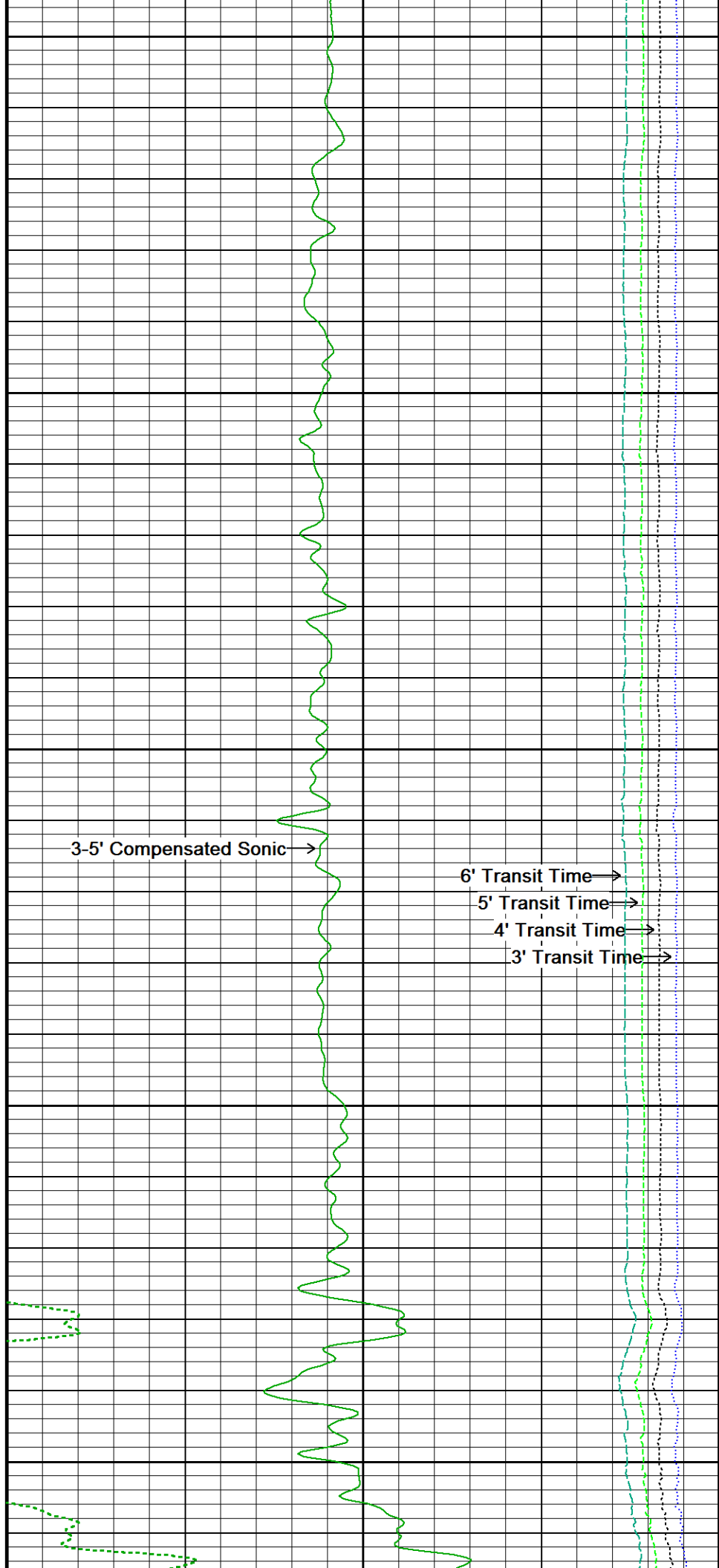
DST Uphole Tension →

138°

3900

138°

3950

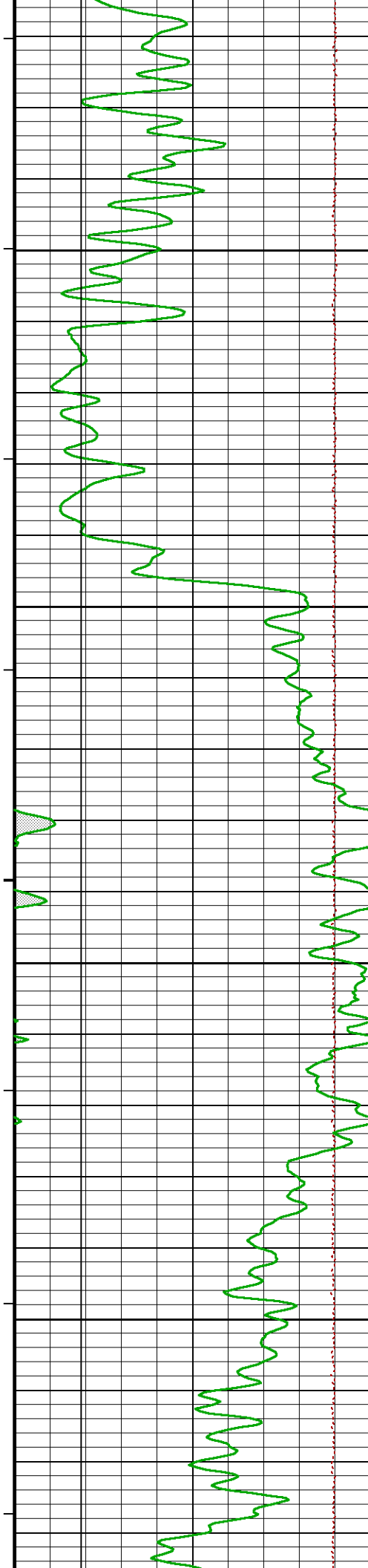


6' Transit Time →

5' Transit Time →

4' Transit Time →

3' Transit Time →



139°

4000

140°

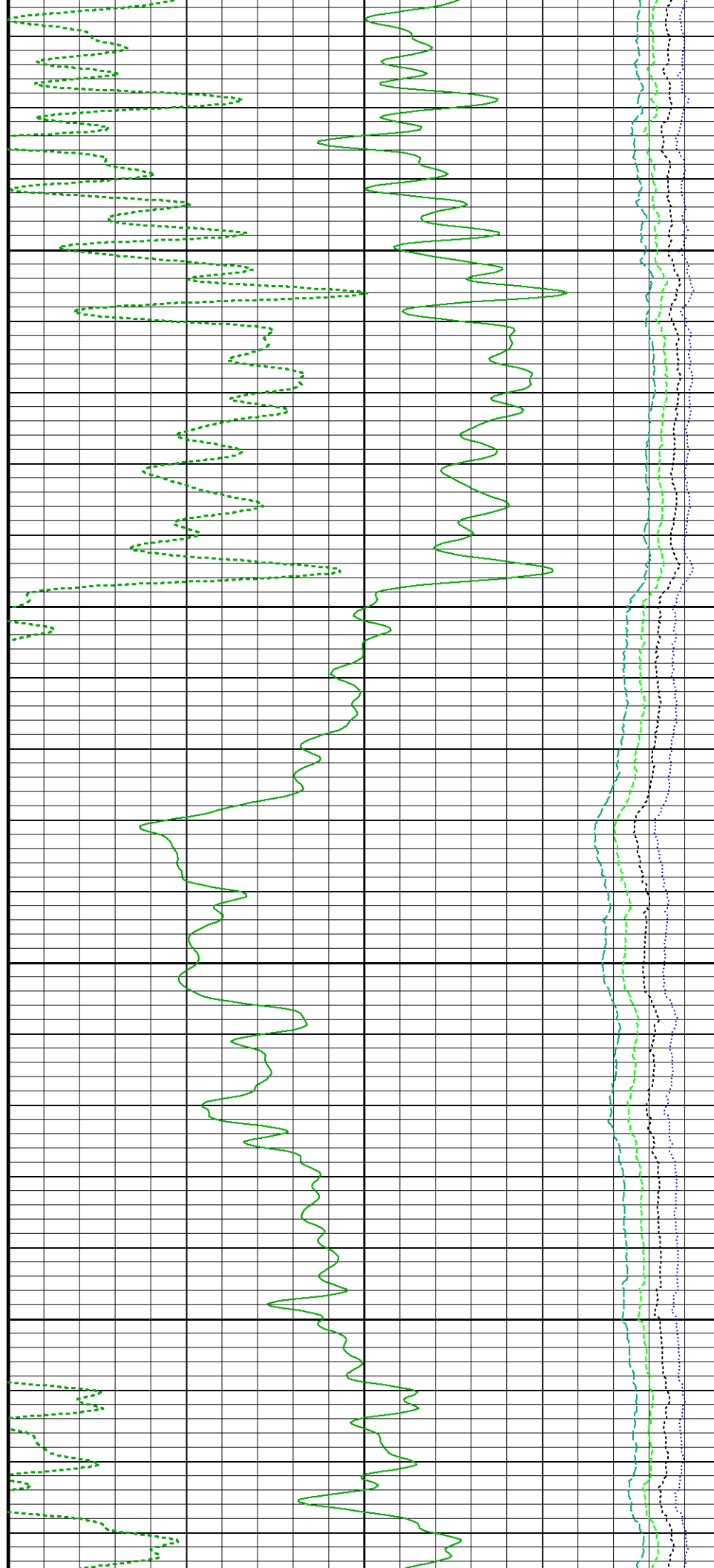
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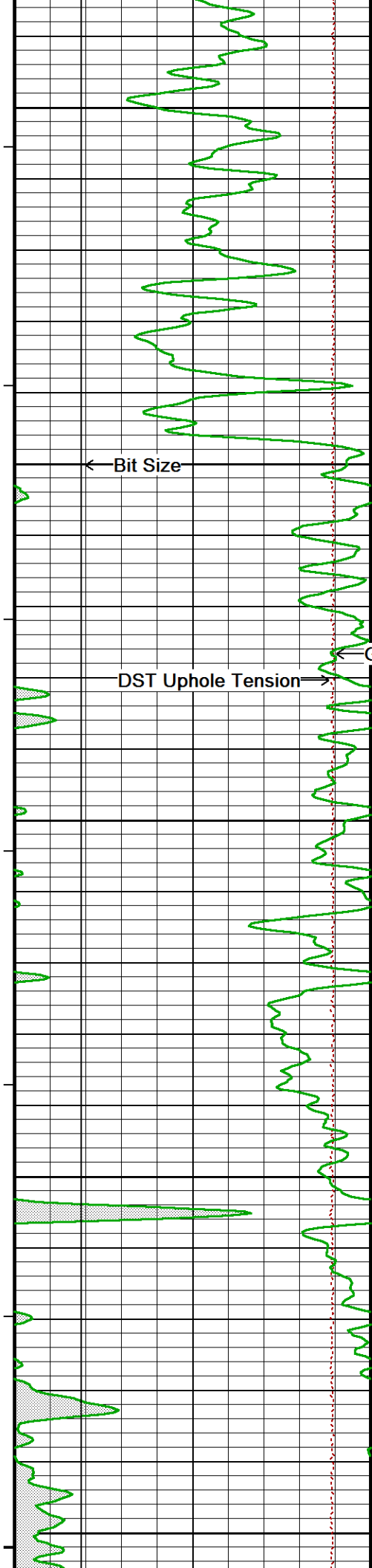
140°

4100

141°

4150





142°

4200

142°

4250

← Bit Size

DST Uphole Tension →

← Gamma Ray

143°

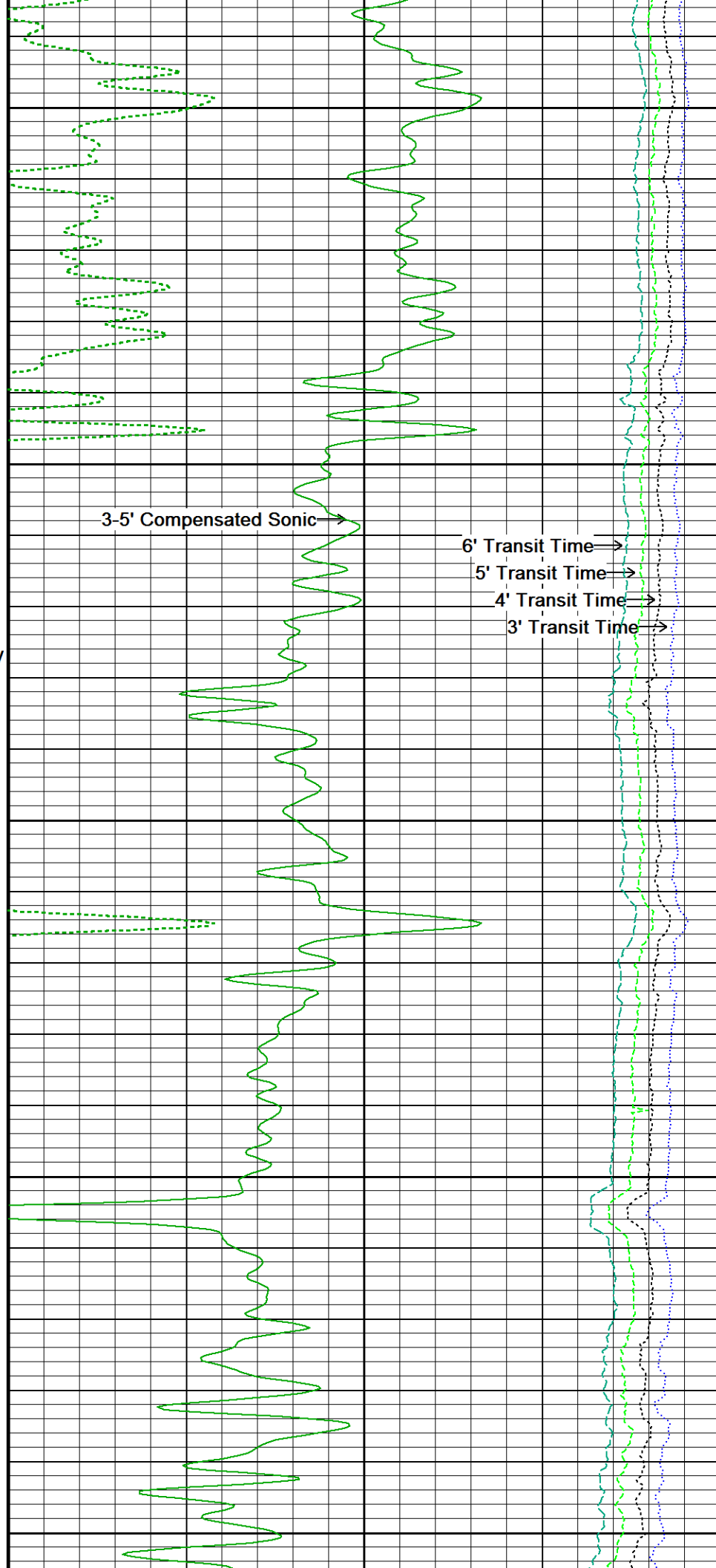
4300

144°

4350

145°

4400



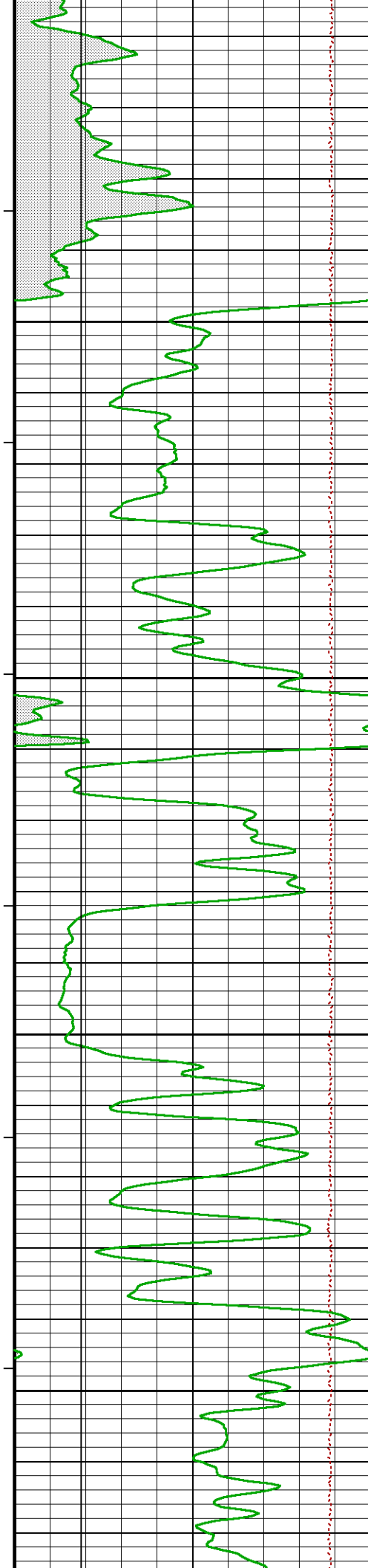
3-5' Compensated Sonic →

6' Transit Time →

5' Transit Time →

4' Transit Time →

3' Transit Time →



146°

4450

146°

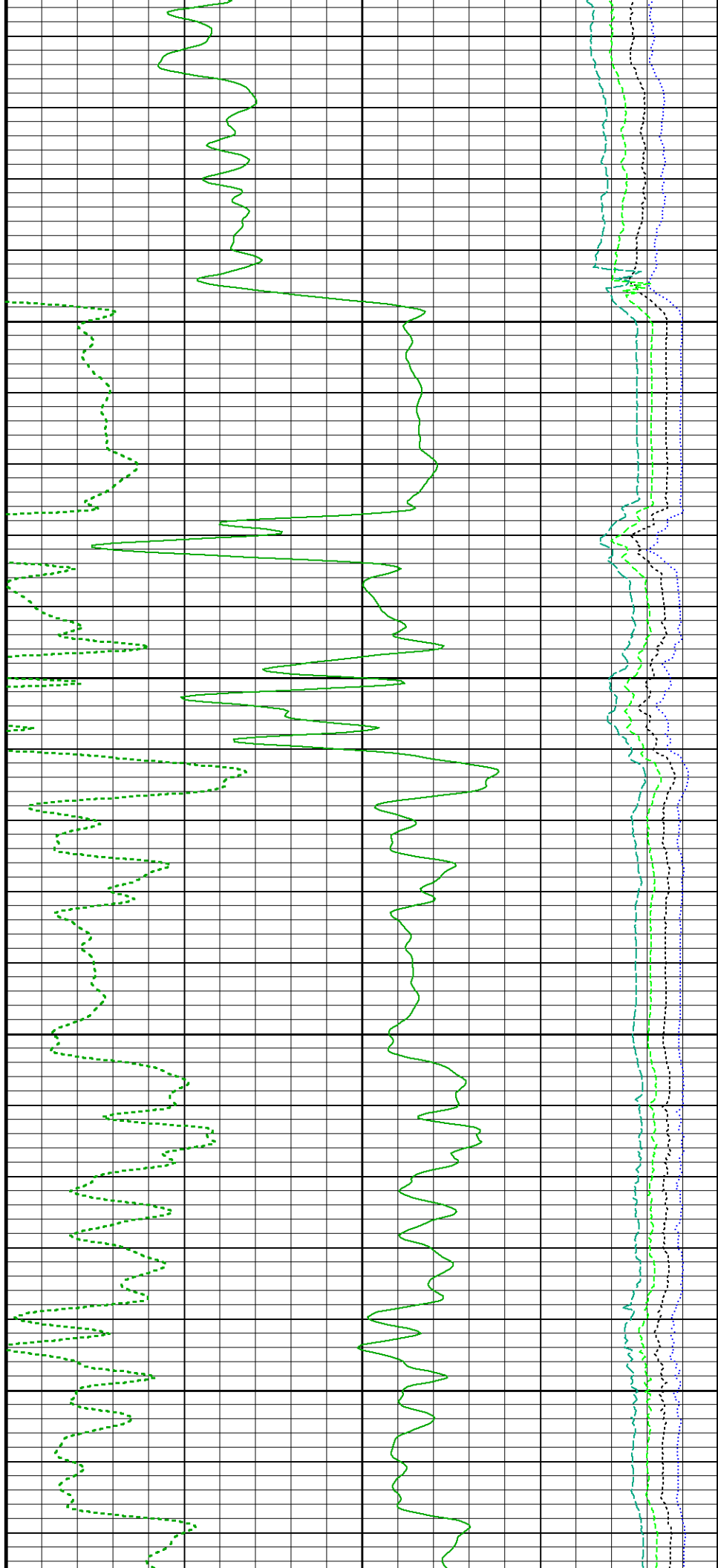
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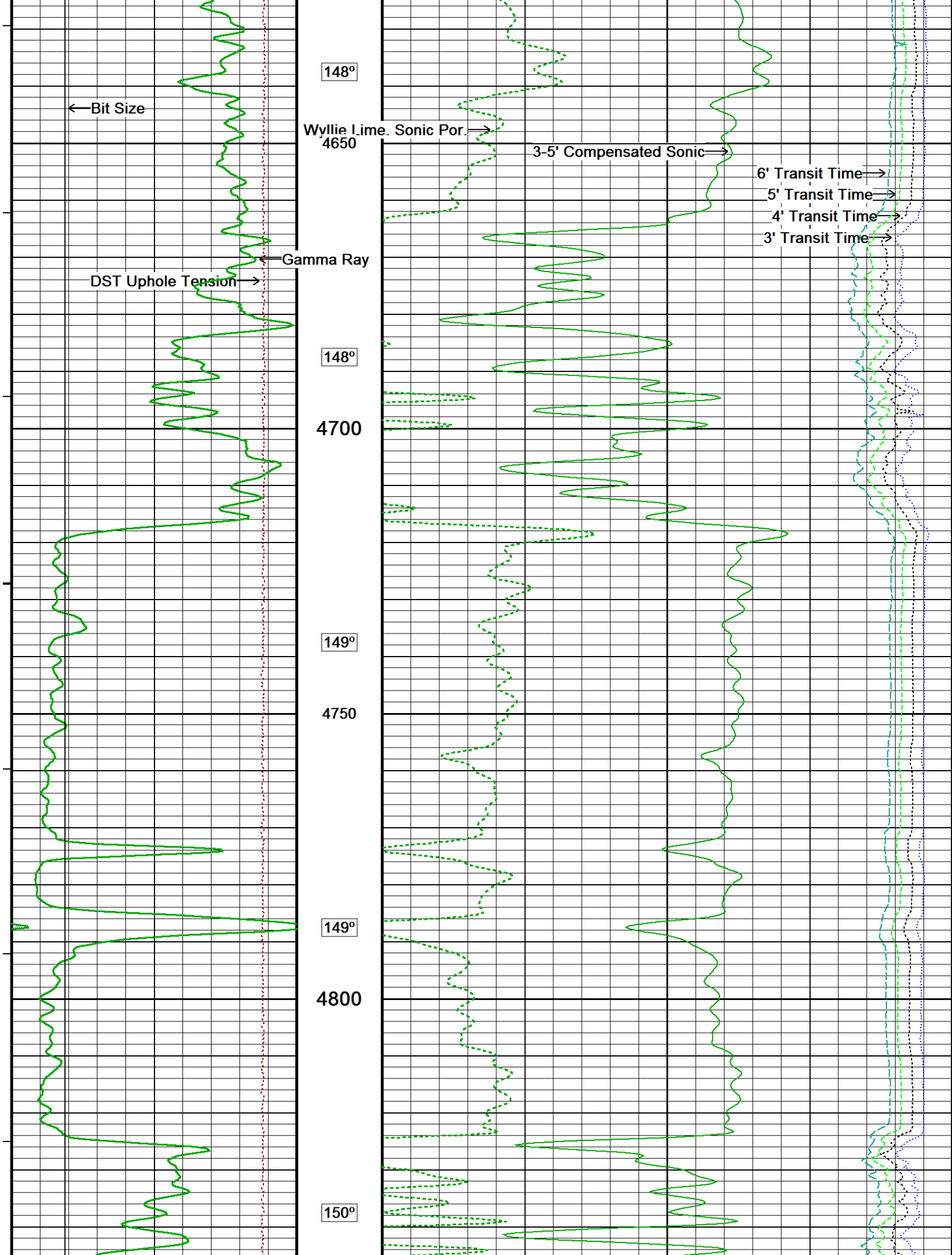
147°

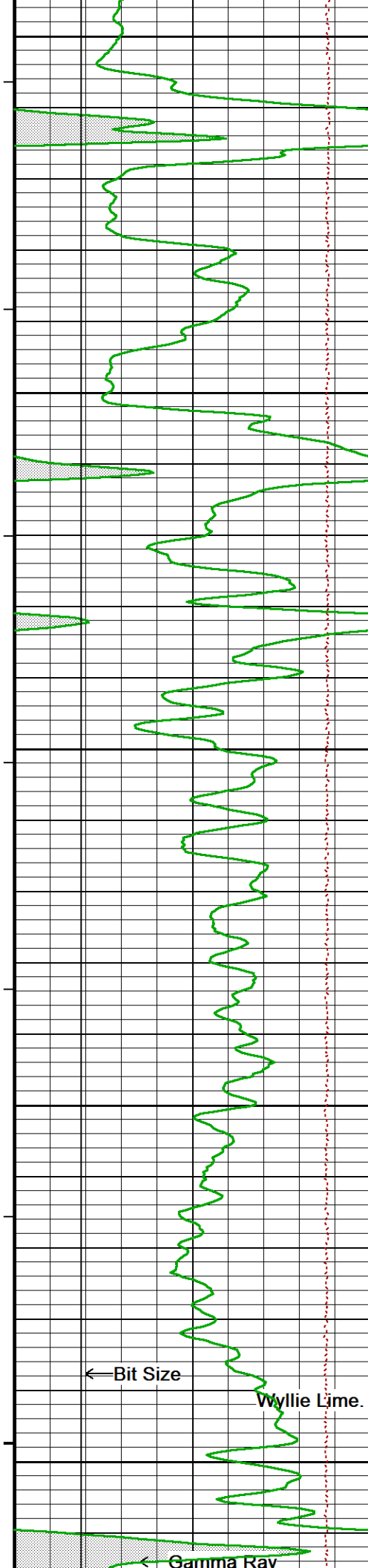
4550

147°

4600







4850

150°

4900

150°

4950

151°

5000

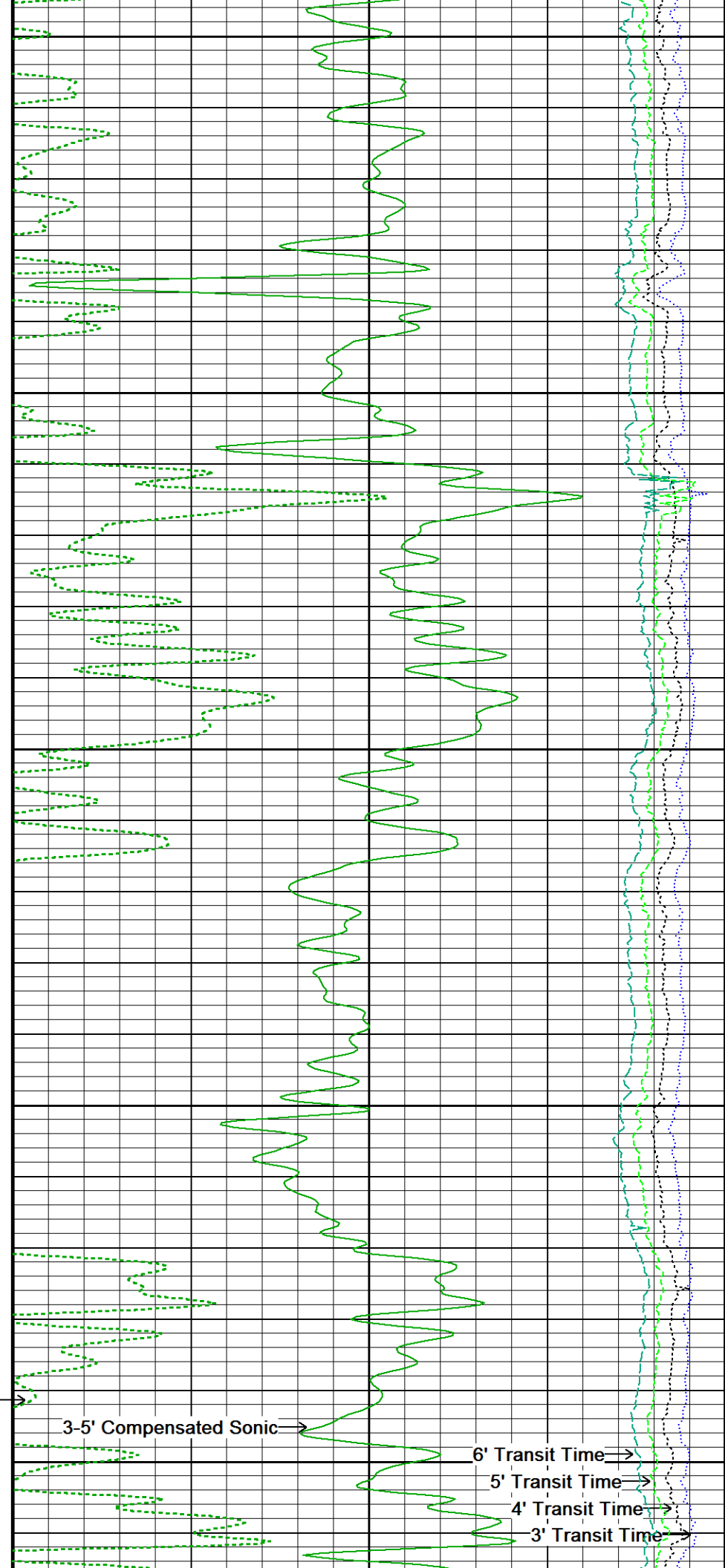
151°

5050

← Bit Size

Wyllie Lime. Sonic Por. →

← Gamma Ray



3-5' Compensated Sonic →

6' Transit Time →

5' Transit Time →

4' Transit Time →

3' Transit Time →

DST Uphole Tension →

152°

5100

153°

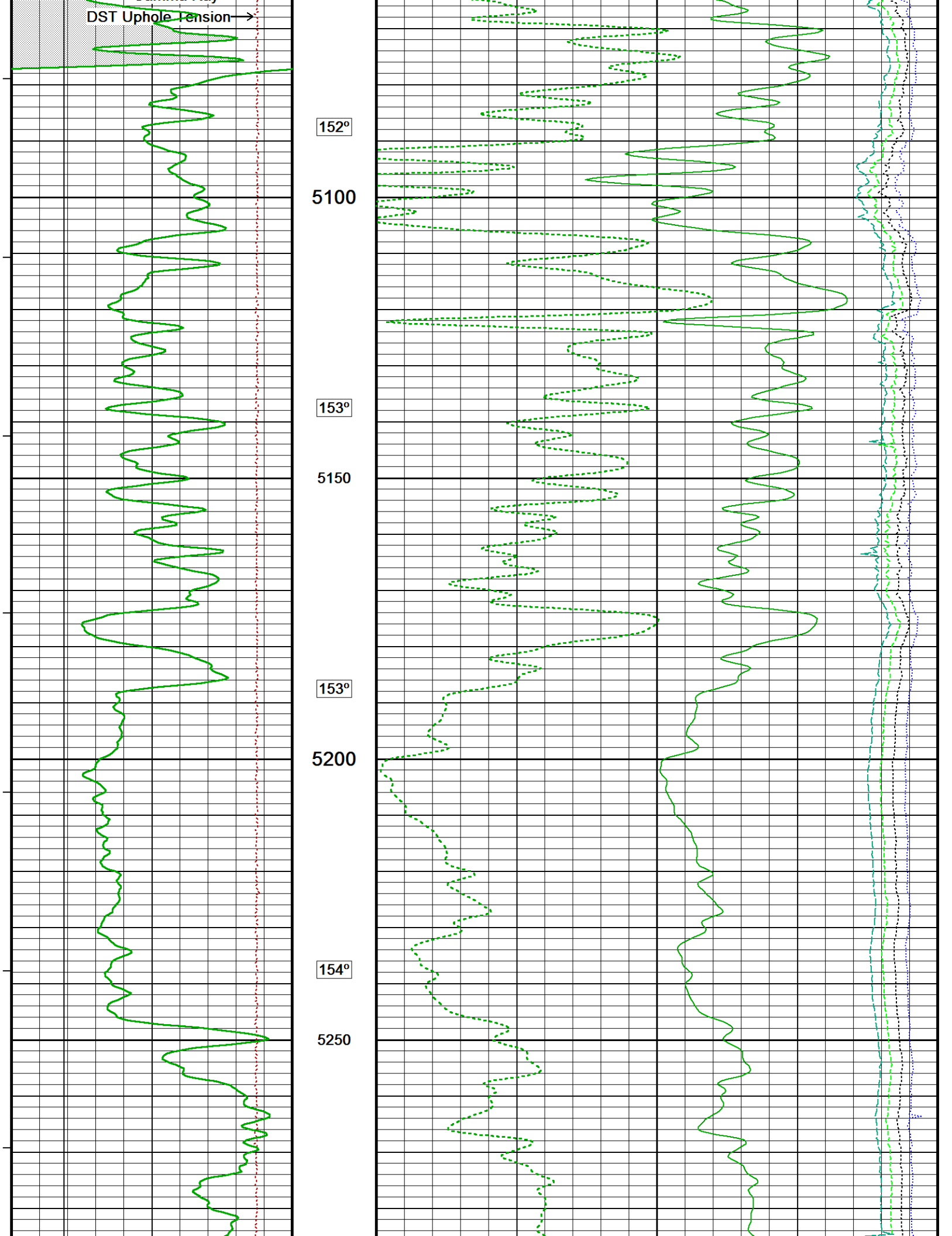
5150

153°

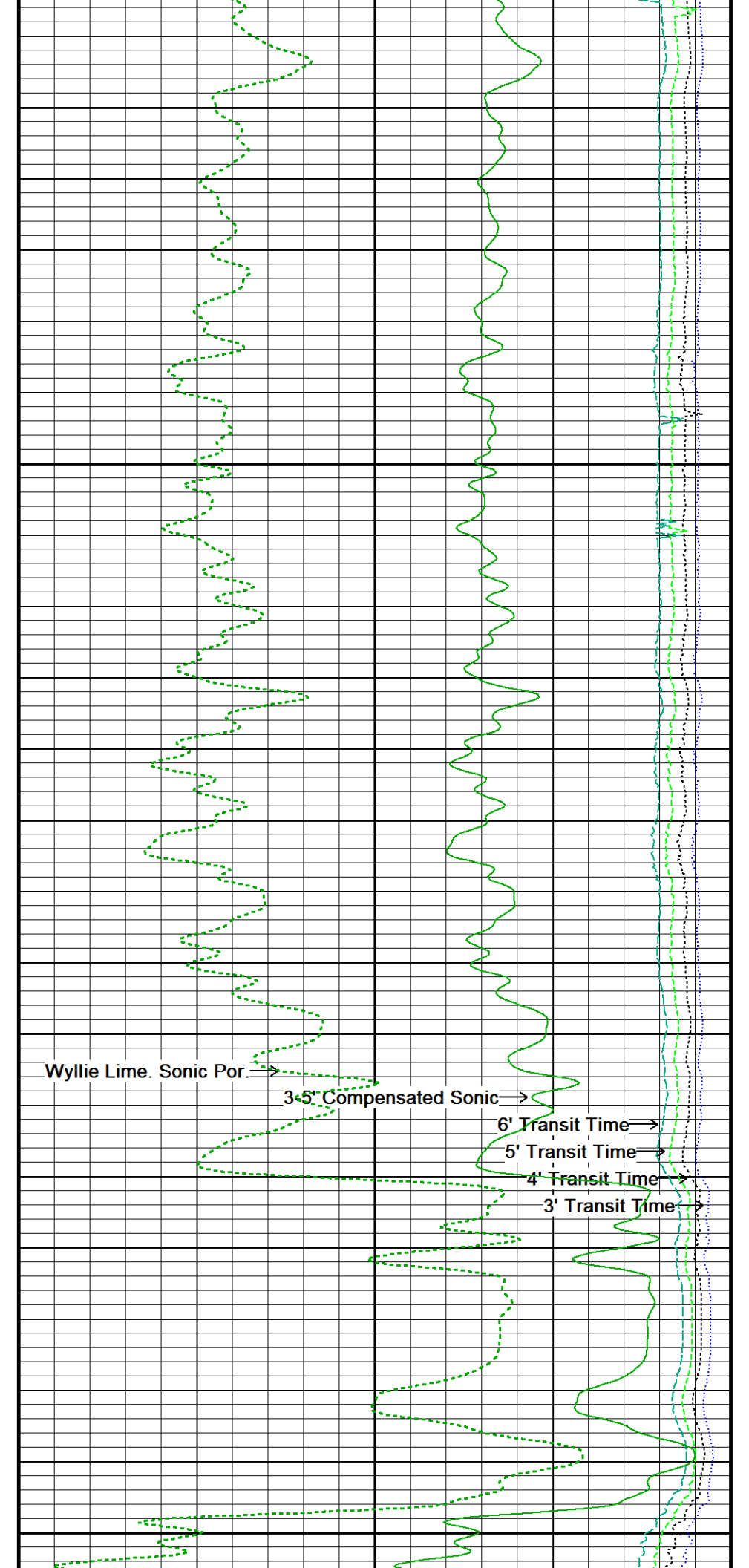
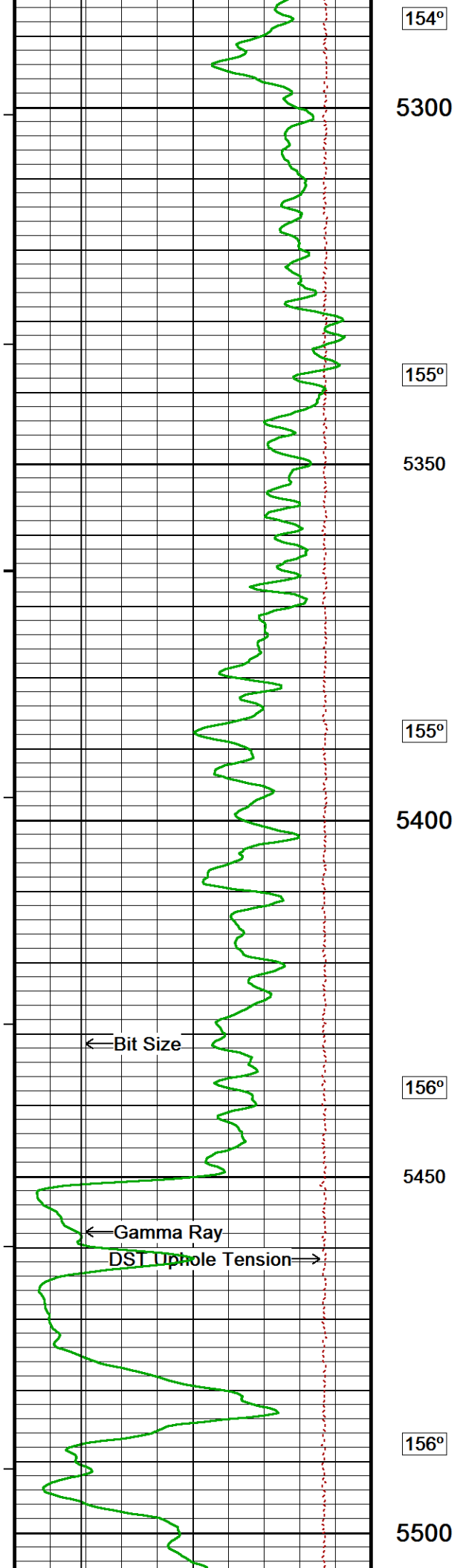
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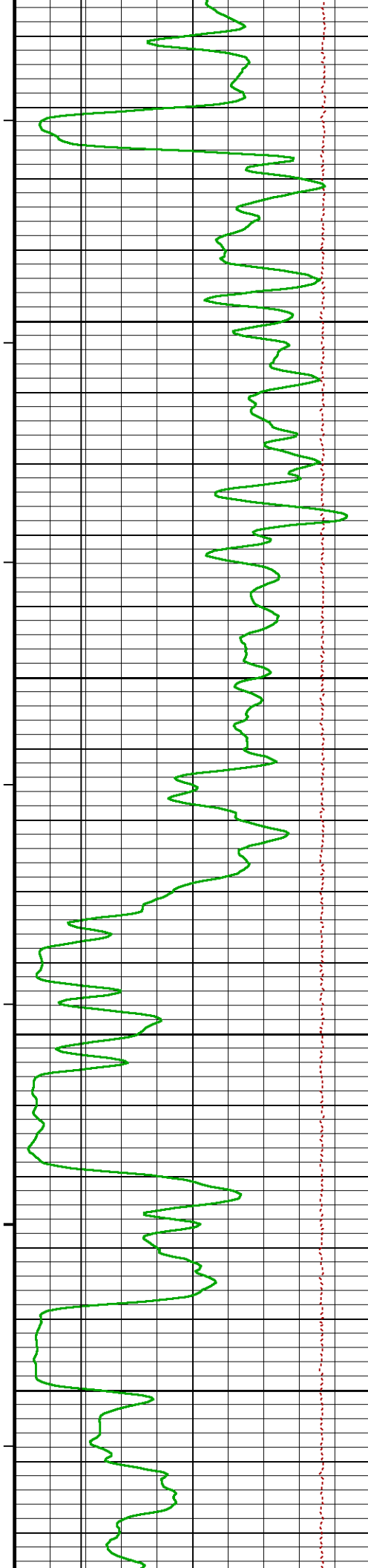
154°

5250









156°

5550

157°

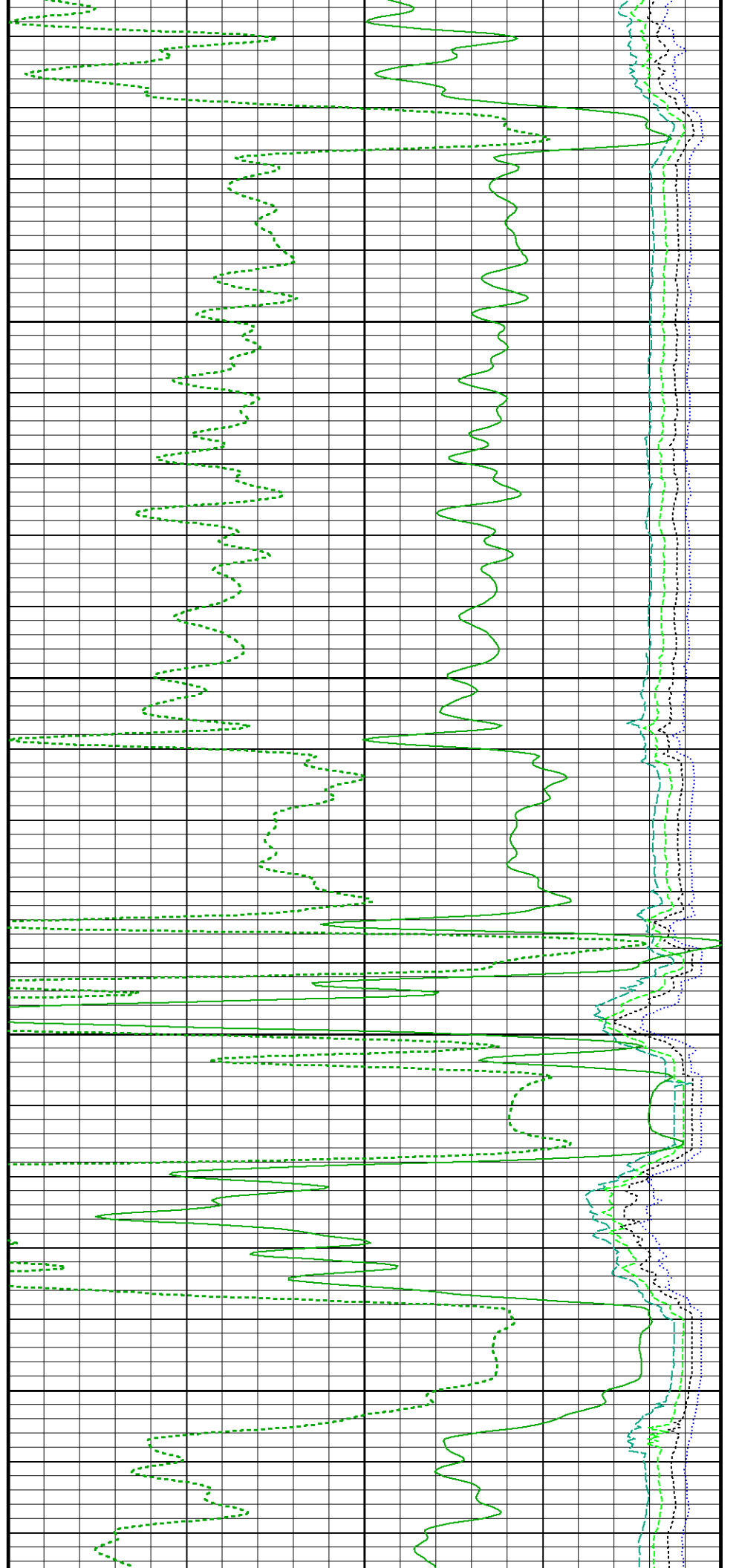
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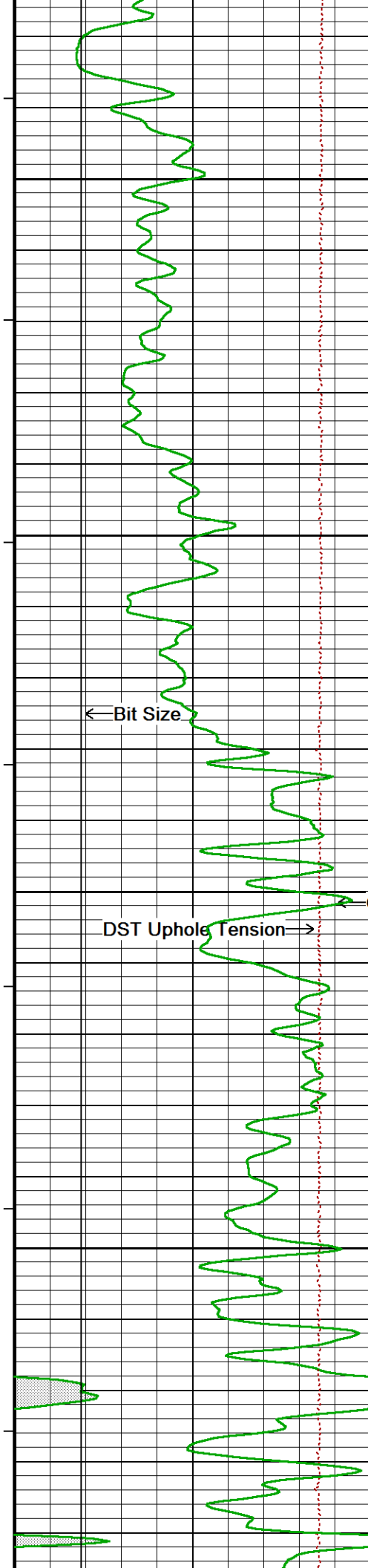
157°

5650

158°

5700





158°

5750

158°

5800

← Bit Size

159°

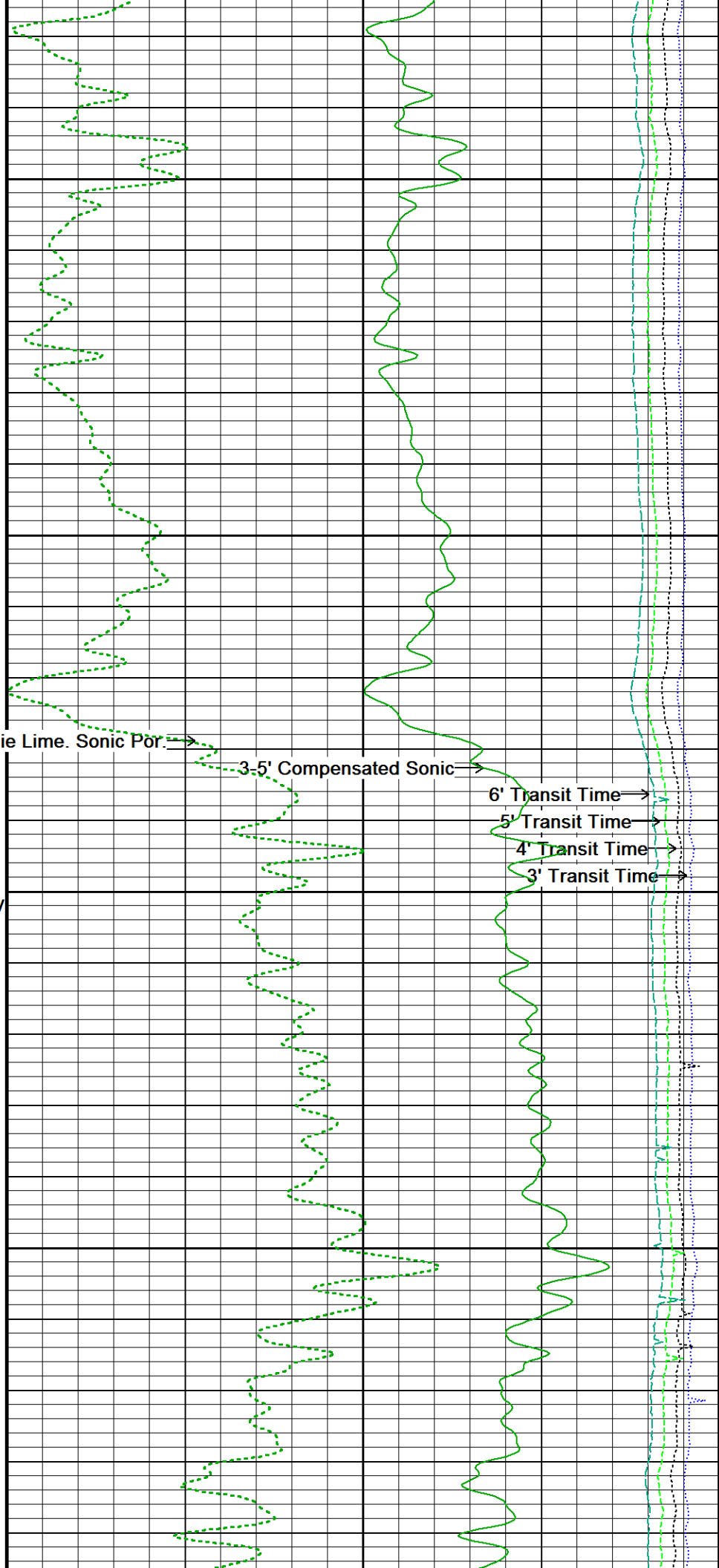
5850  
Gamma Ray

DST Uphole Tension →

159°

5900

159°



Wyllie Lime. Sonic Por. →

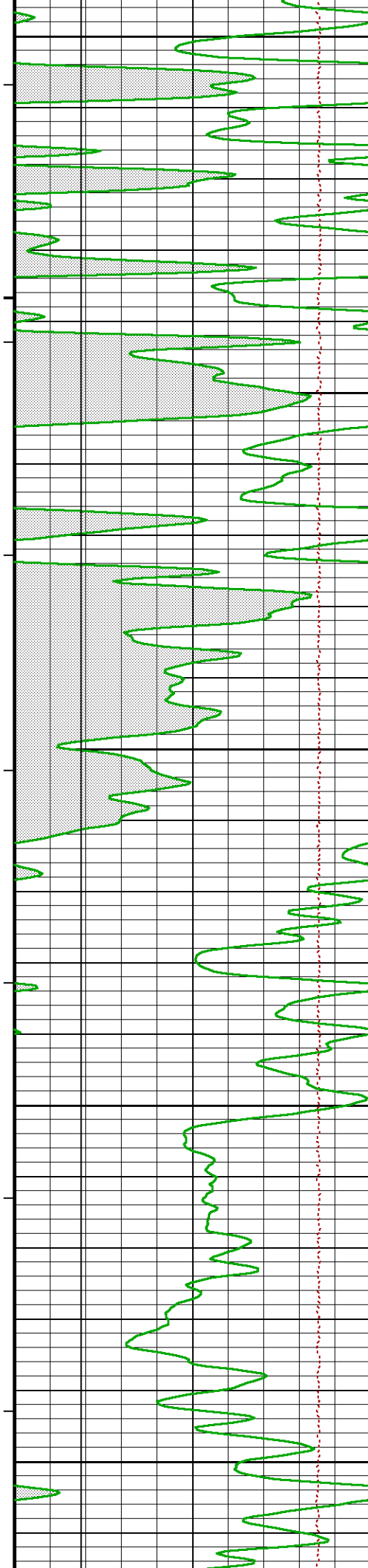
3-5' Compensated Sonic →

6' Transit Time →

5' Transit Time →

4' Transit Time →

3' Transit Time →



5950

159°

6000

160°

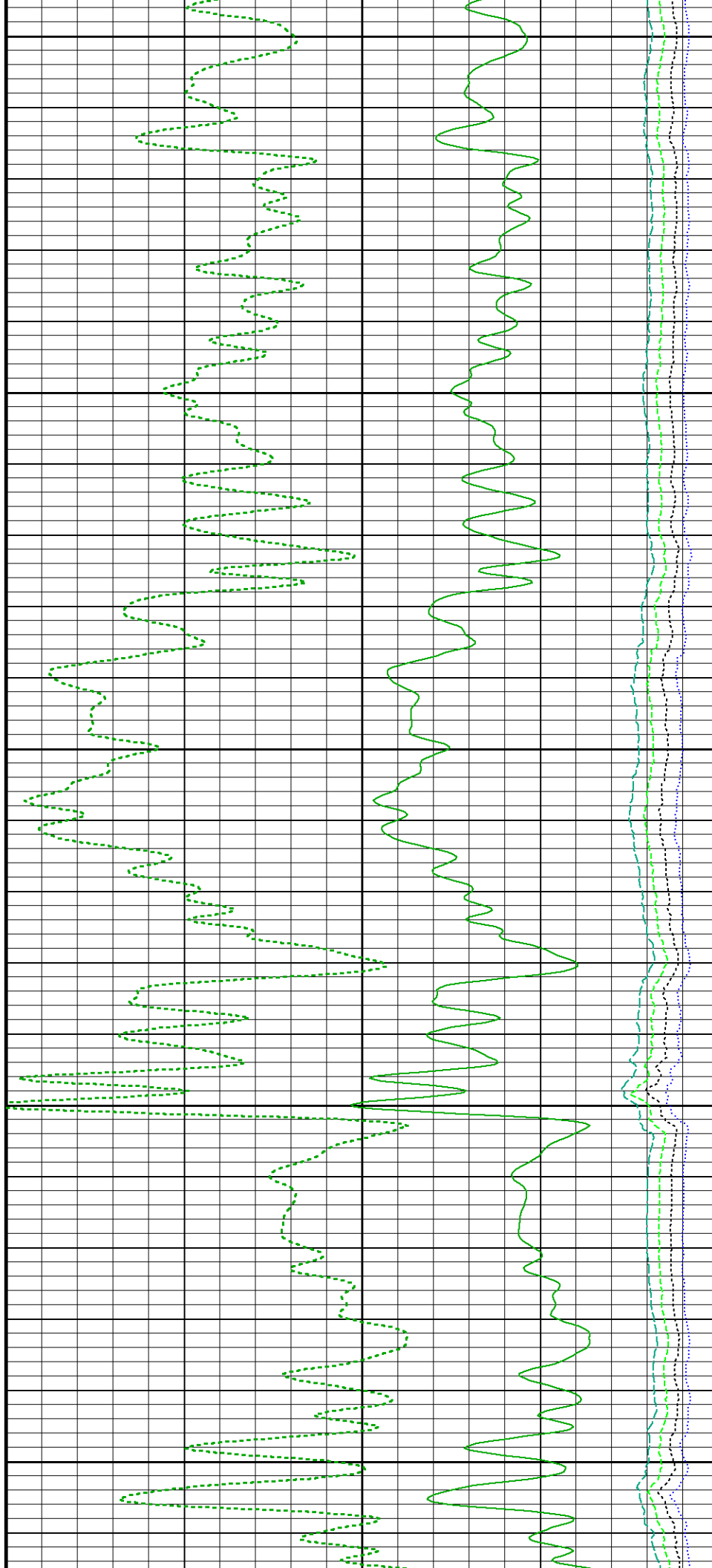
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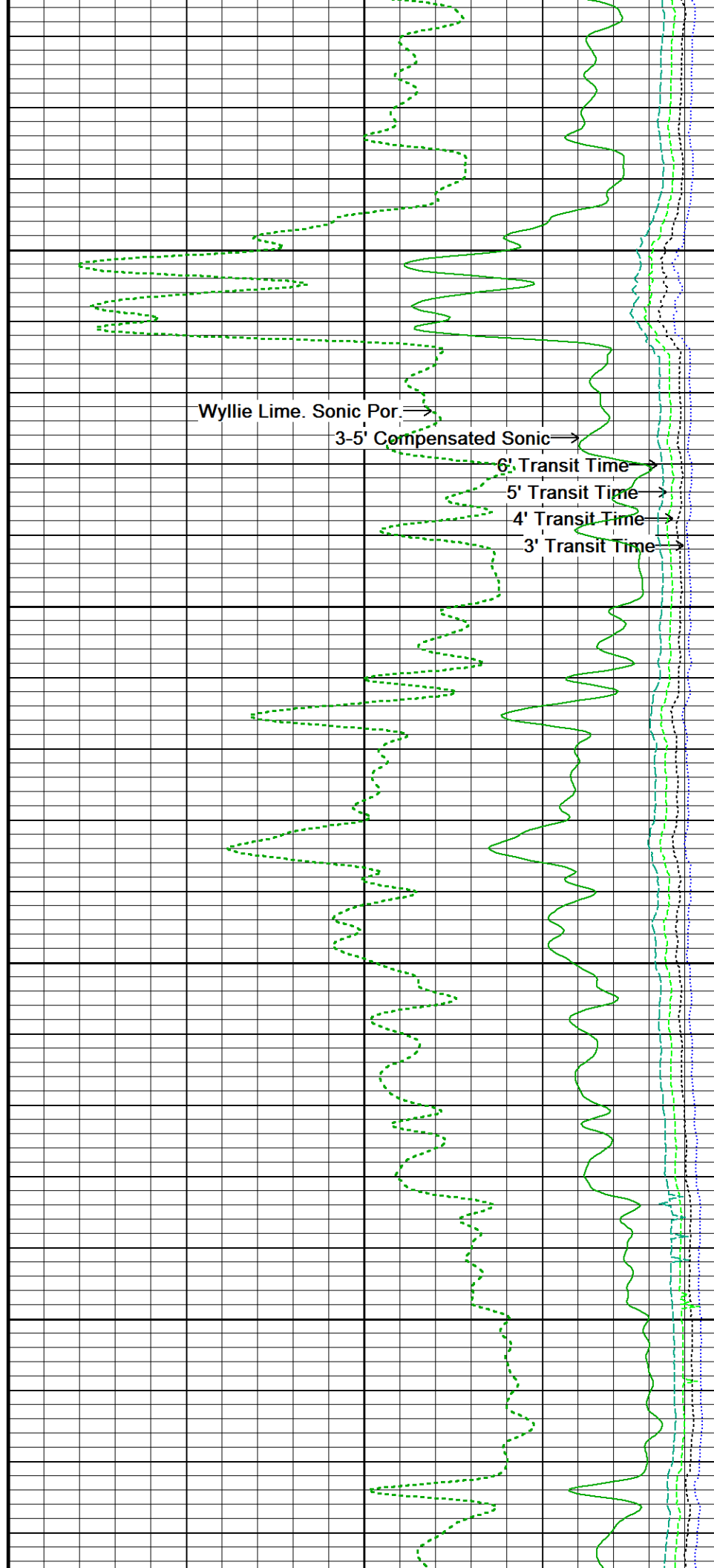
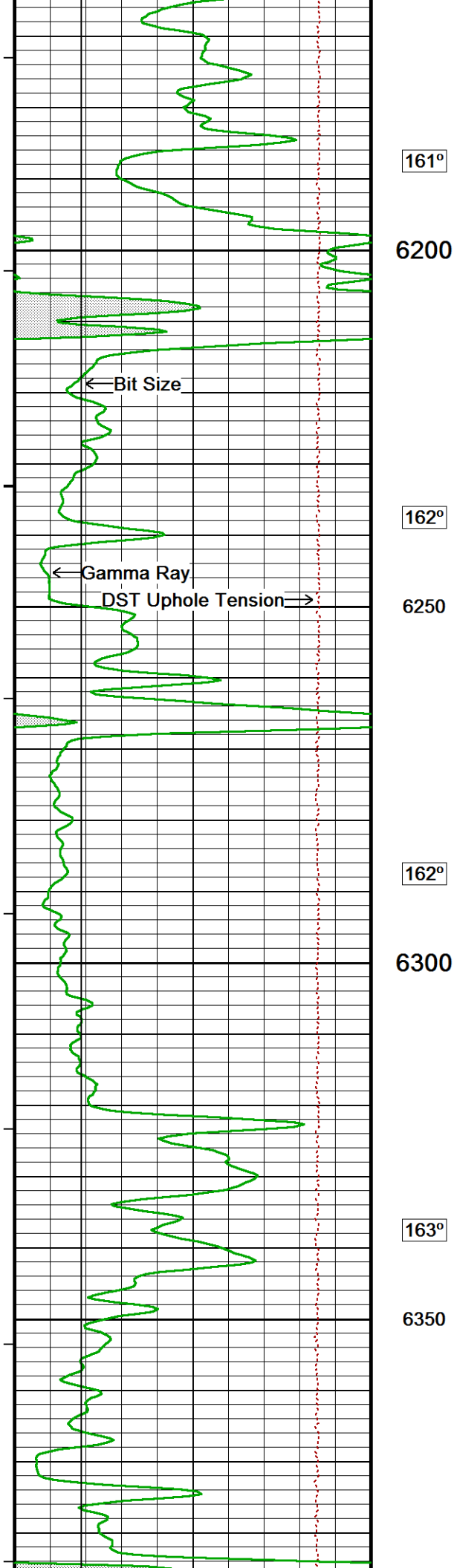
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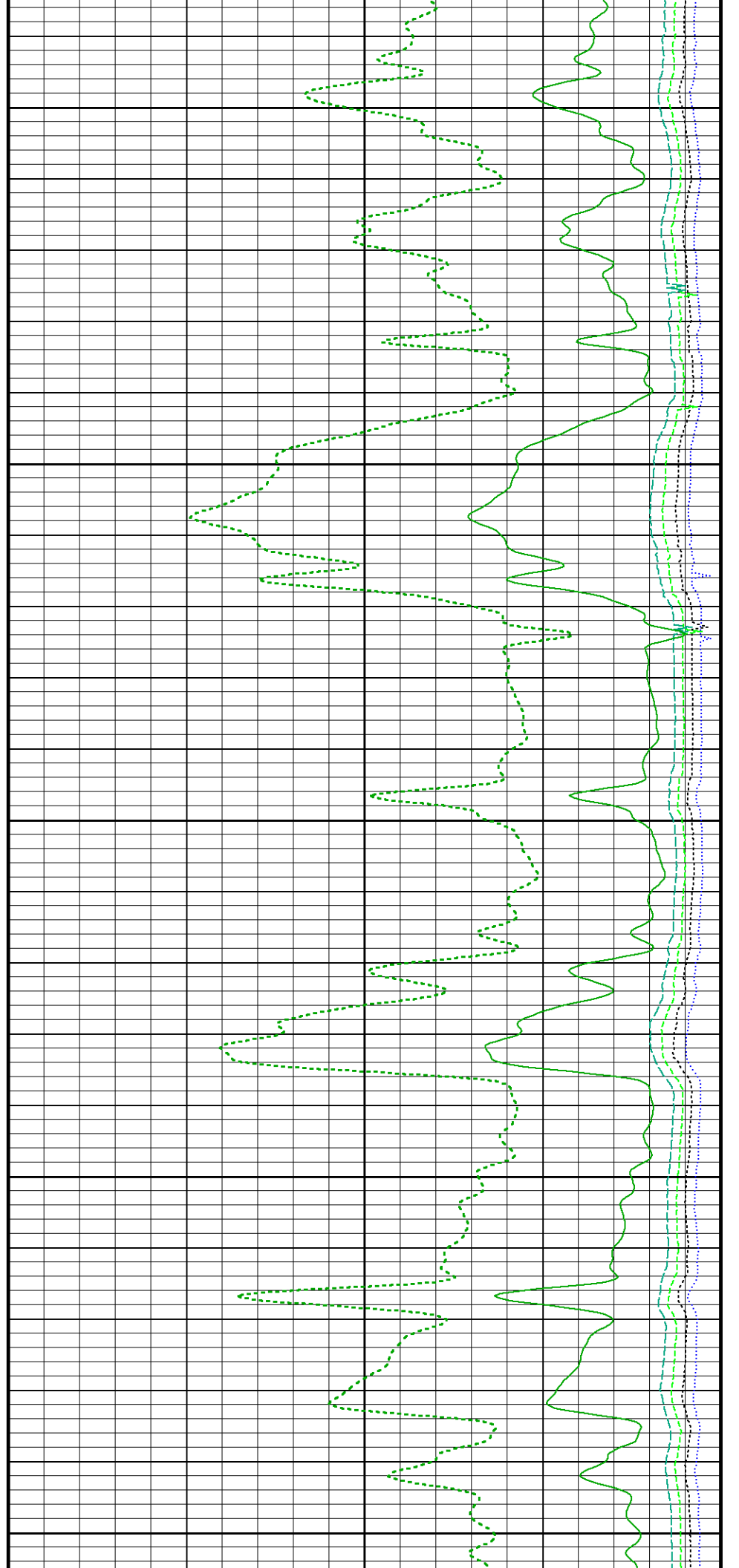
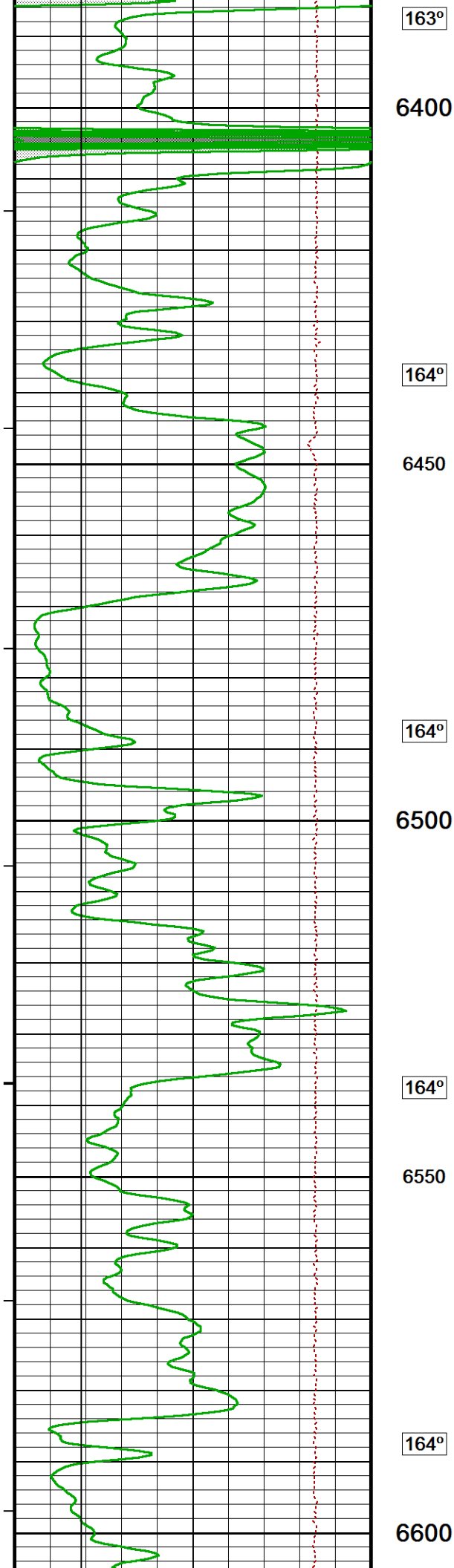
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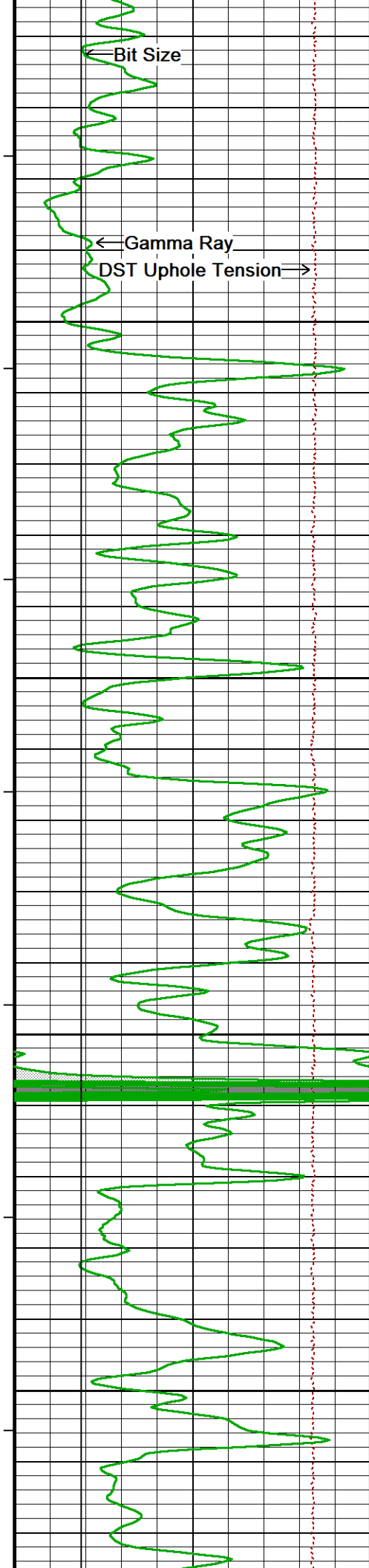
161°

6150









165°

6650

165°

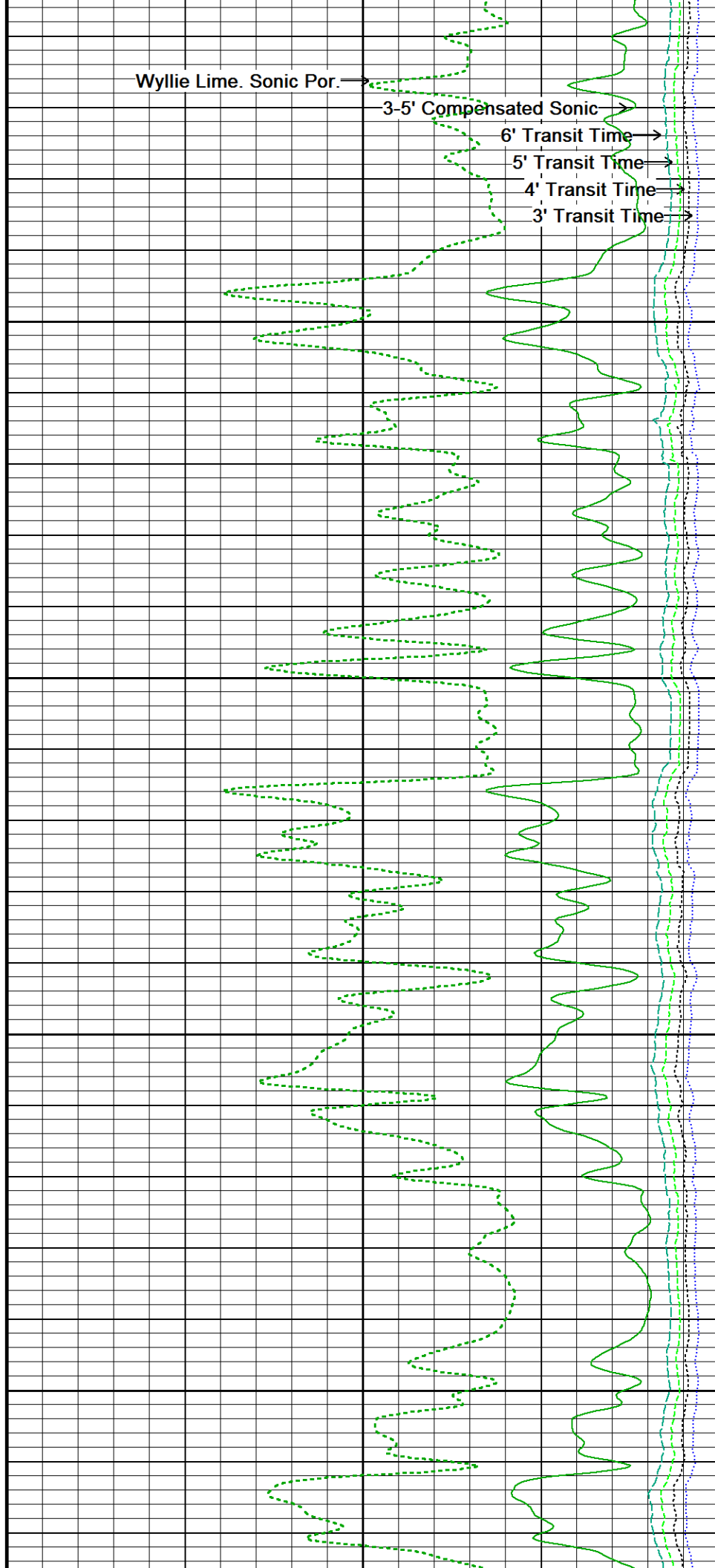
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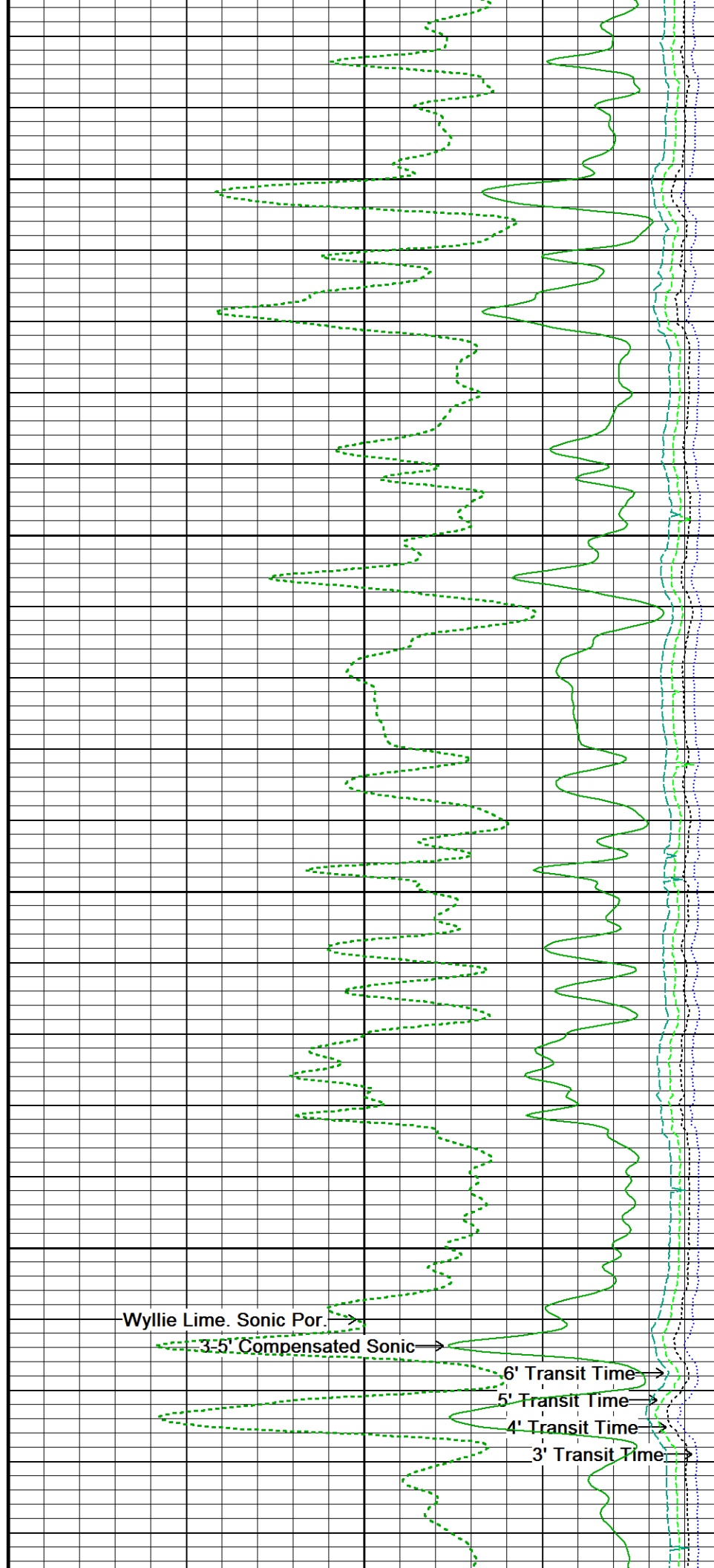
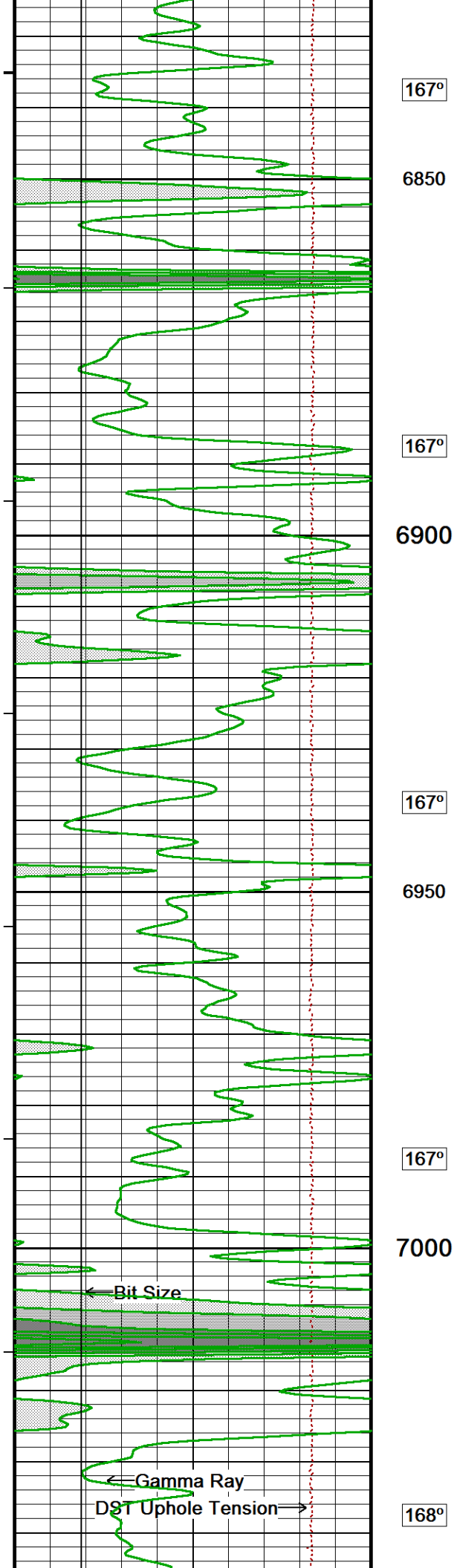
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6750

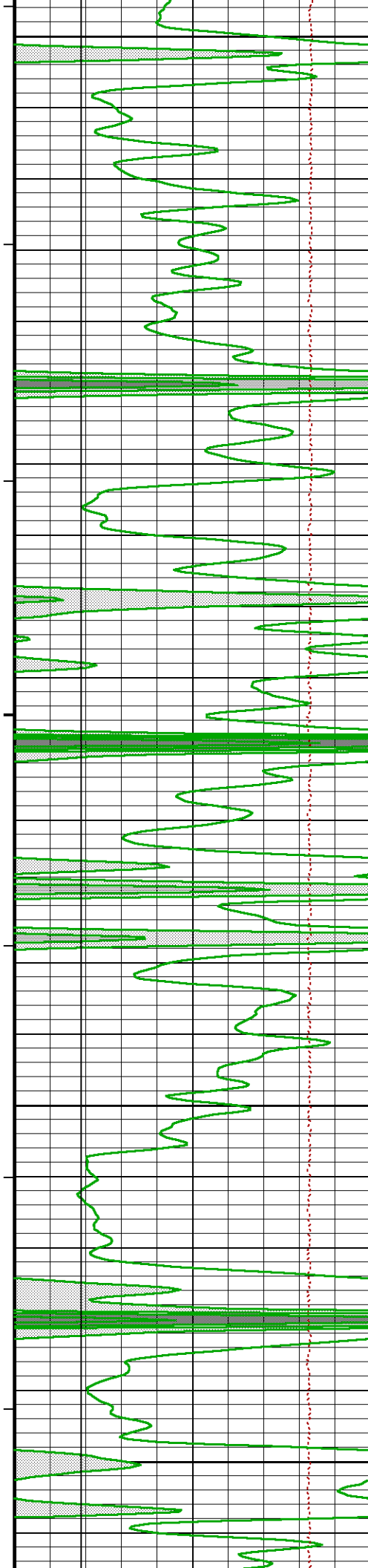
166°

6800









7050

168°

7100

168°

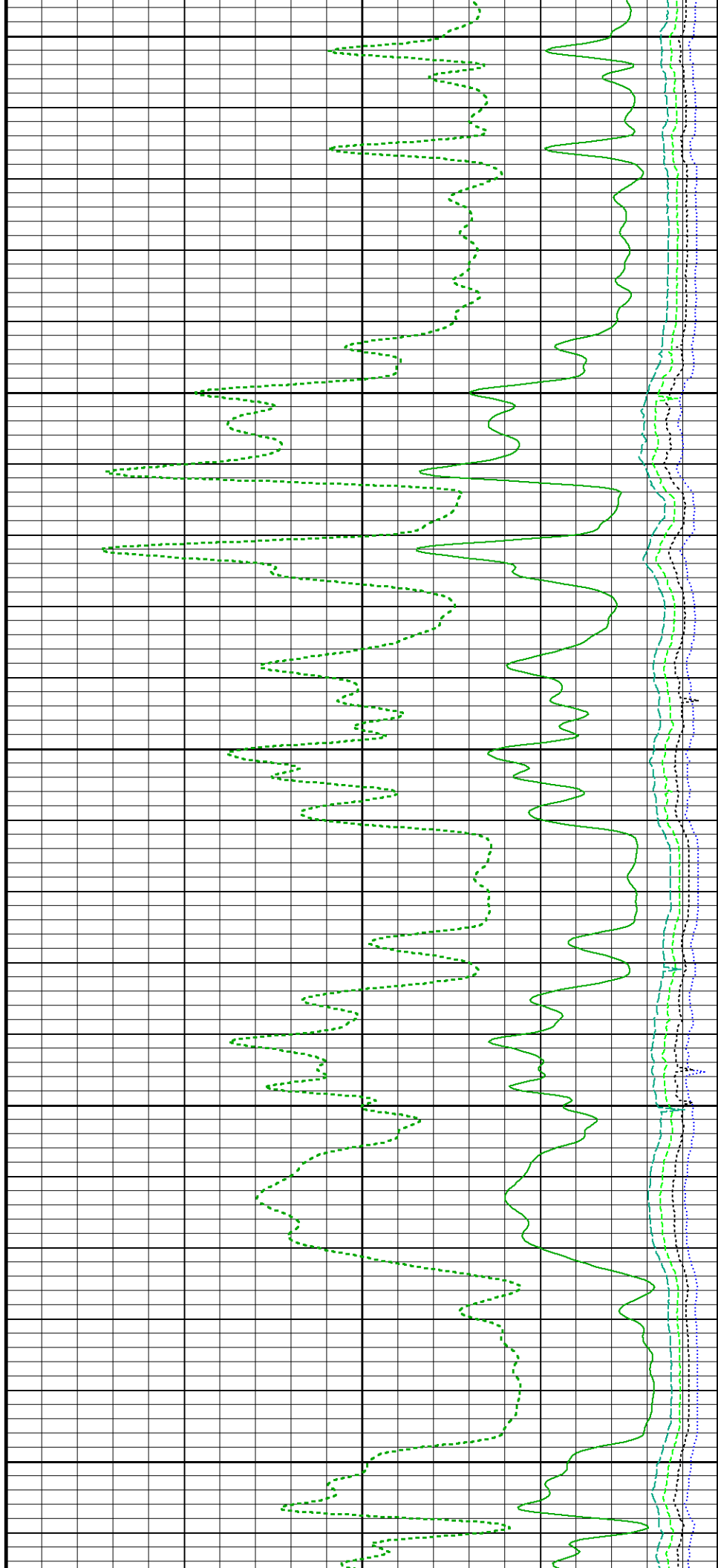
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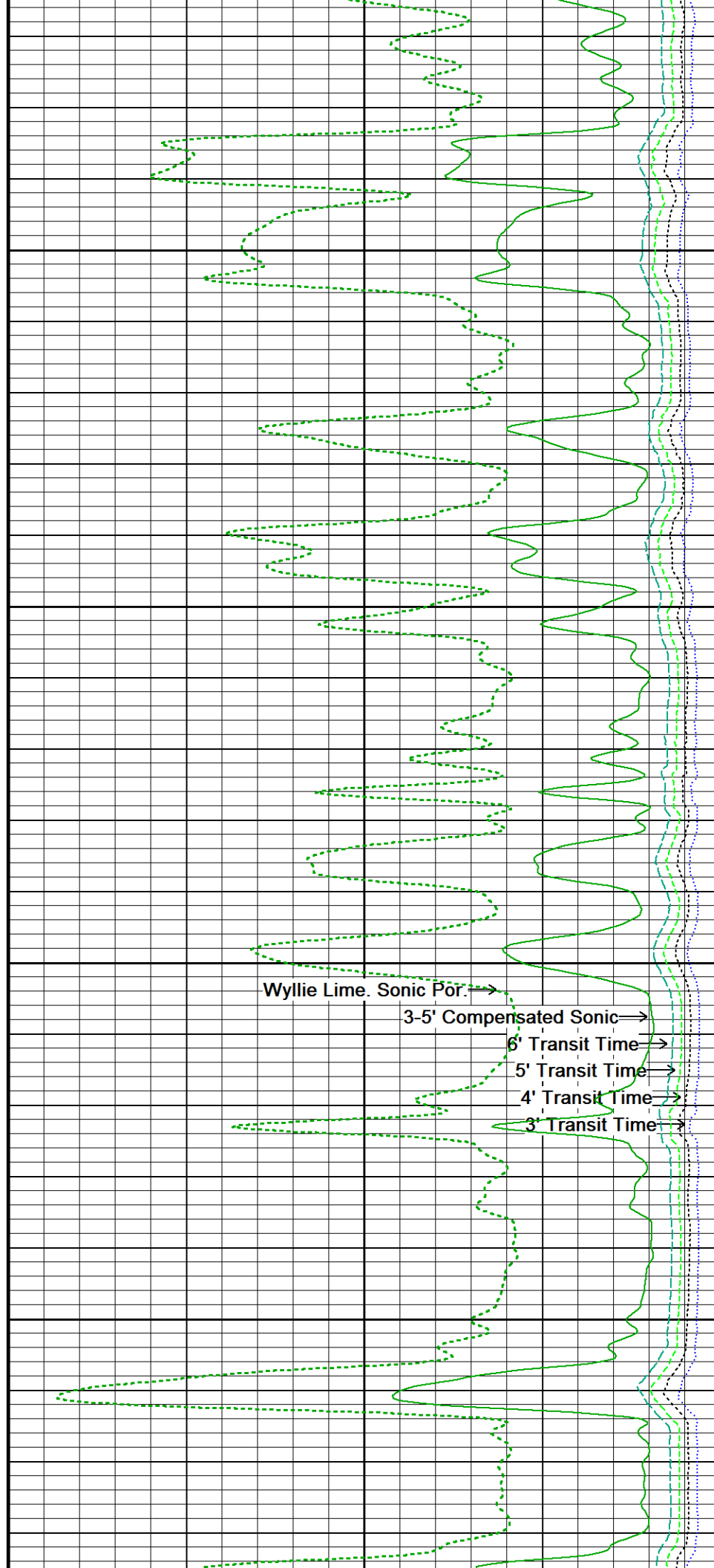
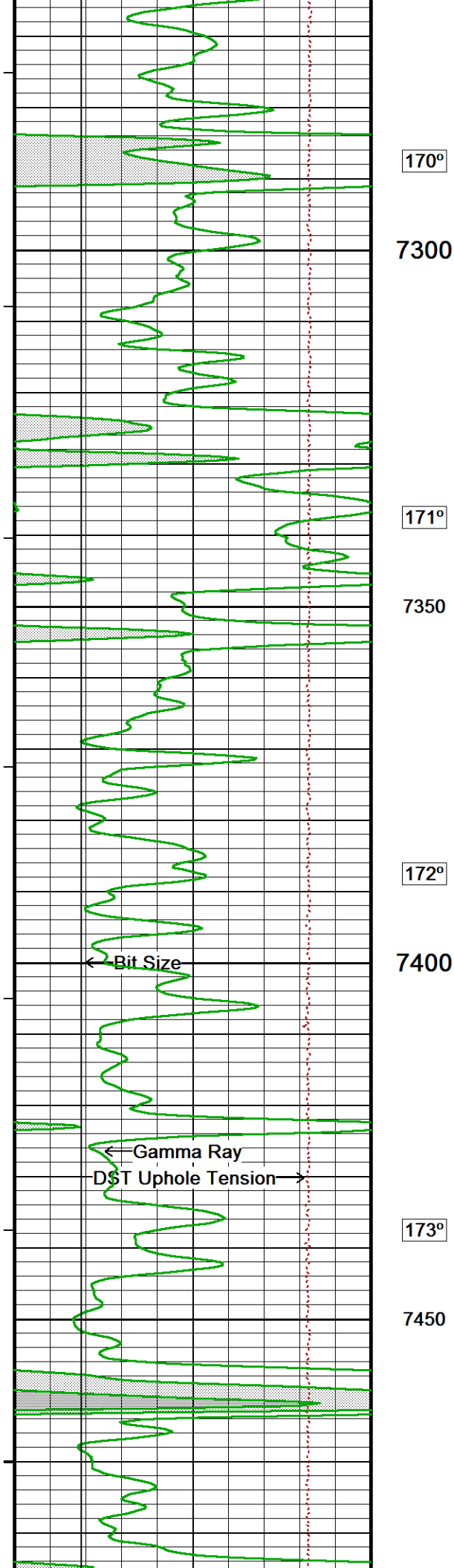
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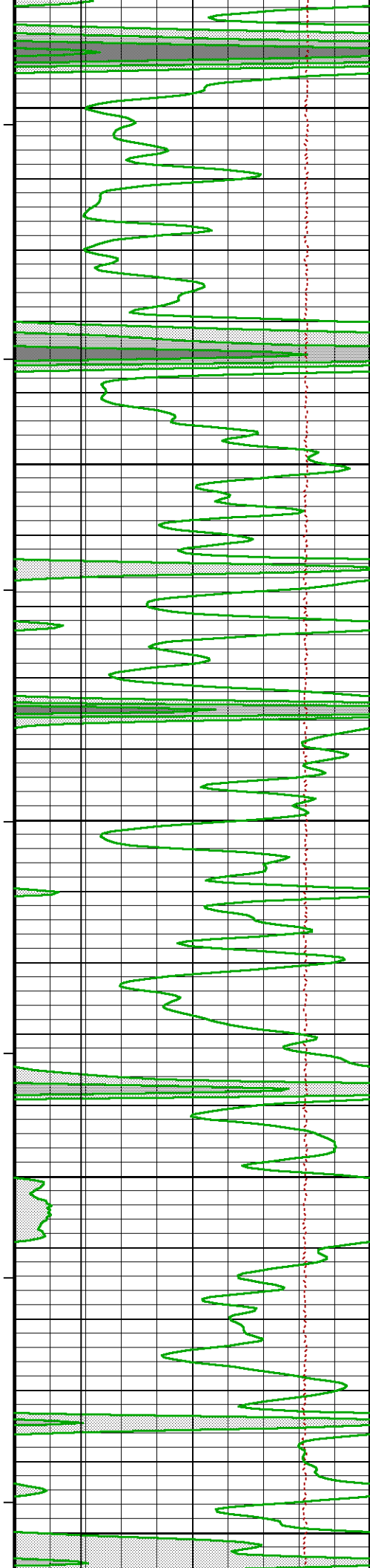
7200

170°

7250







174°

7500

175°

7550

176°

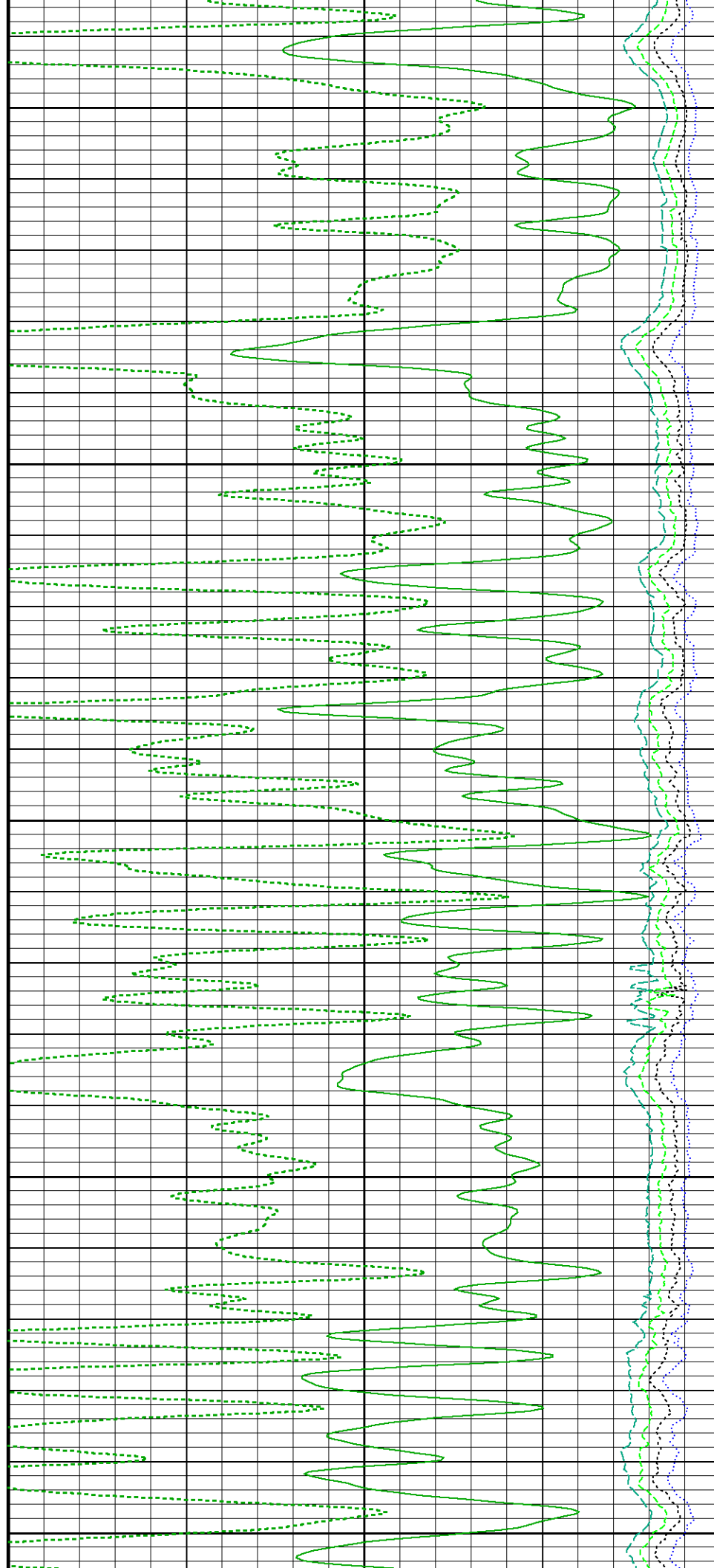
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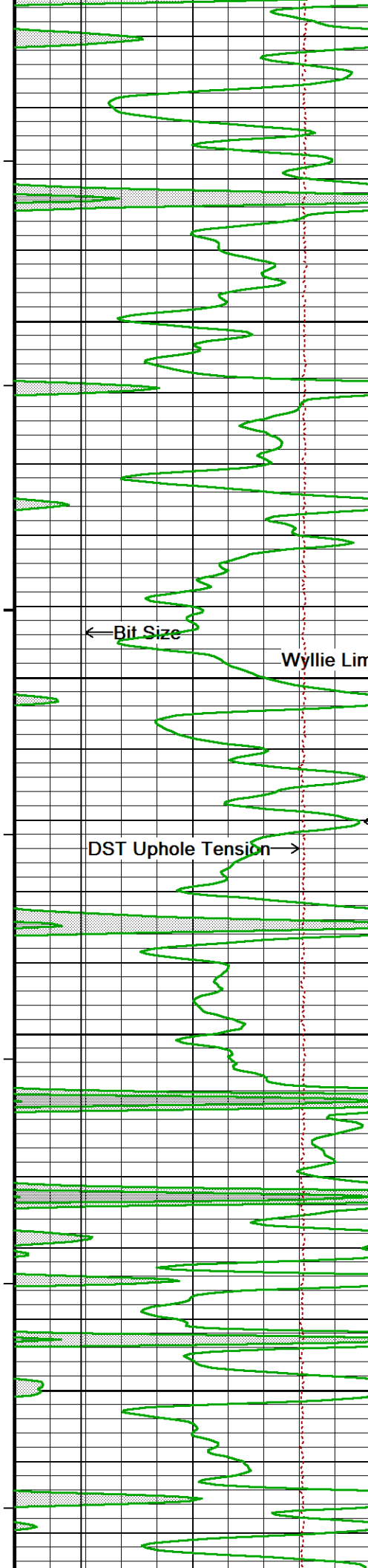
176°

7650

177°

7700





178°

7750

178°

Wyllie Lime. Sonic Por. →  
7800

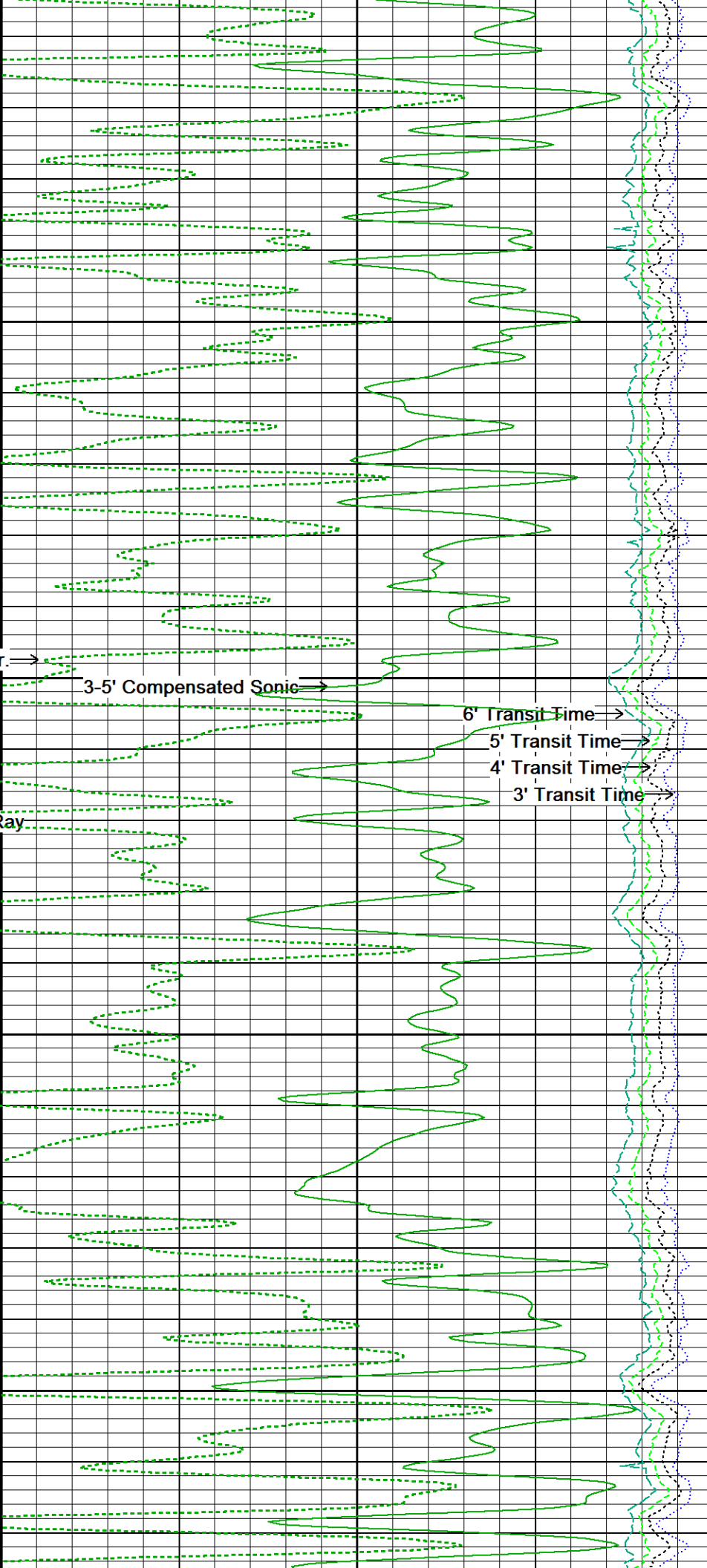
Gamma Ray →

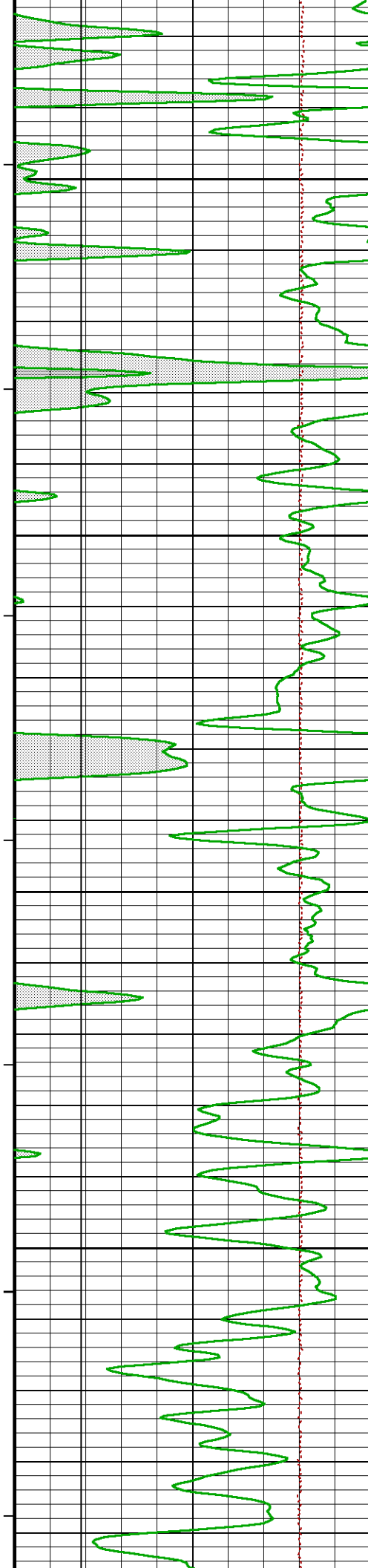
179°

7850

179°

7900





180°

7950

181°

8000

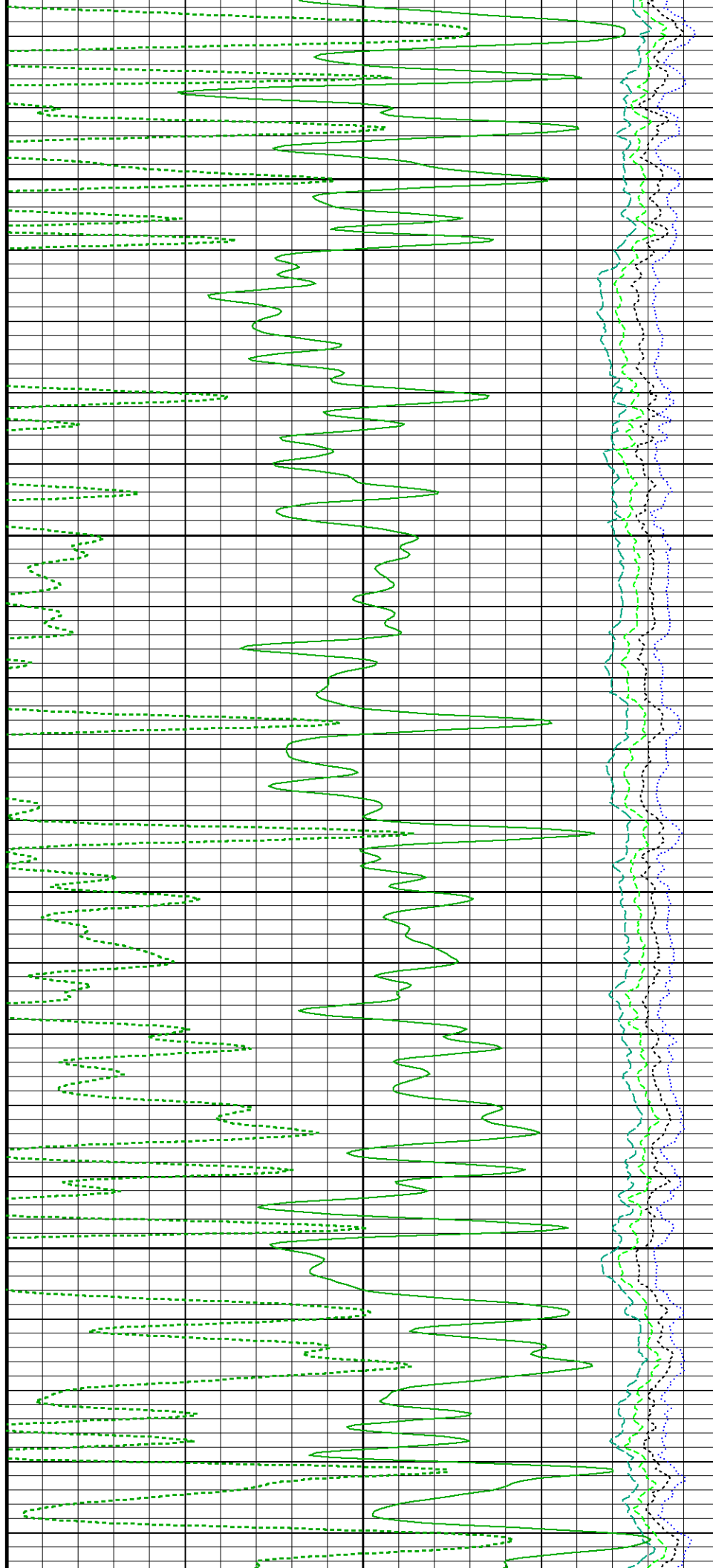
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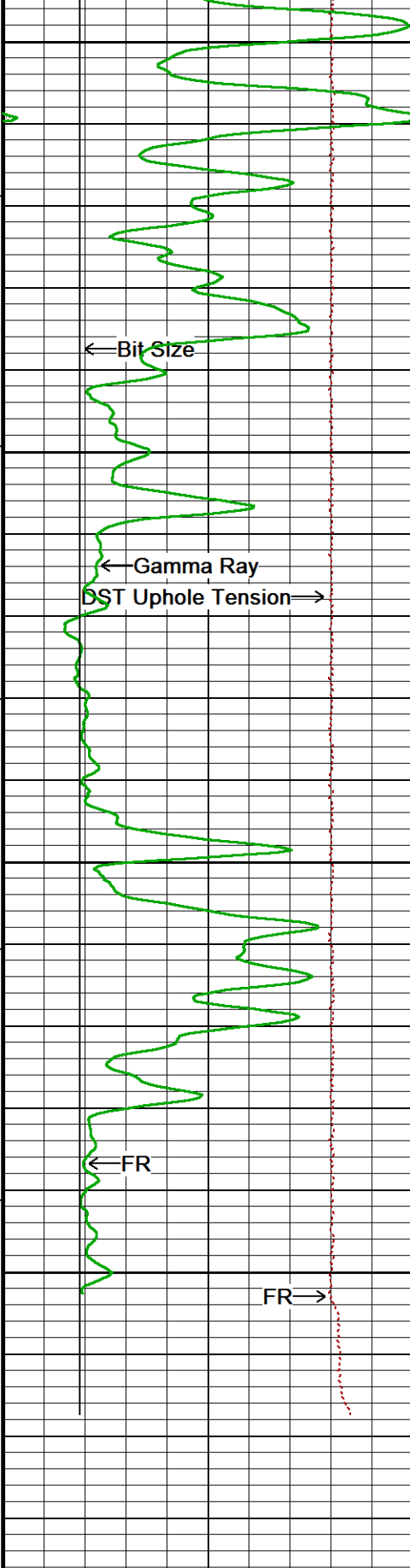
8050

184°

8100

187°





8150

189°

8200

190°

8250

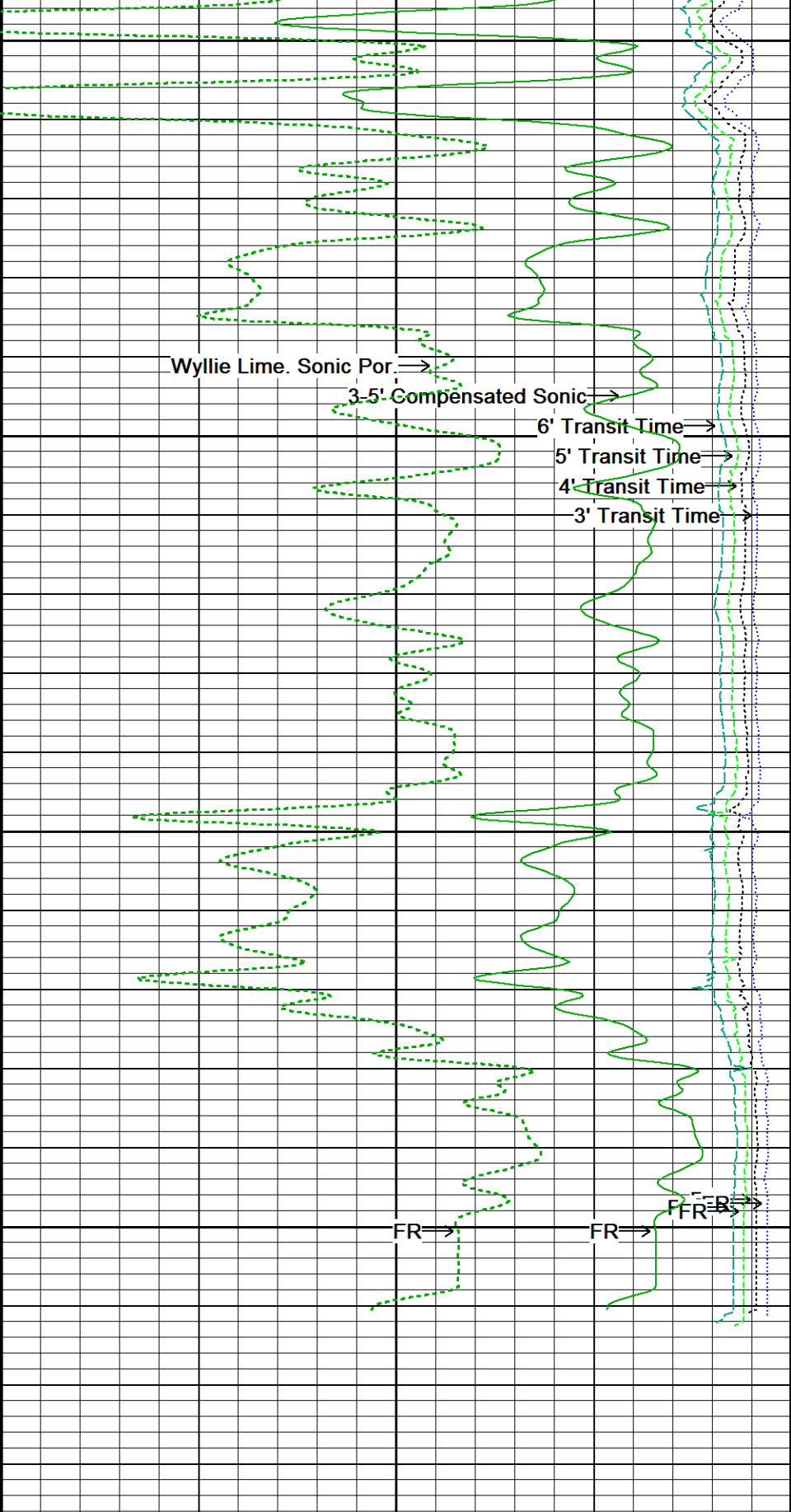
190°

8300

TD

Depth  
In  
Feet

Timing Marks  
every 60.0 sec



3-5' Compensated Sonic  
microsec/foot

140

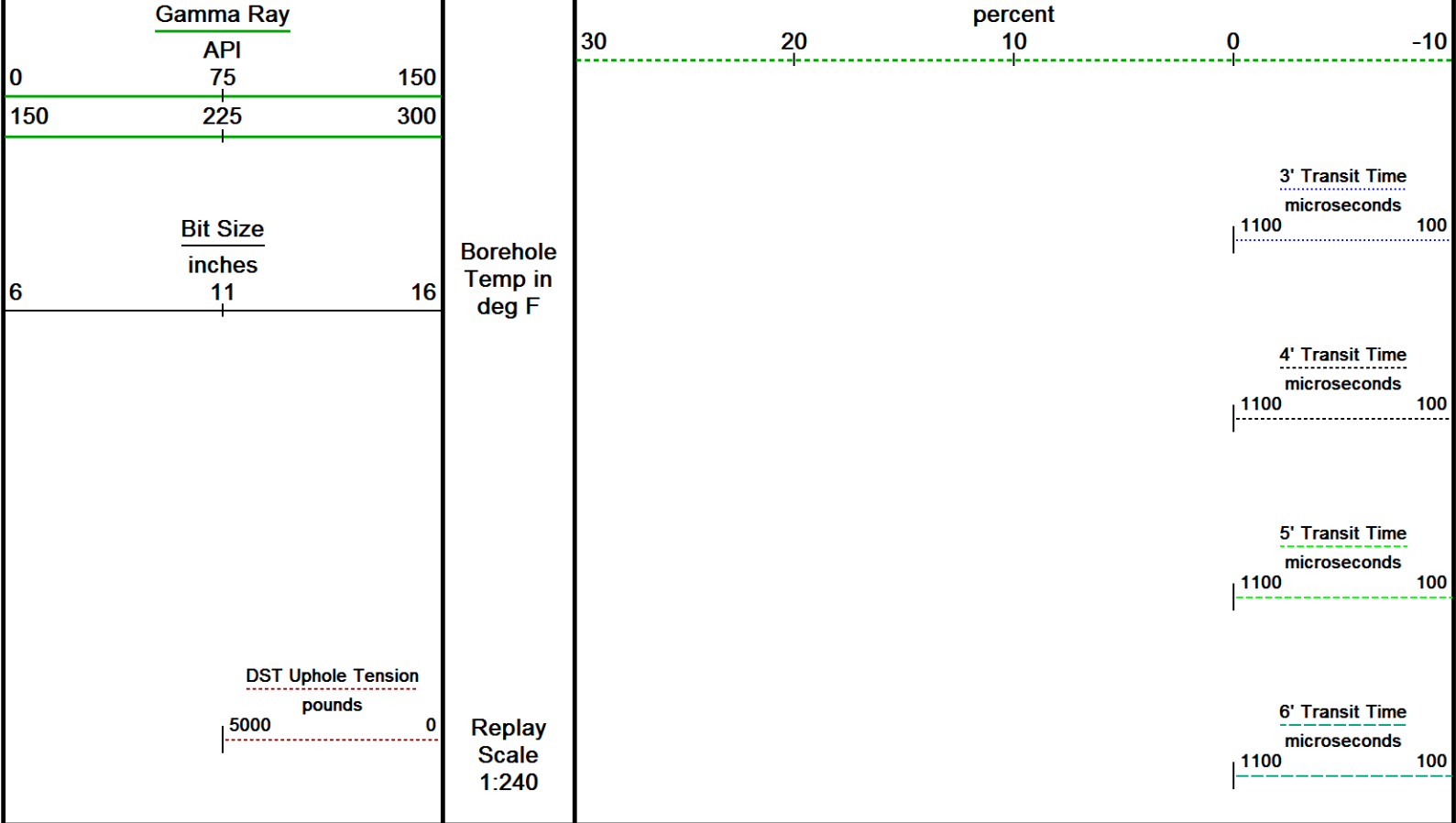
115

90

65

40

Wyllie Lime. Sonic Por.



Depth Based Data - Maximum Sampling Increment 10.0cm

Plotted on 20-JAN-2019 14:02

Filename: C:\Minimus 18.03.9344\Data\Murfin Moonraker #6-27\MAIN PASS\_SONIC.dta

Recorded on 20-JAN-2019 08:38

System Versions: Logged with 18.03.9344 Plotted with 18.03.9344

↑

5 INCH MAIN

↑

↓

REPEAT SECTION

↓

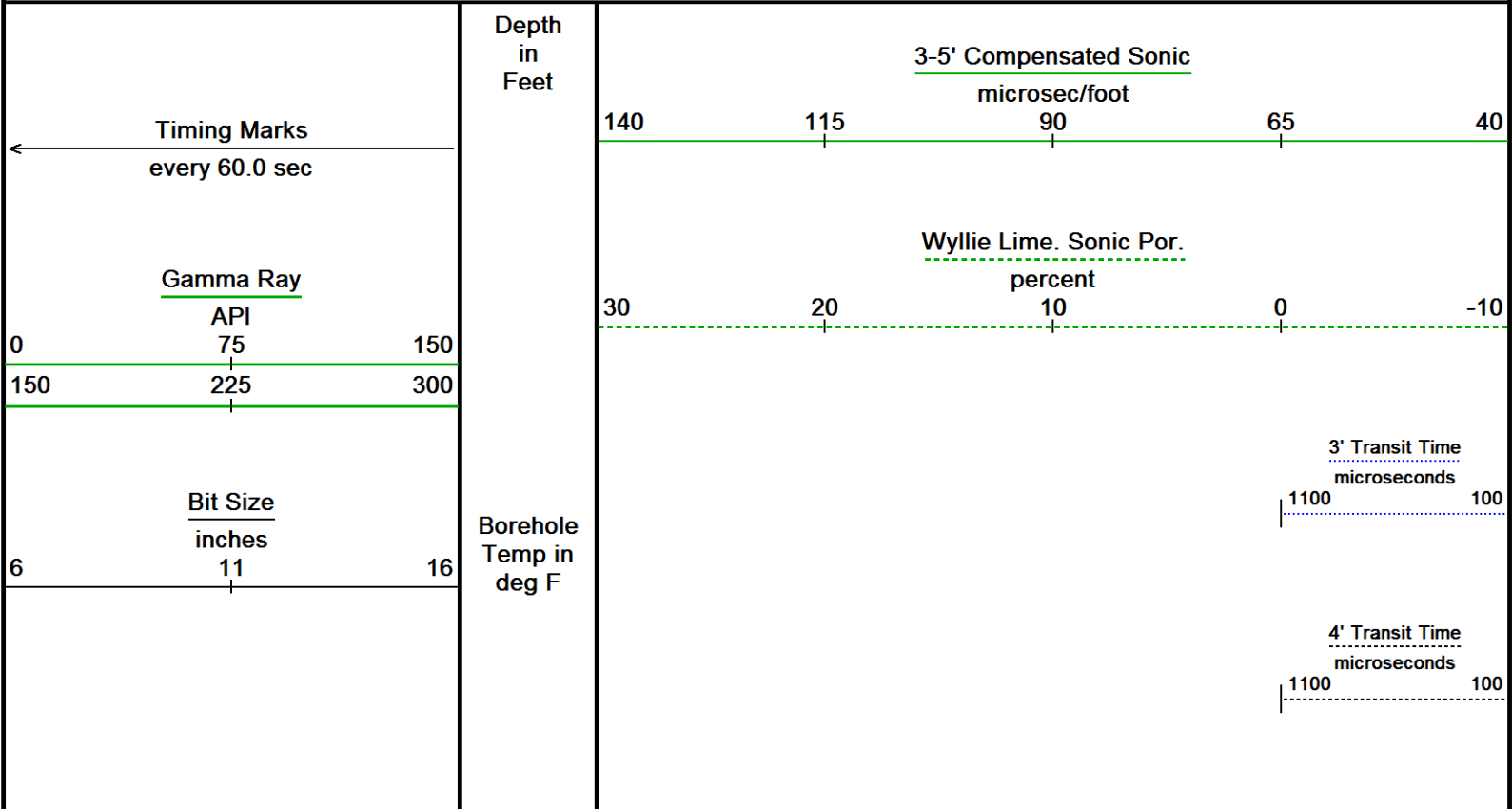
Depth Based Data - Maximum Sampling Increment 10.0cm

Plotted on 20-JAN-2019 14:02

Filename: C:\Minimus 18.03.9344\Data\Murfin Moonraker #6-27\REPEAT PASS\_SONIC.dta

Recorded on 20-JAN-2019 08:13

System Versions: Logged with 18.03.9344 Plotted with 18.03.9344





DST Uphole Tension  
pounds

5000 0

Replay  
Scale  
1:240

5' Transit Time  
microseconds

1100 100

6' Transit Time  
microseconds

1100 100

7850

178°

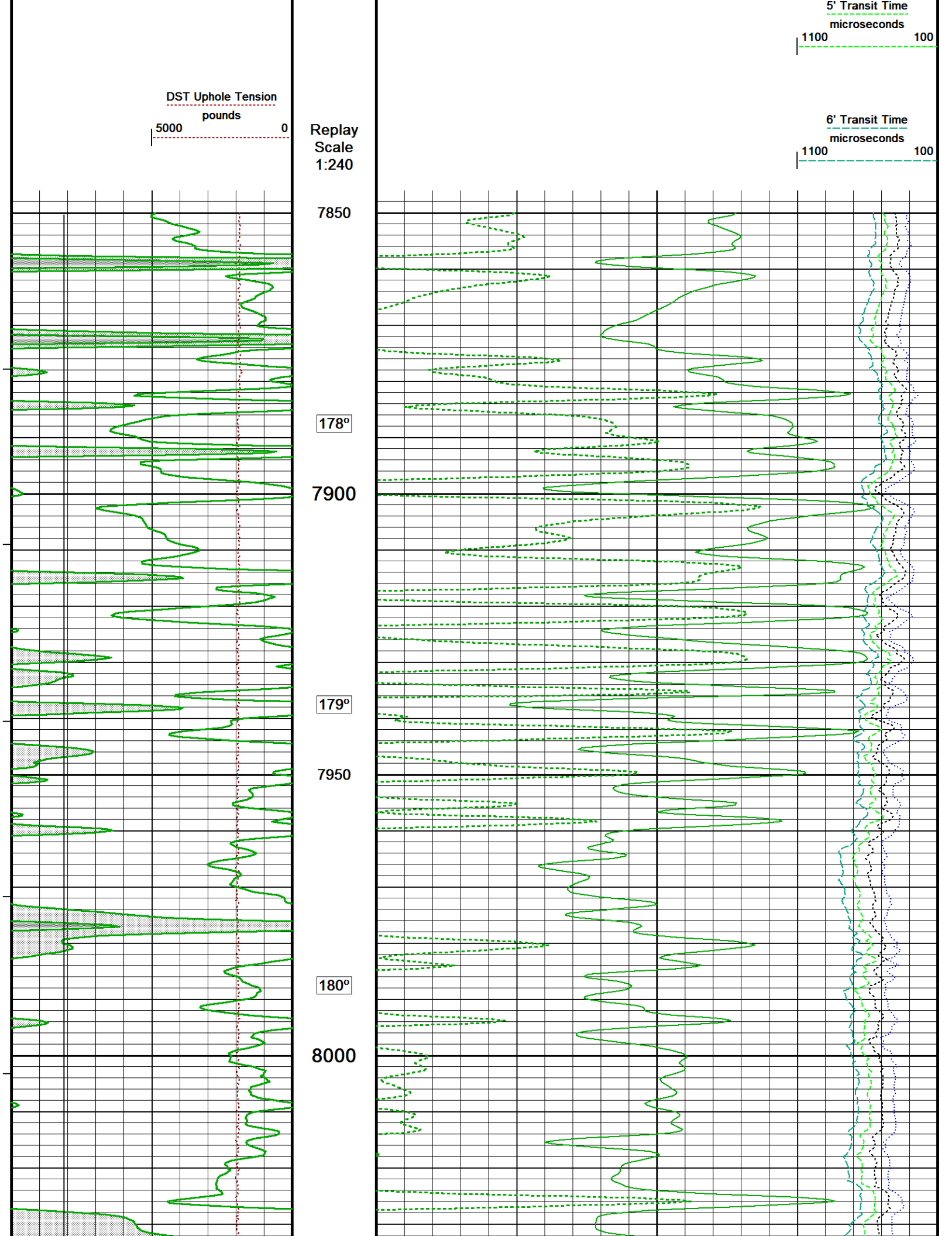
7900

179°

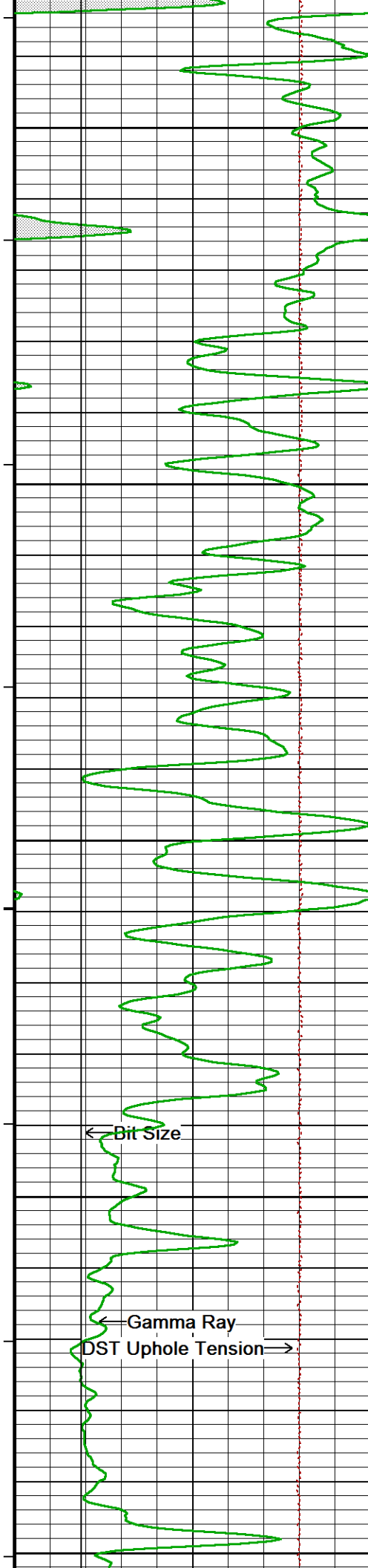
7950

180°

8000







181°

8050

183°

8100

186°

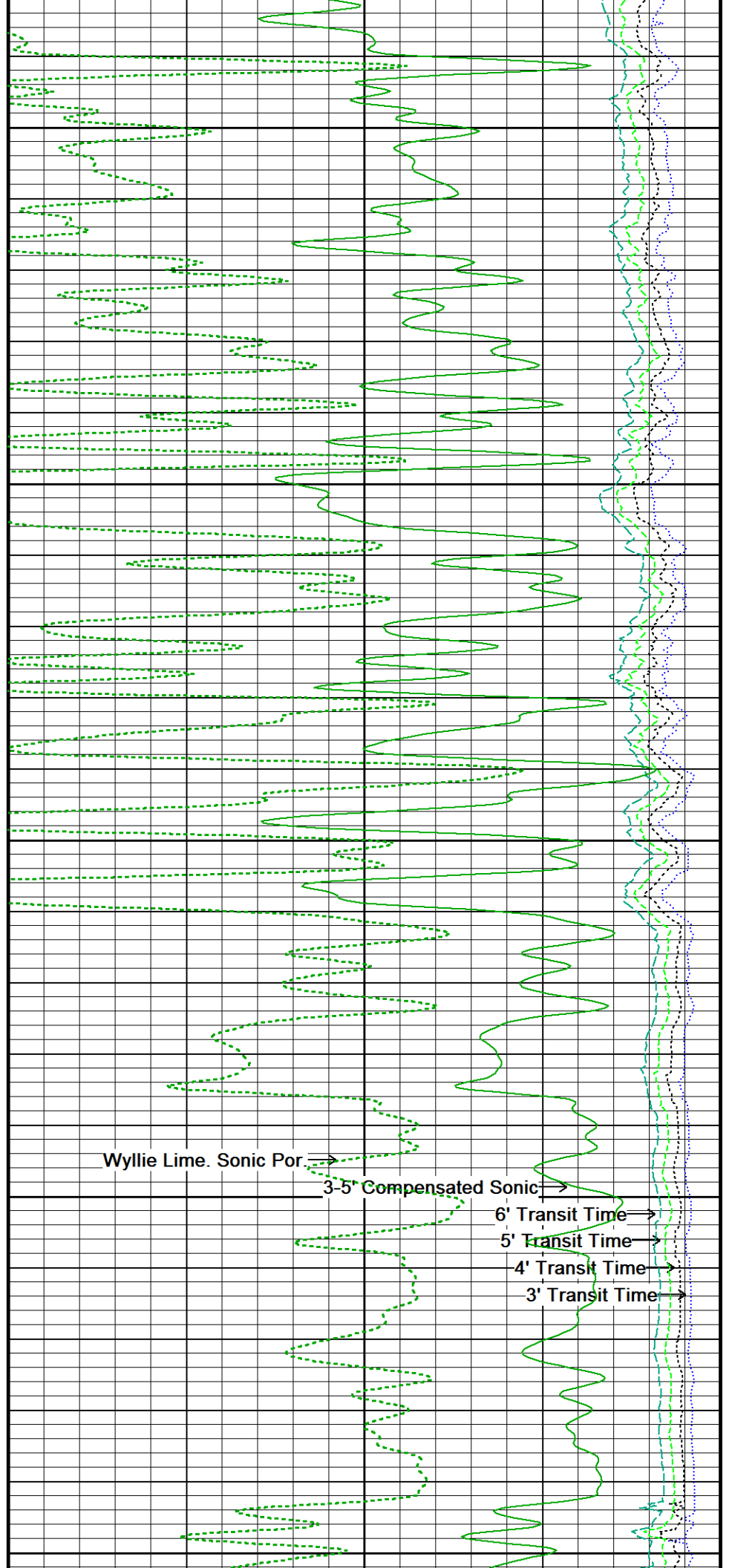
8150

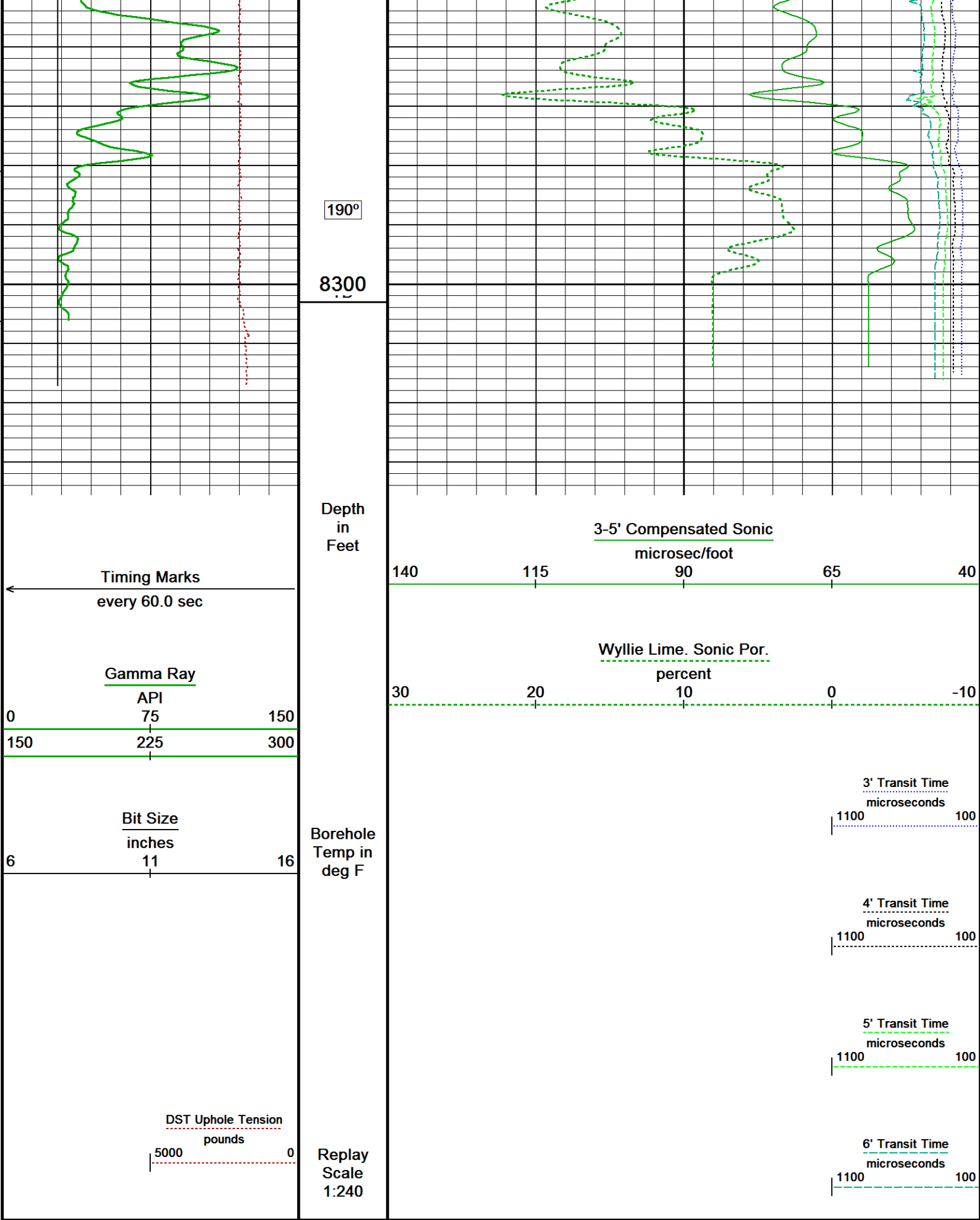
189°

8200

190°

8250





# BEFORE SURVEY CALIBRATION

C:\Minimus 18.03.9344\Data\Murfin Moonraker #6-27\TOOLSTRING.dta

General Constants All 000

Last Edited on 20-JAN-2019,06:53

## General Parameters

Mud Resistivity	0.760	ohm-metres
Mud Resistivity Temperature	94.000	degrees F
Water Level	0.000	feet
Borehole Fluid Processing	Wet Hole	

## Hole/Annular Volume and Differential Caliper Parameters

HVOL Method	Single Caliper	
HVOL Caliper 1	None	
HVOL Caliper 2	N/A	
Annular Volume Diameter	5.500	inches
Caliper for Differential Caliper	None	

## Rwa Parameters

Porosity used	N/A
Resistivity used	N/A
RWA Constant A	N/A
RWA Constant M	N/A
SW/APOR Tool Source	0.000

Down-hole Tension Calibration SMS 0

Field Calibration on 20-JAN-2019,06:56

Reading No	Measured	Calibrated (lbs)
1	15574.48	0.00
2	15992.00	187.00

SP Calibration MCG-D.K 443

Field Calibration on 10-DEC-2018 15:37

	Measured	Calibrated (mV)
Reference 1	100.8	99.9
Reference 2	-98.4	-99.9

High Resolution Temperature Calibration MCG-D.K 443

Field Calibration on 12-OCT-2018,05:20

	Measured	Calibrated(Deg F)
Lower	50.00	50.00
Upper	212.00	212.00

High Resolution Temperature Constants MCG-D.K 443

Last Edited on 12-OCT-2018,05:20

Pre-filter Length	11
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Gamma Calibration MCG-D.K 443

Field Calibration on 18-JAN-2019 15:28

	Measured	Calibrated (API)
Background	192	135
Calibrator (Gross)	841	591
Calibrator (Net)	648	456

Gamma Calibration Tolerances MCG-D.K 443

Ratio	1.422	<div><div>1.40</div><div>1.475</div><div>1.55</div></div>	Counts/API
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Gamma Constants MCG-D.K 443

Last Edited on 20-JAN-2019,00:40

Gamma Calibrator Number	MCGGRCC141	
GRC-M Calibrator Jig in Use?	NO	
Inactive Background Jig in Use?	NO	
Mud Density	1.13	gm/cc
Caliper Source for Processing	Density Caliper	
Tool Position	Eccentred	
Potassium Equivalence	Chloride	
K Mud Concentration	0.00	%

Micro Normal and Micro Inverse Calibration MMR-B.A 91

Base Calibration on 18-JAN-2019 12:24

Field Check on 18-JAN-2019 14:09

Resistor 1 (ohm)  
10.0Resistor 2 (ohm)  
50.0

## Base Calibration

		Measured	Calibrated (ohm-m)	
Micro Normal	10.2	49.8	5.1	25.6
Micro Inverse	9.9	49.4	3.4	16.9

Channel	Base Check (ohm-m)	Field Check (ohm-m)
Micro Normal	93.8	93.8
Micro Inverse	62.3	62.3

## Micro Normal &amp; Micro Inverse Calibration Tolerance MMR-B.A 91

Micro Normal Res. 1	10.2	<div><div></div><div></div><div></div><div></div><div></div></div>	ohm	Micro Normal Res. 2	49.8	<div><div></div><div></div><div></div><div></div><div></div></div>	ohm
Micro Inverse Res. 1	9.9	<div><div></div><div></div><div></div><div></div><div></div></div>	ohm	Micro Inverse Res. 2	49.4	<div><div></div><div></div><div></div><div></div><div></div></div>	ohm
Micro Normal Base Check	93.8	<div><div></div><div></div><div></div><div></div><div></div></div>	ohm-m				
Micro Inverse Base Check	62.3	<div><div></div><div></div><div></div><div></div><div></div></div>	ohm-m				
Micro Normal Field Check	93.8	<div><div></div><div></div><div></div><div></div><div></div></div>	ohm-m				
Micro Inverse Field Check	62.3	<div><div></div><div></div><div></div><div></div><div></div></div>	ohm-m				

## Micro Normal and Micro Inverse Constants MMR-B.A 91

Last Edited on 13-APR-2018,05:04

Pad Type	8-12 in Soft Rubber Inflatable 006-9011-159
Micro Normal K Factor	0.5110
Micro Inverse K Factor	0.3380
Standoff Offset	0.0000 inches

## Caliper Calibration MMR-B.A 91

Base Calibration on 18-JAN-2019 14:14

Field Calibration on 18-JAN-2019 14:17

Base Calibration		
Reading No	Measured	Calibrator Size (in)
1	14078	5.98
2	17477	7.97
3	20615	9.86
4	24868	11.92
5	0	0.00
6	N/A	N/A
Field Calibration		
	Measured Caliper (in)	Actual Caliper (in)
	7.96	7.97

## Caliper Calibration Tolerances MMR-B.A 91

Short Arm Field Cal.	7.96	<div><div></div><div></div><div></div><div></div><div></div></div>	in
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## Micro-Resistivity Caliper Constants MMR-B.A 91

Sonde Configuration	Resistivity Mode
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## Micro Laterolog Calibration MMR-B.A 91

Base Calibration on 31-DEC-1999 00:00

Field Check on 31-DEC-1999 00:00

	Resistor 1 (ohm)	Resistor 2 (ohm)
Base Calibration	0.0	0.0
	Measured	Calibrated (ohm-m)
	Ref 1 Ref 2	Ref 1 Ref 2
	0.0 0.0	0.0 0.0
	Base Check (ohm-m)	Field Check (ohm-m)
	0.0	0.0

## Micro Laterolog Constants MMR-B.A 91

Pad Type	6 in Solid Nylon B23059
Standoff Offset	0.0000 inches
Micro Laterolog K Factor	0.0128
Micro Laterolog Rm K Factor	N/A

## Mudcake Thickness Correction Constants

Mud Cake Source	Constant Value	
Mud Cake Thickness	0.4000	inches
Mud Cake Thickness Caliper		
Mud Cake Resistivity	0.1500	ohm-m
Mud Cake Resistivity Temp.	20.00	Degrees C
Mud Cake Resistivity Source	Constant Value	
Temp. for Rmc Corr.	MCG External Temperature	

## Neutron Calibration MDN-B.A 292

Base Calibration on 07-JAN-2019,13:23

Field Check on 18-JAN-2019 15:36

## Base Calibration

	Measured		Calibrated (cps)	
	Near	Far	Near	Far
	2910	91	3714	110
Ratio	31.871		33.764	

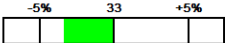
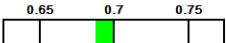
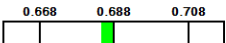
## Field Calibrator at Base

	Calibrated (cps)
	2207 3209
Ratio	0.688

## Field Check

	Calibrated (cps)
	2196 3210
Ratio	0.684

## Neutron Calibration Tolerances MDN-B.A 292

Ratio	31.871	
Base Check	0.688	
Field Check	0.684	

## Neutron Constants MDN-B.A 292

Last Edited on 20-JAN-2019,00:41

Neutron Source Id	P0204NN	
Neutron Jig Number	NJ5736	
Air Hole Processing	Legacy	
Caliper Source for Processing	Density Caliper	
Stand-off	0.00	inches
Mud Density	1.00	gm/cc
Limestone Sigma	7.10	cu
Sandstone Sigma	4.26	cu
Dolomite Sigma	4.70	cu
Formation Pressure Source	None	
Formation Pressure	N/A	kpsi
Temperature Source	Constant Value	
Temperature	68.00	degrees F
Mud Salinity	0.00	kppm
Salinity Correction	Not Applied	
Formation Fluid Salinity Source	None	
Formation Fluid Salinity	N/A	kppm
Barite Mud Correction	Not Applied	

## FE Calibration MFE-B.J 352

Base Calibration on 19-JAN-2019 15:43

Field Check on 19-JAN-2019 15:50

	Resistor 1 (ohm)	Resistor 2 (ohm)
	0.0	1000.0
Base Calibration		
	Measured	Calibrated (ohm-m)
Reference 1	0.0	0.0
Reference 2	962.9	126.8
Base Check		281.6
Field Check		281.6

## FE Calibration Tolerances MFE-B.J 352

Reference 2	962.9	<div><div></div><div></div><div></div><div></div><div></div></div>	ohm
Base Check	281.6	<div><div>-2%</div><div>277.0</div><div>+2%</div></div>	ohm-m
Field Check	281.6	<div><div>-2%</div><div>281.6</div><div>+2%</div></div>	ohm-m

FE Constants MFE-B.J 352

Last Edited on 20-JAN-2019,00:45

Running Mode	No Sleeve
MFE K Factor	0.1268
Borehole Correction Constants	
Sonde Position	0.5 inches
Hole Size Source	Density Caliper
Hole Size Constant Value	N/A inches
Rm Source	Global Value: Temperature Corrected
Temp. for Rm Corr.	MCG External Temperature

Induction Calibration MAI-B.J 390

Factory Loop Calibration 07-JAN-2019 10:28

Field Check on 19-JAN-2019 15:38

Factory Loop Calibration

High Conductivity Reference Resistor	3.3 ohm
Low Conductivity Reference Resistor	333.3 ohm

Array	Measured Signal (unitless)		Reference Conductivity (mmho/m)		Calibration	
	Low	High	Low	High	Gain	Offset
1 (near)	16.8	458.6	9.3	966.2	2.166	-27.2
2	6.3	377.7	7.6	821.4	2.191	-6.2
3	3.8	258.6	5.2	566.0	2.200	-3.0
4 (far)	1.9	132.3	2.6	279.2	2.121	-1.4
Array Temperature	77.9		Deg F			

Tool Checks

Array	Factory Reference (mmho/m)		Before Survey (mmho/m)		
	Low	High	Low	High	
1 (near)	13.2	3960.1	13.0	3959.2	
2	29.9	3563.5	29.8	3563.3	
3	27.9	3061.4	27.8	3061.3	
4 (far)	19.7	2087.8	19.7	2088.0	
Array Temperature	64.9		58.9		Deg F

Induction Check Tolerances MAI-B.J 390

Low Array 1	13.0	<div><div>11.7</div><div>13.2</div><div>14.7</div></div>	mmho/m	High Array 1	3959.2	<div><div>-0.5%</div><div>3960.1</div><div>+0.5%</div></div>	mmho/m
Low Array 2	29.8	<div><div>28.4</div><div>29.9</div><div>31.4</div></div>	mmho/m	High Array 2	3563.3	<div><div>-0.5%</div><div>3563.5</div><div>+0.5%</div></div>	mmho/m
Low Array 3	27.8	<div><div>26.4</div><div>27.9</div><div>29.4</div></div>	mmho/m	High Array 3	3061.3	<div><div>-0.5%</div><div>3061.4</div><div>+0.5%</div></div>	mmho/m
Low Array 4	19.7	<div><div>18.2</div><div>19.7</div><div>21.2</div></div>	mmho/m	High Array 4	2088.0	<div><div>-0.5%</div><div>2087.8</div><div>+0.5%</div></div>	mmho/m

Induction Constants MAI-B.J 390

Last Edited on 20-JAN-2019,00:47

Induction Model	RtAP-WBM
Borehole Correction Constants	
Tool Centred	No
Hole Size Source	Density Caliper
Hole Size Constant Value	N/A inches
Stand-off Type	Fins
Stand-off	0.50 inches
Number of Fins on Stand-off	8.0000
Stand-off Fin Angle	45.00 degrees
Stand-off Fin Width	0.5000 inches
Rm Source	Global Value: Temperature Corrected
Temp. for Rm Corr.	MCG External Temperature
Borehole Correction Method	Default
Squasher Start	0.0020 mhos/metre
Squasher Offset	N/A mhos/metre

Apparent Porosity and Water Saturation Constants		
Archie Constant (A)	1.00	
Cementation Exponent (M)	2.00	
Saturation Exponent (N)	2.00	
Saturation of Water for Apor	100.00	percent
Resistivity of Water for Apor and Sw	0.05	ohm-m
Resistivity of Mud Filtrate for Sw	0.00	ohm-m
Source for Rt	0.00	
Source for Rxo	0.00	

High Resolution Temperature Constants MAI-B.J 390 Last Edited on 06-MAR-2018,13:01

Pre-filter Length 11

### Processed Fixed Gate Parameters



Waveform Used For Processing	N/A			
Start Time (micro-sec)	End Time (micro-sec)	Discriminator (mV)	Depth (ft)	
0.00	0.00	0.00	0.00	
0.00	0.00	0.00	0.00	
0.00	0.00	0.00	0.00	
0.00	0.00	0.00	0.00	
0.00	0.00	0.00	0.00	

#### Full Waveform Parameters

Use 3' Waveform to derive TR	No	
Use 4' Waveform to derive TR	No	
Use 5' Waveform to derive TR	No	
Use 6' Waveform to derive TR	No	
3' Waveform Discriminator Level	0.30	mV
4' Waveform Discriminator Level	0.30	mV
5' Waveform Discriminator Level	0.15	mV
6' Waveform Discriminator Level	0.15	mV
Waveform Discriminator Filter	Not Applied	
Semblance Window Width	150.00	micro-sec
Semblance Processing Enabled	Yes	
Tracking Boxes Enabled In Processing	Yes	

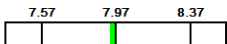
#### Caliper Calibration MPD-C.A 216

Base Calibration on 18-JAN-2019 17:06  
Field Calibration on 18-JAN-2019 17:08

Base Calibration		
Reading No	Measured	Calibrator Size (in)
1	16199	3.99
2	24624	5.98
3	33344	7.97
4	41632	9.86
5	50912	11.92
6	N/A	N/A

Field Calibration		
	Measured Caliper (in)	Actual Caliper (in)
	7.93	7.97

#### Caliper Calibration Tolerances MPD-C.A 216

Long Arm Field Cal.	7.93		in
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#### Photo Density Calibration MPD-C.A 216

Base Calibration on 18-JAN-2019 16:36  
Field Check on 18-JAN-2019 16:51

Density Calibration				
Base Calibration		Measured	Calibrated (sdu)	
	Near	Far	Near	Far
Background	993	1180		
Reference 1	46604	22300	59556	30836
Reference 2	18380	2158	24941	2541

Field Check at Base		
	993.3	1179.8

Field Check		
	994.1	1177.2

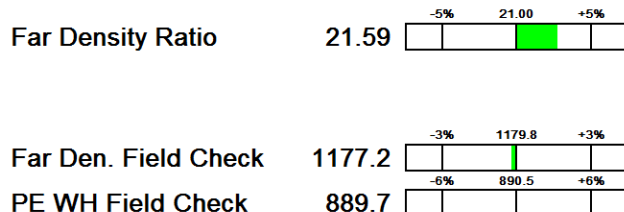
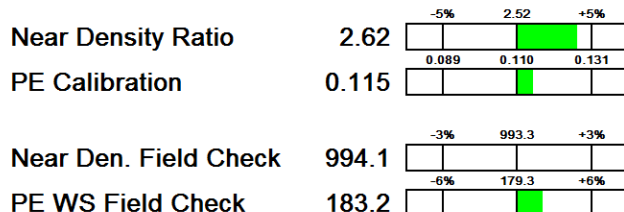
PE Calibration				
Base Calibration		Measured	Calibrated	
	WS	WH	Ratio	Ratio
Background	179	890		
Reference 1	19088	46448	0.415	0.371
Reference 2	5249	18271	0.292	0.272

Field Check at Base		
	179.3	890.5

Field Check		
	183.2	889.7

#### Photo Density Calibration Tolerances MPD-C A 216





Density Constants MPD-C.A 216

Last Edited on 20-JAN-2019,00:42

Density Source Id	P50557B	
Nylon Calibrator Number	DNCE695	
Aluminium Calibrator Number	DACD698	
Density Shoe Profile	8 inch	
Caliper Source for Processing	Density Caliper	
PE Correction to Density	Not Applied	
Mud Density	1.13	gm/cc
Mud Density Type		
Mud Filtrate Density	1.00	gm/cc
Dry Hole Mud Filtrate Density	1.00	gm/cc
DNCT	0.00	gm/cc
CRCT	0.00	gm/cc
Density Z/A Correction	Hybrid	
Precision Enhanced Density Processing	Applied	
Matrix Density (gm/cc)	Depth (ft)	
2.71	0.00	
0.00	0.00	
0.00	0.00	
0.00	0.00	
0.00	0.00	
0.00	0.00	
0.00	0.00	
0.00	0.00	
0.00	0.00	

## DOWNHOLE EQUIPMENT

C:\Minimus 18.03.9344\Data\Murfin Moonraker #6-27\TOOLSTRING.dta

Cablehead, 11 pin  
CBH-CB 264 LG: 2.40 ft WT: 24.3 lb OD: 2.244 in

Compact Swivel Head Adaptor  
SHA-J.B 595 LG: 2.30 ft WT: 22.0 lb OD: 2.244 in

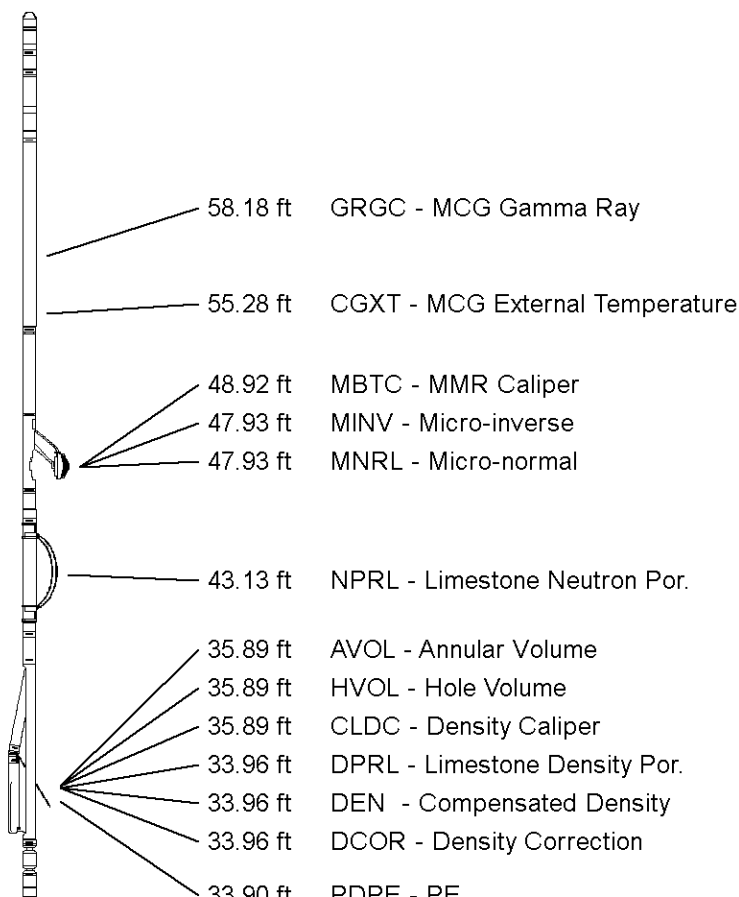
Compact Comms Gamma  
MCG-D.K 443 LG: 8.70 ft WT: 63.9 lb OD: 2.244 in

Compact Micro-Resistivity  
MMR-B.A 91 LG: 8.59 ft WT: 81.6 lb OD: 4.882 in

Compact Neutron  
MDN-B.A 292 LG: 5.04 ft WT: 50.7 lb OD: 2.244 in

Compact Density/Caliper  
MPD-C.A 216 LG: 9.59 ft WT: 90.4 lb OD: 2.913 in

Compact Knuckle Joint  
SKJ-E.B 733 LG: 2.17 ft WT: 24.3 lb OD: 2.244 in

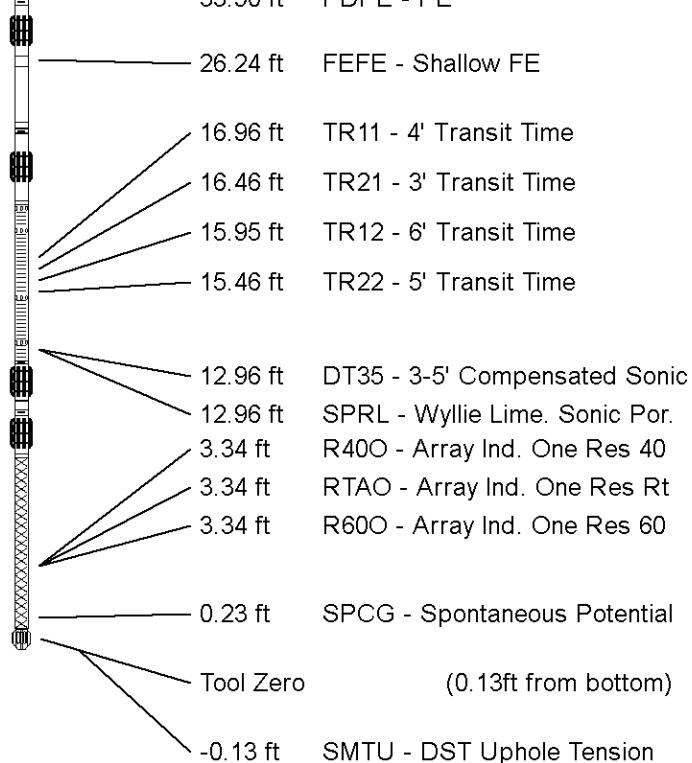


Compact Focussed Electric  
MFE-B.J 352 LG: 6.05 ft WT: 48.5 lb OD: 2.244 in

Compact Sonic  
MSS-C.K 319 LG: 12.52 ft WT: 72.8 lb OD: 2.244 in

Compact Induction  
MAI-B.J 390 LG: 10.81 ft WT: 48.5 lb OD: 2.244 in

Total Length: 68.16 ft Weight: 526.9 lb



All measurements relative to tool zero.

COMPANY	MURFIN DRILLING COMPANY, INC.
WELL	MOONRAKER #6-27
FIELD	WILDCAT
PROVINCE/COUNTY	LINCOLN
COUNTRY/STATE	U.S.A. / COLORADO

Elevation Kelly Bushing	5475	feet	First Reading	8300.00	feet
Elevation Drill Floor	5473	feet	Depth Driller	8300.00	feet
Elevation Ground Level	5462	feet	Depth Logger	8303.00	feet



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