



Weatherford®

**COMPENSATED SONIC
WITH INTEGRATED TRANSIT TIME**

COMPANY		GRAND MESA OPERATING COMPANY			
WELL		DIXIE #1-5			
FIELD		WILDCAT			
PROVINCE/COUNTY		LINCLON			
COUNTRY/STATE		U.S.A. / COLORADO			
LOCATION		1057' FSL & 1678' FEL			
SEC 5	TWP 11S	RGE 54W	Other Services		
Latitude	39.11408		MAI/MFE		MPD/MDN
Longitude	-103.46727		MML		
API Number	05-073-06758				
Permanent Datum GL, Elevation 5077 feet					Elevations: KB 5096.00 DF 5094.00 GL 5077.00
Log Measured From KB, 19.00 feet above Permanent Datum					
Drilling Measured From KB					
Date	20-JAN-2019				
Run Number	ONE				
Service Order	17876-235225672				
Depth Driller	7635.00				feet
Depth Logger	7638.00				feet
First Reading	7625.00				feet
Last Reading	474.00				feet
Casing Driller	480.00				feet
Casing Logger	474.00				feet
Bit Size	7.875				inches
Hole Fluid Type	CHEMICAL				
Density / Viscosity	9.30 lb/USg		59.00	sec/qt	
PH / Fluid Loss	11.00		6.40	ml/30Min	
Sample Source	FLOWLINE				
Rm @ Measured Temp	0.60 @100.0				ohm-m
Rmf @ Measured Temp	0.45 @100.0				ohm-m
Rmc @ Measured Temp	0.72 @100.0				ohm-m
Source Rmf / Rmc	CALC		CALC		
Rm @ BHT	0.36 @169.0		ohm-m		
Time Since Circulation	5 HOURS				
Max Recorded Temp	169.00		deg F		
Equipment / Base	13096		LIB		
Recorded By	BANDAR BINOSFUR				
Witnessed By	GARET DINKEL				

BOREHOLE RECORD					Last Edited: 21-JAN-2019 17:31
Bit Size inches		Depth From feet		Depth To feet	
7.875		480.00		7635.00	
CASING RECORD					
Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft	
SURFACE	8.625	0.00	480.00	24.00	

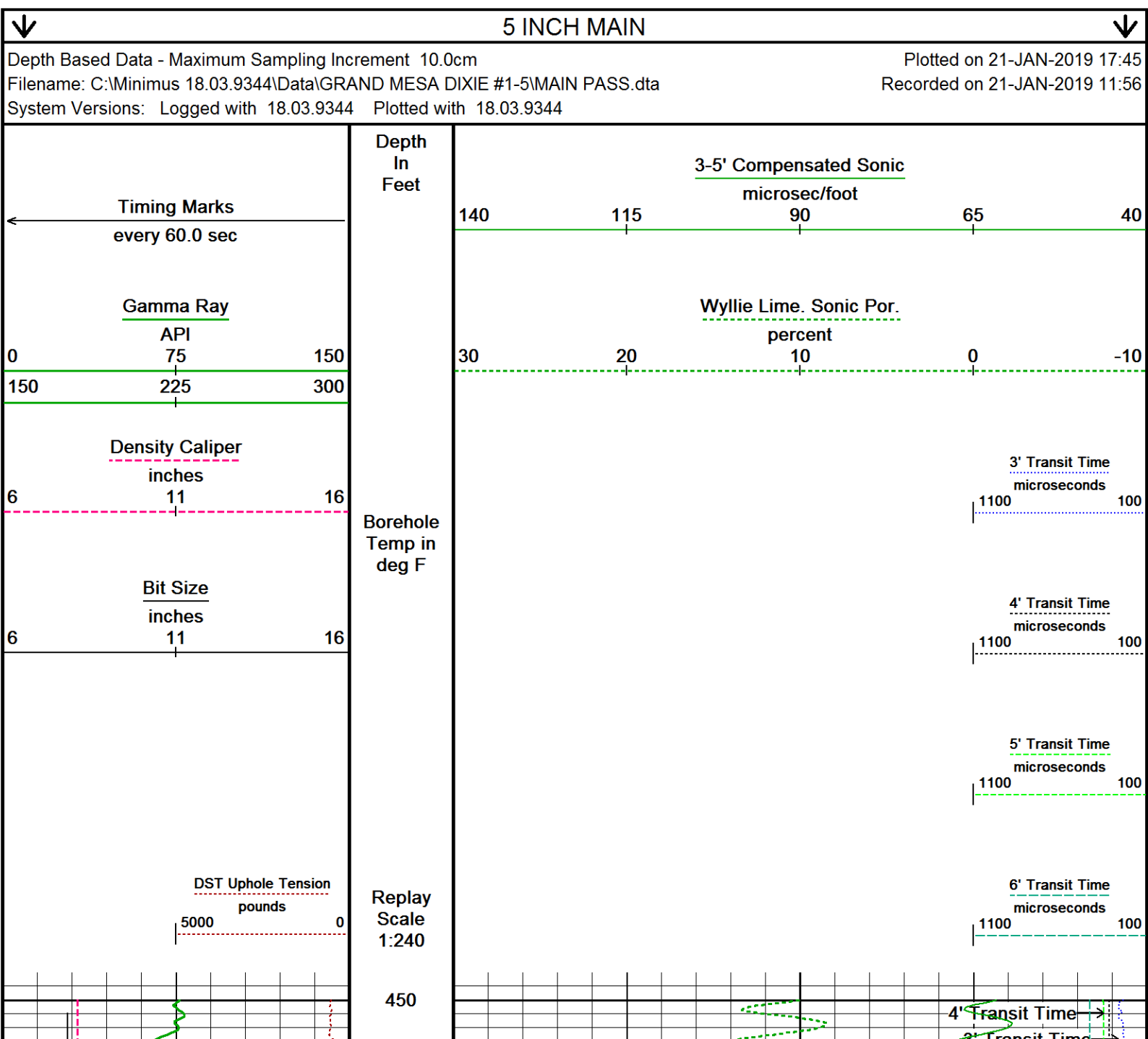
REMARKS
- SOFTWARE ISSUE: WLS 18.03.9344.
- RUN ONE: SHA, MCG, MML, MDN, MPD, SKJ, MFE, MSS, MAI RAN IN COMBINATION. - HARDWARE: DUAL BOWSPRING USED ON MDN. 0.5 INCH STANDOFF USED ON MFE. TWO 0.5 INCH STANDOFFS USED ON MSS. 0.5 INCH STANDOFF USED ON MAI.
- 2.71 G/CC LIMESTONE DENSITY MATRIX USED TO CALCULATE POROSITY.
- BOREHOLE RUGOSITY, TIGHT PULLS, AND WASHOUTS WILL AFFECT DATA QUALITY.
- ALL INTERVALS LOGGED AND SCALED PER CUSTOMER'S REQUEST.
- TOTAL HOLE VOLUME FROM TD TO SURFACE CASING: 2940 CU.FT.
- ANNULAR HOLE VOLUME WITH 5.5 INCH PRODUCTION CASING FROM TD TO SURFACE CASING: 1760 CU.FT.

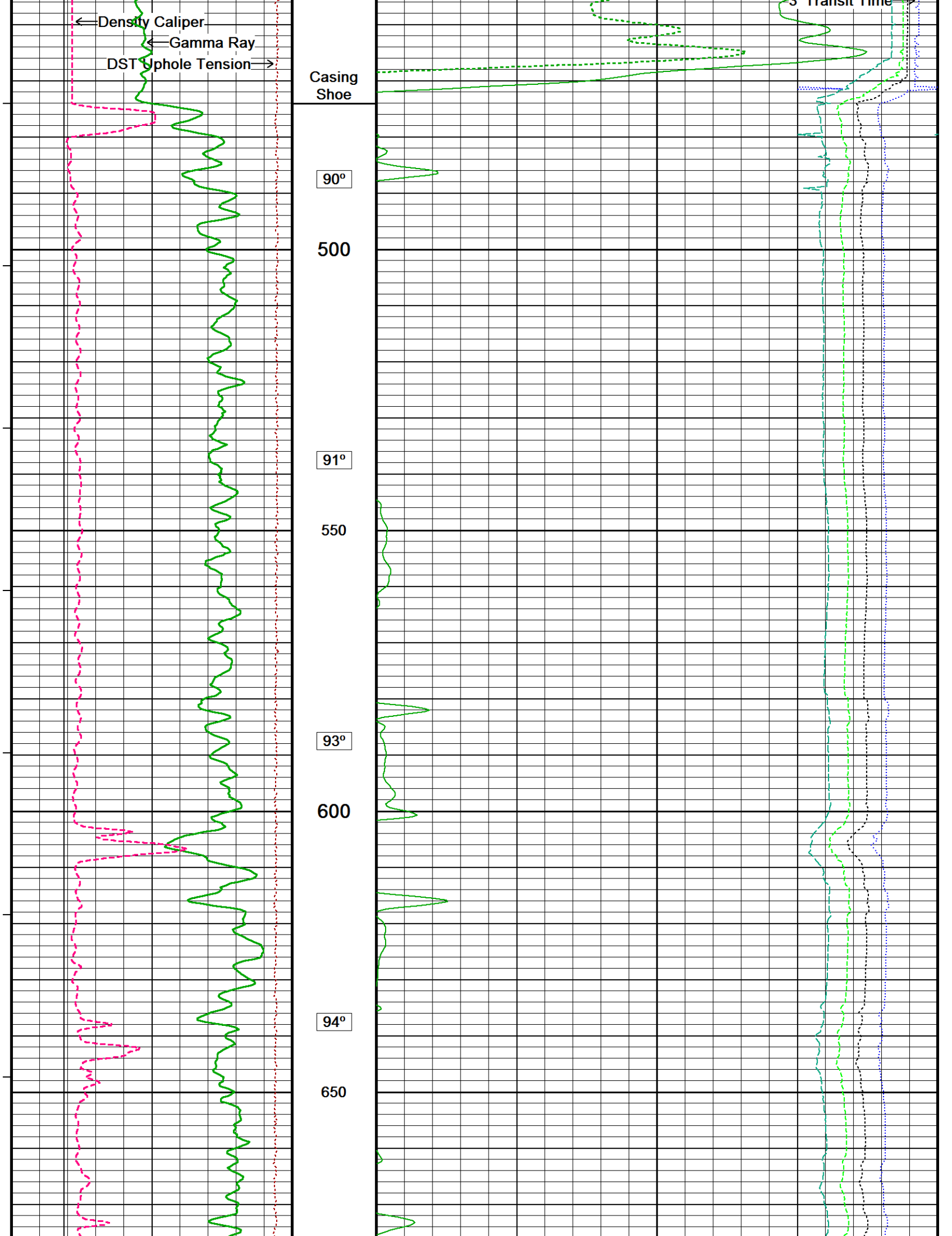
- BRIDGING IN THE FIRST RUN AT 1020', CLIENT DECIDED TO RUN WIPER TRIP AND SECOND RUN WAS COMPLETED SUCCESSFULLY.

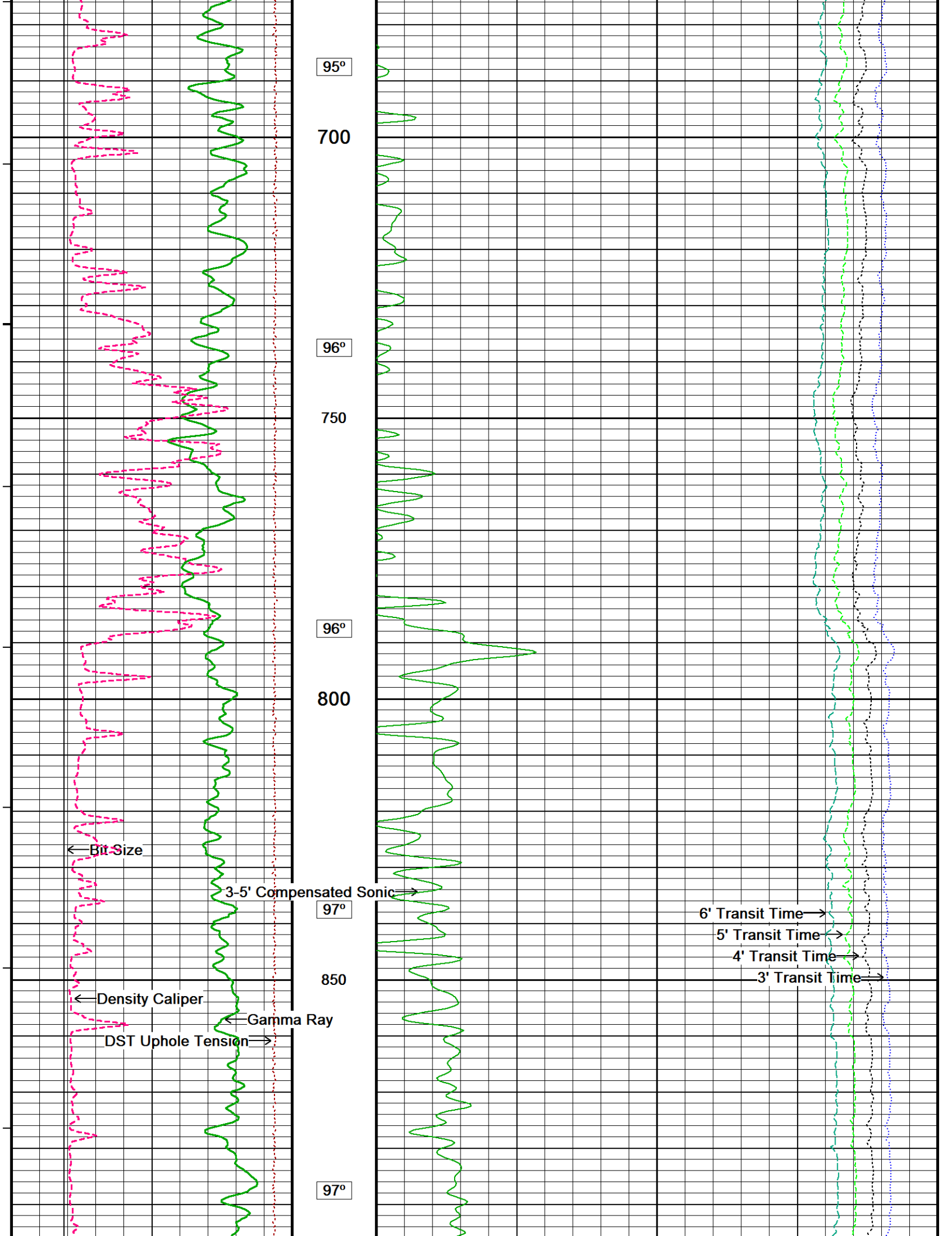
- ENGINEER: B. BINOSFUR

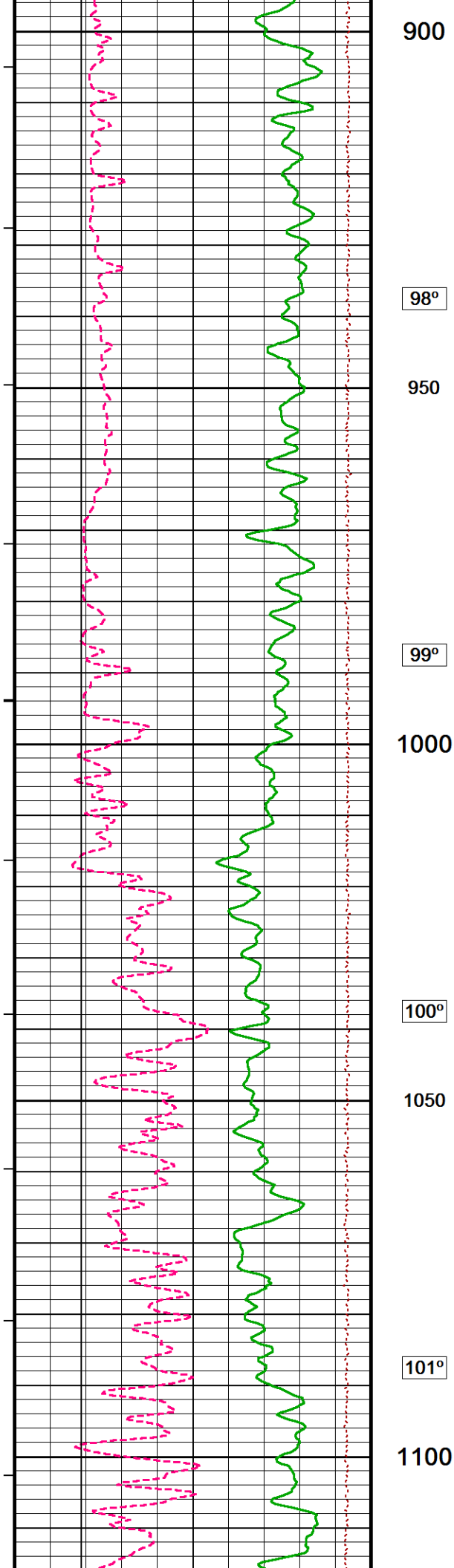
- OPERATORS: B. TOVAR, B. COPELAND.

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.









90

98°

950

99°

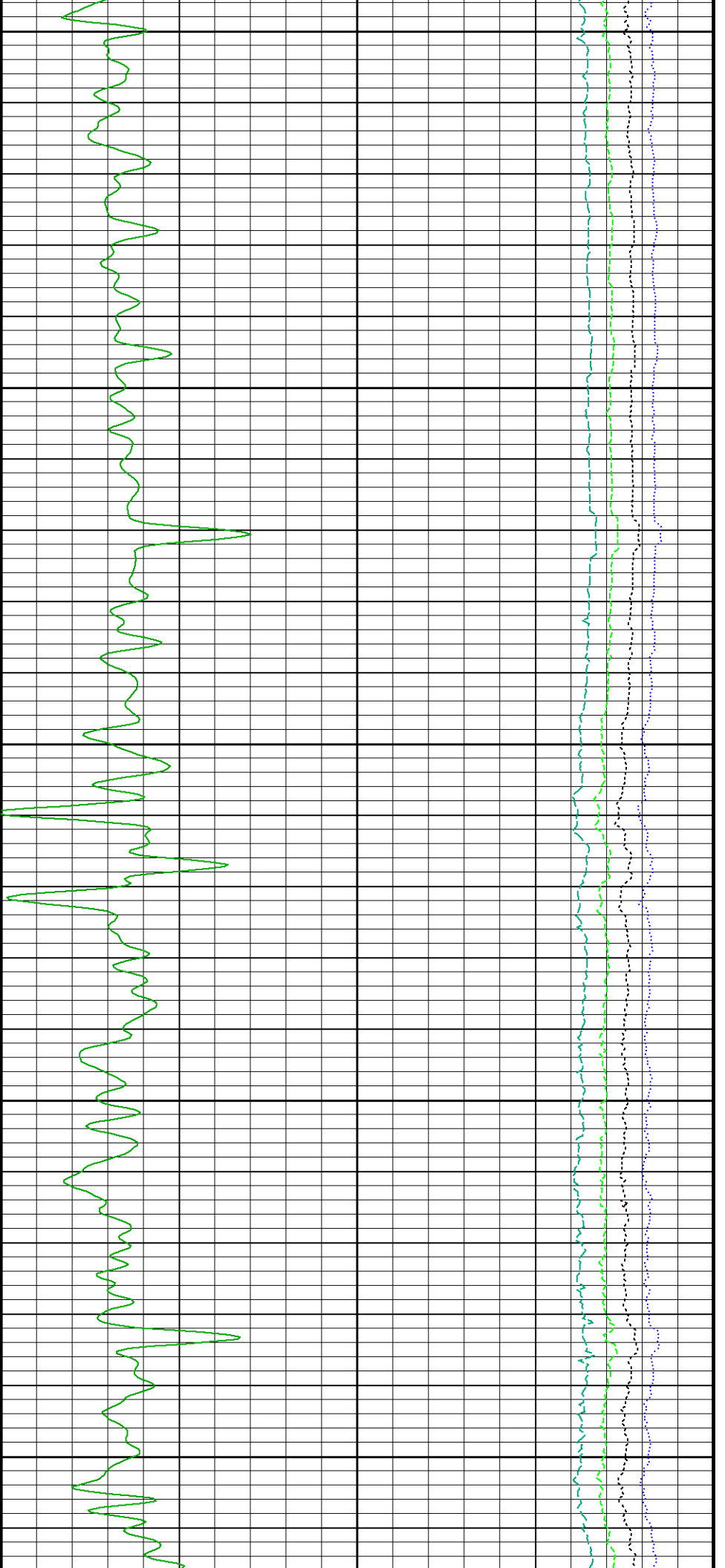
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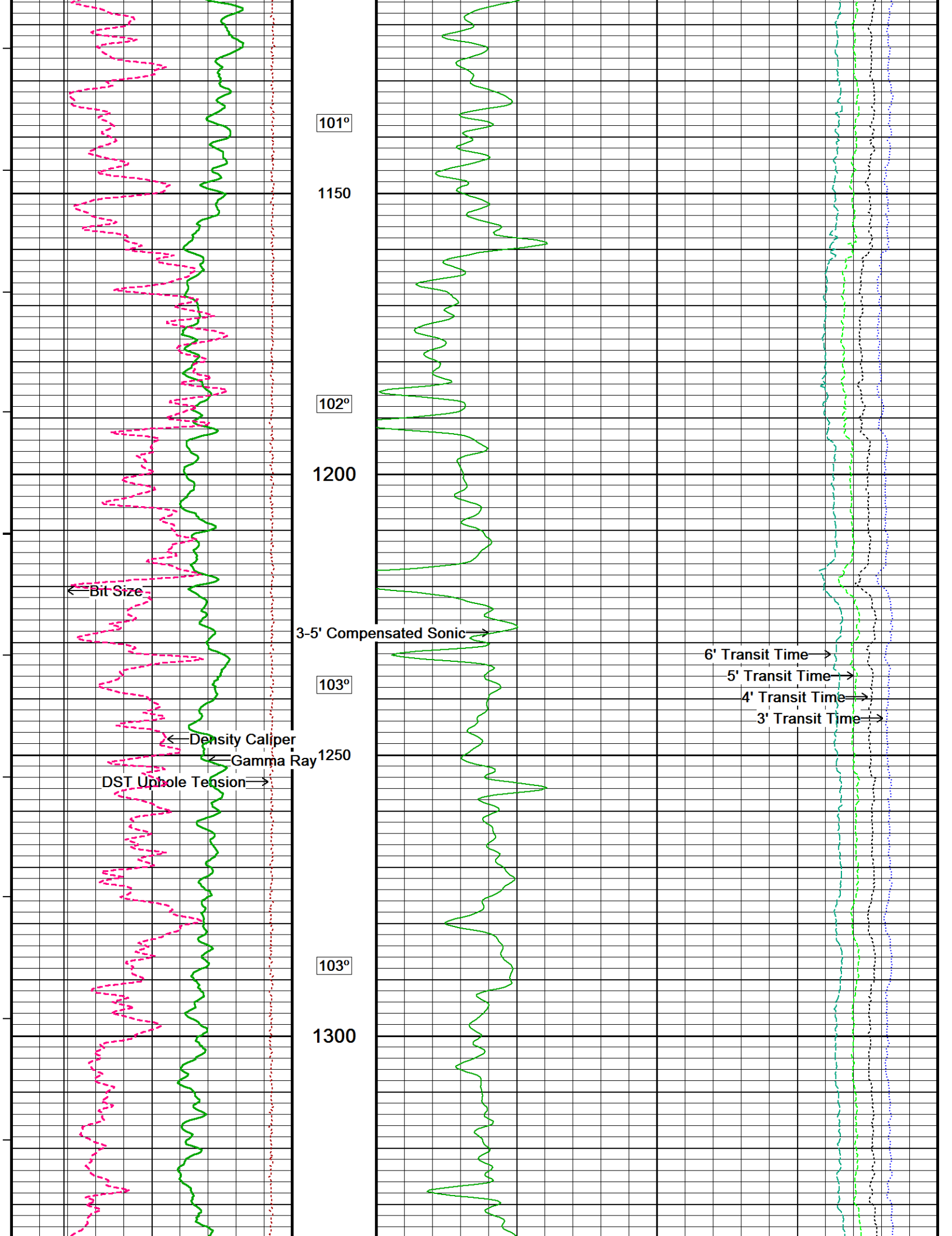
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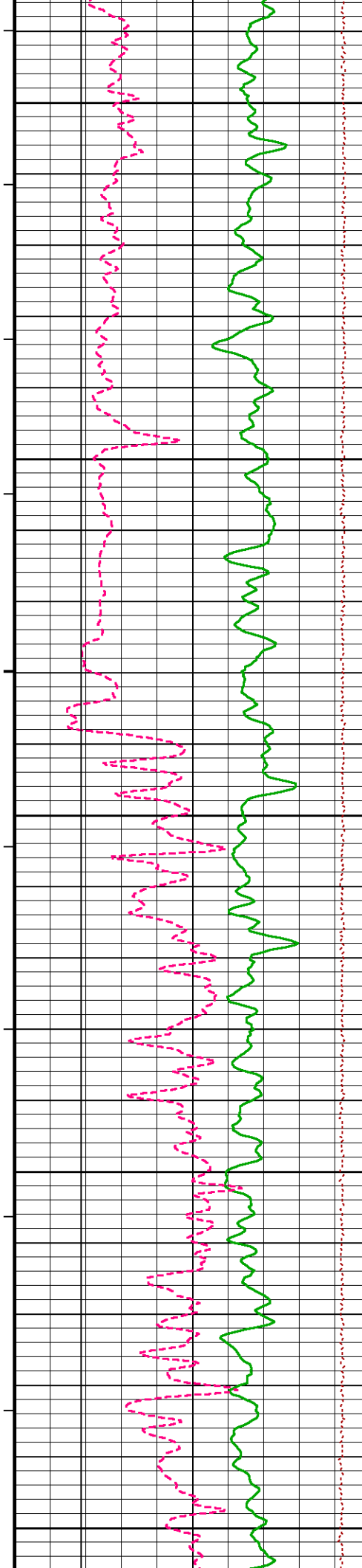
1050

101°

1100







103°

1350

104°

1400

105°

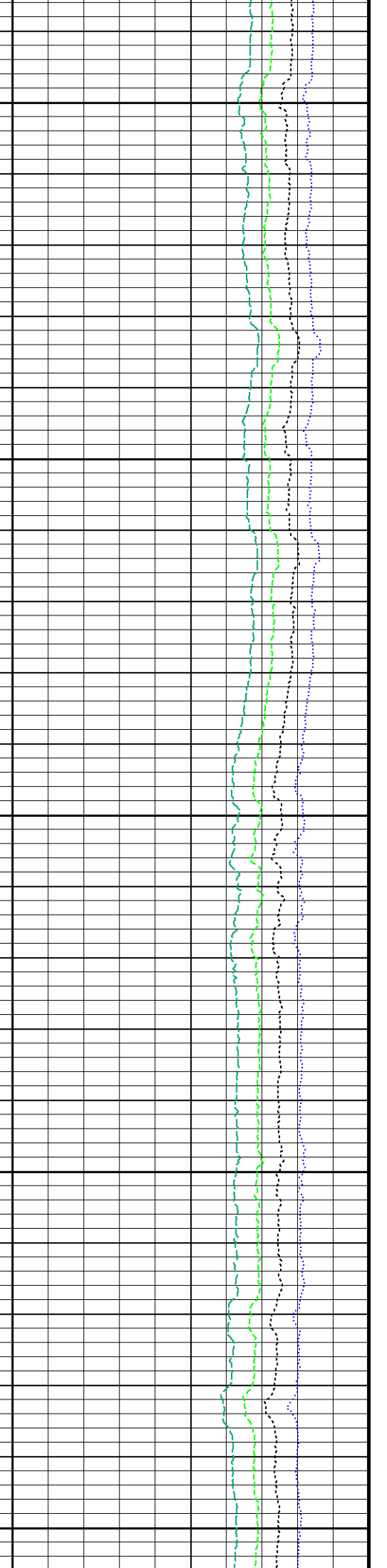
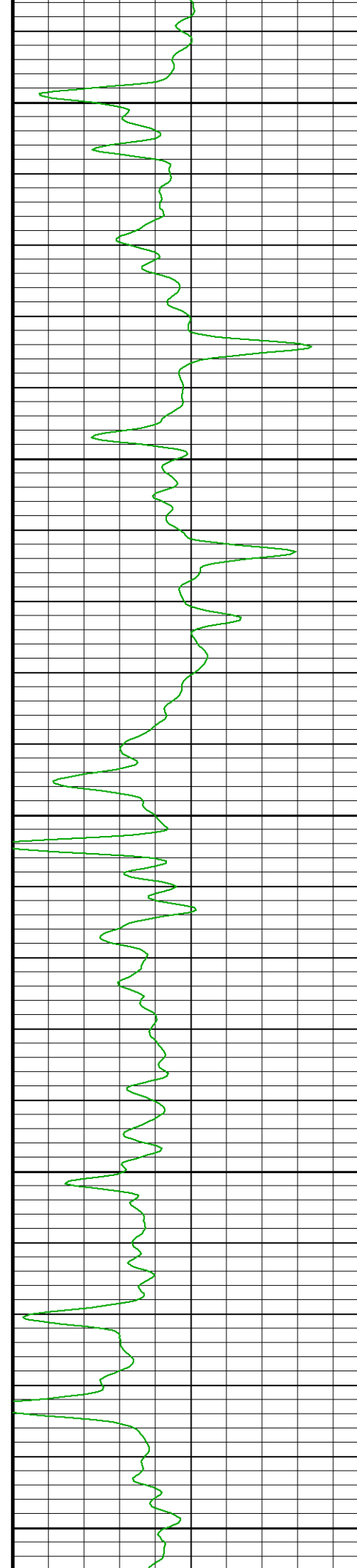
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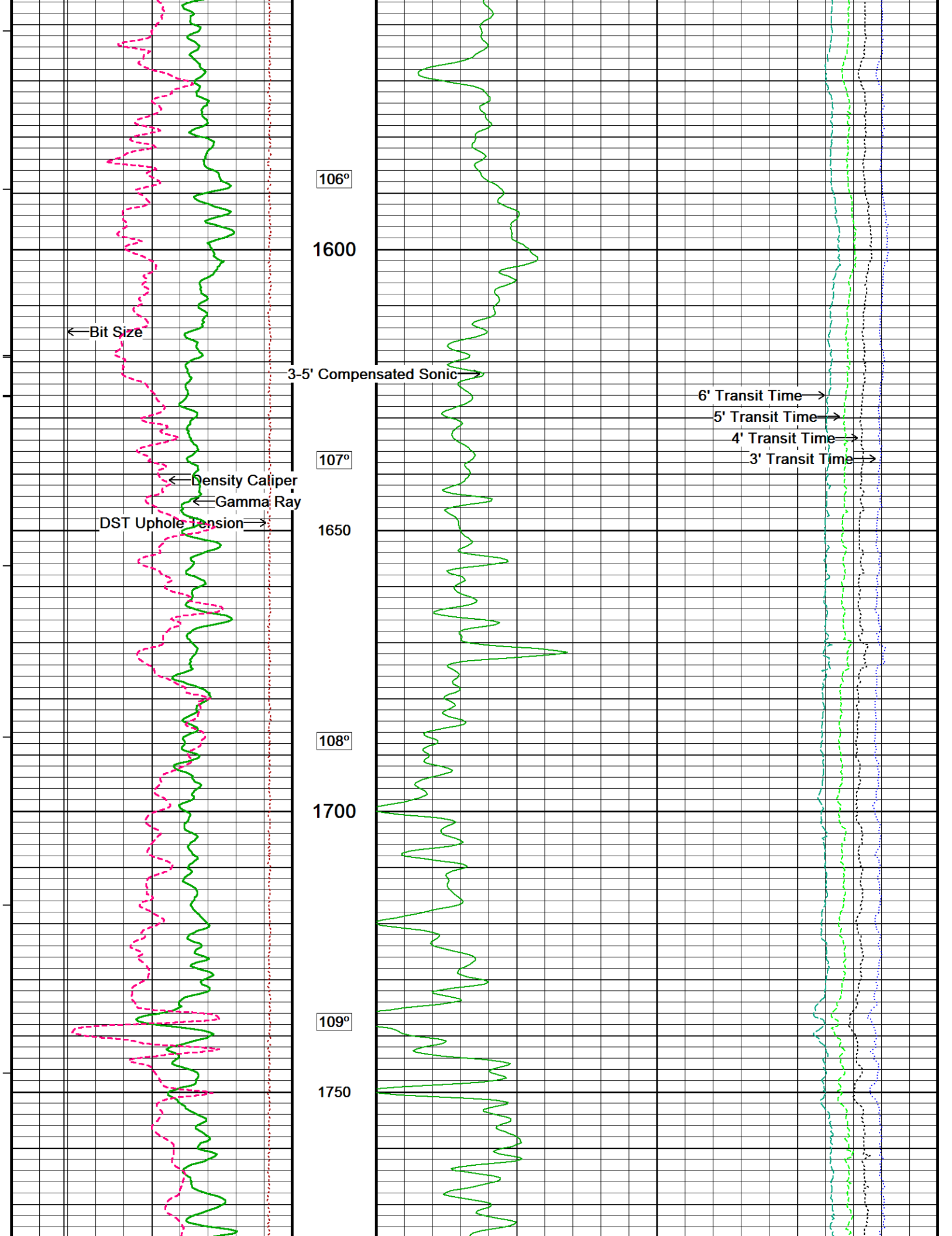
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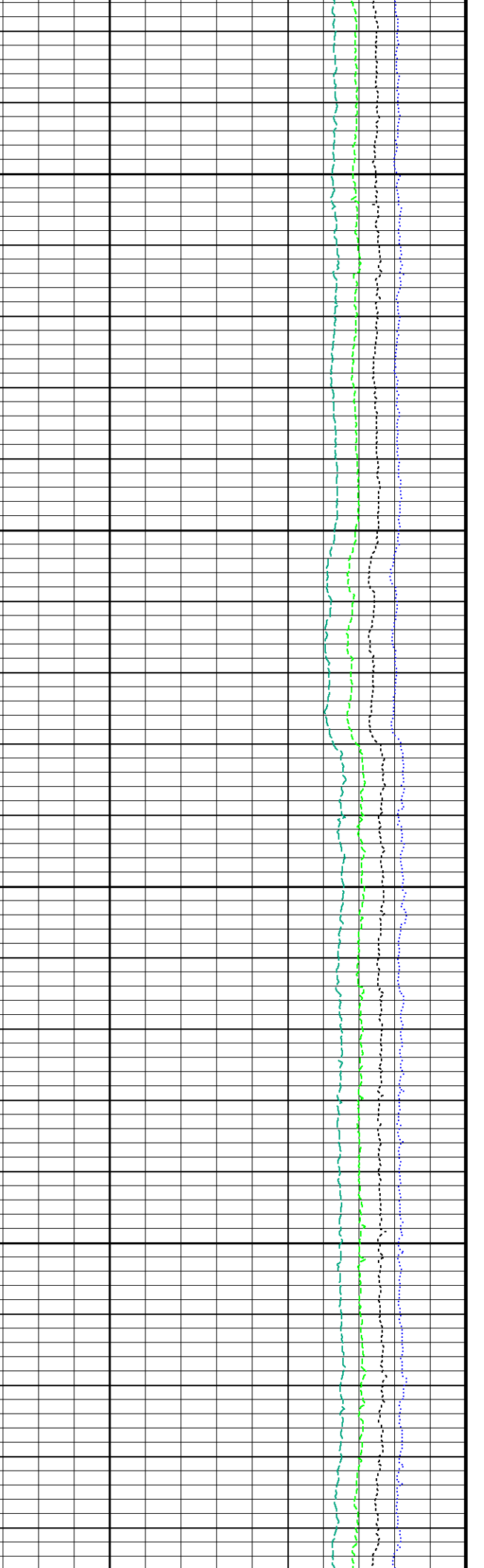
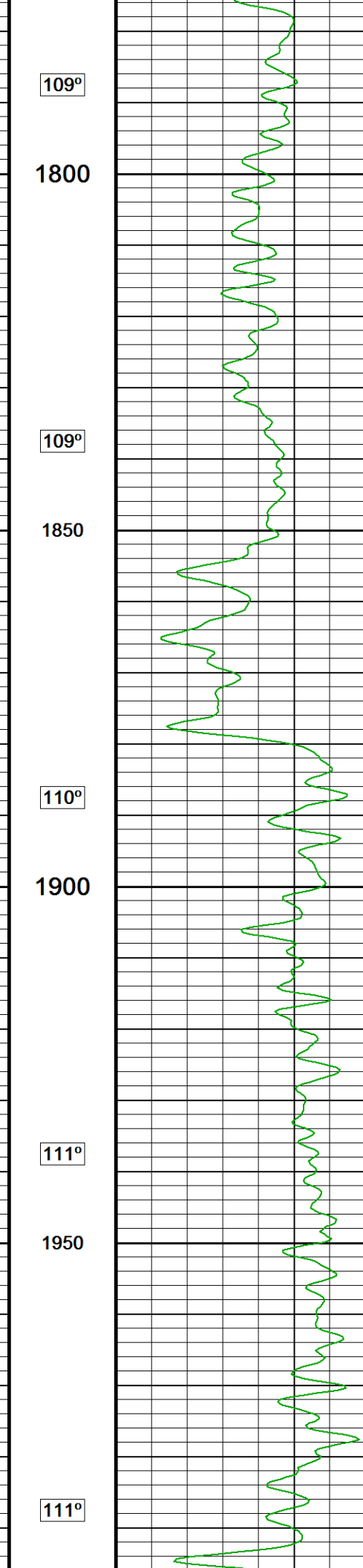
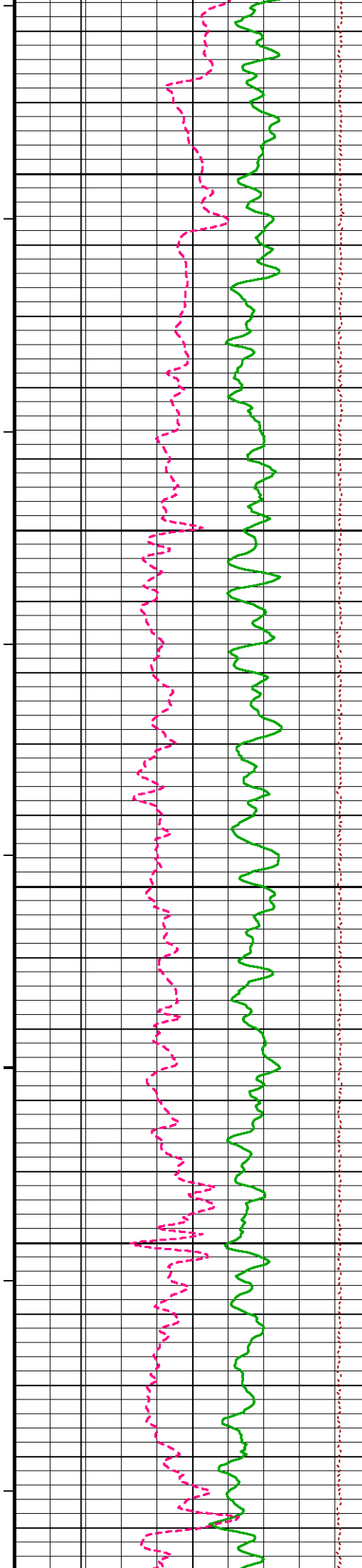
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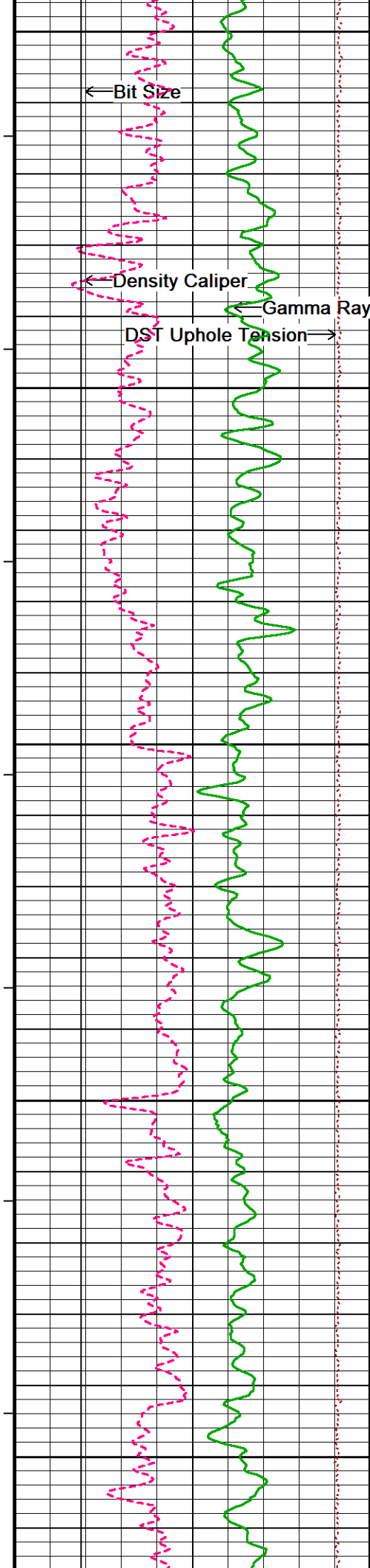
106°

1550









2000

3-5' Compensated Sonic →

111°

2050

112°

2100

113°

2150

114°

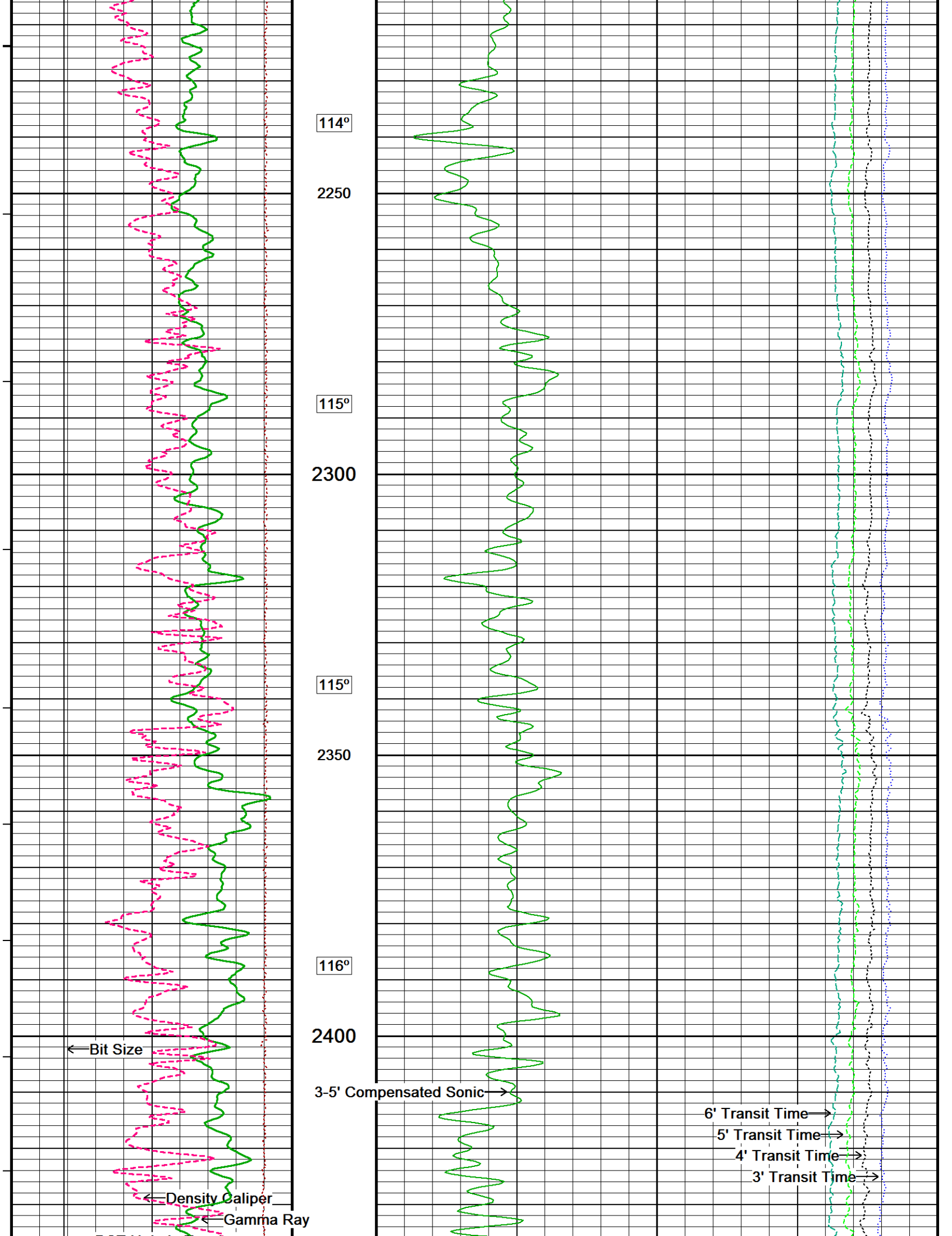
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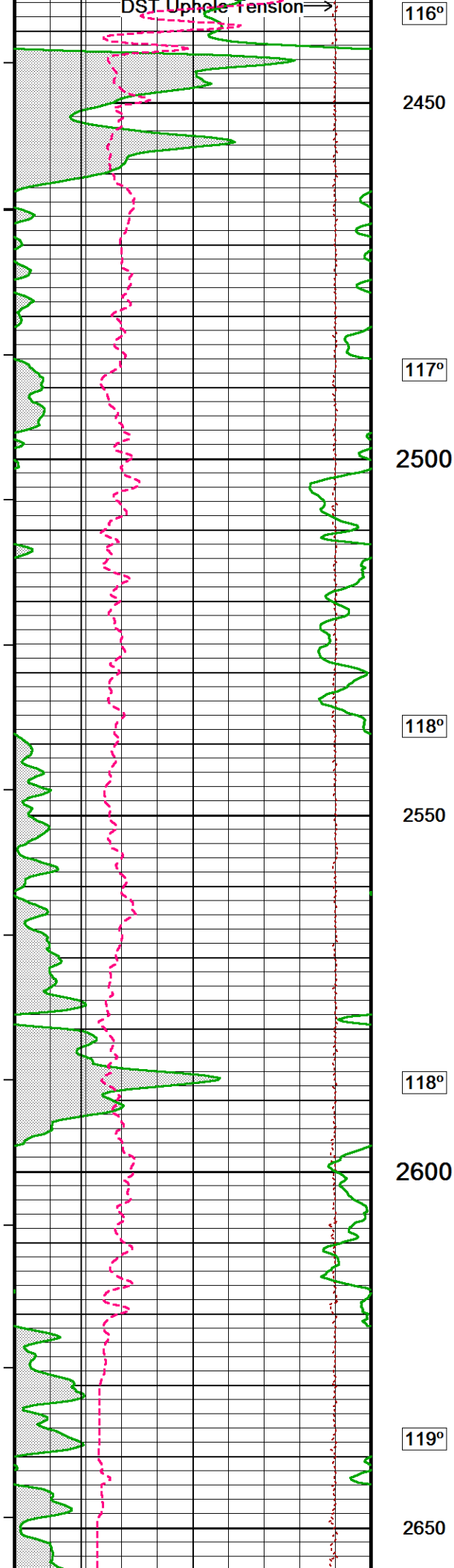
6' Transit Time →

5' Transit Time →

4' Transit Time →

3' Transit Time →





116°

2450

117°

2500

118°

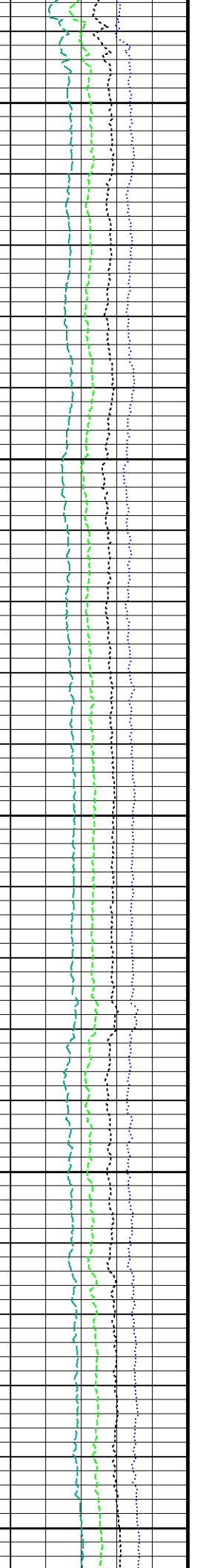
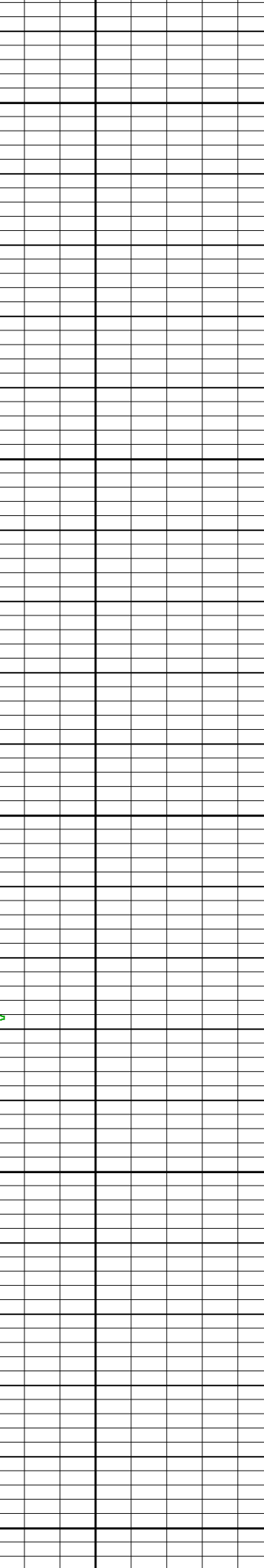
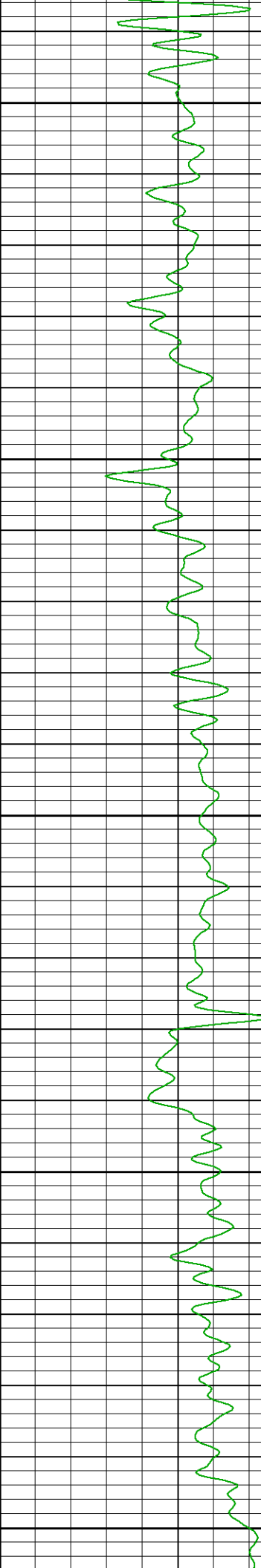
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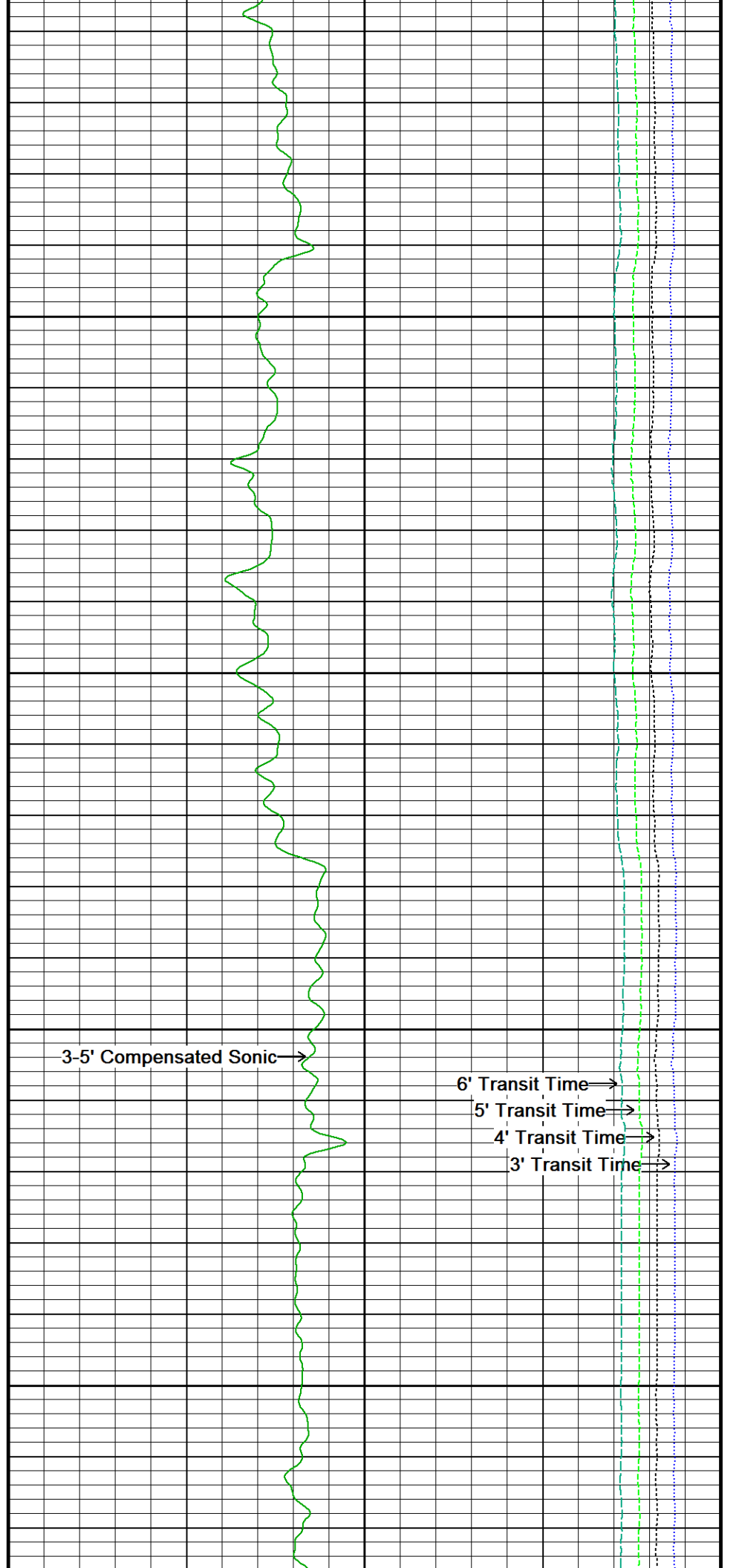
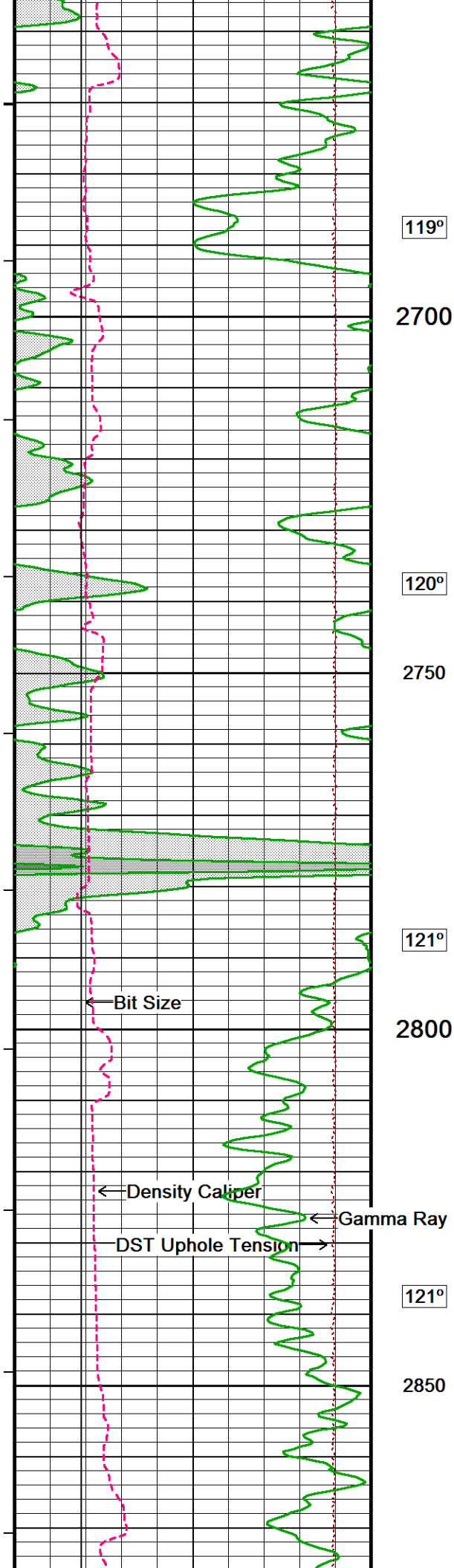
118°

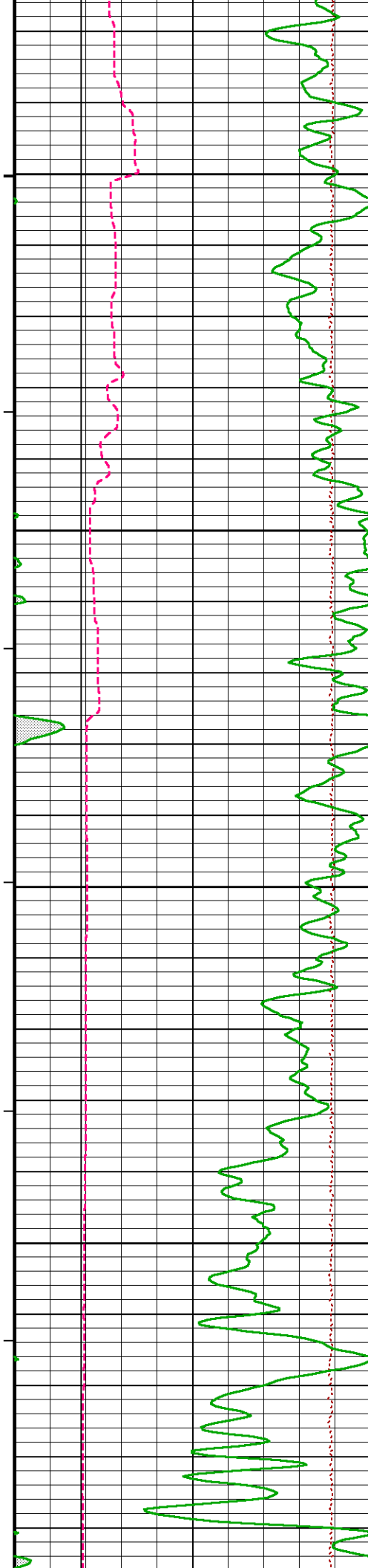
2600

119°

2650







122°

2900

122°

2950

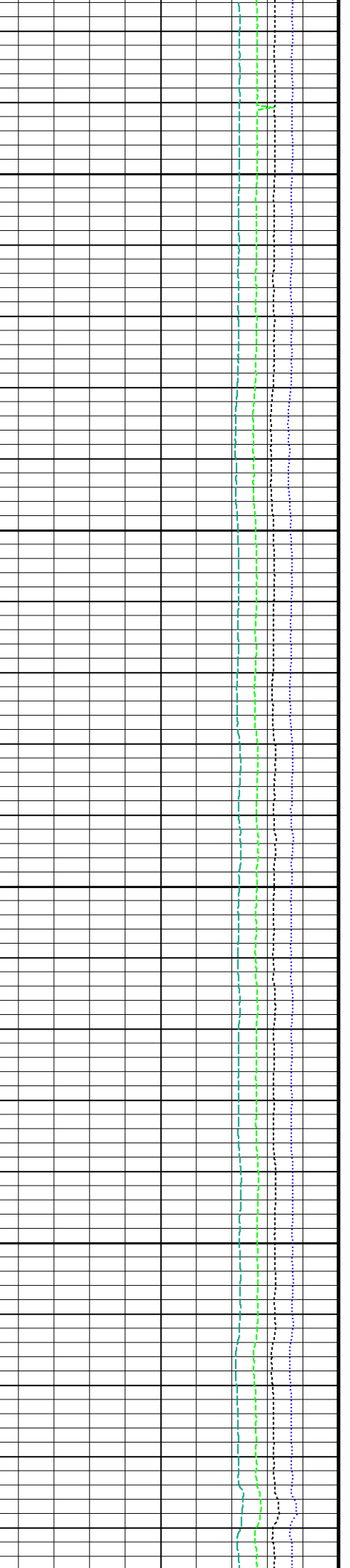
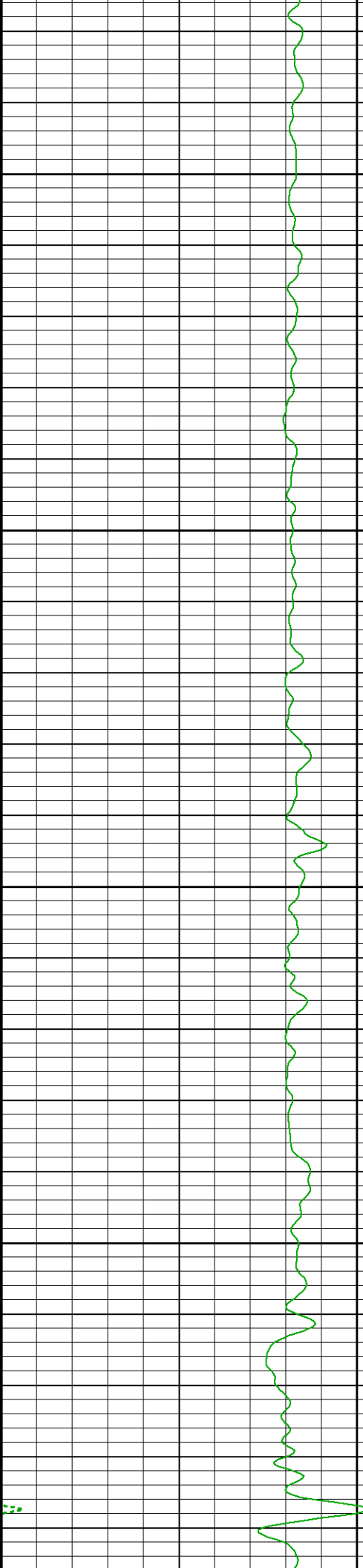
123°

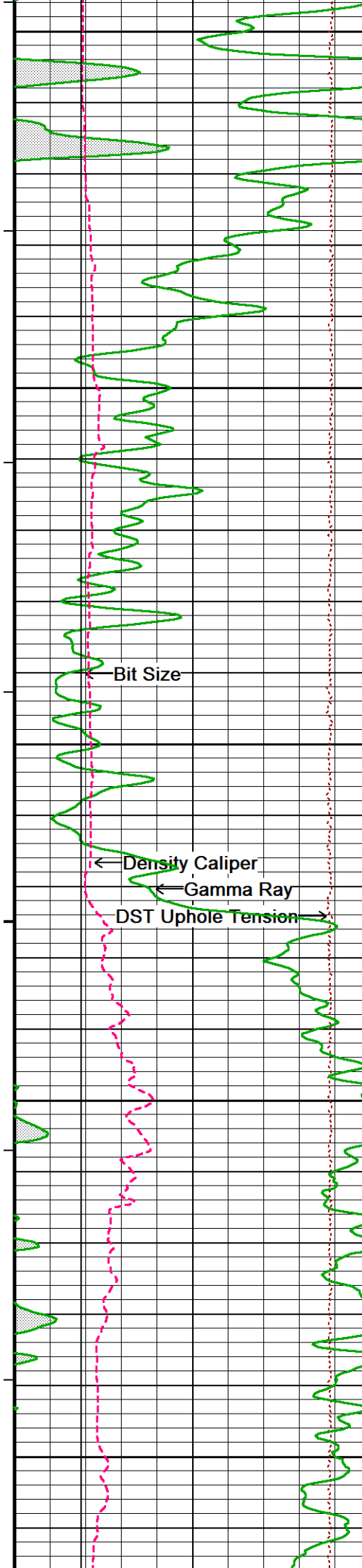
3000

124°

3050

124°





3100

125°

3150

125°

Wyllie Lime. Sonic Por. →

3200

3-5' Compensated Sonic →

6' Transit Time →

5' Transit Time →

4' Transit Time →

3' Transit Time →

← Density Caliper

← Gamma Ray

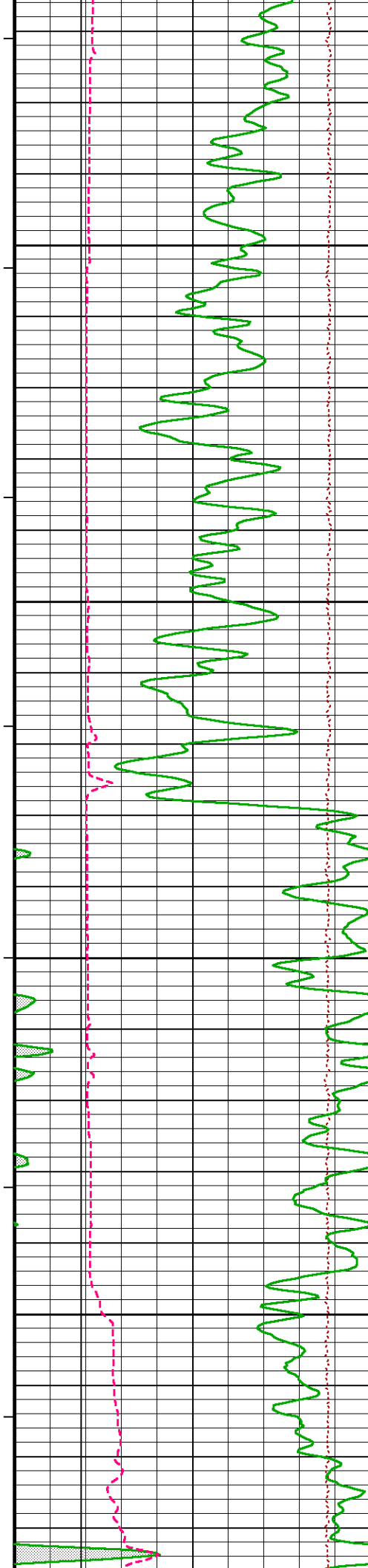
DST Uphole Tension →

126°

3250

127°

3300



127°

3350

128°

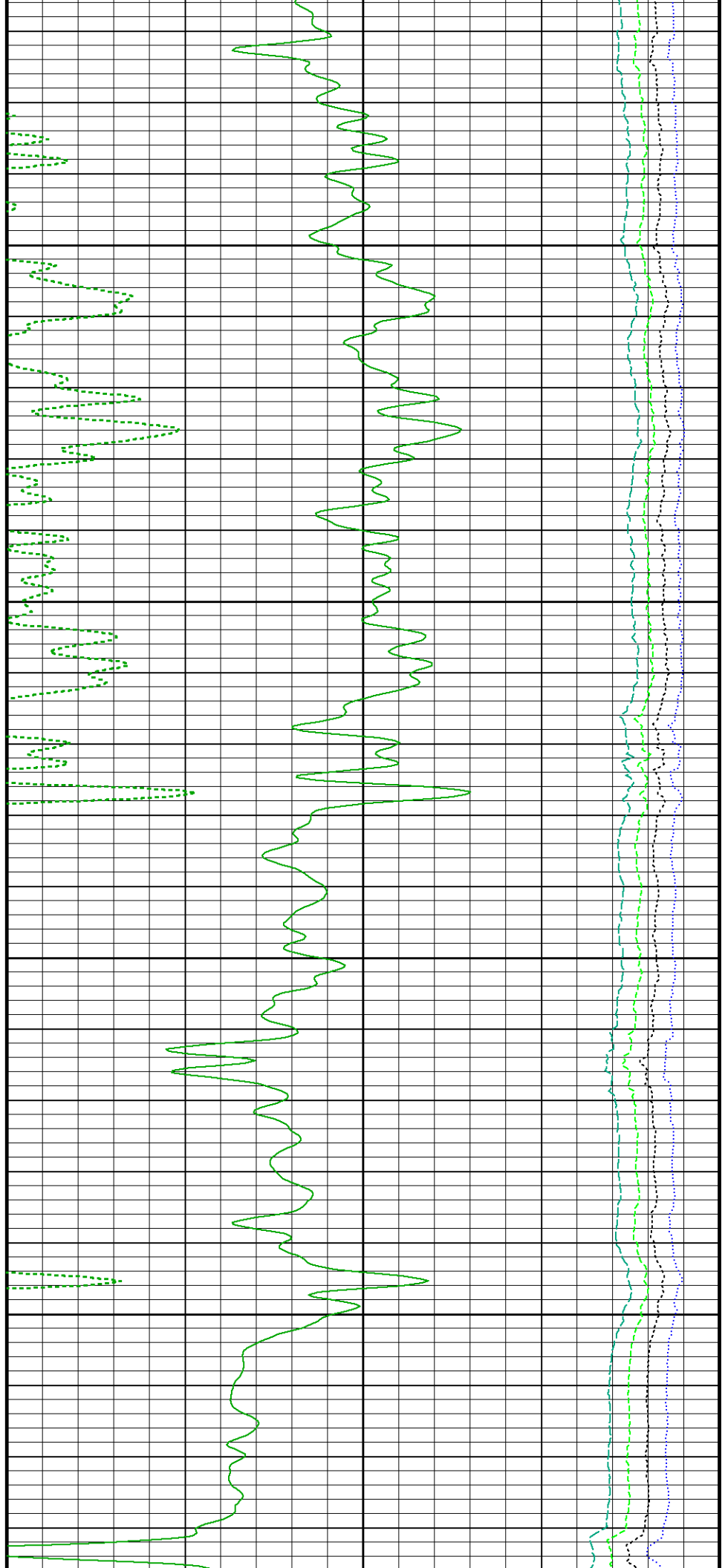
3400

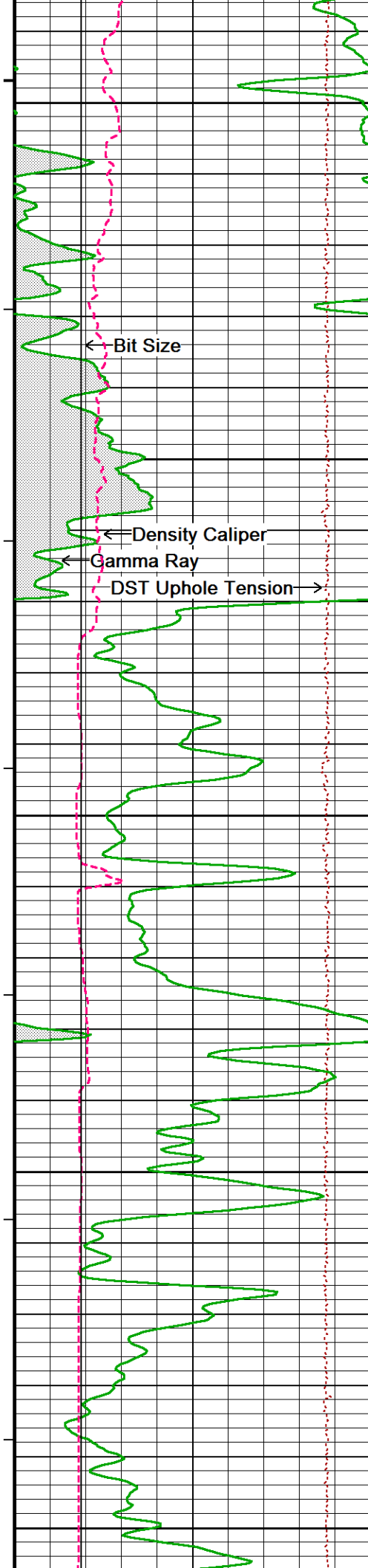
128°

3450

129°

3500





130°

3550

131°

3600

131°

3650

132°

3700

132°

3750

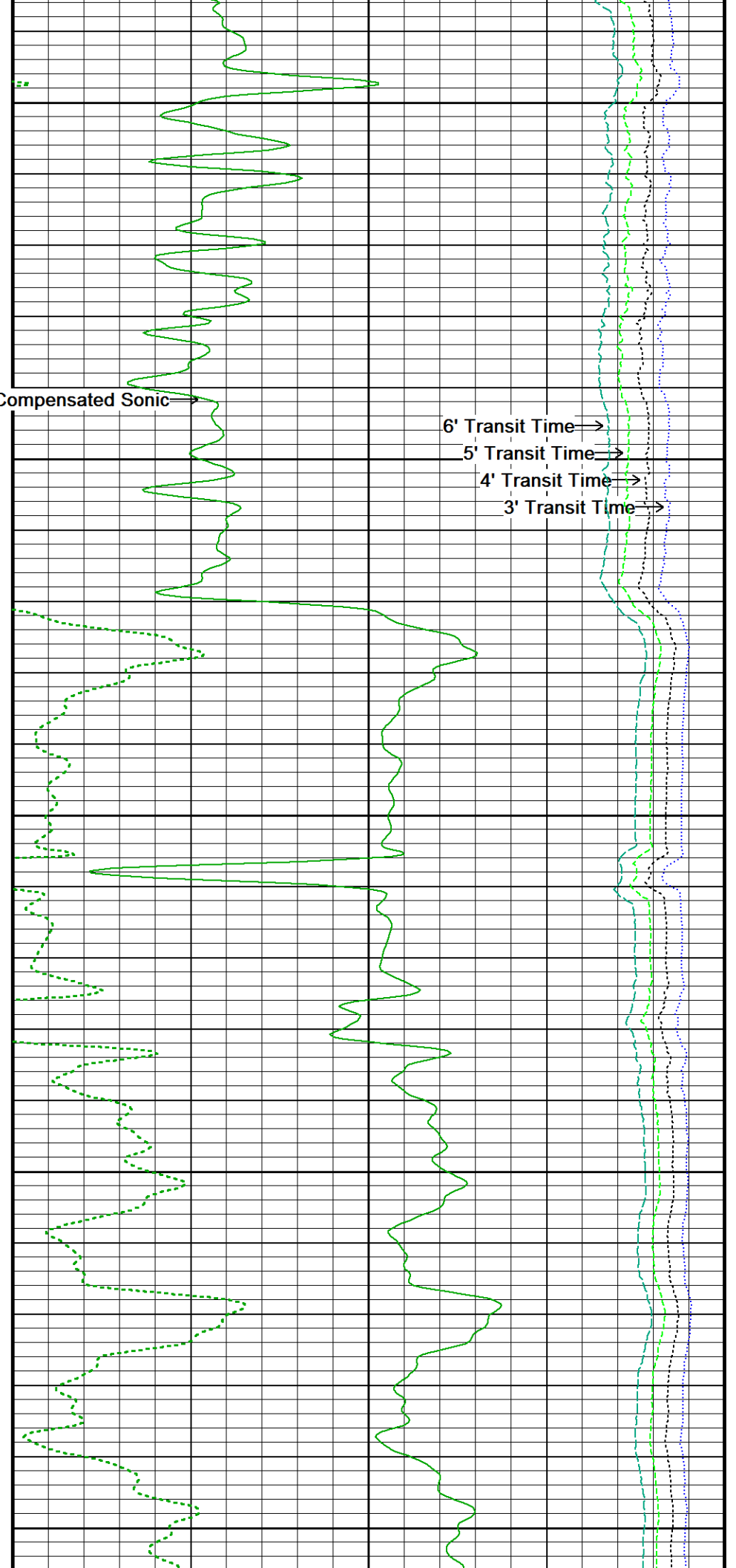
3-5' Compensated Sonic

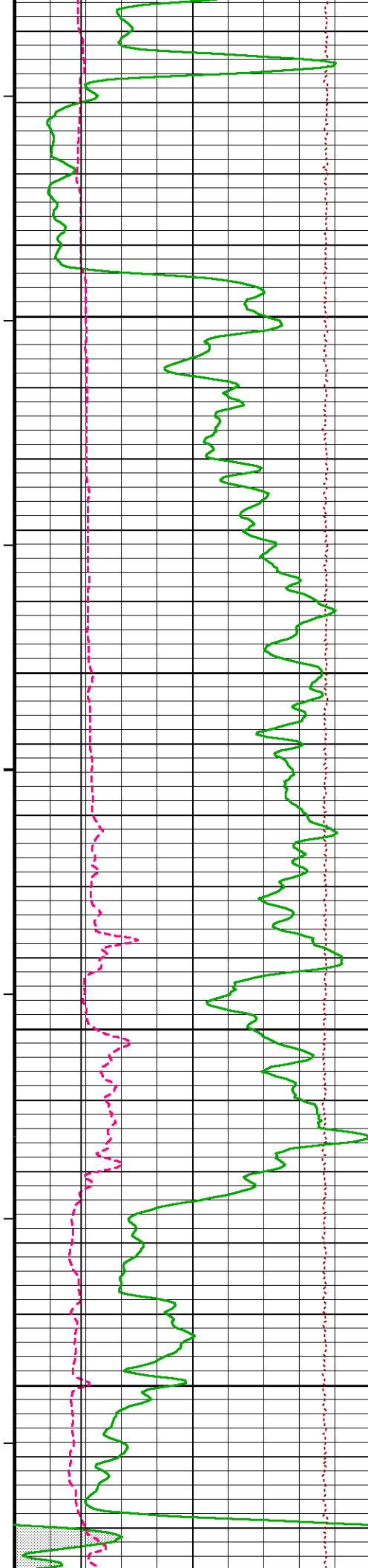
6' Transit Time

5' Transit Time

4' Transit Time

3' Transit Time





133°

3800

133°

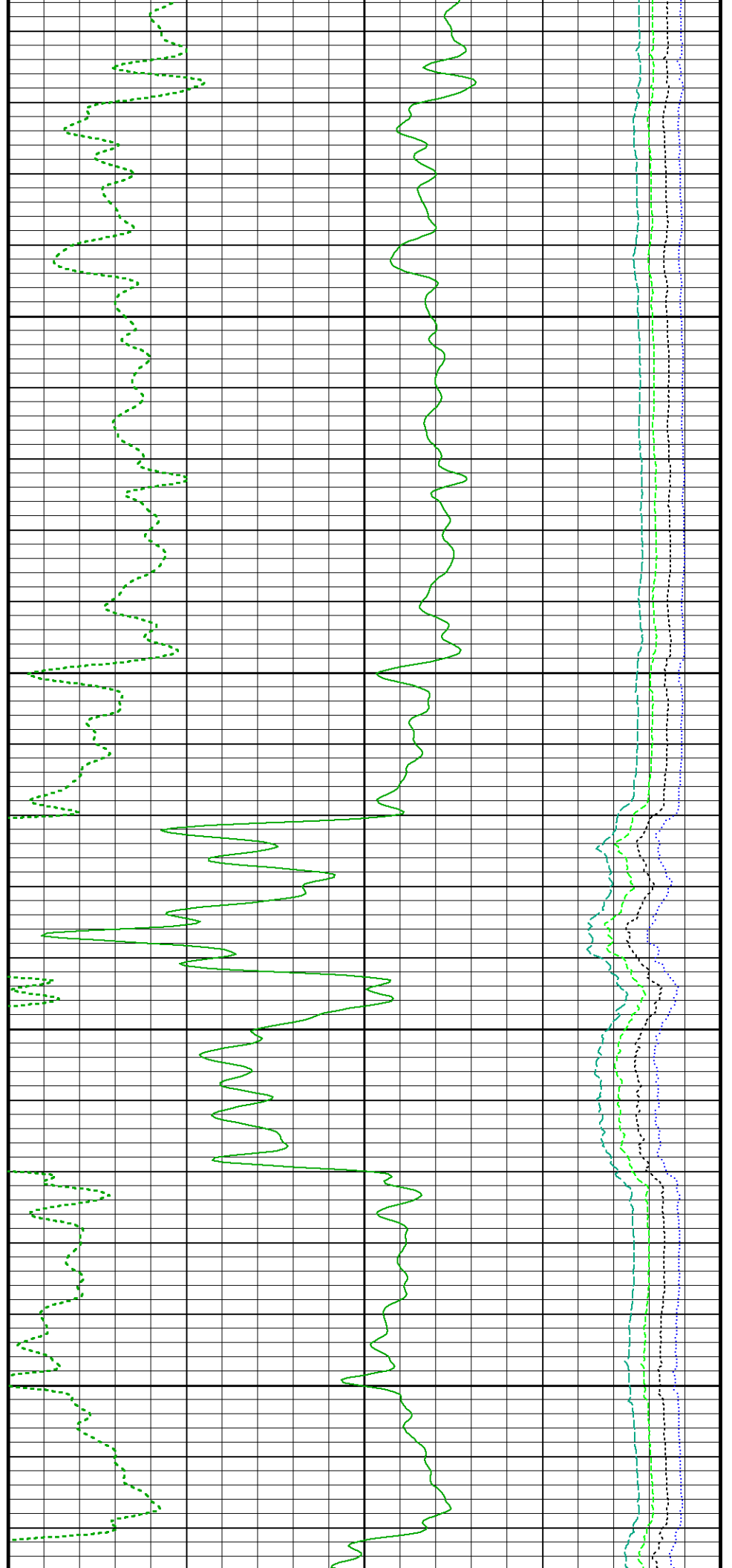
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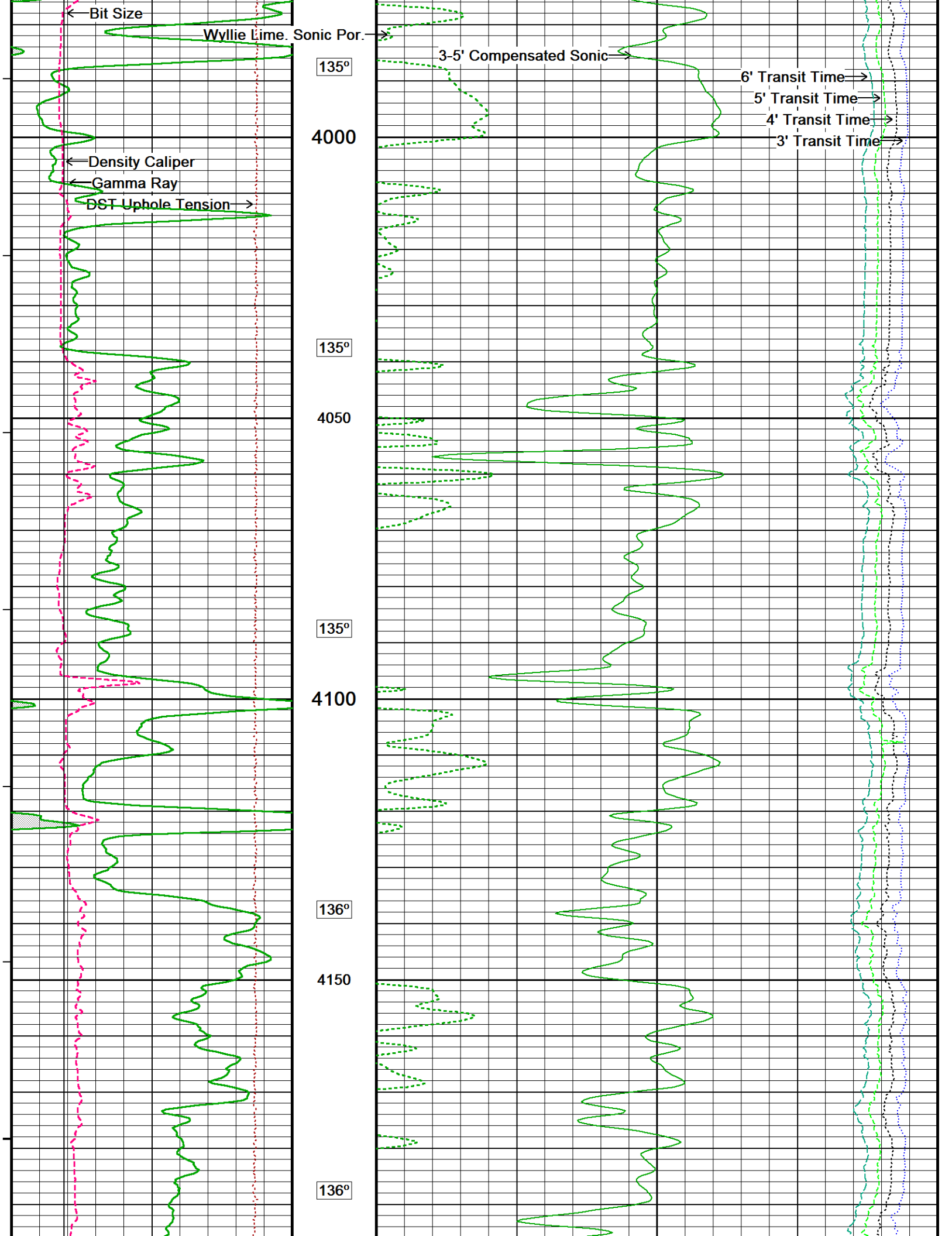
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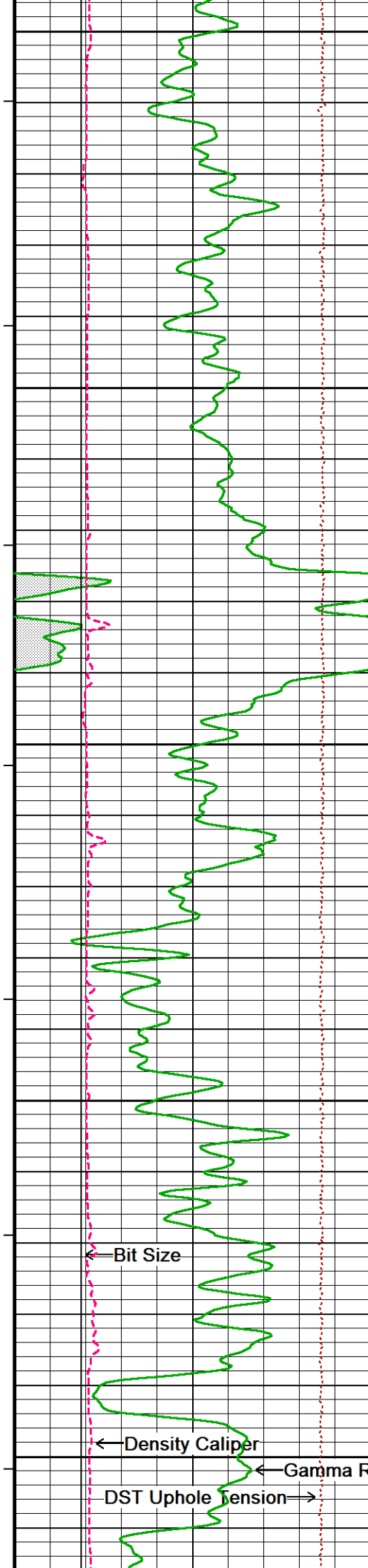
3900

135°

3950







4200

137°

4250

138°

4300

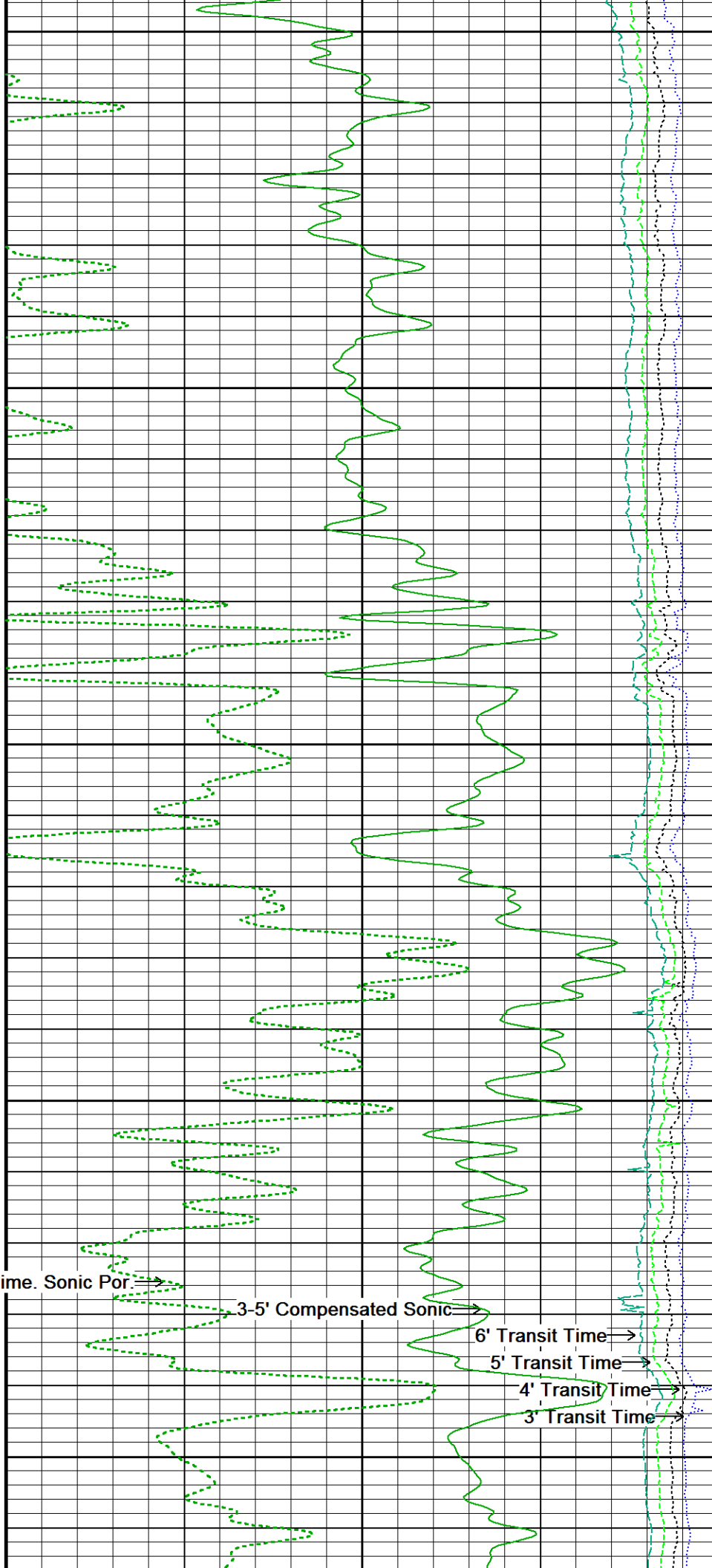
138°

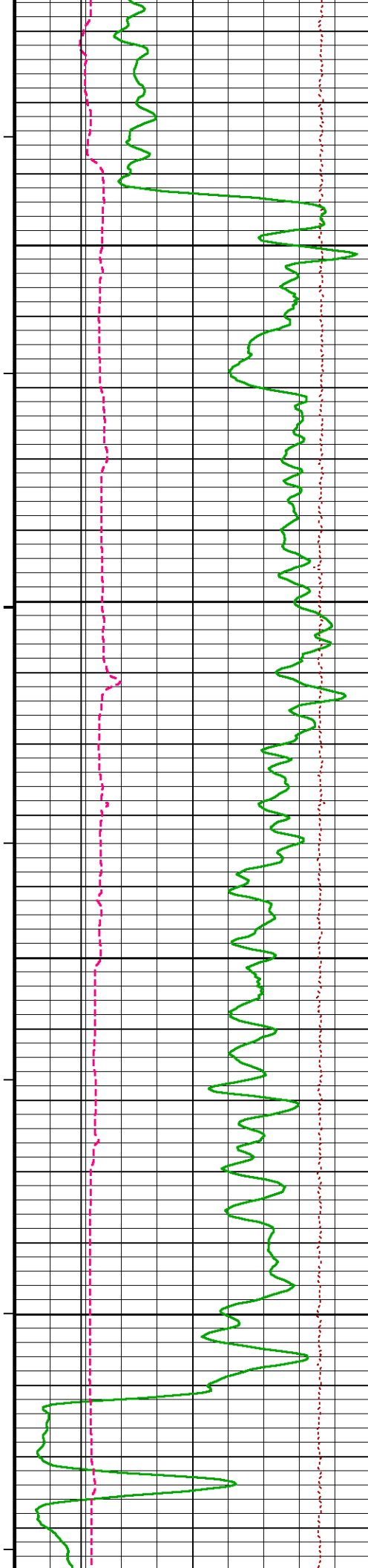
4350

Wyllie Lime. Sonic Por.

139°

4400





140°

4450

140°

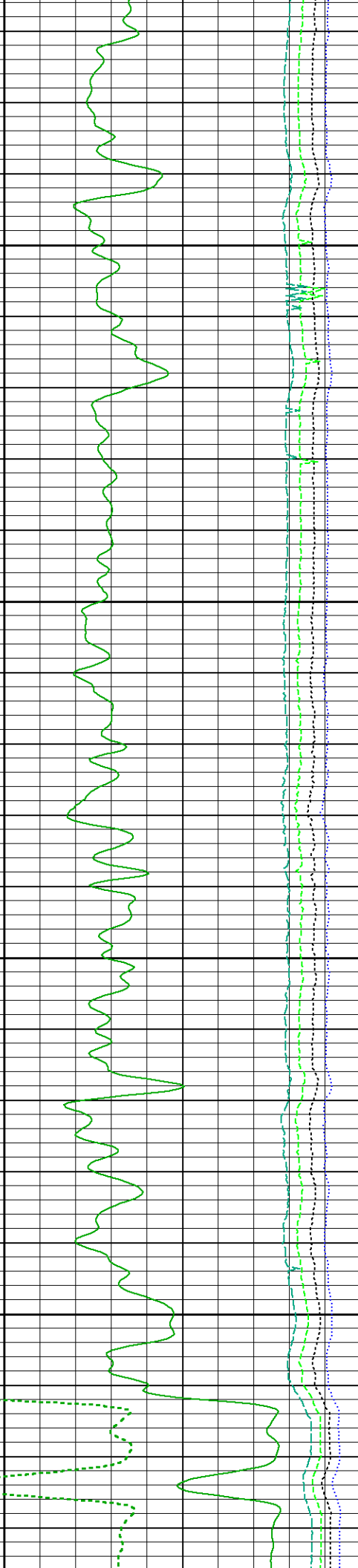
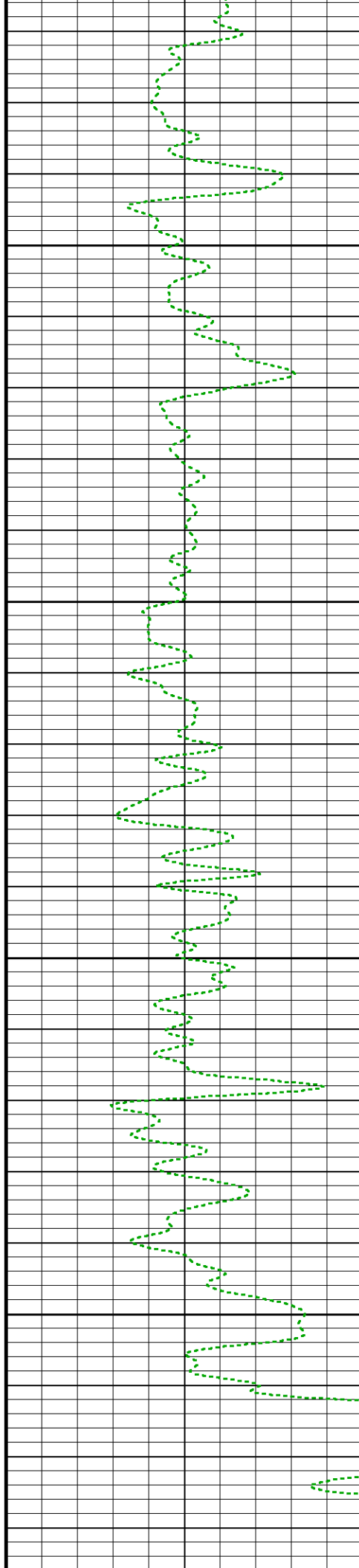
4500

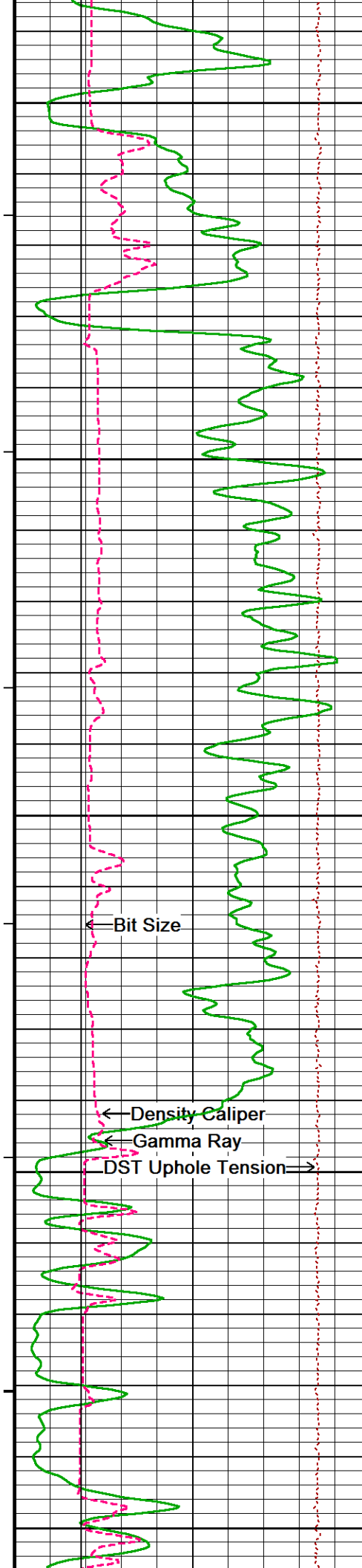
140°

4550

141°

4600





141°

4650

142°

4700

142°

4750

142°

4800

143°

4850

Wyllie Lime. Sonic Por. →

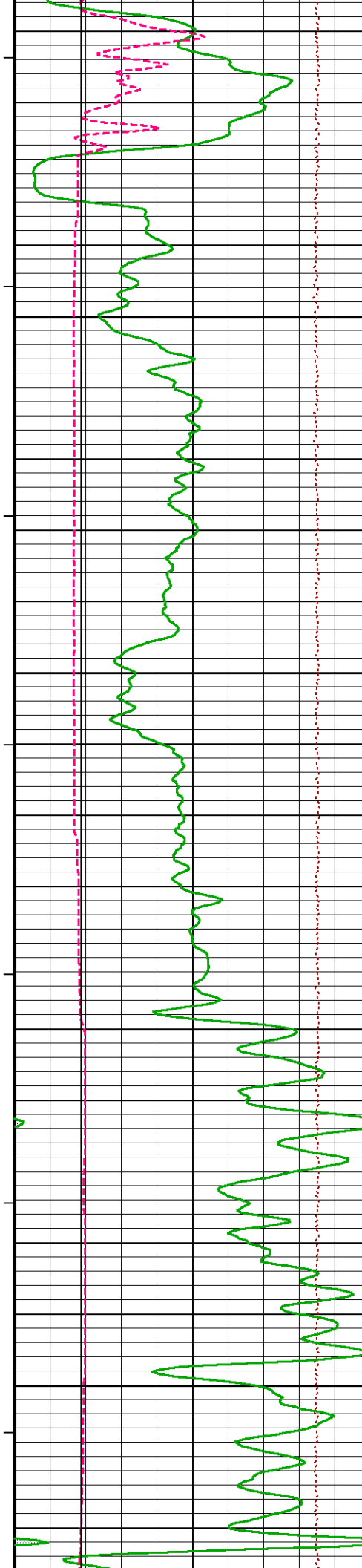
3-5' Compensated Sonic →

6' Transit Time →

5' Transit Time →

4' Transit Time →

3' Transit Time →



143°

4900

144°

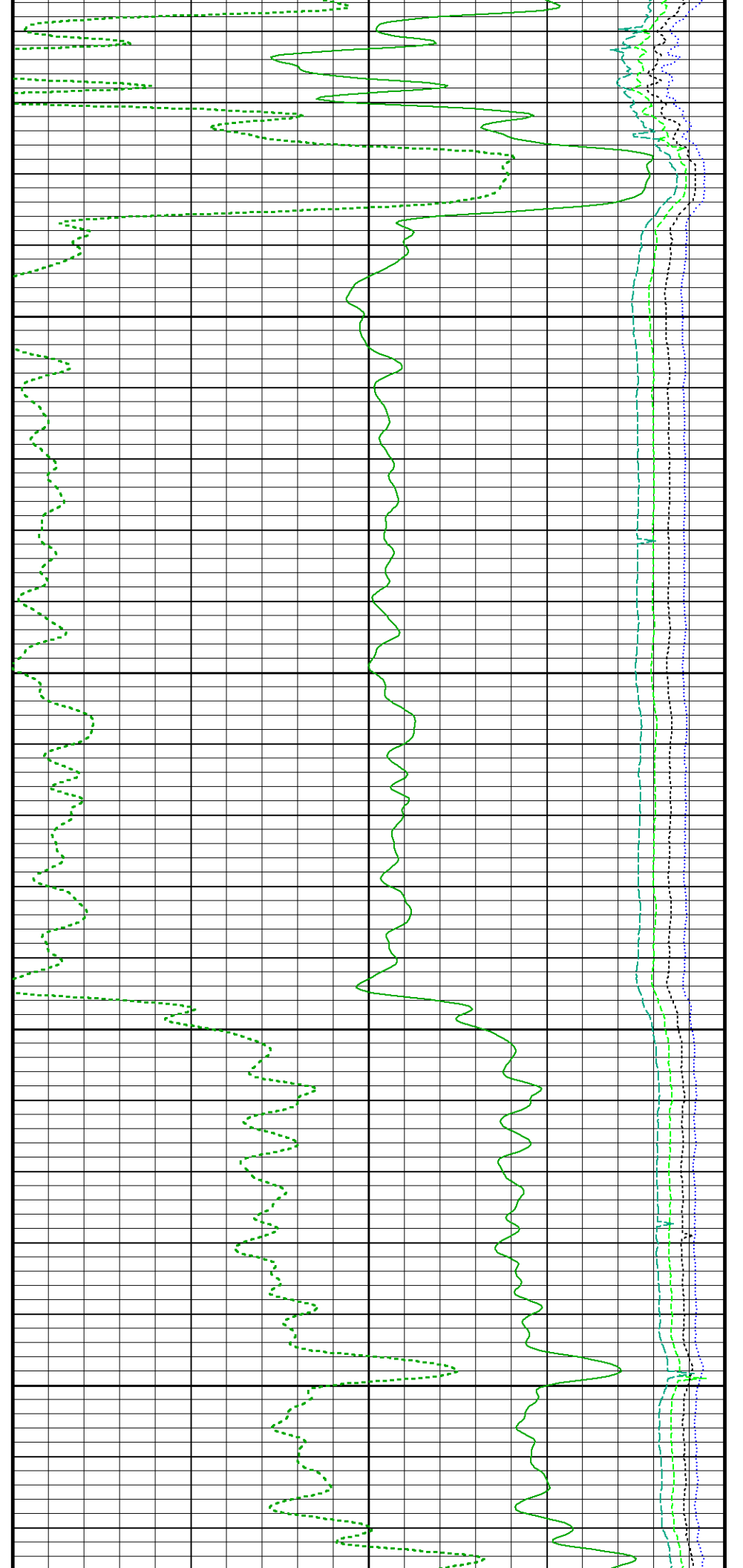
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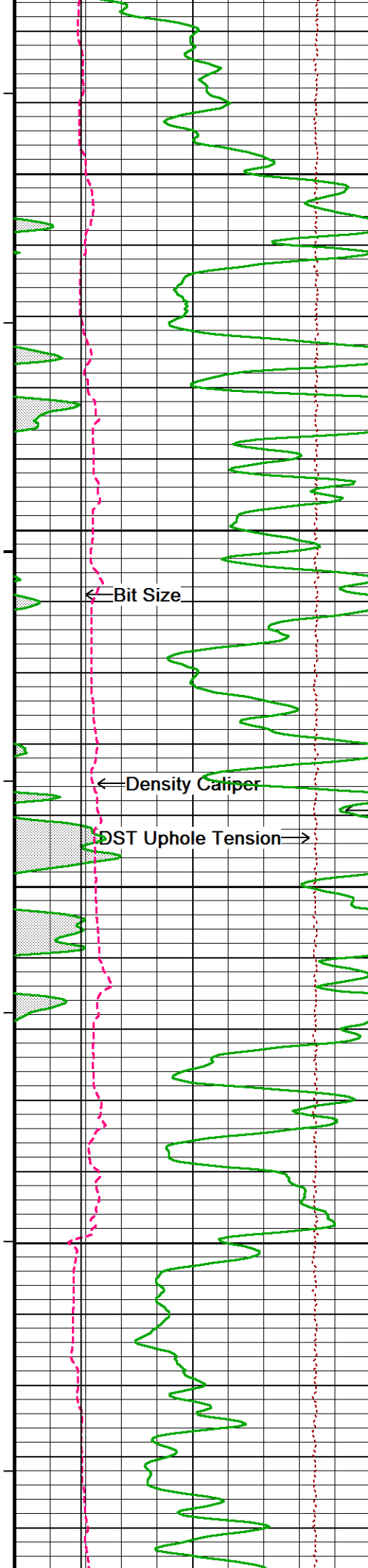
144°

5000

145°

5050





145°

5100

145°

5150

← Bit Size

← Density Caliper

→ DST Uphole Tension

145°
Gamma Ray

5200

146°

5250

147°

Wyllie Lime. Sonic Por. →

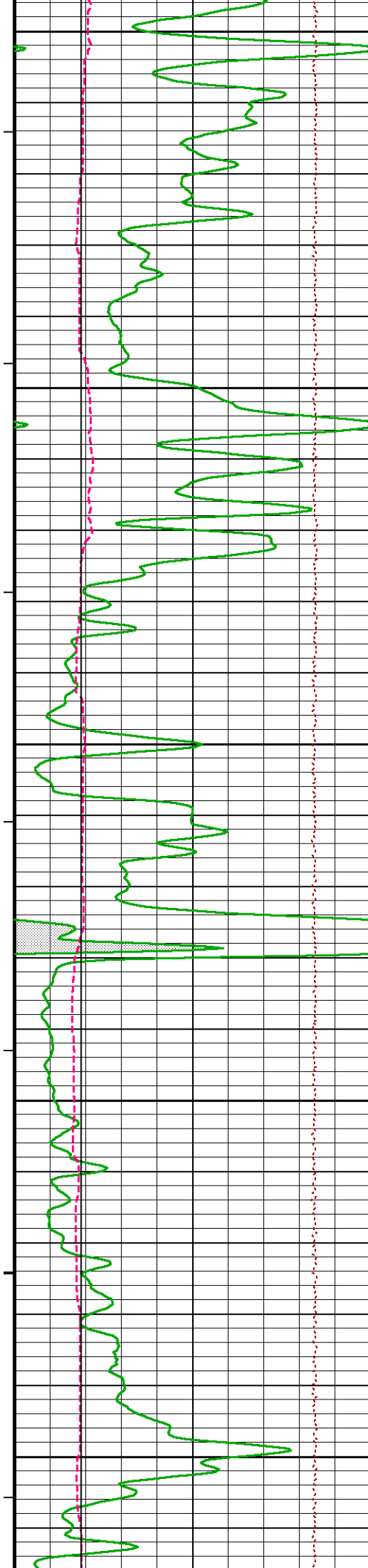
3-5' Compensated Sonic →

6' Transit Time →

5' Transit Time →

4' Transit Time →

3' Transit Time →



5300

147°

5350

147°

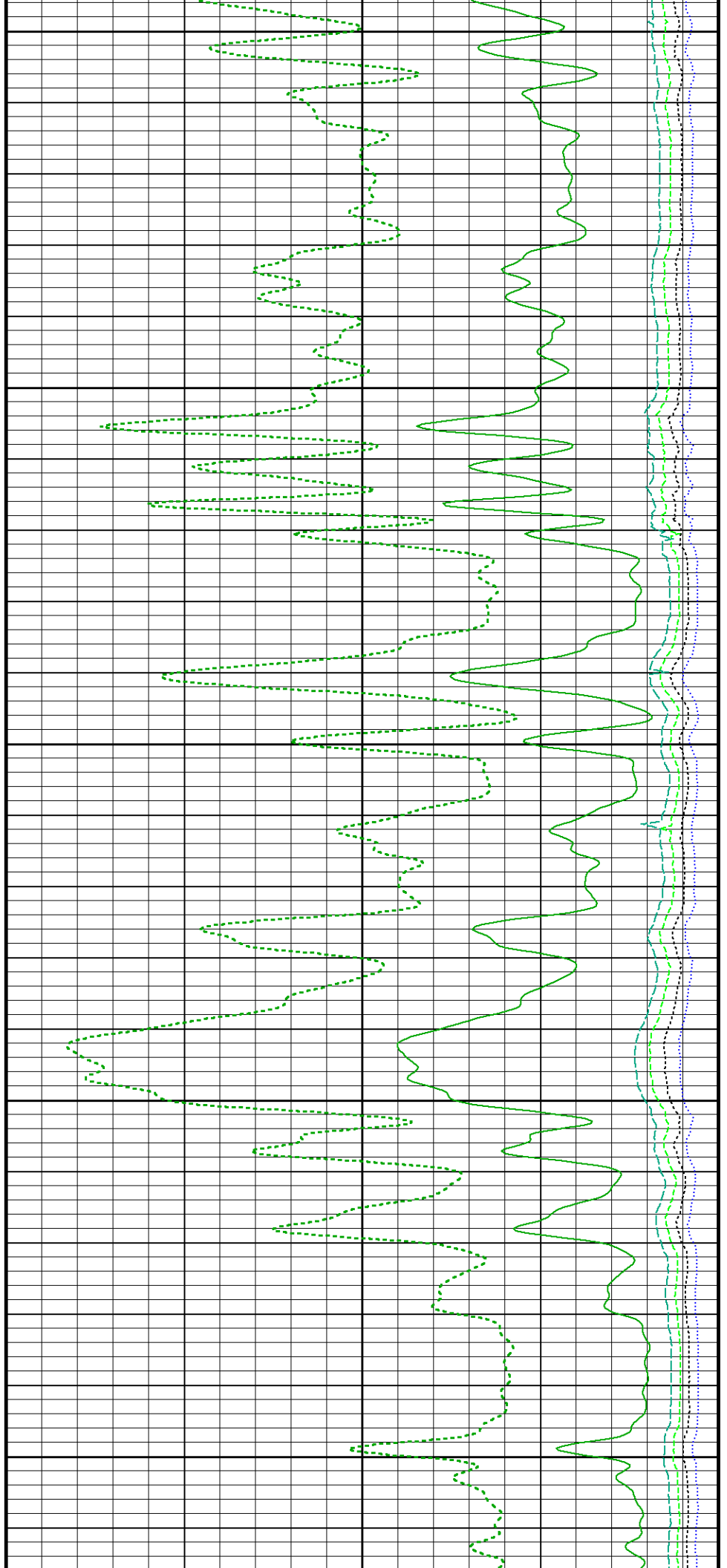
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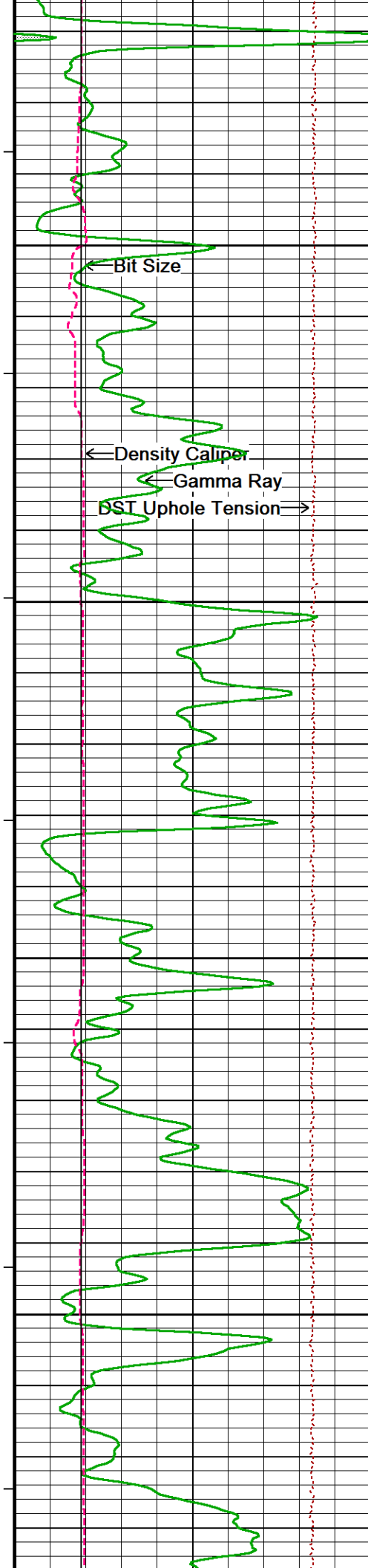
147°

5450

148°

5500





149°

5550

← Bit Size

← Density Caliper

← Gamma Ray

DST Uphole Tension →

149°

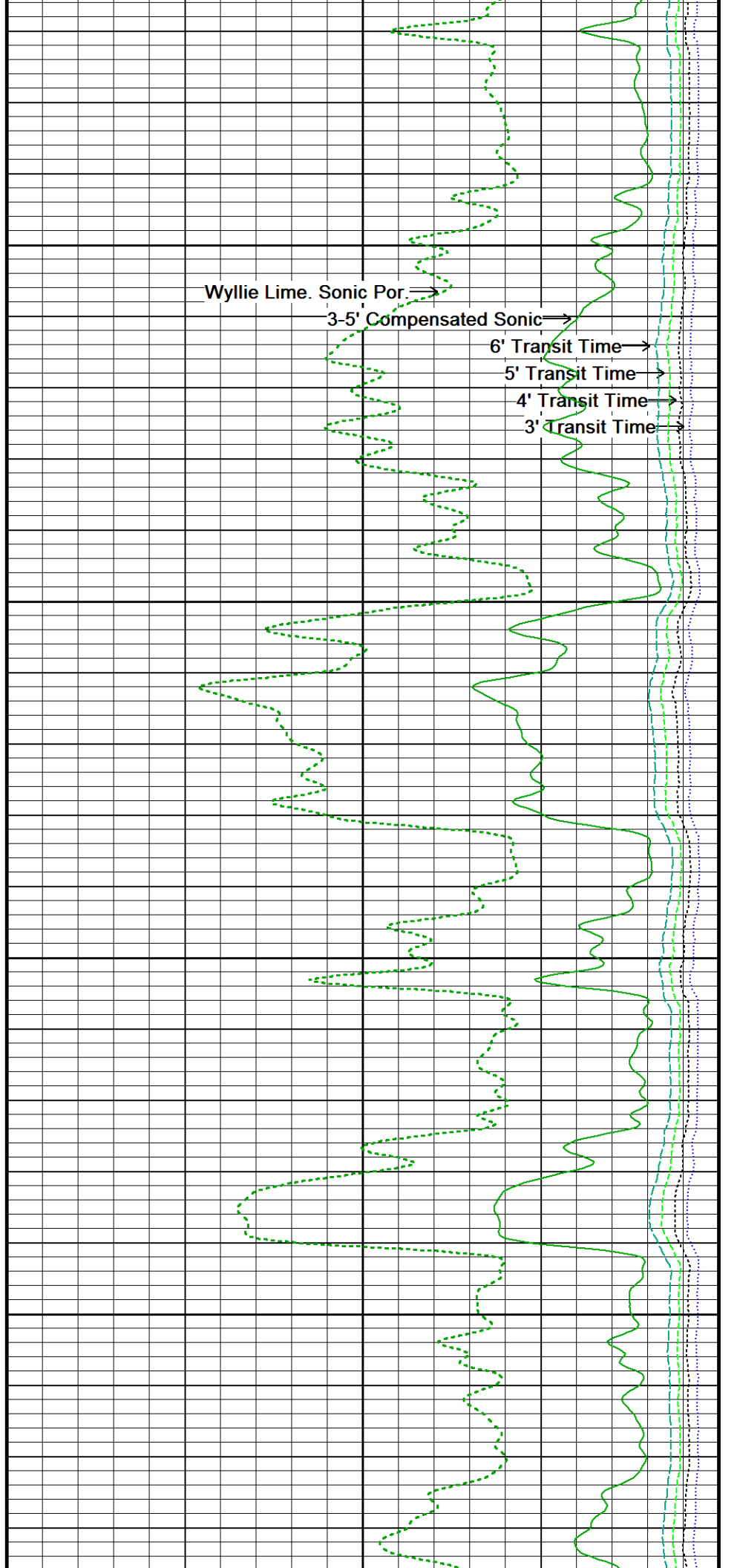
5600

149°

5650

149°

5700



Wyllie Lime. Sonic Por. →

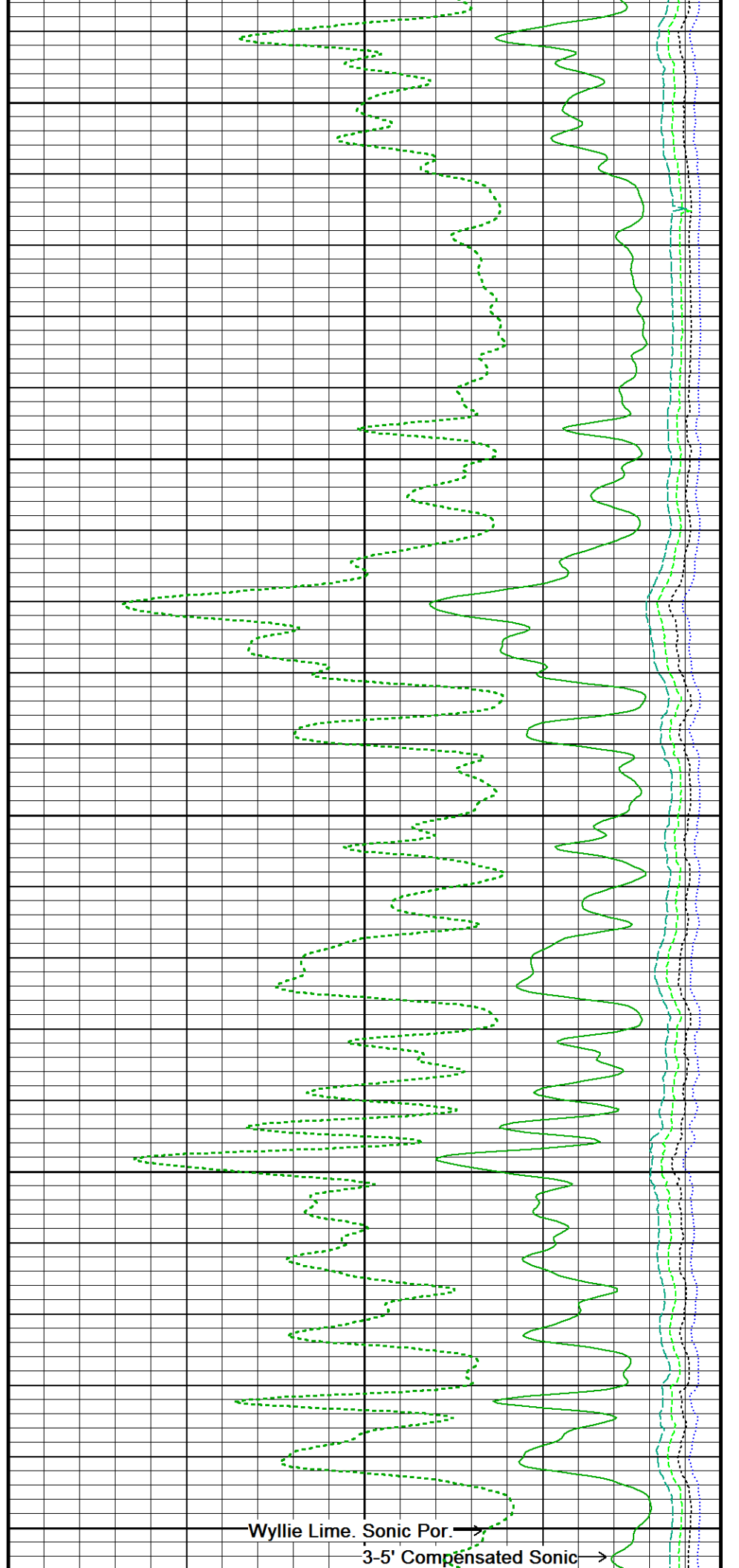
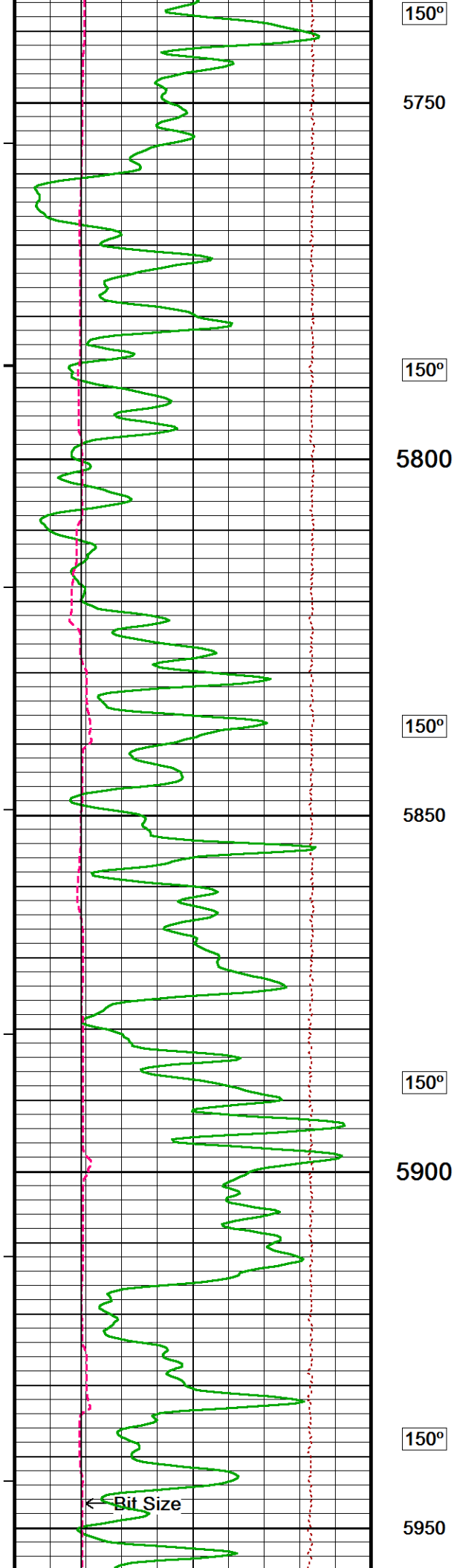
3-5' Compensated Sonic →

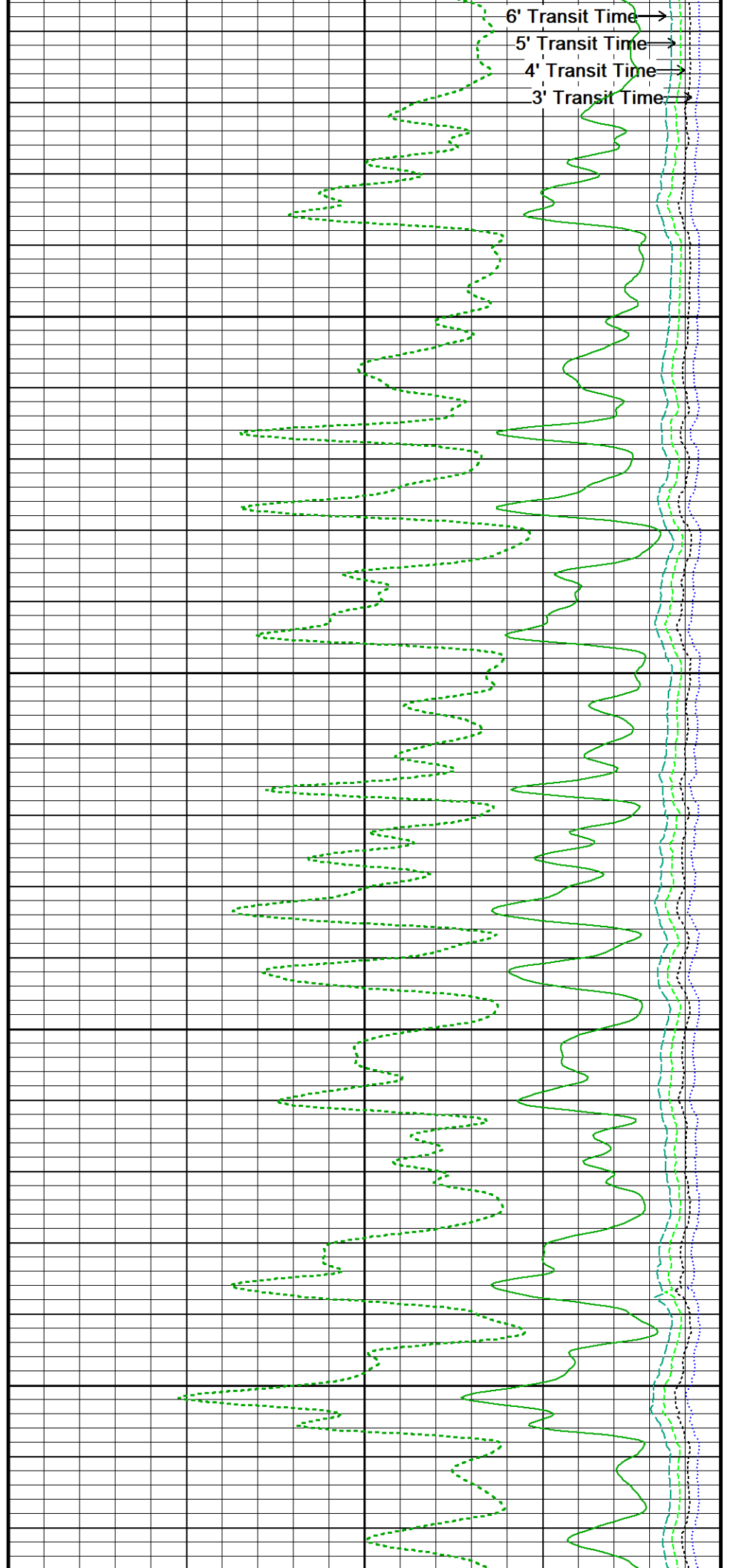
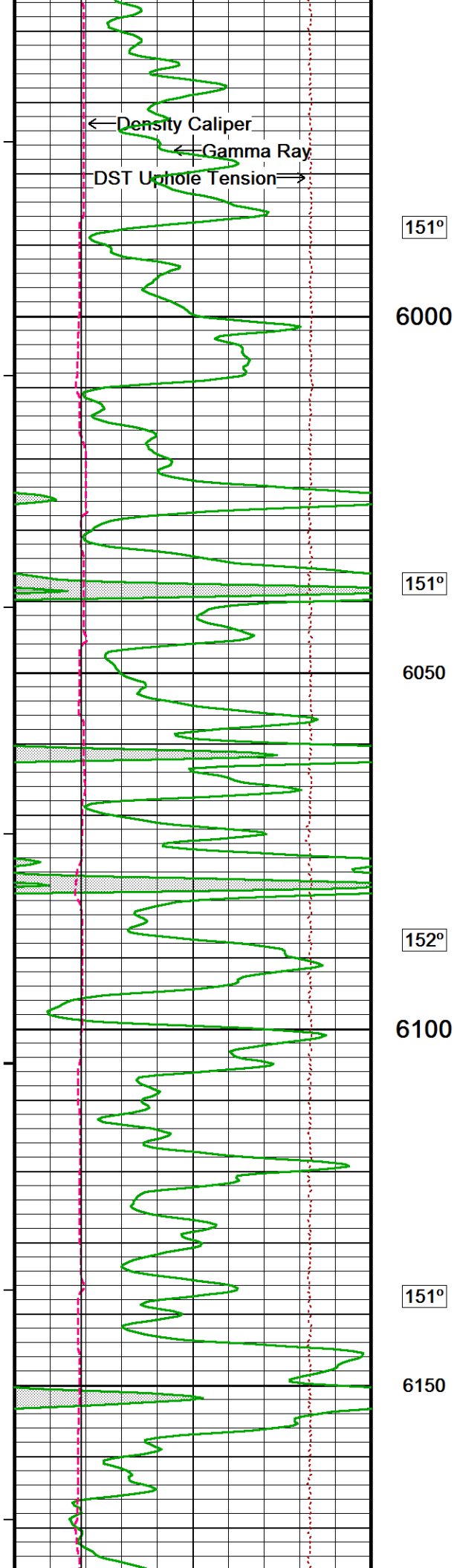
6' Transit Time →

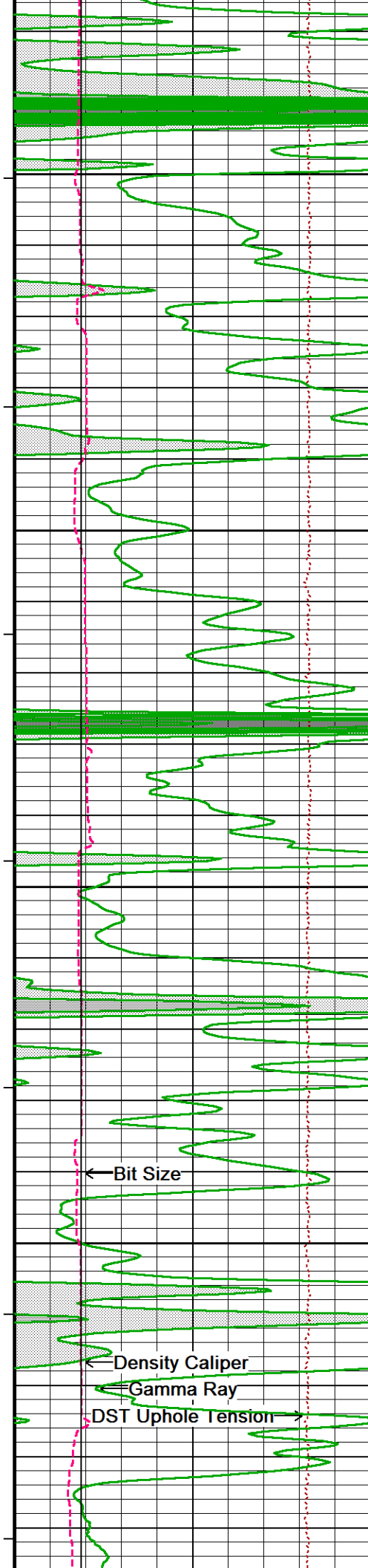
5' Transit Time →

4' Transit Time →

3' Transit Time →







152°

6200

152°

6250

153°

6300

153°

6350

154°

← Bit Size

← Density Caliper

← Gamma Ray

← DST Uphole Tension →

Wyllie Lime. Sonic Por.

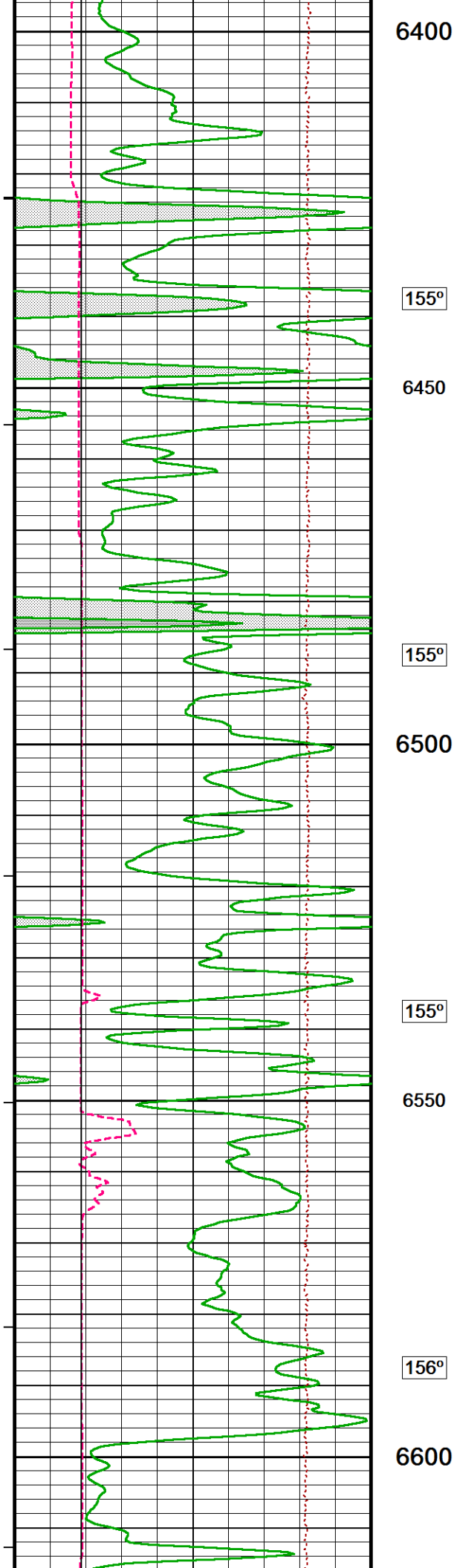
3-5' Compensated Sonic →

6' Transit Time →

5' Transit Time →

4' Transit Time →

3' Transit Time →



6400

155°

6450

155°

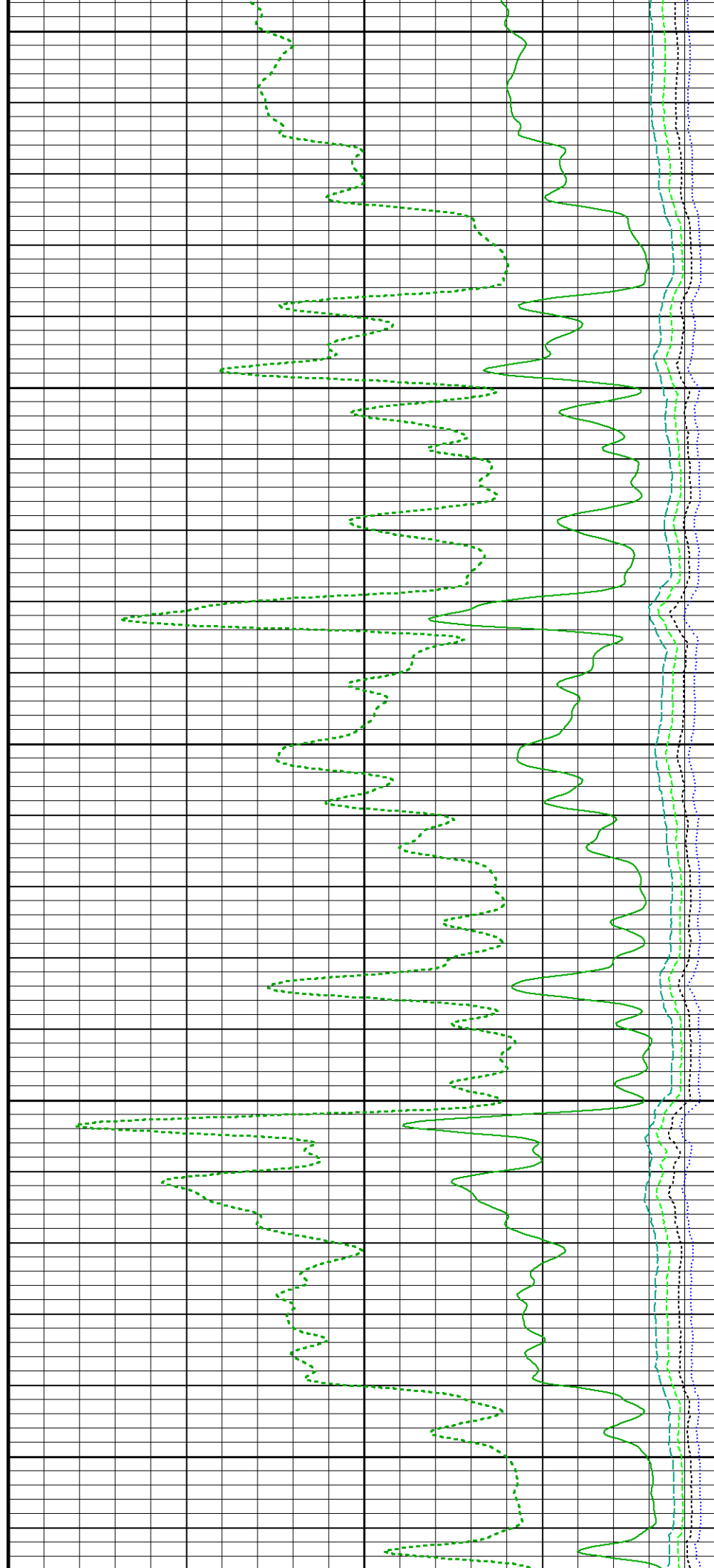
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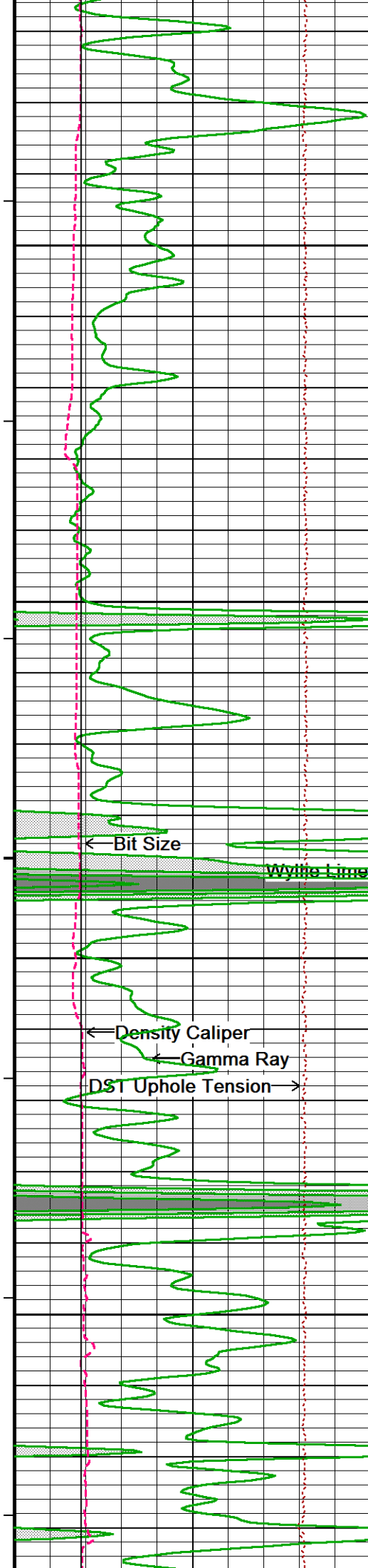
155°

6550

156°

6600





156°

6650

156°

6700

← Bit Size

Wythe Line

Sonic Por.

← Density Caliper

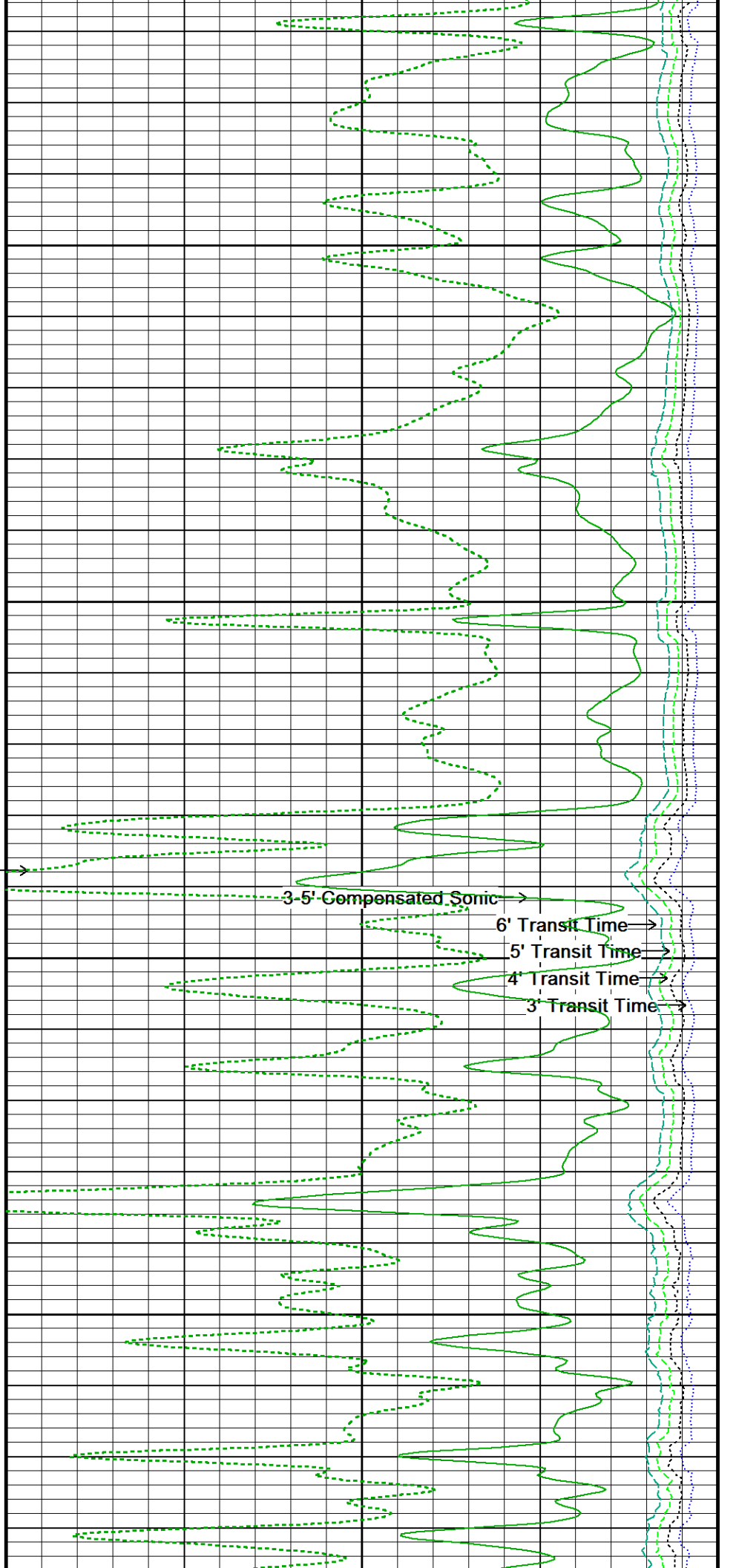
← Gamma Ray

DST Uphole Tension →

6750

157°

6800



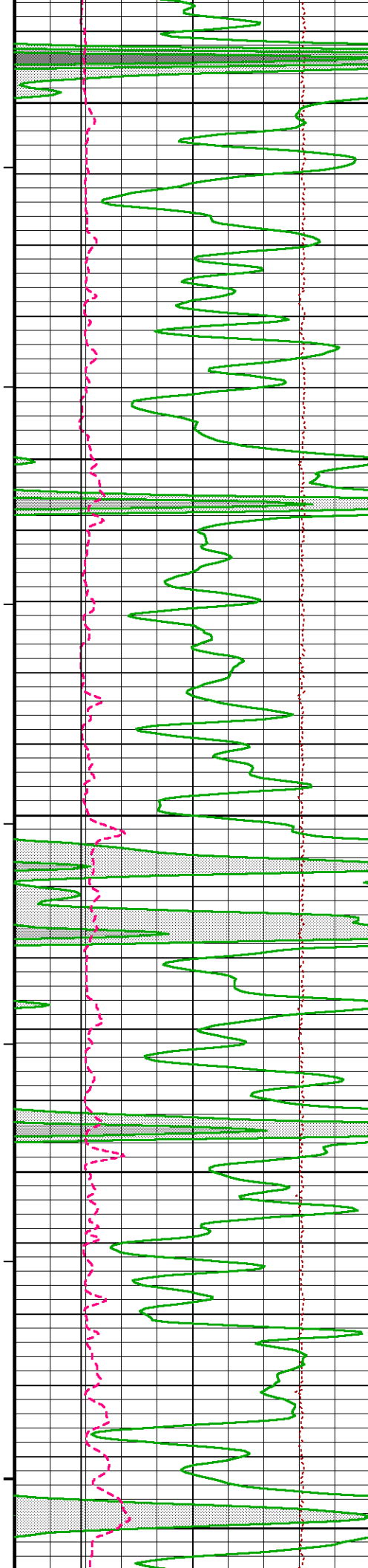
3-5' Compensated Sonic →

6' Transit Time →

5' Transit Time →

4' Transit Time →

3' Transit Time →



157°

6850

157°

6900

158°

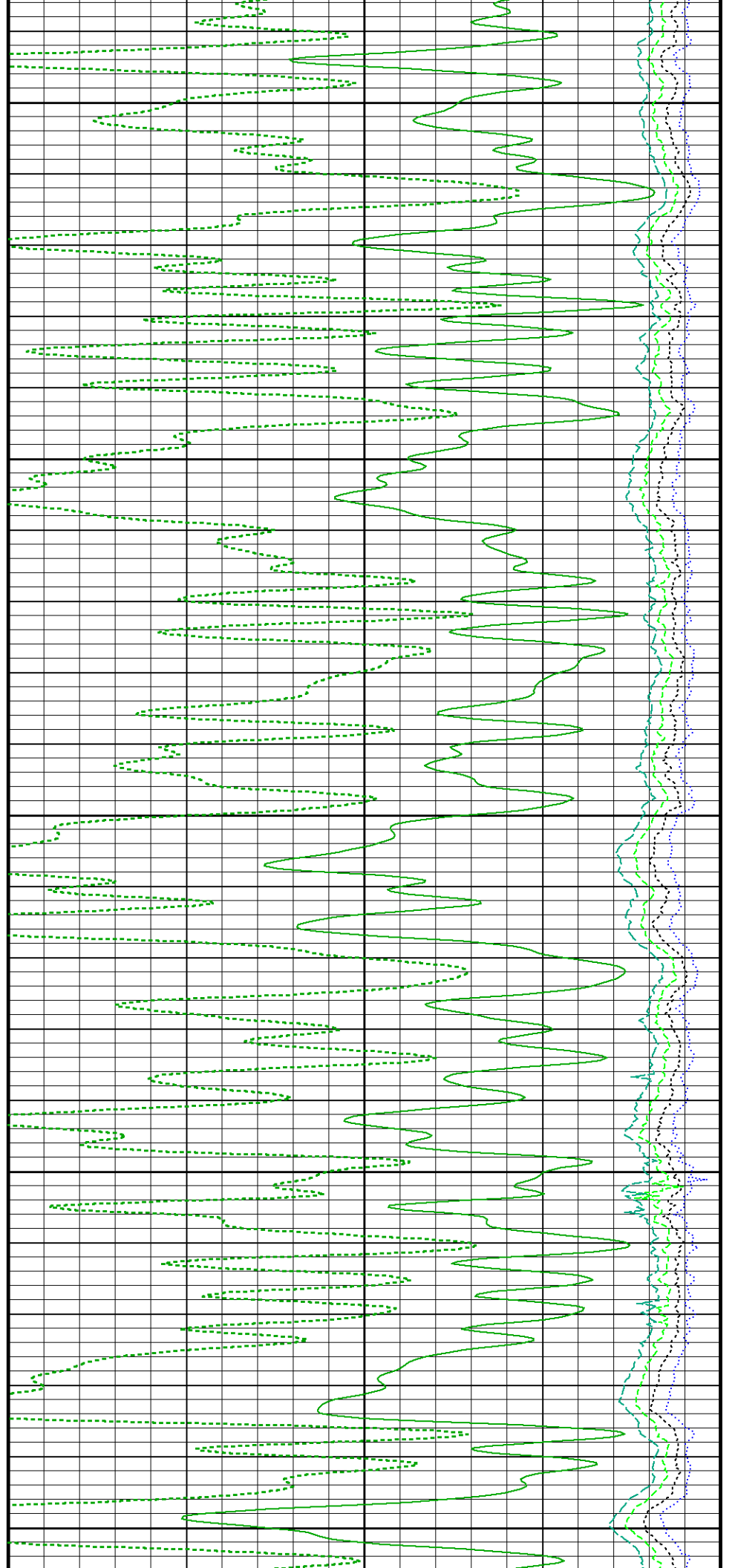
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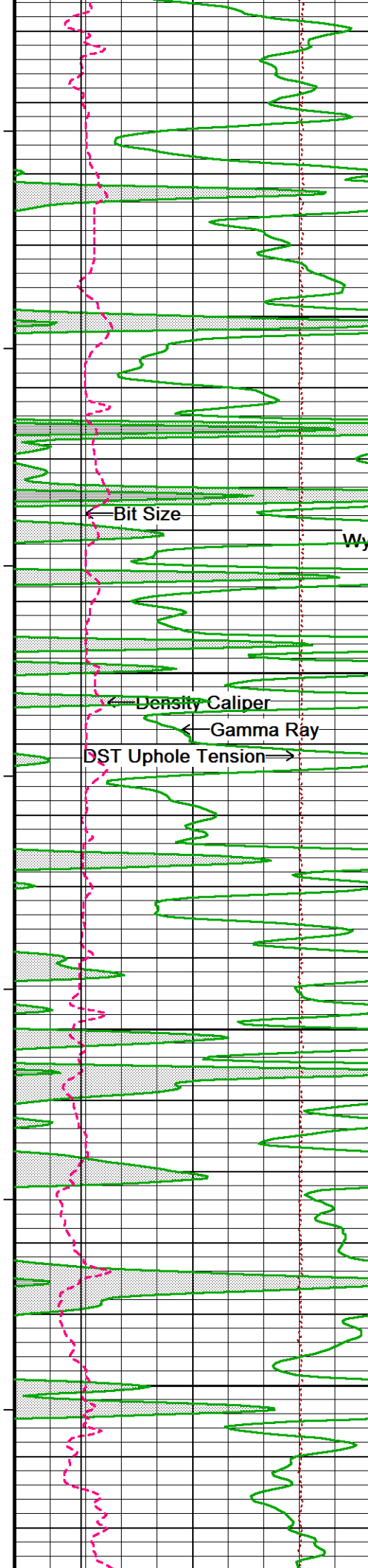
158°

7000

158°

7050





159°

7100

← Bit Size

Wyllie Lime. Sonic Por. →

160°

7150

← Density Caliper

← Gamma Ray

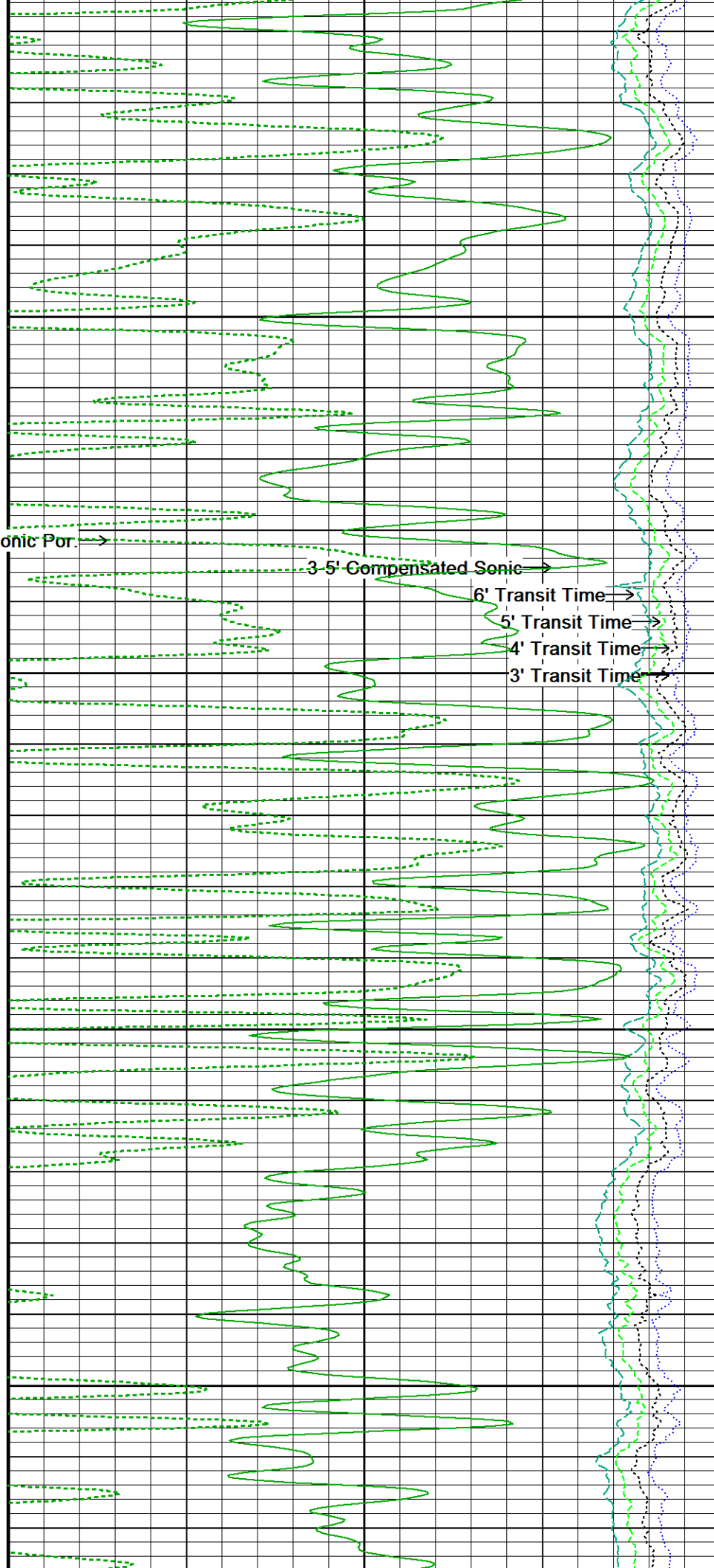
DST Uphole Tension →

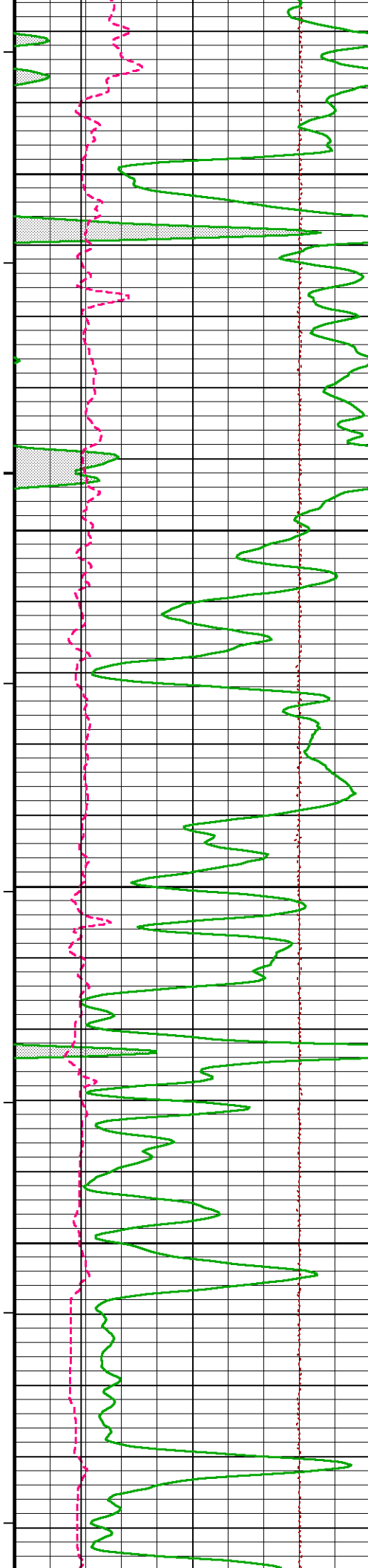
161°

7200

162°

7250





163°

7300

165°

7350

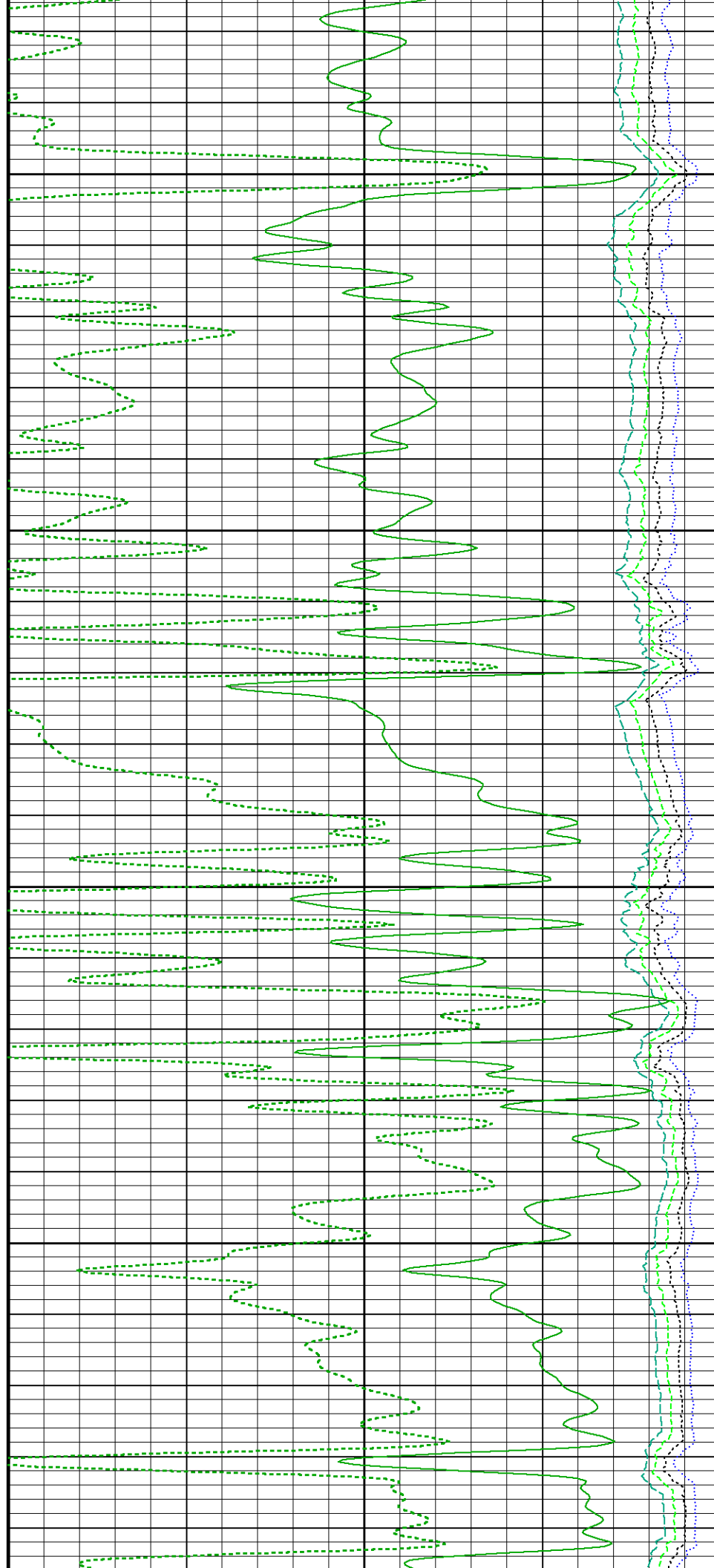
166°

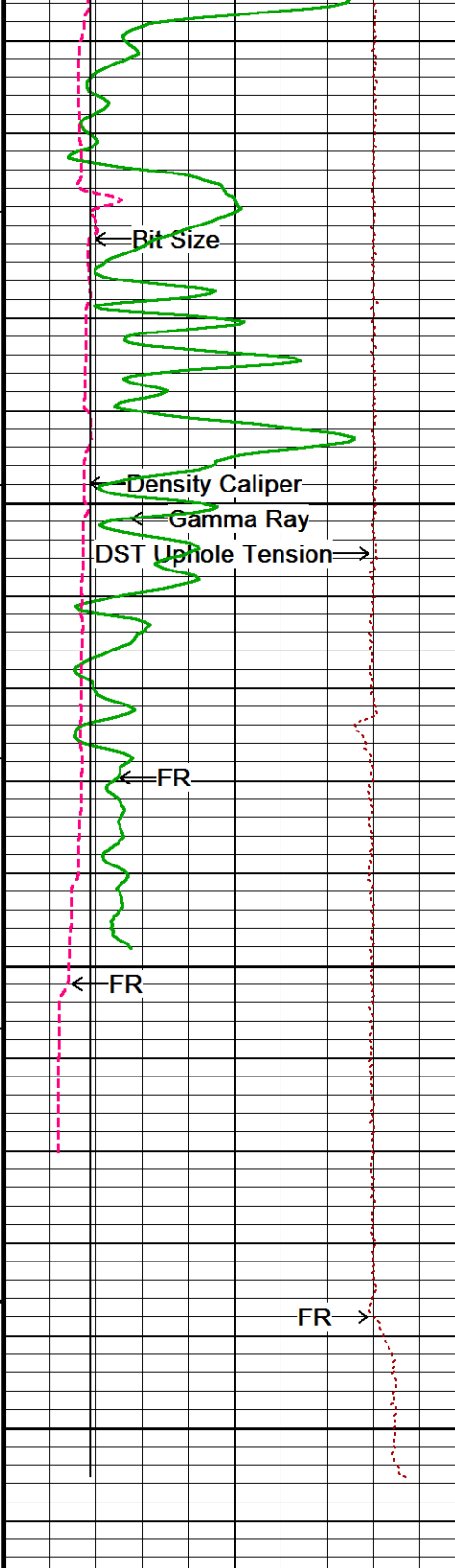
7400

169°

7450

169°





7500

169°

7550

169°

7600

TD

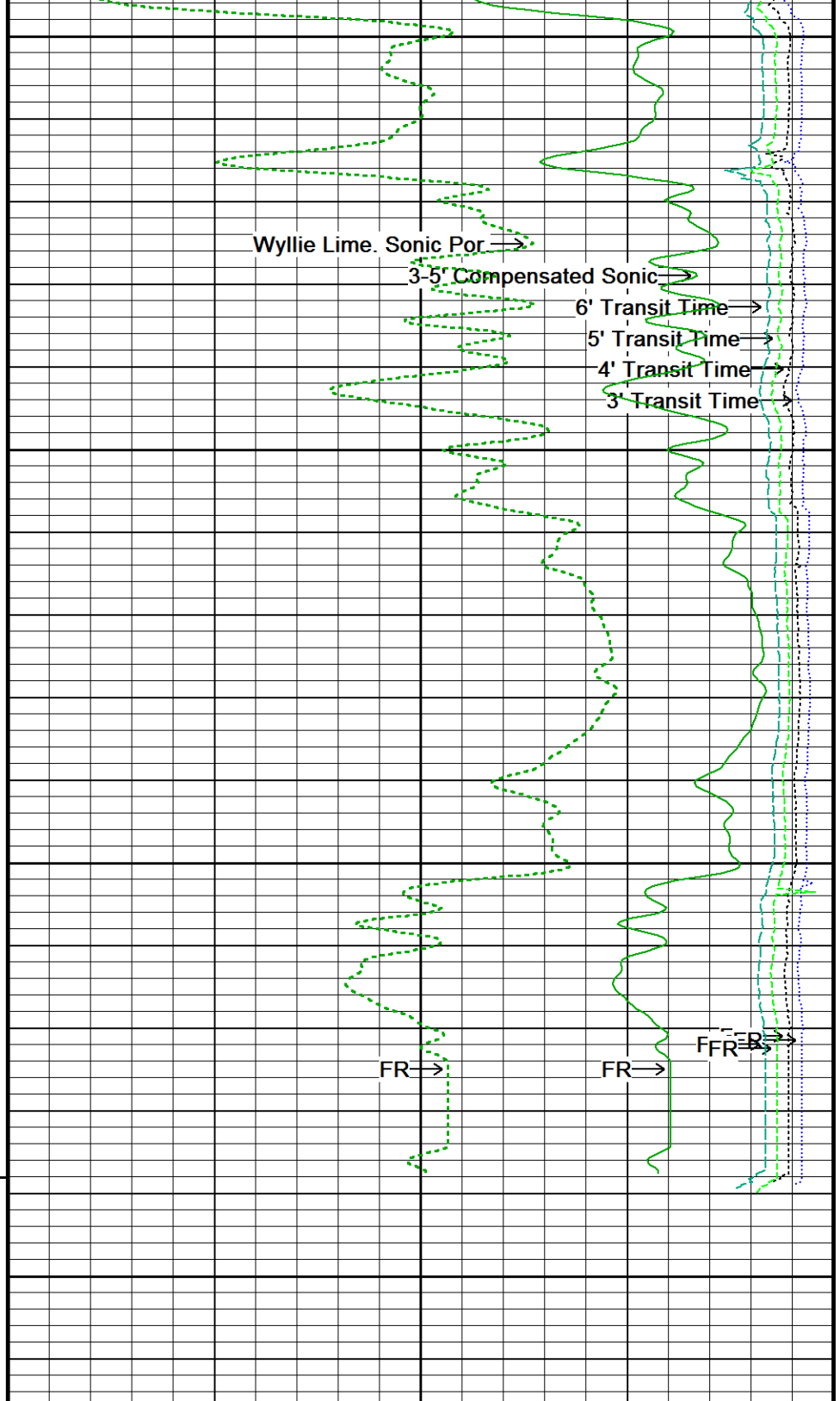
7650

Depth
In
Feet

Timing Marks
every 60.0 sec

Gamma Ray
API
0 75 150
150 225 300

Density Caliper
inches



Wyllie Lime. Sonic Por. →

3-5' Compensated Sonic →

6' Transit Time →

5' Transit Time →

4' Transit Time →

3' Transit Time →

FR →

FR →

FR →

3-5' Compensated Sonic

microsec/foot

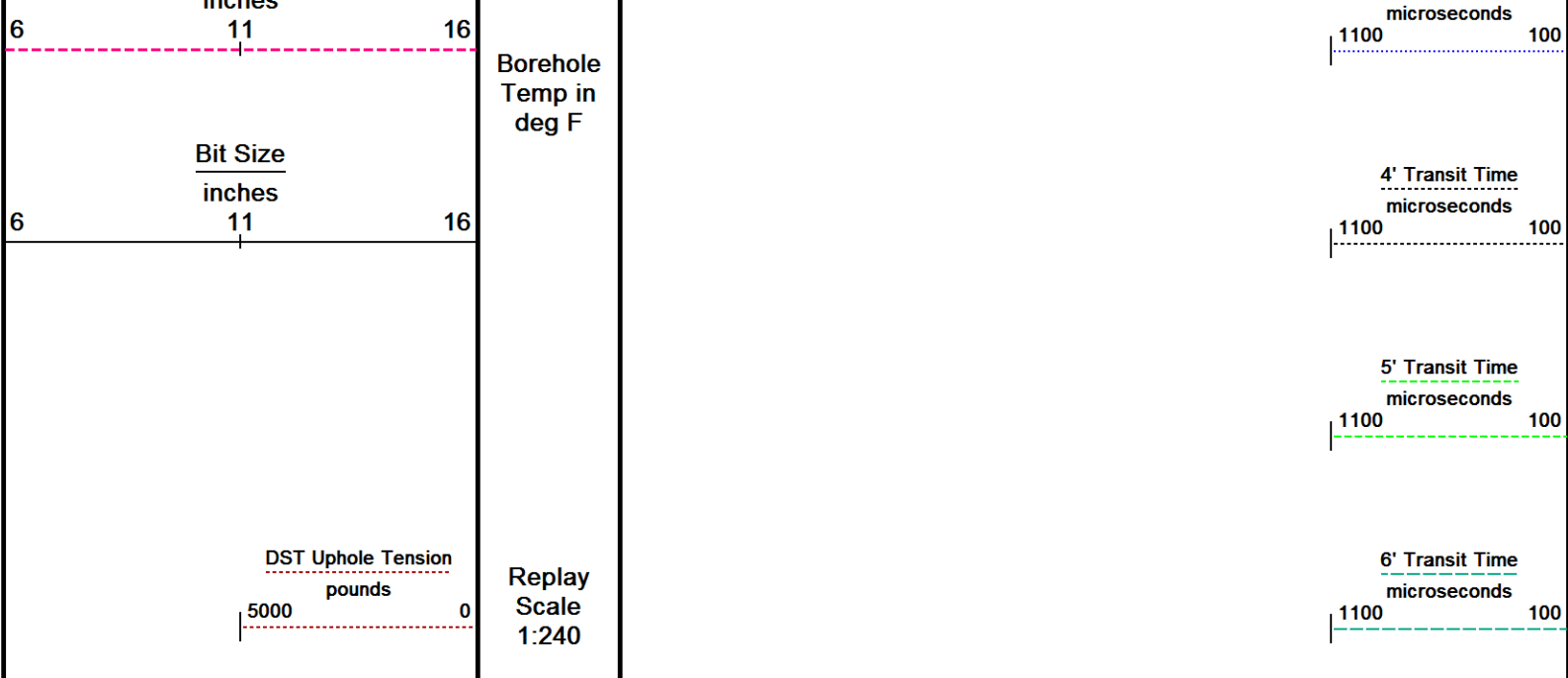
140 115 90 65 40

Wyllie Lime. Sonic Por.

percent

30 20 10 0 -10

3' Transit Time

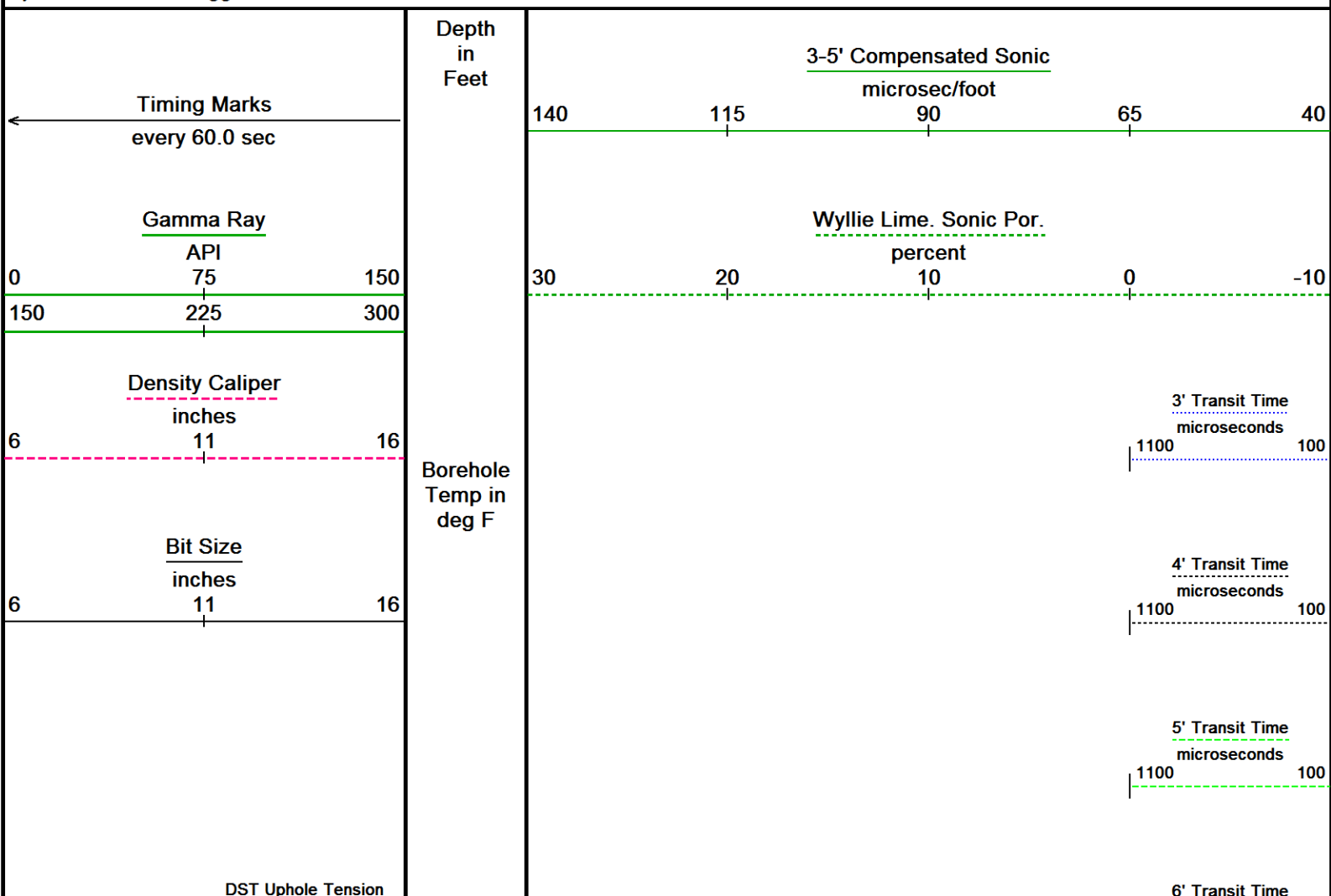


Depth Based Data - Maximum Sampling Increment 10.0cm	Plotted on 21-JAN-2019 17:45
Filename: C:\Minimus 18.03.9344\Data\GRAND MESA DIXIE #1-5\MAIN PASS.dta	Recorded on 21-JAN-2019 11:56
System Versions: Logged with 18.03.9344 Plotted with 18.03.9344	

↑	5 INCH MAIN	↑
---	-------------	---

↓	REPEAT SECTION	↓
---	----------------	---

Depth Based Data - Maximum Sampling Increment 10.0cm	Plotted on 21-JAN-2019 17:45
Filename: C:\Minimus 18.03.9344\Data\GRAND MESA DIXIE #1-5\REPEAT PASS.dta	Recorded on 21-JAN-2019 11:39
System Versions: Logged with 18.03.9344 Plotted with 18.03.9344	



pounds
5000 0

Replay
Scale
1:240

7300

163°

7350

165°

7400

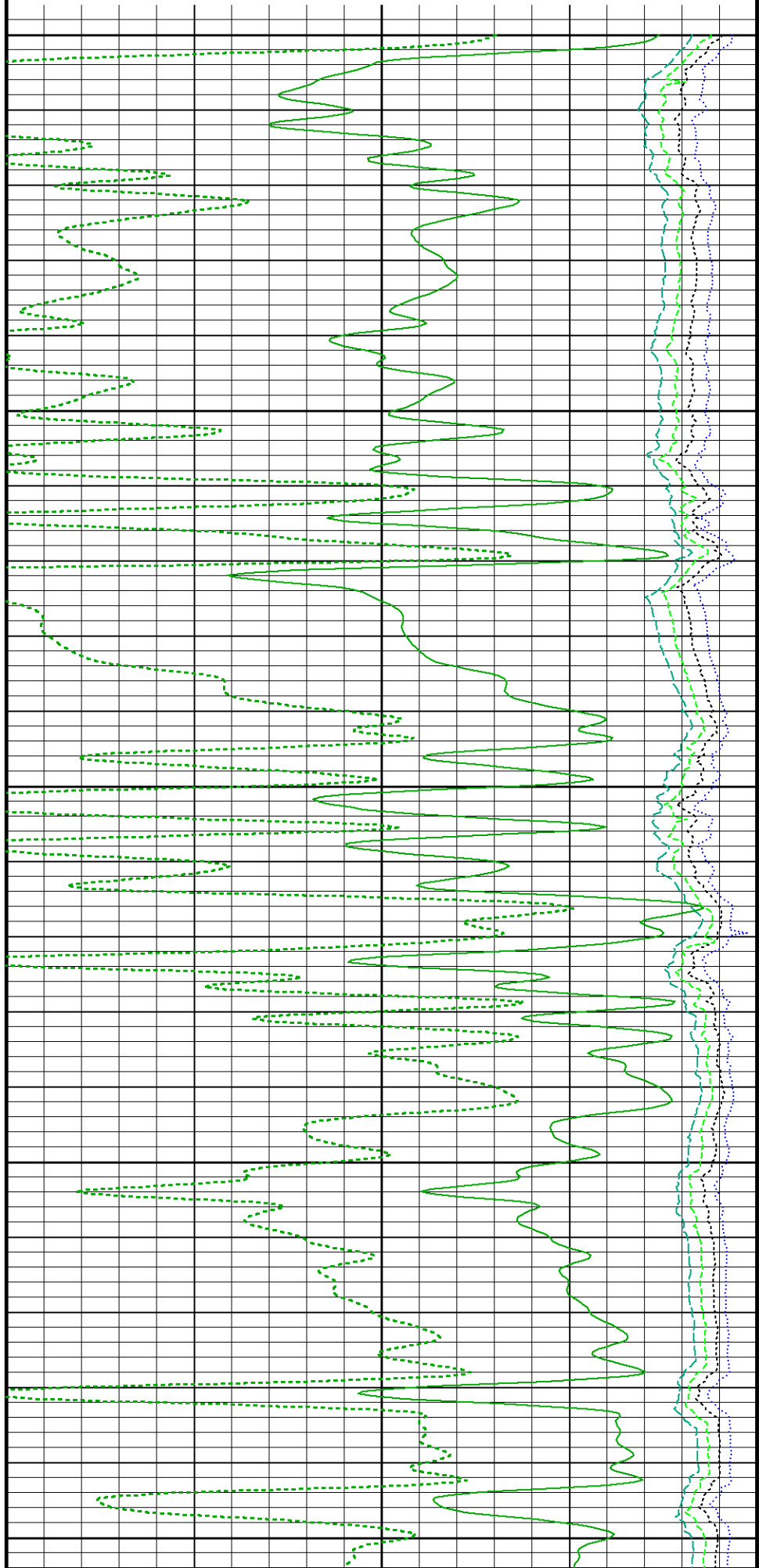
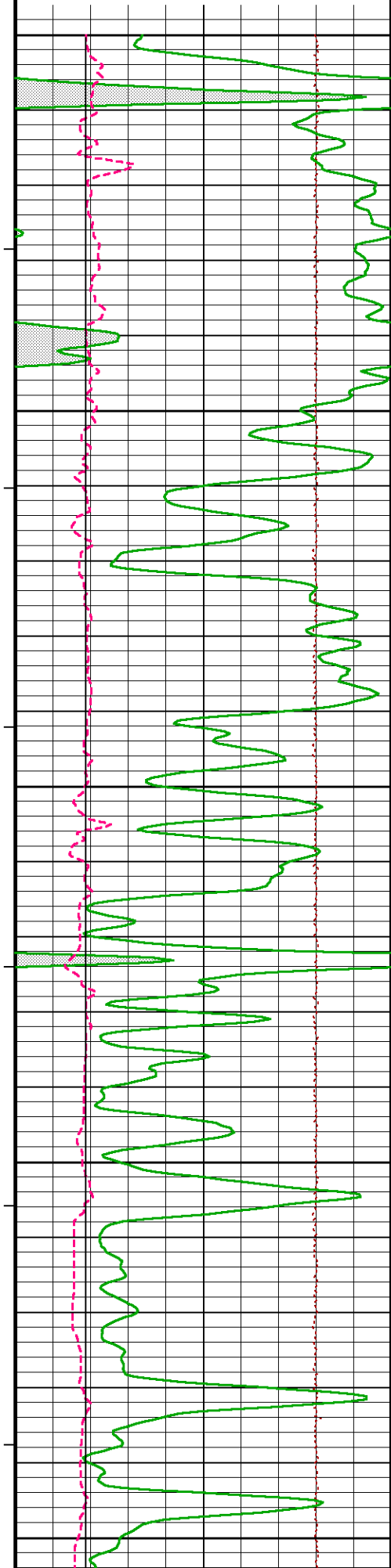
168°

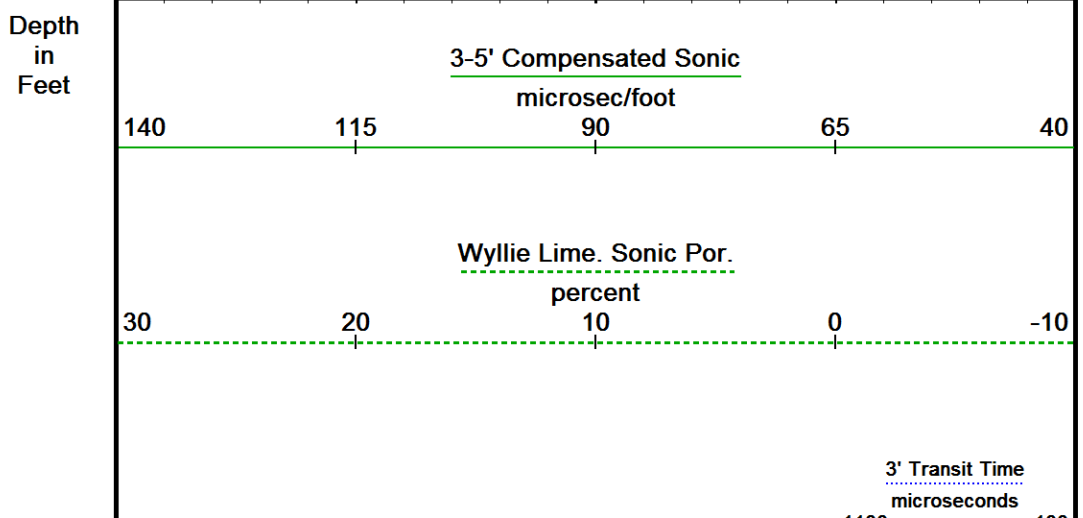
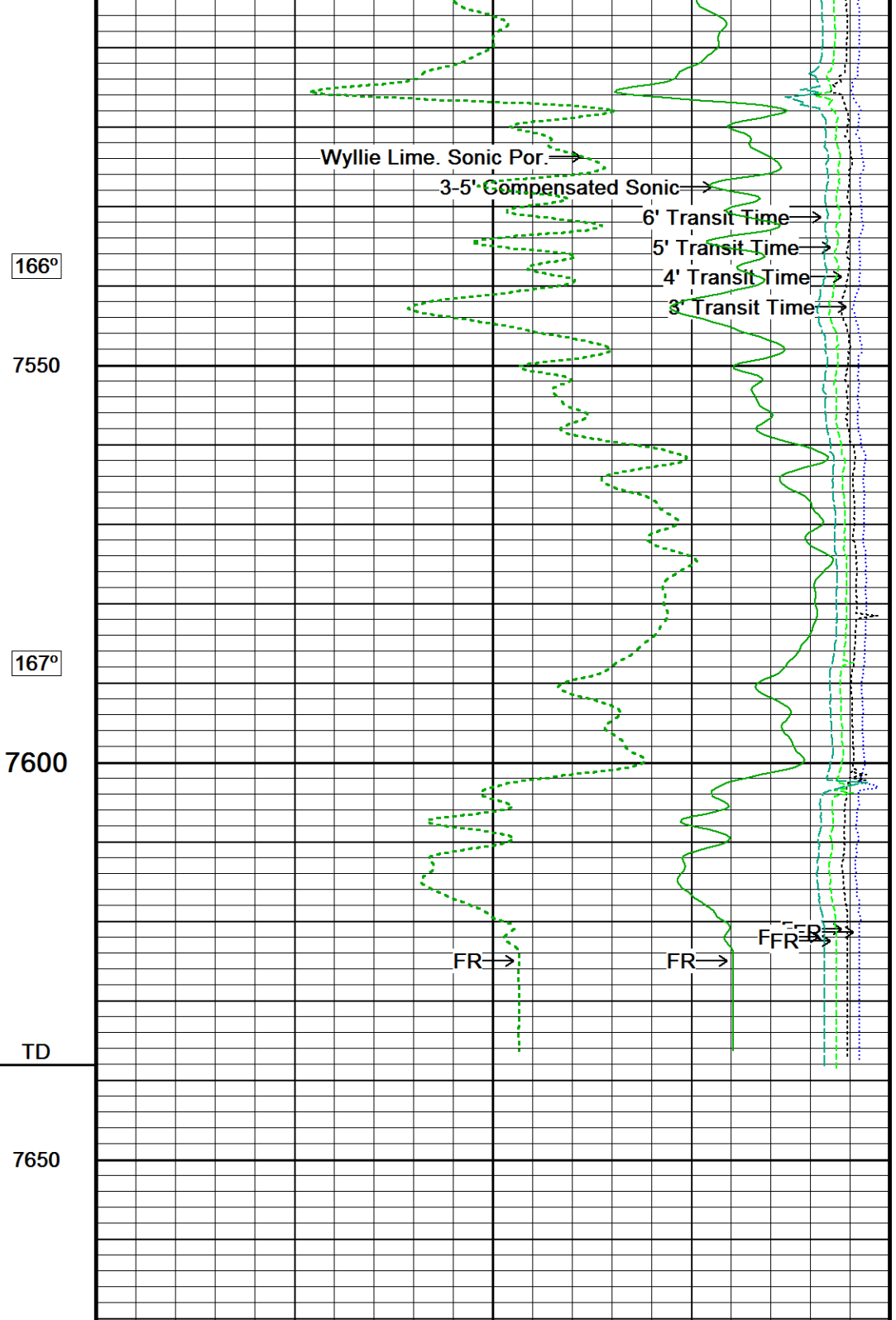
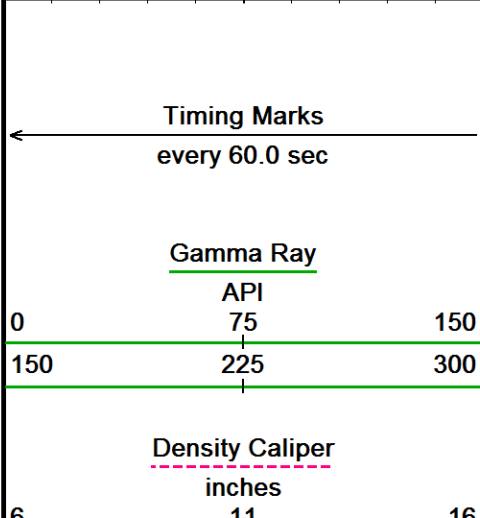
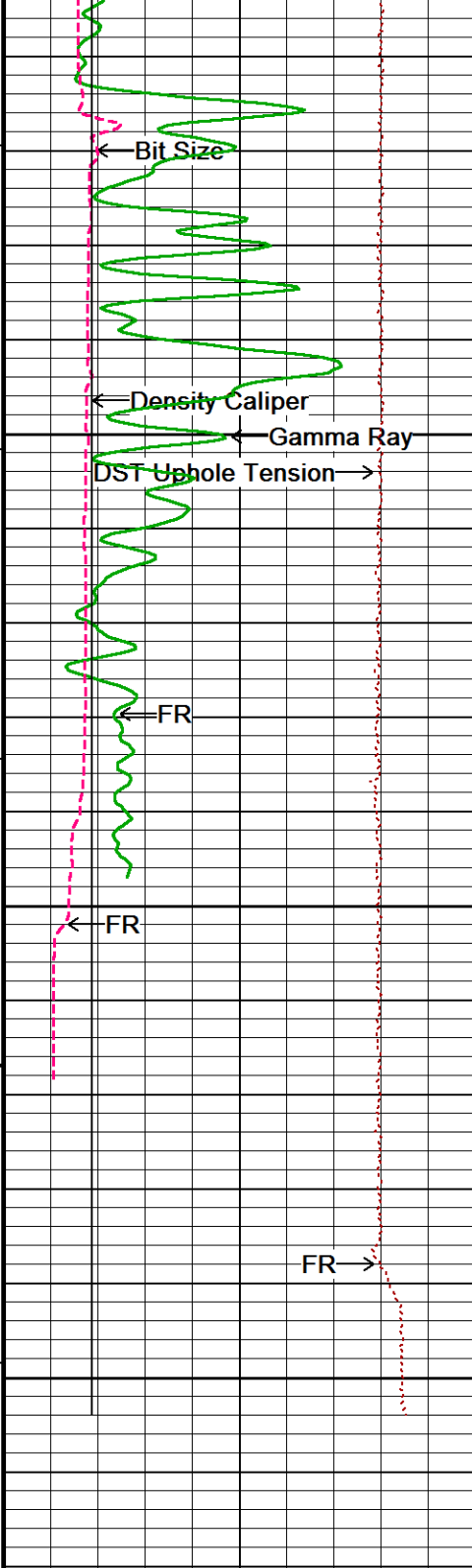
7450

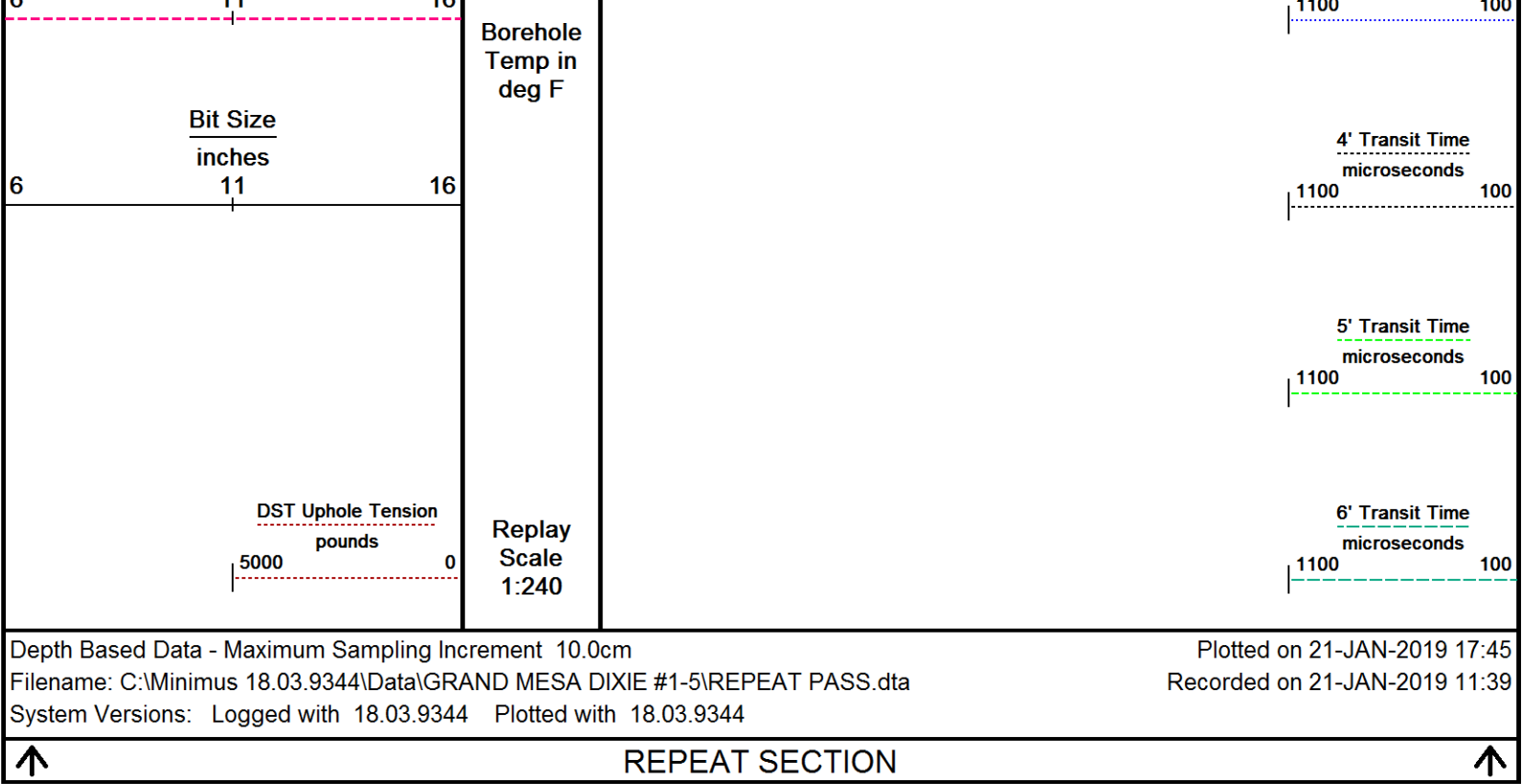
167°

7500

microseconds
1100 100







BEFORE SURVEY CALIBRATION			
C:\Minimus 18.03.9344\Data\GRAND MESA DIXIE #1-5\MAIN PASS.dta			
General Constants All 000		Last Edited on 21-JAN-2019,11:02	
General Parameters			
Mud Resistivity	0.600	ohm-metres	
Mud Resistivity Temperature	100.000	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	Density Caliper		
HVOL Caliper 2	N/A		
Annular Volume Diameter	5.500	inches	
Caliper for Differential Caliper	Density Caliper		
Rwa Parameters			
Porosity used	Crossplot Porosity		
Resistivity used	Array Ind. Two Res Rt		
RWA Constant A	0.620		
RWA Constant M	2.150		
SW/APOR Tool Source	0.000		
Down-hole Tension Calibration SMS 0		Field Calibration on 21-JAN-2019 10:51	
Reading No	Measured	Calibrated (lbs)	
1	15761.00	0.00	
2	17196.25	527.00	
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	

Pre-filter Length 11

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	1.40	1.475	1.55	Counts/API
1.422	<div><div></div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div><div></div></div>	

Gamma Constants MCG-D.K 443

Last Edited on 20-JAN-2019,21:10

Gamma Calibrator Number	MCGGRCC141	
GRC-M Calibrator Jig in Use?	NO	
Inactive Background Jig in Use?	NO	
Mud Density	1.11	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)	Resistor 2 (ohm)
	10.0	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 & 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		Measured	Calibrator Size (in)
Reading No			
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  in

Micro-Resistivity Caliper Constants MMR-B.A 91

Sonde Configuration Resistivity Mode

Micro Laterolog Calibration MMR-B.A 91

Base Calibration on 31-DEC-1999 00:00

Field Check on 31-DEC-1999 00:00

Base Calibration

Resistor 1 (ohm)	Resistor 2 (ohm)
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

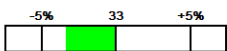
Field Calibrator at Base

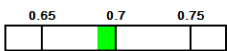
Calibrated (cps)
2207 3209
Ratio 0.688

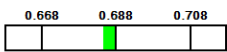
Field Check

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-2019,21:11

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>-3%</div> <div>960.0</div> <div>+3%</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-2019,21:12	
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		

Sonic Constants MSS-C.K 319		Last Edited on 08-JUL-2018,09:57			
Maximum Boundary Contrast	70.00	micro-sec/ft			
Fluid Transit Time	189.00	micro-sec/ft			
Limestone Transit Time	47.50	micro-sec/ft			
Sandstone Transit Time	55.50	micro-sec/ft			
Dolomite Transit Time	43.50	micro-sec/ft			
Sonic used for Porosities	3-5' Compensated				
Correction for Sonde Skew	Applied				
Cycle Stretch Algorithm	Applied				
MN3FT	0.00	micro-sec			
MX3FT	1500.00	micro-sec			
Hunt-Raymer Constant	83.13	micro-sec/ft			
Sonde Mode	Compensated				
Hole Type	Open Hole				
Sonde Parameters					
	Measured	Calibrated			
Offset		0.0000			
Free Pipe	0.0000				
Peak Amplitude Source					
Waveform	Start Time (micro-sec)	Width (micro-sec)	Pre Gain	Start Gain	Discriminator (mV)
3'	N/A	N/A	N/A	N/A	N/A

4'	N/A	N/A	N/A	N/A	N/A
5'	N/A	N/A	N/A	N/A	N/A
6'	N/A	N/A	N/A	N/A	N/A

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

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

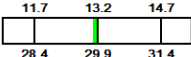
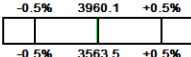
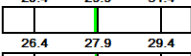
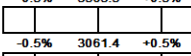
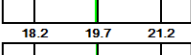
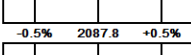
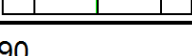
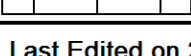
High Conductivity Reference Resistor	3.3 ohm
Low Conductivity Reference Resistor	333.3 ohm

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		mmho/m	High Array 1	3959.2		mmho/m
Low Array 2	29.8		mmho/m	High Array 2	3563.3		mmho/m
Low Array 3	27.8		mmho/m	High Array 3	3061.3		mmho/m
Low Array 4	19.7		mmho/m	High Array 4	2088.0		mmho/m

Induction Constants MAI-B.J 390

Last Edited on 20-JAN-2019,21:12

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
Borehole Normalisation		
DRM1	0.0000	DRC1 0.0000
DRM2	0.0000	DRC2 0.0000
MRM1	0.0000	MRC1 0.0000
MRM2	0.0000	MRC2 0.0000
SRM1	0.0000	SRC1 0.0000
SRM2	0.0000	SRC2 0.0000
Calibration Site Corrections		
Channel 1	0.00	mmhos/metre
Channel 2	0.00	mmhos/metre
Channel 3	0.00	mmhos/metre
Channel 4	0.00	mmhos/metre
Symmetrised Receiver Gains		
Receiver 1	1.00	
Receiver 2	1.00	
Receiver 3	1.00	
Receiver 4	1.00	
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 Calibration MAI-B.J 390			Field Calibration on 15-MAY-2018,12:48
	Measured	Calibrated(Deg F)	
Lower	10.00	10.00	
Upper	100.00	100.00	

High Resolution Temperature Constants MAI-B.J 390			Last Edited on 06-MAR-2018,13:01
Pre-filter Length	11		

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	<div> <div>7.57</div> <div>7.97</div> <div>8.37</div> </div>	in

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		Measured		Calibrated (sdu)	
Base Calibration		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

Near Density Ratio	2.62	-5%	2.52	+5%
PE Calibration	0.115	0.089	0.110	0.131

Far Density Ratio	21.59	-5%	21.00	+5%
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Near Den. Field Check	994.1	-3%	993.3	+3%
PE WS Field Check	183.2	-6%	179.3	+6%

Far Den. Field Check	1177.2	-3%	1179.8	+3%
PE WH Field Check	889.7	-6%	890.5	+6%

Density Constants MPD-C.A 216

Last Edited on 20-JAN-2019,21:12

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	1.11	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	

DOWNHOLE EQUIPMENT

C:\Minimus 18.03.9344\Data\GRAND MESA DIXIE #1-5\MAIN PASS.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

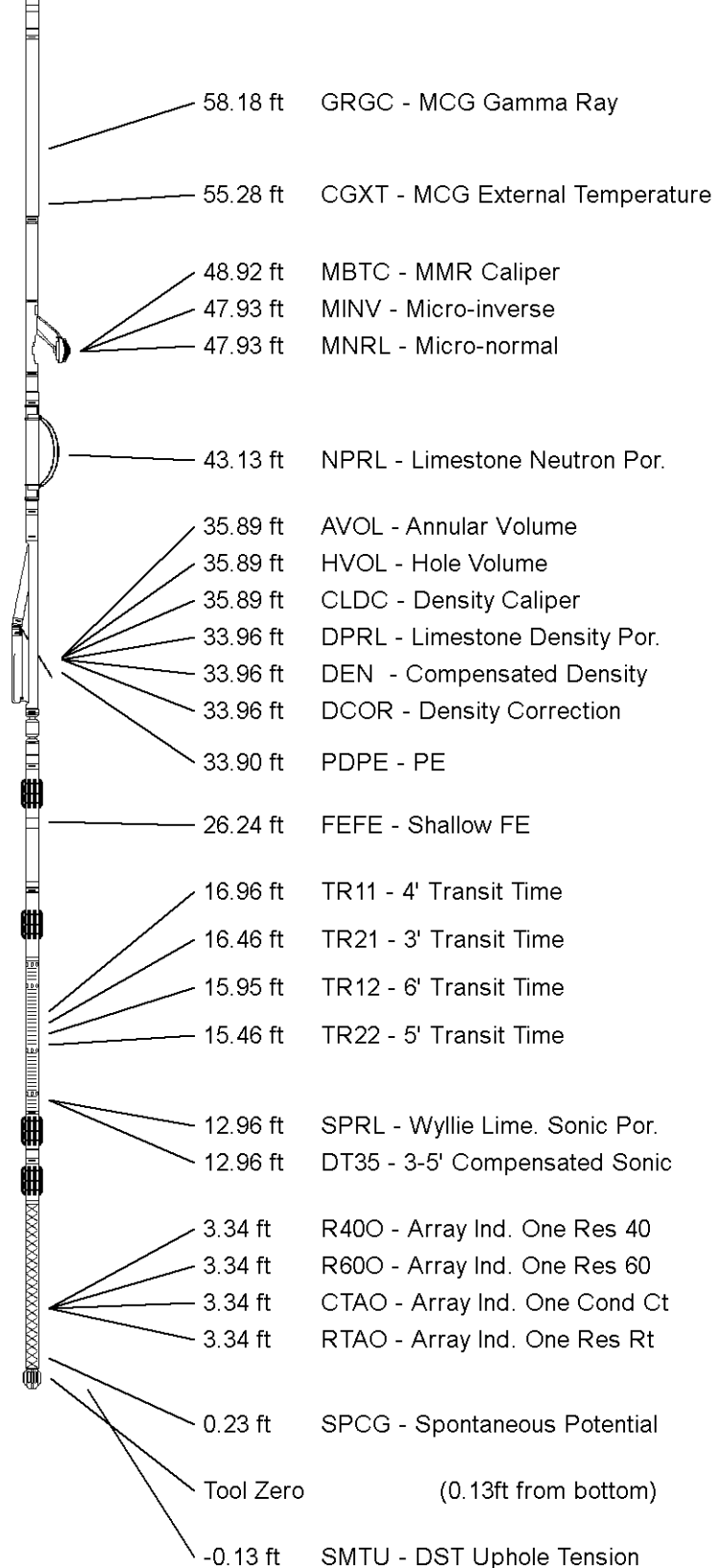
Compact Knuckle Joint
SKJ-E.B 733 LG: 2.17 ft WT: 24.3 lb OD: 2.244 in

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	GRAND MESA OPERATING COMPANY		
WELL	DIXIE #1-5		
FIELD	WILDCAT		
PROVINCE/COUNTY	LINCLON		
COUNTRY/STATE	U.S.A. / COLORADO		

Elevation Kelly Bushing	5096	feet	First Reading	7625.00	feet
Elevation Drill Floor	5094	feet	Depth Driller	7635.00	feet
Elevation Ground Level	5077	feet	Depth Logger	7638.00	feet



Weatherford®

COMPENSATED SONIC
WITH INTEGRATED TRANSIT TIME