



Weatherford

**COMPENSATED SONIC
WITH INTEGRATED TRANSIT TIME**

COMPANY SHAKESPEARE OIL CO., INC.
 WELL PARSONS #2-27
 FIELD WILDCAT
 PROVINCE/COUNTY GOVE
 COUNTRY/STATE U.S.A. / KANSAS
 LOCATION 2480' FNL & 1100' FWL

SEC 27 TWP 13S RGE 31W Other Services MAI/MFE
 MPD/MDN
 MML
 API Number 15-063-22039
 Permit Number

Permanent Datum GL, Elevation 2838 feet
 Log Measured From KB Elevations: 2848.00
 Drilling Measured From KB DF 2846.00
 GL 2638.00

Date	28-SEP-2012
Run Number	ONE
Depth Driller	4630.00 feet
Depth Logger	4629.00 feet
First Reading	4616.00 feet
Last Reading	222.00 feet
Casing Driller	225.00 feet
Casing Logger	222.00 feet
Bit Size	7.875 inches
Hole Fluid Type	CHEMICAL
Density / Viscosity	9.40 lb/USg 49.00 CP
PH / Fluid Loss	10.50 6.40 ml/30Min
Sample Source	FLOWLINE
Rm @ Measured Temp	0.74 @ 89.0 ohm-m
Rmf @ Measured Temp	0.59 @ 89.0 ohm-m
Rmc @ Measured Temp	0.89 @ 89.0 ohm-m
Source Rmf / Rmc	CALC CALC
Rm @ BHT	0.56 @ 119.0 ohm-m
Time Since Circulation	4 HOURS
Max Recorded Temp	119.00 deg F
Equipment Name	COMPACT
Equipment / Base	13057 LIB
Recorded By	ADAM SILL
Witnessed By	TIM PRIEST
S.O. # / JOB #	3538930 LB12-262

BOREHOLE RECORD			Last Edited: 28-SEP-2012 19:20	
Bit Size inches	Depth From feet	Depth To feet		
7.875	225.00	4630.00		
CASING RECORD				
Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	8.625	0.00	225.00	24.00

REMARKS

- SOFTWARE ISSUE: WLS 13.02.6600.
- MCG, MML, MDN, MPD, 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: 1968 CU. FT.
- ANNULAR HOLE VOLUME WITH 5.5 INCH PRODUCTION CASING FROM TD TO 3629 FEET: 237 CU. FT.

← Bit Size

3-5' Compensated Sonic →

← Gamma Ray

DST Uphole Tension →

250

94°

300

94°

350

94°

400

94°

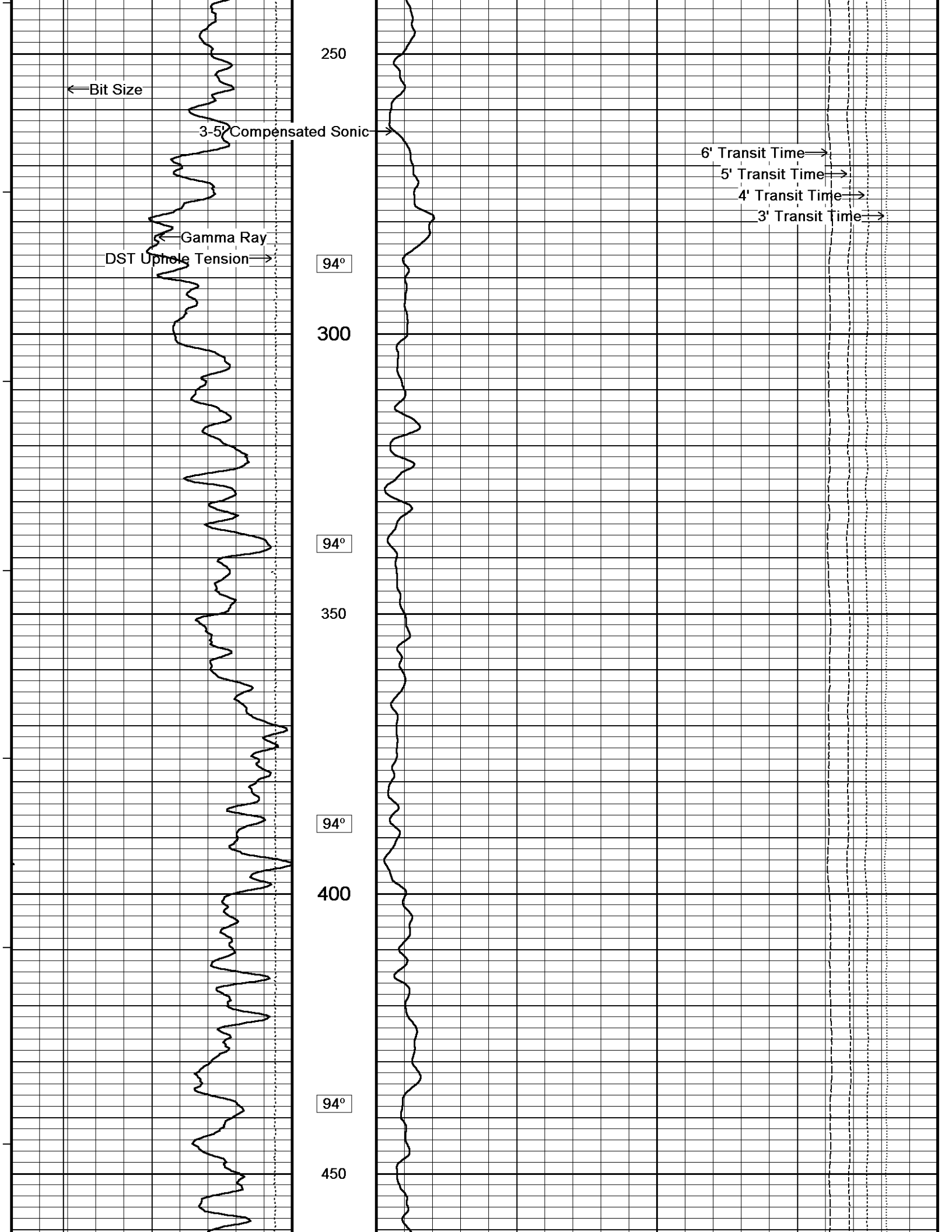
450

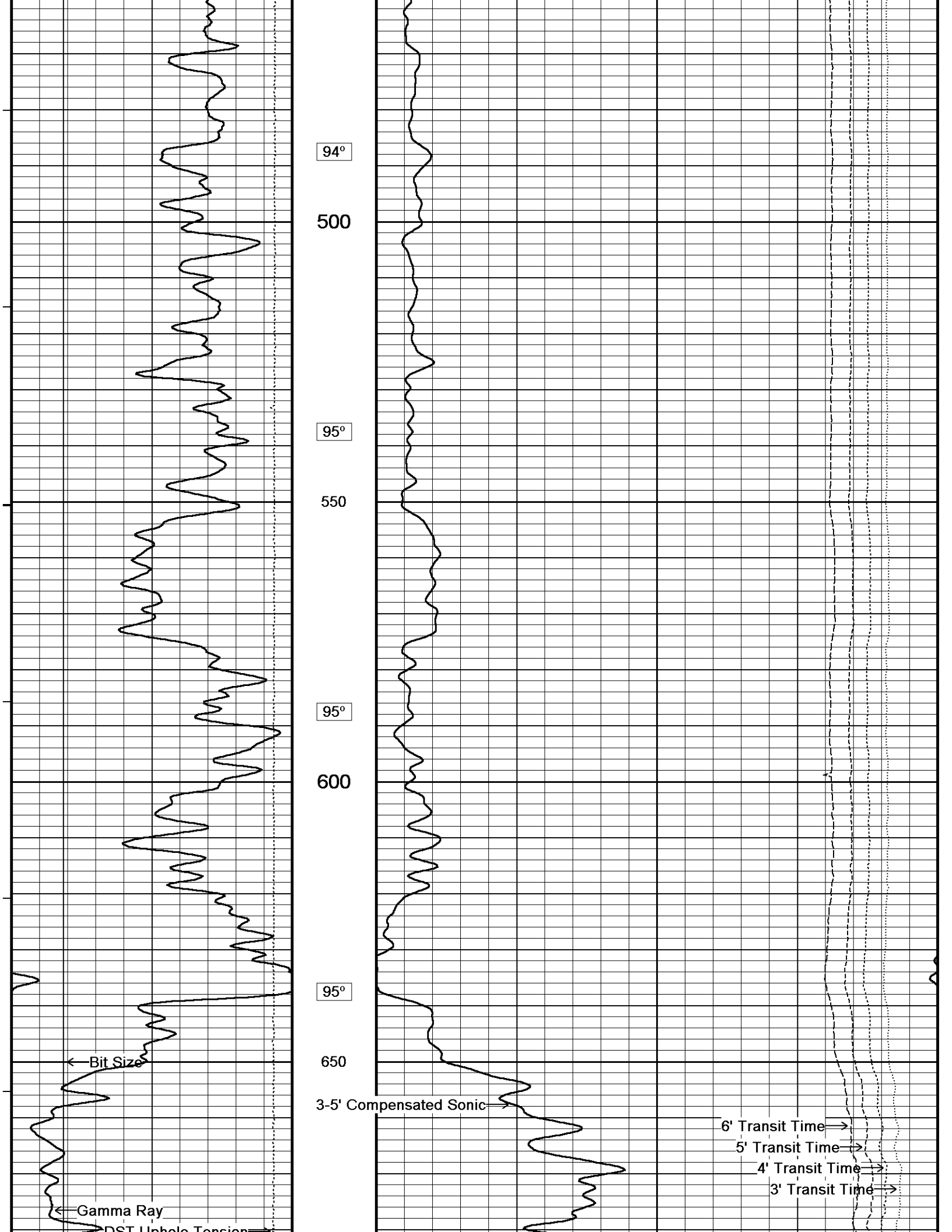
6' Transit Time →

5' Transit Time →

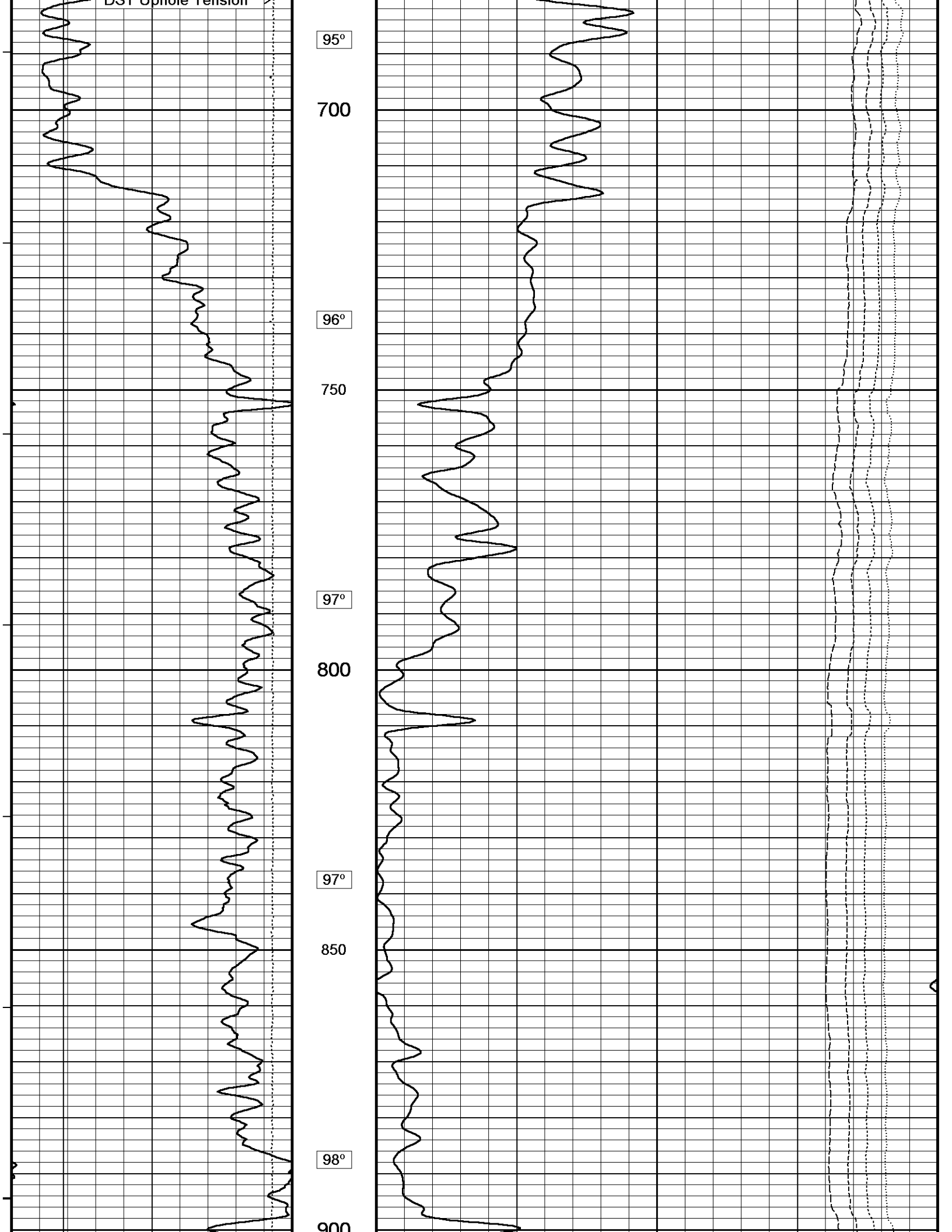
4' Transit Time →

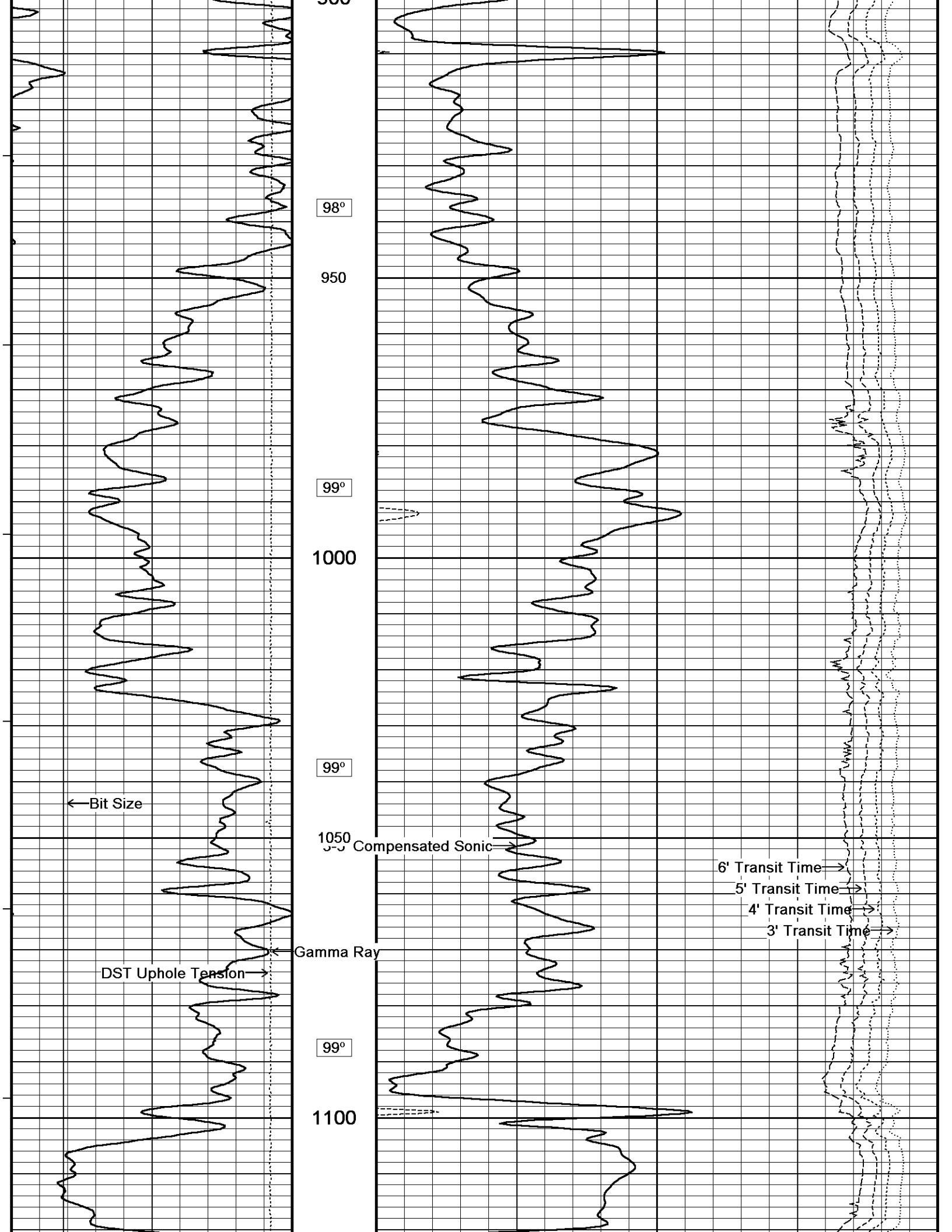
3' Transit Time →

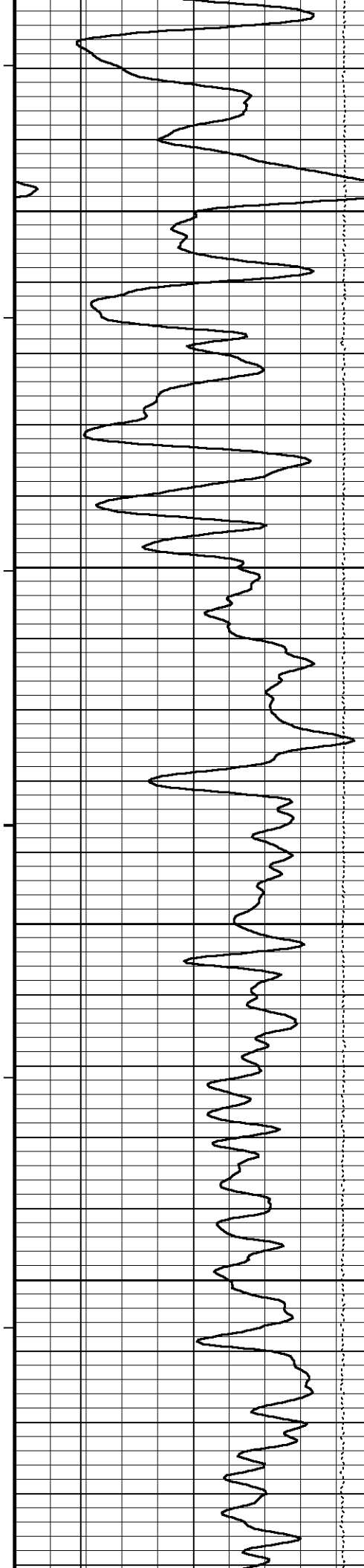




DS1 Opble Tension







99°

1150

100°

1200

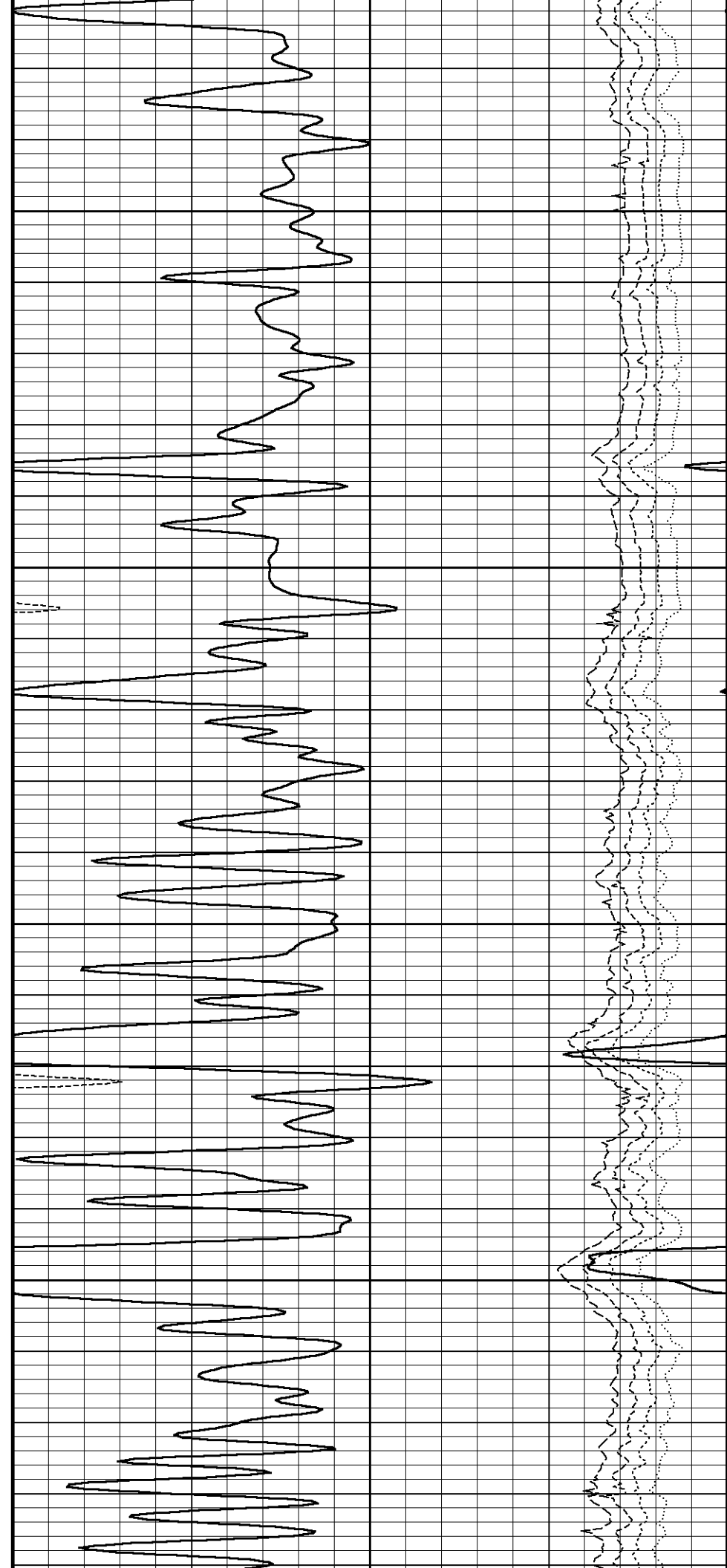
100°

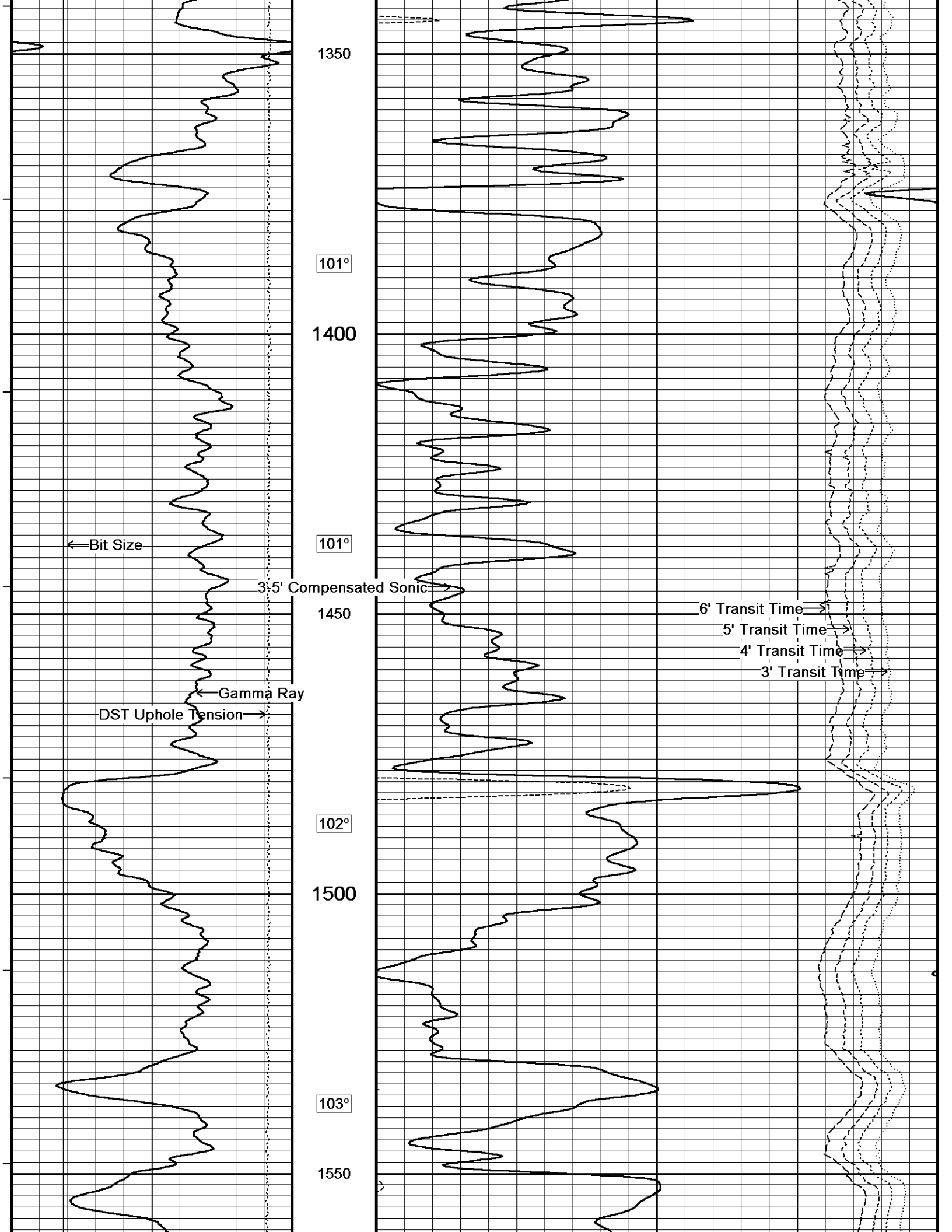
1250

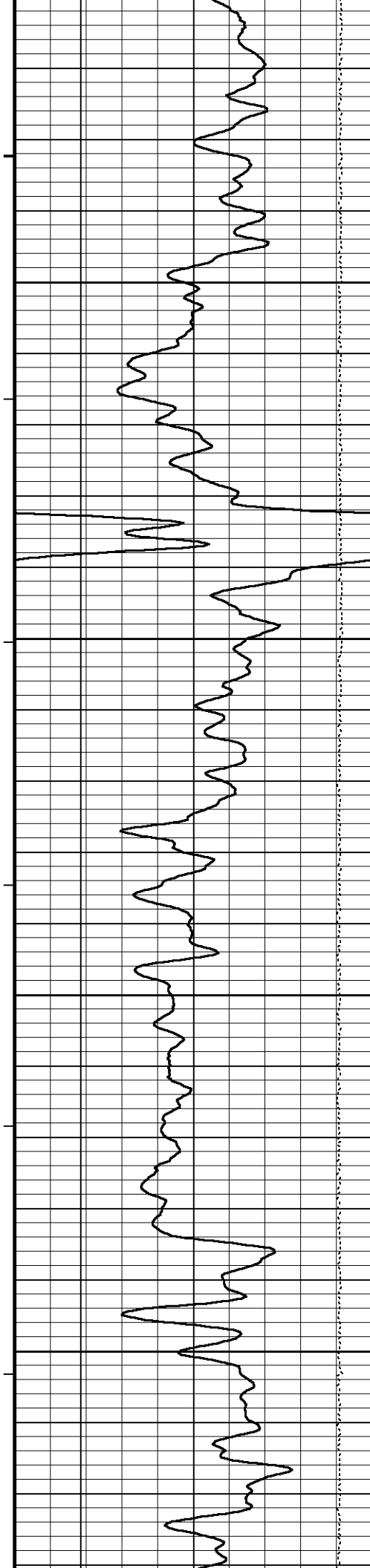
101°

1300

101°







103°

1600

103°

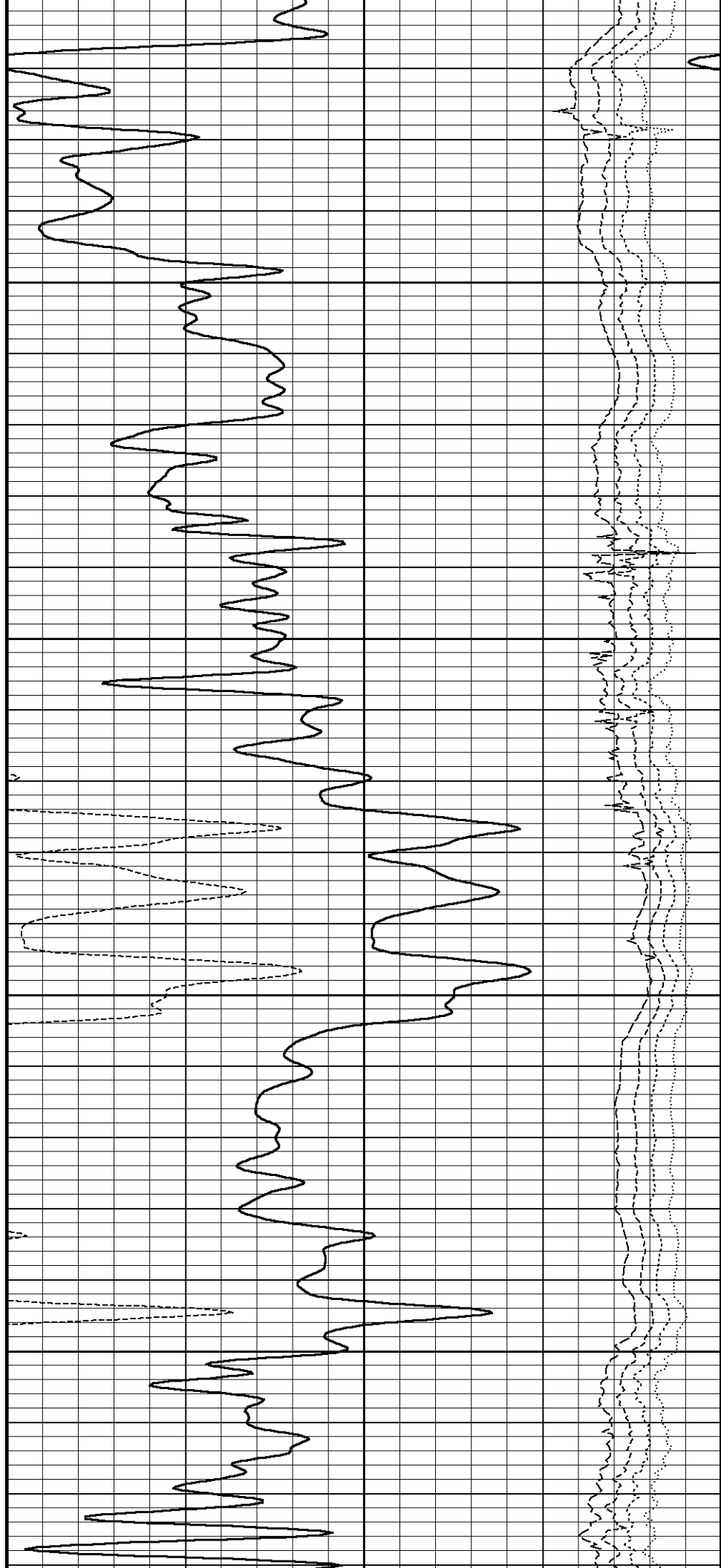
1650

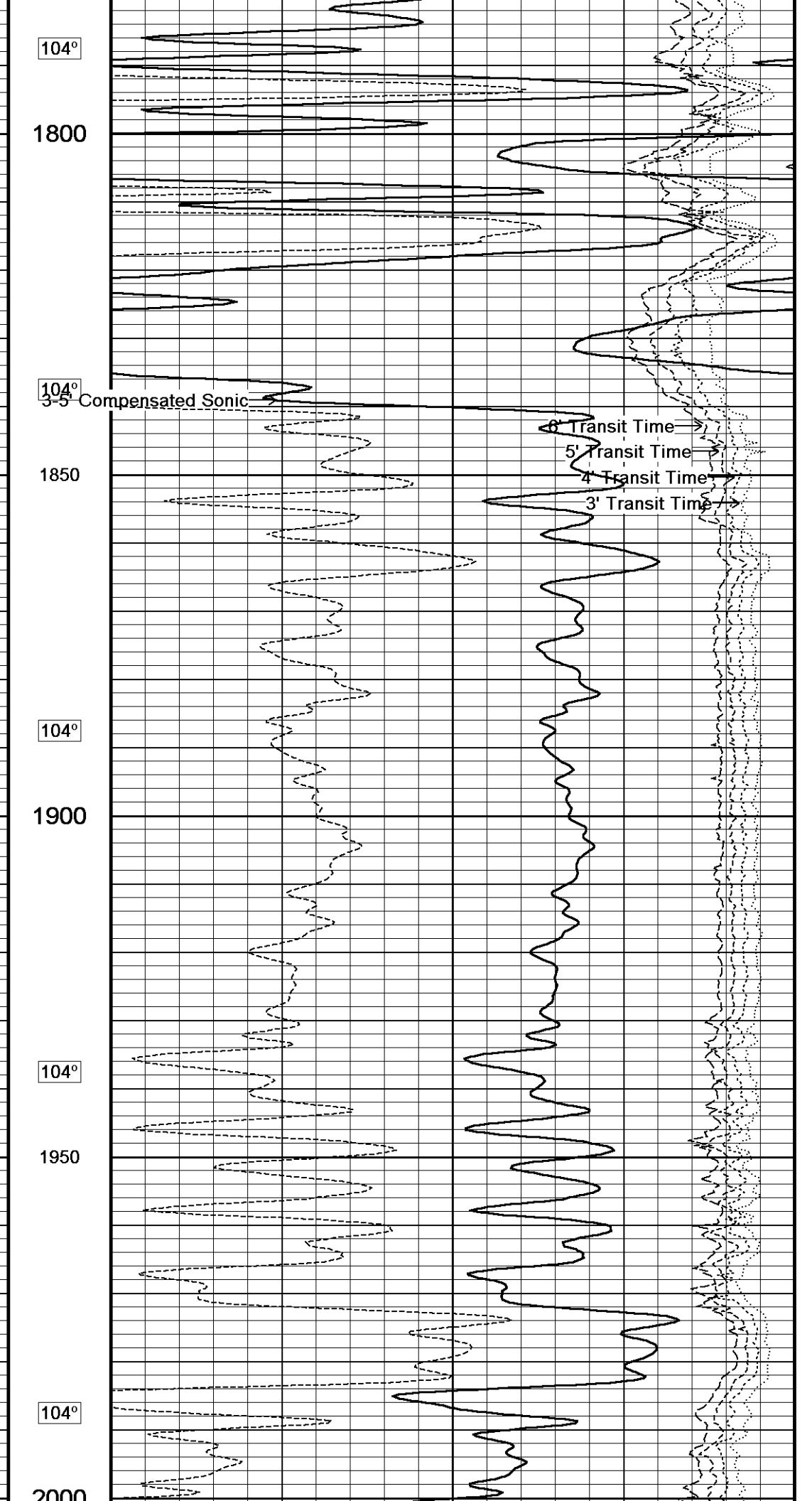
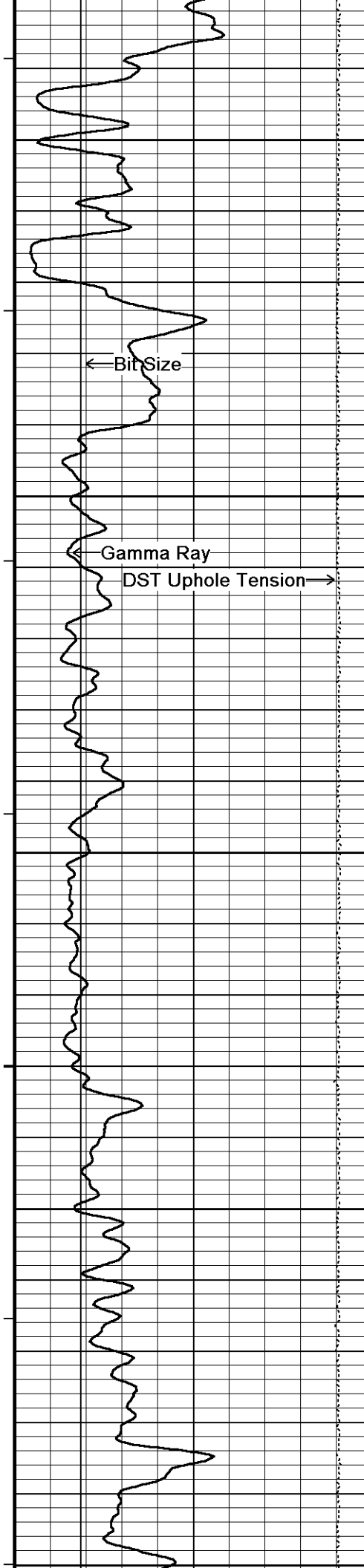
103°

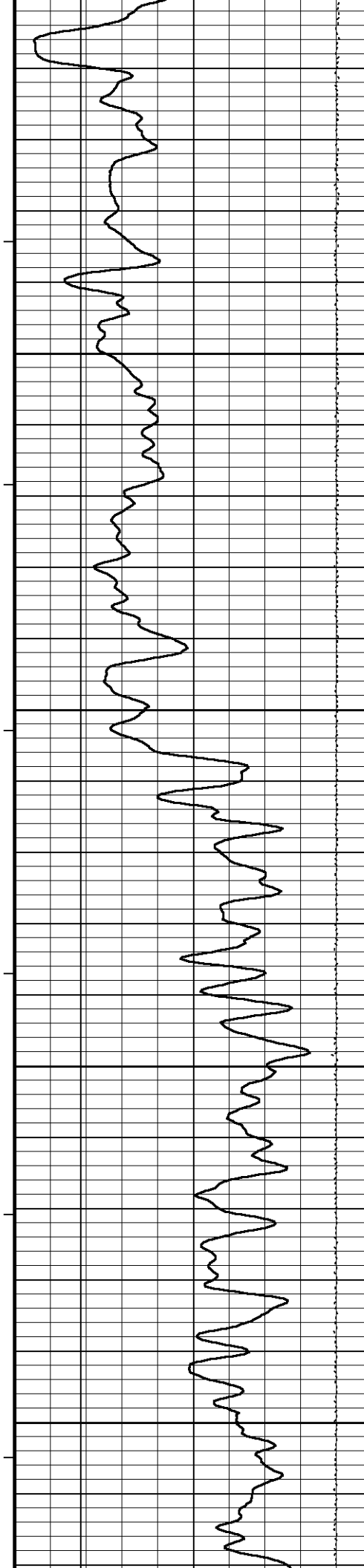
1700

104°

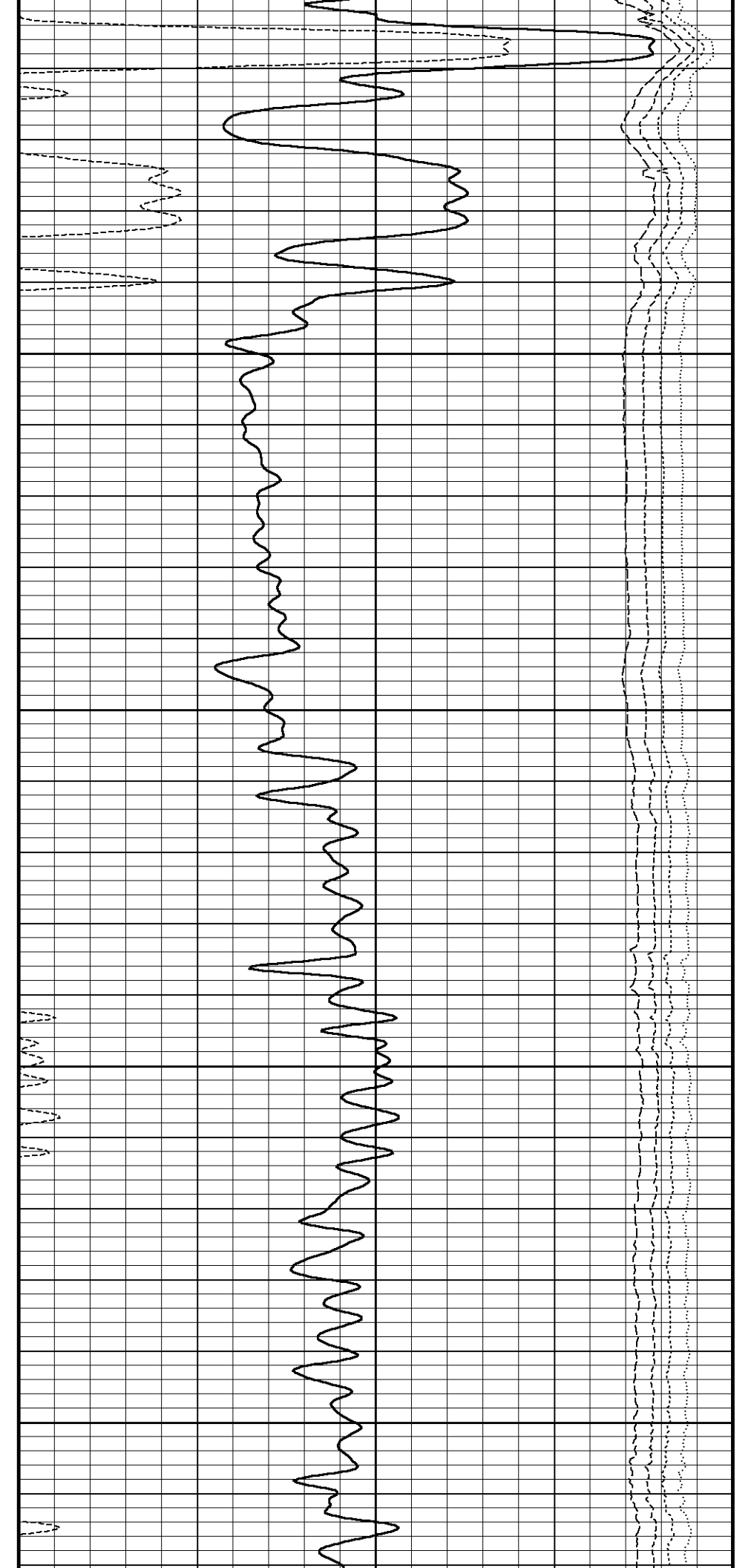
1750

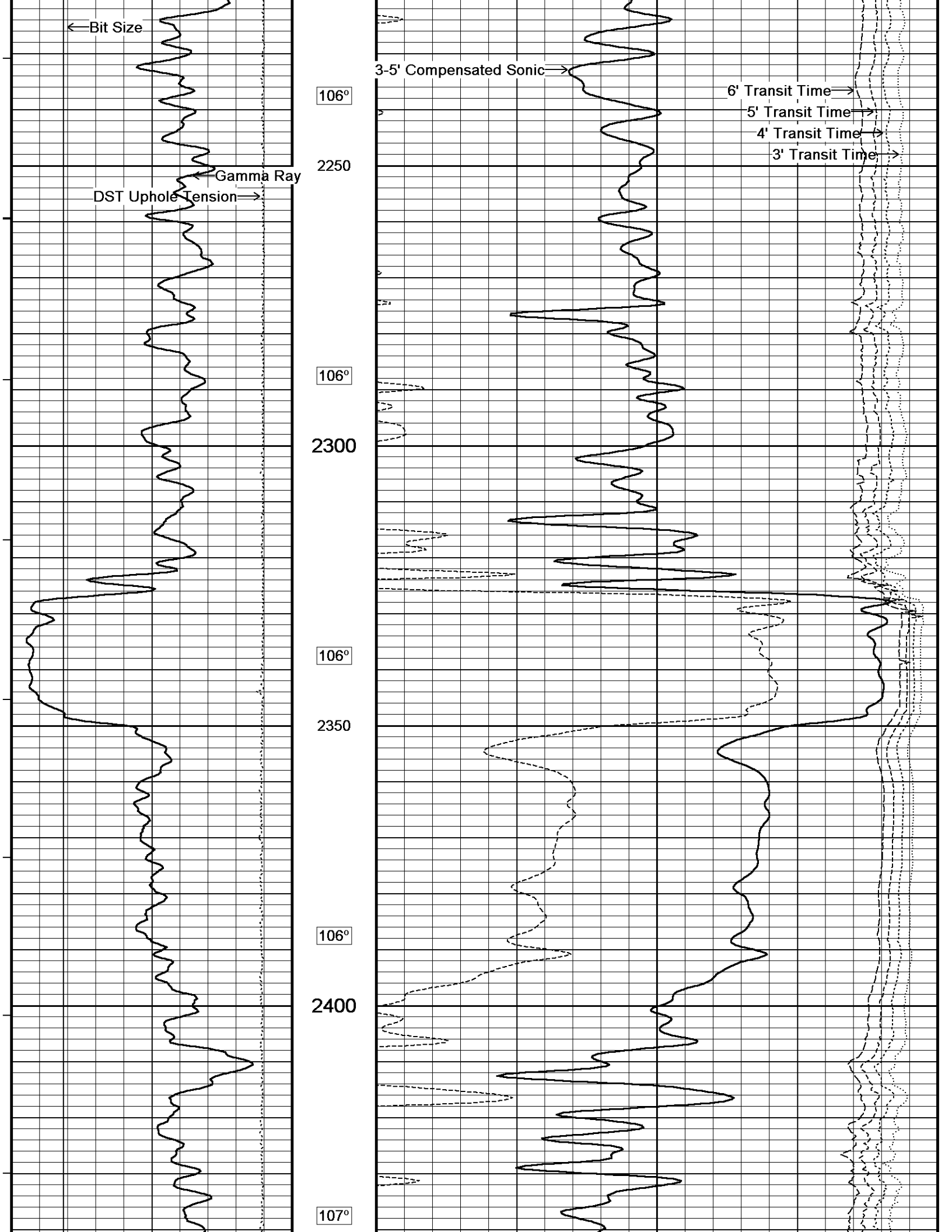


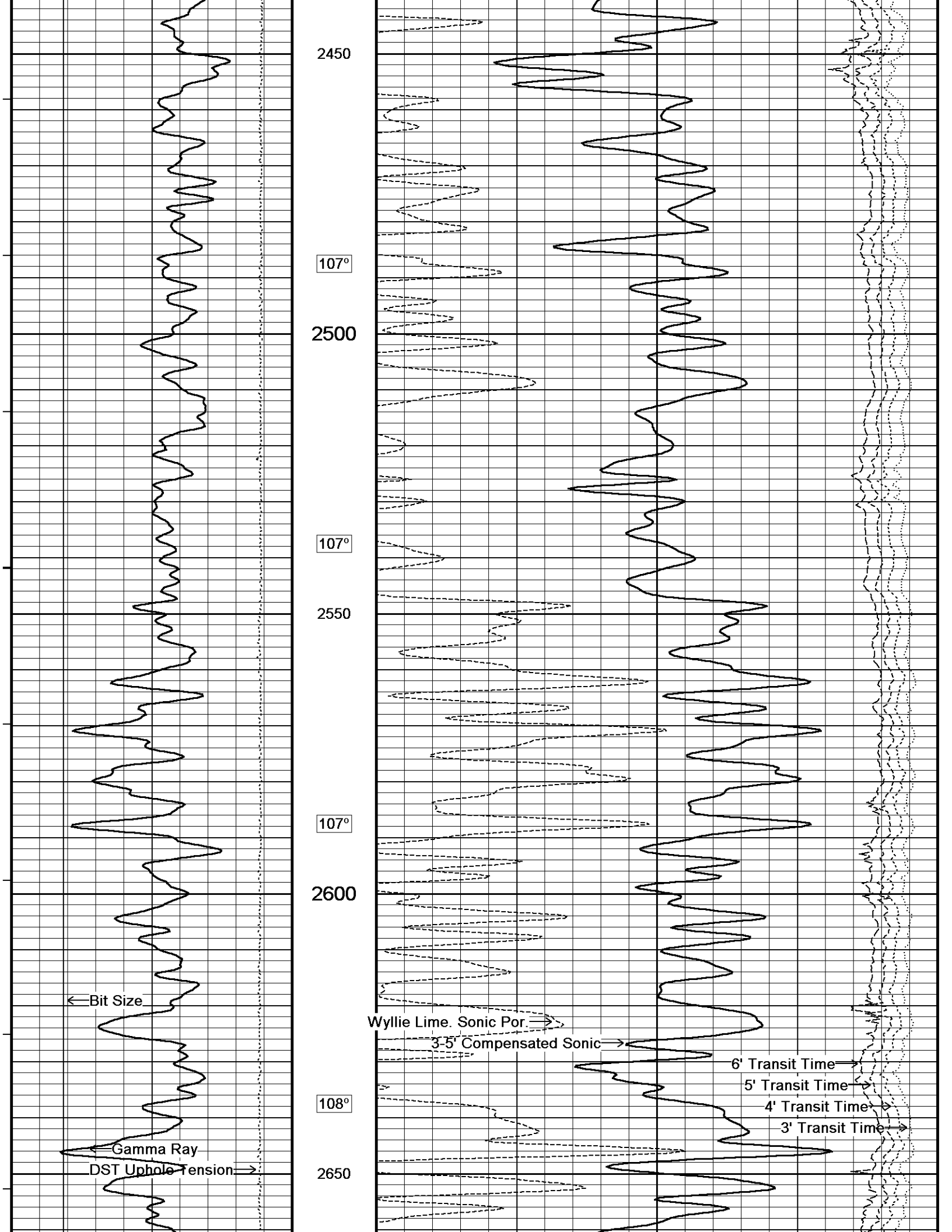


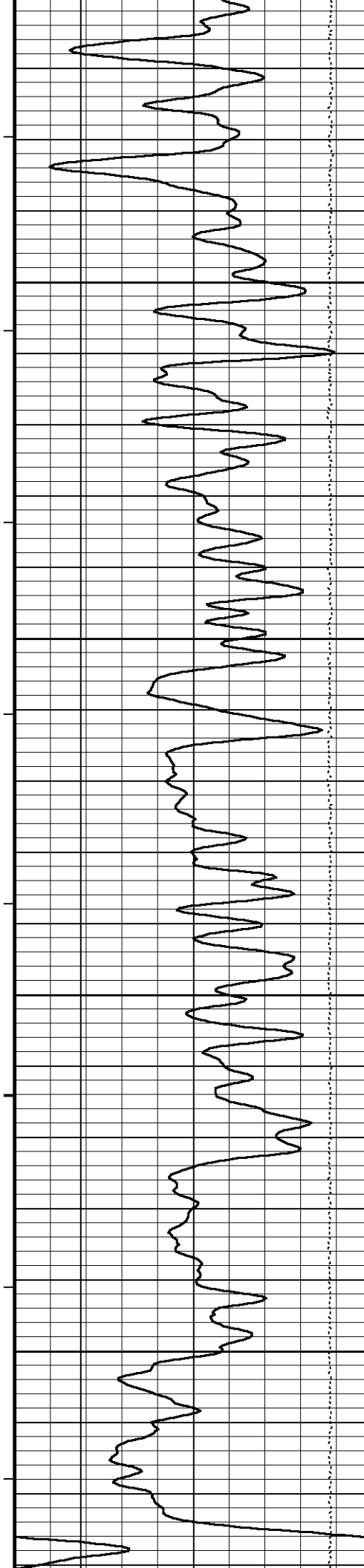


2000
104°
2050
105°
2100
105°
2150
105°
2200









108°

2700

108°

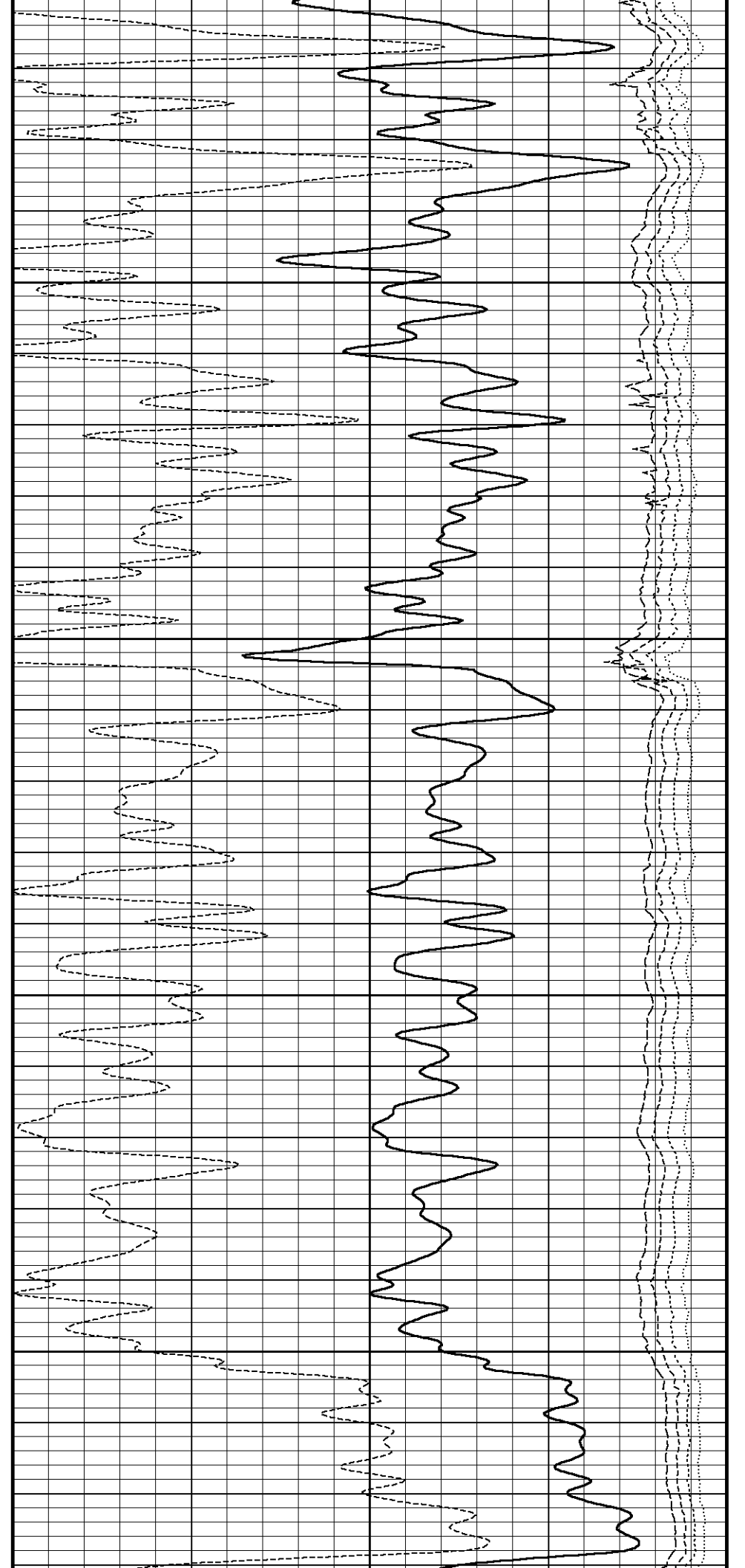
2750

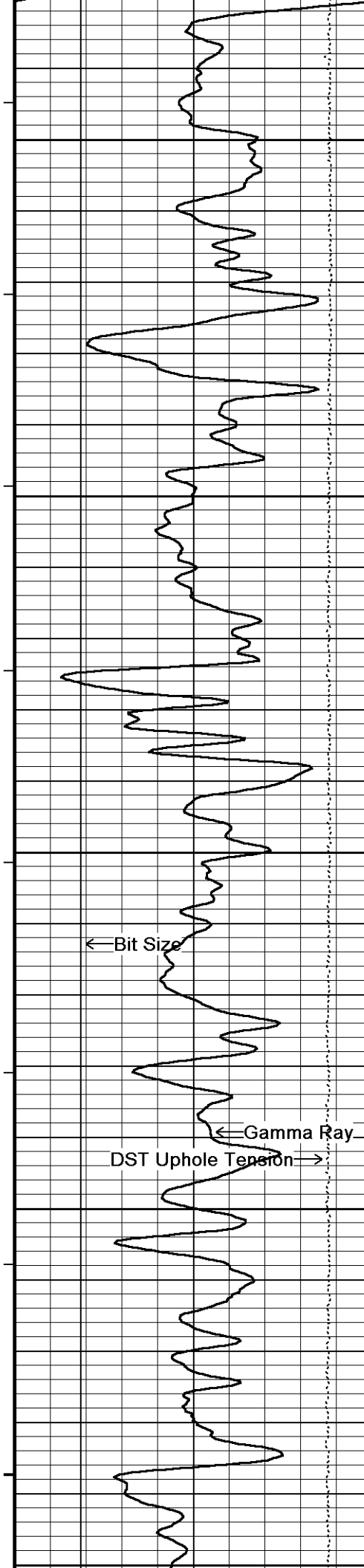
108°

2800

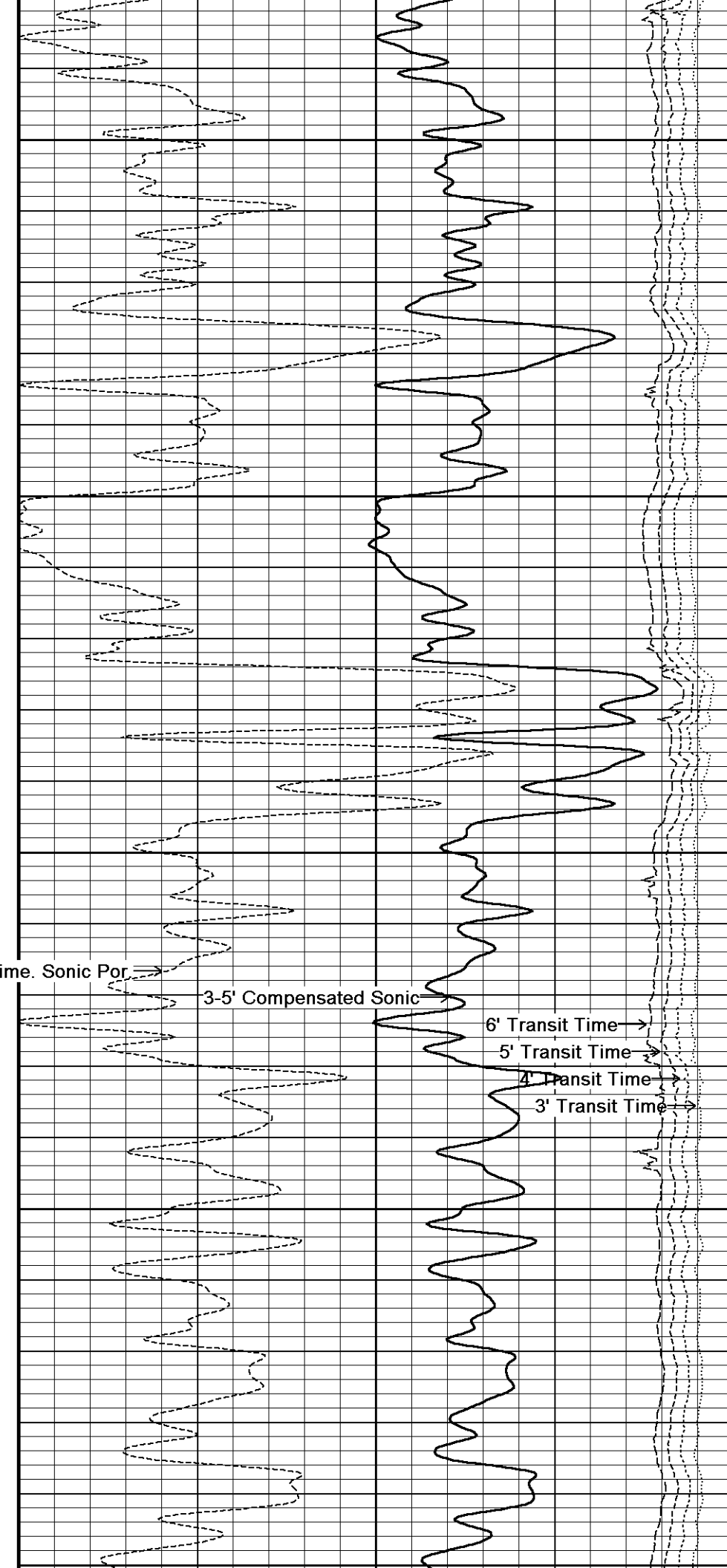
108°

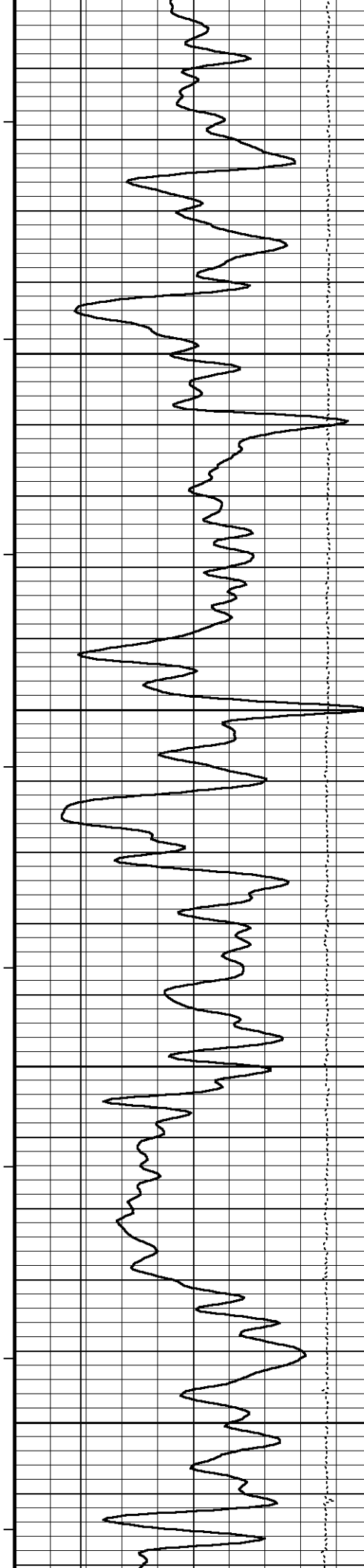
2850



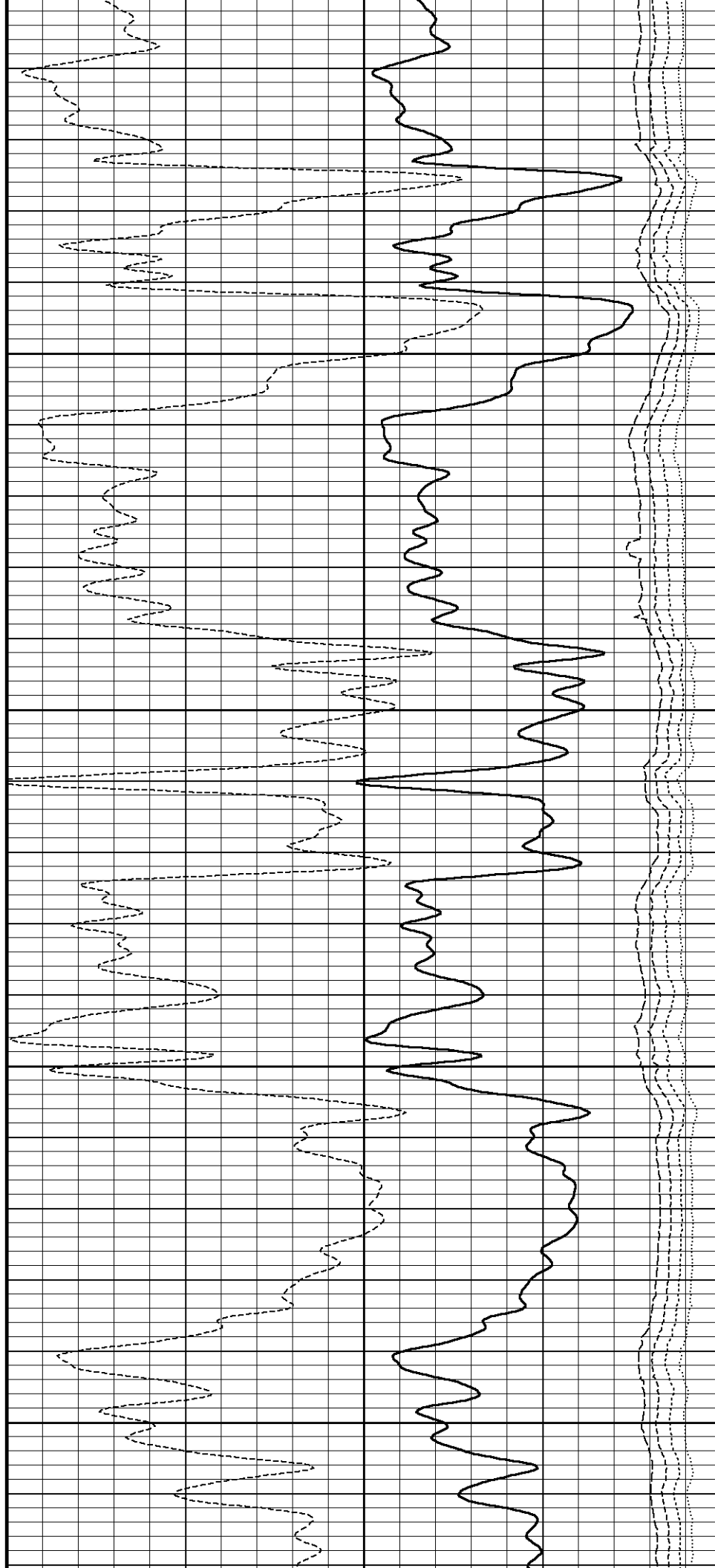


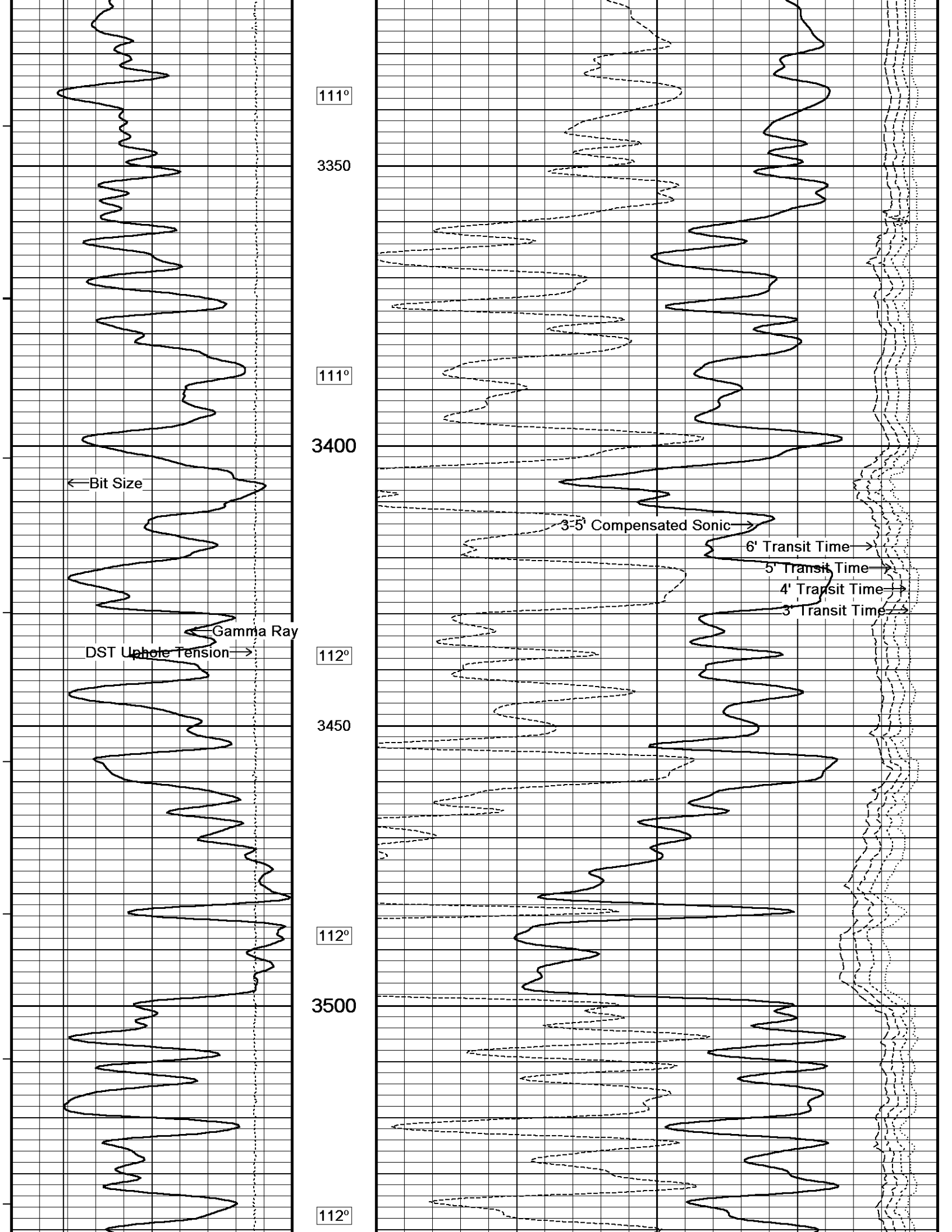
109°
2900
109°
2950
109°
3000
Wyllie Lime. Sonic Por. →
109°
3050
110°
3100

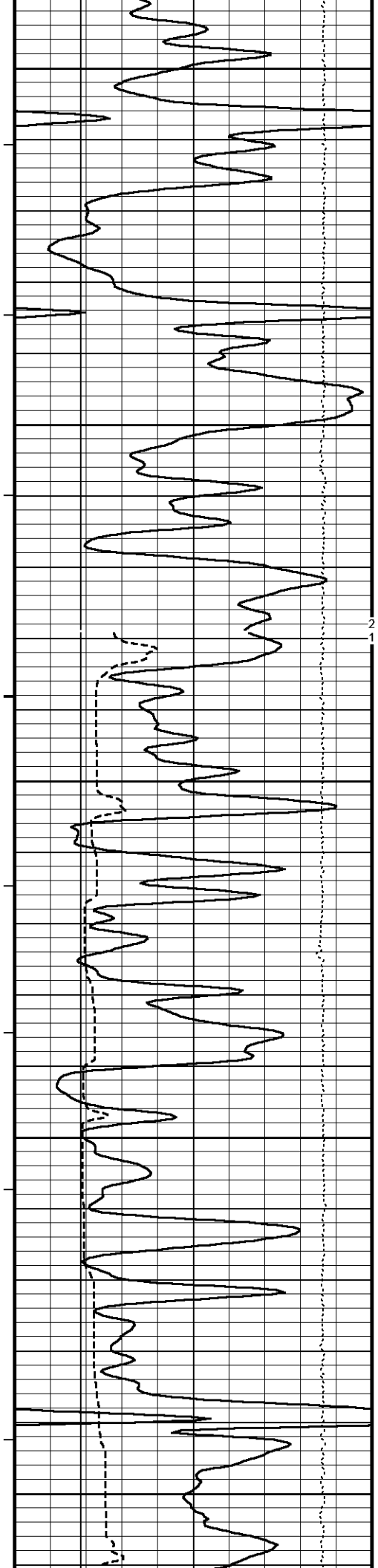




3100
110°
3150
110°
3200
111°
3250
111°
3300







3550

113°

3600

113°

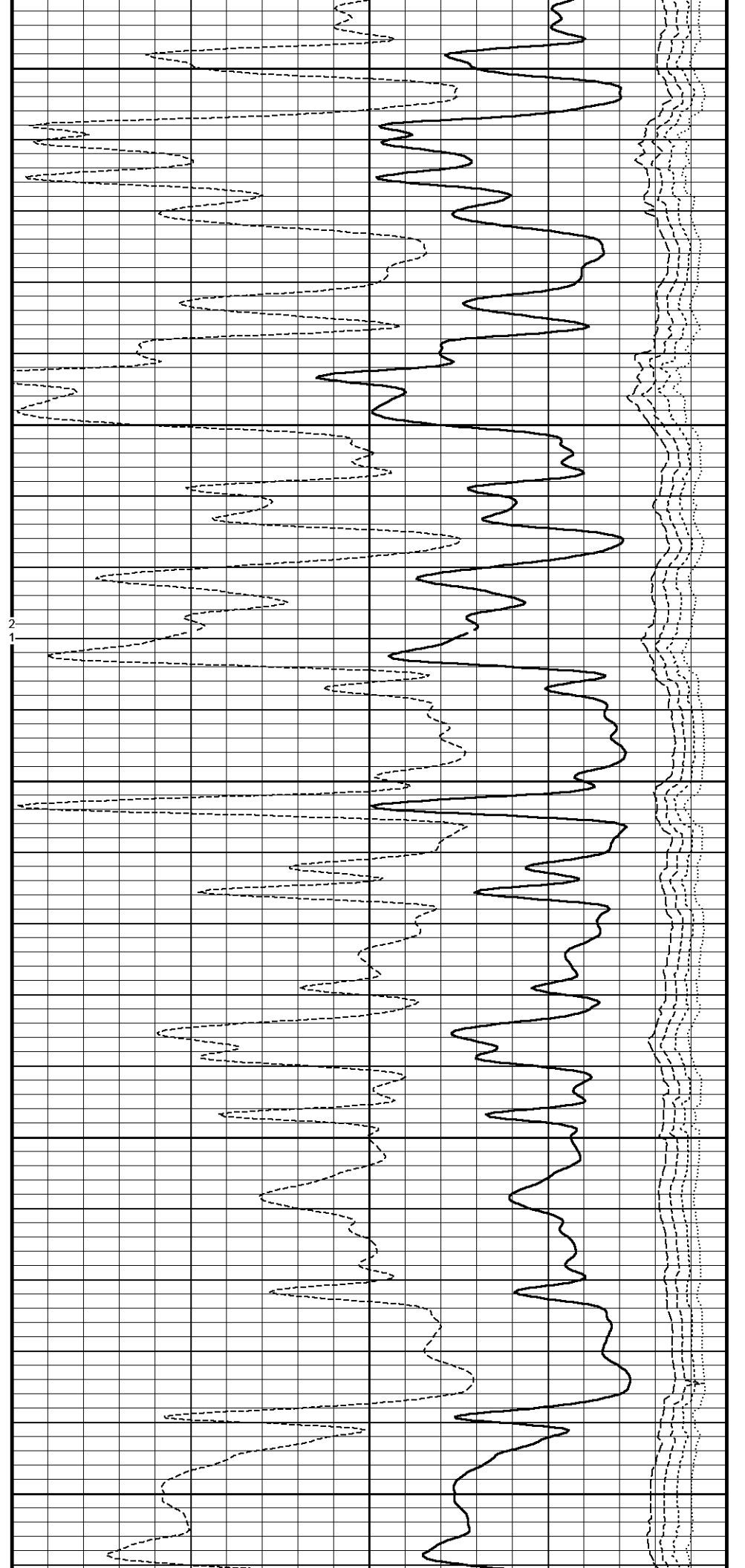
3650

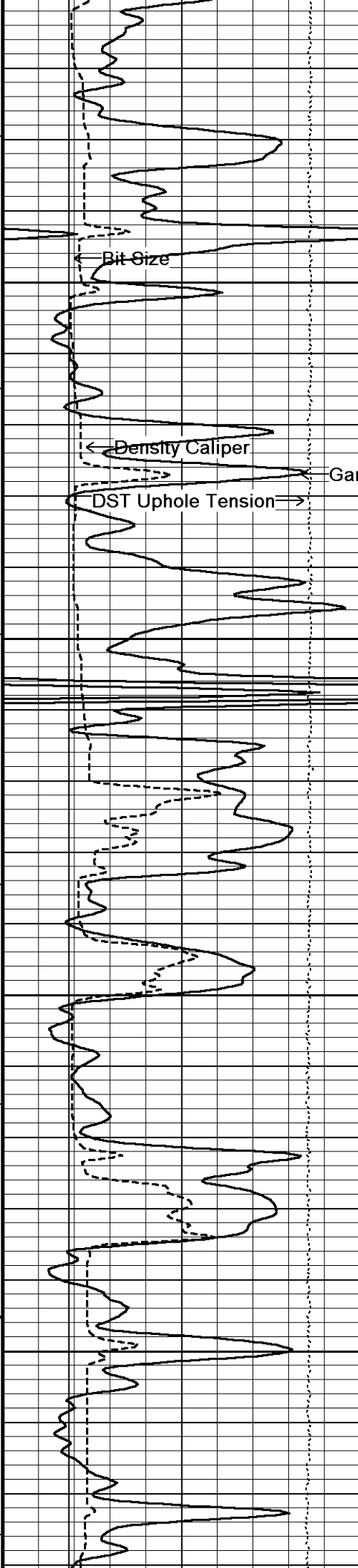
113°

3700

113°

3750





114°

3800

114°

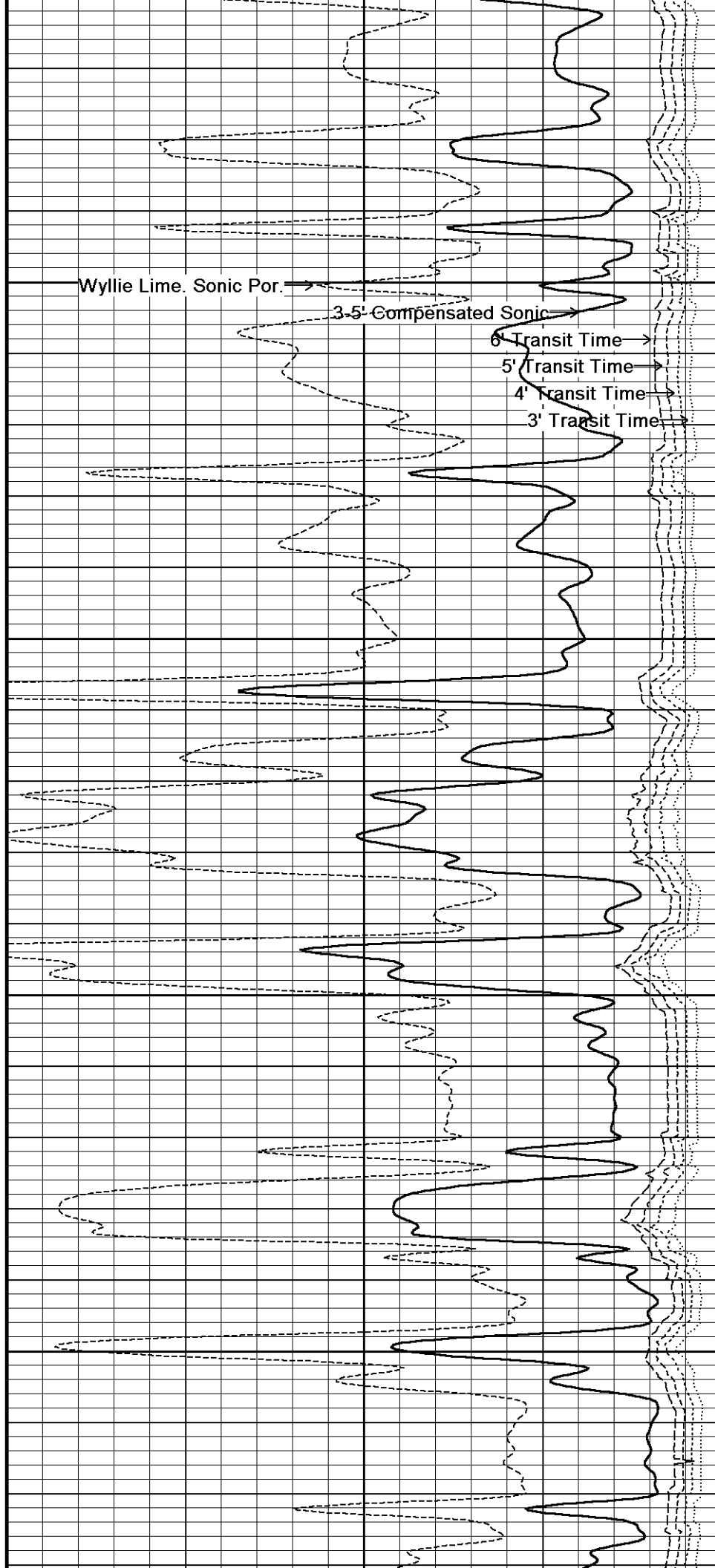
3850

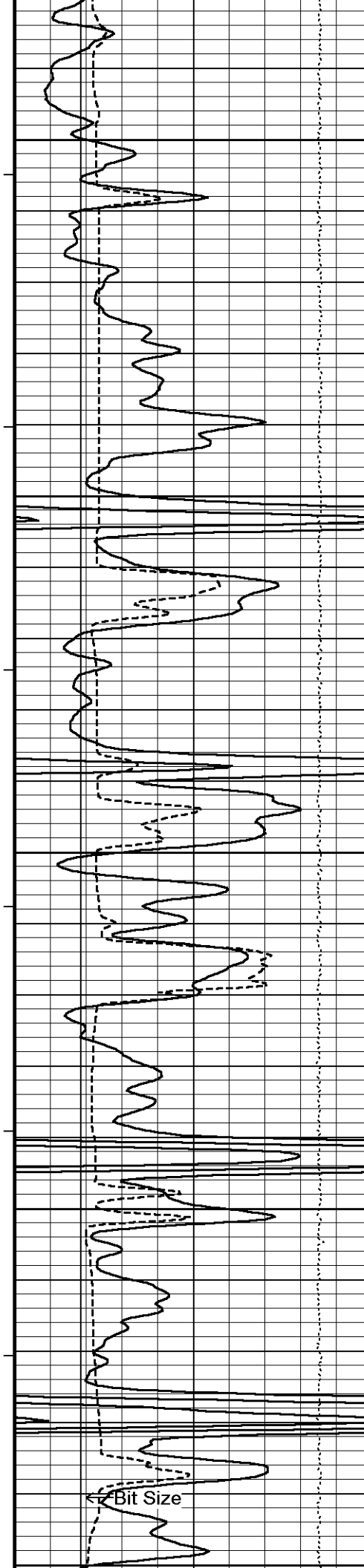
114°

3900

115°

3950





115°

4000

115°

4050

115°

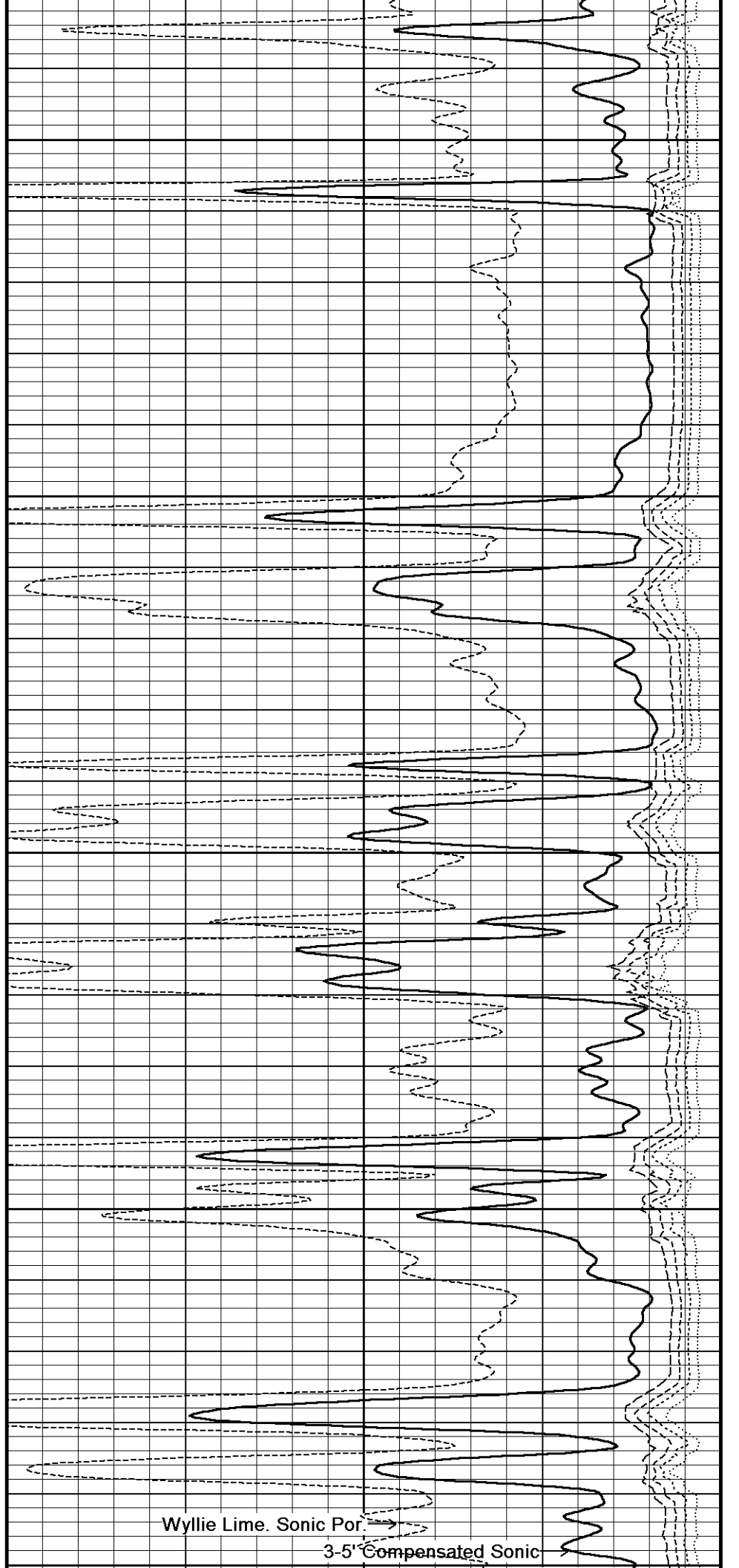
4100

116°

4150

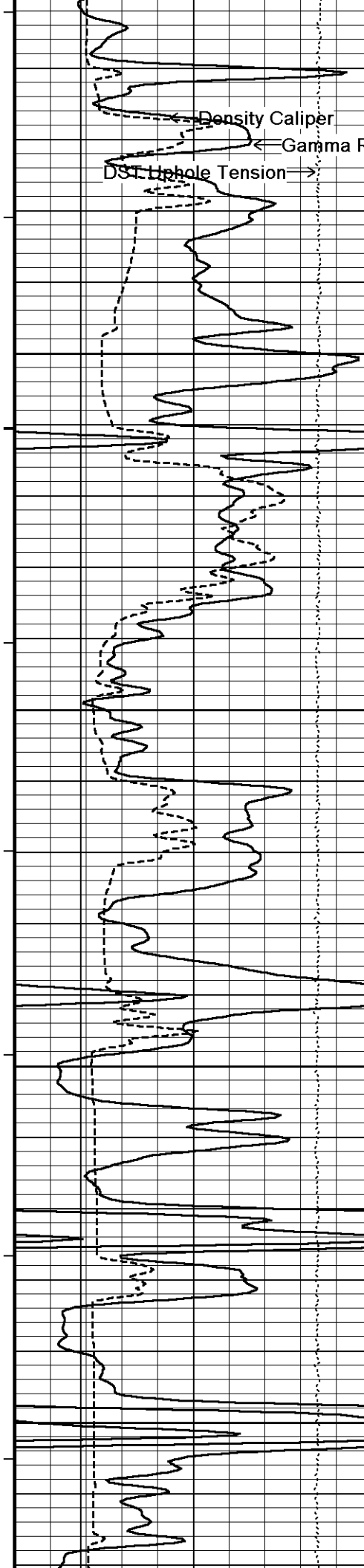
116°

4200

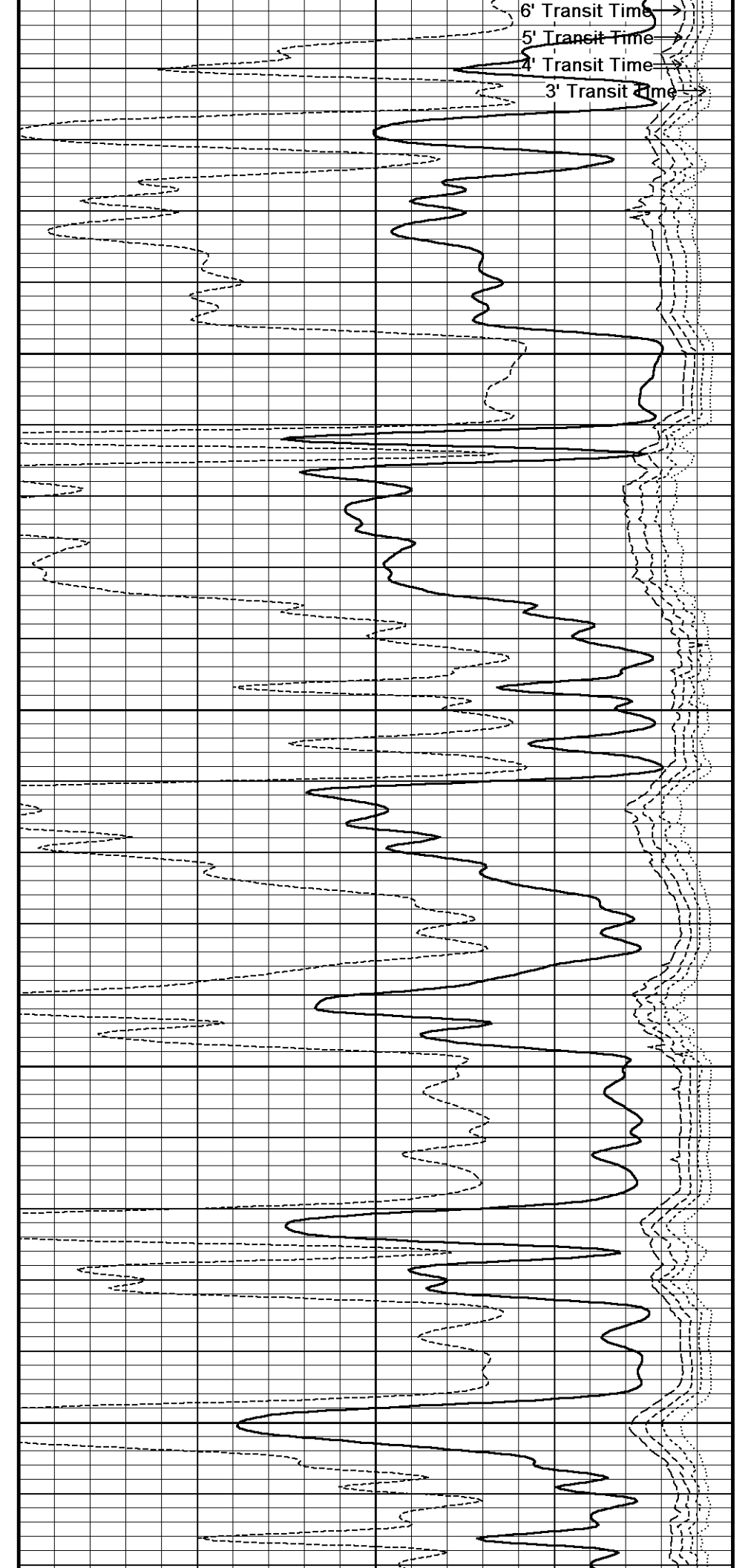


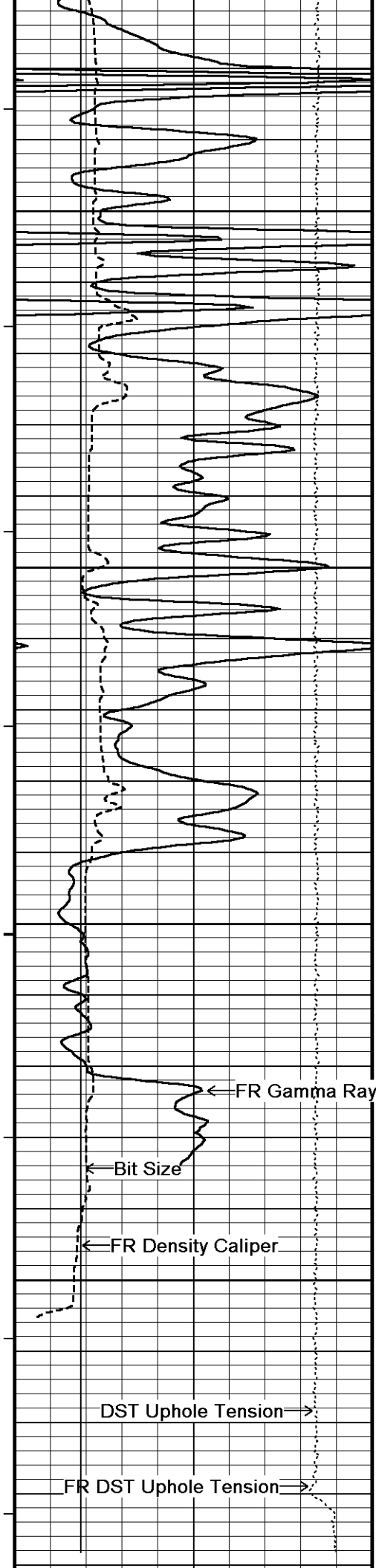
Wyllie Lime. Sonic Por. →

3-5' Compensated Sonic →



4200
116°
4250
117°
4300
117°
4350
118°
4400





118°

4450

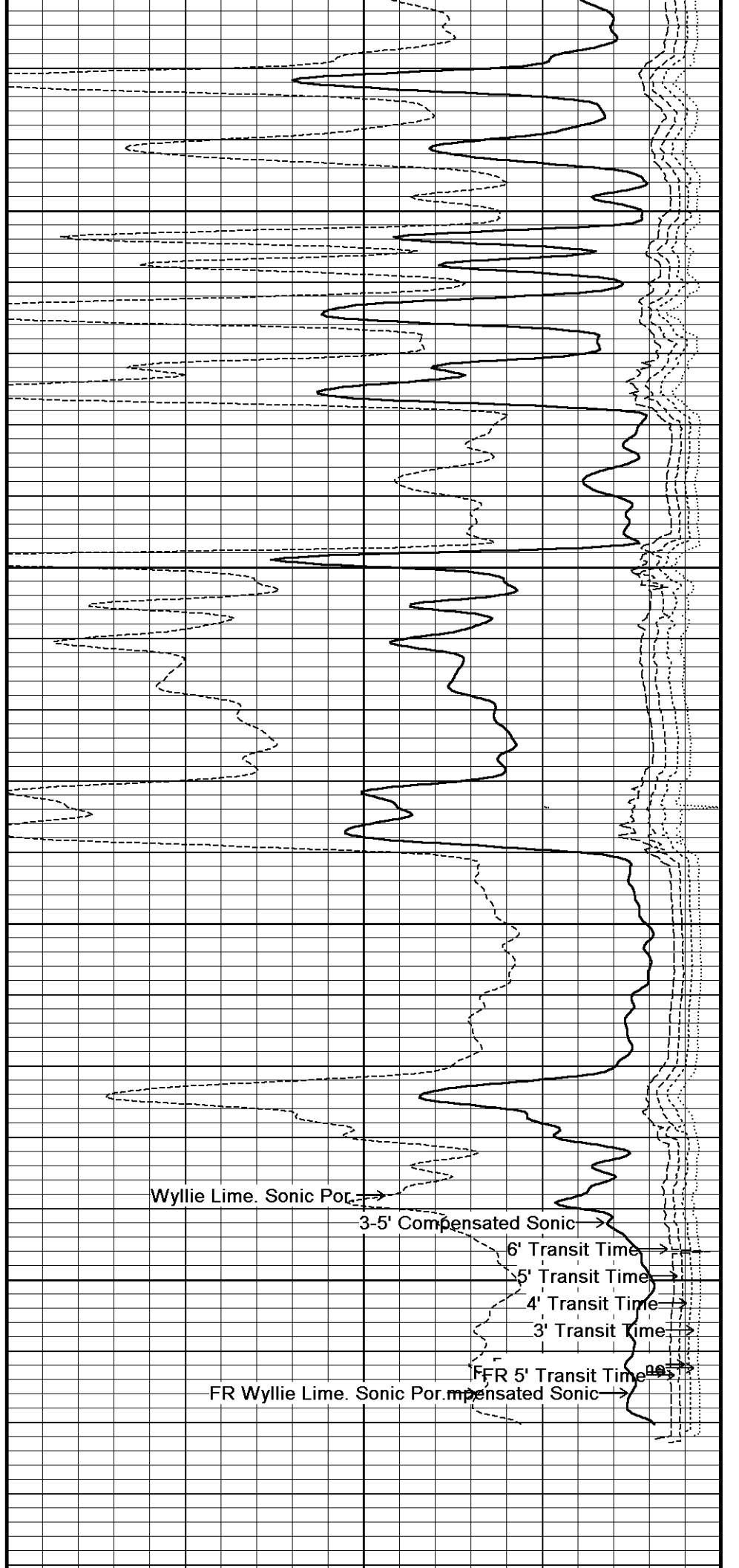
119°

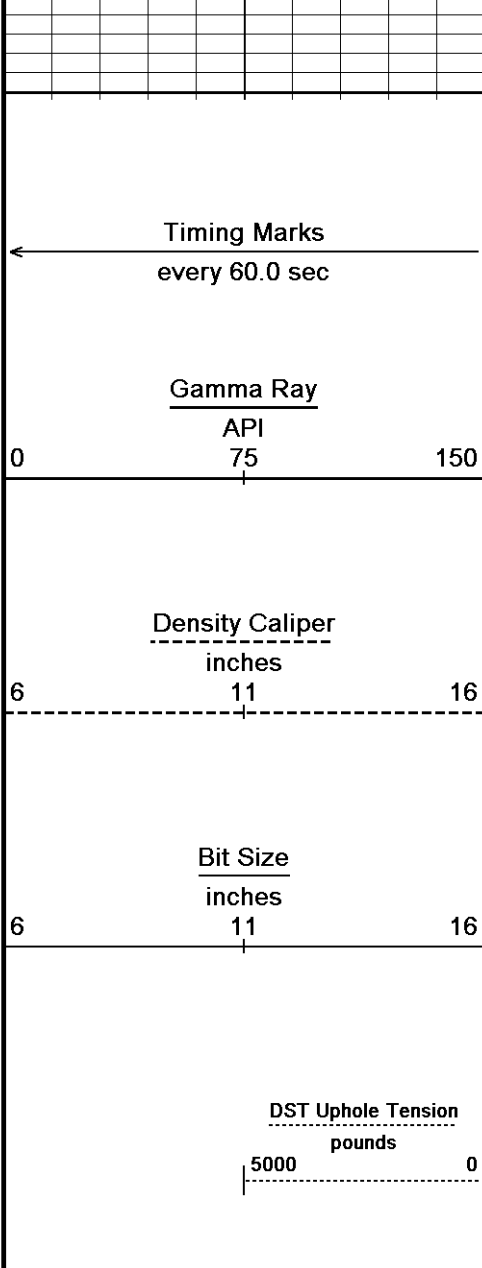
4500

119°

4550

4600

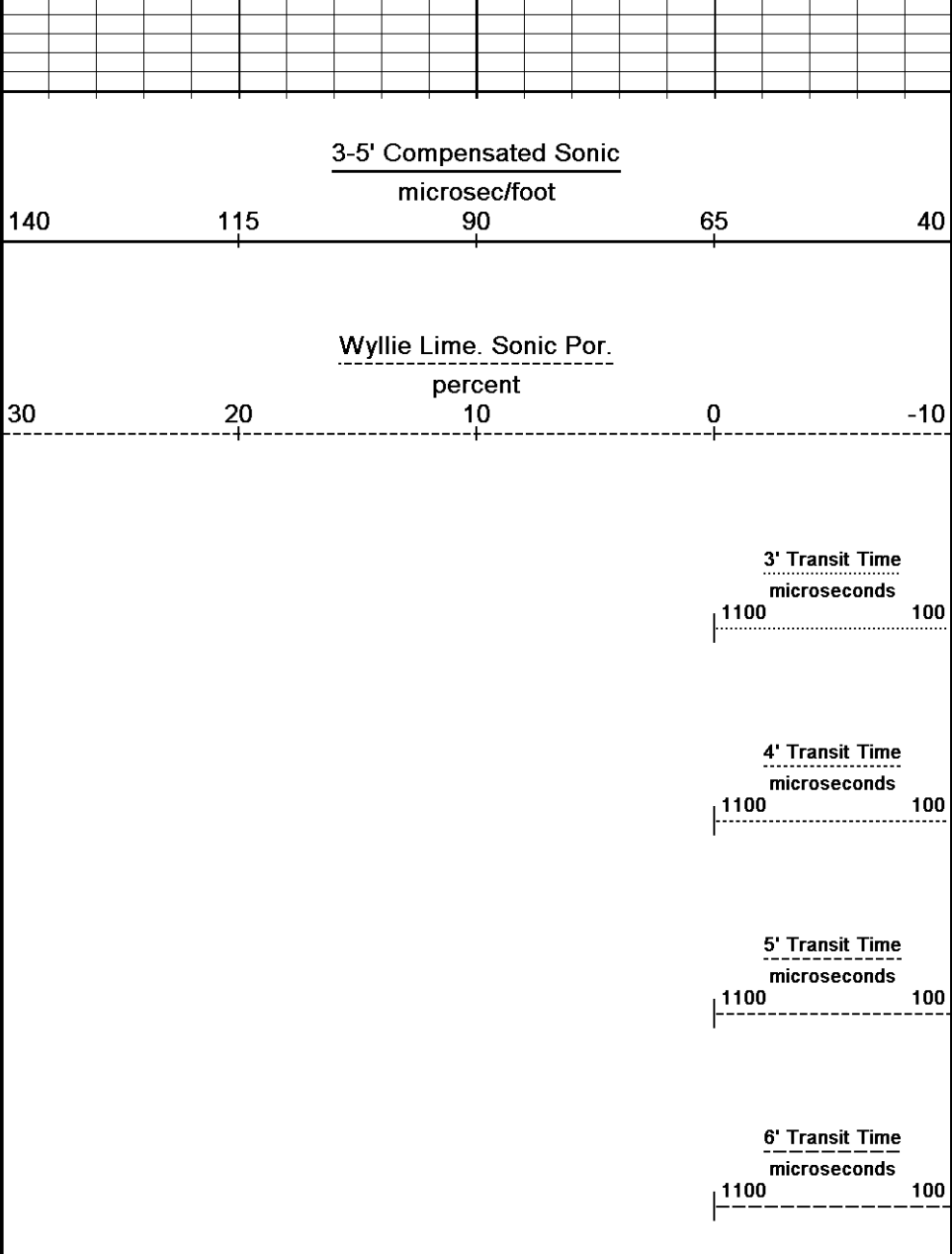




4650
Depth
In
Feet

Borehole
Temp in
deg F

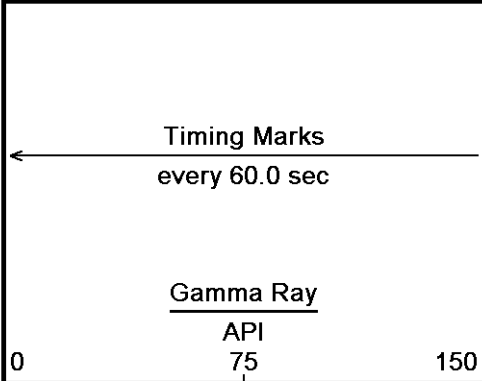
Replay
Scale
1:240



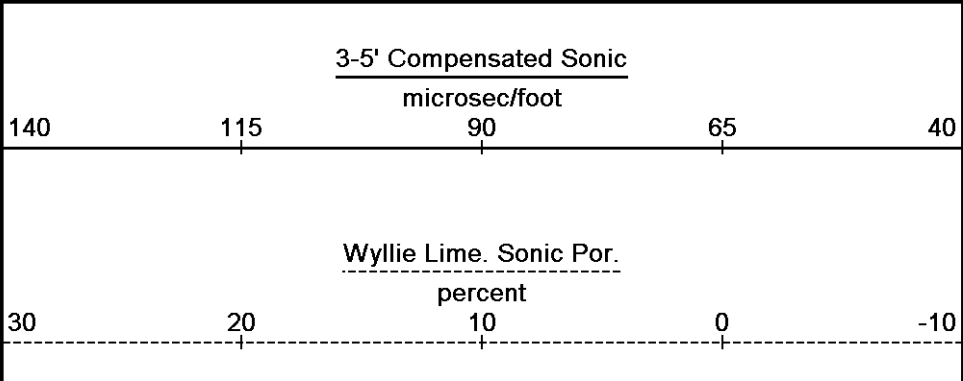
Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 28-SEP-2012 22:36
 Filename: C:\Minimus 13.02.6600\Data\Shakespeare Parsons #...\Shakespeare Parsons #2-27_002.dta Recorded on 28-SEP-2012 20:00
 System Versions: Logged with 13.02.6600 Plotted with 13.02.6600

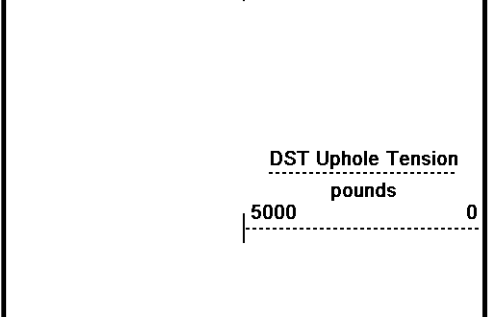
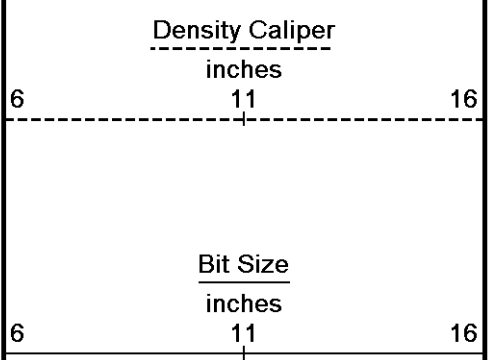
↑ 5 INCH MAIN ↑

↓ Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 28-SEP-2012 22:36
 Filename: C:\Minimus 13.02.6600\Data\Shakespeare Parsons #...\Shakespeare Parsons #2-27_001.dta Recorded on 28-SEP-2012 19:37
 System Versions: Logged with 13.02.6600 Plotted with 13.02.6600



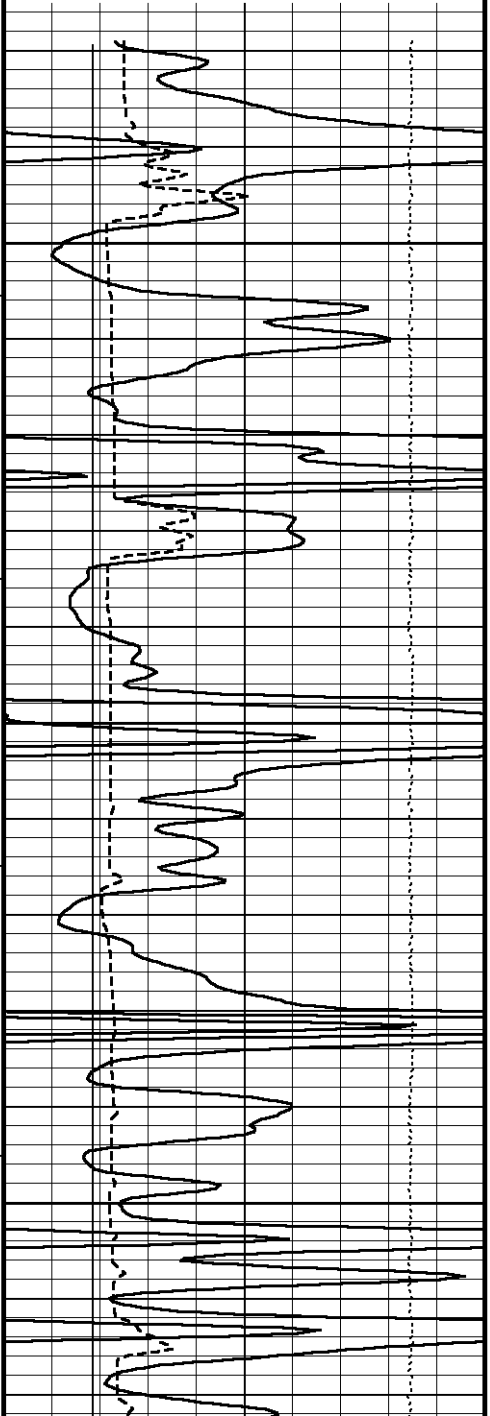
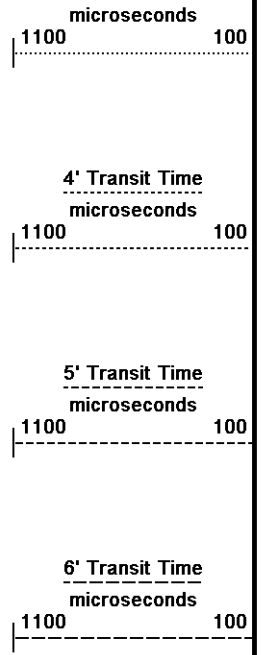
Depth
in
Feet





Borehole
Temp in
deg F

Replay
Scale
1:240



4328

4350

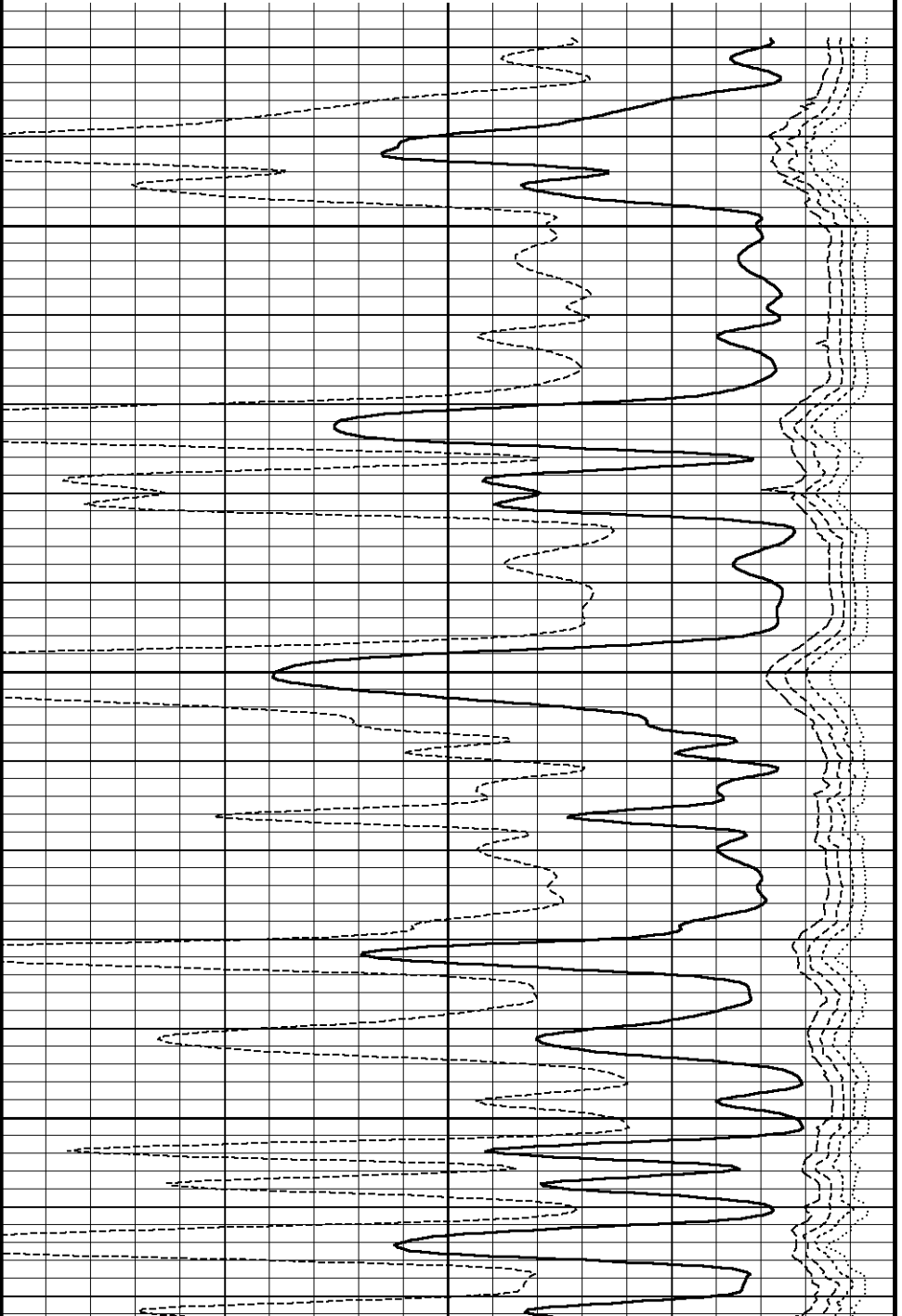
117°

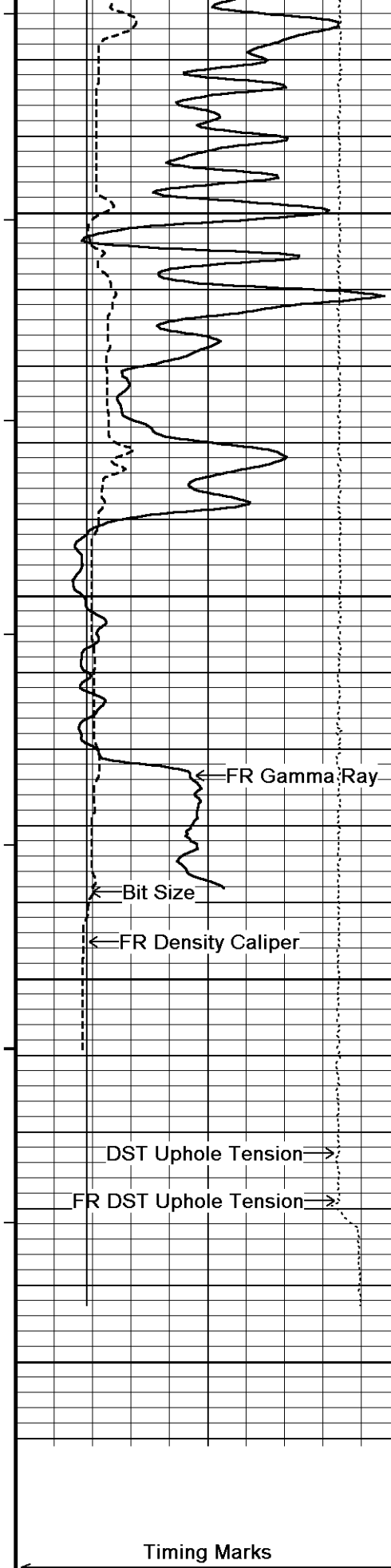
4400

117°

4450

Detailed description: A vertical depth scale on the left side of the plot with major tick marks at 4328, 4350, 4400, and 4450 feet. Two temperature values, 117°, are enclosed in boxes and aligned with specific depths.





118°

4500

118°

4550

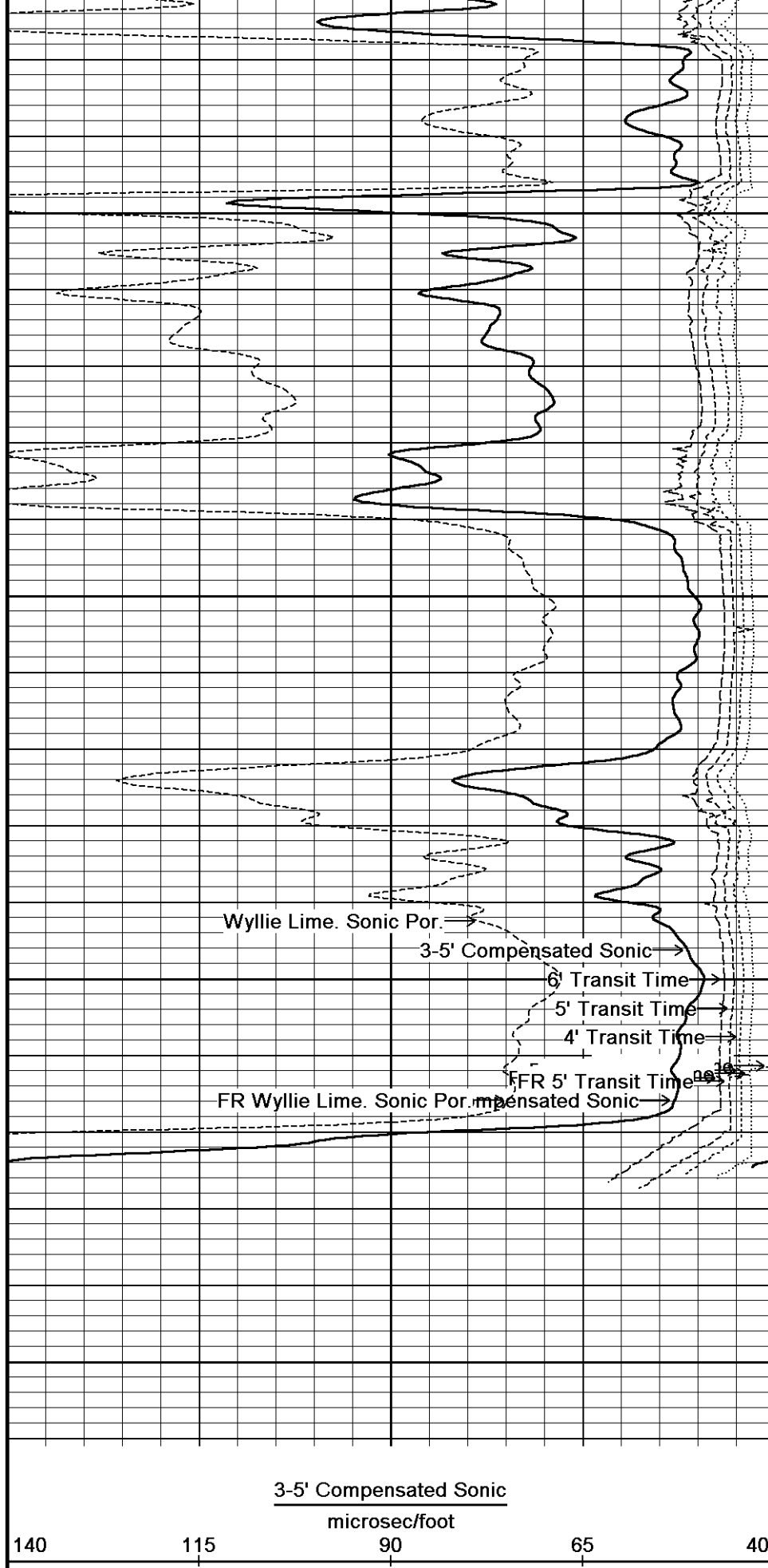
118°

4600

4650

4658

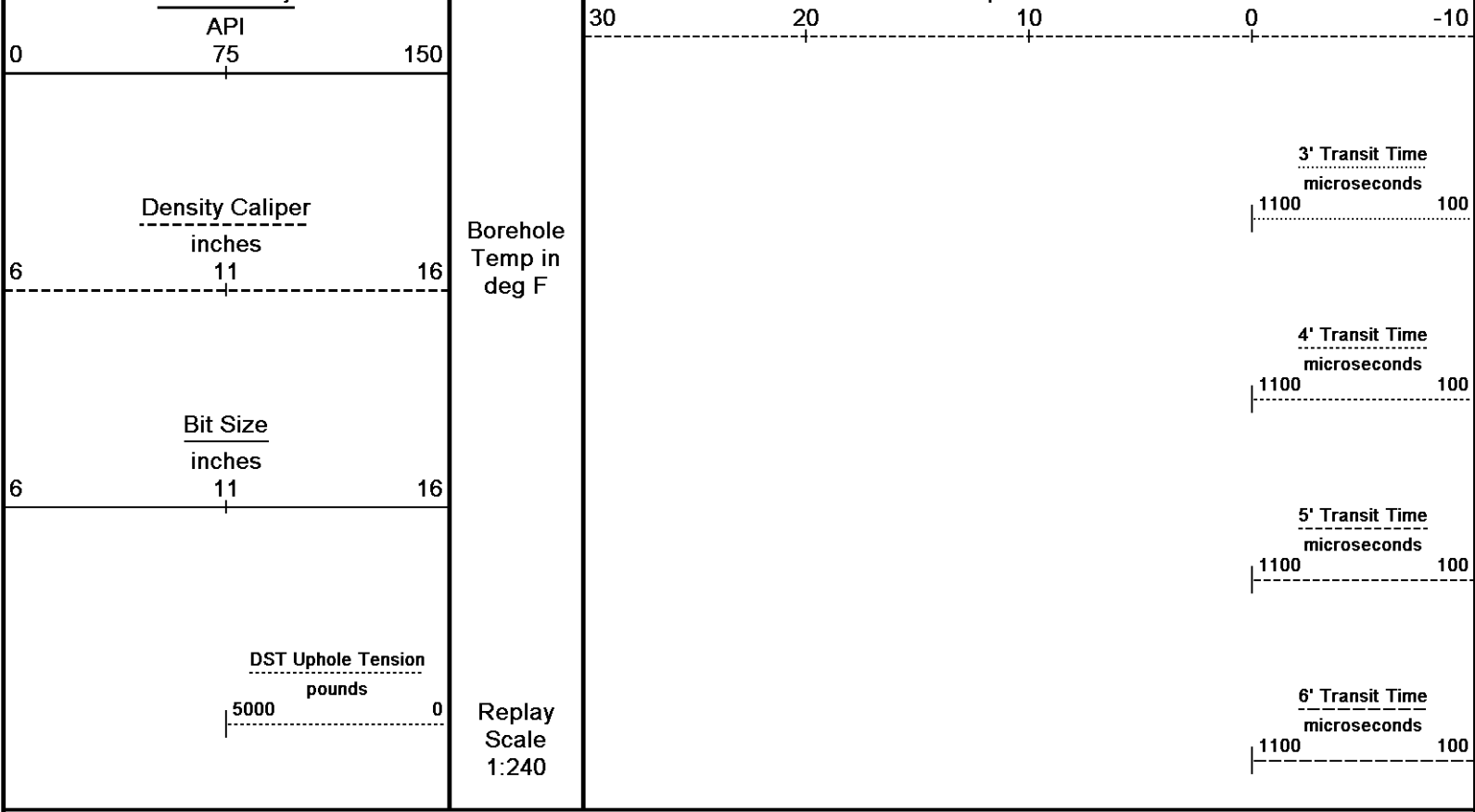
Depth in Feet



3-5' Compensated Sonic
microsec/foot

140 115 90 65 40

Wyllie Lime. Sonic Por.
percent



Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 28-SEP-2012 22:36
 Filename: C:\Minimus 13.02.6600\Data\Shakespeare Parsons #...\Shakespeare Parsons #2-27_001.dta Recorded on 28-SEP-2012 19:37
 System Versions: Logged with 13.02.6600 Plotted with 13.02.6600



BEFORE SURVEY CALIBRATION

C:\Minimus 13.02.6600\Data\Shakespeare Parsons #2-27\Shakespeare Parsons #2-27_001.dta

General Constants All 000

Last Edited on 28-SEP-2012,18:18

General Parameters

Mud Resistivity	0.740	ohm-metres
Mud Resistivity Temperature	89.000	degrees F
Water Level	0.000	feet
Density/Neutron 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	Base Density Porosity
Resistivity used	Array Ind. Four Res Rt
RWA Constant A	0.610
RWA Constant M	2.150

Down-hole Tension Calibration SMS 0

Field Calibration on 27-SEP-2012 04:09

Reading No	Measured	Calibrated (lbs)
1	13701.85	0.00
2	13742.18	500.00

Gamma Calibration MCG-C 208

Field Calibration on 28-SEP-2012 11:20

	Measured	Calibrated (API)
Background	70	49
Calibrator (Gross)	1103	774

Calibrator (Net)	1033	725
------------------	------	-----

Gamma Constants MCG-C 208		Last Edited on 28-SEP-2012,18:18	
Gamma Calibrator Number	GR38		
Mud Density	1.13	gm/cc	
Caliper Source for Processing	Density Caliper		
Tool Position	Eccentred		
Concentration of KCl	0.00	kppm	

SP Calibration MCG-C 208		Field Calibration on 03-AUG-2012 22:37	
	Measured	Calibrated (mV)	
Reference 1	100.2	101.0	
Reference 2	-101.3	-101.0	

High Resolution Temperature Calibration MCG-C 208		Field Calibration on 03-AUG-2012,16:18	
	Measured	Calibrated(Deg F)	
Lower	50.00	50.00	
Upper	75.00	75.00	

High Resolution Temperature Constants MCG-C 208		Last Edited on	
Pre-filter Length	11		

Caliper Calibration MML-A 4		Base Calibration on 27-AUG-2012 09:13 Field Calibration on 28-SEP-2012 11:02	
Base Calibration			
Reading No	Measured	Calibrator Size (in)	
1	15511	5.98	
2	18793	7.97	
3	22115	9.86	
4	26057	11.92	
5	0	0.00	
6	N/A	N/A	
Field Calibration			
	Measured Caliper (in)	Actual Caliper (in)	
	5.98	5.98	

Micro Normal and Micro Inverse Calibration MML-A 4		Base Calibration on 27-AUG-2012 09:21 Field Check on 28-SEP-2012 11:04	
Base Calibration			
		Measured	Calibrated (ohm-m)
Channel	Resistor 1	Resistor 2	Resistor 1 Resistor 2
Micro Normal	12.2	60.2	5.0 25.0
Micro Inverse	15.7	78.5	5.0 25.0
Channel	Base Check (ohm-m)		Field Check (ohm-m)
Micro Normal	62.9		62.9
Micro Inverse	48.2		48.2

Micro Normal and Micro Inverse Constants MML-A 4		Last Edited on 28-SEP-2012,18:18	
Pad Type	8-12 in Soft Rubber Inflatable 006-9011-159		
Micro Normal K Factor	1.0000		
Micro Inverse K Factor	1.0000		
Standoff Offset	N/A		inches

Neutron Calibration MDN-A.B 65		Base Calibration on 28-AUG-2012 10:35 Field Check on 28-SEP-2012 11:25	
Base Calibration			
		Measured	Calibrated (cps)
	Near	Far	Near Far
Ratio	3134	97	3714 110
	32.240		33.764
Field Calibrator at Base			Calibrated (cps)
Ratio			1654 2401
			0.689
Field Check			Calibrated (cps)
			1646 2367

Ratio		0.695	
Neutron Constants MDN-A.B 65		Last Edited on 28-SEP-2012,18:18	
Neutron Source Id	PN-521		
Neutron Jig Number	5824NE		
Epithermal Neutron	No		
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	Constant Value		
Formation Pressure	0.00	kpsi	
Temperature Source	Constant Value		
Temperature	68.00	degrees F	
Mud Salinity	0.00	kppm	
Salinity Correction	Not Applied		
Formation Fluid Salinity Source	Constant Value		
Formation Fluid Salinity	0.00	kppm	
Barite Mud Correction	Not Applied		

FE Calibration MFE-B.J 352		Base Calibration on 27-AUG-2012 14:50	
		Field Check on 28-SEP-2012 11:01	
Base Calibration			
	Measured	Calibrated (ohm-m)	
Reference 1	0.0	0.0	
Reference 2	963.9	126.8	
Base Check		281.2	
Field Check		281.4	

FE Constants MFE-B.J 352		Last Edited on 28-SEP-2012,18:17	
Running Mode	No Sleeve		
MFE K Factor	0.1268		
Caliper Source for FE correction	Density Caliper		
Caliper Value for FE correction	N/A	inches	
Rm Source for FE correction	Temperature Corr		
Temp. for Rm Corr.	MCG External Temperature		
Stand-off	0.5	inches	

Sonic Constants MSS-A.A 126		Last Edited on 27-JUL-2012,20:15			
Maximum Boundary Contrast	100.00	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	0.0000			
Free Pipe	0.0000	0.0000			
Peak Amplitude Source		0			
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		Discriminator (mV)	Depth (ft)
Start Time (micro-sec)	End Time (micro-sec)			
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	
3' Waveform Filter	0		
4' Waveform Filter	0		
5' Waveform Filter	0		
6' Waveform Filter	0		
Semblance Level	0.50		
Semblance Window Width	120.00	micro-sec	
Sonic 1 Despiker	100.00	micro-sec/ft	
Sonic 2 Despiker	100.00	micro-sec/ft	

Induction Calibration MAI-A.A 45

Base Calibration on 26-JUL-2012,09:22
Field Check on 28-SEP-2012 10:57

Base Calibration

Test Loop Calibration Channel	Measured		Calibrated (mmho/m)	
	Low	High	Low	High
1	14.4	472.6	9.3	966.2
2	5.7	374.0	7.6	821.4
3	3.4	261.2	5.2	566.0
4	2.5	133.9	2.6	279.2

Array Temperature 78.4 Deg F

Channel	Base Check (mmho/m)		Field Check (mmho/m)	
	Low	High	Low	High
1	0.0	0.0	18.7	3851.6
2	0.0	0.0	31.7	3629.4
3	0.0	0.0	28.6	3049.5
4	0.0	0.0	18.3	2079.3
Deep	0.0	0.0	16.1	1911.4
Medium	0.0	0.0	42.5	4060.7
Shallow	0.0	0.0	49.6	5482.9

Array Temperature 0.0 66.0 Deg F

Induction Constants MAI-A.A 45

Last Edited on 28-SEP-2012,18:17

Induction Model	RtAP-WBM	
Caliper for Borehole Corr.	Density Caliper	
Hole Size for Borehole Correction	N/A	inches
Tool Centred	No	
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
Borehole Corr. Rm Source	Temperature Corr	
Temp. for Rm Corr.	MCG External Temperature	
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

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-A.A 45

Field Calibration on 26-JUL-2012,09:09

	Measured	Calibrated(Deg F)
Lower	50.00	50.00
Upper	75.00	75.00

High Resolution Temperature Constants MAI-A.A 45

Last Edited on

Pre-filter Length	11
-------------------	----

Caliper Calibration MPD-B 31

Base Calibration on 28-AUG-2012 11:03

Field Calibration on 28-SEP-2012 11:10

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	18576	3.99
2	27056	5.98
3	35613	7.97
4	44032	9.86
5	53360	11.92
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
6.00	5.98

Photo Density Calibration MPD-B 31

Base Calibration on 28-AUG-2012 11:22

Field Check on 28-SEP-2012 11:09

Density Calibration

Base Calibration	Measured		Calibrated (sdu)	
	Near	Far	Near	Far
Reference 1	46103	23728	59556	30836
Reference 2	19270	1960	24941	2541

Field Check at Base

688.3	844.7
-------	-------

Field Check

685.2	846.0
-------	-------

PE Calibration

Base Calibration	WS	Measured		Calibrated
		WH	Ratio	Ratio
Background	127	604		
Reference 1	18457	45978	0.404	0.371
Reference 2	5504	19174	0.290	0.272

Field Check at Base

127.0	604.2
-------	-------

Density Constants MPD-B 31

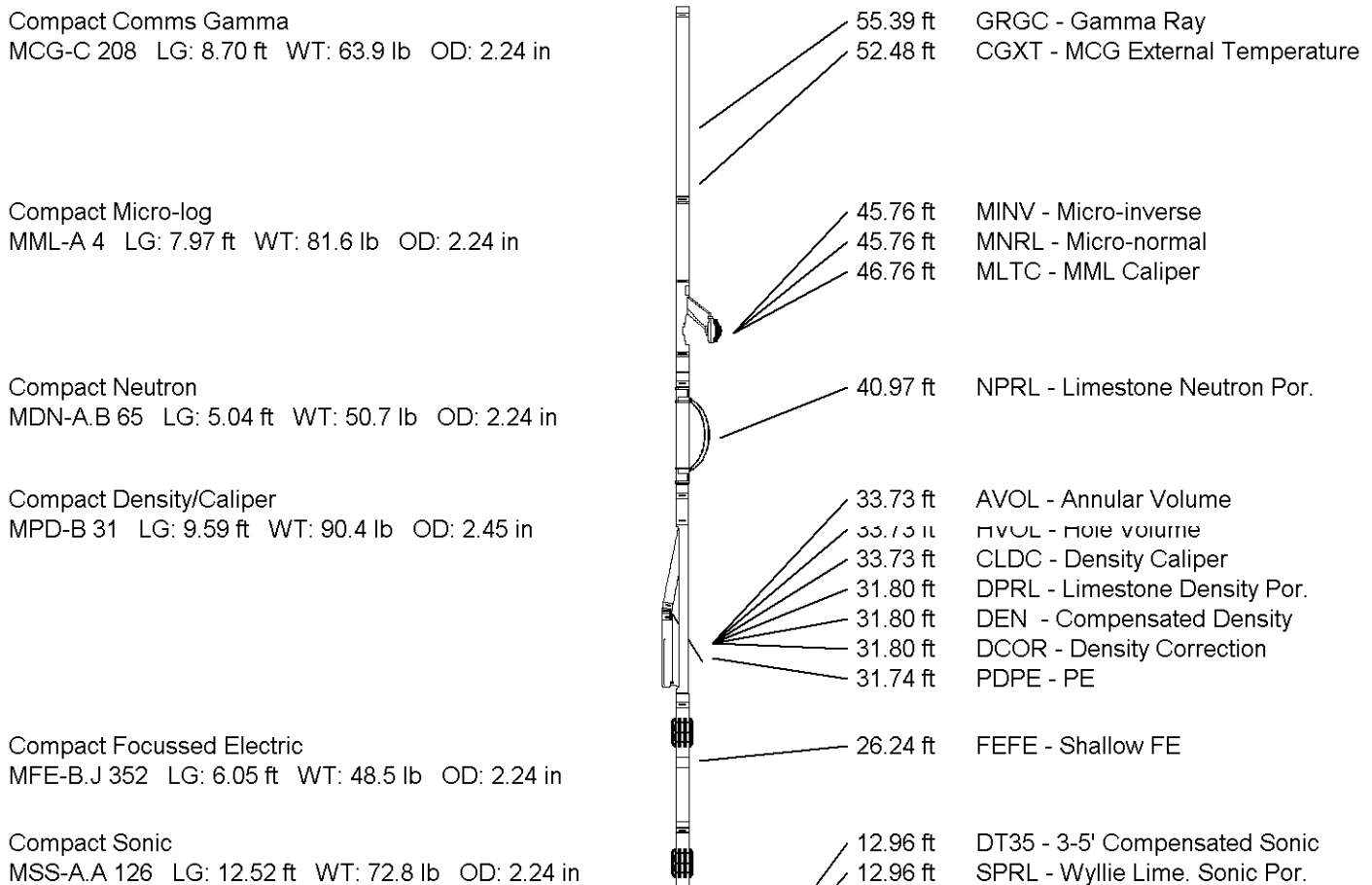
Last Edited on 28-SEP-2012,18:18

Density Source Id	254	
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 Z/A Multiplier	1.13	
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	

Matrix density (gm/cc)	Depth (m)
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 13.02.6600\Data\Shakespeare Parsons #2-27\Shakespeare Parsons #2-27_001.dta



Compact Induction
 MAI-A.A 45 LG: 10.81 ft WT: 48.5 lb OD: 2.24 in

Total Length: 60.68 ft Weight: 456.4 lb



- 3.34 ft R400 - Array Ind. One Res 40
 - 3.34 ft RTAO - Array Ind. One Res Rt
 - 3.34 ft R600 - Array Ind. One Res 60
 - 0.23 ft SPCG - Spontaneous Potential
 - Tool Zero (0.13ft from bottom)
 - 0.13 ft SMTU - DST Uphole Tension
- All measurements relative to tool zero.

COMPANY	SHAKESPEARE OIL CO., INC.				
WELL	PARSONS #2-27				
FIELD	WILDCAT				
PROVINCE/COUNTY	GOVE				
COUNTRY/STATE	U.S.A. / KANSAS				
Elevation Kelly Bushing	2848.00	feet	First Reading	4616.00	feet
Elevation Drill Floor	2846.00	feet	Depth Driller	4630.00	feet
Elevation Ground Level	2838.00	feet	Depth Logger	4629.00	feet



Weatherford[®]

COMPENSATED SONIC
 WITH INTEGRATED TRANSIT TIME