Weatherford®

COMPENSATED SONIC WITH INTEGRATED TRANSIT TIME

COMPANY	O'BRIEN RESOURCES, LLC
WELL	SWART 21 #1
FIELD	WILDCAT
PROVINCE/COUNTY	GOVE
COUNTRY/STATE	U.S.A. / KANSAS
LOCATION	879' FNL & 483' FWL NE SW NW NW

SEC	TWP	RGE	Other Services
21	14S	30W	MAI/MFE
API Number 15-063-22107			MDN/MPD
Permit Number			MML

Permanent Datum GL, Elevation 2803 feet
Log Measured From KB
Drilling Measured From KB @ 10 FEET

Elevations:	feet
KB	2813.00
DF	2812.00
GL	2803.00

Date	03-JUNE-2013	
Run Number	0NE	
Service Order	3539062	
Depth Driller	4610.00 feet	
Depth Logger	4608.00 feet	
First Reading	4595.00 feet	
Last Reading	256.00 feet	
Casing Driller	255.00 feet	
Casing Logger	256.00 feet	
Bit Size	7.875 inches	
Hole Fluid Type	CHEMICAL	
Density / Viscosity	9.40 lb/USg	57.00 CP
PH / Fluid Loss	10.00	8.00 ml/30Min
Sample Source	FLOWLINE	
Rm @ Measured Temp	1.19 @ 85.0	ohm-m
Rmf @ Measured Temp	0.96 @ 85.0	ohm-m
Rmc @ Measured Temp	1.43 @ 85.0	ohm-m
Source Rmf / Rmc	CALC	CALC
Rm @ BHT	0.85 @119.0	ohm-m
Time Since Circulation	4 HOURS	
Max Recorded Temp	119.00	deg F
Equipment / Base	13057	LIB
Recorded By	W. STAMBAUGH	
Witnessed By	SEAN DEENIHAN	
JOB #	LIB13-160	

BOREHOLE RECORD

Last Edited: 03-JUN-2013 17:17

Bit Size inches	Depth From feet	Depth To feet
7.880	256.00	4608.00

CASING RECORD

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	8.625	0.00	256.00	24.00

REMARKS

- SOFTWARE ISSUE: WLS 13.05.9583.
- RUN 1: MCG, MML, MDN, MPD, MFE, MSS, MAI RUN IN COMBINATION.
  - HARDWARE: DUAL ECCENTRALISER 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 256 FEET: 1630 CU. FT.
- ANNULAR HOLE VOLUME WITH 4.5 INCH PRODUCTION CASING FROM TD TO 3500 FEET: 270 CU. FT.

- RIG: MAVERICK DRILLING #106

- ENGINEER: WILLIAM STAMBAUGH

- OPERATOR(S): BRIAN BALLINGER

All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not, guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or wilful negligence on our part, be liable or responsible for any loss, costs, damages or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to our general terms and conditions in our price schedule.

5 INCH MAIN

Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 03-JUN-2013 17:26

Filename: C:\Minimus 13.05.9583\Logs\OBrien Reso...\OBrien Resources LLC Swart #21-1-DETAIL.dta — Recorded on 03-JUN-2013 15:15

System Versions: Logged with 13.05.9583 Processed with 13.05.9583 Plotted with 13.05.9583

Timing Marks
every 60.0 sec

Gamma Ray
API
0 75 150
150 225 300

Density Caliper
inches
6 11 16

Bit Size
inches
6 11 16

DST Uphole Tension
pounds
5000 0

Depth in Feet

Borehole Temp in deg F

Replay Scale 1:240

3-5' Compensated Sonic
microsec/foot
140 115 90 65 40

Wyllie Lime. Sonic Por.
percent
30 20 10 0 -10

3' Transit Time
microseconds
1100 100

4' Transit Time
microseconds
1100 100

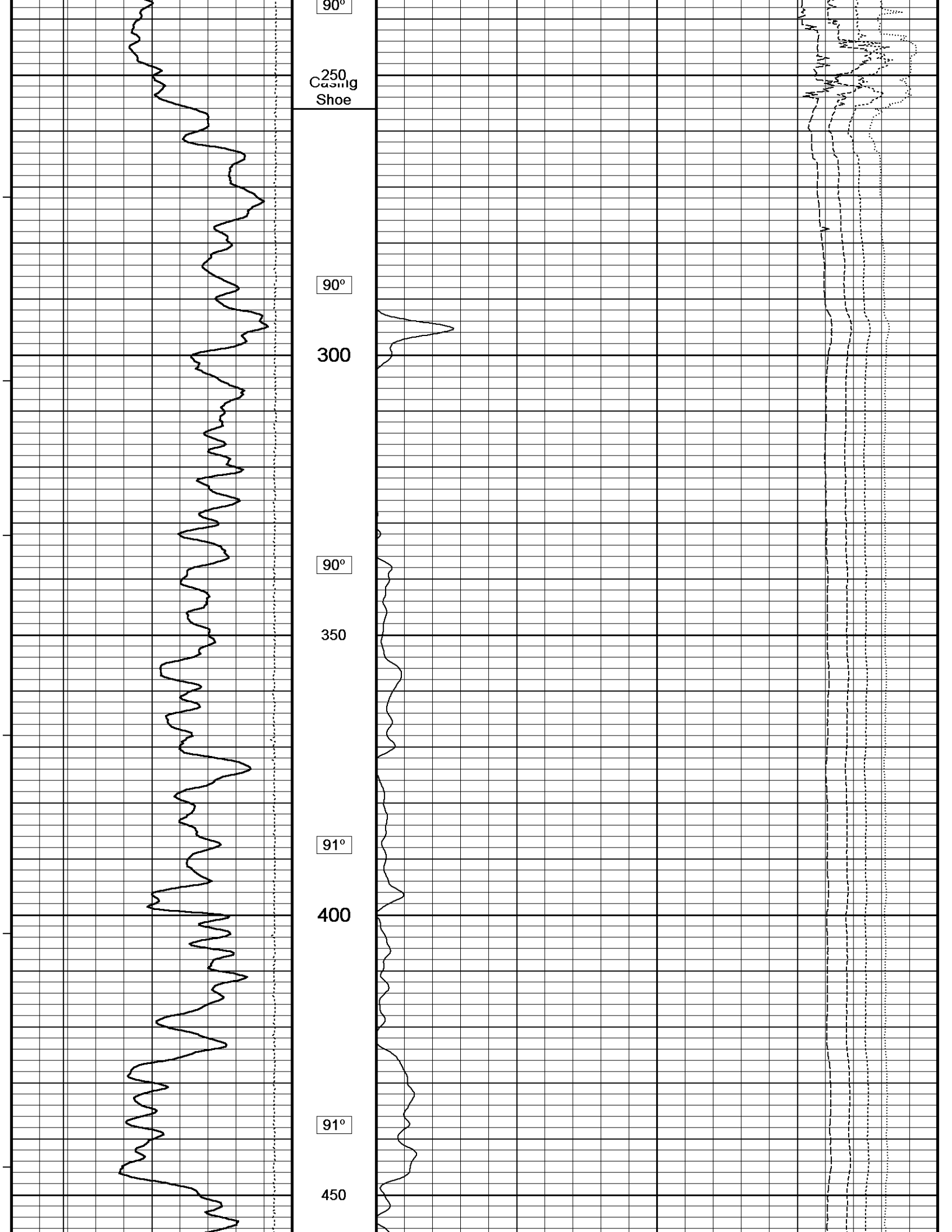
5' Transit Time
microseconds
1100 100

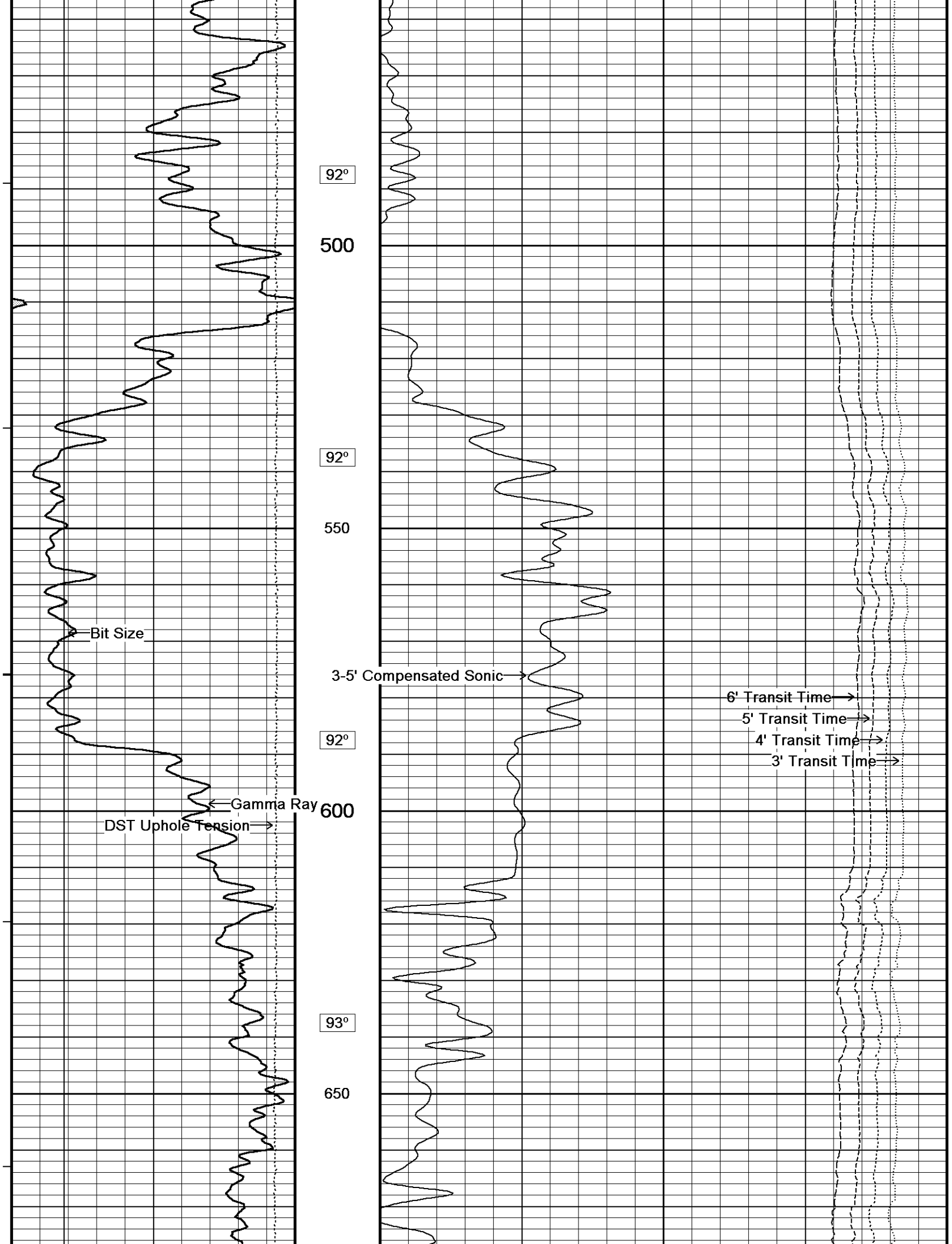
6' Transit Time
microseconds
1100 100

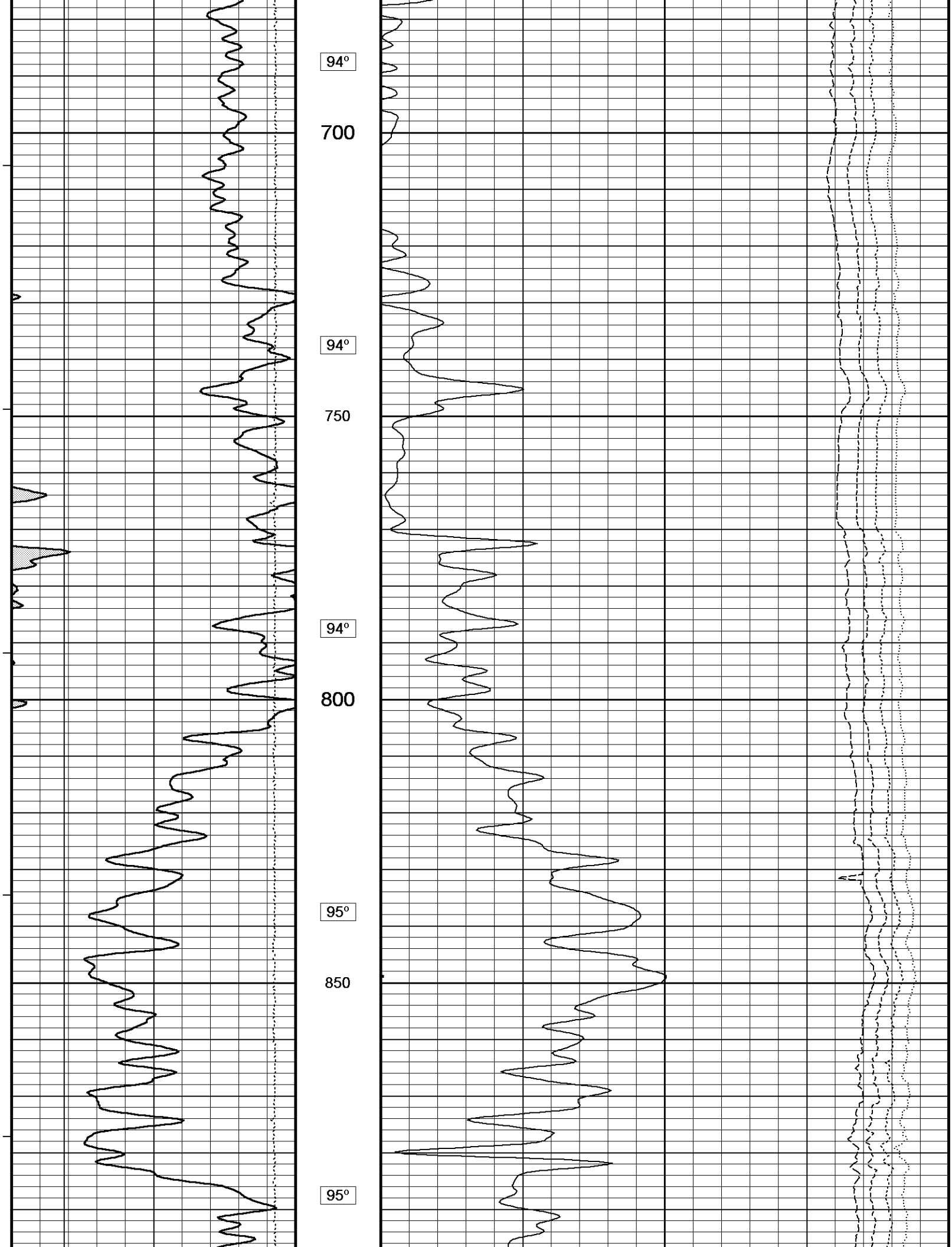
200

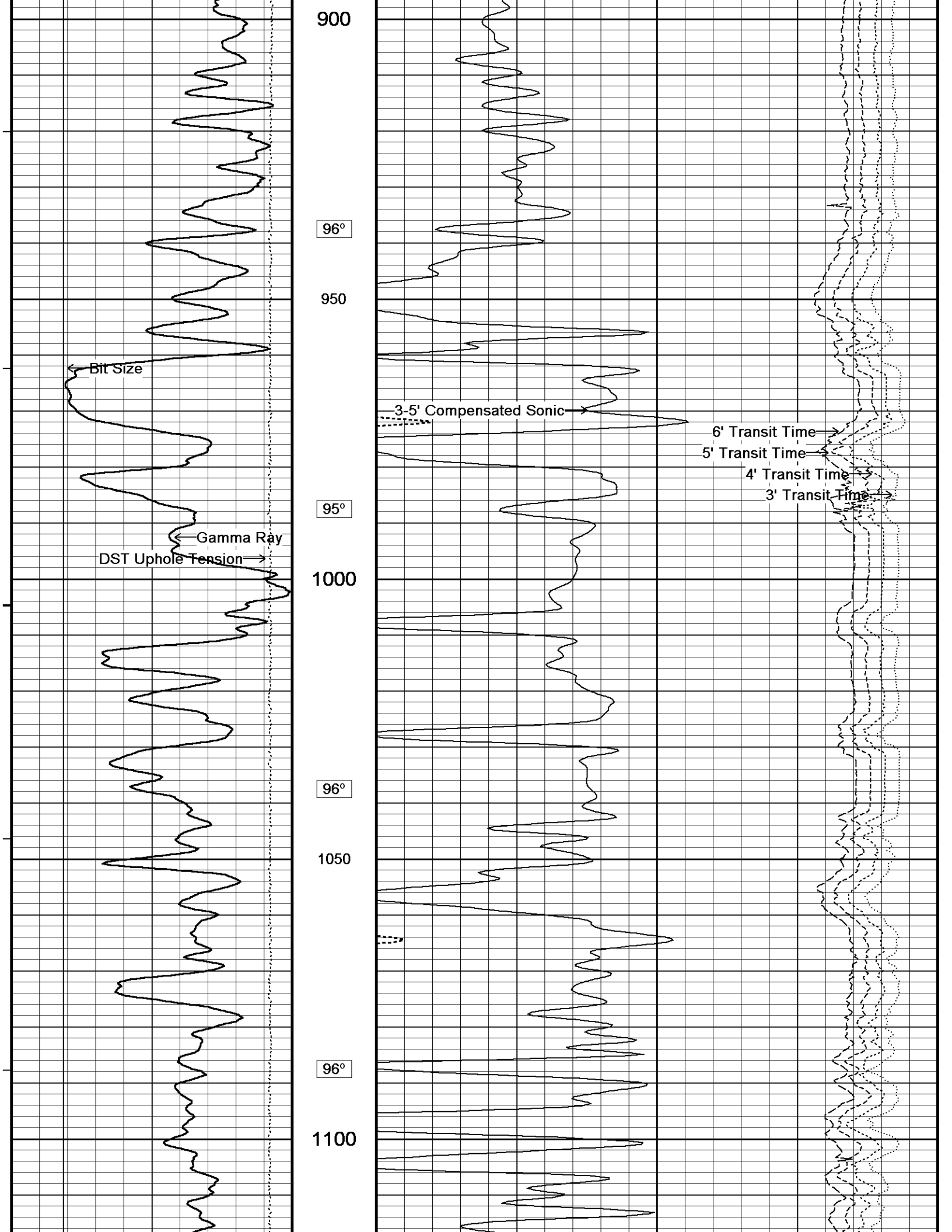
Gamma Ray

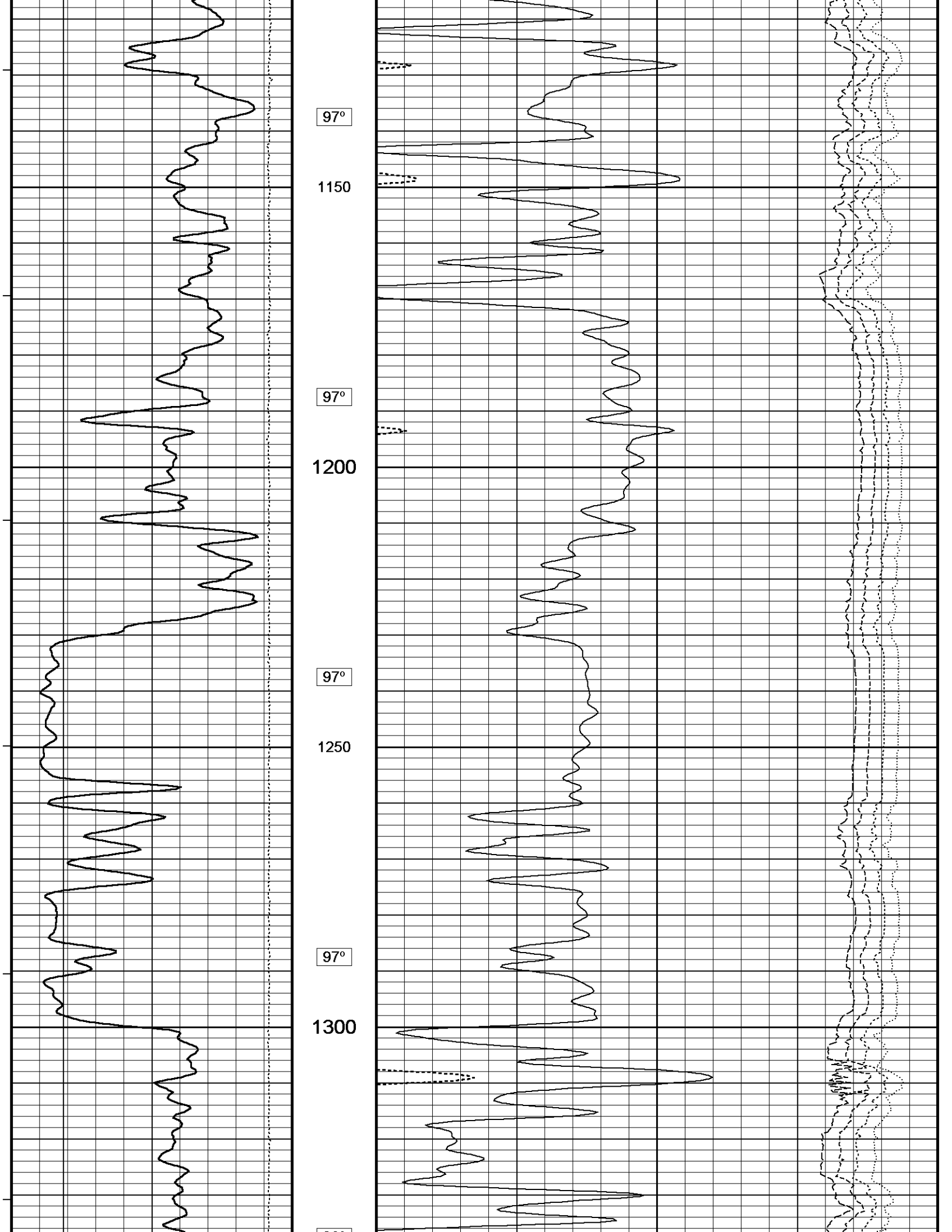
DST Uphole Tension

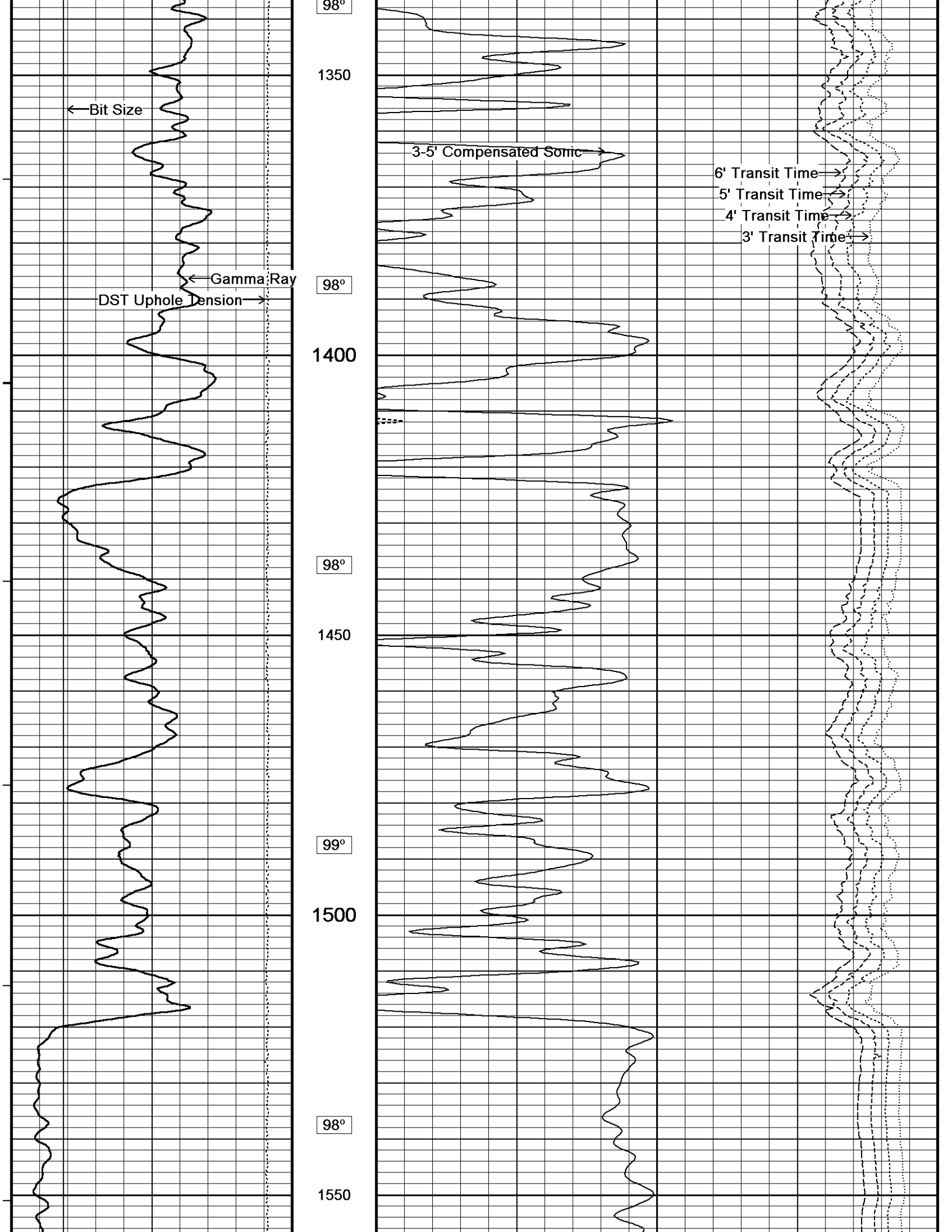

90°
250
Casing
Shoe
90°
300
90°
350
91°
400
91°
450

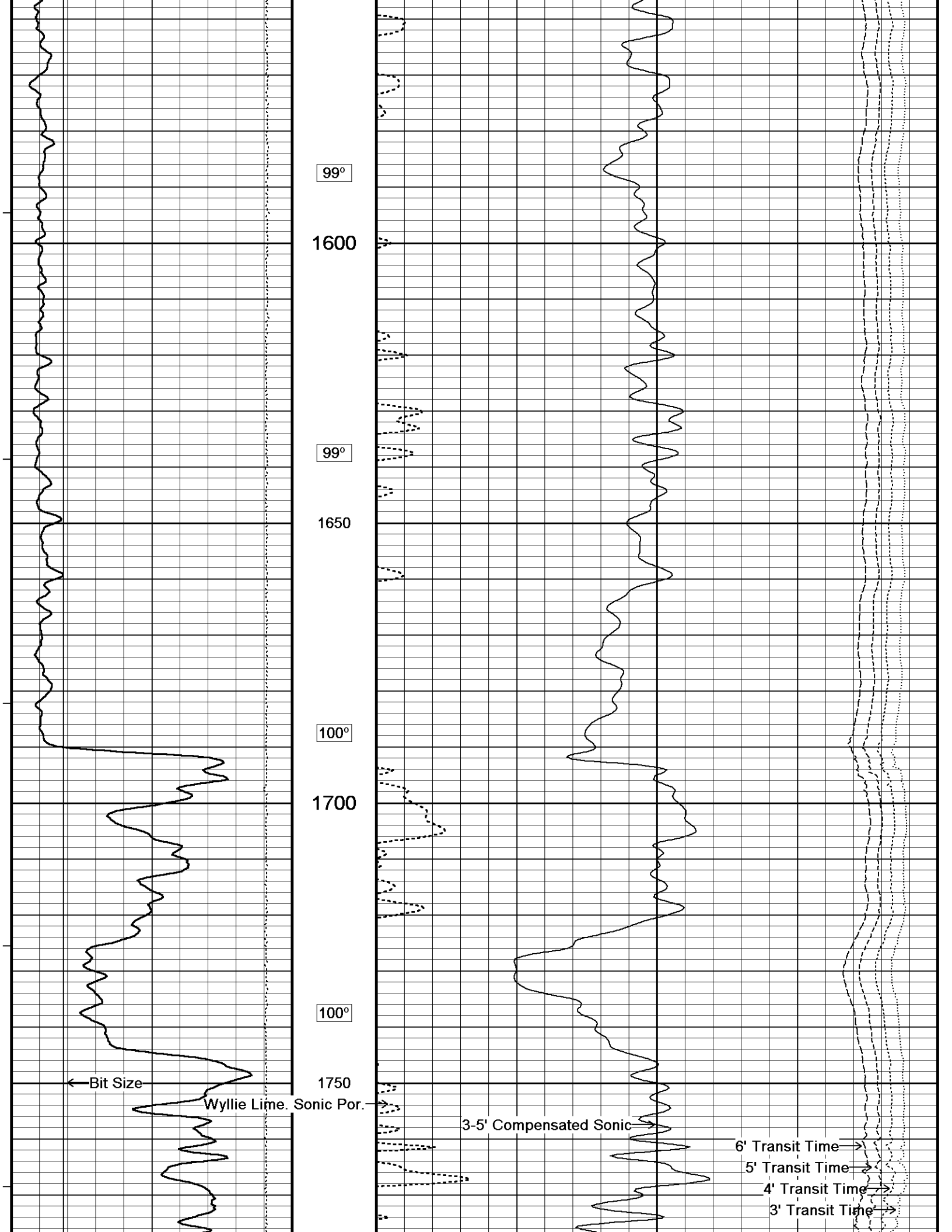

92°
500
92°
550
Bit Size
3-5' Compensated Sonic
6' Transit Time
5' Transit Time
4' Transit Time
3' Transit Time
92°
Gamma Ray
600
DST Uphole Tension
93°
650

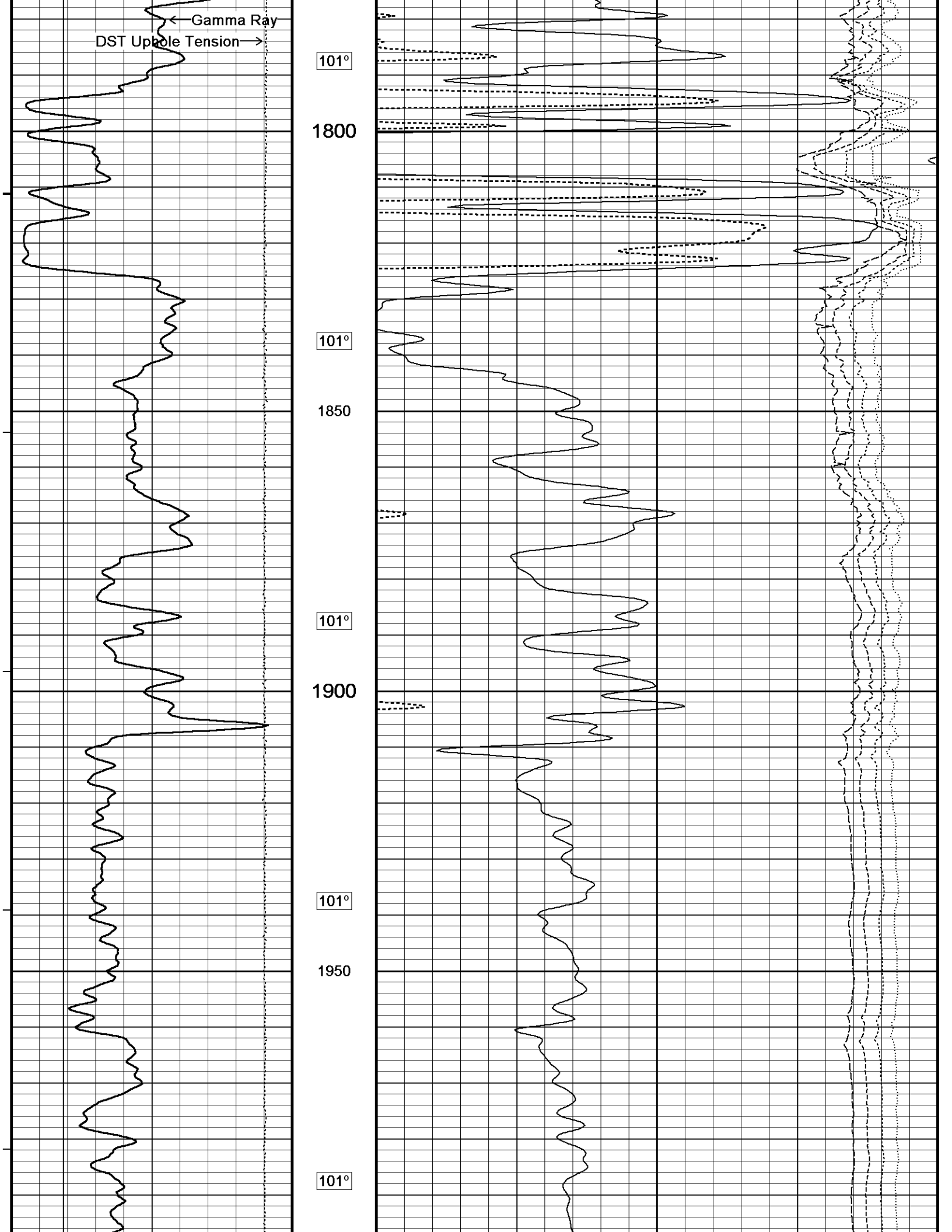

94°
700
94°
750
94°
800
95°
850
95°

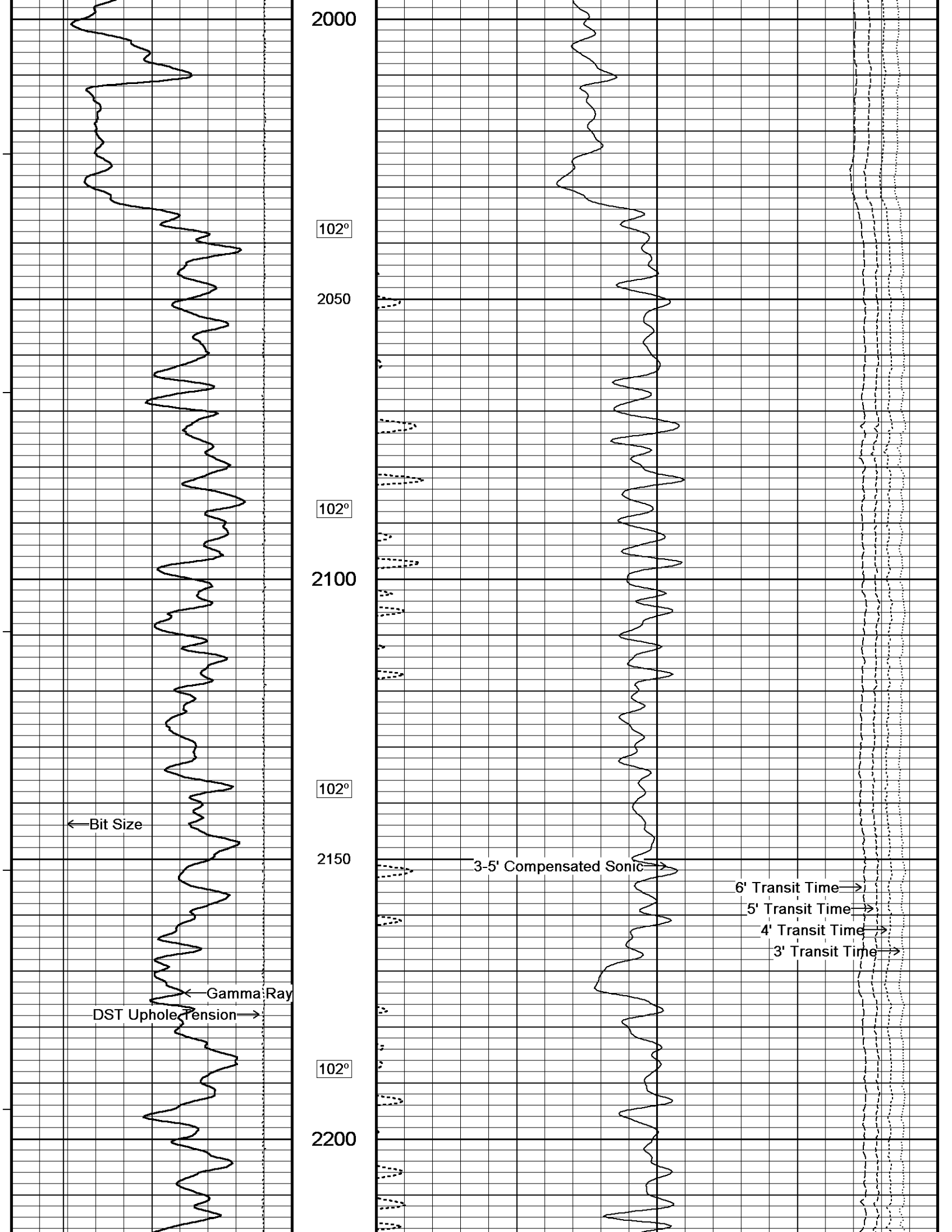

900
96°
950
Bit Size
3-5' Compensated Sonic
6' Transit Time
5' Transit Time
4' Transit Time
3' Transit Time
95°
Gamma Ray
DST Uphole Tension
1000
96°
1050
96°
1100

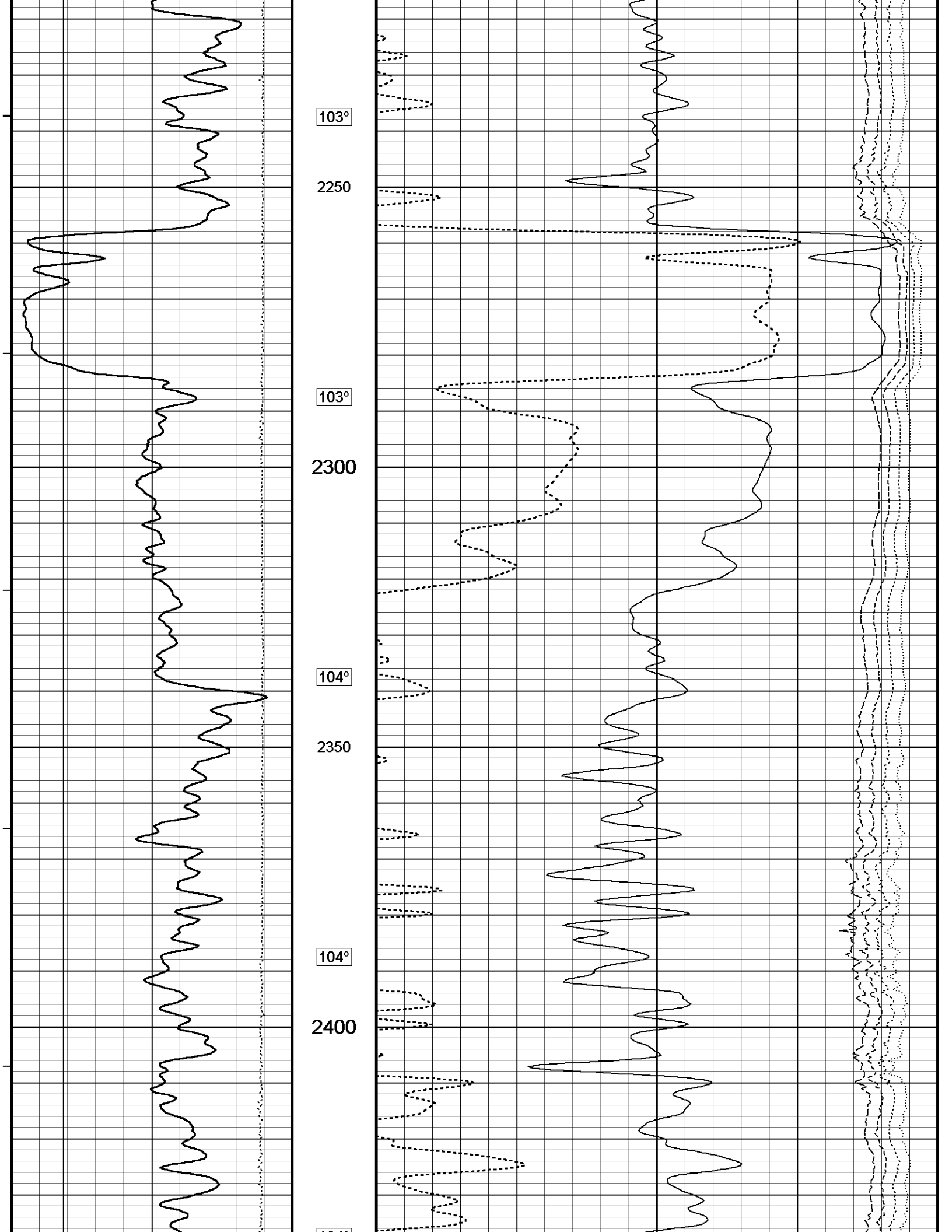

97°
1150
97°
1200
97°
1250
97°
1300

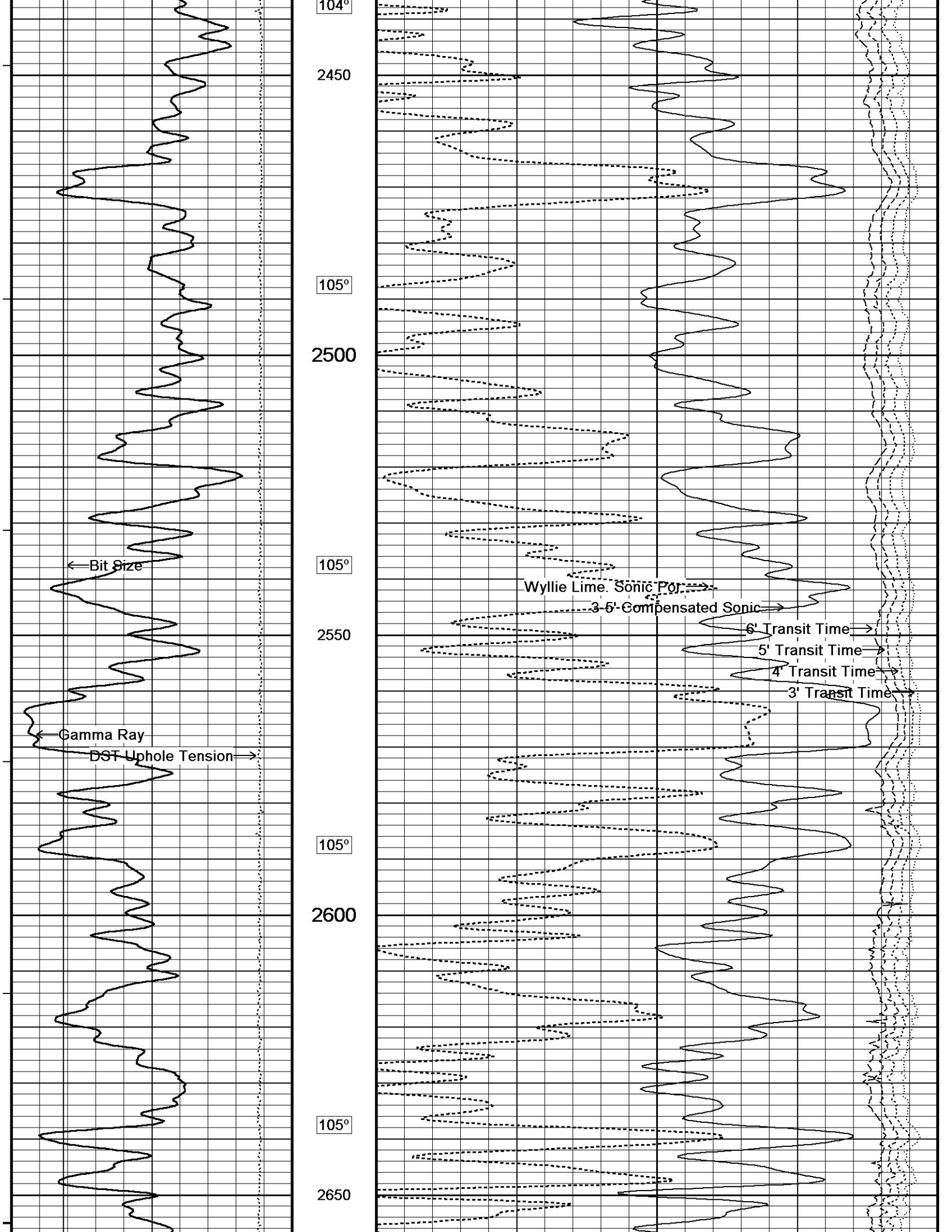

98°
1350
Bit Size
3-5' Compensated Sonic
6' Transit Time
5' Transit Time
4' Transit Time
3' Transit Time
Gamma Ray
DST Uphole Tension
98°
1400
98°
1450
99°
1500
98°
1550

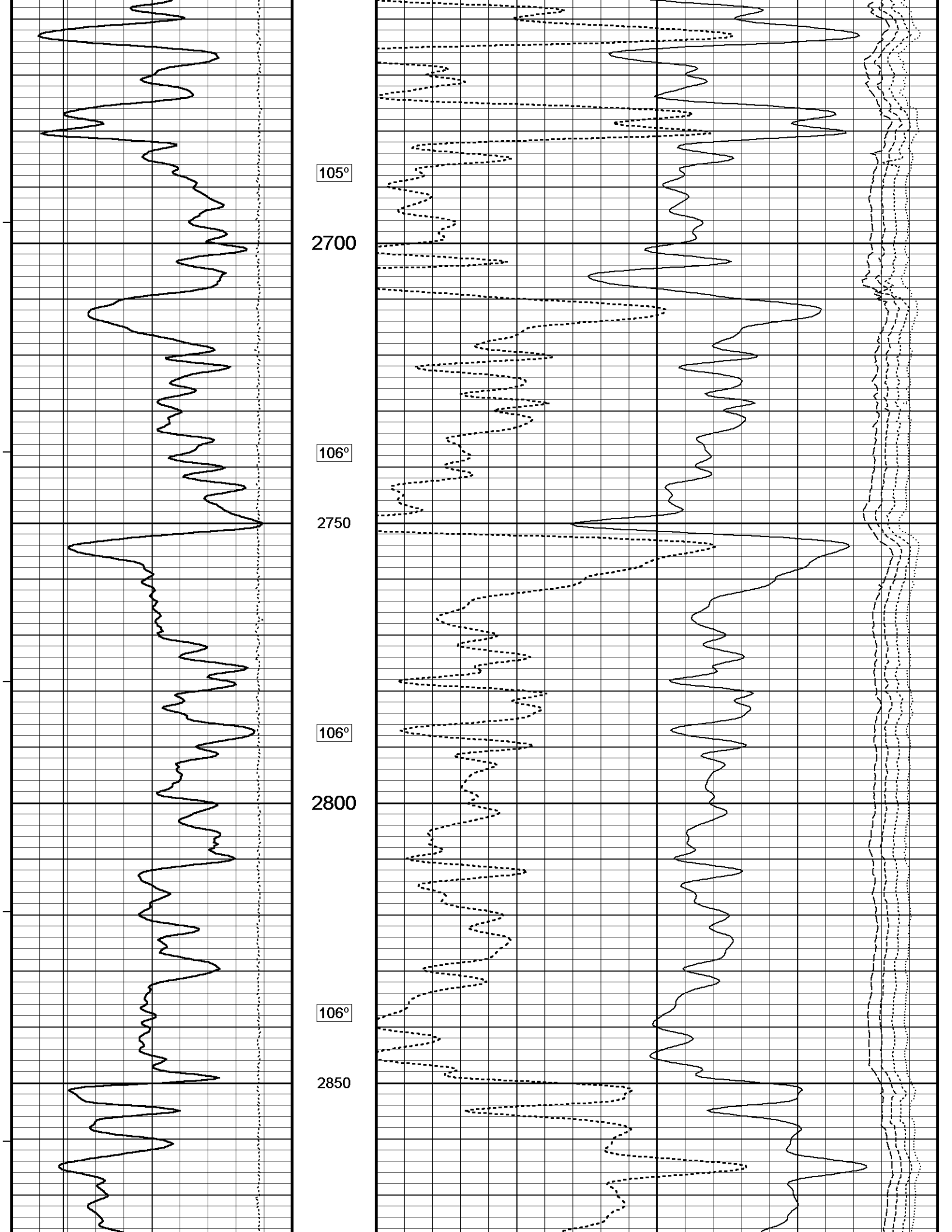

99°
1600
99°
1650
100°
1700
100°
1750
←Bit Size
Wyllie Lime. Sonic Por.→
3-5' Compensated Sonic→
6' Transit Time→
5' Transit Time→
4' Transit Time→
3' Transit Time→

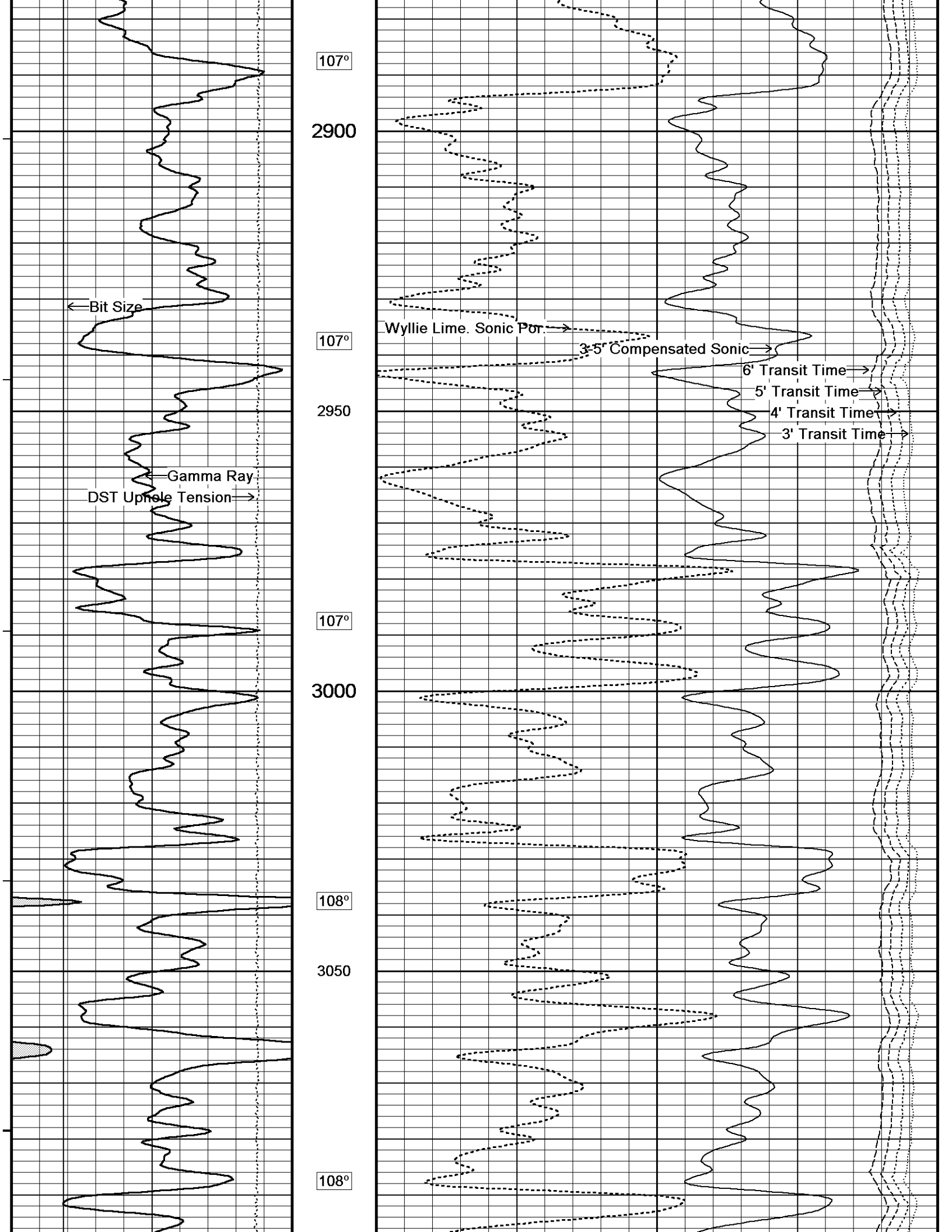

Gamma Ray
DST Uphole Tension
101°
1800
101°
1850
101°
1900
101°
1950
101°

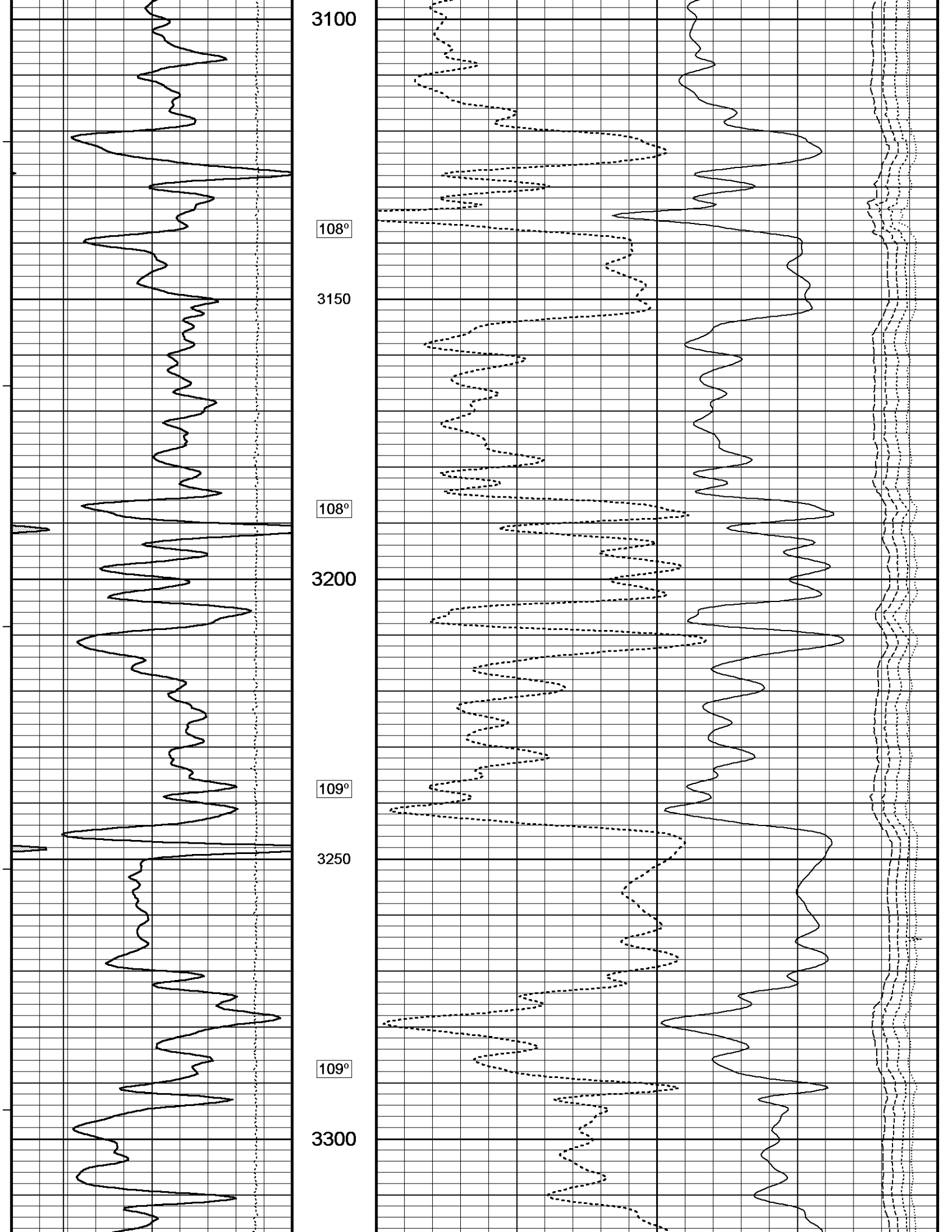

2000
102°
2050
102°
2100
102°
2150
102°
2200
Bit Size
Gamma Ray
DST Uphole Tension
3-5' Compensated Sonic
6' Transit Time
5' Transit Time
4' Transit Time
3' Transit Time

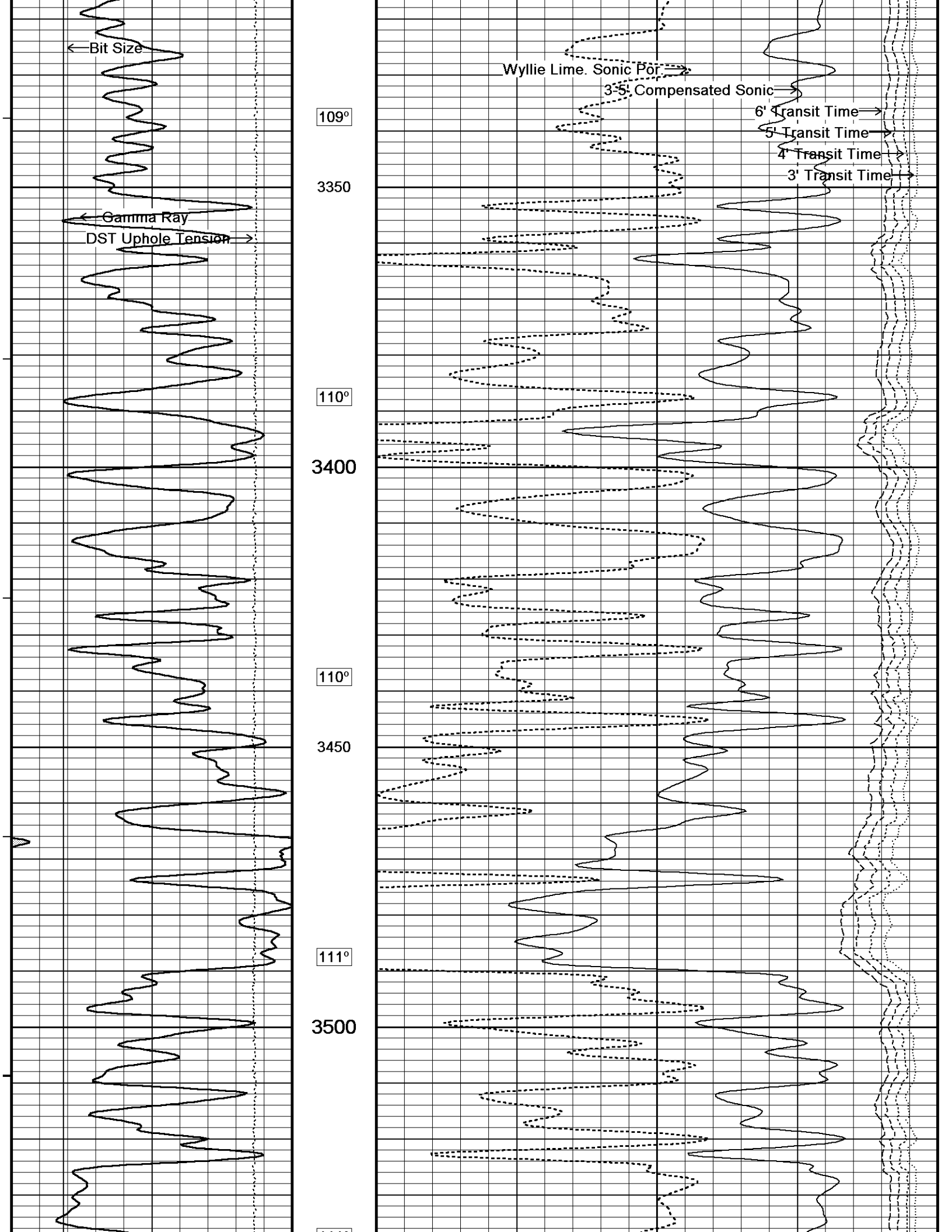

103°
2250
103°
2300
104°
2350
104°
2400

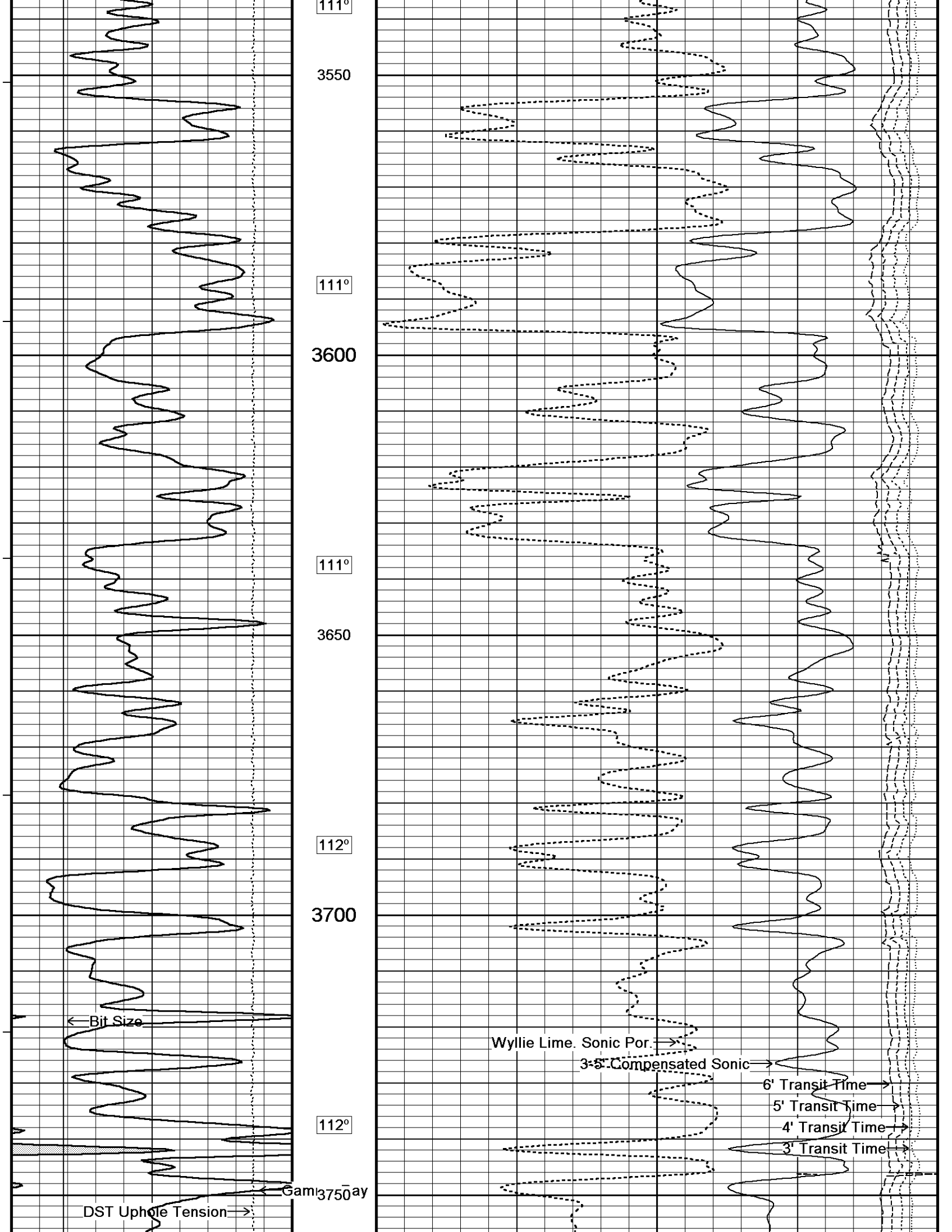

104°
2450
105°
2500
105°
Bit Size
Wyllie Lime. Sonic Por.
3-5' Compensated Sonic
2550
6' Transit Time
5' Transit Time
4' Transit Time
3' Transit Time
Gamma Ray
DST Uphole Tension
105°
2600
105°
2650

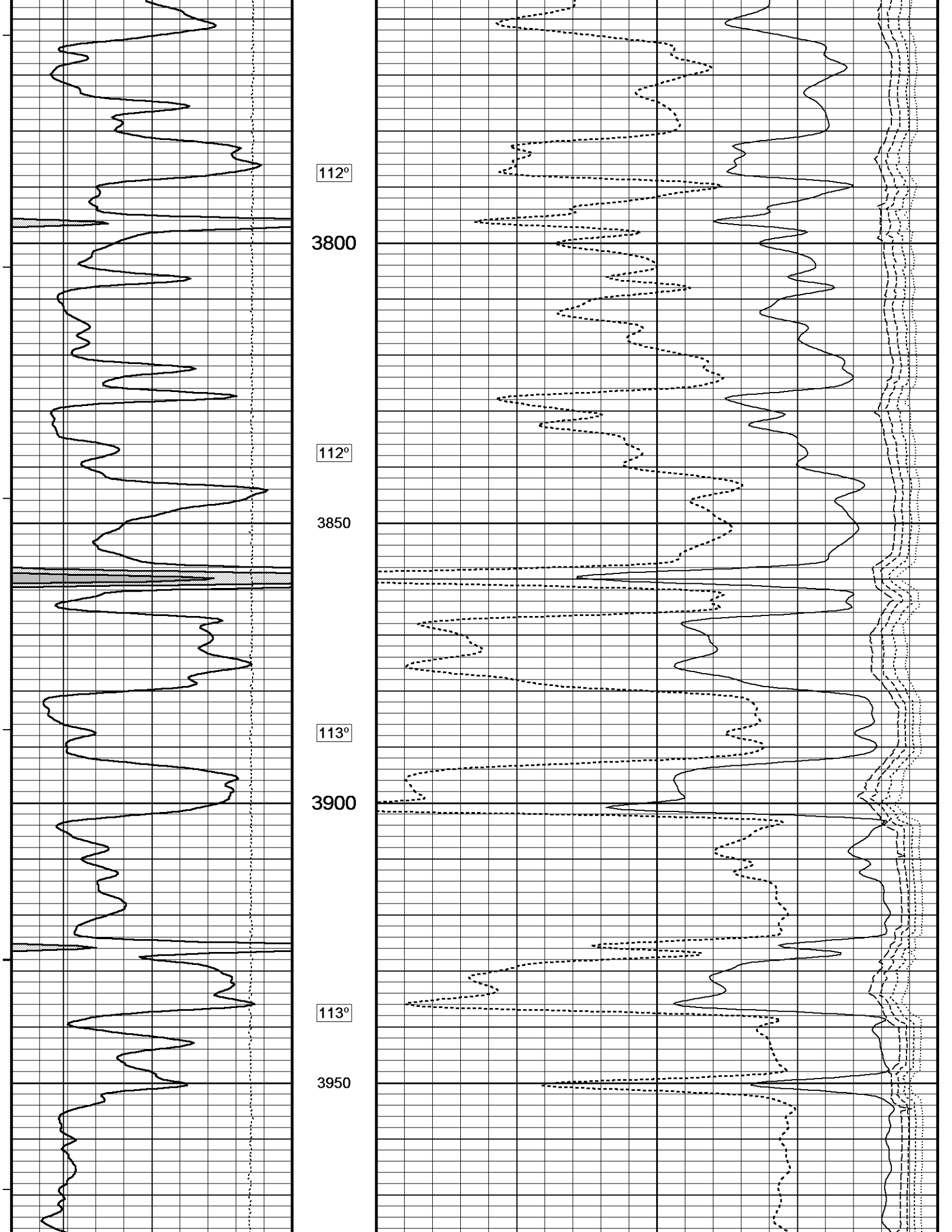

105°
2700
106°
2750
106°
2800
106°
2850

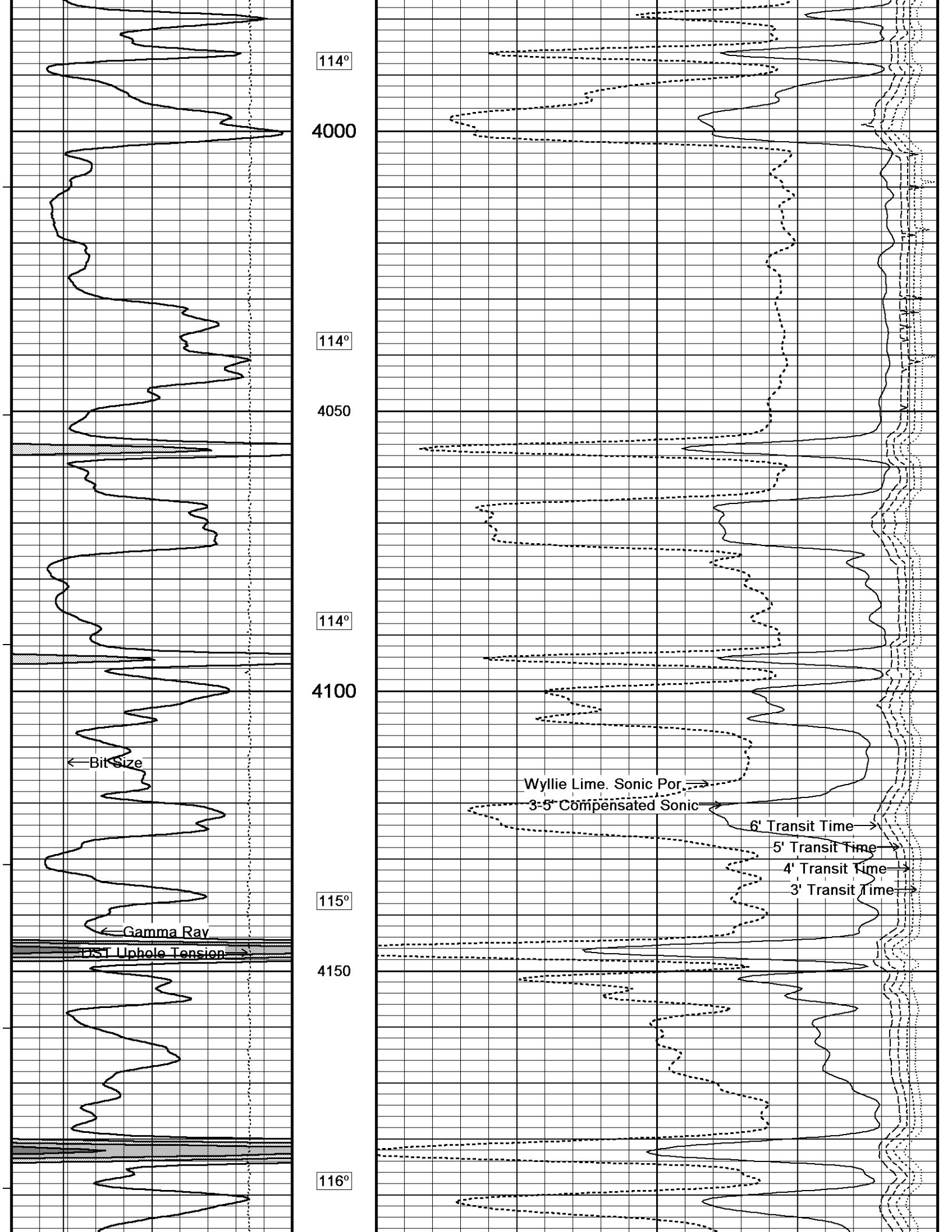

107°
2900
Bit Size
Wyllie Lime. Sonic Por.
107°
3-5' Compensated Sonic
6' Transit Time
5' Transit Time
4' Transit Time
3' Transit Time
2950
Gamma Ray
DST Uphole Tension
107°
3000
108°
3050
108°

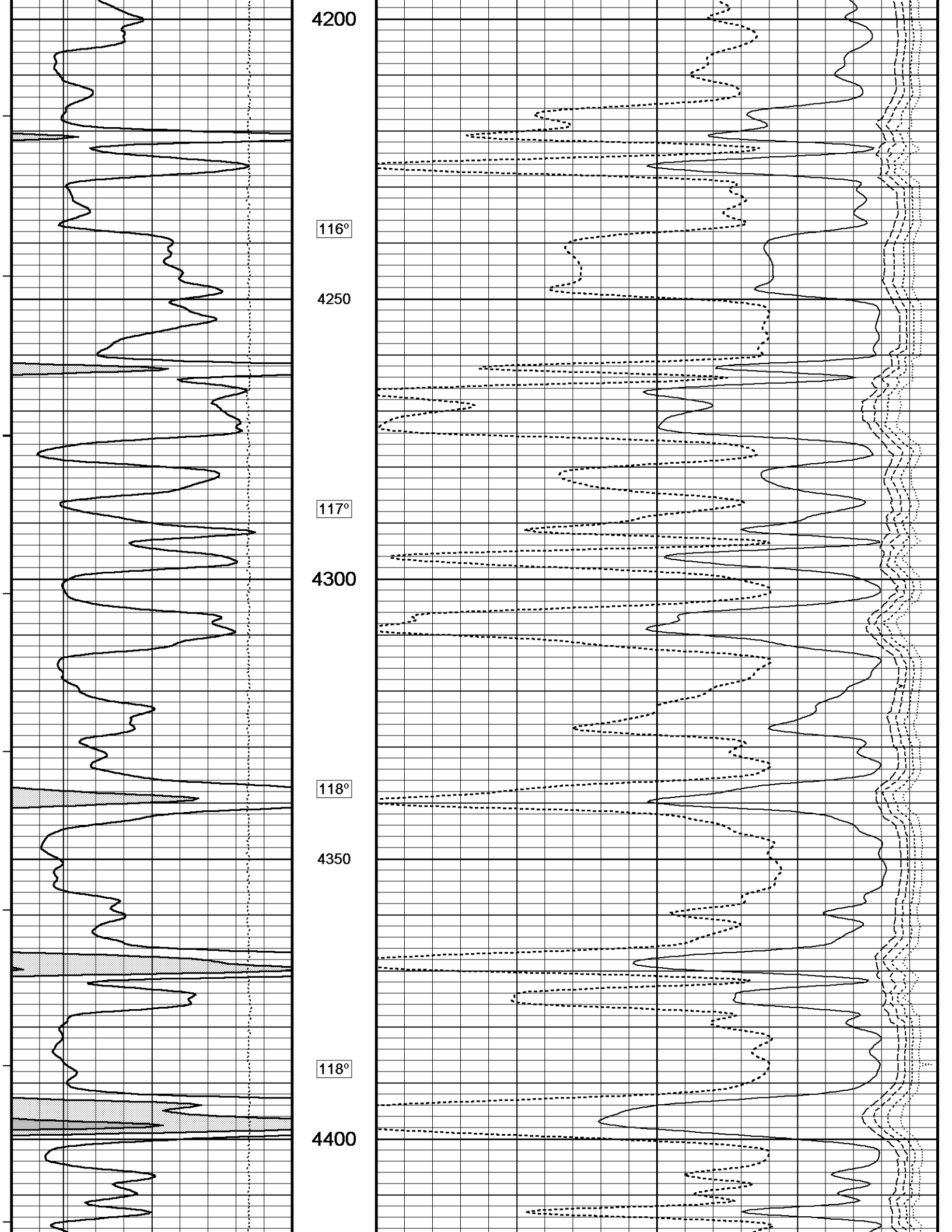

3100
108°
3150
108°
3200
109°
3250
109°
3300

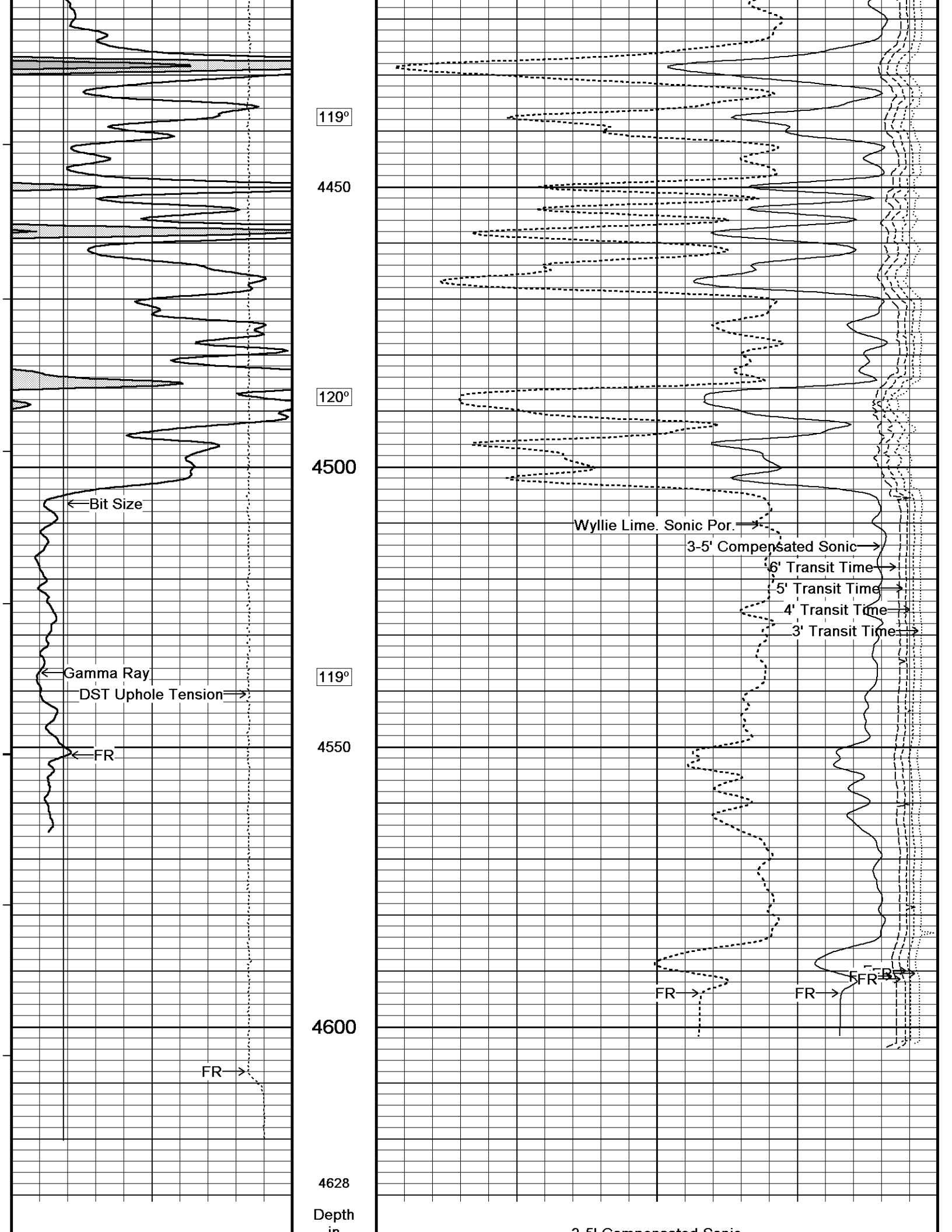

Bit Size
Gamma Ray
DST Uphole Tension
Wyllie Lime. Sonic Por
3-5' Compensated Sonic
6' Transit Time
5' Transit Time
4' Transit Time
3' Transit Time
109°
3350
110°
3400
110°
3450
111°
3500


111°
3550
111°
3600
111°
3650
112°
3700
←Bit Size
112°
←Gamma Ray
3750
DST Uphole Tension→
Wyllie Lime. Sonic Por.→
3-5' Compensated Sonic→
6' Transit Time→
5' Transit Time→
4' Transit Time→
3' Transit Time→


112°
3800
112°
3850
113°
3900
113°
3950


114°
4000
114°
4050
114°
4100
115°
4150
116°
←Bit Size
←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 →


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


119°
4450
120°
4500
Bit Size
Wyllie Lime. Sonic Por.
3-5' Compensated Sonic
6' Transit Time
5' Transit Time
4' Transit Time
3' Transit Time
Gamma Ray
DST Uphole Tension
119°
FR
4550
FR
FR
FR
4600
FR
4628
Depth
in

Depth in Feet

Timing Marks
every 60.0 sec

Gamma Ray
API
0 75 150
150 225 300

Density Caliper
inches
6 11 16

Bit Size
inches
6 11 16

DST Uphole Tension
pounds
5000 0

Borehole Temp in deg F

Replay Scale 1:240

3-5' Compensated Sonic
microsec/foot
140 115 90 65 40

Wyllie Lime. Sonic Por.
percent
30 20 10 0 -10

3' Transit Time
microseconds
1100 100

4' Transit Time
microseconds
1100 100

5' Transit Time
microseconds
1100 100

6' Transit Time
microseconds
1100 100

Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 03-JUN-2013 17:26
Filename: C:\Minimus 13.05.9583\Logs\OBrien Reso...\OBrien Resources LLC Swart #21-1-DETAIL.dta — Recorded on 03-JUN-2013 15:15
System Versions: Logged with 13.05.9583 Processed with 13.05.9583 Plotted with 13.05.9583

5 INCH MAIN

REPEAT SECTION

Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 03-JUN-2013 17:26
Filename: C:\Minimus 13.05.9583\Logs\OB...\Copy of OBrien Resources LLC Swart #21-1 REPEAT.dta — Recorded on 03-JUN-2013 15:03
System Versions: Logged with 13.05.9583 Processed with 13.05.9583 Plotted with 13.05.9583

Depth in Feet

Timing Marks
every 60.0 sec

Gamma Ray
API
0 75 150
150 225 300

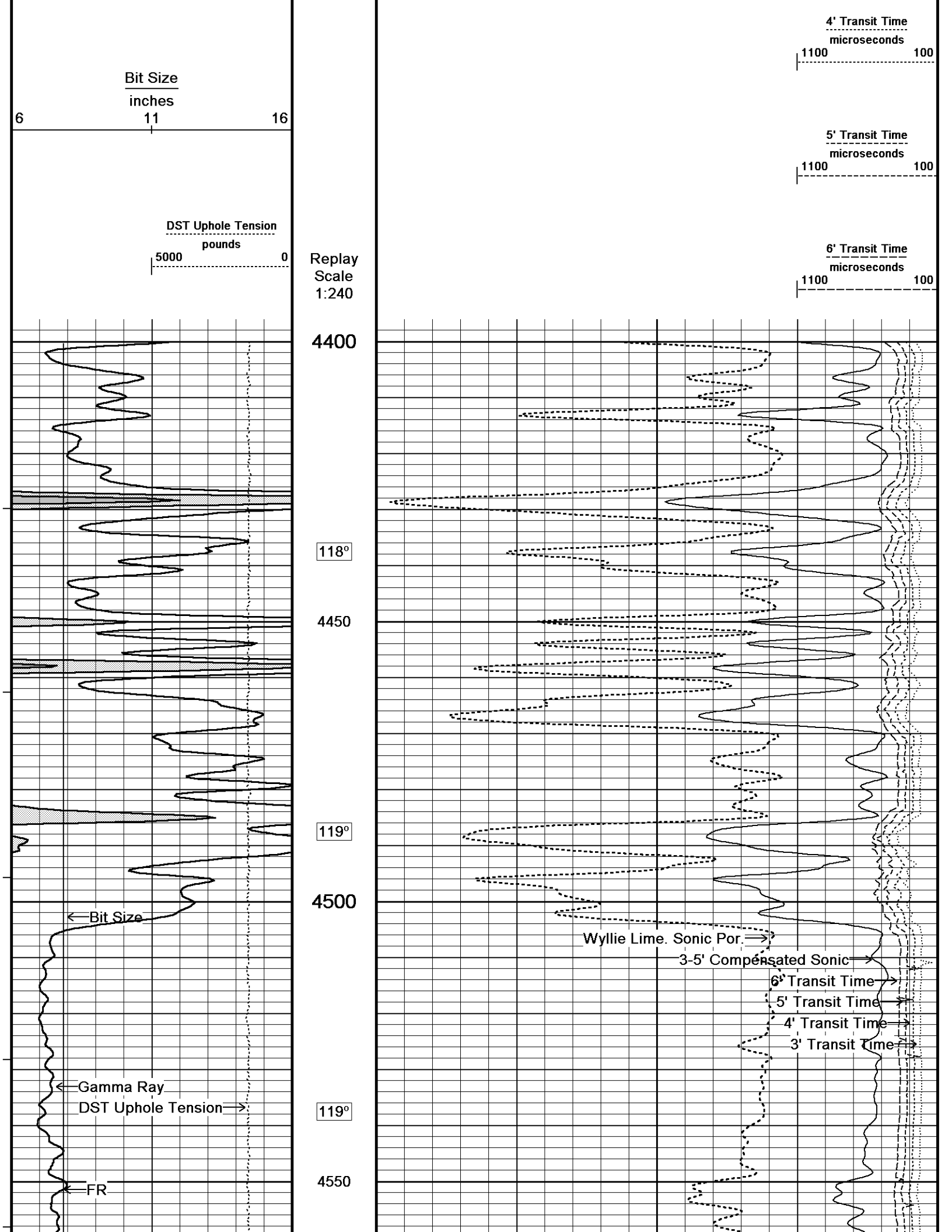
Density Caliper
inches
6 11 16

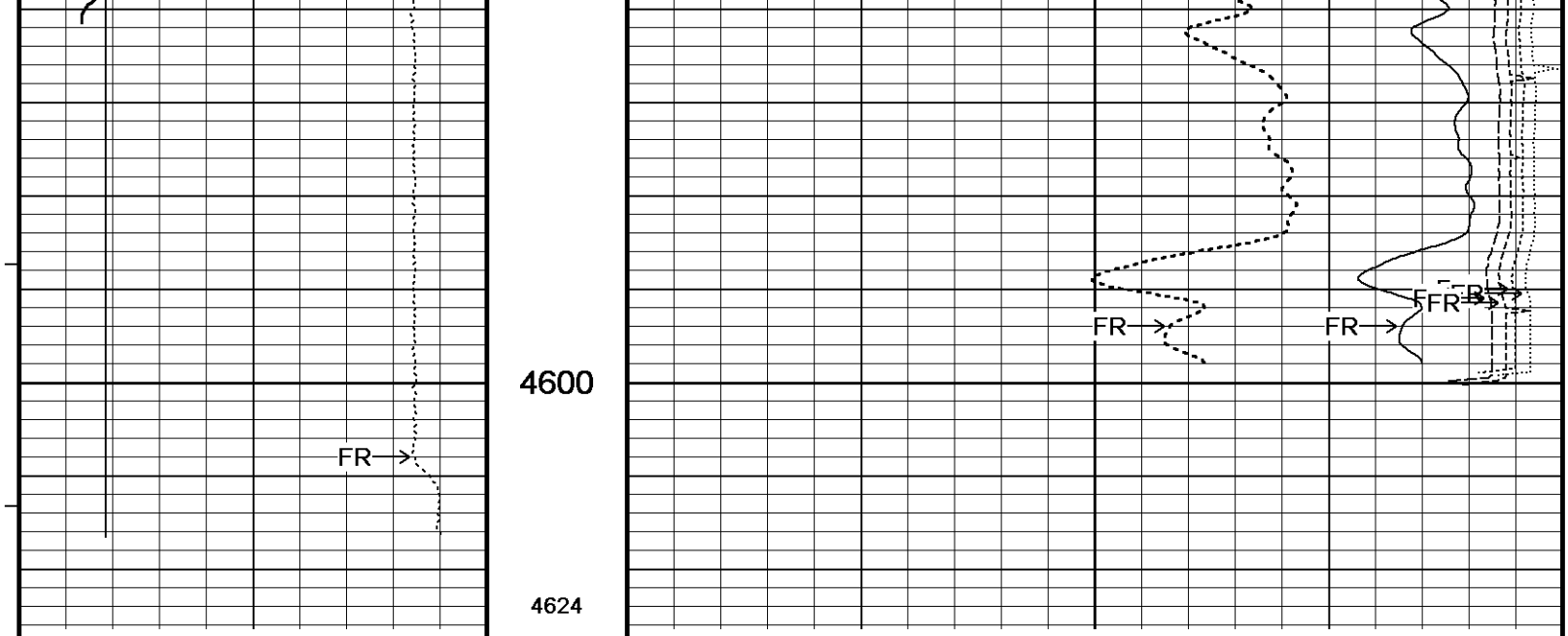
Borehole Temp in deg F

3-5' Compensated Sonic
microsec/foot
140 115 90 65 40

Wyllie Lime. Sonic Por.
percent
30 20 10 0 -10

3' Transit Time
microseconds
1100 100


Bit Size
inches
6
11
16
DST Uphole Tension
pounds
5000
0
Replay
Scale
1:240
4' Transit Time
microseconds
1100
100
5' Transit Time
microseconds
1100
100
6' Transit Time
microseconds
1100
100
4400
118°
4450
119°
4500
119°
4550
Bit Size
Gamma Ray
DST Uphole Tension
FR
Wyllie Lime. Sonic Por.
3-5' Compensated Sonic
6' Transit Time
5' Transit Time
4' Transit Time
3' Transit Time



4600

4624

Depth in Feet

Timing Marks
every 60.0 sec

Gamma Ray
API
0 75 150
150 225 300

Density Caliper
inches
6 11 16

Bit Size
inches
6 11 16

DST Uphole Tension
pounds
5000 0

Borehole Temp in deg F

Replay Scale 1:240

3-5' Compensated Sonic
microsec/foot
140 115 90 65 40

Wyllie Lime. Sonic Por.
percent
30 20 10 0 -10

3' Transit Time
microseconds
1100 100

4' Transit Time
microseconds
1100 100

5' Transit Time
microseconds
1100 100

6' Transit Time
microseconds
1100 100

Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 03-JUN-2013 17:26
Filename: C:\Minimus 13.05.9583\Logs\OB...\Copy of OBrien Resources LLC Swart #21-1 REPEAT.dta
Recorded on 03-JUN-2013 15:03
System Versions: Logged with 13.05.9583 Processed with 13.05.9583 Plotted with 13.05.9583

REPEAT SECTION

BEFORE SURVEY CALIBRATION
C:\Minimus 13.05.9583\Logs\OBrien Resources LLC Swart #21-1\OBrien Resources LLC Swart #21-1-DETAIL.dta

General Constants All 000

Last Edited on 03-JUN-2013,13:48

General Parameters		
Mud Resistivity	1.188	ohm-metres
Mud Resistivity Temperature	85.000	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	4.500	inches
Caliper for Differential Caliper	Density Caliper	
Rwa Parameters		
Porosity used	Crossplot Porosity	
Resistivity used	Array Ind. Six Res Rt	
RWA Constant A	1.000	
RWA Constant M	2.000	
SW/APOR Tool Source	0.000	

High Resolution Temperature Calibration MCG-D.K 442

Field Calibration on 03-JUN-2013,07:02

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

High Resolution Temperature Constants MCG-D.K 442

Last Edited on 03-JUN-2013,07:02

Pre-filter Length	11

Gamma Calibration MCG-D.K 442

Field Calibration on 03-JUN-2013 07:06

	Measured	Calibrated (API)
Background	69	47
Calibrator (Gross)	1126	772
Calibrator (Net)	1057	725

Gamma Constants MCG-D.K 442

Last Edited on 03-JUN-2013,13:47

Gamma Calibrator Number	GRC38	
Mud Density	1.13	gm/cc
Caliper Source for Processing	Density Caliper	
Tool Position	Eccentred	
Concentration of KCl		kppm
K Mud Type	Chloride	
K Mud Concentration	0.00	%

Sonic Constants MSS-C.A 156

Last Edited on

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	

Peak Amplitude Source

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 (m)
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		
4' Waveform Filter		
5' Waveform Filter		
6' Waveform Filter		
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

Caliper Calibration MPD-B 31

Base Calibration on 19-MAY-2013 17:48
Field Calibration on 03-JUN-2013 06:19

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	17088	3.99
2	25888	5.98
3	34607	7.97
4	42944	9.86
5	52301	11.92
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
5.88	5.98

DOWNHOLE EQUIPMENT

C:\Minimus 13.05.9583\Logs\OBrien Resources LLC Swart #21-1\OBrien Resources LLC Swart #21-1-DETAIL.dta

3/8" Triple Cone Cable Head (MCB C A)
MCB-C.A 5 LG: 1.58 ft WT: 15.4 lb OD: 2.24 in

Compact Comms Gamma
MCG-D.K 442 LG: 8.70 ft WT: 63.9 lb OD: 2.24 in

Compact Micro-log
MML-A 16 LG: 7.97 ft WT: 81.6 lb OD: 2.24 in



55.39 ft GRGC - Gamma Ray
52.48 ft CGXT - MCG External Temperature

45.76 ft MINV - Micro-inverse
45.76 ft MNRL - Micro-normal
46.76 ft MLTC - MML Caliper

Compact Neutron

40.97 ft NPRL - Limestone Neutron Por

Compact Neutron
MDN-A.B 65 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in

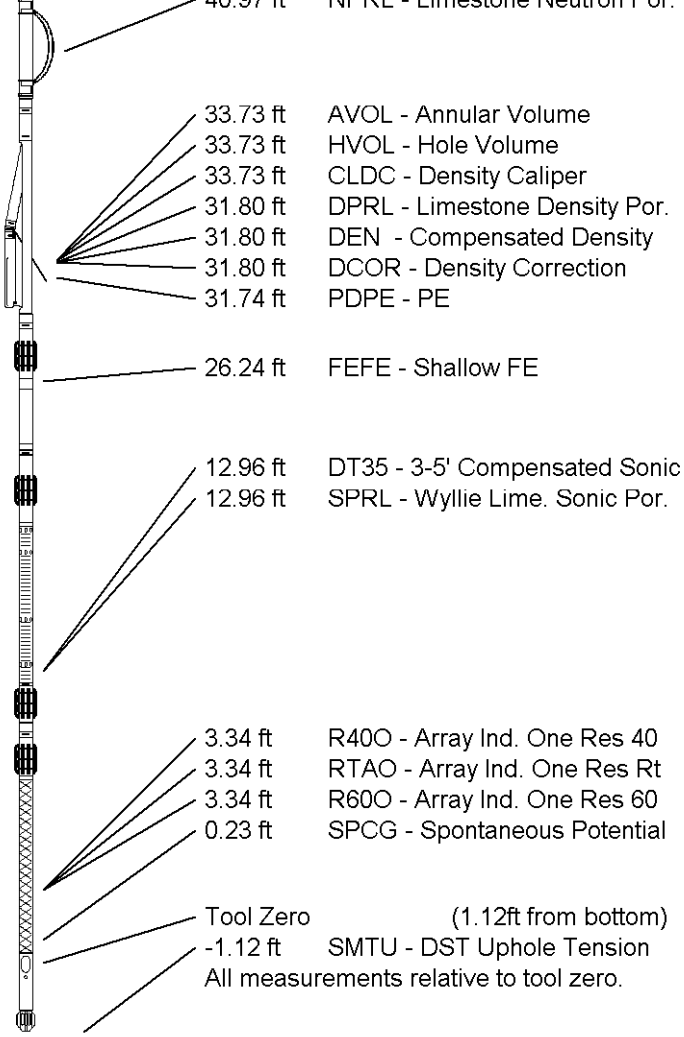
Compact Density/Caliper
MPD-B 31 LG: 9.59 ft WT: 90.4 lb OD: 2.45 in

Compact Focussed Electric
MFE-B.J 352 LG: 6.05 ft WT: 48.5 lb OD: 2.24 in

Compact Sonic
MSS-C.A 156 LG: 12.52 ft WT: 72.8 lb OD: 2.24 in

Compact Induction
MAI-A.A 45 LG: 11.79 ft WT: 48.5 lb OD: 2.24 in

Total Length: 63.24 ft Weight: 471.8 lb



COMPANY	O'BRIEN RESOURCES, LLC
WELL	SWART 21 #1
FIELD	WILDCAT
PROVINCE/COUNTY	GOVE
COUNTRY/STATE	U.S.A. / KANSAS

Elevation Kelly Bushing	2813.00	feet	First Reading	4595.00	feet
Elevation Drill Floor	2812.00	feet	Depth Driller	4610.00	feet
Elevation Ground Level	2803.00	feet	Depth Logger	4608.00	feet

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COMPENSATED SONIC
WITH INTEGRATED TRANSIT TIME