Weatherford®

COMPENSATED SONIC WITH INTEGRATED TRANSIT TIME

COMPANY	O'BRIEN RESOURCES LLC
WELL	PECK 1 #1
FIELD	WILDCAT
PROVINCE/COUNTY	LANE
COUNTRY/STATE	U.S.A. / KANSAS
LOCATION	1170' FNL & 790' FWL SW SE NW NW

SEC	TWP	RGE	Other Services
1	18S	29W	MPD/MDN MAI/MFE MML

API Number 15-101-22482
Permit Number

Permanent Datum GL, Elevation 2714 feet
Log Measured From KB
Drilling Measured From KB AT 10 FEET

Elevations:	feet
KB	2724.00
DF	2722.00
GL	2714.00

Date	14-JAN-2014		
Run Number	ONE		
Service Order	7036-76935286		
Depth Driller	4625.00 feet		
Depth Logger	4622.00 feet		
First Reading	4609.04 feet		
Last Reading	273.00 feet		
Casing Driller	273.00 feet		
Casing Logger	273.00 feet		
Bit Size	7.875 inches		
Hole Fluid Type	CHEMICAL		
Density / Viscosity	9.40 lb/USg	44.00 CP	
PH / Fluid Loss	10.00	7.20 ml/30Min	
Sample Source	FLOWLINE		
Rm @ Measured Temp	0.88 @ 77.8	ohm-m	
Rmf @ Measured Temp	0.70 @ 77.8	ohm-m	
Rmc @ Measured Temp	1.06 @ 77.8	ohm-m	
Source Rmf / Rmc	CALC	CALC	
Rm @ BHT	0.62 @112.0	ohm-m	
Time Since Circulation	2.5 HOURS		
Max Recorded Temp	112.00	deg F	
Equipment / Base	13096	LIB	
Recorded By	DEREK CARTER		
Witnessed By	KURT TALBOTT		
JOB #	LB14-004		

BOREHOLE RECORD

Last Edited: 14-JAN-2014 23:45

Bit Size inches	Depth From feet	Depth To feet
7.875	273.00	4625.00

CASING RECORD

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	8.625	0.00	273.00	24.00

REMARKS

- SOFTWARE ISSUE: WLS 13.05.9583
- TOOLS: MCG, MML, MDN, MPD, MFE, MSS, MAI RUN IN COMBINATION
- HARDWARE:
  - MDN: DUAL BOWSPRING ECCENTRALIZER
  - MFE: 1 X 0.5 INCH STANDOFF
  - MSS: 2 X 0.5 INCH STANDOFF
  - MAI: 2 X 0.5 INCH STANDOFF
- 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 PIPE: 1820 CU. FT

- ANNULAR HOLE VOLUME WITH 4.5 INCH CASING FROM TD TO SURFACE PIPE: 1340 CU. FT

- RIG: MAVERICK DRILLING #108

- ENGINEER: DEREK CARTER

- OPERATORS: KEN RINEHART, TROWDY DICKENS

- PER CUSTOMER REQUEST A COMPOSITE (E-LOG ONLY, NO FIELD PRINT) IS BEING INCLUDED WITH THE STANDARD TRIPLECOMBO E-LOGS (DEN-NEU-MIC, INDUCTION, MICROLOG)

- SP CURVE HAS A NUMBER OF DISCONTINUITIES AND ERRATIC SPOTS (557-560 FT., 596-599 FT., 710-728 FT., 854-859 FT., 1292-1294 FT., 2236-2254 FT., 3454-3456 FT.). THE RIG CREW HAD A TRASH PUMP THAT PERIODICALLY OPERATED IN ORDER TO PUMP EXCESS MUD. IT IS BELIEVED THAT THIS MAY HAVE CAUSED THE DISCONTINUITIES AND ERRATIC INTERVALS.

5 INCH MAIN

Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 15-JAN-2014 00:24
Filename: C:\Documents and Settings\E193122\Desktop\...\O'Brien Resources LLC Peck 1#1 Main2.dta — Recorded on 14-JAN-2014 20:29
System Versions: 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

262

Casing Shoe

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

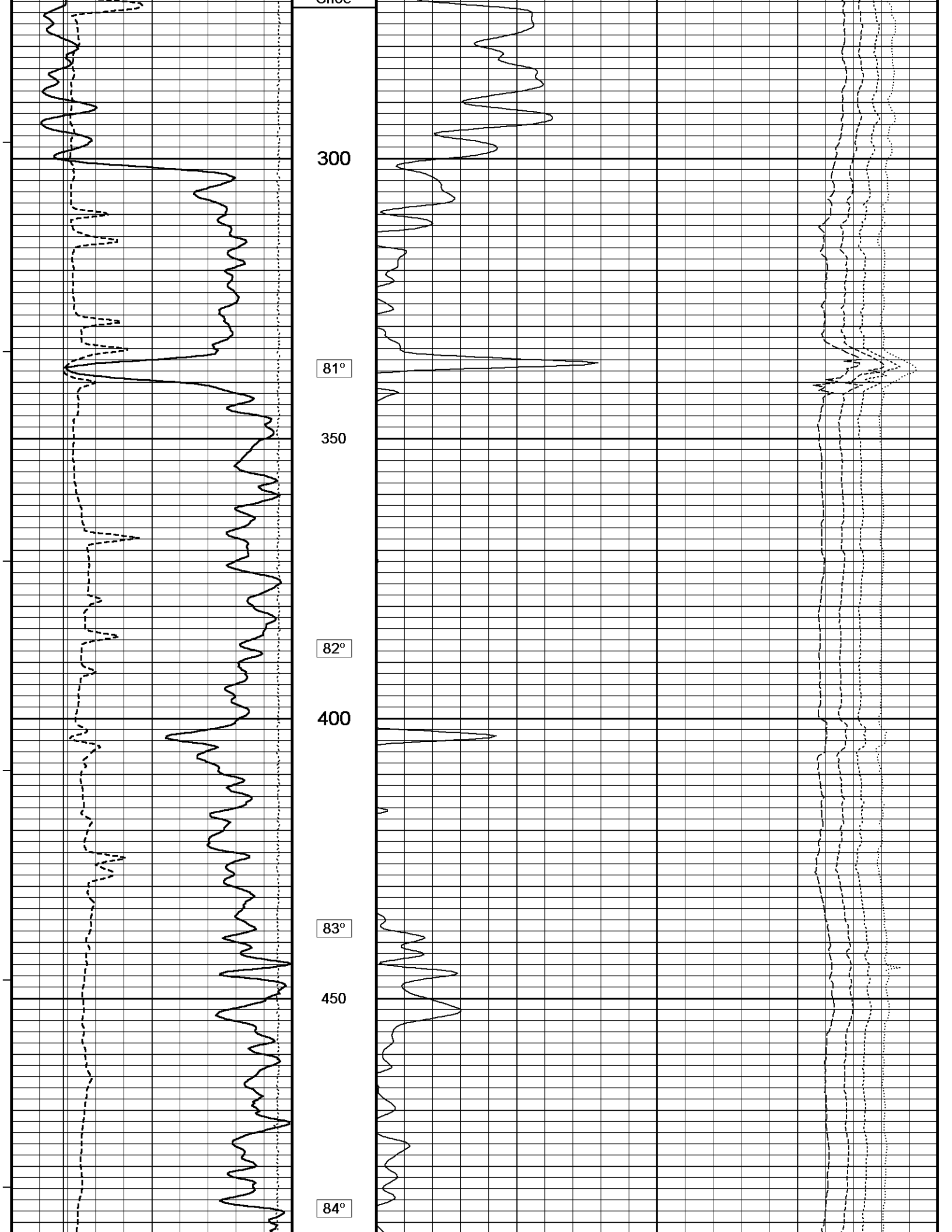
Wyllie Lime. Sonic Por.
percent
30 20 10 0 -10

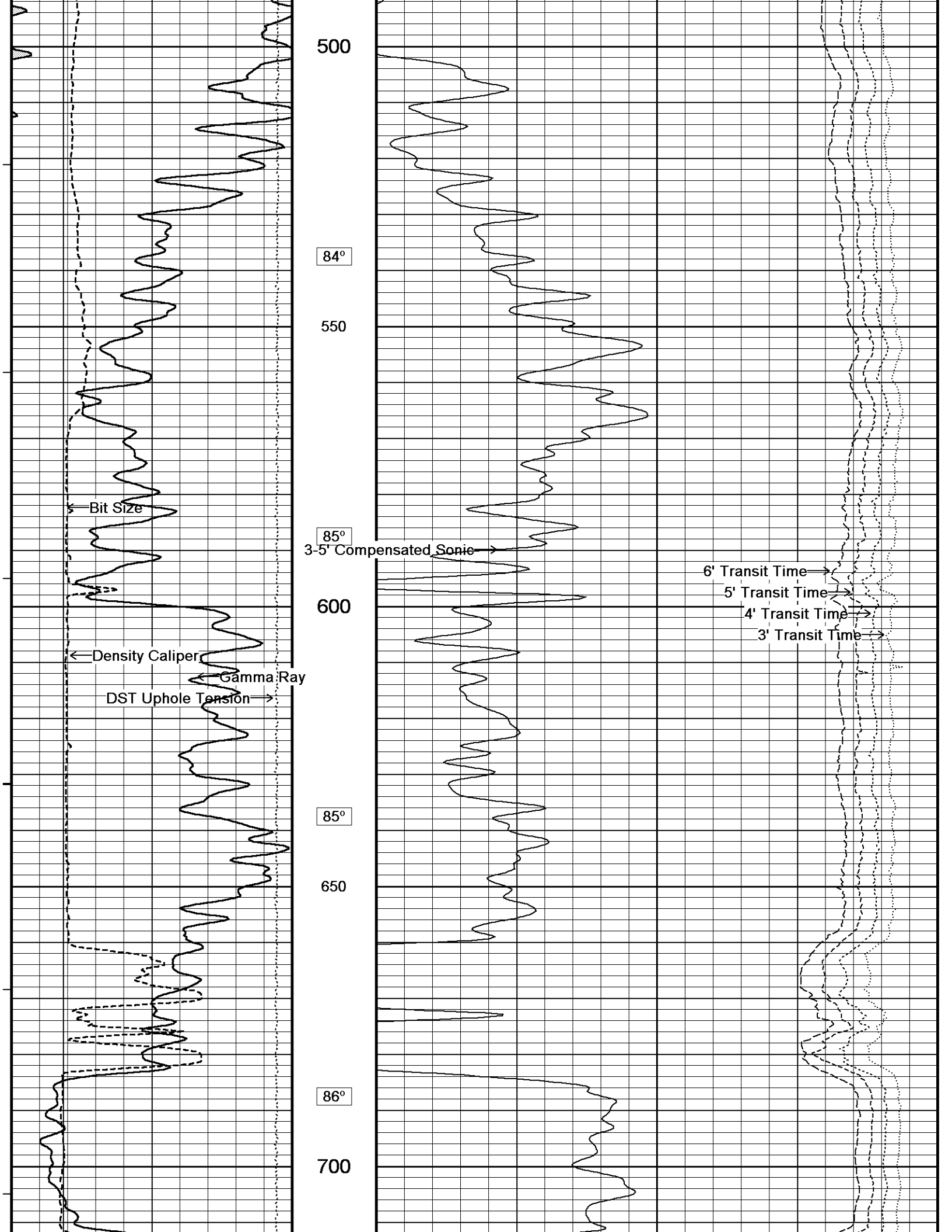
3' Transit Time
microseconds
1100 100

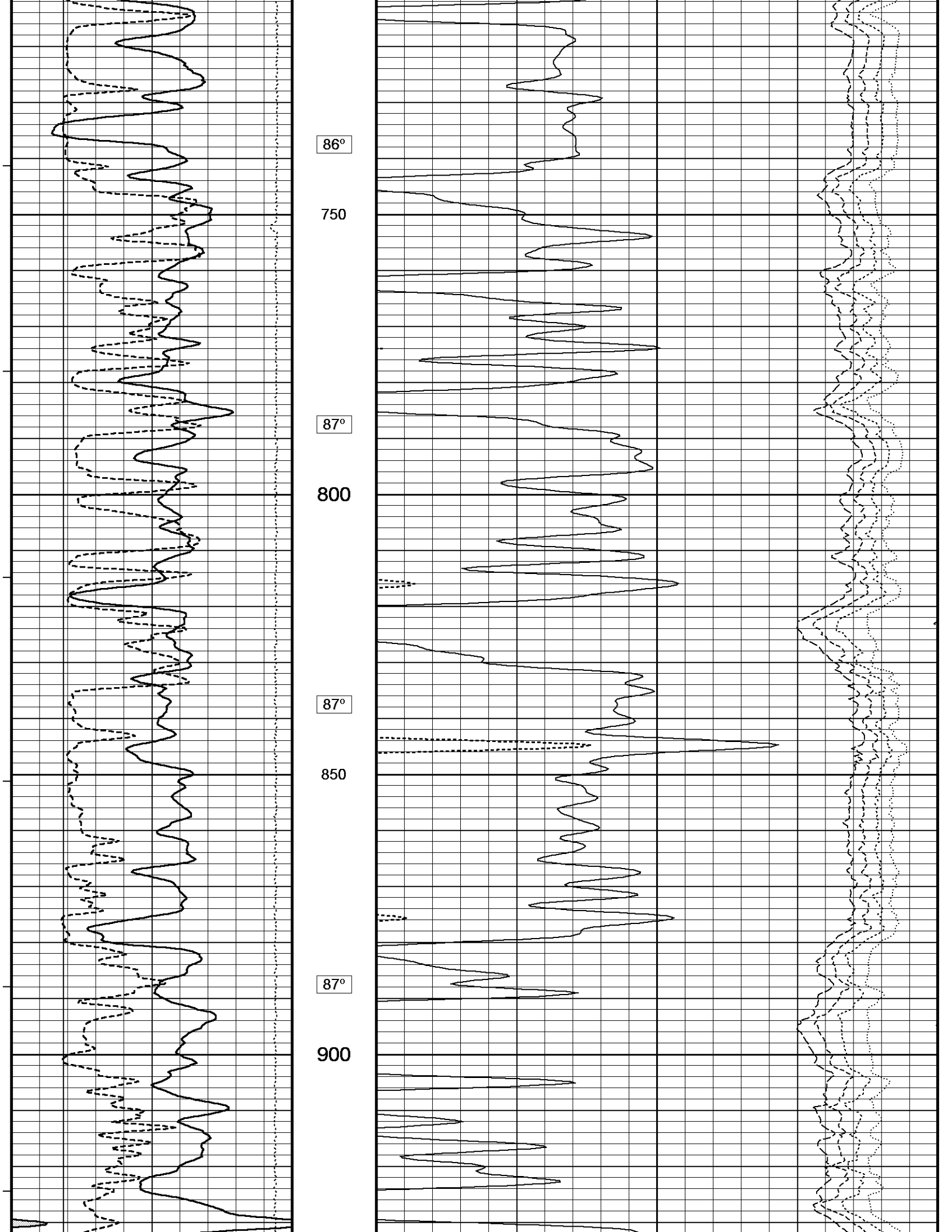
4' Transit Time
microseconds
1100 100

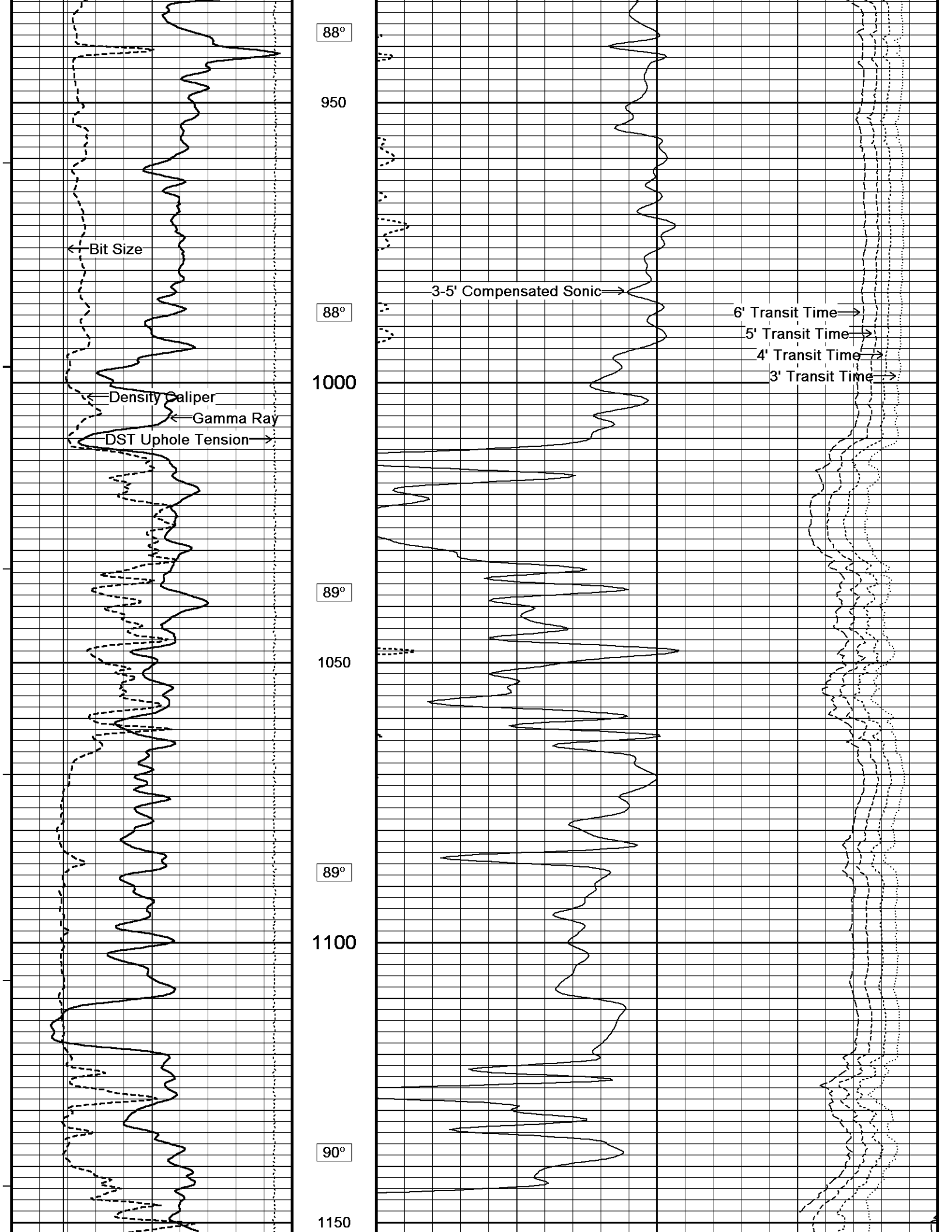
5' Transit Time
microseconds
1100 100

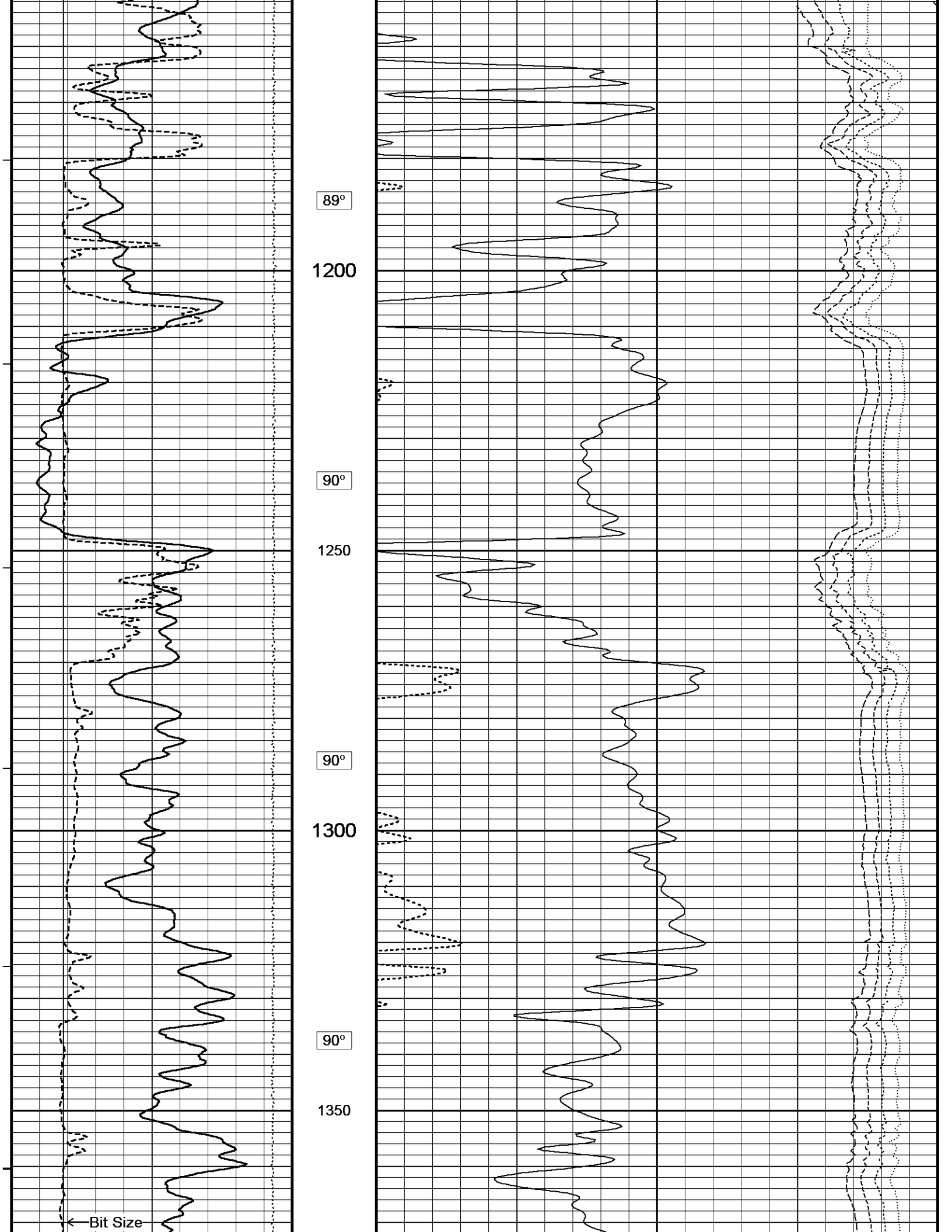
6' Transit Time
microseconds
1100 100

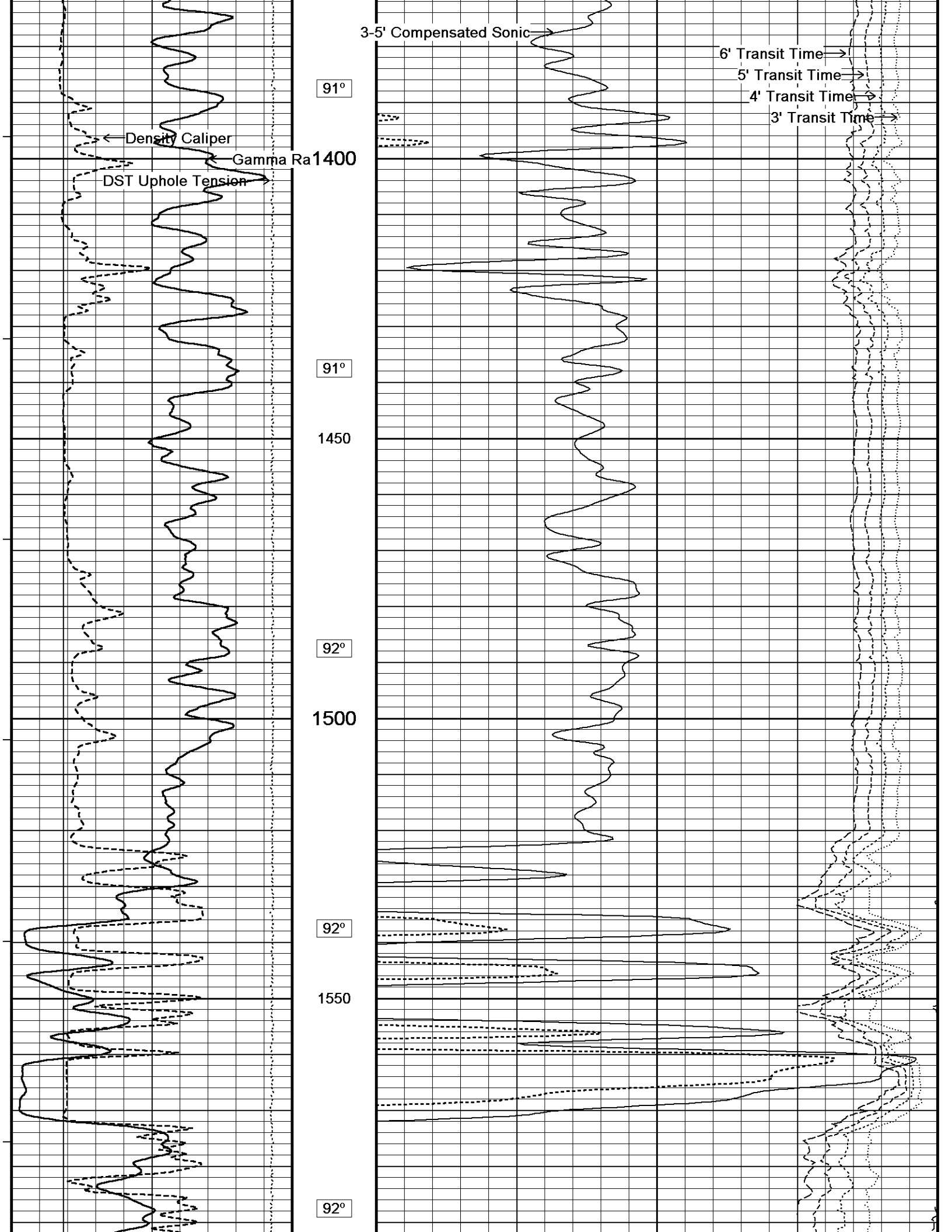

300
81°
350
82°
400
83°
450
84°

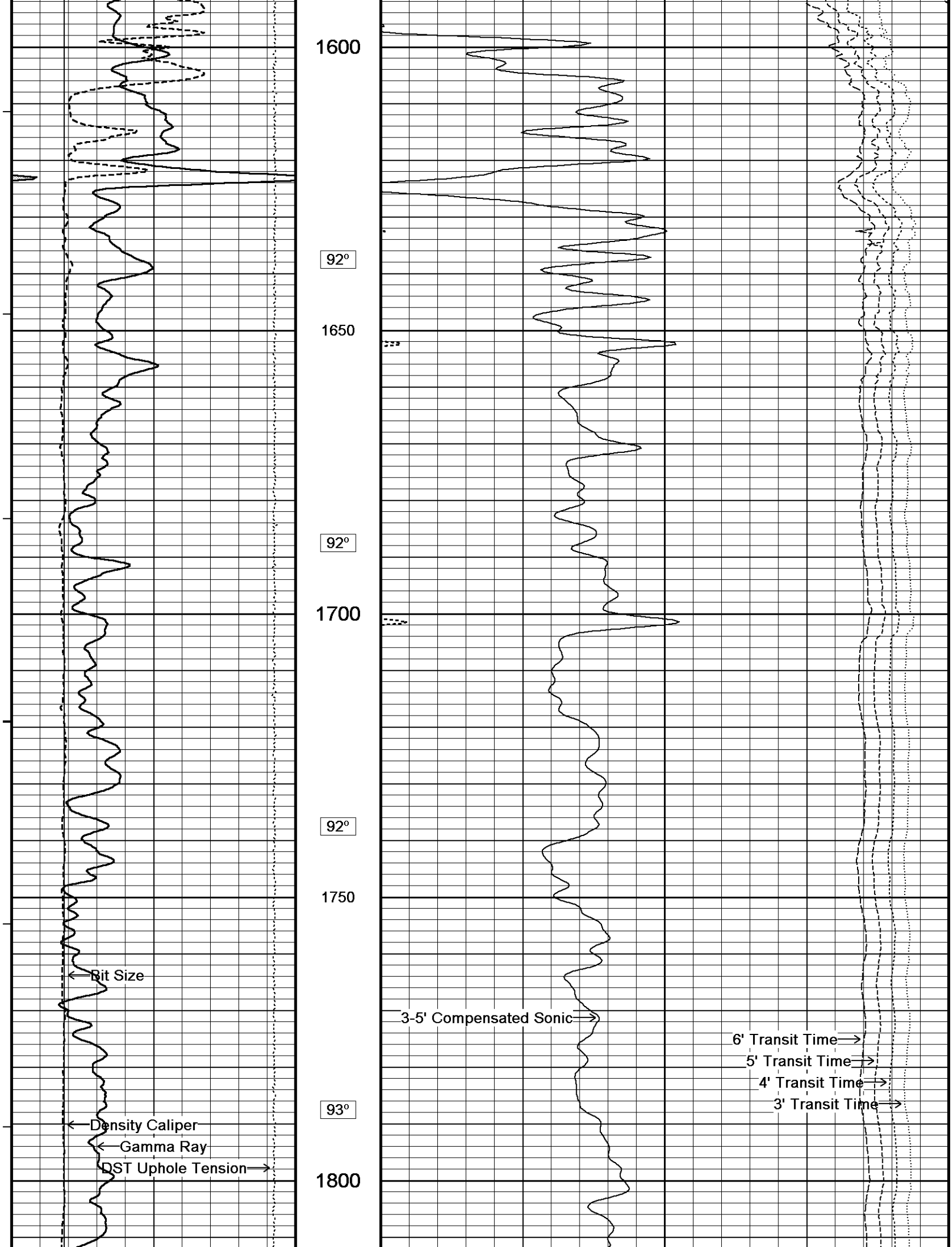

500
84°
550
Bit Size
85°
3-5' Compensated Sonic
6' Transit Time
5' Transit Time
4' Transit Time
3' Transit Time
600
Density Caliper
Gamma Ray
DST Uphole Tension
85°
650
86°
700

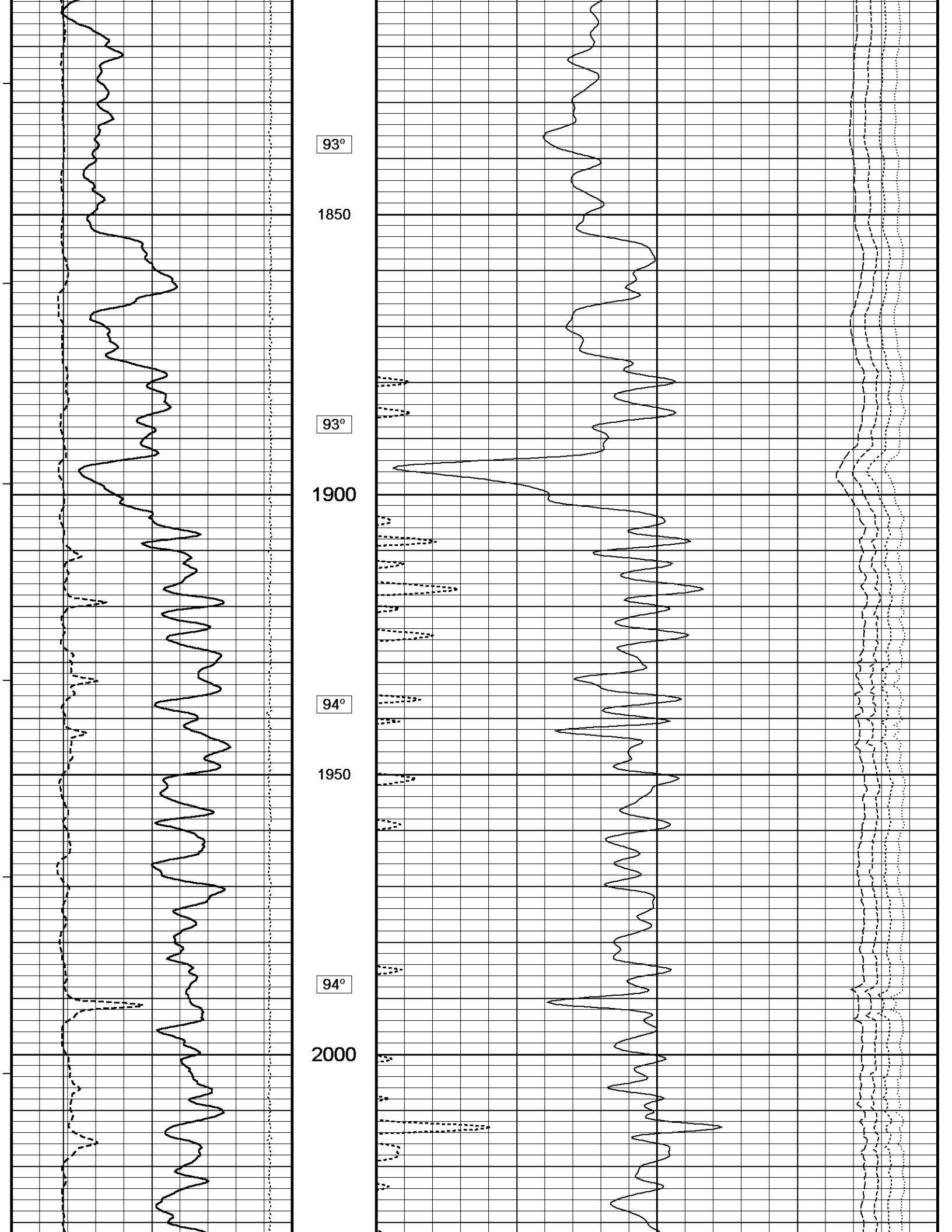

86°
750
87°
800
87°
850
87°
900

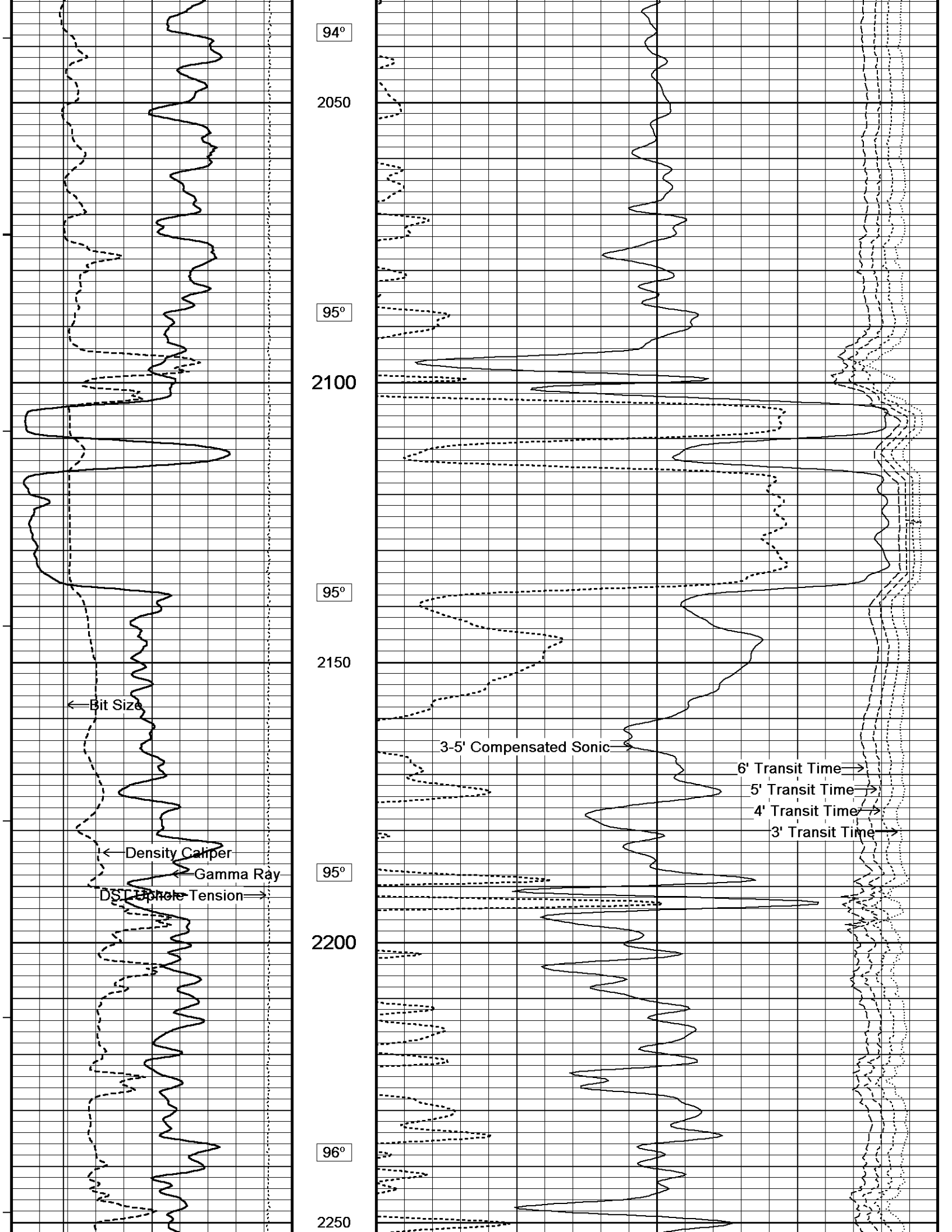

88°
950
Bit Size
3-5' Compensated Sonic
88°
6' Transit Time
5' Transit Time
4' Transit Time
3' Transit Time
1000
Density Caliper
Gamma Ray
DST Uphole Tension
89°
1050
89°
1100
90°
1150

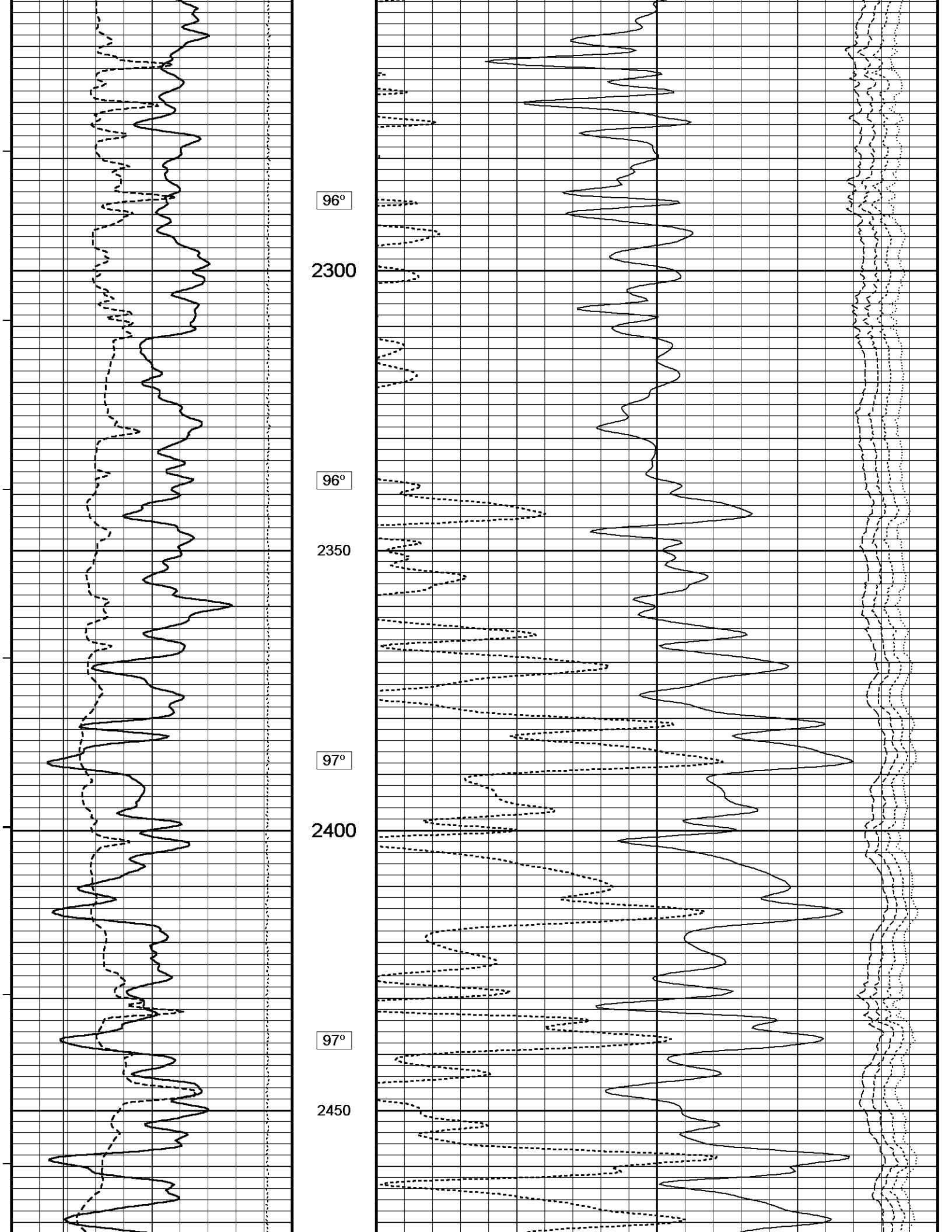

89°
1200
90°
1250
90°
1300
90°
1350
Bit Size

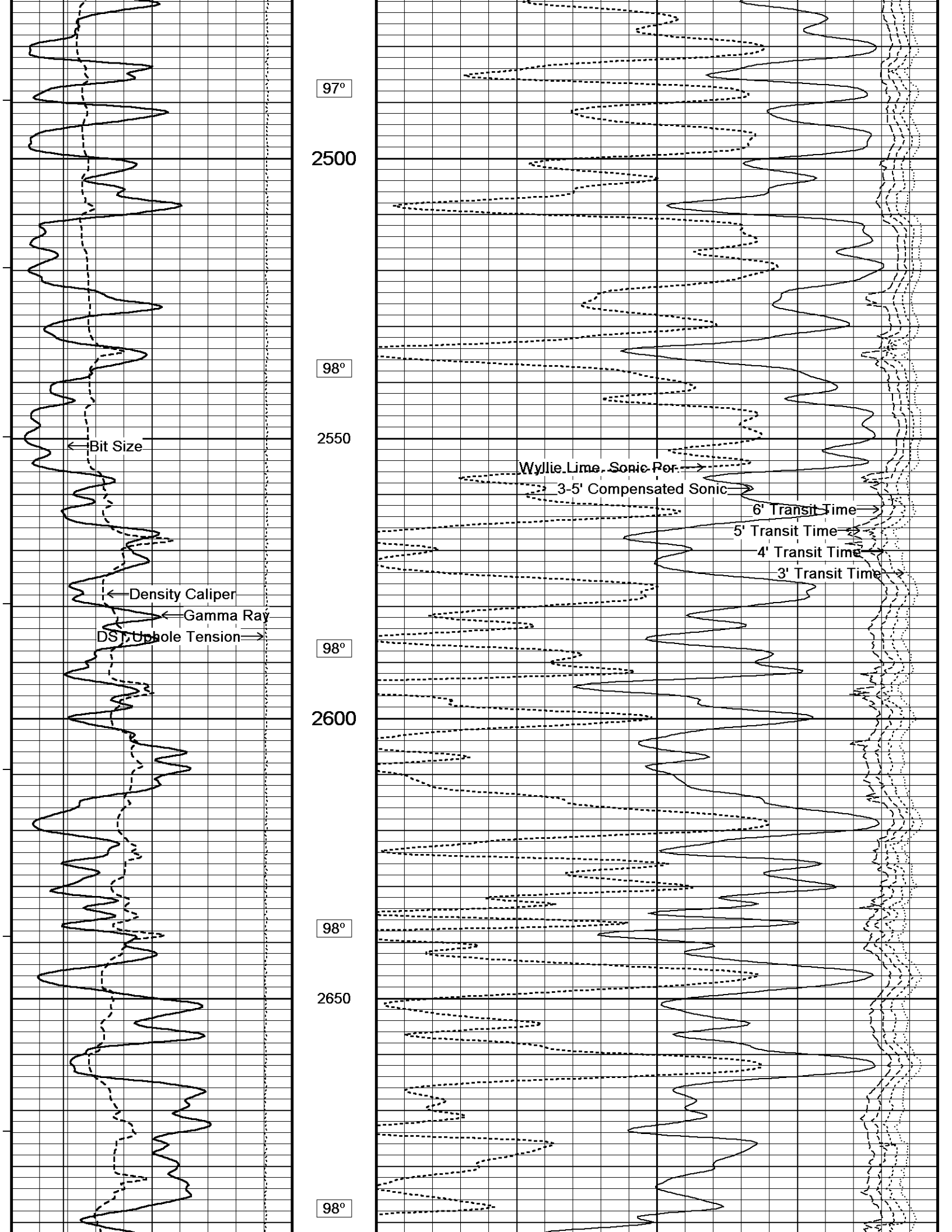

3-5' Compensated Sonic
6' Transit Time
5' Transit Time
4' Transit Time
3' Transit Time
91°
Density Caliper
Gamma Ra
1400
DST Uphole Tension
91°
1450
92°
1500
92°
1550
92°

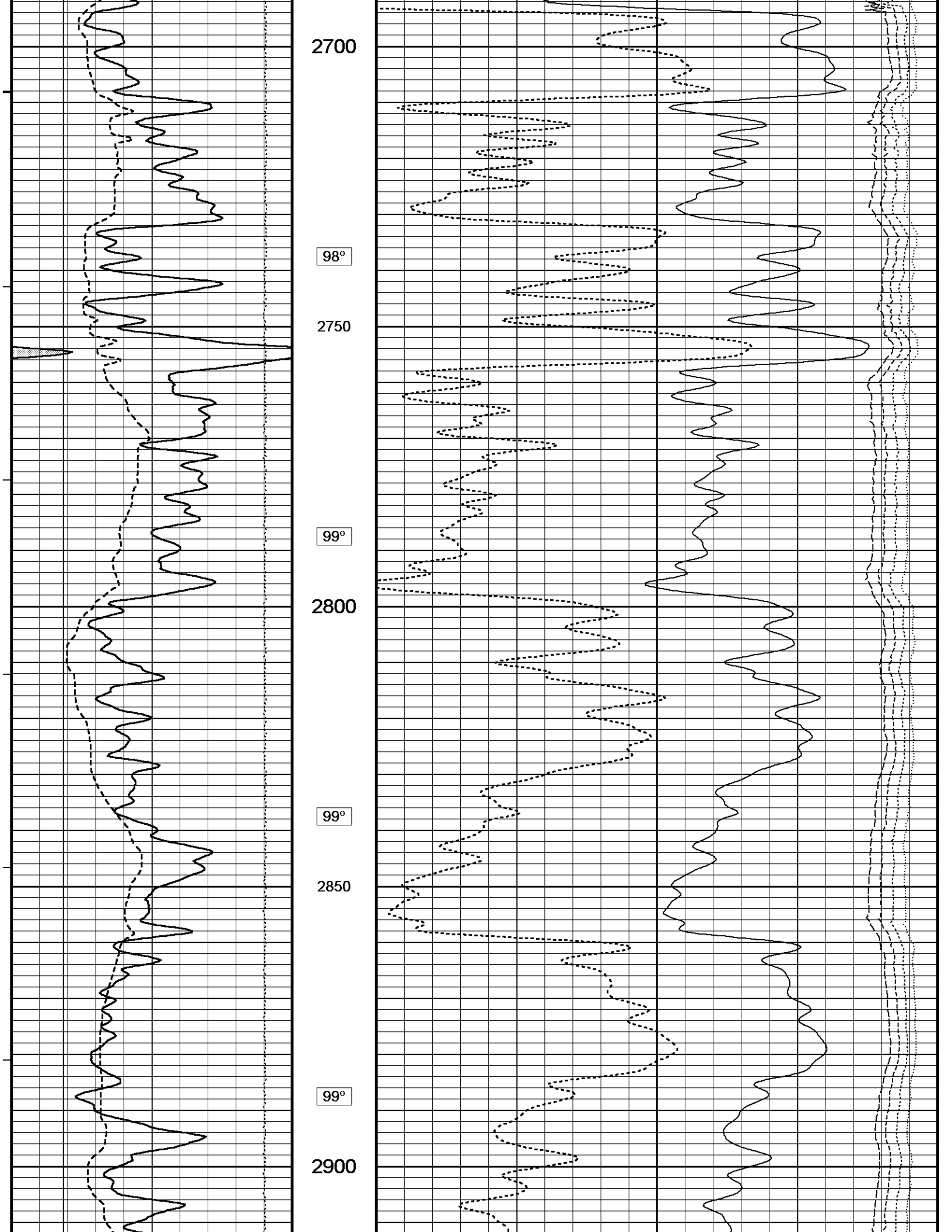

1600
92°
1650
92°
1700
92°
1750
93°
1800
Bit Size
Density Caliper
Gamma Ray
DST Uphole Tension
3-5' Compensated Sonic
6' Transit Time
5' Transit Time
4' Transit Time
3' Transit Time

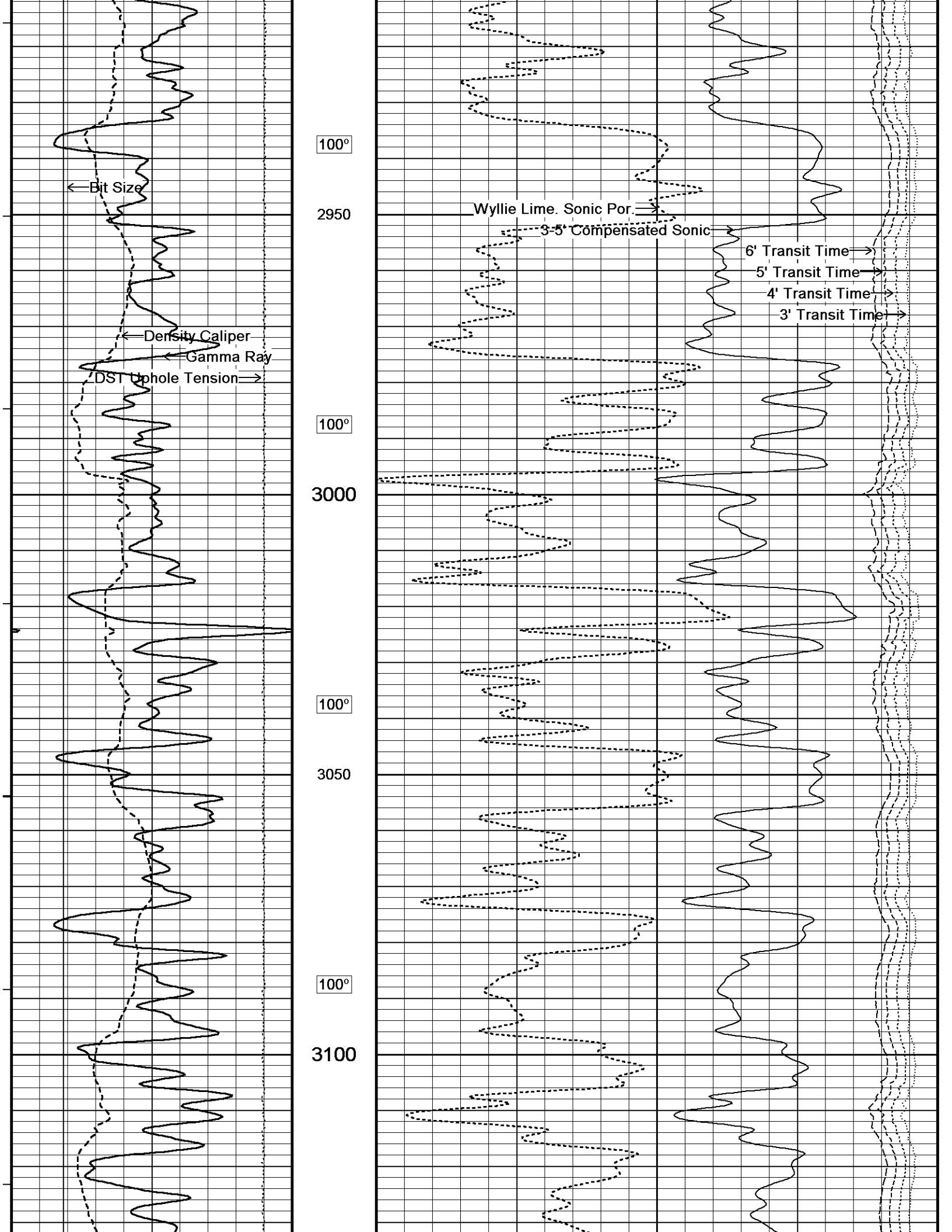

93°
1850
93°
1900
94°
1950
94°
2000

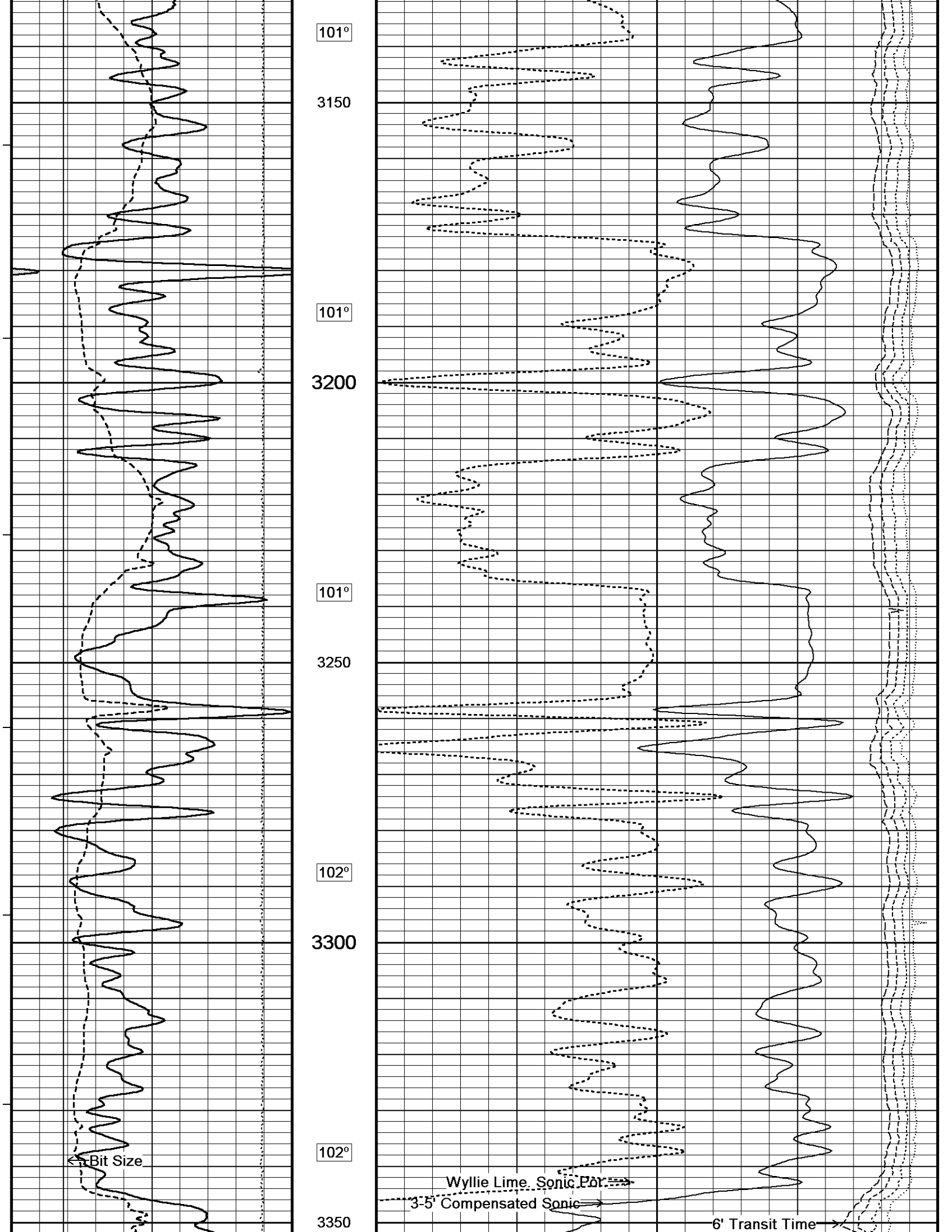

94°
2050
95°
2100
95°
2150
Bit Size
3-5' Compensated Sonic
6' Transit Time
5' Transit Time
4' Transit Time
3' Transit Time
Density Caliper
Gamma Ray
DST Uphole Tension
95°
2200
96°
2250

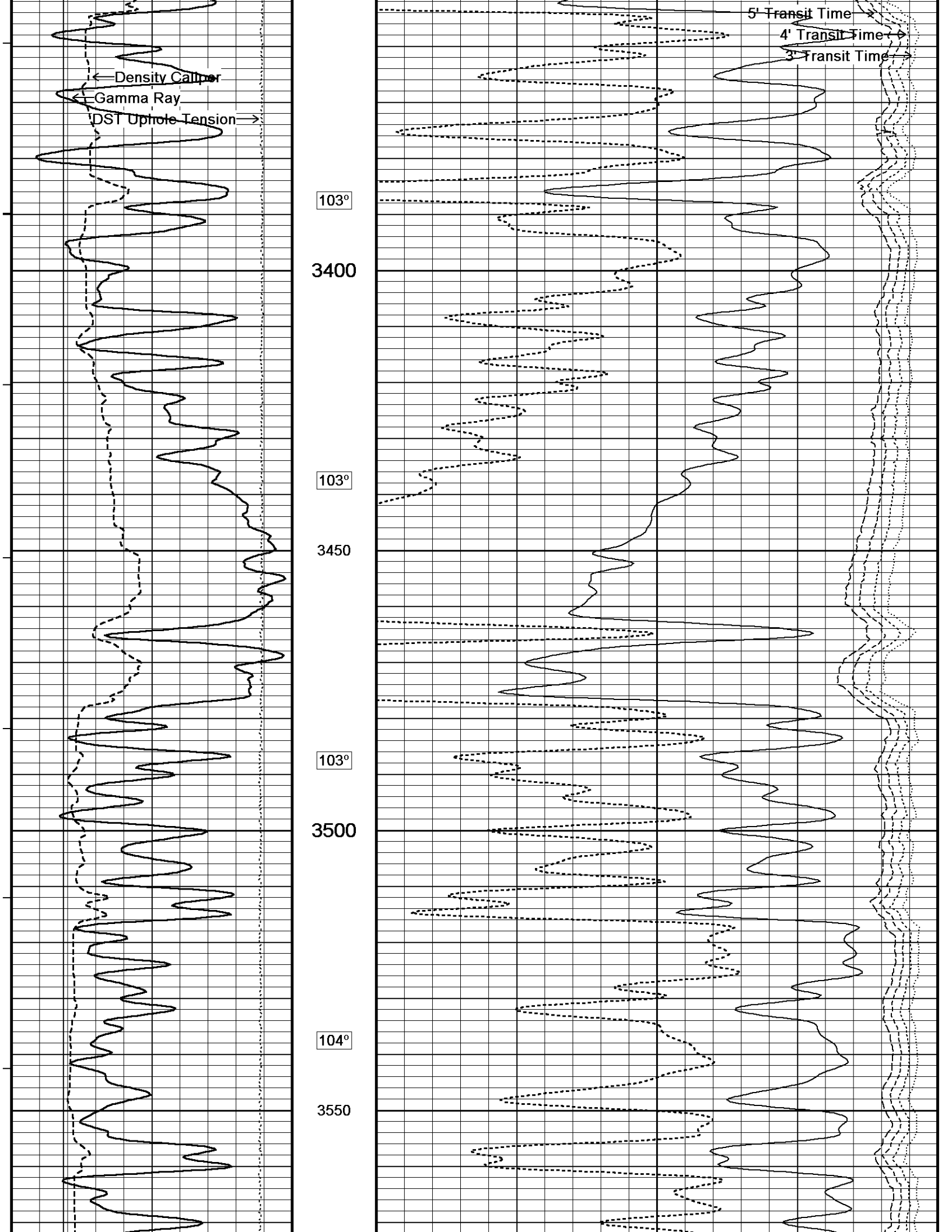

96°
2300
96°
2350
97°
2400
97°
2450

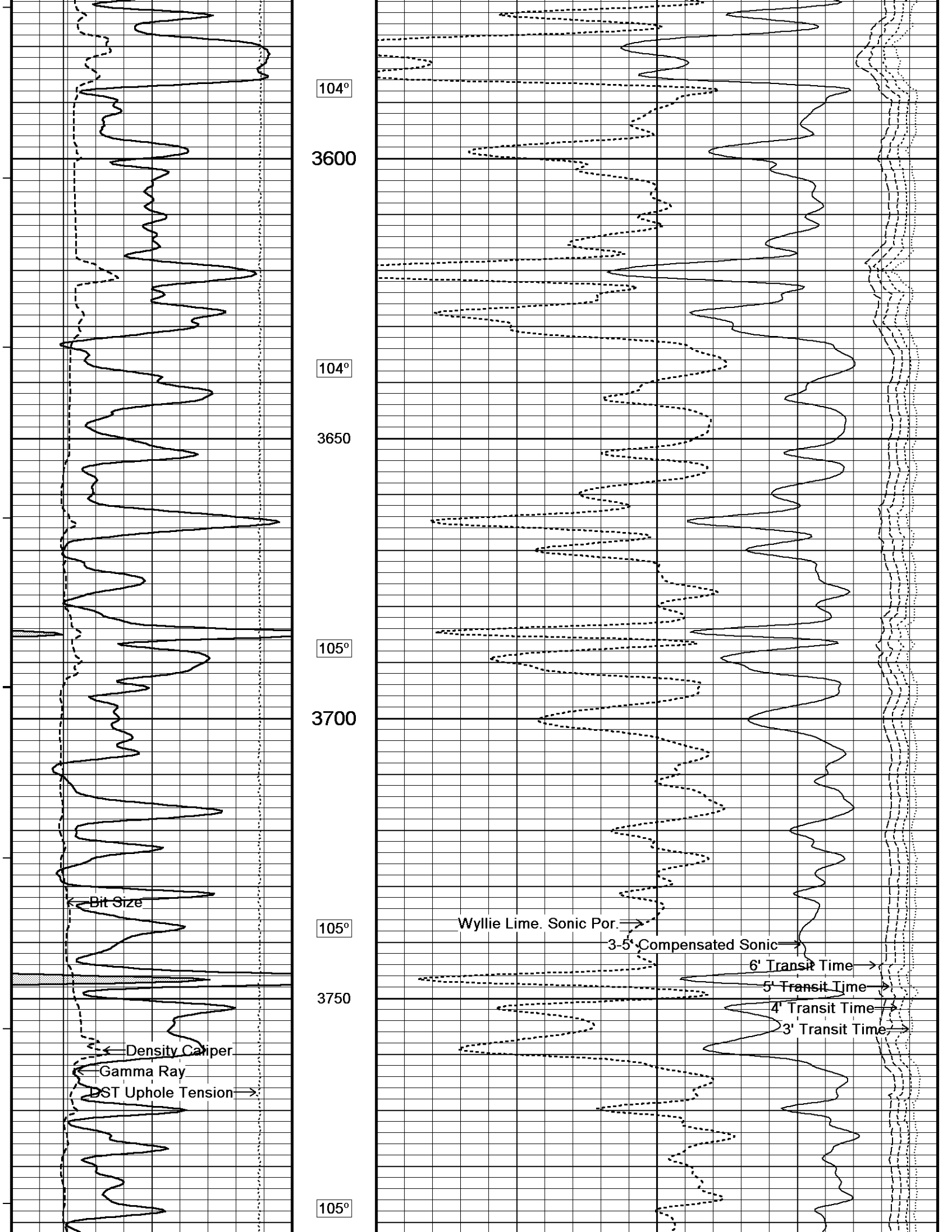

97°
2500
98°
2550
Bit Size
Wyllie Lime. Sonic Por.
3-5' Compensated Sonic
6' Transit Time
5' Transit Time
4' Transit Time
3' Transit Time
Density Caliper
Gamma Ray
DST Uphole Tension
98°
2600
98°
2650
98°

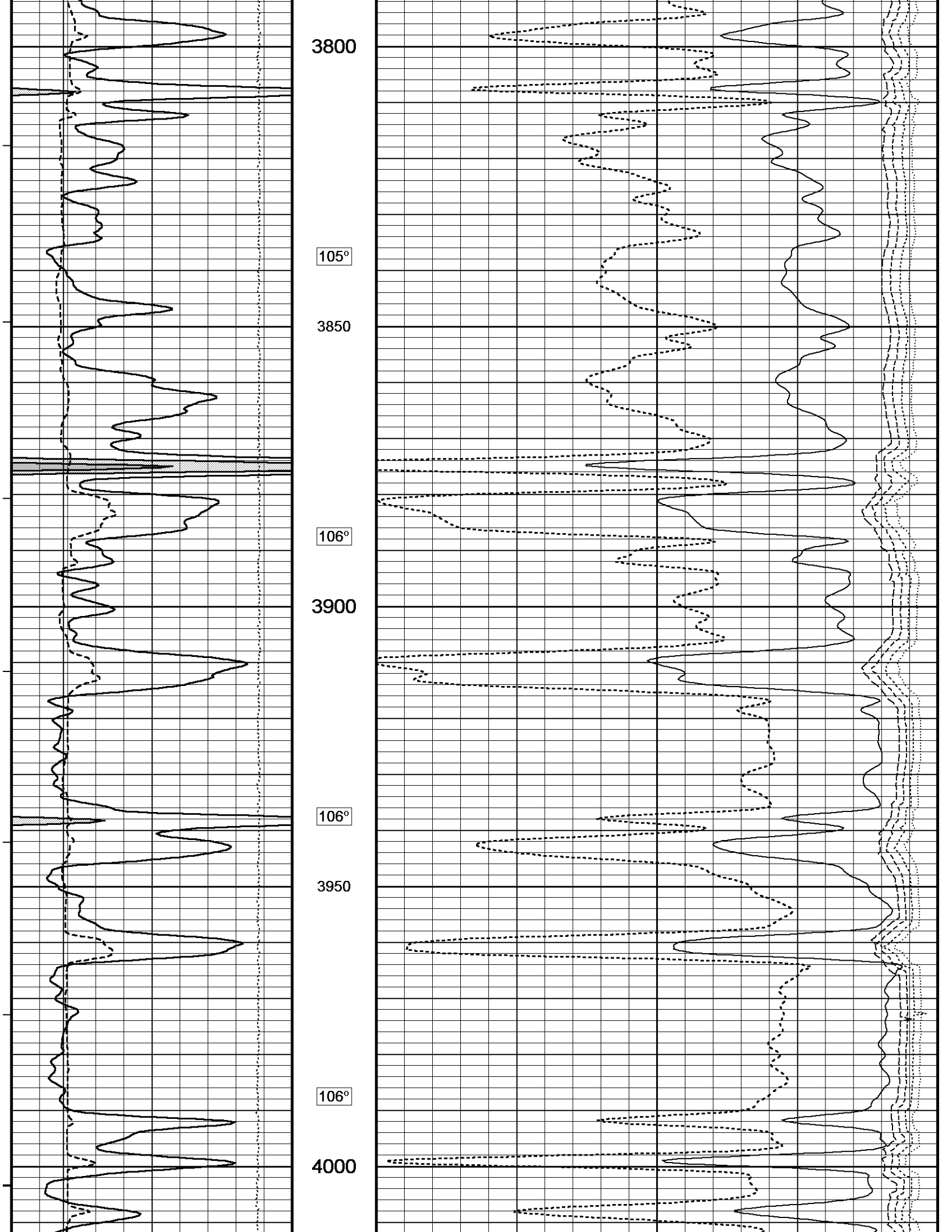

2700
98°
2750
99°
2800
99°
2850
99°
2900

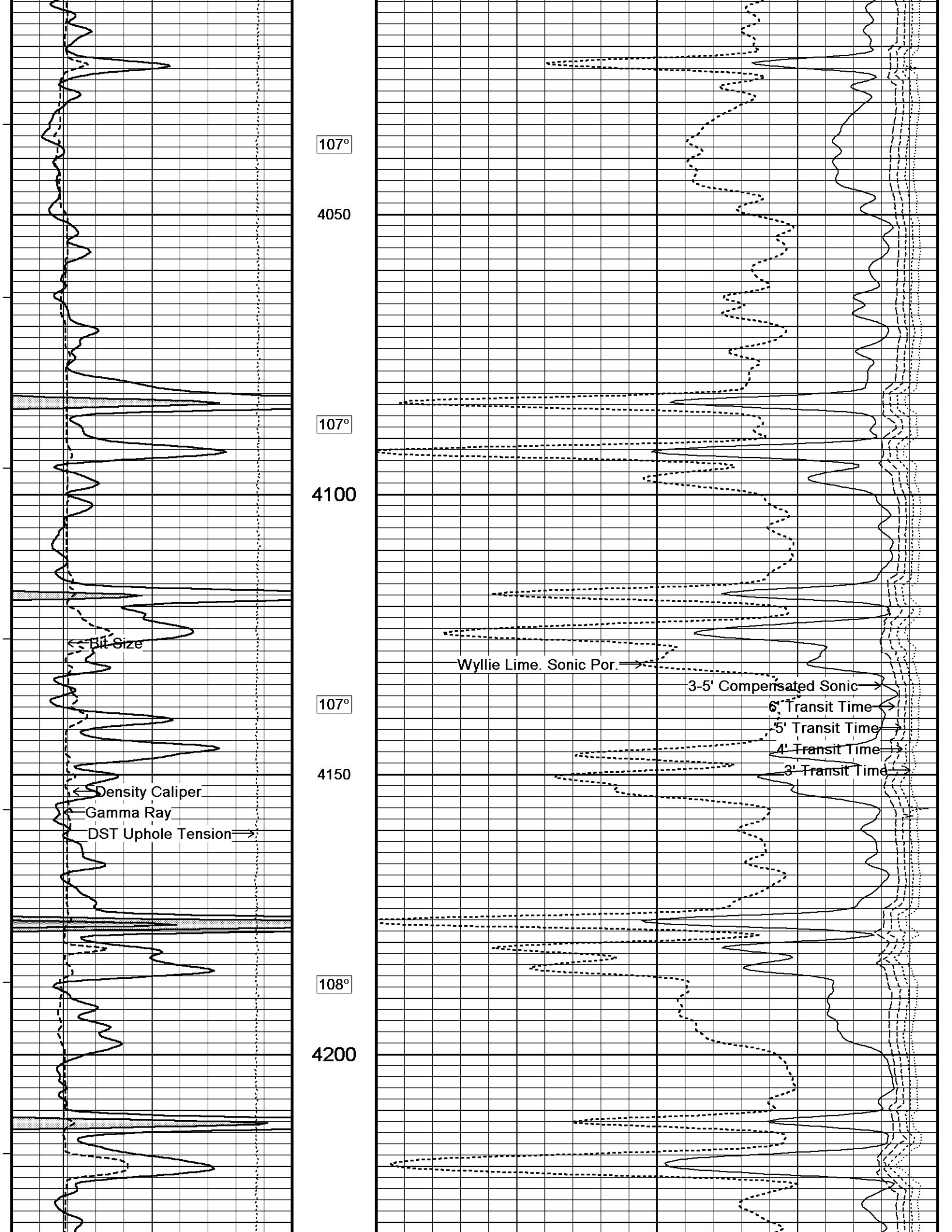

100°
Bit Size
2950
Wyllie Lime. Sonic Por.
3-5' Compensated Sonic
6' Transit Time
5' Transit Time
4' Transit Time
3' Transit Time
Density Caliper
Gamma Ray
DST Uphole Tension
100°
3000
100°
3050
100°
3100

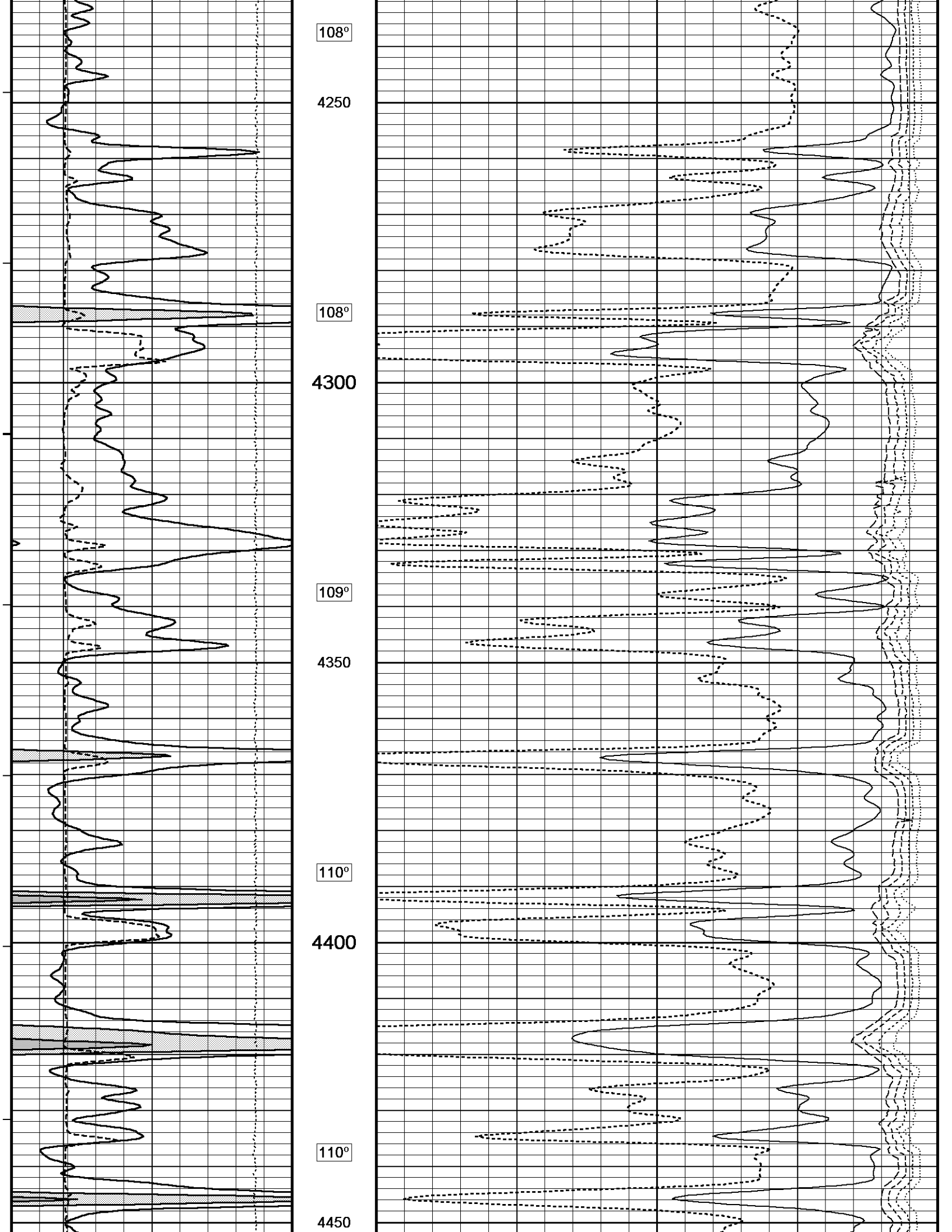

101°
3150
101°
3200
101°
3250
102°
3300
102°
3350
Bit Size
Wyllie Lime. Sonic Por.
3-5' Compensated Sonic
6' Transit Time

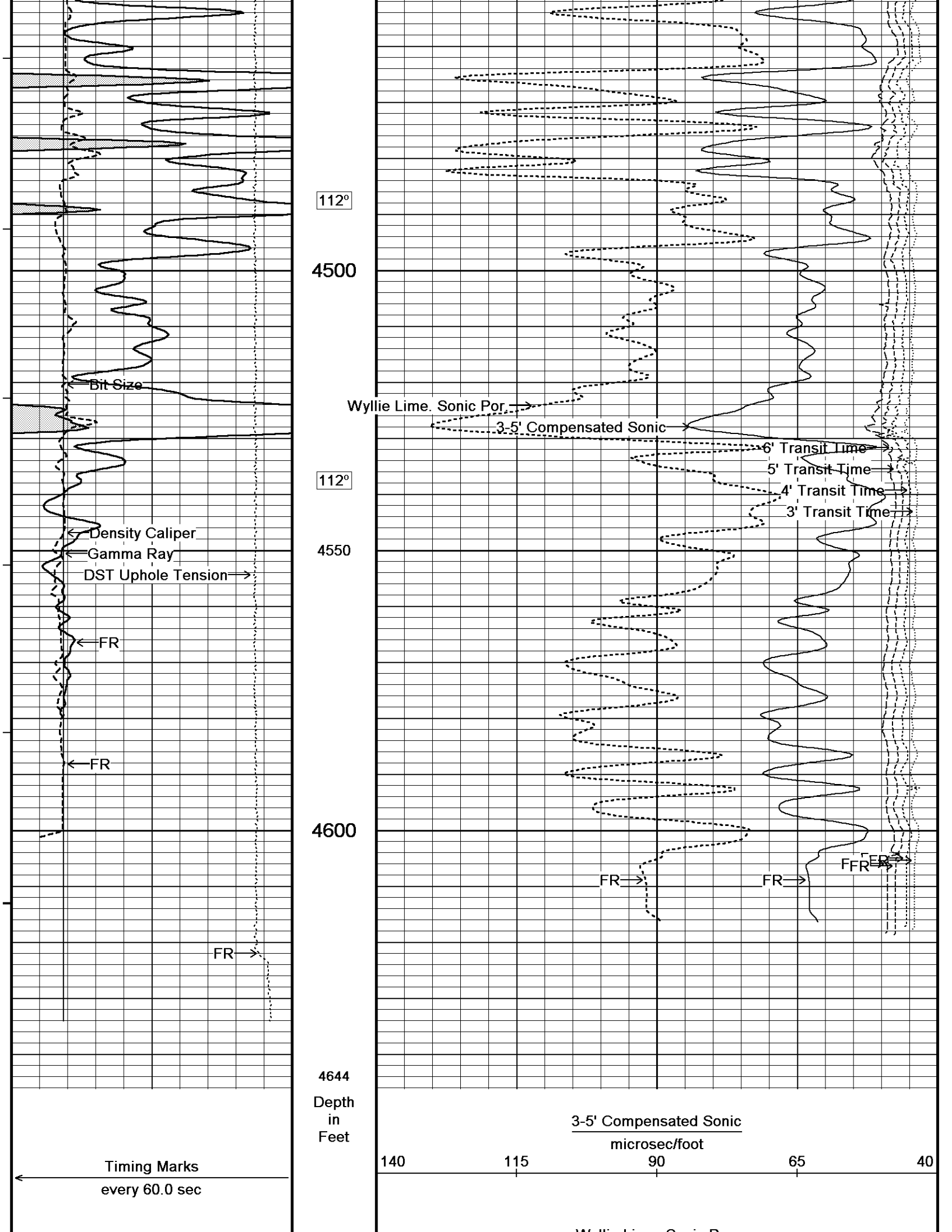

Density Caliper
Gamma Ray
DST Uphole Tension
5' Transit Time
4' Transit Time
3' Transit Time
103°
3400
103°
3450
103°
3500
104°
3550


104°
3600
104°
3650
105°
3700
105°
3750
105°
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


3800
105°
3850
106°
3900
106°
3950
106°
4000


107°
4050
107°
4100
Bit Size
Wyllie Lime. Sonic Por.
3-5' Compensated Sonic
6' Transit Time
5' Transit Time
4' Transit Time
3' Transit Time
107°
4150
Density Caliper
Gamma Ray
DST Uphole Tension
108°
4200


108°
4250
108°
4300
109°
4350
110°
4400
110°
4450


112°
4500
Bit Size
Wyllie Lime. Sonic Por
3-5' Compensated Sonic
6' Transit Time
5' Transit Time
4' Transit Time
3' Transit Time
112°
Density Caliper
Gamma Ray
DST Uphole Tension
4550
FR
FR
4600
FR
FR
FR
FR
FR
4644
Depth
in
Feet
Timing Marks
every 60.0 sec
3-5' Compensated Sonic
microsec/foot
140
115
90
65
40

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

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 15-JAN-2014 00:24
Filename: C:\Documents and Settings\E193122\Desktop\...\O'Brien Resources LLC Peck 1#1 Main2.dta
Recorded on 14-JAN-2014 20:29
System Versions: 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 15-JAN-2014 00:24
Filename: C:\Documents and Settings\E193122\Deskto...\O'Brien Resources LLC Peck 1#1 Repeat.dta
Recorded on 14-JAN-2014 20:07
System Versions: Logged with 13.05.9583 Processed with 13.05.9583 Plotted with 13.05.9583

Timing Marks
every 60.0 sec

Depth in Feet

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

Gamma Ray
API
0 75 150
150 225 300

Density Caliper
inches
6 11 16

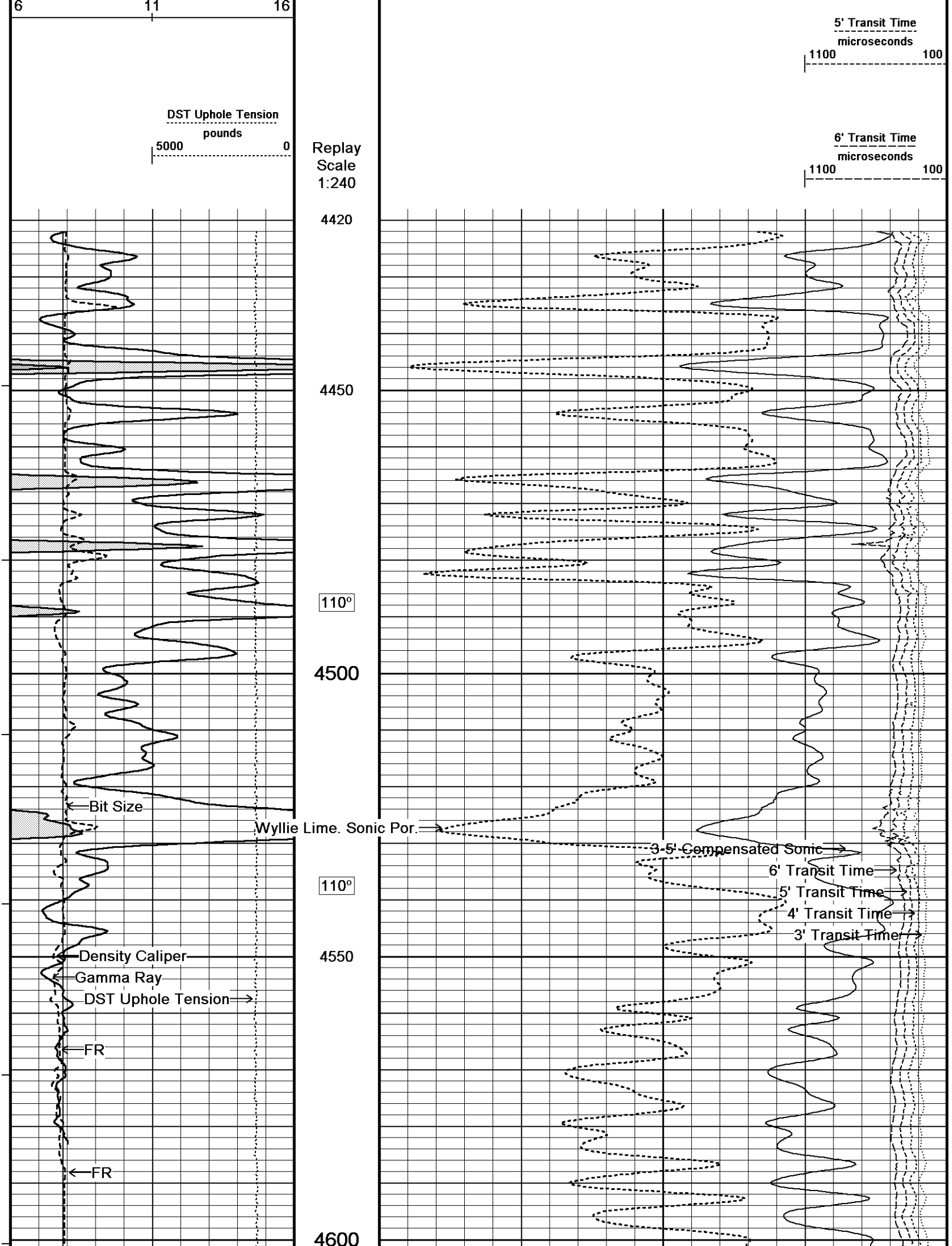
Bit Size
inches

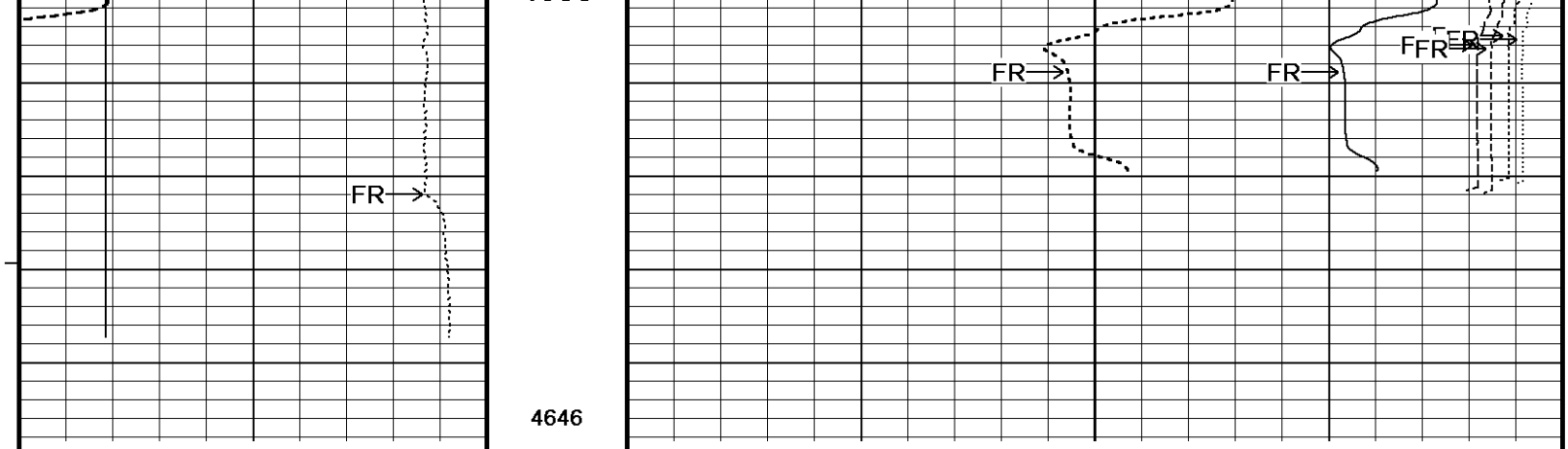
Borehole Temp in deg F

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

3' Transit Time
microseconds
1100 100

4' Transit Time
microseconds
1100 100


6
11
16
DST Uphole Tension
pounds
5000
0
Replay
Scale
1:240
5' Transit Time
microseconds
1100
100
6' Transit Time
microseconds
1100
100
4420
4450
110°
4500
Bit Size
Wyllie Lime. Sonic Por.
3-5' Compensated Sonic
6' Transit Time
5' Transit Time
4' Transit Time
3' Transit Time
110°
Density Caliper
4550
Gamma Ray
DST Uphole Tension
FR
FR
4600



4646

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 15-JAN-2014 00:24
Filename: C:\Documents and Settings\E193122\Deskto...\O'Brien Resources LLC Peck 1#1 Repeat.dta
Recorded on 14-JAN-2014 20:07
System Versions: Logged with 13.05.9583 Processed with 13.05.9583 Plotted with 13.05.9583

REPEAT SECTION

BEFORE SURVEY CALIBRATION

C:\Documents and Settings\E193122\Desktop\Archive\Logs\13 O'Brien Resources LL...\O'Brien Resources LLC Peck 1#1 Main2.dta

General Constants All 000

Last Edited on 14-JAN-2014,19:13

General Parameters

Mud Resistivity	0.880	ohm-metres
Mud Resistivity Temperature	77.800	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	None	

Rwa Parameters

Porosity used	Crossplot Porosity
Resistivity used	Array Ind. One Res Rt
RWA Constant A	1.000
RWA Constant M	2.000
SW/APOR Tool Source	0.000

Gamma Calibration MCG-D.K 469

Field Calibration on 13-JAN-2014 14:21

	Measured	Calibrated (API)
Background	65	43
Calibrator (Gross)	1158	768
Calibrator (Net)	1093	725

Gamma Constants MCG-D.K 469

Last Edited on 14-JAN-2014,19:13

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	%

High Resolution Temperature Calibration MCG-D.K 469

Field Calibration on 11-JAN-2014,16:37

	Measured	Calibrated(Deg F)
Lower	50.00	50.00
Upper	100.00	100.00

High Resolution Temperature Constants MCG-D.K 469

Last Edited on 11-JAN-2014,16:37

Pre-filter Length	11

Sonic Constants MSS-C.K 330

Last Edited on 14-JAN-2014,19:12

Maximum Boundary Contrast	100.00	micro-sec/ft
Fluid Transit Time	189.00	micro-sec/ft
Limestone Transit Time	47.60	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 Sonic	
Correction for Sonde Skew	Applied	
Cycle Stretch Algorithm	Applied	
MN3FT	N/A	micro-sec
MX3FT	N/A	micro-sec
Hunt-Raymer Constant	83.13	micro-sec/ft

Sonde Mode	Compensated
Hole Type	Open Hole

Sonde Parameters

	Measured	Calibrated
Offset	N/A	0.0000
Free Pipe	N/A	N/A

Peak Amplitude Source	N/A

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)	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	

Full Waveform Parameters

Use 3' Waveform to derive TR	N/A	
Use 4' Waveform to derive TR	N/A	
Use 5' Waveform to derive TR	N/A	
Use 6' Waveform to derive TR	N/A	
3' Waveform Discriminator Level	N/A	mV
4' Waveform Discriminator Level	N/A	mV
5' Waveform Discriminator Level	N/A	mV
6' Waveform Discriminator Level	N/A	mV
3' Waveform Filter	N/A	
4' Waveform Filter	N/A	
5' Waveform Filter	N/A	
6' Waveform Filter	N/A	
Semblance Level	N/A	
Semblance Window Width	N/A	micro-sec
Sonic 1 Despiker	N/A	N/A
Sonic 2 Despiker	N/A	N/A

Caliper Calibration MPD-C.A 216

Base Calibration on 30-DEC-2013 16:06
Field Calibration on 13-JAN-2014 14:07

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	16063	3.99
2	26074	5.98
3	36080	7.97
4	45856	9.86
5	57120	11.92
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
7.96	7.97

DOWNHOLE EQUIPMENT

C:\Documents and Settings\E193122\Desktop\Archive\Logs\13 O'Brien Resources LL...\O'Brien Resources LLC Peck 1#1 Main2.dta

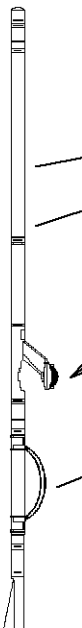
3/8" Triple Cone Cable Head (MCB C A)
MCB-C.A 5 LG: 1.58 ft WT: 15.4 lb OD: 2.24 in

Compact Comms Gamma
MCG-D.K 469 LG: 8.70 ft WT: 63.9 lb OD: 2.24 in

Compact Micro-log
MML-A 3 LG: 7.97 ft WT: 81.6 lb OD: 2.24 in

Compact Neutron
MDN-A.B 66 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in

Compact Density/Caliper
MPD-C.A 216 LG: 9.59 ft WT: 90.4 lb OD: 2.45 in



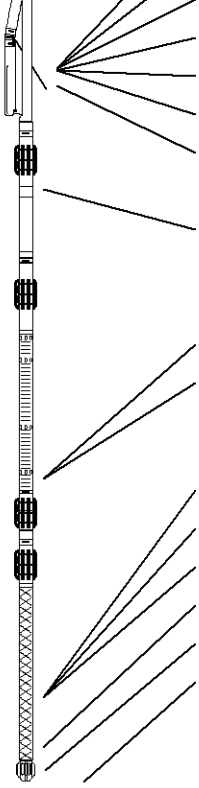
55.39 ft GRGC - Gamma Ray
52.48 ft CGXT - MCG External Temperature
45.76 ft MINV - Micro-inverse
45.76 ft MNRL - Micro-normal
46.76 ft MLTC - MML Caliper
40.97 ft NPRL - Limestone Neutron Por.
33.73 ft AVOL - Annular Volume
33.73 ft HVOL - Hole Volume

Compact Focussed Electric
MFE-B.J 353 LG: 6.05 ft WT: 48.5 lb OD: 2.24 in

Compact Sonic
MSS-C.K 330 LG: 12.52 ft WT: 72.8 lb OD: 2.24 in

Compact Induction
MAI-A.A 167 LG: 10.81 ft WT: 48.5 lb OD: 2.24 in

Total Length: 62.25 ft Weight: 471.8 lb



31.80 ft	DPRL - Limestone Density Por.
31.80 ft	DEN - Compensated Density
31.80 ft	DCOR - Density Correction
31.74 ft	PDPE - PE
26.24 ft	FEFE - Shallow FE
12.96 ft	DT35 - 3-5' Compensated Sonic
12.96 ft	SPRL - Wyllie Lime. Sonic Por.
3.34 ft	RTAO - Array Ind. One Res Rt
3.34 ft	R60O - Array Ind. One Res 60
0.23 ft	SPCG - Spontaneous Potential
Tool Zero	(0.13ft from bottom)

All measurements relative to tool zero.

COMPANY	O'BRIEN RESOURCES LLC
WELL	PECK 1 #1
FIELD	WILDCAT
PROVINCE/COUNTY	LANE
COUNTRY/STATE	U.S.A. / KANSAS

Elevation Kelly Bushing	2724.00	feet	First Reading	4609.04	feet
Elevation Drill Floor	2722.00	feet	Depth Driller	4625.00	feet
Elevation Ground Level	2714.00	feet	Depth Logger	4622.00	feet

Weatherford®

COMPENSATED SONIC
WITH INTEGRATED TRANSIT TIME