Weatherford®

COMPENSATED SONIC WITH INTEGRATED TRANSIT TIME

COMPANY	O'BRIEN RESOURCES, LLC.
WELL	BESPERAT #33-1
FIELD	WILDCAT
PROVINCE/COUNTY	RUSH
COUNTRY/STATE	U.S.A. / KANSAS
LOCATION	1250' FNL & 1391' FEL

SEC 33	TWP 18S	RGE 17W	Other Services
Latitude			MAI/MFE MPD/MDN
Longitude			MML
API Number	15-165-22139		

Permanent Datum GL, Elevation 2057 feet
Log Measured From KB, 8 feet above Permanent Datum
Drilling Measured From KB @ 8 FEET

Elevations:	feet
KB	2065.00
DF	2063.00
GL	2057.00

Date	22-DEC-2016			
Run Number	ONE			
Service Order	4558-169594456			
Depth Driller	3836.00	feet		
Depth Logger	3834.00	feet		
First Reading	3821.00	feet		
Last Reading	265.00	feet		
Casing Driller	264.00	feet		
Casing Logger	265.00	feet		
Bit Size	7.875	inches		
Hole Fluid Type	CHEMICAL			
Density / Viscosity	9.30 lb/USg	56.00 CP		
PH / Fluid Loss	10.50	12.00 ml/30Min		
Sample Source	FLOWLINE			
Rm @ Measured Temp	0.29 @ 75.0	ohm-m		
Rmf @ Measured Temp	0.23 @ 75.0	ohm-m		
Rmc @ Measured Temp	0.35 @ 75.0	ohm-m		
Source Rmf / Rmc	CALC	CALC		
Rm @ BHT	0.23 @ 96.0	ohm-m		
Time Since Circulation	4 HOURS			
Max Recorded Temp	96.00	deg F		
Equipment / Base	13096	OKC		
Recorded By	ADAM SILL			
Witnessed By	JIM MUSGROVE			

BOREHOLE RECORD

Last Edited: 22-DEC-2016 12:25

Bit Size inches	Depth From feet	Depth To feet
7.875	264.00	3836.00

CASING RECORD

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	8.625	0.00	264.00	24.00

REMARKS

- SOFTWARE ISSUE: WLS 15.03.5939.
- RUN ONE: MCG, MML, MDN, MPD, MFE, MSS, MAI RUN 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: 1792 CU.FT.
- ANNULAR HOLE VOLUME WITH 4.5 INCH PRODUCTION CASING FROM TD TO 2300: 392 CU.FT.

- RIG: DUKE #2.

- ENGINEER: A. SILL.

- OPERATOR: B. TOVAR.

**** GAMMA RAY FROM RUN TWO WAS SPLICE INTO RUN ONE TO ALLOW FOR A DEEPER GAMMA RAY FIRST READ. ****

5 INCH MAIN

Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 22-DEC-2016 17:16

Filename: C:\Minimus 16.05.3841\Data\O'Brien (LA) Bes...\O'Brien (LA) Besperat #33-1 Main Merge.dta — Recorded on 22-DEC-2016 12:45

System Versions: Plotted with 16.05.3841

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

254

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

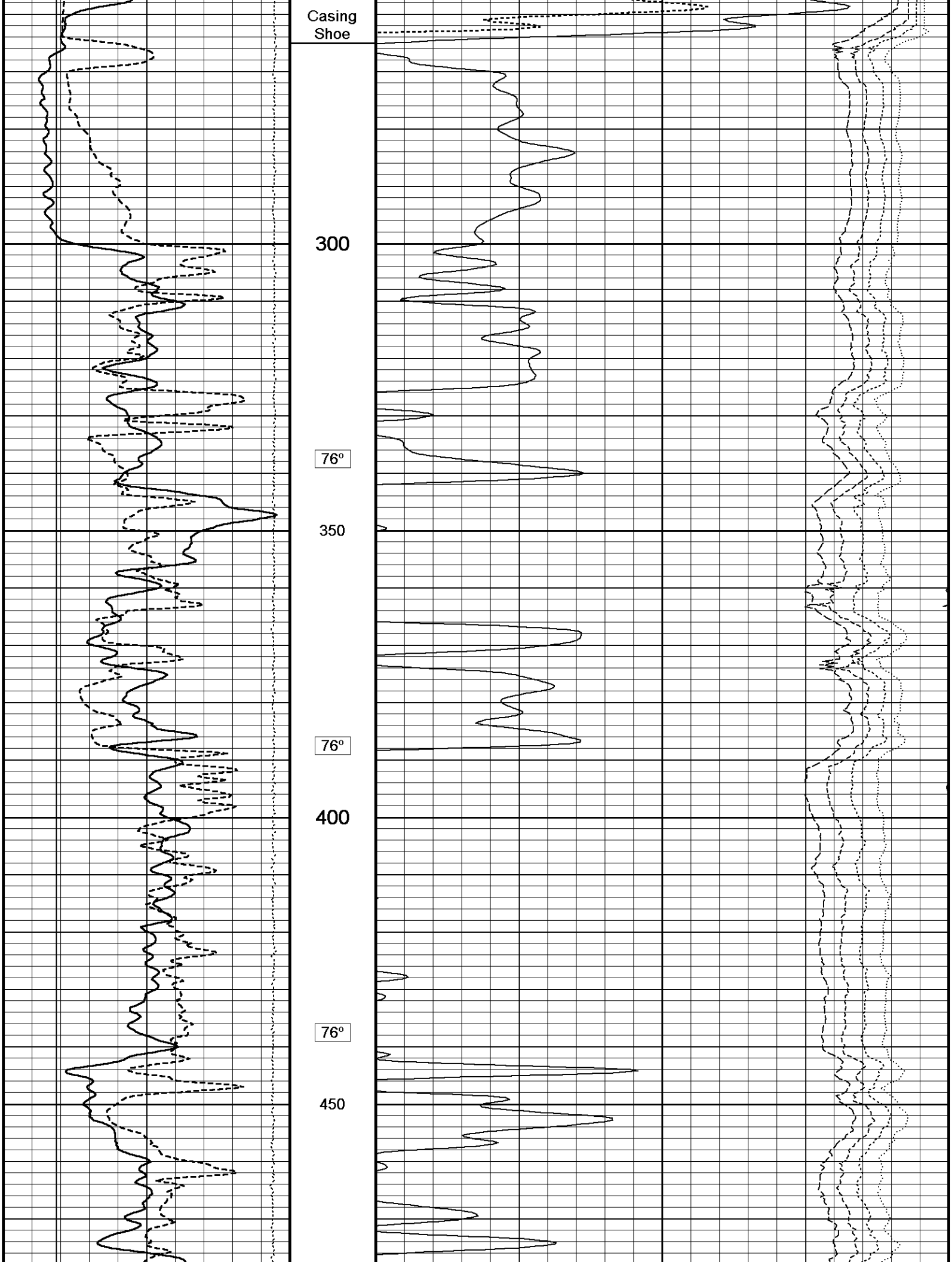
Wyllie Lime. Sonic Por.
percent
30 | 20 | 10 | 0 | -10

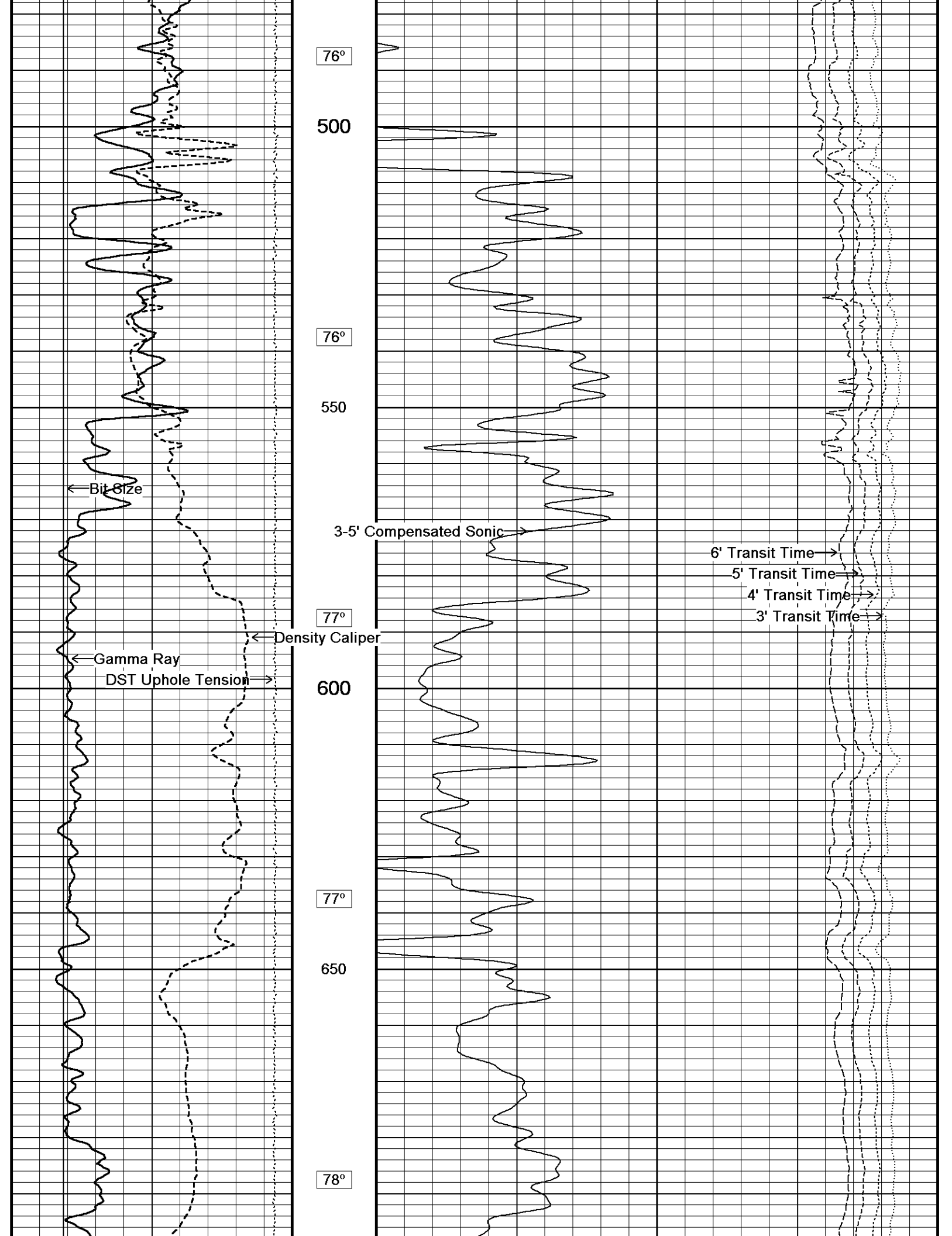
3' Transit Time
microseconds
1100 | 100

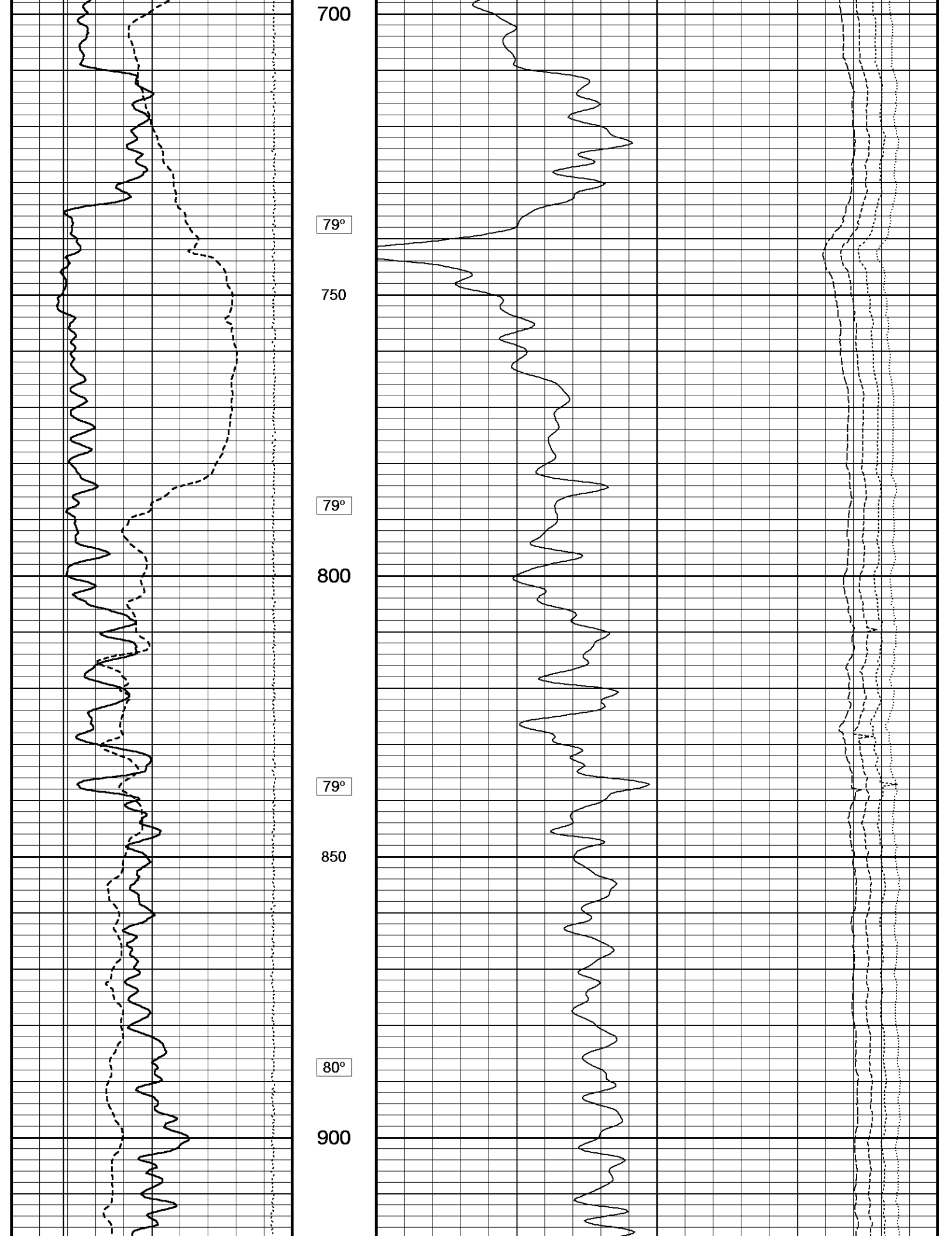
4' Transit Time
microseconds
1100 | 100

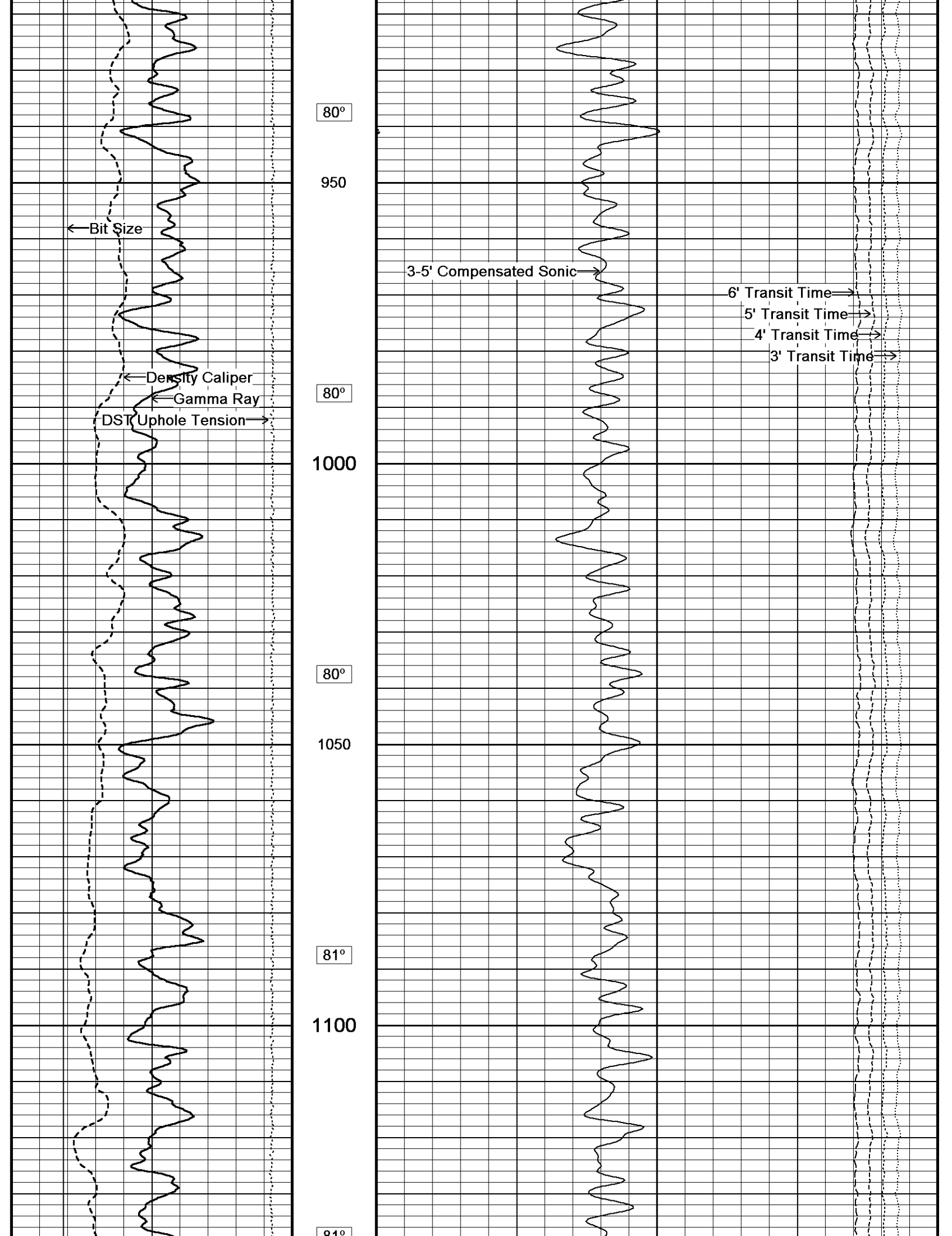
5' Transit Time
microseconds
1100 | 100

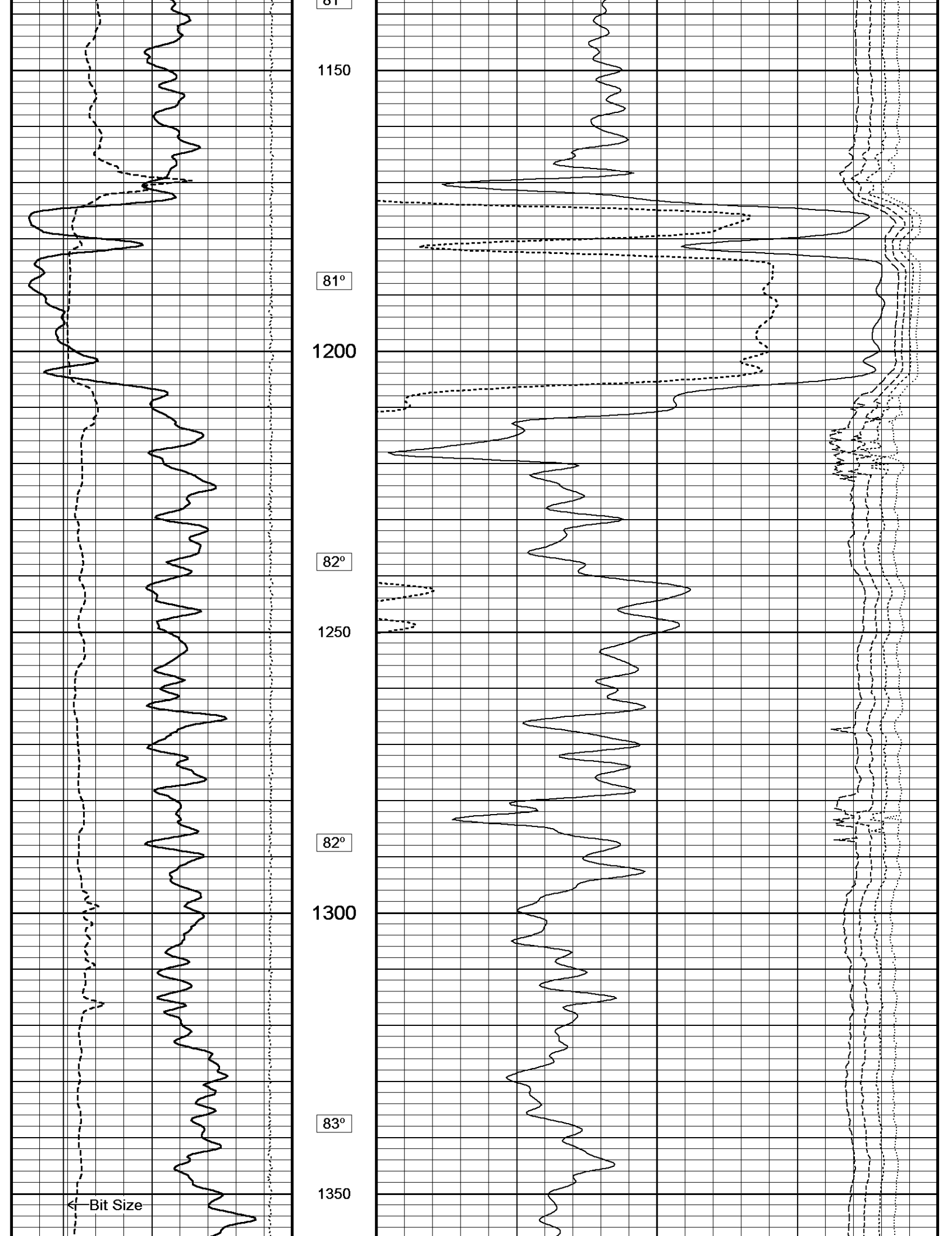
6' Transit Time
microseconds
1100 | 100

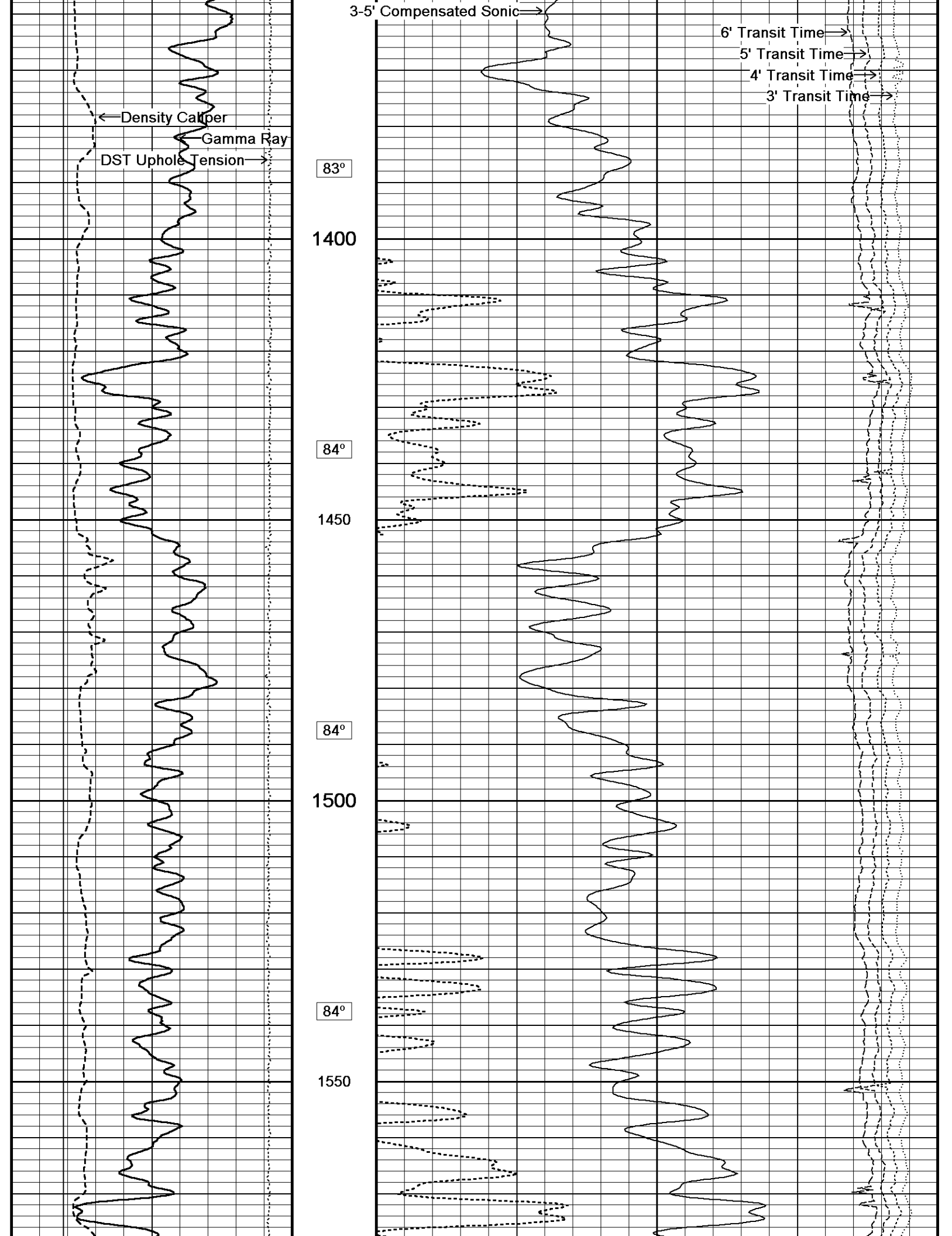

Casing
Shoe
300
76°
350
76°
400
76°
450

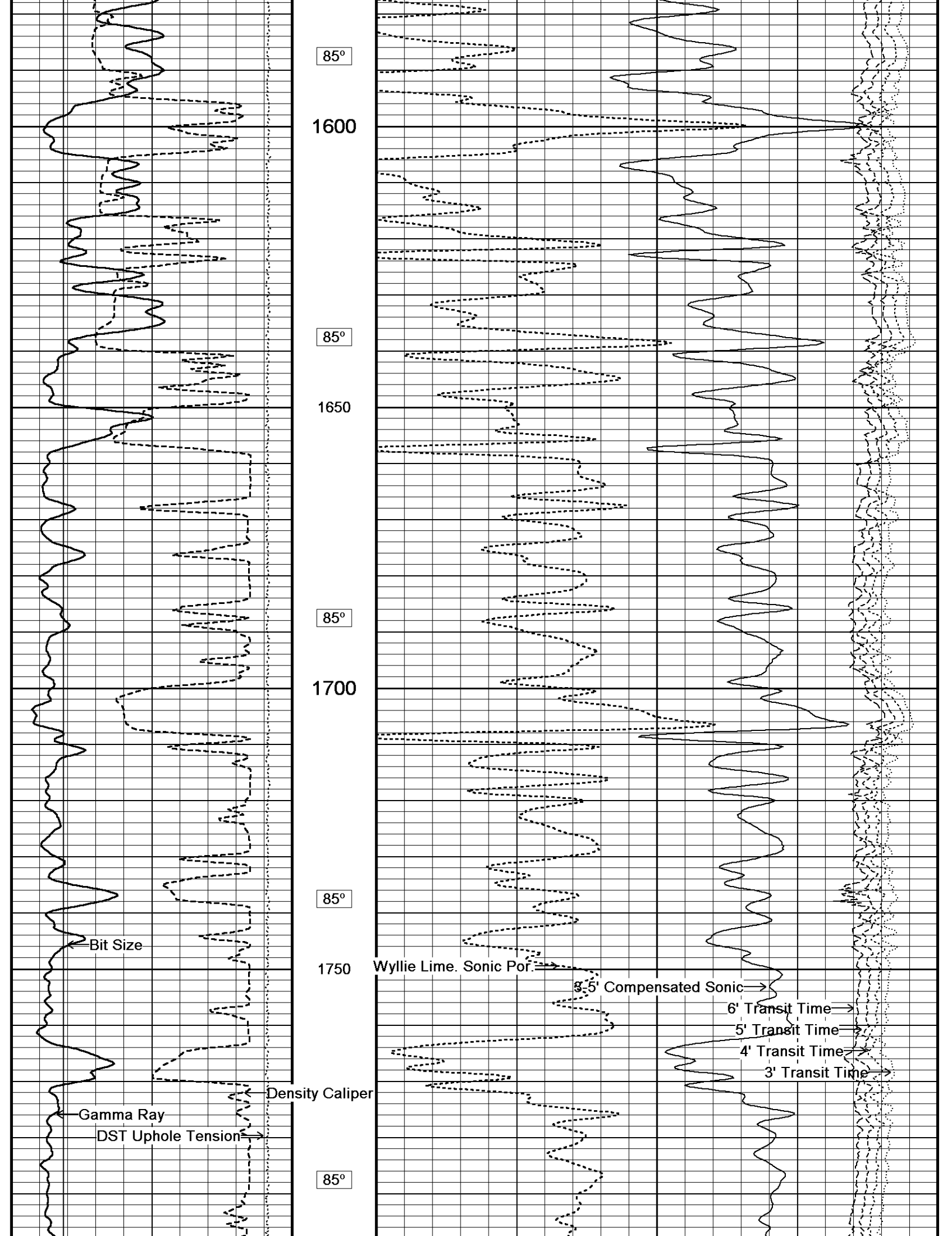

76°
500
76°
550
Bit Size
3-5' Compensated Sonic
6' Transit Time
5' Transit Time
4' Transit Time
3' Transit Time
77°
Density Caliper
Gamma Ray
DST Uphole Tension
600
77°
650
78°

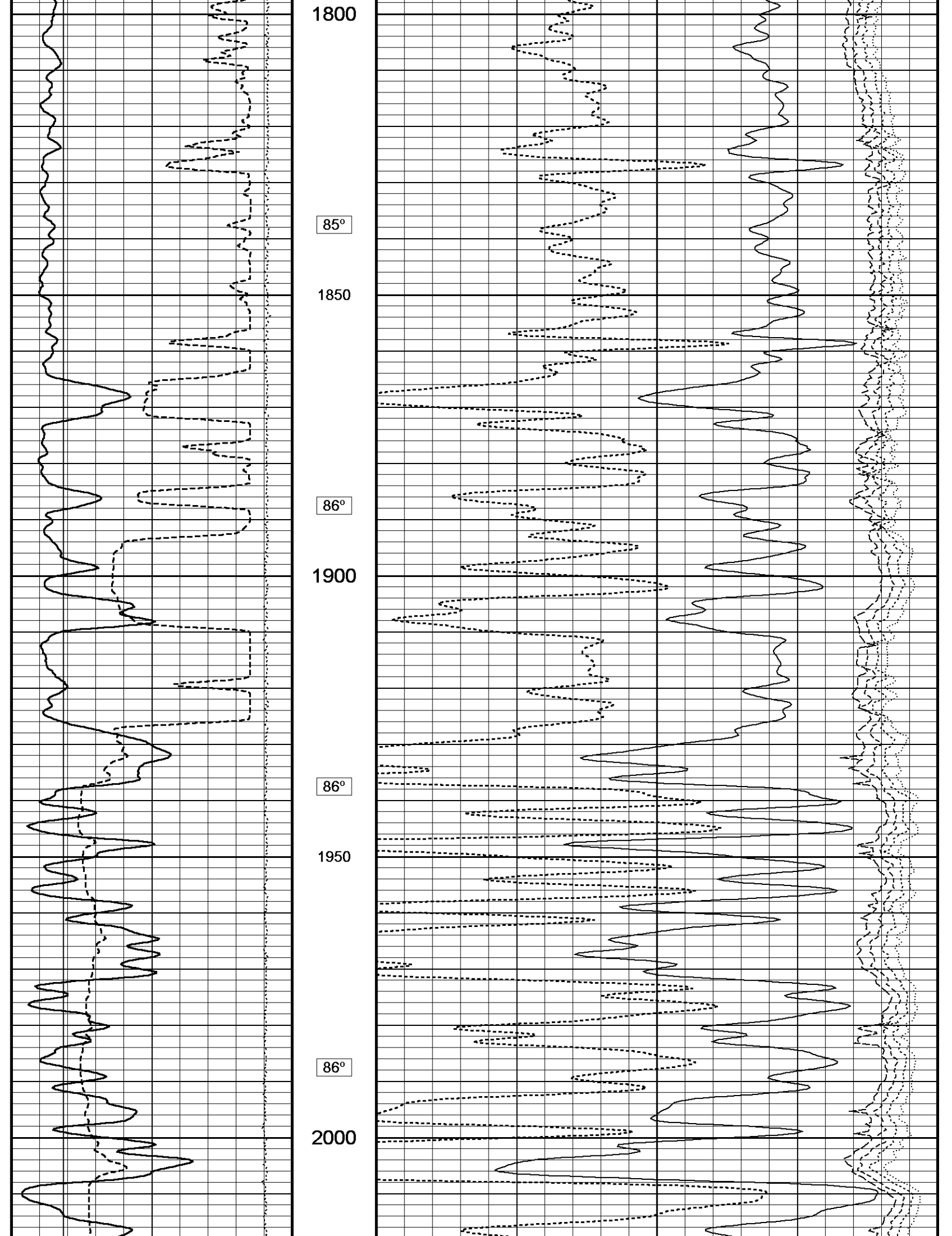

700
79°
750
79°
800
79°
850
80°
900

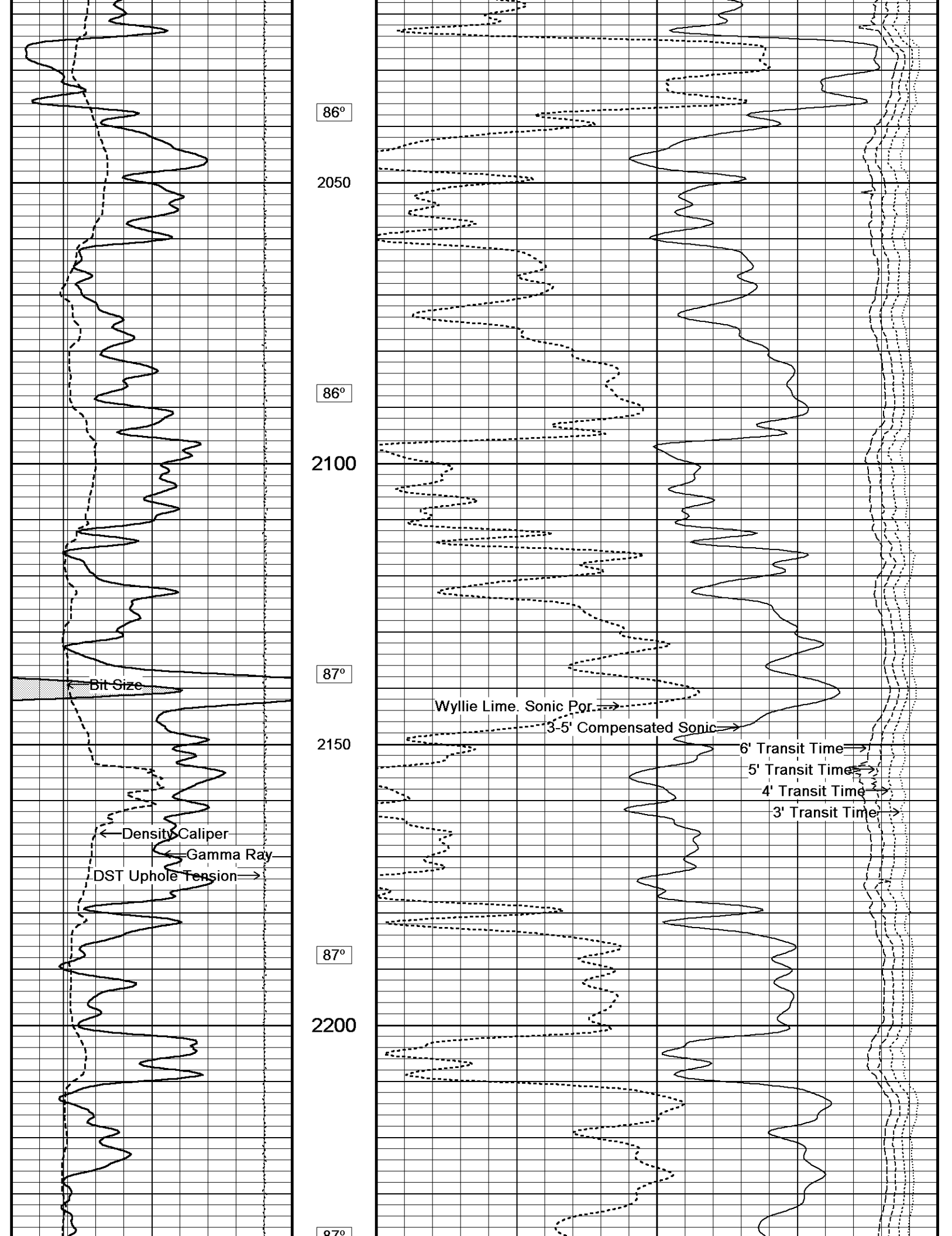

80°
950
Bit Size
3-5' Compensated Sonic
6' Transit Time
5' Transit Time
4' Transit Time
3' Transit Time
Density Caliper
Gamma Ray
DST Uphole Tension
80°
1000
80°
1050
81°
1100
81°

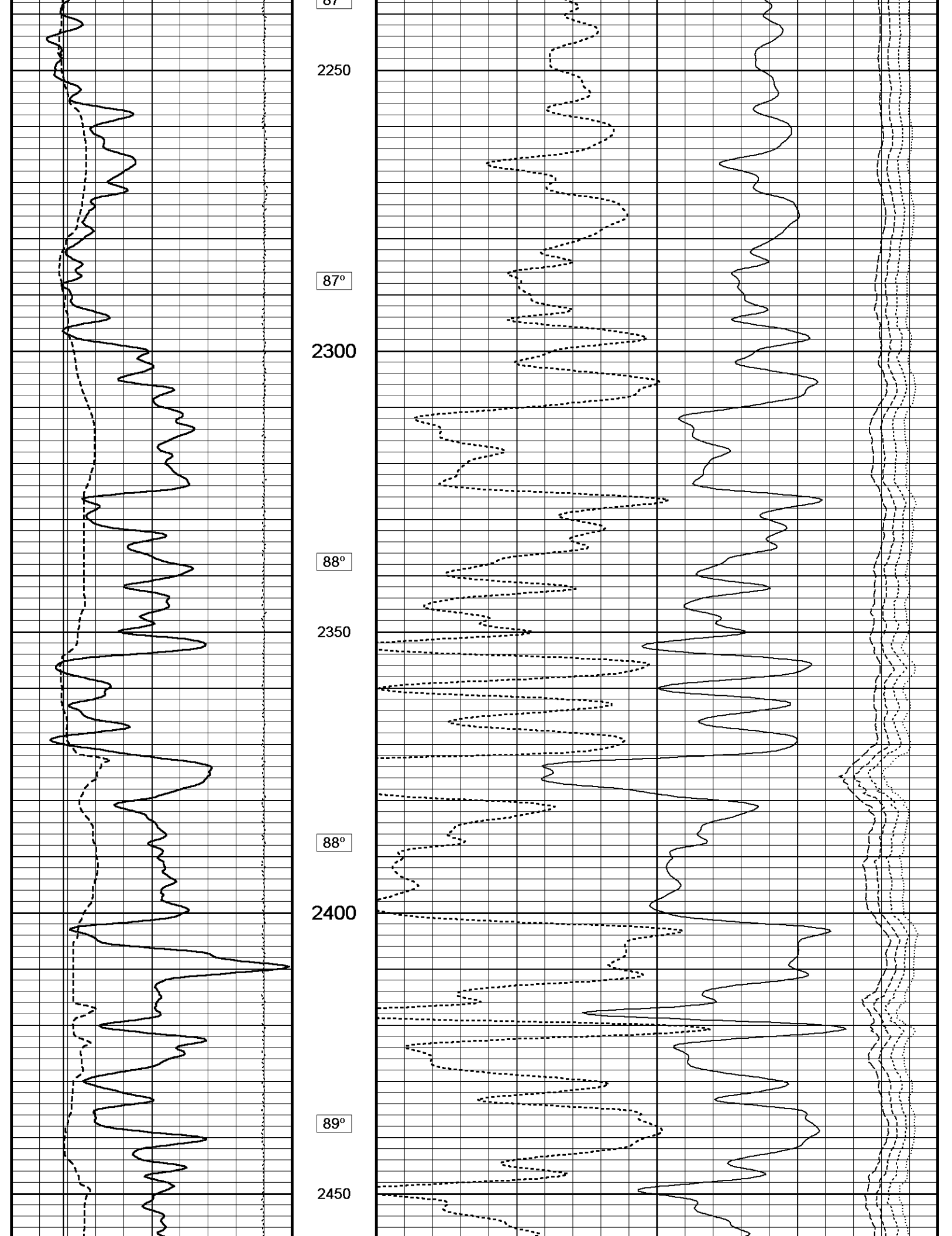

1150
81°
1200
82°
1250
82°
1300
83°
1350
Bit Size

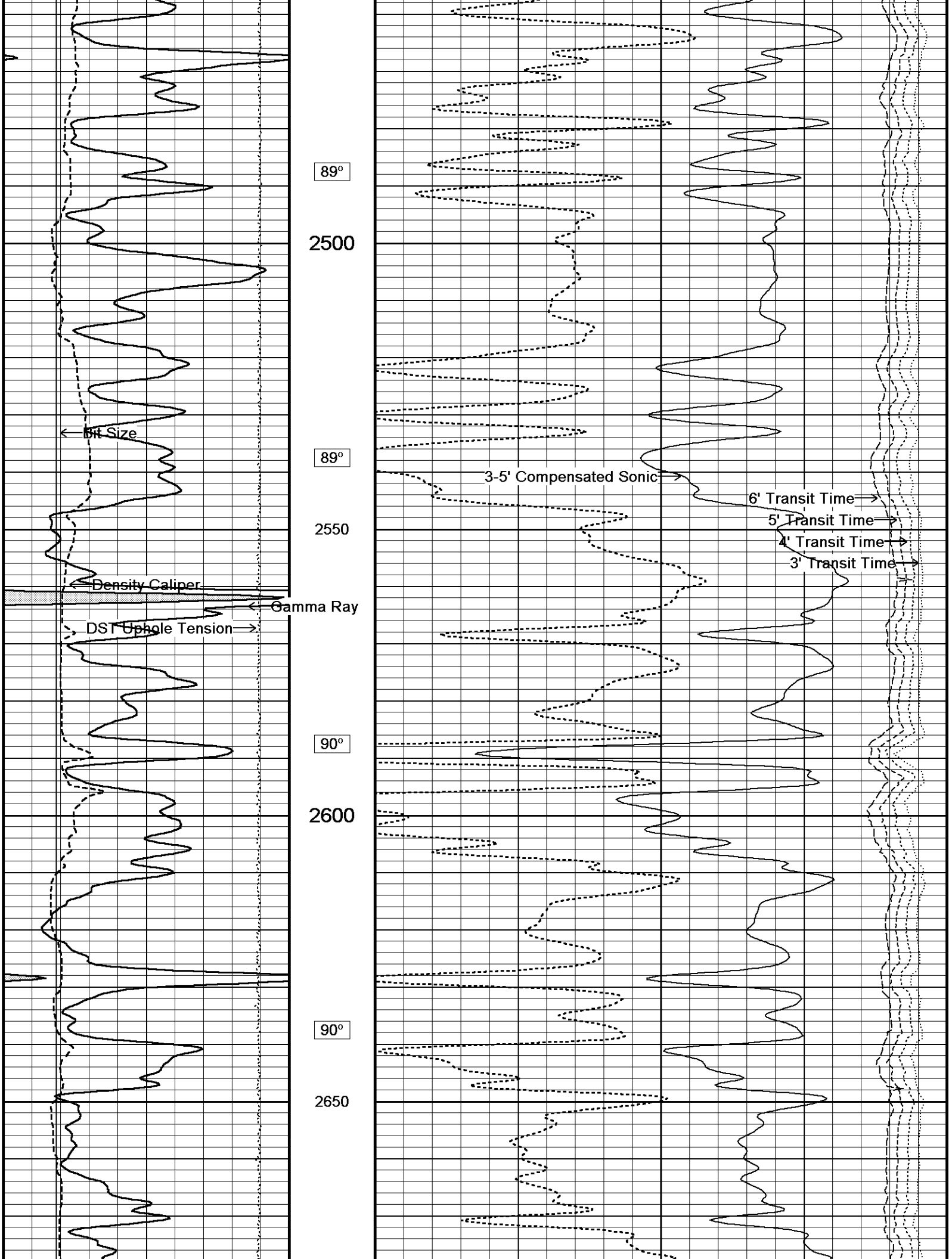

3-5' Compensated Sonic
6' Transit Time
5' Transit Time
4' Transit Time
3' Transit Time
Density Caliper
Gamma Ray
DST Uphole Tension
83°
1400
84°
1450
84°
1500
84°
1550

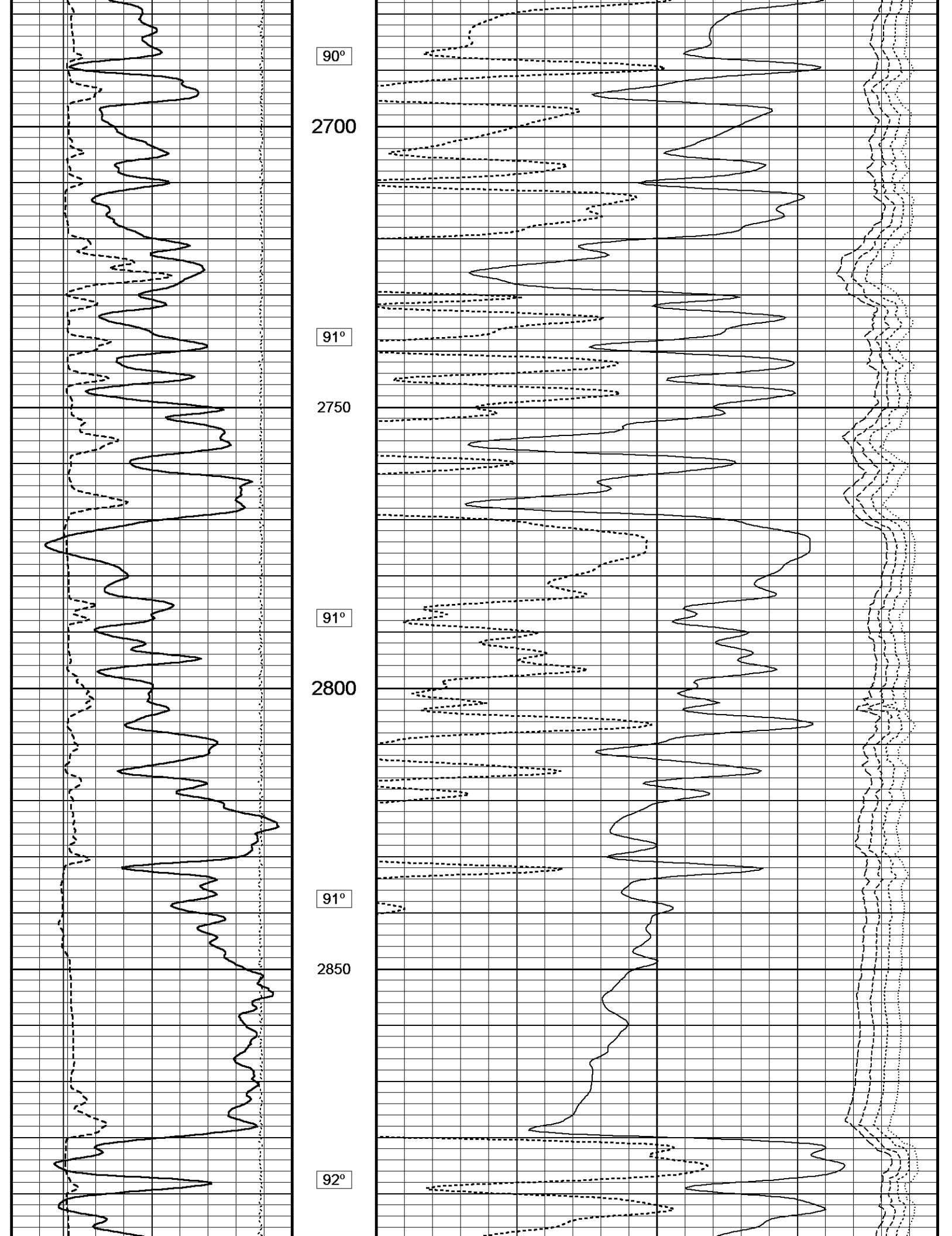

85°
1600
85°
1650
85°
1700
85°
1750
85°
Bit Size
Gamma Ray
DST Uphole Tension
Density Caliper
Wyllie Lime. Sonic Por.
3-5' Compensated Sonic
6' Transit Time
5' Transit Time
4' Transit Time
3' Transit Time

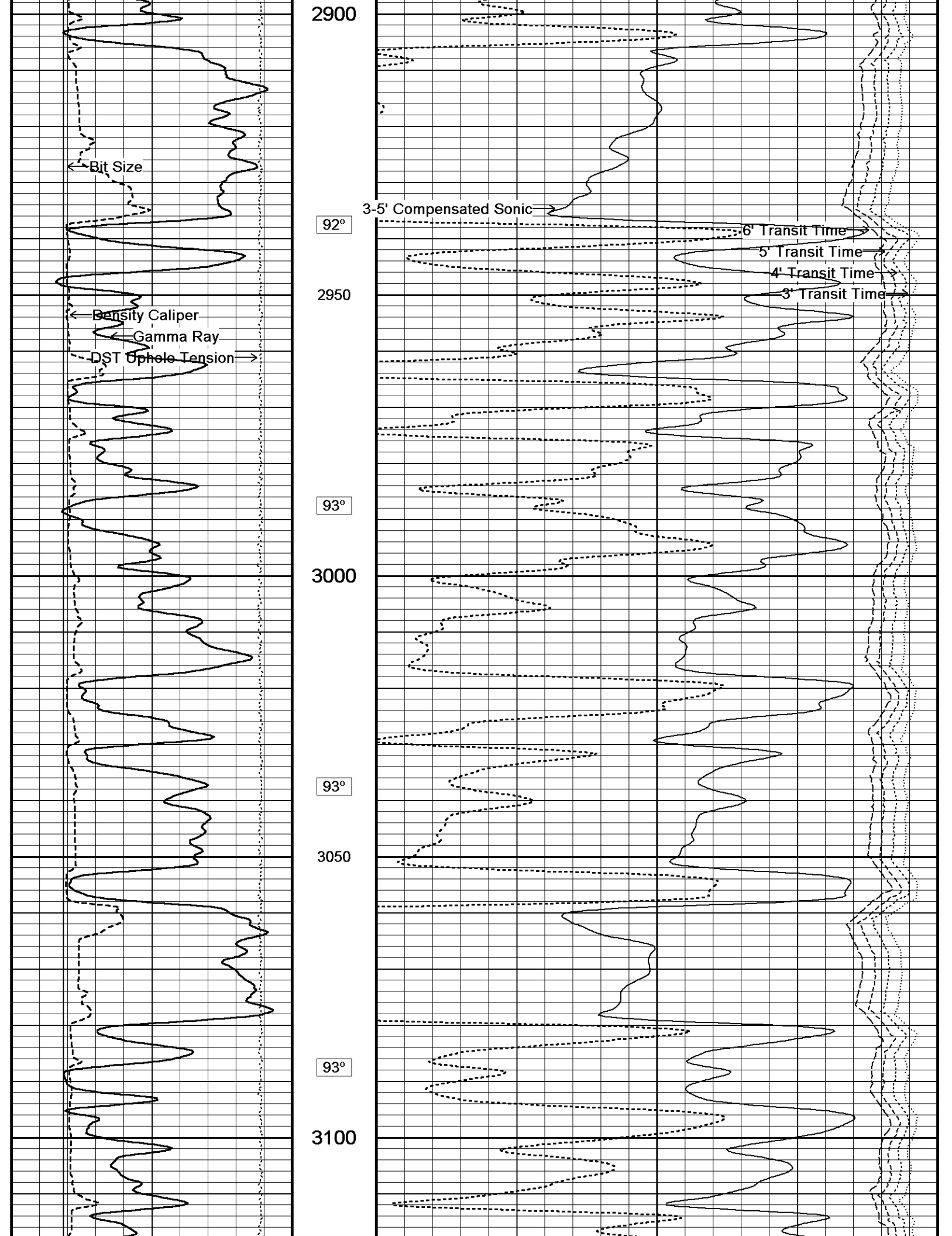

1800
85°
1850
86°
1900
86°
1950
86°
2000

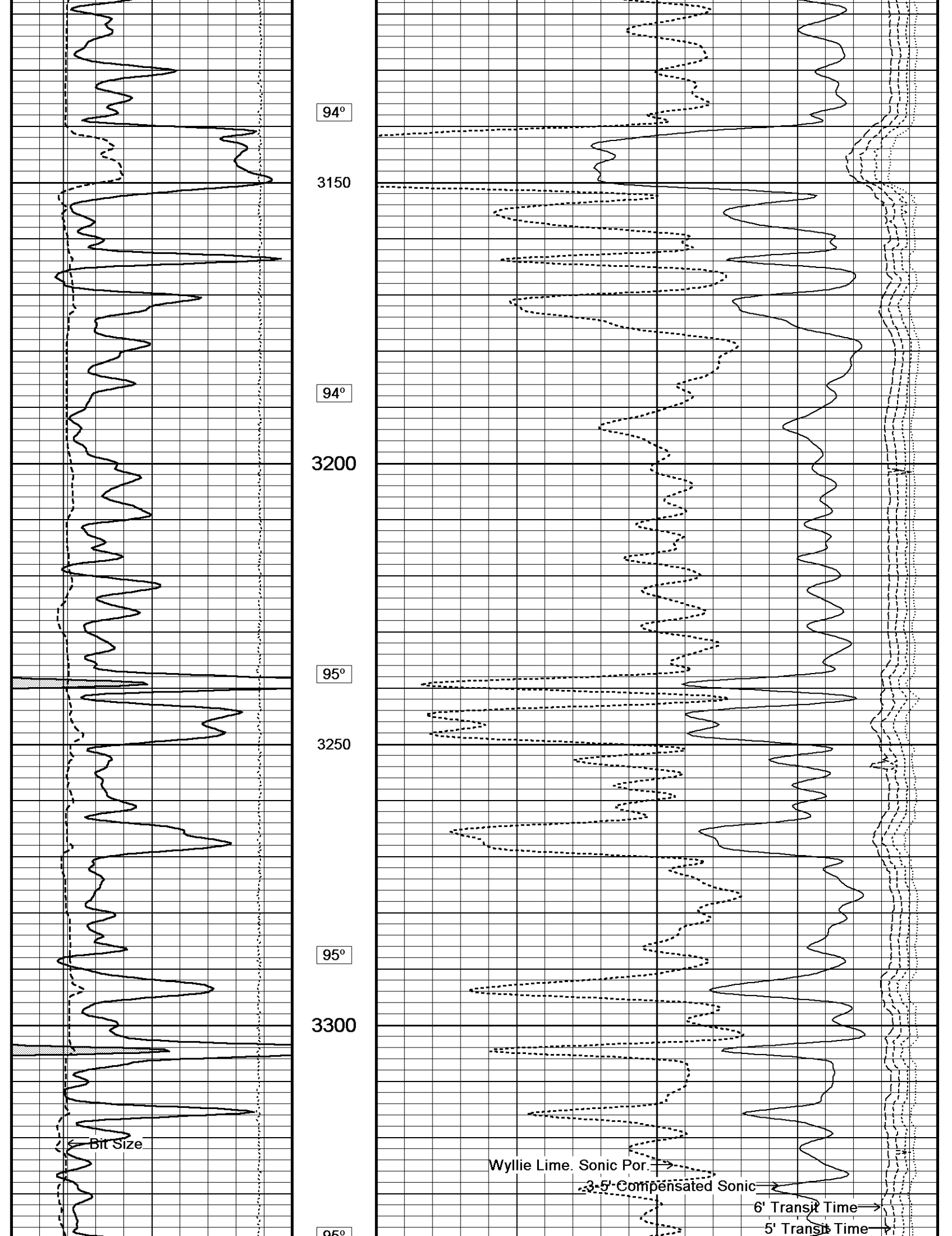

86°
2050
86°
2100
87°
Bit Size
Wyllie Lime. Sonic Por.
3-5' Compensated Sonic
2150
6' Transit Time
5' Transit Time
4' Transit Time
3' Transit Time
Density Caliper
Gamma Ray
DST Uphole Tension
87°
2200
87°

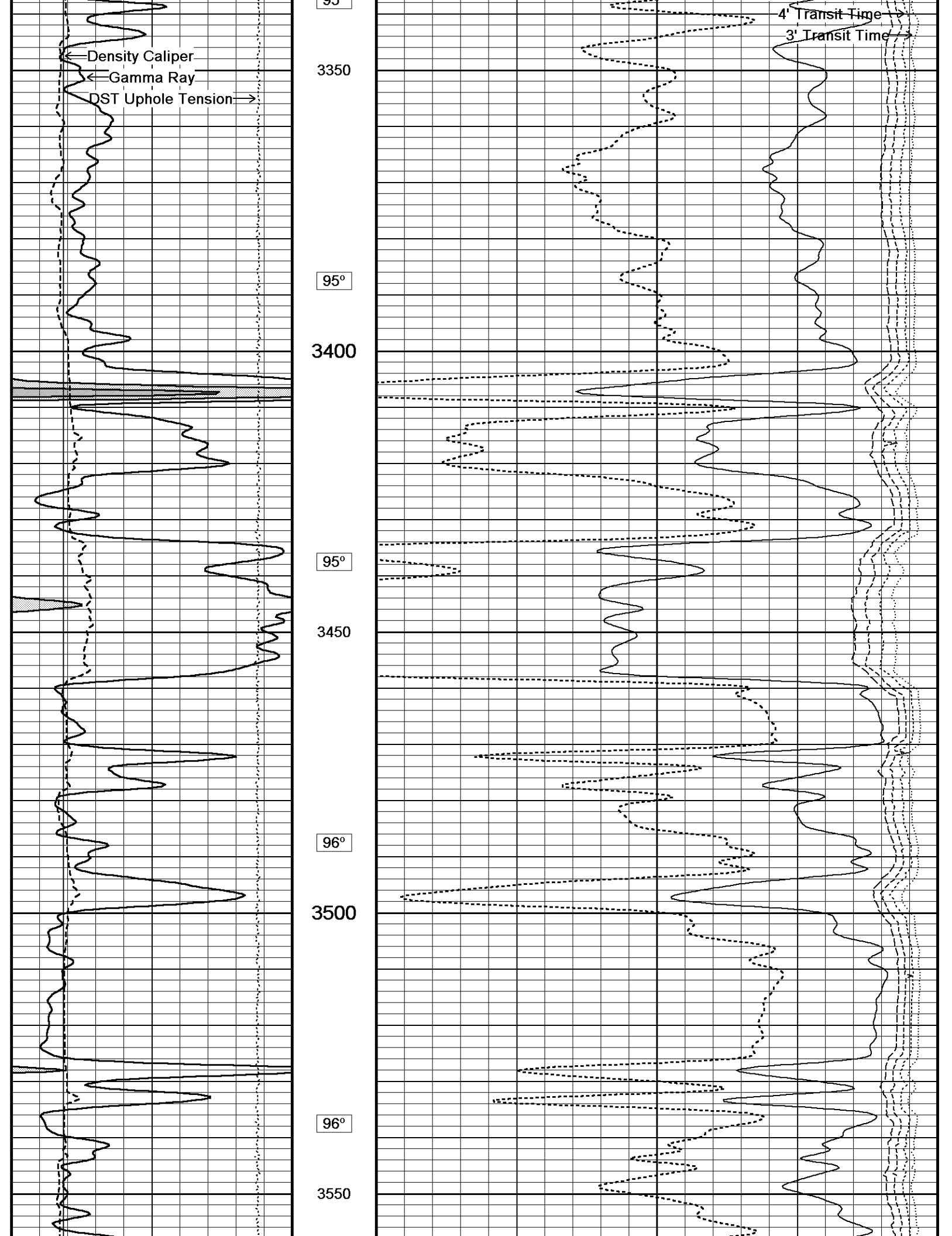

87°
2250
87°
2300
88°
2350
88°
2400
89°
2450

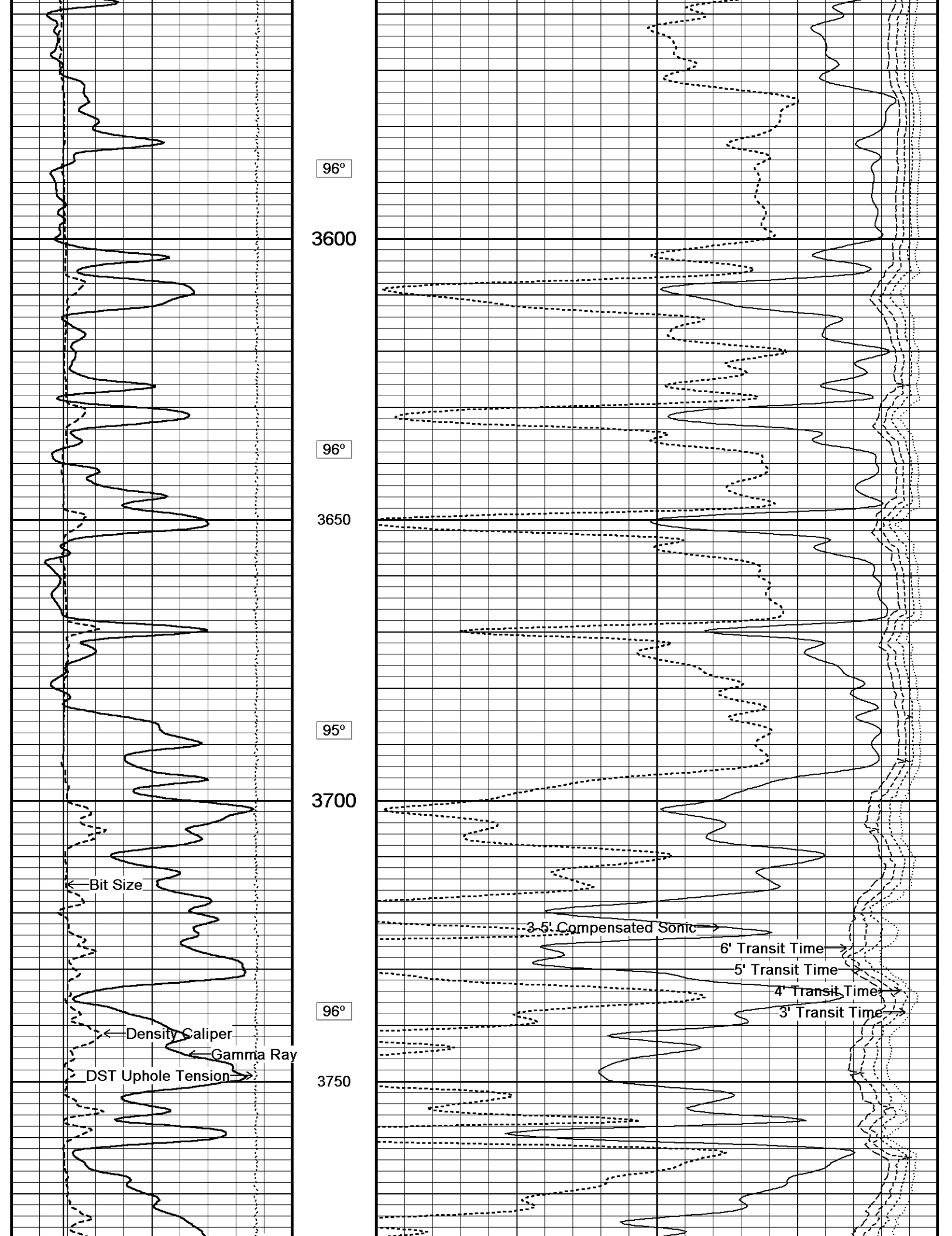

89°
2500
Bit Size
89°
3-5' Compensated Sonic
6' Transit Time
5' Transit Time
4' Transit Time
3' Transit Time
2550
Density Caliper
Gamma Ray
DST Uphole Tension
90°
2600
90°
2650

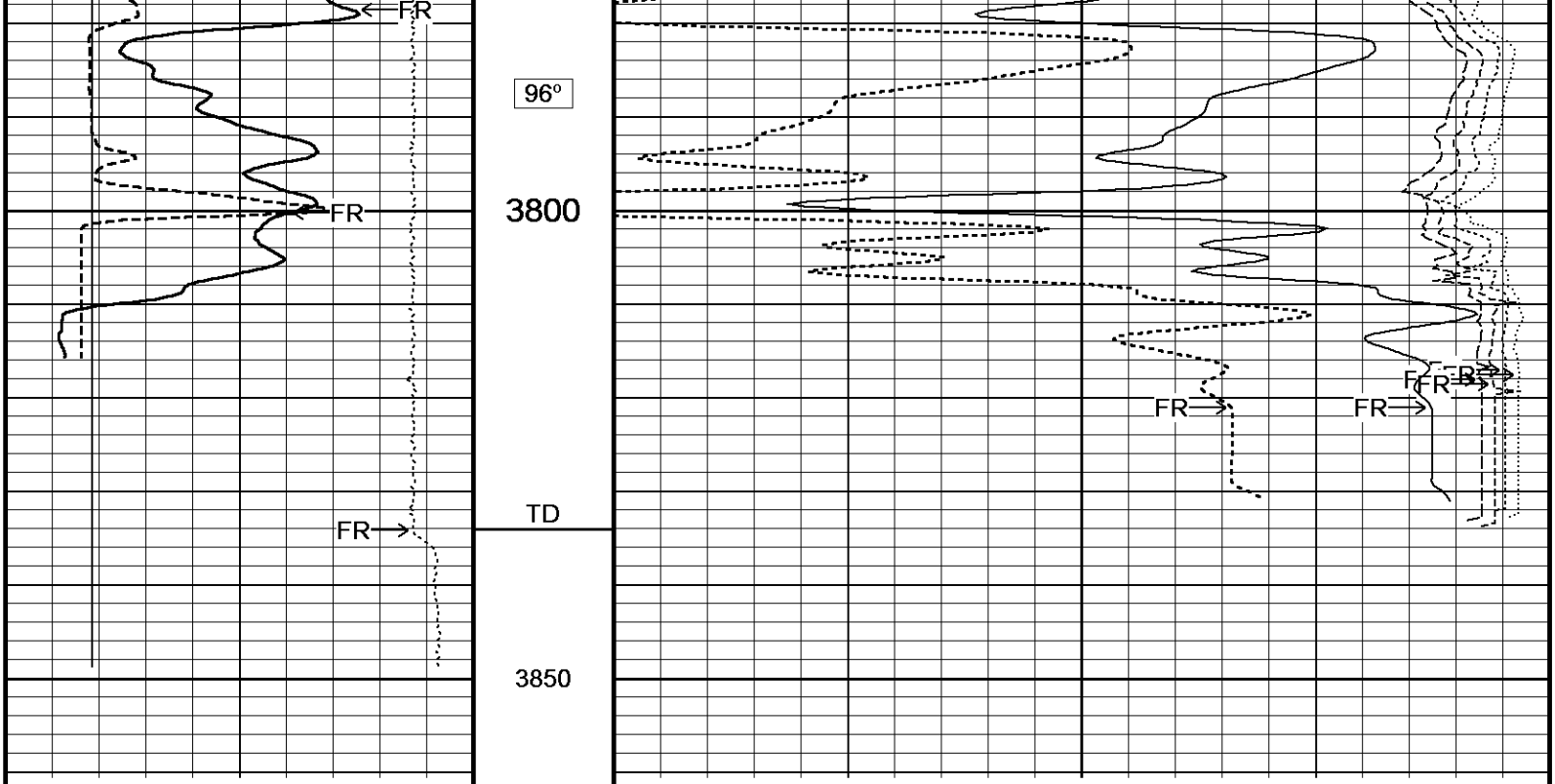

90°
2700
91°
2750
91°
2800
91°
2850
92°


2900
Bit Size
3-5' Compensated Sonic
92°
6' Transit Time
5' Transit Time
4' Transit Time
3' Transit Time
2950
Density Caliper
Gamma Ray
DST Uphole Tension
93°
3000
93°
3050
93°
3100


94°
3150
94°
3200
95°
3250
95°
3300
Bit Size
Wyllie Lime. Sonic Por.
3-5' Compensated Sonic
6' Transit Time
5' Transit Time


Density Caliper
Gamma Ray
DST Uphole Tension
4' Transit Time
3' Transit Time
95°
3350
95°
3400
95°
3450
96°
3500
96°
3550


96°
3600
96°
3650
95°
3700
96°
3750
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



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 22-DEC-2016 17:16
Filename: C:\Minimus 16.05.3841\Data\O'Brien (LA) Bes...\O'Brien (LA) Besperat #33-1 Main Merge.dta
Recorded on 22-DEC-2016 12:45
System Versions: Plotted with 16.05.3841

5 INCH MAIN

5 INCH MAIN

REPEAT SECTION

Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 22-DEC-2016 17:16
Filename: C:\Minimus 16.05.3841\Data\O'Brien (LA) B...\O'Brien (LA) Besperat #33-1 Repeat Merge.dta
Recorded on 22-DEC-2016 12:17
System Versions: Plotted with 16.05.3841

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

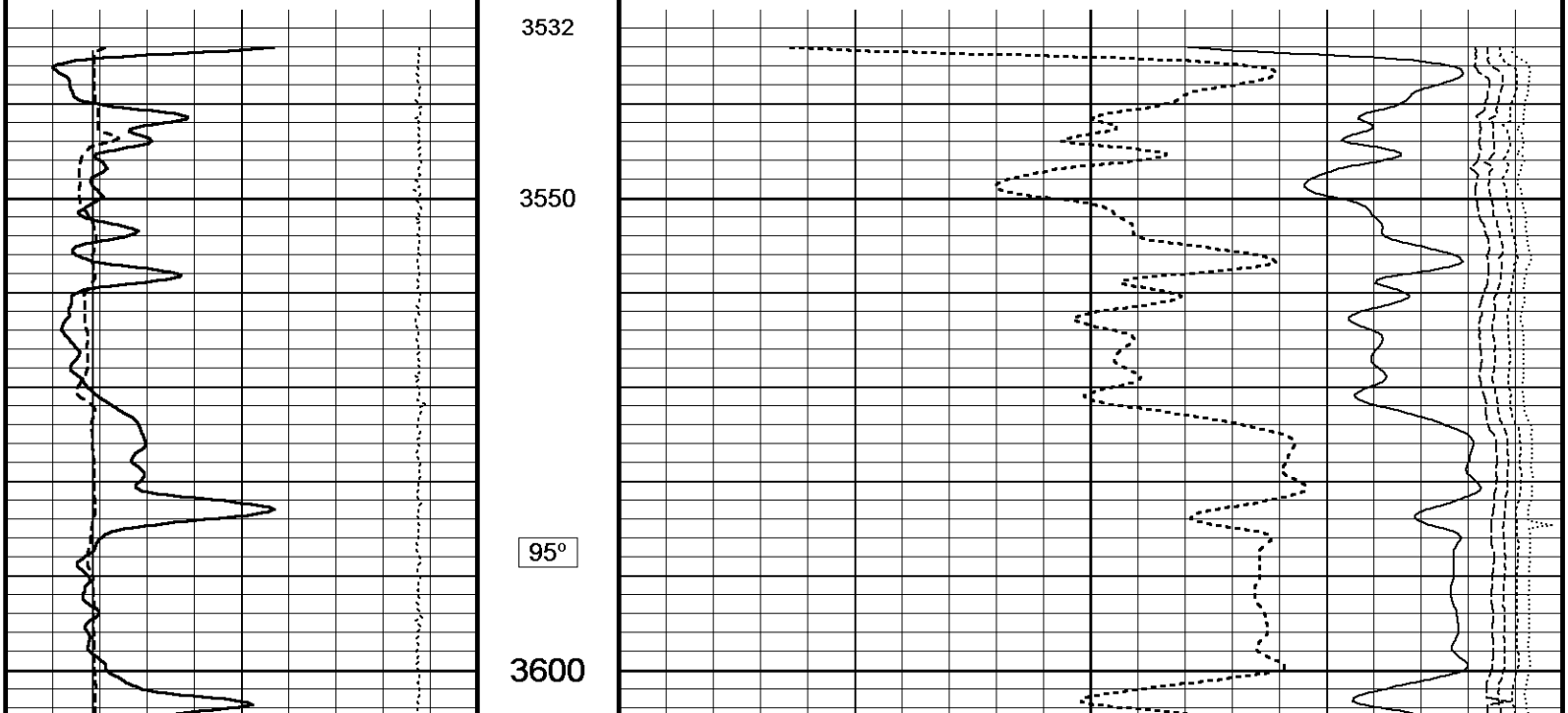
Wyllie Lime. Sonic Por.
percent
30 20 10 0 -10

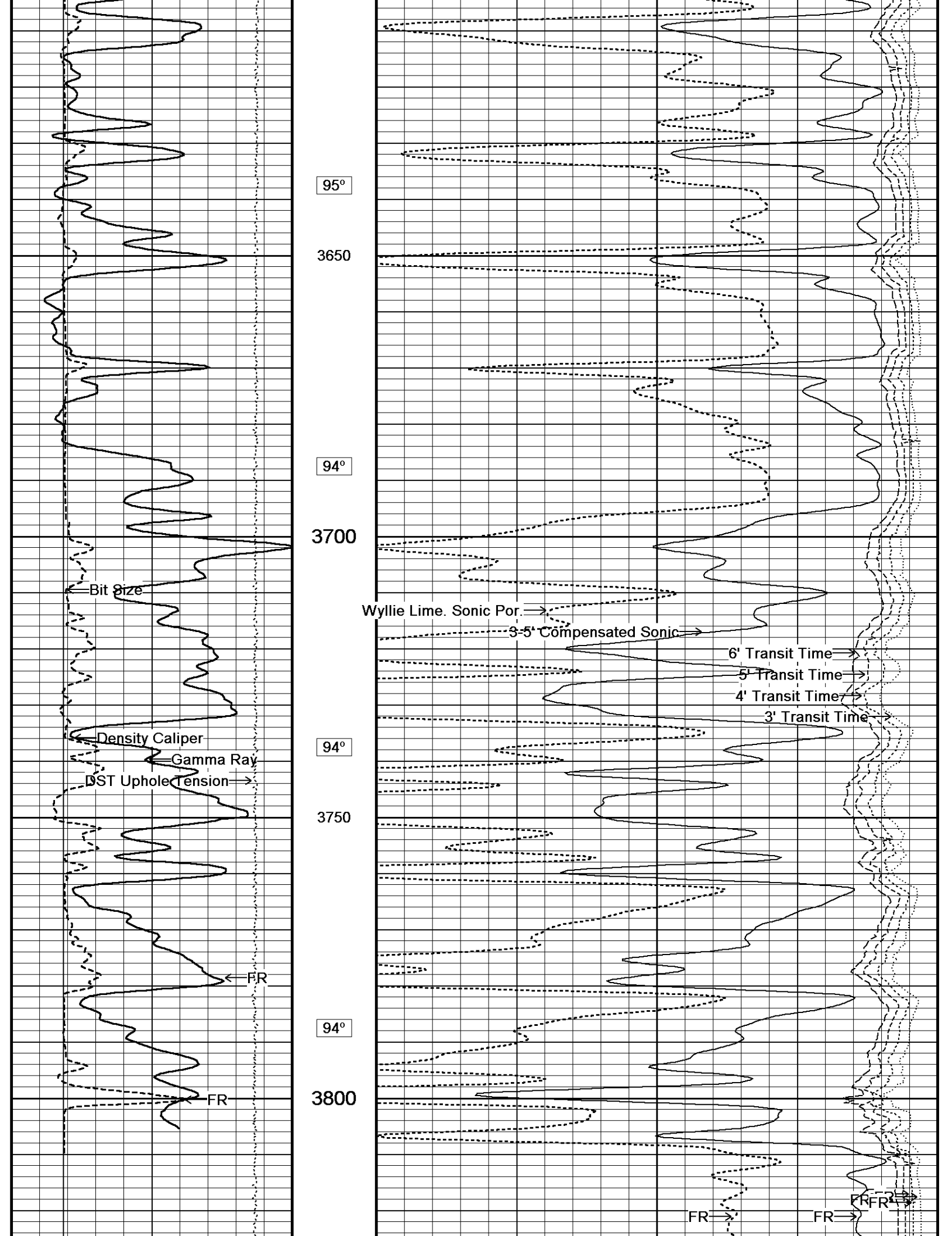
3' Transit Time
microseconds
1100 100

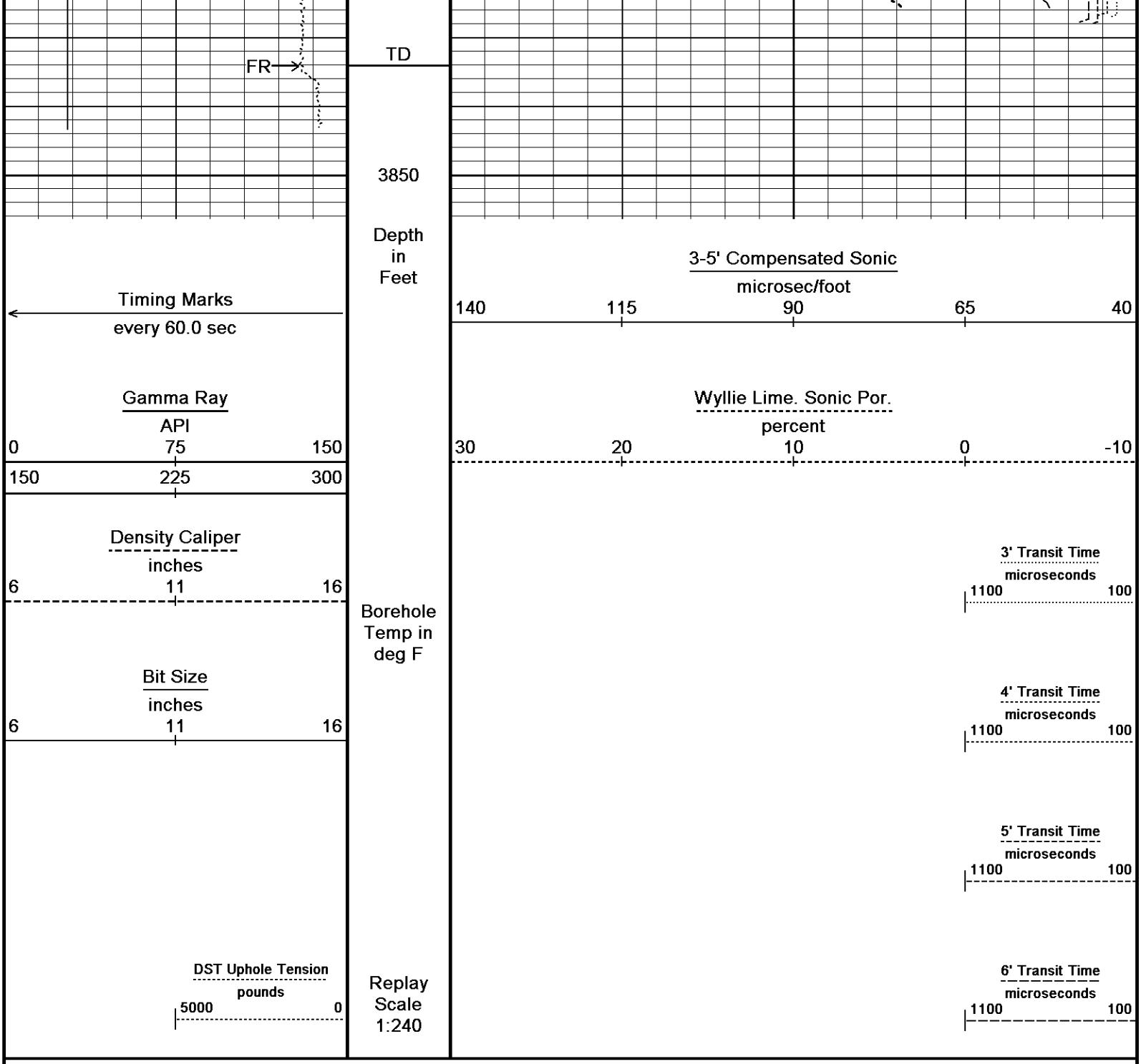
4' Transit Time
microseconds
1100 100

5' Transit Time
microseconds
1100 100

6' Transit Time
microseconds
1100 100




95°
3650
94°
3700
Bit Size
Wyllie Lime. Sonic Por.
3-5' Compensated Sonic
6' Transit Time
5' Transit Time
4' Transit Time
3' Transit Time
Density Caliper
94°
Gamma Ray
DST Uphole Tension
3750
FR
94°
3800
FR
FR
FR
FR



Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 22-DEC-2016 17:16

Filename: C:\Minimus 16.05.3841\Data\O'Brien (LA) B...\O'Brien (LA) Besperat #33-1 Repeat Merge.dta
Recorded on 22-DEC-2016 12:17

System Versions: Plotted with 16.05.3841

REPEAT SECTION

BEFORE SURVEY CALIBRATION

C:\Minimus 16.05.3841\Data\O'Brien (LA) Besperat #33-1\O'Brien (LA) Besperat #33-1_001.dta

General Constants All 000

Last Edited on 22-DEC-2016,11:53

General Parameters		
Mud Resistivity	0.290	ohm-metres
Mud Resistivity Temperature	75.000	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	Base Density Porosity
Resistivity used	Array Ind. Two Res Rt
RWA Constant A	1.000
RWA Constant M	2.000
SW/APOR Tool Source	0.000

Down-hole Tension Calibration SMS 0

Field Calibration on 17-DEC-2016 05:43

Reading No	Measured	Calibrated (lbs)
1	16023.38	0.00
2	17442.64	490.00

Gamma Calibration MCG-C 123

Field Calibration on 20-DEC-2016 17:24

	Measured	Calibrated (API)
Background	73	50
Calibrator (Gross)	733	506
Calibrator (Net)	661	456

Gamma Calibration Tolerances MCG-C 123

Ratio 1.449 (1.40 | 1.475 | 1.55) Counts/API

Gamma Constants MCG-C 123

Last Edited on 22-DEC-2016,10:24

Gamma Calibrator Number	MCGGRCC141	
GRC-M Calibrator Jig in Use?	NO	
Inactive Background Jig in Use?	NO	
Mud Density	1.12	gm/cc
Caliper Source for Processing	Density Caliper	
Tool Position	Eccentred	
Potassium Equivalence	Chloride	
K Mud Concentration	0.00	%

High Resolution Temperature Calibration MCG-C 123

Field Calibration on 03-DEC-2016,14:52

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

High Resolution Temperature Constants MCG-C 123

Last Edited on 22-SEP-2015,11:43

Pre-filter Length	11

SP Calibration MCG-C 123

Field Calibration on 03-DEC-2016 14:58

	Measured	Calibrated (mV)
Reference 1	100.9	100.0
Reference 2	-99.4	-99.9

Caliper Calibration MML-A 7

Base Calibration on 16-DEC-2016 17:16
Field Calibration on 21-DEC-2016 16:47

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	14052	5.97
2	17400	7.98
3	20637	9.86
4	24492	11.88
5	0	0.00
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
7.95	7.97

Caliper Calibration Tolerances MML-A 7

Short Arm Field Cal. 7.95 (7.77 | 7.97 | 8.17) in

Micro Normal and Micro Inverse Calibration MML-A 7

Base Calibration on 16-DEC-2016 17:25
Field Check on 21-DEC-2016 16:46

Base Calibration

Channel	Measured Resistor 1	Measured Resistor 2	Calibrated (ohm-m) Resistor 1	Calibrated (ohm-m) Resistor 2
Micro Normal	10.0	49.9	5.1	25.6
Micro Inverse	10.0	49.8	3.4	16.9

Channel	Base Check (ohm-m)	Field Check (ohm-m)
Micro Normal	77.4	77.4
Micro Inverse	51.3	51.3

Micro Normal & Micro Inverse Calibration Tolerance MML-A 7

Micro Normal Res. 1 10.0 ohm (-5% 10.0 +5%)
Micro Inverse Res. 1 10.0 ohm (-5% 10.0 +5%)
Micro Normal Res. 2 49.9 ohm (-5% 50.0 +5%)
Micro Inverse Res. 2 49.8 ohm (-5% 50.0 +5%)

Micro Normal Base Check 77.4 ohm-m (-2% 77.27 +2%)
Micro Inverse Base Check 51.3 ohm-m (-2% 51.22 +2%)

Micro Normal Field Check 77.4 ohm-m (-2% 77.4 +2%)
Micro Inverse Field Check 51.3 ohm-m (-2% 51.3 +2%)

Micro Normal and Micro Inverse Constants MML-A 7

Last Edited on 22-DEC-2016,10:24

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	N/A	inches

Neutron Calibration MDN-A.B 66

Base Calibration on 03-DEC-2016,15:38
Field Check on 20-DEC-2016 17:31

Base Calibration

	Measured Near	Measured Far	Calibrated (cps) Near	Calibrated (cps) Far
	3116	97	3714	110
Ratio	32.277		33.764	

Field Calibrator at Base

	Calibrated (cps)	
	2061	3028
Ratio	0.681	

Field Check

	Calibrated (cps)	
	2149	3082
Ratio	0.697	

Neutron Calibration Tolerances MDN-A.B 66

Ratio 32.277 (-5% 33 +5%)
Base Check 0.681 (0.65 0.7 0.75)
Field Check 0.697 (0.661 0.681 0.701)

Neutron Constants MDN-A.B 66

Last Edited on 22-DEC-2016,10:24

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 01-DEC-2016 15:21
Field Check on 20-DEC-2016 16:56

Base Calibration

	Measured	Calibrated (ohm-m)
Reference 1	0.0	0.0
Reference 2	963.5	126.8
Base Check		281.3
Field Check		281.5

FE Calibration Tolerances MFE-B.J 352

Reference 2	963.5	-3% 980.0 +3%	ohm
Base Check	281.3	-2% 277.0 +2%	ohm-m
Field Check	281.5	-2% 281.3 +2%	ohm-m

FE Constants MFE-B.J 352

Last Edited on 22-DEC-2016,10:23

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-A.A 55

Last Edited on 22-DEC-2016,10:23

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 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

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
Waveform Discriminator Filter	N/A	
Semblance Window Width	N/A	micro-sec
Sonic Despiker	N/A	N/A

Induction Calibration MAI-A.A 111

Base Calibration on 05-AUG-2014,09:34
Field Check on 20-DEC-2016 16:48

Base Calibration

Test Loop Calibration Channel	Measured Low	Measured High	Calibrated (mmho/m) Low	Calibrated (mmho/m) High
1	17.6	473.6	9.3	966.2
2	6.4	385.9	7.6	821.4
3	3.2	264.0	5.2	566.0
4	2.1	135.5	2.6	279.2

Array Temperature 23.0 Deg F

Test Loop Calibration Verified 03-DEC-2016,14:48

Channel	Base Check (mmho/m) Low	Base Check (mmho/m) High	Field Check (mmho/m) Low	Field Check (mmho/m) High
1	12.1	3873.0	9.5	3868.2
2	29.8	3528.1	27.7	3523.7
3	29.1	3021.3	27.3	3017.3
4	19.1	2058.5	18.0	2055.4
Deep	17.7	1962.1	16.5	1959.0
Medium	43.1	3976.4	40.8	3971.5
Shallow	44.4	5232.7	41.4	5226.9
Array Temperature		65.8		58.5 Deg F

Induction Calibration Tolerances MAI-A.A 111

Low Conductivity 1	17.6	13.0 17.0 21.0	mmho/m	High Conductivity 1	473.6	430.0 475.0 520.0 mmho/m
Low Conductivity 2	6.4	4.5 6.0 7.5	mmho/m	High Conductivity 2	385.9	345.0 385.0 425.0 mmho/m
Low Conductivity 3	3.2	1.0 3.5 6.0	mmho/m	High Conductivity 3	264.0	240.0 260.0 280.0 mmho/m
Low Conductivity 4	2.1	0.0 2.0 4.0	mmho/m	High Conductivity 4	135.5	120.0 135.0 150.0 mmho/m
Background Vx 1	0.0	-110.0 -32.5 45.0	mmho/m	Phase Check Loop 1	0.0	-2.0 0.0 2.0 %
Background Vx 2	0.0	-35.0 20.0 75.0	mmho/m	Phase Check Loop 2	0.0	-2.0 0.0 2.0 %
Background Vx 3	0.0	-60.0 2.5 65.0	mmho/m	Phase Check Loop 3	0.0	-2.0 0.0 2.0 %
Background Vx 4	0.0	-50.0 -17.5 15.0	mmho/m	Phase Check Loop 4	0.0	-2.0 0.0 2.0 %

Induction Constants MAI-A.A 111

Last Edited on 22-DEC-2016,10:23

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	
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-A.A 111

Field Calibration on 03-DEC-2016,14:51

	Measured	Calibrated(Deg F)
Lower	10.00	10.00
Upper	100.00	100.00

High Resolution Temperature Constants MAI-A.A 111

Last Edited on 26-JUN-2014,15:06

Pre-filter Length	11

Photo Density Calibration MPD-B 104

Base Calibration on 03-DEC-2016 14:06
Field Check on 20-DEC-2016 17:04

Density Calibration

Base Calibration	Measured		Calibrated (sdu)	
	Near	Far	Near	Far
Background	1135	1315		
Reference 1	50307	24205	59556	30836
Reference 2	20296	2434	24941	2541

Field Check at Base

1134.8	1314.6

Field Check

1134.7	1319.5

PE Calibration

Base Calibration	Measured			Calibrated
	WS	WH	Ratio	Ratio
Background	208	1012		
Reference 1	21183	50127	0.427	0.371
Reference 2	5908	20162	0.298	0.272

Field Check at Base

	207.5	1012.2

Field Check

	206.7	1011.6

Photo Density Calibration Tolerances MPD-B 104

		-5%		+5%		-5%		+5%
Near Density Ratio	2.57		2.52		Far Density Ratio	20.45	21.00	
PE Calibration	0.121	0.089	0.110	0.131				
		-3%		+3%		-3%		+3%
Near Den. Field Check	1134.7		1134.8		Far Den. Field Check	1319.5	1314.6	
		-6%		+6%		-6%		+6%
PE WS Field Check	206.7		207.5		PE WH Field Check	1011.6	1012.2	

Density Constants MPD-B 104

Last Edited on 22-DEC-2016,10:24

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	1.12	gm/cc
Mud Density Z/A Multiplier	1.11	
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	Not 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

Caliper Calibration MPD-B 104

Base Calibration on 01-DEC-2016 17:42
Field Calibration on 20-DEC-2016 16:58

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	14257	3.99
2	23231	5.98
3	32062	7.97
4	40288	9.86
5	49313	11.92
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
7.95	7.97

Caliper Calibration Tolerances MPD-B 104

		7.77	7.97	8.17	
Short Arm Field Cal.	7.95				in

DOWNHOLE EQUIPMENT

C:\Minimus 16.05.3841\Data\O'Brien (LA) Besperat #33-1\O'Brien (LA) Besperat #33-1_002.dta

Cablehead, 11 pin
CBH-C 0 LG: 2.40 ft WT: 24.3 lb OD: 2.244 in

Compact Comms Gamma
MCG-C 123 LG: 8.70 ft WT: 63.9 lb OD: 2.244 in

Compact Micro-log
MML-A 7 LG: 7.97 ft WT: 81.6 lb OD: 2.244 in

Compact Neutron
MDN-A.B 66 LG: 5.04 ft WT: 50.7 lb OD: 2.244 in

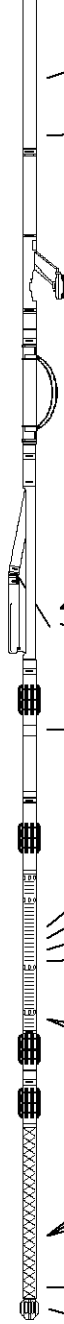
Compact Density/Caliper
MPD-B 104 LG: 9.59 ft WT: 90.4 lb OD: 2.449 in

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

Compact Sonic
MSS-A.A 55 LG: 12.52 ft WT: 72.8 lb OD: 2.244 in

Compact Induction
MAI-A.A 111 LG: 10.81 ft WT: 48.5 lb OD: 2.244 in

Total Length: 63.07 ft Weight: 480.6 lb



55.39 ft	GRGC - MCG Gamma Ray
52.48 ft	CGXT - MCG External Temperature
46.76 ft	MLTC - MML Caliper
45.76 ft	MINV - Micro-inverse
45.76 ft	MNRL - Micro-normal
40.97 ft	NPRL - Limestone Neutron Por.
33.73 ft	AVOL - Annular Volume
33.73 ft	HVOL - Hole Volume
33.73 ft	CLDC - Density Caliper
31.80 ft	DPRL - Limestone Density Por.
31.80 ft	DCOR - Density Correction
31.74 ft	PDPE - PE
26.24 ft	FEFE - Shallow FE
16.96 ft	TR11 - 4' Transit Time
16.46 ft	TR21 - 3' Transit Time
15.95 ft	TR12 - 6' Transit Time
15.46 ft	TR22 - 5' Transit Time
12.96 ft	DT35 - 3-5' Compensated Sonic
12.96 ft	SPRL - Wyllie Lime. Sonic Por.
3.34 ft	R40O - Array Ind. One Res 40
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)
-0.13 ft	SMTU - DST Uphole Tension

All measurements relative to tool zero.

COMPANY	O'BRIEN RESOURCES, LLC.
WELL	BESPERAT #33-1
FIELD	WILDCAT
PROVINCE/COUNTY	RUSH
COUNTRY/STATE	U.S.A. / KANSAS

Elevation Kelly Bushing	2065	feet	First Reading	3821.00	feet
Elevation Drill Floor	2063	feet	Depth Driller	3836.00	feet
Elevation Ground Level	2057	feet	Depth Logger	3834.00	feet

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COMPENSATED SONIC
WITH INTEGRATED TRANSIT TIME