



Weatherford

COMPOSITE LOG

COMPANY TAOS RESOURCES CO. LLC.

WELL WMU #17

FIELD MADDIX NORTH

PROVINCE/COUNTY COWLEY

COUNTRY/STATE UNITED STATES / KANSAS

LOCATION 165' FNL & 2475' FEL

SEC TWP RGE Other Services
3 33S 5E

API Number 15-035-24529

Permit Number

Permanent Datum G.L., Elevation 1293 feet

Log Measured From KB

Drilling Measured From K.B. @ 8 FEET

Date 21-OCT-2013

Run Number ONE

Service Order 3541097

Depth Driller 3650.00 feet

Depth Logger 3642.00 feet

First Reading 3639.00 feet

Last Reading 265.00 feet

Casing Driller 265.00 feet

Casing Logger 265.00 feet

Bit Size 7.880 inches

Hole Fluid Type CHEMICAL

Density / Viscosity 9.30 lb/USg 40.00 CP

PH / Fluid Loss 9.50 8.00 ml/30Min

Sample Source MUDPIT

Rm @ Measured Temp 2.17 @ 75.0 ohm-m

Rmf @ Measured Temp 1.74 @ 75.0 ohm-m

Rmc @ Measured Temp 2.60 @ 75.0 ohm-m

Source Rmf / Rmc CALC CALC

Rm @ BHT 1.42 @ 115.0 ohm-m

Time Since Circulation 4 HOURS

Max Recorded Temp 115.00 deg F

Equipment / Base 13096 LIB

Recorded By W. STAMBAUGH

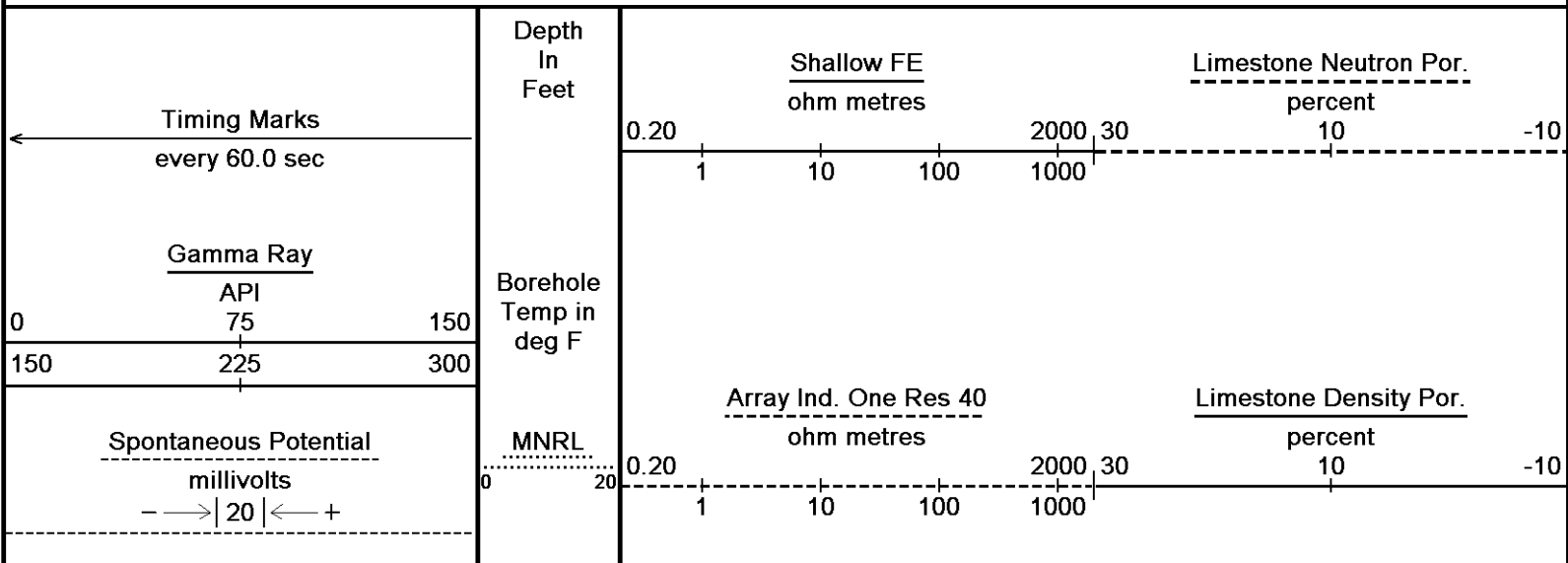
Witnessed By STEVE BALL

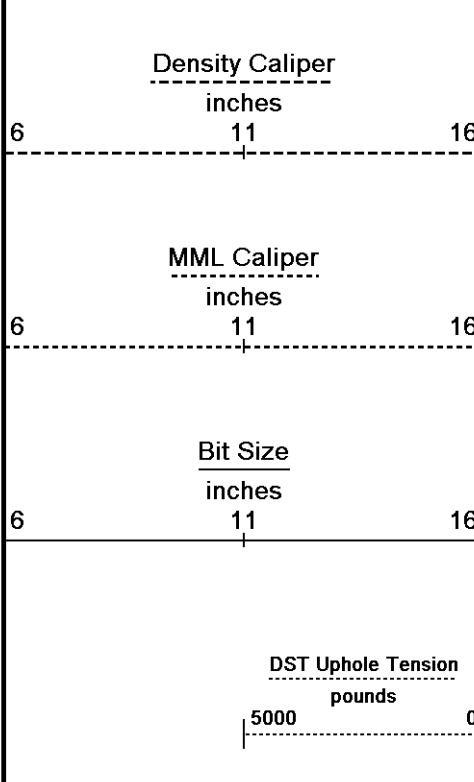
JOB# LB13-296

Elevations:
KB 1301.00 feet
DF 1299.00 feet
GL 1293.00 feet

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.

Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 21-OCT-2013 07:43
Filename: C:\Minimus 13.05.9583\Log\Taos Resources...\Taos Resources Co LLC WMU #17_MAIN.dta
Recorded on 21-OCT-2013 03:13
System Versions: Logged with 13.05.9583 Processed with 13.05.9583 Plotted with 13.05.9583



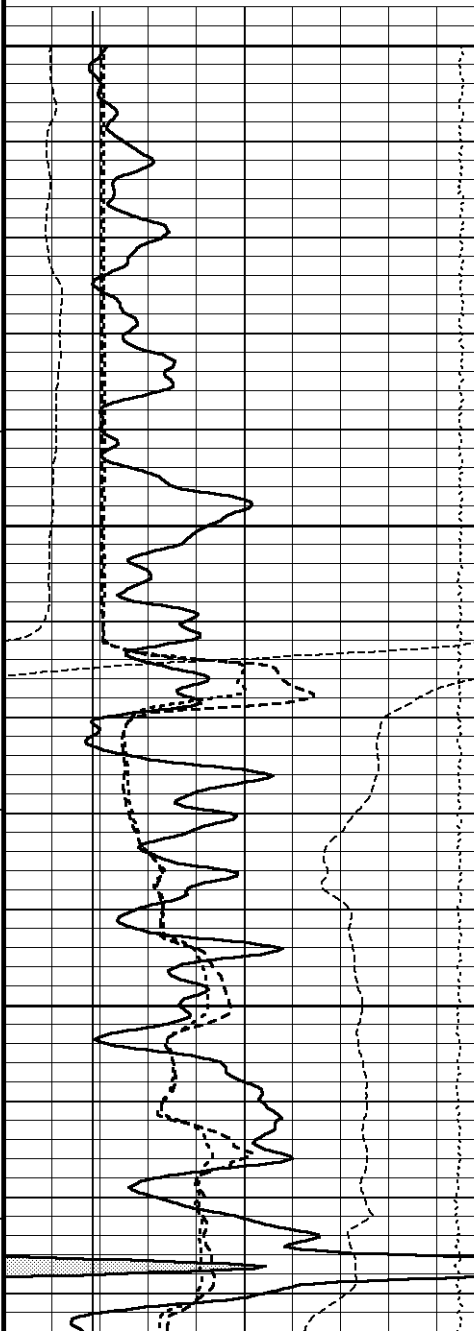
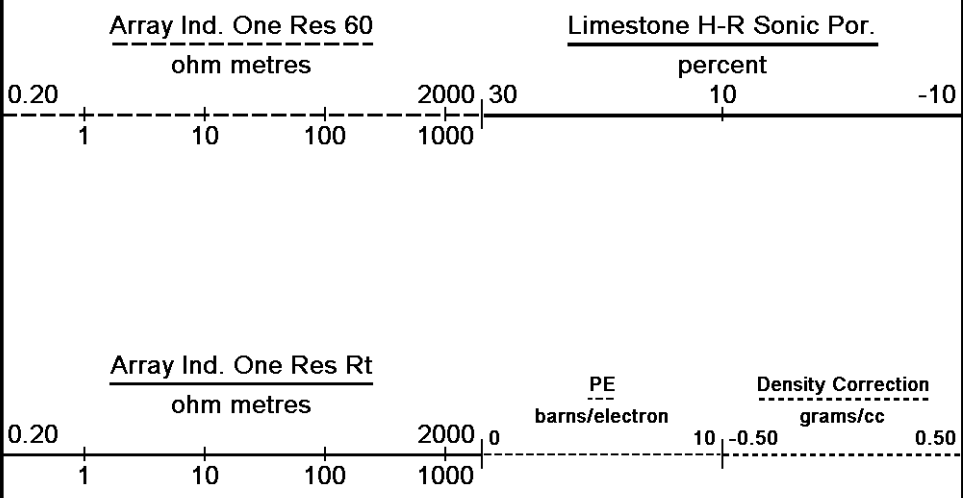


MINV
0 20

HVI every 10 cu ft

Annular Integral every 10 cu ft

Replay Scale 1:240



200

89°

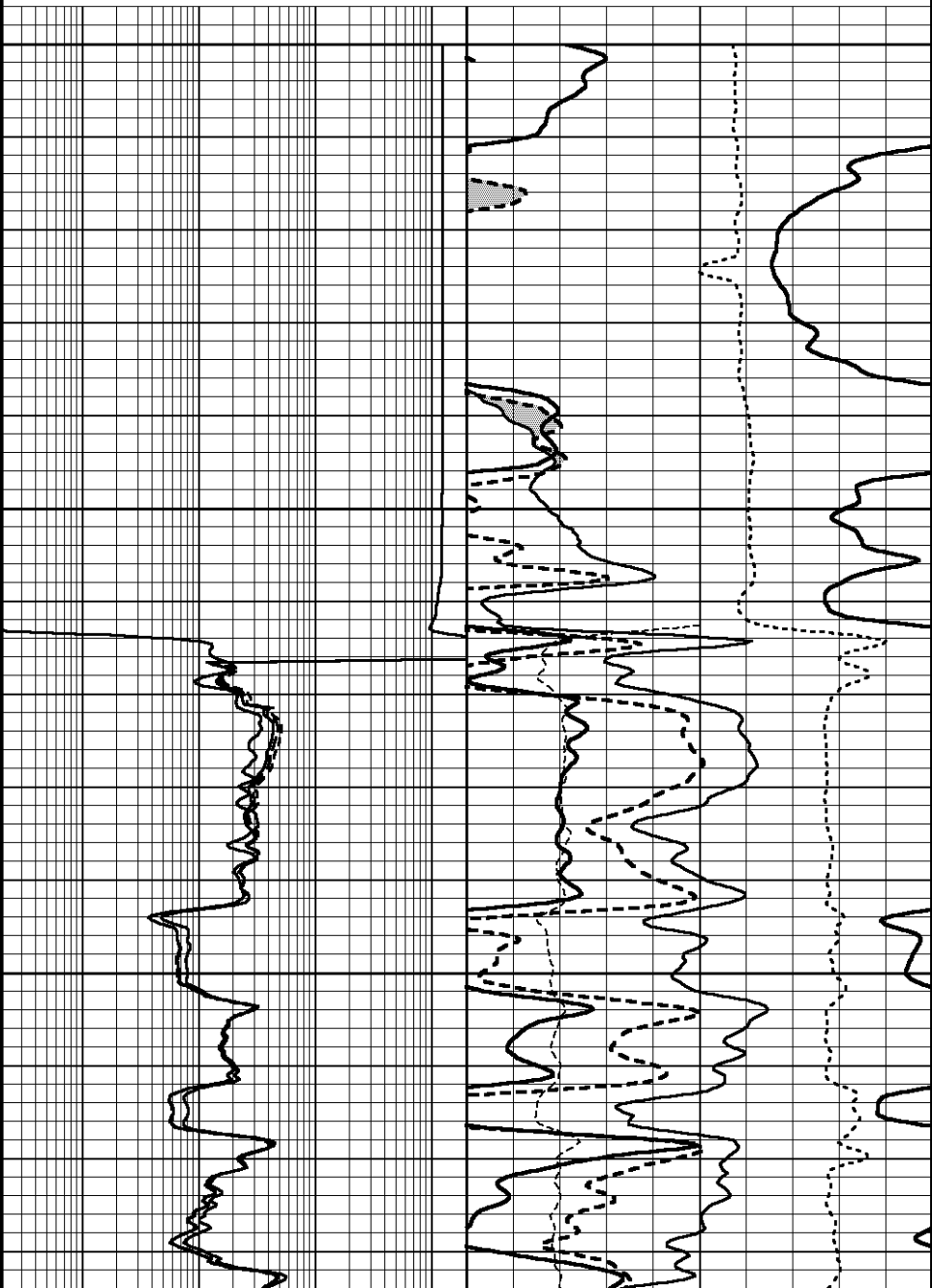
250

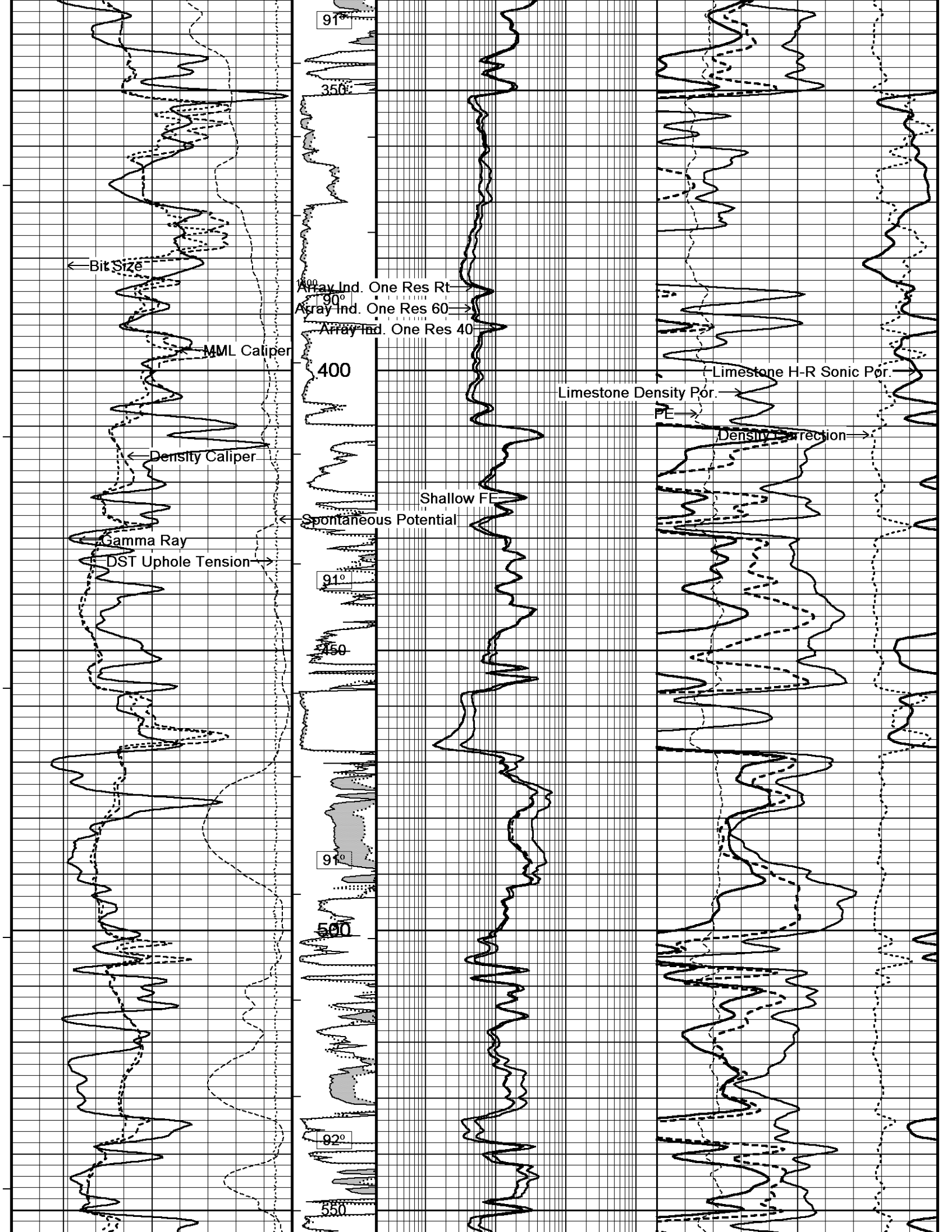
Casing Shoe

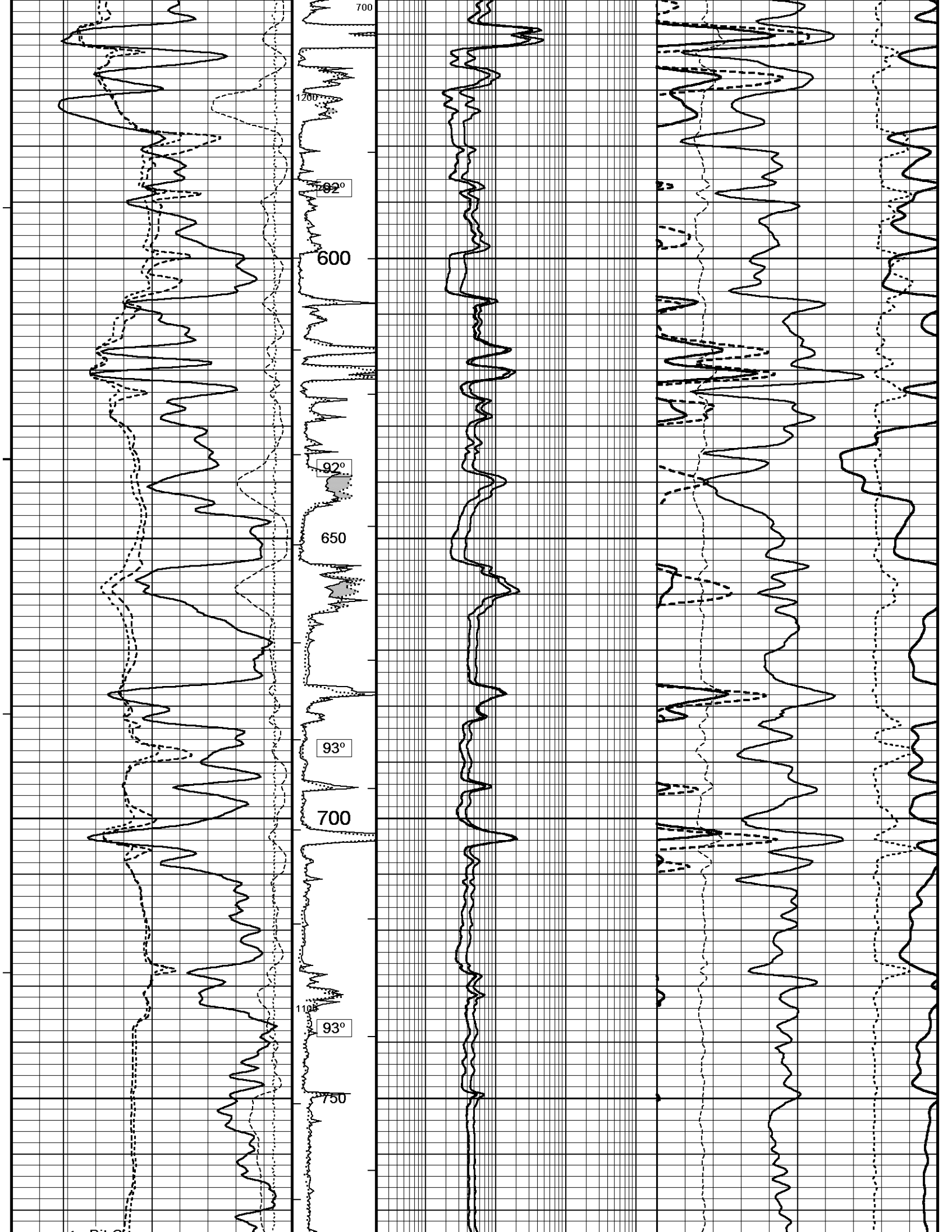
90°

300

800







← Bit Size

Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40

← MML Caliper

93°
600

800

← Density Caliper

Shallow FE

← Spontaneous Potential

← Gamma Ray

DST Uphole Tension →

94°
850

94°
900

94°
950

94°
980

94°
990

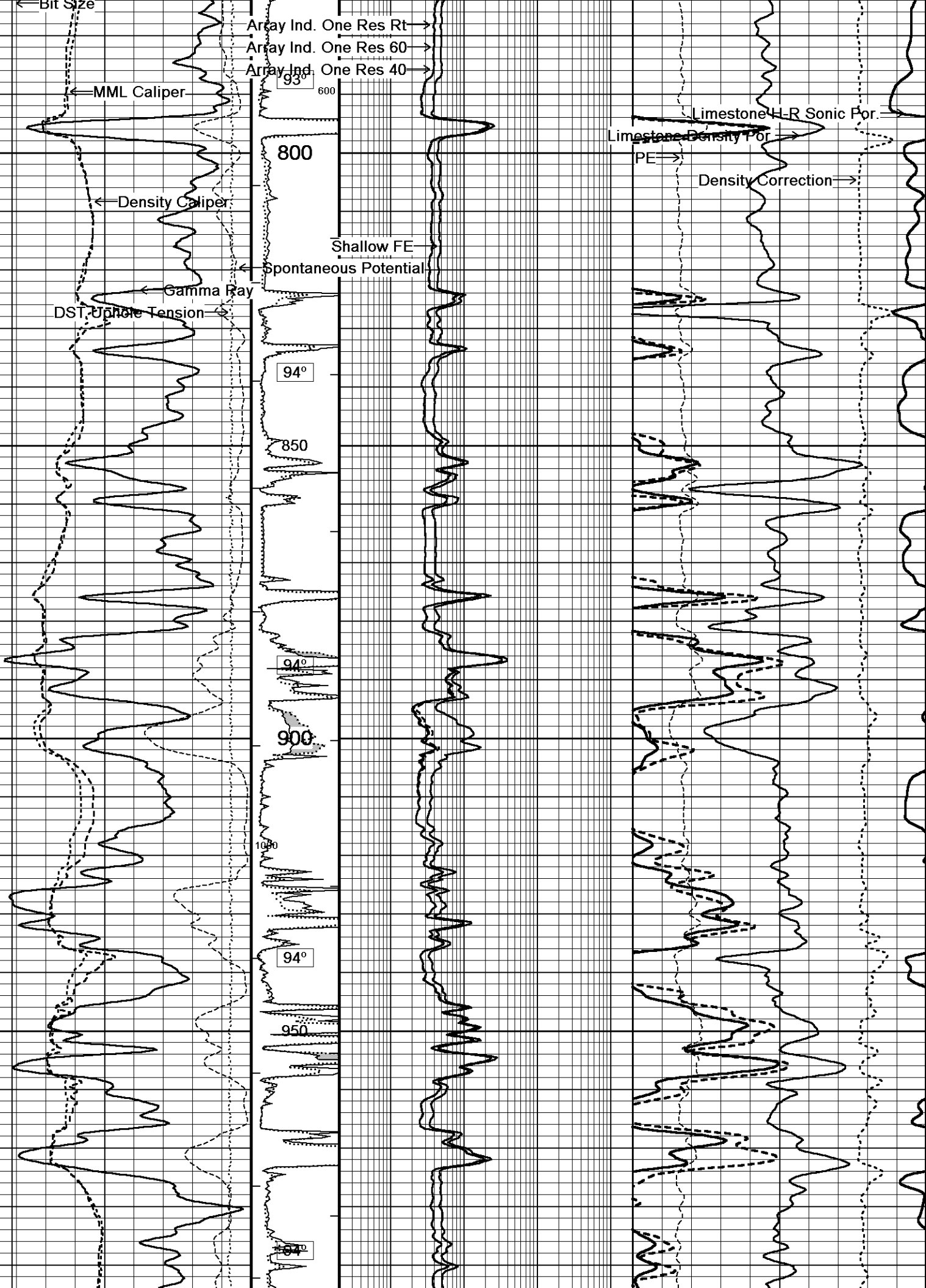
94°
1000

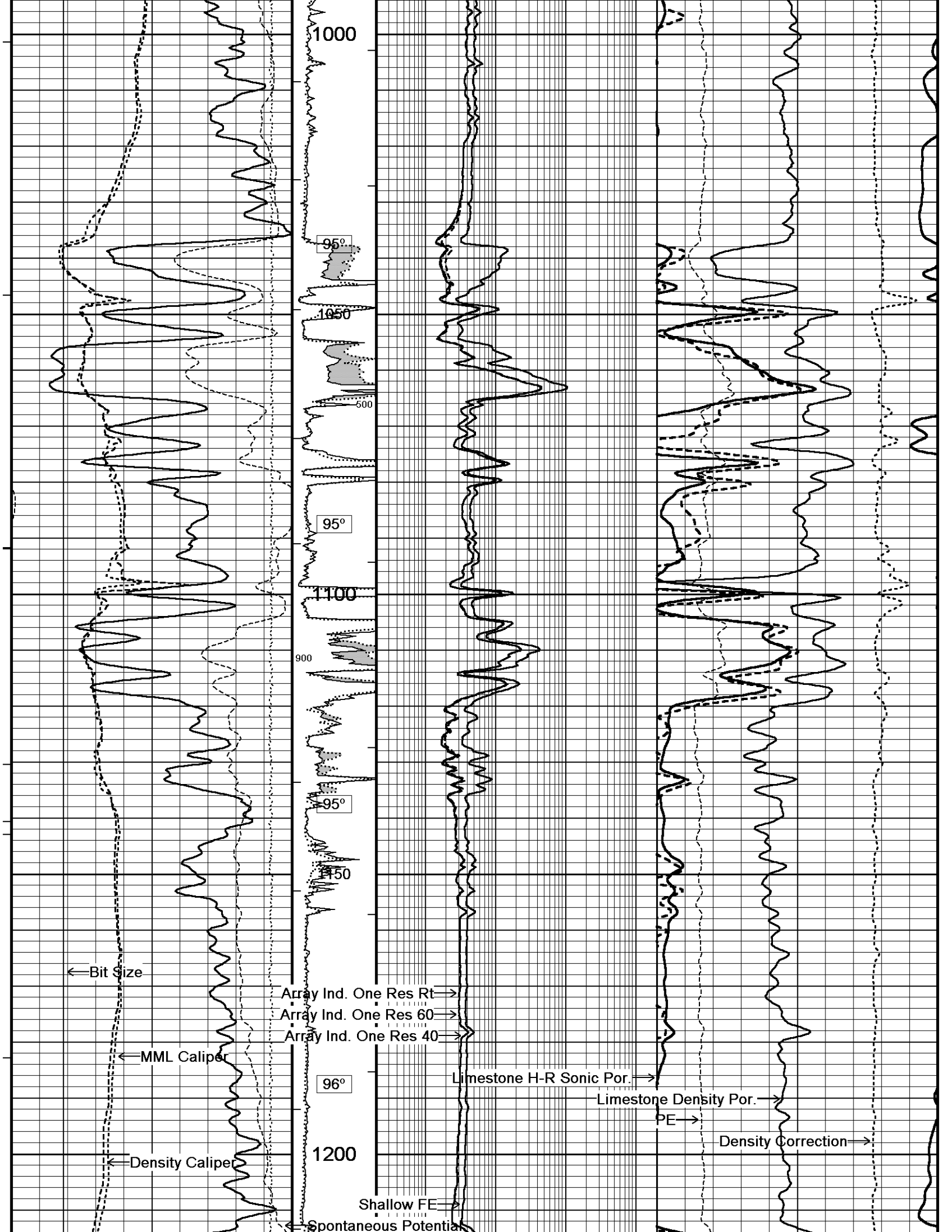
94°
1010

Limestone H-R Sonic Por.
Limestone Density Por

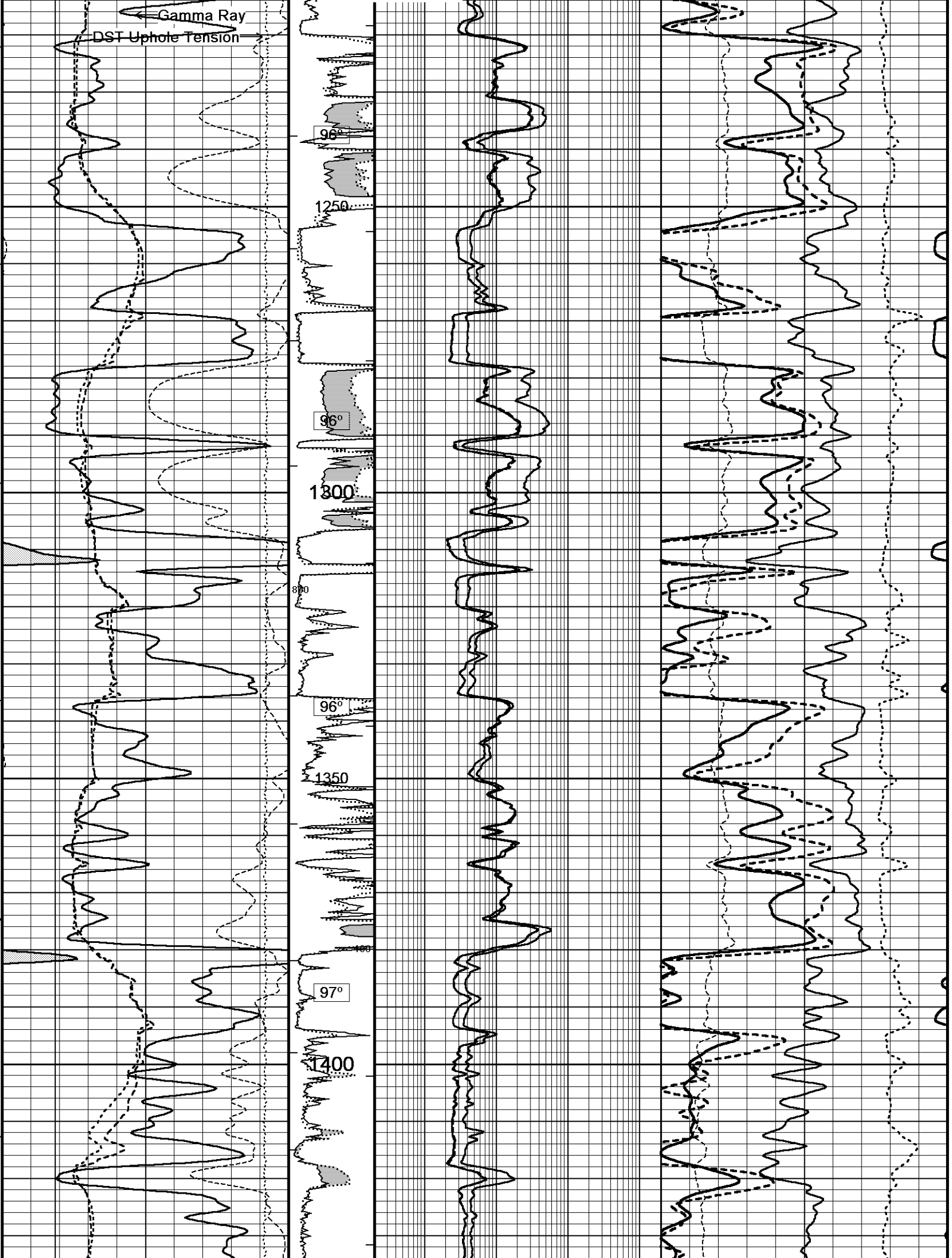
PE →

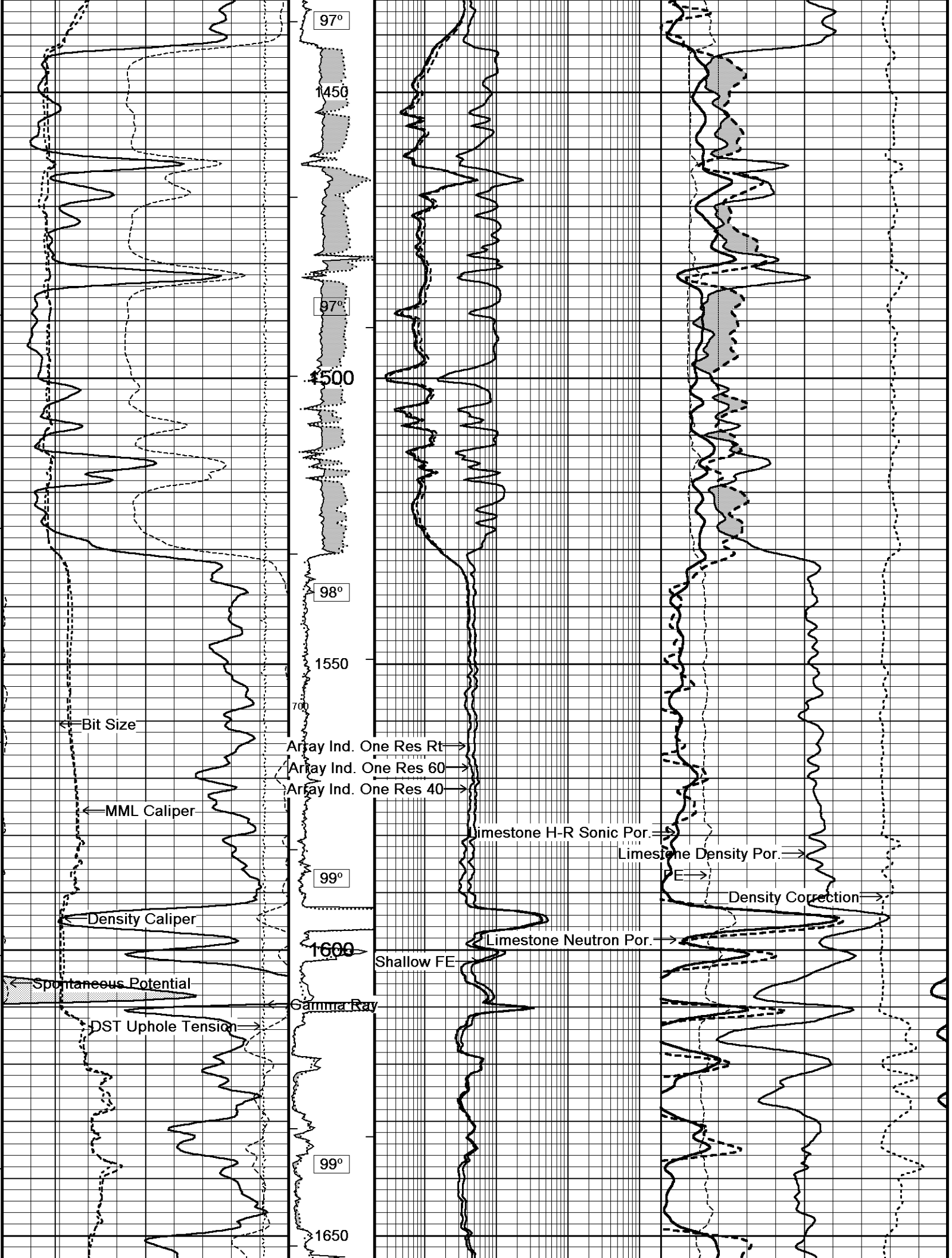
Density Correction →



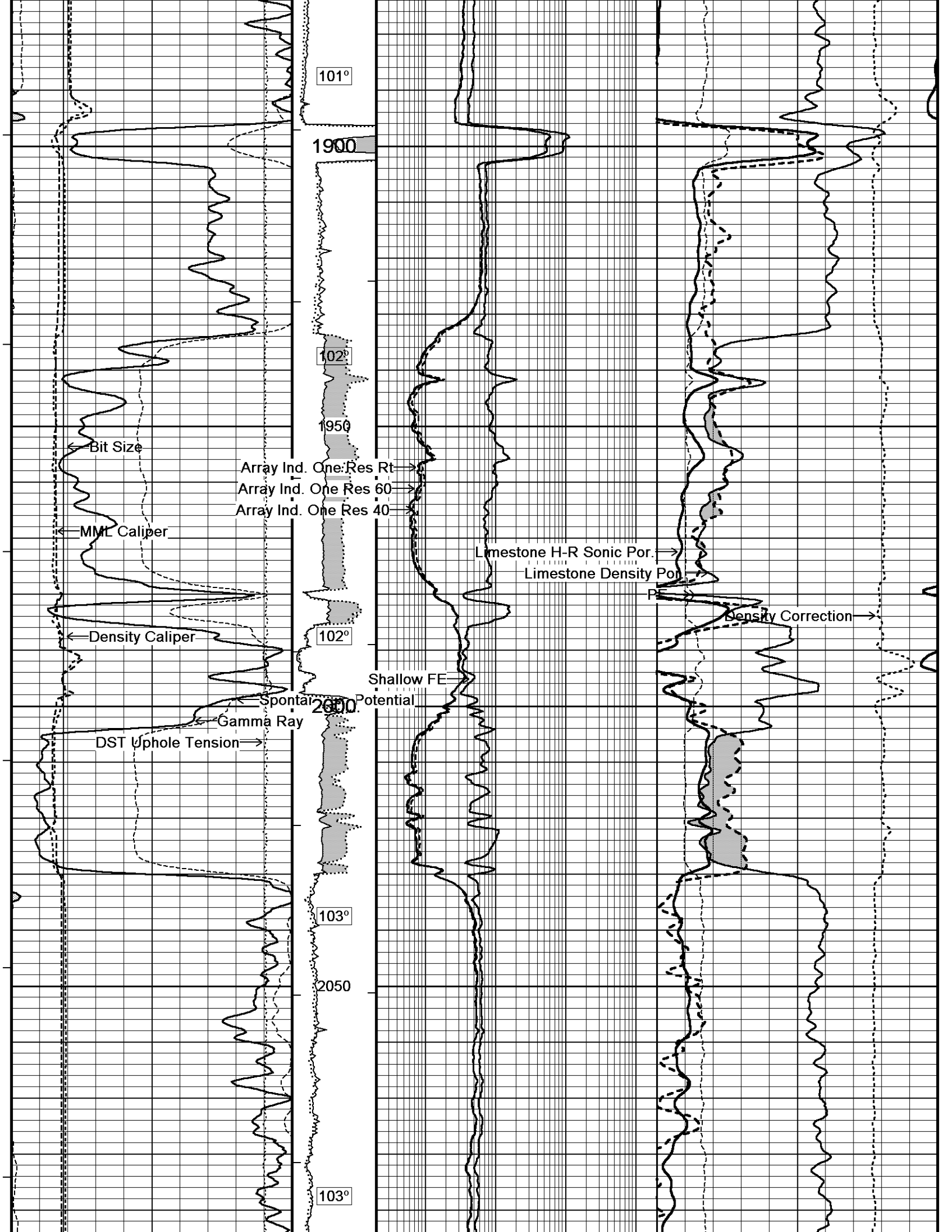


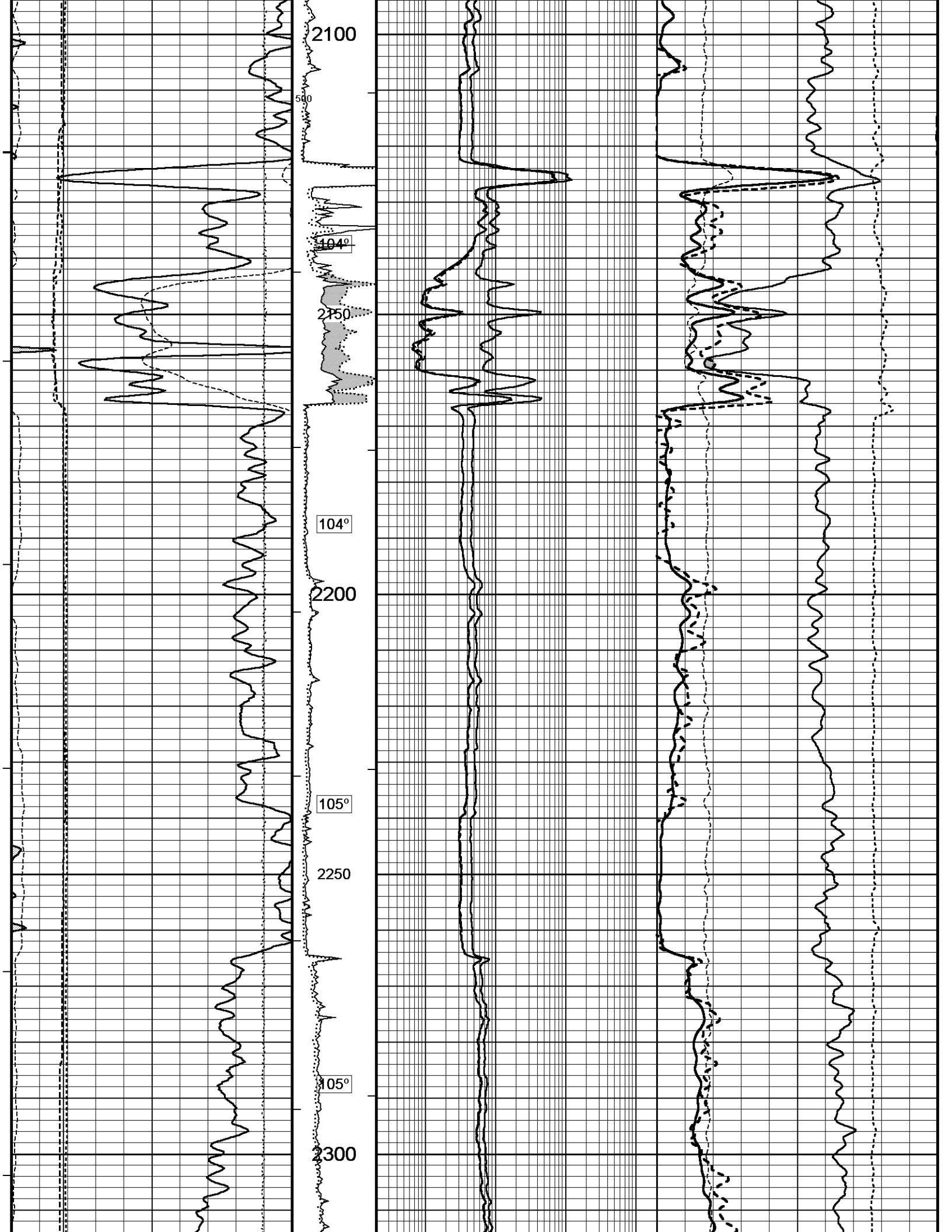
Gamma Ray
DST Uphole Tension

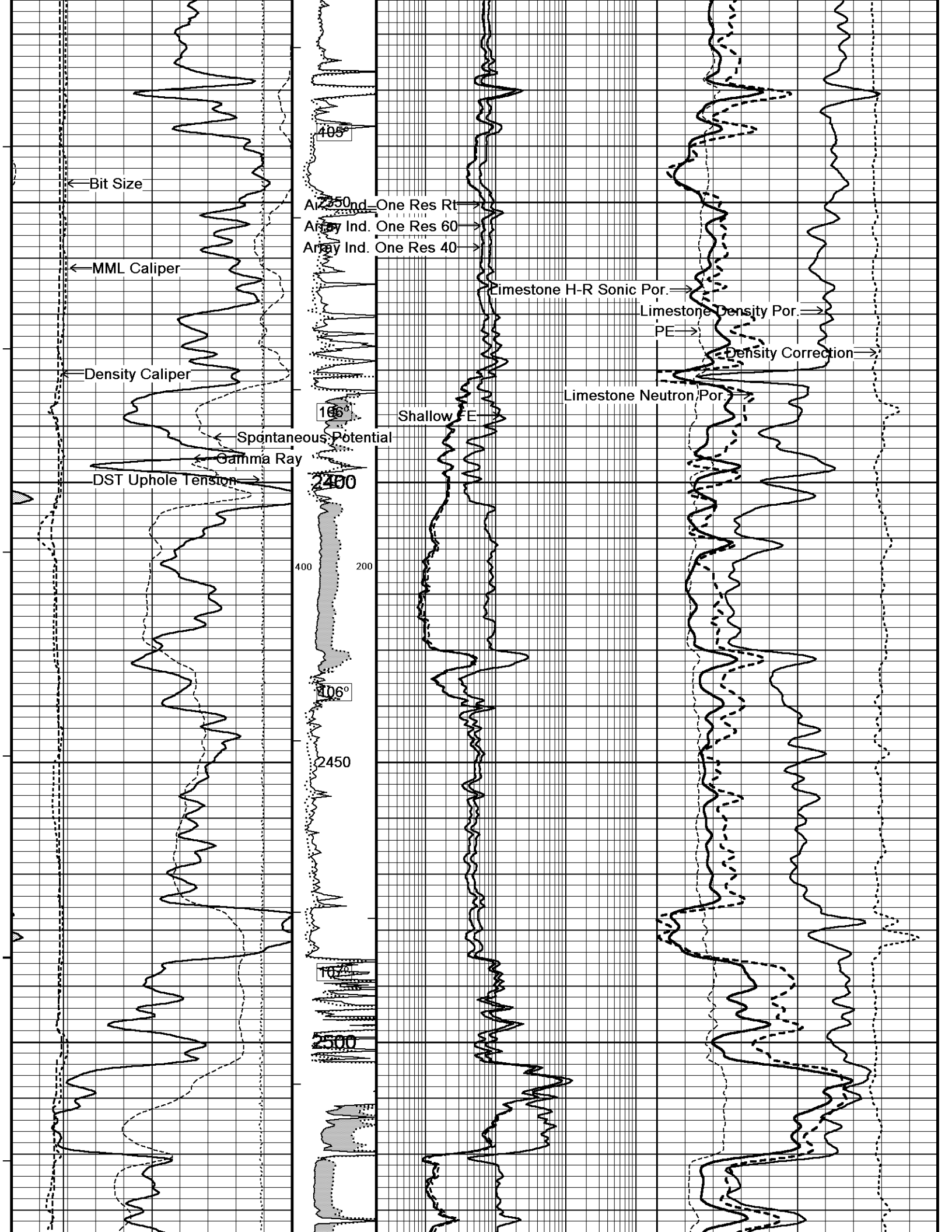


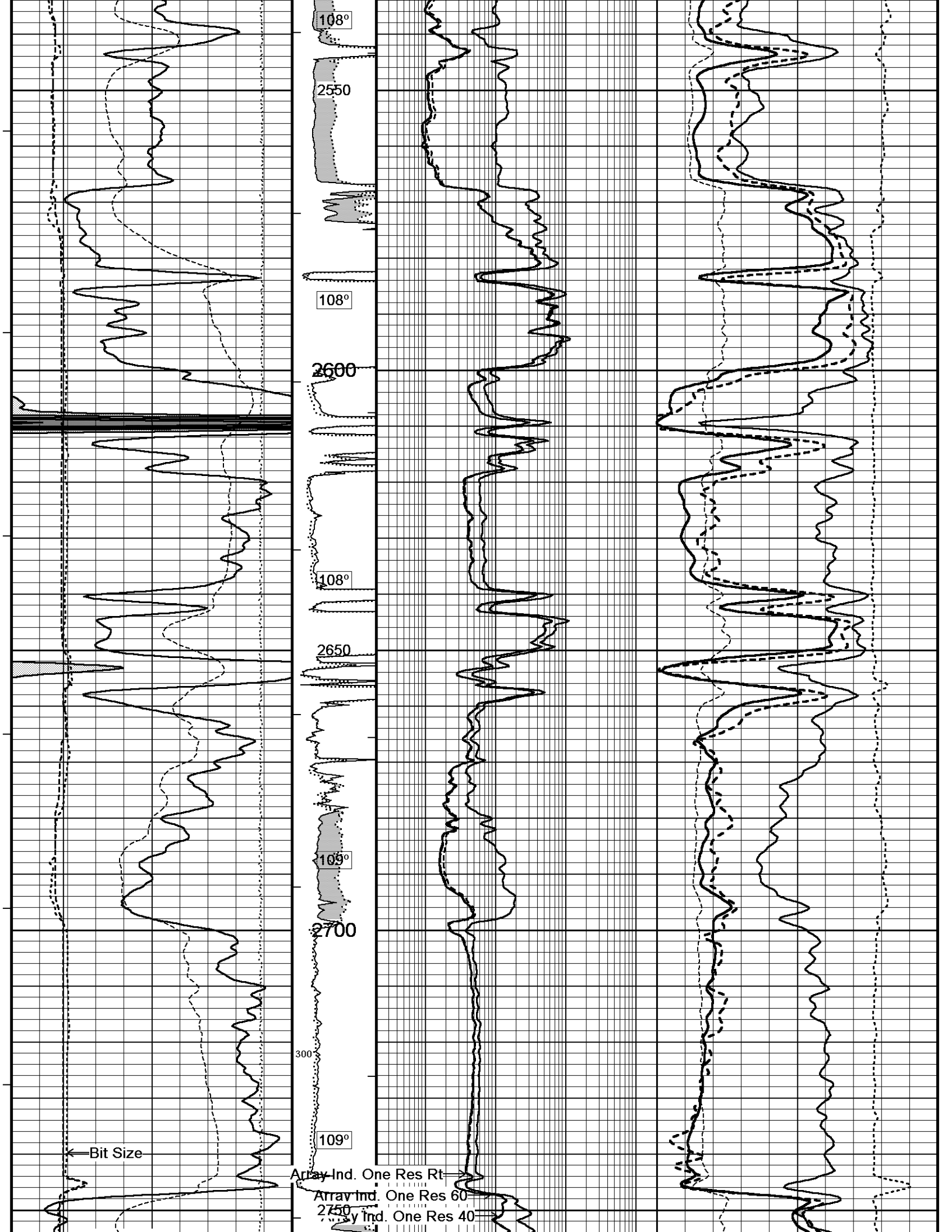


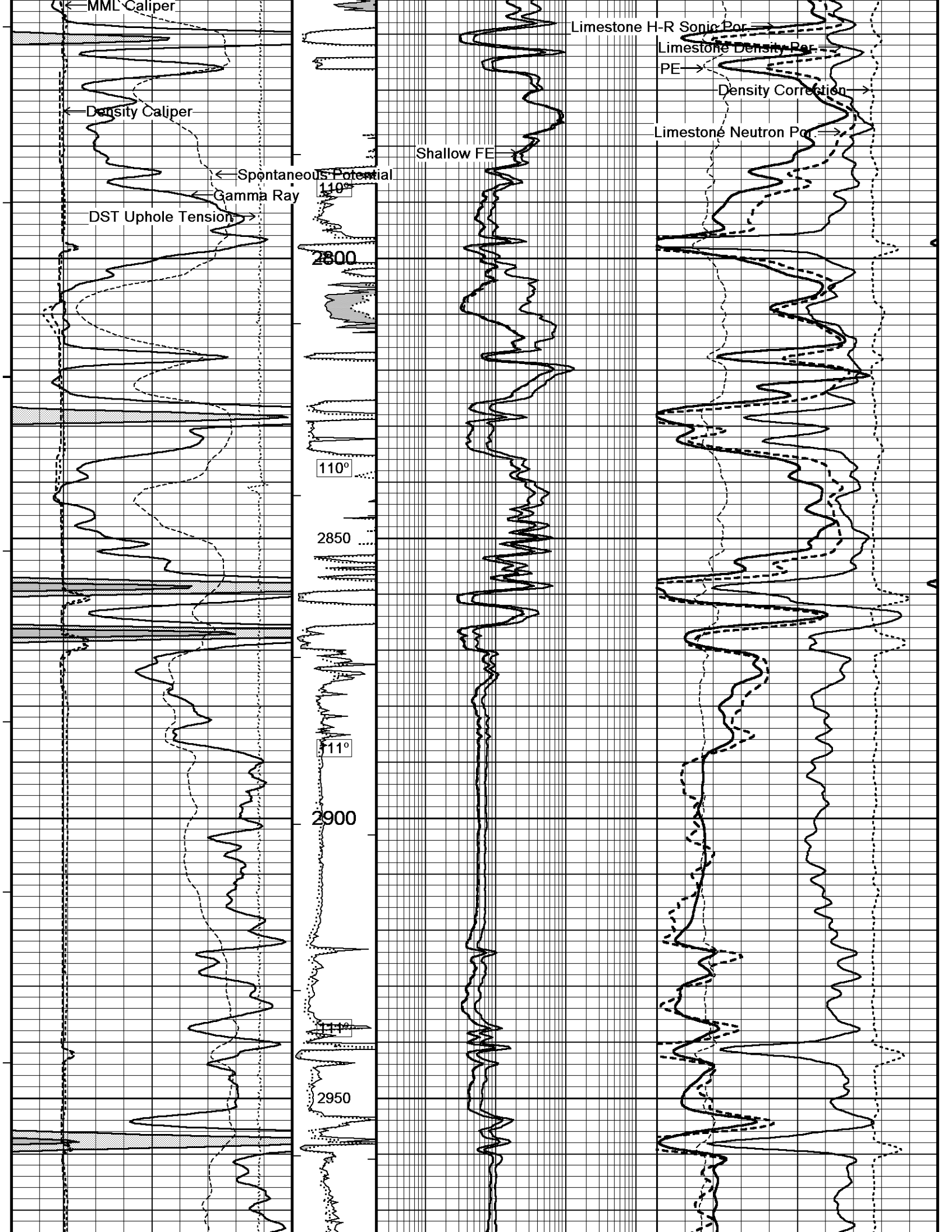












MML Caliper

Density Caliper

Spontaneous Potential

Gamma Ray

DST Uphole Tension

Shallow FE

Limestone H-R Sonic Por.

Limestone Density Por.

PE

Density Correction

Limestone Neutron Por.

110°

2800

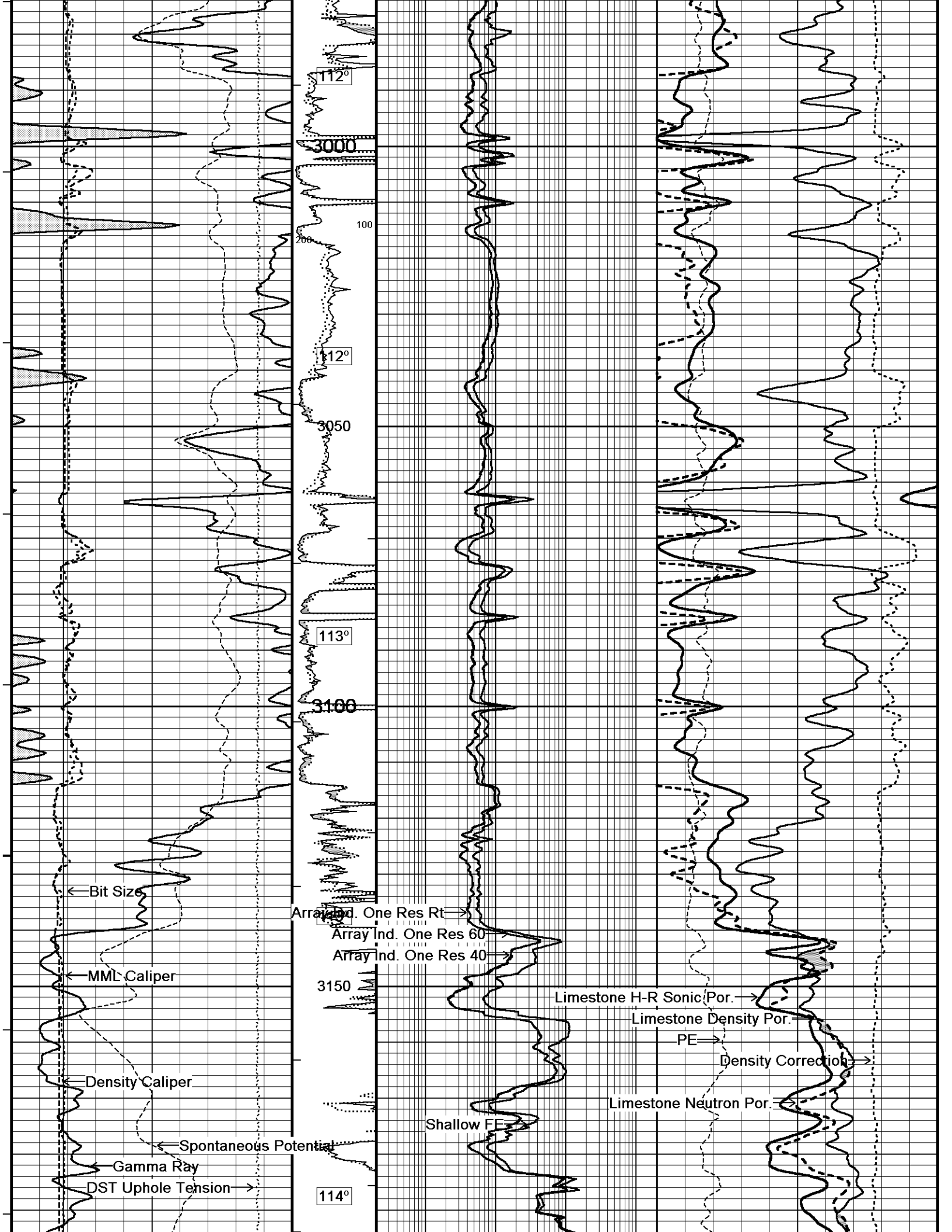
110°

2850

111°

2900

2950



112°

3000

100

112°

3050

113°

3100

3150

114°

← Bit Size

← MML Caliper

← Density Caliper

← Spontaneous Potential

← Gamma Ray

← DST Uphole Tension →

Array Ind. One Res Rt →

Array Ind. One Res 60 →

Array Ind. One Res 40 →

Shallow FE →

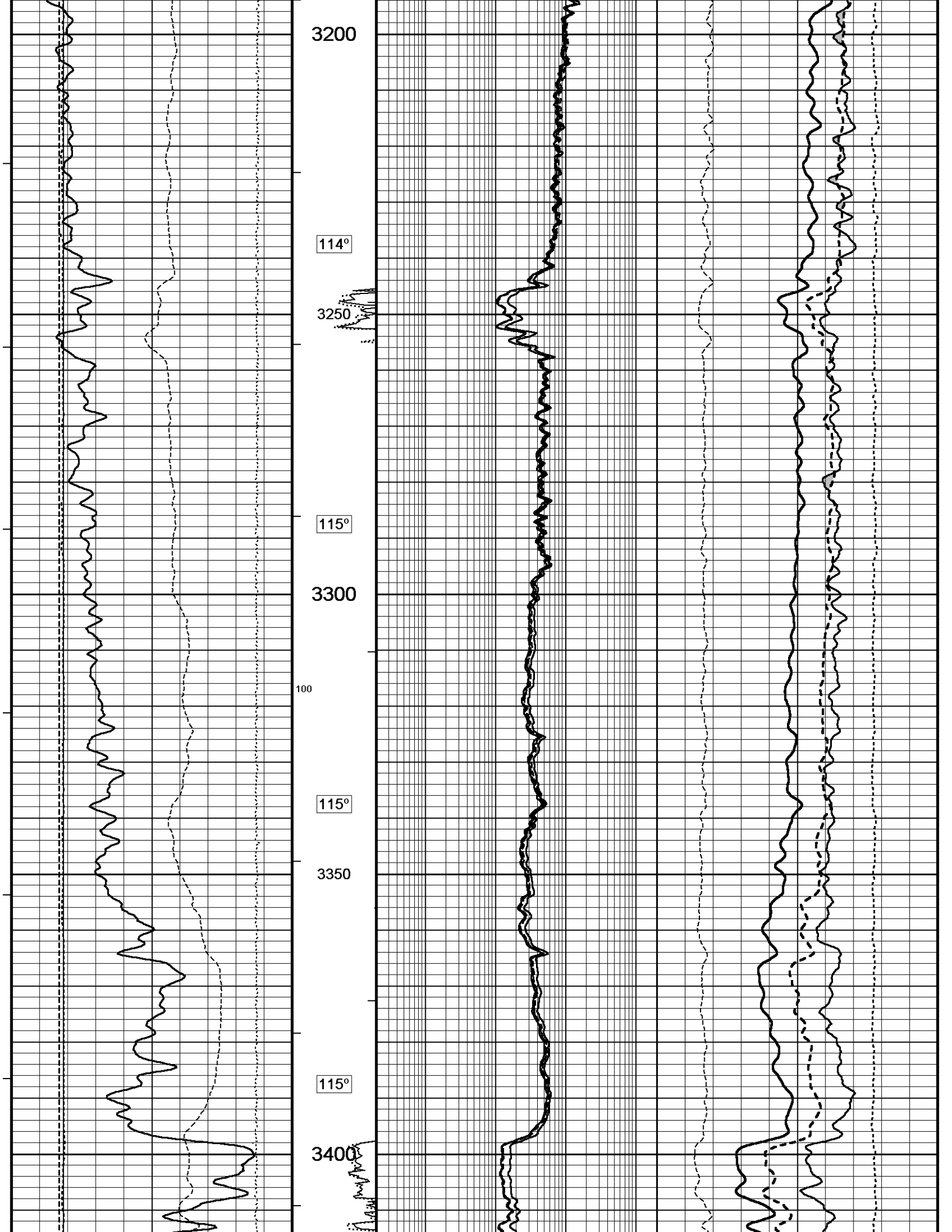
Limestone H-R Sonic Por. →

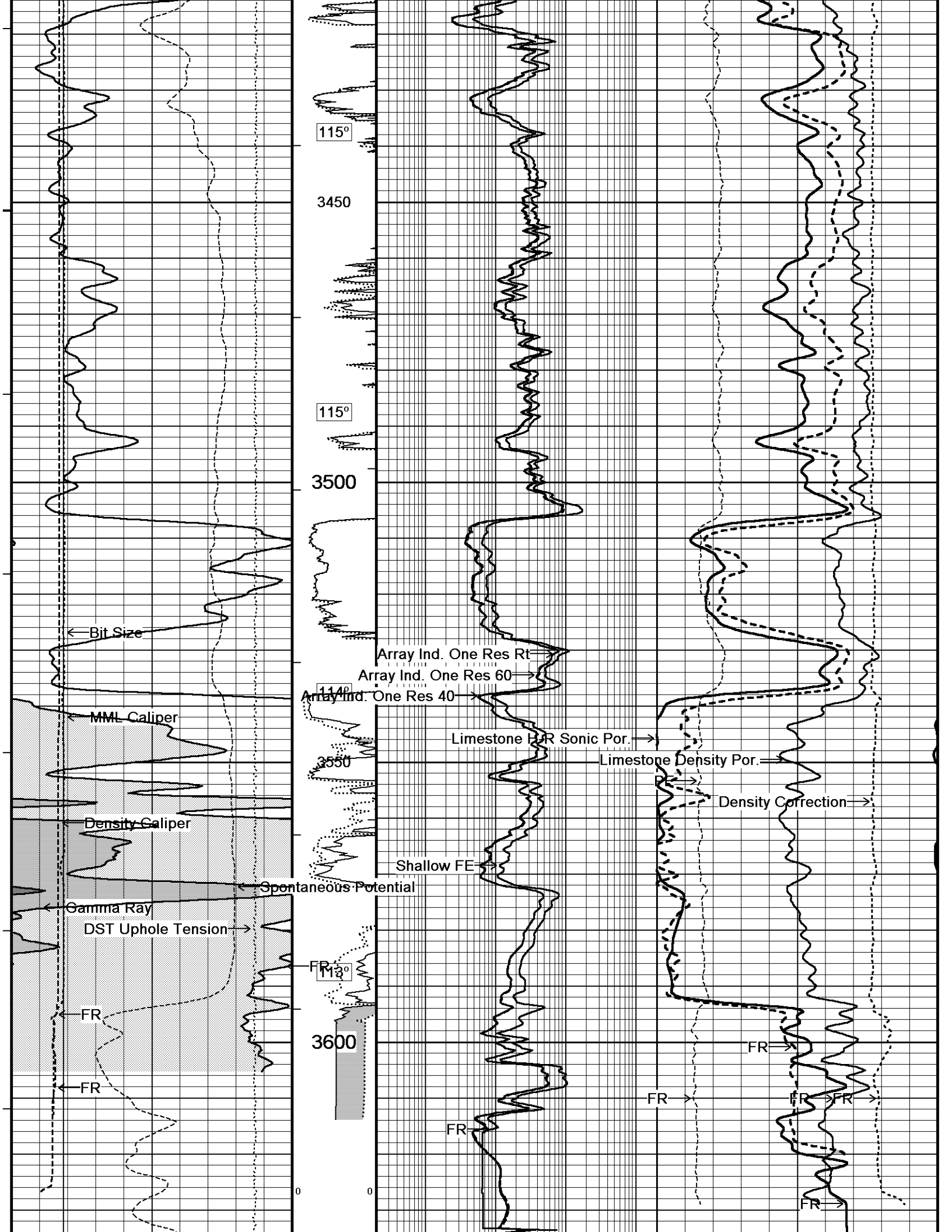
Limestone Density Por. →

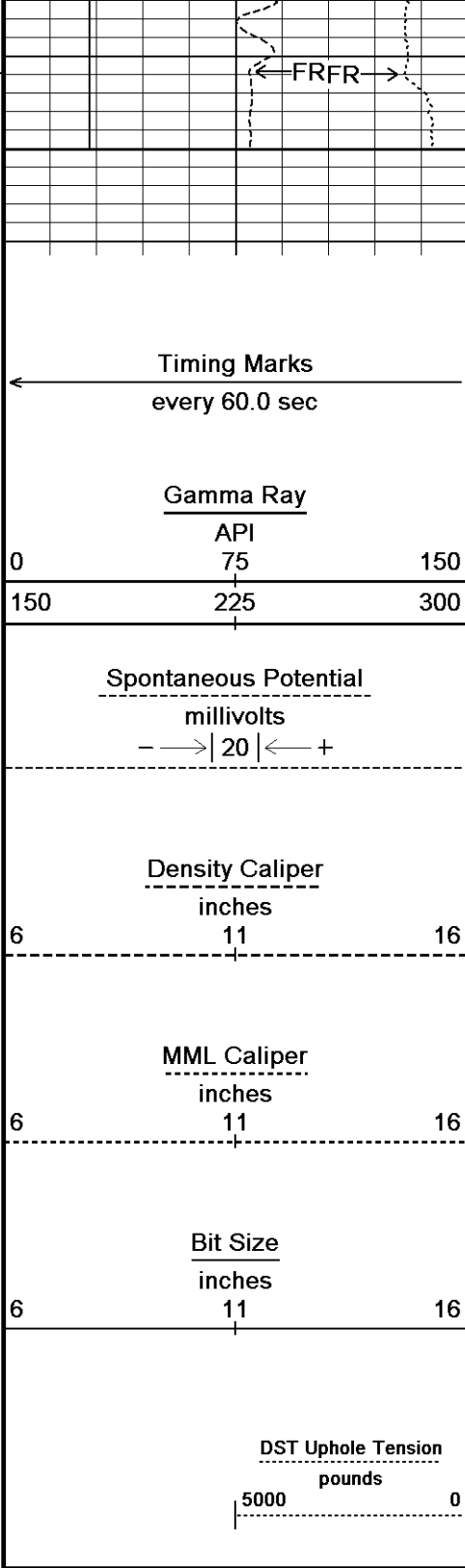
PE →

Density Correction →

Limestone Neutron Por. →







3650
3660
Depth In Feet

Borehole Temp in deg F

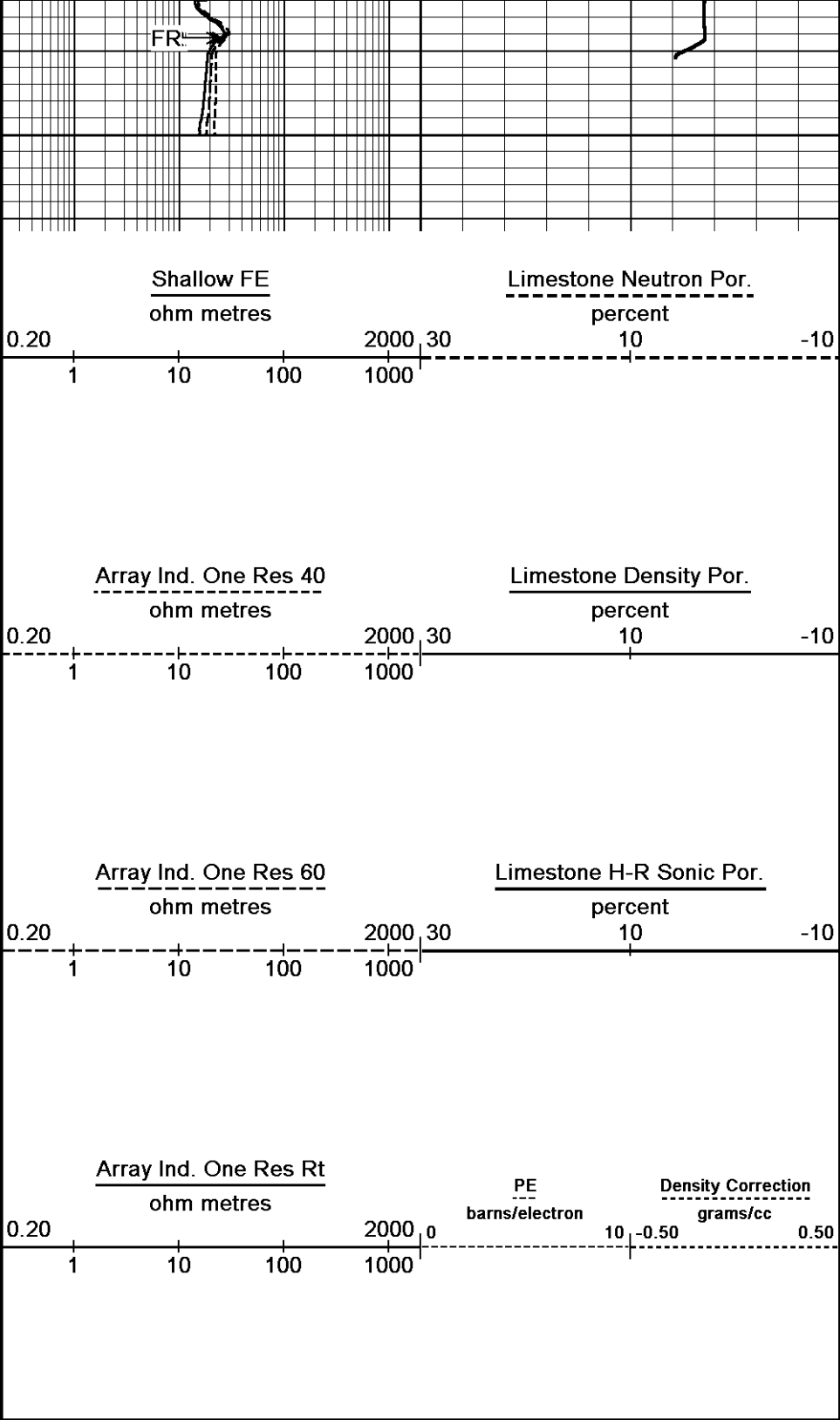
MNRL
0 20

MINV
0 20

HVI every 10 cu ft

Annular Integral every 10 cu ft

Replay Scale 1:240



Depth Based Data - Maximum Sampling Increment 10.0cm
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BEFORE SURVEY CALIBRATION

C:\Minimus 13.05.9583\Log\Taos Resources Operating Company LLC West Maddix ...\Taos Resources Co LLC WMU #17_MAIN.dta

General Constants All 000

Last Edited on 21-OCT-2013,01:55

General Parameters

Mud Resistivity	2.130	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	5.500	inches
Caliper for Differential Caliper	Density Caliper	

Rwa Parameters

Porosity used	Base Density Porosity
Resistivity used	Array Ind. Six Res Rt
RWA Constant A	0.610
RWA Constant M	2.150
SW/APOR Tool Source	0.000

Gamma Calibration MCG-D.K 469

Field Calibration on 10-OCT-2013 10:26

	Measured	Calibrated (API)
Background	70	48
Calibrator (Gross)	1122	773
Calibrator (Net)	1052	725

Gamma Constants MCG-D.K 469

Last Edited on 21-OCT-2013,00:34

Gamma Calibrator Number	GRC38	
Mud Density	1.11	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 18-AUG-2013,02:35

	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 18-AUG-2013,02:35

Pre-filter Length 11

Caliper Calibration MML-A 3

Base Calibration on 07-OCT-2013 08:47
Field Calibration on 10-OCT-2013 10:16

Base Calibration		
Reading No	Measured	Calibrator Size (in)
1	14962	5.98
2	18212	7.97
3	21407	9.86
4	25492	11.92
5	0	0.00
6	N/A	N/A
Field Calibration		
	Measured Caliper (in)	Actual Caliper (in)
	6.03	5.98

Micro Normal and Micro Inverse Calibration MML-A 3

Base Calibration on 07-OCT-2013 08:36
Field Check on 10-OCT-2013 10:17

Base Calibration					
		Measured		Calibrated (ohm-m)	
Channel	Resistor 1	Resistor 2	Resistor 1	Resistor 2	
Micro Normal	12.1	60.1	5.0	25.0	
Micro Inverse	15.7	78.4	5.0	25.0	
Field Check					
Channel	Base Check (ohm-m)		Field Check (ohm-m)		
Micro Normal	63.0		63.0		
Micro Inverse	48.2		48.2		

Micro Normal and Micro Inverse Constants MML-A 3

Last Edited on 10-OCT-2013,10:16

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 66

Base Calibration on 02-OCT-2013 18:04
Field Check on 10-OCT-2013 10:31

Base Calibration		Measured		Calibrated (cps)	
	Near	Far	Near	Far	
	3184	99	3714	110	
Ratio	32.303		33.764		
Field Calibrator at Base				Calibrated (cps)	
			1612	2330	
Ratio			0.692		
Field Check				Calibrated (cps)	
			1609	2335	
Ratio			0.693		

Neutron Constants MDN-A.B 66

Last Edited on 10-OCT-2013,10:26

Neutron Source Id	P0204NN	
Neutron Jig Number	5824NE	
Epithermal Neutron	No	
Caliper Source for Processing	Bit Size	
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 353

Base Calibration on 07-OCT-2013 09:02
Field Check on 10-OCT-2013 10:03

Base Calibration		Measured		Calibrated (ohm-m)	
Reference 1		0.0		0.0	
Reference 2		964.2		126.8	
Base Check				281.0	
Field Check				281.1	

FE Constants MFE-B.J 353

Last Edited on 10-OCT-2013,09:59

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 55

Last Edited on 27-AUG-2013,09:59

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	4-6' Compensated Sonic	
Correction for Sonde Skew	Not Applied	
Cycle Stretch Algorithm	Applied	

MN3F1 N/A micro-sec
 MX3FT N/A micro-sec
 Hunt-Raymer Constant 83.13 micro-sec/ft

Sonde Mode
 Hole Type Compensated 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	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

Induction Calibration MAI-A.A 167

Base Calibration on 02-OCT-2013,14:21
 Field Check on 10-OCT-2013 09:59

Base Calibration

Test Loop Calibration	Measured		Calibrated (mmho/m)	
Channel	Low	High	Low	High
1	17.3	474.2	9.3	966.2
2	6.3	388.4	7.6	821.4
3	3.3	259.4	5.2	566.0
4	1.9	133.0	2.6	279.2

Array Temperature 76.8 Deg F

Channel	Base Check (mmho/m)		Field Check (mmho/m)	
	Low	High	Low	High
1			12.8	3839.3
2			29.5	3477.1
3			29.1	3053.1
4			19.8	2081.7
Deep			18.6	2049.0
Medium			42.3	3991.4
Shallow			42.8	5054.5

Array Temperature 69.2 Deg F

Induction Model	RtAP-WBM		
Caliper for Borehole Corr.	Density Caliper		
Hole Size for Borehole Correction	2.500	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	60.00	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		

Caliper Calibration MPD-B 64

Base Calibration on 02-OCT-2013 15:52
 Field Calibration on 10-OCT-2013 10:11

Base Calibration			
Reading No	Measured	Calibrator Size (in)	
1	16381	3.99	
2	25151	5.98	
3	33629	7.97	
4	41918	9.86	
5	51268	11.92	
6	N/A	N/A	

Field Calibration			
	Measured Caliper (in)	Actual Caliper (in)	
	6.12	5.98	

Photo Density Calibration MPD-B 64

Base Calibration on 02-OCT-2013 16:14
 Field Check on 10-OCT-2013 10:08

Density Calibration				
Base Calibration				
	Near	Far	Near	Far
Reference 1	60377	33815	59556	30836
Reference 2	25205	2910	24941	2541
Field Check at Base				
	1160.4	1343.0		
Field Check				
	1157.1	1346.0		

PE Calibration

Base Calibration	WS	Measured WH	Ratio	Calibrated Ratio
Background	209	1031		
Reference 1	22936	60176	0.384	0.371
Reference 2	6851	25064	0.276	0.272

Field Check at Base
209.0 1030.6

Field Check
208.2 1029.8

Density Constants MPD-B 64

Last Edited on 21-OCT-2013,00:34

Density Source Id	18235B	
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 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	
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	0.00	

DOWNHOLE EQUIPMENT

C:\Minimus 13.05.9583\Log\Taos Resources Operating Company LLC West Maddix ... \Taos Resources Co LLC WMU #17_MAIN.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



55.39 ft GRGC - Gamma Ray

52.48 ft CGXT - MCG External Temperature

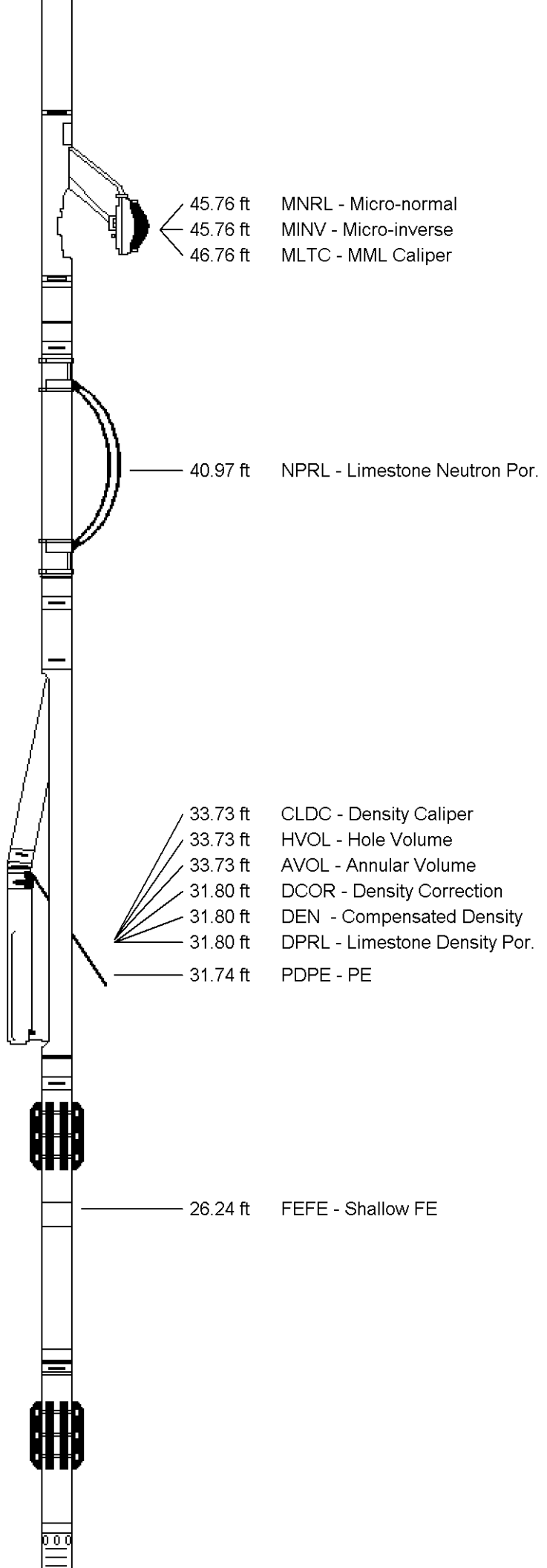
Compact Micro-log
MML-A 3 LG: 7.97 ft WT: 81.6 lb OD: 2.24 in

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

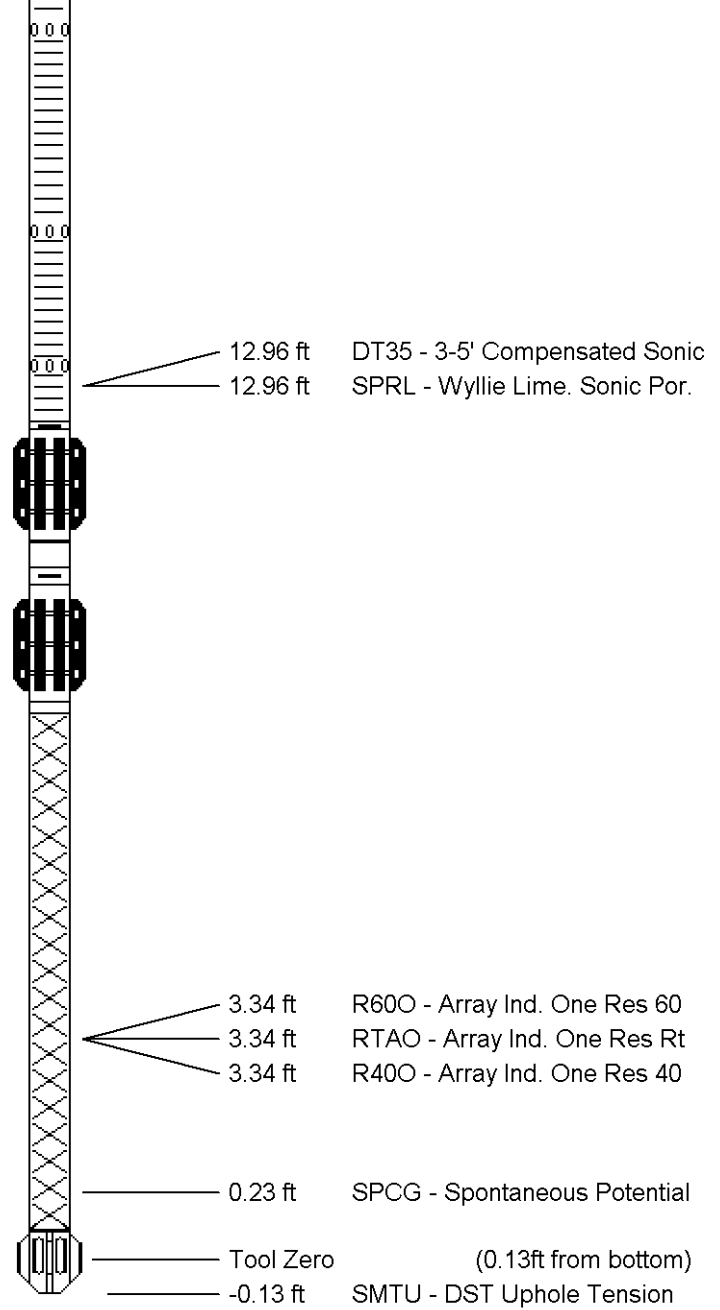
Compact Density/Caliper
MPD-B 64 LG: 9.59 ft WT: 90.4 lb OD: 2.45 in

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

Compact Sonic
MSS-A.A 55 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

All measurements relative to tool zero.

COMPANY TAOS RESOURCES CO. LLC.
 WELL WMU #17
 FIELD MADDIX NORTH
 PROVINCE/COUNTY COWLEY
 COUNTRY/STATE UNITED STATES / KANSAS

Elevation Kelly Bushing	1301.00	feet	First Reading	3639.00	feet
Elevation Drill Floor	1299.00	feet	Depth Driller	3650.00	feet
Elevation Ground Level	1293.00	feet	Depth Logger	3642.00	feet



Weatherford[®]

COMPOSITE LOG

