KANSAS CORPORATION COMMISSION
OIL & GAS CONSERVATION DIVISION

1051373

Form ACO-1
June 2009
Form Must Be Typed
Form must be Signed
All blanks must be Filled

WELL COMPLETION FORM
WELL HISTORY - DESCRIPTION OF WELL & LEASE

OPERATOR: License # 32211
Name: O'Brien Energy Resources Corp.
Address 1: 18 CONGRESS ST, STE 207
Address 2:
City: PORTSMOUTH State: NH Zip: 03801 + 4091
Contact Person: JOSEPH FORMA
Phone: (603) 427-2099
CONTRACTOR: License # 5929
Name: Duke Drilling Co., Inc.
Wellsite Geologist: PETER DEBENHAM
Purchaser: DCP MIDSTREAM

Designate Type of Completion:

- [x] New Well
- [ ] Re-Entry
- [ ] Workover

- [ ] Oil
- [ ] WSW
- [ ] SWD
- [ ] SIOW
- [x] Gas
- [ ] D&A
- [ ] ENHR
- [ ] SIGW
- [ ] OG
- [ ] GSW
- [ ] Temp. Abd.
- [ ] CM *(Coal Bed Methane)*
- [ ] Cathodic
- [ ] Other *(Core, Expl., etc.)*:

If Workover/Re-entry: Old Well Info as follows:

Operator:
Well Name:
Original Comp. Date: Original Total Depth:

- [ ] Deepening
- [ ] Re-perf.
- [ ] Conv. to ENHR
- [ ] Conv. to SWD
- [ ] Conv. to GSW
- [ ] Plug Back: Plug Back Total Depth
- [ ] Commingled Permit #:
- [ ] Dual Completion Permit #:
- [ ] SWD Permit #:
- [ ] ENHR Permit #:
- [ ] GSW Permit #:

11/30/2010	12/8/2010	2/14/2011
Spud Date or Recompletion Date	Date Reached TD	Completion Date or Recompletion Date

API No. 15 - 15-119-21277-00-00
Spot Description:
S2 - N2 - S2 - SW Sec. 30 Twp. 33 S. R. 29 [ ] East [x] West
760 Feet from [ ] North / [x] South Line of Section
1320 Feet from [ ] East / [x] West Line of Section

Footages Calculated from Nearest Outside Section Corner:

- [ ] NE
- [ ] NW
- [ ] SE
- [x] SW

County: Meade
Lease Name: VAIL Well #: 1-30
Field Name:
Producing Formation: MORROW
Elevation: Ground: 2667 Kelly Bushing: 2679
Total Depth: 6351 Plug Back Total Depth:
Amount of Surface Pipe Set and Cemented at: 1532 Feet
Multiple Stage Cementing Collar Used? [ ] Yes [x] No
If yes, show depth set: Feet
If Alternate II completion, cement circulated from:
feet depth to: w/ sx cmt.

Drilling Fluid Management Plan
(Data must be collected from the Reserve Pit)

Chloride content: 800 ppm Fluid volume: 1200 bbls
Dewatering method used: Hauled to Disposal

Location of fluid disposal if hauled offsite:

Operator Name: DILLCO FLUID SERVICE, INC.
Lease Name: REGIER IE License #: 6652
Quarter NE Sec. 17 Twp. 33 S. R. 27 [ ] East [x] West
County: MEADE Permit #: D21232

AFFIDAVIT

I am the affiant and I hereby certify that all requirements of the statutes, rules and regulations promulgated to regulate the oil and gas industry have been fully complied with and the statements herein are complete and correct to the best of my knowledge.

Submitted Electronically

KCC Office Use ONLY

- [x] **Letter of Confidentiality Received**
  Date: 02/25/2011
- [x] **Confidential Release Date:** 02/24/2013
- [x] **Wireline Log Received**
- [ ] **Geologist Report Received**
- [ ] **UIC Distribution**

ALT [x] I [ ] II [ ] III **Approved by:** NAOMI JAMES **Date:** 03/02/2011

Side Two

[redacted]

1051373

Operator Name: O'Brien Energy Resources Corp. Lease Name: VAIL Well #: 1-30

Sec. 30 Twp. 33 S. R. 29 ☐ East ☑ West County: Meade

INSTRUCTIONS: Show important tops and base of formations penetrated. Detail all cores. Report all final copies of drill stems tests giving interval tested, time tool open and closed, flowing and shut-in pressures, whether shut-in pressure reached static level, hydrostatic pressures, bottom hole temperature, fluid recovery, and flow rates if gas to surface test, along with final chart(s). Attach extra sheet if more space is needed. Attach complete copy of all Electric Wire-line Logs surveyed. Attach final geological well site report.

Drill Stem Tests Taken ☐ Yes ☑ No
(Attach Additional Sheets)

Samples Sent to Geological Survey ☑ Yes ☐ No

Cores Taken ☐ Yes ☑ No

Electric Log Run ☑ Yes ☐ No

Electric Log Submitted Electronically ☐ Yes ☑ No
(If no, Submit Copy)

List All E. Logs Run:
Attached

☑ Log Formation (Top), Depth and Datum ☐ Sample

Name	Top	Datum
Attached	Attached	Attached

CASING RECORD ☑ New ☐ Used
Report all strings set-conductor, surface, intermediate, production, etc.

Purpose of String	Size Hole Drilled	Size Casing Set (In O.D.)	Weight Lbs. / Ft.	Setting Depth	Type of Cement	# Sacks Used	Type and Percent Additives
SURFACE	12.25	8.6250	24	1532	ACON/PREMIUM	510	3%CaCl, .25# floseal
PORDUCTION	7.8750	4.5	10.5	6348	AA2/PREMIUM	225	

ADDITIONAL CEMENTING / SQUEEZE RECORD

Purpose:	Depth Top Bottom	Type of Cement	# Sacks Used	Type and Percent Additives
☐ Perforate ☐ Protect Casing ☐ Plug Back TD ☐ Plug Off Zone	-			
	-			

Shots Per Foot	PERFORATION RECORD - Bridge Plugs Set/Type Specify Footage of Each Interval Perforated	Acid, Fracture, Shot, Cement Squeeze Record *(Amount and Kind of Material Used)*	Depth
2	6260-6266, Set 4.5" CIBP @ 6220		
2	5860-5876	Acidize w/ 1000gals NEFE 5% HCl	PERFS
2	5816-5838		

TUBING RECORD: Size: 2.375 Set At: 5755 Packer At: 5750

Liner Run: ☐ Yes ☑ No

Date of First, Resumed Production, SWD or ENHR. 2/14/2011

Producing Method: ☑ Flowing ☐ Pumping ☐ Gas Lift ☐ Other *(Explain)*

Estimated Production Per 24 Hours	Oil Bbls.	Gas Mcf	Water Bbls.	Gas-Oil Ratio	Gravity
	8	1871	0	233	

DISPOSITION OF GAS:
☐ Vented ☑ Sold ☐ Used on Lease
(If vented, Submit ACO-18.)

METHOD OF COMPLETION:
☐ Open Hole ☑ Perf. ☐ Dually Comp. *(Submit ACO-5)* ☐ Commingled *(Submit ACO-4)*
☐ Other *(Specify)*

PRODUCTION INTERVAL:
5860-5876
5816-5838

Mail to: KCC - Conservation Division, 130 S. Market - Room 2078, Wichita, Kansas 67202

Form	ACO1 - Well Completion
Operator	O'Brien Energy Resources Corp.
Well Name	VAIL 1-30
Doc ID	1051373

All Electric Logs Run

DUAL INDUCTION
COMPENSATED NEUTRON
LITHO DENSITY
MICROLOG
CEMENT BOND

Form	ACO1 - Well Completion
Operator	O'Brien Energy Resources Corp.
Well Name	VAIL 1-30
Doc ID	1051373

Tops

Name	Top	Datum
HEEBNER	4484	-1805
LANSING	4640	-1961
MARMATON	5276	-2597
CHEROKEE	5430	-2751
MORROW	5772	-3093
CHESTER	5902	-3223
STE. GENEVIEVE	6164	-3485
ST.LOUIS	6256	-3577

Conservation Division
Finney State Office Building
130 S. Market, Rm. 2078
Wichita, KS 67202-3802

Kansas
Corporation Commission

phone: 316-337-6200
fax: 316-337-6211
http://kcc.ks.gov/

Thomas E. Wright, Chairman
Ward Loyd, Commissioner

Sam Brownback, Governor

February 25, 2011

JOSEPH FORMA
O'Brien Energy Resources Corp.
18 CONGRESS ST, STE 207
PORTSMOUTH, NH 03801-4091

Re: ACO1
API 15-119-21277-00-00
VAIL 1-30
SW/4 Sec.30-33S-29W
Meade County, Kansas

Dear Production Department:

We are herewith requesting that the Well Completion Form ACO-1 and attached information for the subject well be held confidential for a period of two years.

Should you have any questions or need additional information regarding subject well, please contact our office.

Respectfully,
Joseph Forma
Vice President, Operations
O'Brien Energy Resources Corp.

BASiC energy services, L.P.

TREATMENT REPORT

Customer Oberon Energy	Lease No.	Date 12-8-10
Lease York	Well # 1-30	

Field Order # [illegible]	Station Liberal KS	Casing 4 1/2	Depth 6350	County Meade	State KS
Type Job 4 1/2 Long String JRB		Formation		Legal Description 21-33-29	

PIPE DATA		PERFORATING DATA		FLUID USED	TREATMENT RESUME			
Casing Size 4 1/2	Tubing Size	Shots/Ft	JRB	Acid 175sk AA2		RATE	PRESS	ISIP
Depth 6350	Depth	From	To	Pre Pad [illegible]	Max			5 Min.
Volume [illegible]	Volume	From	To	Pad [illegible]	Min			10 Min.
Max Press 2000	Max Press	From	To	Frac [illegible]	Avg			15 Min.
Well Connection [illegible]	Annulus Vol.	From	To	Rat + Mouse	HHP Used			Annulus Pressure
Plug Depth [illegible]	Packer Depth	From	To	Flush	Gas Volume			Total Load

Customer Representative [illegible] Pearson	Station Manager Terry Bennett	Treater [illegible]

Service Units	19820	27463	19553	14355	[illegible]					
Driver Names	[illegible]	Robert A.		Tom	O					

Time	Casing Pressure	Tubing Pressure	Bbls. Pumped	Rate	Service Log
1030					Arrive On Location
1050					Safety Meeting - Rig Up
1100					Running 4 1/2 Casing 6350'
1450					Hook Up To Rig Circulate
1520	2000		.5	.5	Pressure Test
1530	550		5	4.0	Pump Water Spacer
1535	500		12	4.0	Pump Super Flush Spacer
1540	500		5	4.0	Pump Water Spacer
1545	400		48	4.0	Pump 175sk mud @ 14.8 #'s
1600					Wash Pump and Lines - Drop Plug
1605	400		86	6.5	Displace Cmt @ 96 bbls
1620	750		10	2.3	Slowdown
1630	1300		.5	.5	Land Plug Float Held
[illegible]					Plug Rat and Mouse Holes w/50sks
1830					Job Complete
					Thanks For Using Basic Energy Services

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BASIC ENERGY SERVICES
PRESSURE PUMPING & WIRELINE
1700 S. Country Estates Rd.
P.O. Box 129
Liberal, Kansas 67905
Phone 620-624-2277

FIELD SERVICE TICKET

1717 01189 A

DATE TICKET NO.

DATE OF JOB 12-8-10 DISTRICT 1717	NEW WELL ☒ OLD WELL ☐ PROD ☐ INJ ☐ WDW ☐ CUSTOMER ORDER NO.:
CUSTOMER O'brien Energy	LEASE Vail 1-30 WELL NO.
ADDRESS	COUNTY Meade STATE KS
CITY STATE	SERVICE CREW I. Chavez, Ruben, Juan O
AUTHORIZED BY Terry Bart JRB	JOB TYPE: 4 1/2 Long String Z42

EQUIPMENT#	HRS	EQUIPMENT#	HRS	EQUIPMENT#	HRS
19820	8	27808	6	111355	6
		19553	7	111784	7

	DATE	AM PM	TIME
TRUCK CALLED	12-8-10		1100
ARRIVED AT JOB			1100
START OPERATION			[illegible]
FINISH OPERATION			4:15
RELEASED			[illegible]
MILES FROM STATION TO WELL	25		

CONTRACT CONDITIONS: (This contract must be signed before the job is commenced or merchandise is delivered).

The undersigned is authorized to execute this contract as an agent of the customer. As such, the undersigned agrees and acknowledges that this contract for services, materials, products, and/or supplies includes all of and only those terms and conditions appearing on the front and back of this document. No additional or substitute terms and/or conditions shall become a part of this contract without the written consent of an officer of Basic Energy Services LP.

SIGNED: Roger Pearson
(WELL OWNER, OPERATOR, CONTRACTOR OR AGENT)

ITEM/PRICE REF. NO.	MATERIAL, EQUIPMENT AND SERVICES USED	UNIT	QUANTITY	UNIT PRICE	$ AMOUNT
CL100	Premium Common	sk	50		800 00
CL105	AA2 Cement	sk	175		3185 00
CC113	Gypsum	lb	825		618 75
CC111	Salt	lb	972		486 00
CC103	C-15	lb	99		1237 50
CC107	C-42P	lb	42		336 00
CC201	Gilsonite	lb	877		587 59
CF102	Top Rubber Plug	EA	1		90 00
CF250	Guide Shoe	EA	1		235 00
CF1450	Insert Flapper Valve	EA	1		200 00
CF1770	Centralizer	EA	6		360 00
CF500	Stop Ring	EA	1		30 00
CC155	Super Flush II	gal	500		765 00
C706	CC-1 HCL	gal	4		176 00
E101	Heavy Equipment Mileage	mi	50		350 00
CE240	Blending Mixing Service Charge	sk	225		315 00
E113	Bulk Delivery Charge	tm	707		331 00
CE207	Depth Charge 6001-7000	4hrs	1		2310 00
CE504	Plug Container Charge	job	1		250 00
				SUB TOTAL	9877 00

CHEMICAL / ACID DATA:

SERVICE & EQUIPMENT	%TAX ON $	
MATERIALS	%TAX ON $	
	TOTAL	

SERVICE REPRESENTATIVE Ismael Chavez

THE ABOVE MATERIAL AND SERVICE ORDERED BY CUSTOMER AND RECEIVED BY: Roger Pearson
(WELL OWNER OPERATOR CONTRACTOR OR AGENT)

FIELD SERVICE ORDER NO.

CLOUD LITHO - Abilene, TX

BASiC energy services, L.P.

TREATMENT REPORT

Customer: Oxy / Berry Energy	Lease No.	Date: 12-1-10
Lease: Vail	Well #: 1-30	

Field Order #: 11181	Station: Liberal, KS	Casing: 8 5/8	Depth: 1600	County: Meade	State: KS

Type Job: 242 CNW/CP Top Out	Formation	Legal Description: 30-33-29

PIPE DATA		PERFORATING DATA		FLUID USED	TREATMENT RESUME		
Casing Size: 8 5/8	Tubing Size	Shots/Ft		Acid: 100sx Premium Plus	RATE	PRESS	ISIP
Depth: 1600	Depth	From	To	Pre Pad: 1.32 ft³ sk	Max		5 Min.
Volume: Top Out	Volume	From	To	Pad: 6.31 Gal sk	Min		10 Min.
Max Press	Max Press	From	To	Frac	Avg		15 Min.
Well Connection	Annulus Vol.	From	To		HHP Used		Annulus Pressure
Plug Depth	Packer Depth	From	To	Flush	Gas Volume		Total Load

Customer Representative: Nash Pearson	Station Manager: Terry Benett	Treater: [illegible]

Service Units	19570	27808	14553
Driver Names	[illegible]	TJ	

Time	Casing Pressure	Tubing Pressure	Bbls. Pumped	Rate	Service Log
1800					Arrive on Location
1830					Safety Meeting - Rig Up
1900					Pump 100sx @ 15.0 #'s
1915					Wash Up
1950					Leave Location
					Cement To Surface
					Thanks For Using Basic Energy Services

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Taylor Printing, Inc. 620-672-3656

BASIC ENERGY SERVICES
PRESSURE PUMPING & WIRELINE

1700 S. Country Estates Rd.
P.O. Box 129
Liberal, Kansas 67905
Phone 620-624-2277

FIELD SERVICE TICKET
1717 01385 A

DATE TICKET NO.

DATE OF JOB 12-1-10 DISTRICT 1717 Liberal Ks	NEW WELL ☒ OLD WELL ☐ PROD ☐ INJ ☐ WDW ☐ CUSTOMER ORDER NO.:
CUSTOMER OBrien Energy	LEASE Vail WELL NO. 1-30
ADDRESS	COUNTY Meade STATE Ks
CITY STATE	SERVICE CREW RCox DMonaday RMartinez EMendoza
AUTHORIZED BY Jerry Bennett	JOB TYPE: 2-42 Surface pipe

EQUIPMENT#	HRS	EQUIPMENT#	HRS	EQUIPMENT#	HRS
27462	1				
19805	4				
19808	4				
14354	4				
384463	2				
19919	2				

TRUCK CALLED	DATE	AM PM TIME
ARRIVED AT JOB		AM PM 0800
START OPERATION		AM PM
FINISH OPERATION		AM PM
RELEASED		AM PM
MILES FROM STATION TO WELL		27

CONTRACT CONDITIONS: (This contract must be signed before the job is commenced or merchandise is delivered).
The undersigned is authorized to execute this contract as an agent of the customer. As such, the undersigned agrees and acknowledges that this contract for services, materials, products, and/or supplies includes all of and only those terms and conditions appearing on the front and back of this document. No additional or substitute terms and/or conditions shall become a part of this contract without the written consent of an officer of Basic Energy Services LP.

SIGNED: X Roger Pearson
(WELL OWNER, OPERATOR, CONTRACTOR OR AGENT)

ITEM/PRICE REF. NO.	MATERIAL, EQUIPMENT AND SERVICES USED	UNIT	QUANTITY	UNIT PRICE	$ AMOUNT
CL101	A-Con Blend	SK	360		6696 00
CL110	Premium Plus Cmt	SK	150		2445 00
CC109	Calcium Chloride	lb	1299		1312 95
CC102	Cello Flake	lb	128		473 60
CC130	C-51	lb	108		1700 00
CE105	Top Rubber Cmt plug	EA	1		225 00
CE253	guide shoe 8 5/8	EA	1		380 00
CE1453	Flapper Type Insert Float	EA	1		280 00
CE1773	Centralizers 8 5/8 x 12 1/4	EA	3		435 00
CE1903	8 5/8 Basket	EA	1		315 00
E110	Heavy Equipment Mileage	mi	75		525 00
CE240	Blending & Mixing Service Charge	SK	510		714 00
E113	Proppant & Bulk delivery Charge	TM	600		960 00
CE202	Depth Charge 1001-2000	4hrs	1		1500 00
CE504	Plug container usage	EA	1		250 00
E100	Unit mileage	mi	35		105 35
S003	Service Supervisor charge	EA	1		175 00

SUB TOTAL 13307 66

CHEMICAL / ACID DATA:			

SERVICE & EQUIPMENT	%TAX ON $	
MATERIALS	%TAX ON $	
	TOTAL	

SERVICE REPRESENTATIVE Rob Klopp

THE ABOVE MATERIAL AND SERVICE ORDERED BY CUSTOMER AND RECEIVED BY: Roger Pearson
(WELL OWNER OPERATOR CONTRACTOR OR AGENT)

FIELD SERVICE ORDER NO.

CLOUD LITHO - Abilene, TX

BASiC energy services, L.P.

TREATMENT REPORT

Customer Abrion Energy	Lease No.	Date 12-1-10
Lease Quail	Well # 1-30	

Field Order # 1283 A	Station Liberal Ks 1717	Casing 8 5/8	Depth 1534	County Meade	State Ks

Type Job Z-42- Surface Pipe	Formation	Legal Description 30-33-29

PIPE DATA		PERFORATING DATA		FLUID USED	TREATMENT RESUME			
Casing Size 8 5/8	Tubing Size	Shots/Ft		Acid		RATE	PRESS	ISIP
Depth 1534	Depth	From	To	Pre Pad	Max			5 Min.
Volume 94.8	Volume	From	To	Pad	Min			10 Min.
Max Press 2000	Max Press	From	To	Frac	Avg			15 Min.
Well Connection	Annulus Vol.	From	To		HHP Used			Annulus Pressure
Plug Depth	Packer Depth	From	To	Flush	Gas Volume			Total Load

Customer Representative Roger Pearson	Station Manager Jerry Bennett	Treater Robert Cox

Service Units	27462		19805	19808	14354	19570	30463	19919			
Driver Names	A Corralday		R Machiany		Ed Mendoza		A Olivera				

Time	Casing Pressure	Tubing Pressure	Bbls. Pumped	Rate	Service Log
0730					On Loc
1030					Hook up to cmt Lines
1040					Hook up to Rig to circulate.
1145					Hook up to cmt Line
1150					Prime up & Pressure test to 2000
1200	200		0	4	Start Lead cmt 11.4#
1239	200		182	4	switch to Tail
1246	0		215	0	drop Plug
1.00	1200		95		plug down & Holding
					we circulated cmt to Surface
					at 75 bbls into displacment
115					Rig down

Thanks

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P.O. Box 129
Liberal, Kansas 67905
Phone 620-624-2277

FIELD SERVICE TICKET
1717 01181 A

DATE TICKET NO.

DATE OF JOB 12-1-10 DISTRICT 1717	NEW WELL ☒ OLD WELL ☐ PROD ☐ INJ ☐ WDW ☐ CUSTOMER ORDER NO.:
CUSTOMER OBrien Energy	LEASE Vail 1-30 WELL NO.
ADDRESS	COUNTY Meade STATE KS
CITY STATE	SERVICE CREW J. Chavez, TB
AUTHORIZED BY Terry B	JOB TYPE: 2-1/2 CMWKP Toolit

EQUIPMENT#	HRS	EQUIPMENT#	HRS	EQUIPMENT#	HRS
M870	3	77408	3		
		14553	3		

	DATE	AM PM	TIME
TRUCK CALLED	12-1-10	AM PM	500
ARRIVED AT JOB		AM PM	600
START OPERATION		AM PM	1080
FINISH OPERATION		AM PM	730
RELEASED		AM PM	750
MILES FROM STATION TO WELL			

CONTRACT CONDITIONS: (This contract must be signed before the job is commenced or merchandise is delivered).
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SIGNED: Jerry Foster
(WELL OWNER, OPERATOR, CONTRACTOR OR AGENT)

ITEM/PRICE REF. NO.	MATERIAL, EQUIPMENT AND SERVICES USED	UNIT	QUANTITY	UNIT PRICE	$ AMOUNT
CL110	Premium Plus Cmt	SK	100		1630 00
CC109	Calcium Chloride	lb	108		197 10
E101	Heavy Equipment Mileage	mi	25		175 00
CE240	Blending, Mixing Service Charge	SK	100		114 00
E113	Bulk Delivery Charge	tm	118		188 80
CE200	Depth Charge	0-1hrs	1		1040 00
E100	Pickup Mileage	mi	25		106 25
S003	Service Supervisor	EA	1		175 00

SUB TOTAL 5528 92

CHEMICAL / ACID DATA:			

SERVICE & EQUIPMENT	%TAX ON $	
MATERIALS	%TAX ON $	
	TOTAL	

SERVICE REPRESENTATIVE T. Chavez

THE ABOVE MATERIAL AND SERVICE ORDERED BY CUSTOMER AND RECEIVED BY: Jerry Foster
(WELL OWNER OPERATOR CONTRACTOR OR AGENT)

FIELD SERVICE ORDER NO.

CLOUD LITHO Abilene TX

Weatherford®

Composite Log

COMPANY	O' BRIEN ENERGY
WELL	VAIL #1-30
FIELD	SINGLEY
PROVINCE/COUNTY	MEADE
COUNTRY/STATE	U.S.A./KANSAS
LOCATION	760' FSL & 1320' FWL

SEC	TWP	RGE	Other Services
30	33S	29W	

API Number 15-119-21277
Permit Number

Permanent Datum G.L., Elevation 2667 feet
Log Measured From K.B. @ 12 FEET above Permanent Datum
Drilling Measured From K.B.

Elevations:	feet
KB	2679.00
DF	2678.00
GL	2667.00

Date	07-DEC-2010			
Run Number	ONE			
Depth Driller	6351.00	feet		
Depth Logger	6354.00	feet		
First Reading	6332.00	feet		
Last Reading	3100.00	feet		
Casing Driller	1534.00	feet		
Casing Logger	1534.00	feet		
Bit Size	7.880	inches		
Hole Fluid Type	CHEMICAL			
Density / Viscosity	9.20 lb/USg	51.00 CP		
PH / Fluid Loss	9.50	9.20 ml/30Min		
Sample Source	FLOWLINE			
Rm @ Measured Temp	0.85 @ 75.0	ohm-m		
Rmf @ Measured Temp	0.68 @ 75.0	ohm-m		
Rmc @ Measured Temp	1.02 @ 75.0	ohm-m		
Source Rmf / Rmc	CALC	CALC		
Rm @ BHT	0.52 @122.0	ohm-m		
Time Since Circulation	4 HOURS			
Max Recorded Temp	122.00	deg F		
Equipment Name	COMPACT			
Equipment / Base	13096	LIB		
Recorded By	SHAWN NUTT			
Witnessed By	ROGER PEARSON		PETER DEBENHAM	
S.O.#/JOB#	3524634		LB10-312	

BOREHOLE RECORD

Last Edited: 07-DEC-2010 19:46

Bit Size inches	Depth From feet	Depth To feet
7.880	1534.00	6354.00

CASING RECORD

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	8.625	0.00	1534.00	24.00

REMARKS

Tools Run: MAI, MPD, MCG, MDN, MML, MFE, SKJ
Hardware: MPD: 8 inch profile plate used. MAI and MFE: 0.5 Inch standoffs used. MDN: Dual Eccentraliser used.
2.71 G/CC Limestone density matrix used to calculate porosity.
Borhole rugosity, tight pulls, and washouts will affect data quality.
All intervals logged and scaled per customer's request.
Annular volume with 4.5 inch production casing= cu. ft.
Service order #3524630
Rig: Duke #6
Engineer: Shawn Nutt
Operator(s): K. Rinehart

5 Inch Main

Depth Based Data - Maximum Sampling Increment 10.0cm
Filename: C:\DOCUME~1\ScheffJL\LOCALS~1\Temp\Weatherford PreView\0\Complete.dta
System Versions: Plotted with 11.02.2164

Plotted on 08-DEC-2010 10:48
Recorded on

Timing Marks
every 60.0 sec

Gamma Ray
API
0 75 150
150 225 300

Spontaneous Potential
millivolts
− → | 20 | ← +

MML Caliper
inches
6 11 16

Density Caliper
inches
6 11 16

Bit Size
inches
6 11 16

DST Uphole Tension
pounds
5000 0
0 -5000

Depth in Feet

Borehole Temp in deg F

MNRL
0 10

MINV
0 10

HVI every 10 cu ft

Annular Integral every 10 cu ft

Replay Scale 1:240

Shallow FE
ohm metres
0.20 2000
1 10 100 1000

Density Correction
grams/cc
-0.25 0 0.25

Array Ind. One Res 40
ohm metres
0.20 2000
1 10 100 1000

Compensated Density
grams/cc
2 2.50 3

Array Ind. One Res 60
ohm metres
0.20 2000
1 10 100 1000

PE
barns/electron
0 5 10

Array Ind. One Res Rt
ohm metres
0.20 2000
1 10 100 1000

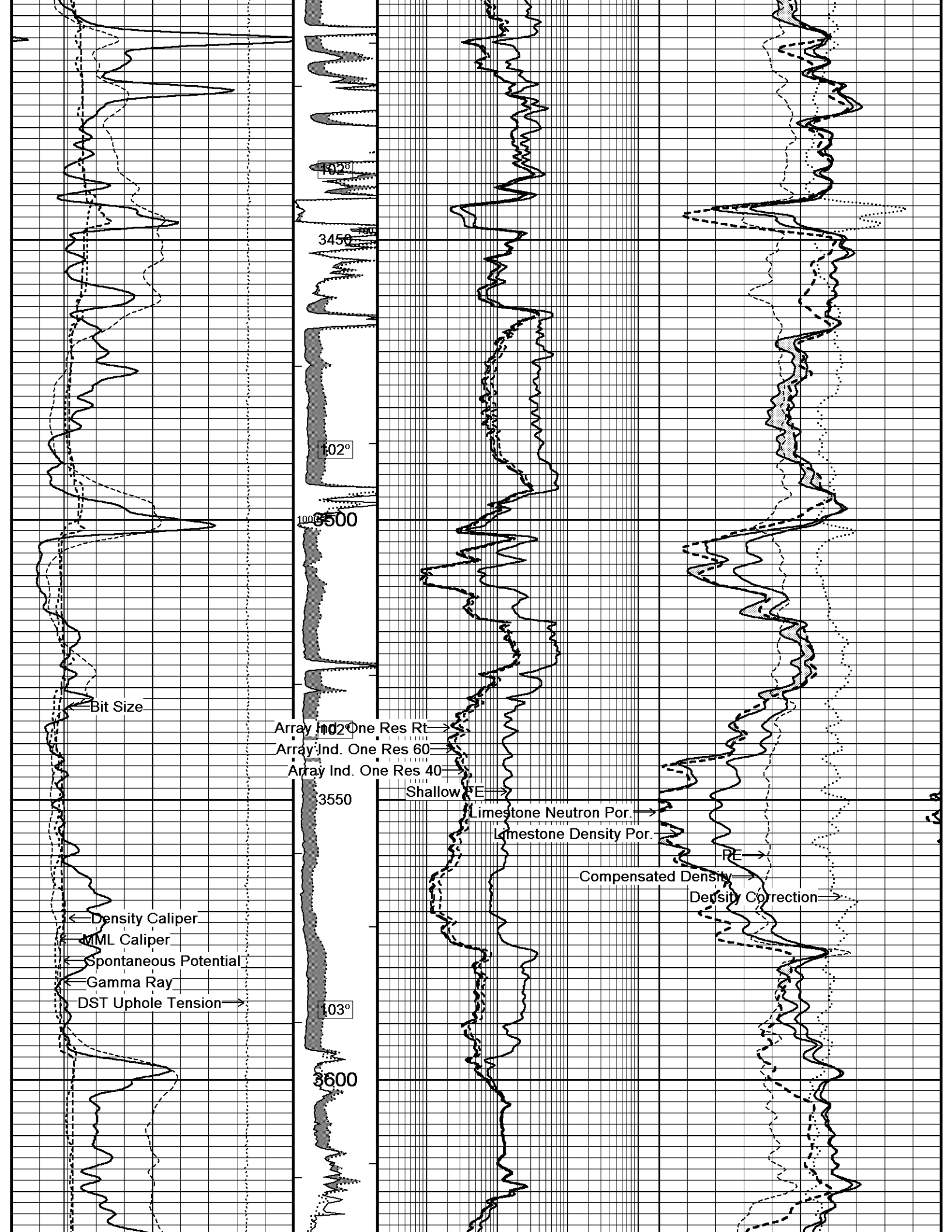
Limestone Density Por.
percent
30 10 -10

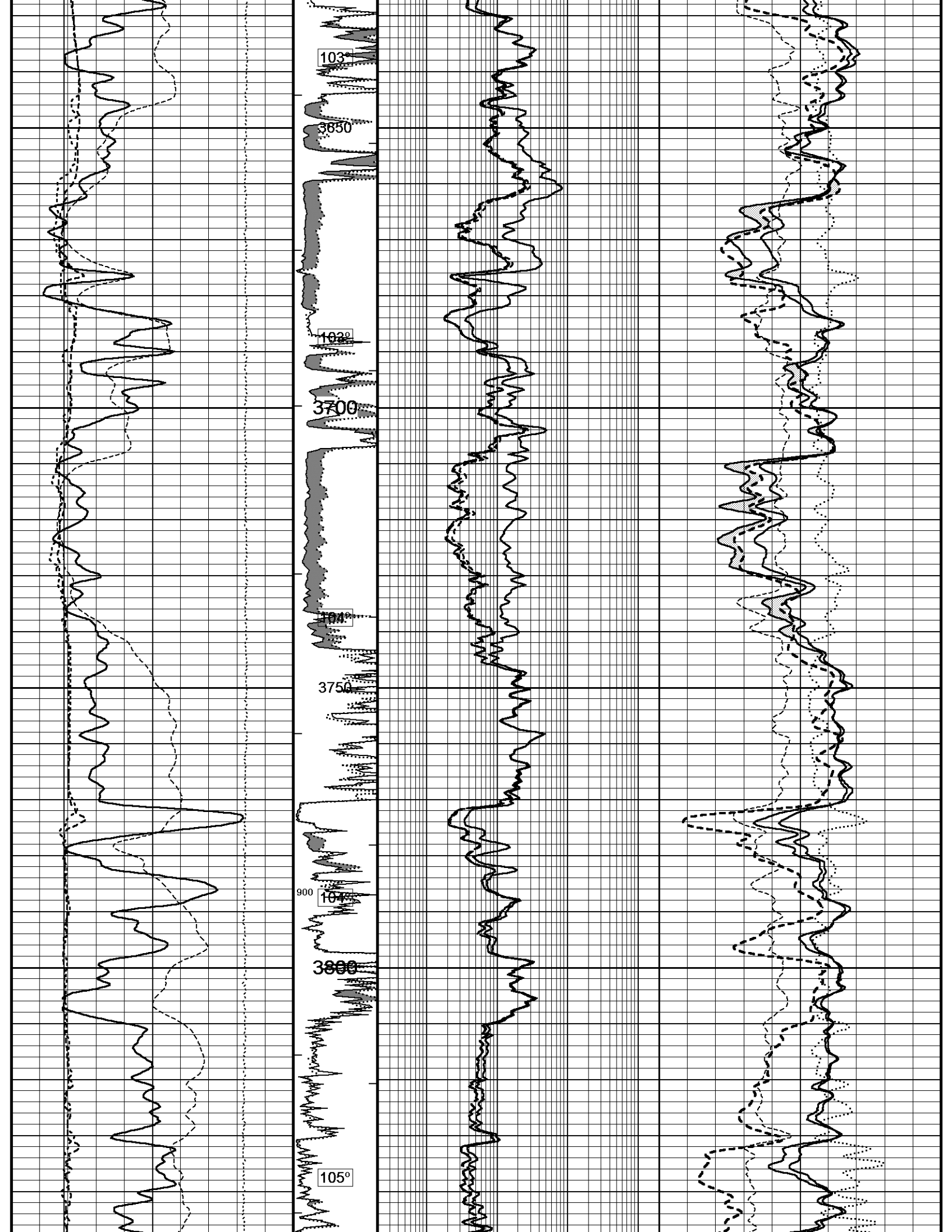
Limestone Neutron Por.
percent
30 10 -10

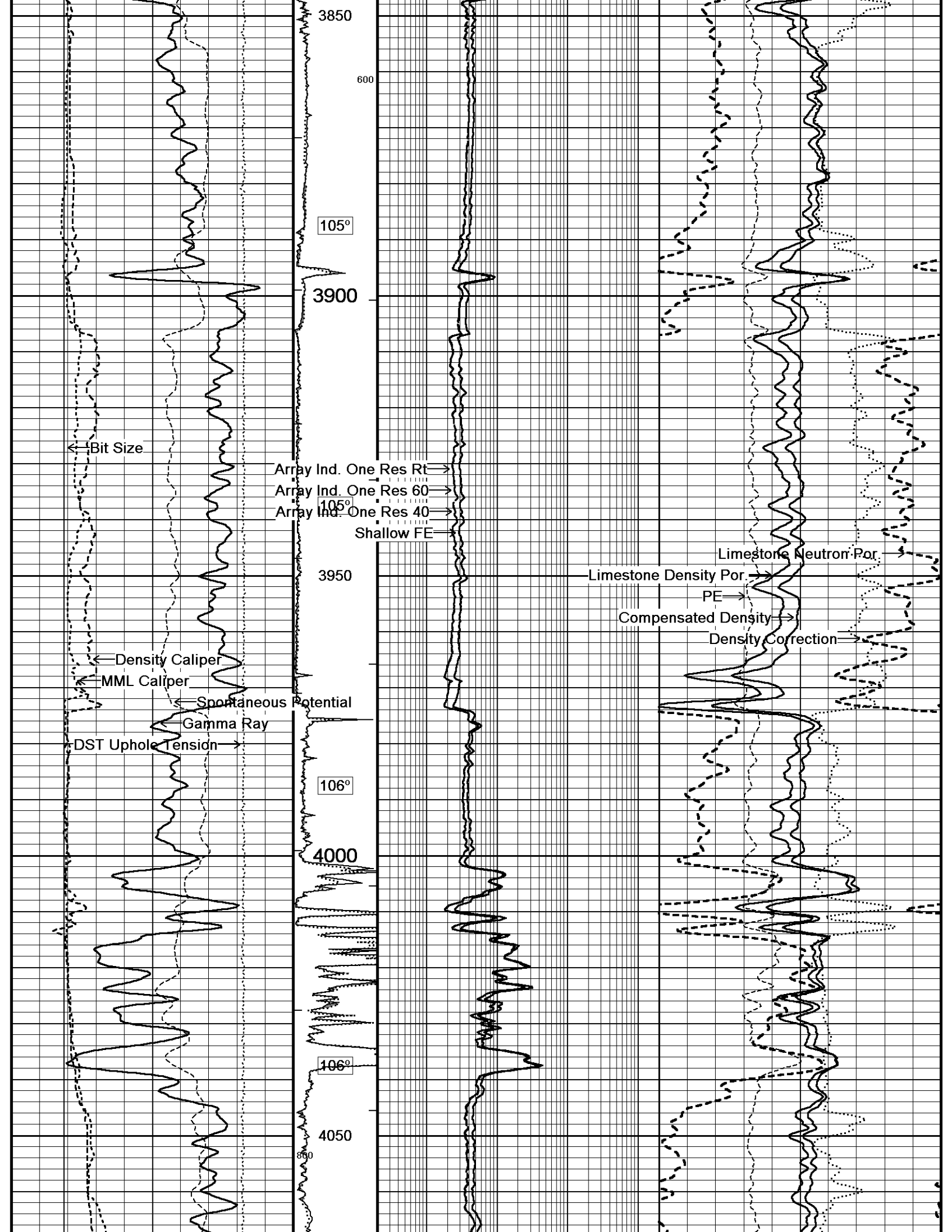
3350

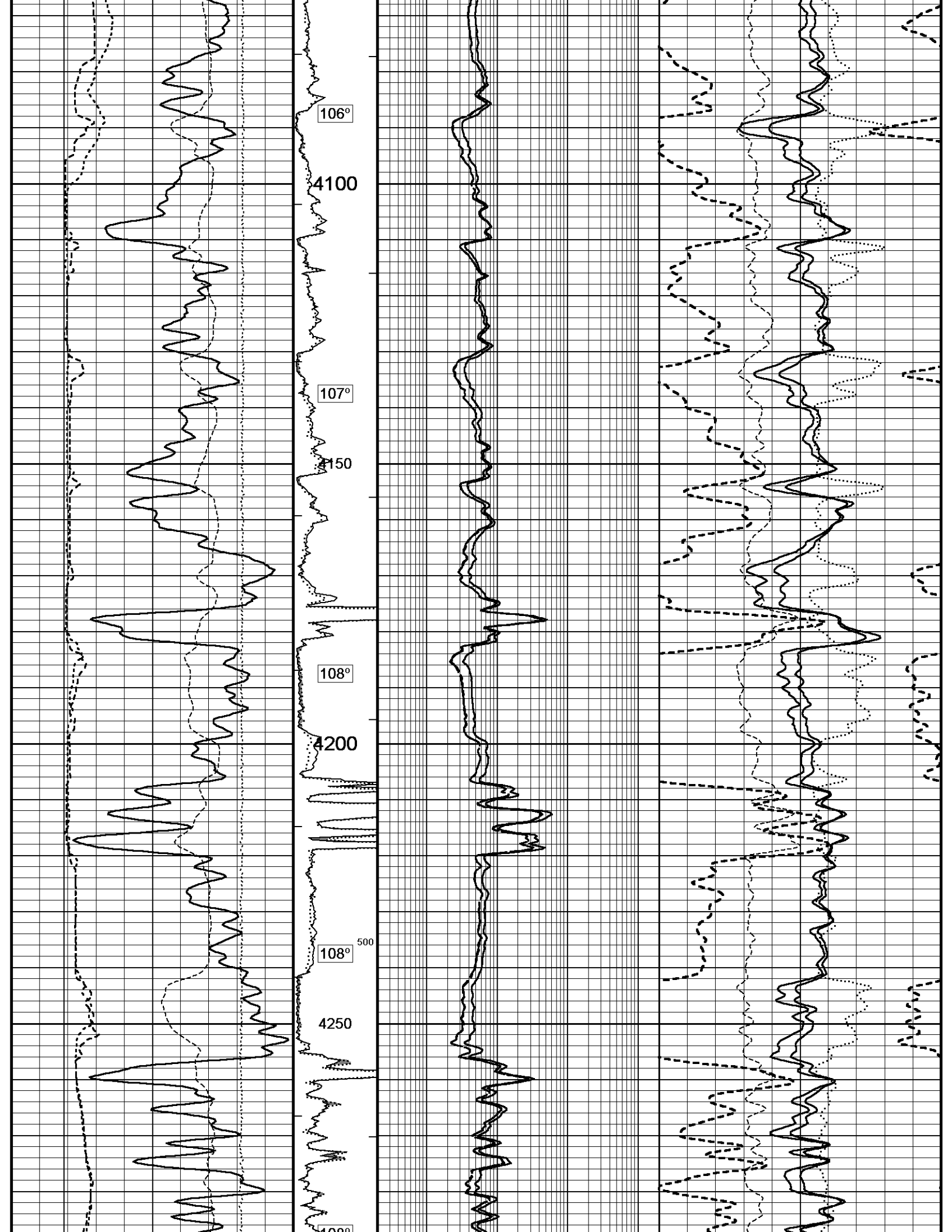
102°

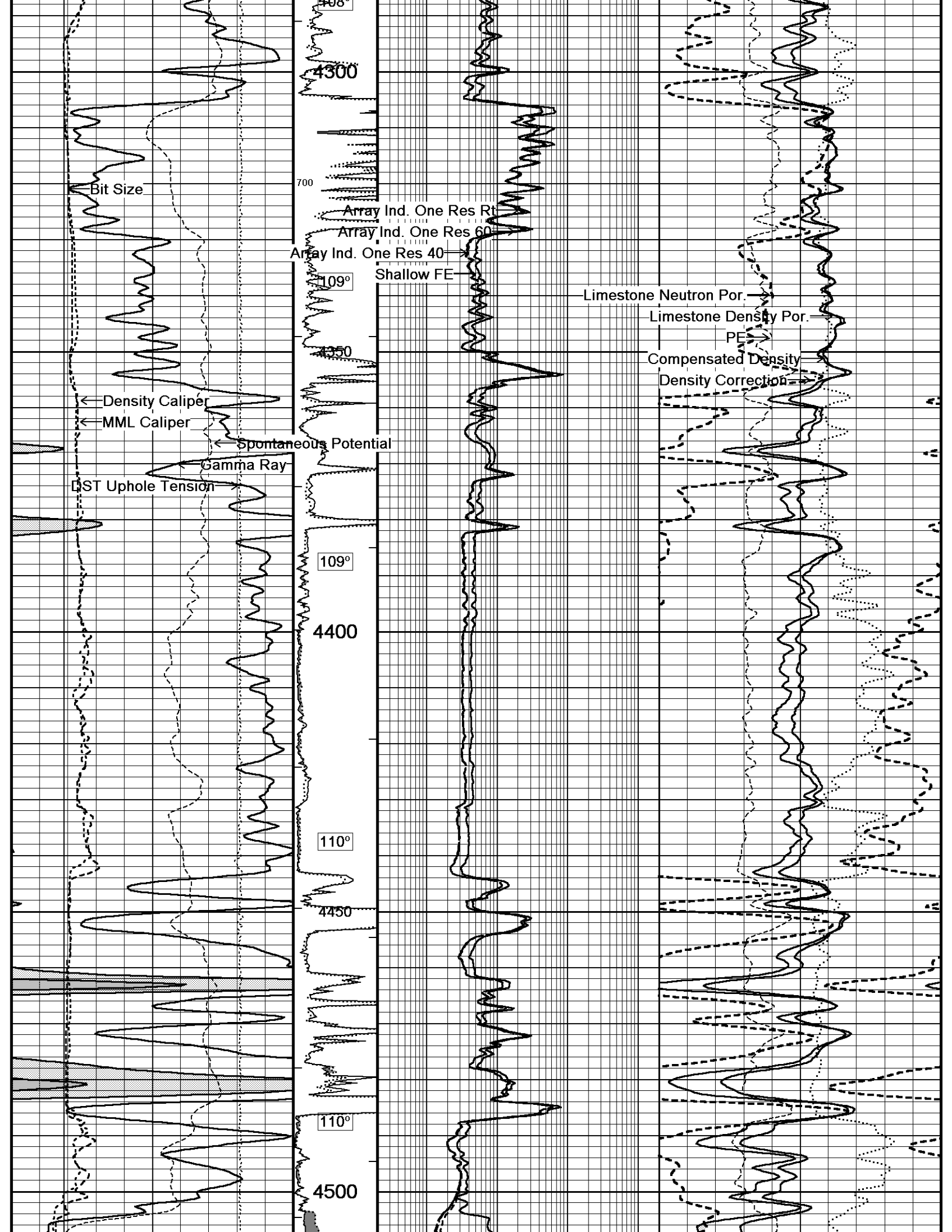
3400

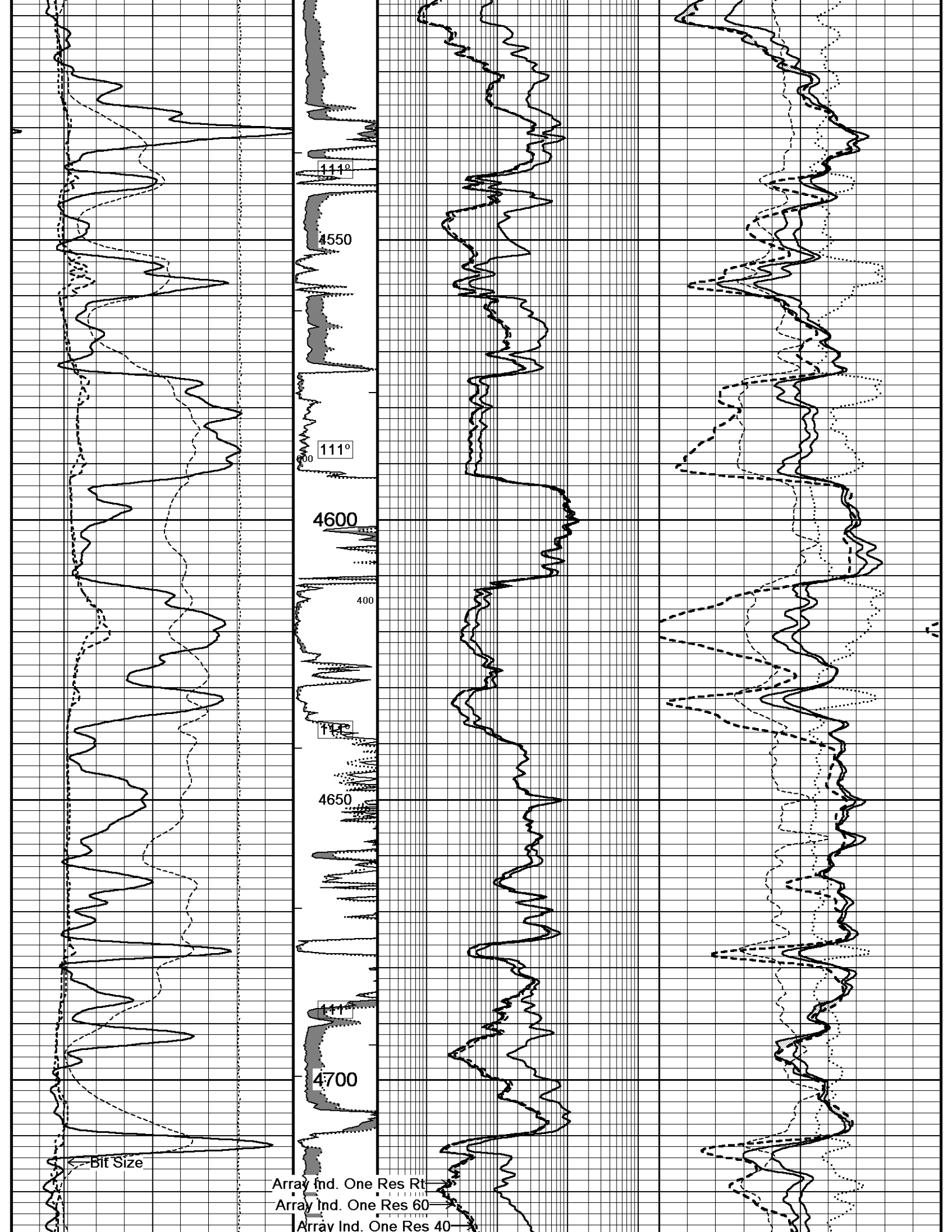

102°
3450
102°
3500
Bit Size
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Shallow PE
3550
Limestone Neutron Por.
Limestone Density Por.
PE
Compensated Density
Density Correction
Density Caliper
MML Caliper
Spontaneous Potential
Gamma Ray
DST Uphole Tension
103°
3600

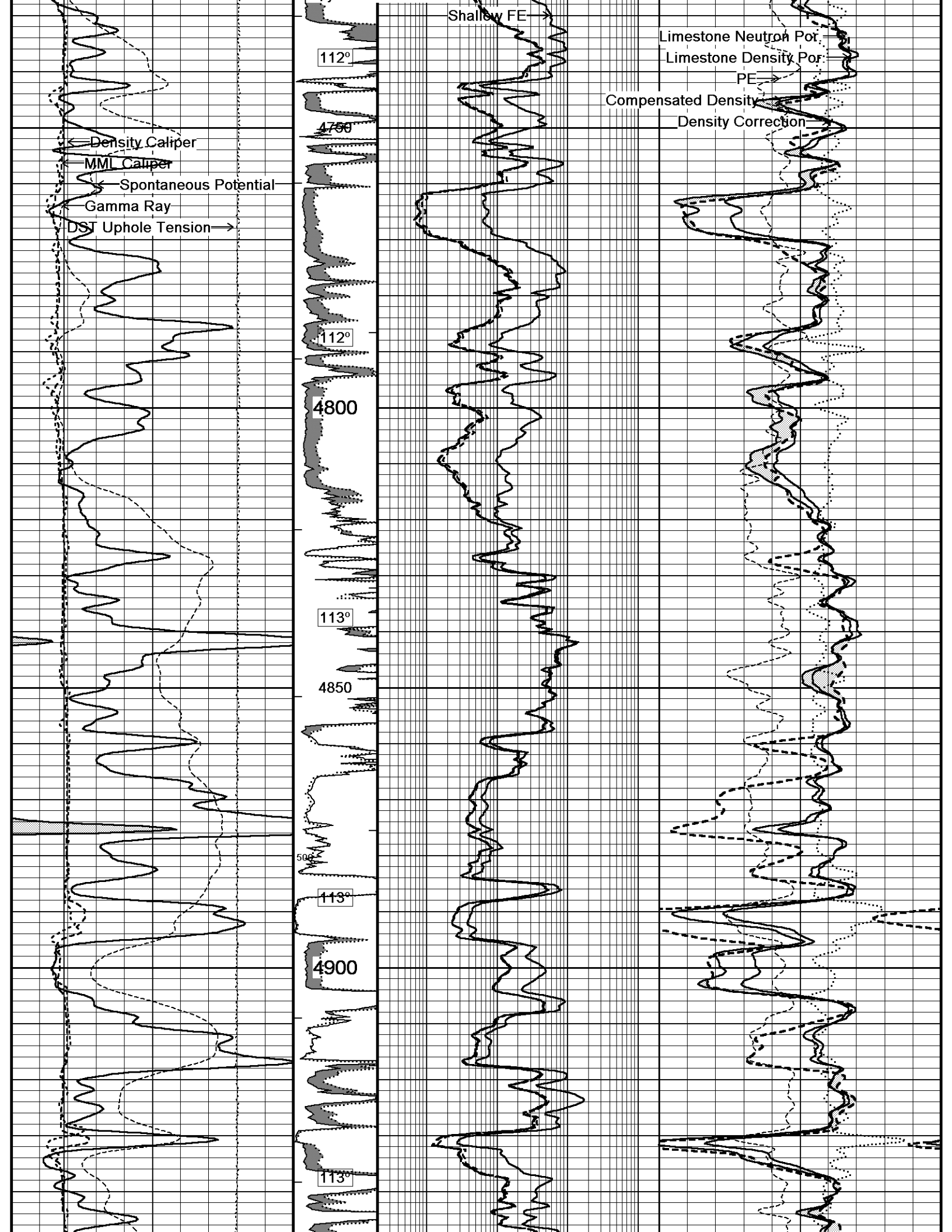

103°
3650
102°
3700
104°
3750
900
104°
3800
105°

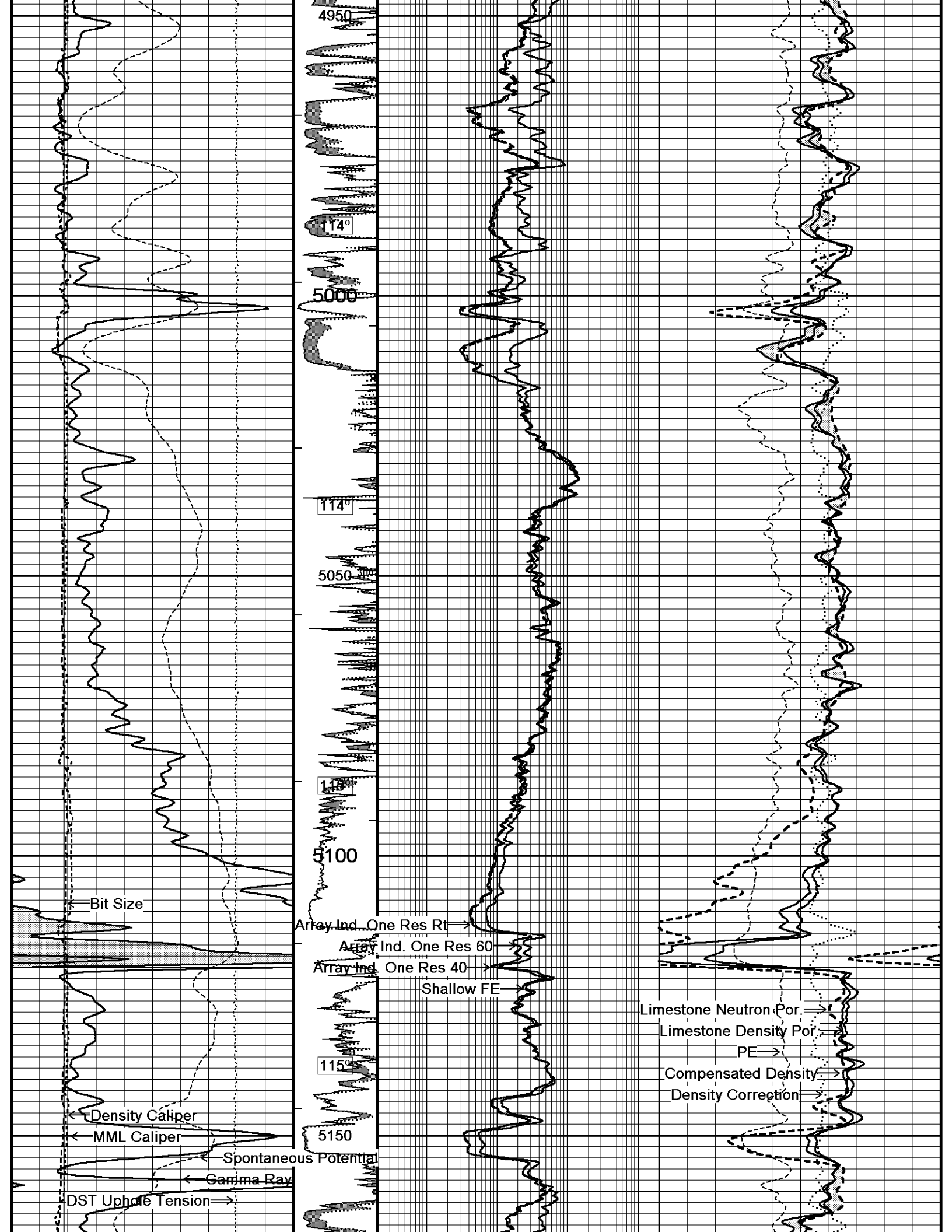

3850
600
105°
3900
Bit Size
Array Ind. One Res Rt
Array Ind. One Res 60
105°
Array Ind. One Res 40
Shallow FE
Limestone Neutron Por
3950
Limestone Density Por
PE
Compensated Density
Density Correction
Density Caliper
MML Caliper
Spontaneous Potential
Gamma Ray
DST Uphole Tension
106°
4000
106°
4050
860

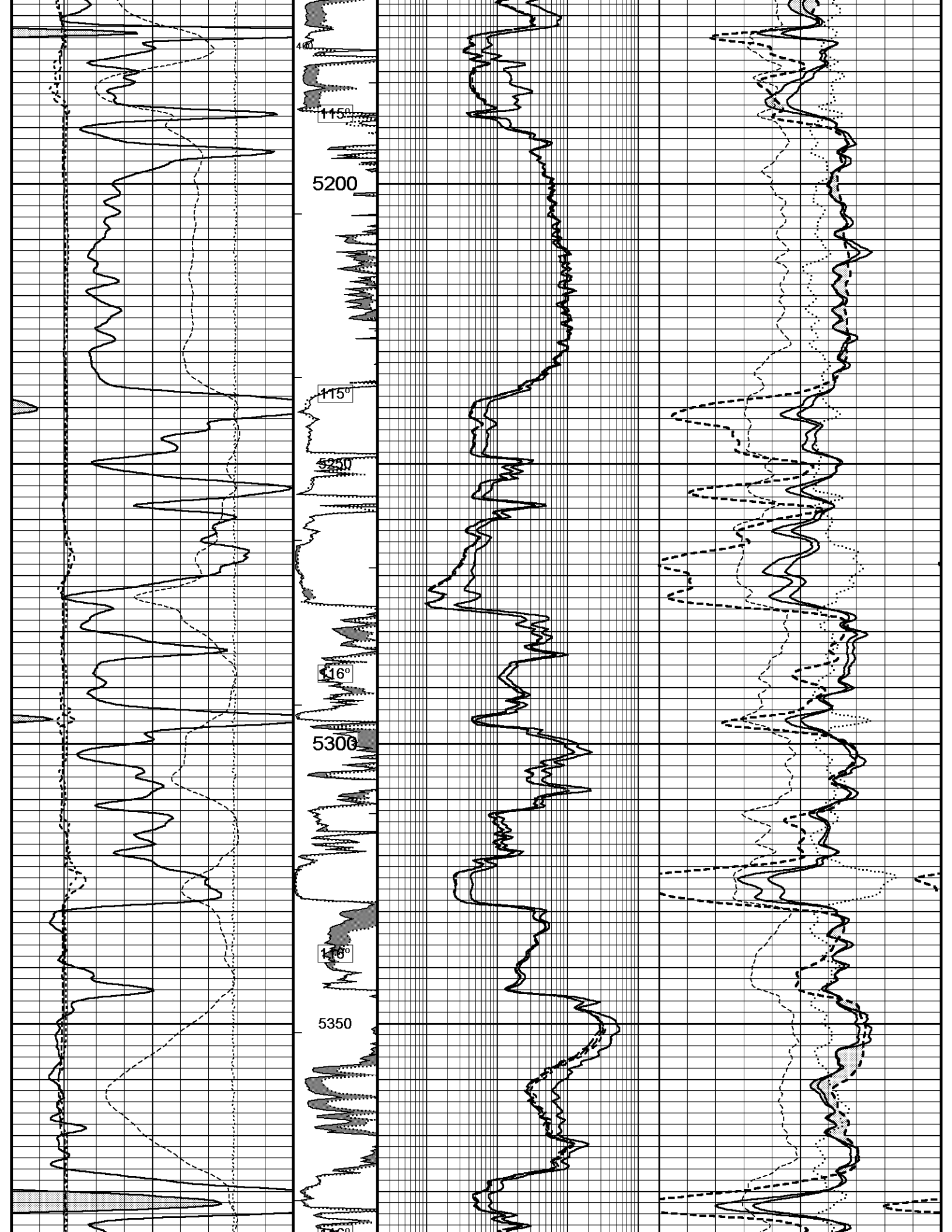

106°
4100
107°
150
108°
4200
108°
500
4250

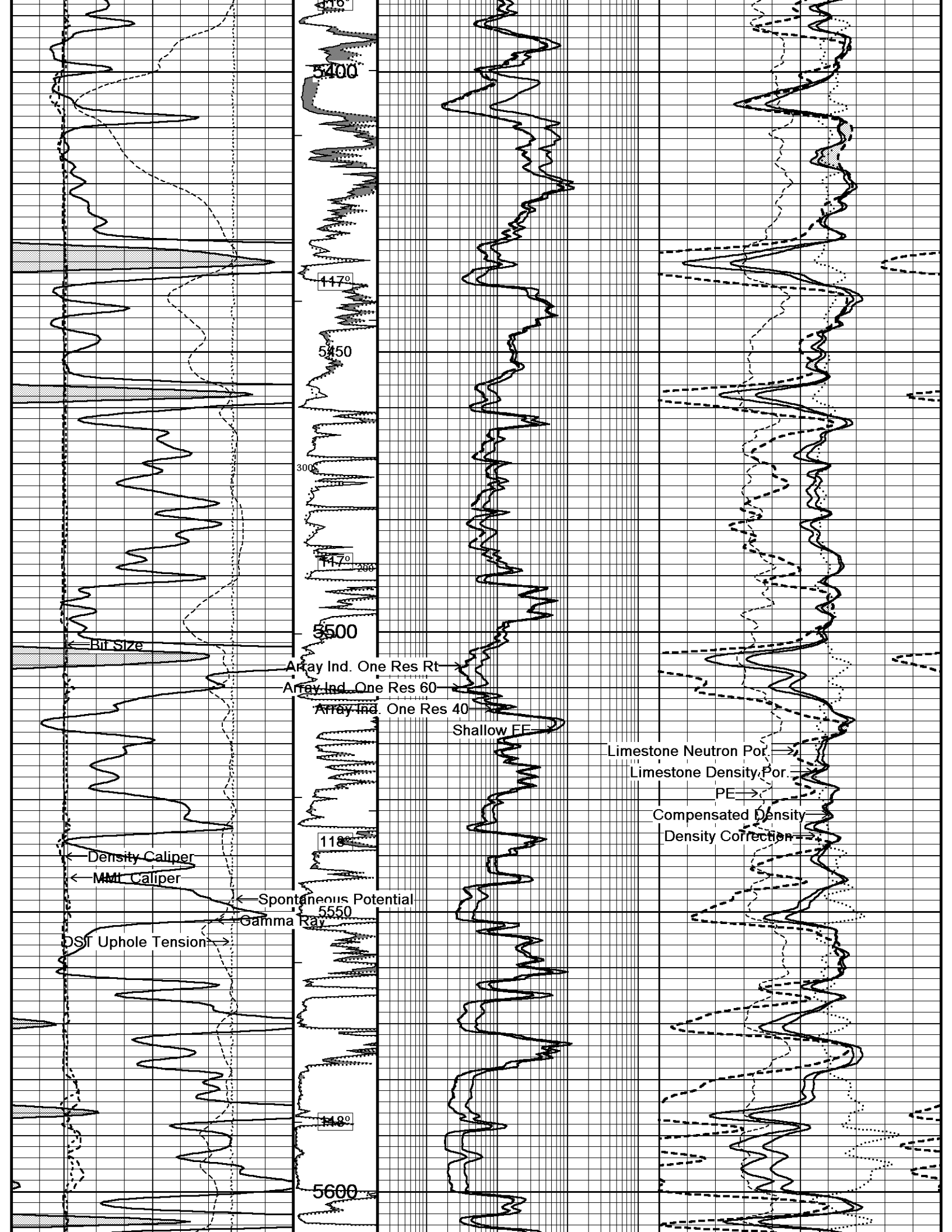

108°
4300
700
Bit Size
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Shallow FE
109°
Limestone Neutron Por.
Limestone Density Por.
PE
4350
Compensated Density
Density Correction
Density Caliper
MML Caliper
Spontaneous Potential
Gamma Ray
DST Uphole Tension
109°
4400
110°
4450
110°
4500

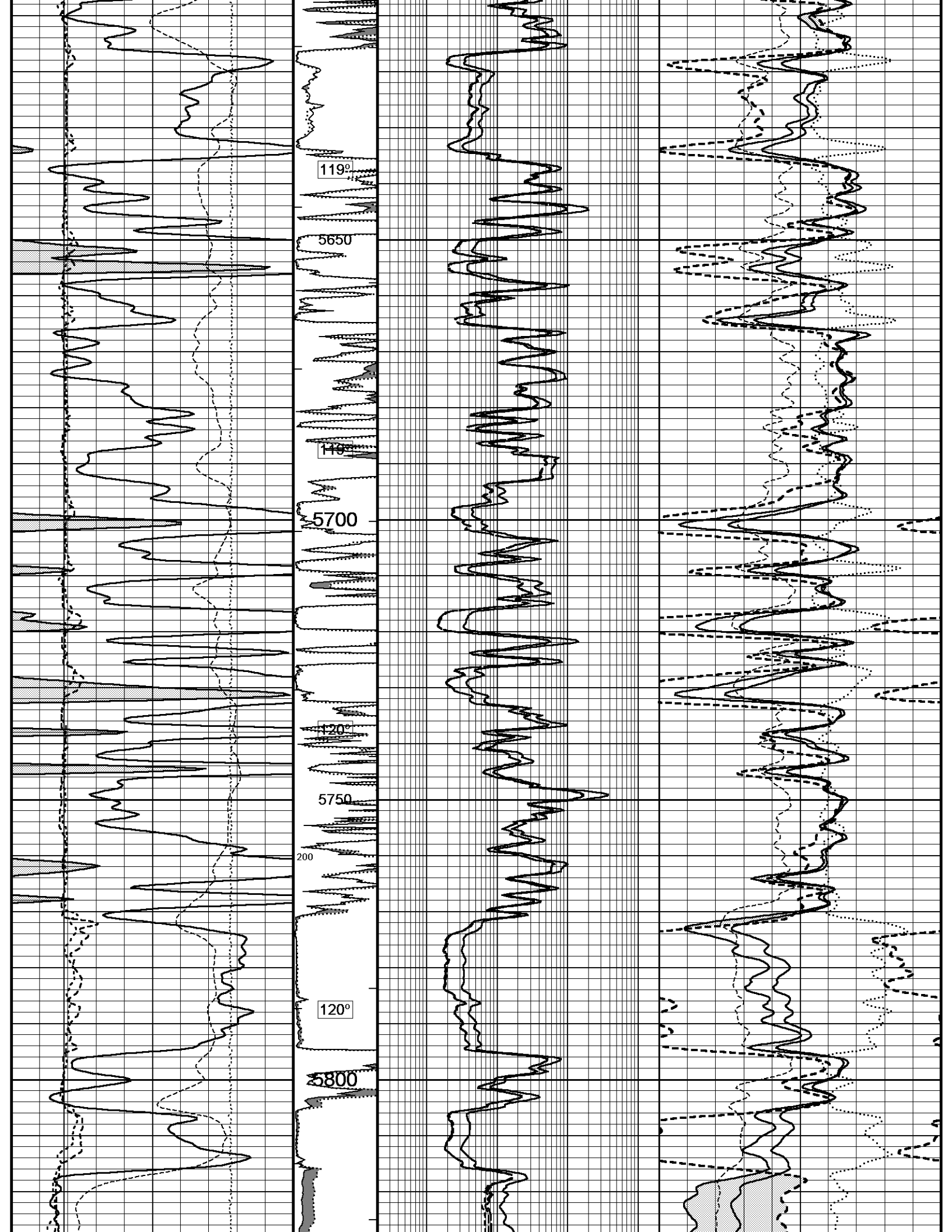

111°
4550
111°
4600
400
111°
4650
111°
4700
Bit Size
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40

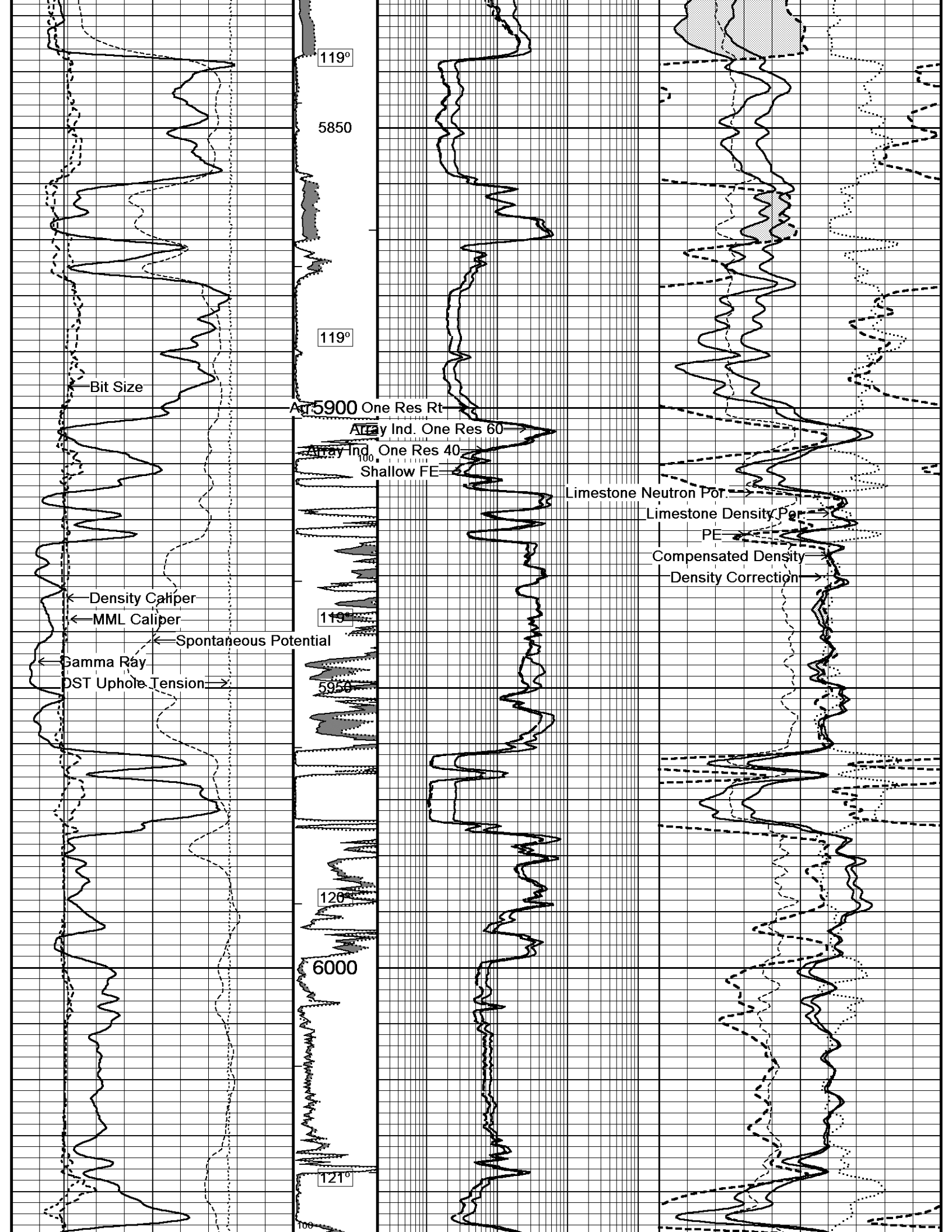

Density Caliper
MML Caliper
Spontaneous Potential
Gamma Ray
DST Uphole Tension
112°
4750
112°
4800
113°
4850
113°
4900
113°
Shallow FE
Limestone Neutron Por
Limestone Density Por
PE
Compensated Density
Density Correction

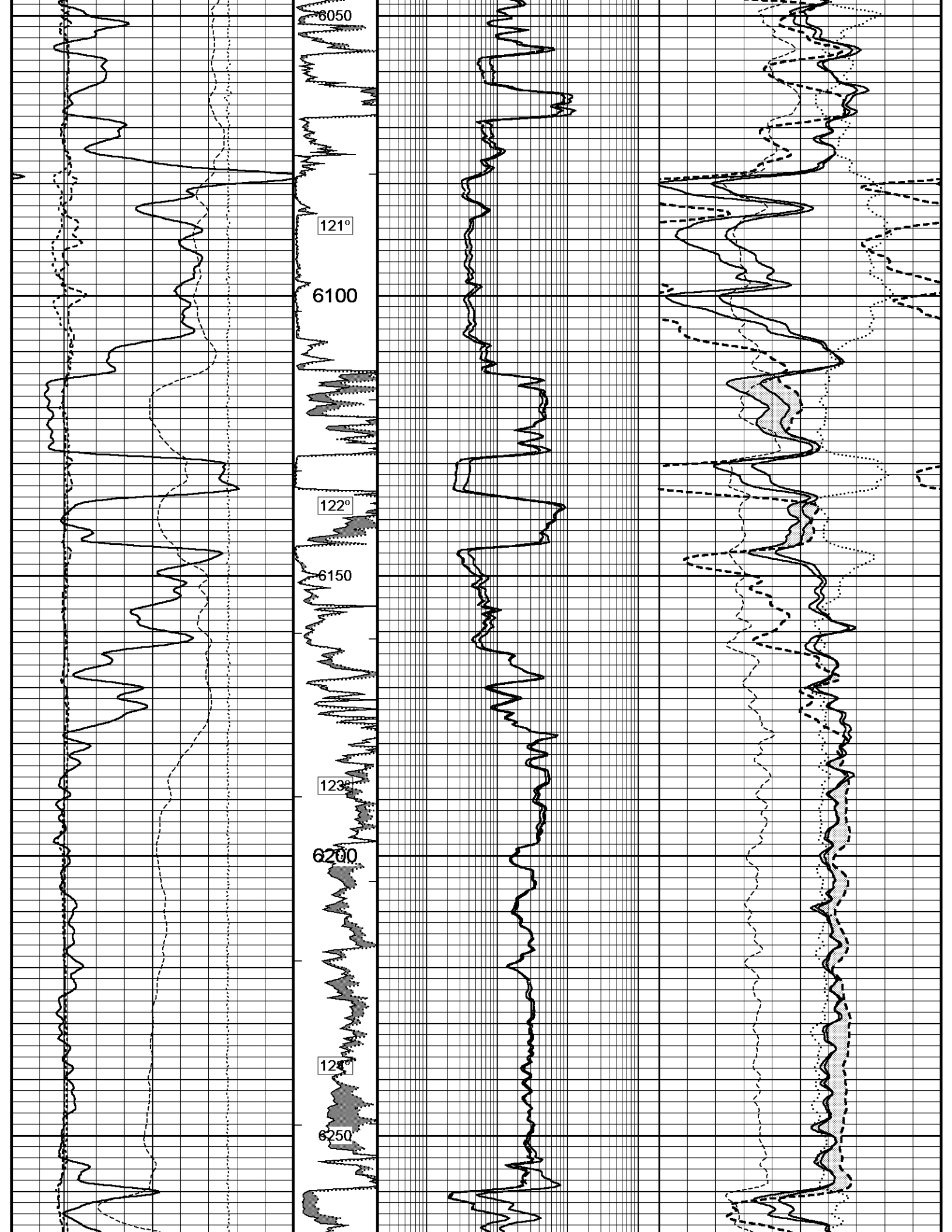

4950
114°
5000
114°
5050
115°
5100
115°
5150
Bit Size
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Shallow FE
Limestone Neutron Por
Limestone Density Por
PE
Compensated Density
Density Correction
Density Caliper
MML Caliper
Spontaneous Potential
Gamma Ray
DST Uphole Tension

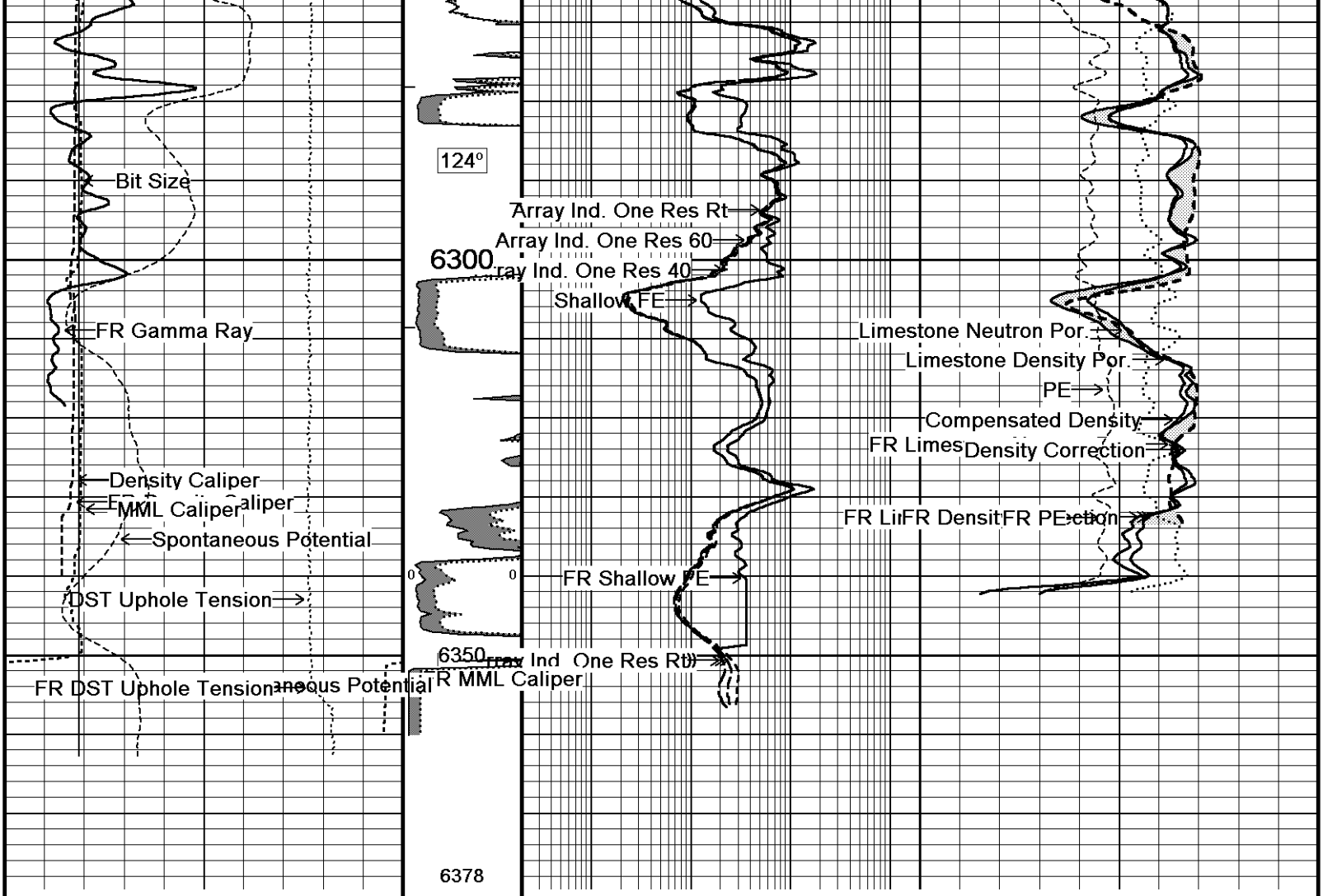

115°
5200
115°
5250
116°
5300
116°
5350

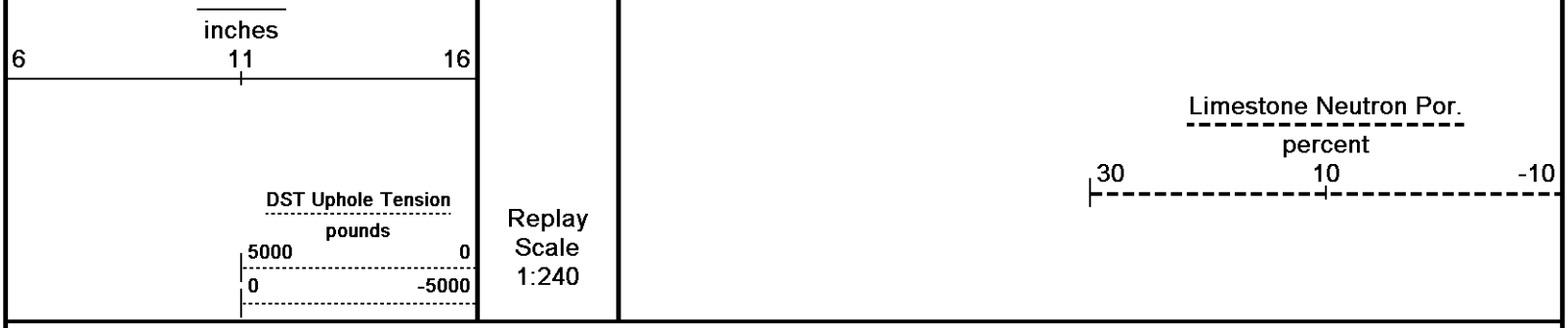

5400
117°
5450
300
117°
200
5500
Bit Size
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Shallow FE
Limestone Neutron Por
Limestone Density Por
PE
Compensated Density
Density Correction
118°
Density Caliper
MMI. Caliper
Spontaneous Potential
5550
Gamma Ray
DSI Uphole Tension
118°
5600


119°
5650
140°
5700
120°
5750
200
120°
5800


119°
5850
119°
Bit Size
5900
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
100
Shallow FE
Limestone Neutron Por
Limestone Density Por
PE
Compensated Density
Density Correction
Density Caliper
MML Caliper
119°
Spontaneous Potential
Gamma Ray
DST Uphole Tension
5950
120°
6000
121°
100


6050
121°
6100
122°
6150
123°
6200
124°
6250


Bit Size
FR Gamma Ray
Density Caliper
MML Caliper
Spontaneous Potential
DST Uphole Tension
FR DST Uphole Tension
124°
6300
Array Ind. One Res Rt
Array Ind. One Res 60
ray Ind. One Res 40
Shallow FE
FR Shallow FE
6350
R MML Caliper
Limestone Neutron Por.
Limestone Density Por.
PE
Compensated Density
Density Correction
FR Lime
FR Densit
FR PE
6378
Depth in Feet
Timing Marks
every 60.0 sec
Gamma Ray
API
0
75
150
150
225
300
Spontaneous Potential
millivolts
20
Borehole Temp in deg F
MNRL
MINV
MML Caliper
inches
6
11
16
HVI
every 10 cu ft
Density Caliper
inches
6
11
16
Annular Integral every 10 cu ft
Bit Size
Shallow FE
ohm metres
0.20
2000
1
10
100
1000
Density Correction
grams/cc
-0.25
0
0.25
Array Ind. One Res 40
ohm metres
0.20
2000
1
10
100
1000
Compensated Density
grams/cc
2
2.50
3
Array Ind. One Res 60
ohm metres
0.20
2000
1
10
100
1000
PE
barns/electron
0
5
10
Array Ind. One Res Rt
ohm metres
0.20
2000
1
10
100
1000
Limestone Density Por.
percent
30
10
-10



Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 08-DEC-2010 10:48
Filename: C:\DOCUME~1\ScheffJL\LOCALS~1\Temp\Weatherford PreView\0\Complete.dta
Recorded on
System Versions: Plotted with 11.02.2164

5 Inch Main

BEFORE SURVEY CALIBRATION

C:\DOCUME~1\ScheffJL\LOCALS~1\Temp\Weatherford PreView\0\VAIL #1-30_005.dta

General Constants All 000

Last Edited on 07-DEC-2010,14:59

General Parameters		
Mud Resistivity	0.850	ohm-metres
Mud Resistivity Temperature	75.000	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	4.500	inches
Caliper for Differential Caliper	Density Caliper	
Rwa Parameters		
Porosity used	Limestone Density Por.	
Resistivity used	Array Ind. One Res Rt	
RWA Constant A	1.000	
RWA Constant M	2.000	

High Resolution Temperature Calibration MCG-B 67

Field Calibration on 06-AUG-2010,10:40

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

High Resolution Temperature Constants MCG-B 67

Last Edited on 06-AUG-2010,10:39

Pre-filter Length	11

SP Calibration MCG-B 67

Field Calibration on 09-SEP-2010 13:54

	Measured	Calibrated (mV)
Reference 1	104.1	100.0
Reference 2	-95.6	-100.0

Gamma Calibration MCG-B 67

Field Calibration on 02-DEC-2010 14:00

	Measured	Calibrated (API)
Background	65	45
Calibrator (Gross)	727	501
Calibrator (Net)	662	456

Gamma Constants MCG-B 67

Last Edited on 07-DEC-2010,15:00

Gamma Calibrator Number	grcc141	
Mud Density	1.10	gm/cc
Caliper Source for Processing	Density Caliper	
Tool Position	Eccentred	
Concentration of KCl	0.00	kppm

Micro Normal and Micro Inverse Calibration MML-A 16

Base Calibration on 02-AUG-2010 10:13
Field Check on 02-AUG-2010 10:22

Base Calibration

Channel	Measured Resistor 1	Measured Resistor 2	Calibrated (ohm-m) Resistor 1	Calibrated (ohm-m) Resistor 2
Micro Normal	12.1	60.2	2.6	12.8
Micro Inverse	15.7	78.5	1.7	8.4

Channel	Base Check (ohm-m)	Field Check (ohm-m)
Micro Normal	32.2	32.2
Micro Inverse	16.3	16.3

Micro Normal and Micro Inverse Constants MML-A 16

Last Edited on 02-AUG-2010,10:08

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

Caliper Calibration MML-A 16

Base Calibration on 02-AUG-2010 10:25
Field Calibration on 02-AUG-2010 10:26

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	13663	5.96
2	17133	7.98
3	20563	9.95
4	24412	11.91
5	0	0.00
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
5.99	5.96

DOWNHOLE EQUIPMENT

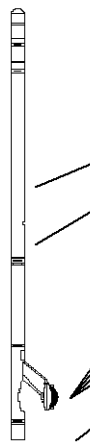
C:\DOCUME~1\ScheffJL\LOCALS~1\Temp\Weatherford PreView\0\VAIL #1-30_005.dta

MCB-A.A 11B Tension Cablehead
MCB-A.A 2 LG: 2.40 ft WT: 19.8 lb OD: 2.24 in

Compact Comms Gamma
MCG-B 67 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

Total Length: 19.06 ft Weight: 165.3 lb



9.63 ft	GRGC - Gamma Ray
6.72 ft	CGXT - MCG External Temperature
0.00 ft	MINV - Micro-inverse
0.00 ft	MNRL - Micro-normal
0.99 ft	MLTC - MML Caliper
Tool Zero	(1.89ft from bottom)
-1.89 ft	SMTU - DST Uphole Tension

All measurements relative to tool zero.

COMPANY	O' BRIEN ENERGY
WELL	VAIL #1-30
FIELD	SINGLEY
PROVINCE/COUNTY	MEADE
COUNTRY/STATE	U.S.A./KANSAS

Elevation Kelly Bushing	2679.00	feet	First Reading		feet
Elevation Drill Floor	2678.00	feet	Depth Driller	6351.00	feet
Elevation Ground Level	2667.00	feet	Depth Logger	6354.00	feet

Weatherford®

Composite Log

40 Years of Wireline 1970 2010

Weatherford®

COMPACT PHOTO DENSITY
COMPENSATED NEUTRON
MICRO RESISITIVITY LOG

COMPANY	O' BRIEN ENERGY
WELL	VAIL #1-30
FIELD	SINGLEY
PROVINCE/COUNTY	MEADE
COUNTRY/STATE	U.S.A./KANSAS
LOCATION	760' FSL & 1320' FWL

40 Years of Wireline 1970 2010

SEC	TWP	RGE	Other Services
30	33S	29W	MAI/MFE

API Number 15-119-21277
Permit Number

Permanent Datum G.L., Elevation 2667 feet
Log Measured From K.B. @ 12 FEET above Permanent Datum
Drilling Measured From K.B.

Elevations:	feet
KB	2679.00
DF	2678.00
GL	2667.00

Date	07-DEC-2010			
Run Number	ONE			
Depth Driller	6351.00	feet		
Depth Logger	6354.00	feet		
First Reading	6332.00	feet		
Last Reading	3100.00	feet		
Casing Driller	1534.00	feet		
Casing Logger	1534.00	feet		
Bit Size	7.880	inches		
Hole Fluid Type	CHEMICAL			
Density / Viscosity	9.20 lb/USg	51.00 CP		
PH / Fluid Loss	9.50	9.20 ml/30Min		
Sample Source	FLOWLINE			
Rm @ Measured Temp	0.85 @ 75.0	ohm-m		
Rmf @ Measured Temp	0.68 @ 75.0	ohm-m		
Rmc @ Measured Temp	1.02 @ 75.0	ohm-m		
Source Rmf / Rmc	CALC	CALC		
Rm @ BHT	0.52 @122.0	ohm-m		
Time Since Circulation	4 HOURS			
Max Recorded Temp	122.00	deg F		
Equipment Name	COMPACT			
Equipment / Base	13096	LIB		
Recorded By	SHAWN NUTT			
Witnessed By	ROGER PEARSON		PETER DEBENHAM	
S.O.#/JOB#	3524634		LB10-312	

BOREHOLE RECORD

Last Edited: 07-DEC-2010 19:13

Bit Size (inches)	Depth From (feet)	Depth To (feet)
7.880	1534.00	6354.00

CASING RECORD

Type	Size (inches)	Depth From (feet)	Shoe Depth (feet)	Weight (pounds/ft)
SURFACE	8.625	0.00	1534.00	24.00

REMARKS

Tools Run: MAI, MPD, MCG, MDN, MML, MFE, SKJ
Hardware: MPD: 8 inch profile plate used. MAI and MFE: 0.5 Inch standoffs used. MDN: Dual Eccentraliser used.
2.71 G/CC Limestone density matrix used to calculate porosity.
Borhole rugosity, tight pulls, and washouts will affect data quality.
All intervals logged and scaled per customer's request.
Annular volume with 4.5 inch production casing= cu. ft.
Service order #3524630
Rig: Duke #6
Engineer: Shawn Nutt
Operator(s): K. Rinehart

5 Inch Main

Depth Based Data - Maximum Sampling Increment 10.0cm
Filename: C:\DOCUME~1\ScheffJL\LOCALS~1\Temp\Weatherford PreView\0\Complete.dta
System Versions: Plotted with 11.02.2164

Plotted on 08-DEC-2010 10:48
Recorded on

Timing Marks
every 60.0 sec

Gamma Ray
API
0 75 150
150 225 300

MML Caliper
inches
6 11 16

Density Caliper
inches
6 11 16

Bit Size
inches
6 11 16

DST Uphole Tension
pounds
5000 0
0 -5000

Depth in Feet

Borehole Temp in deg F

HVI every 10 cu ft

Annular Integral every 10 cu ft

Replay Scale 1:240

Limestone Density Por.
percent
30 20 10 0 -10

Limestone Neutron Por.
percent
30 20 10 0 -10

PE
barns/electron
0 5 10

Density Correction
grams/cc
-0.25 0 0.25

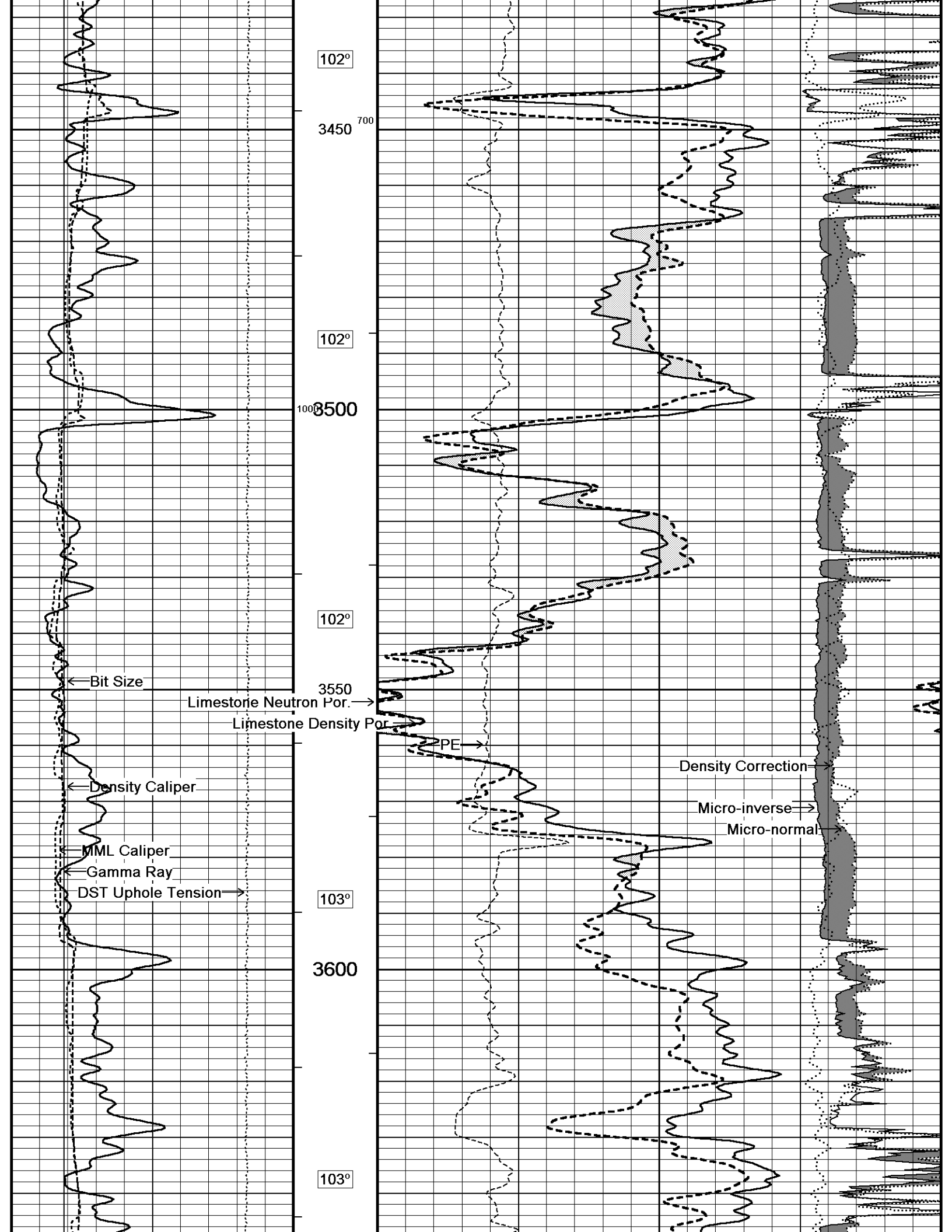
Micro-normal
ohm metres
0 10

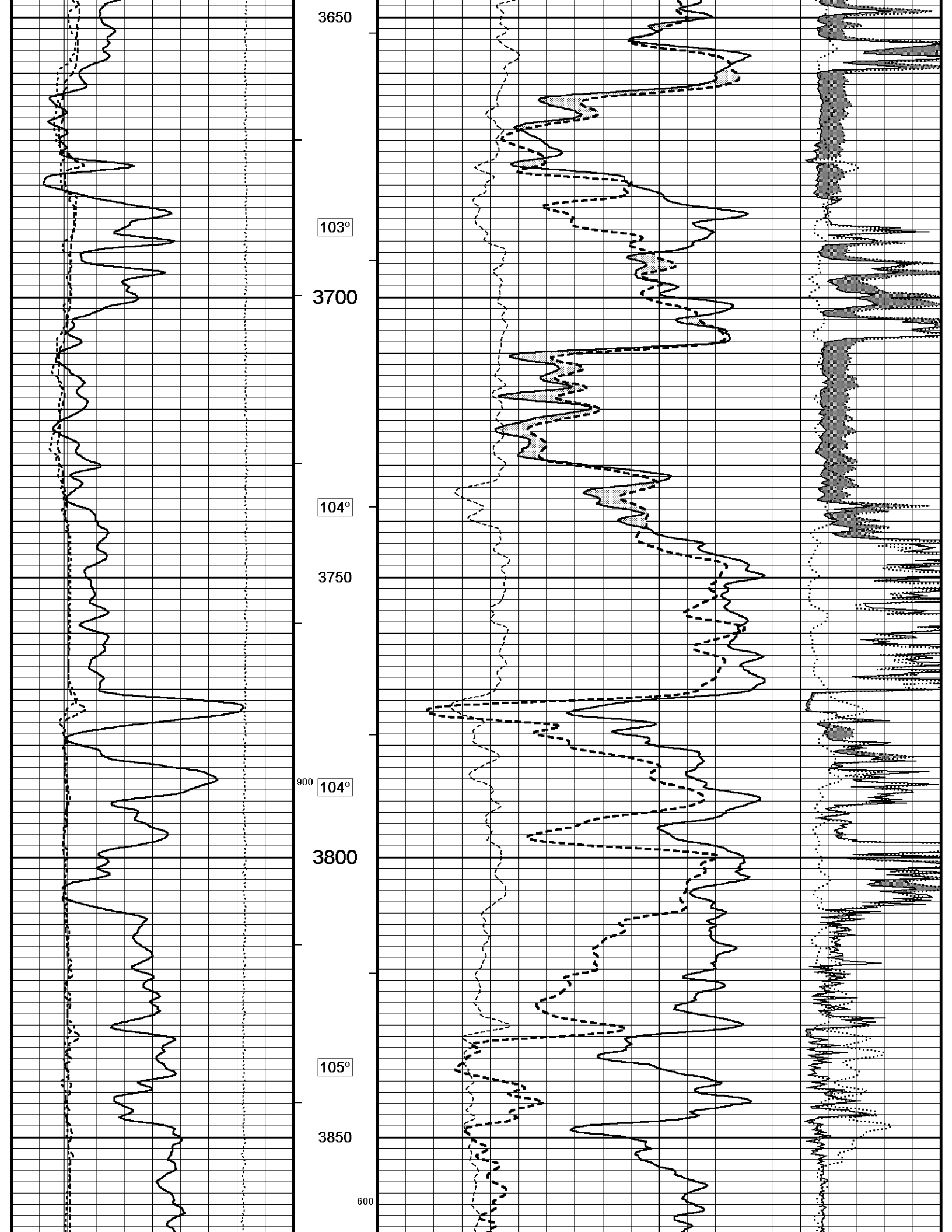
Micro-inverse
ohm metres
0 10

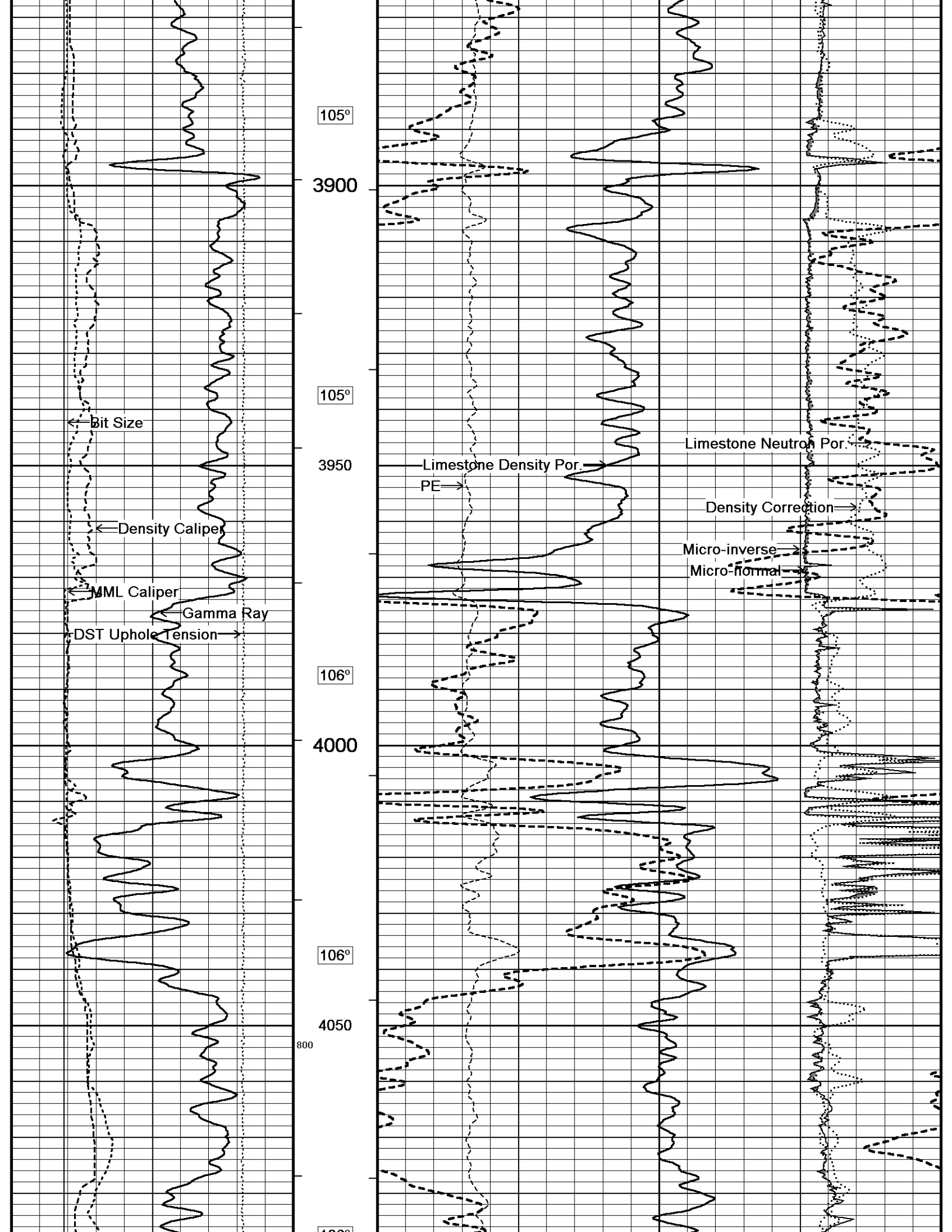
3350

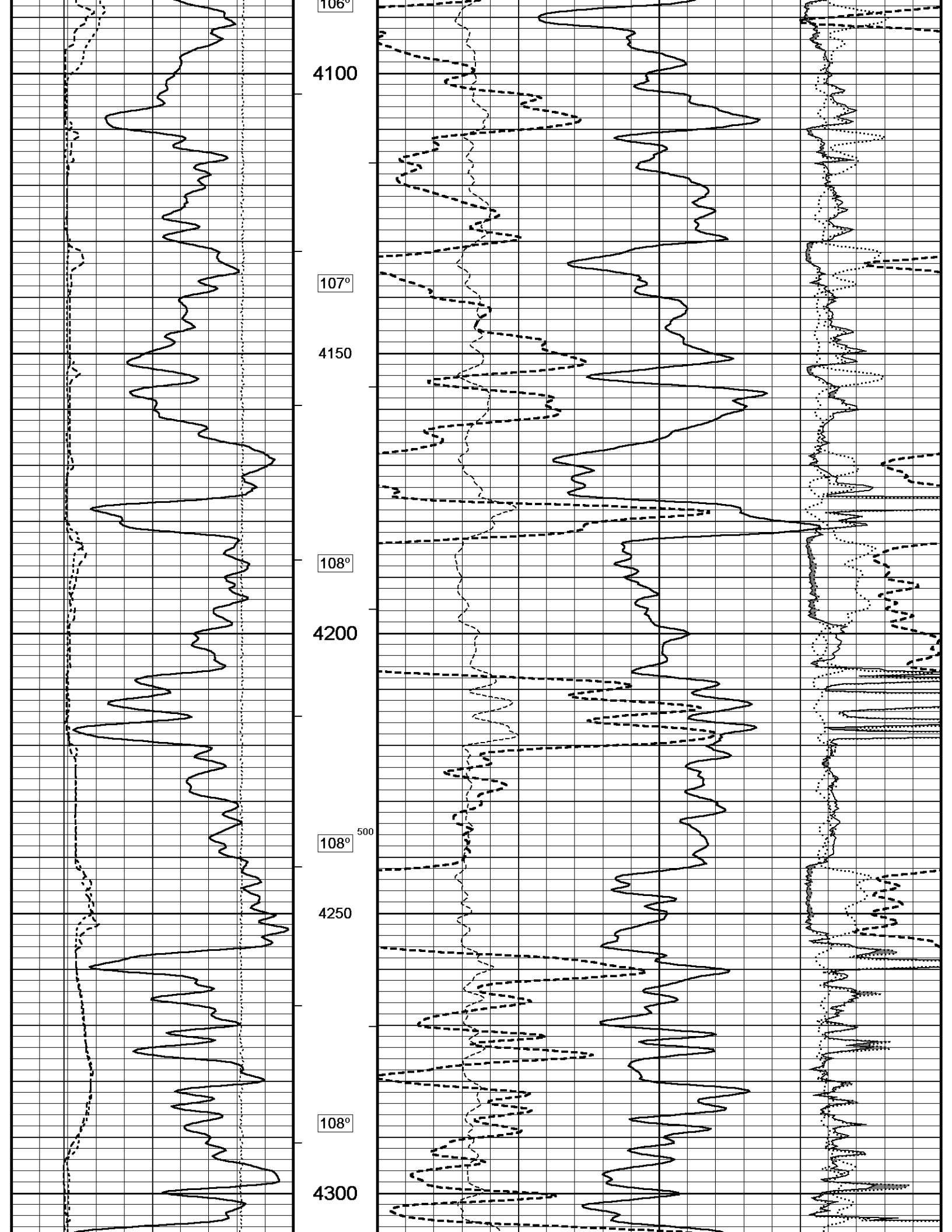
102°

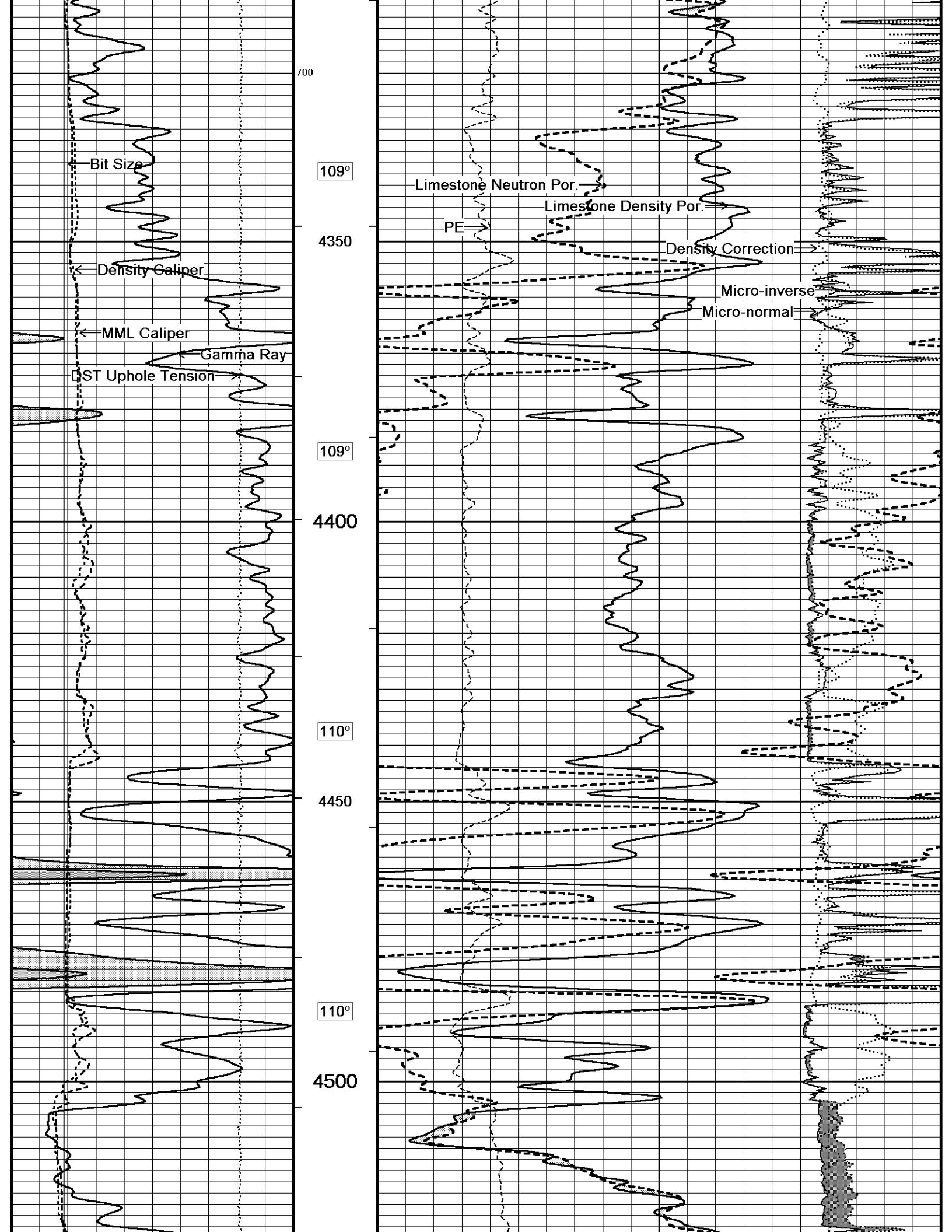
3400

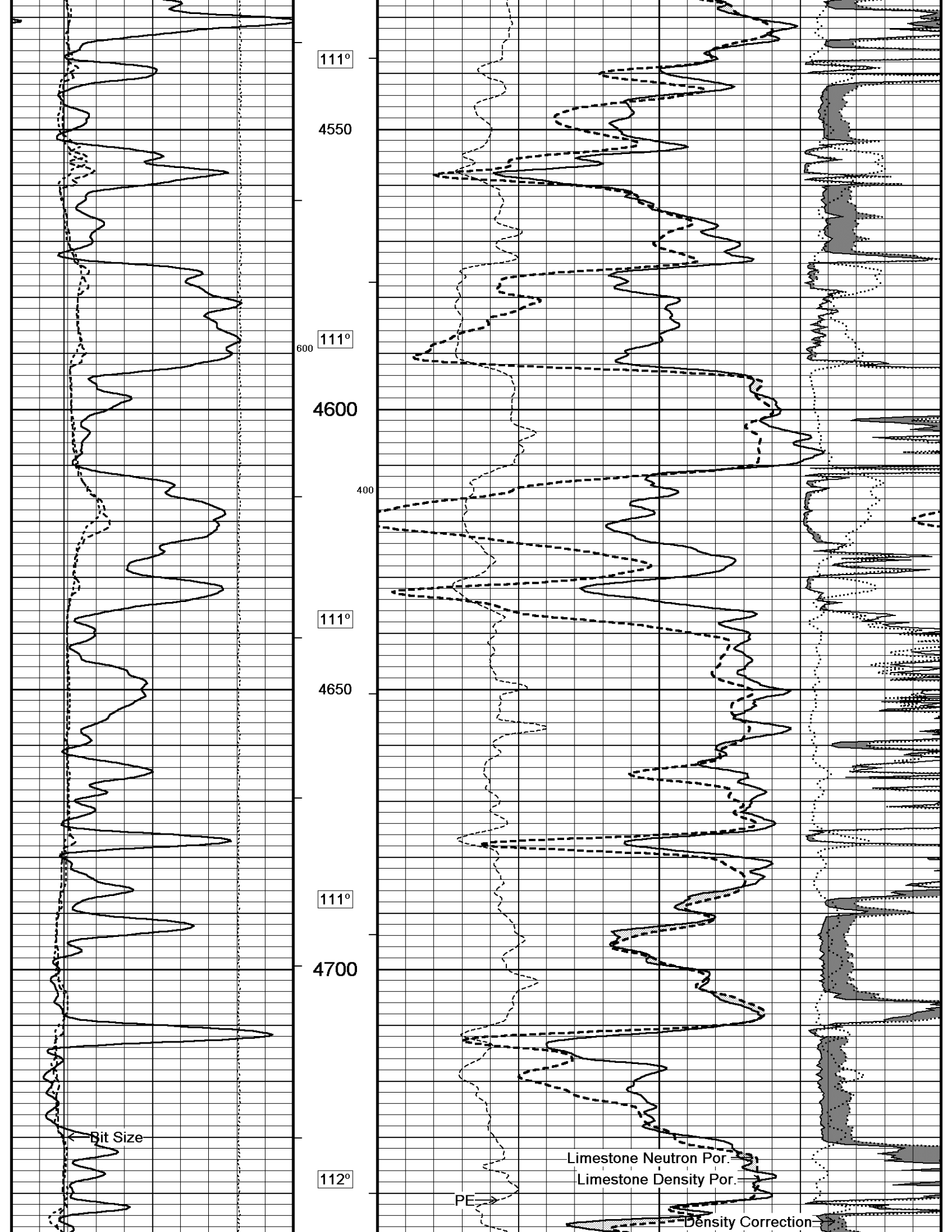

102°
3450
700
102°
100
3500
102°
Bit Size
3550
Limestone Neutron Por.
Limestone Density Por.
PE
Density Correction
Density Caliper
Micro-inverse
Micro-normal
MML Caliper
Gamma Ray
DST Uphole Tension
103°
3600
103°

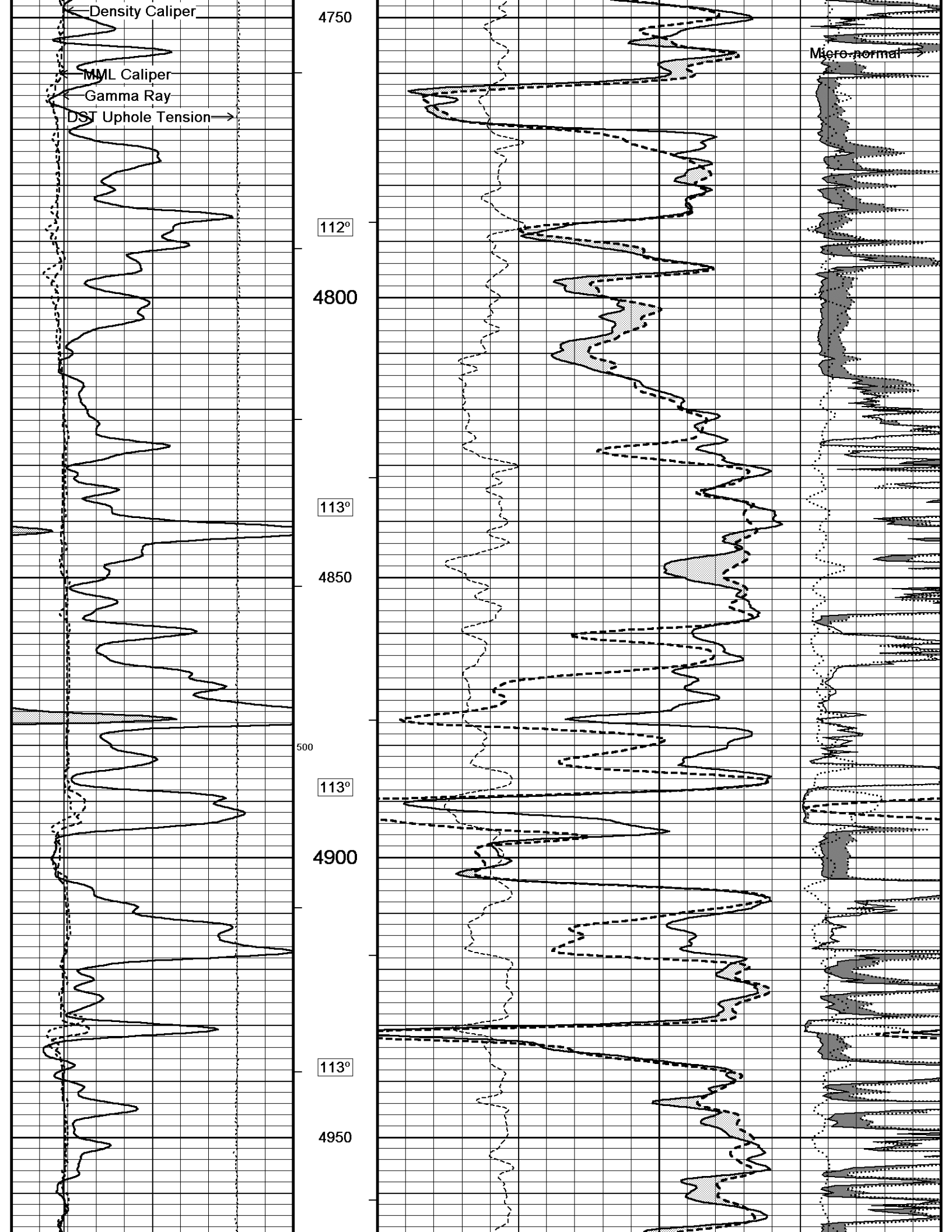

3650
103°
3700
104°
3750
900
104°
3800
105°
3850
600

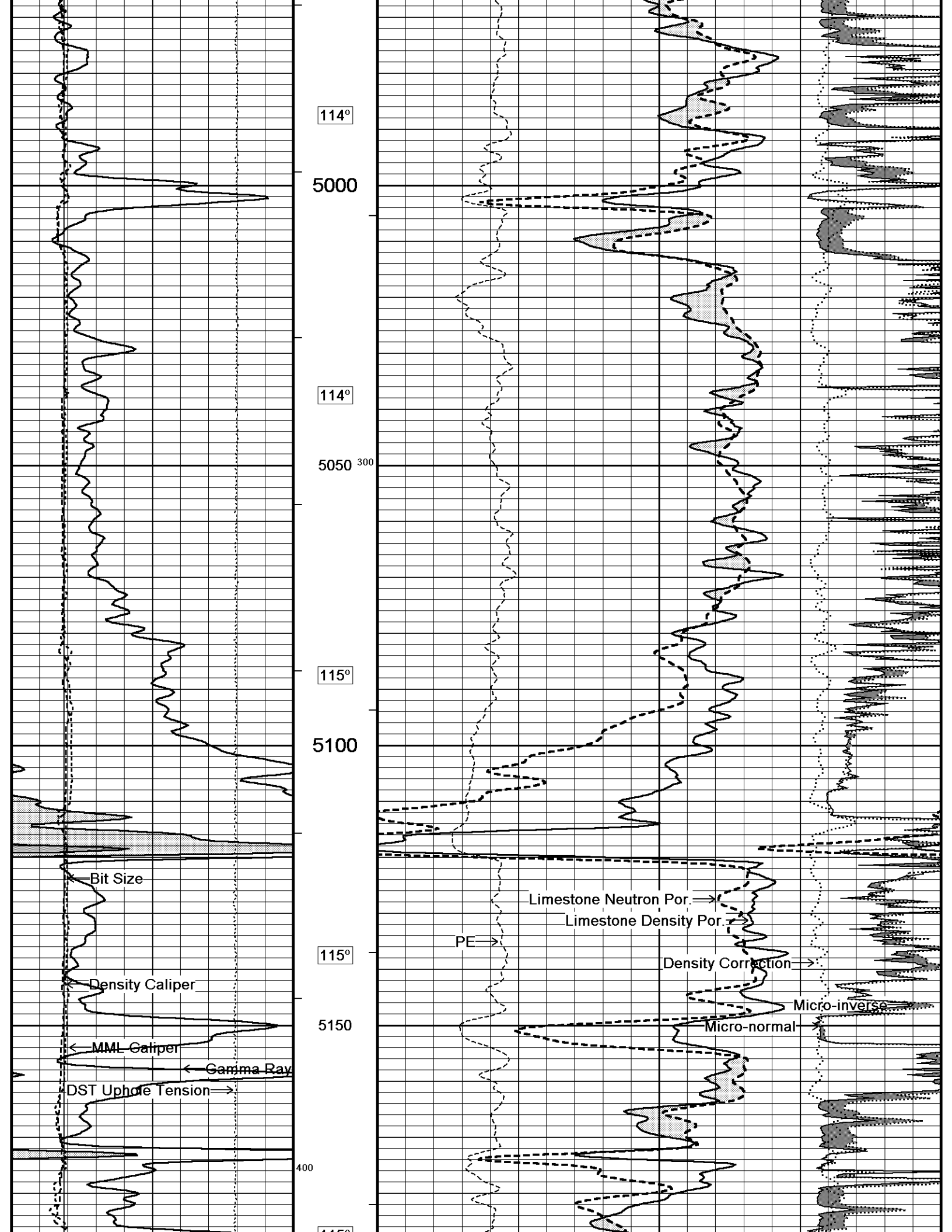

105°
3900
105°
Bit Size
3950
Limestone Density Por
PE
Limestone Neutron Por
Density Correction
Density Caliper
Micro-inverse
Micro-normal
MML Caliper
Gamma Ray
DST Uphole Tension
106°
4000
106°
4050
800

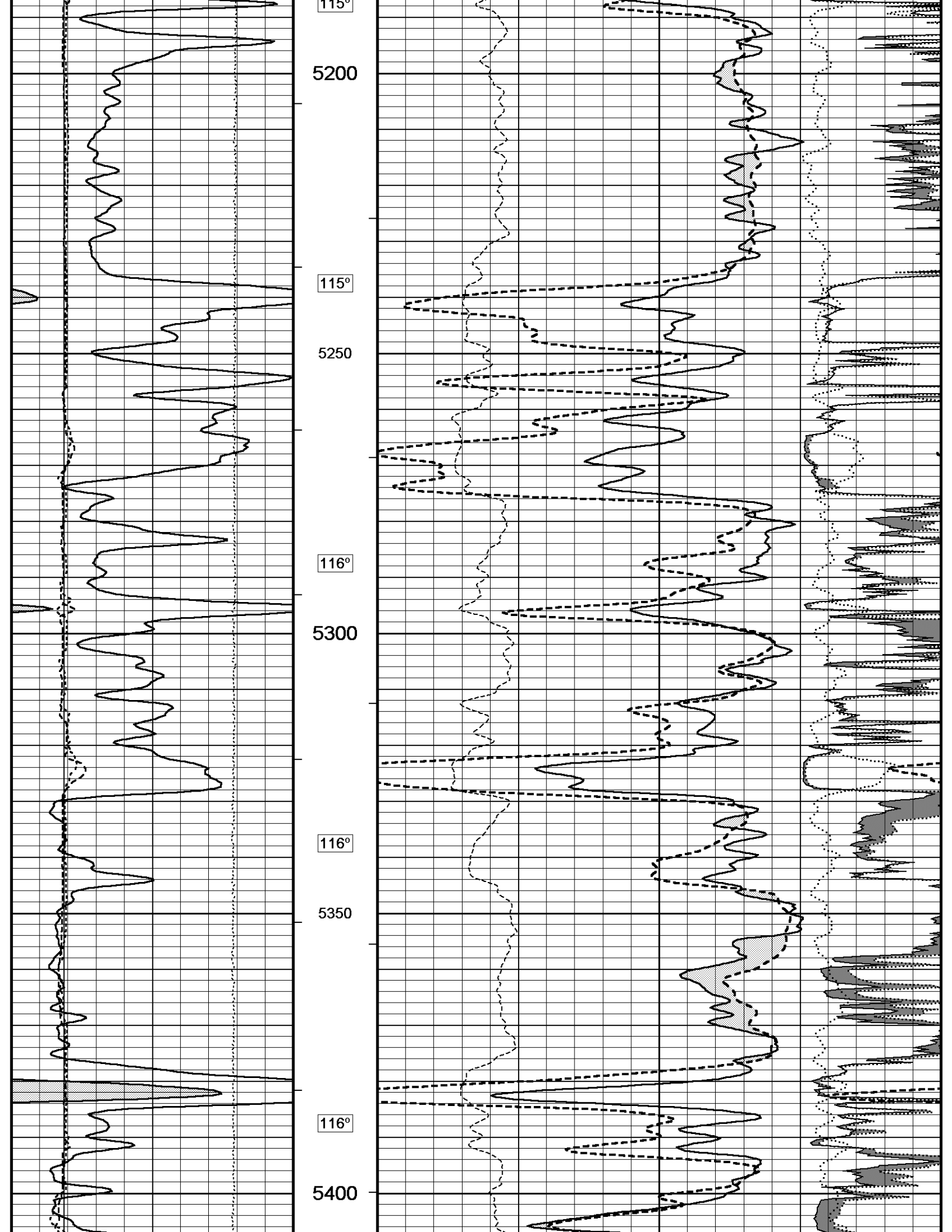

106°
4100
107°
4150
108°
4200
108°
500
4250
108°
4300

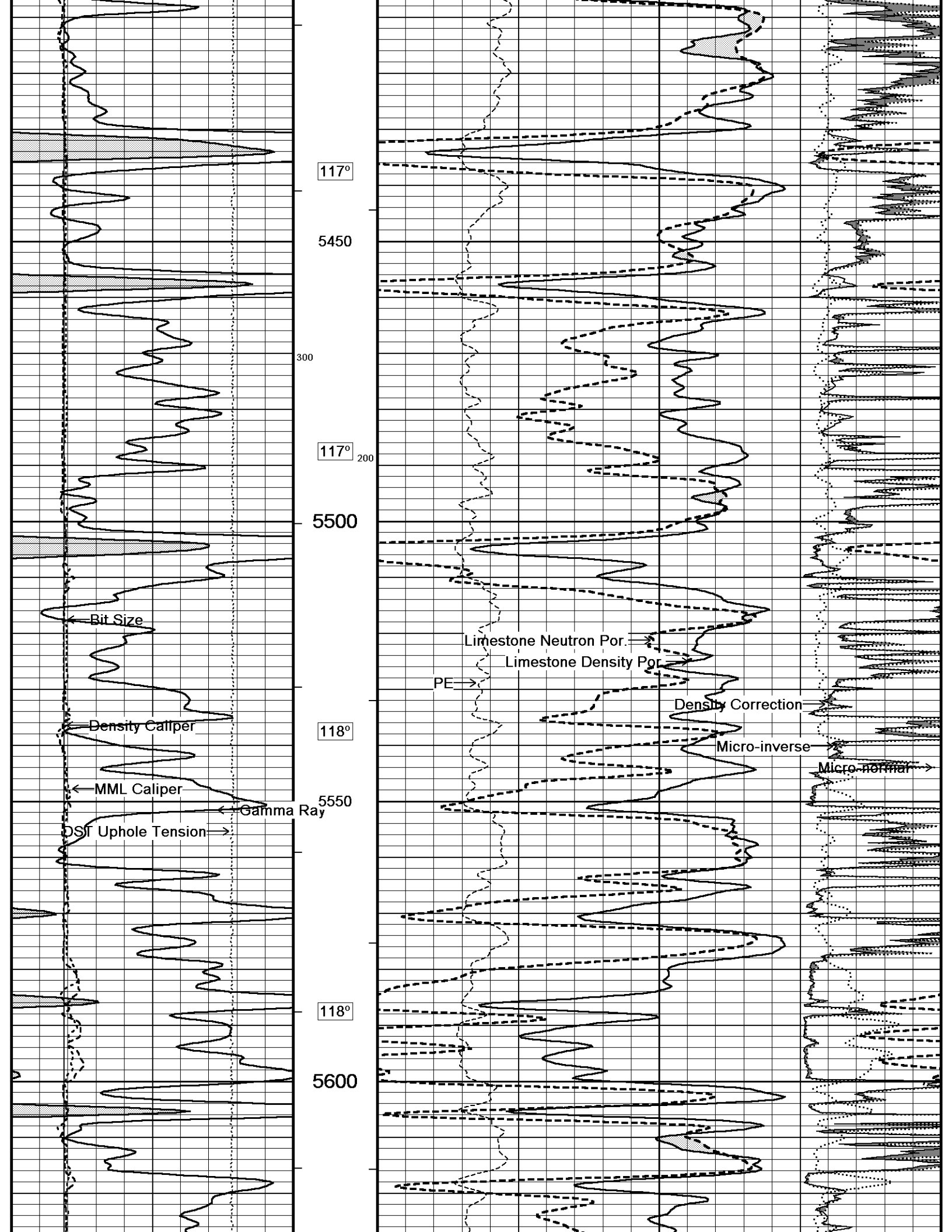

700
Bit Size
109°
Limestone Neutron Por.
Limestone Density Por.
PE
4350
Density Correction
Density Caliper
Micro-inverse
Micro-normal
MML Caliper
Gamma Ray
DST Uphole Tension
109°
4400
110°
4450
110°
4500

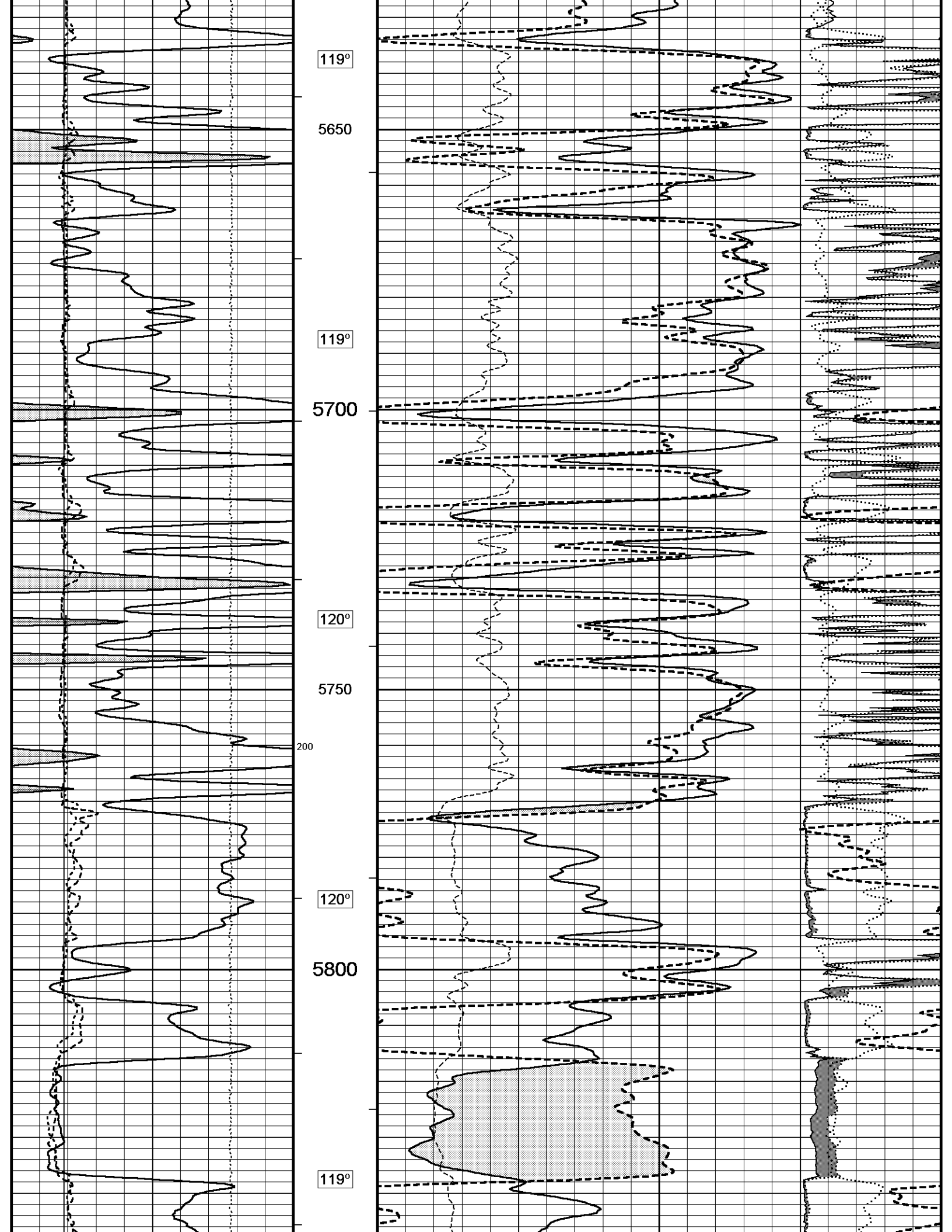

111°
4550
111°
600
4600
400
111°
4650
111°
4700
112°
Bit Size
PE
Limestone Neutron Por.
Limestone Density Por.
Density Correction

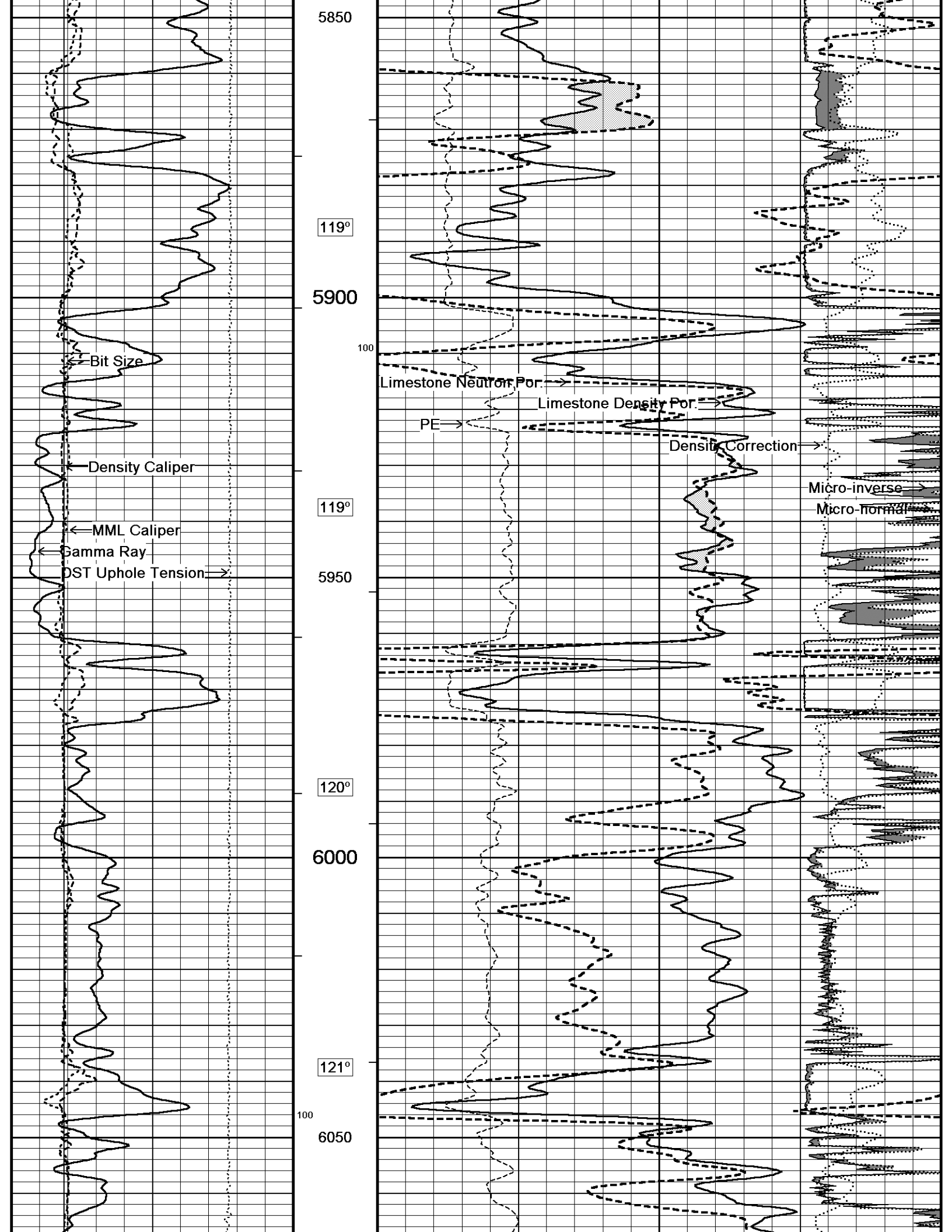

Density Caliper
MML Caliper
Gamma Ray
DST Uphole Tension
Micro-normal
4750
112°
4800
113°
4850
500
113°
4900
113°
4950

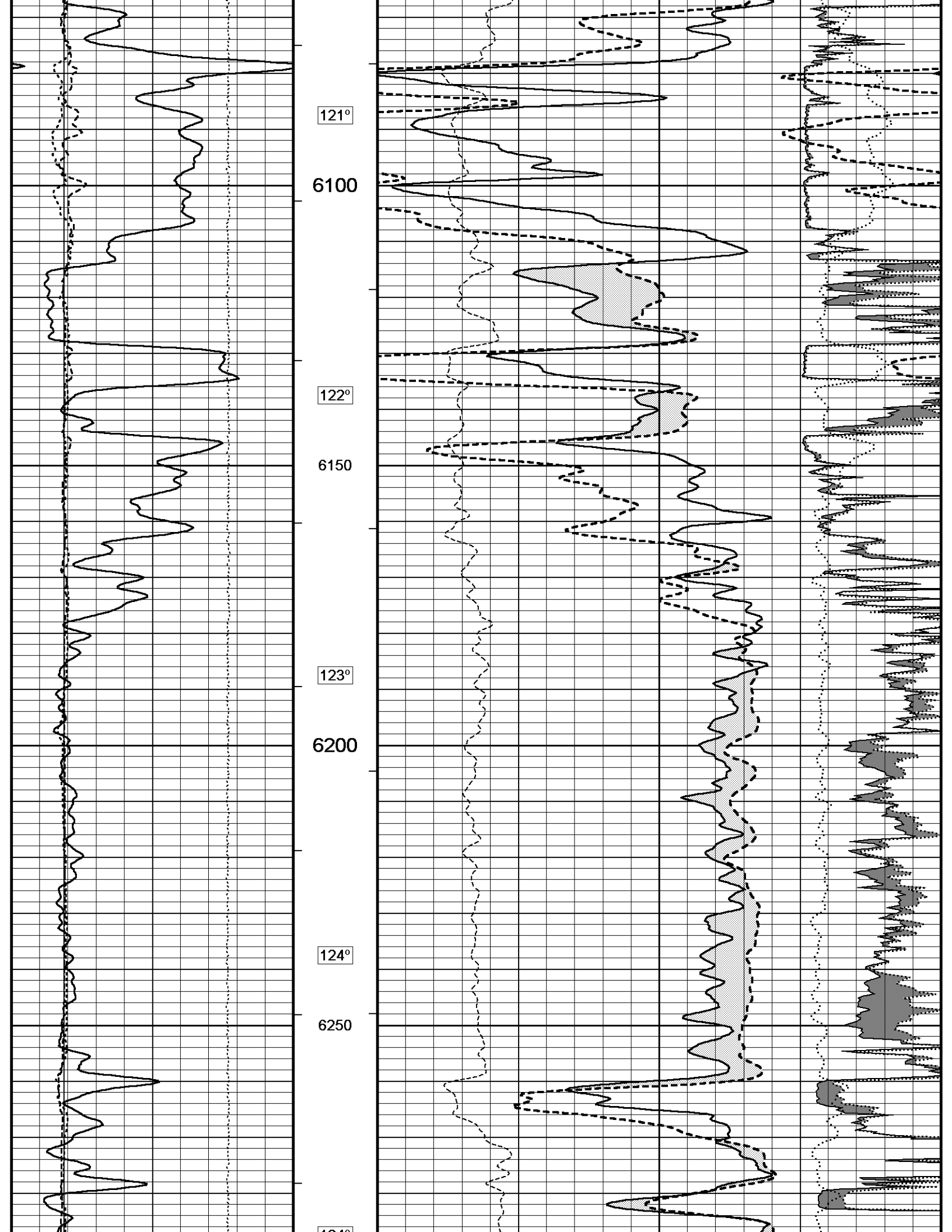

114°
5000
114°
5050
300
115°
5100
115°
5150
400
Bit Size
Density Caliper
MML Caliper
Gamma Ray
DST Uphole Tension
PE
Limestone Neutron Por.
Limestone Density Por.
Density Correction
Micro-inverse
Micro-normal

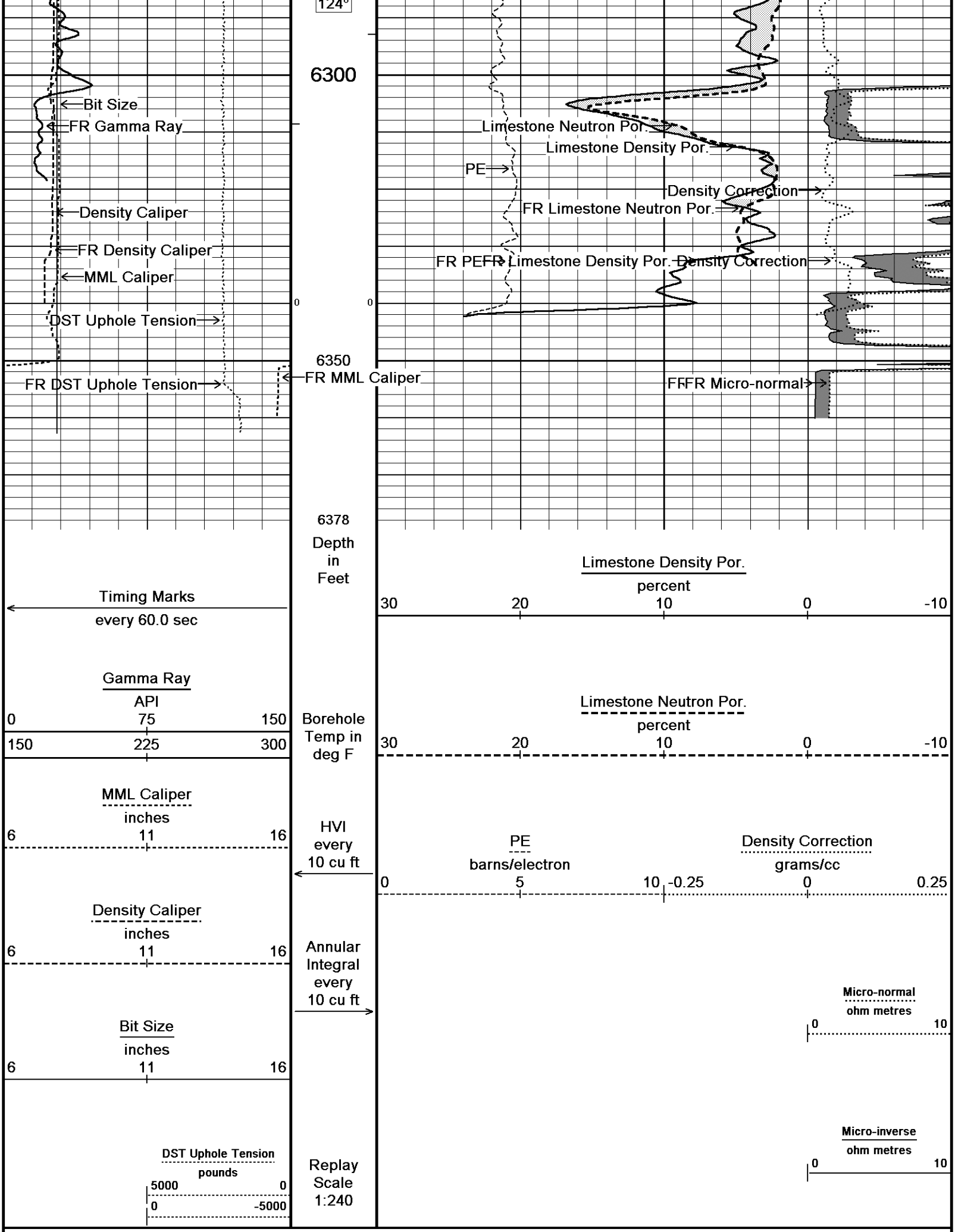

115°
5200
115°
5250
116°
5300
116°
5350
116°
5400


117°
5450
300
117°
200
5500
Bit Size
Limestone Neutron Por.
Limestone Density Por.
PE
Density Correction
Density Caliper
118°
Micro-inverse
Micro-normal
MML Caliper
5550
Gamma Ray
DSI Uphole Tension
118°
5600


119°
5650
119°
5700
120°
5750
200
120°
5800
119°


5850
119°
5900
100
Bit Size
Limestone Neutron Por.
Limestone Density Por.
PE
Density Correction
Density Caliper
Micro-inverse
Micro-normal
119°
MML Caliper
Gamma Ray
DST Uphole Tension
5950
120°
6000
121°
100
6050


121°
6100
122°
6150
123°
6200
124°
6250



Depth Based Data - Maximum Sampling Increment 10.0cm

Plotted on 08-DEC-2010 10:48

Filename: C:\DOCUME~1\ScheffJL\LOCALS~1\Temp\Weatherford PreView\0\Complete.dta Recorded on
System Versions: Plotted with 11.02.2164

5 Inch Main

HI RES SECTION

Depth Based Data - Maximum Sampling Increment 2.5cm Plotted on 08-DEC-2010 10:48
Filename: C:\DOCUME~1\ScheffJL\LOCALS~1\Temp\Weatherford PreVi...\Copy of VAIL #1-30_001.dta Recorded on 07-DEC-2010 16:32
System Versions: Logged with 11.01.2198 Processed with 11.01.2198 Plotted with 11.02.2164

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
0 -5000

Depth in Feet

Borehole Temp in deg F

HVI every 10 cu ft

Annular Integral every 10 cu ft

Replay Scale 1:120

5700

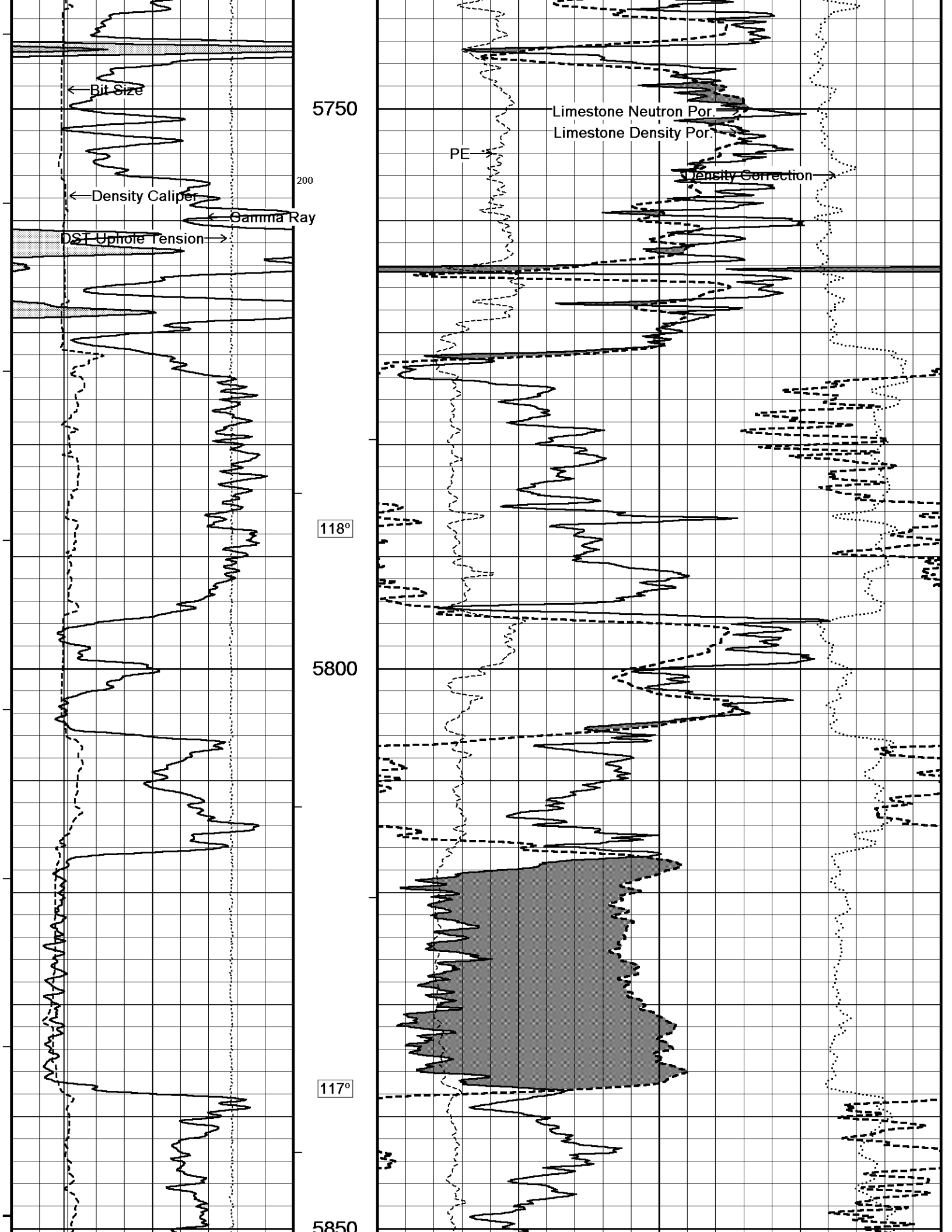
118°

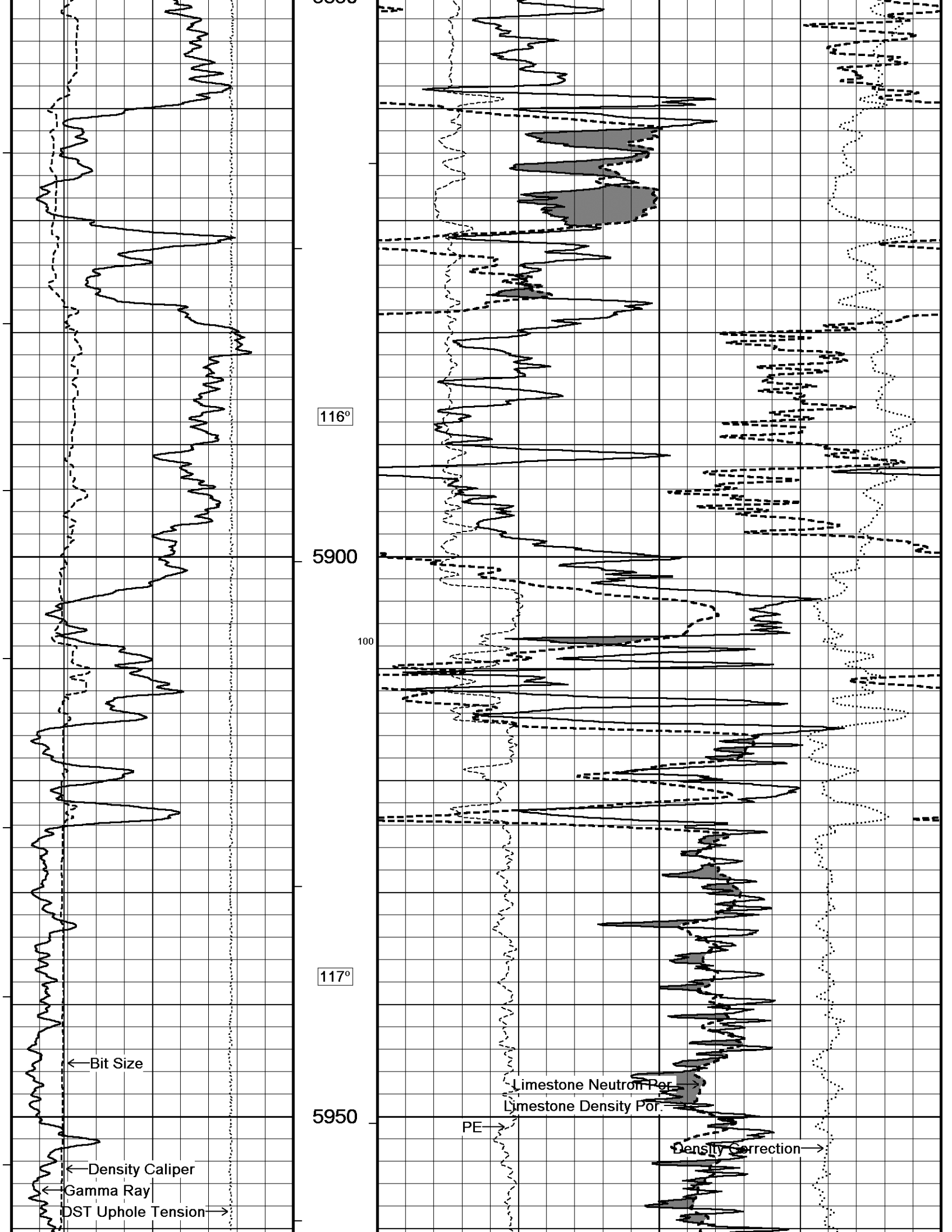
Limestone Density Por.
percent
30 20 10 0 -10

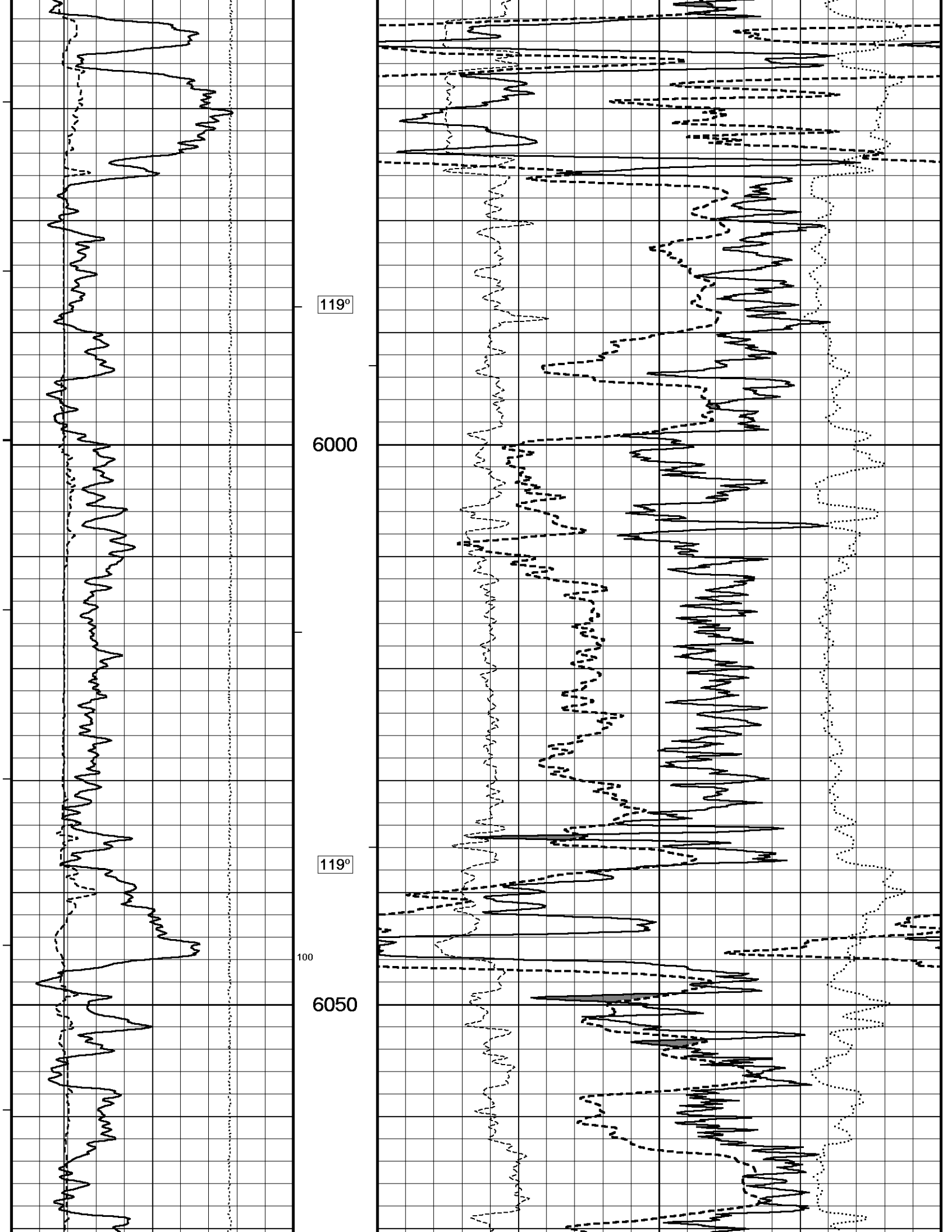
Limestone Neutron Por.
percent
30 20 10 0 -10

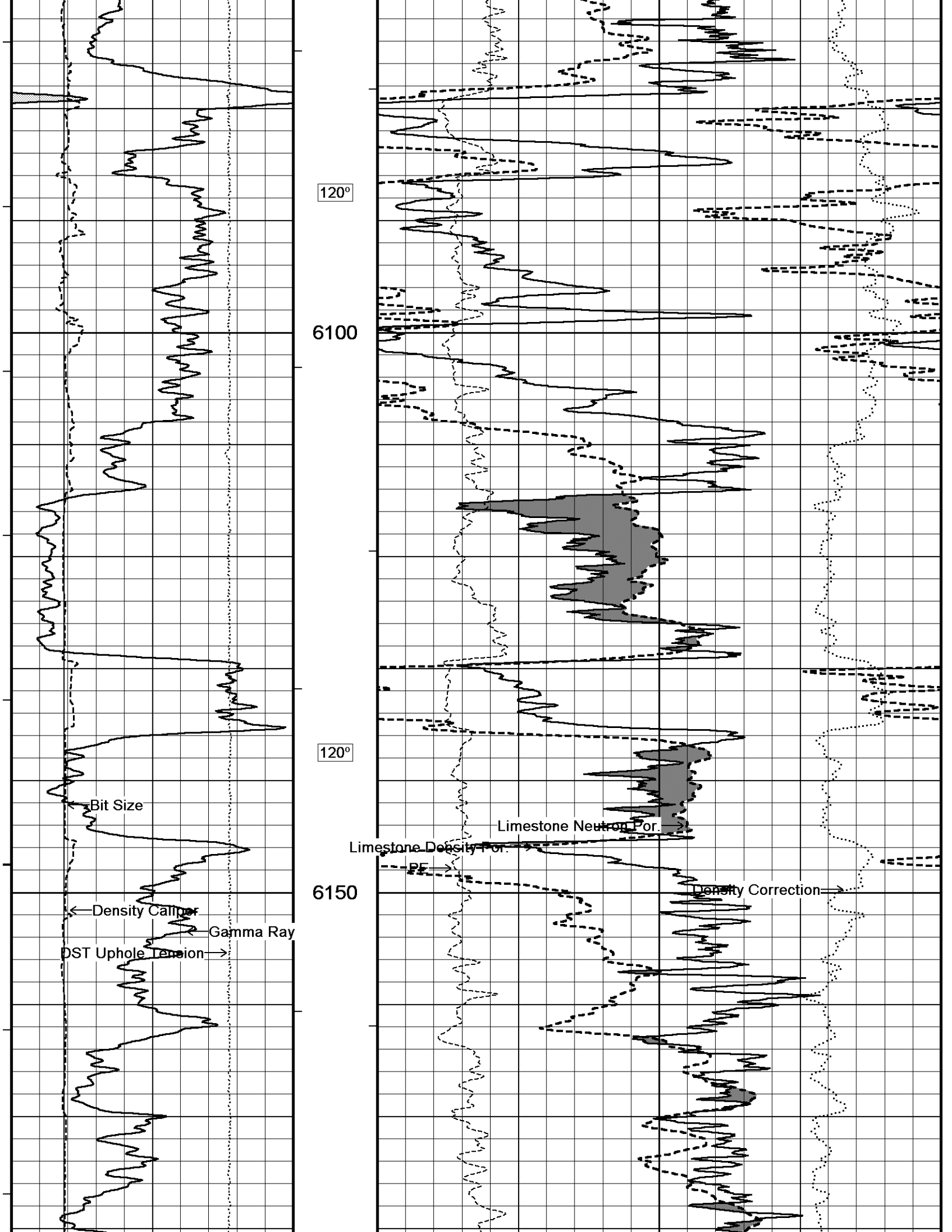
PE
barns/electron
0 5 10

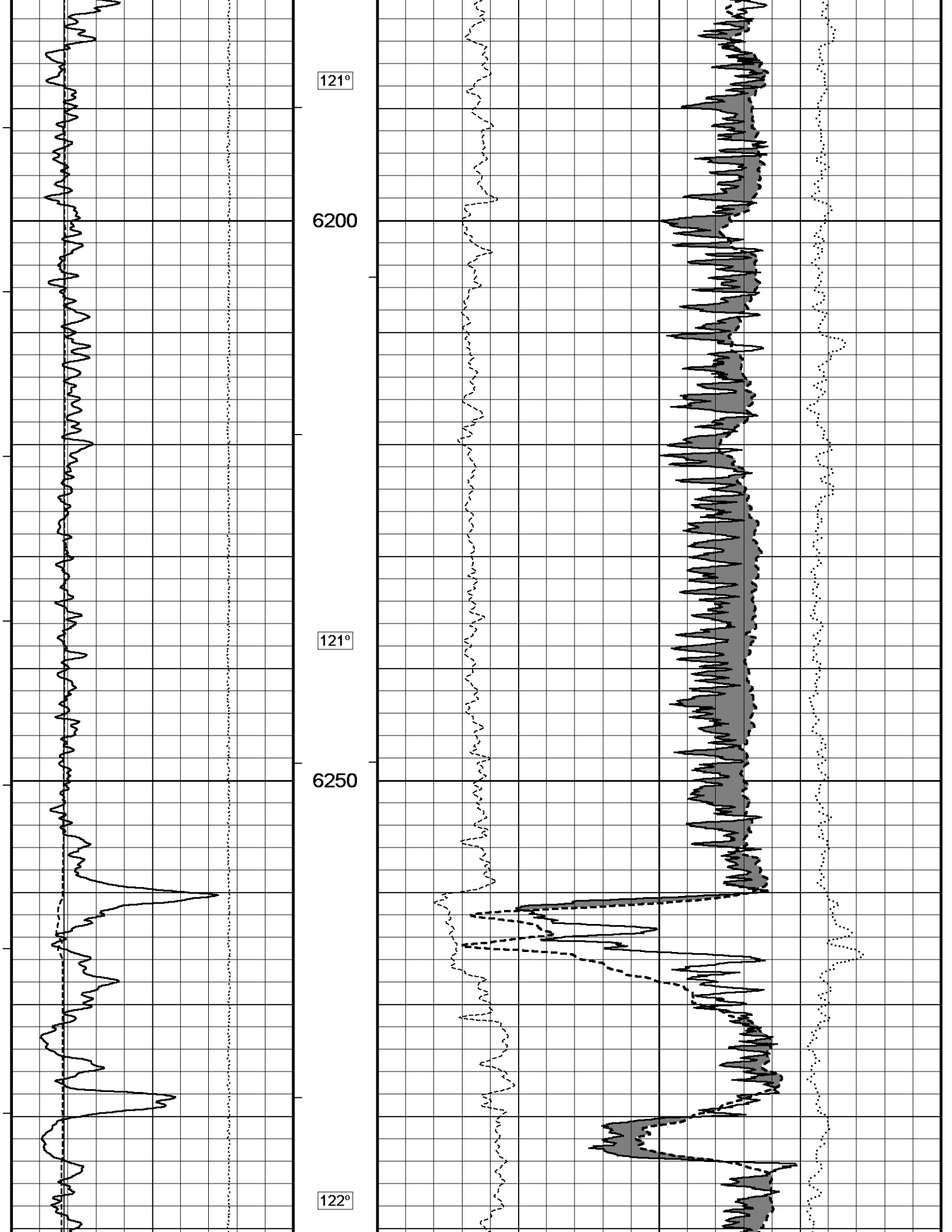
Density Correction
grams/cc
-0.25 0 0.25

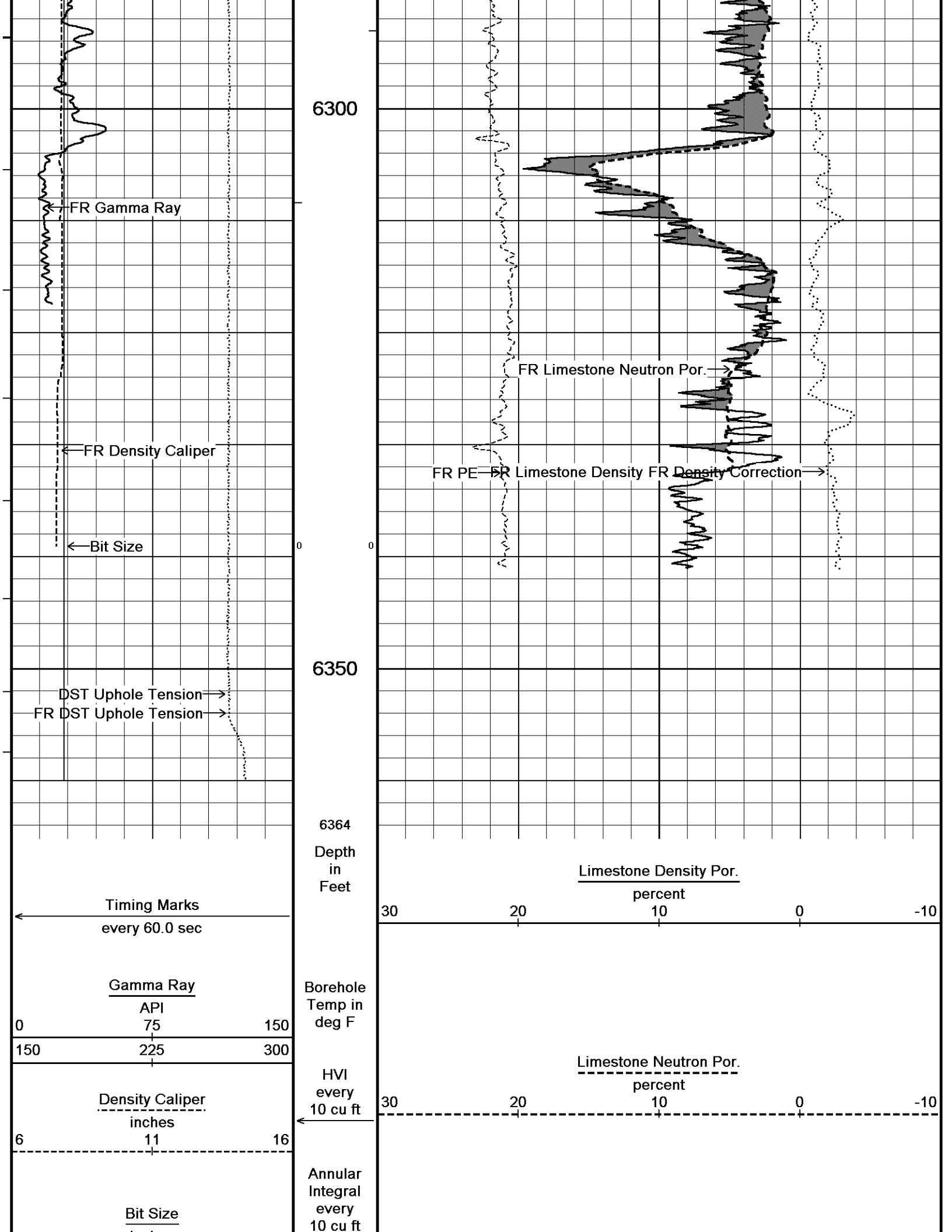

Bit Size
Density Caliper
Gamma Ray
DST Uphole Tension
200
5750
118°
5800
117°
5850
Limestone Neutron Por
Limestone Density Por
PE
Density Correction


116°
5900
100
117°
5950
←Bit Size
←Density Caliper
←Gamma Ray
DST Uphole Tension→
Limestone Neutron Por.→
Limestone Density Por.
PE→
Density Correction→


119°
6000
119°
100
6050


120°
6100
120°
Bit Size
Limestone Neutron Por.
Limestone Density Por.
PE
6150
Density Correction
Density Caliper
Gamma Ray
DST Uphole Tension


121°
6200
121°
6250
122°


6300
FR Gamma Ray
FR Density Caliper
Bit Size
0
0
6350
DST Uphole Tension
FR DST Uphole Tension
FR Limestone Neutron Por.
FR PE
FR Limestone Density
FR Density Correction
6364
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
Borehole Temp in deg F
HVI every 10 cu ft
Annular Integral every 10 cu ft
Limestone Density Por.
percent
30
20
10
0
-10
Limestone Neutron Por.
percent
30
20
10
0
-10

inches
6 11 16

PE
barns/electron
0 5 10

Density Correction
grams/cc
-0.25 0 0.25

DST Uphole Tension
pounds
5000 0
0 -5000

Replay
Scale
1:120

Depth Based Data - Maximum Sampling Increment 2.5cm — Plotted on 08-DEC-2010 10:48
Filename: C:\DOCUME~1\ScheffJL\LOCALS~1\Temp\Weatherford PreVi...\Copy of VAIL #1-30_001.dta — Recorded on 07-DEC-2010 16:32
System Versions: Logged with 11.01.2198 Processed with 11.01.2198 Plotted with 11.02.2164

HI RES SECTION

Repeat Section

Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 08-DEC-2010 10:48
Filename: C:\DOCUME~1\ScheffJL\LOCALS~1\Temp\Weatherford PreVi...\Copy of VAIL #1-30_002.dta — Recorded on 07-DEC-2010 16:32
System Versions: Logged with 11.01.2198 Processed with 11.01.2198 Plotted with 11.02.2164

Timing Marks
every 60.0 sec

Depth
in
Feet

Limestone Density Por.
percent
30 20 10 0 -10

Gamma Ray
API
0 75 150
150 225 300

Borehole
Temp in
deg F

Limestone Neutron Por.
percent
30 20 10 0 -10

MML Caliper
inches
6 11 16

HVI
every
10 cu ft

PE
barns/electron
0 5 10

Density Correction
grams/cc
-0.25 0 0.25

Density Caliper
inches
6 11 16

Annular
Integral
every
10 cu ft

Micro-normal
ohm metres
0 10

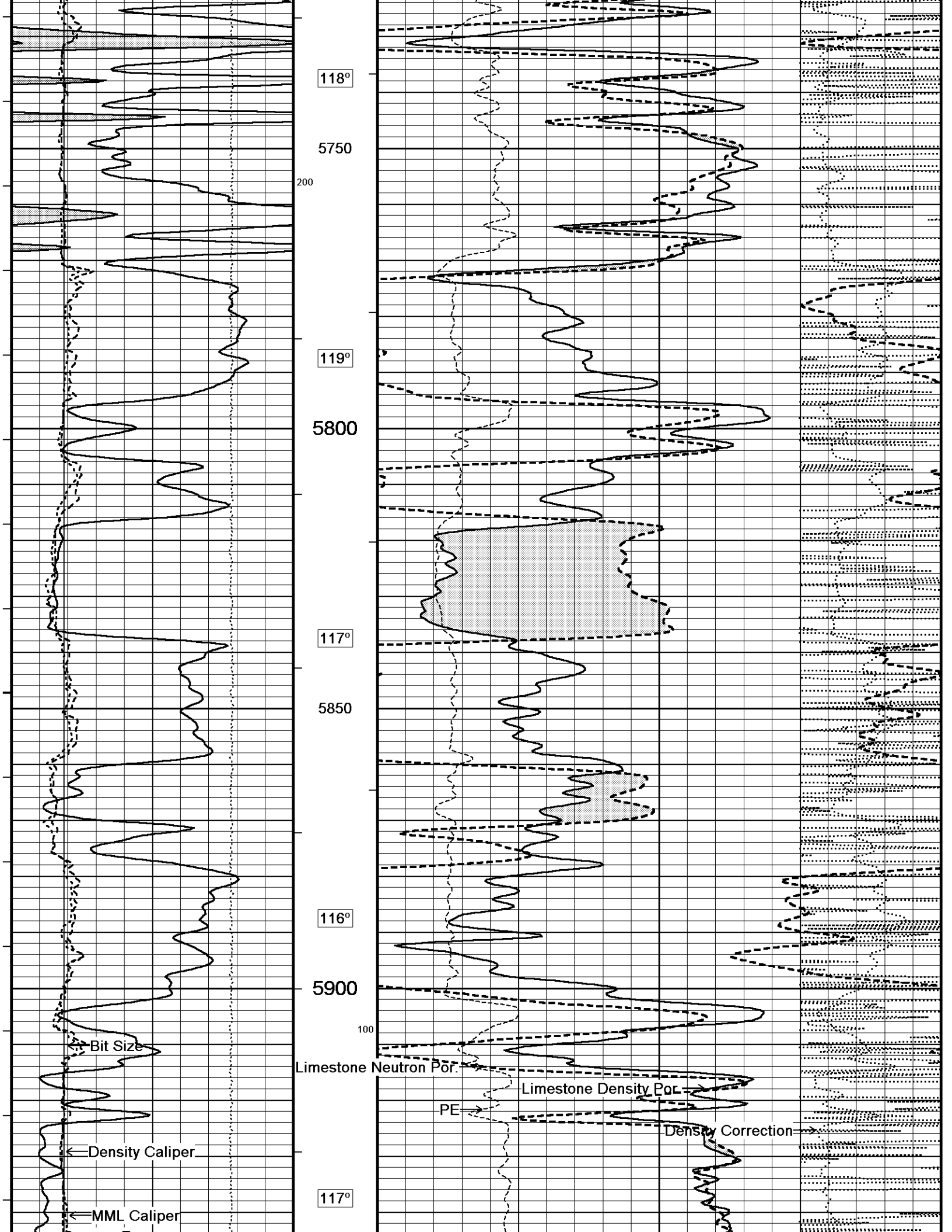
Bit Size
inches
6 11 16

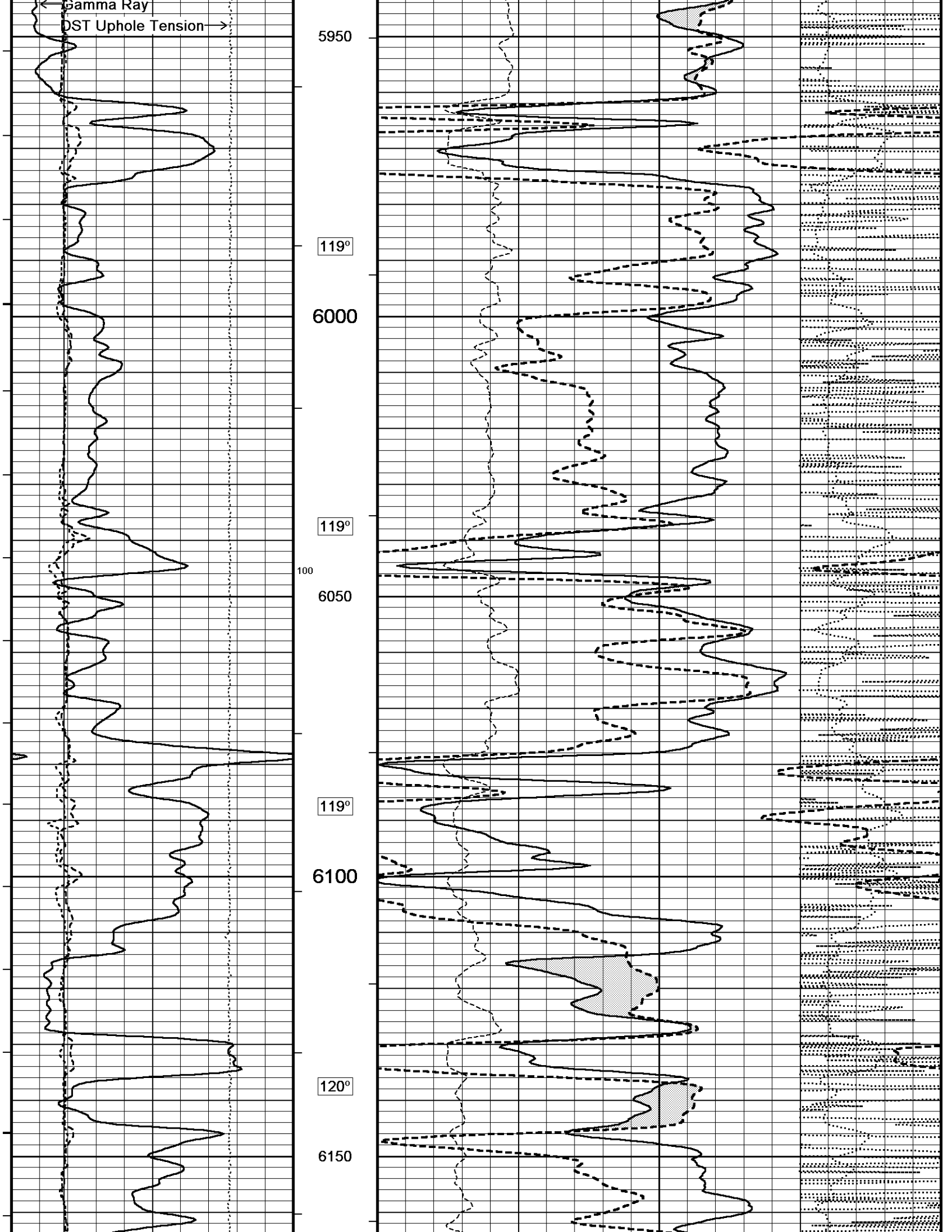
Micro-inverse
ohm metres
0 10

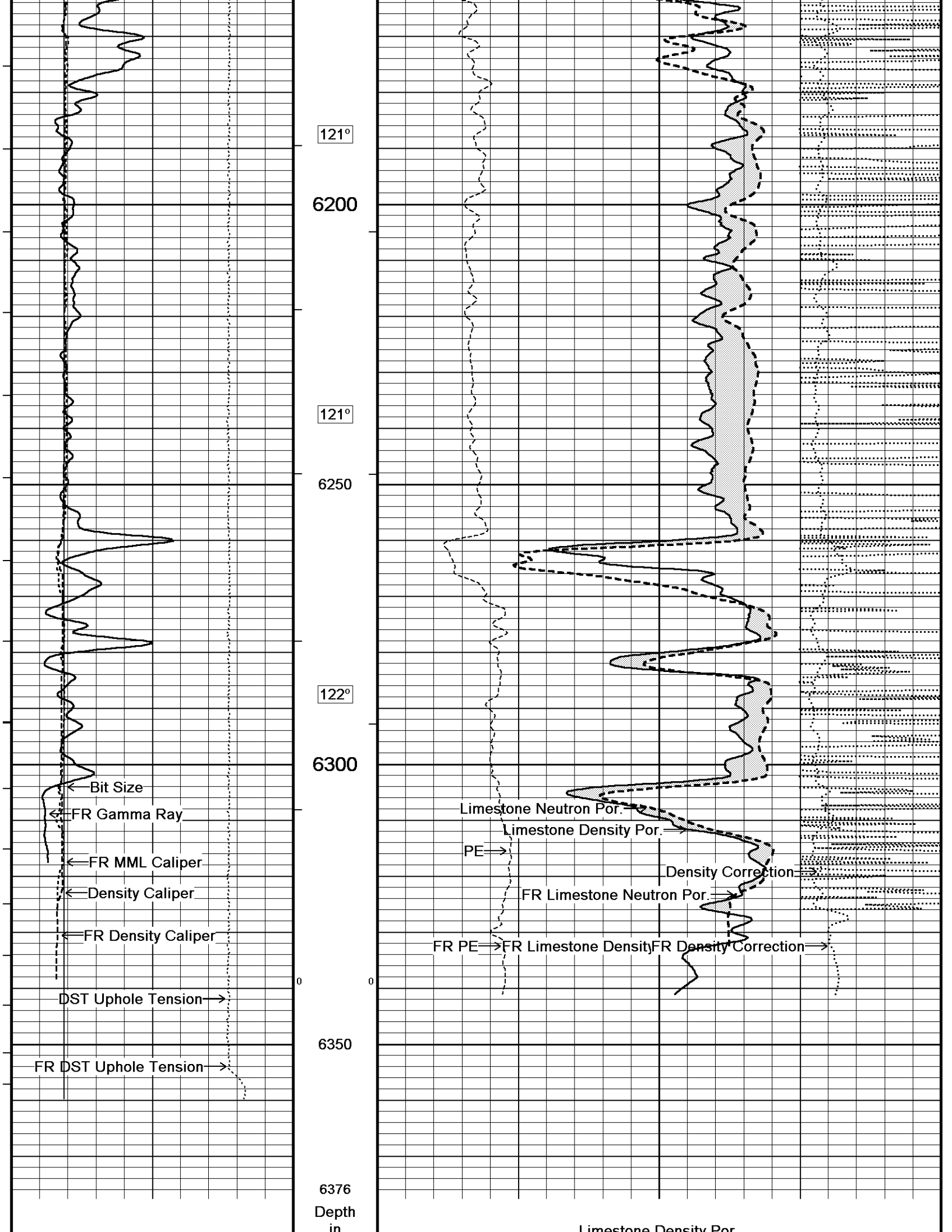
DST Uphole Tension
pounds
5000 0
0 -5000

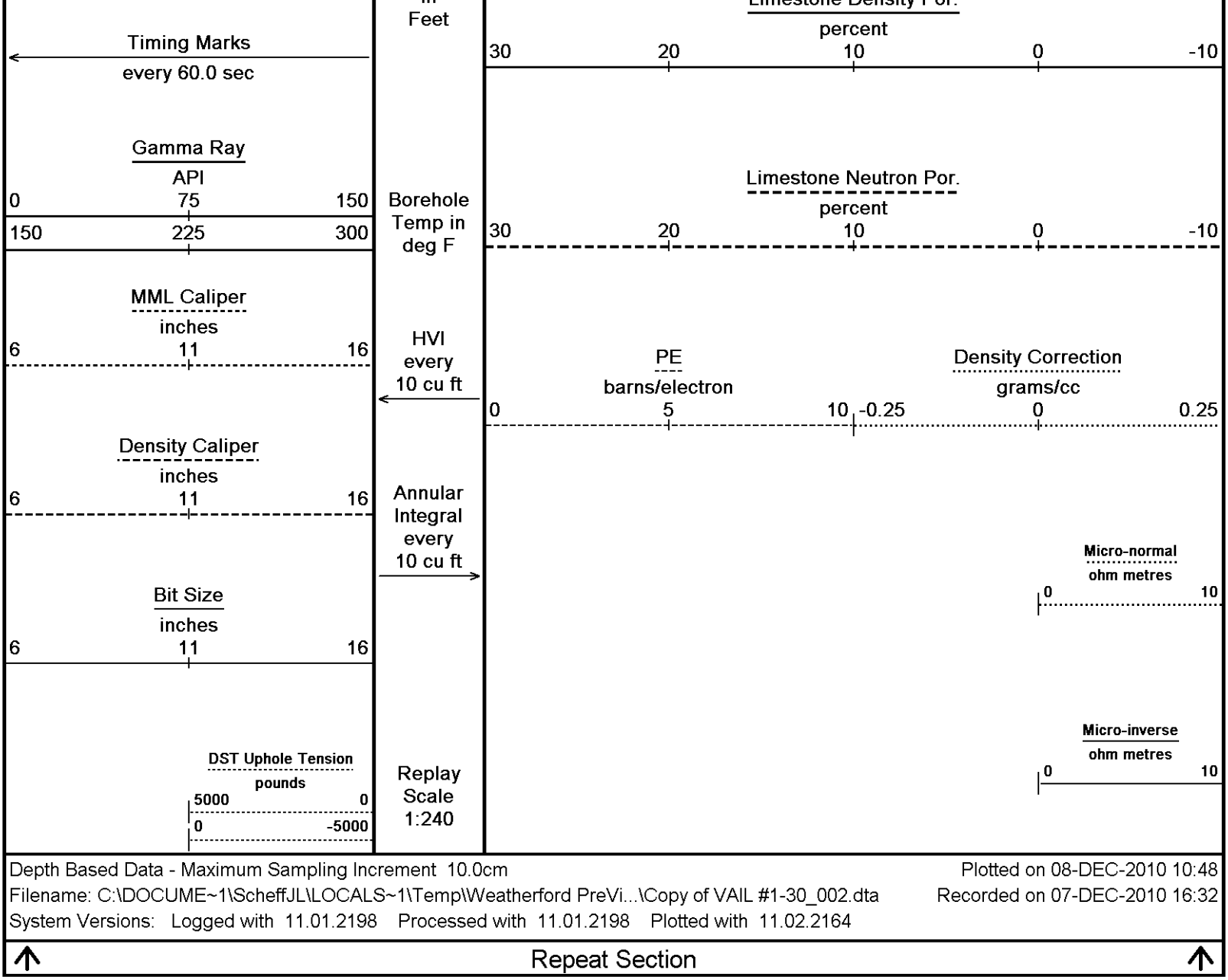
Replay
Scale
1:240

5700


118°
5750
200
119°
5800
117°
5850
116°
5900
100
117°
Bit Size
Limestone Neutron Por.
Limestone Density Por.
PE
Density Correction
Density Caliper
MML Caliper


Gamma Ray
DST Uphole Tension
5950
119°
6000
119°
100
6050
119°
6100
120°
6150


121°
6200
121°
6250
122°
6300
6350
6376
Depth
in
Bit Size
FR Gamma Ray
FR MML Caliper
Density Caliper
FR Density Caliper
DST Uphole Tension
FR DST Uphole Tension
0
0
Limestone Neutron Por.
Limestone Density Por.
PE
Density Correction
FR Limestone Neutron Por.
FR PE
FR Limestone Density
FR Density Correction
Limestone Density Por.

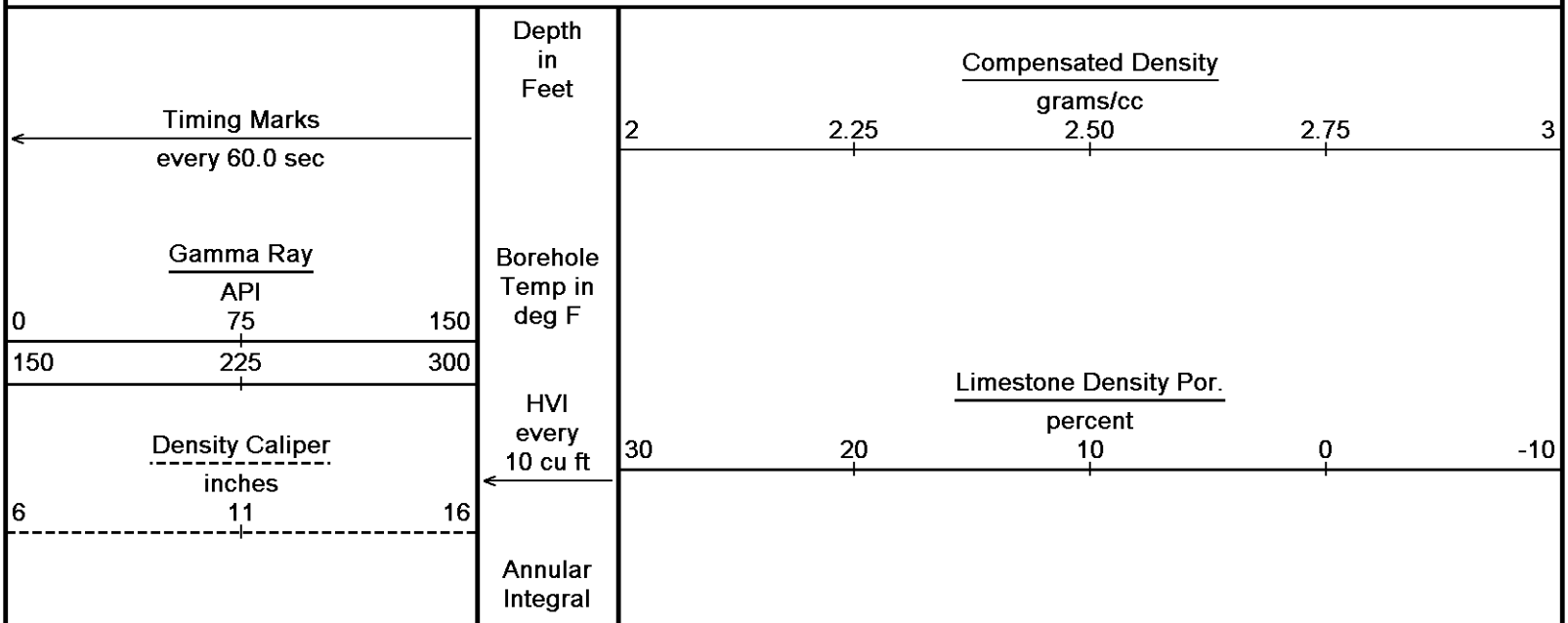


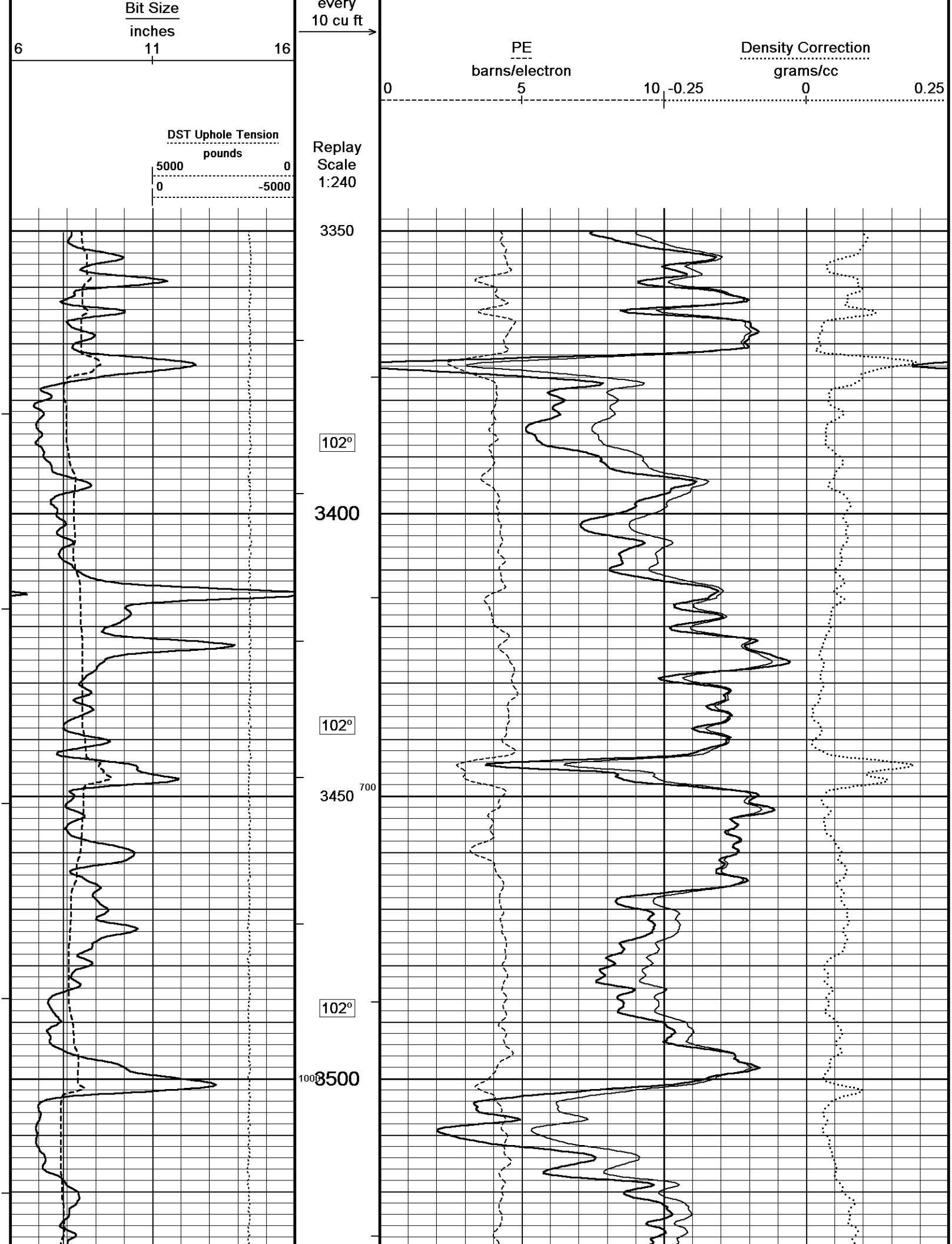
Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 08-DEC-2010 10:48
Filename: C:\DOCUME~1\ScheffJL\LOCALS~1\Temp\Weatherford PreVi...\Copy of VAIL #1-30_002.dta — Recorded on 07-DEC-2010 16:32
System Versions: Logged with 11.01.2198 Processed with 11.01.2198 Plotted with 11.02.2164

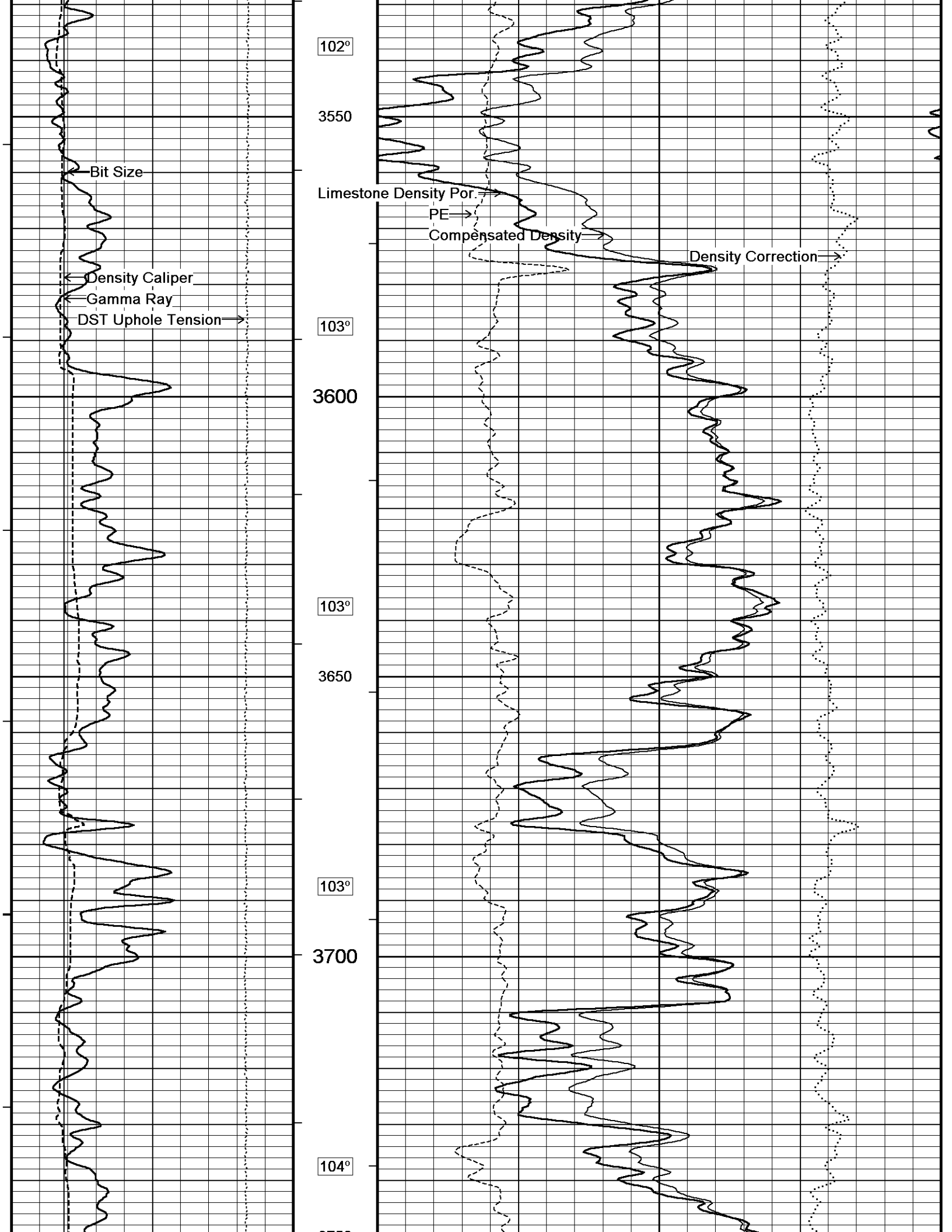
Repeat Section

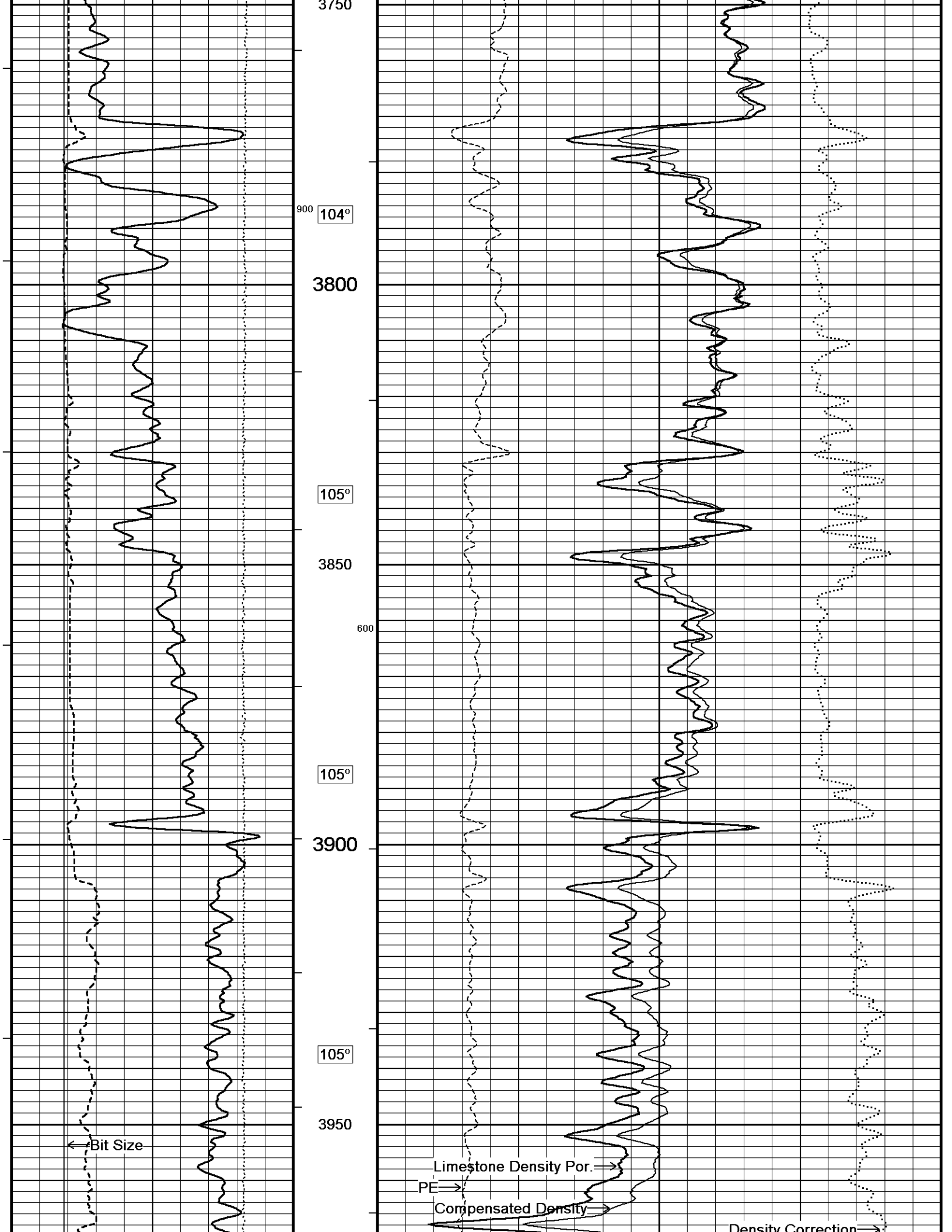
5 Inch Main

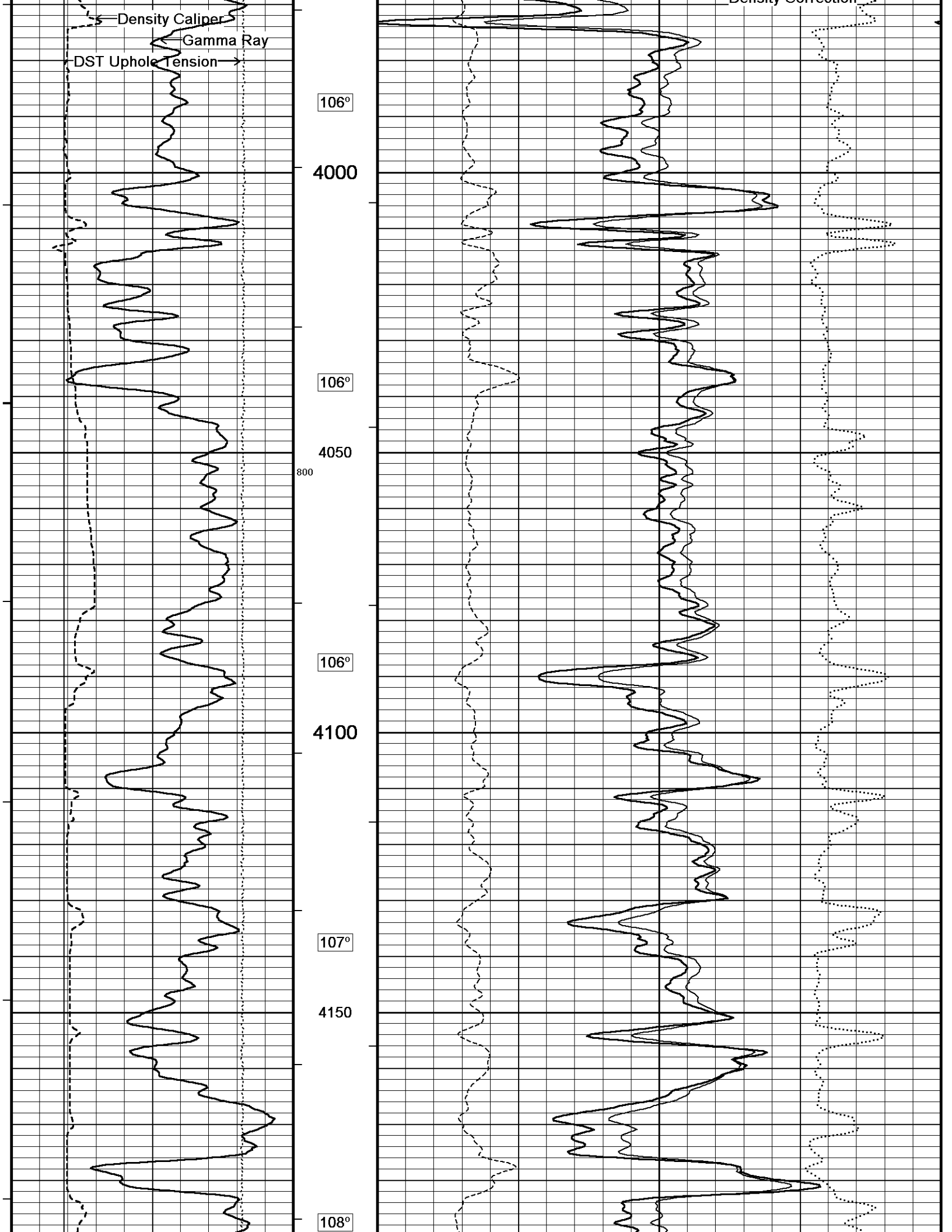
Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 08-DEC-2010 10:48
Filename: C:\DOCUME~1\ScheffJL\LOCALS~1\Temp\Weatherfo...\VAIL #1-30_003 spooled section.dta — Recorded on 07-DEC-2010 19:08
System Versions: Logged with 11.01.2198 Processed with 11.01.2198 Plotted with 11.02.2164

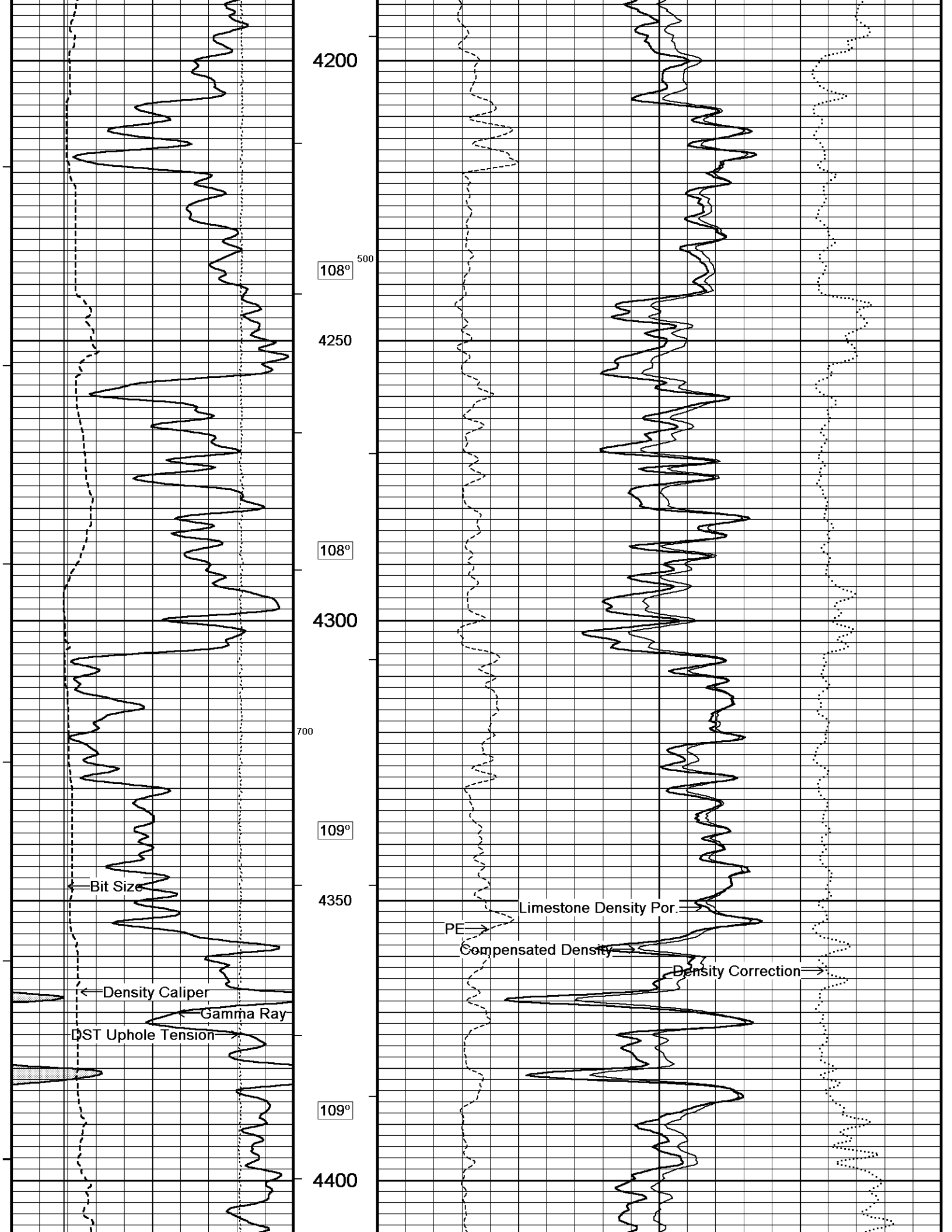


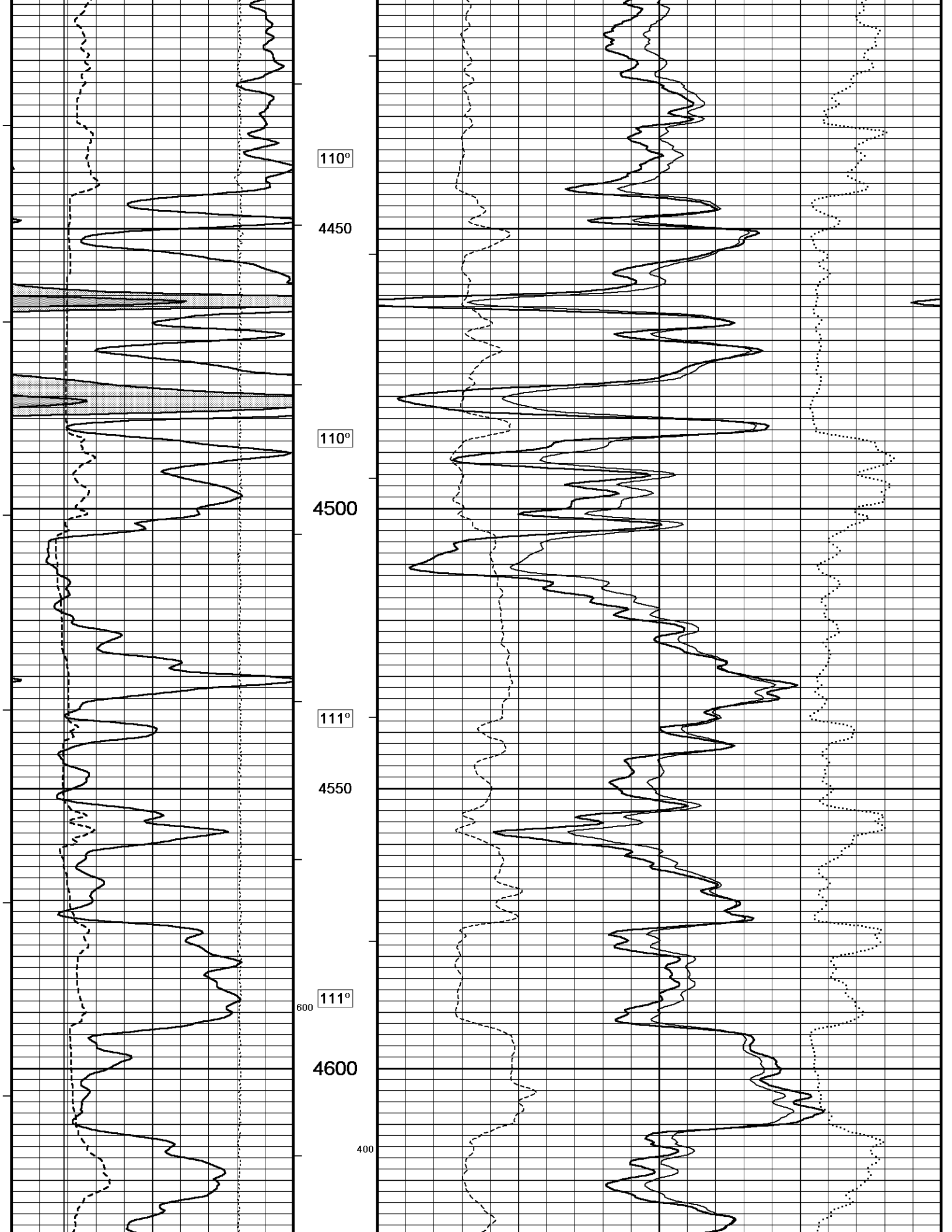

Bit Size
inches
6
11
16
every
10 cu ft
PE
barns/electron
0
5
10
Density Correction
grams/cc
-0.25
0
0.25
DST Uphole Tension
pounds
5000
0
0
-5000
Replay
Scale
1:240
3350
102°
3400
102°
3450
700
102°
100
3500

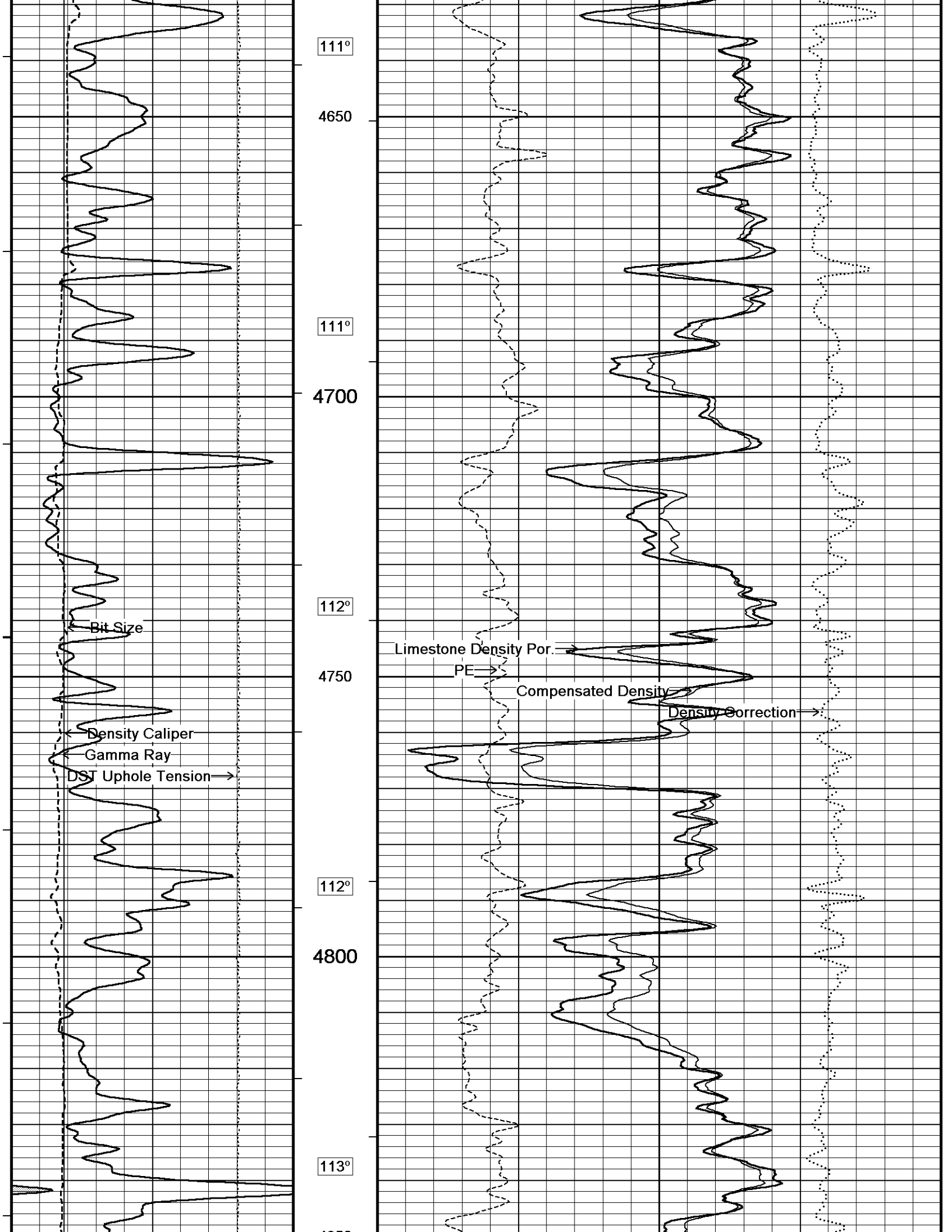

Bit Size
Density Caliper
Gamma Ray
DST Uphole Tension
102°
3550
Limestone Density Por.
PE
Compensated Density
Density Correction
103°
3600
103°
3650
103°
3700
104°

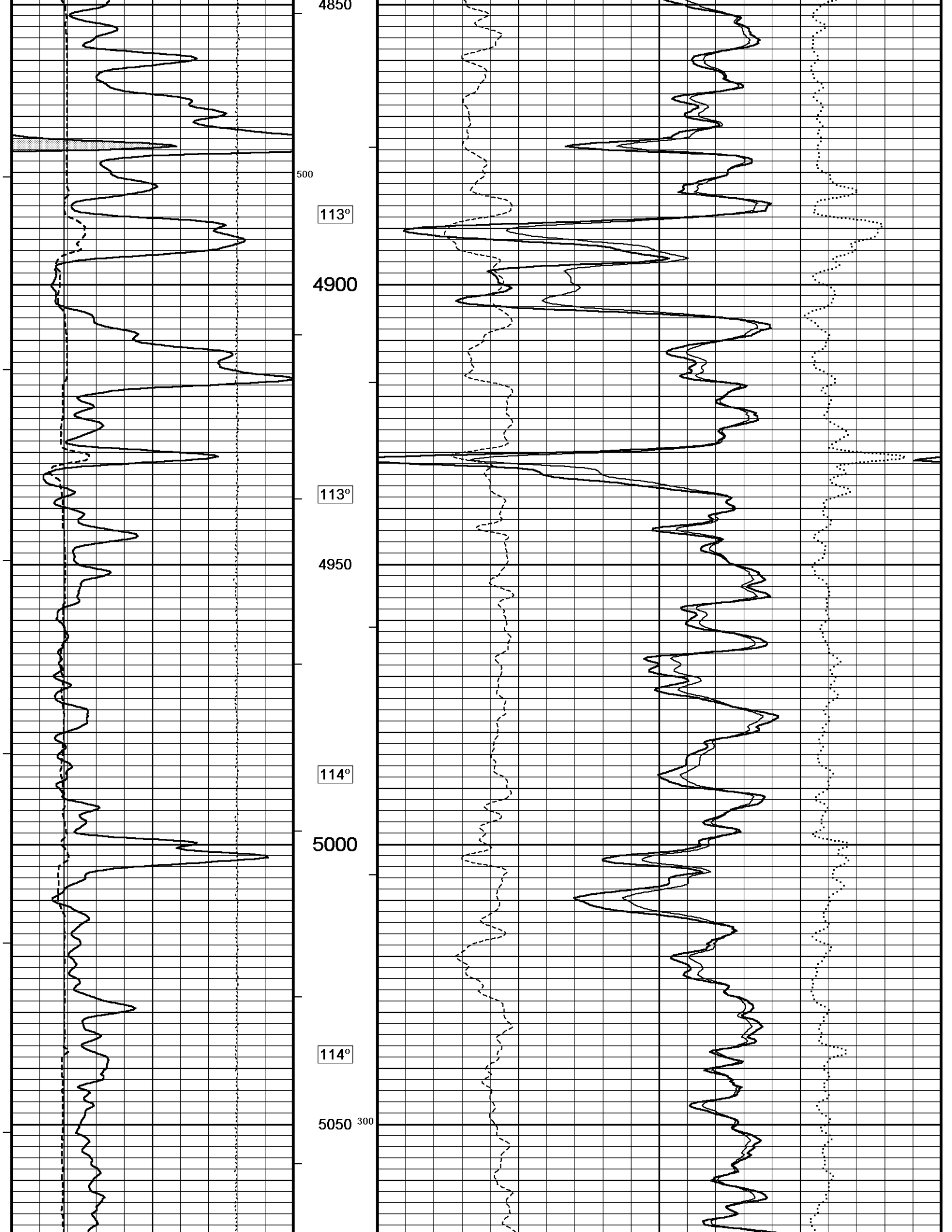

3750
900
104°
3800
105°
3850
600
105°
3900
105°
3950
Bit Size
Limestone Density Por.
PE
Compensated Density
Density Correction

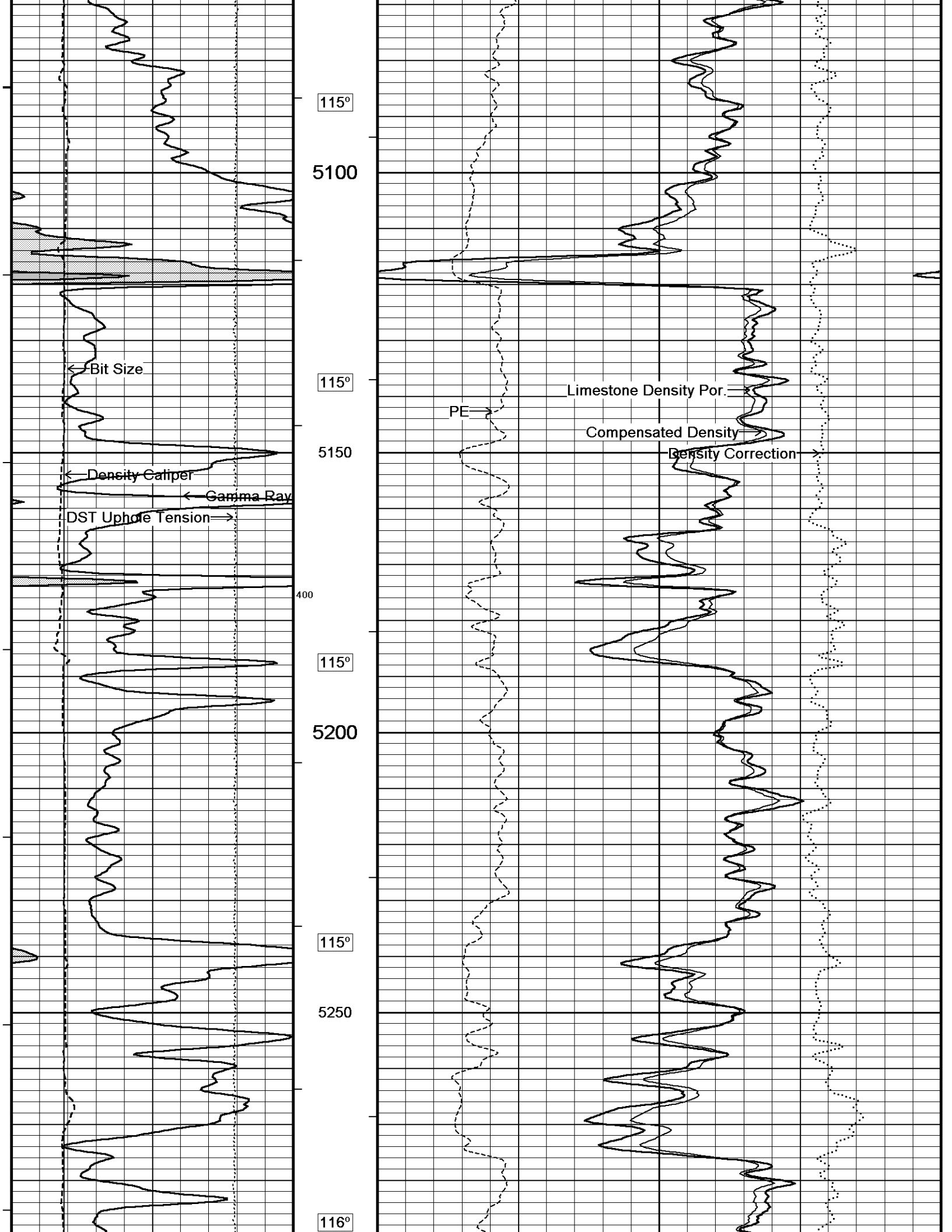

Density Caliper
Gamma Ray
DST Uphole Tension
Density Correction
106°
4000
106°
4050
800
106°
4100
107°
4150
108°

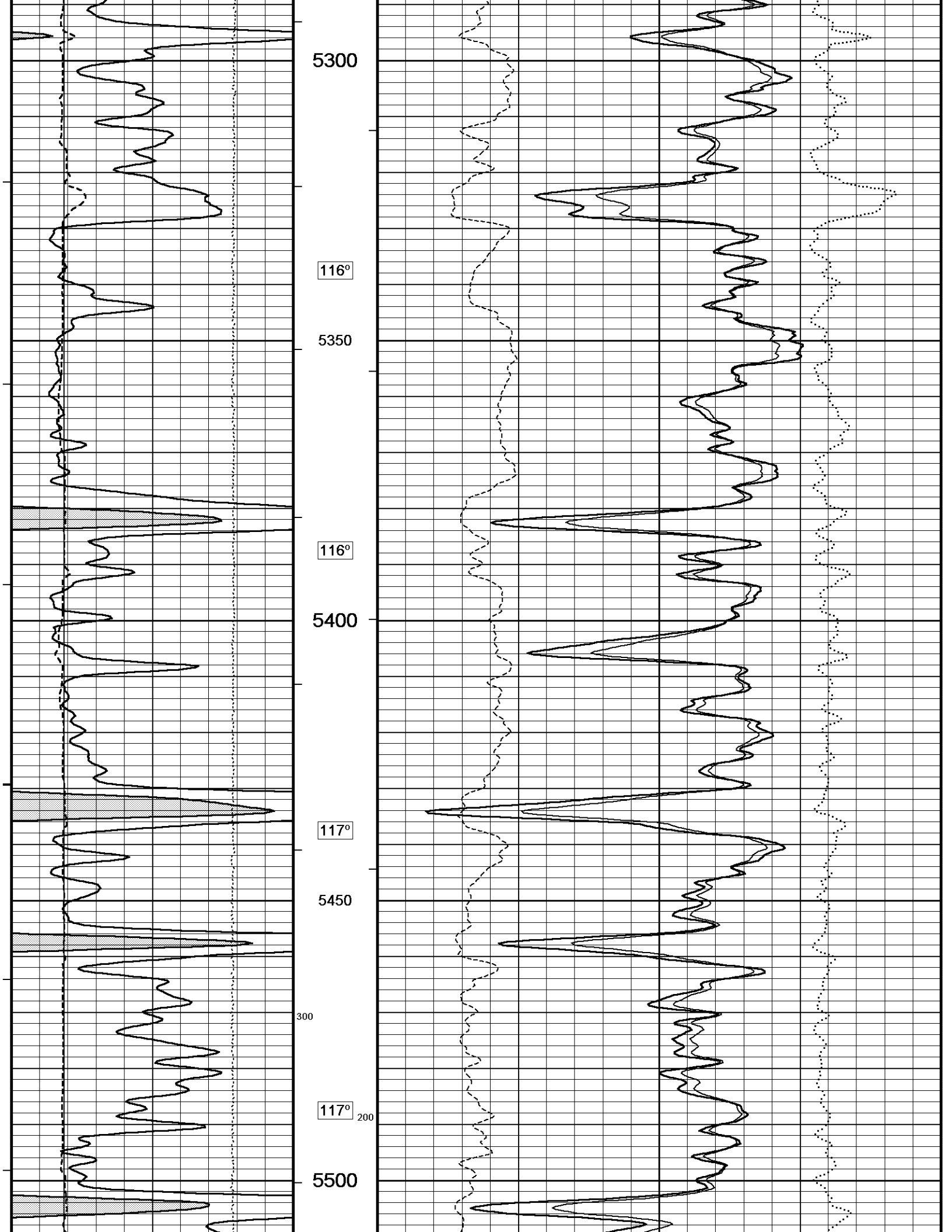

4200
108°
500
4250
108°
4300
700
109°
Bit Size
4350
Limestone Density Por.
PE
Compensated Density
Density Correction
Density Caliper
Gamma Ray
DST Uphole Tension
109°
4400

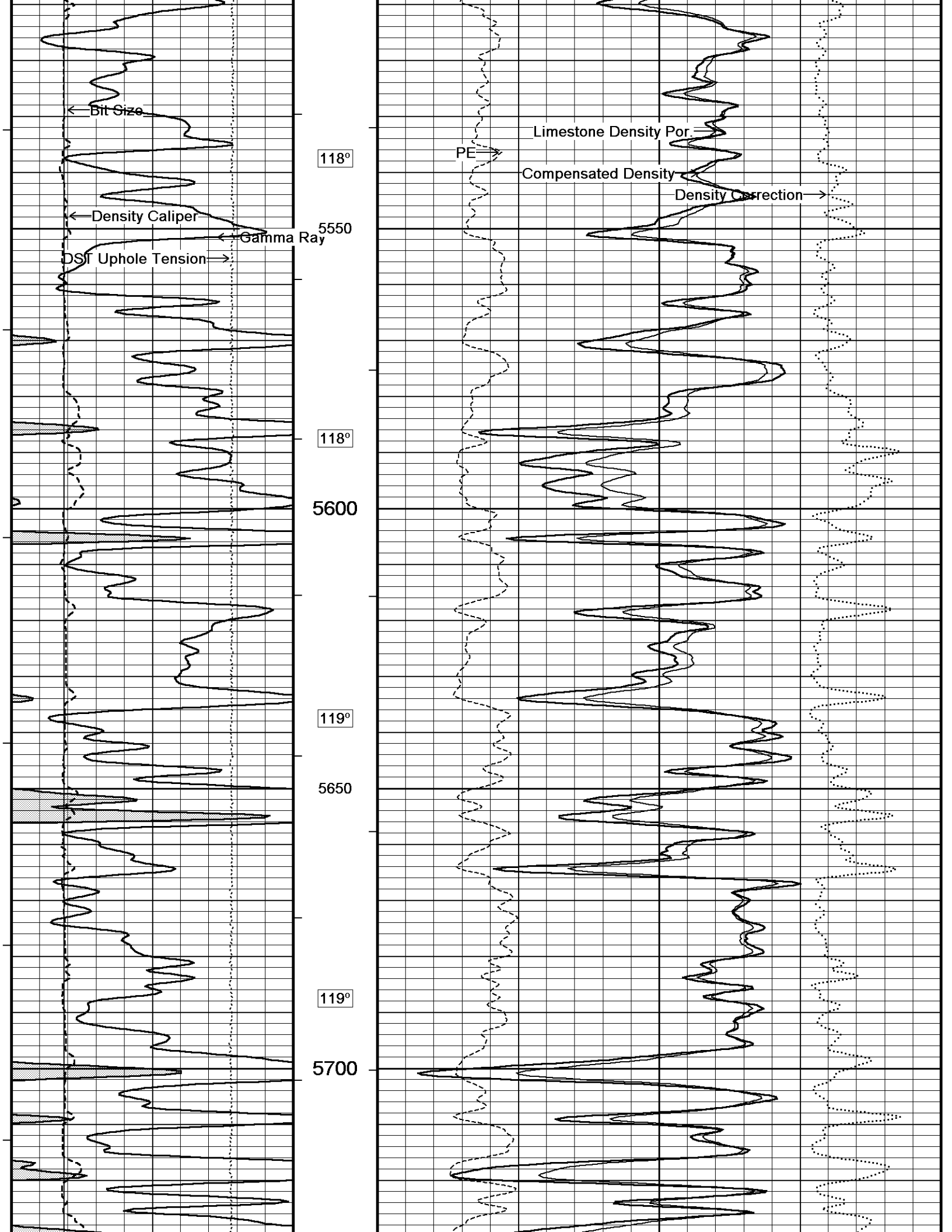

110°
4450
110°
4500
111°
4550
111°
600
4600
400

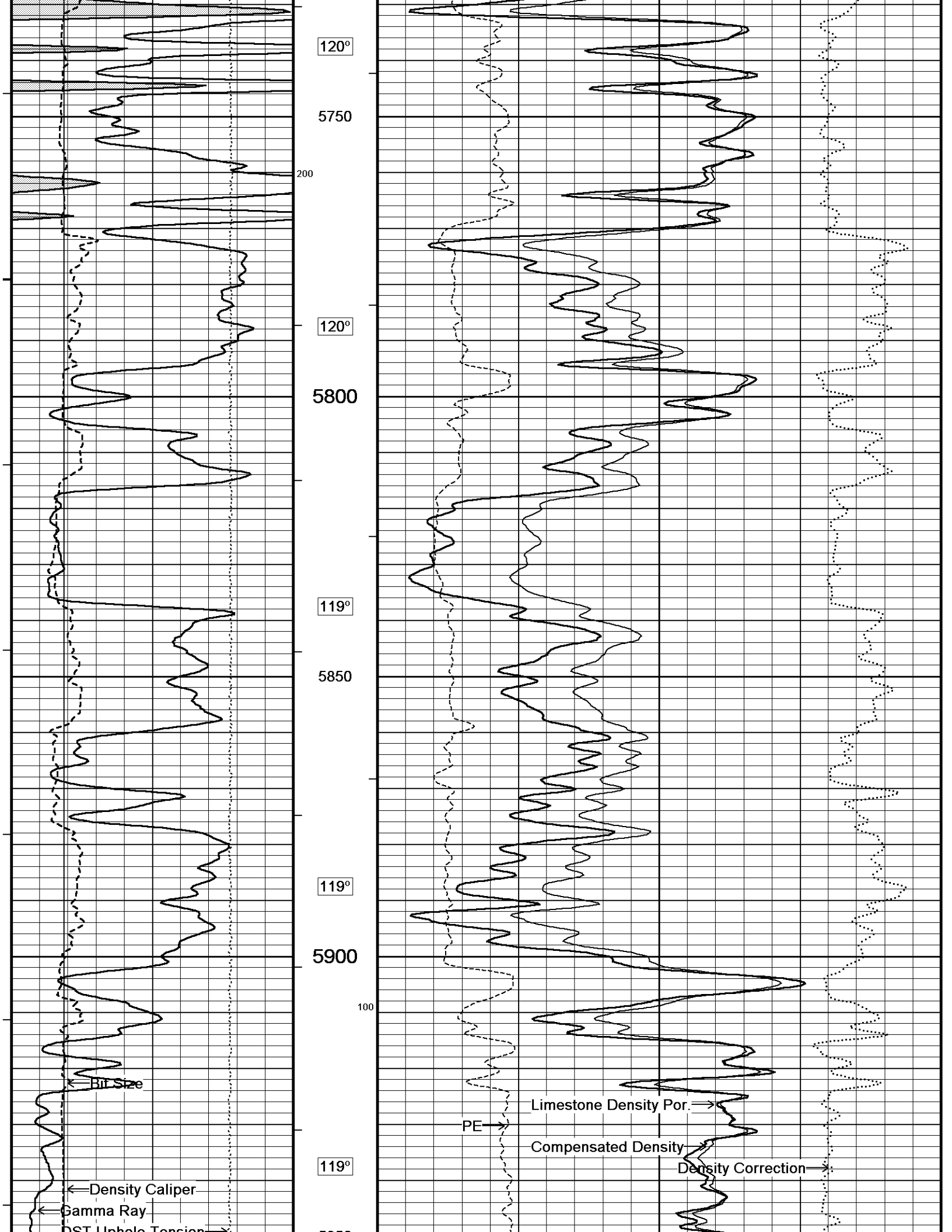

111°
4650
111°
4700
112°
Bit Size
Limestone Density Por.
PE
4750
Compensated Density
Density Correction
Density Caliper
Gamma Ray
DST Uphole Tension
112°
4800
113°

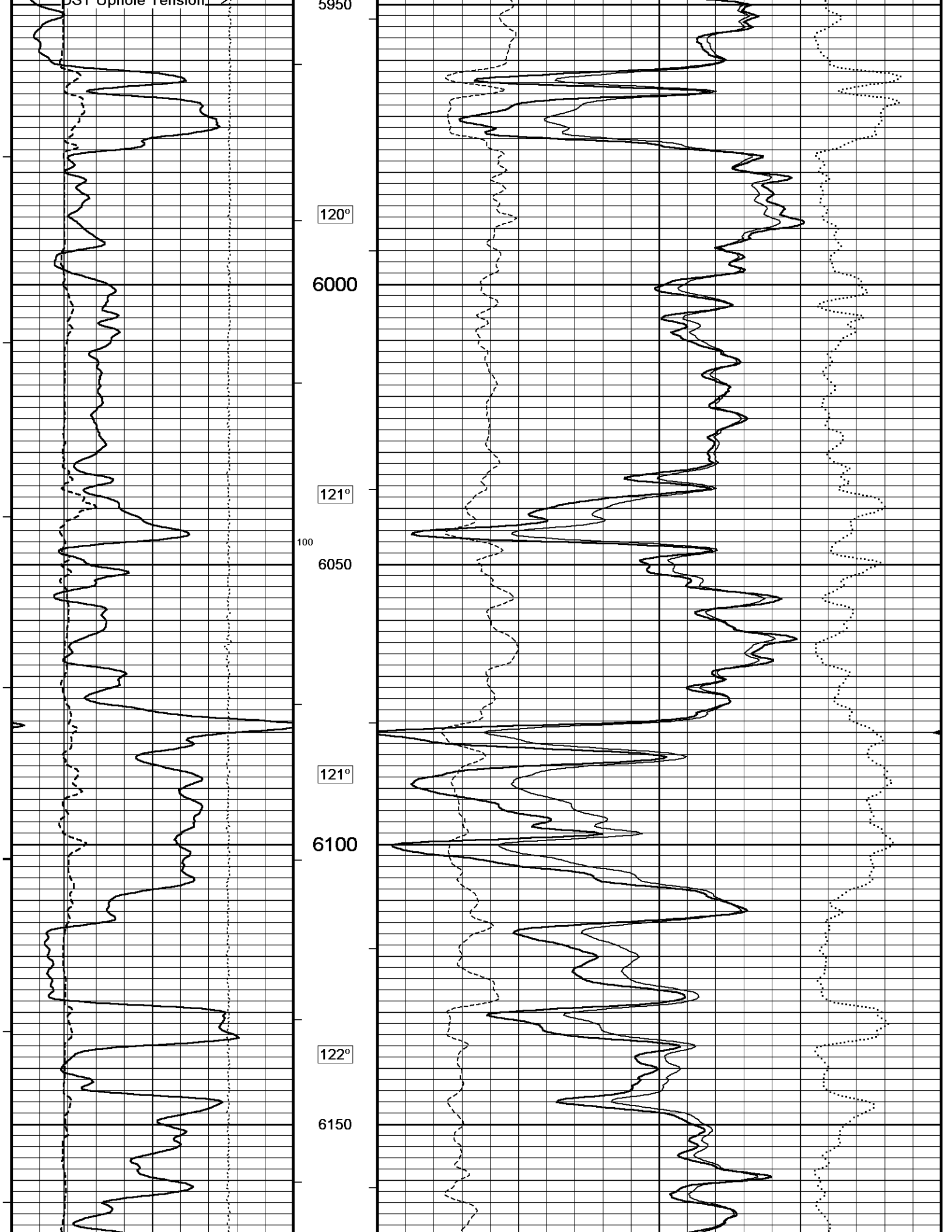

4850
500
113°
4900
113°
4950
114°
5000
114°
5050
300

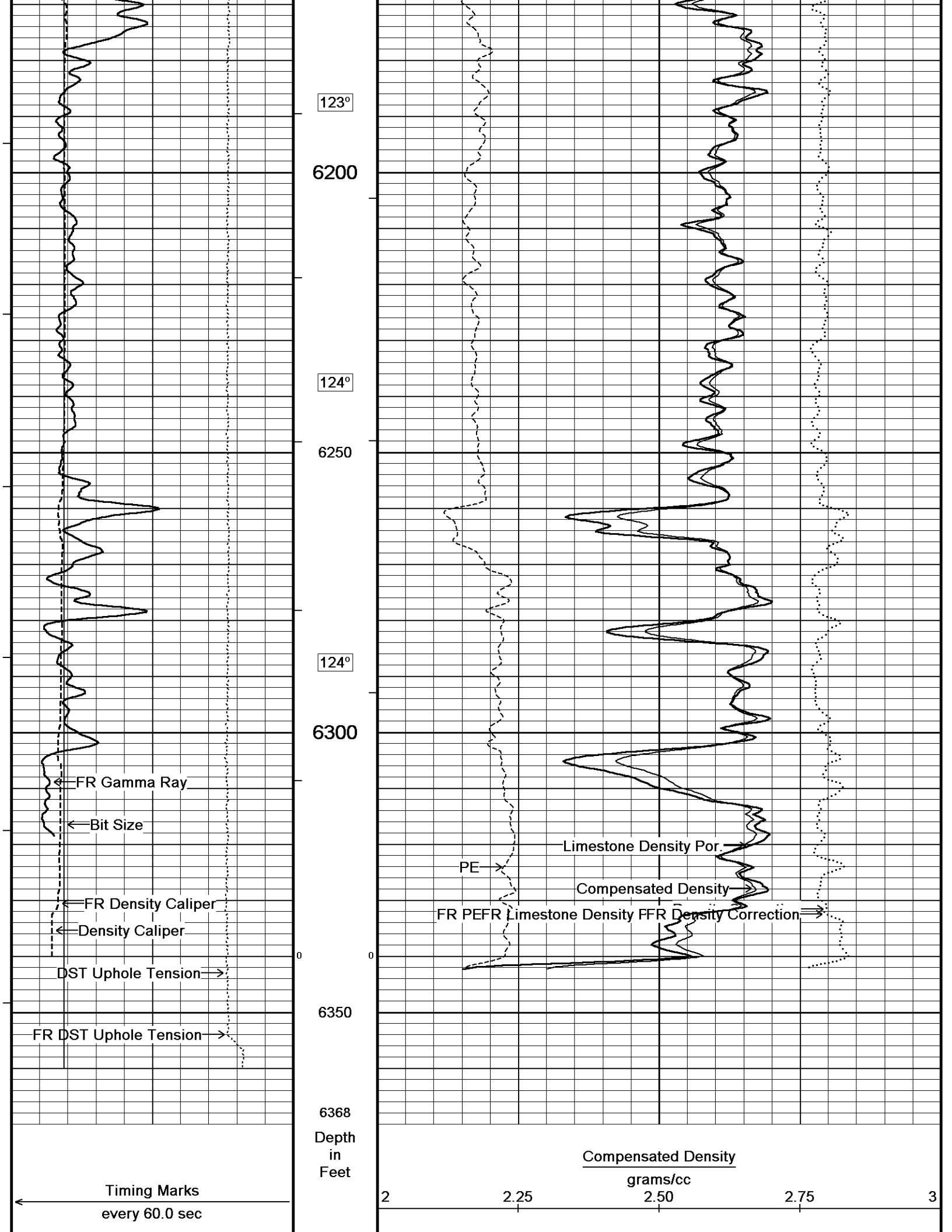

115°
5100
Bit Size
115°
Limestone Density Por.
PE
Compensated Density
5150
Density Caliper
Density Correction
Gamma Ray
DST Uphole Tension
400
115°
5200
115°
5250
116°

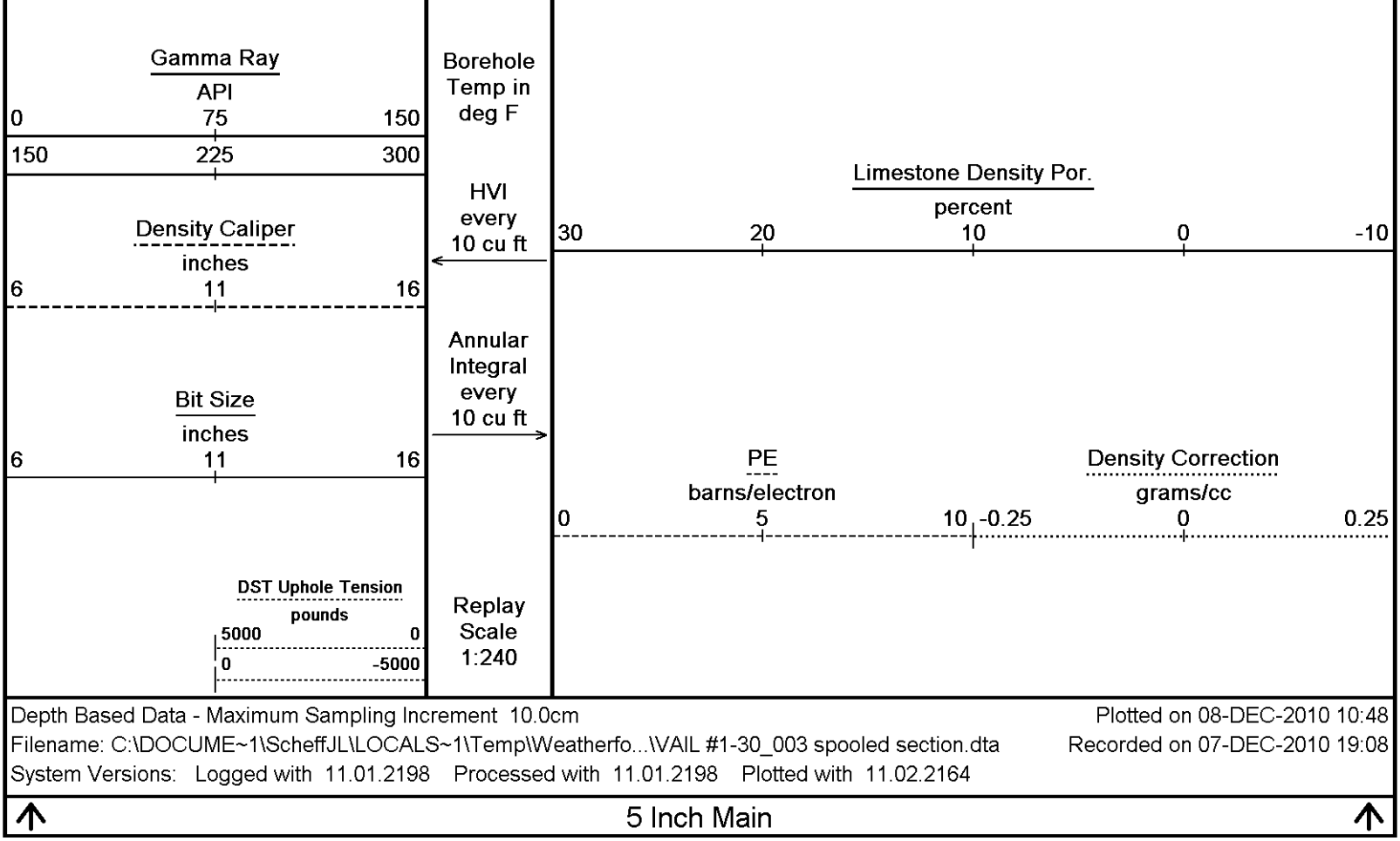

5300
116°
5350
116°
5400
117°
5450
300
117°
200
5500

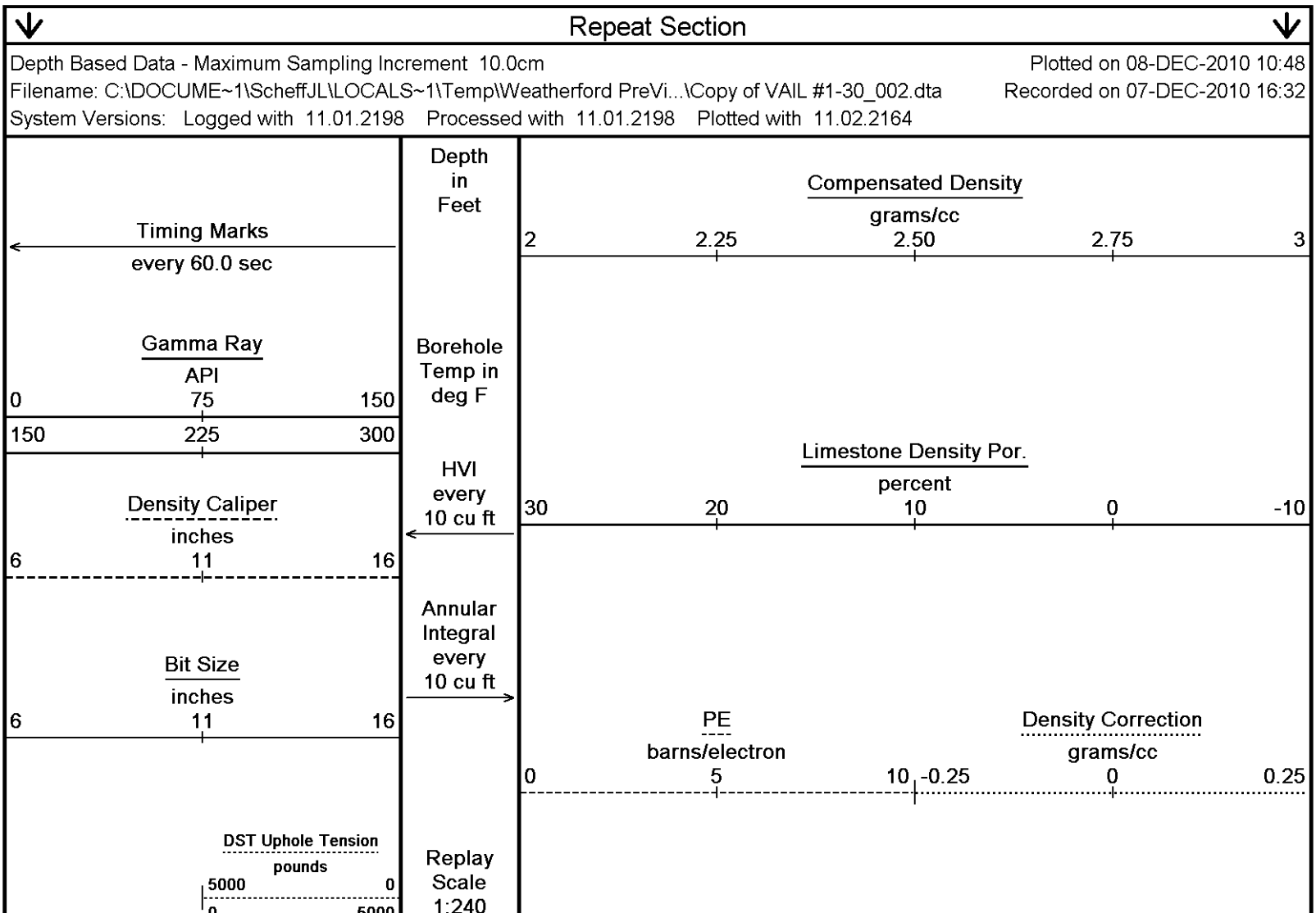

Bit Size
Density Caliper
Gamma Ray
DSI Uphole Tension
118°
5550
118°
5600
119°
5650
119°
5700
PE
Limestone Density Por.
Compensated Density
Density Correction

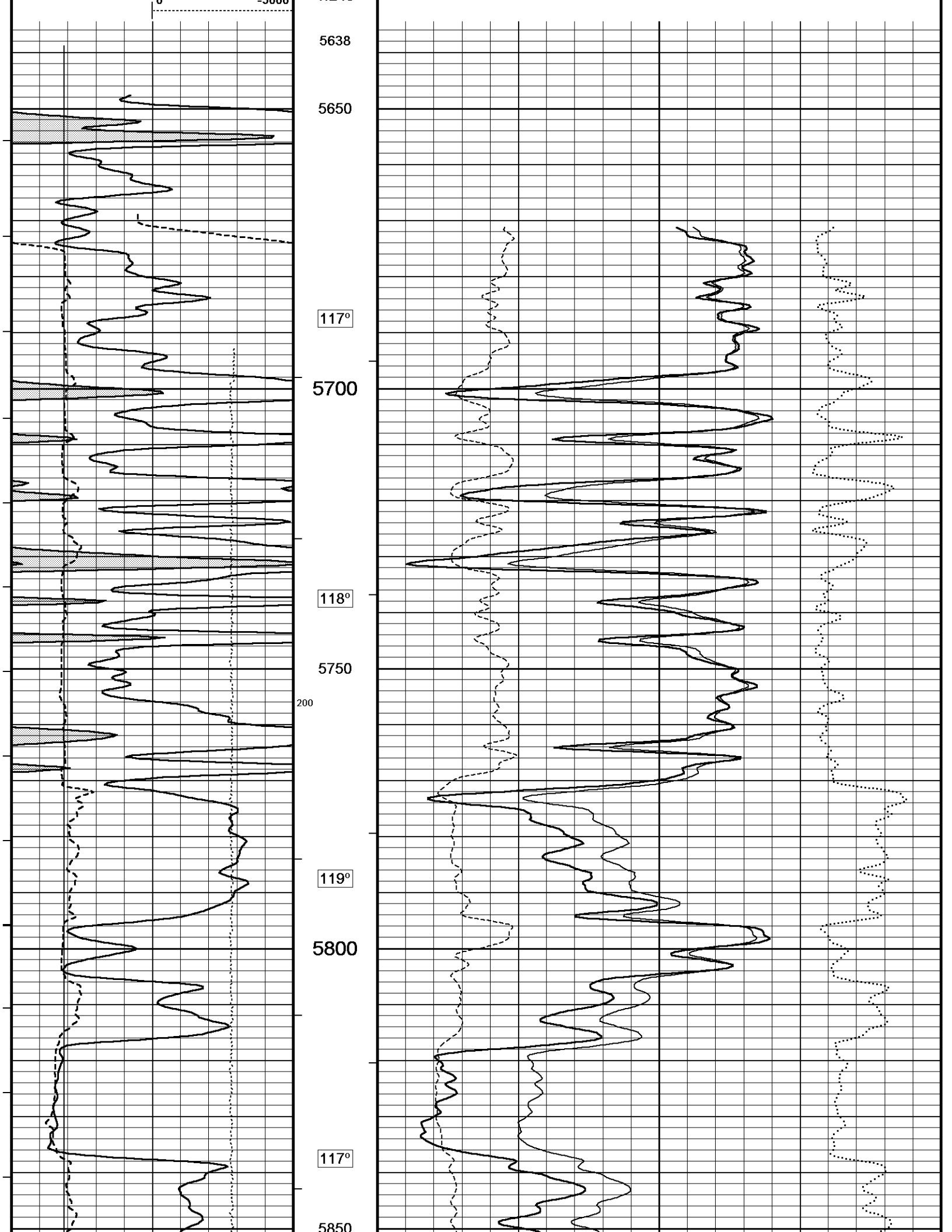

120°
5750
200
120°
5800
119°
5850
119°
5900
100
119°
Bit Size
Density Caliper
Gamma Ray
DST Uphole Tension
PE
Limestone Density Por.
Compensated Density
Density Correction

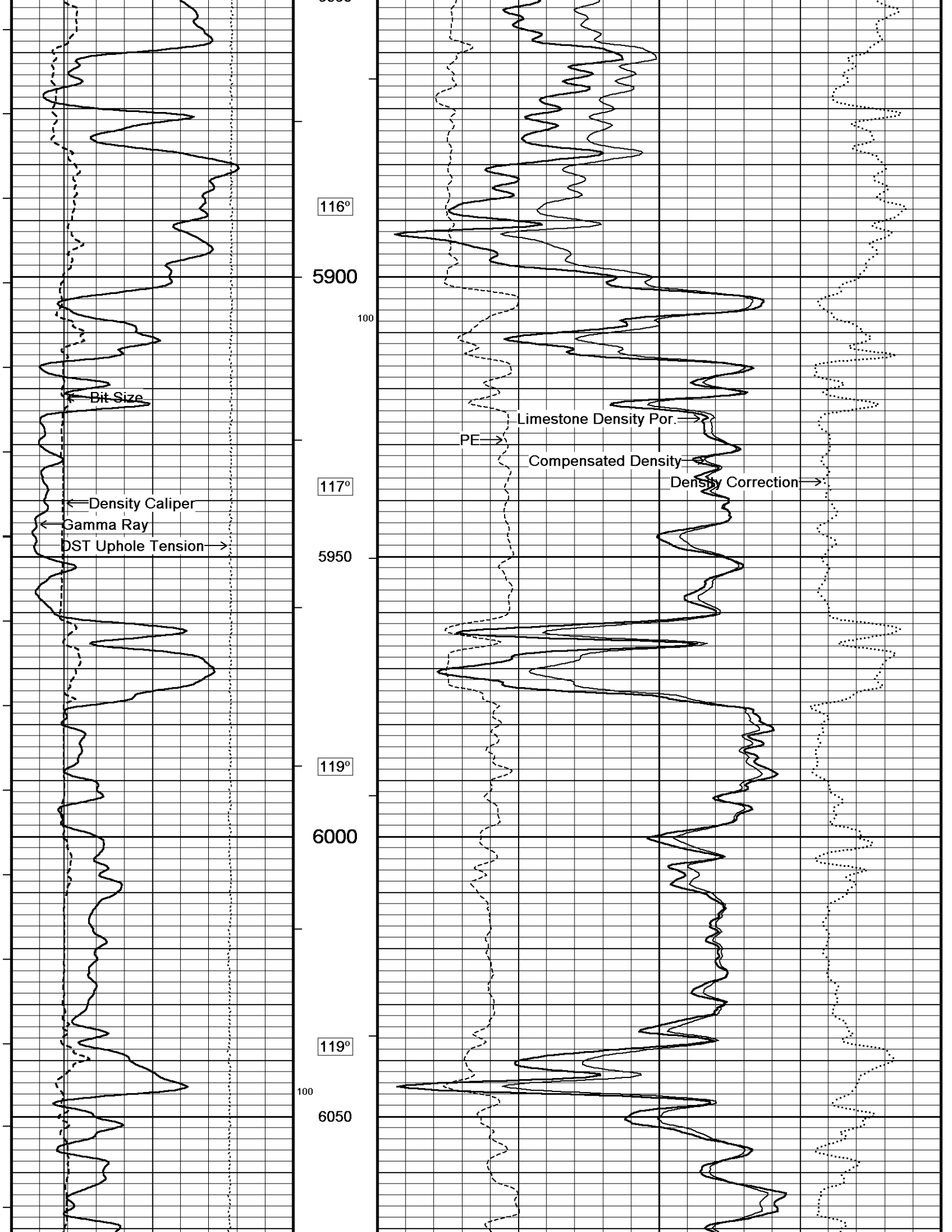

P31 Uphole Tension
5950
120°
6000
121°
100
6050
121°
6100
122°
6150

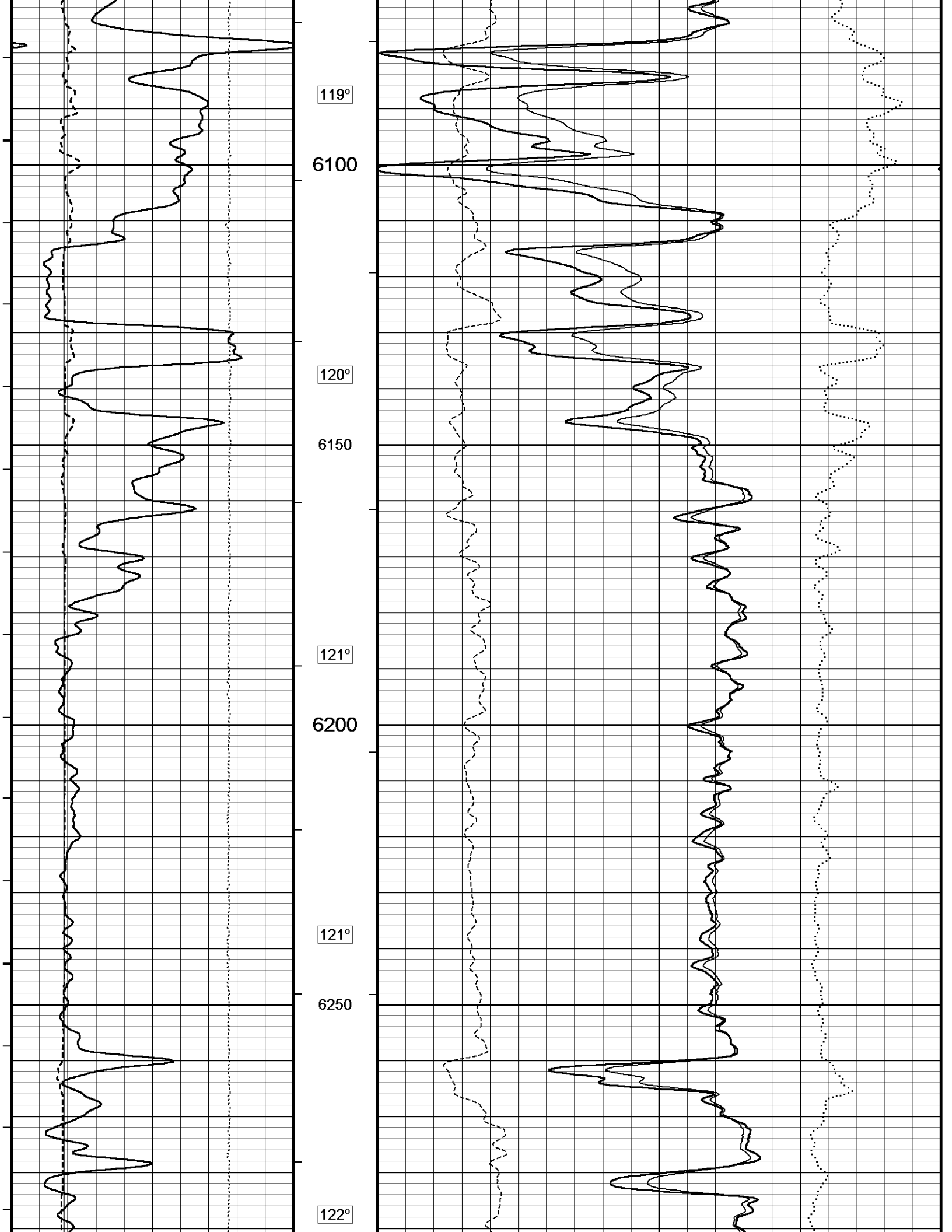

123°
6200
124°
6250
124°
6300
6350
6368
FR Gamma Ray
Bit Size
FR Density Caliper
Density Caliper
DST Uphole Tension
FR DST Uphole Tension
PE
Limestone Density Por
Compensated Density
FR PEFR Limestone Density FFR Density Correction
0
0
Depth
in
Feet
Timing Marks
every 60.0 sec
Compensated Density
grams/cc
2
2.25
2.50
2.75
3

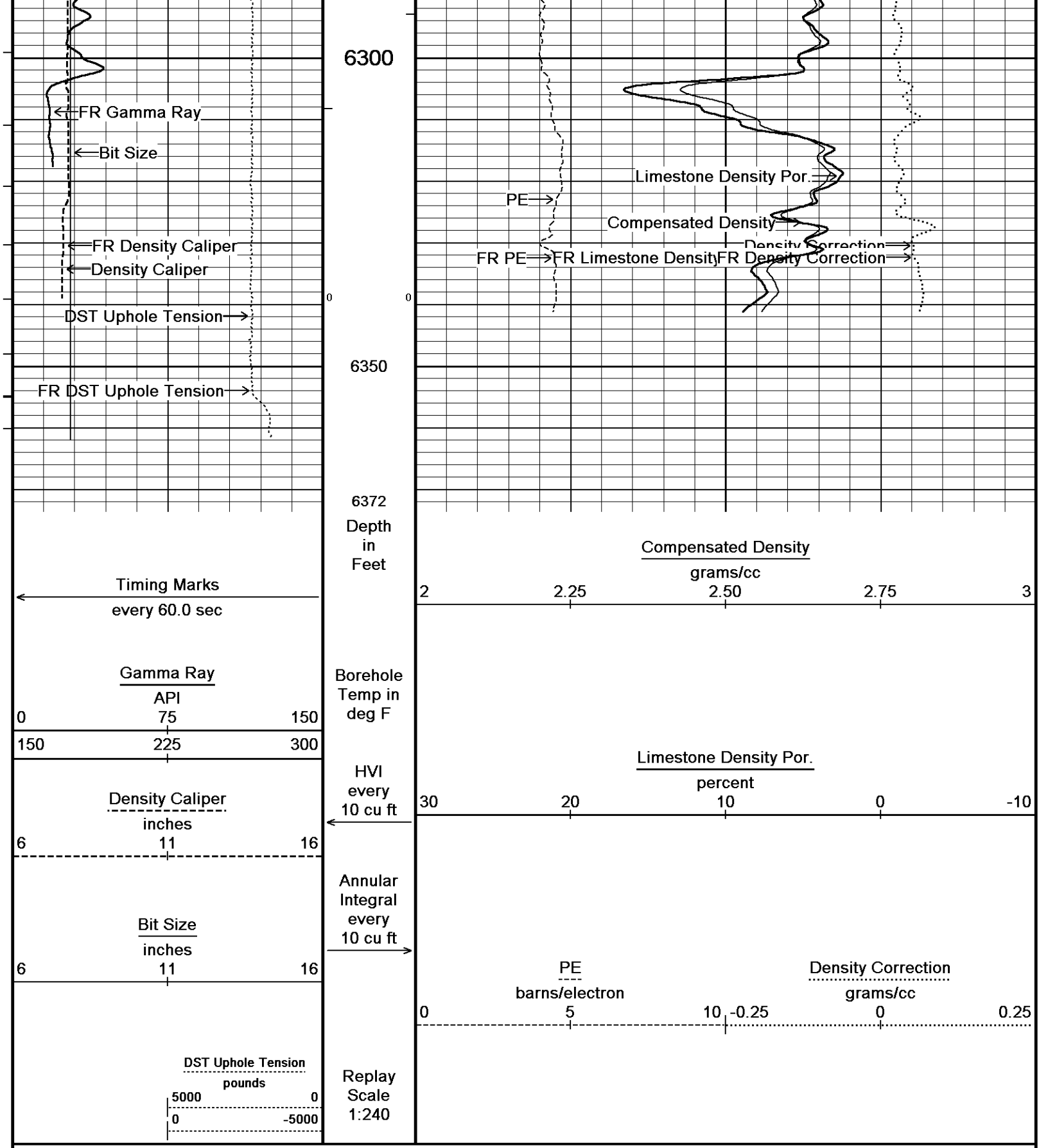

Gamma Ray
API
0
75
150
150
225
300
Density Caliper
inches
6
11
16
Bit Size
inches
6
11
16
DST Uphole Tension
pounds
5000
0
0
-5000
Borehole Temp in deg F
HVI every 10 cu ft
Annular Integral every 10 cu ft
Replay Scale 1:240
Limestone Density Por.
percent
30
20
10
0
-10
PE
barns/electron
0
5
10
Density Correction
grams/cc
-0.25
0
0.25
Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 08-DEC-2010 10:48
Filename: C:\DOCUME~1\ScheffJL\LOCALS~1\Temp\Weatherfo...\VAIL #1-30_003 spooled section.dta
Recorded on 07-DEC-2010 19:08
System Versions: Logged with 11.01.2198 Processed with 11.01.2198 Plotted with 11.02.2164
5 Inch Main


Repeat Section
Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 08-DEC-2010 10:48
Filename: C:\DOCUME~1\ScheffJL\LOCALS~1\Temp\Weatherford PreVi...\Copy of VAIL #1-30_002.dta
Recorded on 07-DEC-2010 16:32
System Versions: Logged with 11.01.2198 Processed with 11.01.2198 Plotted with 11.02.2164
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
HVI every 10 cu ft
Annular Integral every 10 cu ft
Replay Scale 1:240
Compensated Density
grams/cc
2
2.25
2.50
2.75
3
Limestone Density Por.
percent
30
20
10
0
-10
PE
barns/electron
0
5
10
Density Correction
grams/cc
-0.25
0
0.25


0
-5000
5638
5650
117°
5700
118°
5750
200
119°
5800
117°
5850


116°
5900
100
Bit Size
Limestone Density Por.
PE
Compensated Density
Density Correction
117°
Density Caliper
Gamma Ray
DST Uphole Tension
5950
119°
6000
119°
100
6050


119°
6100
120°
6150
121°
6200
121°
6250
122°



Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 08-DEC-2010 10:48

Filename: C:\DOCUME~1\ScheffJL\LOCALS~1\Temp\Weatherford PreVi...\Copy of VAIL #1-30_002.dta — Recorded on 07-DEC-2010 16:32

System Versions: Logged with 11.01.2198 Processed with 11.01.2198 Plotted with 11.02.2164

Repeat Section

BEFORE SURVEY CALIBRATION

C:\DOCUME~1\ScheffJL\LOCALS~1\Temp\Weatherford PreView\0\Copy of VAIL #1-30_001.dta

General Constants_AII.000 — Last Edited on 07-DEC-2010 14:59

General Constants All 000 — Last Edited on 07-DEC-2010,14:55

General Parameters		
Mud Resistivity	0.850	ohm-metres
Mud Resistivity Temperature	75.000	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	4.500	inches
Caliper for Differential Caliper	Density Caliper	
Rwa Parameters		
Porosity used	Limestone Density Por.	
Resistivity used	Array Ind. One Res Rt	
RWA Constant A	1.000	
RWA Constant M	2.000	

High Resolution Temperature Calibration MCG-B 67

Field Calibration on 06-AUG-2010,10:40

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

High Resolution Temperature Constants MCG-B 67

Last Edited on 06-AUG-2010,10:39

Pre-filter Length	11

Gamma Calibration MCG-B 67

Field Calibration on 02-DEC-2010 14:00

	Measured	Calibrated (API)
Background	65	45
Calibrator (Gross)	727	501
Calibrator (Net)	662	456

Gamma Constants MCG-B 67

Last Edited on 07-DEC-2010,15:00

Gamma Calibrator Number	grcc141	
Mud Density	1.10	gm/cc
Caliper Source for Processing	Density Caliper	
Tool Position	Eccentred	
Concentration of KCl	0.00	kppm

Caliper Calibration MPD-B 61

Base Calibration on 22-NOV-2010 11:55
Field Calibration on 05-DEC-2010 03:14

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	19857	4.01
2	29308	5.96
3	39543	7.98
4	49616	9.95
5	59808	11.91
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
5.95	5.96

Photo Density Calibration MPD-B 61

Base Calibration on 22-NOV-2010 12:12
Field Check on 05-DEC-2010 03:19

Density Calibration

Base Calibration	Measured		Calibrated (sdu)	
	Near	Far	Near	Far
Reference 1	42985	18873	59556	30836
Reference 2	16752	1673	24941	2541

Field Check at Base

680.6	839.8

Field Check

681.1	843.4

681.1 845.4

PE Calibration

Base Calibration	WS	Measured WH	Ratio	Calibrated Ratio
Background	123	609		
Reference 1	17134	42878	0.402	0.371
Reference 2	4610	16672	0.279	0.272
Field Check at Base	123.4	608.5		
Field Check	125.0	610.0		

Density Constants MPD-B 61

Last Edited on 07-DEC-2010,15:00

Density Source Id	20718b	
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	1.10	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

DOWNHOLE EQUIPMENT

C:\DOCUME~1\ScheffJL\LOCALS~1\Temp\Weatherford PreView\0\Copy of VAIL #1-30_001.dta

MCB-A.A 11B Tension Cablehead
MCB-A.A 2 LG: 2.40 ft WT: 19.8 lb OD: 2.24 in

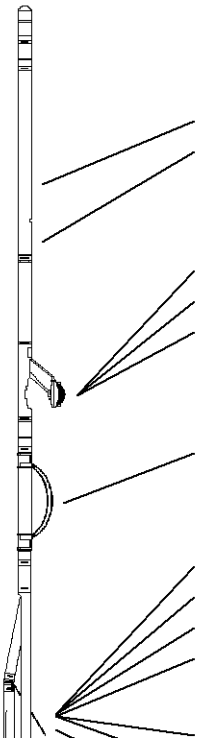
Compact Comms Gamma
MCG-B 67 LG: 8.70 ft WT: 63.9 lb OD: 2.24 in

Compact Micro-log
MML-A 4 LG: 7.97 ft WT: 81.6 lb OD: 2.24 in

Compact Neutron
MDN-A.B 41 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in

Compact Density/Caliper
MPD-B 61 LG: 9.59 ft WT: 90.4 lb OD: 2.45 in

SKJ-D.A Compact Knuckle Joint



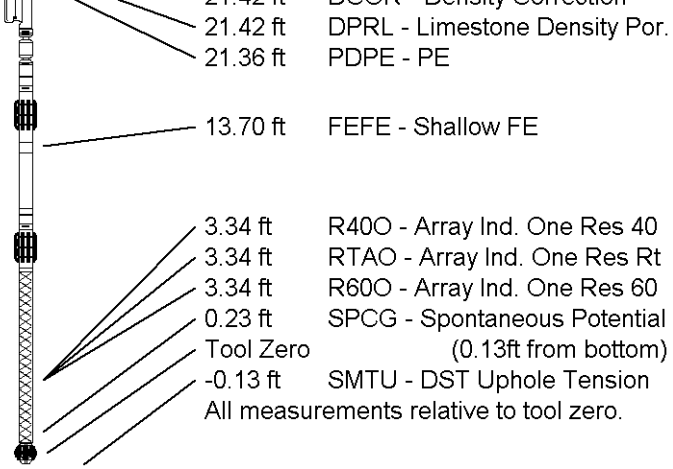
45.02 ft	GRGC - Gamma Ray
42.11 ft	CGXT - MCG External Temperature
35.39 ft	MINV - Micro-inverse
35.39 ft	MNRL - Micro-normal
36.38 ft	MLTC - MML Caliper
30.59 ft	NPRL - Limestone Neutron Por.
23.35 ft	CLDC - Density Caliper
23.35 ft	AVOL - Annular Volume
23.35 ft	HVOL - Hole Volume
21.42 ft	DEN - Compensated Density
21.42 ft	DCOR - Density Correction

SKJ-D.A 91 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

Compact Focussed Electric
MFE-A.A 67 LG: 6.03 ft WT: 48.5 lb OD: 2.24 in

Compact Induction
MAI-A.A 188 LG: 10.81 ft WT: 48.5 lb OD: 2.24 in

Total Length: 52.70 ft Weight: 427.7 lb



COMPANY	O' BRIEN ENERGY
WELL	VAIL #1-30
FIELD	SINGLEY
PROVINCE/COUNTY	MEADE
COUNTRY/STATE	U.S.A./KANSAS

Elevation Kelly Bushing	2679.00	feet	First Reading	6332.00	feet
Elevation Drill Floor	2678.00	feet	Depth Driller	6351.00	feet
Elevation Ground Level	2667.00	feet	Depth Logger	6354.00	feet

Weatherford®

COMPACT PHOTO DENSITY
COMPENSATED NEUTRON
MICRO RESISITIVITY LOG

40 Years of Wireline 1970 2010

Weatherford®

ARRAY INDUCTION SHALLOW FOCUSSED ELECTRIC LOG

COMPANY	O' BRIEN ENERGY
WELL	VAIL #1-30
FIELD	SINGLEY
PROVINCE/COUNTY	MEADE
COUNTRY/STATE	U.S.A./KANSAS
LOCATION	760' FSL & 1320' FWL

40 Years of Wireline 1970 2010

SEC	TWP	RGE	Other Services
30	33S	29W	MPD/MDN
			MAI/MFE

API Number 15-119-21277
Permit Number

Permanent Datum G.L., Elevation 2667 feet
Log Measured From K.B. @ 12 FEET above Permanent Datum
Drilling Measured From K.B.

Elevations:	feet
KB	2679.00
DF	2678.00
GL	2667.00

Date	07-DEC-2010			
Run Number	ONE			
Depth Driller	6351.00	feet		
Depth Logger	6354.00	feet		
First Reading	6351.00	feet		
Last Reading	1534.00	feet		
Casing Driller	1534.00	feet		
Casing Logger	1534.00	feet		
Bit Size	7.880	inches		
Hole Fluid Type	CHEMICAL			
Density / Viscosity	9.20 lb/USg	51.00 CP		
PH / Fluid Loss	9.50	9.20 ml/30Min		
Sample Source	FLOWLINE			
Rm @ Measured Temp	0.85 @ 75.0	ohm-m		
Rmf @ Measured Temp	0.68 @ 75.0	ohm-m		
Rmc @ Measured Temp	1.02 @ 75.0	ohm-m		
Source Rmf / Rmc	CALC	CALC		
Rm @ BHT	0.52 @122.0	ohm-m		
Time Since Circulation	4 HOURS			
Max Recorded Temp	122.00	deg F		
Equipment Name	COMPACT			
Equipment / Base	13096	LIB		
Recorded By	SHAWN NUTT			
Witnessed By	ROGER PEARSON		PETER DEBENHAM	
S.O.#/JOB#	3524634		LB10-312	

BOREHOLE RECORD

Last Edited: 07-DEC-2010 19:46

Bit Size inches	Depth From feet	Depth To feet
7.880	1534.00	6354.00

CASING RECORD

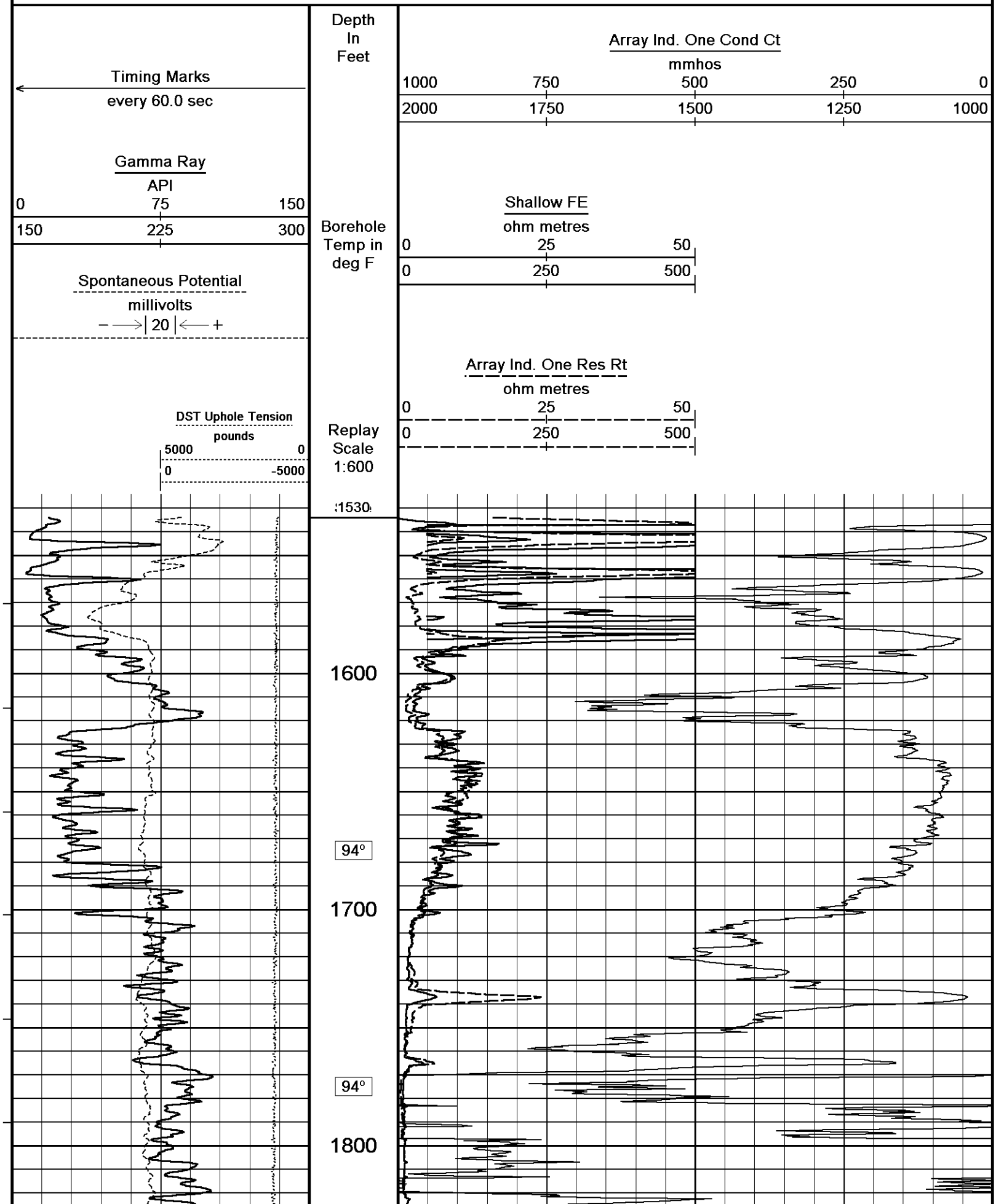
Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	8.625	0.00	1534.00	24.00

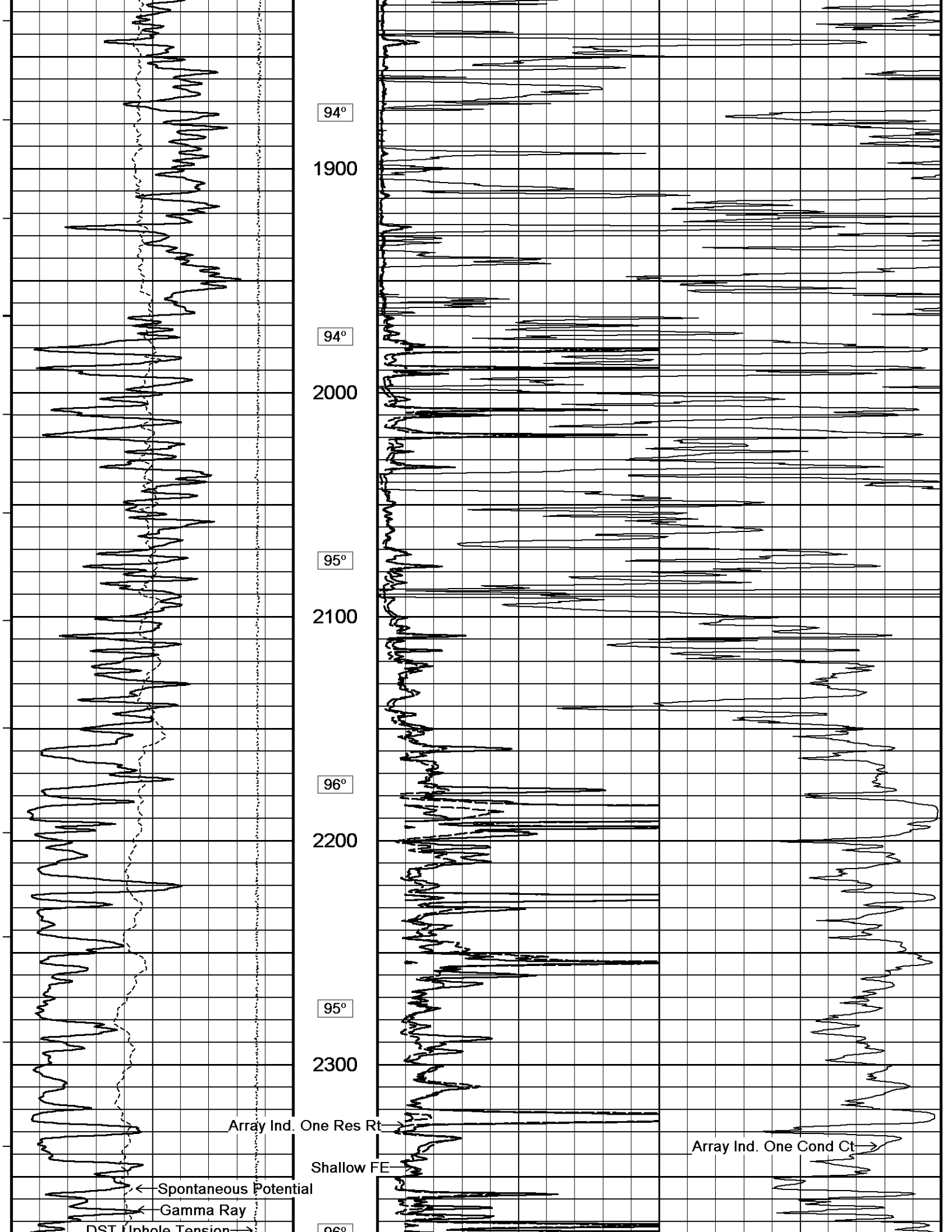
REMARKS

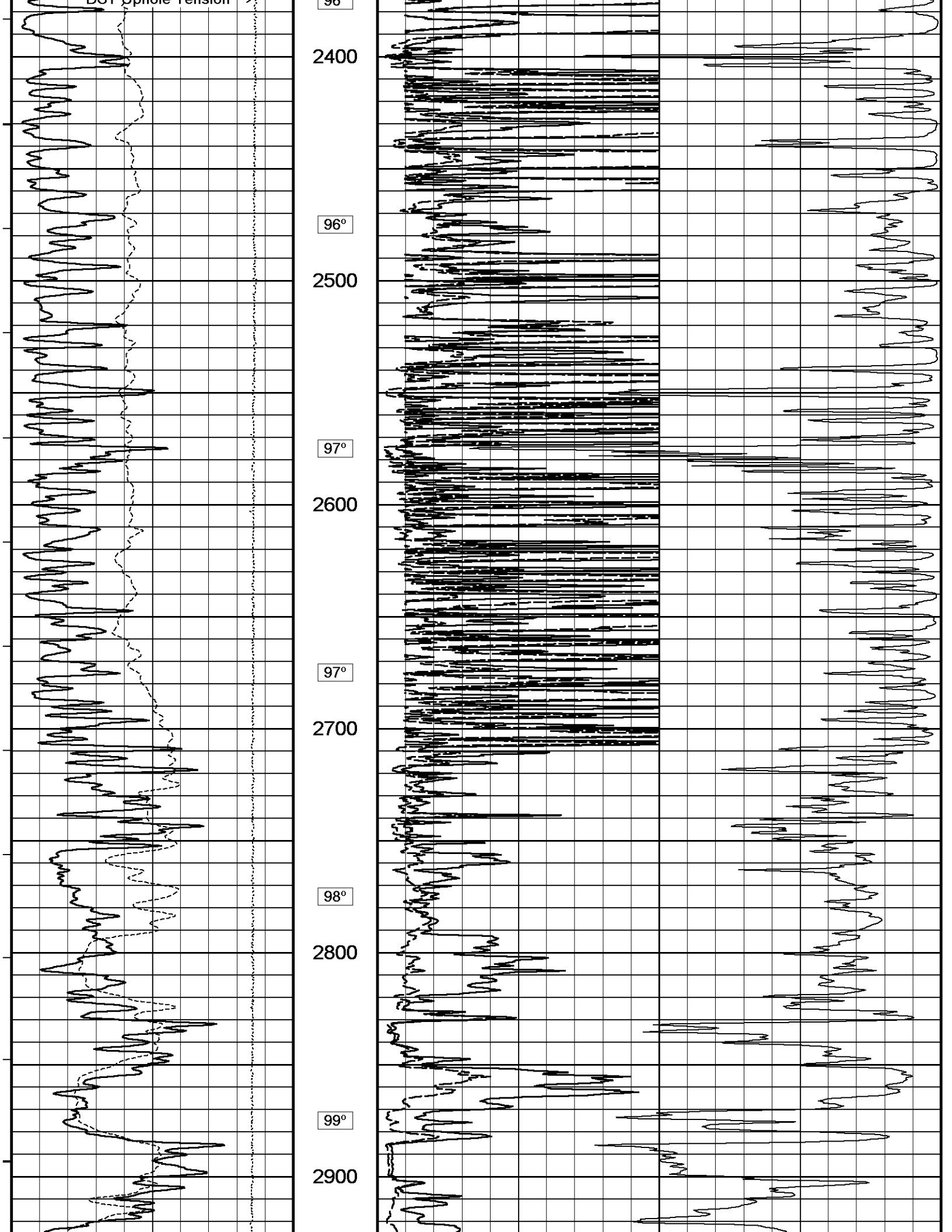
Tools Run: MAI, MPD, MCG, MDN, MML, MFE, SKJ
Hardware: MPD: 8 inch profile plate used. MAI and MFE: 0.5 Inch standoffs used. MDN: Dual Eccentraliser used.
2.71 G/CC Limestone density matrix used to calculate porosity.
Borhole rugosity, tight pulls, and washouts will affect data quality.
All intervals logged and scaled per customer's request.
Annular volume with 4.5 inch production casing= cu. ft.
Service order #3524630
Rig: Duke #6
Engineer: Shawn Nutt
Operator(s): K. Rinehart

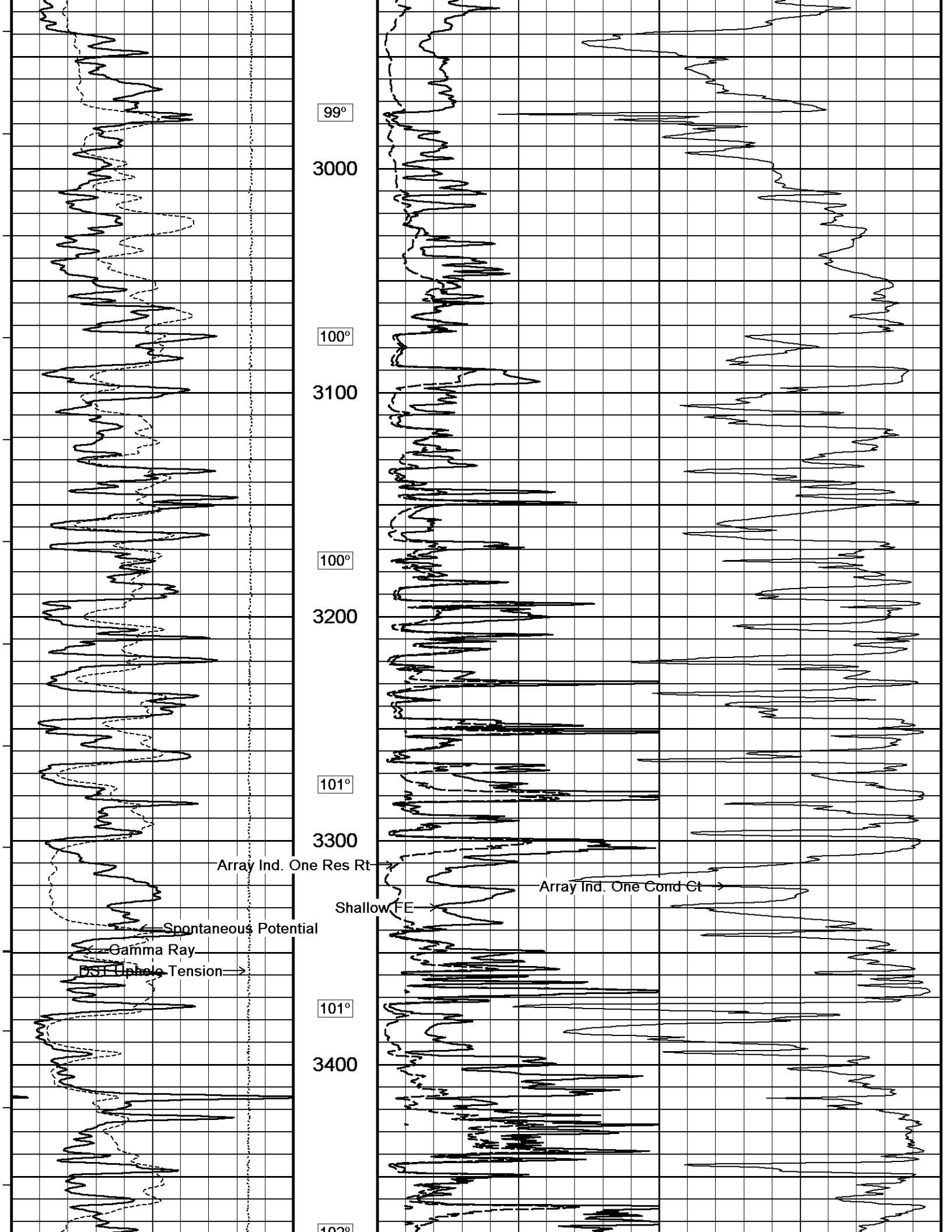
2 Inch Main Pass

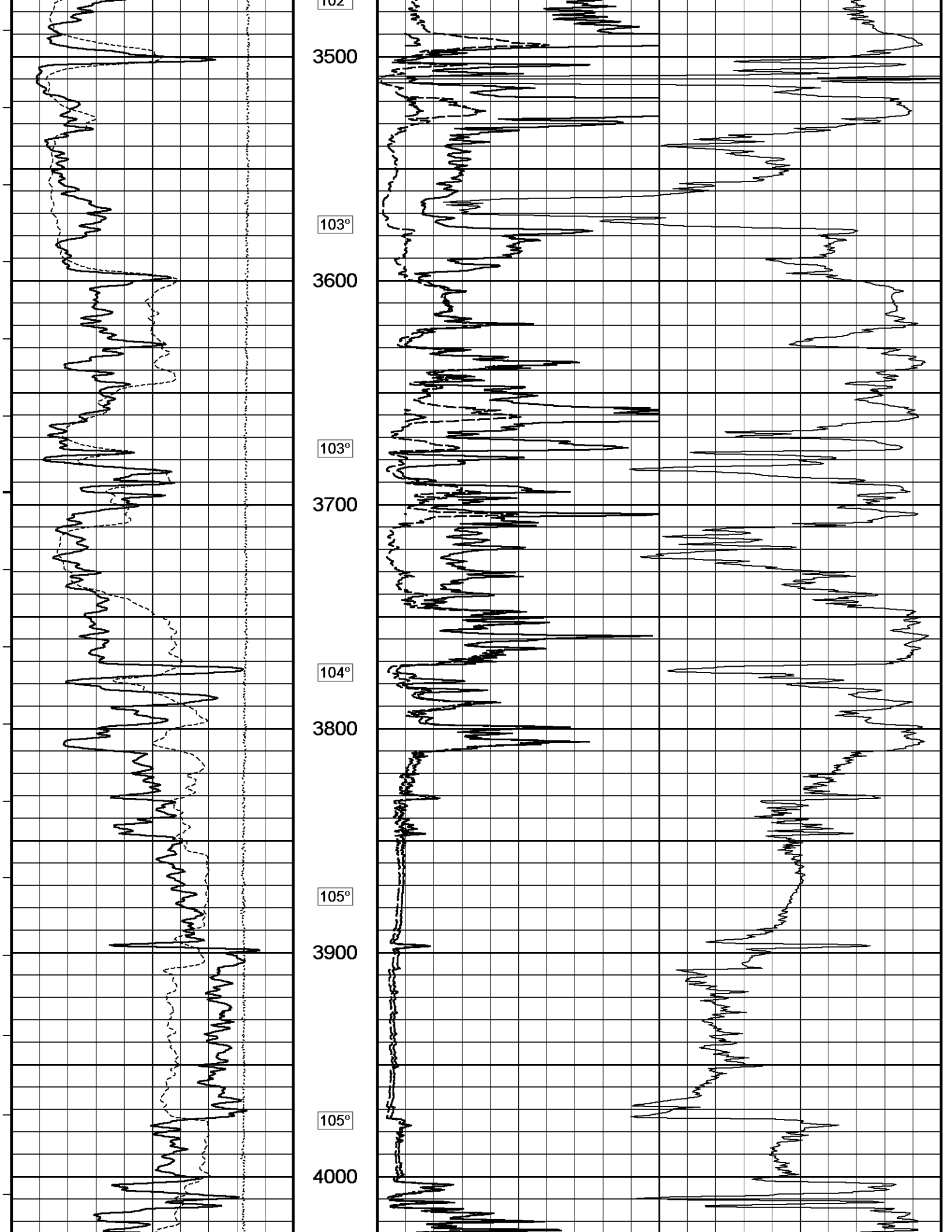
Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 08-DEC-2010 10:48
Filename: C:\DOCUME~1\ScheffJL\LOCALS~1\Temp\Weatherford PreView\0\VAIL #1-30_003.dta
Recorded on 07-DEC-2010 17:36
System Versions: Logged with 11.01.2198 Processed with 11.01.2198 Plotted with 11.02.2164

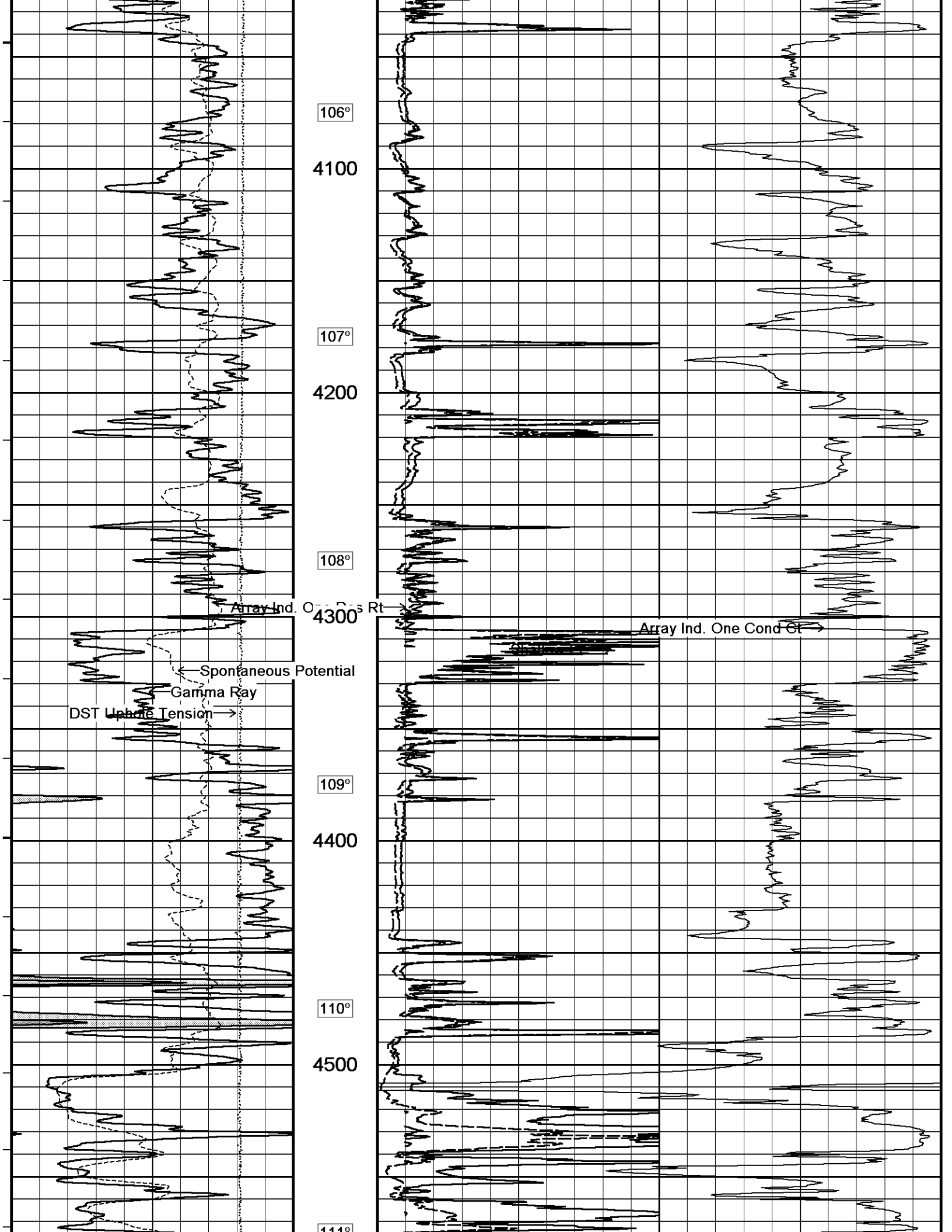


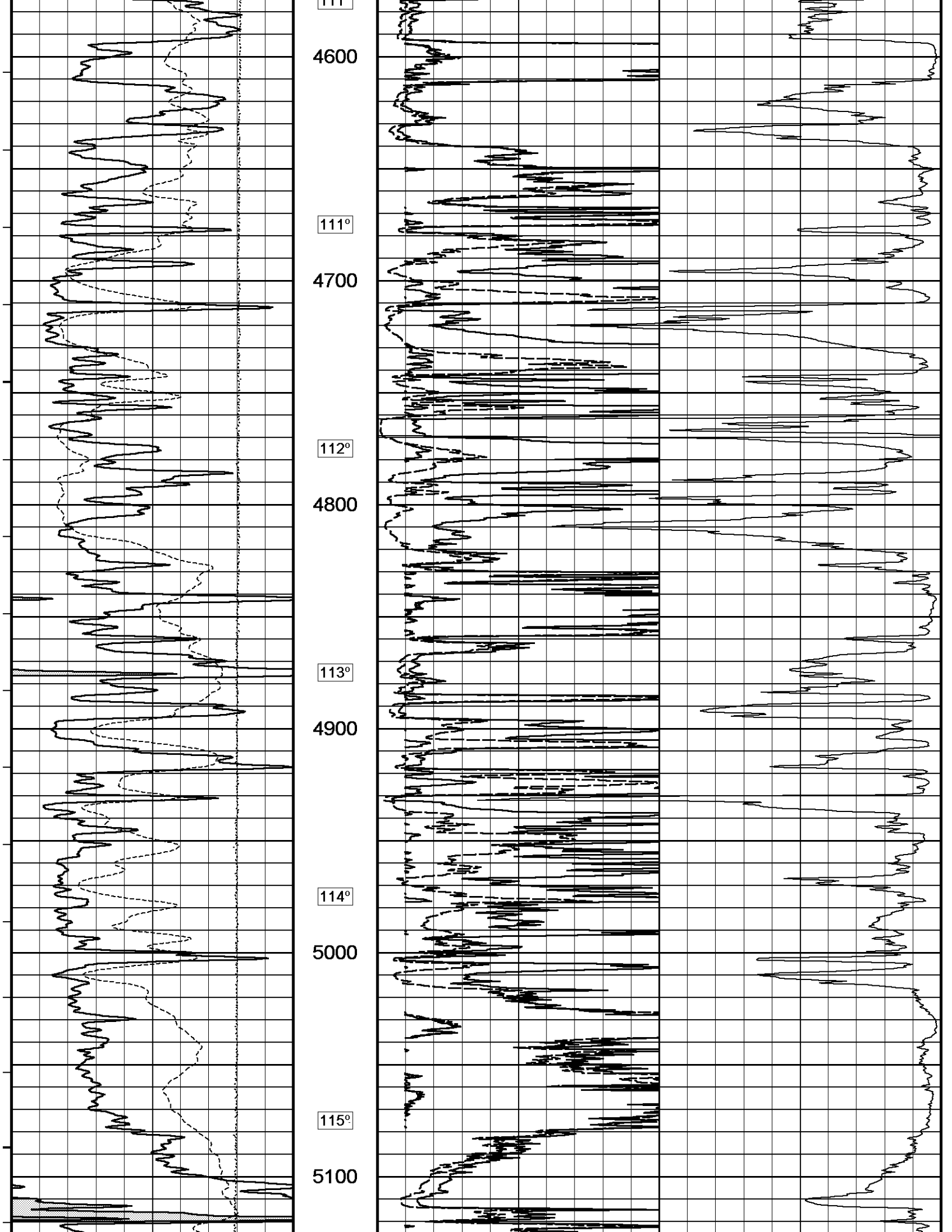

94°
1900
94°
2000
95°
2100
96°
2200
95°
2300
Array Ind. One Res Rt
Shallow FE
Spontaneous Potential
Gamma Ray
DST Uphole Tension
96°
Array Ind. One Cond Ct

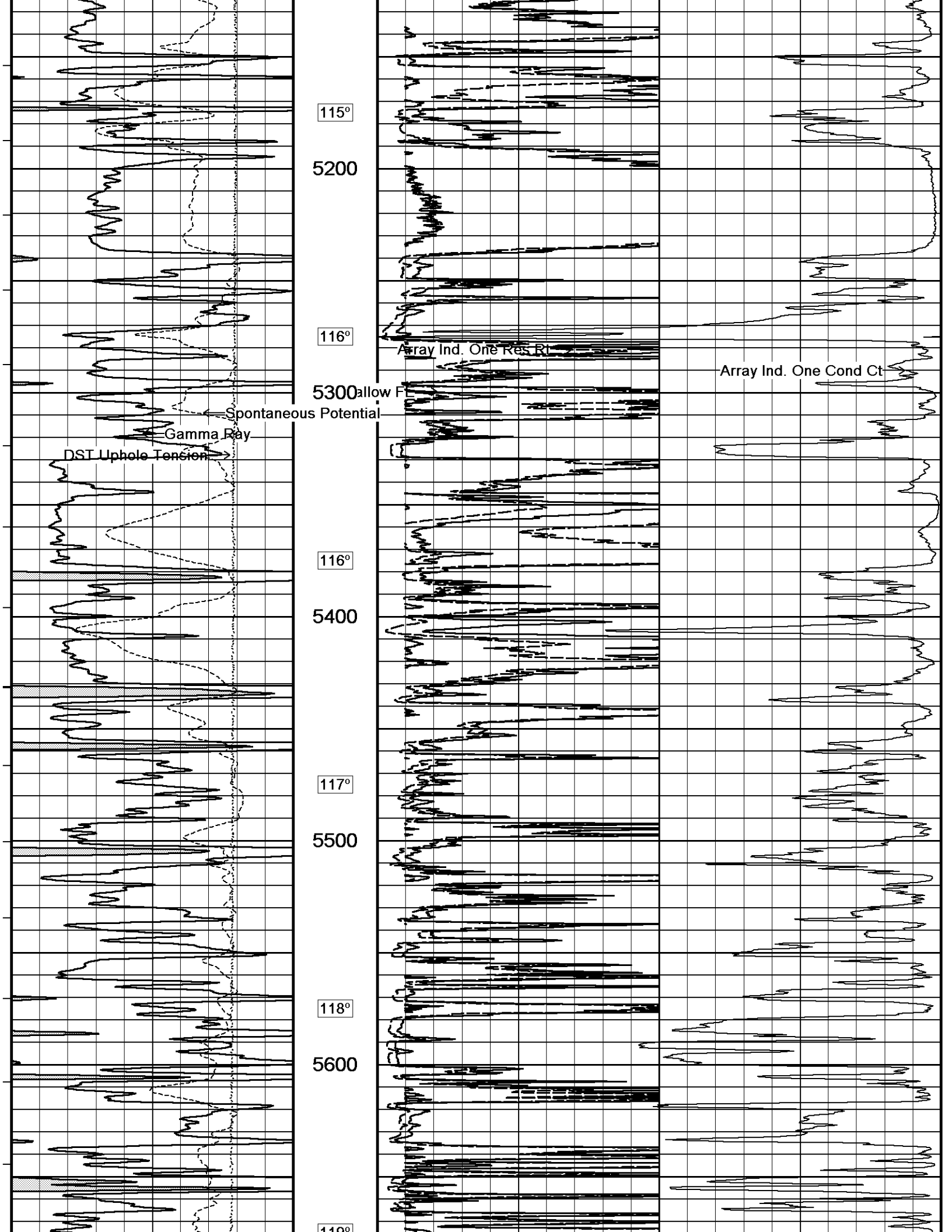

DGT Uphole Tension
96
2400
96°
2500
97°
2600
97°
2700
98°
2800
99°
2900

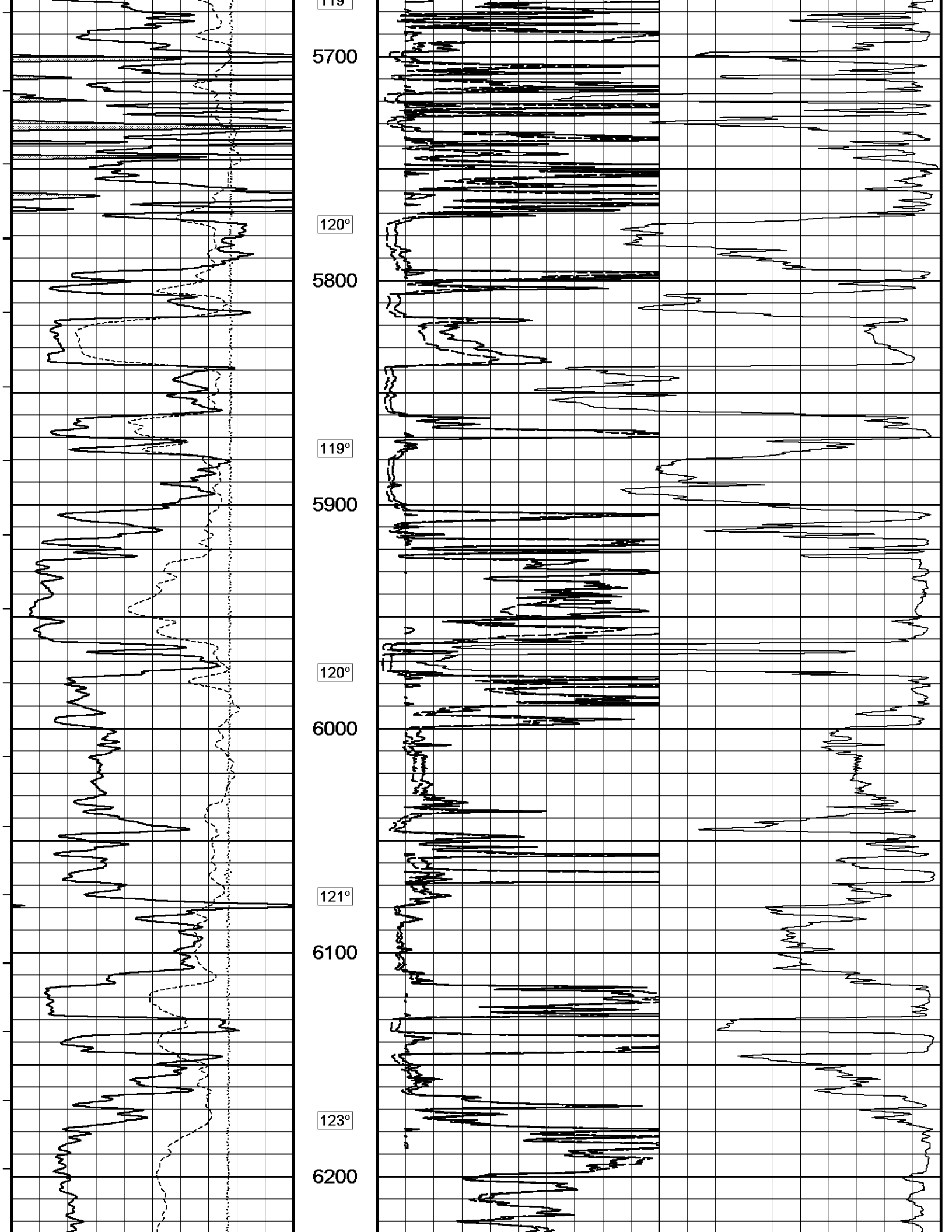

99°
3000
100°
3100
100°
3200
101°
3300
Array Ind. One Res Rt
Array Ind. One Cond Ct
Shallow FE
Spontaneous Potential
Gamma Ray
DSI Uphole Tension
101°
3400
102°

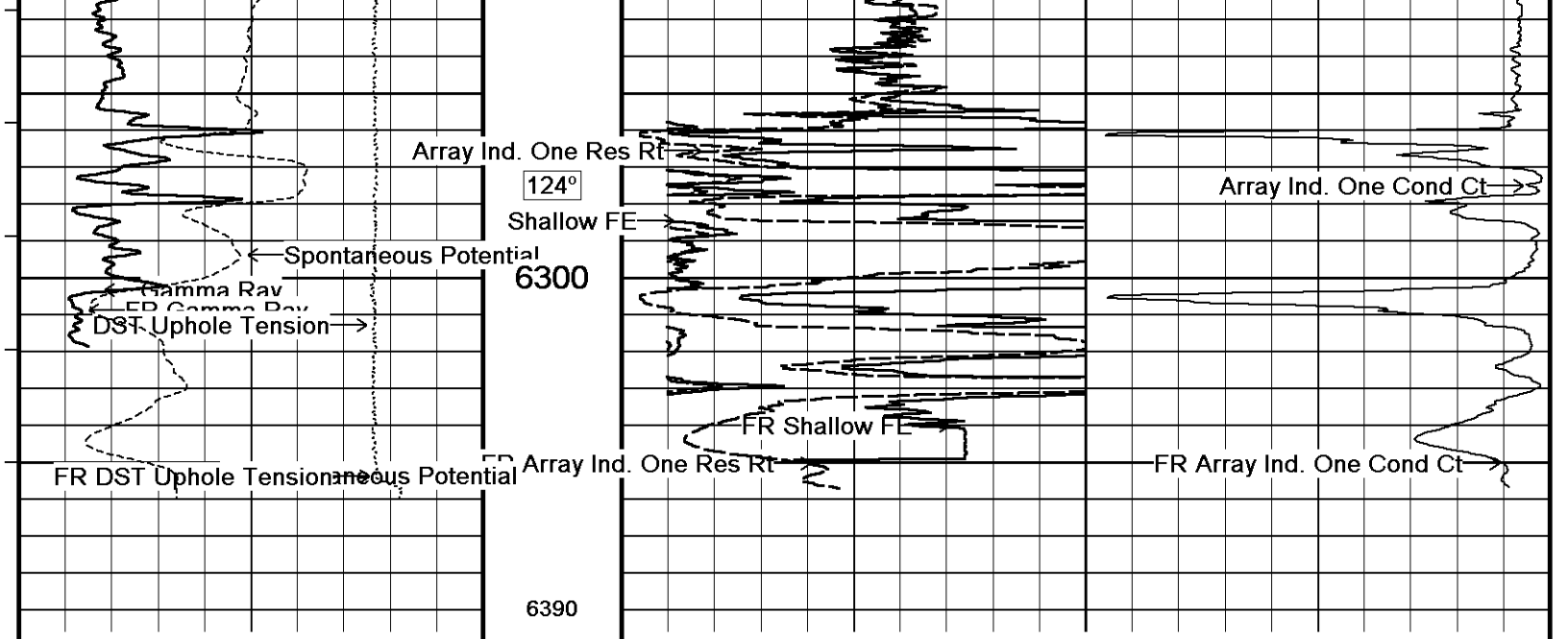

102
3500
103°
3600
103°
3700
104°
3800
105°
3900
105°
4000


106°
4100
107°
4200
108°
Array Ind. One Res Rt
4300
Array Ind. One Cond Ct
Spontaneous Potential
Gamma Ray
DST Uphole Tension
109°
4400
110°
4500
111°


111
4600
111°
4700
112°
4800
113°
4900
114°
5000
115°
5100


115°
5200
116°
Array Ind. One Res Rt
Array Ind. One Cond Ct
5300allow F
Spontaneous Potential
Gamma Ray
DST Uphole Tension
116°
5400
117°
5500
118°
5600


119
5700
120°
5800
119°
5900
120°
6000
121°
6100
123°
6200



6390

Depth In Feet

Timing Marks every 60.0 sec

Gamma Ray
API
0 75 150
150 225 300

Spontaneous Potential
millivolts
− → | 20 | ← +

DST Uphole Tension
pounds
5000 0
0 -5000

Borehole Temp in deg F

Array Ind. One Cond Ct
mmhos
1000 750 500 250 0
2000 1750 1500 1250 1000

Shallow FE
ohm metres
0 25 50
0 250 500

Array Ind. One Res Rt
ohm metres
0 25 50
0 250 500

Replay Scale 1:600

Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 08-DEC-2010 10:48
Filename: C:\DOCUME~1\ScheffJL\LOCALS~1\Temp\Weatherford PreView\0\VAIL #1-30_003.dta
Recorded on 07-DEC-2010 17:36
System Versions: Logged with 11.01.2198 Processed with 11.01.2198 Plotted with 11.02.2164

2 Inch Main Pass

5 Inch Main Pass

Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 08-DEC-2010 10:48
Filename: C:\DOCUME~1\ScheffJL\LOCALS~1\Temp\Weatherford PreView\0\VAIL #1-30_003.dta
Recorded on 07-DEC-2010 17:36
System Versions: Logged with 11.01.2198 Processed with 11.01.2198 Plotted with 11.02.2164

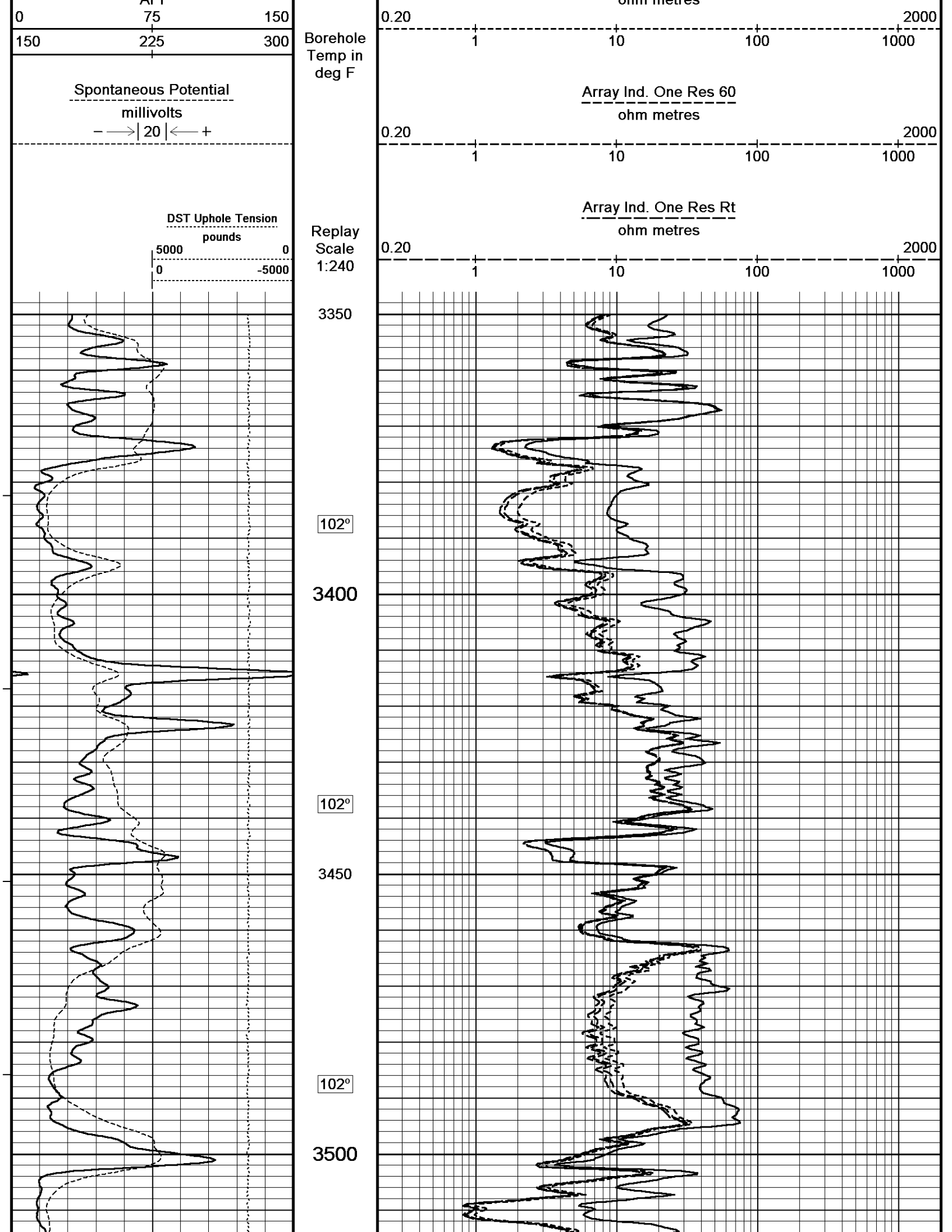
Depth in Feet

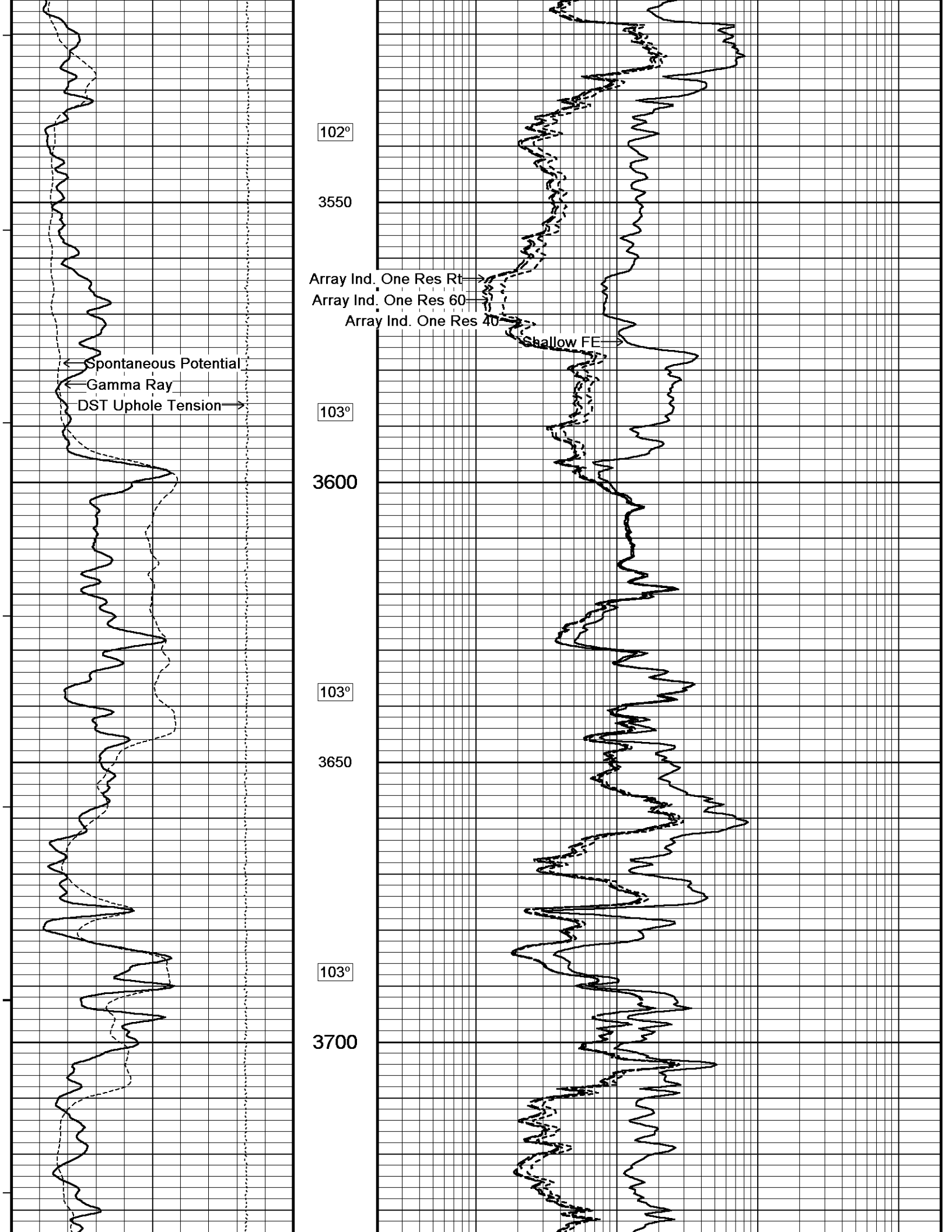
Timing Marks every 60.0 sec

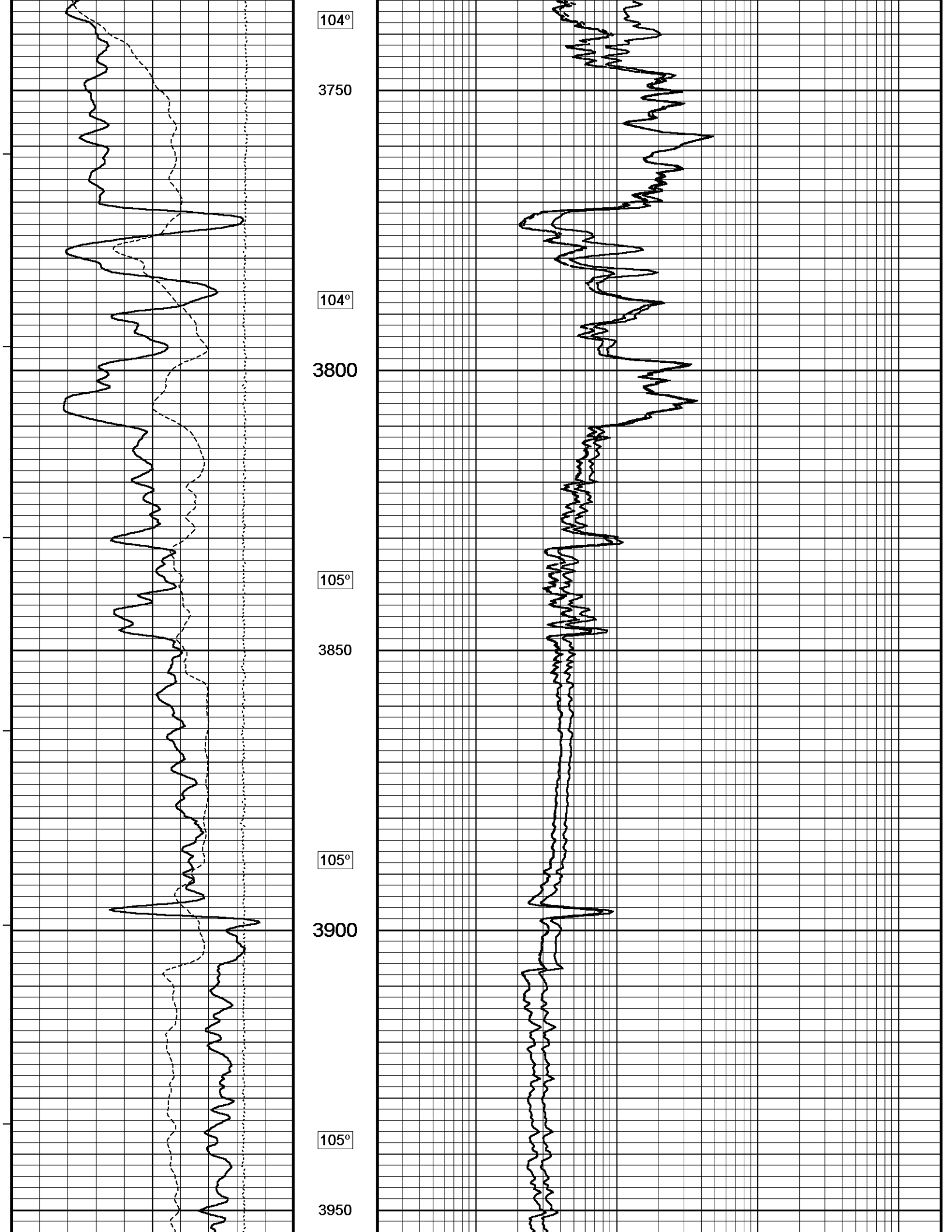
Shallow FE
ohm metres
0.20 1 10 100 2000

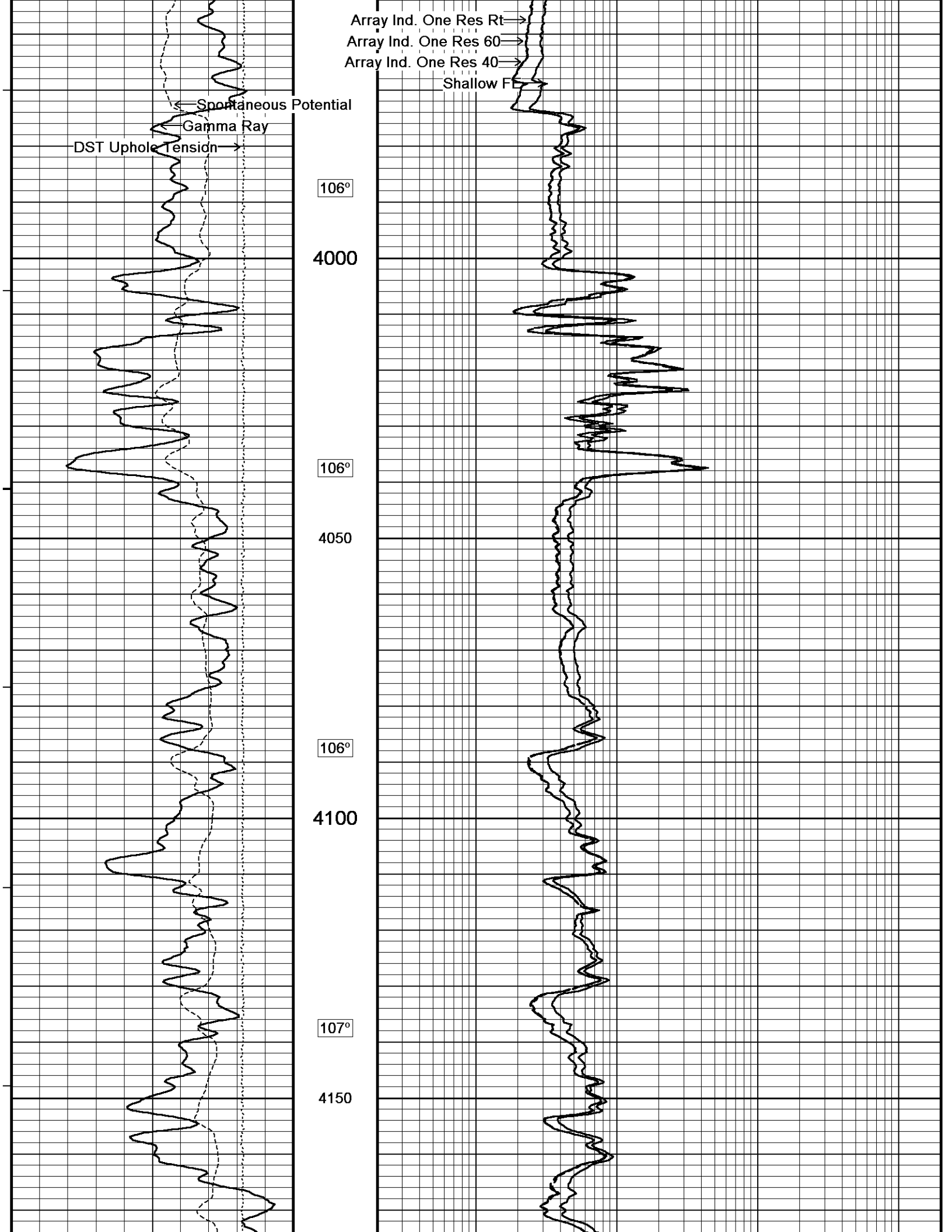
Gamma Ray
API

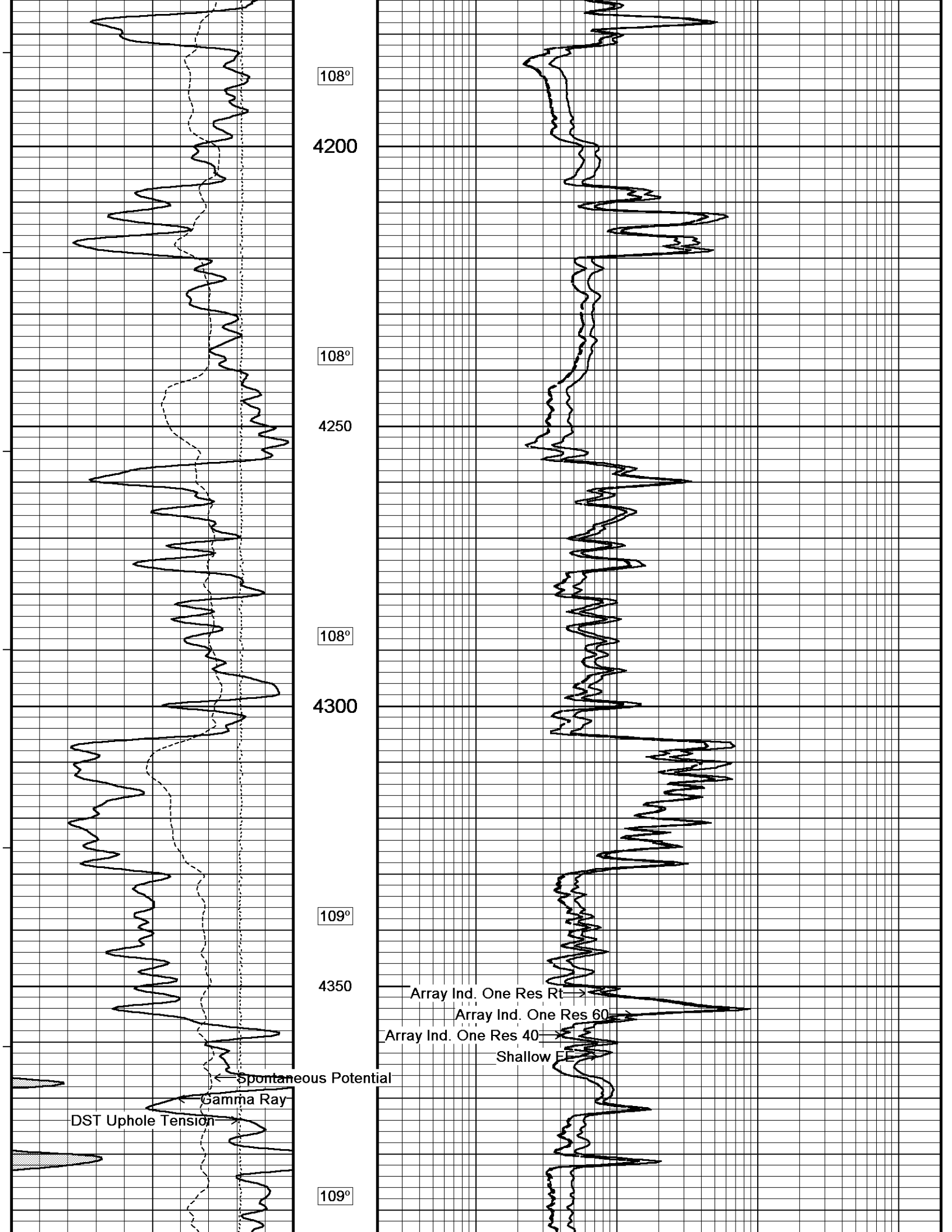
Array Ind. One Res 40
ohm metres

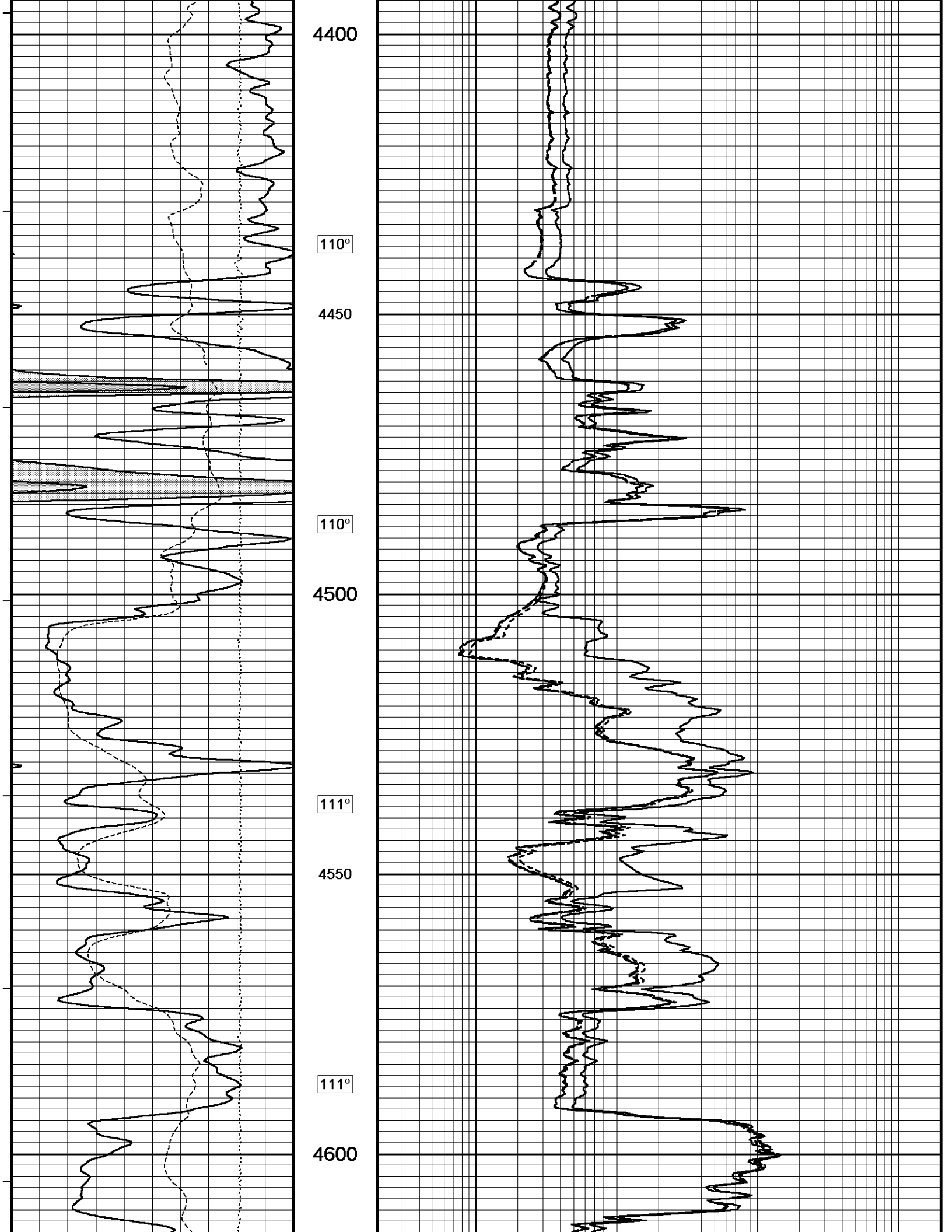

API
0
75
150
150
225
300
Borehole Temp in deg F
Spontaneous Potential
millivolts
– 20 +
DST Uphole Tension
pounds
5000
0
0
-5000
Replay Scale 1:240
ohm metres
0.20
2000
1
10
100
1000
Array Ind. One Res 60
ohm metres
0.20
2000
1
10
100
1000
Array Ind. One Res Rt
ohm metres
0.20
2000
1
10
100
1000
3350
102°
3400
102°
3450
102°
3500

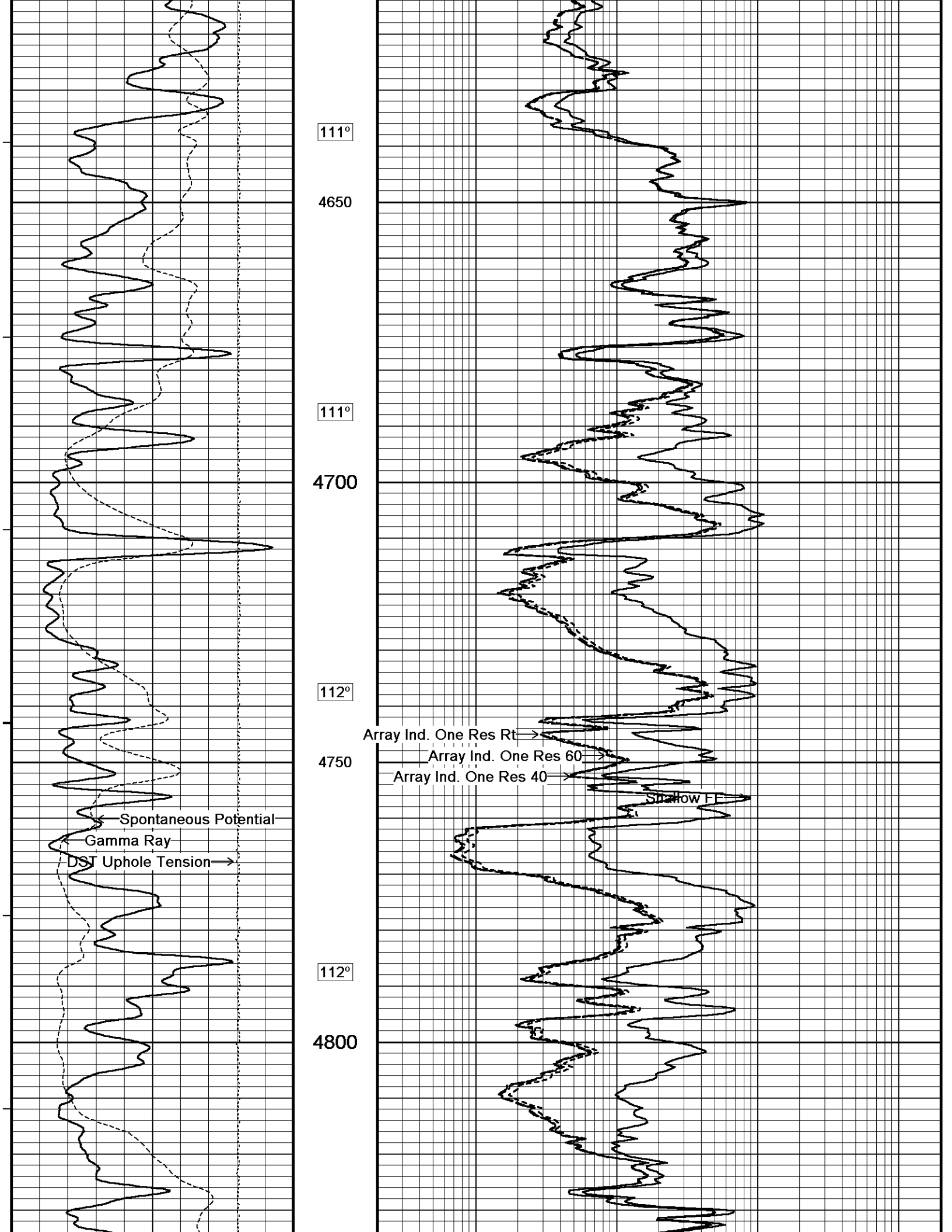

102°
3550
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Shallow FE
Spontaneous Potential
Gamma Ray
DST Uphole Tension
103°
3600
103°
3650
103°
3700

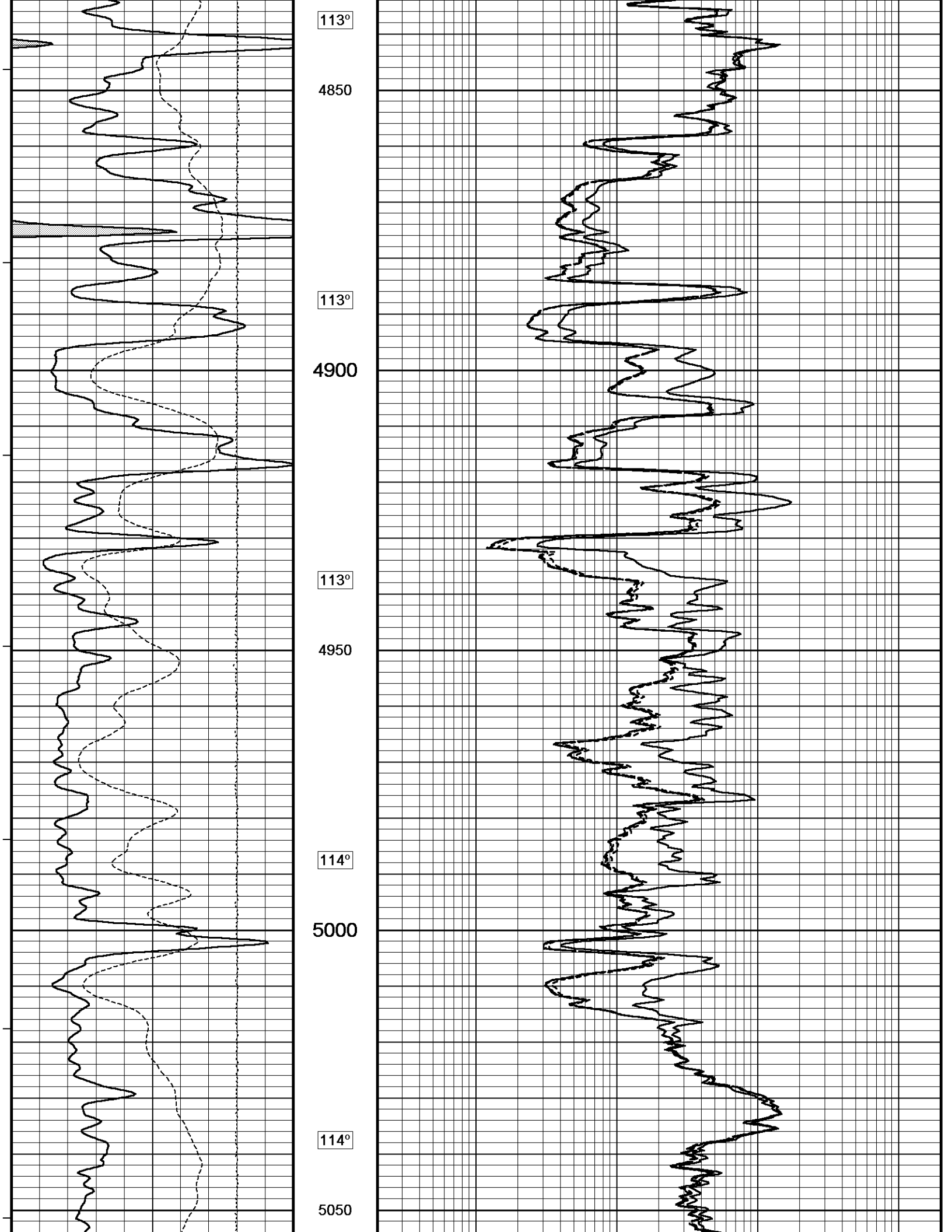

104°
3750
104°
3800
105°
3850
105°
3900
105°
3950

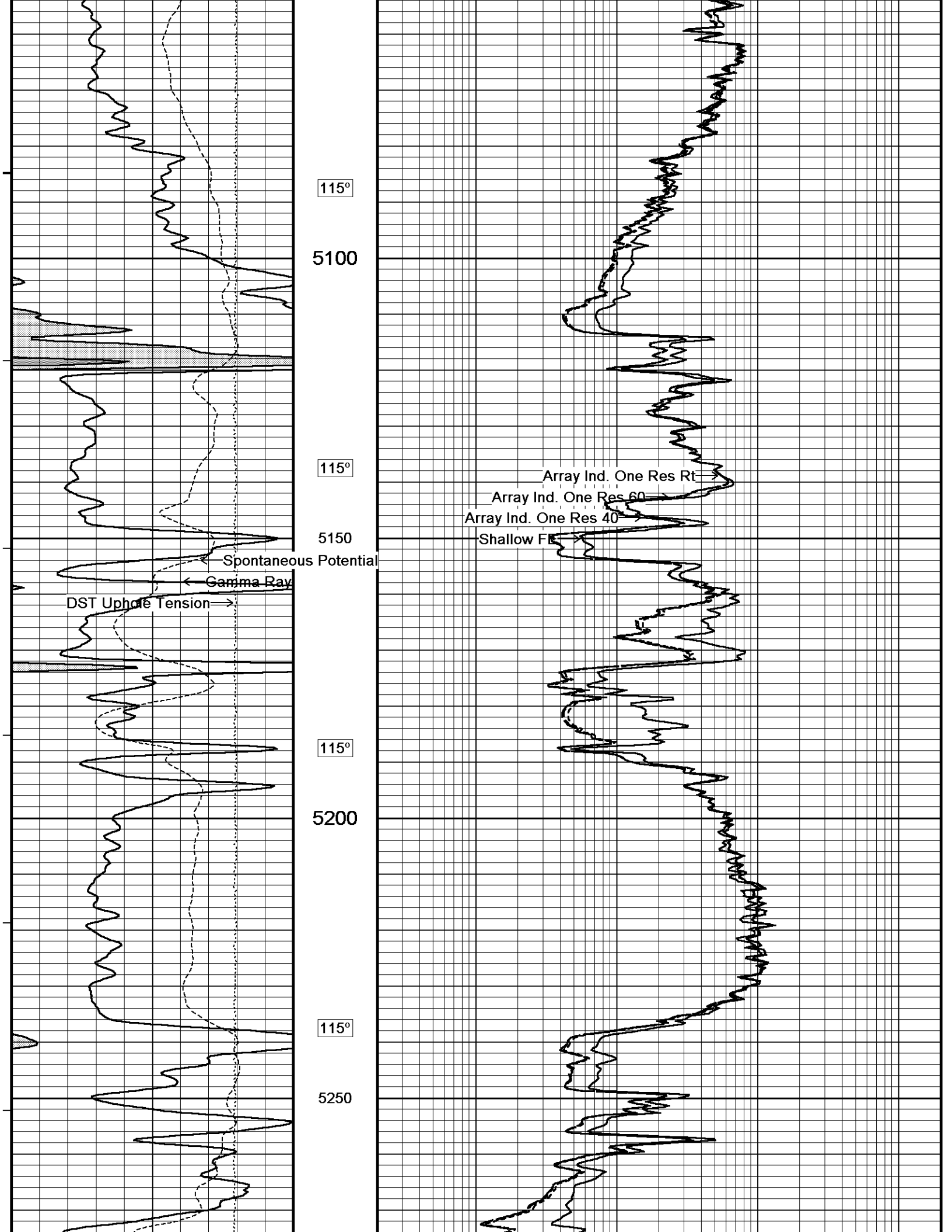

Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Shallow FE
Spontaneous Potential
Gamma Ray
DST Uphole Tension
106°
4000
106°
4050
106°
4100
107°
4150

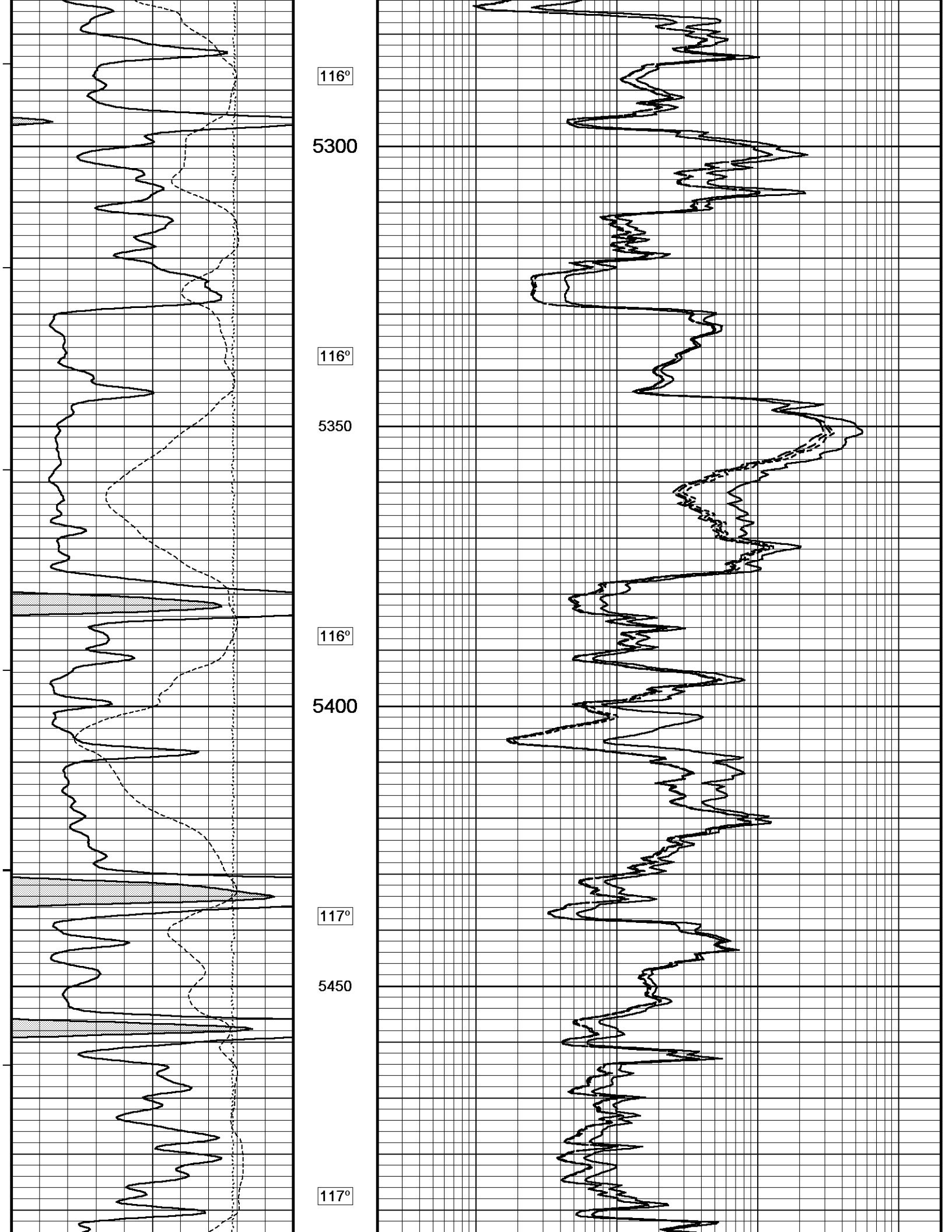

108°
4200
108°
4250
108°
4300
109°
4350
109°
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Shallow E
Spontaneous Potential
Gamma Ray
DST Uphole Tension

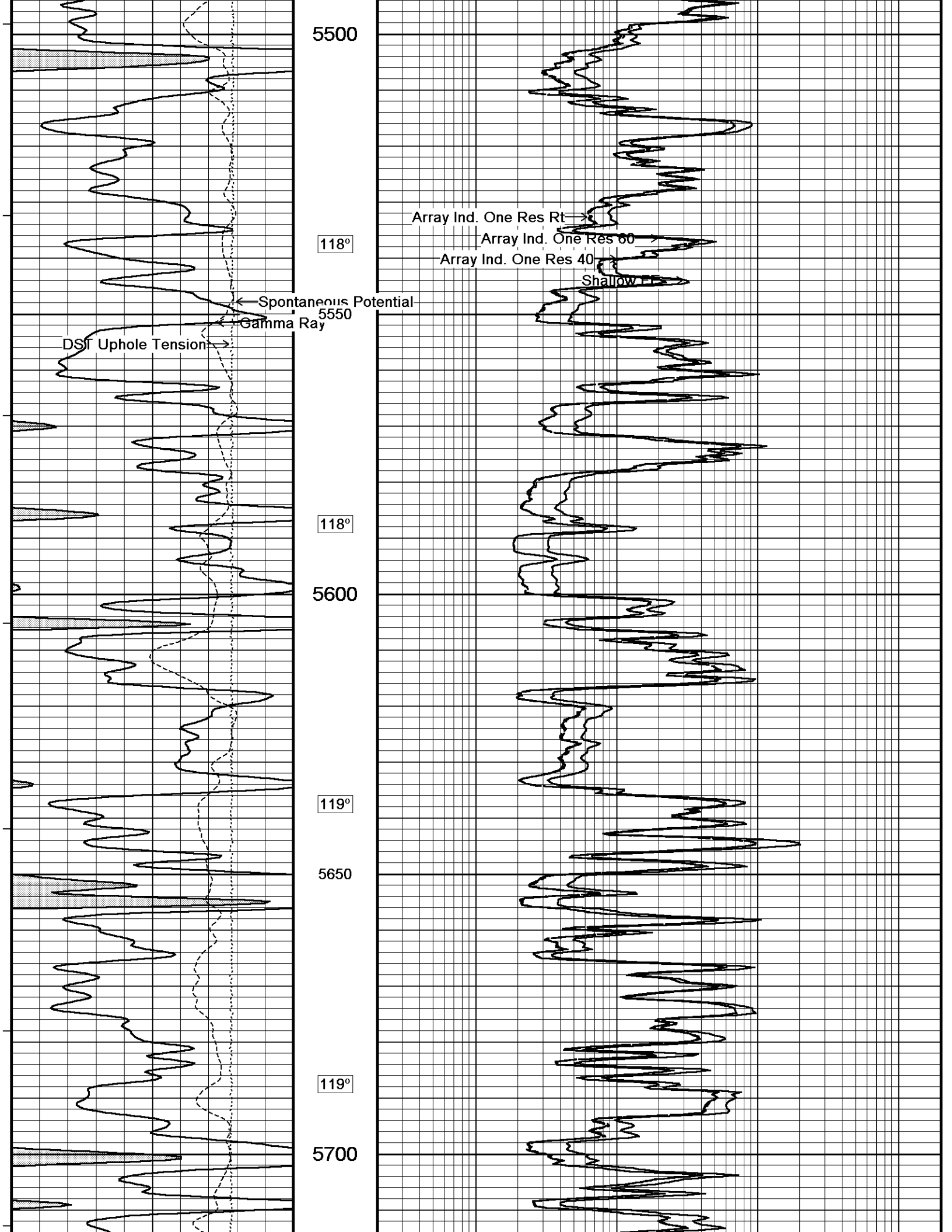

4400
110°
4450
110°
4500
111°
4550
111°
4600

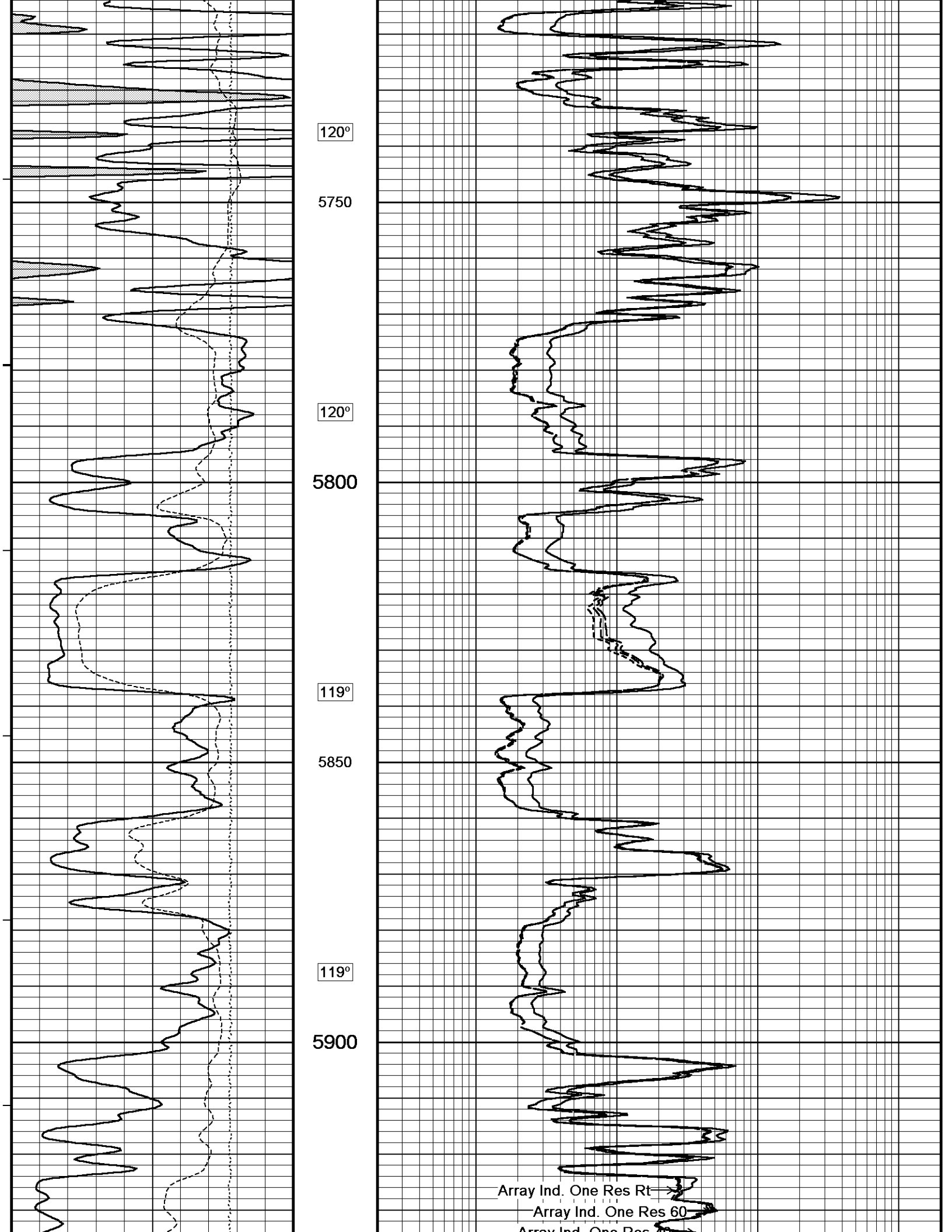

111°
4650
111°
4700
112°
4750
112°
4800
Spontaneous Potential
Gamma Ray
DST Uphole Tension
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Shallow FF

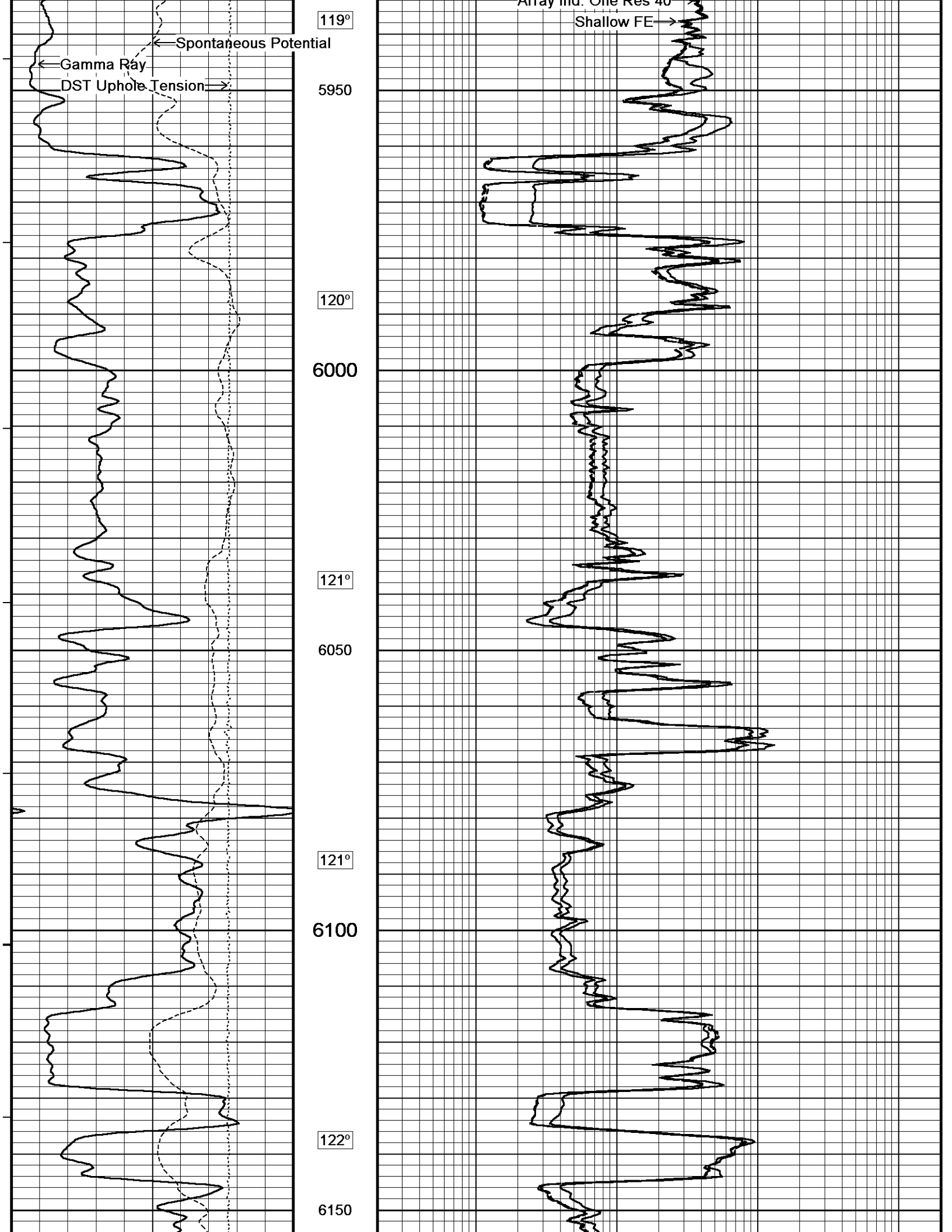

113°
4850
113°
4900
113°
4950
114°
5000
114°
5050

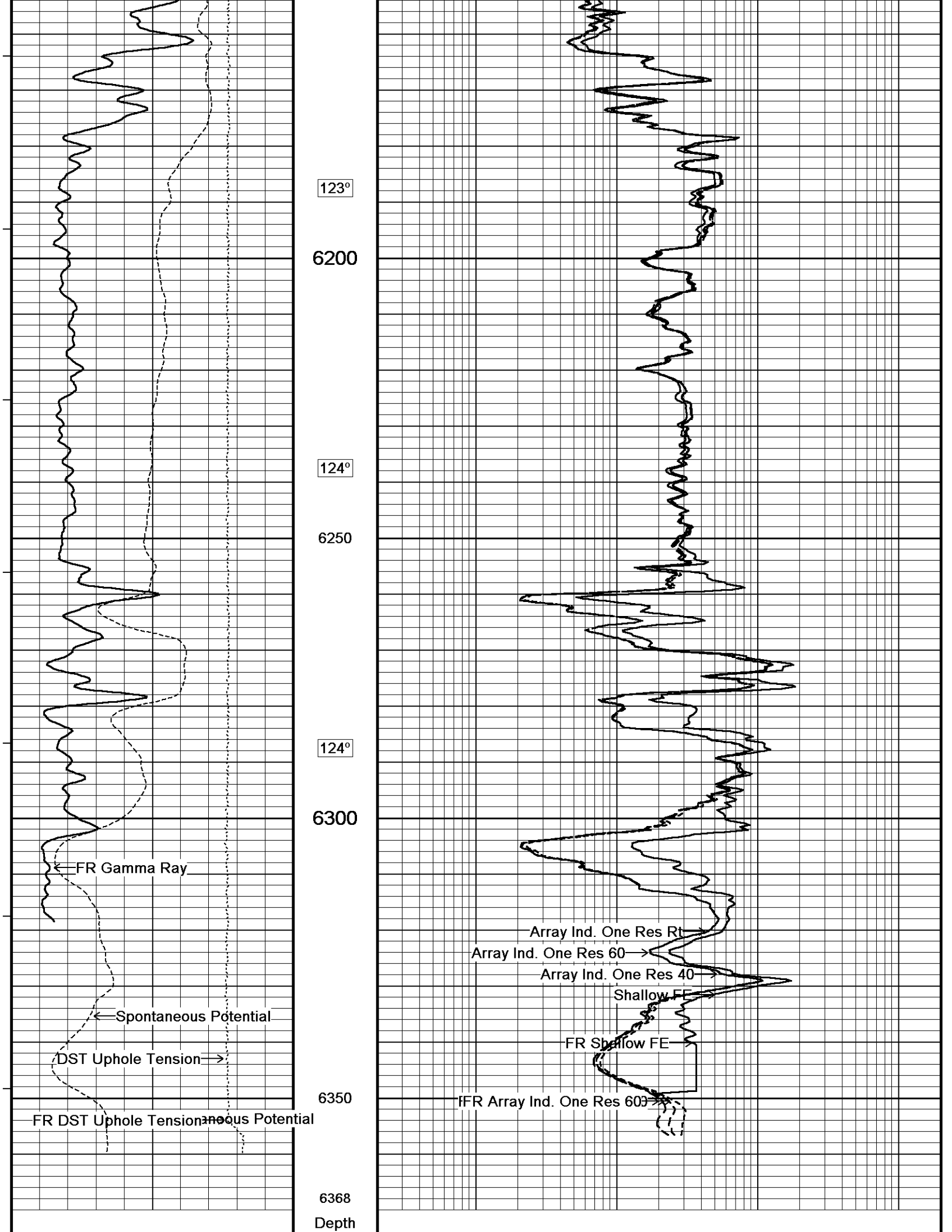

115°
5100
115°
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Shallow Foc
5150
Spontaneous Potential
Gamma Ray
DST Uphole Tension
115°
5200
115°
5250


116°
5300
116°
5350
116°
5400
117°
5450
117°


5500
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Shallow FE
118°
Spontaneous Potential
5550
Gamma Ray
DSI Uphole Tension
118°
5600
119°
5650
119°
5700


120°
5750
120°
5800
119°
5850
119°
5900
Array Ind. One Res Rt
Array Ind. One Res 60


Array Ind. One Res 40
Shallow FE
Spontaneous Potential
Gamma Ray
DST Uphole Tension
119°
5950
120°
6000
121°
6050
121°
6100
122°
6150


123°
6200
124°
6250
124°
6300
FR Gamma Ray
Spontaneous Potential
DST Uphole Tension
6350
FR DST Uphole Tension
Spontaneous Potential
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Shallow FE
FR Shallow FE
FR Array Ind. One Res 60
6368
Depth

Depth in Feet

Timing Marks
every 60.0 sec

Gamma Ray
API
0 75 150
150 225 300

Spontaneous Potential
millivolts
– → | 20 | ← +

DST Uphole Tension
pounds
5000 0
0 -5000

Borehole Temp in deg F

Replay Scale 1:240

Shallow FE
ohm metres
0.20 2000
1 10 100 1000

Array Ind. One Res 40
ohm metres
0.20 2000
1 10 100 1000

Array Ind. One Res 60
ohm metres
0.20 2000
1 10 100 1000

Array Ind. One Res Rt
ohm metres
0.20 2000
1 10 100 1000

Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 08-DEC-2010 10:48
Filename: C:\DOCUME~1\ScheffJL\LOCALS~1\Temp\Weatherford PreView\0\VAIL #1-30_003.dta
Recorded on 07-DEC-2010 17:36
System Versions: Logged with 11.01.2198 Processed with 11.01.2198 Plotted with 11.02.2164

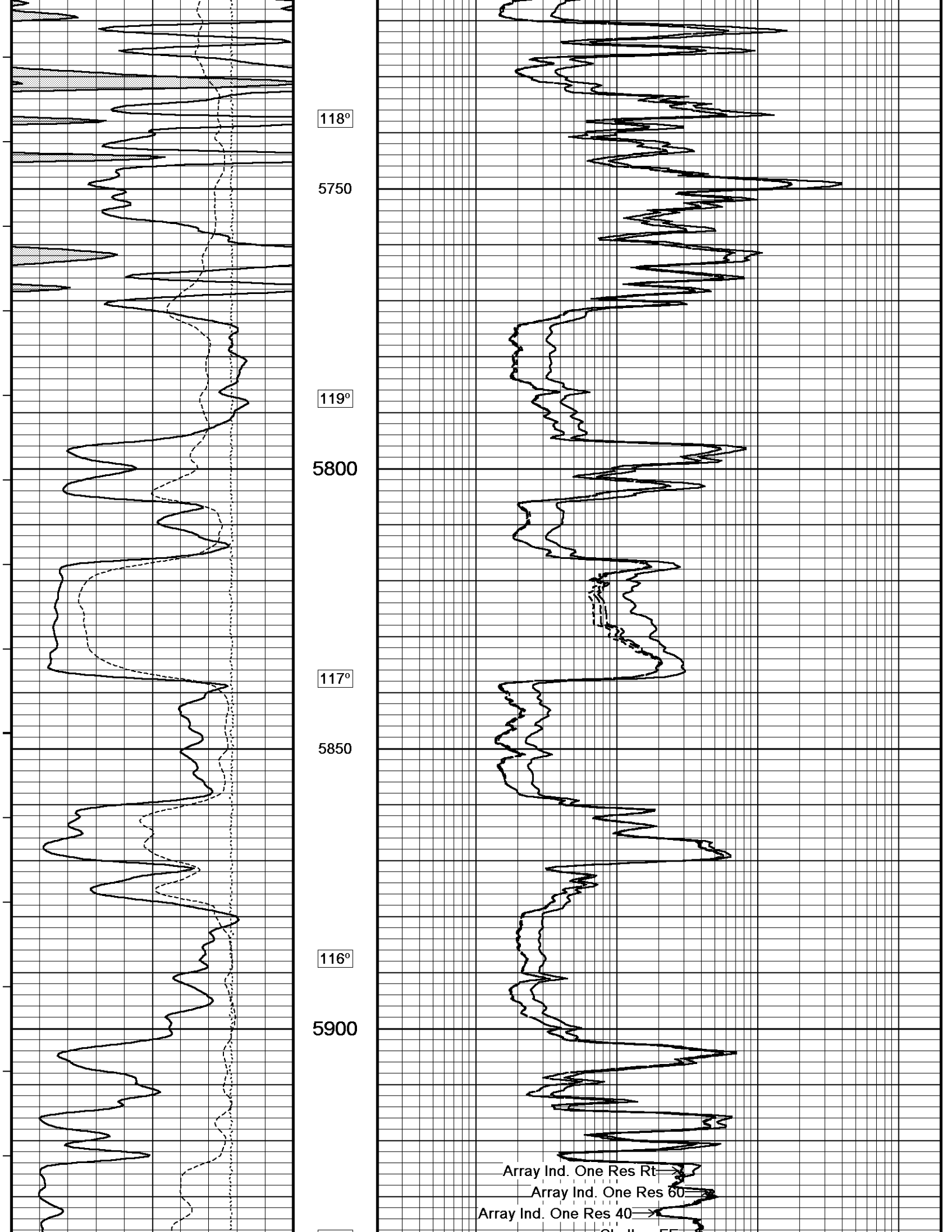
5 Inch Main Pass

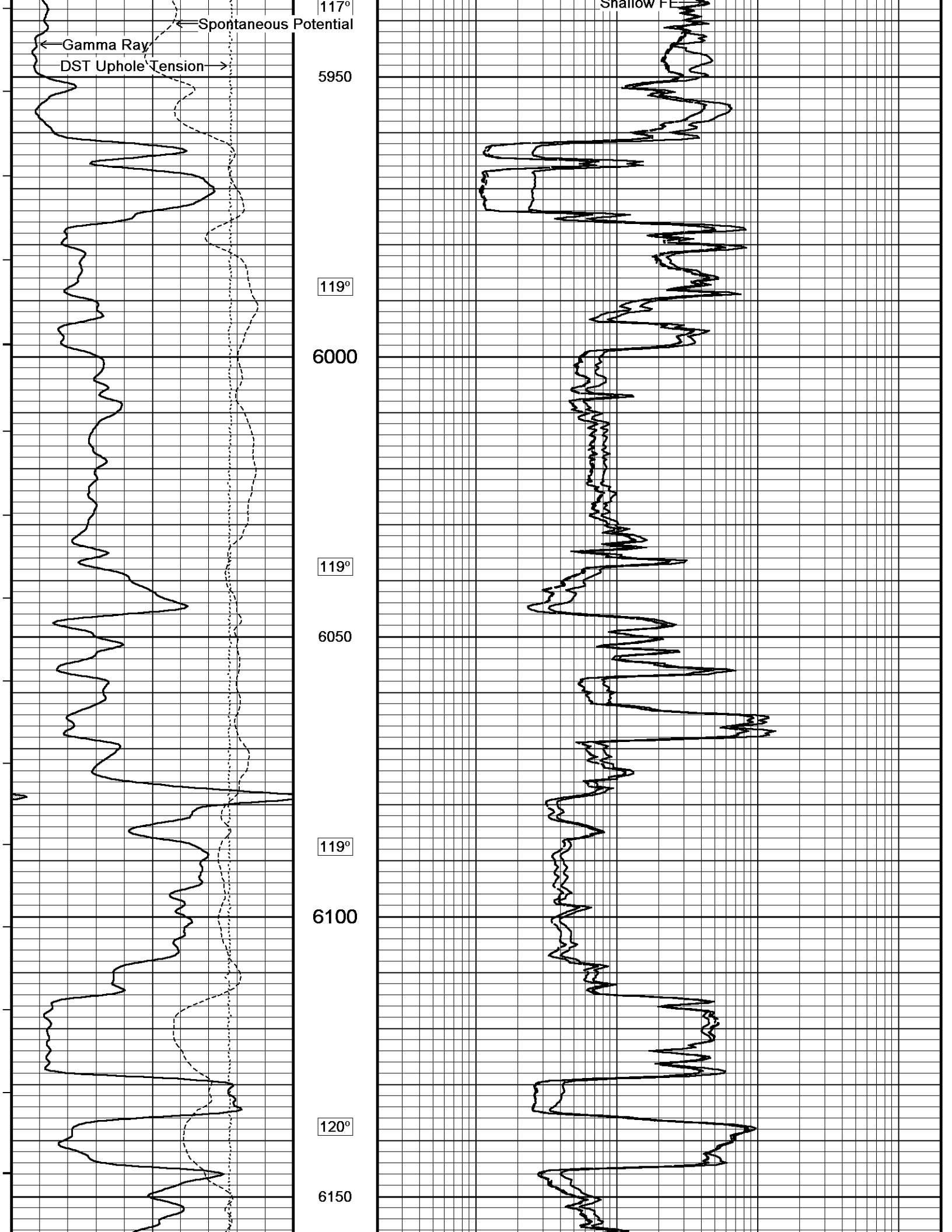
Repeat Section

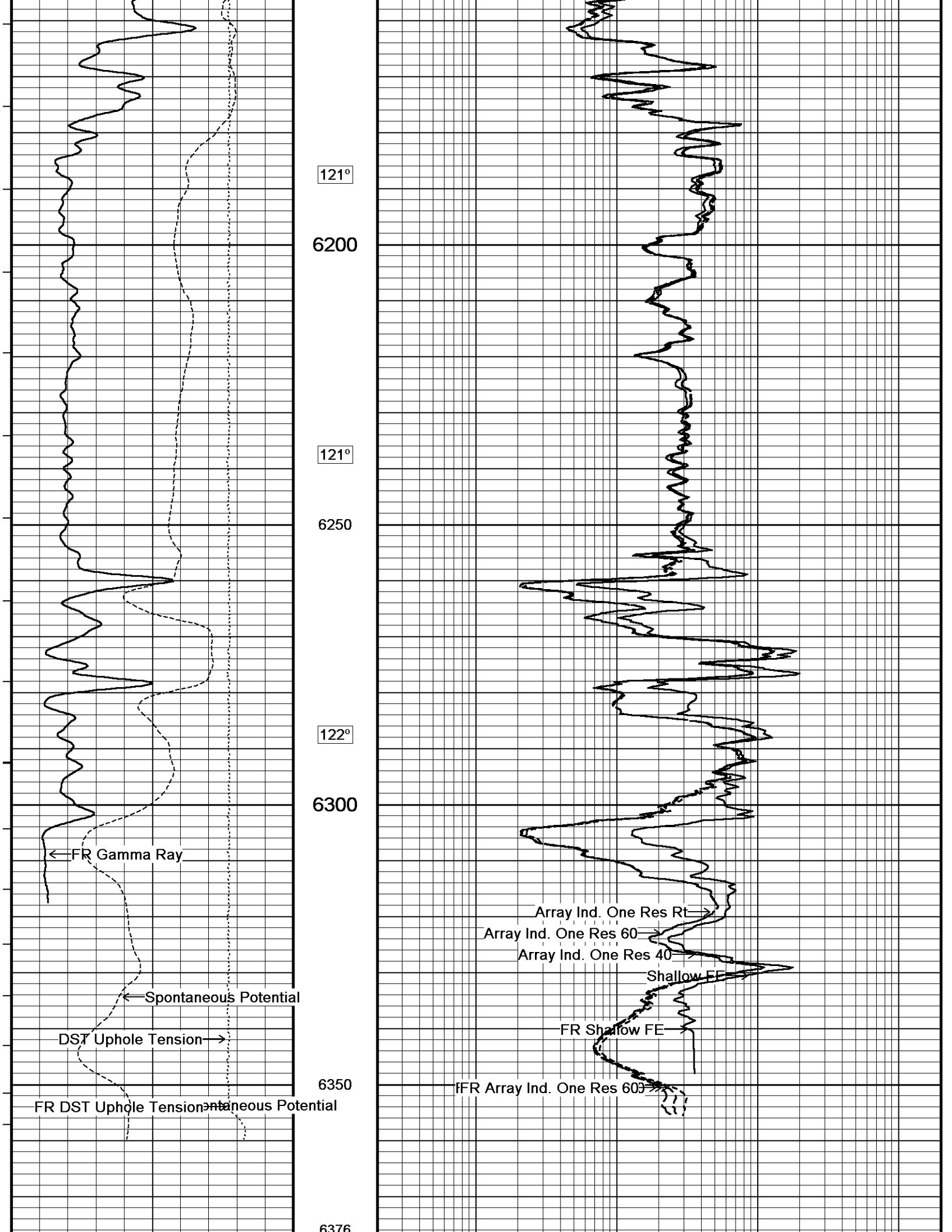
Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 08-DEC-2010 10:48
Filename: C:\DOCUME~1\ScheffJL\LOCALS~1\Temp\Weatherford PreView\0\VAIL #1-30_002.dta
Recorded on 07-DEC-2010 16:32
System Versions: Logged with 11.01.2198 Processed with 11.01.2198 Plotted with 11.02.2164

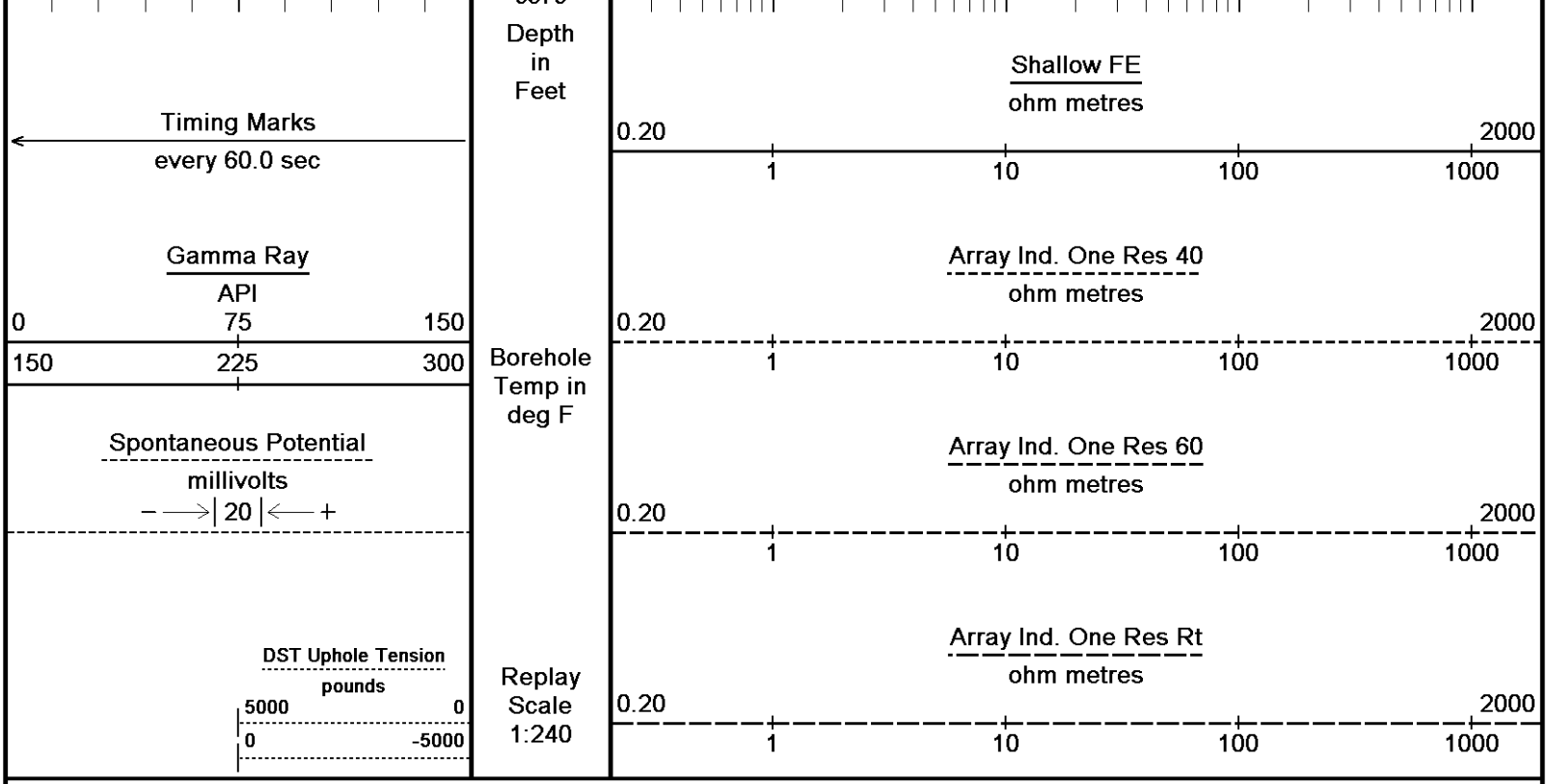
Depth in Feet
Timing Marks
every 60.0 sec
Gamma Ray
API
0 75 150
150 225 300
Spontaneous Potential
millivolts
– → | 20 | ← +
DST Uphole Tension
pounds
5000 0
0 -5000
Borehole Temp in deg F
Replay Scale 1:240
Shallow FE
ohm metres
0.20 2000
1 10 100 1000
Array Ind. One Res 40
ohm metres
0.20 2000
1 10 100 1000
Array Ind. One Res 60
ohm metres
0.20 2000
1 10 100 1000
Array Ind. One Res Rt
ohm metres
0.20 2000
1 10 100 1000

5700


118°
5750
119°
5800
117°
5850
116°
5900
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40


Spontaneous Potential
Gamma Ray
DST Uphole Tension
Shallow FE
117°
5950
119°
6000
119°
6050
119°
6100
120°
6150


121°
6200
121°
6250
122°
6300
FR Gamma Ray
Spontaneous Potential
DST Uphole Tension
FR DST Uphole Tension
Spontaneous Potential
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Shallow FE
FR Shallow FE
FR Array Ind. One Res 60
6350
6376



Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 08-DEC-2010 10:48

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System Versions: Logged with 11.01.2198 Processed with 11.01.2198 Plotted with 11.02.2164

Repeat Section

BEFORE SURVEY CALIBRATION

C:\DOCUME~1\ScheffJL\LOCALS~1\Temp\Weatherford PreView\0\VAIL #1-30.dta

General Constants All 000 — Last Edited on 07-DEC-2010,14:59

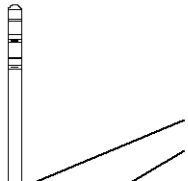
General Parameters		
Mud Resistivity	0.850	ohm-metres
Mud Resistivity Temperature	75.000	degrees F
Water Level	0.000	feet
Density/Neutron Processing	Wet Hole	
Hole/Annular Volume and Differential Caliper Parameters		
HVOL Method	Single Caliper	
HVOL Caliper 1	Density Caliper	
HVOL Caliper 2	N/A	
Annular Volume Diameter	4.500	inches
Caliper for Differential Caliper	Density Caliper	
Rwa Parameters		
Porosity used	Limestone Density Por.	
Resistivity used	Array Ind. One Res Rt	
RWA Constant A	1.000	
RWA Constant M	2.000	

DOWNHOLE EQUIPMENT

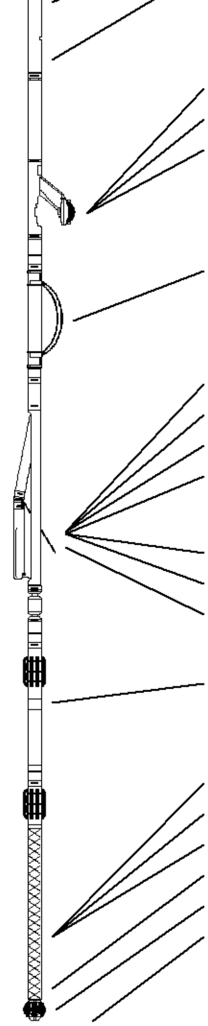
C:\DOCUME~1\ScheffJL\LOCALS~1\Temp\Weatherford PreView\0\VAIL #1-30.dta

MCB-A.A 11B Tension Cablehead
MCB-A.A 2 LG: 2.40 ft WT: 19.8 lb OD: 2.24 in

Compact Comms Gamma
MCG-B 67 LG: 8.70 ft WT: 63.9 lb OD: 2.24 in



45.02 ft GRGC - Gamma Ray
42.11 ft CGXT - MCG External Temperature



Tool	Offset	Measurement
Compact Micro-log MML-A 4 LG: 7.97 ft WT: 81.6 lb OD: 2.24 in	35.39 ft	MINV - Micro-inverse
	35.39 ft	MNRL - Micro-normal
	36.38 ft	MLTC - MML Caliper
Compact Neutron MDN-A.B 41 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in	30.59 ft	NPRL - Limestone Neutron Por.
Compact Density/Caliper MPD-B 61 LG: 9.59 ft WT: 90.4 lb OD: 2.45 in	23.35 ft	CLDC - Density Caliper
	23.35 ft	AVOL - Annular Volume
	23.35 ft	HVOL - Hole Volume
	21.42 ft	DEN - Compensated Density
SKJ-D.A Compact Knuckle Joint SKJ-D.A 91 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in	21.42 ft	DCOR - Density Correction
	21.42 ft	DPRL - Limestone Density Por.
	21.36 ft	PDPE - PE
Compact Focussed Electric MFE-A.A 67 LG: 6.03 ft WT: 48.5 lb OD: 2.24 in	13.70 ft	FEFE - Shallow FE
Compact Induction MAI-A.A 188 LG: 10.81 ft WT: 48.5 lb OD: 2.24 in	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
Total Length: 52.70 ft Weight: 427.7 lb	Tool Zero	(0.13ft from bottom)
	-0.13 ft	SMTU - DST Uphole Tension

All measurements relative to tool zero.

COMPANY	O' BRIEN ENERGY
WELL	VAIL #1-30
FIELD	SINGLEY
PROVINCE/COUNTY	MEADE
COUNTRY/STATE	U.S.A./KANSAS

Elevation Kelly Bushing	2679.00	feet	First Reading	6351.00	feet
Elevation Drill Floor	2678.00	feet	Depth Driller	6351.00	feet
Elevation Ground Level	2667.00	feet	Depth Logger	6354.00	feet

Weatherford®

ARRAY INDUCTION
SHALLOW FOCUSSED
ELECTRIC LOG

40 Years of Wireline 1970 2010

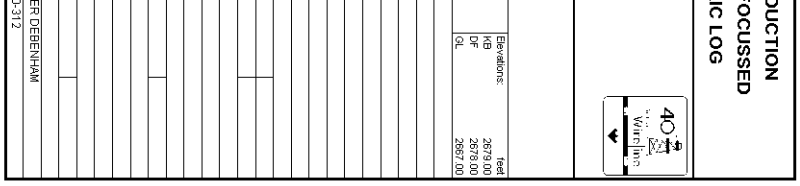
Weatherford

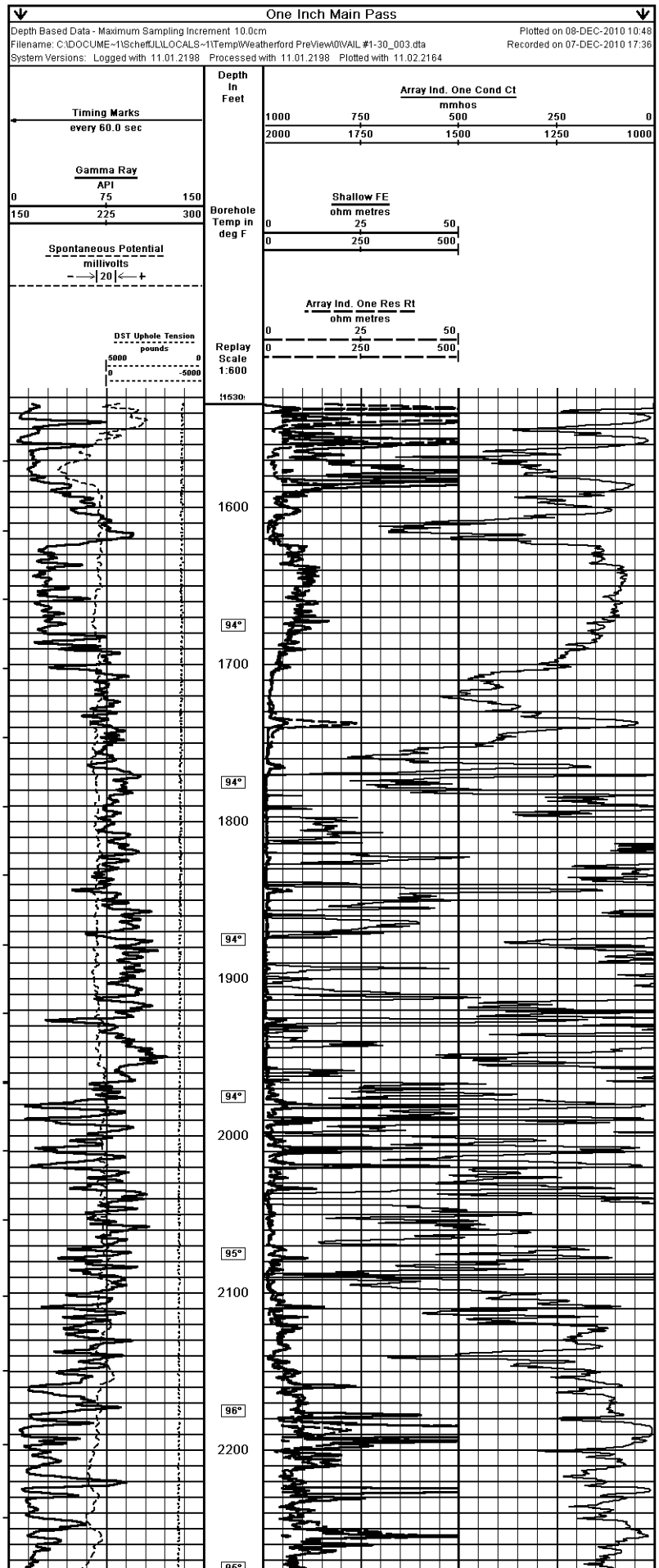
ARRAY IN
SHALLOW F
ELECTR

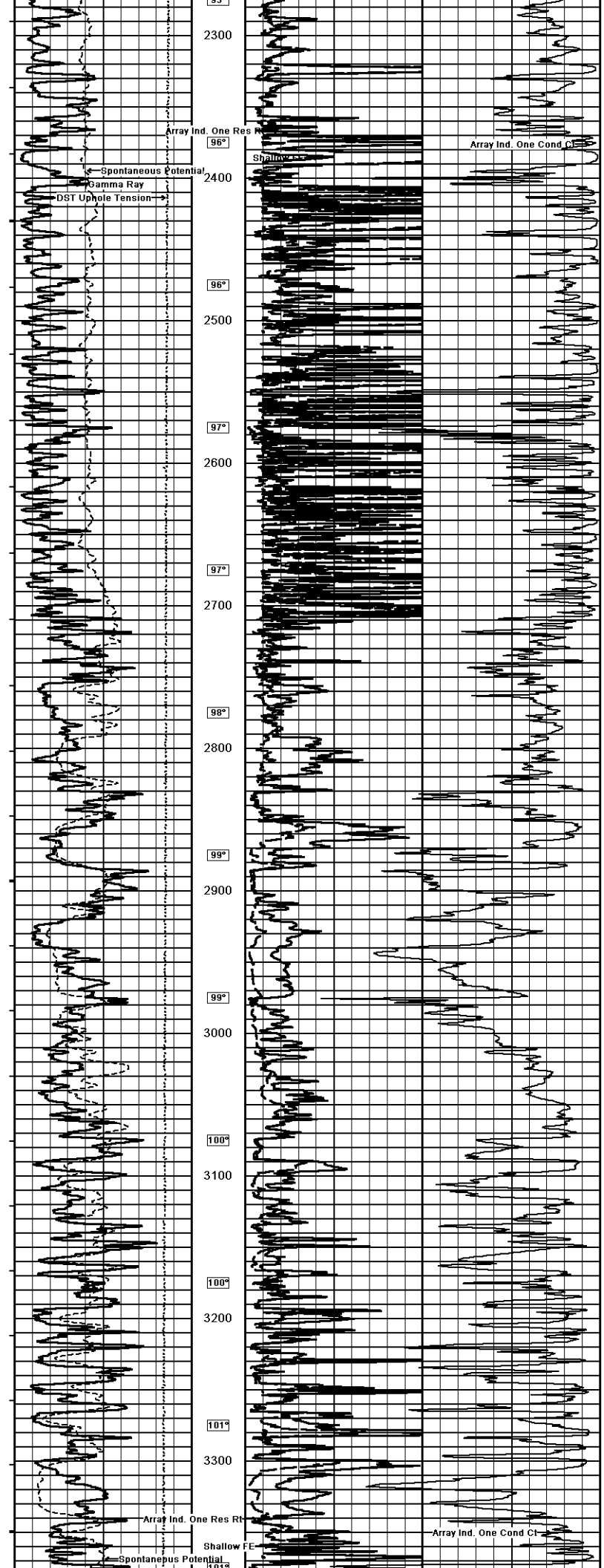
COMPANY	O' BRIEN ENERGY
WELL	VAIL #1-30
FIELD	SINGLEY
PROVINCE/COUNTY	MEADE
COUNTRY/STATE	U.S.A./KANSAS
LOCATION	760' FSL & 1320' FWL
SEC 30 TWP 33S RGE 29W	Other Services MPD/MDN MAI/MFE
API Number	15-119-21277
Permit Number	

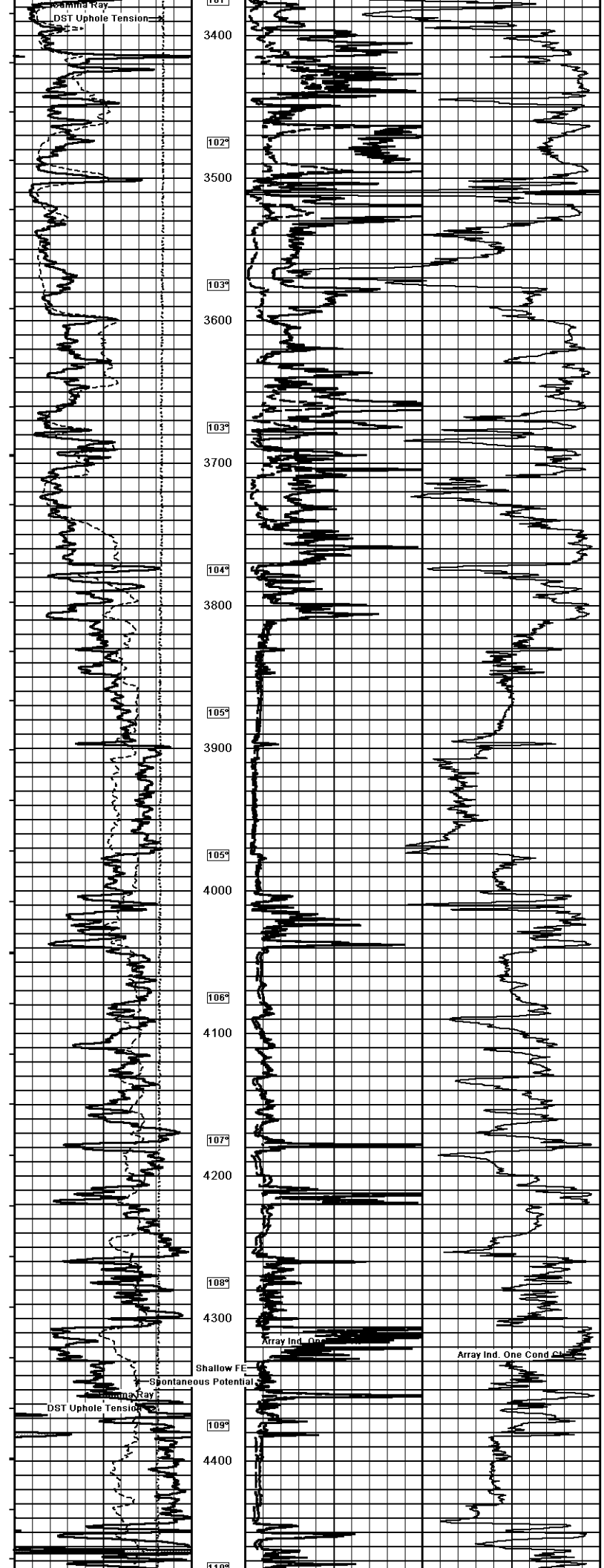
Permanent Datum G.L., Elevation 2667 feet
Log Measured From K.B. @ 12 FEET above Permanent Datum
Drilling Measured From K.B.

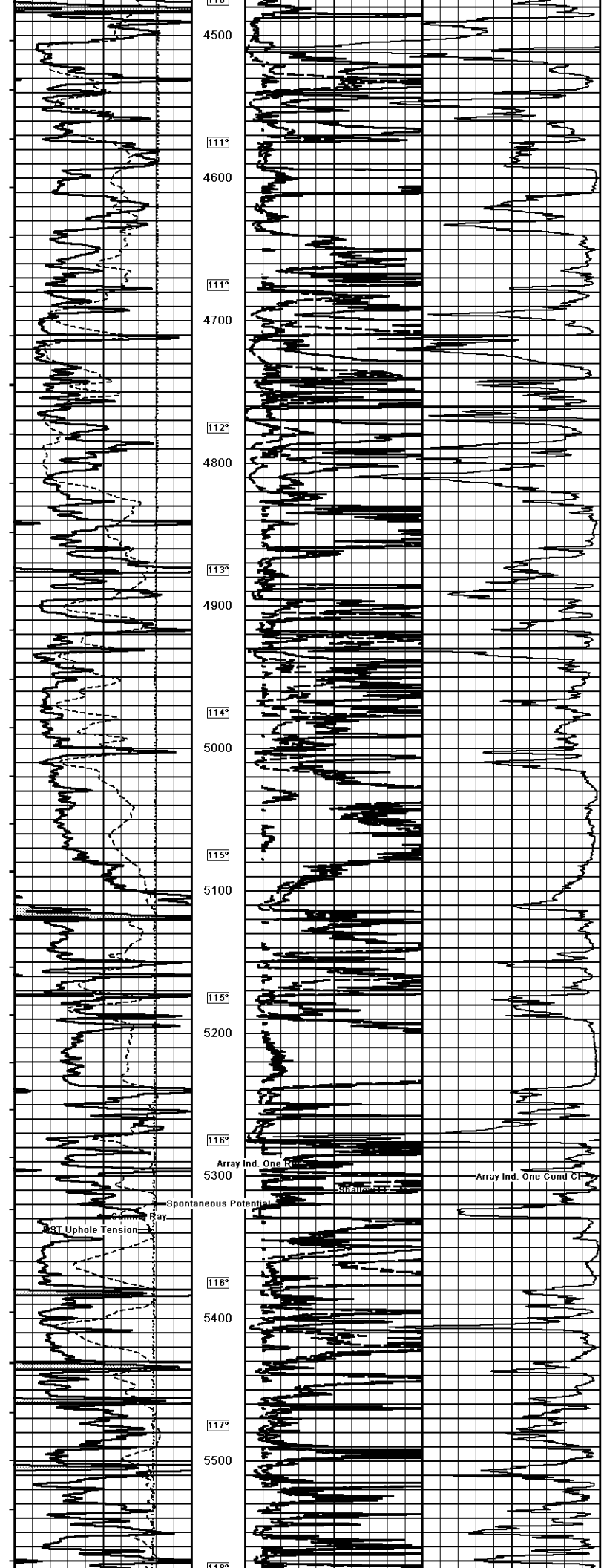
Date	07-DEC-2010			
Run Number	ONE			
Depth Driller	6351.00	feet		
Depth Logger	6354.00	feet		
First Reading	6351.00	feet		
Last Reading	1534.00	feet		
Casing Driller	1534.00	feet		
Casing Logger	1534.00	feet		
Bit Size	7.880	inches		
Hole Fluid Type	CHEMICAL			
Density / Viscosity	9.20	lb/USg	51.00	CP
PH / Fluid Loss	9.50		9.20	ml/30Min
Sample Source	FLOWLINE			
Rm @ Measured Temp	0.85 @ 75.0	ohm-m		
Rmf @ Measured Temp	0.68 @ 75.0	ohm-m		
Rmc @ Measured Temp	1.02 @ 75.0	ohm-m		
Source Rmf / Rmc	CALC		CALC	
Rm @ BHT	0.52 @ 122.0	ohm-m		
Time Since Circulation	4 HOURS			
Max Recorded Temp	122.00	deg F		
Equipment Name	COMPACT			
Equipment / Base	13096		LIB	
Recorded By	SHAWN NUTT			
Witnessed By	ROGER PEARSON			
S.O.#/JOB#	3524634			

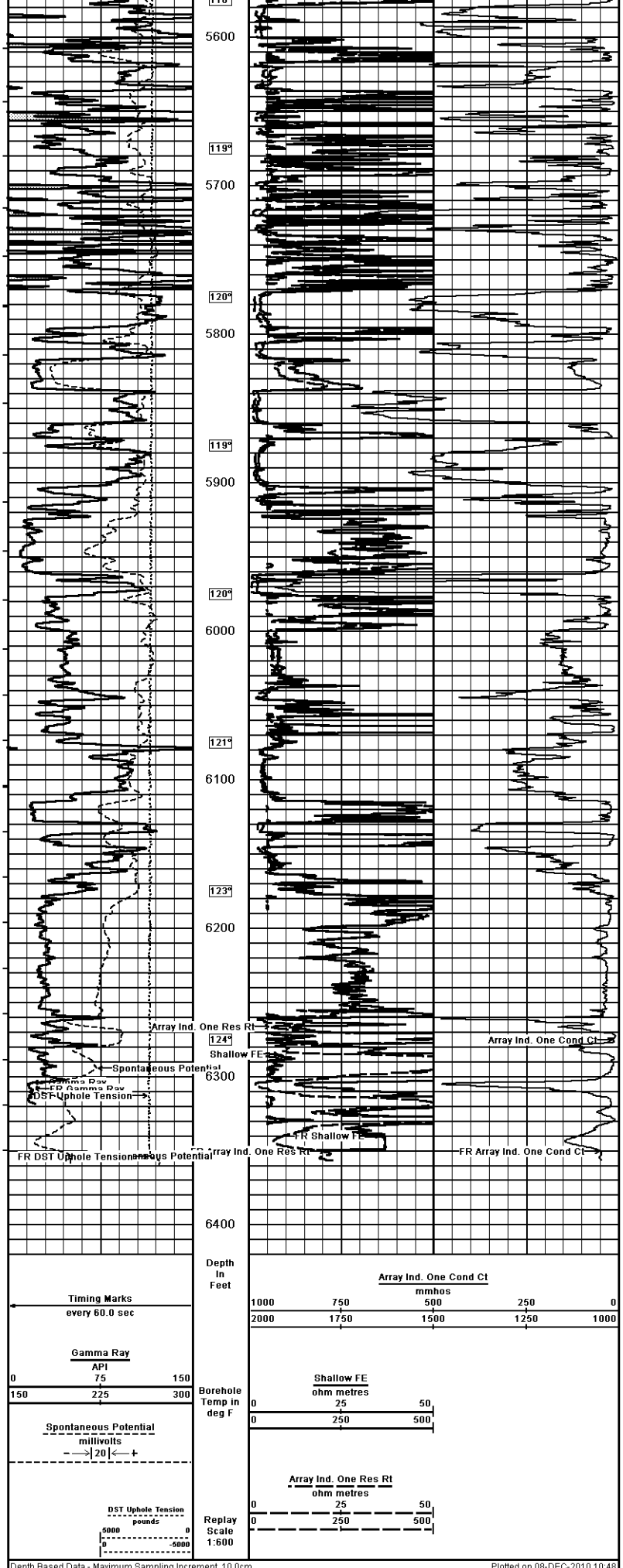

ER DEBENHAM
D-312
Elevations:
KB
DF
GL
2679.00
2678.00
2667.00
feet
40
Wireline
DUCTION
FOCUSSED
IC LOG


One Inch Main Pass
Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 08-DEC-2010 10:48
Filename: C:\DOCUME~1\ScheffJL\LOCALS~1\Temp\Weatherford PreView\01\VAIL #1-30_003.dta
Recorded on 07-DEC-2010 17:36
System Versions: Logged with 11.01.2198 Processed with 11.01.2198 Plotted with 11.02.2164
Timing Marks
every 60.0 sec
Gamma Ray
API
0
75
150
150
225
300
Spontaneous Potential
millivolts
-
20
+
DST Uphole Tension
pounds
5000
0
0
-5000
Depth
In
Feet
Borehole
Temp in
deg F
Replay
Scale
1:600
Array Ind. One Cond Ct
mmhos
1000
750
500
250
0
2000
1750
1500
1250
1000
Shallow FE
ohm metres
0
25
50
0
250
500
Array Ind. One Res Rt
ohm metres
0
25
50
0
250
500
1600
94°
1700
94°
1800
94°
1900
94°
2000
95°
2100
96°
2200


2300
Array Ind. One Res Rt
96°
Array Ind. One Cond Ct
Shallow FE
Spontaneous Potential
Gamma Ray
DST Uphole Tension
2400
96°
2500
97°
2600
97°
2700
98°
2800
99°
2900
99°
3000
100°
3100
100°
3200
101°
3300
Array Ind. One Res Rt
Array Ind. One Cond Ct
Shallow FE
Spontaneous Potential


Gamma Ray
DST Uphole Tension
3400
102°
3500
103°
3600
103°
3700
104°
3800
105°
3900
105°
4000
106°
4100
107°
4200
108°
4300
Array Ind. One
Array Ind. One Cond Cl
Shallow FE
Spontaneous Potential
Gamma Ray
DST Uphole Tension
109°
4400


4500
111°
4600
111°
4700
112°
4800
113°
4900
114°
5000
115°
5100
115°
5200
116°
5300
Array Ind. One Cond CH
Spontaneous Potential
Gamma Ray
CBT Uphole Tension
116°
5400
117°
5500



Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 08-DEC-2010 10:48
Filename: C:\DOCUME~1\ScheffJL\LOCALS~1\Temp\Weatherford PreView\01\WAIL #1-30_003.dta
Recorded on 07-DEC-2010 17:36
System Versions: Logged with 11.01.2198 Processed with 11.01.2198 Plotted with 11.02.2164

One Inch Main Pass

COMPANY	O' BRIEN ENERGY
WELL	VAIL #1-30
FIELD	SINGLEY
PROVINCE/COUNTY	MEADE
COUNTRY/STATE	U.S.A./KANSAS

Elevation Kelly Bushing	2679.00	feet	First Reading	6351.00	feet
Elevation Drill Floor	2678.00	feet	Depth Driller	6351.00	feet
Elevation Ground Level	2667.00	feet	Depth Logger	6354.00	feet

Weatherford

ARRAY INDUCTION
SHALLOW FOCUSSED
ELECTRIC LOG

MICRO RESISITIVITY LOG

Weatherford®

COMPANY	O' BRIEN ENERGY
WELL	VAIL #1-30
FIELD	SINGLEY
PROVINCE/COUNTY	MEADE
COUNTRY/STATE	U.S.A./KANSAS
LOCATION	760' FSL & 1320' FWL

40 Years of Wireline 1970 2010

SEC	TWP	RGE	Other Services
30	33S	29W	MPD/MDN
			MAI/MFE

API Number 15-119-21277
Permit Number

Permanent Datum G.L., Elevation 2667 feet
Log Measured From K.B. @ 12 FEET above Permanent Datum
Drilling Measured From K.B.

Elevations:	feet
KB	2679.00
DF	2678.00
GL	2667.00

Date	07-DEC-2010			
Run Number	ONE			
Depth Driller	6351.00	feet		
Depth Logger	6354.00	feet		
First Reading	6319.00	feet		
Last Reading	3100.00	feet		
Casing Driller	1534.00	feet		
Casing Logger	1534.00	feet		
Bit Size	7.880	inches		
Hole Fluid Type	CHEMICAL			
Density / Viscosity	9.20 lb/USg	51.00 CP		
PH / Fluid Loss	9.50	9.20 ml/30Min		
Sample Source	FLOWLINE			
Rm @ Measured Temp	0.85 @ 75.0	ohm-m		
Rmf @ Measured Temp	0.68 @ 75.0	ohm-m		
Rmc @ Measured Temp	1.02 @ 75.0	ohm-m		
Source Rmf / Rmc	CALC	CALC		
Rm @ BHT	0.52 @122.0	ohm-m		
Time Since Circulation	4 HOURS			
Max Recorded Temp	122.00	deg F		
Equipment Name	COMPACT			
Equipment / Base	13096	LIB		
Recorded By	SHAWN NUTT			
Witnessed By	ROGER PEARSON		PETER DEBENHAM	
S.O.#/JOB#	3524634		LB10-312	

BOREHOLE RECORD

Last Edited: 07-DEC-2010 19:46

Bit Size inches	Depth From feet	Depth To feet
7.880	1534.00	6354.00

CASING RECORD

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	8.625	0.00	1534.00	24.00

REMARKS

Tools Run: MAI, MPD, MCG, MDN, MML, MFE, SKJ
Hardware: MPD: 8 inch profile plate used. MAI and MFE: 0.5 Inch standoffs used. MDN: Dual Eccentraliser used.
2.71 G/CC Limestone density matrix used to calculate porosity.
Borhole rugosity, tight pulls, and washouts will affect data quality.
All intervals logged and scaled per customer's request.
Annular volume with 4.5 inch production casing= cu. ft.
Service order #3524630
Rig: Duke #6
Engineer: Shawn Nutt
Operator(s): K. Rinehart

5 Inch Main

Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 08-DEC-2010 10:48
Filename: C:\DOCUME~1\ScheffJL\LOCALS~1\Temp\Weatherford PreView\0\VAIL #1-30_006.dta
Recorded on 07-DEC-2010 21:12
System Versions: Logged with 11.01.2198 Processed with 11.01.2198 Plotted with 11.02.2164

Timing Marks
every 60.0 sec

Gamma Ray
API
0 75 150
150 225 300

Spontaneous Potential
millivolts
– → | 20 | ← +

MML Caliper
inches
6 11 16

Bit Size
inches
6 11 16

DST Uphole Tension
pounds
5000 0
0 -5000

Depth in Feet

Borehole Temp in deg F

Replay Scale 1:240

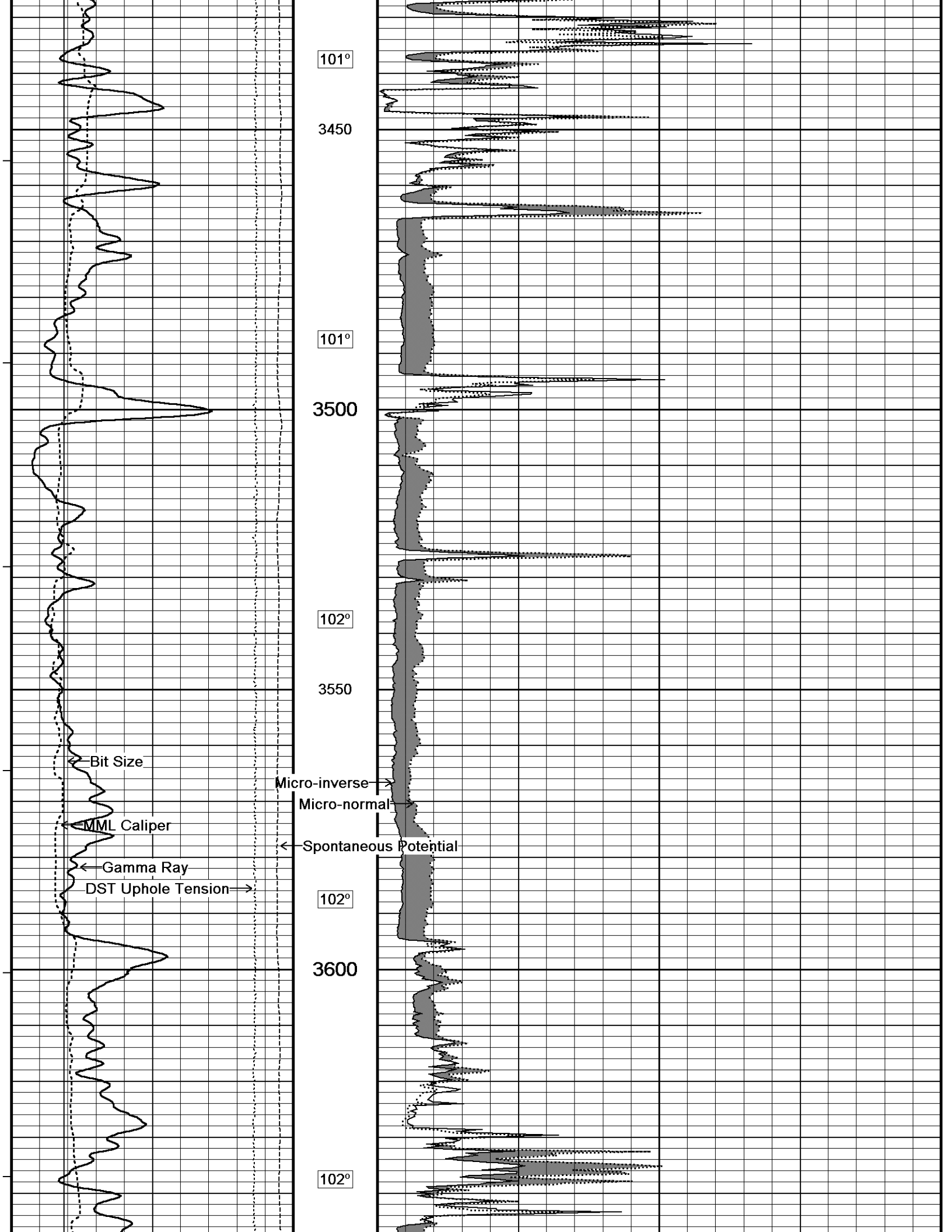
Micro-normal
ohm metres
0 10 20 30 40

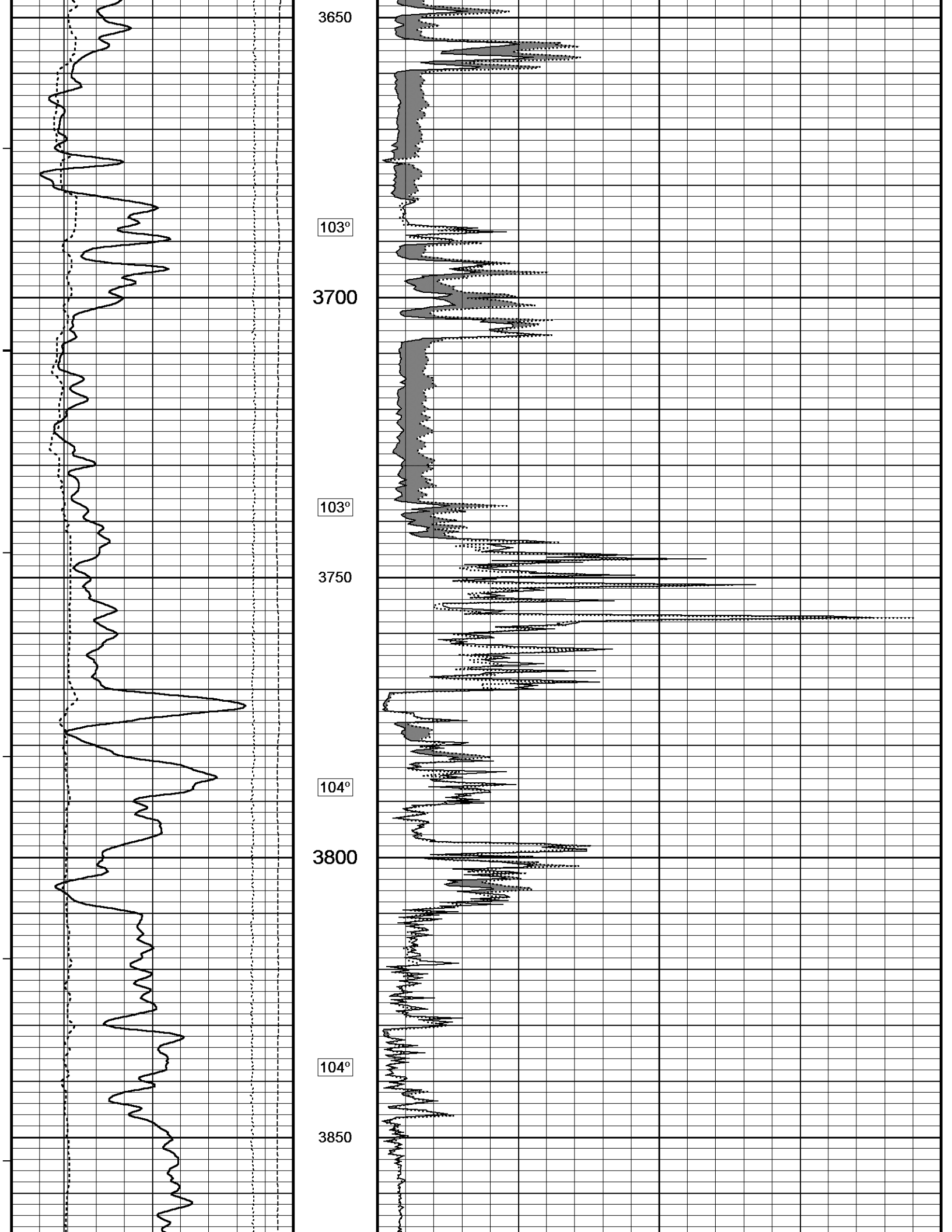
Micro-inverse
ohm metres
0 10 20 30 40

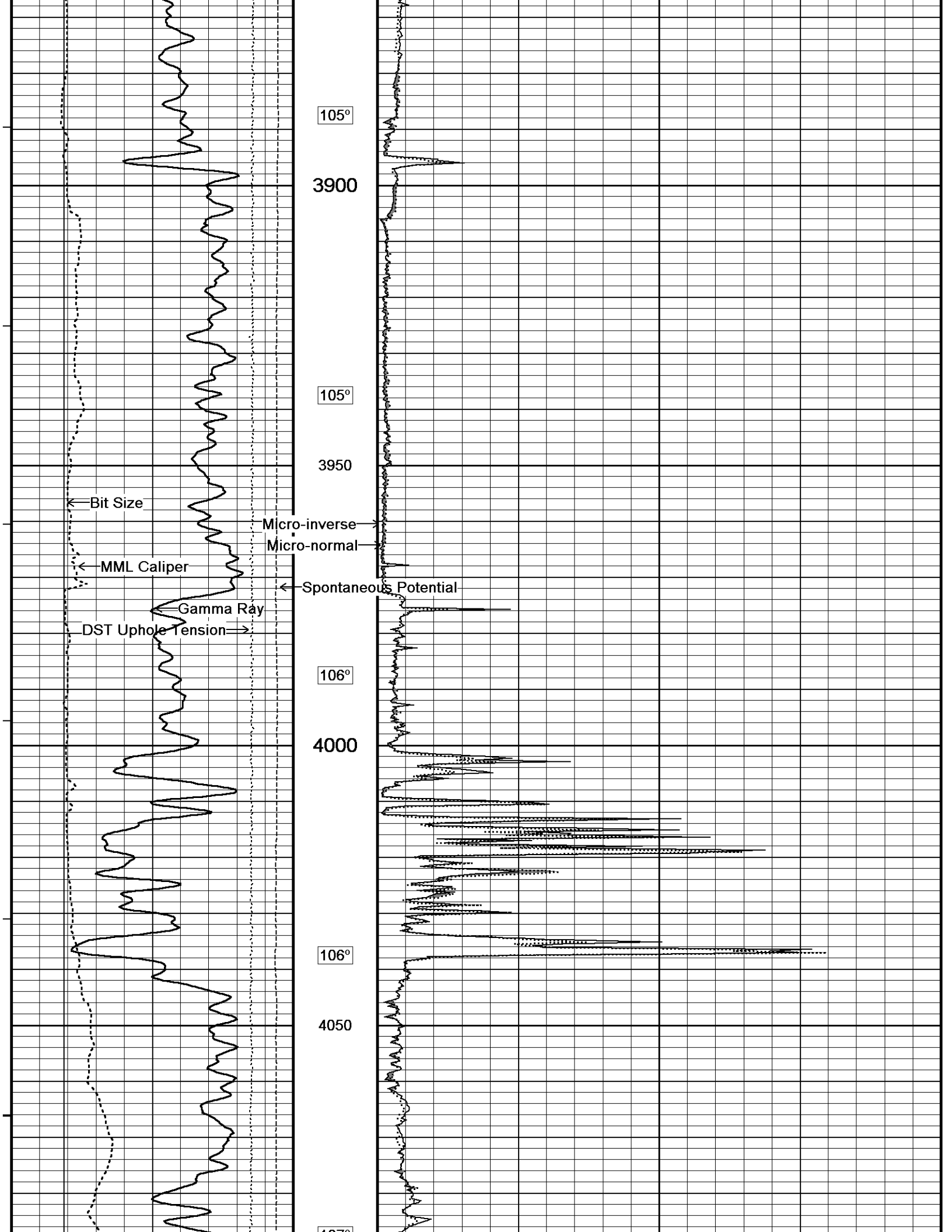
3350

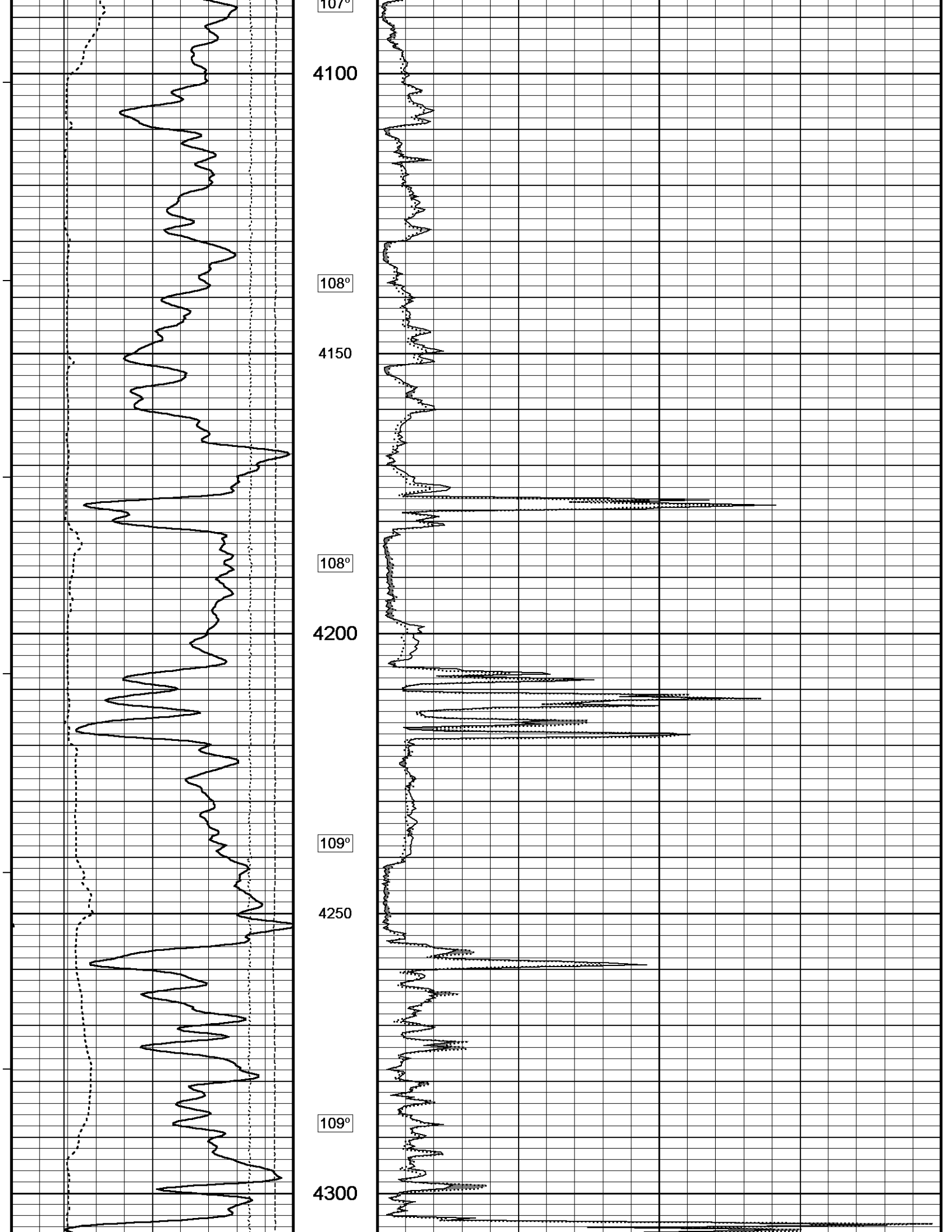
101°

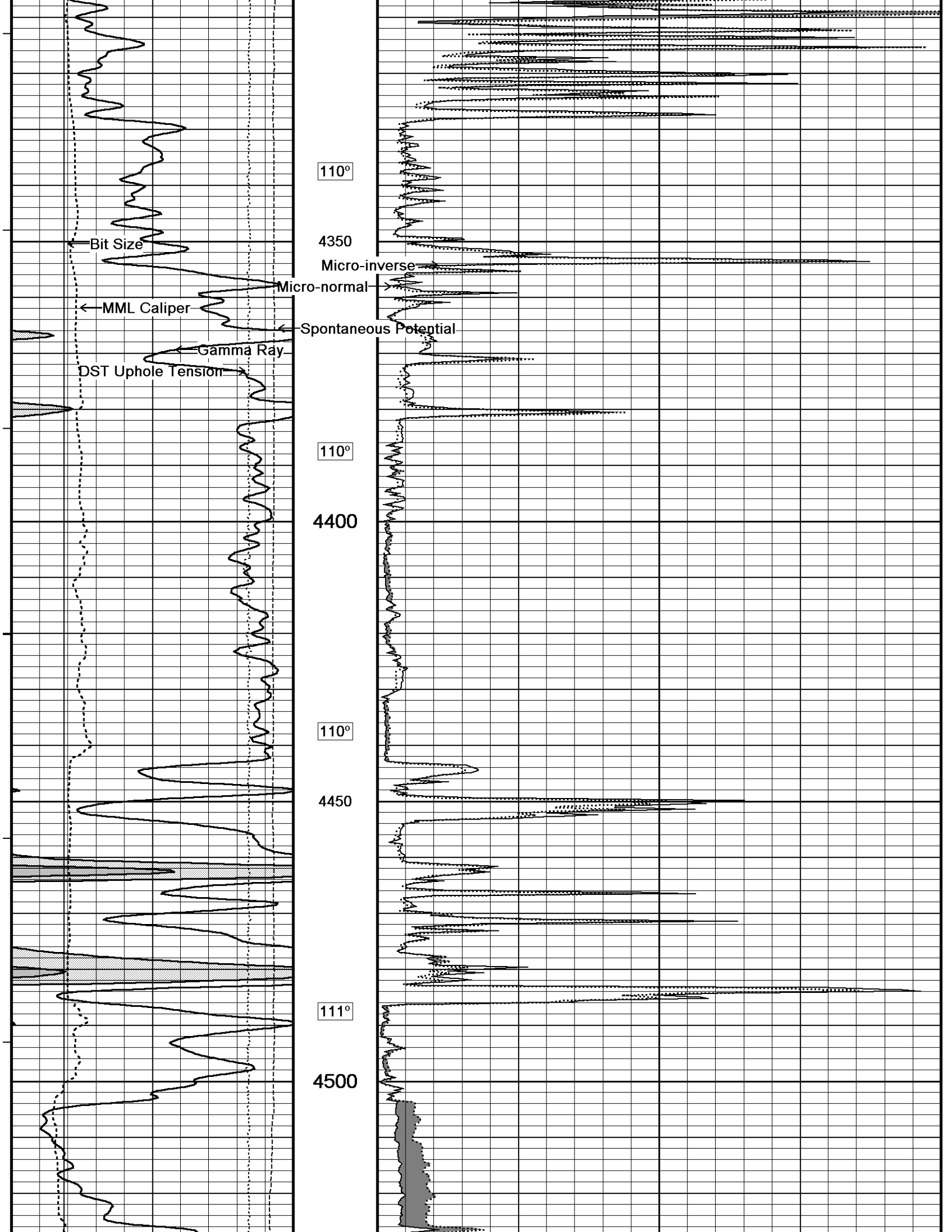
3400

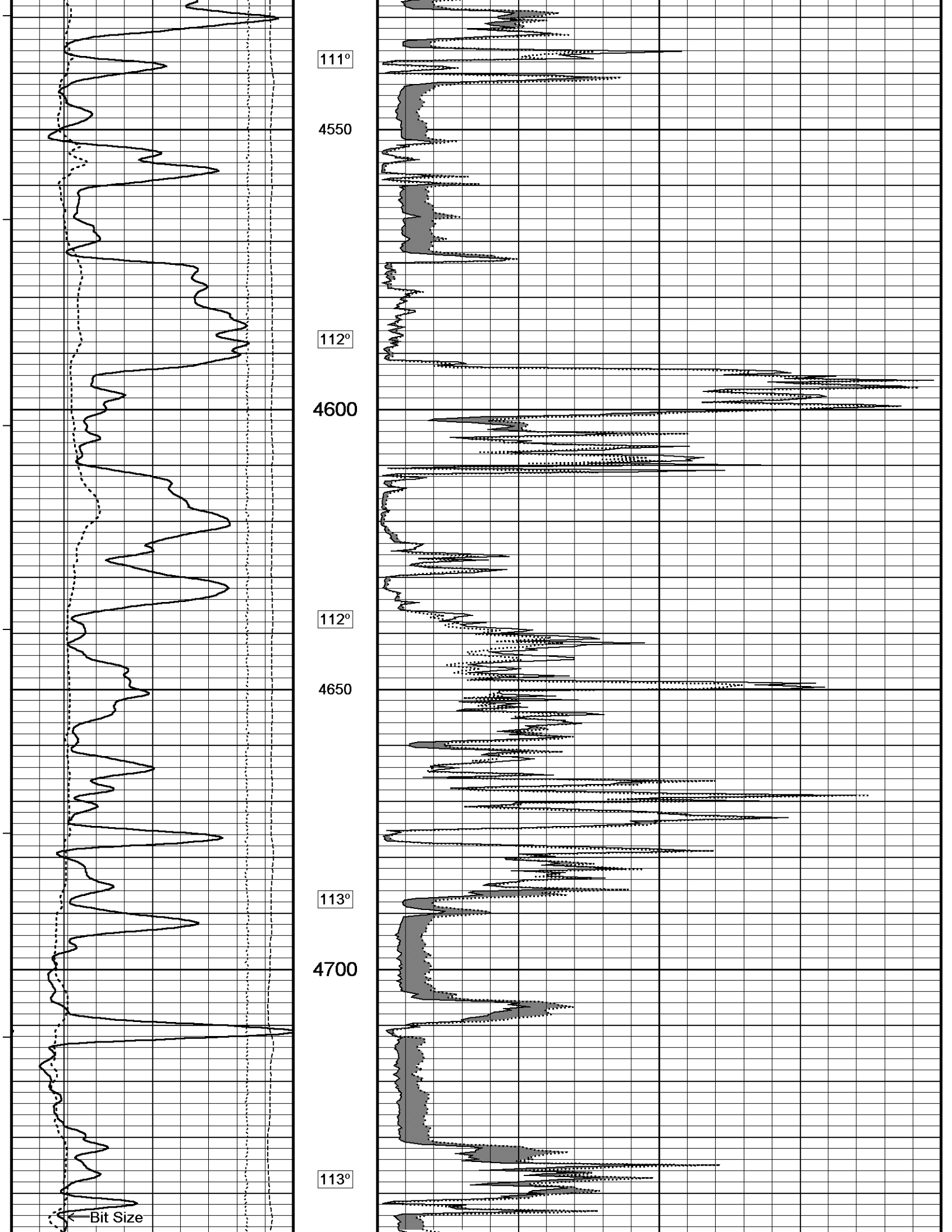

101°
3450
101°
3500
102°
3550
Bit Size
Micro-inverse
Micro-normal
MML Caliper
Spontaneous Potential
Gamma Ray
DST Uphole Tension
102°
3600
102°

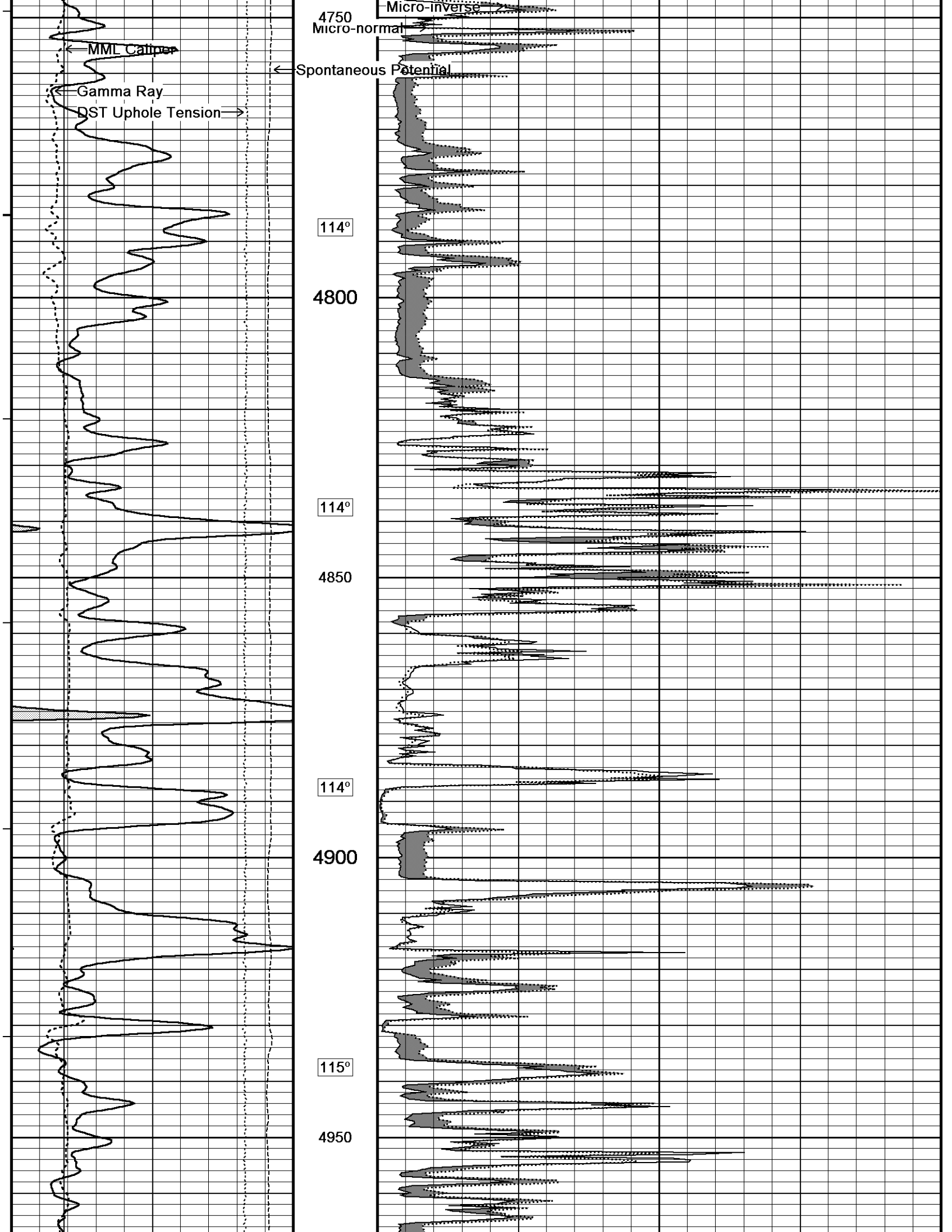

3650
103°
3700
103°
3750
104°
3800
104°
3850

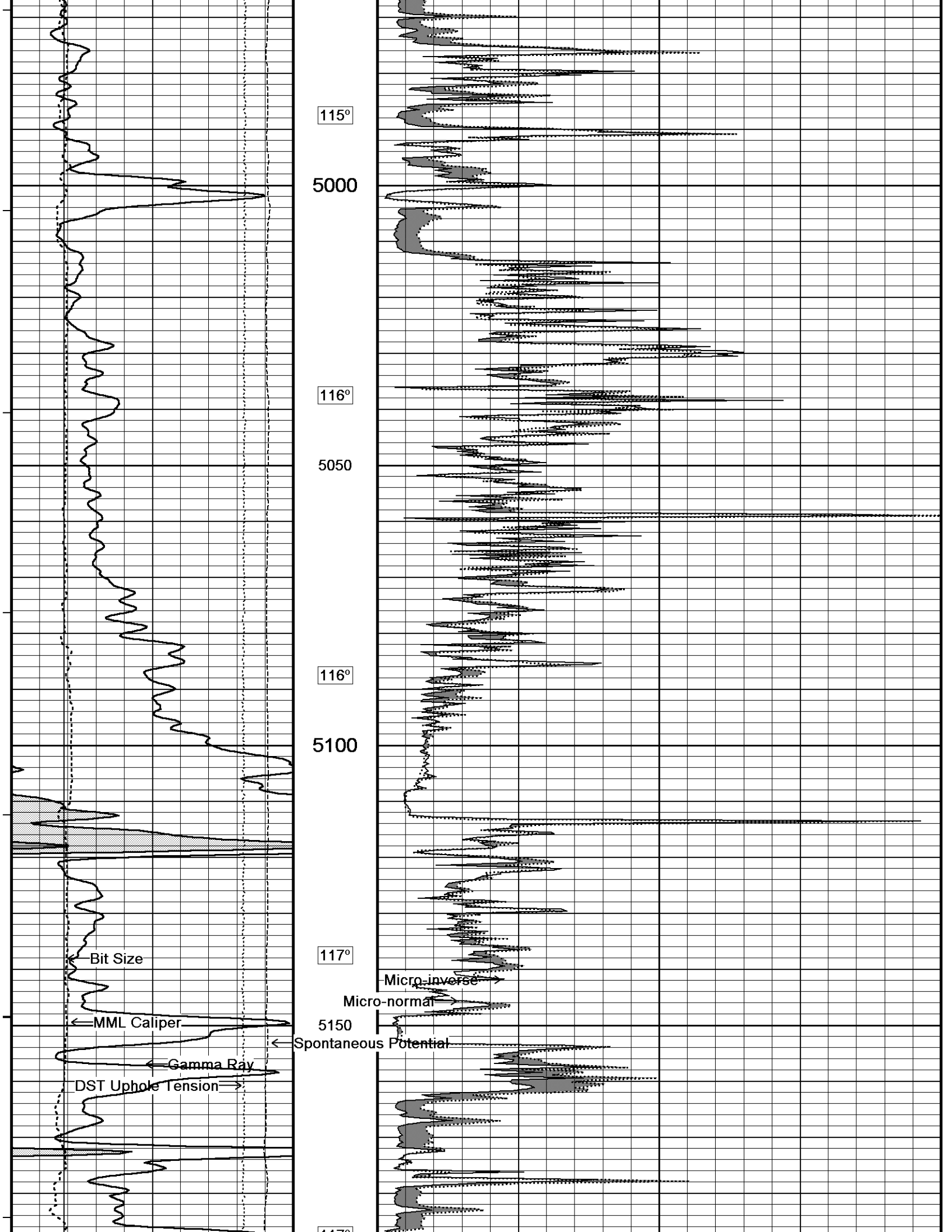

105°
3900
105°
3950
Bit Size
Micro-inverse
Micro-normal
MML Caliper
Spontaneous Potential
Gamma Ray
DST Uphole Tension
106°
4000
106°
4050

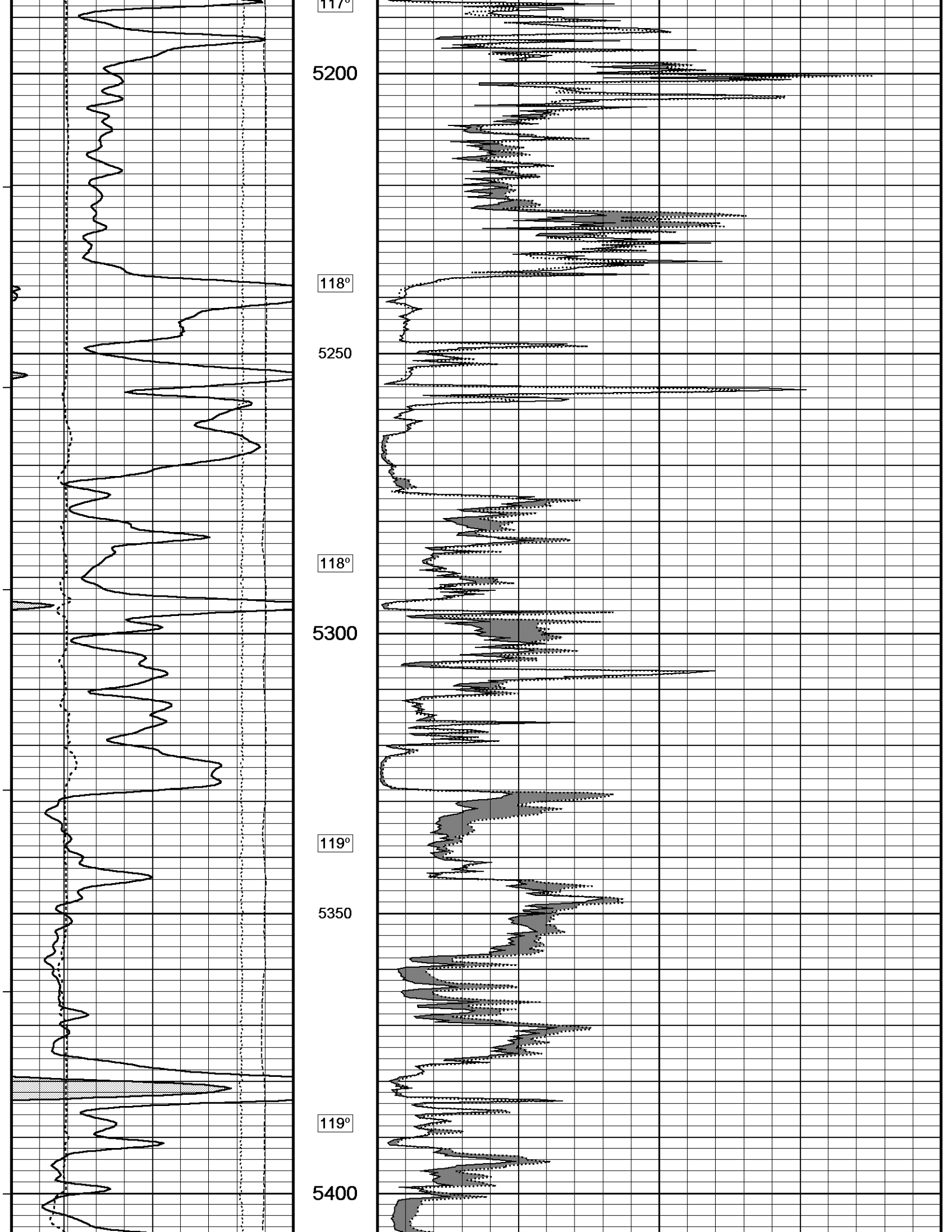

107°
4100
108°
4150
108°
4200
109°
4250
109°
4300

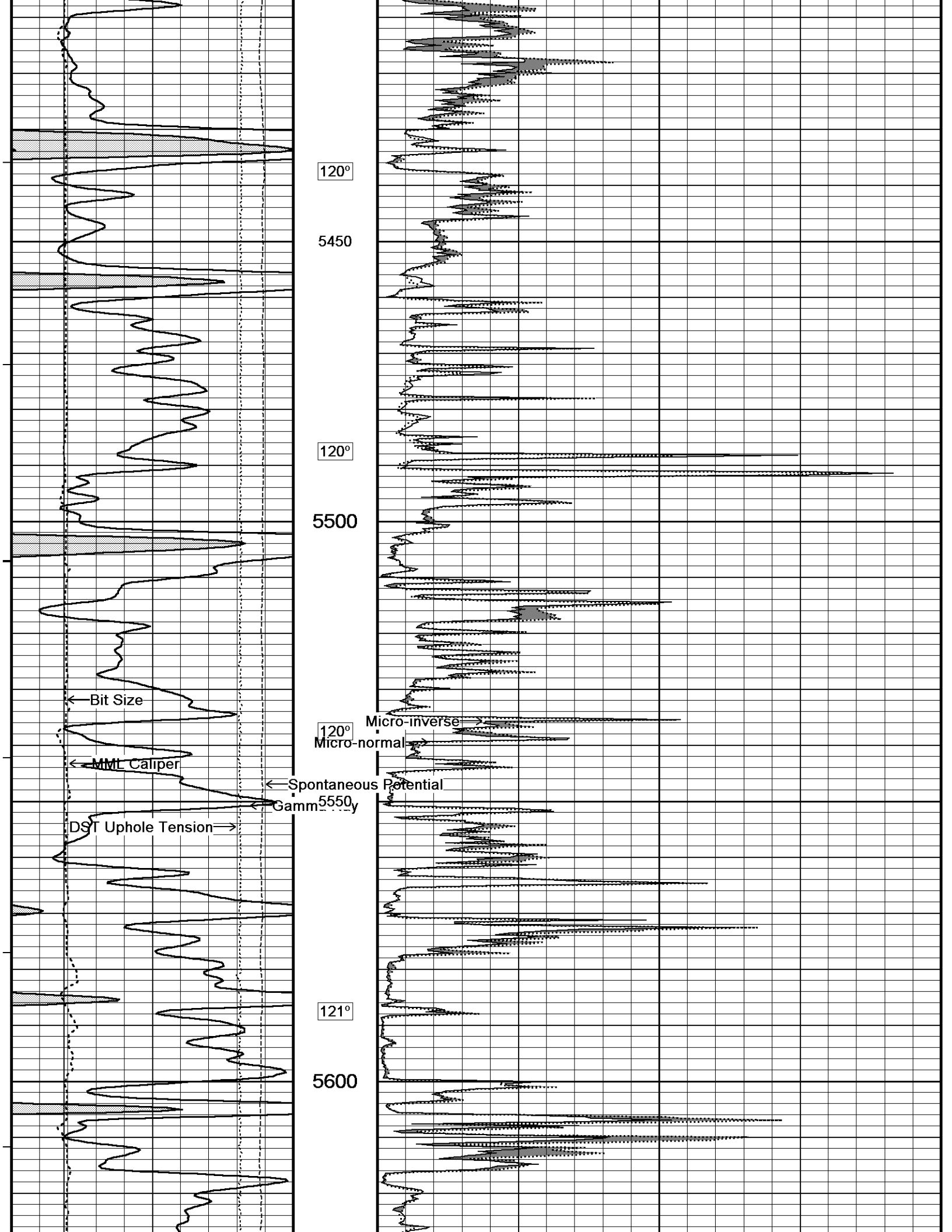

Bit Size
MML Caliper
Micro-normal
Micro-inverse
Spontaneous Potential
Gamma Ray
DST Uphole Tension
110°
4350
110°
4400
110°
4450
111°
4500

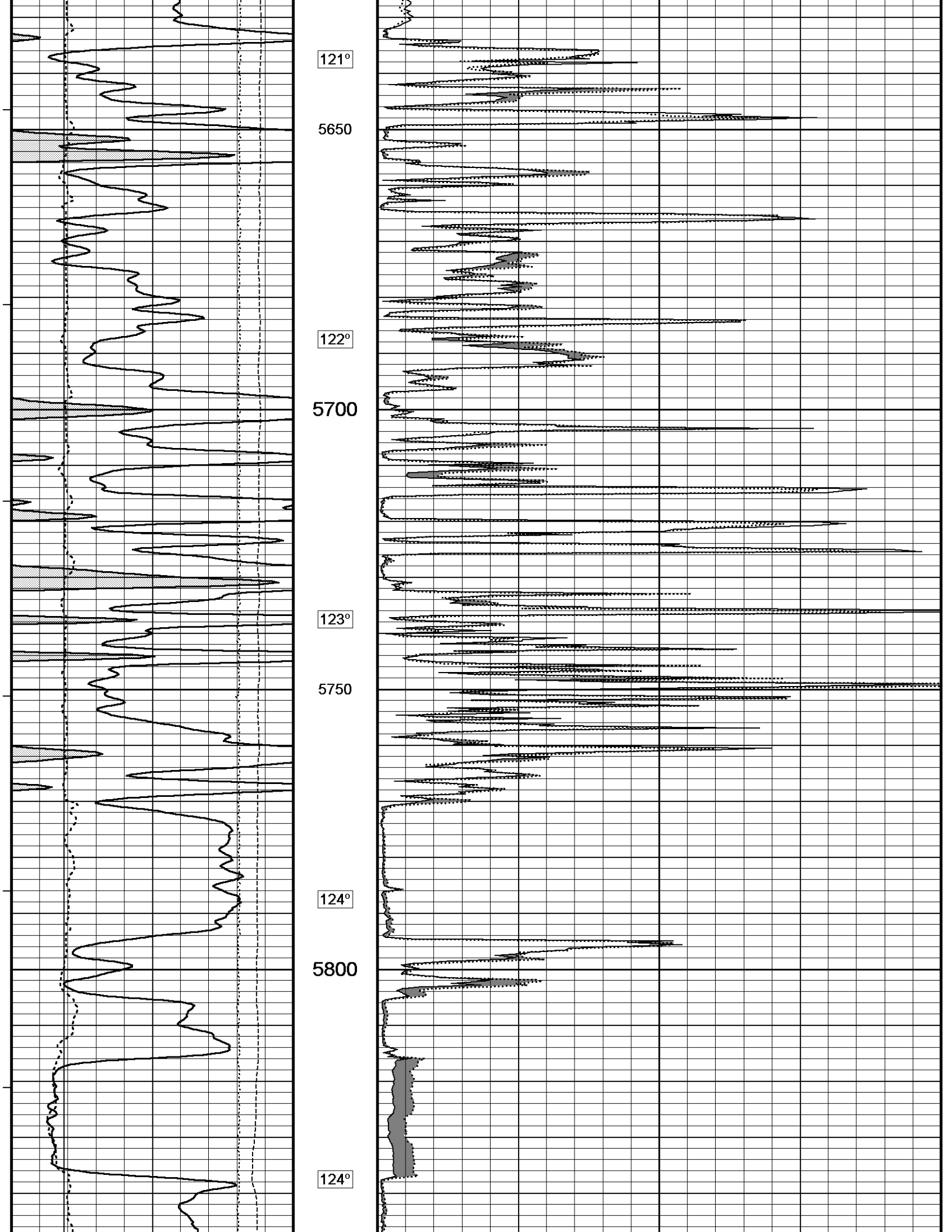

111°
4550
112°
4600
112°
4650
113°
4700
113°
Bit Size

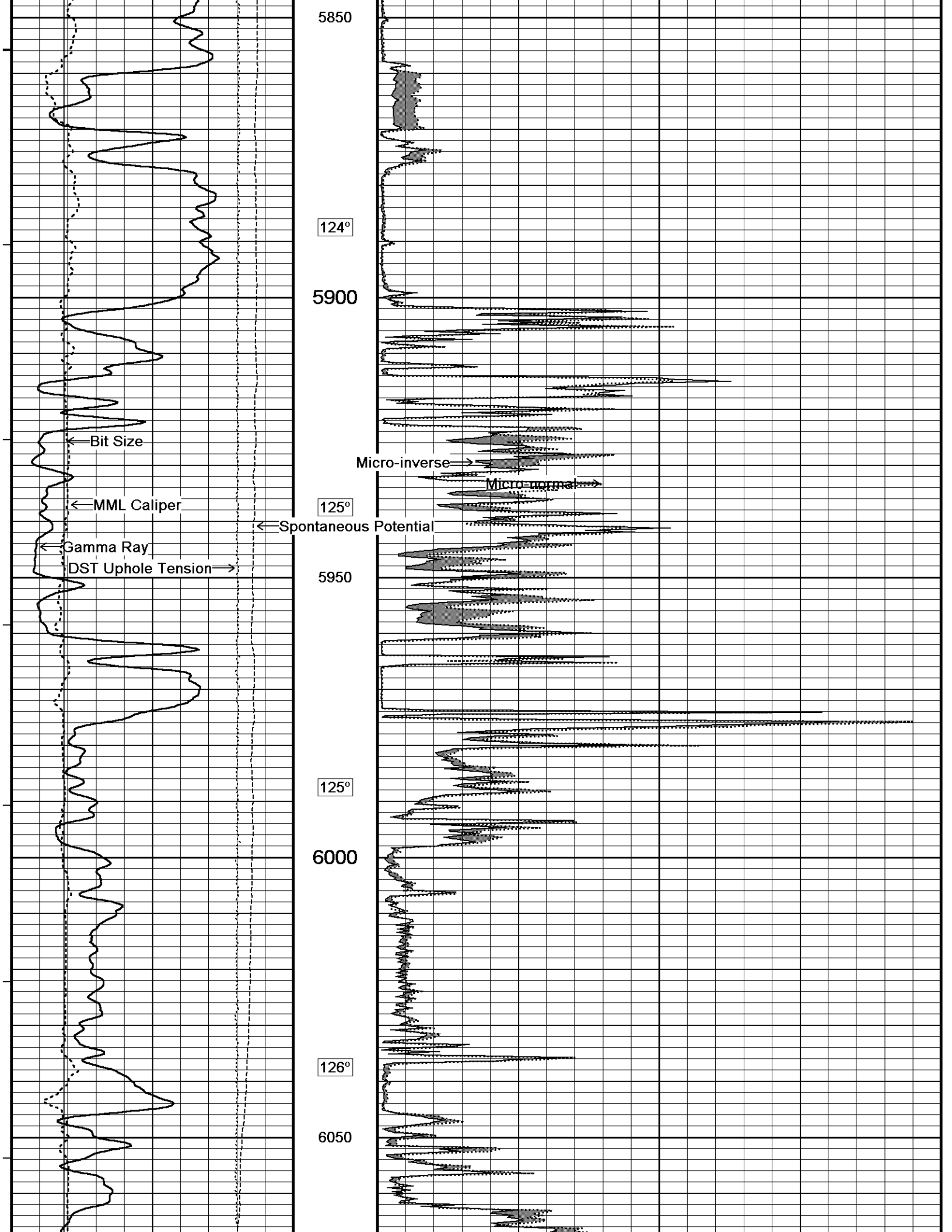

Micro-inverse
4750
Micro-normal
MML Caliper
Spontaneous Potential
Gamma Ray
DST Uphole Tension
114°
4800
114°
4850
114°
4900
115°
4950

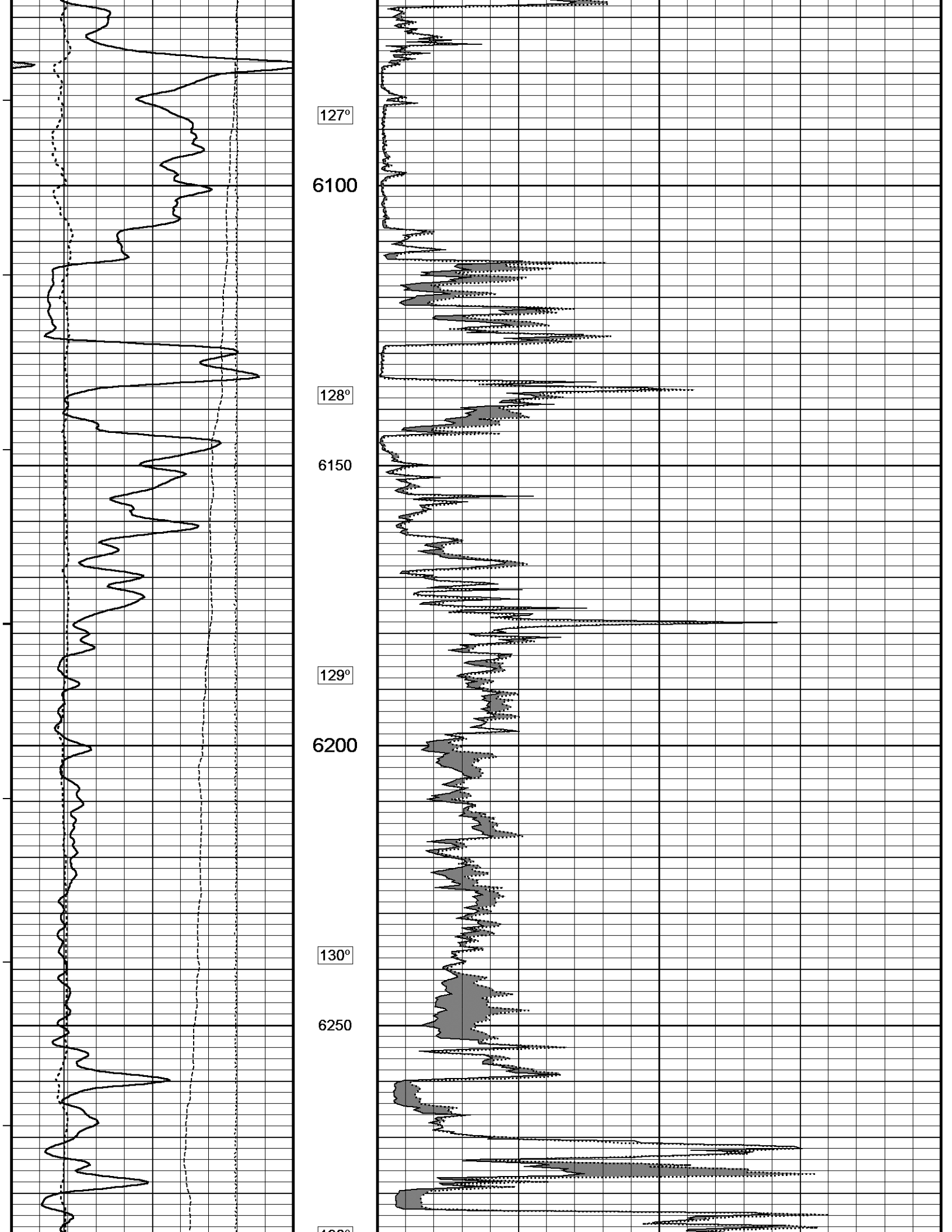

115°
5000
116°
5050
116°
5100
117°
5150
Bit Size
MML Caliper
Gamma Ray
DST Uphole Tension
Micro-inverse
Micro-normal
Spontaneous Potential

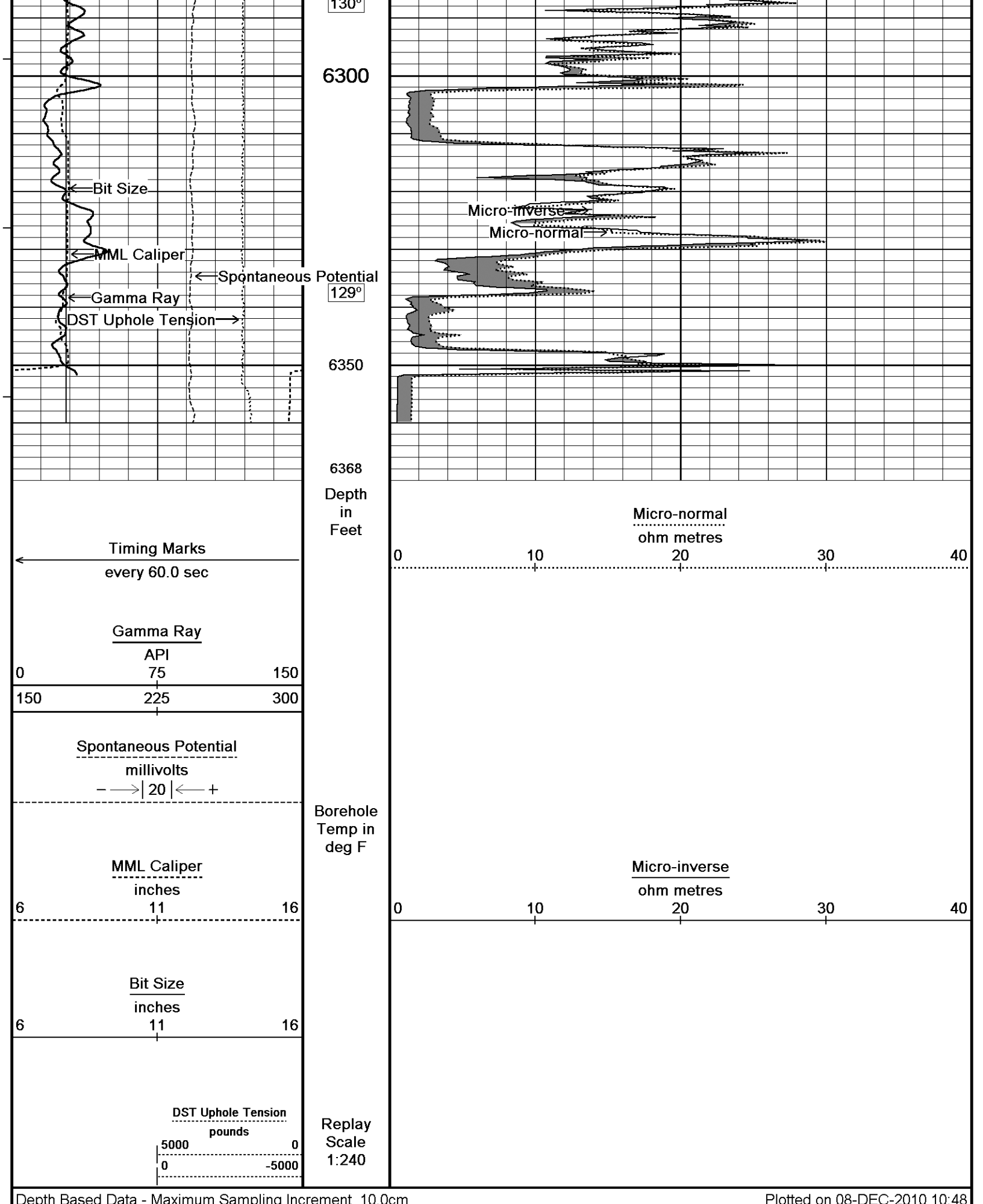

117°
5200
118°
5250
118°
5300
119°
5350
119°
5400


120°
5450
120°
5500
Bit Size
Micro-inverse
120°
Micro-normal
MML Caliper
Spontaneous Potential
5550
DST Uphole Tension
121°
5600


121°
5650
122°
5700
123°
5750
124°
5800
124°


5850
124°
5900
Bit Size
Micro-inverse
Micro-normal
MML Caliper
125°
Spontaneous Potential
Gamma Ray
DST Uphole Tension
5950
125°
6000
126°
6050


127°
6100
128°
6150
129°
6200
130°
6250



Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 08-DEC-2010 10:48
Filename: C:\DOCUME~1\ScheffJL\LOCALS~1\Temp\Weatherford PreView\0\VAIL #1-30_006.dta
Recorded on 07-DEC-2010 21:12
System Versions: Logged with 11.01.2198 Processed with 11.01.2198 Plotted with 11.02.2164

5 Inch Main

5 Inch Main

Repeat Section

Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 08-DEC-2010 10:48
Filename: C:\DOCUME~1\ScheffJL\LOCALS~1\Temp\Weatherford PreView\0\VAIL #1-30_005.dta
Recorded on 07-DEC-2010 20:59
System Versions: Logged with 11.01.2198 Processed with 11.01.2198 Plotted with 11.02.2164

Timing Marks
every 60.0 sec

Gamma Ray
API
0 75 150
150 225 300

Spontaneous Potential
millivolts
− → | 20 | ← +

MML Caliper
inches
6 11 16

Bit Size
inches
6 11 16

DST Uphole Tension
pounds
5000 0
0 -5000

Depth in Feet

Borehole Temp in deg F

Replay Scale 1:240

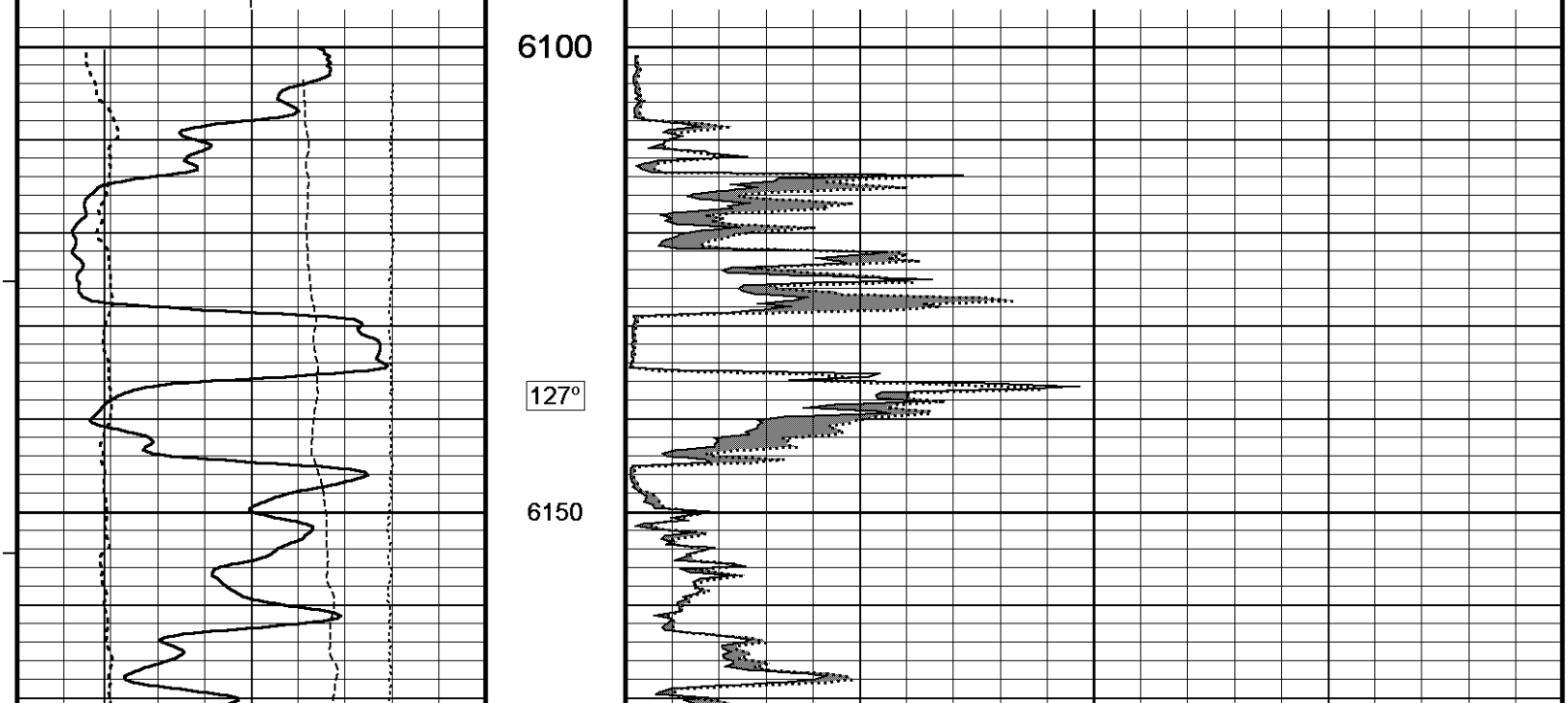
6100

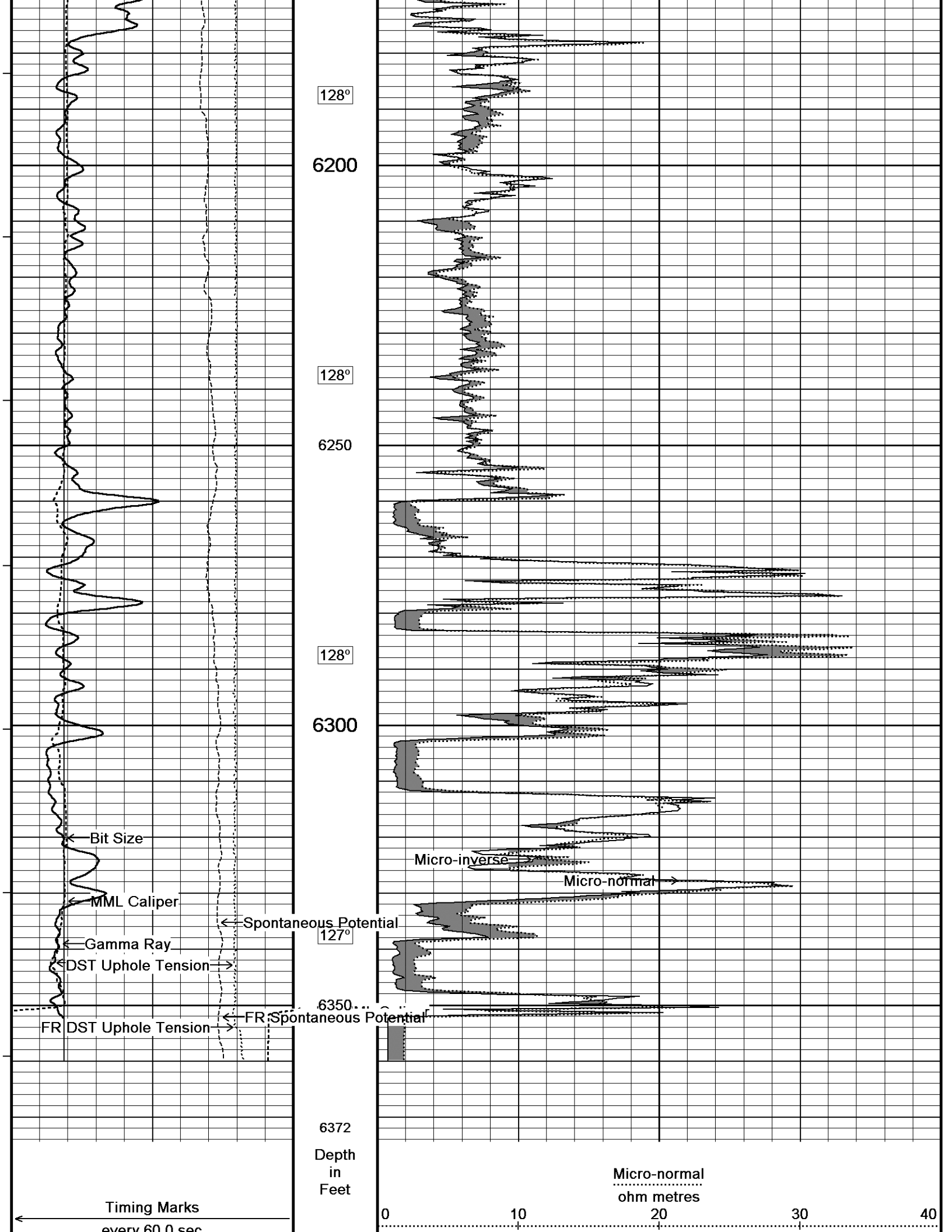
127°

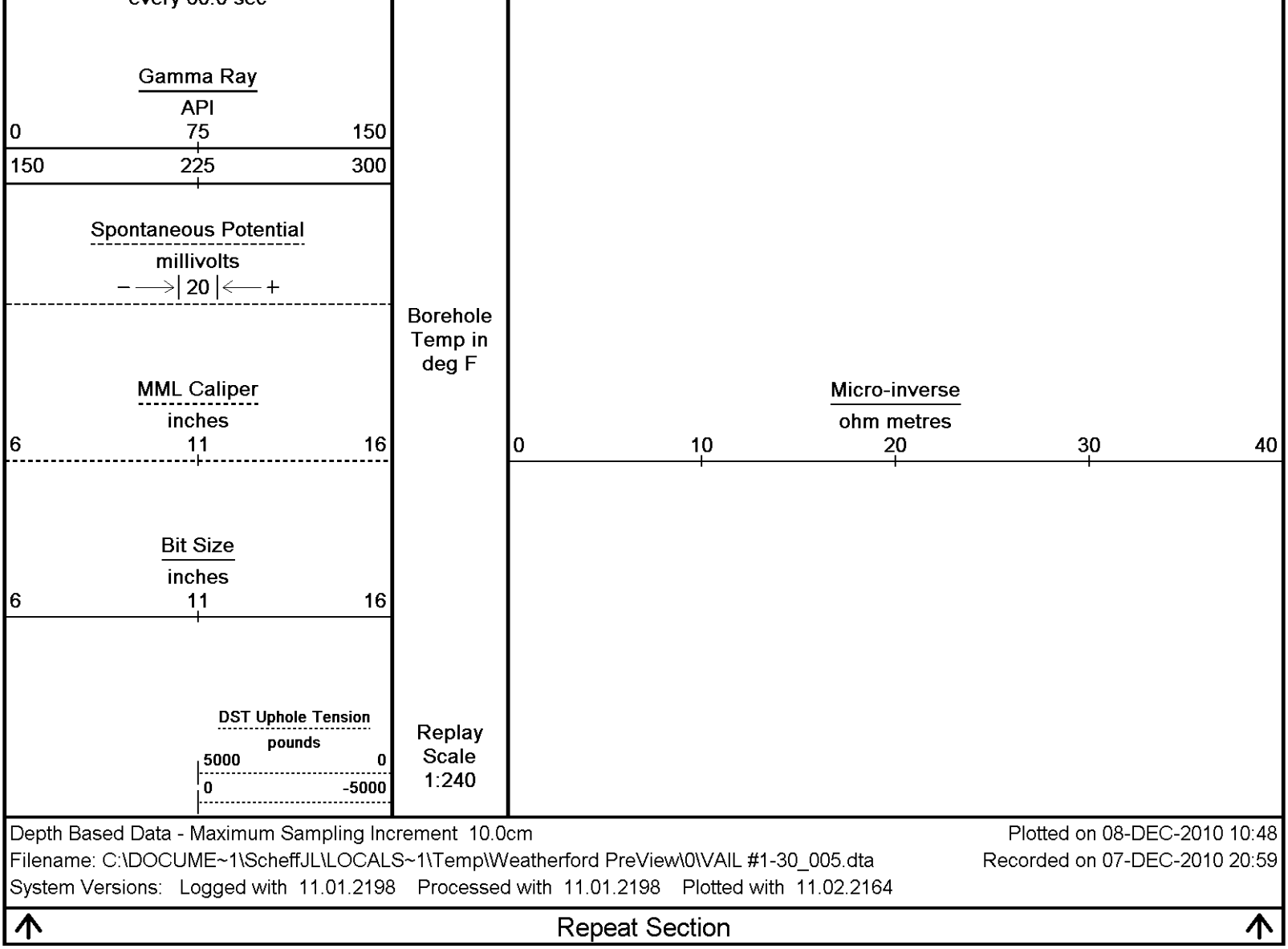
6150

Micro-normal
ohm metres
0 10 20 30 40

Micro-inverse
ohm metres
0 10 20 30 40




128°
6200
128°
6250
128°
6300
127°
6350
6372
Bit Size
MML Caliper
Gamma Ray
DST Uphole Tension
FR DST Uphole Tension
Spontaneous Potential
FR Spontaneous Potential
Micro-inverse
Micro-normal
Depth
in
Feet
Timing Marks
every 60.0 sec
Micro-normal
ohm metres
0
10
20
30
40



Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 08-DEC-2010 10:48

Filename: C:\DOCUME~1\ScheffJL\LOCALS~1\Temp\Weatherford PreView\0\VAIL #1-30_005.dta — Recorded on 07-DEC-2010 20:59

System Versions: Logged with 11.01.2198 Processed with 11.01.2198 Plotted with 11.02.2164

Repeat Section

BEFORE SURVEY CALIBRATION

C:\DOCUME~1\ScheffJL\LOCALS~1\Temp\Weatherford PreView\0\VAIL #1-30_005.dta

General Constants All 000

Last Edited on 07-DEC-2010,14:59

General Parameters		
Mud Resistivity	0.850	ohm-metres
Mud Resistivity Temperature	75.000	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	4.500	inches
Caliper for Differential Caliper	Density Caliper	
Rwa Parameters		
Porosity used	Limestone Density Por.	
Resistivity used	Array Ind. One Res Rt	
RWA Constant A	1.000	
RWA Constant M	2.000	

High Resolution Temperature Calibration MCG-B 67

Field Calibration on 06-AUG-2010,10:40

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

High Resolution Temperature Constants MCG-B 67

Last Edited on 06-AUG-2010,10:39

Pre-filter Length	11

SP Calibration MCG-B 67

Field Calibration on 09-SEP-2010 13:54

	Measured	Calibrated (mV)
Reference 1	104.1	100.0
Reference 2	-95.6	-100.0

Gamma Calibration MCG-B 67

Field Calibration on 02-DEC-2010 14:00

	Measured	Calibrated (API)
Background	65	45
Calibrator (Gross)	727	501
Calibrator (Net)	662	456

Gamma Constants MCG-B 67

Last Edited on 07-DEC-2010,15:00

Gamma Calibrator Number	grcc141	
Mud Density	1.10	gm/cc
Caliper Source for Processing	Density Caliper	
Tool Position	Eccentred	
Concentration of KCl	0.00	kppm

Micro Normal and Micro Inverse Calibration MML-A 16

Base Calibration on 02-AUG-2010 10:13
Field Check on 02-AUG-2010 10:22

Base Calibration

	Measured		Calibrated (ohm-m)	
Channel	Resistor 1	Resistor 2	Resistor 1	Resistor 2
Micro Normal	12.1	60.2	2.6	12.8
Micro Inverse	15.7	78.5	1.7	8.4

Channel	Base Check (ohm-m)	Field Check (ohm-m)
Micro Normal	32.2	32.2
Micro Inverse	16.3	16.3

Micro Normal and Micro Inverse Constants MML-A 16

Last Edited on 02-AUG-2010,10:08

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

Caliper Calibration MML-A 16

Base Calibration on 02-AUG-2010 10:25
Field Calibration on 02-AUG-2010 10:26

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	13663	5.96
2	17133	7.98
3	20563	9.95
4	24412	11.91
5	0	0.00
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
5.99	5.96

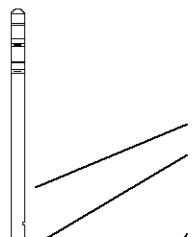
DOWNHOLE EQUIPMENT

C:\DOCUME~1\ScheffJL\LOCALS~1\Temp\Weatherford PreView\0\VAIL #1-30_005.dta

MCB-A.A 11B Tension Cablehead
MCB-A.A 2 LG: 2.40 ft WT: 19.8 lb OD: 2.24 in

Compact Comms Gamma
MCG-B 67 LG: 8.70 ft WT: 63.9 lb OD: 2.24 in

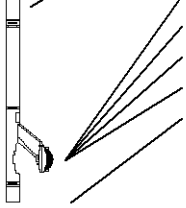
Compact Micro-log



9.63 ft GRGC - Gamma Ray
6.72 ft CGXT - MCG External Temperature
0.00 ft MINV - Micro-inverse

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

Total Length: 19.06 ft Weight: 165.3 lb



0.00 ft MNRL - Micro-normal
0.99 ft MLTC - MML Caliper
Tool Zero (1.89ft from bottom)
-1.89 ft SMTU - DST Uphole Tension
All measurements relative to tool zero.

COMPANY	O' BRIEN ENERGY
WELL	VAIL #1-30
FIELD	SINGLEY
PROVINCE/COUNTY	MEADE
COUNTRY/STATE	U.S.A./KANSAS

Elevation Kelly Bushing	2679.00	feet	First Reading	6319.00	feet
Elevation Drill Floor	2678.00	feet	Depth Driller	6351.00	feet
Elevation Ground Level	2667.00	feet	Depth Logger	6354.00	feet

Weatherford®

MICRO RESISITIVITY LOG

40 Years of Wireline 1970 2010