KANSAS CORPORATION COMMISSION
OIL & GAS CONSERVATION DIVISION

1051360

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: NCRA REFINERY, DCP MIDSTREAM

Designate Type of Completion:

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

- [ ] Oil
- [ ] WSW
- [ ] SWD
- [ ] SIOW
- [ ] Gas
- [ ] D&A
- [ ] ENHR
- [ ] SIGW
- [x] 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 #:

12/28/2010	1/7/2011	2/12/2011
Spud Date or Recompletion Date	Date Reached TD	Completion Date or Recompletion Date

API No. 15 - 15-119-21276-00-00
Spot Description:
_ - S2 - SE - SE Sec. 8 Twp. 33 S. R. 29 [ ] East [x] West
330 Feet from [ ] North / [x] South Line of Section
660 Feet from [x] East / [ ] West Line of Section
Footages Calculated from Nearest Outside Section Corner:
[ ] NE [ ] NW [x] SE [ ] SW
County: Meade
Lease Name: CROOKED CREEK Well #: 2-8
Field Name:
Producing Formation: MORROW
Elevation: Ground: 2668 Kelly Bushing: 2680
Total Depth: 6290 Plug Back Total Depth:
Amount of Surface Pipe Set and Cemented at: 1491 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: 4200 ppm Fluid volume: 250 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

1051360

Operator Name: O'Brien Energy Resources Corp. Lease Name: CROOKED CREEK Well #: 2-8

Sec. 8 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	12.2500	8.5	24	1491	ACON/PREMIUM	800	3%CaCl,.25#FLOSEAL
PRODUCTION	7.8750	4.5	10.5	6246	AA2	180	

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	5825-5834	Acidize w/2000 gals NEFE 5% HCL 90 ball sealers	Perfs
2	5798-5821	Frac w/30,000# 20/40 mesh brady sand, 1238 bbls gelled wtr	Perfs

TUBING RECORD: Size: 2.375 Set At: 5778 Packer At: 5714
Liner Run: ☐ Yes ☑ No

Date of First, Resumed Production, SWD or ENHR. 2/12/2011

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

Estimated Production Per 24 Hours	Oil Bbls.	Gas Mcf	Water Bbls.	Gas-Oil Ratio	Gravity
	122	100	18	869	

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:
5825-5834
5798-5821

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	CROOKED CREEK 2-8
Doc ID	1051360

All Electric Logs Run

MICRO RESISTIVITY
ARRAY INDUCTION
COMPENSATED NEUTRON DENSITY
SONIC CEMENT BOND

Form	ACO1 - Well Completion
Operator	O'Brien Energy Resources Corp.
Well Name	CROOKED CREEK 2-8
Doc ID	1051360

Tops

Name	Top	Datum
HEEBNER	4467	-1787
LANSING	4610	-1930
MARMATON	5272	-2592
CHEROKEE	5448	-2768
MORROW	5767	-3087
CHESTER	5906	-3226
STE. GENEVIEVE	6139	-3459
ST. LOUIS	6222	-3542

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 15-119-21276-00-00
CROOKED CREEK 2-8
SE/4 Sec.08-33S-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
Liberal, Kansas

Cement Report

Customer O'Brien Energy	Lease No.		Date 1-7-11
Lease Crooked Creek	Well # 2-7	Service Receipt 1717 01428	
Casing 4½	Depth	County Meade	State Ks
Job Type 742 4½ LS	Formation	Legal Description 8-33-29	

Pipe Data		Perforating Data		Cement Data
		Shots/Ft		Lead 180sk AA2-5% w-60-10% salt-.6% C-15-¼#D-foamer-5#Gilsonite @ 1.59 ft³/sk 6.64 gal/sk @ 14.8#
Casing size 4½	Tubing Size			
Depth 6290	Depth	From	To	
Volume	Volume	From	To	
Max Press	Max Press	From	To	Tail in Plug Rat + Mouse 50sk Premium Neat 1.15 ft³/sk 6.4 gal/sk @ 15.6#
Well Connection	Annulus Vol.	From	To	
Plug Depth 6244	Packer Depth	From	To	

Time	Casing Pressure	Tubing Pressure	Bbls. Pumbed	Rate	Service Log
11:00					onloc, Held Safety Meeting
					Bulk on loc.
12:00					Spot + Rig up Equip.
13:30					Tsg. on Bottom / Circ. w/Rig
14:10	2000				Test Pump + Lines
14:13	300		3	3.5	Start H2O Ahead
14:14	300		12	4	Start Mud Flush
14:17	400		3	4	Start H2O
14:18	400		49	5	Start Cmt 180sk @ 14.8#
14:28					Shutdown + Washup
14:33					Drop Plug
14:34	200		0	5.3	Start Disp. w/ 2% KCL
14:46	600		89	3	Slow Rate
14:54	1300		99	3	Bump Plug
14:56	0		99	0	Release / Float Held
15:00					Rig down Head + Manifold
15:15					Rig laying down Rat + Mouse
16:00	100		5	2	Plug Rat Hole w/ 25sk @ 15.6#
16:10	100		5	2	Plug Mouse Hole w/ 25sk @ 15.6#
16:20					Wash Pump + Lines
16:30					End Job
	750				Pressure Before Plug landed

Service Units	21955	19808/19553				
Driver Names	Cochran	Gibson	Mendoza			

R. Pearson
Customer Representative

J. Kunst
Station Manager

M. Cochran
Cementer

Taylor Printing, Inc.

BASIC ENERGY SERVICES
Liberal, Kansas

Cement Report

Customer: [illegible] Energy	Lease No.:	Date: 11-29-10	
Lease: [illegible] Creek	Well #: 2-8	Service Receipt: [illegible]	
Casing: 8 5/8" 24#	Depth: 1188	County: Meade	State: Ks
Job Type: 8 5/8 Surface	Formation:	Legal Description: 8-33-29	

Pipe Data				Perforating Data		Cement Data
Casing size	8 5/8 24#	Tubing Size		Shots/Ft		Lead: 600sk [illegible] 3% CC [illegible] @ 11.4#/gal
Depth	1188	Depth		From	To	
Volume	92 bbl	Volume		From	To	
Max Press		Max Press		From	To	Tail in: 200sk [illegible] 2% CC [illegible] @ 14.8#/gal
Well Connection		Annulus Vol.		From	To	
Plug Depth	1146	Packer Depth		From	To	

Time	Casing Pressure	Tubing Pressure	Bbls. Pumbed	Rate	Service Log
11:[illegible]					On location Held Safety Meeting
11:30					Start Csg [illegible]
11:45					Csg on Bottom [illegible]
12:18	2500				Test Pump + Lines
12:[illegible]	450		10	5	Start [illegible] w/ [illegible]
12:23	450		315	5	Start Lead cmt 600sk @ 11.4#
[illegible]			48	4	Start Tail cmt 200sk @ 14.8#
[illegible]					Shutdown + Drop Plug
1:11	60		0	4	Start Disp. w/ fresh H2O
1:02	100		82	2	Slow Rate
1:07	100		92	02	Bump Plug
1:09	—		92	0	Release [illegible] Held
1:15					End Job
	550				Pressure Before Plug landed
					Circulated CMT to the Pit

Service Units	21755	27808 19553	19805 19808	19815 19578		
Driver Names	Cochran	T. [illegible]	E. [illegible]	K. Vasquez		

K. [illegible] — Customer Representative
J. Bennett — Station Manager
M. Cochran — Cementer

Taylor Printing, Inc.

COMPACT PHOTO DENSITY
COMPENSATED NEUTRON

Weatherford®

COMPANY	O'Brien Energy
WELL	Crooked Creek #2-8
FIELD	Unknown
PROVINCE/COUNTY	Meade
COUNTRY/STATE	U.S.A. / Kansas
LOCATION	330' FSL & 660' FEL

40 Years of Wireline 1970 2010

SEC	TWP	RGE
8	33S	29W

Other Services
MAI/MFE
MML

API Number 15-119-21276
Permit Number

Permanent Datum G.L., Elevation 2668 feet
Log Measured From K.B. @ 12 feet above Permanent Datum
Drilling Measured From K.B.

Elevations:	feet
KB	2680.00
DF	2679.00
GL	2668.00

Date	06-JAN-2011		
Run Number	One		
Depth Driller	6284.00	feet	
Depth Logger	6290.00	feet	
First Reading	6268.00	feet	
Last Reading	3950.00	feet	
Casing Driller	1488.00	feet	
Casing Logger	1443.00	feet	
Bit Size	7.875	inches	
Hole Fluid Type	Chemical		
Density / Viscosity	9.00 lb/USg	52.00 CP	
PH / Fluid Loss	10.50	6.40 ml/30Min	
Sample Source	Flowline		
Rm @ Measured Temp	1.37 @ 77.0	ohm-m	
Rmf @ Measured Temp	1.10 @ 77.0	ohm-m	
Rmc @ Measured Temp	1.64 @ 77.0	ohm-m	
Source Rmf / Rmc	calc	calc	
Rm @ BHT	0.88 @120.0	ohm-m	
Time Since Circulation	4 Hours		
Max Recorded Temp	120.00	deg F	
Equipment Name	Compact		
Equipment / Base	13025	LIB	
Recorded By	Steven Tottey		
Witnessed By	Roger Pearson		
S.O. # / Job #	3514444	LB10-002	

BOREHOLE RECORD

Last Edited: 06-JAN-2011 21:01

Bit Size inches	Depth From feet	Depth To feet
7.875	1443.00	6290.00

CASING RECORD

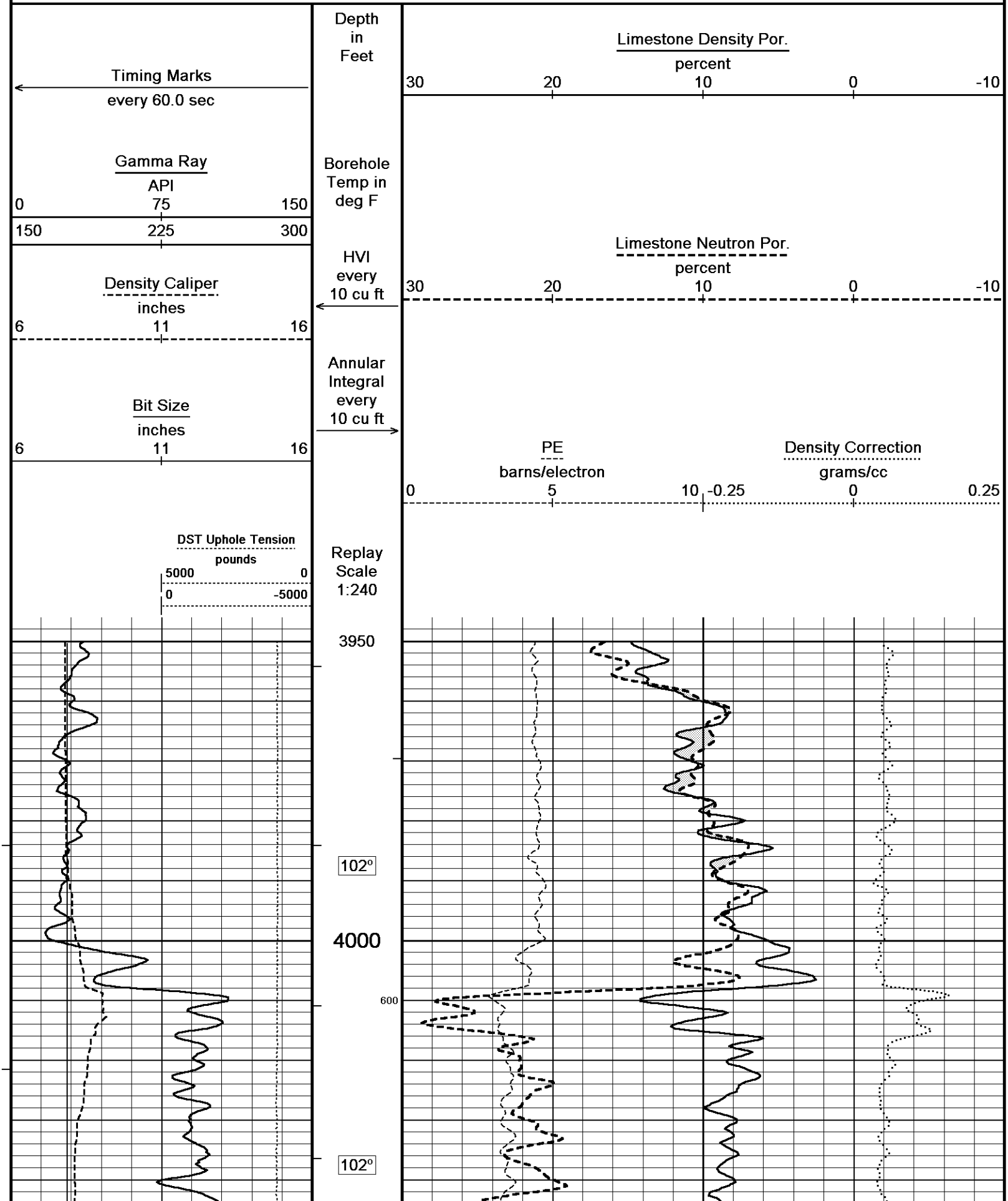
Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
Surface	8.625	0.00	1443.00	24.00

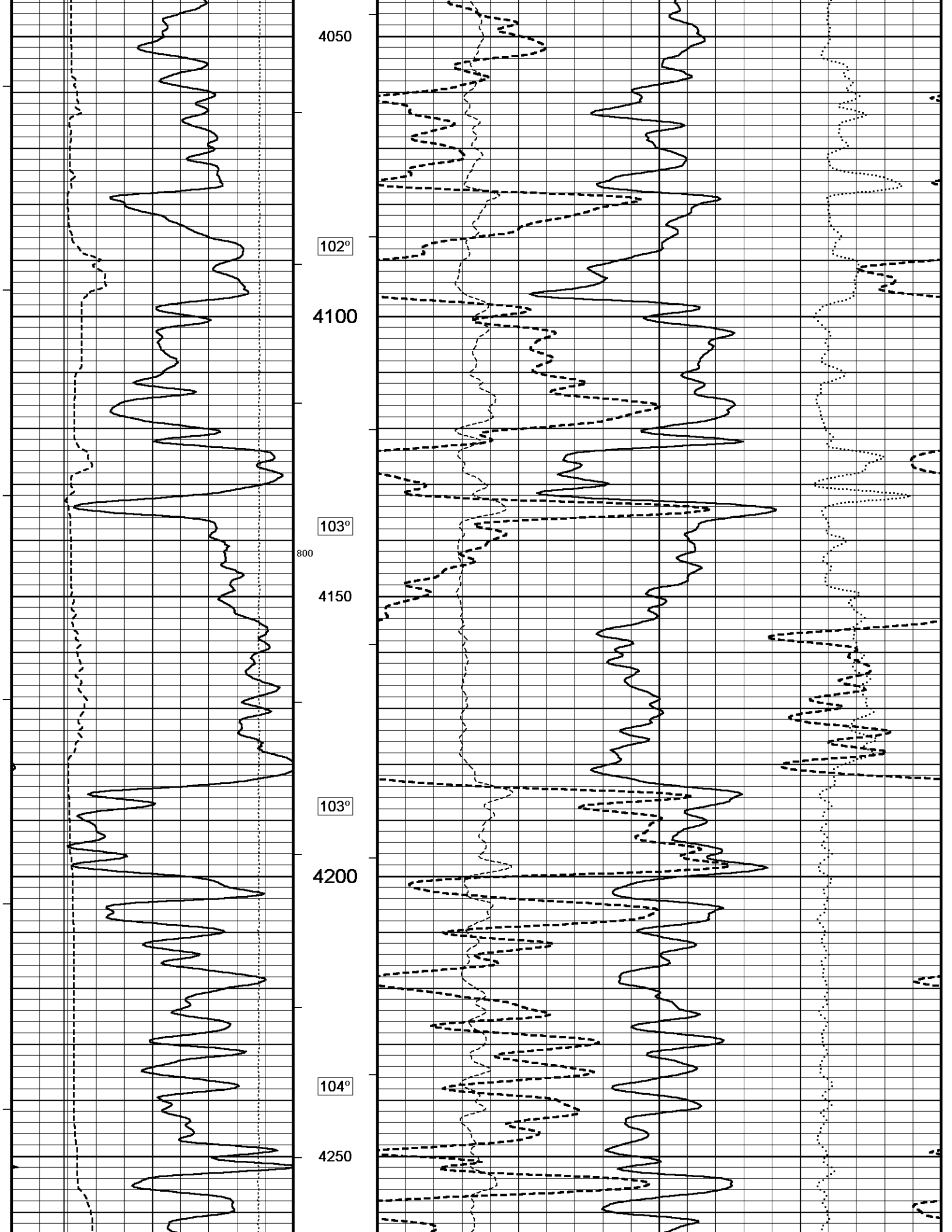
REMARKS

Tools Run: MAI, MPD, MCG, MDN, MFE, MML,
Hardware: MPD: 8 inch profile plate used. MAI and MFE: 0.5 inch standoffs used. MDN: Dual Eccentralizer 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:
Service order #3514444
Rig: Duke #6
Engineer(s): Steven Tottey
Operator: N. Adame
A loose joint was found at 1554 feet to 1600 feet

5 Inch Main

Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 28-FEB-2011 17:01
Filename: C:\Users\Joe\AppData\Local\Temp\Weatherford PreVie...\Crooked_003 spooled section.dta
Recorded on 06-JAN-2011 20:57
System Versions: Logged with 11.01.2198 Processed with 11.01.2198 Plotted with 11.02.2164

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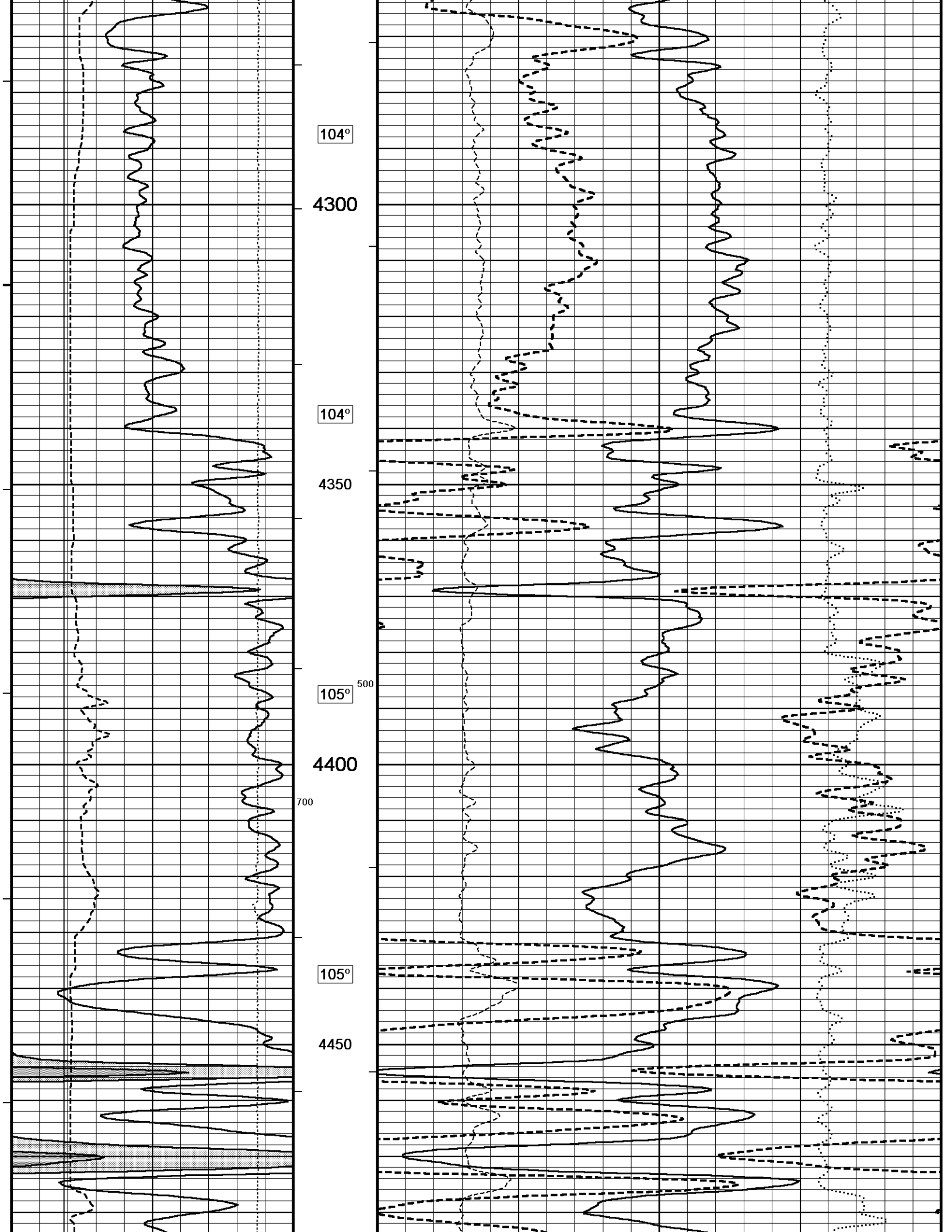
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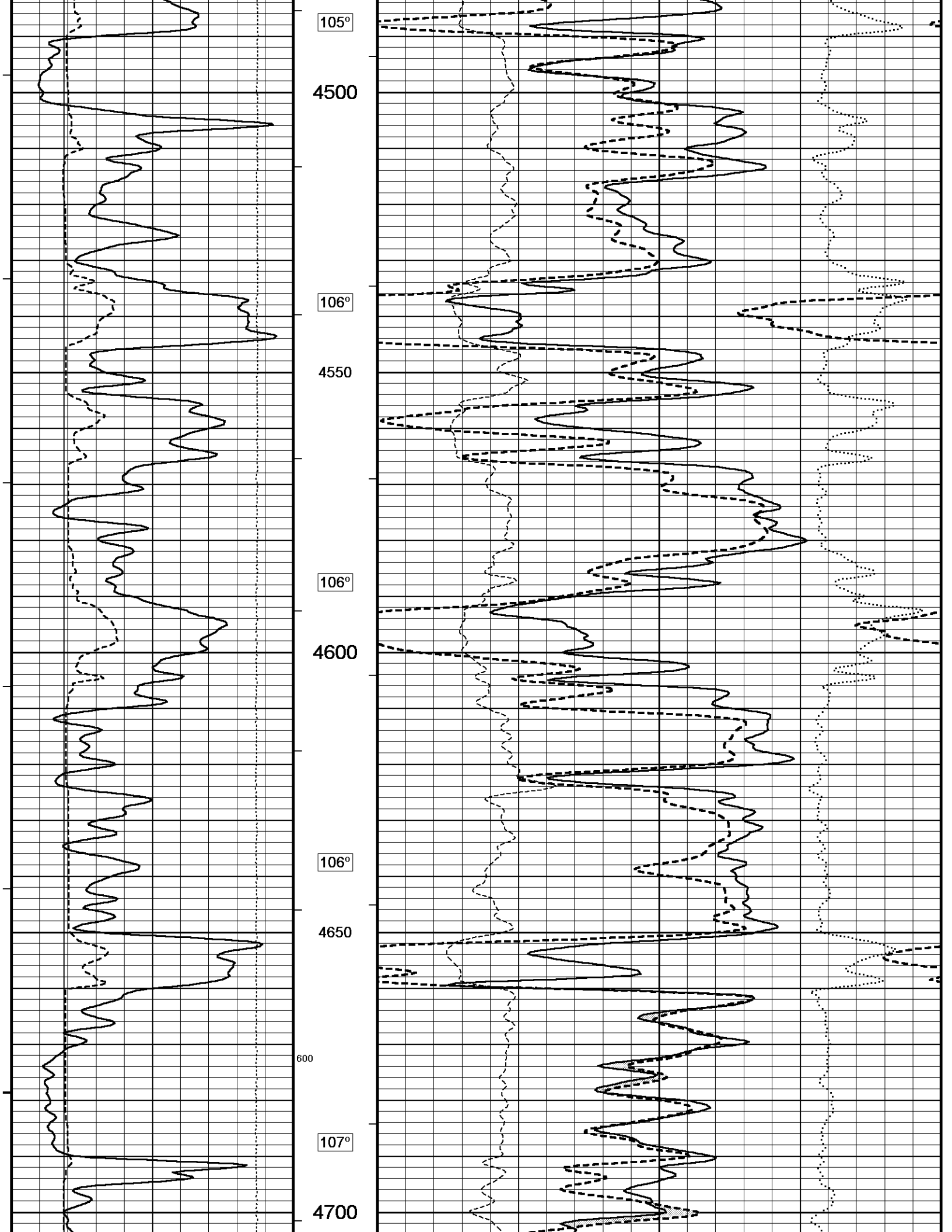
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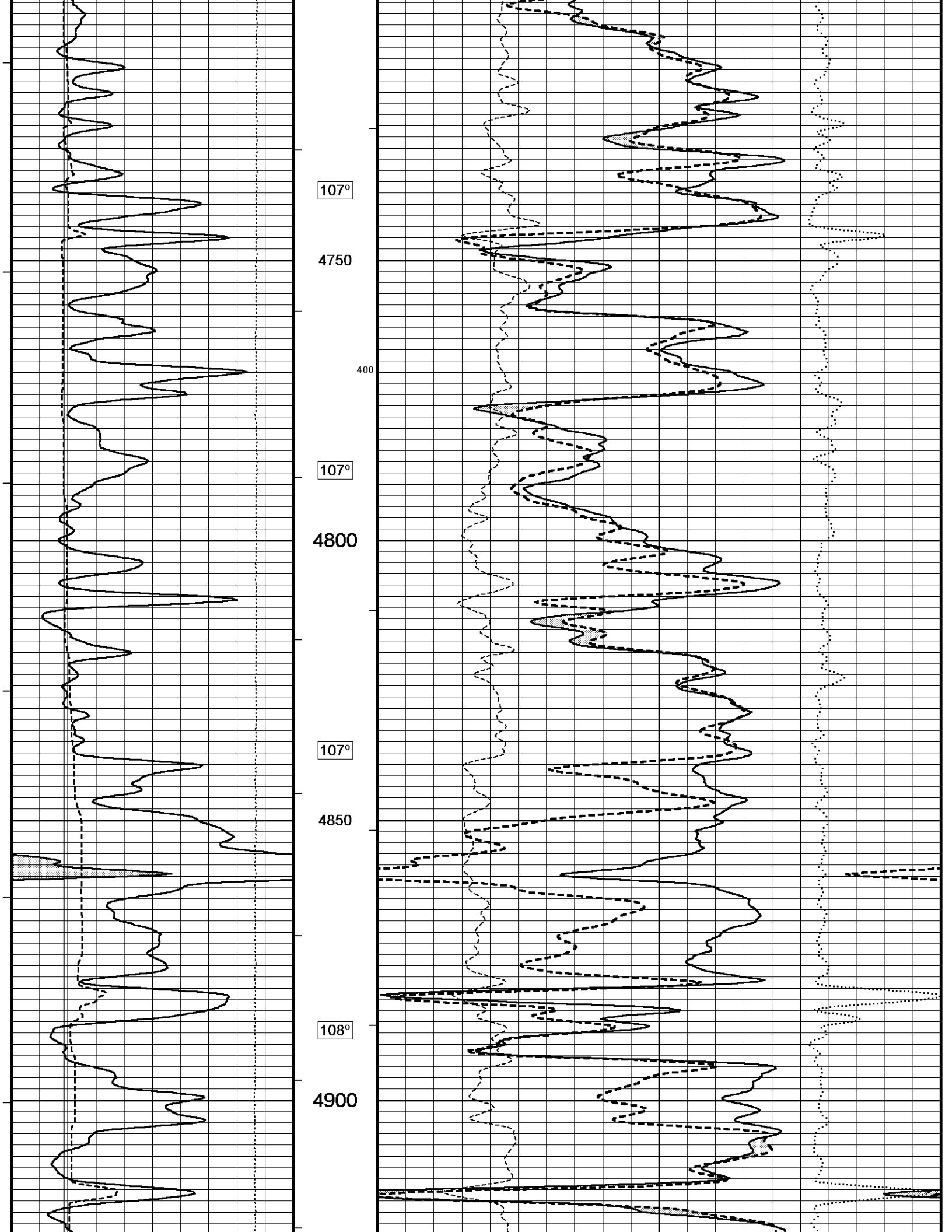
4650
600
107°
4700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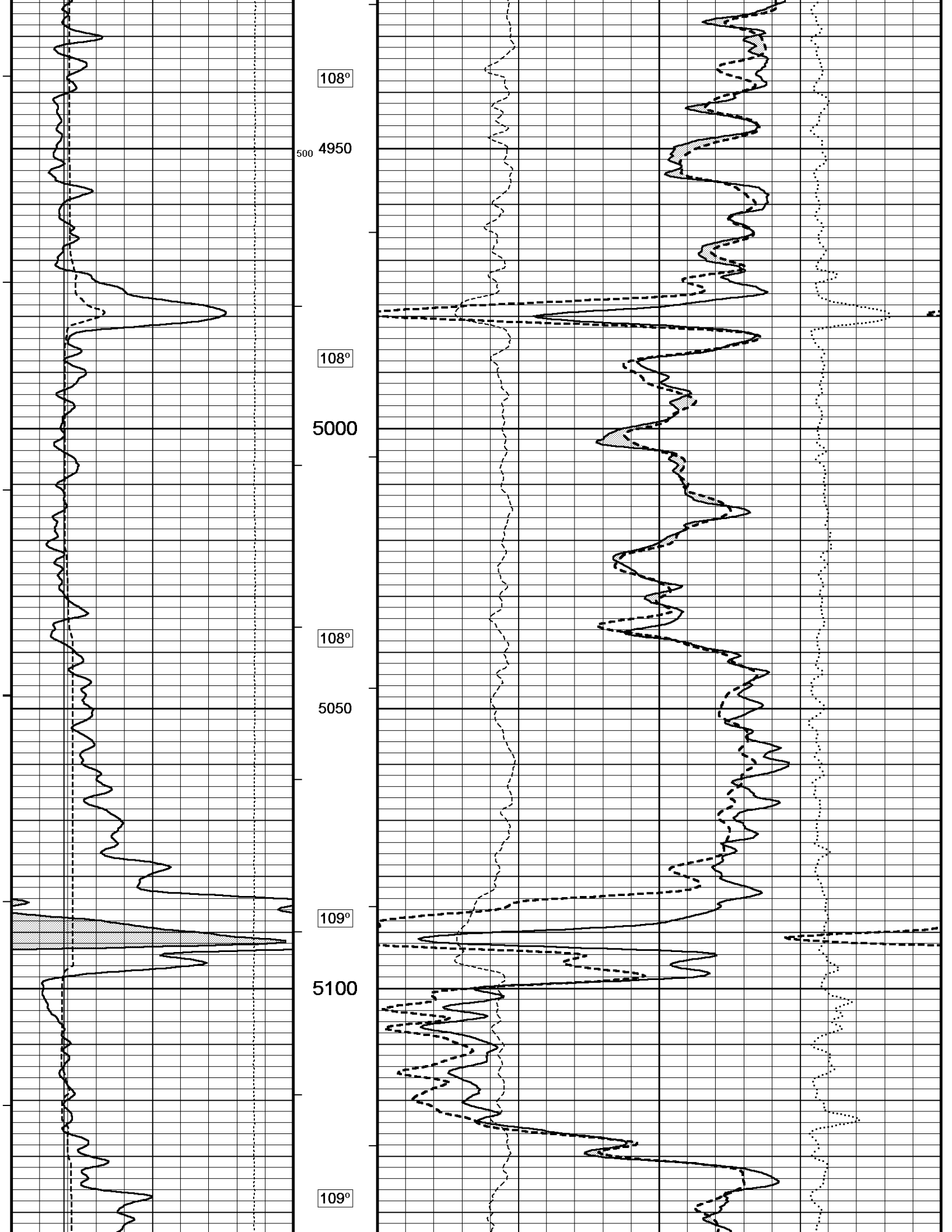
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5000
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5050
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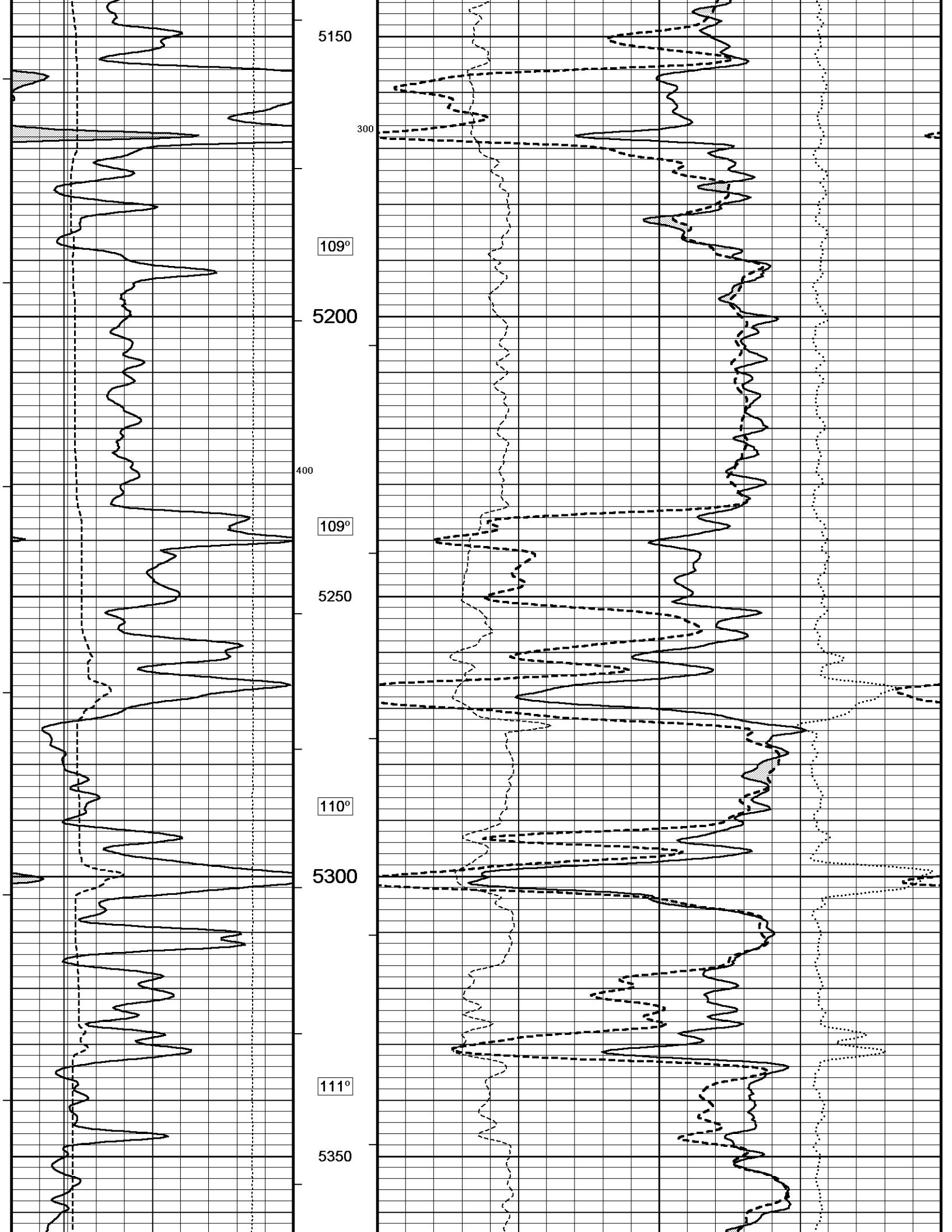
5100
109°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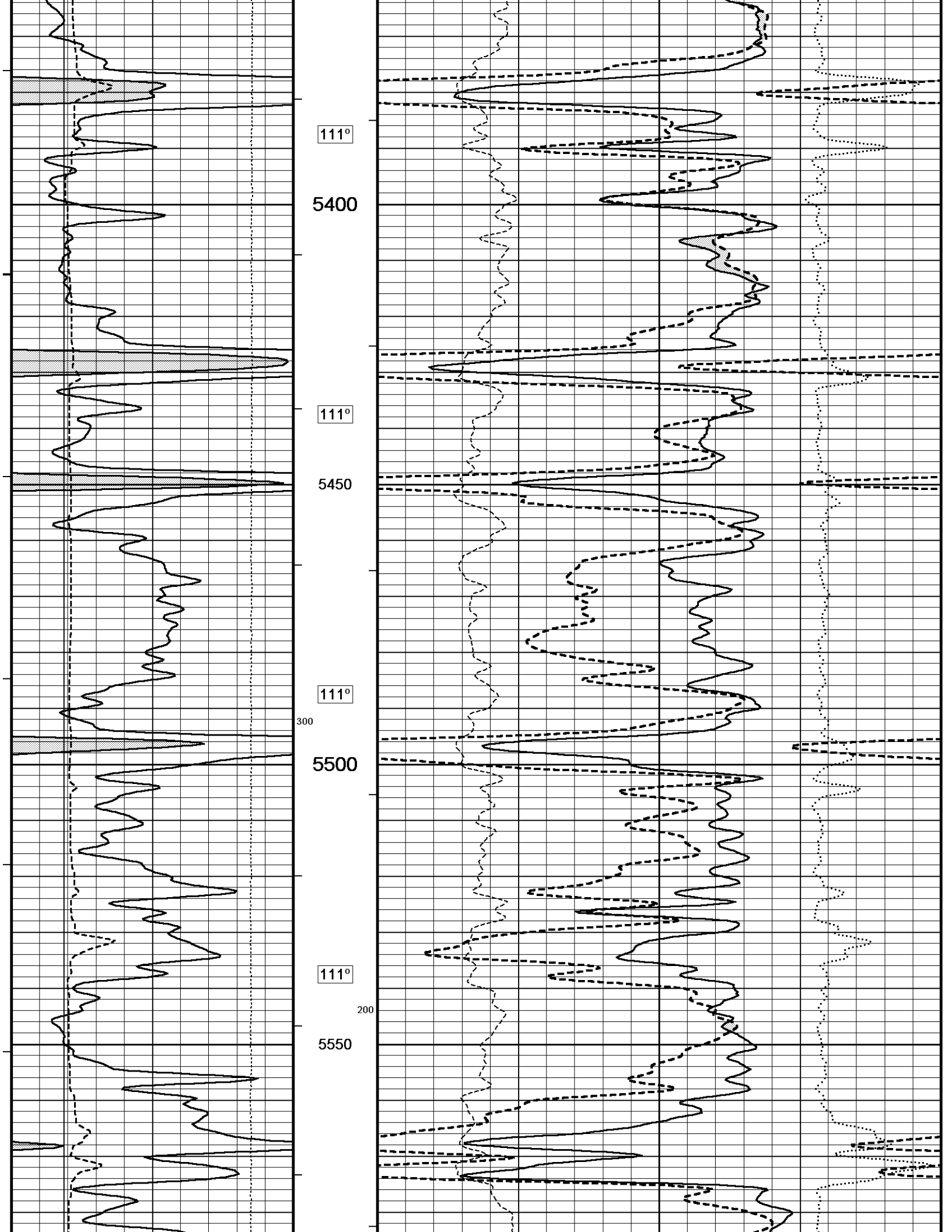
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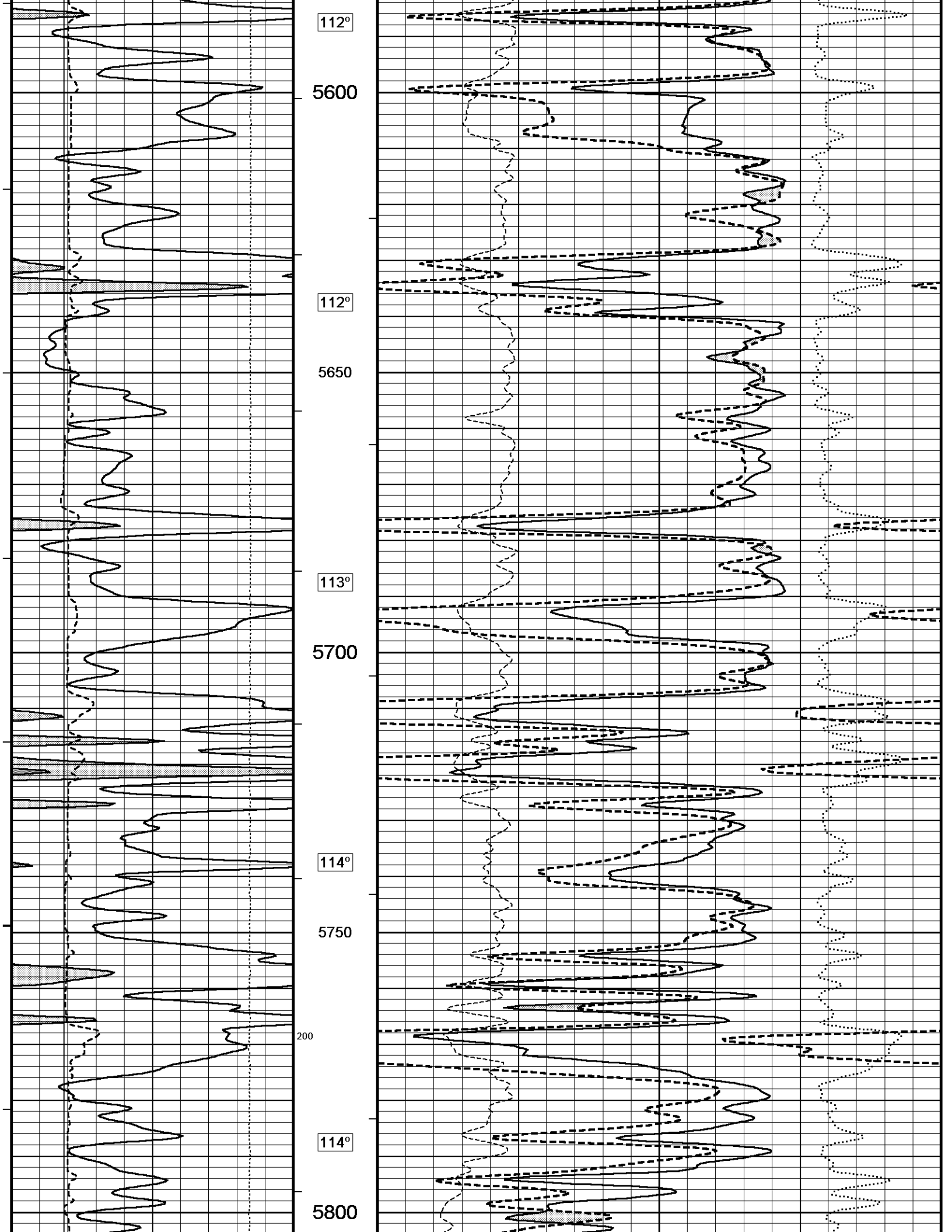
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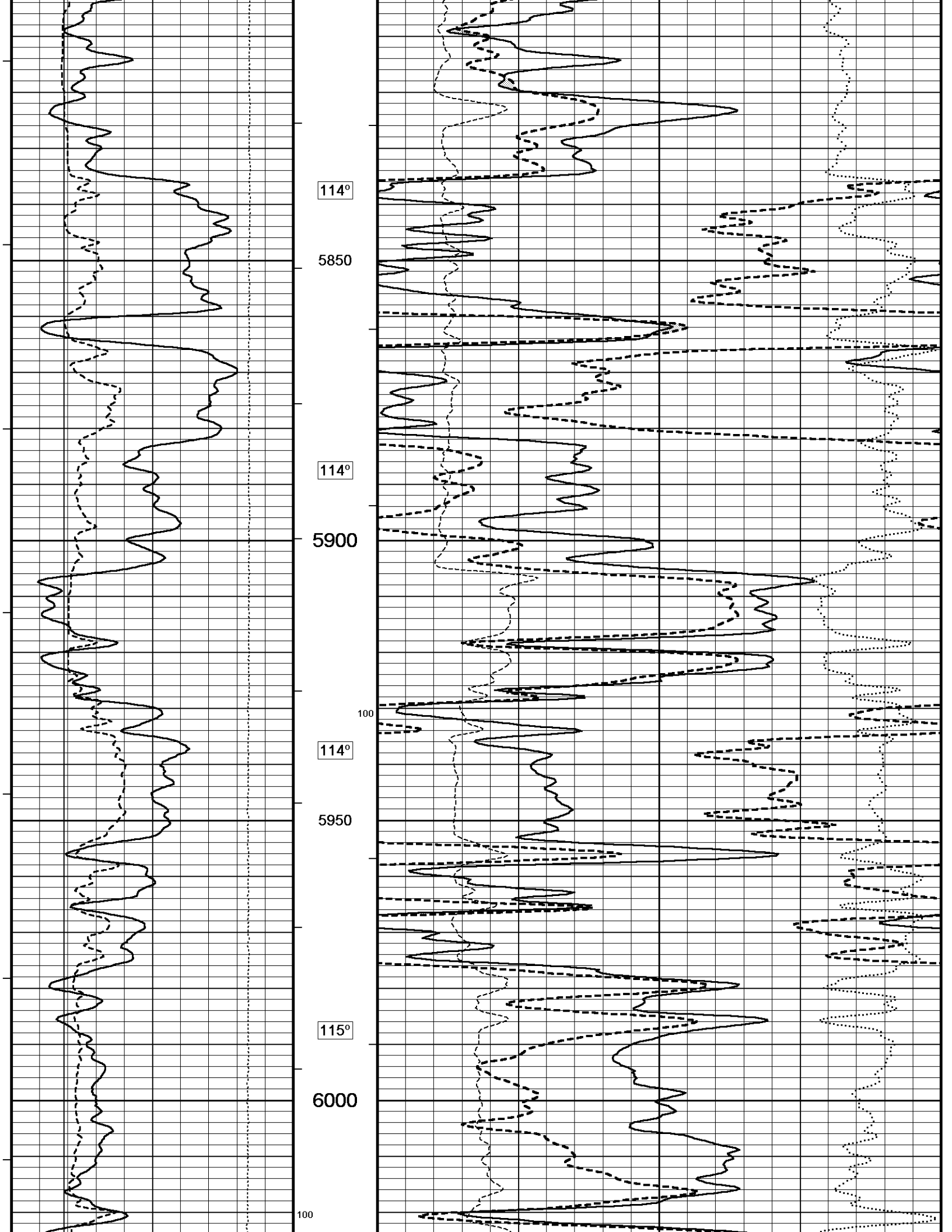
200
114°
5800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100
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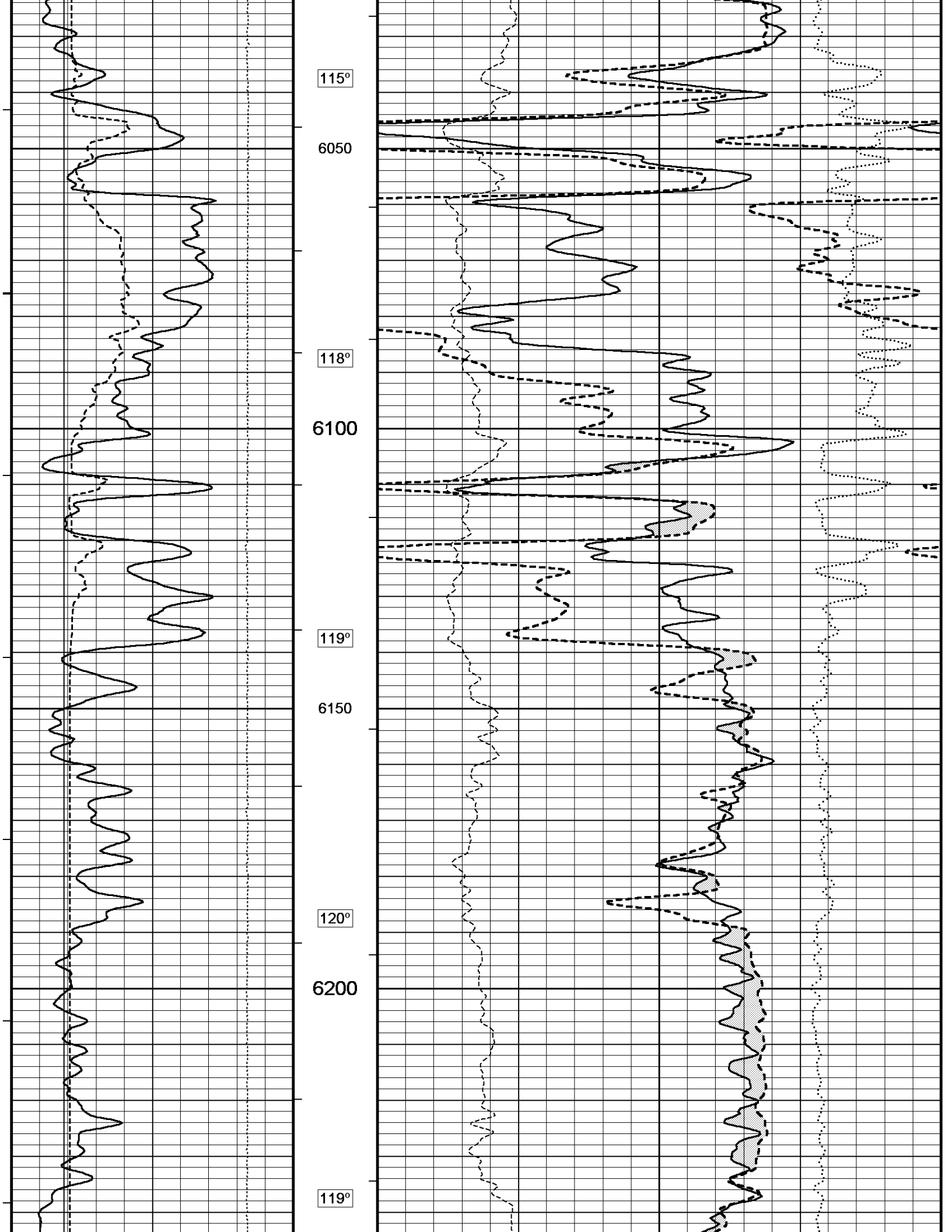
6000
100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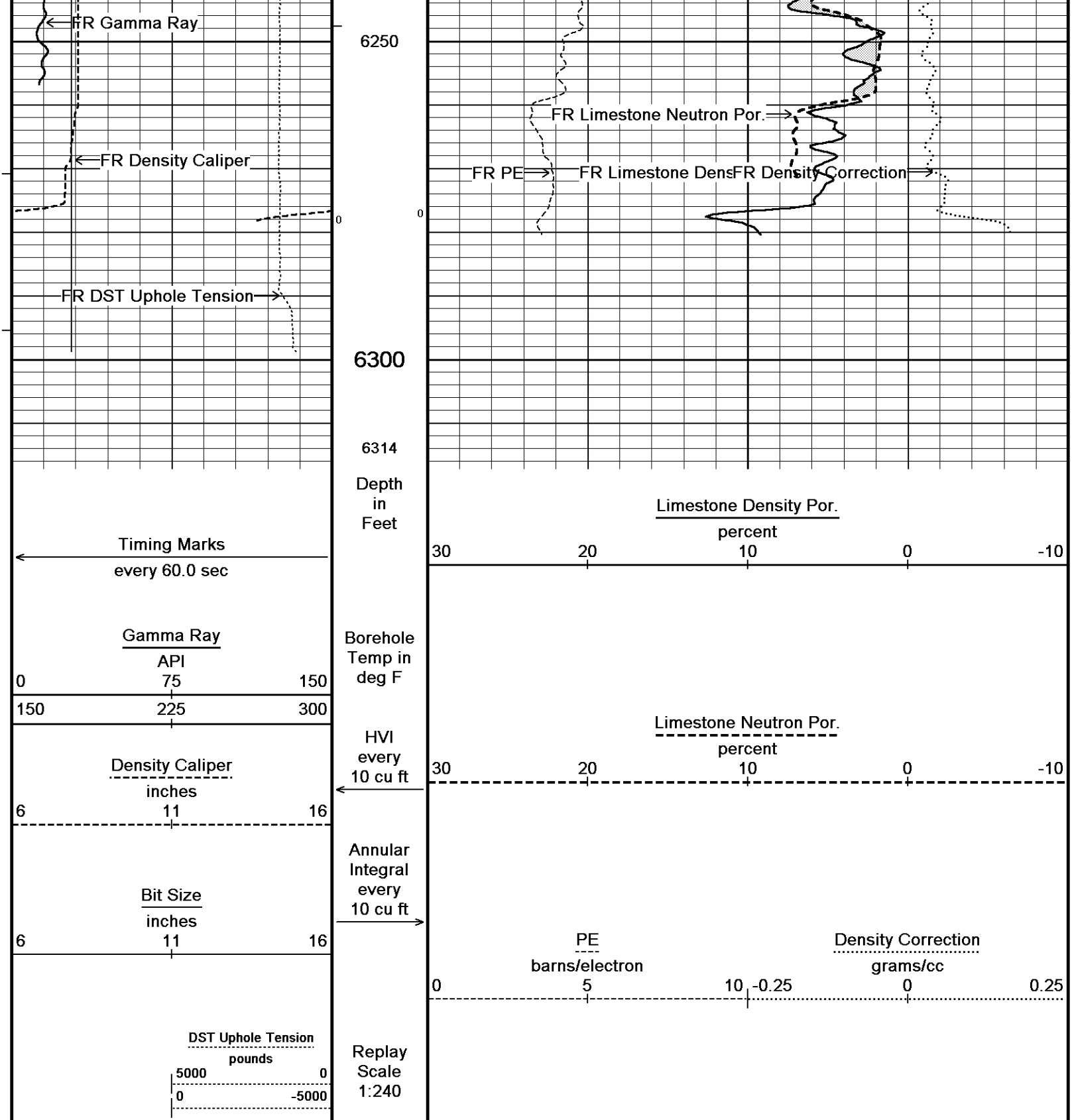
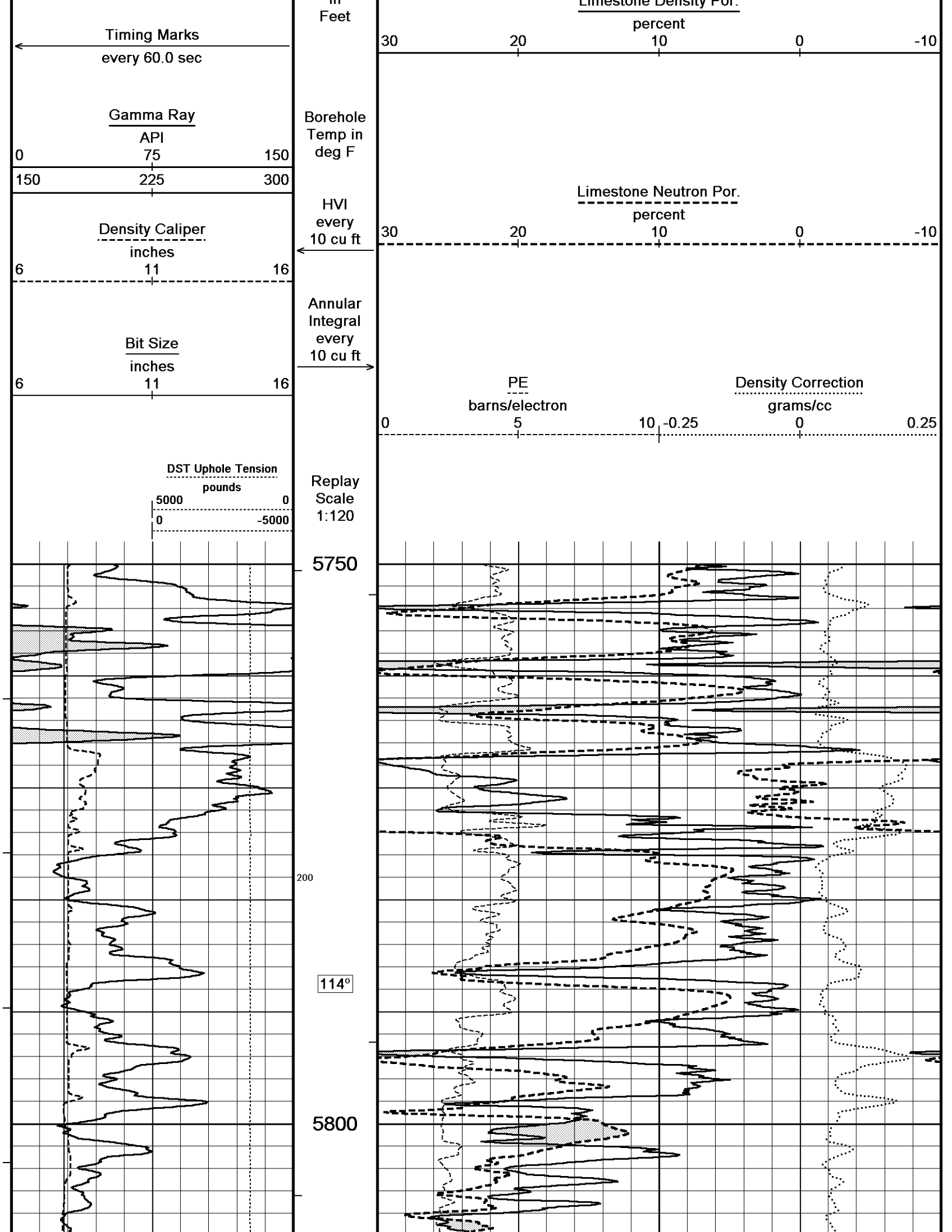


Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 28-FEB-2011 17:01
Filename: C:\Users\Joe\AppData\Local\Temp\Weatherford PreVie...\Crooked_003 spooled section.dta
Recorded on 06-JAN-2011 20:57
System Versions: Logged with 11.01.2198 Processed with 11.01.2198 Plotted with 11.02.2164

5 Inch Main

HI RES

Depth Based Data - Maximum Sampling Increment 2.5cm
Plotted on 28-FEB-2011 17:01
Filename: C:\Users\Joe\AppData\Local\Temp\Weatherford PreView\0\Crooked_001.dta
Recorded on 06-JAN-2011 18:48
System Versions: Logged with 11.01.2198 Plotted with 11.02.2164


Feet
Timing Marks
every 60.0 sec
Gamma Ray
API
0
75
150
150
225
300
Density Caliper
inches
6
11
16
Bit Size
inches
6
11
16
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
PE
barns/electron
0
5
10
Density Correction
grams/cc
-0.25
0
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pounds
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0
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Replay Scale 1:120
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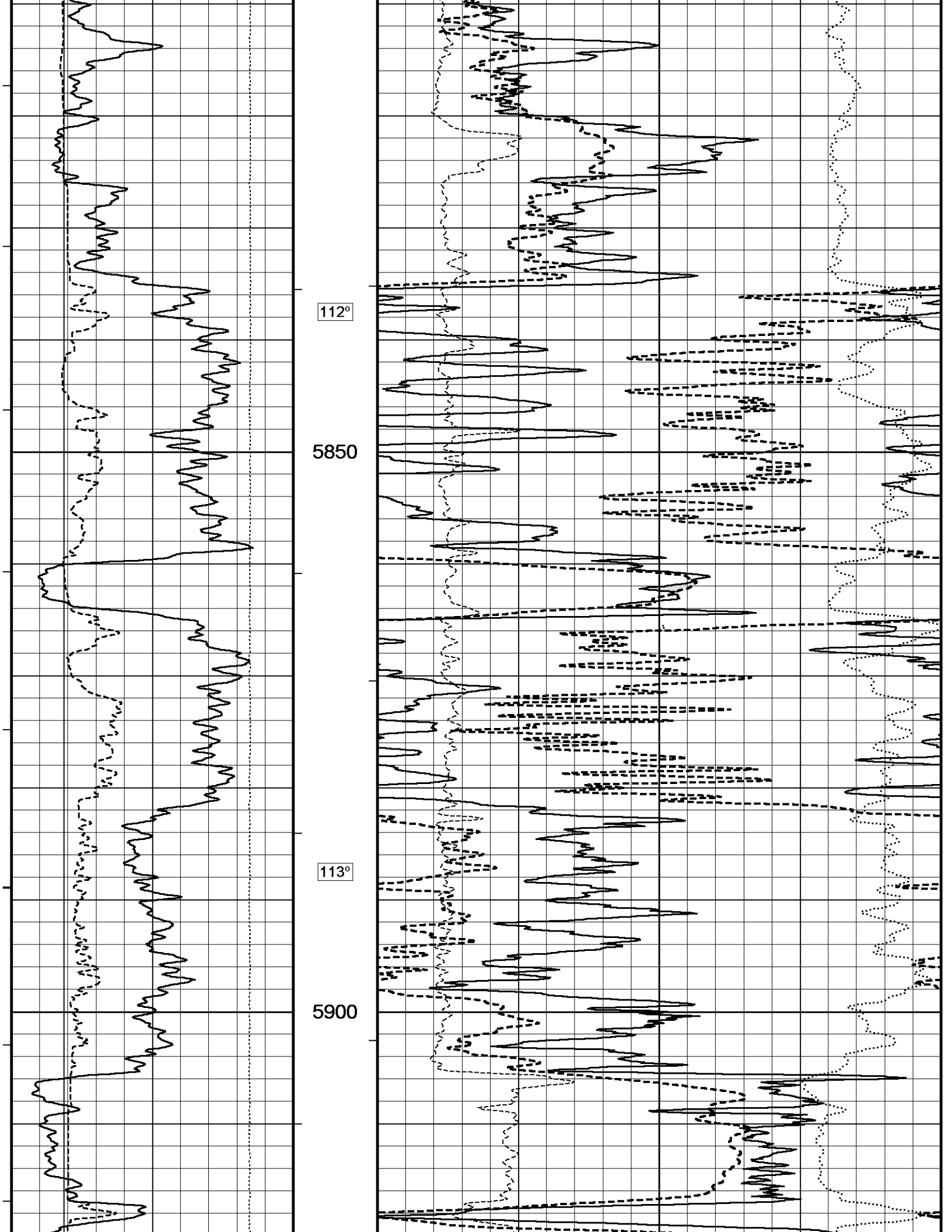
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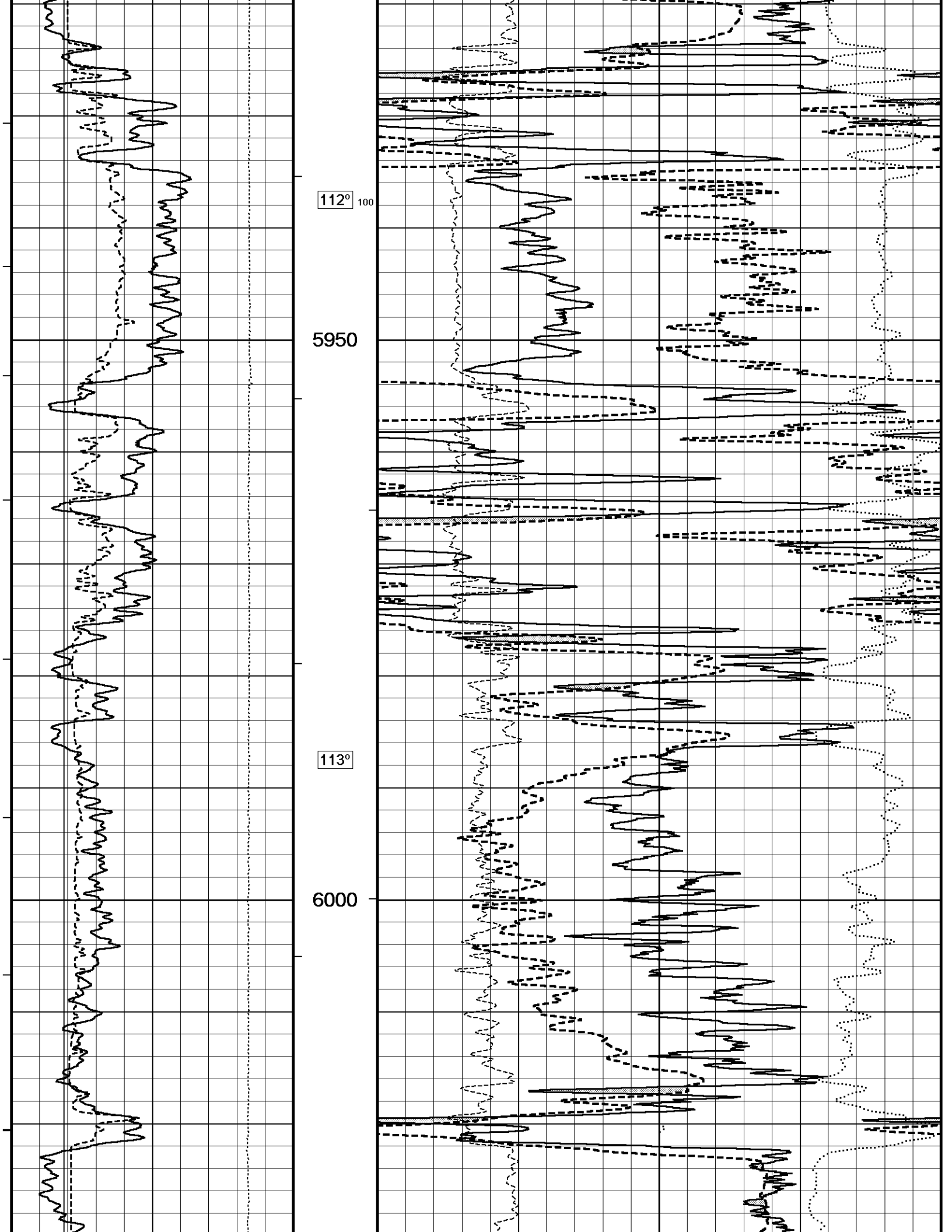
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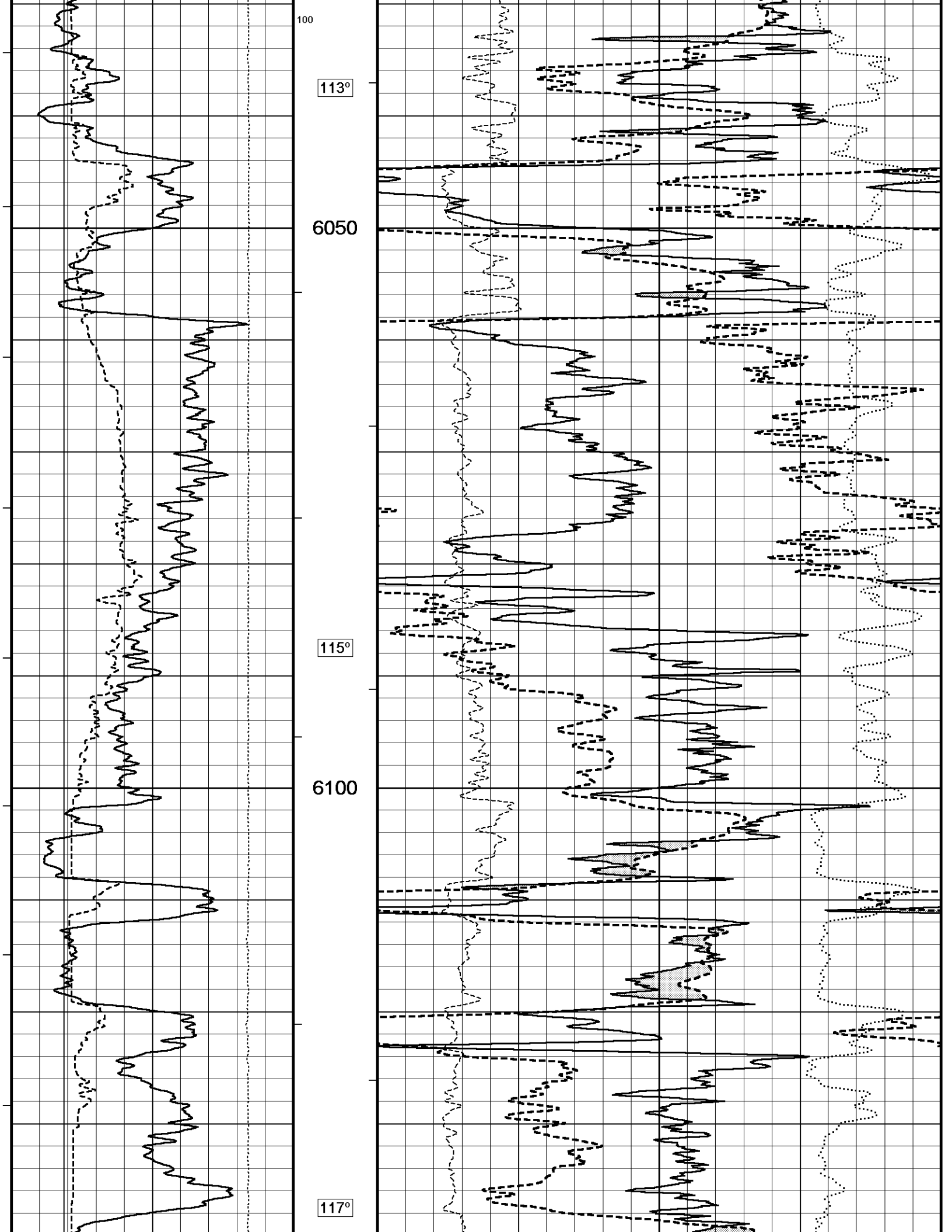
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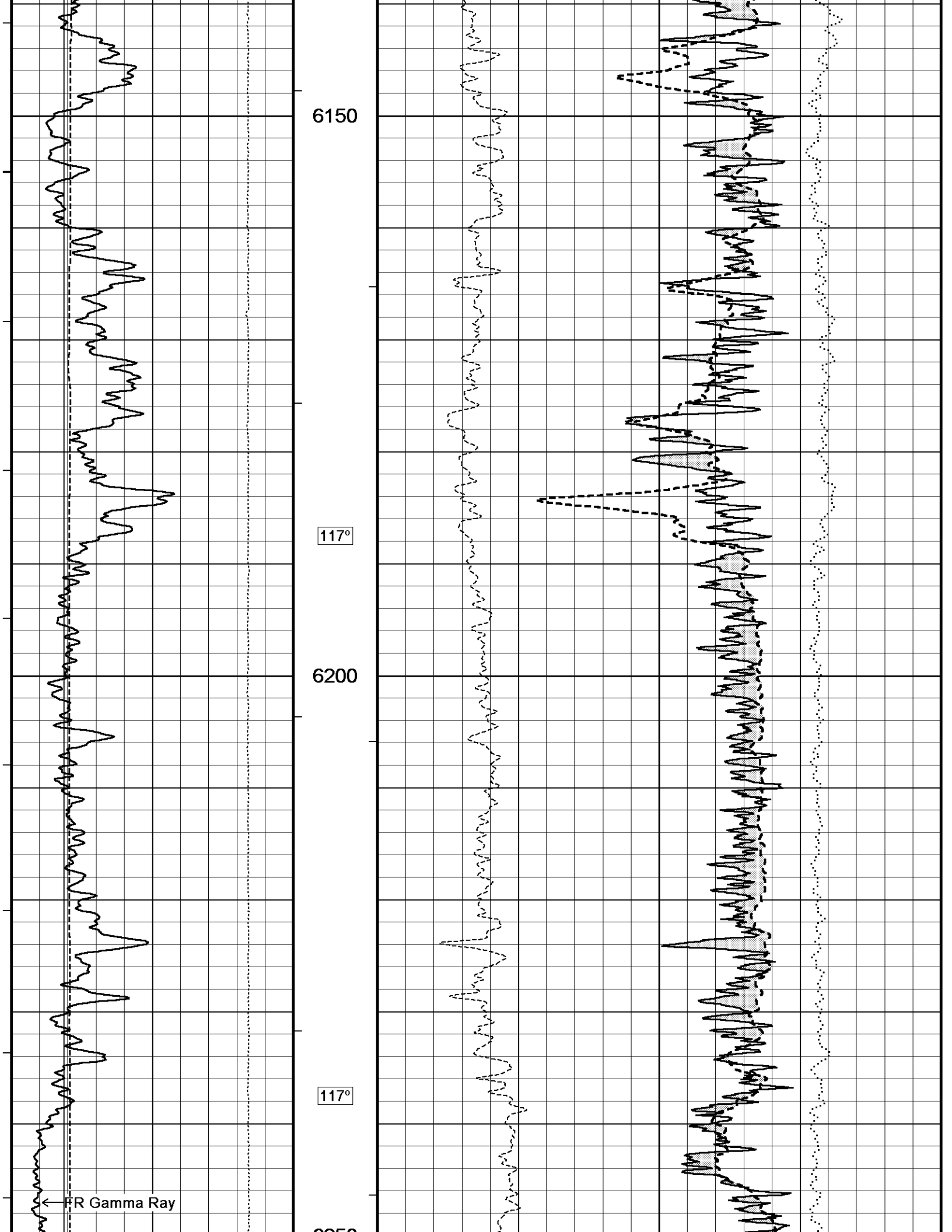
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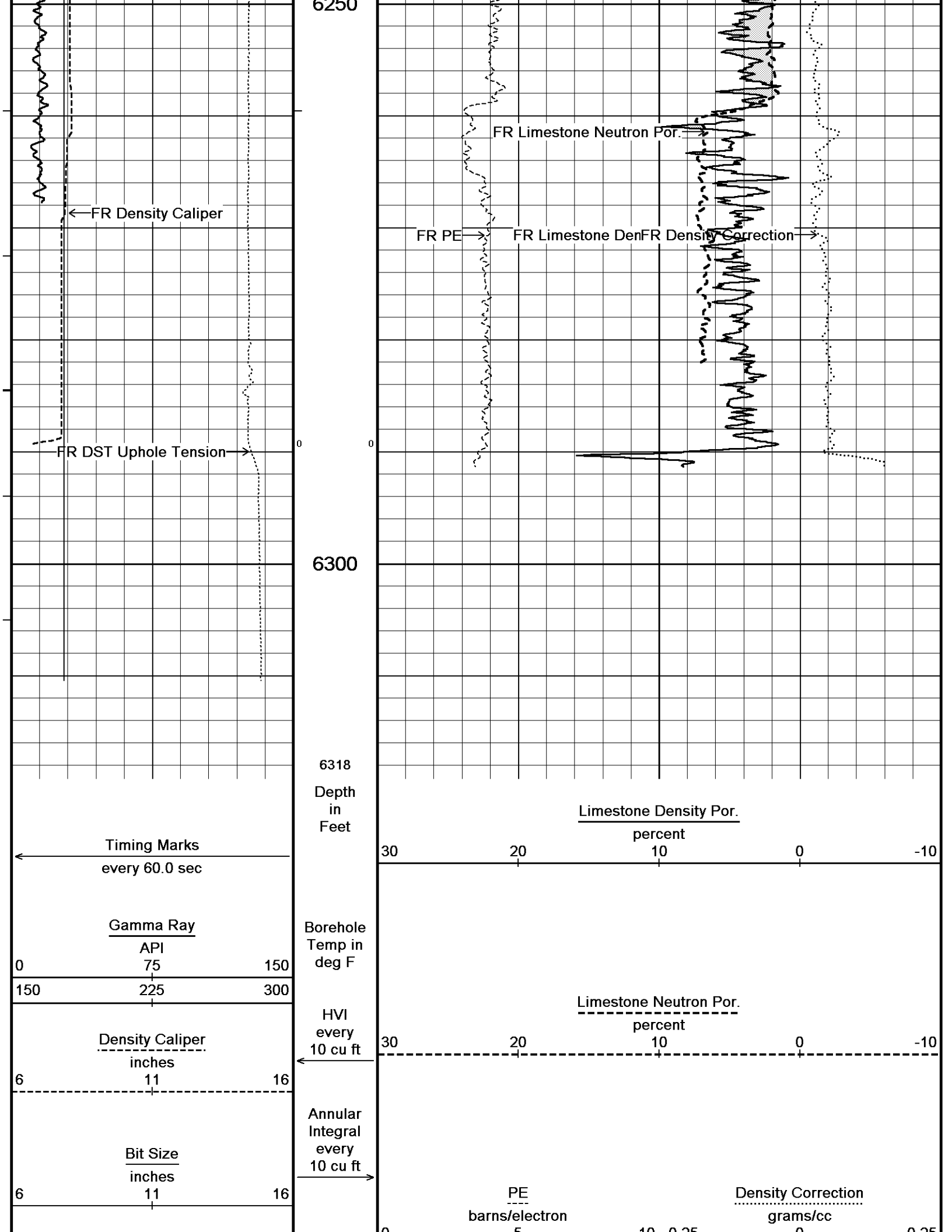
6200
117°
←FR Gamma Ray


6250
FR Limestone Neutron Por.
FR Density Caliper
FR PE
FR Limestone Den
FR Density Correction
FR DST Uphole Tension
0
0
6300
6318
Depth
in
Feet
Limestone Density Por.
percent
30
20
10
0
-10
Timing Marks
every 60.0 sec
Gamma Ray
API
0
75
150
Borehole
Temp in
deg F
150
225
300
Limestone Neutron Por.
percent
30
20
10
0
-10
HVI
every
10 cu ft
Density Caliper
inches
6
11
16
Annular
Integral
every
10 cu ft
Bit Size
inches
6
11
16
PE
barns/electron
Density Correction
grams/cc
0
5
10
-0.25
0
0.25

DST Uphole Tension
pounds
5000 0
0 -5000

Replay
Scale
1:120

0 5 10 -0.25 0 0.25

Depth Based Data - Maximum Sampling Increment 2.5cm
Filename: C:\Users\Joe\AppData\Local\Temp\Weatherford PreView\0\Crooked_001.dta
System Versions: Logged with 11.01.2198 Plotted with 11.02.2164

Plotted on 28-FEB-2011 17:01
Recorded on 06-JAN-2011 18:48

HI RES

Repeat Section

Depth Based Data - Maximum Sampling Increment 10.0cm
Filename: C:\Users\Joe\AppData\Local\Temp\Weatherford PreView\0\Crooked_002.dta
System Versions: Logged with 11.01.2198 Processed with 11.01.2198 Plotted with 11.02.2164

Plotted on 28-FEB-2011 17:01
Recorded on 06-JAN-2011 18:48

Depth
in
Feet

Timing Marks
every 60.0 sec

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

HVI
every
10 cu ft

Density Caliper
inches
6 11 16

Annular
Integral
every
10 cu ft

Bit Size
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

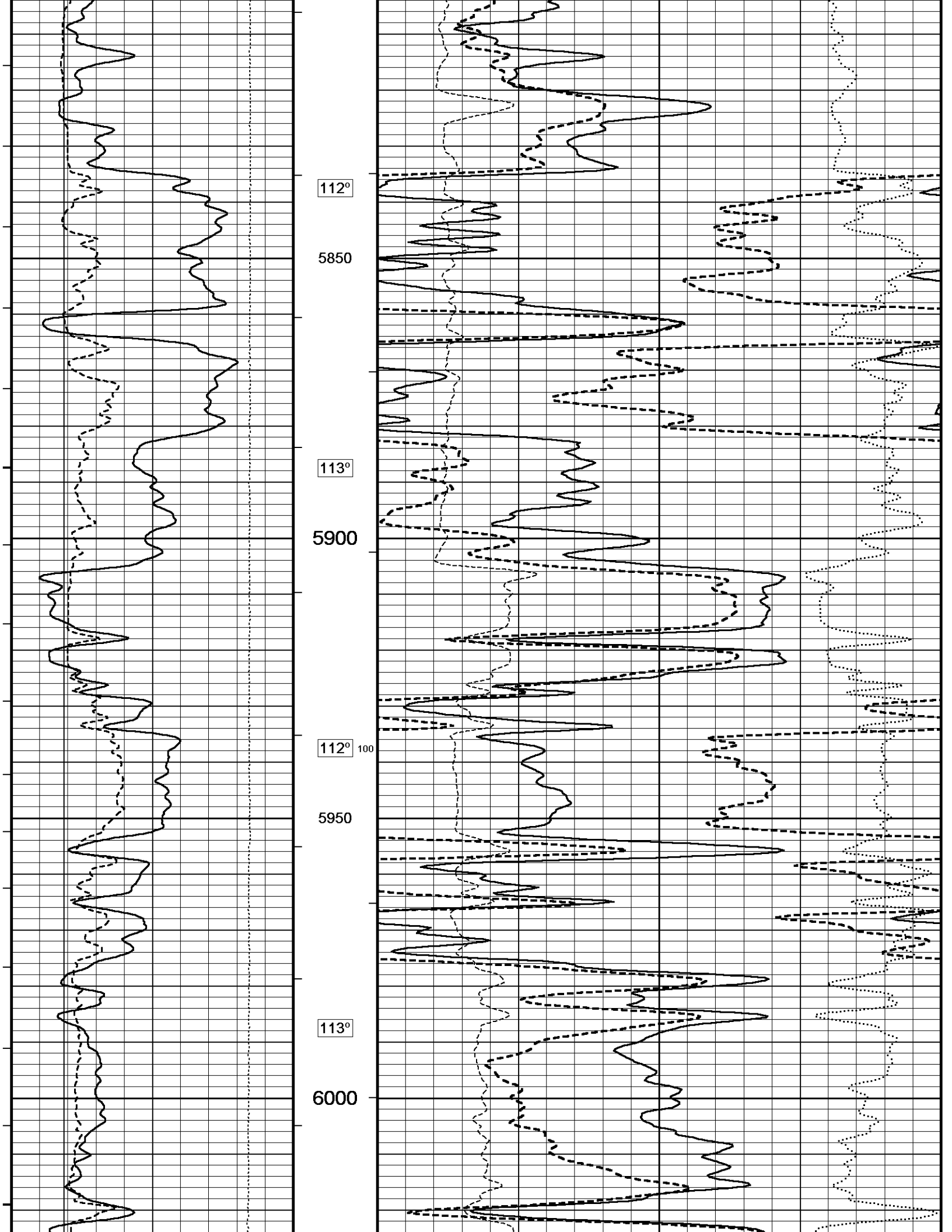
Replay
Scale
1:240

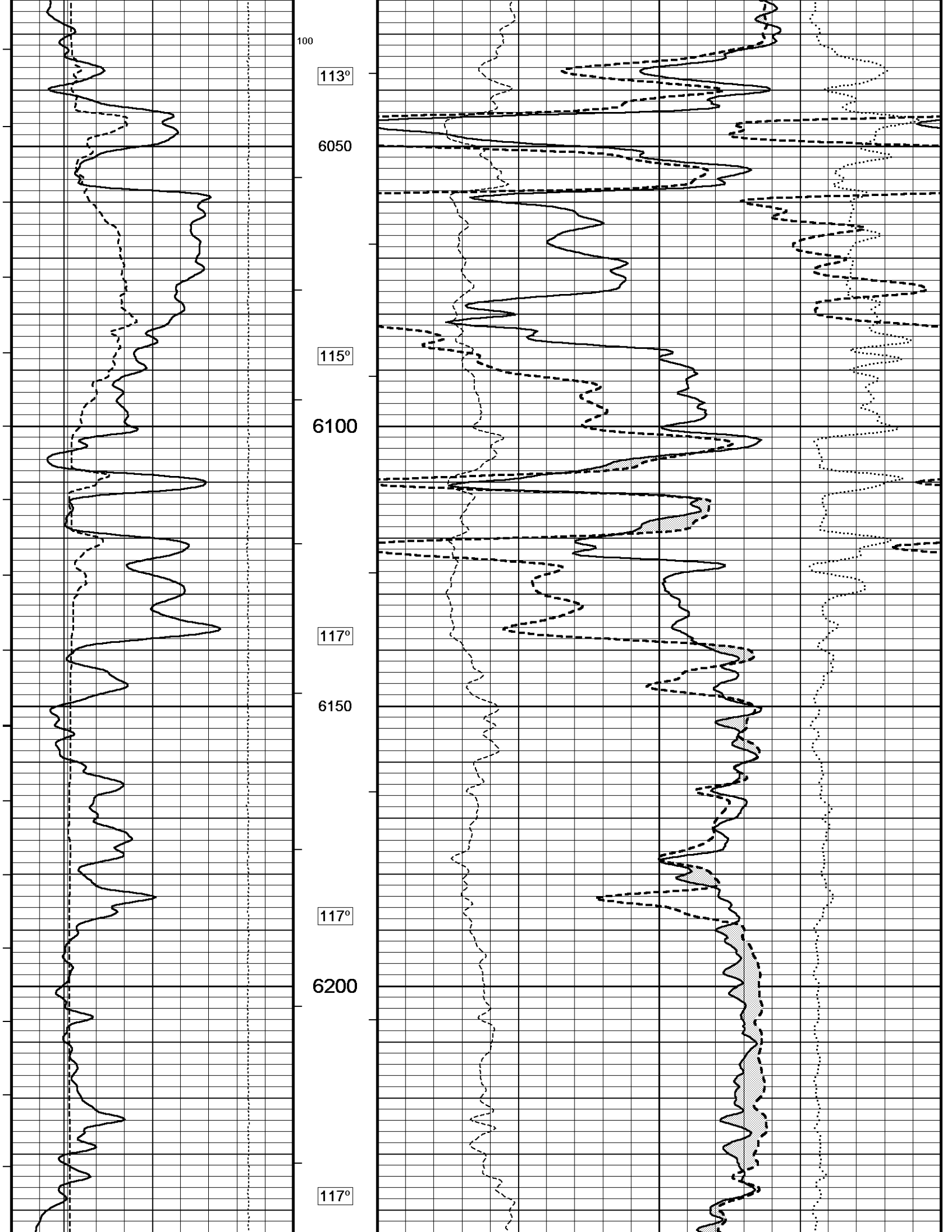
5750

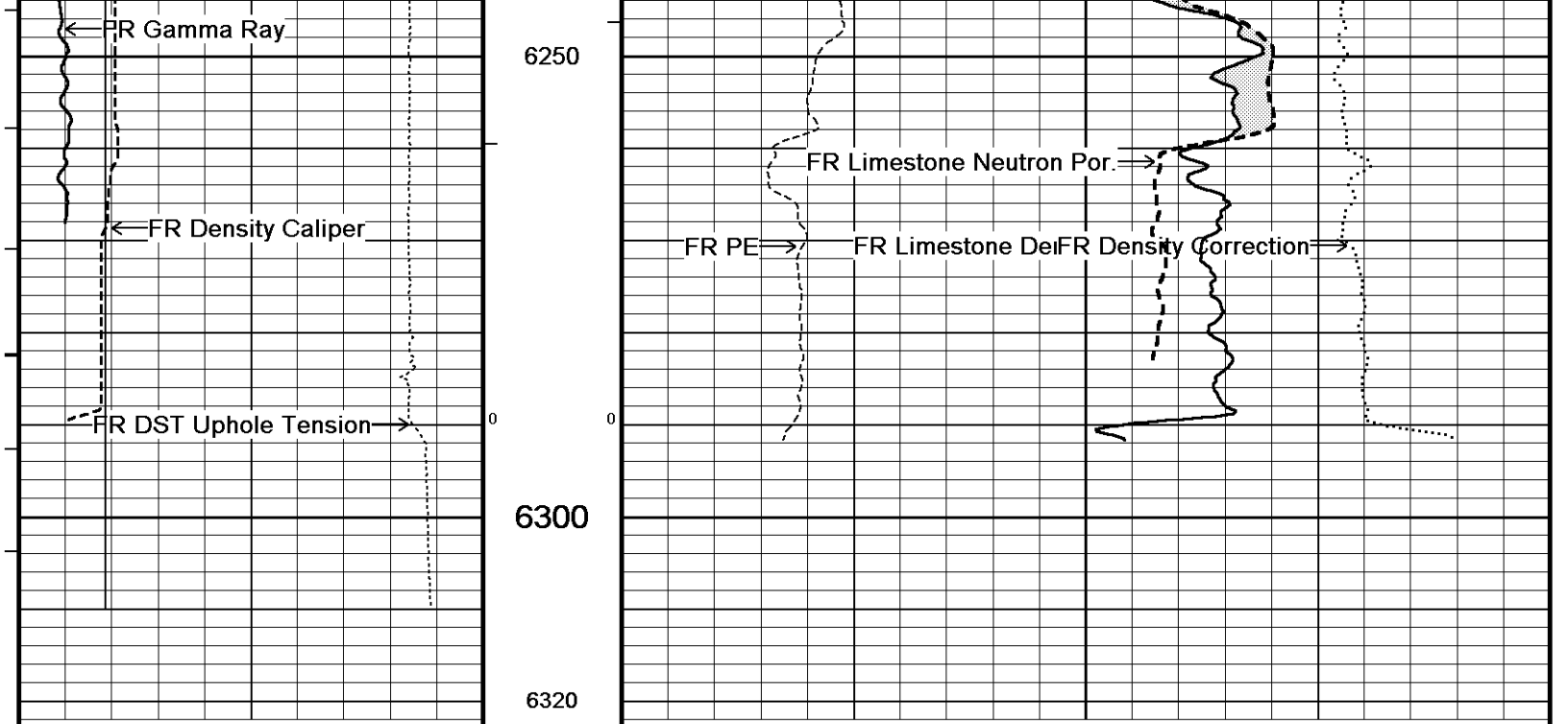
200

114°

5800


112°
5850
113°
5900
112°
100
5950
113°
6000


100
113°
6050
115°
6100
117°
6150
117°
6200
117°



Depth in Feet

Timing Marks
every 60.0 sec

Gamma Ray
API
0 75 150
150 225 300

Density Caliper
inches
6 11 16

Bit Size
inches
6 11 16

DST Uphole Tension
pounds
5000 0
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

Limestone Neutron Por.
percent
30 20 10 0 -10

PE
barns/electron
0 5 10

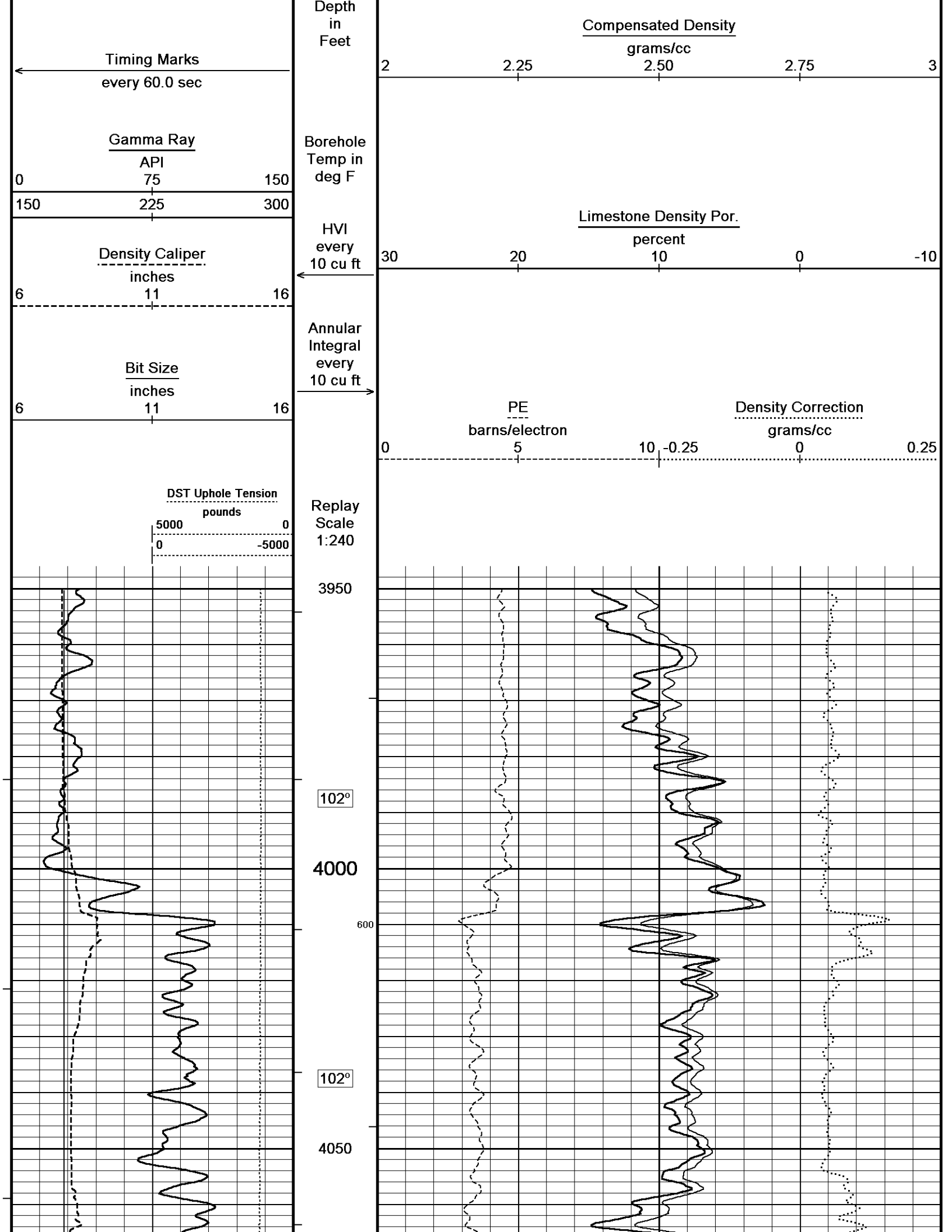
Density Correction
grams/cc
-0.25 0 0.25

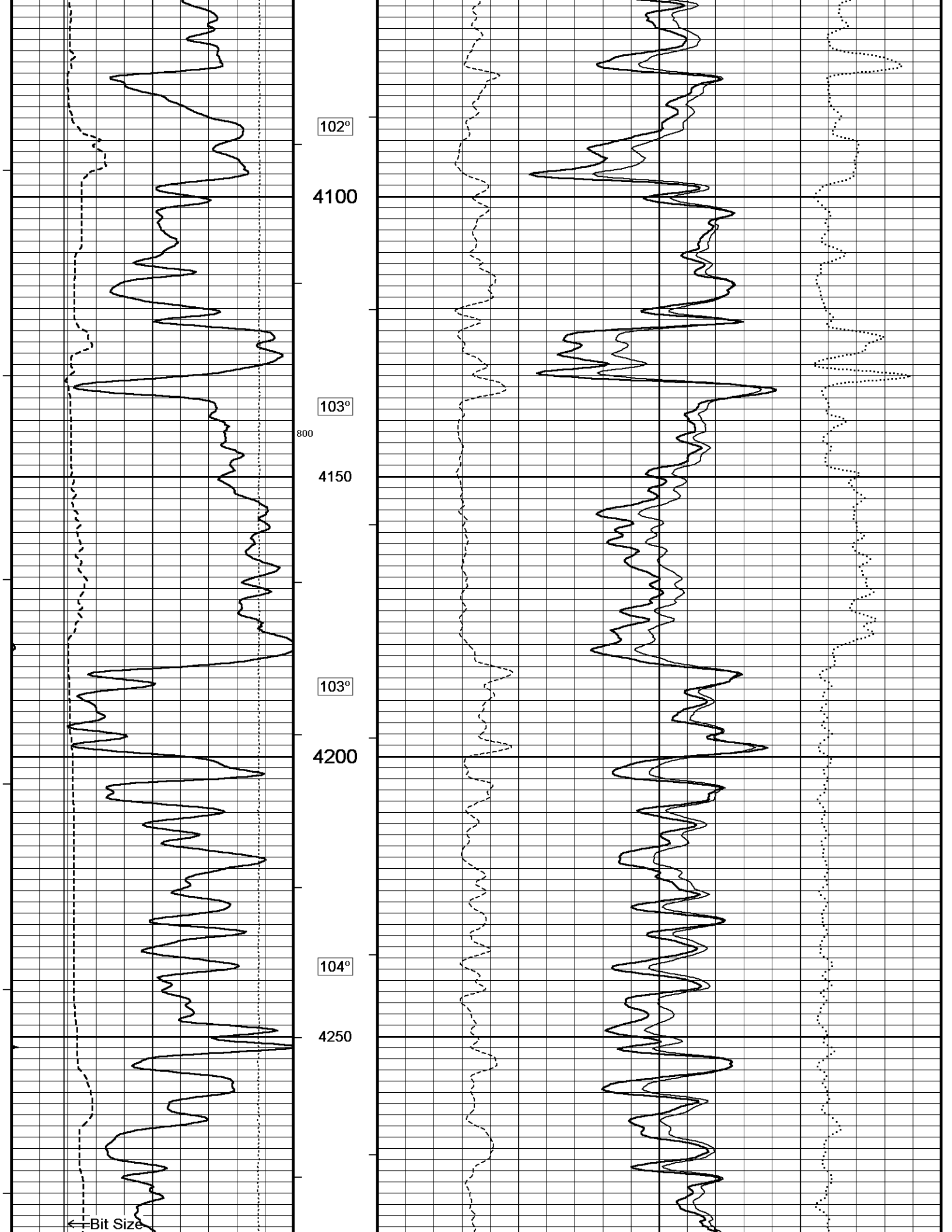
Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 28-FEB-2011 17:01
Filename: C:\Users\Joe\AppData\Local\Temp\Weatherford PreView\0\Crooked_002.dta
Recorded on 06-JAN-2011 18:48
System Versions: Logged with 11.01.2198 Processed with 11.01.2198 Plotted with 11.02.2164

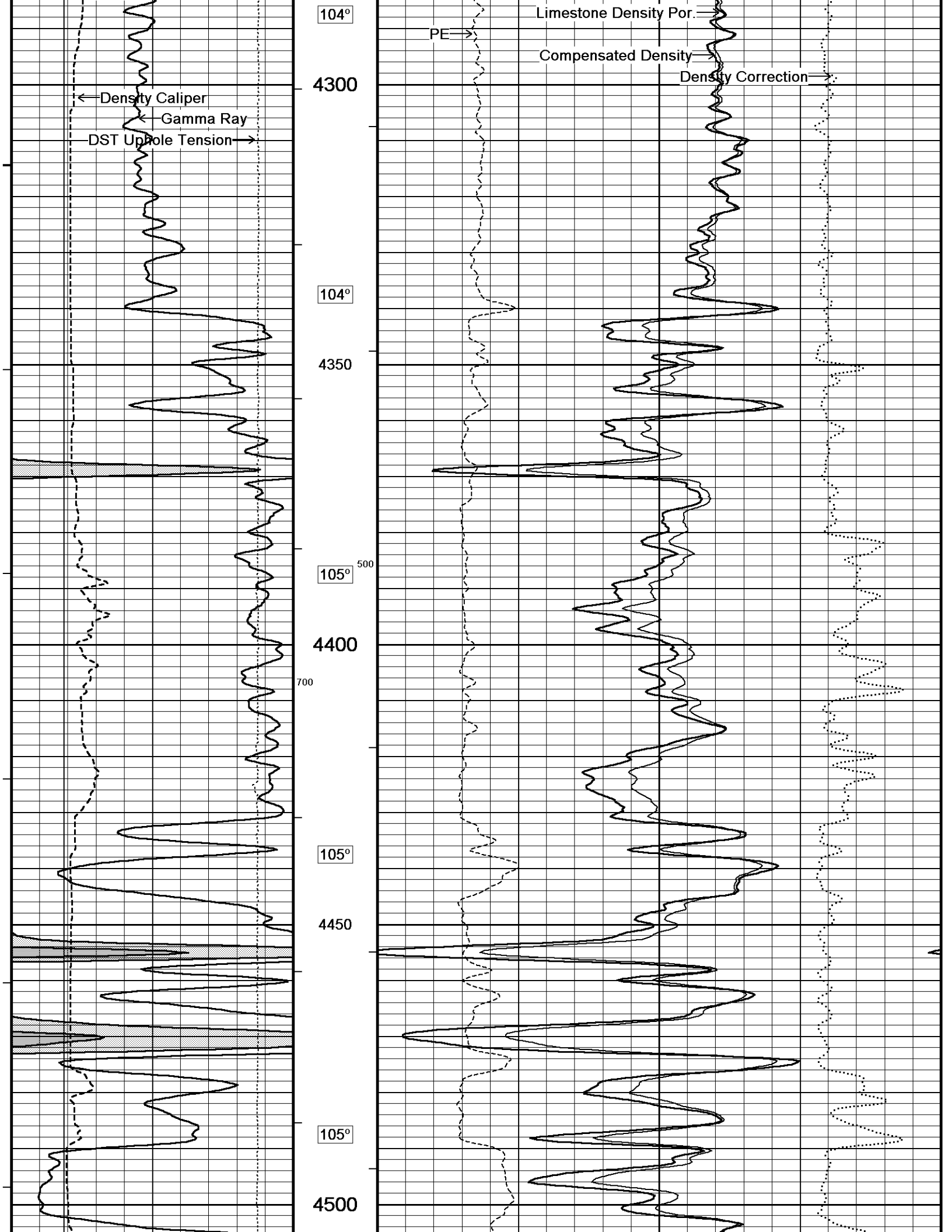
Repeat Section

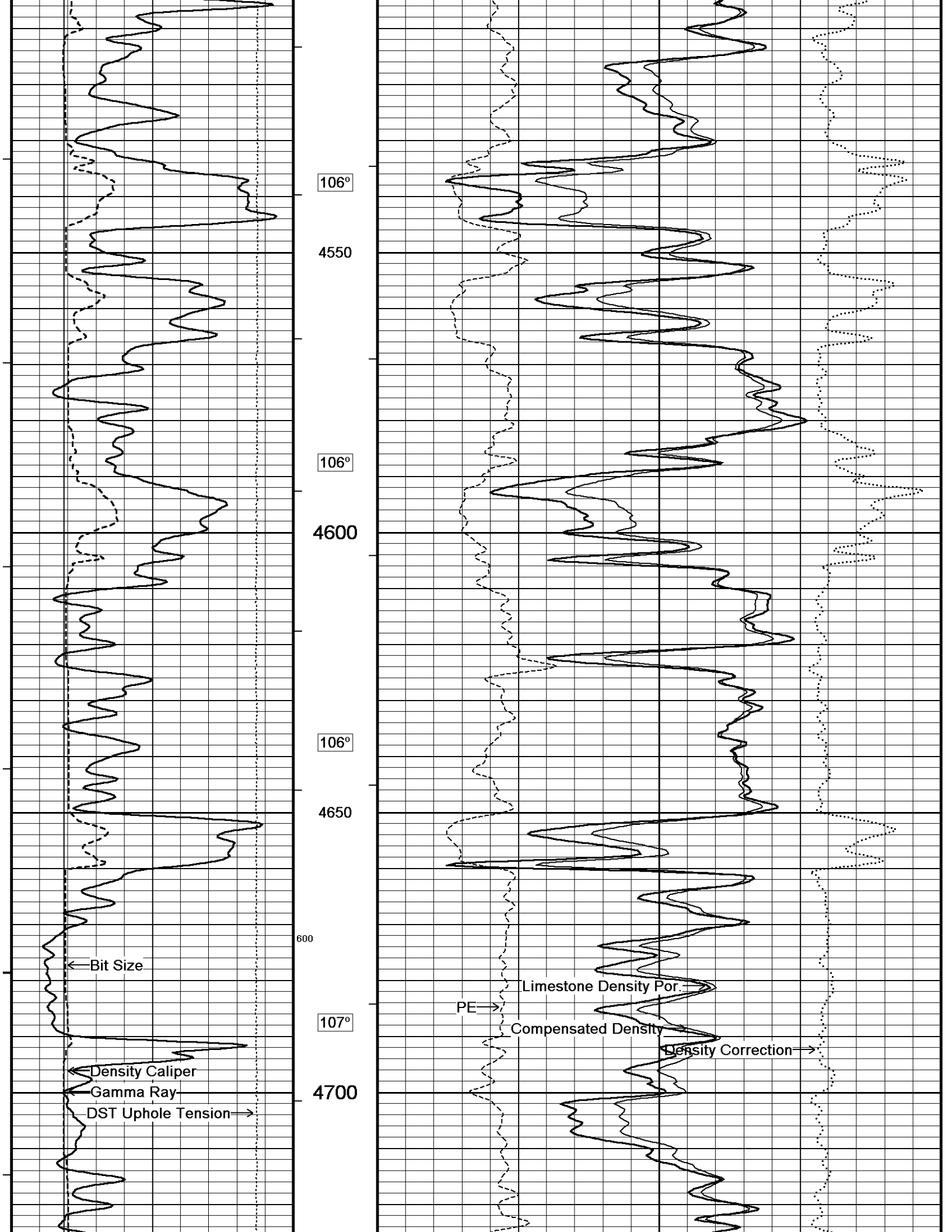
5 Inch Main

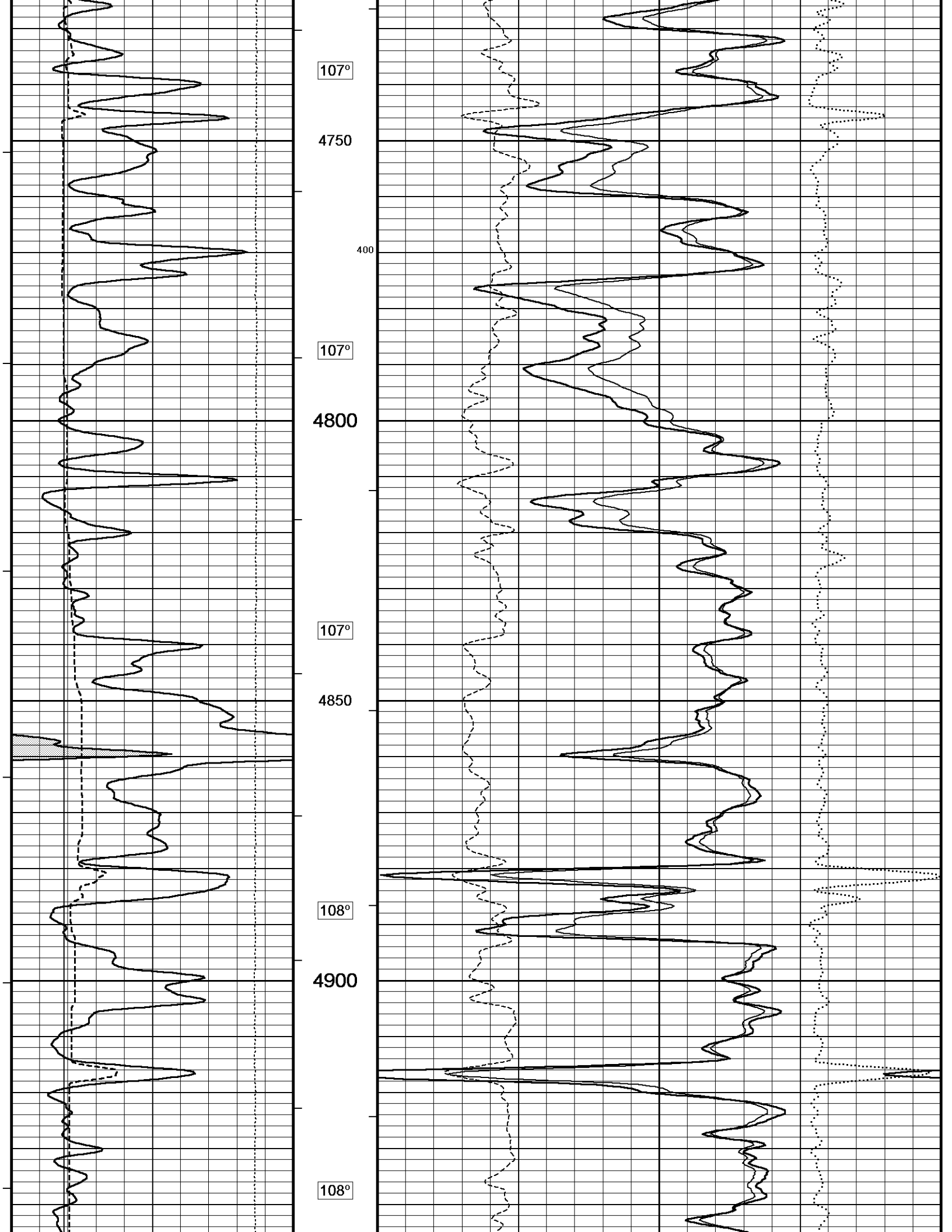
Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 28-FEB-2011 17:01
Filename: C:\Users\Joe\AppData\Local\Temp\Weatherford PreVie...\Crooked_003 spooled section.dta
Recorded on 06-JAN-2011 20:57
System Versions: Logged with 11.01.2198 Processed with 11.01.2198 Plotted with 11.02.2164

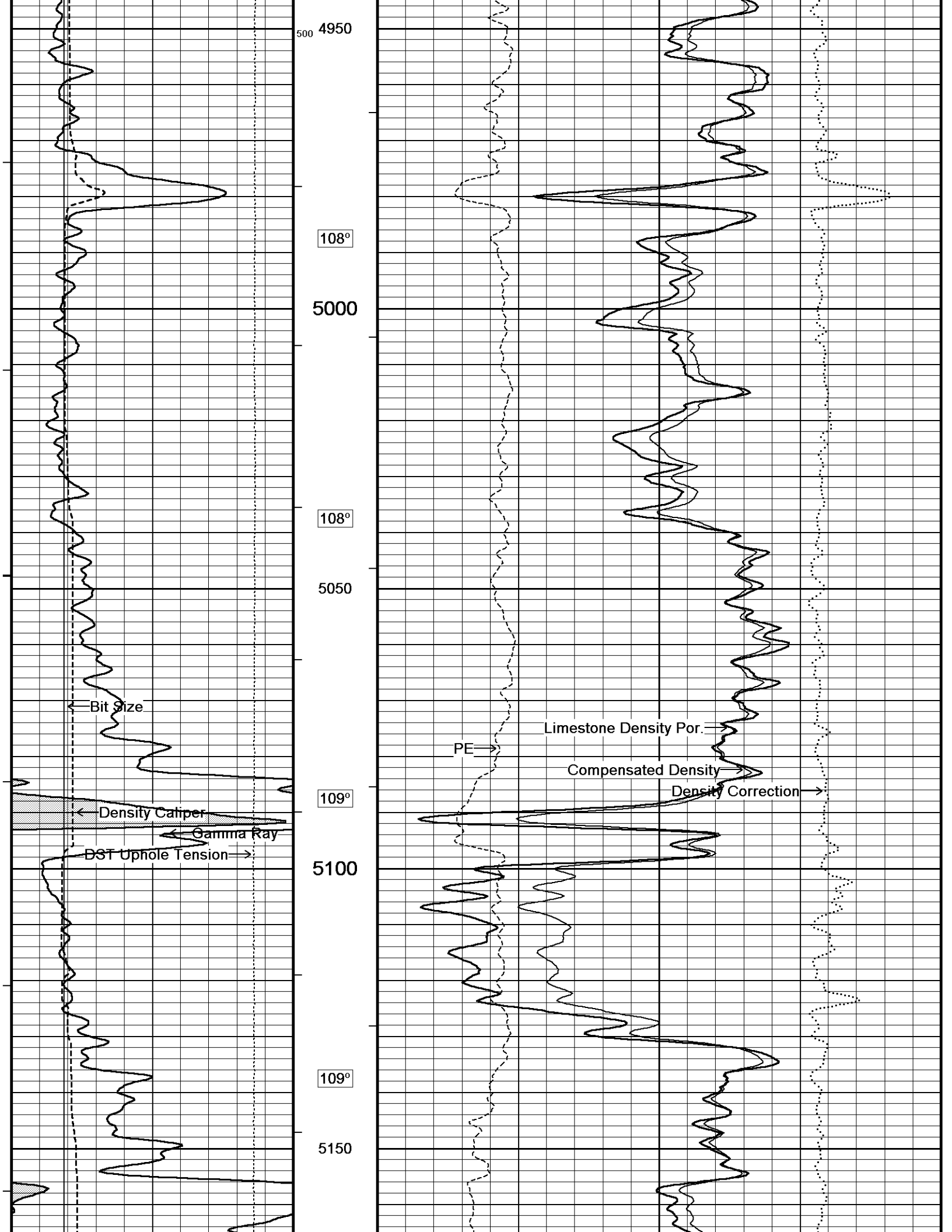

Depth in Feet
Timing Marks
every 60.0 sec
Gamma Ray
API
0
75
150
150
225
300
Density Caliper
inches
6
11
16
Bit Size
inches
6
11
16
DST Uphole Tension
pounds
5000
0
0
-5000
Borehole Temp in deg F
HVI every 10 cu ft
Annular Integral every 10 cu ft
Replay Scale 1:240
Compensated Density
grams/cc
2
2.25
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
3950
102°
4000
600
102°
4050

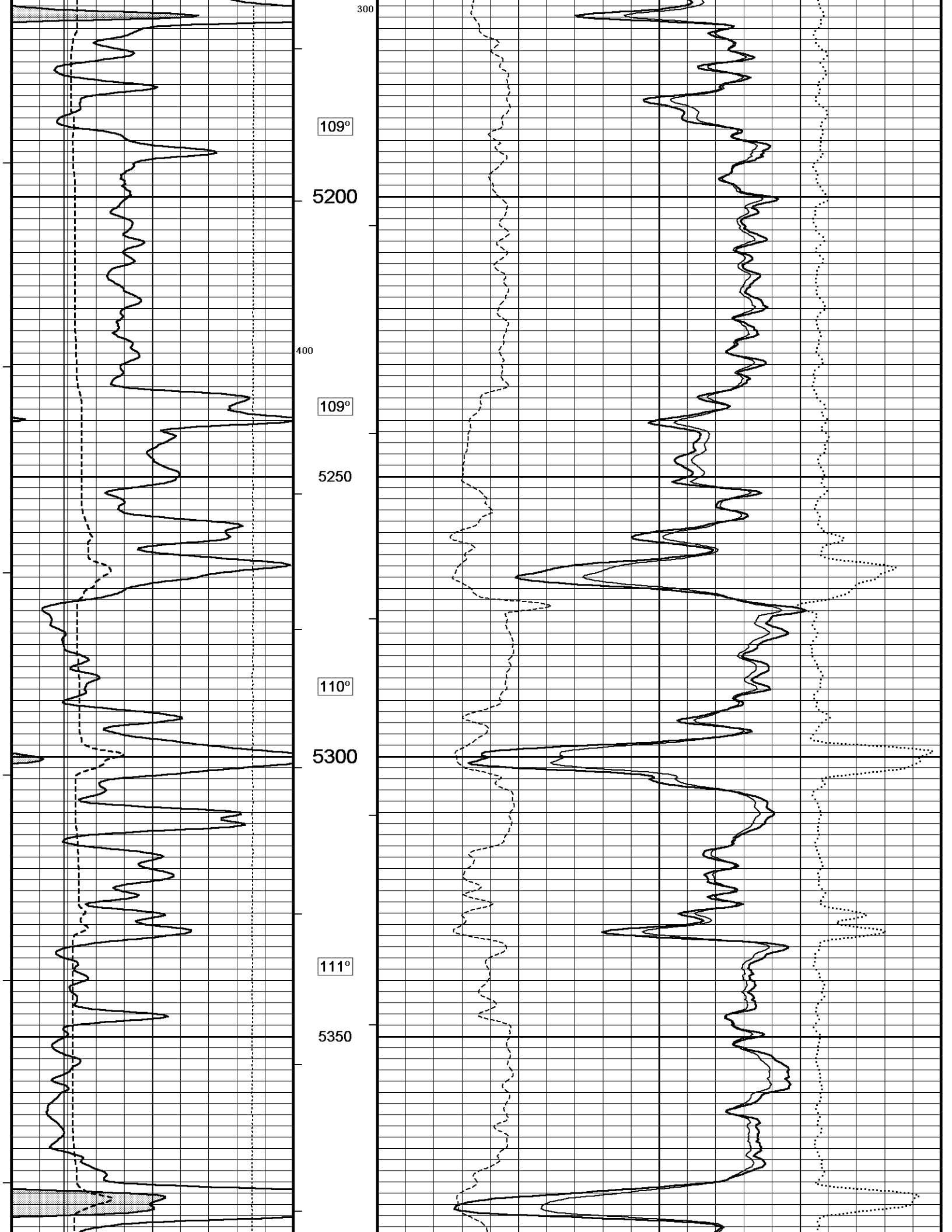

102°
4100
103°
800
4150
103°
4200
104°
4250
← Bit Size

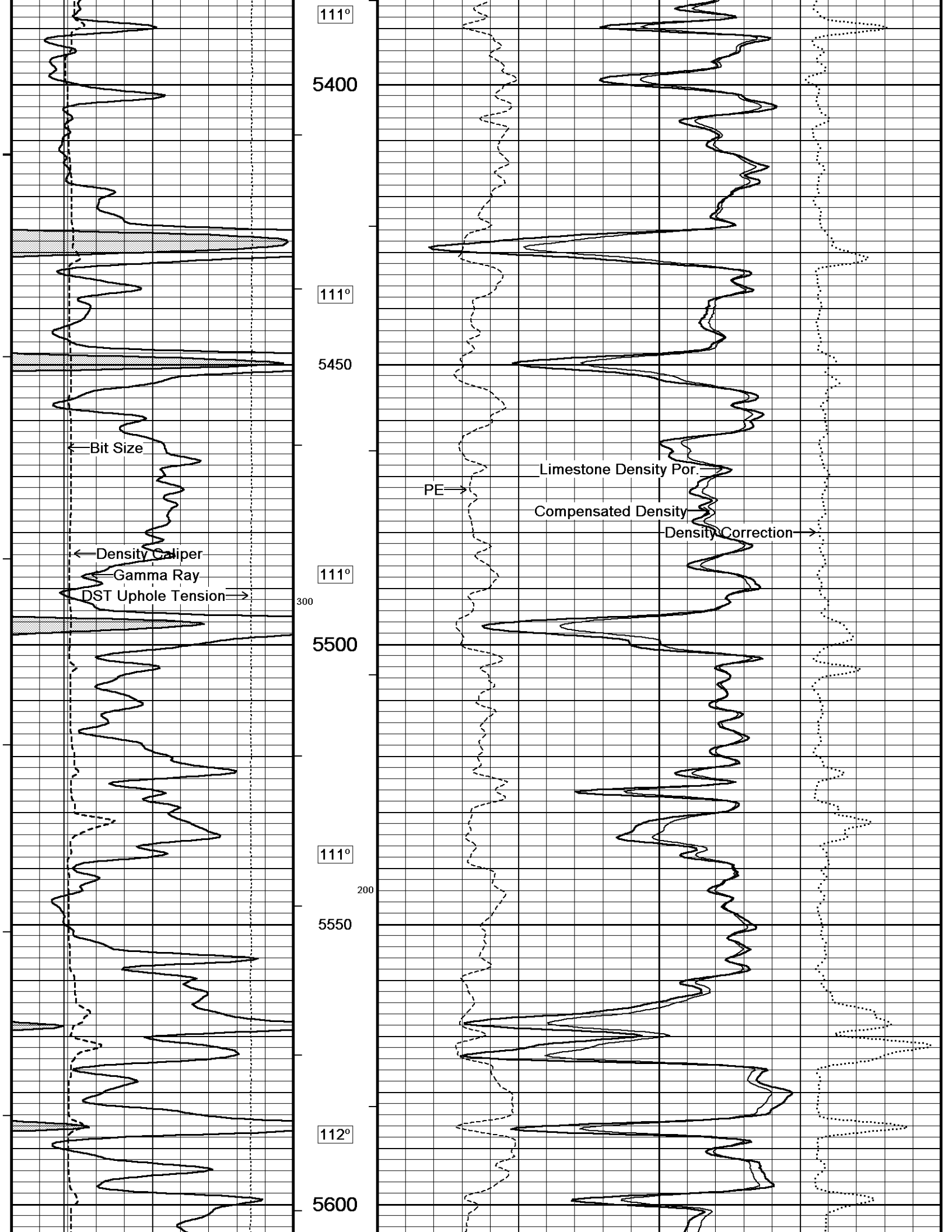

104°
4300
Density Caliper
Gamma Ray
DST Uphole Tension
104°
4350
105°
500
4400
700
105°
4450
105°
4500
PE
Limestone Density Por.
Compensated Density
Density Correction

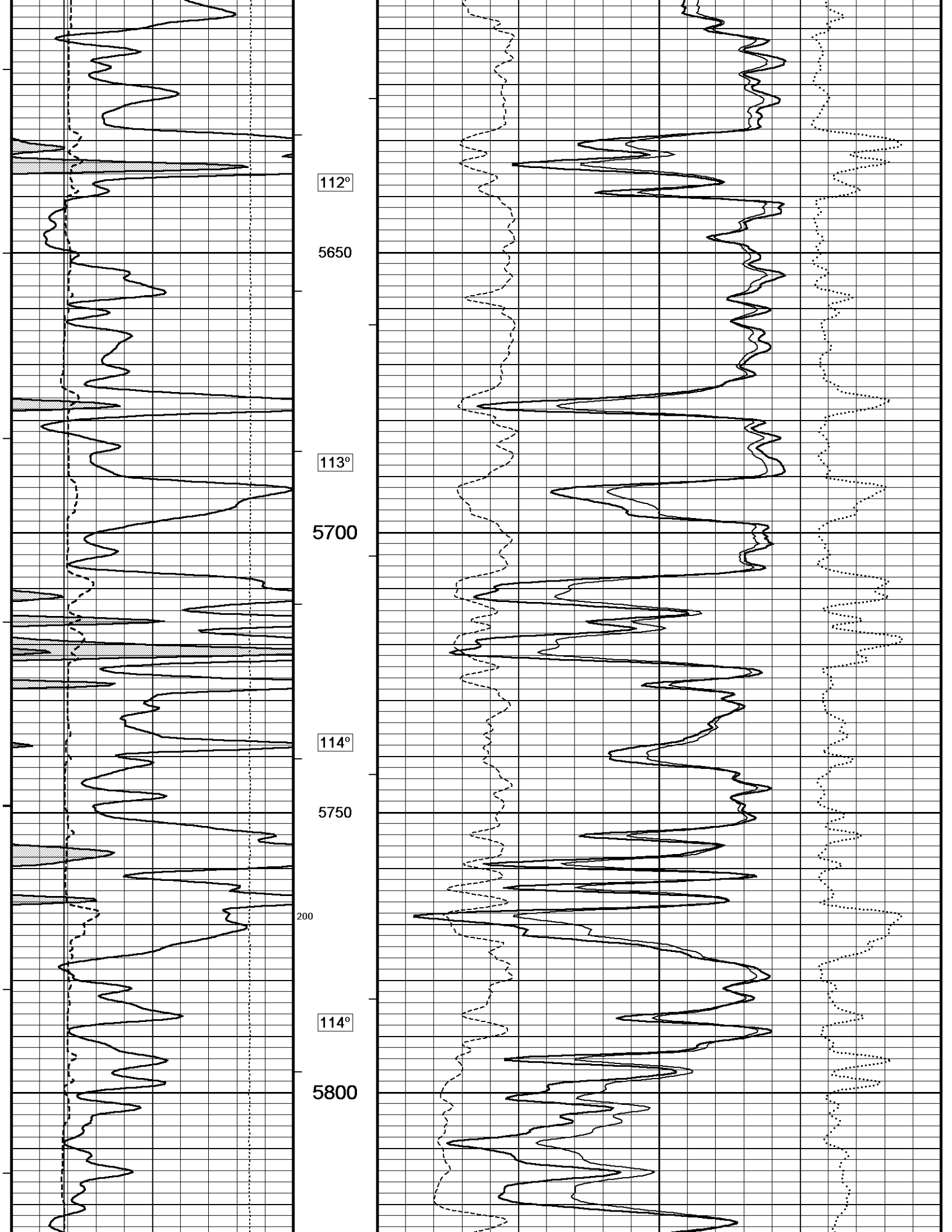

106°
4550
106°
4600
106°
4650
600
107°
4700
Bit Size
Density Caliper
Gamma Ray
DST Uphole Tension
Limestone Density Por
PE
Compensated Density
Density Correction

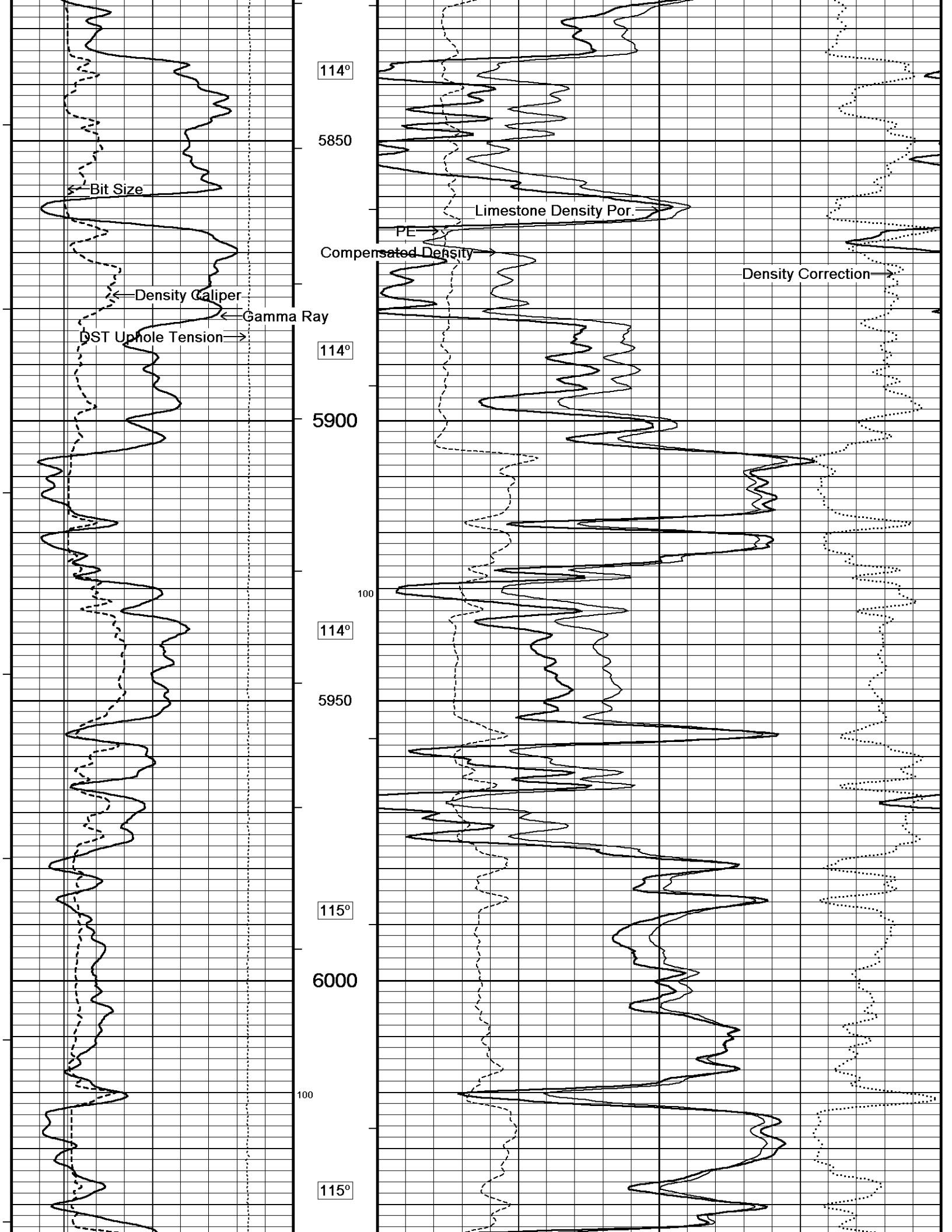

107°
4750
400
107°
4800
107°
4850
108°
4900
108°

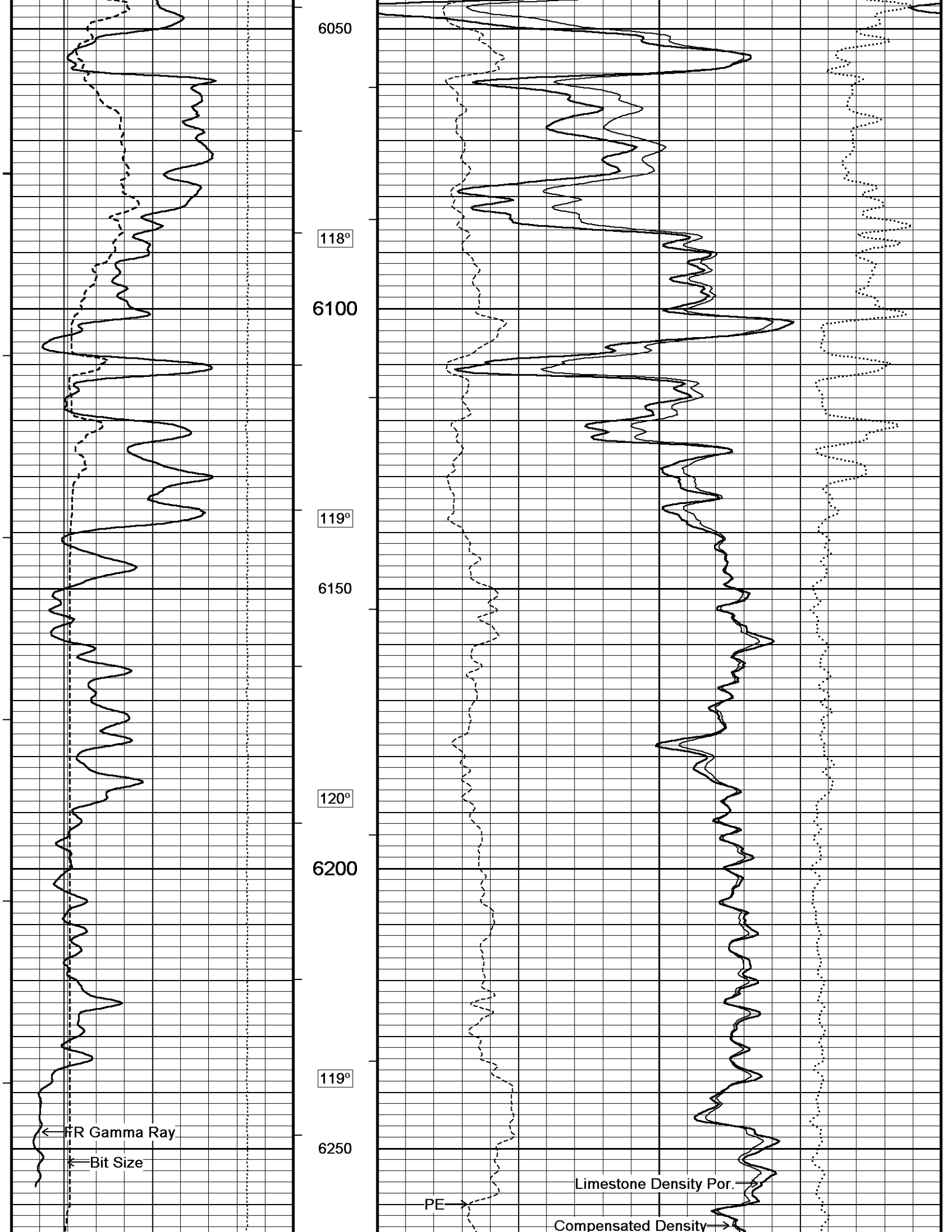

500
4950
108°
5000
108°
5050
Bit Size
Limestone Density Por.
PE
Compensated Density
Density Correction
109°
Density Caliper
Gamma Ray
DST Uphole Tension
5100
109°
5150

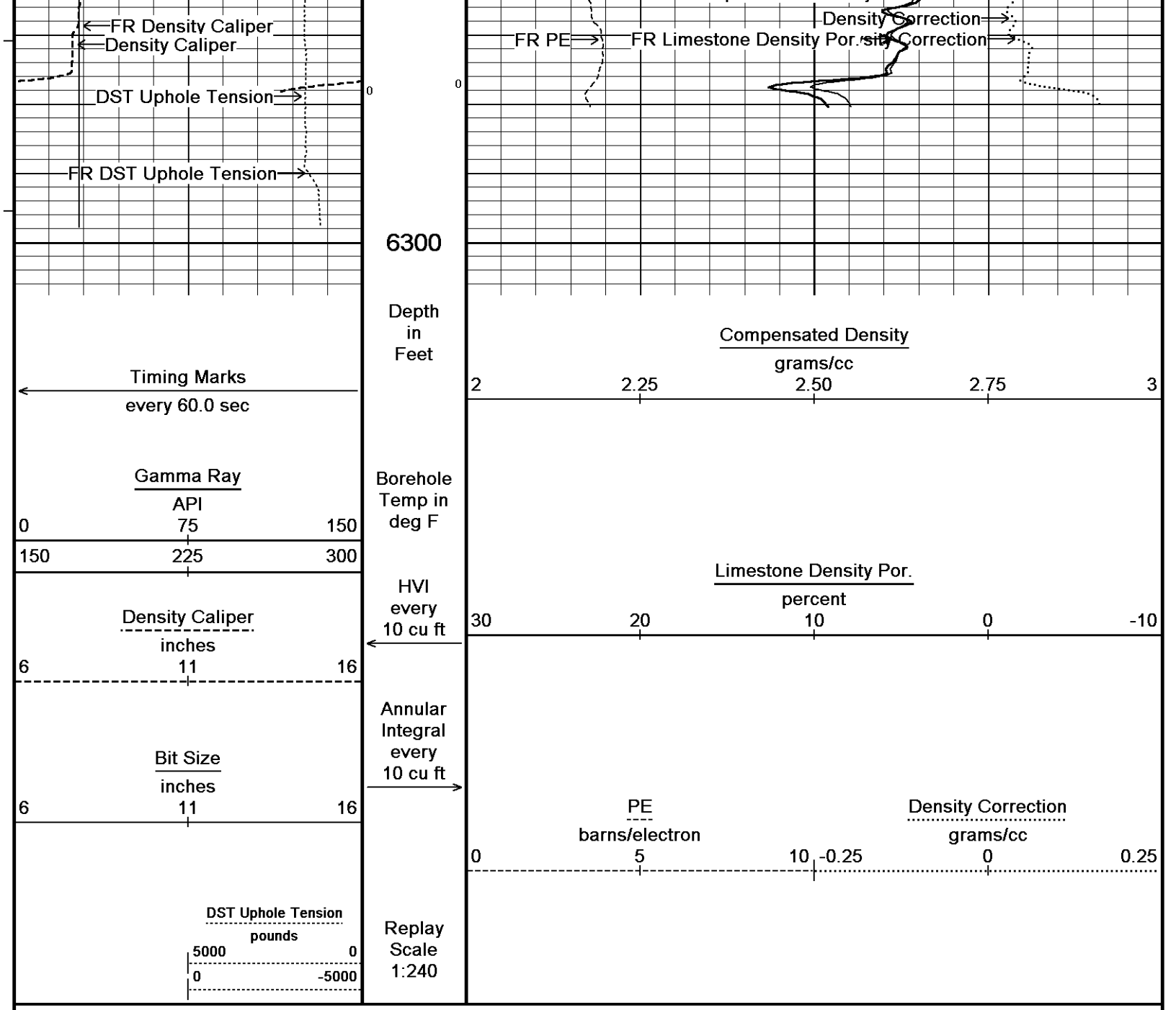

300
109°
5200
400
109°
5250
110°
5300
111°
5350


111°
5400
111°
5450
Bit Size
Density Caliper
Gamma Ray
DST Uphole Tension
300
111°
5500
111°
200
5550
112°
5600
PE
Limestone Density Por.
Compensated Density
Density Correction


112°
5650
113°
5700
114°
5750
200
114°
5800


Bit Size
Density Caliper
Gamma Ray
DST Uphole Tension
114°
5850
114°
5900
100
114°
5950
115°
6000
100
115°
Limestone Density Por.
PE
Compensated Density
Density Correction


6050
118°
6100
119°
6150
120°
6200
119°
6250
HR Gamma Ray
Bit Size
PE
Limestone Density Por.
Compensated Density

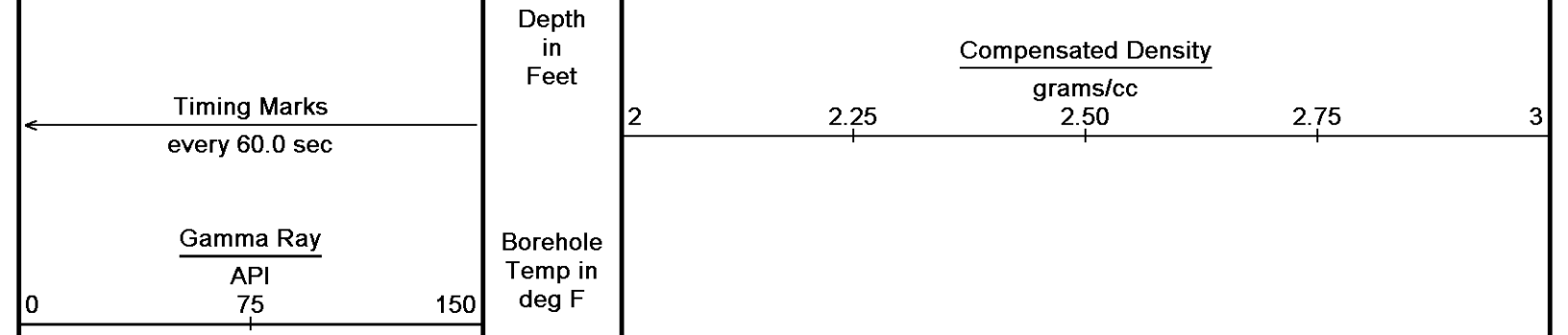


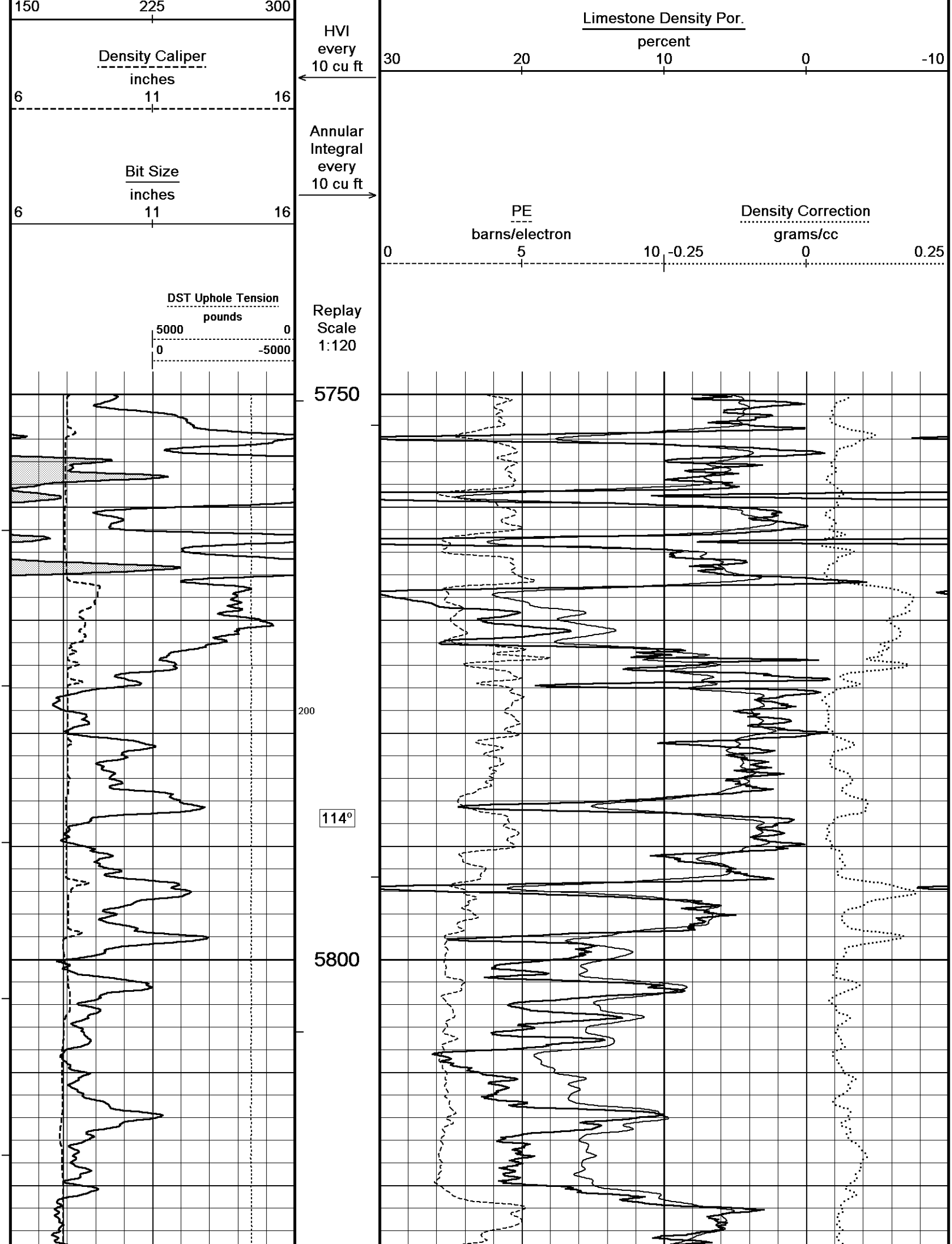
Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 28-FEB-2011 17:01
Filename: C:\Users\Joe\AppData\Local\Temp\Weatherford PreVie...\Crooked_003 spooled section.dta
Recorded on 06-JAN-2011 20:57
System Versions: Logged with 11.01.2198 Processed with 11.01.2198 Plotted with 11.02.2164

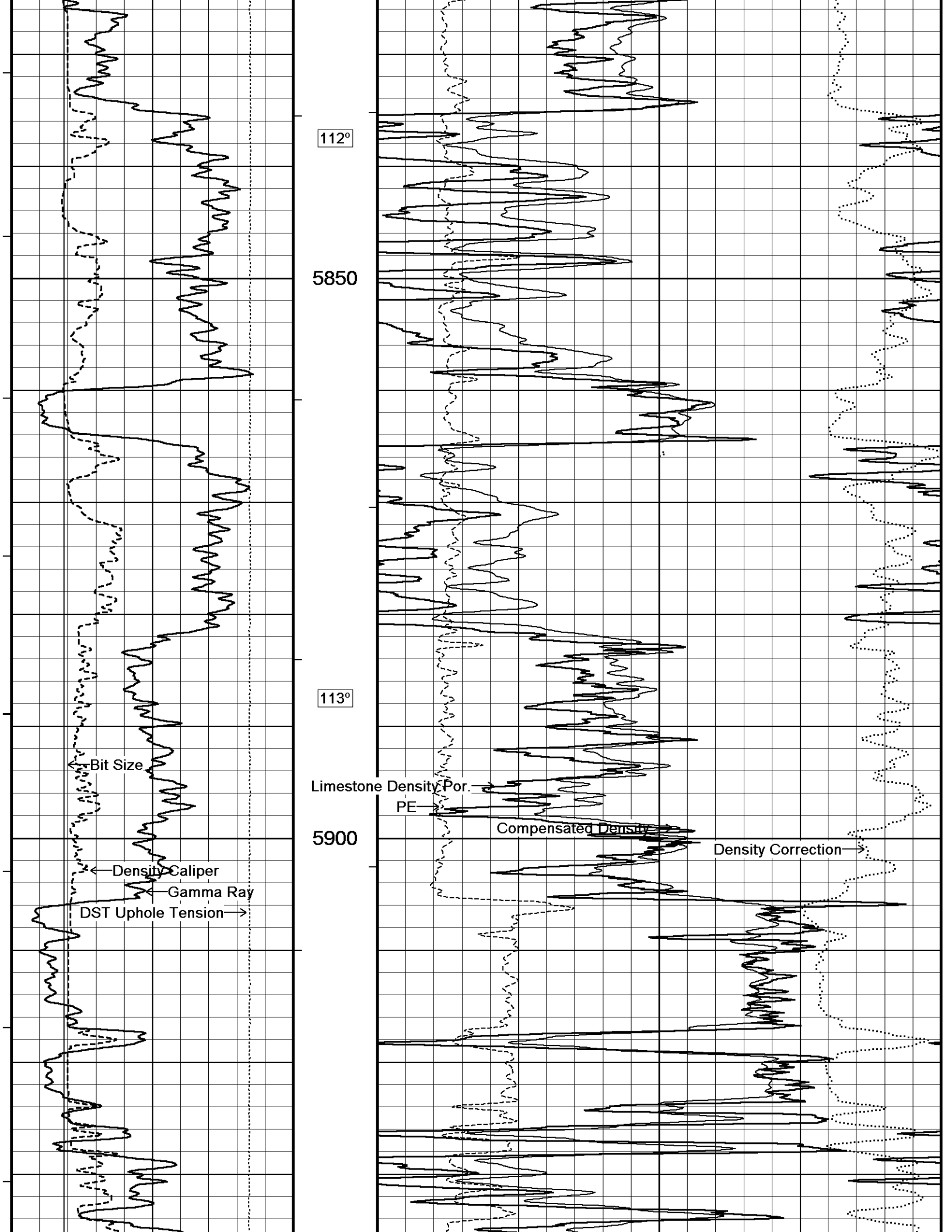
5 Inch Main

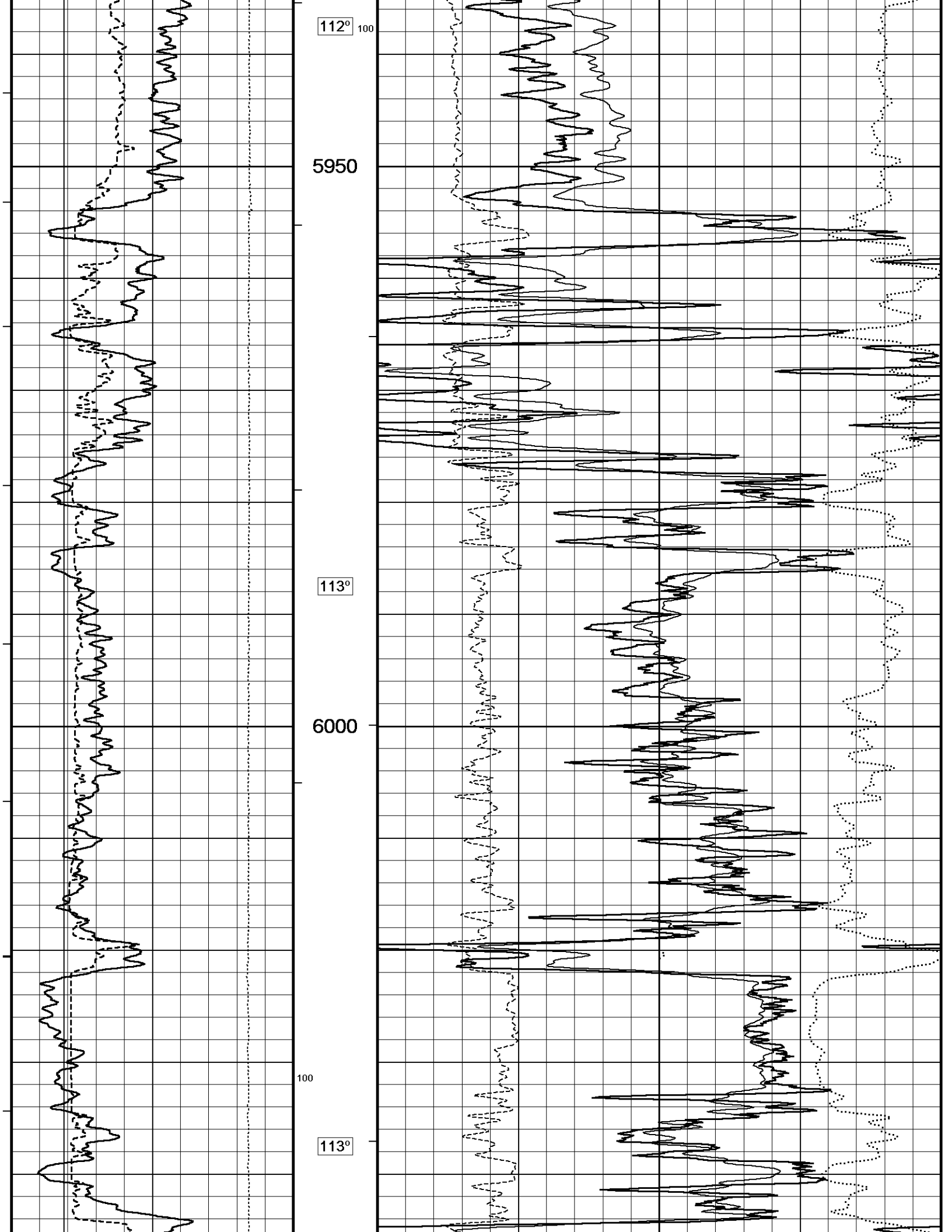
HI RES

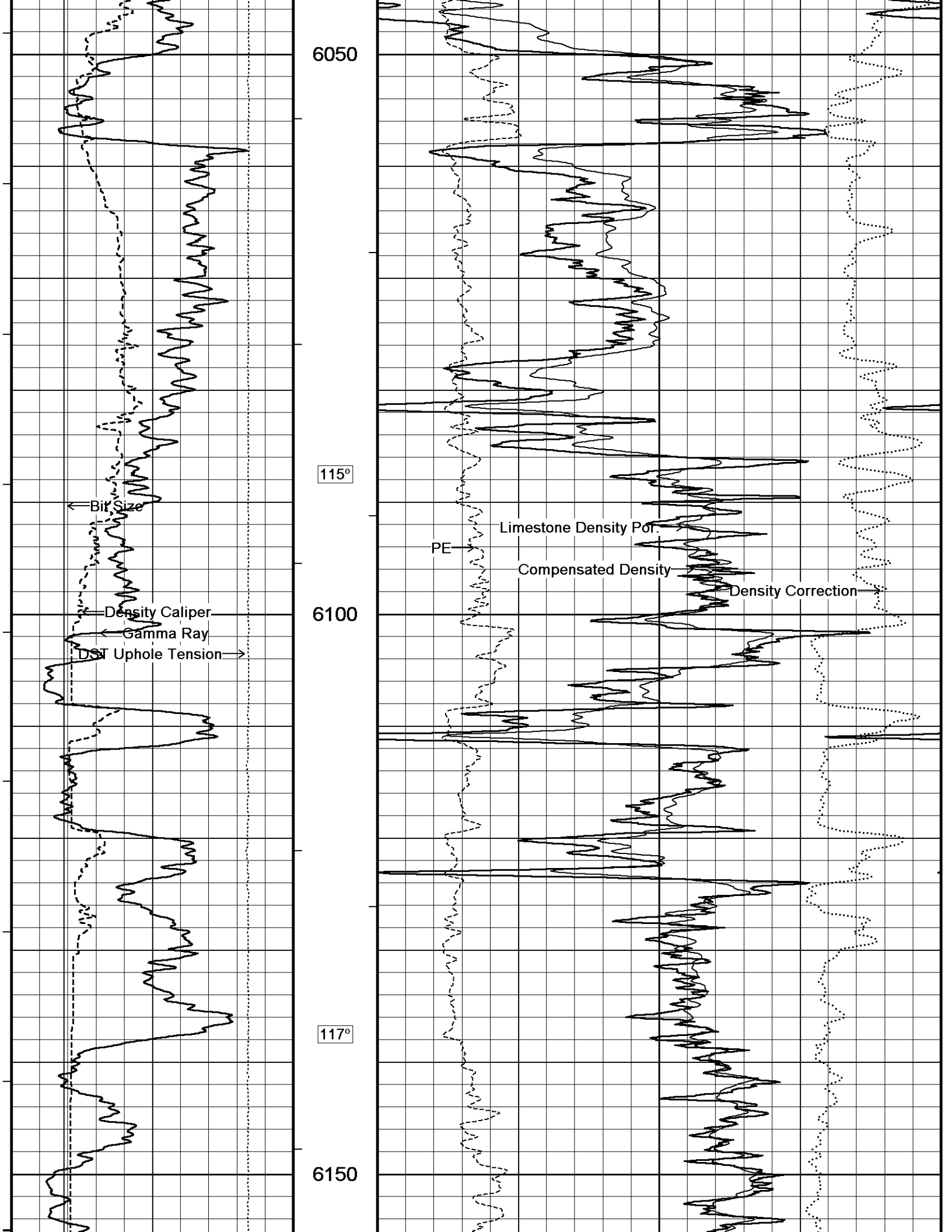
Depth Based Data - Maximum Sampling Increment 2.5cm
Plotted on 28-FEB-2011 17:01
Filename: C:\Users\Joe\AppData\Local\Temp\Weatherford PreView\0\Crooked_001.dta
Recorded on 06-JAN-2011 18:48
System Versions: Logged with 11.01.2198 Plotted with 11.02.2164

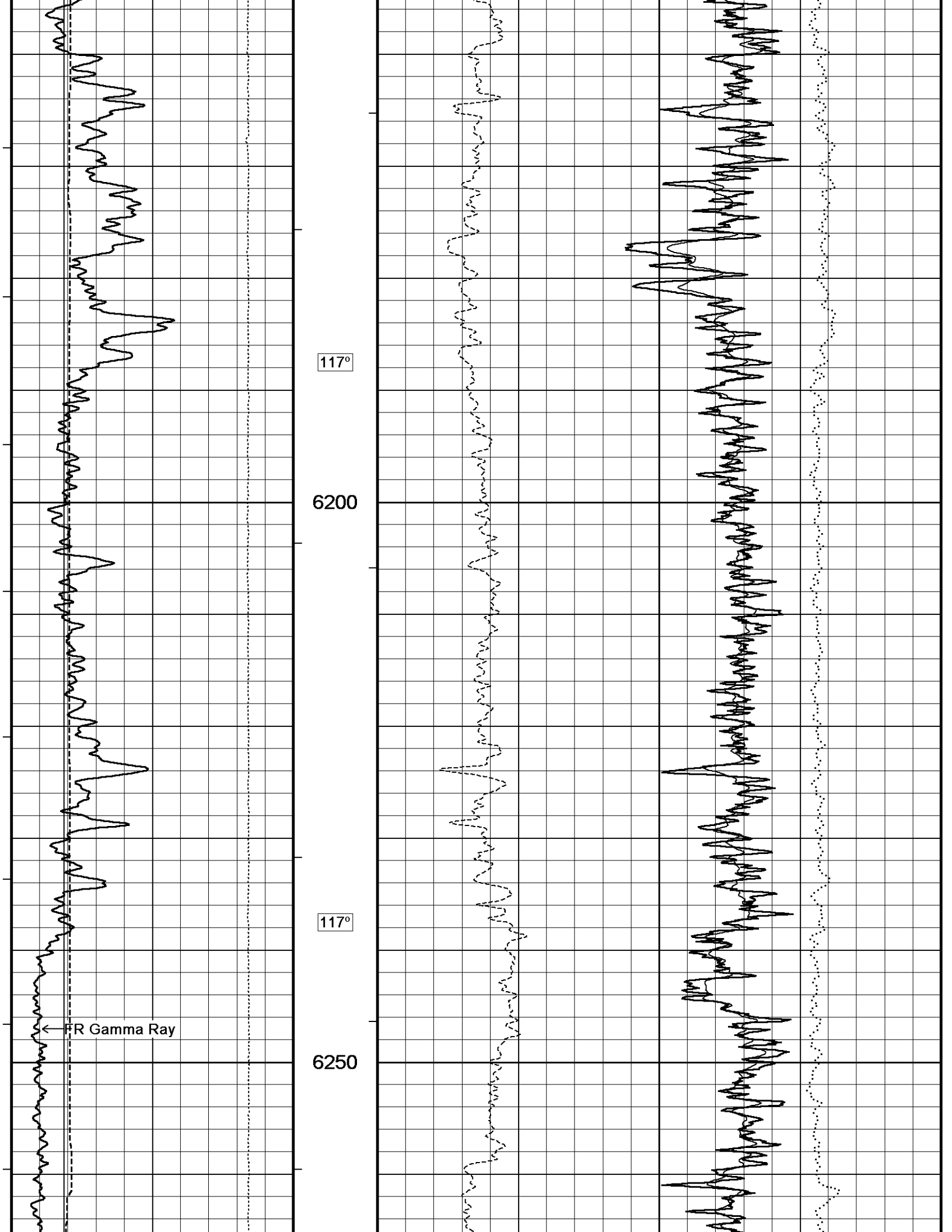


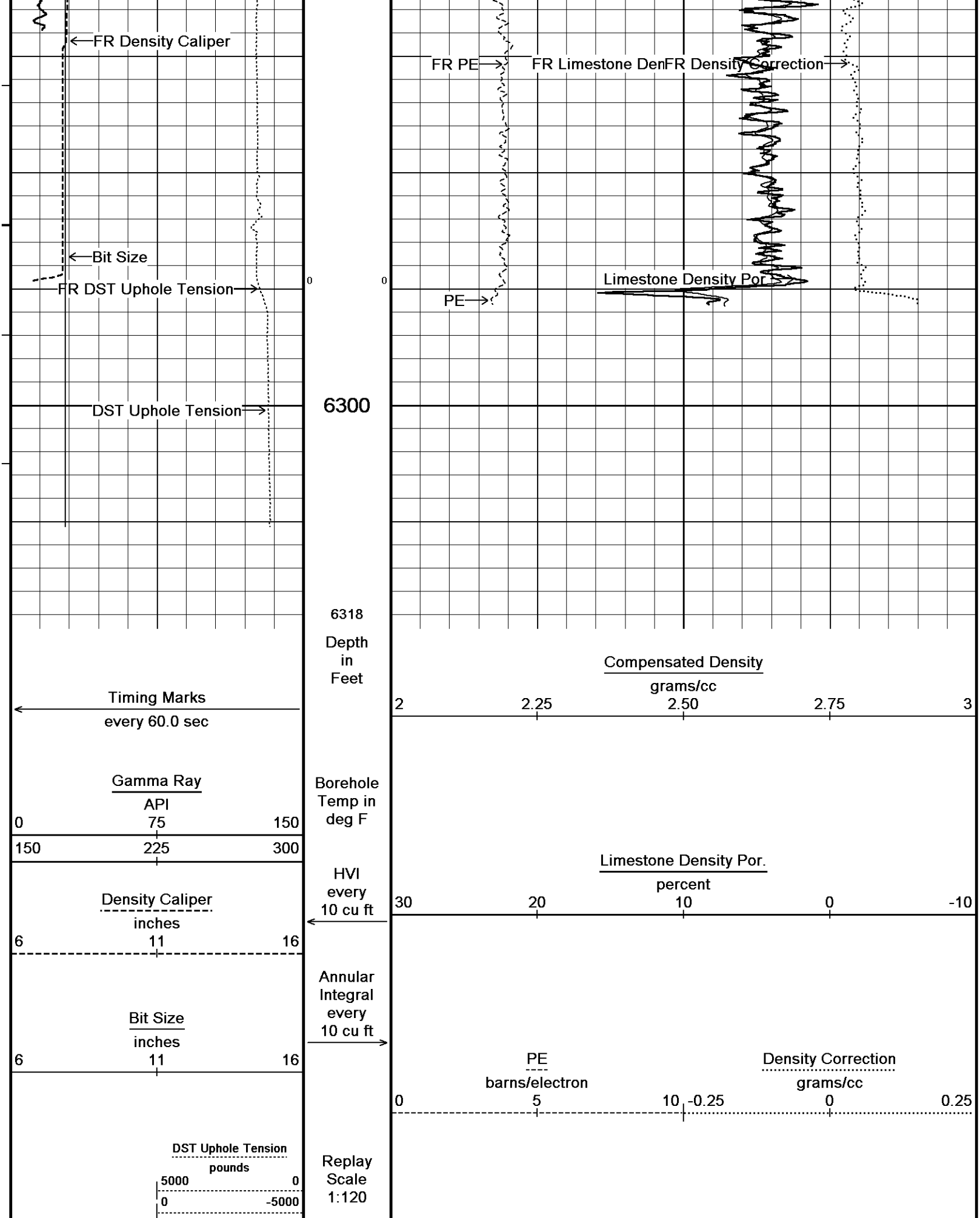

150
225
300
Density Caliper
inches
6
11
16
Bit Size
inches
6
11
16
DST Uphole Tension
pounds
5000
0
0
-5000
HVI
every
10 cu ft
Annular
Integral
every
10 cu ft
Replay
Scale
1:120
Limestone Density Por.
percent
30
20
10
0
-10
PE
barns/electron
0
5
10
Density Correction
grams/cc
-0.25
0
0.25
5750
200
114°
5800


112°
5850
113°
Bit Size
Limestone Density Por.
PE
Compensated Density
5900
Density Correction
Density Caliper
Gamma Ray
DST Uphole Tension


112°
100
5950
113°
6000
100
113°


6050
115°
Bit Size
Limestone Density Por.
PE
Compensated Density
Density Correction
Density Caliper
6100
Gamma Ray
DST Uphole Tension
117°
6150


117°
6200
117°
← FR Gamma Ray
6250



Depth Based Data - Maximum Sampling Increment 2.5cm

Plotted on 28-FEB-2011 17:01

Filename: C:\Users\Joe\AppData\Local\Temp\Weatherford PreView\0\Crooked_001.dta

Recorded on 06-JAN-2011 18:48

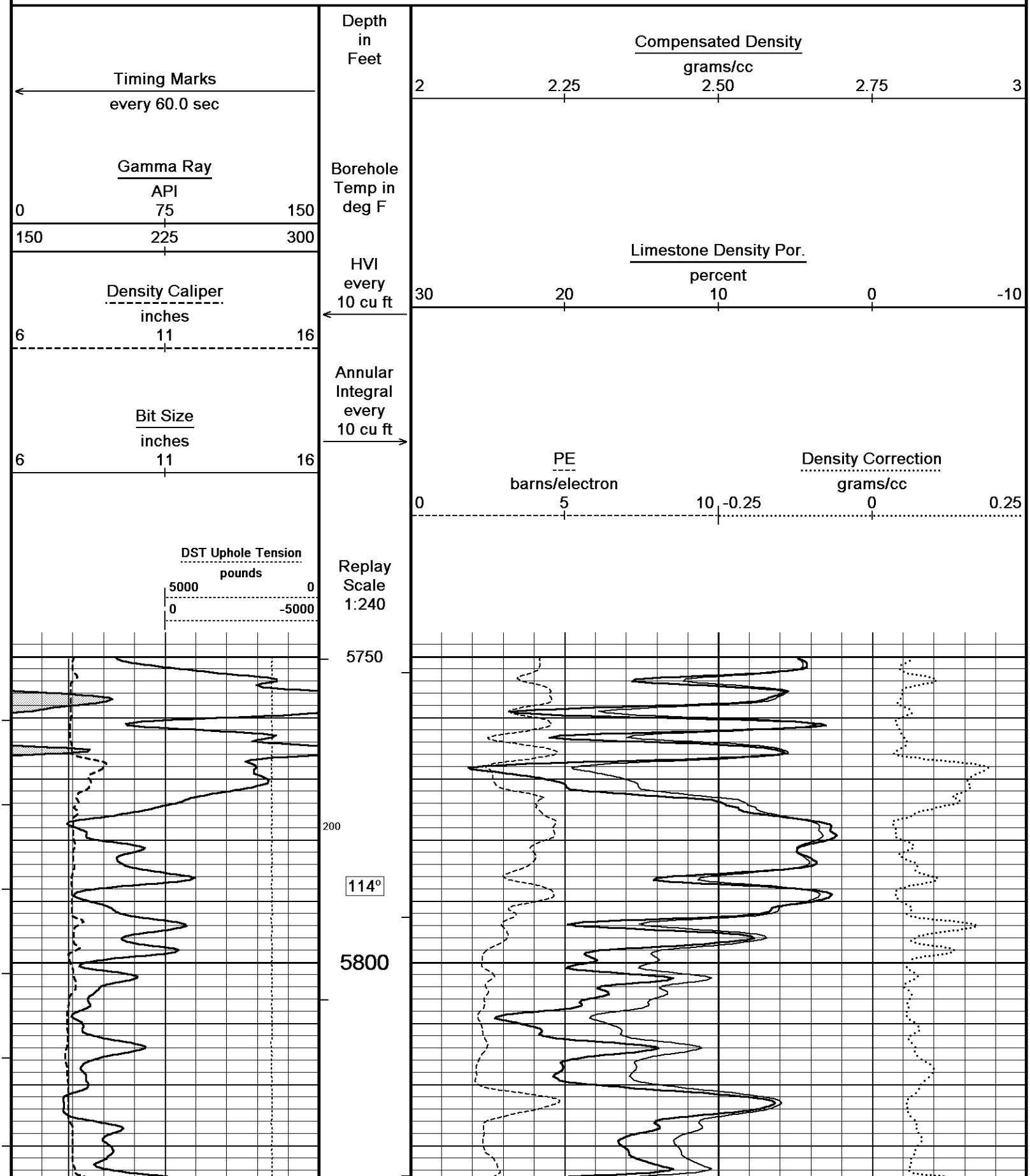
System Versions: Logged with 11.01.2198 Plotted with 11.02.2164

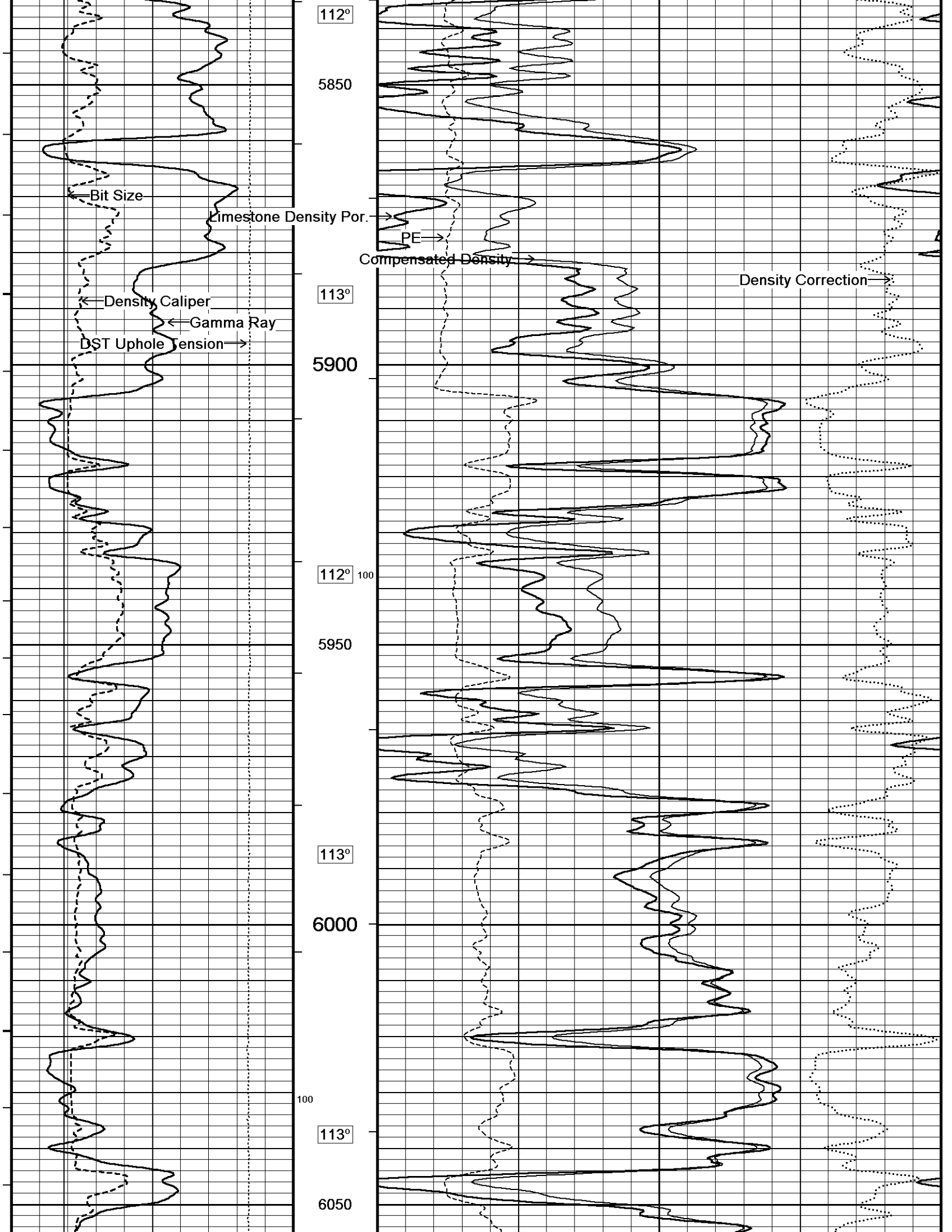
System Versions: Logged with 11.01.2198 Plotted with 11.02.2164

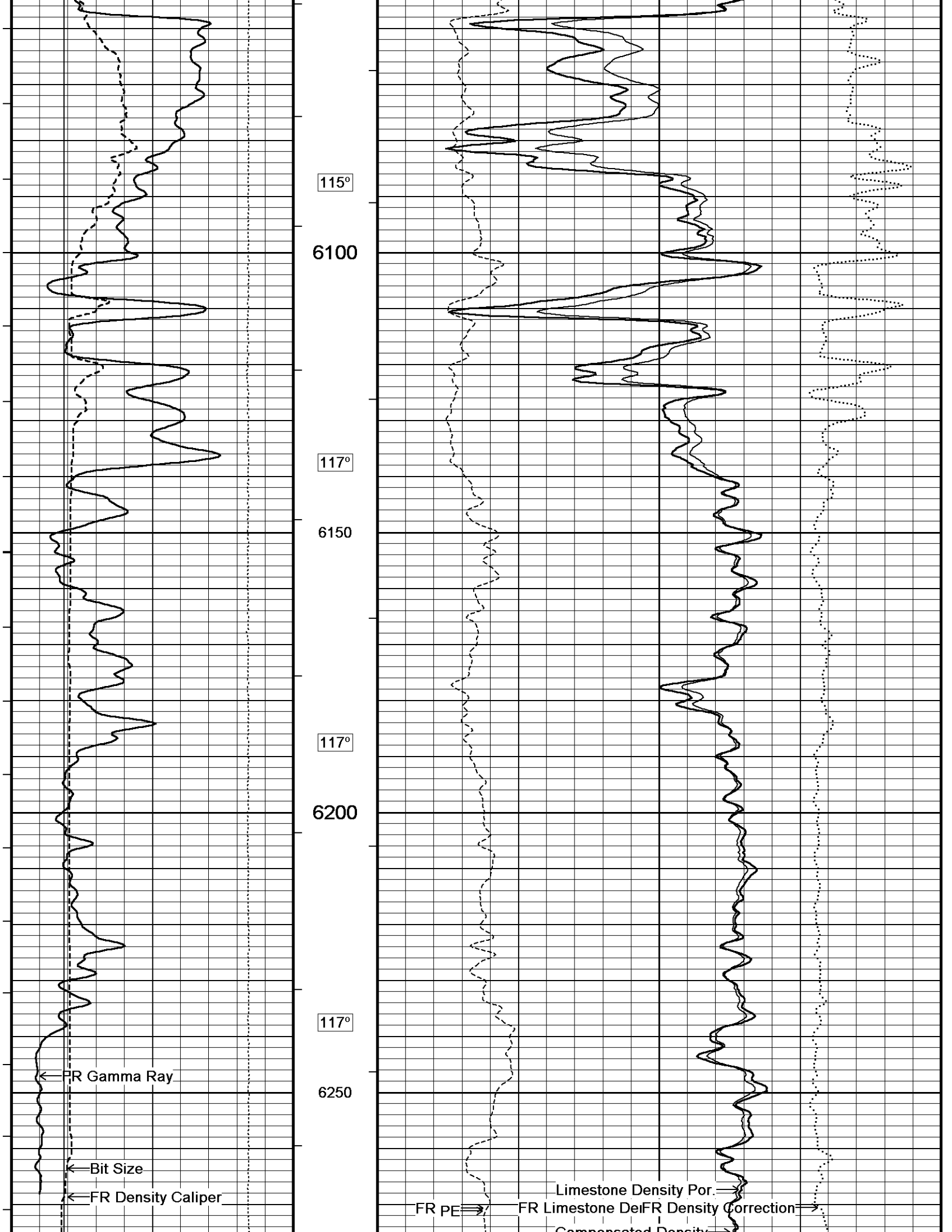
HI RES

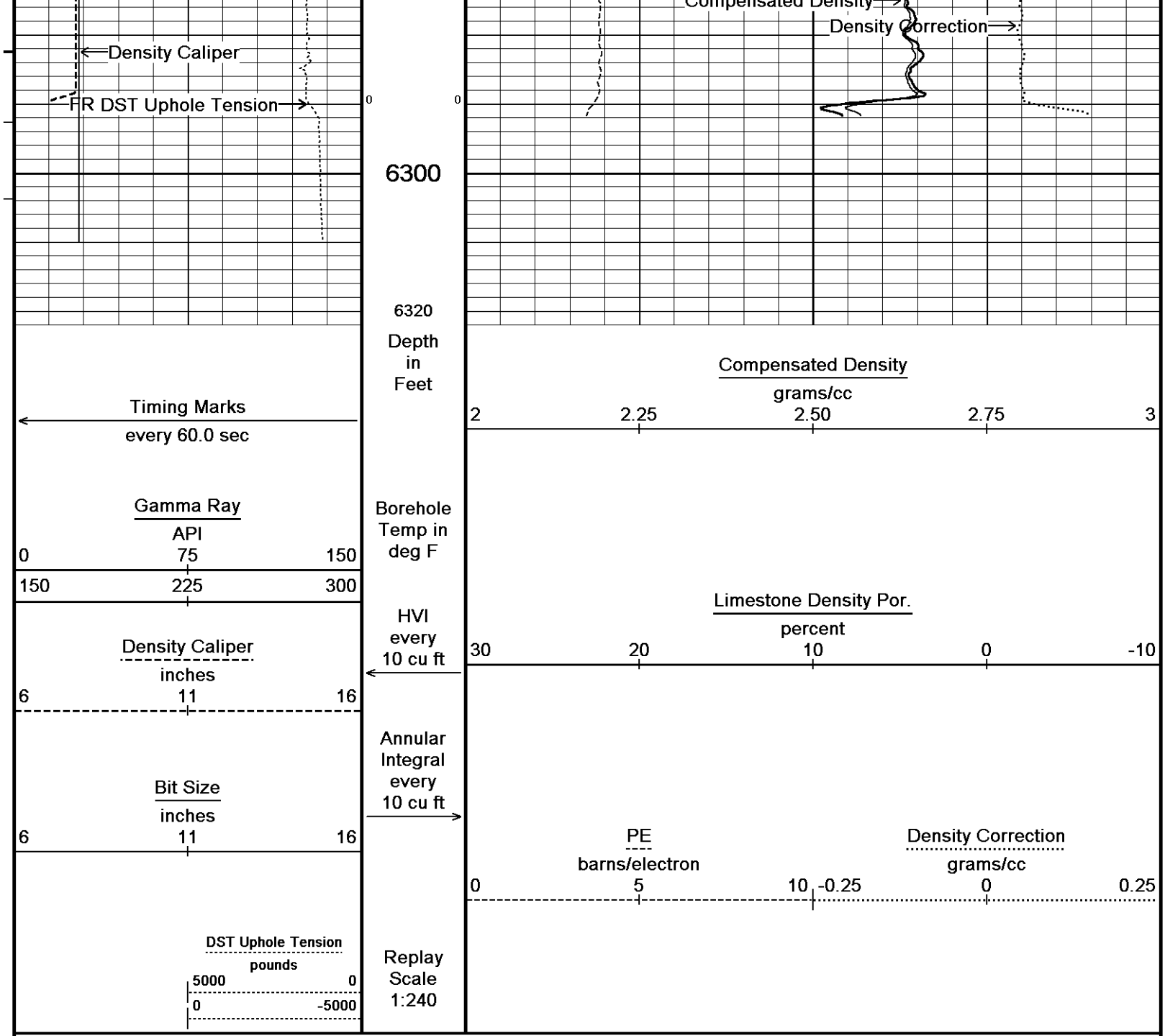
Repeat Section

Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 28-FEB-2011 17:01
Filename: C:\Users\Joe\AppData\Local\Temp\Weatherford PreView\0\Crooked_002.dta
Recorded on 06-JAN-2011 18:48
System Versions: Logged with 11.01.2198 Processed with 11.01.2198 Plotted with 11.02.2164




112°
5850
Bit Size
Limestone Density Por.
PE
Compensated Density
Density Correction
113°
Density Caliper
Gamma Ray
DST Uphole Tension
5900
112°
100
5950
113°
6000
100
113°
6050


115°
6100
117°
6150
117°
6200
117°
6250
FR Gamma Ray
Bit Size
FR Density Caliper
FR PE
Limestone Density Por.
FR Limestone Del
FR Density Correction



Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 28-FEB-2011 17:01
Filename: C:\Users\Joe\AppData\Local\Temp\Weatherford PreView\0\Crooked_002.dta
Recorded on 06-JAN-2011 18:48
System Versions: Logged with 11.01.2198 Processed with 11.01.2198 Plotted with 11.02.2164

Repeat Section

BEFORE SURVEY CALIBRATION

C:\Users\Joe\AppData\Local\Temp\Weatherford PreView\0\Crooked_003 spooled section.dta

General Constants All 000

Last Edited on 06-JAN-2011,17:59

General Parameters

Mud Resistivity	1.370	ohm-metres
Mud Resistivity Temperature	77.000	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	Base Density Porosity
Resistivity used	Deep Induction
RWA Constant A	0.610
RWA Constant M	2.150

Gamma Calibration MCG-C 139

Field Calibration on 05-JAN-2011 09:38

	Measured	Calibrated (API)
Background	66	45
Calibrator (Gross)	1136	770
Calibrator (Net)	1070	725

Gamma Constants MCG-C 139

Last Edited on 06-JAN-2011,17:12

Gamma Calibrator Number	grc38	
Mud Density	1.08	gm/cc
Caliper Source for Processing	Density Caliper	
Tool Position	Eccentred	
Concentration of KCl	0.00	kppm

High Resolution Temperature Calibration MCG-C 139

Field Calibration on 03-SEP-2010,11:23

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

High Resolution Temperature Constants MCG-C 139

Last Edited on

Pre-filter Length	11

Caliper Calibration MPD-B 64

Base Calibration on 08-DEC-2010 14:54
Field Calibration on 05-JAN-2011 09:18

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	13984	4.01
2	22186	5.96
3	30624	7.98
4	39280	9.95
5	48256	11.91
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
5.89	5.96

Photo Density Calibration MPD-B 64

Base Calibration on 08-DEC-2010 15:12
Field Check on 05-JAN-2011 09:16

Density Calibration

Base Calibration	Measured		Calibrated (sdu)	
	Near	Far	Near	Far
Reference 1	59920	31154	59556	30836
Reference 2	24094	2745	24941	2541

Field Check at Base

1109.3	1368.8

Field Check

1110.1	1365.3

PE Calibration

Base Calibration	Measured			Calibrated
	WS	WH	Ratio	Ratio
Background	201	992		
Reference 1	22663	59734	0.382	0.371
Reference 2	6474	23966	0.273	0.272

Field Check at Base

201.5	992.0

Field Check		
	201.9	993.1

Density Constants MPD-B 64

Last Edited on 06-JAN-2011,17:13

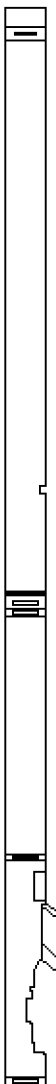
Density Source Id	P50557B	
Nylon Calibrator Number	dnce695	
Aluminium Calibrator Number	dacd698	
Density Shoe Profile	8 inch	
Caliper Source for Processing	Density Caliper	
PE Correction to Density	Not Applied	
Mud Density	1.08	gm/cc
Mud Density Z/A Multiplier	1.11	
Mud Filtrate Density	1.00	gm/cc
Dry Hole Mud Filtrate Density	1.00	gm/cc
DNCT	0.00	gm/cc
CRCT	0.00	gm/cc
Density Z/A Correction	Hybrid	

Matrix Density (gm/cc)	Depth (ft)
2.71	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	

DOWNHOLE EQUIPMENT

C:\Users\Joe\AppData\Local\Temp\Weatherford PreView\0\Crooked_003 spooled section.dta

Compact Comms Gamma
MCG-C 139 LG: 8.70 ft WT: 63.9 lb OD: 2.24 in

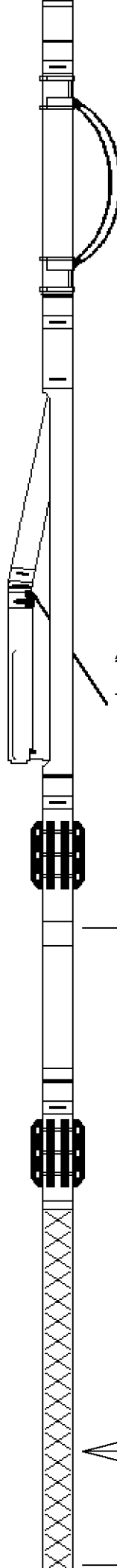


42.85 ft GRGC - Gamma Ray

39.94 ft CGXT - MCG External Temperature

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

33.23 ft MNRL - Micro-normal
33.23 ft MINV - Micro-inverse
34.22 ft MLTC - MML Caliper



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

28.43 ft NPRL - Limestone Neutron Por.

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

21.19 ft HVOL - Hole Volume
21.19 ft AVOL - Annular Volume
21.19 ft CLDC - Density Caliper
19.26 ft DCOR - Density Correction
19.26 ft DEN - Compensated Density
19.26 ft DPRL - Limestone Density Por.
19.20 ft PDPE - PE

Compact Focussed Electric
MFE-A.A 52 LG: 6.03 ft WT: 48.5 lb OD: 2.24 in

13.70 ft FEFE - Shallow FE

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

3.34 ft R60O - Array Ind. One Res 60
3.34 ft RTAO - Array Ind. One Res Rt
3.34 ft R40O - Array Ind. One Res 40

0.23 ft SPCG - Spontaneous Potential

Tool Zero (0.13ft from bottom)

-0.13 ft SMTU - DST Uphole Tension

Total Length: 48.14 ft Weight: 383.6 lb All measurements relative to tool zero.

COMPANY	O'Brien Energy
WELL	Crooked Creek #2-8
FIELD	Unknown
PROVINCE/COUNTY	Meade
COUNTRY/STATE	U.S.A. / Kansas

Elevation Kelly Bushing	2680.00	feet	First Reading	6268.00	feet
Elevation Drill Floor	2679.00	feet	Depth Driller	6284.00	feet
Elevation Ground Level	2668.00	feet	Depth Logger	6290.00	feet

Weatherford®

COMPACT PHOTO DENSITY
COMPENSATED NEUTRON

40 Years of Wireline 1970 2010

Weatherford®

ARRAY INDUCTION SHALLOW FOCUSSED ELECTRIC LOG

COMPANY	O'Brien Energy
WELL	Crooked Creek #2-8
FIELD	Unknown
PROVINCE/COUNTY	Meade
COUNTRY/STATE	U.S.A. / Kansas
LOCATION	330' FSL & 660' FEL

40 Years of Wireline 1970 2010

SEC	TWP	RGE	Other Services
8	33S	29W	MPD/MDN
			MML

API Number 15-119-21276
Permit Number

Permanent Datum G.L., Elevation 2668 feet
Log Measured From K.B. @ 12 feet above Permanent Datum
Drilling Measured From K.B.

Elevations:	feet
KB	2680.00
DF	2679.00
GL	2668.00

Date	06-JAN-2011			
Run Number	One			
Depth Driller	6284.00	feet		
Depth Logger	6290.00	feet		
First Reading	6277.00	feet		
Last Reading	1443.00	feet		
Casing Driller	1488.00	feet		
Casing Logger	1443.00	feet		
Bit Size	7.875	inches		
Hole Fluid Type	Chemical			
Density / Viscosity	9.00 lb/USg	52.00 CP		
PH / Fluid Loss	10.50	6.40 ml/30Min		
Sample Source	Flowline			
Rm @ Measured Temp	1.37 @ 77.0	ohm-m		
Rmf @ Measured Temp	1.10 @ 77.0	ohm-m		
Rmc @ Measured Temp	1.64 @ 77.0	ohm-m		
Source Rmf / Rmc	calc	calc		
Rm @ BHT	0.88 @120.0	ohm-m		
Time Since Circulation	4 Hours			
Max Recorded Temp	120.00	deg F		
Equipment Name	Compact			
Equipment / Base	13025	LIB		
Recorded By	Steven Tottey			
Witnessed By	Roger Pearson			
S.O. # / Job #	3514444		LB10-002	

BOREHOLE RECORD

Last Edited: 06-JAN-2011 21:01

Bit Size inches	Depth From feet	Depth To feet
7.875	1443.00	6290.00

CASING RECORD

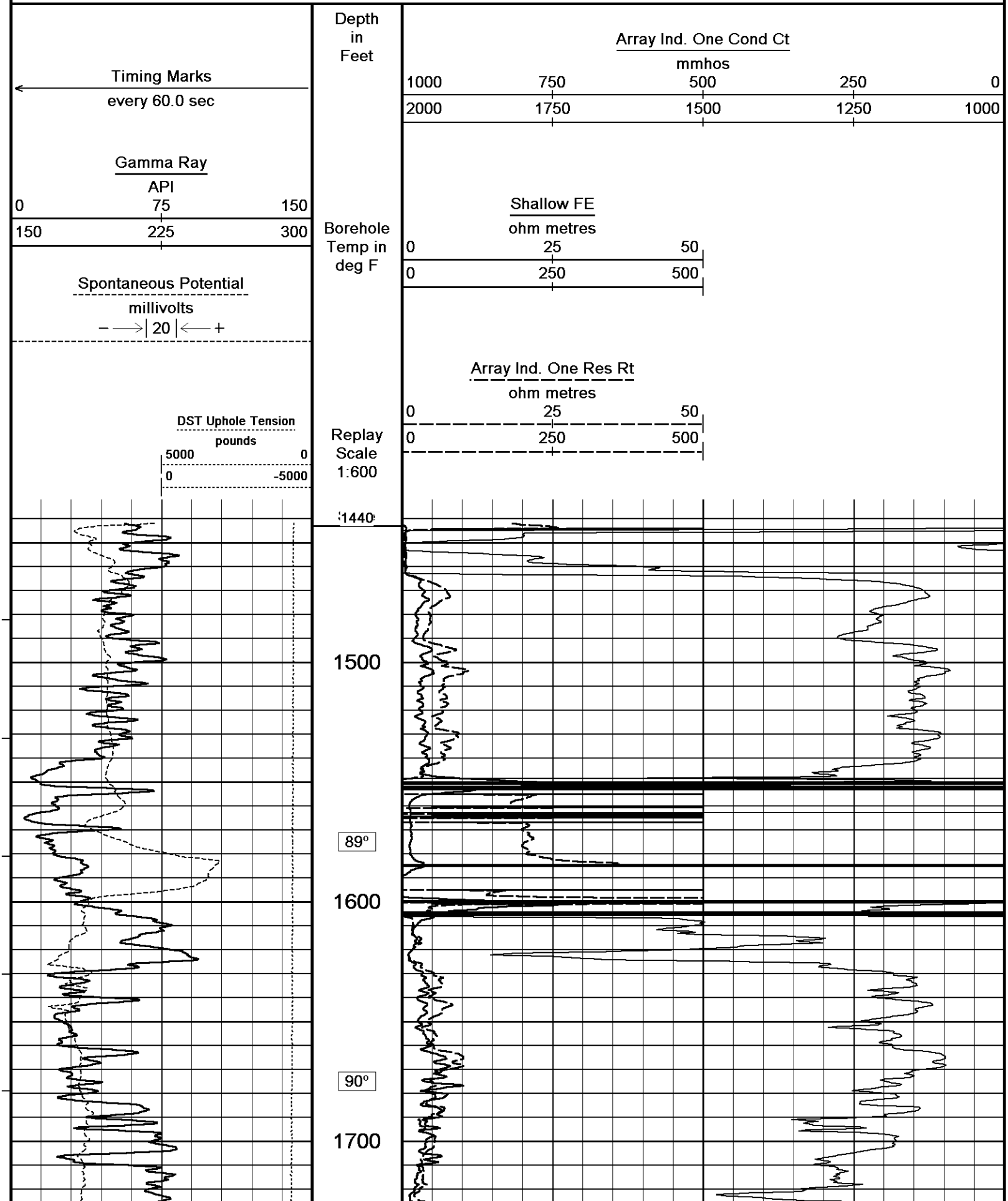
Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
Surface	8.625	0.00	1443.00	24.00

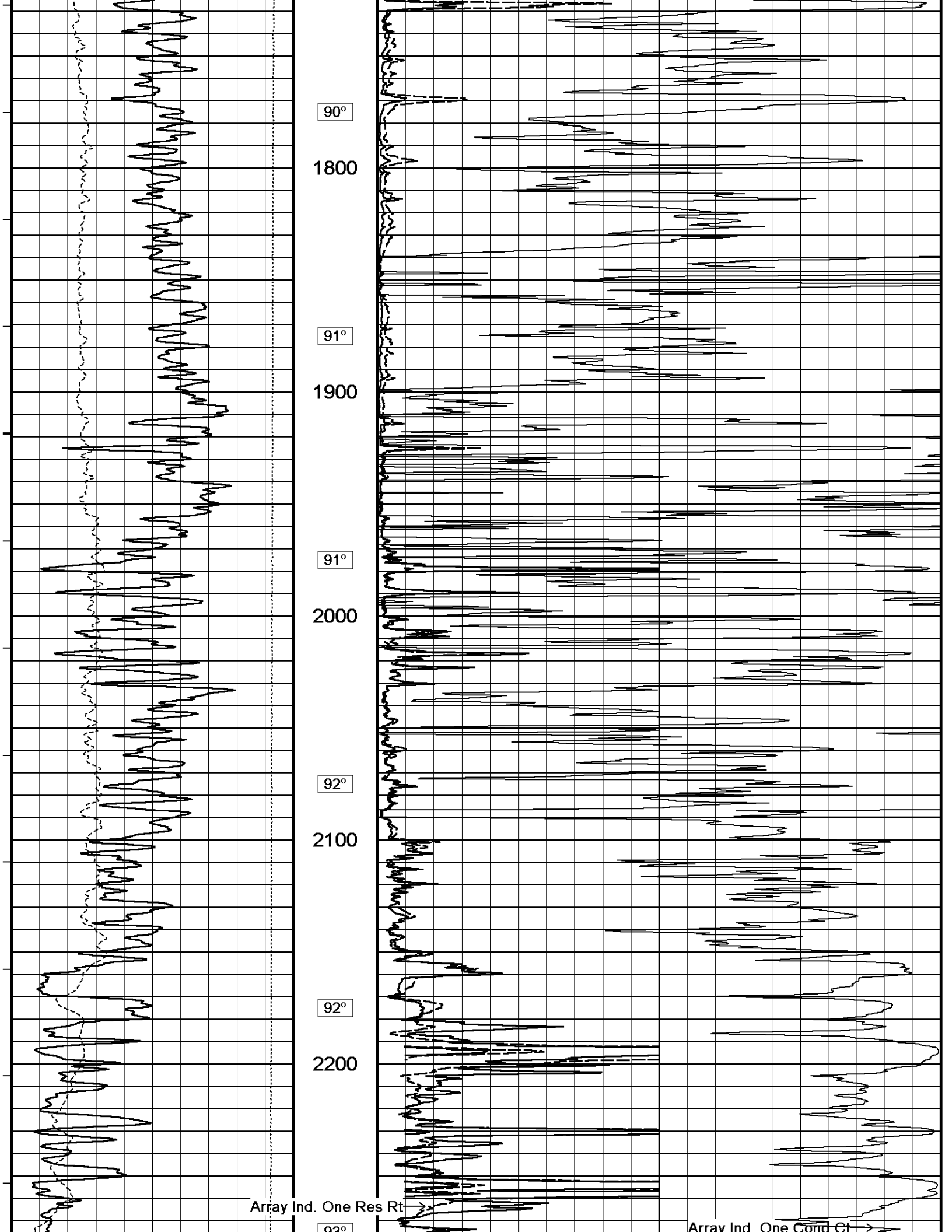
REMARKS

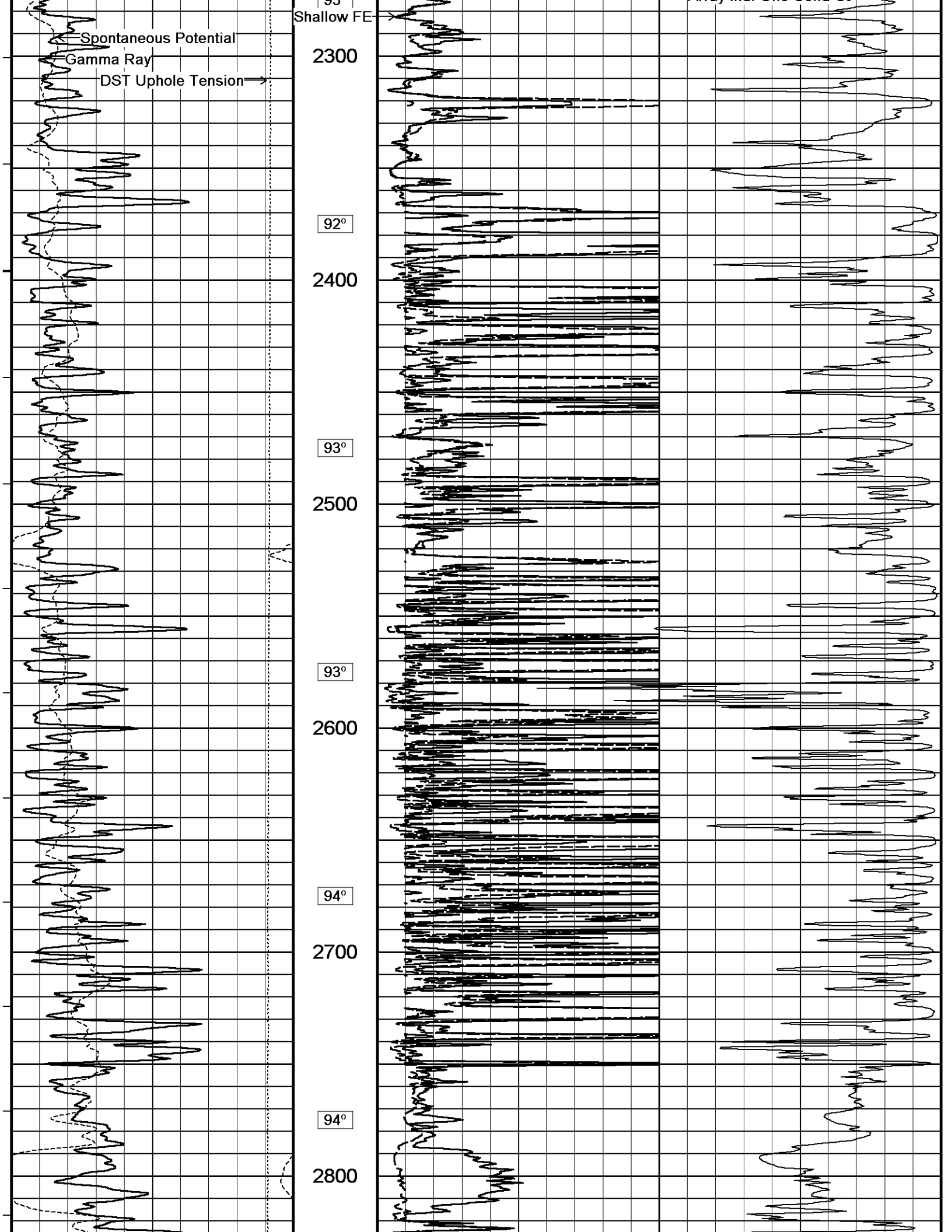
Tools Run: MAI, MPD, MCG, MDN, MFE, MML,
Hardware: MPD: 8 inch profile plate used. MAI and MFE: 0.5 inch standoffs used. MDN: Dual Eccentralizer used.
2.71 G/CC Limestone density matrix used to calculate porosity.
Borhole rugosity, tight pulls, and washouts will affect data quality.
All intervals logged and scaled per customer's request.
Annular volume with 4.5 inch production casing:
Service order #3514444
Rig: Duke #6
Engineer(s): Steven Tottey
Operator: N. Adame
A loose joint was found at 1554 feet to 1600 feet

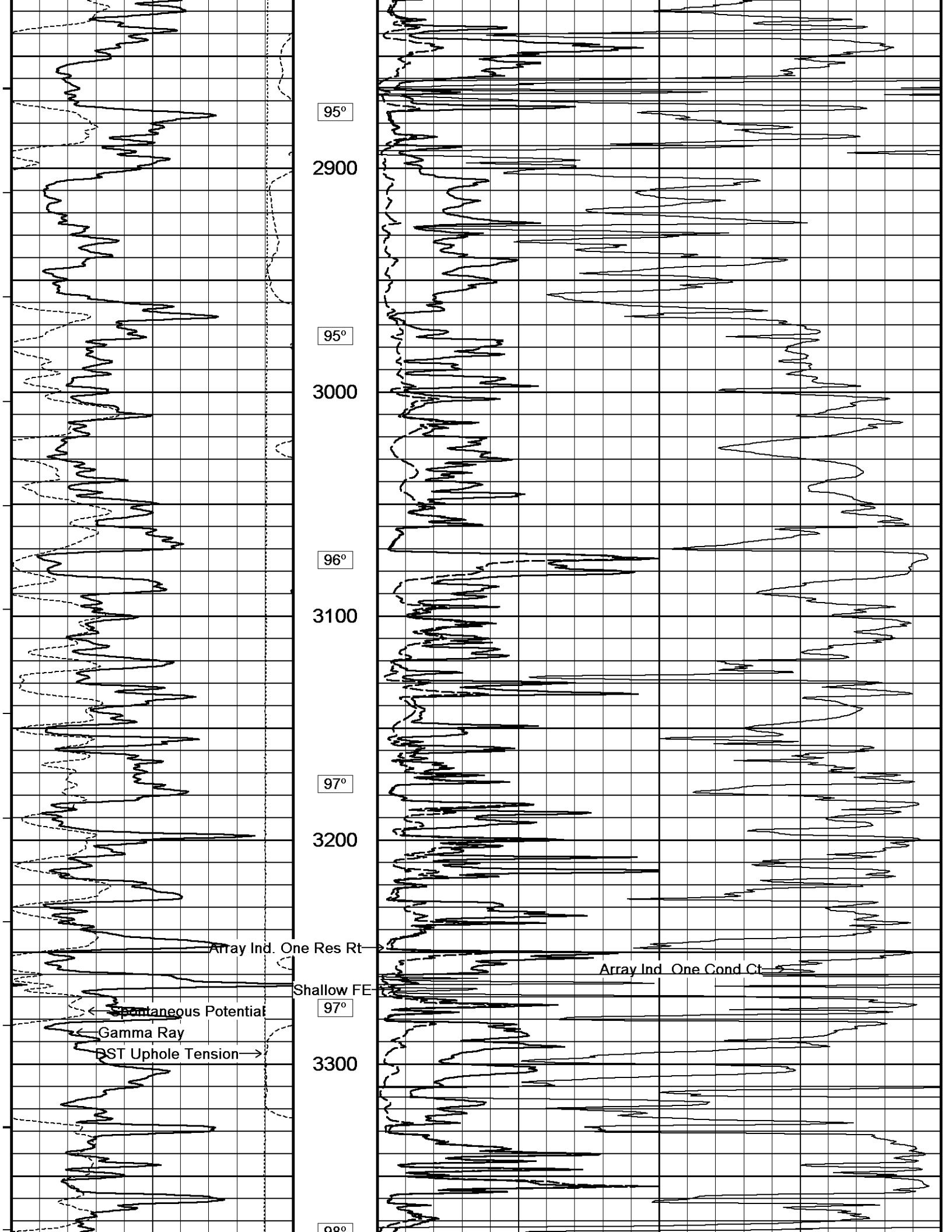
2 Inch Main Pass

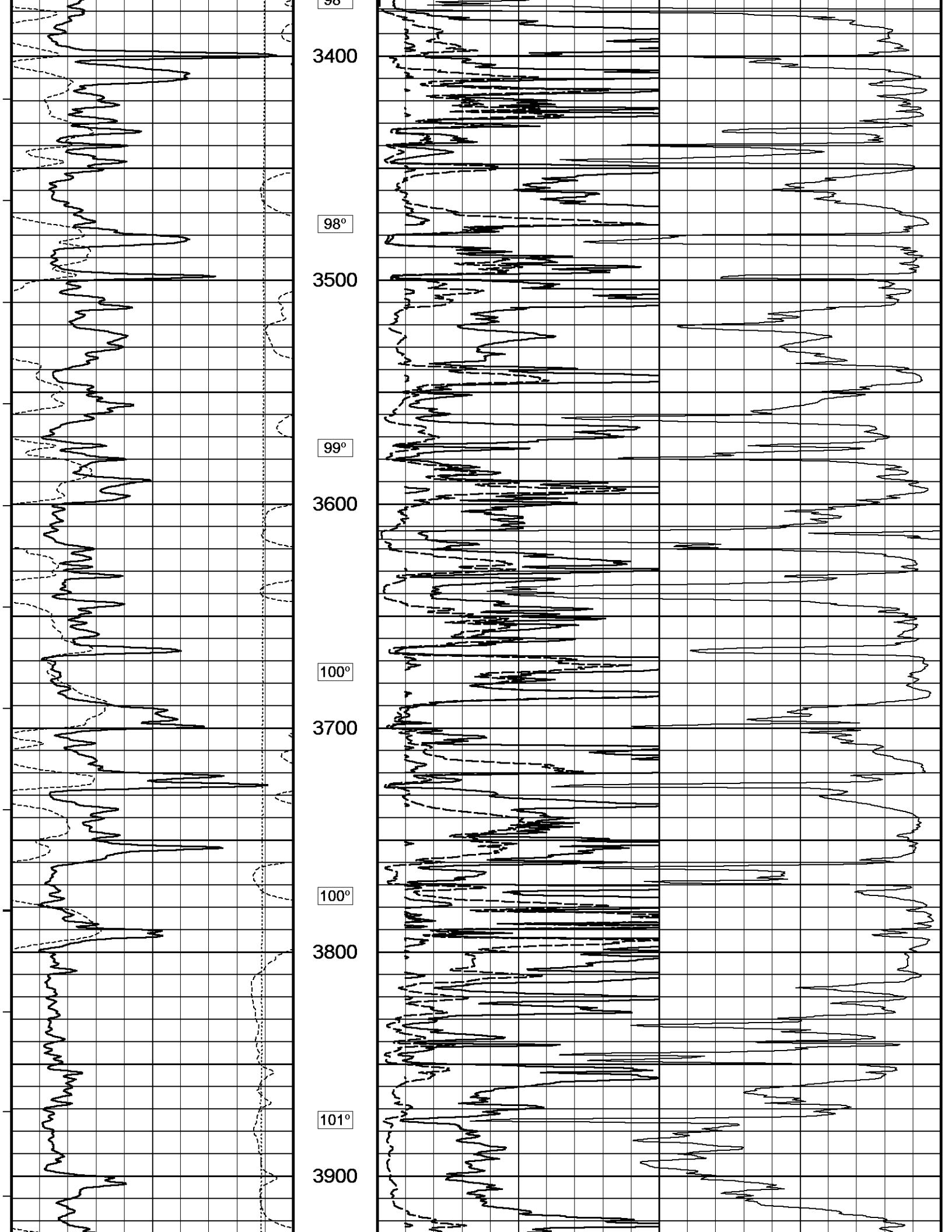
Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 28-FEB-2011 17:01
Filename: C:\Users\Joe\AppData\Local\Temp\Weatherford PreView\0\Crooked_003.dta
Recorded on 06-JAN-2011 19:46
System Versions: Logged with 11.01.2198 Processed with 11.01.2198 Plotted with 11.02.2164

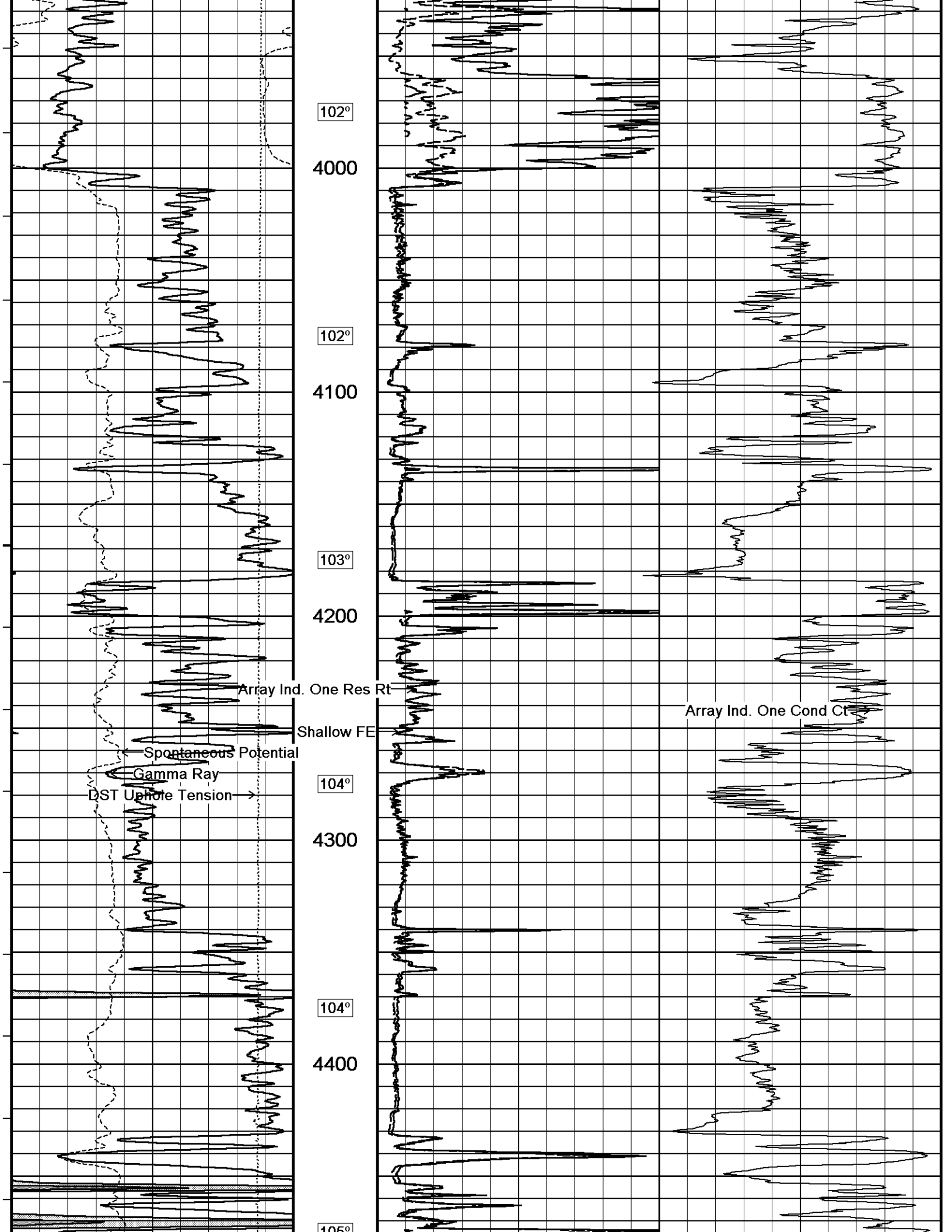


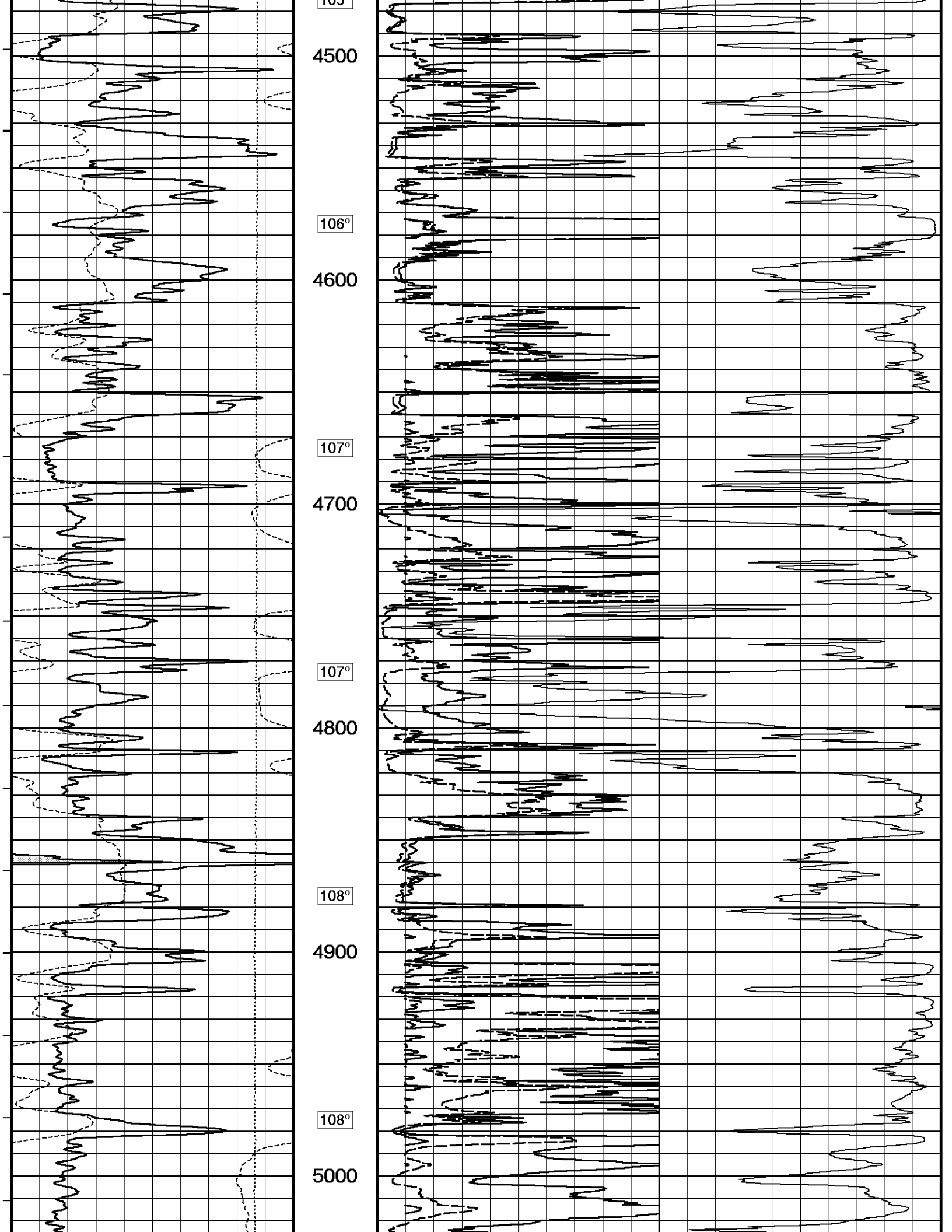

90°
1800
91°
1900
91°
2000
92°
2100
92°
2200
Array Ind. One Res Rt
Array Ind. One Cond Ct

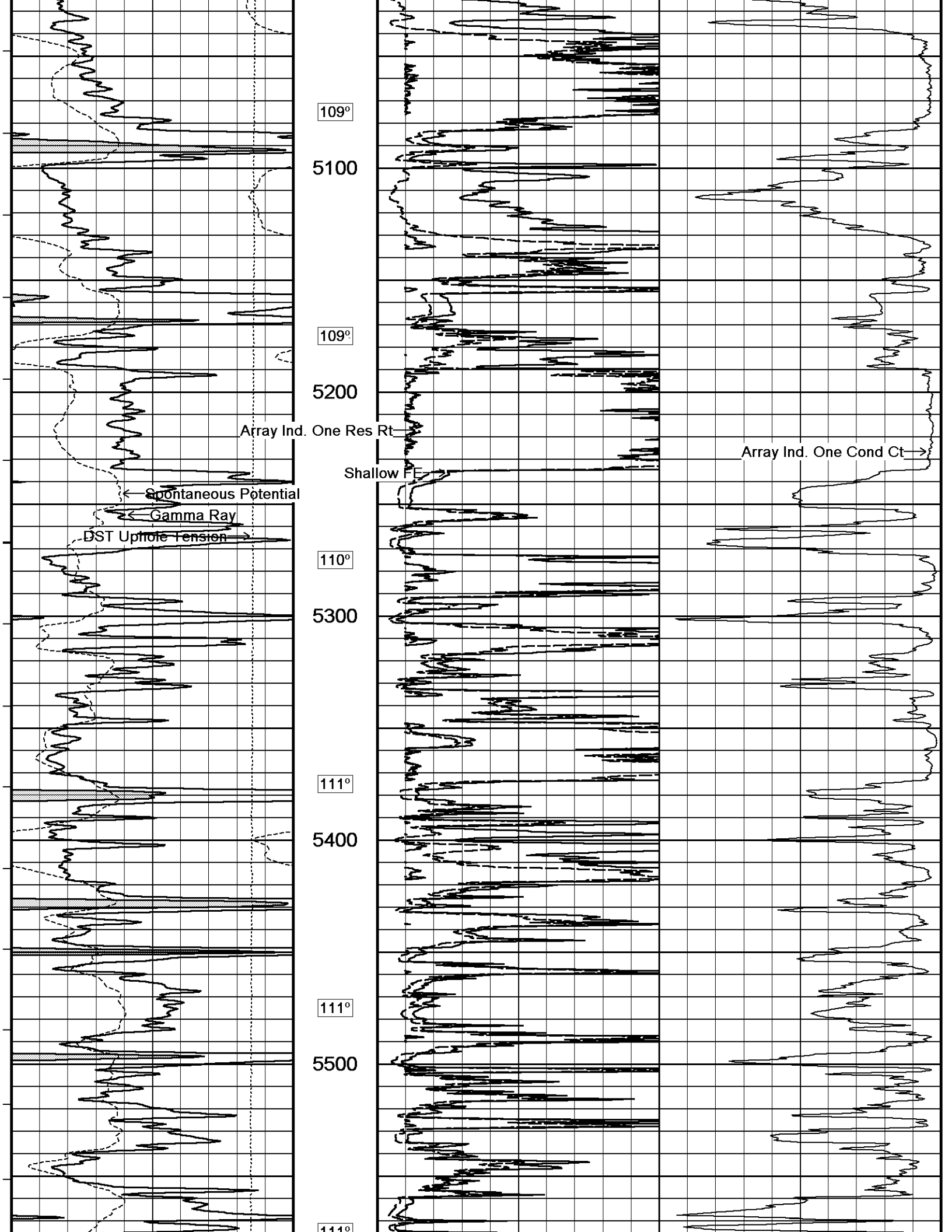

Shallow FE
Spontaneous Potential
Gamma Ray
DST Uphole Tension
2300
92°
2400
93°
2500
93°
2600
94°
2700
94°
2800

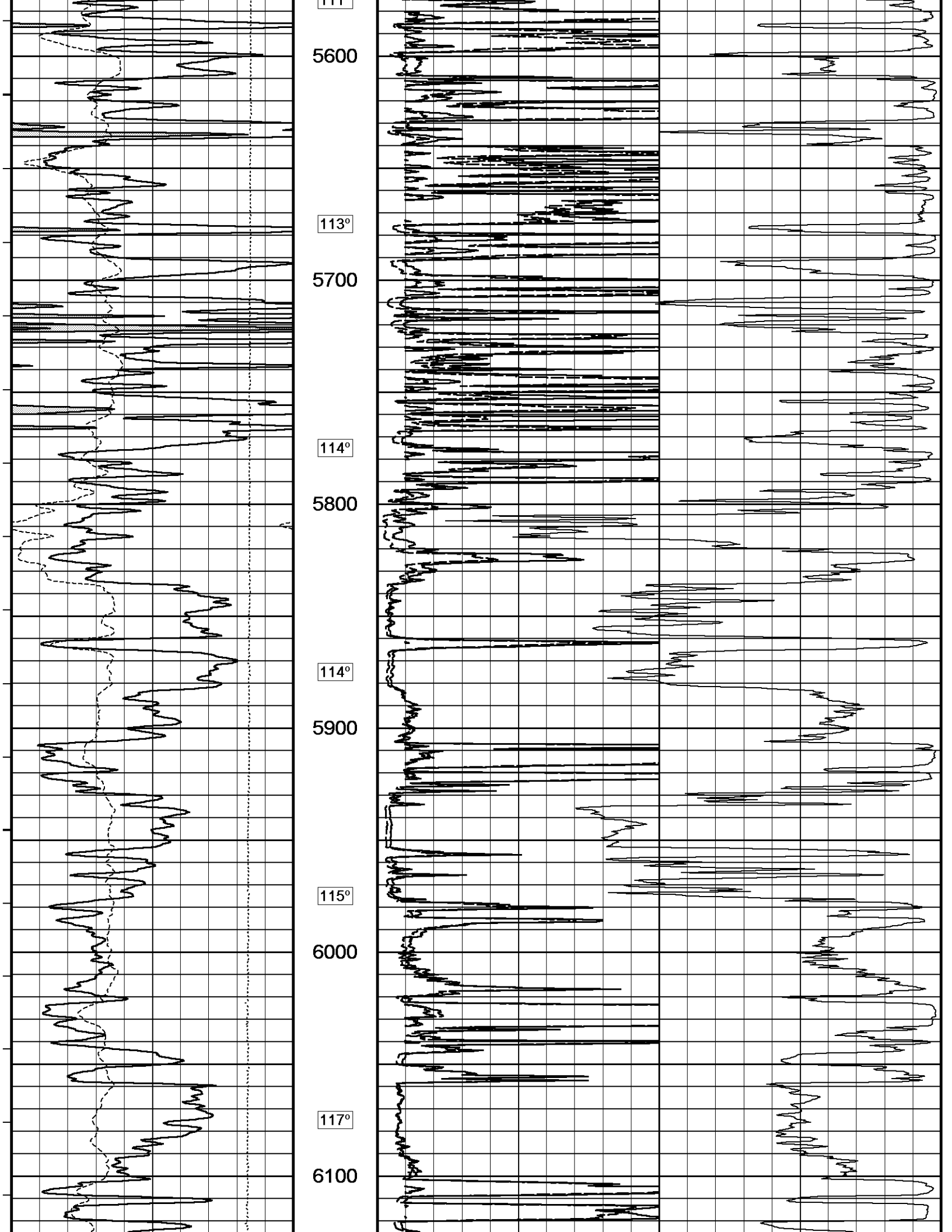

95°
2900
95°
3000
96°
3100
97°
3200
Array Ind. One Res Rt
Array Ind. One Cond Ct
Shallow FE
97°
Spontaneous Potential
Gamma Ray
DST Uphole Tension
3300

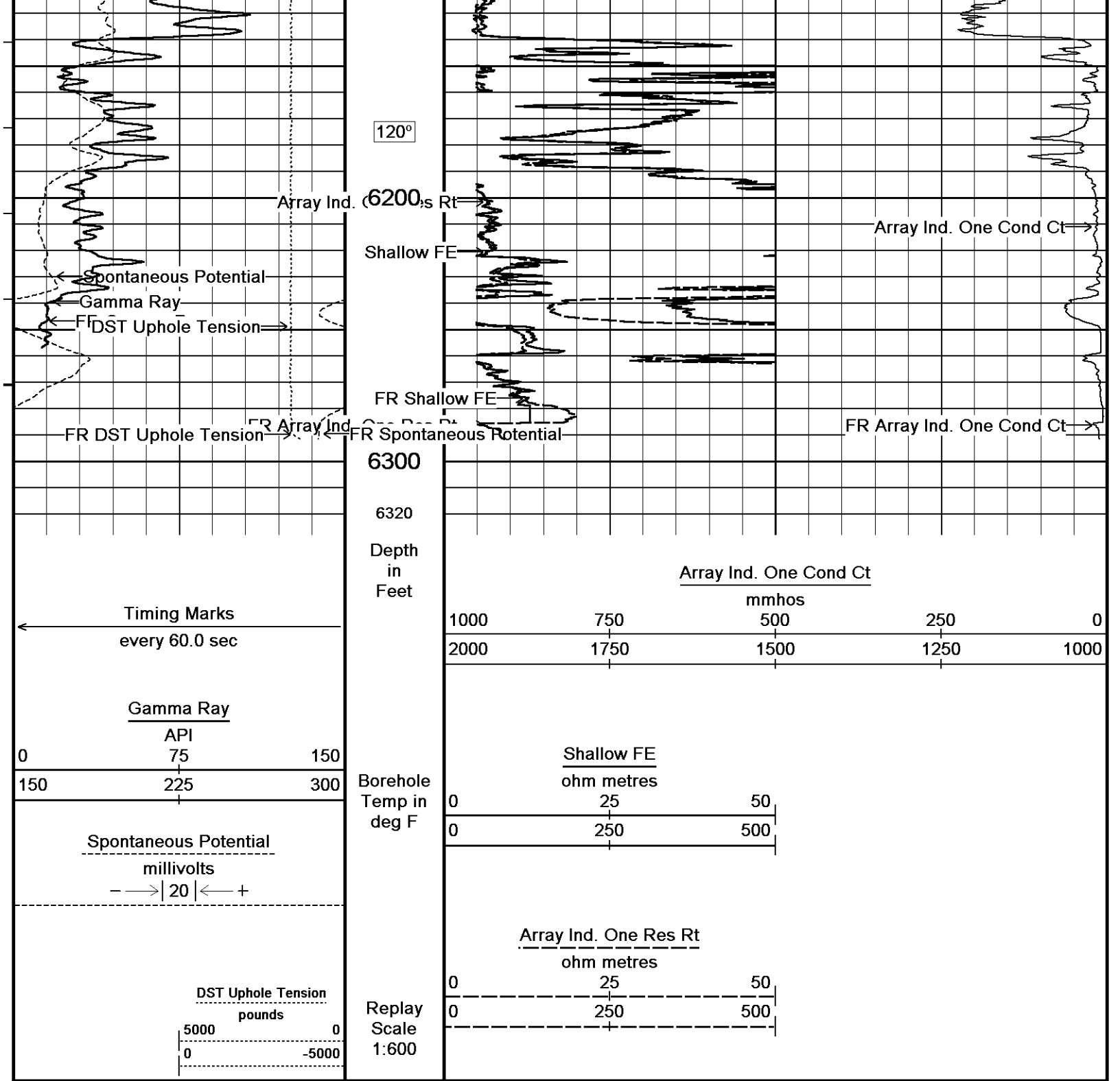

98°
3400
98°
3500
99°
3600
100°
3700
100°
3800
101°
3900


102°
4000
102°
4100
103°
4200
Array Ind. One Res Rt
Shallow FE
Spontaneous Potential
Gamma Ray
DST Uphole Tension
104°
4300
Array Ind. One Cond Ct
104°
4400


105°
4500
106°
4600
107°
4700
107°
4800
108°
4900
108°
5000


109°
5100
109°
5200
Array Ind. One Res Rt
Array Ind. One Cond Ct
Shallow FE
Spontaneous Potential
Gamma Ray
DST Uphole Tension
110°
5300
111°
5400
111°
5500
111°


111
5600
113°
5700
114°
5800
114°
5900
115°
6000
117°
6100

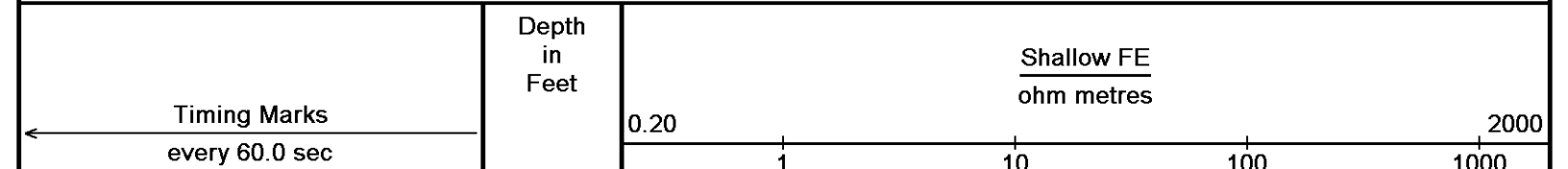


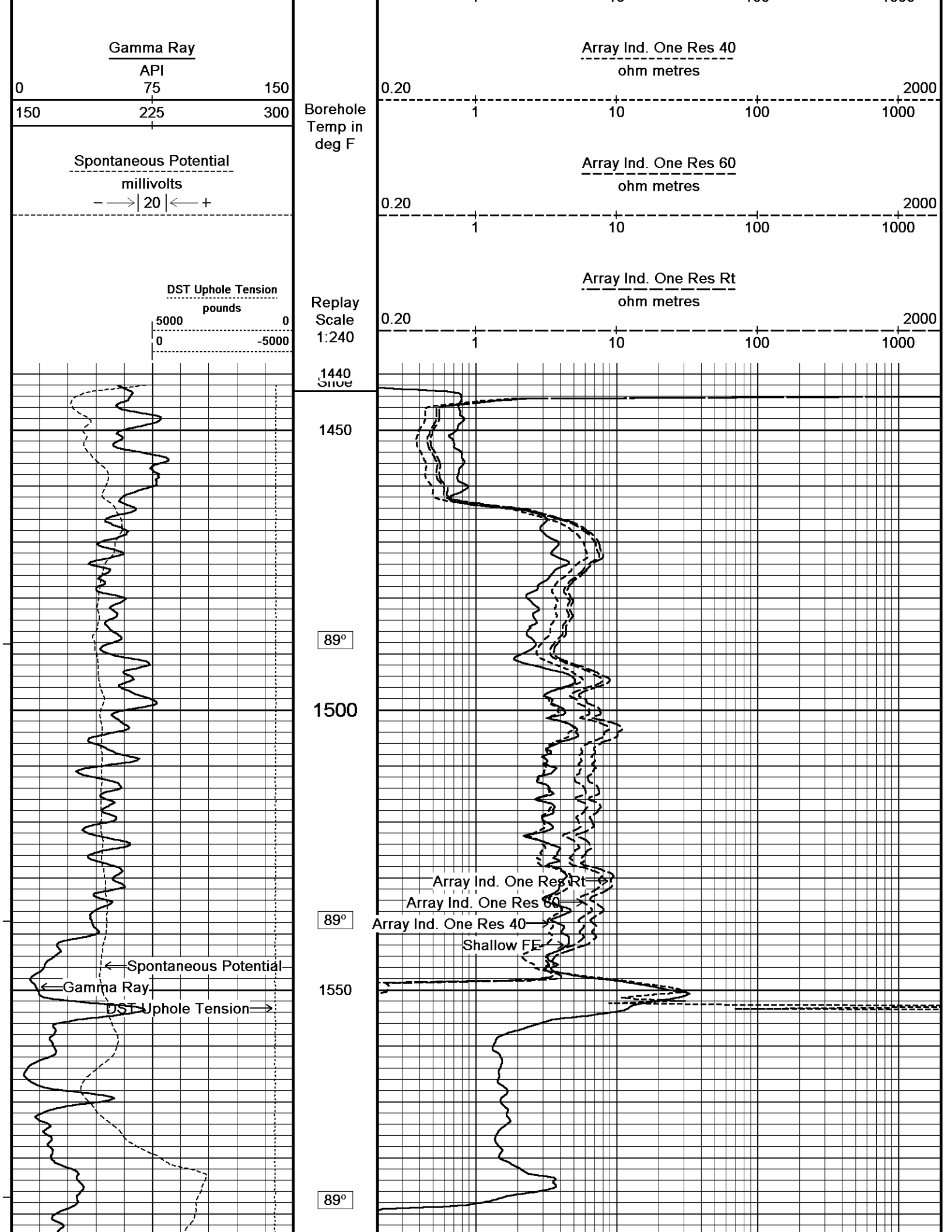
Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 28-FEB-2011 17:01
Filename: C:\Users\Joe\AppData\Local\Temp\Weatherford PreView\0\Crooked_003.dta
Recorded on 06-JAN-2011 19:46
System Versions: Logged with 11.01.2198 Processed with 11.01.2198 Plotted with 11.02.2164

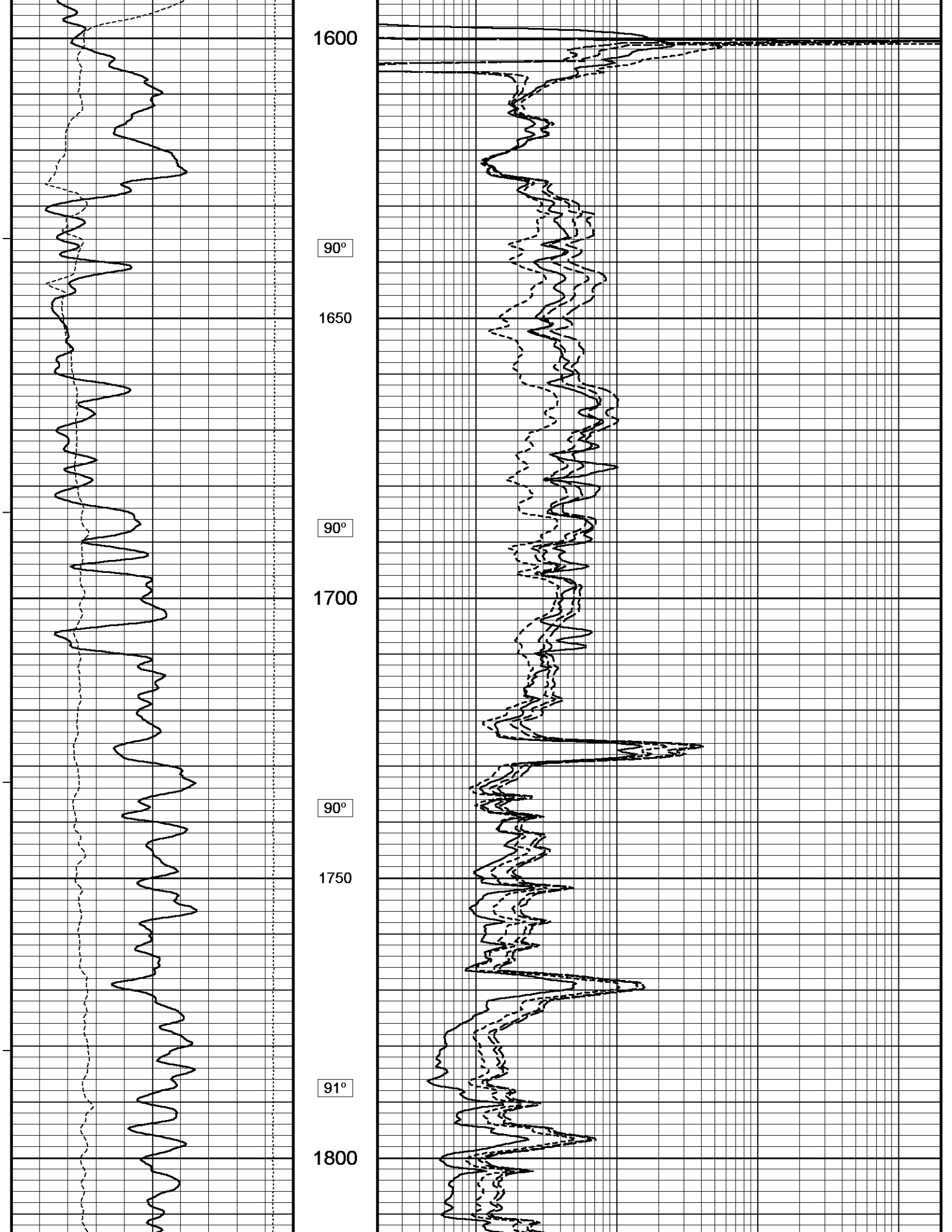
2 Inch Main Pass

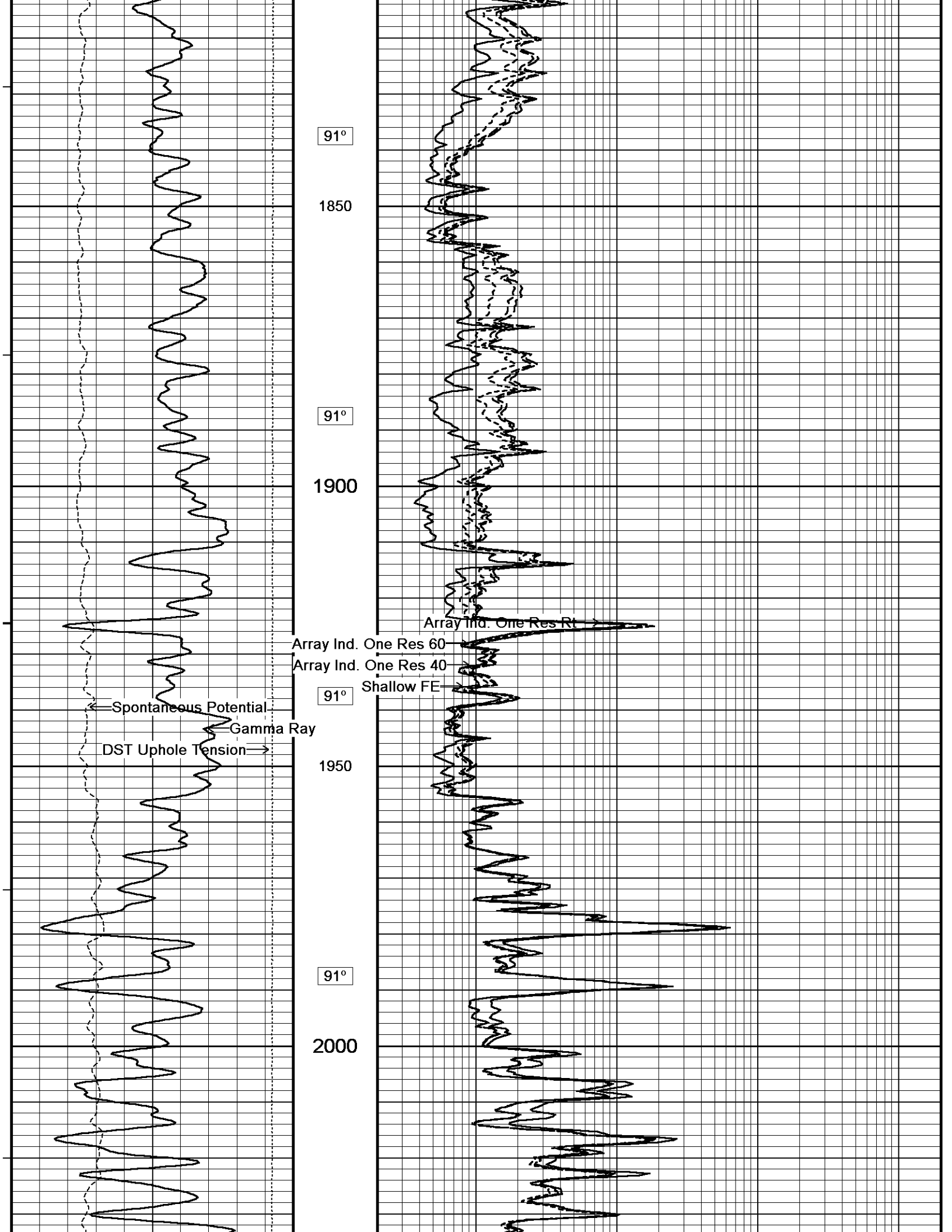
5 Inch Main Pass

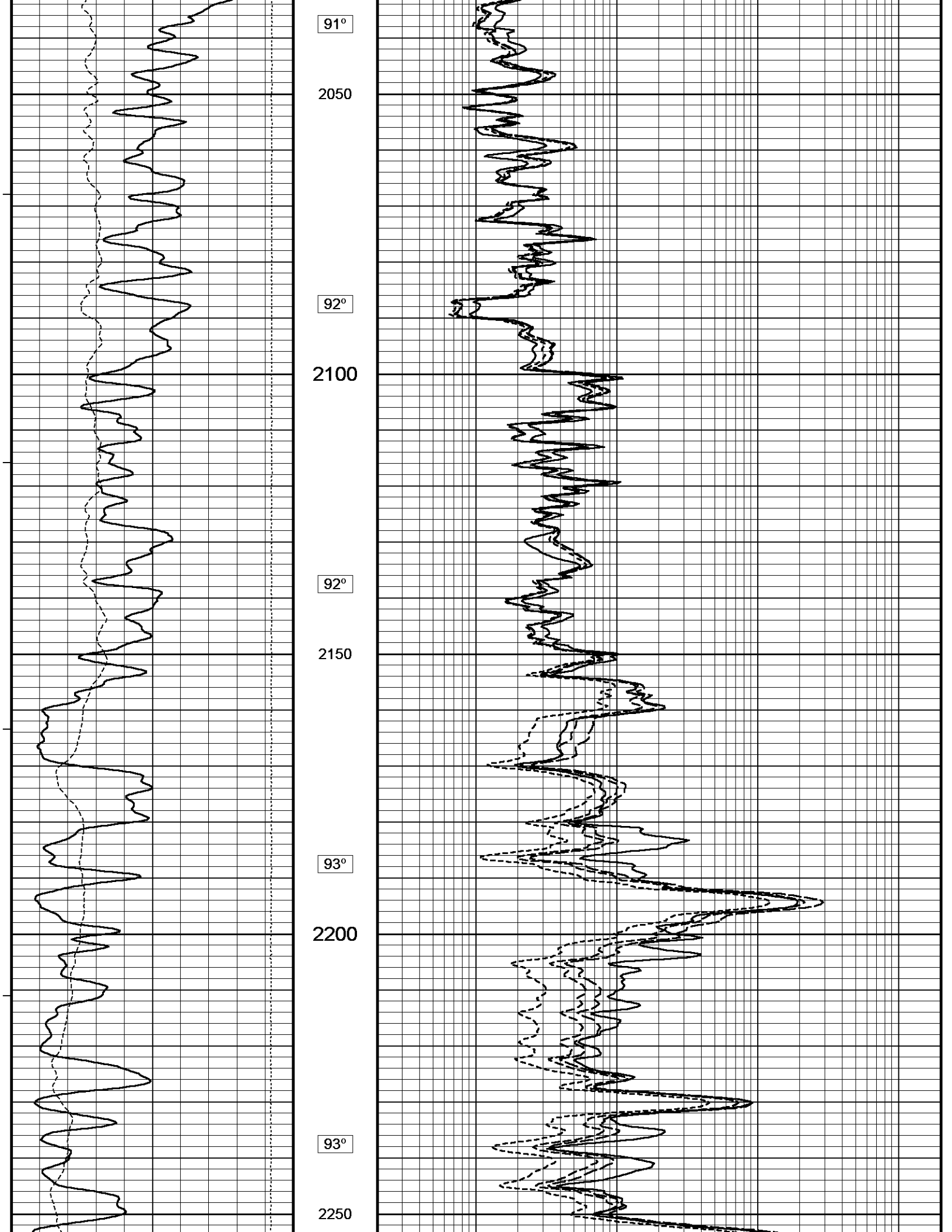
Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 28-FEB-2011 17:01
Filename: C:\Users\Joe\AppData\Local\Temp\Weatherford PreView\0\Crooked_003.dta
Recorded on 06-JAN-2011 19:46
System Versions: Logged with 11.01.2198 Processed with 11.01.2198 Plotted with 11.02.2164

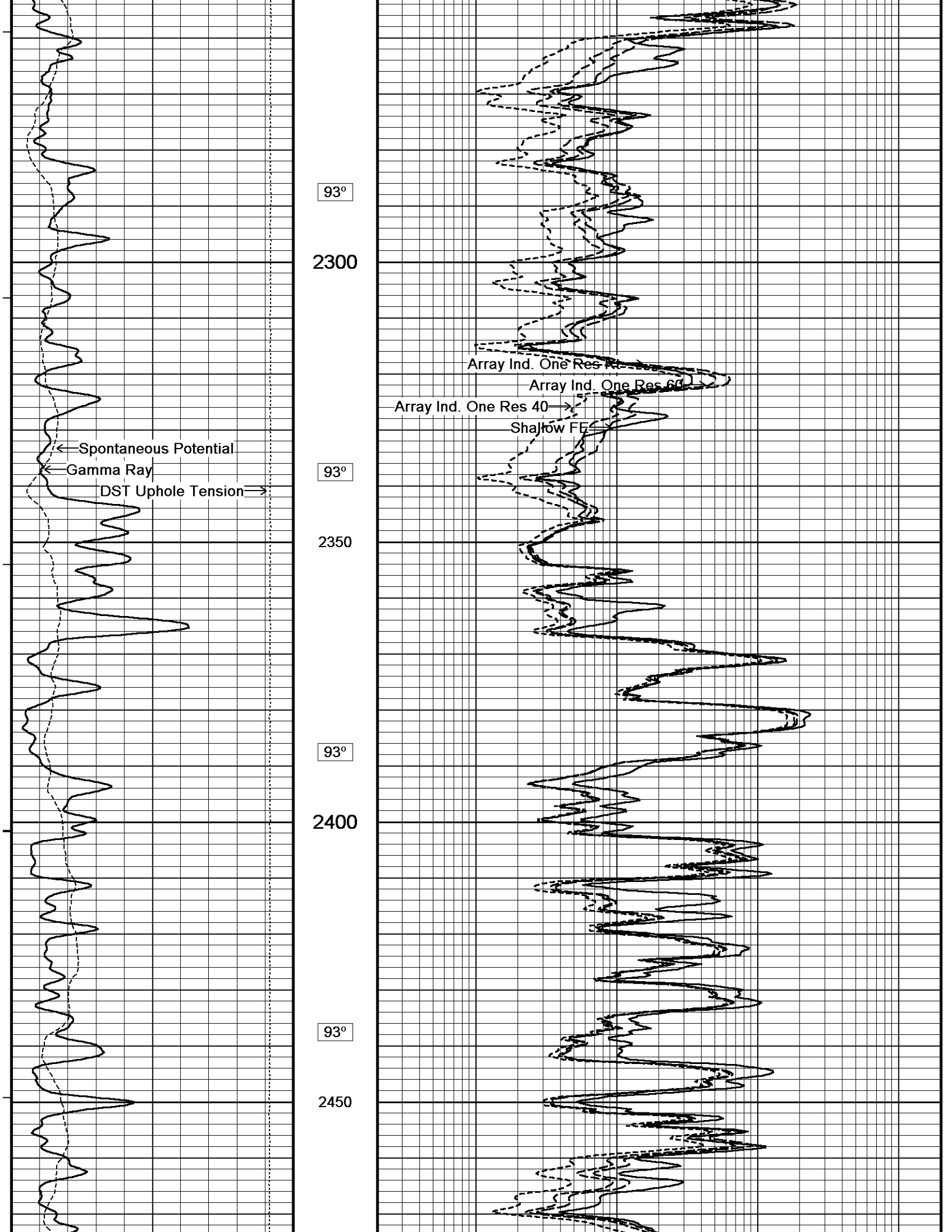


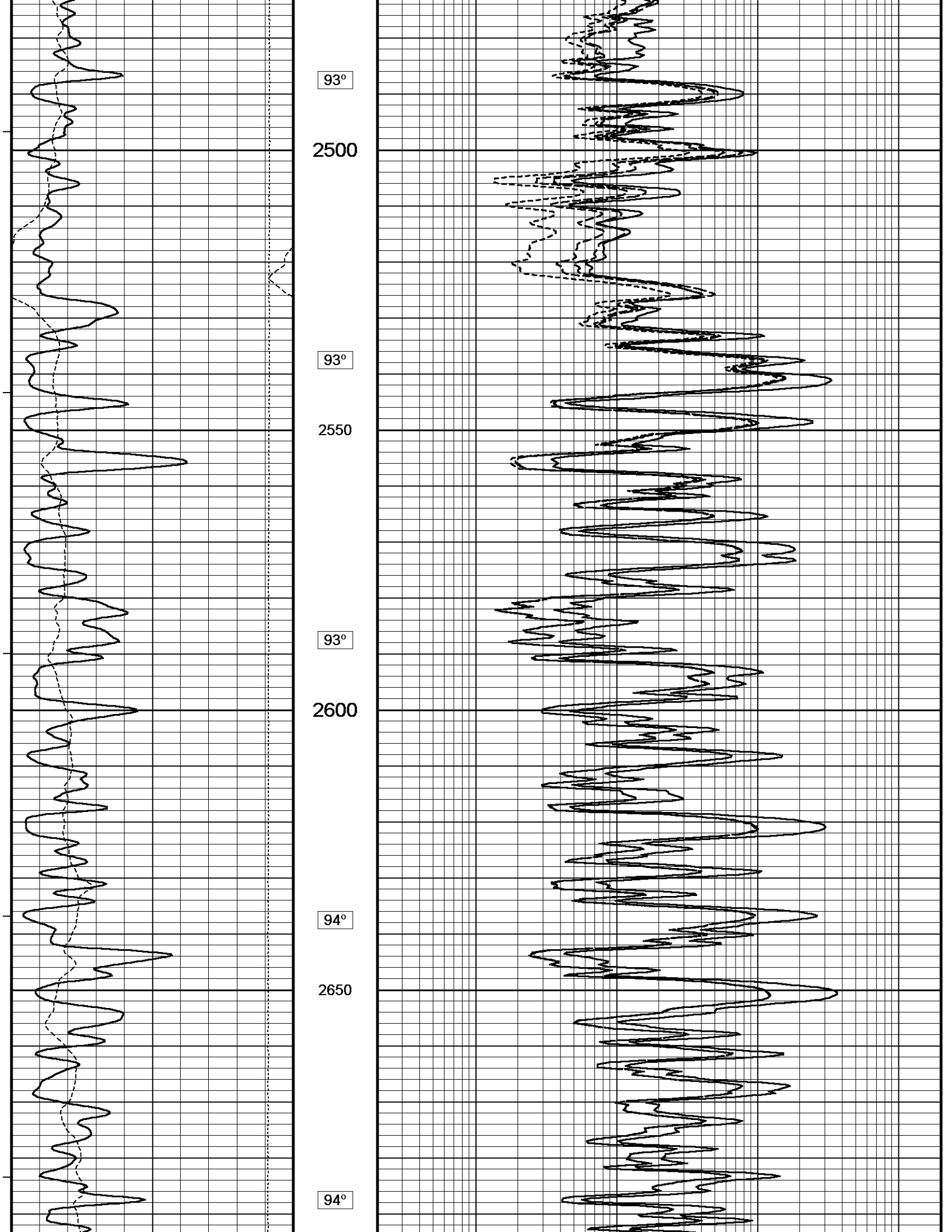

Gamma Ray
API
0
75
150
150
225
300
Spontaneous Potential
millivolts
− 20 +
DST Uphole Tension
pounds
5000
0
0
-5000
Borehole Temp in deg F
Replay Scale 1:240
Array Ind. One Res 40
ohm metres
0.20
1
10
100
1000
2000
Array Ind. One Res 60
ohm metres
0.20
1
10
100
1000
2000
Array Ind. One Res Rt
ohm metres
0.20
1
10
100
1000
2000
1440
Shoe
1450
89°
1500
89°
1550
89°
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Shallow FE
Spontaneous Potential
Gamma Ray
DST Uphole Tension

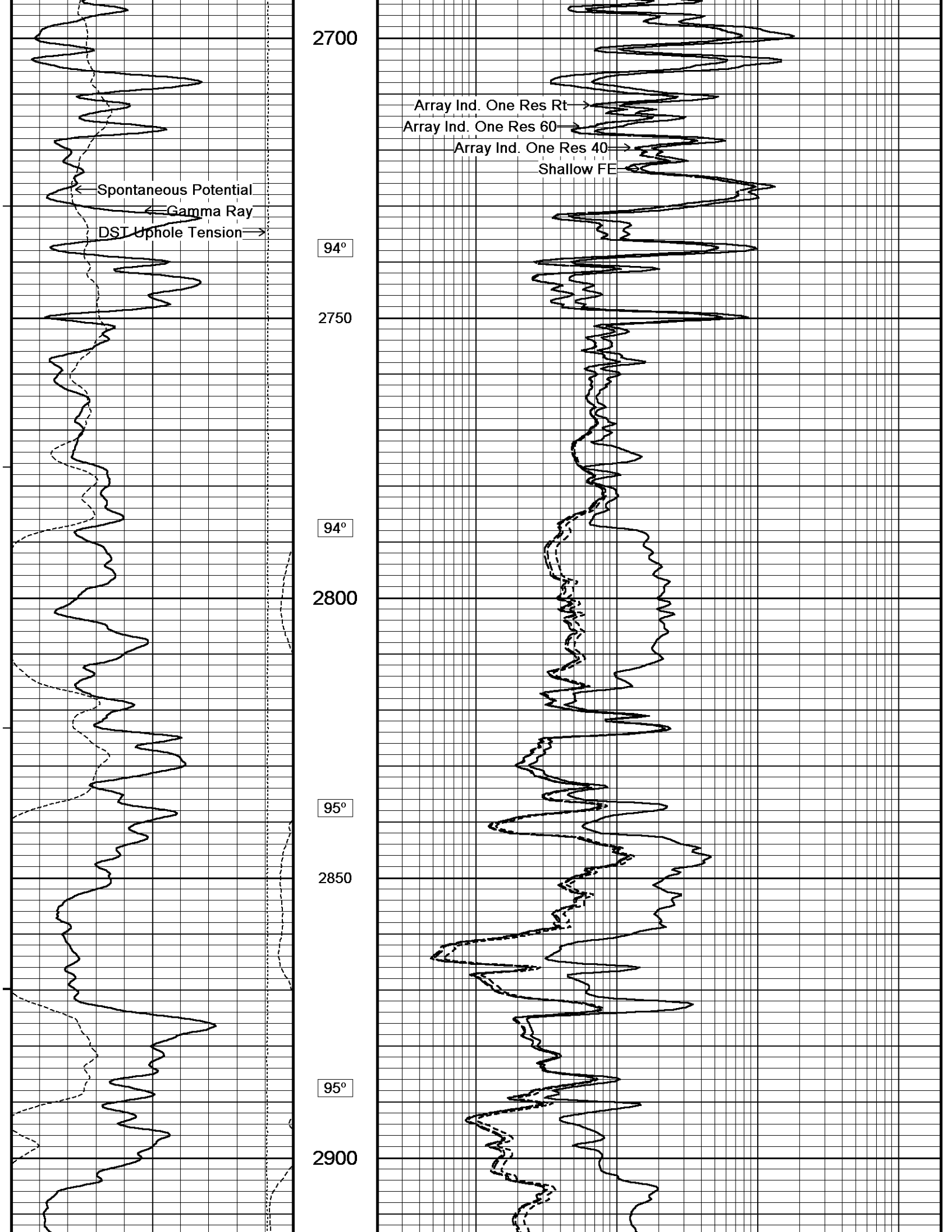

1600
90°
1650
90°
1700
90°
1750
91°
1800

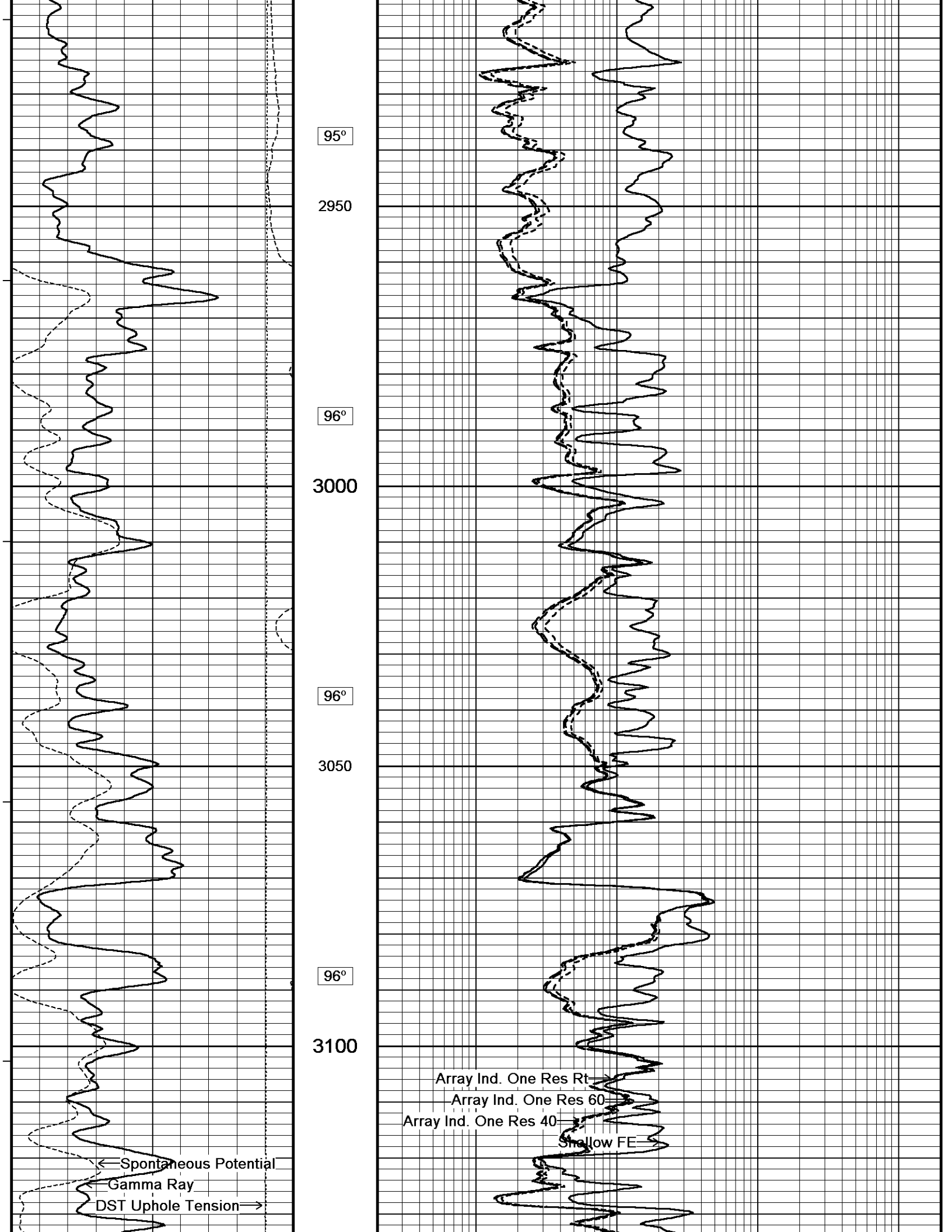

91°
1850
91°
1900
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Shallow FE
91°
Spontaneous Potential
Gamma Ray
DST Uphole Tension
1950
91°
2000

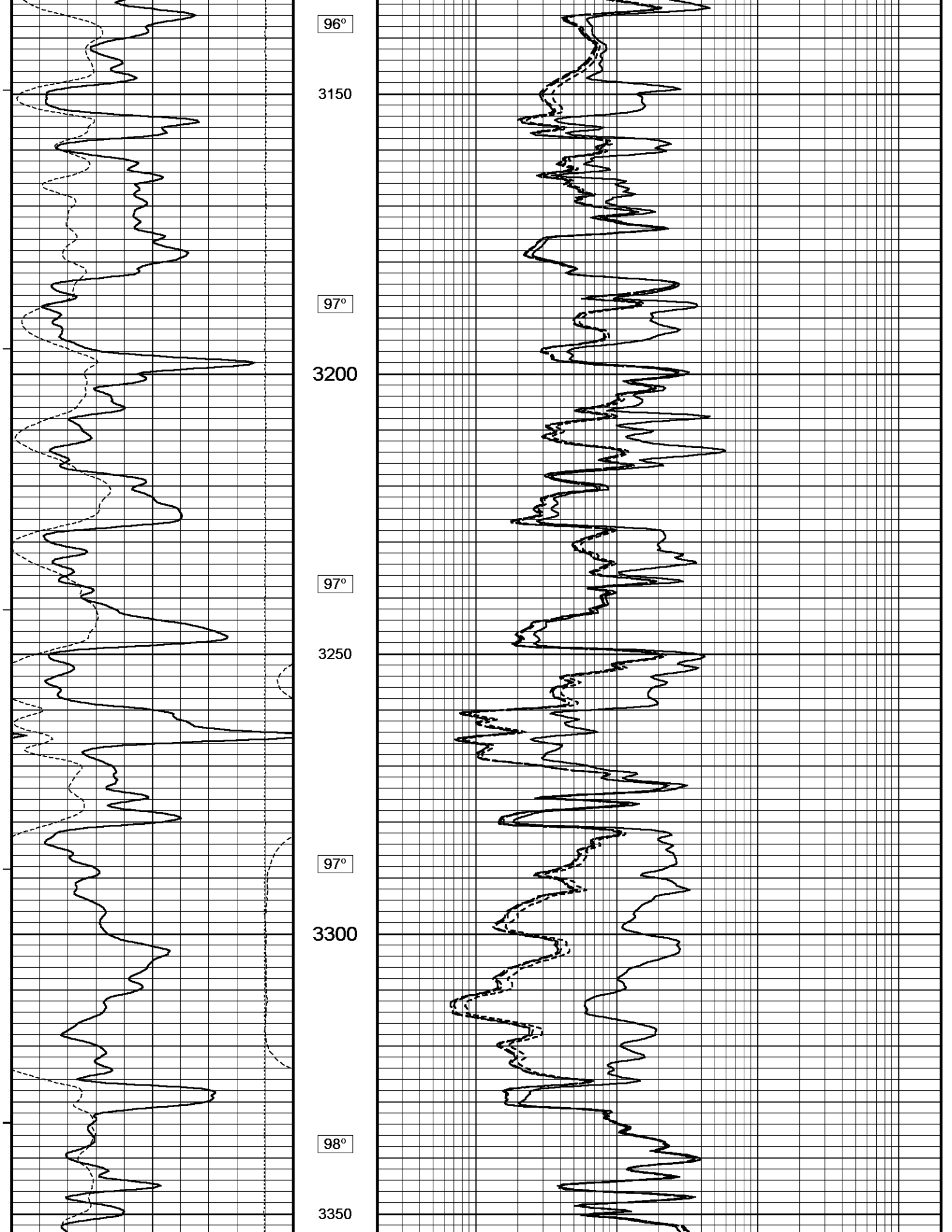

91°
2050
92°
2100
92°
2150
93°
2200
93°
2250

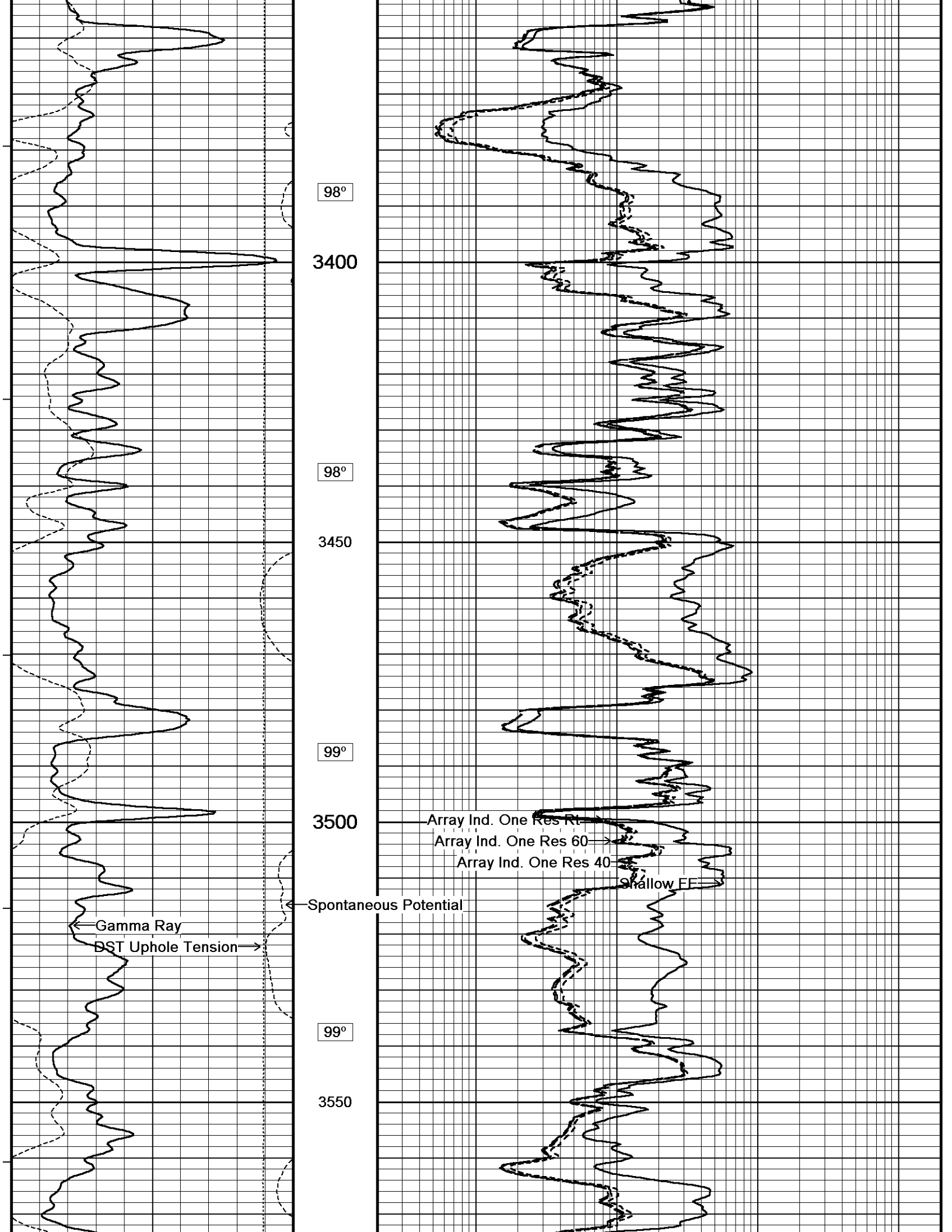

93°
2300
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Shallow FE
Spontaneous Potential
Gamma Ray
DST Uphole Tension
93°
2350
93°
2400
93°
2450

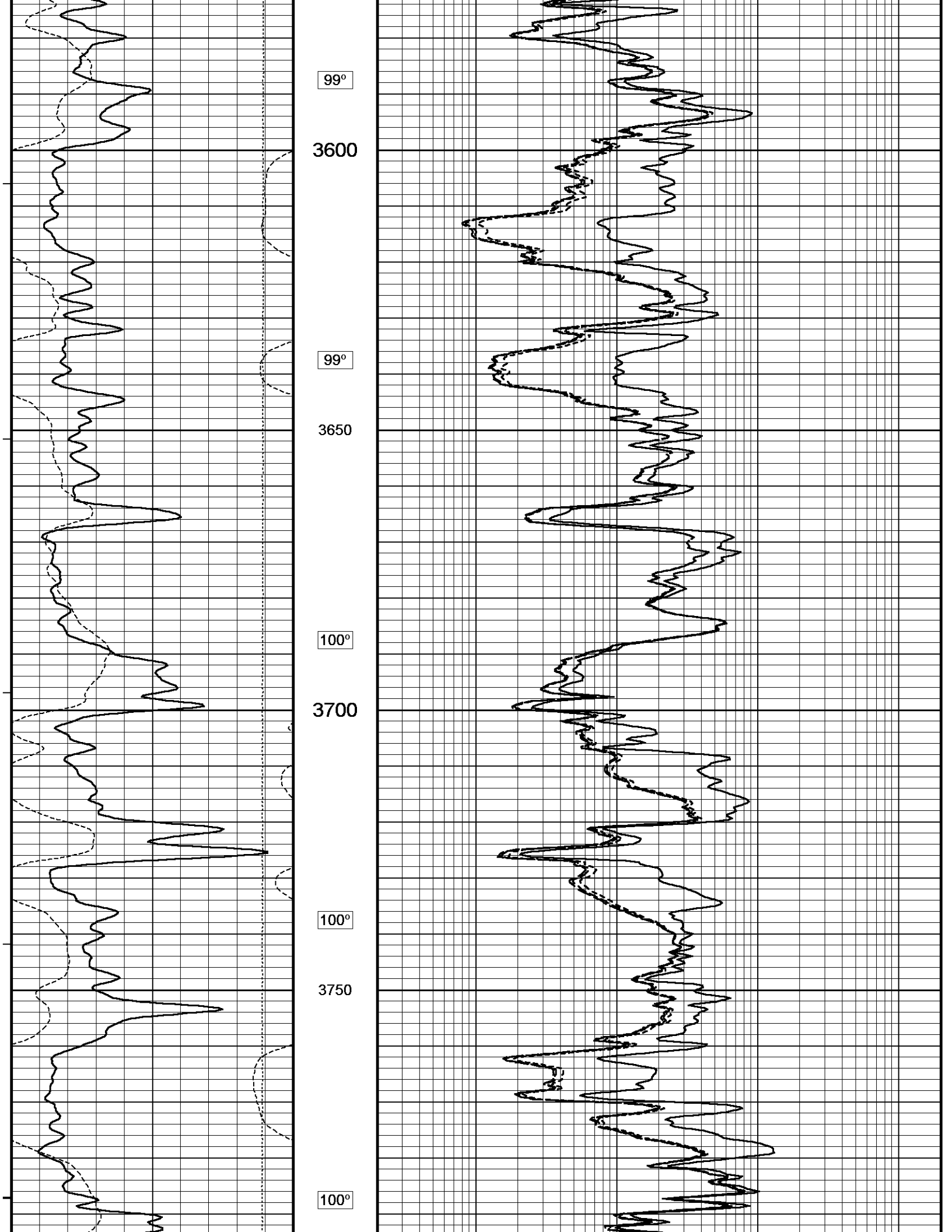

93°
2500
93°
2550
93°
2600
94°
2650
94°

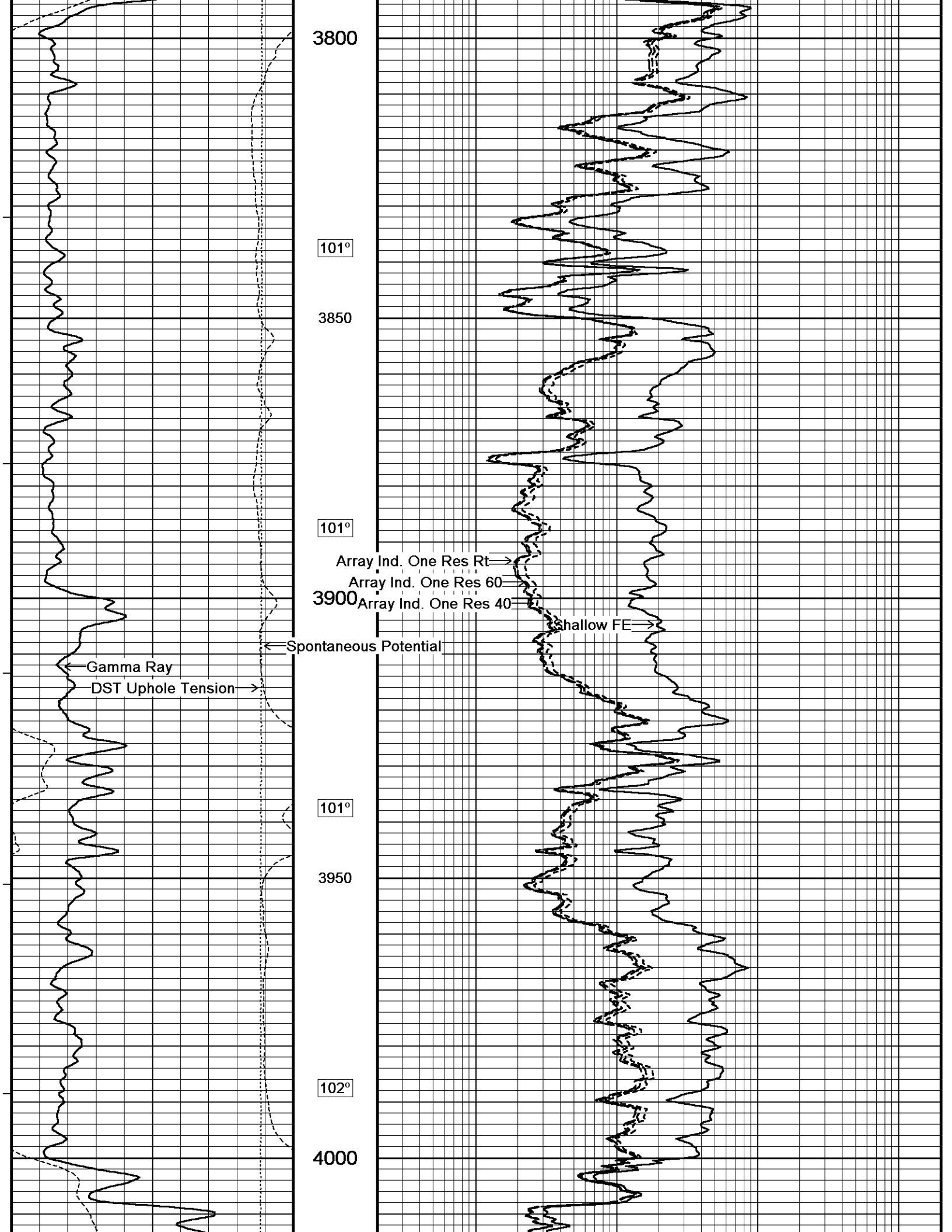

2700
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Shallow FE
Spontaneous Potential
Gamma Ray
DST Uphole Tension
94°
2750
94°
2800
95°
2850
95°
2900

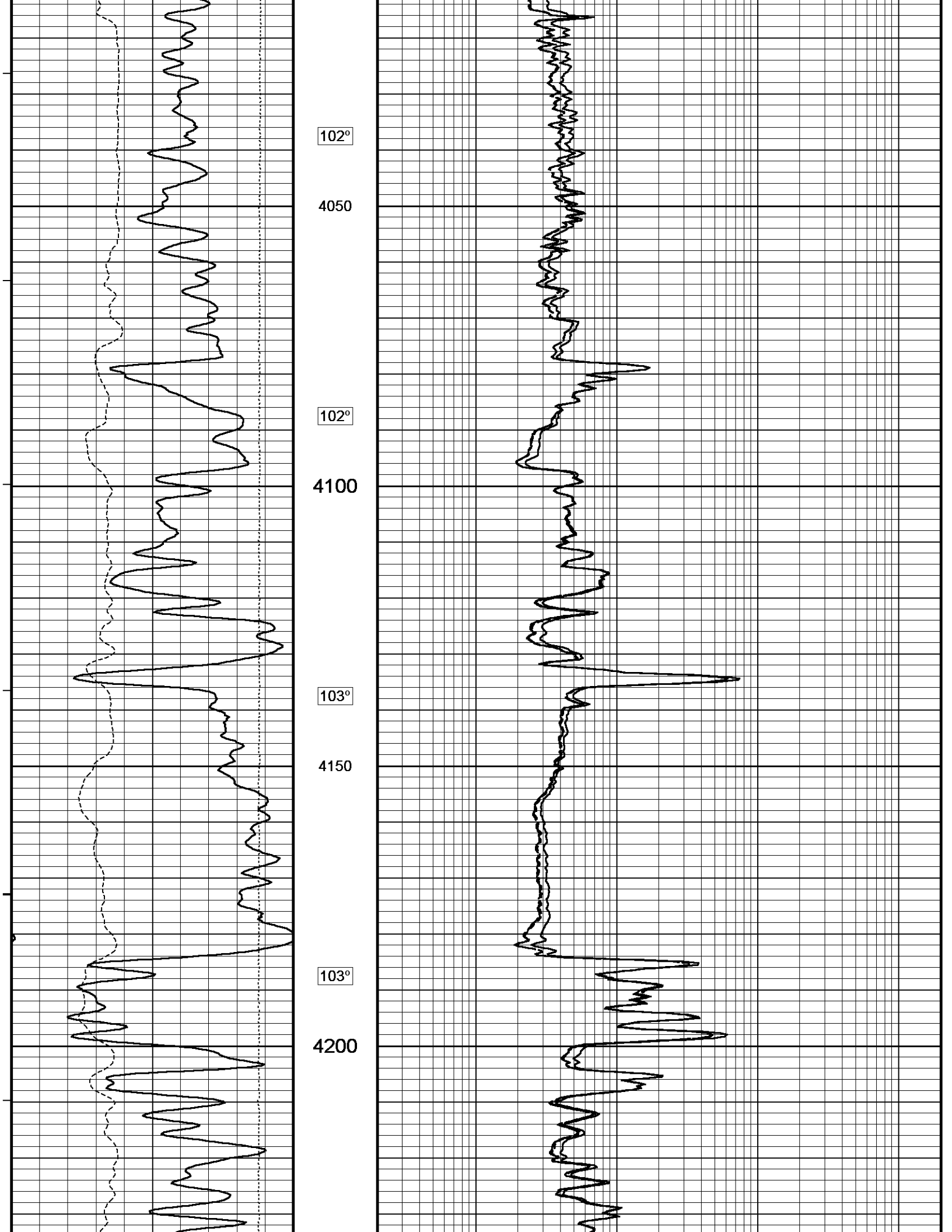

95°
2950
96°
3000
96°
3050
96°
3100
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Shallow FE
Spontaneous Potential
Gamma Ray
DST Uphole Tension

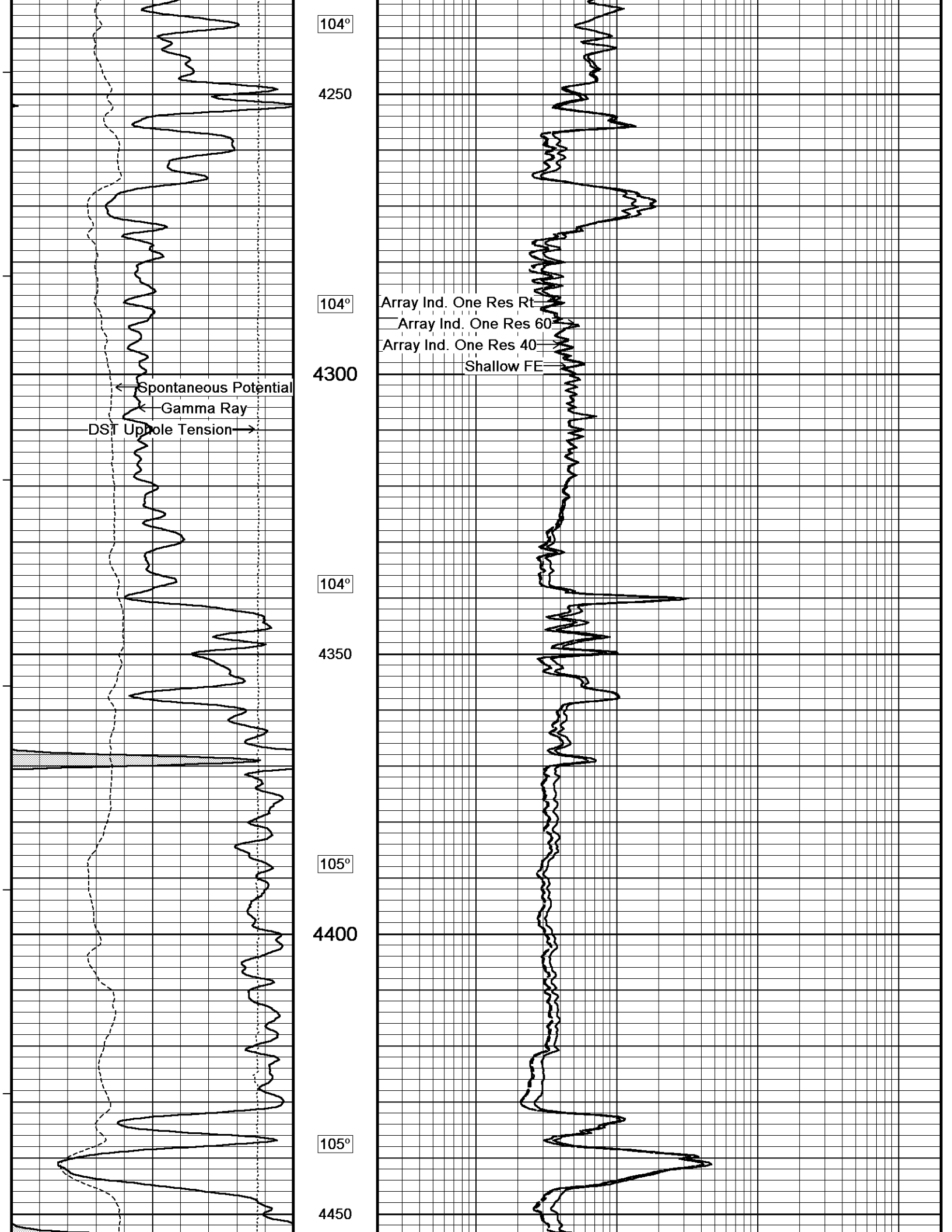

96°
3150
97°
3200
97°
3250
97°
3300
98°
3350

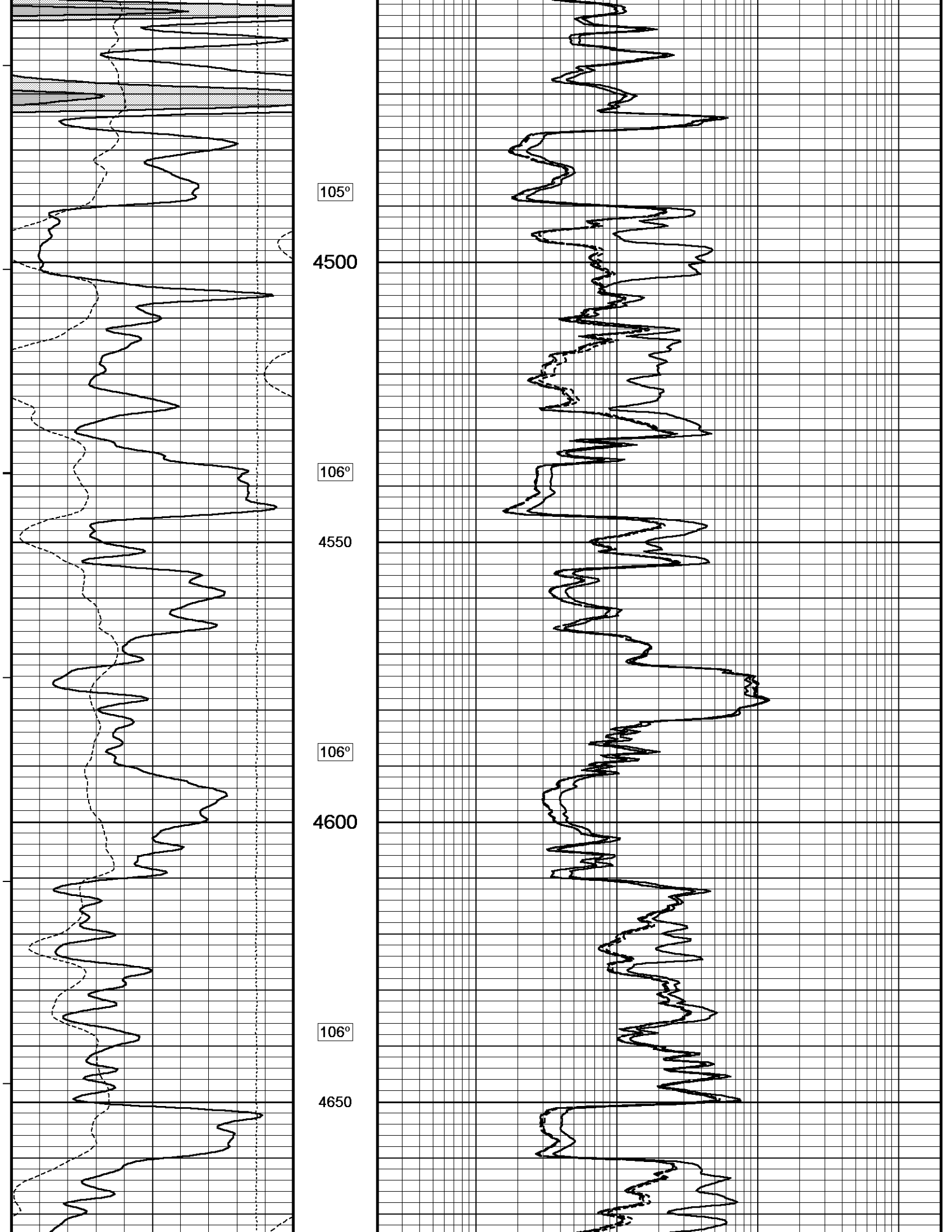

98°
3400
98°
3450
99°
3500
99°
3550
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Shallow FF
Spontaneous Potential
Gamma Ray
DST Uphole Tension

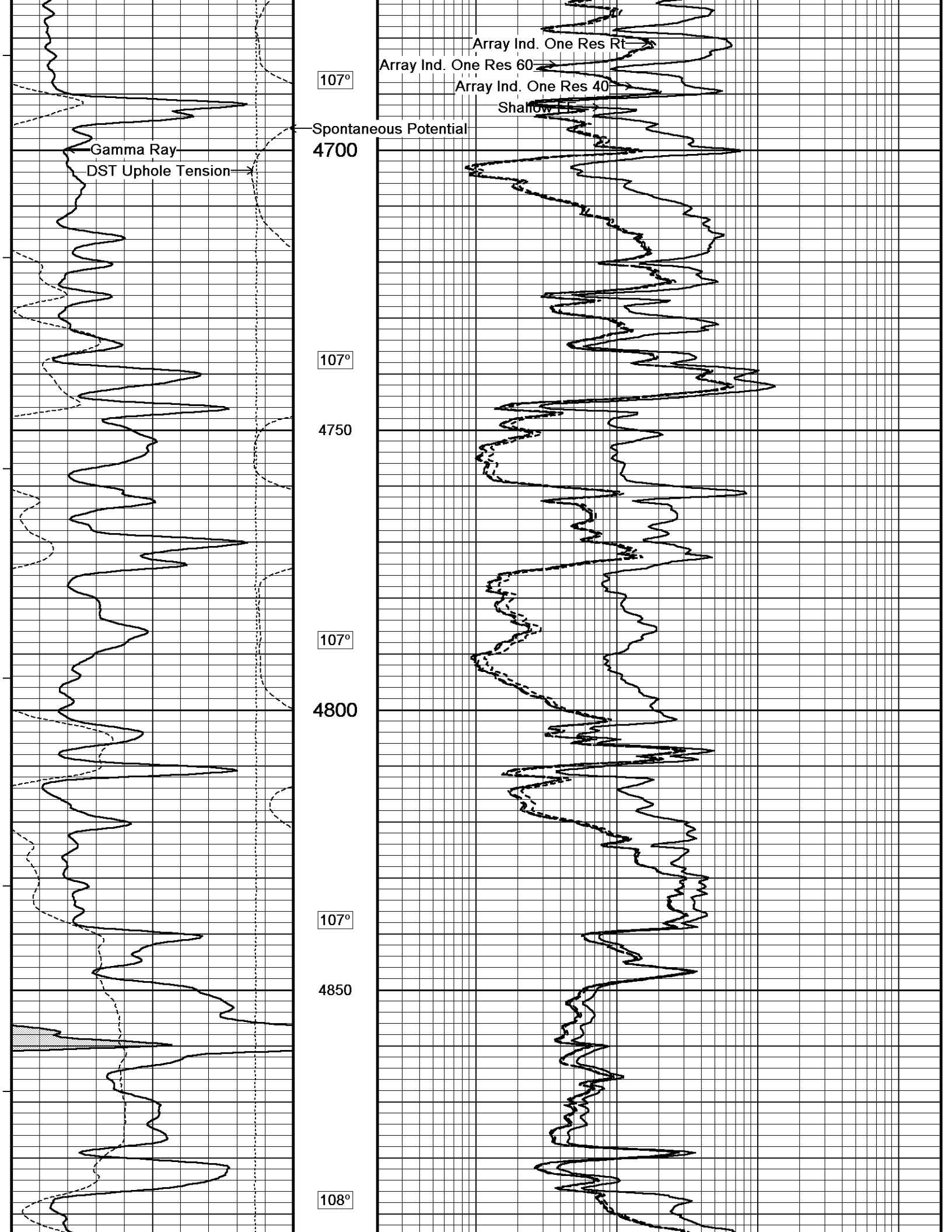

99°
3600
99°
3650
100°
3700
100°
3750
100°

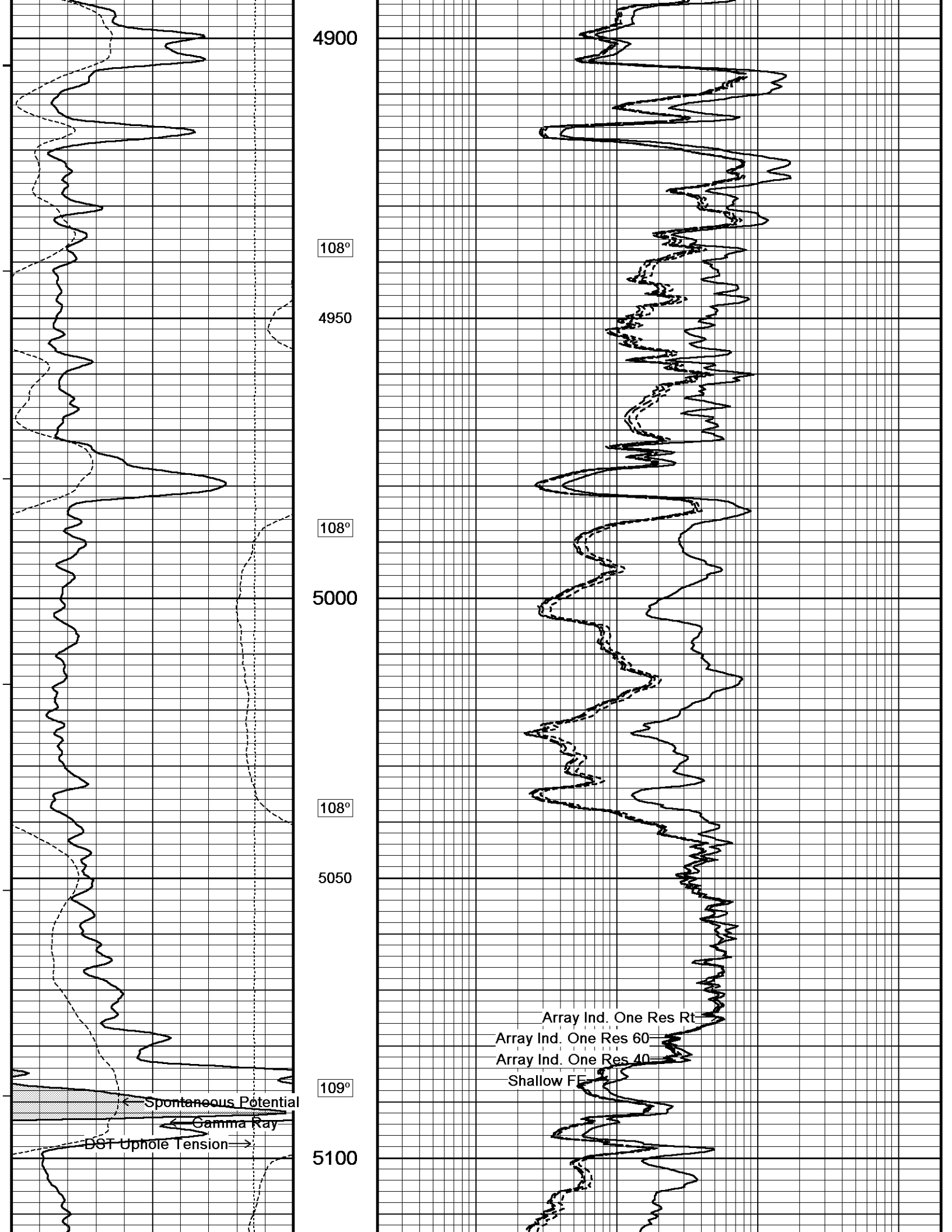

3800
101°
3850
101°
Array Ind. One Res Rt
Array Ind. One Res 60
3900
Array Ind. One Res 40
Shallow FE
Spontaneous Potential
Gamma Ray
DST Uphole Tension
101°
3950
102°
4000

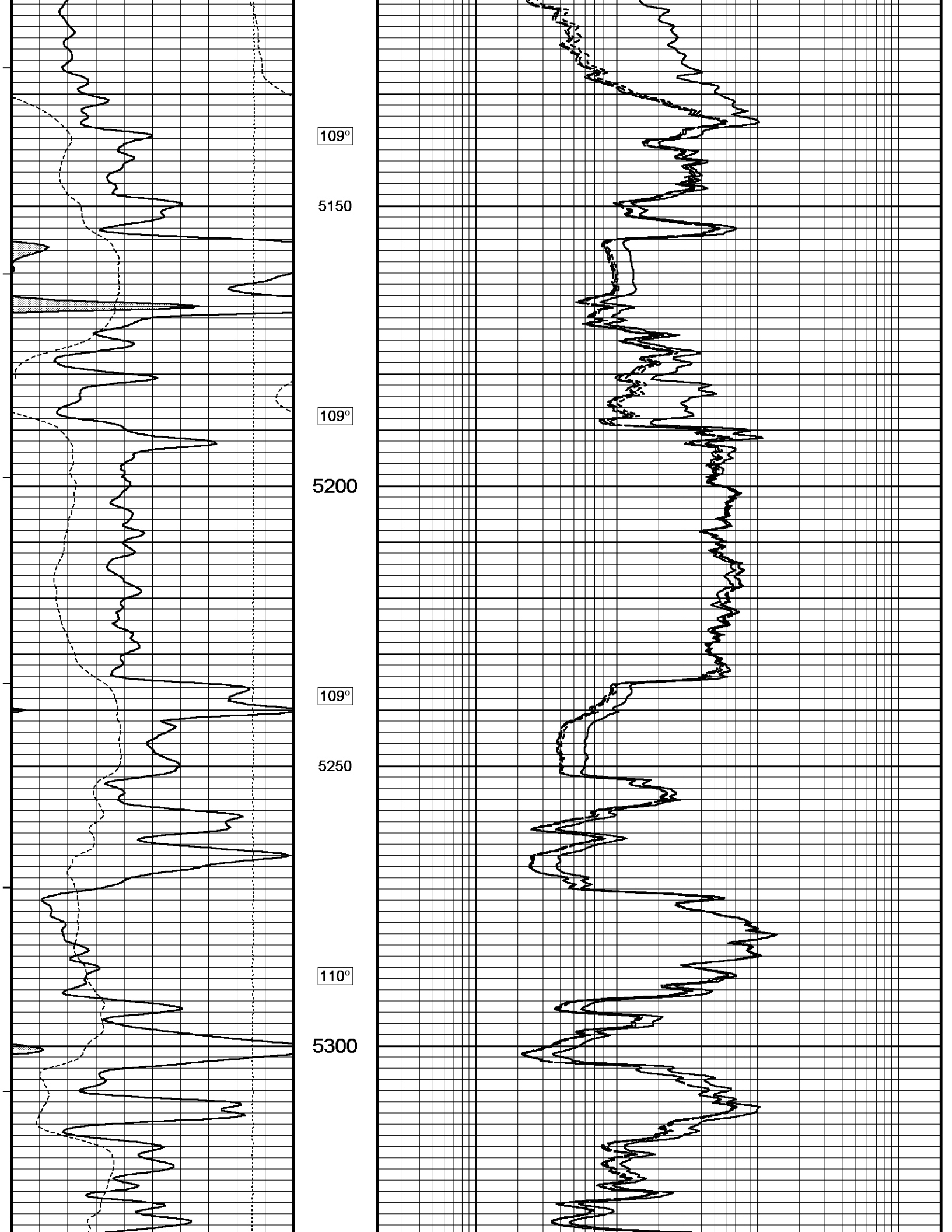

102°
4050
102°
4100
103°
4150
103°
4200

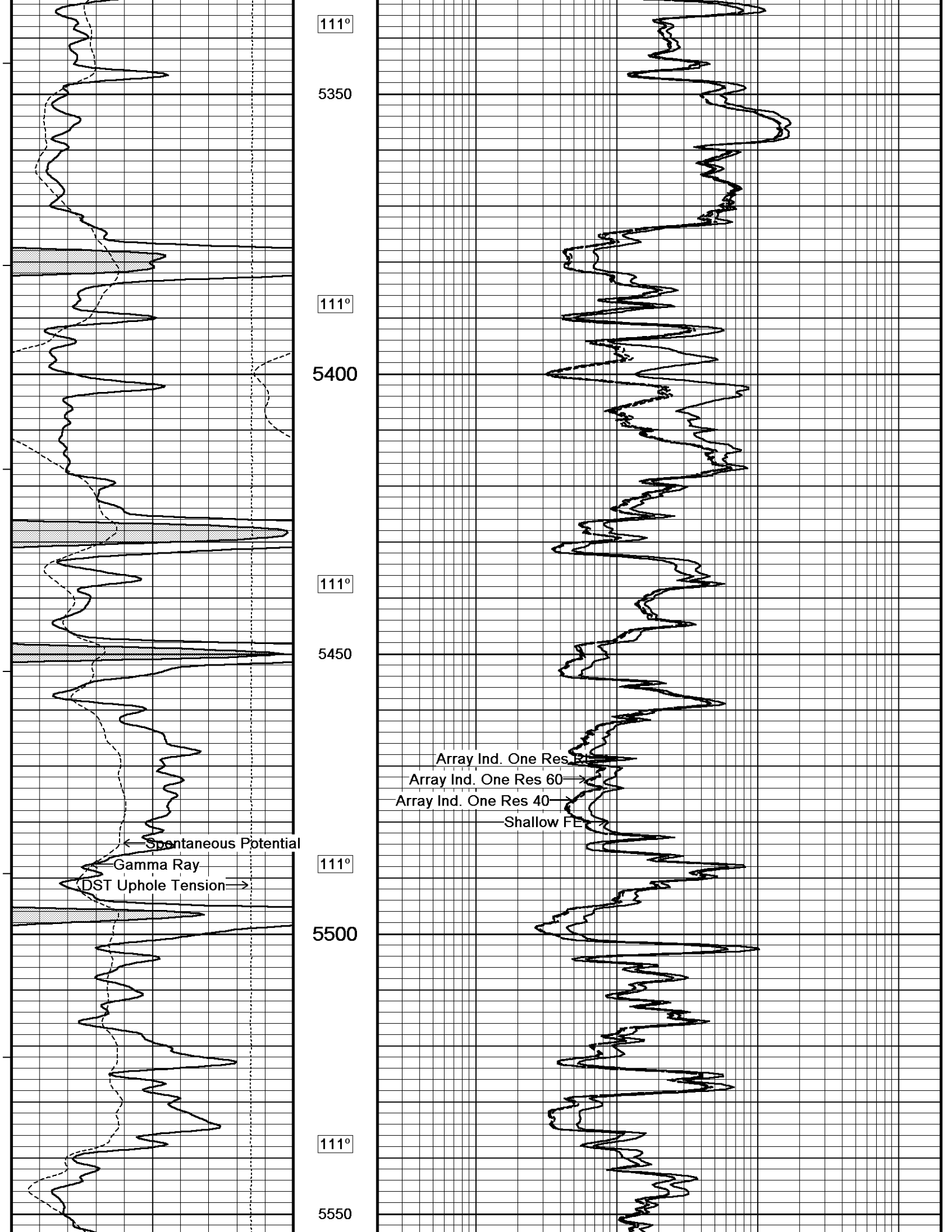

104°
4250
104°
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Shallow FE
4300
Spontaneous Potential
Gamma Ray
DST Uphole Tension
104°
4350
105°
4400
105°
4450

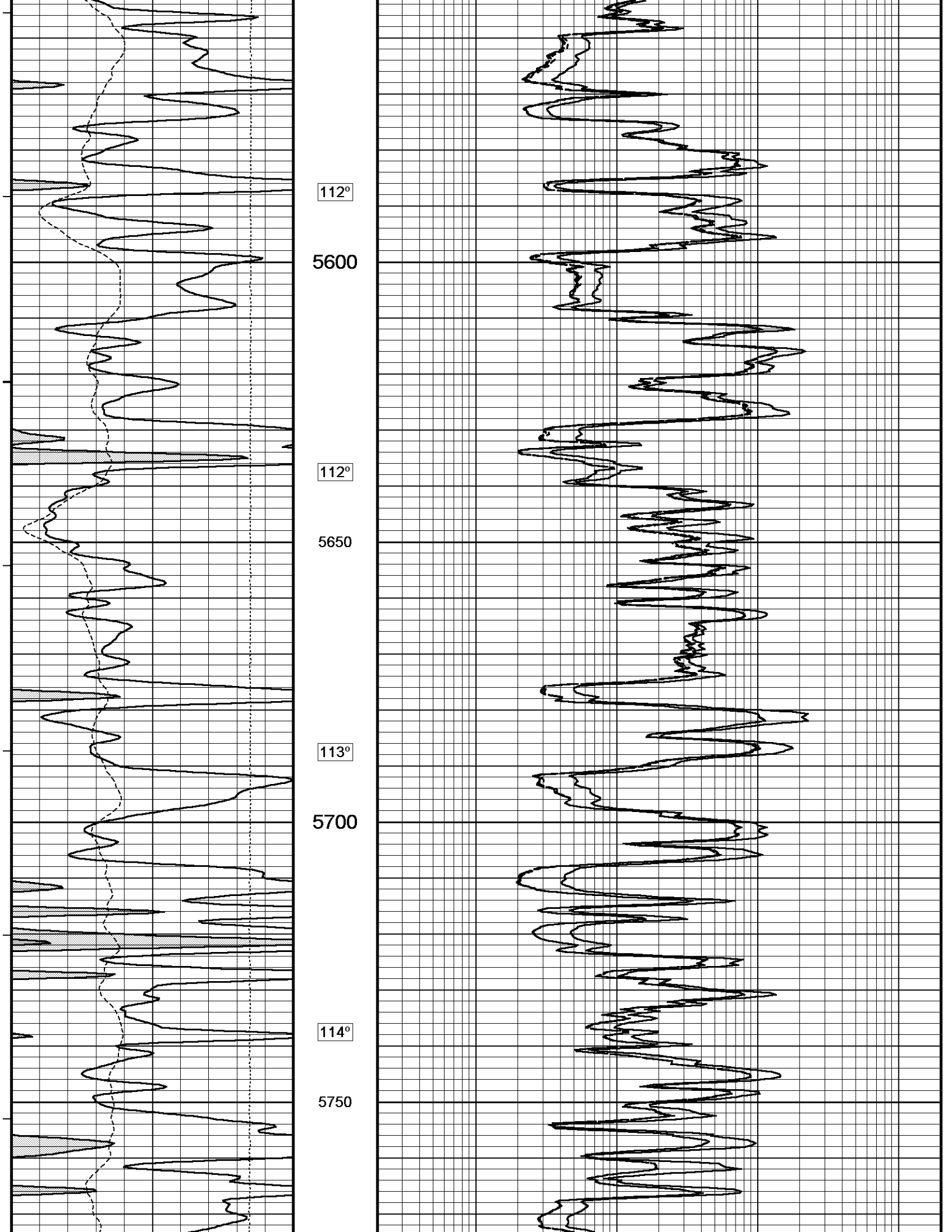

105°
4500
106°
4550
106°
4600
106°
4650

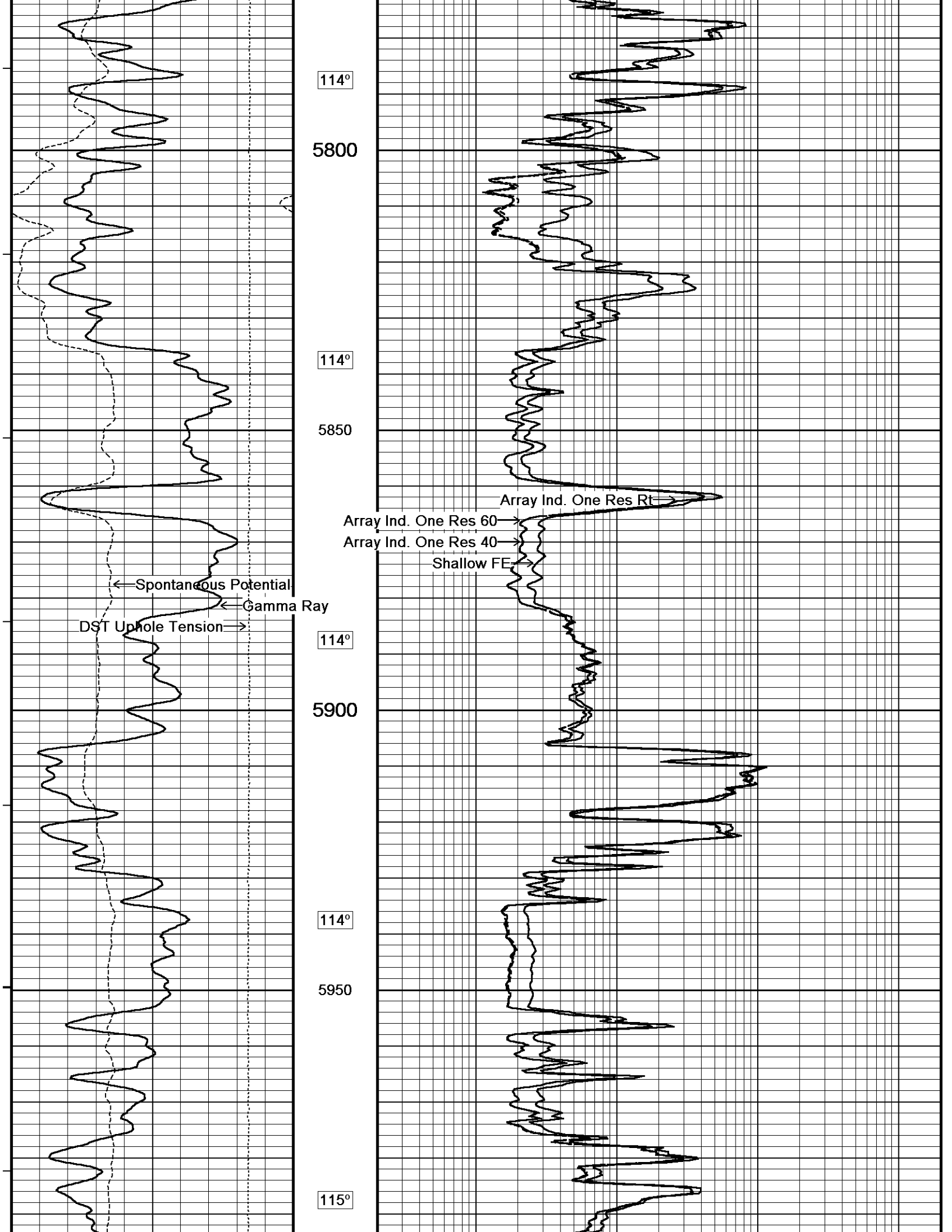

Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Shallow Res
107°
Spontaneous Potential
4700
Gamma Ray
DST Uphole Tension
107°
4750
107°
4800
107°
4850
108°

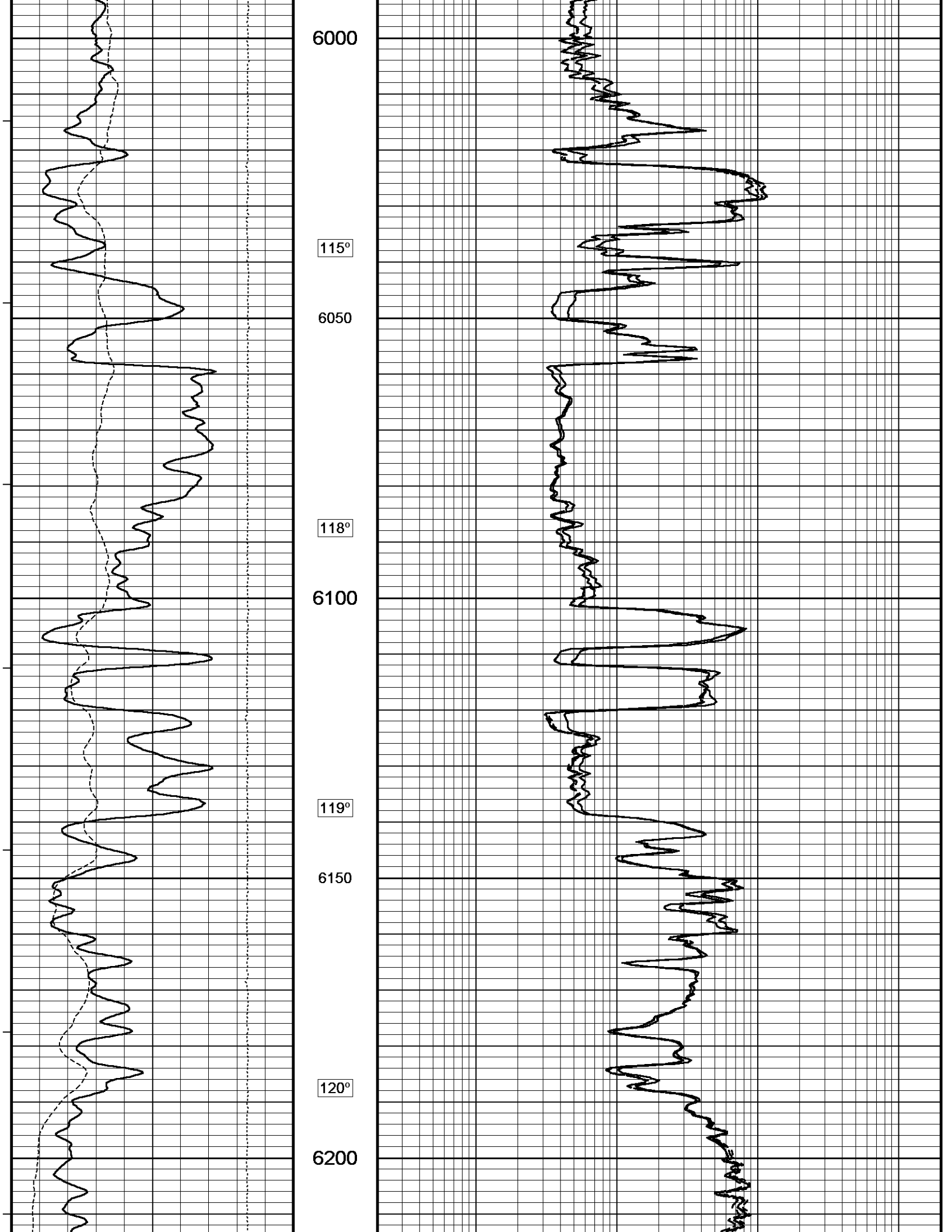

4900
108°
4950
108°
5000
108°
5050
109°
5100
Spontaneous Potential
Gamma Ray
DST Uphole Tension
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Shallow FE

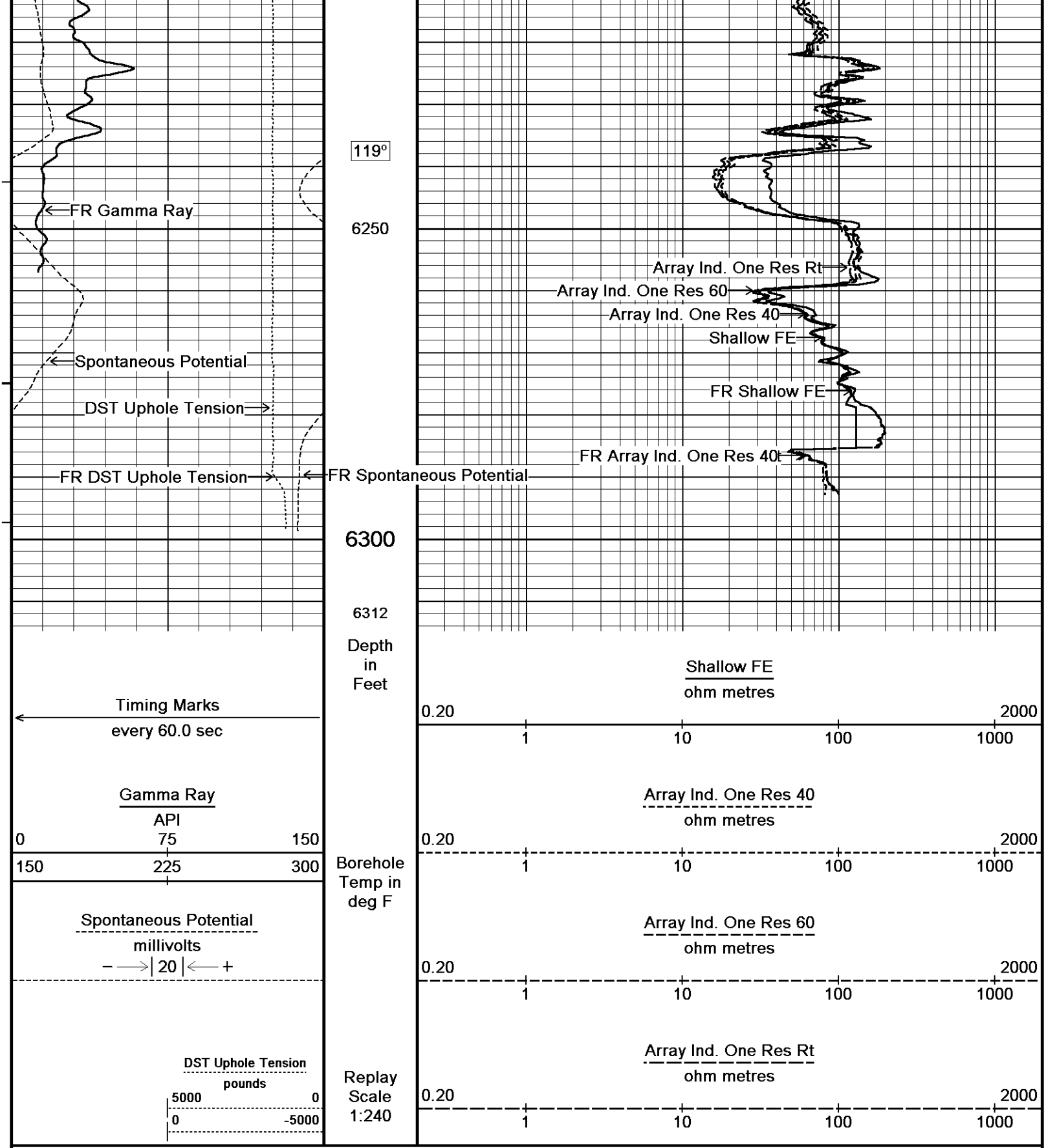

109°
5150
109°
5200
109°
5250
110°
5300


111°
5350
111°
5400
111°
5450
Array Ind. One Res 80
Array Ind. One Res 60
Array Ind. One Res 40
Shallow FE
Spontaneous Potential
Gamma Ray
DST Uphole Tension
111°
5500
111°
5550


112°
5600
112°
5650
113°
5700
114°
5750


114°
5800
114°
5850
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Shallow FE
Spontaneous Potential
Gamma Ray
DST Uphole Tension
114°
5900
114°
5950
115°


6000
115°
6050
118°
6100
119°
6150
120°
6200



Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 28-FEB-2011 17:01
Filename: C:\Users\Joe\AppData\Local\Temp\Weatherford PreView\0\Crooked_003.dta
Recorded on 06-JAN-2011 19:46
System Versions: Logged with 11.01.2198 Processed with 11.01.2198 Plotted with 11.02.2164

5 Inch Main Pass

HI RES

Depth Based Data - Maximum Sampling Increment 2.5cm
Plotted on 28-FEB-2011 17:01
Filename: C:\Users\Joe\AppData\Local\Temp\Weatherford PreView\0\Crooked_001.dta
Recorded on 06-JAN-2011 18:48

System Versions: Logged 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 1:120

Shallow FE
ohm metres
0.20 1 10 100 1000 2000

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

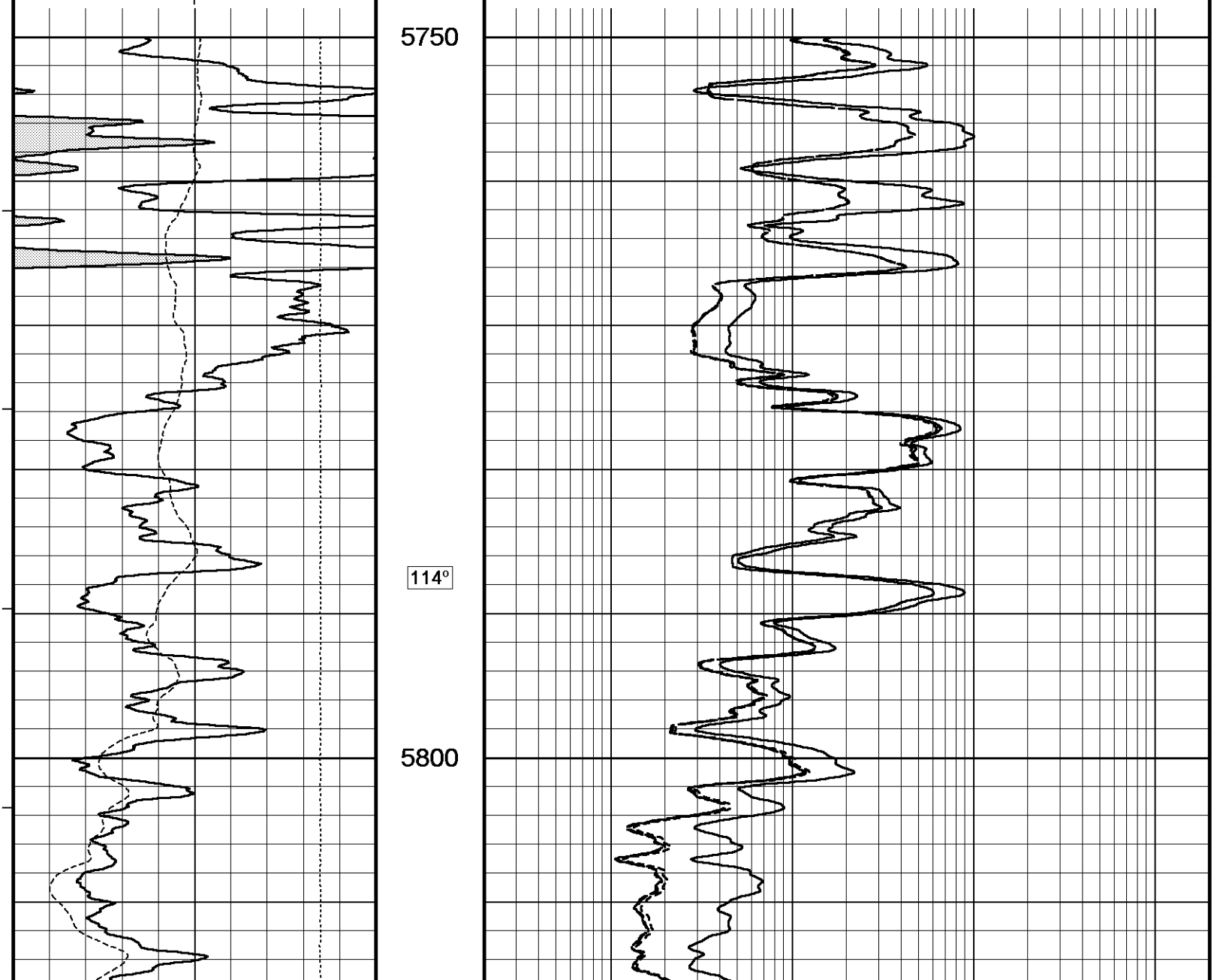
Array Ind. One Res 60
ohm metres
0.20 1 10 100 1000 2000

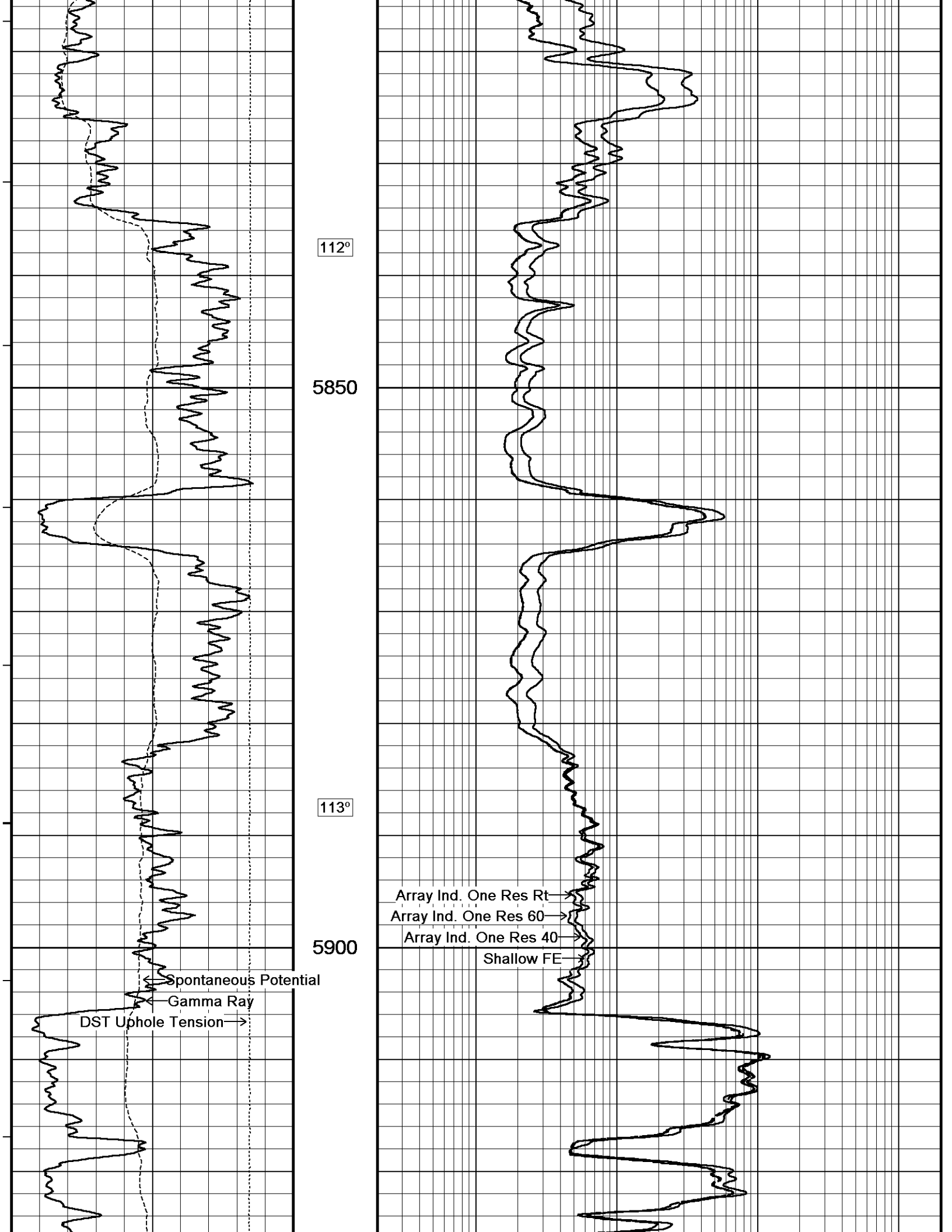
Array Ind. One Res Rt
ohm metres
0.20 1 10 100 1000 2000

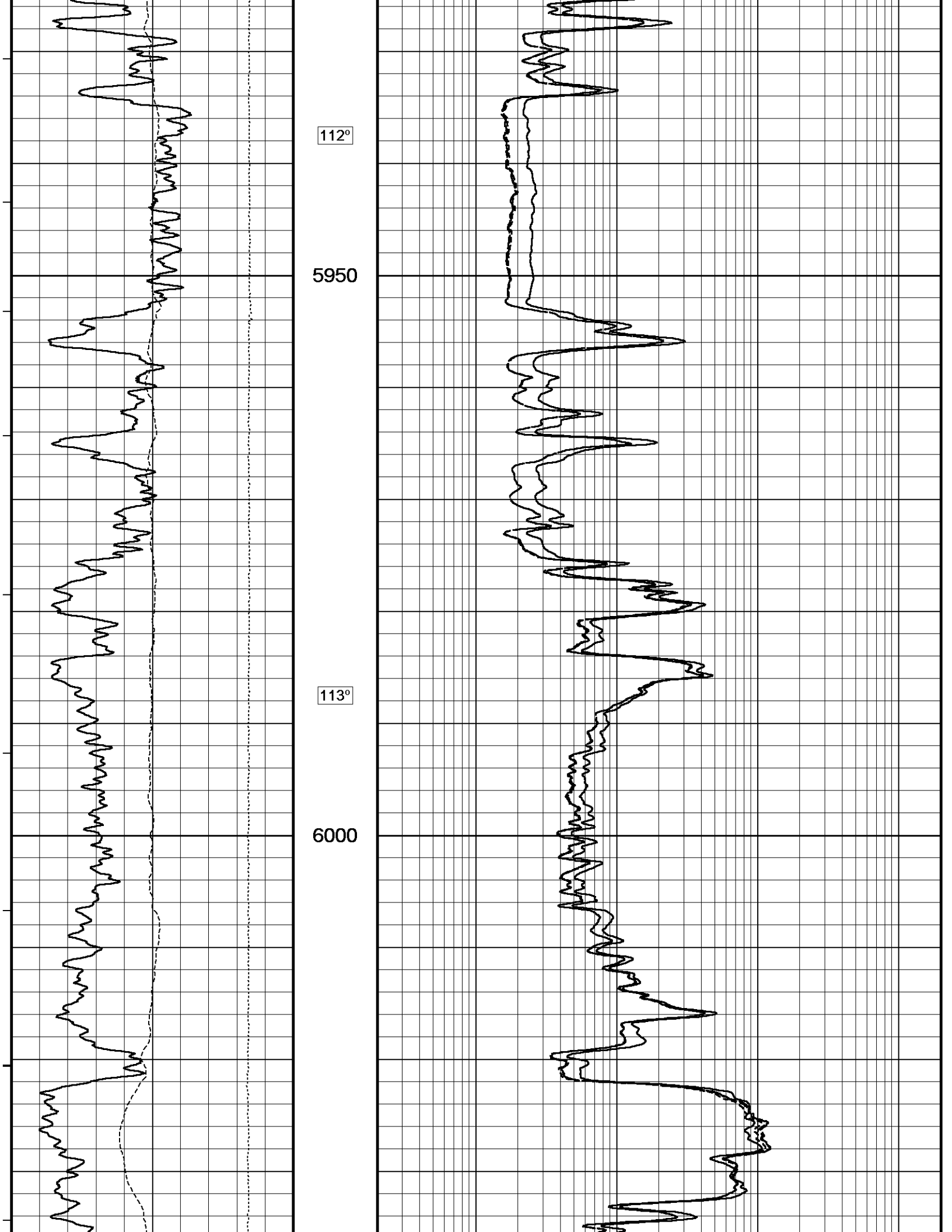
5750

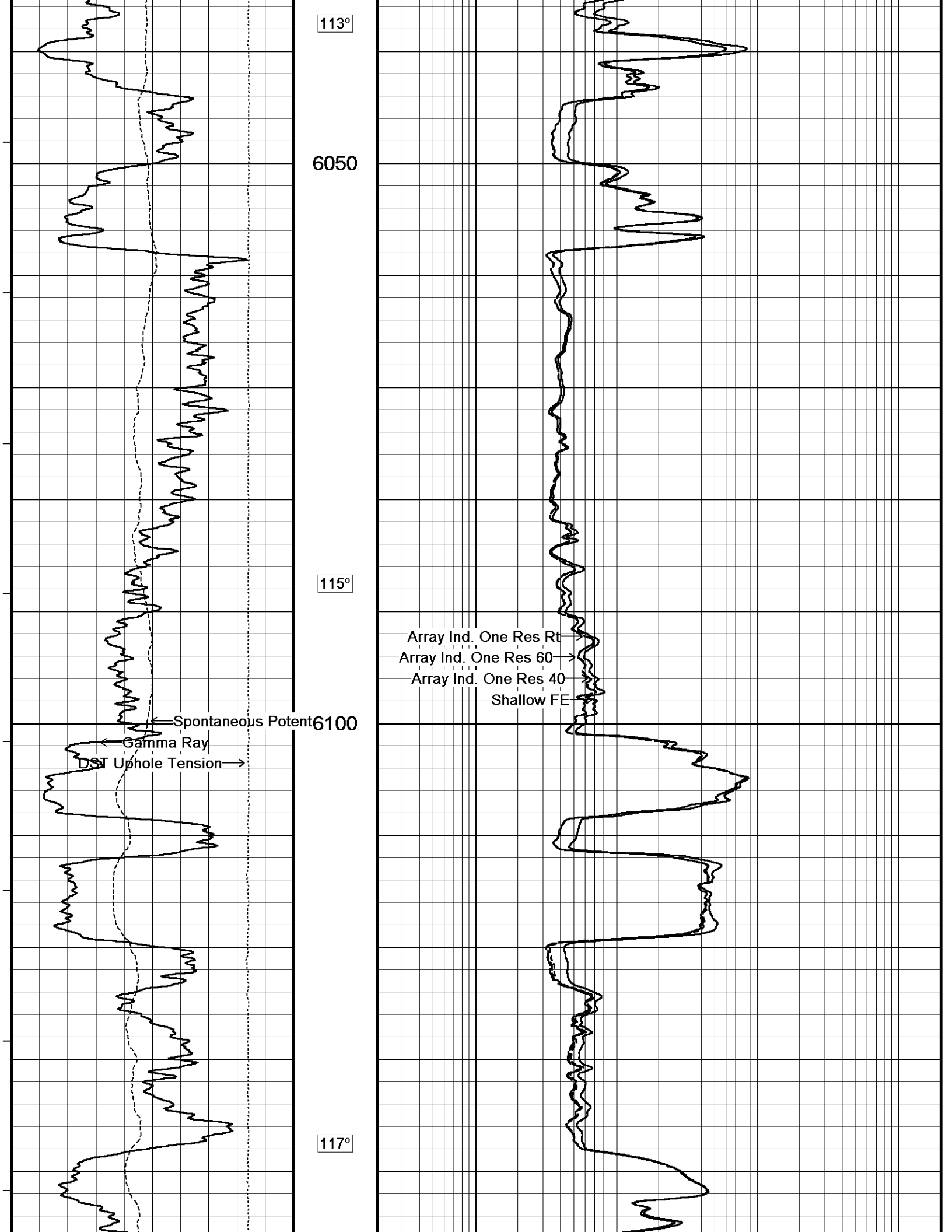
114°

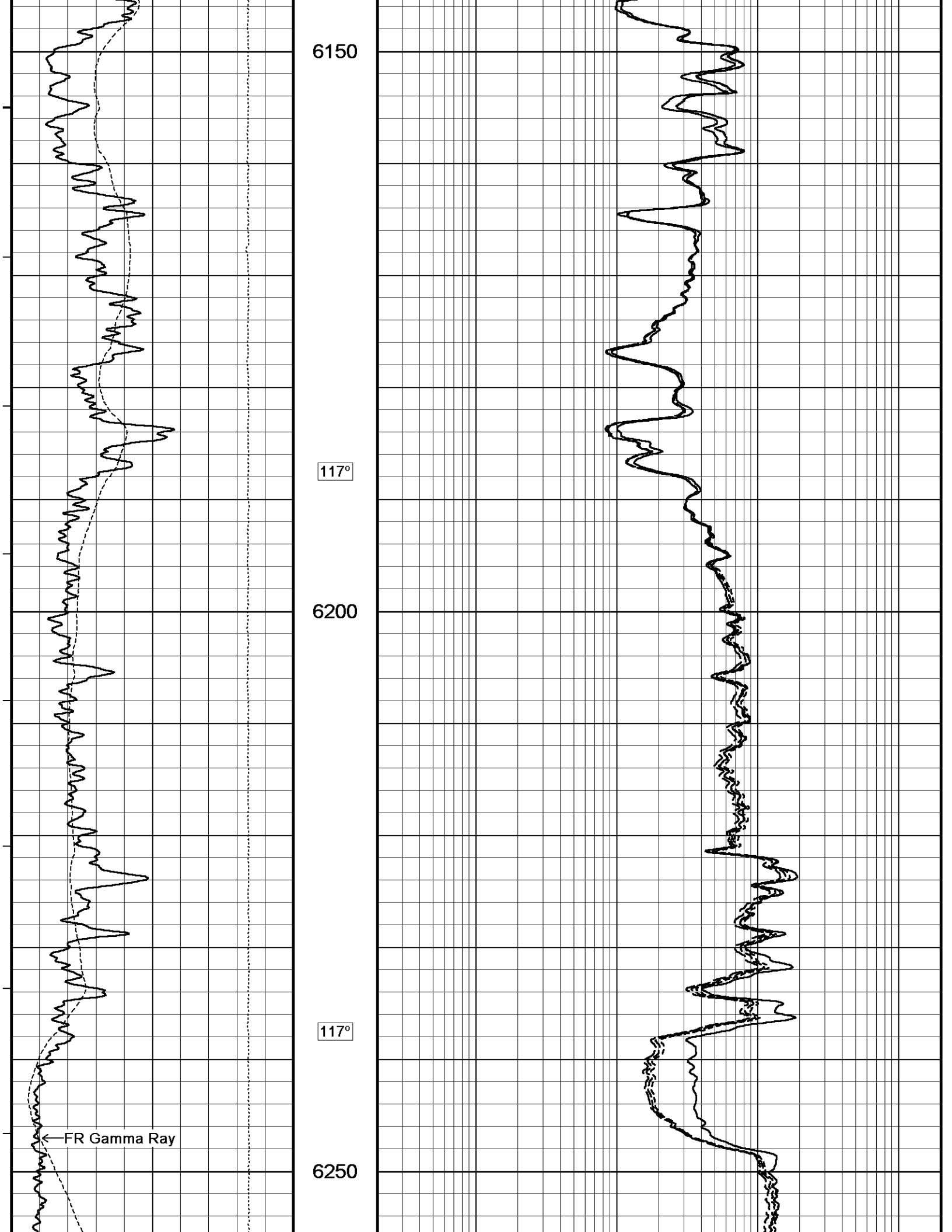
5800

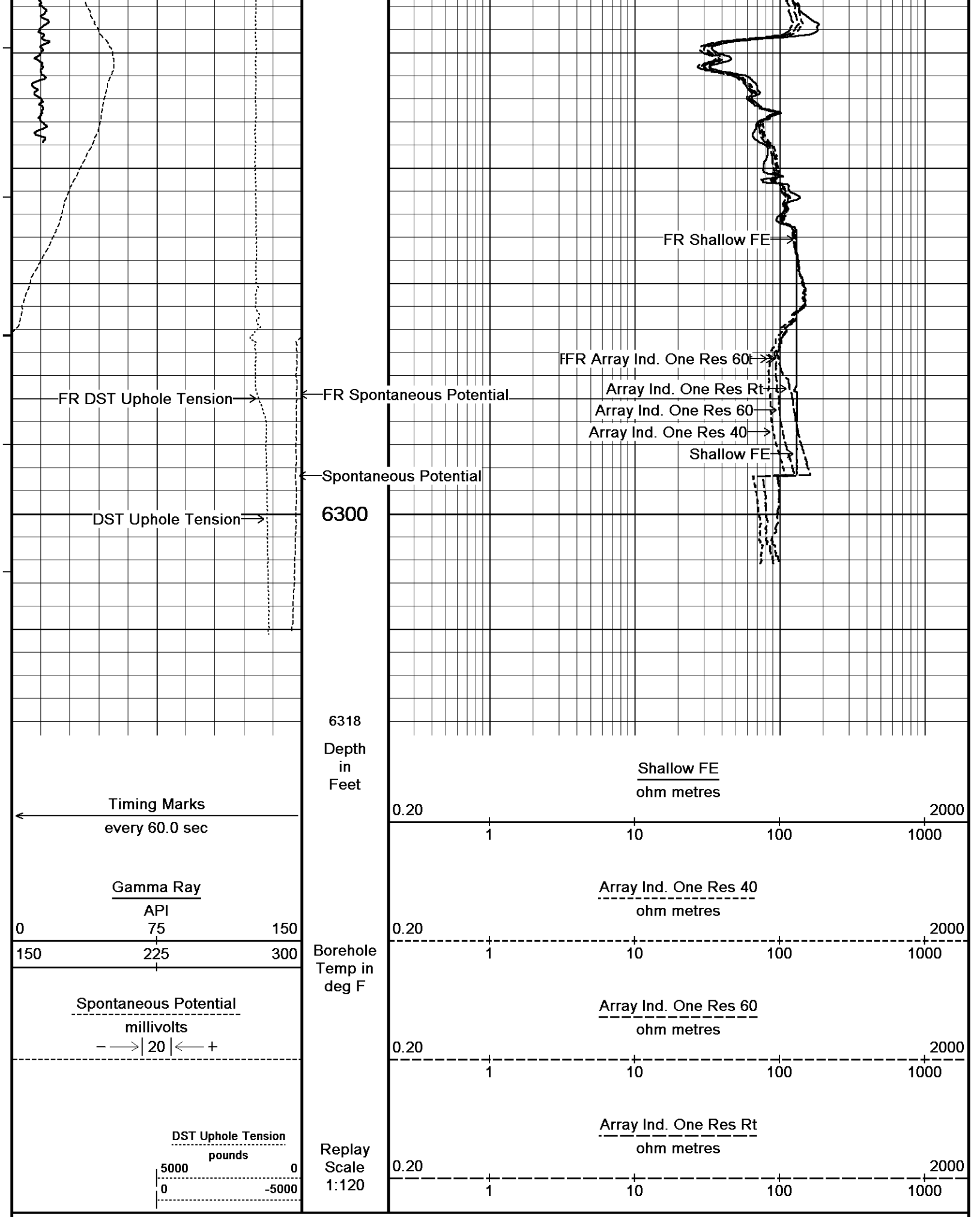



112°
5850
113°
5900
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Shallow FE
Spontaneous Potential
Gamma Ray
DST Uphole Tension


112°
5950
113°
6000


113°
6050
115°
6100
117°
Spontaneous Potent
Gamma Ray
DST Uphole Tension
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Shallow FE


6150
117°
6200
117°
←FR Gamma Ray
6250



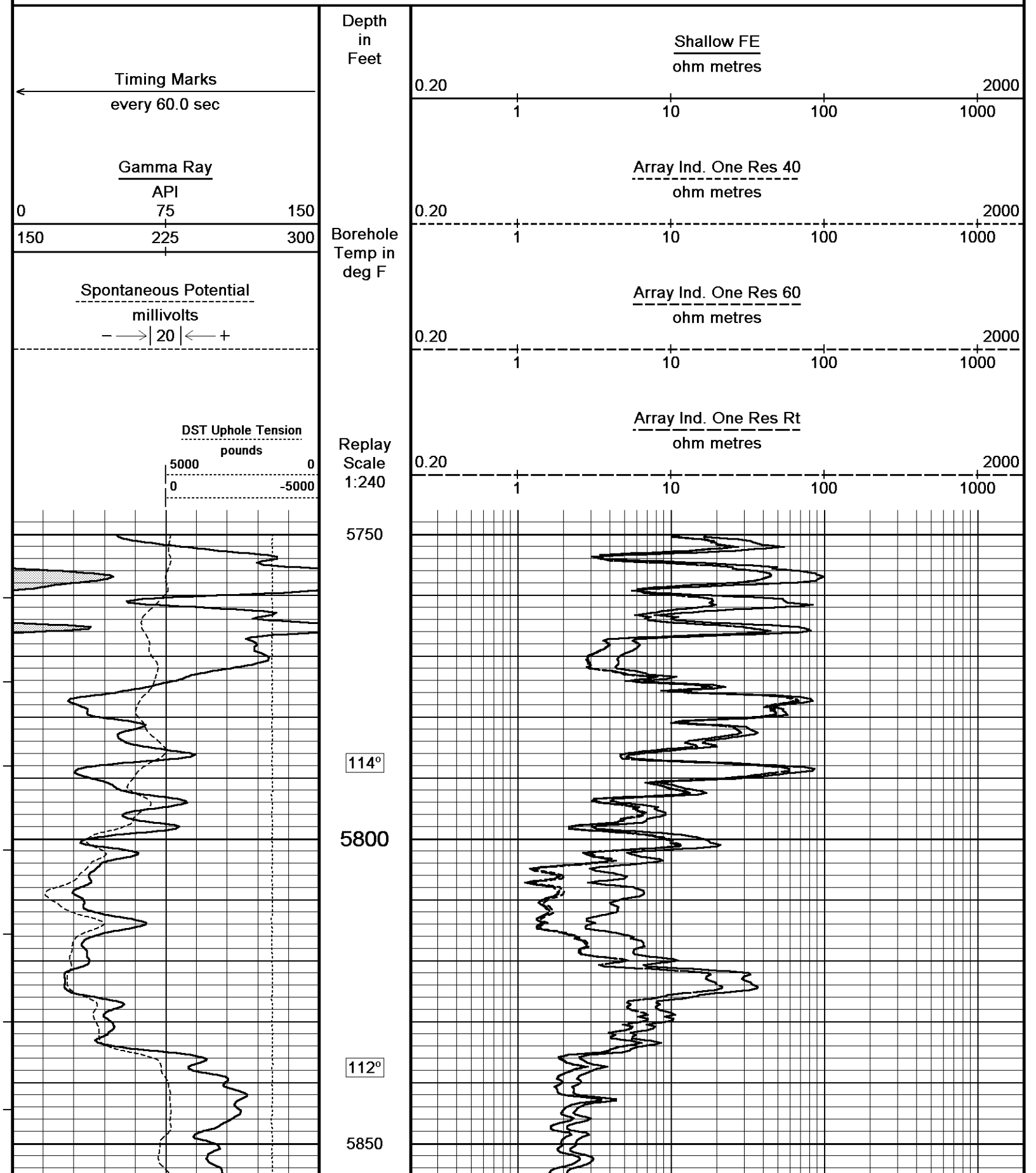
Depth Based Data - Maximum Sampling Increment 2.5cm
Plotted on 28-FEB-2011 17:01
Filename: C:\Users\Joe\AppData\Local\Temp\Weatherford PreView\0\Crooked_001.dta
Recorded on 06-JAN-2011 18:48
System Versions: Logged with 11.01.2198 Plotted with 11.02.2164

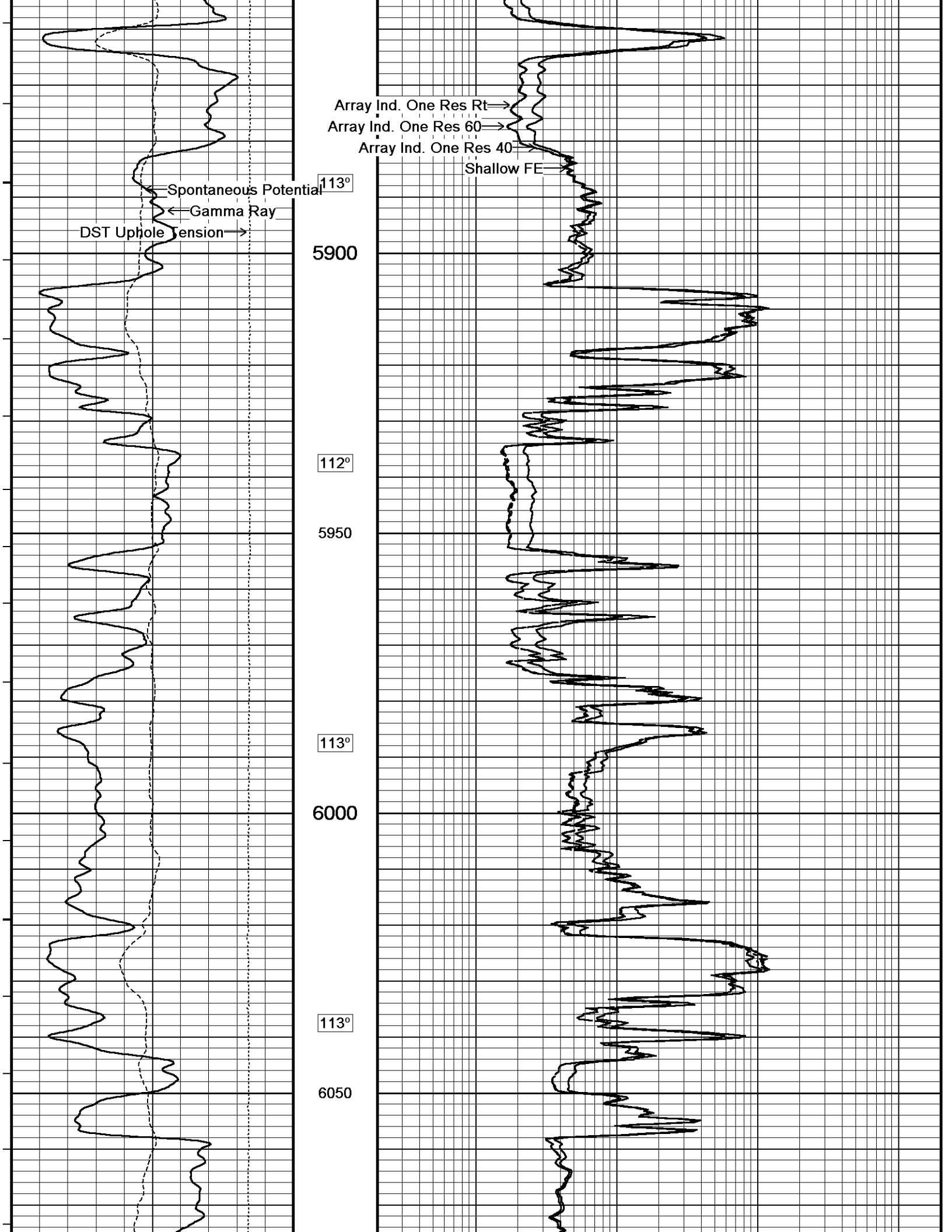
System Versions: Logged with 11.01.2198 Plotted with 11.02.2164

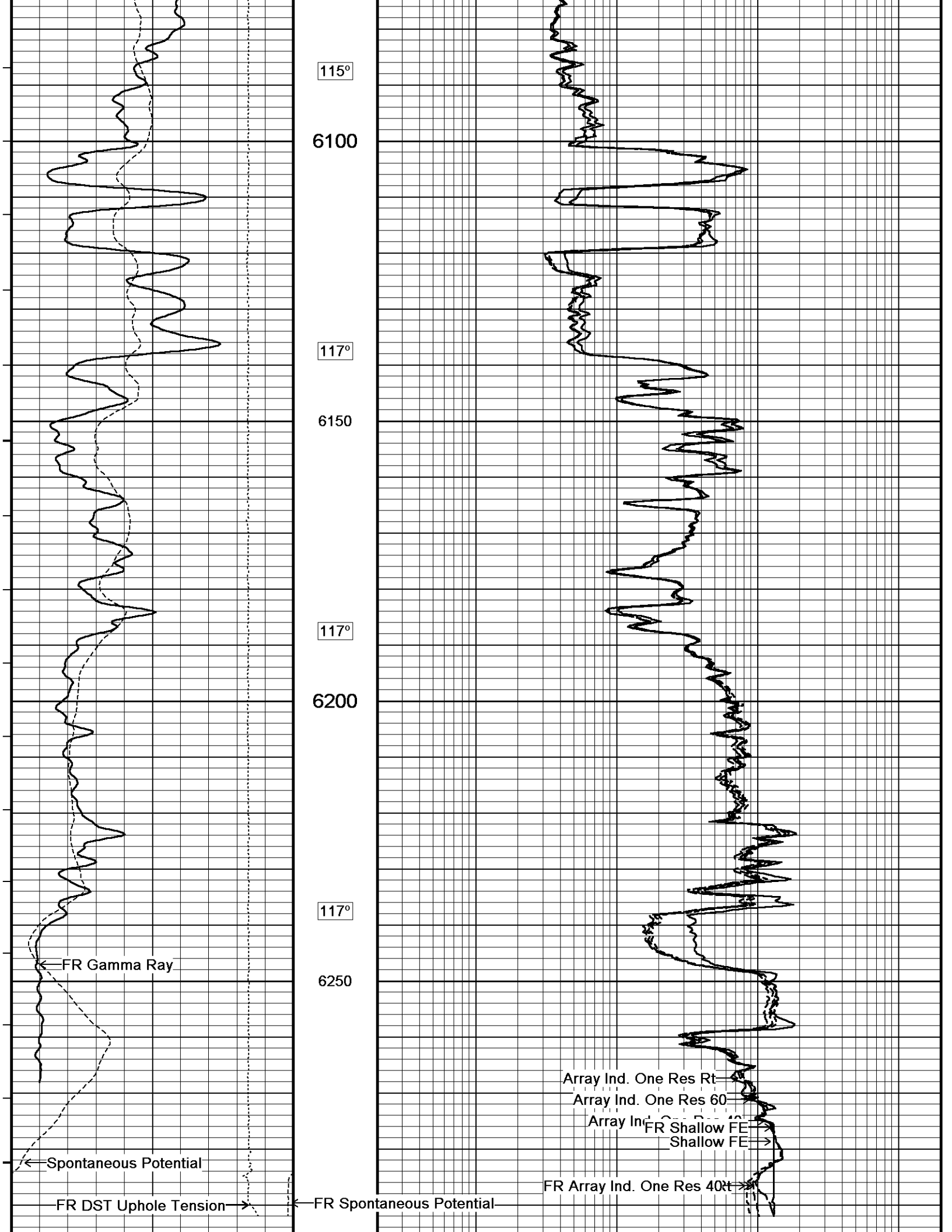
HI RES

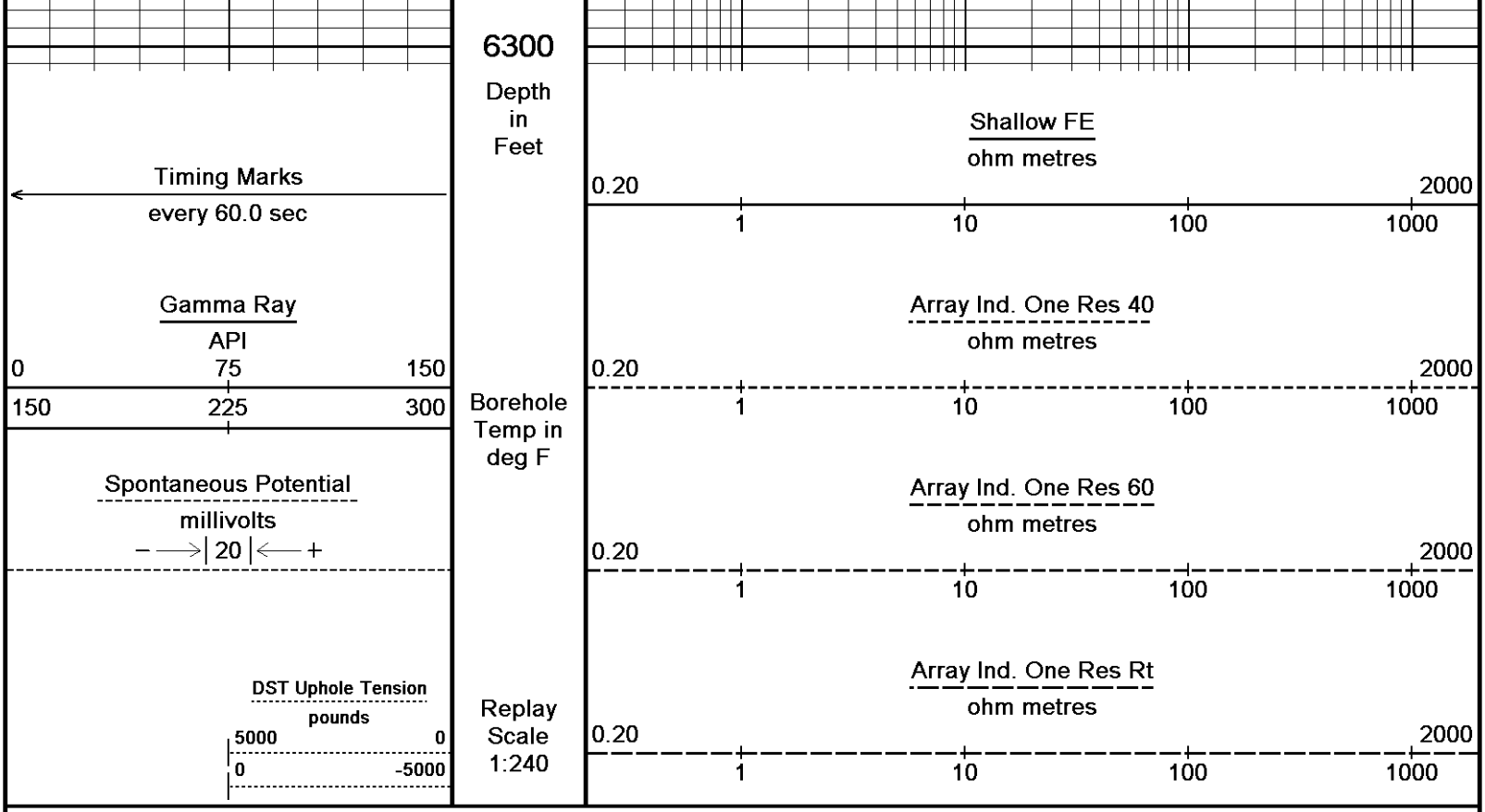
Repeat Section

Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 28-FEB-2011 17:01
Filename: C:\Users\Joe\AppData\Local\Temp\Weatherford PreView\0\Crooked_002.dta
Recorded on 06-JAN-2011 18:48
System Versions: Logged with 11.01.2198 Processed with 11.01.2198 Plotted with 11.02.2164




Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Shallow FE
Spontaneous Potential
Gamma Ray
DST Uphole Tension
113°
5900
112°
5950
113°
6000
113°
6050


115°
6100
117°
6150
117°
6200
117°
6250
FR Gamma Ray
Spontaneous Potential
FR DST Uphole Tension
FR Spontaneous Potential
Array Ind. One Res Rt
Array Ind. One Res 60
FR Shallow FE
Shallow FE
FR Array Ind. One Res 40Rt

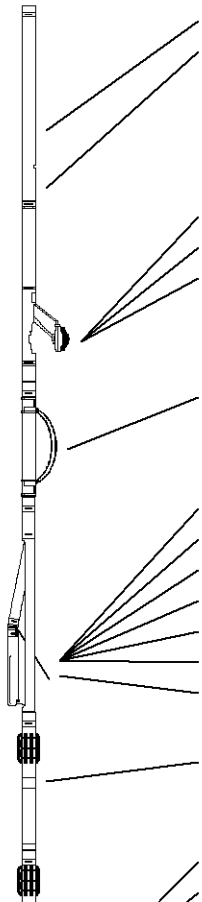


Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 28-FEB-2011 17:01
Filename: C:\Users\Joe\AppData\Local\Temp\Weatherford PreView\0\Crooked_002.dta
Recorded on 06-JAN-2011 18:48
System Versions: Logged with 11.01.2198 Processed with 11.01.2198 Plotted with 11.02.2164

Repeat Section

DOWNHOLE EQUIPMENT

C:\Users\Joe\AppData\Local\Temp\Weatherford PreView\0\Crooked_003 spooled section.dta



Compact Comms Gamma
MCG-C 139 LG: 8.70 ft WT: 63.9 lb OD: 2.24 in

- 42.85 ft GRGC - Gamma Ray
- 39.94 ft CGXT - MCG External Temperature

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

- 33.23 ft MINV - Micro-inverse
- 33.23 ft MNRL - Micro-normal
- 34.22 ft MLTC - MML Caliper

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

- 28.43 ft NPRL - Limestone Neutron Por.

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

- 21.19 ft CLDC - Density Caliper
- 21.19 ft AVOL - Annular Volume
- 21.19 ft HVOL - Hole Volume
- 19.26 ft DEN - Compensated Density
- 19.26 ft DCOR - Density Correction
- 19.26 ft DPRL - Limestone Density Por.
- 19.20 ft PDPE - PE

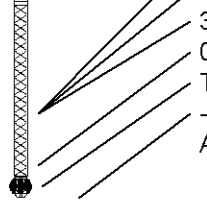
Compact Focussed Electric
MFE-A.A 52 LG: 6.03 ft WT: 48.5 lb OD: 2.24 in

- 13.70 ft FEFE - Shallow FE

Compact Induction
MAI-A.A 167 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

Total Length: 48.14 ft Weight: 383.6 lb



3.34 ft R60O - Array Ind. One Res 60
0.23 ft SPCG - Spontaneous Potential
Tool Zero (0.13ft from bottom)
-0.13 ft SMTU - DST Uphole Tension
All measurements relative to tool zero.

BEFORE SURVEY CALIBRATION

C:\Users\Joe\AppData\Local\Temp\Weatherford PreView\0\Crooked_003 spooled section.dta

General Constants All 000

Last Edited on 06-JAN-2011,17:59

General Parameters		
Mud Resistivity	1.370	ohm-metres
Mud Resistivity Temperature	77.000	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	Base Density Porosity	
Resistivity used	Deep Induction	
RWA Constant A	0.610	
RWA Constant M	2.150	

Gamma Calibration MCG-C 139

Field Calibration on 05-JAN-2011 09:38

	Measured	Calibrated (API)
Background	66	45
Calibrator (Gross)	1136	770
Calibrator (Net)	1070	725

Gamma Constants MCG-C 139

Last Edited on 06-JAN-2011,17:12

Gamma Calibrator Number	grc38	
Mud Density	1.08	gm/cc
Caliper Source for Processing	Density Caliper	
Tool Position	Eccentred	
Concentration of KCl	0.00	kppm

High Resolution Temperature Calibration MCG-C 139

Field Calibration on 03-SEP-2010,11:23

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

High Resolution Temperature Constants MCG-C 139

Last Edited on

Pre-filter Length	11

COMPANY	O'Brien Energy
WELL	Crooked Creek #2-8
FIELD	Unknown
PROVINCE/COUNTY	Meade
COUNTRY/STATE	U.S.A. / Kansas

Elevation Kelly Bushing	2680.00	feet	First Reading	6277.00	feet
Elevation Drill Floor	2679.00	feet	Depth Driller	6284.00	feet
Elevation Ground Level	2668.00	feet	Depth Logger	6290.00	feet

Elevation Ground Level	2668.00	feet	Depth Logger	6290.00	feet

Weatherford®

ARRAY INDUCTION SHALLOW FOCUSSED ELECTRIC LOG

40 Years of Wireline 1970 2010

Weatherford

ARRAY INDUCTION SHALLOW FOCUSSED ELECTRIC LOG

COMPANY	O'Brien Energy		
WELL	Crooked Creek #2-8		
FIELD	Unknown		
PROVINCE/COUNTY	Meade		
COUNTRY/STATE	U.S.A. / Kansas		
LOCATION	330' FSL & 660' FEL		
SEC 8	TWP 33S	RGE 29W	Other Services MPD/MDN MML
API Number	15-119-21276		
Permit Number			
Permanent Datum G.L., Elevation 2668 feet			Elevations: feet
Log Measured From K.B. @ 12 feet above Permanent Datum			KB 2680.00
Drilling Measured From K.B.			DF 2679.00
			GL 2668.00

Date	06-JAN-2011		
Run Number	One		
Depth Driller	6284.00	feet	
Depth Logger	6290.00	feet	
First Reading	6277.00	feet	
Last Reading	1443.00	feet	
Casing Driller	1488.00	feet	
Casing Logger	1443.00	feet	
Bit Size	7.875	inches	
Hole Fluid Type	Chemical		
Density/Viscosity	9.00 lb/USg	52.00 CP	
PH/Fluid Loss	10.50	6.40 ml/30Min	
Sample Source	Flowline		
Rm @ Measured Temp	1.37 @ 77.0	ohm-m	
Rmf @ Measured Temp	1.10 @ 77.0	ohm-m	
Rmc @ Measured Temp	1.64 @ 77.0	ohm-m	
Source Rmf / Rmc	calc	calc	
Rm @ BHT	0.88 @ 120.0	ohm-m	
Time Since Circulation	4 Hours		
Max Recorded Temp	120.00	deg F	
Equipment Name	Compact		
Equipment / Base	13025	LIB	
Recorded By	Steven Tottey		
Witnessed By	Roger Pearson		
S.O. # / Job #	3514444		LB10-002

One Inch Main Pass

Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 28-FEB-2011 17:01

Filename: C:\Users\Joe\AppData\Local\Temp\Weatherford PreView\0\Crooked_003.dta — Recorded on 06-JAN-2011 19:46

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

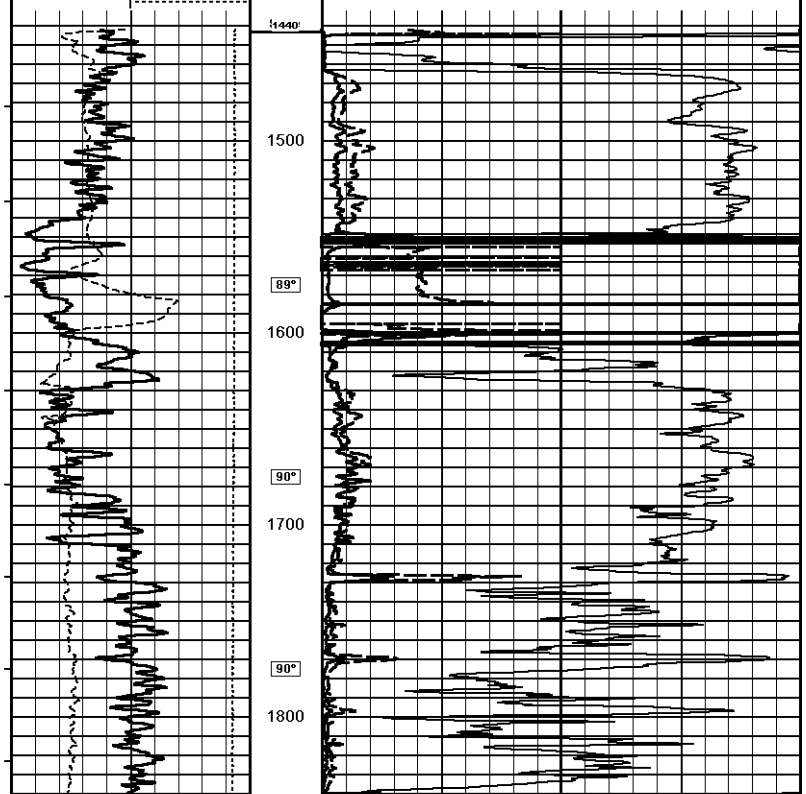
Borehole Temp in deg F

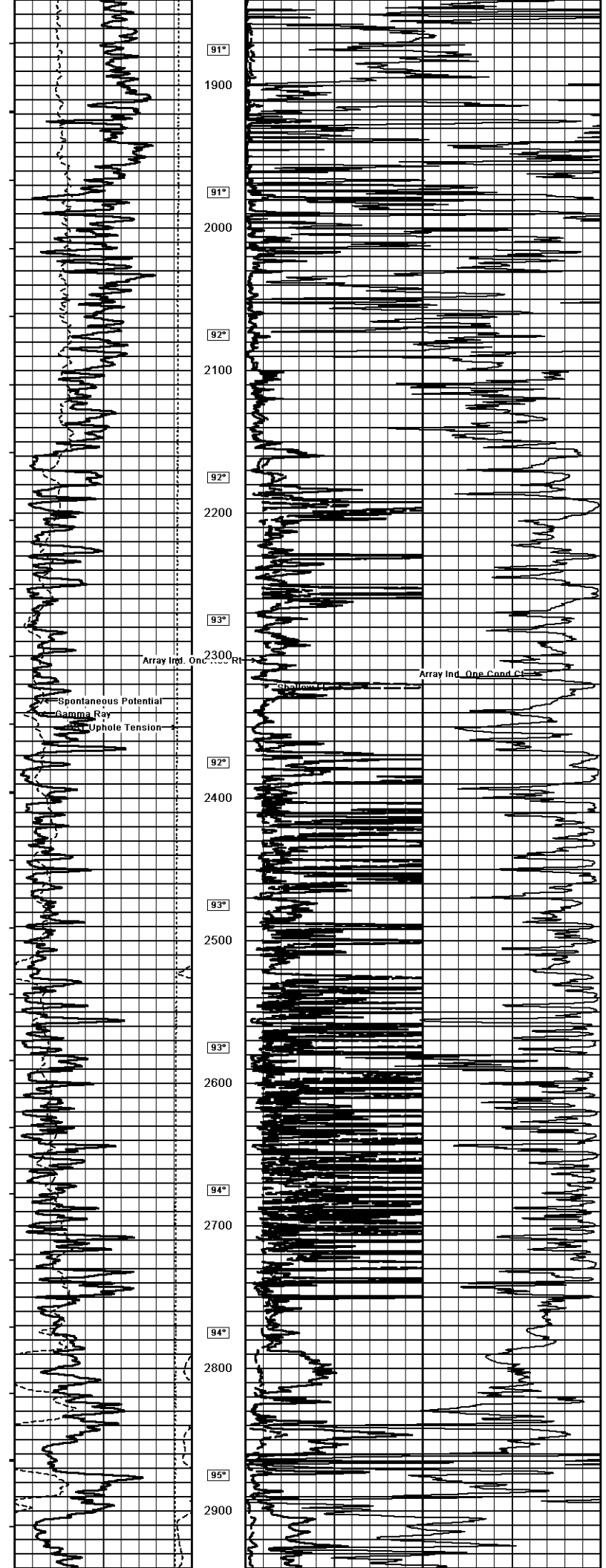
Replay Scale 1:600

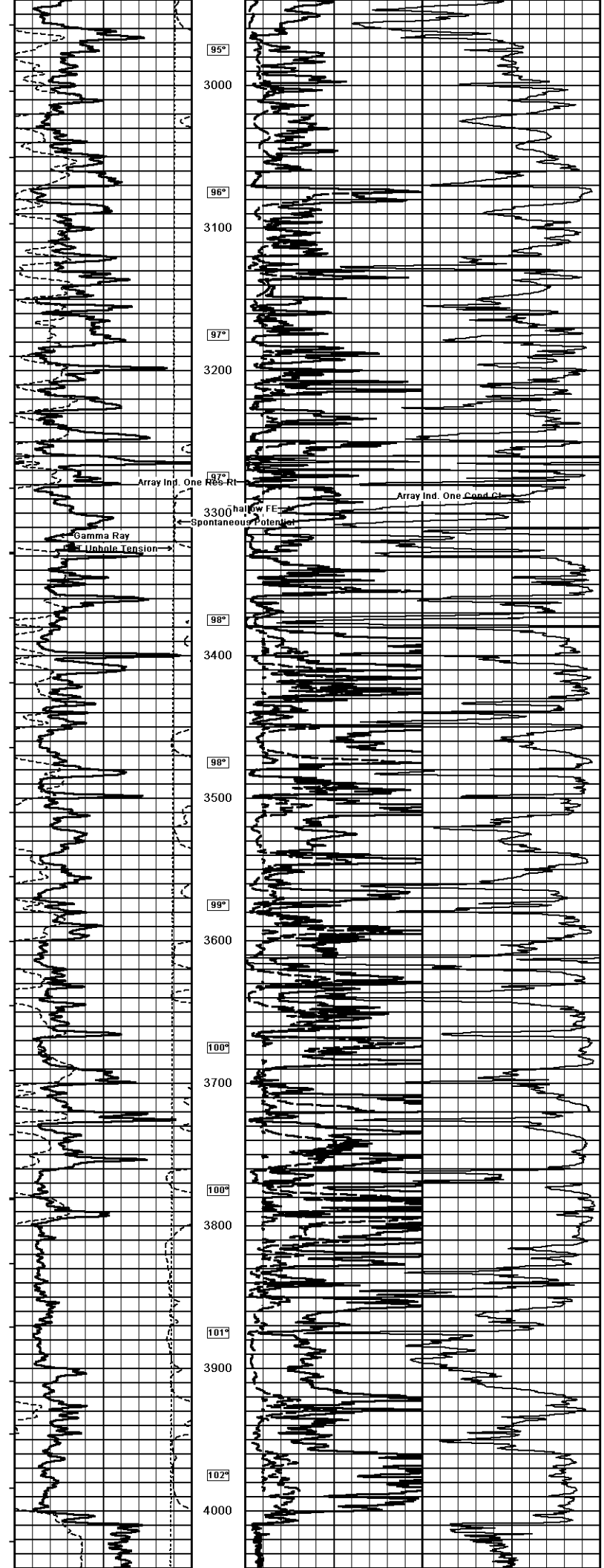
Array Ind. One Cond Ct mmhos 1000 750 500 250 0 / 2000 1750 1500 1250 1000

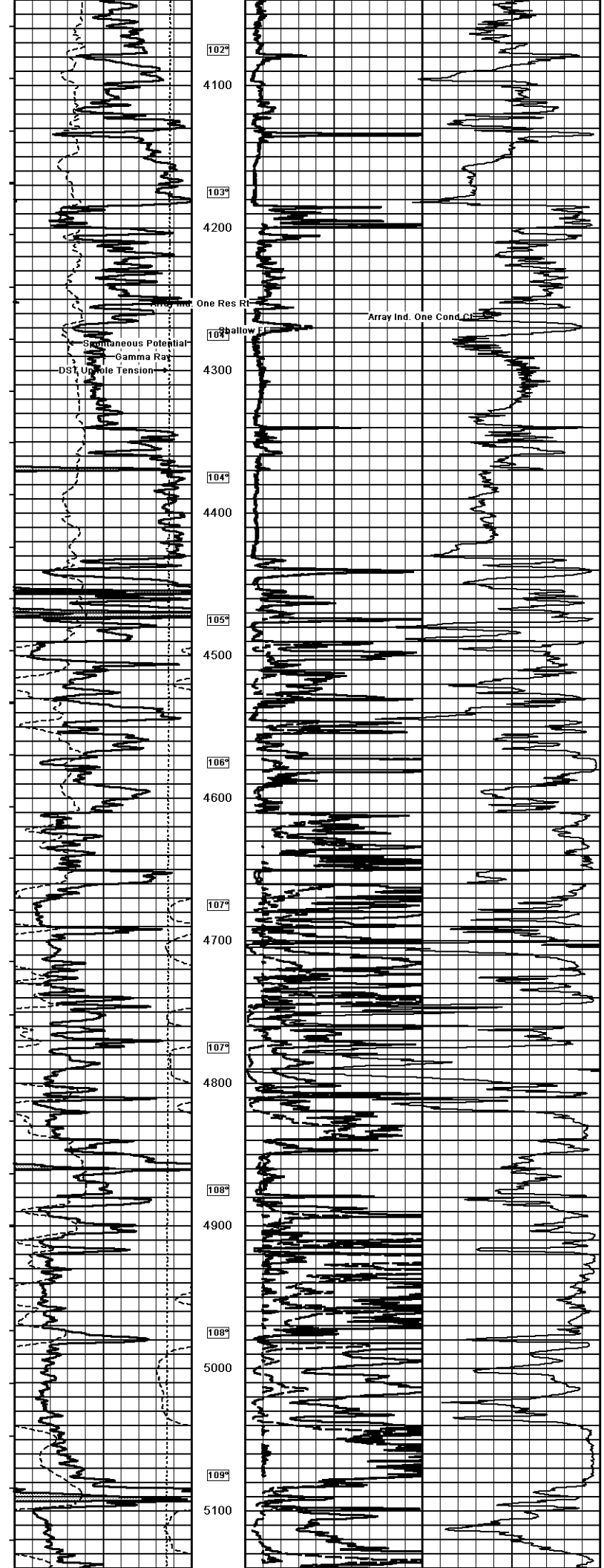
Shallow FE ohm metres 0 25 50 / 0 250 500

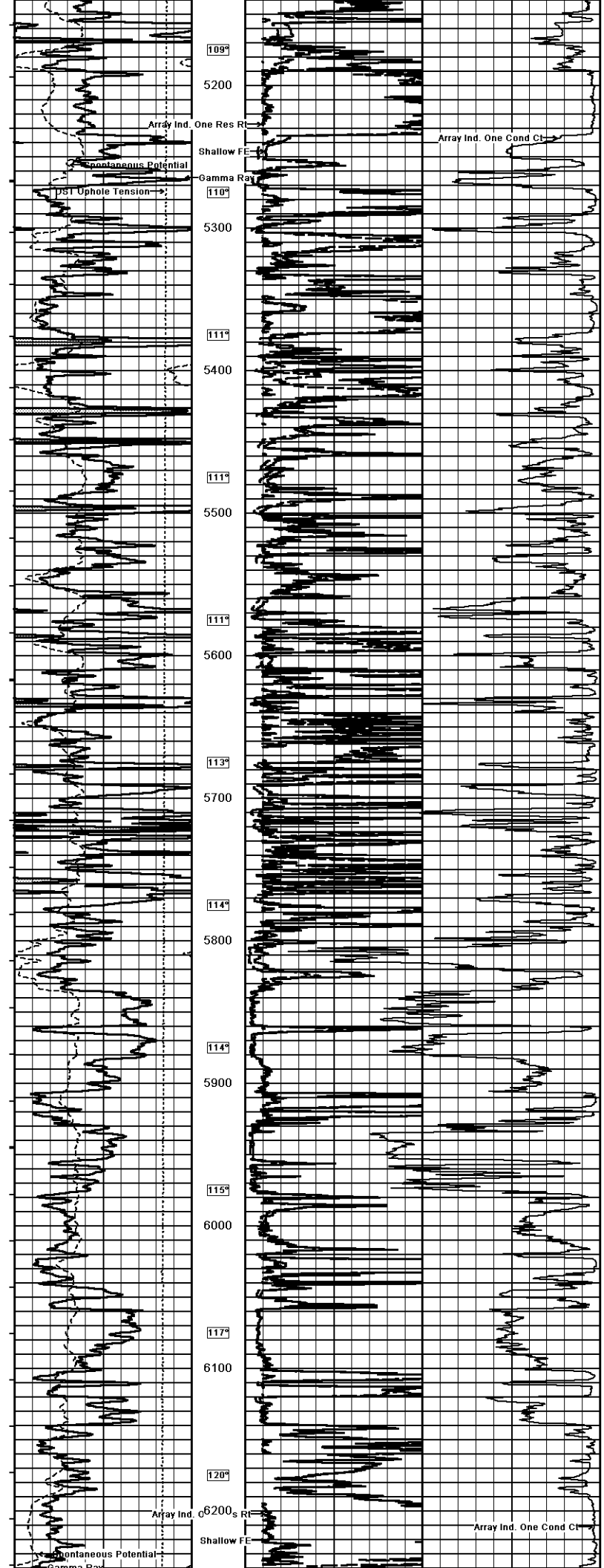
Array Ind. One Res Rt ohm metres 0 25 50 / 0 250 500

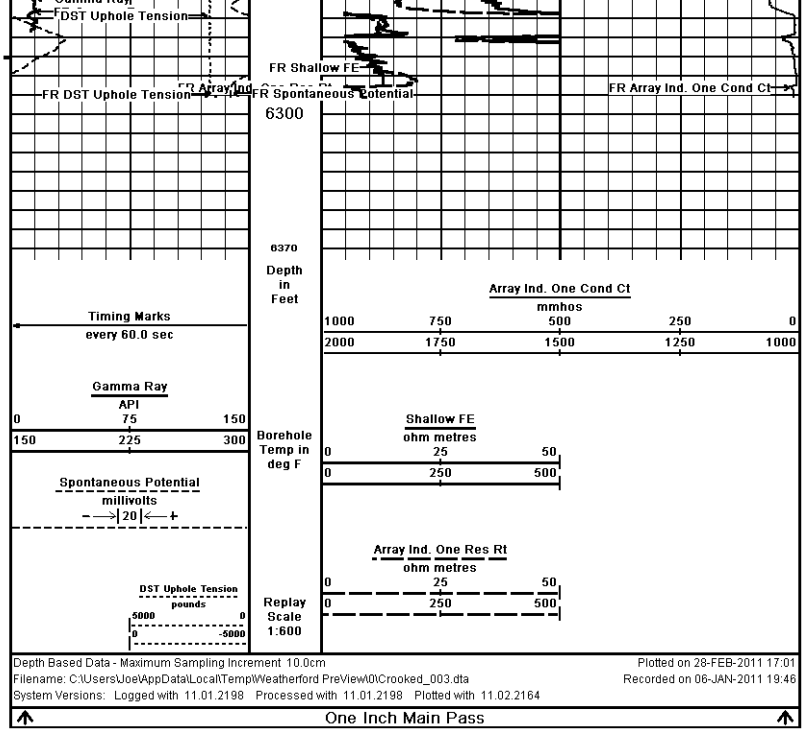



91°
1900
91°
2000
92°
2100
92°
2200
93°
2300
Array Ind. One Cond Cl
Spontaneous Potential
Gamma Ray
Uphole Tension
92°
2400
93°
2500
93°
2600
94°
2700
94°
2800
95°
2900


95°
3000
96°
3100
97°
3200
97°
Array Ind. One Res Rt
Array Ind. One Cond Cl
3300
Shallow FE
Spontaneous Potential
Gamma Ray
Wireline Tension
98°
3400
98°
3500
99°
3600
100°
3700
100°
3800
101°
3900
102°
4000


102°
4100
103°
4200
Array Ind. One Res Rt
Array Ind. One Cond Ct
Shallow Ct
104°
Spontaneous Potential
Gamma Ray
DST Uphole Tension
4300
104°
4400
105°
4500
106°
4600
107°
4700
107°
4800
108°
4900
108°
5000
109°
5100


109°
5200
Array Ind. One Res Rt
Shallow FE
Spontaneous Potential
Gamma Ray
DST Uphole Tension
110°
5300
111°
5400
111°
5500
111°
5600
113°
5700
114°
5800
114°
5900
115°
6000
117°
6100
120°
6200
Array Ind. One Cond Cl
Array Ind. One Res Rt
Shallow FE
Spontaneous Potential
Gamma Ray
Array Ind. One Cond Cl



Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 28-FEB-2011 17:01

Filename: C:\Users\Joe\AppData\Local\Temp\Weatherford PreView\0\Crooked_003.dta — Recorded on 06-JAN-2011 19:46

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	Crooked Creek #2-8
FIELD	Unknown
PROVINCE/COUNTY	Meade
COUNTRY/STATE	U.S.A. / Kansas

Elevation Kelly Bushing	2680.00	feet	First Reading	6277.00	feet
Elevation Drill Floor	2679.00	feet	Depth Driller	6284.00	feet
Elevation Ground Level	2668.00	feet	Depth Logger	6290.00	feet

Weatherford

ARRAY INDUCTION
SHALLOW FOCUSSED
ELECTRIC LOG

MICRO RESISTIVITY LOG

Weatherford®

COMPANY	O'Brien Energy
WELL	Crooked Creek #2-8
FIELD	Unknown
PROVINCE/COUNTY	Meade
COUNTRY/STATE	U.S.A. / Kansas
LOCATION	330' FSL & 660' FEL

40 Years of Wireline 1970 2010

SEC	TWP	RGE	Other Services
8	33S	29W	MPD/MDN
			MAI/MFE

API Number 15-119-21276
Permit Number

Permanent Datum G.L., Elevation 2668 feet
Log Measured From K.B. @ 12 feet above Permanent Datum
Drilling Measured From K.B.

Elevations:	feet
KB	2680.00
DF	2679.00
GL	2668.00

Date	06-JAN-2011			
Run Number	One			
Depth Driller	6284.00	feet		
Depth Logger	6290.00	feet		
First Reading	6256.00	feet		
Last Reading	3950.00	feet		
Casing Driller	1488.00	feet		
Casing Logger	1443.00	feet		
Bit Size	7.875	inches		
Hole Fluid Type	Chemical			
Density / Viscosity	9.00 lb/USg	52.00 CP		
PH / Fluid Loss	10.50	6.40 ml/30Min		
Sample Source	Flowline			
Rm @ Measured Temp	1.37 @ 77.0	ohm-m		
Rmf @ Measured Temp	1.10 @ 77.0	ohm-m		
Rmc @ Measured Temp	1.64 @ 77.0	ohm-m		
Source Rmf / Rmc	calc	calc		
Rm @ BHT	0.88 @120.0	ohm-m		
Time Since Circulation	4 Hours			
Max Recorded Temp	120.00	deg F		
Equipment Name	Compact			
Equipment / Base	13025	LIB		
Recorded By	Steven Tottey			
Witnessed By	Roger Pearson			
S.O. # / Job #	3514444		LB10-002	

BOREHOLE RECORD

Last Edited: 06-JAN-2011 21:01

Bit Size inches	Depth From feet	Depth To feet
7.875	1443.00	6290.00

CASING RECORD

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
Surface	8.625	0.00	1443.00	24.00

REMARKS

Tools Run: MAI, MPD, MCG, MDN, MFE, MML,
Hardware: MPD: 8 inch profile plate used. MAI and MFE: 0.5 inch standoffs used. MDN: Dual Eccentralizer 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:
Service order #3514444
Rig: Duke #6
Engineer(s): Steven Tottey
Operator: N. Adame
A loose joint was found at 1554 feet to 1600 feet

5 Inch Main

Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 28-FEB-2011 17:02
Filename: C:\Users\Joe\AppData\Local\Temp\Weatherford PreVie...\Crooked_003 spooled section.dta
Recorded on 06-JAN-2011 20:57
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

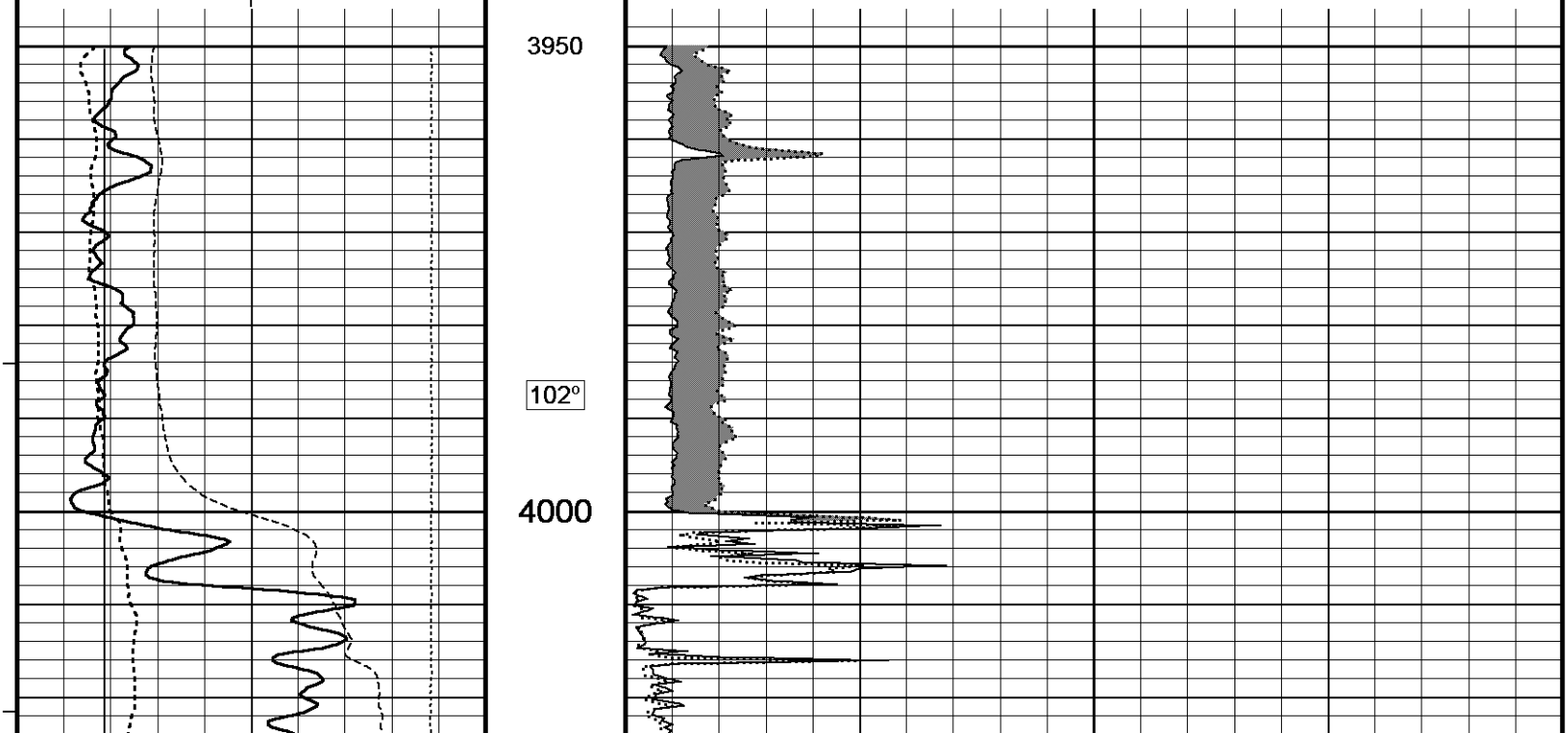
Depth in Feet

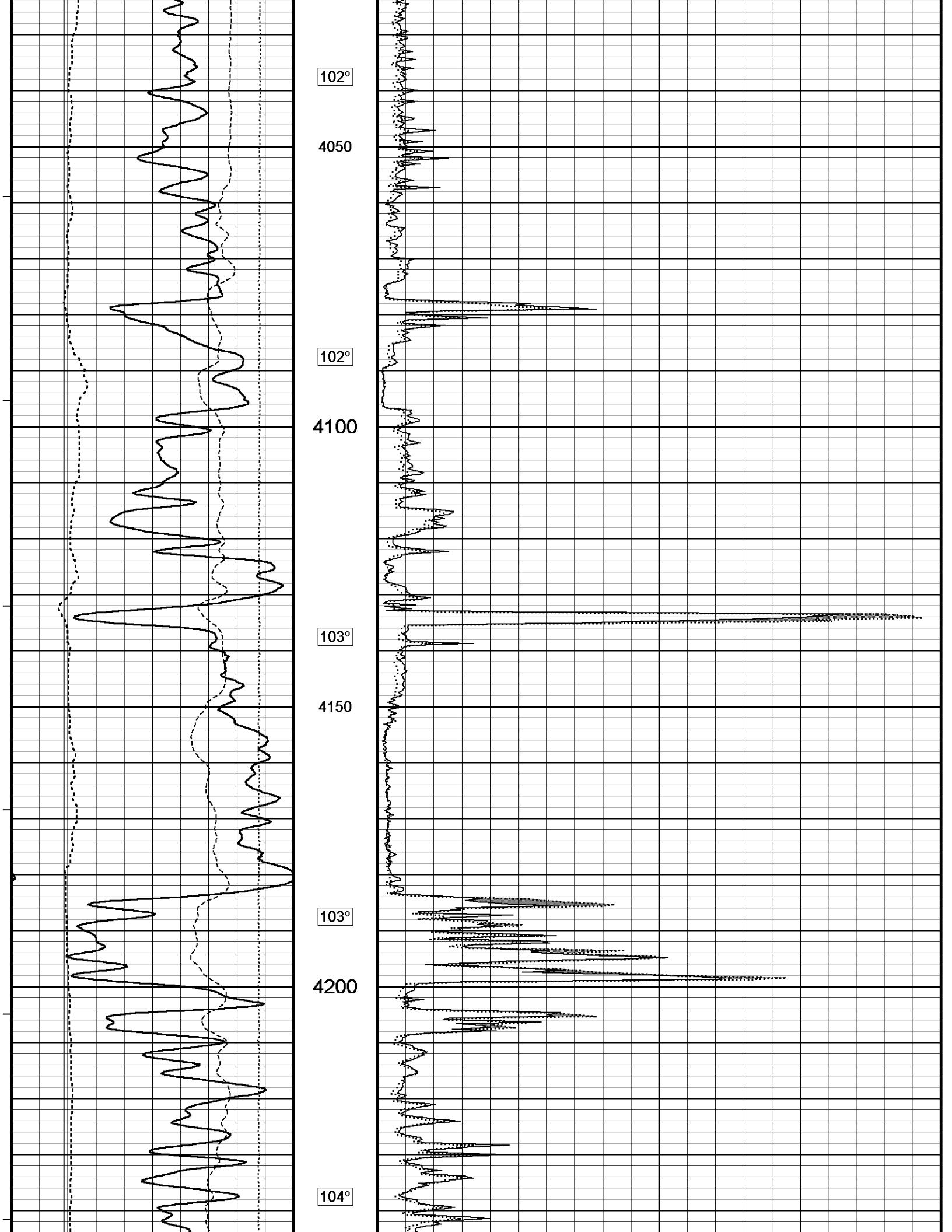
Borehole Temp in deg F

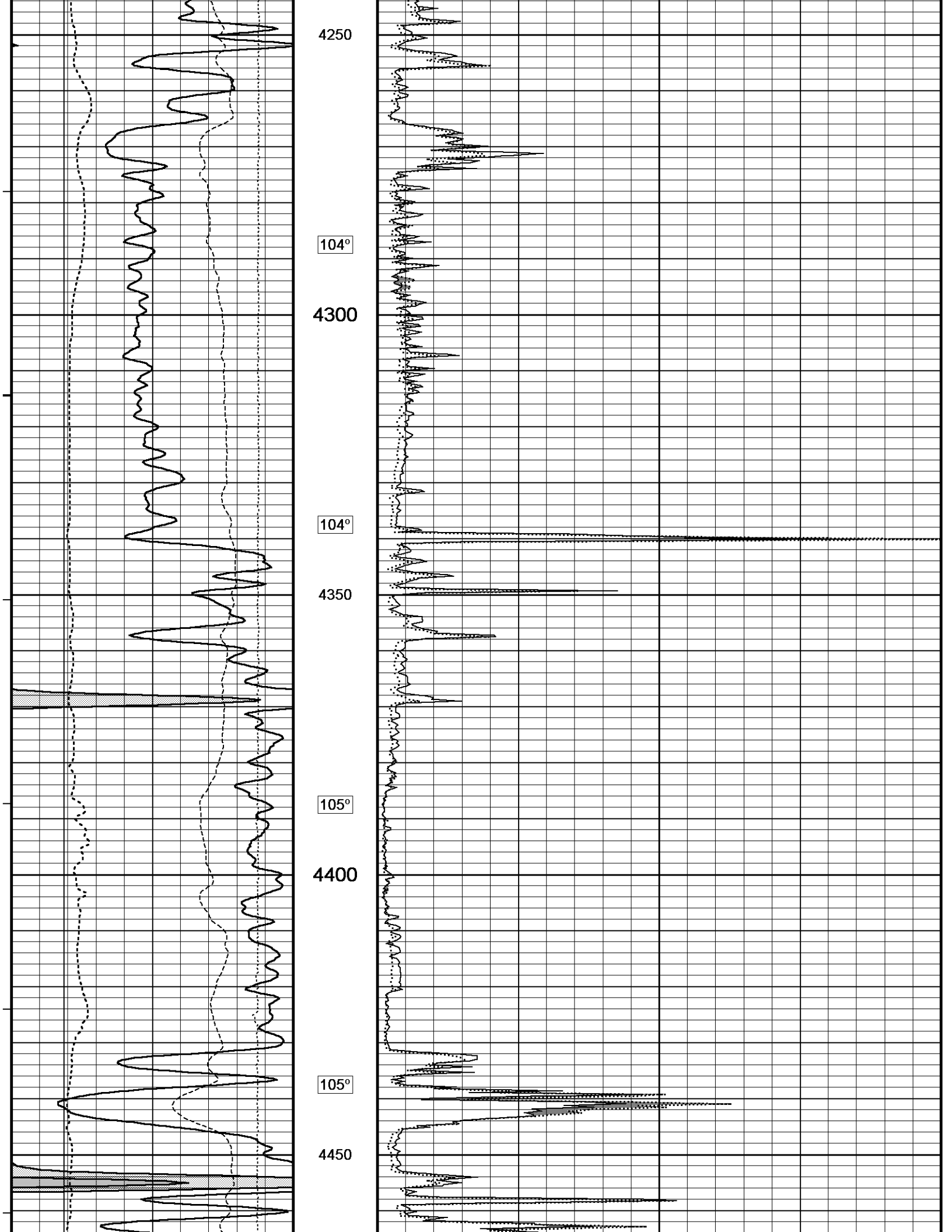
Replay Scale 1:240

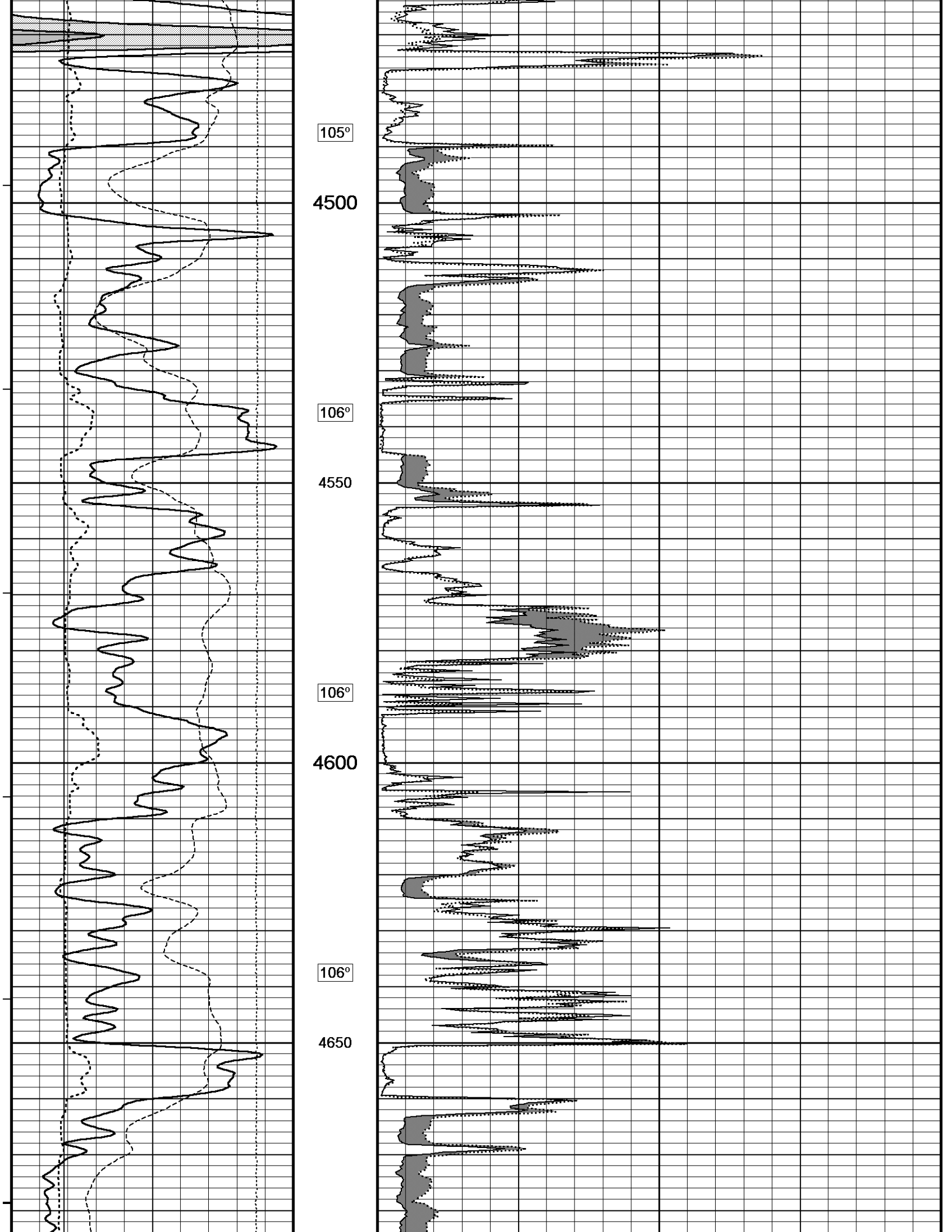
Micro-normal
ohm metres
0 10 20 30 40

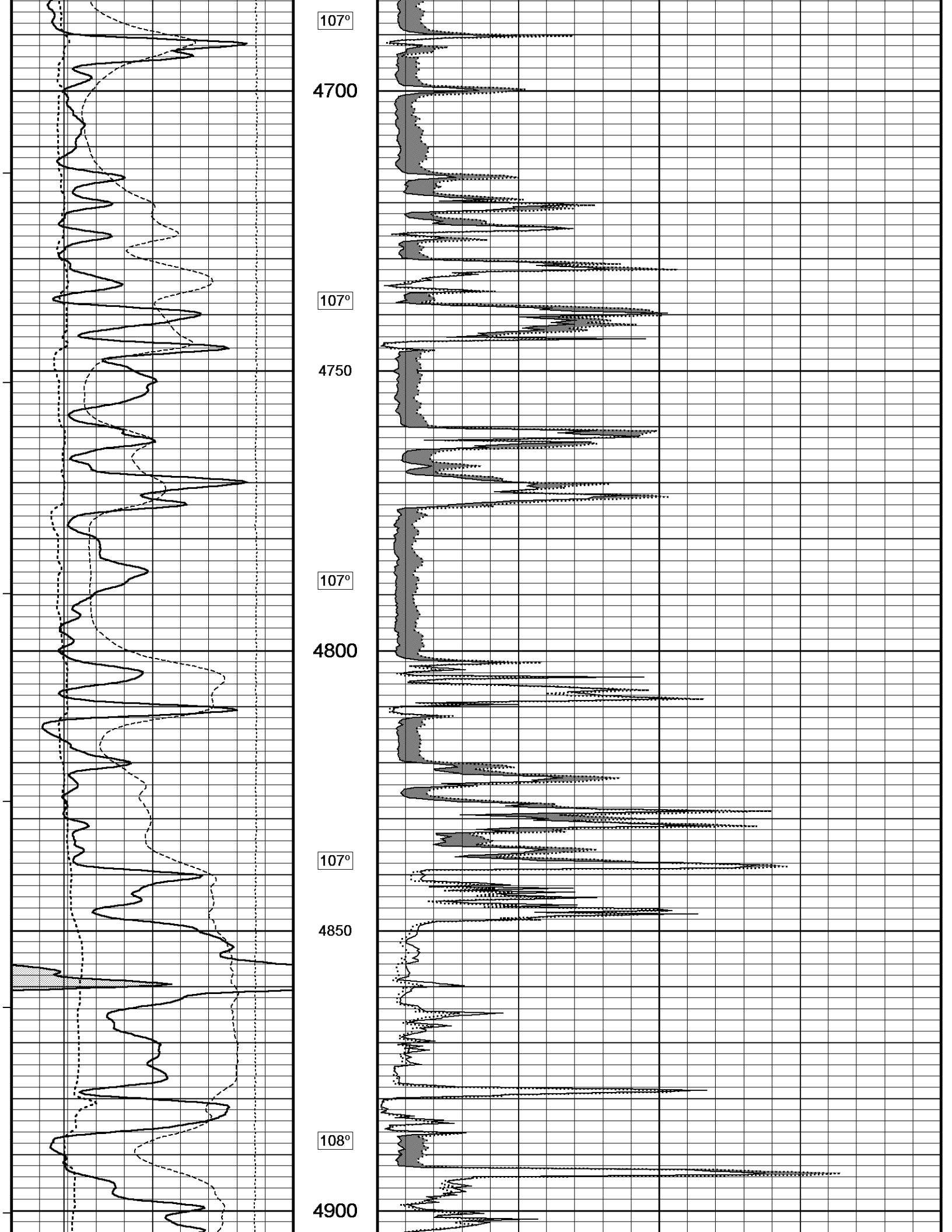
Micro-inverse
ohm metres
0 10 20 30 40




102°
4050
102°
4100
103°
4150
103°
4200
104°


4250
104°
4300
104°
4350
105°
4400
105°
4450


105°
4500
106°
4550
106°
4600
106°
4650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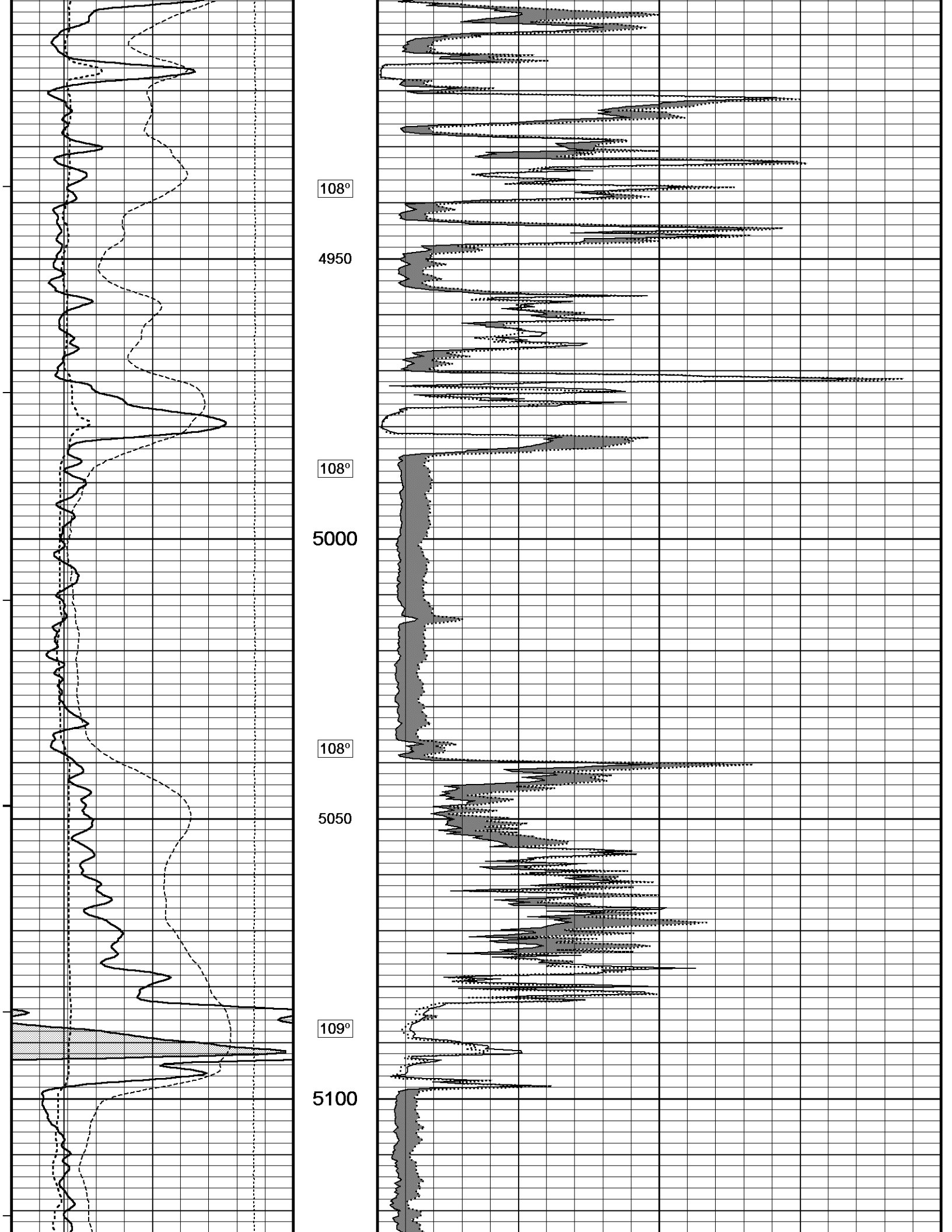
4700
107°
4750
107°
4800
107°
4850
108°
4900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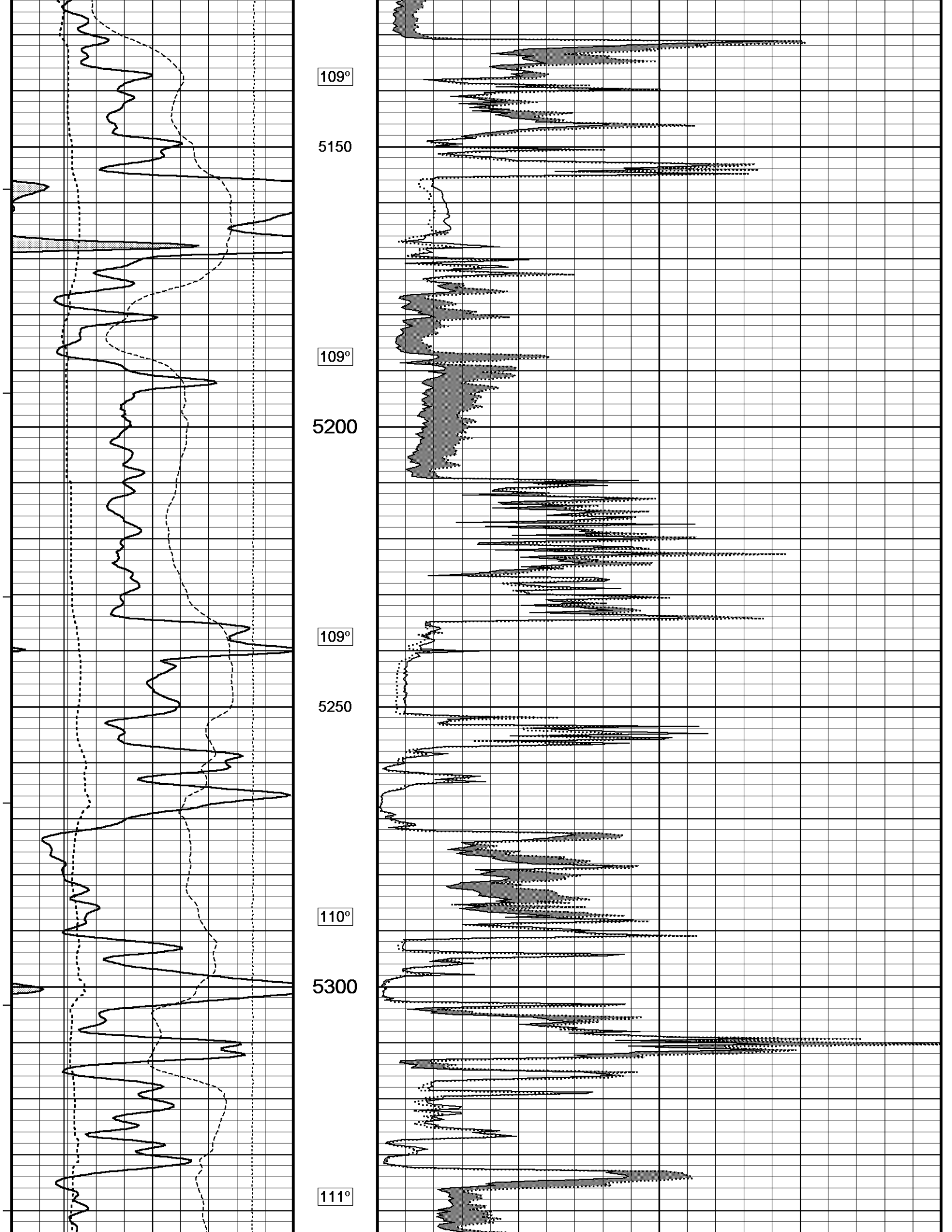
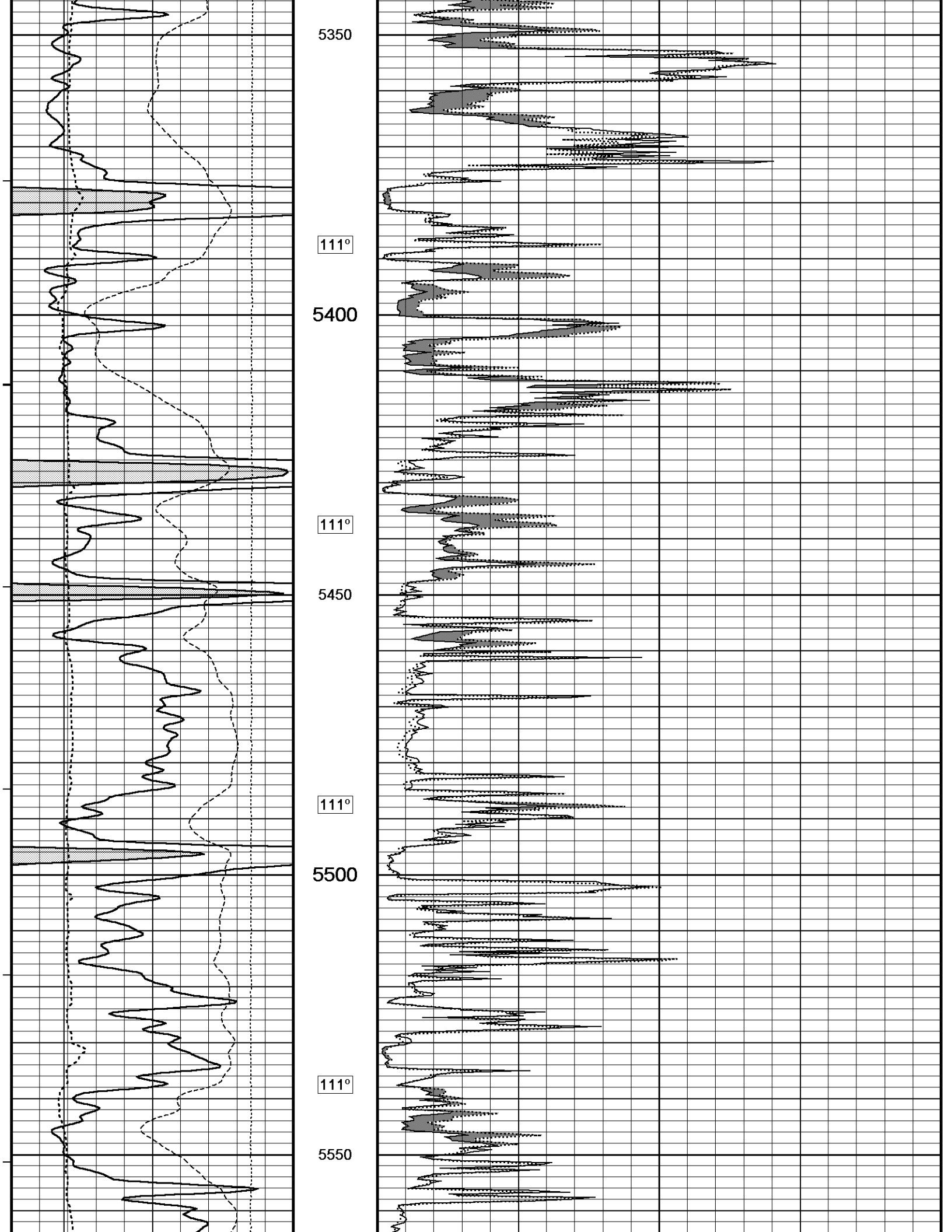
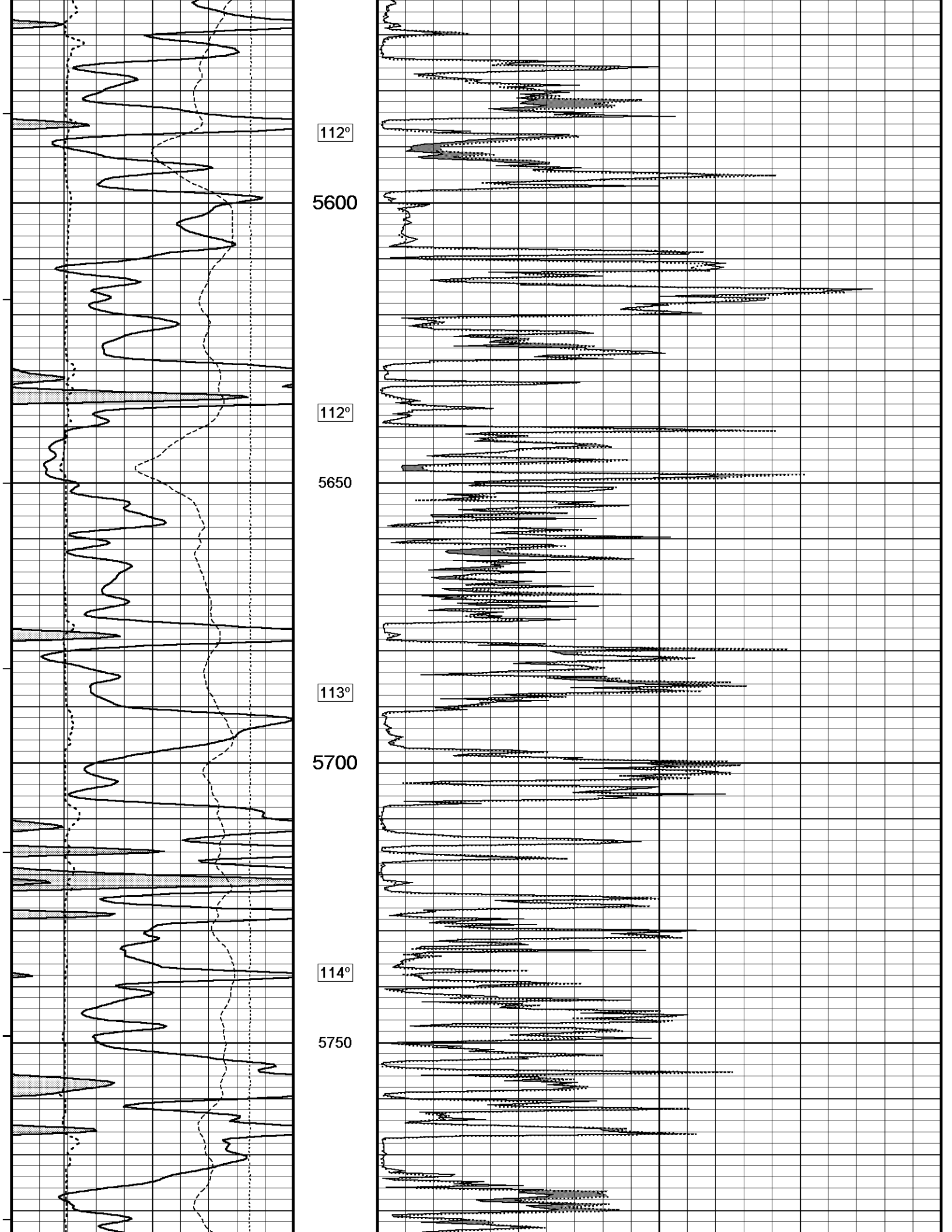
4950
108°
5000
108°
5050
109°
5100


109°
5150
109°
5200
109°
5250
110°
5300
111°


5350
111°
5400
111°
5450
111°
5500
111°
5550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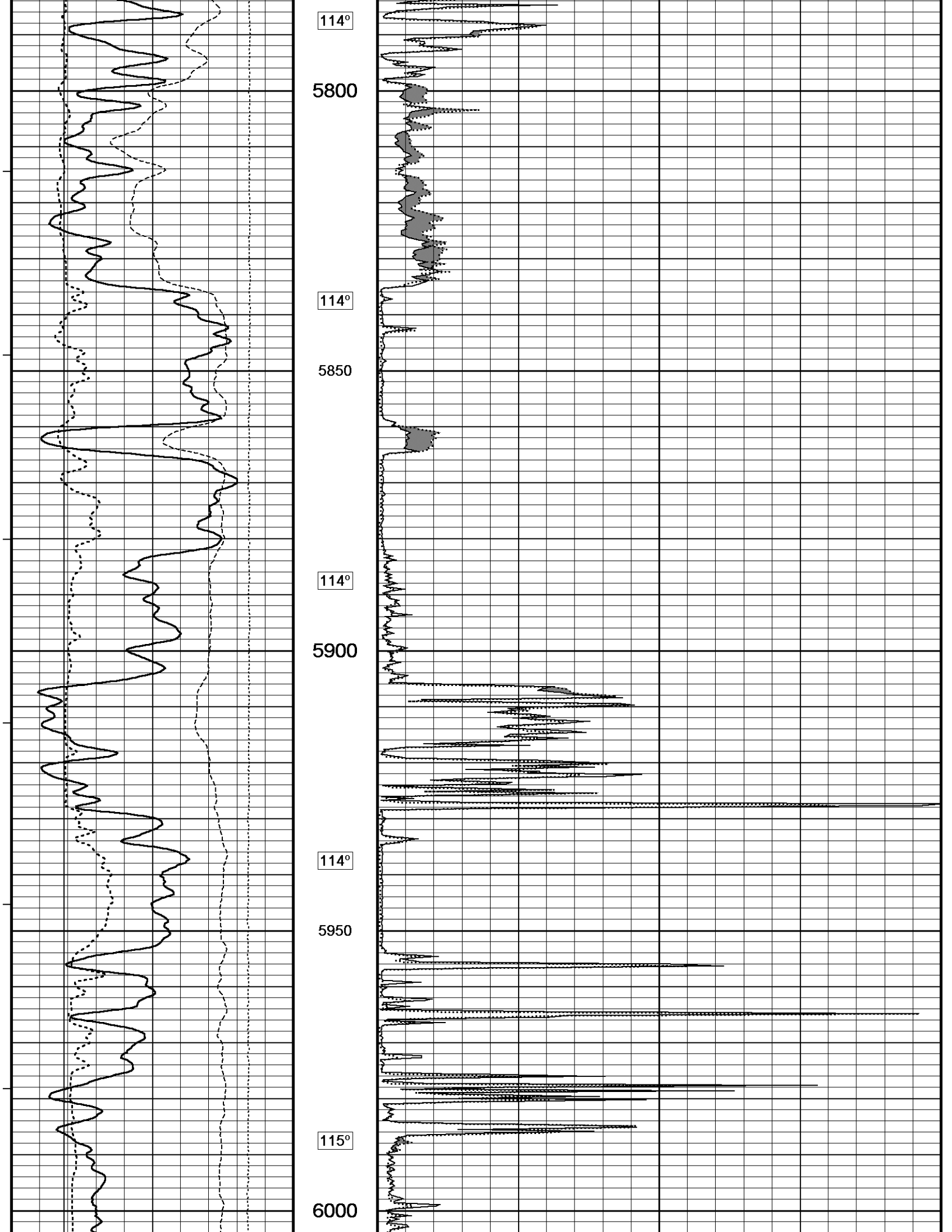
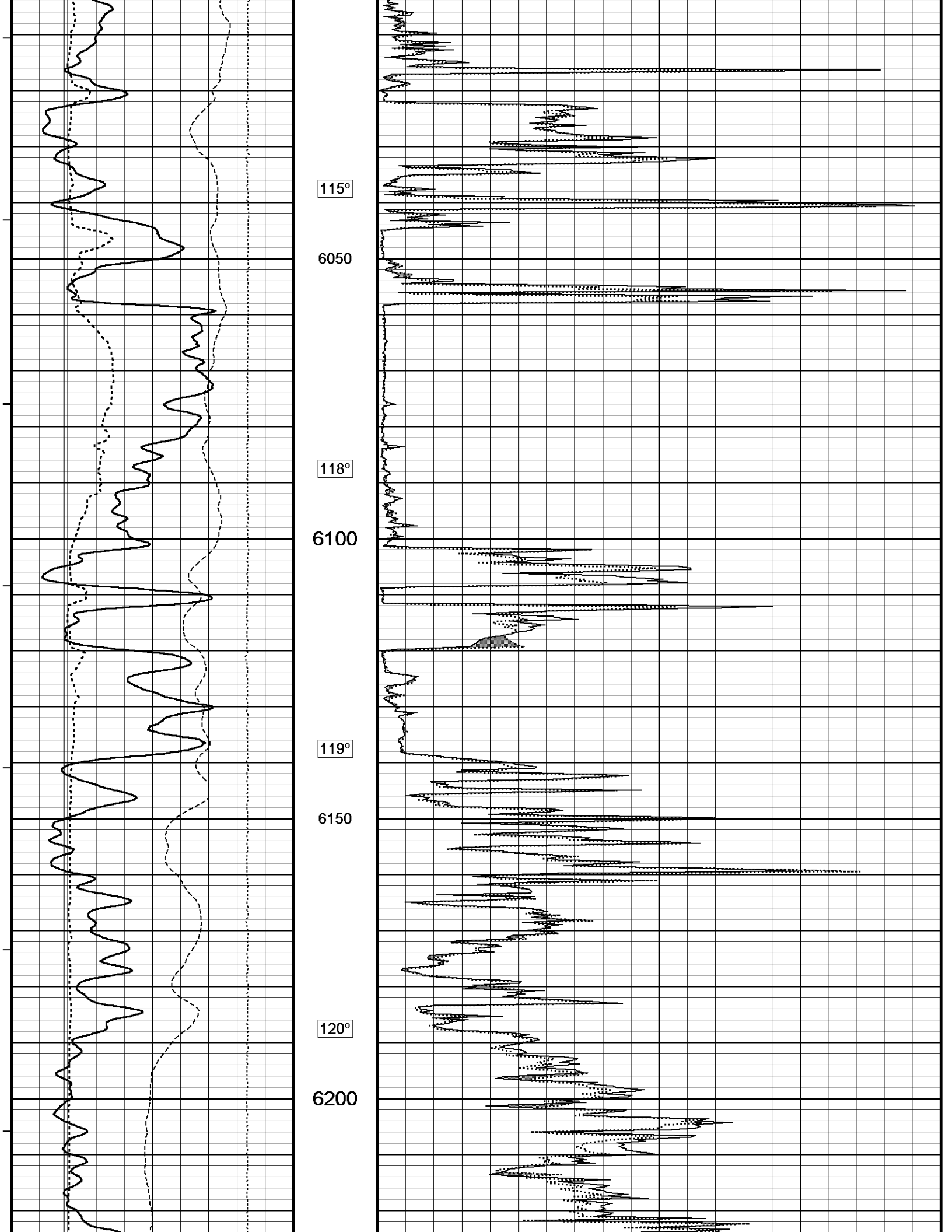
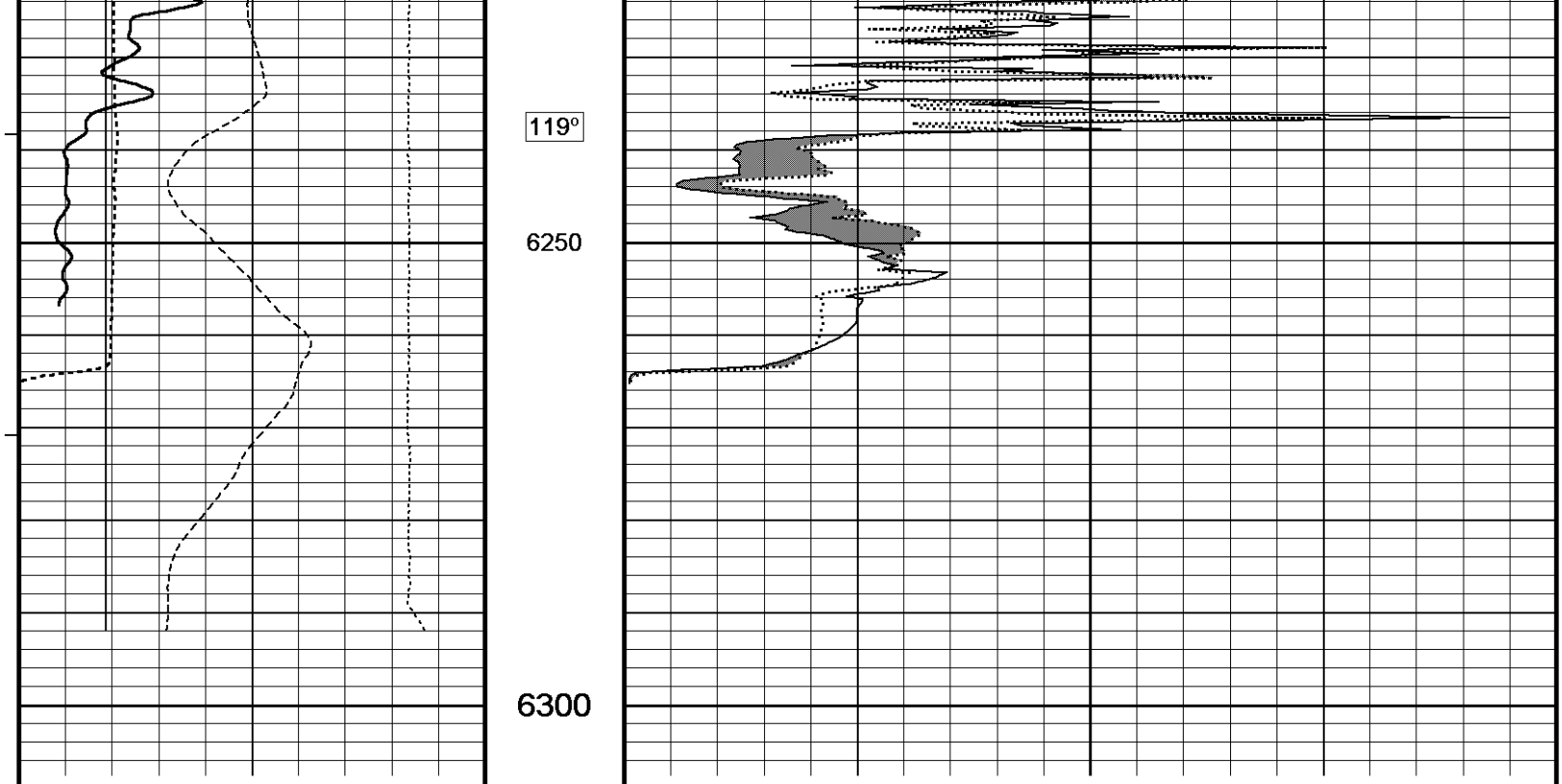
5600
112°
5650
113°
5700
114°
5750


114°
5800
114°
5850
114°
5900
114°
5950
115°
6000


115°
6050
118°
6100
119°
6150
120°
6200



Depth in Feet

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

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

Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 28-FEB-2011 17:02
Filename: C:\Users\Joe\AppData\Local\Temp\Weatherford PreVie...\Crooked_003 spooled section.dta
Recorded on 06-JAN-2011 20:57
System Versions: Logged with 11.01.2198 Processed with 11.01.2198 Plotted with 11.02.2164

5 Inch Main

5 Inch Main

HI RES

Depth Based Data - Maximum Sampling Increment 2.5cm
Filename: C:\Users\Joe\AppData\Local\Temp\Weatherford PreView\0\Crooked_001.dta
System Versions: Logged with 11.01.2198 Plotted with 11.02.2164

Plotted on 28-FEB-2011 17:02
Recorded on 06-JAN-2011 18:48

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

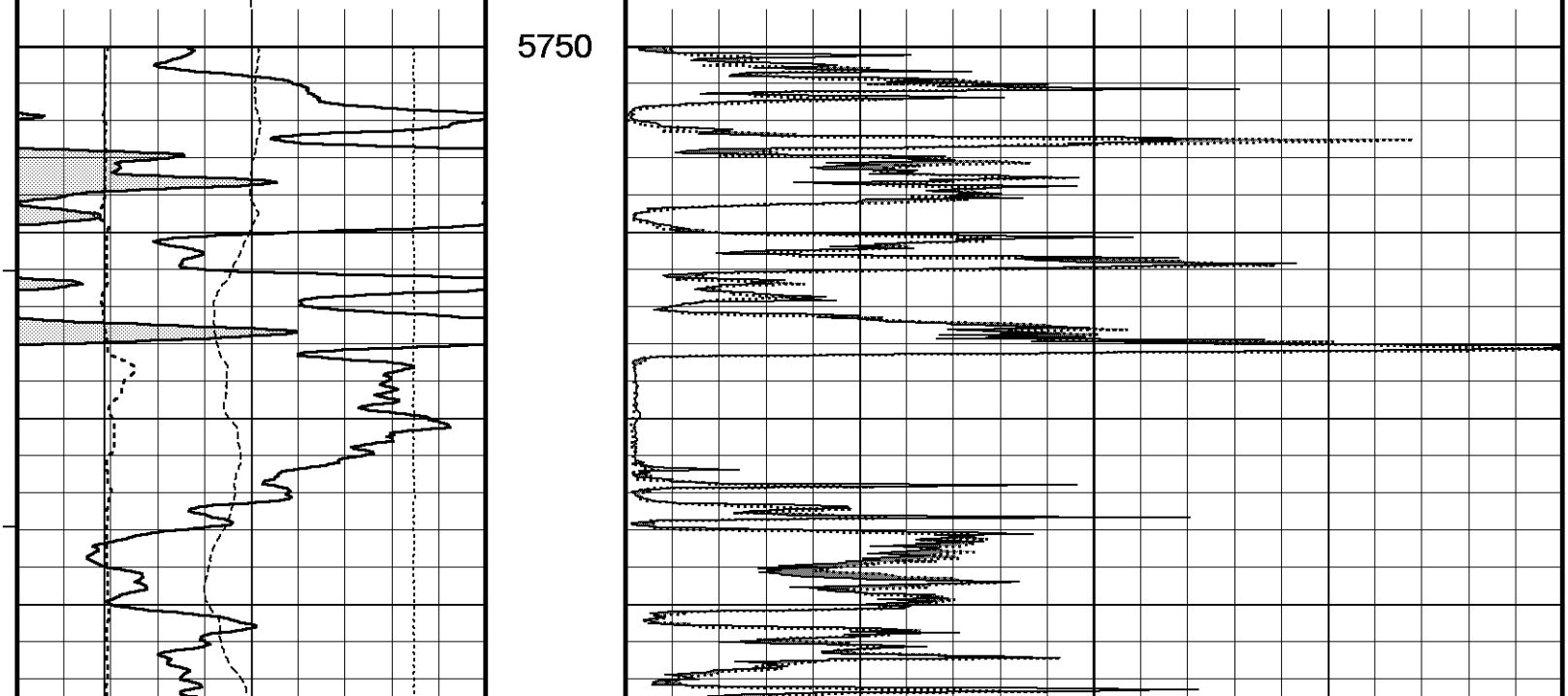
Borehole Temp in deg F

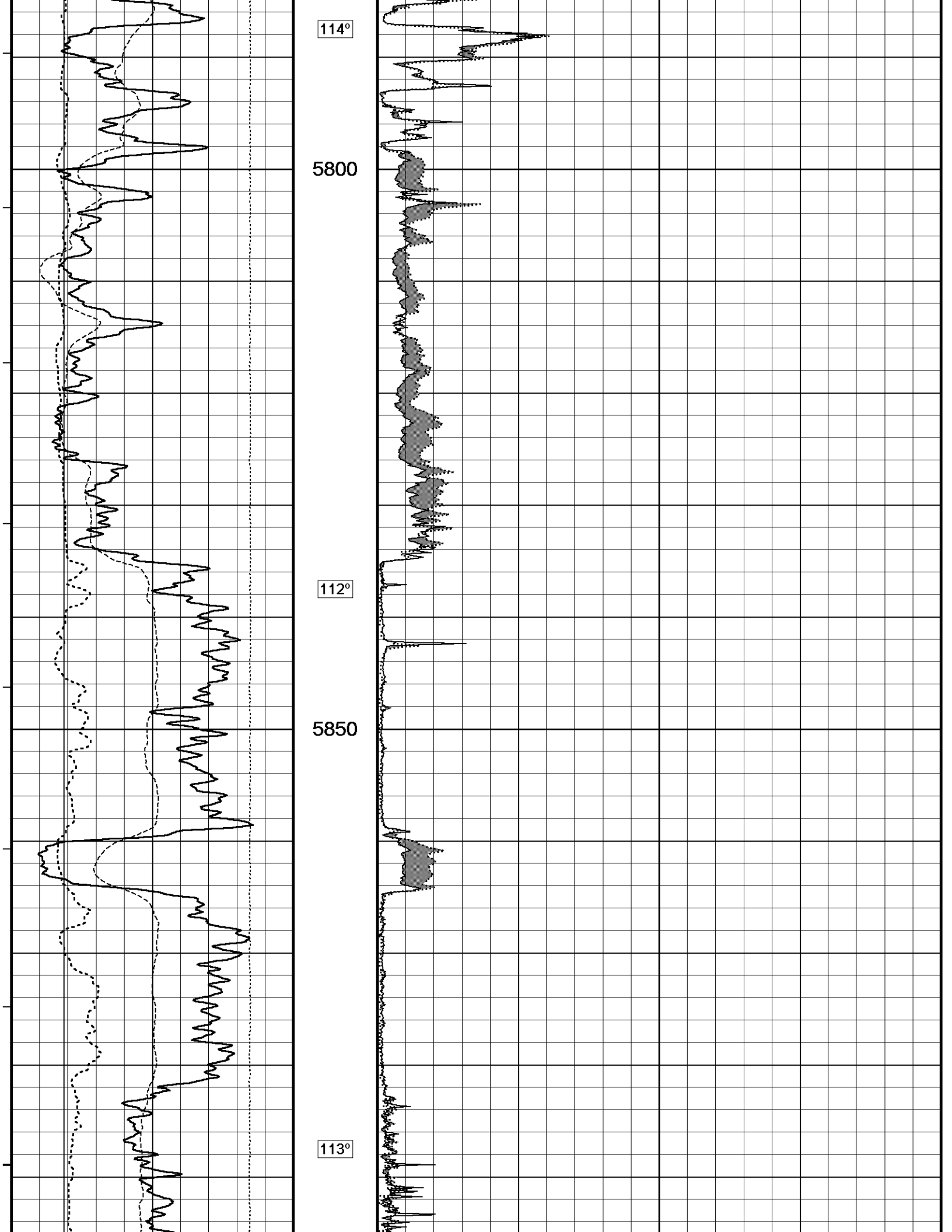
Replay Scale 1:120

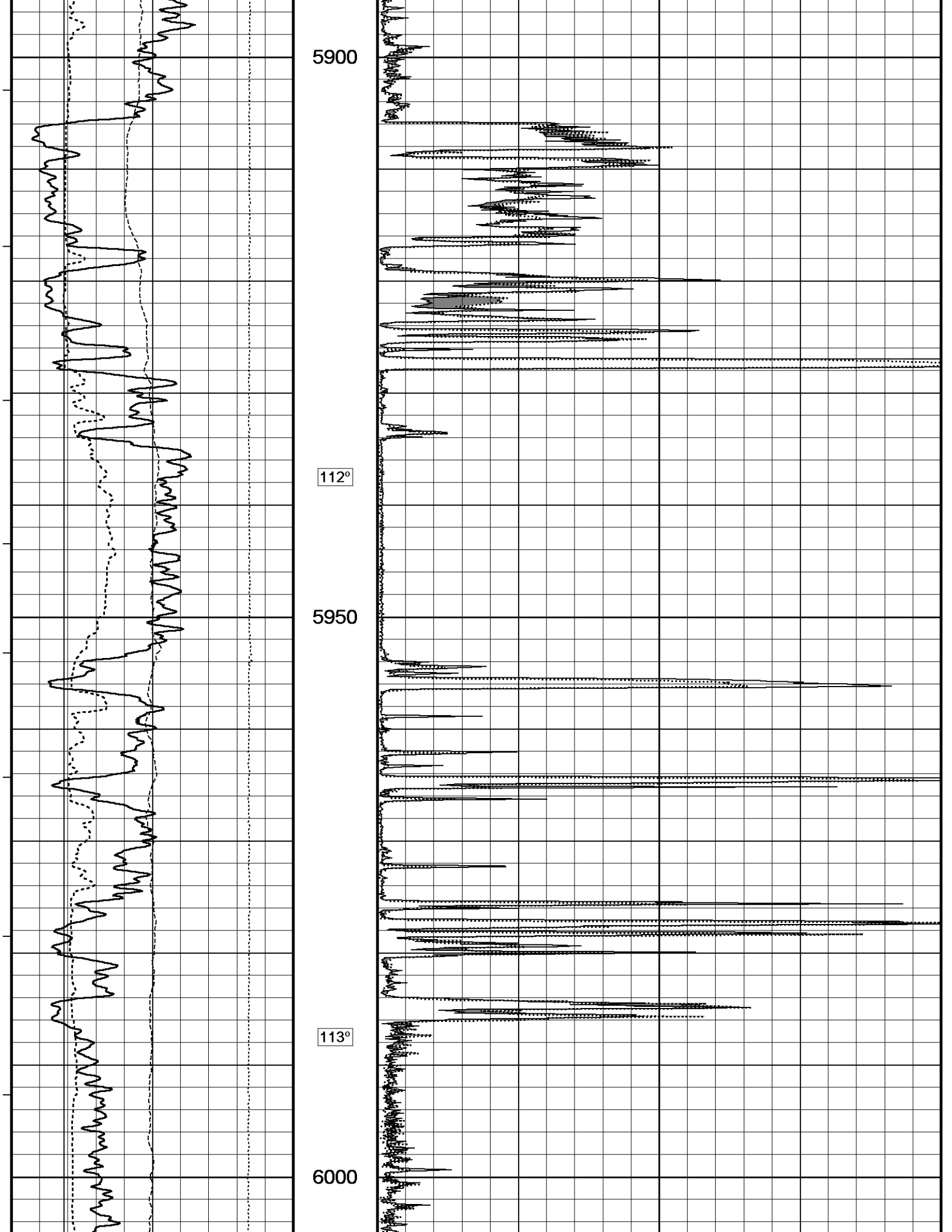
5750

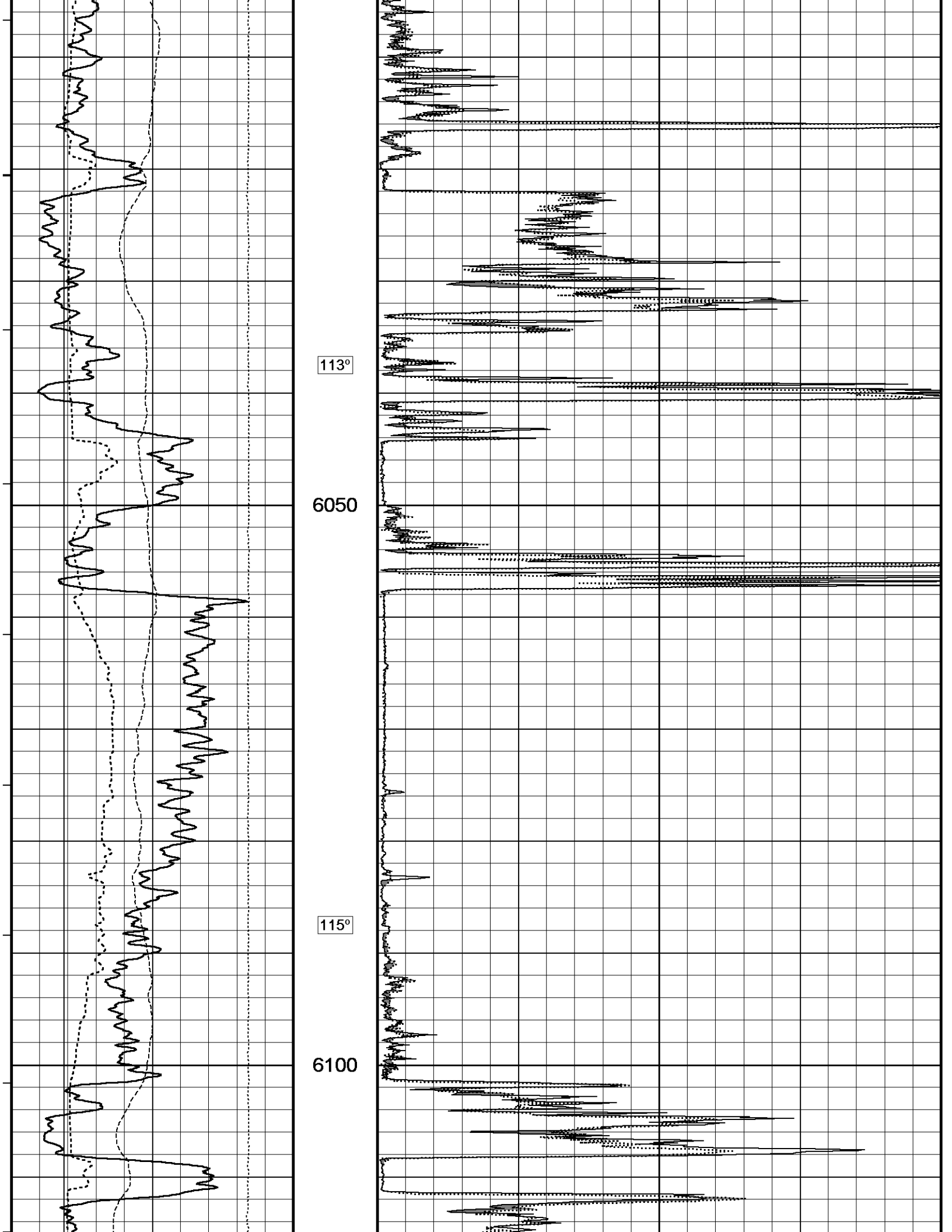
Micro-normal
ohm metres
0 10 20 30 40

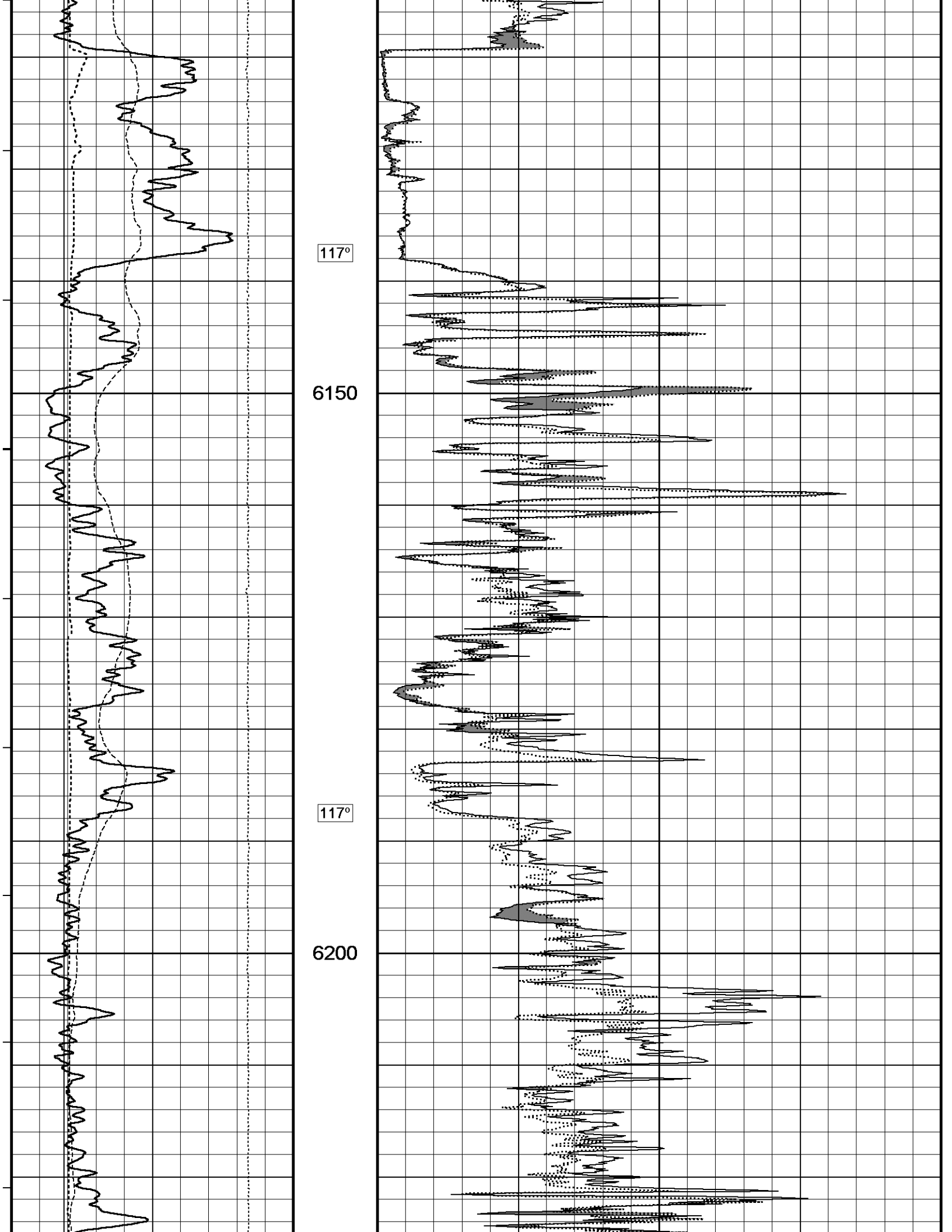
Micro-inverse
ohm metres
0 10 20 30 40

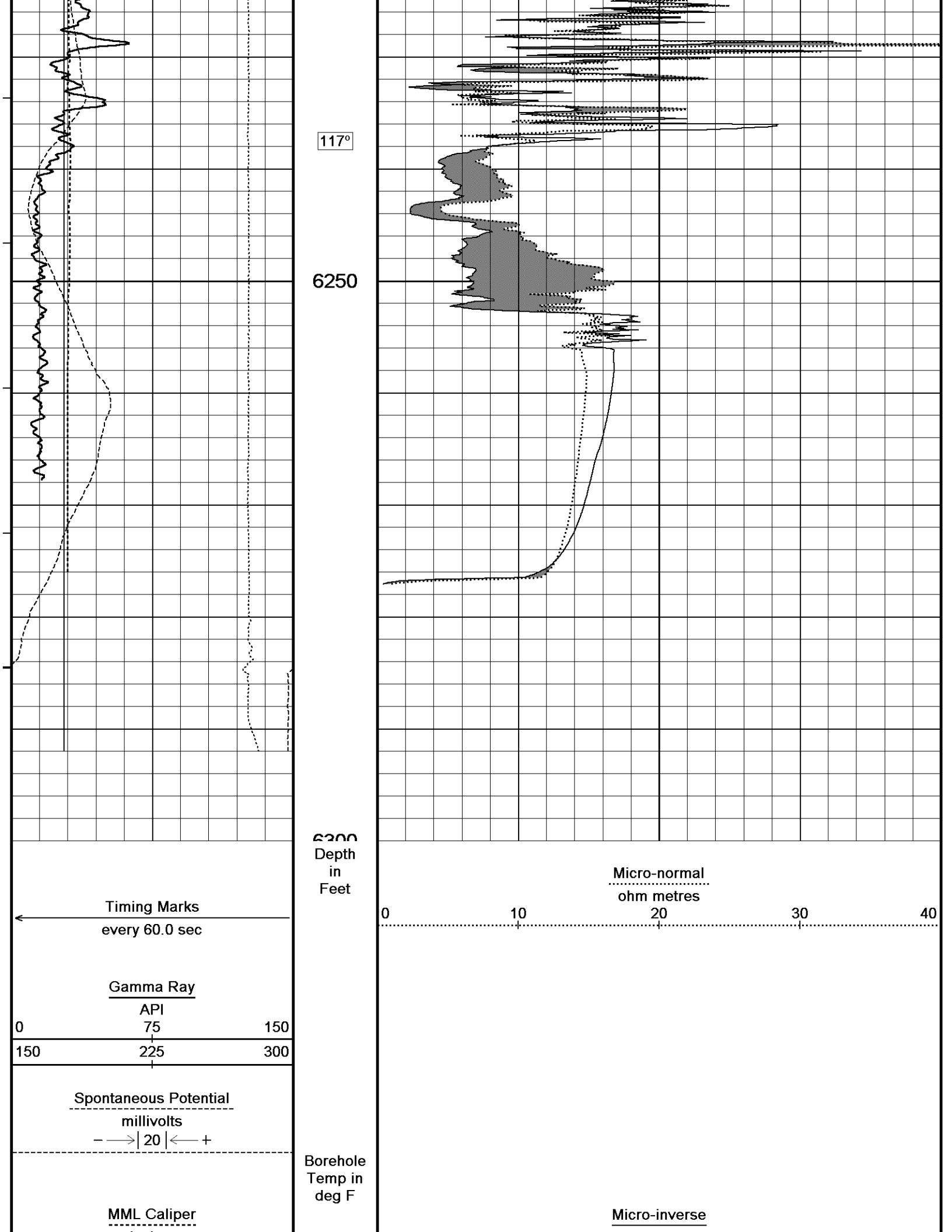


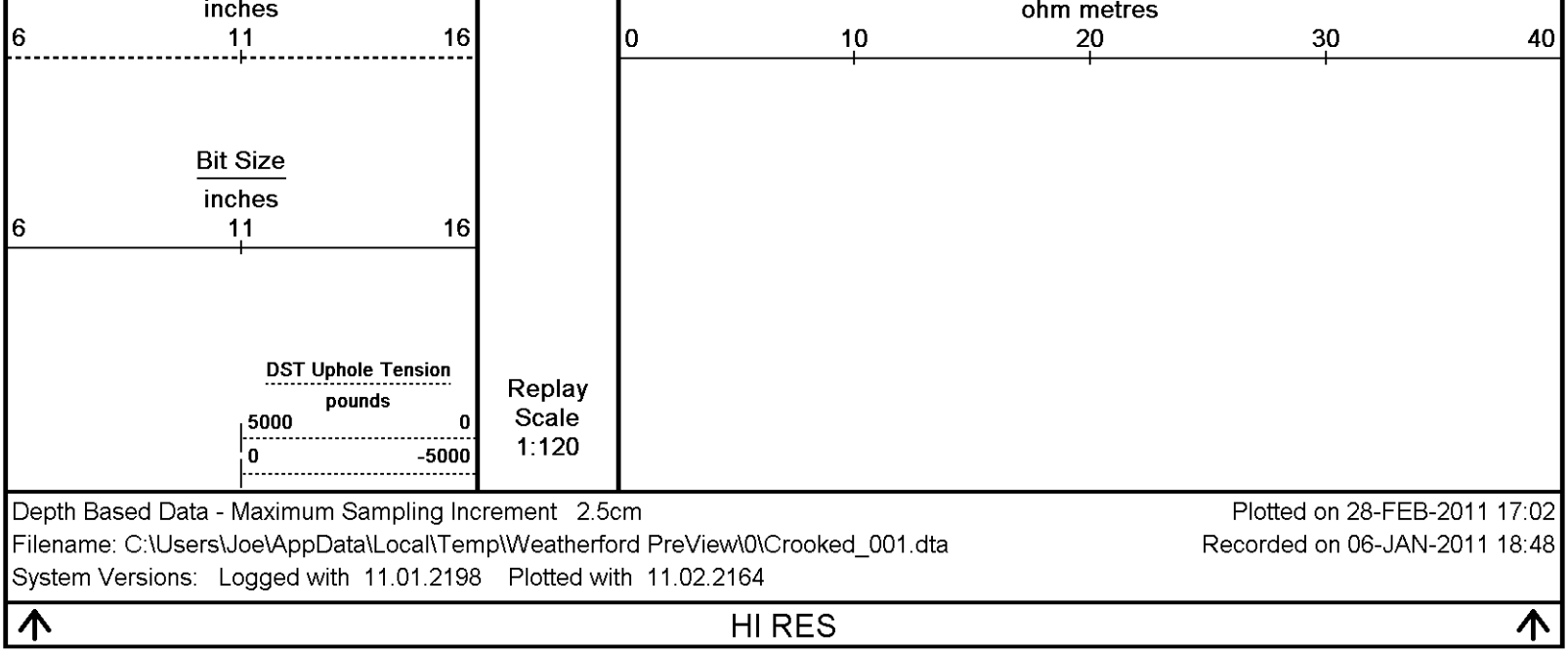

114°
5800
112°
5850
113°


5900
112°
5950
113°
6000


113°
6050
115°
6100


117°
6150
117°
6200


117°
6250
6300
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
MML Caliper
Micro-normal
ohm metres
0
10
20
30
40
Micro-inverse

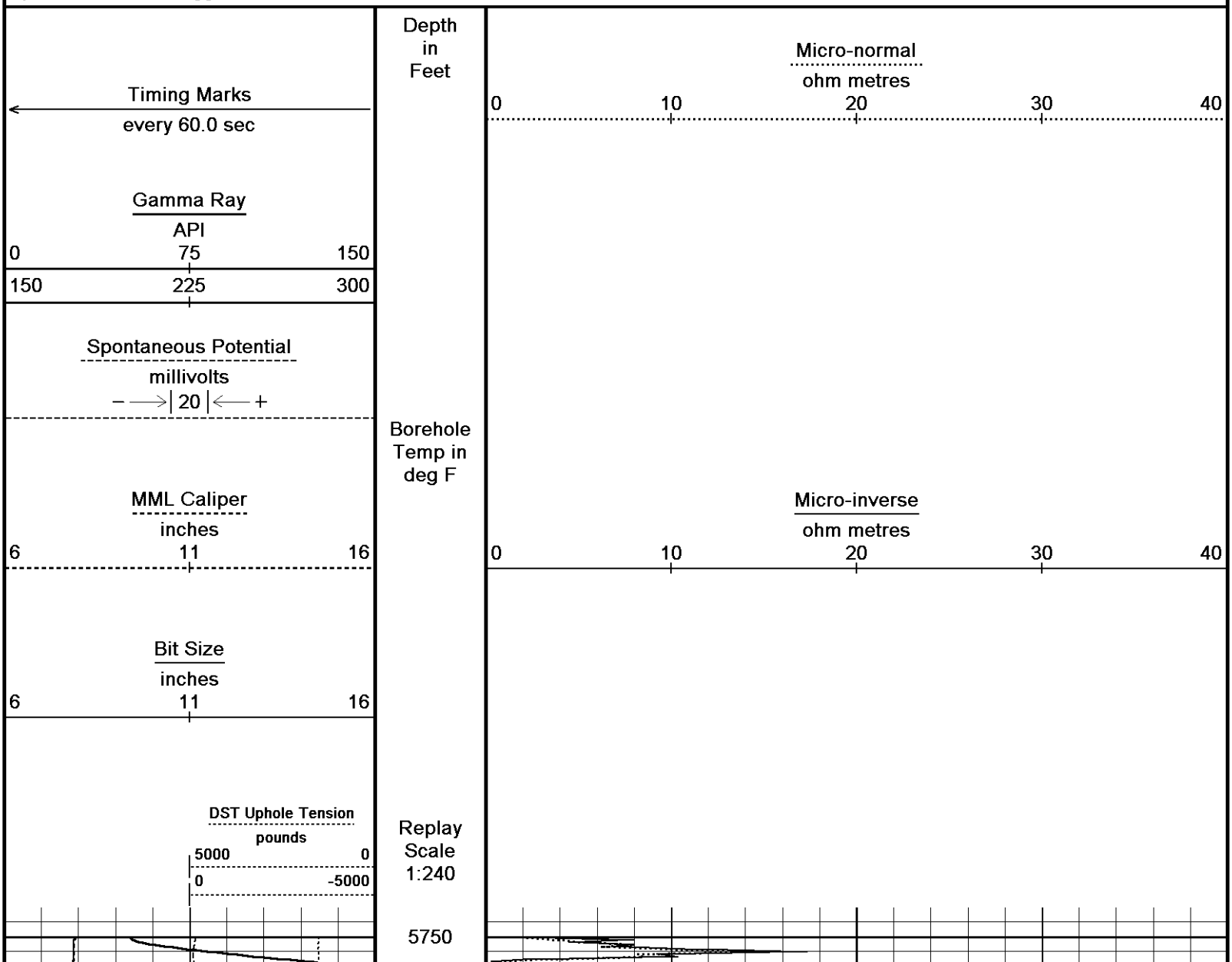


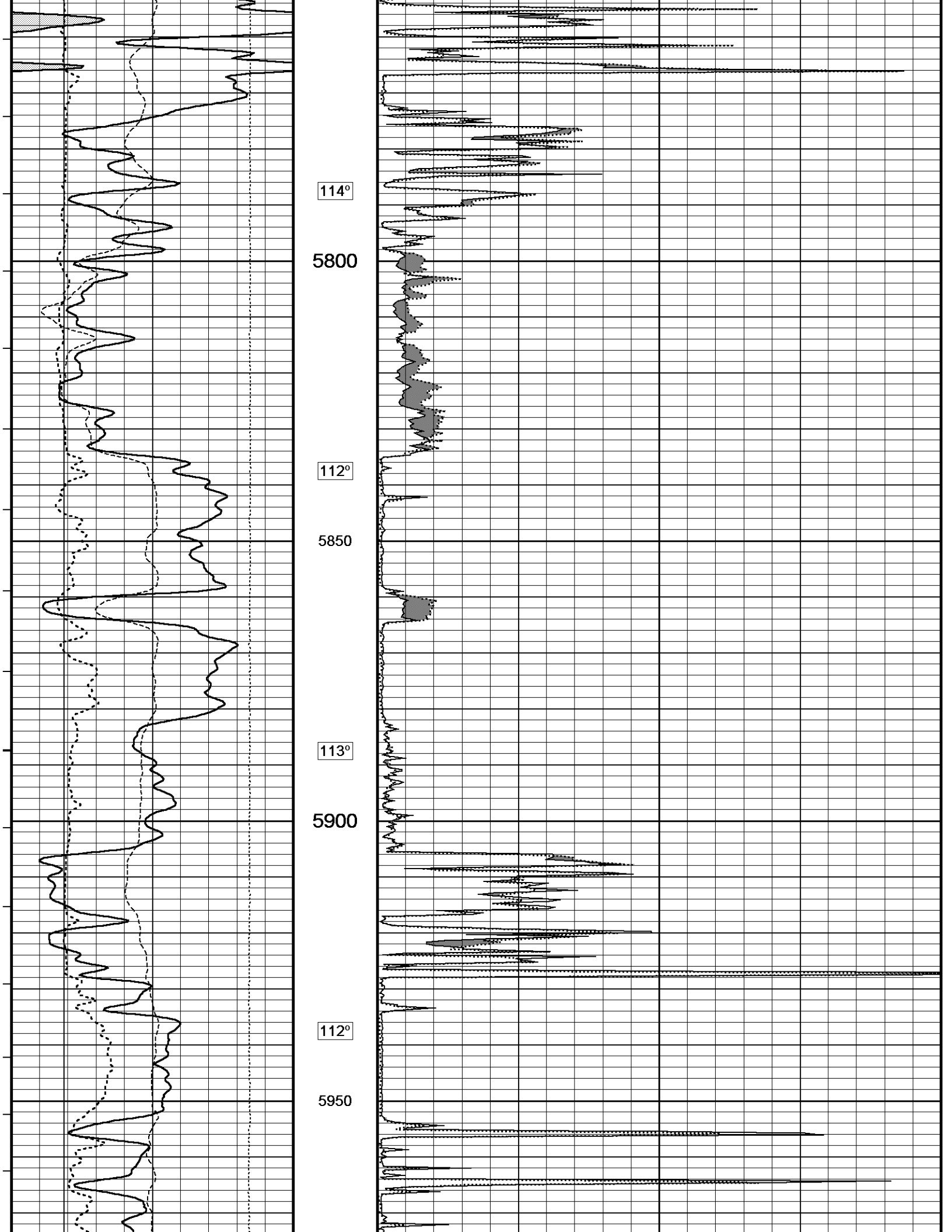
Depth Based Data - Maximum Sampling Increment 2.5cm — Plotted on 28-FEB-2011 17:02
Filename: C:\Users\Joe\AppData\Local\Temp\Weatherford PreView\0\Crooked_001.dta — Recorded on 06-JAN-2011 18:48
System Versions: Logged with 11.01.2198 Plotted with 11.02.2164

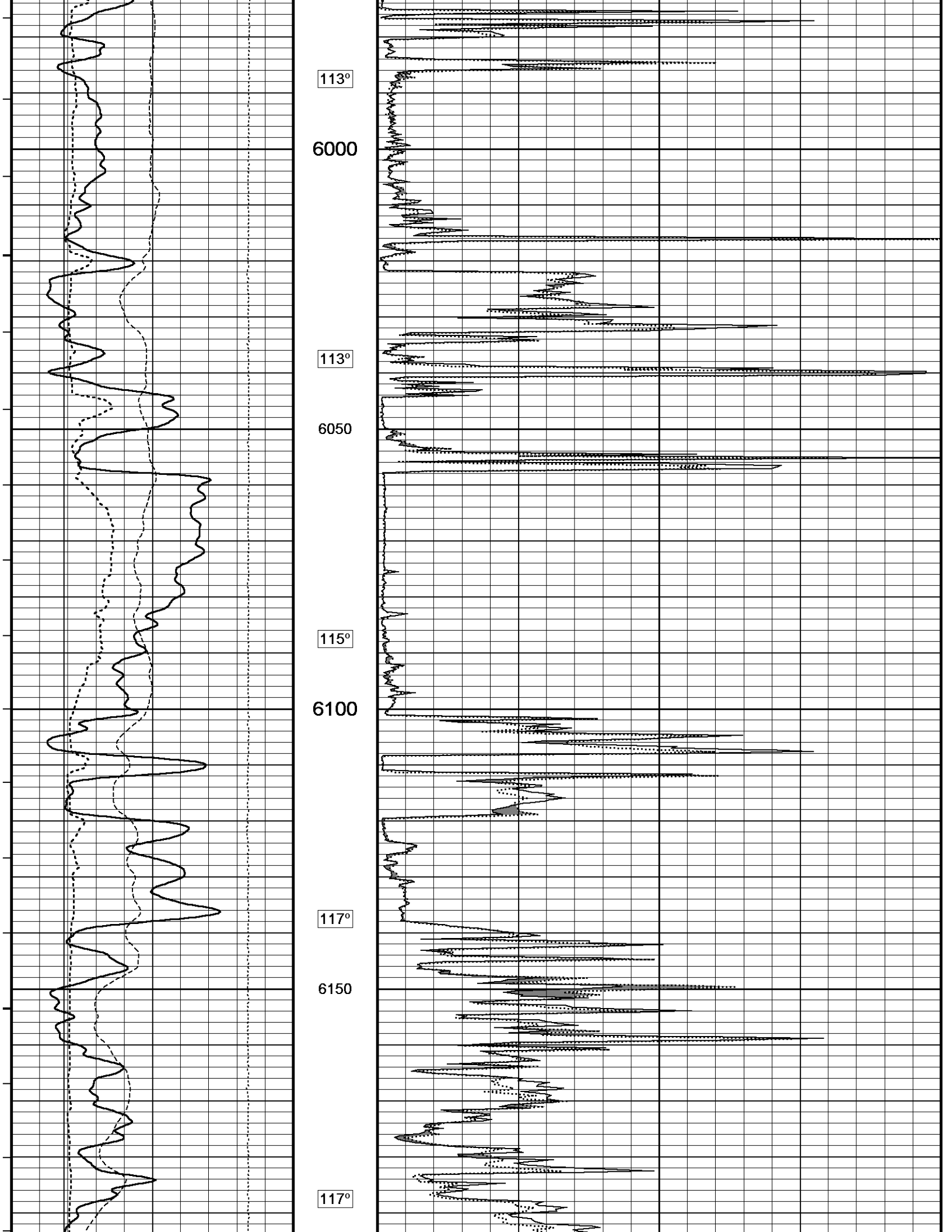
HI RES

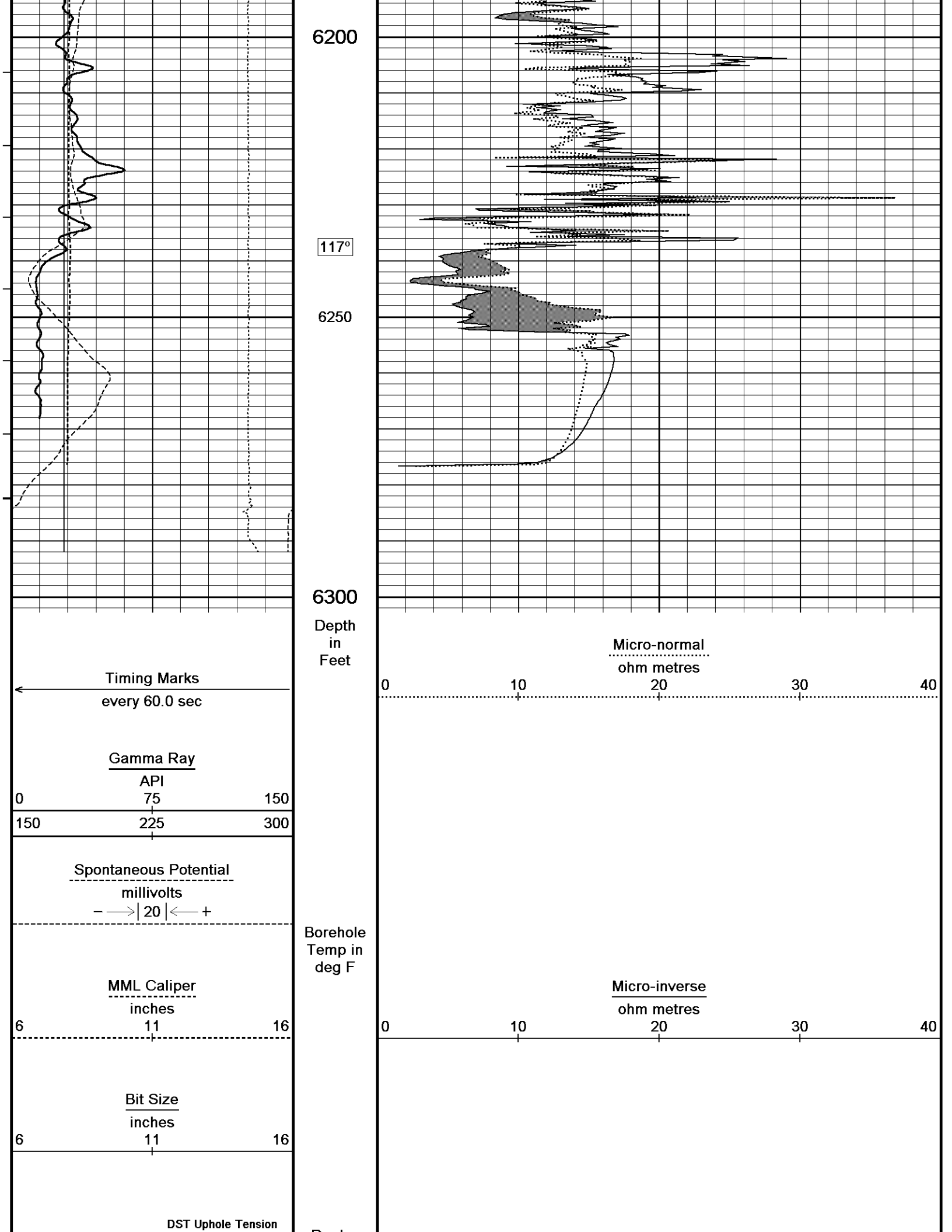
Repeat Section

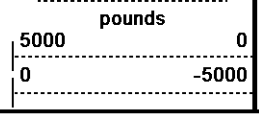
Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 28-FEB-2011 17:02
Filename: C:\Users\Joe\AppData\Local\Temp\Weatherford PreView\0\Crooked_002.dta — Recorded on 06-JAN-2011 18:48
System Versions: Logged with 11.01.2198 Processed with 11.01.2198 Plotted with 11.02.2164




114°
5800
112°
5850
113°
5900
112°
5950


113°
6000
113°
6050
115°
6100
117°
6150
117°


6200
117°
6250
6300
Depth
in
Feet
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
Borehole
Temp in
deg F
Micro-normal
ohm metres
0
10
20
30
40
Micro-inverse
ohm metres
0
10
20
30
40



Replay Scale 1:240

Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 28-FEB-2011 17:02
Filename: C:\Users\Joe\AppData\Local\Temp\Weatherford PreView\0\Crooked_002.dta — Recorded on 06-JAN-2011 18:48
System Versions: Logged with 11.01.2198 Processed with 11.01.2198 Plotted with 11.02.2164

Repeat Section

BEFORE SURVEY CALIBRATION

C:\Users\Joe\AppData\Local\Temp\Weatherford PreView\0\Crooked_003 spooled section.dta

General Constants All 000

Last Edited on 06-JAN-2011,17:59

General Parameters		
Mud Resistivity	1.370	ohm-metres
Mud Resistivity Temperature	77.000	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	Base Density Porosity	
Resistivity used	Deep Induction	
RWA Constant A	0.610	
RWA Constant M	2.150	

Gamma Calibration MCG-C 139

Field Calibration on 05-JAN-2011 09:38

	Measured	Calibrated (API)
Background	66	45
Calibrator (Gross)	1136	770
Calibrator (Net)	1070	725

Gamma Constants MCG-C 139

Last Edited on 06-JAN-2011,17:12

Gamma Calibrator Number	grc38	
Mud Density	1.08	gm/cc
Caliper Source for Processing	Density Caliper	
Tool Position	Eccentred	
Concentration of KCl	0.00	kppm

High Resolution Temperature Calibration MCG-C 139

Field Calibration on 03-SEP-2010,11:23

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

High Resolution Temperature Constants MCG-C 139

Last Edited on

Pre-filter Length	11

Micro Normal and Micro Inverse Calibration MML-A 16

Base Calibration on 08-DEC-2010 12:41
Field Check on 05-JAN-2011 09:31

Base Calibration

		Measured	Calibrated (ohm-m)	
Channel	Resistor 1	Resistor 2	Resistor 1	Resistor 2
Micro Normal	12.2	60.2	2.6	12.8
Micro Inverse	15.6	78.3	1.7	8.4

Channel	Base Check (ohm-m)	Field Check (ohm-m)
Micro Normal	32.1	32.1
Micro Inverse	16.3	16.3

Micro Normal and Micro Inverse Constants MML-A 16

Last Edited on 17-DEC-2010 05:52

Micro Normal and Micro Inverse Constants MML-A 16 — Last Edited on 11-DEC-2010 09:02

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 08-DEC-2010 12:47
Field Calibration on 05-JAN-2011 09:29

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	13807	5.96
2	17307	7.98
3	20733	9.95
4	24569	11.91
5	0	0.00
6	N/A	N/A

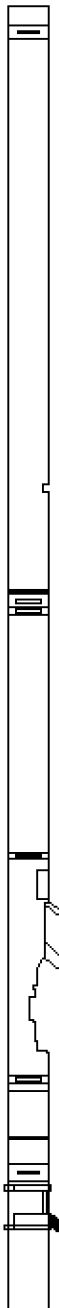
Field Calibration

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

DOWNHOLE EQUIPMENT

C:\Users\Joe\AppData\Local\Temp\Weatherford PreView\0\Crooked_003 spooled section.dta

Compact Comms Gamma
MCG-C 139 LG: 8.70 ft WT: 63.9 lb OD: 2.24 in



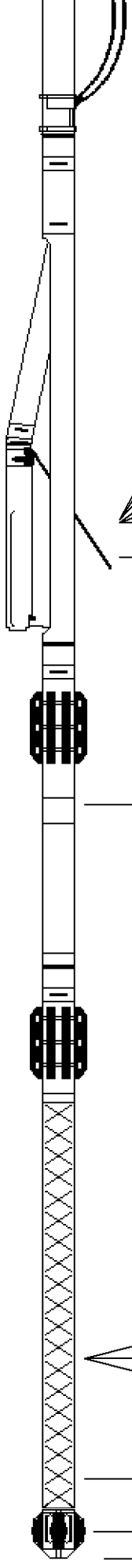
42.85 ft GRGC - Gamma Ray

39.94 ft CGXT - MCG External Temperature

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

33.23 ft MNRL - Micro-normal
33.23 ft MINV - Micro-inverse
34.22 ft MLTC - MML Caliper

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



28.43 ft NPRL - Limestone Neutron Por.

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

21.19 ft HVOL - Hole Volume
21.19 ft AVOL - Annular Volume
21.19 ft CLDC - Density Caliper
19.26 ft DCOR - Density Correction
19.26 ft DEN - Compensated Density
19.26 ft DPRL - Limestone Density Por.
19.20 ft PDPE - PE

Compact Focussed Electric
MFE-A.A 52 LG: 6.03 ft WT: 48.5 lb OD: 2.24 in

13.70 ft FEFE - Shallow FE

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

3.34 ft R60O - Array Ind. One Res 60
3.34 ft RTAO - Array Ind. One Res Rt
3.34 ft R40O - Array Ind. One Res 40

0.23 ft SPCG - Spontaneous Potential

Tool Zero (0.13ft from bottom)
-0.13 ft SMTU - DST Uphole Tension

Total Length: 48.14 ft Weight: 383.6 lb

All measurements relative to tool zero.

COMPANY	O'Brien Energy
WELL	Crooked Creek #2-8
FIELD	Unknown
PROVINCE/COUNTY	Meade
COUNTRY/STATE	U.S.A. / Kansas

Elevation Kelly Bushing	2680.00	feet	First Reading	6268.00	feet
Elevation Drill Floor	2679.00	feet	Depth Driller	6284.00	feet
Elevation Ground Level	2668.00	feet	Depth Logger	6290.00	feet

Weatherford®

COMPACT PHOTO DENSITY
COMPENSATED NEUTRON