



Weatherford®

**COMPENSATED PHOTO DENSITY
COMPENSATED DUAL NEUTRON
LOG**

COMPANY

URSA OPERATING COMPANY LLC.

WELL

BAT 23CWI-24-07-96

FIELD

WILDCAT

PROVINCE/COUNTY

GARFIELD

COUNTRY/STATE

U.S.A. / COLORADO

LOCATION

SHL: 1826' FSL & 2064' FWL (NESW)

SEC 24

TWP 7S

RGE 96W

Other Services
MAI

API Number

05-045-22313

Permanent Datum G.L., Elevation 5183 feet

Log Measured From KB

Drilling Measured From K.B.

Date

27-FEB-2014

Run Number

ONE

Service Order

6026-80751344

Depth Driller

6450.00 feet

Depth Logger

6436.00 feet

First Reading

6409.00 feet

Last Reading

2620.00 feet

Casing Driller

1730.00 feet

Casing Logger

1728.00 feet

Bit Size

7.875 inches

Hole Fluid Type

WBM

Density / Viscosity

10.30 lb/USg 42.00 CP

PH / Fluid Loss

9.00 6.00 ml/30Min

Sample Source

FLOWLINE

Rm @ Measured Temp

1.80 @ 72.3 ohm-m

Rmf @ Measured Temp

1.44 @ 72.3 ohm-m

Rmc @ Measured Temp

2.16 @ 72.3 ohm-m

Source Rmf / Rmc

CALC CALC

Rm @ BHT

0.742 @185.0 ohm-m

Time Since Circulation

2 HOUR

Max Recorded Temp

185.00 deg F

Equipment / Base

13173 GJ

Recorded By

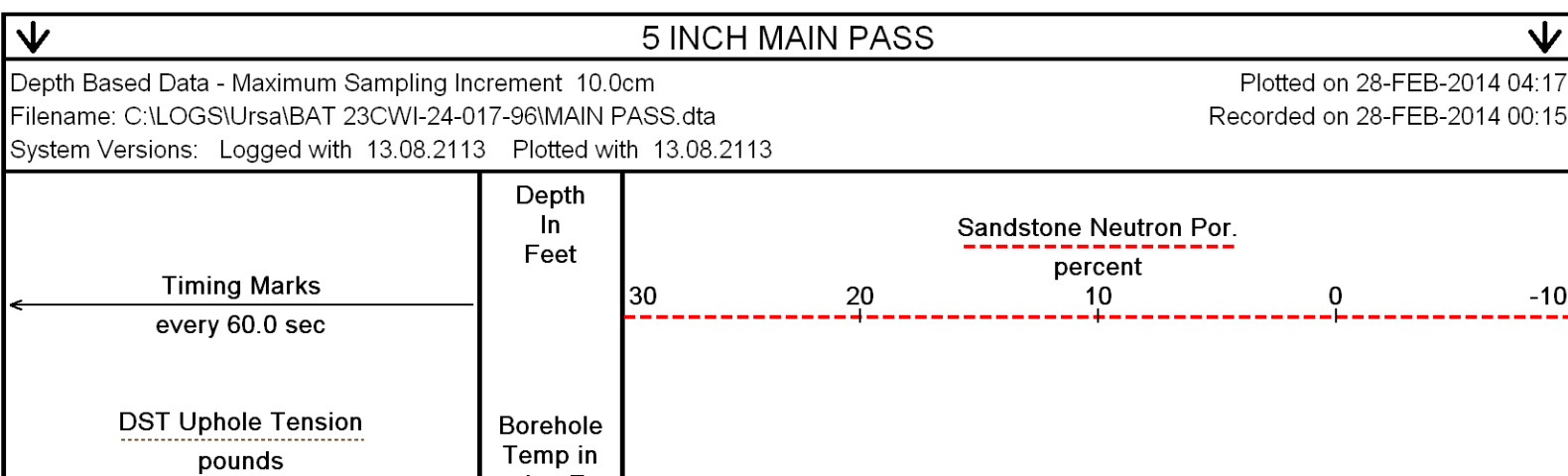
J. BAASSIRI

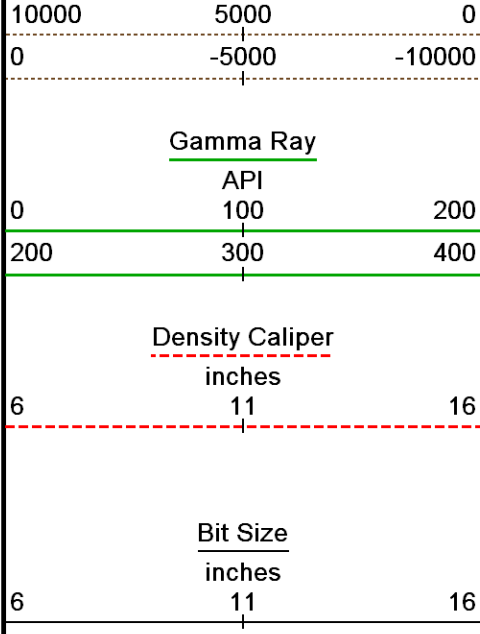
Witnessed By

N. GILL

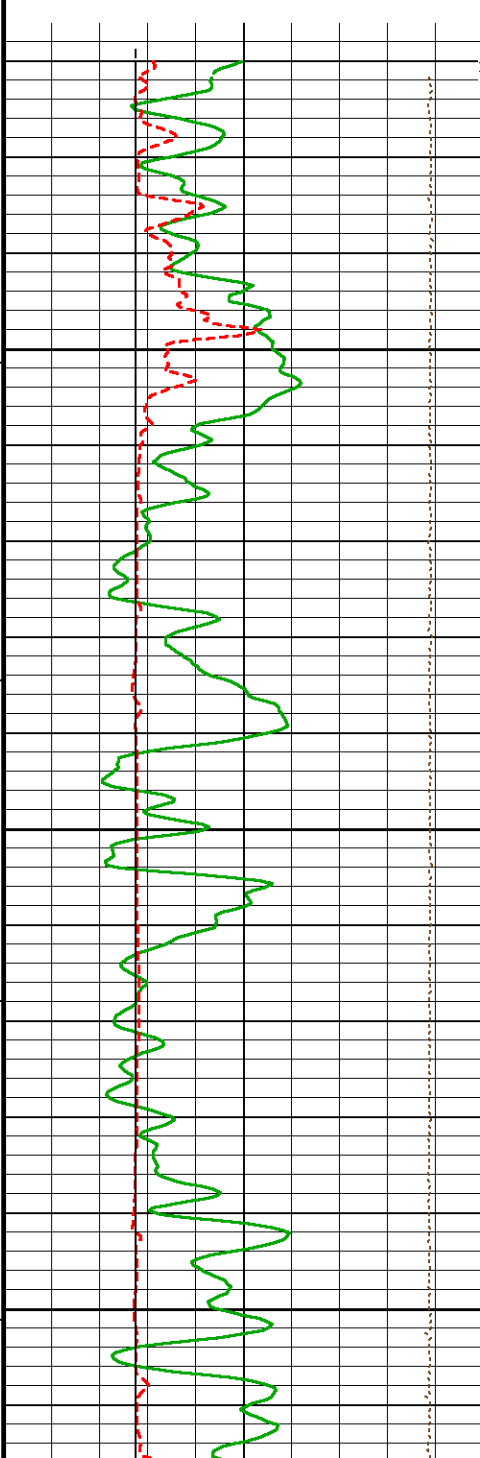
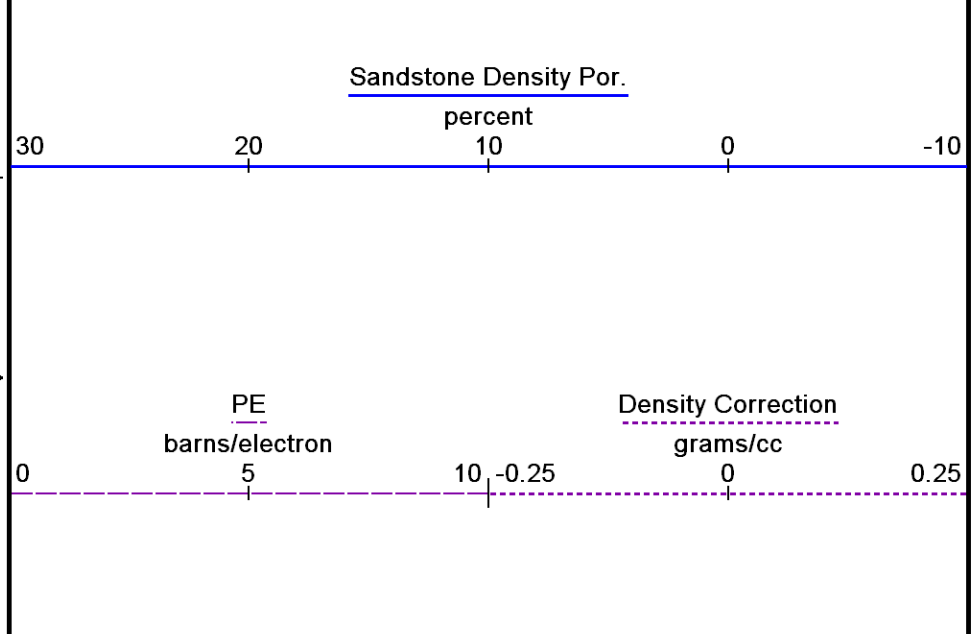
Elevations:
KB 5199.00 feet
DF 5199.00
GL 5183.00

In interpreting, communicating or providing information and/or making recommendations, either written or oral, as to logs or test or other data, type or amount of material, or Work or other service to be furnished, or manner of performance, or in predicting results to be obtained, the Contractor will give the Company the benefit of the Contractor's best judgment based on its experience and will perform all such Work in a good and workmanlike manner. Any interpretation of test or other data, and any recommendation or reservoir description based upon such interpretations, are opinions based upon inferences from measurements and empirical relationships and assumptions, which inferences and assumptions are not infallible, and with respect to which professional engineers and analysts may differ. ACCORDINGLY ANY INTERPRETATION OR RECOMMENDATION RESULTING FROM THE SERVICES WILL BE AT THE SOLE RISK OF THE COMPANY, AND THE CONTRACTOR CANNOT AND DOES NOT WARRANT THE ACCURACY, CORRECTNESS OR COMPLETENESS OF ANY SUCH INTERPRETATION OR RECOMMENDATION, WHICH INTERPRETATIONS AND RECOMMENDATIONS SHOULD NOT, THEREFORE, UNDER ANY CIRCUMSTANCES BE RELIED UPON AS THE SOLE OR MAIN BASIS FOR ANY DRILLING, COMPLETION, WELL TREATMENT, PRODUCTION OR FINANCIAL DECISION, OR ANY PROCEDURE INVOLVING ANY RISK TO THE SAFETY OF ANY DRILLING ACTIVITY, DRILLING RIG OR ITS CREW OR ANY OTHER INDIVIDUAL. THE COMPANY HAS FULL RESPONSIBILITY FOR ALL DECISIONS CONCERNING THE SERVICES.

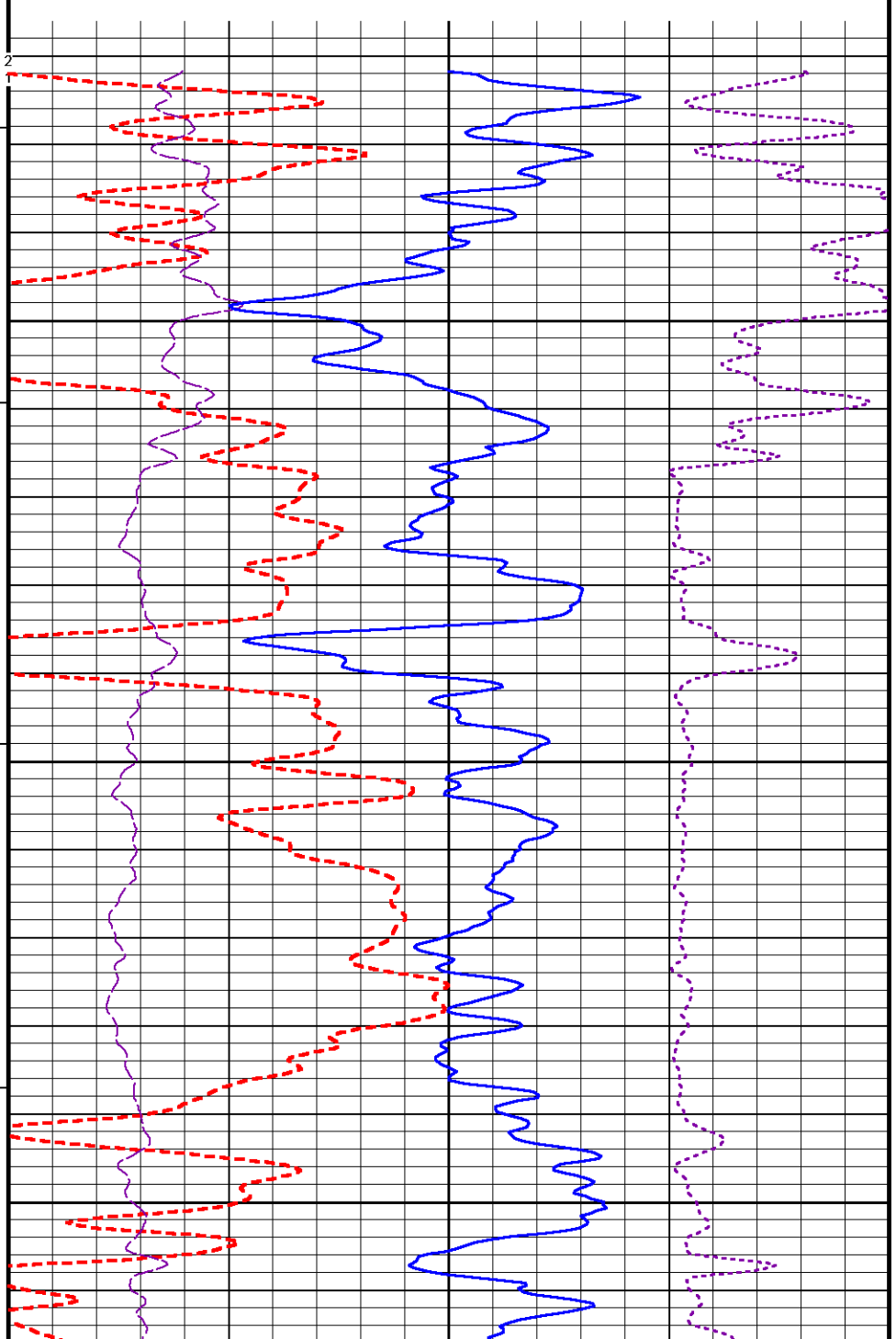


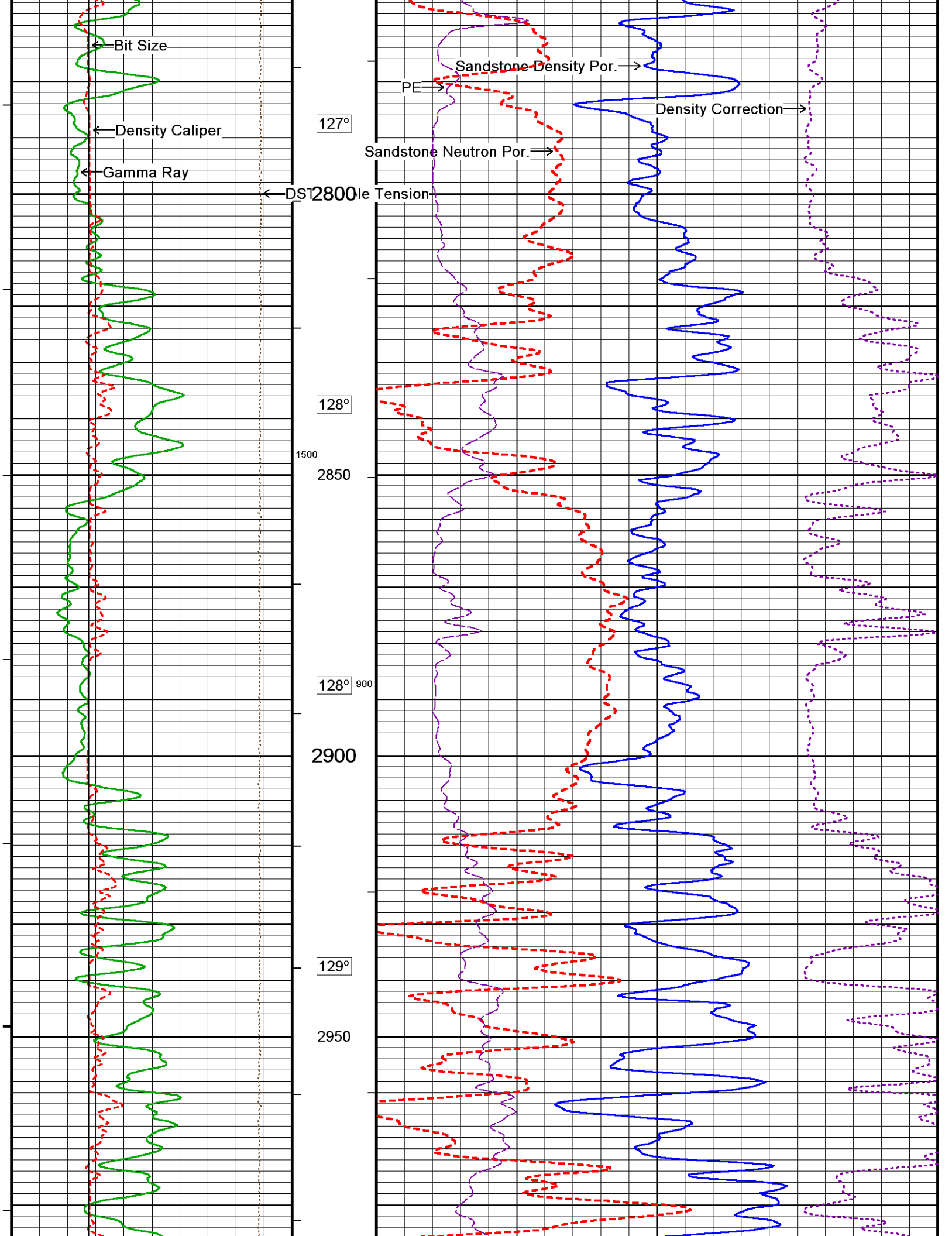


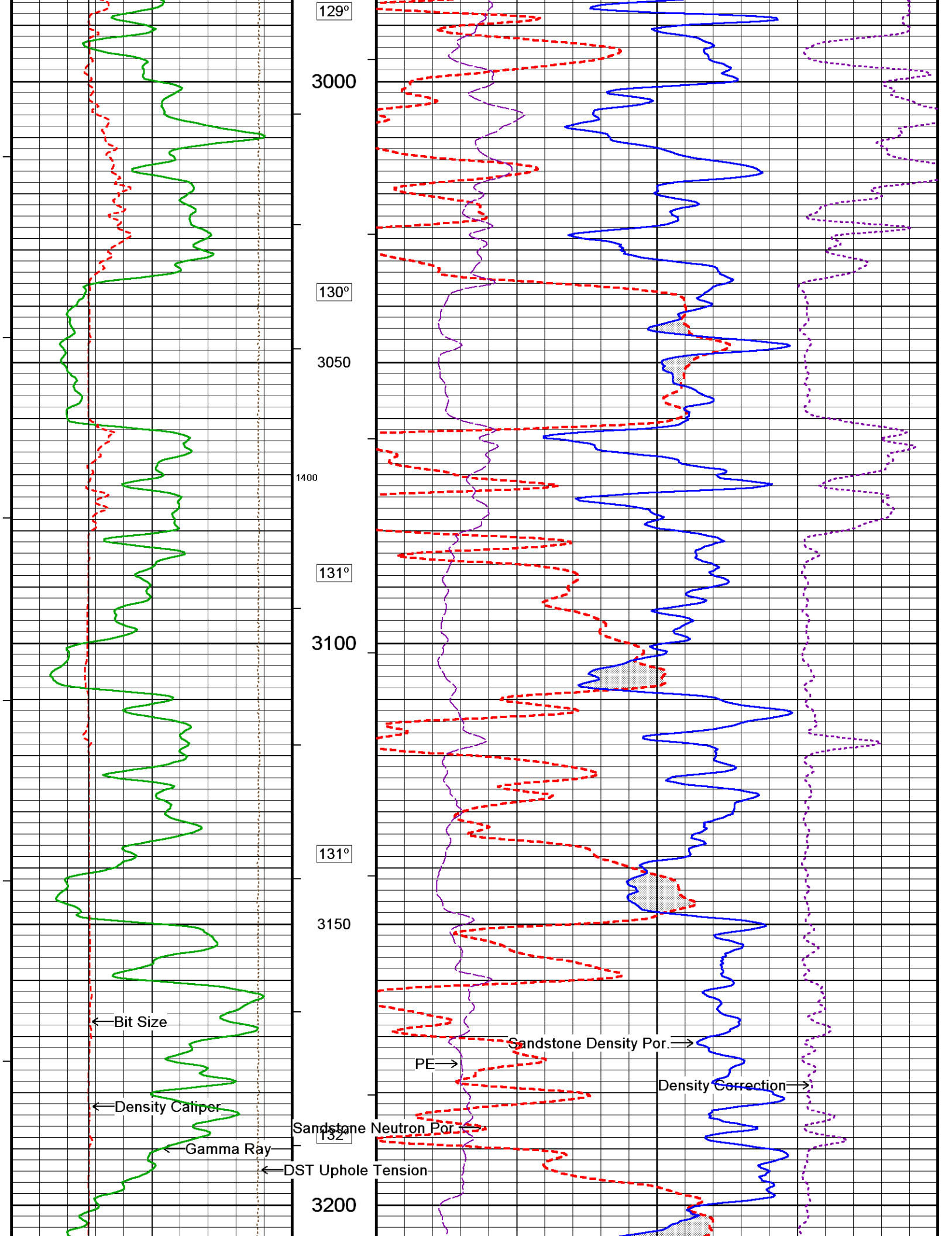
deg F
HVI
every
10 cu ft
Annular
Integral
every
10 cu ft
Replay
Scale
1:240

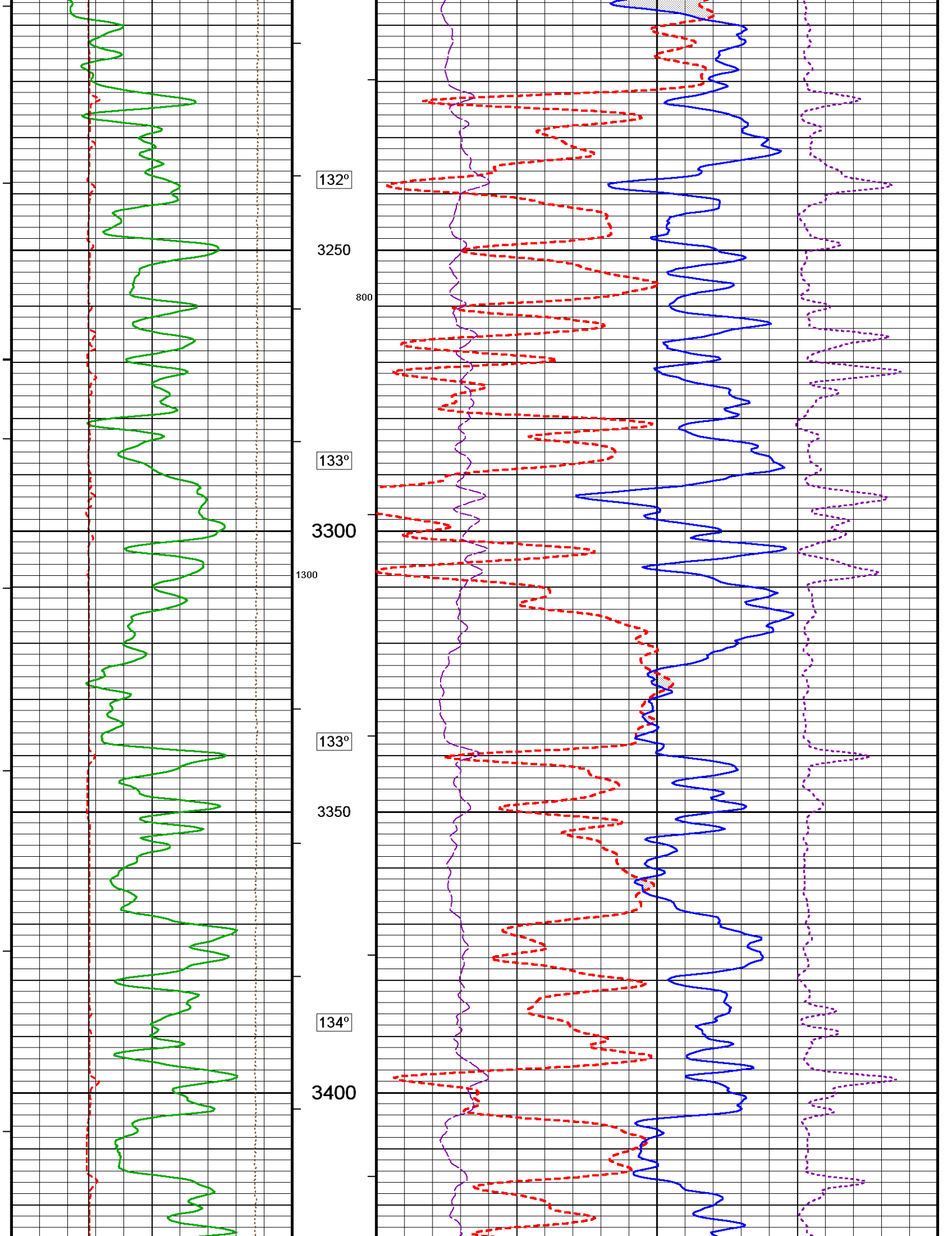


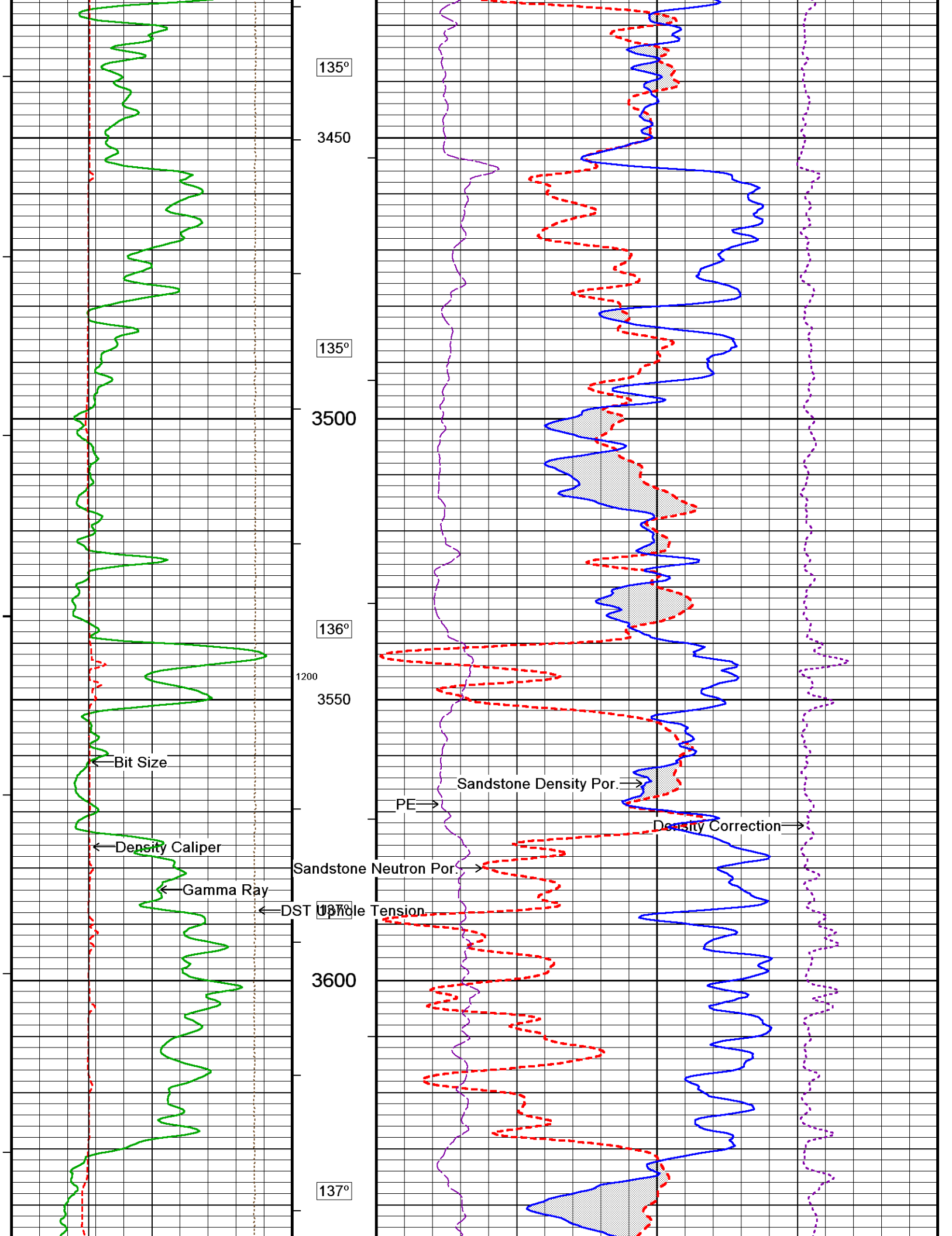
2618
2650
126°
2700
127°
2750

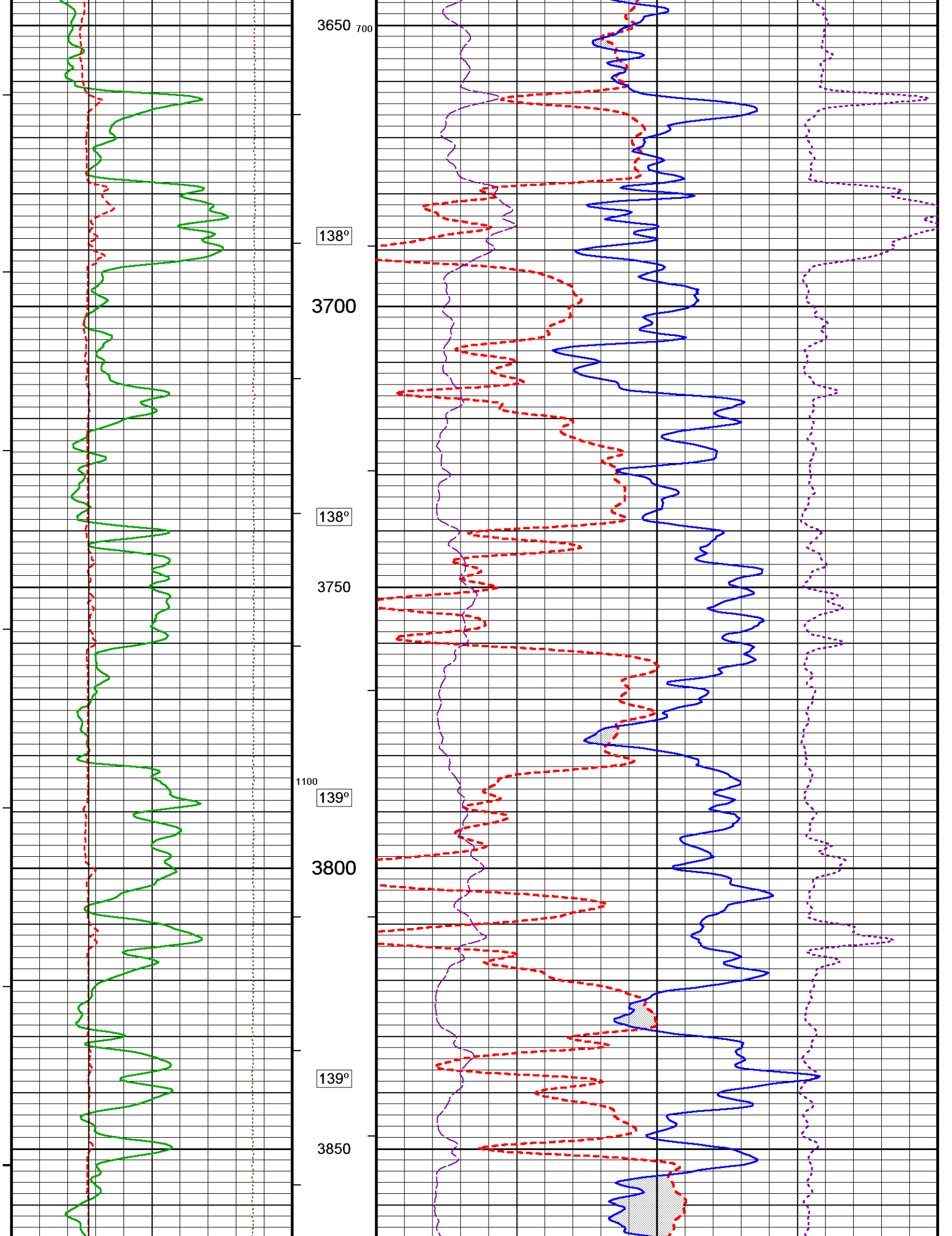


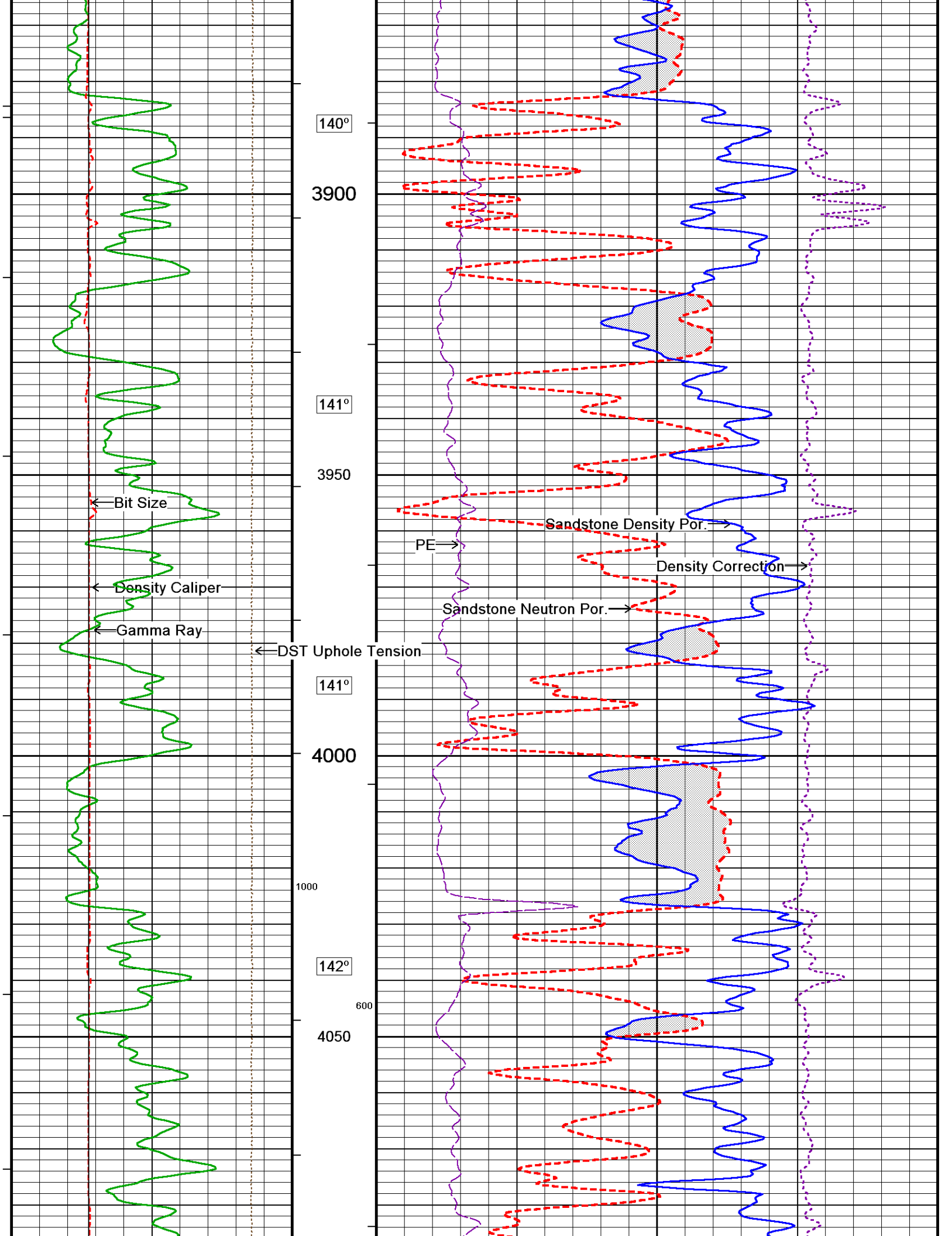


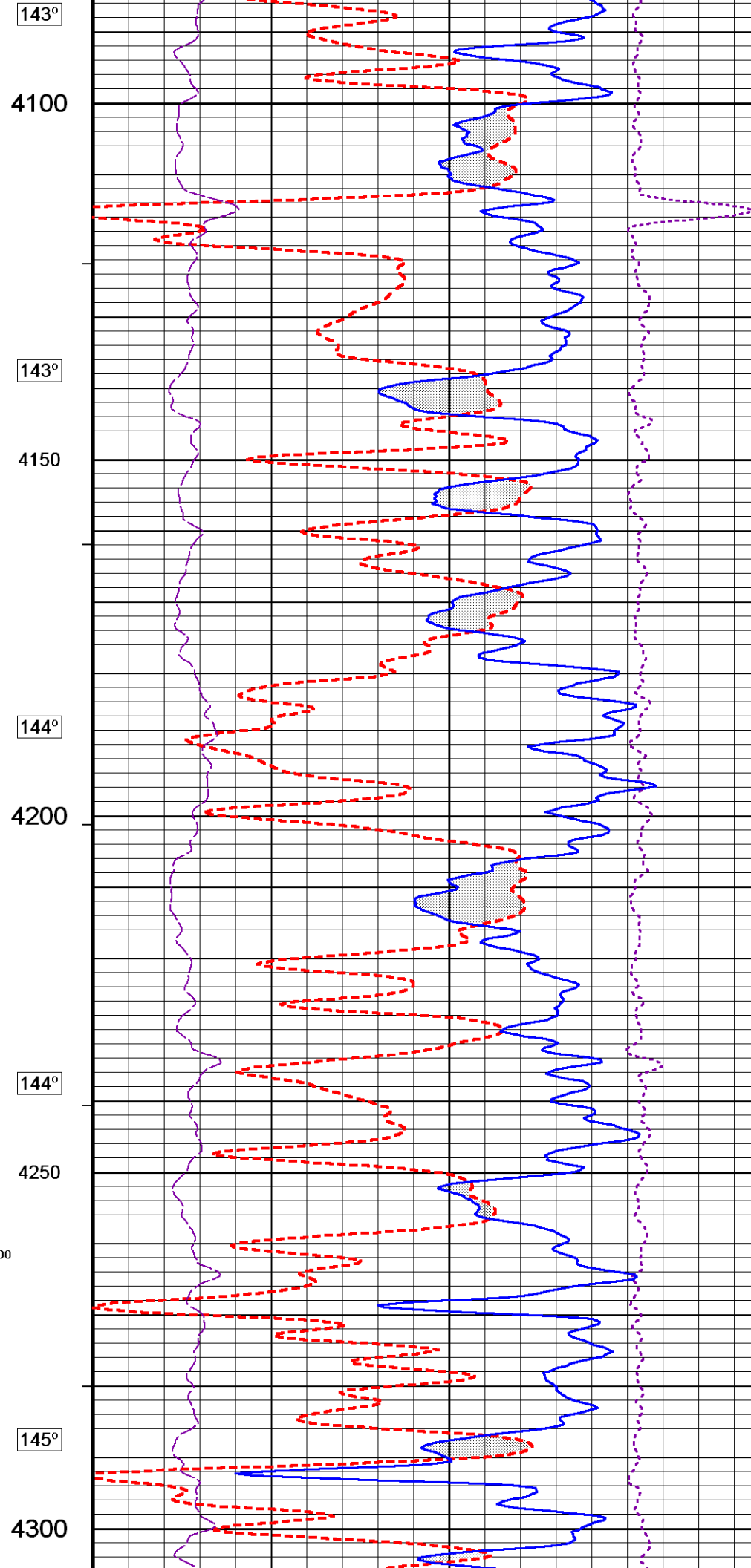
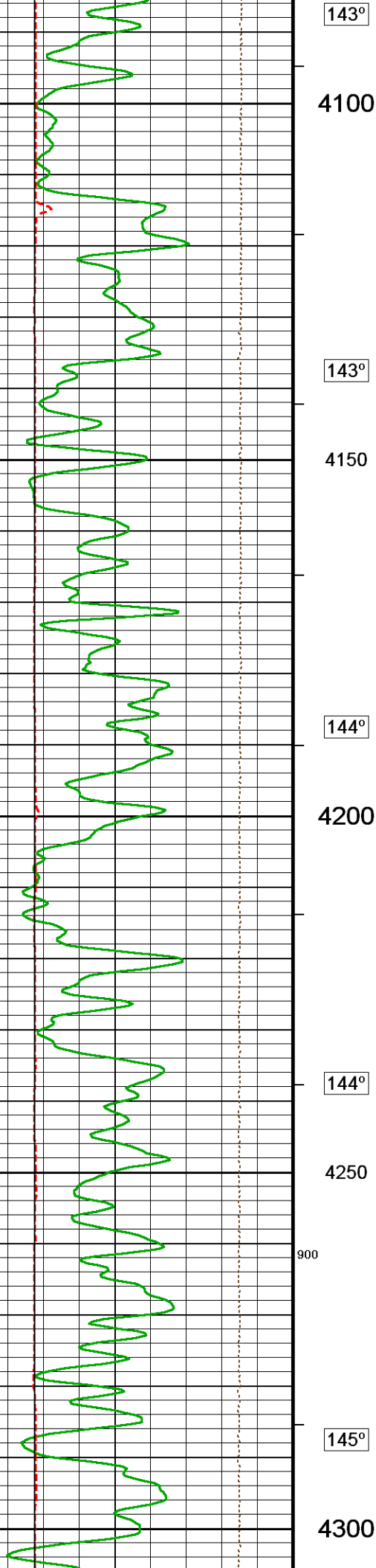


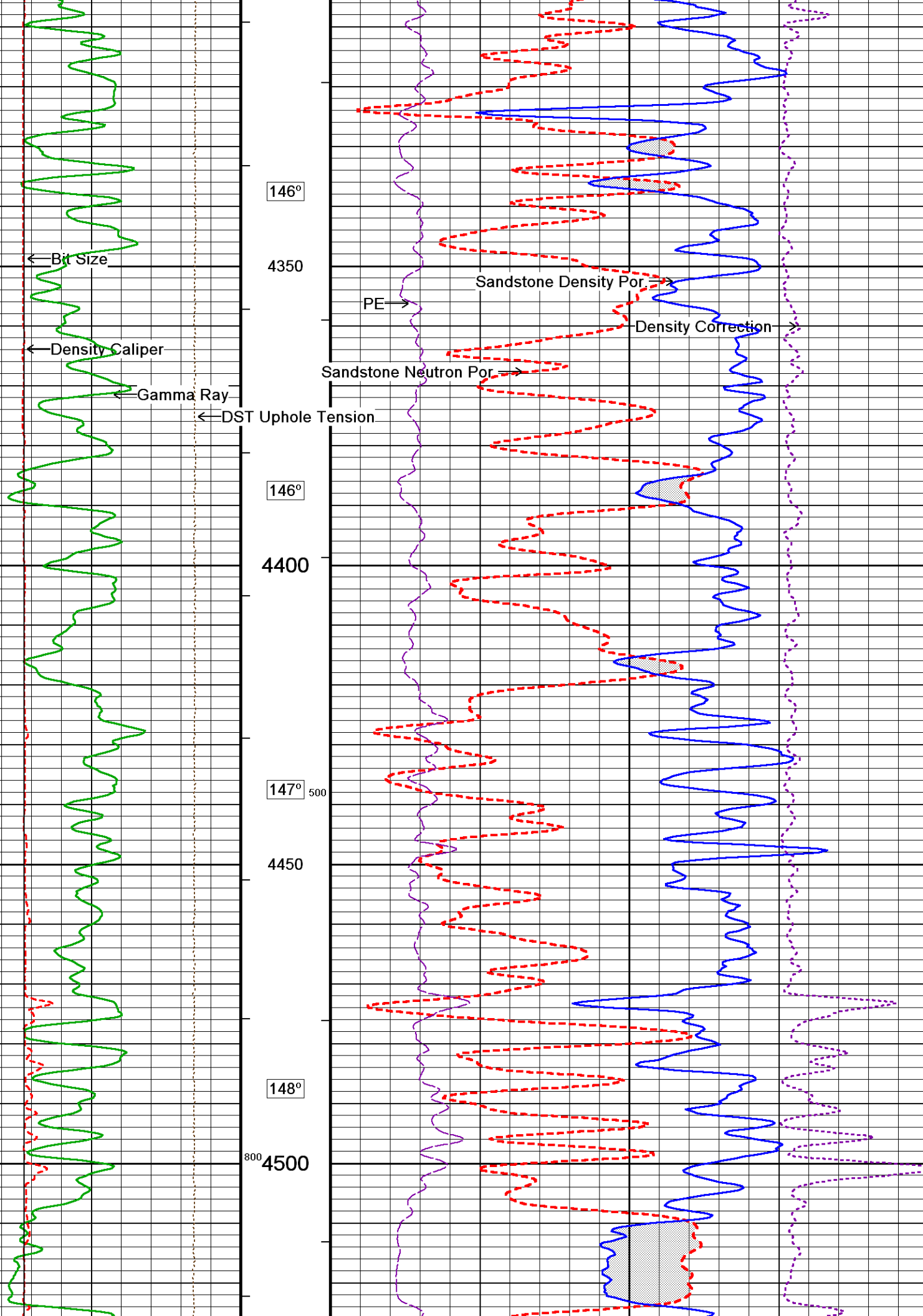


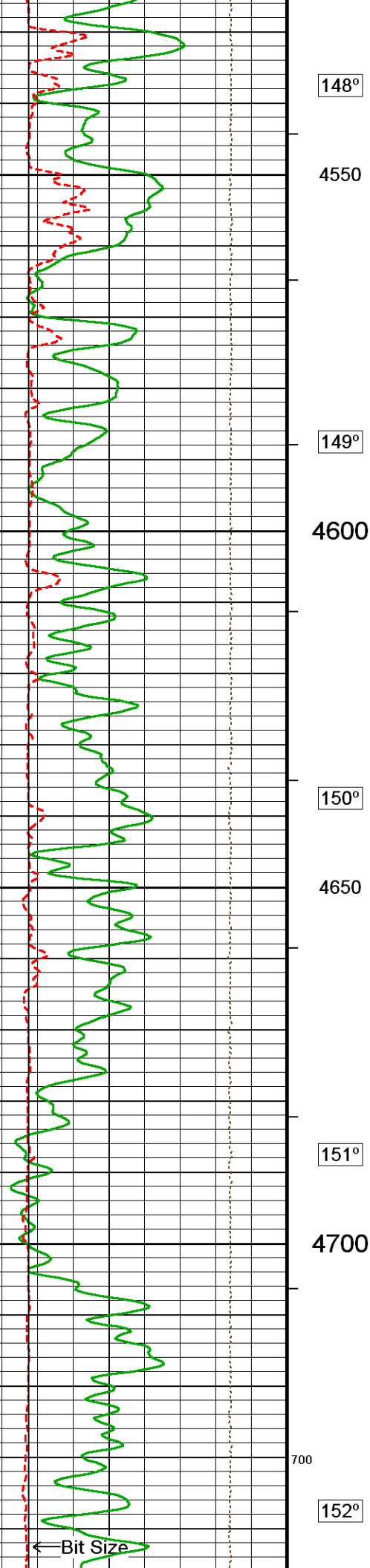












148°

4550

149°

4600

150°

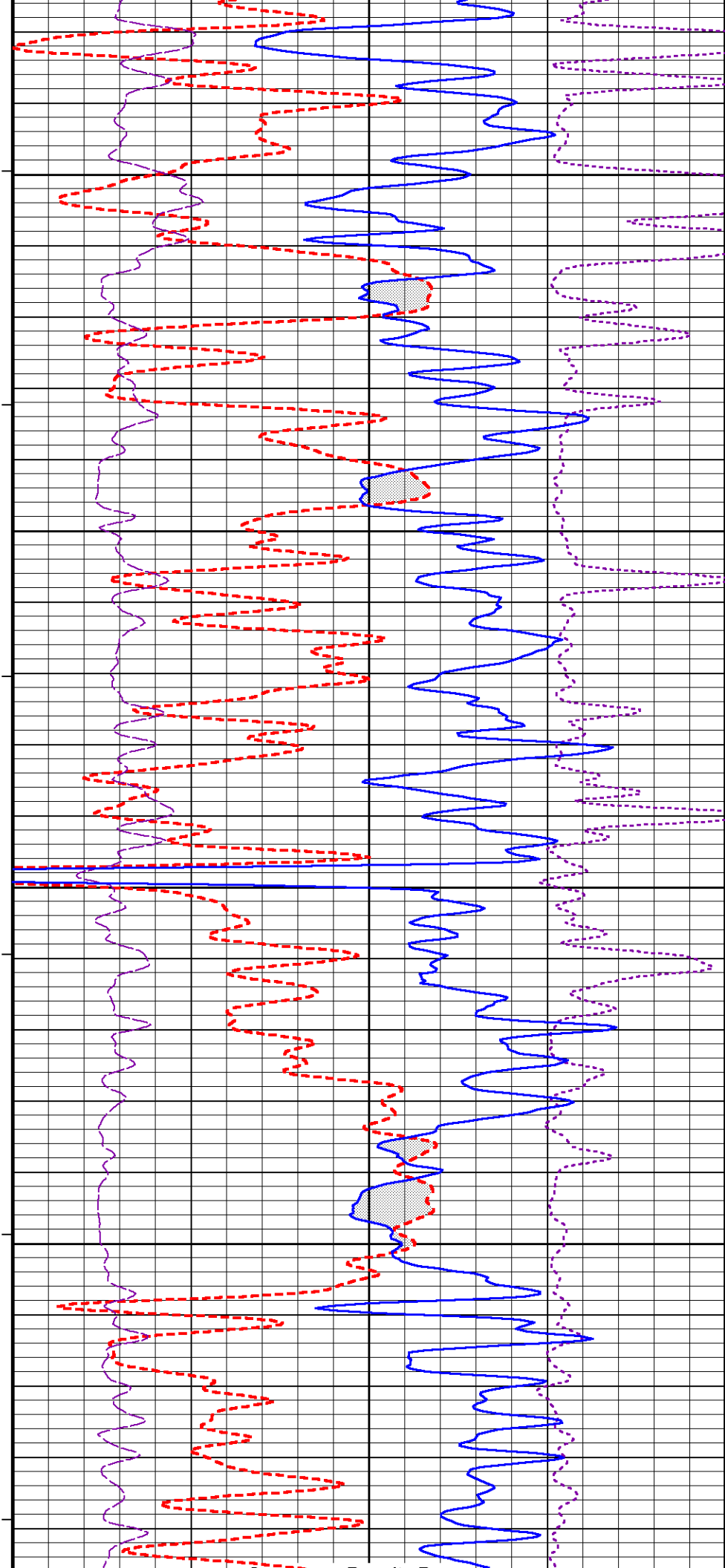
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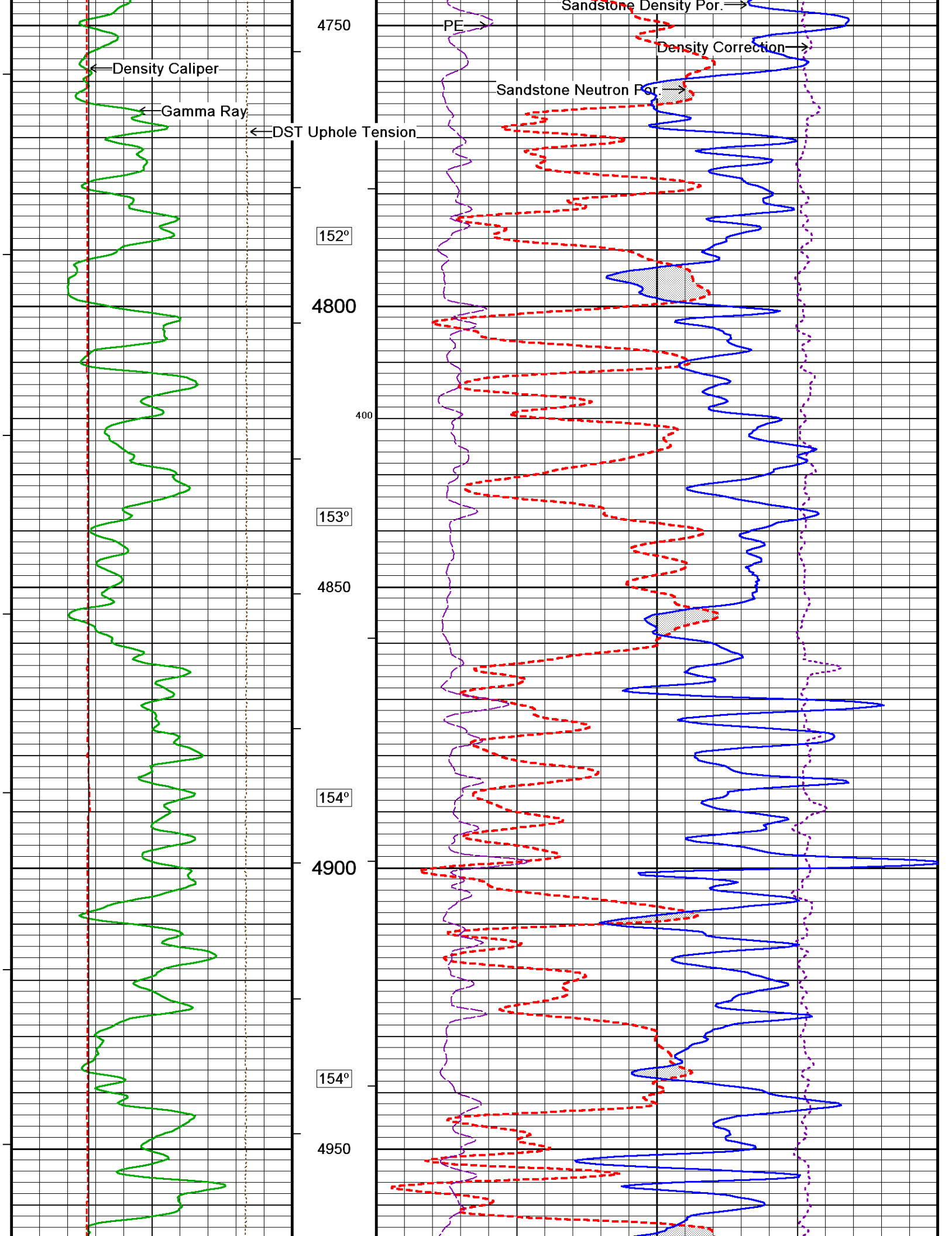
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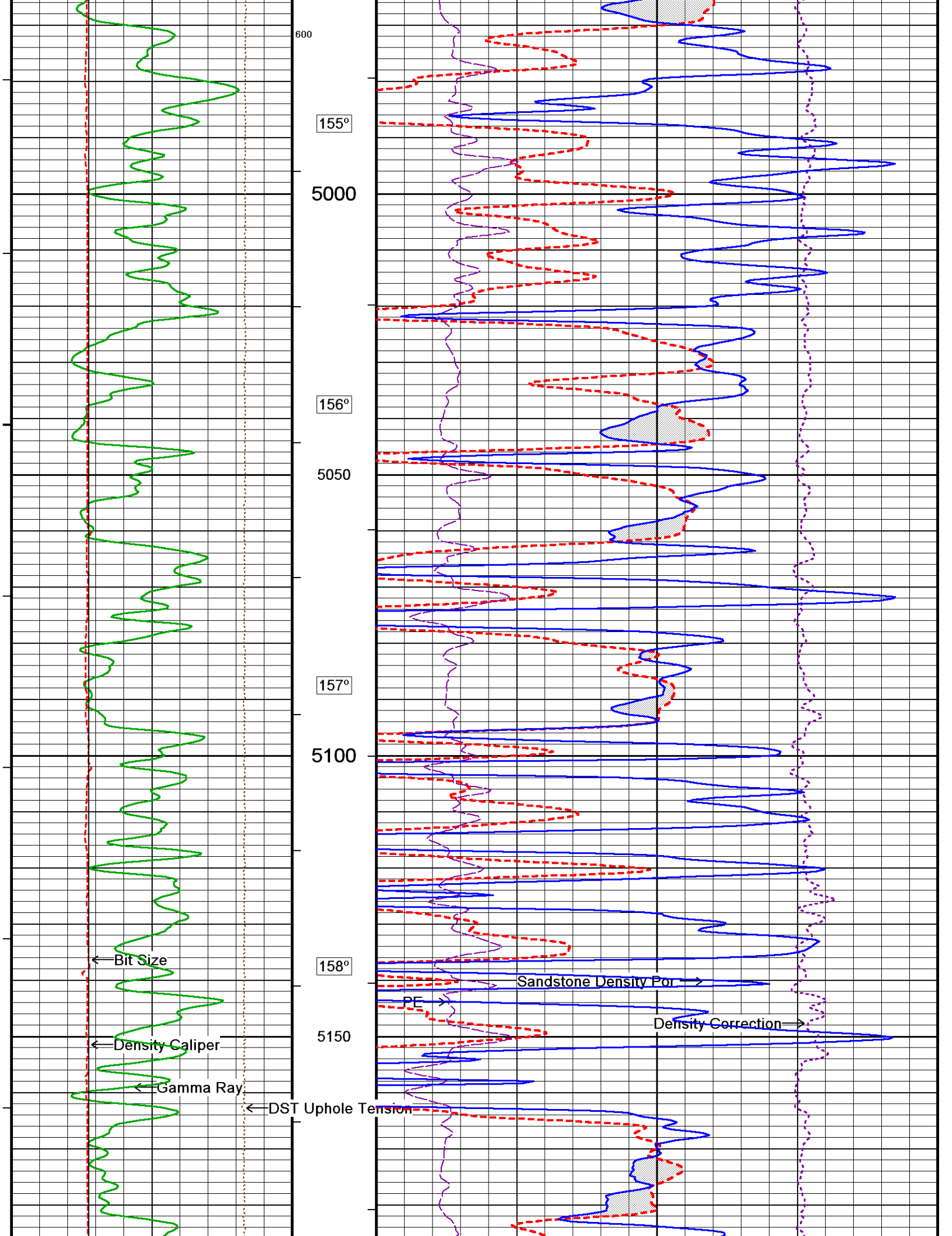
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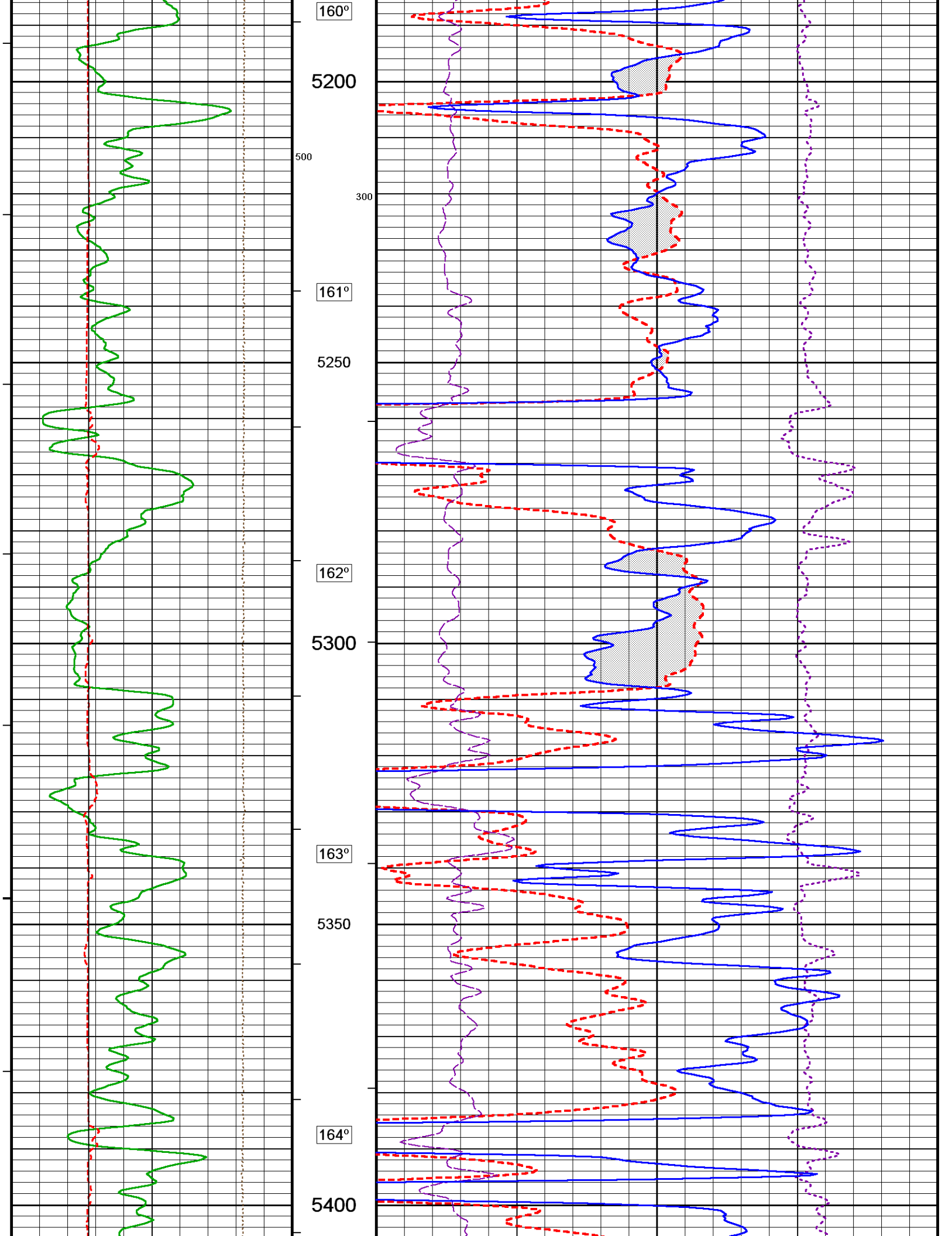
700

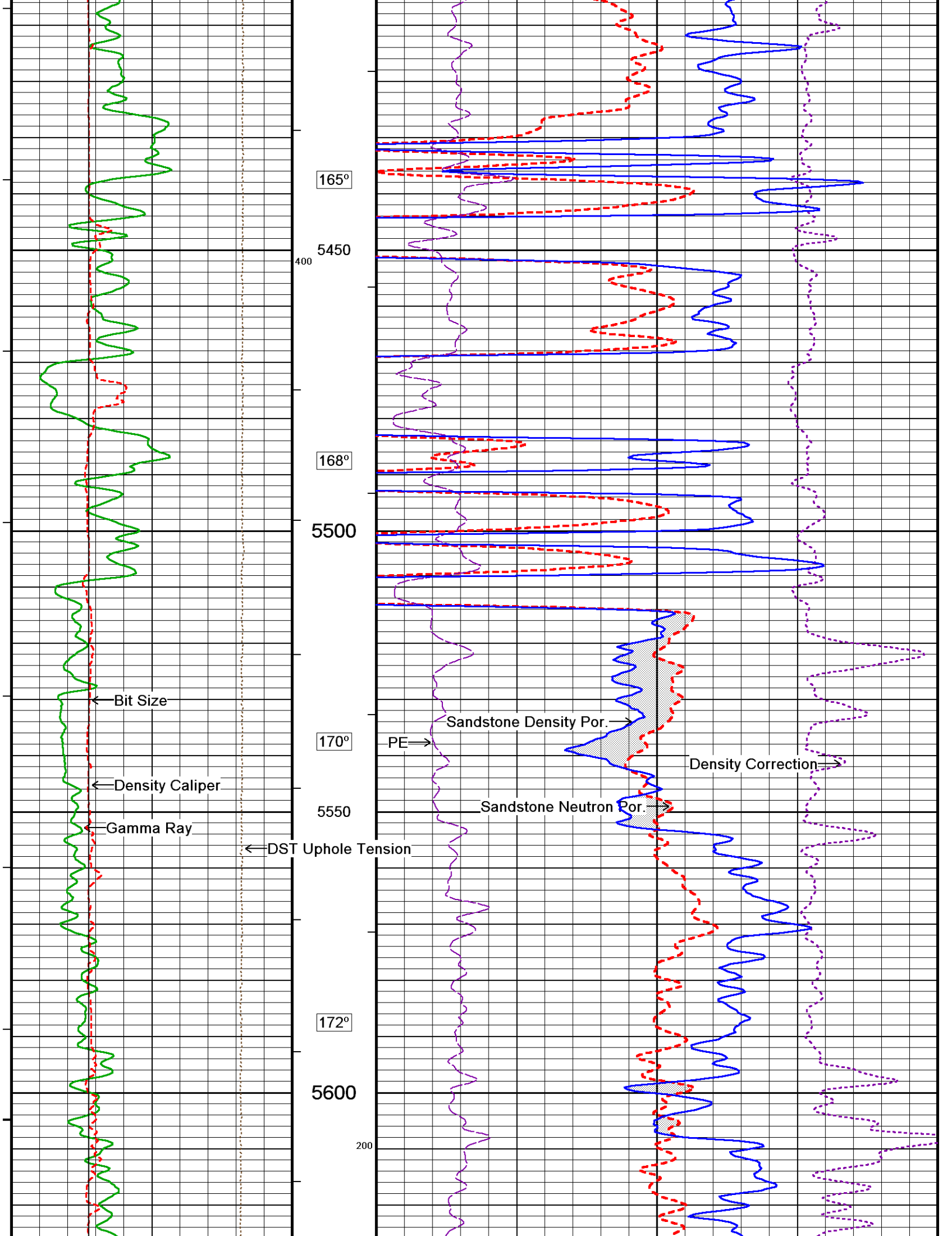
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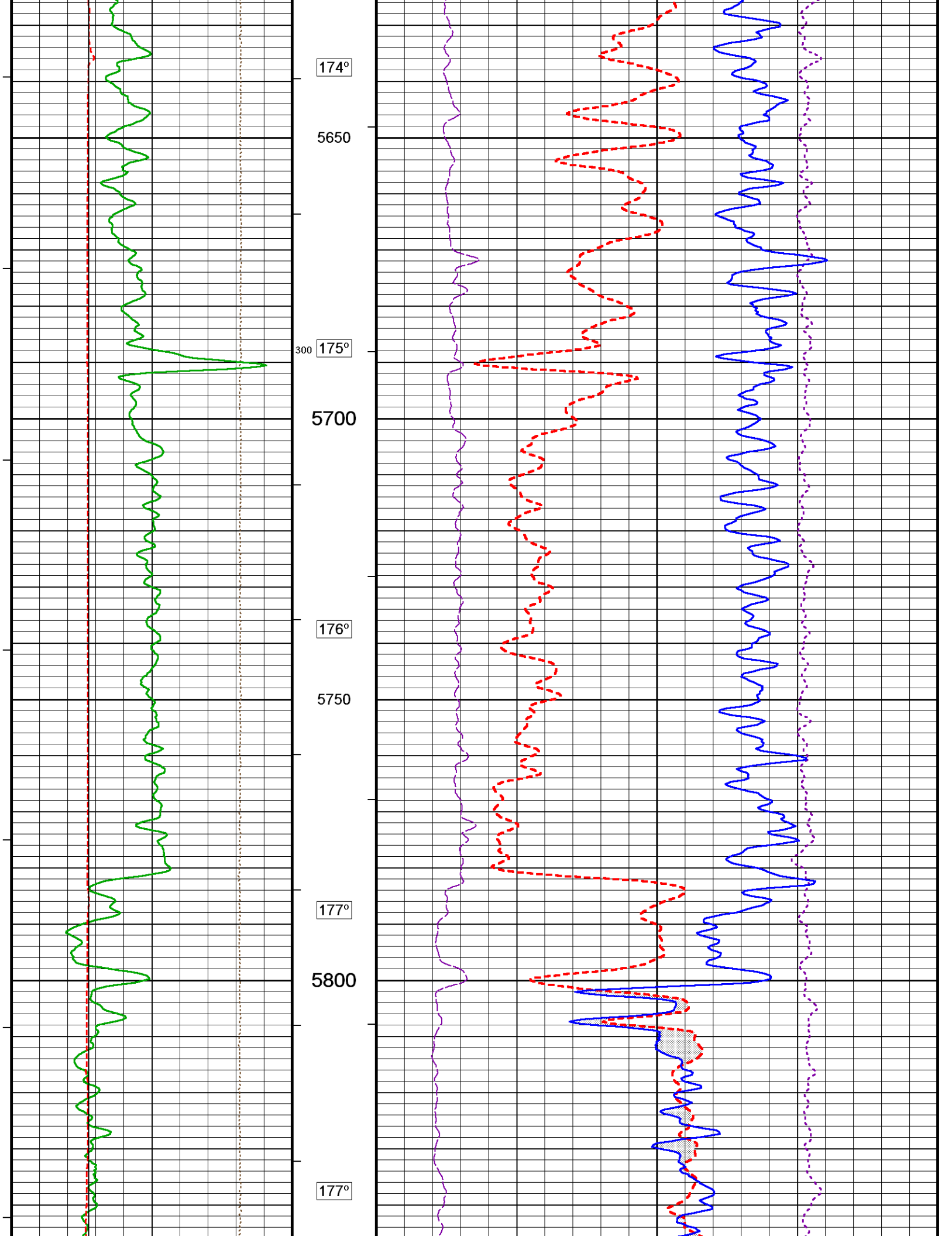


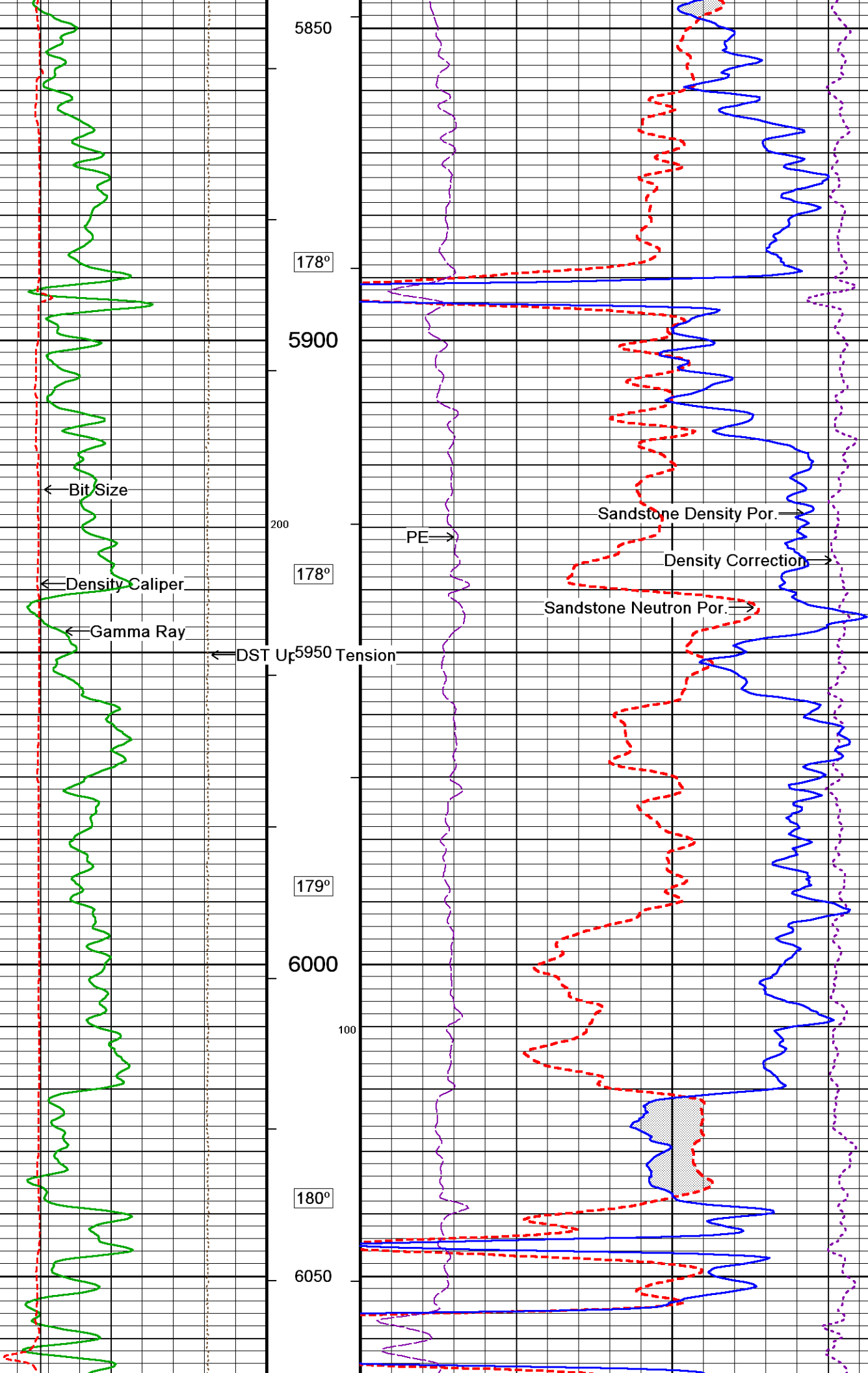


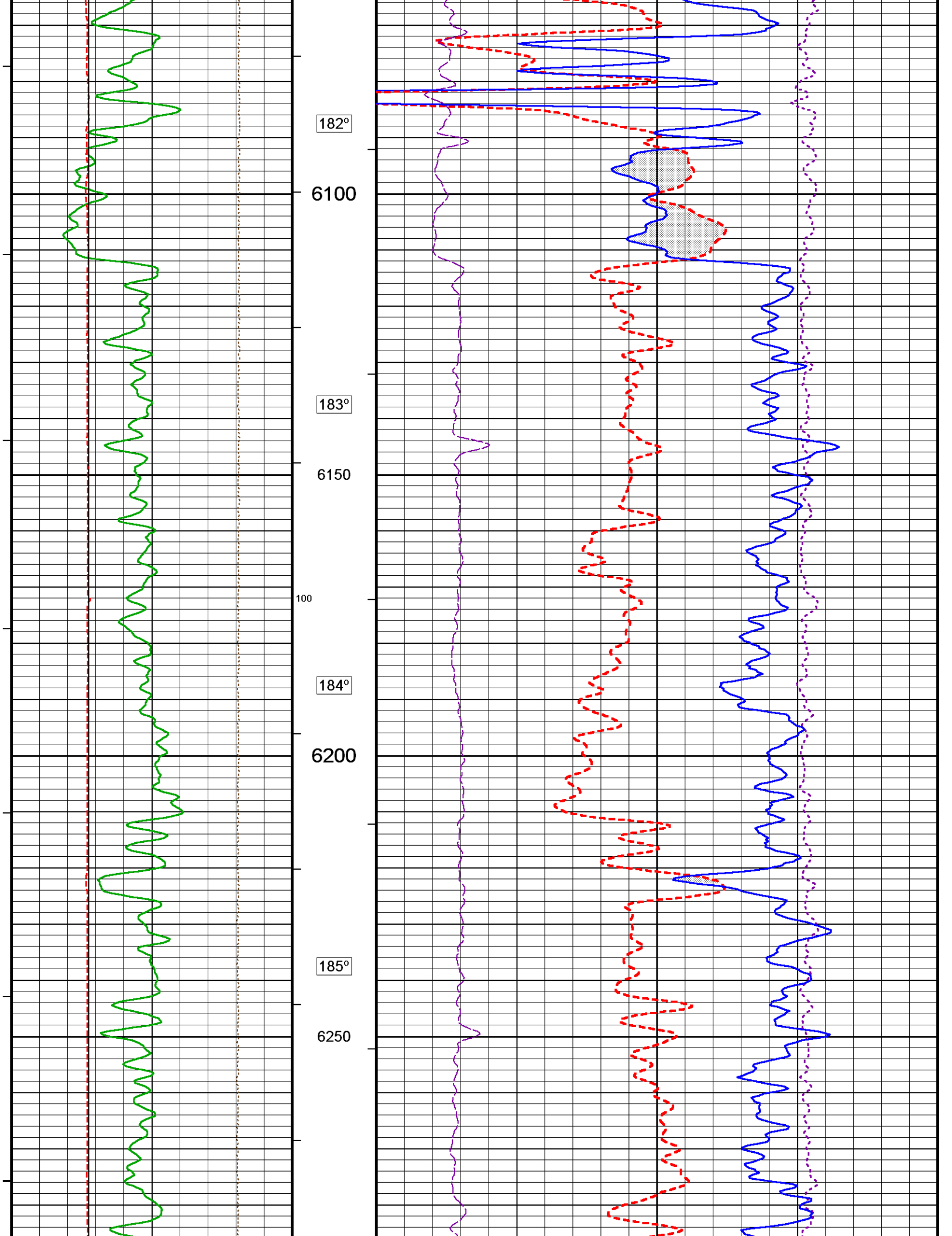


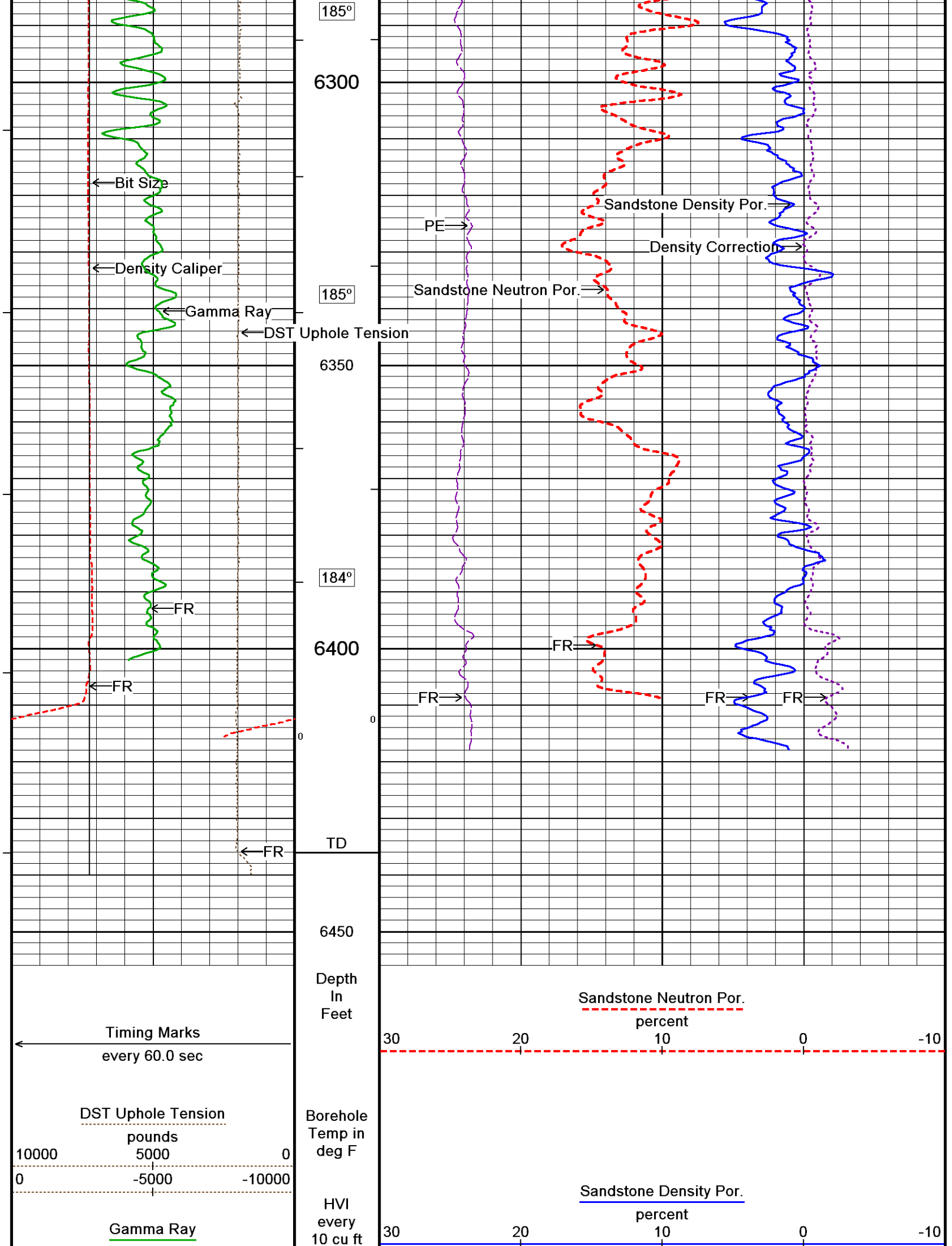


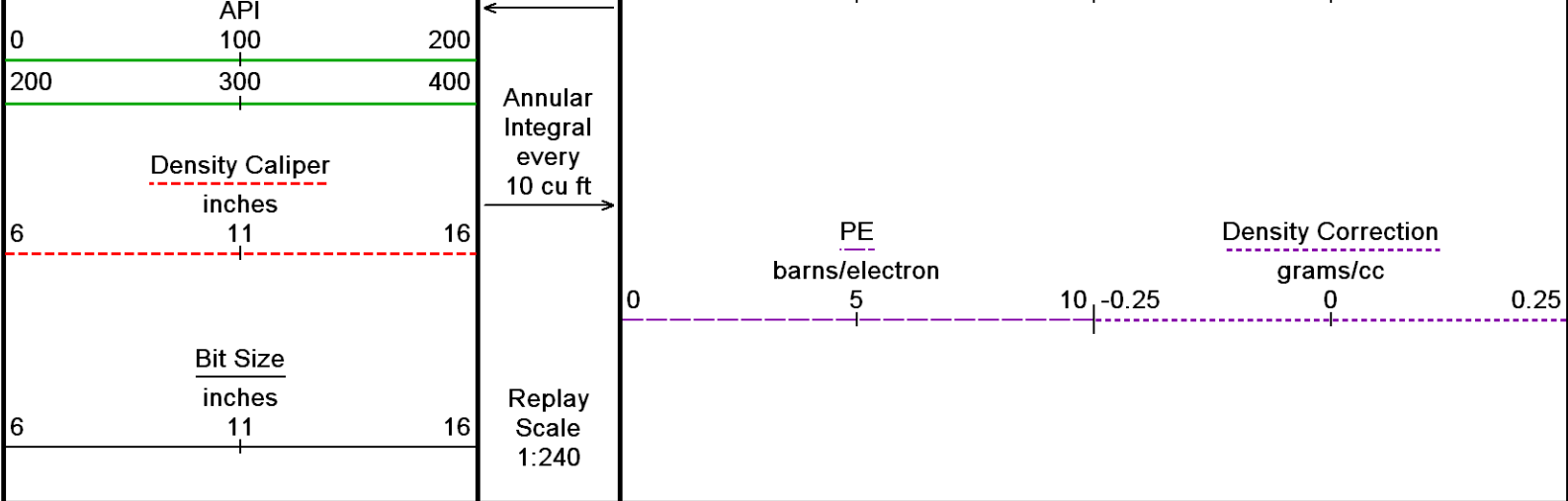












Depth Based Data - Maximum Sampling Increment 10.0cm
Filename: C:\LOGS\Ursa\BAT 23CWI-24-017-96\MAIN PASS.dta
System Versions: Logged with 13.08.2113 Plotted with 13.08.2113

Plotted on 28-FEB-2014 04:17
Recorded on 28-FEB-2014 00:15

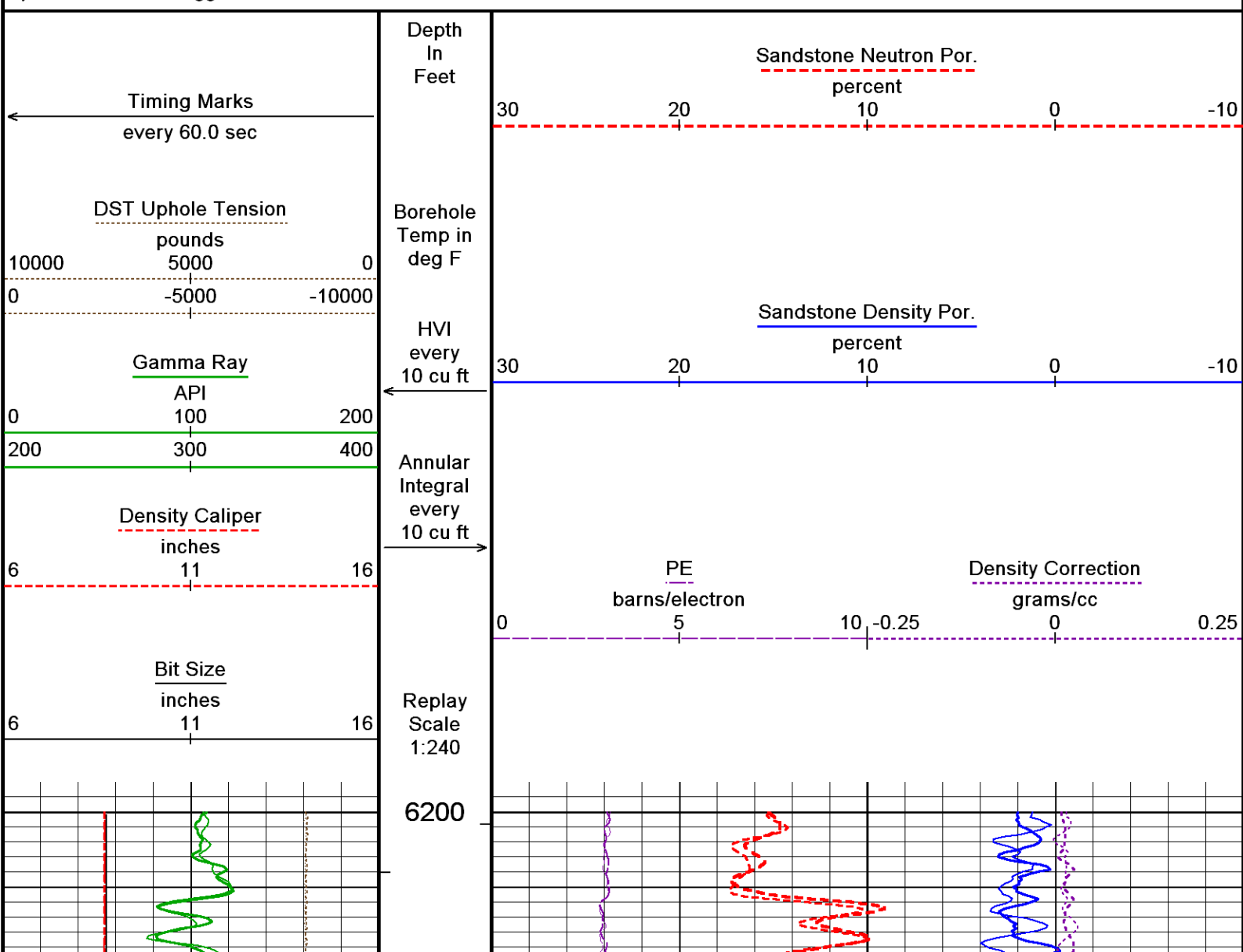
5 INCH MAIN PASS

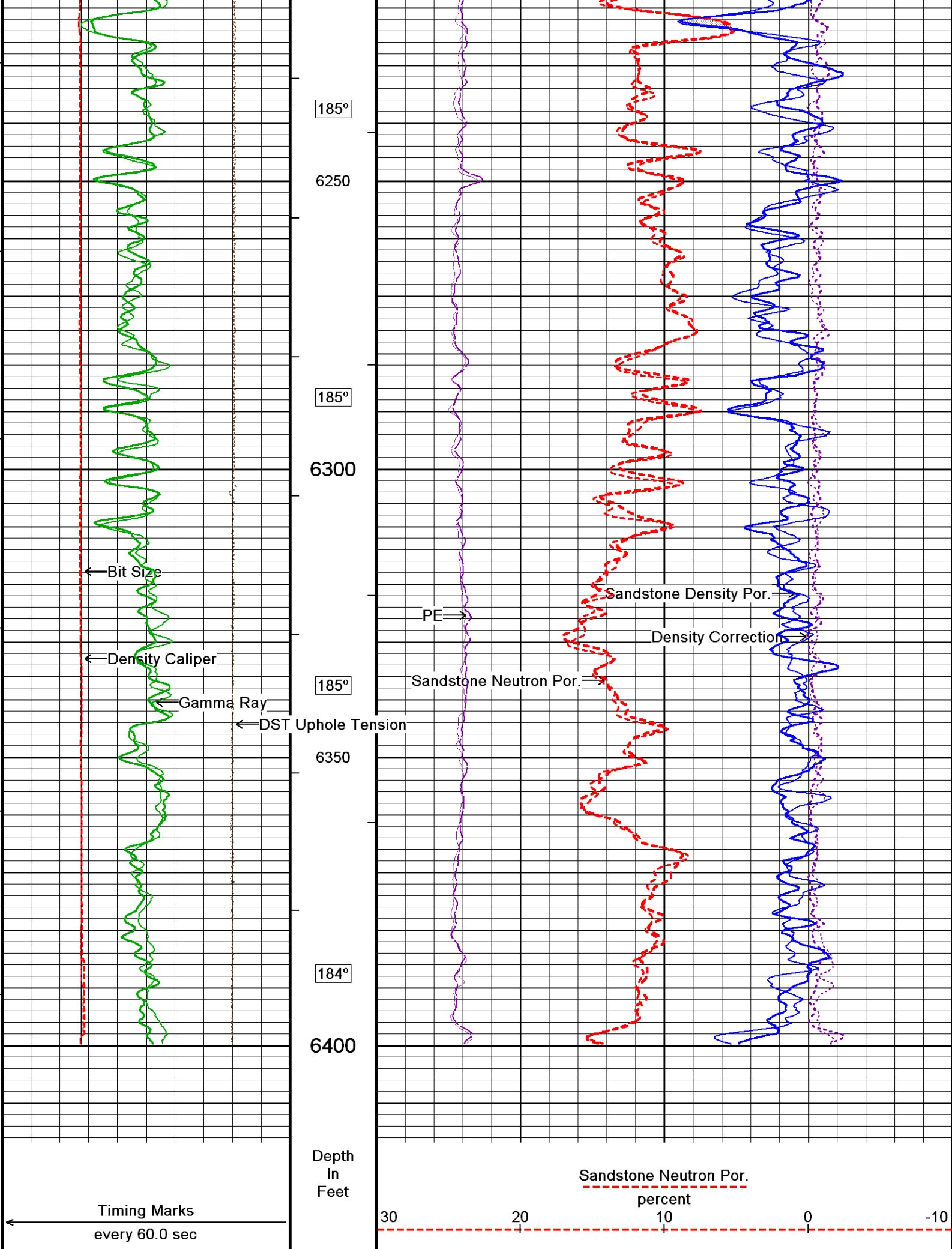
REPEAT SECTION OVERLAY

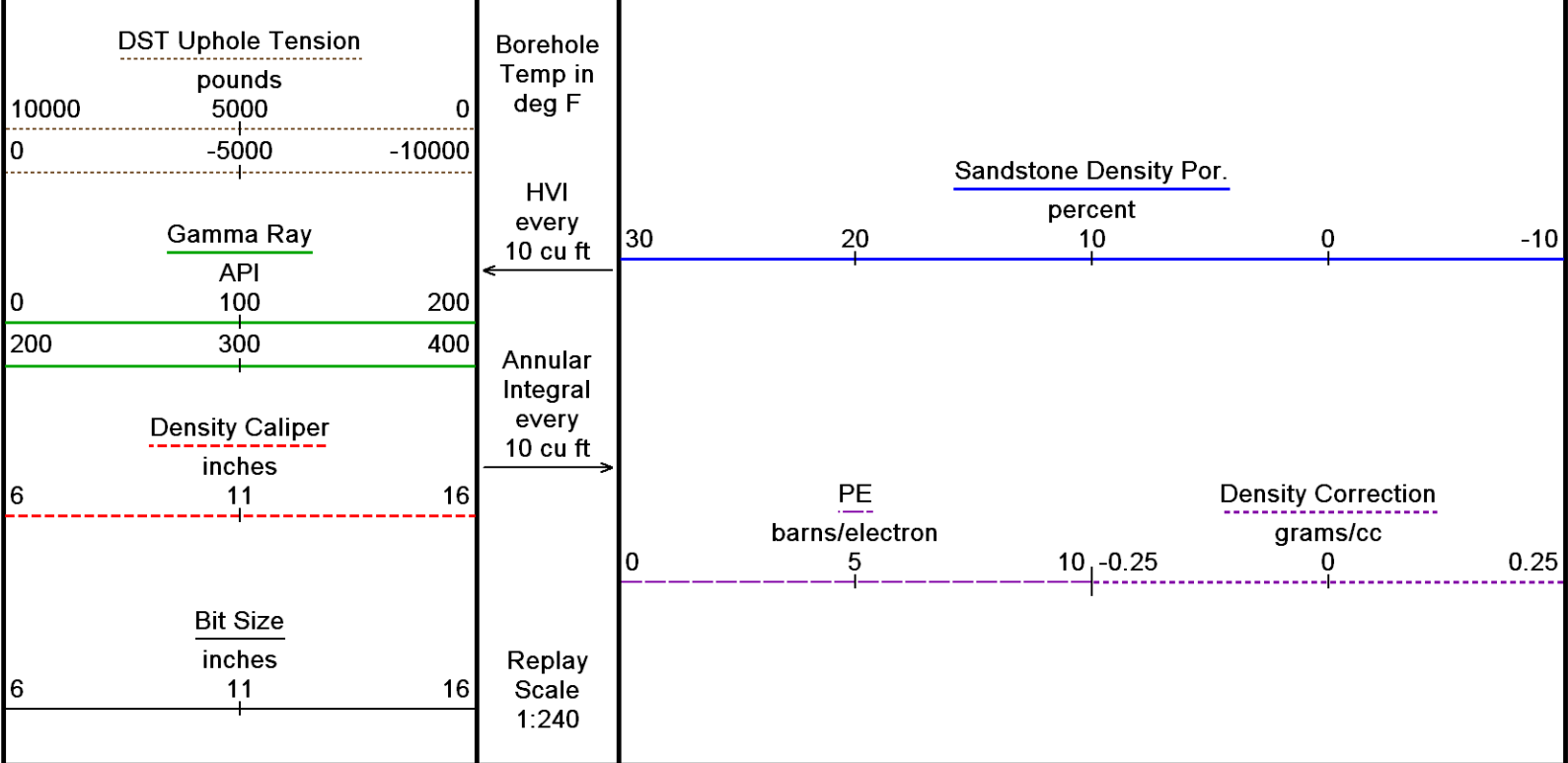
Depth Based Data - Maximum Sampling Increment 10.0cm
Filename: C:\LOGS\Ursa\BAT 23CWI-24-017-96\MAIN PASS.dta
System Versions: Logged with 13.08.2113 Plotted with 13.08.2113

Plotted on 28-FEB-2014 04:17
Recorded on 28-FEB-2014 00:15

Filename: C:\LOGS\Ursa\BAT 23CWI-24-017-96\REPEAT.dta
Recorded on 27-FEB-2014 23:57





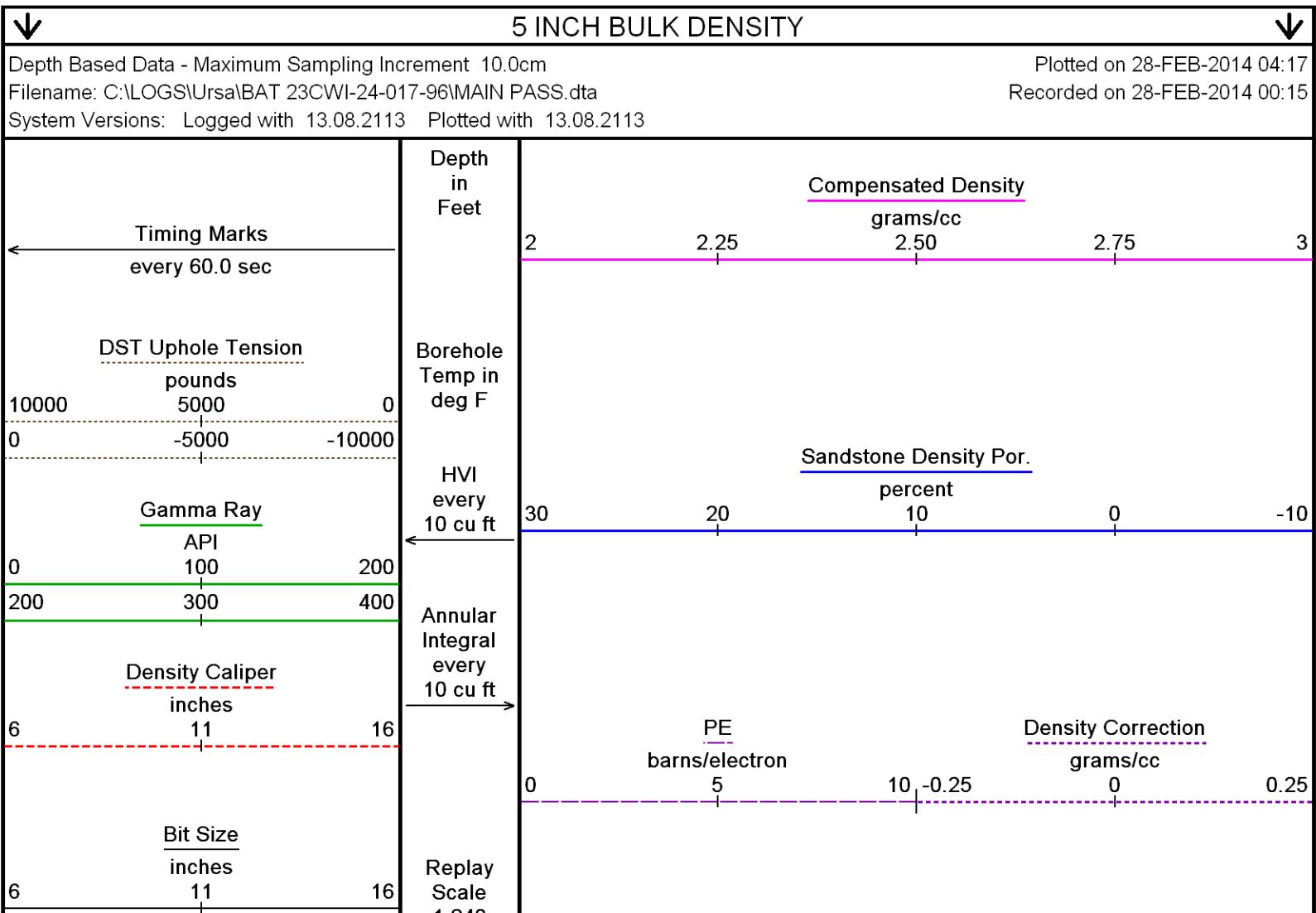


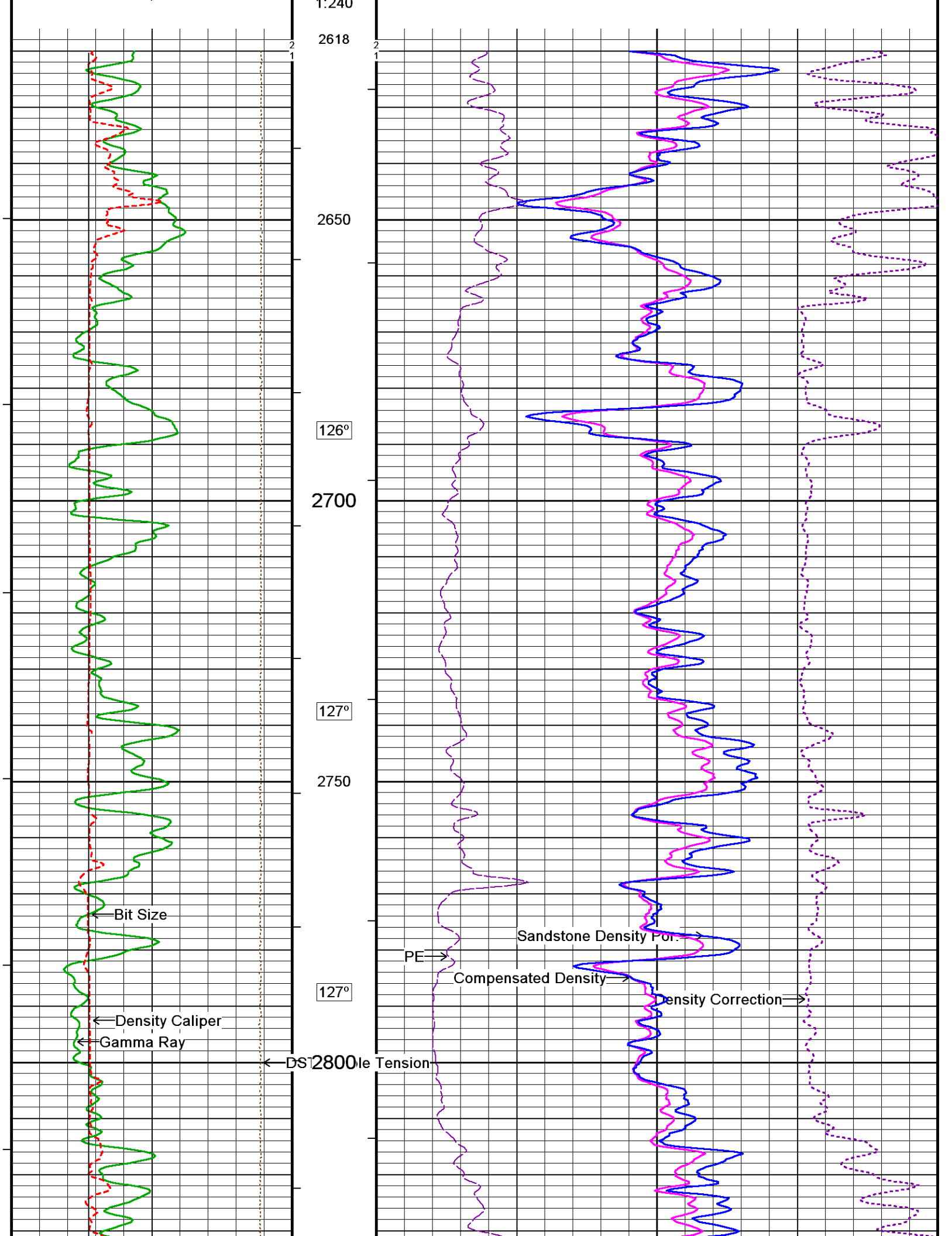
Depth Based Data - Maximum Sampling Increment 10.0cm		Plotted on 28-FEB-2014 04:17
Filename: C:\LOGS\Ursa\BAT 23CWI-24-017-96\MAIN PASS.dta		Recorded on 28-FEB-2014 00:15
Filename: C:\LOGS\Ursa\BAT 23CWI-24-017-96\REPEAT.dta		Recorded on 27-FEB-2014 23:57
System Versions: Logged with 13.08.2113 Plotted with 13.08.2113		

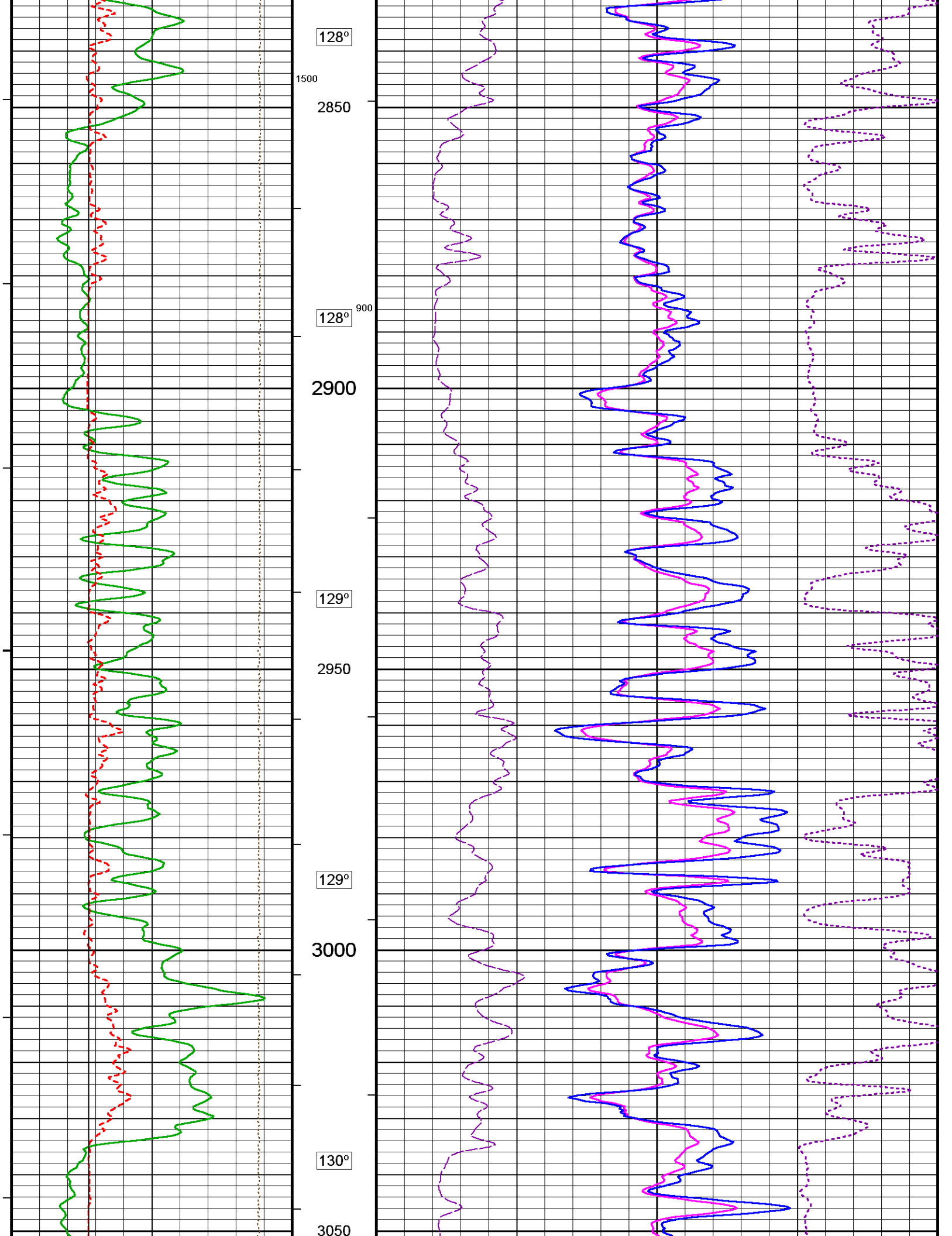
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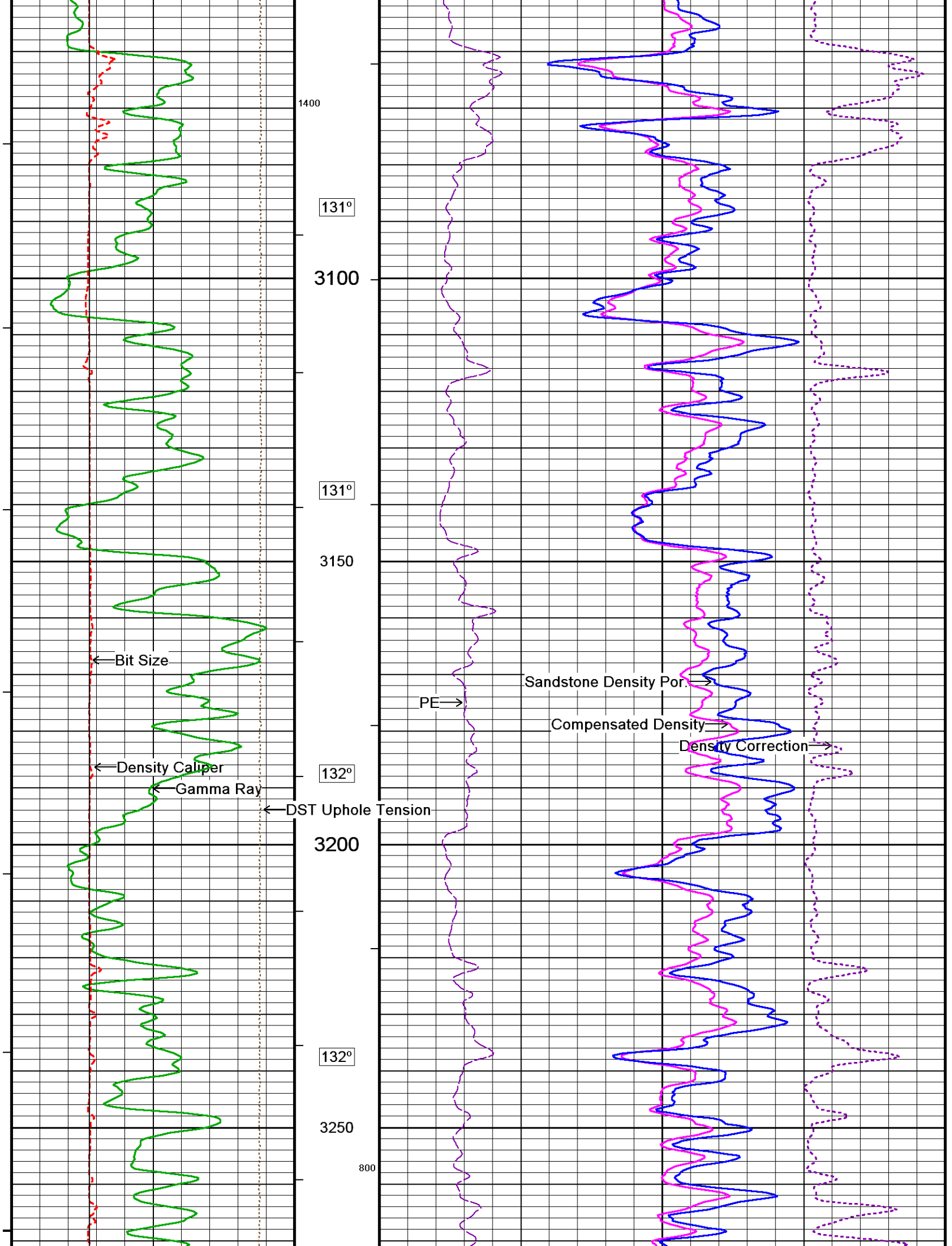
REPEAT SECTION OVERLAY

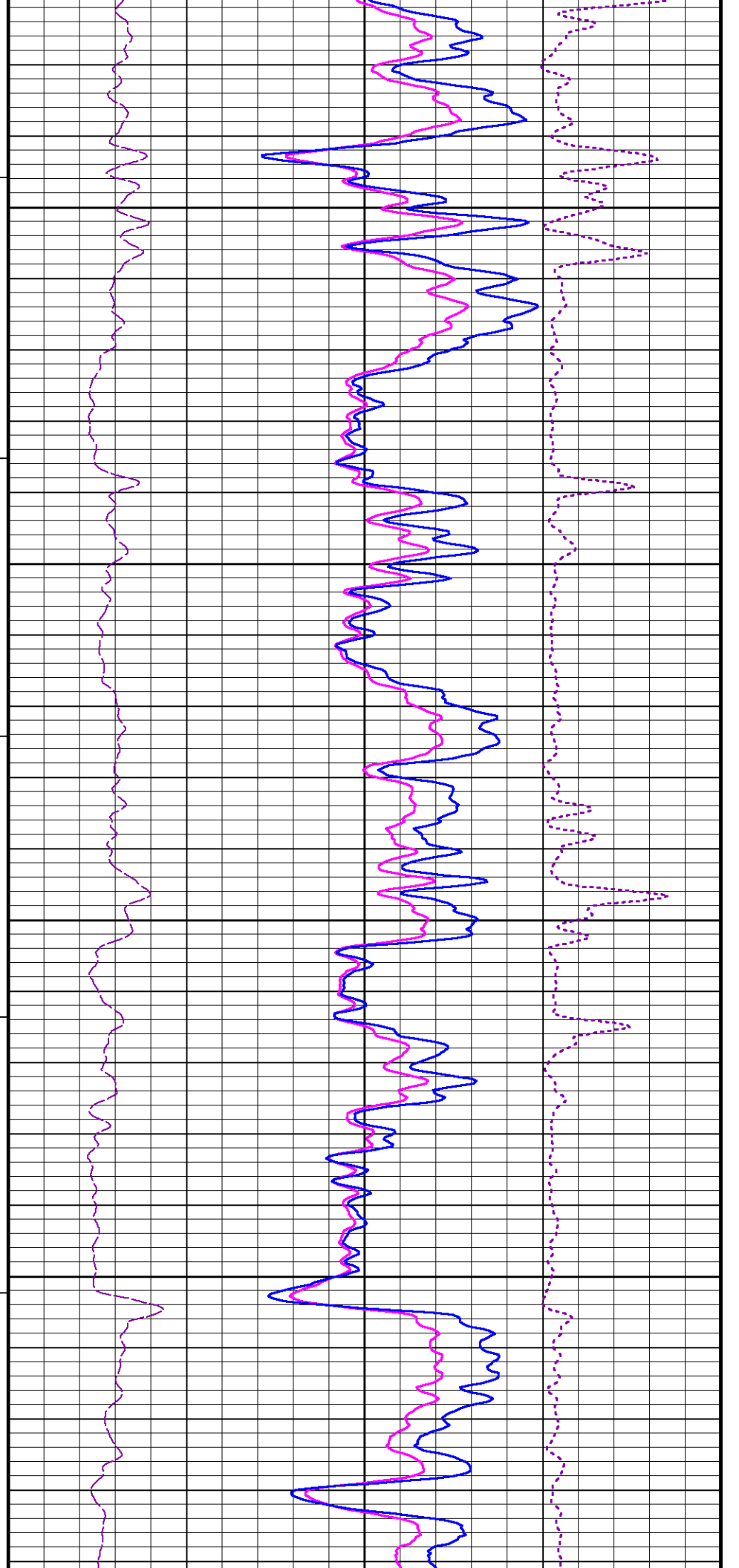
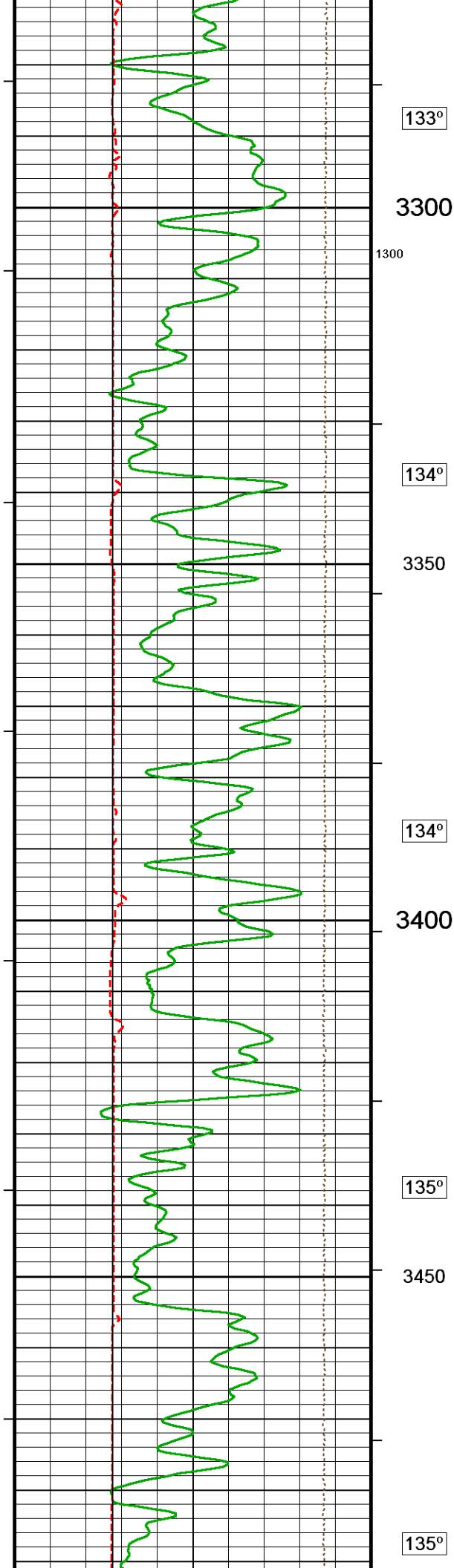
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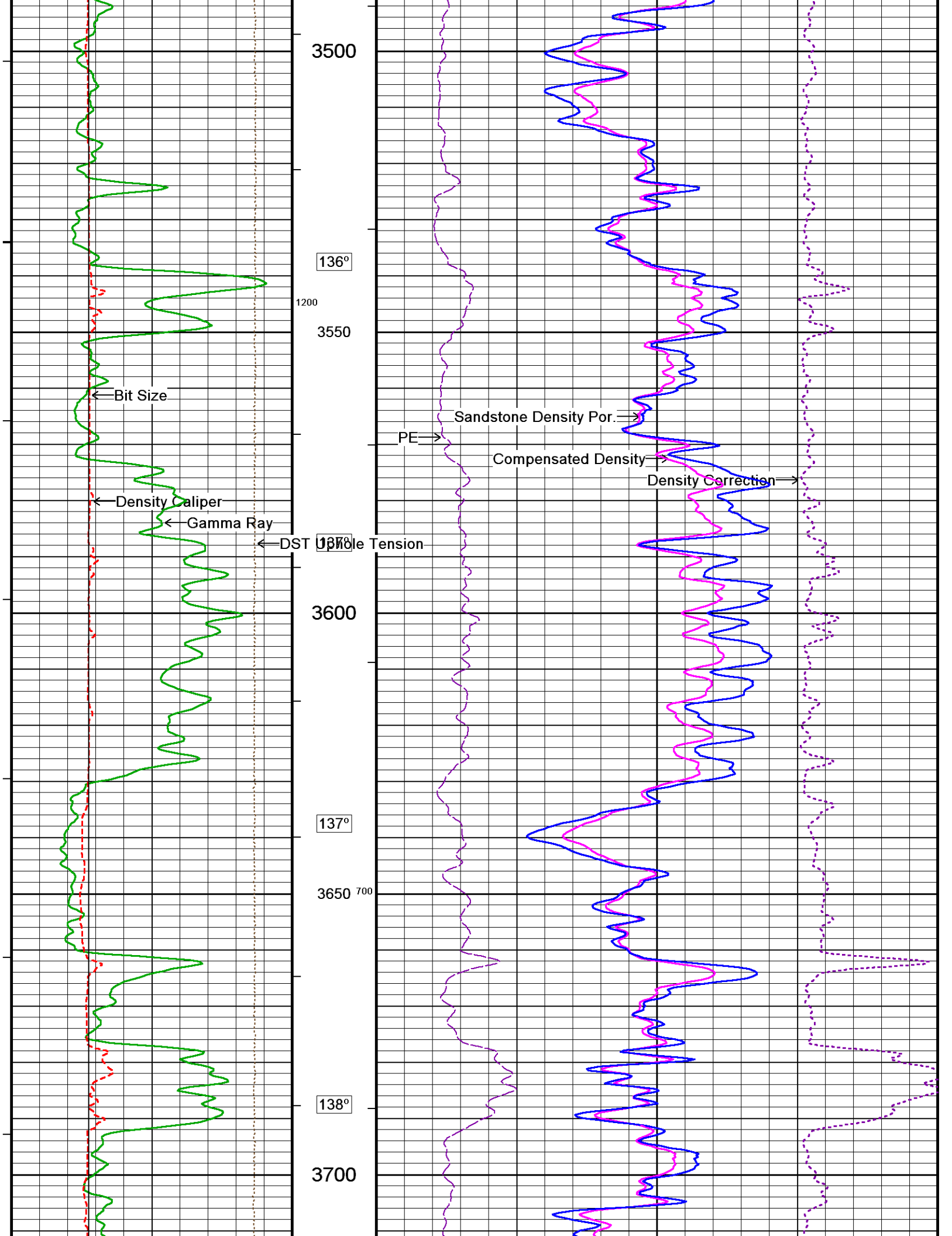


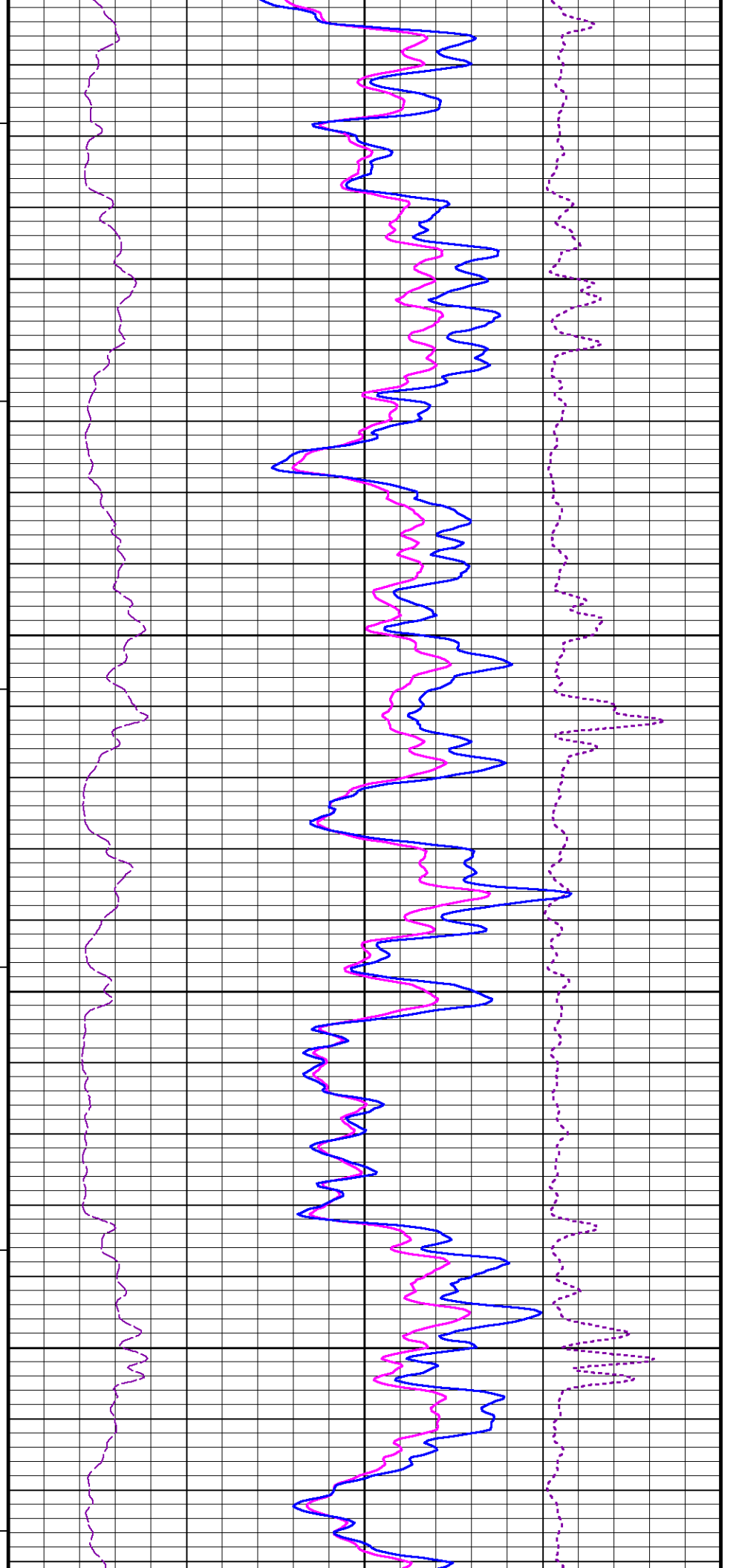
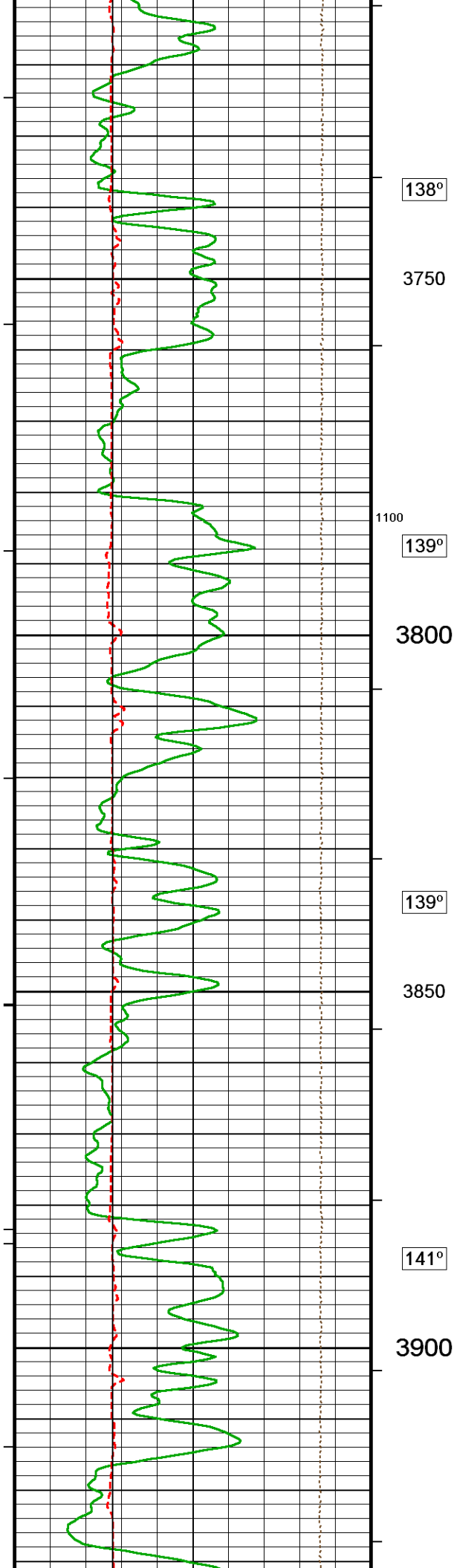


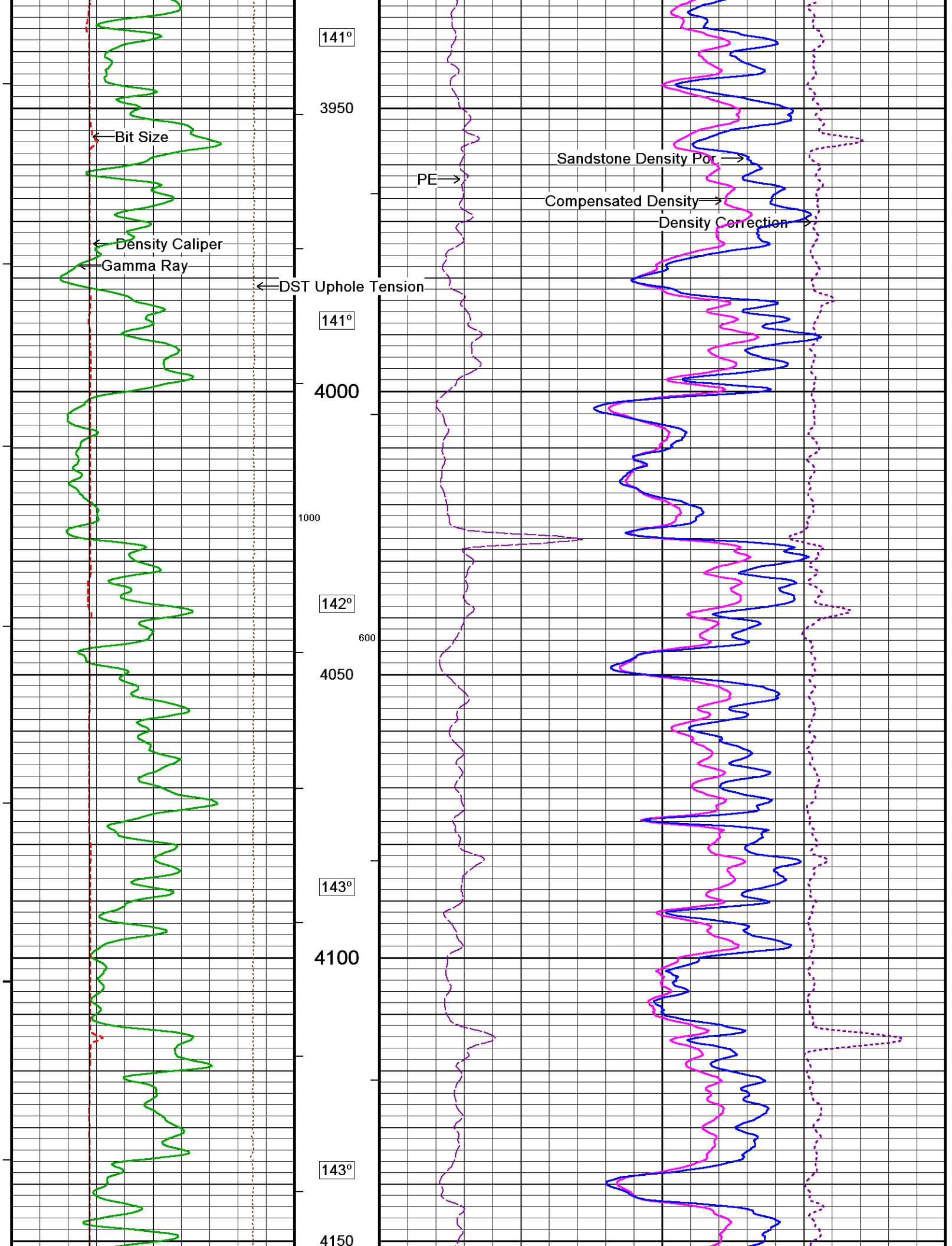


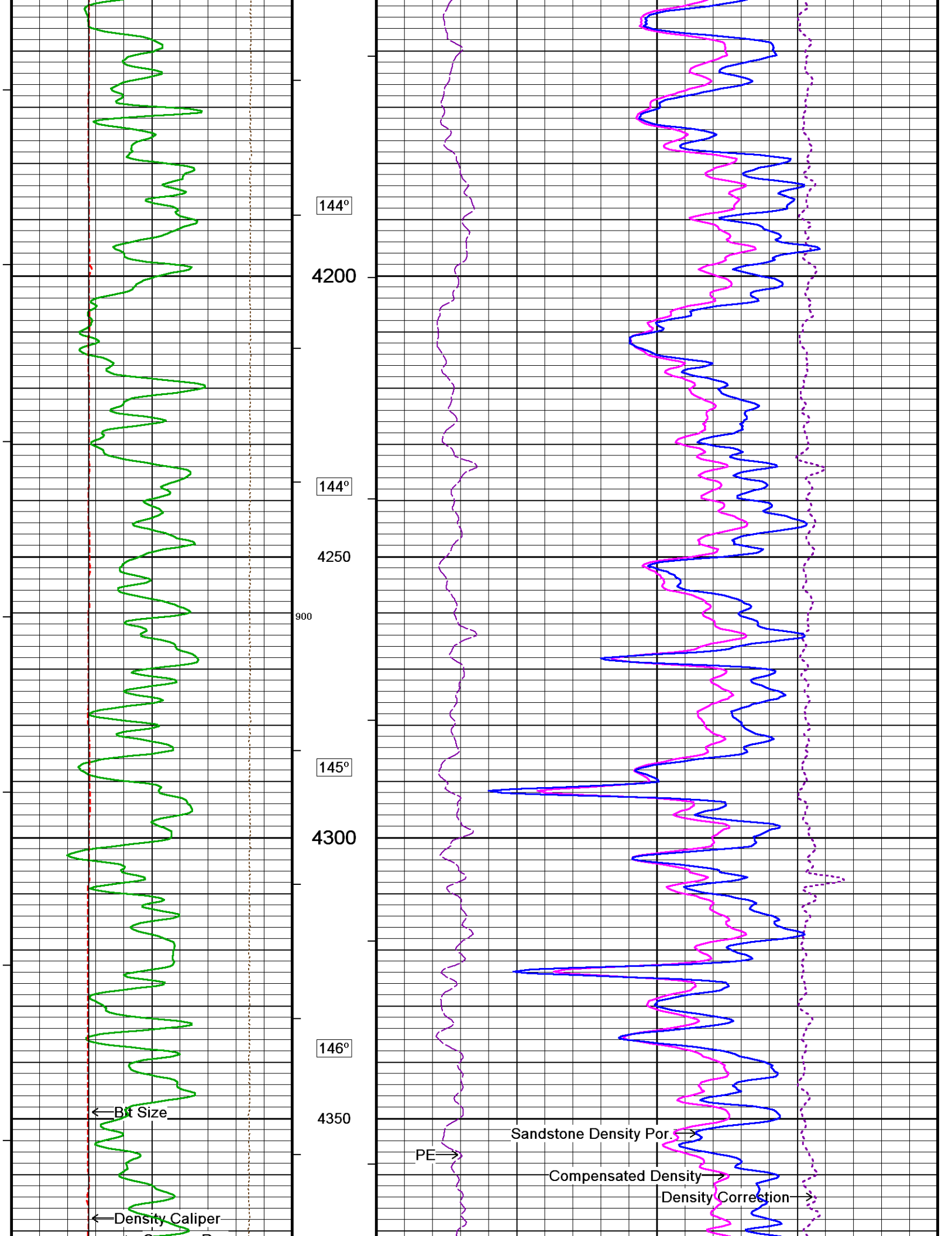


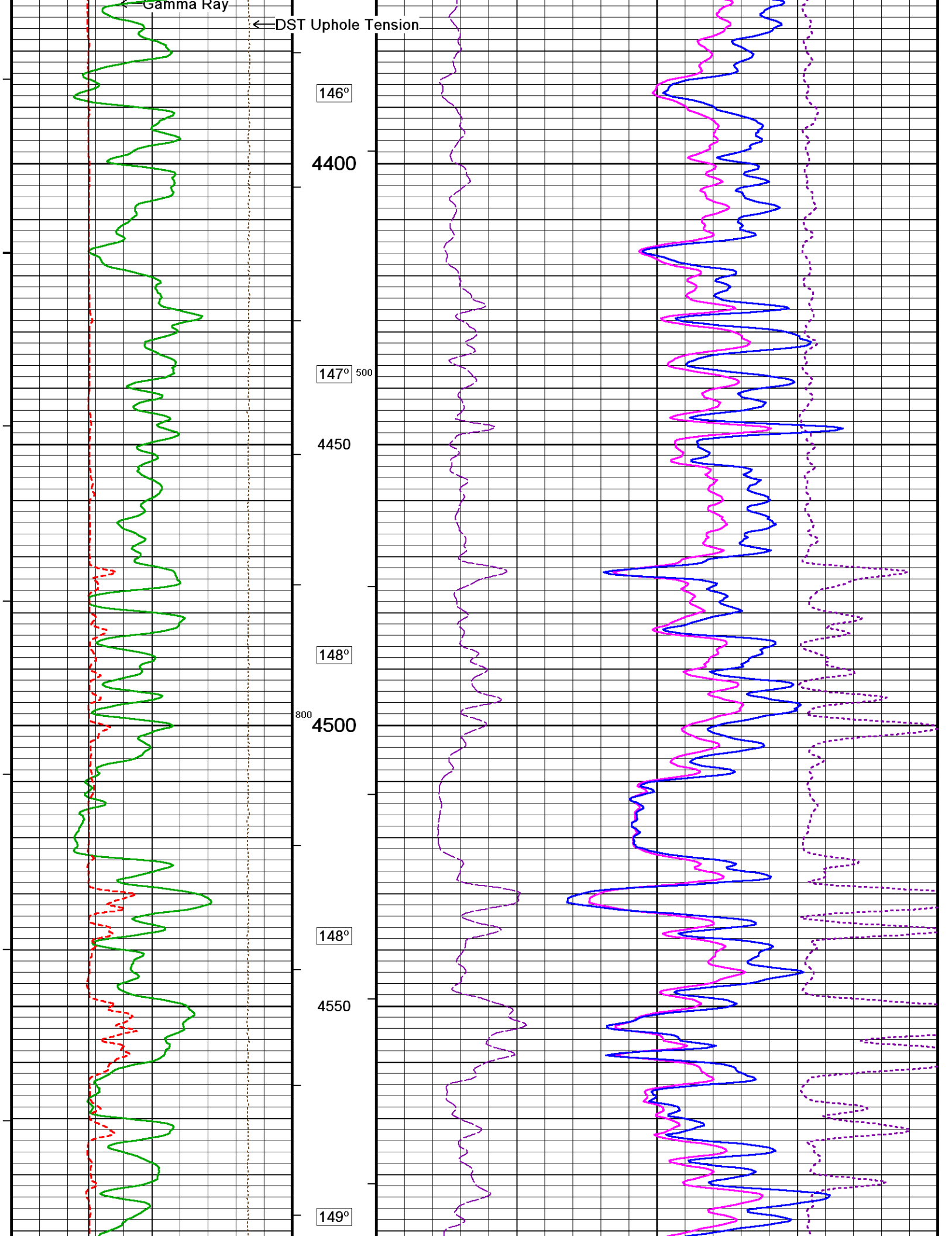


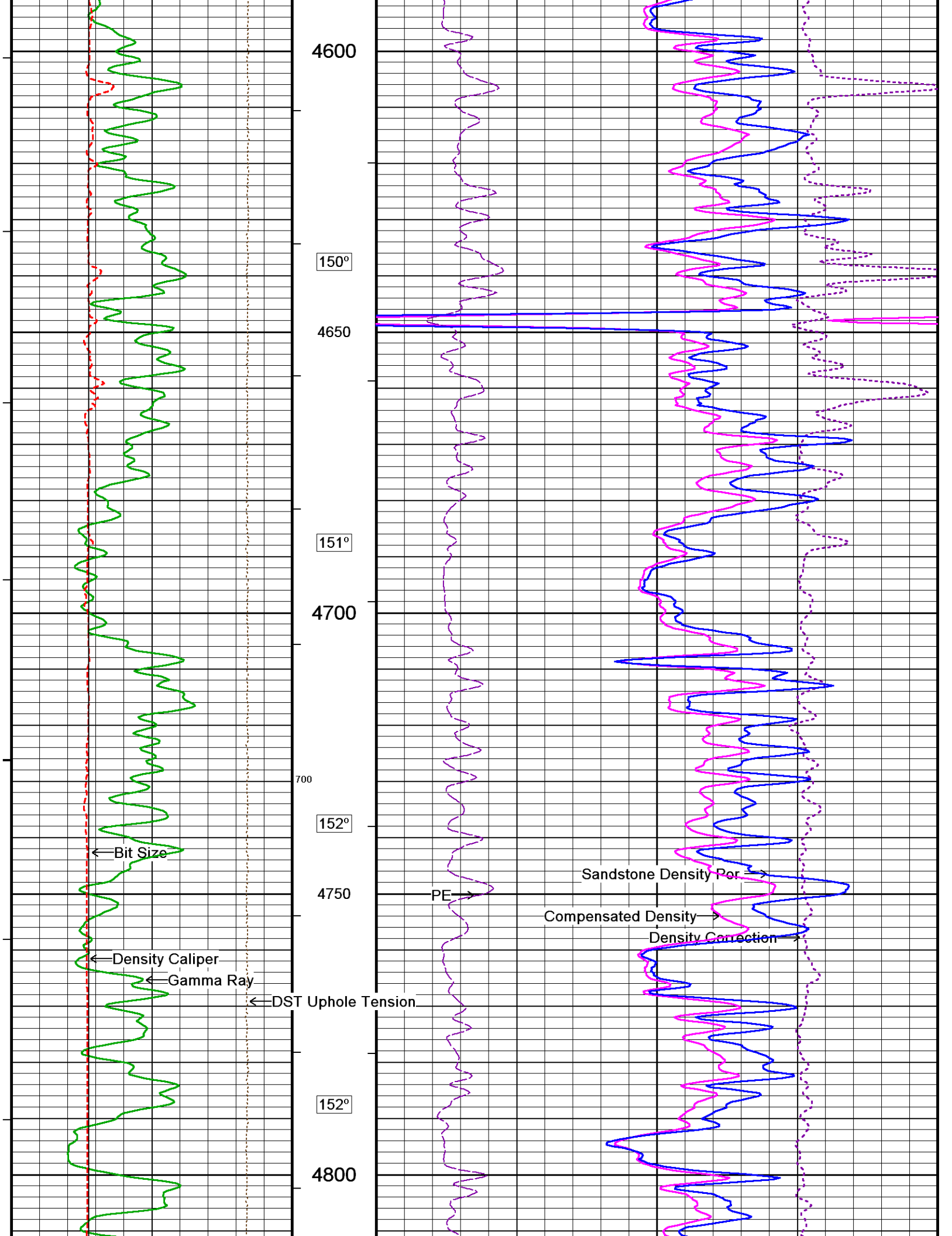


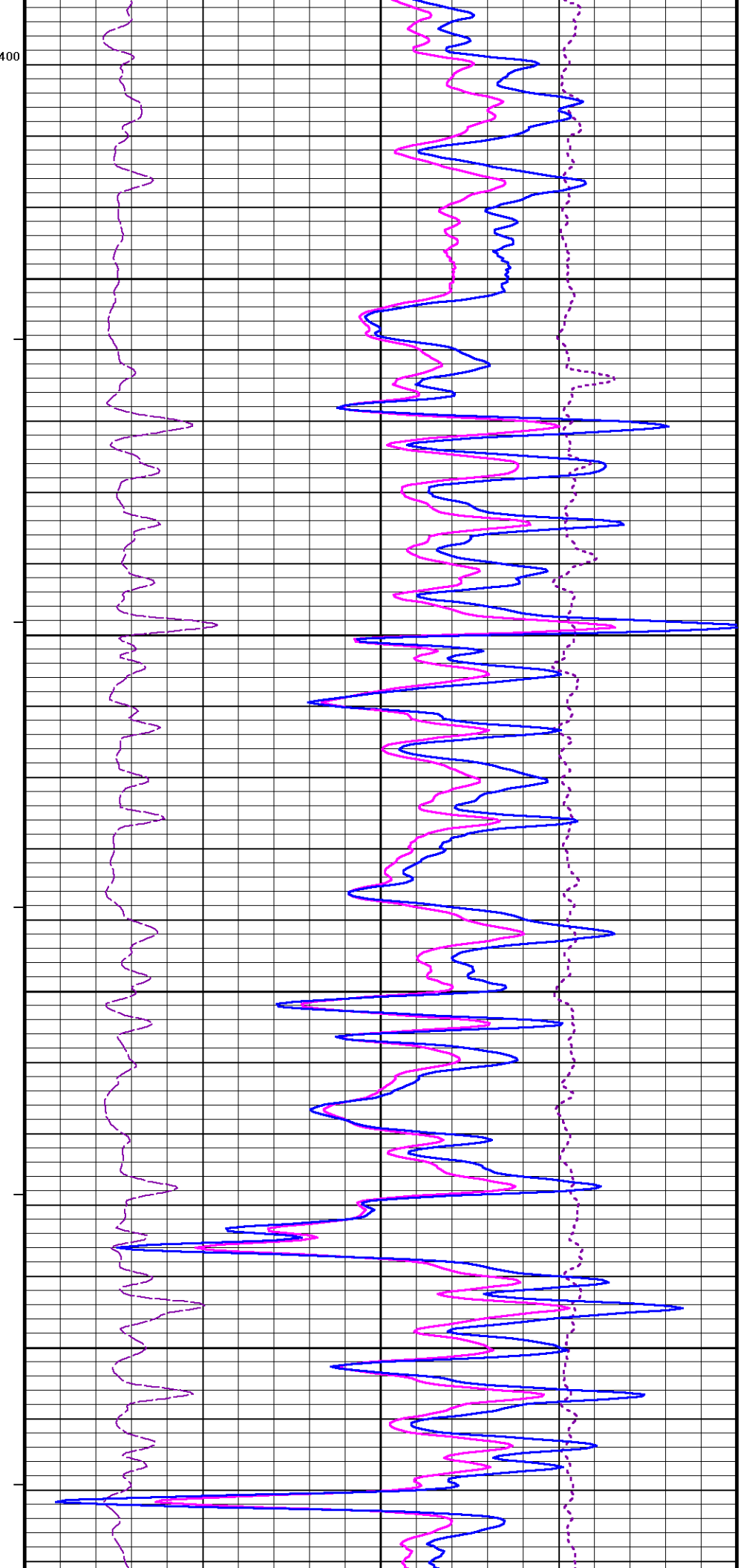
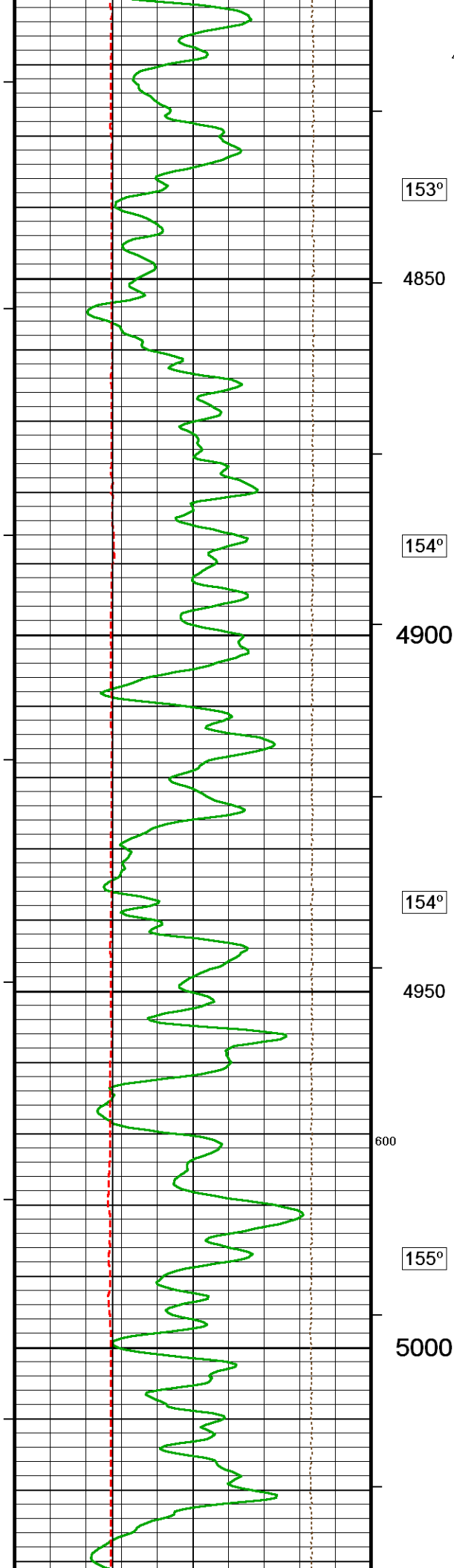


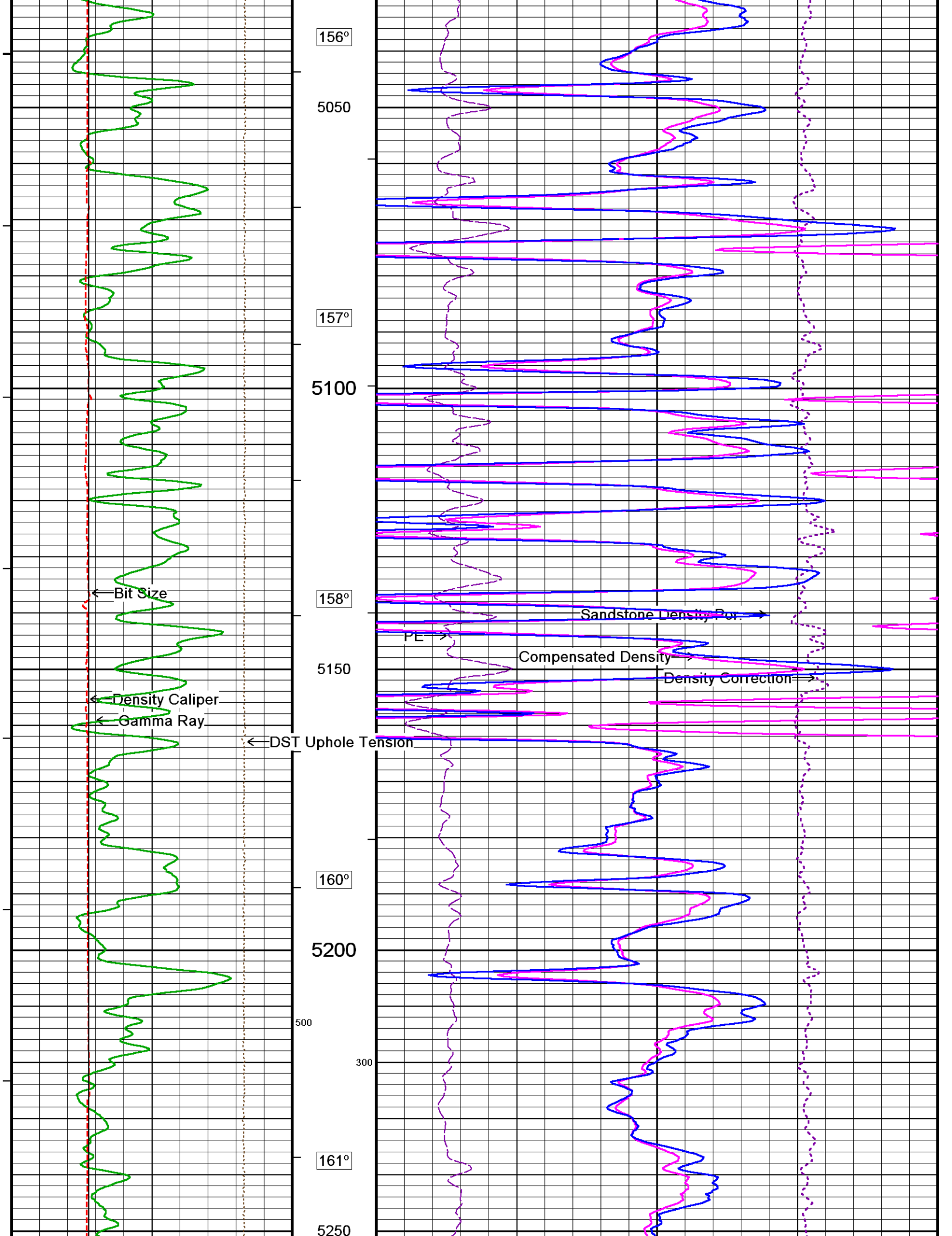


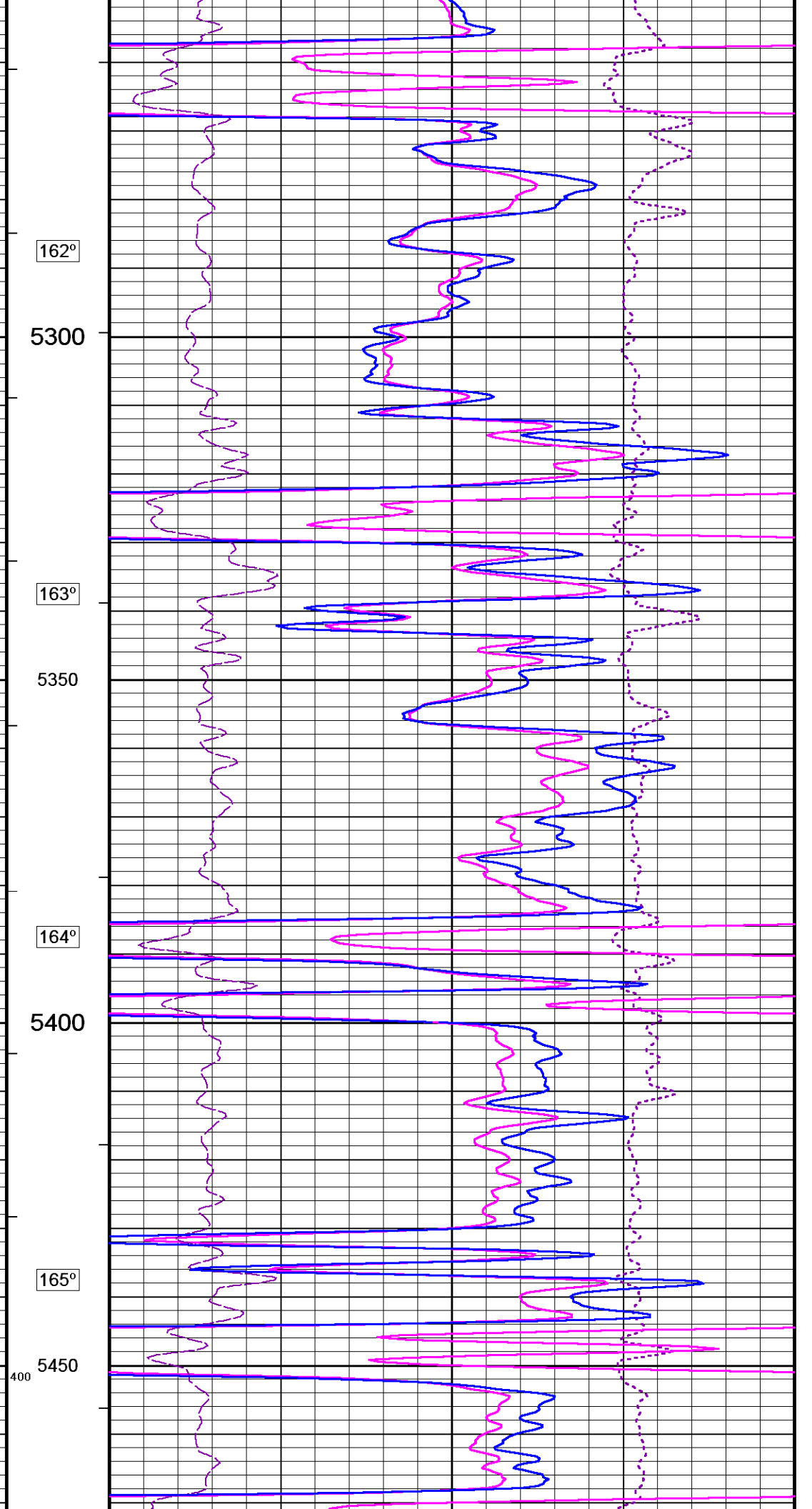
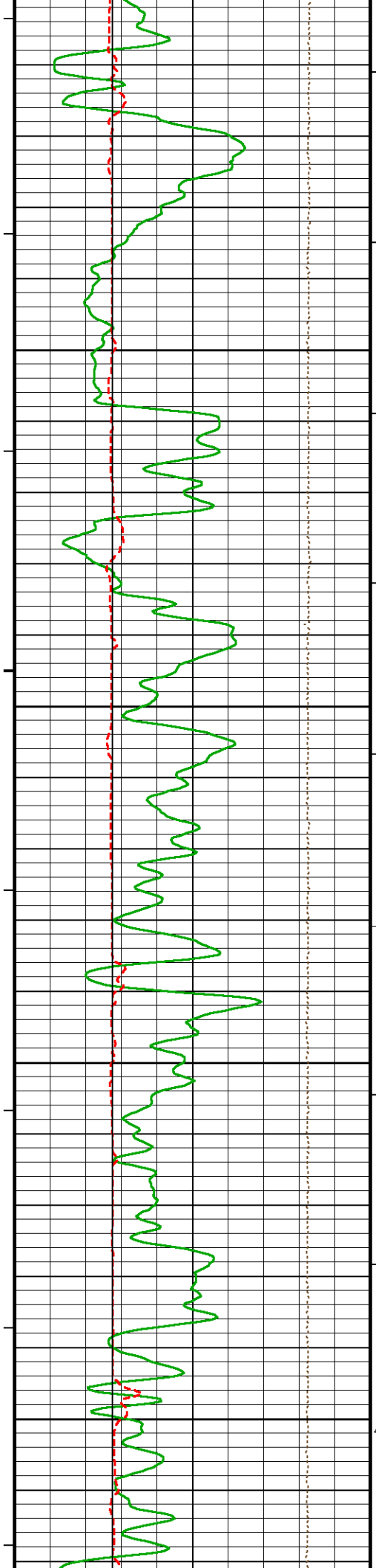


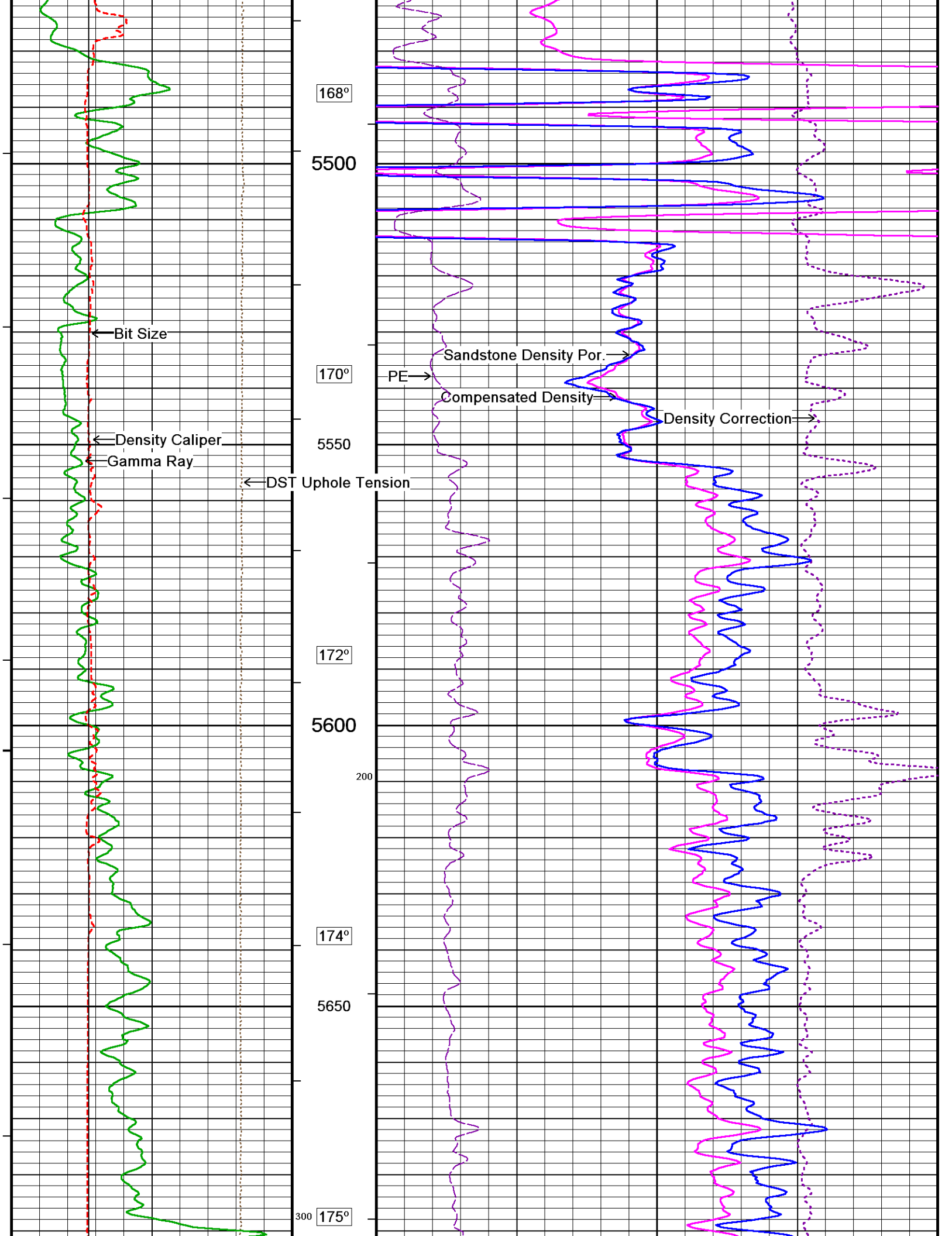


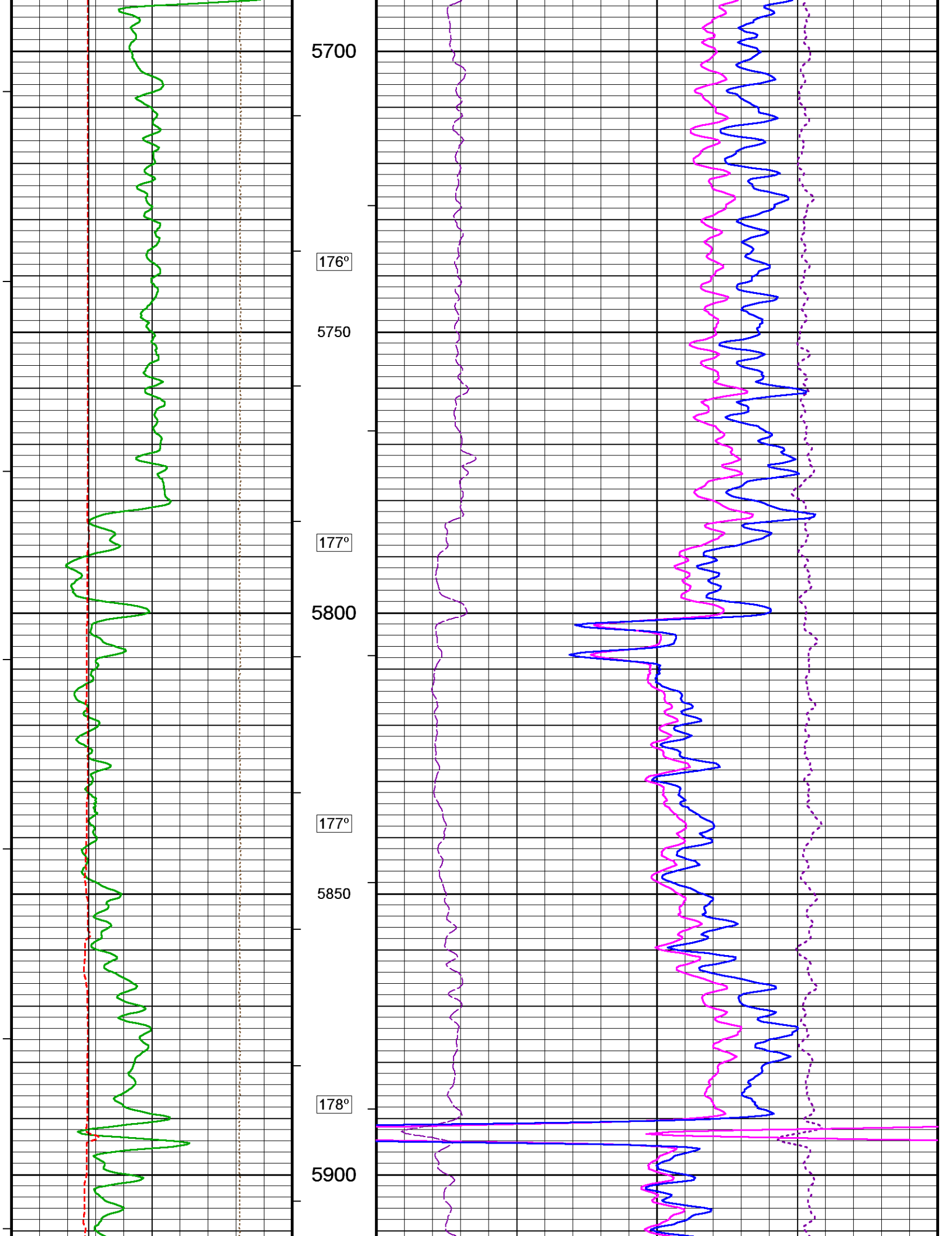


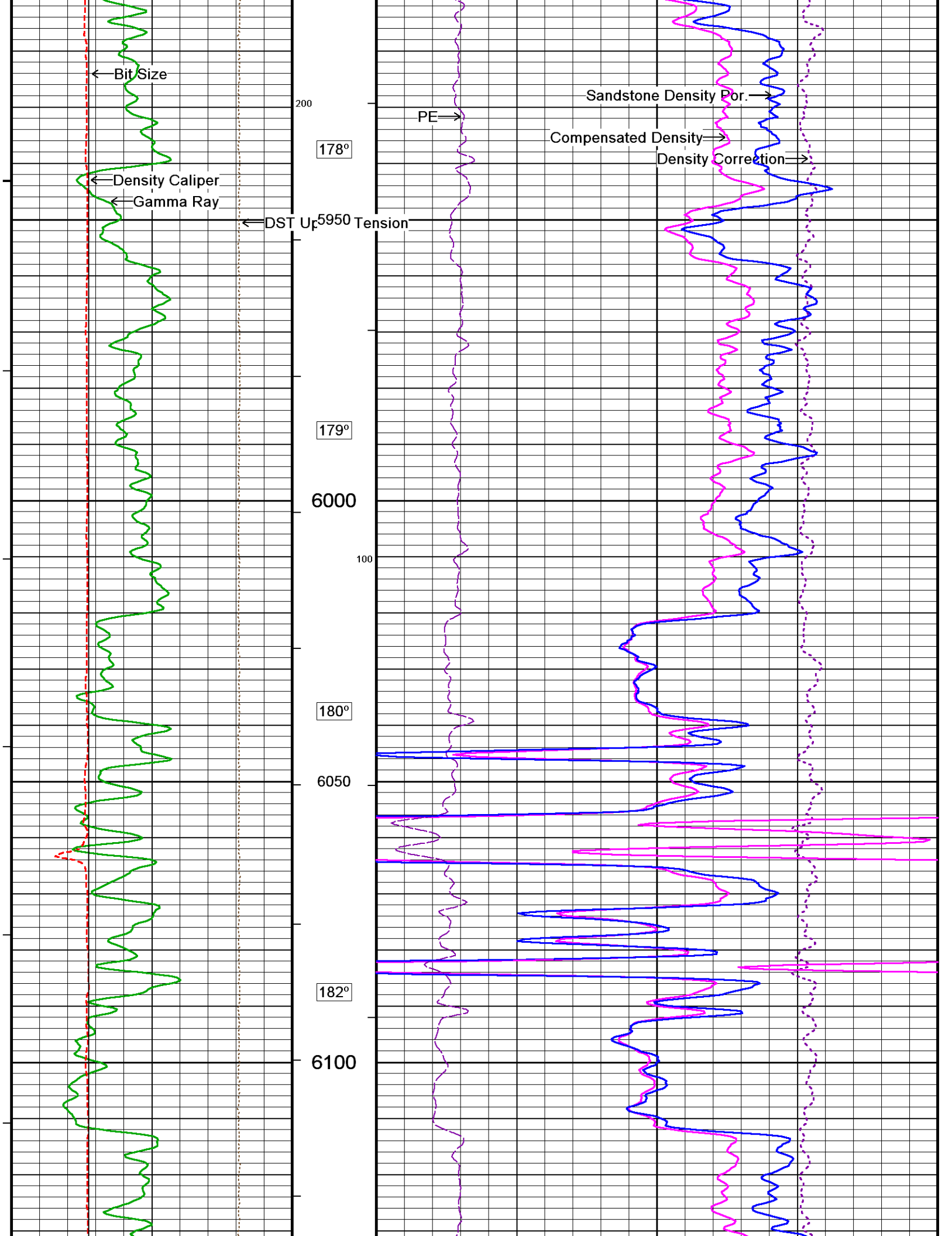


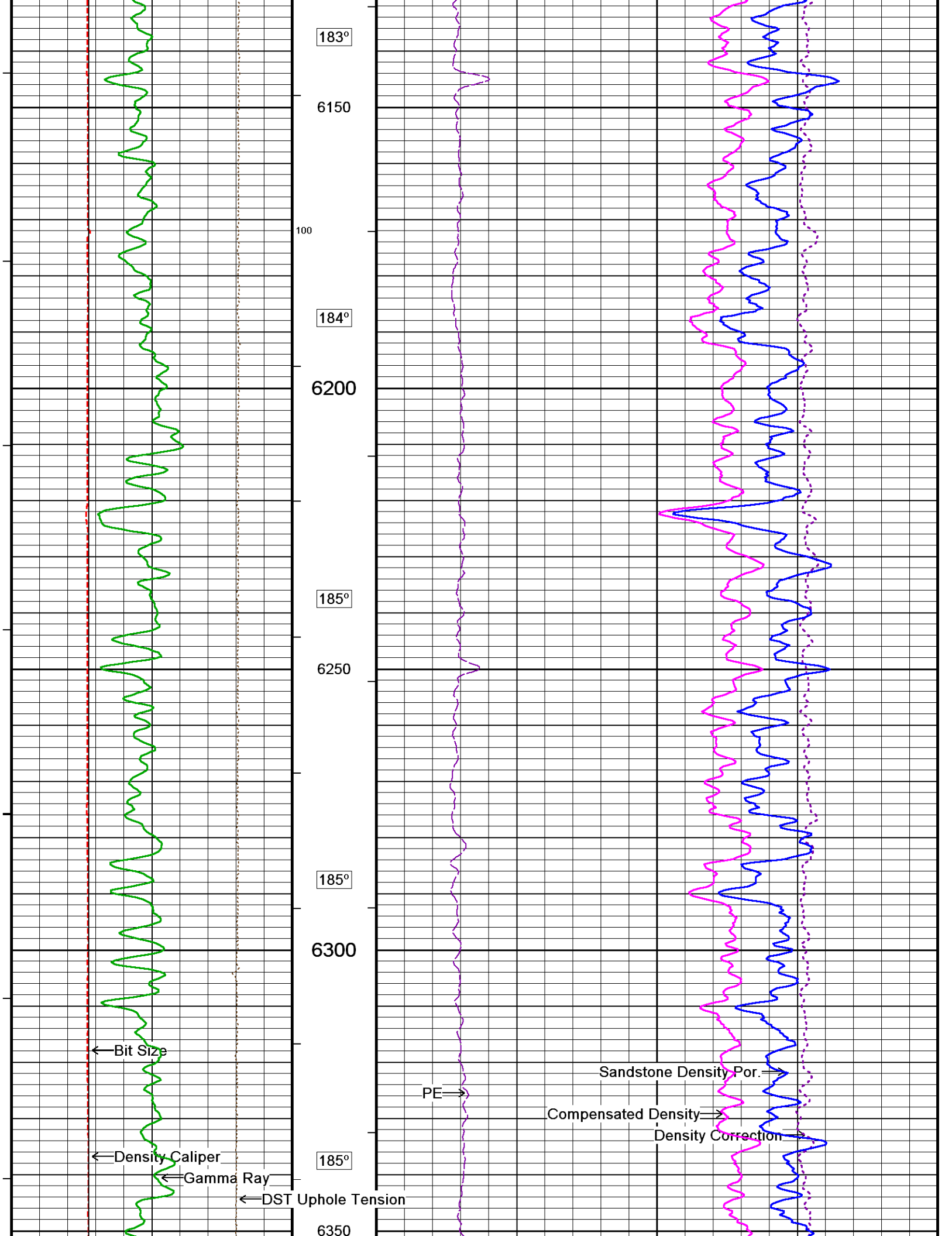


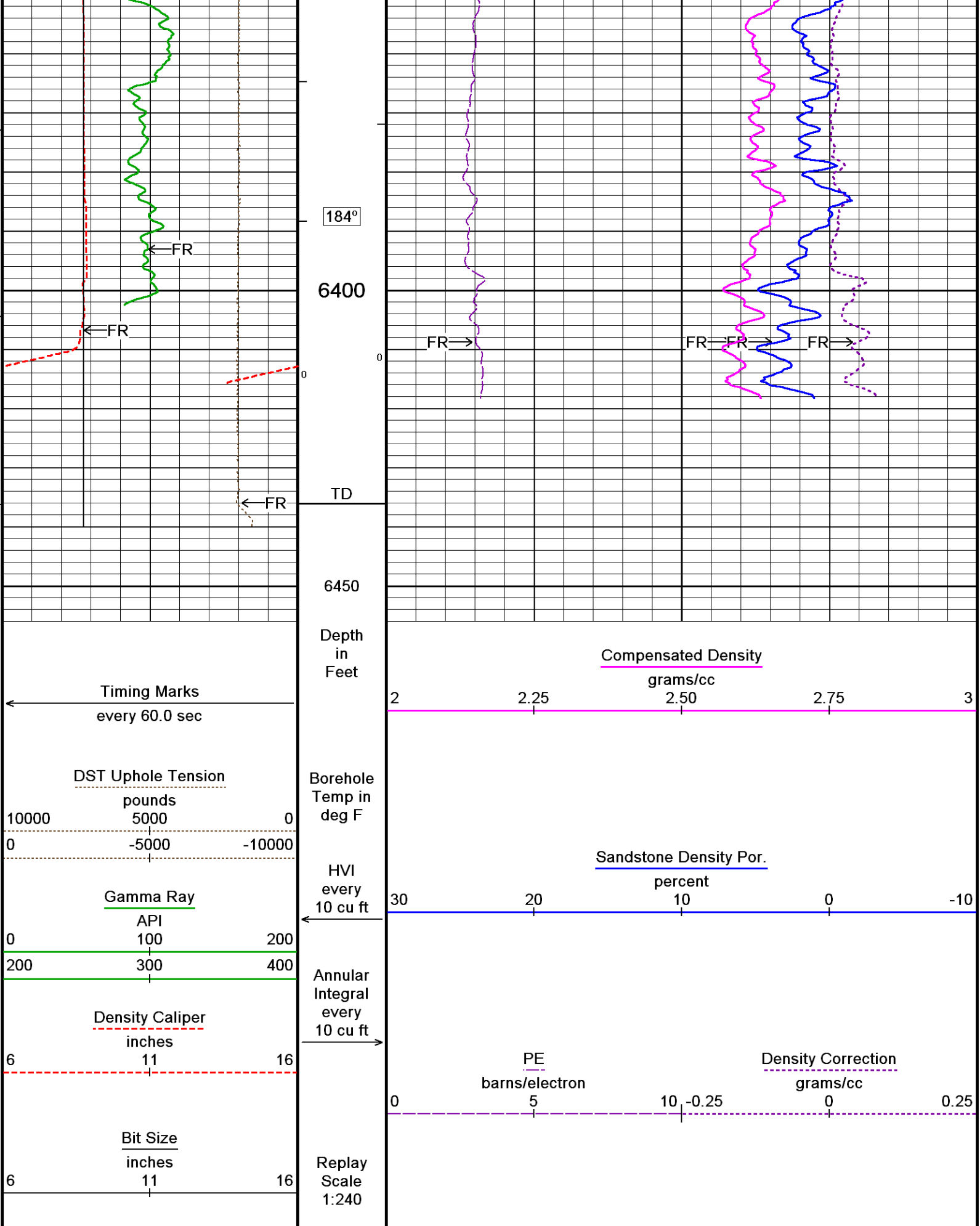














BEFORE SURVEY CALIBRATION

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General Constants All 000

Last Edited on 27-FEB-2014,23:22

General Parameters

Mud Resistivity	1.800	ohm-metres
Mud Resistivity Temperature	72.300	degrees F
Water Level	0.000	feet
Borehole Fluid Processing	Wet Hole	

Hole/Annular Volume and Differential Caliper Parameters

HVOL Method	Single Caliper	
HVOL Caliper 1	Density Caliper	
HVOL Caliper 2	N/A	
Annular Volume Diameter	5.500	inches
Caliper for Differential Caliper	Density Caliper	

Rwa Parameters

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

High Resolution Temperature Calibration MCG-D.A 223

Field Calibration on 25-MAR-2013,15:53

	Measured	Calibrated(Deg F)
Lower	1.00	1.00
Upper	2.00	2.00

High Resolution Temperature Constants MCG-D.A 223

Last Edited on 25-MAR-2013,15:53

Pre-filter Length	11
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Gamma Calibration MCG-D.A 223

Field Calibration on 27-FEB-2014 21:44

	Measured	Calibrated (API)
Background	106	73
Calibrator (Gross)	1441	985
Calibrator (Net)	1335	912

Gamma Constants MCG-D.A 223

Last Edited on 27-FEB-2014,22:58

Gamma Calibrator Number	GRC-72	
Mud Density	1.23	gm/cc
Caliper Source for Processing	Density Caliper	
Tool Position	Eccentred	
Concentration of KCl		kppm
K Mud Type	Chloride	
K Mud Concentration	0.00	%

Caliper Calibration MPD-B 167

Base Calibration on 20-FEB-2014 18:54

Field Calibration on 27-FEB-2014 22:08

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	15254	3.98
2	24975	5.96
3	34446	7.97
4	43974	9.84
5	55264	11.91
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
8.01	7.97

Photo Density Calibration MPD-B 167

Base Calibration on 07-FEB-2014 11:14

Field Check on 27-FEB-2014 22:00

Density Calibration

Density Calibration		Measured		Calibrated (sdu)	
Base Calibration		Near	Far	Near	Far
Background		1168	1629		
Reference 1		53830	25675	59814	31141
Reference 2		21701	2782	24943	2546

Field Check at Base
1167.7 1629.3

Field Check
1169.1 1633.0

PE Calibration		Measured		Calibrated
Base Calibration		WH	Ratio	Ratio
Background		213	1041	
Reference 1		20627	53640	0.388
Reference 2		5923	21567	0.278

Field Check at Base
212.7 1040.8

Field Check
212.9 1051.8

Density Constants MPD-B 167

Last Edited on 27-FEB-2014,22:59

Density Source Id	P50561B
Nylon Calibrator Number	DNCE687
Aluminium Calibrator Number	DACD696
Density Shoe Profile	8 inch
Caliper Source for Processing	Density Caliper
PE Correction to Density	Not Applied
Mud Density	1.23 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)
2.68	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

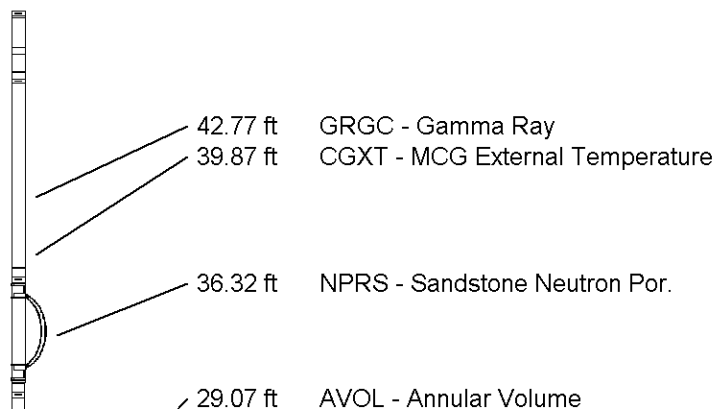
C:\LOGS\Ursa\BAT 23CWI-24-017-96\MAIN PASS.dta

SHA-H Compact Swivel Head Adaptor
SHA-H 143 LG: 2.30 ft WT: 22.0 lb OD: 2.244 in

Compact Comms Gamma
MCG-D.A 223 LG: 8.70 ft WT: 63.9 lb OD: 2.244 in

Compact Neutron
MDN-B.A 215 LG: 5.04 ft WT: 50.7 lb OD: 2.244 in

Compact Density/Caliper



MPD-B 167 LG: 9.59 ft WT: 90.4 lb OD: 2.449 in

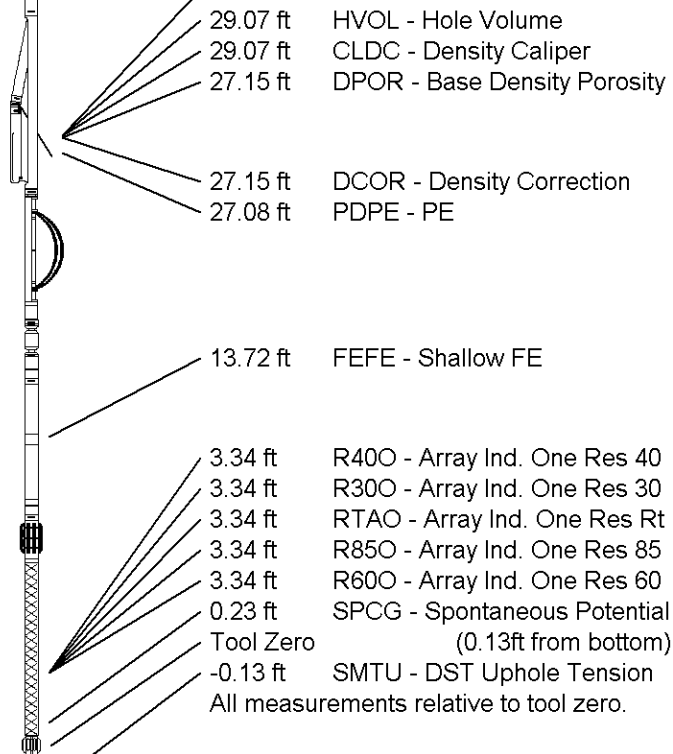
MIS-A.A Compact Inline Bowspring sub
MIS-A.A 70 LG: 5.70 ft WT: 33.1 lb OD: 2.244 in

SKJ-D.A Compact Knuckle Joint
SKJ-D.A 88 LG: 2.17 ft WT: 24.3 lb OD: 2.244 in

Compact Focussed Electric
MFE-A.A 136 LG: 6.05 ft WT: 48.5 lb OD: 2.244 in

Compact Induction
MAI-B.A 269 LG: 10.81 ft WT: 48.5 lb OD: 2.240 in

Total Length: 50.36 ft Weight: 381.4 lb



COMPANY	URSA OPERATING COMPANY LLC.
WELL	BAT 23CWI-24-07-96
FIELD	WILDCAT
PROVINCE/COUNTY	GARFIELD
COUNTRY/STATE	U.S.A. / COLORADO

Elevation Kelly Bushing	5199.00	feet	First Reading	6409.00	feet
Elevation Drill Floor	5199.00	feet	Depth Driller	6450.00	feet
Elevation Ground Level	5183.00	feet	Depth Logger	6436.00	feet



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COMPENSATED PHOTO DENSITY
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LOG