



Weatherford

COMBINED LOG
MDL-MGS-MDN-MPD
SCALE 5":100

COMPANY

SAVIA PERU S.A

WELL

LOG-33D

FIELD

LOBITOS OFFSHORE

PROVINCE/COUNTY

PIURA

COUNTRY/STATE

PERU

LOCATION

N: 9°50'8.652.99 m
E: 459,049.25 m

Latitude
Longitude

Other Services

Permanent Datum SEA LVL, Elevation 335 feet

Log Measured From DF

Drilling Measured From DF

Elevations:
KB 385.00
DF 385.00
GL 335.00

Date 04-AUG-2013

Run Number 1

Service Order 834

Depth Driller 8150.00 feet

Depth Logger 8128.25 feet

First Reading 8101.25 feet

Last Reading 5708.00 feet

Casing Driller 5707.00 feet

Casing Logger 5708.00 feet

Bit Size 8.500 inches

Hole Fluid Type WBAC

Density / Viscosity 11.50 lb/USg 48.00 Sec/qt

PH / Fluid Loss 9.40 5.00 ml/30Min

Sample Source ACTIVE PIT

Rm @ Measured Temp 0.81 @ 75.0 ohm-m

Rmf @ Measured Temp 0.622 @ 75.0 ohm-m

Rmc @ Measured Temp 1.481 @ 75.0 ohm-m

Source Rmf / Rmc PRESS

Rm @ BHT 1.092 @103.0 ohm-m

Time Since Circulation 1 HOUR

Max Recorded Temp 103.00 deg F

Equipment / Base 2 TALARA

Recorded By J. GUERRERO

Witnessed By A. ORTEGA

E. ROLDAN

REMARKS

- Objective: To obtain accurate open hole Gamma Ray, Neutron, Caliper, Resistivity Log (Dual Laterolog) in Compact Well Shuttle - Messenger Conveyance.
- Maximum recorded temperature 103 degF recorded.
- Fluid resistivity measurements during logging operation: Rmf= 0.622 @ 70deg F, Rm=0.807@ 70Deg F, Rmc=1.481@ 70degF.
- This is a deviated well with a maximum deviation of 65.30 degrees @ 2814.00 ft.
- Well sketch per driller's depth.
- Bottom not tagged due to nature of the conveyance. Maximum depth recorded in Log header (8128.25ft) is the maximum depth reached by the induction tool in the run.
- Logging speed below 30 ft/min (following operational procedure).
- Main Section from 8128.25ft to 5708 ft, as requested.
- No Repeat Section performed due to deployment method used in the job.
- Resistivity curves (Dual laterolog) presented in this log are not corrected for borehole conditions.
- Neutron log is corrected by temperature and borehole size by the density caliper.
- Density log is corrected for mud density and borehole size by density caliper. Matrix used: 2,68 g/cc
- Calculated Volumes and caliper averages from 8128.25ft to 5708 ft, for a future 7.0 O.D casing:
Hole Volume= 1235 FT 3
Annular Volume = 605 FT 3
Caliper Average = 9.76 in.
- Flow test were done at the following depths: 200ft, 2000ft, 4000ft ,5500ft, 6500ft, 7500ft, 7975ft.

Crew at your service

J. Guerrero, A. Baca, H. Quezada, J. Escobar, E. Roldan

BOREHOLE RECORD

Last Edited: 06-AUG-2013 08:59

Bit Size
inches

17.000

Depth From
feet

0.00

Depth To
feet

1224.00

17.000	0.00	1224.00
12.250	1224.00	5707.00
8.500	5707.00	8150.00

CASING RECORD				
Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	13.375	0.00	1224.00	48.00
CASING	9.625	0.00	5707.00	43.00

WELL DIAGRAM

13.38 in Casing: 0.00 ft

9.63 in Casing: 0.00 ft

17.00 in Bit size: 0.00 - 1224.00 ft

13.38 in Casing shoe: 1224.00 ft

12.25 in Bit size: 1224.00 - 5707.00 ft

9.63 in Casing shoe: 5707.00 ft

8.50 in Bit size: 5707.00 - 8150.00 ft

Total bit depth: 8150.00 ft

Temperature: 103.00 Degrees F

DOWNHOLE EQUIPMENT

D:\LOGS\PERU\TALARA\LO6-33D-CWS\merge-PROCESS-lo6-33d2.dta

Shuttle Running Tool 3.5"

SRT-A.A 31 LG: 6.62 ft WT: 37.5 lb OD: 2.52 in

SKJ-E.B Compact Knuckle Joint

SKJ-E.B 507 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

MBS-F.A 200v Compact Battery Sub

MBS-F.A 116 LG: 17.06 ft WT: 123.5 lb OD: 2.24 in

Compact Memory Sub E.B

MMS-E.B 148 LG: 5.20 ft WT: 37.5 lb OD: 2.24 in

MIS-E.B Compact Inline Standoff sub

MIS-E.B 640 LG: 2.14 ft WT: 15.4 lb OD: 2.24 in

Compact Stiff Bridle Electrode Sub.

MBE-C.B 261 LG: 12.33 ft WT: 77.2 lb OD: 2.28 in

Compact Stiff Bridle Electrode Sub.

Compact Stiff Bridle Electrode Sub.
MBE-C.B 262 LG: 12.33 ft WT: 77.2 lb OD: 2.28 in

Compact Stiff Bridle Electrode Sub.
MBE-A.A 56 LG: 12.33 ft WT: 77.2 lb OD: 2.24 in

MIS-E.A Compact Inline Standoff sub
MIS-E.A 230 LG: 2.14 ft WT: 15.4 lb OD: 2.24 in

Compact Short Gamma
MGS-C.A 43 LG: 3.41 ft WT: 24.3 lb OD: 2.24 in

Compact Collar Locator
MCL-B.J 57 LG: 3.17 ft WT: 26.5 lb OD: 2.24 in

SKJ-D.A Compact Knuckle Joint
SKJ-D.A 170 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

SHA-J.B Compact Swivel Head Adaptor
SHA-J.B 486 LG: 2.30 ft WT: 22.0 lb OD: 2.24 in

MIS-D.B Compact Inline Bowspring sub
MIS-D.B 755 LG: 5.70 ft WT: 33.1 lb OD: 2.24 in

Compact Neutron
MDN-A.B 175 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in

Compact Density/Caliper
MPD-C.A 238 LG: 9.59 ft WT: 90.4 lb OD: 2.24 in

MIS-D.B Compact Inline Bowspring sub
MIS-D.B 756 LG: 5.70 ft WT: 33.1 lb OD: 2.24 in

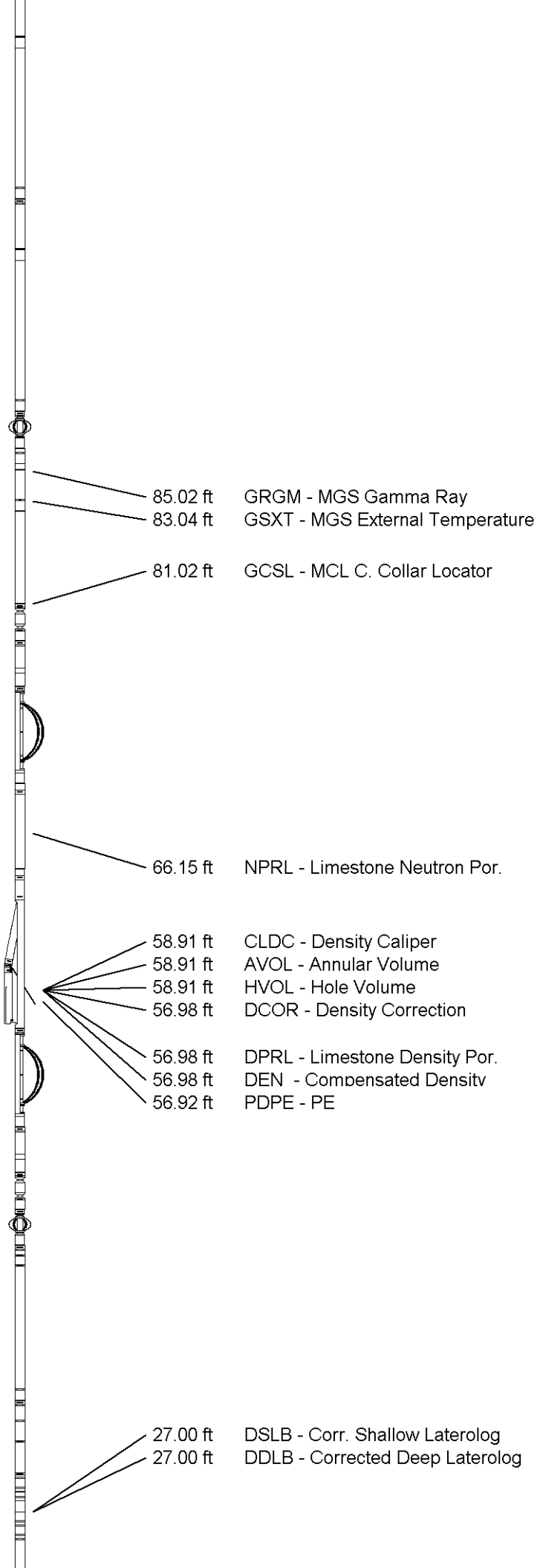
SHA-J.B Compact Swivel Head Adaptor
SHA-J.B 479 LG: 2.30 ft WT: 22.0 lb OD: 2.24 in

SKJ-D.A Compact Knuckle Joint
SKJ-D.A 177 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

MIS-E.B Compact Inline Standoff sub
MIS-E.B 641 LG: 2.14 ft WT: 15.4 lb OD: 2.24 in

Compact Upper Guard sub
MUG-B.B 260 LG: 8.98 ft WT: 68.3 lb OD: 2.24 in

Compact Laterolog Electrode Sub.
MLE-D.A 228 LG: 12.34 ft WT: 92.6 lb OD: 2.24 in

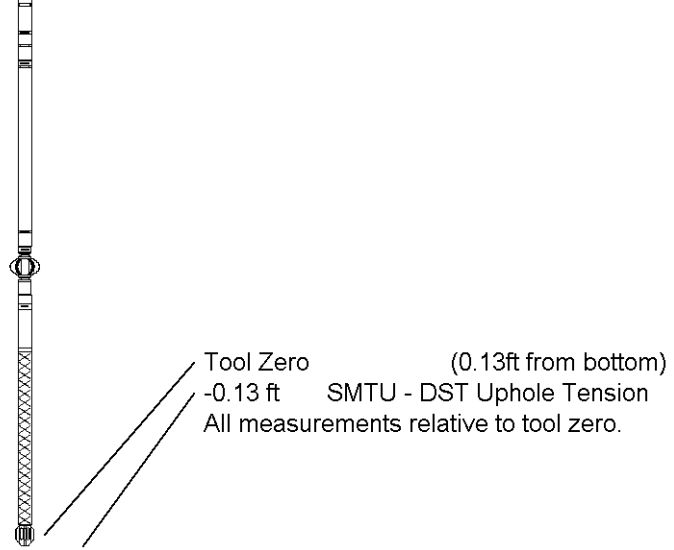


Compact Lower Guard Sub.
MLG-B.B 257 LG: 8.00 ft WT: 55.1 lb OD: 2.24 in

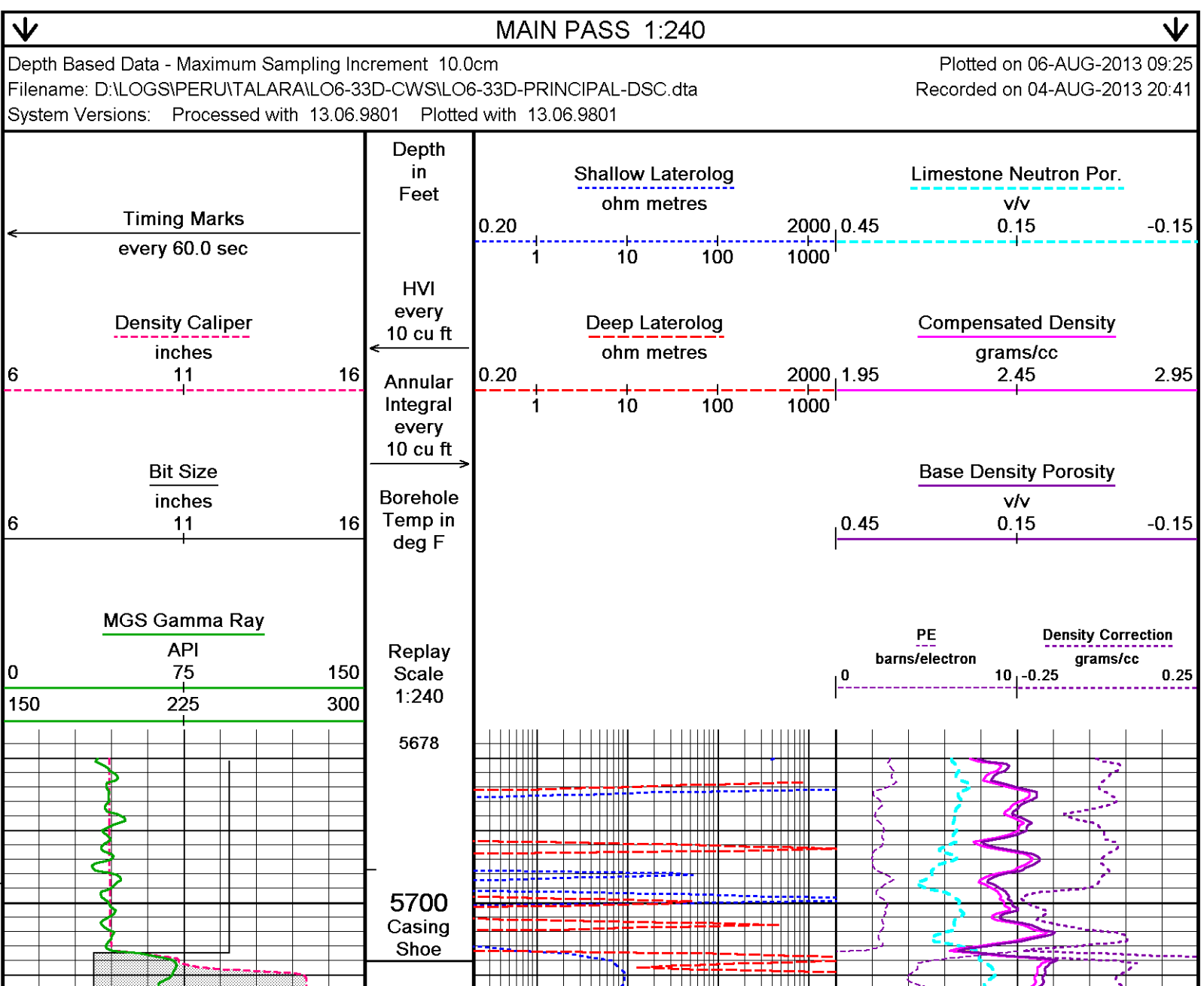
MIS-E.A Compact Inline Standoff sub
MIS-E.A 152 LG: 2.14 ft WT: 15.4 lb OD: 2.24 in

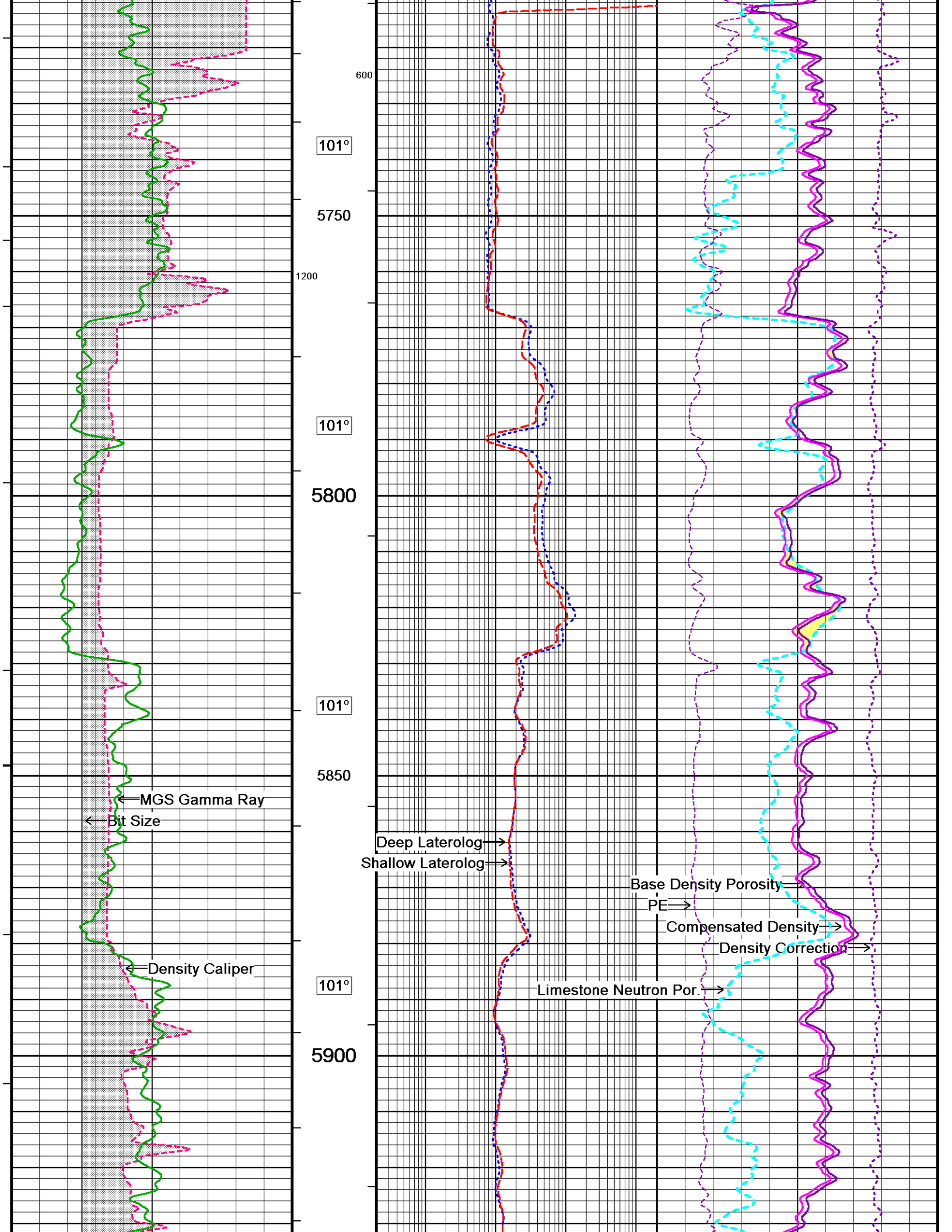
Compact Induction
MAI-B.A 223 LG: 10.81 ft WT: 48.5 lb OD: 2.24 in

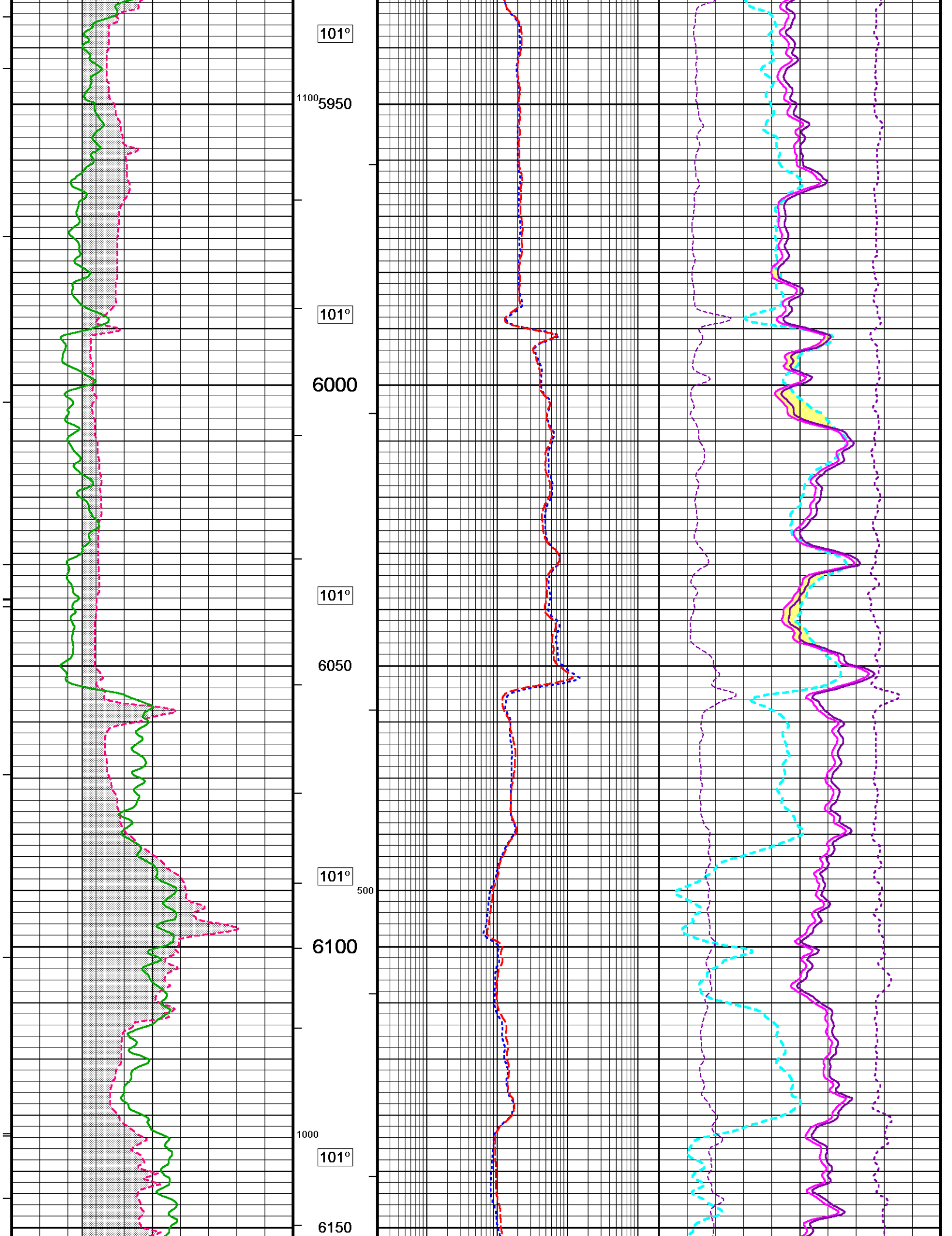
Total Length: 158.25 ft Weight: 1131.0 lb

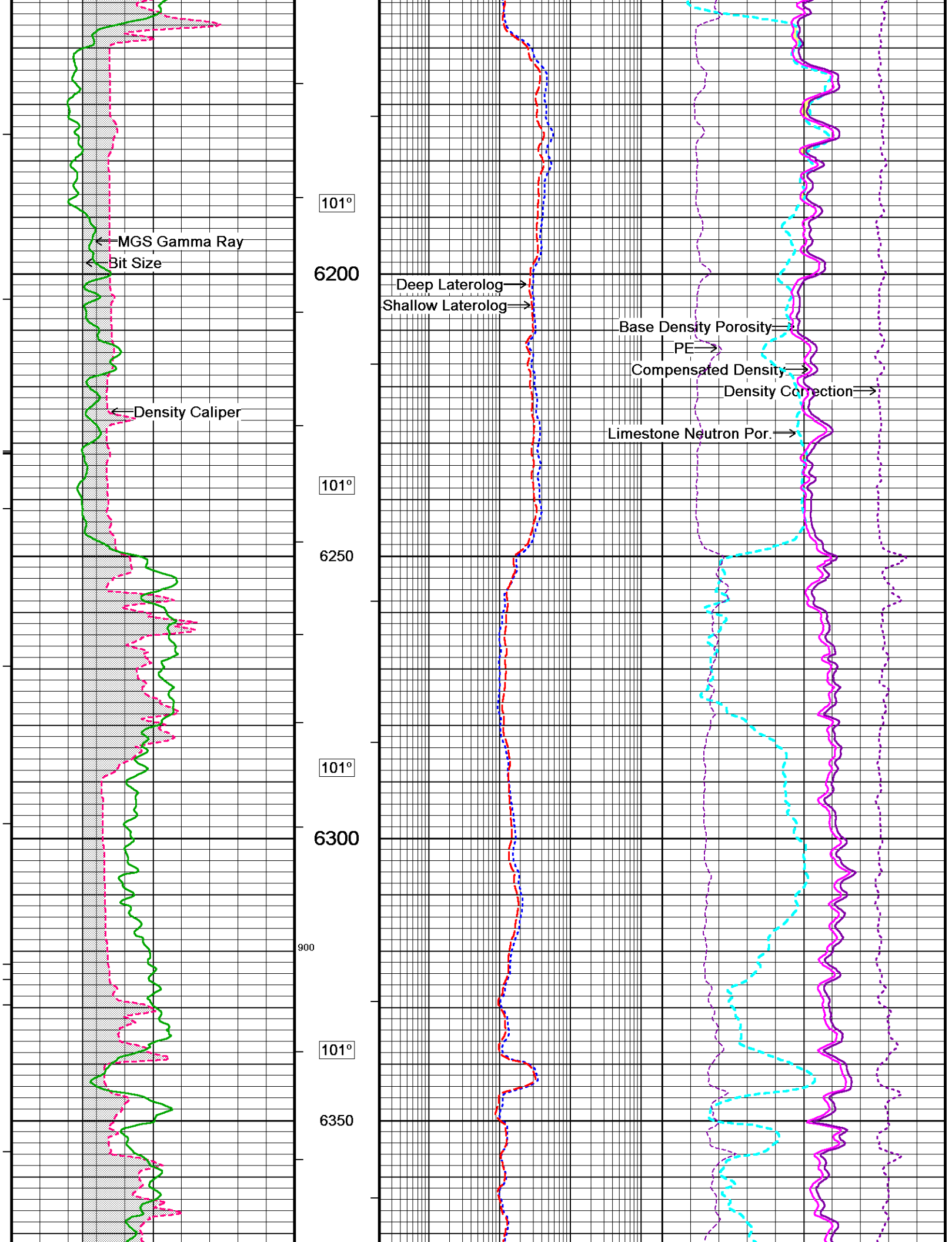


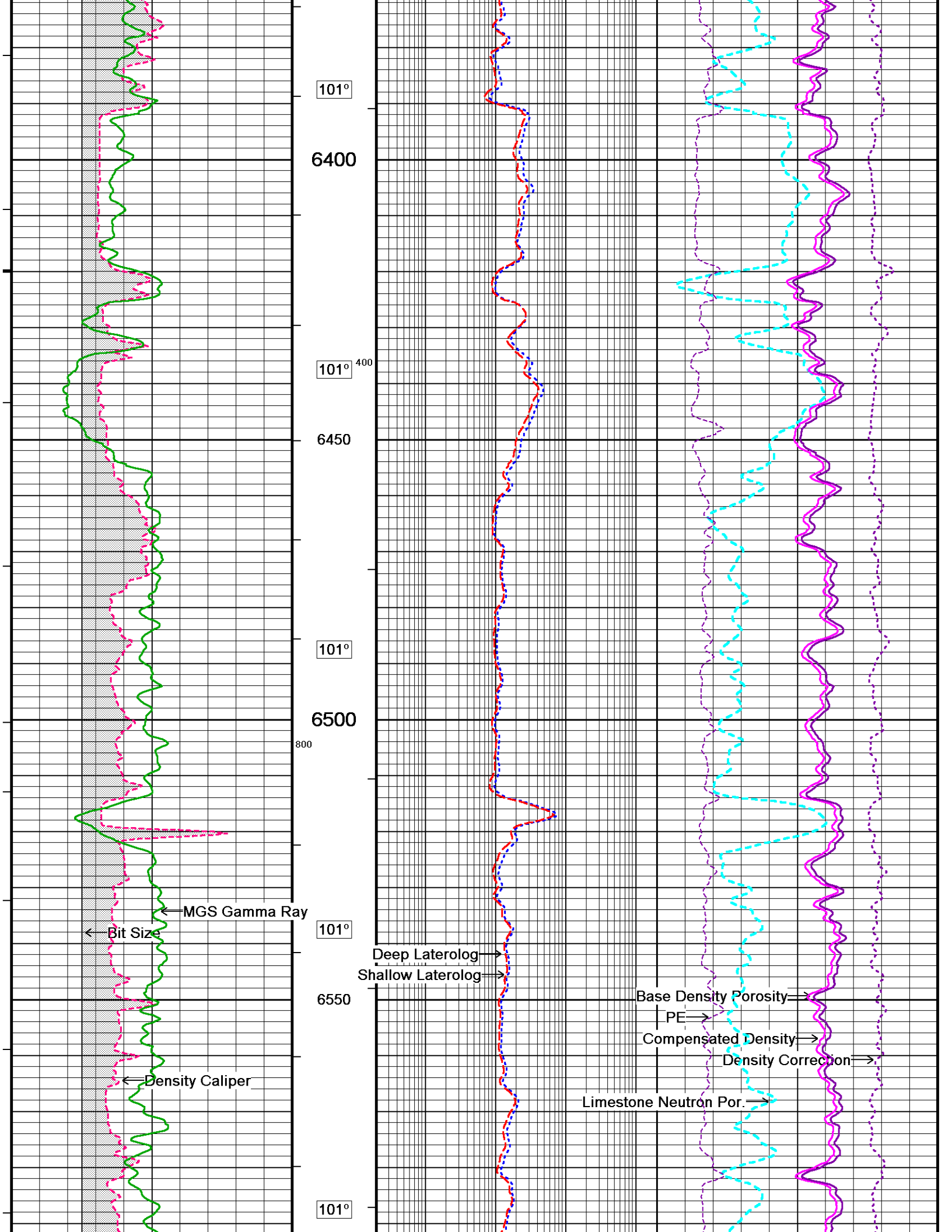
All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not, guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or wilful negligence on our part, be liable or responsible for any loss, costs, damages or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to our general terms and conditions in our price schedule.

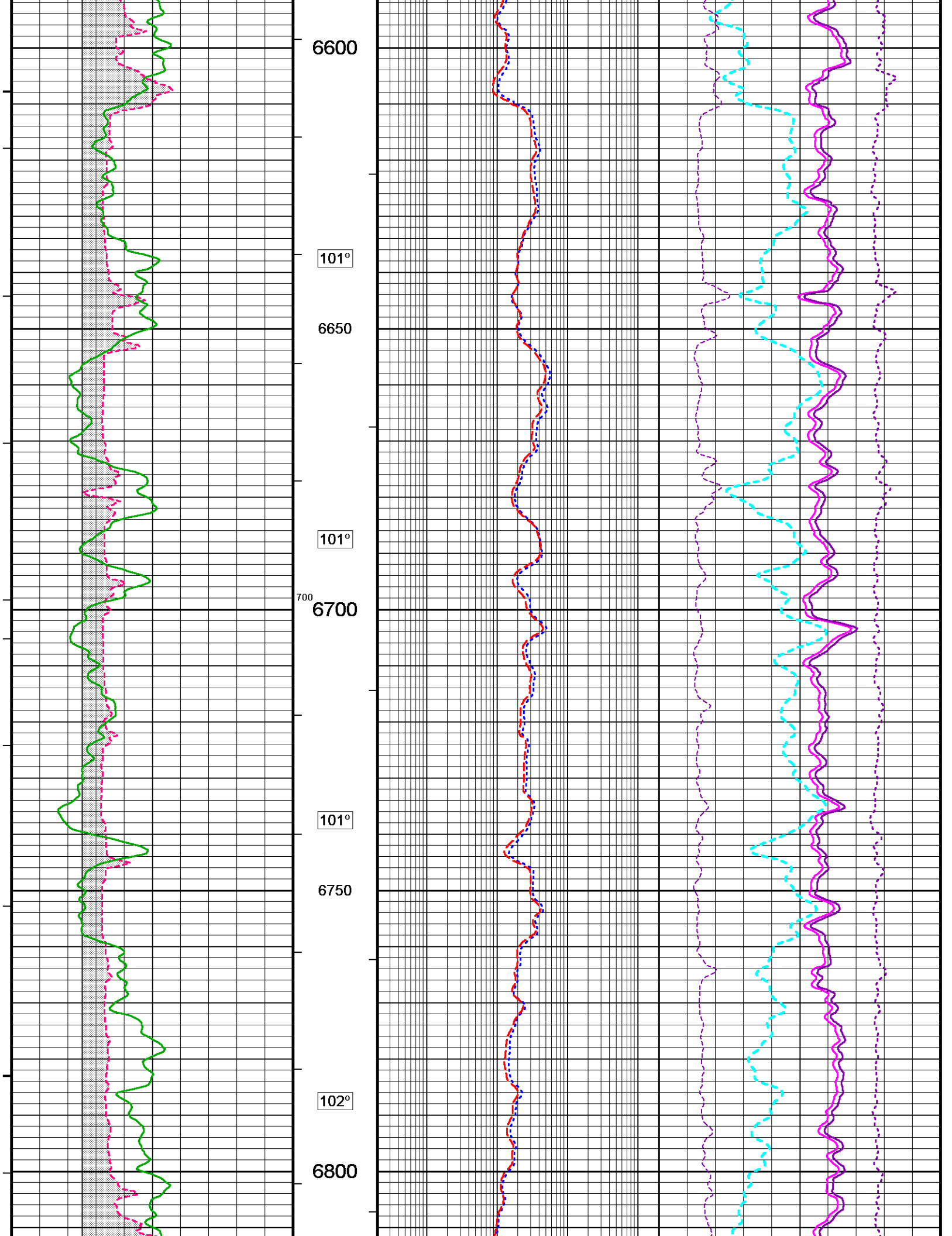


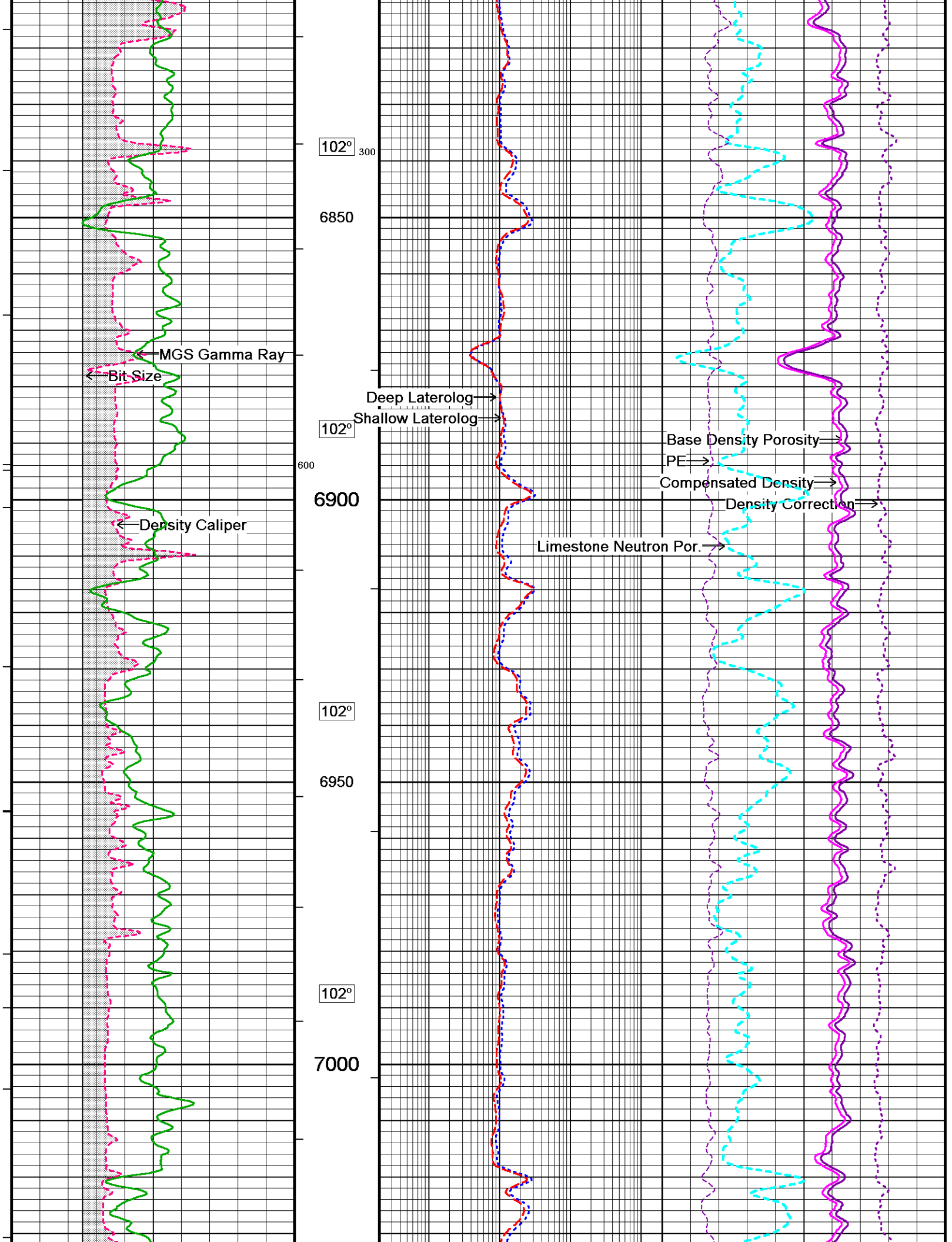


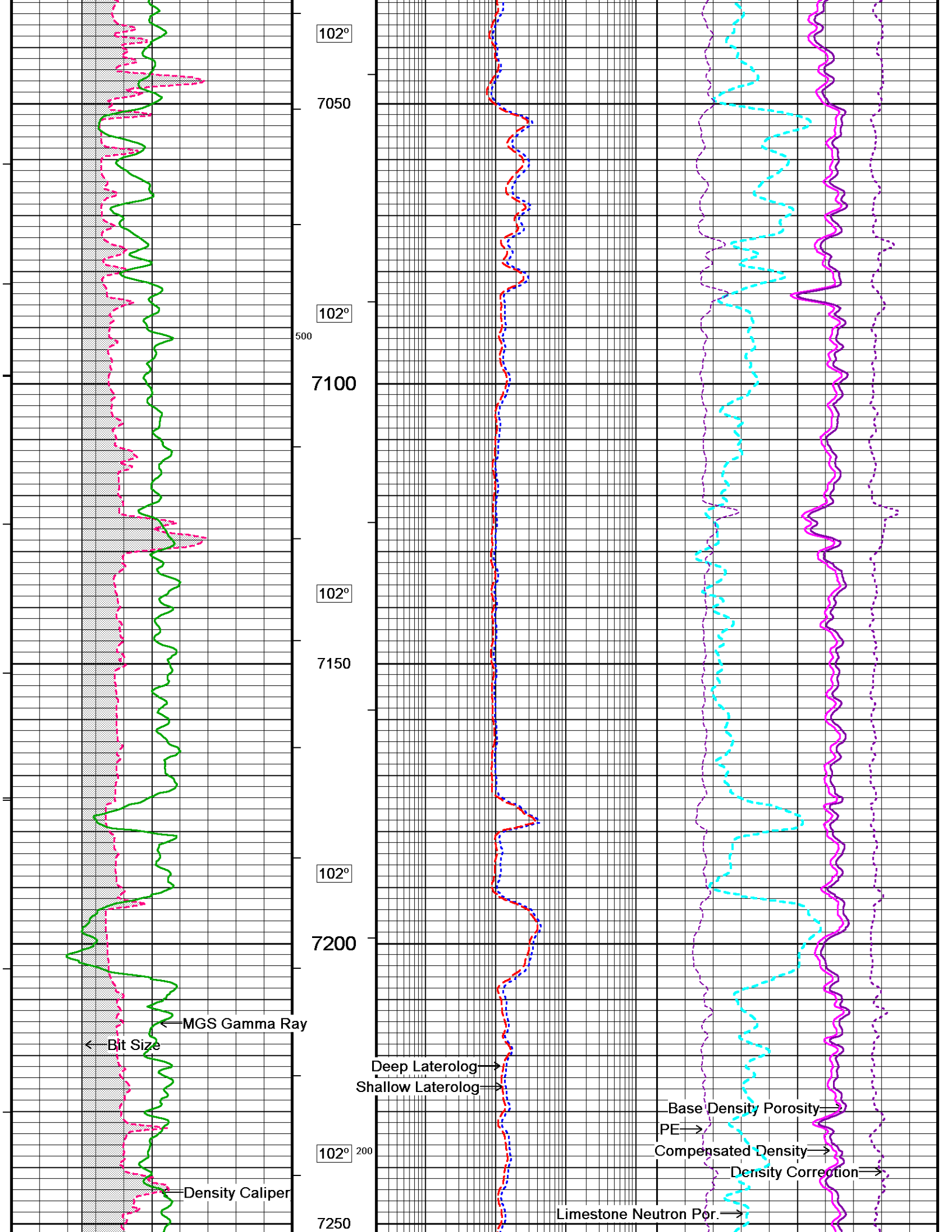


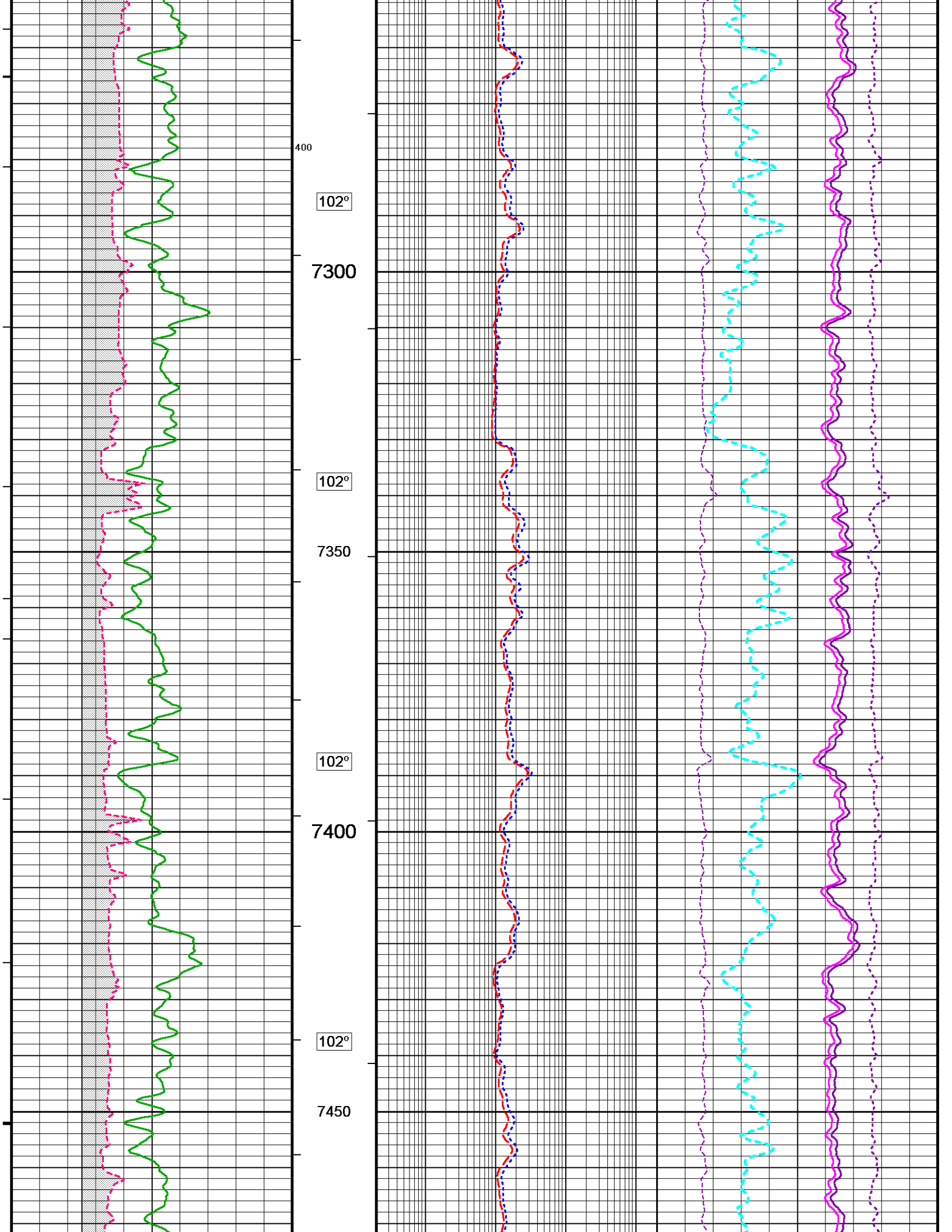


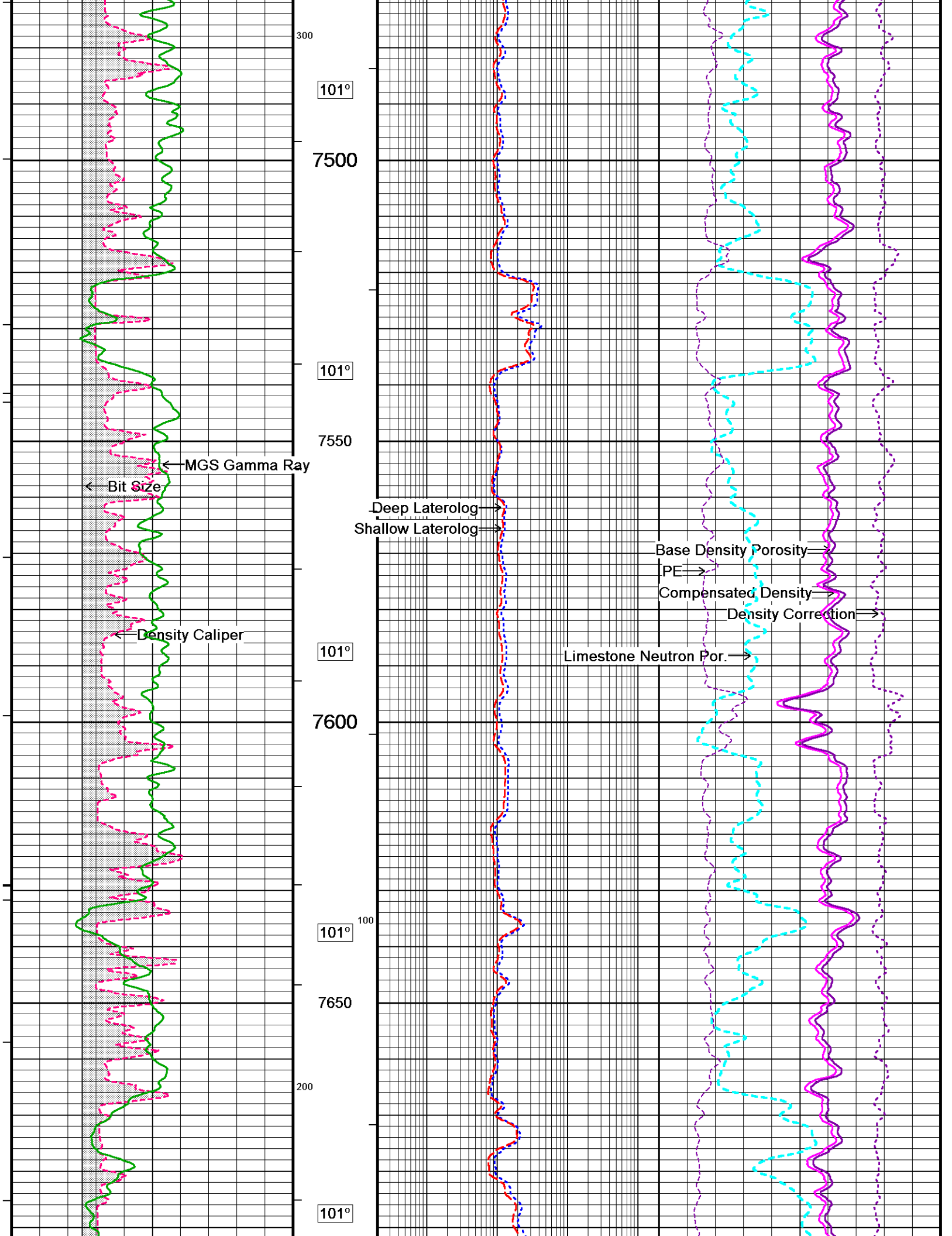


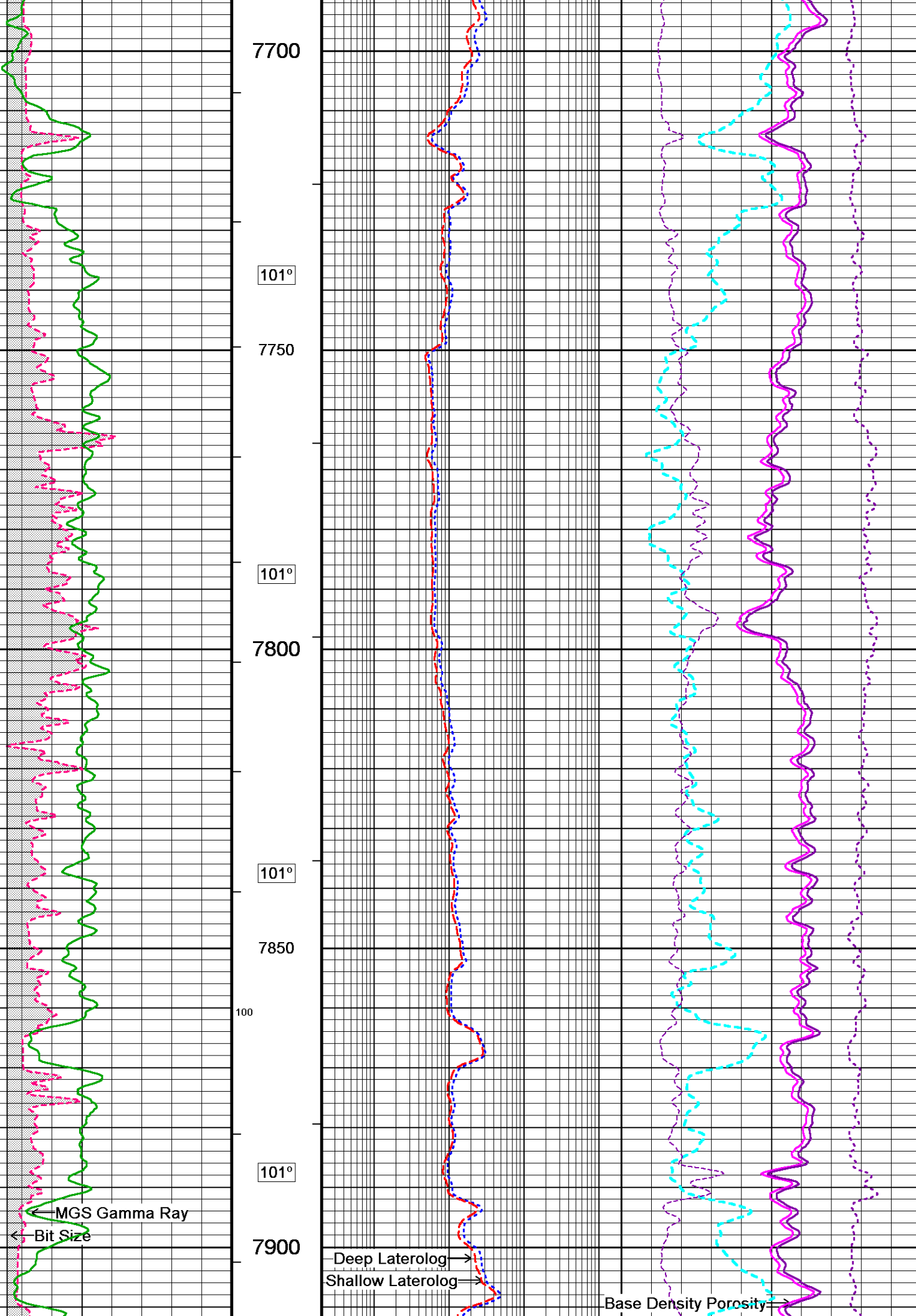


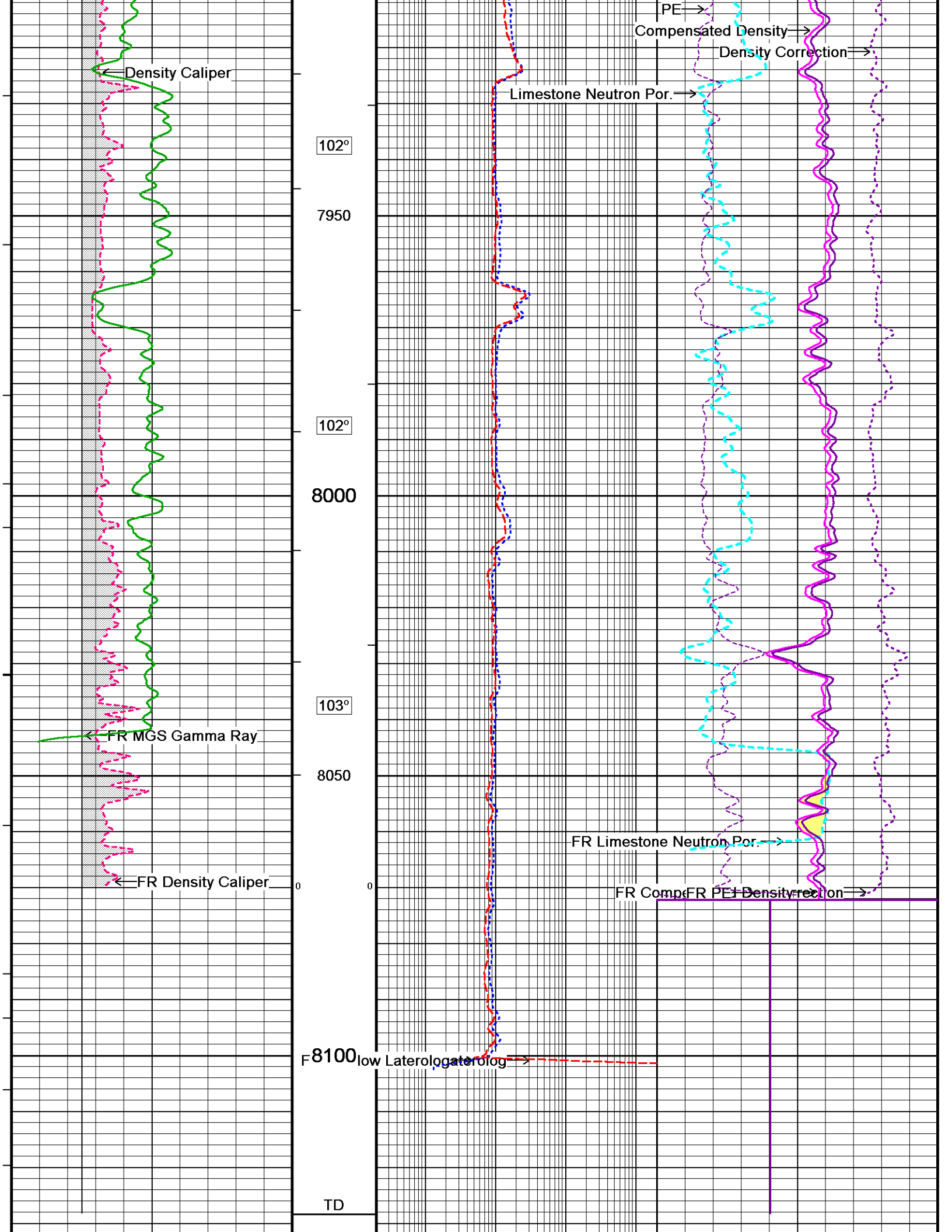


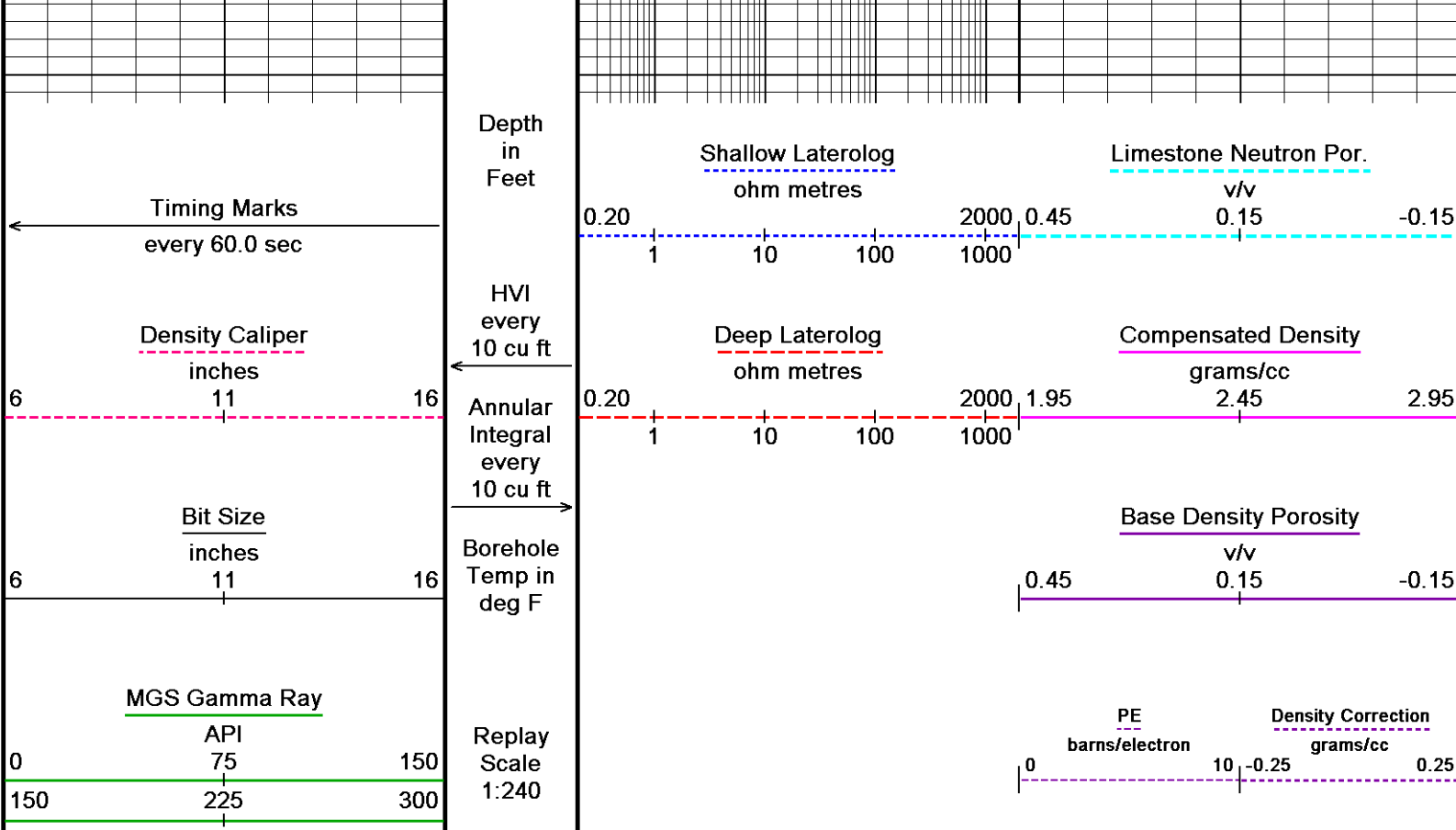












Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 06-AUG-2013 09:25
 Filename: D:\LOGS\PERUITALARA\LO6-33D-CWS\LO6-33D-PRINCIPAL-DSC.dta Recorded on 04-AUG-2013 20:41
 System Versions: Processed with 13.06.9801 Plotted with 13.06.9801

↑ MAIN PASS 1:240 ↑

BEFORE SURVEY CALIBRATION

D:\LOGS\PERUITALARA\LO6-33D-CWS\merge-PROCESS-lo6-33d2.dta

General Constants All 000

Last Edited on 04-AUG-2013,22:15

General Parameters

Mud Resistivity	0.810	ohm-metres
Mud Resistivity Temperature	75.000	degrees F
Water Level	0.000	feet
Borehole Fluid Processing	Wet Hole	

Hole/Annular Volume and Differential Caliper Parameters

HVOL Method	Single Caliper	
HVOL Caliper 1	Density Caliper	
HVOL Caliper 2	N/A	
Annular Volume Diameter	7.000	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
SW/APOR Tool Source	0.000

MMS Parameters MMS-E.B 148

Last Edited on 04-AUG-2013 00:08

Logging Parameters

Firmware Version	2v40	
Caliper Open On	MAI	
Caliper Open Delay		minutes
Caliper Closed On	Unknown	
Caliper Closed Delay	N/A	minutes

Caliper Closed Delay	N/A	minutes
Sample Rate	1.00	seconds
Use Deep Sleep	Yes	
Delay Deep Sleep	No	
Deep Sleep Wake Time	420.0	minutes
Deep Sleep Wake on Temperature	No	
Deep Sleep Wake Temperature	N/A	degrees C
Deep Sleep Wake on Pressure	No	
Deep Sleep Wake Pressure	N/A	psi
MMI Pad Pressure	0.0	

Release Parameters

Pulse Duration Base Level	10.0	seconds
Pulse Duration Transition Time	20.0	seconds
Pulse Duration Status Pulse From	10.0	seconds
Pulse Duration Caliper Close From	60.0	seconds
Pulse Duration Caliper Open From	65.0	seconds
Pulse Duration Release Pulse From	90.0	seconds
Pulse Duration Release Pulse To	120.0	seconds
Pulse Release Duration	80.0	seconds
Pulse Discriminator Pressure Band	214.0	seconds
Pulse Pressure Discriminator	436.0	seconds
Use Negative Pulsing	No	
Good Status Reply Open Hole	65535.0	seconds
Good Status Reply Cased Hole	40.0	seconds
Bad Status Reply	60.0	seconds
Status Pulse To	30.0	seconds
Caliper Close To		seconds
Caliper Open To	85.0	seconds

Configuration

MMS,MGS,MDN,MPD,MPD,MLE,MAI

High Resolution Temperature Calibration MGS-C.A 43

Field Calibration on 03-AUG-2013,22:01

	Measured	Calibrated(Deg F)
Lower	10.00	10.00
Upper	200.00	200.00

High Resolution Temperature Constants MGS-C.A 43

Last Edited on 04-AUG-2013,22:15

Pre-filter Length 11

Gamma Calibration MGS-C.A 43

Field Calibration on 03-AUG-2013 22:11

	Measured	Calibrated (API)
Background	19	12
Calibrator (Gross)	843	543
Calibrator (Net)	824	531

Gamma Constants MGS-C.A 43

Last Edited on 04-AUG-2013,22:15

Gamma Calibrator Number	140	
Mud Density	1.37	gm/cc
Caliper Source for Processing	Density Caliper	
Tool Position	Eccentred	
Concentration of KCl		kppm
K Mud Type	Chloride	
K Mud Concentration	0.00	%

Neutron Calibration MDN-A.B 175

Base Calibration on 21-JUL-2013 14:22

Field Check on 03-AUG-2013 22:00

Base Calibration

	Measured		Calibrated (cps)	
	Near	Far	Near	Far
	3028	94	3714	110
Ratio	32.189		33.764	

Field Calibrator at Base

	Calibrated (cps)	
	2215	3213
Ratio	0.689	

Field Check	Calibrated (cps)	
	2216	3230
Ratio	0.681	

Neutron Constants MDN-A.B 175			Last Edited on 04-AUG-2013,22:15		
Neutron Source Id	P31121B				
Neutron Jig Number	NJ5727				
Epithermal Neutron	No				
Caliper Source for Processing	Density Caliper				
Stand-off	0.00	inches			
Mud Density	1.37	gm/cc			
Limestone Sigma	7.10	cu			
Sandstone Sigma	4.26	cu			
Dolomite Sigma	4.70	cu			
Formation Pressure Source	Constant Value				
Formation Pressure	0.00	kpsi			
Temperature Source	MGS External Temperature				
Temperature	N/A	degrees F			
Mud Salinity	0.00	kppm			
Salinity Correction	Not Applied				
Formation Fluid Salinity Source	Constant Value				
Formation Fluid Salinity	0.00	kppm			
Barite Mud Correction	Not Applied				

Laterolog Calibration MLE-D.A 228					Base Calibration on 29-JUN-2013 11:22	
					Field Check on 03-AUG-2013 21:49	
Base Calibration						
		Measured		Calibrated (ohm-m)		
Channel	Resistor 1	Resistor 2	Resistor 1	Resistor 2		
Shallow	0.0	1009.8	0.0	1284.6		
Deep	0.0	1008.9	0.0	747.1		
Groningen	0.0	1008.4	0.0	796.8		
Channel		Base Check (ohm-m)		Field Check (ohm-m)		
Shallow		45.8		45.8		
Deep		26.6		26.6		
Groningen		227.3		227.3		

Laterolog Constants MLE-D.A 228			Last Edited on 04-AUG-2013,22:17		
Squasher Start	40000	ohm-m			
Shallow Laterolog K Factor	1.2846				
Deep Laterolog K Factor	0.7471				
Groningen Laterolog K Factor	0.7968				
Interference Rejection	50 Hz				
SP Connection	SP Bridle Electrode (Lower)				
Groningen Connection	Groningen Electrode (Upper)				
Borehole Correction Constants					
Bridle Type	Shuttle				
Stand-off	0.50	inches			
Caliper Source	Density Caliper				
Hole Size	N/A	inches			
Mud Resistivity Source	Temperature Corrected				
Temp. for Rm Corr.	MGS External Temperature				
Apparent Porosity and Water Saturation Constants					
Archie Constant (A)	1.00				
Cementation Exponent (M)	2.00				
Saturation Exponent (N)	2.00				
Saturation of Water for Apor	100.00	percent			
Resistivity of Water for Apor and Sw	0.05	ohm-m			
Resistivity of Mud Filtrate for Sw	0.00	ohm-m			
Source for Rt	0.00				
Source for Rxo	0.00				

Caliper Calibration MPD-C.A 238			Base Calibration on 26-JUL-2013 19:09 Field Calibration on 03-AUG-2013 22:17		
Base Calibration					
Reading No		Measured		Calibrator Size (in)	
1		16776		3.98	

1	10770	5.96
2	24865	7.99
3	33504	9.86
4	41564	11.93
5	50704	N/A
6	N/A	

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
8.01	7.99

Photo Density Calibration MPD-C.A 238

Base Calibration on 26-JUL-2013 18:35

Field Check on 03-AUG-2013 22:42

Density Calibration

Base Calibration

Measured

Calibrated (sdu)

Near Far Near Far

Reference 1 46248 21617 59536 30850

Reference 2 18475 2534 24833 2521

Field Check at Base

1374.9 1621.0

Field Check

1375.4 1619.2

PE Calibration

Base Calibration

Measured

Calibrated

WS WH Ratio Ratio

Background 251 1217

Reference 1 17986 46037 0.396 0.371

Reference 2 4911 18310 0.273 0.270

Field Check at Base

251.5 1217.1

Field Check

248.9 1217.2

Density Constants MPD-C.A 238

Last Edited on 04-AUG-2013,22:16

Density Source Id	P18245B
Nylon Calibrator Number	DNCE694
Aluminium Calibrator Number	DACD697
Density Shoe Profile	4 inch
Caliper Source for Processing	Density Caliper
PE Correction to Density	Not Applied
Mud Density	1.37 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

COMPANY	SAVIA PERU S.A
WELL	LO6-33D
FIELD	LOBITOS OFFSHORE
PROVINCE/COUNTY	PIURA

COUNTRY/STATE			PERU		
Elevation Kelly Bushing	385.00	feet	First Reading	8101.25	feet
Elevation Drill Floor	385.00	feet	Depth Driller	8150.00	feet
Elevation Ground Level	335.00	feet	Depth Logger	8128.25	feet
 COMBINED LOG MDL-MGS-MDN-MPD SCALE 5":100					