



Weatherford®

COMBINED LOG
MDL-MGS-MDN-MPD
SCALE 2":100

COMPANY

SAVIA PERU S.A

WELL

LO06-29D

FIELD

LOBITOS

PROVINCE/COUNTY

PIURA

COUNTRY/STATE

Peru

LOCATION

N: 9 508 656.13 m
E: 459 052.36 m

Other Services

Permanent Datum SEA LEVEL, Elevation 50.000 feet

Log Measured From KB

Drilling Measured From KB

Elevations:

KB 50.00
DF 50.00
GL -335.00

Date 17-SEPT-2013

Run Number 1

Service Order

Depth Driller

Depth Logger

First Reading

Last Reading

Casing Driller

Casing Logger

Bit Size

Hole Fluid Type

Density / Viscosity

PH / Fluid Loss

Sample Source

Rm @ Measured Temp

Rmf @ Measured Temp

Rmc @ Measured Temp

Source Rmf / Rmc

Rm @ BHT

Time Since Circulation

Max Recorded Temp

Equipment / Base

Recorded By

Witnessed By

REMARKS

1. Objective: to obtain accurate open hole Gamma Ray, 1 arm Caliper , Nuclear and Resistivity (Dual Laterolog) log in 8.5" section.
2. This is the first run on the hole and on Compact Well Shuttle - Messenger Conveyance.
3. Maximum recorded temperature measured by Gamma Ray External Temperature sensor: 137 °F.
4. Mud resistivity measurements: Rm= 0.27@ 75 °F, Rmf= 0.16 @ 75 °F, Rmc= 0.50 @ 75 °F.
5. Mud resistivity measurements at BHT: Rm= 0.18 @ 117 °F, Rmf = 0.10 @ 117 °F, Rmc= 0.33 @ 117 °F.
6. Deviated well with a maximum deviation of 62.70° @ 4031 ft MD and a maximum dogleg of 5.53 @ 1306 ft MD.
7. Well sketch as per driller's depth.
8. Bottom not tagged due to nature of the conveyance. Maximun depth recorded in Log header (8676ft) is the maximun depth reached by the induction tool in the run.
9. Logging speed below 30ft/min (following operational procedures)
10. Main section from 8676ft to 4982ft, as requested.
11. No repeat section performed due to the method used for this job.
12. Resistivities curves (Dual Laterolog) presented in this log are not corrected for borehole conditions.
13. Neutron log is corrected by temperature and borehole size by the density caliper.
14. Density log is corrected for mud density and borehole size by the density caliper.
15. Density matrix = 2.72g/cc. from TD to 7200ft (Mogollon) and 2.68g/cc from 7200ft to Casing Shoe (Rio Bravo) as per client request.
16. Hole volume= 1918 ft^3
17. Annular volume= 945 ft^3 for a casing of 7"
18. Caliper Average 9.85 in
19. Flow test were done at the following depths: 300ft, 1000ft, 2000ft, 3000ft, 4000ft, 5000ft, 6000ft, 7000ft, 8000ft, 8620ft

Crew at your service:

Y. Mendez, J. Guerrero, G. Robladillo, J. Jimenez, C. Viera.

BOREHOLE RECORD

Last Edited: 17-SEP-2013 11:40

Bit Size
inches

17.000

Depth From
feet

0.00

Depth To
feet

1994.00

17.000	0.00	1994.00
12.250	1994.00	4982.00
8.500	4982.00	8691.00

CASING RECORD

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
k55	13.380	0.00	1994.00	54.50
N80	9.625	0.00	4982.00	43.50

WELL DIAGRAM

13.38 in Casing: 0.00 ft

9.63 in Casing: 0.00 ft

17.00 in Bit size: 0.00 - 1994.00 ft

13.38 in Casing shoe: 1994.00 ft

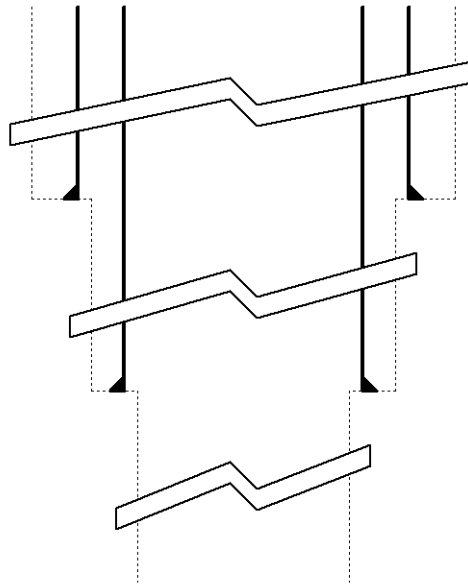
12.25 in Bit size: 1994.00 - 4982.00 ft

9.63 in Casing shoe: 4982.00 ft

8.50 in Bit size: 4982.00 - 8691.00 ft

Total bit depth: 8691.00 ft

Temperature: 117.00 Degrees F



DOWNHOLE EQUIPMENT

C:\YANINA'S INFORMATION\playing_well mgr\Savia\LO6-29D\New Folder2\Final_Data.dta

Shuttle Running Tool 3.5" (SRT A)

SRT-A 10 LG: 6.47 ft WT: 37.5 lb OD: 2.52 in

SKJ-E.A Compact Knuckle Joint

SKJ-E.A 168 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

MBS-F.A 200v Compact Battery Sub

MBS-F.A 71 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-B Compact Inline Standoff sub

MIS-B 99 LG: 2.14 ft WT: 15.4 lb OD: 2.24 in

Compact Stiff Bridle Electrode Sub.

MBE-C.B 259 LG: 12.33 ft WT: 77.2 lb OD: 2.28 in

Compact Stiff Bridle Electrode Sub.



Compact Stiff Bridge Electrode Sub.
MBE-D.A 136 LG: 12.33 ft WT: 77.2 lb OD: 2.24 in

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

MIS-B Compact Inline Standoff sub
MIS-B 98 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-E.A Compact Knuckle Joint
SKJ-E.A 171 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-A.A Compact Inline Bowspring sub
MIS-A.A 236 LG: 5.70 ft WT: 33.1 lb OD: 2.24 in

Compact Neutron
MDN-C.A 441 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in

Compact Density/Caliper
MPD-C.A 197 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

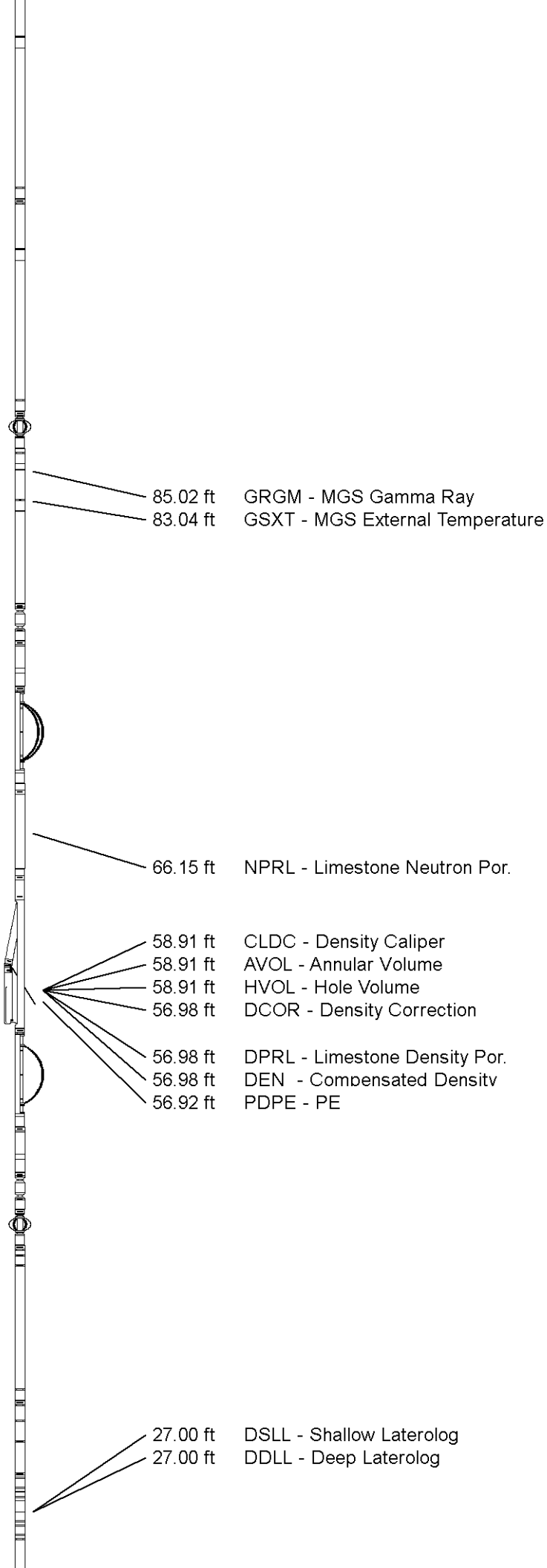
SHA-J.B Compact Swivel Head Adaptor
SHA-J.B 479 LG: 2.30 ft WT: 22.0 lb OD: 2.24 in

SKJ-E.A Compact Knuckle Joint
SKJ-E.A 180 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-B Compact Inline Standoff sub
MIS-B 307 LG: 2.14 ft WT: 15.4 lb OD: 2.24 in

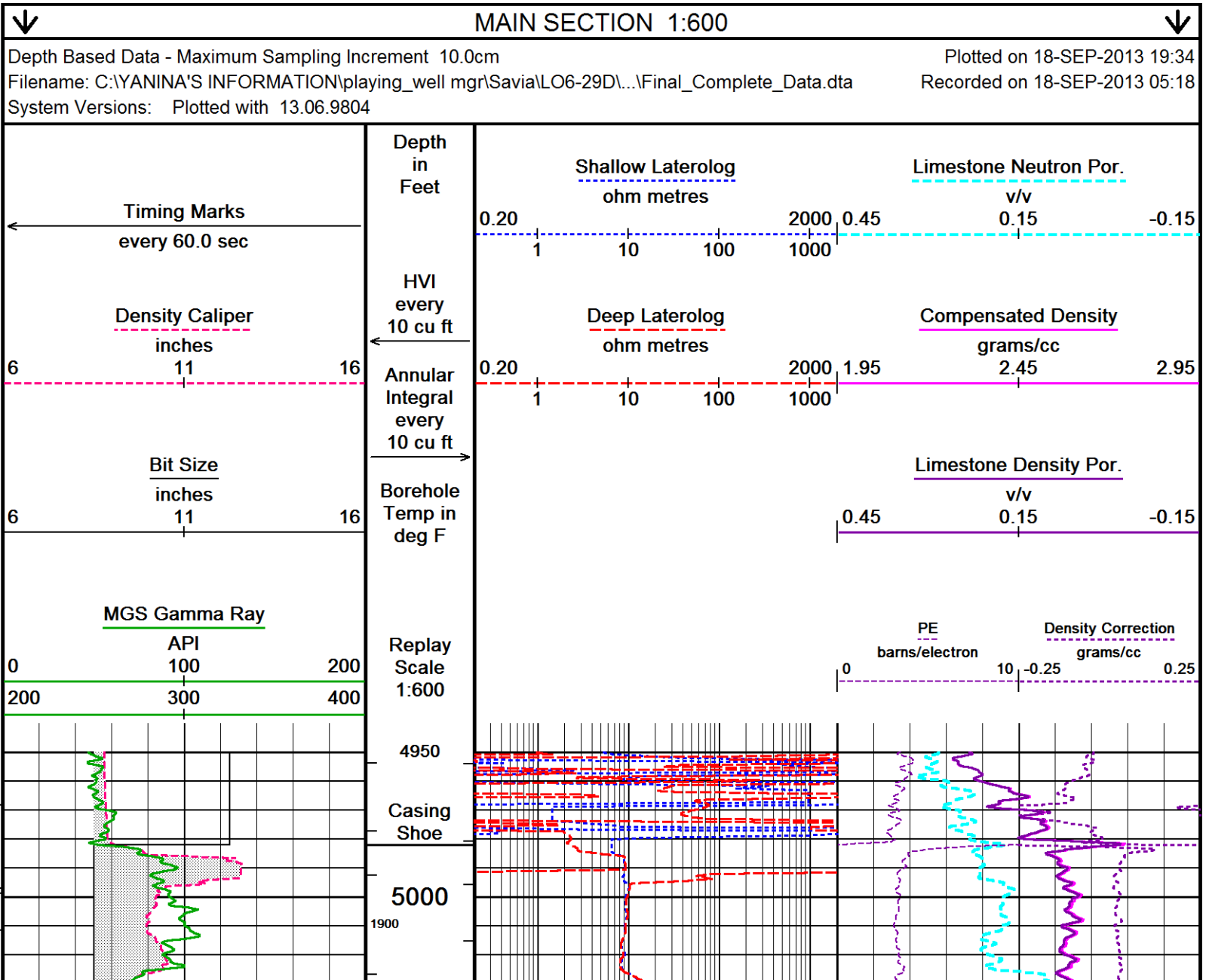
Compact Induction
MAI-B.J 367 LG: 10.81 ft WT: 48.5 lb OD: 2.24 in

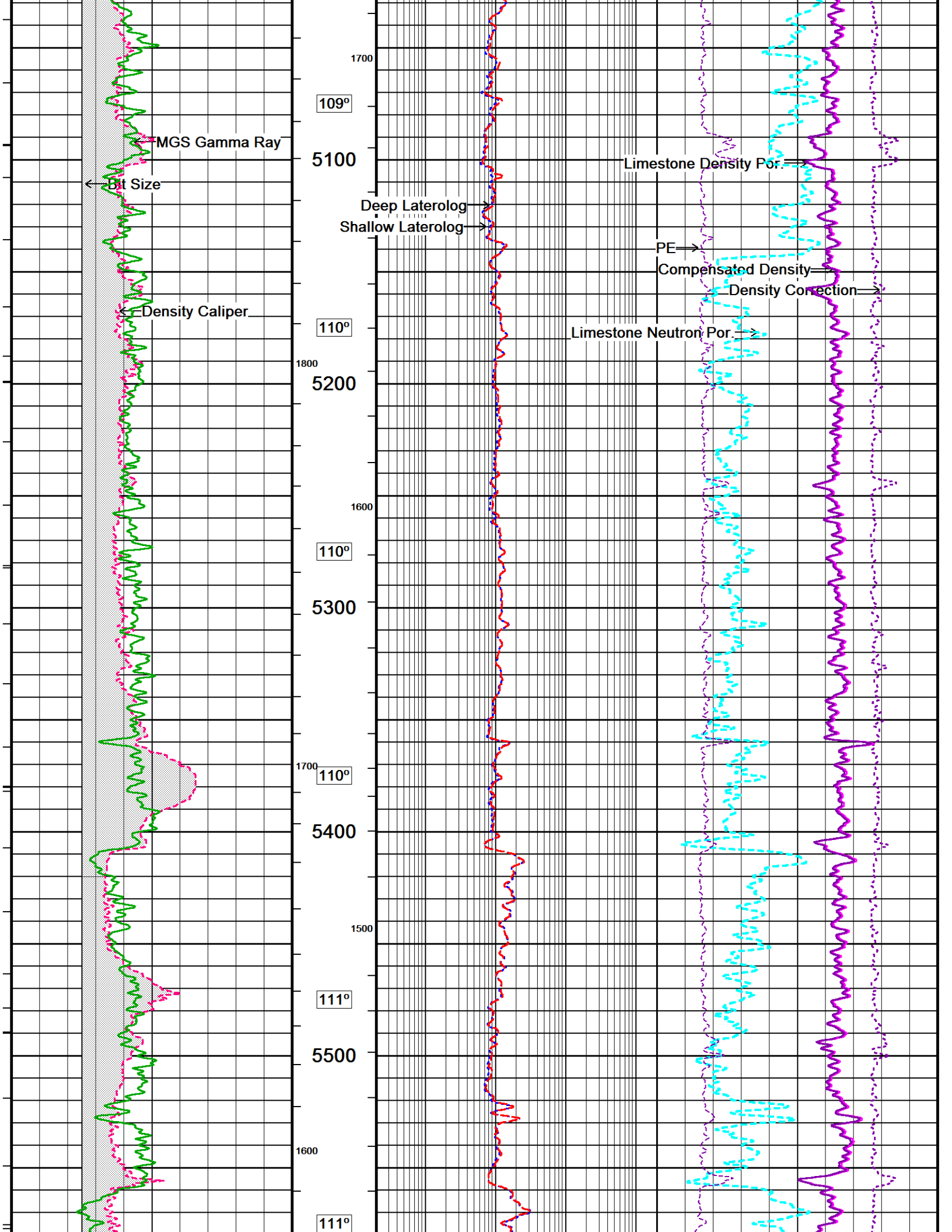
Total Length: 158.10 ft Weight: 1131.0 lb

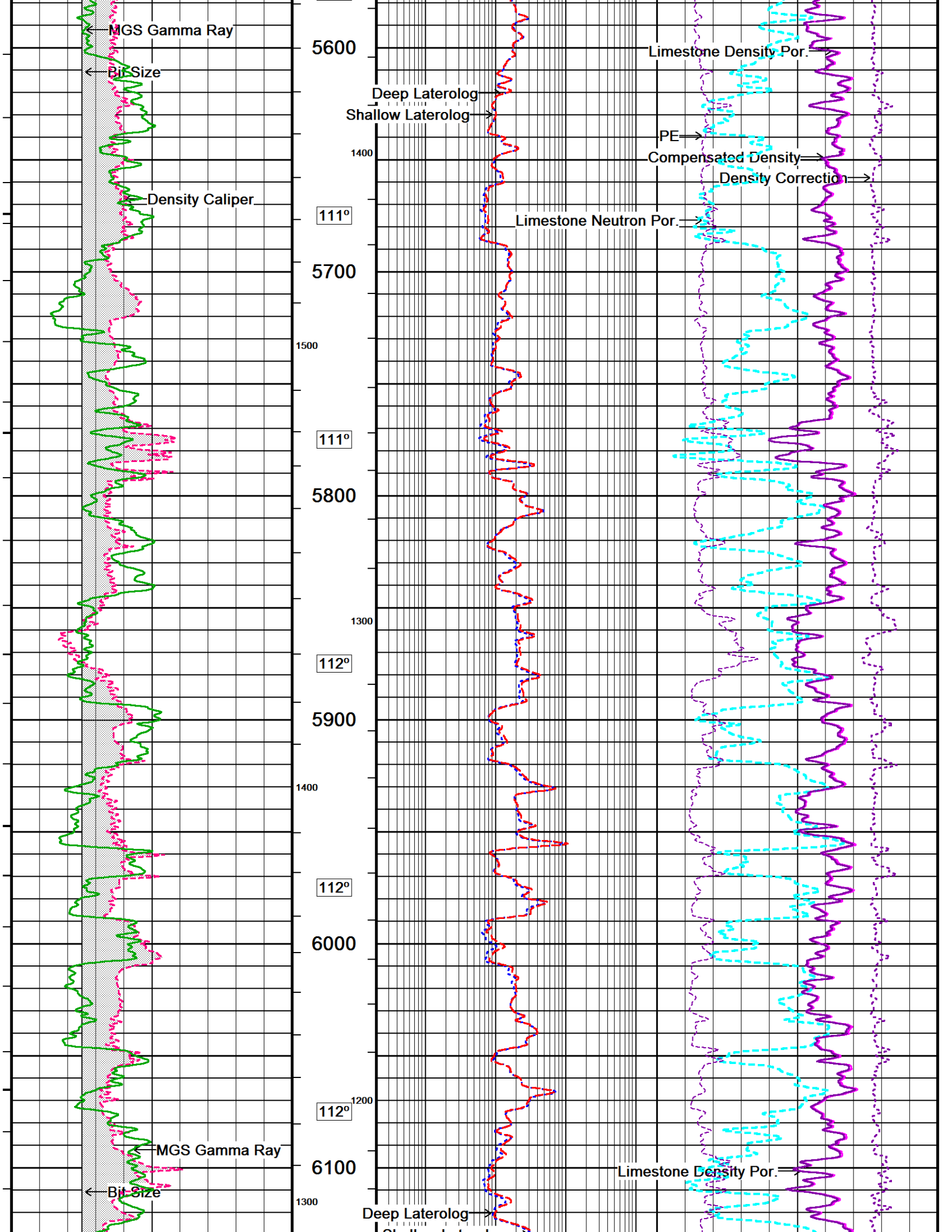


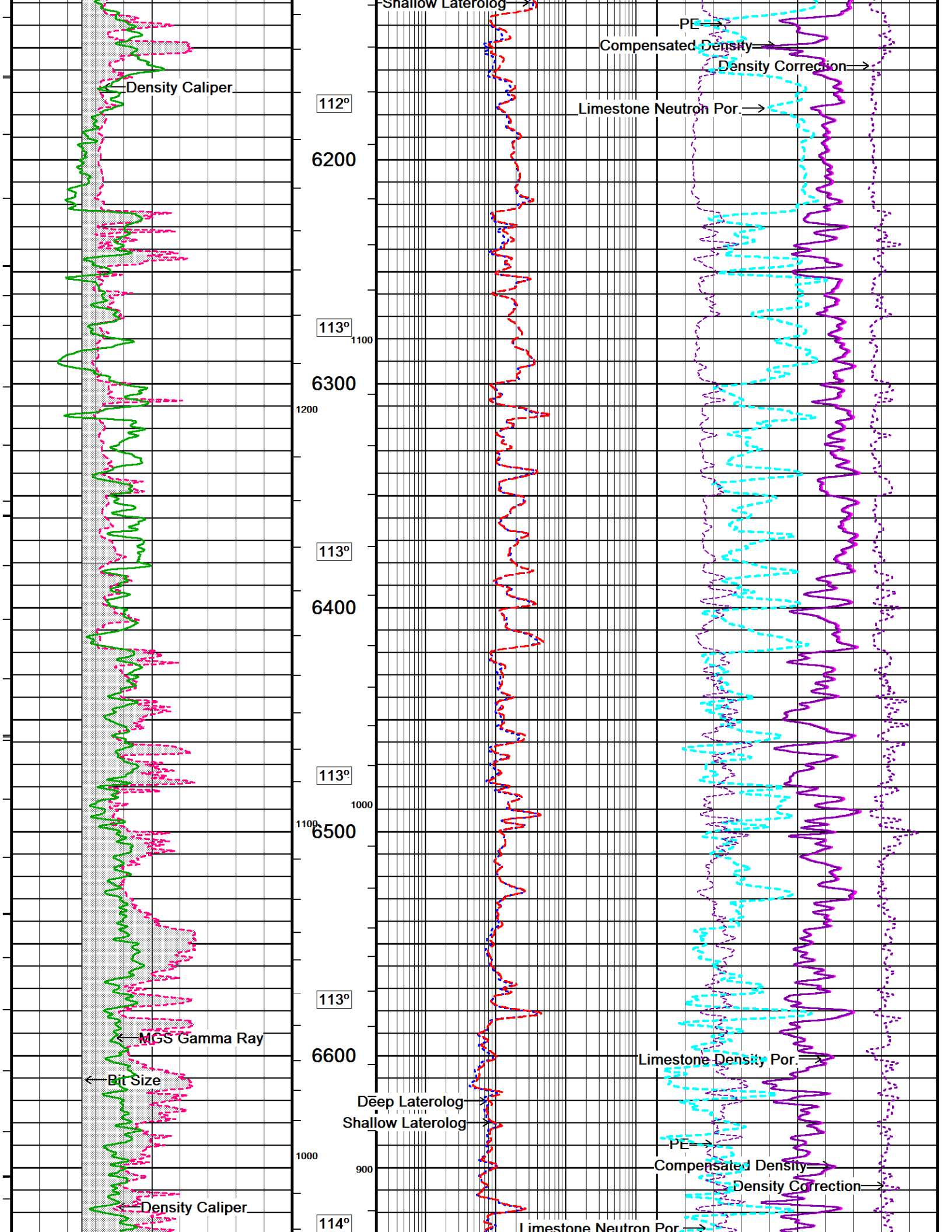
Tool Zero (0.13ft from bottom)
All measurements relative to tool zero.

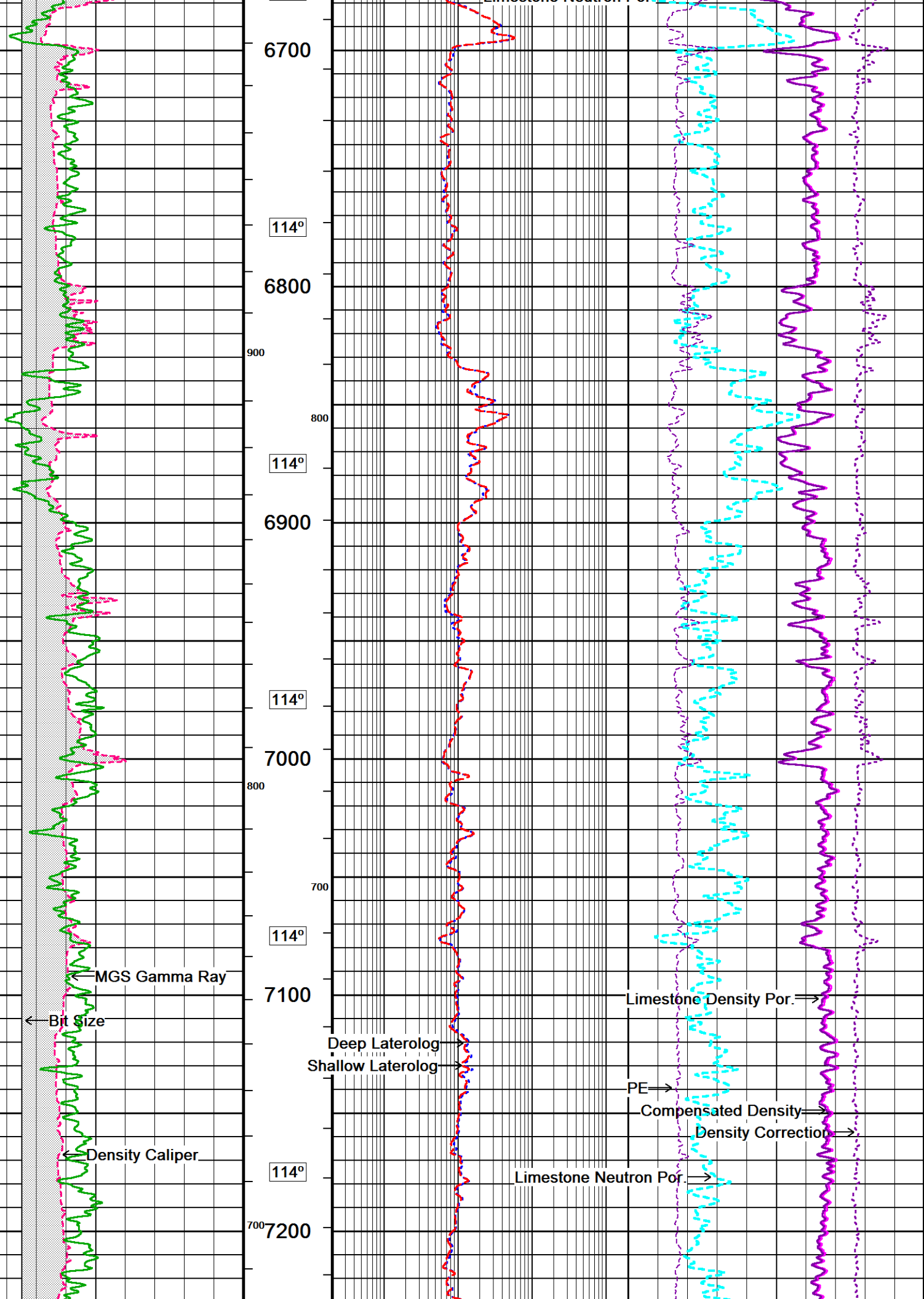
All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not, guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or wilful negligence on our part, be liable or responsible for any loss, costs, 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.

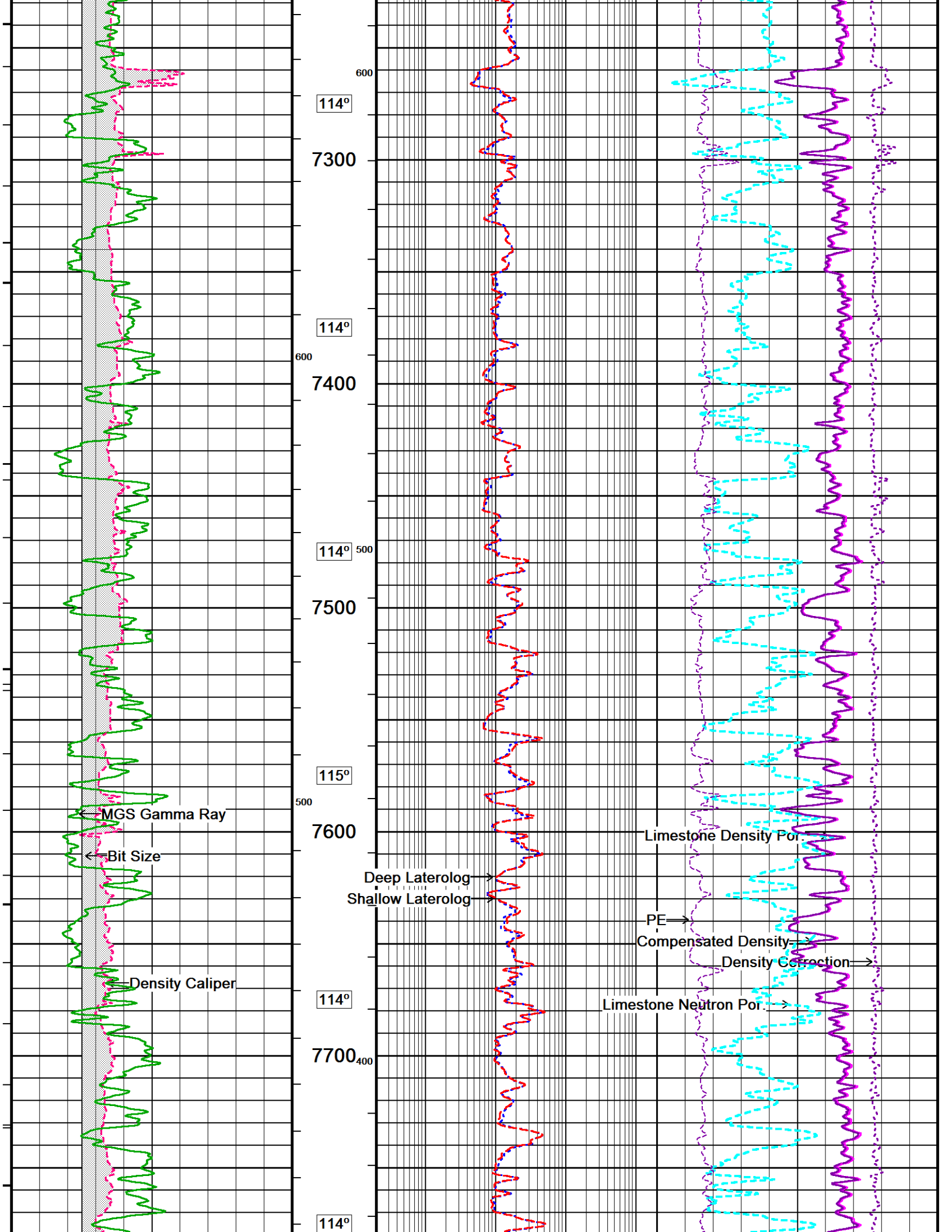


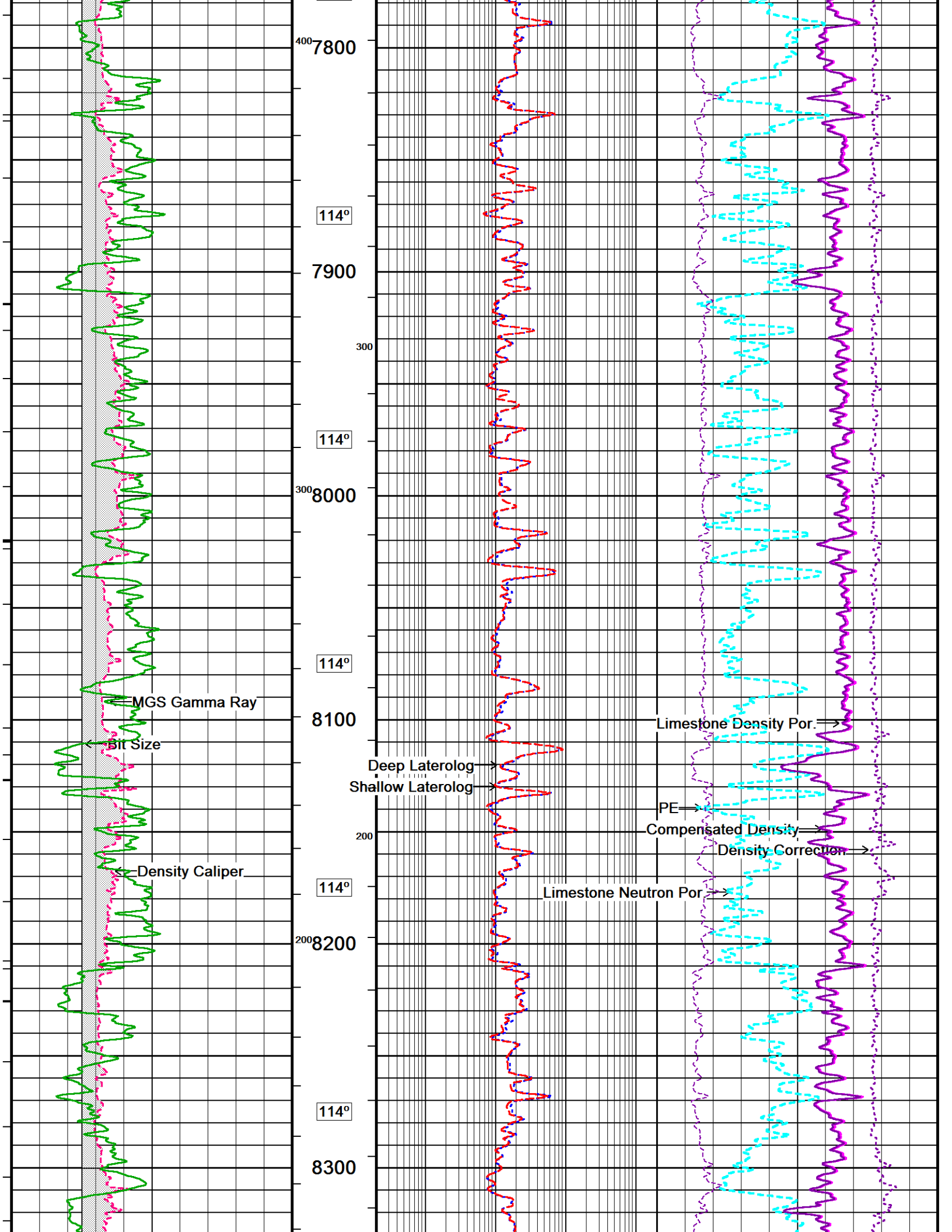


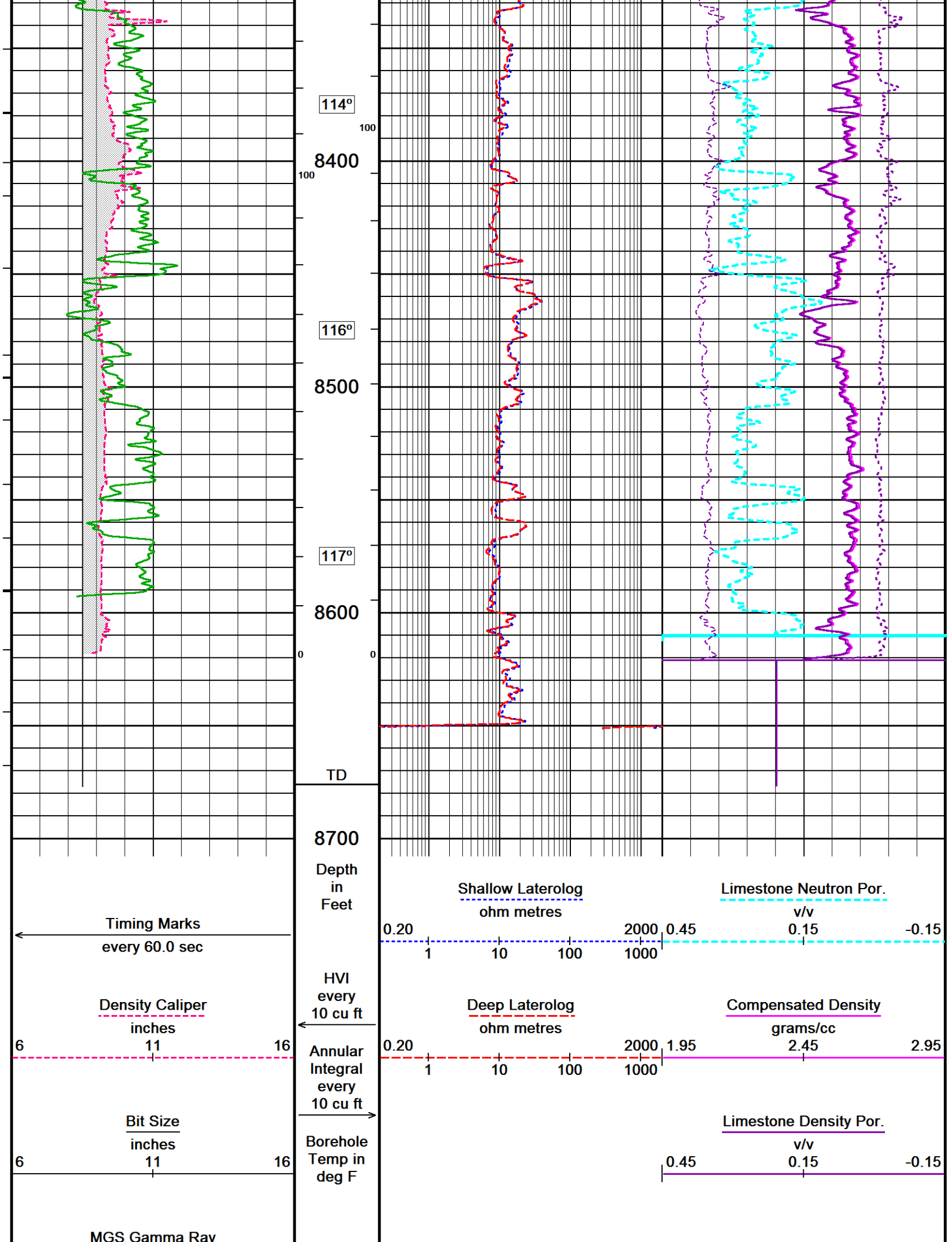












0 API 100 200 200 300 400 Replay Scale 1:600	0 barns/electron 10 0 -0.25 0.25 PE Density Correction grams/cc	
Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 18-SEP-2013 19:34 Filename: C:\YANINA'S INFORMATION\playing_well mgr\Savia\LO6-29D\...\Final_Complete_Data.dta Recorded on 18-SEP-2013 05:18 System Versions: Plotted with 13.06.9804		
↑	MAIN SECTION 1:600	↑

BEFORE SURVEY CALIBRATION			
C:\YANINA'S INFORMATION\playing_well mgr\Savia\LO6-29D\New Folder2\Final_Data.dta			
General Constants All 000			Last Edited on 17-SEP-2013,05:31
General Parameters			
Mud Resistivity	0.270	ohm-metres	
Mud Resistivity Temperature	75.000	degrees F	
Water Level	0.000	feet	
Borehole Fluid Processing	N/A		
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 17-SEP-2013 05:33
Logging Parameters			
Firmware Version	2v40		
Caliper Open On	MAI		
Caliper Open Delay		minutes	
Caliper Closed On	Unknown		
Caliper Closed Delay	N/A	minutes	
Sample Rate	1.00	seconds	
Use Deep Sleep	Yes		
Delay Deep Sleep	No		
Deep Sleep Wake Time	360.0	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	852.0	seconds	
Pulse Pressure Discriminator	1765.0	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	

Bad Status Reply	00.0	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		
Gamma Calibration MGS-C.A 43		
	Measured	Calibrated (API)
Background	93	62
Calibrator (Gross)	945	630
Calibrator (Net)	851	568
Field Calibration on 16-SEP-2013 09:35		
Gamma Constants MGS-C.A 43		
Last Edited on 17-SEP-2013,02:44		
Gamma Calibrator Number	145	
Mud Density	1.38	gm/cc
Caliper Source for Processing	Density Caliper	
Tool Position	Eccentred	
Concentration of KCl		kppm
K Mud Type	Chloride	
K Mud Concentration	0.00	%
High Resolution Temperature Calibration MGS-C.A 43		
	Measured	Calibrated(Deg F)
Lower	10.00	10.00
Upper	200.00	200.00
Field Calibration on 16-SEP-2013,09:36		
High Resolution Temperature Constants MGS-C.A 43		
Last Edited on 16-SEP-2013,09:35		
Pre-filter Length	11	
Neutron Calibration MDN-C.A 441		
Base Calibration on 09-MAR-2013 15:27		
Field Check on 17-MAR-2013 17:51		
Base Calibration		
	Measured	Calibrated (cps)
	Near Far	Near Far
	3122 96	3714 110
Ratio	32.488	33.764
Field Calibrator at Base		
		Calibrated (cps)
		2097 3067
Ratio		0.684
Field Check		
		Calibrated (cps)
		2091 3058
Ratio		0.681
Neutron Constants MDN-C.A 441		
Last Edited on 18-SEP-2013,10:33		
Neutron Source Id	P62419B	
Neutron Jig Number	NJ5737	
Epithermal Neutron	No	
Caliper Source for Processing	Density Caliper	
Stand-off	0.00	inches
Mud Density	1.38	gm/cc
Limestone Sigma	7.10	cu
Sandstone Sigma	4.26	cu
Dolomite Sigma	4.70	cu
Formation Pressure Source	None	
Formation Pressure	N/A	kpsi
Temperature Source	MGS External Temperature	
Temperature	N/A	degrees F
Mud Salinity	0.00	kppm
Salinity Correction	Not Applied	
Formation Fluid Salinity Source	None	
Formation Fluid Salinity	N/A	kppm
Barite Mud Correction	Not Applied	
Laterolog Calibration MLE-D.A 228		
Base Calibration on 29-JUN-2013 11:22		

Base Calibration

Channel	Measured		Calibrated (ohm-m)	
	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		227.4	

Laterolog Constants MLE-D.A 228

Last Edited on 17-SEP-2013,02:31

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	1.00	v/v
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 197

Base Calibration on 17-SEP-2013 02:30

Field Calibration on 17-SEP-2013 02:31

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	16753	3.98
2	26256	5.96
3	45952	9.86
4	57280	11.93
5	0	0.00
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
11.93	11.93

Photo Density Calibration MPD-C.A 197

Base Calibration on 10-AUG-2013 12:59

Field Check on 16-SEP-2013 09:19

Density Calibration

Base Calibration	Measured		Calibrated (sdu)	
	Near	Far	Near	Far
Reference 1	61917	30390	59536	30850
Reference 2	25055	2770	24833	2521

Field Check at Base

1289.0	1390.9
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Field Check

1279.6	1389.1
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PE Calibration

Base Calibration	Measured	Calibrated
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Base Calibration	WS	WH	Ratio	Ratio
Background	229	1151		
Reference 1	24812	61696	0.406	0.371
Reference 2	6993	24903	0.285	0.270
Field Check at Base				
	229.0	1150.9		
Field Check				
	227.2	1143.2		

Density Constants MPD-C.A 197			Last Edited on 18-SEP-2013,10:33	
Density Source Id	P74838B			
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	1.38		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			
0.00	0.00			

COMPANY	SAVIA PERU S.A				
WELL	LO06-29D				
FIELD	LOBITOS				
PROVINCE/COUNTY	PIURA				
COUNTRY/STATE	Peru				
Elevation Kelly Bushing	50.00	feet	First Reading	8649.00	feet
Elevation Drill Floor	50.00	feet	Depth Driller	8691.00	feet
Elevation Ground Level	-335.00	feet	Depth Logger	8676.00	feet



COMBINED LOG

MDL-MGS-MDN-MPD

SCALE 2":100