



Weatherford[®]

**COMPACT PHOTO DENSITY
COMPENSATED NEUTRON
MICRORESISTIVITY LOG**

COMPANY REDLAND RESOURCES, INC.
WELL GLEASON 35-4
FIELD WILDCAT
PROVINCE/COUNTY HODGEMAN
COUNTRY/STATE U.S.A. / KANSAS
LOCATION 1064' FNL & 1243' FWL NW/4
SE NW NW

SEC	TWP	RGE	Other Services
35	23S	25W	MA/IMFE
API Number	15-083-21799	MSS	
Permit Number			
Permanent Datum	G.L., Elevation 2516 feet		
Log Measured From	KB		
Drilling Measured From	K.B.		
Date	08-SEP-2012		
Run Number	ONE		
Depth Driller	4950.00	feet	
Depth Logger	4949.00	feet	
First Reading	4936.00	feet	
Last Reading	3950.00	feet	
Casing Driller	222.00	feet	
Casing Logger	222.00	feet	
Bit Size	7.875	inches	
Hole Fluid Type	CHEMICAL		
Density / Viscosity	1.10 g/c3	51.00 CP	
PH / Fluid Loss	9.00	15.60 ml/30Min	
Sample Source	FLOWLINE		
Rm @ Measured Temp	0.92 @ 75.0	ohm-m	
Rmf @ Measured Temp	0.74 @ 75.0	ohm-m	
Rmc @ Measured Temp	1.10 @ 75.0	ohm-m	
Source Rmf / Rmc	CALC	CALC	
Rm @ BHT	0.63 @ 110.0	ohm-m	
Time Since Circulation	4 HOURS		
Max Recorded Temp	110.00	deg F	
Equipment Name	COMPACT		
Equipment / Base	13096	LIB	
Recorded By	R.HOFFMAN		
Witnessed By	DAVID HICKMAN		
S.O. # / JOB #	3537881		LB12-244

Elevations:	feet
KB	2524.00
DF	2522.00
GL	2516.00

BOREHOLE RECORD

Last Edited: 08-SEP-2012 18:11

Bit Size inches	Depth From feet	Depth To feet
7.875	222.00	4949.00

CASING RECORD

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	8.625	0.00	222.00	24.00

REMARKS

Tools Used: MCG, MML, MDN, MPD, MFE, MSS, MAI.
 Hardware: MPD: 8 inch profile plate used. MAI, MFE, and MSS: 0.5 Inch standoffs used. MDN: Dual Bowspring used.
 2.71 G/CC Limestone density matrix used to calculate porosity.
 Sonic porosity calculated using 47.5 usec/ft Limestone scale.
 Borehole rugosity, tight pulls, and washouts will affect data quality.
 All intervals logged and scaled per customer's request.
 Total hole volume from TD to Surface casing= 2285 cubic feet
 Annular volume with 4.5 inch production casing = 298 cubic feet
 Service order #3537881
 Rig: Duke Drilling Rig #2
 Engineer: R. Hoffman
 Operator(s): K. Rinehart

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.

5 INCH MAIN

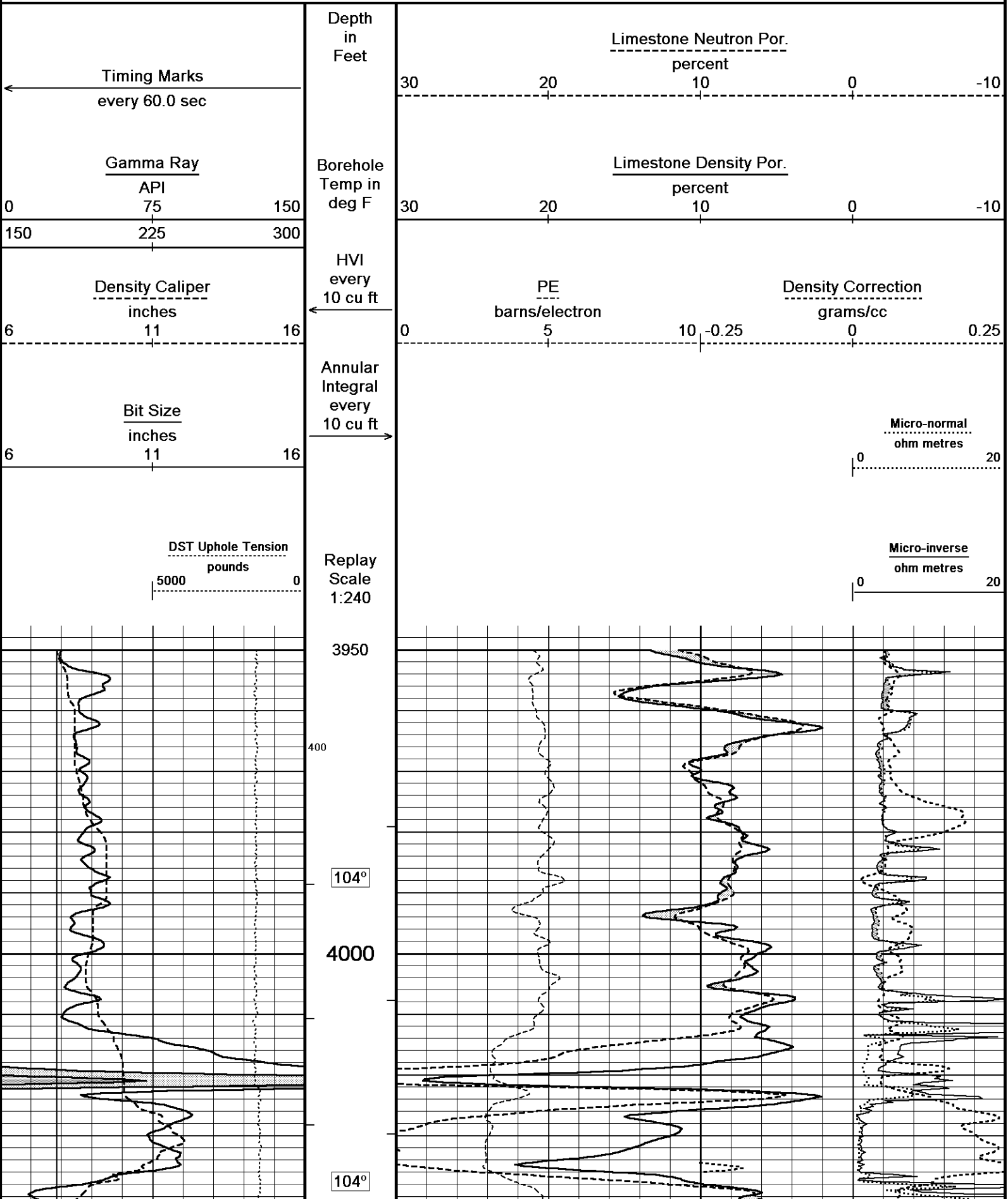
Depth Based Data - Maximum Sampling Increment 10.0cm

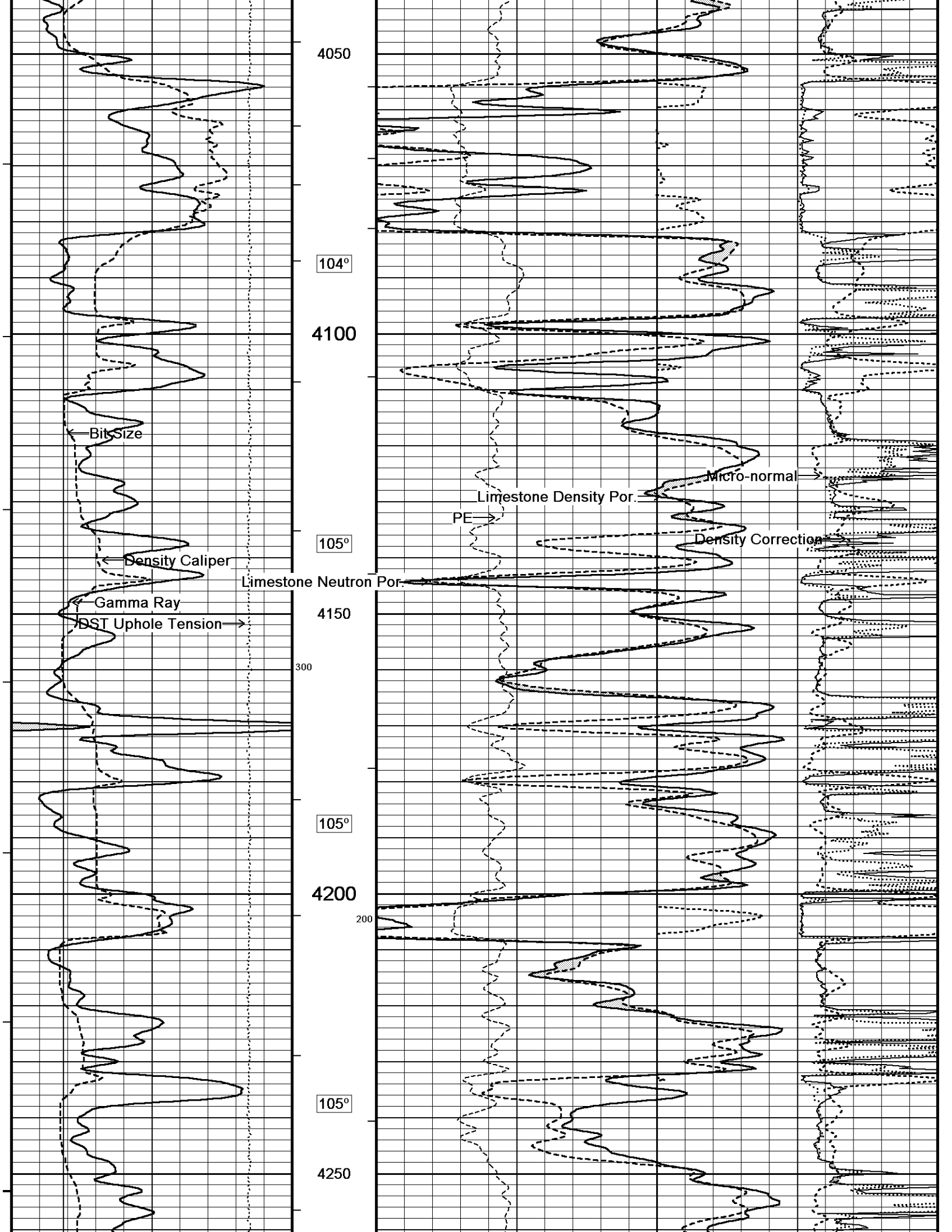
Plotted on 08-SEP-2012 20:19

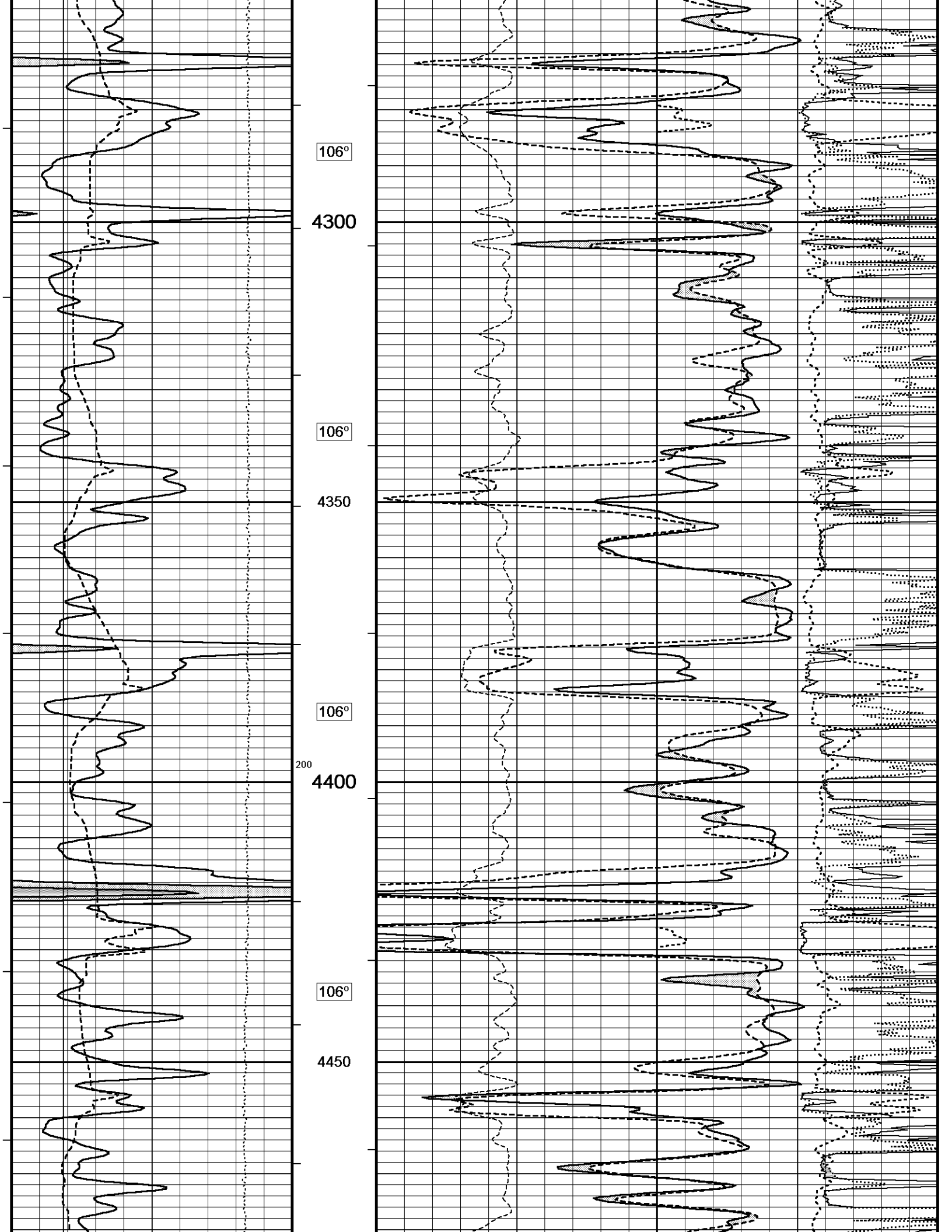
Filename: C:\Minimus 13.02.6600\Data\Redland Gle...\Redland Gleason 35-4 Main spooled section.dta

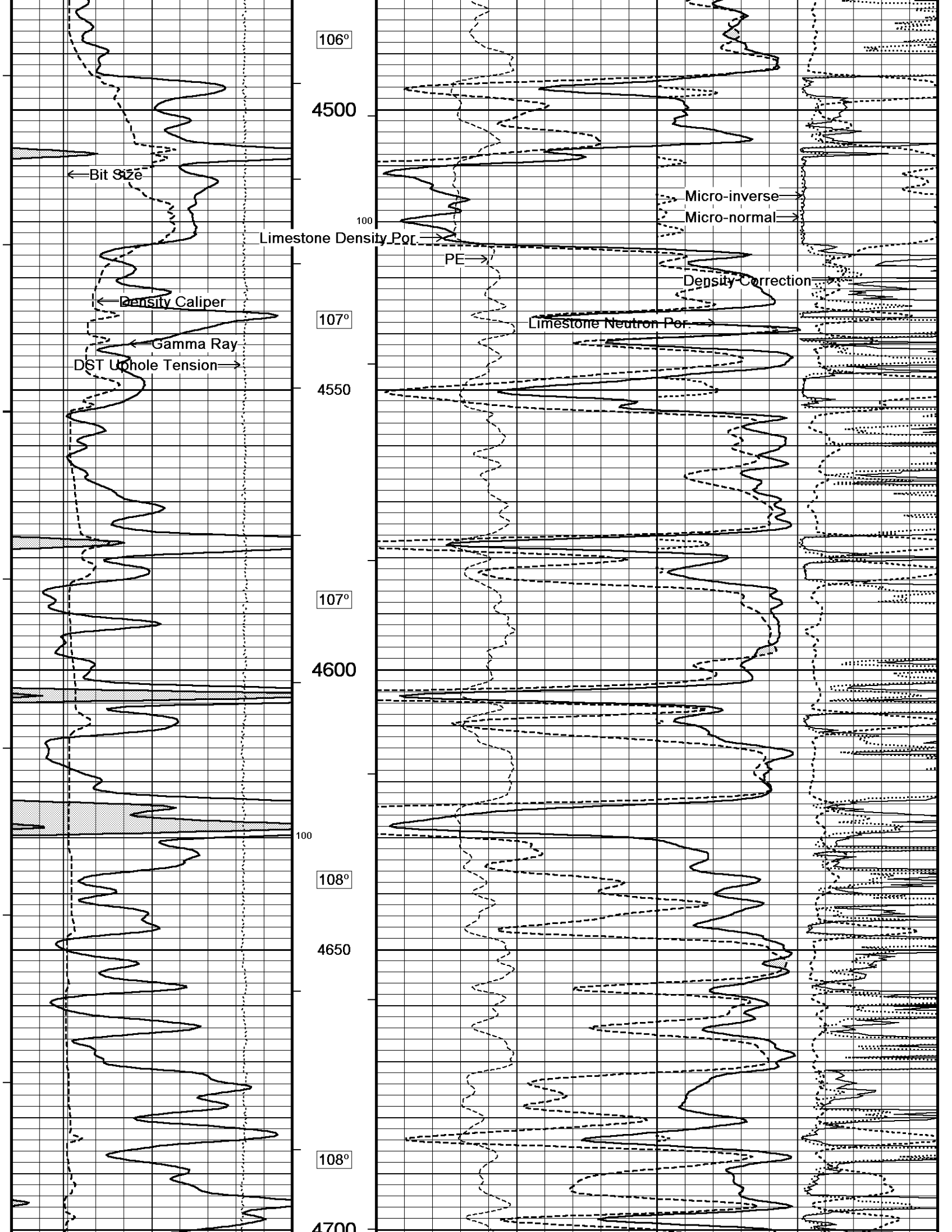
Recorded on 08-SEP-2012 18:01

System Versions: Logged with 13.02.6600 Plotted with 13.02.6600









106°

4500

← Bit Size

Limestone Density Por. →

PE →

Micro-inverse

Micro-normal →

Density Correction →

← Density Caliper

107°

Limestone Neutron Por. →

← Gamma Ray

DST Up-hole Tension →

4550

107°

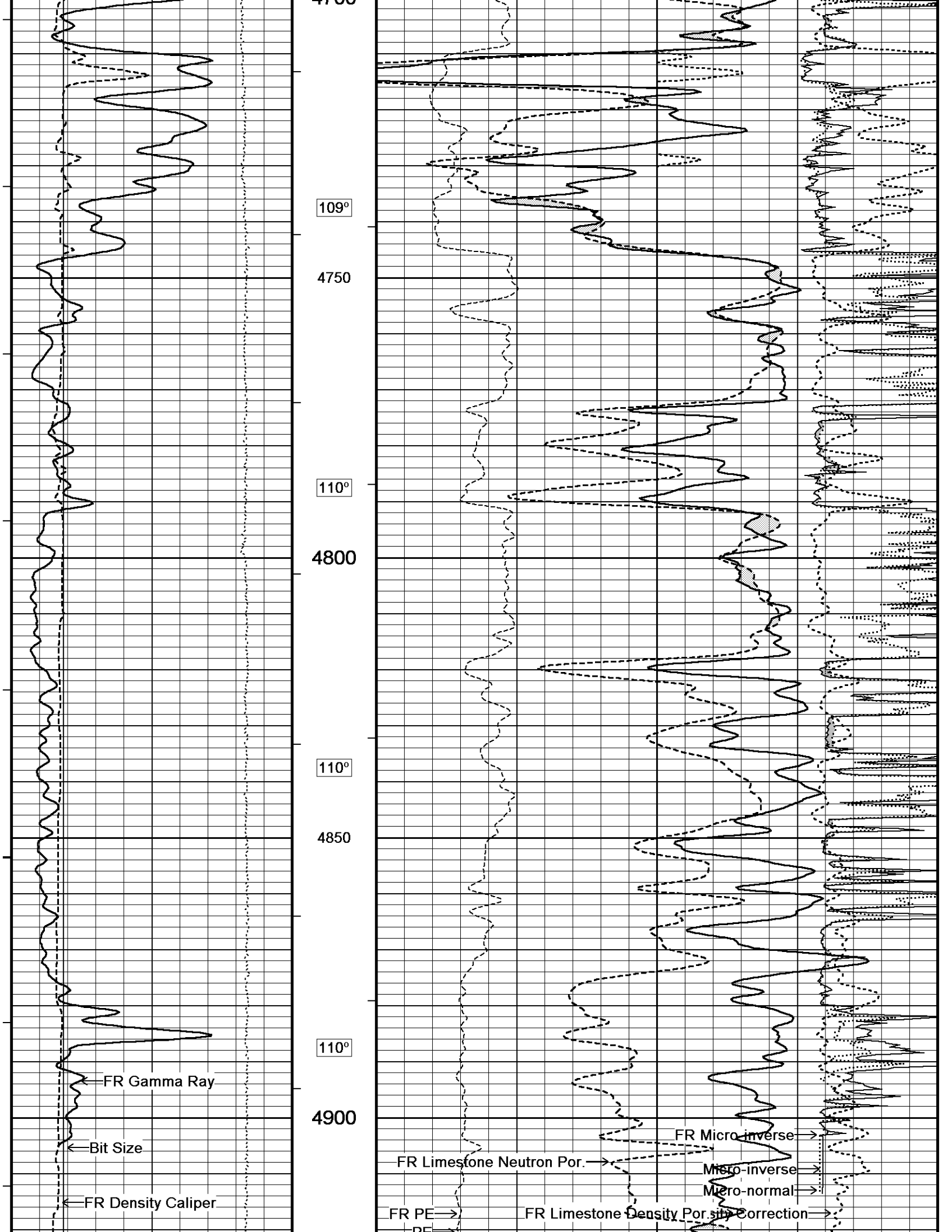
4600

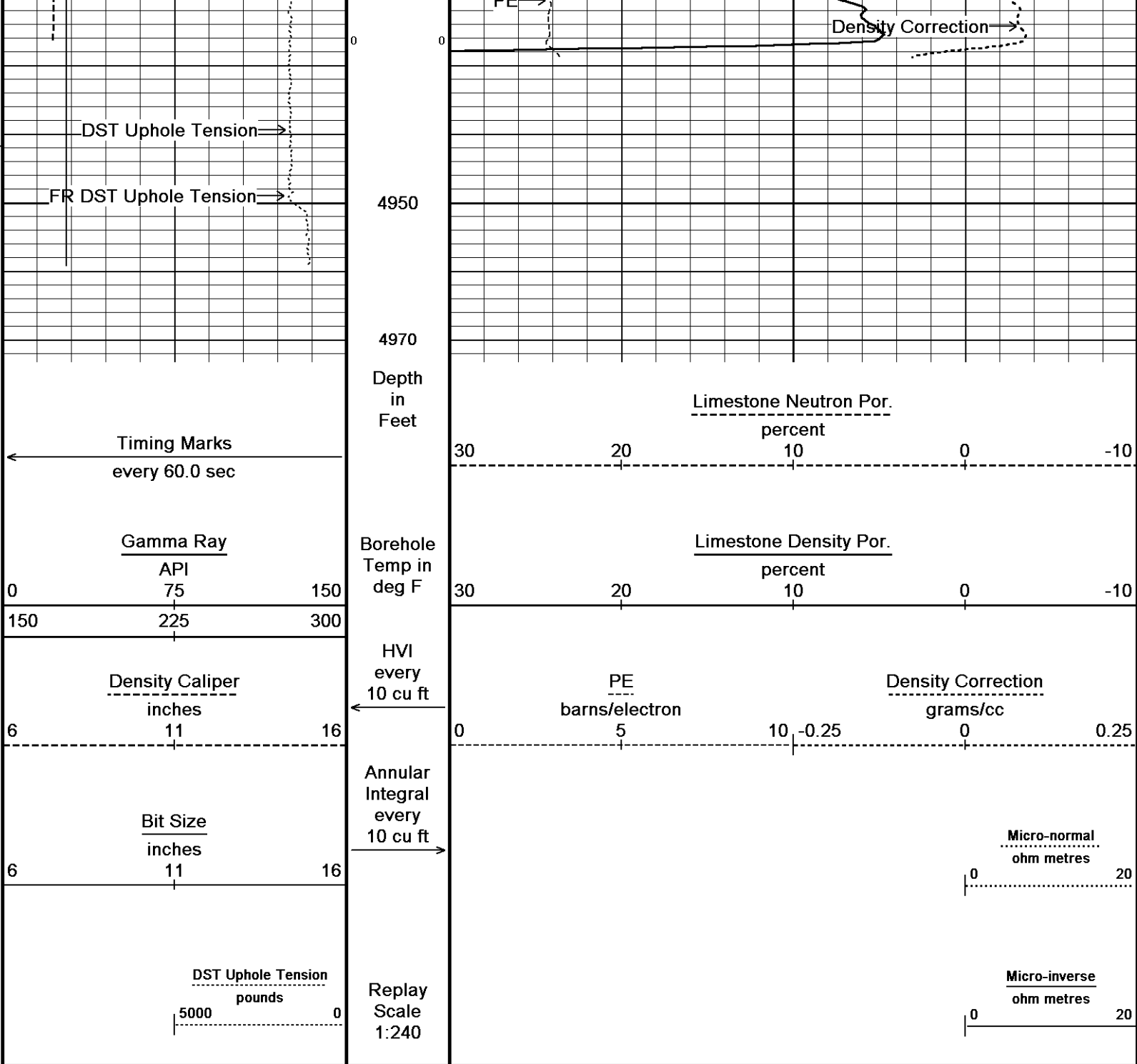
108°

4650

108°

4700



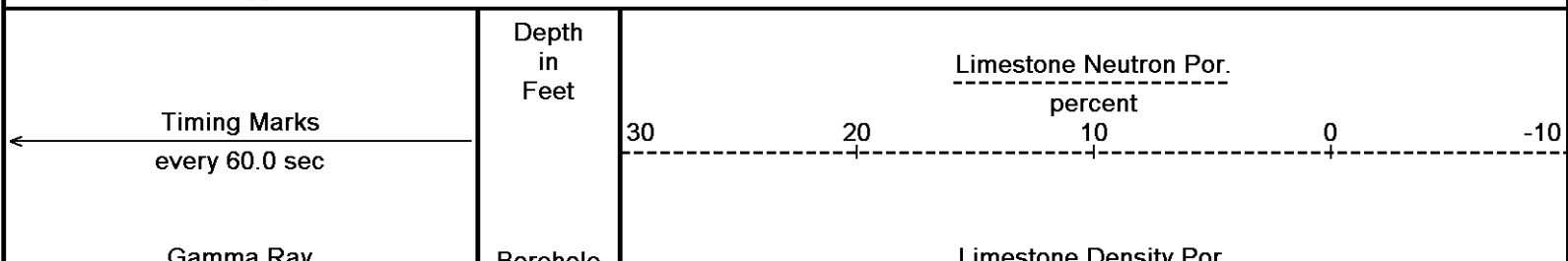


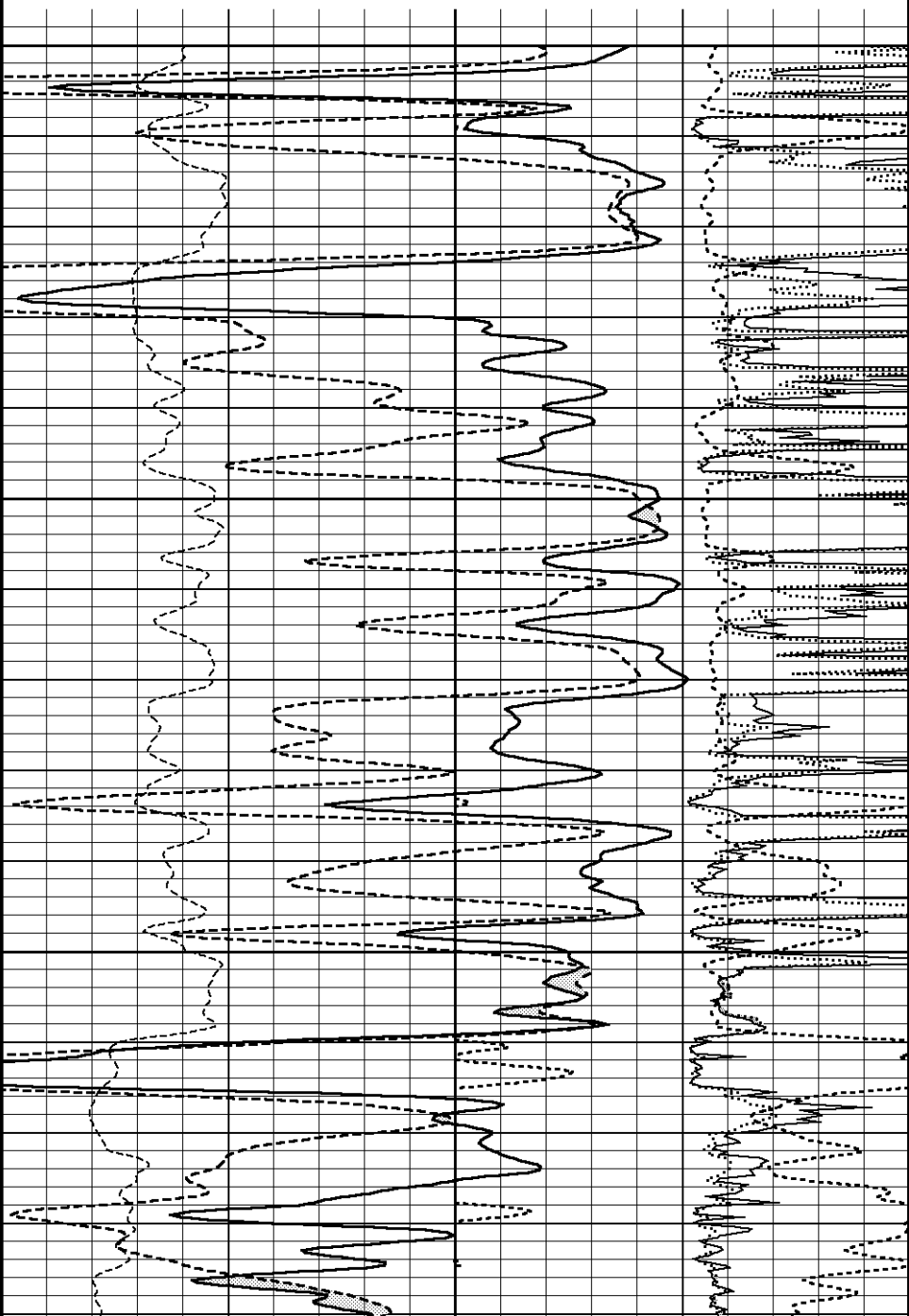
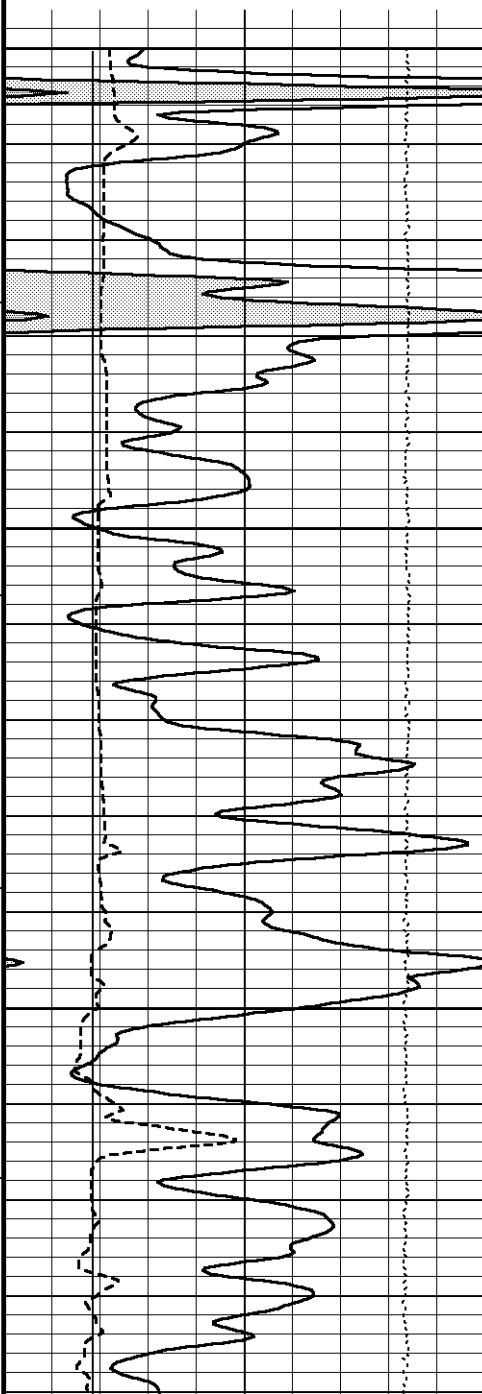
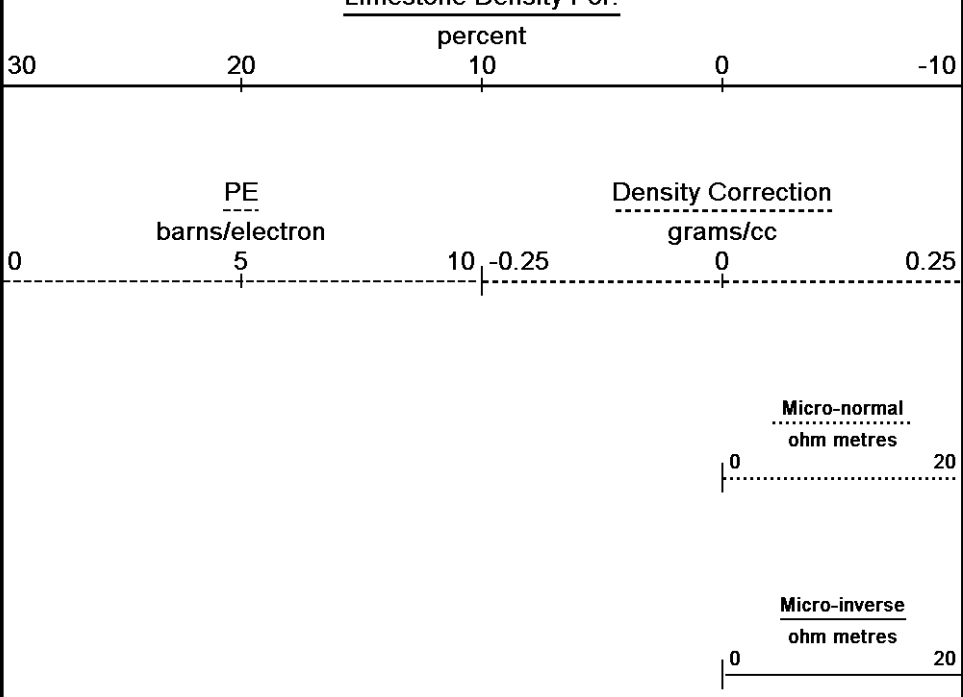
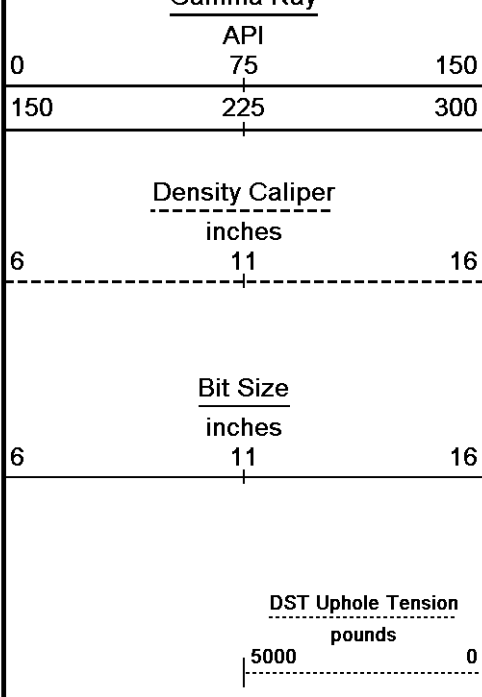
Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 08-SEP-2012 20:19
 Filename: C:\Minimus 13.02.6600\Data\Redland Gle...\Redland Gleason 35-4 Main spooled section.dta Recorded on 08-SEP-2012 18:01
 System Versions: Logged with 13.02.6600 Plotted with 13.02.6600

5 INCH MAIN

REPEAT SECTION

Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 08-SEP-2012 20:19
 Filename: C:\Minimus 13.02.6600\Data\Redland Gleason 35-4\Redland Gleason 35-4 Repeat.dta Recorded on 08-SEP-2012 16:40
 System Versions: Logged with 13.02.6600 Plotted with 13.02.6600





4600

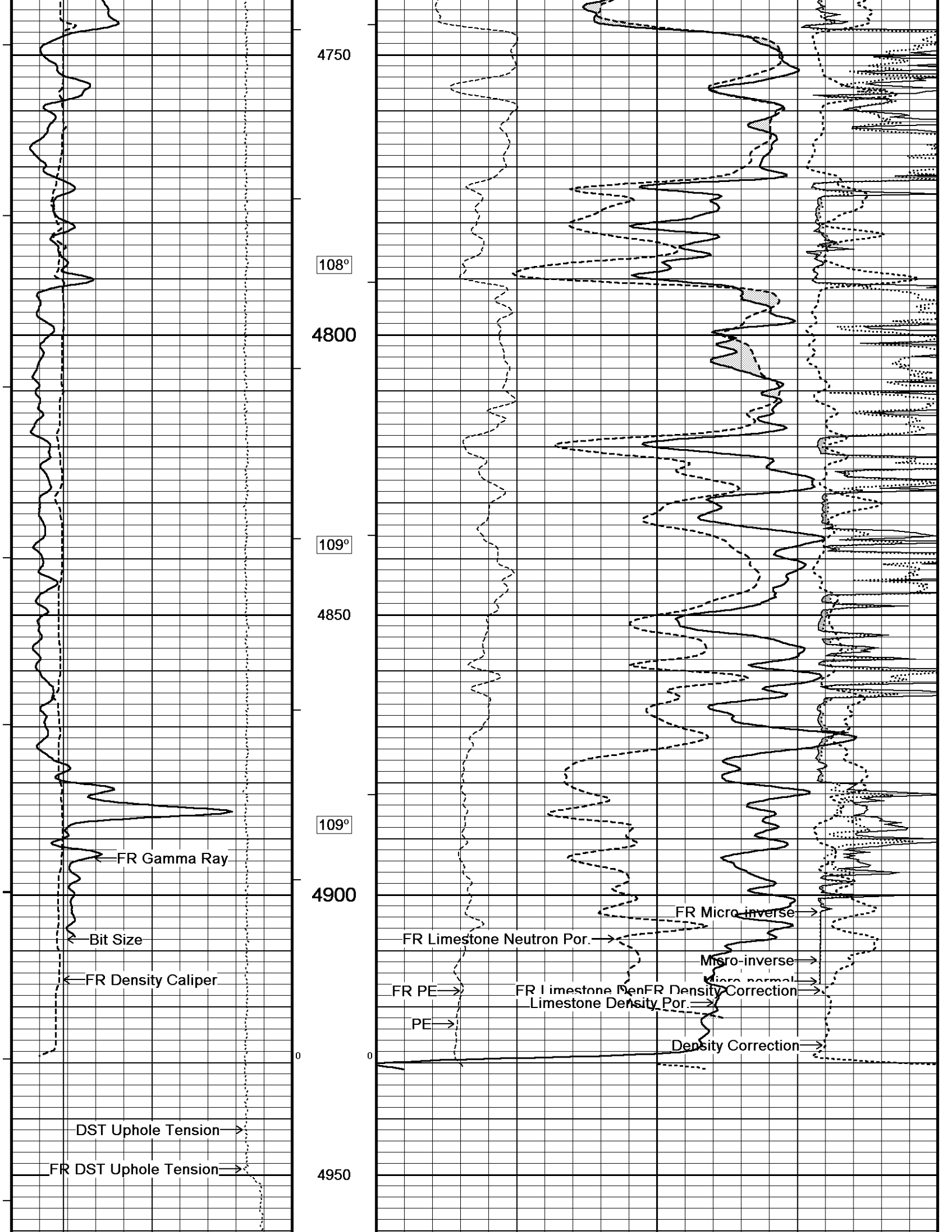
107°

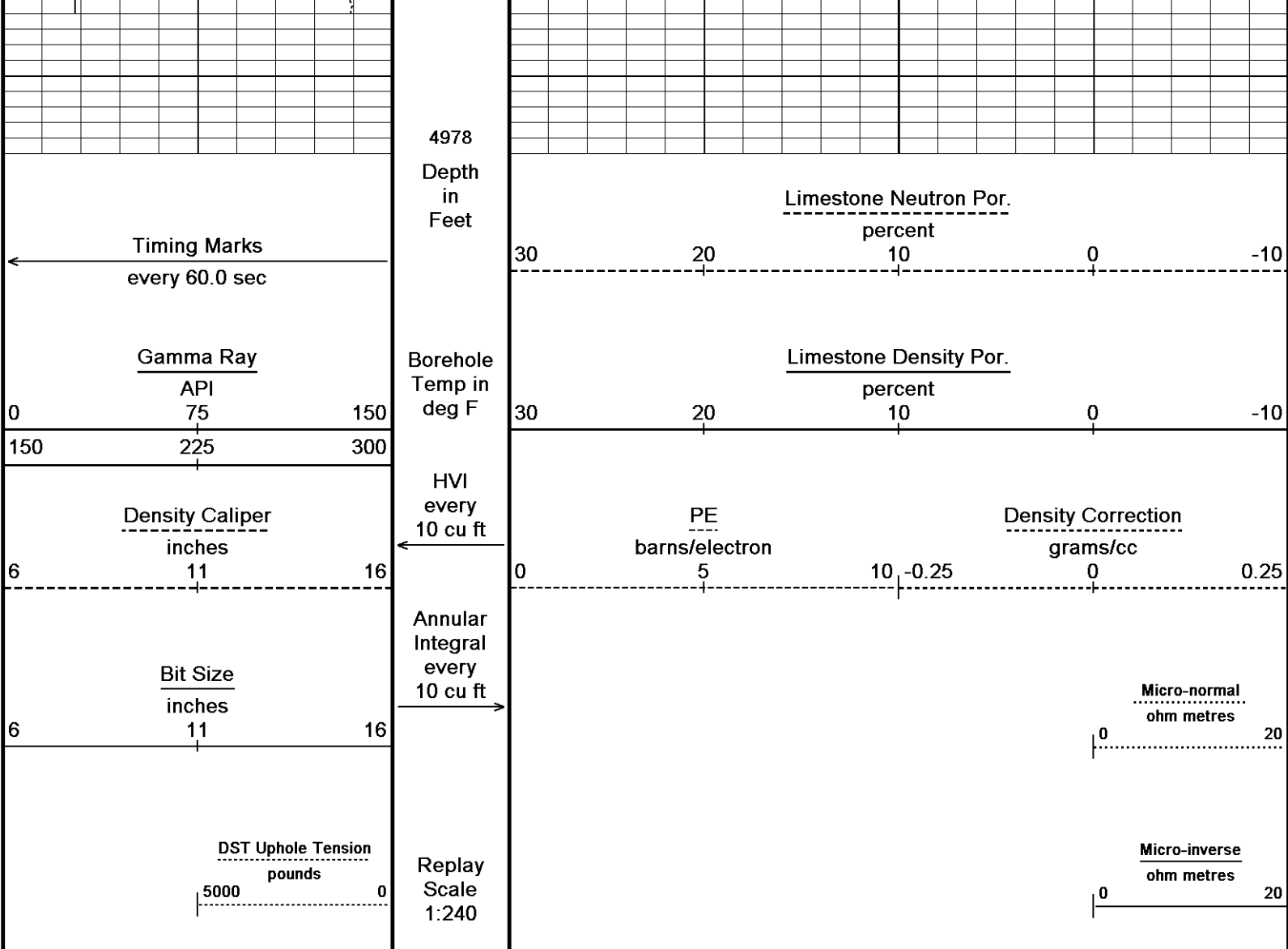
4650

107°

4700

108°





Depth Based Data - Maximum Sampling Increment 10.0cm
 Filename: C:\Minimus 13.02.6600\Data\Redland Gleason 35-4\Redland Gleason 35-4 Repeat.dta
 System Versions: Logged with 13.02.6600 Plotted with 13.02.6600

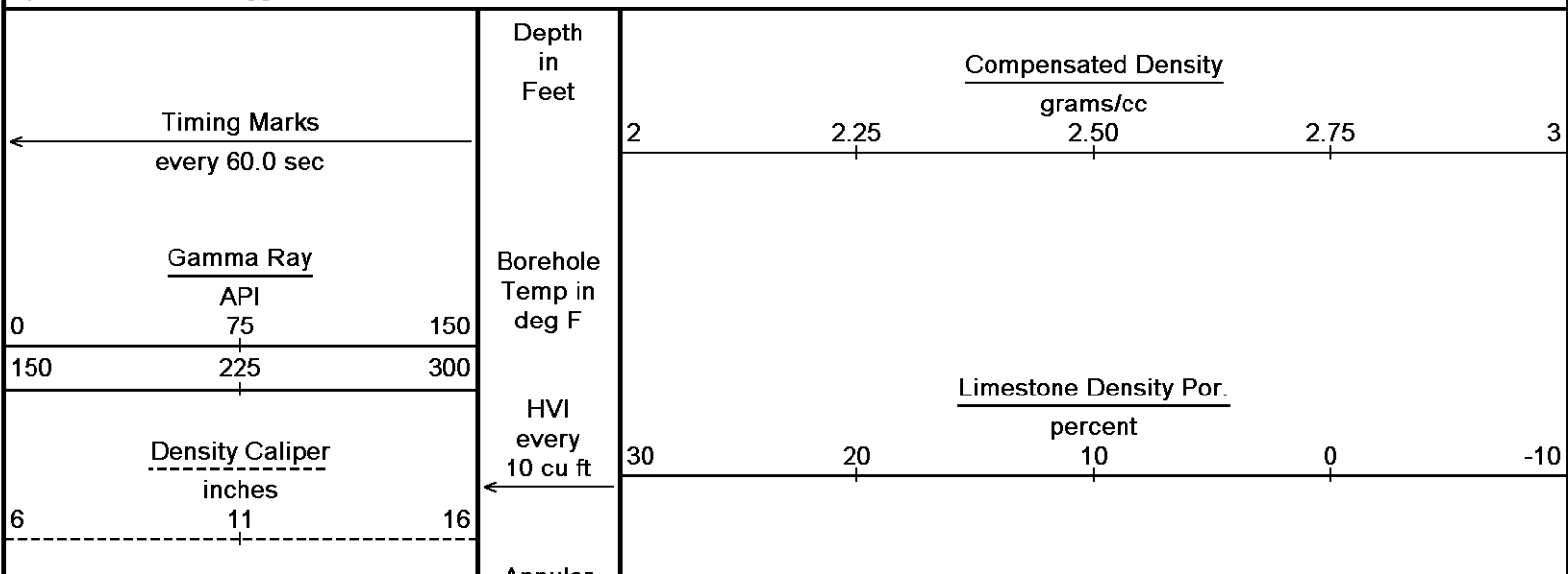
Plotted on 08-SEP-2012 20:19
 Recorded on 08-SEP-2012 16:40

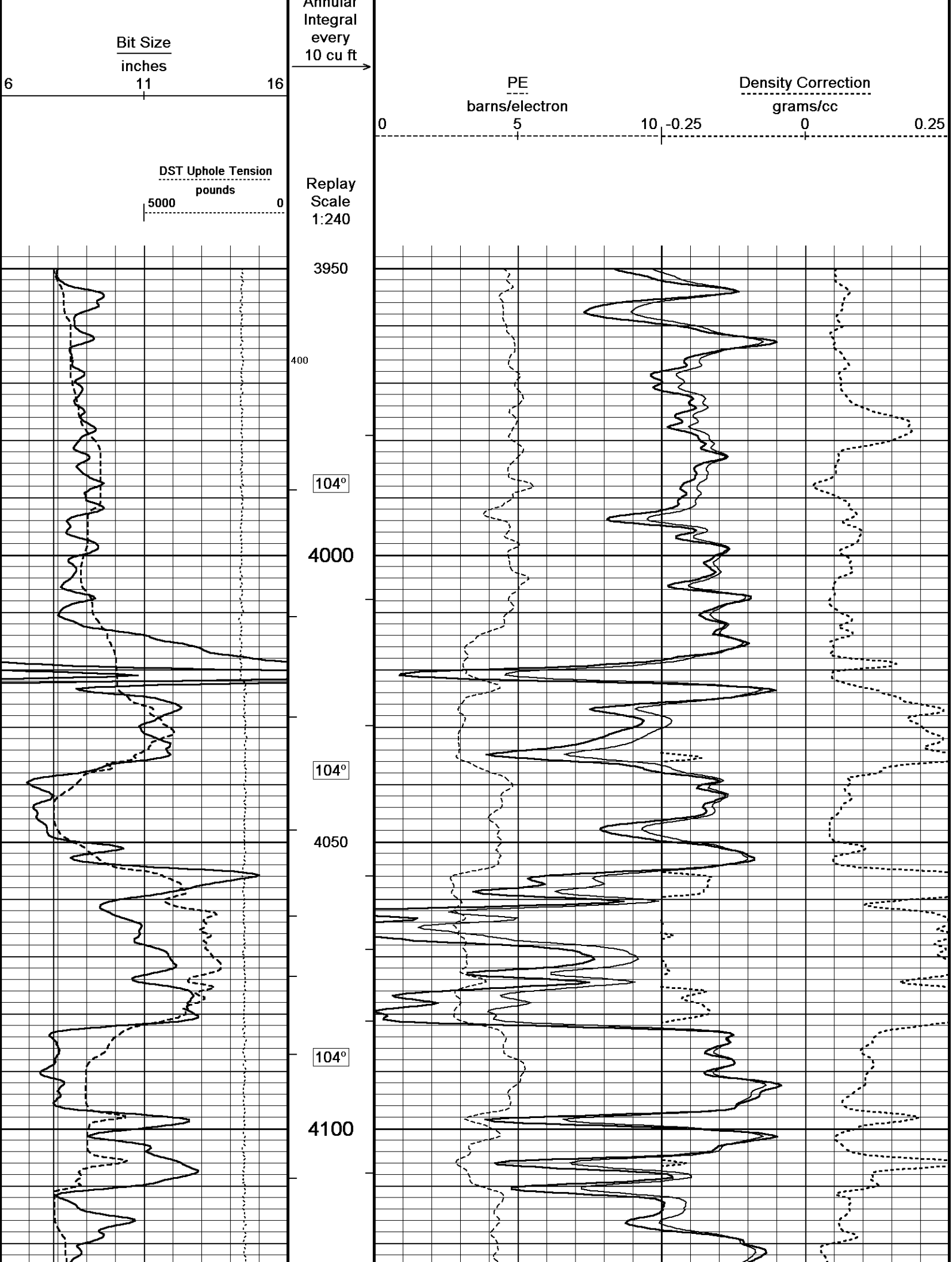
↑ REPEAT SECTION ↑

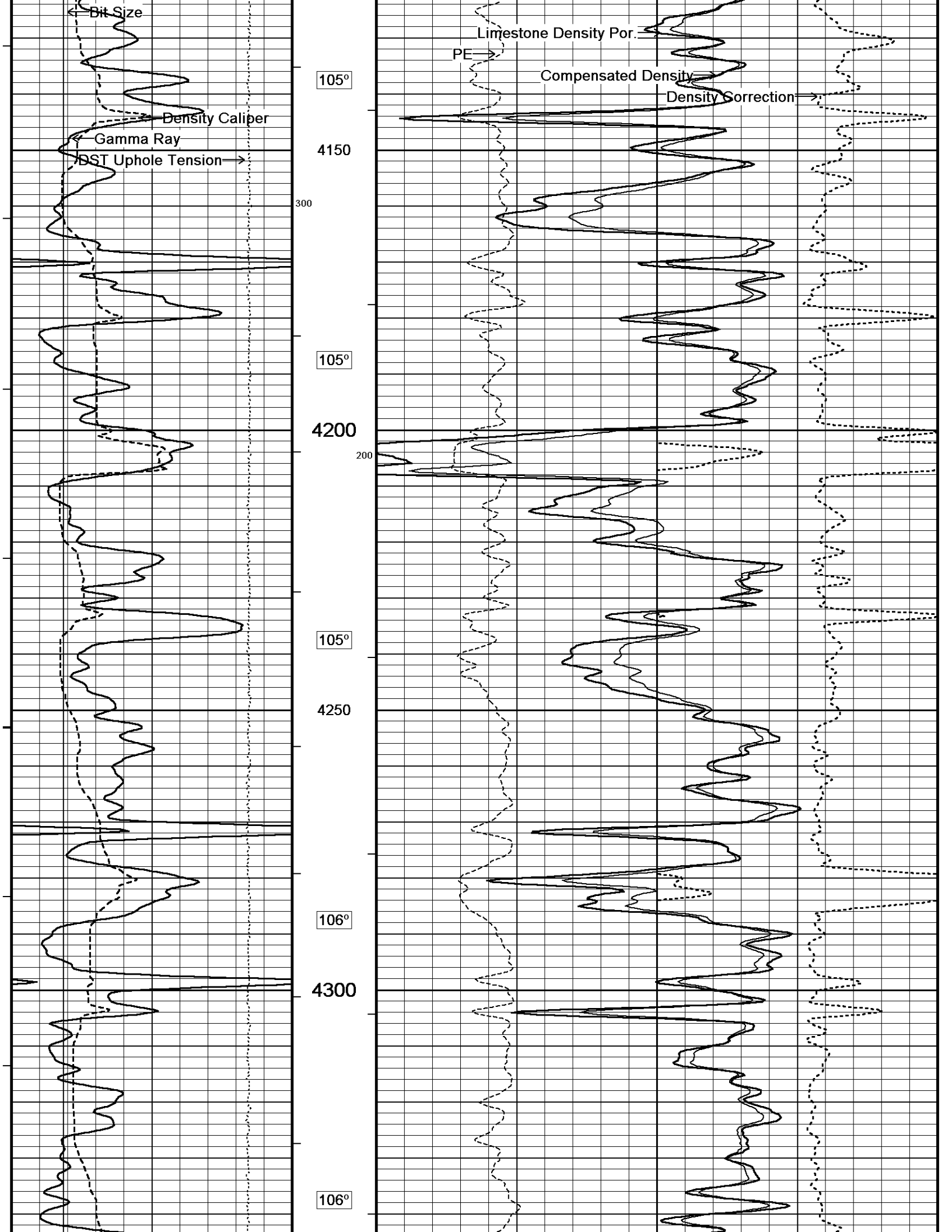
↓ 5 INCH MAIN ↓

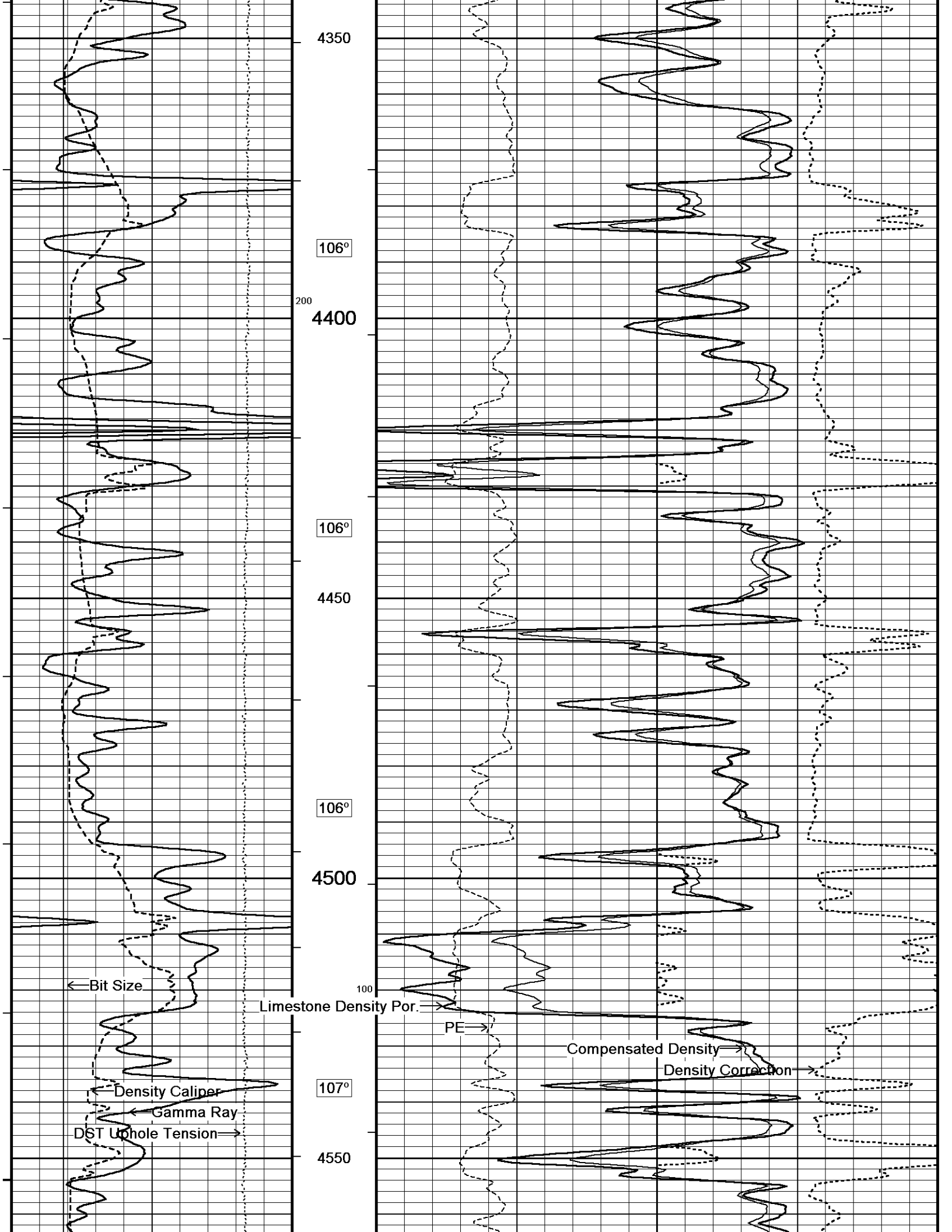
Depth Based Data - Maximum Sampling Increment 10.0cm
 Filename: C:\Minimus 13.02.6600\Data\Redland Gle...Redland Gleason 35-4 Main spooled section.dta
 System Versions: Logged with 13.02.6600 Plotted with 13.02.6600

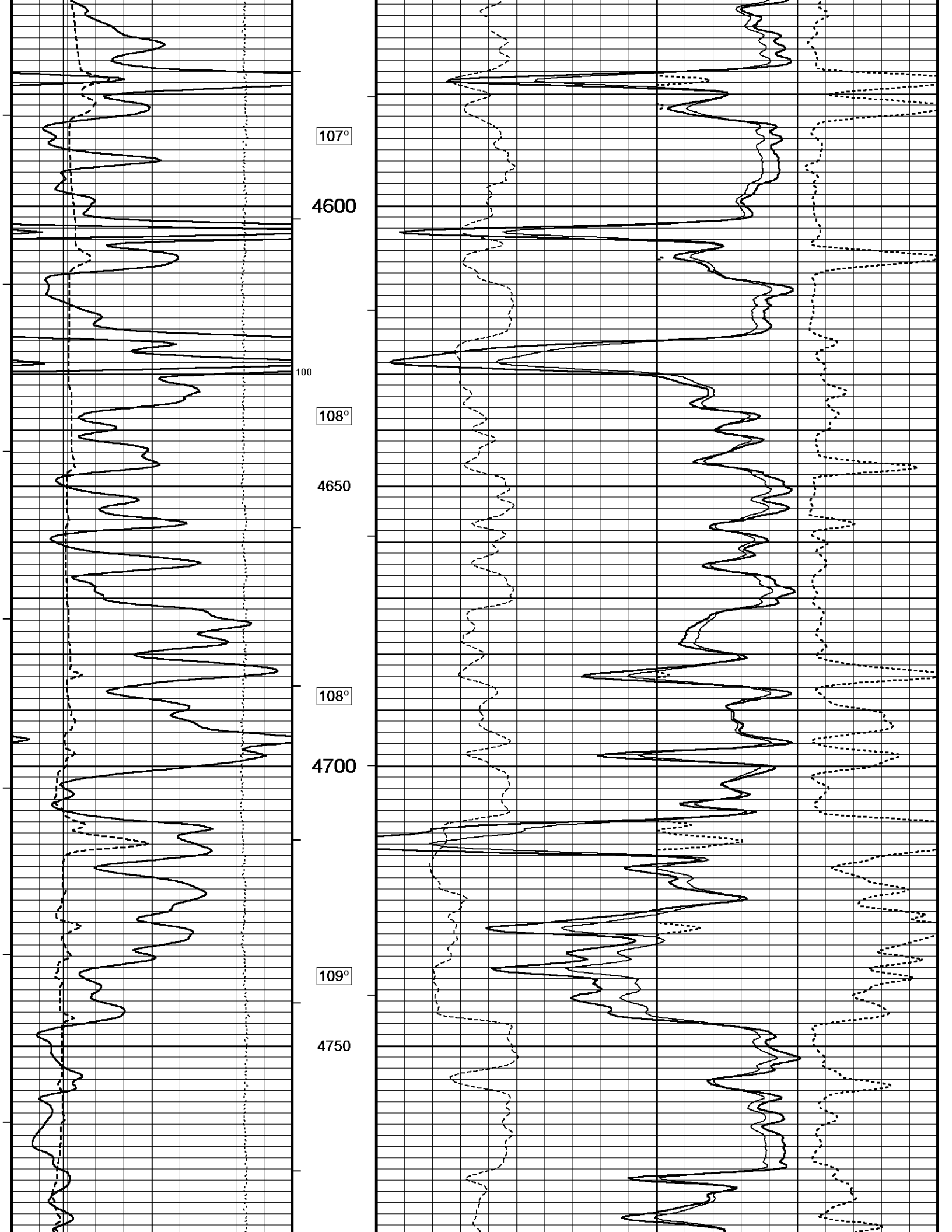
Plotted on 08-SEP-2012 20:19
 Recorded on 08-SEP-2012 18:01

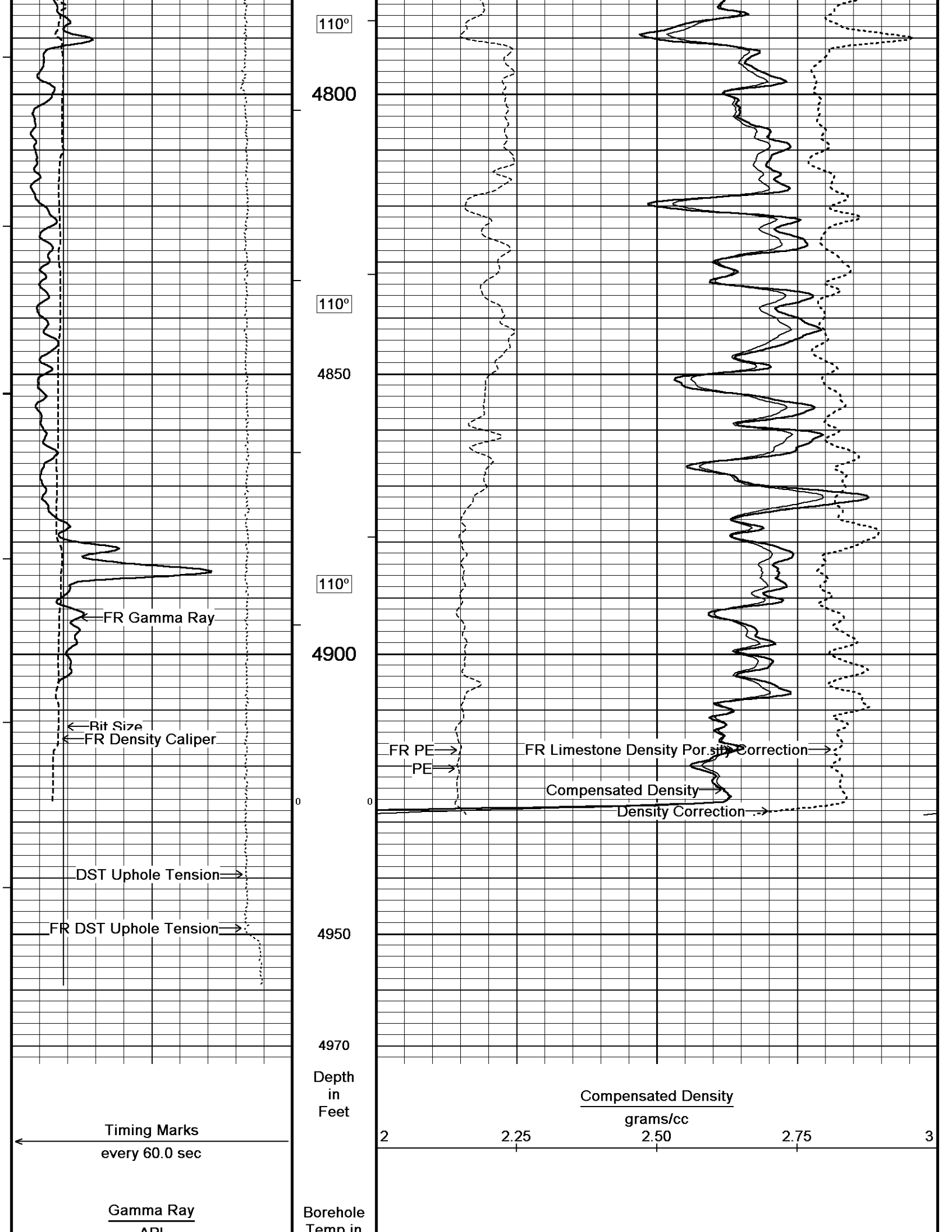


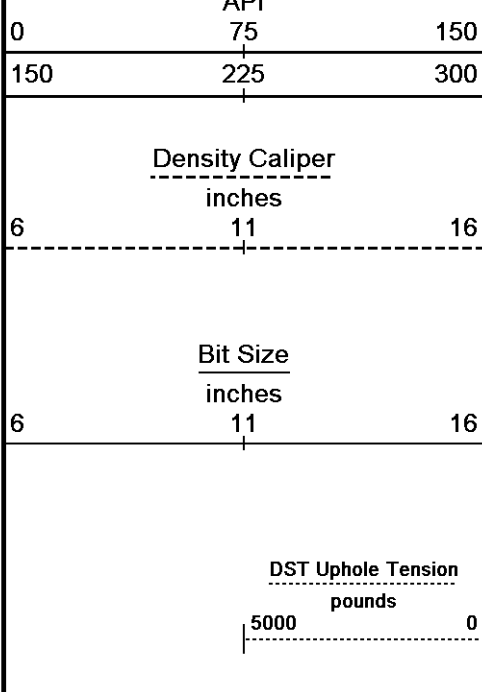










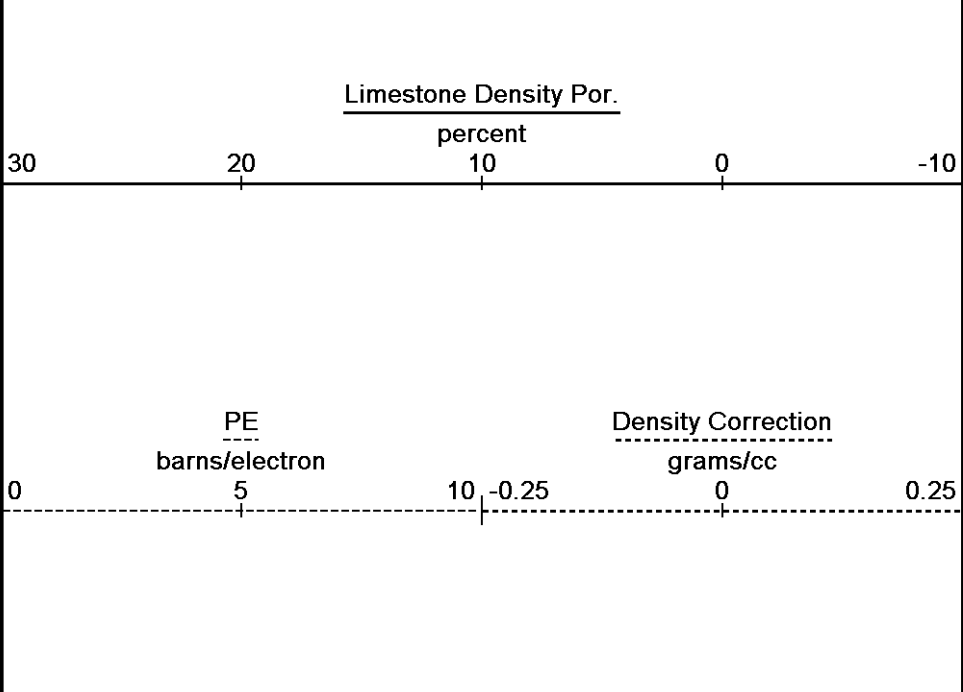


Temp in deg F

HVI every 10 cu ft

Annular Integral every 10 cu ft

Replay Scale 1:240

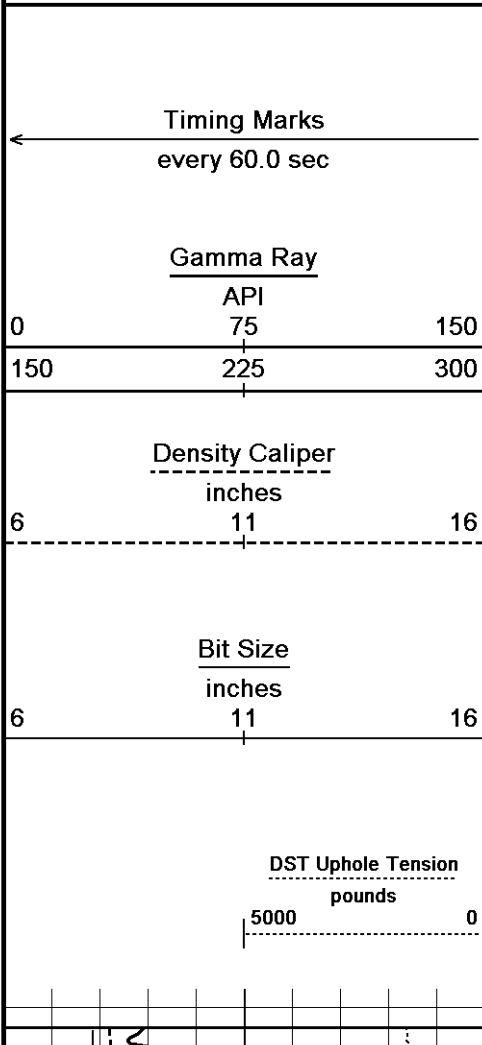


Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 08-SEP-2012 20:19
 Filename: C:\Minimus 13.02.6600\Data\Redland Gle...\Redland Gleason 35-4 Main spooled section.dta Recorded on 08-SEP-2012 18:01
 System Versions: Logged with 13.02.6600 Plotted with 13.02.6600

↑ 5 INCH MAIN ↑

↓ REPEAT SECTION ↓

Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 08-SEP-2012 20:19
 Filename: C:\Minimus 13.02.6600\Data\Redland Gleason 35-4\Redland Gleason 35-4 Repeat.dta Recorded on 08-SEP-2012 16:40
 System Versions: Logged with 13.02.6600 Plotted with 13.02.6600



Depth in Feet

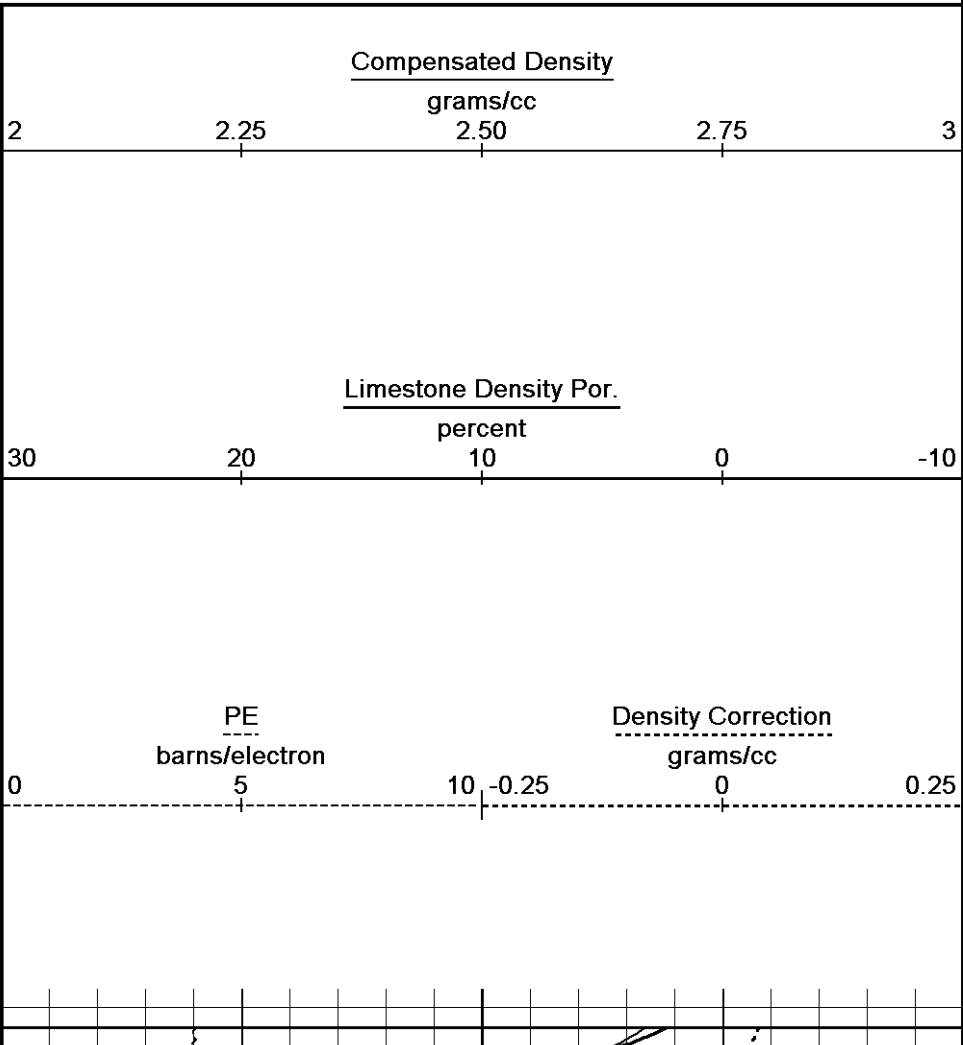
Borehole Temp in deg F

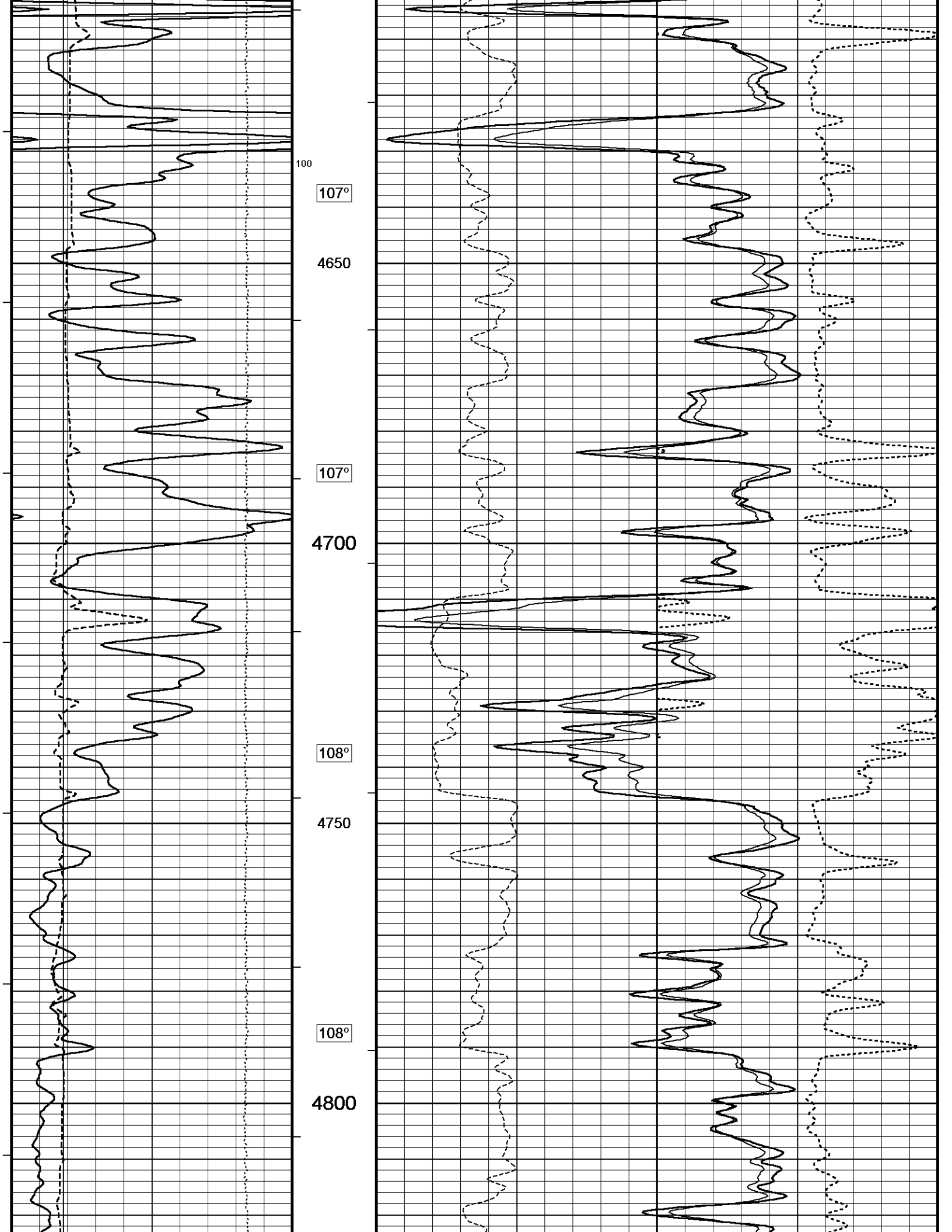
HVI every 10 cu ft

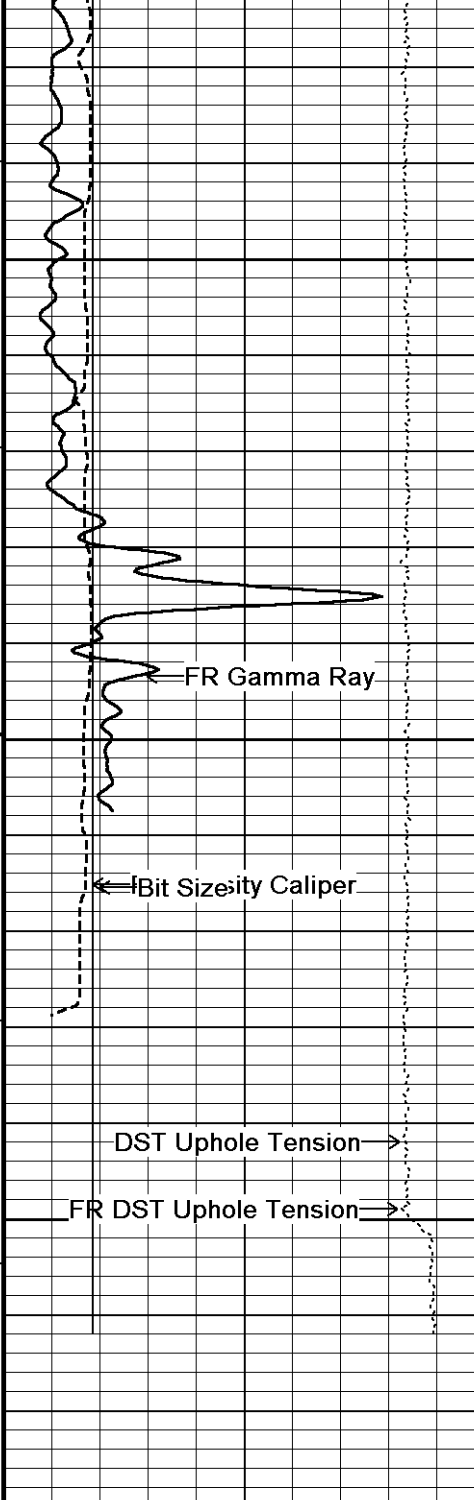
Annular Integral every 10 cu ft

Replay Scale 1:240

4600







109°

4850

109°

4900

0

4950

4978

Depth
in
Feet

← Timing Marks
every 60.0 sec

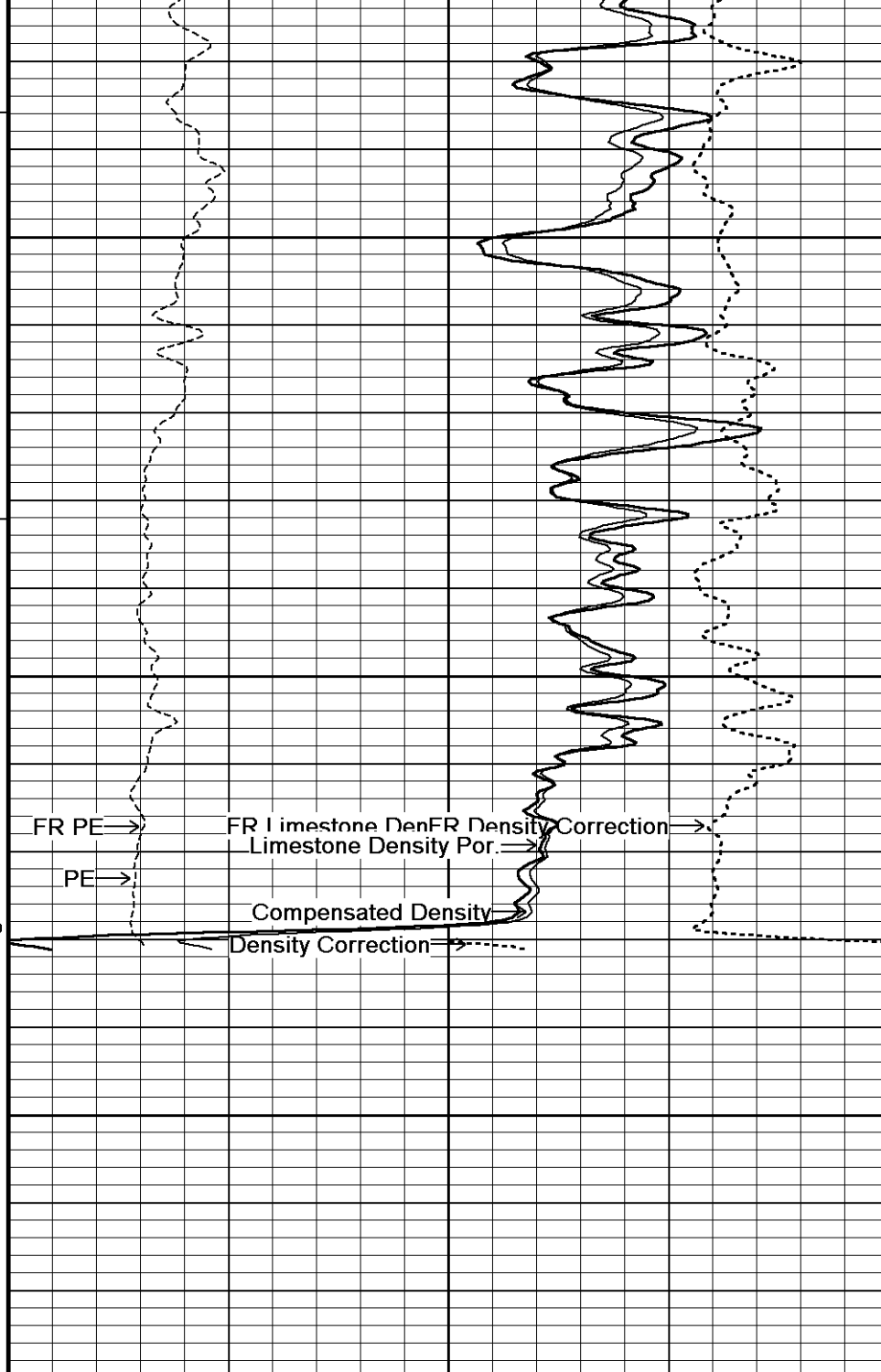
Gamma Ray
API
0 75 150
150 225 300

Borehole
Temp in
deg F

Density Caliper
inches
← 6 11 16

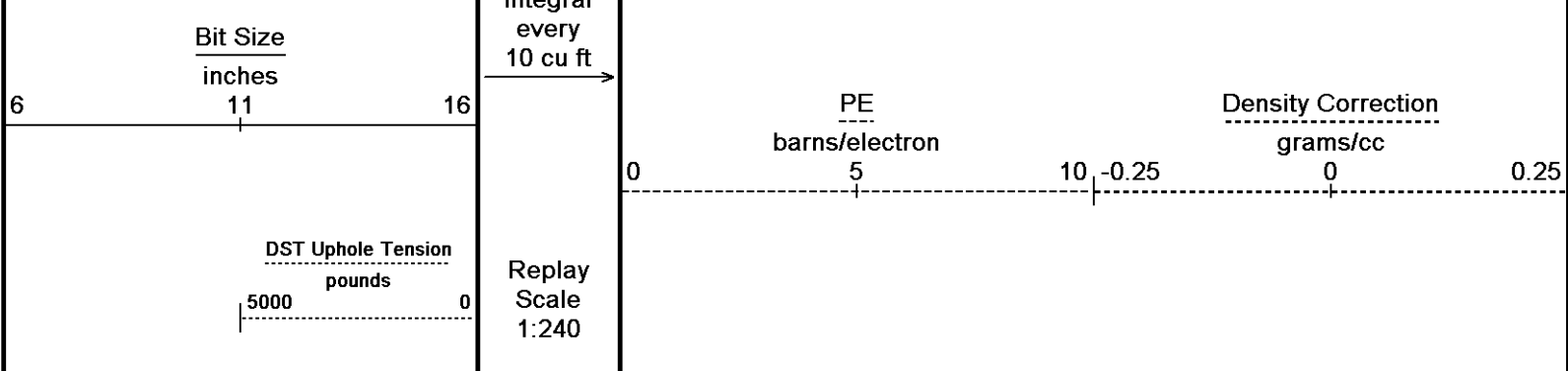
HVI
every
10 cu ft

Annular
Integral



Compensated Density
grams/cc
2 2.25 2.50 2.75 3

Limestone Density Por.
percent
30 20 10 0 -10



Depth Based Data - Maximum Sampling Increment 10.0cm
 Plotted on 08-SEP-2012 20:19
 Filename: C:\Minimus 13.02.6600\Data\Redland Gleason 35-4\Redland Gleason 35-4 Repeat.dta
 Recorded on 08-SEP-2012 16:40
 System Versions: Logged with 13.02.6600 Plotted with 13.02.6600

↑ REPEAT SECTION ↑

BEFORE SURVEY CALIBRATION
 C:\Minimus 13.02.6600\Data\Redland Gleason 35-4\Redland Gleason 35-4 Main spooled section.dta

General Constants All 000 Last Edited on 08-SEP-2012,16:15

General Parameters		
Mud Resistivity	0.920	ohm-metres
Mud Resistivity Temperature	75.000	degrees F
Water Level	0.000	feet
Density/Neutron Processing	Wet Hole	
Hole/Annular Volume and Differential Caliper Parameters		
HVOL Method	Single Caliper	
HVOL Caliper 1	Density Caliper	
HVOL Caliper 2	N/A	
Annular Volume Diameter	4.500	inches
Caliper for Differential Caliper	Density Caliper	
Rwa Parameters		
Porosity used	Base Density Porosity	
Resistivity used	Array Ind. Four Res Rt	
RWA Constant A	0.610	
RWA Constant M	2.150	

Down-hole Tension Calibration SMS 0 Field Calibration on 08-SEP-2012 15:56

Reading No	Measured	Calibrated (lbs)
1	15497.08	0.00
2	16038.86	472.00

Gamma Calibration MCG-D.K 442 Field Calibration on 07-SEP-2012 14:57

	Measured	Calibrated (API)
Background	67	45
Calibrator (Gross)	1141	770
Calibrator (Net)	1074	725

Gamma Constants MCG-D.K 442 Last Edited on 08-SEP-2012,14:46

Gamma Calibrator Number	GRC38	
Mud Density	1.10	gm/cc
Caliper Source for Processing	Density Caliper	
Tool Position	Eccentred	
Concentration of KCl	0.00	kppm

SP Calibration MCG-D.K 442 Field Calibration on 17-JUL-2012 16:34

	Measured	Calibrated (mV)
Reference 1	100.2	100.0
Reference 2	-99.9	-100.0

High Resolution Temperature Calibration MCG-D.K 442 Field Calibration on 17-JUL-2012 16:35

	Measured	Calibrated(Deg F)
Lower	50.00	50.00
Upper	100.00	100.00

High Resolution Temperature Constants MCG-D.K 442

Last Edited on

Pre-filter Length 11

Caliper Calibration MML-A 16

Base Calibration on 07-SEP-2012 10:01

Field Calibration on 07-SEP-2012 10:04

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	13823	5.98
2	16876	7.97
3	20058	9.86
4	23883	11.92
5	0	0.00
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
6.00	5.98

Micro Normal and Micro Inverse Calibration MML-A 16

Base Calibration on 07-SEP-2012 10:10

Field Check on 07-SEP-2012 10:12

Base Calibration

Channel	Measured		Calibrated (ohm-m)	
	Resistor 1	Resistor 2	Resistor 1	Resistor 2
Micro Normal	12.1	60.2	5.0	25.0
Micro Inverse	15.6	78.3	5.0	25.0

Channel	Base Check (ohm-m)	Field Check (ohm-m)
Micro Normal	62.9	62.9
Micro Inverse	48.2	48.2

Micro Normal and Micro Inverse Constants MML-A 16

Last Edited on 07-SEP-2012,10:07

Pad Type	8-12 in Soft Rubber Inflatable 006-9011-159		
Micro Normal K Factor	1.0000		
Micro Inverse K Factor	1.0000		
Standoff Offset	N/A	inches	

Neutron Calibration MDN-A.B 66

Base Calibration on 07-SEP-2012 14:38

Field Check on 07-SEP-2012 14:53

Base Calibration

Ratio	Measured		Calibrated (cps)	
	Near	Far	Near	Far
	3154	98	3714	110
	32.161		33.764	

Field Calibrator at Base

Ratio	Calibrated (cps)
	1643 2350
	0.699

Field Check

Ratio	Calibrated (cps)
	1633 2371
	0.689

Neutron Constants MDN-A.B 66

Last Edited on 08-SEP-2012,14:45

Neutron Source Id	P0204NN		
Neutron Jig Number	5824NE		
Epithermal Neutron	No		
Caliper Source for Processing	Density Caliper		
Stand-off	0.00	inches	
Mud Density	1.00	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	Constant Value		

Temperature	68.00	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	

FE Calibration MFE-B.J 353 Base Calibration on 27-AUG-2012 09:28
Field Check on 07-SEP-2012 15:58

Base Calibration		
	Measured	Calibrated (ohm-m)
Reference 1	0.0	0.0
Reference 2	964.3	126.8
Base Check		281.0
Field Check		281.0

FE Constants MFE-B.J 353 Last Edited on 08-SEP-2012,14:44

Running Mode	No Sleeve	
MFE K Factor	0.1268	
Caliper Source for FE correction	Density Caliper	
Caliper Value for FE correction	N/A	inches
Rm Source for FE correction	Temperature Corr	
Temp. for Rm Corr.	MCG External Temperature	
Stand-off	0.5	inches

Sonic Constants MSS-A.A 126 Last Edited on 08-SEP-2012,14:44

Maximum Boundary Contrast	100.00	micro-sec/ft
Fluid Transit Time	189.00	micro-sec/ft
Limestone Transit Time	47.50	micro-sec/ft
Sandstone Transit Time	55.50	micro-sec/ft
Dolomite Transit Time	43.50	micro-sec/ft
Sonic used for Porosities	3-5' Compensated Sonic	
Correction for Sonde Skew	Applied	
Cycle Stretch Algorithm	Applied	
MN3FT	N/A	micro-sec
MX3FT	N/A	micro-sec
Hunt-Raymer Constant	83.13	micro-sec/ft

Sonde Mode	Compensated
Hole Type	Open Hole

Sonde Parameters

	Measured	Calibrated
Offset	N/A	0.0000
Free Pipe	N/A	N/A
Peak Amplitude Source		N/A

Waveform	Start Time (micro-sec)	Width (micro-sec)	Pre Gain	Start Gain	Discriminator (mV)
3'	N/A	N/A	N/A	N/A	N/A
4'	N/A	N/A	N/A	N/A	N/A
5'	N/A	N/A	N/A	N/A	N/A
6'	N/A	N/A	N/A	N/A	N/A

Processed Fixed Gate Parameters

Waveform Used For Processing	N/A			
Start Time (micro-sec)	End Time (micro-sec)	Discriminator (mV)	N/A	
N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A

Full Waveform Parameters

Use 3' Waveform to derive TR	N/A
Use 4' Waveform to derive TR	N/A
Use 5' Waveform to derive TR	N/A

Use 6' Waveform to derive TR	N/A	
3' Waveform Discriminator Level	N/A	mV
4' Waveform Discriminator Level	N/A	mV
5' Waveform Discriminator Level	N/A	mV
6' Waveform Discriminator Level	N/A	mV
3' Waveform Filter	N/A	
4' Waveform Filter	N/A	
5' Waveform Filter	N/A	
6' Waveform Filter	N/A	

Semblance Level	N/A	
Semblance Window Width	N/A	micro-sec
Sonic 1 Despiker	N/A	N/A
Sonic 2 Despiker	N/A	N/A

High Resolution Temperature Calibration MAI-A.A 167

Field Calibration on 17-JUL-2012,13:53

	Measured	Calibrated(Deg F)
Lower	1.00	33.80
Upper	11.00	51.80

High Resolution Temperature Constants MAI-A.A 167

Last Edited on 17-JUL-2012,13:49

Pre-filter Length	11
-------------------	----

Induction Calibration MAI-A.A 167

Base Calibration on 17-JUL-2012,13:55
Field Check on 07-SEP-2012 15:57

Base Calibration

Test Loop Calibration

Channel	Measured		Calibrated (mmho/m)	
	Low	High	Low	High
1	17.3	474.2	9.3	966.2
2	6.3	388.4	7.6	821.4
3	3.3	259.4	5.2	566.0
4	1.9	133.0	2.6	279.2

Array Temperature 76.8 Deg F

Channel	Base Check (mmho/m)		Field Check (mmho/m)	
	Low	High	Low	High
1	0.0	0.0	13.1	3839.7
2	0.0	0.0	29.6	3477.5
3	0.0	0.0	29.2	3053.5
4	0.0	0.0	19.8	2082.1
Deep	0.0	0.0	18.6	2049.4
Medium	0.0	0.0	42.3	3991.8
Shallow	0.0	0.0	43.0	5054.8

Array Temperature 0.0 73.8 Deg F

Induction Constants MAI-A.A 167

Last Edited on 08-SEP-2012,14:44

Induction Model	RtAP-WBM	
Caliper for Borehole Corr.	Density Caliper	
Hole Size for Borehole Correction	N/A	inches
Tool Centred	No	
Stand-off Type	Fins	
Stand-off	0.50	inches
Number of Fins on Stand-off	8.0000	
Stand-off Fin Angle	45.00	degrees
Stand-off Fin Width	0.5000	inches
Borehole Corr. Rm Source	Temperature Corr	
Temp. for Rm Corr.	MCG External Temperature	
Squasher Start	0.0020	mhos/metre
Squasher Offset	N/A	mhos/metre

Borehole Normalisation

DRM1	0.0000	DRC1	0.0000
DRM2	0.0000	DRC2	0.0000
MRM1	0.0000	MRC1	0.0000
MRM2	0.0000	MRC2	0.0000
SRM1	0.0000	SRC1	0.0000
SRM2	0.0000	SRC2	0.0000

Calibration Site Corrections		
Channel 1	0.00	mmhos/metre
Channel 2	0.00	mmhos/metre
Channel 3	0.00	mmhos/metre
Channel 4	0.00	mmhos/metre
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-B 64

Base Calibration on 07-SEP-2012 15:19
Field Calibration on 07-SEP-2012 15:20

Base Calibration		
Reading No	Measured	Calibrator Size (in)
1	12187	3.99
2	20933	5.98
3	29363	7.97
4	37866	9.86
5	47152	11.92
6	N/A	N/A
Field Calibration		
	Measured Caliper (in)	Actual Caliper (in)
	5.96	5.98

Photo Density Calibration MPD-B 64

Base Calibration on 07-SEP-2012 15:36
Field Check on 07-SEP-2012 15:42

Density Calibration					
Base Calibration		Measured		Calibrated (sdu)	
	Near	Far	Near	Far	
Reference 1	63262	35109	59556	30836	
Reference 2	26458	3017	24941	2541	
Field Check at Base					
	1187.6	1377.3			
Field Check					
	1181.3	1375.9			
PE Calibration					
Base Calibration		Measured		Calibrated	
	WS	WH	Ratio	Ratio	
Background	215	1060			
Reference 1	23956	63052	0.383	0.371	
Reference 2	7220	26320	0.277	0.272	
Field Check at Base					
	215.3	1059.6			
Field Check					
	212.1	1051.7			

Density Constants MPD-B 64

Last Edited on 08-SEP-2012,14:45

Density Source Id	18235B	
Nylon Calibrator Number	DNCE695	
Aluminium Calibrator Number	DACD698	
Density Shoe Profile	8 inch	
Caliper Source for Processing	Density Caliper	
PE Correction to Density	Not Applied	
Mud Density	1.10	gm/cc
Mud Density Z/A Multiplier	1.11	
Mud Filtrate Density	1.00	gm/cc
Dry Hole Mud Filtrate Density	1.00	gm/cc
DNCT	0.00	gm/cc

DNOI	0.00	gm/cc
CRCT	0.00	gm/cc
Density Z/A Correction	Hybrid	
Matrix Density (gm/cc)	Depth (ft)	
2.87	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:\Minimus 13.02.6600\Data\Redland Gleason 35-4\Redland Gleason 35-4 Main spooled section.dta

3/8" Triple Cone Cable Head (MCB C A)
 MCB-C.A.5 LG: 1.58 ft WT: 15.4 lb OD: 2.24 in

Compact Comms Gamma
 MCG-D.K.442 LG: 8.70 ft WT: 63.9 lb OD: 2.24 in

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

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

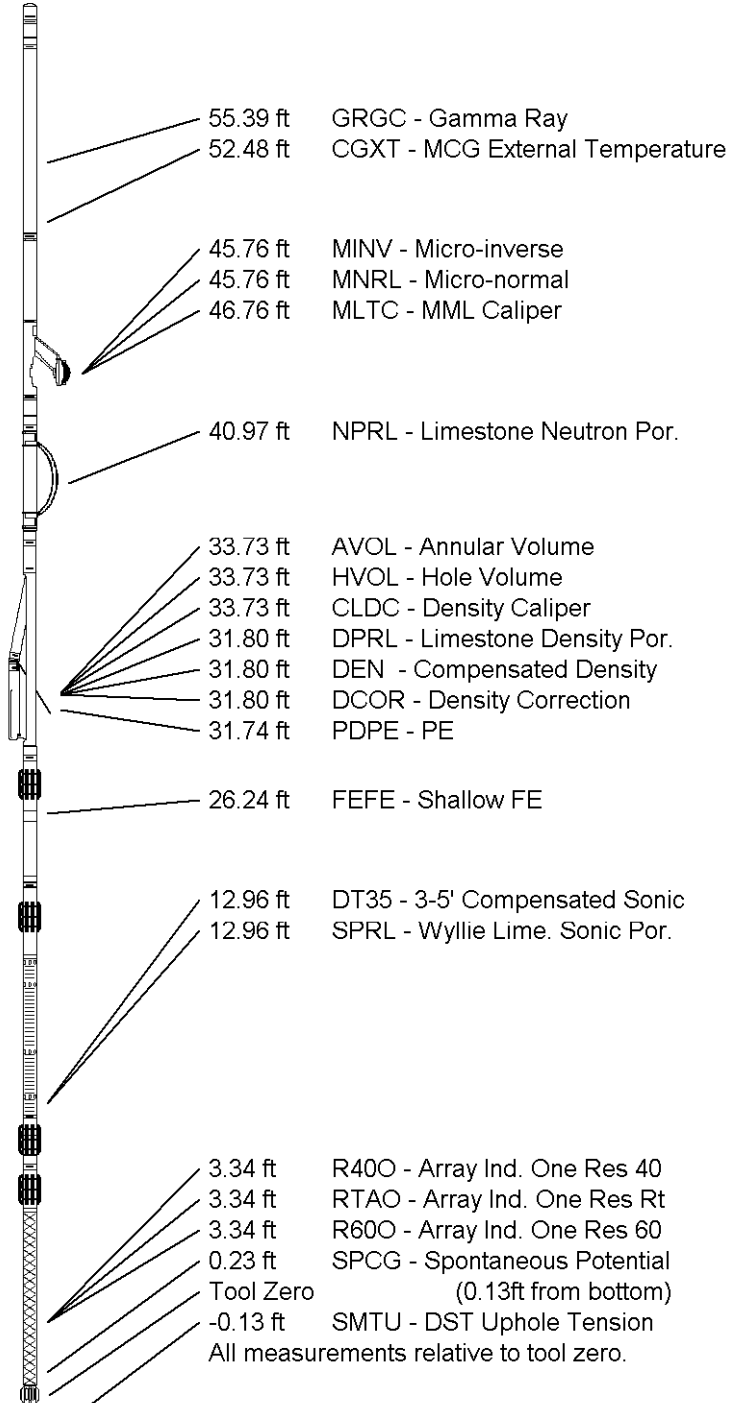
Compact Density/Caliper
 MPD-B.64 LG: 9.59 ft WT: 90.4 lb OD: 2.45 in

Compact Focussed Electric
 MFE-B.J.353 LG: 6.05 ft WT: 48.5 lb OD: 2.24 in

Compact Sonic
 MSS-A.A.126 LG: 12.52 ft WT: 72.8 lb OD: 2.24 in

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

Total Length: 62.25 ft Weight: 471.8 lb



WELL GLEASON 35-4
FIELD WILDCAT
PROVINCE/COUNTY HODGEMAN
COUNTRY/STATE U.S.A. / KANSAS

Elevation Kelly Bushing	2524.00	feet	First Reading	4936.00	feet
Elevation Drill Floor	2522.00	feet	Depth Driller	4950.00	feet
Elevation Ground Level	2516.00	feet	Depth Logger	4949.00	feet



Weatherford[®]

COMPACT PHOTO DENSITY
COMPENSATED NEUTRON
MICRORESISTIVITY LOG