COMPACT PHOTO DENSITY COMPENSATED NEUTRON LOG

Weatherford®

COMPANY	UNIT PETROLEUM COMPANY
WELL	LOUDENBACK 7 #1
FIELD	WILDCAT
PROVINCE/COUNTY	RENO
COUNTRY/STATE	U.S.A. / KANSAS
LOCATION	150' FNL & 850' FEL NE-NW-NE-NW

SEC	TWP	RGE	Other Services
18	25S	10W	MAI/MFE

API Number 15-155-21662
Permit Number

Permanent Datum GL, Elevation 1770 feet
Log Measured From KB
Drilling Measured From KB

Elevations:	feet
KB	1784.00
DF	1785.00
GL	1770.00

Date	22-JUL-2013				
Run Number	ONE				
Service Order	3542196				
Depth Driller	4158.00	feet			
Depth Logger	4156.00	feet			
First Reading	4137.00	feet			
Last Reading	1514.00	feet			
Casing Driller	1515.00	feet			
Casing Logger	1514.00	feet			
Bit Size	8.750	inches			
Hole Fluid Type	WBM				
Density / Viscosity	9.40 lb/USg		40.00 CP		
PH / Fluid Loss	10.60		6.80 ml/30Min		
Sample Source	MUD PIT				
Rm @ Measured Temp	0.90 @109.0	ohm-m			
Rmf @ Measured Temp	0.72 @109.0	ohm-m			
Rmc @ Measured Temp	1.08 @109.0	ohm-m			
Source Rmf / Rmc	CALC		CALC		
Rm @ BHT	0.77 @127.0	ohm-m			
Time Since Circulation	4 HOURS				
Max Recorded Temp	128.00	deg F			
Equipment / Base	13145		OKC		
Recorded By	JIM SCHULER			J. HICKS	
Witnessed By	ROB WILSON			LARRY MILLER	

BOREHOLE RECORD

Last Edited: 22-JUL-2013 15:33

Bit Size inches	Depth From feet	Depth To feet
12.250	0.00	1515.00
8.750	1515.00	4158.00

CASING RECORD

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	9.650	0.00	1515.00	36.00

REMARKS

WLS 13.04.8723

MAGNETIC DECLINATION = 4.2

DEPTH CONTROL: CALIBRATED MEASURING WHEEL

TOOLS RAN: SHA, MCG, MMR, MDN, MPD, MFE, MAI RAN IN COMBINATION

HARDWARE:
MAI: TWO 0.5 INCH STANDOFFS USED.
MFE: ONE 0.5 INCH STANDOFF USED
MDN: DUAL NEUTRON BOW SPRINGS USED.
MPD: 8 INCH PROFILE PLATE USED.

2.71 G/CC DENSITY MATRIX USED TO CALCULATE POROSITY
ALL INTERVALS LOGGED AND SCALED PER CUSTOMER'S REQUEST.

TOTAL HOLE VOLUME FROM TD TO 1514' = 1551 CU.FT.
ANNULAR HOLE VOLUME WITH 7.0 INCH PRODUCTION CASING FROM TD TO 1514' = 855 CU.FT.

SERVICE ORDER # 3542196

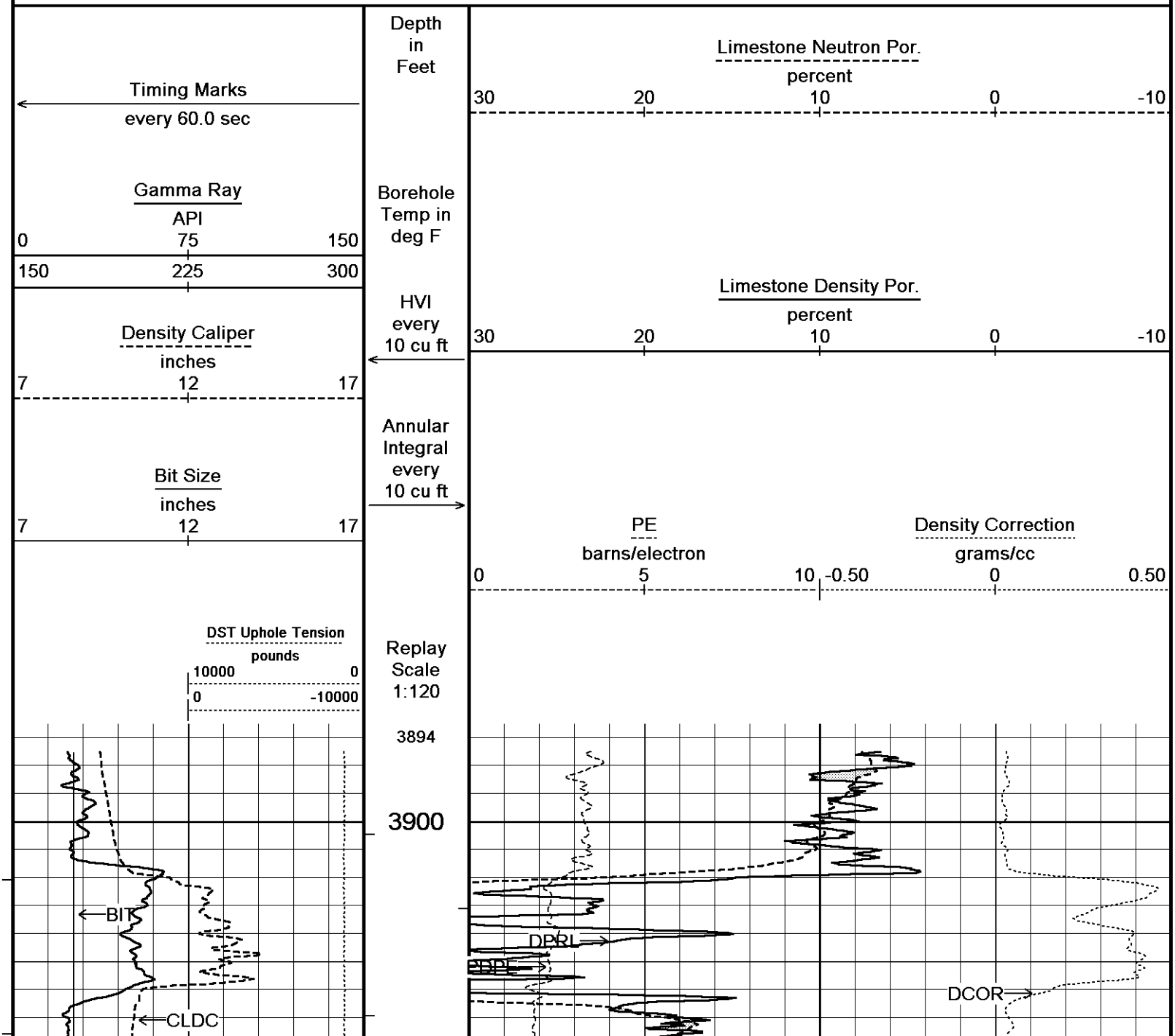
RIG: UNIT TEXAS RIG 331

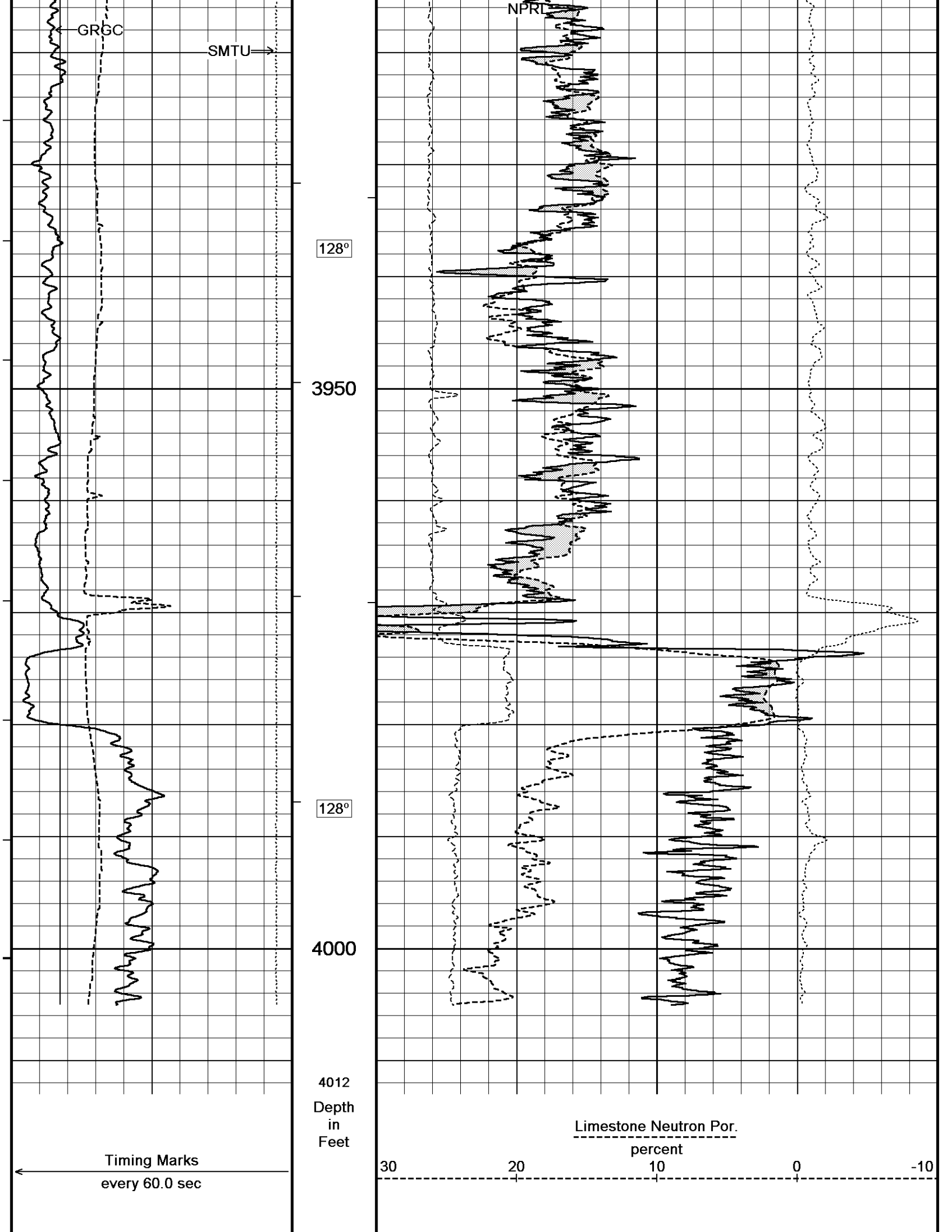
OPERATOR(S): JASON TURNER

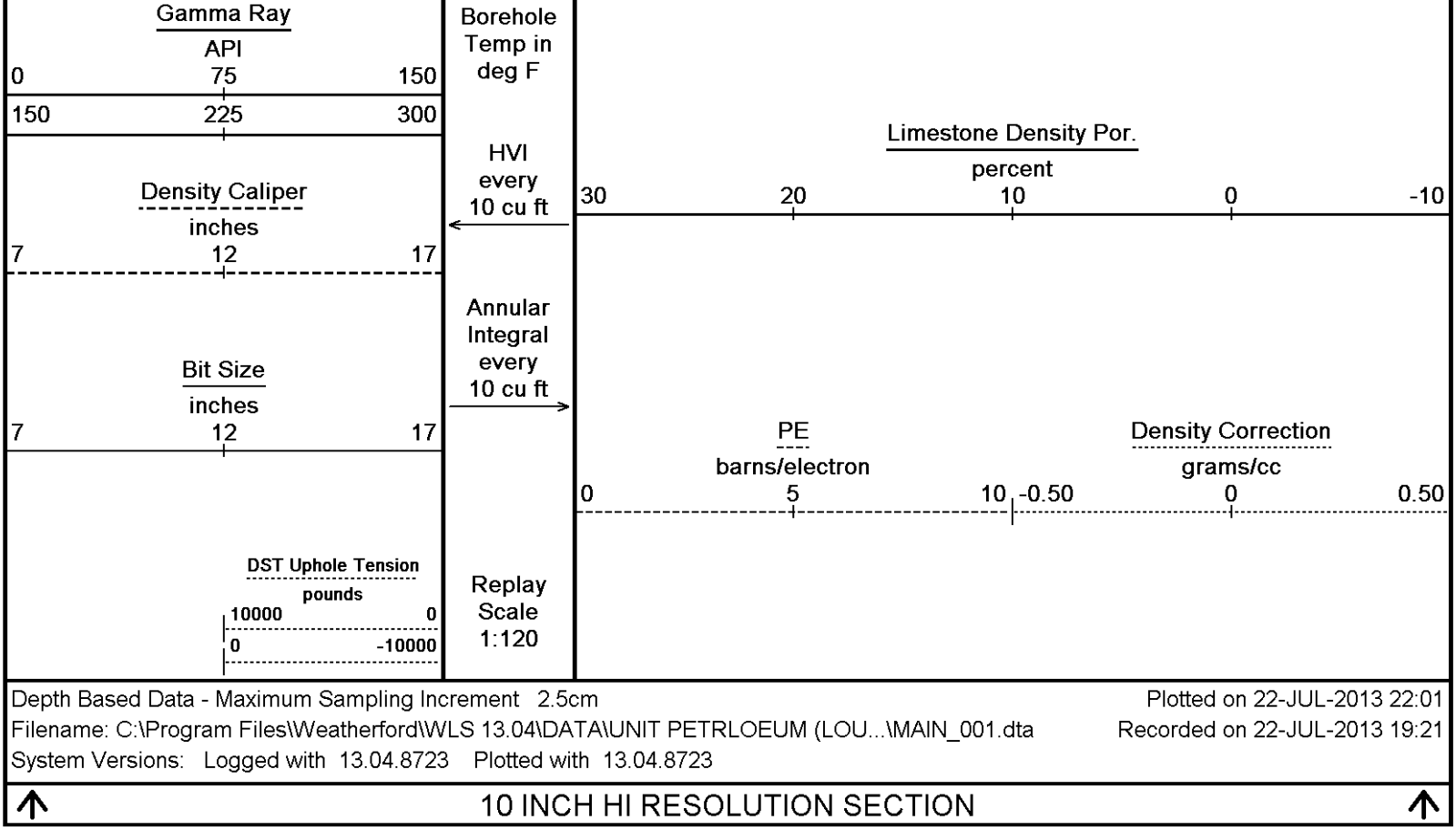
HOLE WASHOUTS AND RUGOSITY WILL AFFECT LOG QUALITY AND REPEATABILITY

10 INCH HI RESOLUTION SECTION

Depth Based Data - Maximum Sampling Increment 2.5cm
Plotted on 22-JUL-2013 22:01
Filename: C:\Program Files\Weatherford\WLS 13.04\DATA\UNIT PETRLOEUM (LOU...\MAIN_001.dta
Recorded on 22-JUL-2013 19:21
System Versions: Logged with 13.04.8723 Plotted with 13.04.8723




GRGC
SMTU
NPRL
128°
3950
128°
4000
4012
Depth
in
Feet
Timing Marks
every 60.0 sec
Limestone Neutron Por.
percent
30
20
10
0
-10

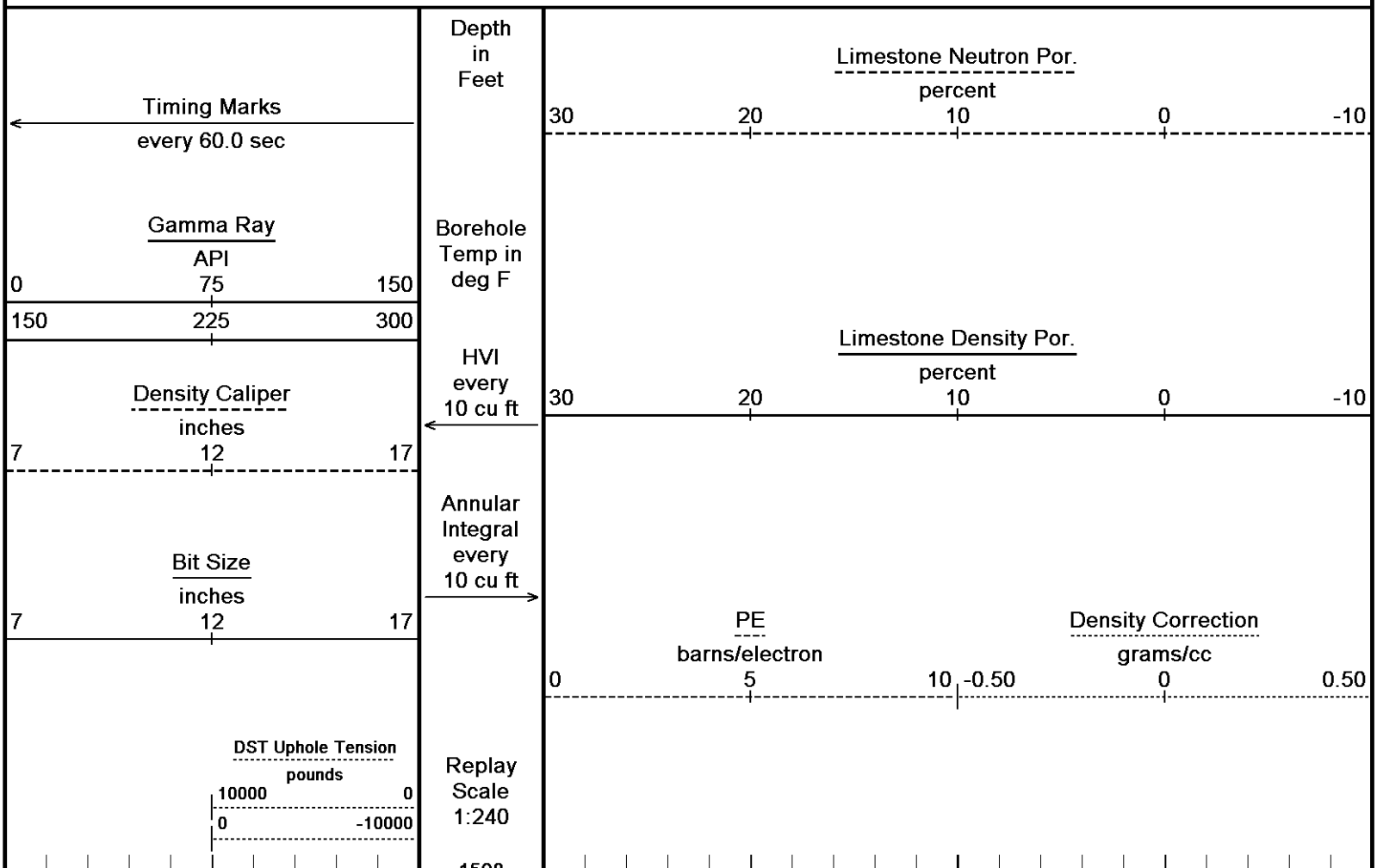


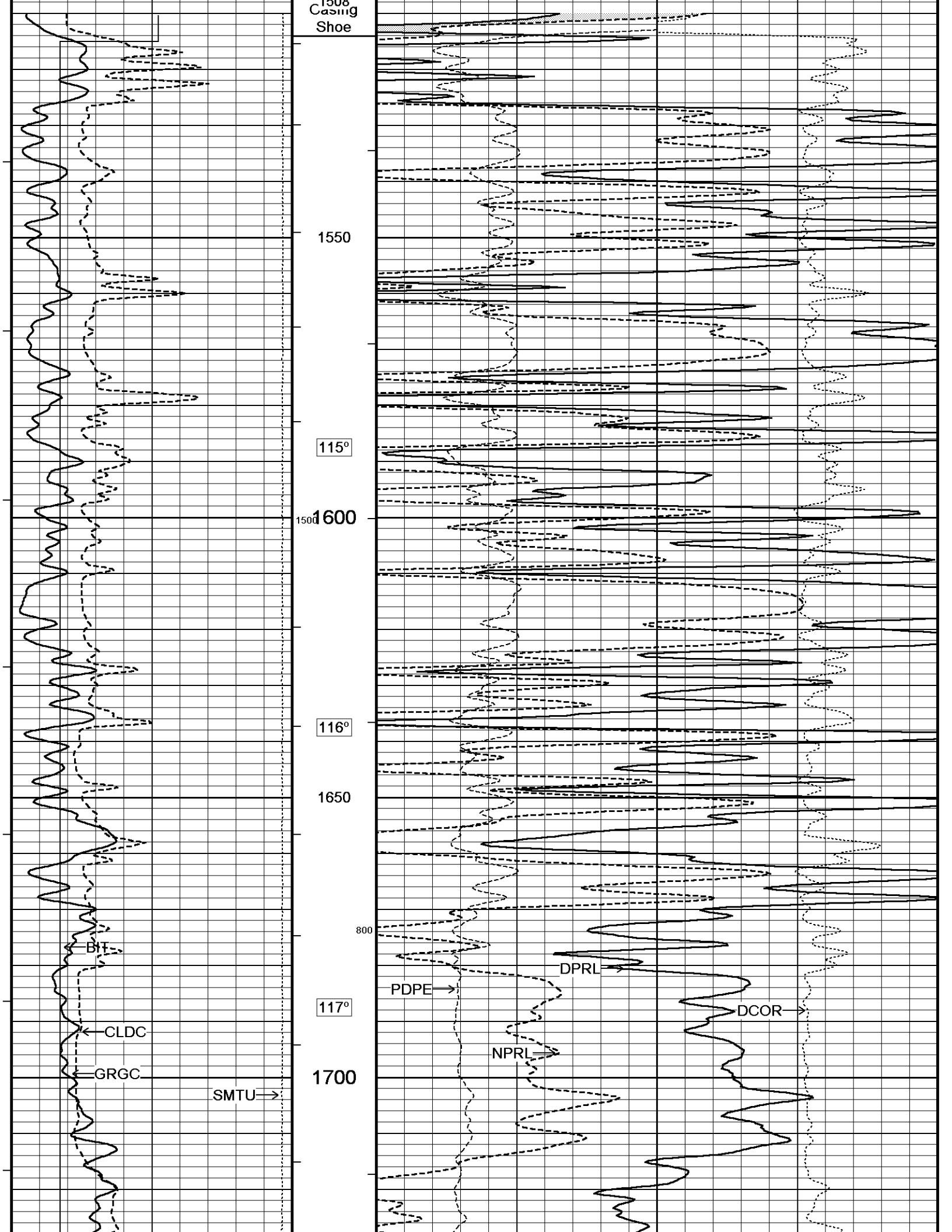
Depth Based Data - Maximum Sampling Increment 2.5cm — Plotted on 22-JUL-2013 22:01
Filename: C:\Program Files\Weatherford\WLS 13.04\DATA\UNIT PETRLOEUM (LOU...\MAIN_001.dta — Recorded on 22-JUL-2013 19:21
System Versions: Logged with 13.04.8723 Plotted with 13.04.8723

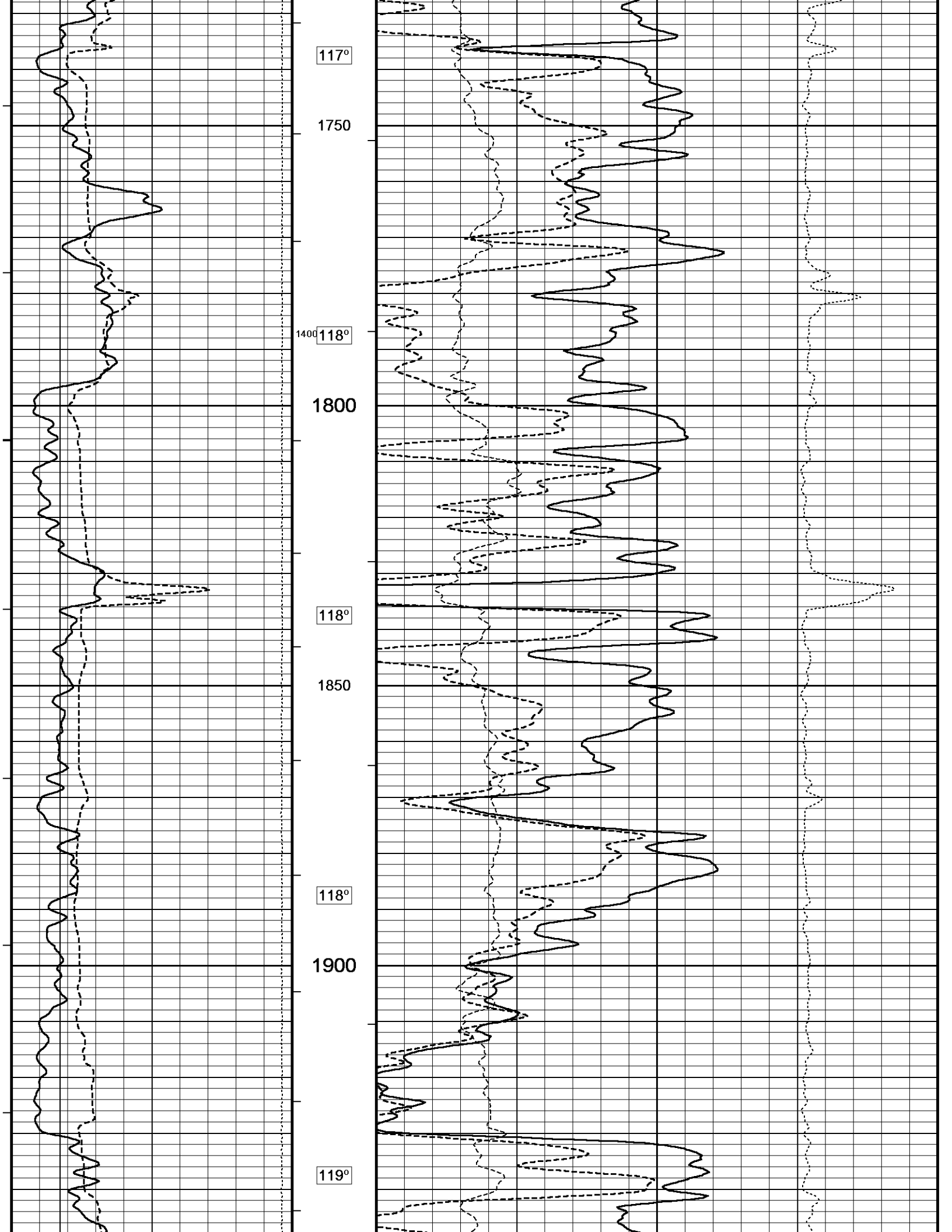
10 INCH HI RESOLUTION SECTION

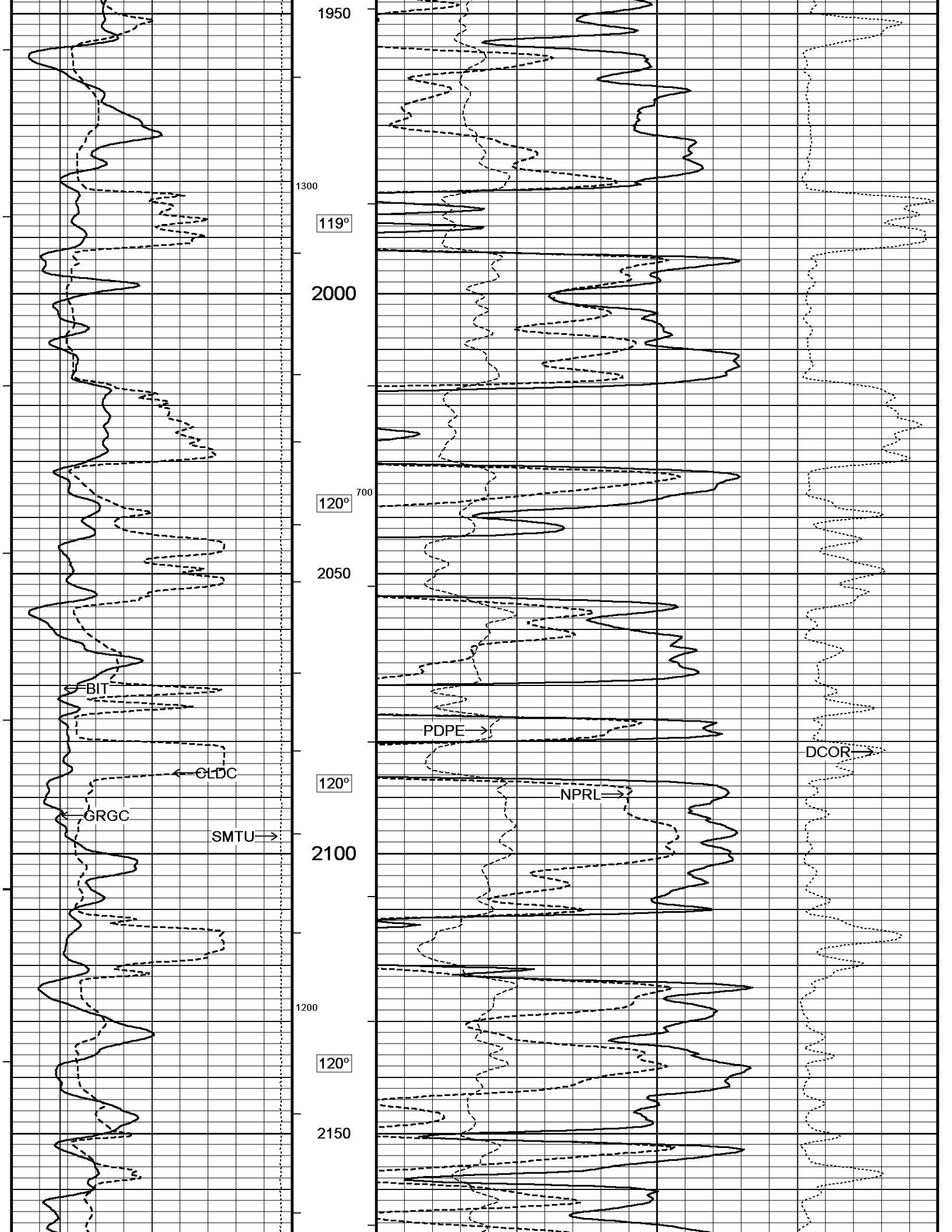
5 INCH POROSITY LOG

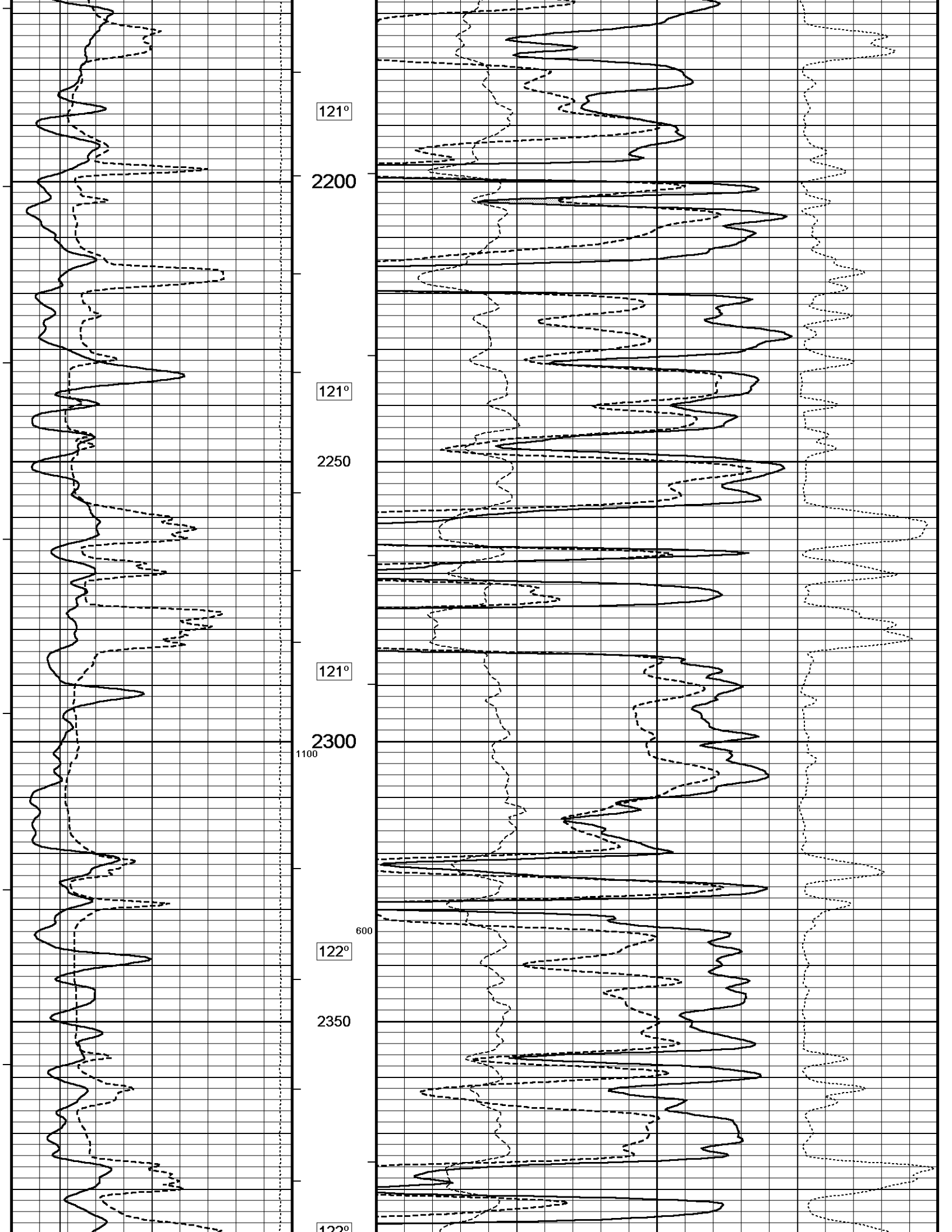
Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 22-JUL-2013 22:01
Filename: C:\Program Files\Weatherford\WLS 13.04\DATA\UNIT PETRLOEUM (LOU...\MAIN_003.dta — Recorded on 22-JUL-2013 19:56
System Versions: Logged with 13.04.8723 Processed with 13.04.8723 Plotted with 13.04.8723

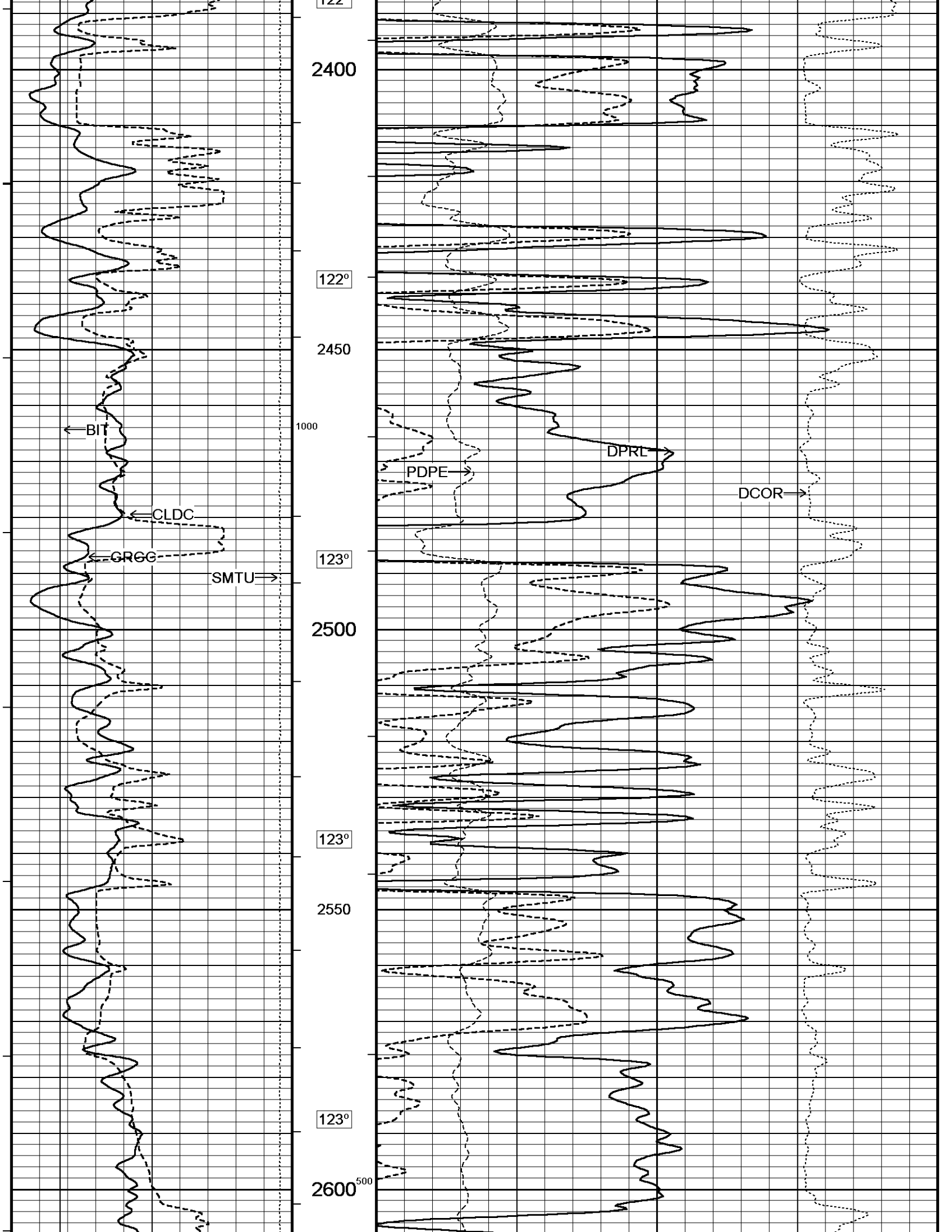


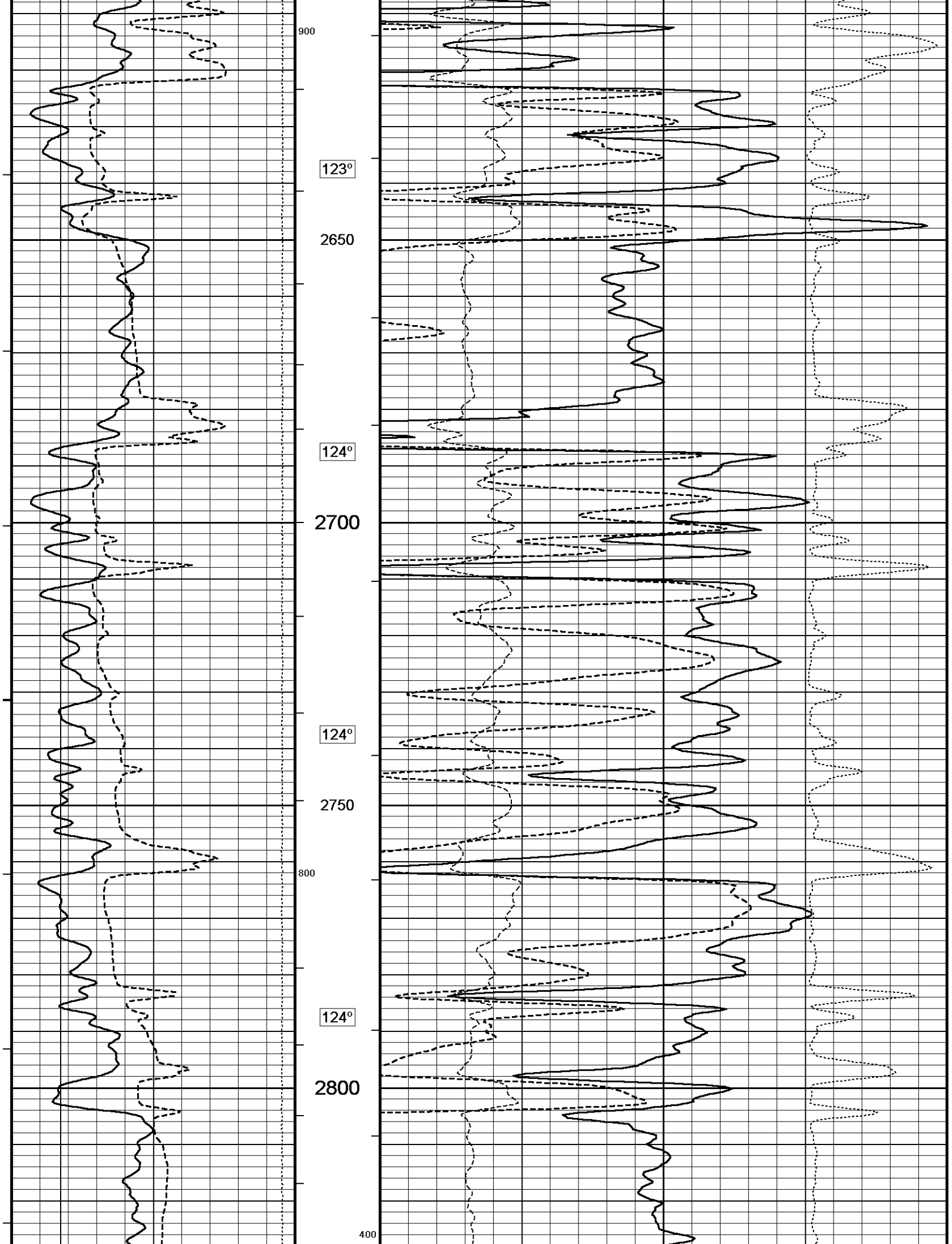

1508
Casing
Shoe
1550
115°
1500
1600
116°
1650
800
117°
1700
BIT
CLDC
GRGC
SMTU
DPRL
PDPE
DCOR
NPRL

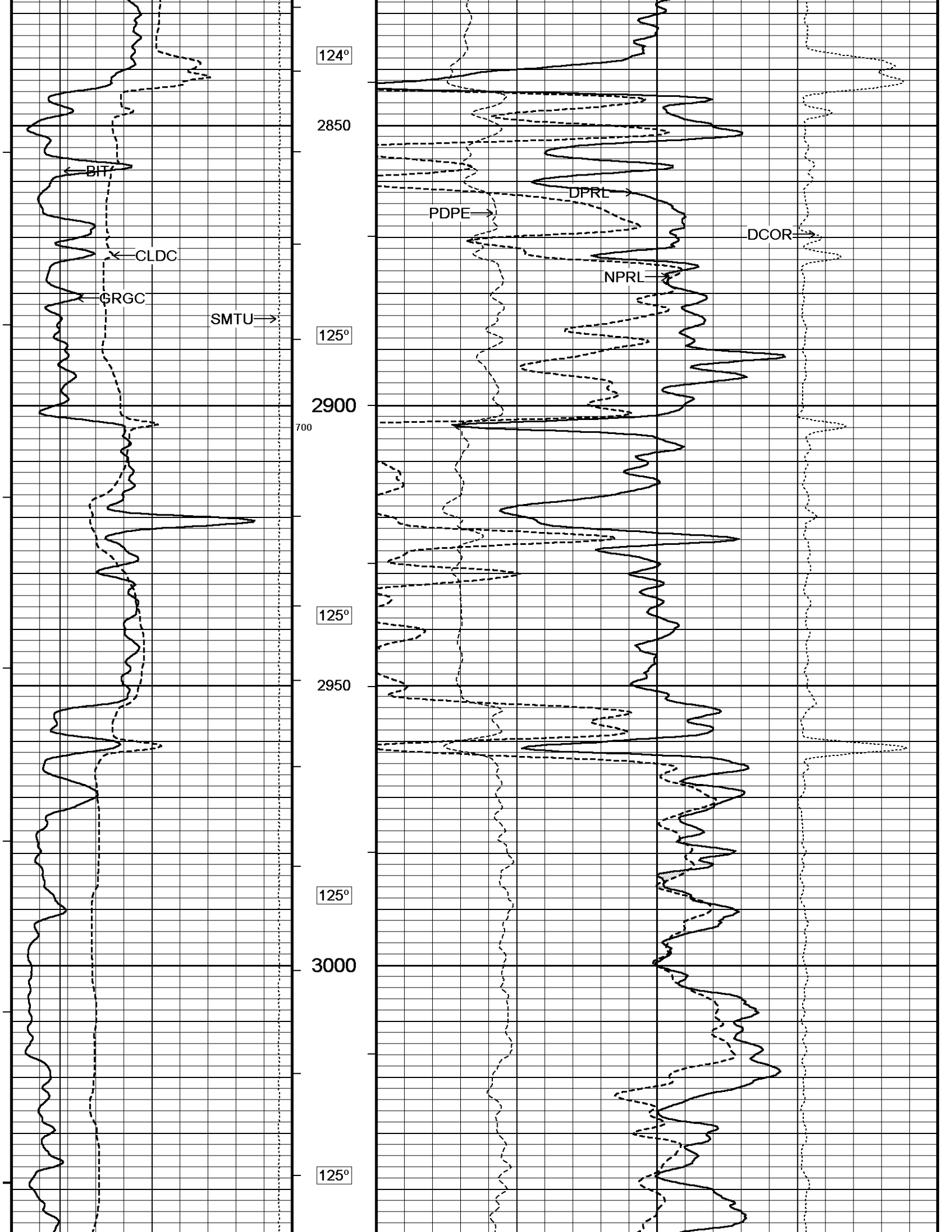

117°
1750
1400
118°
1800
118°
1850
118°
1900
119°

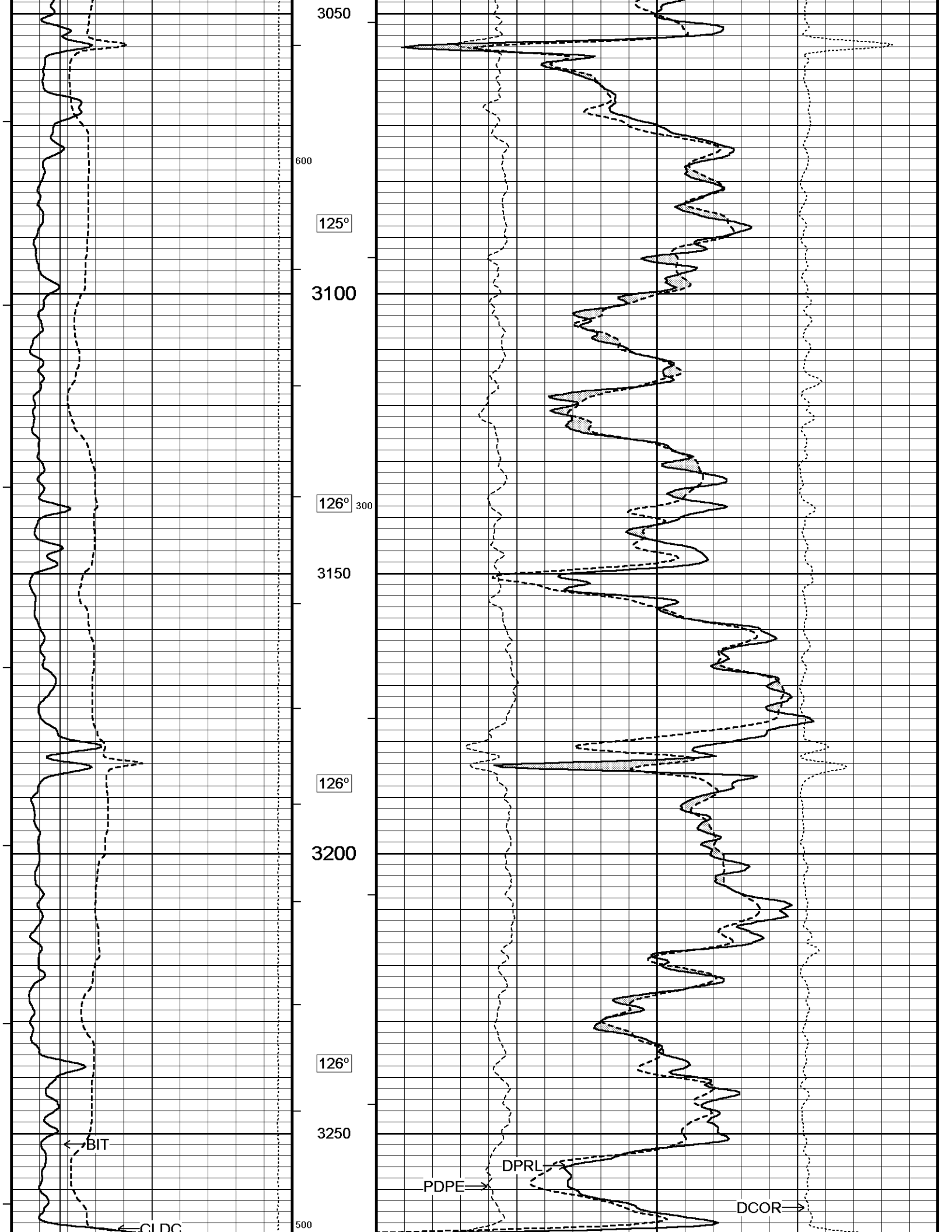

1950
1300
119°
2000
120°
700
2050
BIT
PDPE
DCOR
CLDC
120°
NPRL
GRGC
SMTU
2100
1200
120°
2150

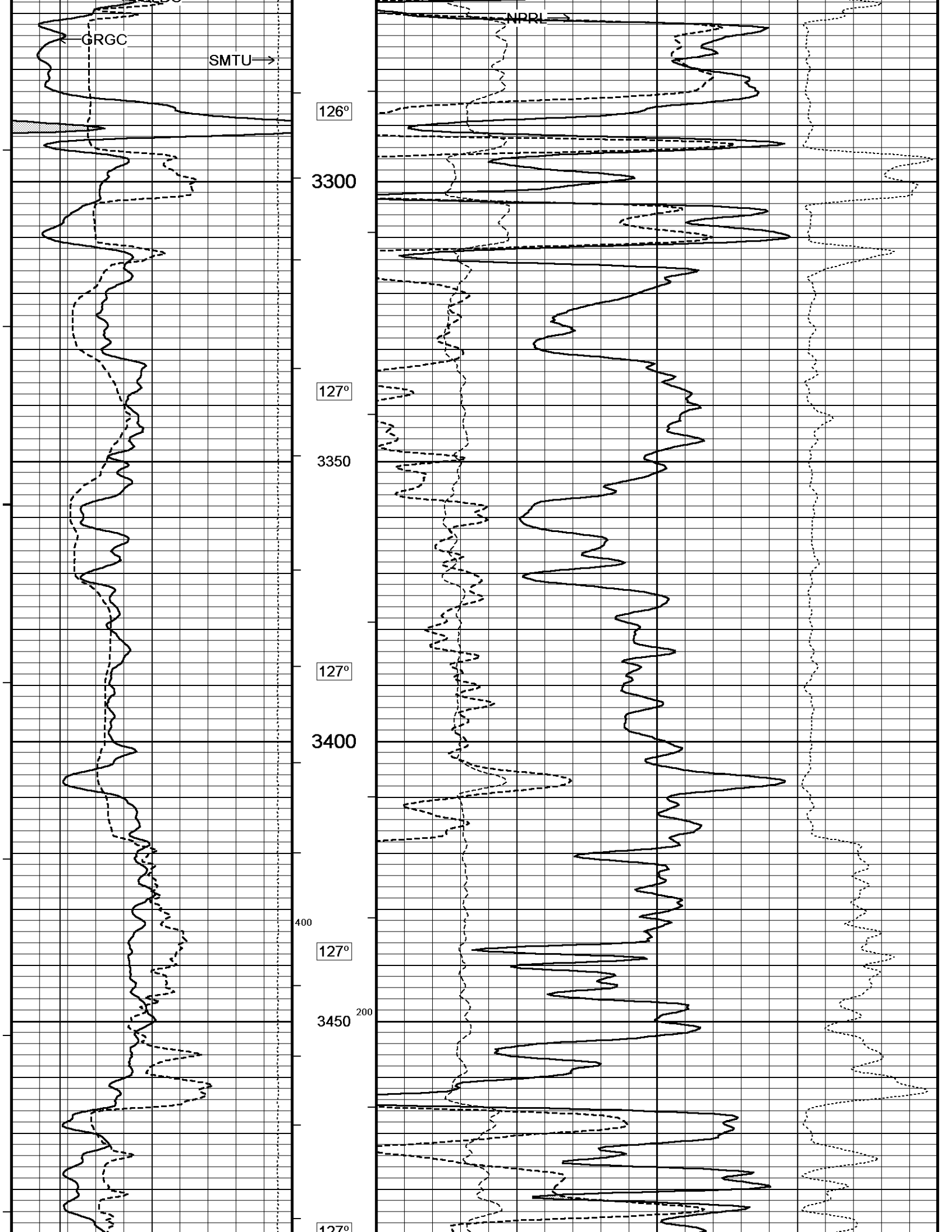

121°
2200
121°
2250
121°
2300
1100
600
122°
2350
122°

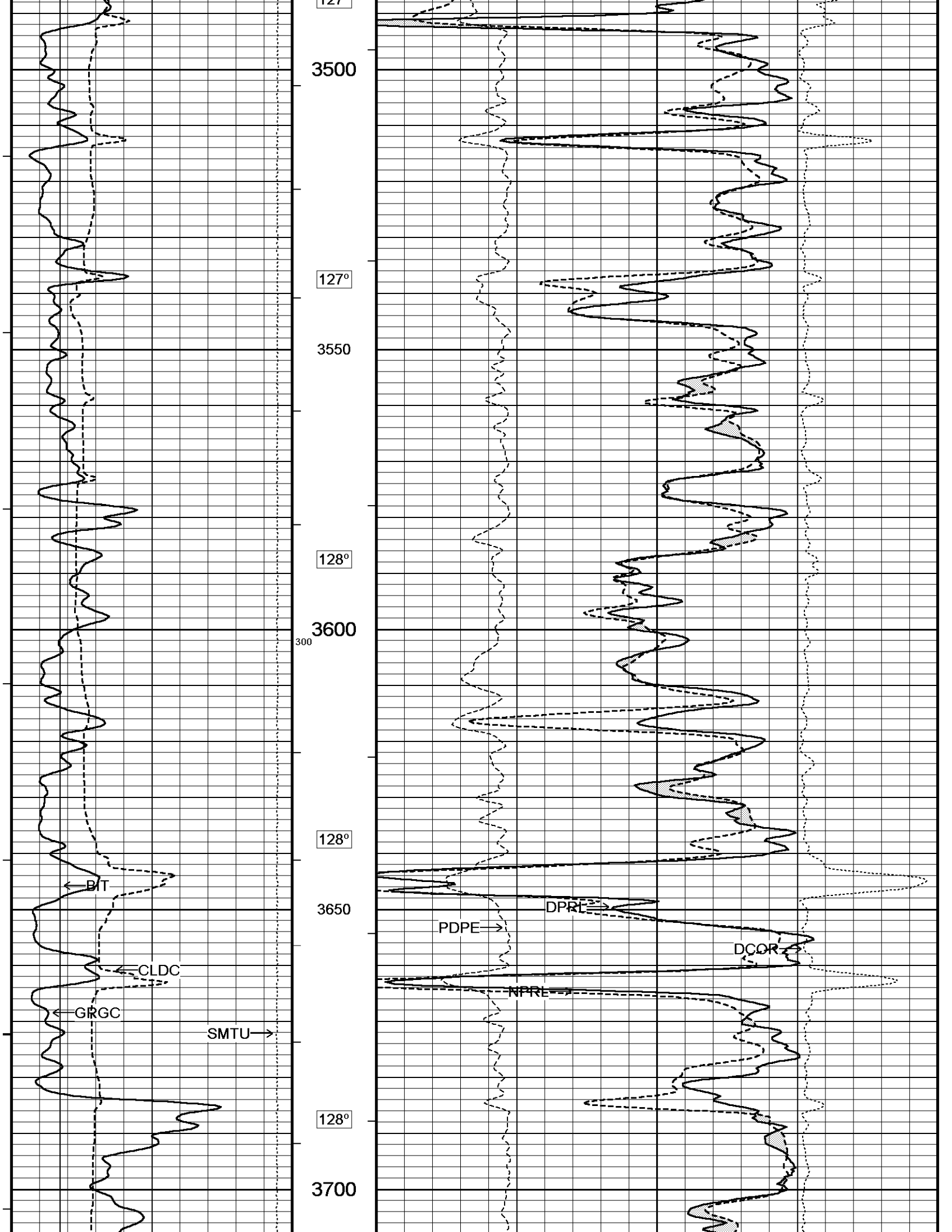

122
2400
122°
2450
1000
BIT
DPRL
PDPE
DCOR
CLDC
GRGG
123°
SMTU
2500
123°
2550
123°
2600
500

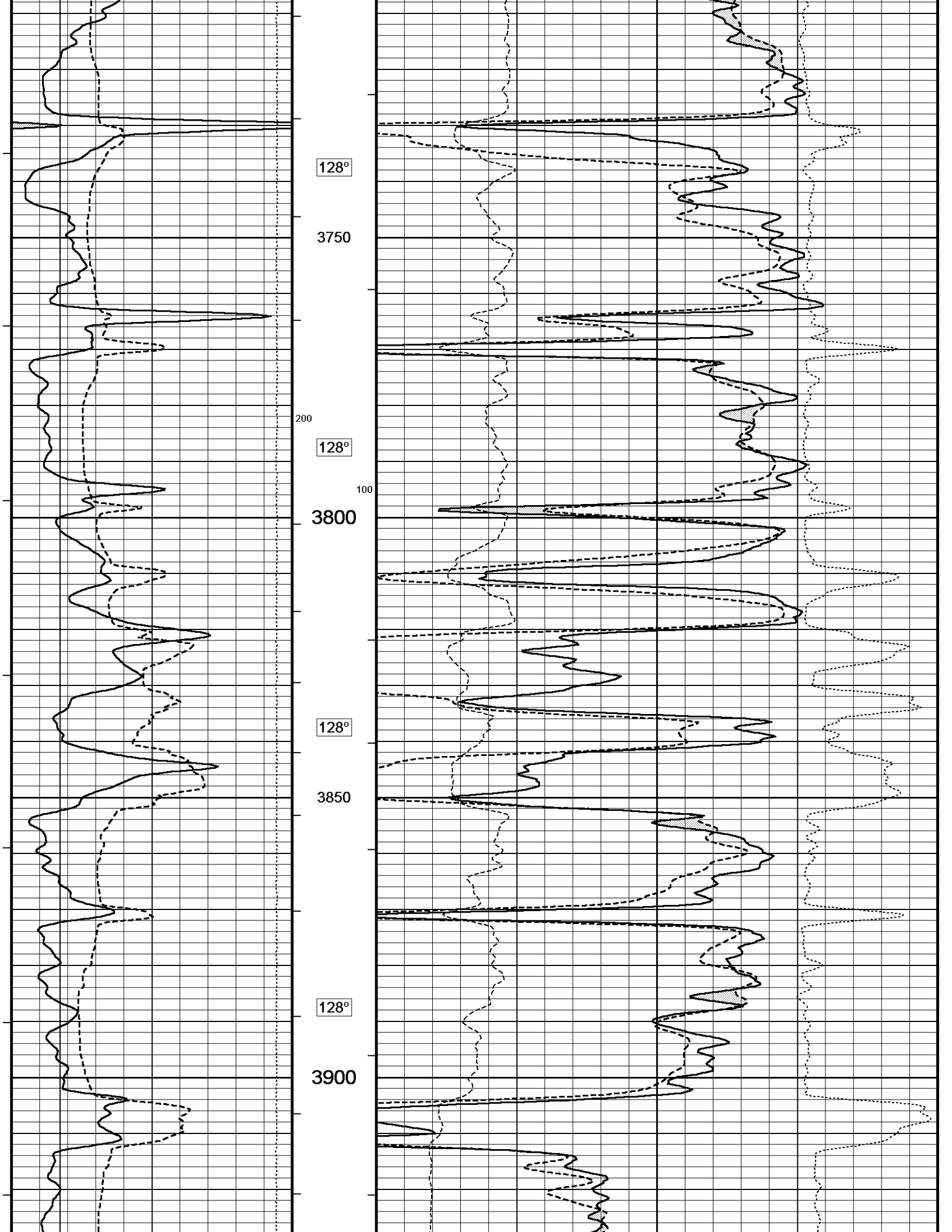

900
123°
2650
124°
2700
124°
2750
800
124°
2800
400

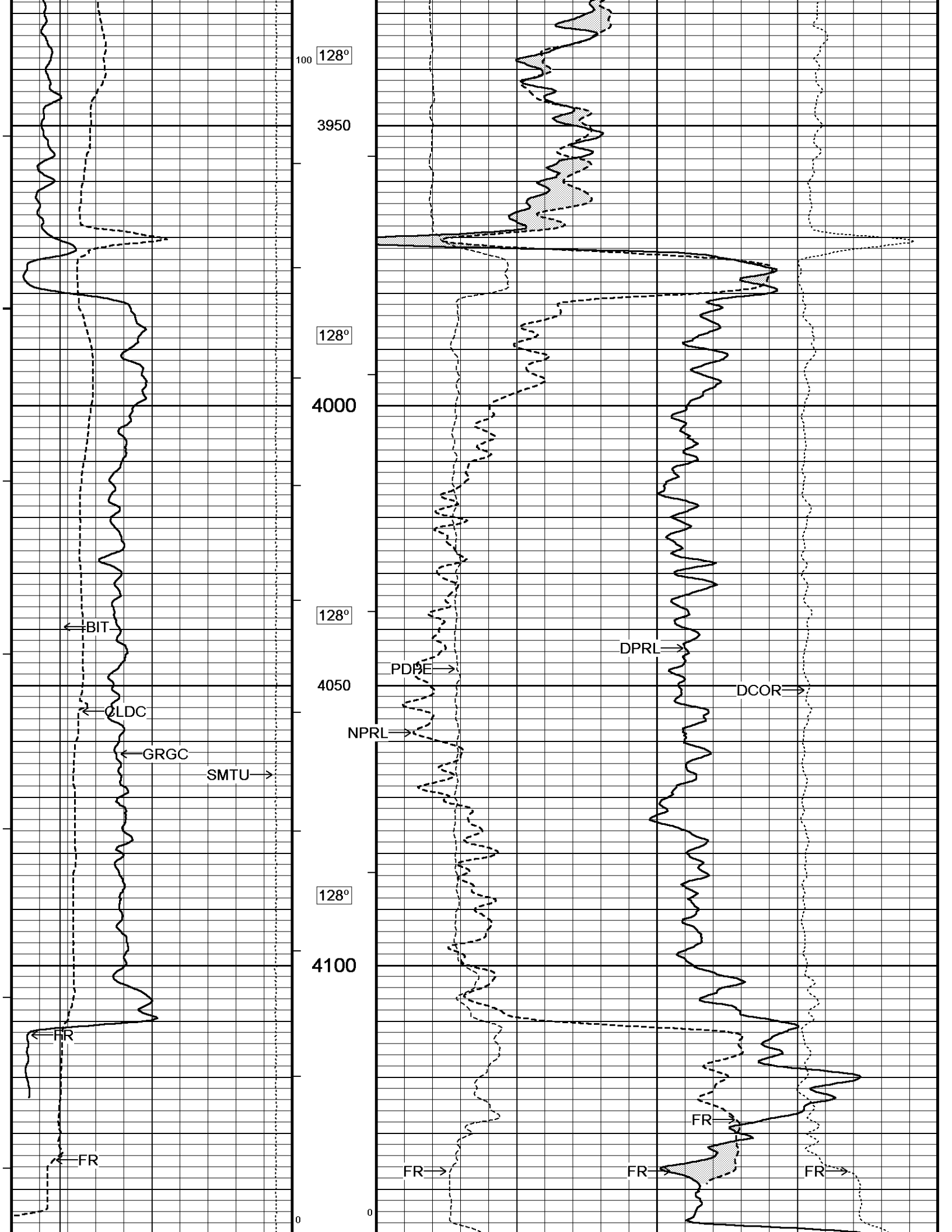

124°
2850
BIT
DPRL
PDPE
DCOR
CLDC
NPRL
GRGC
SMTU
125°
2900
700
125°
2950
125°
3000
125°

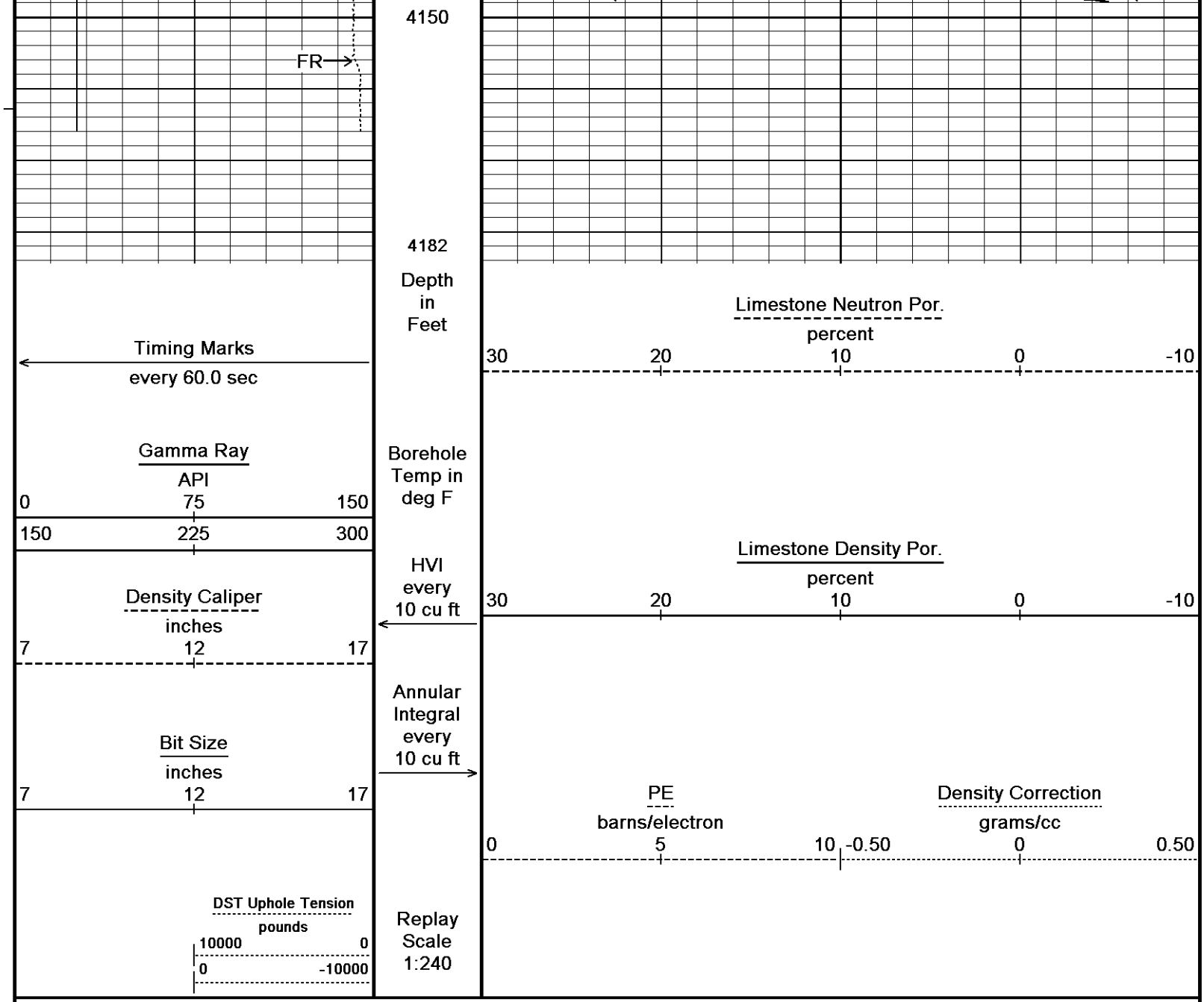

3050
600
125°
3100
126°
300
3150
126°
3200
126°
3250
500
BIT
CLDC
DPRL
PDPE
DCOR


GRGC
SMTU
NPRL
126°
3300
127°
3350
127°
3400
400
127°
3450
200
127°


127
3500
127°
3550
128°
3600
300
128°
BIT
3650
CLDC
GRGC
SMTU
128°
3700
DPRL
PDPE
DCOR
NPRL


128°
3750
200
128°
100
3800
128°
3850
128°
3900


100
128°
3950
128°
4000
128°
4050
128°
4100
0
BIT
CLDC
GRGC
SMTU
FR
FR
PDPE
NPRL
DPRL
DCOR
FR
FR
FR
FR
0



Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 22-JUL-2013 22:01
Filename: C:\Program Files\Weatherford\WLS 13.04\DATA\UNIT PETRLOEUM (LOU...\MAIN_003.dta — Recorded on 22-JUL-2013 19:56
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5 INCH POROSITY LOG

REPEAT SECTION

Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 22-JUL-2013 22:01
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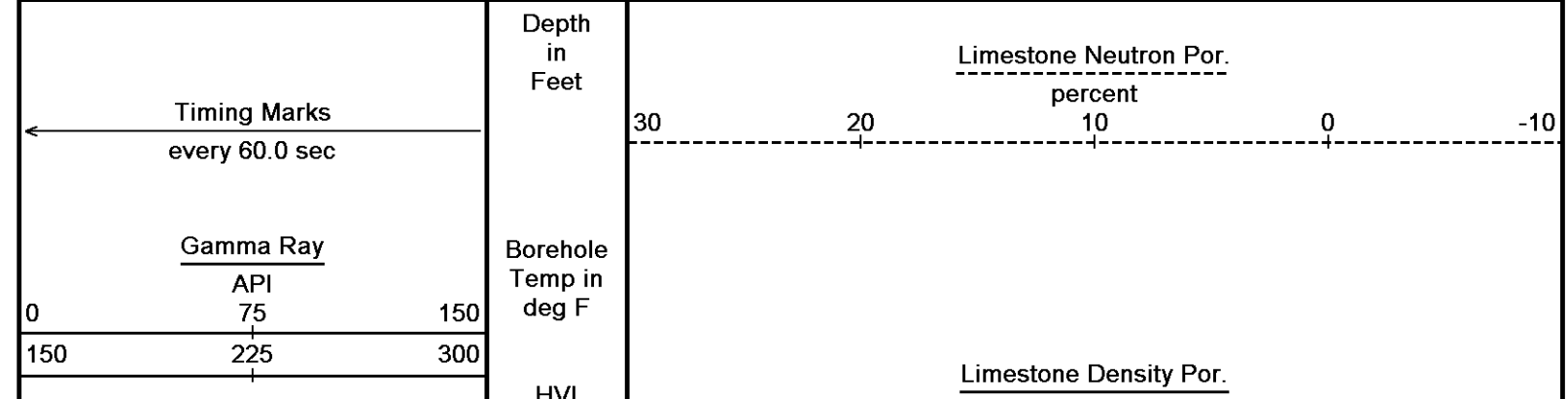
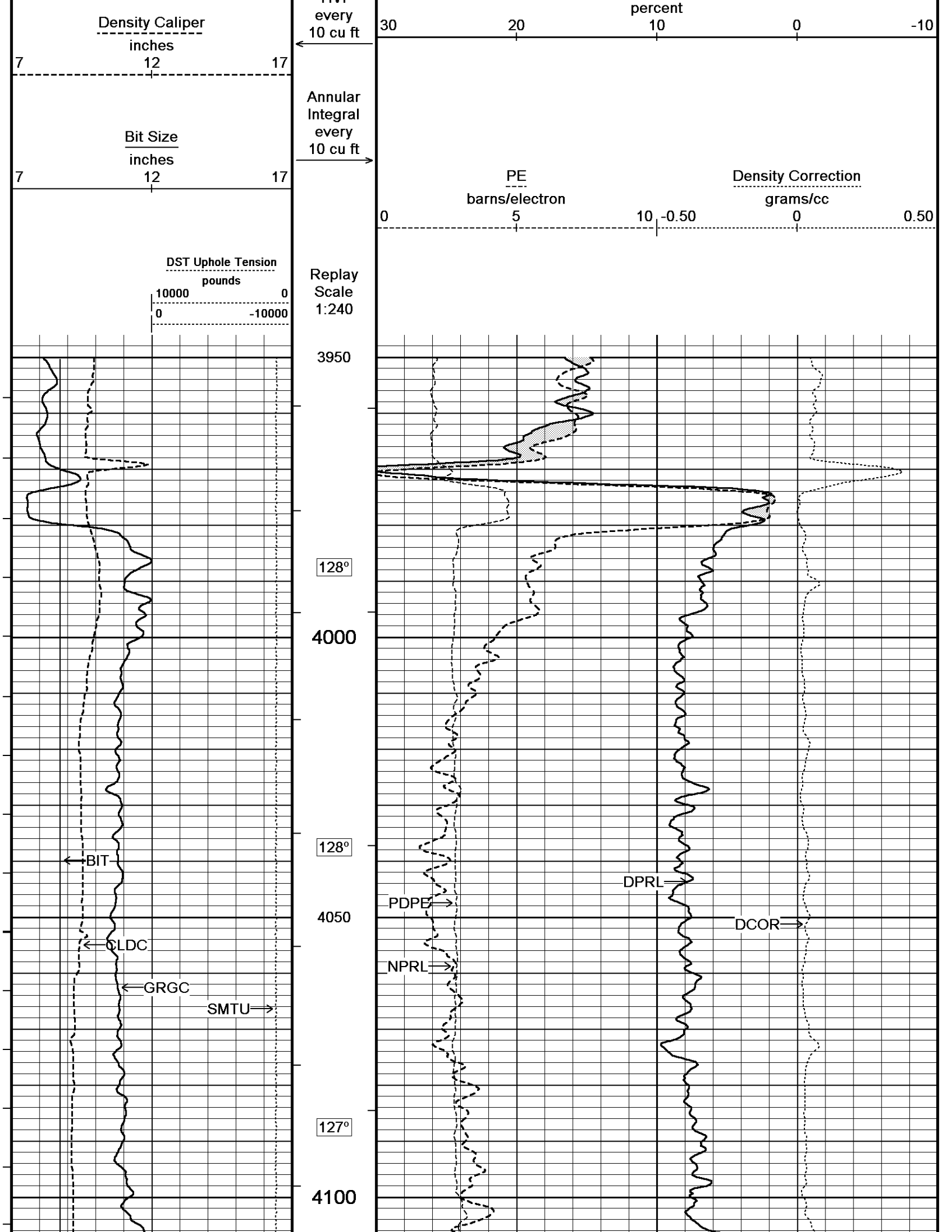
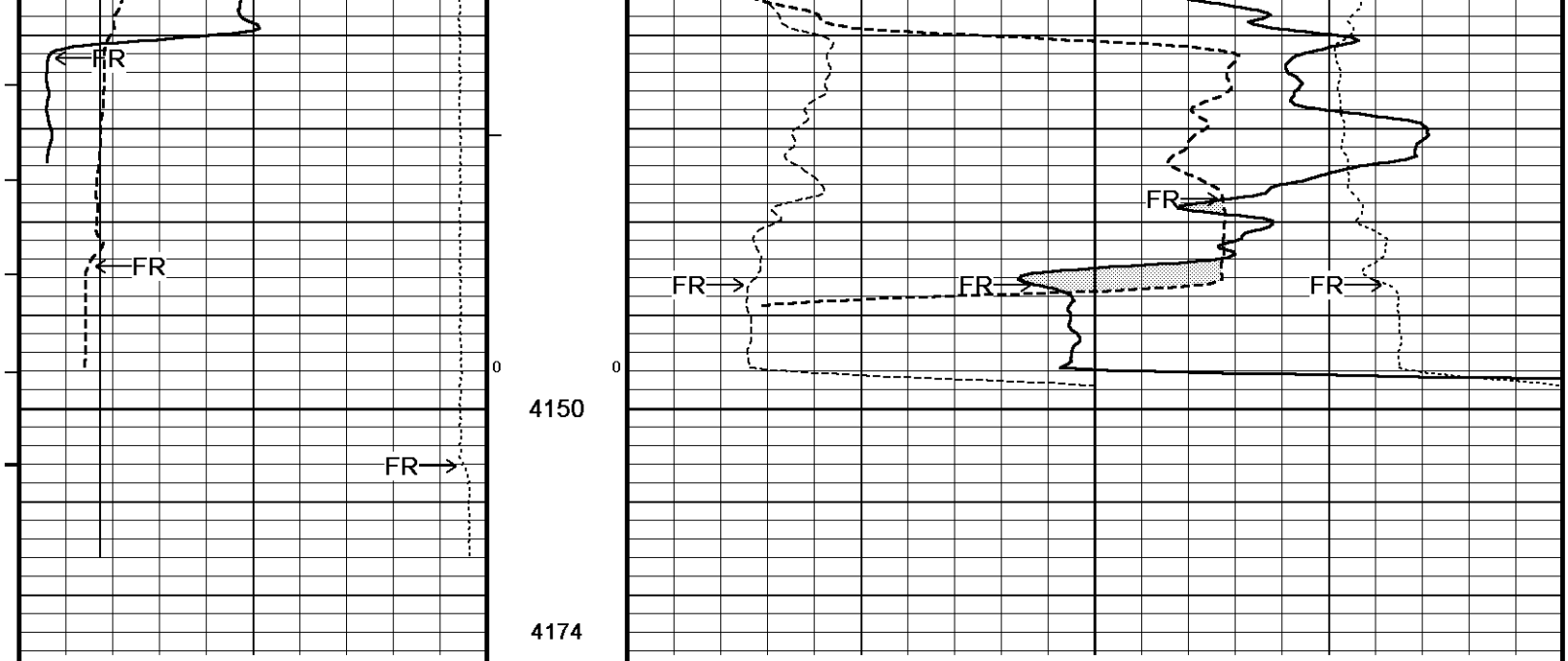



Density Caliper
inches
7
12
17
Bit Size
inches
7
12
17
DST Uphole Tension
pounds
10000
0
0
-10000
every
10 cu ft
Annular
Integral
every
10 cu ft
Replay
Scale
1:240
percent
30
20
10
0
-10
PE
barns/electron
0
5
10
Density Correction
grams/cc
-0.50
0
0.50
3950
128°
4000
128°
4050
127°
4100
BIT
CLDC
GRGC
SMTU
PDPE
NPRL
DPRL
DCOR



4150

4174

Depth in Feet

Timing Marks
every 60.0 sec

Gamma Ray
API
0 75 150
150 225 300

Density Caliper
inches
7 12 17

Bit Size
inches
7 12 17

DST Uphole Tension
pounds
10000 0
0 -10000

Borehole Temp in deg F

HVI every 10 cu ft

Annular Integral every 10 cu ft

Replay Scale 1:240

Limestone Neutron Por.
percent
30 20 10 0 -10

Limestone Density Por.
percent
30 20 10 0 -10

PE
barns/electron
0 5 10

Density Correction
grams/cc
-0.50 0 0.50

Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 22-JUL-2013 22:01
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REPEAT SECTION

10 INCH HI RESOLUTION SECTION

Depth Based Data - Maximum Sampling Increment 2.5cm
Plotted on 22-JUL-2013 22:01
Filename: C:\Program Files\Weatherford\WLS 13.04\DATA\UNIT PETRLOEUM (LOU...\MAIN_001.dta
Recorded on 22-JUL-2013 19:21
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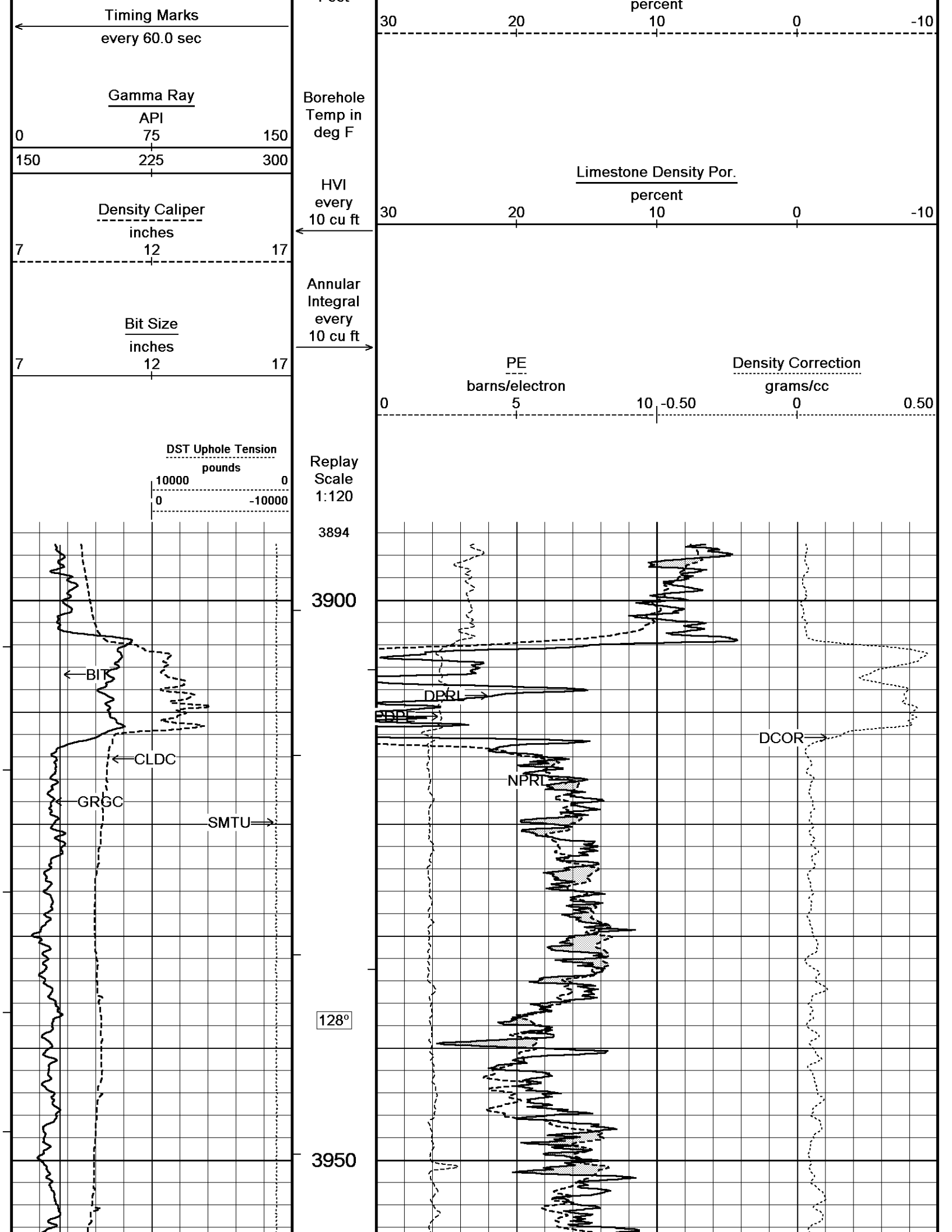
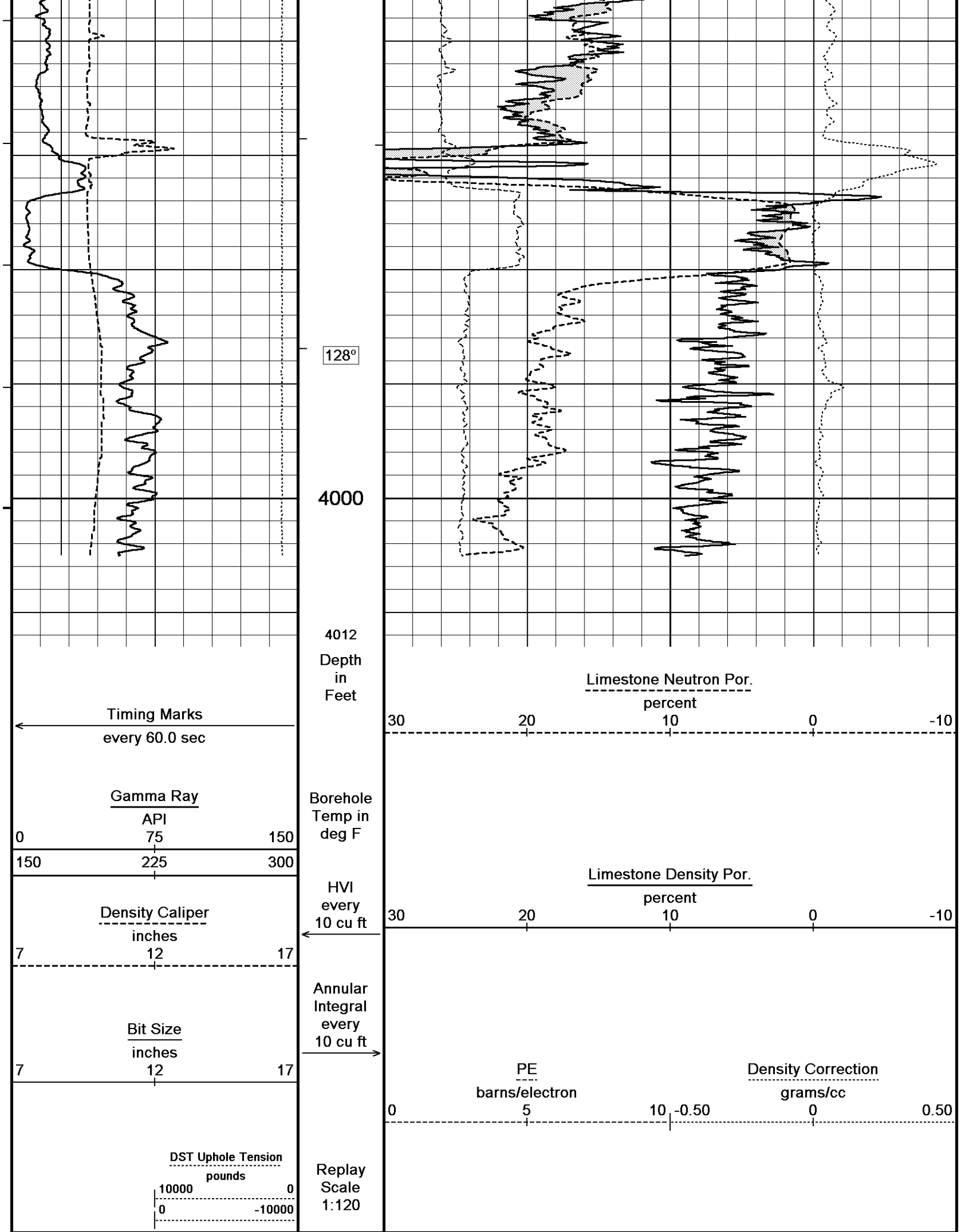
Depth in Feet

Limestone Neutron Por.


Timing Marks
every 60.0 sec
Gamma Ray
API
0
75
150
150
225
300
Density Caliper
inches
7
12
17
Bit Size
inches
7
12
17
DST Uphole Tension
pounds
10000
0
0
-10000
Borehole Temp in deg F
HVI every 10 cu ft
Annular Integral every 10 cu ft
Replay Scale 1:120
3894
3900
3950
128°
BIT
CLDC
GRGC
SMTU
percent
30
20
10
0
-10
Limestone Density Por.
percent
30
20
10
0
-10
PE
barns/electron
0
5
10
Density Correction
grams/cc
-0.50
0
0.50
DPRL
PEPE
NPRL
DCOR



Depth Based Data - Maximum Sampling Increment 2.5cm

Plotted on 22-JUL-2013 22:01

Filename: C:\Program Files\Weatherford\WLS 13.04\DATA\UNIT PETRLOEUM (LOU...\MAIN_001.dta Recorded on 22-JUL-2013 19:21
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10 INCH HI RESOLUTION SECTION

5 INCH BULK DENSITY

Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 22-JUL-2013 22:01
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Timing Marks
every 60.0 sec

Gamma Ray
API
0 75 150
150 225 300

Density Caliper
inches
7 12 17

Bit Size
inches
7 12 17

DST Uphole Tension
pounds
10000 0
0 -10000

Depth in Feet

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

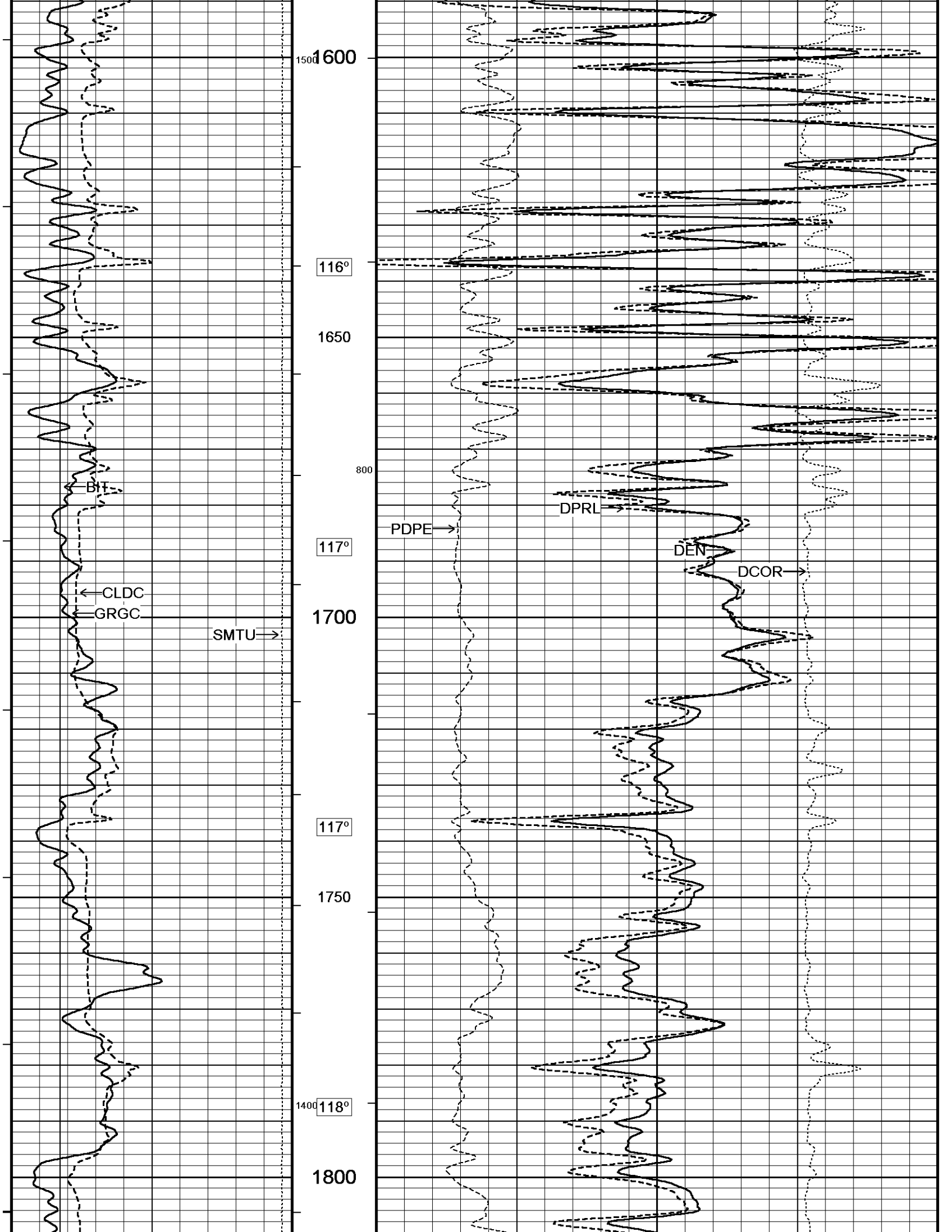
PE
barns/electron
0 5 10

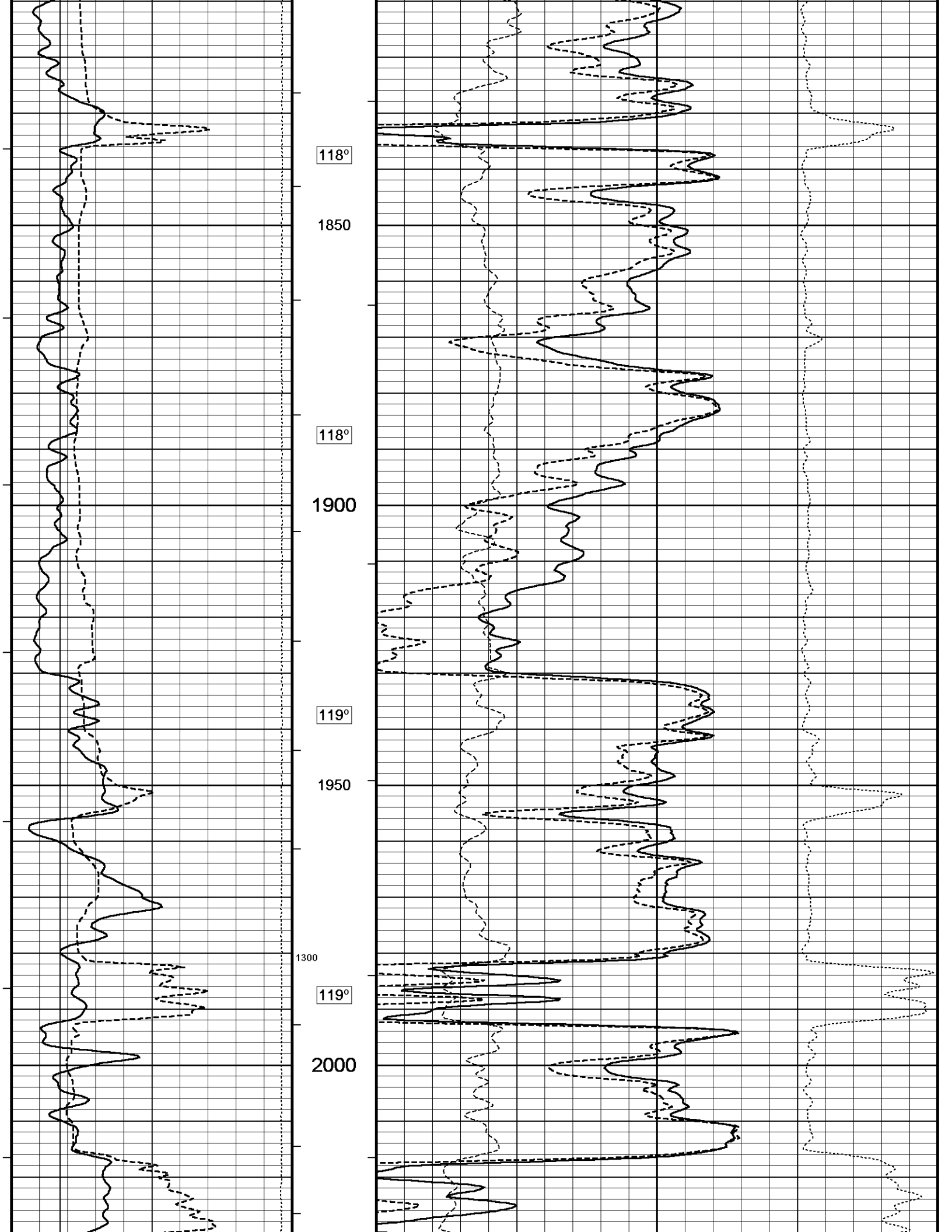
Density Correction
grams/cc
-0.50 0 0.50

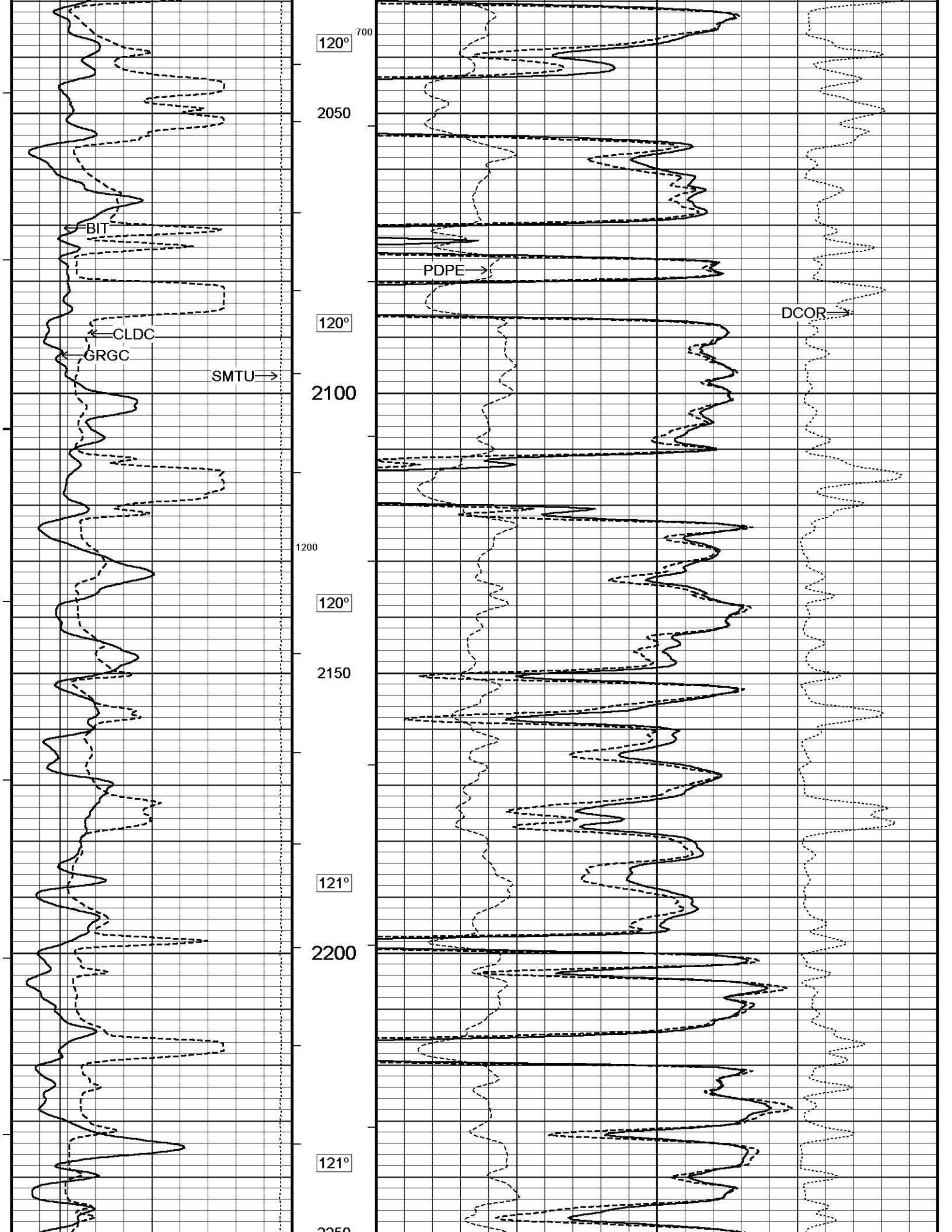
1508 Casing Shoe

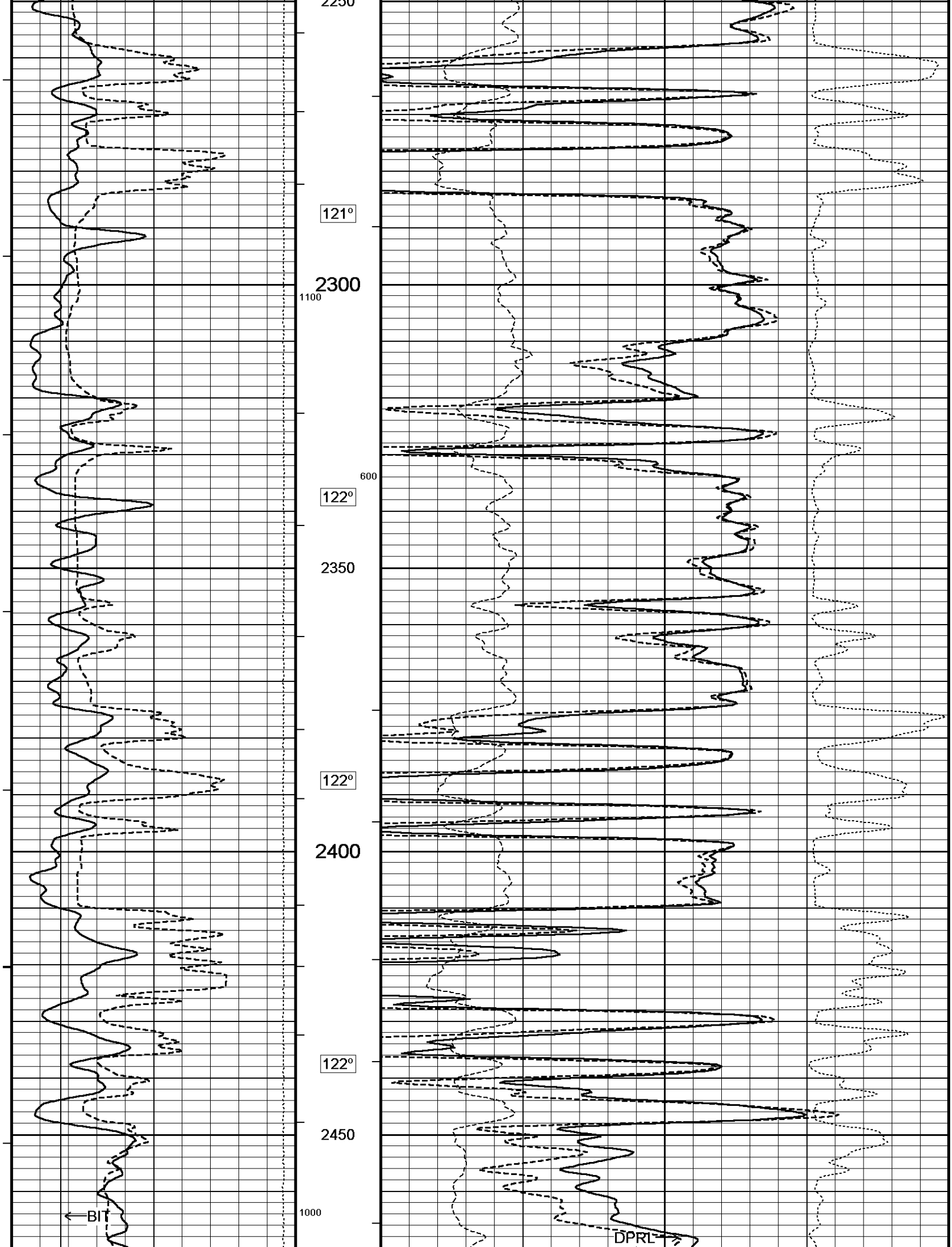
1550

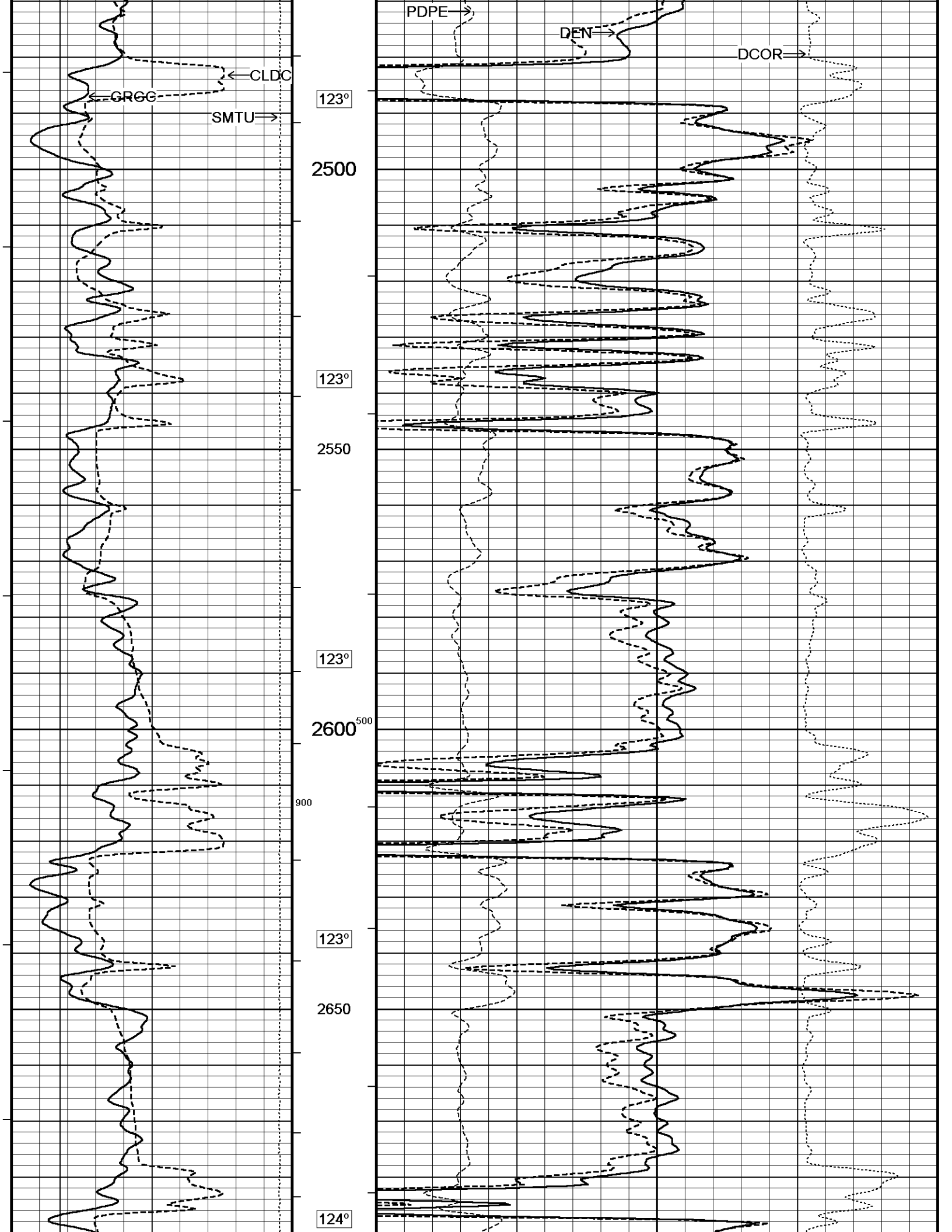
115°

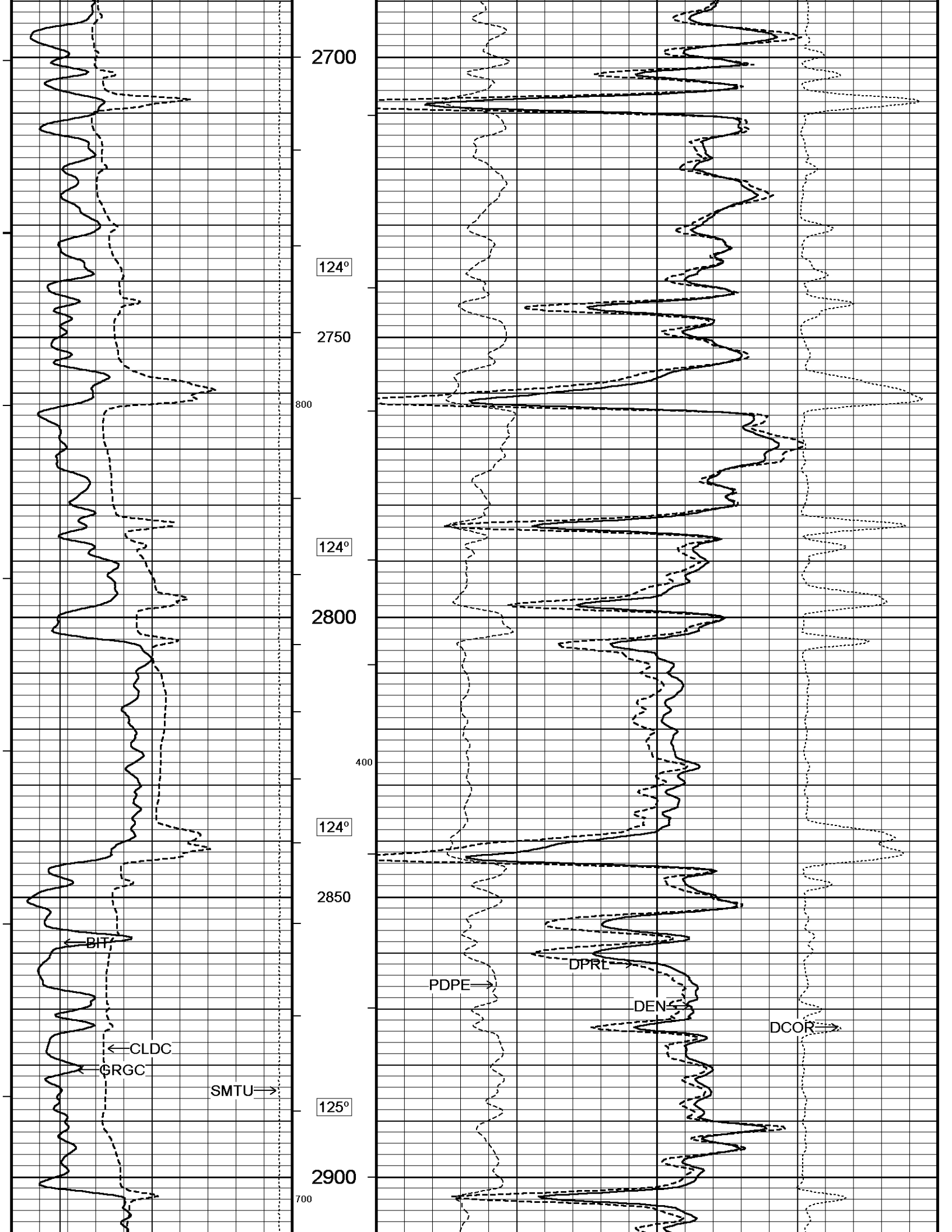

1500
1600
116°
1650
800
BIT
DPRL
PDPE
117°
DEN
DCOR
CLDC
GRGC
1700
SMTU
117°
1750
1400
118°
1800

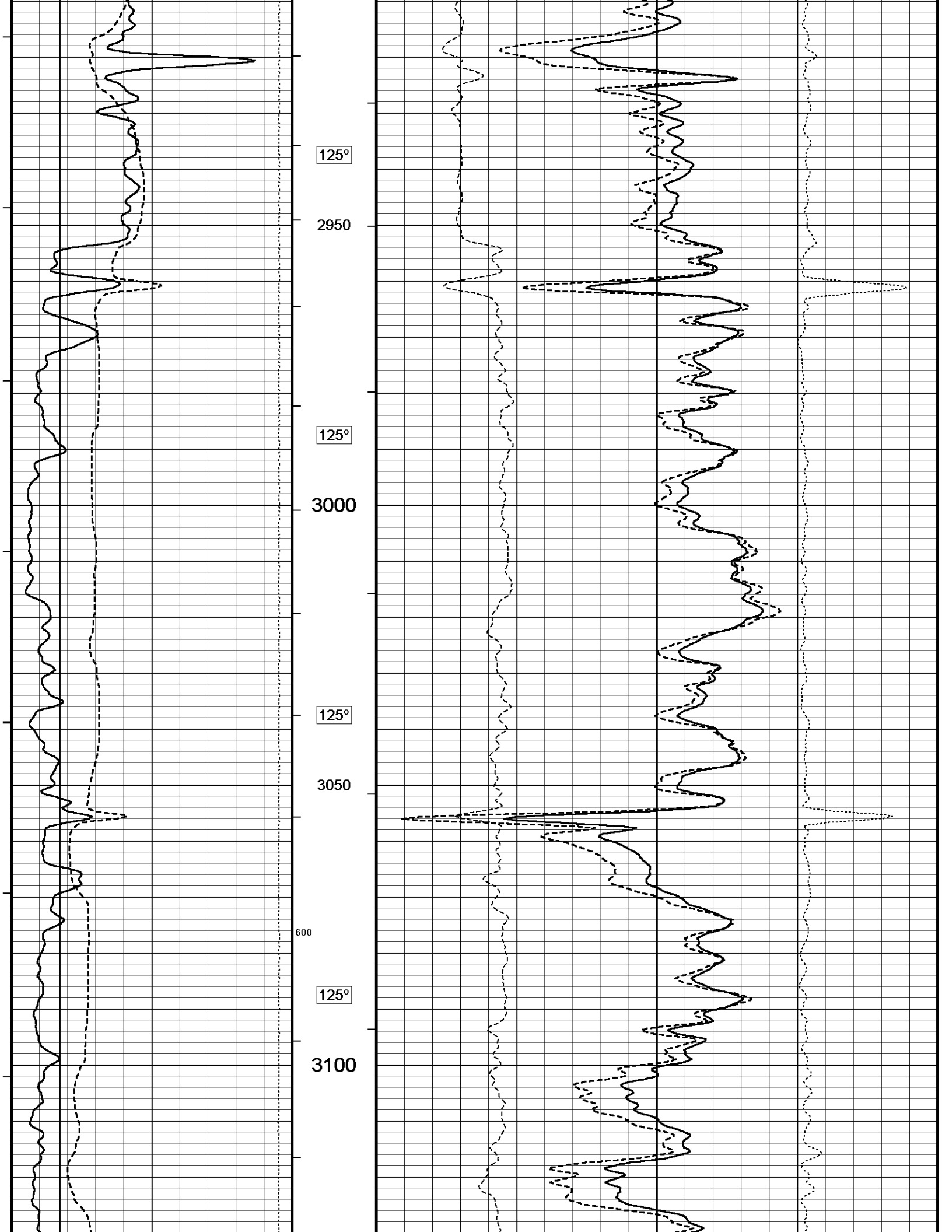

118°
1850
118°
1900
119°
1950
1300
119°
2000

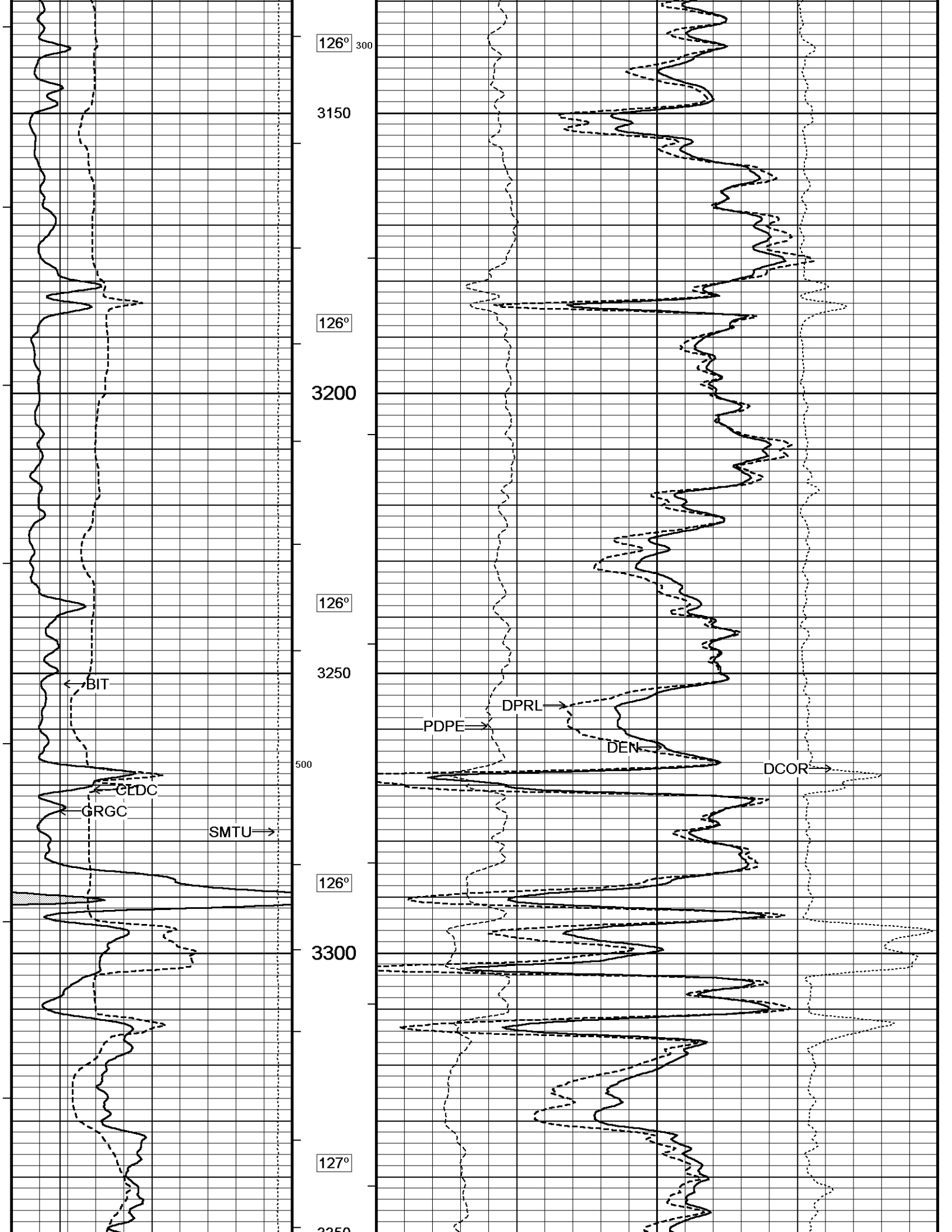

120°
700
2050
BIT
PDPE
120°
DCOR
CLDC
GRGC
SMTU
2100
1200
120°
2150
121°
2200
121°

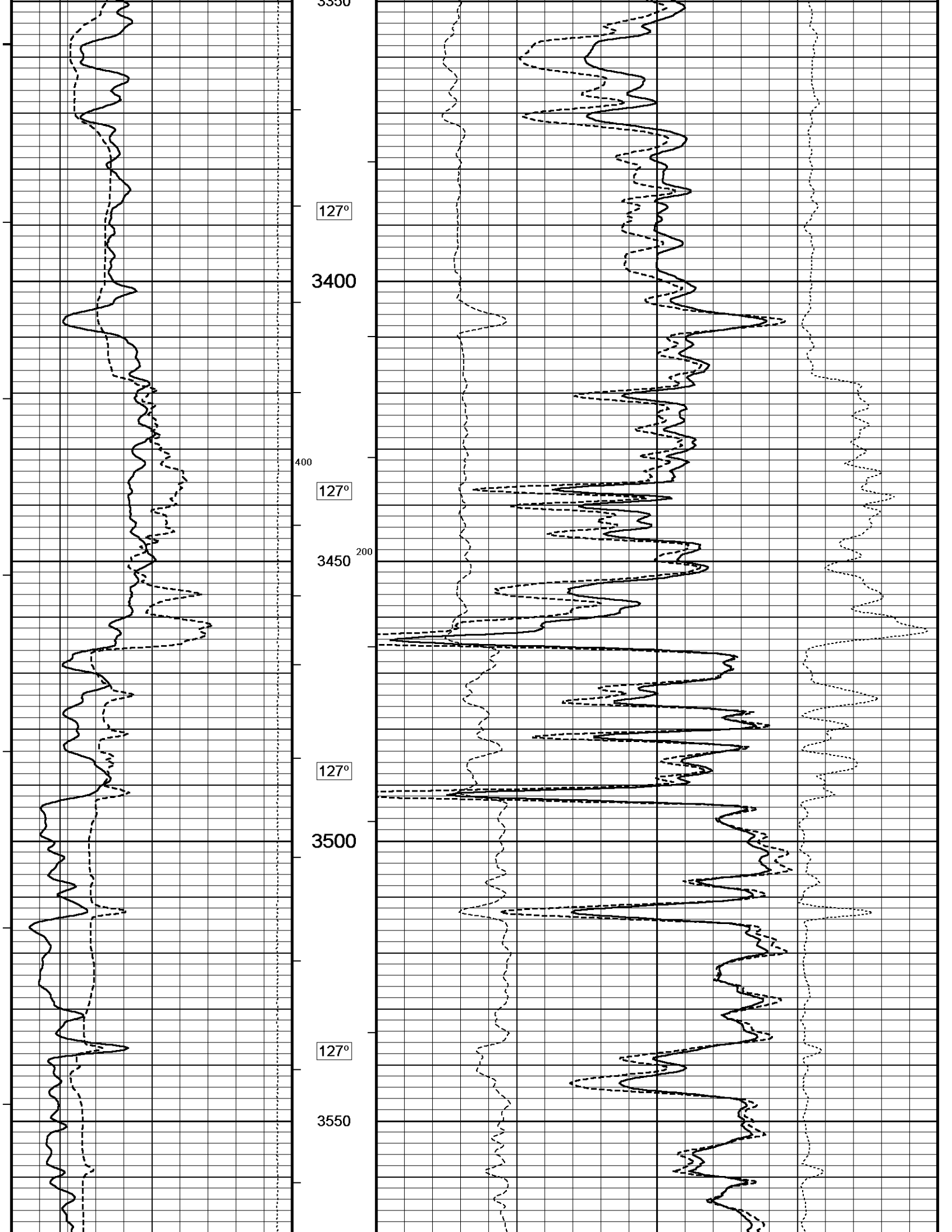

2250
121°
2300
1100
600
122°
2350
122°
2400
122°
2450
1000
BIT
DPRL

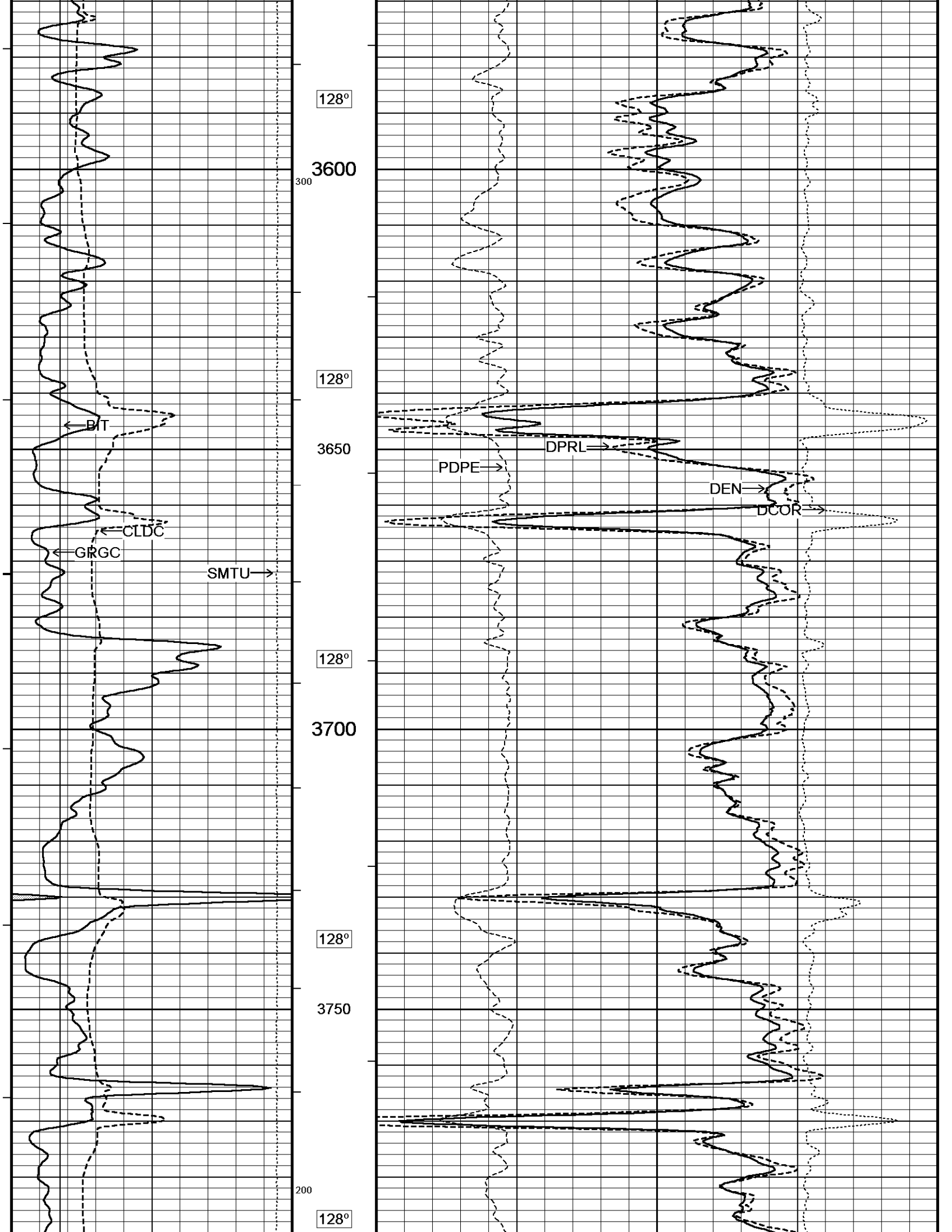

PDPE
DEN
DCOR
CLDC
GRGG
SMTU
123°
2500
123°
2550
123°
2600
500
900
123°
2650
124°

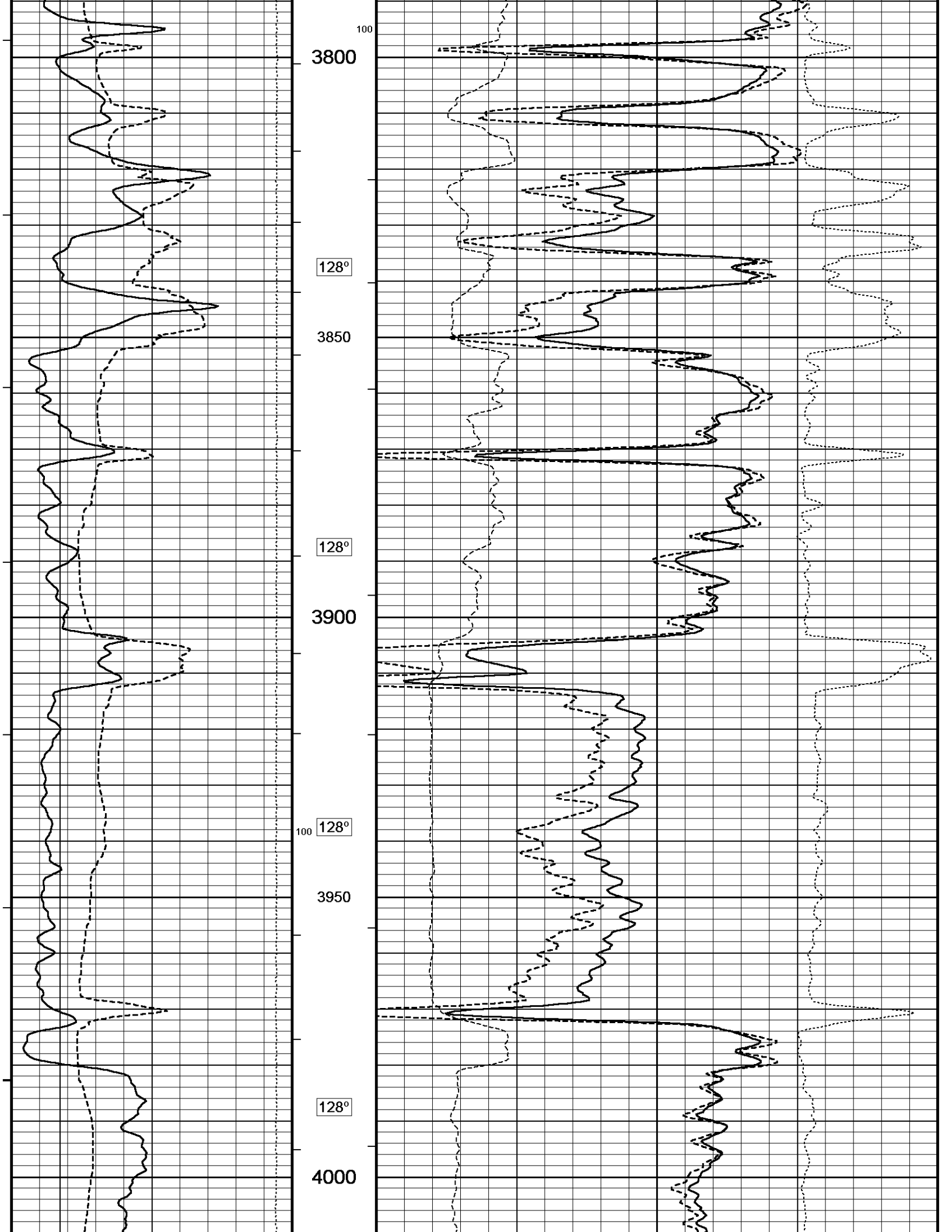

2700
124°
2750
800
124°
2800
400
124°
2850
BIT
CLDC
GRGC
SMTU
125°
2900
700
PDPE
DPRL
DEN
DCOR

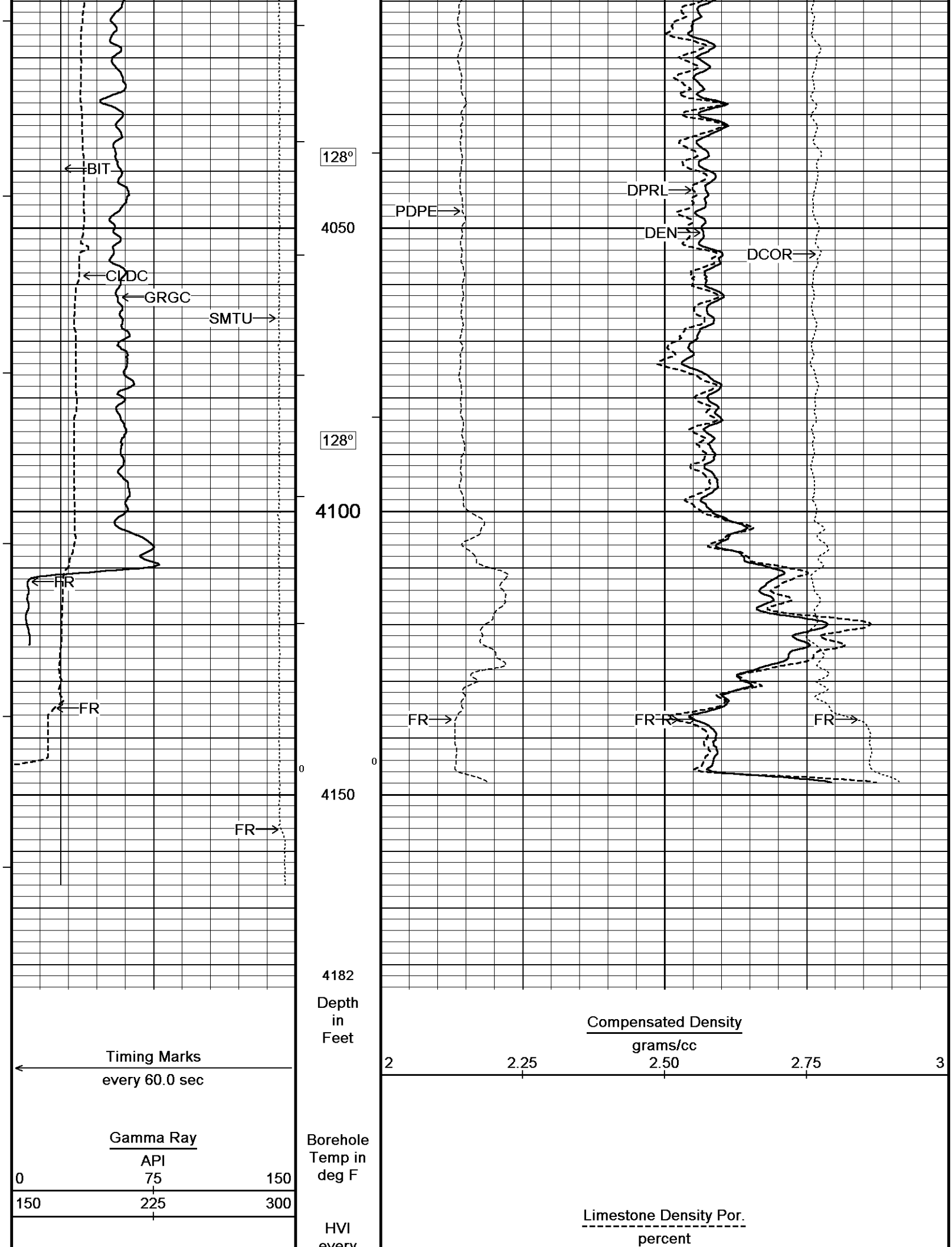

125°
2950
125°
3000
125°
3050
600
125°
3100


126°
300
3150
126°
3200
126°
3250
BIT
DPRL
PDPE
DEN
DCOR
500
CLDC
GRGC
SMTU
126°
3300
127°


3350
127°
3400
400
127°
3450
200
127°
3500
127°
3550


128°
3600
300
128°
BIT
3650
DPRL
PDPE
DEN
DCOR
CLDC
GRGC
SMTU
128°
3700
128°
3750
200
128°


100
3800
128°
3850
128°
3900
100
128°
3950
128°
4000


BIT
CLDC
GRGC
SMTU
FR
FR
FR
128°
4050
128°
4100
4150
4182
Depth
in
Feet
PDPE
DPRL
DEN
DCOR
FR
FR
FR
Timing Marks
every 60.0 sec
Gamma Ray
API
0
75
150
150
225
300
Borehole
Temp in
deg F
HVI
Compensated Density
grams/cc
2
2.25
2.50
2.75
3
Limestone Density Por.
percent

Density Caliper
inches
7 12 17

Bit Size
inches
7 12 17

DST Uphole Tension
pounds
10000 0
0 -10000

Annular Integral every 10 cu ft

Replay Scale 1:240

30 20 10 0 -10

PE
barns/electron
0 5 10

Density Correction
grams/cc
-0.50 0 0.50

Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 22-JUL-2013 22:01
Filename: C:\Program Files\Weatherford\WLS 13.04\DATA\UNIT PETRLOEUM (LOU...\MAIN_003.dta
Recorded on 22-JUL-2013 19:56
System Versions: Logged with 13.04.8723 Processed with 13.04.8723 Plotted with 13.04.8723

5 INCH BULK DENSITY

REPEAT SECTION

Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 22-JUL-2013 22:01
Filename: C:\Program Files\Weatherford\WLS 13.04\DATA\UNIT PETRLOEUM (LOU...\MAIN_002.dta
Recorded on 22-JUL-2013 19:21
System Versions: Logged with 13.04.8723 Processed with 13.04.8723 Plotted with 13.04.8723

Timing Marks
every 60.0 sec

Depth in Feet

Compensated Density
grams/cc
2 2.25 2.50 2.75 3

Gamma Ray
API
0 75 150
150 225 300

Borehole Temp in deg F

Limestone Density Por.
percent
30 20 10 0 -10

HVI every 10 cu ft

Density Caliper
inches
7 12 17

Annular Integral every 10 cu ft

Bit Size
inches
7 12 17

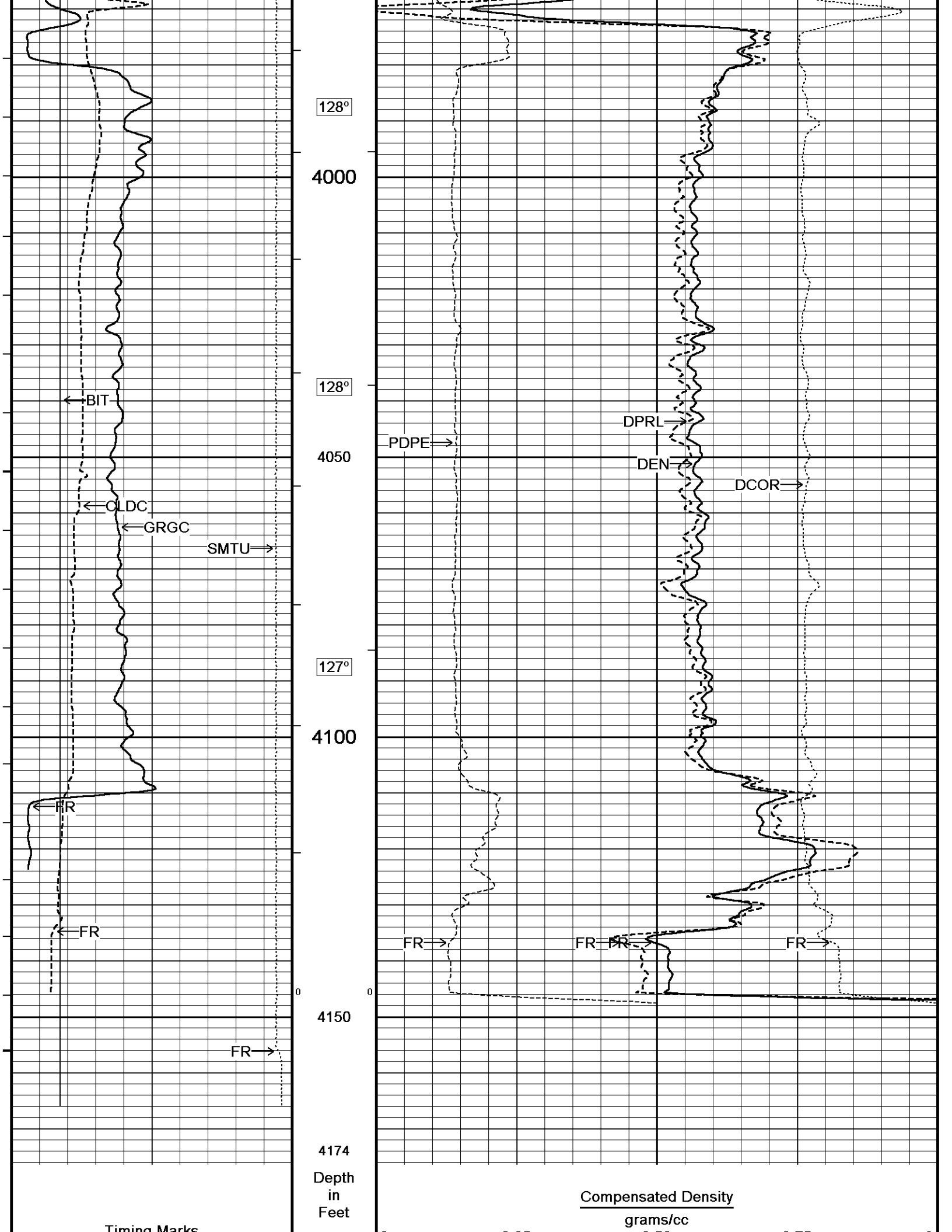
PE
barns/electron
0 5 10

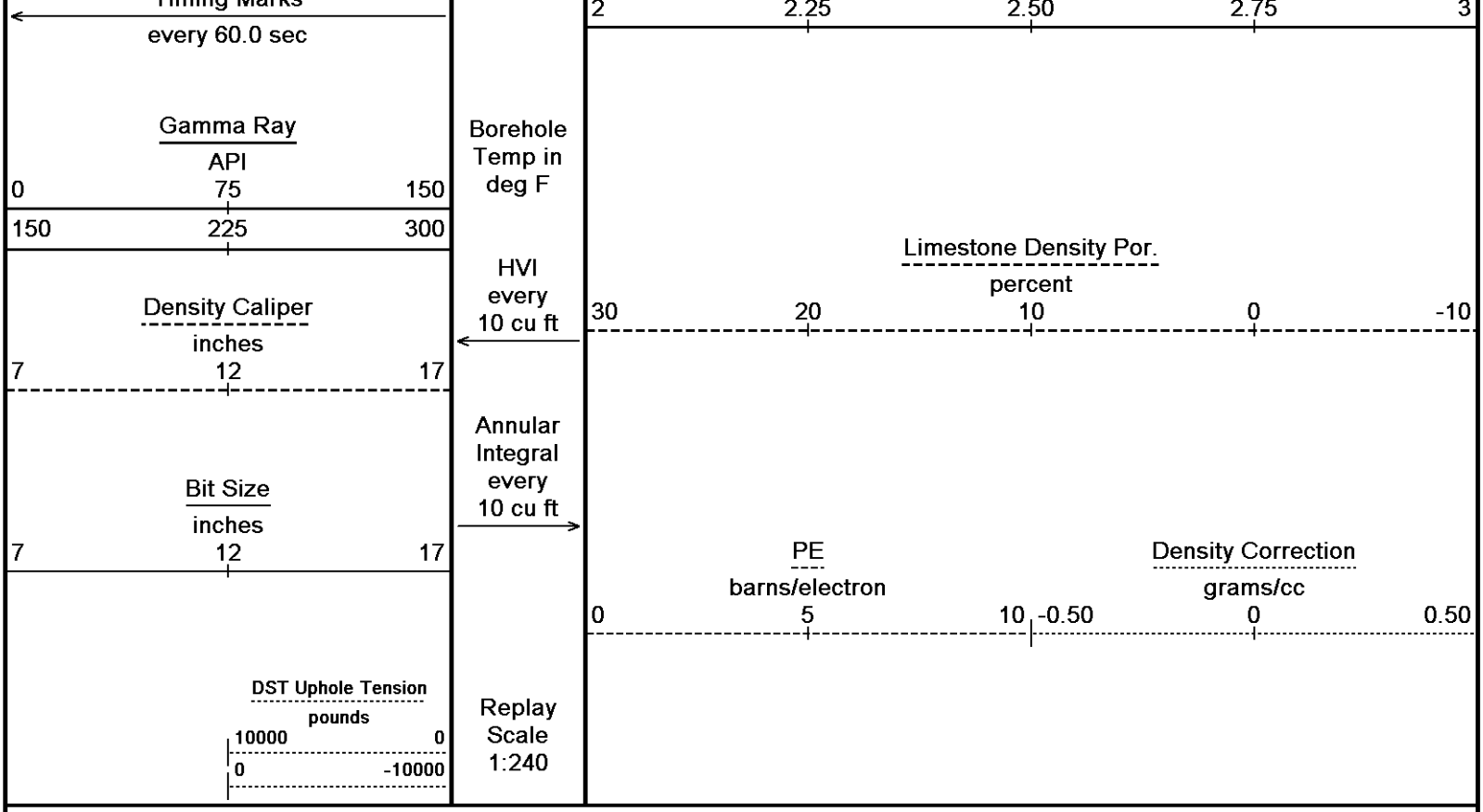
Density Correction
grams/cc
-0.50 0 0.50

DST Uphole Tension
pounds
10000 0
0 -10000

Replay Scale 1:240

3950


128°
4000
128°
4050
127°
4100
4150
4174
BIT
CLDC
GRGC
SMTU
FR
FR
FR
DPRL
PDPE
DEN
DCOR
FR
FR
FR
FR
0
0
Depth
in
Feet
Compensated Density
grams/cc



Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 22-JUL-2013 22:01

Filename: C:\Program Files\Weatherford\WLS 13.04\DATA\UNIT PETRLOEUM (LOU...\MAIN_002.dta — Recorded on 22-JUL-2013 19:21

System Versions: Logged with 13.04.8723 Processed with 13.04.8723 Plotted with 13.04.8723

REPEAT SECTION

BEFORE SURVEY CALIBRATION

C:\Program Files\Weatherford\WLS 13.04\DATA\UNIT PETRLOEUM (LOUDENBACK 7 #1)\MAIN.dta

General Constants All 000

Last Edited on 22-JUL-2013,17:46

General Parameters		
Mud Resistivity	0.900	ohm-metres
Mud Resistivity Temperature	109.000	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	None	
Rwa Parameters		
Porosity used	Limestone Density Por.	
Resistivity used	Array Ind. One Res Rt	
RWA Constant A	0.610	
RWA Constant M	2.150	

Down-hole Tension Calibration SMS 0

Field Calibration on 22-JUL-2013 18:50

Reading No	Measured	Calibrated (lbs)
1	13022.91	0.00
2	13023.63	375.00

Gamma Calibration MCG-D.K 475

Field Calibration on 21-JUL-2013 22:42

	Measured	Calibrated (API)
Background	38	14
Calibrator (Gross)	1863	710

Calibrator (Net)	1826	696

Gamma Constants MCG-D.K 475

Last Edited on 22-JUL-2013,15:44

Gamma Calibrator Number	46	
Mud Density	1.13	gm/cc
Caliper Source for Processing	Density Caliper	
Tool Position	Eccentred	
Concentration of KCl	0.00	kppm

SP Calibration MCG-D.K 475

Field Calibration on 21-JUL-2013,22:50

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

High Resolution Temperature Calibration MCG-D.K 475

Field Calibration on 21-JUL-2013,22:50

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

High Resolution Temperature Constants MCG-D.K 475

Last Edited on 21-JUL-2013,23:00

Pre-filter Length	11

Micro Normal and Micro Inverse Calibration MMR-B.A 68

Base Calibration on 28-JUN-2013,03:34
Field Check on 21-JUL-2013 22:05

Base Calibration

	Measured		Calibrated (ohm-m)	
Channel	Resistor 1	Resistor 2	Resistor 1	Resistor 2
Micro Normal	11.9	58.8	5.0	25.0
Micro Inverse	15.5	77.0	5.0	25.0

Channel	Base Check (ohm-m)	Field Check (ohm-m)
Micro Normal	77.5	77.5
Micro Inverse	59.2	59.2

Micro Normal and Micro Inverse Constants MMR-B.A 68

Last Edited on 04-JUN-2013,09:48

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	0.0000	inches

Caliper Calibration MMR-B.A 68

Base Calibration on 28-JUN-2013,03:33
Field Calibration on 21-JUL-2013 22:18

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	14007	5.96
2	17124	7.98
3	20434	9.94
4	24160	11.91
5	0	0.00
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
10.02	9.94

Neutron Calibration MDN-A.B 55

Base Calibration on 28-JUN-2013,03:34
Field Check on 21-JUL-2013 22:50

Base Calibration

	Measured		Calibrated (cps)	
	Near	Far	Near	Far
	3091	97	3714	110
Ratio	31.818		33.764	

Field Calibrator at Base

	Calibrated (cps)	
	2024	3009
Ratio	0.673	

Field Check

	Calibrated (cps)	
	1226	1798

Ratio	1226	1798 0.691

Neutron Constants MDN-A.B 55

Last Edited on 21-JUL-2013,23:02

Neutron Source Id	P14033B	
Neutron Jig Number	NEC056	
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	MCG 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	

FE Calibration MFE-A.A 65

Base Calibration on 28-JUN-2013,03:35
Field Check on 21-JUL-2013 22:03

Base Calibration

	Measured	Calibrated (ohm-m)
Reference 1	9.7	1.3
Reference 2	956.6	126.8
Base Check		282.0
Field Check		281.9

FE Constants MFE-A.A 65

Last Edited on 21-JUL-2013,23:02

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

High Resolution Temperature Calibration MAI-A.A 102

Field Calibration on 21-JUL-2013,22:57

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

High Resolution Temperature Constants MAI-A.A 102

Last Edited on 21-JUL-2013,23:03

Pre-filter Length	11

Induction Calibration MAI-A.A 102

Base Calibration on 28-JUN-2013,03:36
Field Check on 21-JUL-2013 22:02

Base Calibration

Test Loop Calibration

Channel	Measured Low	Measured High	Calibrated (mmho/m) Low	Calibrated (mmho/m) High
1	18.0	481.9	9.3	966.2
2	6.6	378.8	7.6	821.4
3	4.0	256.0	5.2	566.0
4	3.8	134.5	2.6	279.2

Array Temperature 86.5 Deg F

Channel	Base Check (mmho/m) Low	Base Check (mmho/m) High	Field Check (mmho/m) Low	Field Check (mmho/m) High
1			10.3	3806.1
2			27.8	3600.5
3			26.4	3128.4
4			14.7	2098.3

Deep	13.2	2016.9	
Medium	42.2	4173.6	
Shallow	45.3	5344.9	
Array Temperature		90.8	Deg F

Induction Constants MAI-A.A 102

Last Edited on 21-JUL-2013,23:03

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	6.0000	
Stand-off Fin Angle	60.00	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 165

Base Calibration on 19-JUL-2013 12:51
Field Calibration on 21-JUL-2013,23:02

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	14317	4.01
2	22698	5.96
3	31426	7.98
4	39984	9.94
5	48822	11.91
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
7.99	7.98

Photo Density Calibration MPD-B 165

Base Calibration on 19-JUL-2013 13:22
Field Check on 21-JUL-2013,23:02

Density Calibration

Base Calibration

	Measured		Calibrated (sdu)	
	Near	Far	Near	Far
Reference 1	44710	22034	59869	31110
Reference 2	18707	2248	24557	2522

Field Check at Base

1138.1	1219.2

Field Check

1138.1 1222.3

PE Calibration

Base Calibration

	WS	Measured WH	Ratio	Calibrated Ratio
Background	206	1018		
Reference 1	18814	44541	0.428	0.369
Reference 2	5343	18579	0.293	0.271

Field Check at Base

206.3 1018.4

Field Check

207.2 1015.6

Density Constants MPD-B 165

Last Edited on 22-JUL-2013,15:44

Density Source Id	260	
Nylon Calibrator Number	633	
Aluminium Calibrator Number	633	
Density Shoe Profile	8 inch	
Caliper Source for Processing	Density Caliper	
PE Correction to Density	Not Applied	
Mud Density	1.13	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:\Program Files\Weatherford\WLS 13.04\DATA\UNIT PETRLOEUM (LOUDENBACK 7 #1)\MAIN.dta

SHA-J.B Compact Swivel Head Adaptor
SHA-J.B 592 LG: 2.30 ft WT: 22.0 lb OD: 2.24 in

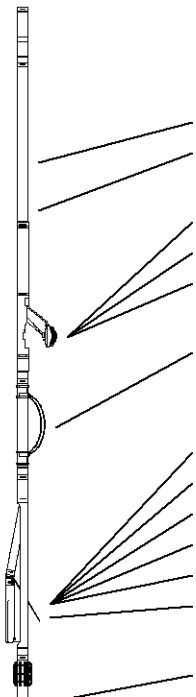
Compact Comms Gamma
MCG-D.K 475 LG: 8.70 ft WT: 63.9 lb OD: 2.24 in

Compact Micro-Resistivity
MMR-B.A 68 LG: 8.59 ft WT: 81.6 lb OD: 4.88 in

Compact Neutron
MDN-A.B 55 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in

Compact Density/Caliper
MPD-B 165 LG: 9.59 ft WT: 90.4 lb OD: 2.45 in

Compact Focussed Electric

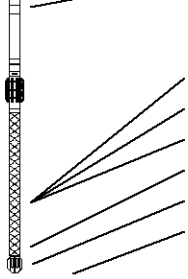


43.50 ft GRGC - Gamma Ray
40.59 ft CGXT - MCG External Temperature
33.24 ft MBTC - MMR Caliper
33.24 ft MINV - MMR MicroLog Inverse
33.24 ft MNRL - MMR MicroLog Normal
28.45 ft NPRL - Limestone Neutron Por.
21.21 ft CLDC - Density Caliper
21.21 ft AVOL - Annular Volume
21.21 ft HVOL - Hole Volume
19.28 ft DCOR - Density Correction
19.28 ft DPRL - Limestone Density Por.
19.22 ft PDPE - PE
13.72 ft FEFE - Shallow FE

MFE-A.A 65 LG: 6.05 ft WT: 48.5 lb OD: 2.24 in

Compact Induction
MAI-A.A 102 LG: 10.81 ft WT: 48.5 lb OD: 2.24 in

Total Length: 51.08 ft Weight: 405.7 lb



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

COMPANY	UNIT PETROLEUM COMPANY
WELL	LOUDENBACK 7 #1
FIELD	WILDCAT
PROVINCE/COUNTY	RENO
COUNTRY/STATE	U.S.A. / KANSAS

Elevation Kelly Bushing	1784.00	feet	First Reading	4137.00	feet
Elevation Drill Floor	1785.00	feet	Depth Driller	4158.00	feet
Elevation Ground Level	1770.00	feet	Depth Logger	4156.00	feet

Weatherford®

COMPACT PHOTO DENSITY COMPENSATED NEUTRON LOG