Weatherford®

COMPACT PHOTO DENSITY COMPENSATED NEUTRON MICRO-RESISTIVITY LOG

COMPANY	RAMSHORN RESOURCES, LLC
WELL	MARSH 2-27
FIELD	DEARHEAD
PROVINCE/COUNTY	BARBER
COUNTRY/STATE	USA / KANSAS
LOCATION	2305' FNL & 2073' FEL

SEC 27	TWP 32S	RGE 15W	Other Services
Latitude		37.231944	MAI/MFE
Longitude		-98.936944	MSS
API Number		15-007-24347	

Permanent Datum GL, Elevation 1896 feet
Log Measured From KB, 12.00 feet above Permanent Datum
Drilling Measured From KB

Elevations:	feet
KB	1908.00
DF	1906.00
GL	1896.00

Date	05-APR-2019					
Run Number	ONE					
Service Order	7055-241667929					
Depth Driller	5300.00	feet				
Depth Logger	5302.00	feet				
First Reading	5269.00	feet				
Last Reading	496.00	feet				
Casing Driller	496.00	feet				
Casing Logger	496.00	feet				
Bit Size	7.875	inches				
Hole Fluid Type	WBM					
Density / Viscosity	9.40	lb/USg	52.00	sec/qt		
PH / Fluid Loss	11.00		8.80	ml/30Min		
Sample Source	MUD TANK					
Rm @ Measured Temp	0.52 @ 92.0	ohm-m				
Rmf @ Measured Temp	0.42 @ 92.0	ohm-m				
Rmc @ Measured Temp	0.62 @ 92.0	ohm-m				
Source Rmf / Rmc	CALC		CALC			
Rm @ BHT	0.38 @129.0	ohm-m				
Time Since Circulation	3 HOURS					
Max Recorded Temp	129.00	deg F				
Equipment / Base	13057		ELRENO			
Recorded By	JUSTIN HICKS					
Witnessed By	CURTIS COVEY				JERRY AULD	

BOREHOLE RECORD

Last Edited: 05-APR-2019 15:51

Bit Size inches	Depth From feet	Depth To feet
7.875	496.00	5300.00

CASING RECORD

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	8.625	0.00	496.00	24.00

REMARKS

TOOLSTRING: CBH, SHA, MCG, MMR, MDN, MPD, SKJ, MFE, MSS, MAI.

HARDWARE USED:
MAI: TWO 0.5 INCH STANDOFFS.
MFE: ONE 0.5 INCH STANDOFF.
MDN: DUAL BOWSPRING ECCENTALIZERS.
MPD: 8 INCH PROFILE PLATE.
MSS: THREE 0.5 INCH STANDOFFS.

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 3300' = 690 CU.FT.
ANNULAR HOLE VOLUME WITH 5.5 INCH PRODUCTION CASING FROM TD TO 3300' = 360 CU.FT.

RIG: DUKE DRILLING, RIG 1

OPERATOR(S): J. JOHNSON, J. CASE

OPERATOR(S): J. JOHNSON, J. CASE

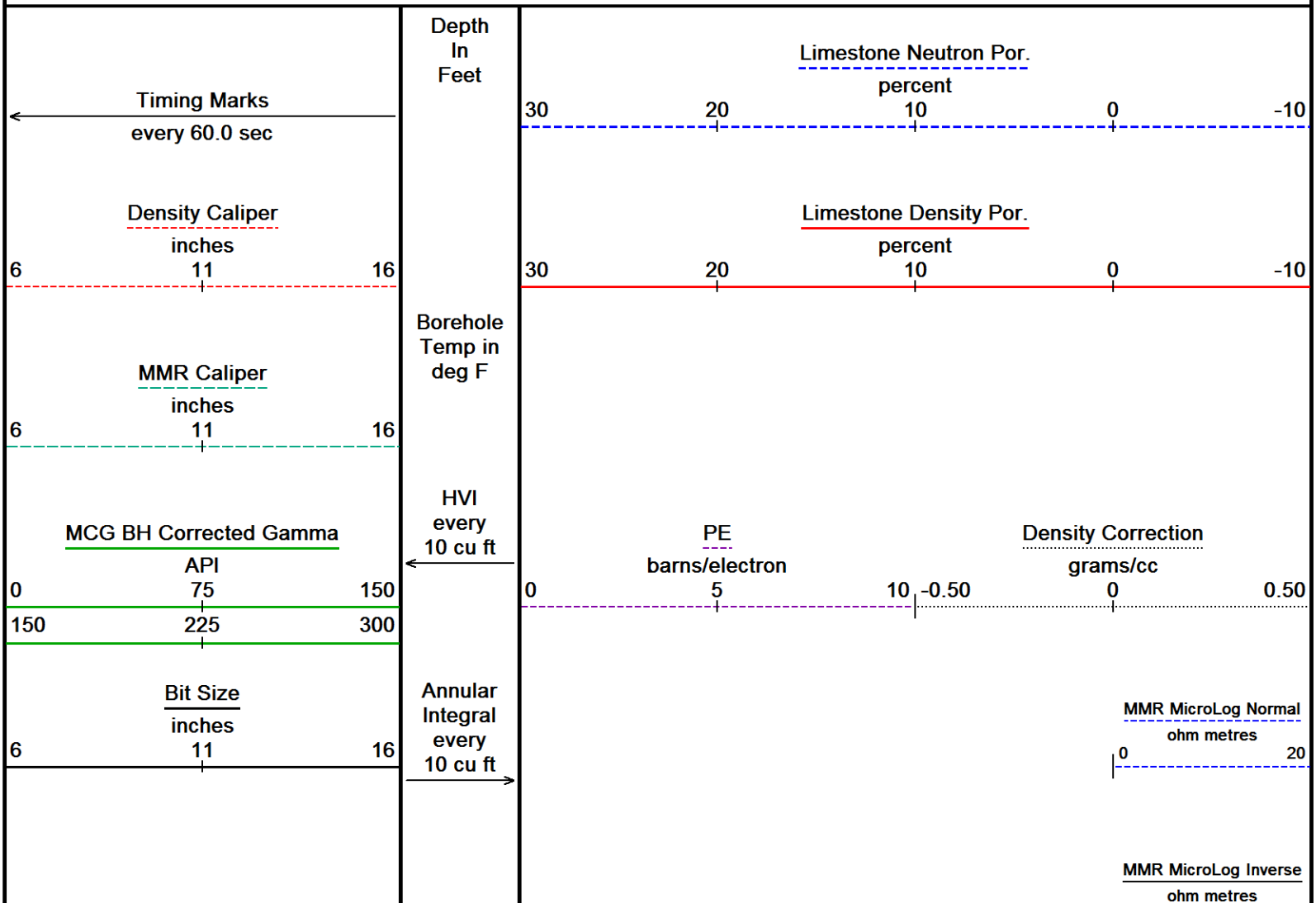
MUD PROPERTIES:
CHLORIDES: 6000 PPM
LCM: 4 PPB

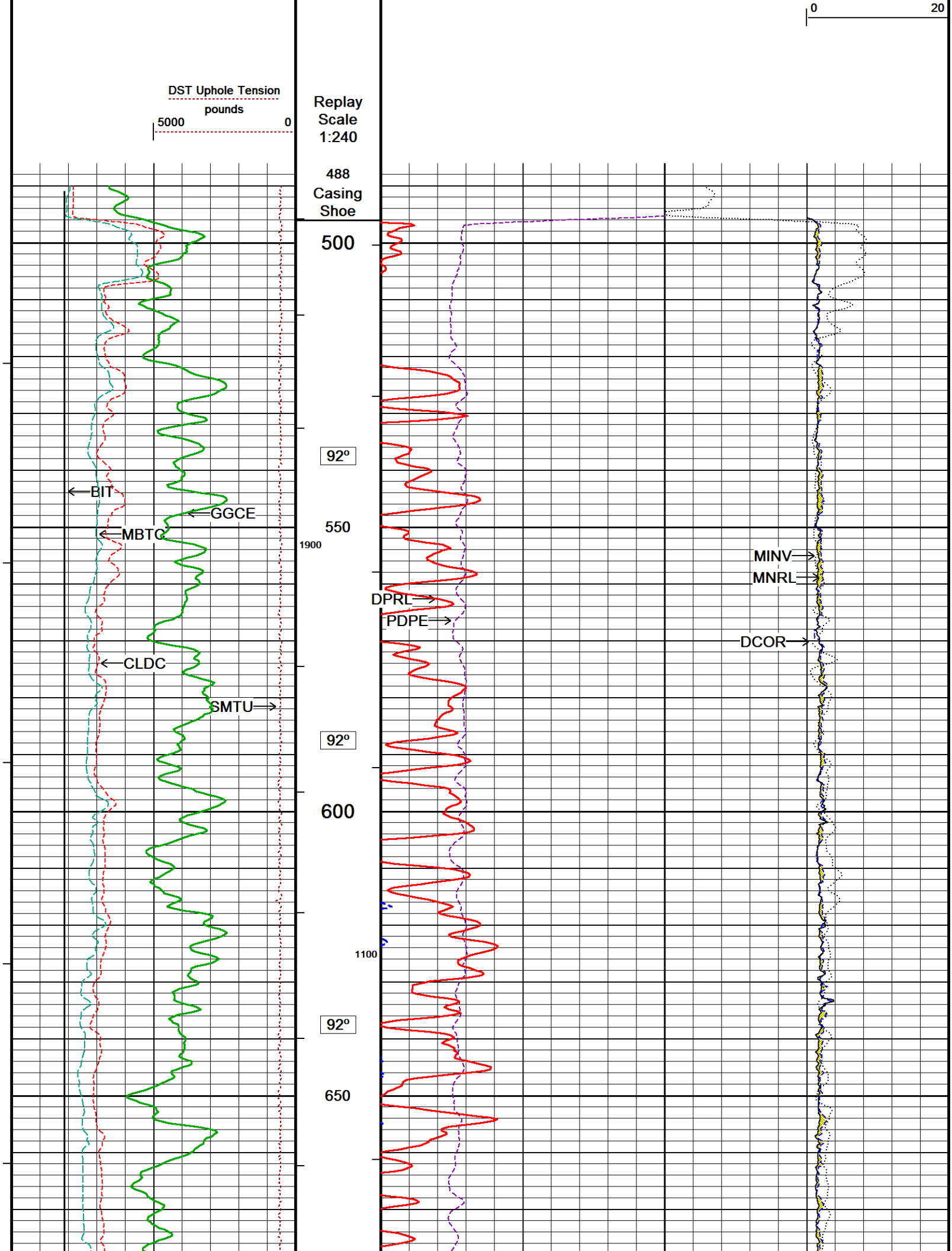
CALIPER: TD - 3300'
DENSITY/NEUTRON/MICROLOG: TD - SURFACE CASING.
INDUCTION: TD - SURFACE CASING.
SONIC: TD - SURFACE CASING.
GAMMA: TD - GROUND LEVEL.

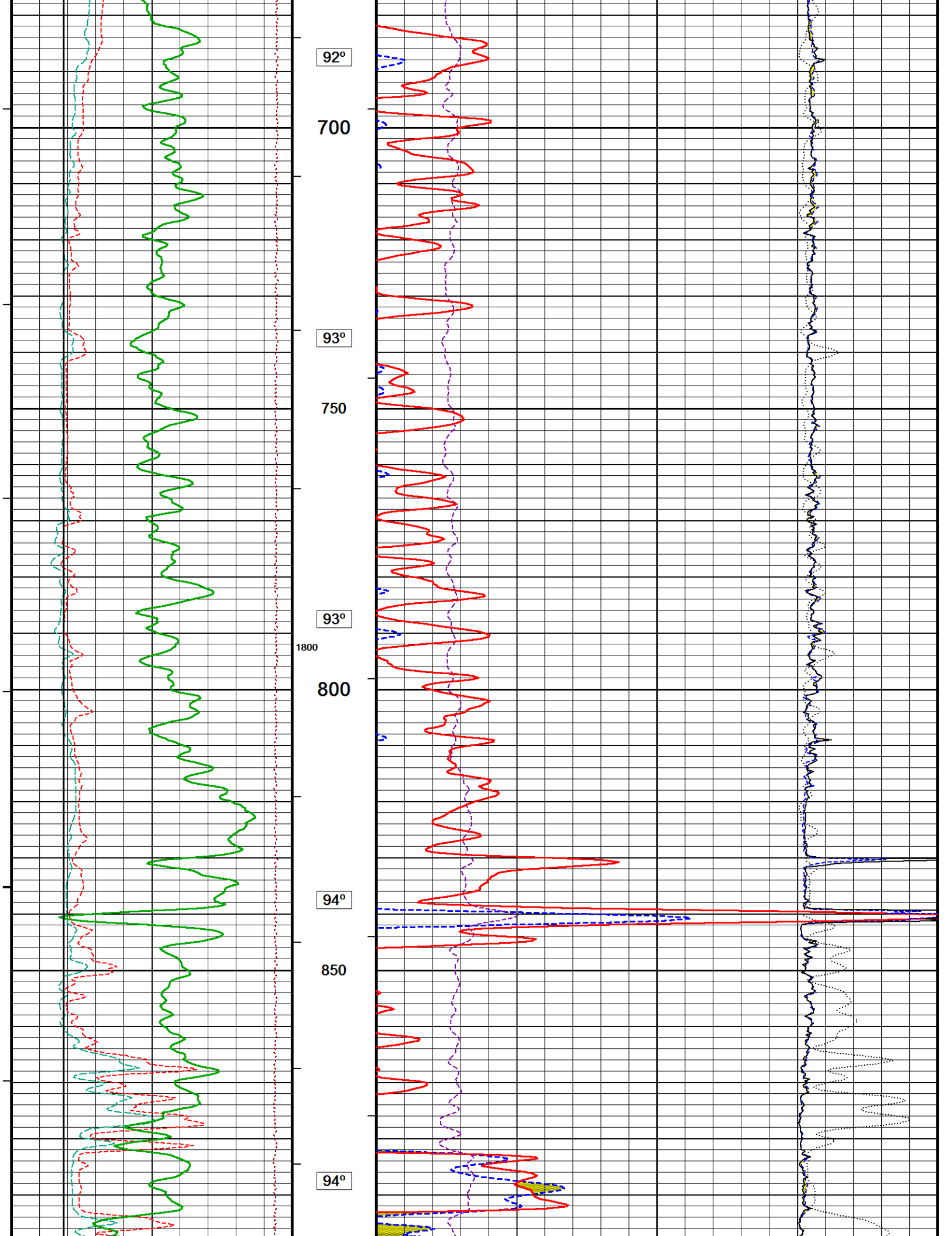
HOLE WASHOUTS AND RUGOSITY WILL AFFECT LOG QUALITY AND REPEATABILITY.

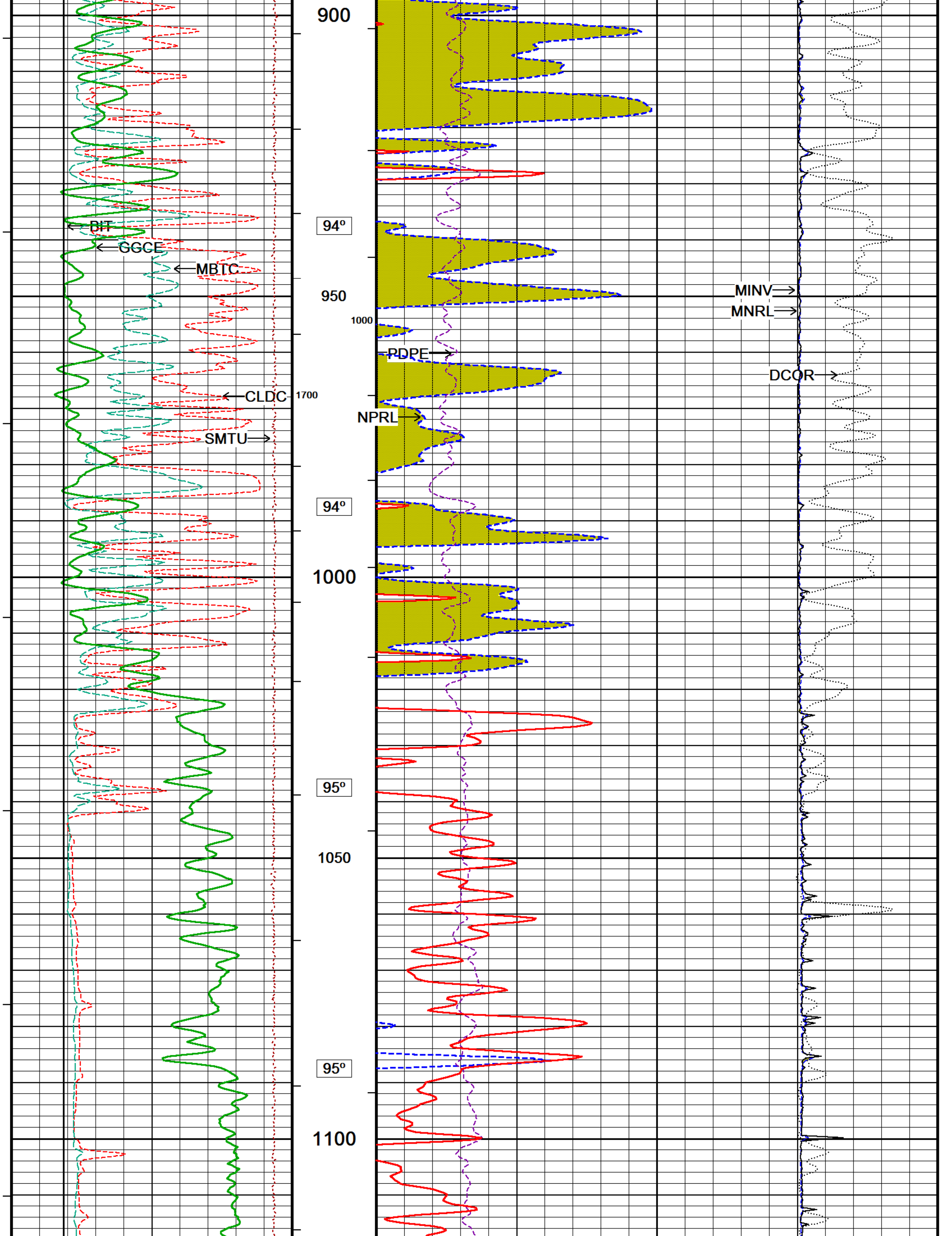
5 INCH MAIN PASS - POROSITY - LIMESTONE 1:240

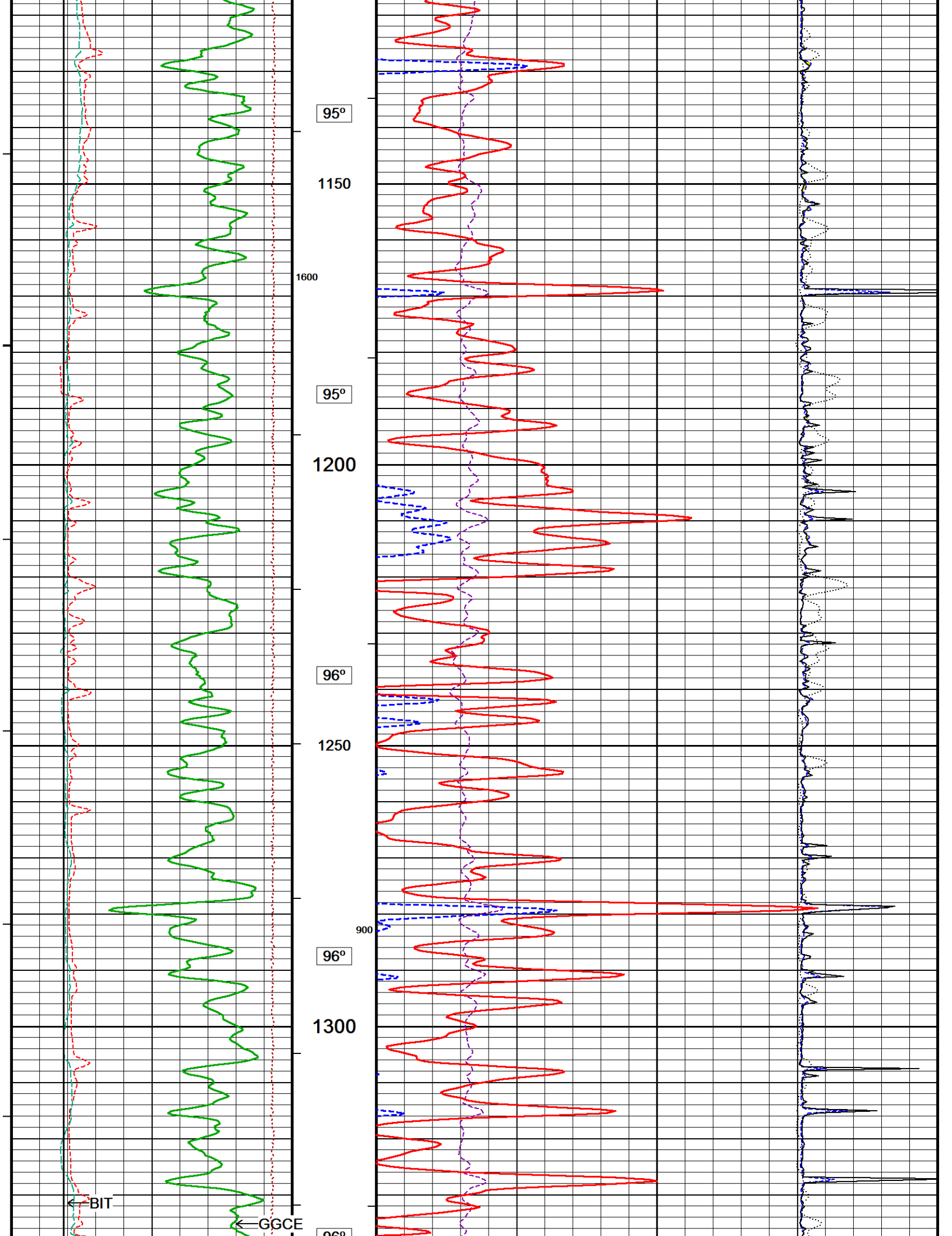
Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 05-APR-2019 22:42
Filename: C:\Users\E193808\AppData\Local\Temp\Weatherford PreView\0\MAIN PASS.dta — Recorded on 05-APR-2019 18:55
System Versions: Logged with 18.03.8633 Processed with 18.03.8633 Plotted with 17.01.6537

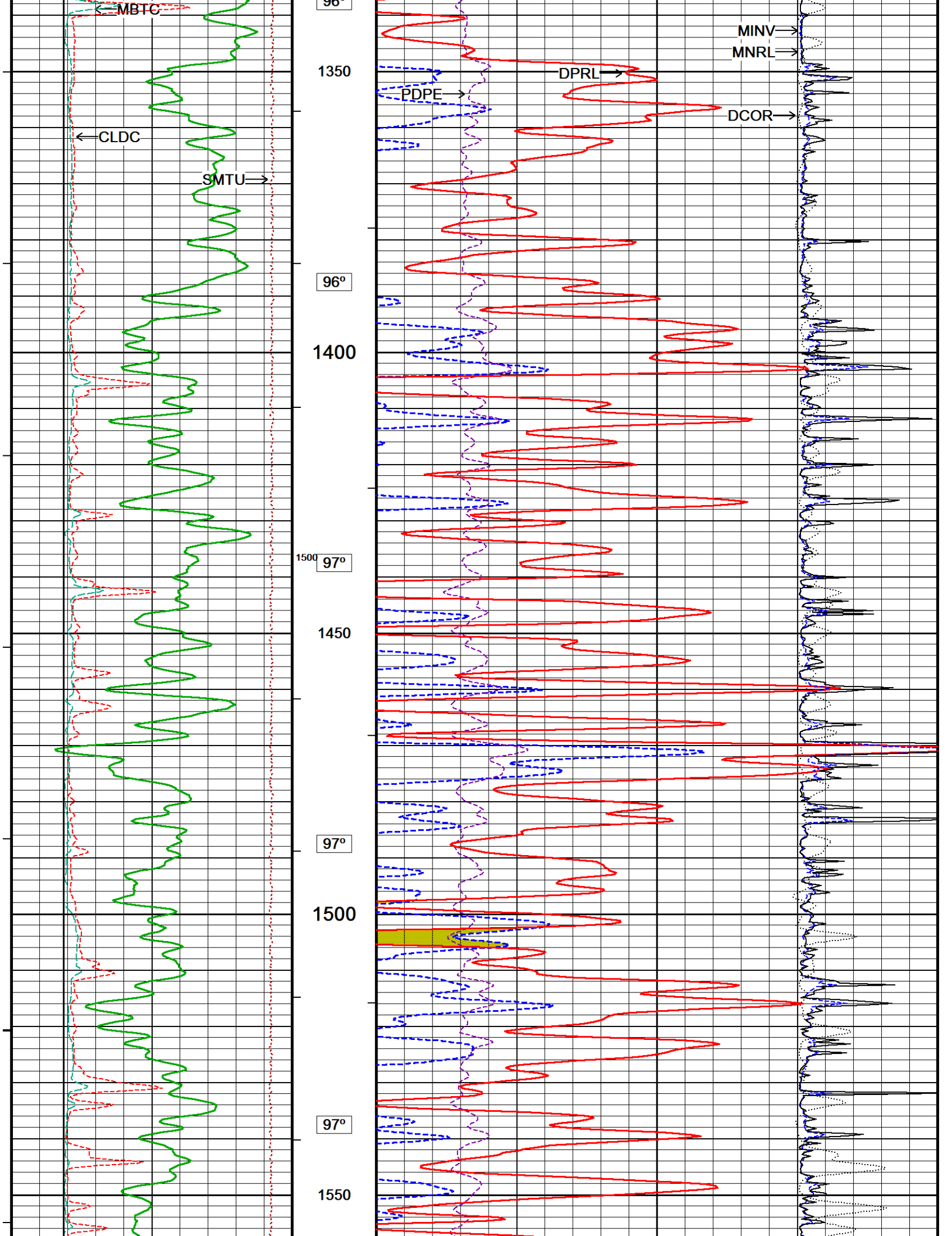


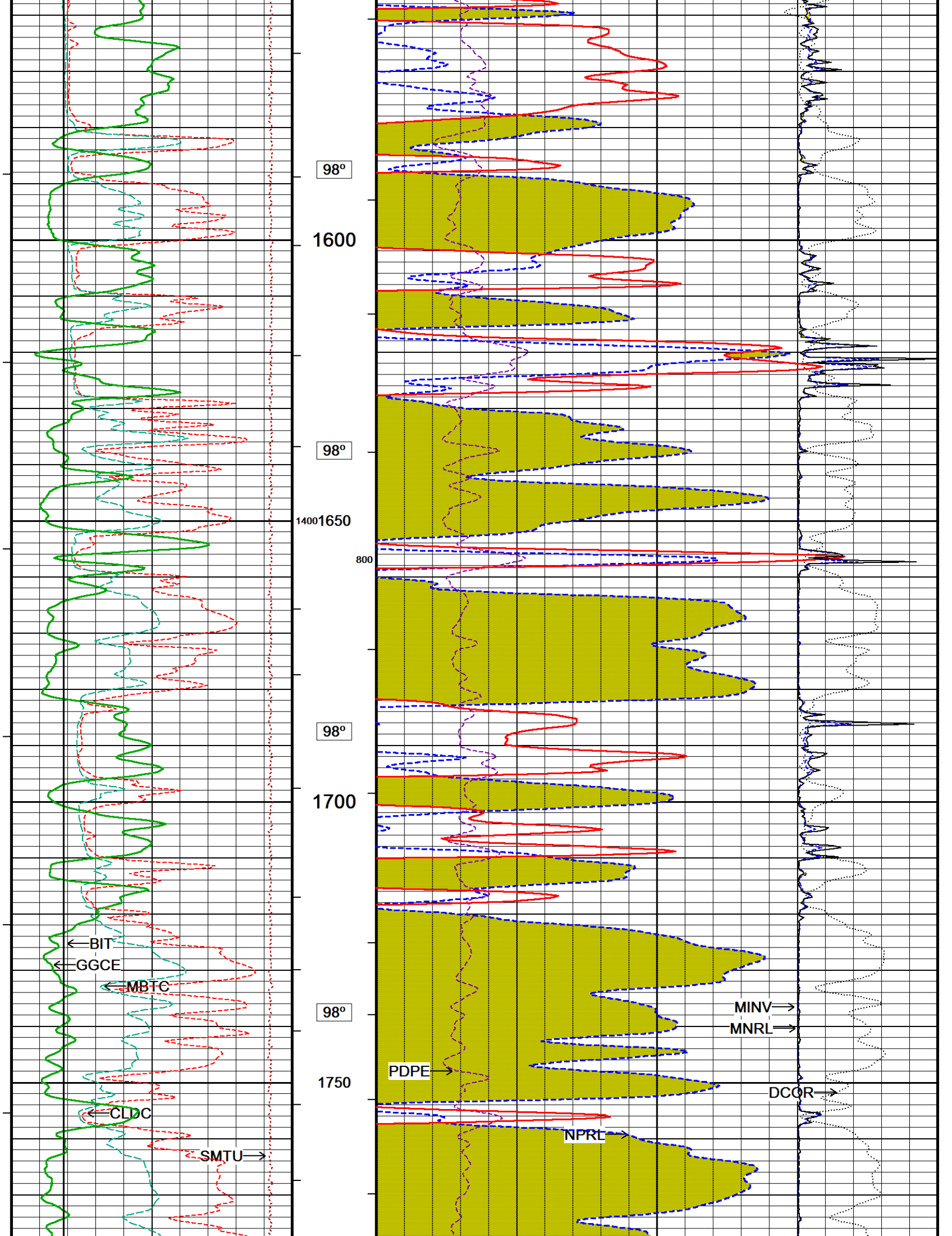

DST Uphole Tension
pounds
5000
0
Replay
Scale
1:240
488
Casing
Shoe
500
92°
550
1900
600
1100
92°
650
92°
BIT
GGCE
MBTC
CLDC
SMTU
DPRL
PDPE
MINV
MNRL
DCOR
0
20

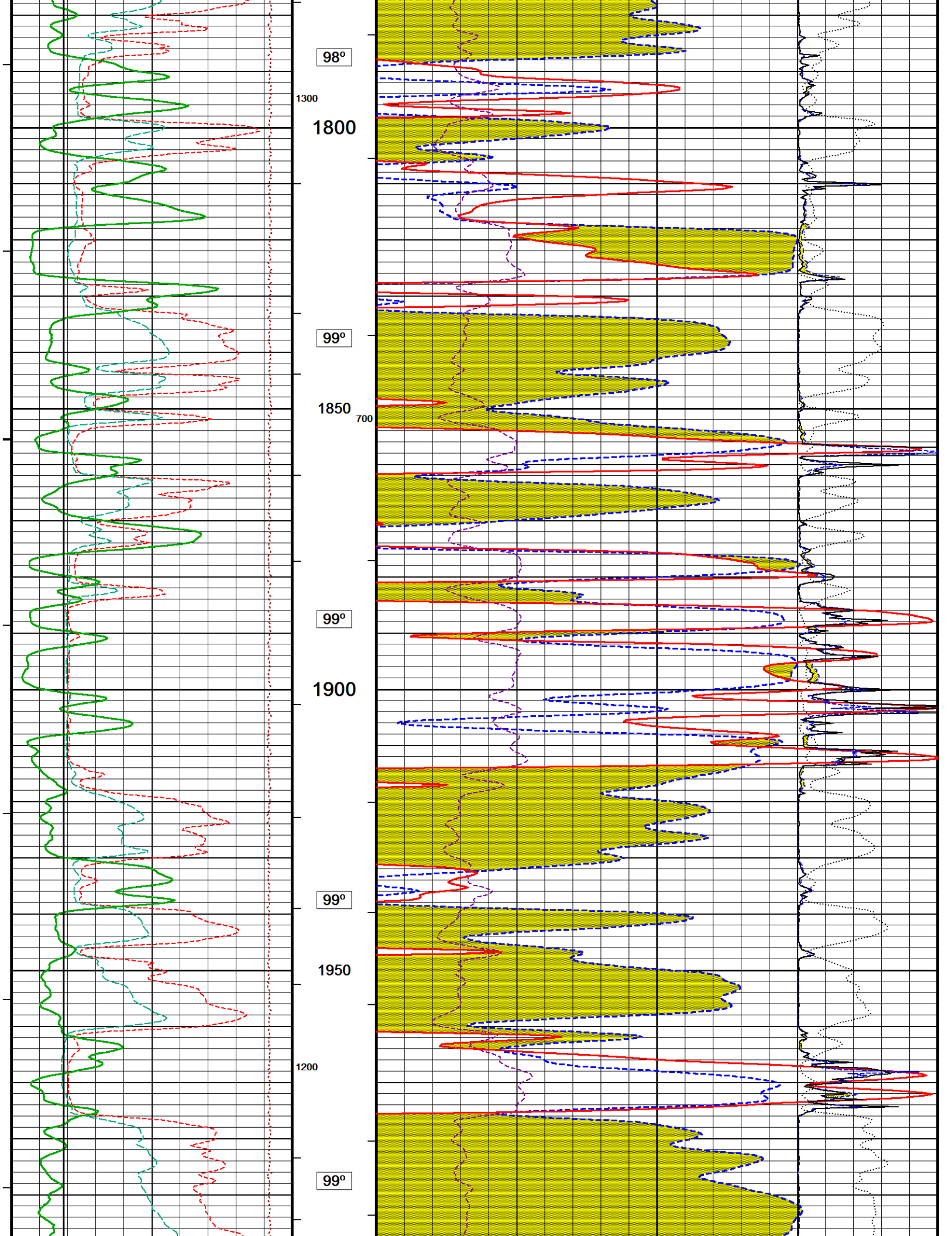

92°
700
93°
750
93°
1800
800
94°
850
94°

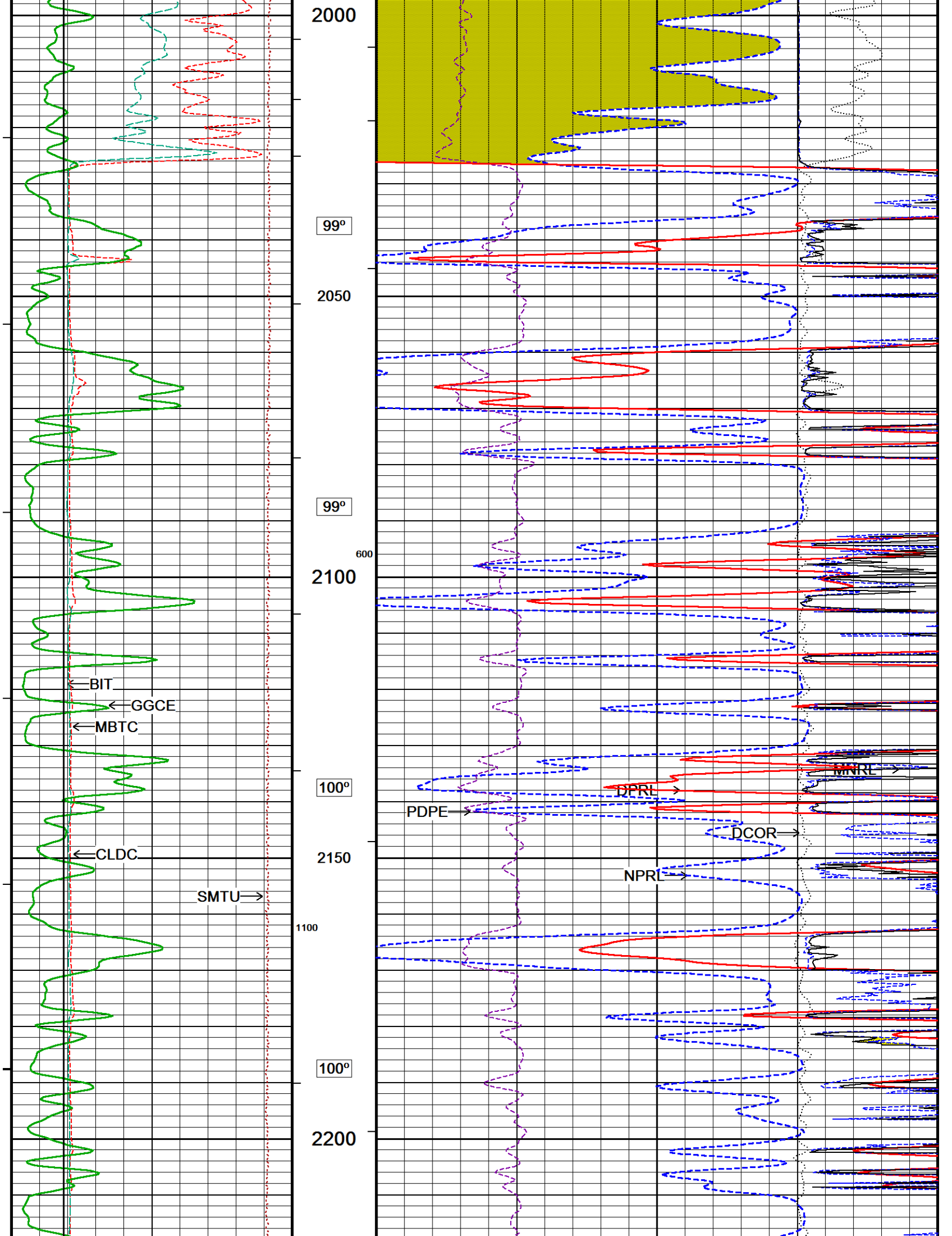

900
94º
950
1000
1700
94º
1000
95º
1050
95º
1100
BIT
GGCE
MBTC
CLDC
SMTU
PDPE
NPRL
MINV
MNRL
DCOR

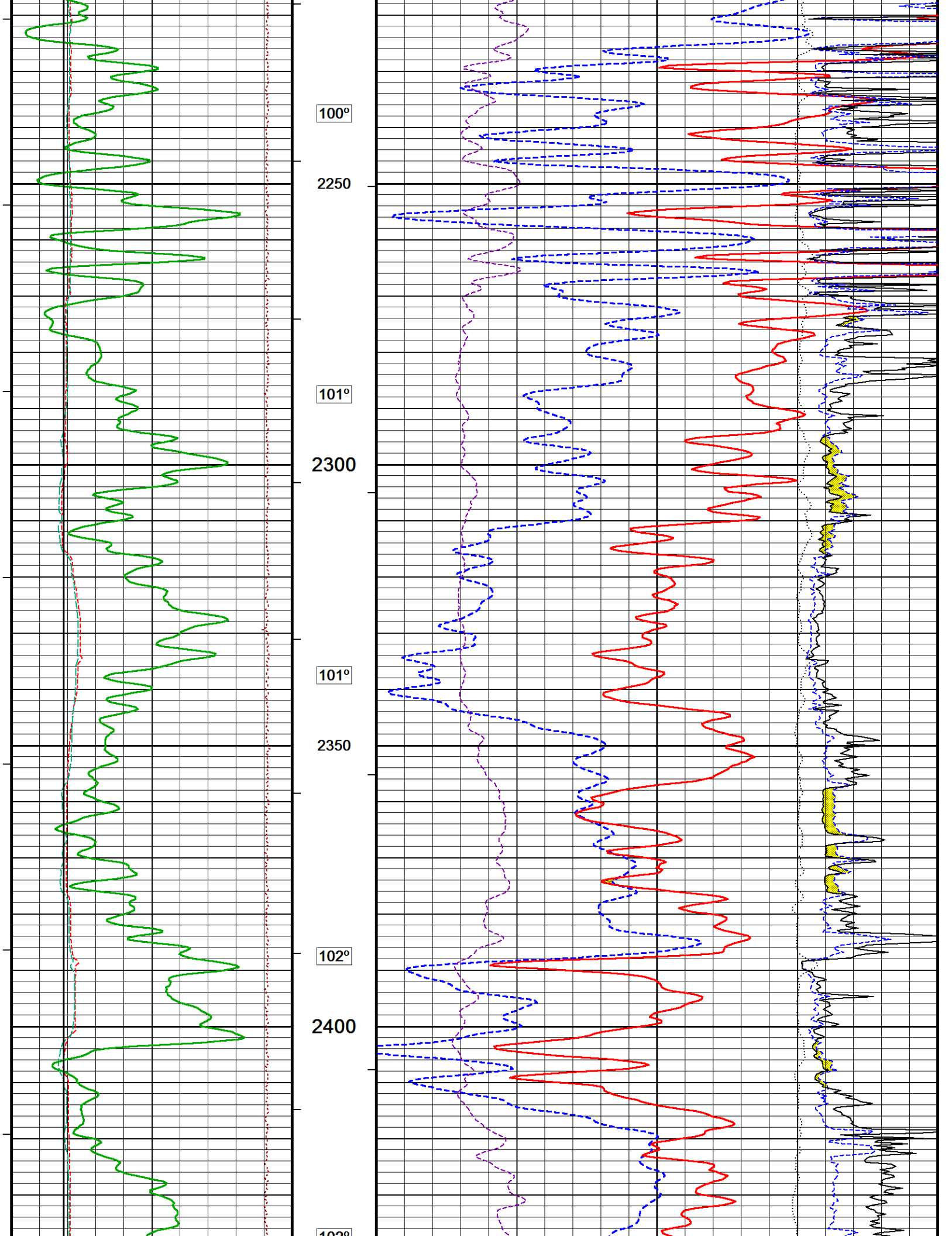

95°
1150
1600
95°
1200
96°
1250
900
96°
1300
BIT
GGCE

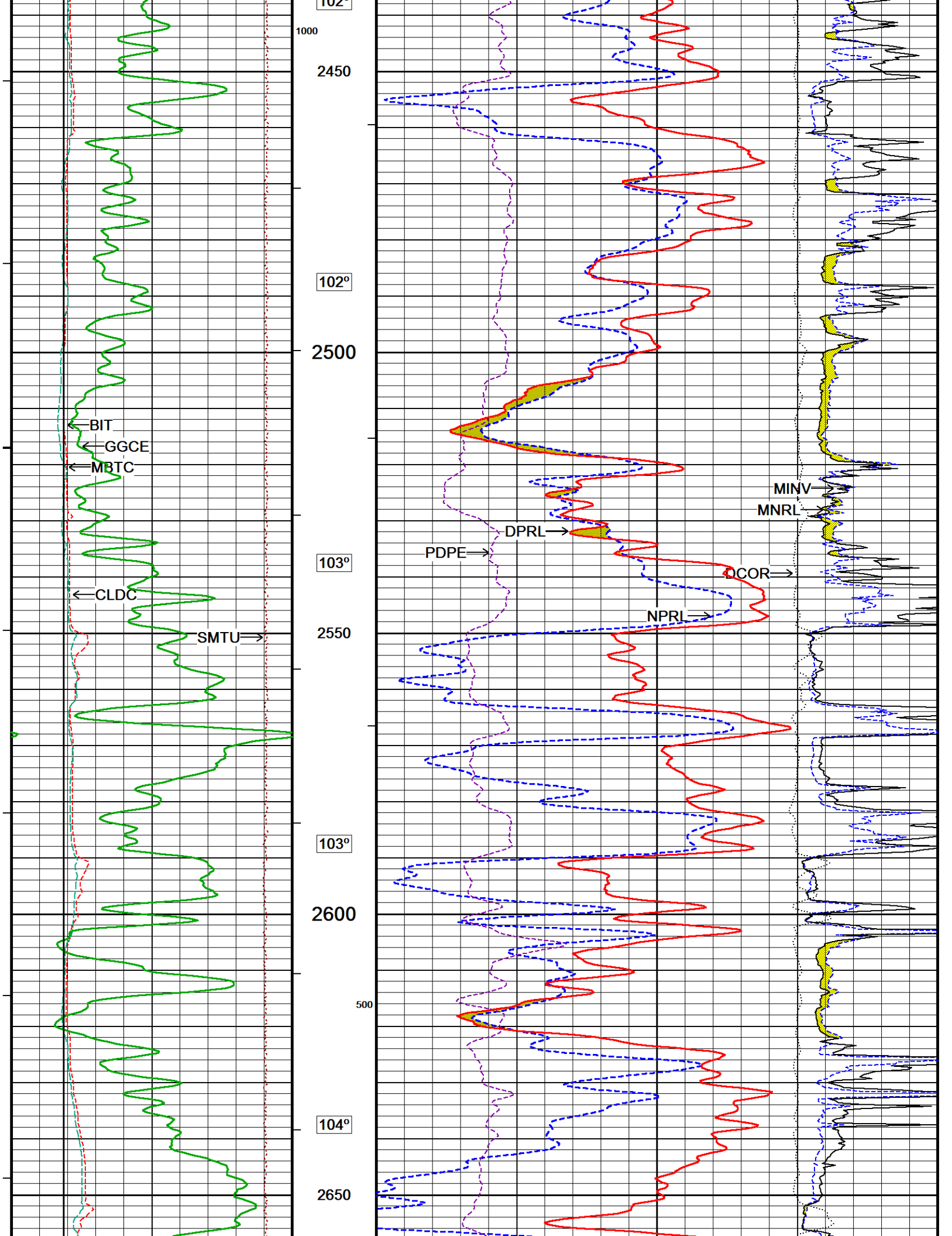

MBTC
CLDC
SMTU
MINV
MNRL
DPRL
PDPE
DCOR
96°
1350
96°
1400
1500
97°
1450
97°
1500
97°
1550

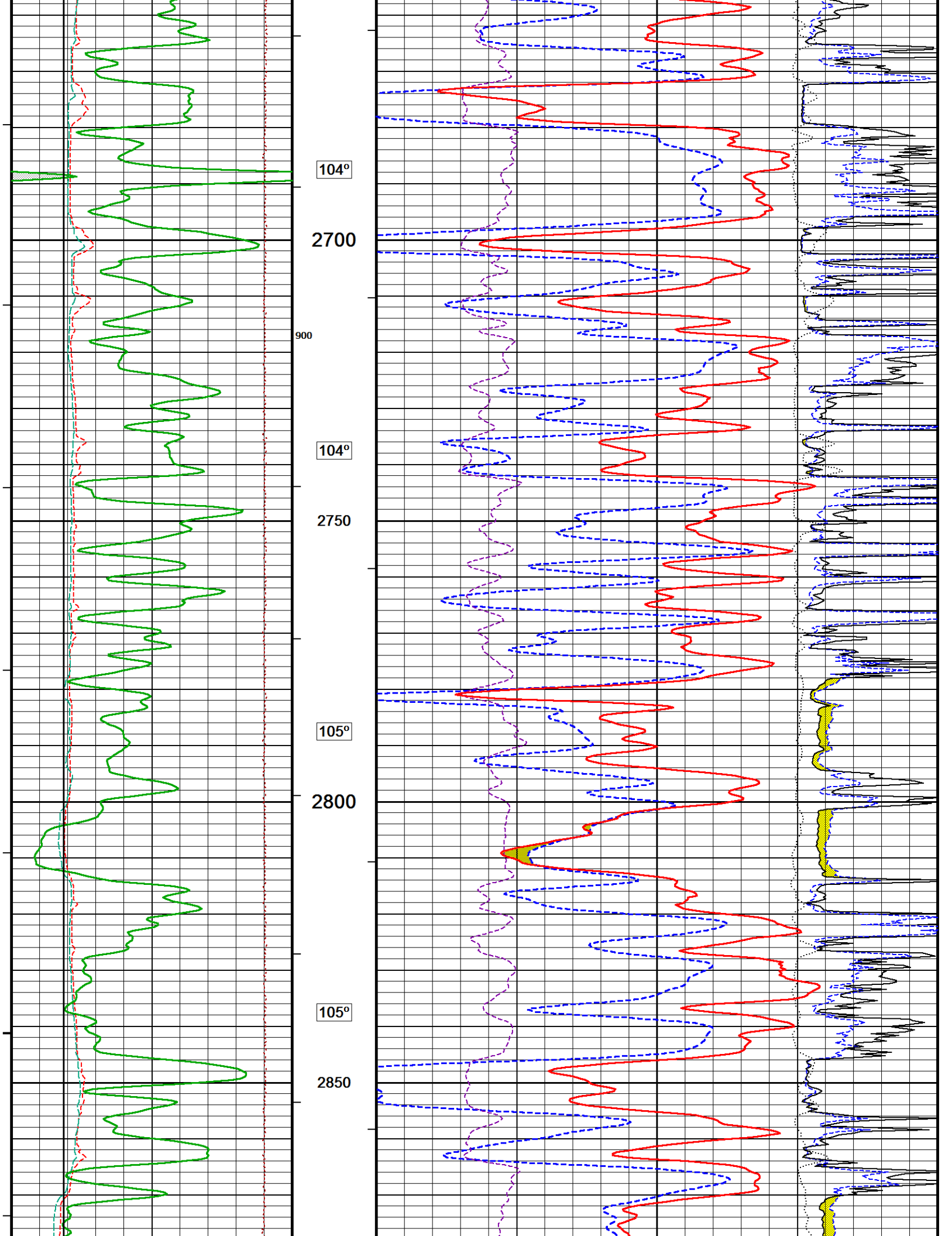

98°
1600
98°
1400
1650
800
98°
1700
98°
1750
BIT
GGCE
MBTC
CLDC
SMTU
MINV
MNRL
PDPE
DCOR
NPRL

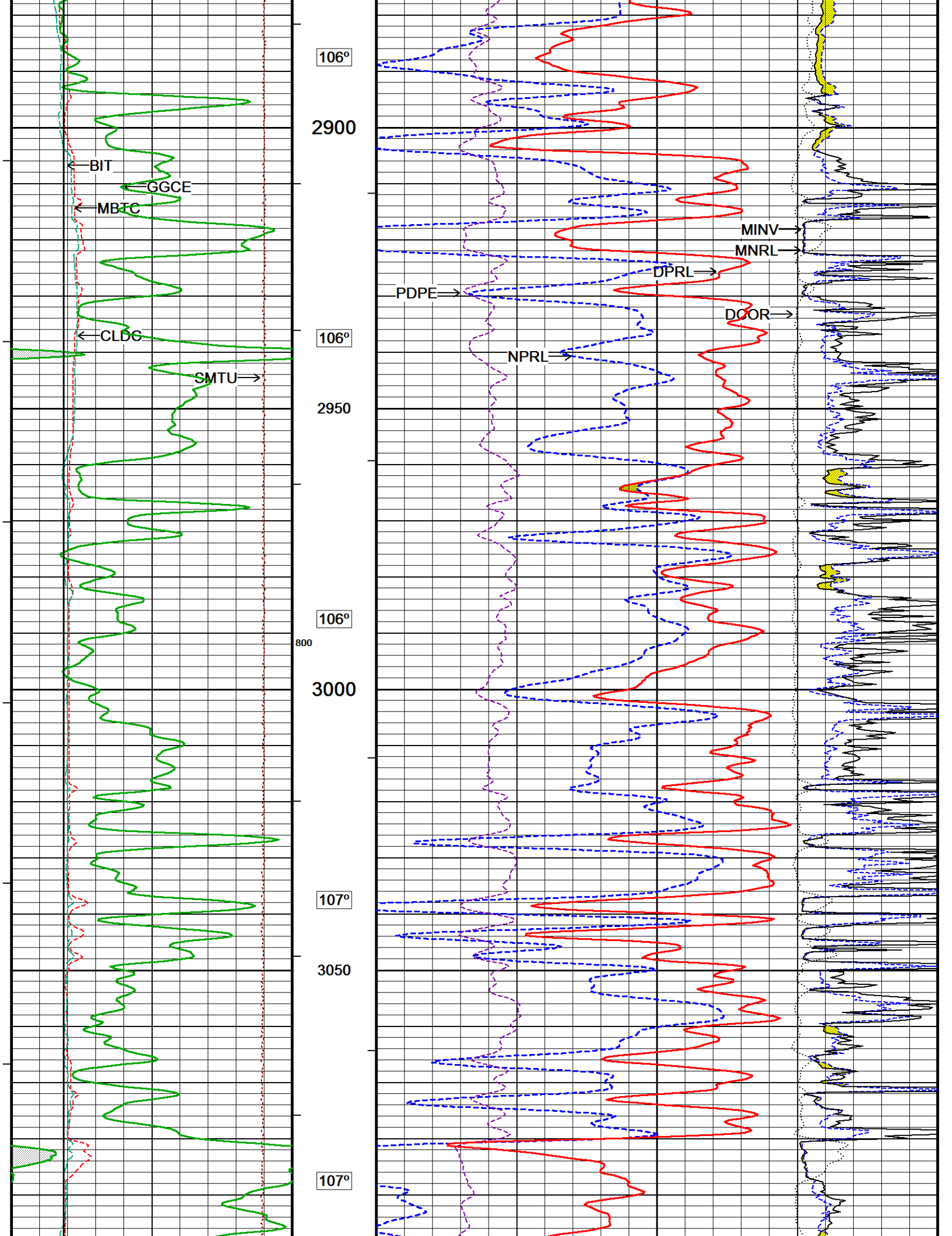

98°
1300
1800
99°
1850
700
99°
1900
99°
1950
1200
99°

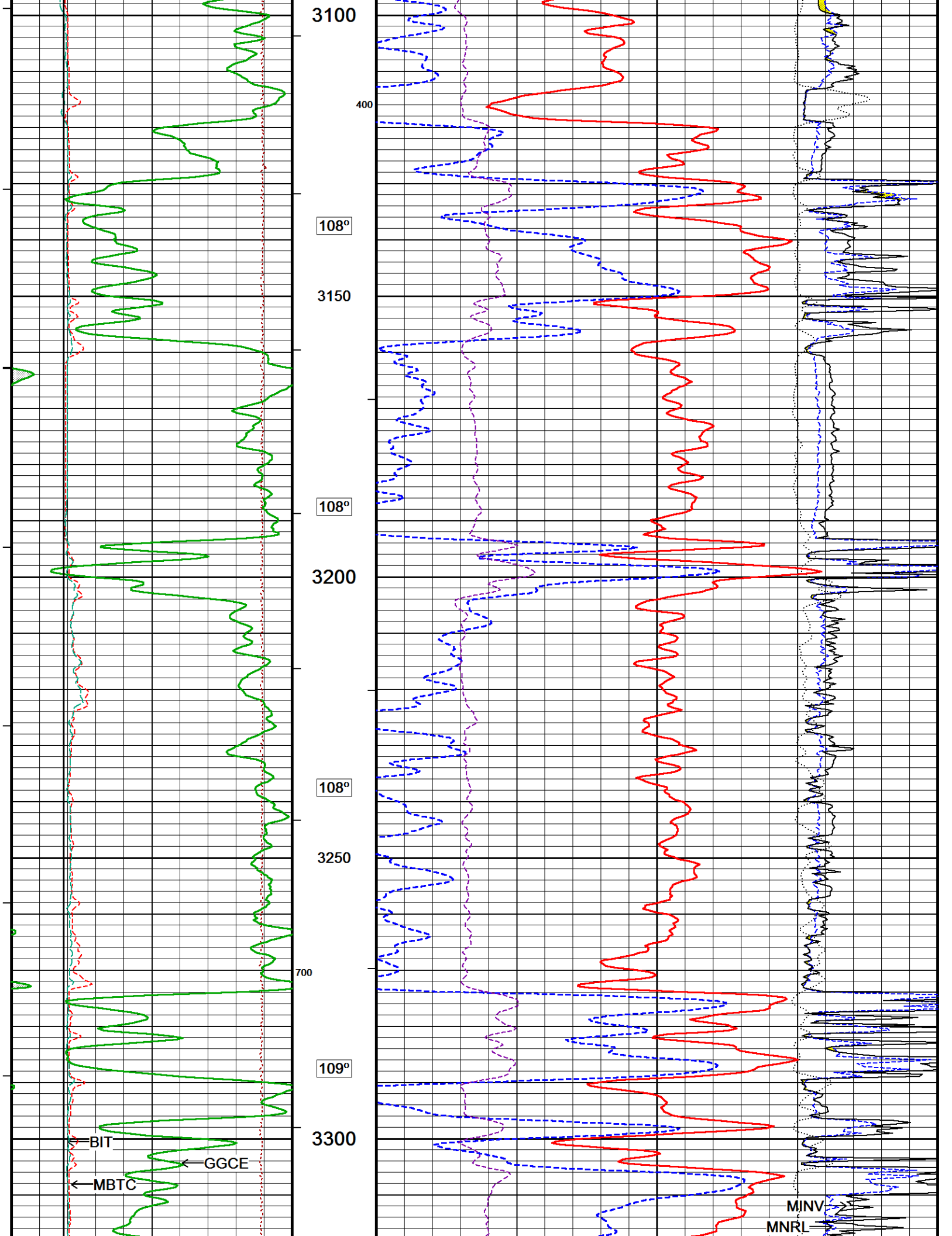

2000
99°
2050
99°
600
2100
BIT
GGCE
MBTC
100°
MNRL
DPRL
PDPE
DCOR
2150
CLDC
NPRL
SMTU
1100
100°
2200

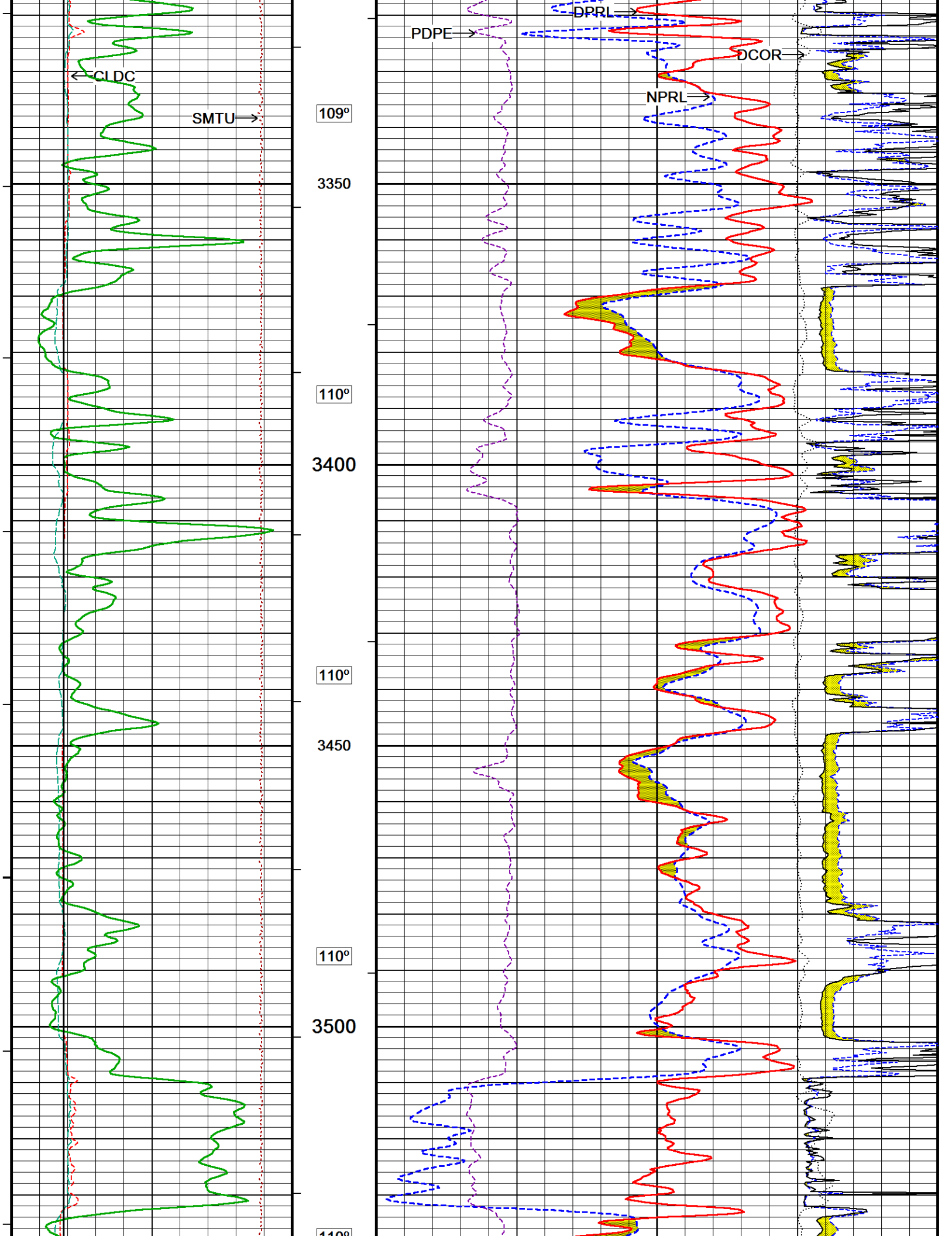

100°
2250
101°
2300
101°
2350
102°
2400

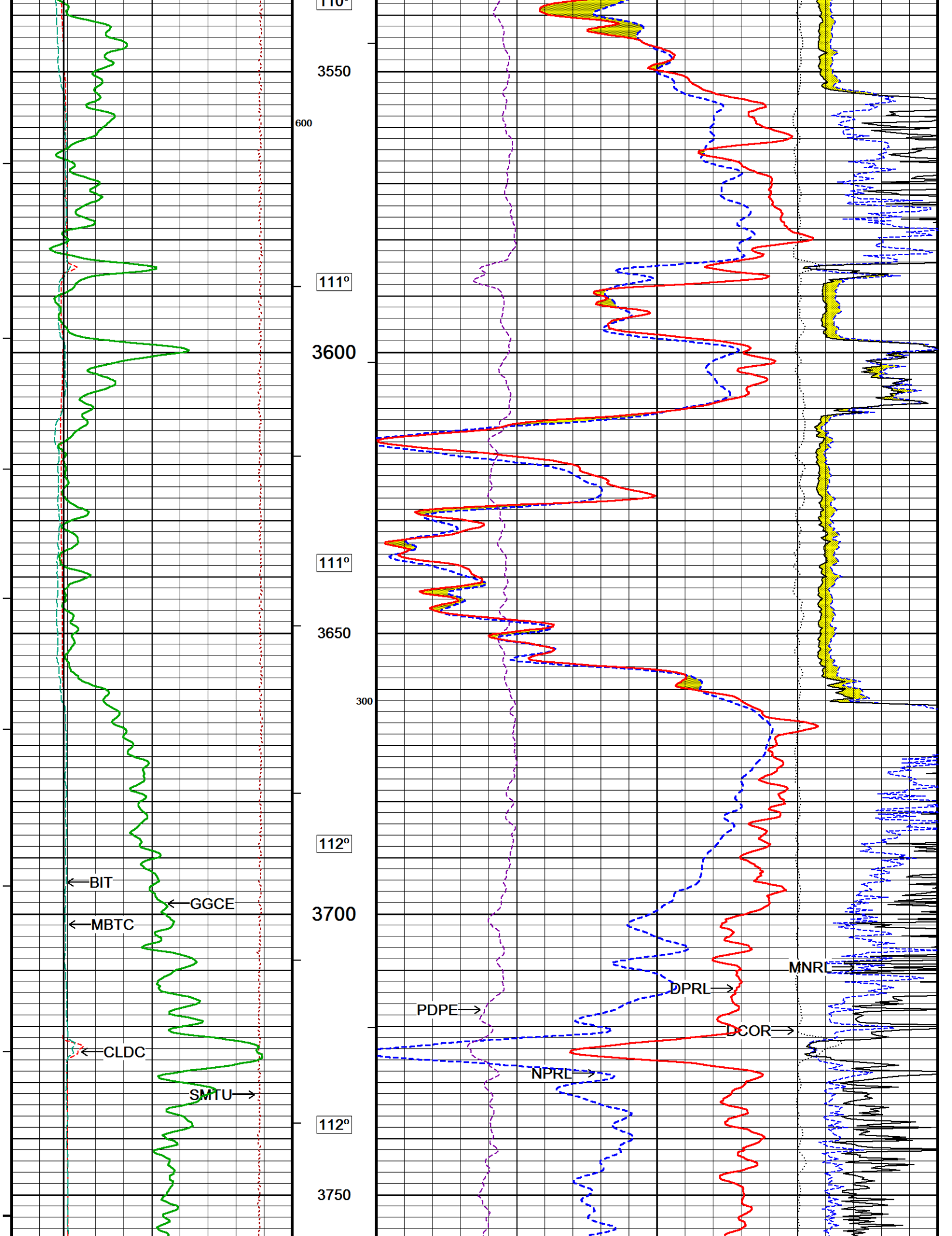

1000
2450
102°
2500
BIT
GGCE
MBTC
CLDC
SMTU
DPRL
PDPE
MINV
MNRL
DCOR
NPRL
103°
2550
103°
2600
500
104°
2650

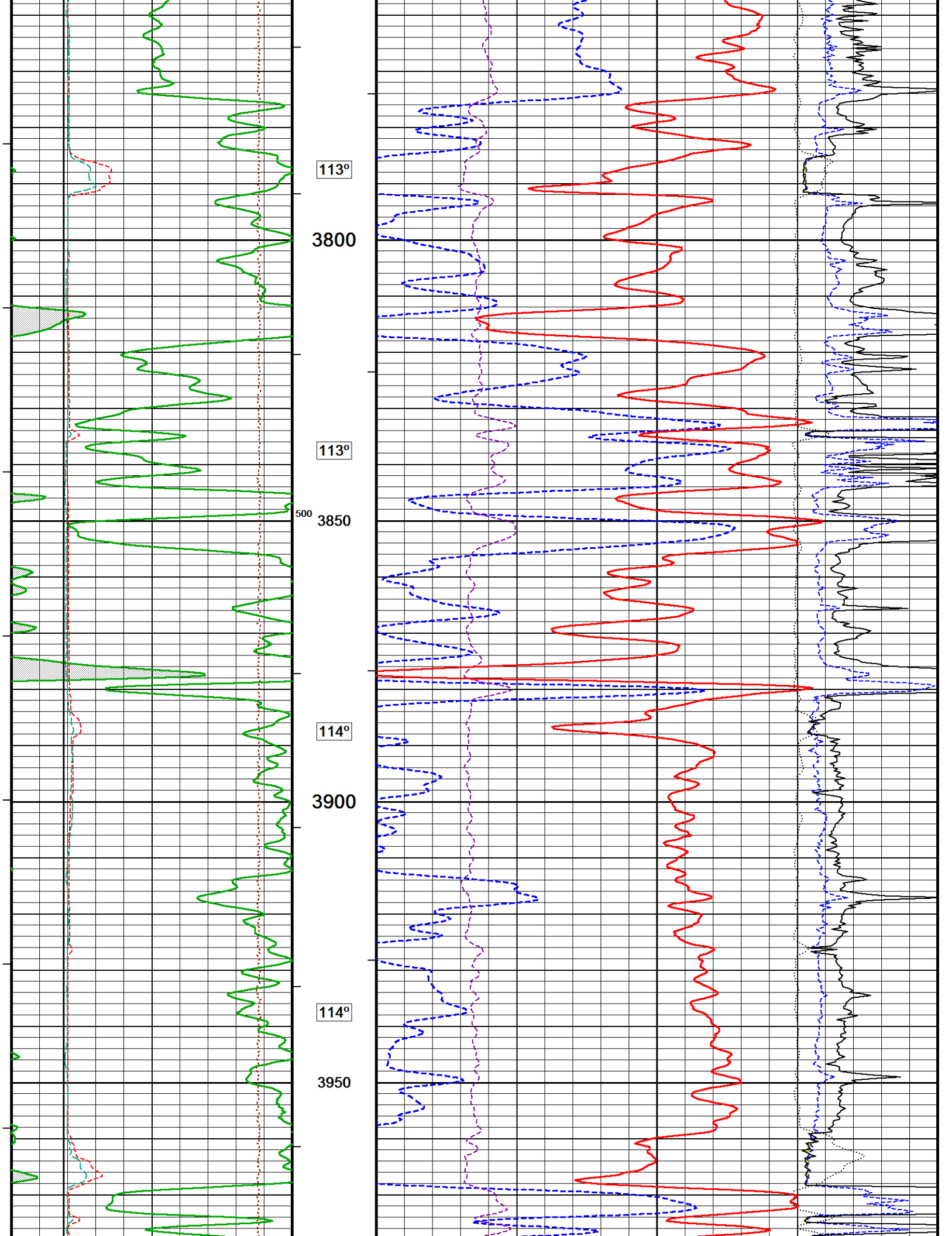

104°
2700
900
104°
2750
105°
2800
105°
2850

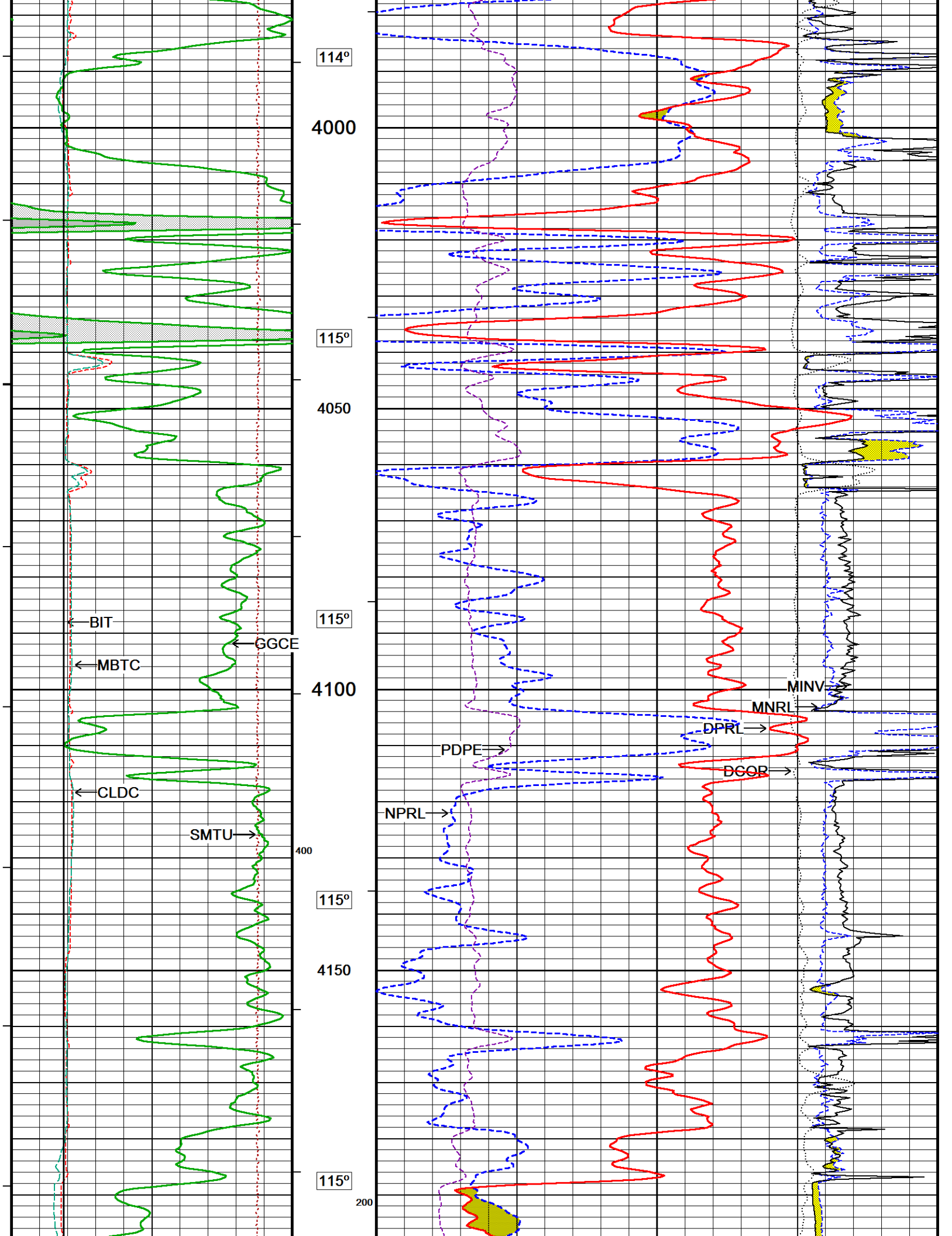

106°
2900
BIT
GGCE
MBTC
MINV
MNRL
DPRL
PDPE
DCOR
CLDC
106°
NPRL
SMTU
2950
106°
800
3000
107°
3050
107°

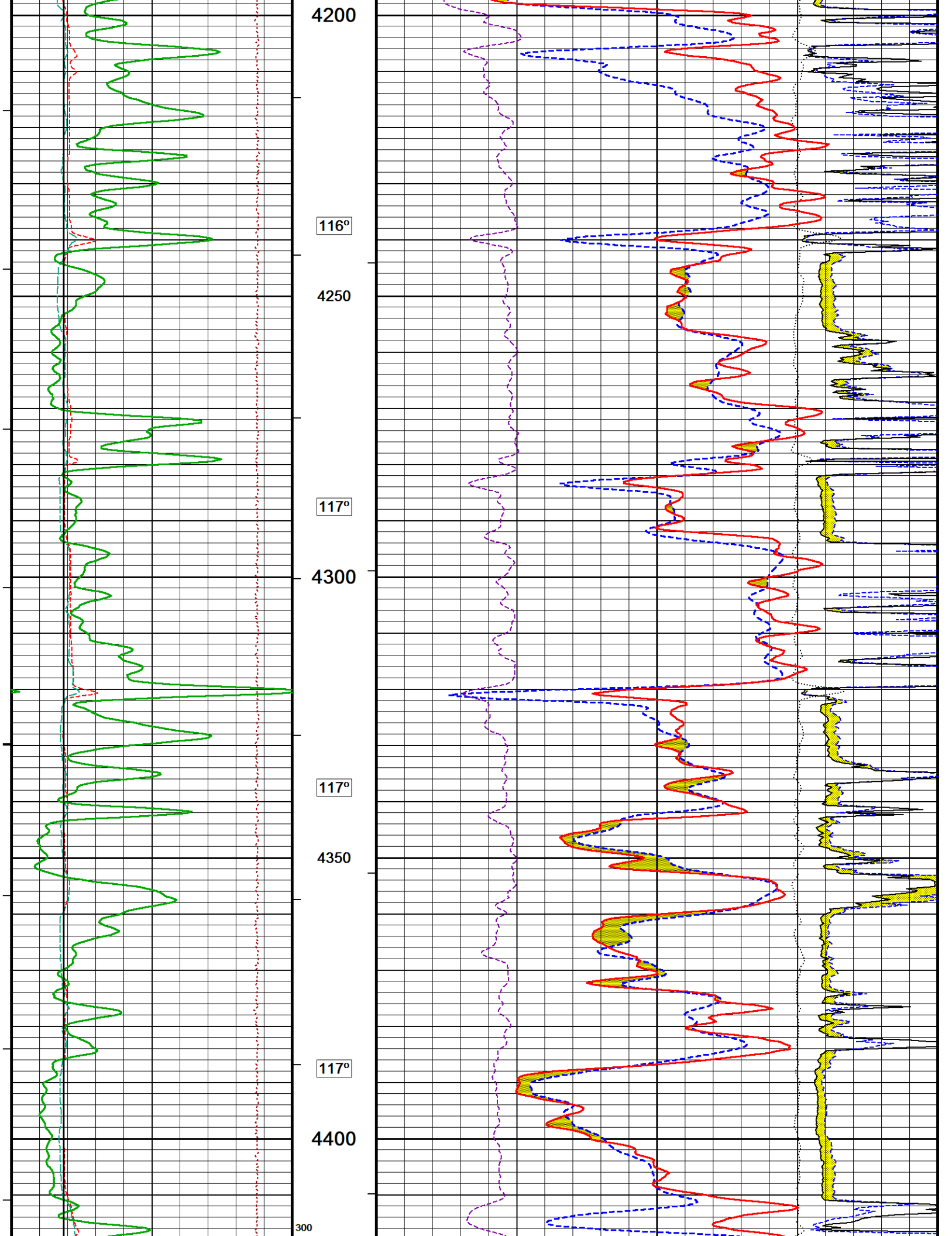

3100
400
108°
3150
108°
3200
108°
3250
700
109°
3300
BIT
GGCE
MBTC
MINV
MNRL

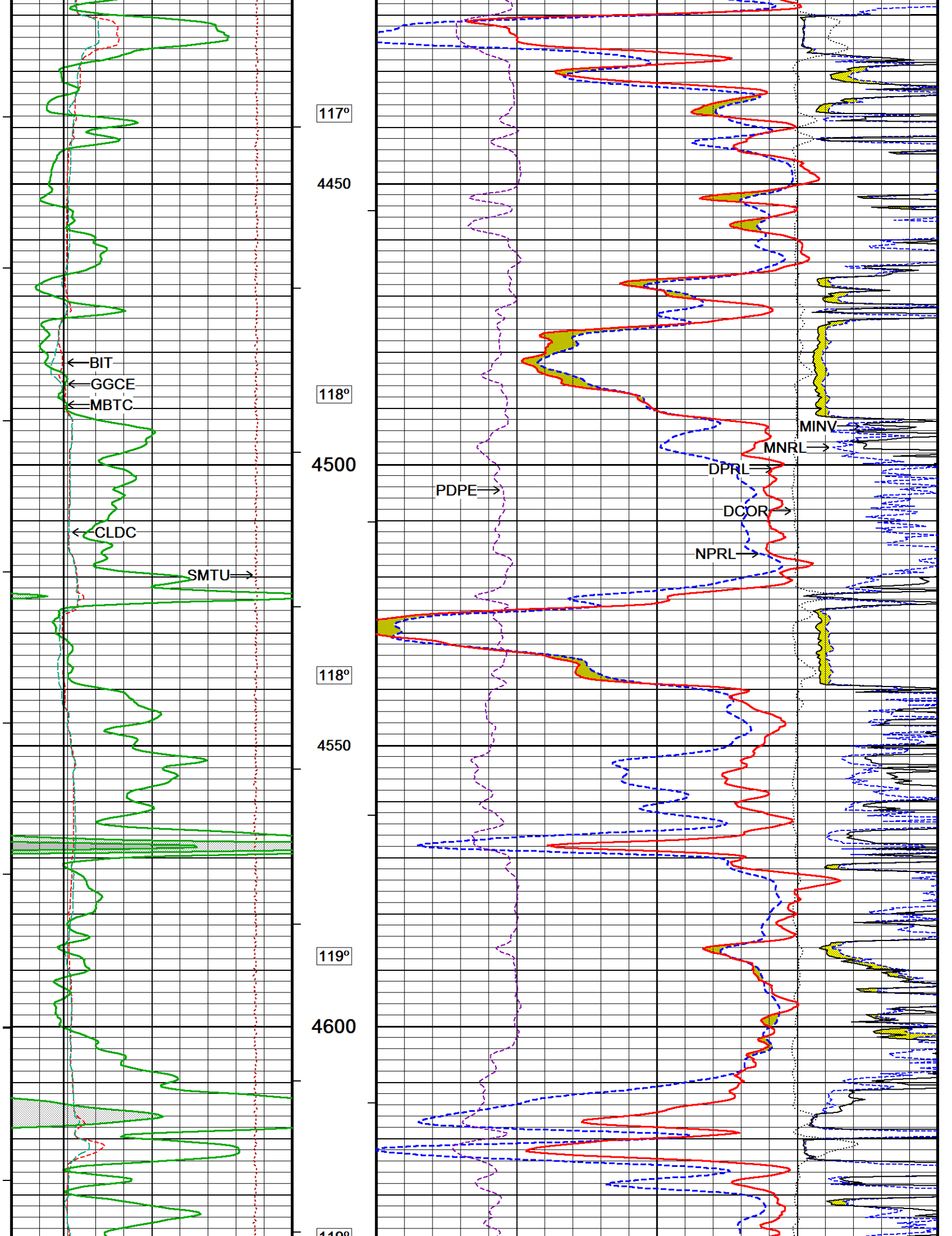

CLDC
SMTU
PDPE
DPRL
NPRL
DCOR
109°
3350
110°
3400
110°
3450
110°
3500
110°

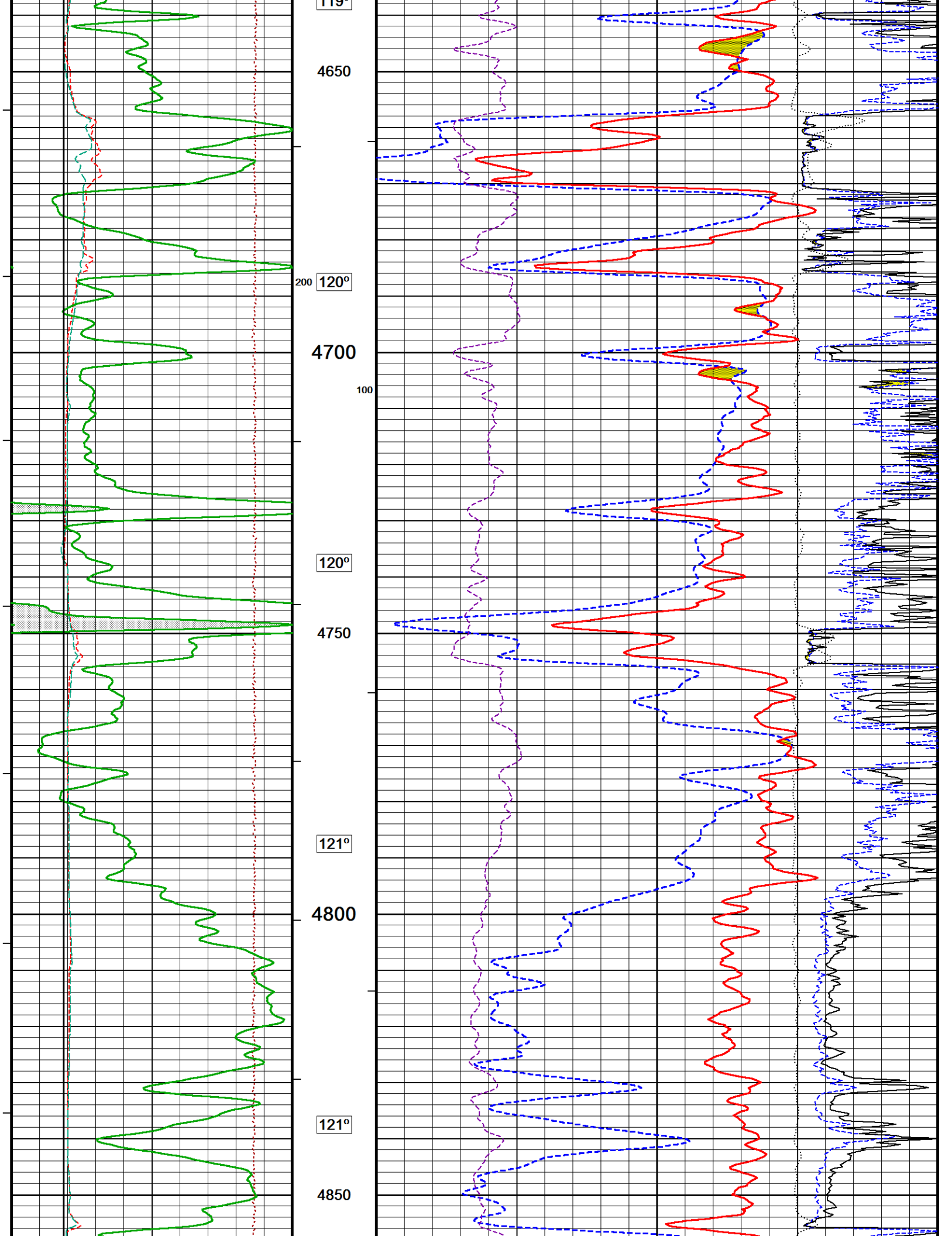

110°
3550
600
111°
3600
111°
3650
300
112°
3700
112°
3750
BIT
GGCE
MBTC
CLDC
SMTU
PDPE
NPRL
DPRL
DCOR
MNRL

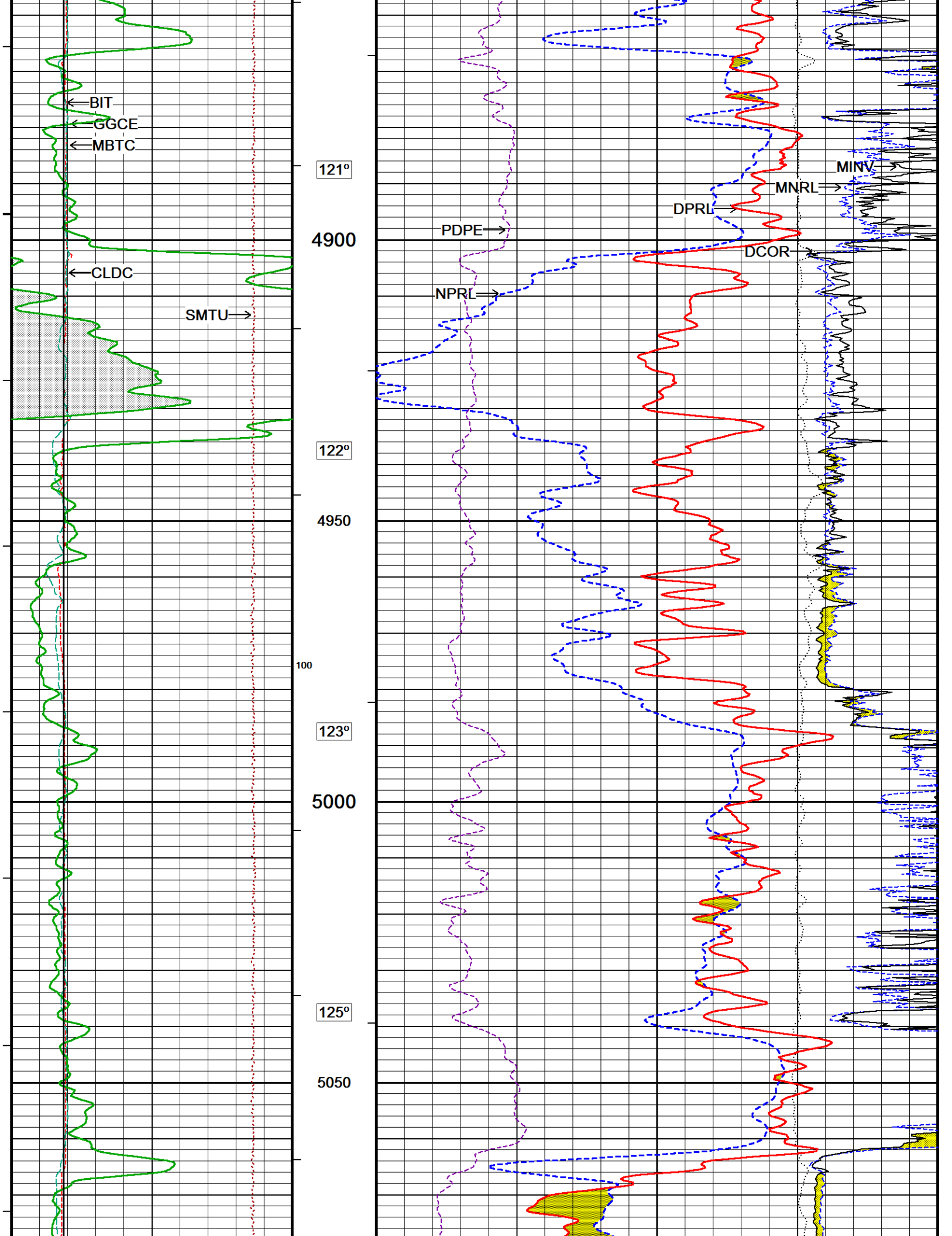

113°
3800
113°
500
3850
114°
3900
114°
3950

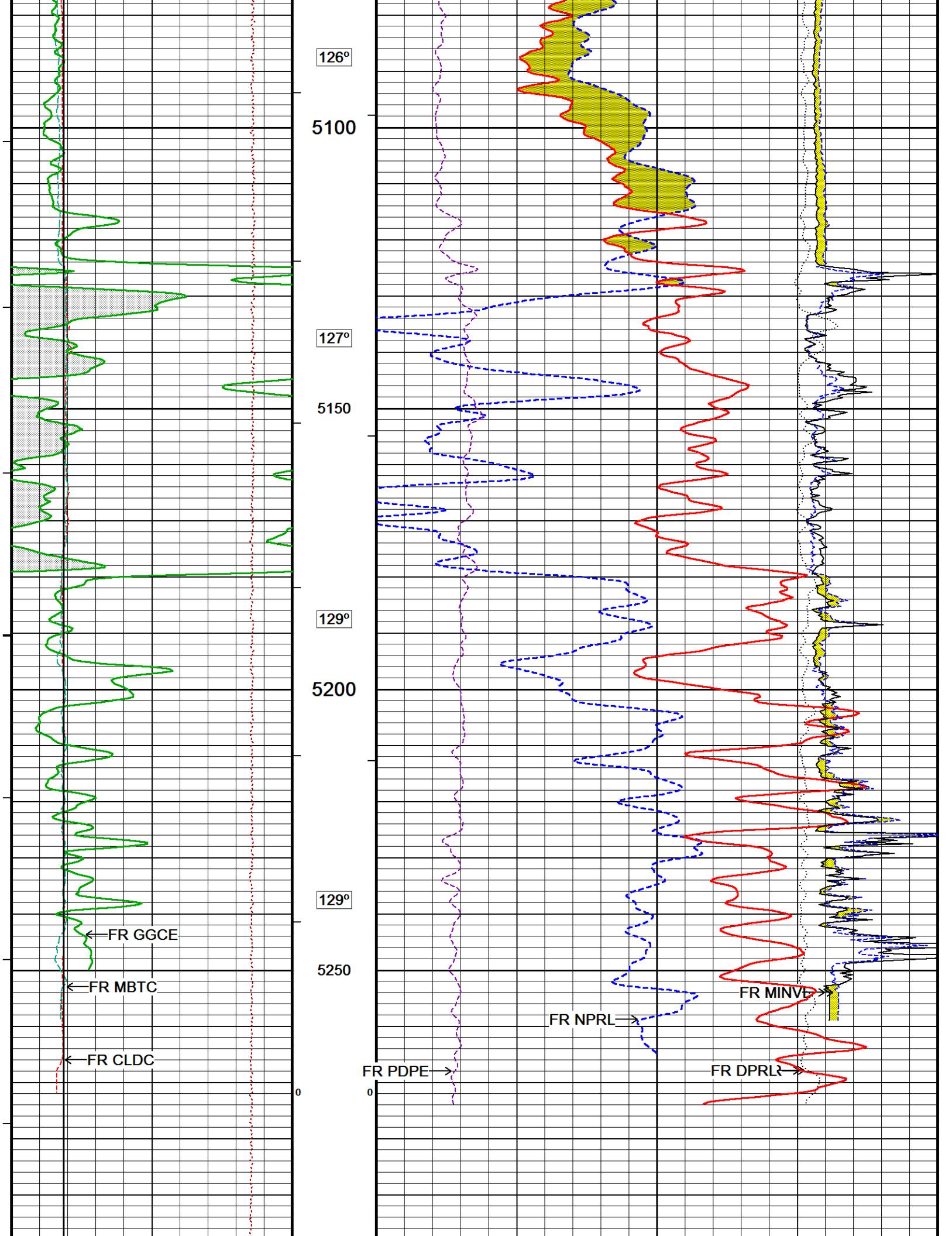

114°
4000
115°
4050
115°
BIT
GGCE
MBTC
4100
CLDC
SMTU
400
115°
4150
115°
200
MINV
MNRL
DPRL
PDPE
DCOR
NPRL

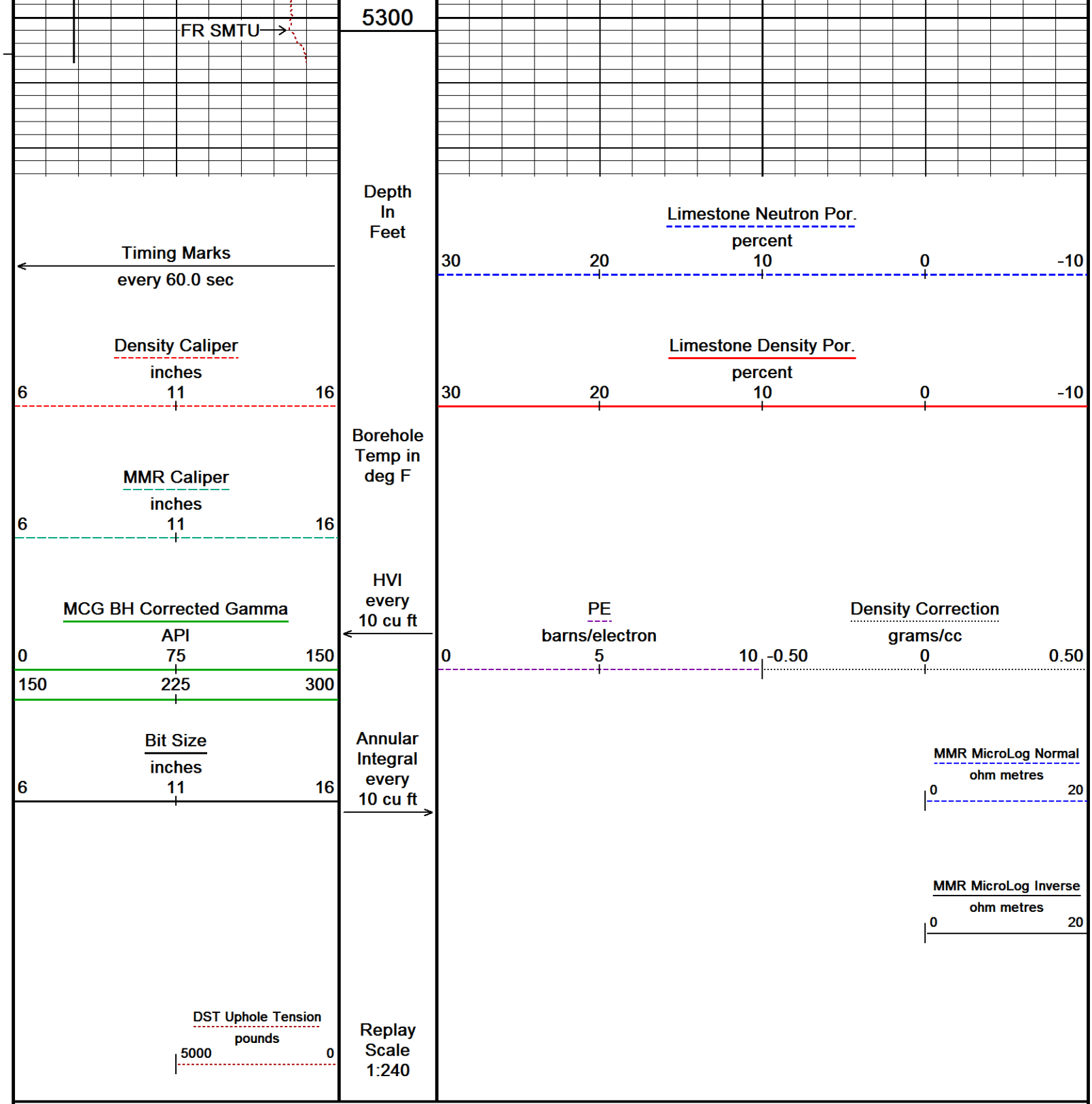

4200
116°
4250
117°
4300
117°
4350
117°
4400
300


117°
4450
BIT
GGCE
MBTC
118°
4500
MINV
MNRL
DPRL
PDPE
DCOR
CLDC
NPRL
SMTU
118°
4550
119°
4600


119°
4650
200
120°
4700
100
120°
4750
121°
4800
121°
4850


BIT
GGCE
MBTC
CLDC
SMTU
121°
4900
122°
4950
100
123°
5000
125°
5050
PDPE
NPRL
DPRL
MNRL
MINV
DCOR


126°
5100
127°
5150
129°
5200
129°
5250
FR GGCE
FR MBTC
FR CLDC
FR PDPE
FR NPRL
FR MINVL
FR DPRL
0
0

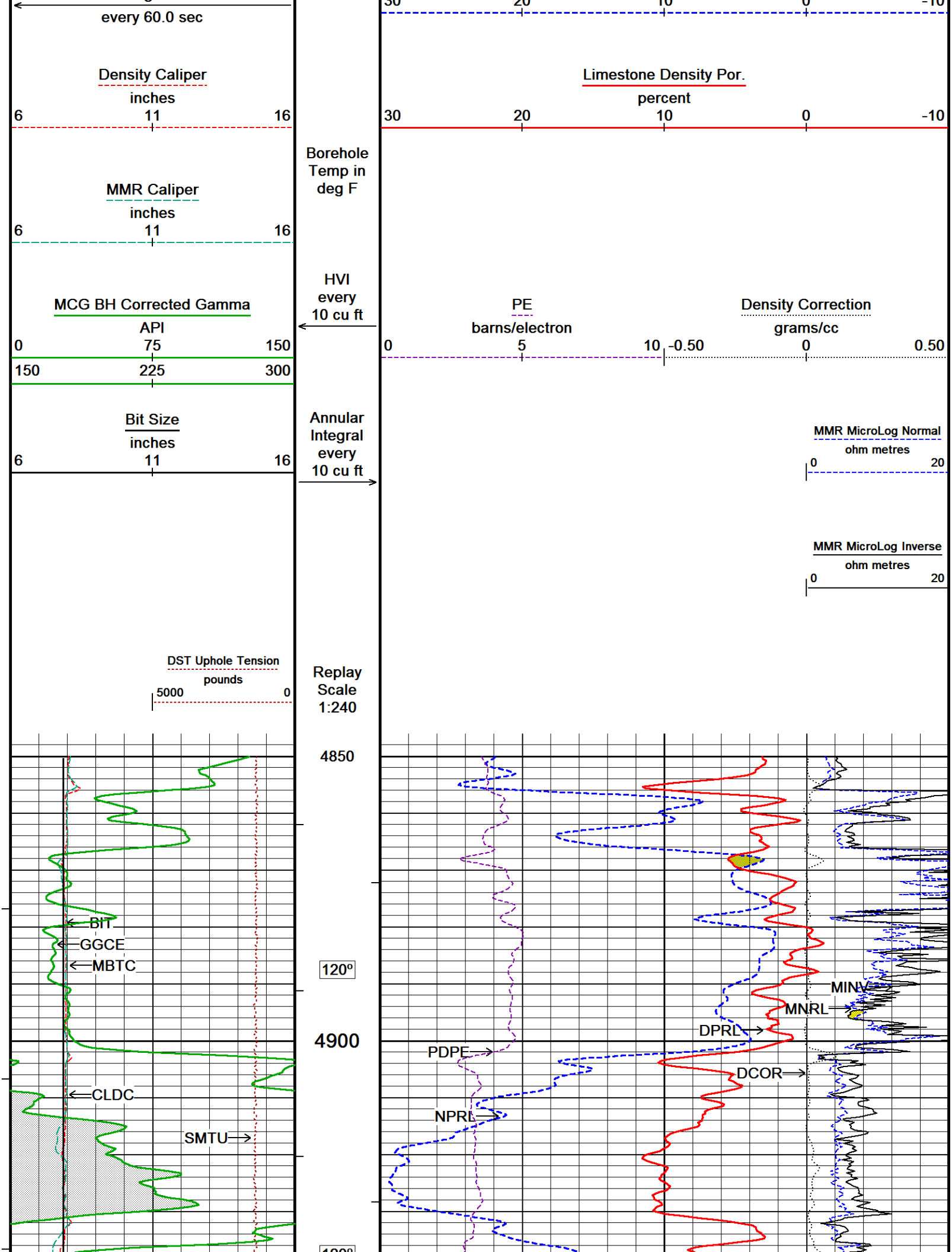


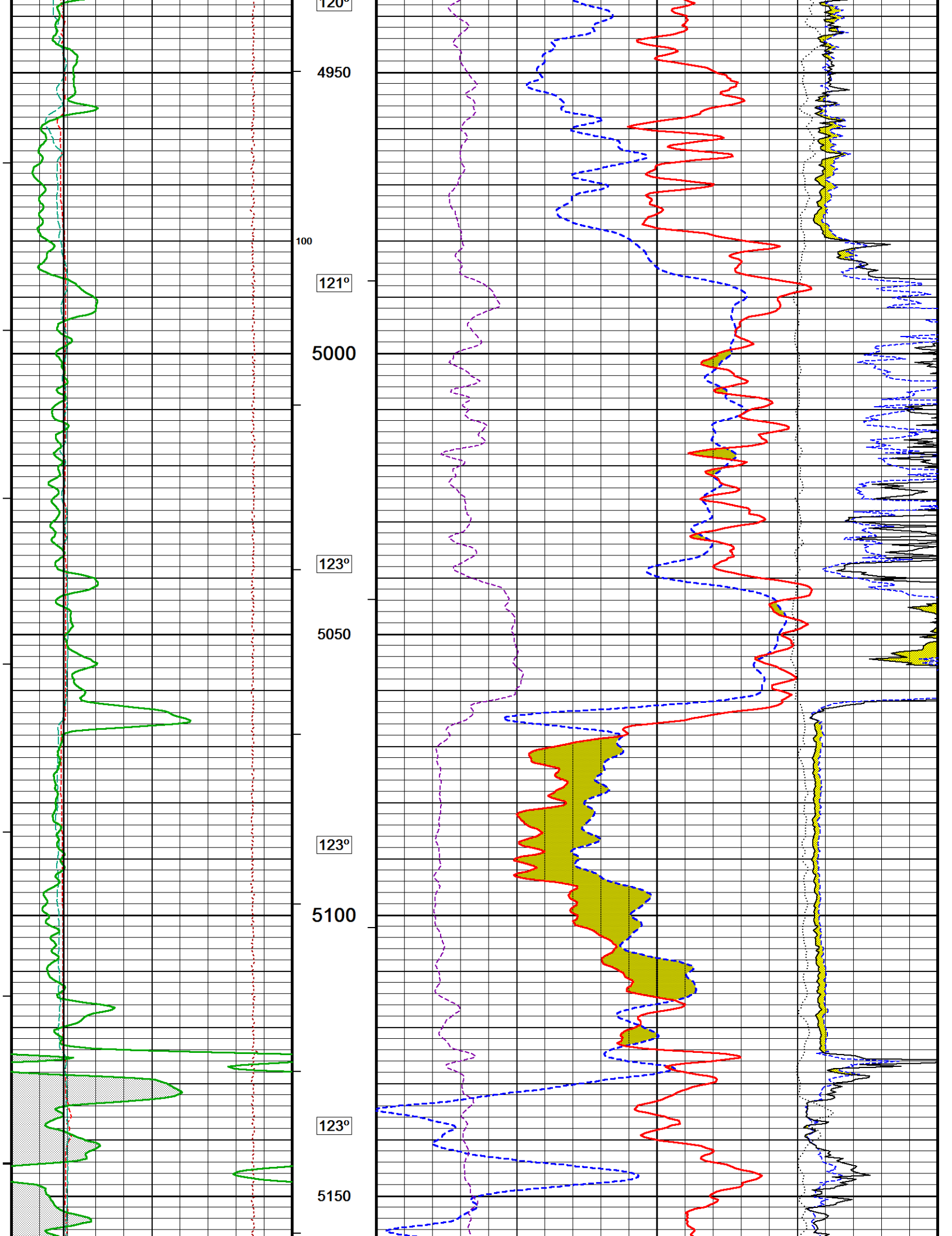
Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 05-APR-2019 22:42
Filename: C:\Users\E193808\AppData\Local\Temp\Weatherford PreView\0\MAIN PASS.dta
Recorded on 05-APR-2019 18:55
System Versions: Logged with 18.03.8633 Processed with 18.03.8633 Plotted with 17.01.6537

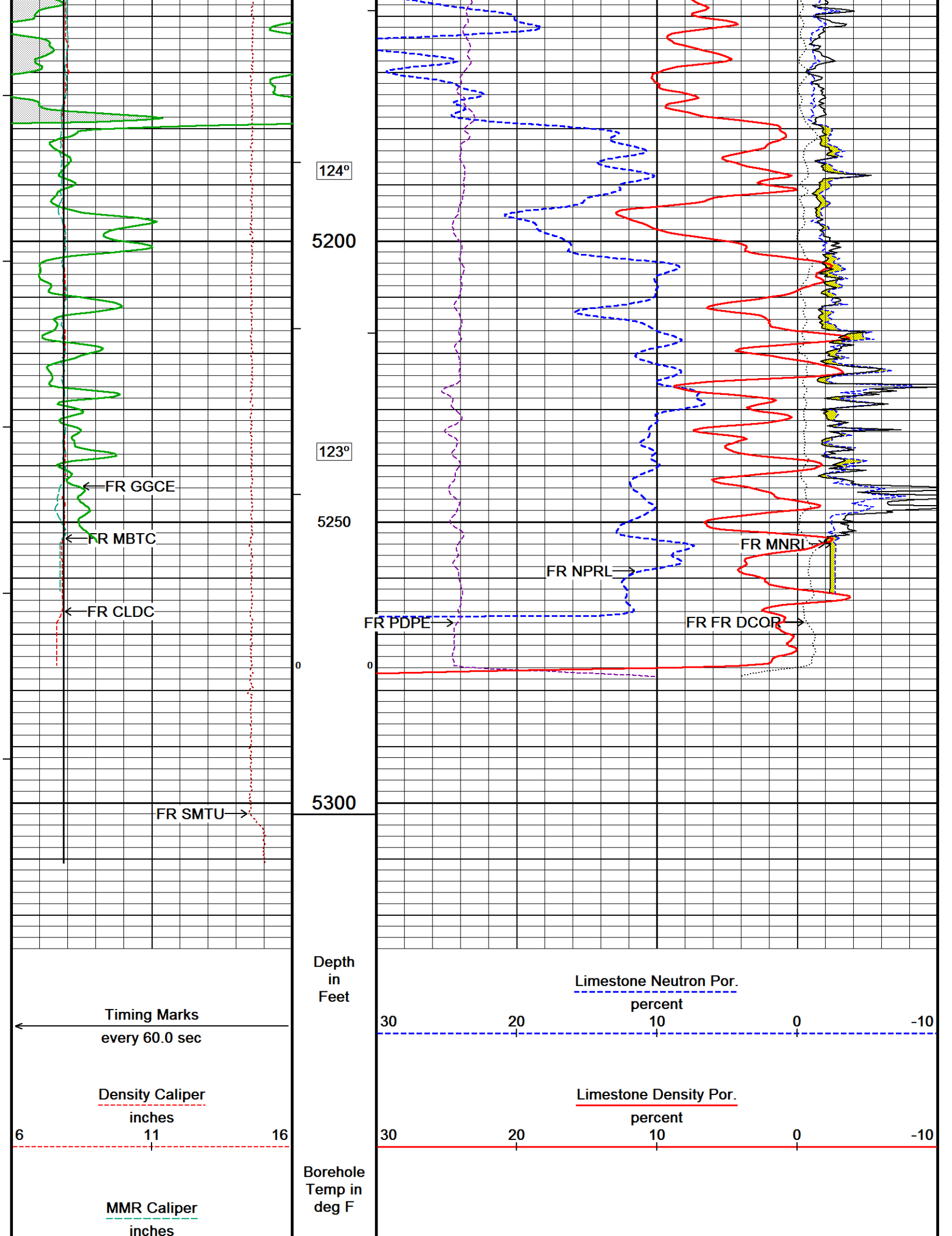
5 INCH MAIN PASS - POROSITY - LIMESTONE 1:240

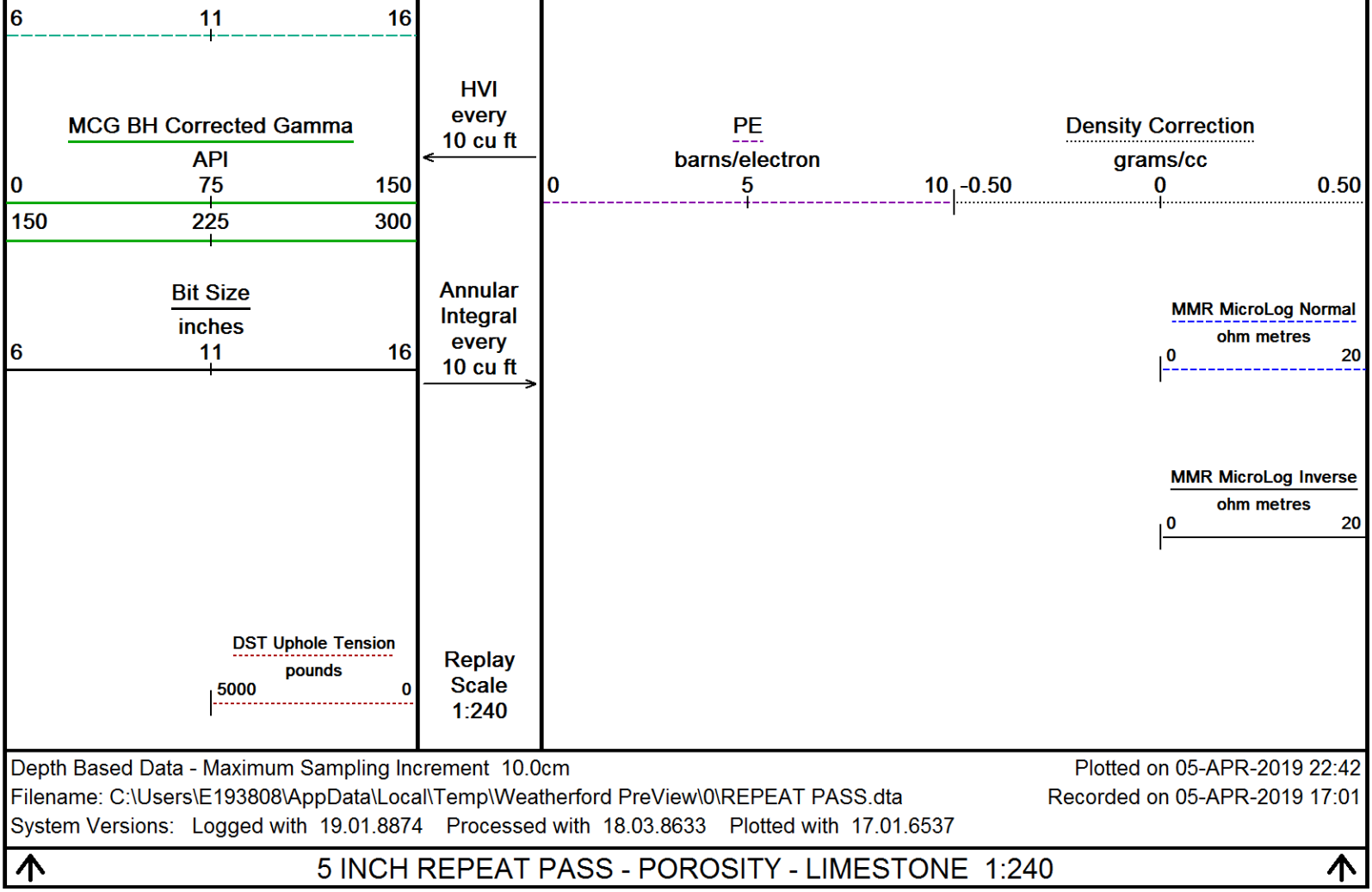
5 INCH REPEAT PASS - POROSITY - LIMESTONE 1:240

Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 05-APR-2019 22:42
Filename: C:\Users\E193808\AppData\Local\Temp\Weatherford PreView\0\REPEAT PASS.dta
Recorded on 05-APR-2019 17:01
System Versions: Logged with 19.01.8874 Processed with 18.03.8633 Plotted with 17.01.6537


every 60.0 sec
Density Caliper
inches
6
11
16
MMR Caliper
inches
6
11
16
MCG BH Corrected Gamma
API
0
75
150
150
225
300
Bit Size
inches
6
11
16
DST Uphole Tension
pounds
5000
0
Borehole Temp in deg F
HVI every 10 cu ft
Annular Integral every 10 cu ft
Replay Scale 1:240
Limestone Density Por.
percent
30
20
10
0
-10
PE
barns/electron
0
5
10
Density Correction
grams/cc
-0.50
0
0.50
MMR MicroLog Normal
ohm metres
0
20
MMR MicroLog Inverse
ohm metres
0
20
4850
4900
120°
BIT
GGCE
MBTC
CLDC
SMTU
PDPE
NPRL
DPRL
MNRL
MINV
DCOR


120°
4950
100
121°
5000
123°
5050
123°
5100
123°
5150


124°
5200
123°
5250
0
0
5300
FR GGCE
FR MBTC
FR CLDC
FR SMTU
FR PDPE
FR NPRL
FR MNRL
FR FR DCOR
Depth
in
Feet
Timing Marks
every 60.0 sec
Density Caliper
inches
6
11
16
MMR Caliper
inches
Borehole
Temp in
deg F
Limestone Neutron Por.
percent
30
20
10
0
-10
Limestone Density Por.
percent
30
20
10
0
-10

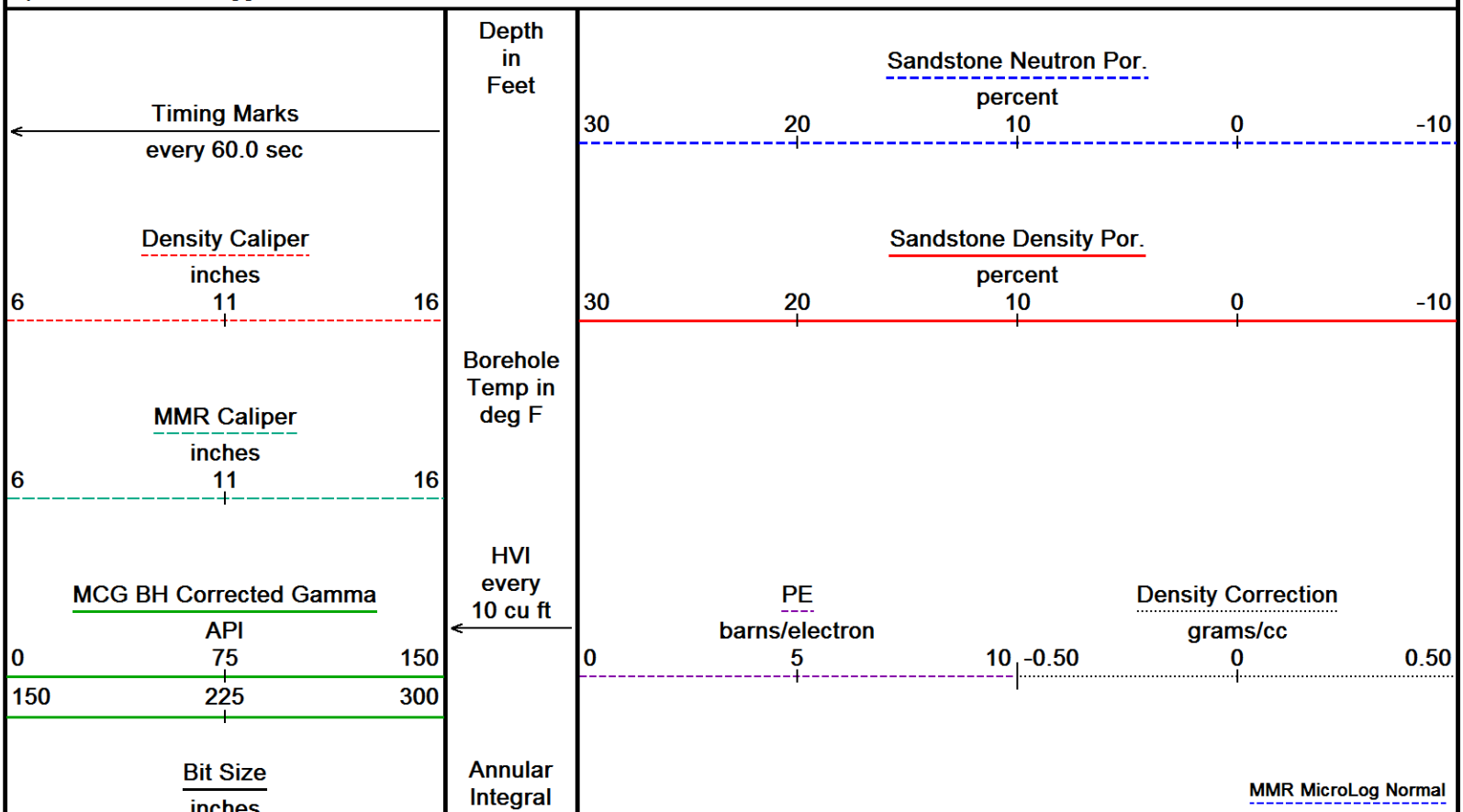


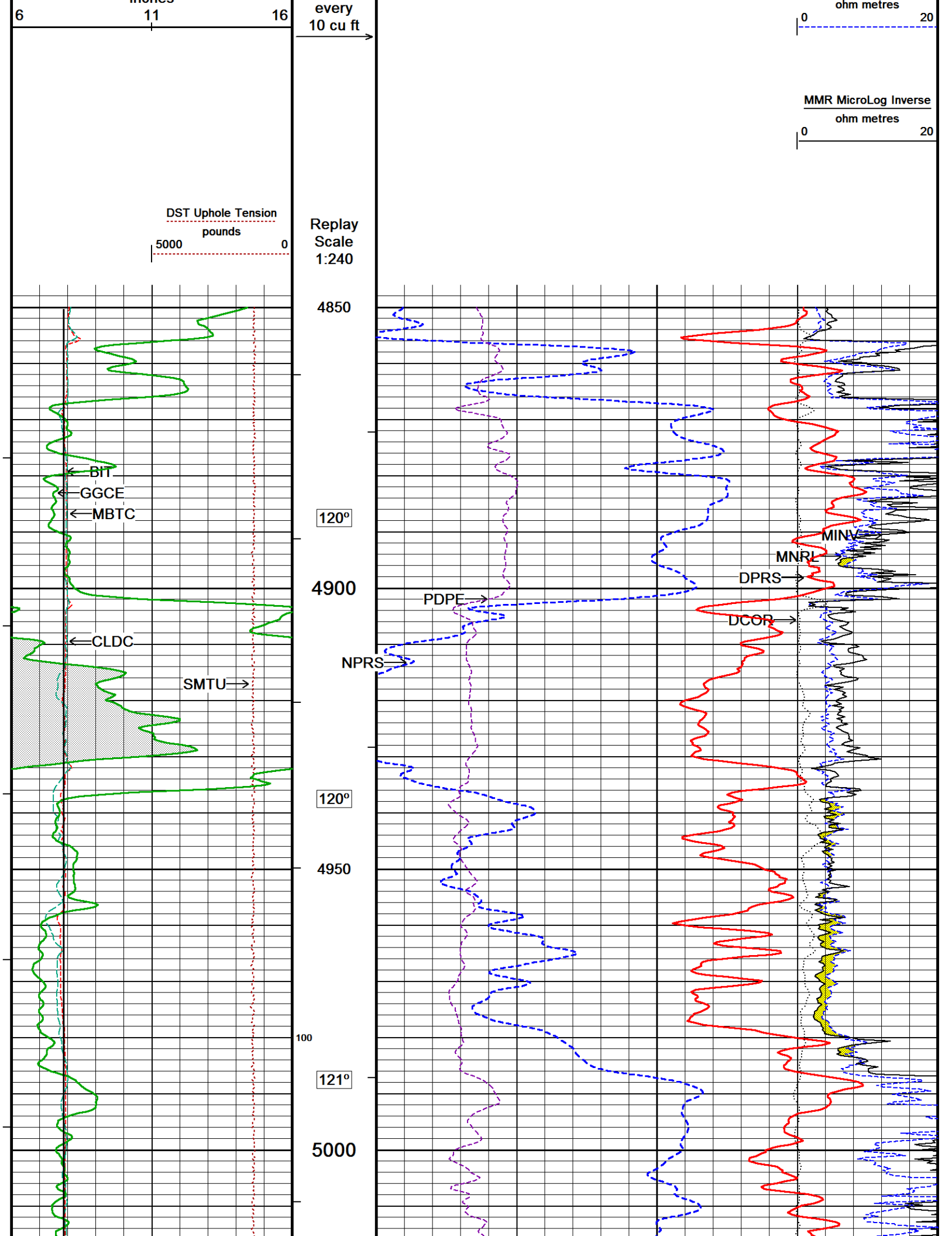
Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 05-APR-2019 22:42
Filename: C:\Users\E193808\AppData\Local\Temp\Weatherford PreView\0\REPEAT PASS.dta — Recorded on 05-APR-2019 17:01
System Versions: Logged with 19.01.8874 Processed with 18.03.8633 Plotted with 17.01.6537

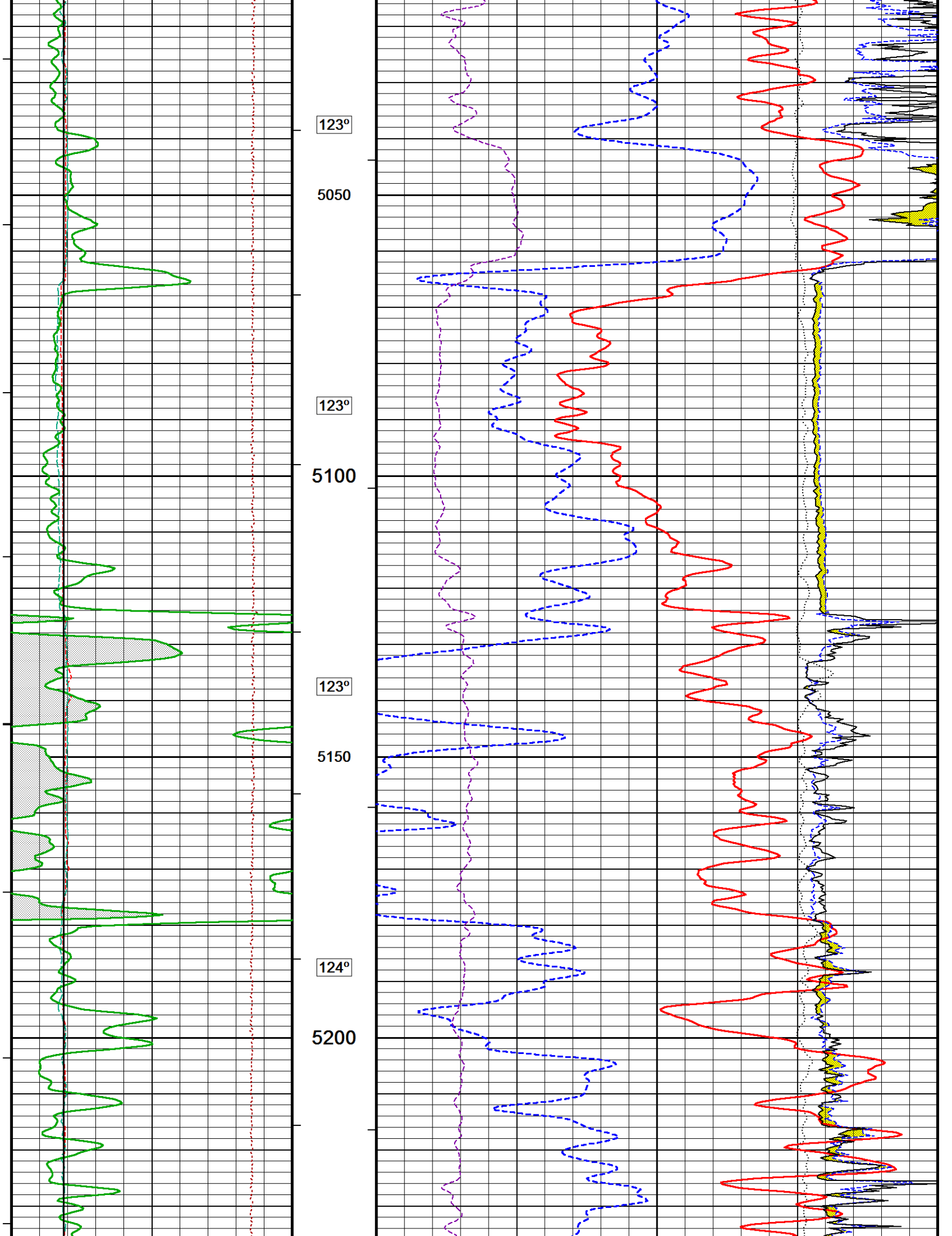
5 INCH REPEAT PASS - POROSITY - LIMESTONE 1:240

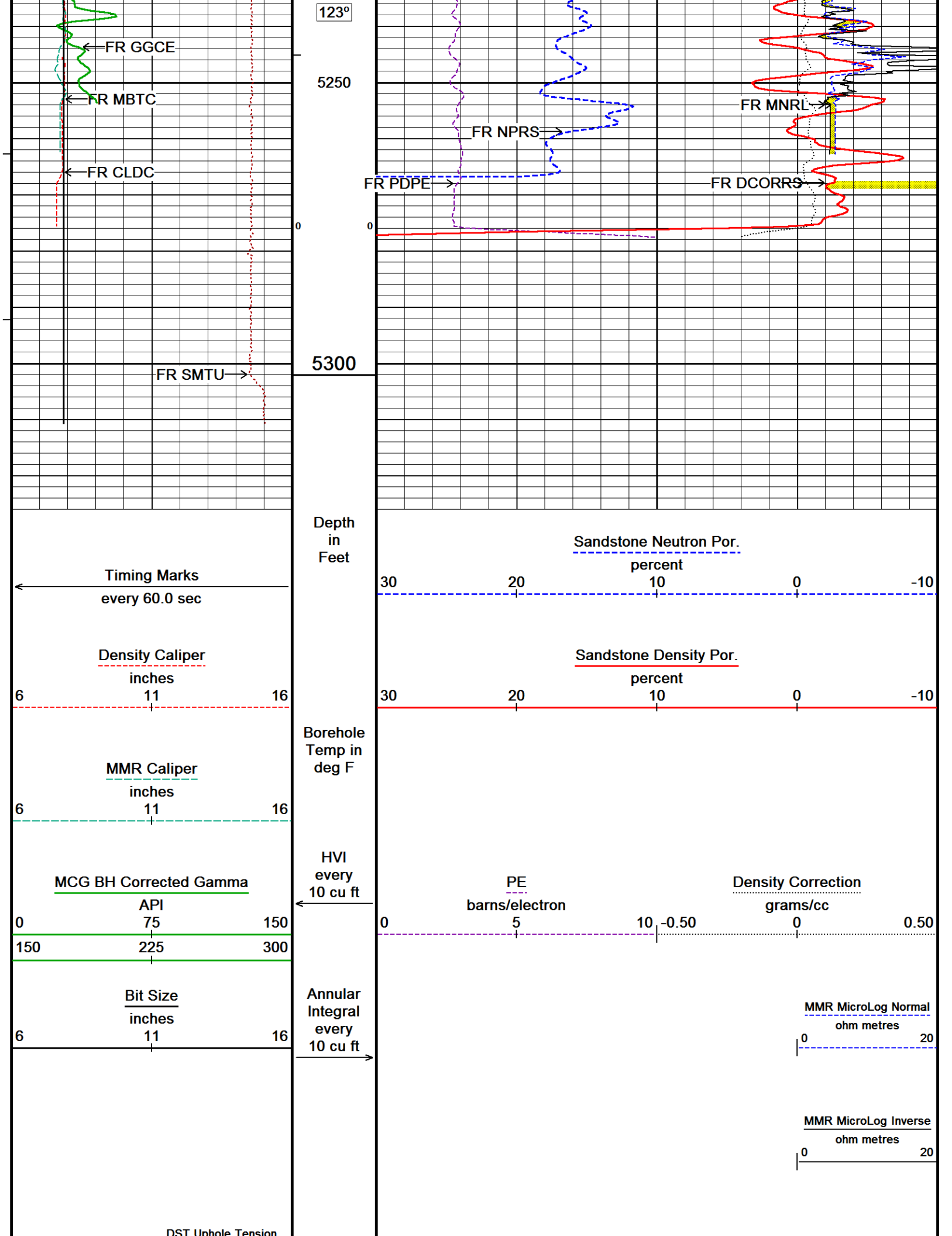
5 INCH REPEAT PASS - POROSITY - SANDSTONE

Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 05-APR-2019 22:42
Filename: C:\Users\E193808\AppData\Local\Temp\Weatherford PreView\0\REPEAT PASS.dta — Recorded on 05-APR-2019 17:01
System Versions: Logged with 19.01.8874 Processed with 18.03.8633 Plotted with 17.01.6537




inches
6
11
16
every
10 cu ft
ohm metres
0
20
MMR MicroLog Inverse
ohm metres
0
20
DST Uphole Tension
pounds
5000
0
Replay
Scale
1:240
4850
BIT
GGCE
MBTC
120°
MINV
MNRL
DPRS
4900
PDPE
DCOR
CLDC
NPRS
SMTU
120°
4950
100
121°
5000


123°
5050
123°
5100
123°
5150
124°
5200


123°
FR GGCE
FR MBTC
FR CLDC
FR SMTU
FR NPRS
FR PDPE
FR MNRL
FR DCORRS
5250
5300
0
0
Depth in Feet
Timing Marks
every 60.0 sec
Sandstone Neutron Por.
percent
30 20 10 0 -10
Density Caliper
inches
6 11 16
Sandstone Density Por.
percent
30 20 10 0 -10
Borehole Temp in deg F
MMR Caliper
inches
6 11 16
HVI
every 10 cu ft
MCG BH Corrected Gamma
API
0 75 150
150 225 300
PE
barns/electron
0 5 10
Density Correction
grams/cc
-0.50 0 0.50
Bit Size
inches
6 11 16
Annular Integral every 10 cu ft
MMR MicroLog Normal
ohm metres
0 20
MMR MicroLog Inverse
ohm metres
0 20
DST Uphole Tension

DST Uphole Tension
pounds
5000 0

Replay Scale 1:240

Depth Based Data - Maximum Sampling Increment 10.0cm
Filename: C:\Users\E193808\AppData\Local\Temp\Weatherford PreView\0\REPEAT PASS.dta
System Versions: Logged with 19.01.8874 Processed with 18.03.8633 Plotted with 17.01.6537
Plotted on 05-APR-2019 22:42
Recorded on 05-APR-2019 17:01

5 INCH REPEAT PASS - POROSITY - SANDSTONE

5 INCH REPEAT PASS - POROSITY - DOLOMITE

Depth Based Data - Maximum Sampling Increment 10.0cm
Filename: C:\Users\E193808\AppData\Local\Temp\Weatherford PreView\0\REPEAT PASS.dta
System Versions: Logged with 19.01.8874 Processed with 18.03.8633 Plotted with 17.01.6537
Plotted on 05-APR-2019 22:42
Recorded on 05-APR-2019 17:01

Timing Marks
every 60.0 sec

Depth in Feet

Dolomite Neutron Por.
percent
30 20 10 0 -10

Density Caliper
inches
6 11 16

Dolomite Density Por.
percent
30 20 10 0 -10

Borehole Temp in deg F

MMR Caliper
inches
6 11 16

HVI every 10 cu ft

MCG BH Corrected Gamma
API
0 75 150
150 225 300

PE
barns/electron
0 5 10

Density Correction
grams/cc
-0.50 0 0.50

Bit Size
inches
6 11 16

Annular Integral every 10 cu ft

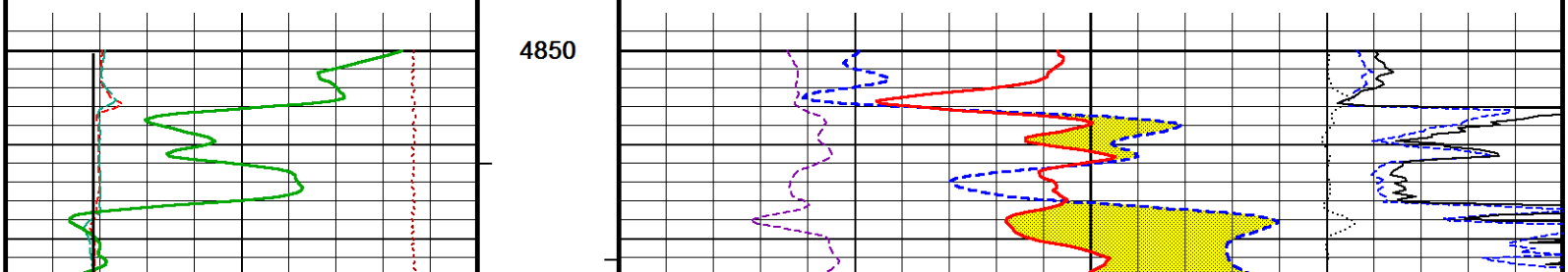
MMR MicroLog Normal
ohm metres
0 20

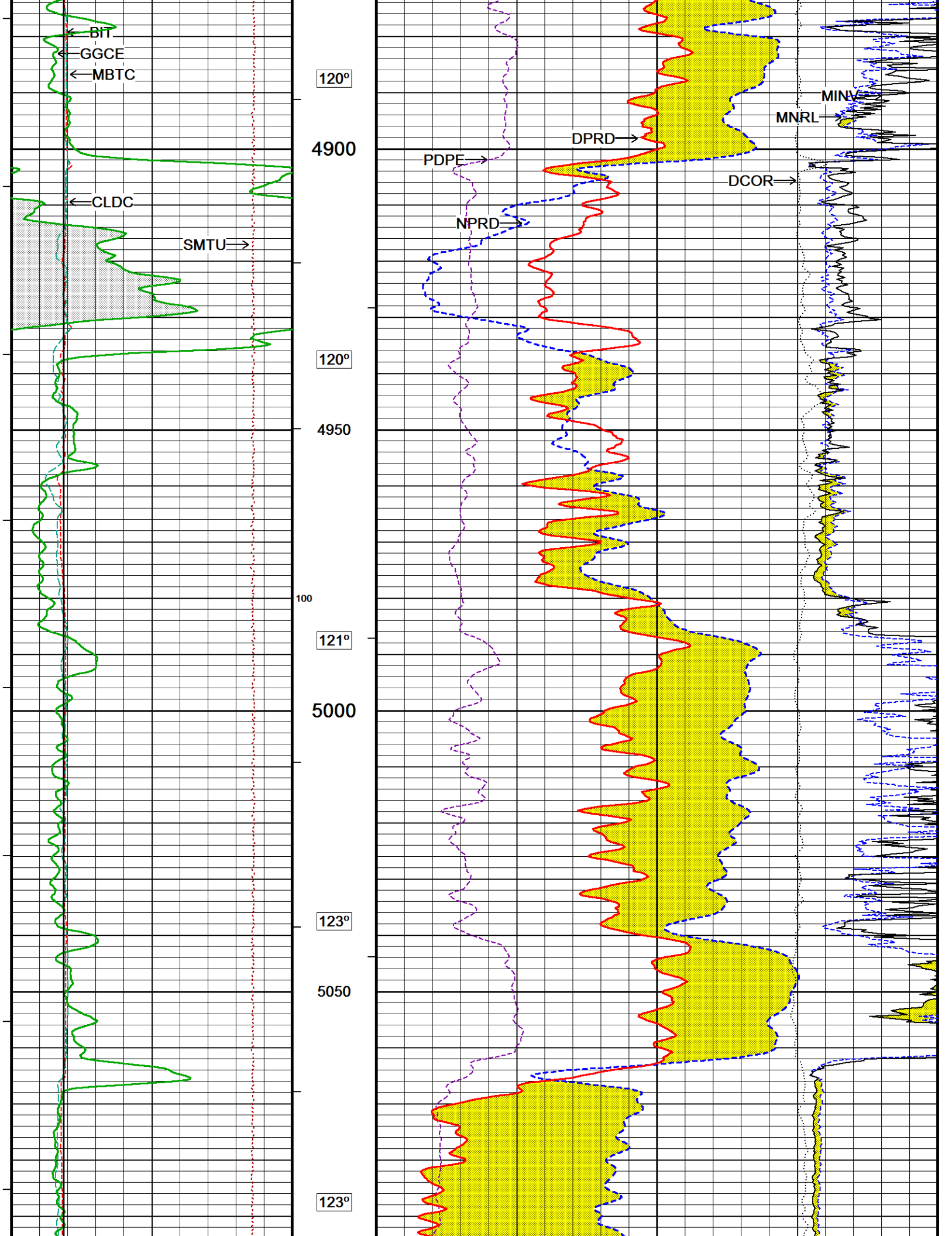
MMR MicroLog Inverse
ohm metres
0 20

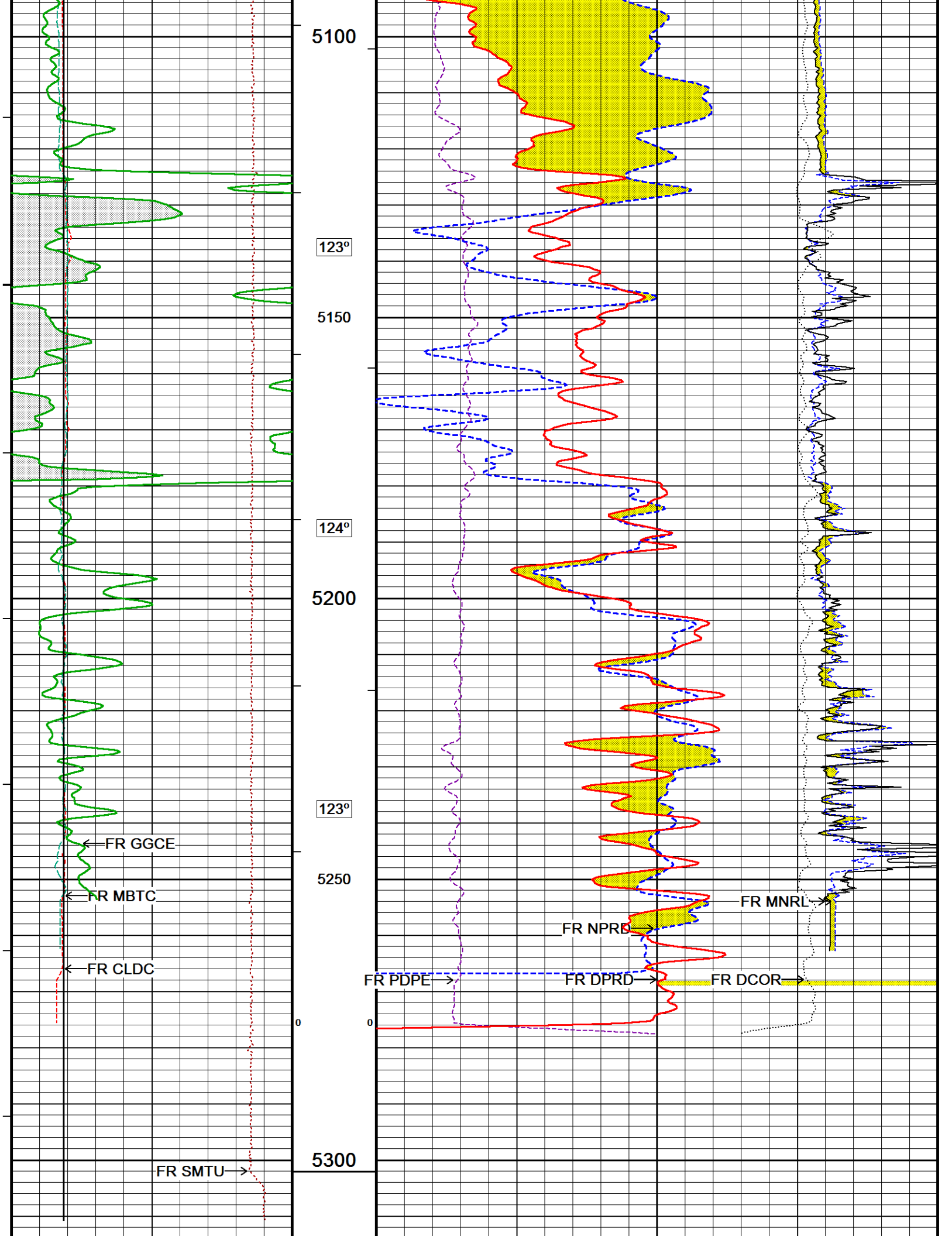
DST Uphole Tension
pounds
5000 0

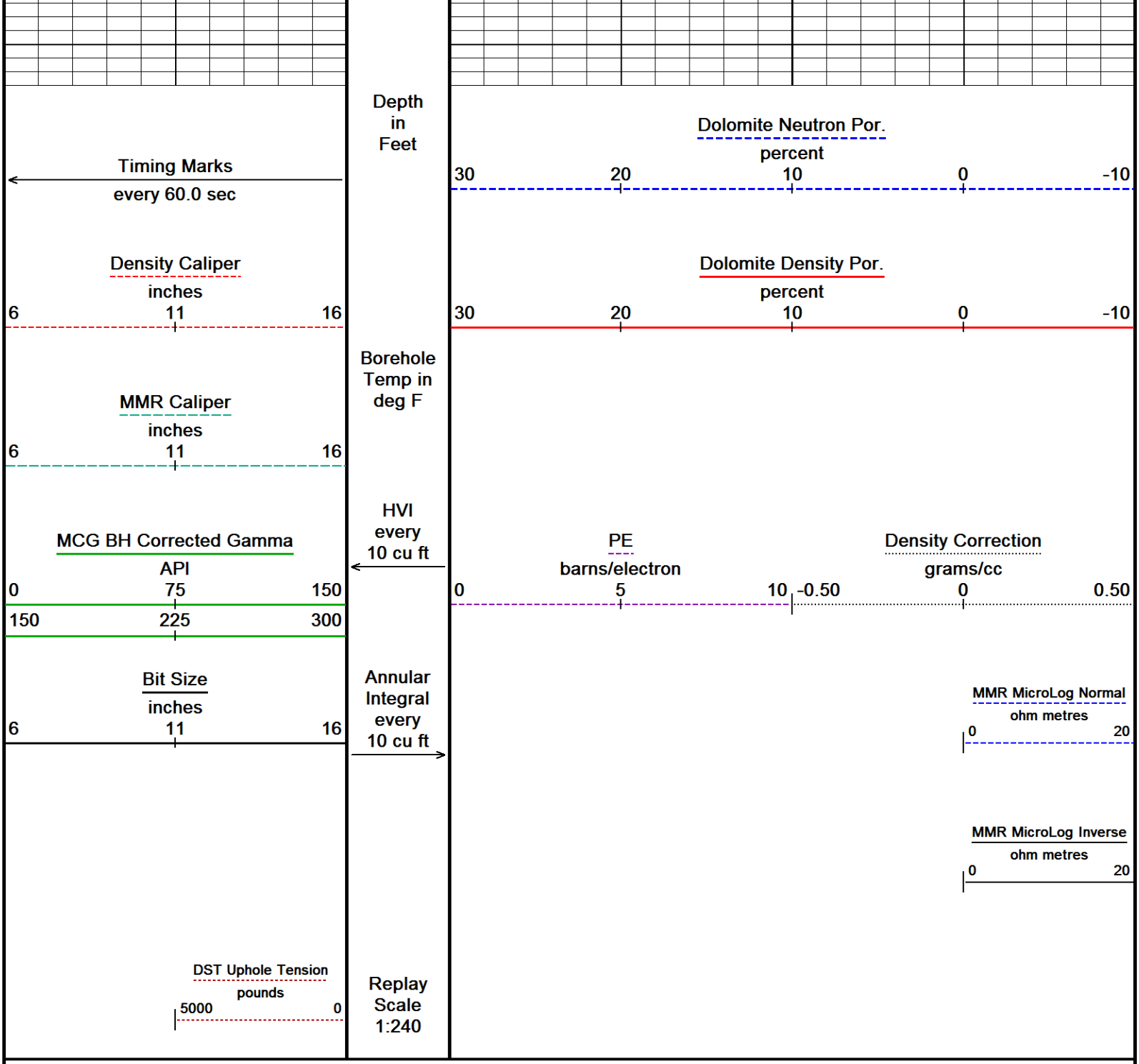
Replay Scale 1:240

4850




BIT
GGCE
MBTC
CLDC
SMTU
120°
4900
120°
4950
100
121°
5000
123°
5050
123°
PDPE
NPRD
DPRD
MINV
MNRL
DCOR


5100
123°
5150
124°
5200
123°
5250
0
0
5300
FR GGCE
FR MBTC
FR CLDC
FR SMTU
FR PDPE
FR NPRD
FR DPRD
FR MNRL
FR DCOR

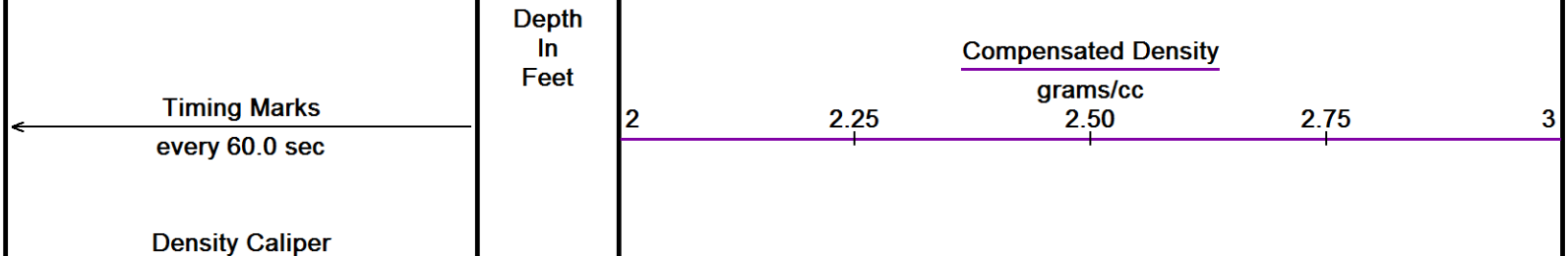


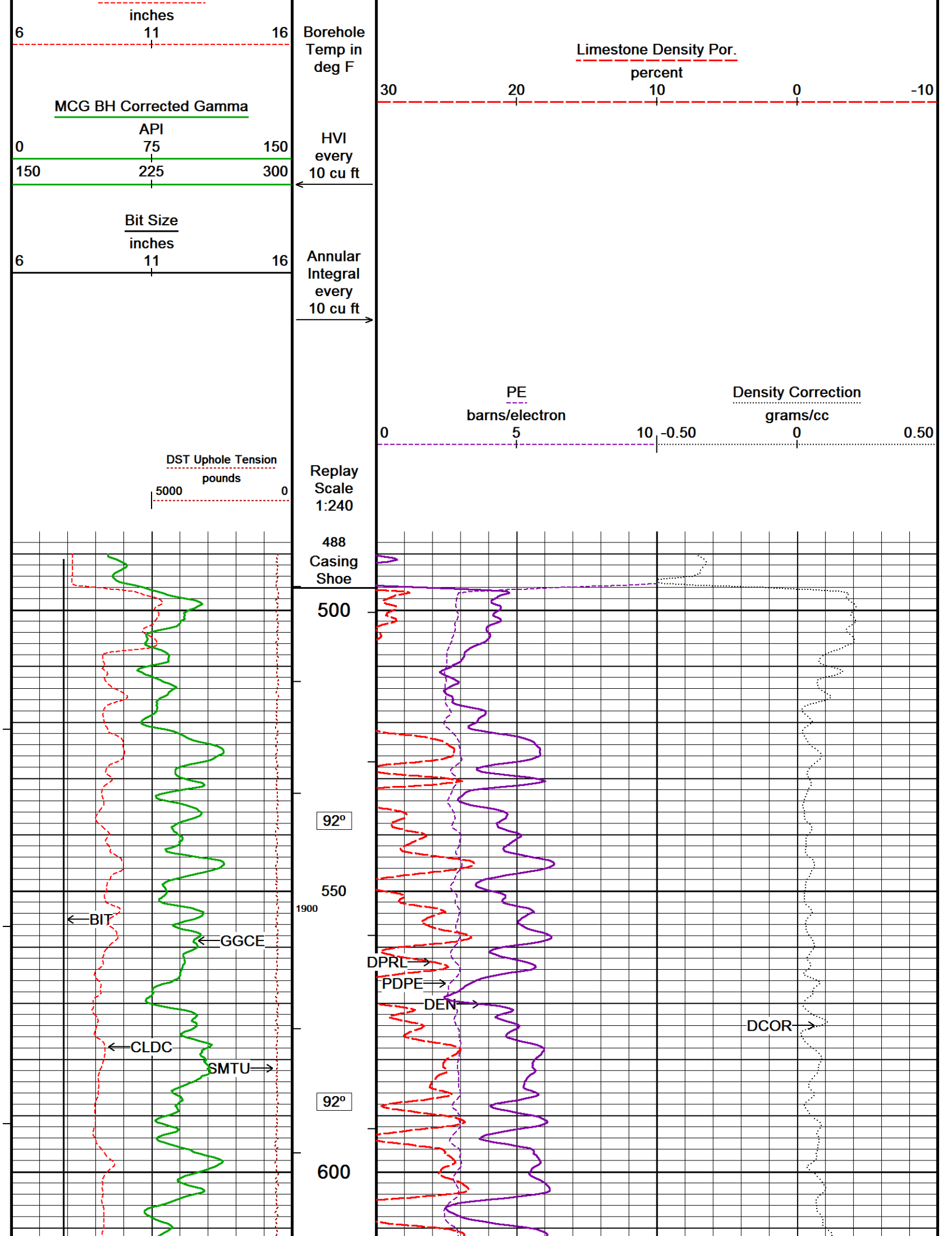
Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 05-APR-2019 22:42
Filename: C:\Users\E193808\AppData\Local\Temp\Weatherford PreView\0\REPEAT PASS.dta
Recorded on 05-APR-2019 17:01
System Versions: Logged with 19.01.8874 Processed with 18.03.8633 Plotted with 17.01.6537

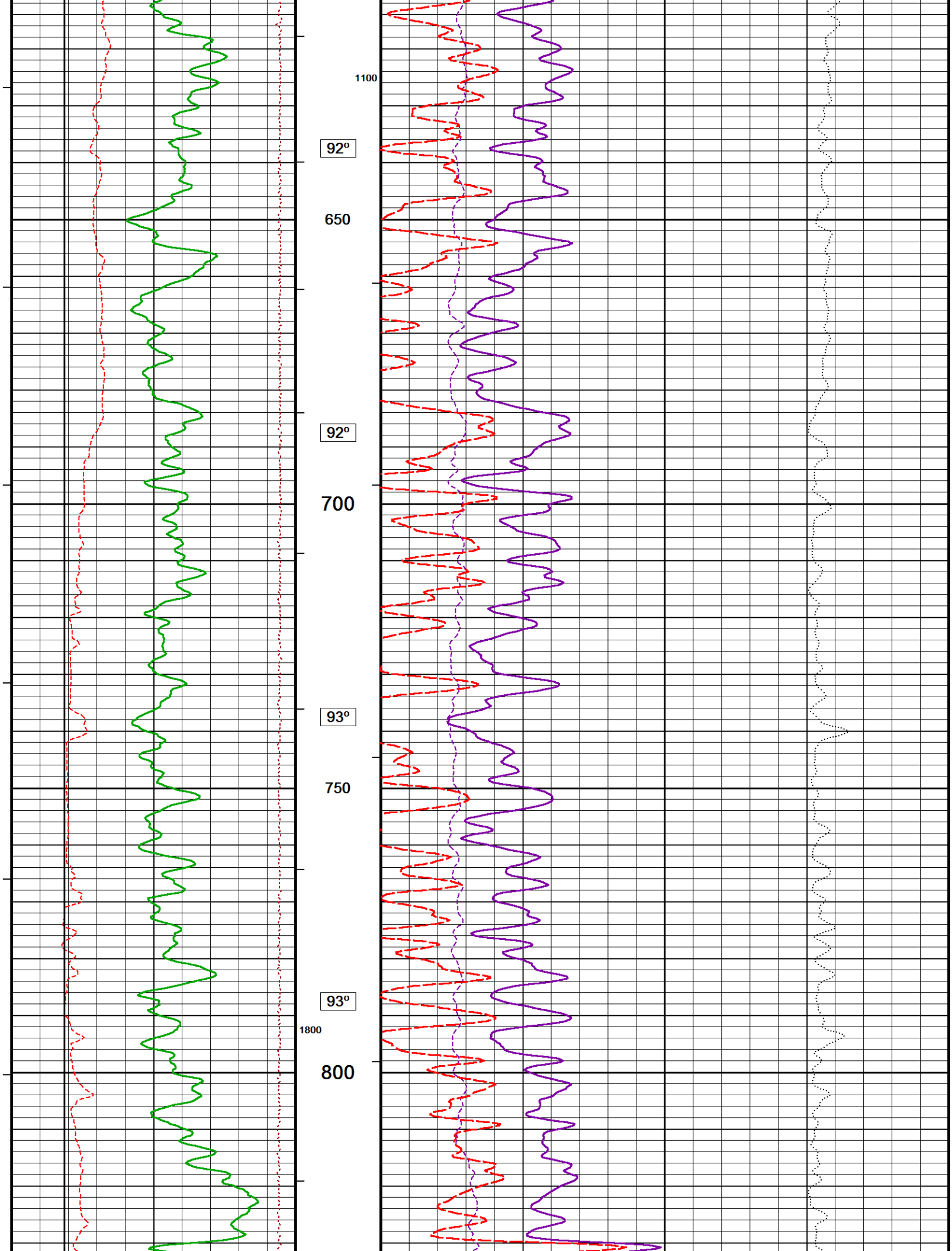
5 INCH REPEAT PASS - POROSITY - DOLOMITE

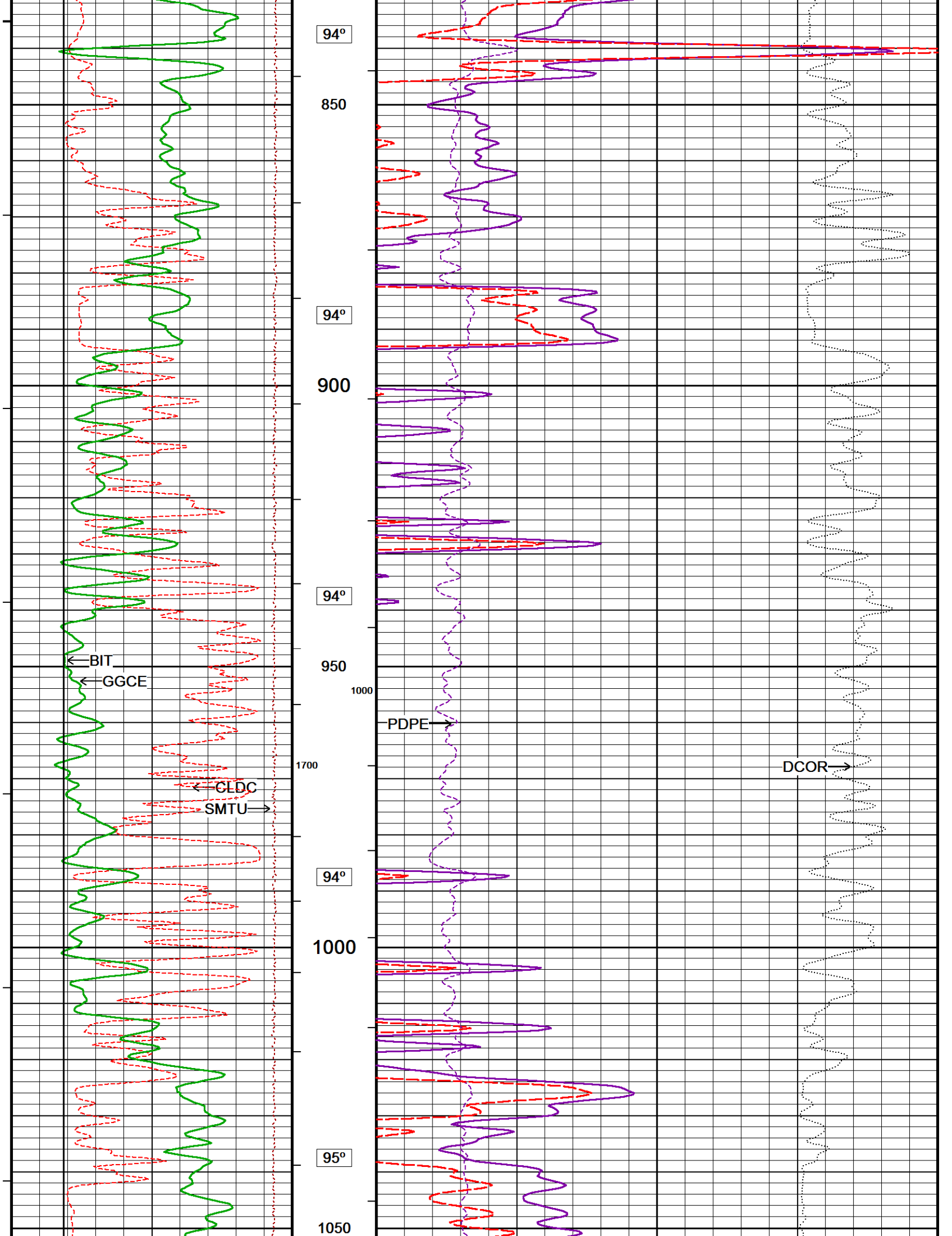
5 INCH MAIN PASS - BULK DENSITY 1:240

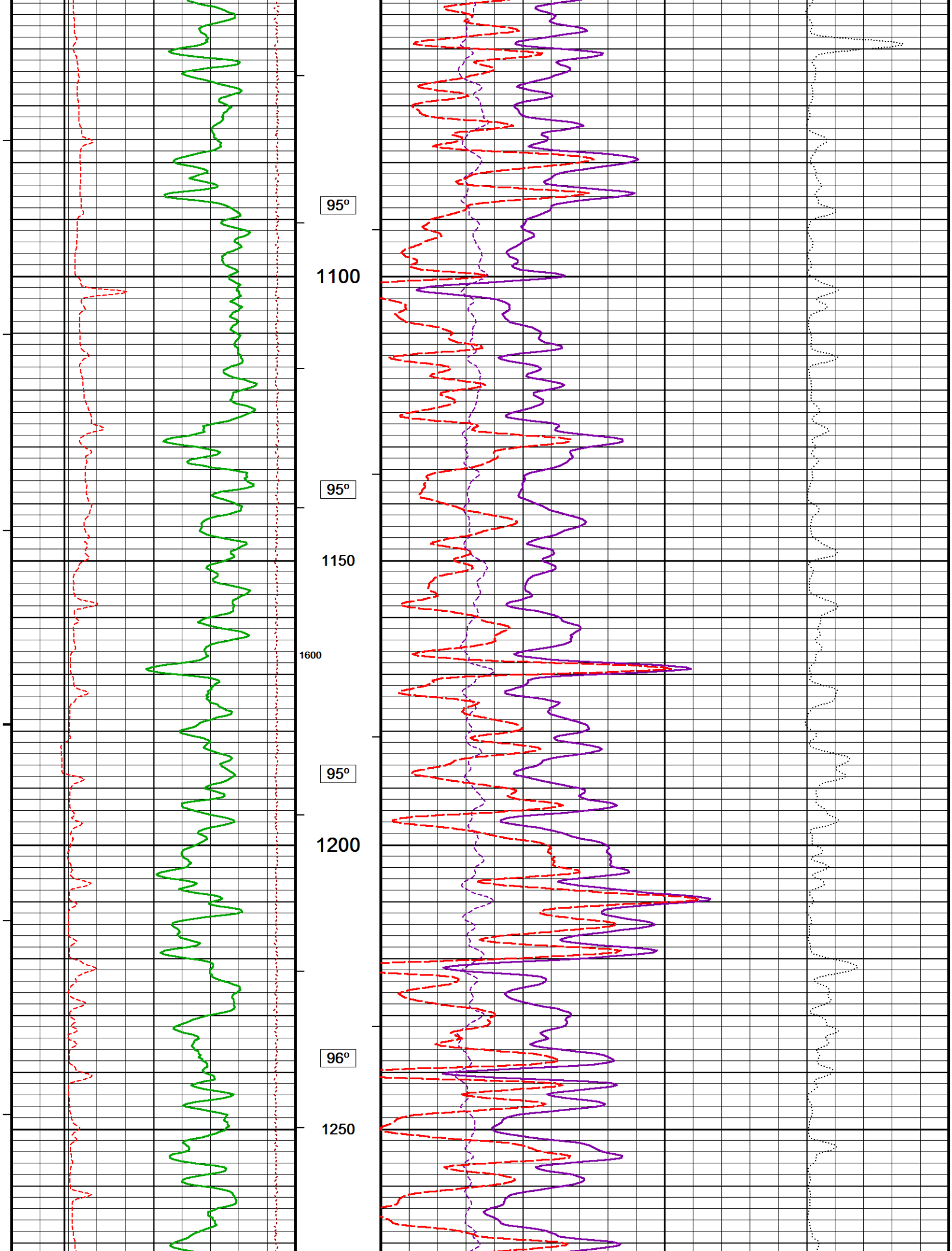
Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 05-APR-2019 22:42
Filename: C:\Users\E193808\AppData\Local\Temp\Weatherford PreView\0\MAIN PASS.dta
Recorded on 05-APR-2019 18:55
System Versions: Logged with 18.03.8633 Processed with 18.03.8633 Plotted with 17.01.6537

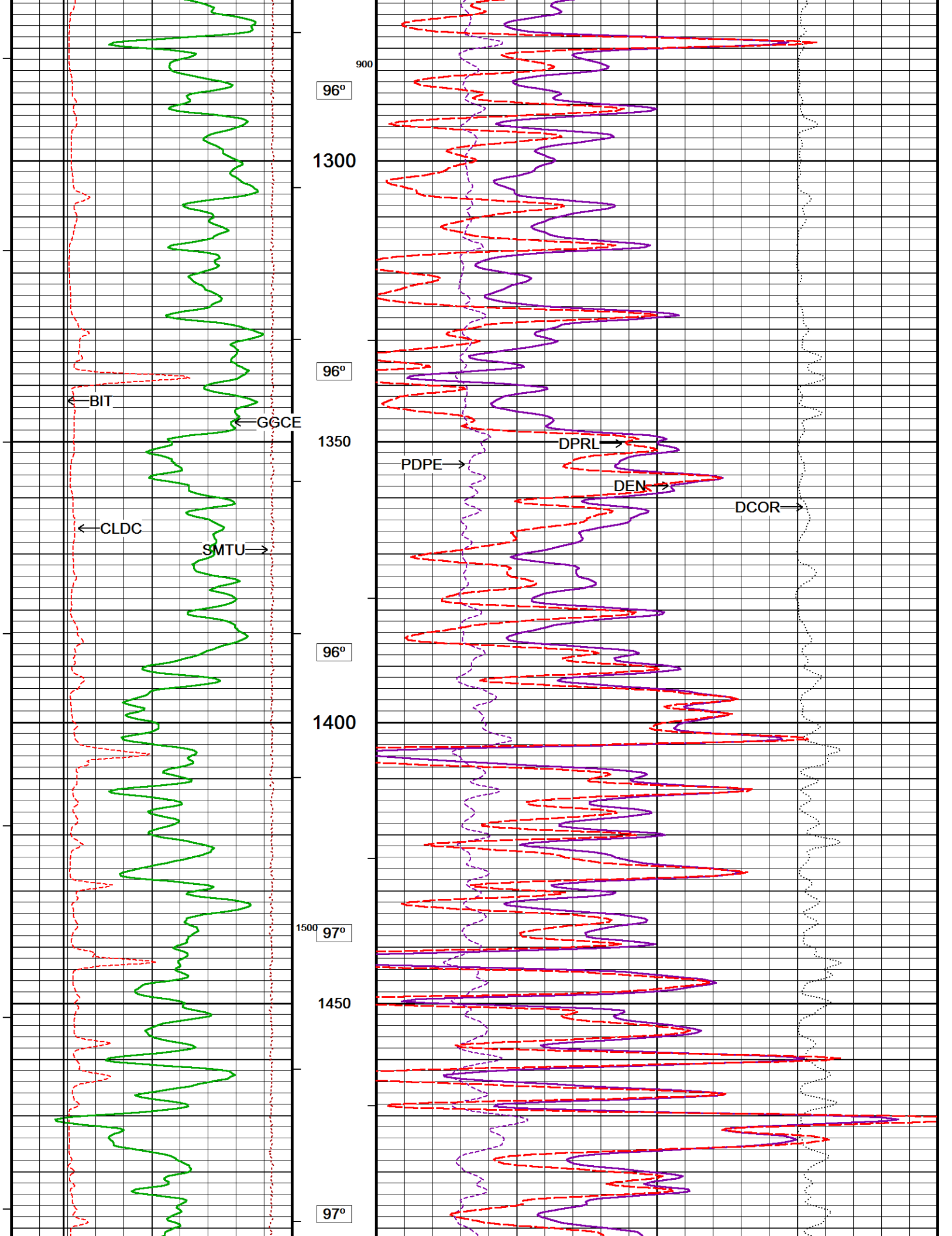


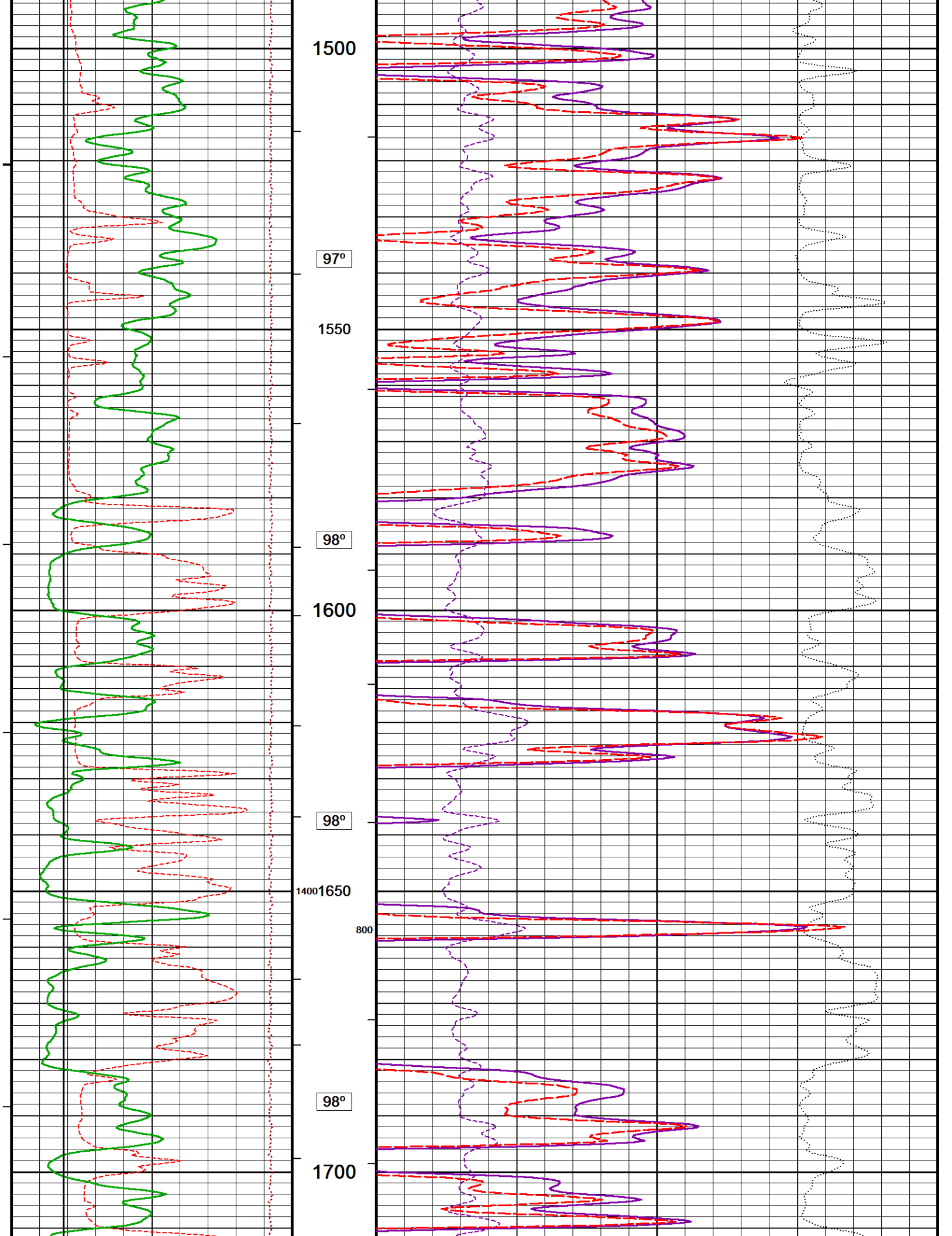

inches
6
11
16
Borehole Temp in deg F
Limestone Density Por.
percent
30
20
10
0
-10
MCG BH Corrected Gamma
API
0
75
150
150
225
300
HVI every 10 cu ft
Bit Size
inches
6
11
16
Annular Integral every 10 cu ft
PE
barns/electron
0
5
10
Density Correction
grams/cc
-0.50
0
0.50
DST Uphole Tension
pounds
5000
0
Replay Scale 1:240
488
Casing Shoe
500
92°
550
1900
92°
600
BIT
GGCE
CLDC
SMTU
DPRL
PDPE
DEN
DCOR

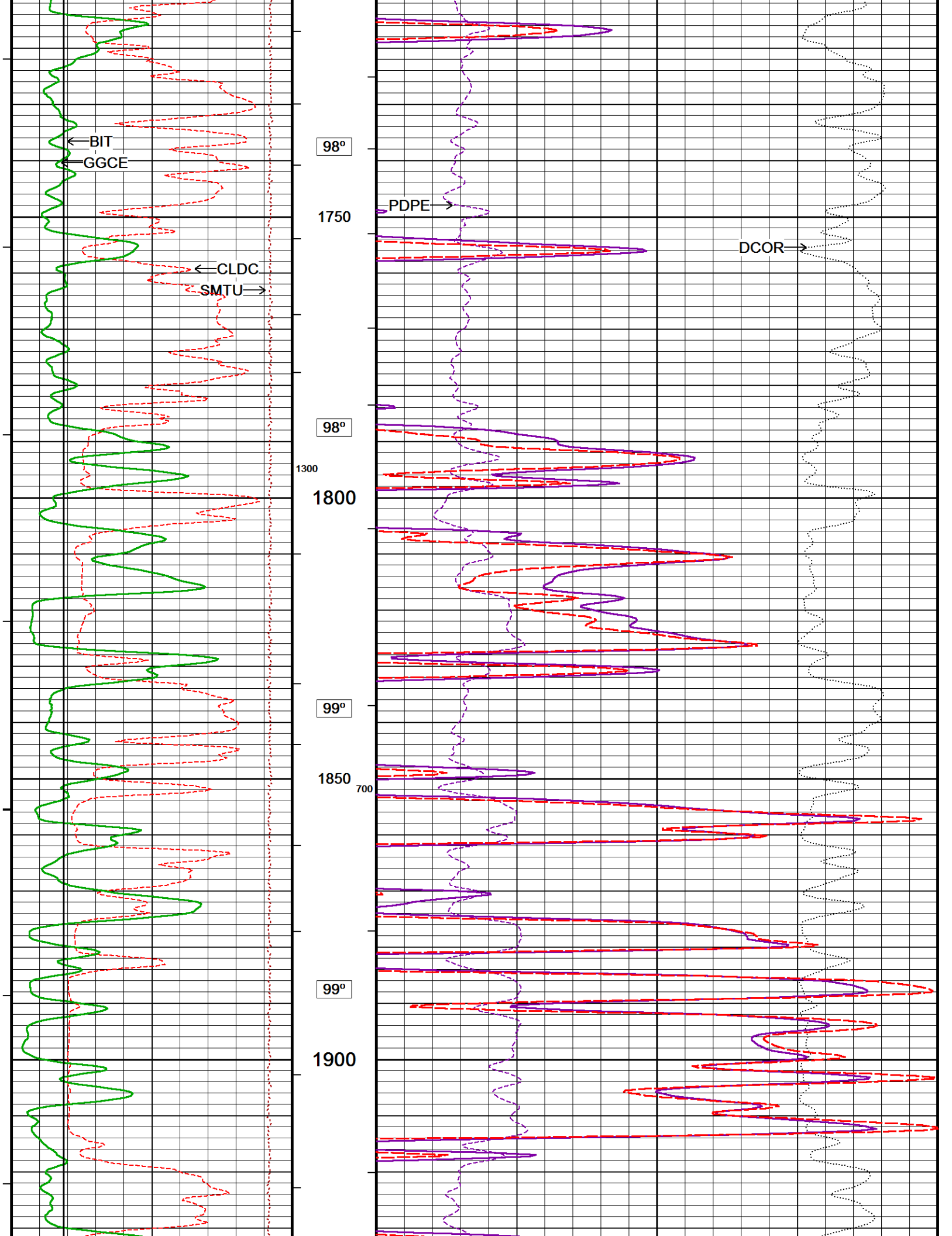

1100
92°
650
92°
700
93°
750
93°
1800
800

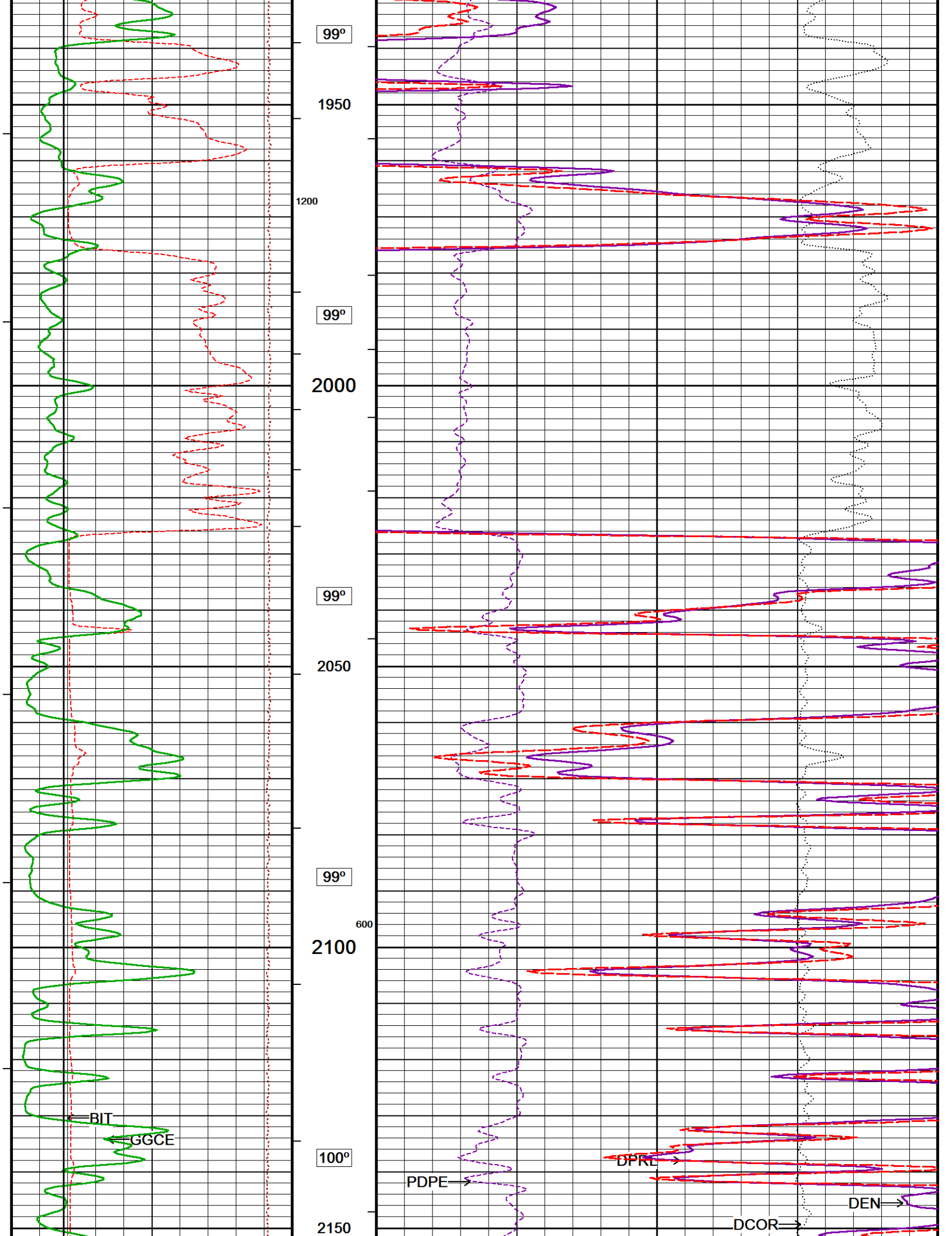

94°
850
94°
900
94°
950
1000
PDPE
1700
1000
95°
1050
BIT
GGCE
CLDC
SMTU
DCOR

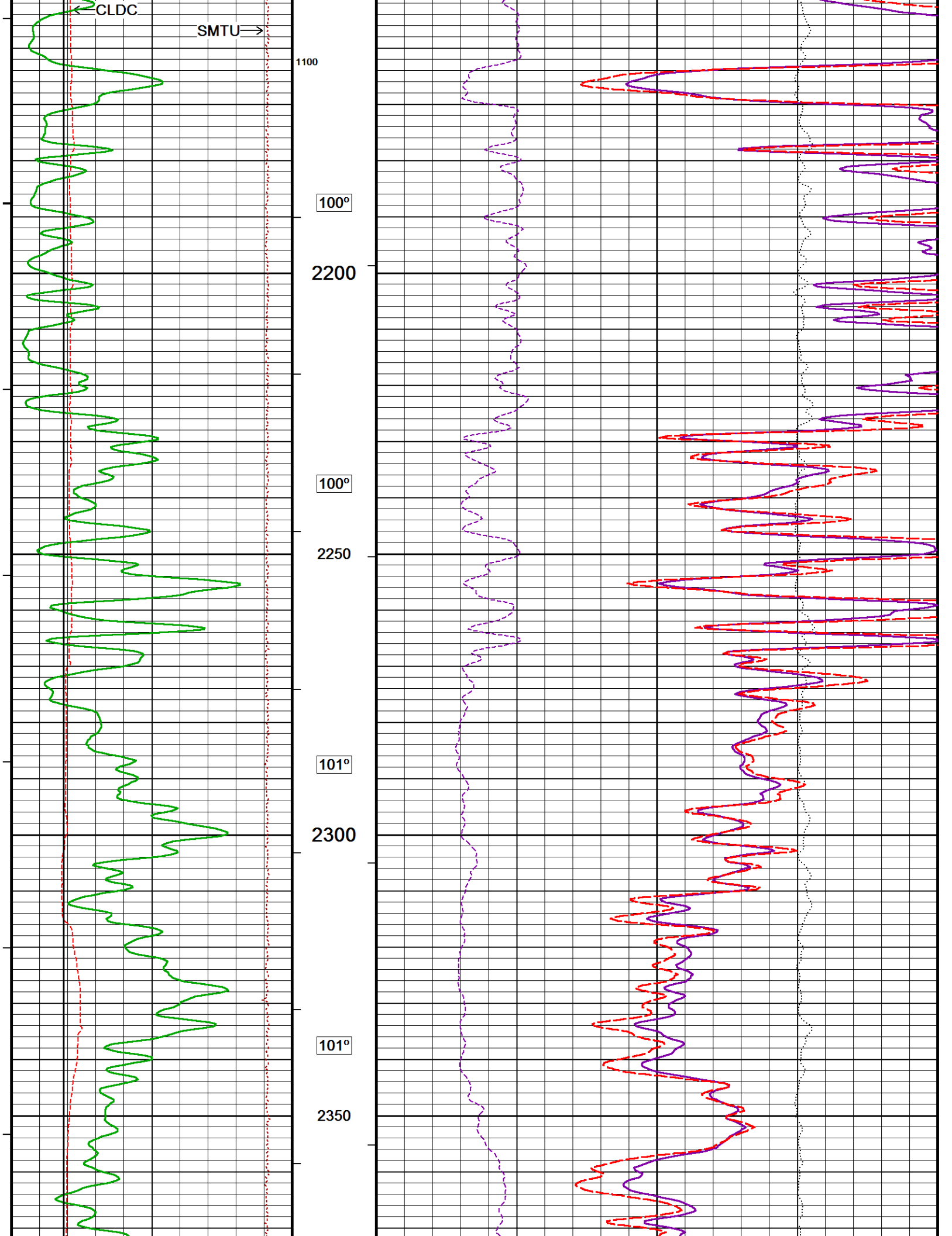

95°
1100
95°
1150
1600
95°
1200
96°
1250

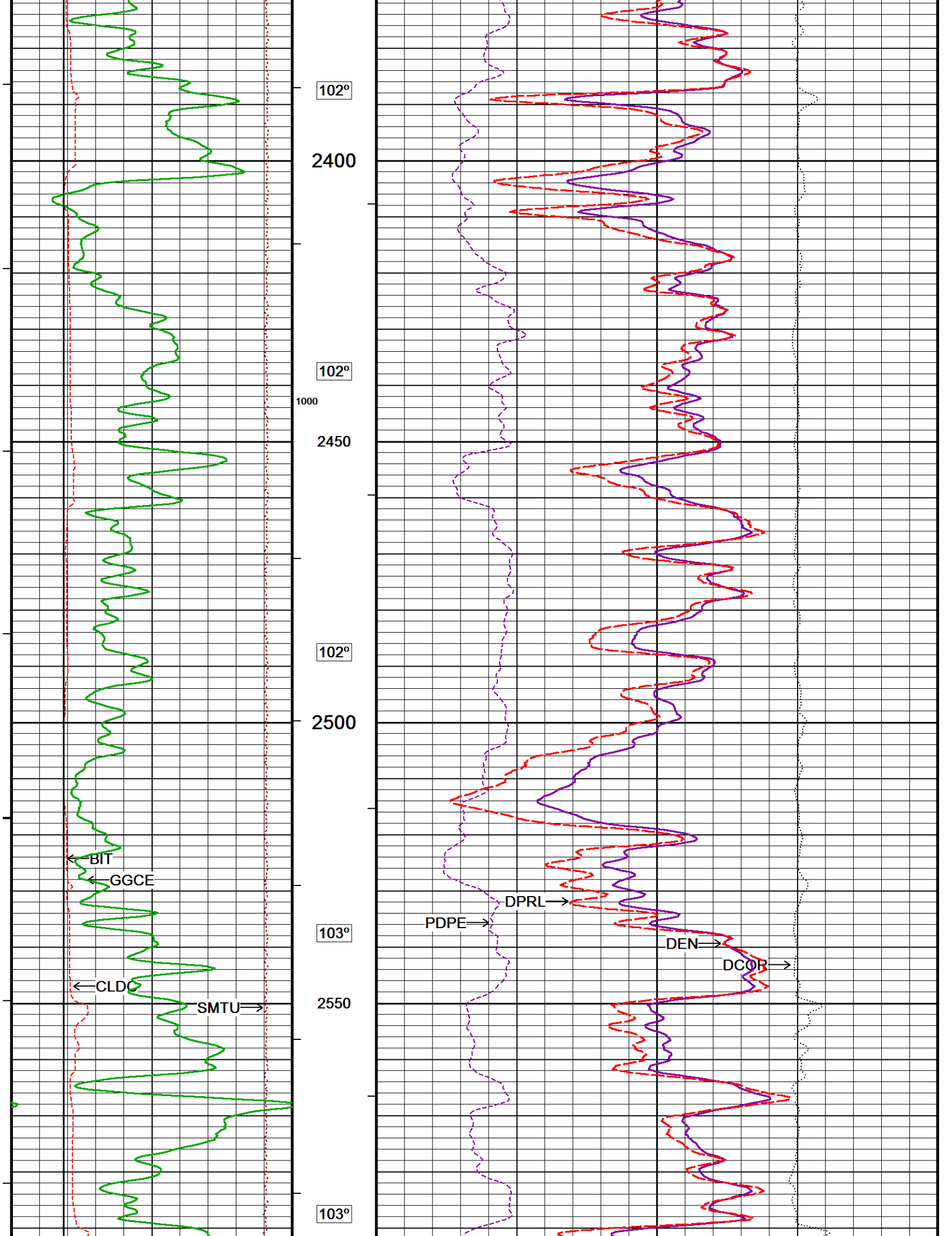

900
96°
1300
96°
BIT
GGCE
1350
DPRL
PDPE
DEN
DCOR
CLDC
SMTU
96°
1400
1500
97°
1450
97°

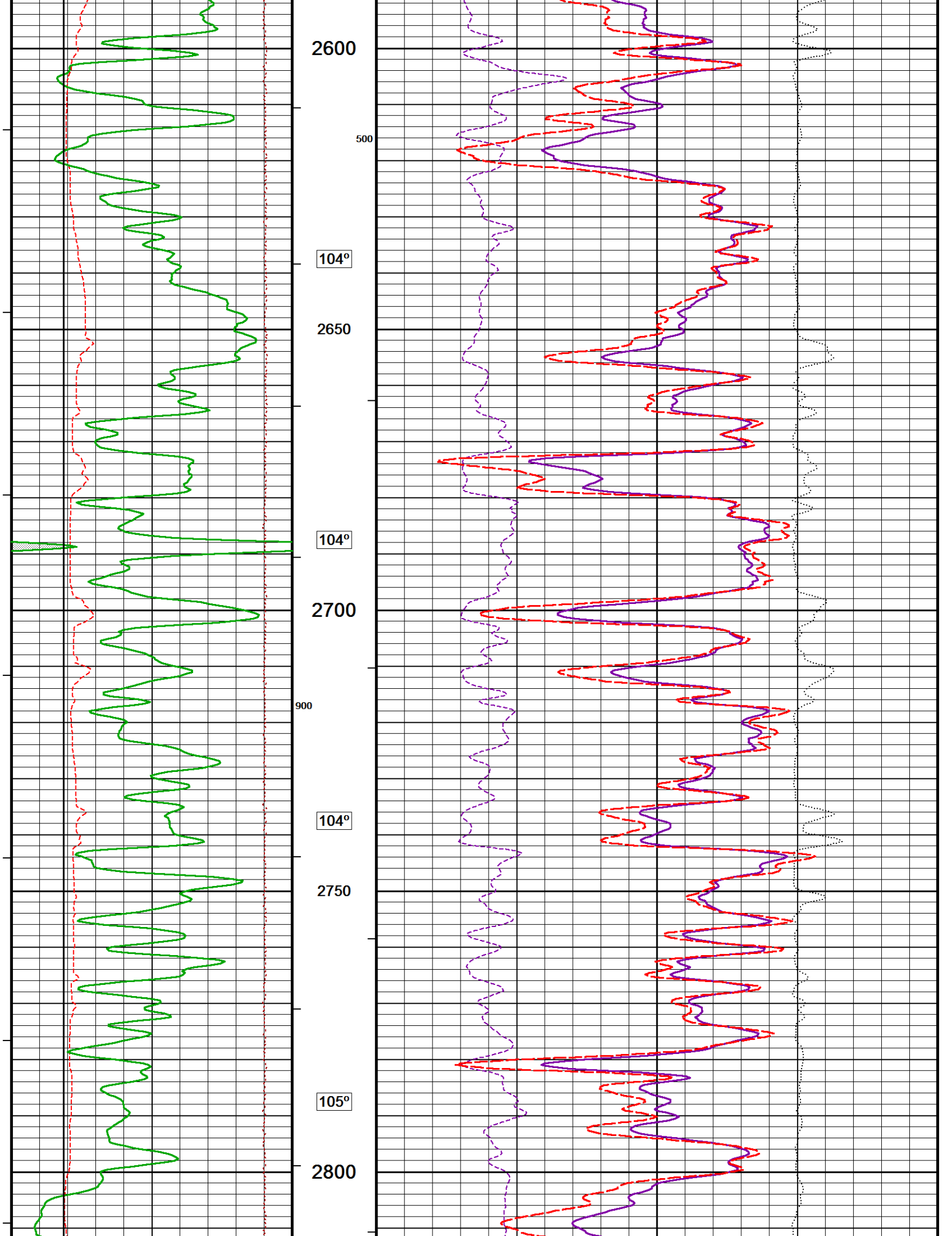

1500
97°
1550
98°
1600
98°
1400
1650
800
98°
1700

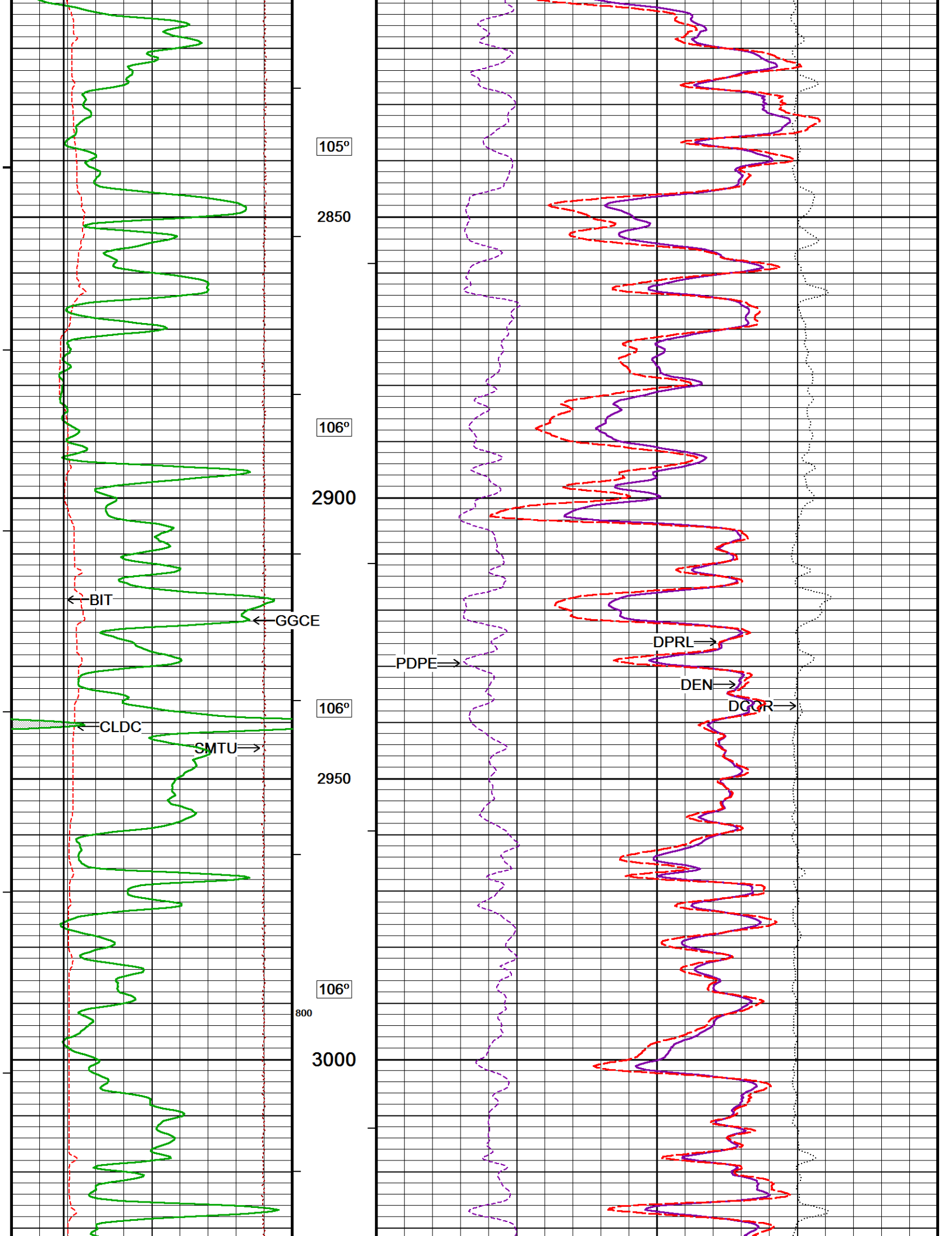

BIT
GGCE
CLDC
SMTU
98°
1750
PDPE
DCOR
98°
1300
1800
99°
1850
700
99°
1900

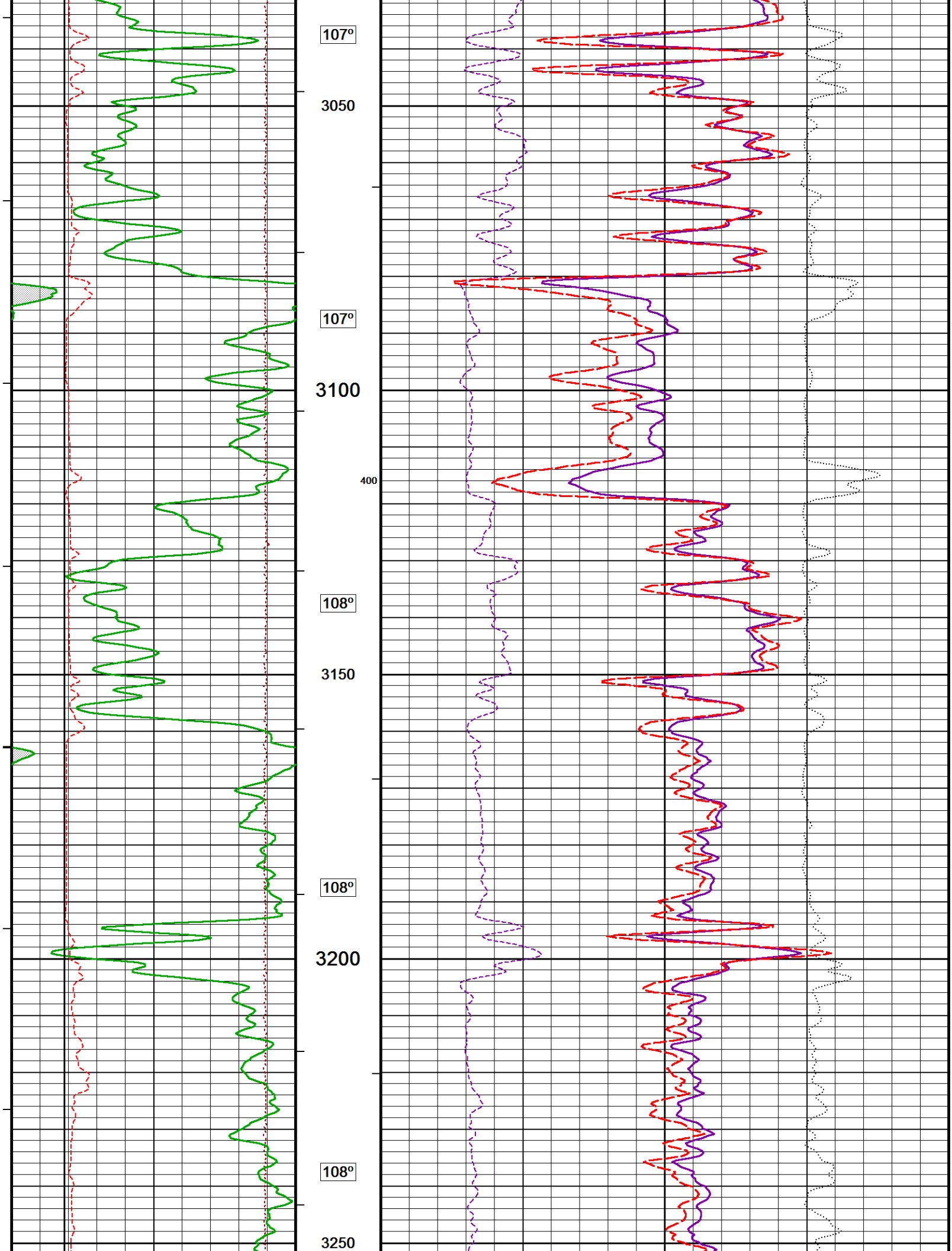

99°
1950
1200
99°
2000
99°
2050
99°
600
2100
100°
2150
BIT
GGCE
PDPE
DPRL
DEN
DCOR

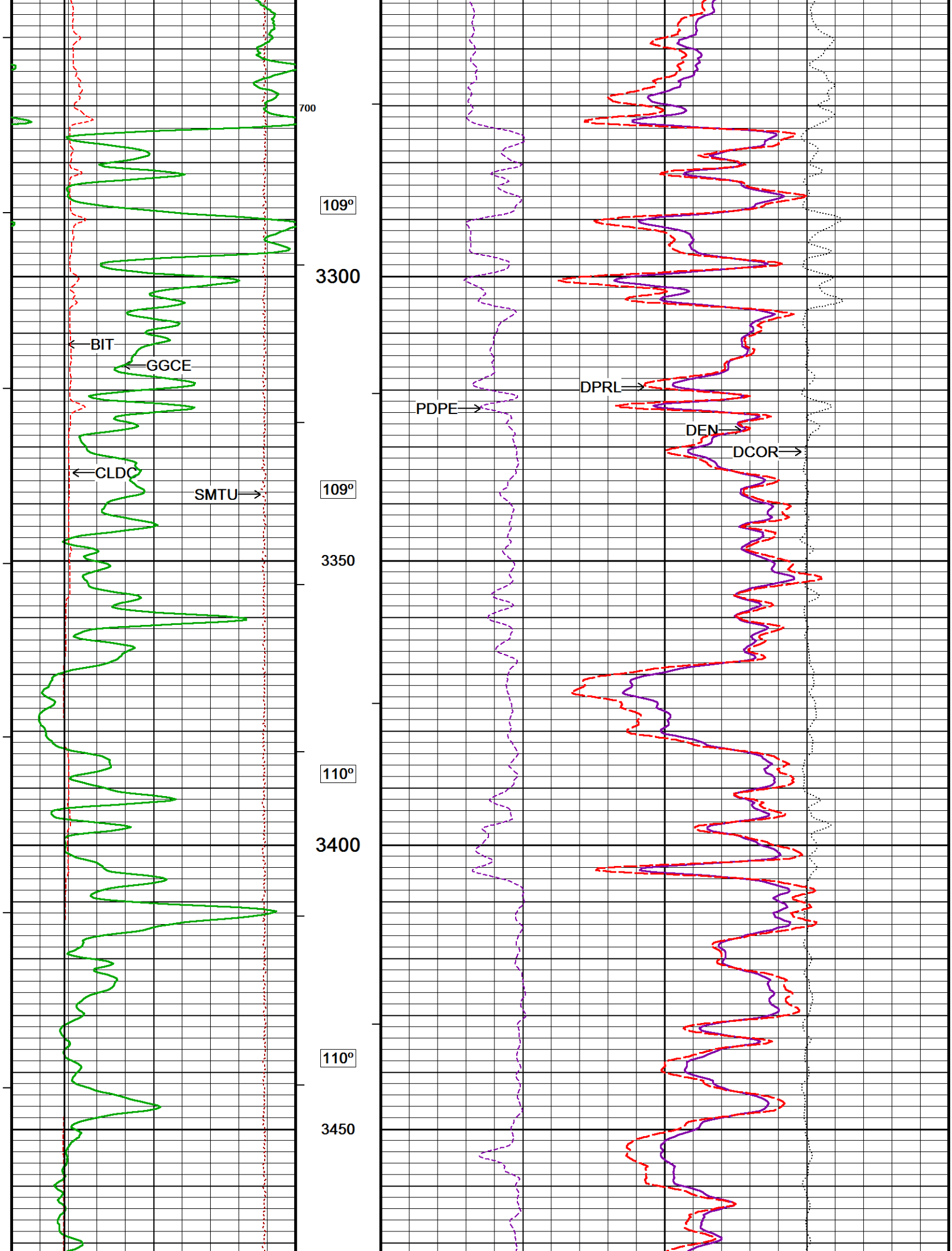

CLDC
SMTU
1100
100°
2200
100°
2250
101°
2300
101°
2350

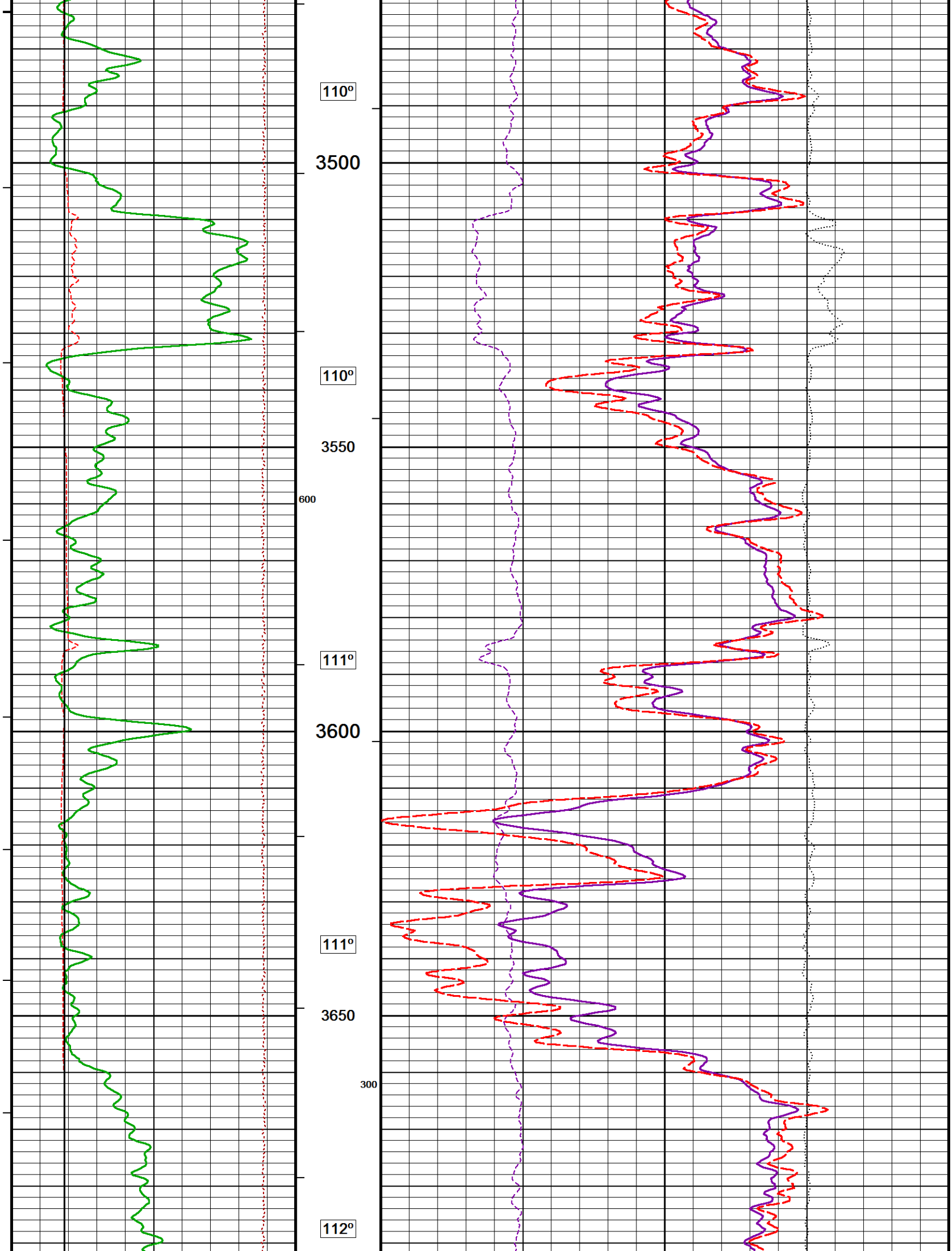

102°
2400
102°
1000
2450
102°
2500
BIT
GGCE
DPRL
PDPE
103°
DEN
DCOR
CLDC
SMTU
2550
103°

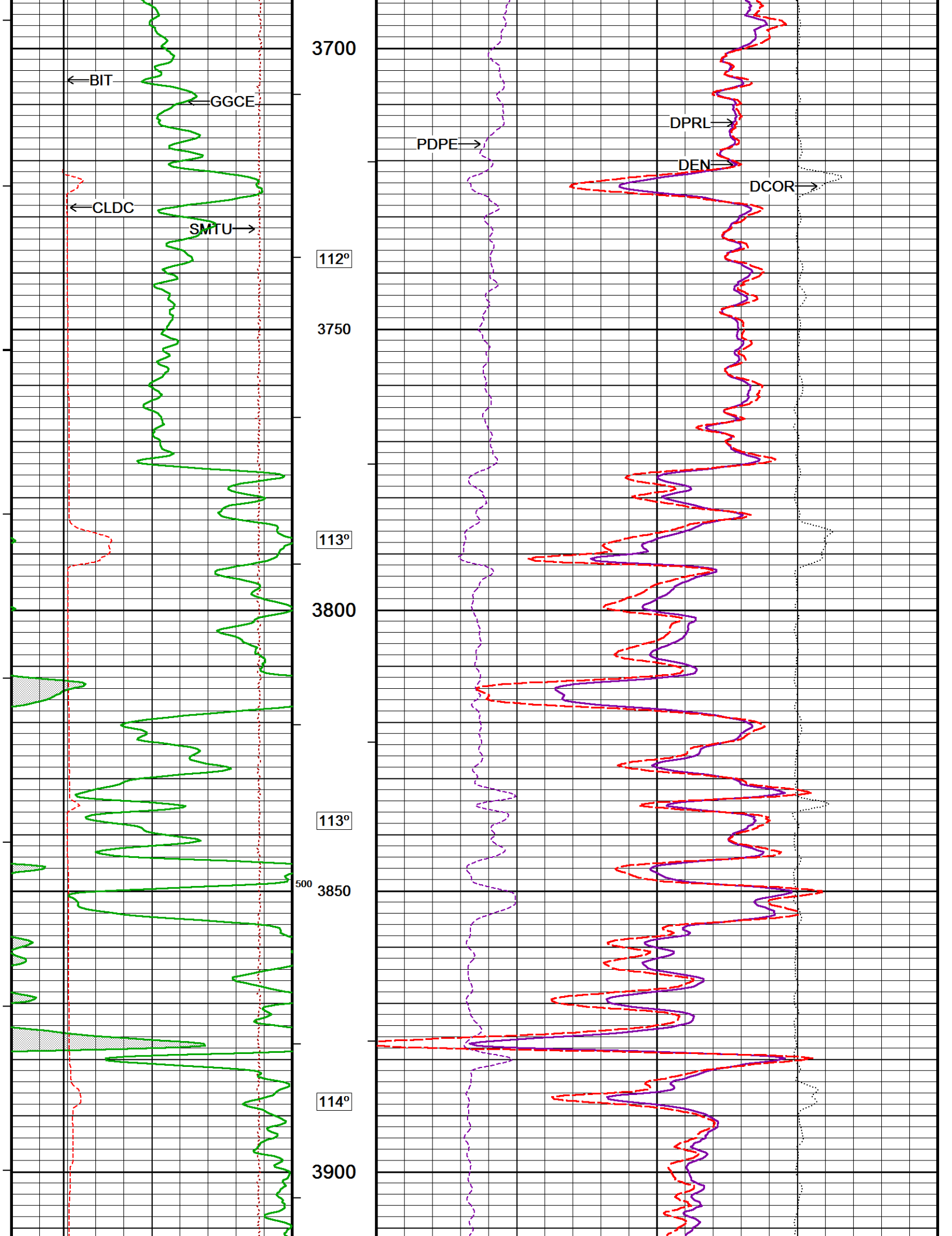

2600
500
104°
2650
104°
2700
900
104°
2750
105°
2800

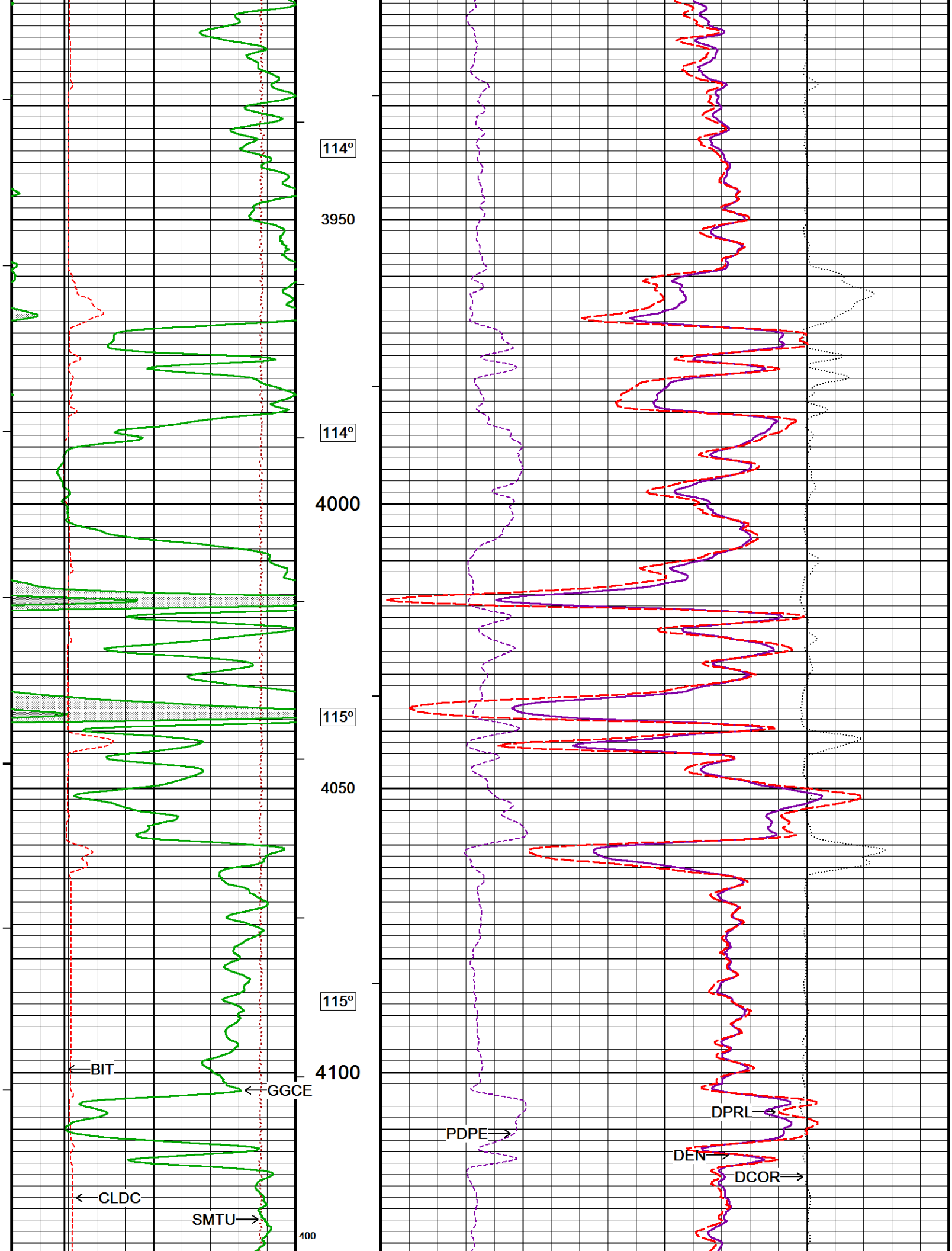

105°
2850
106°
2900
BIT
GGCE
CLDC
SMTU
106°
2950
106°
800
3000
PDPE
DPRL
DEN
DCOR

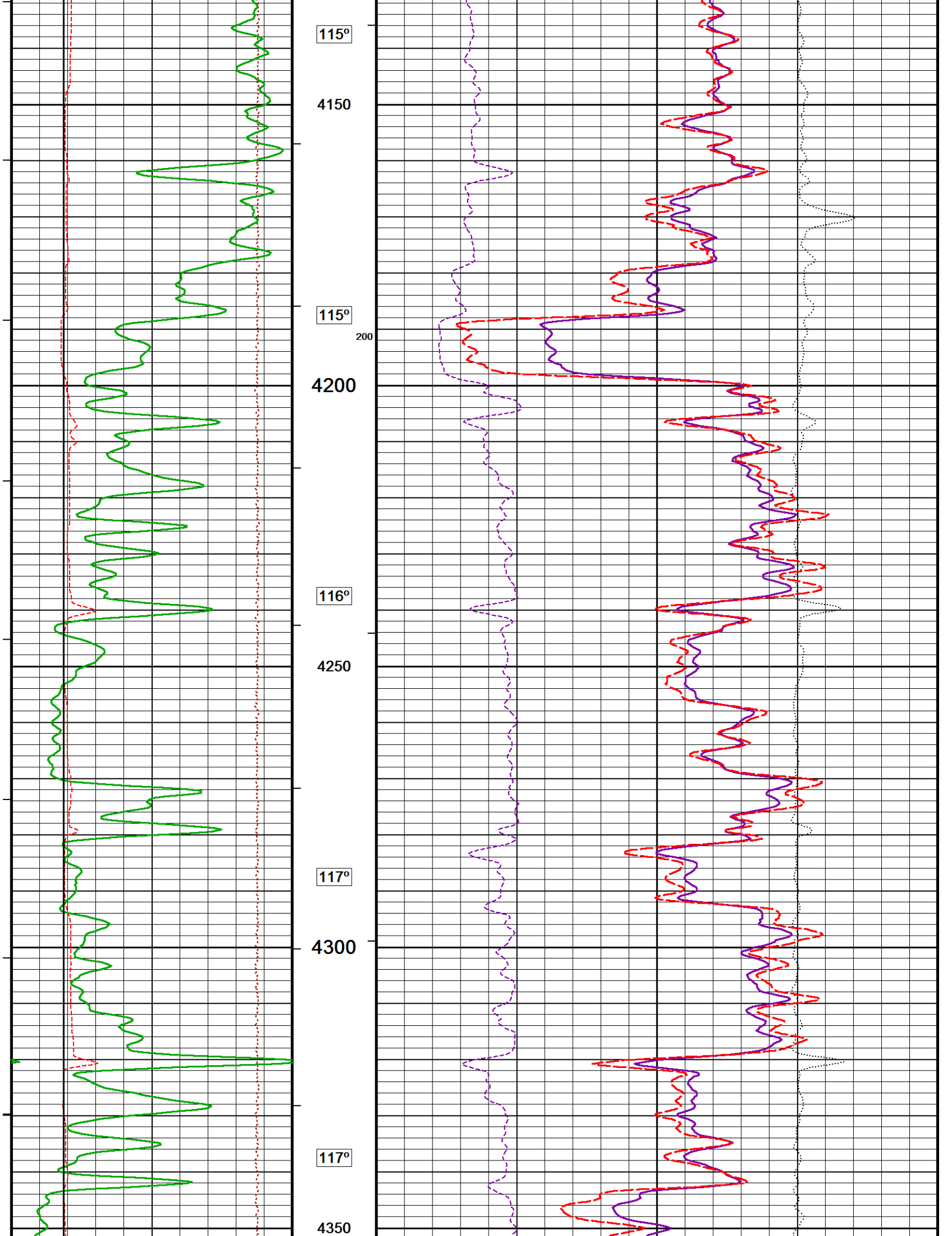

107°
3050
107°
3100
400
108°
3150
108°
3200
108°
3250

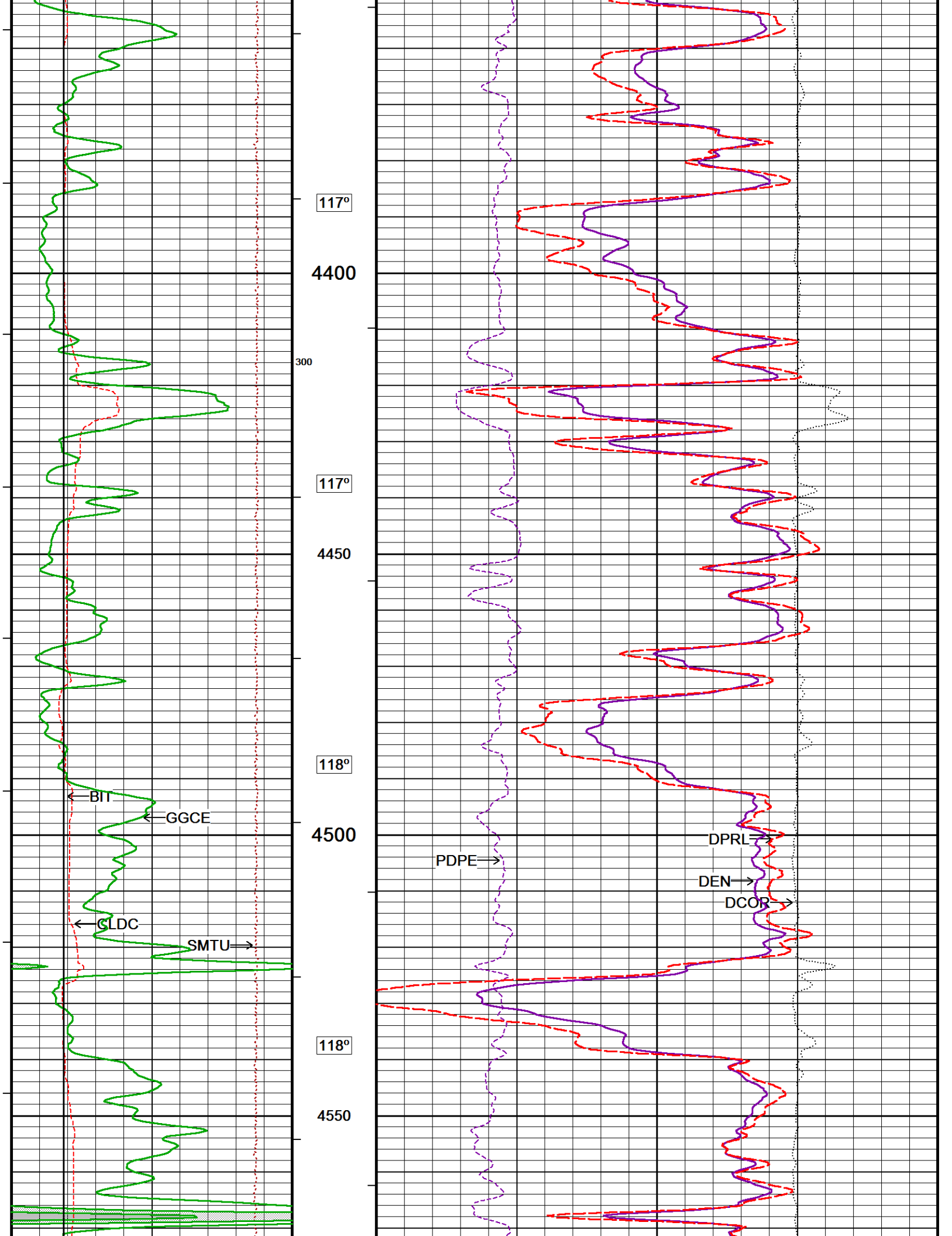

700
109°
3300
BIT
GGCE
CLDC
SMTU
109°
3350
110°
3400
110°
3450
PDPE
DPRL
DEN
DCOR

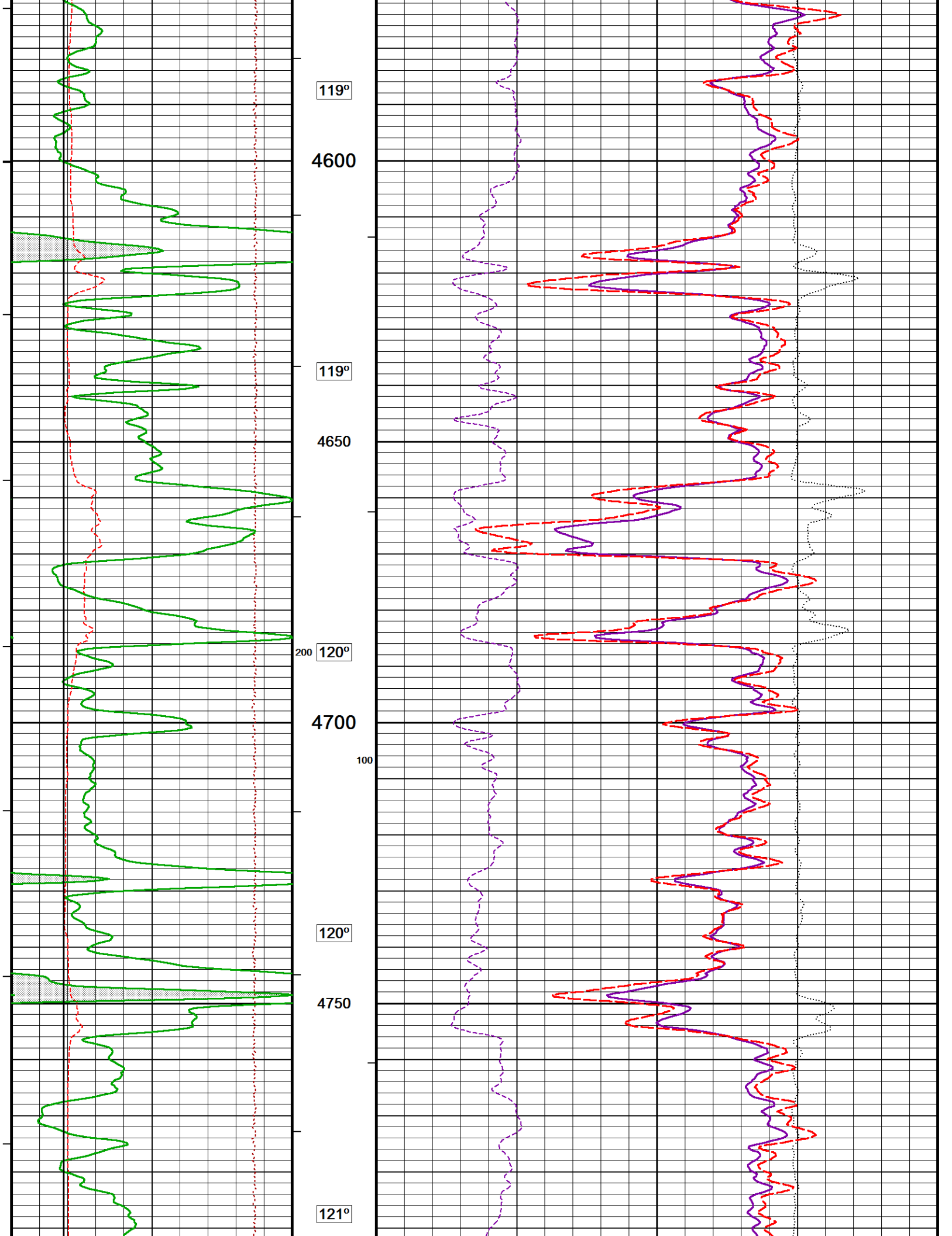

110°
3500
110°
3550
600
111°
3600
111°
3650
300
112°

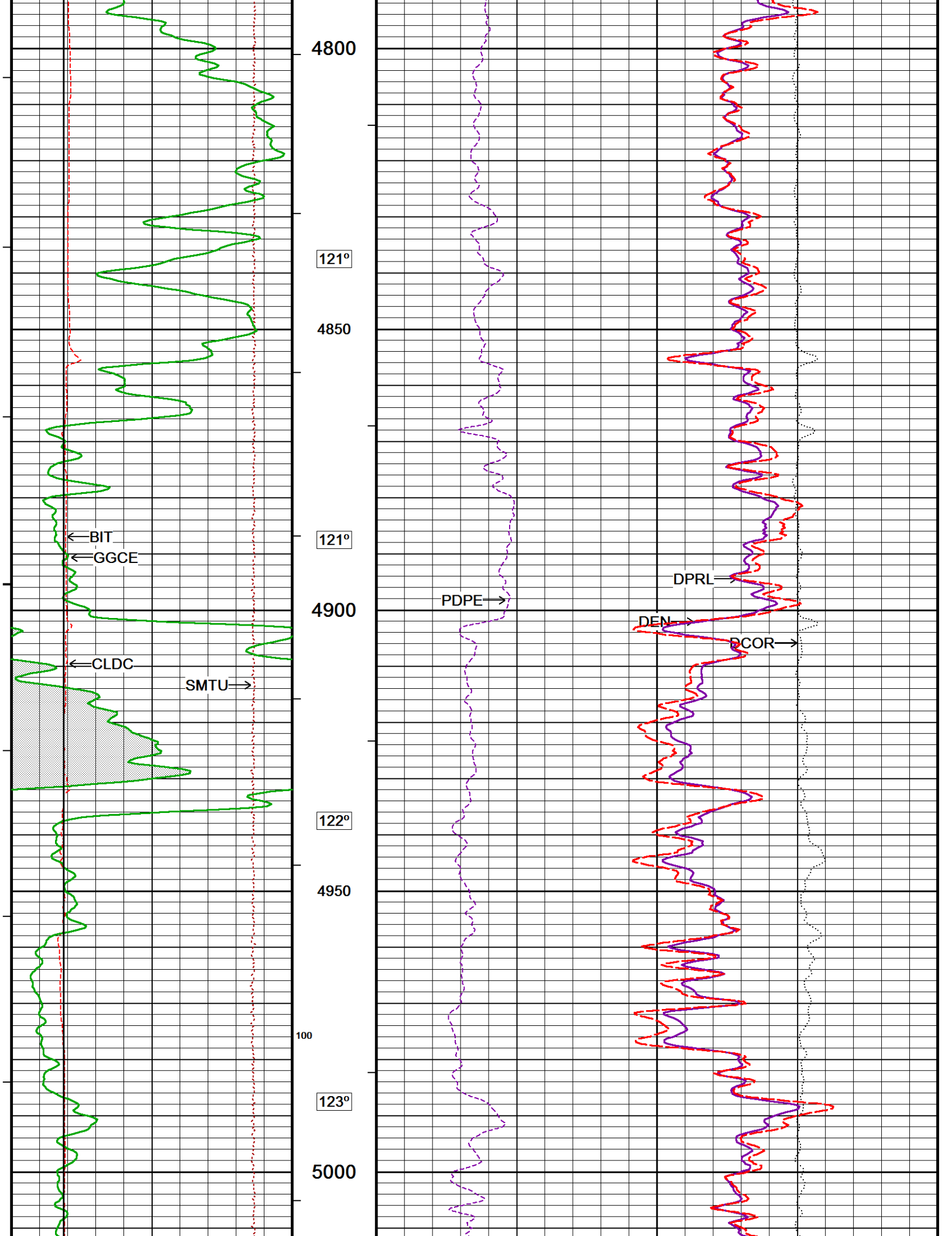

BIT
GGCE
CLDC
SMTU
PDPE
DPRL
DEN
DCOR
3700
112°
3750
113°
3800
113°
500
3850
114°
3900

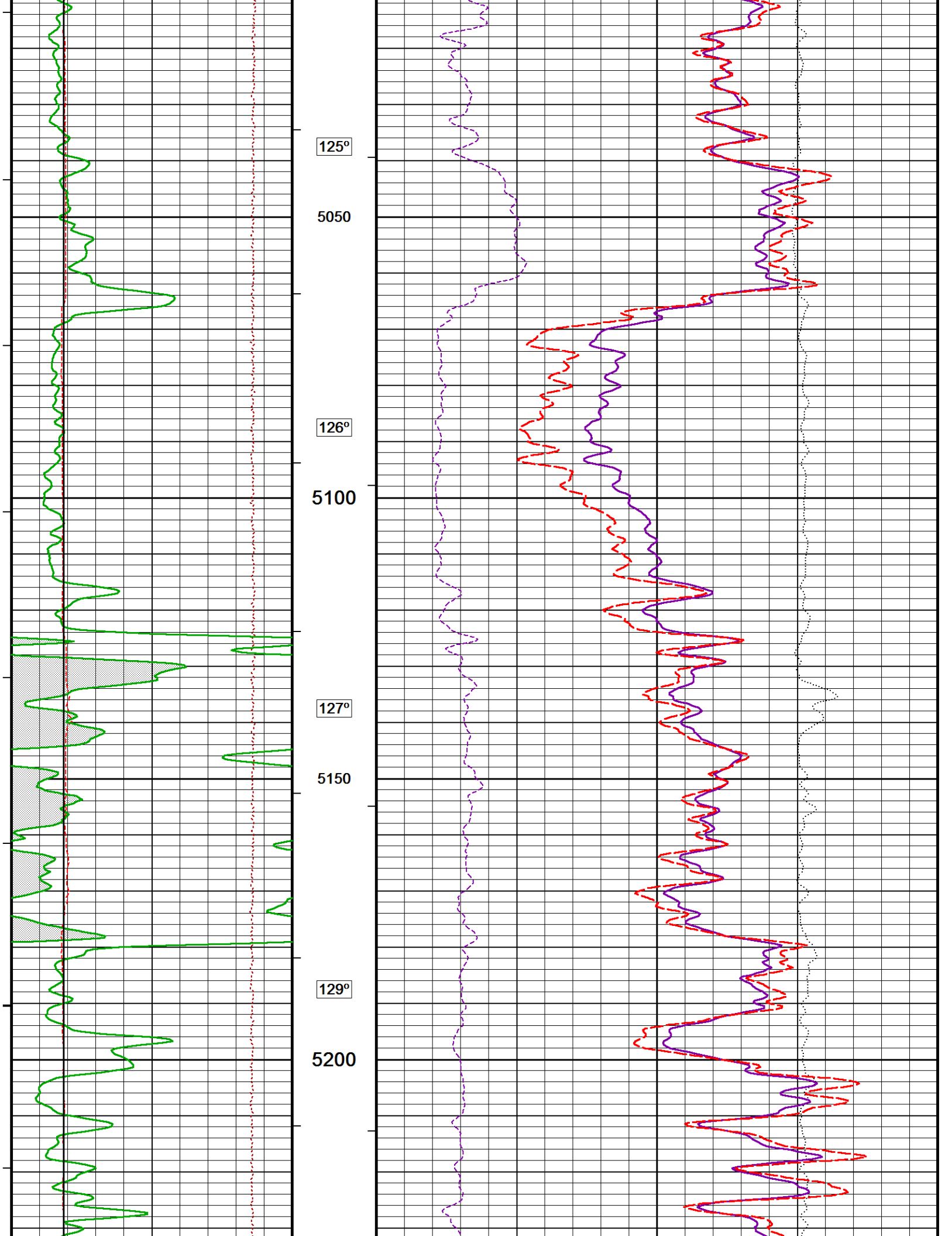

114°
3950
114°
4000
115°
4050
115°
4100
BIT
GGCE
CLDC
SMTU
400
PDPE
DPRL
DEN
DCOR

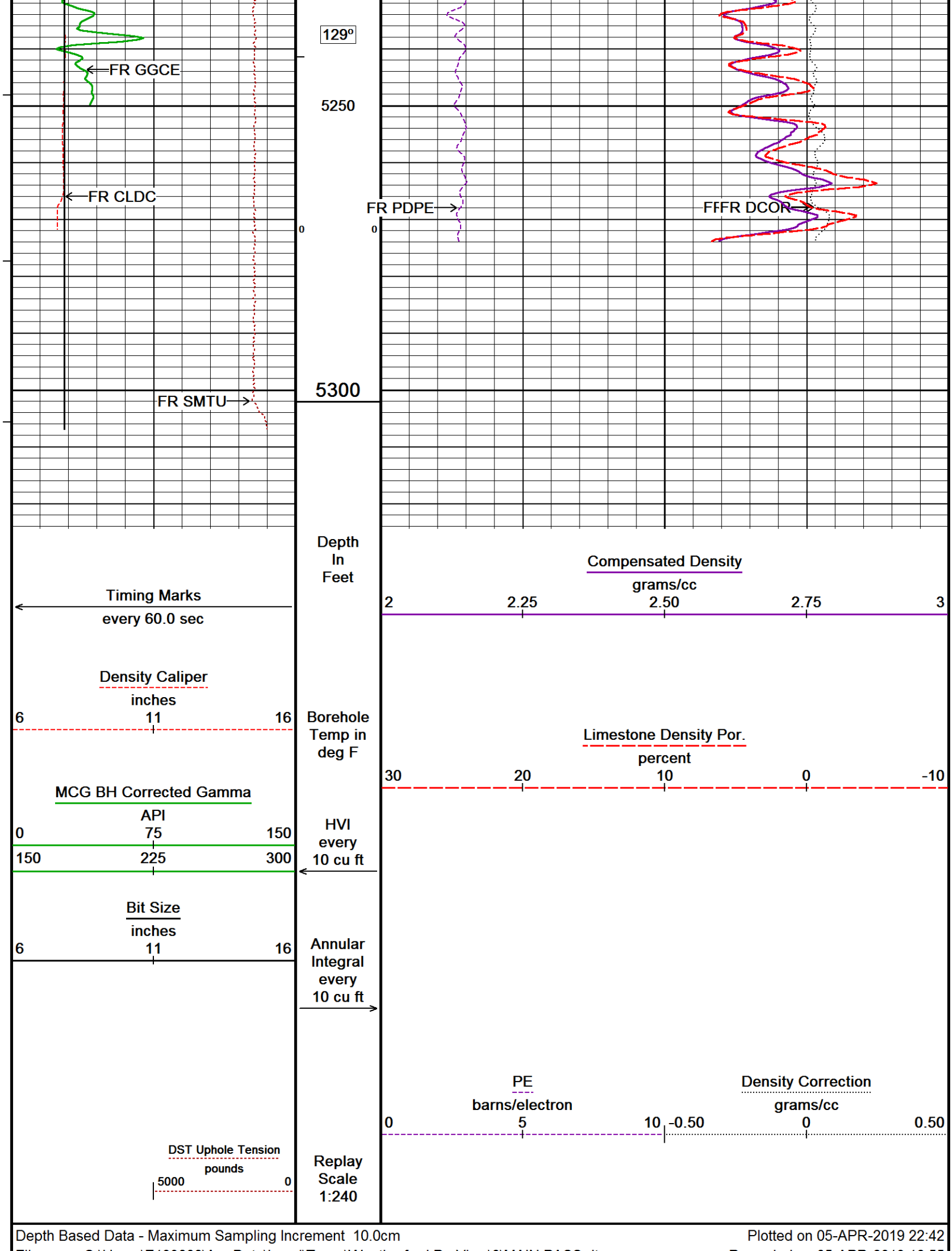

115°
4150
115°
200
4200
116°
4250
117°
4300
117°
4350


117°
4400
300
117°
4450
118°
BIT
GGCE
4500
CLDC
SMTU
PDPE
DPRL
DEN
DCOR
118°
4550


119°
4600
119°
4650
200
120°
4700
100
120°
4750
121°


4800
121°
4850
121°
4900
122°
4950
100
123°
5000
BIT
GGCE
CLDC
SMTU
PDPE
DPRL
DEN
DCOR


125°
5050
126°
5100
127°
5150
129°
5200



Depth Based Data - Maximum Sampling Increment 10.0cm

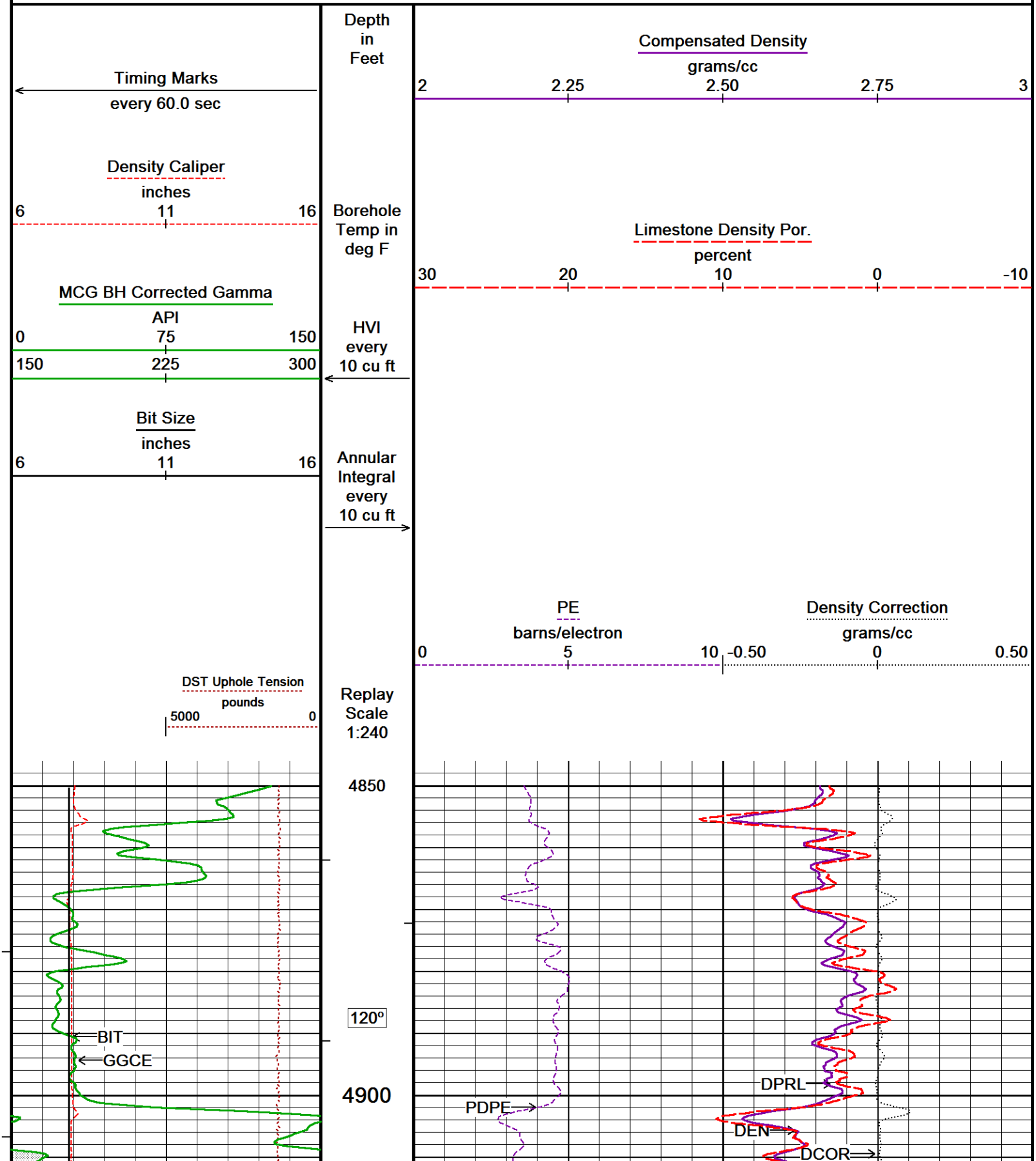
Plotted on 05-APR-2019 22:42

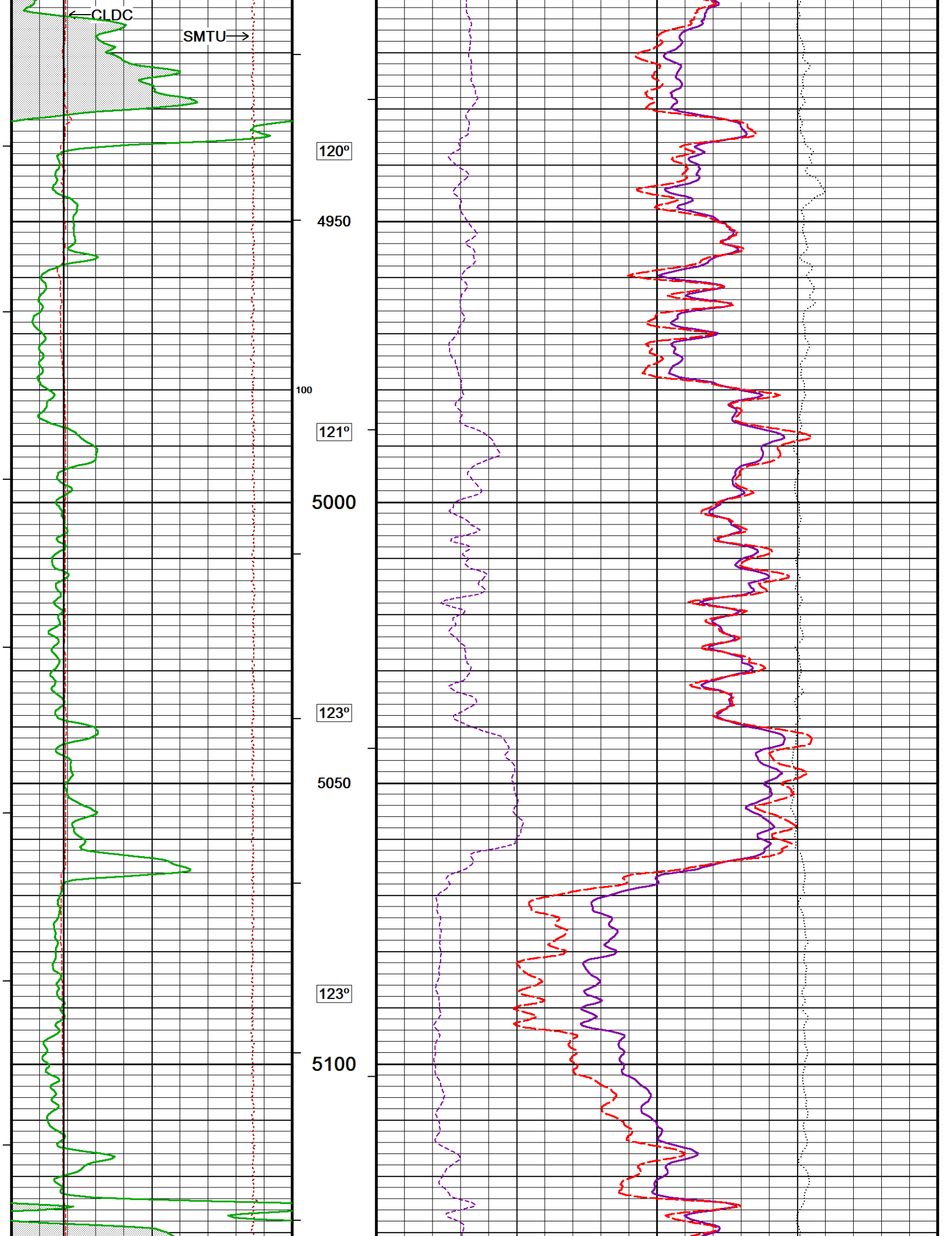
Filename: C:\Users\E193808\AppData\Local\Temp\Weatherford PreView\0\MAIN PASS.dta Recorded on 05-APR-2019 18:55
System Versions: Logged with 18.03.8633 Processed with 18.03.8633 Plotted with 17.01.6537

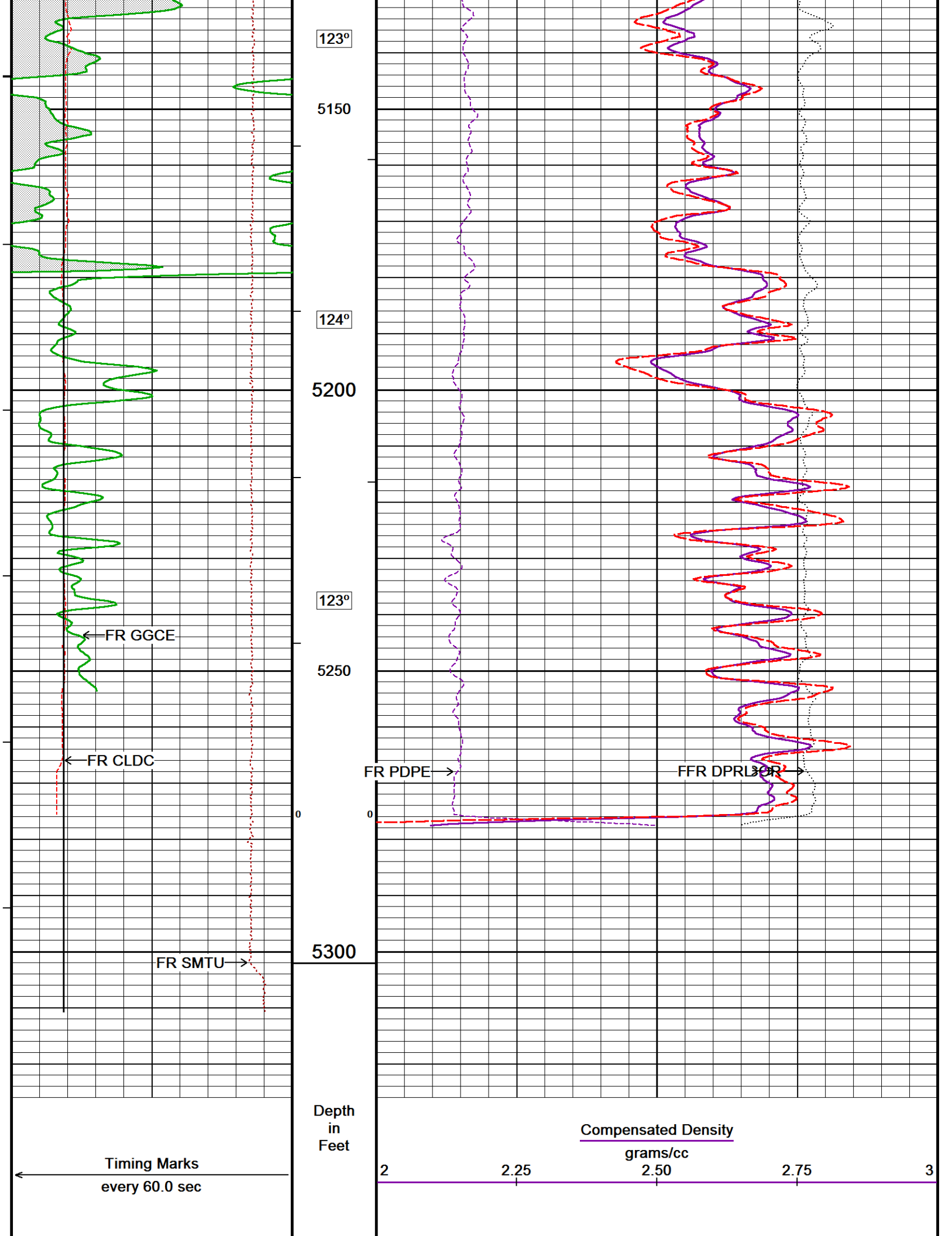
5 INCH MAIN PASS - BULK DENSITY 1:240

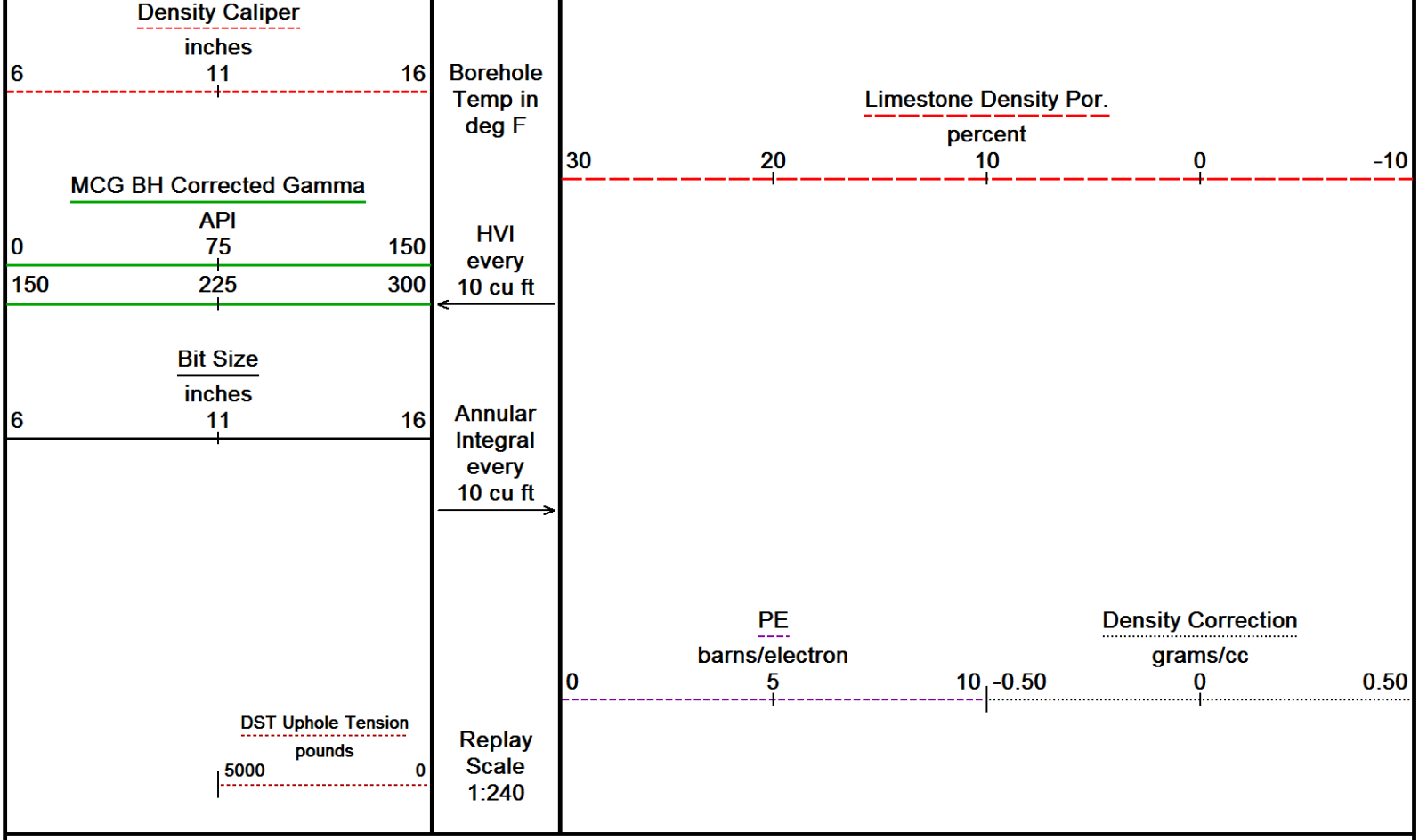
5 INCH REPEAT PASS - BULK DENSITY 1:240

Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 05-APR-2019 22:42
Filename: C:\Users\E193808\AppData\Local\Temp\Weatherford PreView\0\REPEAT PASS.dta Recorded on 05-APR-2019 17:01
System Versions: Logged with 19.01.8874 Processed with 18.03.8633 Plotted with 17.01.6537




←CLDC
SMTU→
120°
4950
100
121°
5000
123°
5050
123°
5100


123°
5150
124°
5200
123°
5250
5300
FR GGCE
FR CLDC
FR SMTU
FR PDPE
FFR DPRL30R
0
0
Depth
in
Feet
Timing Marks
every 60.0 sec
Compensated Density
grams/cc
2
2.25
2.50
2.75
3



Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 05-APR-2019 22:42

Filename: C:\Users\E193808\AppData\Local\Temp\Weatherford PreView\0\REPEAT PASS.dta — Recorded on 05-APR-2019 17:01

System Versions: Logged with 19.01.8874 Processed with 18.03.8633 Plotted with 17.01.6537

5 INCH REPEAT PASS - BULK DENSITY 1:240

BEFORE SURVEY CALIBRATION

C:\Users\E193808\AppData\Local\Temp\Weatherford PreView\0\REPEAT PASS.dta

General Constants All 000

Last Edited on 05-APR-2019,16:24

General Parameters		
Mud Resistivity	0.520	ohm-metres
Mud Resistivity Temperature	92.000	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	5.500	inches
Caliper for Differential Caliper	Density Caliper	
Rwa Parameters		
Porosity used	Base Density Porosity	
Resistivity used	Array Ind. Two Res Rt	
RWA Constant A	0.620	
RWA Constant M	2.150	
SW/APOR Tool Source	0.000	

Gamma Calibration MCG-E.A 571

Field Calibration on 01-APR-2019 10:09

	Measured	Calibrated (API)
Background	55	38
Calibrator (Gross)	1885	1299
Calibrator (Net)	1830	1261

Gamma Calibration Tolerances MCG-E.A 571

Gamma Calibration Tolerances MCG-E.A 571

		1.40	1.475	1.55	
Ratio	1.451				Counts/API

Gamma Constants MCG-E.A 571

Last Edited on 05-APR-2019,15:56

Gamma Calibrator Number	046	
GRC-M Calibrator Jig in Use?	NO	
Inactive Background Jig in Use?	NO	
Mud Density	1.13	gm/cc
Caliper Source for Processing	Density Caliper	
Tool Position	Eccentred	
Potassium Equivalence	Chloride	
K Mud Concentration	0.00	%

High Resolution Temperature Calibration MCG-E.A 571

Field Calibration on 05-APR-2019,16:03

	Measured	Calibrated(Deg F)
Lower	50.00	50.00
Upper	200.00	200.00

High Resolution Temperature Constants MCG-E.A 571

Last Edited on 01-FEB-2019,10:33

Pre-filter Length	11

Caliper Calibration MPD-C.J 394

Base Calibration on 15-MAR-2019 16:37
Field Calibration on 01-APR-2019 09:48

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	13388	3.99
2	21728	5.96
3	30208	7.96
4	38272	9.86
5	47248	11.88
6	N/A	N/A

Field Calibration

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

Caliper Calibration Tolerances MPD-C.J 394

		7.59	7.99	8.39	
Long Arm Field Cal.	7.98				in

Photo Density Calibration MPD-C.J 394

Base Calibration on 15-MAR-2019 16:25
Field Check on 01-APR-2019 09:58

Density Calibration

Base Calibration	Measured		Calibrated (sdu)	
	Near	Far	Near	Far
Background	1264	1372		
Reference 1	53022	25337	59494	30754
Reference 2	22352	2571	24557	2522

Field Check at Base

1264.5	1371.9

Field Check

1264.0	1356.3

PE Calibration

Base Calibration	Measured			Calibrated
	WS	WH	Ratio	Ratio
Background	230	1133		
Reference 1	21688	52826	0.415	0.367
Reference 2	6330	22208	0.289	0.271

Field Check at Base

229.7	1133.0

Field Check

228.1	1131.9

Photo Density Calibration Tolerances MPD-C.J 394

Photo Density Calibration Tolerances MPD-C.J 394

Near Density Ratio	2.45	-5% 2.52 +5%	Far Density Ratio	19.99	-5% 21.00 +5%
PE Calibration	0.120	0.089 0.110 0.131			
Near Den. Field Check	1264.0	-3% 1264.5 +3%	Far Den. Field Check	1356.3	-3% 1371.9 +3%
PE WS Field Check	228.1	-6% 229.7 +6%	PE WH Field Check	1131.9	-6% 1133.0 +6%

Density Constants MPD-C.J 394

Last Edited on 05-APR-2019,15:54

Density Source Id	H79956B	
Nylon Calibrator Number	766	
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 Type		
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	
Precision Enhanced Density Processing	Not Applied	

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:\Users\E193808\AppData\Local\Temp\Weatherford PreView\0\REPEAT PASS.dta

Cablehead, 11 pin
CBH-CA 204 LG: 2.40 ft WT: 24.3 lb OD: 2.240 in

Compact Swivel Head Adaptor
SHA-J.B 503 LG: 2.30 ft WT: 22.0 lb OD: 2.240 in

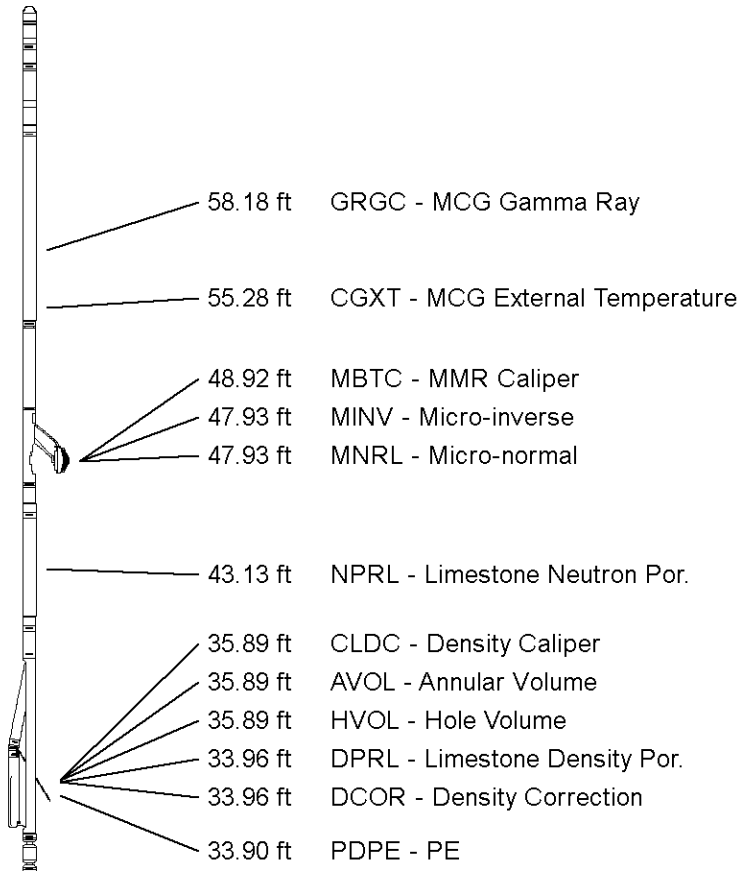
Compact Comms Gamma
MCG-E.A 571 LG: 8.70 ft WT: 63.9 lb OD: 2.240 in

Compact Micro-Resistivity
MMR-C.A 245 LG: 8.59 ft WT: 81.6 lb OD: 4.882 in

Compact Neutron
MDN-C.A 515 LG: 5.04 ft WT: 50.7 lb OD: 2.240 in

Compact Density/Caliper
MPD-C.J 394 LG: 9.59 ft WT: 90.4 lb OD: 2.449 in

Compact Knuckle Joint



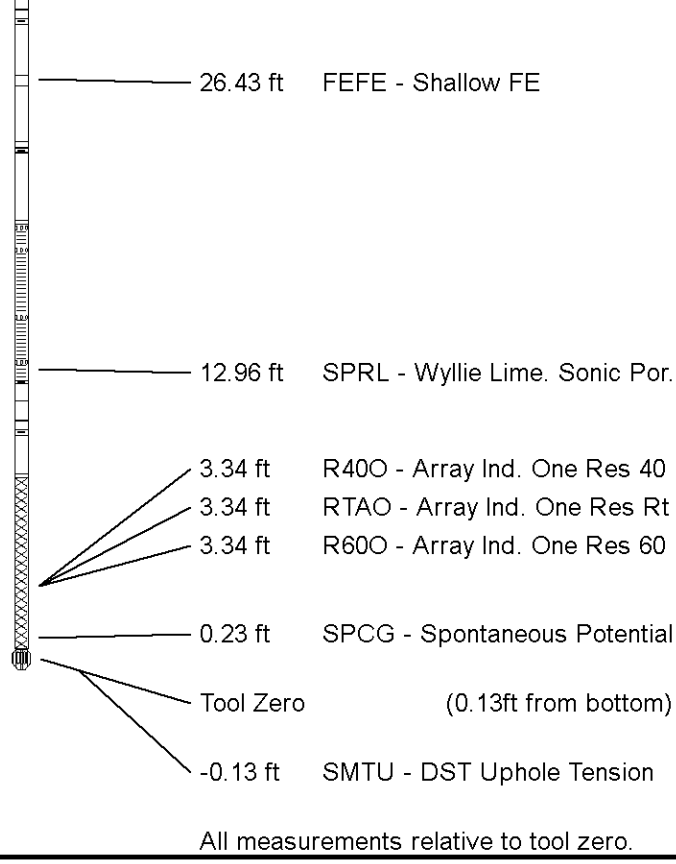
SKJ-E.B 477 LG: 2.17 ft WT: 24.3 lb OD: 2.244 in

Compact Focussed Electric
MFE-C.A 413 LG: 6.05 ft WT: 48.5 lb OD: 2.244 in

Compact Sonic
MSS-C.K 368 LG: 12.52 ft WT: 72.8 lb OD: 2.244 in

Compact Induction
MAI-C.A 492 LG: 10.81 ft WT: 48.5 lb OD: 2.240 in

Total Length: 68.16 ft Weight: 526.9 lb



All measurements relative to tool zero.

COMPANY	RAMSHORN RESOURCES, LLC
WELL	MARSH 2-27
FIELD	DEARHEAD
PROVINCE/COUNTY	BARBER
COUNTRY/STATE	USA / KANSAS

Elevation Kelly Bushing	1908	feet	First Reading	5269.00	feet
Elevation Drill Floor	1906	feet	Depth Driller	5300.00	feet
Elevation Ground Level	1896	feet	Depth Logger	5302.00	feet

Weatherford®

COMPACT PHOTO DENSITY
COMPENSATED NEUTRON
MICRO-RESISTIVITY LOG