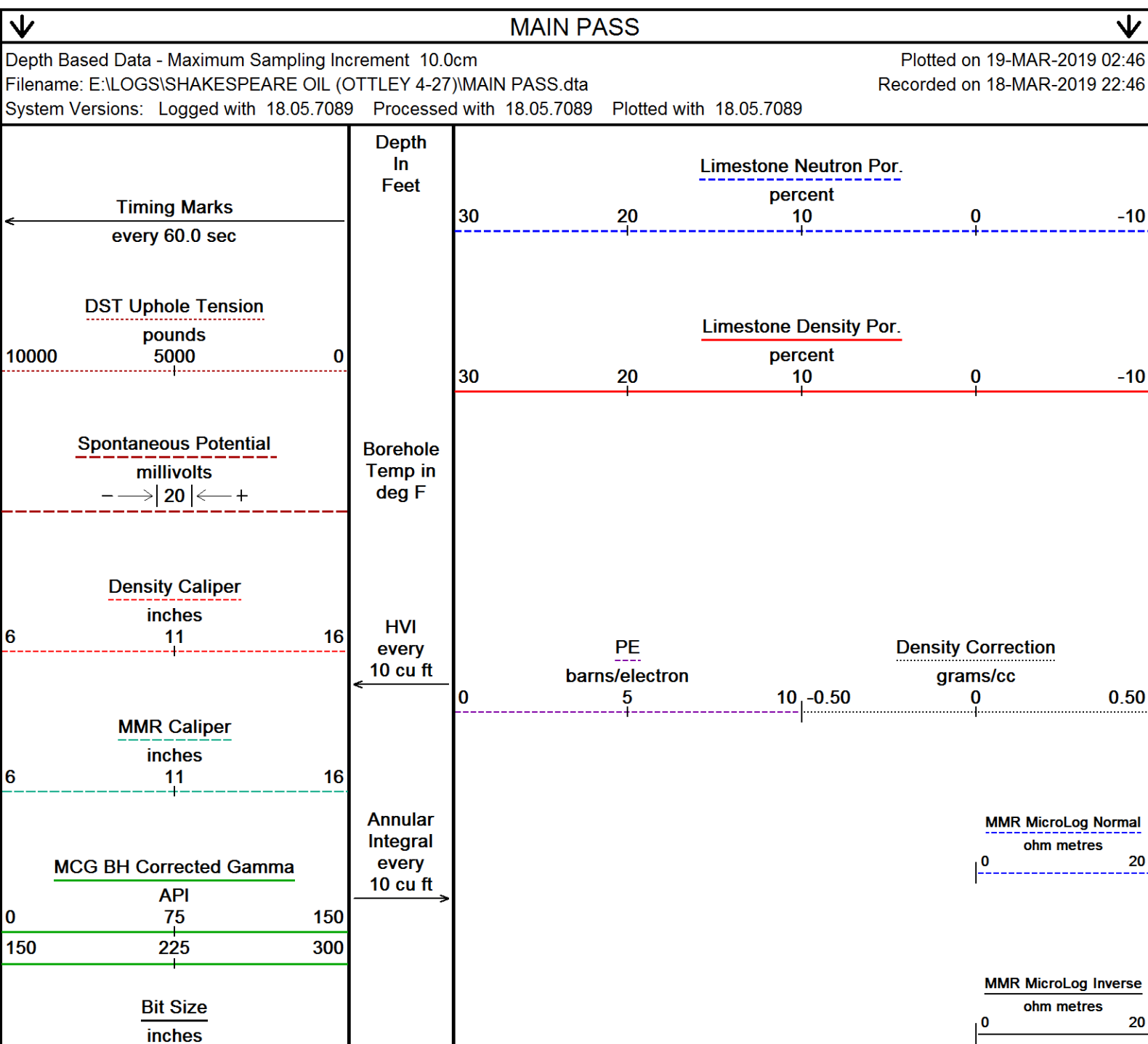


- OPERATORS: J. JOHNSON, G. FICA

In interpreting, communicating or providing information and/or making recommendations, either written or oral, as to logs or test or other data, type or amount of material, or Work or other service to be furnished, or manner of performance, or in predicting results to be obtained, the Contractor will give the Company the benefit of the Contractor's best judgment based on its experience and will perform all such Work in a good and workmanlike manner. Any interpretation of test or other data, and any recommendation or reservoir description based upon such interpretations, are opinions based upon inferences from measurements and empirical relationships and assumptions, which inferences and assumptions are not infallible, and with respect to which professional engineers and analysts may differ. ACCORDINGLY ANY INTERPRETATION OR RECOMMENDATION RESULTING FROM THE SERVICES WILL BE AT THE SOLE RISK OF THE COMPANY, AND THE CONTRACTOR CANNOT AND DOES NOT WARRANT THE ACCURACY, CORRECTNESS OR COMPLETENESS OF ANY SUCH INTERPRETATION OR RECOMMENDATION, WHICH INTERPRETATIONS AND RECOMMENDATIONS SHOULD NOT, THEREFORE, UNDER ANY CIRCUMSTANCES BE RELIED UPON AS THE SOLE OR MAIN BASIS FOR ANY DRILLING, COMPLETION, WELL TREATMENT, PRODUCTION OR FINANCIAL DECISION, OR ANY PROCEDURE INVOLVING ANY RISK TO THE SAFETY OF ANY DRILLING ACTIVITY, DRILLING RIG OR ITS CREW OR ANY OTHER INDIVIDUAL. THE COMPANY HAS FULL RESPONSIBILITY FOR ALL DECISIONS CONCERNING THE SERVICES.



6 11 16

Replay
Scale
1:240

2050

100

92°

2100

92°

2150

93°

2200

Depth
In
Feet

Limestone Neutron Por.
percent

30

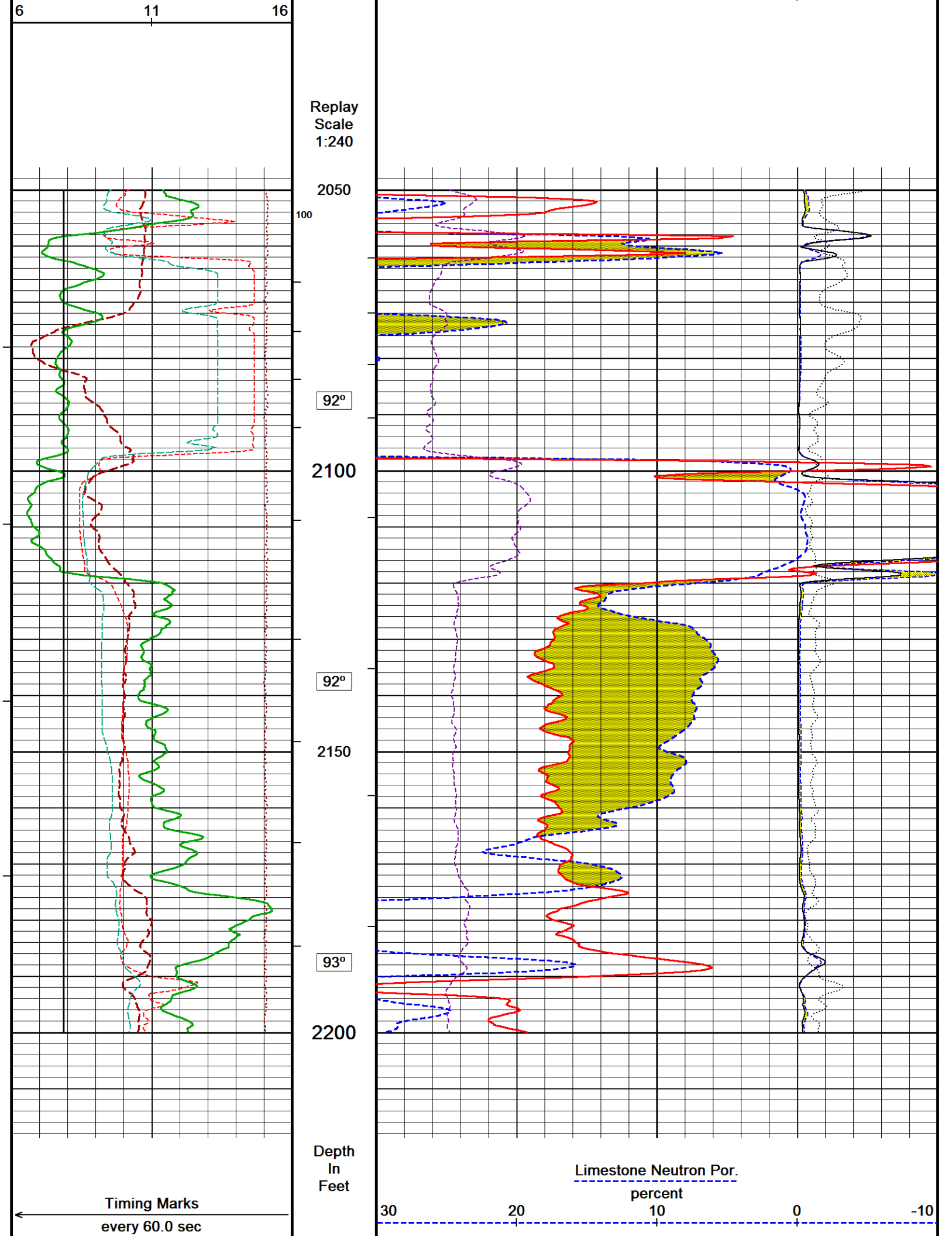
20

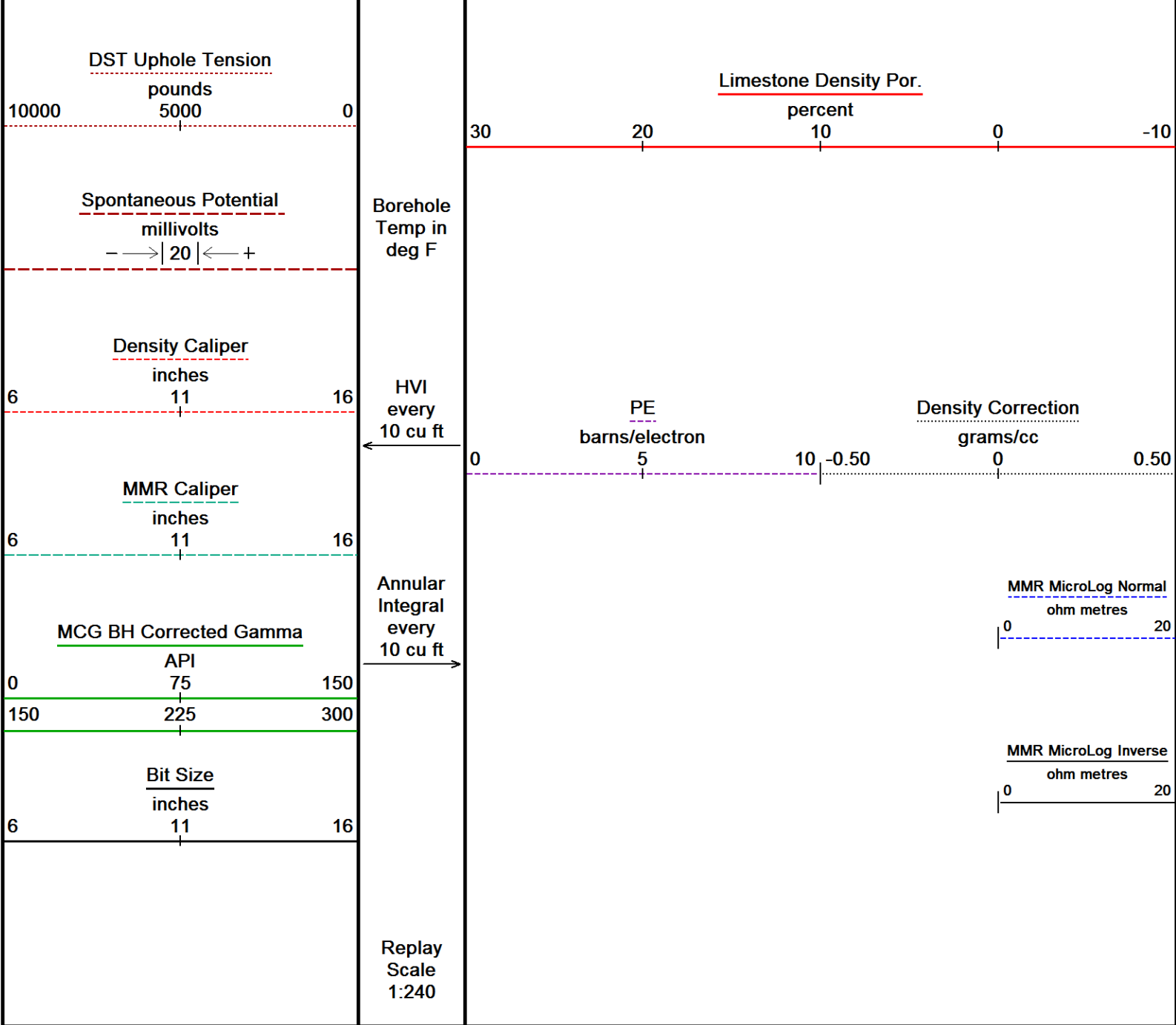
10

0

-10

Timing Marks
every 60.0 sec





Depth Based Data - Maximum Sampling Increment 10.0cm

Filename: E:\LOGS\SHAKESPEARE OIL (OTTLEY 4-27)\MAIN PASS.dta

System Versions: Logged with 18.05.7089 Processed with 18.05.7089 Plotted with 18.05.7089

Plotted on 19-MAR-2019 02:46

Recorded on 18-MAR-2019 22:46

↑

MAIN PASS

↑

↓

5 INCH MAIN PASS

↓

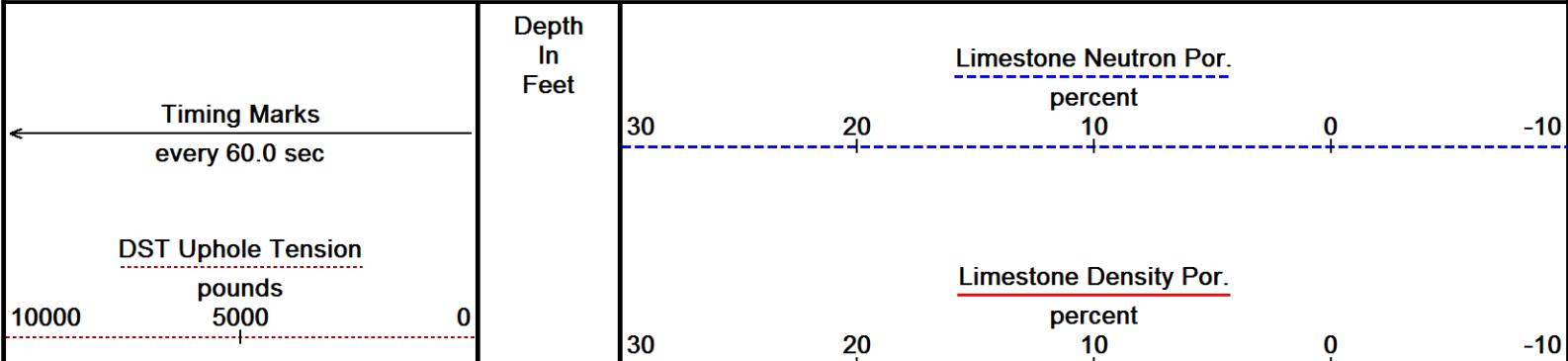
Depth Based Data - Maximum Sampling Increment 10.0cm

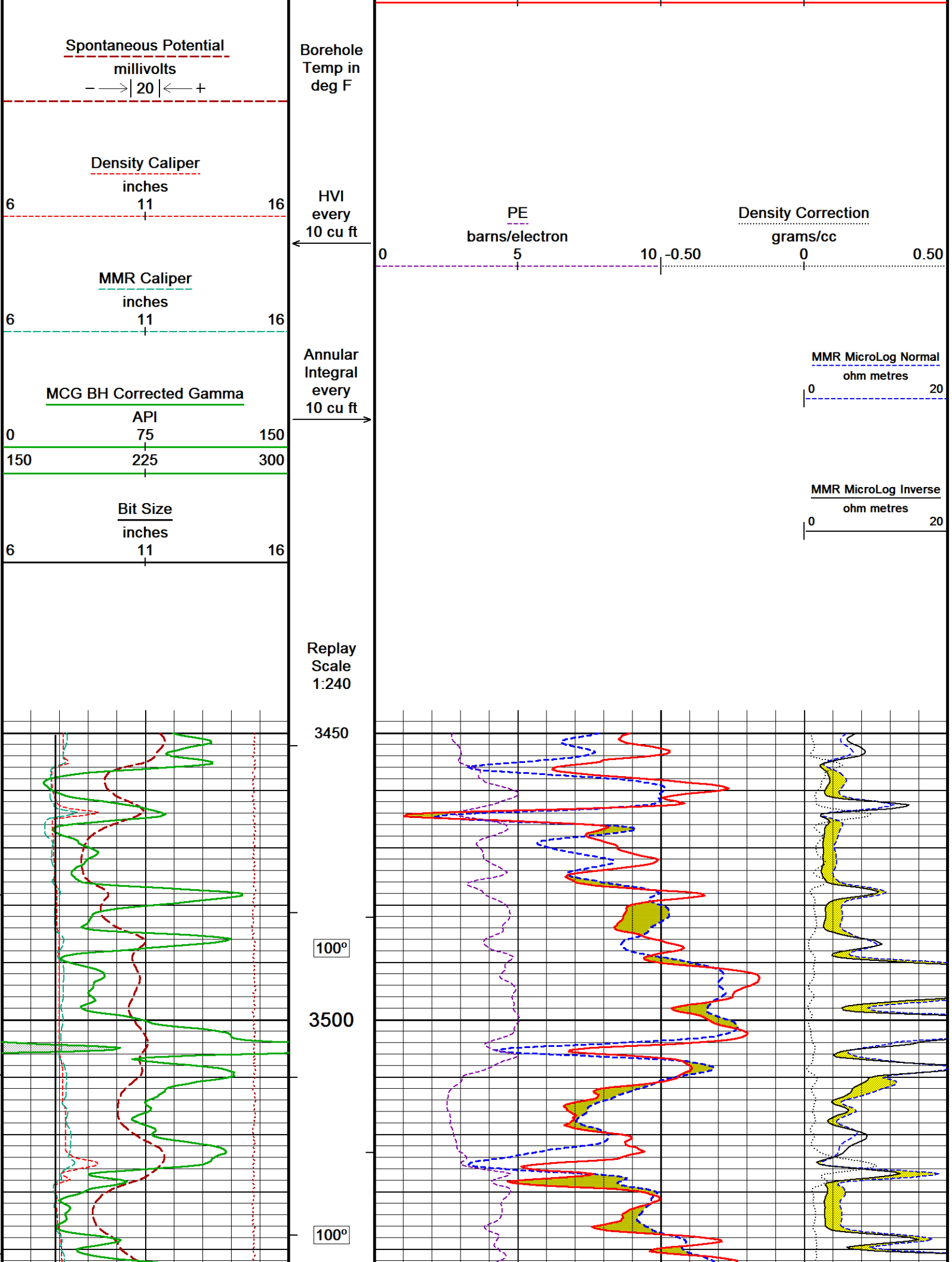
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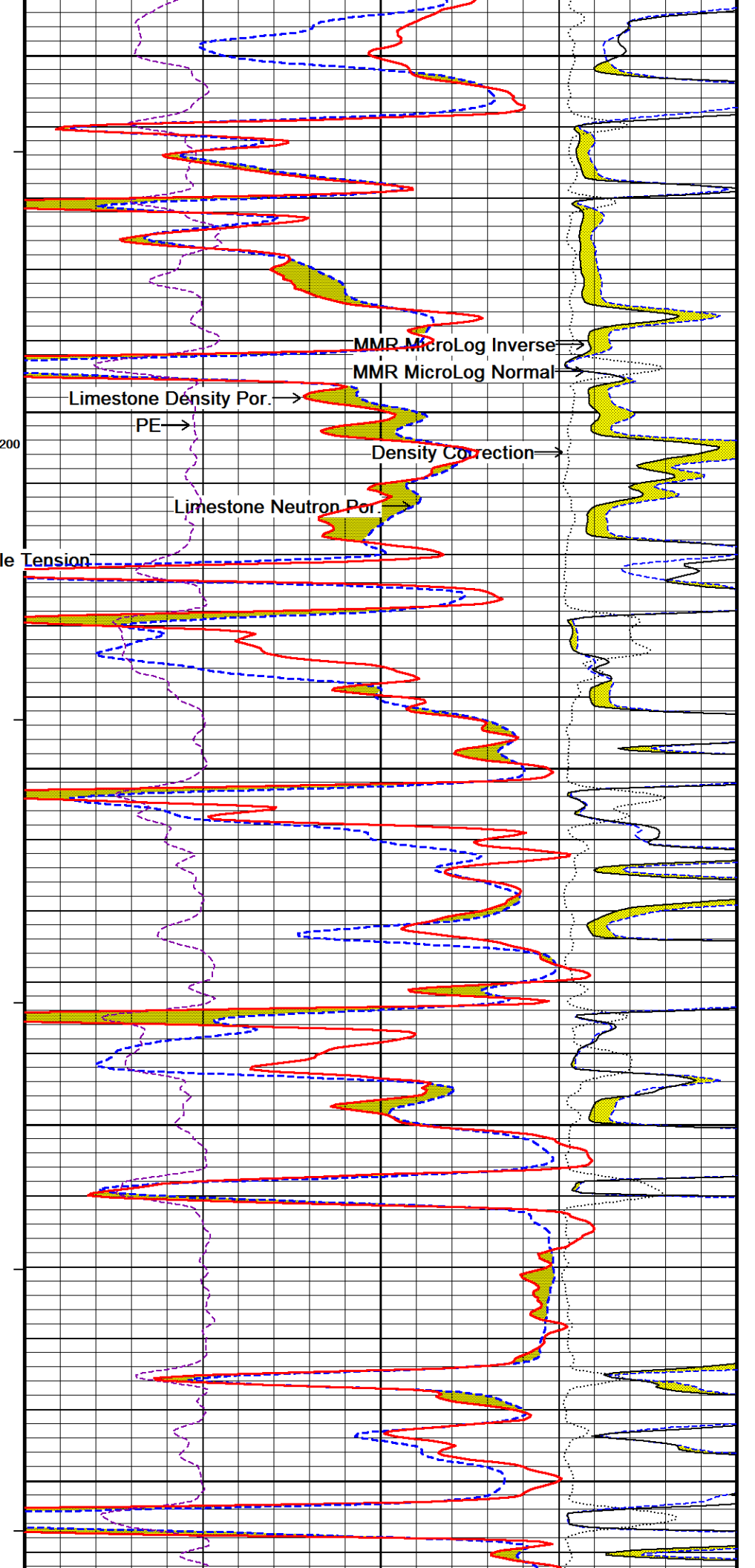
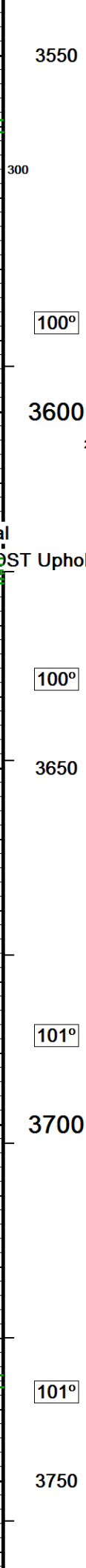
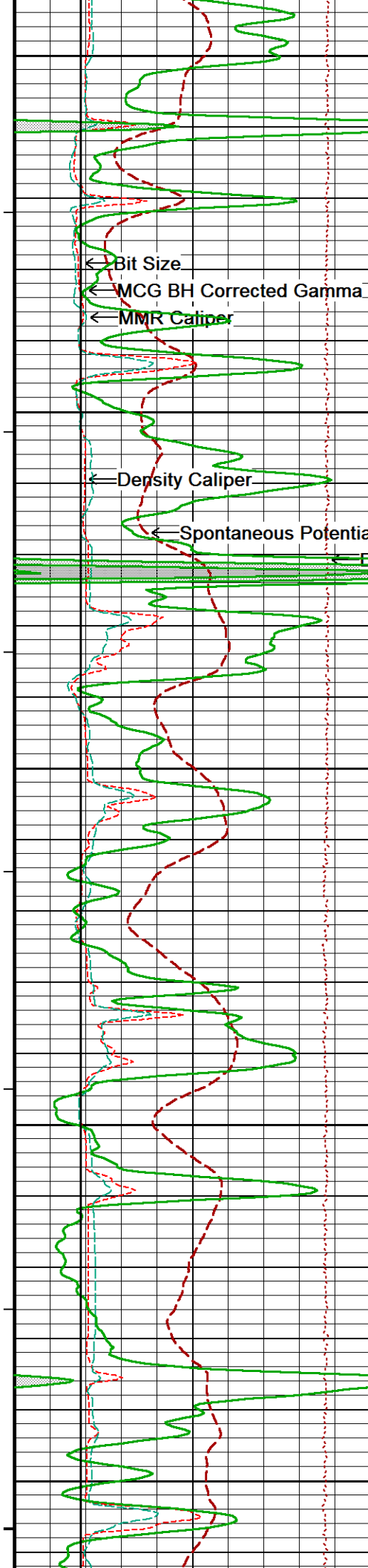
System Versions: Logged with 18.05.7089 Processed with 18.05.7089 Plotted with 18.05.7089

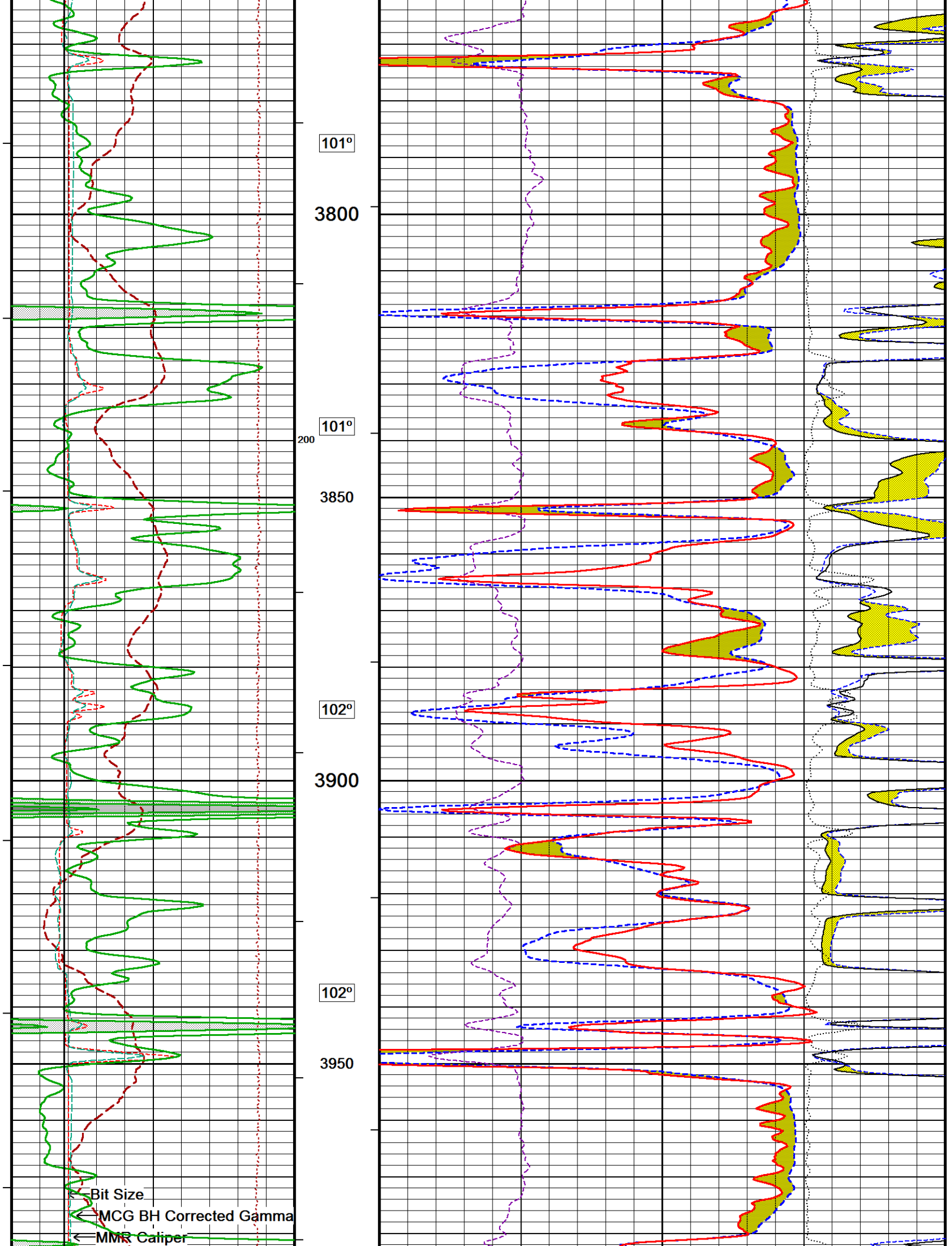
Plotted on 19-MAR-2019 02:46

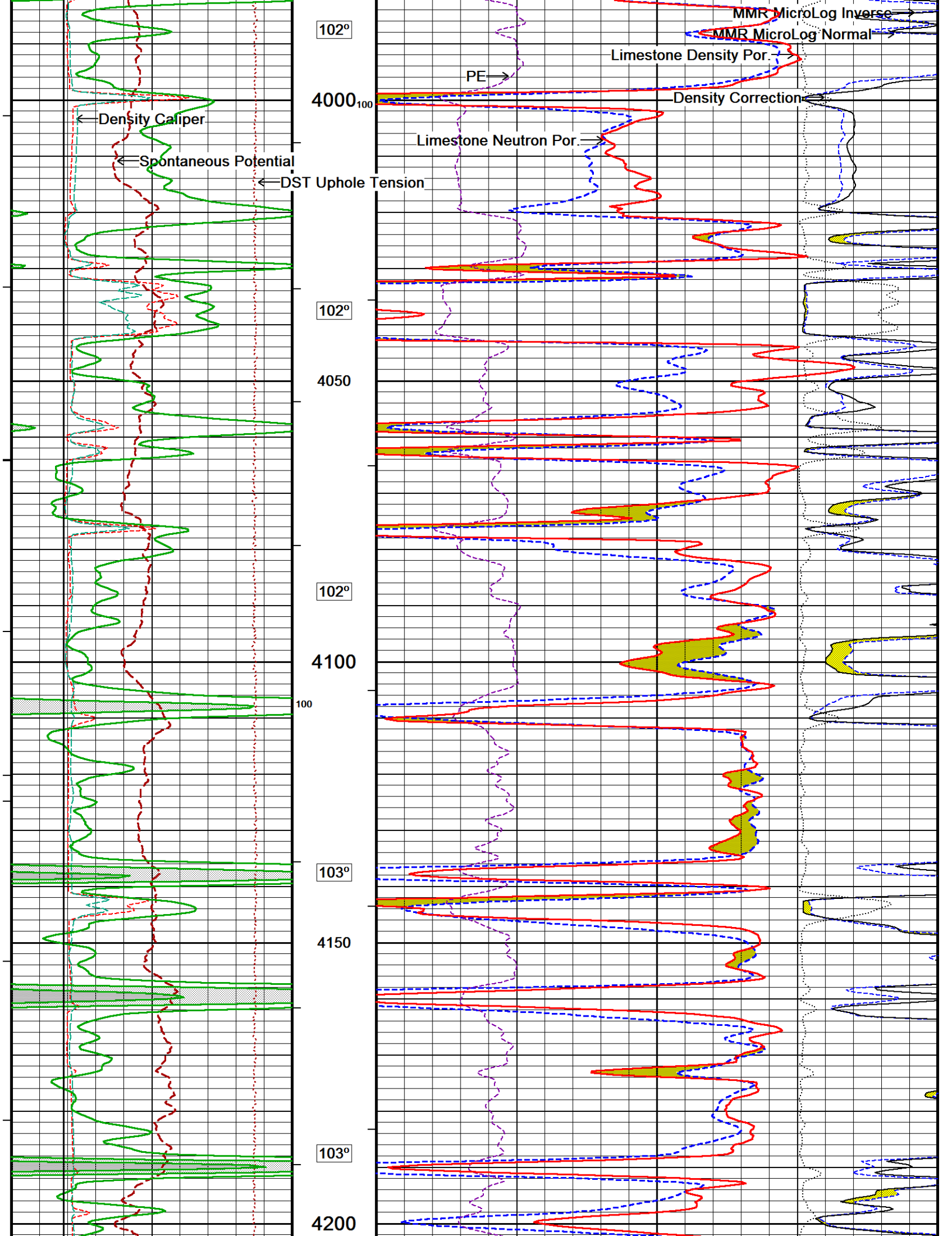
Recorded on 18-MAR-2019 22:46

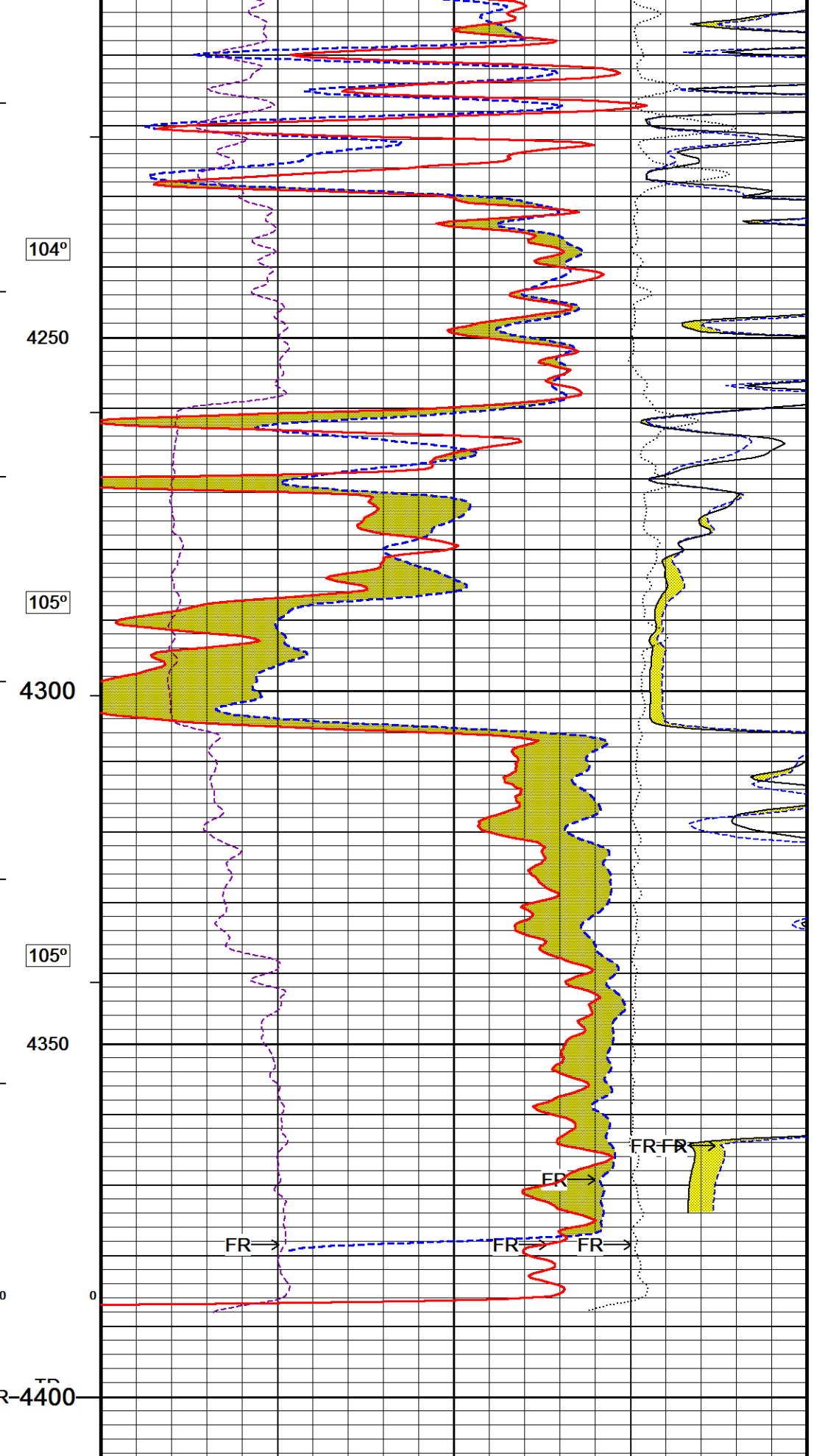
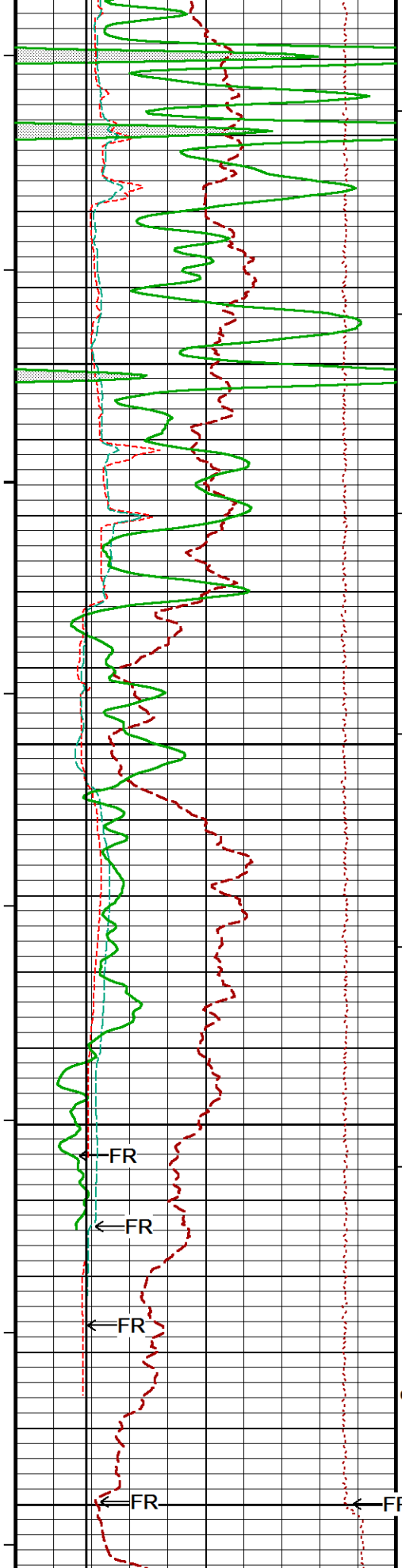


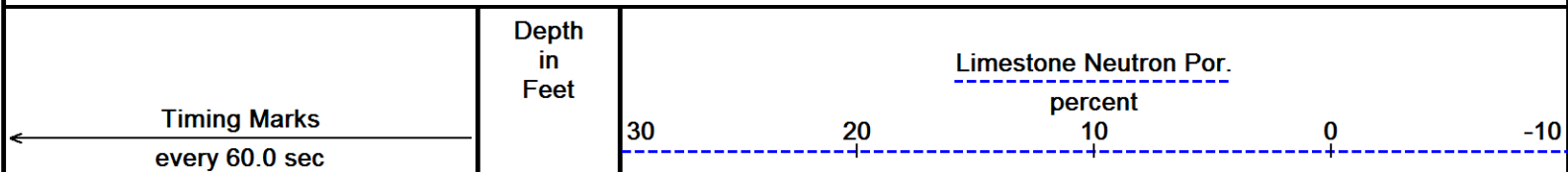
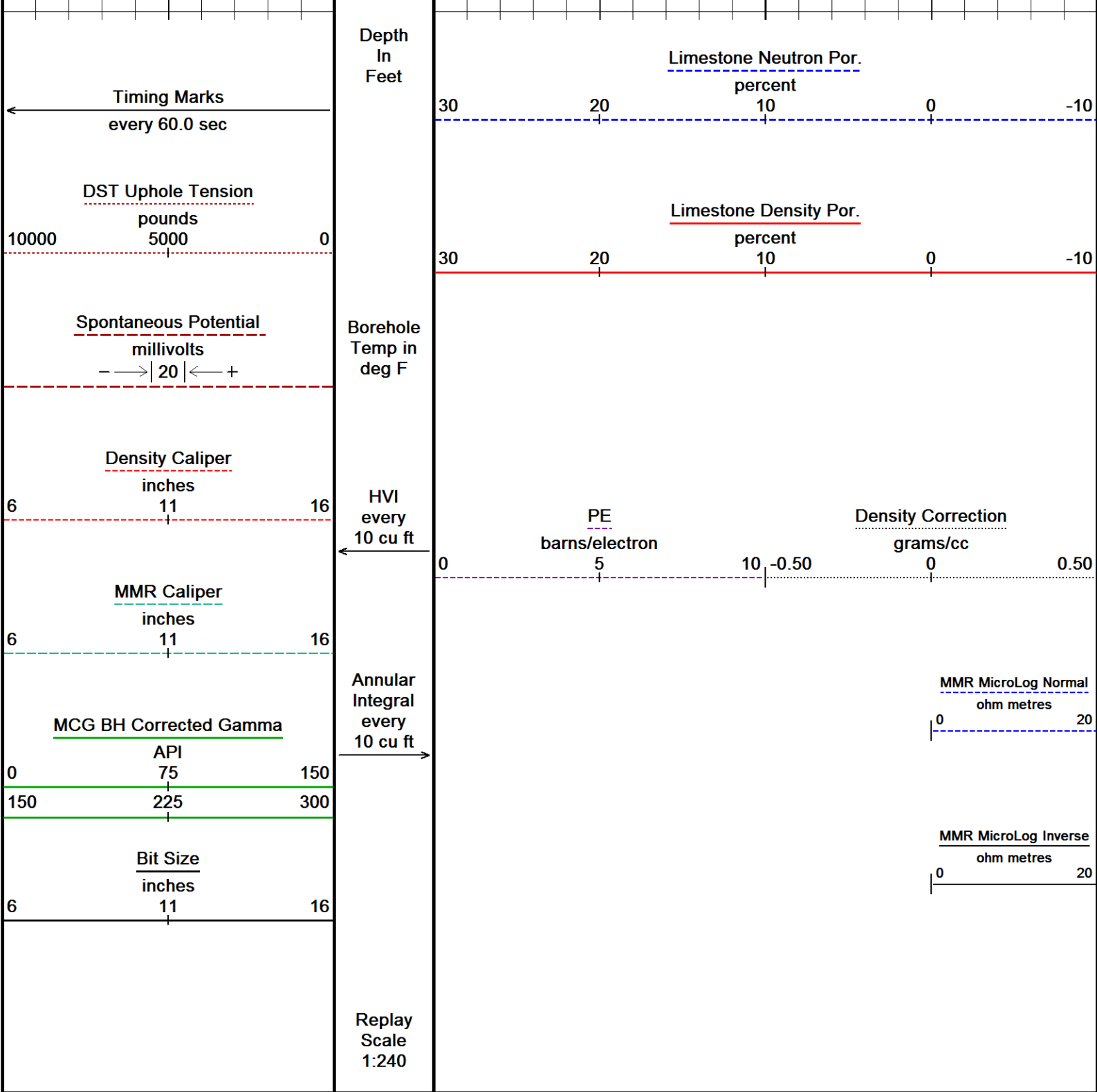


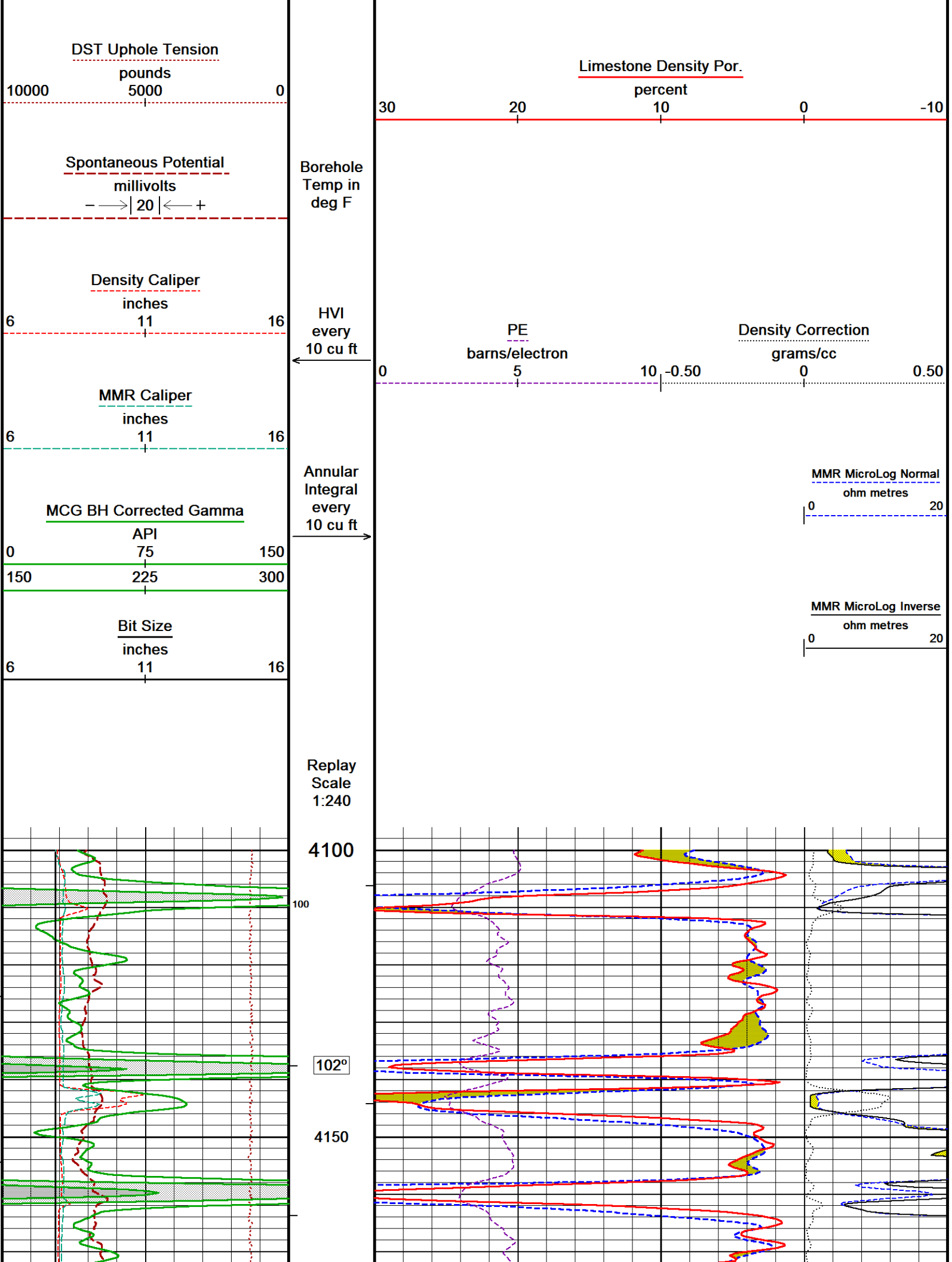


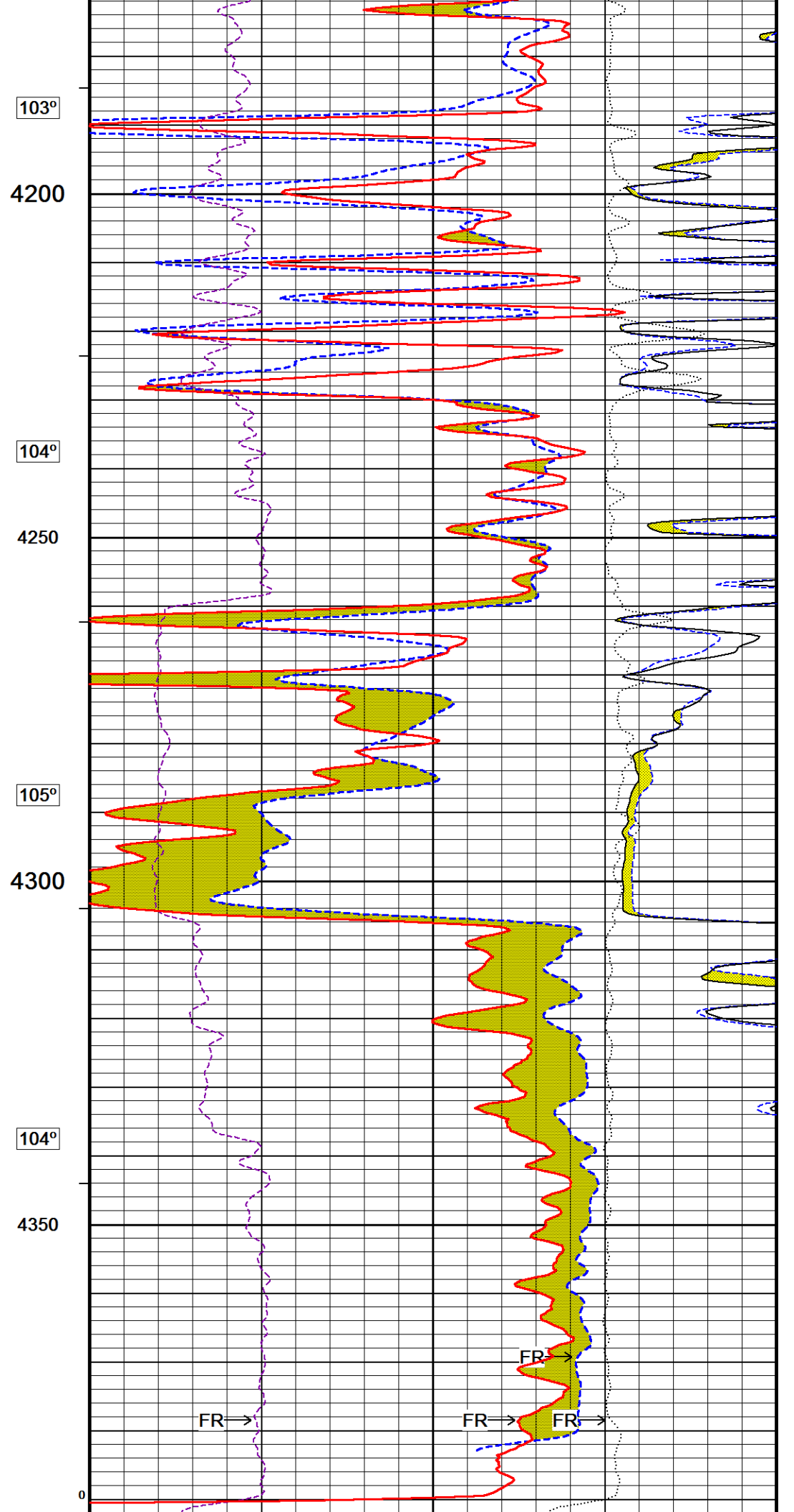
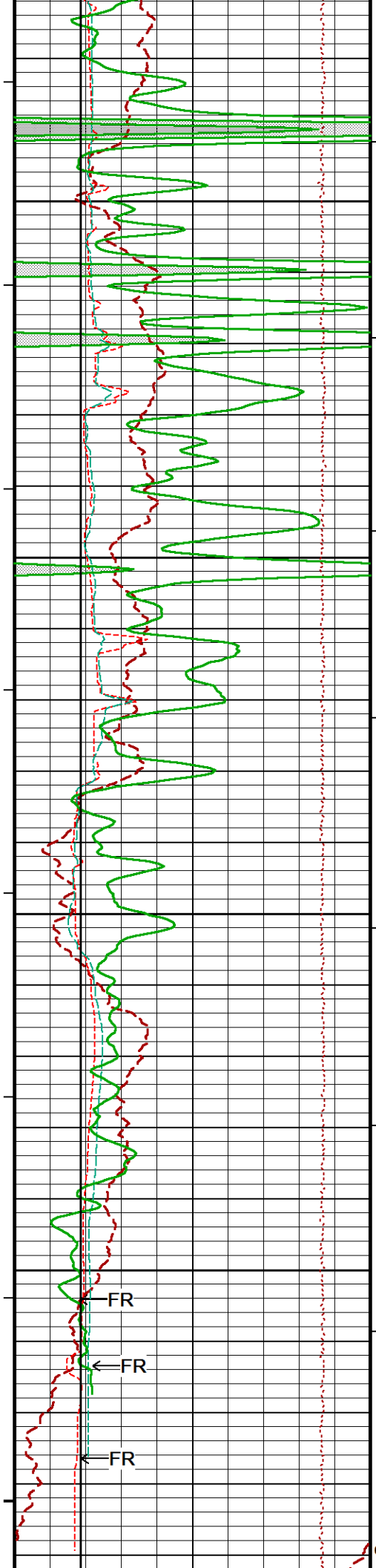


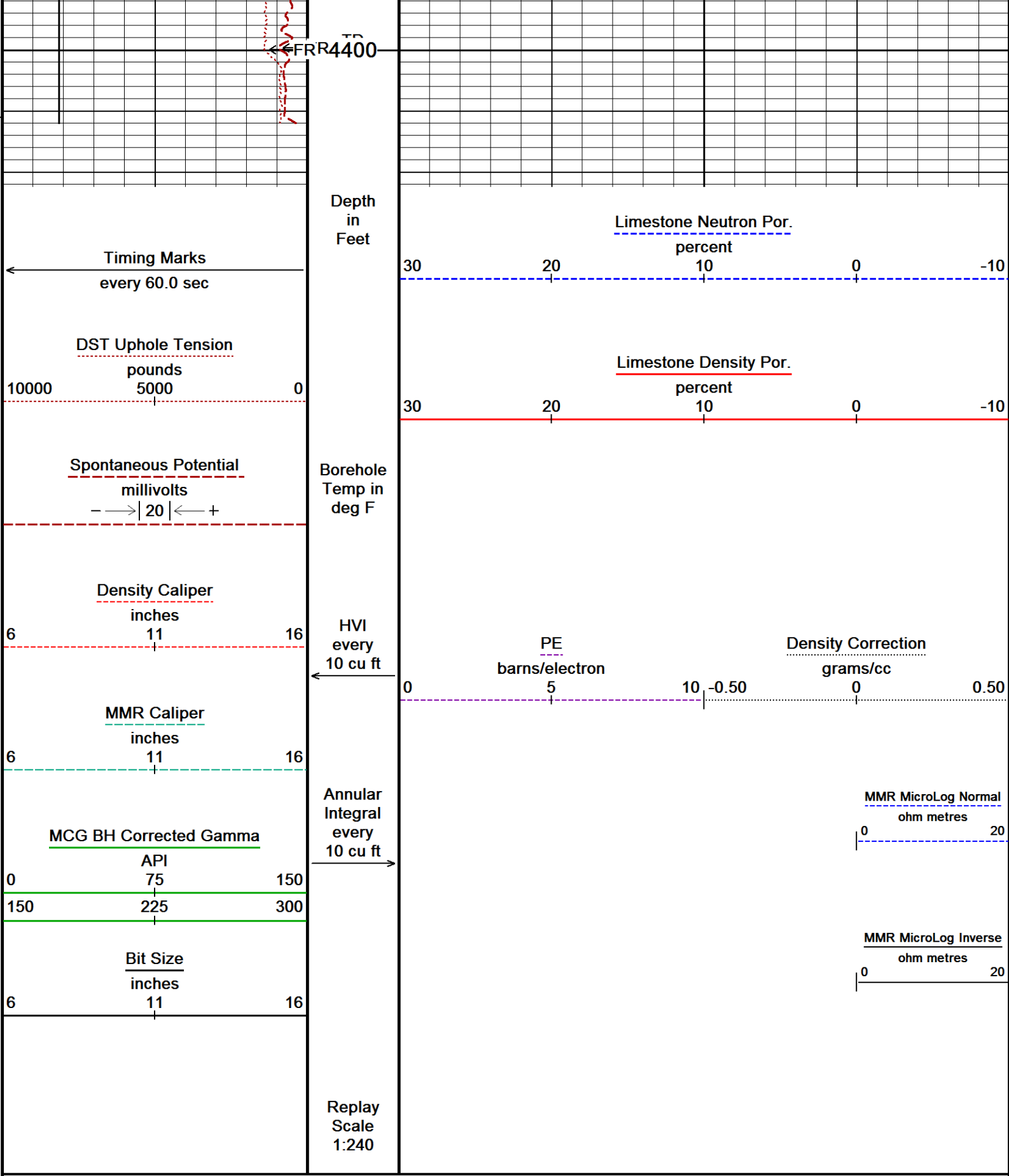










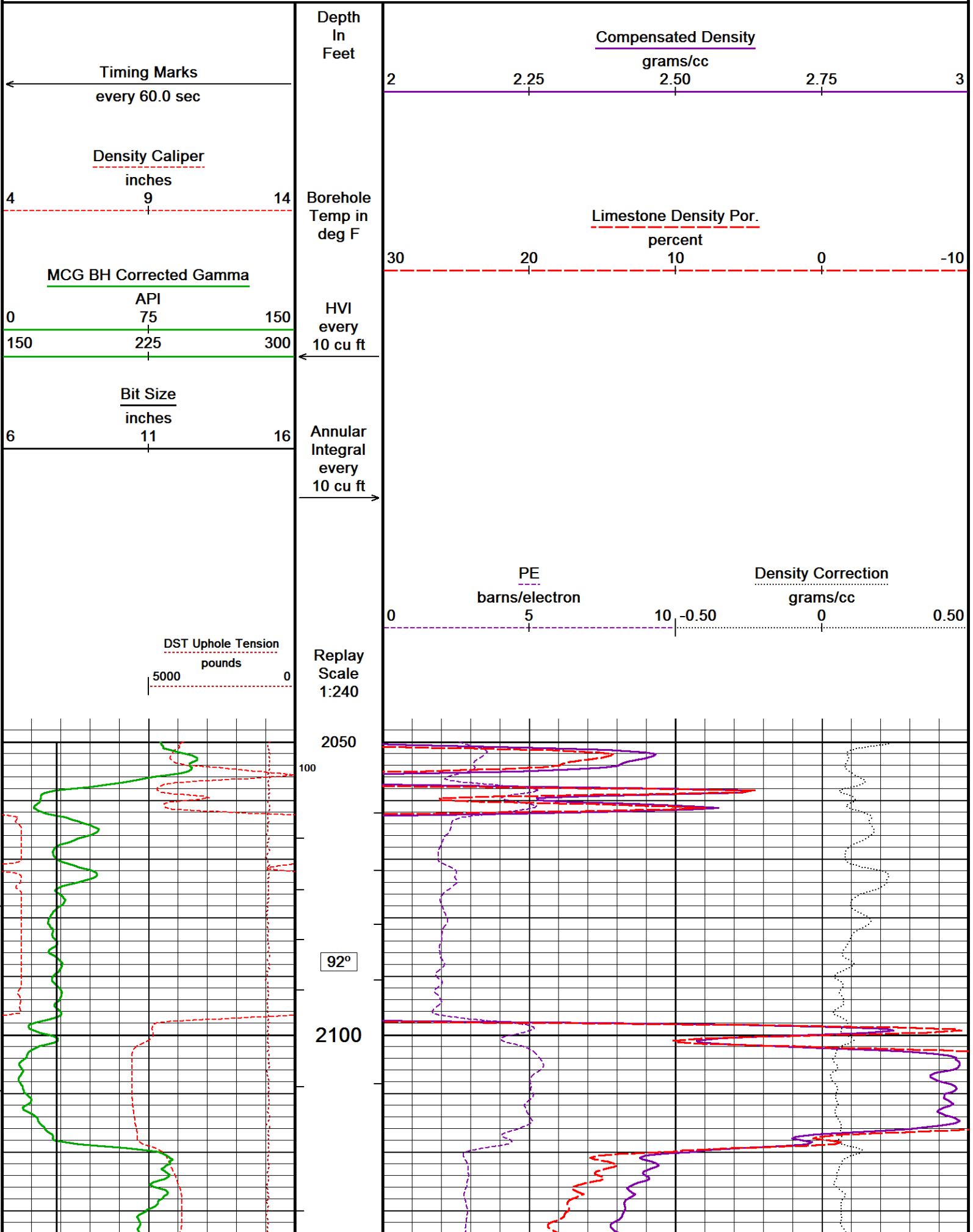


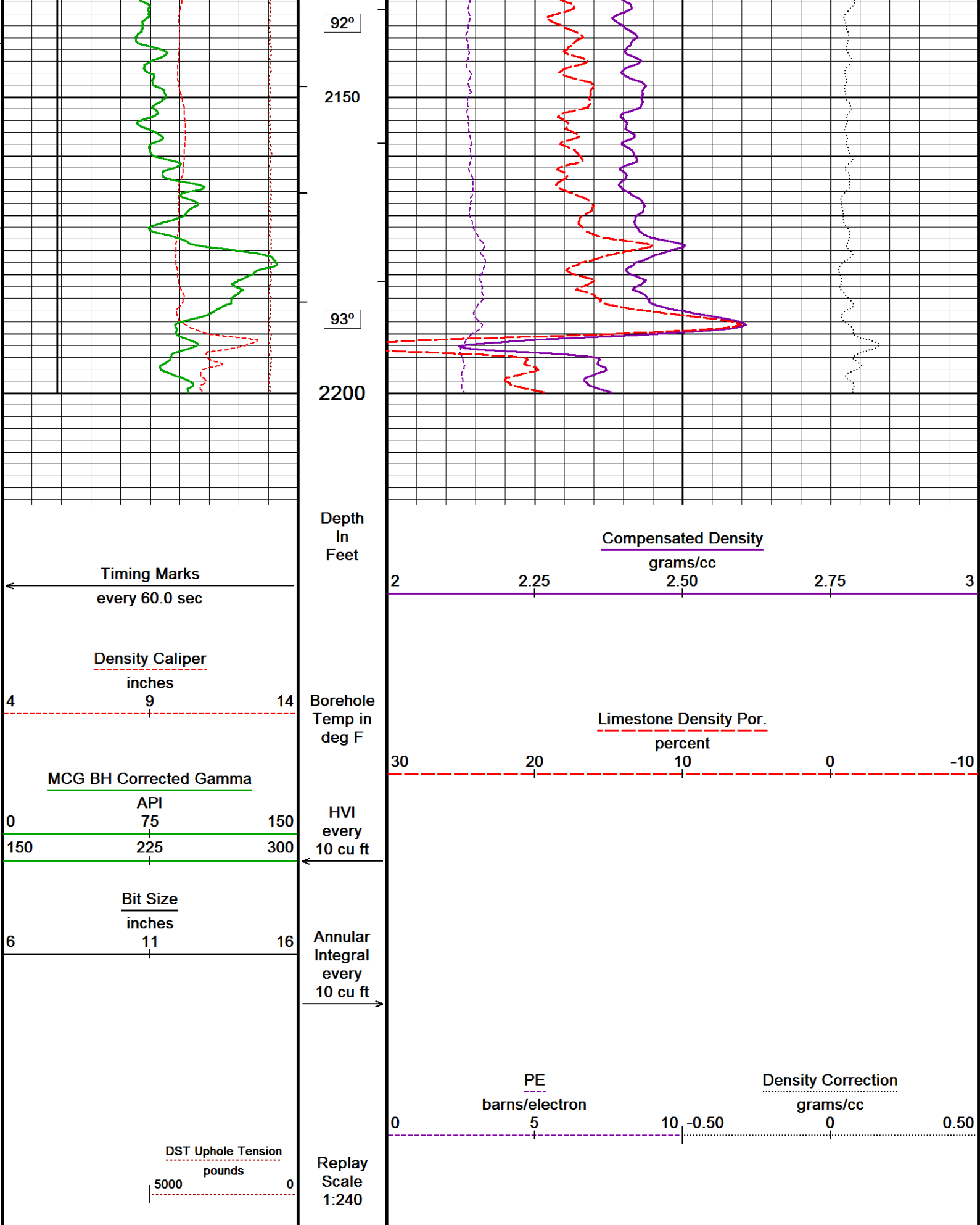
Depth Based Data - Maximum Sampling Increment 10.0cm
Filename: E:\LOGS\SHAKESPEARE OIL (OTTLEY 4-27)\REPEAT PASS.dta
System Versions: Logged with 18.05.7089 Processed with 18.05.7089 Plotted with 18.05.7089

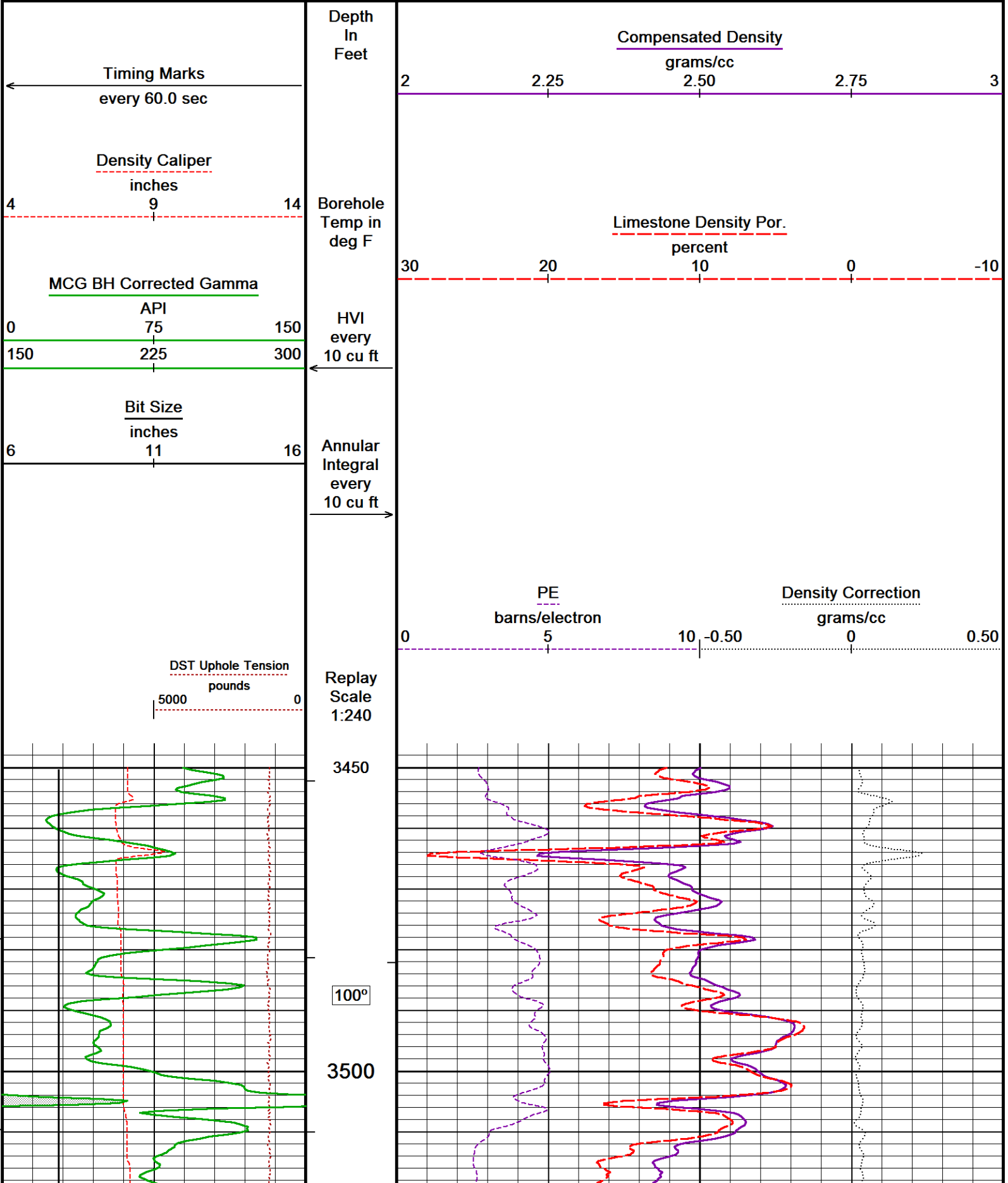
Plotted on 19-MAR-2019 02:46
Recorded on 18-MAR-2019 22:26

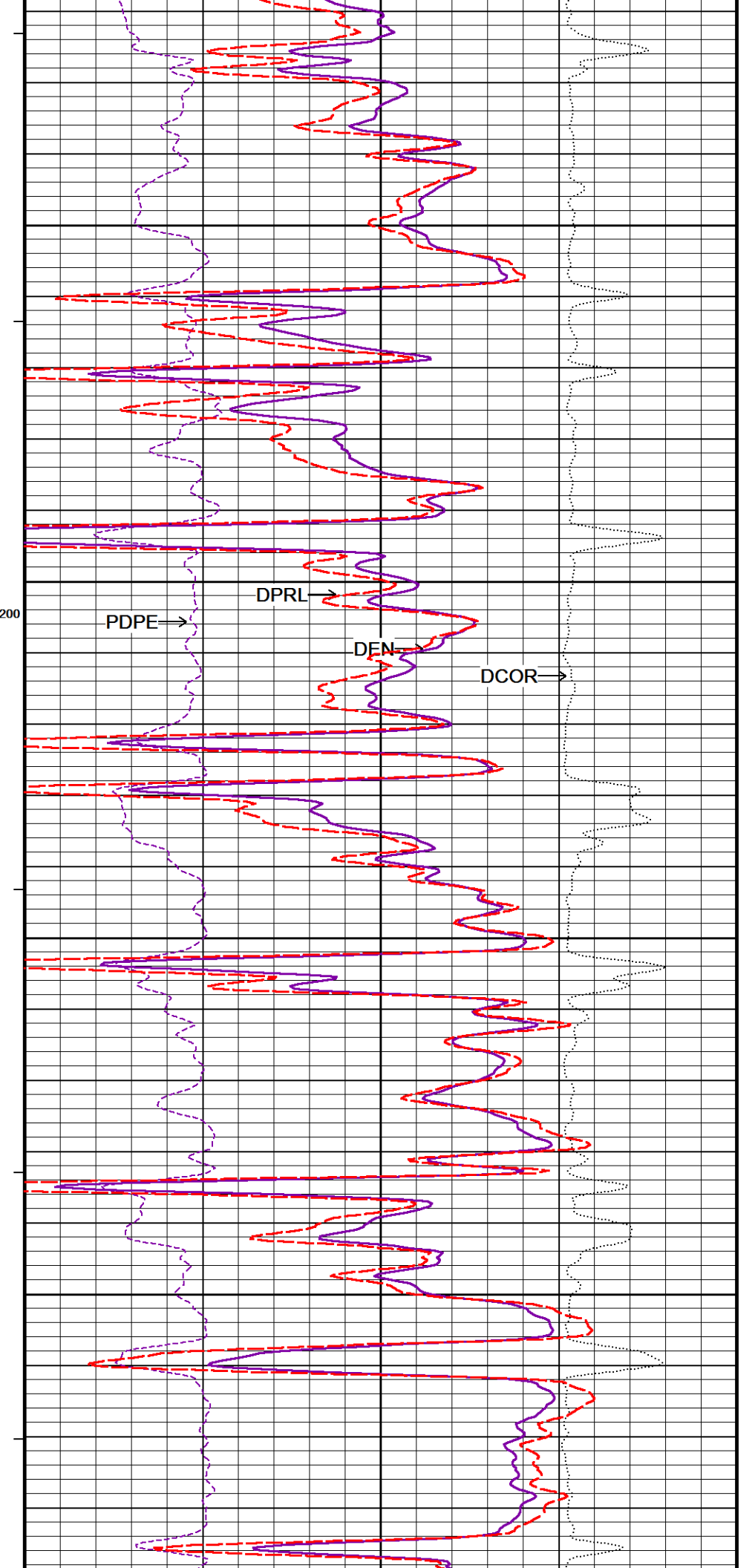
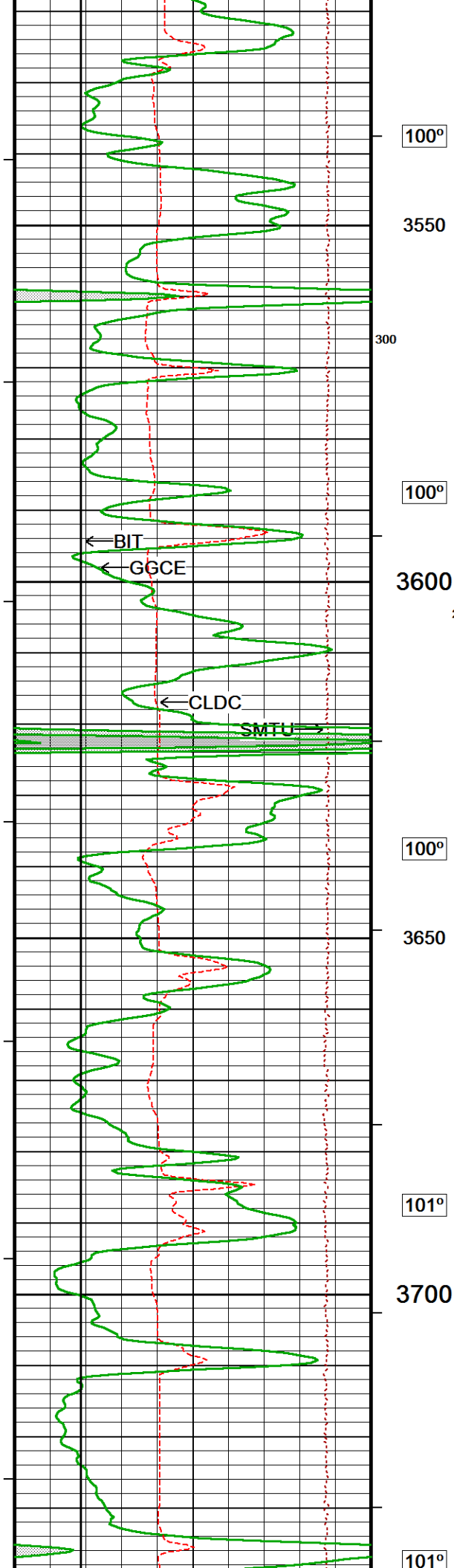
↑ 5 INCH REPEAT PASS ↑

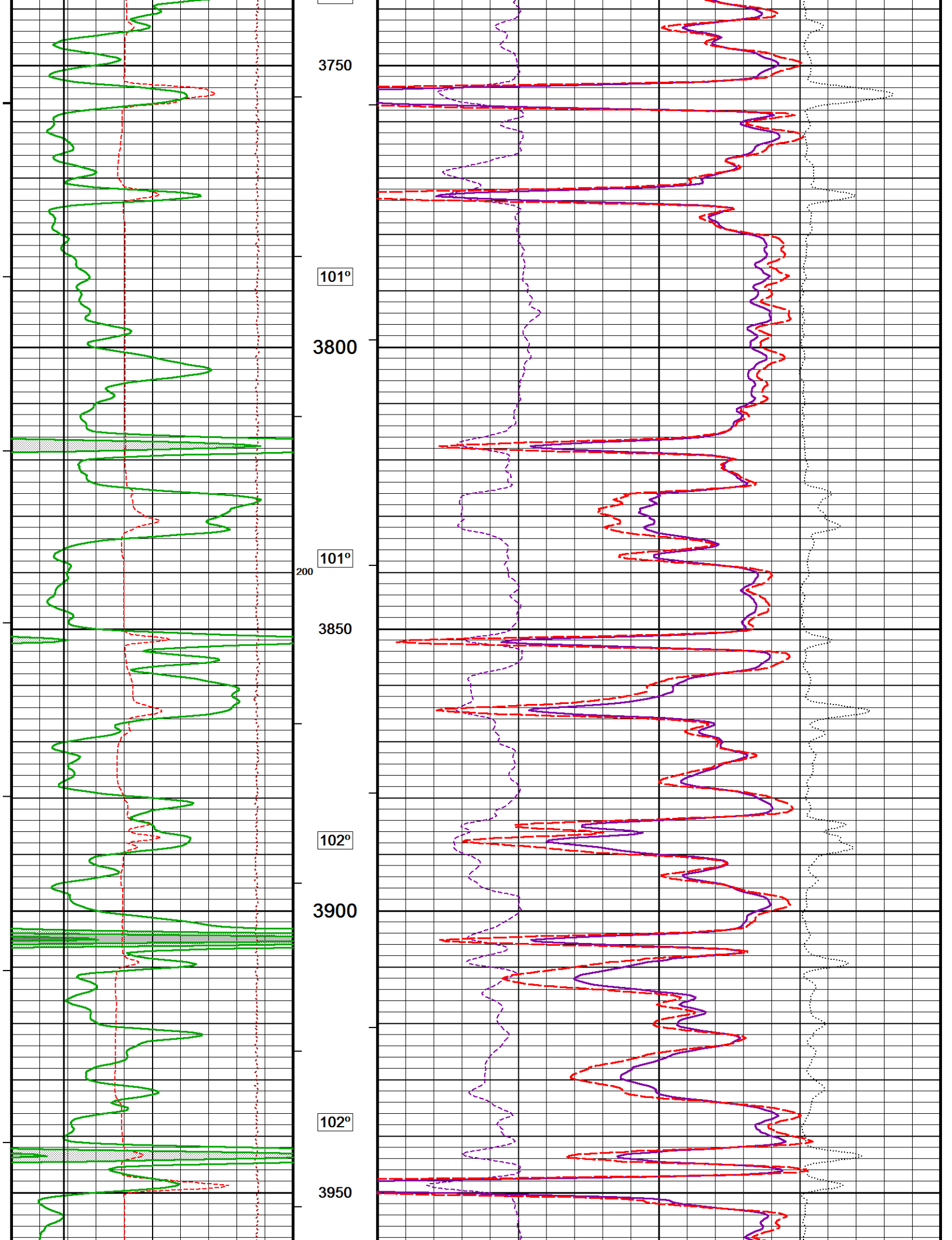
↓ MAIN PASS ↓

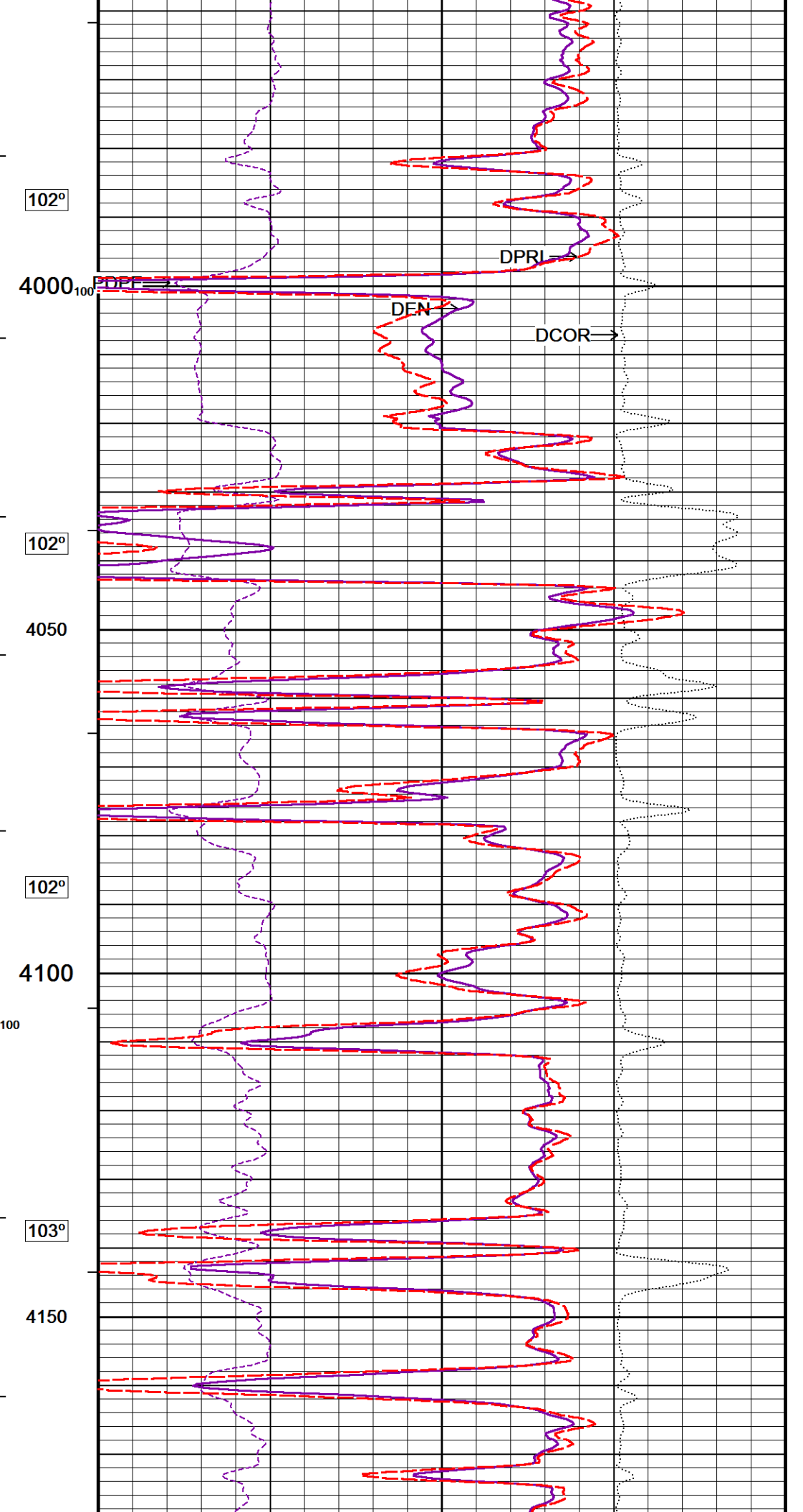
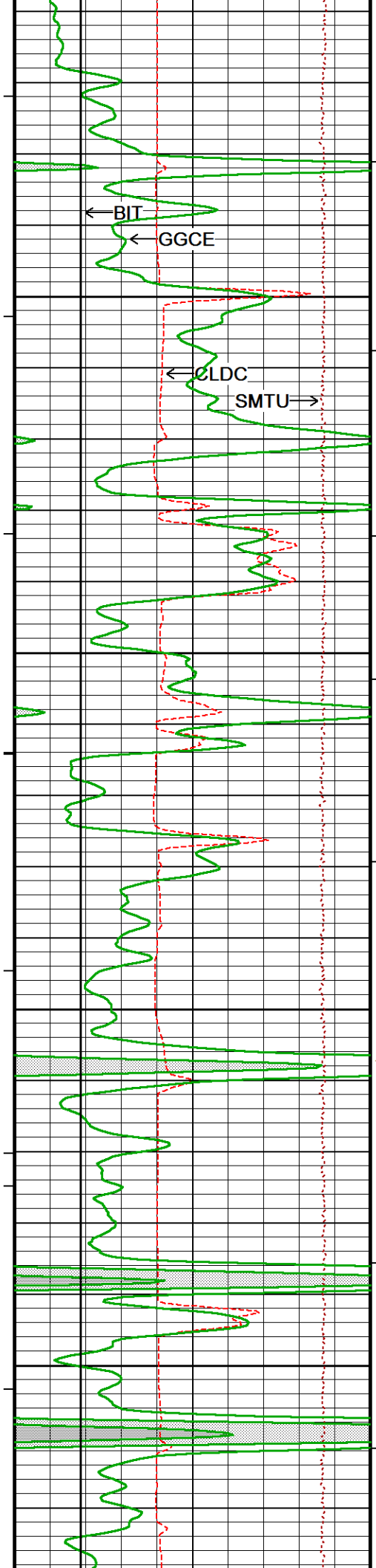


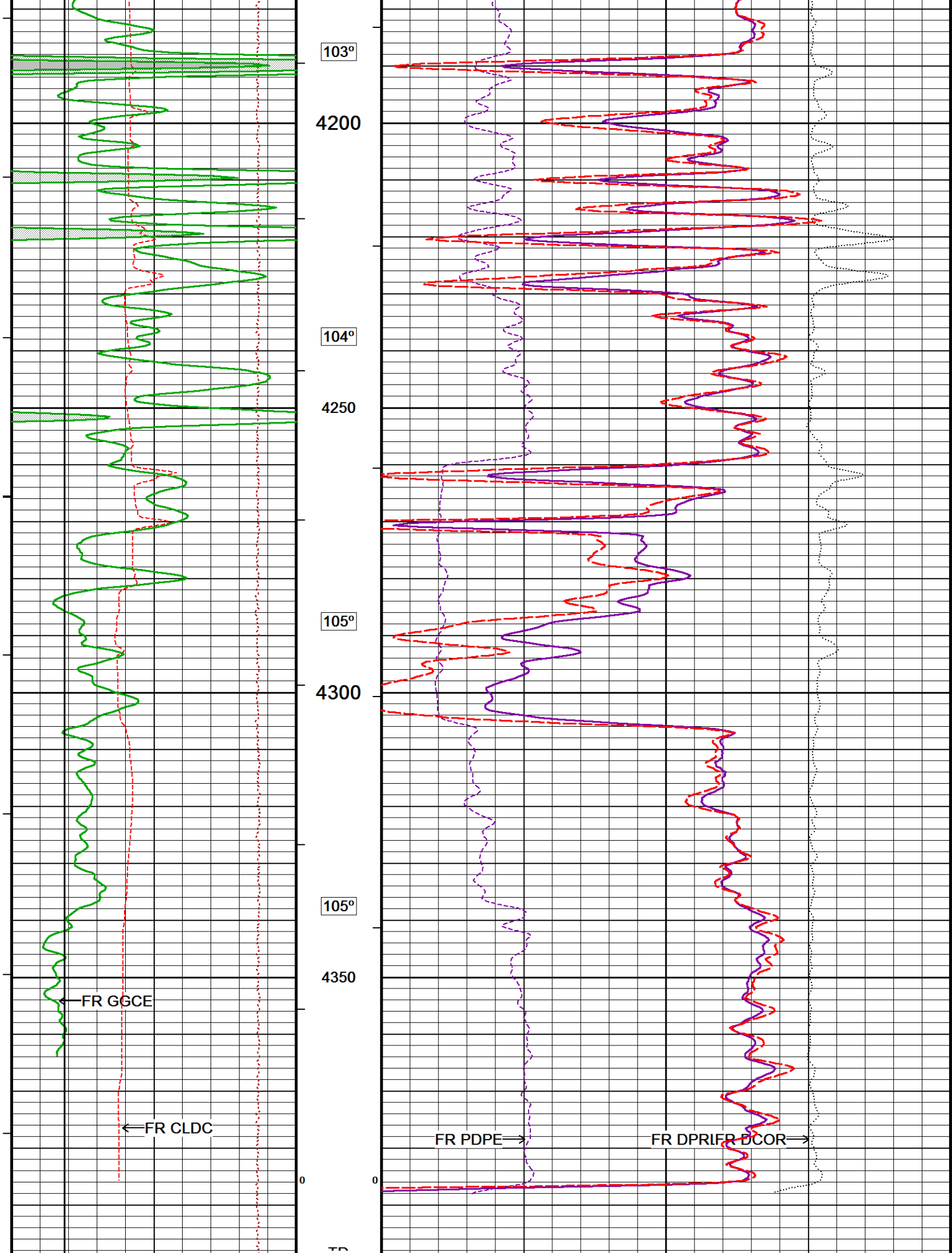












FR SMTU →

4400

Timing Marks
every 60.0 sec

Density Caliper
inches

4 9 14

MCG BH Corrected Gamma

API
0 75 150
150 225 300

Bit Size
inches

6 11 16

DST Uphole Tension
pounds
5000 0

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

Density Correction

grams/cc

0 5 10 -0.50 0 0.50

Depth Based Data - Maximum Sampling Increment 10.0cm

Plotted on 19-MAR-2019 02:46

Filename: E:\LOGS\SHAKESPEARE OIL (OTTLEY 4-27)\MAIN PASS.dta

Recorded on 18-MAR-2019 22:46

System Versions: Logged with 18.05.7089 Processed with 18.05.7089 Plotted with 18.05.7089



5 INCH MAIN PASS (BULK DENSITY)



5 INCH REPEAT PASS (BULK DENSITY)



Depth Based Data - Maximum Sampling Increment 10.0cm

Plotted on 19-MAR-2019 02:46

Filename: E:\LOGS\SHAKESPEARE OIL (OTTLEY 4-27)\REPEAT PASS.dta

Recorded on 18-MAR-2019 22:26

System Versions: Logged with 18.05.7089 Processed with 18.05.7089 Plotted with 18.05.7089

Timing Marks
every 60.0 sec

Density Caliper
inches

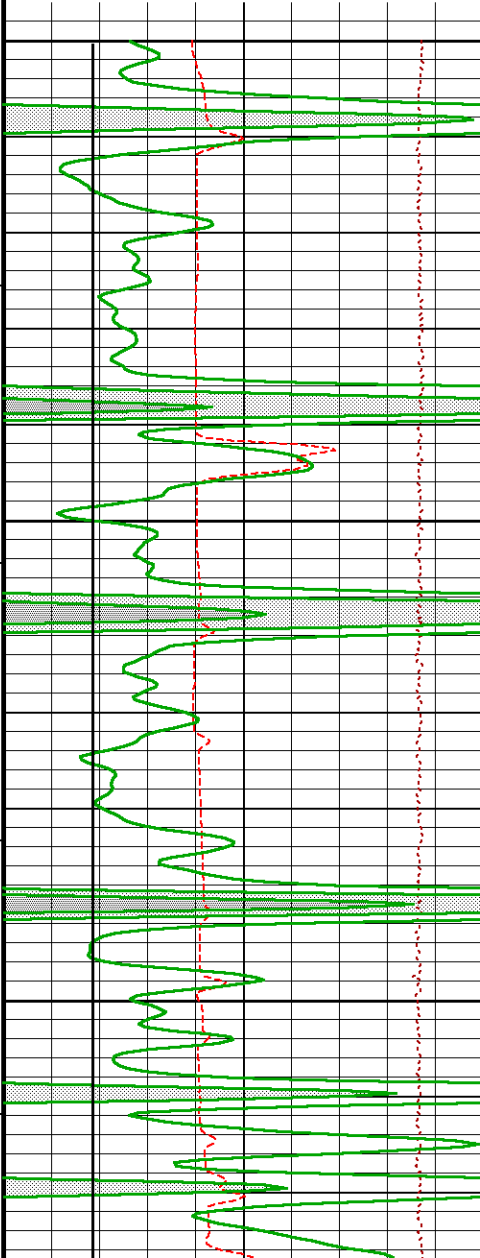
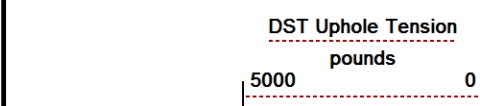
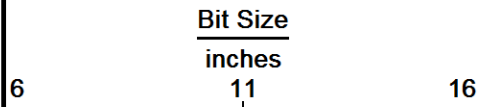
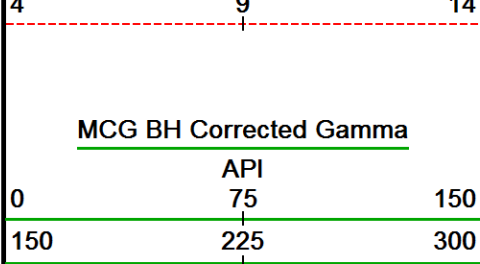
4 9 14

Depth
in
Feet

Compensated Density

grams/cc

2 2.25 2.50 2.75 3



Borehole
Temp in
deg F

HVI
every
10 cu ft

Annular
Integral
every
10 cu ft

Replay
Scale
1:240

4100

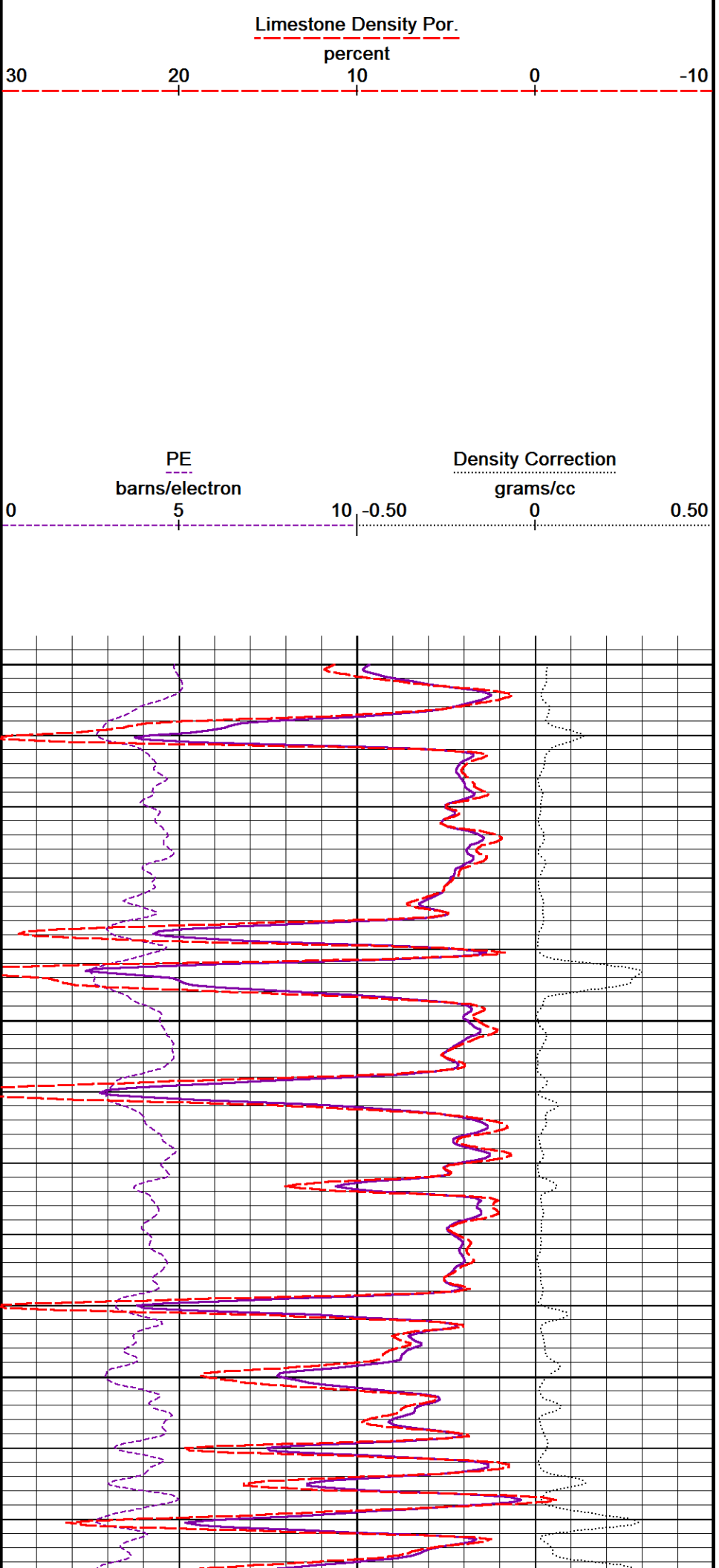
100

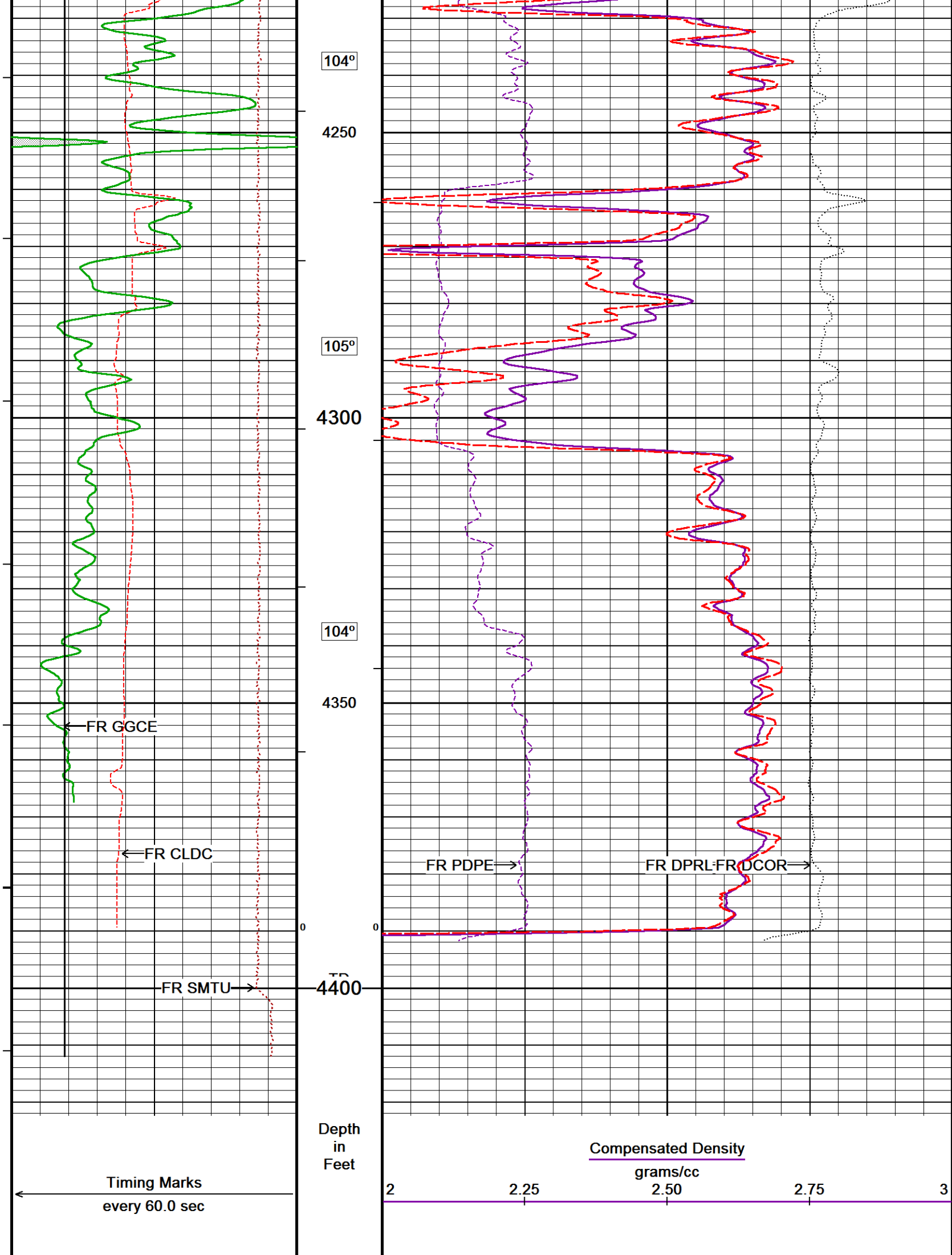
102°

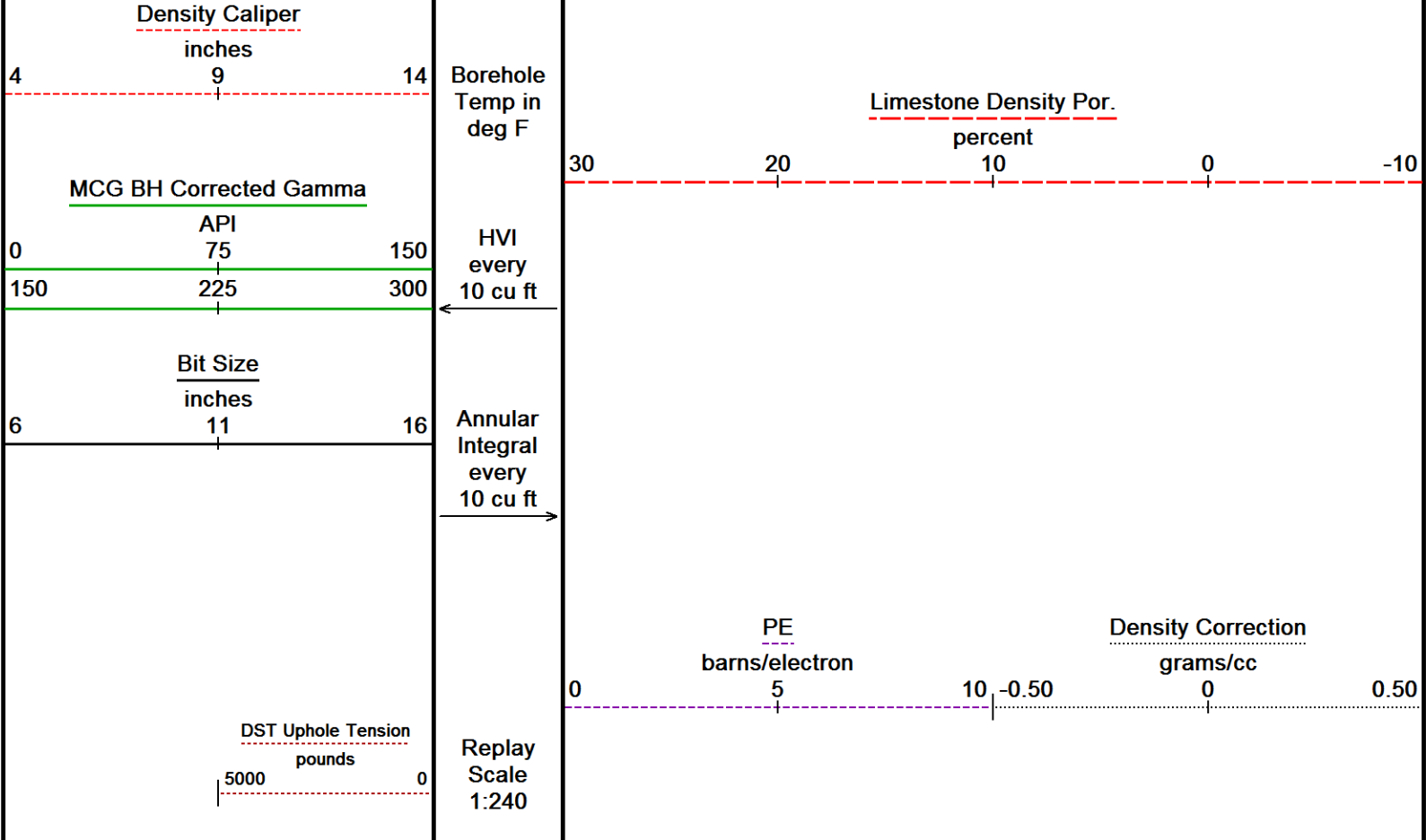
4150

103°

4200







Depth Based Data - Maximum Sampling Increment 10.0cm
 Filename: E:\LOGS\SHAKESPEARE OIL (OTTLEY 4-27)\REPEAT PASS.dta
 System Versions: Logged with 18.05.7089 Processed with 18.05.7089 Plotted with 18.05.7089

5 INCH REPEAT PASS (BULK DENSITY)

BEFORE SURVEY CALIBRATION		
E:\LOGS\SHAKESPEARE OIL (OTTLEY 4-27)\MAIN PASS.dta		
General Constants All 000		Last Edited on 18-MAR-2019,22:43
General Parameters		
Mud Resistivity	0.530	ohm-metres
Mud Resistivity Temperature	78.000	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	4.500	inches
Caliper for Differential Caliper	Density Caliper	
Rwa Parameters		
Porosity used	Crossplot Porosity	
Resistivity used	Array Ind. One Res Rt	
RWA Constant A	0.620	
RWA Constant M	2.150	
SW/APOR Tool Source	0.000	
High Resolution Temperature Calibration MCG-D.K 431		Field Calibration on 07-MAR-2019,16:49
	Measured	Calibrated(Deg F)
Lower	50.00	50.00
Upper	200.00	200.00
High Resolution Temperature Constants MCG-D.K 431		Last Edited on 07-MAR-2018,11:29

Gamma Calibration MCG-D.K 431

Field Calibration on 13-MAR-2019 09:40

	Measured	Calibrated (API)
Background	42	29
Calibrator (Gross)	1864	1289
Calibrator (Net)	1822	1260

Gamma Calibration Tolerances MCG-D.K 431

Ratio	1.446		Counts/API
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Gamma Constants MCG-D.K 431

Last Edited on 18-MAR-2019,21:41

Gamma Calibrator Number	046	
GRC-M Calibrator Jig in Use?	NO	
Inactive Background Jig in Use?	NO	
Mud Density	1.09	gm/cc
Caliper Source for Processing	Density Caliper	
Tool Position	Eccentred	
Potassium Equivalence	Chloride	
K Mud Concentration	0.00	%

Photo Density Calibration MPD-B 166

Base Calibration on 07-MAR-2019 15:38

Field Check on 13-MAR-2019 09:48

Density Calibration	Measured		Calibrated (sdu)	
Base Calibration	Near	Far	Near	Far
Background	1024	1171		
Reference 1	51500	21287	59494	30754
Reference 2	21513	2162	26390	2598

Field Check at Base

1023.7 1171.4

Field Check

1018.2 1168.0

PE Calibration

Base Calibration	Measured			Calibrated
	WS	WH	Ratio	Ratio
Background	184	907		
Reference 1	20198	51320	0.397	0.367
Reference 2	5900	21387	0.279	0.270

Field Check at Base

183.8 906.6

Field Check

184.1 899.4

Photo Density Calibration Tolerances MPD-B 166

Near Density Ratio	2.46		Far Density Ratio	20.31	
PE Calibration	0.111				
Near Den. Field Check	1018.2		Far Den. Field Check	1168.0	
PE WS Field Check	184.1		PE WH Field Check	899.4	

Density Constants MPD-B 166

Last Edited on 18-MAR-2019,21:42

Density Source Id	P561358B	
Nylon Calibrator Number	766	
Aluminium Calibrator Number	856	
Density Shoe Profile	8 inch	
Caliper Source for Processing	Density Caliper	
PE Correction to Density	Not Applied	
Mud Density	1.09	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	Applied	
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	

Caliper Calibration MPD-B 166

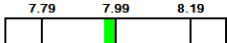
Base Calibration on 07-MAR-2019 15:56
Field Calibration on 13-MAR-2019 10:30

Base Calibration		
Reading No	Measured	Calibrator Size (in)
1	13728	3.99
2	22196	5.96
3	31024	7.99
4	39264	9.86
5	48288	11.88
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
7.96	7.99

Caliper Calibration Tolerances MPD-B 166

Short Arm Field Cal. 7.96  in

DOWNHOLE EQUIPMENT

E:\LOGS\SHAKESPEARE OIL (OTTLEY 4-27)\MAIN PASS.dta

Cablehead, 11 pin
CBH-CA 177 LG: 2.40 ft WT: 24.3 lb OD: 2.244 in

Compact Swivel Head Adaptor
SHA-J.A 450 LG: 2.30 ft WT: 22.0 lb OD: 2.244 in

Compact Comms Gamma
MCG-D.K 431 LG: 8.70 ft WT: 63.9 lb OD: 2.244 in

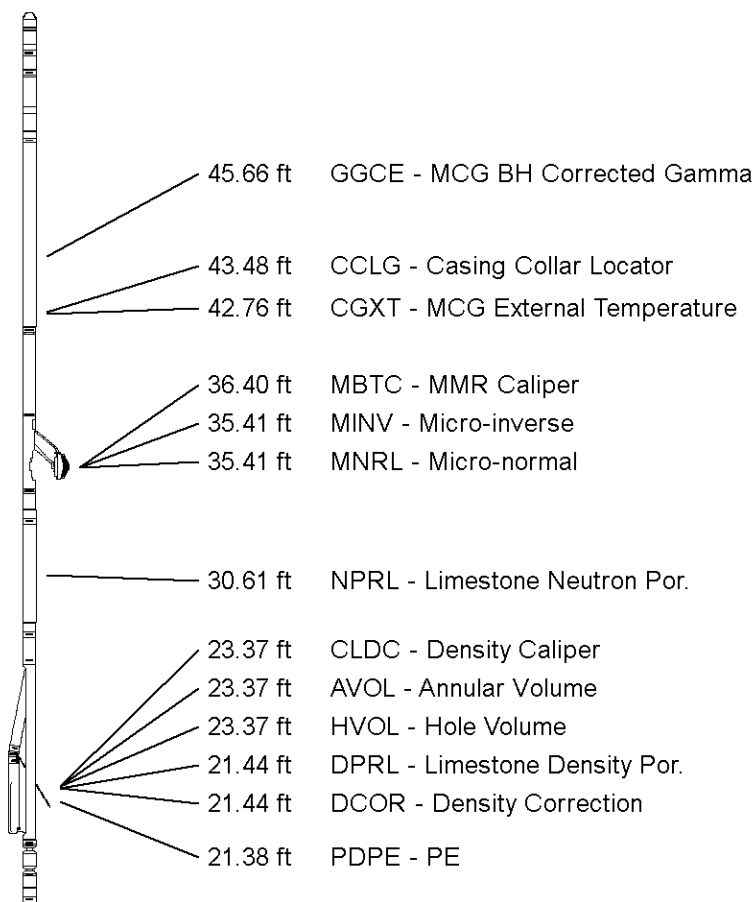
Compact Micro-Resistivity
MMR-A 30 LG: 8.59 ft WT: 81.6 lb OD: 4.882 in

Compact Neutron
MDN-A.B 152 LG: 5.04 ft WT: 50.7 lb OD: 2.240 in

Compact Density/Caliper
MPD-B 166 LG: 9.59 ft WT: 90.4 lb OD: 2.449 in

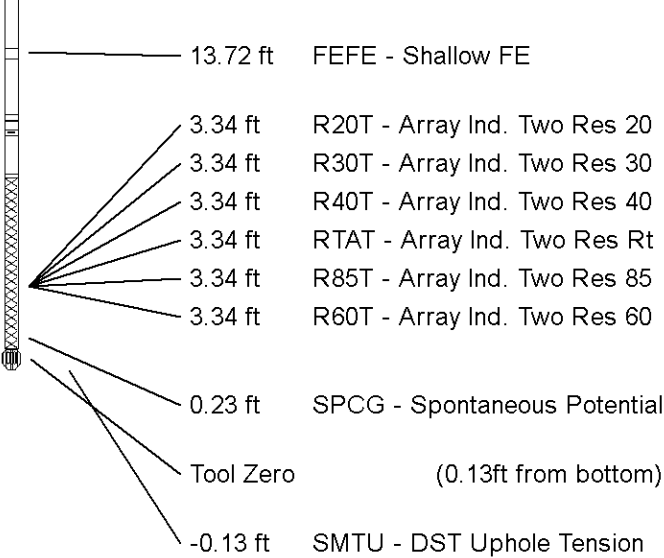
Compact Knuckle Joint
SKJ-E.B 474 LG: 2.17 ft WT: 24.3 lb OD: 2.244 in

Compact Focussed Electric
MFE-B.J 359 LG: 6.05 ft WT: 48.5 lb OD: 2.244 in



Compact Induction
MAI-B.J 375 LG: 10.81 ft WT: 48.5 lb OD: 2.244 in

Total Length: 55.64 ft Weight: 454.2 lb



All measurements relative to tool zero.

COMPANY	SHAKESPEAR OIL CO., INC.
WELL	OTTLEY 4-27
FIELD	SMOKY HILL
PROVINCE/COUNTY	LOGAN
COUNTRY/STATE	USA / KANSAS

Elevation Kelly Bushing	2673	feet	First Reading	4378.62	feet
Elevation Drill Floor	2671	feet	Depth Driller	4400.00	feet
Elevation Ground Level	2665	feet	Depth Logger	4400.00	feet



Weatherford®

PHOTO DENSITY
DUAL SPACED NEUTRON
MICRO RESISTIVITY LOG