



Weatherford

CALIPER LOG

COMPANY			SHAKESPEAR OIL CO., INC.		
WELL			OTTLEY 4-27		
FIELD			SMOKY HILL		
PROVINCE/COUNTY			LOGAN		
COUNTRY/STATE			USA / KANSAS		
LOCATION			NE SW SW NW, 2235' FNL & 520' FWL		
SEC 27	TWP 14S	RGE 32W	Other Services		
Latitude			38.808963764		
Longitude			-100.871232007		
API Number			15-109-21586		
Permanent Datum GL, Elevation 2665 feet					
Log Measured From KB, 8.00 feet above Permanent Datum					
Drilling Measured From KB					
Date	18-MAR-2019				Elevations: KB 2673.00 DF 2671.00 GL 2665.00
Run Number	ONE				
Service Order	17876-240109006				
Depth Driller	4400.00		feet		
Depth Logger	4400.00		feet		
First Reading	4376.63		feet		
Last Reading	264.00		feet		
Casing Driller	264.00		feet		
Casing Logger	264.00		feet		
Bit Size	7.875		inches		
Hole Fluid Type	WBM				
Density / Viscosity	9.10 lb/USg		57.00 sec/qt		
PH / Fluid Loss	10.00		8.80 ml/30Min		
Sample Source	FLOWLINE				
Rm @ Measured Temp	0.53 @ 78.0		ohm-m		
Rmf @ Measured Temp	0.39 @ 78.0		ohm-m		
Rmc @ Measured Temp	0.63 @ 78.0		ohm-m		
Source Rmf / Rmc	CALC		CALC		
Rm @ BHT	0.40 @105.0		ohm-m		
Time Since Circulation	3 HOURS				
Max Recorded Temp	105.00		deg F		
Equipment / Base	13379		ELRENO		
Recorded By	BANDAR BINOSFUR				
Witnessed By	TIM LAUER				

BOREHOLE RECORD

Last Edited: 19-MAR-2019 00:03

Bit Size inches	Depth From feet	Depth To feet
7.875	264.00	4400.00

CASING RECORD

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	8.625	0.00	264.00	24.00

REMARKS

- LOGGING SOFTWARE: 18.05.7089

- TOOLSTRING:

MCB, SHA, MCG, MMR, MDN, MPD, SKJ, MFE, MAI RAN IN COMBINATION.

- HARDWARE USED:

MAI: TOW 0.5 STANDOFFS.

MFE: ONE 0.5 STANDOFF

MDN: DUAL BOWSPRING

MPD: 8 INCH PROFILE PLATE.

2.71 G/CC DENSITY MATRIX USED TO CALCULATE POROSITY.

- ALL INTERVALS LOGGED AND SCALED PER CUSTOMER'S REQUEST.

- MAIN PASS :

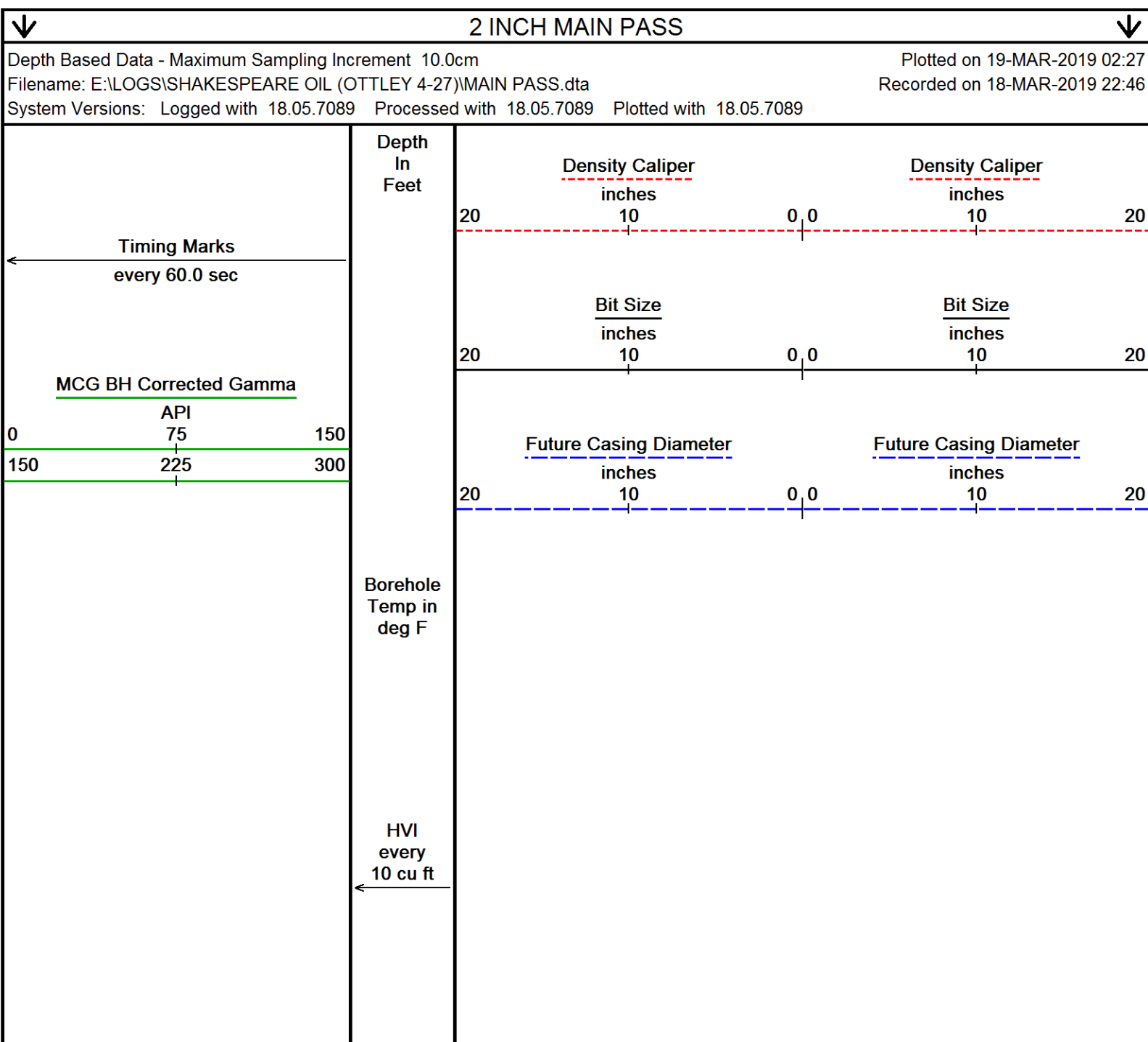
NEUTRON / DENSITY / MICROLOG = 4400' - 3450' _2200' - 2050'

GAMMA / INDUCTION / CALIPER = 4400' - CASING SHOE

- REPEAT PASS :

- TOTAL HOLE VOLUME FROM TD TO SURFACE CASING = 1980 CU.FT.
 - ANNULAR HOLE VOLUME WITH 4.5 INCH PRODUCTION CASING FROM TD TO SURFACE CASING = 1530 CU.FT.
 - 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.



Annular
Integral
every
10 cu ft

DST Uphole Tension
pounds
5000 0

Replay
Scale
1:240

250

Casing
Shoe

1530

1980

79°

300

1970

1520

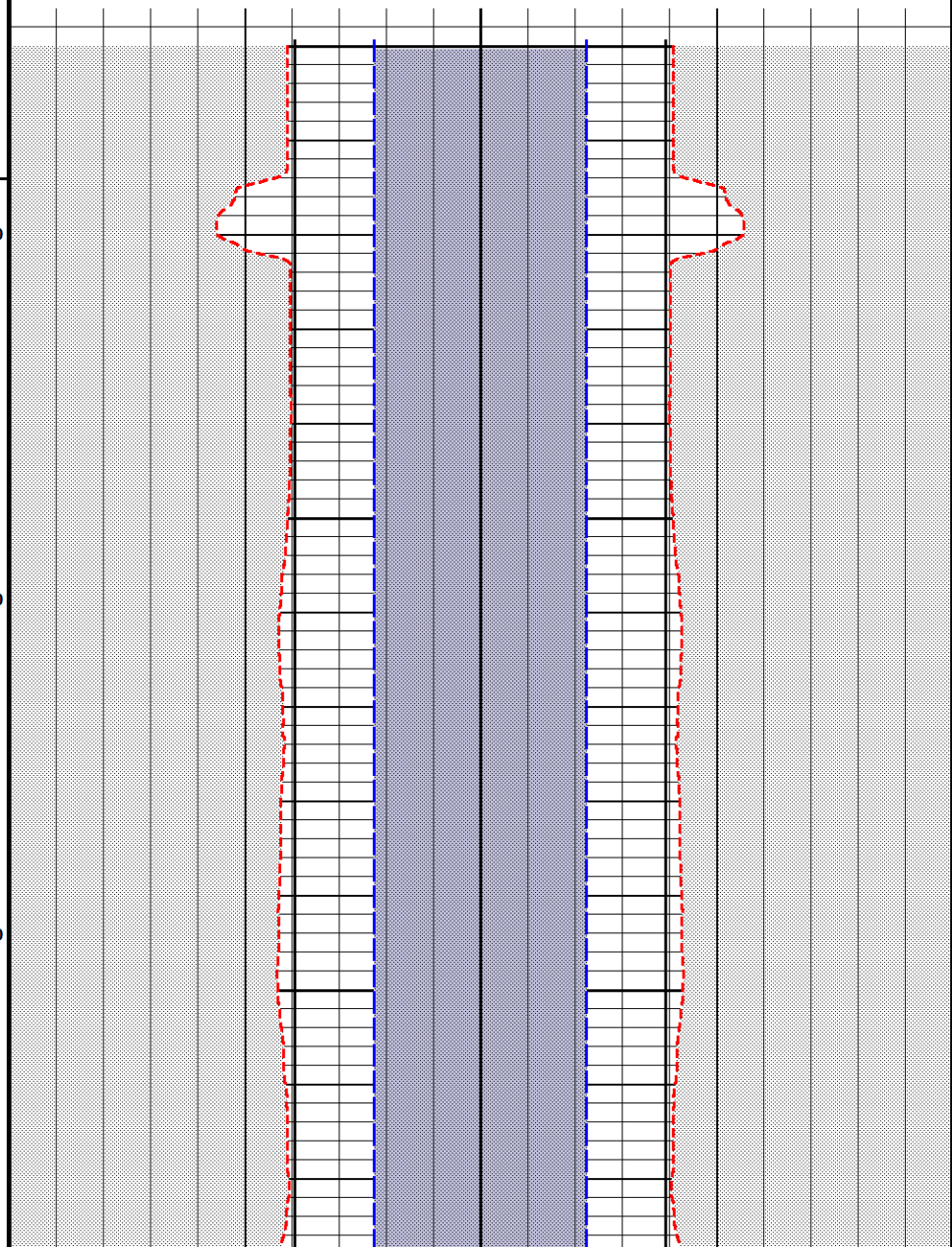
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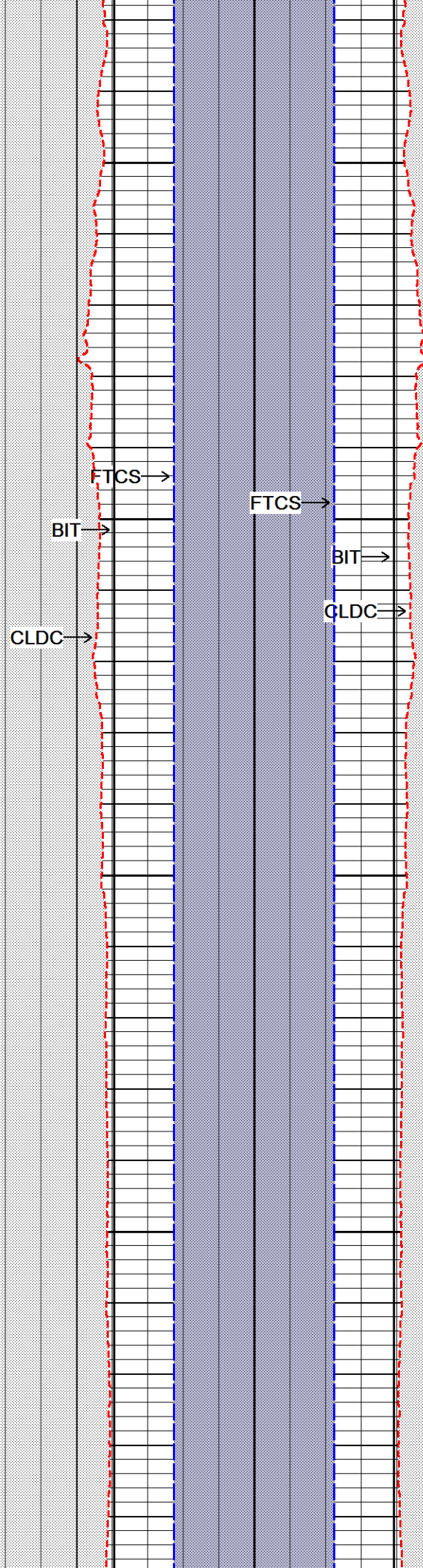
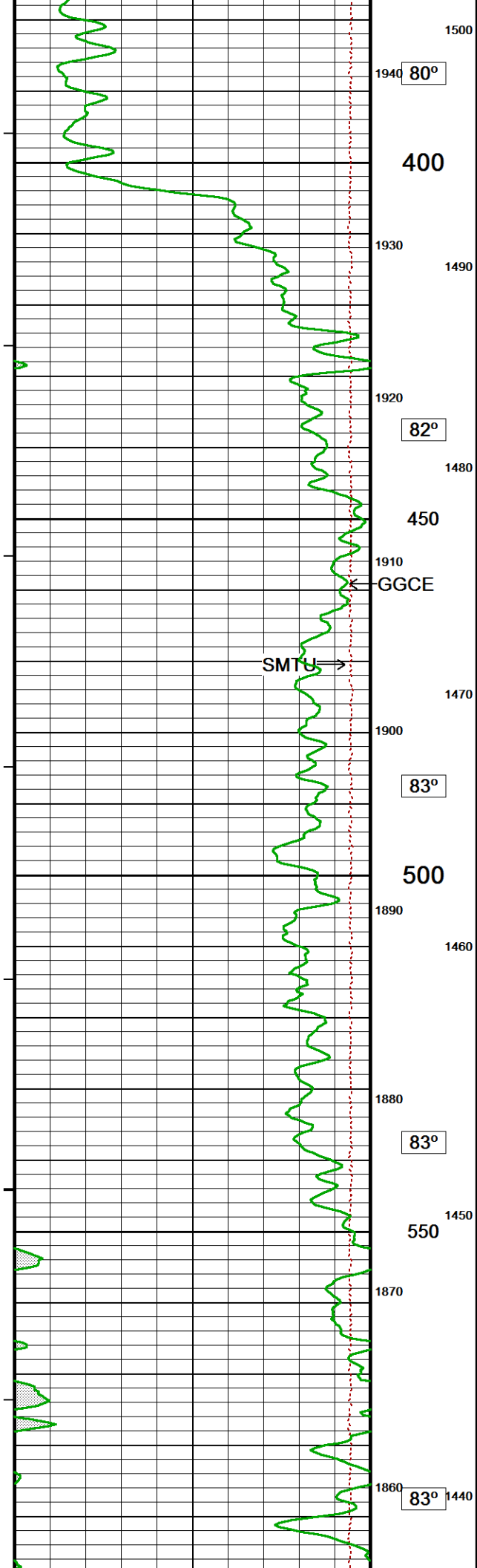
80°

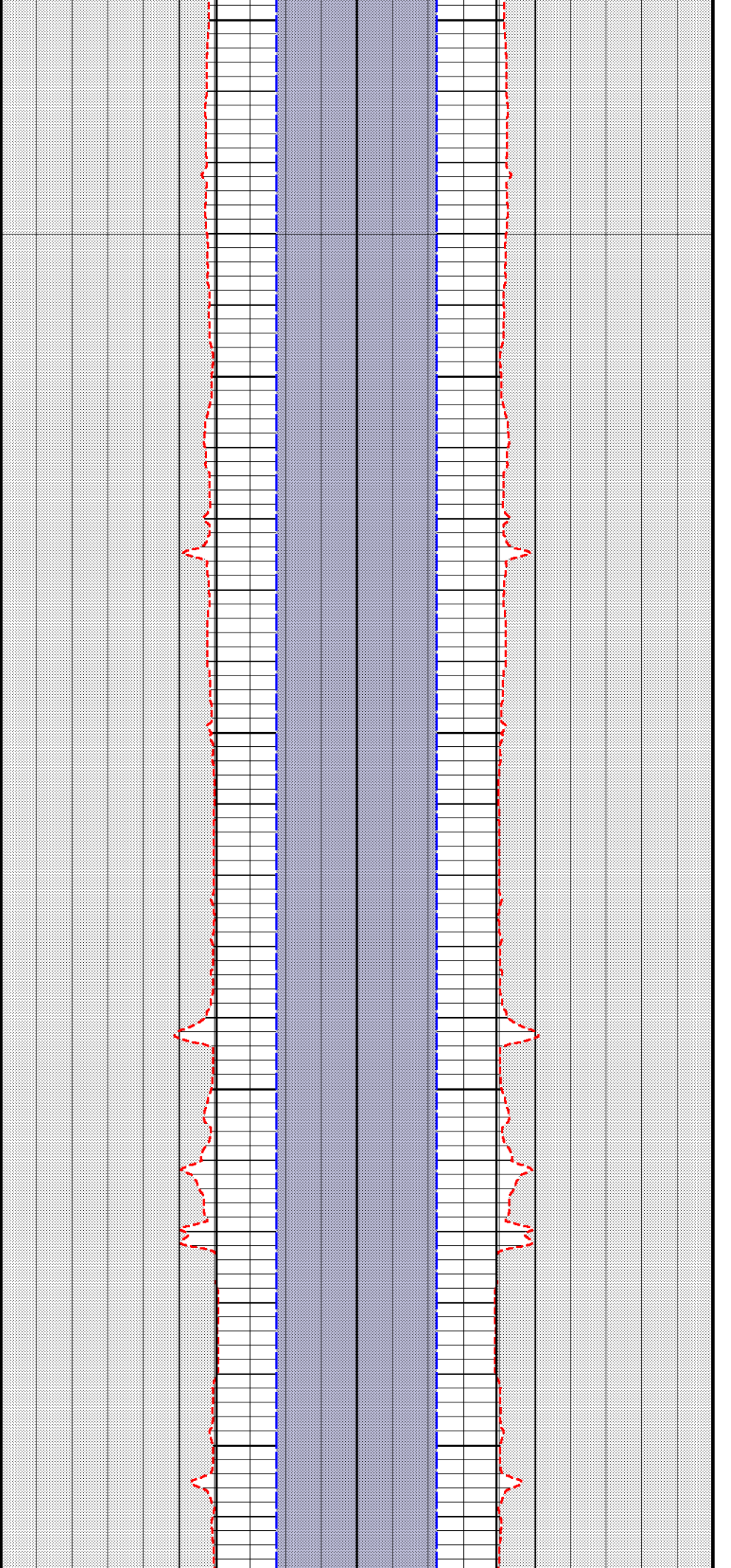
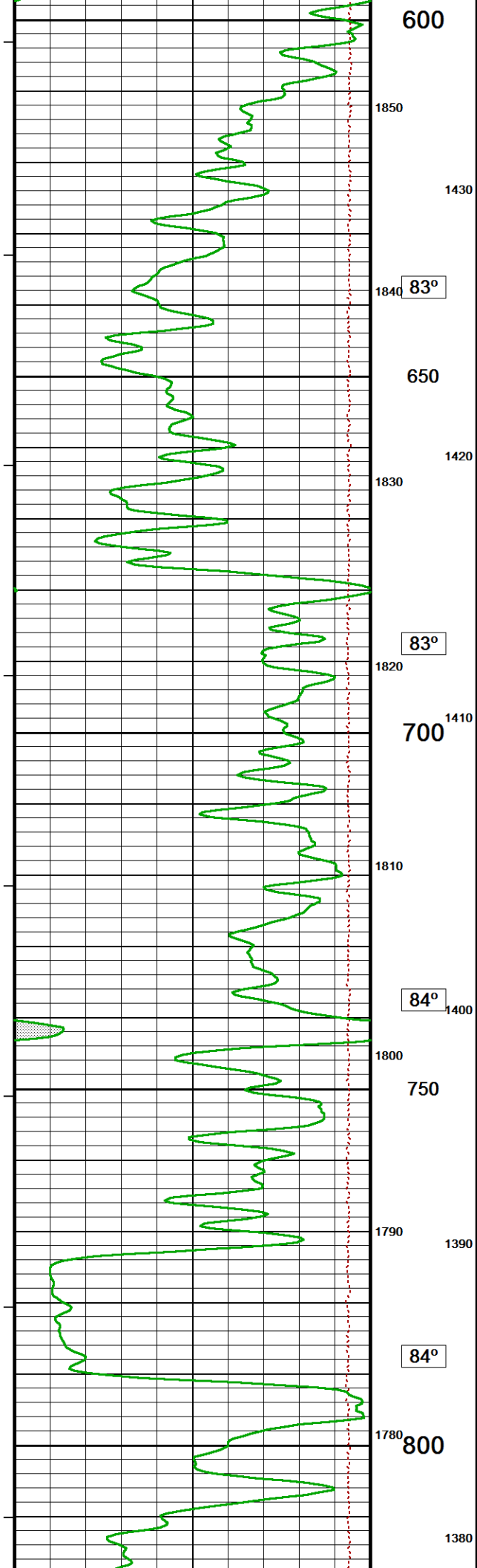
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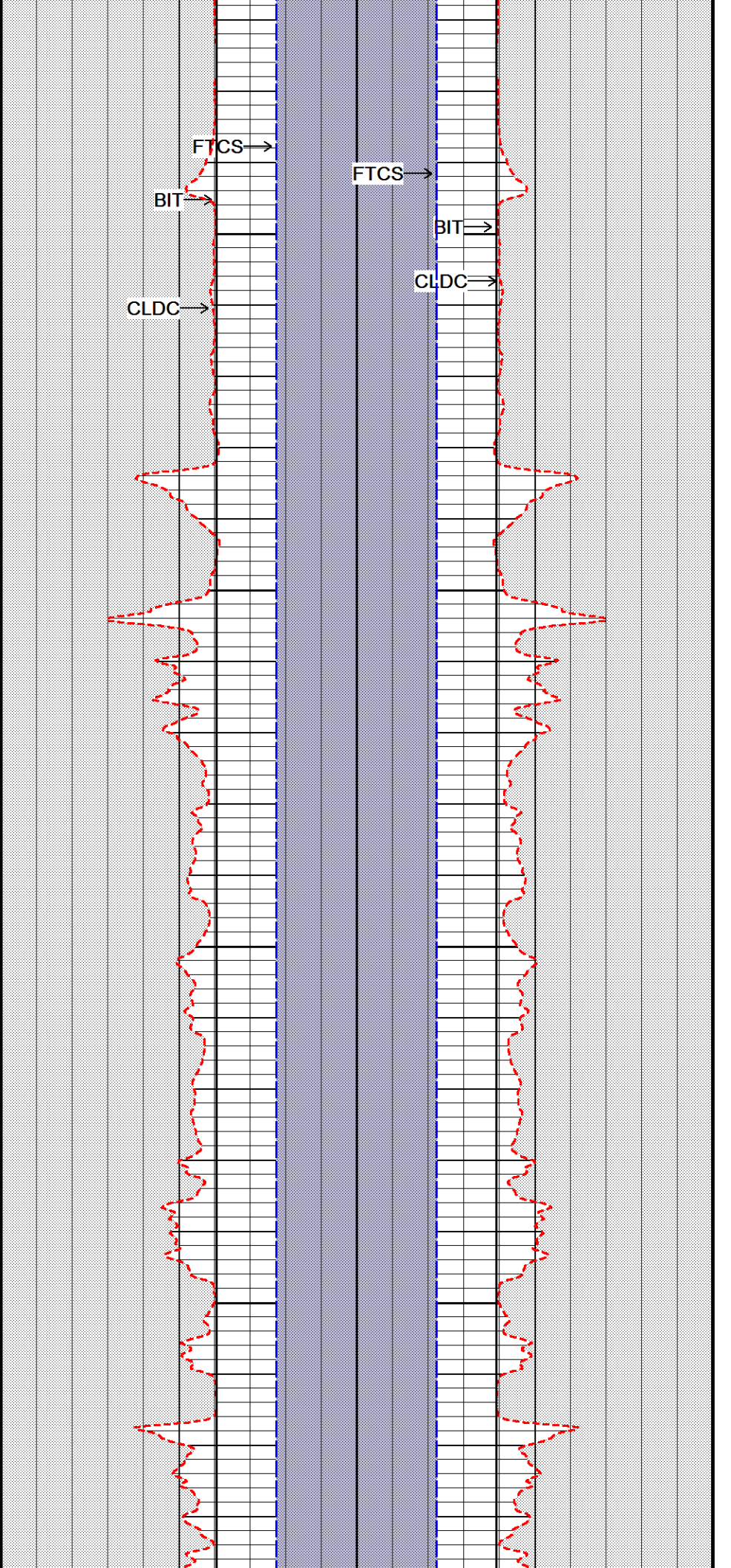
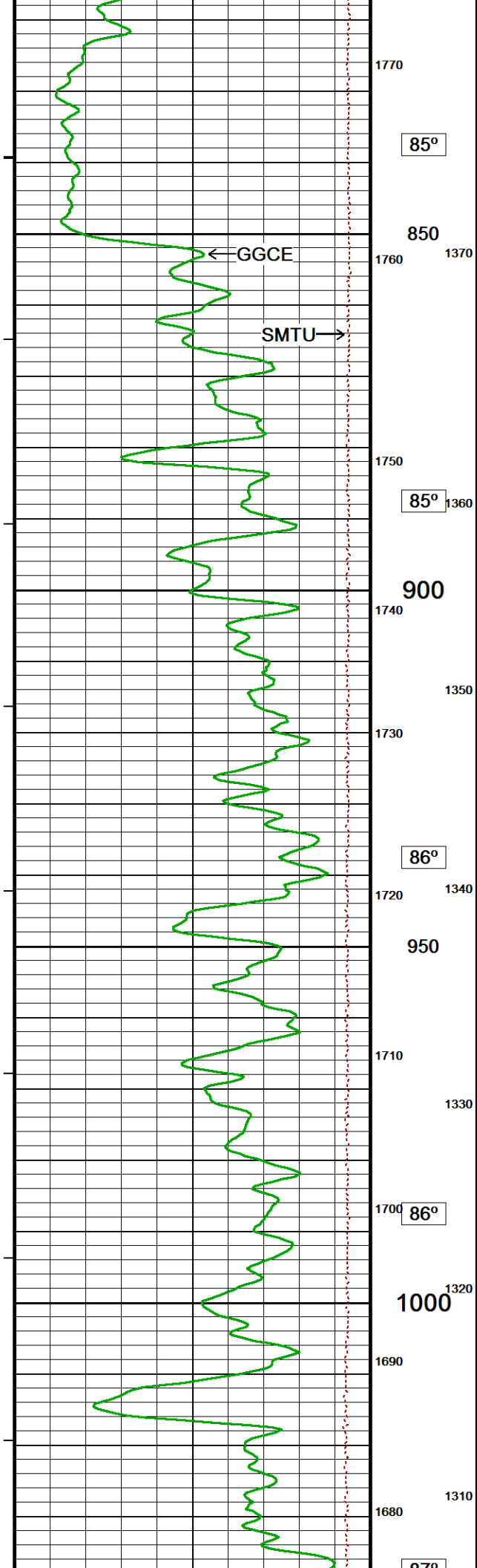
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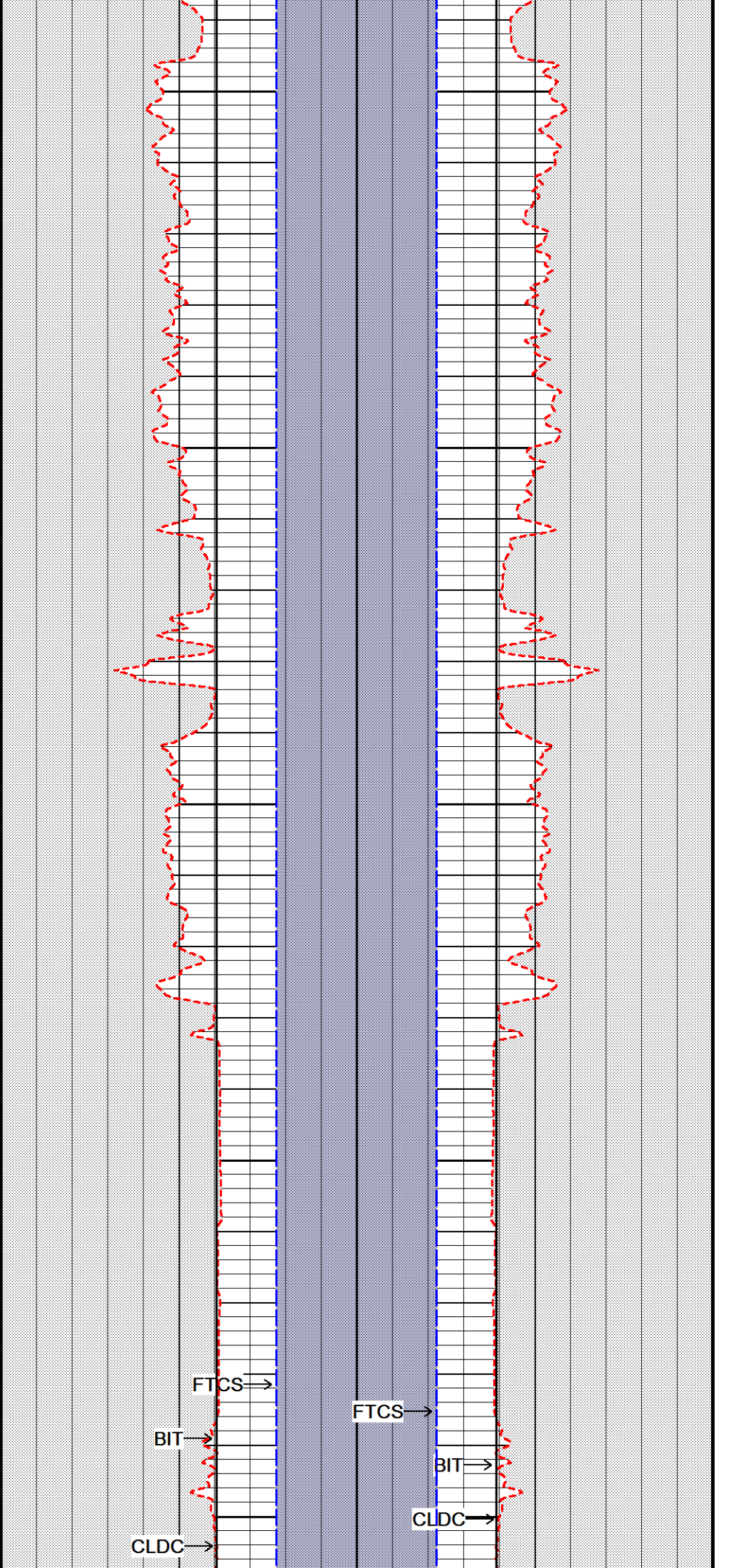
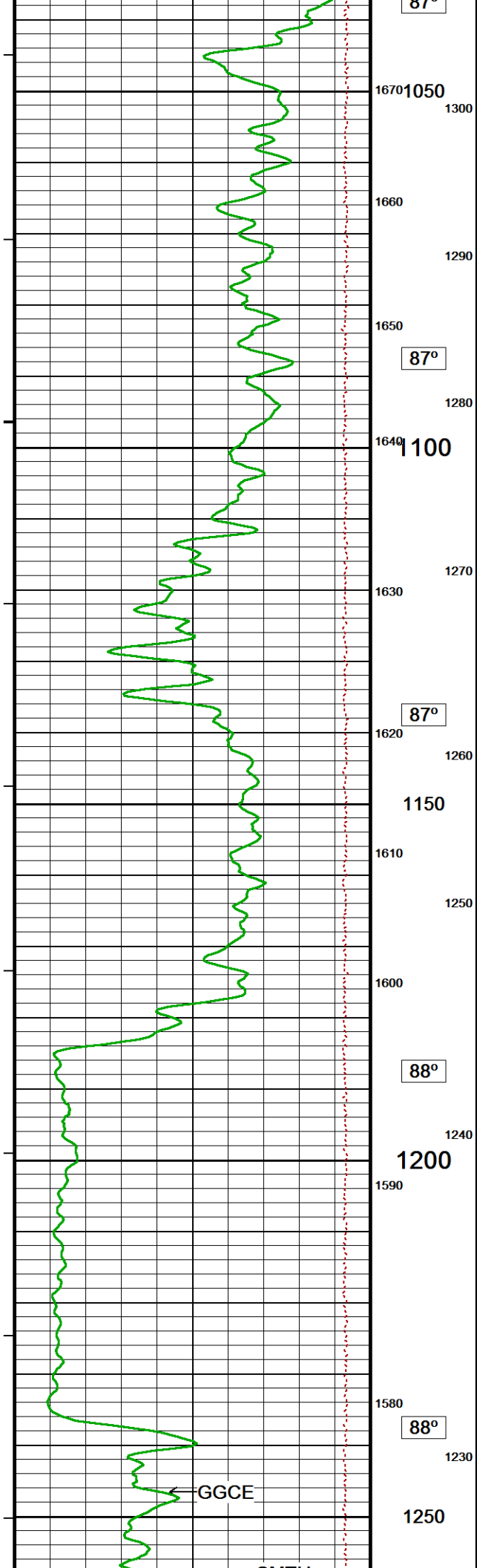
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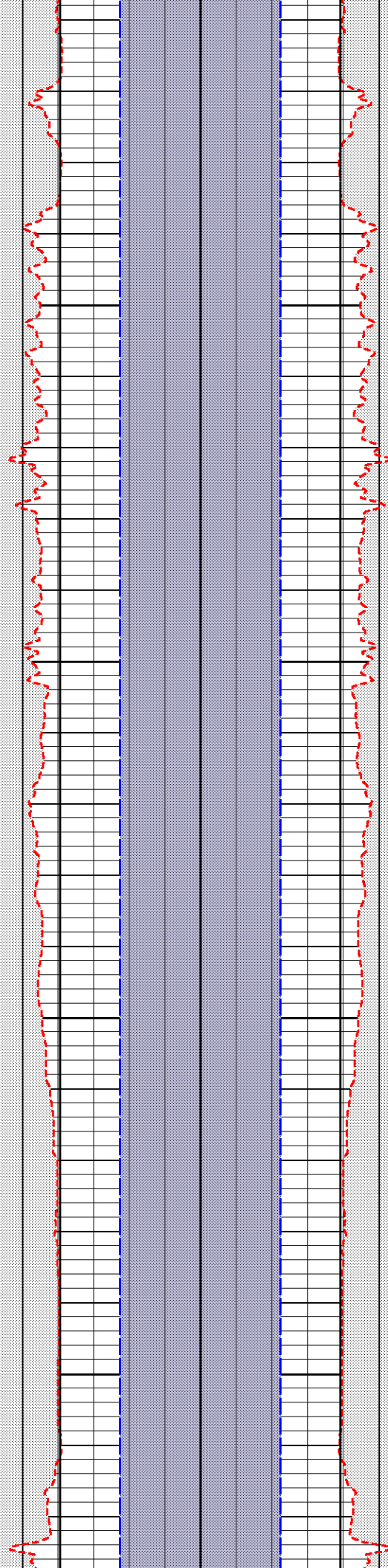
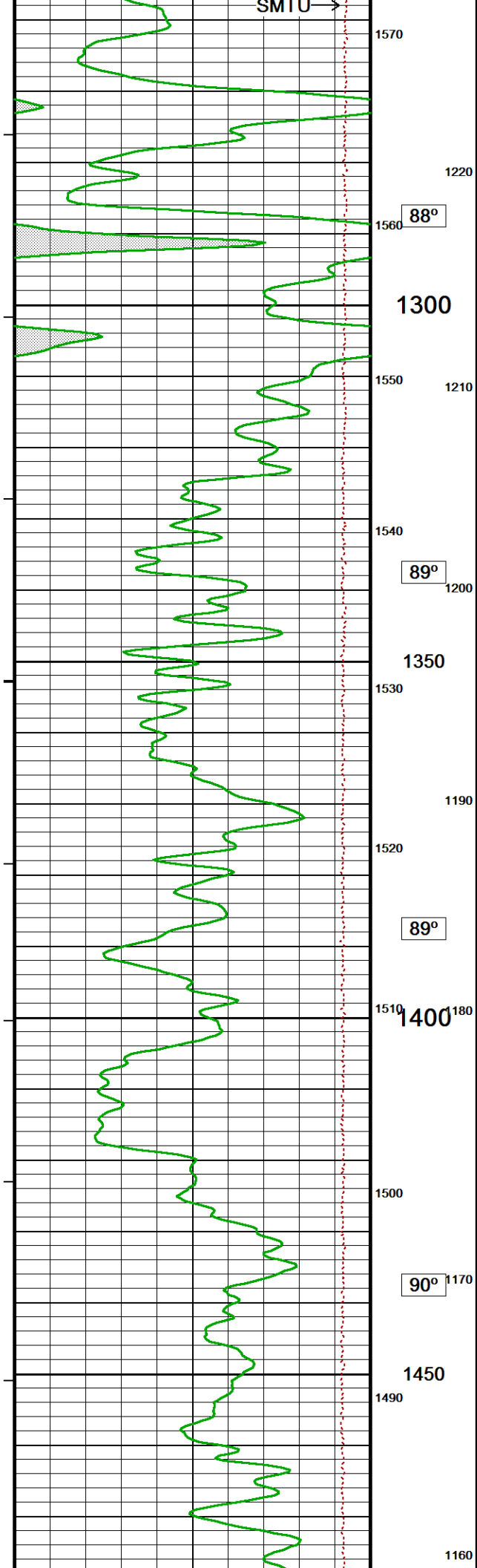


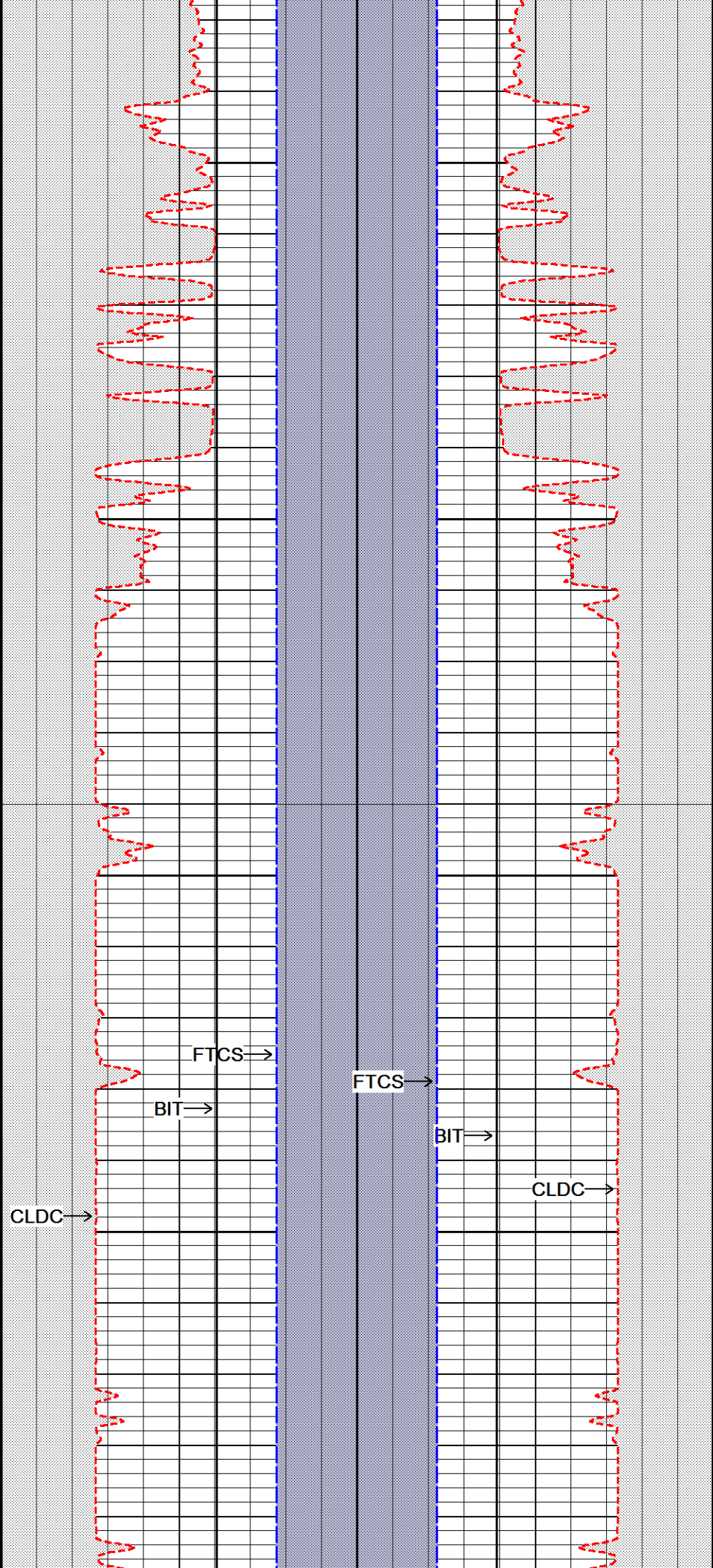
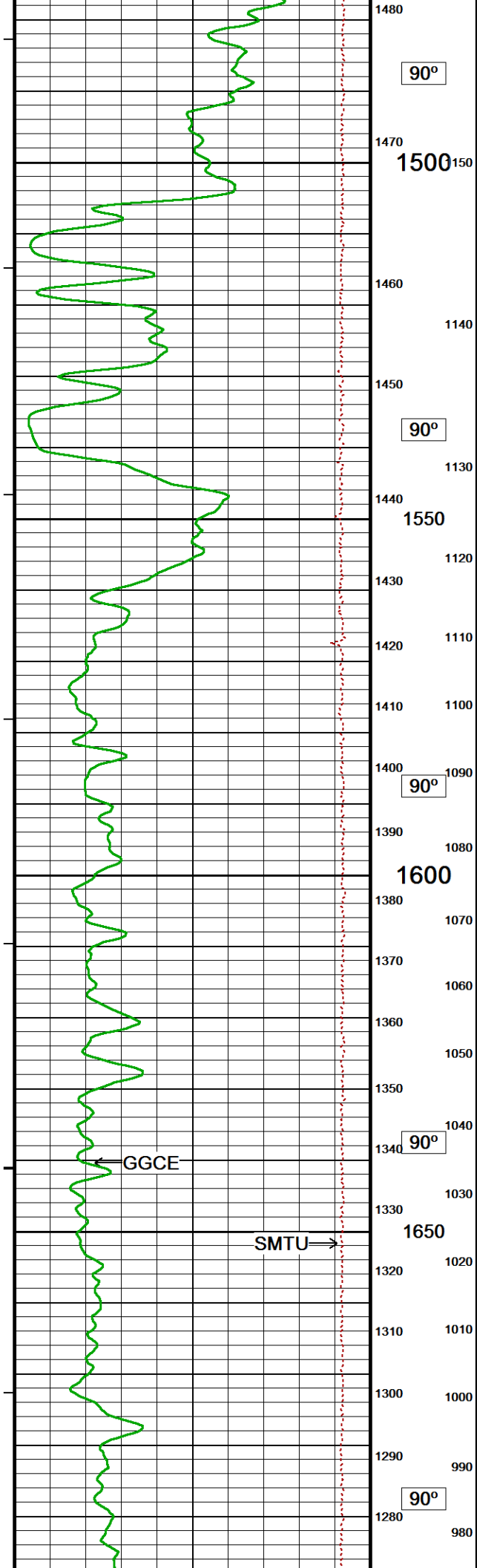


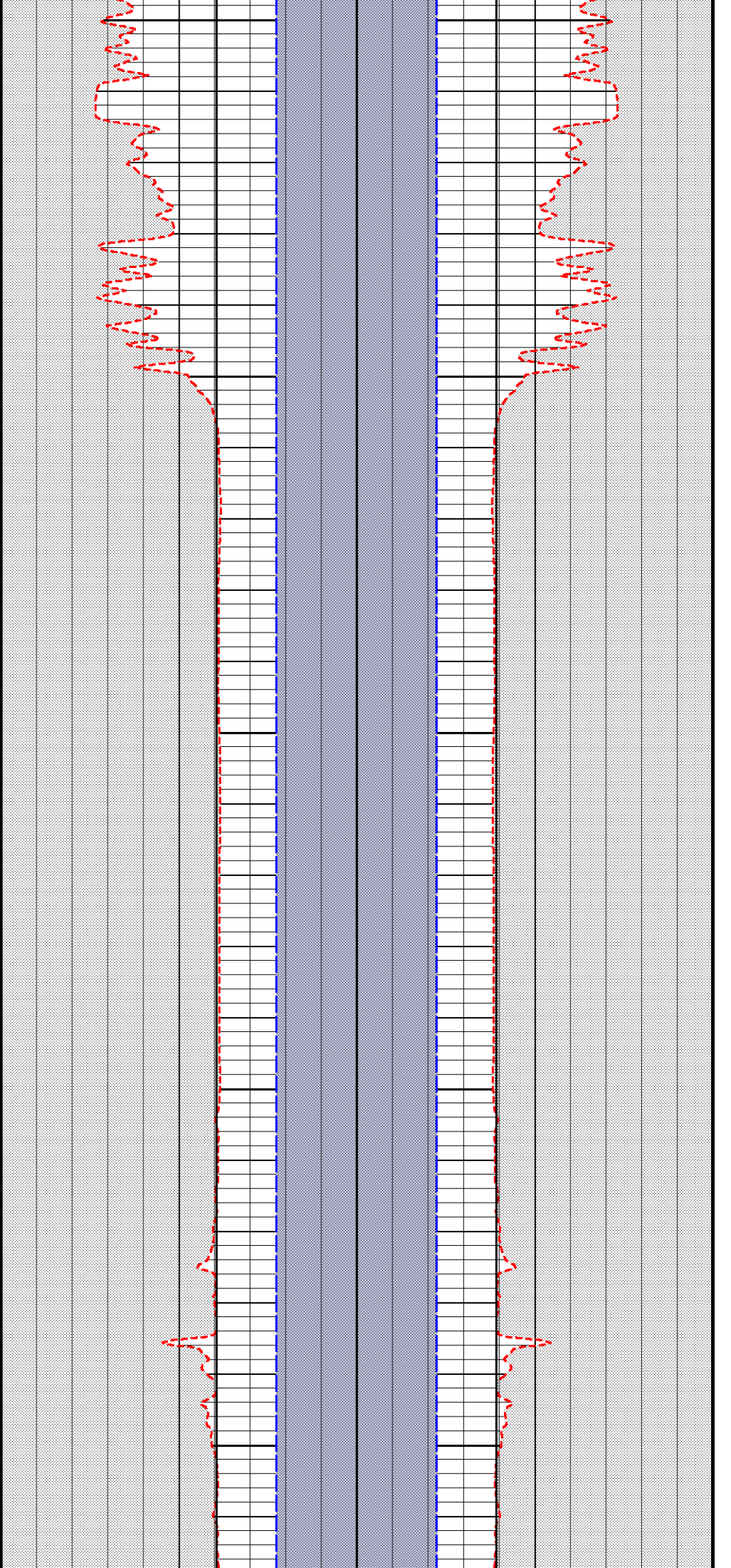
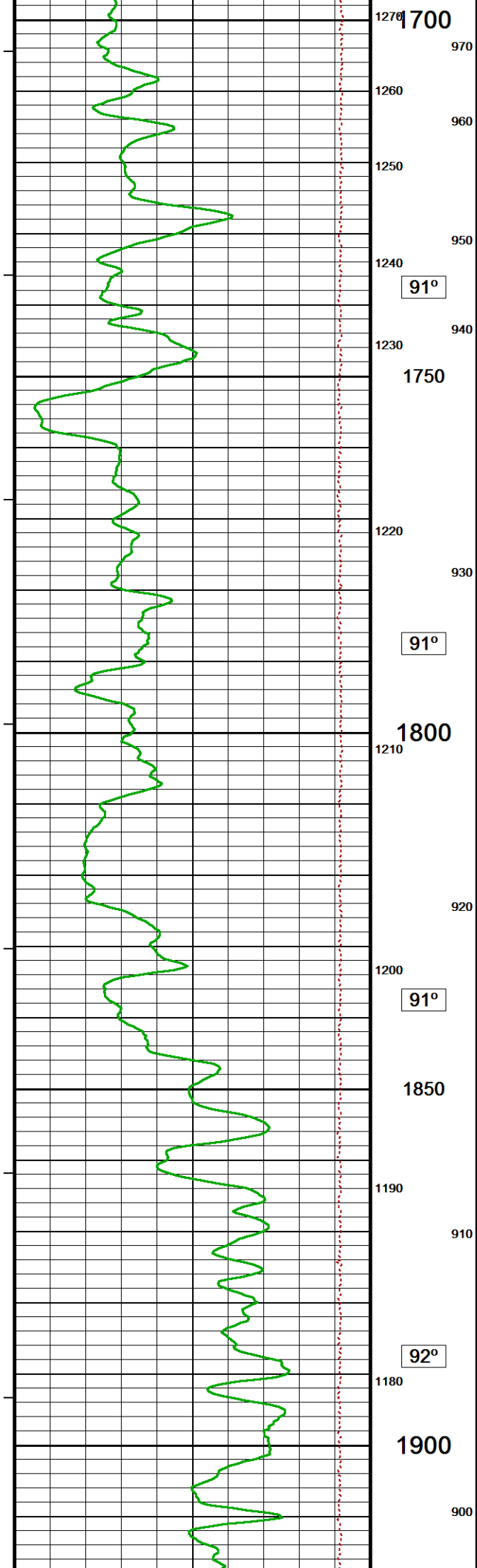


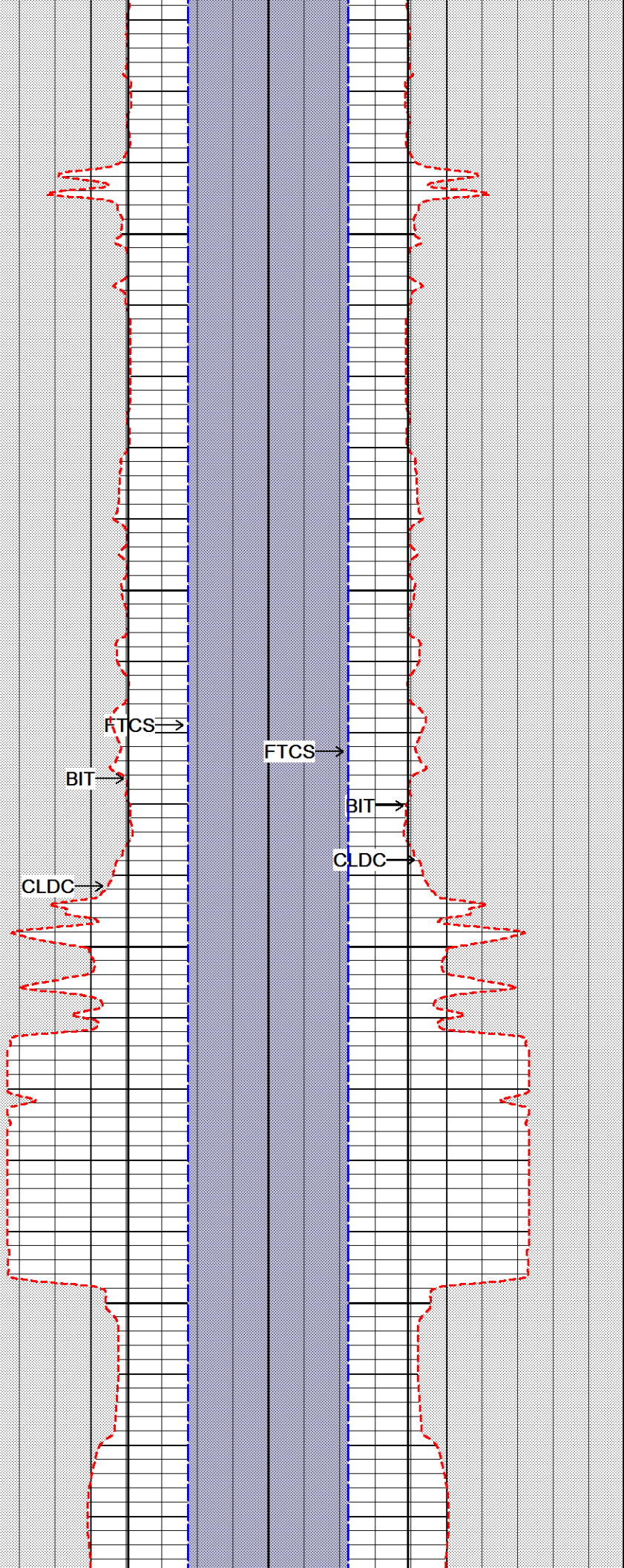
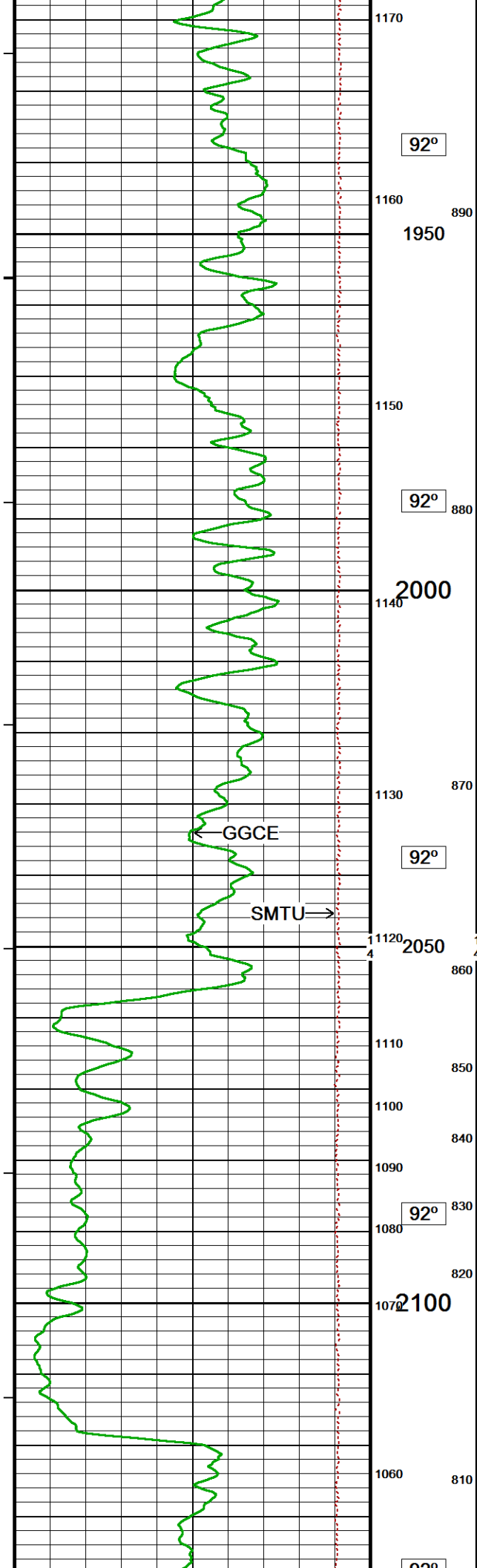


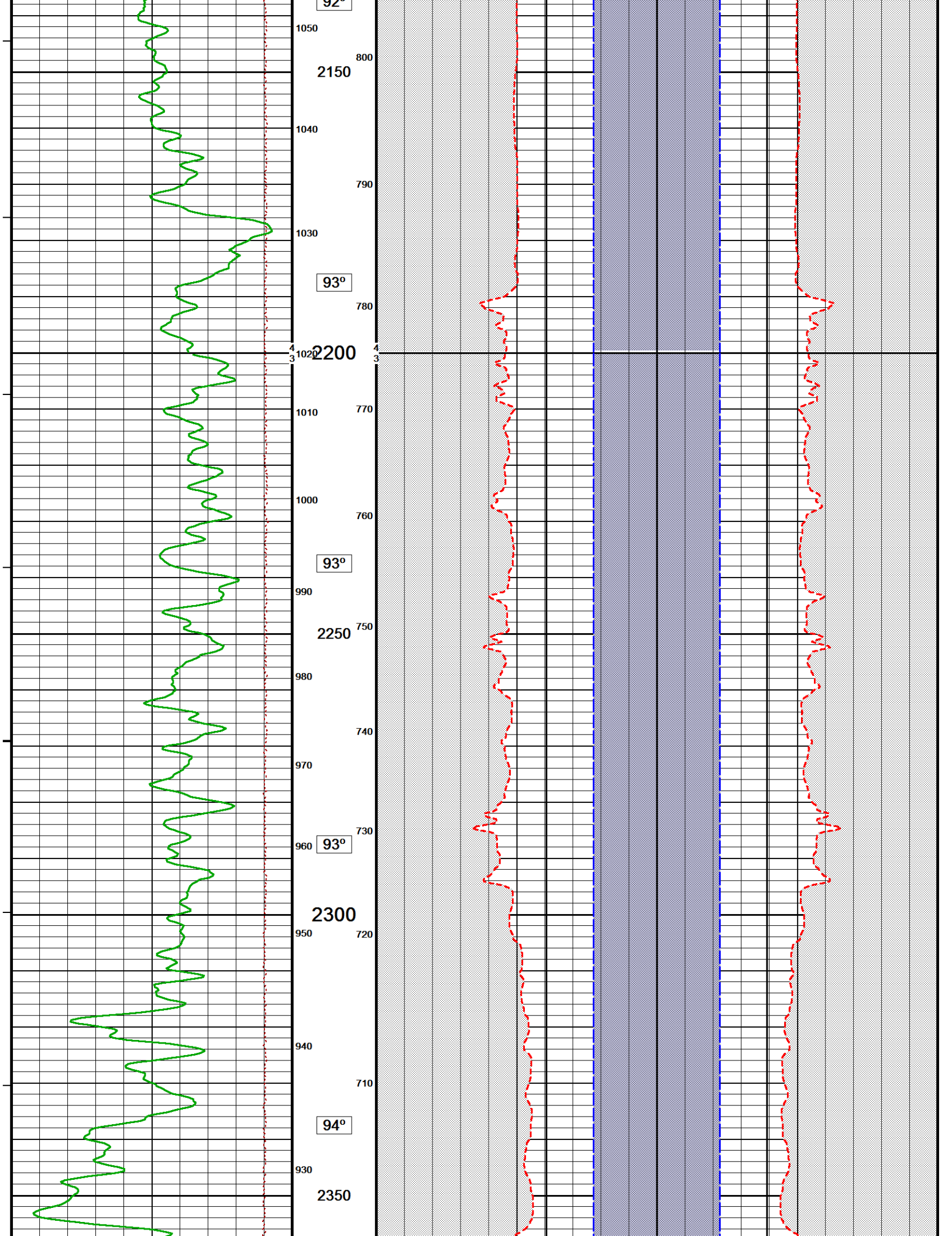


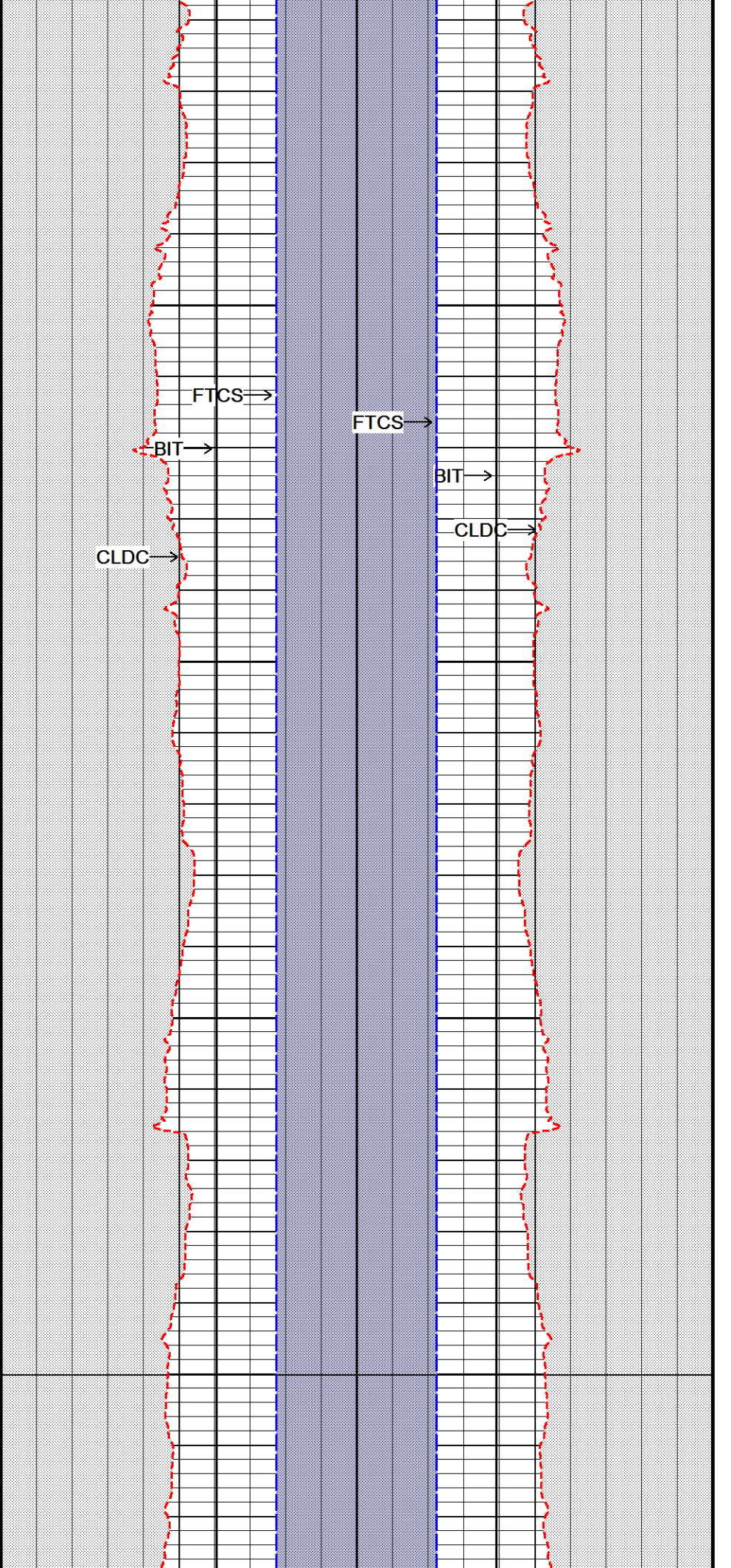
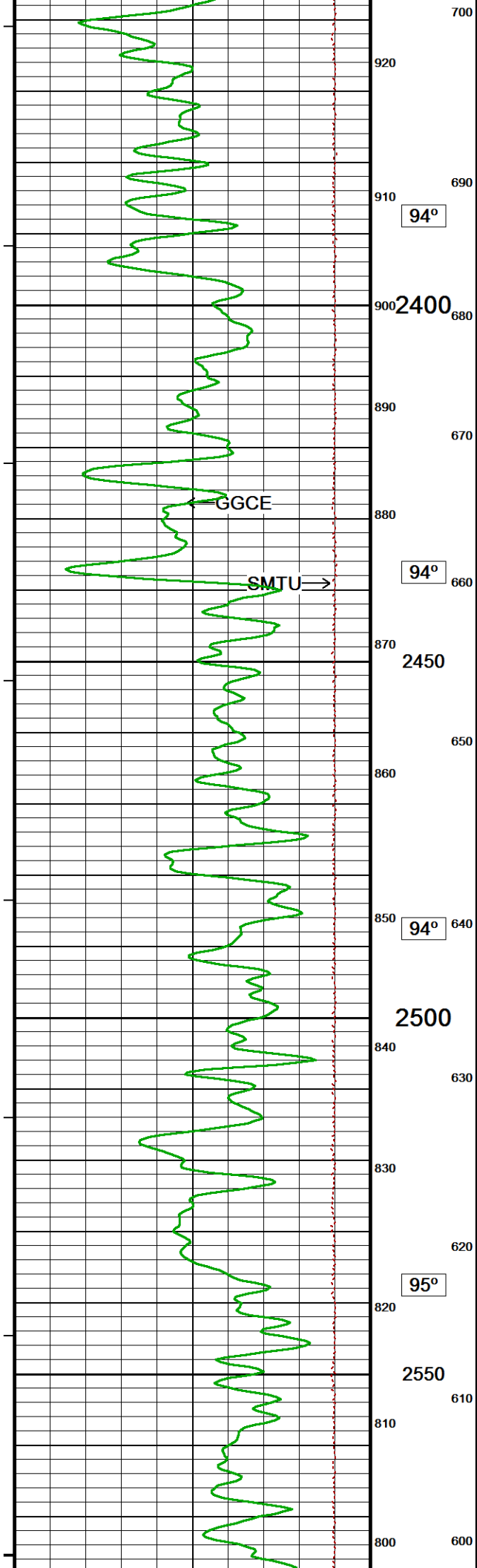


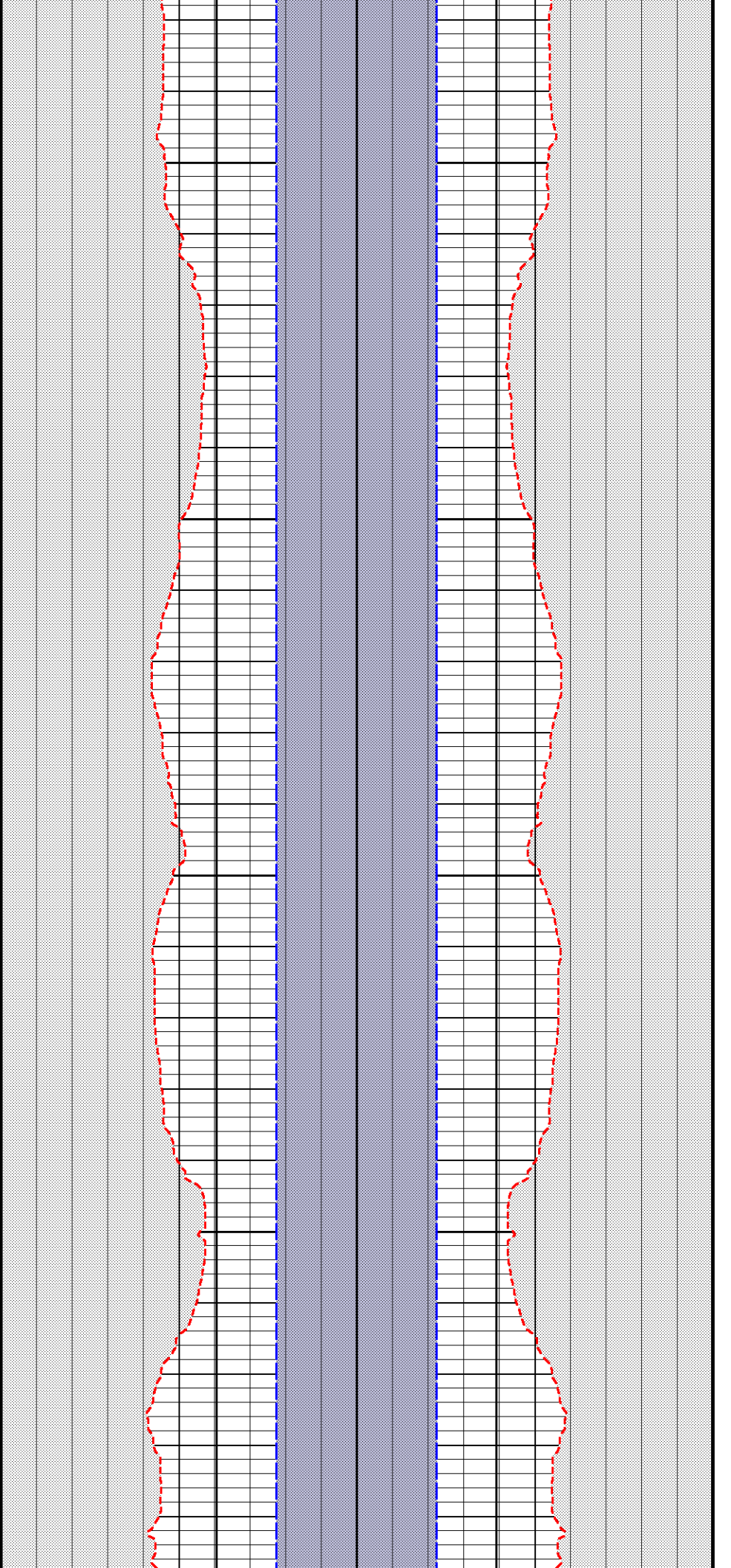
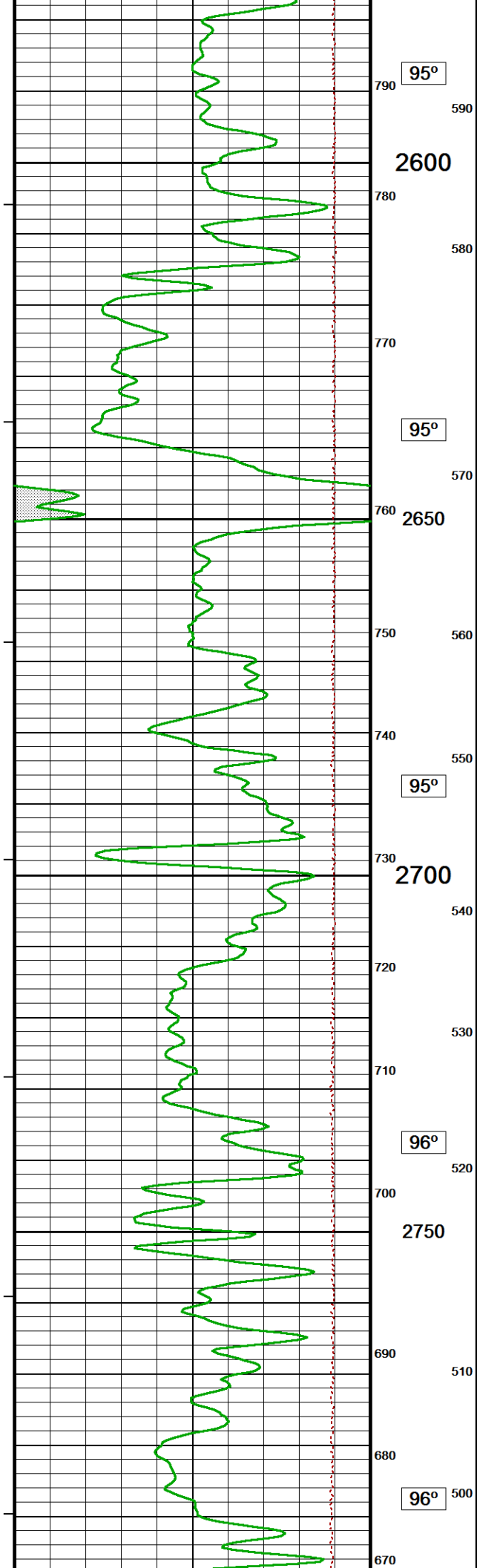


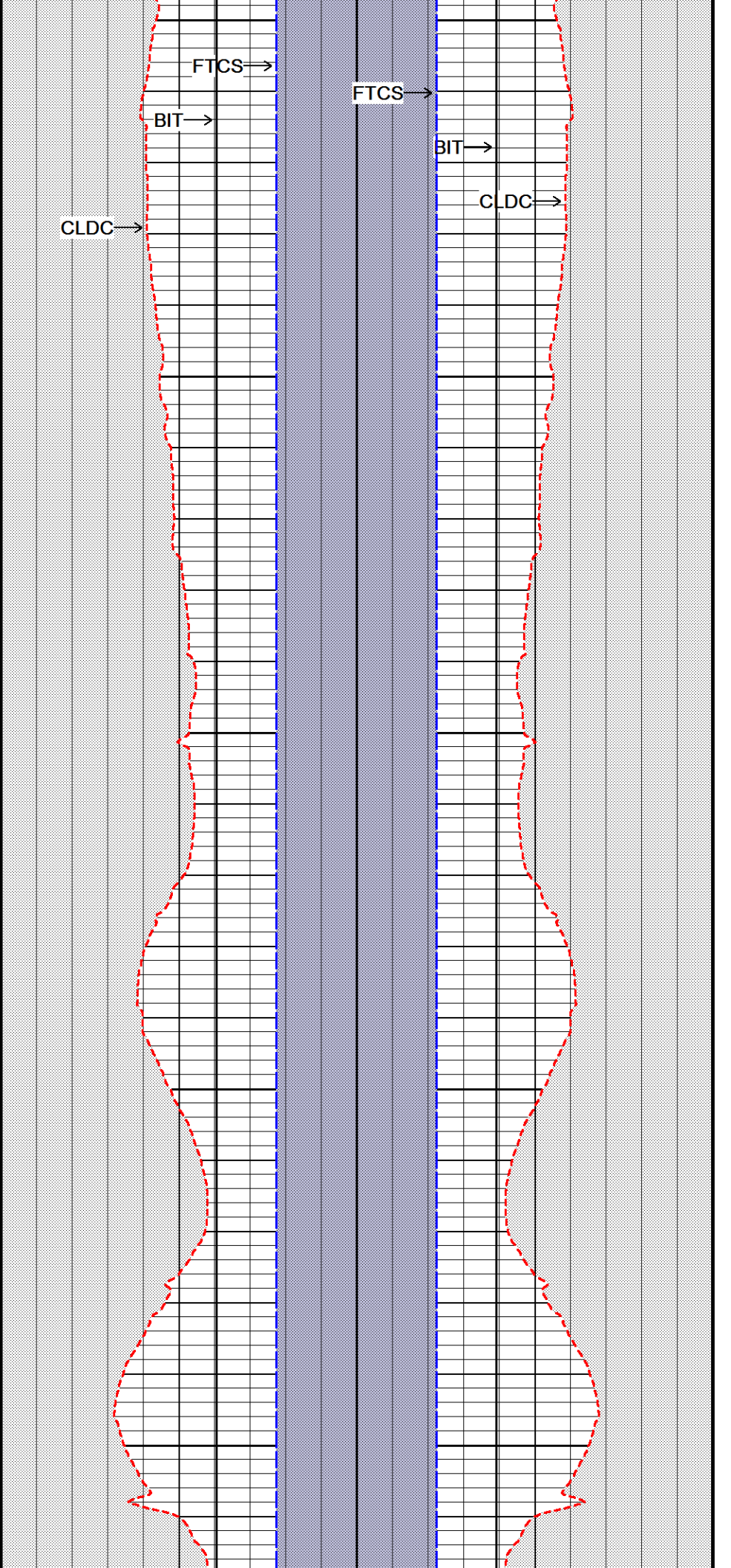
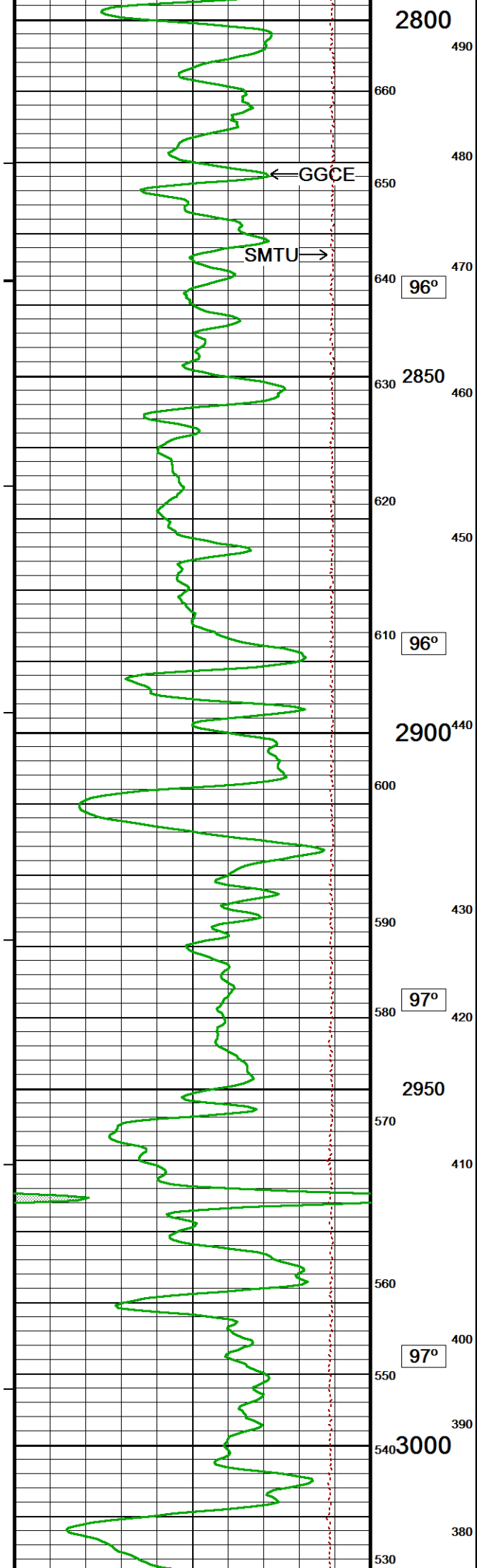


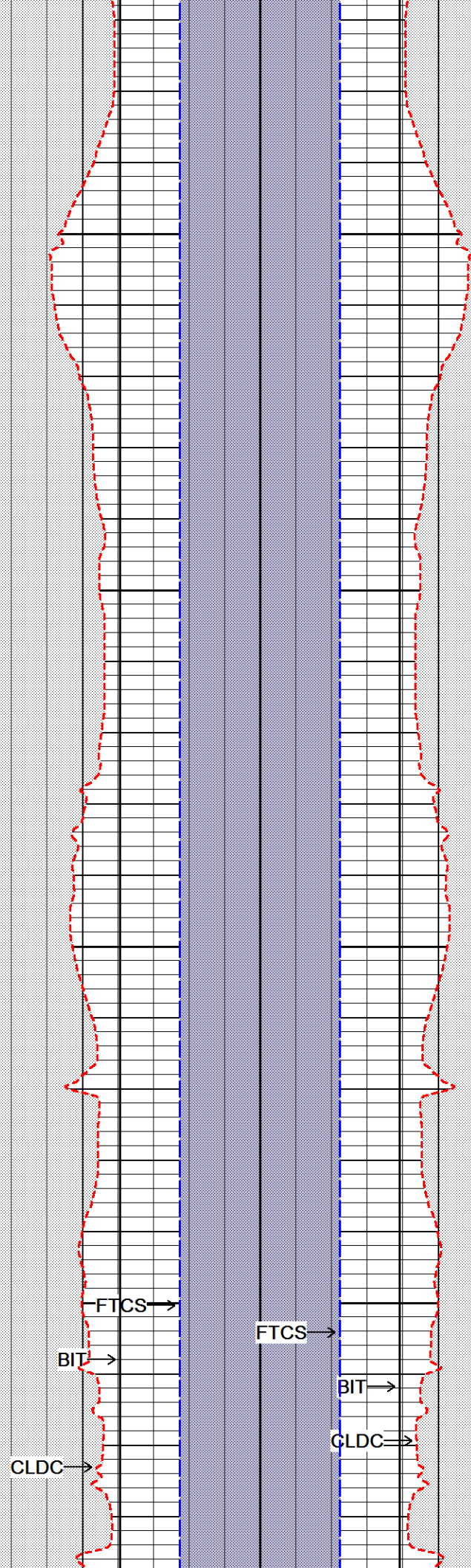
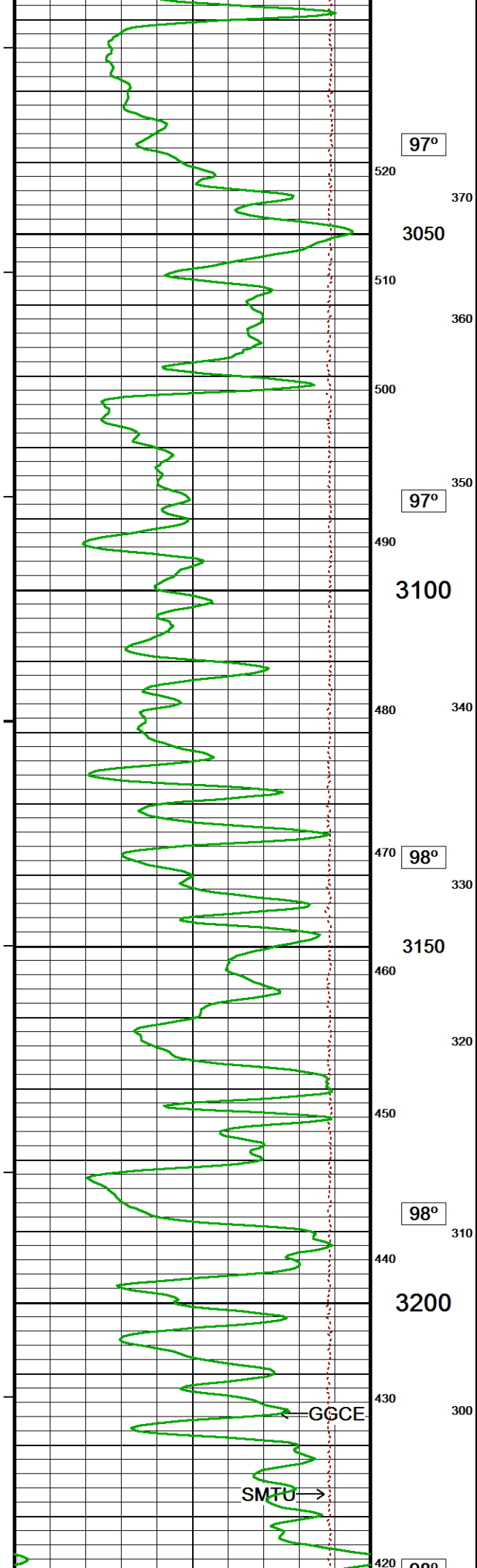


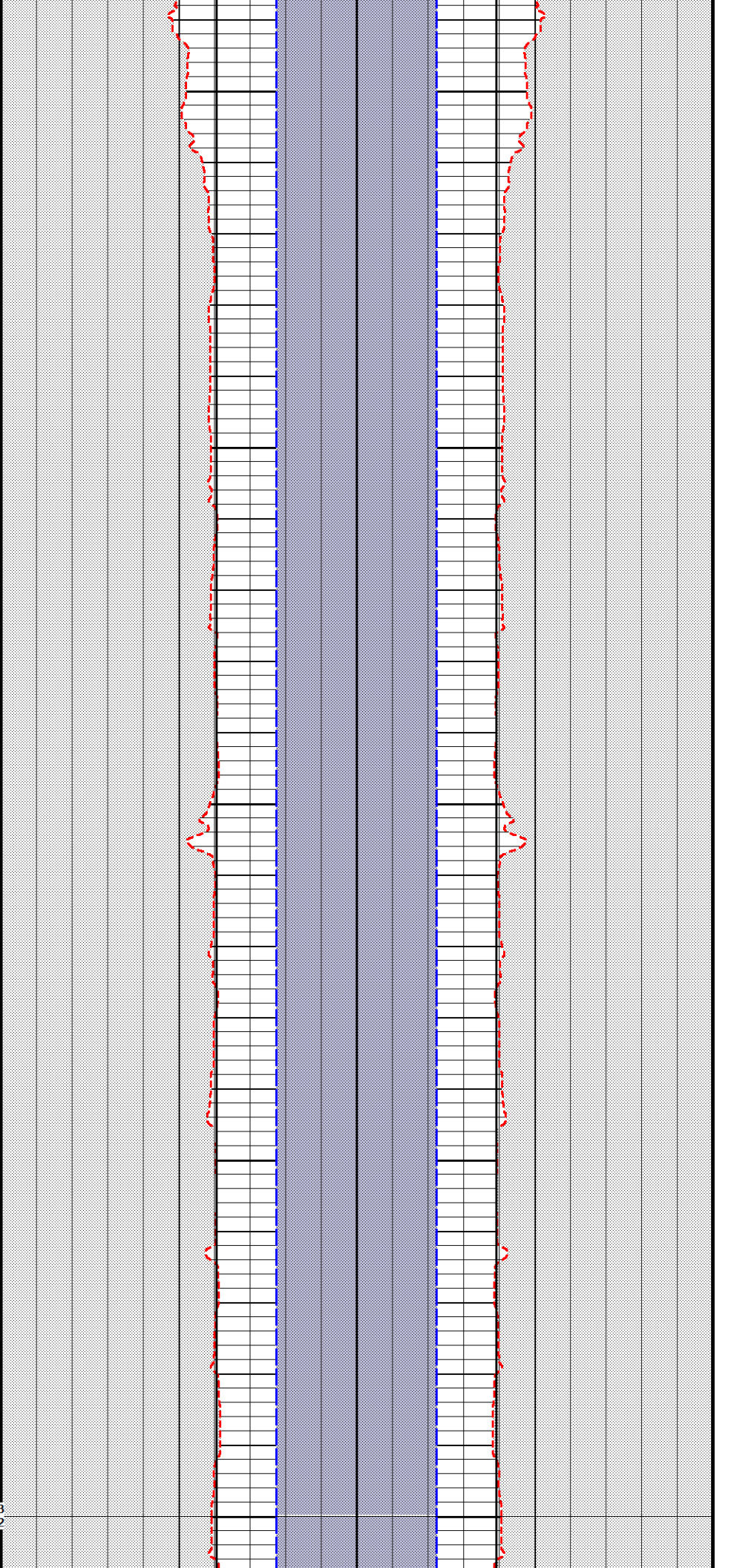
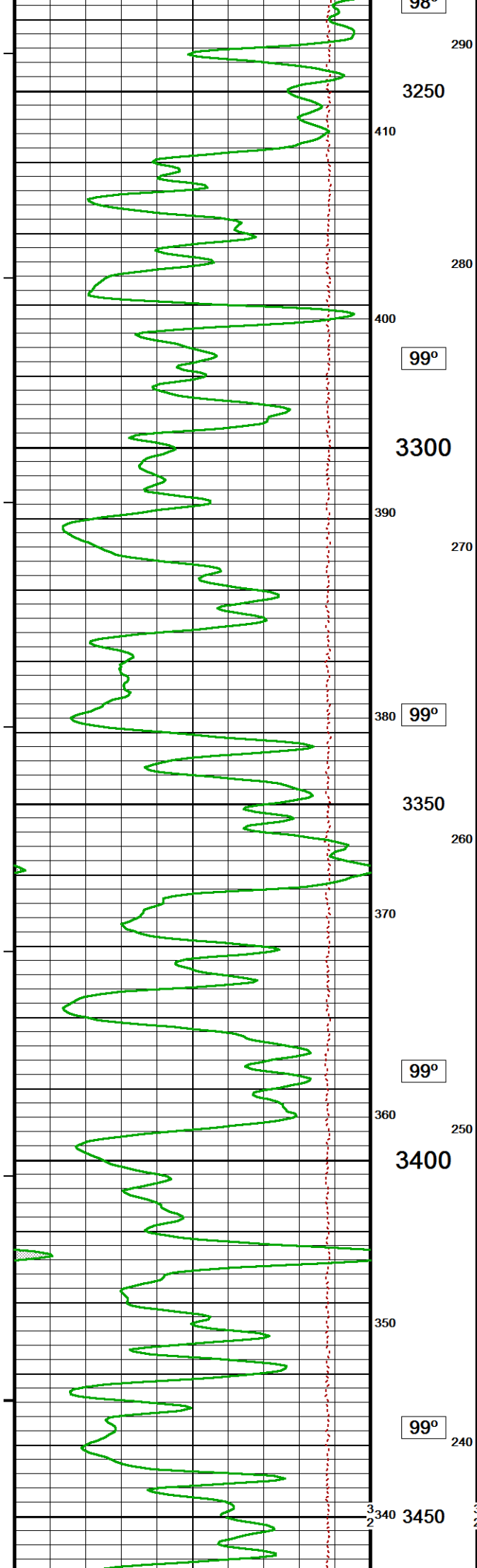


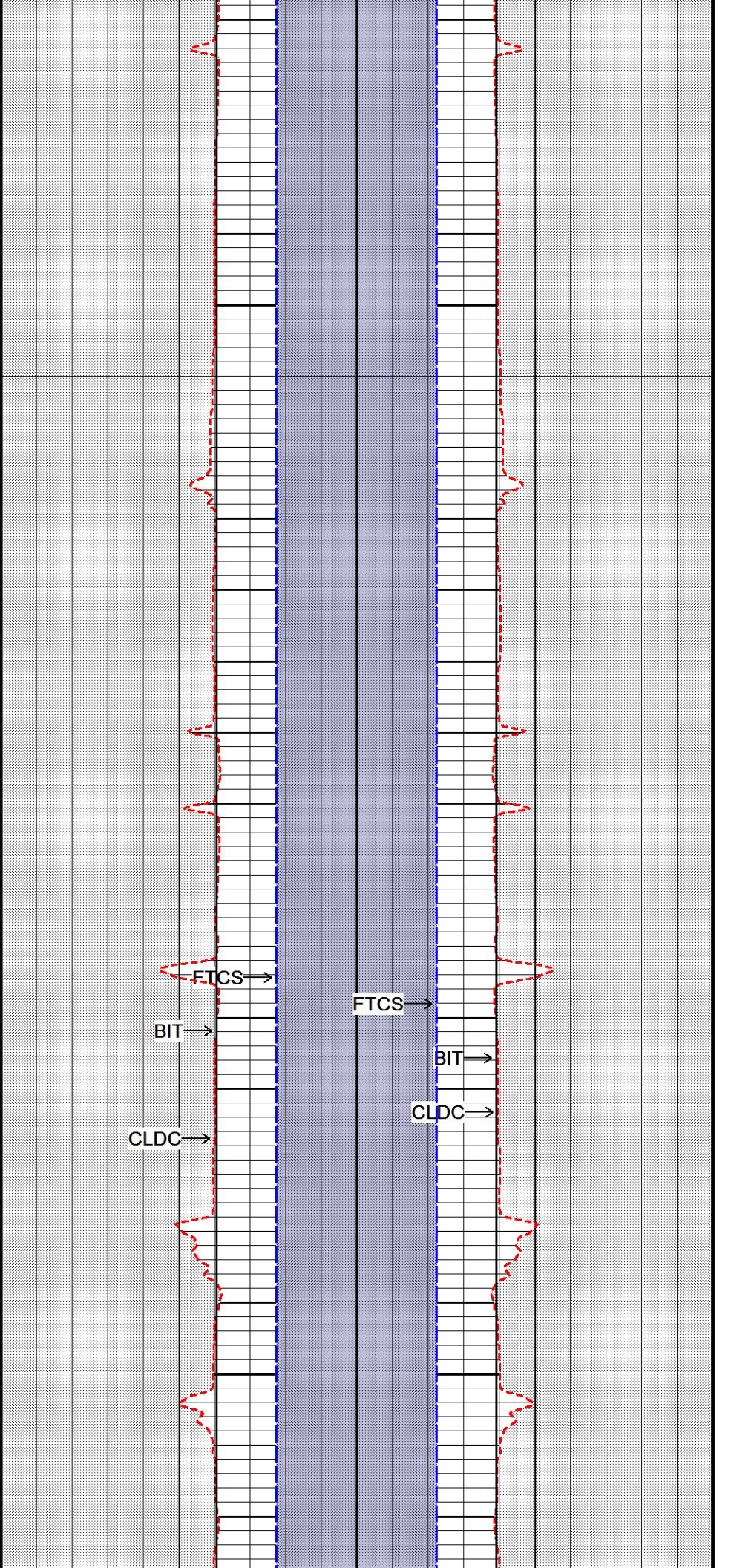
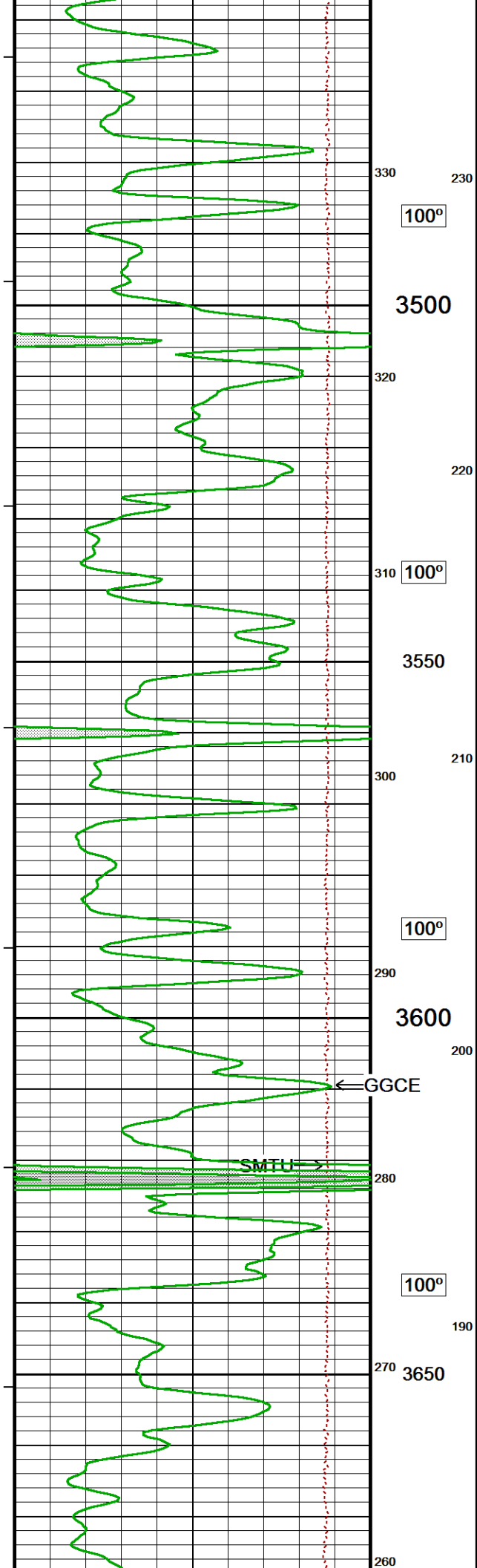


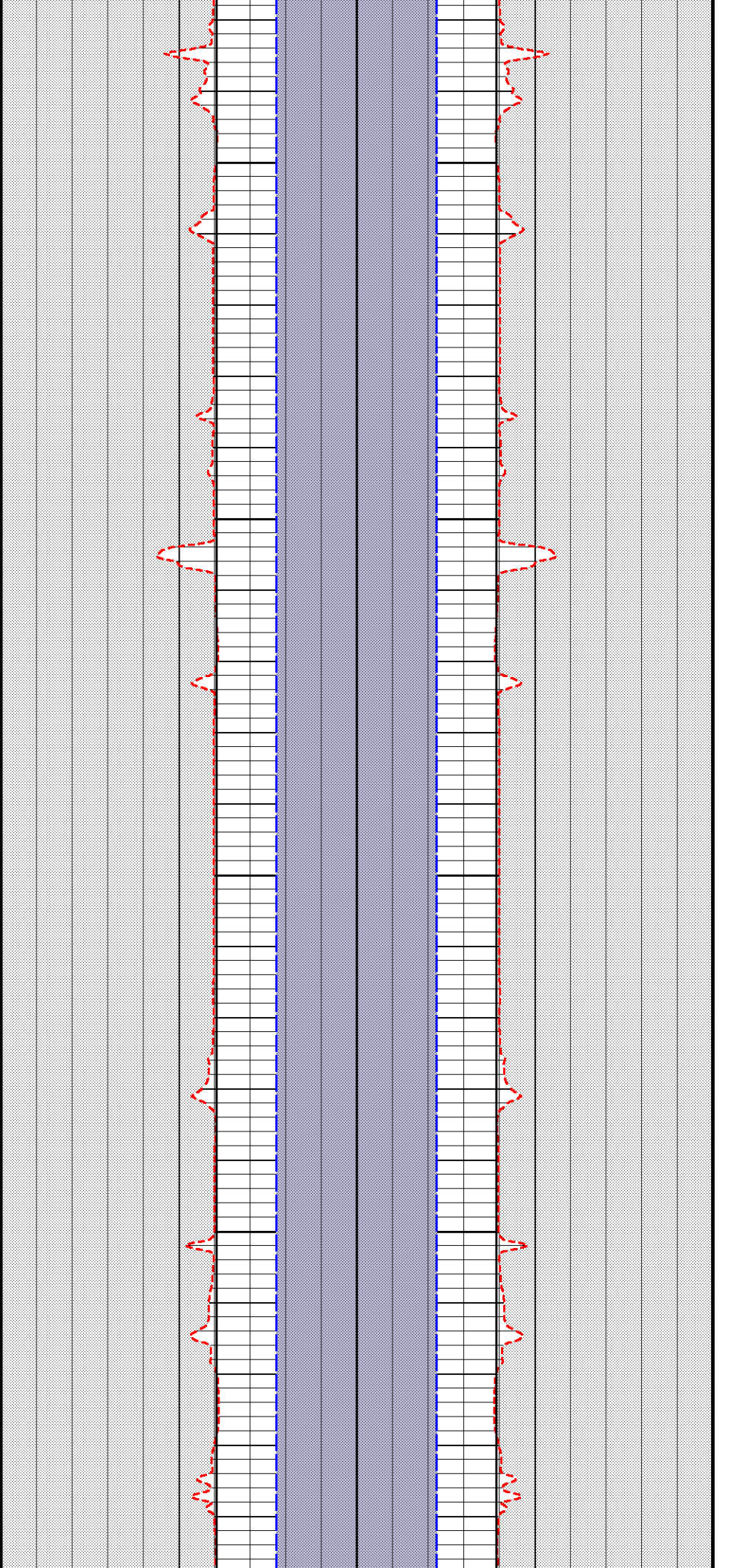
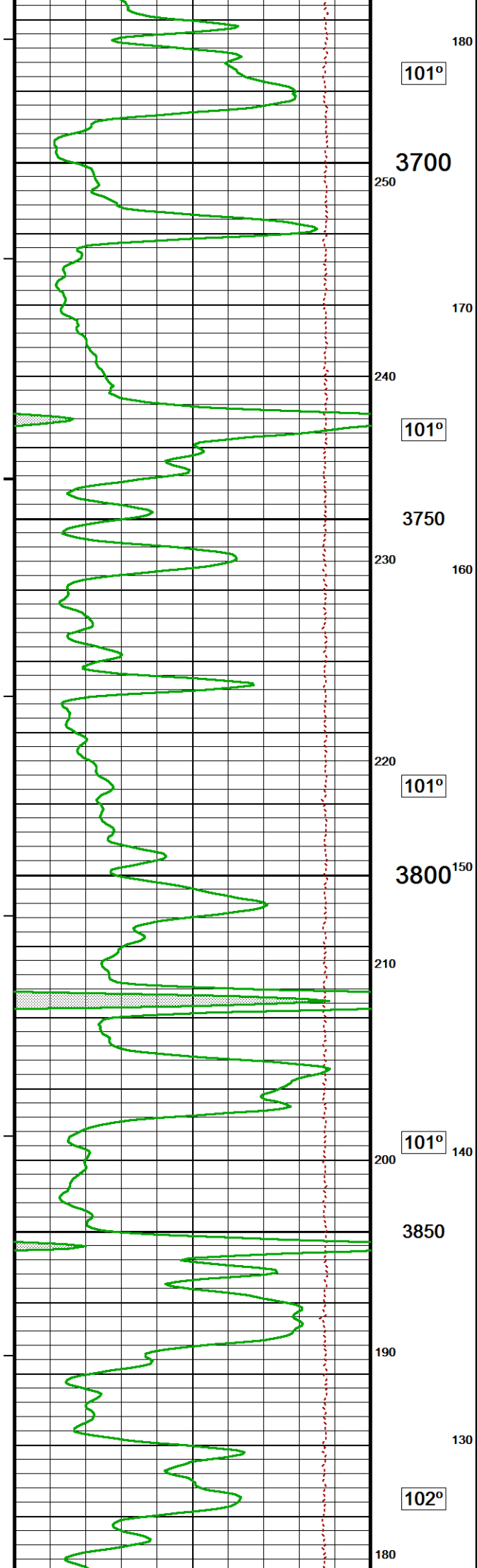


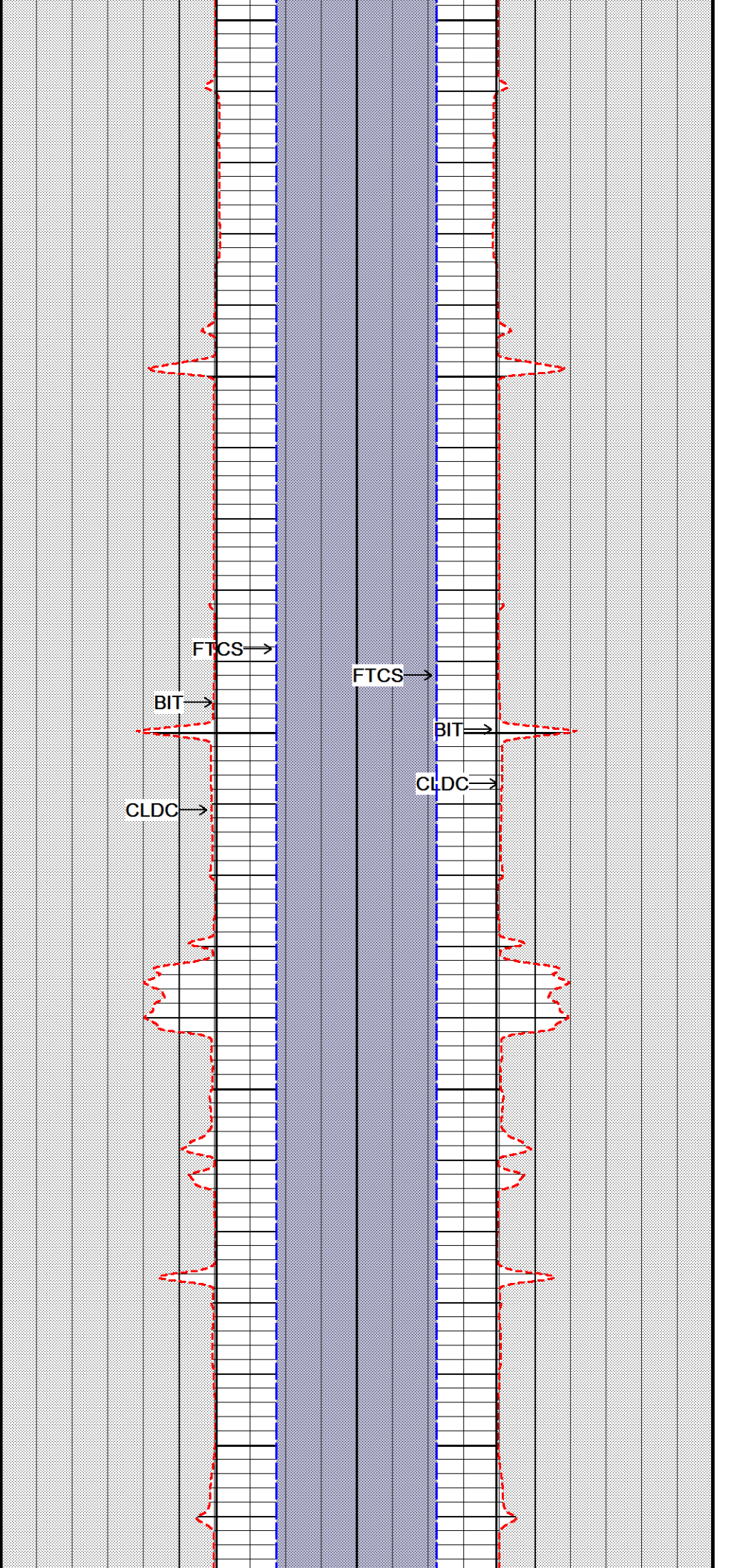
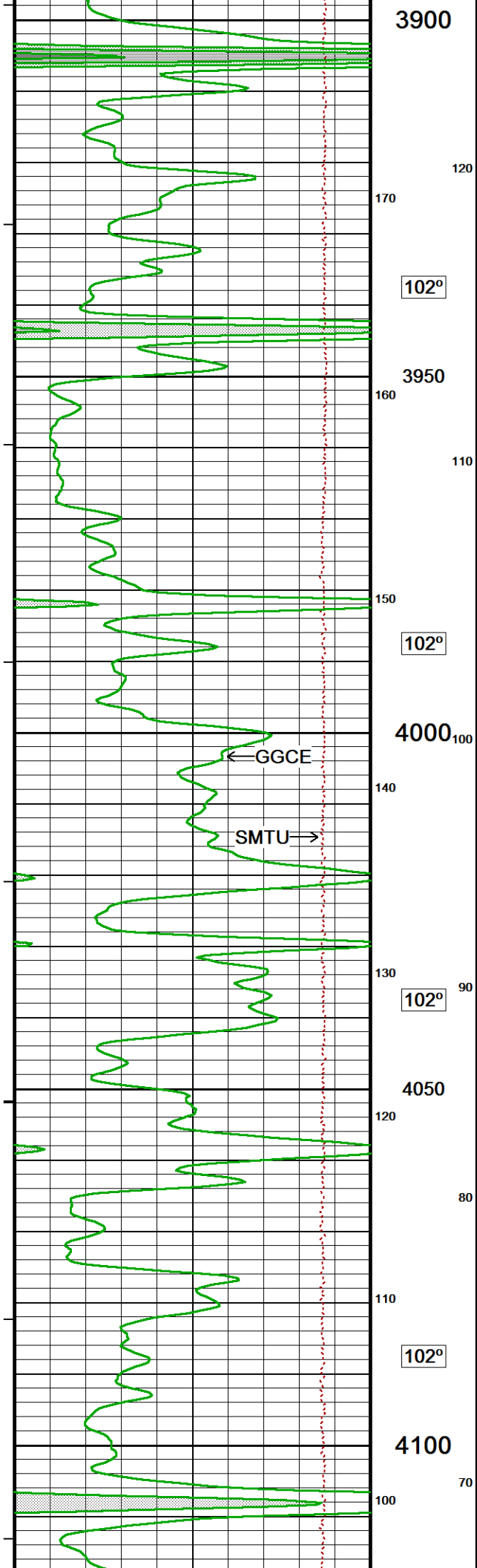


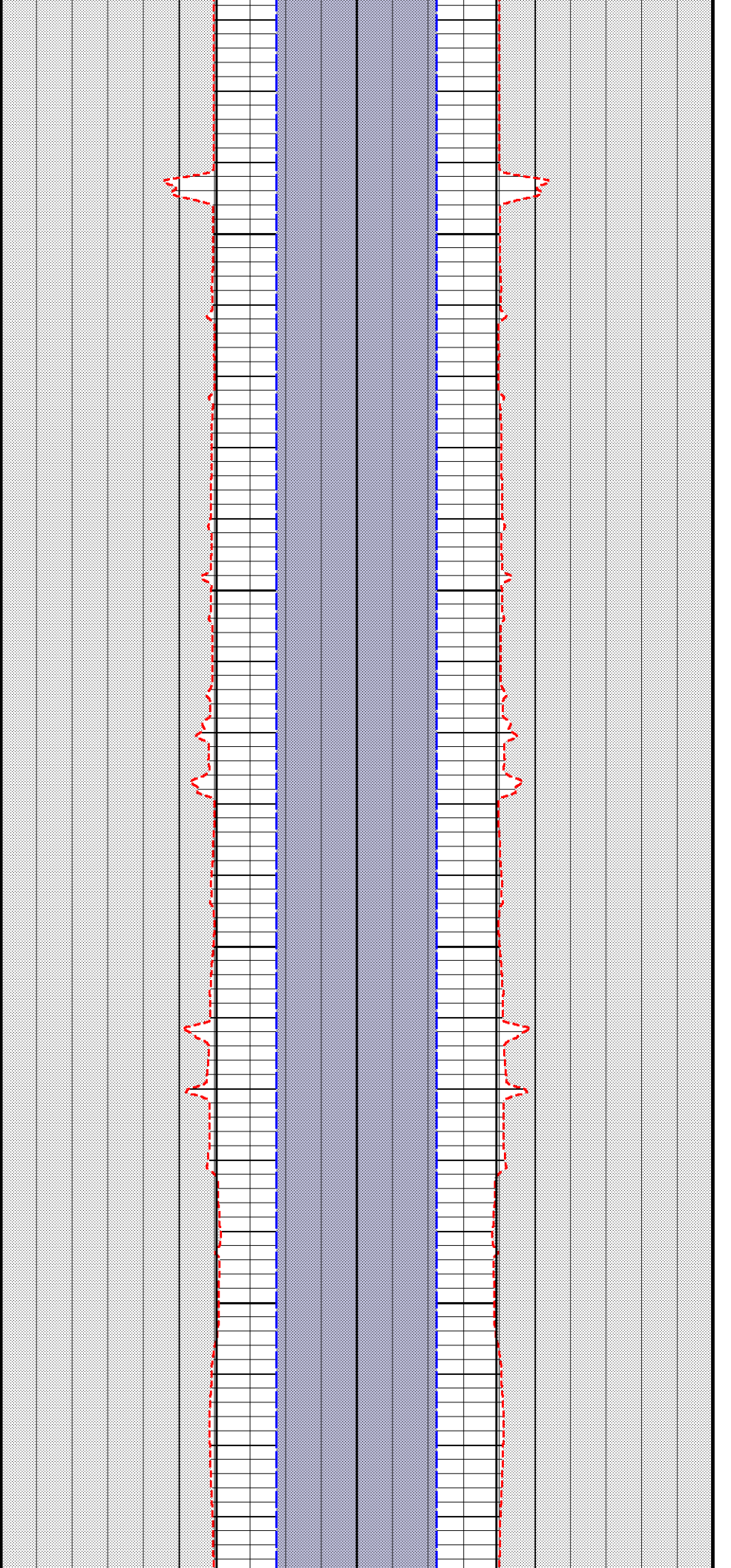
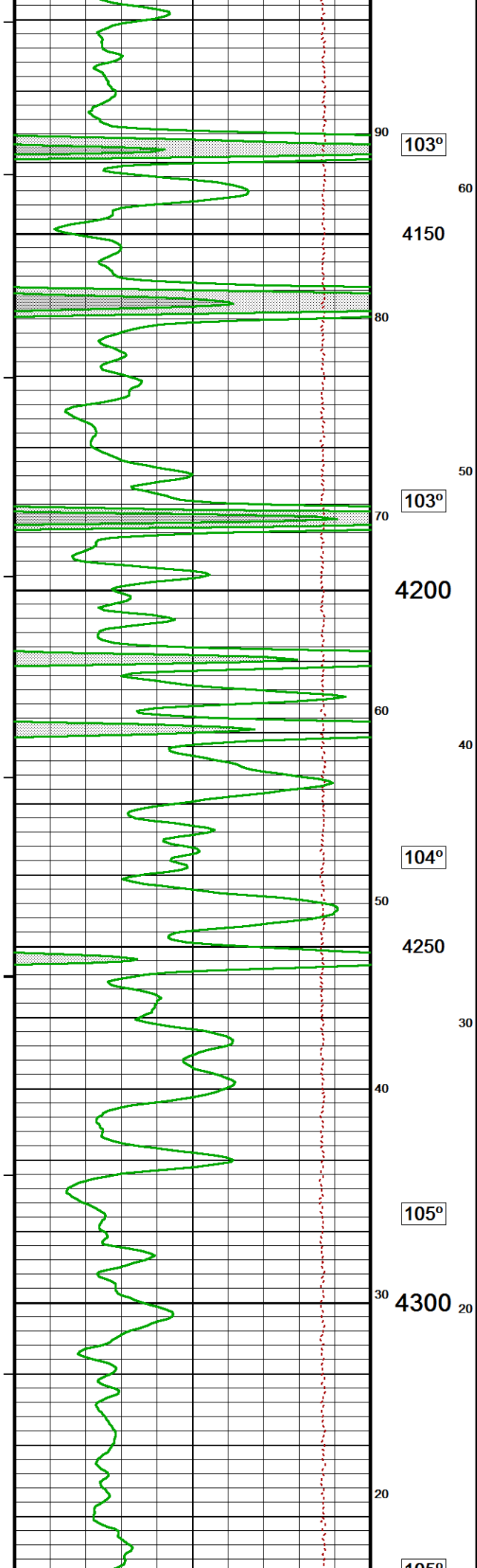


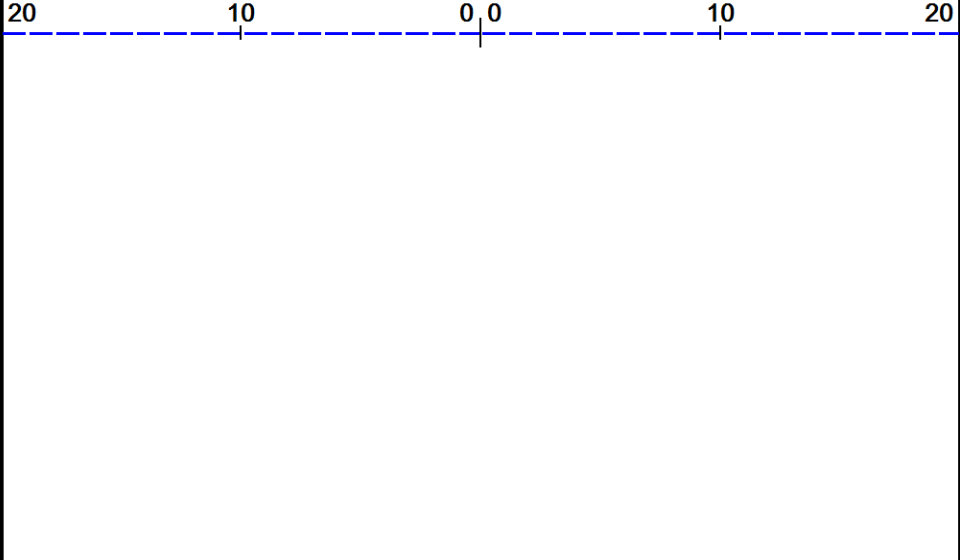
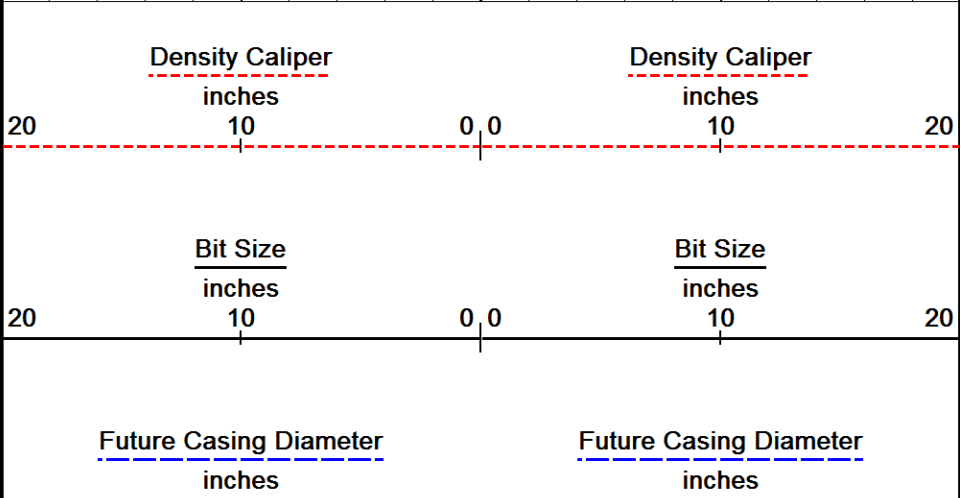
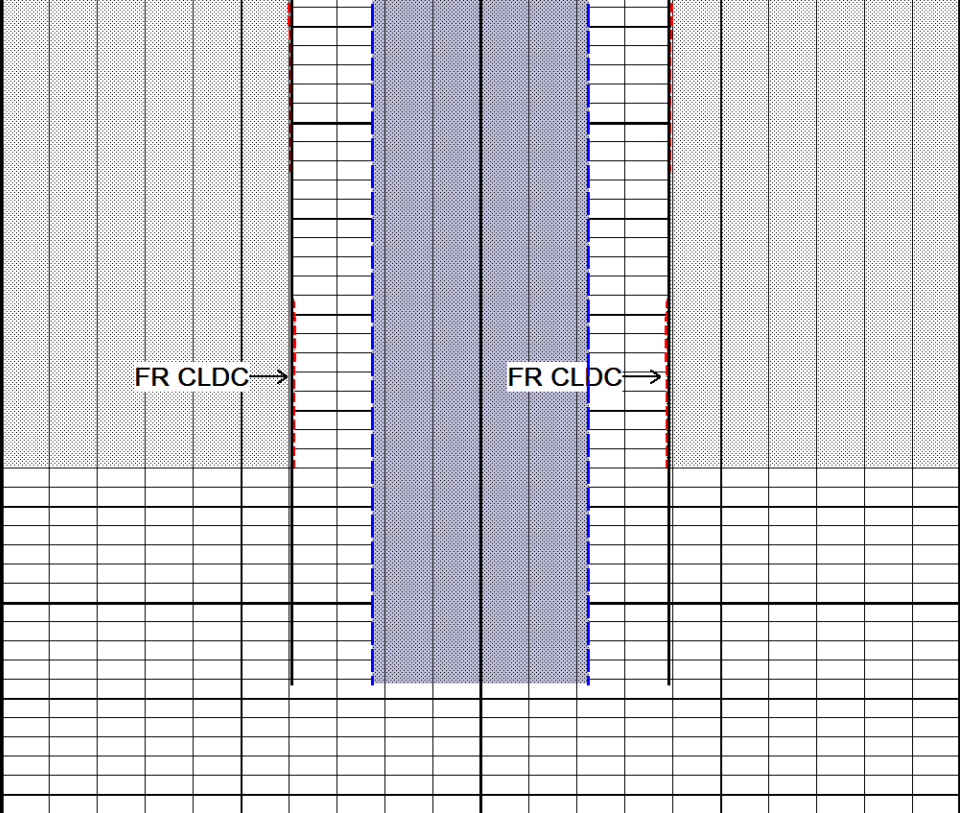
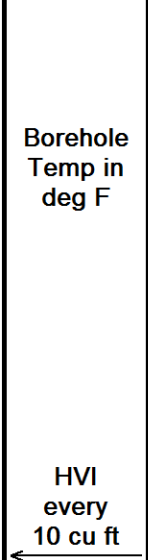
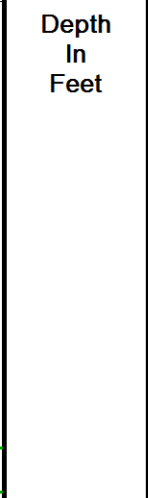
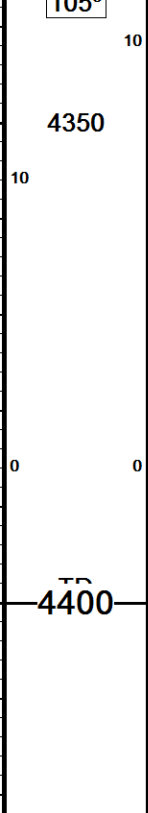
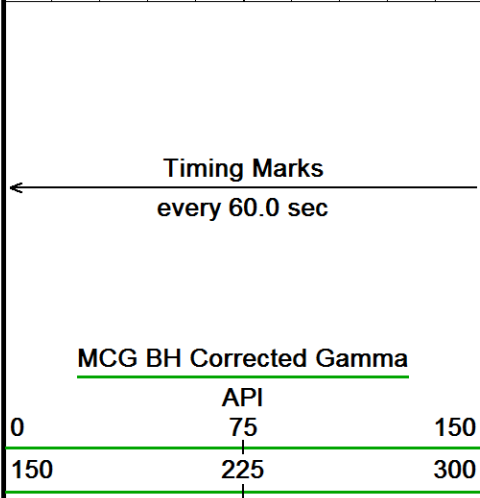
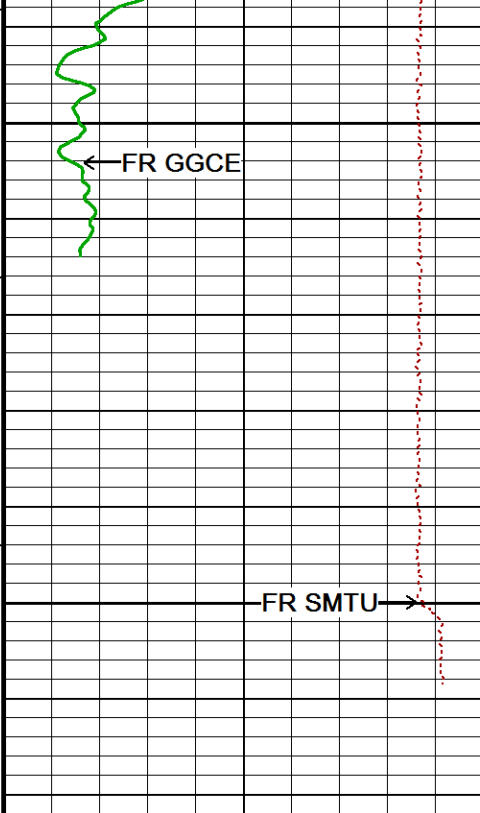


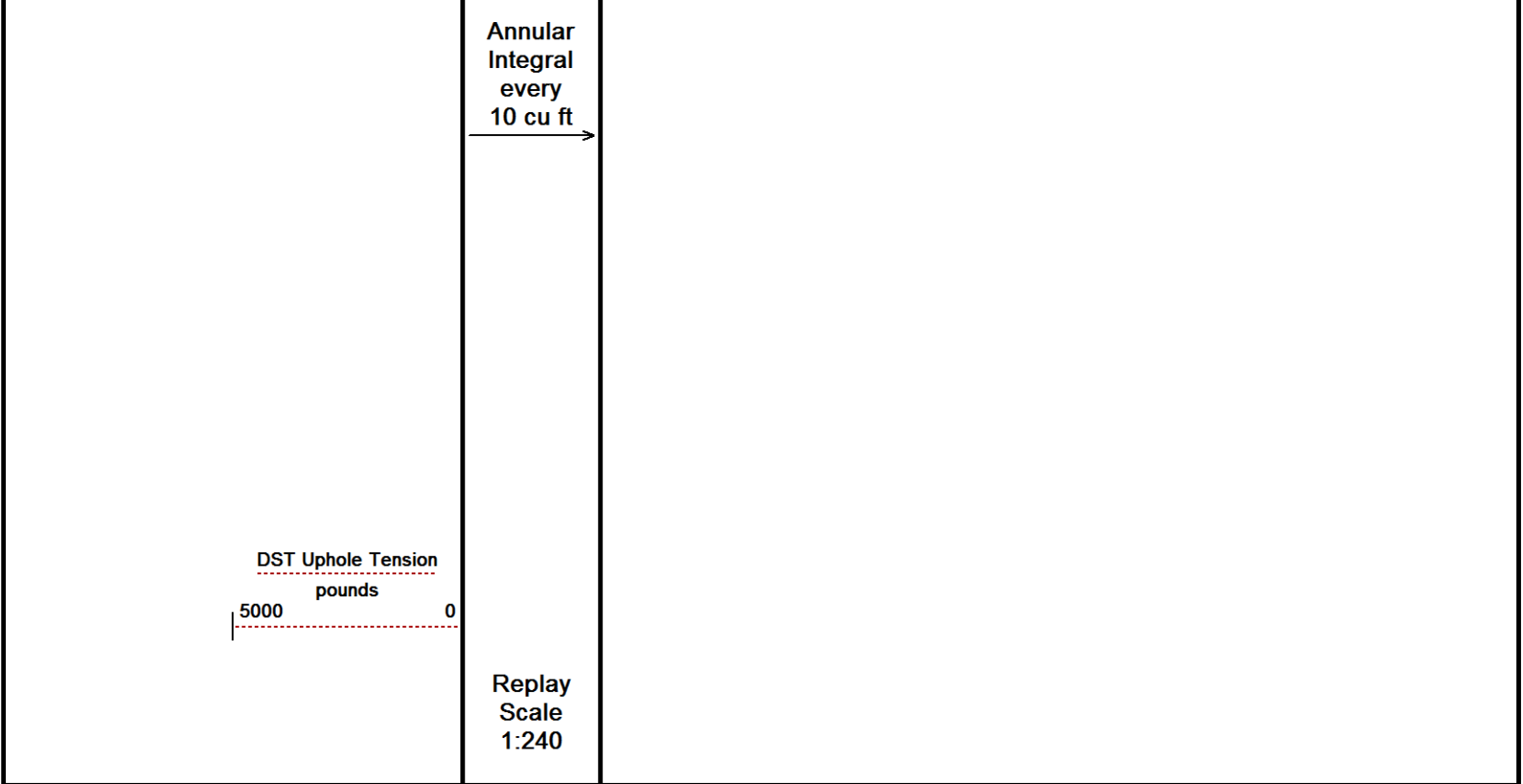












Depth Based Data - Maximum Sampling Increment 10.0cm	Plotted on 19-MAR-2019 02:27
Filename: E:\LOGS\SHAKESPEARE OIL (OTTLEY 4-27)\MAIN PASS.dta	Recorded on 18-MAR-2019 22:46
System Versions: Logged with 18.05.7089 Processed with 18.05.7089 Plotted with 18.05.7089	

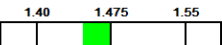
↑	2 INCH MAIN PASS	↑
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BEFORE SURVEY CALIBRATION		
E:\LOGS\SHAKESPEARE OIL (OTTLEY 4-27)\MAIN PASS.dta		
General Constants All 000		Last Edited on 18-MAR-2019,22:43
General Parameters		
Mud Resistivity	0.530	ohm-metres
Mud Resistivity Temperature	78.000	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
Pre-filter Length	11	
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

The bar shows a scale from 1.40 to 1.55. The value 1.446 is indicated by a green bar.

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	%

Caliper Calibration MPD-B 166

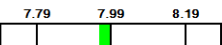
Base Calibration on 07-MAR-2019 15:56

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

The bar shows a scale from 7.79 to 8.19. The value 7.96 is indicated by a green bar.

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

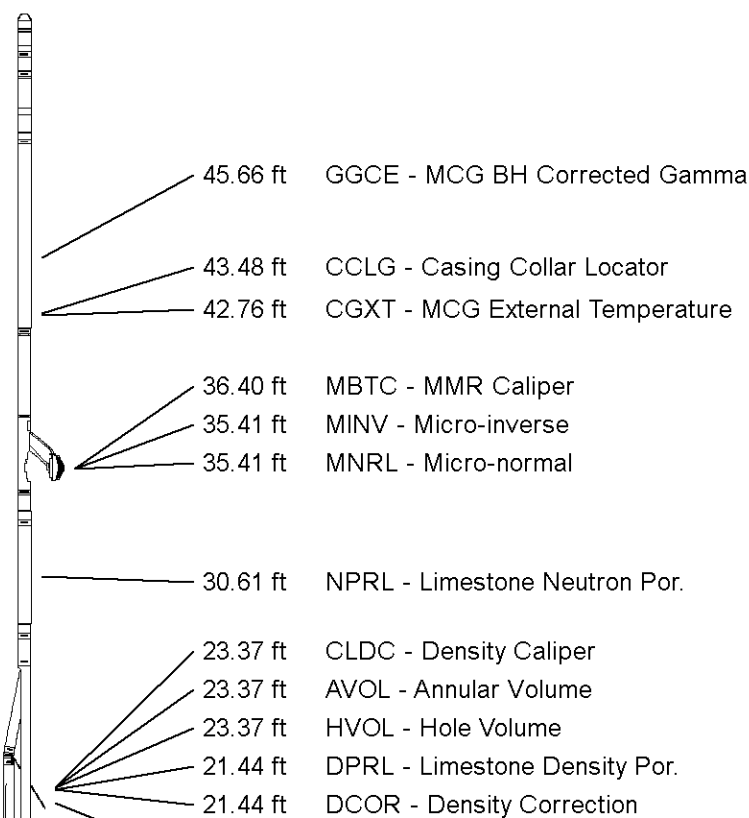
Compact Comms Gamma
MCG-D.K 431 LG: 8.70 ft WT: 63.9 lb OD: 2.244 in

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

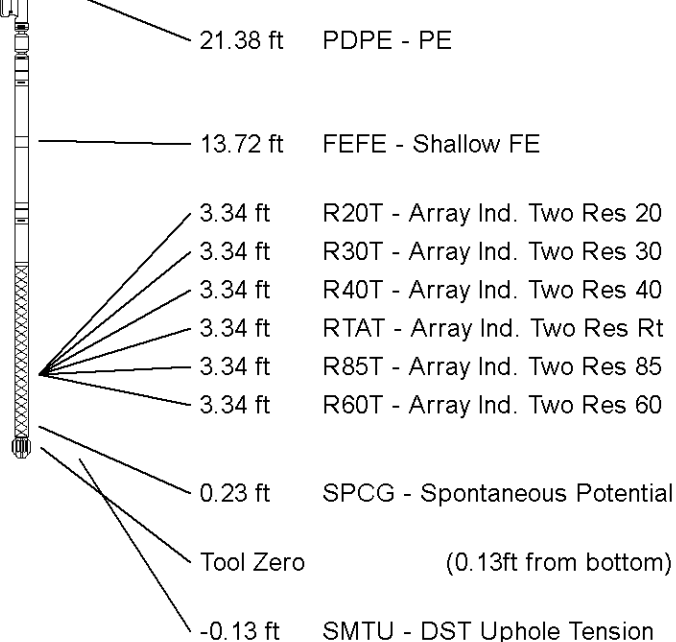
Compact Knuckle Joint
SKJ-E.B 474 LG: 2.17 ft WT: 24.3 lb OD: 2.244 in



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	4376.63	feet
Elevation Drill Floor	2671	feet	Depth Driller	4400.00	feet
Elevation Ground Level	2665	feet	Depth Logger	4400.00	feet



Weatherford®

CALIPER LOG