COMPOSITE LOG

COMPANY	GRAND MESA OPERATING COMPANY
WELL	MILLER #2-10
FIELD	ZENITH-PEACE CREEK
PROVINCE/COUNTY	RENO
COUNTRY/STATE	U.S.A. / KANSAS
LOCATION	1950' FSL & 1273' FWL

SEC 10	TWP 23S	RGE 10W	Other Services
Latitude			
Longitude			
API Number	15-155-21759		

Permanent Datum GL, Elevation 1765 feet
Log Measured From KB, 5.00 feet above Permanent Datum
Drilling Measured From KB

Elevations:	feet
KB	1770.00
DF	1765.00
GL	

Date	20-SEP-2018			
Run Number	ONE			
Service Order	4558-224651393			
Depth Driller	3860.00	feet		
Depth Logger	3856.00	feet		
First Reading	3853.00	feet		
Last Reading	169.00	feet		
Casing Driller	168.00	feet		
Casing Logger	169.00	feet		
Bit Size	7.875	inches		
Hole Fluid Type	CHEMICAL			
Density / Viscosity	9.25 lb/USg	48.00 CP		
PH / Fluid Loss	9.00	12.40 ml/30Min		
Sample Source	FLOWLINE			
Rm @ Measured Temp	0.43 @ 75.0	ohm-m		
Rmf @ Measured Temp	0.34 @ 75.0	ohm-m		
Rmc @ Measured Temp	0.52 @ 75.0	ohm-m		
Source Rmf / Rmc	CALC	CALC		
Rm @ BHT	0.30 @107.0	ohm-m		
Time Since Circulation	4 HOURS			
Max Recorded Temp	107.00	deg F		
Equipment / Base	13096	LIB		
Recorded By	ADAM SILL			
Witnessed By	STEVE CARL			

BOREHOLE RECORD

Last Edited: 20-SEP-2018 20:35

Bit Size inches	Depth From feet	Depth To feet
7.875	168.00	3860.00

CASING RECORD

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	8.625	0.00	168.00	24.00

REMARKS

- SOFTWARE ISSUE: WLS 18.01.6830.

- RUN ONE: MCG, MML, MDN, MPD, MFE, MSS, MAI RUN IN COMBINATION.
  - HARDWARE: DUAL BOWSPRING USED ON MDN.
  0.5 INCH STANDOFF USED ON MFE.
  TWO 0.5 INCH STANDOFFS USED ON MSS.
  0.5 INCH STANDOFF USED ON MAI.

- 2.71 G/CC LIMESTONE DENSITY MATRIX USED TO CALCULATE POROSITY.

- BOREHOLE RUGOSITY, TIGHT PULLS, AND WASHOUTS WILL AFFECT DATA QUALITY.

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

- TOTAL HOLE VOLUME FROM TD TO SURFACE CASING: 1899 CU.FT.

- ANNULAR HOLE VOLUME WITH 5.5 INCH PRODUCTION CASING FROM TD TO SURFACE CASING: 1293 CU.FT.

- RIG: WW DRILLING #4.

- ENGINEER: A. SILL.

- OPERATOR: B. TOVAR.

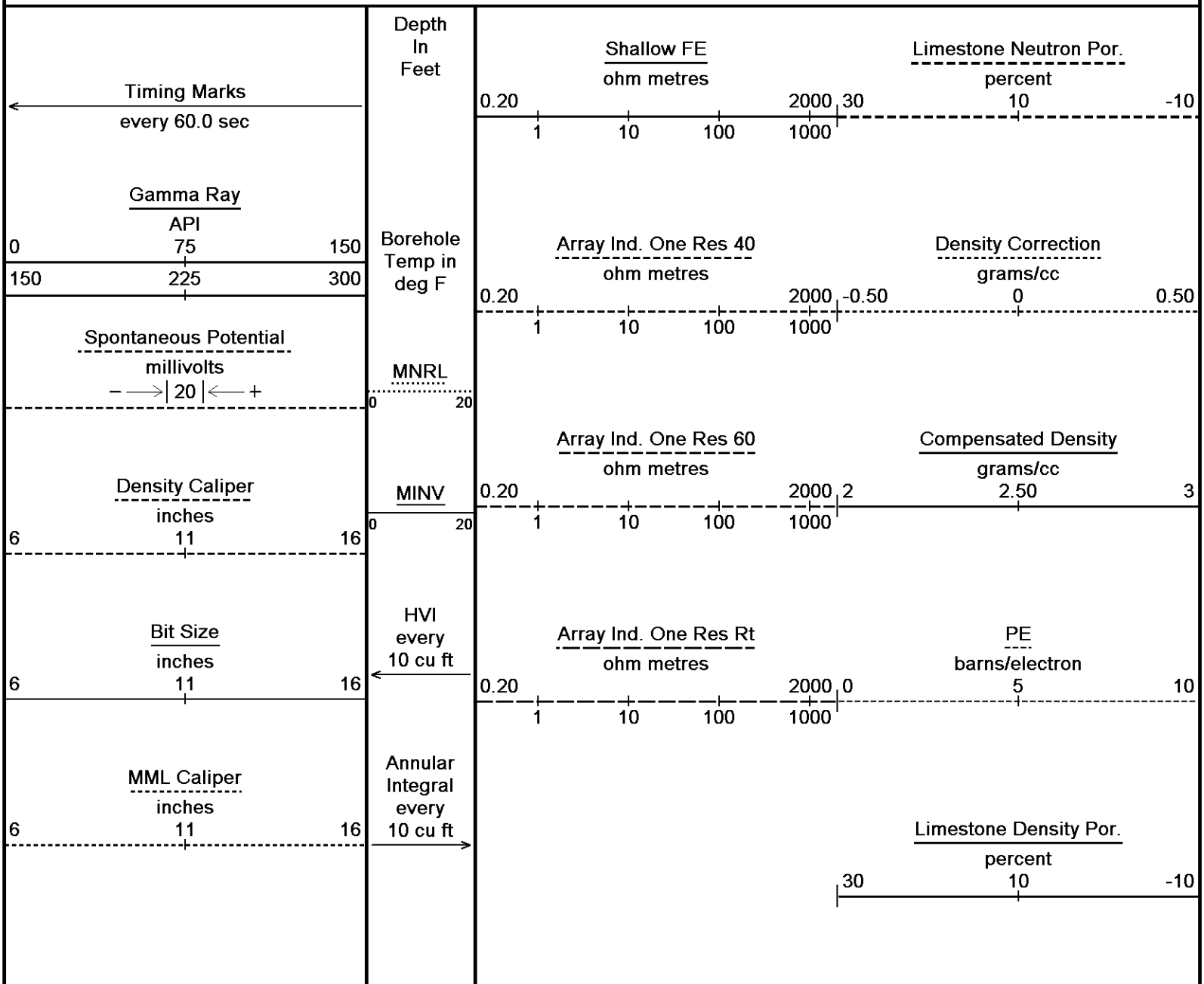
In interpreting, communicating or providing information and/or making recommendations, either written or oral, as to logs or test or other data, type or amount of material, or Work or other service to be furnished, or manner of performance, or in predicting results to be obtained, the Contractor will 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.

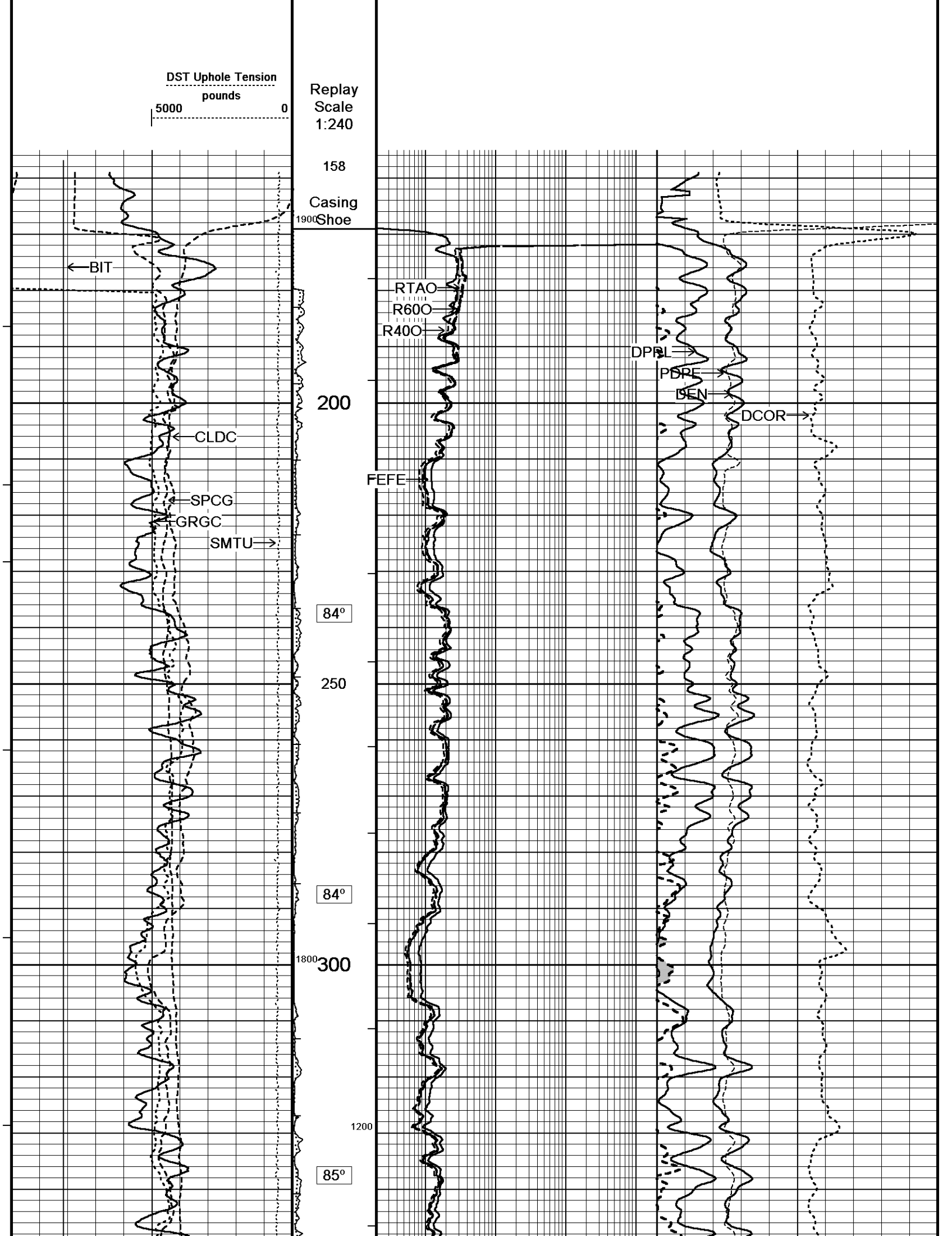
5 INCH MAIN

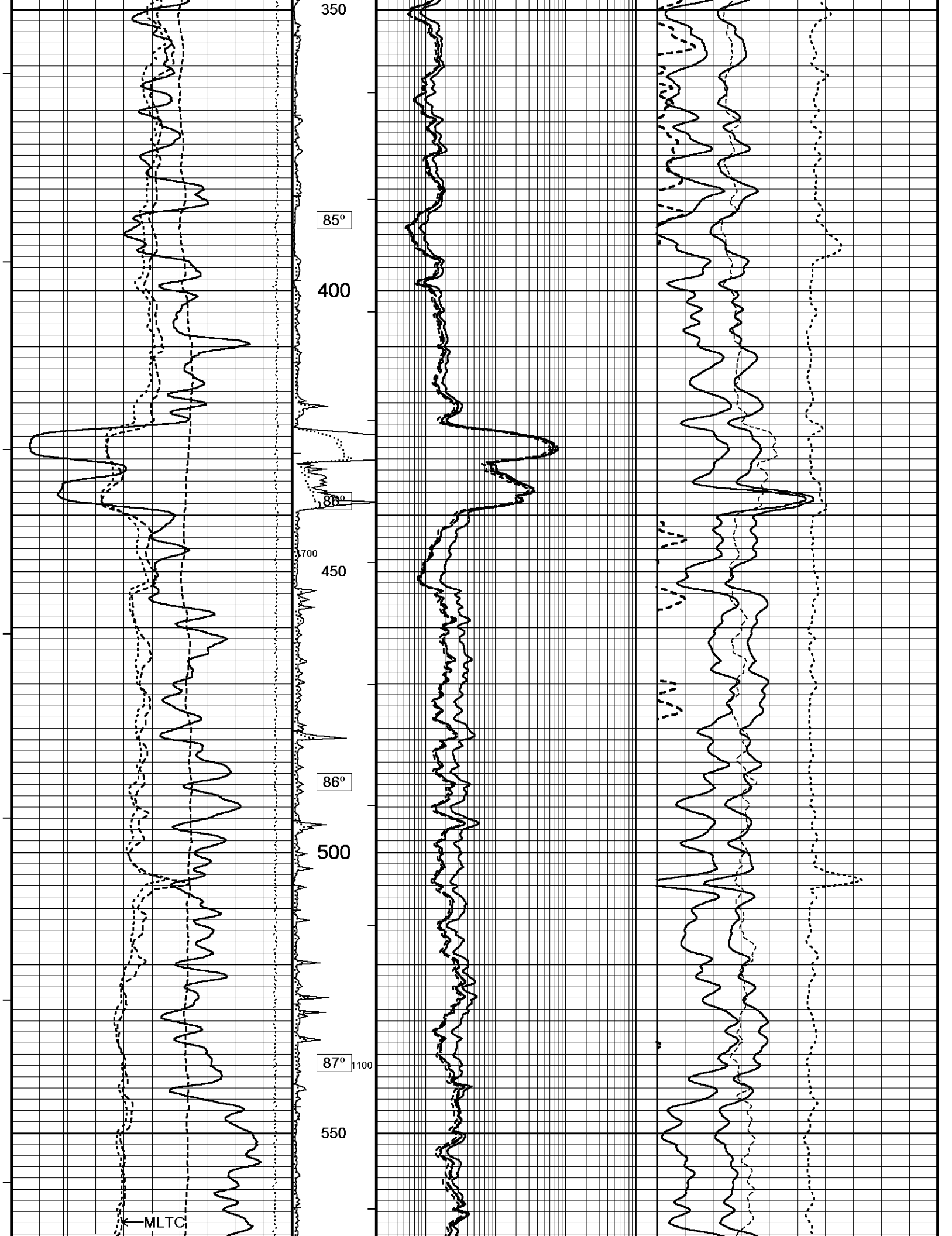
Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 21-SEP-2018 02:30

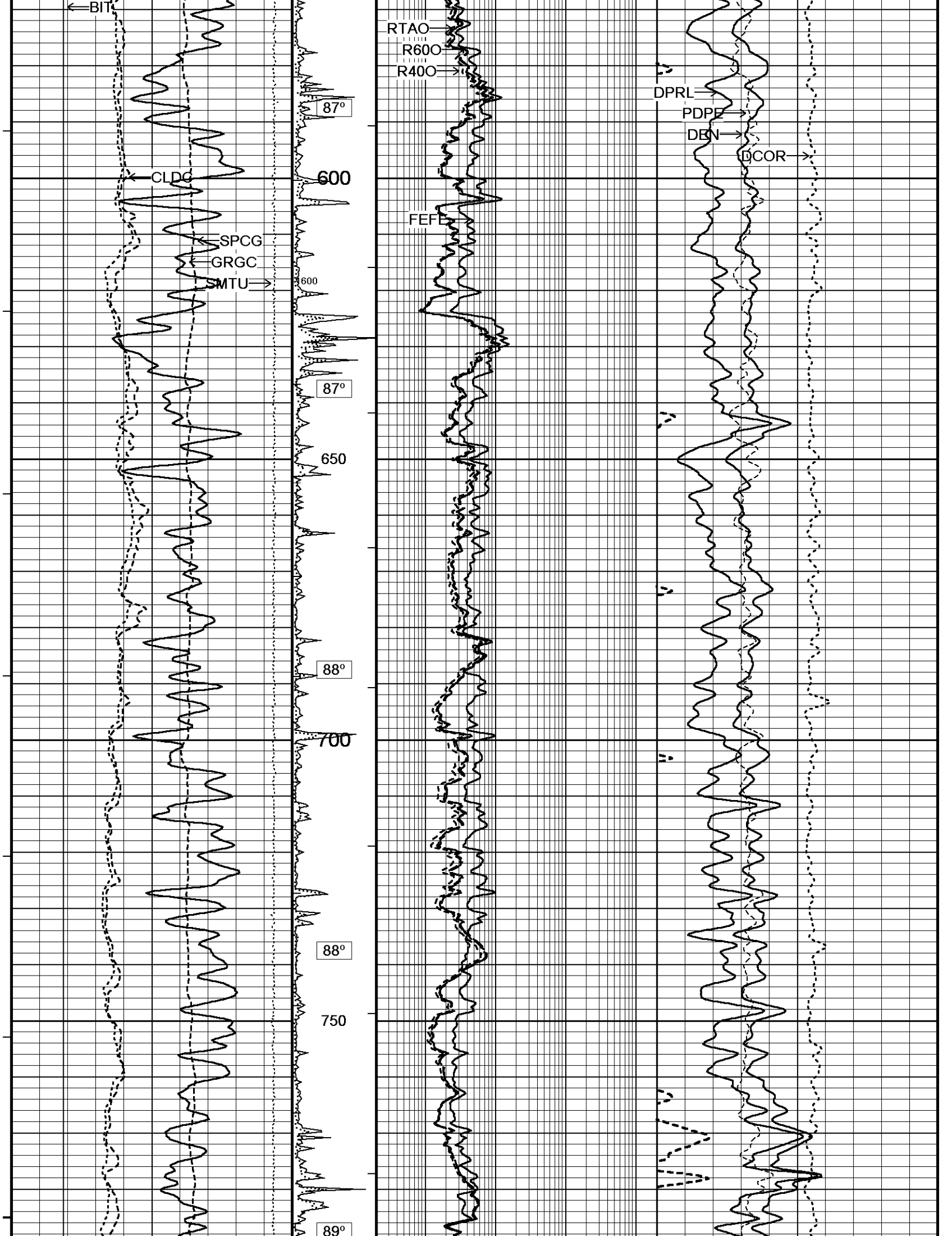
Filename: C:\Minimus 18.01.6830\Data\Grand Mesa Miller #2-10\Grand Mesa Miller #2-10_003.dta — Recorded on 20-SEP-2018 23:43

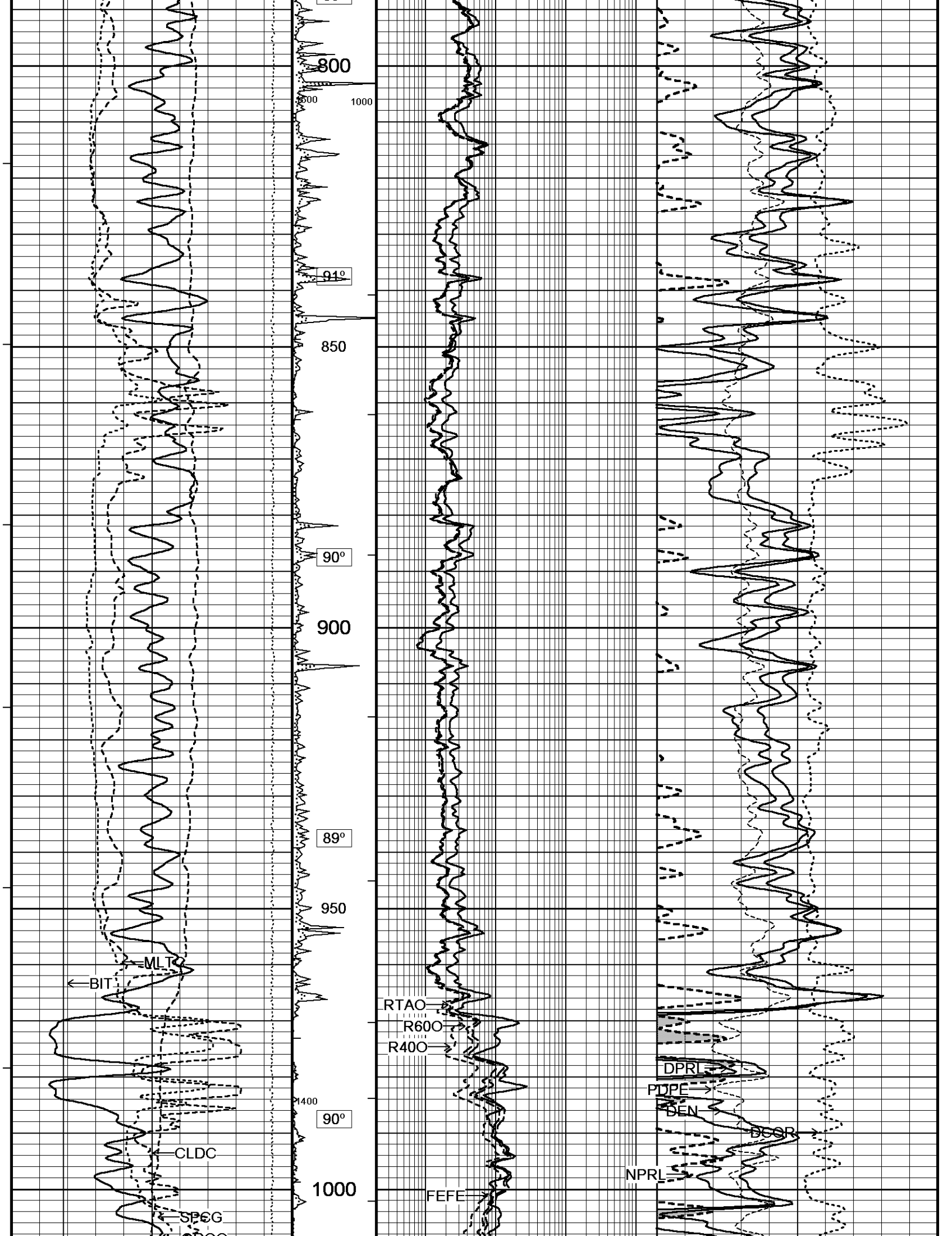
System Versions: Logged with 18.01.6830 Processed with 18.01.6830 Plotted with 18.01.6830

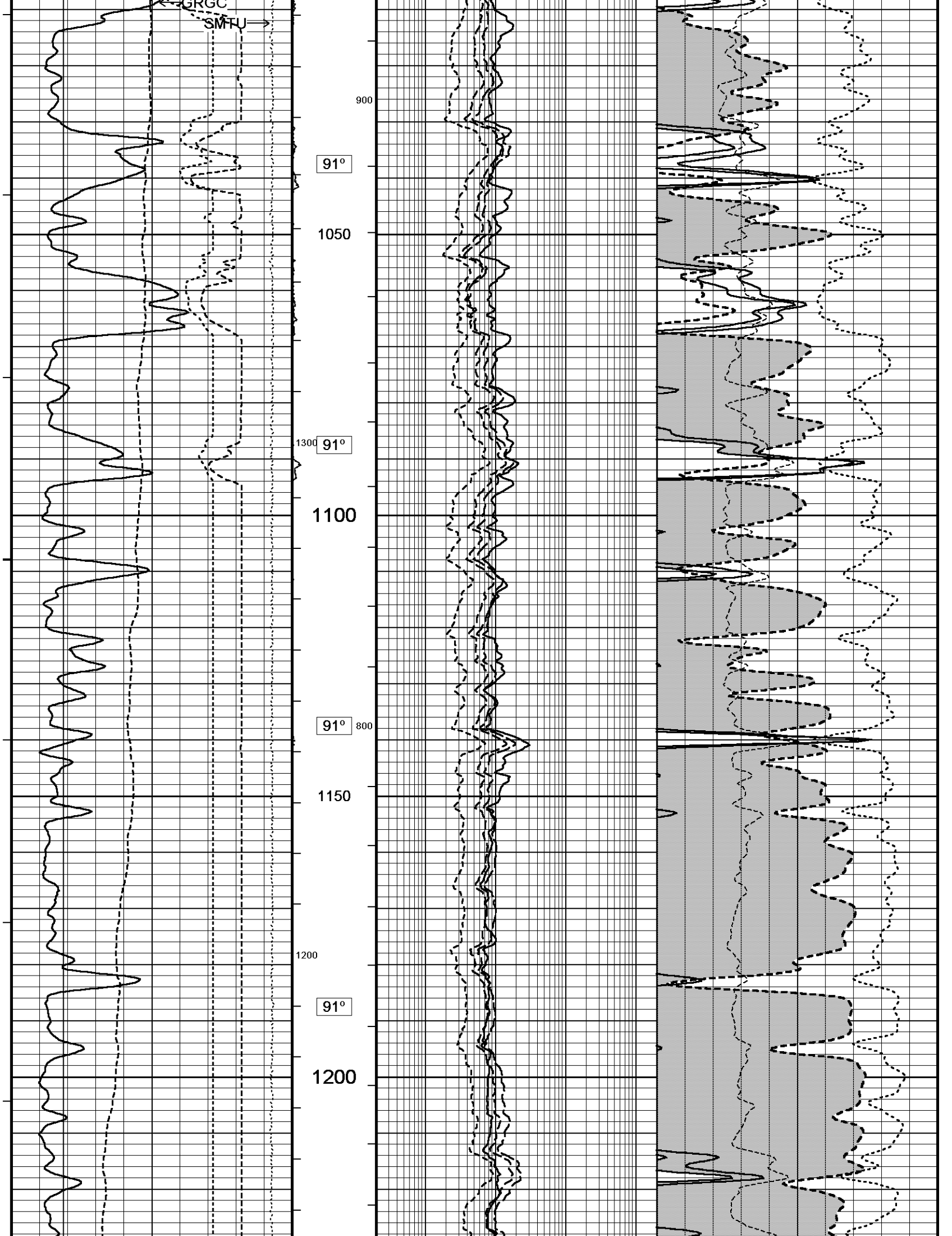


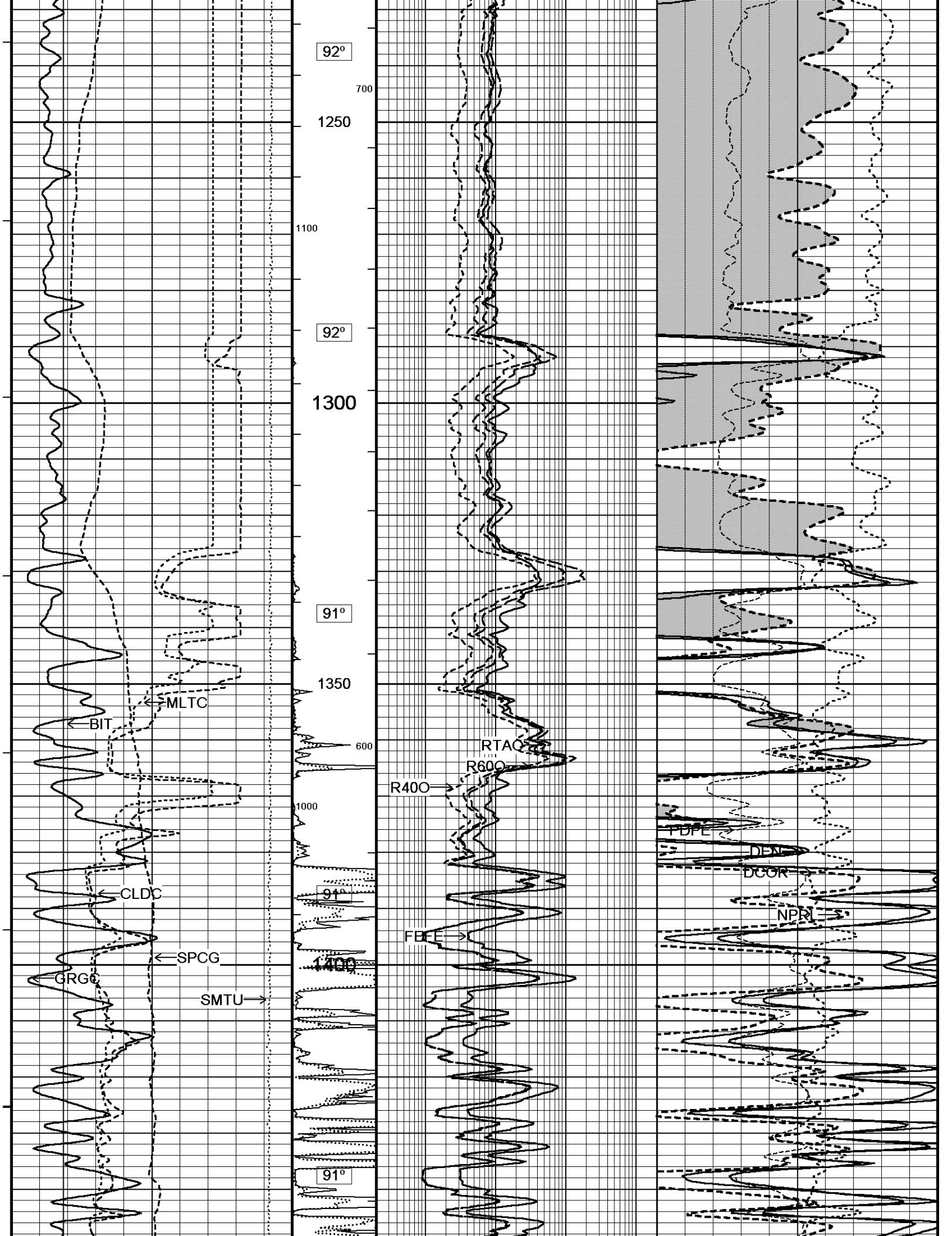

DST Uphole Tension
pounds
5000
0
Replay
Scale
1:240
158
Casing
Shoe
1900
BIT
RTAO
R60O
R40O
DPRL
PDRE
DEN
DCOR
200
CLDC
FEFE
SPCG
GRGC
SMTU
84°
250
84°
1800
300
1200
85°

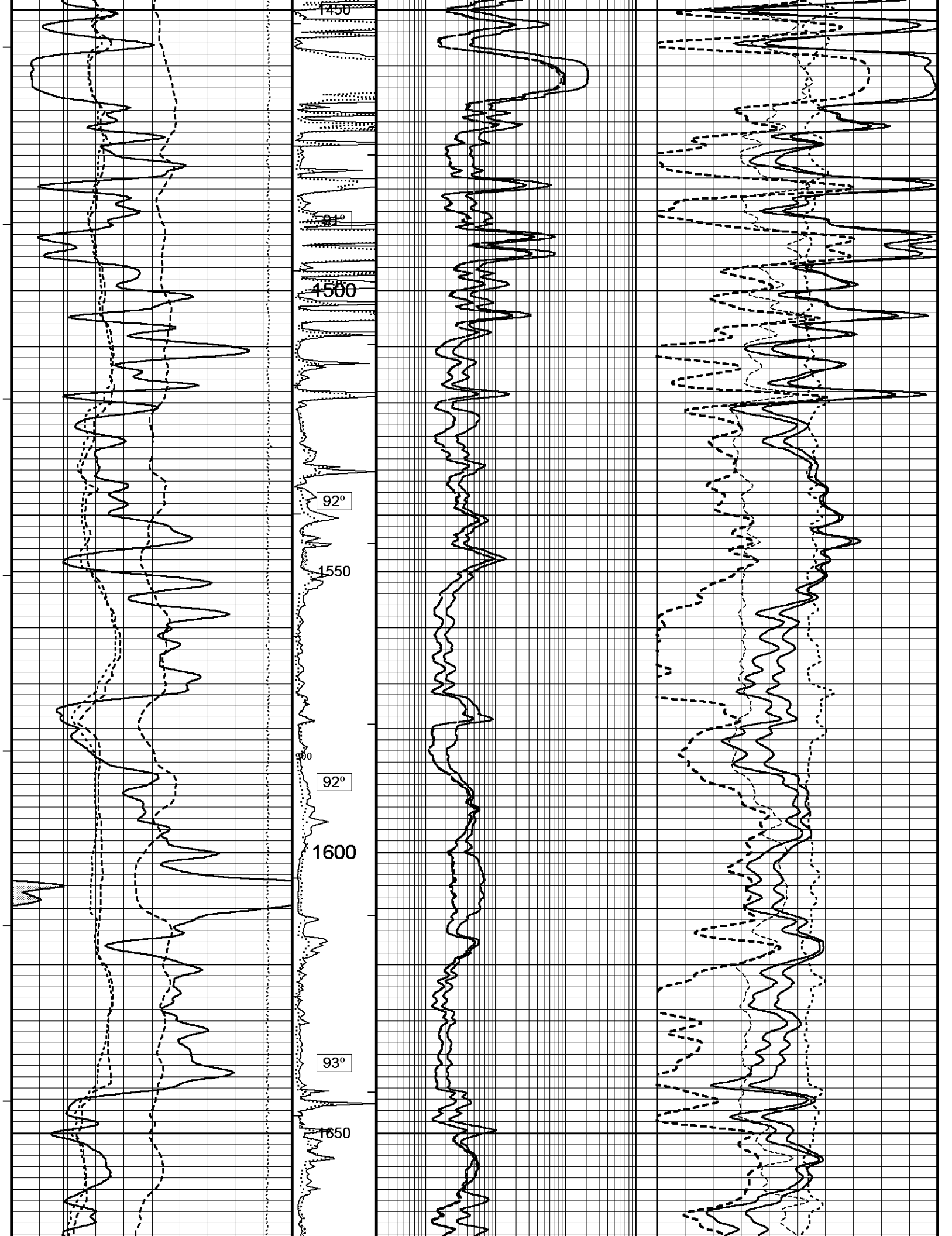

350
85°
400
86°
700
450
86°
500
87°
1100
550
MLTC

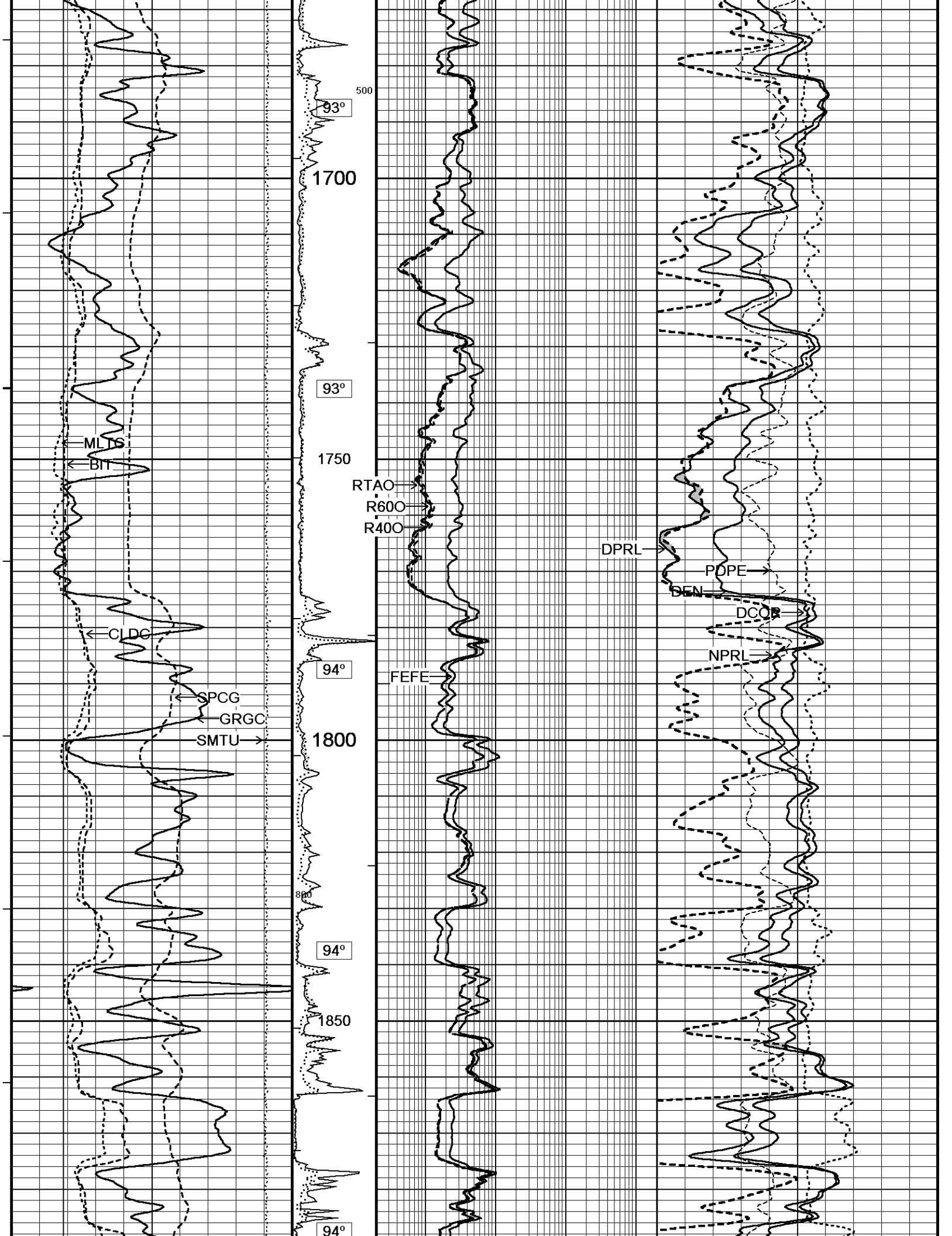

BIT
CLDC
SPCG
GRGC
SMTU
600
87°
600
87°
650
88°
700
88°
750
89°
RTAO
R60O
R40O
FEFE
DPRL
PDPE
DEN
DCOR

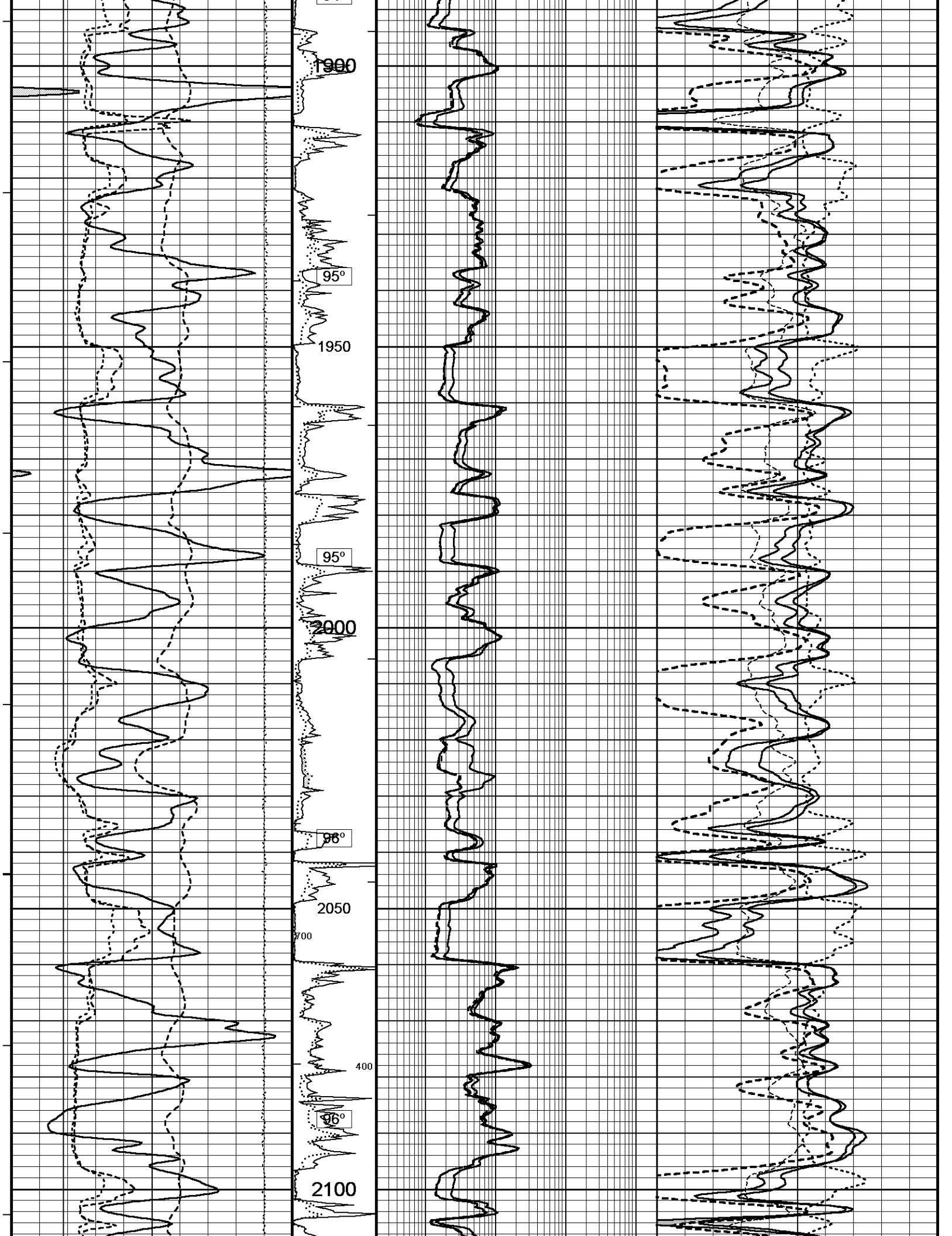

800
1000
91°
850
90°
900
89°
950
MLTC
BIT
RTAO
R60O
R40O
1400
90°
DPRL
PDPE
DEN
DCOR
NPRL
CLDC
1000
FEFE
SPEG

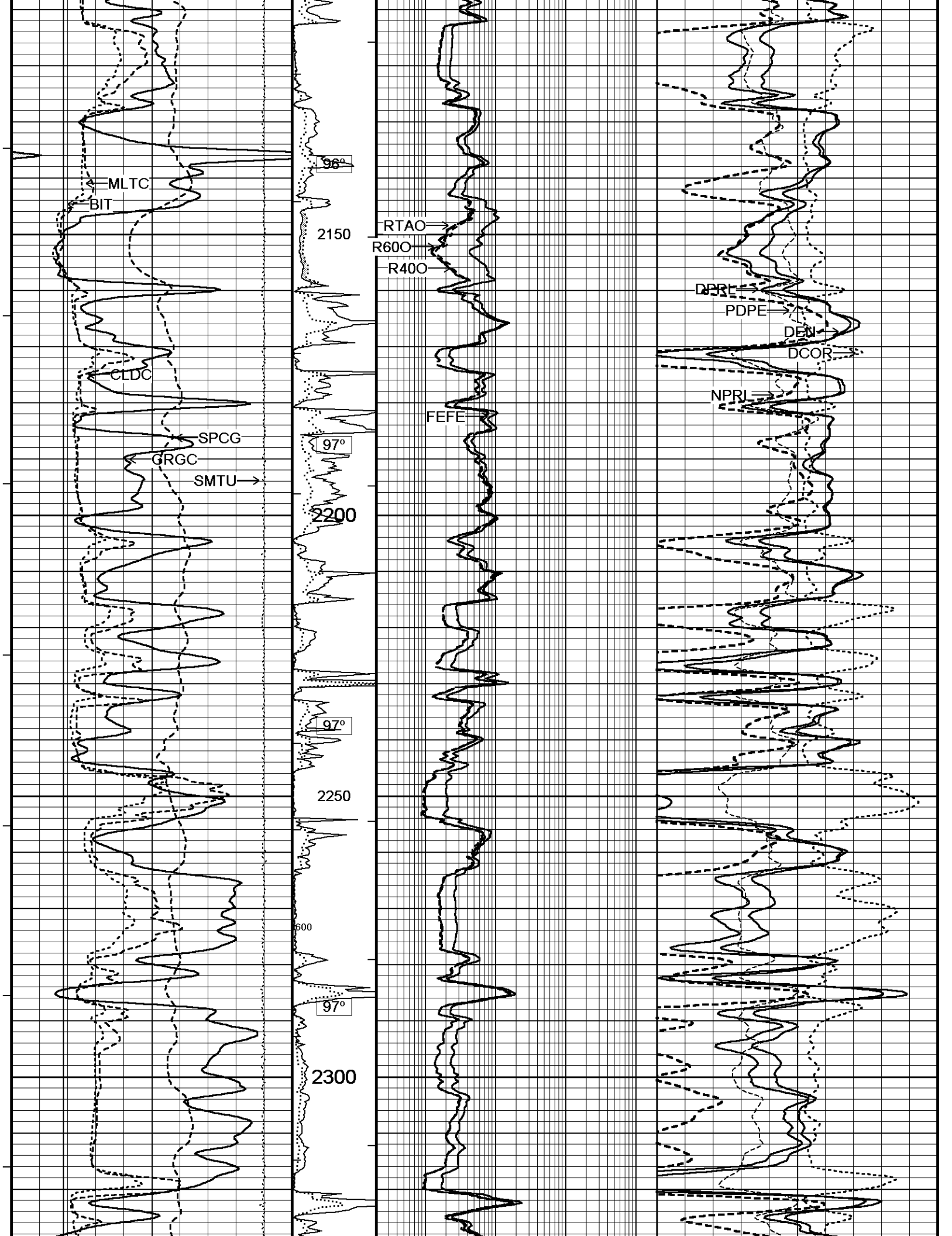

←GRGC
SMTU→
900
91°
1050
1300
91°
1100
91°
800
1150
1200
91°
1200

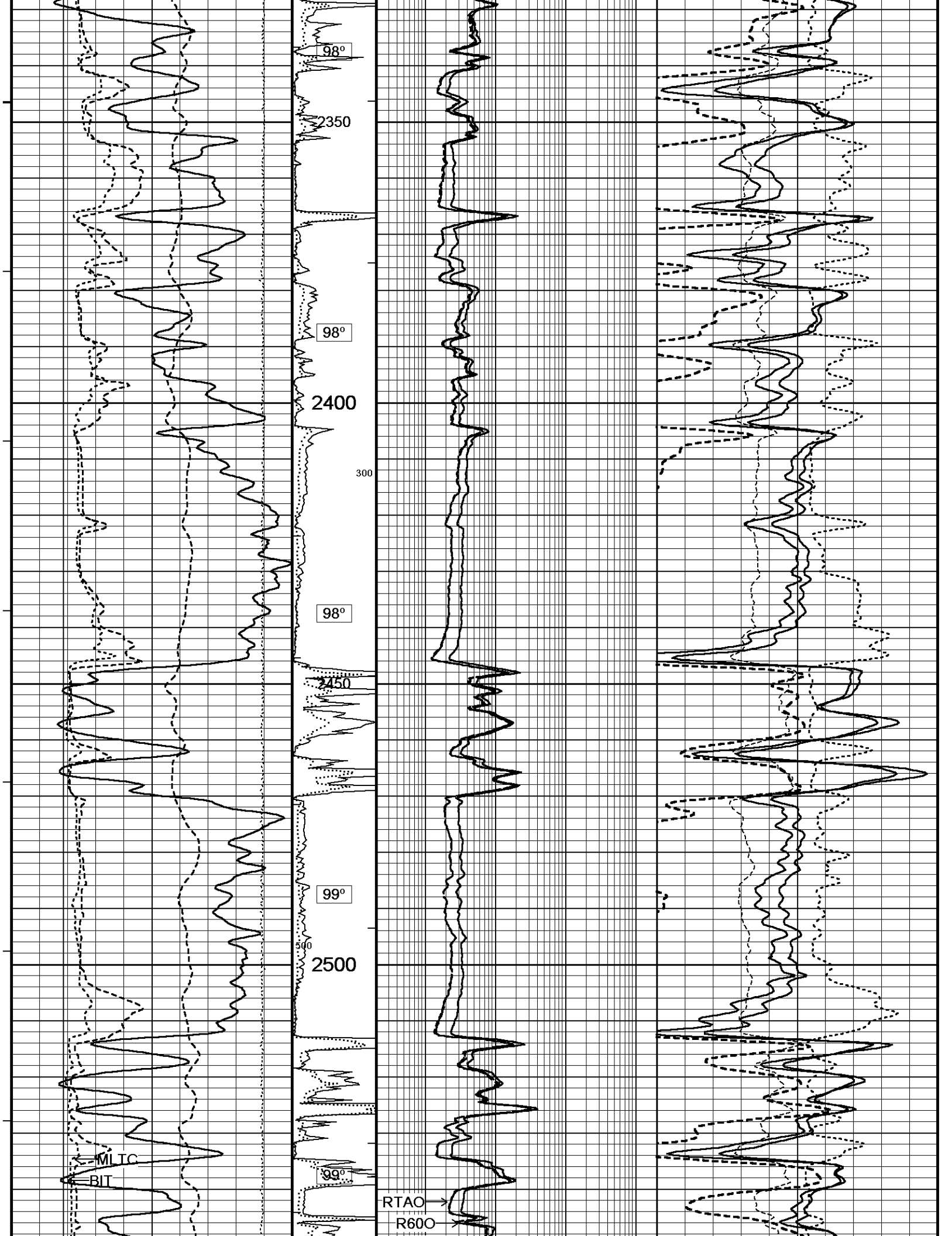

92°
700
1250
1100
92°
1300
91°
1350
MLTC
BIT
600
RTAO
R60O
R40O
1000
TDPE
DEXL
DCOR
CLDC
91°
NPRL
FEFE
SPCG
1400
GRGC
SMTU
91°

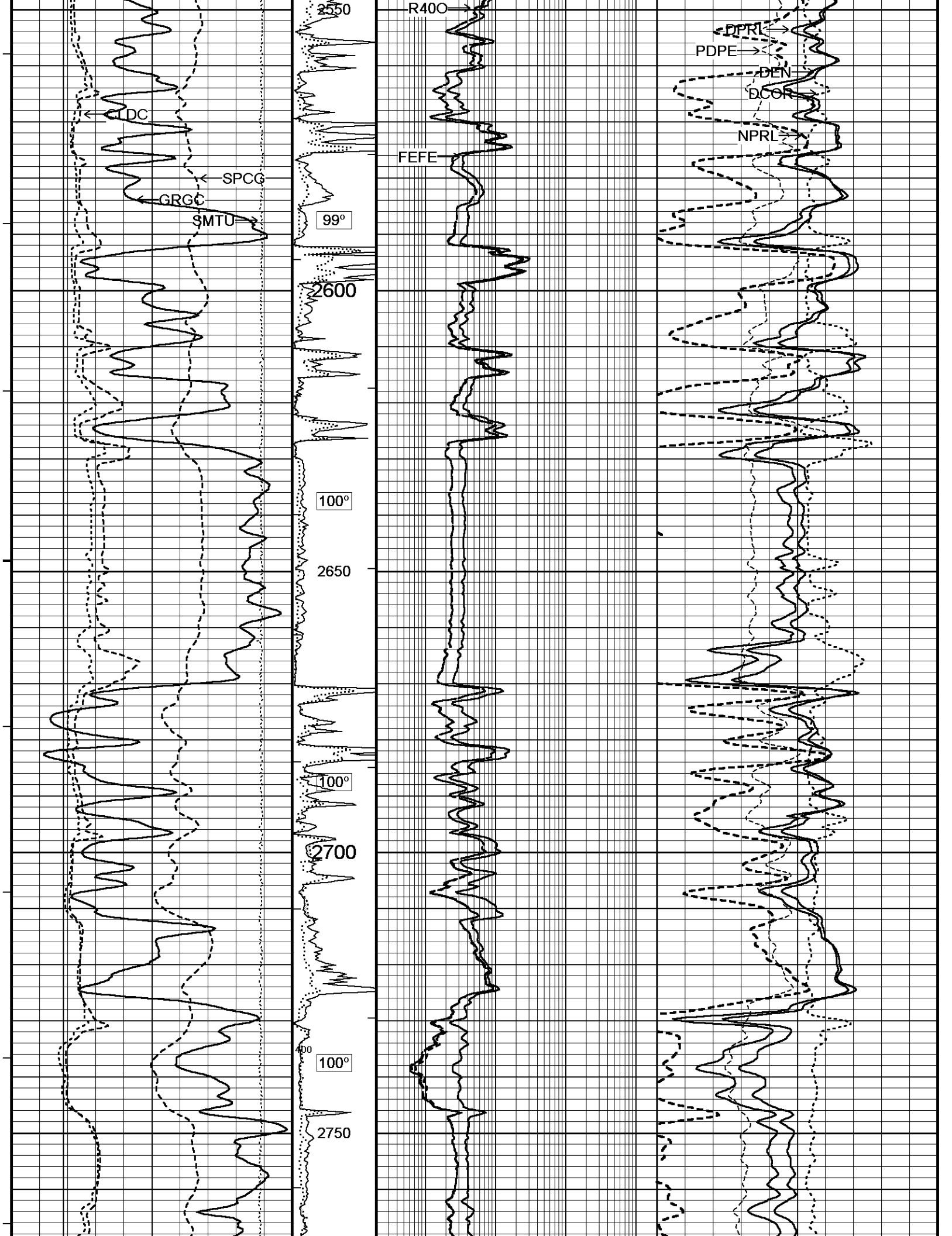

1450
91°
1500
92°
1550
900
92°
1600
93°
1650

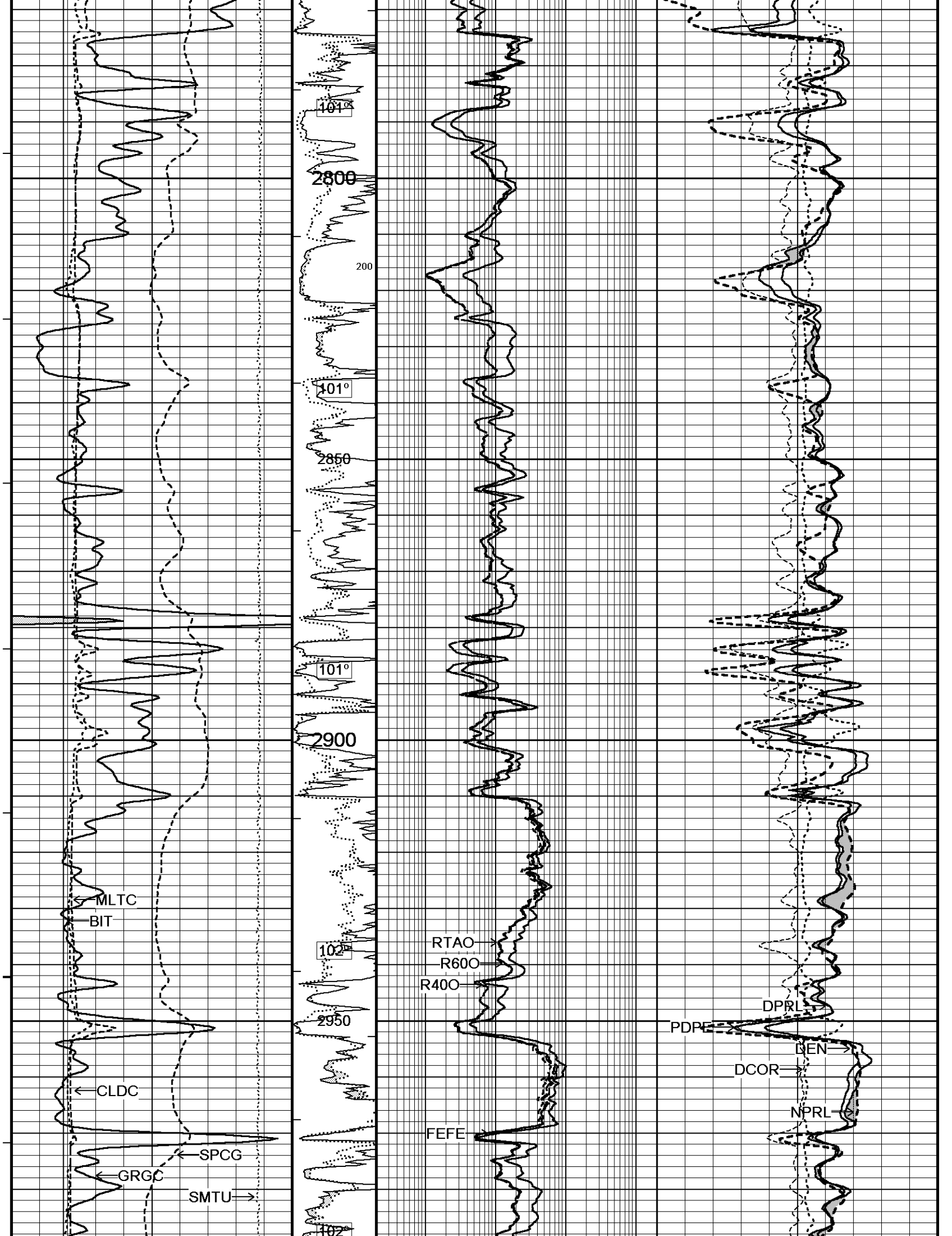

500
93°
1700
93°
MLTC
BIT
1750
RTAO
R60O
R40O
CLDC
94°
FEFE
SPCG
GRGC
SMTU
1800
800
94°
1850
94°
DPRL
PDPE
DEN
DCOR
NPRL

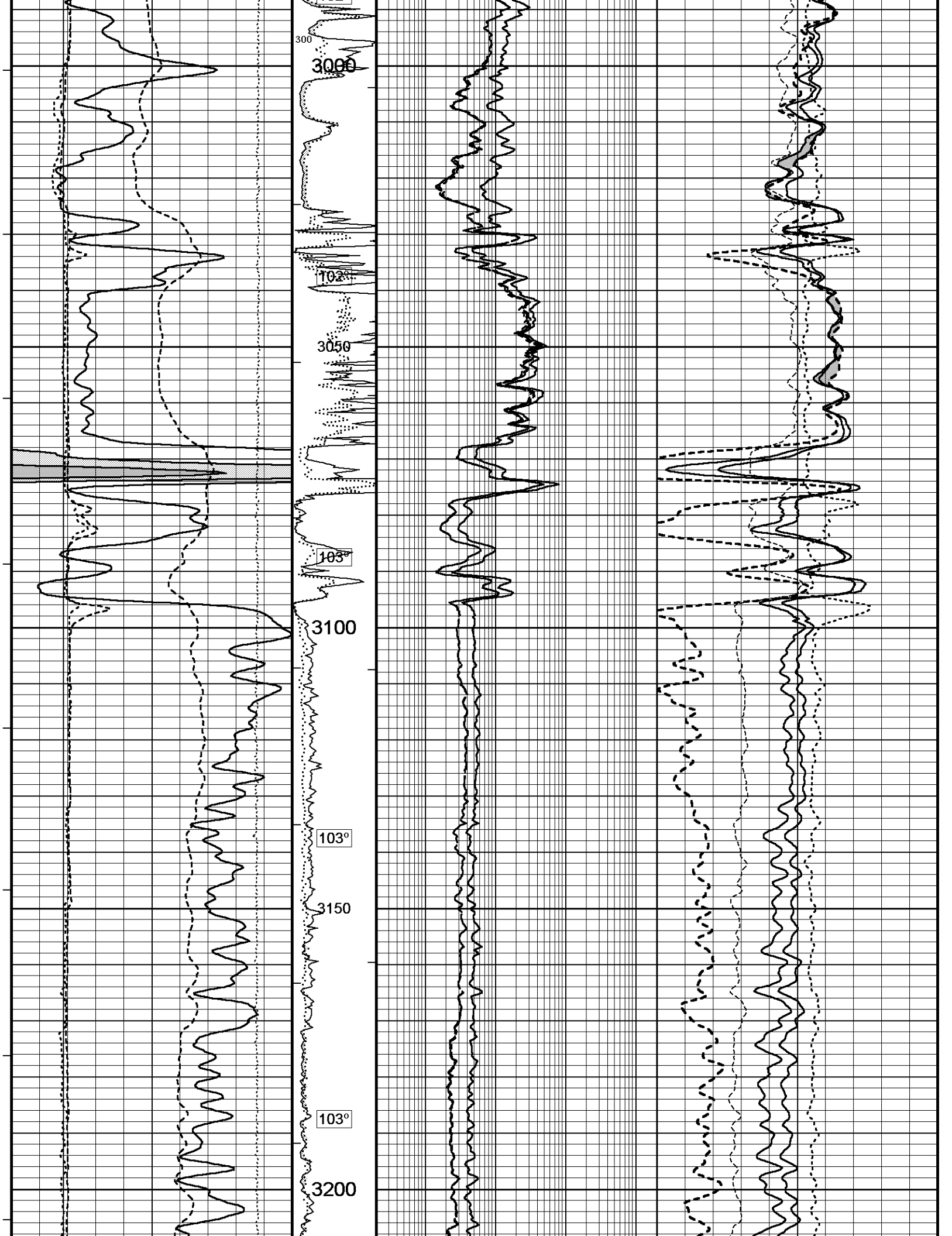

1900
95°
1950
95°
2000
96°
2050
700
400
96°
2100

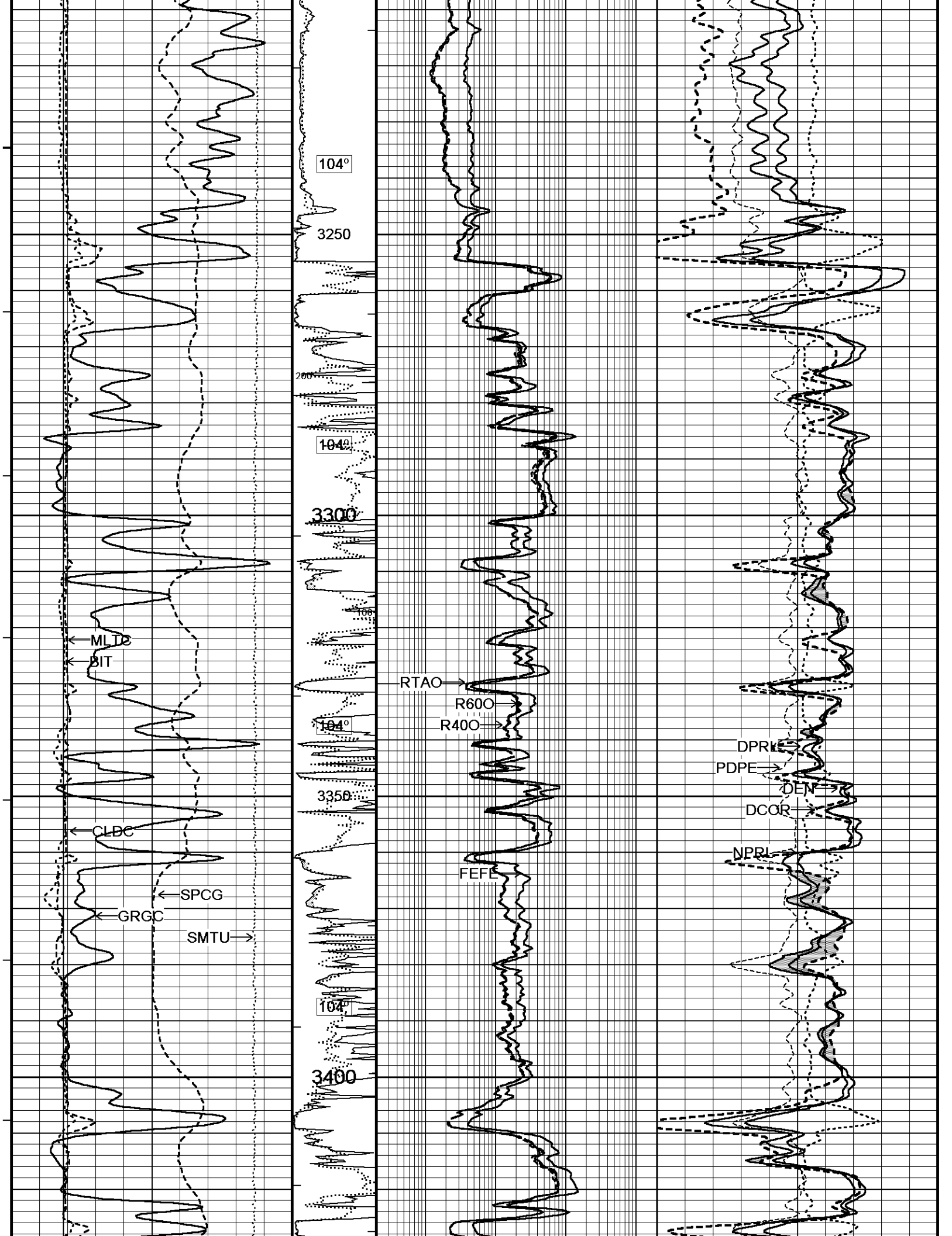

MLTC
BIT
CLDC
SPCG
GRGC
SMTU
96°
97°
97°
97°
2150
2200
2250
2300
RTAO
R60O
R40O
FEFE
DPRL
PDPE
DEN
DCOR
NPRL

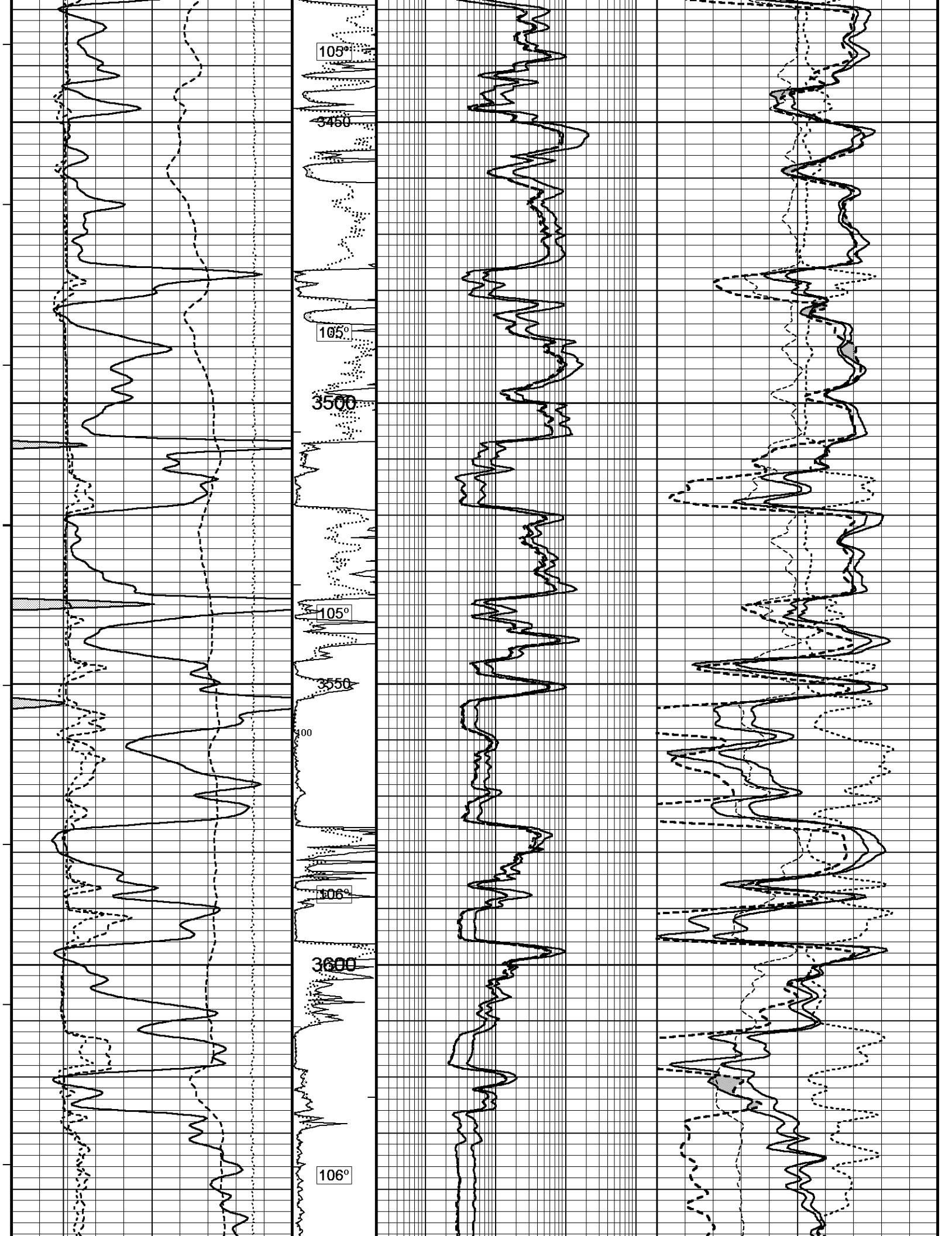

98°
2350
98°
2400
300
98°
2450
99°
500
2500
99°
MLTC
BIT
RTAO
R60O

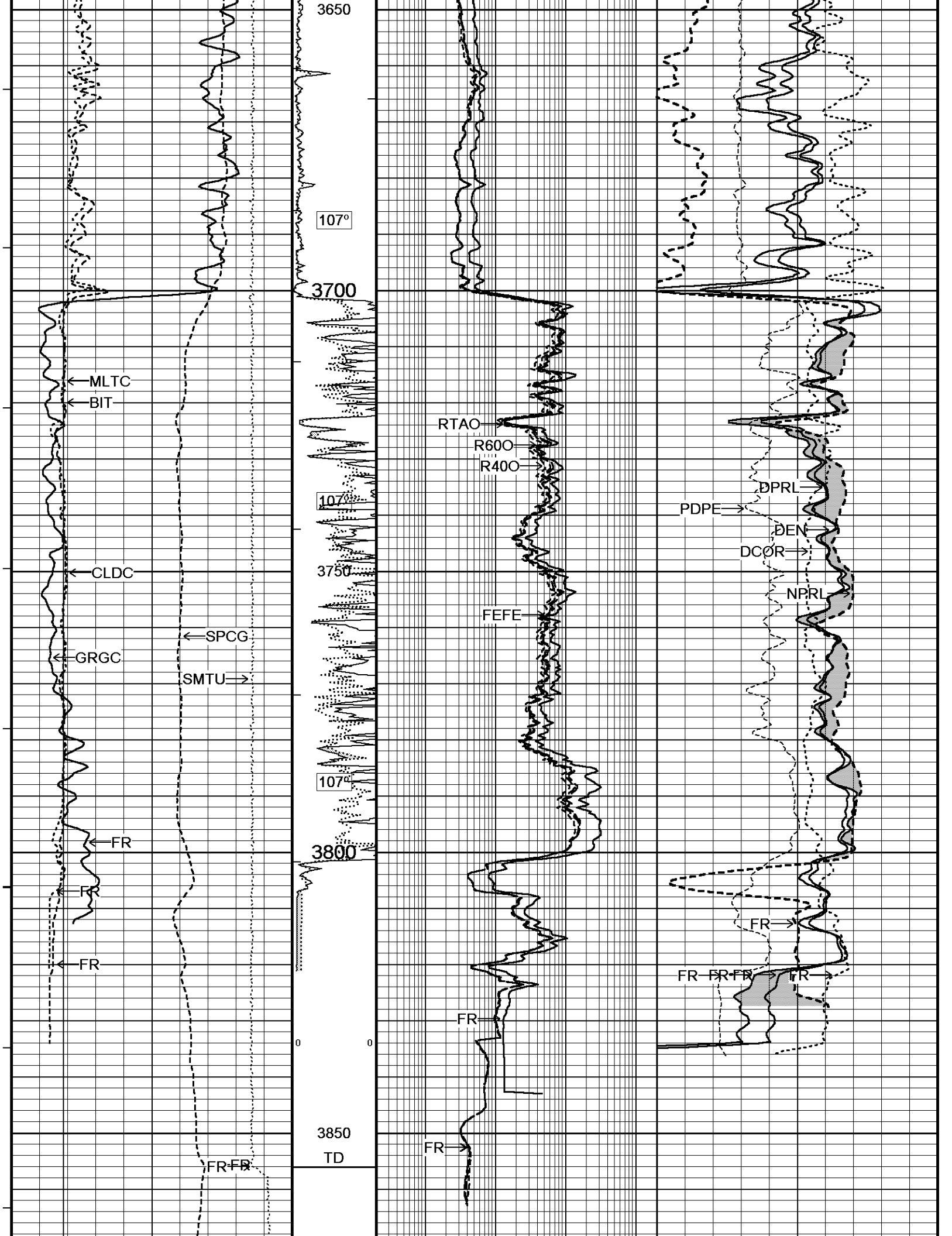

CLDC
SPCG
GRGC
SMTU
2550
99°
2600
100°
2650
100°
2700
400
100°
2750
R40O
FEFE
DPRL
PDPE
DEN
DCOR
NPRL

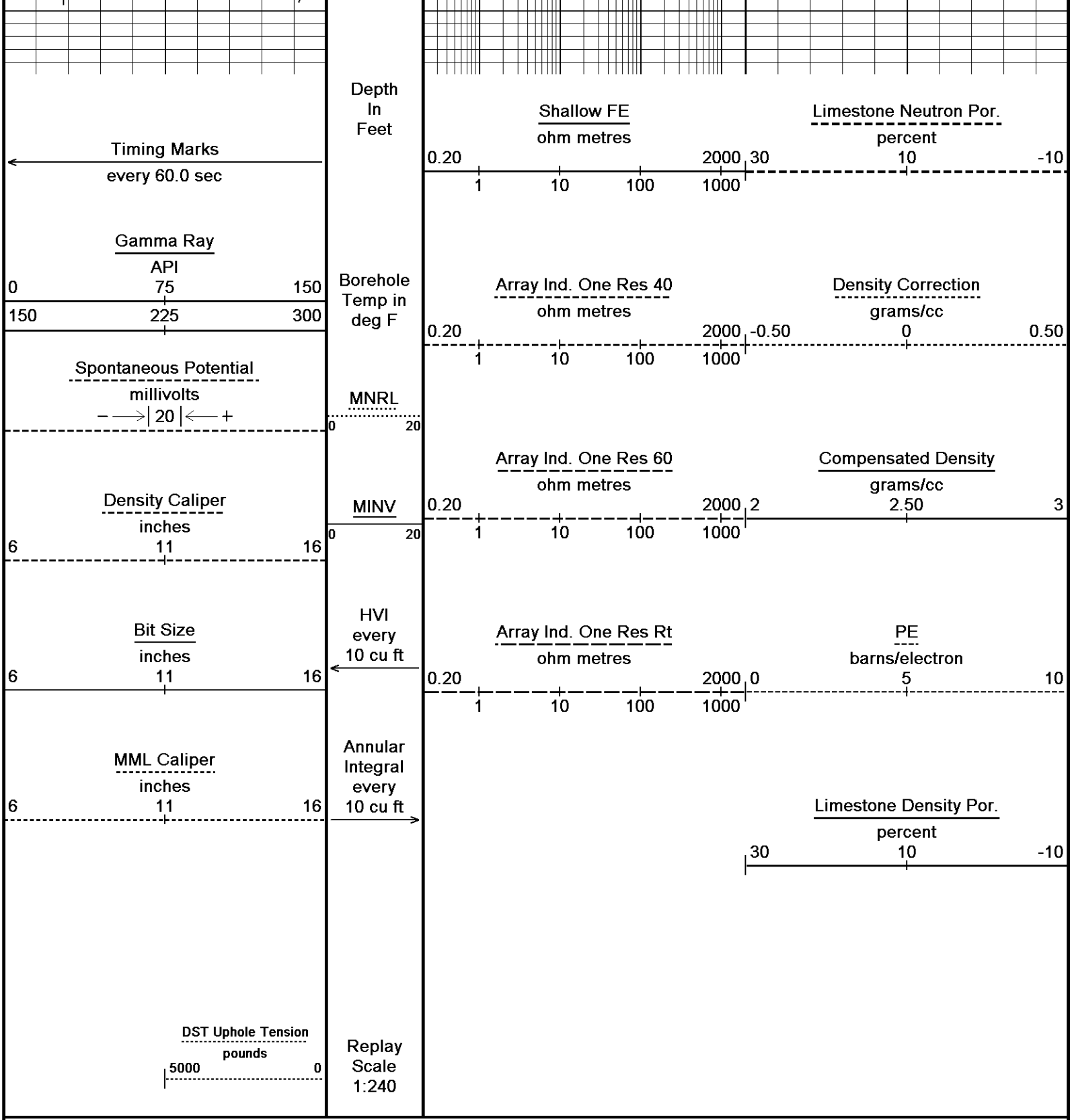

101°
2800
200
101°
2850
101°
2900
102°
2950
MLTC
BIT
CLDC
SPCG
GRGC
SMTU
RTAO
R60O
R40O
FEFE
DPRL
PDPE
DEN
DCOR
NPRL


300
3000
102°
3050
103°
3100
103°
3150
103°
3200


104°
3250
200
104°
3300
100
MLTC
BIT
RTAO
R60O
R40O
104°
3350
CLDC
FEFE
SPCG
GRGC
SMTU
104°
3400
DPRL
PDPE
DEN
DCOR
NPRL


105°
3450
105°
3500
105°
3550
100
106°
3600
106°


3650
107°
3700
MLTC
BIT
RTAO
R60O
R40O
107°
DPRL
PDPE
DEN
DCOR
CLDC
3750
NPRL
FEFE
SPCG
GRGC
SMTU
107°
FR
3800
FR
FR
FR
FR
FR
FR FR FR FR
FR
3850
TD
FR FR

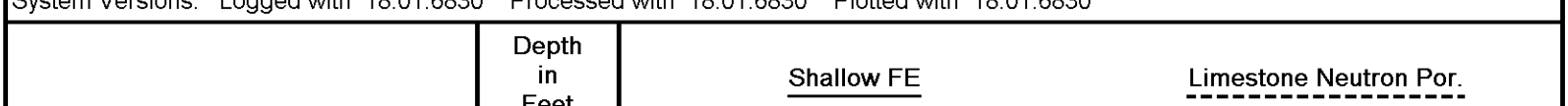


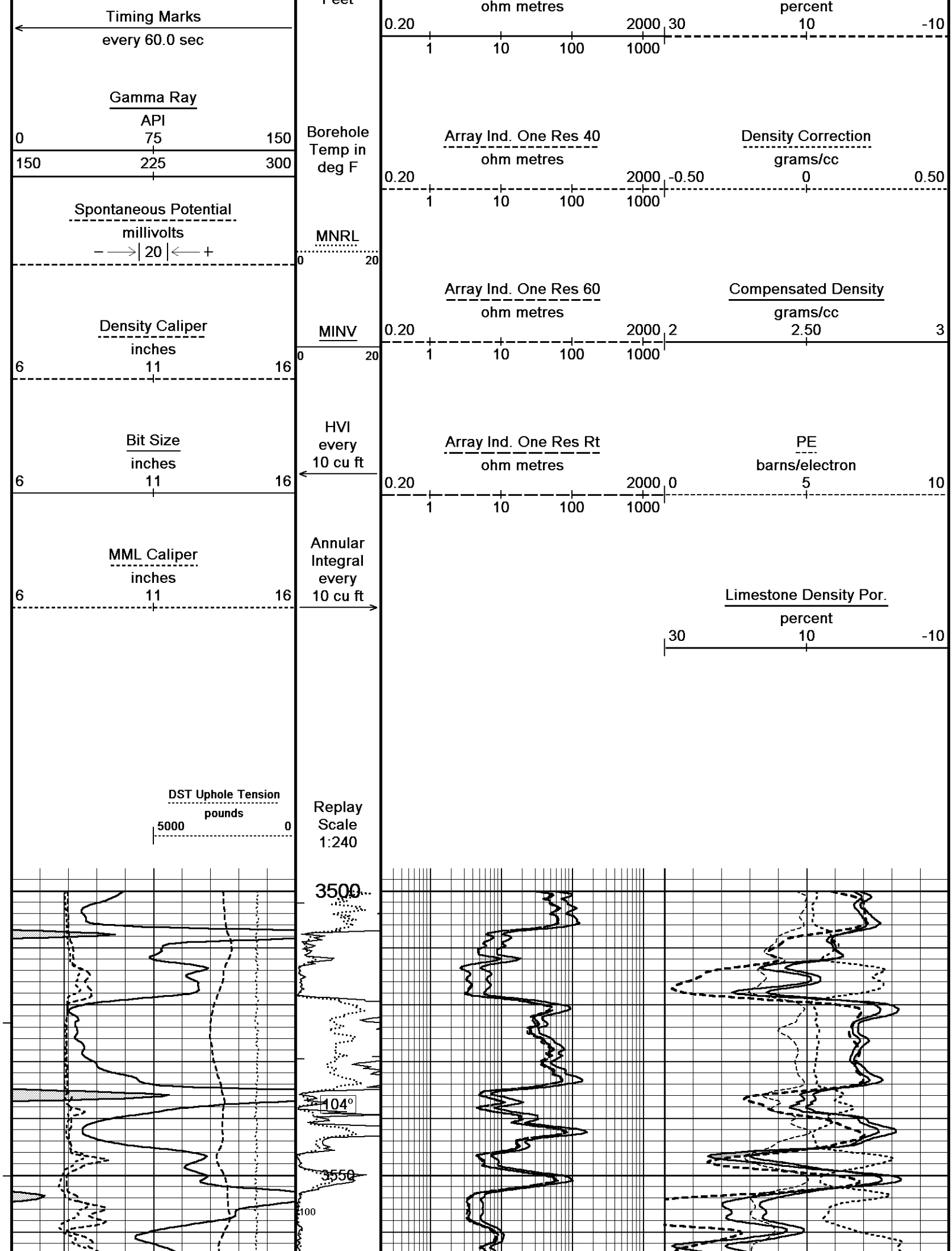
Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 21-SEP-2018 02:30
Filename: C:\Minimus 18.01.6830\Data\Grand Mesa Miller #2-10\Grand Mesa Miller #2-10_003.dta
Recorded on 20-SEP-2018 23:43
System Versions: Logged with 18.01.6830 Processed with 18.01.6830 Plotted with 18.01.6830

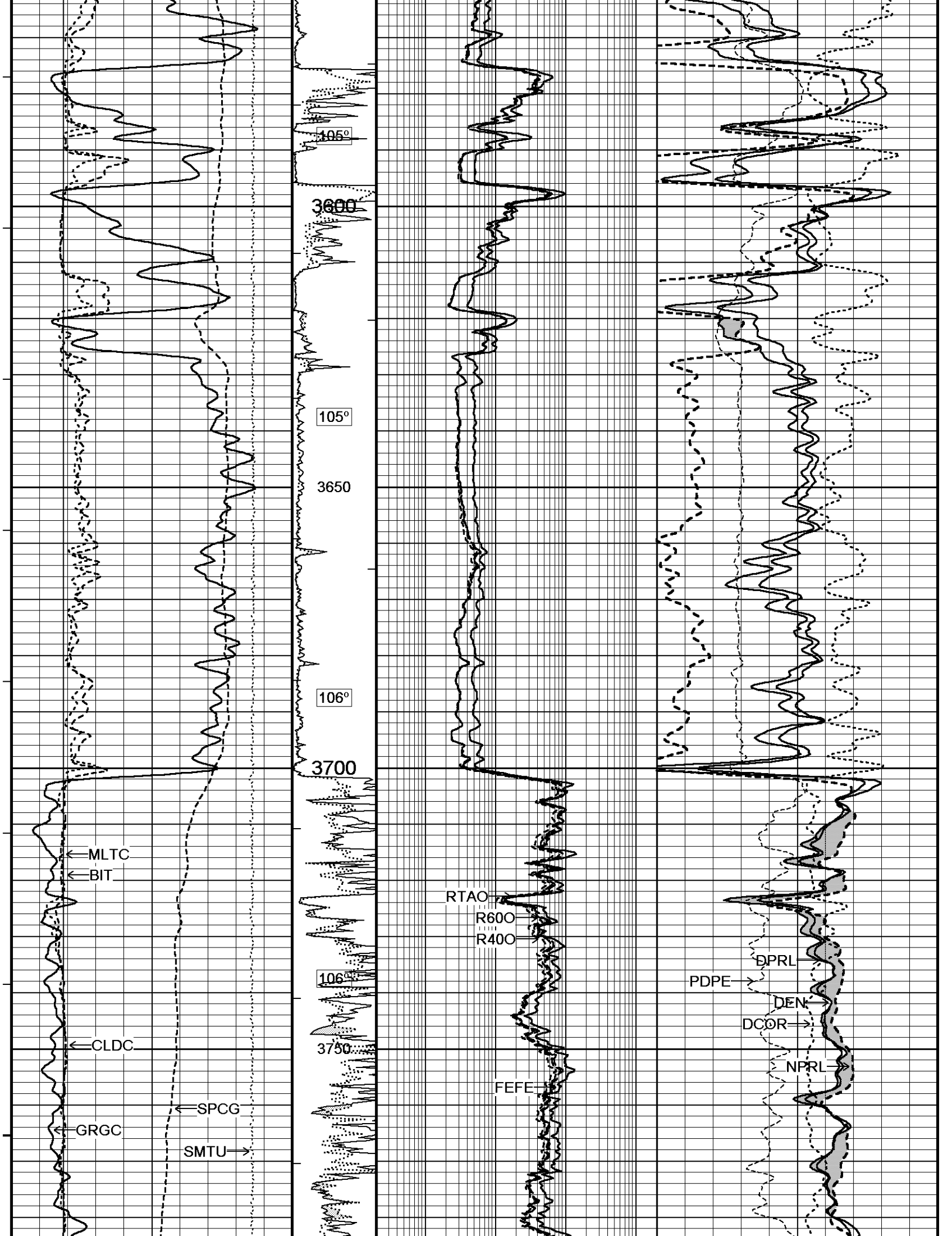
5 INCH MAIN

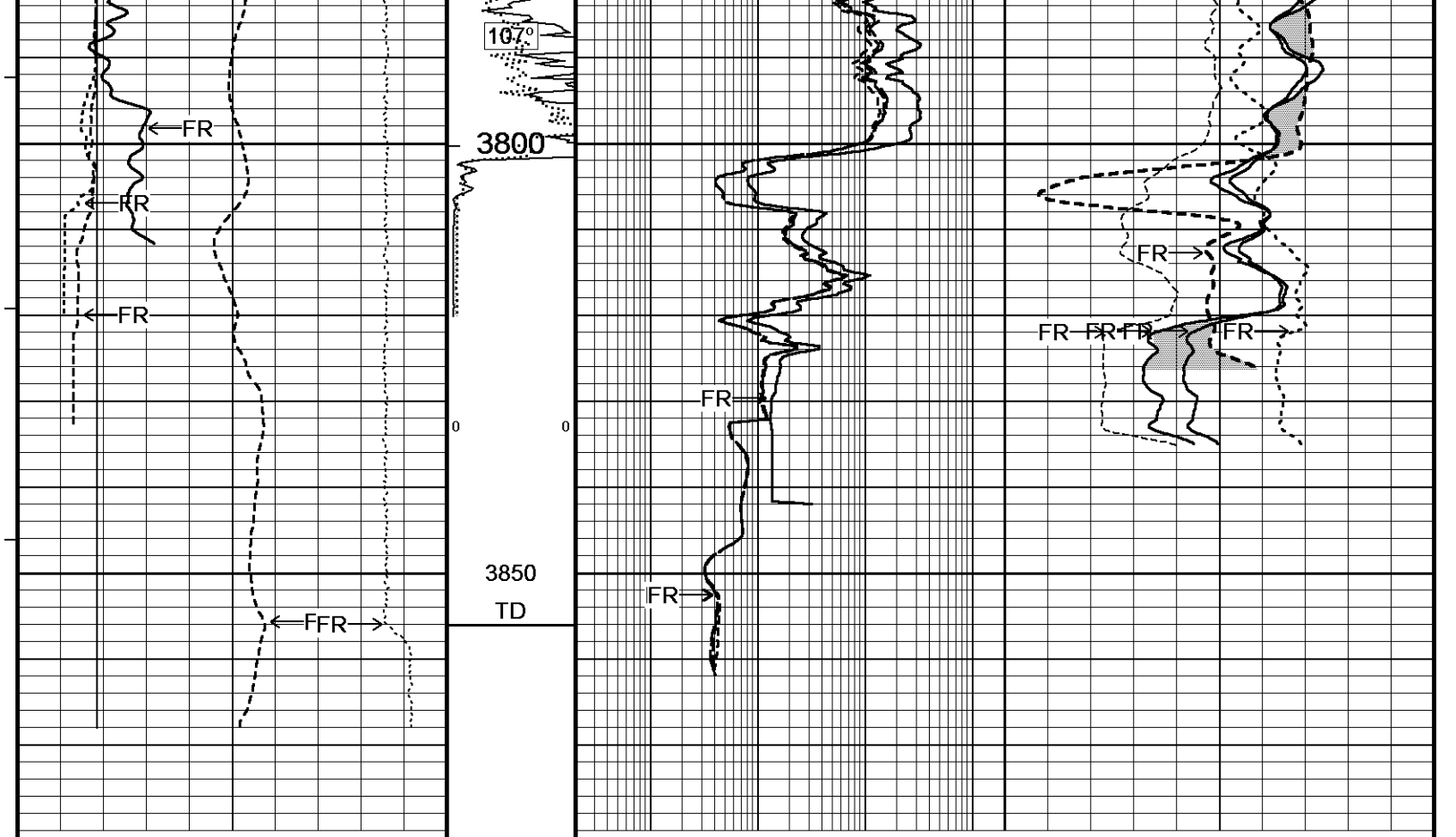
REPEAT SECTION

Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 21-SEP-2018 02:30
Filename: C:\Minimus 18.01.6830\Data\Grand Mesa Miller #2-10\Grand Mesa Miller #2-10_002.dta
Recorded on 20-SEP-2018 23:06
System Versions: Logged with 18.01.6830 Processed with 18.01.6830 Plotted with 18.01.6830




Feet
Timing Marks
every 60.0 sec
Gamma Ray
API
0
75
150
150
225
300
Borehole Temp in deg F
Spontaneous Potential
millivolts
20
MNRL
0
20
Density Caliper
inches
6
11
16
MINV
0
20
Bit Size
inches
6
11
16
HVI every 10 cu ft
MML Caliper
inches
6
11
16
Annular Integral every 10 cu ft
DST Uphole Tension
pounds
5000
0
Replay Scale 1:240
3500
104°
3550
100
ohm metres
0.20
2000
1
10
100
1000
Array Ind. One Res 40
Array Ind. One Res 60
Array Ind. One Res Rt
percent
30
10
-10
Density Correction
grams/cc
-0.50
0
0.50
Compensated Density
2
2.50
3
PE
barns/electron
0
5
10
Limestone Density Por.


105°
3600
105°
3650
106°
3700
106°
3750
MLTC
BIT
CLDC
SPCG
GRGC
SMTU
RTAO
R60O
R40O
FEFE
DPRL
PDPE
DEN
DCOR
NPRL



Timing Marks
every 60.0 sec

Depth
in
Feet

Shallow FE
ohm metres
0.20 2000
1 10 100 1000

Limestone Neutron Por.
percent
30 10 -10

Gamma Ray
API
0 75 150
150 225 300

Borehole
Temp in
deg F

Array Ind. One Res 40
ohm metres
0.20 2000
1 10 100 1000

Density Correction
grams/cc
-0.50 0 0.50

Spontaneous Potential
millivolts
− → | 20 | ← +

MNRL
0 20

Array Ind. One Res 60
ohm metres
0.20 2000
1 10 100 1000

Compensated Density
grams/cc
2 2.50 3

Density Caliper
inches
6 11 16

MINV
0 20

HVI
every
10 cu ft

Array Ind. One Res Rt
ohm metres
0.20 2000
1 10 100 1000

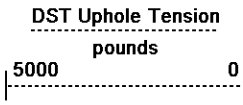
PE
barns/electron
0 5 10

Bit Size
inches
6 11 16

MML Caliper
inches
6 11 16

Annular
Integral
every
10 cu ft

Limestone Density Por.
percent
30 10 -10



Replay Scale 1:240

Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 21-SEP-2018 02:30
Filename: C:\Minimus 18.01.6830\Data\Grand Mesa Miller #2-10\Grand Mesa Miller #2-10_002.dta — Recorded on 20-SEP-2018 23:06
System Versions: Logged with 18.01.6830 Processed with 18.01.6830 Plotted with 18.01.6830

REPEAT SECTION

BEFORE SURVEY CALIBRATION

C:\Minimus 18.01.6830\Data\Grand Mesa Miller #2-10\Grand Mesa Miller #2-10_002.dta

General Constants All 000

Last Edited on 20-SEP-2018,22:43

General Parameters		
Mud Resistivity	0.430	ohm-metres
Mud Resistivity Temperature	75.000	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	Crossplot Porosity	
Resistivity used	Array Ind. Two Res Rt	
RWA Constant A	0.620	
RWA Constant M	2.150	
SW/APOR Tool Source	0.000	

Down-hole Tension Calibration SMS 0

Field Calibration on 17-SEP-2018 16:45

Reading No	Measured	Calibrated (lbs)
1	14671.13	0.00
2	15528.46	527.00

Gamma Calibration MCG-D.A 246

Field Calibration on 20-SEP-2018,10:55

	Measured	Calibrated (API)
Background	107	74
Calibrator (Gross)	770	530
Calibrator (Net)	663	456

Gamma Calibration Tolerances MCG-D.A 246

Ratio 1.454 (1.40 — 1.475 — 1.55) Counts/API

Gamma Constants MCG-D.A 246

Last Edited on 20-SEP-2018,21:39

Gamma Calibrator Number	MCGGRCC141	
GRC-M Calibrator Jig in Use?	NO	
Inactive Background Jig in Use?	NO	
Mud Density	1.11	gm/cc
Caliper Source for Processing	Density Caliper	
Tool Position	Eccentred	
Potassium Equivalence	Chloride	
K Mud Concentration	0.00	%

High Resolution Temperature Calibration MCG-D.A 246

Field Calibration on 01-AUG-2018,13:29

	Measured	Calibrated(Deg F)
Lower	50.00	50.00
Upper	212.00	212.00

High Resolution Temperature Constants MCG-D.A 246

Last Edited on 07-JUN-2018,10:42

Pre-filter Length	11

SP Calibration MCG-D.A 246

Field Calibration on 01-AUG-2018,13:35

	Measured	Calibrated (mV)
Reference 1	103.5	100.0
Reference 2	-96.9	-100.1

Caliper Calibration MML-A 7

Base Calibration on 07-SEP-2018 12:58
Field Calibration on 20-SEP-2018,10:47

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	14194	5.98
2	17673	7.97
3	20976	9.86
4	25017	11.92
5	0	0.00
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
8.07	8.10

Caliper Calibration Tolerances MML-A 7

		7.90	8.10	8.30	
Short Arm Field Cal.	8.07				in

Micro Normal and Micro Inverse Calibration MML-A 7

Base Calibration on 07-SEP-2018 13:13
Field Check on 20-SEP-2018,10:47

	Resistor 1 (ohm)		Resistor 2 (ohm)	
		10.0		50.0
Base Calibration				
		Measured		Calibrated (ohm-m)
Micro Normal	10.2	50.4	5.1	25.6
Micro Inverse	10.0	50.1	3.4	16.9

Channel	Base Check (ohm-m)	Field Check (ohm-m)
Micro Normal	76.7	76.7
Micro Inverse	51.0	51.0

Micro Normal & Micro Inverse Calibration Tolerance MML-A 7

		-5%	10.0	+5%			-5%	50.0	+5%	
Micro Normal Res. 1	10.2				ohm	Micro Normal Res. 2	50.4			ohm
Micro Inverse Res. 1	10.0	-5%	10.0	+5%	ohm	Micro Inverse Res. 2	50.1	-5%	50.0	+5% ohm

		-2%	76.54	+2%	
Micro Normal Base Check	76.7				ohm-m
Micro Inverse Base Check	51.0	-2%	50.95	+2%	ohm-m

		-2%	76.7	+2%	
Micro Normal Field Check	76.7				ohm-m
Micro Inverse Field Check	51.0	-2%	51.0	+2%	ohm-m

Micro Normal and Micro Inverse Constants MML-A 7

Last Edited on 20-SEP-2018,10:47

Pad Type	8-12 in Soft Rubber Inflatable 006-9011-159	
Micro Normal K Factor	0.5110	
Micro Inverse K Factor	0.3380	
Standoff Offset	N/A	inches

Neutron Calibration MDN-B.A 292

Base Calibration on 02-SEP-2018,10:44
Field Check on 20-SEP-2018,10:47

Base Calibration

	Measured	Calibrated (cps)

	Near	Far	Near	Far
	2951	93	3714	110
Ratio	31.695		33.764	

Field Calibrator at Base	Calibrated (cps)	
	2190	3136
Ratio	0.698	

Field Check	Calibrated (cps)	
	2168	3105
Ratio	0.698	

Neutron Calibration Tolerances MDN-B.A 292

		-5%	33	+5%
Ratio	31.695			

		0.65	0.7	0.75
Base Check	0.698			

		0.678	0.698	0.718
Field Check	0.698			

Neutron Constants MDN-B.A 292

Last Edited on 20-SEP-2018,10:47

Neutron Source Id	P0204NN	
Neutron Jig Number	NJ5736	
Air Hole Processing	Legacy	
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	None	
Formation Pressure	N/A	kpsi
Temperature Source	Constant Value	
Temperature	68.00	degrees F
Mud Salinity	0.00	kppm
Salinity Correction	Not Applied	
Formation Fluid Salinity Source	None	
Formation Fluid Salinity	N/A	kppm
Barite Mud Correction	Not Applied	

FE Calibration MFE-A.A 135

Base Calibration on 02-SEP-2018,10:12
Field Check on 20-SEP-2018,10:42

	Resistor 1 (ohm)	Resistor 2 (ohm)
	0.0	1000.0
Base Calibration		
	Measured	Calibrated (ohm-m)
Reference 1	0.0	0.0
Reference 2	962.9	126.8
Base Check		281.0
Field Check		281.0

FE Calibration Tolerances MFE-A.A 135

		-3%	980.0	+3%	
Reference 2	962.9				ohm

		-2%	277.0	+2%	
Base Check	281.0				ohm-m

		-2%	281.0	+2%	
Field Check	281.0				ohm-m

FE Constants MFE-A.A 135

Last Edited on 20-SEP-2018,10:42

Running Mode	No Sleeve	
MFE K Factor	0.1268	
Borehole Correction Constants		
Sonde Position	0.5	inches

Hole Size Source	Density Caliper	
Hole Size Constant Value	N/A	inches
Rm Source	Global Value: Temperature Corrected	
Temp. for Rm Corr.	MCG External Temperature	

Sonic Constants MSS-C.K 319

Last Edited on 08-JUL-2018,09:57

Maximum Boundary Contrast	70.00	micro-sec/ft
Fluid Transit Time	189.00	micro-sec/ft
Limestone Transit Time	47.50	micro-sec/ft
Sandstone Transit Time	55.50	micro-sec/ft
Dolomite Transit Time	43.50	micro-sec/ft
Sonic used for Porosities	3-5' Compensated	
Correction for Sonde Skew	Applied	
Cycle Stretch Algorithm	Applied	
MN3FT	0.00	micro-sec
MX3FT	1500.00	micro-sec
Hunt-Raymer Constant	83.13	micro-sec/ft
Sonde Mode	Compensated	
Hole Type	Open Hole	

Sonde Parameters

	Measured	Calibrated
Offset		0.0000
Free Pipe	0.0000	

Peak Amplitude Source

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

Processed Fixed Gate Parameters

Waveform Used For Processing N/A

Start Time (micro-sec)	End Time (micro-sec)	Discriminator (mV)	Depth (ft)
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
0.00	0.00	0.00	

Full Waveform Parameters

Use 3' Waveform to derive TR	No	
Use 4' Waveform to derive TR	No	
Use 5' Waveform to derive TR	No	
Use 6' Waveform to derive TR	No	
3' Waveform Discriminator Level	0.30	mV
4' Waveform Discriminator Level	0.30	mV
5' Waveform Discriminator Level	0.15	mV
6' Waveform Discriminator Level	0.15	mV
Waveform Discriminator Filter	Not Applied	
Semblance Window Width	150.00	micro-sec
Semblance Processing Enabled	Yes	
Tracking Boxes Enabled In Processing	Yes	

High Resolution Temperature Calibration MAI-A.A 111

Field Calibration on 01-AUG-2018,13:29

	Measured	Calibrated(Deg F)
Lower	10.00	10.00
Upper	100.00	100.00

High Resolution Temperature Constants MAI-A.A 111

Last Edited on 26-JUN-2014,15:06

Pre-filter Length	11

Induction Calibration MAI-A.A 111

Factory Loop Calibration 10-SEP-2018,05:14
Field Check on 20-SEP-2018,10:42

Factory Loop Calibration

High Conductivity Reference Resistor	3.3	ohm
Low Conductivity Reference Resistor	333.3	ohm

	Measured Signal (unitless)		Reference Conductivity (mmho/m)		Calibration	
Array	Low	High	Low	High	Gain	Offset
1 (near)	17.6	473.6	9.3	966.2	0.000	0.0
2	6.4	385.9	7.6	821.4	0.000	0.0
3	3.2	264.0	5.2	566.0	0.000	0.0
4 (far)	2.1	135.5	2.6	279.2	0.000	0.0

Array Temperature	23.0	Deg F

Tool Checks

	Factory Reference (mmho/m)		Before Survey (mmho/m)		
Array	Low	High	Low	High	
1 (near)	9.8	3840.7	8.8	3839.2	
2	27.9	3498.4	27.0	3497.5	
3	27.5	2996.0	26.7	2994.9	
4 (far)	18.1	2040.7	17.6	2040.3	
Array Temperature	87.9		85.9		Deg F

Induction Check Tolerances MAI-A.A 111

Low Array 1	8.8	8.3 / 9.8 / 11.3	mmho/m	High Array 1	3839.2	-0.5% / 3840.7 / +0.5%	mmho/m
Low Array 2	27.0	26.4 / 27.9 / 29.4	mmho/m	High Array 2	3497.5	-0.5% / 3498.4 / +0.5%	mmho/m
Low Array 3	26.7	26.0 / 27.5 / 29.0	mmho/m	High Array 3	2994.9	-0.5% / 2996.0 / +0.5%	mmho/m
Low Array 4	17.6	16.6 / 18.1 / 19.6	mmho/m	High Array 4	2040.3	-0.5% / 2040.7 / +0.5%	mmho/m

Induction Constants MAI-A.A 111

Last Edited on 20-SEP-2018,10:42

Induction Model	RtAP-WBM	
Borehole Correction Constants		
Tool Centred	No	
Hole Size Source	Density Caliper	
Hole Size Constant Value	N/A	inches
Stand-off Type	Fins	
Stand-off	0.50	inches
Number of Fins on Stand-off	8.0000	
Stand-off Fin Angle	45.00	degrees
Stand-off Fin Width	0.5000	inches
Rm Source	Global Value: Temperature Corrected	
Temp. for Rm Corr.	Borehole Temp. Unfilt.	
Borehole Correction Method	Default	
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

Symmetrised Receiver Gains

Receiver 1	1.00
Receiver 2	1.00
Receiver 3	1.00
Receiver 4	1.00

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-C.A 216

Base Calibration on 02-SEP-2018,10:42
Field Calibration on 20-SEP-2018,10:42

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	14688	3.99
2	23495	5.98
3	32176	7.97
4	40480	9.86
5	49713	11.92
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
8.08	8.10

Caliper Calibration Tolerances MPD-C.A 216

		7.70	8.10	8.50	
Long Arm Field Cal.	8.08				in

Photo Density Calibration MPD-C.A 216

Base Calibration on 02-SEP-2018,10:27
Field Check on 20-SEP-2018,10:43

Density Calibration

Base Calibration	Measured		Calibrated (sdu)	
	Near	Far	Near	Far
Background	1002	1196		
Reference 1	49599	24164	59556	30836
Reference 2	19816	2269	24941	2541

Field Check at Base

1002.2	1196.2

Field Check

1001.9	1193.9

PE Calibration

Base Calibration	Measured			Calibrated
	WS	WH	Ratio	Ratio
Background	183	902		
Reference 1	21103	49447	0.431	0.371
Reference 2	5778	19707	0.298	0.272

Field Check at Base

183.1	901.7

Field Check

180.2	903.9

Photo Density Calibration Tolerances MPD-C.A 216

		-5%	2.52	+5%			-5%	21.00	+5%
Near Density Ratio	2.58				Far Density Ratio	21.41			
		0.089	0.110	0.131					
PE Calibration	0.125								
		-3%	1002.2	+3%			-3%	1196.2	+3%
Near Den. Field Check	1001.9				Far Den. Field Check	1193.9			
		-6%	183.1	+6%			-6%	901.7	+6%
PE WS Field Check	180.2				PE WH Field Check	903.9			

Density Constants MPD-C.A 216

Last Edited on 20-SEP-2018,21:39

Density Source Id	P50557B
Nylon Calibrator Number	DNCE695
Aluminium Calibrator Number	DACD698

Density Shoe Profile	8 inch	
Caliper Source for Processing	Density Caliper	
PE Correction to Density	Not Applied	
Mud Density	1.11	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	

DOWNHOLE EQUIPMENT

C:\Minimus 18.01.6830\Data\Grand Mesa Miller #2-10\Grand Mesa Miller #2-10_002.dta

Cablehead, 11 pin
CBH-C 0 LG: 2.40 ft WT: 24.3 lb OD: 2.244 in

Compact Swivel Head Adaptor
SHA-J.B 595 LG: 2.30 ft WT: 22.0 lb OD: 2.244 in

Compact Comms Gamma
MCG-D.A 246 LG: 8.70 ft WT: 63.9 lb OD: 2.244 in

Compact Micro-log
MML-A 7 LG: 7.97 ft WT: 81.6 lb OD: 2.244 in

Compact Neutron
MDN-B.A 292 LG: 5.04 ft WT: 50.7 lb OD: 2.244 in

Compact Density/Caliper
MPD-C.A 216 LG: 9.59 ft WT: 90.4 lb OD: 2.913 in

Compact Knuckle Joint
SKJ-D.A 167 LG: 2.17 ft WT: 24.3 lb OD: 2.244 in

Compact Focussed Electric
MFE-A.A 135 LG: 6.05 ft WT: 48.5 lb OD: 2.240 in

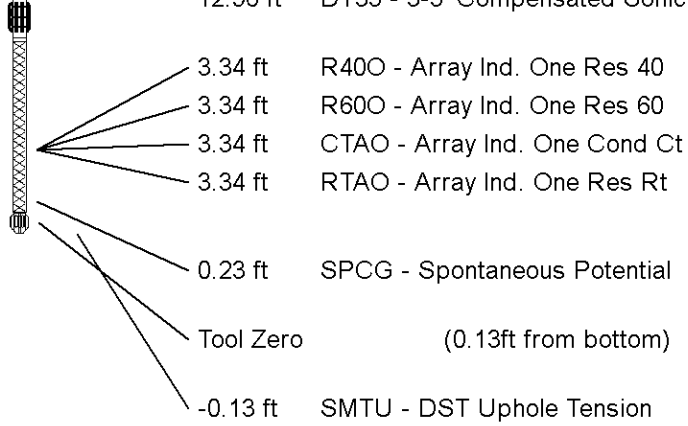
Compact Sonic
MSS-C.K 319 LG: 12.52 ft WT: 72.8 lb OD: 2.244 in

Compact Induction
MAI-A.A 111 LG: 10.81 ft WT: 48.5 lb OD: 2.240 in

57.56 ft	GRGC - MCG Gamma Ray
54.65 ft	CGXT - MCG External Temperature
48.92 ft	MLTC - MML Caliper
47.93 ft	MINV - Micro-inverse
47.93 ft	MNRL - Micro-normal
43.13 ft	NPRL - Limestone Neutron Por.
35.89 ft	AVOL - Annular Volume
35.89 ft	HVOL - Hole Volume
35.89 ft	CLDC - Density Caliper
33.96 ft	DPRL - Limestone Density Por.
33.96 ft	DEN - Compensated Density
33.96 ft	DCOR - Density Correction
33.90 ft	PDPE - PE
26.24 ft	FEFE - Shallow FE
16.96 ft	TR11 - 4' Transit Time
16.46 ft	TR21 - 3' Transit Time
15.95 ft	TR12 - 6' Transit Time
15.46 ft	TR22 - 5' Transit Time
12.96 ft	SPRL - Wyllie Lime. Sonic Por.
12.96 ft	DT35 - 3-5' Compensated Sonic

MAX O.D. 4.75 in

Total Length: 67.54 ft Weight: 526.9 lb



3.34 ft	R40O - Array Ind. One Res 40
3.34 ft	R60O - Array Ind. One Res 60
3.34 ft	CTAO - Array Ind. One Cond Ct
3.34 ft	RTAO - Array Ind. One Res Rt
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	GRAND MESA OPERATING COMPANY
WELL	MILLER #2-10
FIELD	ZENITH-PEACE CREEK
PROVINCE/COUNTY	RENO
COUNTRY/STATE	U.S.A. / KANSAS

Elevation Kelly Bushing	1770	feet	First Reading	3853.00	feet
Elevation Drill Floor	1765	feet	Depth Driller	3860.00	feet
Elevation Ground Level		feet	Depth Logger	3856.00	feet

Weatherford®

COMPOSITE LOG