



Weatherford[®]

MICRORESISTIVITY LOG

COMPANY		O'BRIEN ENERGY RESOURCES CORP.	
WELL		LARRABEE 4-4	
FIELD		MOHLER	
PROVINCE/COUNTY		MEADE	
COUNTRY/STATE		U.S.A. / KANSAS	
LOCATION		1220' FNL & 335' FEL	
SEC 4	TWP 34S	RGE 29W	Other Services
Latitude	MAI/MFE		MPD/MDN
Longitude			
API Number	15-119-21366		
Permanent Datum GL, Elevation 2530 feet			Elevations:
Log Measured From KB			KB 2541.00
Drilling Measured From KB @ 11 FEET			DF 2539.00
			GL 2530.00
Date	26-MAY-2014		
Run Number	ONE		
Service Order	7036-88315374		
Depth Driller	6415.00		
Depth Logger	6408.00		
First Reading	4574.76		
Last Reading	4000.00		
Casing Driller	1494.00		
Casing Logger	1492.00		
Bit Size	7.875		
Hole Fluid Type	WBM		
Density / Viscosity	9.40 lb/USg 60.00 CP		
PH / Fluid Loss	9.00 8.00 ml/30Min		
Sample Source	MUDPIT		
Rm @ Measured Temp	1.78 @ 75.0 ohm-m		
Rmf @ Measured Temp	1.42 @ 75.0 ohm-m		
Rmc @ Measured Temp	2.14 @ 75.0 ohm-m		
Source Rmf / Rmc	CALC CALC		
Rm @ BHT	1.05 @130.0 ohm-m		
Time Since Circulation	3 HOURS		
Max Recorded Temp	130.00 deg F		
Equipment / Base	13057 LIB		
Recorded By	DEREK CARTER		
Witnessed By	ROGER PEARSON		
JOB #	LB14-158		

BOREHOLE RECORD

Last Edited: 26-MAY-2014 11:52

Bit Size inches	Depth From feet	Depth To feet
7.875	1494.00	6415.00

CASING RECORD

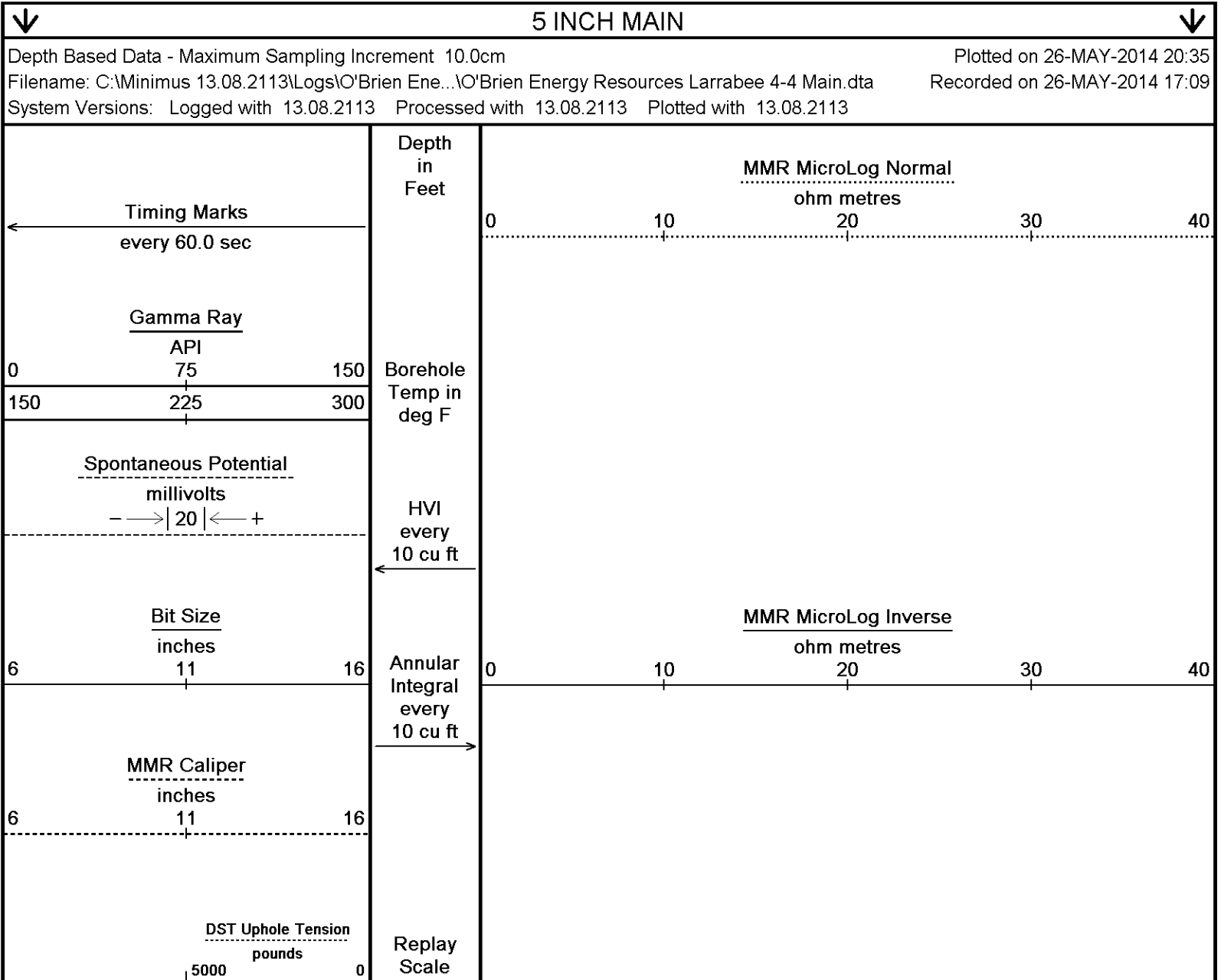
Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	8.625	0.00	1494.00	24.00

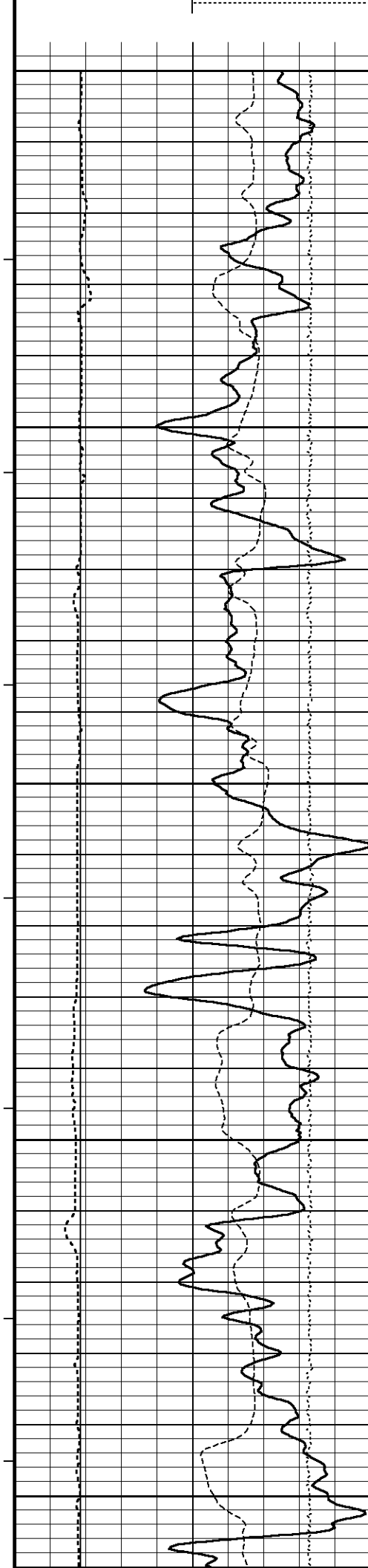
REMARKS

- SOFTWARE ISSUE: WLS 13.08.2113
- TOOL STRING: MCG, MML, MDN, MPD, MFE, MAI RUN IN COMBINATION
- HARDWARE:
 - MDN: DUAL BOWSPRING ECCENTRALIZER
 - MFE: 1 X 0.5 INCH STANDOFF
 - MAI: 2 X 0.5 INCH STANDOFF
- 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
 - HI-RESOLUTION REPEAT PASS PRESENTED ON A SANDSTONE MATRIX (2.65 G/CC) REQUESTED
 - MAIN PASS PRESENTED ON A LIMESTONE MATRIX (NO HI-RES) REQUESTED

- TOTAL HOLE VOLUME FROM TD TO SURFACE CASING: 1830 CU. FT.
- ANNULAR HOLE VOLUME WITH 4.5 INCH CASING FROM TD TO 4000 FT.: 520 CU. FT.
- RIG: DUKE DRILLING #6
- SERVICE ORDER #: 7036-88315374
- ENGINEER: DEREK CARTER
- OPERATOR: CARLOS RAMIREZ

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.





1:240

4000

112°

4050

113°

4100

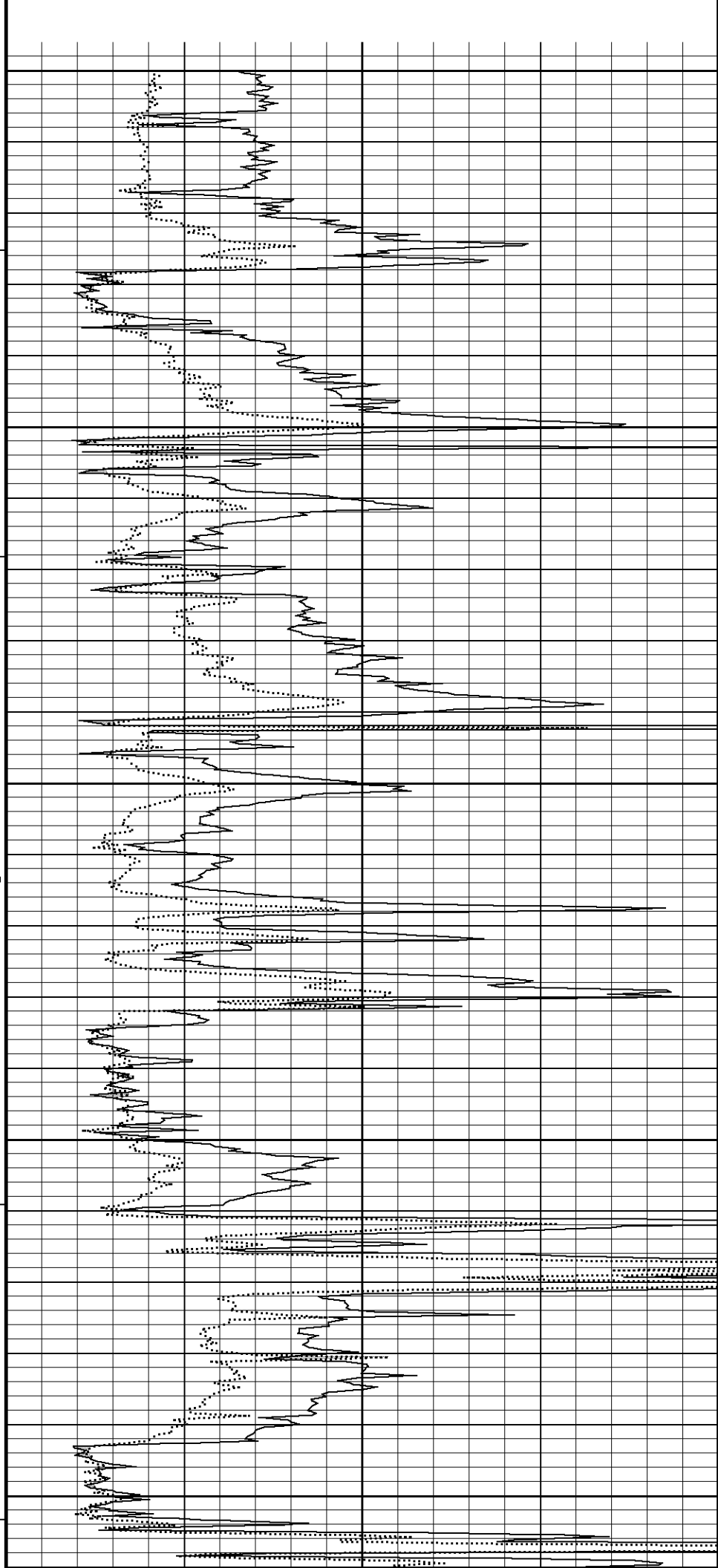
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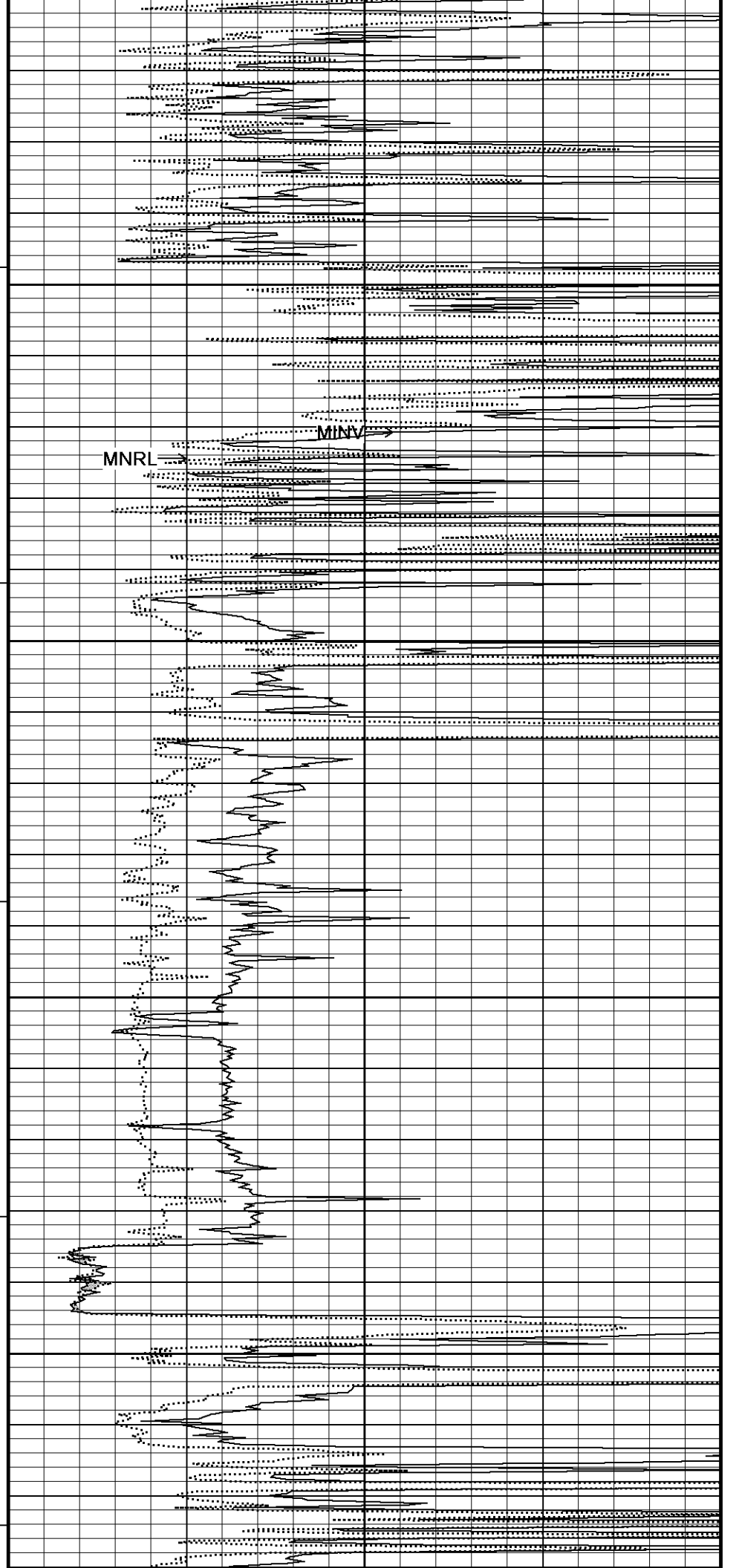
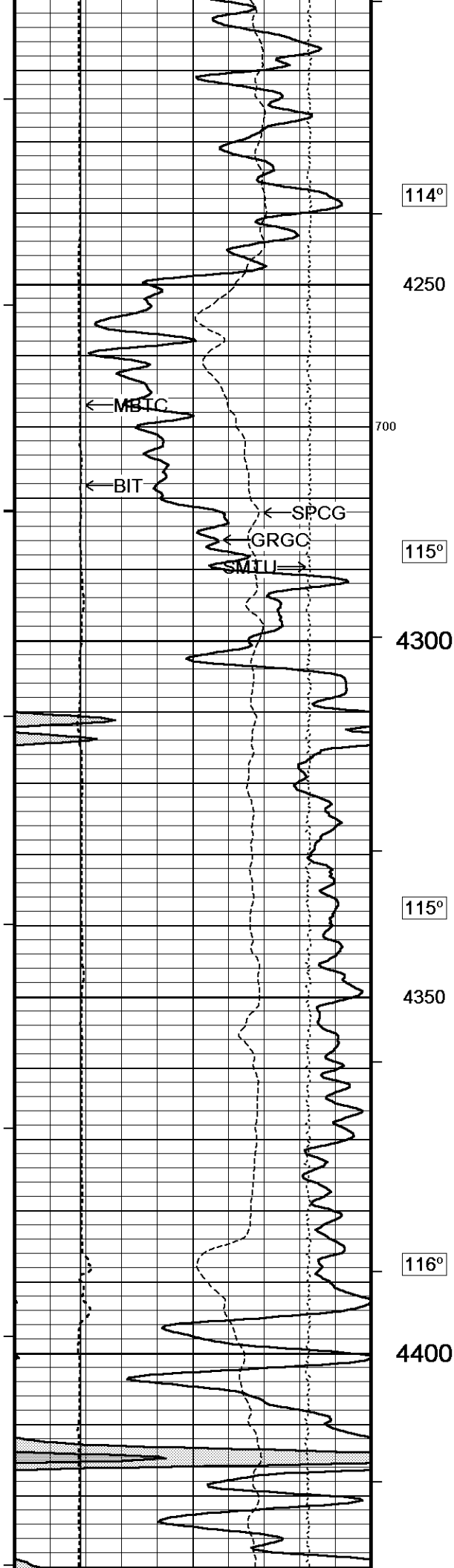
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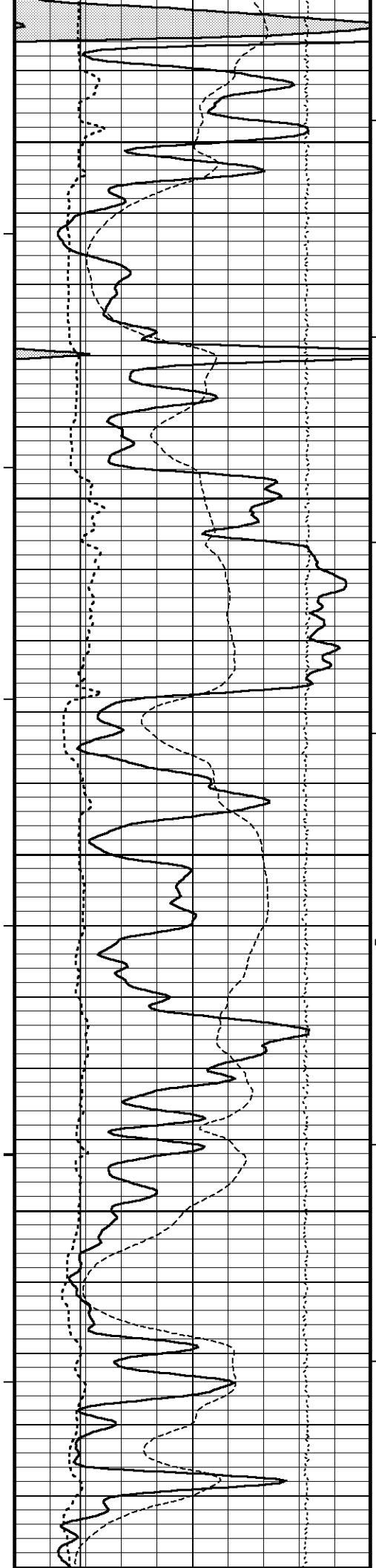
4150

114°

4200







116°

4450

116°

4500

117°

4550 400

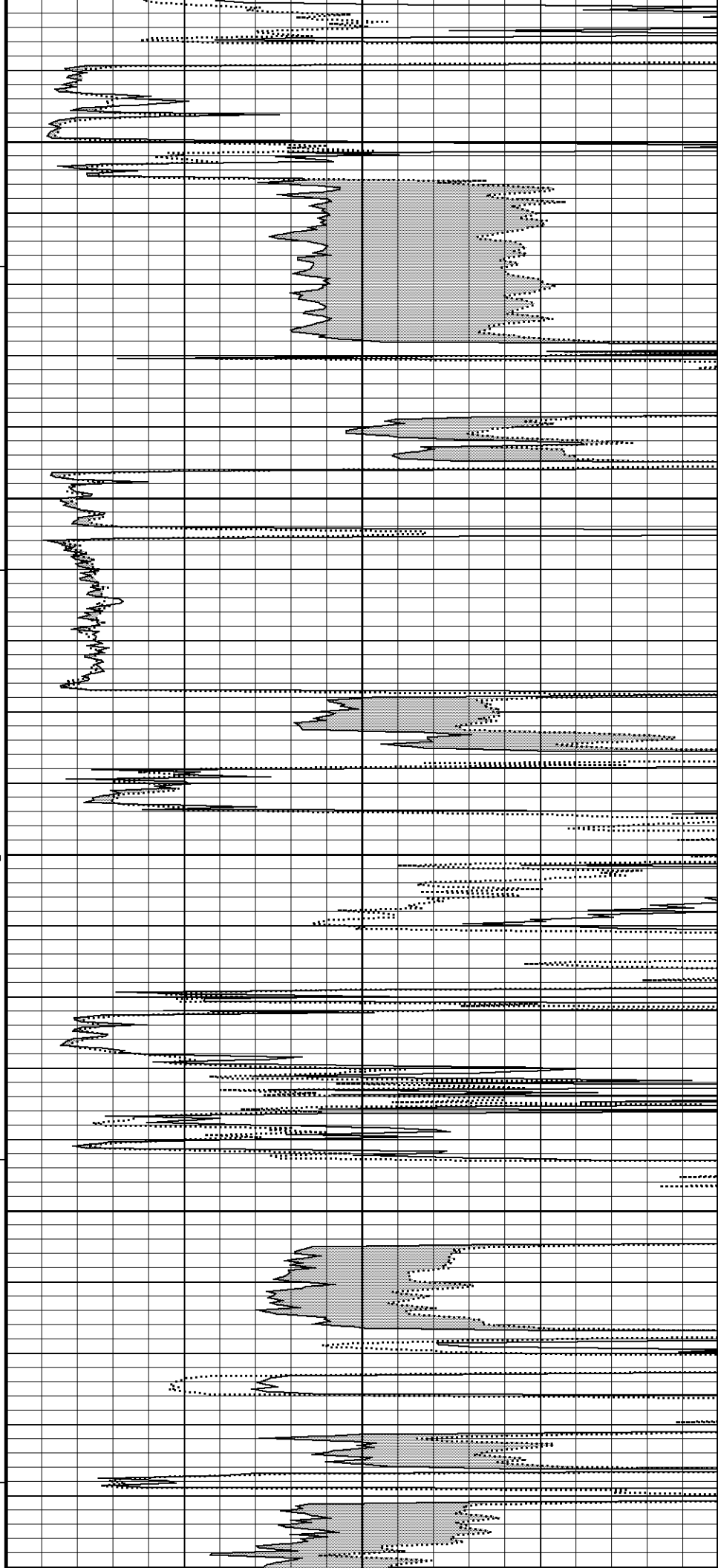
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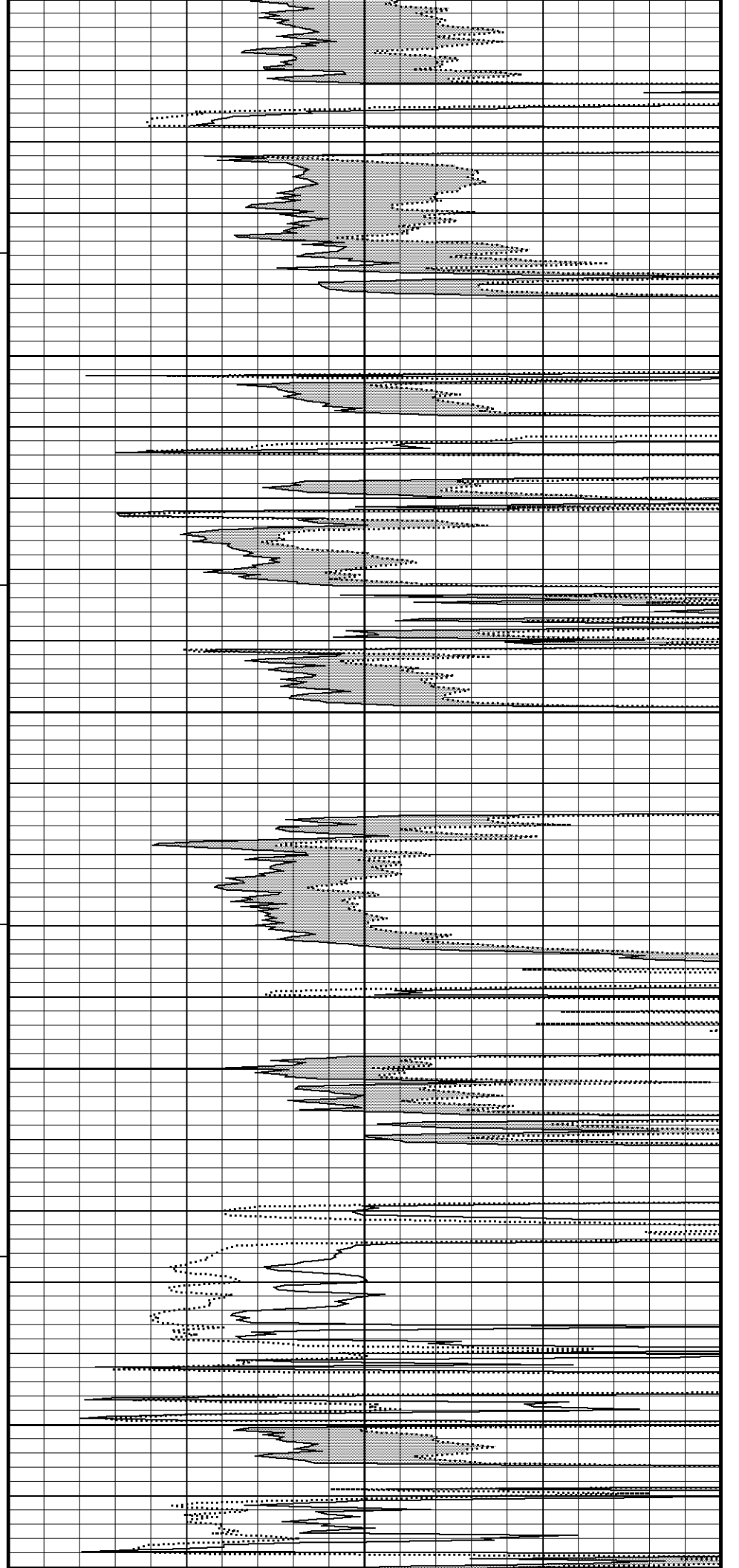
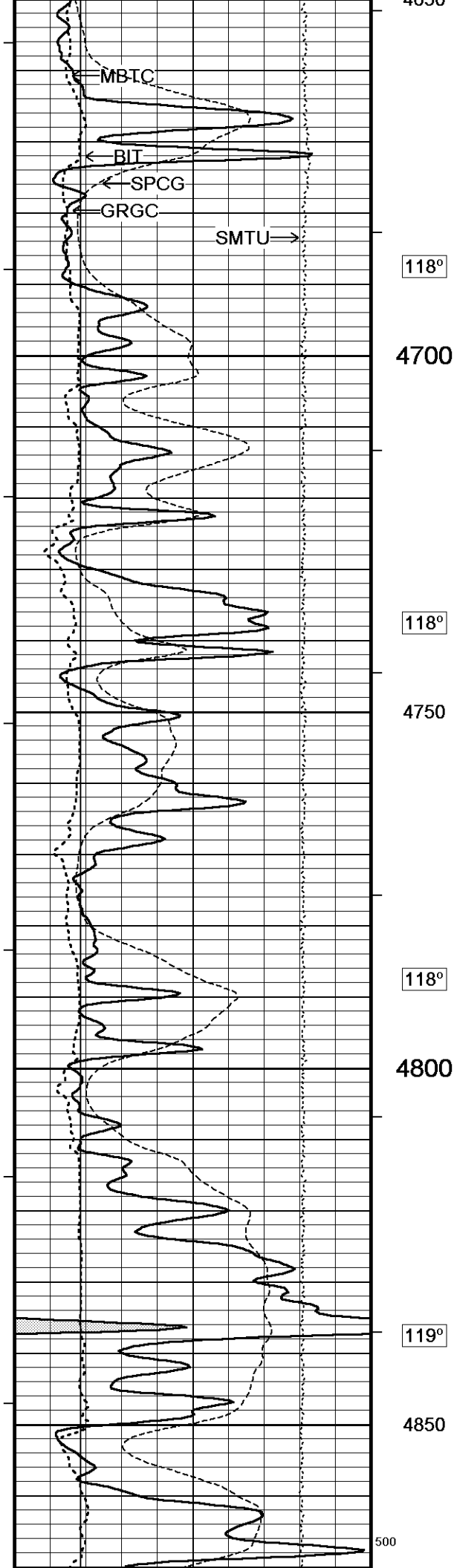
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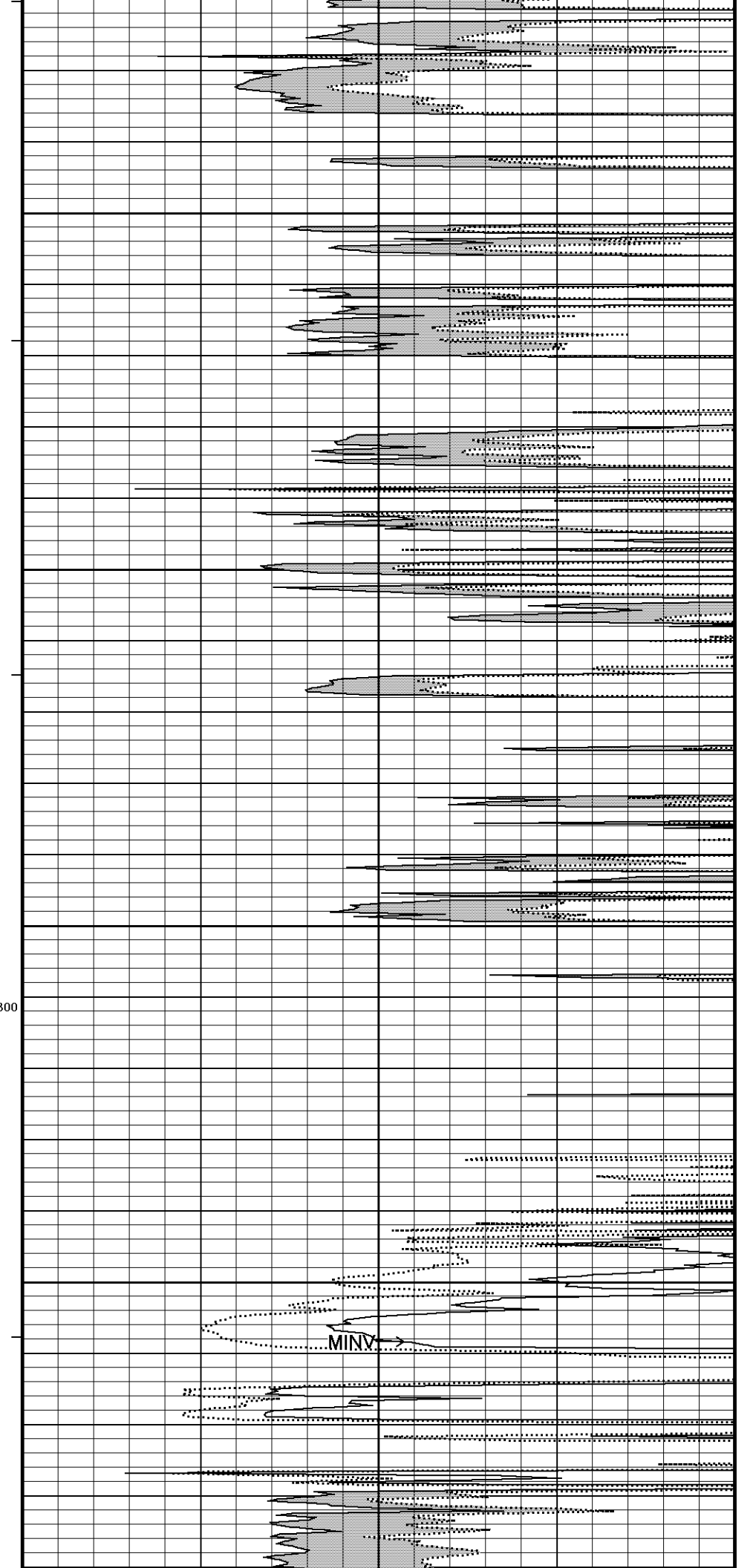
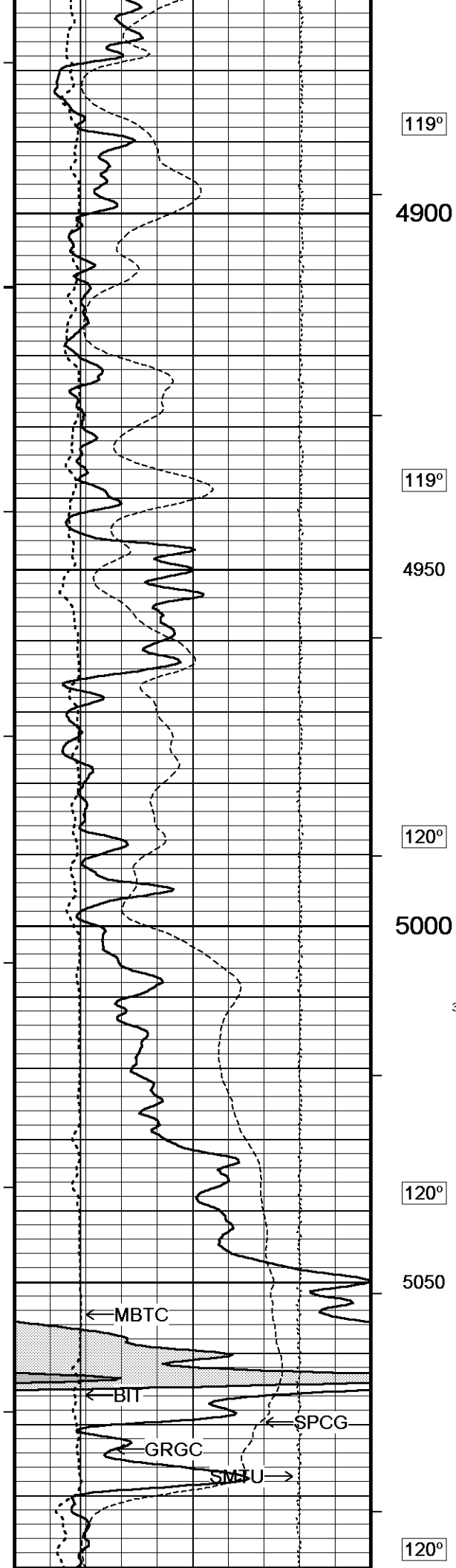
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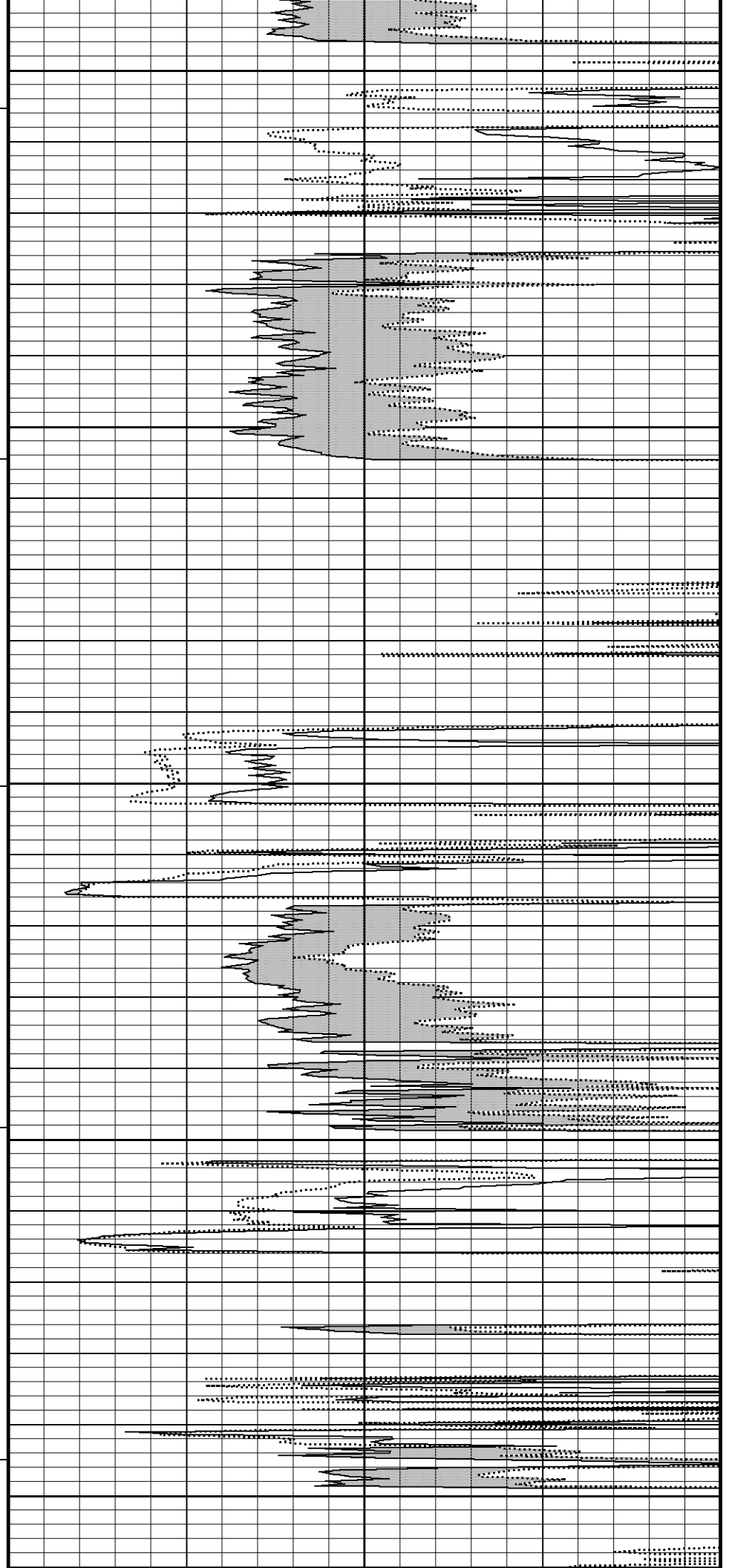
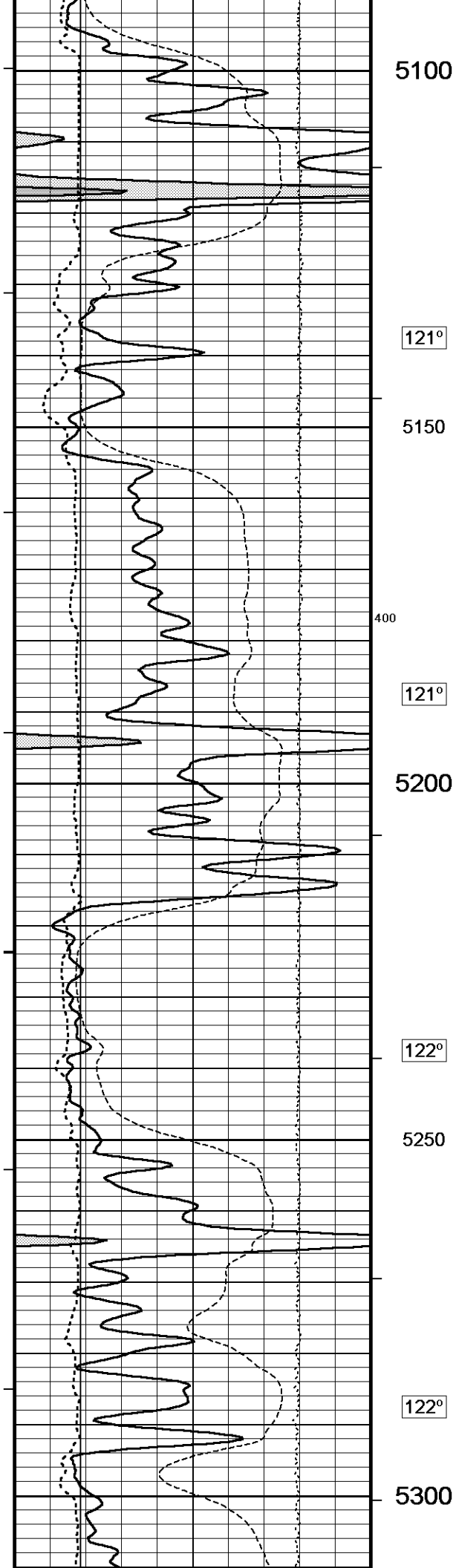
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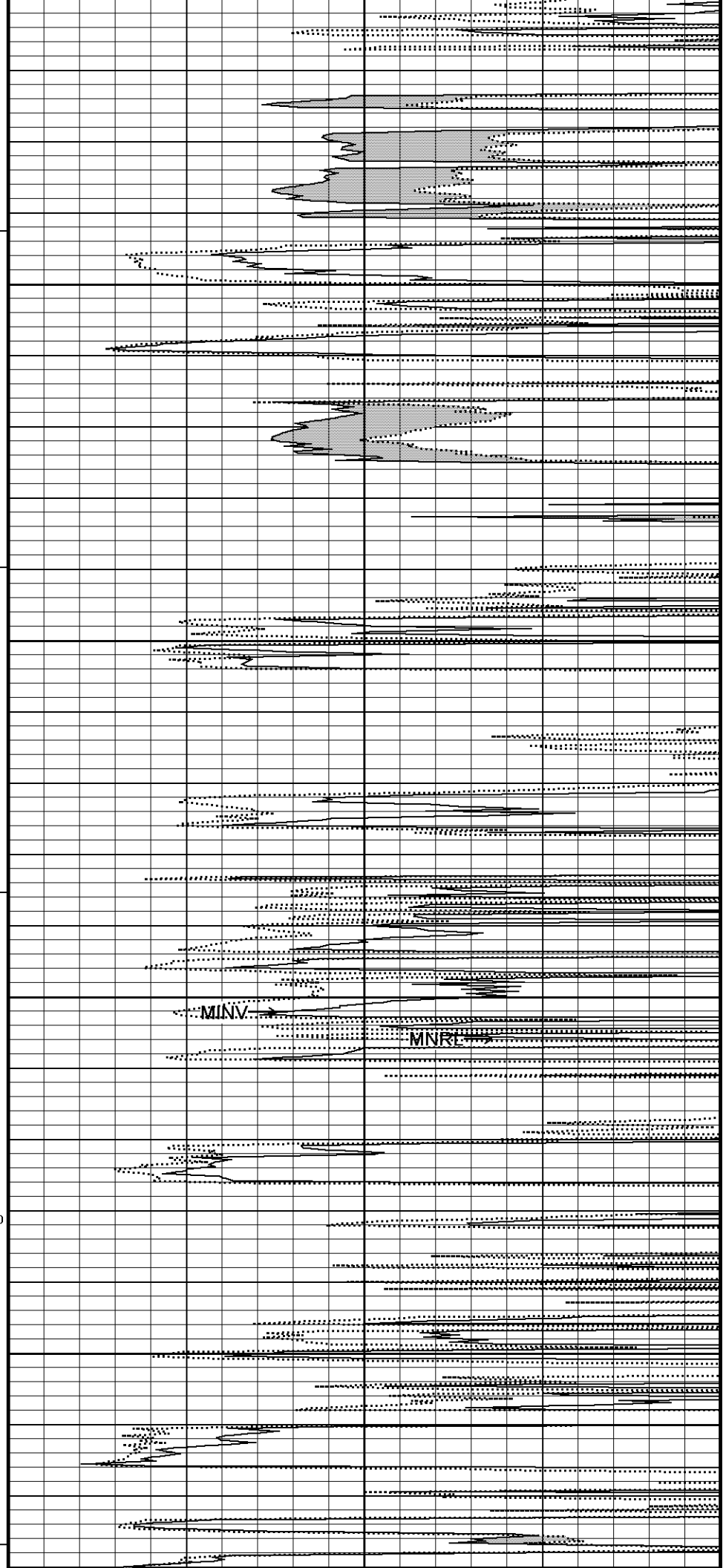
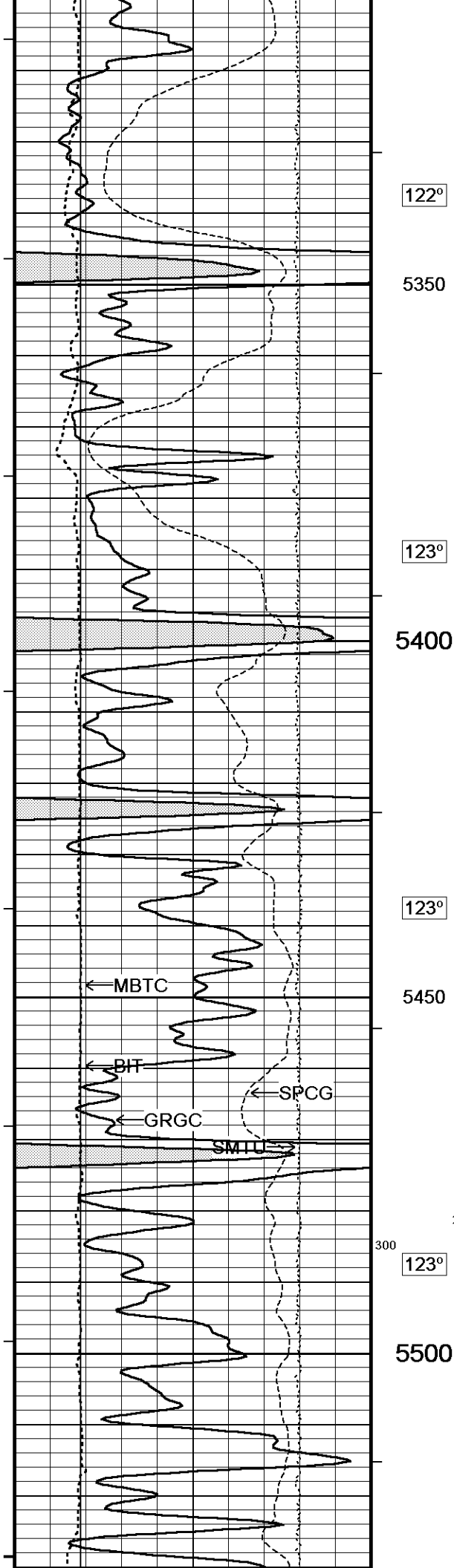
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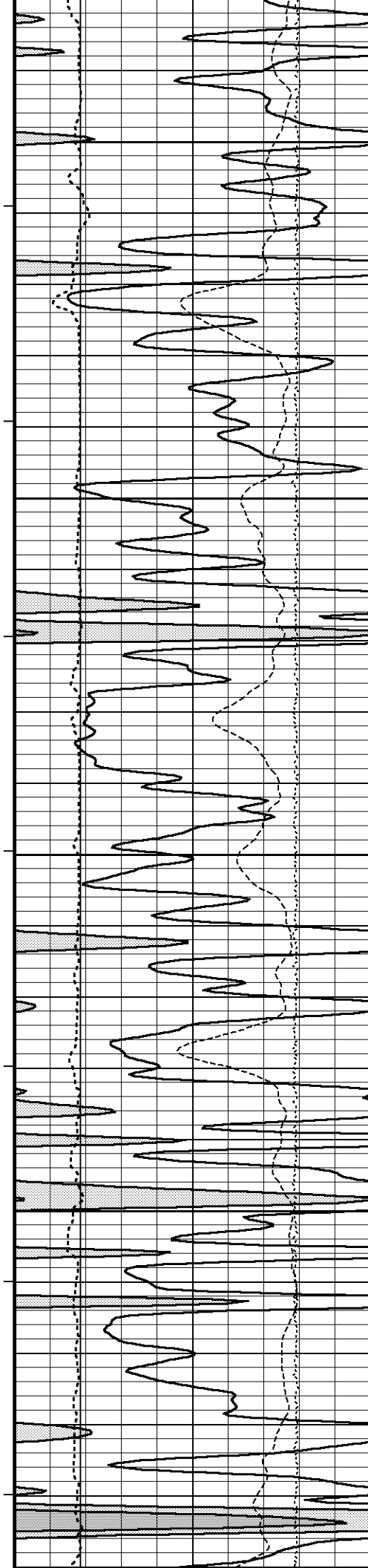












123°

5550

124°

5600

124°

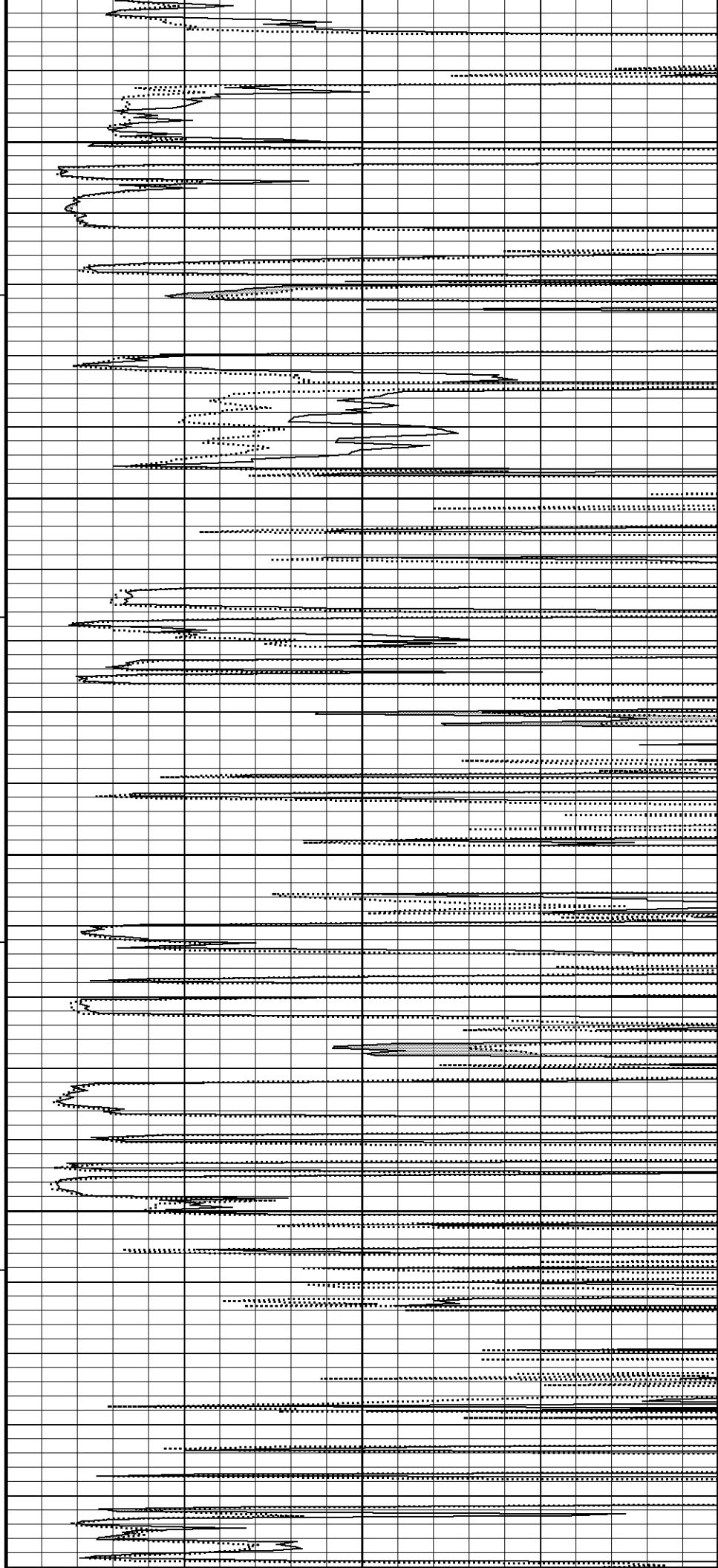
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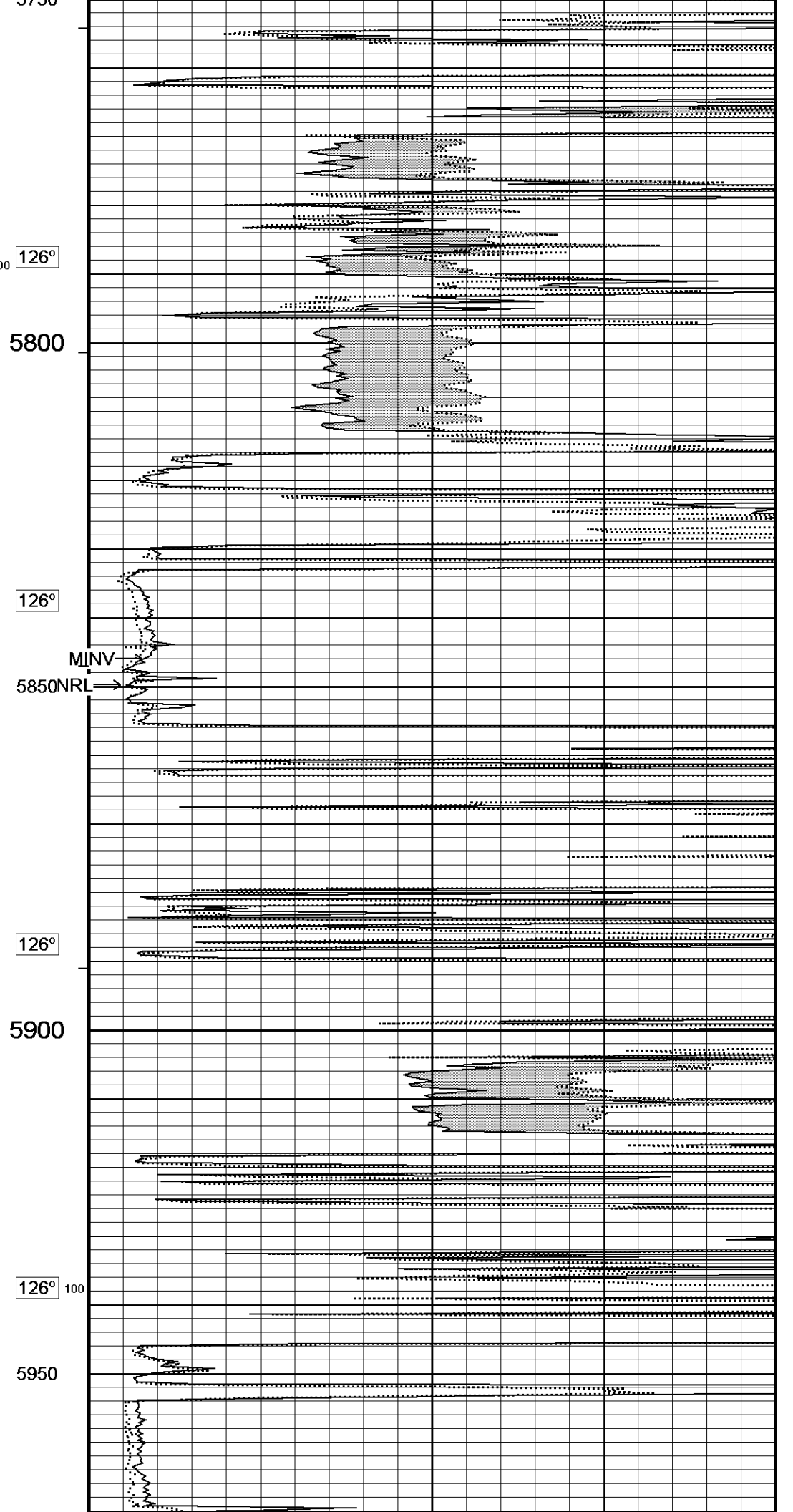
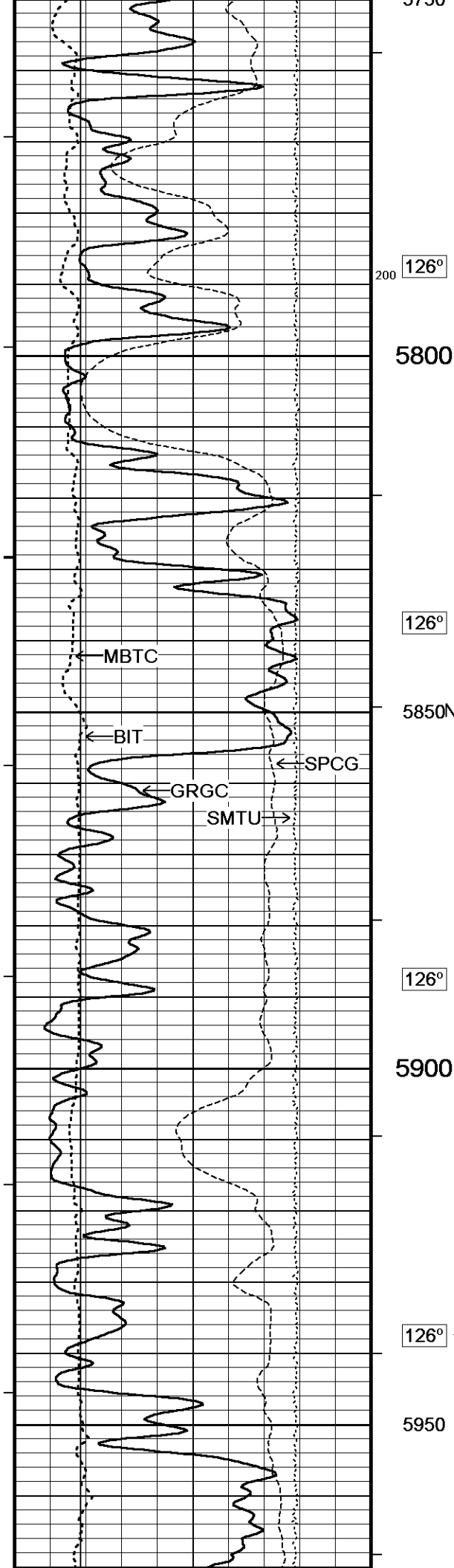
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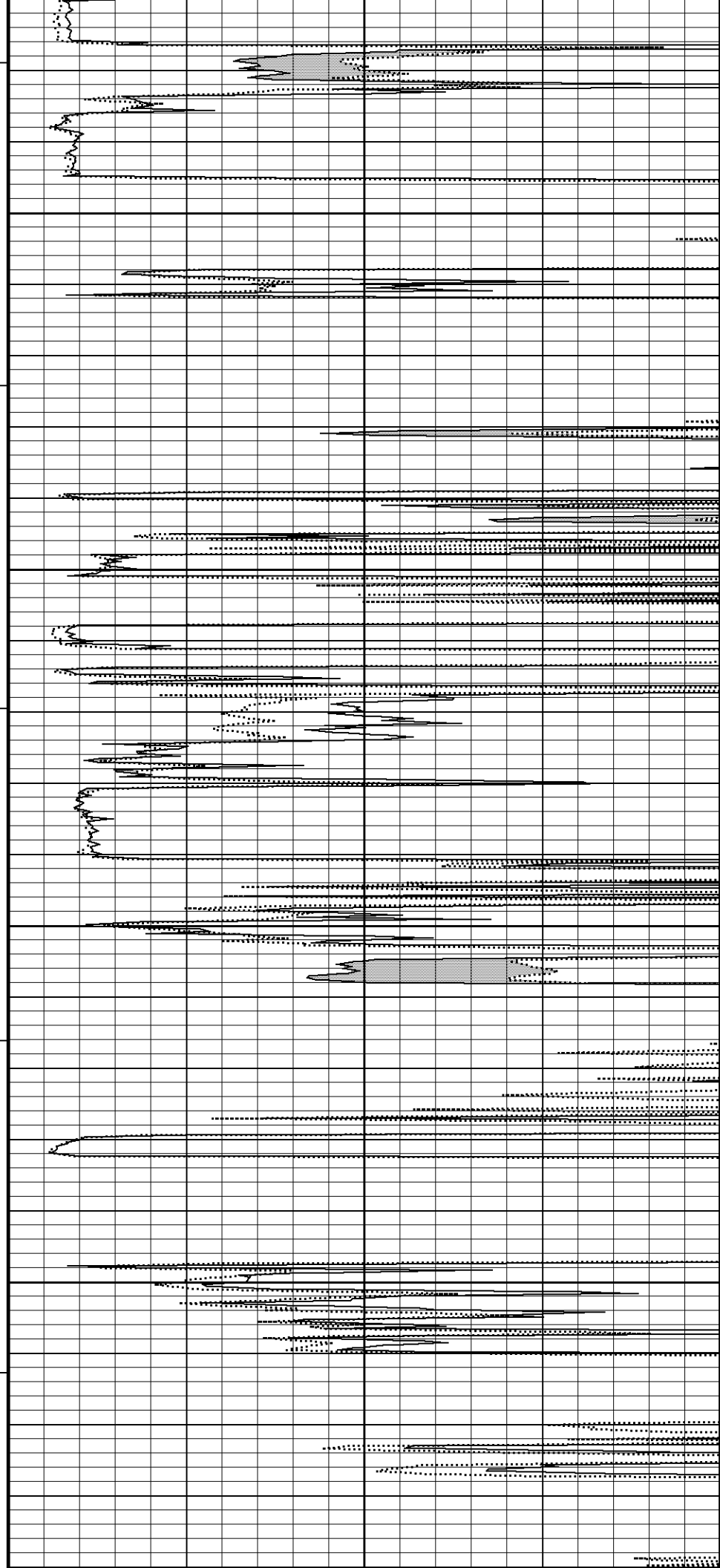
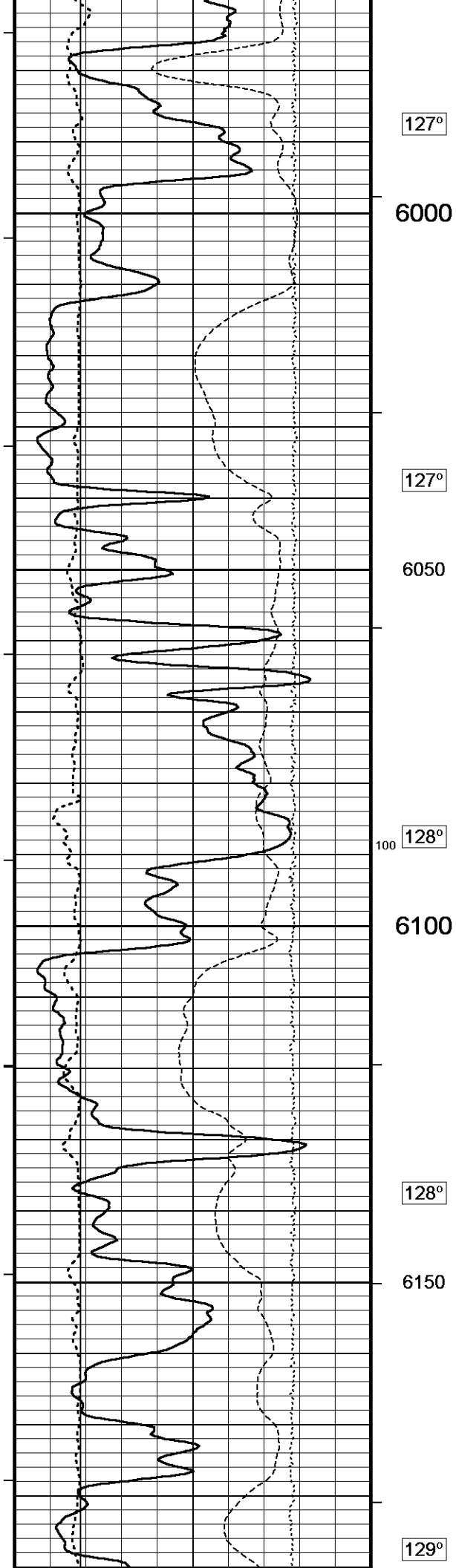
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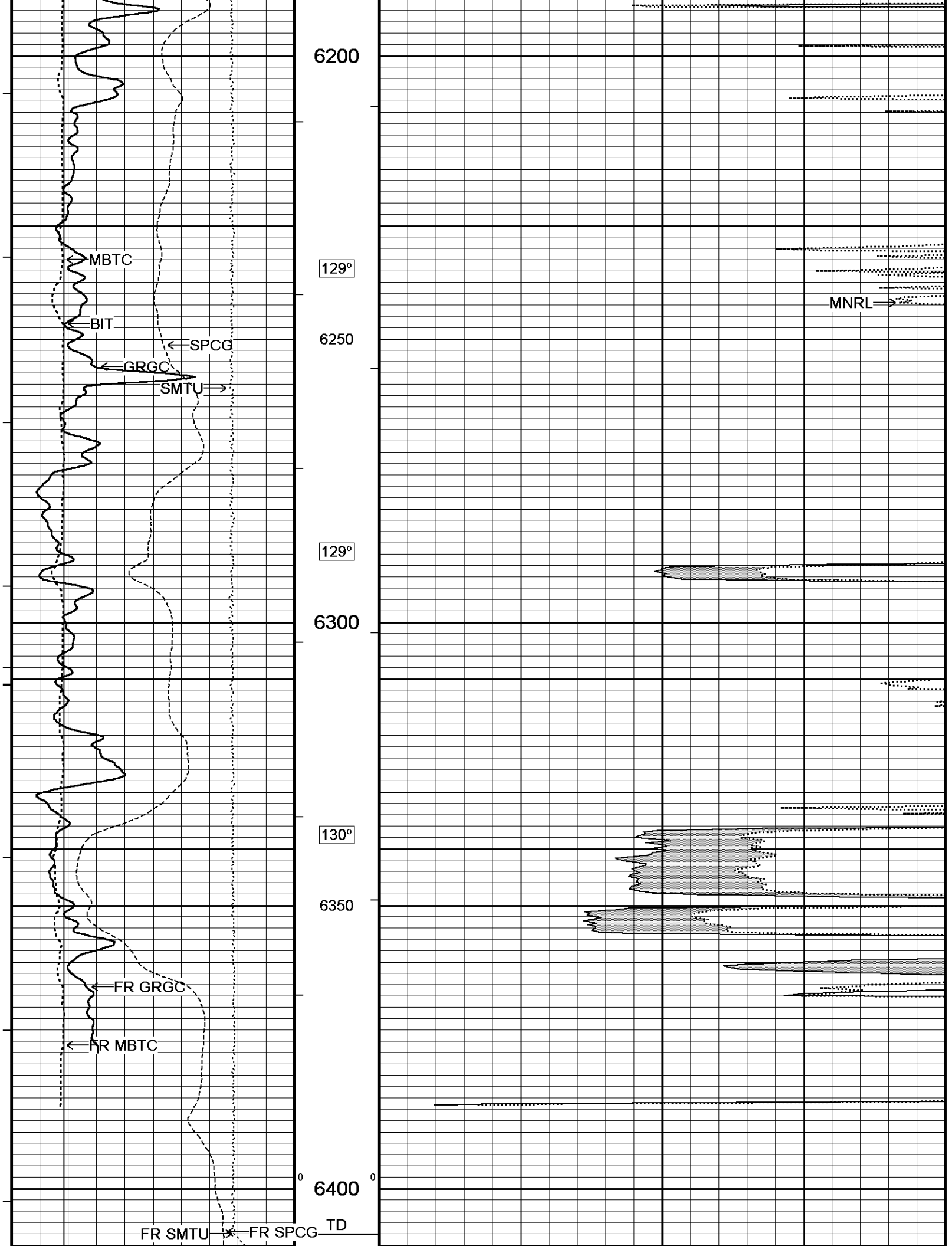
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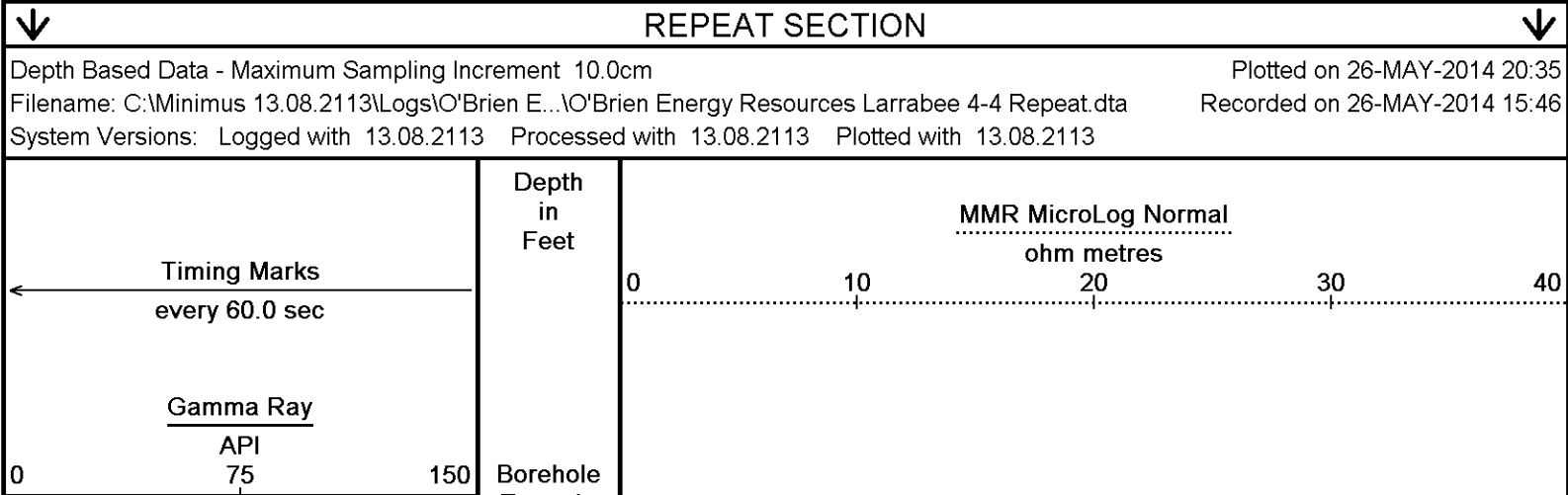
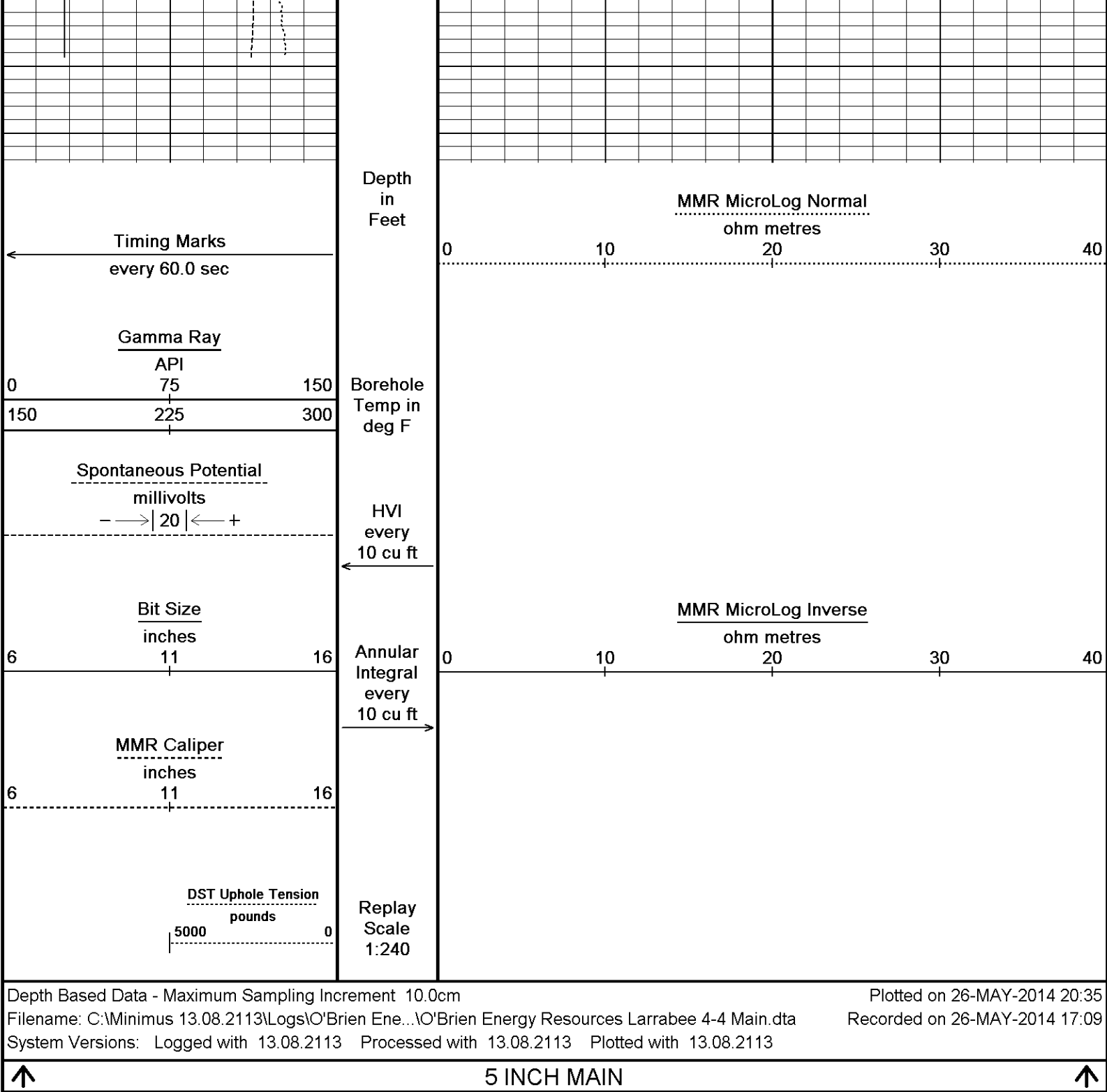
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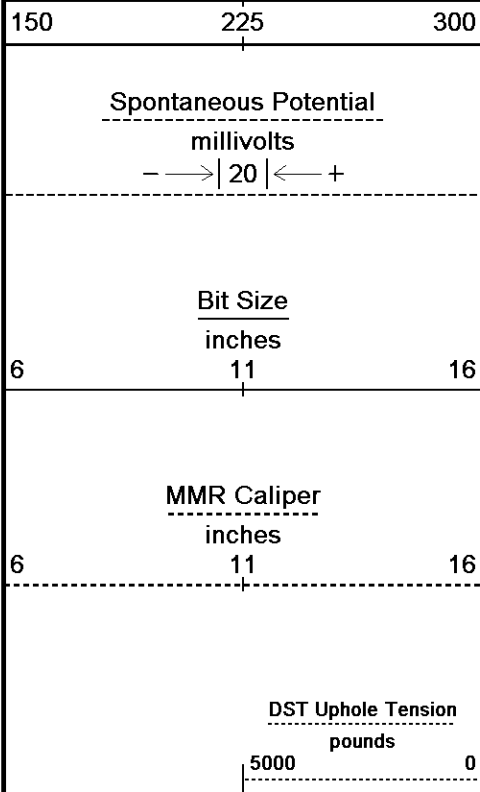










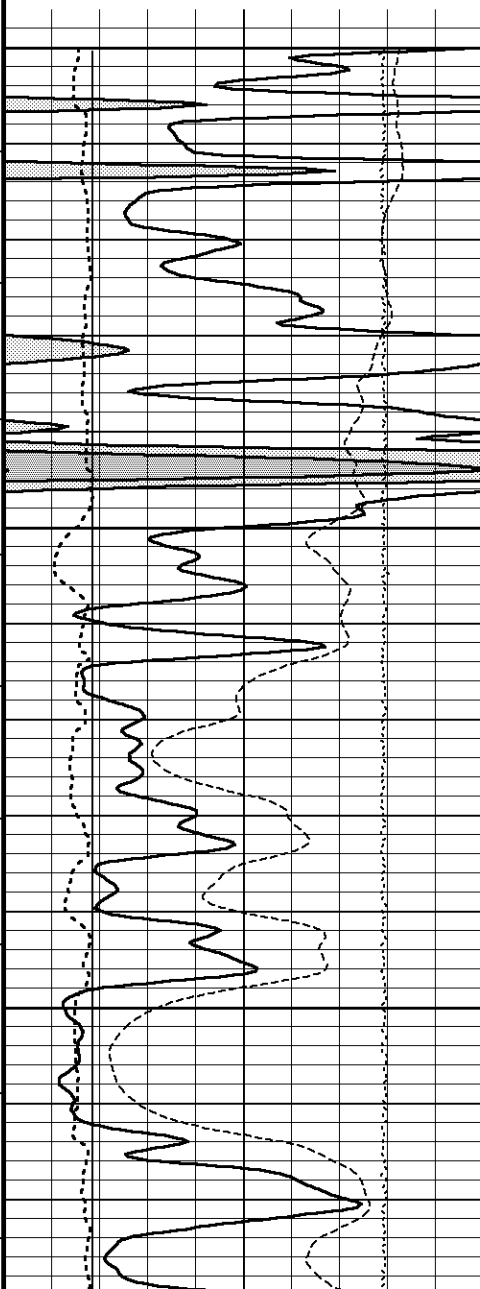


Temp in
deg F

HVI
every
10 cu ft

Annular
Integral
every
10 cu ft

Replay
Scale
1:240



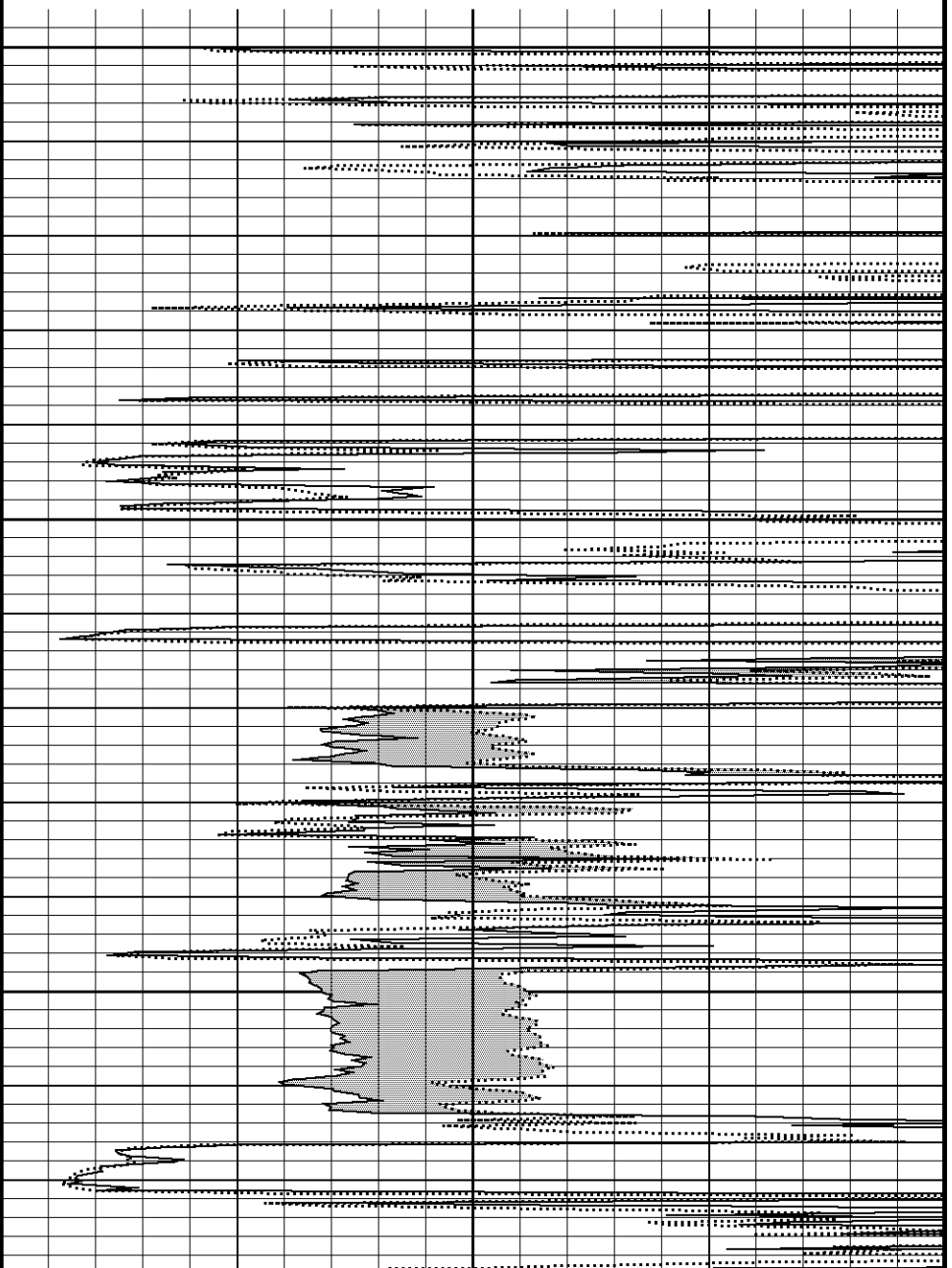
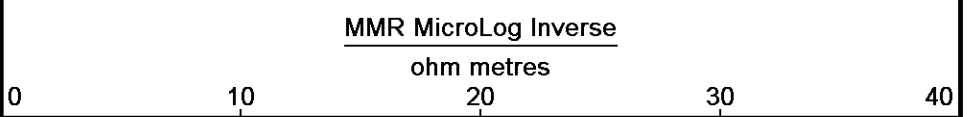
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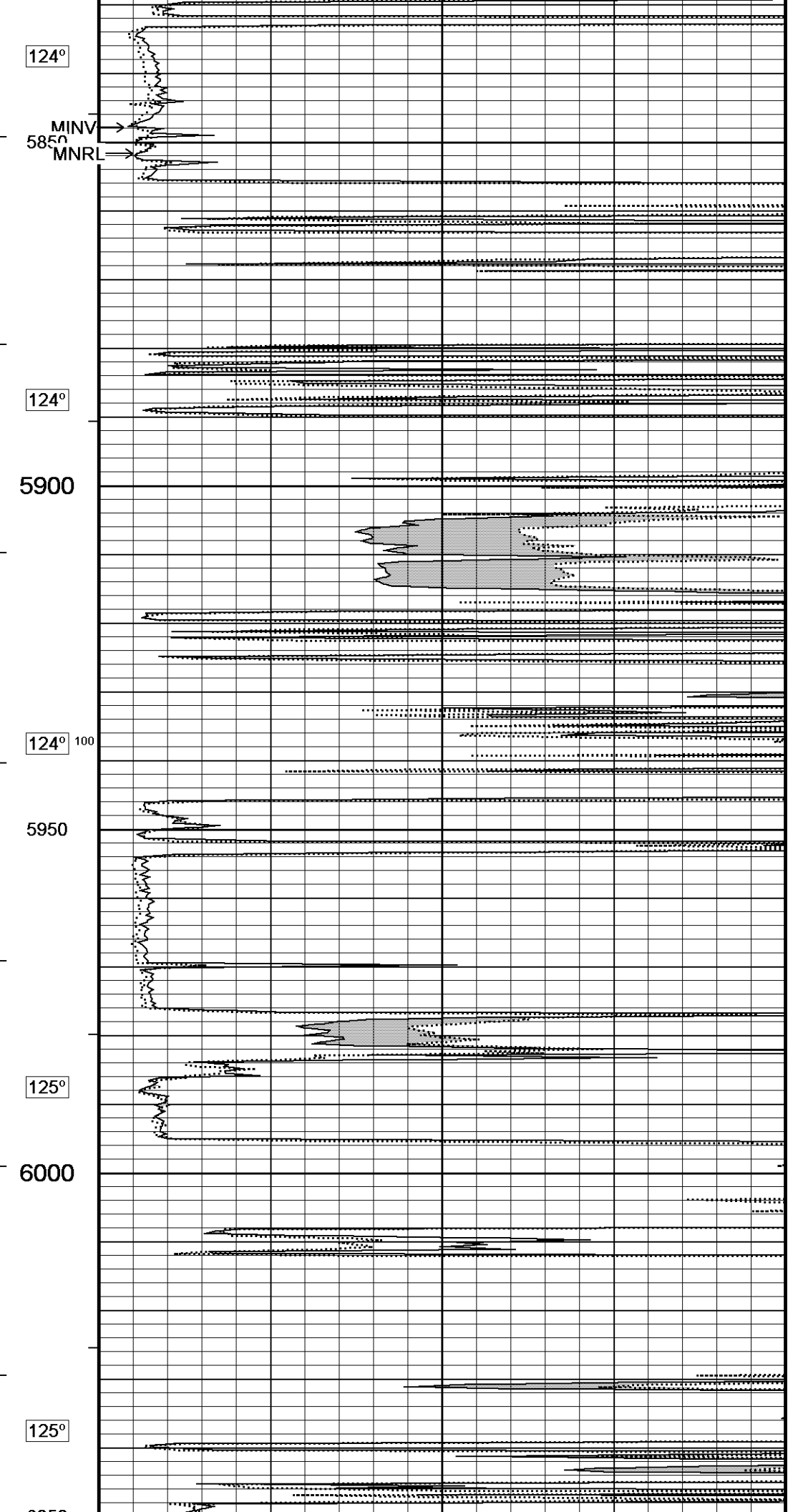
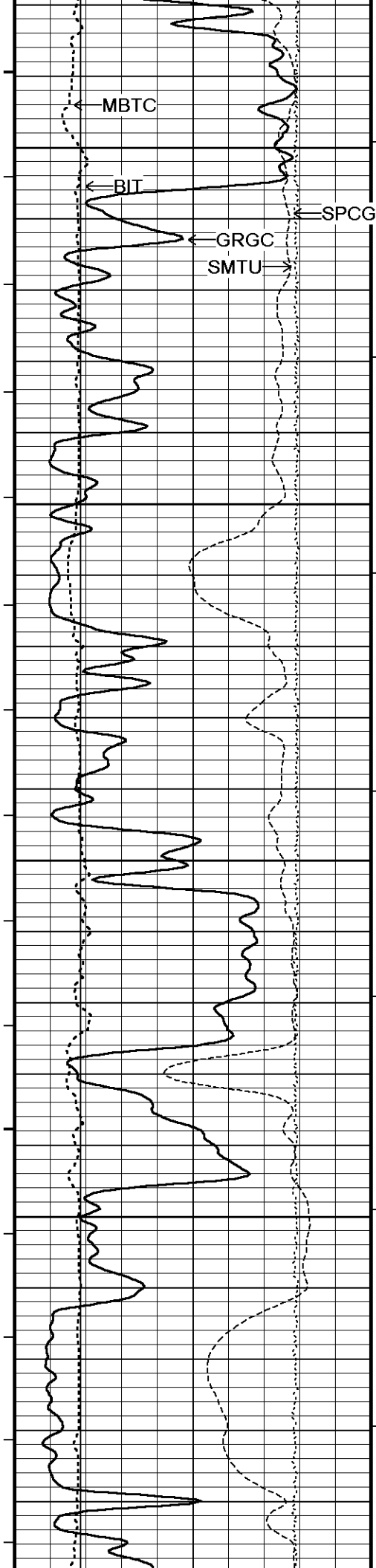
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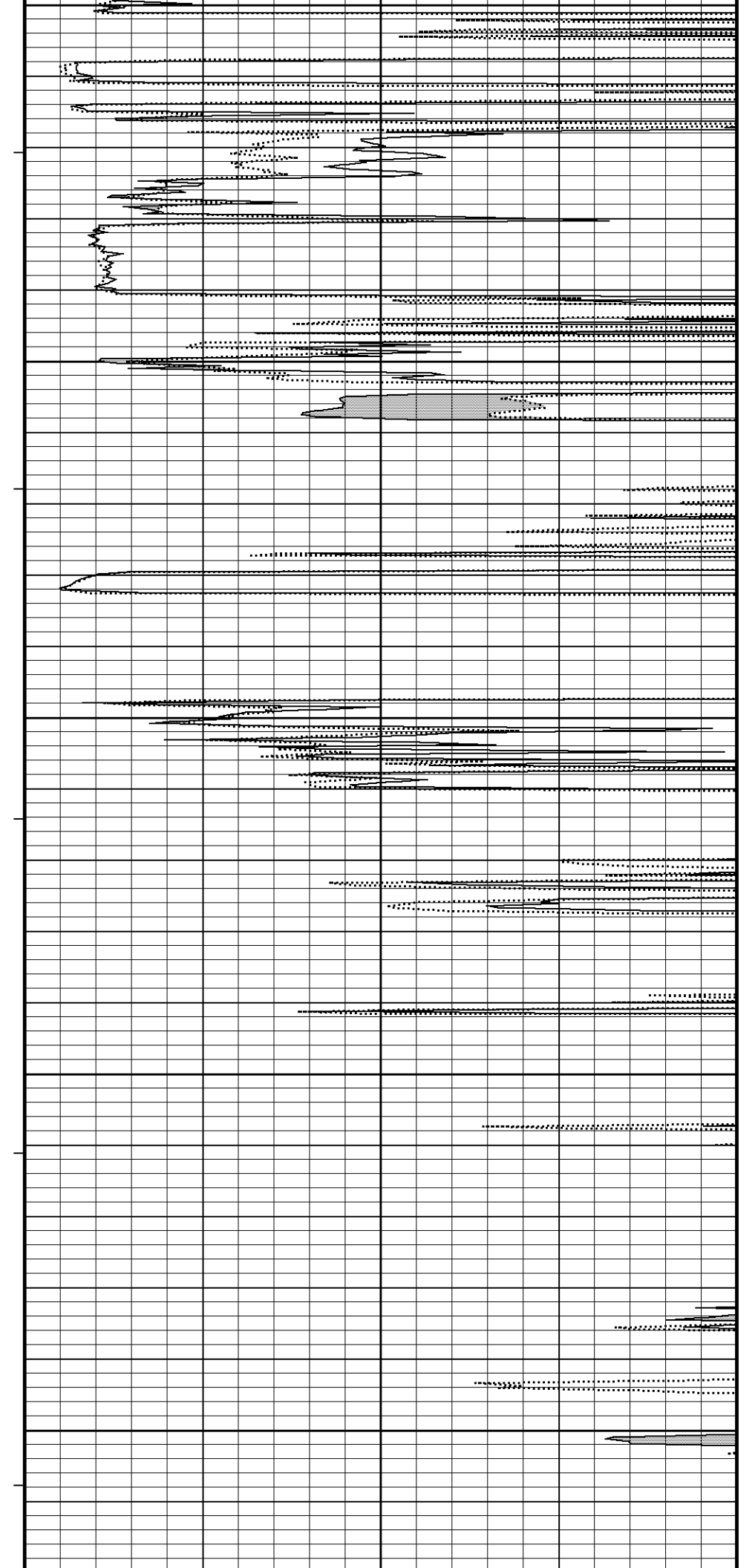
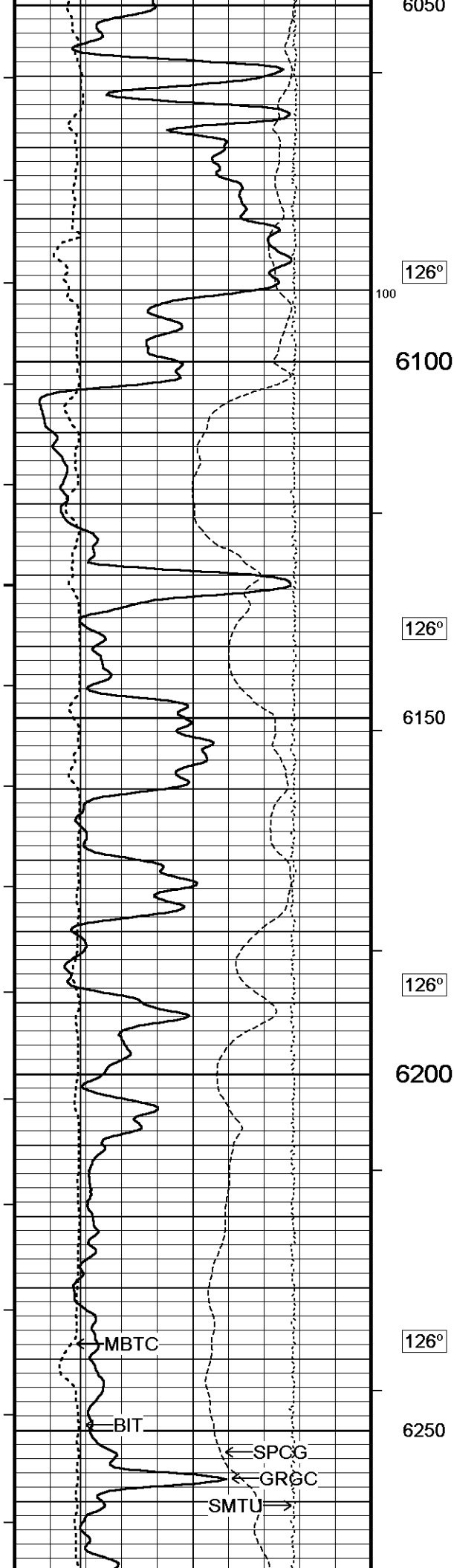
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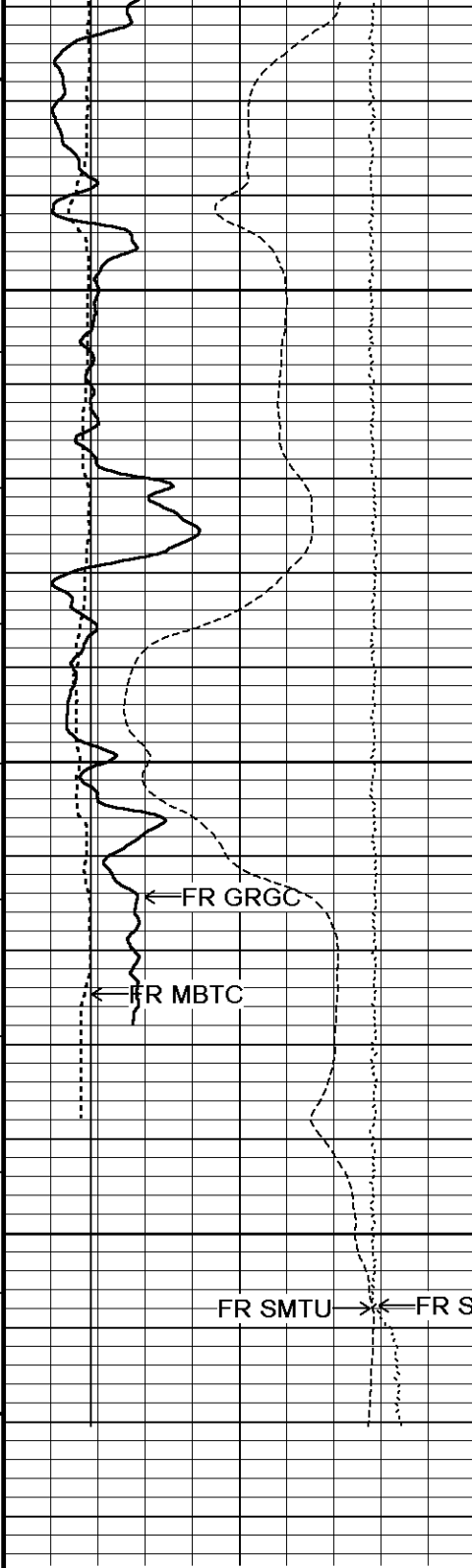
125°

5800









127°

6300

127°

6350

6400

TD

Depth
in
Feet

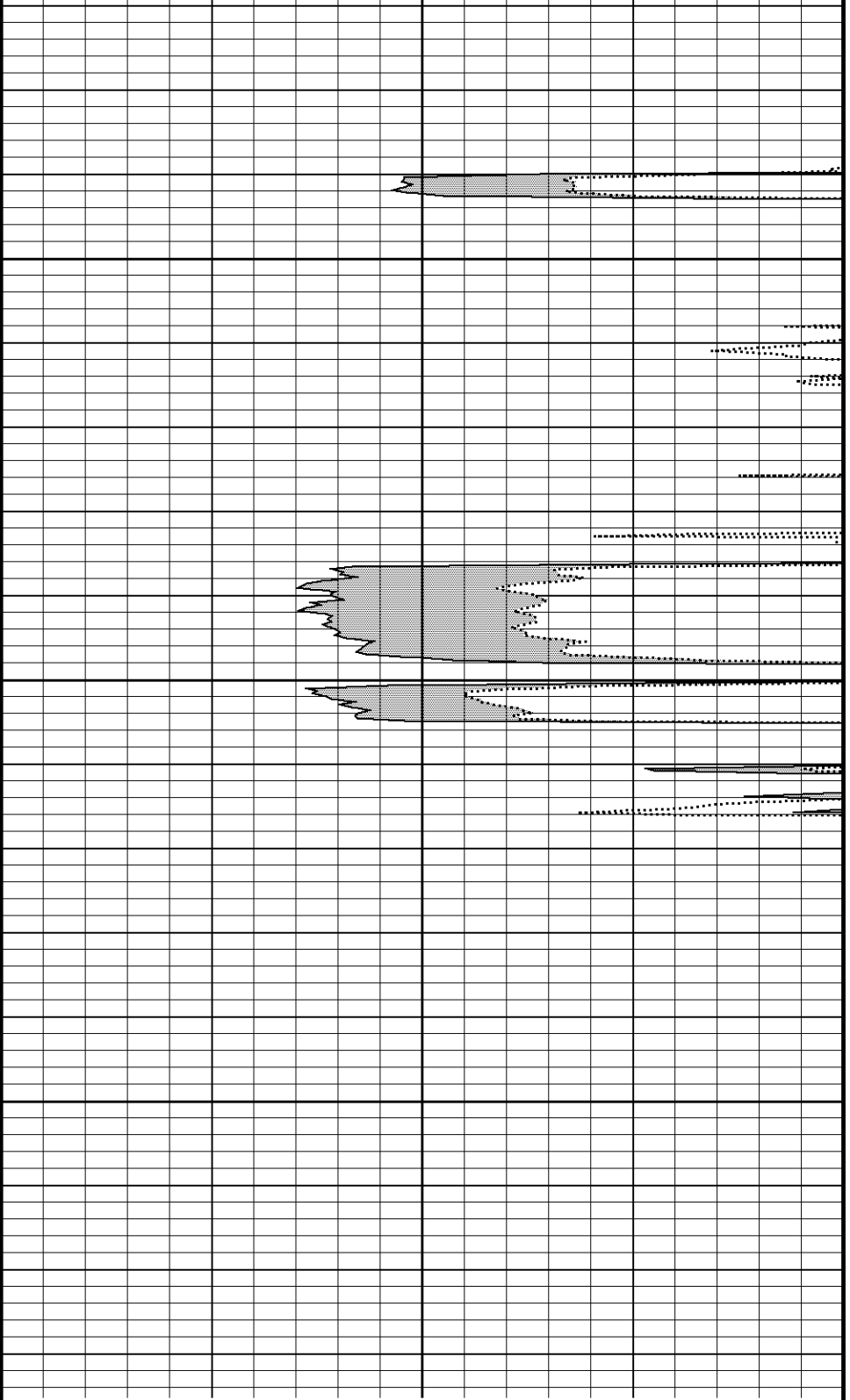
Timing Marks
every 60.0 sec

Gamma Ray
API
0 75 150
150 225 300

Spontaneous Potential
millivolts
--> 20 | <--+

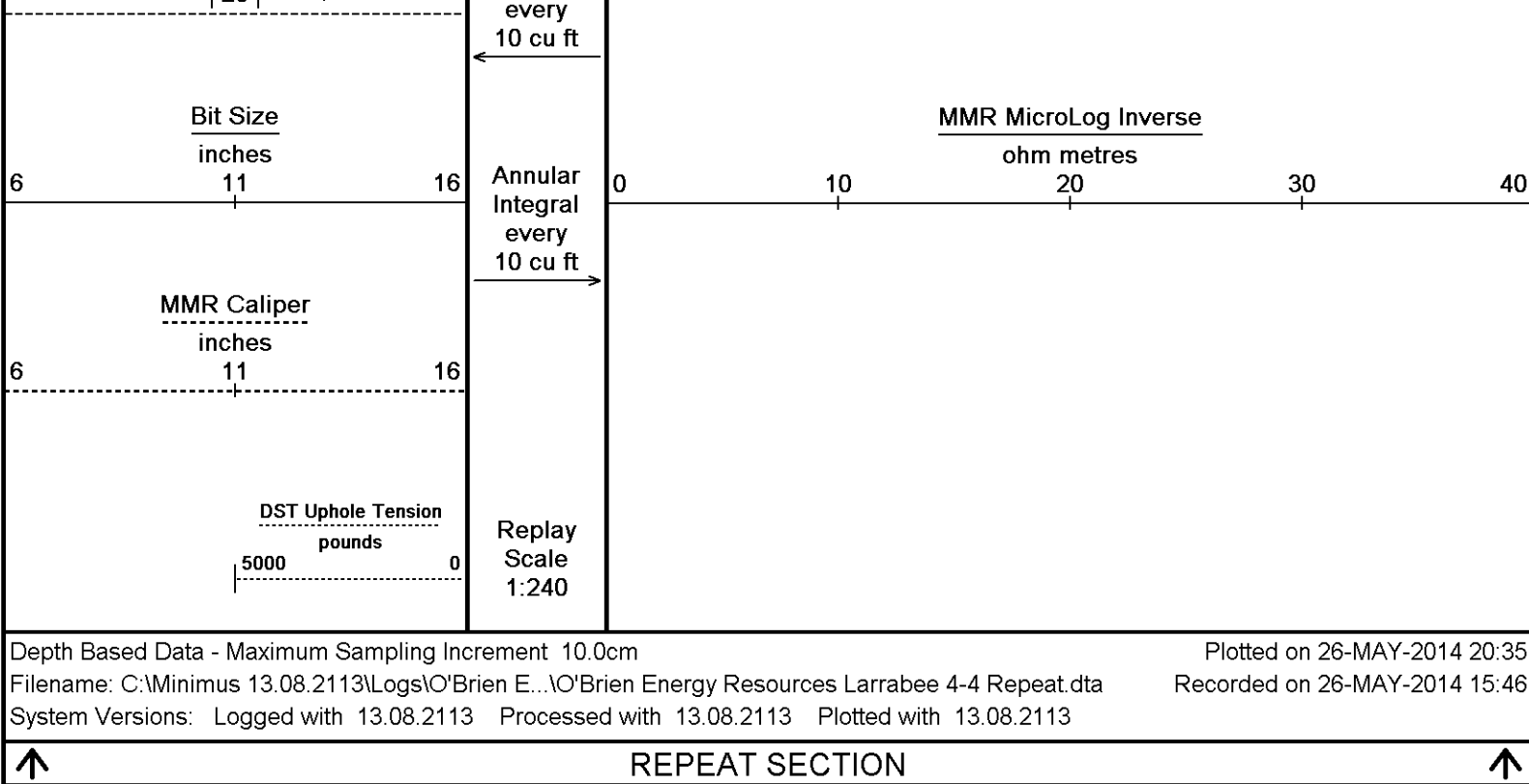
Borehole
Temp in
deg F

HVI



MMR MicroLog Normal
ohm metres

0 10 20 30 40



BEFORE SURVEY CALIBRATION			
C:\Minimus 13.08.2113\Logs\O'Brien Energy Resources Larrabee 4-4\O'Brien Energy Resources Larrabee 4-4 Main.dta			
General Constants All 000		Last Edited on 26-MAY-2014,12:31	
General Parameters			
Mud Resistivity	1.780	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	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	1.000		
RWA Constant M	2.000		
SW/APOR Tool Source	0.000		
Gamma Calibration MCG-D.K 443		Field Calibration on 20-MAY-2014 14:25	
	Measured	Calibrated (API)	
Background	72	48	
Calibrator (Gross)	1168	773	
Calibrator (Net)	1096	725	
Gamma Constants MCG-D.K 443		Last Edited on 26-MAY-2014,12:00	
Gamma Calibrator Number GRC38			
Mud Density	1.13	gm/cc	
Caliper Source for Processing	Density Caliper		
Tool Position	Eccentred		
Concentration of KCl		kppm	
K Mud Type	Chloride		
K Mud Concentration	0.00	%	

High Resolution Temperature Calibration MCG-D.K 443

Field Calibration on 05-MAR-2014,20:50

	Measured	Calibrated(Deg F)
Lower	50.00	50.00
Upper	75.00	75.00

High Resolution Temperature Constants MCG-D.K 443

Last Edited on 05-MAR-2014,20:50

Pre-filter Length 11

Micro Normal and Micro Inverse Calibration MMR-B.A 98

Base Calibration on 05-MAY-2014 08:58

Field Check on 20-MAY-2014 14:07

Base Calibration

	Measured	Calibrated (ohm-m)
Channel	Resistor 1 Resistor 2	Resistor 1 Resistor 2
Micro Normal	10.3 49.9	10.0 50.0
Micro Inverse	9.9 49.4	10.0 50.0

Channel	Base Check (ohm-m)	Field Check (ohm-m)
Micro Normal	183.2	183.2
Micro Inverse	184.0	184.0

Micro Normal and Micro Inverse Constants MMR-B.A 98

Last Edited on 24-MAR-2014,13:47

Pad Type	8-12 in Soft Rubber Inflatable 006-9011-159
Micro Normal K Factor	1.0000
Micro Inverse K Factor	1.0000
Standoff Offset	0.0000 inches

Caliper Calibration MMR-B.A 98

Base Calibration on 05-MAY-2014 09:10

Field Calibration on 20-MAY-2014 14:10

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	13608	5.98
2	17025	7.97
3	20357	9.86
4	24282	11.92
5	0	0.00
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
7.98	7.97

Caliper Calibration MPD-B 104

Base Calibration on 15-MAY-2014 11:17

Field Calibration on 20-MAY-2014 14:03

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	11934	3.99
2	20612	5.98
3	29168	7.97
4	37534	9.86
5	46657	11.92
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
8.00	7.97

DOWNHOLE EQUIPMENT

C:\Minimus 13.08.2113\Logs\O'Brien Energy Resources Larrabee 4-4\O'Brien Energy Resources Larrabee 4-4 Main.dta

3/8" Triple Cone Cable Head (MCB C A)
MCB-C.A 5 LG: 1.58 ft WT: 15.4 lb OD: 2.244 in

Compact Comms Gamma
MCG-D.K 443 LG: 8.70 ft WT: 63.9 lb OD: 2.244 in

Compact Micro-Resistivity



43.50 ft GRGC - Gamma Ray
40.59 ft CGXT - MCG External Temperature

33.24 ft MINV - MMR Micro Normal Inverse

Compact MicroLog Normal
MMR-B.A 98 LG: 8.59 ft WT: 81.6 lb OD: 4.882 in

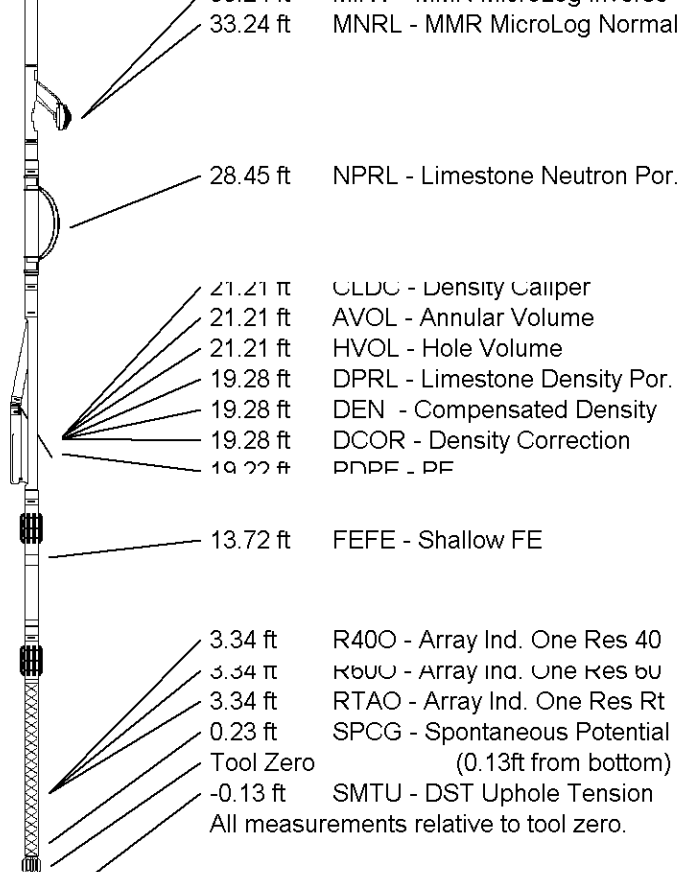
Compact Neutron
MDN-A.B 65 LG: 5.04 ft WT: 50.7 lb OD: 2.244 in

Compact Density/Caliper
MPD-B 104 LG: 9.59 ft WT: 90.4 lb OD: 2.449 in

Compact Focussed Electric
MFE-B.J 352 LG: 6.05 ft WT: 48.5 lb OD: 2.244 in

Compact Induction
MAI-A.A 158 LG: 10.81 ft WT: 48.5 lb OD: 2.244 in

Total Length: 50.36 ft Weight: 399.0 lb



COMPANY	O'BRIEN ENERGY RESOURCES CORP.
WELL	LARRABEE 4-4
FIELD	MOHLER
PROVINCE/COUNTY	MEADE
COUNTRY/STATE	U.S.A. / KANSAS

Elevation Kelly Bushing	2541.00	feet	First Reading	4574.76	feet
Elevation Drill Floor	2539.00	feet	Depth Driller	6415.00	feet
Elevation Ground Level	2530.00	feet	Depth Logger	6408.00	feet



Weatherford®

MICRORESISTIVITY LOG