



Weatherford

**CML MESSENGER SHUTTLE
ARRAY INDUCTION**

COMPANY				SANRIDGE ENERGY			
WELL				4J RANCH 3408 #1-33H			
FIELD				BOUSE			
PROVINCE/COUNTY				HARPER			
COUNTRY/STATE				U.S.A. / KANSAS			
LOCATION				200' FSL & 1980' FEL			
SEC	TWP	RGE	Other Services				
33	34S	8W	MDNMMPD				
API Number		15-077-21906					
Permit Number							
Permanent Datum G.L., Elevation 1246 feet							
Log Measured From KB							
Drilling Measured From K.B. @ 16 FEET							
Date	28-FEB-2013				Elevations:	feet	
Run Number	ONE				KB	1262.00	
Service Order	3539542				DF	1262.00	
Depth Driller	9138.00				GL	1246.00	
Depth Logger	9138.00						
First Reading	9108.00						
Last Reading	5242.00						
Casing Driller	5242.00						
Casing Logger	5242.00						
Bit Size	6.125						
Hole Fluid Type	WBM						
Density / Viscosity	8.40 lb/USg		27.00 CP				
PH / Fluid Loss	9.60		9.60				
Sample Source	FLOWLINE						
Rm @ Measured Temp	0.87 @ 71.0		ohm-m				
Rmf @ Measured Temp	0.70 @ 71.0		ohm-m				
Rmc @ Measured Temp	1.04 @ 71.0		ohm-m				
Source Rmf / Rmc	CALC	CALC					
Rm @ BHT	0.51 @122.0		ohm-m				
Time Since Circulation	1 HOUR						
Max Recorded Temp	122.00		deg F				
Equipment / Base	18077	OKC					
Recorded By	STEVEN TOTTEY						
Witnessed By	JUSTIN LYNCH						

BOREHOLE RECORD			Last Edited: 01-MAR-2013 03:34
Bit Size inches	Depth From feet	Depth To feet	
8.750	0.00	5242.00	
6.125	5242.00	9138.00	

CASING RECORD				
Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
surface	7.000	0.00	5242.00	23.00

REMARKS
LOGGED WITH WLS 13.04.8492
LOGGED USING MESSENGER SHUTTLE METHOD OF DEPLOYMENT
TOOLS RAN: SRT-69,,200V MBS-114,MMSE133,MTI-076, MGS-142,MCL-063,SKJ-472,SHA-438,MIS-608, MDN-391, MPD-394,MIS-607, SHA-167, SKJ-479,, MAI-170 RAN IN COMBINATION
HARDWARE: MAI: MIS-B 0.5" STANDOFF USED ABOVE MAI, ISA STAND-OFF RAN BELOW MAI MFE: MIS-B 0.5" STANDOFF USED ABOVE MFE MDN: MIS-A DOUBLE BOWSPRING USED ABOVE MDN. MPD: 4INCH PROFILE PLATE USED, MIS-A SINGLE BOWSPRING USED BELOW MPD
2.71 G/CC DENSITY MATRIX USED TO CALCULATE POROSITY ALL INTERVALS LOGGED AND SCALED PER CUSTOMER'S REQUEST
DRILL PIPE DEPTH DURING DEPLOYMENT: 9029

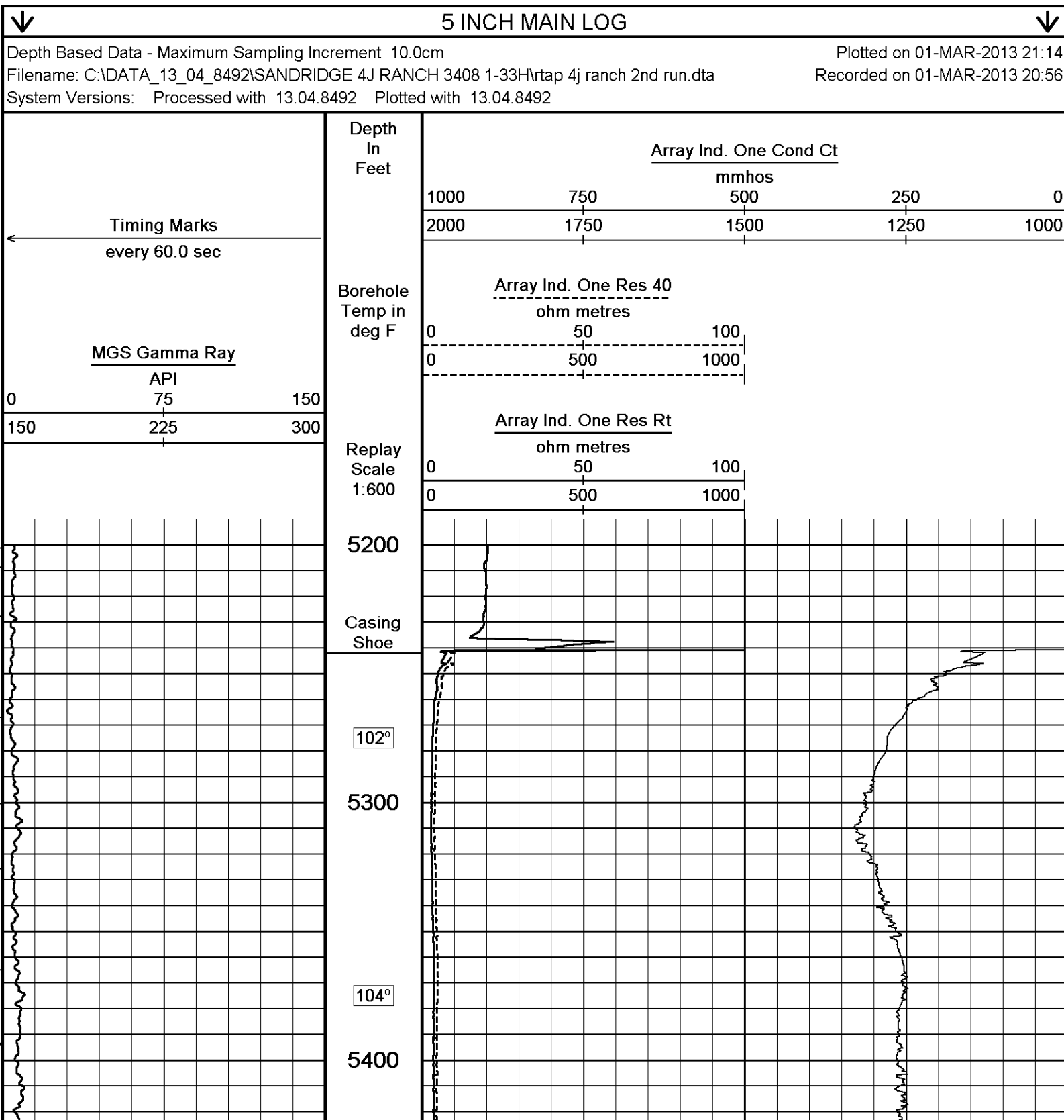
DRILL FILE DEPTH BORING DEPTHMENT: 5025
LOGGING TOOL DEPTH AFTER DEPLOYMENT: 9112

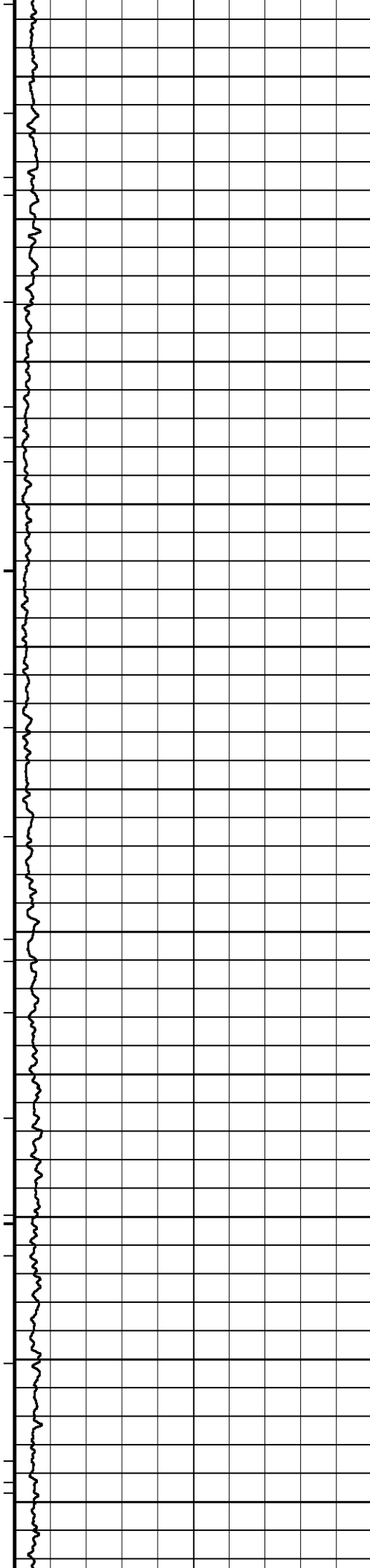
OPERATORS: SHAWN WORLEY AND DREW TURNER

RIG: UNIT #9

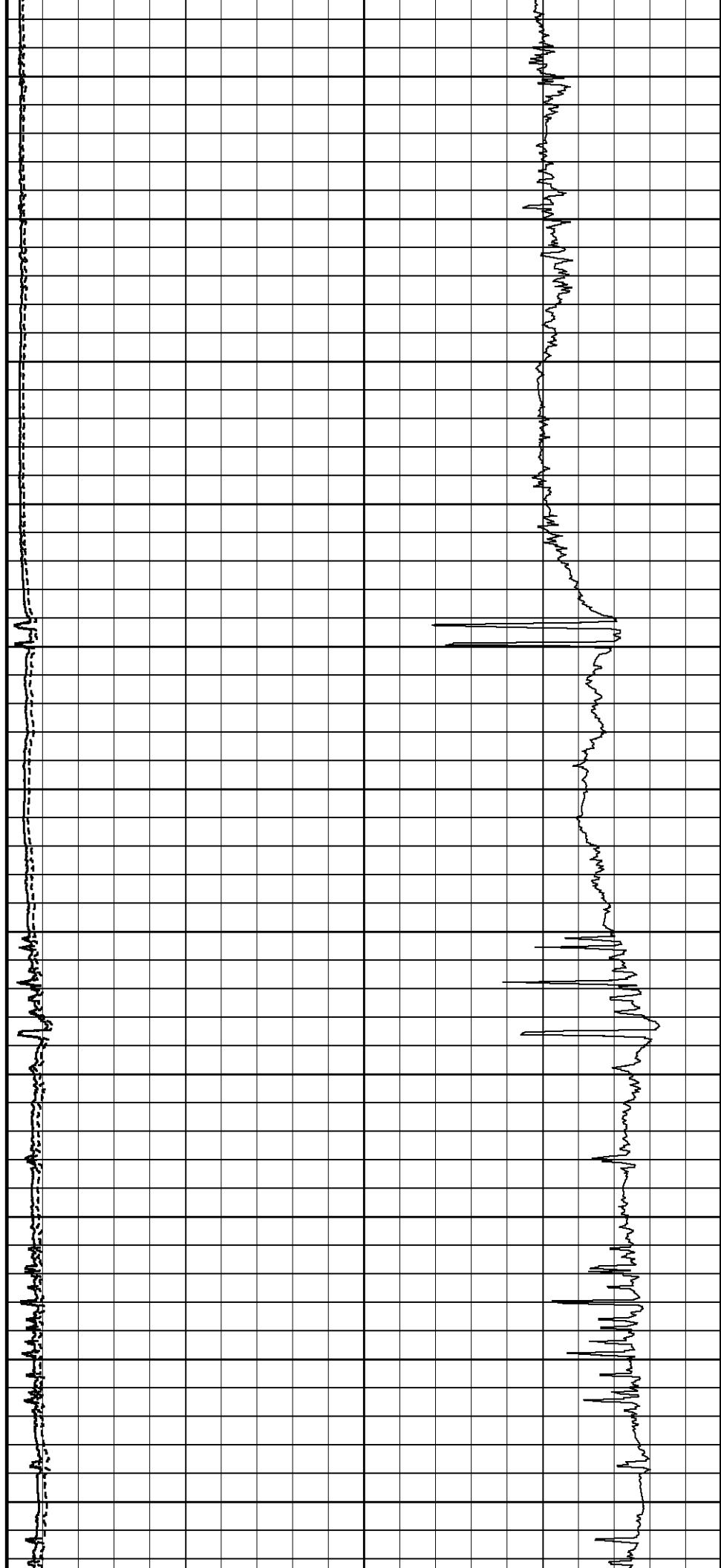
LOG RESPONSES EFFECTED BY HOLE RUGOSITY

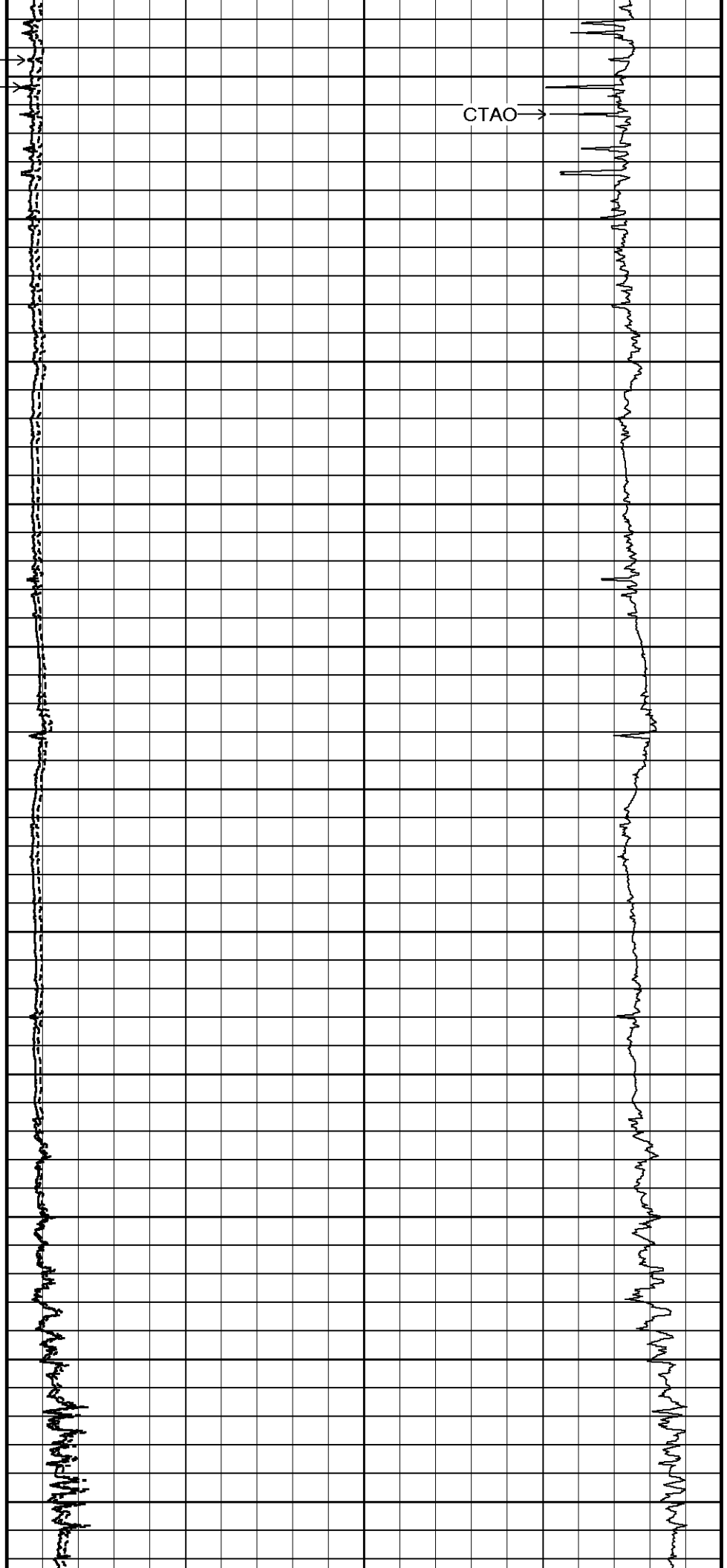
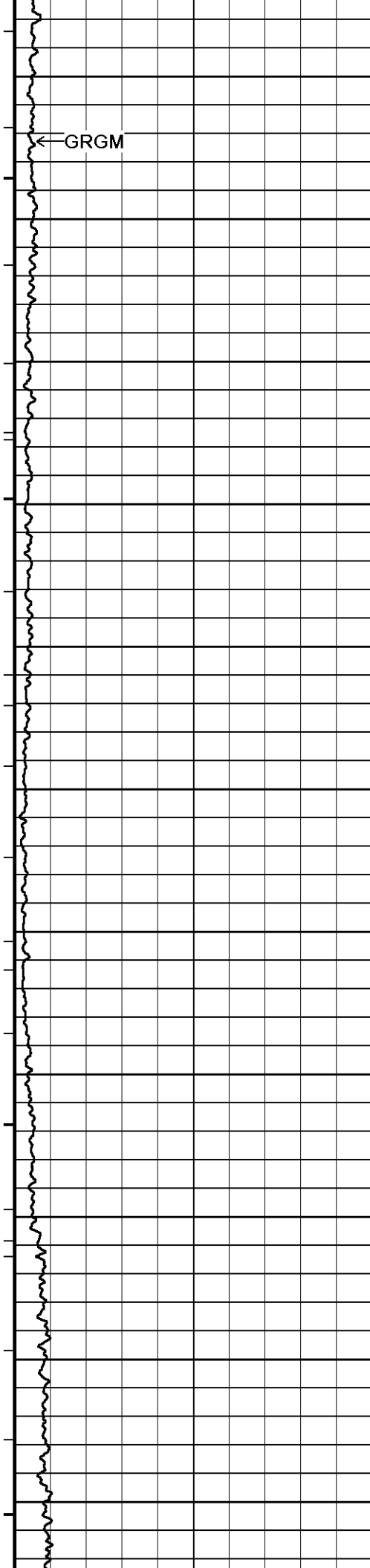
All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not, guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or wilful negligence on our part, be liable or responsible for any loss, costs, damages or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to our general terms and conditions in our price schedule.

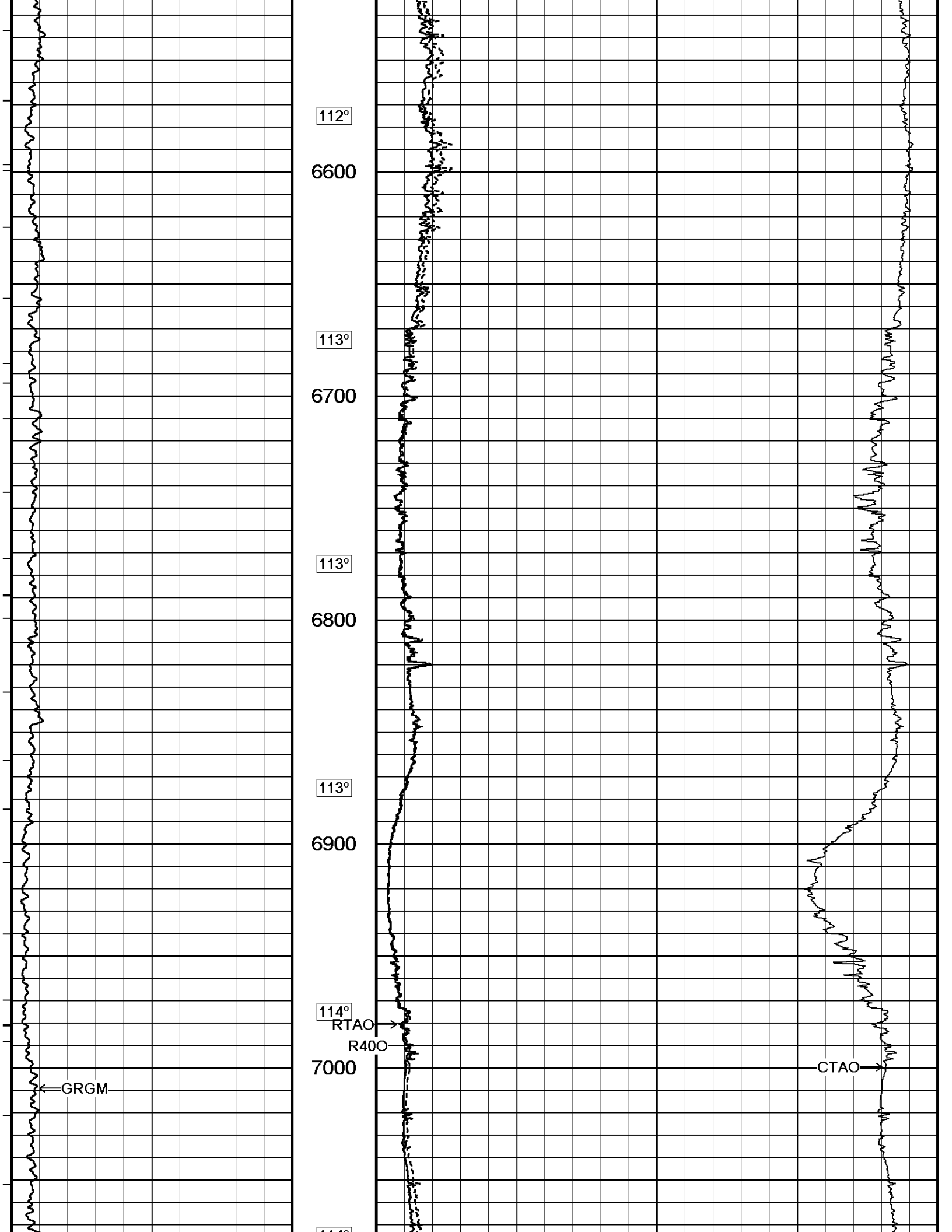


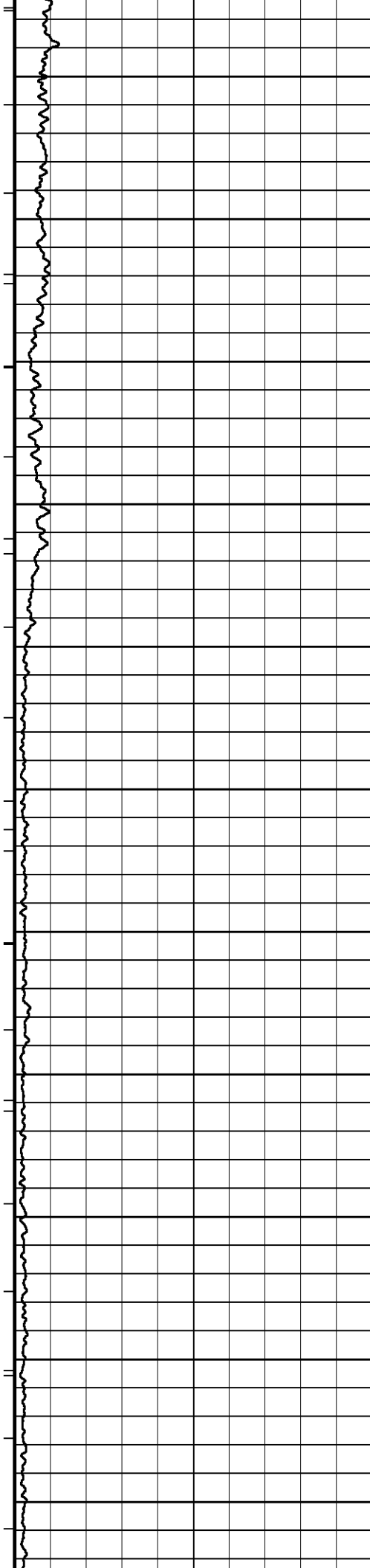


105°
5500
106°
5600
107°
5700
107°
5800
109°
5900
110°

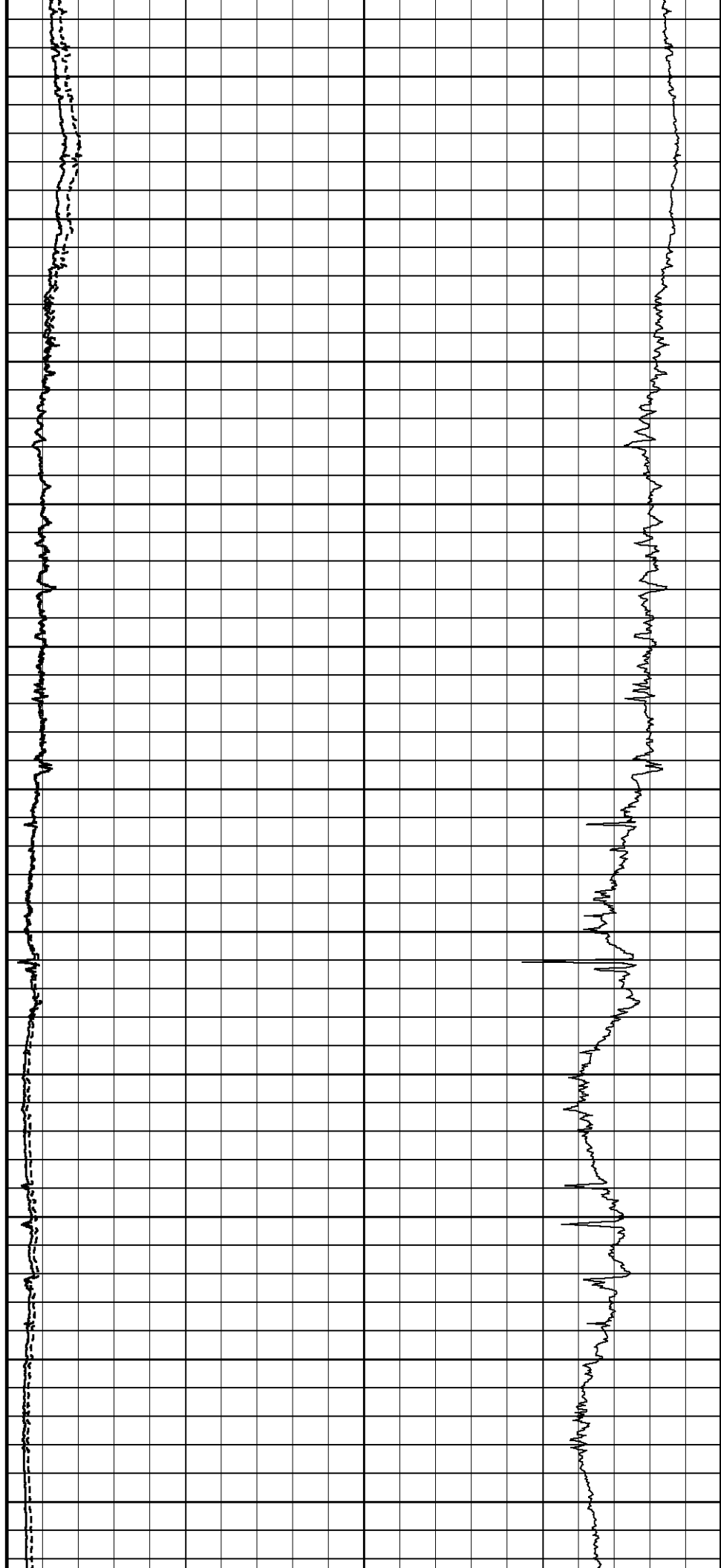


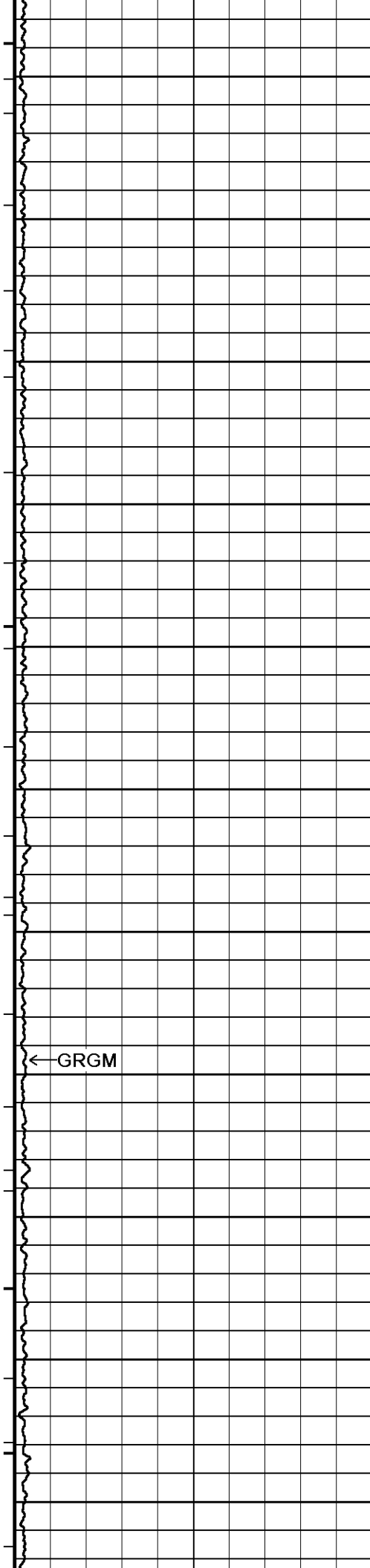






114°
7100
115°
7200
115°
7300
115°
7400
115°
7500
115°
7600





116°

7700

116°

7800

116°

7900

RTAO →

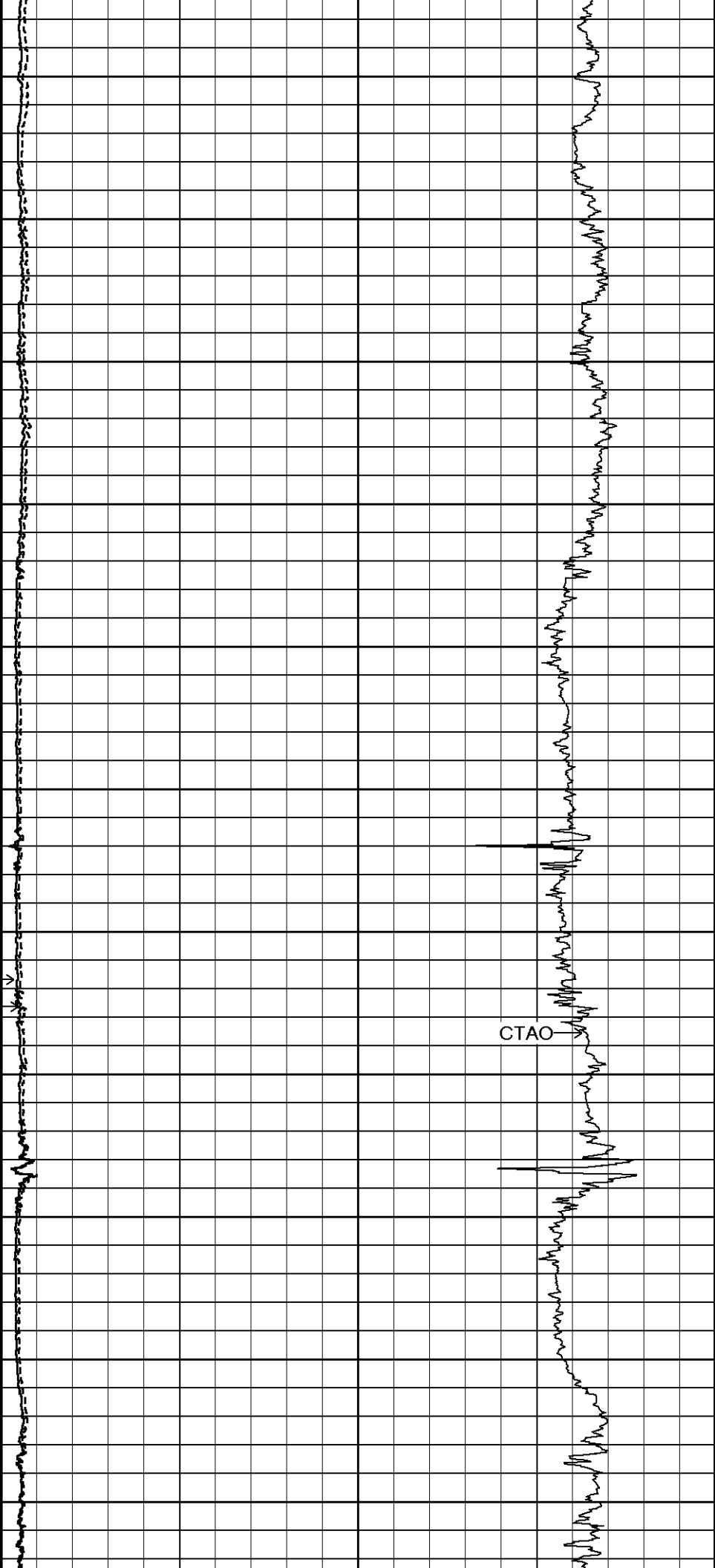
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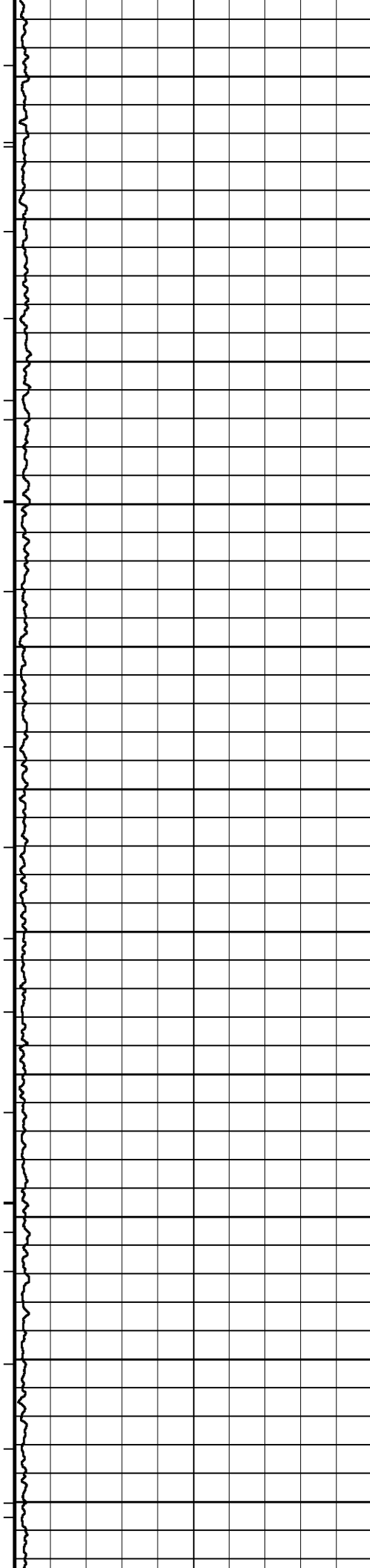
8000

116°

8100

116°





116°

8200

116°

8300

117°

8400

118°

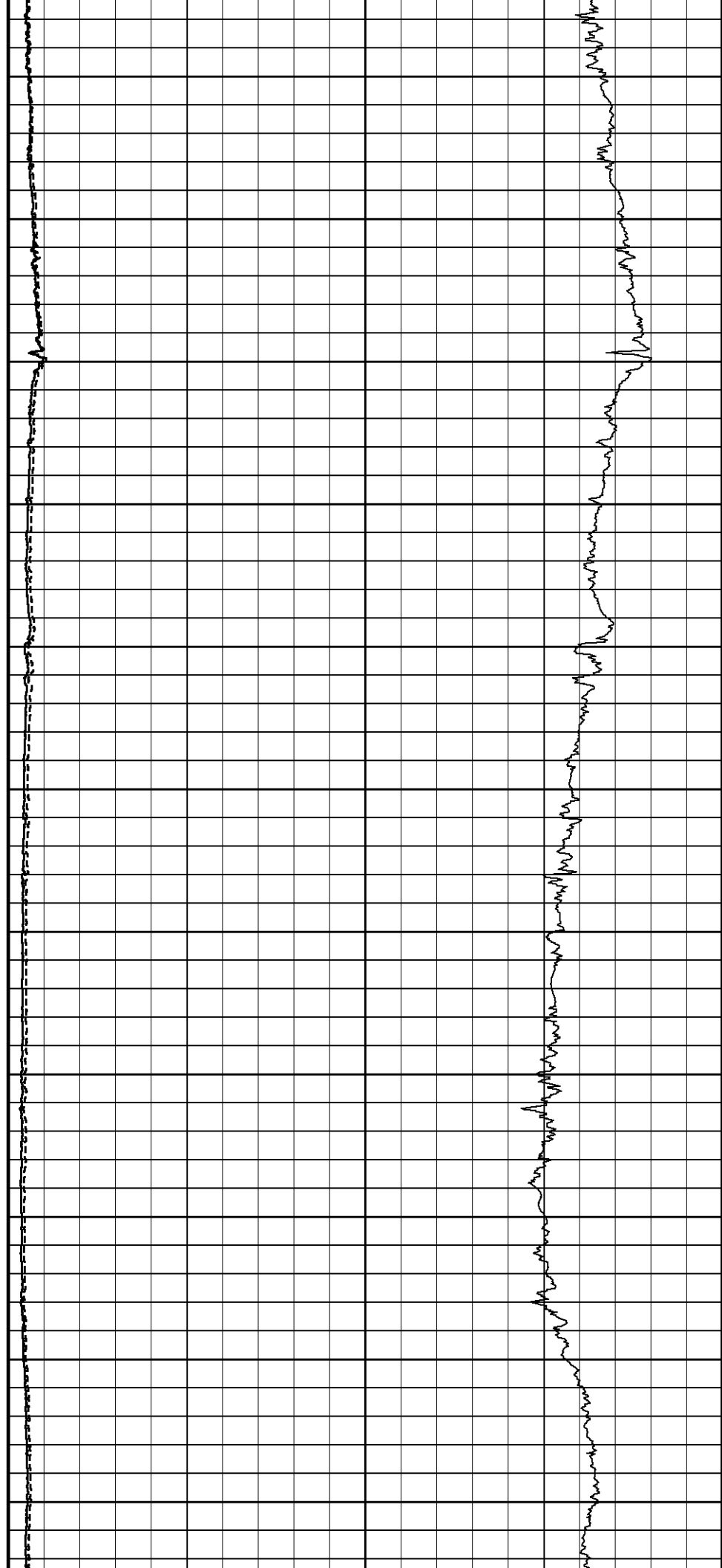
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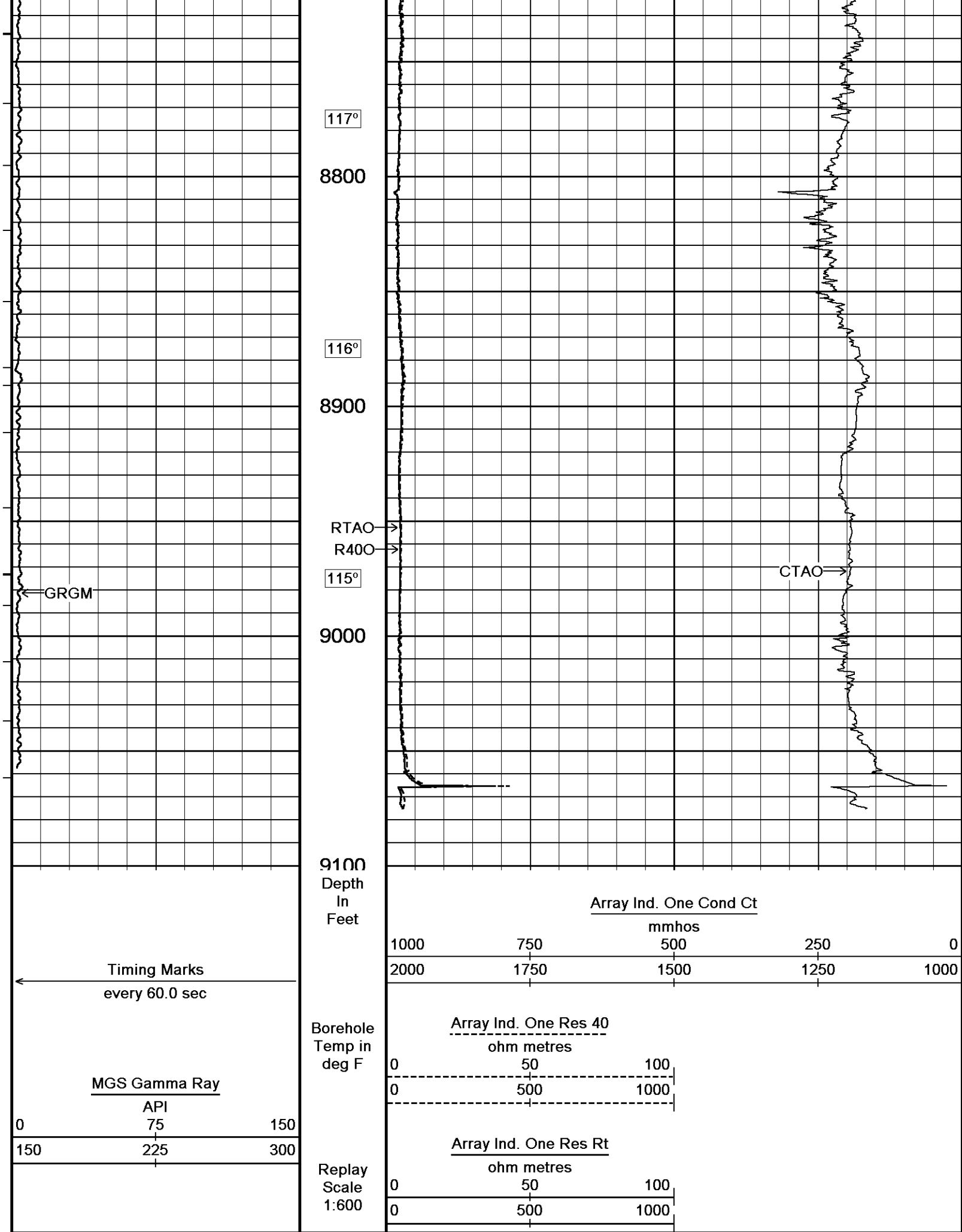
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8600

117°

8700





↑

5 INCH MAIN LOG

↑

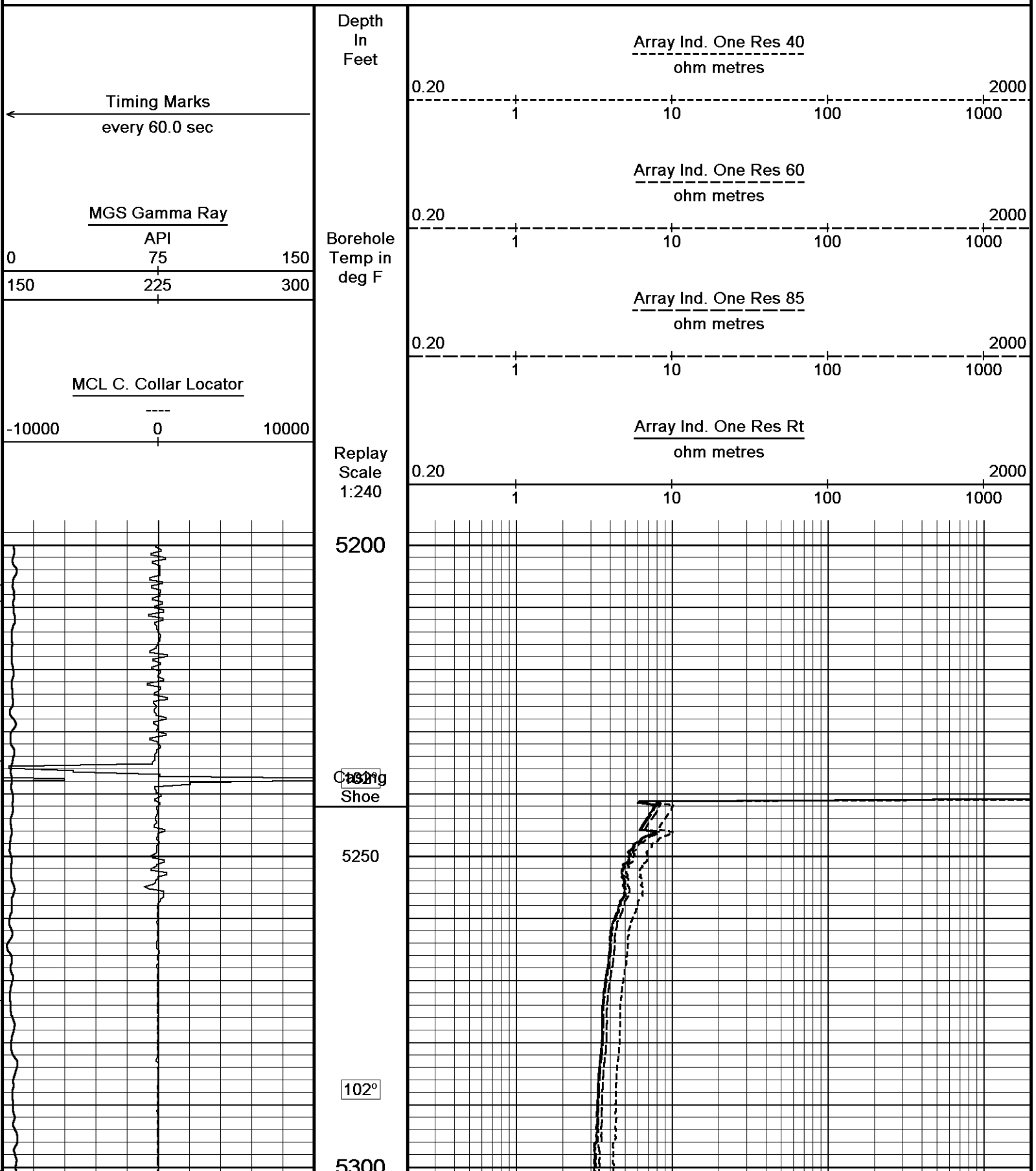
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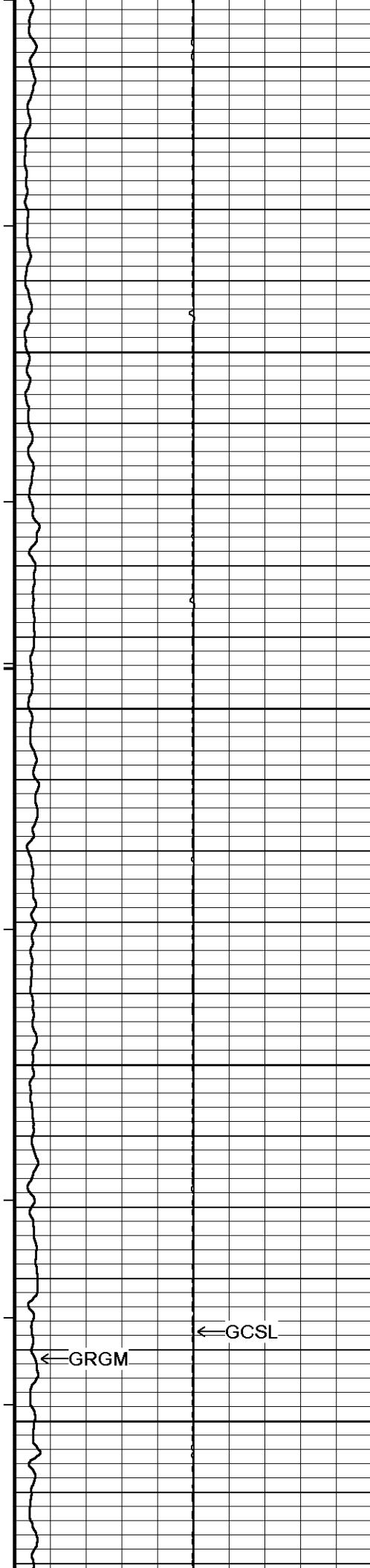
5 INCH MAIN LOG

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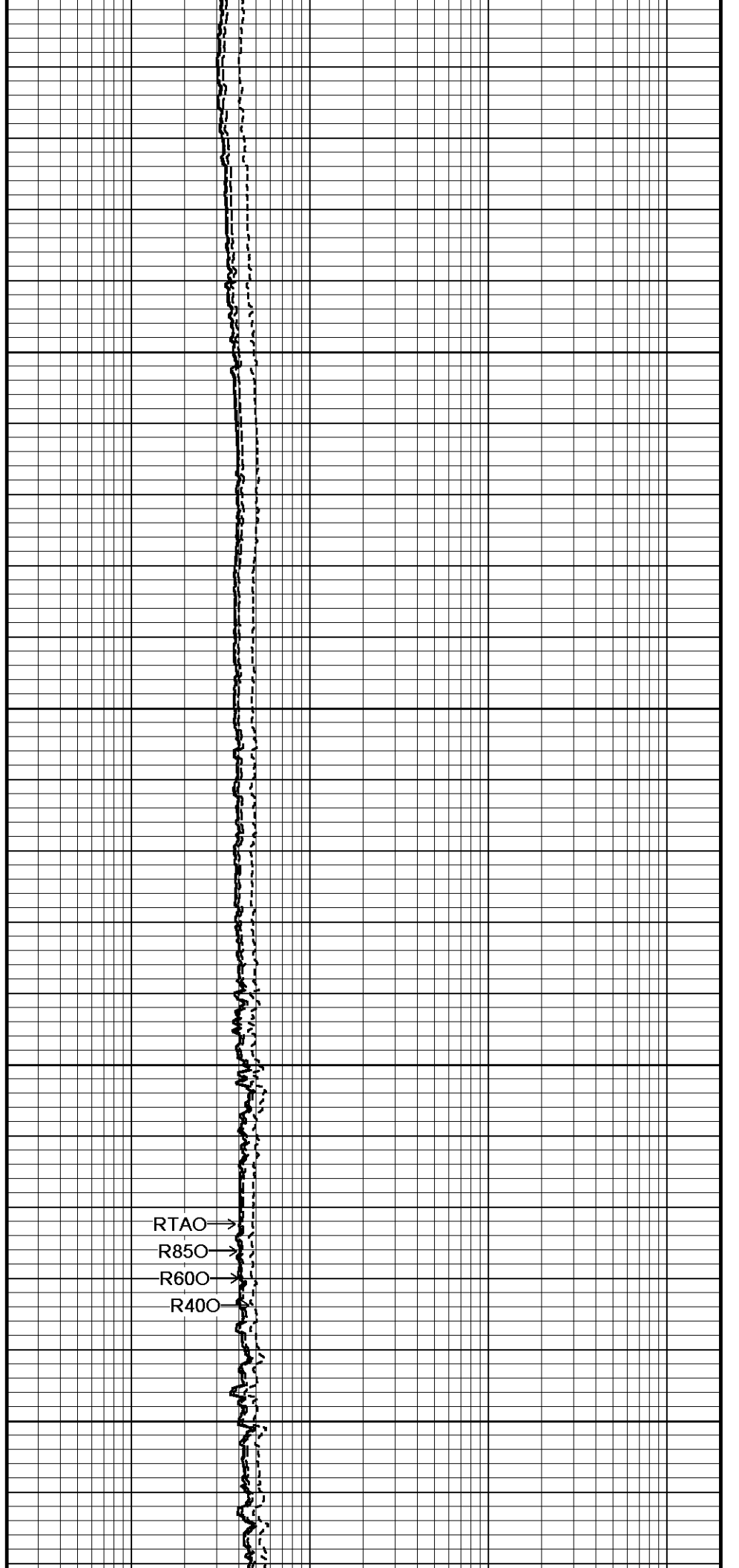
Depth Based Data - Maximum Sampling Increment 10.0cm
Filename: C:\DATA_13_04_8492\SANDRIDGE 4J RANCH 3408 1-33H\rap 4j ranch 2nd run.dta
System Versions: Processed with 13.04.8492 Plotted with 13.04.8492

Plotted on 01-MAR-2013 21:14
Recorded on 01-MAR-2013 20:56





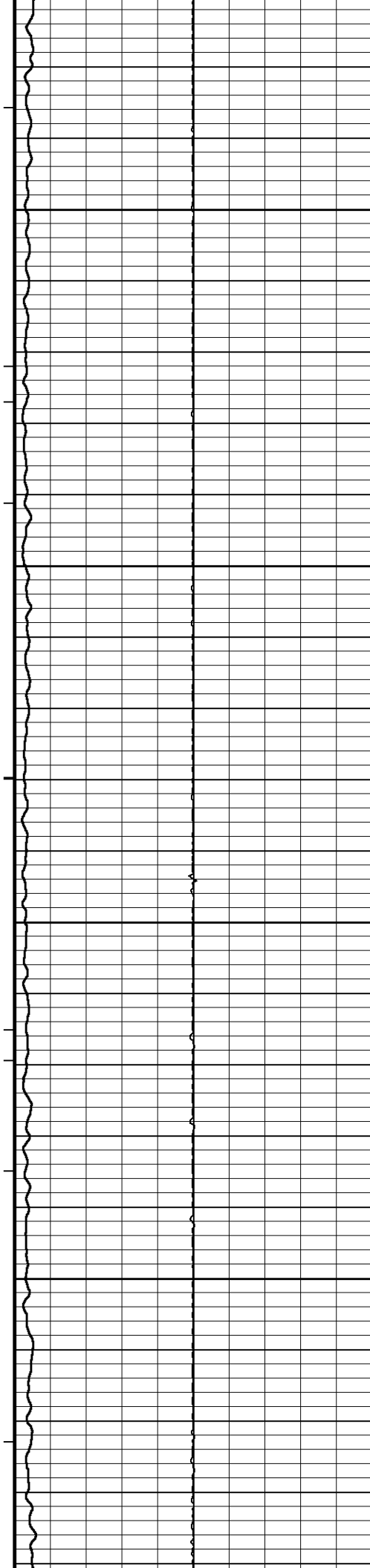
5350
103°
5350
104°
5400
105°
5450
105°
5500



RTAO
R850
R600
R400

← GRGM

← GCSL



106°

5550

106°

5600

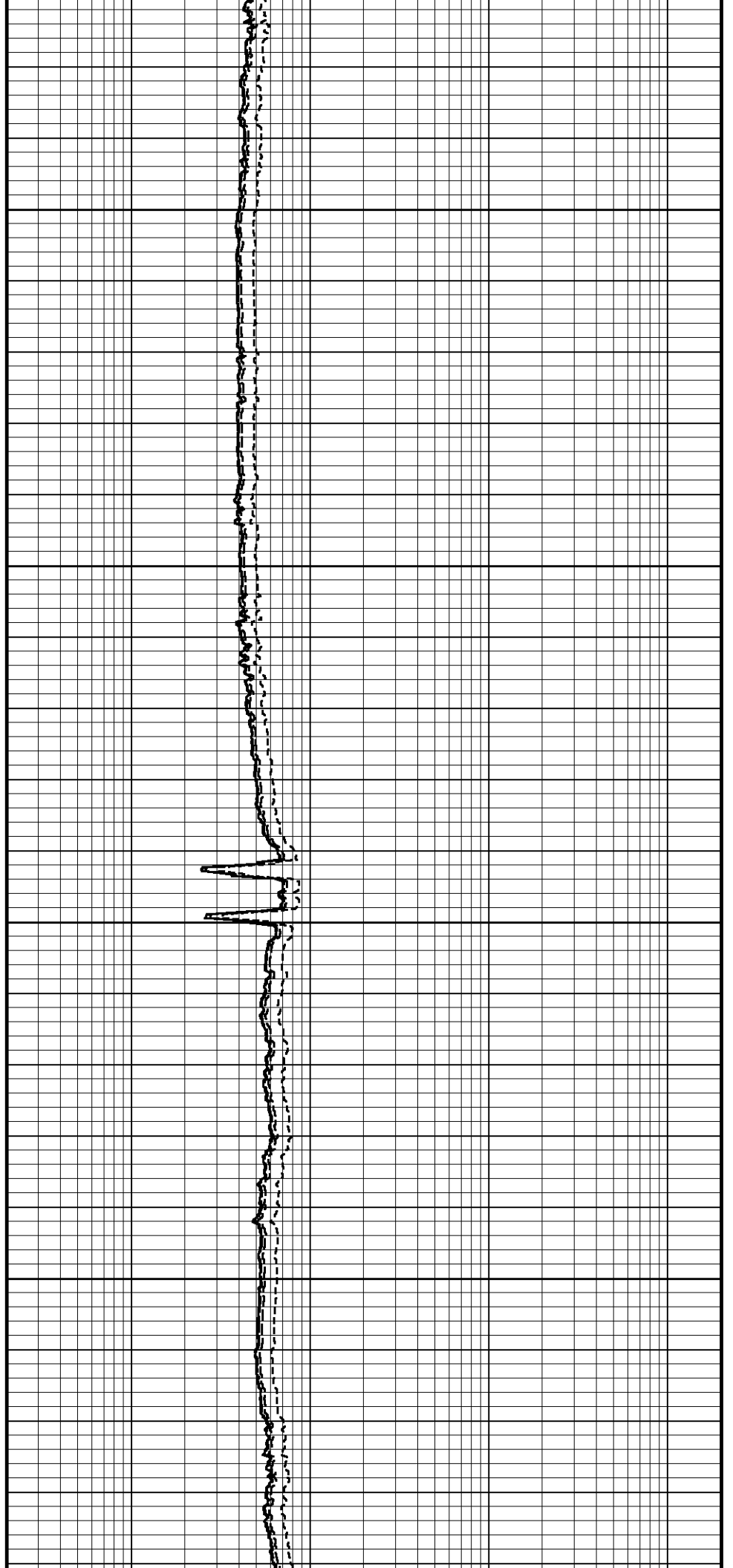
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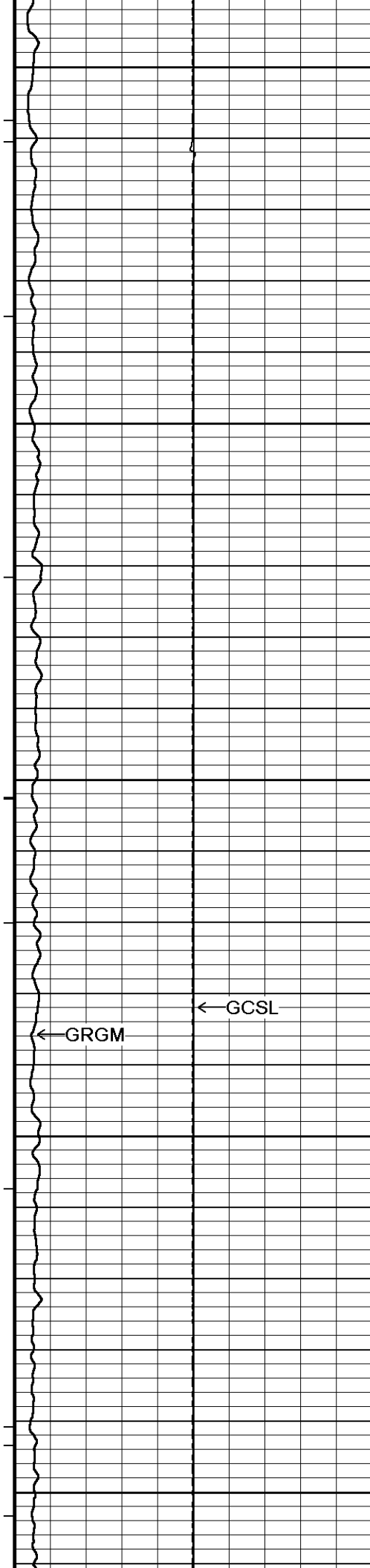
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107°

5700

107°





5750

108°

5800

108°

5850

← GRGM

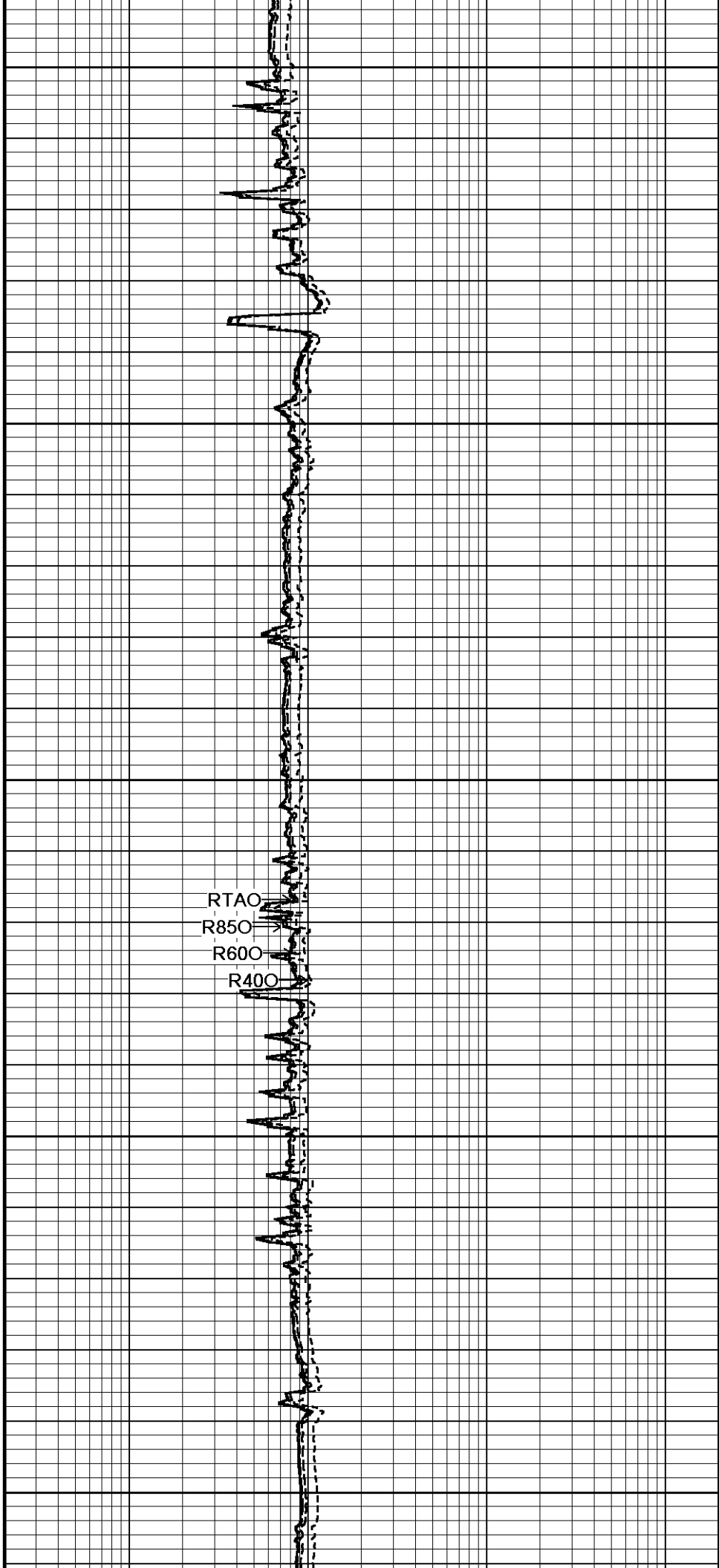
← GCSL

109°

5900

110°

5950

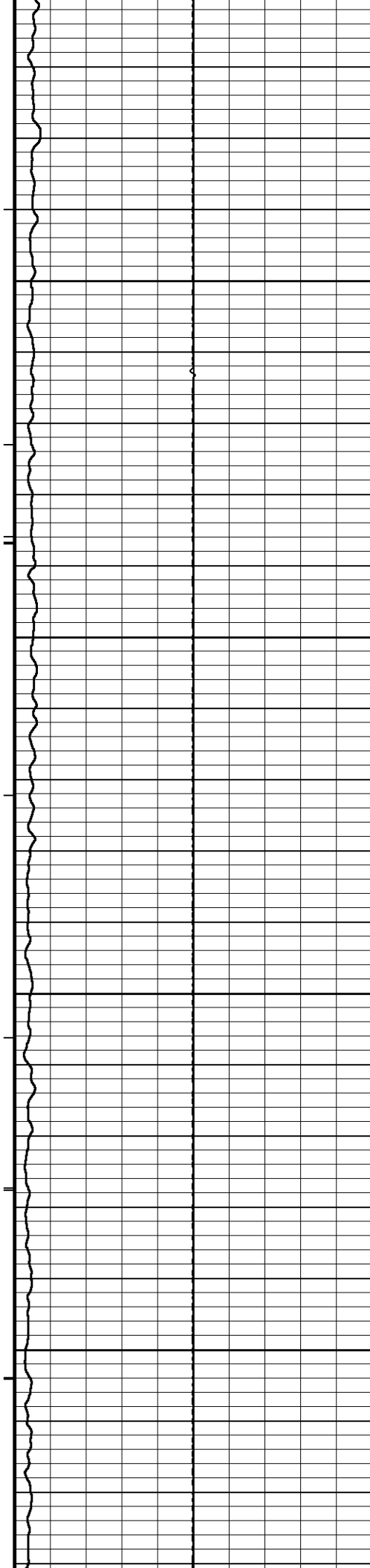


RTAO

R85O

R60O

R40O



110°

6000

110°

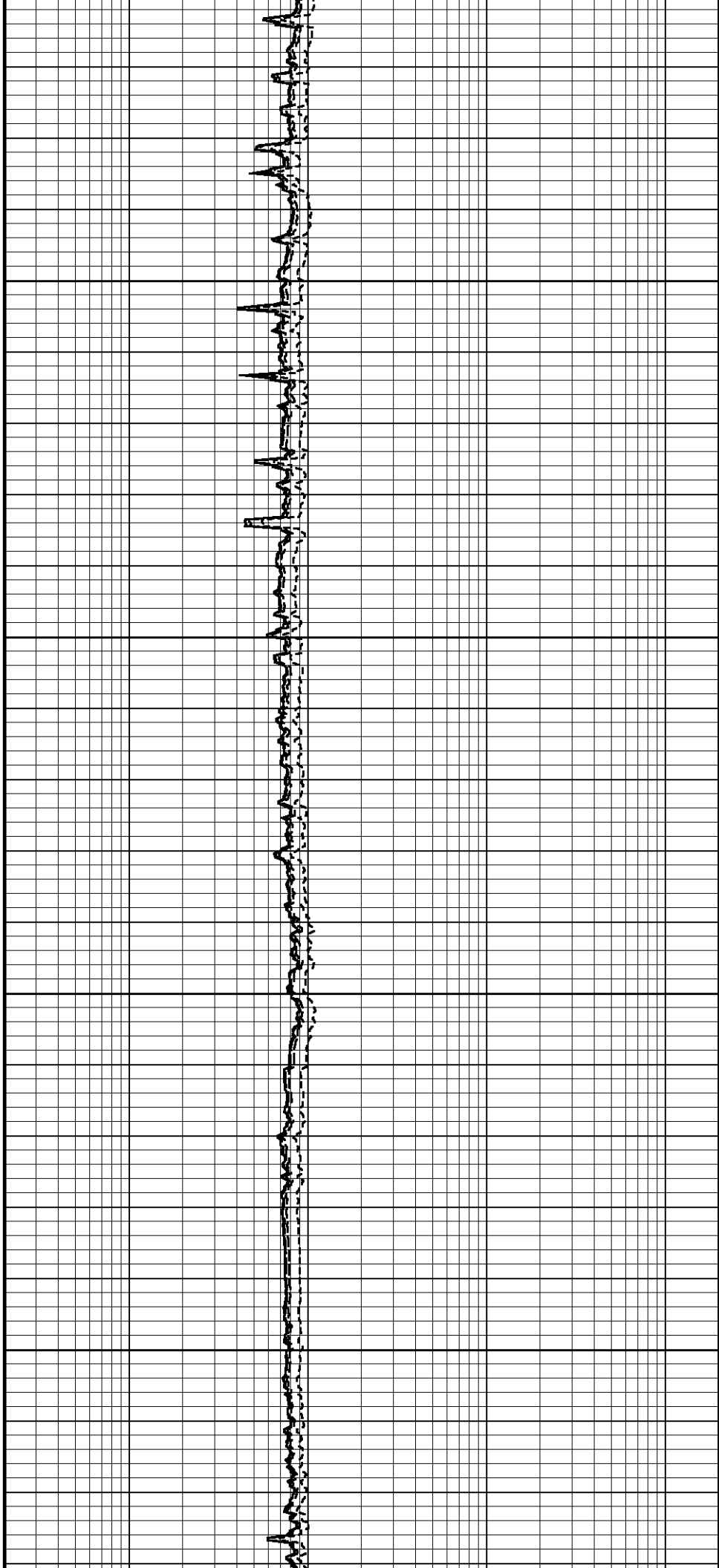
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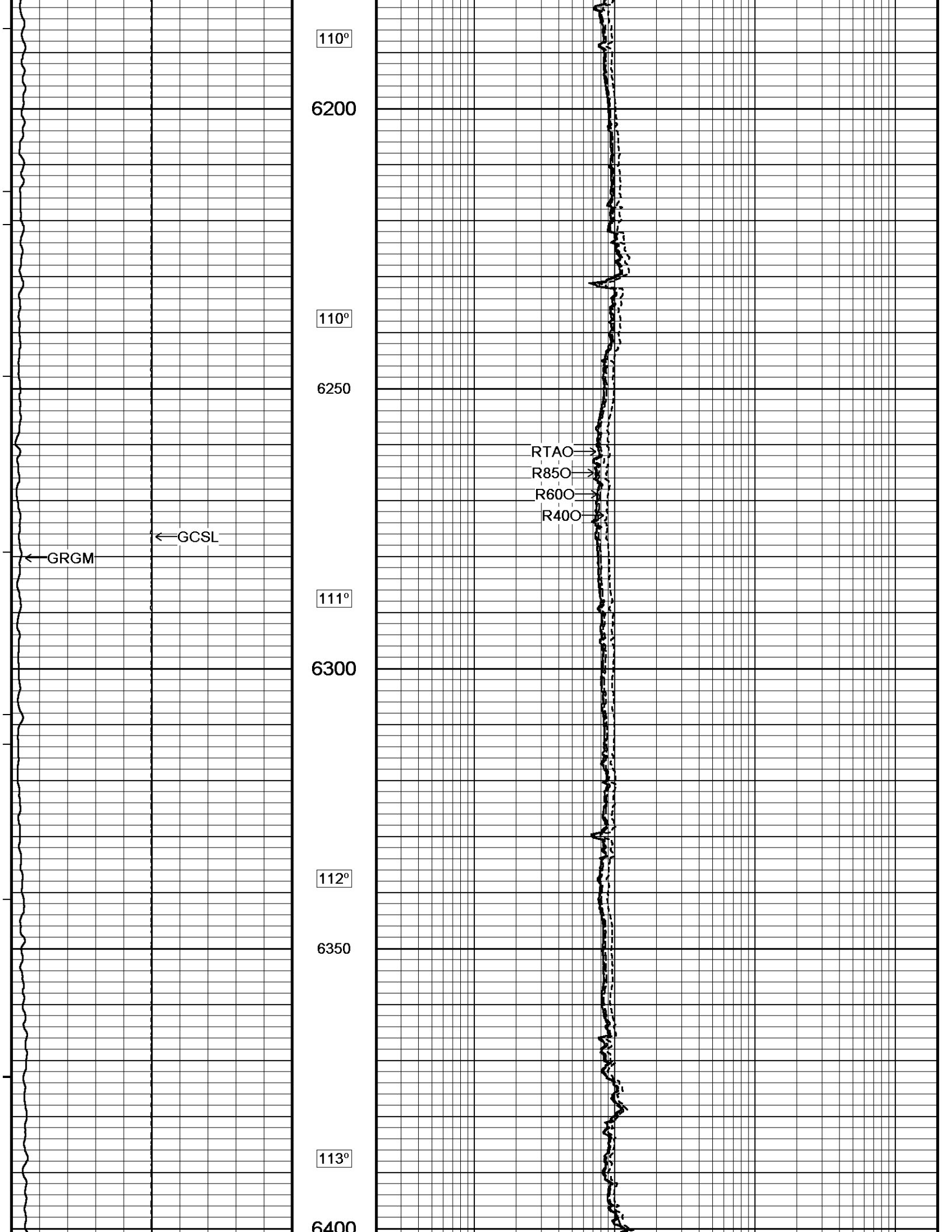
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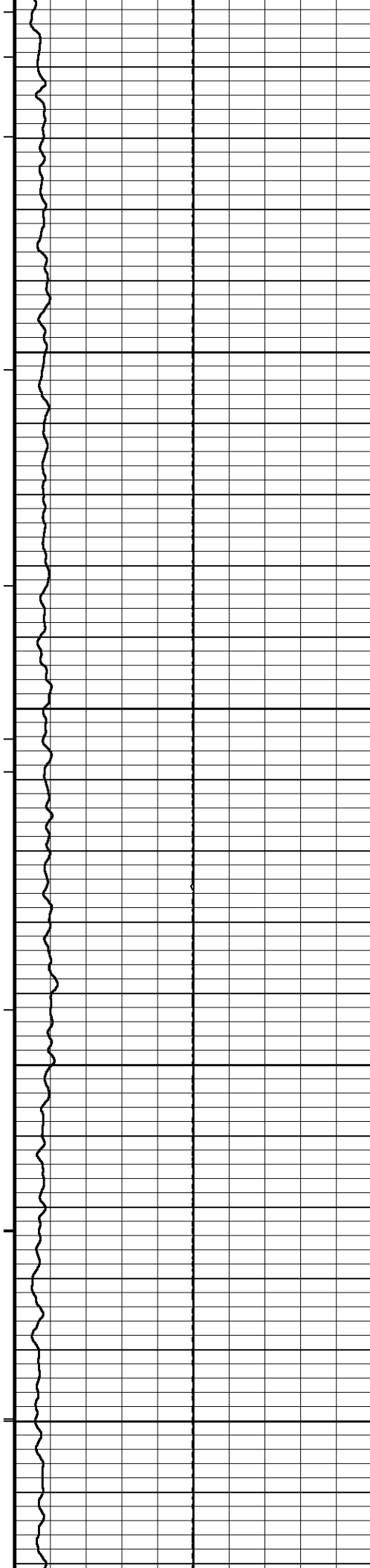
6100

110°

6150







6430

112°

6450

112°

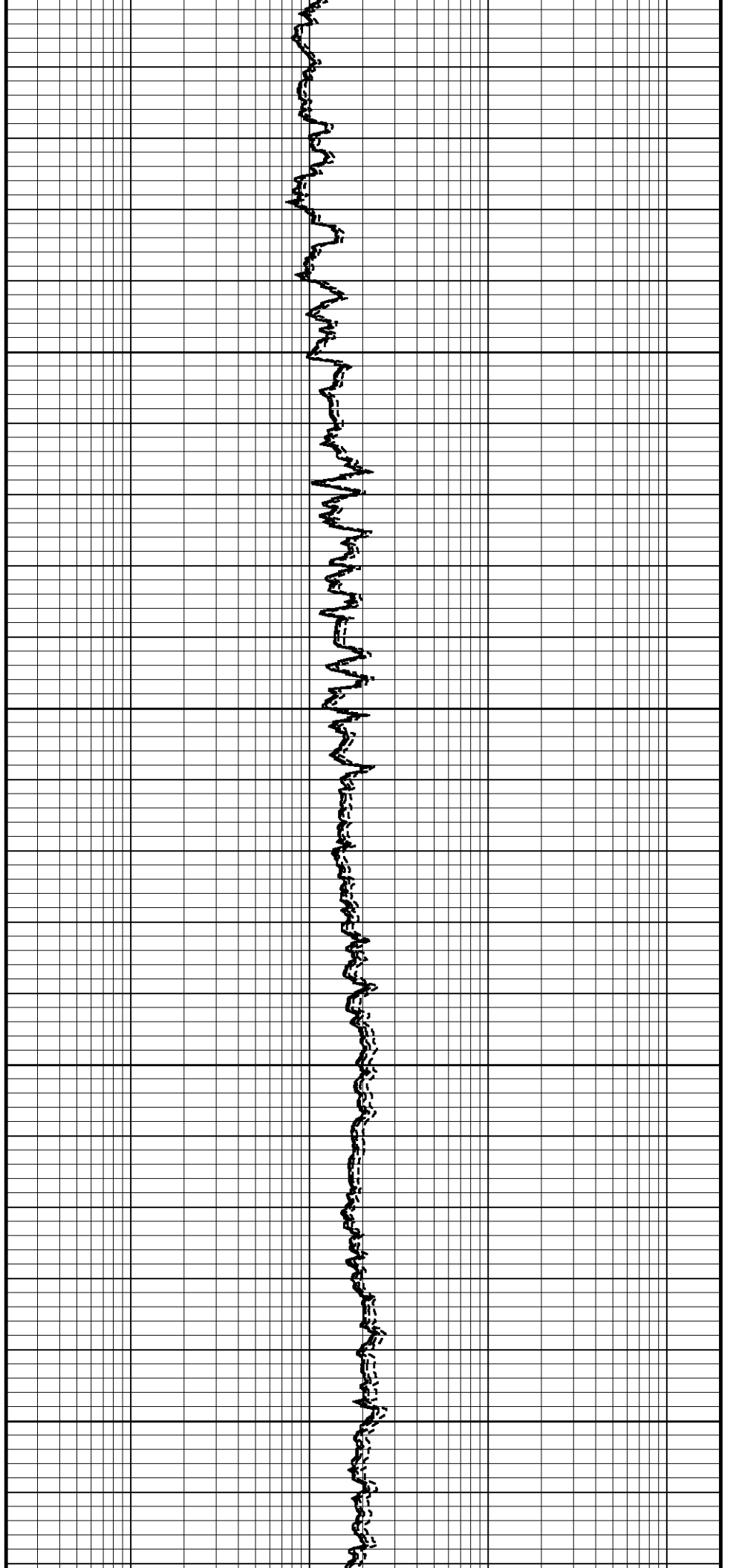
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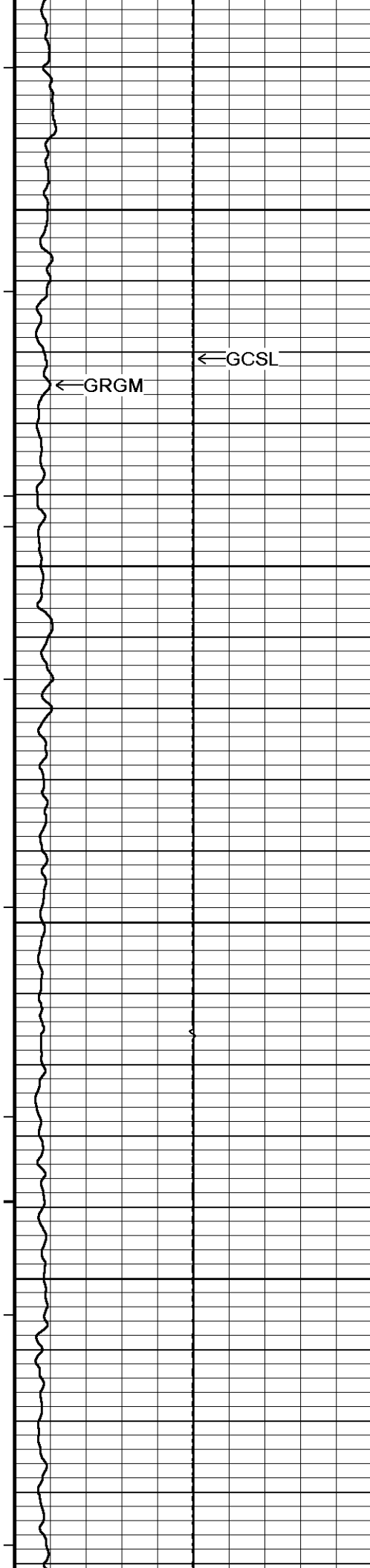
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6550

113°

6600





113°

6650

← GRGM

← GCSL

113°

6700

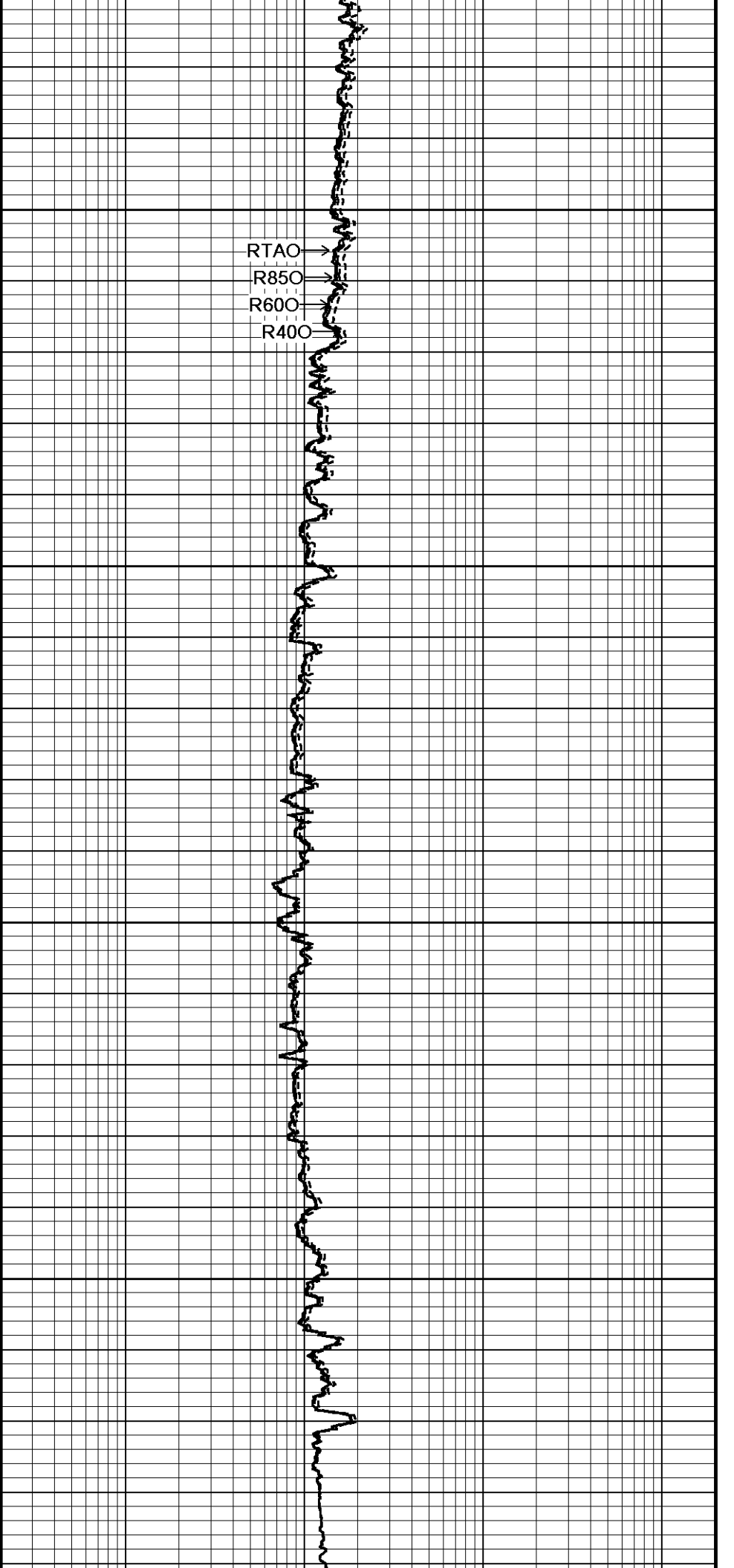
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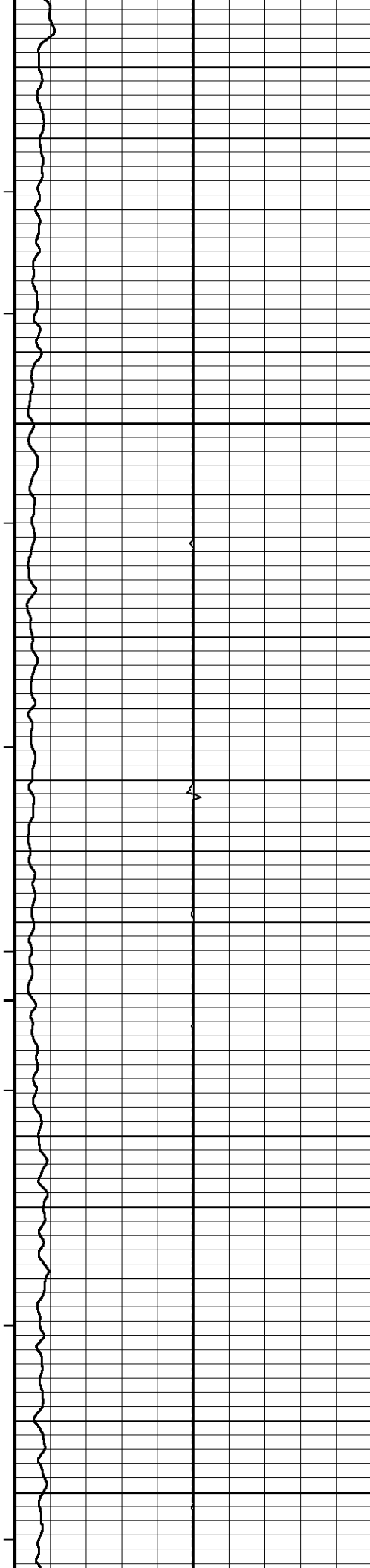
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113°

6800

114°





6850

113°

6900

114°

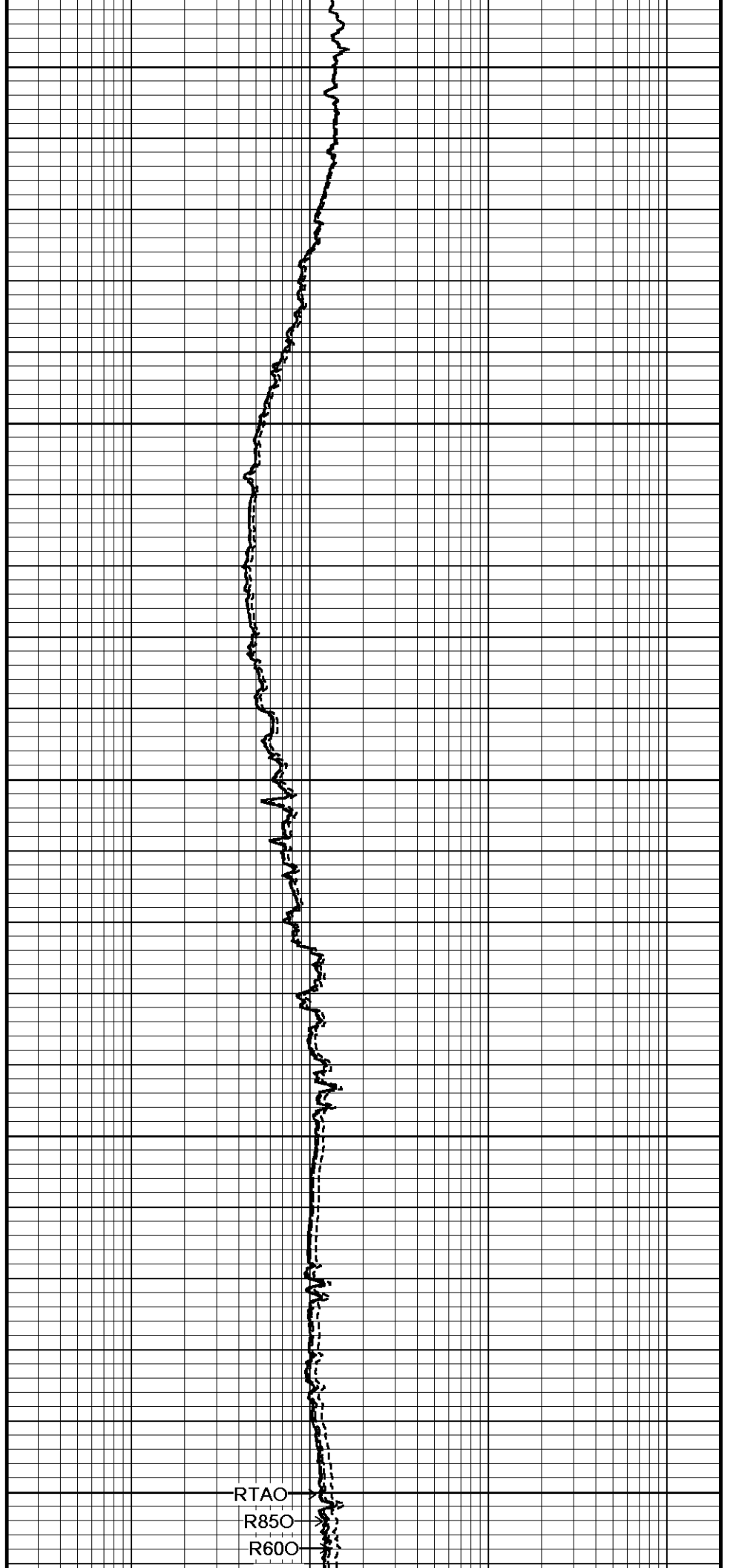
6950

114°

7000

114°

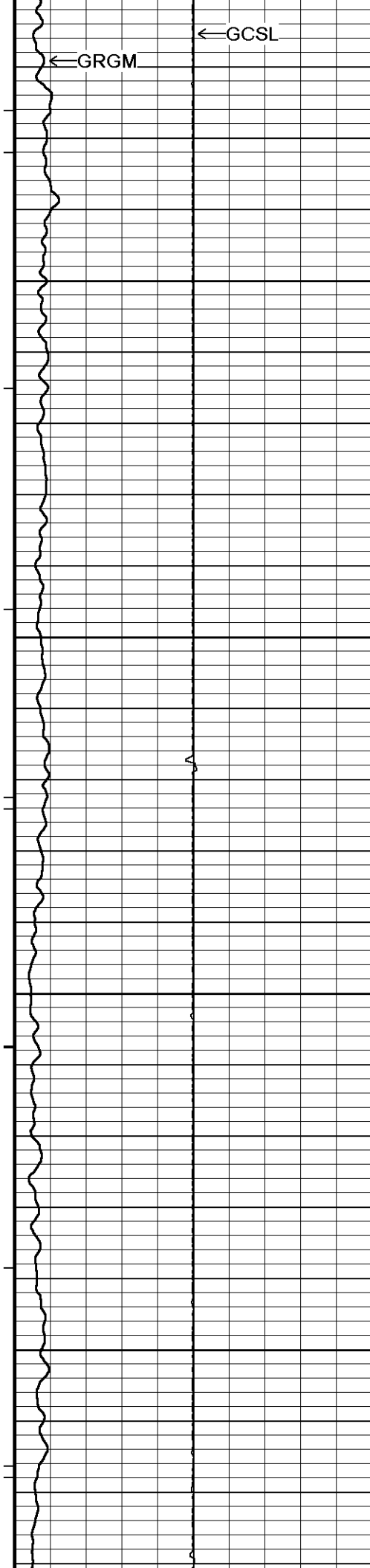
7050



RTAO

R85O

R60O



114°

7100

115°

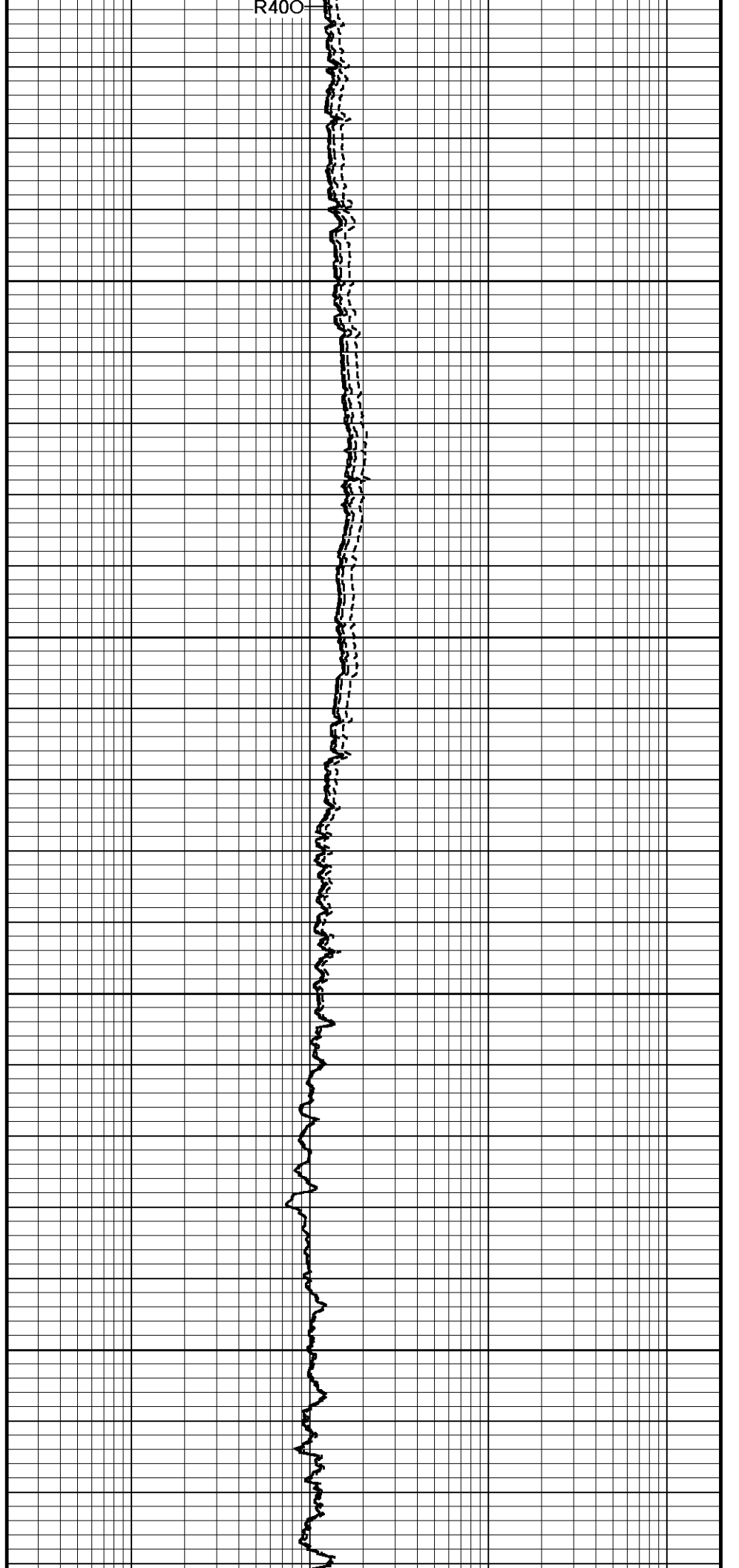
7150

115°

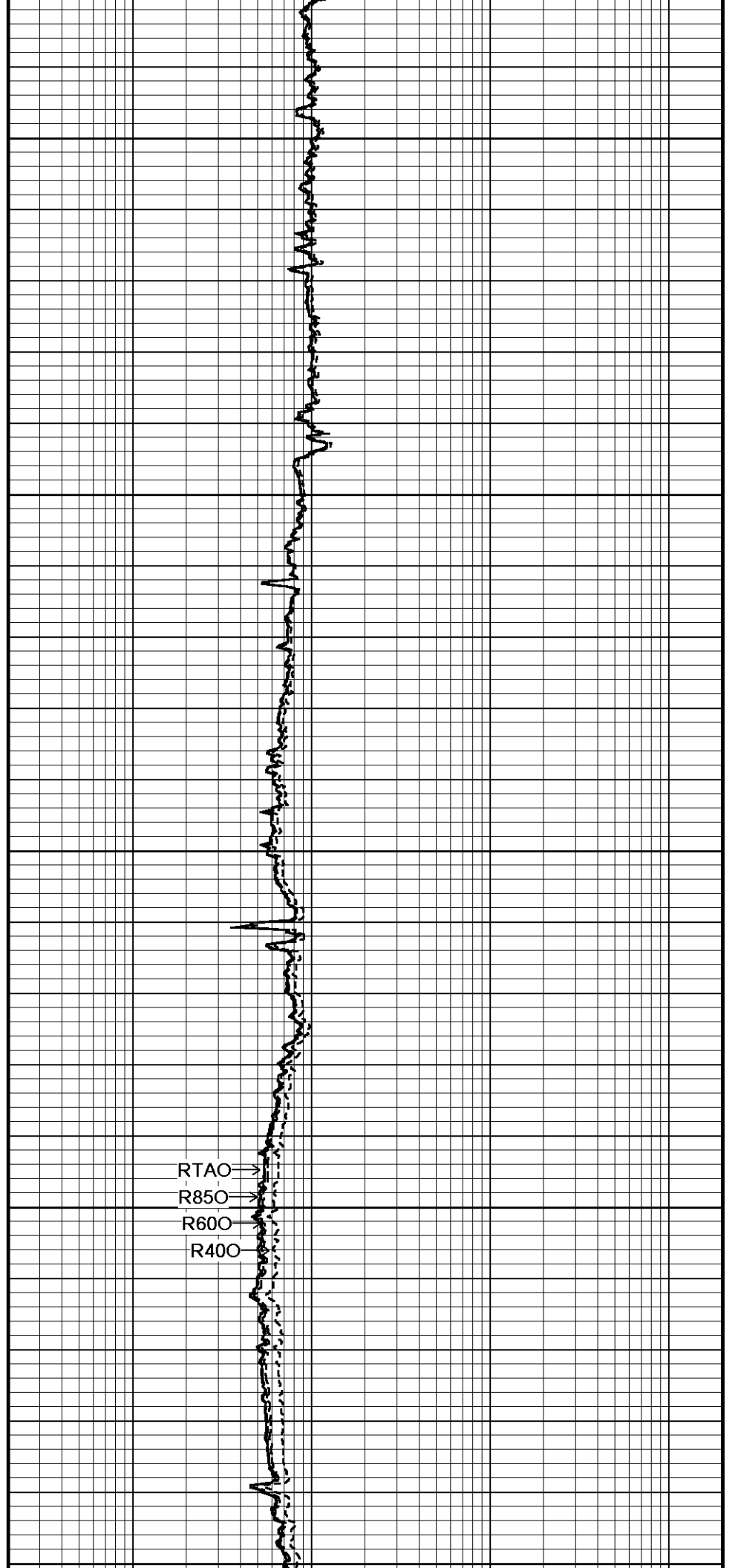
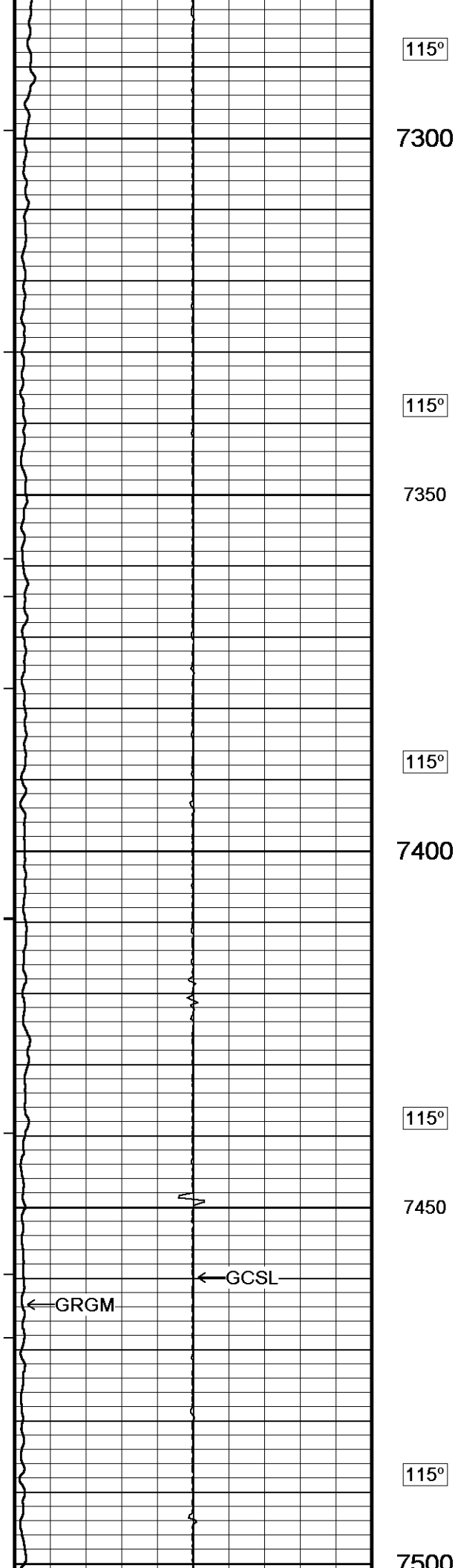
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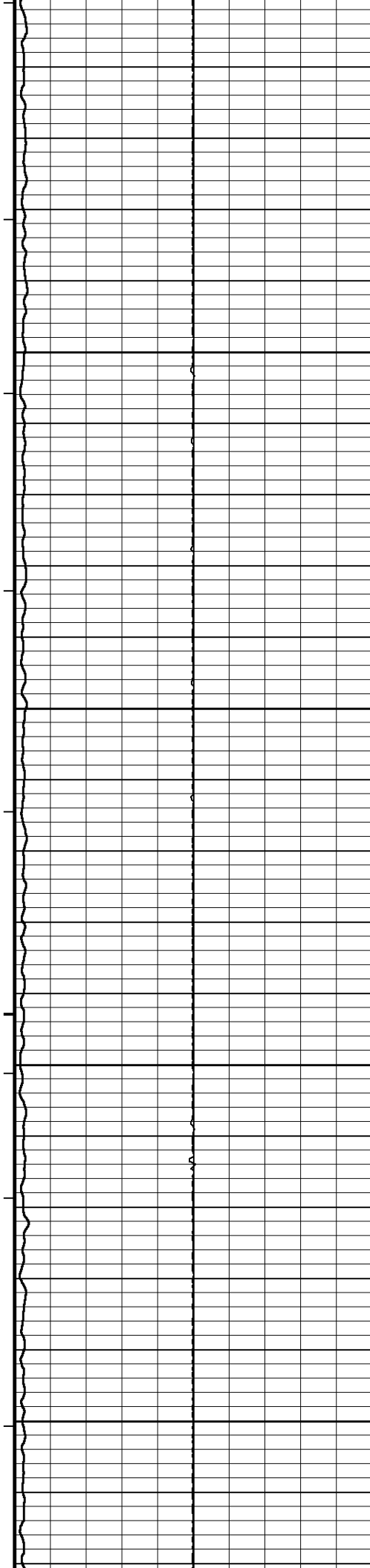
115°

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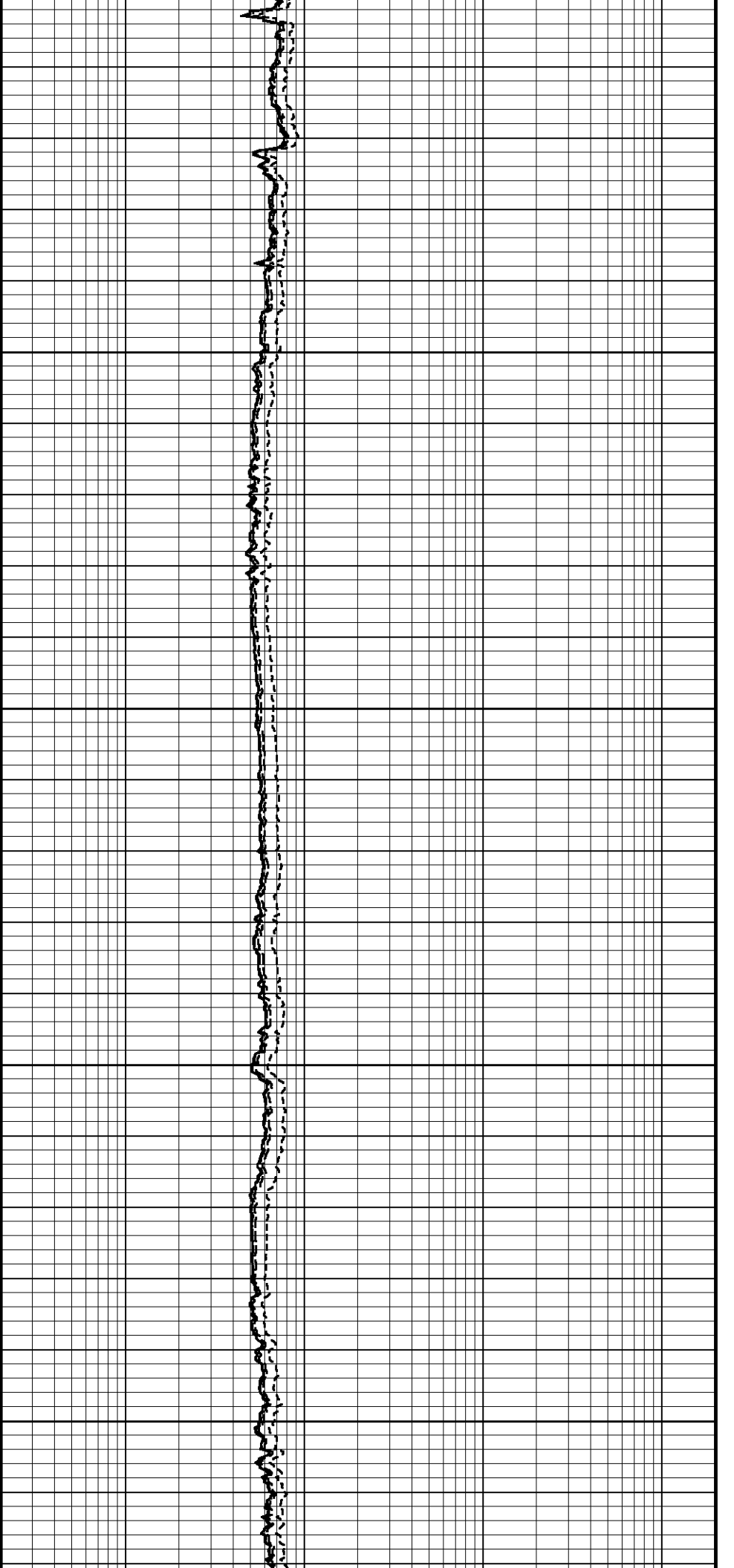


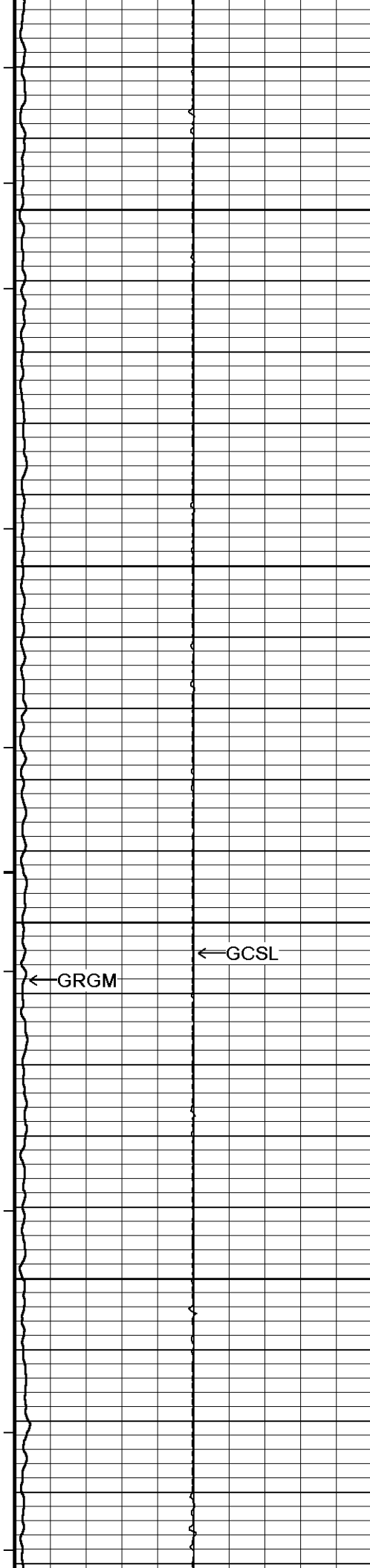
R400





7630
115°
7550
115°
7600
115°
7650
116°
7700





116°

7750

116°

7800

116°

7850

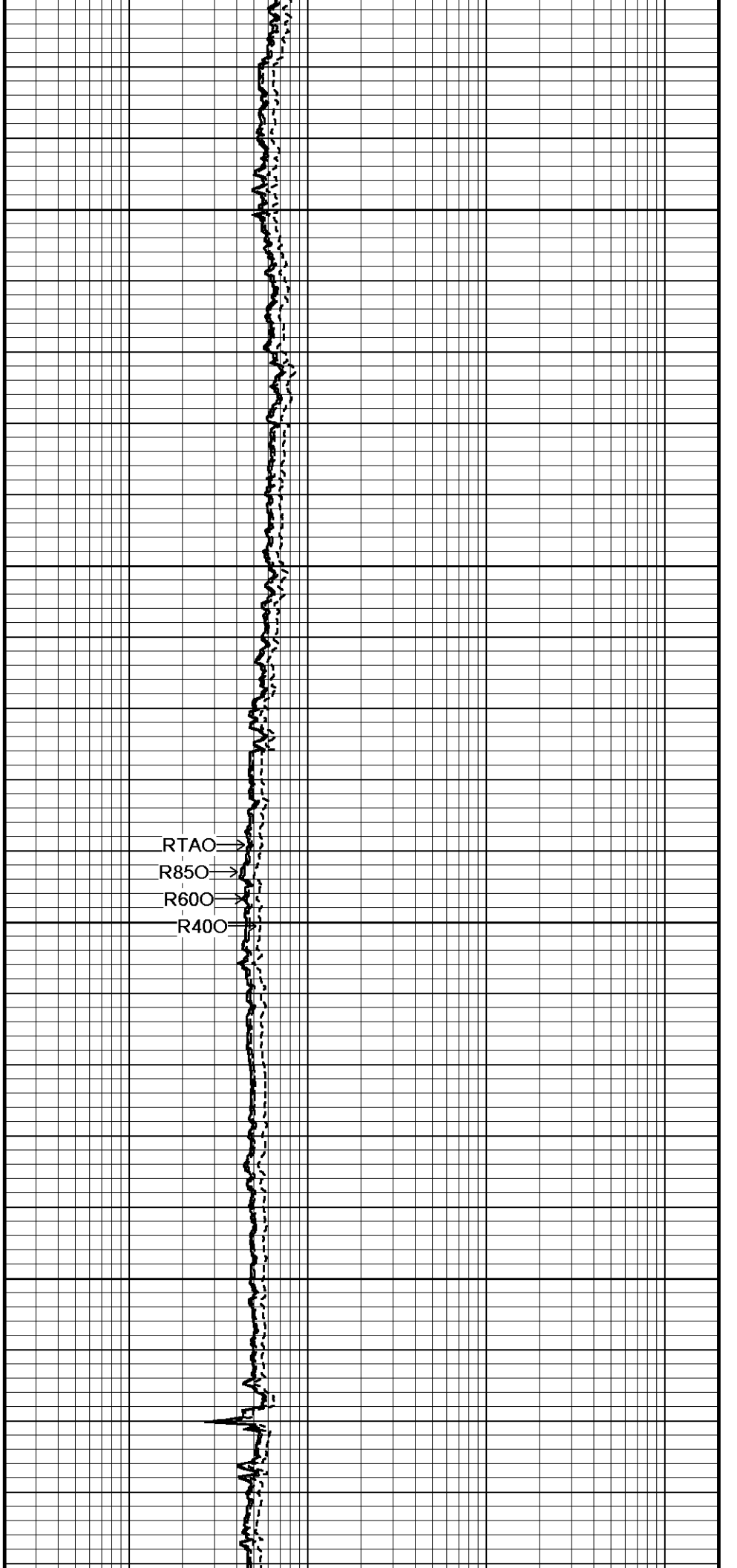
← GRGM

← GCSL

116°

7900

116°

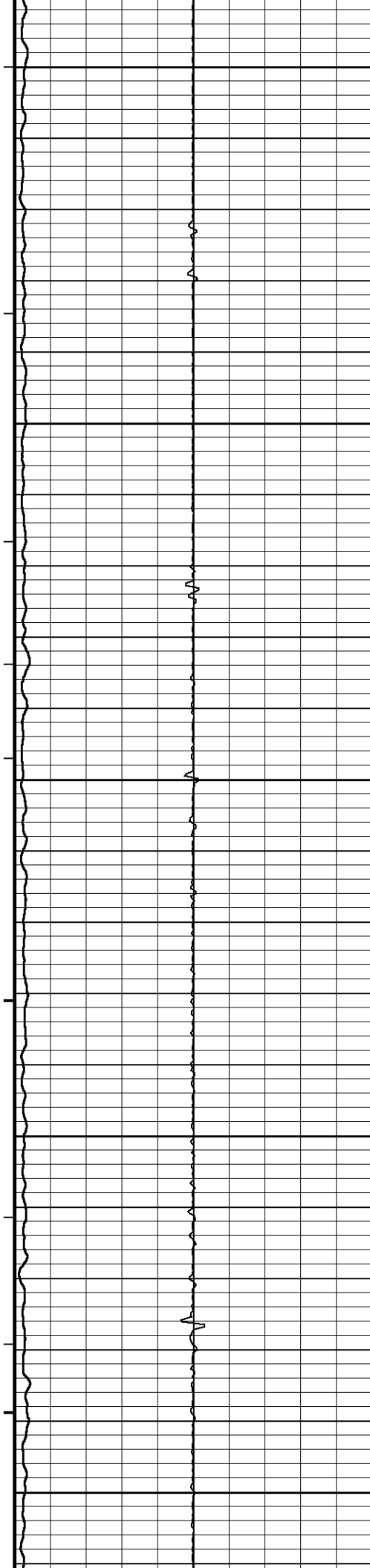


RTAO →

R850 →

R600 →

R400 →



7950

116°

8000

116°

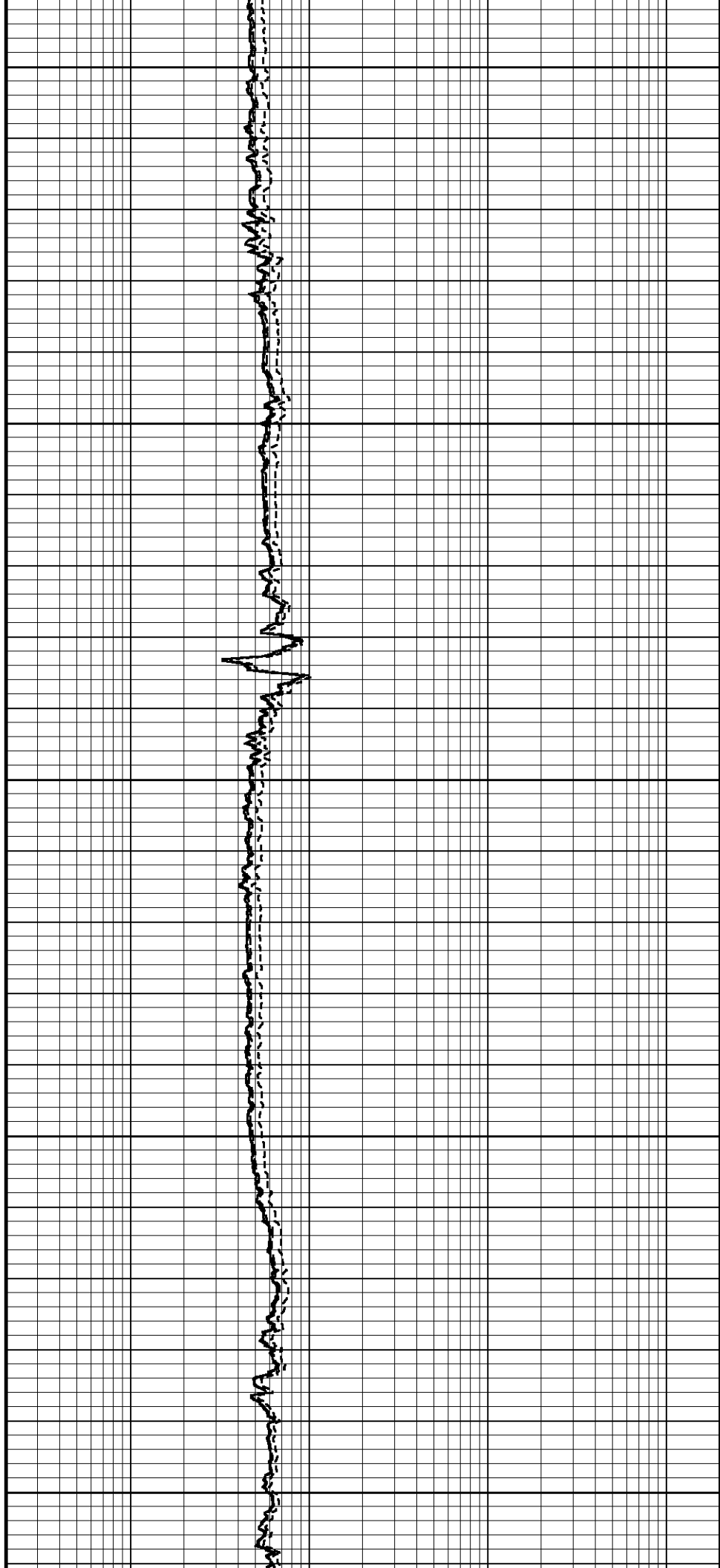
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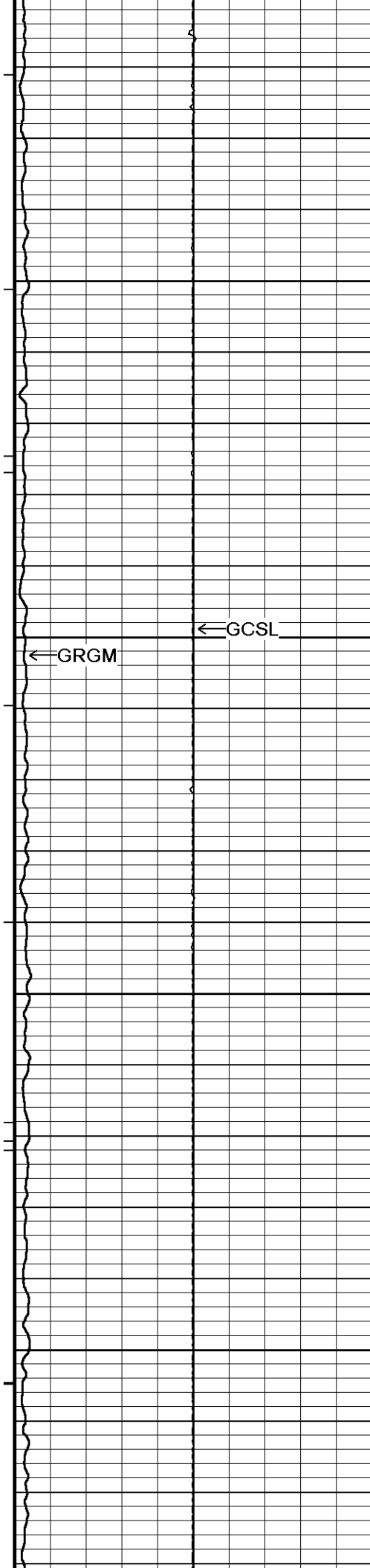
116°

8100

116°

8150





116°

8200

116°

8250

116°

8300

116°

8350

← GRGM

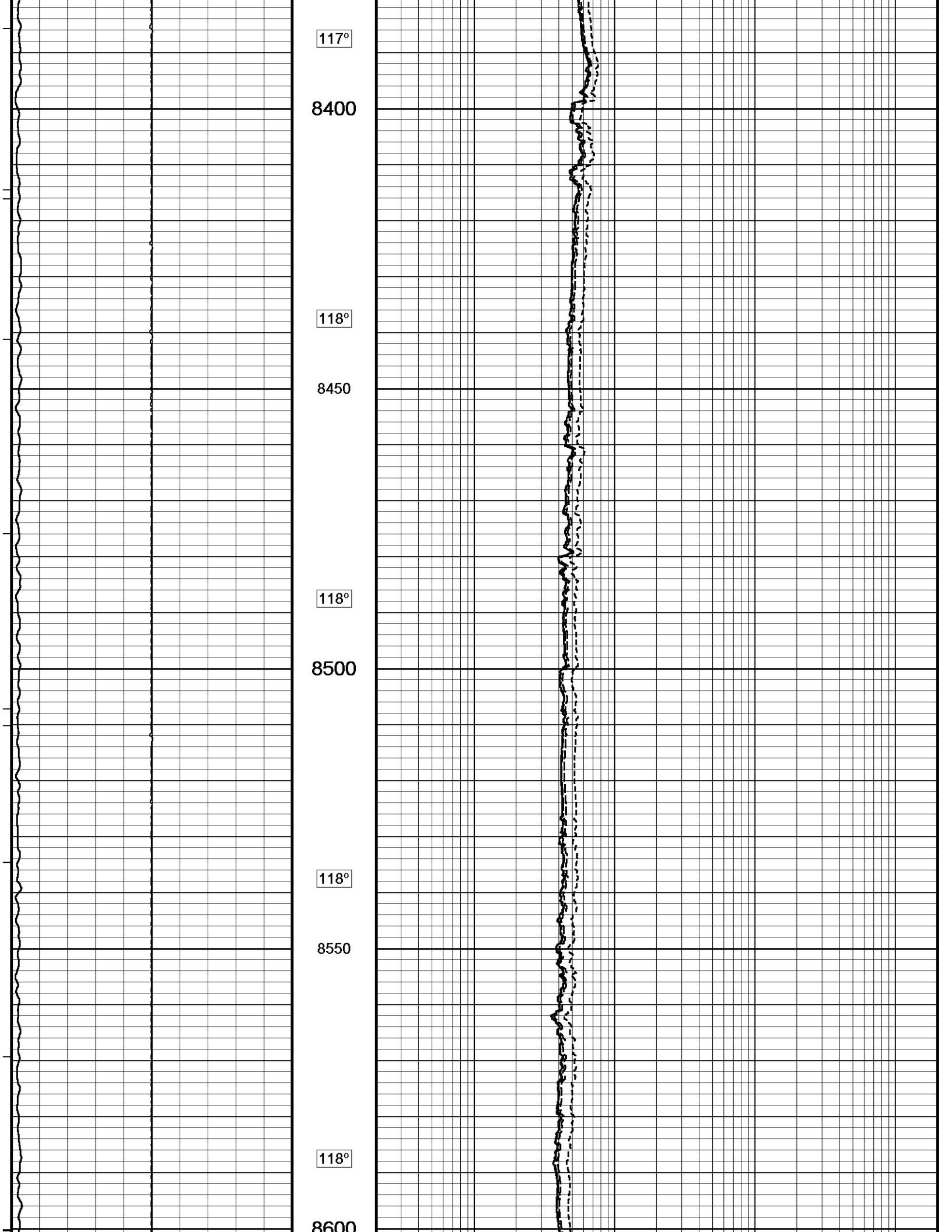
← GCSL

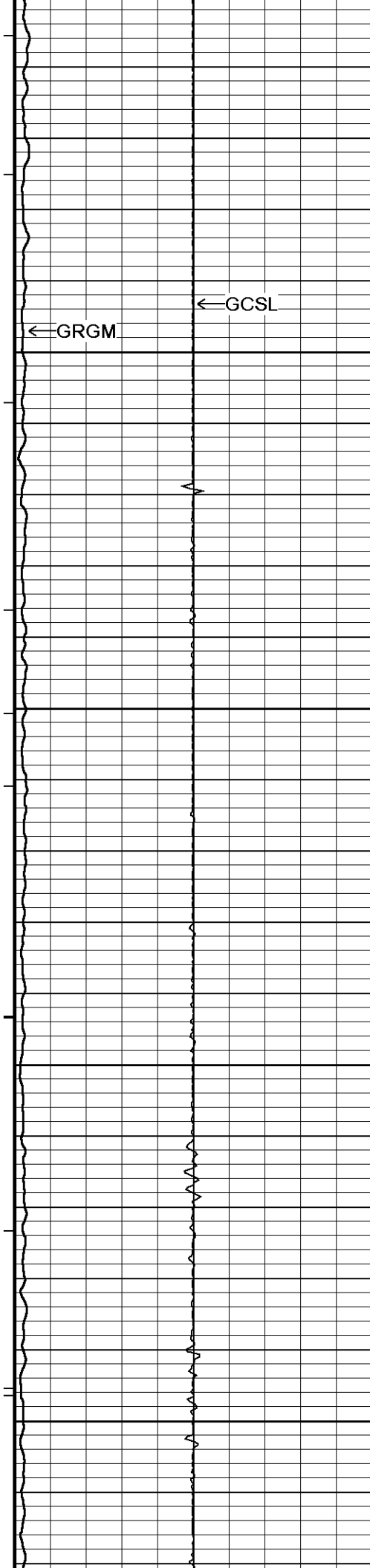
RTAO →

R850 →

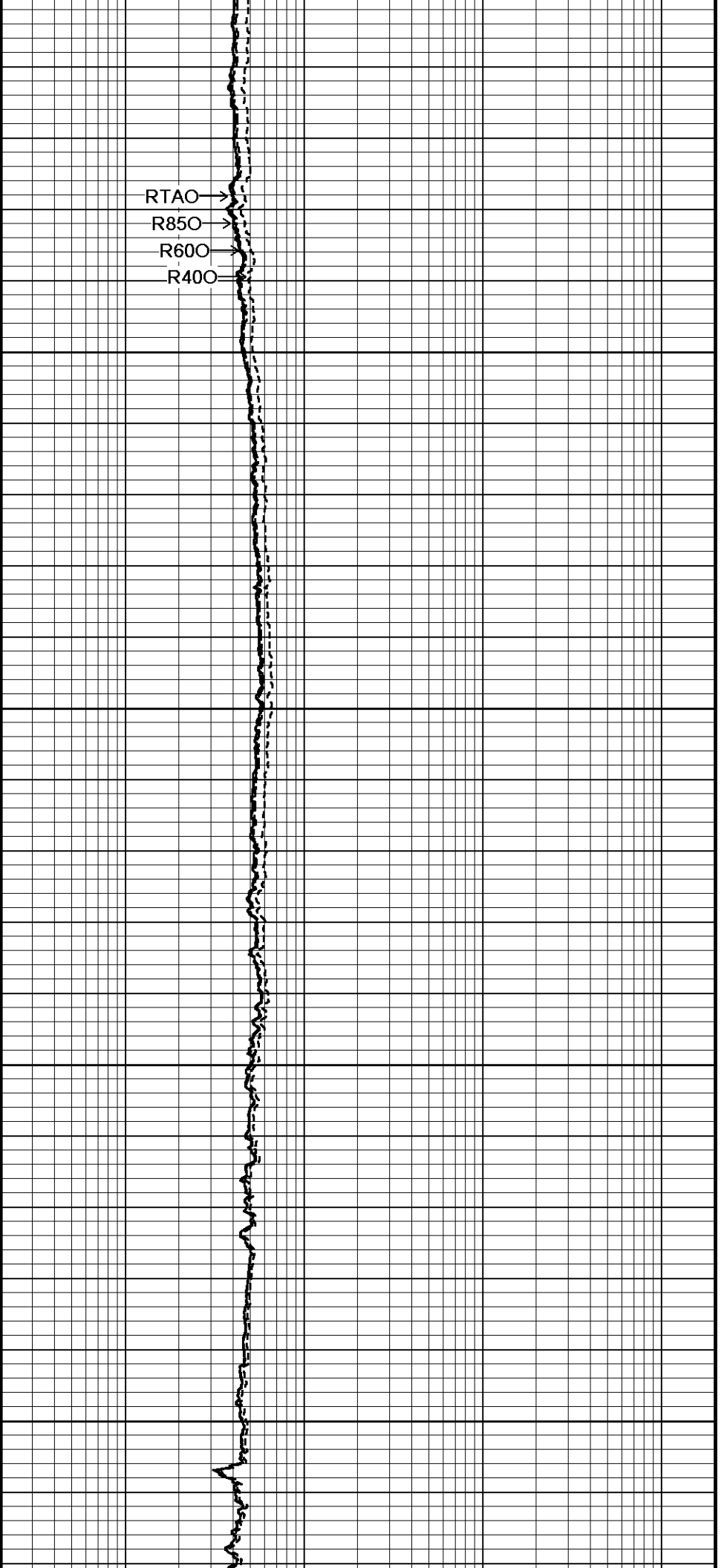
R600 →

R400





8800
118°
8650
117°
8700
117°
8750
117°
8800





116°

8850

116°

8900

116°

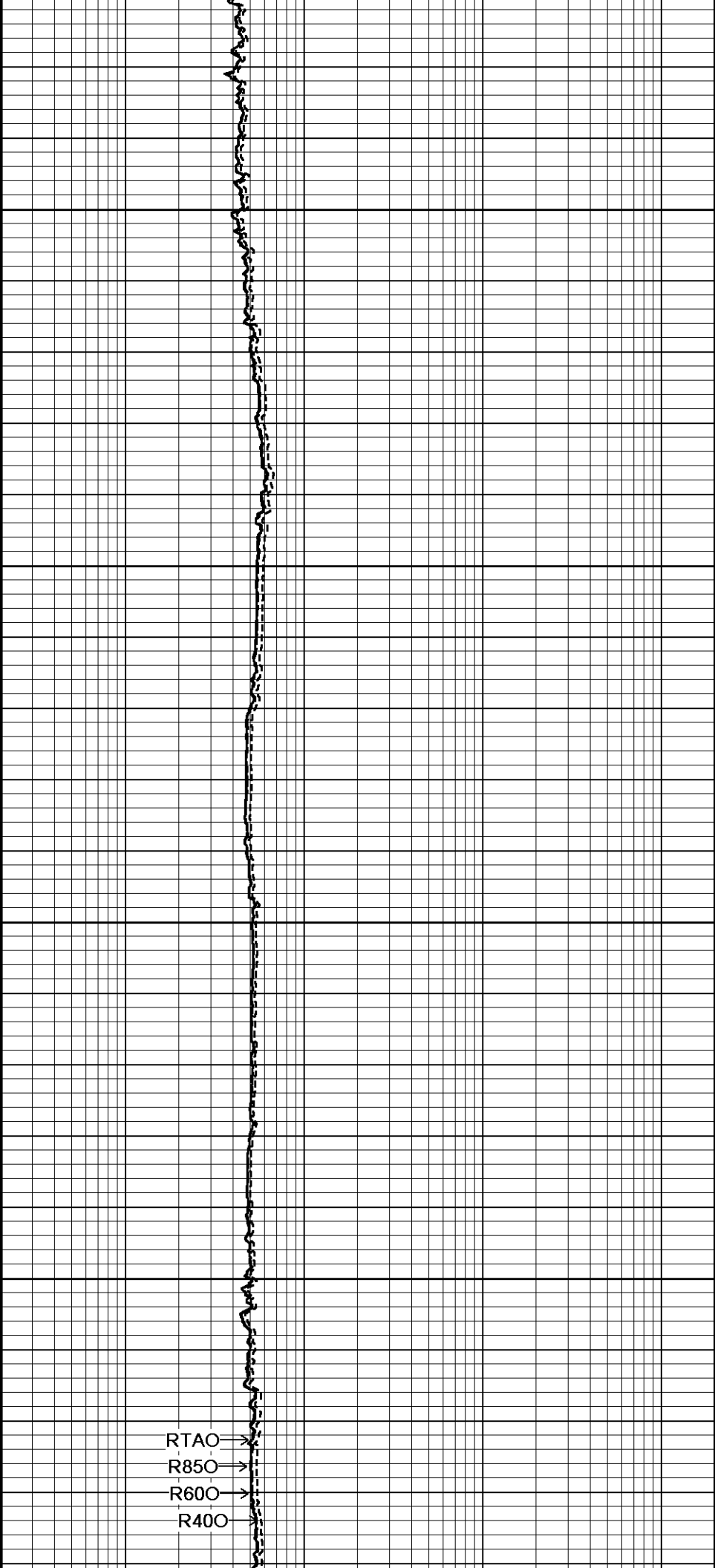
8950

115°

9000

117°

←GCSL

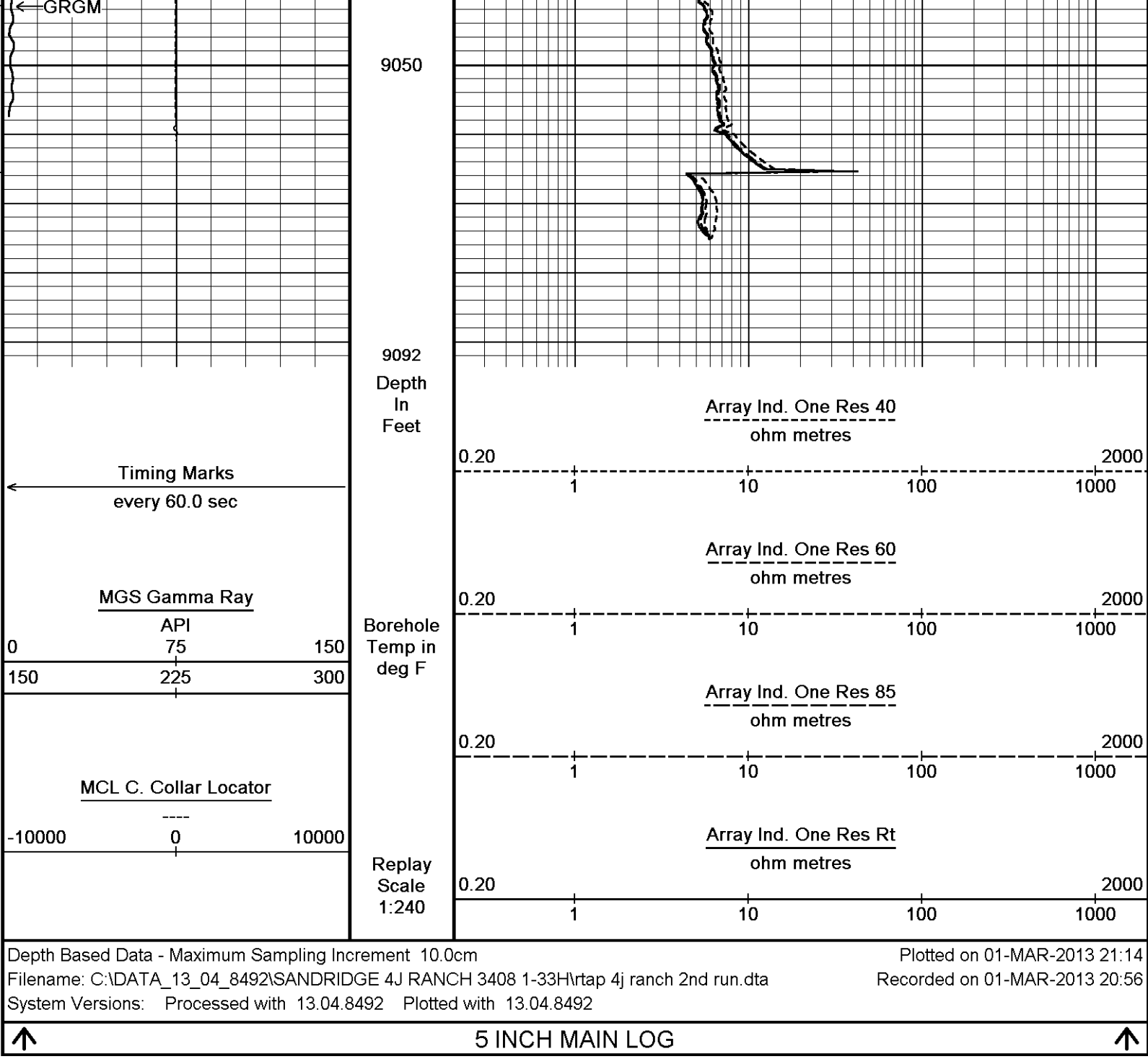


RTAO→

R850→

R600→

R400→



BEFORE SURVEY CALIBRATION		
C:\DATA_13_04_8492\SANDRIDGE 4J RANCH 3408 1-33H\rtap 4j ranch 2nd run.dta		
General Constants All 000		Last Edited on 01-MAR-2013,03:29
General Parameters		
Mud Resistivity	0.820	ohm-metres
Mud Resistivity Temperature	72.000	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	None	
HVOL Caliper 2	N/A	
Annular Volume Diameter	4.500	inches
Caliper for Differential Caliper	None	
Rwa Parameters		
Porecivity used	N/A	

Base Calibration

Test Loop Calibration

Channel	Measured		Calibrated (mmho/m)	
	Low	High	Low	High
1	17.4	475.9	9.3	966.2
2	6.7	390.1	7.6	821.4
3	3.6	261.4	5.2	566.0
4	2.0	135.3	2.6	279.2

Array Temperature 0.0 Deg F

Channel	Base Check (mmho/m)		Field Check (mmho/m)	
	Low	High	Low	High
1	10.7	3815.2	10.7	3815.2
2	28.1	3456.3	28.1	3456.3
3	27.8	3026.8	27.8	3026.8
4	19.2	2043.1	19.2	2043.1
Deep	17.8	2008.5	17.8	2008.5
Medium	40.4	3979.0	40.4	3979.0
Shallow	40.7	5055.4	40.7	5055.4

Array Temperature 43.0 45.0 Deg F

Induction Constants MAI-A.A 166

Last Edited on 01-MAR-2013,21:00

Induction Model	RtAP-WBM		
Caliper for Borehole Corr.	Bit Size		
Hole Size for Borehole Correction	N/A	inches	
Tool Centred	No		
Stand-off Type	Fins		
Stand-off	0.00	inches	
Number of Fins on Stand-off	6.0000		
Stand-off Fin Angle	60.00	degrees	
Stand-off Fin Width	0.5000	inches	
Borehole Corr. Rm Source	Constant Value		
Temp. for Rm Corr.	N/A		
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

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	

High Resolution Temperature Calibration MAI-A.A 166

Field Calibration on 01-MAR-2013,06:39

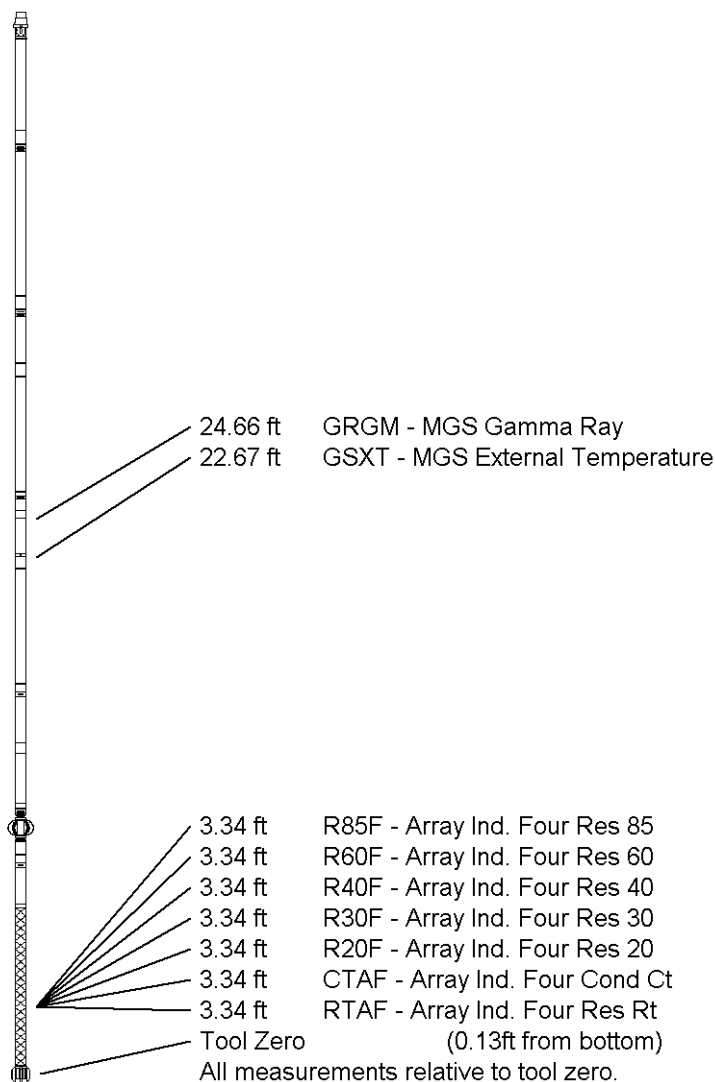
	Measured	Calibrated(Deg F)
Lower	0.00	10.00
Upper	100.00	100.00

High Resolution Temperature Constants MAI-A.A 166

Last Edited on 01-MAR-2013,06:39

C:\DATA 13 04 8492\SANDRIDGE 4J RANCH 3408 1-33H\rtap 4j ranch 2nd run.dta

Total Length: 49.55 ft Weight: 321.9 lb



COMPANY	SANRIDGE ENERGY
WELL	4J RANCH 3408 #1-33H
FIELD	BOUSE
PROVINCE/COUNTY	HARPER
COUNTRY/STATE	U.S.A. / KANSAS

Elevation Kelly Bushing	1262.00	feet	First Reading	9108.00	feet
Elevation Drill Floor	1262.00	feet	Depth Driller	9138.00	feet
Elevation Ground Level	1246.00	feet	Depth Logger	9138.00	feet

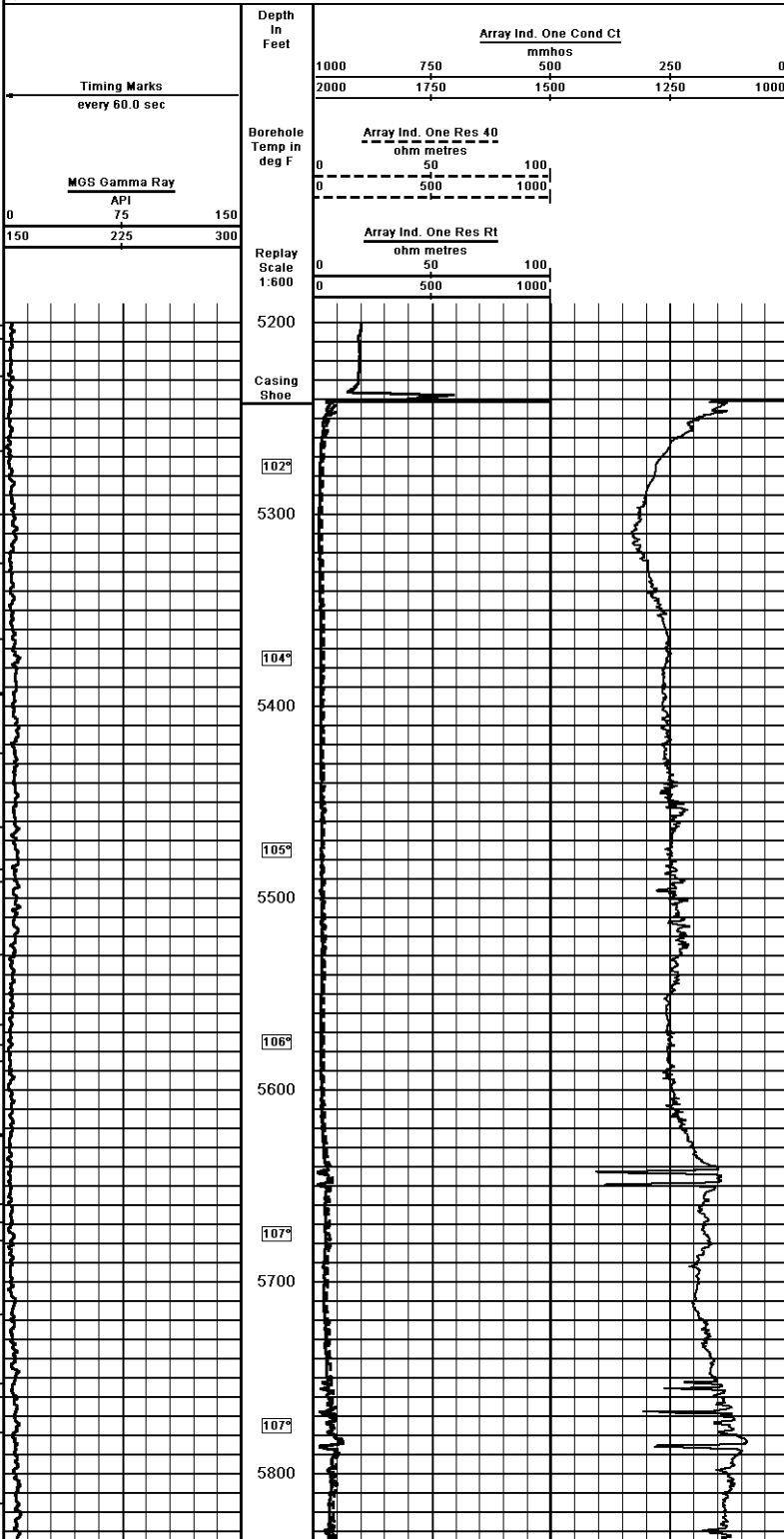


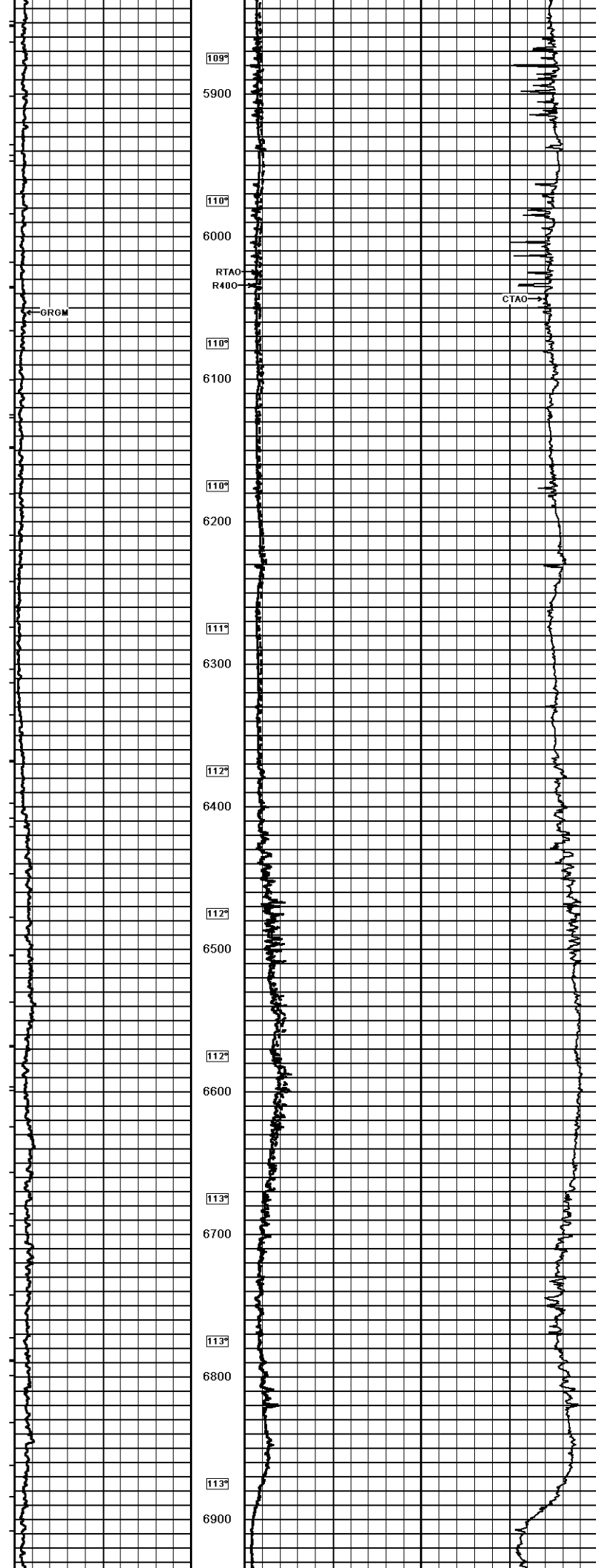
CML MESSENGER SHUTTLE ARRAY INDUCTION

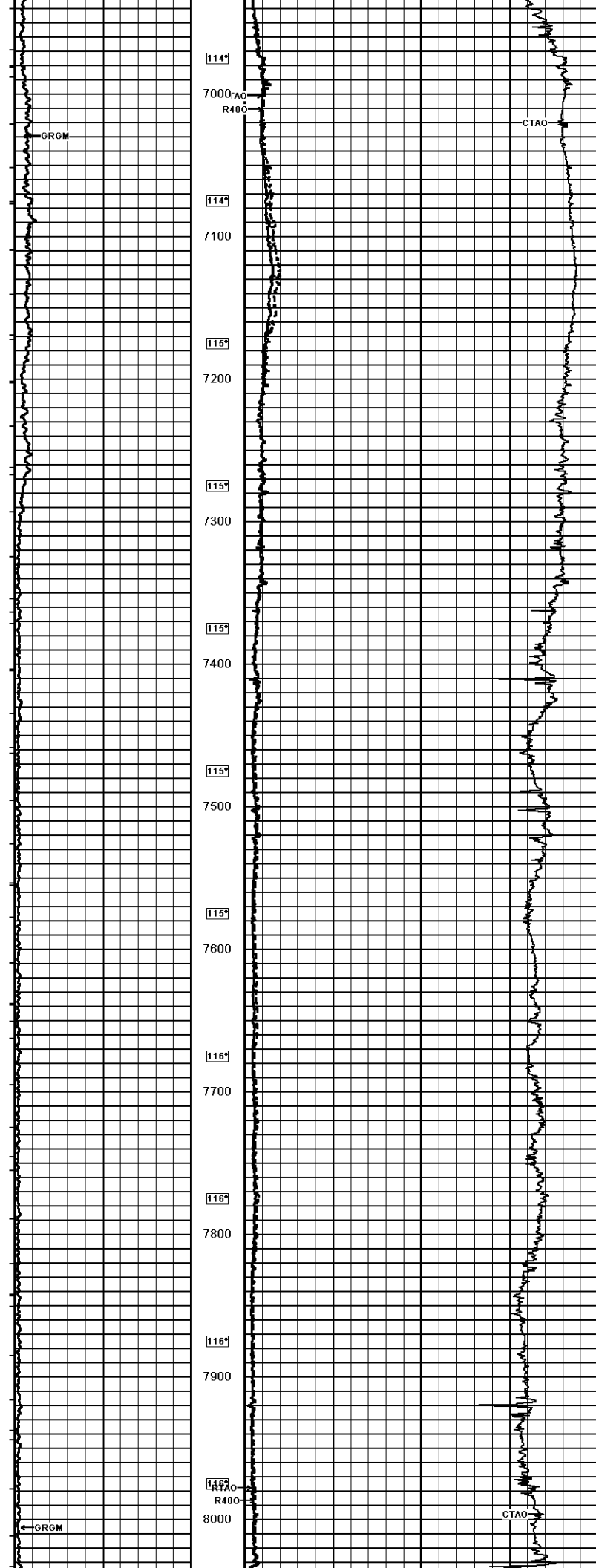
Weatherford®

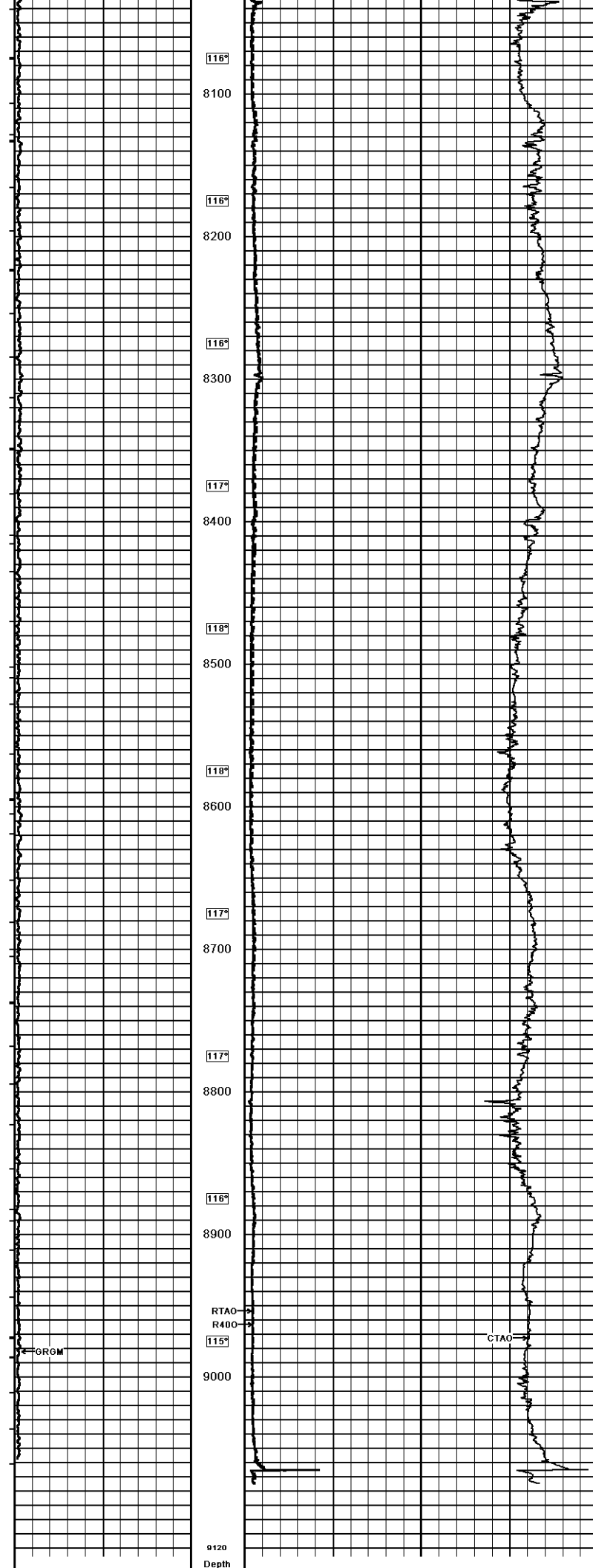
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MELL	FIELD	
PROVINCE/COUNTRY	COUNTY/TOWNSHIP	
LOCATION		
SEC.	TWP	R
A3 Number 33	34S	
Parent Number		
Permanent Marker		
Measured PVI		
Measured FIDUCIAL		
Drilling Measure		
Date		
Run Number		
Service Order		
Depth Driller		
Depth Logger		
First Reading		
Last Drilling		
Casing Driller		
Casing Logger		
BH Size		
Hole Fluid Type		
Density Viscosity		
P/H/Fuid Loss		
Sample Source		
Rm @ Measured		
Rm @ Measured		
Rm @ Measured		
Rm @ Rmt/Rim		
Rm @ BHT		
Time Since Circulation		
Max Recorded Pressure		
Equipment/Basiss		
Recorded By		
Witnessed By		

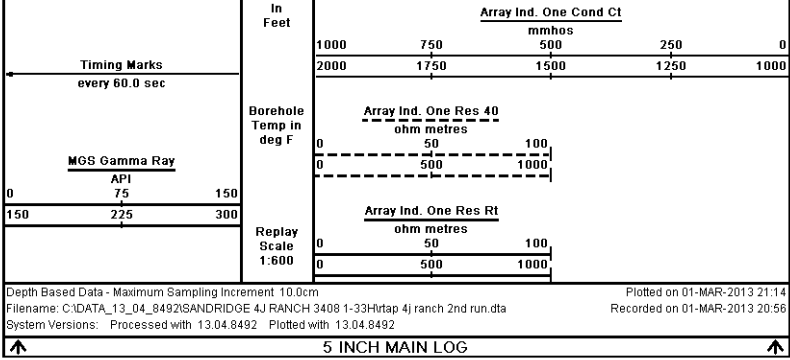
SANDRIDGE ENERGY		CML MESSENGER SHUTTLE	
4U RANICH 3408 #1-33H		ARRAY INDUCTION	
BOUISE			
HARPER			
U.S.A. / KANSAS			
200' FSL & 1980' FEL			
15-07-21-306			
FACE	Other Services		
8W	MD/NMPD		
15.0 L, Elevation 1246' feet		Elevations:	
From K.B. @ 16 FEET		MB	1262.00
		DP	1262.00
		OL	1246.00
28/FEB-2013			
ONE			
3539542			
9138.00	feet		
9138.00	feet		
9108.00	feet		
5542.00	feet		
5542.00	feet		
5542.00	inches		
6.125			
W&H	lb/5g		
8.40	lb/5g	27.00	CP
9.60			
FLOWLINE			
Temp	0.87 @ 71.0	ohm-m	
Temp	0.70 @ 71.0	ohm-m	
Temp	1.04 @ 71.0	ohm-m	
CALC		CALC	
0.51 @ 72.0		ohm-m	
1 HOUR			
Temp	122.00	669 F	
1807.7		OKC	
STEVEN TOTTER			
JUSTIN LYNCH			











COMPANY	SANRIDGE ENERGY
WELL	4J RANCH 3408 #1-33H
FIELD	BOUSE
PROVINCE/COUNTY	HARPER
COUNTRY/STATE	U.S.A. / KANSAS

Elevation Kelly Bushing	1262.00	feet	First Reading	9108.00	feet
Elevation Drill Floor	1262.00	feet	Depth Driller	9138.00	feet
Elevation Ground Level	1246.00	feet	Depth Logger	9138.00	feet



CML MESSENGER SHUTTLE
ARRAY INDUCTION