



Weatherford

**CML MESSENGER SHUTTLE
ARRAY INDUCTION**

COMPANY				SANDRIDGE ENERGY			
WELL				LEROY 3119 1-5H			
FIELD				SIX MOONS			
PROVINCE/COUNTY				COMANCHE			
COUNTRY/STATE				U.S.A. / KANSAS			
LOCATION				200' FSL & 660' FWL			
SEC	TWP	RGE	Other Services				
5	31S	19W	MDNMMPD				
API Number		15-033-21623					
Permit Number							
Permanent Datum G.L., Elevation 2114 feet							
Log Measured From KB				Elevations: feet			
Drilling Measured From K.B. @ 18.5 FEET				KB 2132.50			
				DF 2132.50			
				GL 2114.00			
Date	09-JAN-2013						
Run Number	ONE						
Service Order	3539527						
Depth Driller	9509.00			feet			
Depth Logger	9509.00			feet			
First Reading	9493.00			feet			
Last Reading	5495.00			feet			
Casing Driller	5495.00			feet			
Casing Logger	5495.00			inches			
Bit Size	6.125						
Hole Fluid Type	WBM			lb/USg			
Density / Viscosity	8.70 lb/USg		29.00 CP				
PH / Fluid Loss	9.50		9.50				
Sample Source	FLOWLINE						
Rm @ Measured Temp	0.89 @ 72.0		ohm-m				
Rmf @ Measured Temp	0.72 @ 72.0		ohm-m				
Rmc @ Measured Temp	1.07 @ 72.0		ohm-m				
Source Rmf / Rmc	CALC	CALC					
Rm @ BHT	0.50 @128.0		ohm-m				
Time Since Circulation	1 HOUR						
Max Recorded Temp	128.00		deg F				
Equipment / Base	18077		OKC				
Recorded By	STEVEN TOTTEY						
Witnessed By	KATHY GENTRY						

BOREHOLE RECORD				Last Edited: 09-JAN-2013 21:43
Bit Size inches	Depth From feet		Depth To feet	
8.750	0.00		5495.00	
6.125	5495.00		9505.00	
CASING RECORD				
Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	7.000	0.00	5495.00	32.00

REMARKS
LOGGED WITH WLS VER 13.04.8492 SOFTWARE
WELL LOGGED USING MESSENGER METHOD OF DEPLOYMENT, AND MEMORY LOGGING SYSTEM
HARDWARE: MAI: ISA STANDOFF BELOW MPD: 4"PROFILE PLATE, MIS-A SINGLE SPRING DECENTRALIZER BELOW MDN: MISD DOUBLE SPRING DECENTRALIZER RAN ABOVE
2.71 G/CC DENSITY MATRIX USED TOCALCULATE POROSITY ALL INTERVALS LOGGED AND SCALED PER CUSTOMER REQUEST
DRILL PIPE DEPTH DURING DEPLOYMENT - 9413 LOGGING TOOL DEPTH AFTER DEPLOYMENT: 9496
4.5" CASING USED TO CALCULATE AHV

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.

↓

5 INCH MAIN LOG

↓

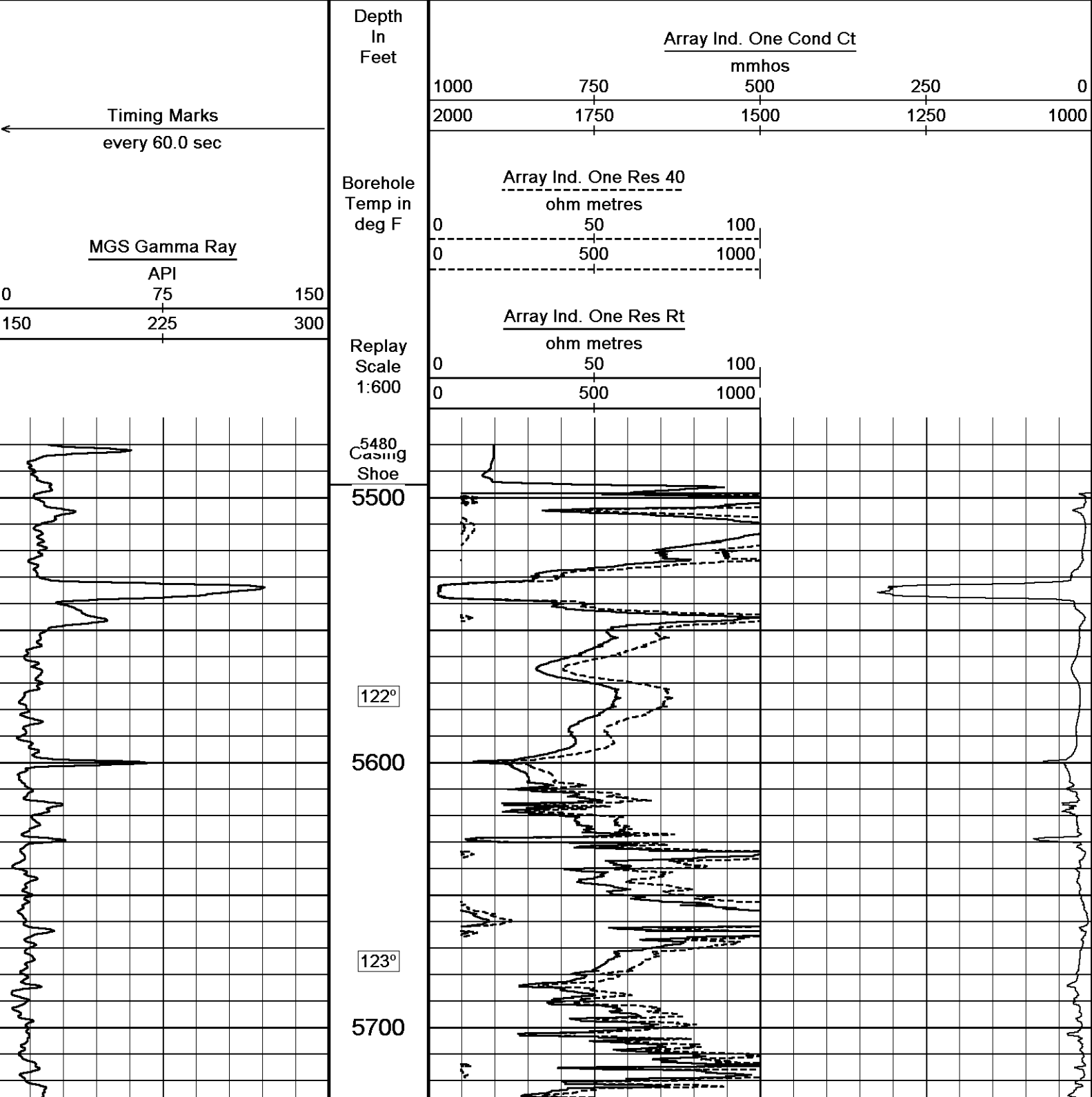
Depth Based Data - Maximum Sampling Increment 10.0cm

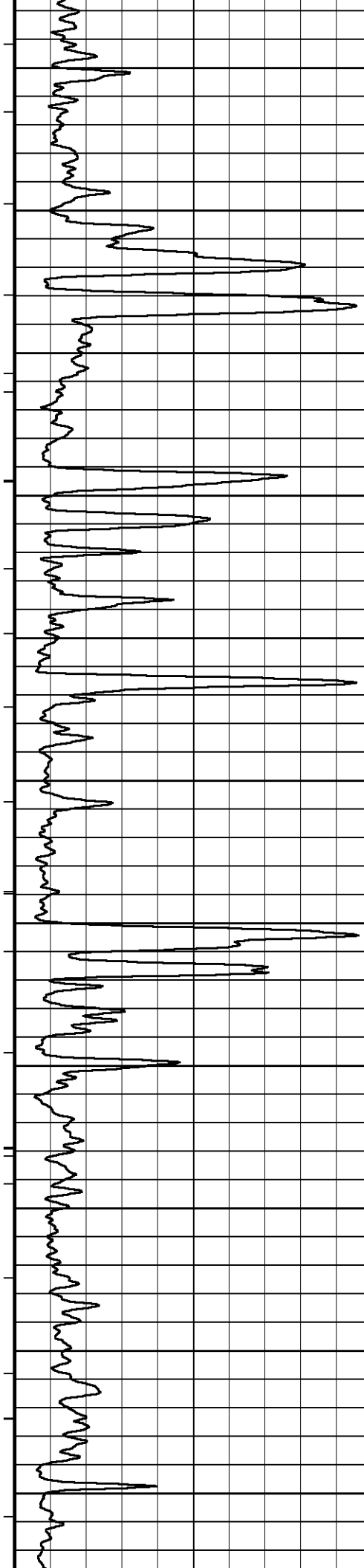
Plotted on 10-JAN-2013 12:00

Filename: C:\DATA_13_04_8492\SANDRIDGE LEROY 319 1-5H\LEROY RTAP DEPTH.dta

Recorded on 10-JAN-2013 11:20

System Versions: Processed with 13.04.8492 Plotted with 13.04.8492





123°

5800

123°

5900

124°

6000

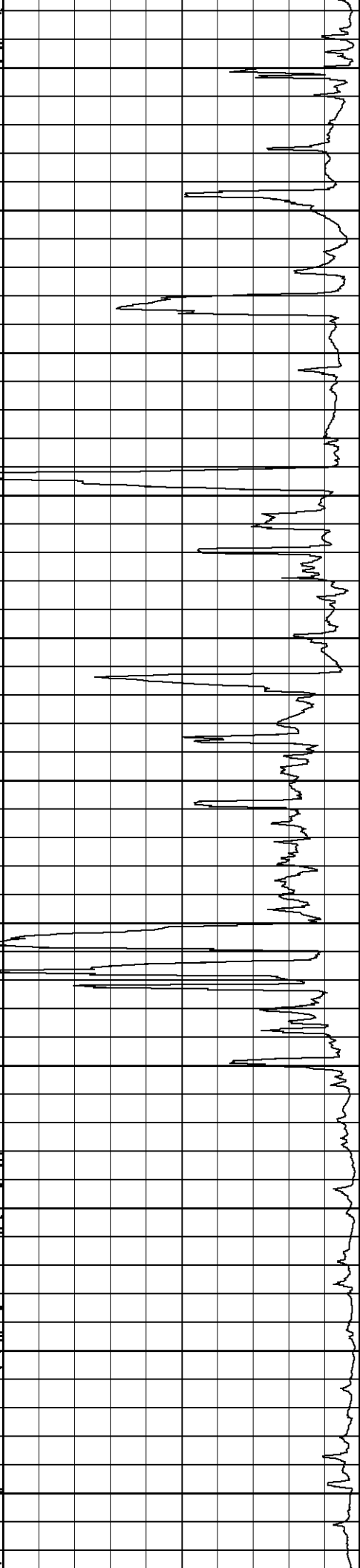
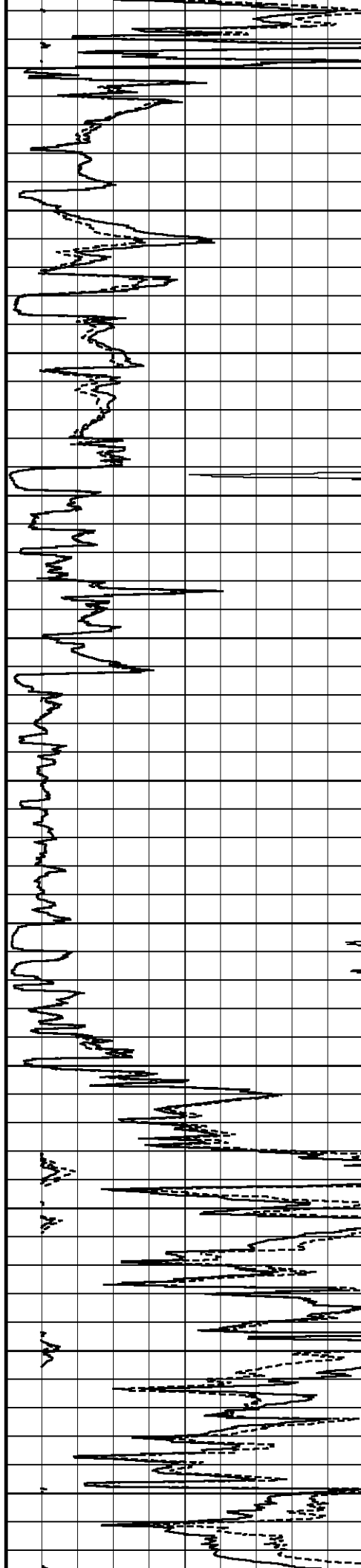
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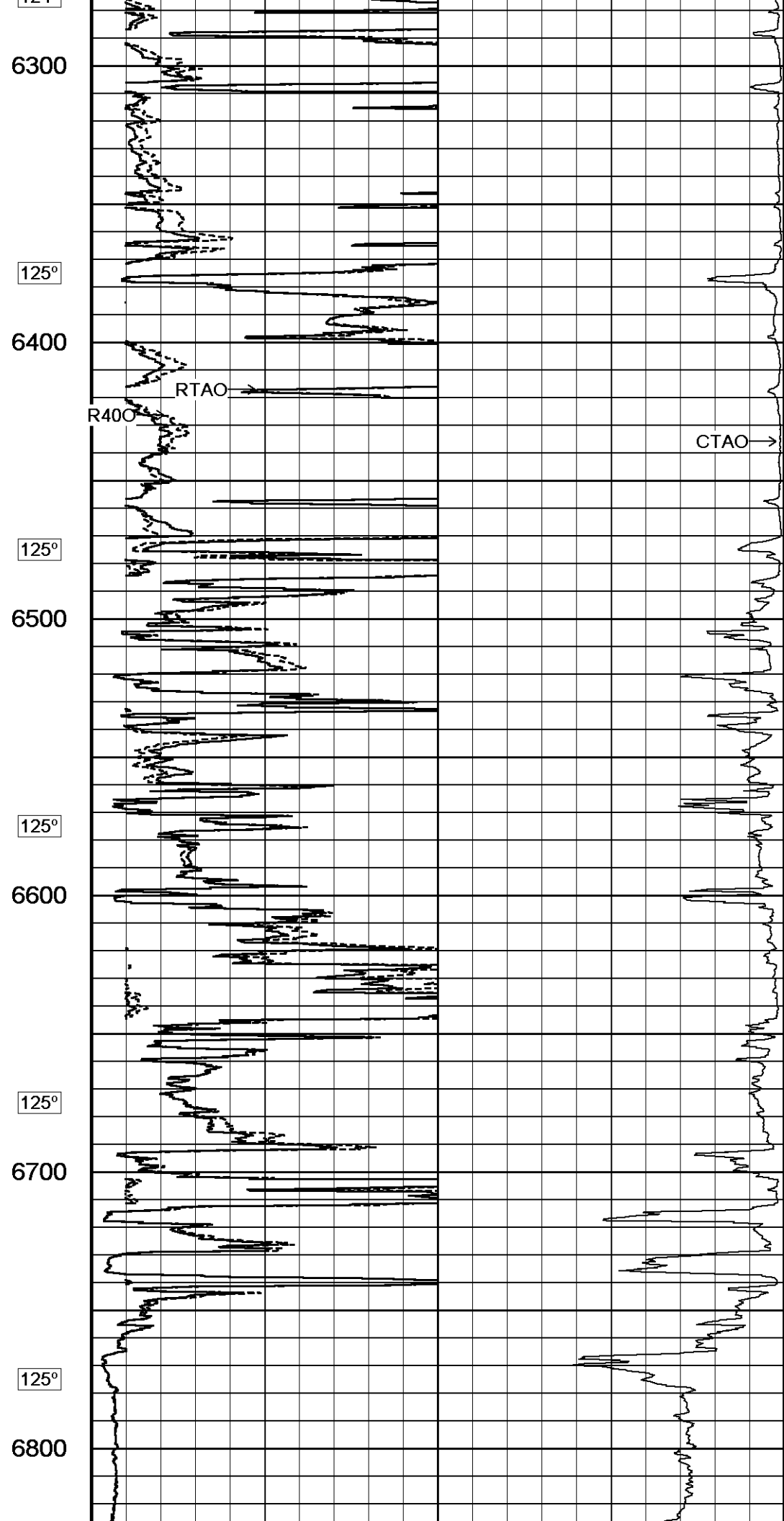
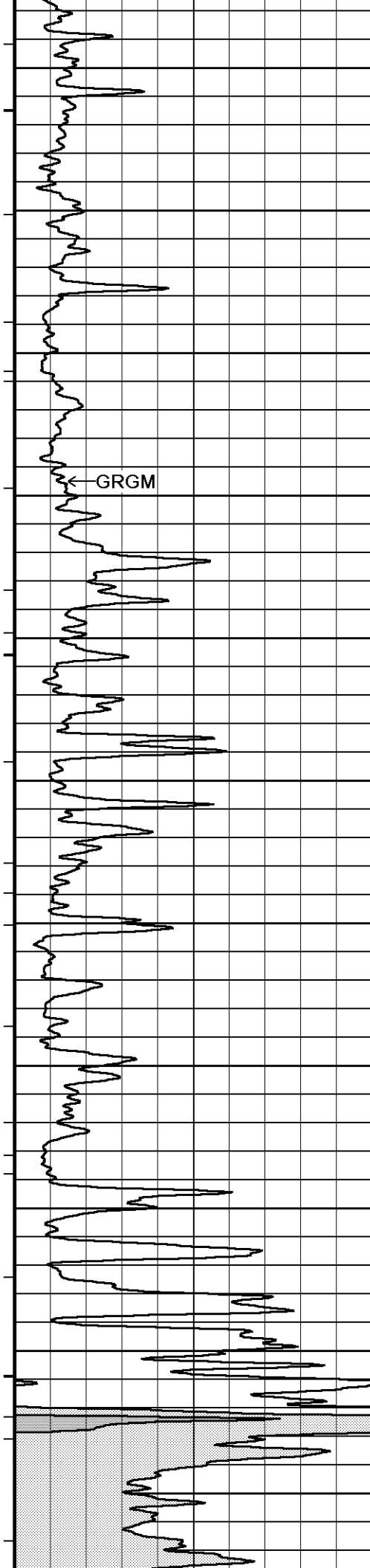
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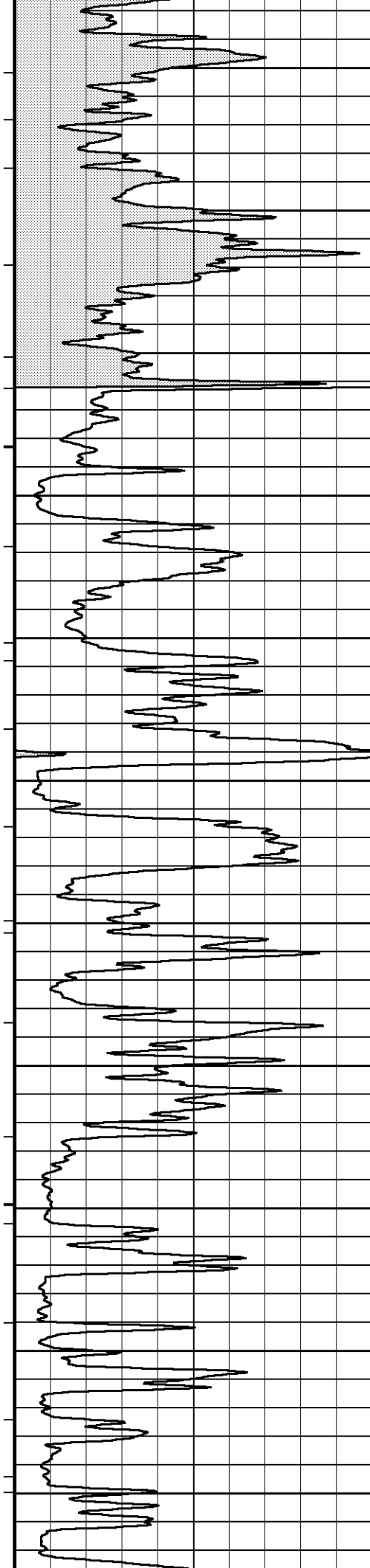
124°

6200

124°







125°

6900

125°

7000

126°

7100

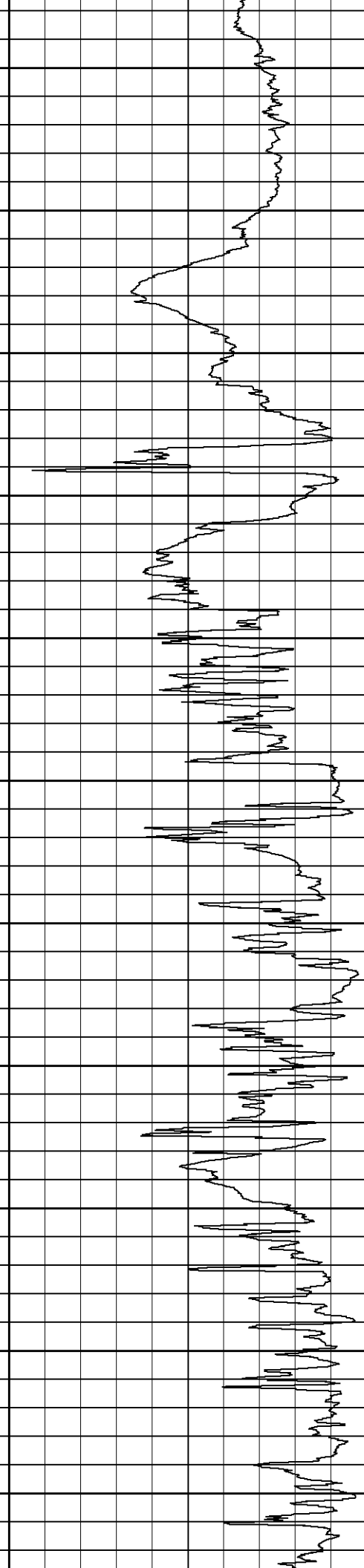
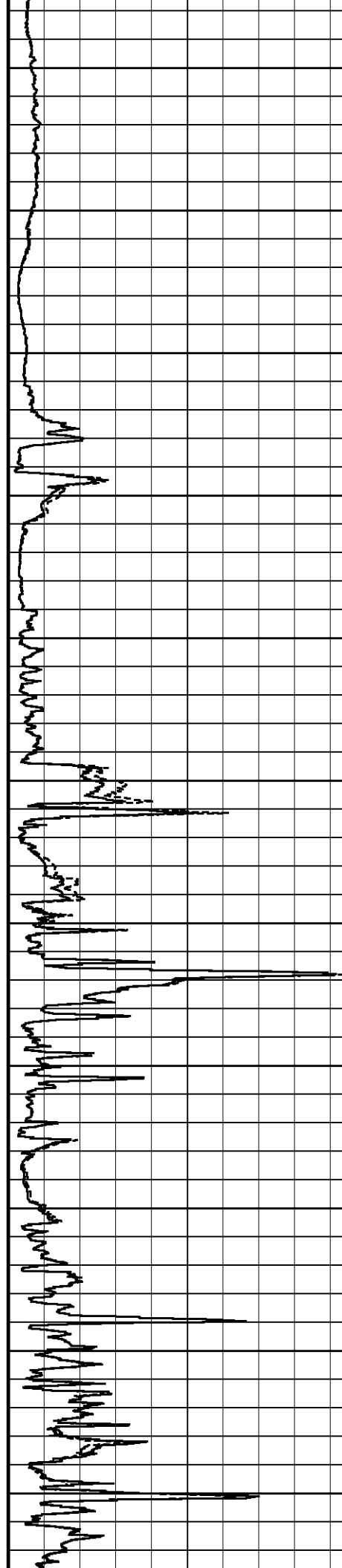
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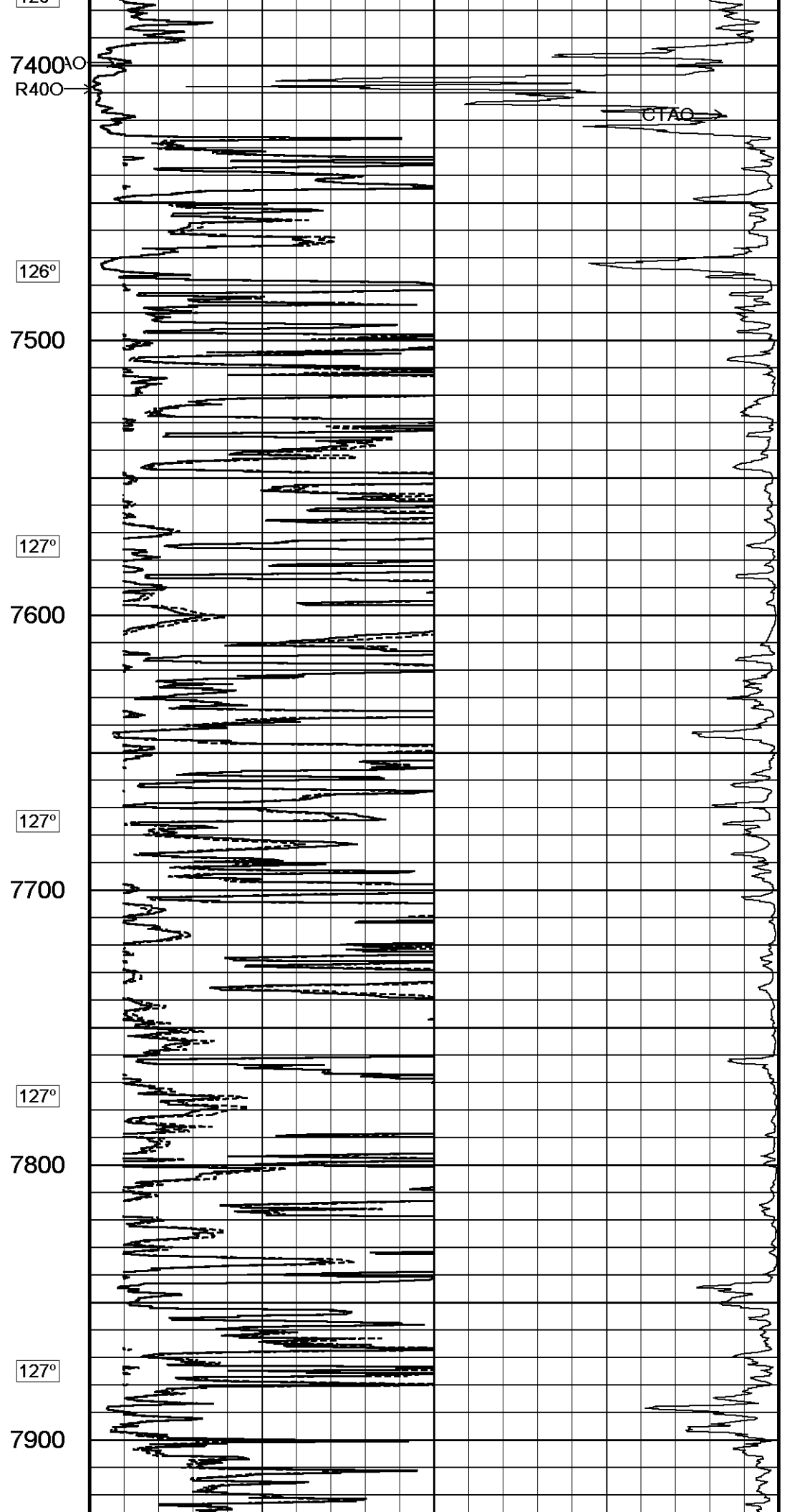
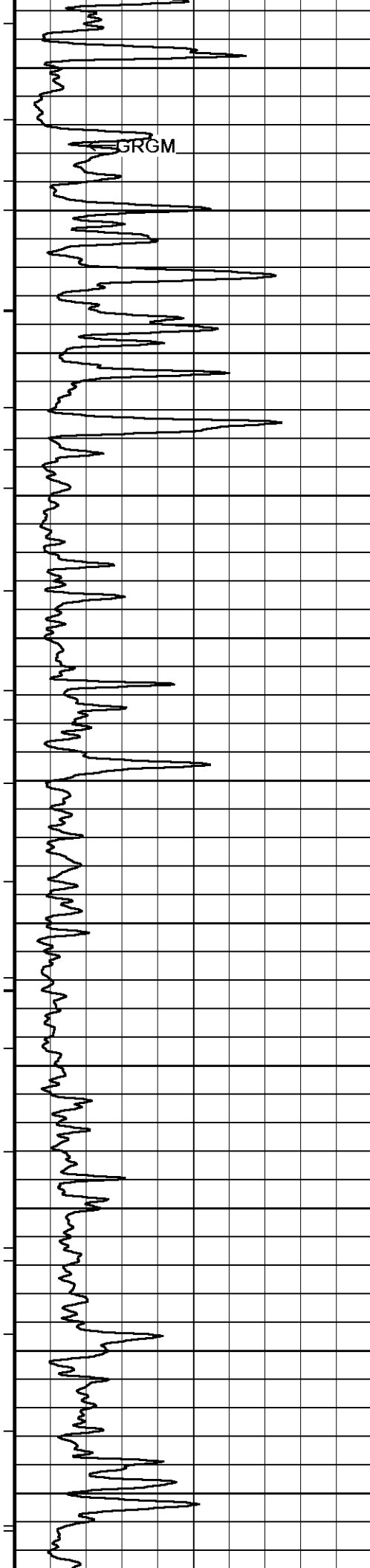
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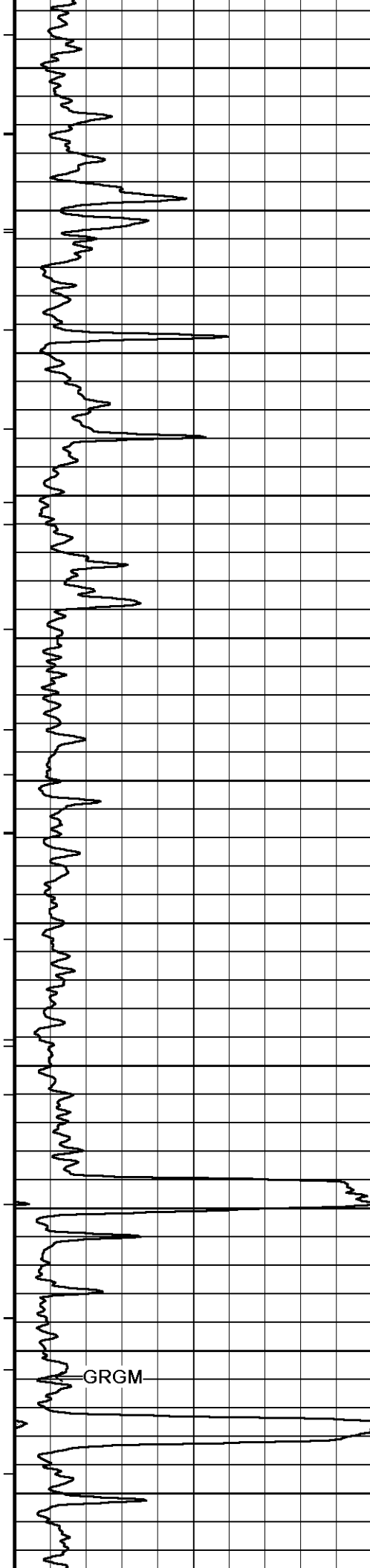
126°

7300

126°







127°

8000

128°

8100

128°

8200

128°

8300

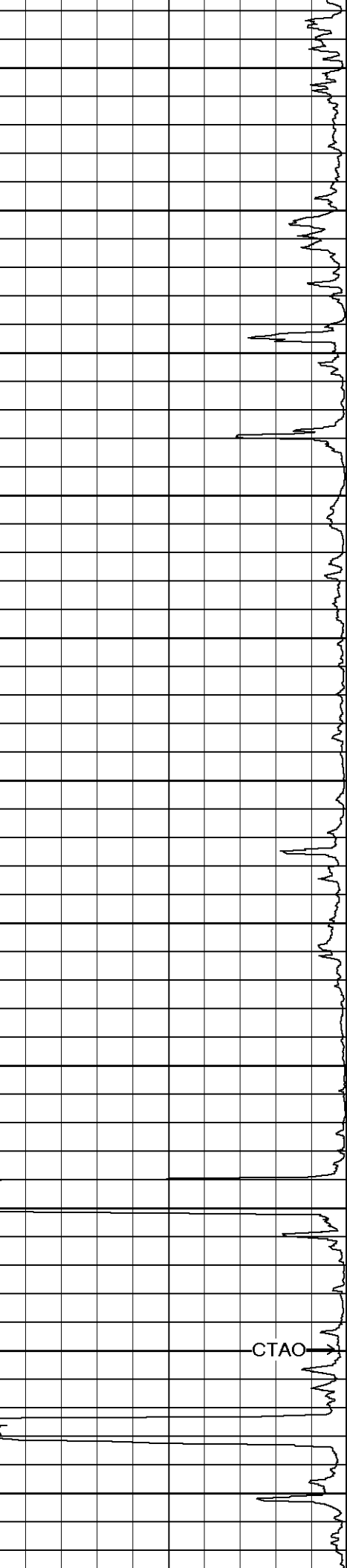
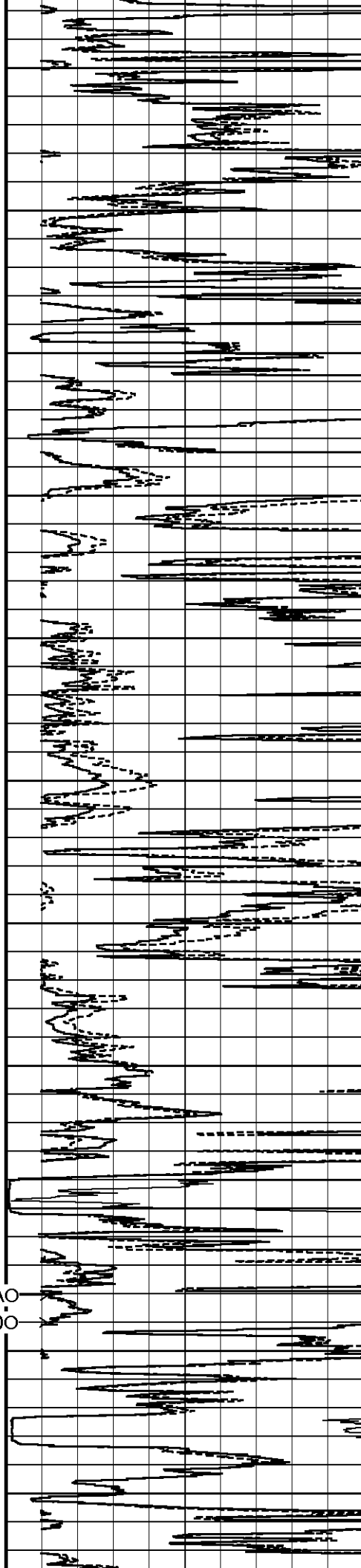
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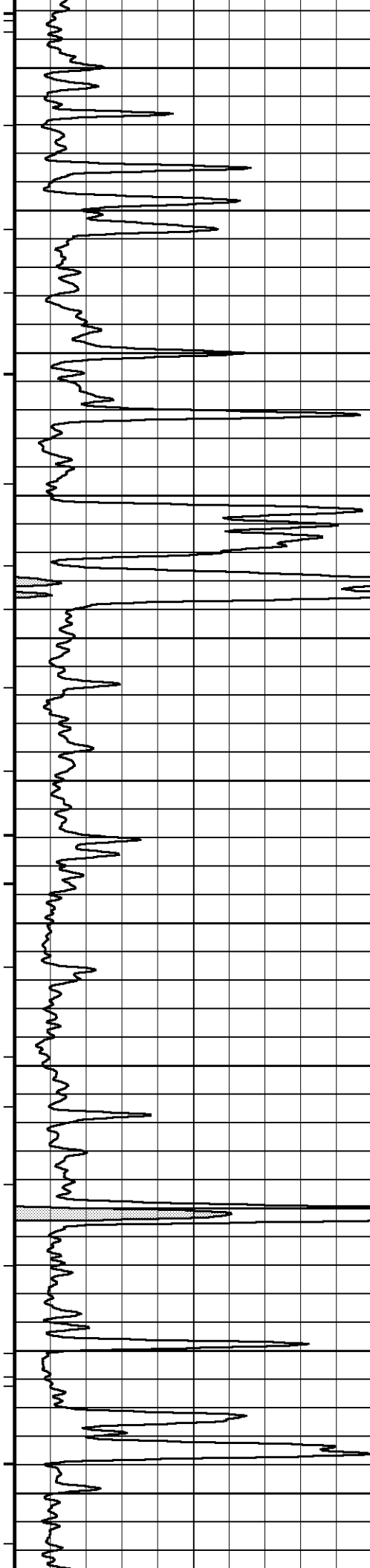
RTAO

R400

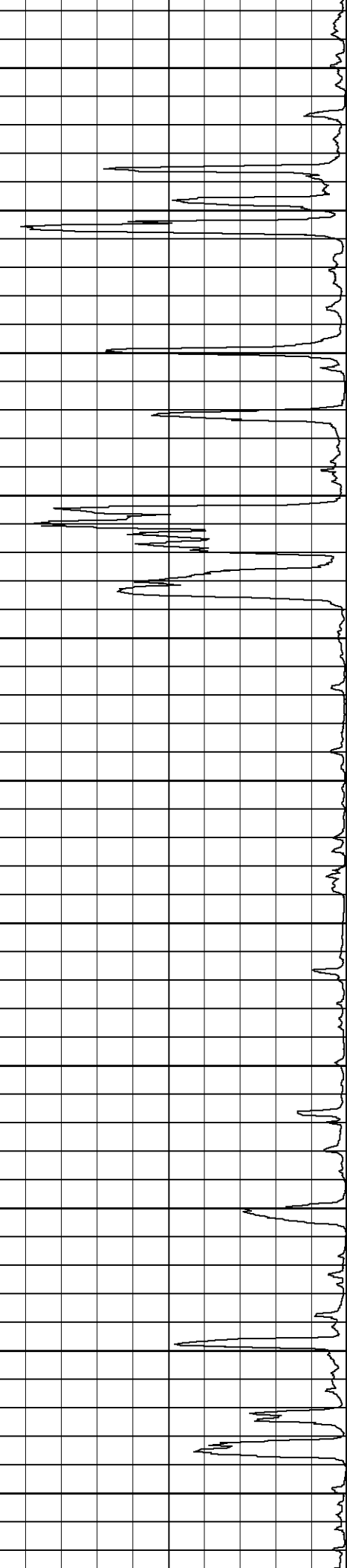
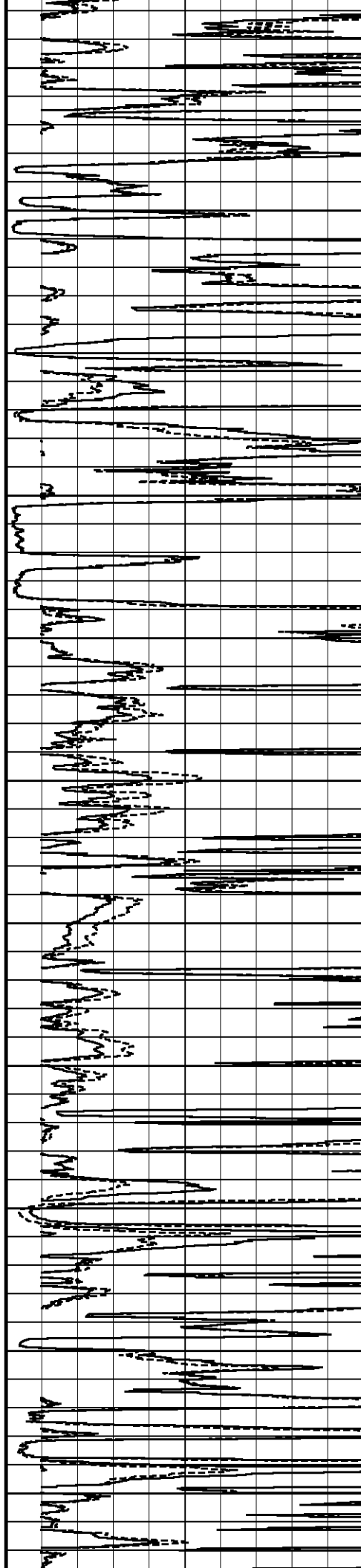
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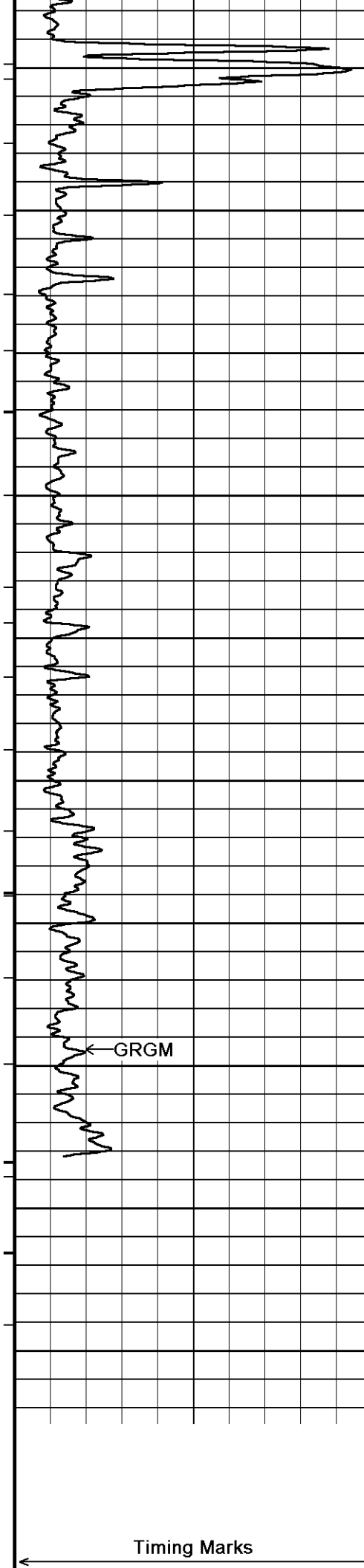
128°





128°
8500
128°
8600
128°
8700
128°
8800
128°
8900
128°
9000





128°

9100

128°

9200

127°

9300

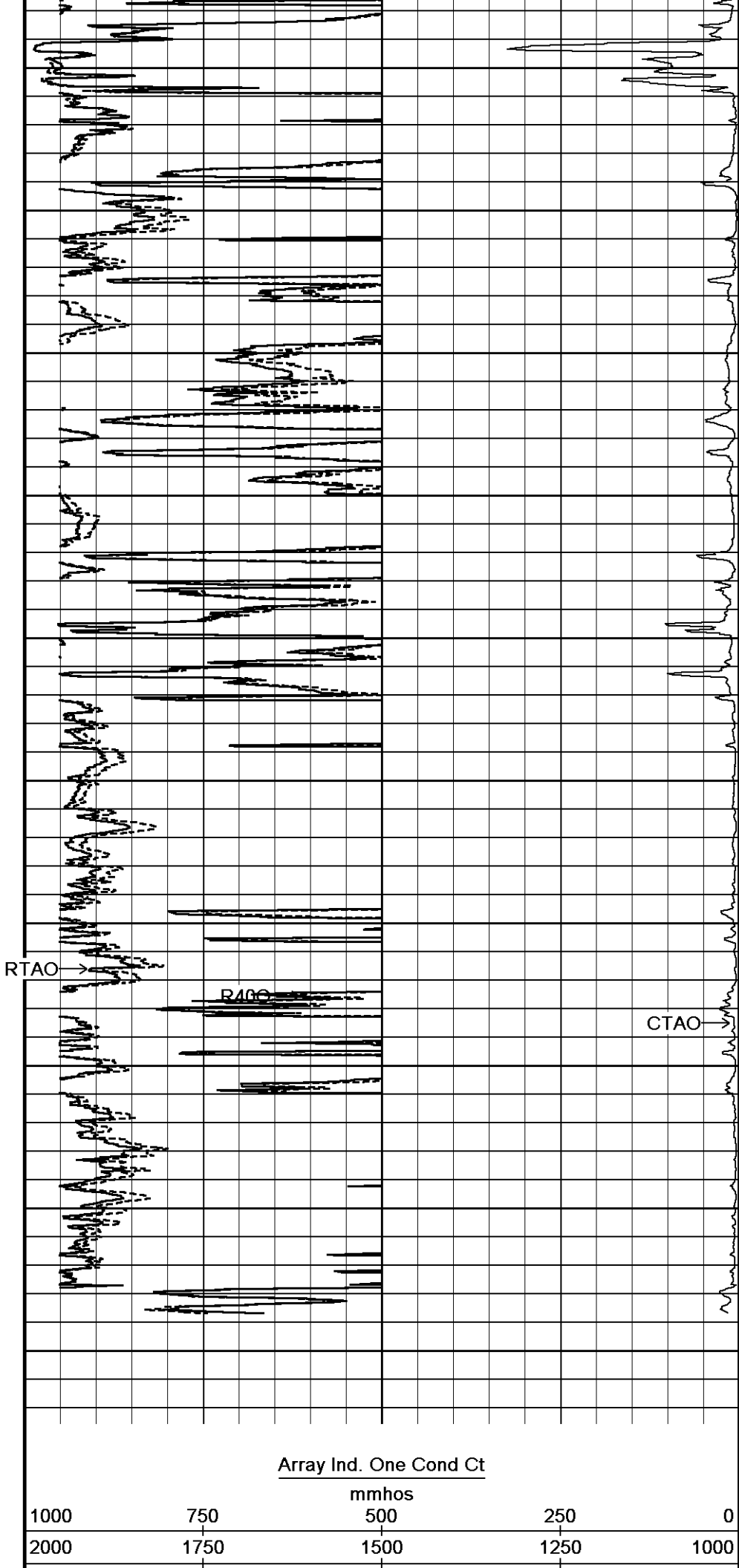
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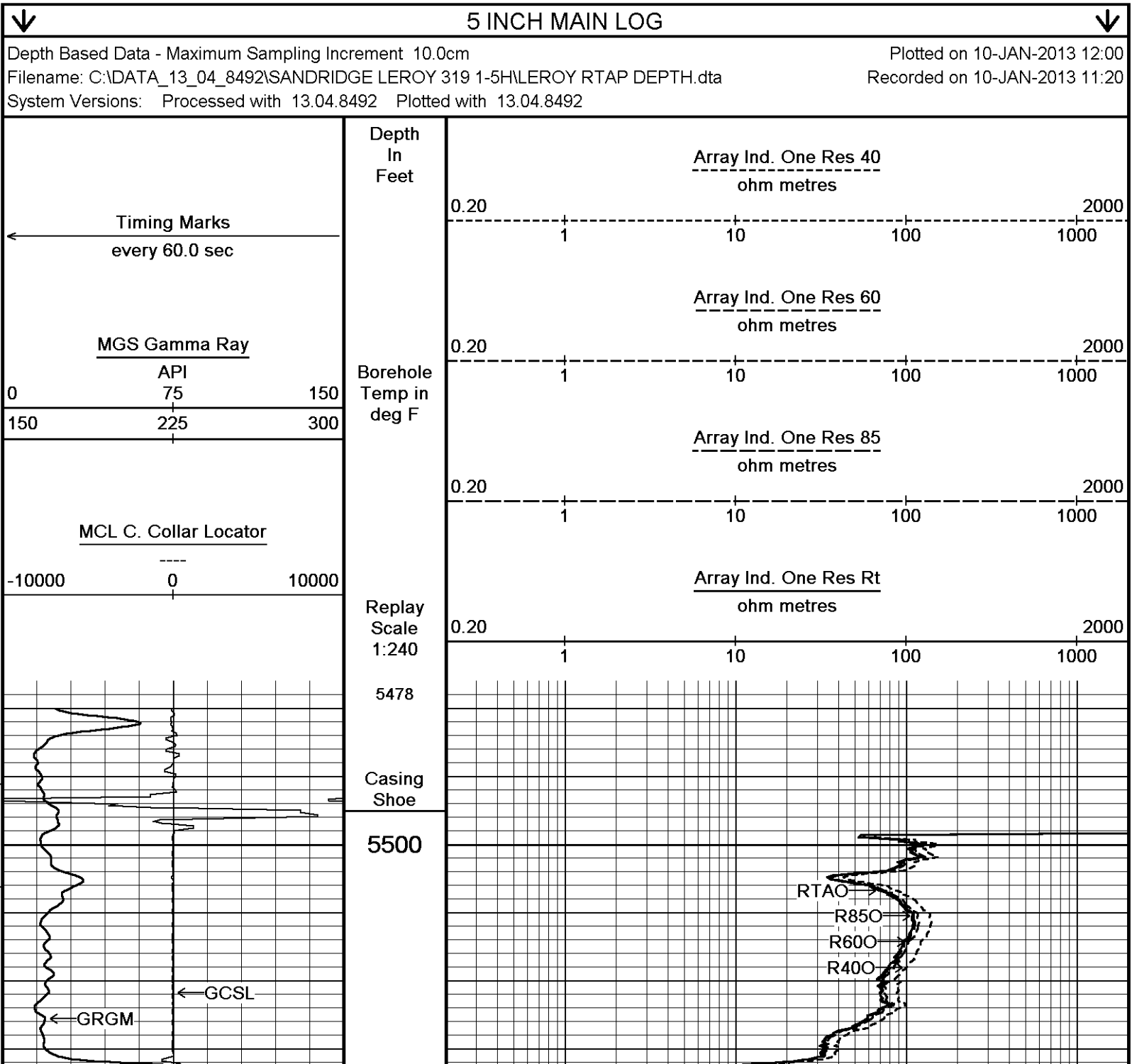
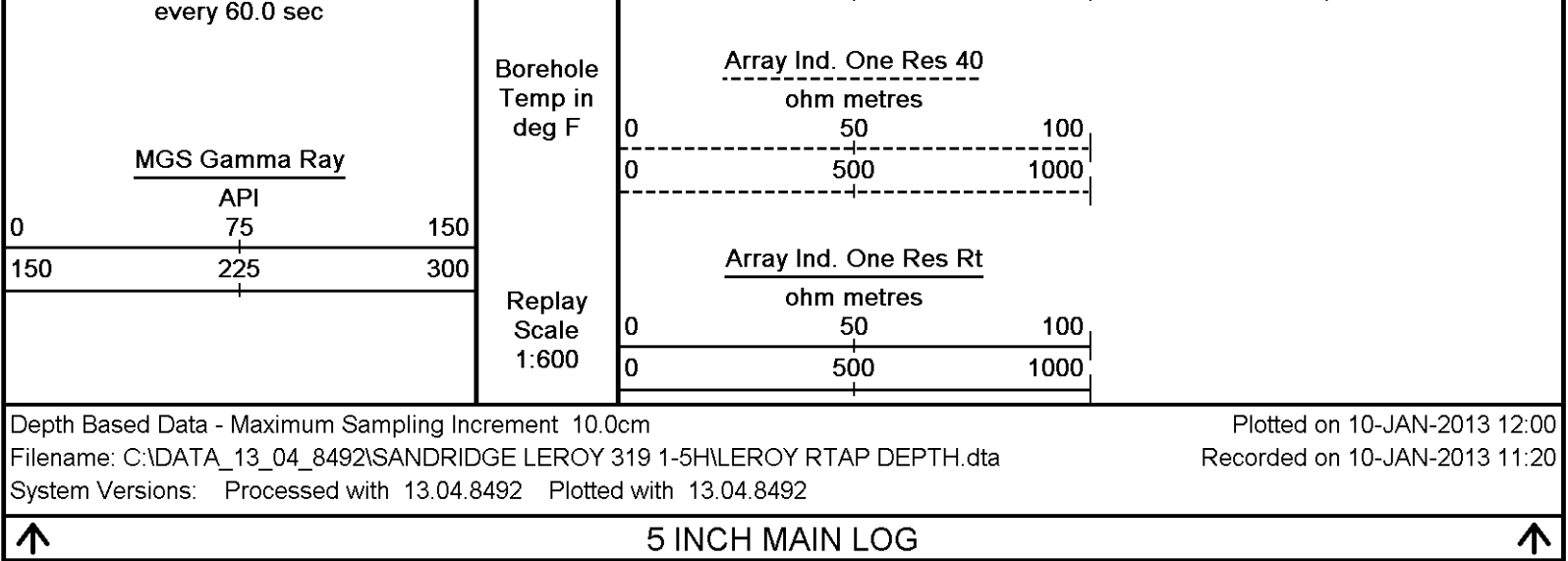
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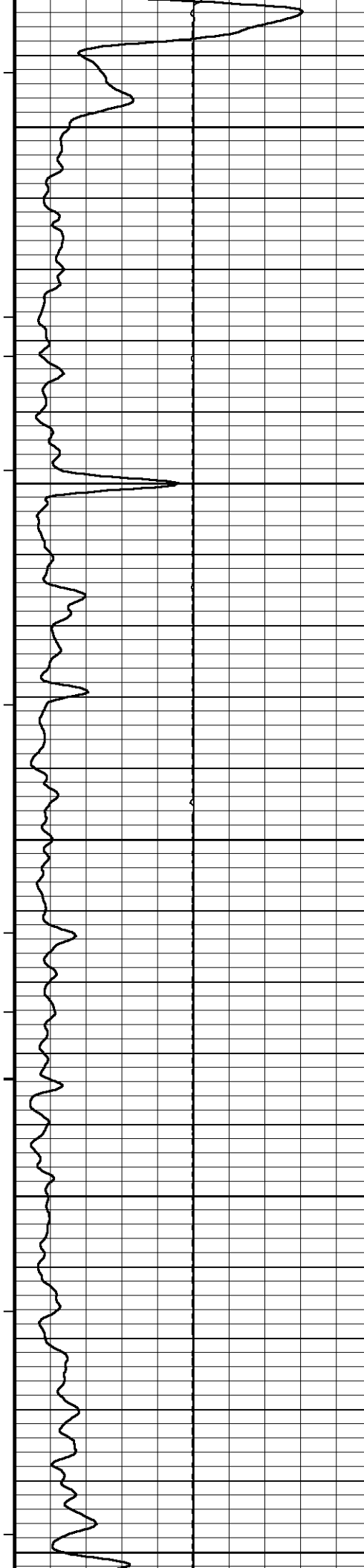
9500

9520

Depth
In
Feet







122°

5550

122°

5600

122°

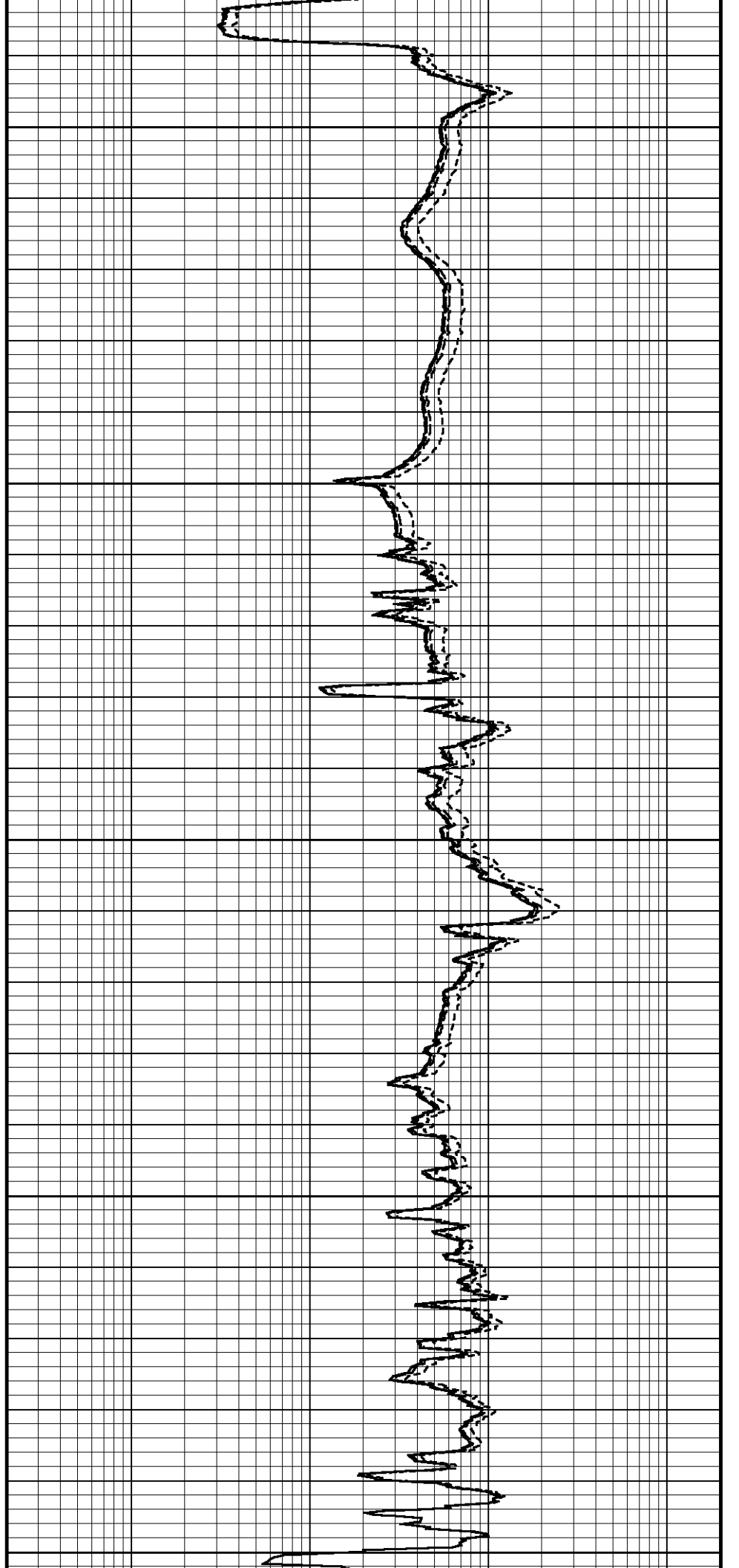
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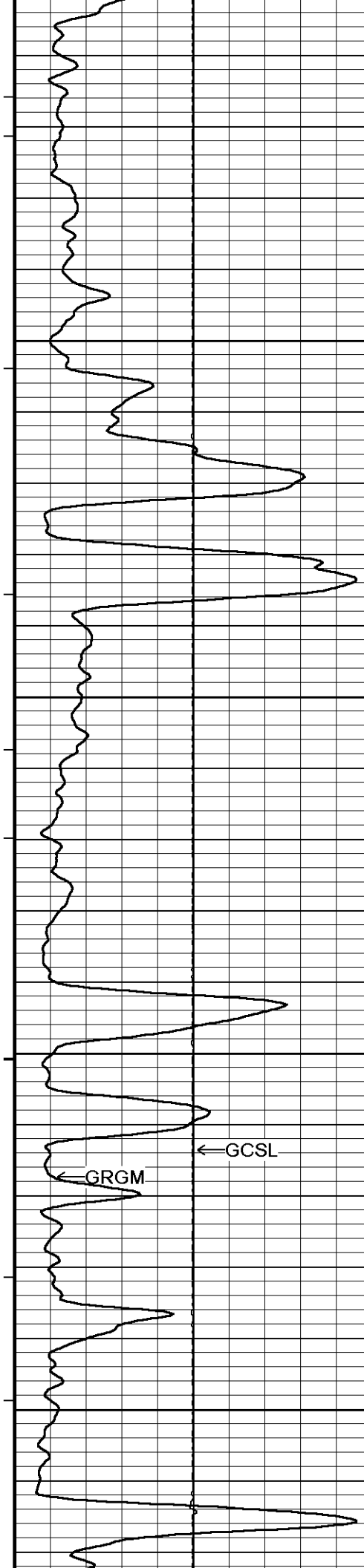
123°

5700

123°

5750





123°

5800

123°

5850

123°

5900

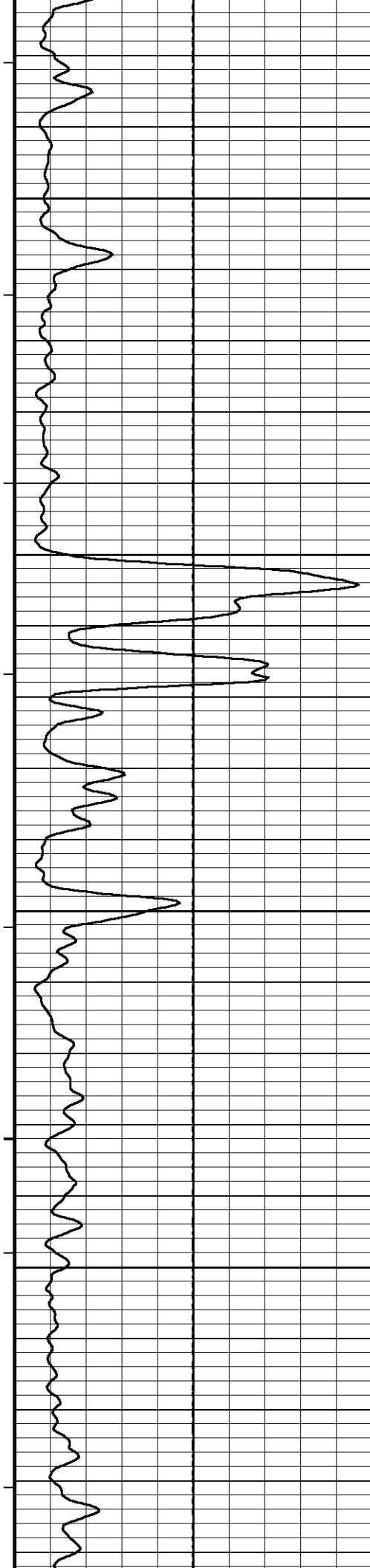
124°

5950

GRGM

GCSL

RTAO
R850
R600
R400



124°

6000

124°

6050

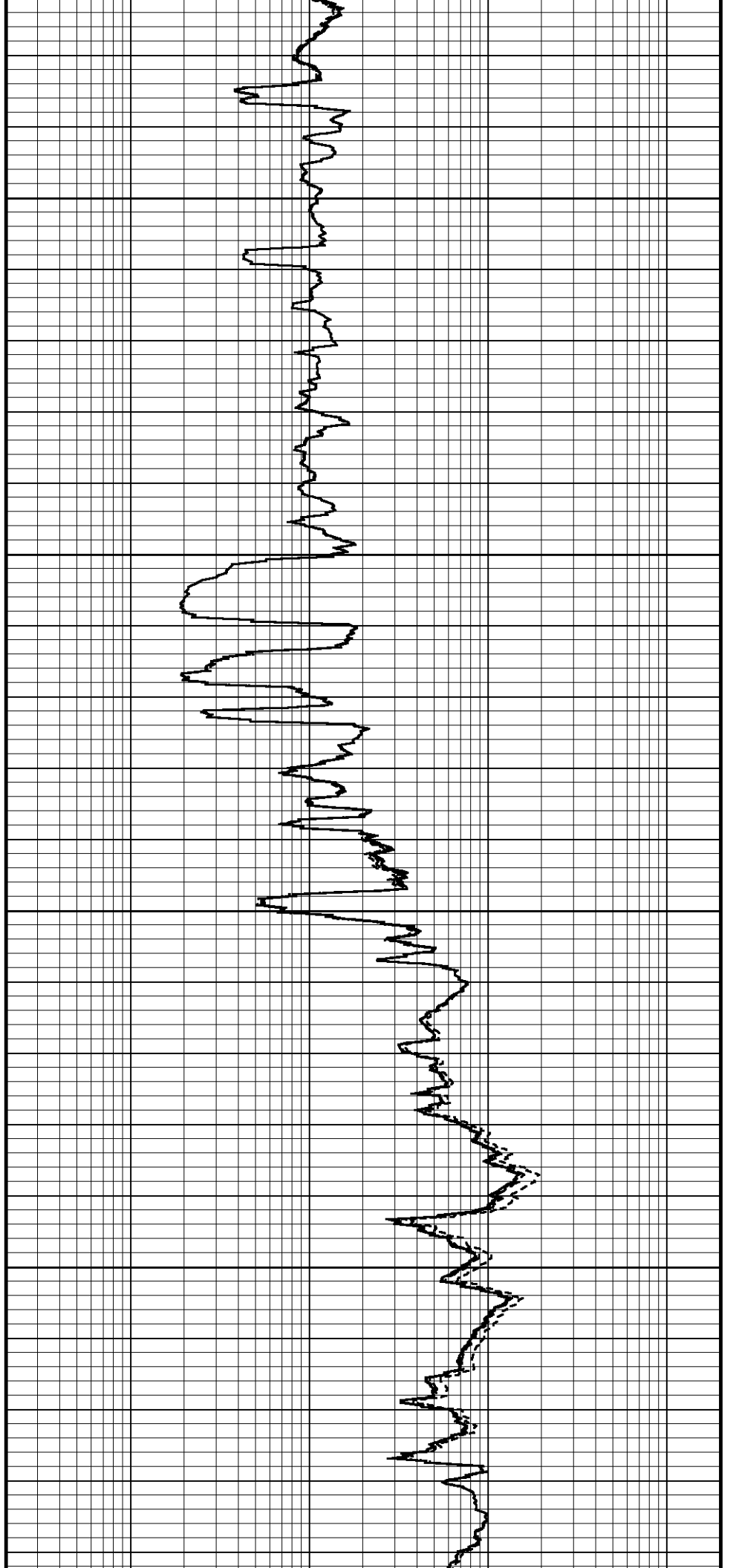
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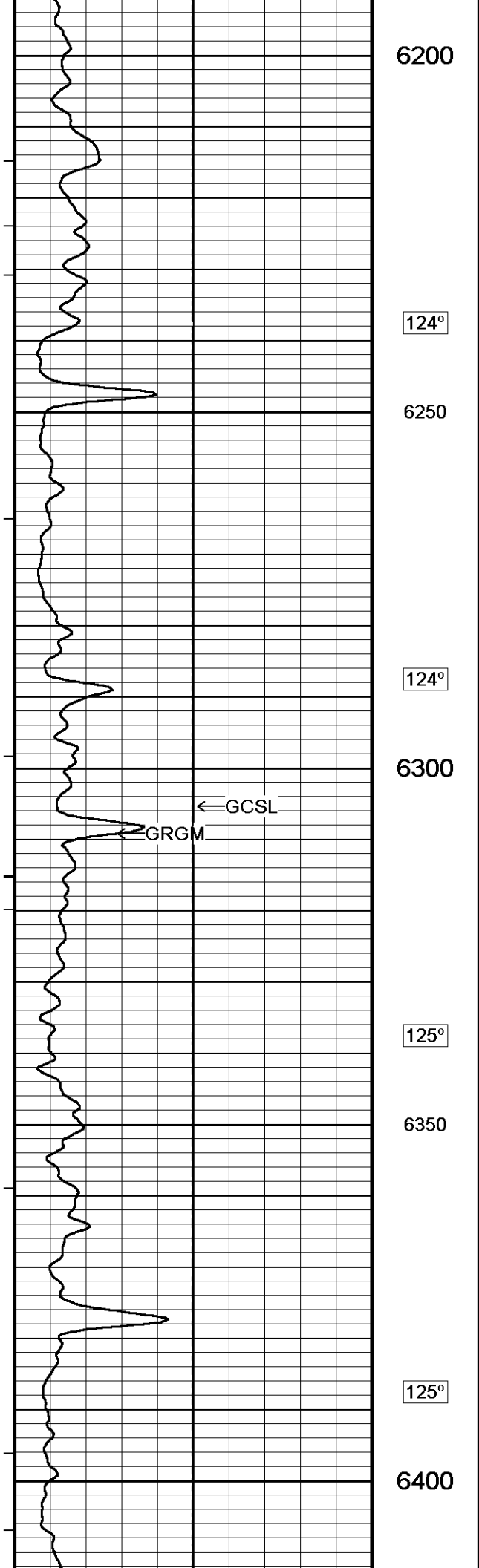
6100

124°

6150

124°





6200

124°

6250

124°

6300

← GCSL

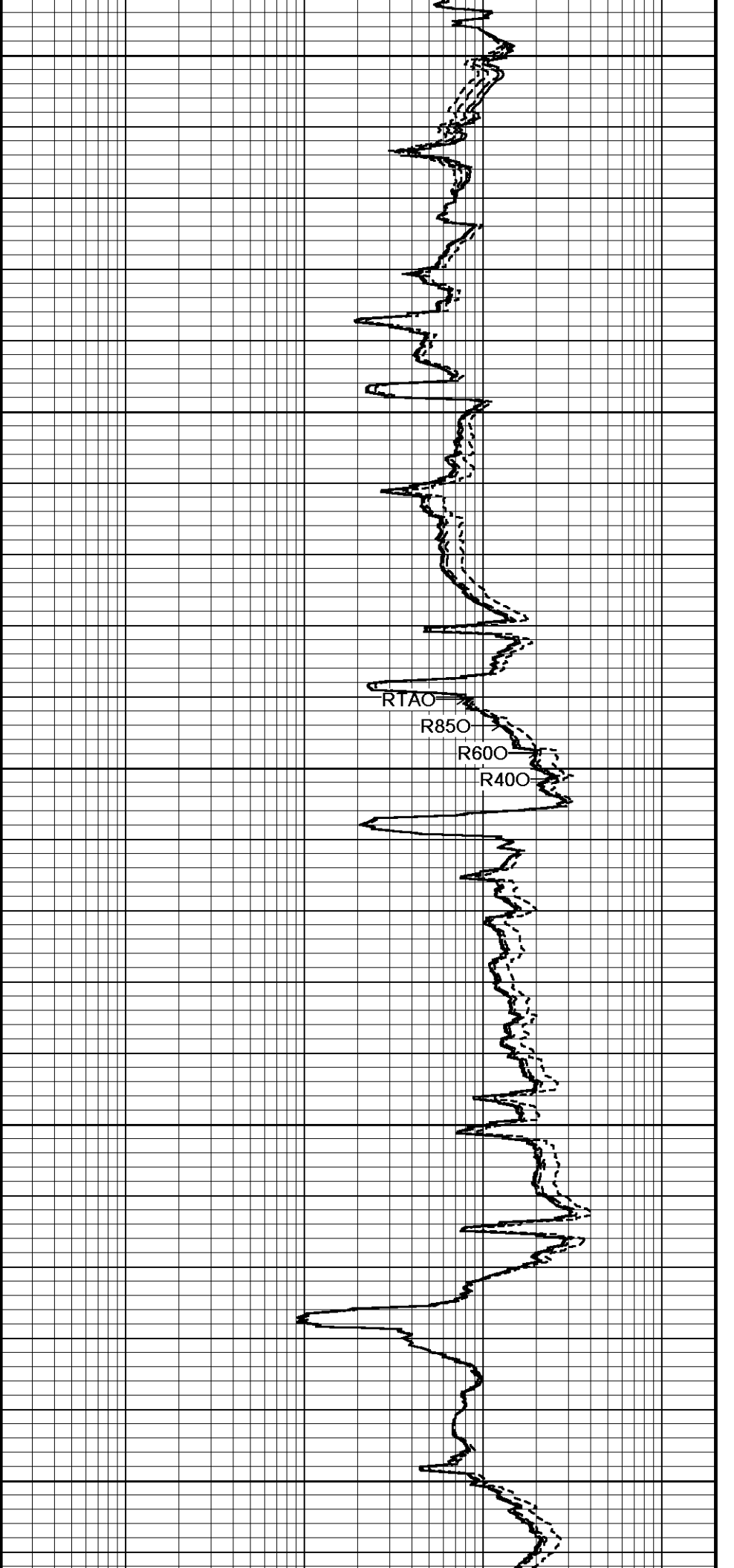
← GRGM

125°

6350

125°

6400

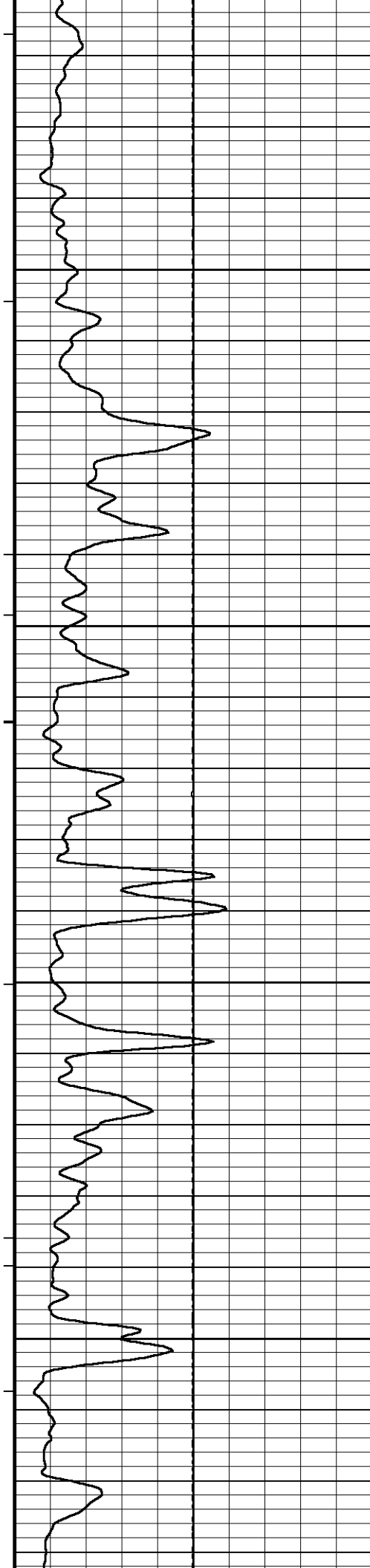


RTAO

R850

R600

R400



125°

6450

125°

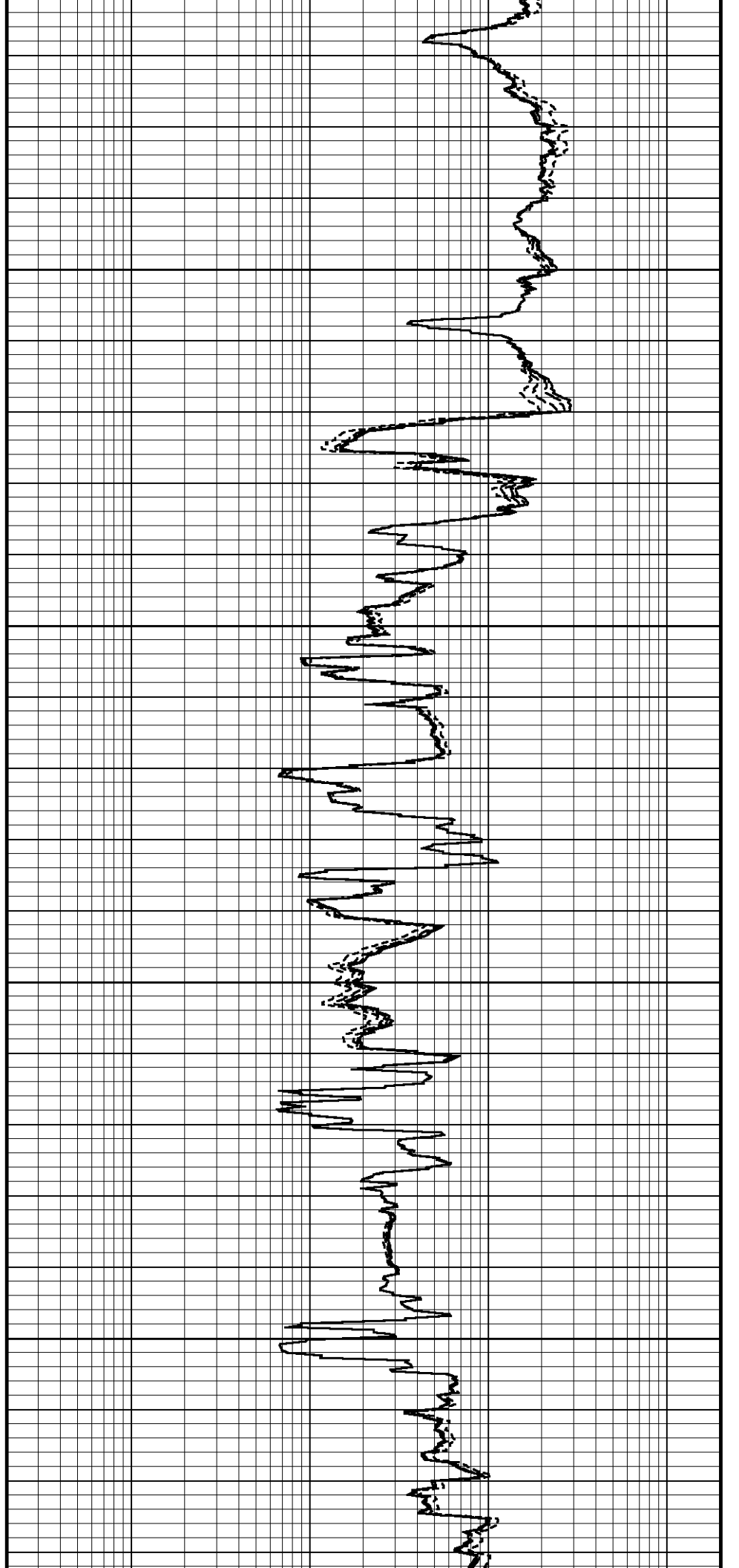
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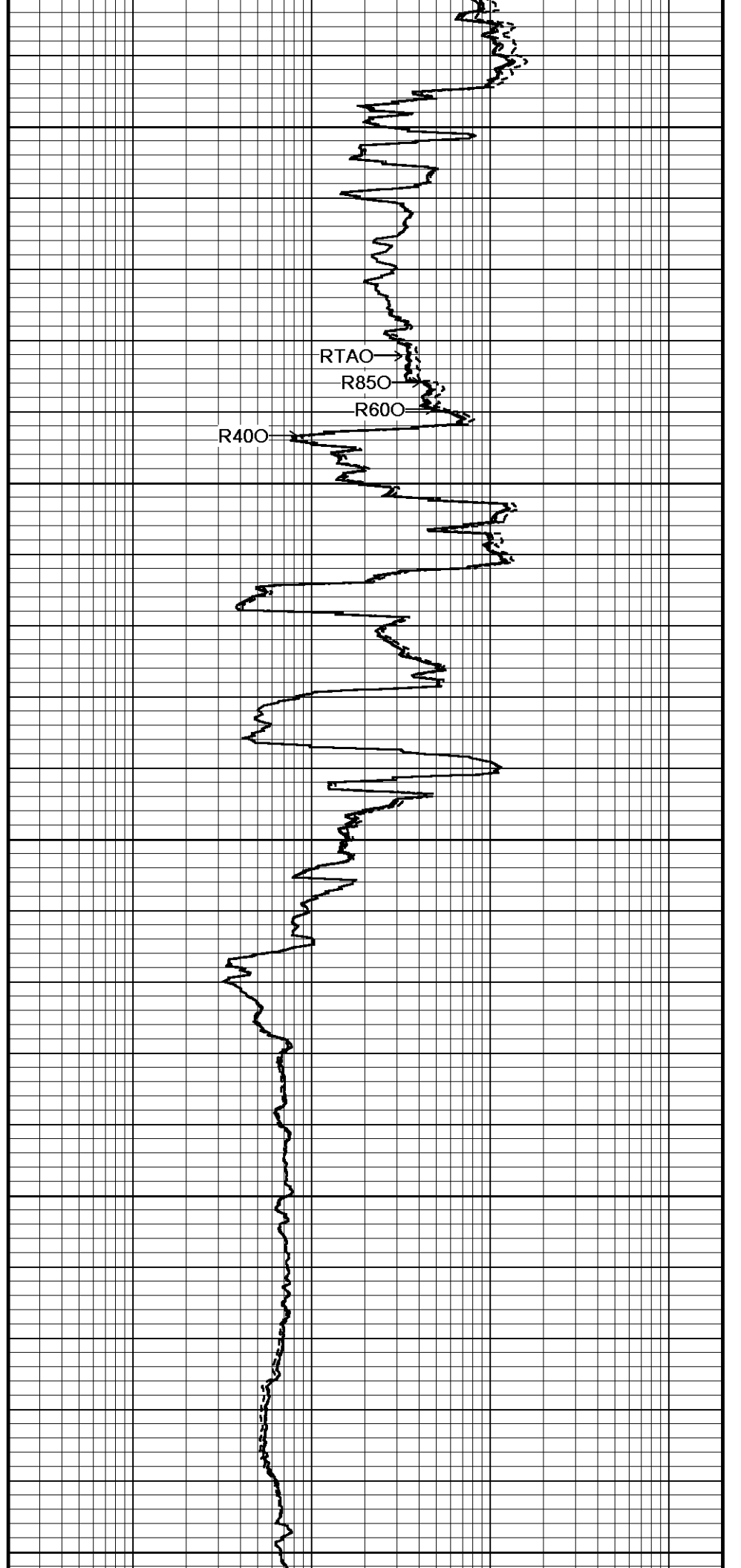
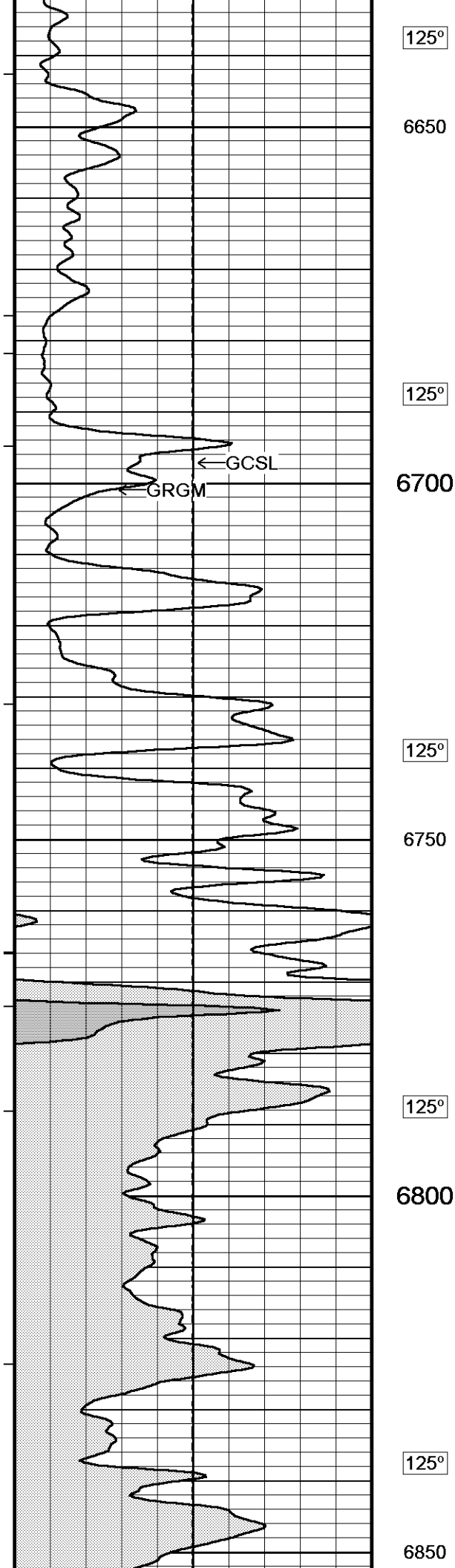
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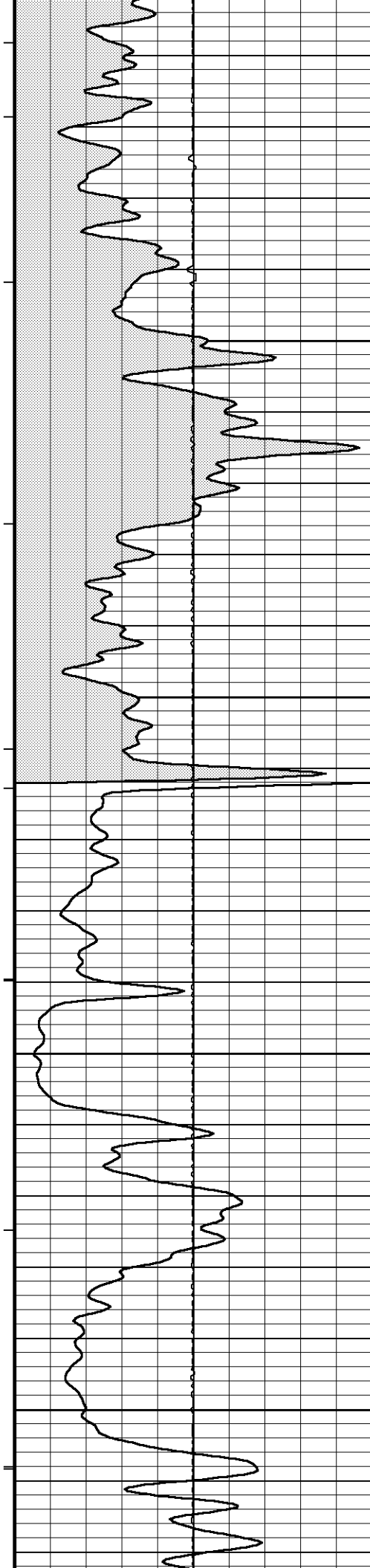
6550

125°

6600







125°

6900

125°

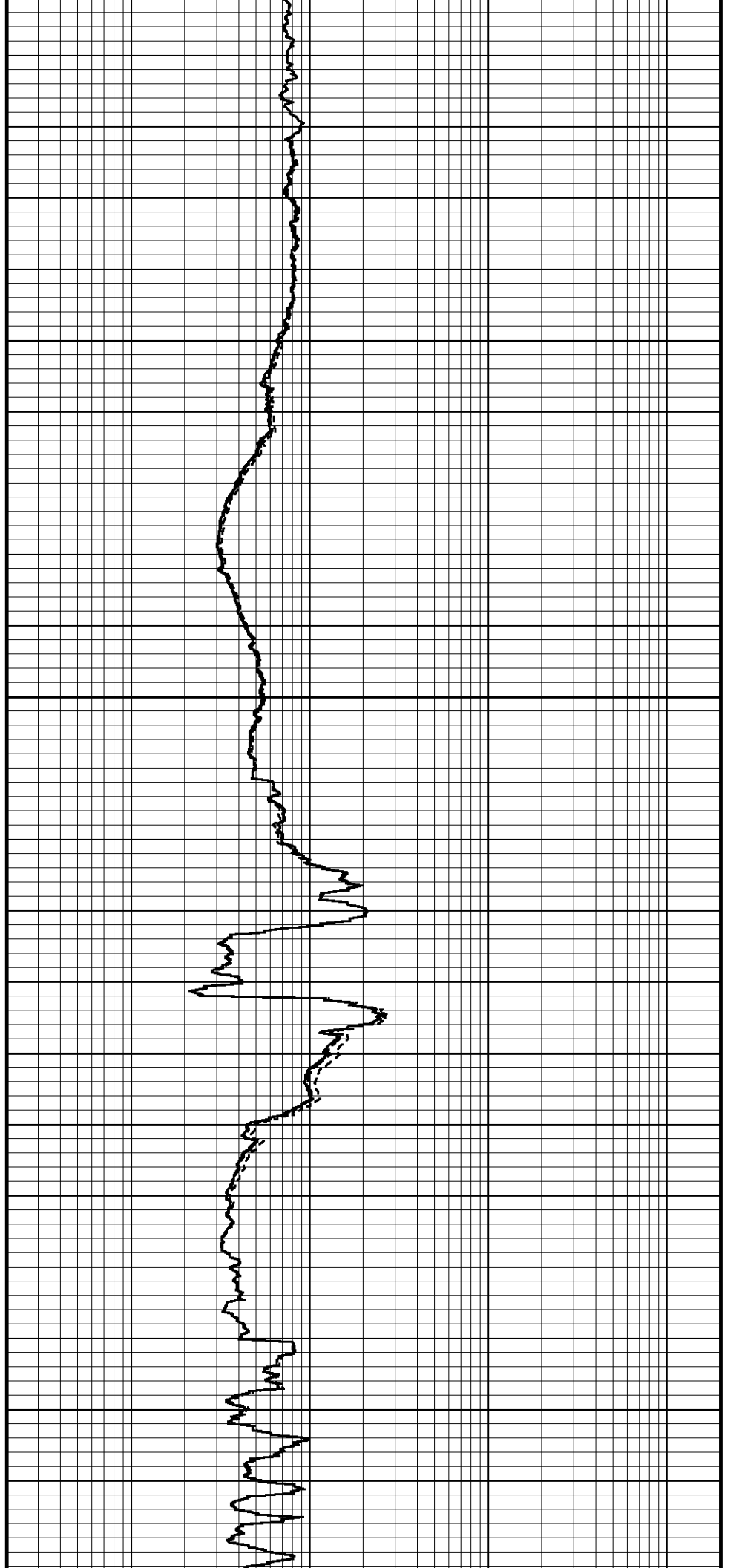
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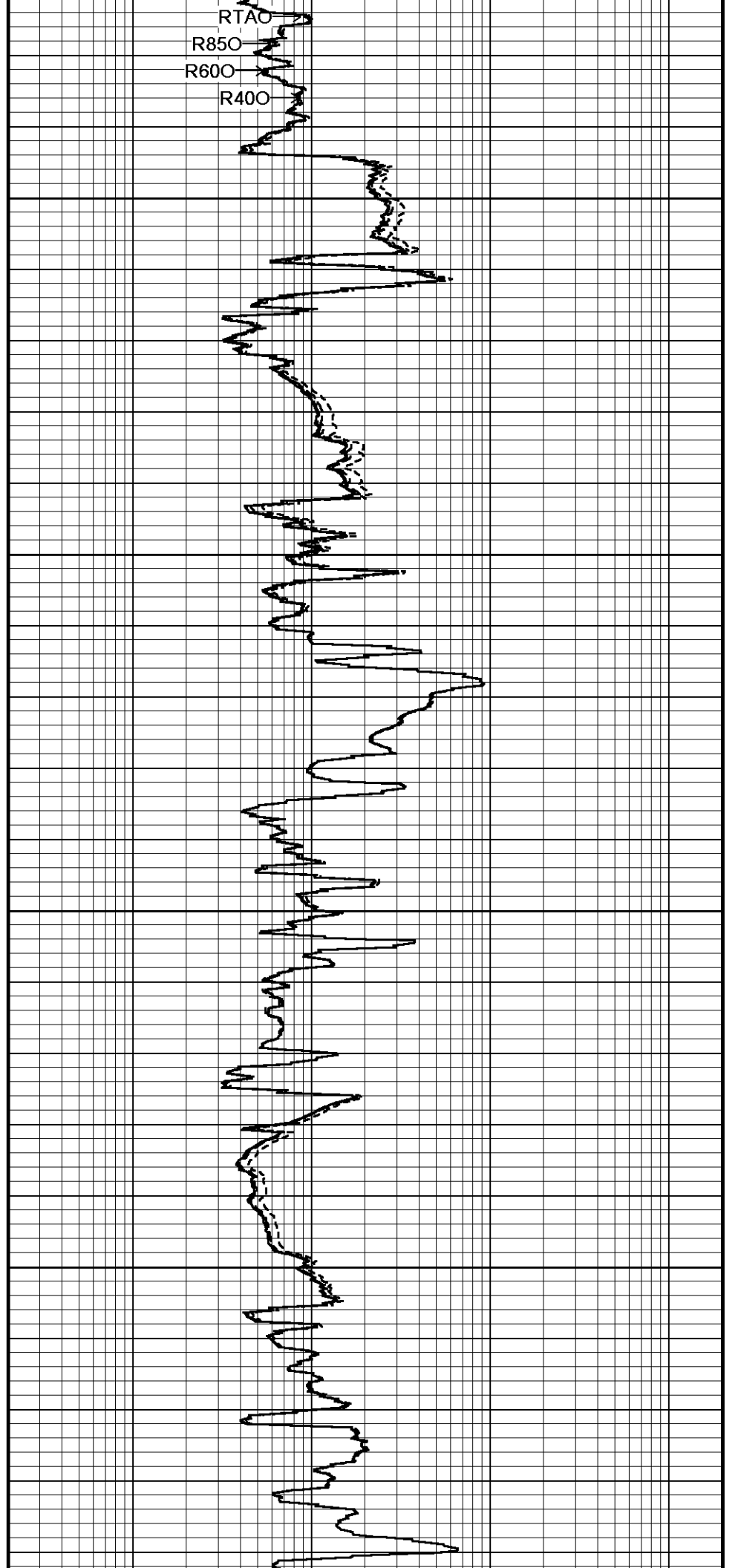
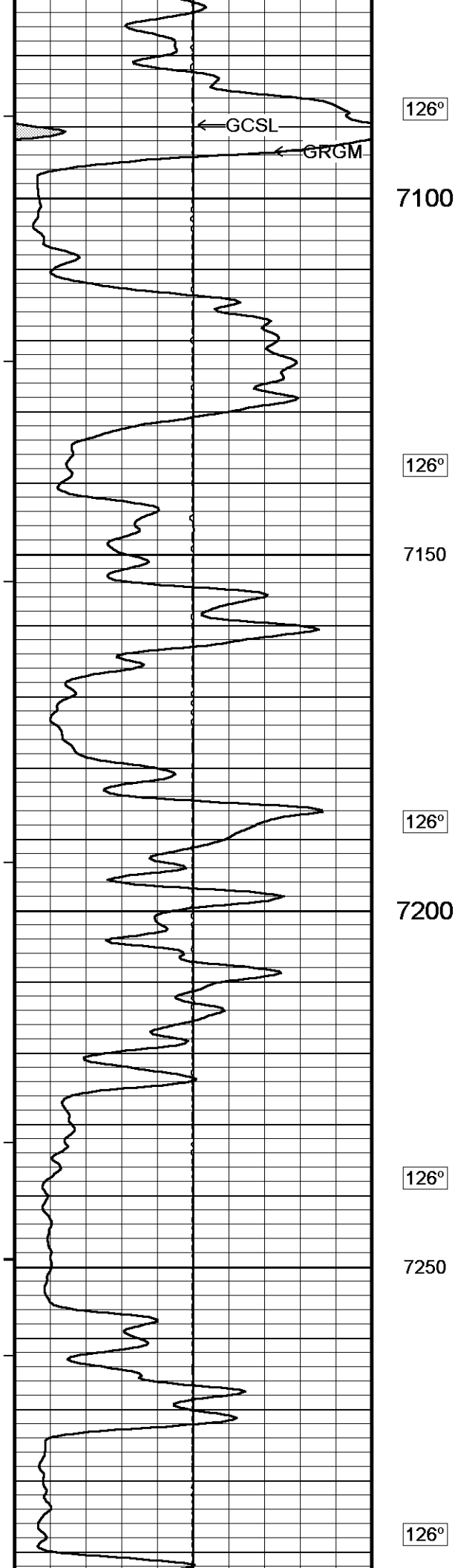
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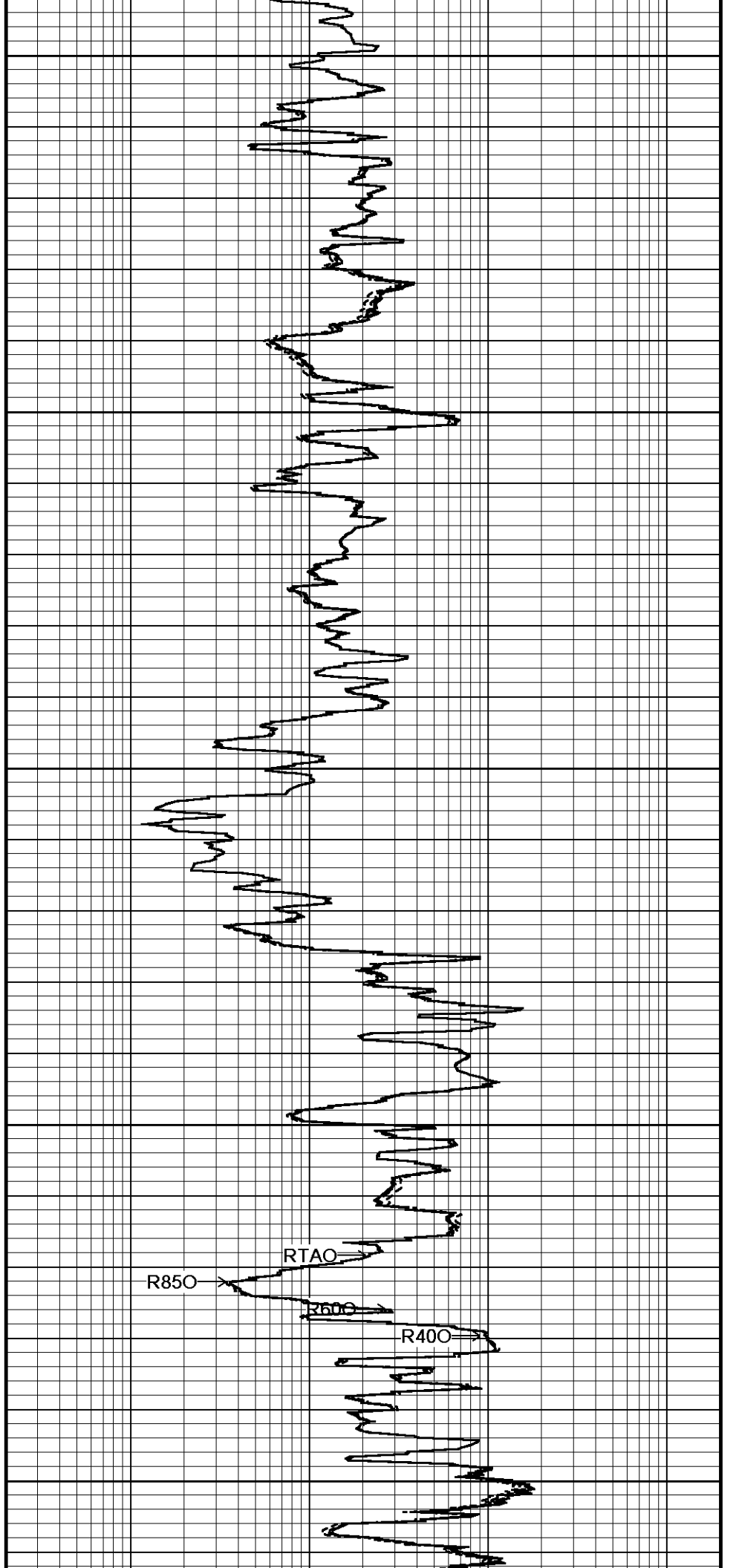
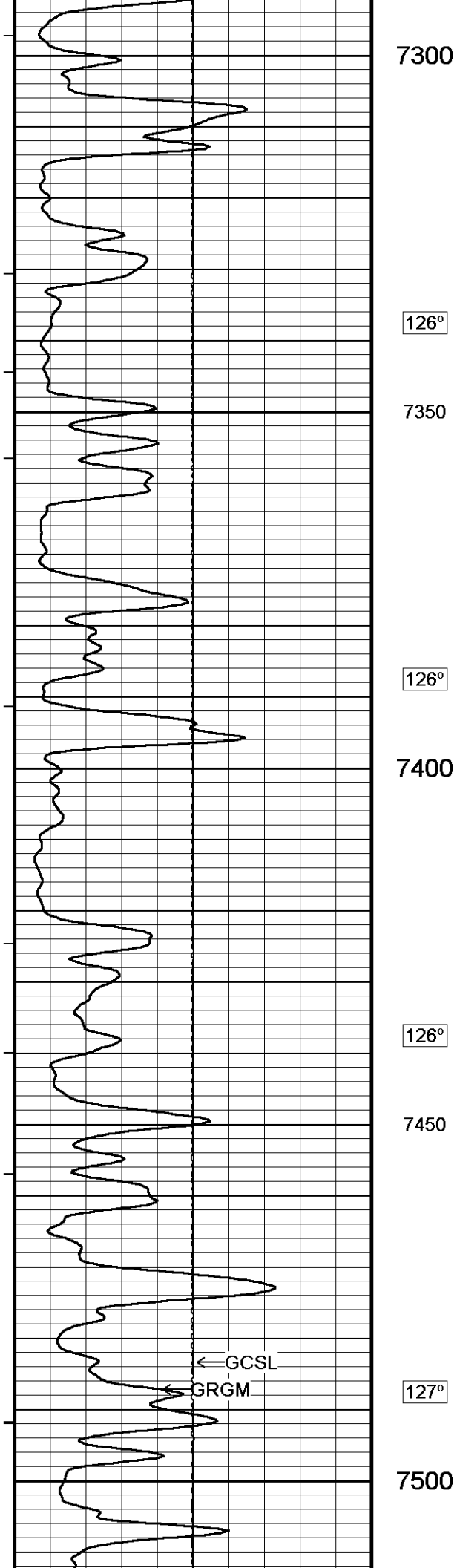
7000

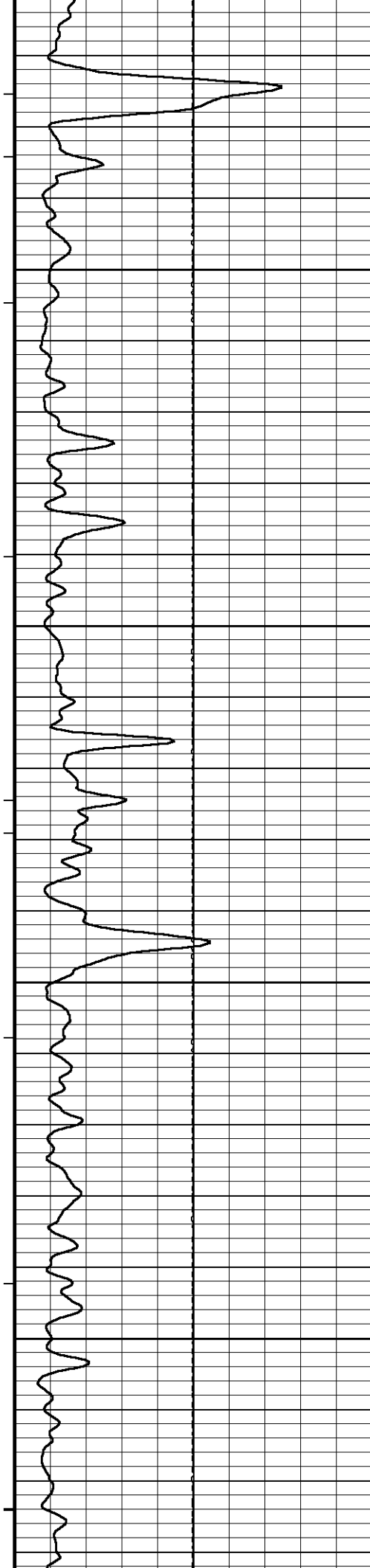
126°

7050









127°

7550

127°

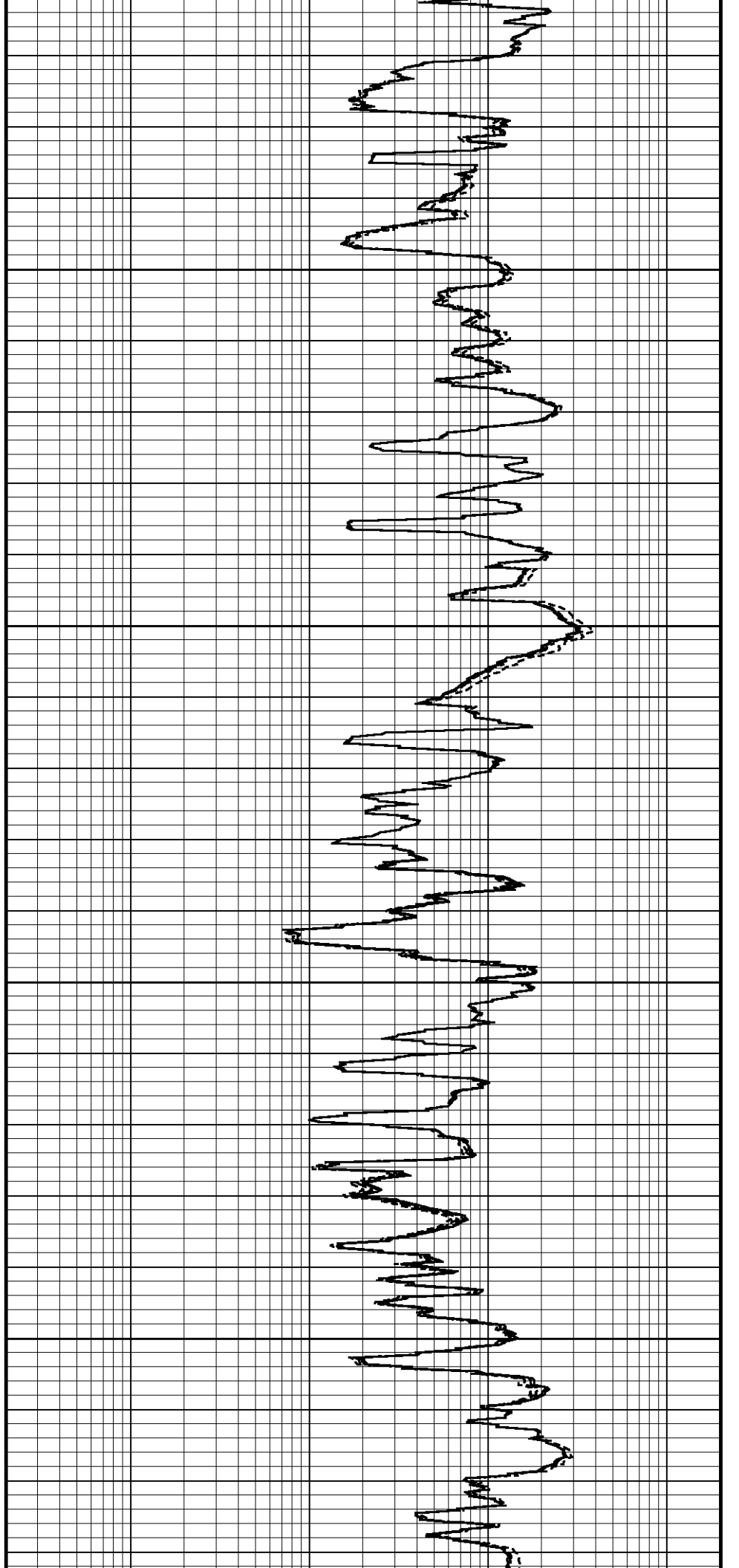
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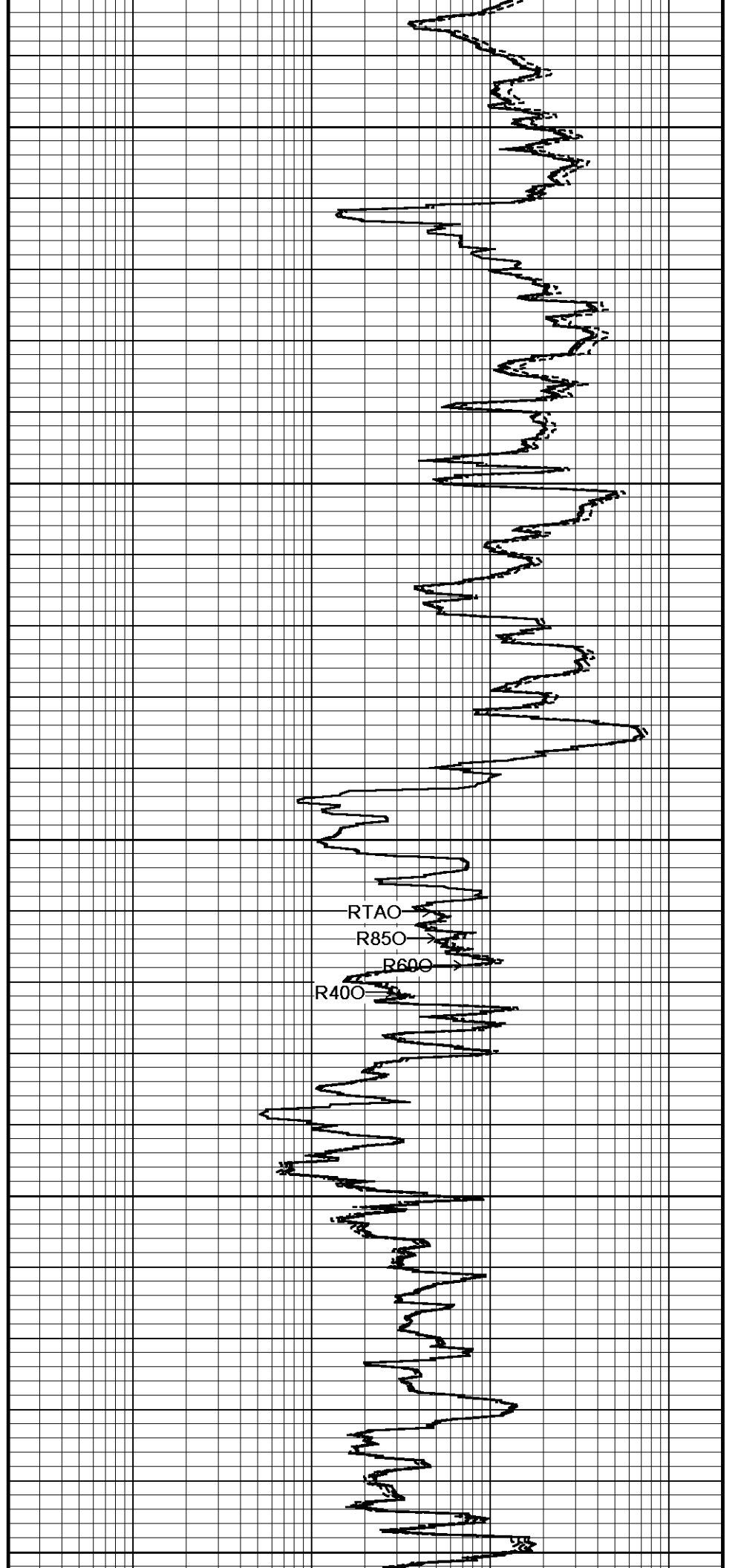
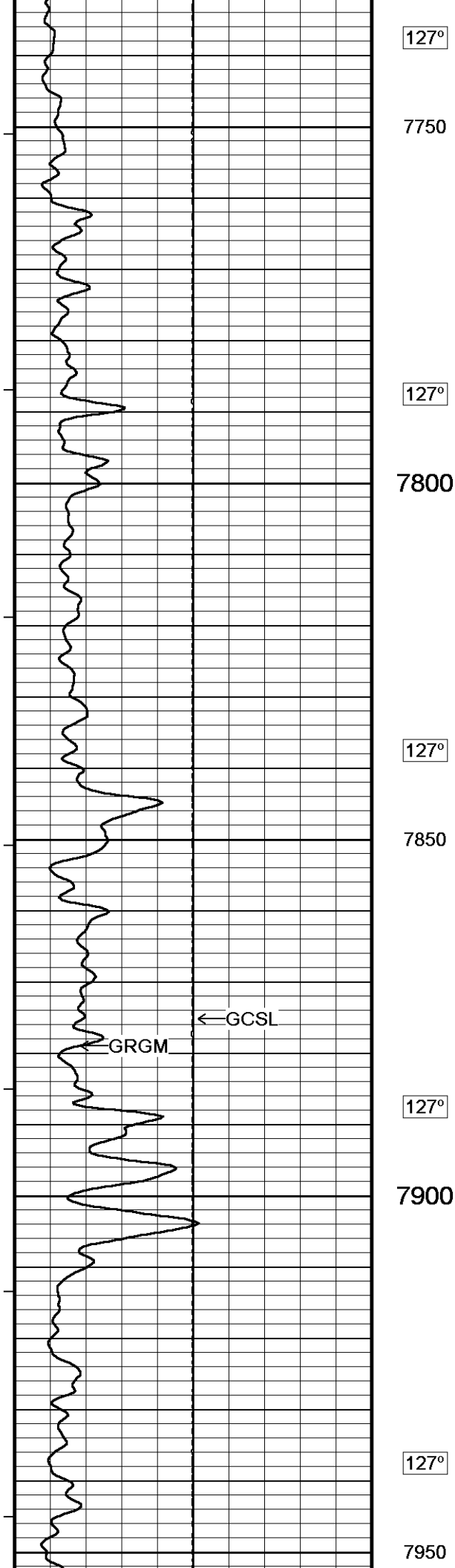
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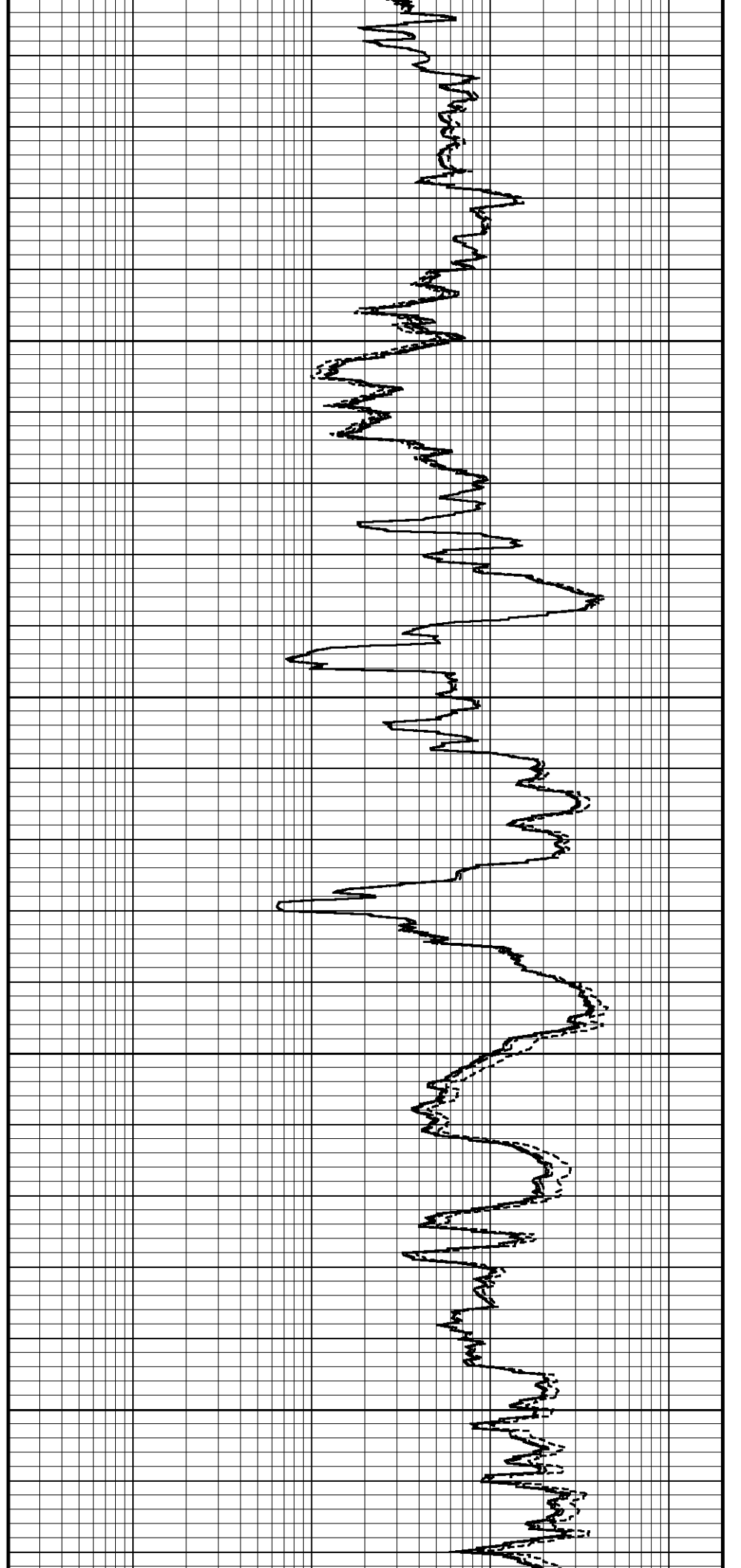
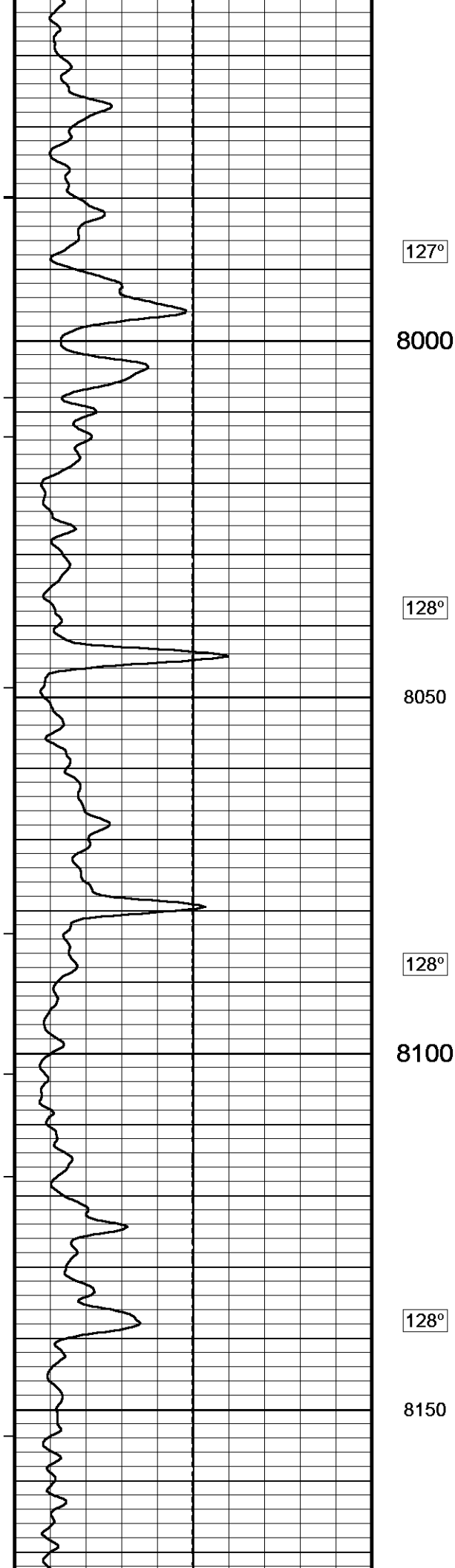
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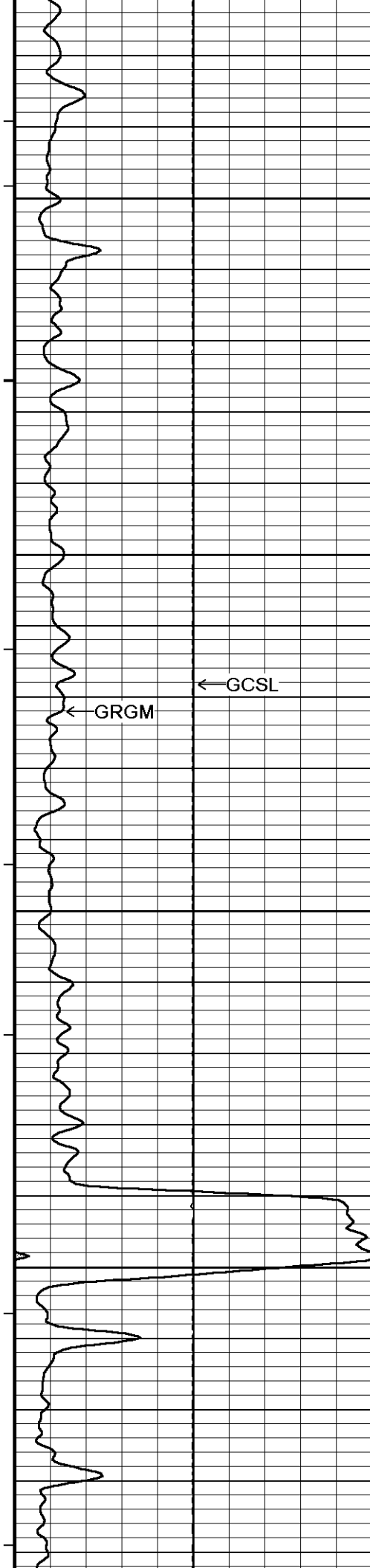
127°

7700









128°

8200

128°

8250

RTAO
R850
R600
R400

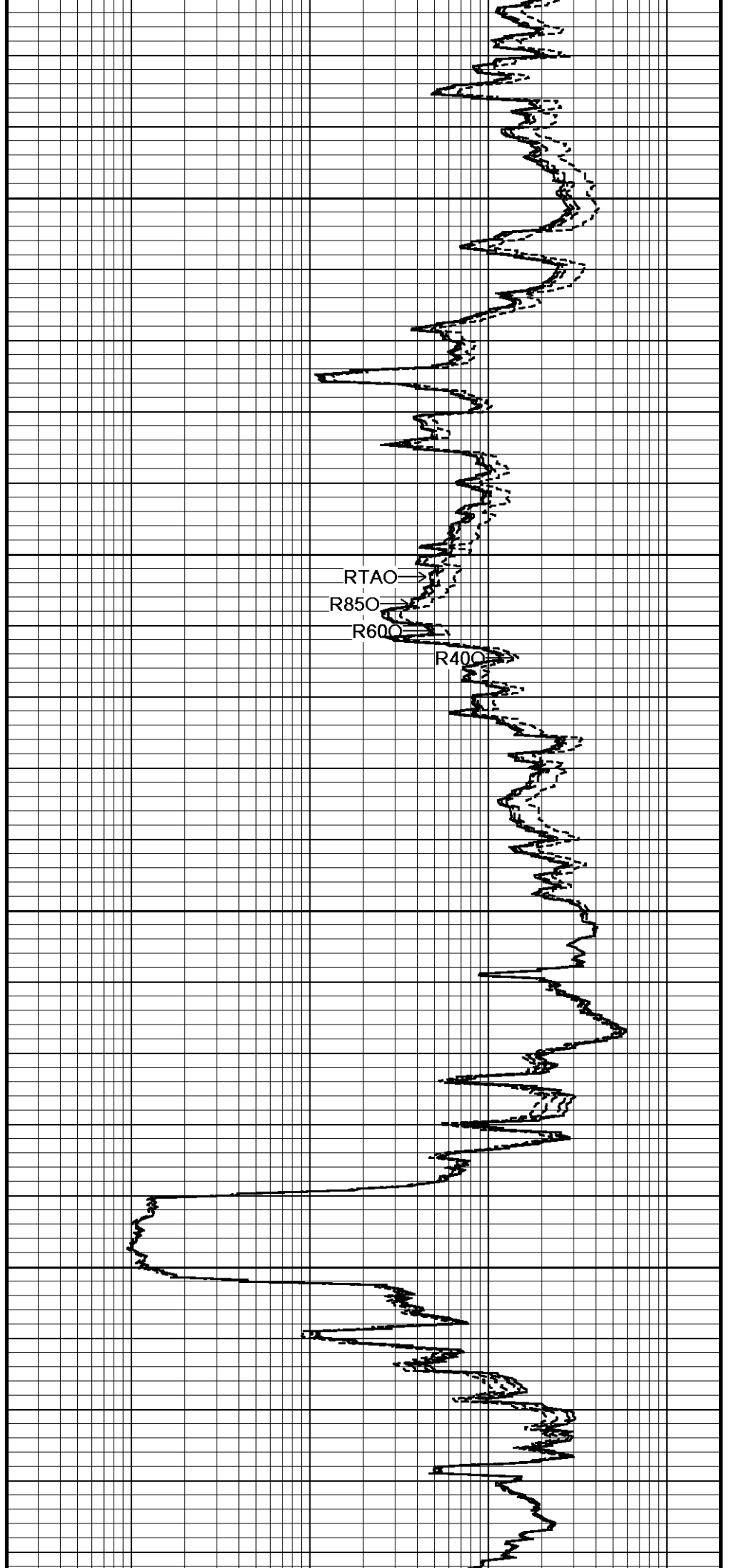
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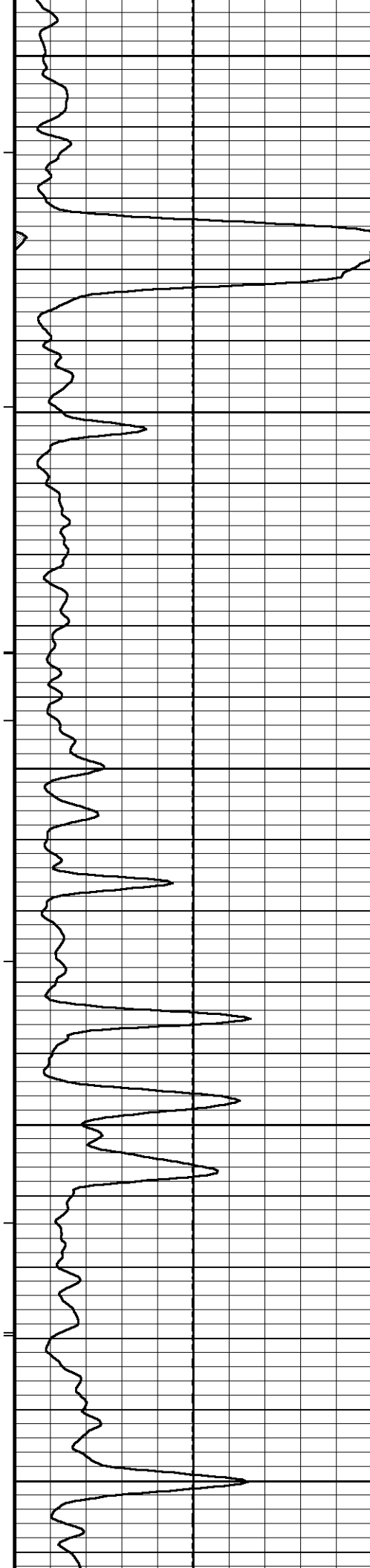
8300

128°

8350

128°





8400

128°

8450

128°

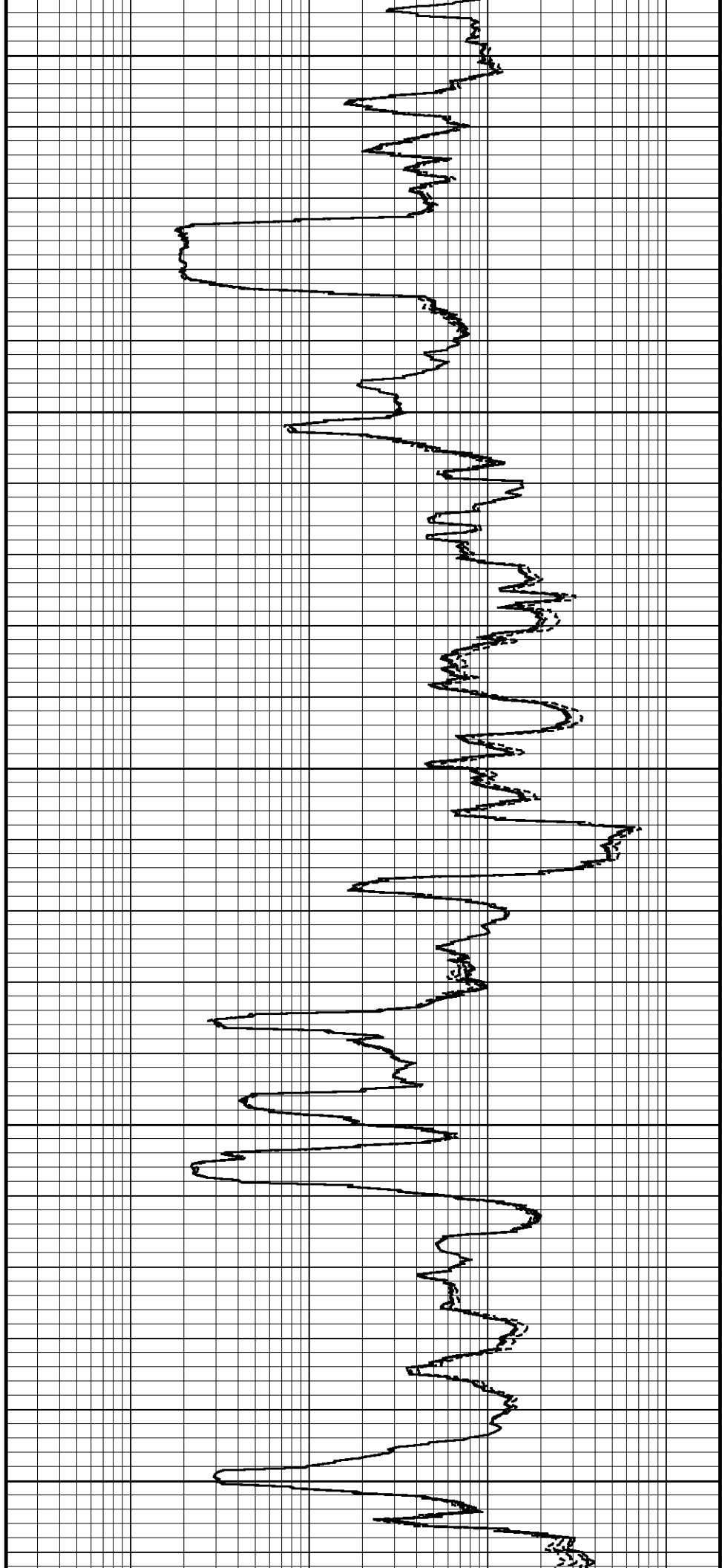
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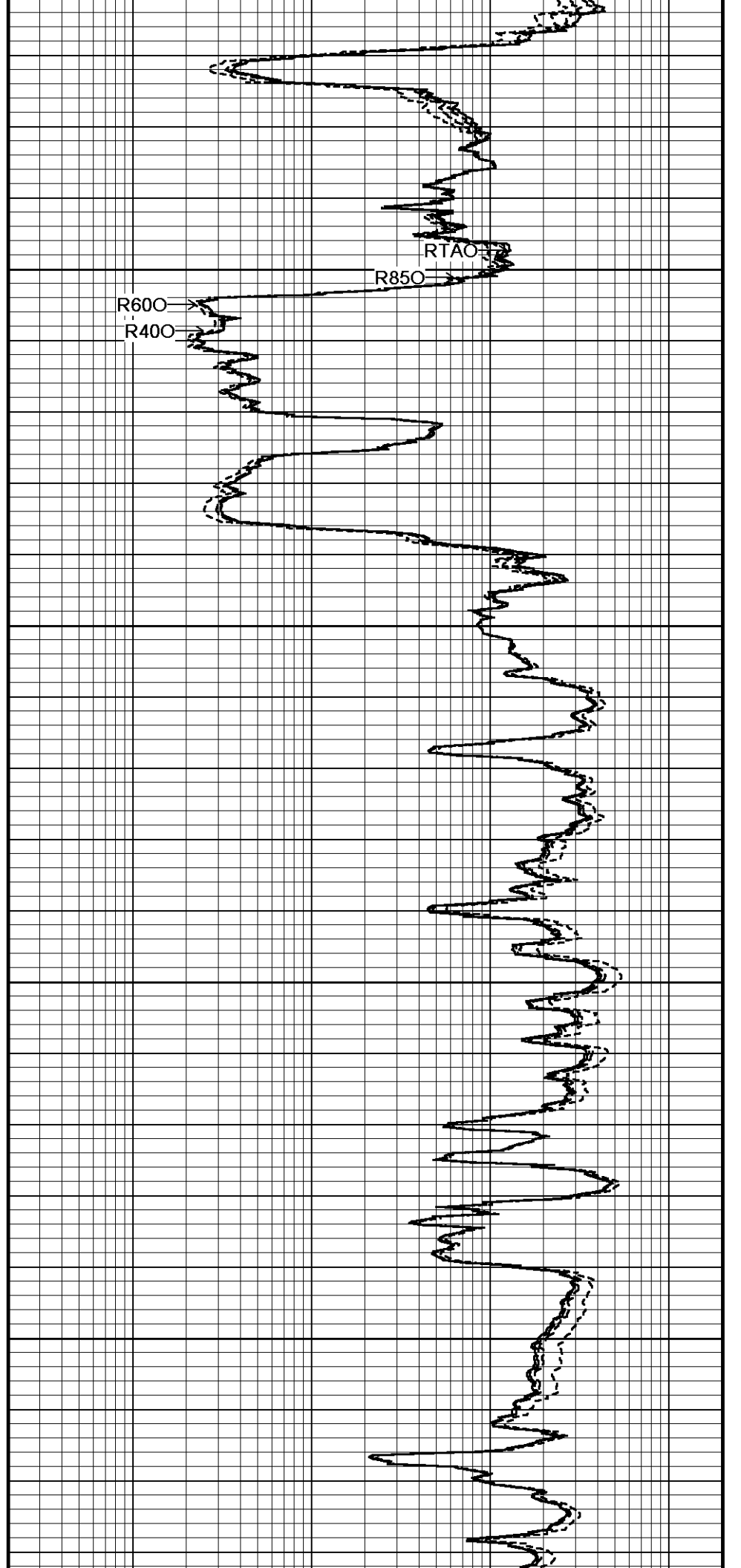
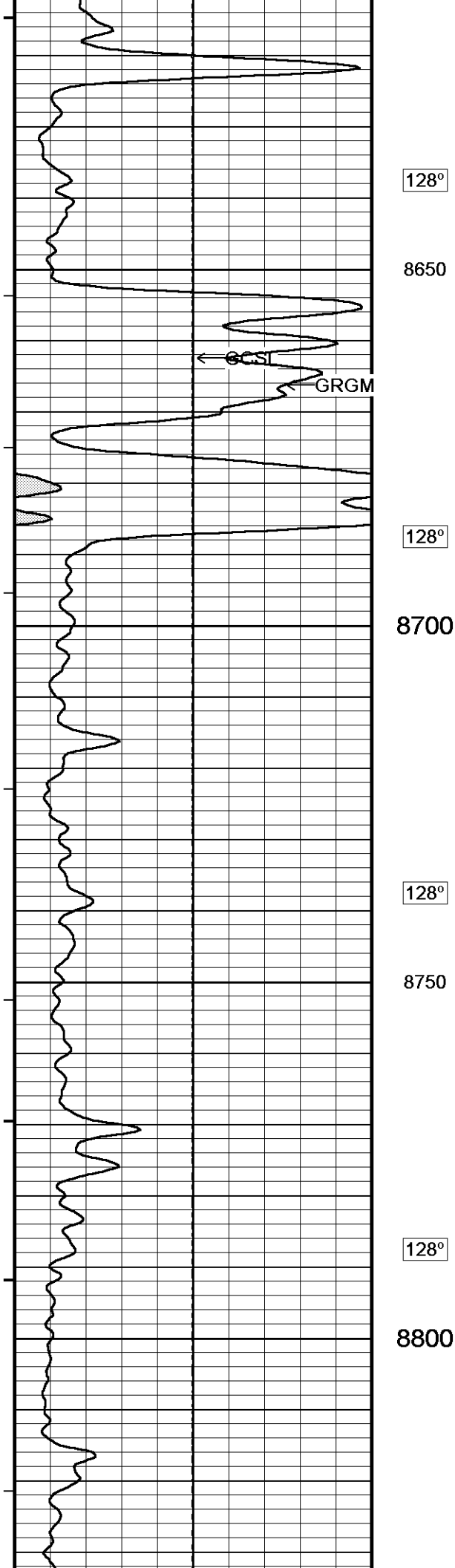
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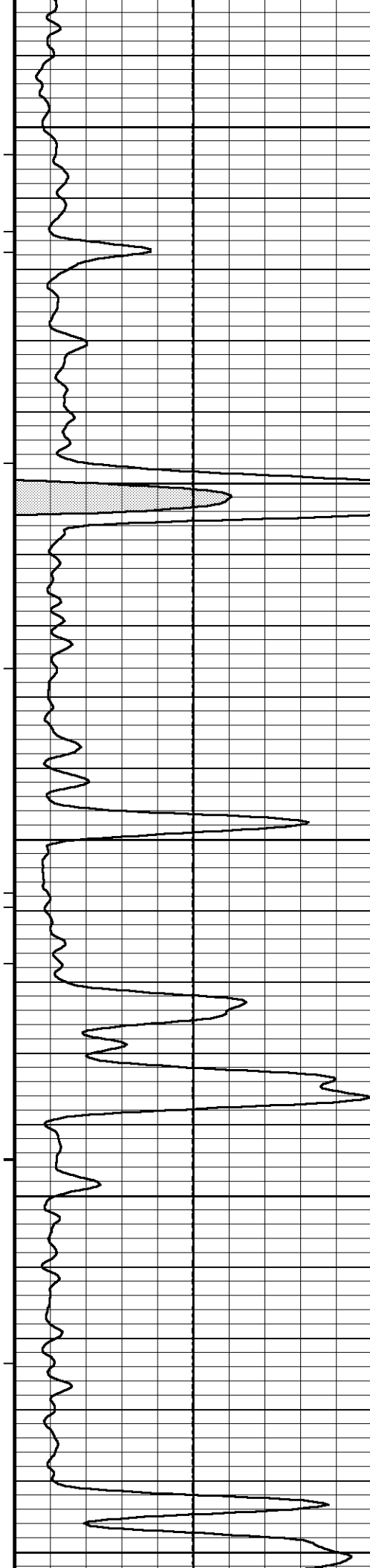
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128°

8600







128°

8850

128°

8900

128°

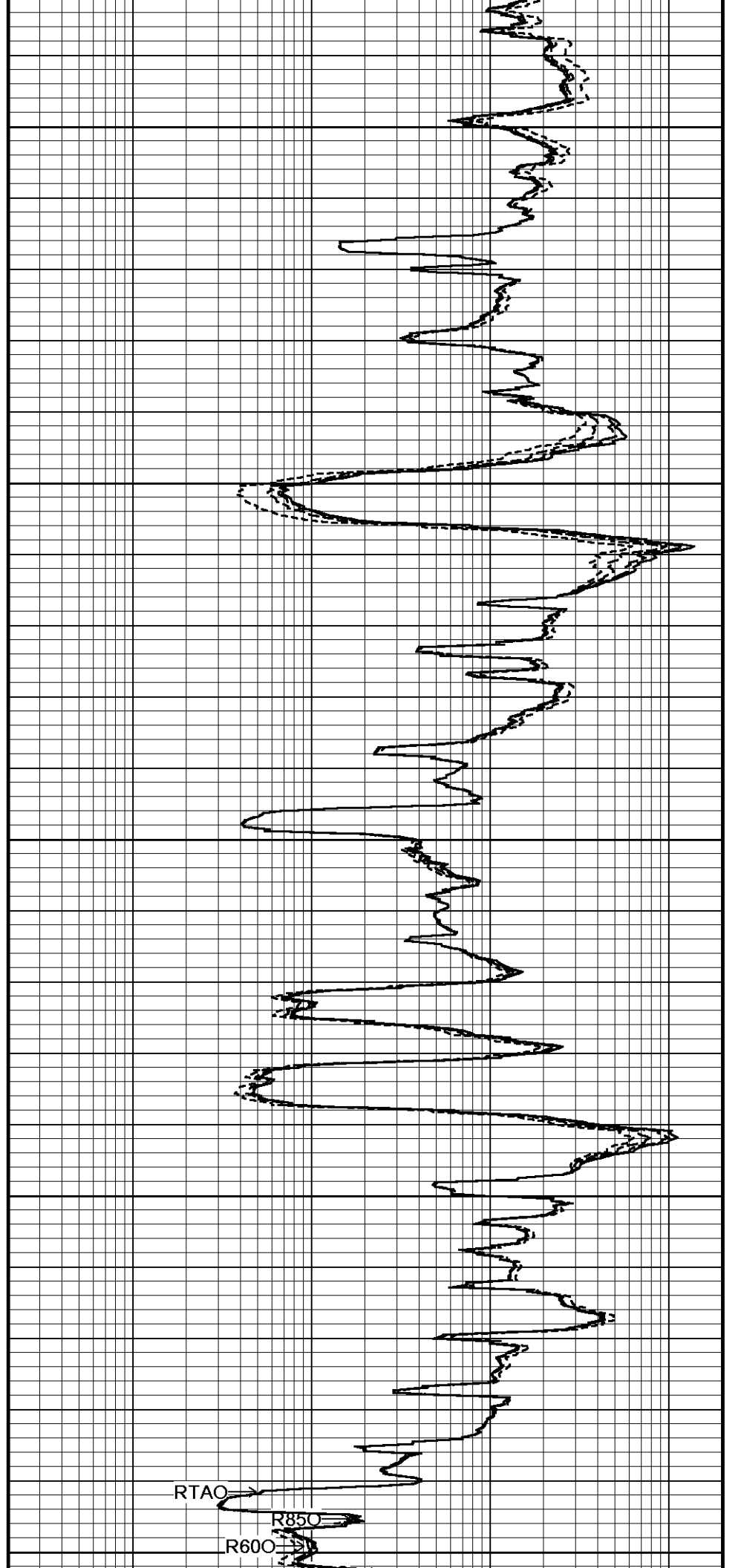
8950

128°

9000

128°

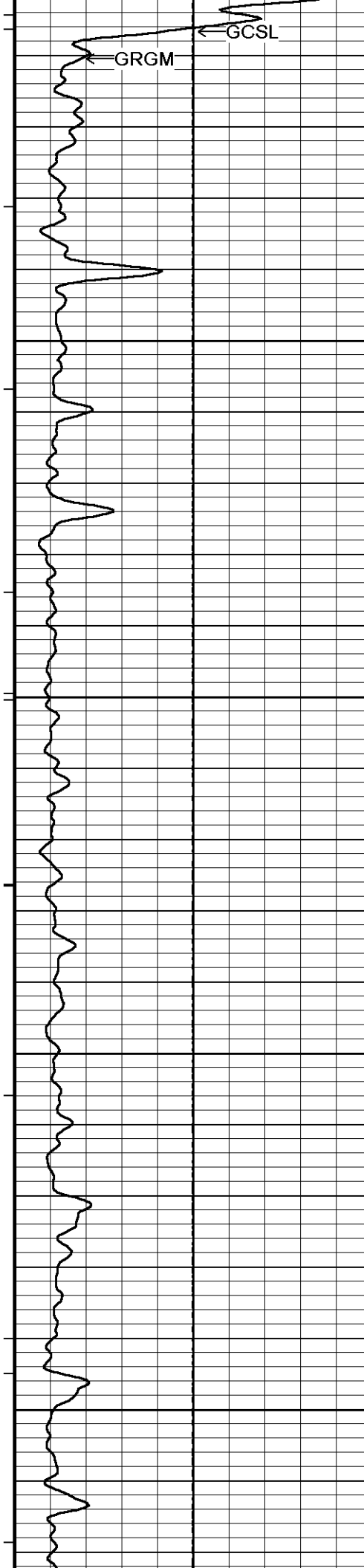
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RTAO

R85O

R60O



128°

9100

128°

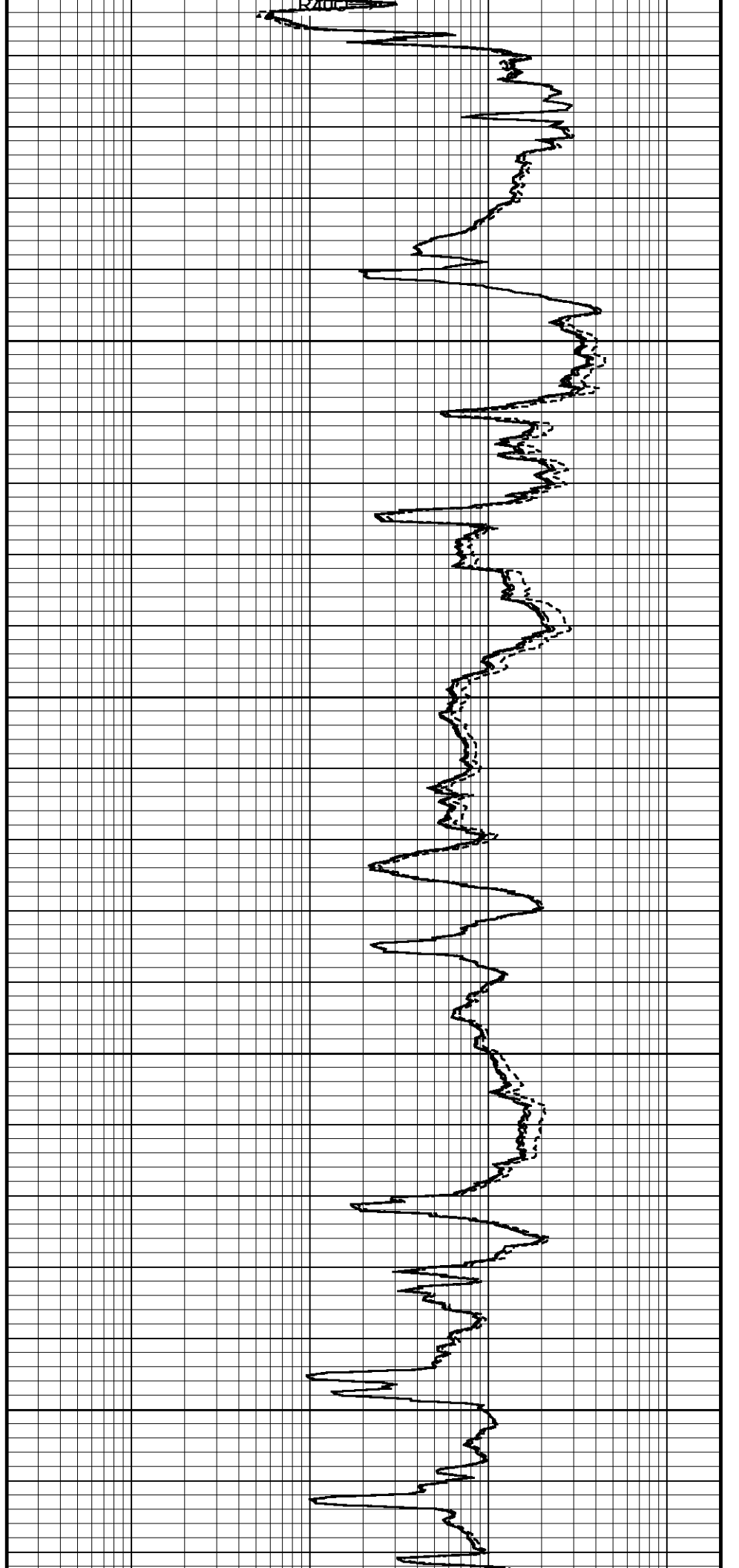
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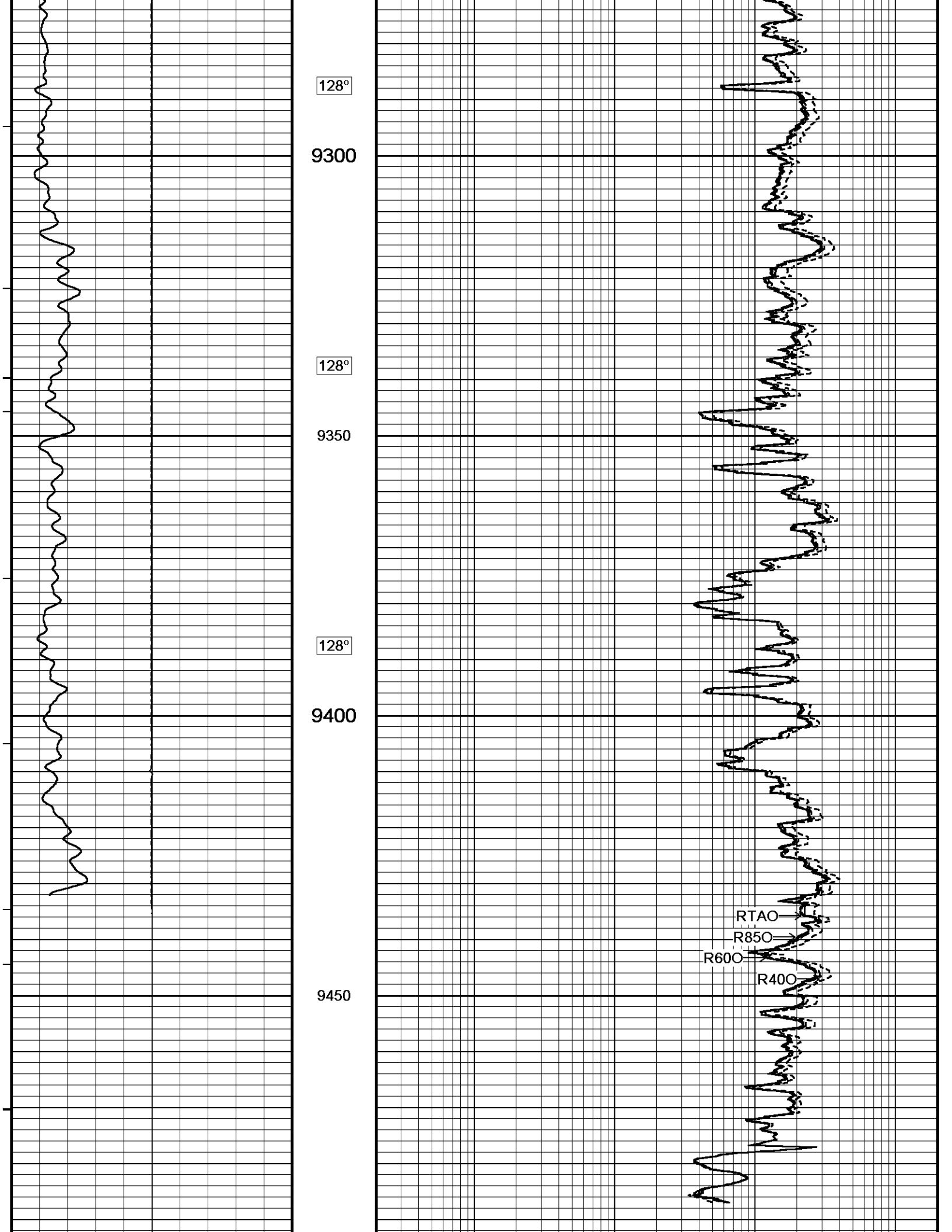
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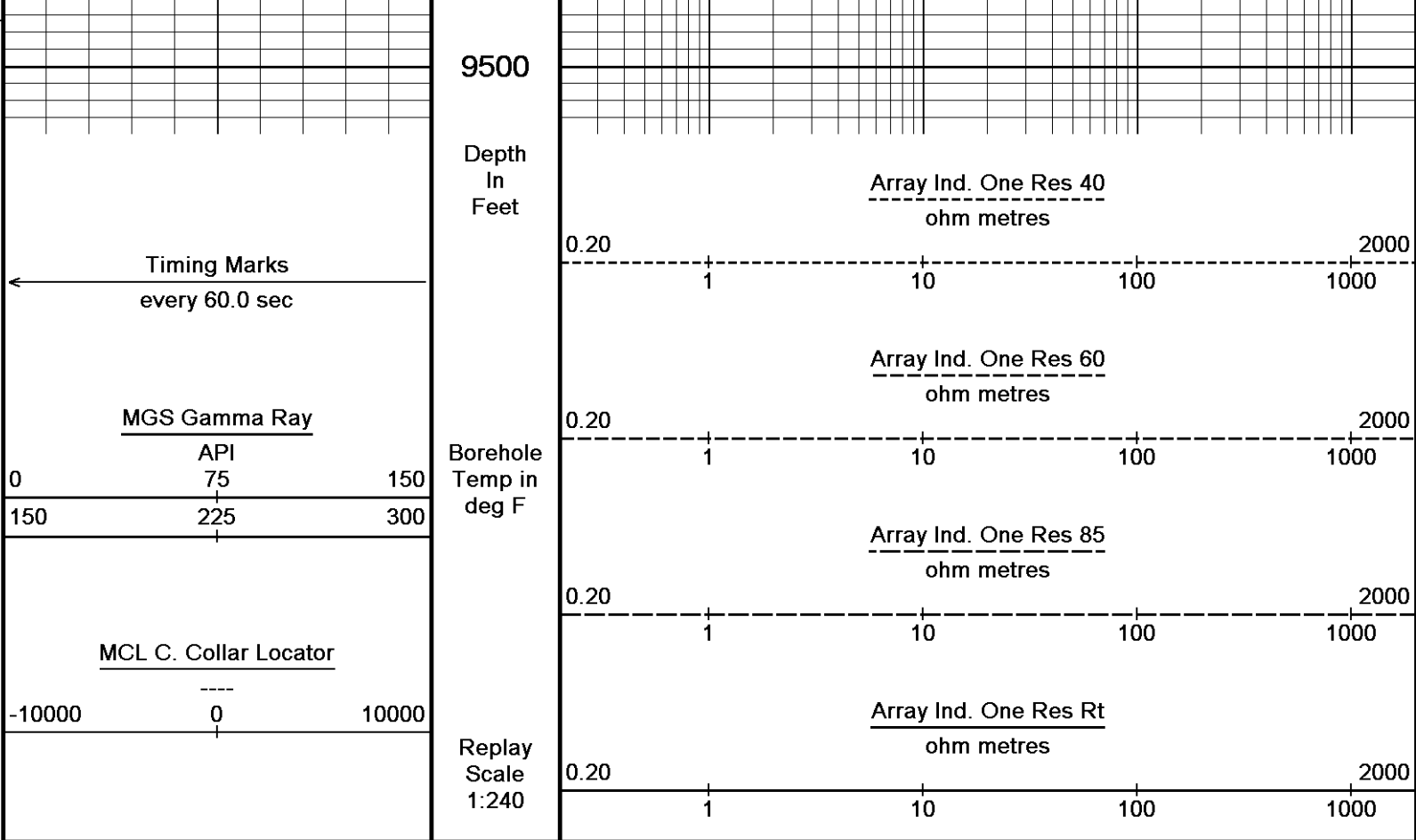
9200

128°

9250







Depth Based Data - Maximum Sampling Increment 10.0cm
Filename: C:\DATA_13_04_8492\SANDRIDGE LEROY 319 1-5H\LEROY RTAP DEPTH.dta
System Versions: Processed with 13.04.8492 Plotted with 13.04.8492

Plotted on 10-JAN-2013 12:00
Recorded on 10-JAN-2013 11:20

5 INCH MAIN LOG

BEFORE SURVEY CALIBRATION

C:\DATA_13_04_8492\SANDRIDGE LEROY 319 1-5H\LEROY RTAP DEPTH.dta

General Constants All 000			Last Edited on 10-JAN-2013,11:26		
General Parameters					
Mud Resistivity	0.890	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	Density Caliper				
HVOL Caliper 2	N/A				
Annular Volume Diameter	4.500	inches			
Caliper for Differential Caliper	None				
Rwa Parameters					
Porosity used	Base Density Porosity				
Resistivity used	Deep Induction				
RWA Constant A	0.610				
RWA Constant M	2.150				

Strain Gauge Constants MMS-E.B 133		Last Edited on 07-DEC-2012,11:16	
Atmospheric Pressure	14.70	psi	
Serial Number	241946		
Calibration Date	09-JUL-08		
Base Check Date			
Dead Weight Serial Number	0		
Dead Weight Gravitational Correction	1.0		

Temperature	75.0		150.0		250.0		350.0		degrees F
Pressure psia	Inc.	Dec.	Inc.	Dec.	Inc.	Dec.	Inc.	Dec.	
0.0	0.069	0.073	0.062	0.063	0.042	0.042	0.021	0.021	
3000.0	5.240	5.253	5.235	5.245	5.219	5.228	5.199	5.209	
6000.0	10.422	10.442	10.421	10.439	10.408	10.425	10.388	10.406	
9000.0	15.616	15.637	15.619	15.638	15.609	15.627	15.593	15.610	
12000.0	20.827	20.839	20.834	20.843	20.828	20.838	20.815	20.823	
15000.0	26.051		26.060		26.056		26.046		

SP Calibration MGS-C.J 142					Field Calibration on 06-JAN-2013,22:08				
		Measured		Calibrated (mV)					
Reference 1		100.0		100.0					
Reference 2		-100.0		-100.0					

High Resolution Temperature Calibration MGS-C.J 142					Field Calibration on 06-JAN-2013,22:03				
		Measured		Calibrated(Deg F)					
Lower		0.00		0.00					
Upper		0.00		0.00					

High Resolution Temperature Constants MGS-C.J 142					Last Edited on 06-JAN-2013,22:08				
Pre-filter Length				11					

Gamma Calibration MGS-C.J 142					Field Calibration on 09-JAN-2013,14:02				
		Measured		Calibrated (API)					
Background		62		56					
Calibrator (Gross)		1059		953					
Calibrator (Net)		997		897					

Gamma Constants MGS-C.J 142					Last Edited on 09-JAN-2013,14:02				
Gamma Calibrator Number			036						
Mud Density			1.01	gm/cc					
Caliper Source for Processing		Density Caliper							
Tool Position		Eccentred							
Concentration of KCl			0.00	kppm					

Neutron Calibration MDN-B.J 391					Base Calibration on 02-JAN-2013 14:51 Field Check on 09-JAN-2013,14:02				
Base Calibration									
		Measured		Calibrated (cps)					
	Near	Far		Near	Far				
	3090	94		3714	110				
Ratio		32.975			33.764				
Field Calibrator at Base									
				Calibrated (cps)					
				2305	2968				
Ratio					0.777				
Field Check									
				Calibrated (cps)					
				2172	3286				
Ratio					0.661				

Neutron Constants MDN-B.J 391					Last Edited on 09-JAN-2013,14:02				
Neutron Source Id			N1055						
Neutron Jig Number			N639						
Epithermal Neutron			No						
Caliper Source for Processing		Density Caliper							
Stand-off			0.00	inches					
Mud Density			1.01	gm/cc					
Limestone Sigma			7.10	cu					
Sandstone Sigma			4.26	cu					
Dolomite Sigma			4.70	cu					
Formation Pressure Source		Constant Value							
Formation Pressure			1.80	kpsi					
Temperature Source		MGS External Temperature							
Temperature			N/A	degrees F					
Mud Salinity			4.40	kppm					
Salinity Correction			Not Applied						

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 134		Base Calibration on 06-JAN-2013,21:47 Field Check on 09-JAN-2013 13:59		
Base Calibration				
	Measured	Calibrated (ohm-m)		
Reference 1	0.0	0.0		
Reference 2	972.5	126.8		
Base Check		279.1		
Field Check		276.5		
FE Constants MFE-A.A 134		Last Edited on 09-JAN-2013,13:58		
Running Mode No Sleeve				
MFE K Factor	0.1268			
Caliper Source for FE correction	Density Caliper			
Caliper Value for FE correction	N/A	inches		
Rm Source for FE correction	Temperature Corr			
Temp. for Rm Corr.	MGS External Temperature			
Stand-off	0.5	inches		
High Resolution Temperature Calibration MAI-A.A 170		Field Calibration on 06-JAN-2013,21:47		
	Measured	Calibrated(Deg F)		
Lower	0.00	10.00		
Upper	100.00	100.00		
High Resolution Temperature Constants MAI-A.A 170		Last Edited on 06-JAN-2013,21:47		
Pre-filter Length	11			
Induction Calibration MAI-A.A 170		Base Calibration on 02-FEB-2012 17:42 Field Check on 09-JAN-2013 14:01		
Base Calibration				
Test Loop Calibration		Measured	Calibrated (mmho/m)	
Channel	Low	High	Low	High
1	17.7	487.1	9.3	966.2
2	6.2	384.7	7.6	821.4
3	3.7	266.1	5.2	566.0
4	2.2	136.5	2.6	279.2
Array Temperature		72.1	Deg F	
Channel	Base Check (mmho/m)		Field Check (mmho/m)	
	Low	High	Low	High
1			10.1	3752.8
2			29.3	3530.1
3			27.1	2998.2
4			18.3	2043.4
Deep			15.3	1906.3
Medium			40.8	3982.5
Shallow			45.5	5291.5
Array Temperature			46.0	Deg F
Induction Constants MAI-A.A 170		Last Edited on 10-JAN-2013,11:26		
Induction Model		RtAP-WBM		
Caliper for Borehole Corr.	Density Caliper			
Hole Size for Borehole Correction	N/A	inches		
Tool Centred	No			
Stand-off Type	Fins			
Stand-off	0.50	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	Temperature Corr			
Temp. for Rm Corr.	MGS External Temperature			
Squasher Start	0.0060	mhos/metre		

Squasher Offset		N/A	mmhos/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		
Caliper Calibration MPD-B 166			Base Calibration on 02-JAN-2013 13:59 Field Calibration on 04-JAN-2013 12:08
Base Calibration			
Reading No	Measured	Calibrator Size (in)	
1	13888	4.02	
2	22271	6.00	
3	30944	8.03	
4	38940	10.02	
5	48352	12.01	
6	N/A	N/A	
Field Calibration			
	Measured Caliper (in)	Actual Caliper (in)	
	5.79	5.96	
Photo Density Calibration MPD-B 166			Base Calibration on 02-JAN-2013 13:48 Field Check on 09-JAN-2013 13:58
Density Calibration			
Base Calibration		Measured	Calibrated (sdu)
	Near	Far	Near Far
Reference 1	49795	21888	59869 31110
Reference 2	20626	2381	24557 2522
Field Check at Base			
	1172.4	1342.2	
Field Check			
	1176.3	1345.5	
PE Calibration			
Base Calibration		Measured	Calibrated
	WS	WH	Ratio
Background	212	1049	
Reference 1	20253	49611	0.413 0.369
Reference 2	5714	20492	0.283 0.271
Field Check at Base			
	211.9	1049.4	
Field Check			
	215.1	1055.9	
Density Constants MPD-B 166			Last Edited on 05-JAN-2013,01:11
Density Source Id		236	

Nylon Calibrator Number	633	
Aluminium Calibrator Number	633	
Density Shoe Profile	4 inch	
Caliper Source for Processing	Density Caliper	
PE Correction to Density	Not Applied	
Mud Density	1.01	gm/cc
Mud Density Z/A Multiplier	1.11	
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	
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	

DOWNHOLE EQUIPMENT

C:\DATA_13_04_8492\SANDRIDGE LEROY 319 1-5H\LEROY RTAP DEPTH.dta

Shuttle Running Tool 3.5")

SRT-A.A 69 LG: 6.62 ft WT: 37.5 lb OD: 2.52 in

MBS-G.A 200v Compact Battery Sub

MBS-G.A 114 LG: 10.22 ft WT: 66.1 lb OD: 2.24 in

Compact Memory Sub E.B

MMS-E.B 133 LG: 5.20 ft WT: 37.5 lb OD: 2.24 in

Compact Tool Isolator sub.

MTI-B.A 76 LG: 1.54 ft WT: 13.2 lb OD: 2.24 in

Compact Short Gamma

MGS-C.J 142 LG: 3.41 ft WT: 24.3 lb OD: 2.24 in

Compact Collar Locator

MCL-B.J 63 LG: 3.17 ft WT: 26.5 lb OD: 2.24 in

SKJ-E.B Compact Knuckle Joint

SKJ-E.B 479 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

SHA-J.A Compact Swivel Head Adaptor

SHA-J.A 451 LG: 2.30 ft WT: 22.0 lb OD: 2.24 in

MIS-D.B Compact Inline Bowspring sub

MIS-D.B 608 LG: 5.70 ft WT: 33.1 lb OD: 2.24 in

Compact Neutron

MDN-B.J 391 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in

Compact Density/Caliper

MPD-B 166 LG: 9.59 ft WT: 90.4 lb OD: 2.24 in

MIS-D.B Compact Inline Bowspring sub

MIS-D.B 607 LG: 5.70 ft WT: 33.1 lb OD: 2.24 in

SHA-J.A Compact Swivel Head Adaptor

SHA-J.A 438 LG: 2.30 ft WT: 22.0 lb OD: 2.24 in



61.76 ft
59.77 ft

GRGM - MGS Gamma Ray
GSXT - MGS External Temperature

42.89 ft

NPRL - Limestone Neutron Por.

35.65 ft
35.65 ft
35.65 ft
33.72 ft
33.72 ft
33.72 ft
33.65 ft

AVOL - Annular Volume
HVOL - Hole Volume
CLDC - Density Caliper
DPRL - Limestone Density Por.
DEN - Compensated Density
DCOR - Density Correction
PDPE - PE

SKJ-E.B Compact Knuckle Joint
SKJ-E.B 478 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

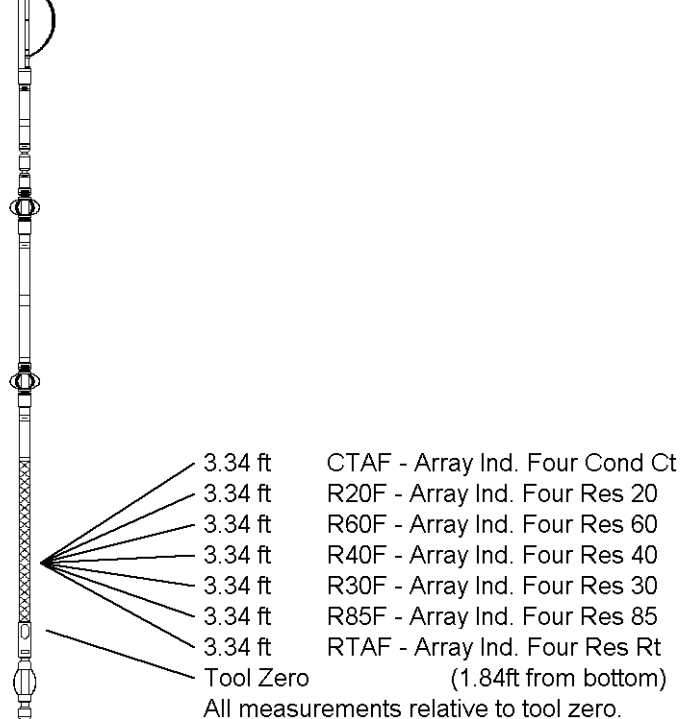
MIS-E.B Compact Inline Standoff sub
MIS-E.B 597 LG: 2.14 ft WT: 15.4 lb OD: 2.24 in

Compact Focussed Electric
MFE-A.A 134 LG: 6.05 ft WT: 48.5 lb OD: 2.24 in

MIS-E.B Compact Inline Standoff sub
MIS-E.B 596 LG: 2.14 ft WT: 15.4 lb OD: 2.24 in

Compact Induction
MAI-A.A 170 LG: 12.52 ft WT: 48.5 lb OD: 2.24 in

Total Length: 87.97 ft Weight: 632.7 lb



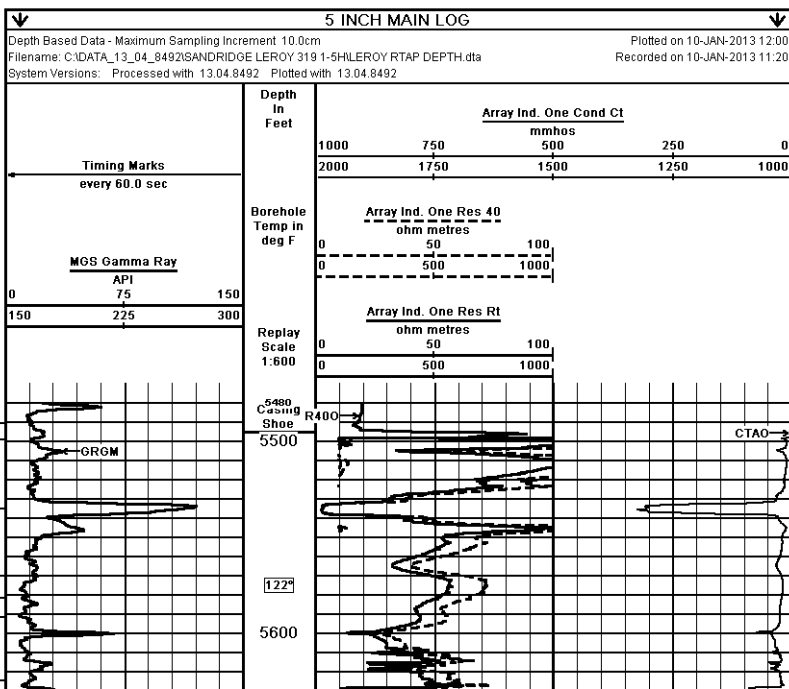
COMPANY SANDRIDGE ENERGY
WELL LEROY 3119 1-5H
FIELD SIX MOONS
PROVINCE/COUNTY COMANCHE
COUNTRY/STATE U.S.A. / KANSAS

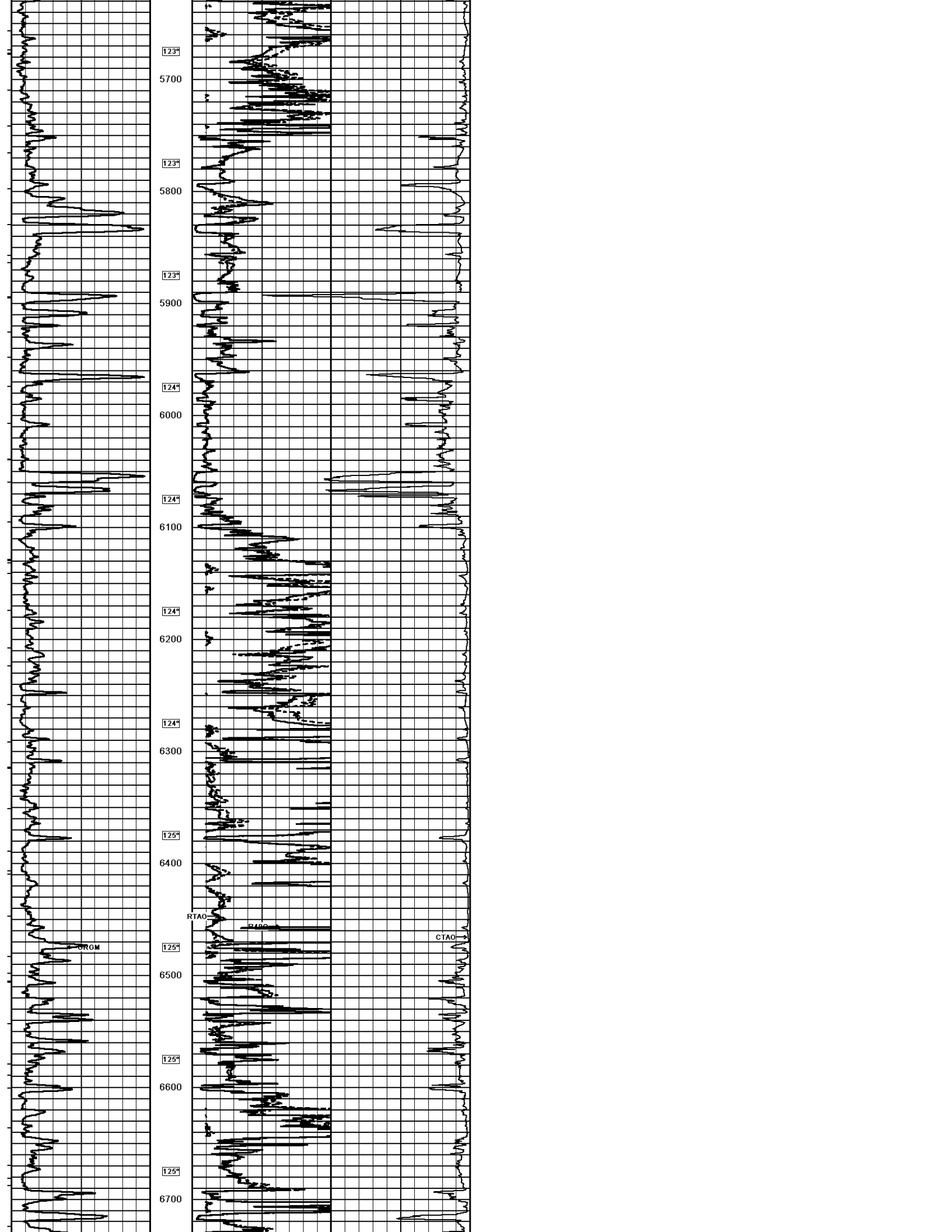
Elevation Kelly Bushing	2132.50	feet	First Reading	9493.00	feet
Elevation Drill Floor	2132.50	feet	Depth Driller	9509.00	feet
Elevation Ground Level	2114.00	feet	Depth Logger	9509.00	feet

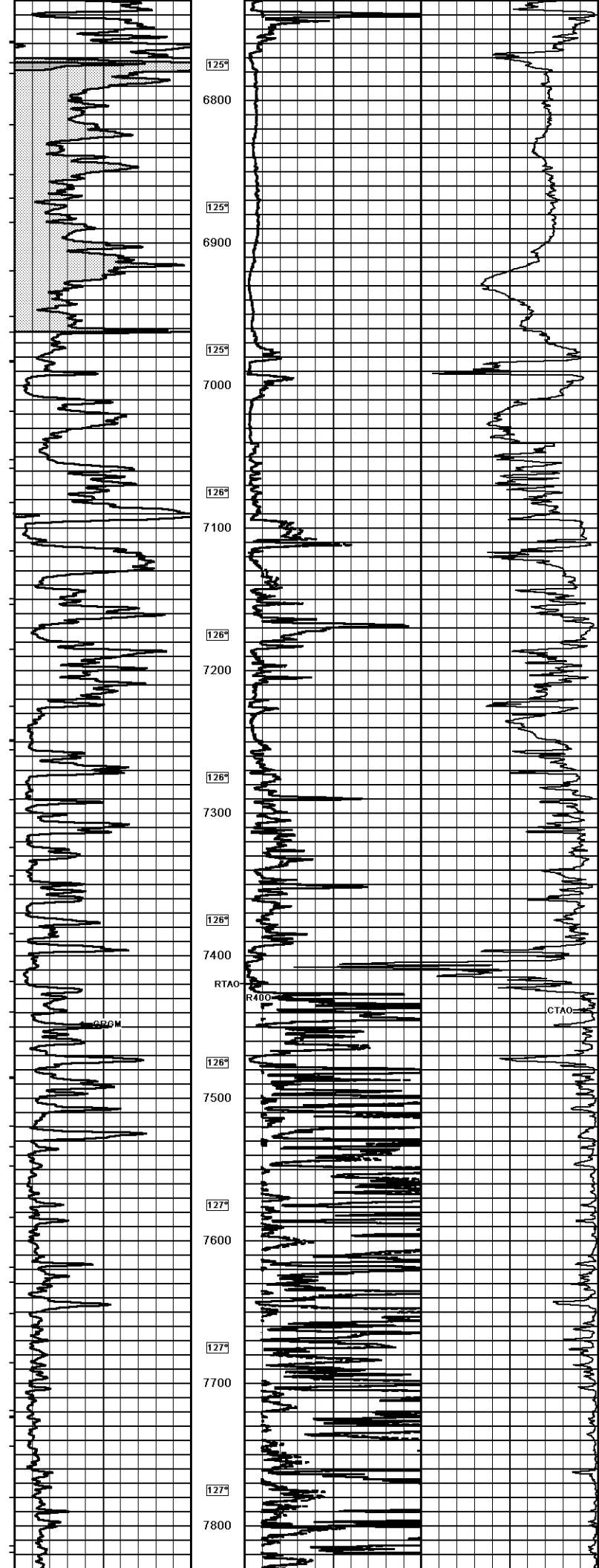


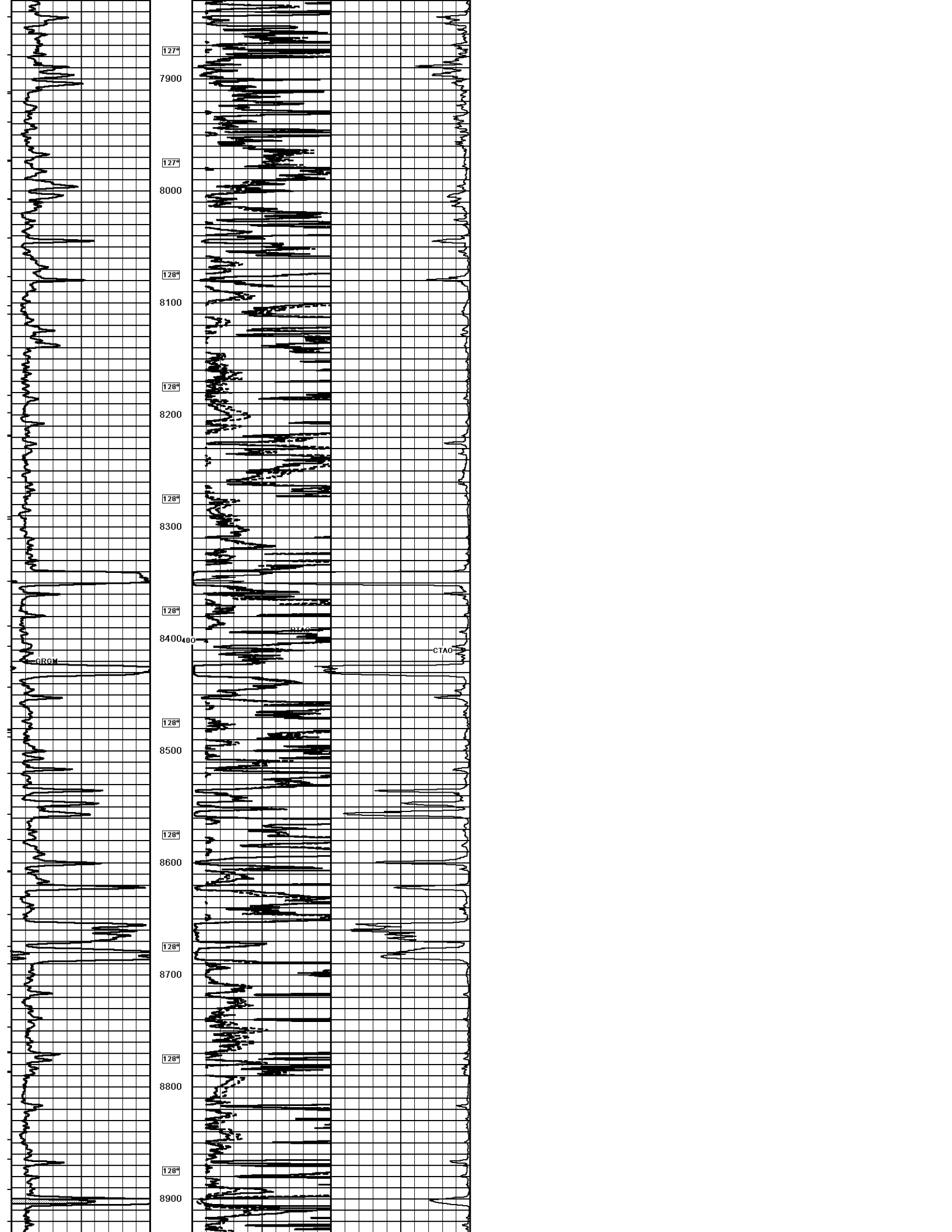
Weatherford®

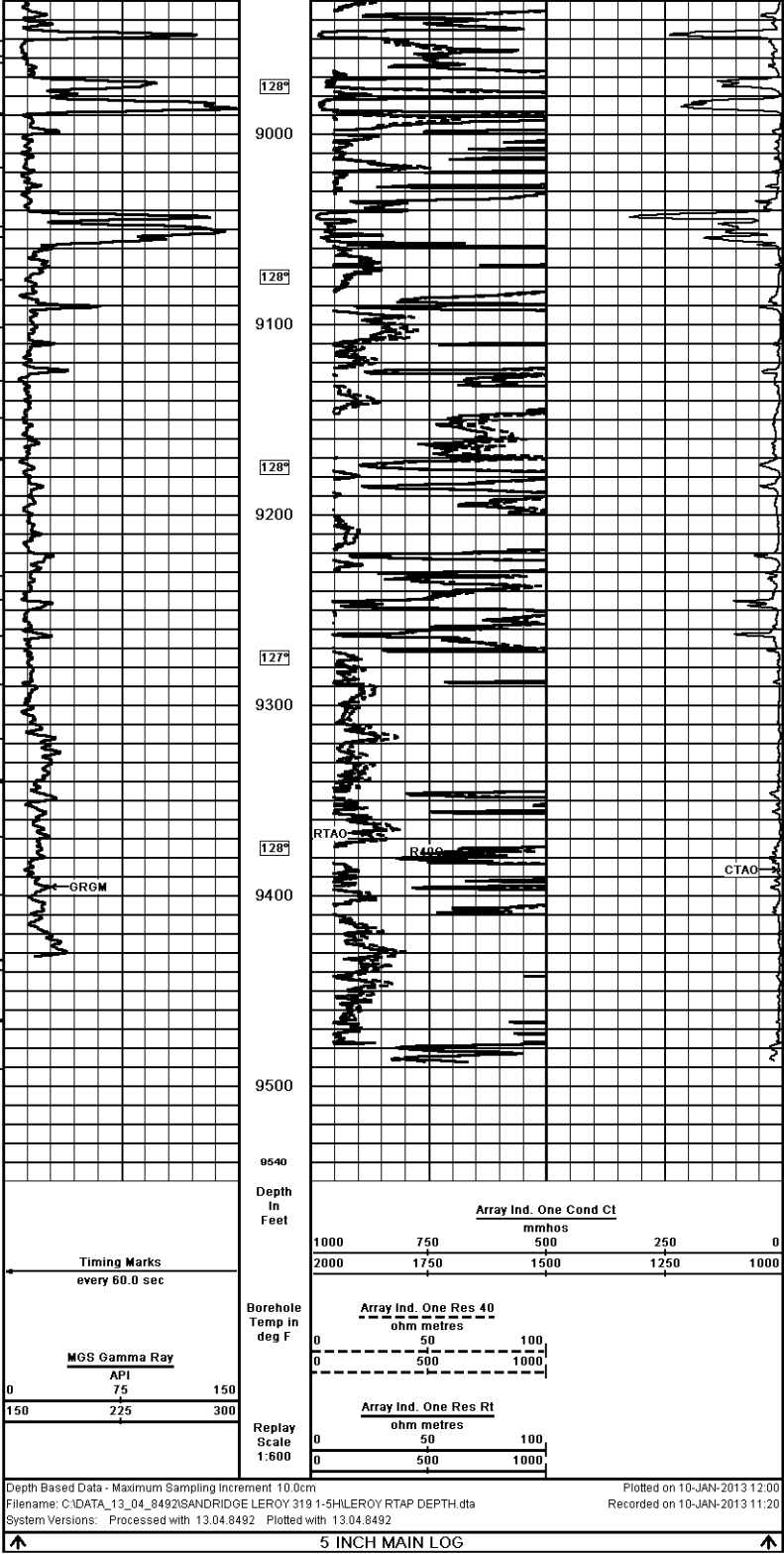
CML MESSENGER SHUTTLE
ARRAY INDUCTION











COMPANY		SANDRIDGE ENERGY			
WELL		LEROY 3119 1-5H			
FIELD		SIX MOONS			
PROVINCE/COUNTY		COMANCHE			
COUNTRY/STATE		U.S.A. / KANSAS			
Elevation Kelly Bushing	2132.50	feet	First Reading	9493.00	feet
Elevation Drill Floor	2132.50	feet	Depth Driller	9509.00	feet
Elevation Ground Level	2114.00	feet	Depth Logger	9509.00	feet



CML MESSENGER SHUTTLE
ARRAY INDUCTION

