



Weatherford

**CML MESSENGER SHUTTLE
ARRAY INDUCTION
ELECTRIC LOG**

COMPANY		SANDRIDGE EXPLORATION AND PRODUCTION LLC			
WELL		JENNY 3404 2-18H			
FIELD		BLUFF			
PROVINCE/COUNTY		SUMNER			
COUNTRY/STATE		USA / KANSAS			
LOCATION		SE SE SW NW 2440' FNL & 1100' FWL			
PERMIT NUMBER		AFE # DC13850			
SEC 18	TWP 34S	RGE 4W	Other Services		
Latitude	37.103828		MPD/MDN		
Longitude	97.797923		CMI		
API Number	15-191-22740-01				
Permanent Datum GL, Elevation 1249 feet					
Log Measured From KB					Elevations: KB 1267.00
Drilling Measured From KB @ 18' AGL					DF 1267.00
					GL 1249.00
Date	16-JUN-2014				
Run Number	ONE				
Service Order	3648-90113851				
Depth Driller	9352.00				feet
Depth Logger	9352.00				feet
First Reading	9321.00				feet
Last Reading	5120.00				feet
Casing Driller	5121.00				feet
Casing Logger	5124.00				feet
Bit Size	6.125				inches
Hole Fluid Type	WATER				
Density / Viscosity	8.60	lb/USg	27.00	CP	
PH / Fluid Loss	10.00		26.00	ml/30Min	
Sample Source	FLOWLINE				
Rm @ Measured Temp	0.06 @ 84.0				ohm-m
Rmf @ Measured Temp	0.048 @ 84.0				ohm-m
Rmc @ Measured Temp	0.072 @ 84.0				ohm-m
Source Rmf / Rmc	CALC		CALC		
Rm @ BHT	0.035 @151.0				ohm-m
Time Since Circulation	16 HOURS				
Max Recorded Temp	151.00				deg F
Equipment / Base	18108				OKC
Recorded By	GUTHMUELLER				
Witnessed By	T BOARDMAN				

BOREHOLE RECORD			Last Edited: 17-JUN-2014 23:10
Bit Size inches	Depth From feet	Depth To feet	
12.250	0.00	567.00	
8.750	567.00	5124.00	
6.125	5124.00	9352.00	

CASING RECORD				
Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURF	9.625	0.00	567.00	36.00
INTER	7.000	0.00	5121.00	26.00

REMARKS
LOGGED WITH WLS_14.01.3220
LOGGED USING MESSENGER METHOD OF DEPLOYMENT AND MEMORY LOGGING SYSTEM
LOGGED WITH ADVANTAGE DEPTH SYSTEM, CORRECTED BACK TO PIPE STRAP, COMPARED TO MWD LOGS
LOGGING STRING: SRT-079,SKJ-169,MBSG-119,MMSF-262, MTI-151,MGS-135,MCL-069, SKJ-476,SHA-594,MISD-816,MDN-480,MPD-512,MISD-817,SHA-438,SKJ-472, MISE-789,MFE-396,MISD-333, MIM-233,MIE-254,MISD-606,SKJ-469,MISE-564,MAI-394
HARDWARE: MAI: MISE 0.5 INCH STANDOFF ABOVE AND 0.5 INCH STANDOFF BELOW MIE:CENTRALIZED ABOVE MIM AND BELOW MIE MISE 0.5 INCH STANDOFF ABOVE THE MFE MPD: 4" PROFILE PLATE, MISD SINGLE BOWSPRING DECENTRALIZER BELOW MDN: MISD DOUBLE BOWSPRING DECENTRALIZER ABOVE

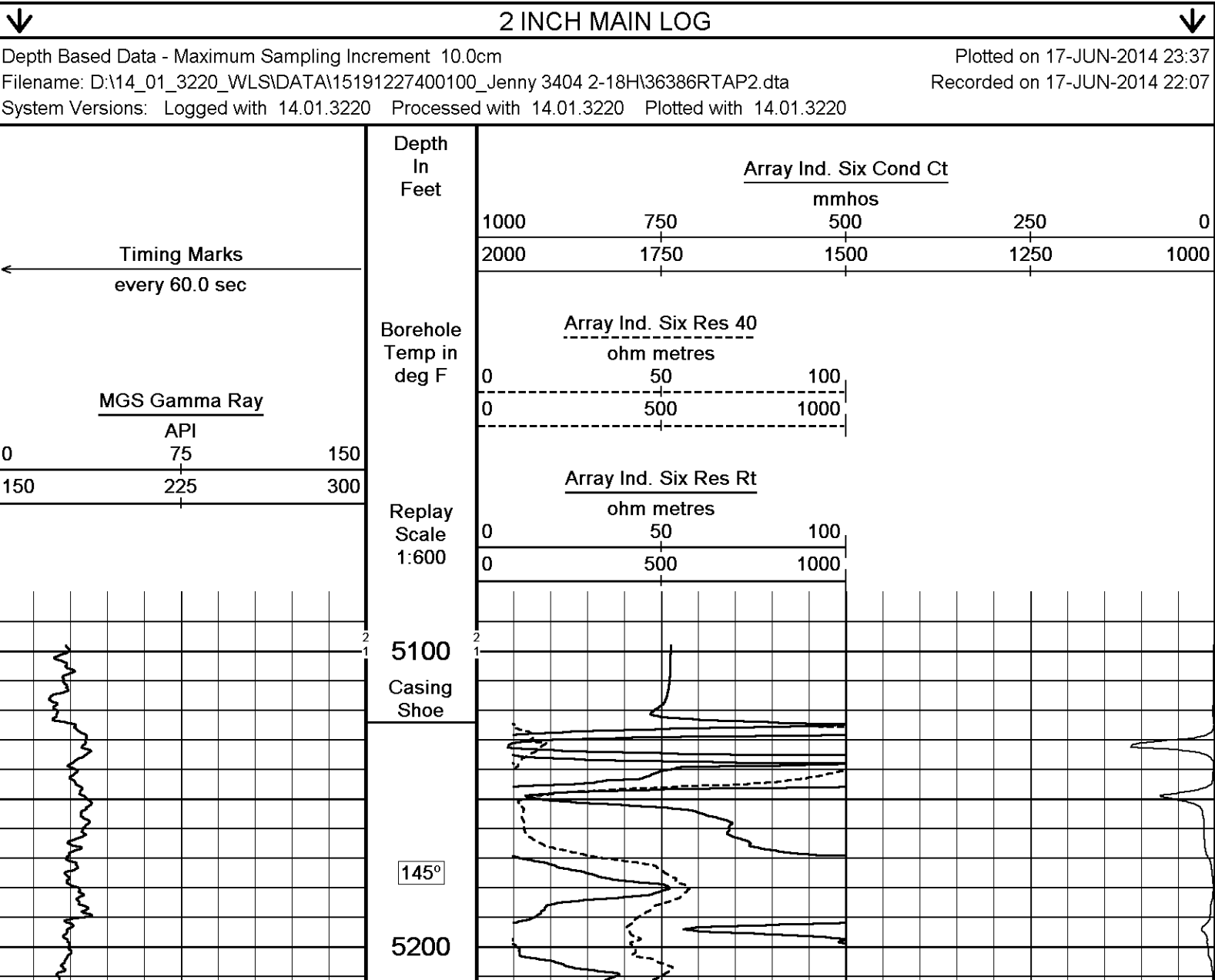
2.71 G/CC DENSITY MATRIX USED TO CALCULATE DENSITY POROSITY
ALL INTERVALS LOGGED AND SCALED PER CUSTOMER REQUEST
CHLORIDES = 27000 PPM

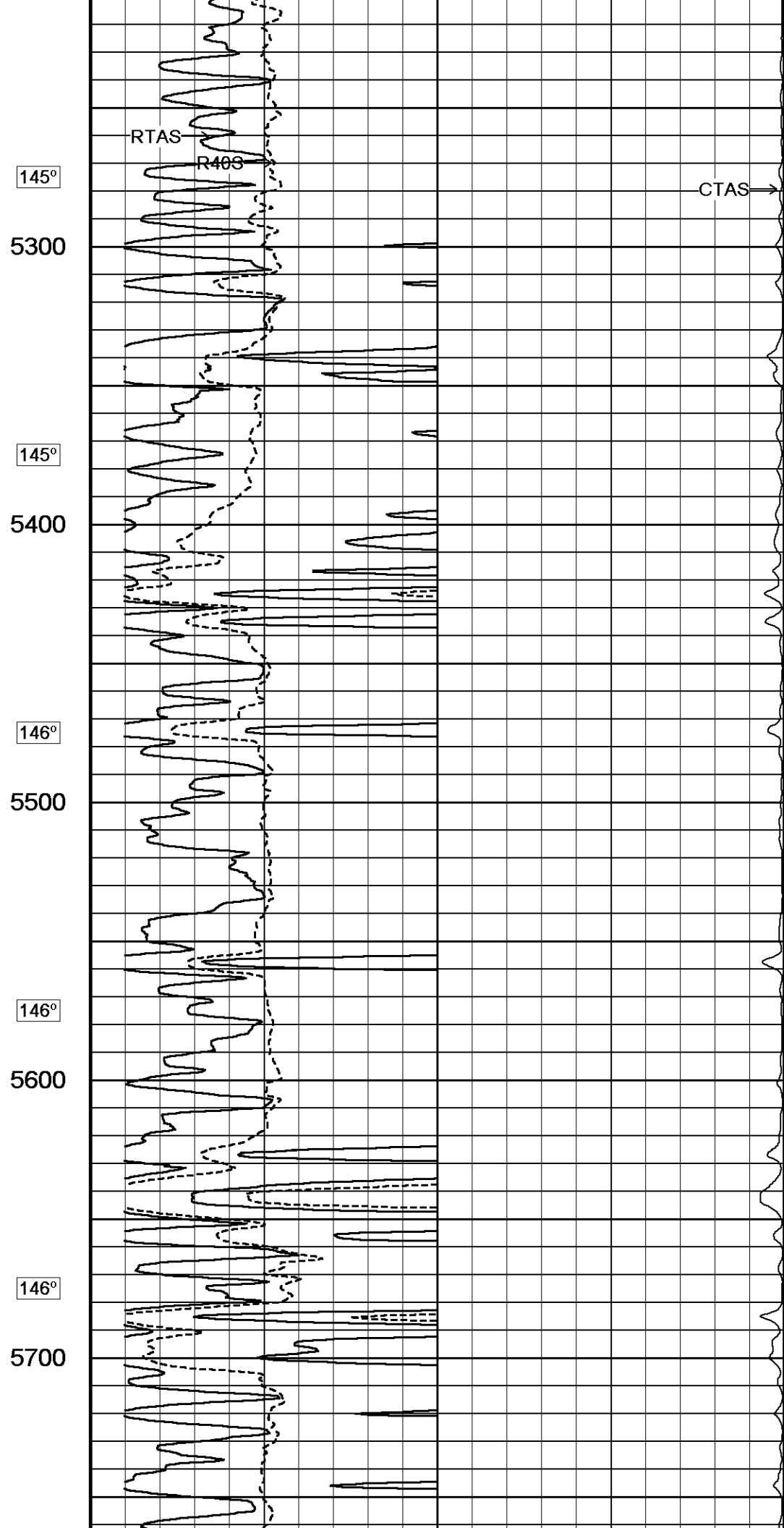
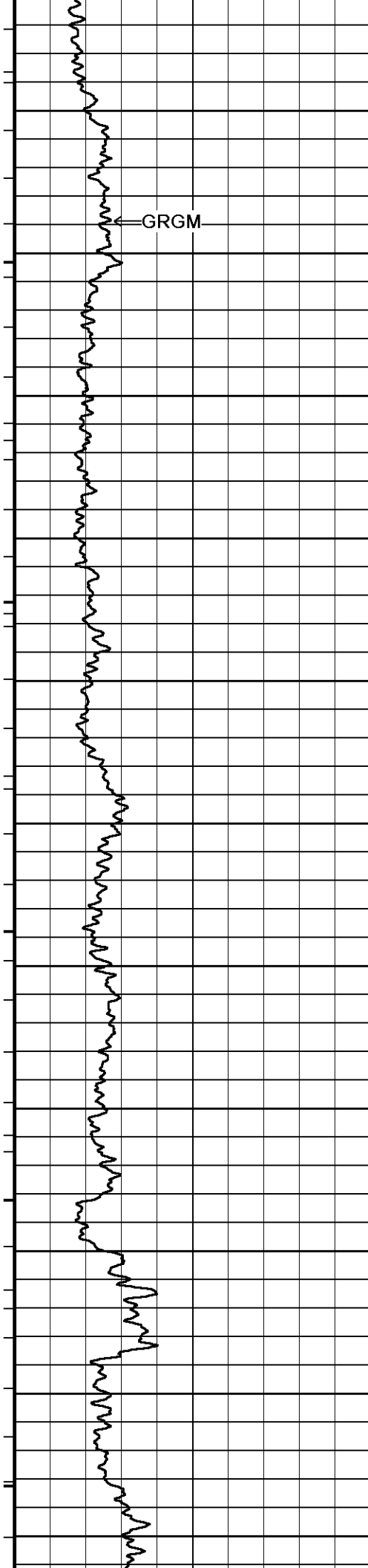
DRILL PIPE DEPTH DURING DEPLOYMENT - 9220
LOGGING TOOL DEPTH AFTER DEPLOYMENT - 9324

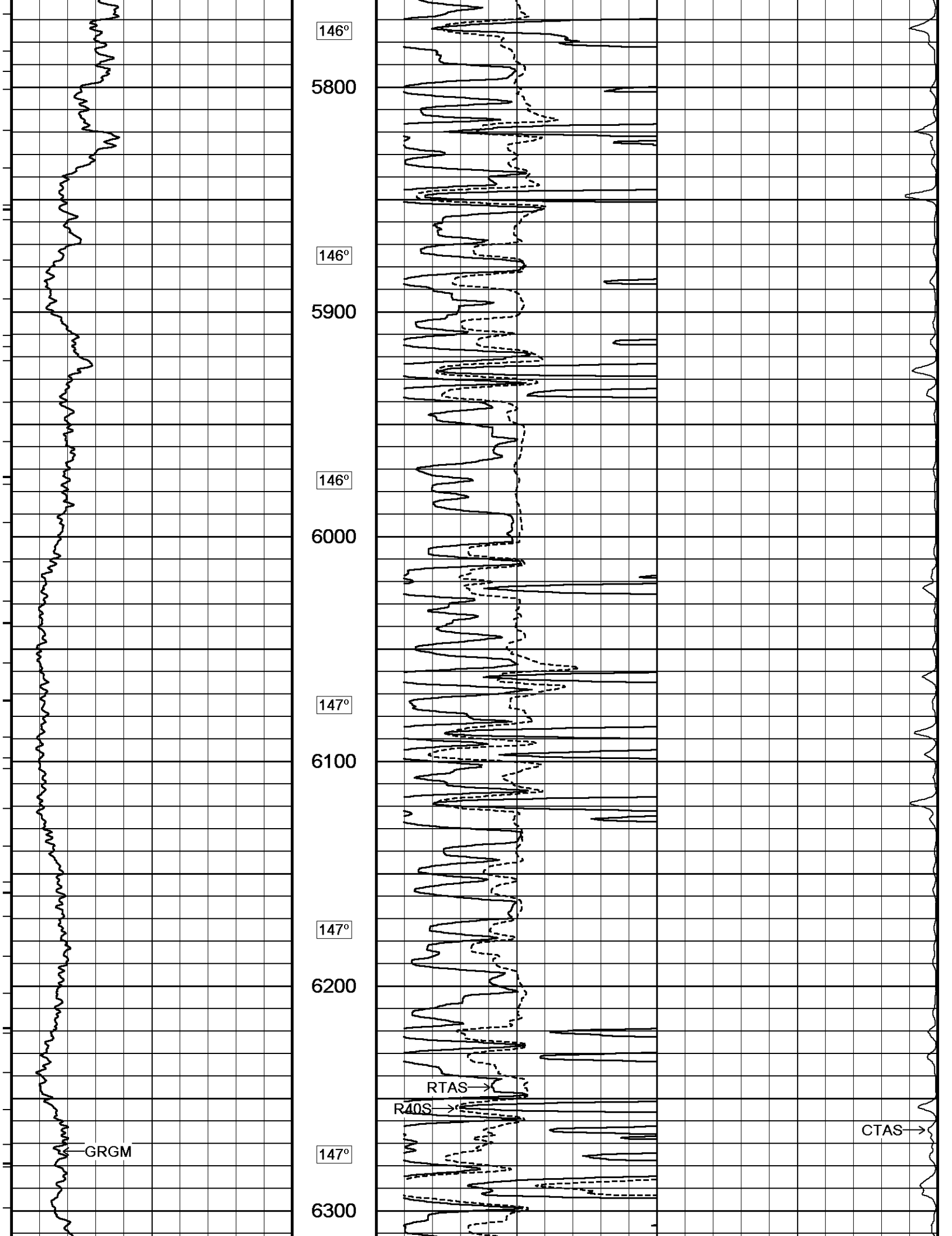
RIG: NOMAC 52

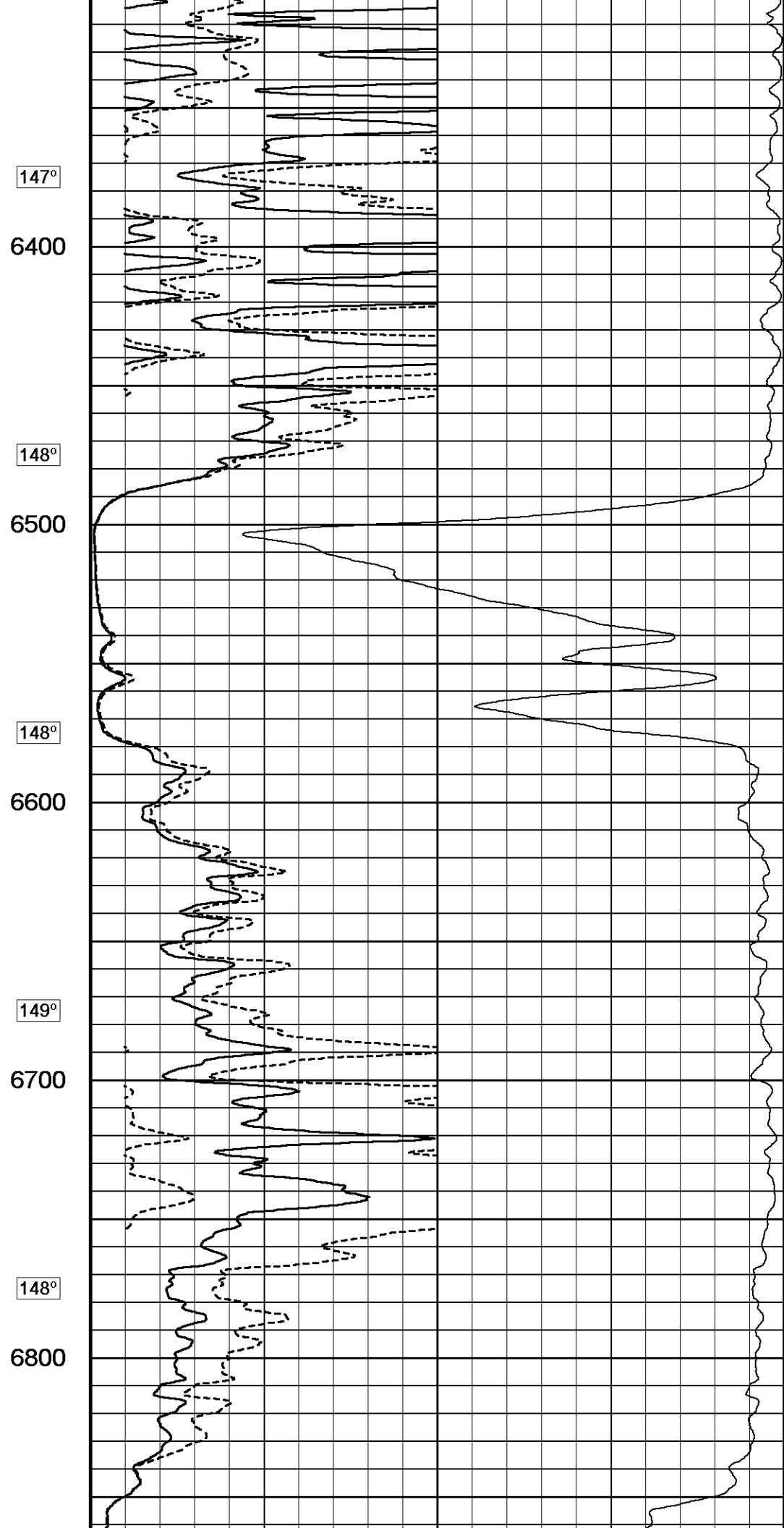
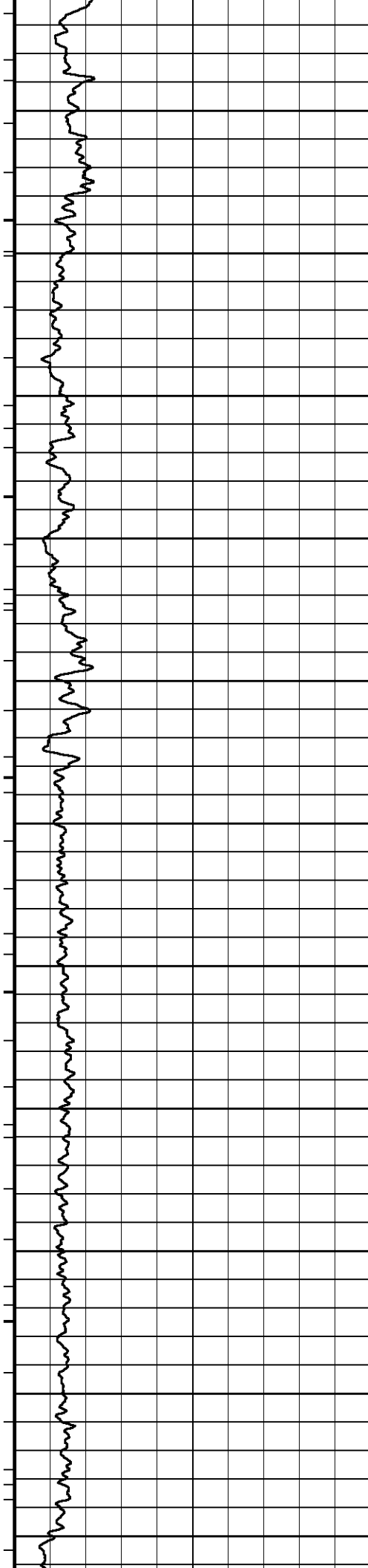
OPERATORS: J TURNER, S WORLEY

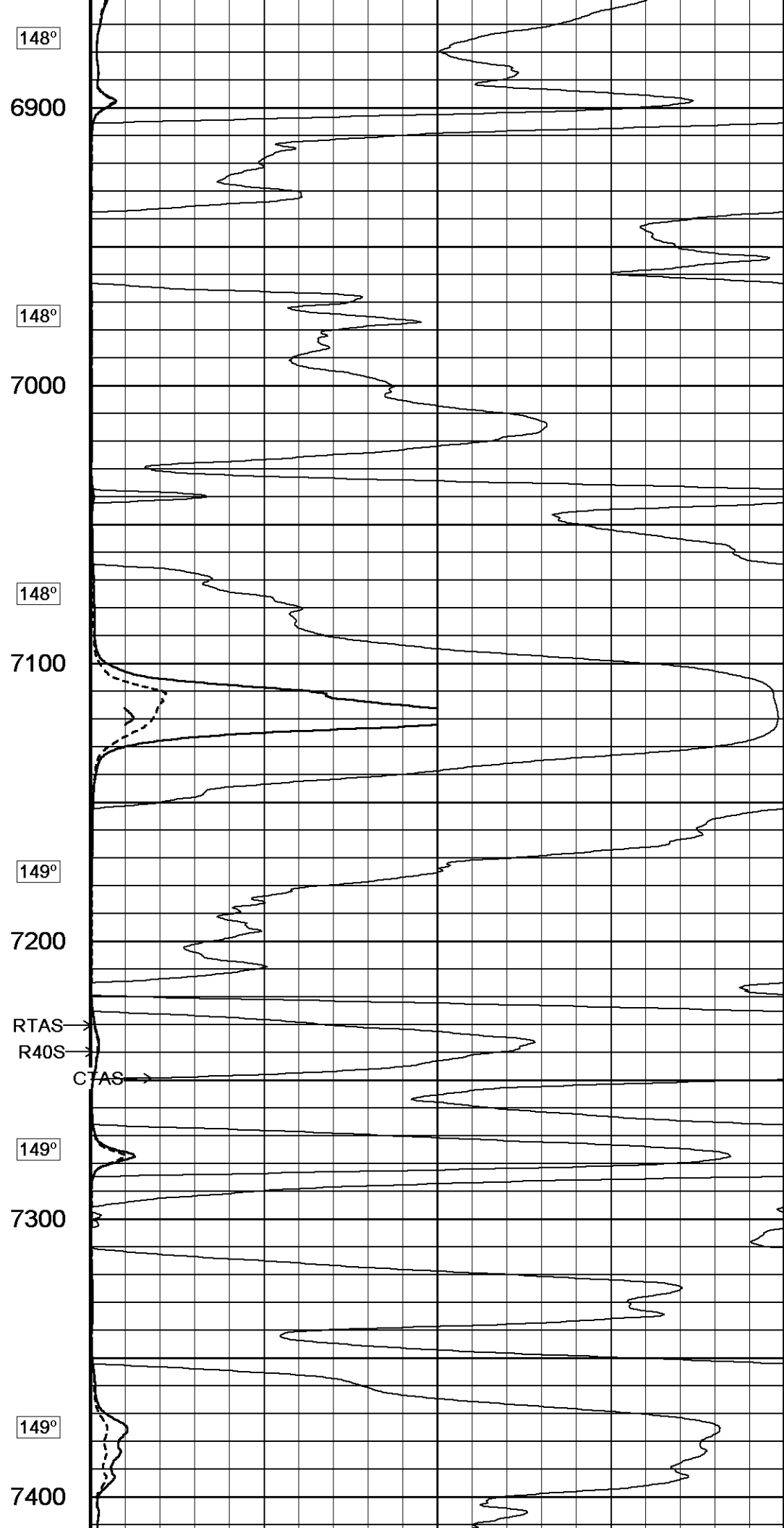
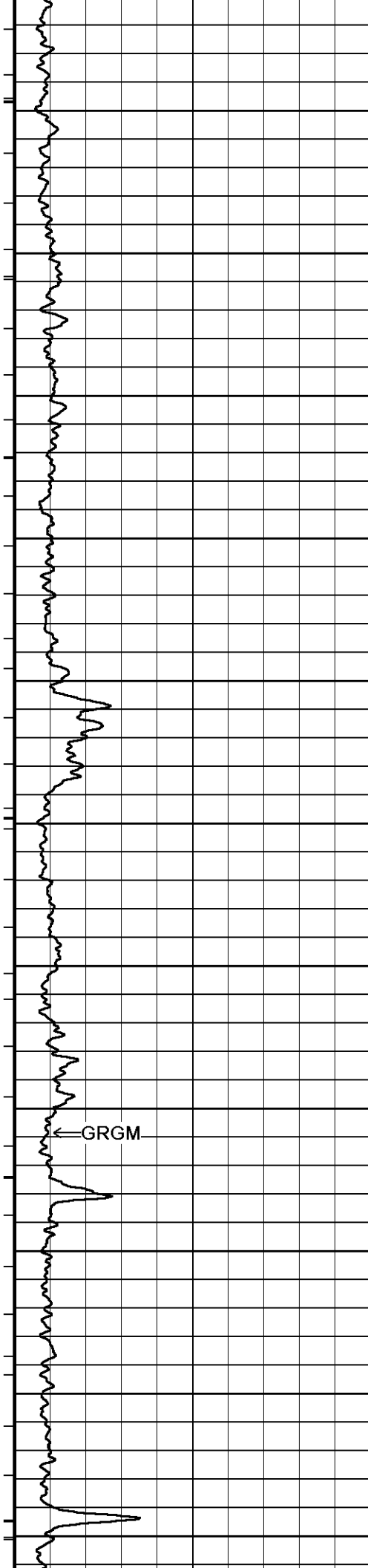
In interpreting, communicating or providing information and/or making recommendations, either written or oral, as to logs or test or other data, type or amount of material, or Work or other service to be furnished, or manner of performance, or in predicting results to be obtained, the Contractor will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

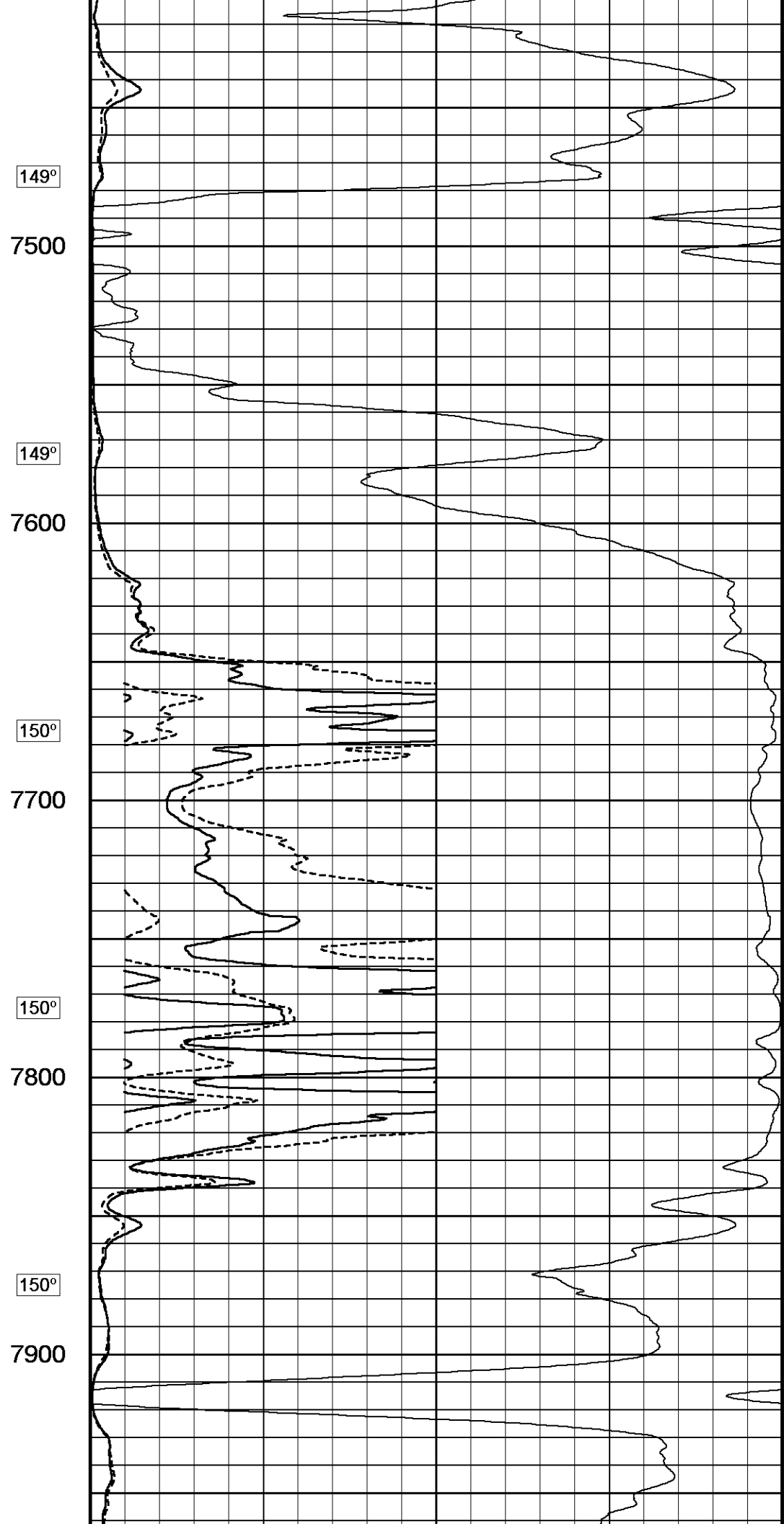
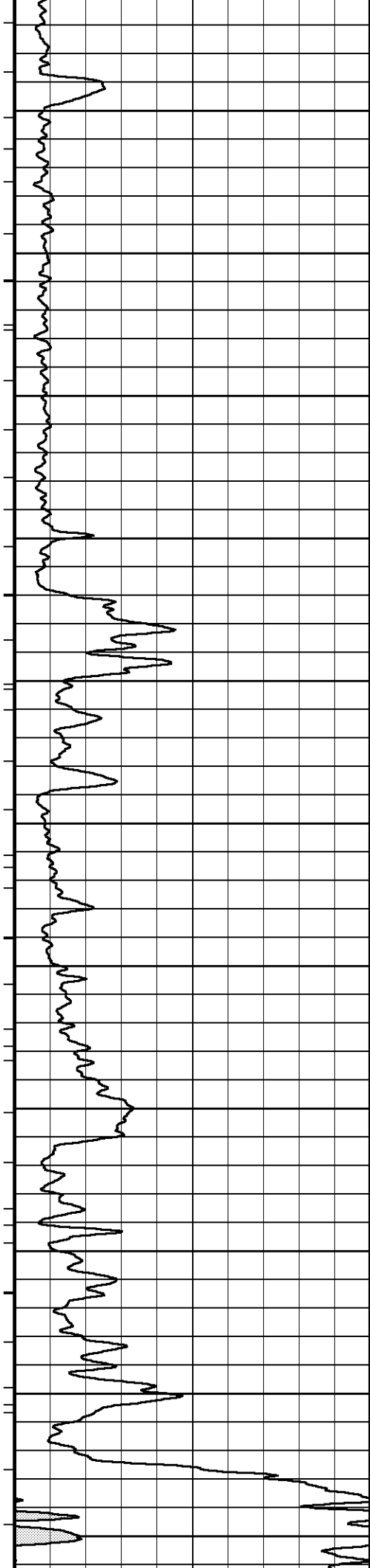


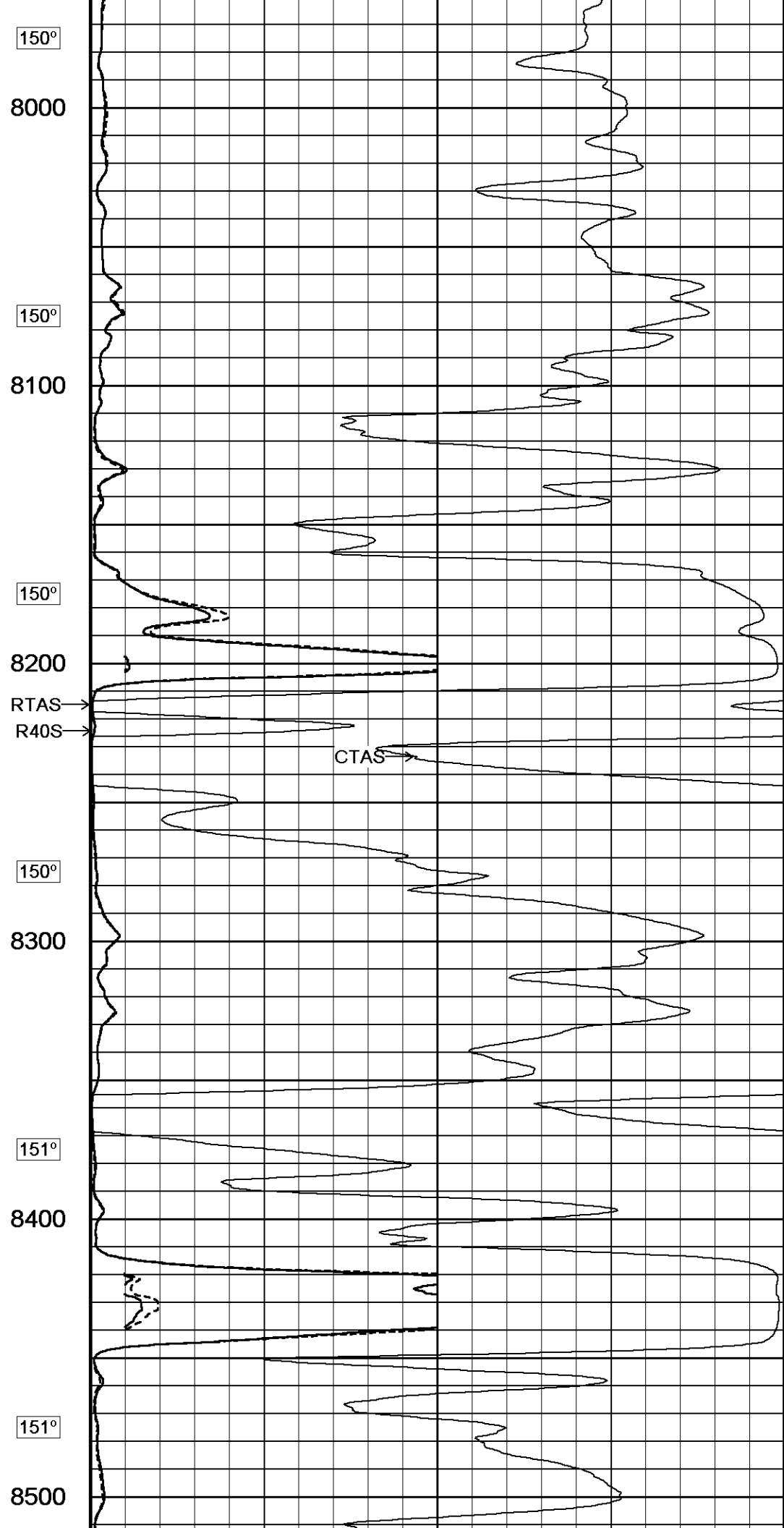
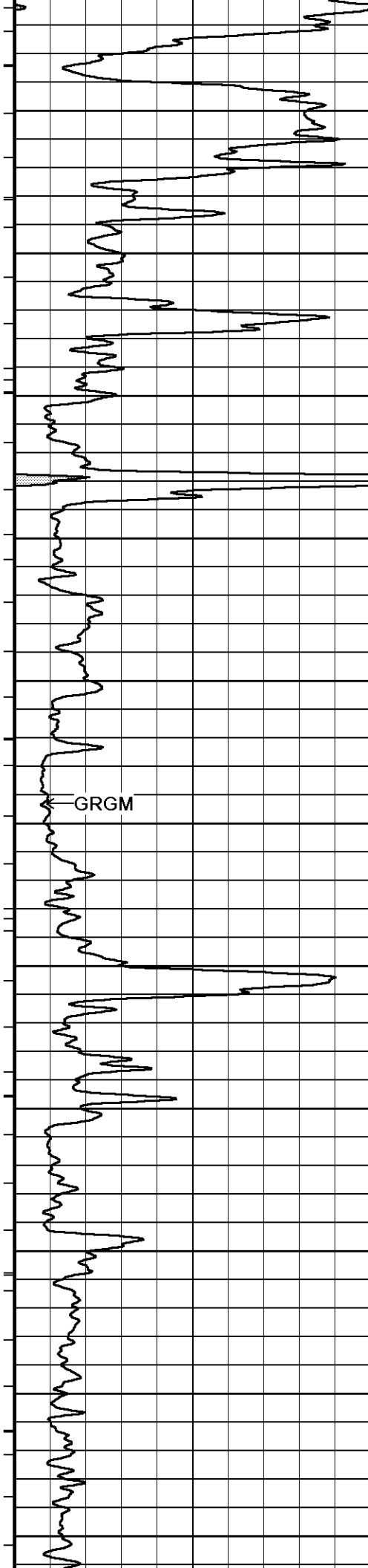


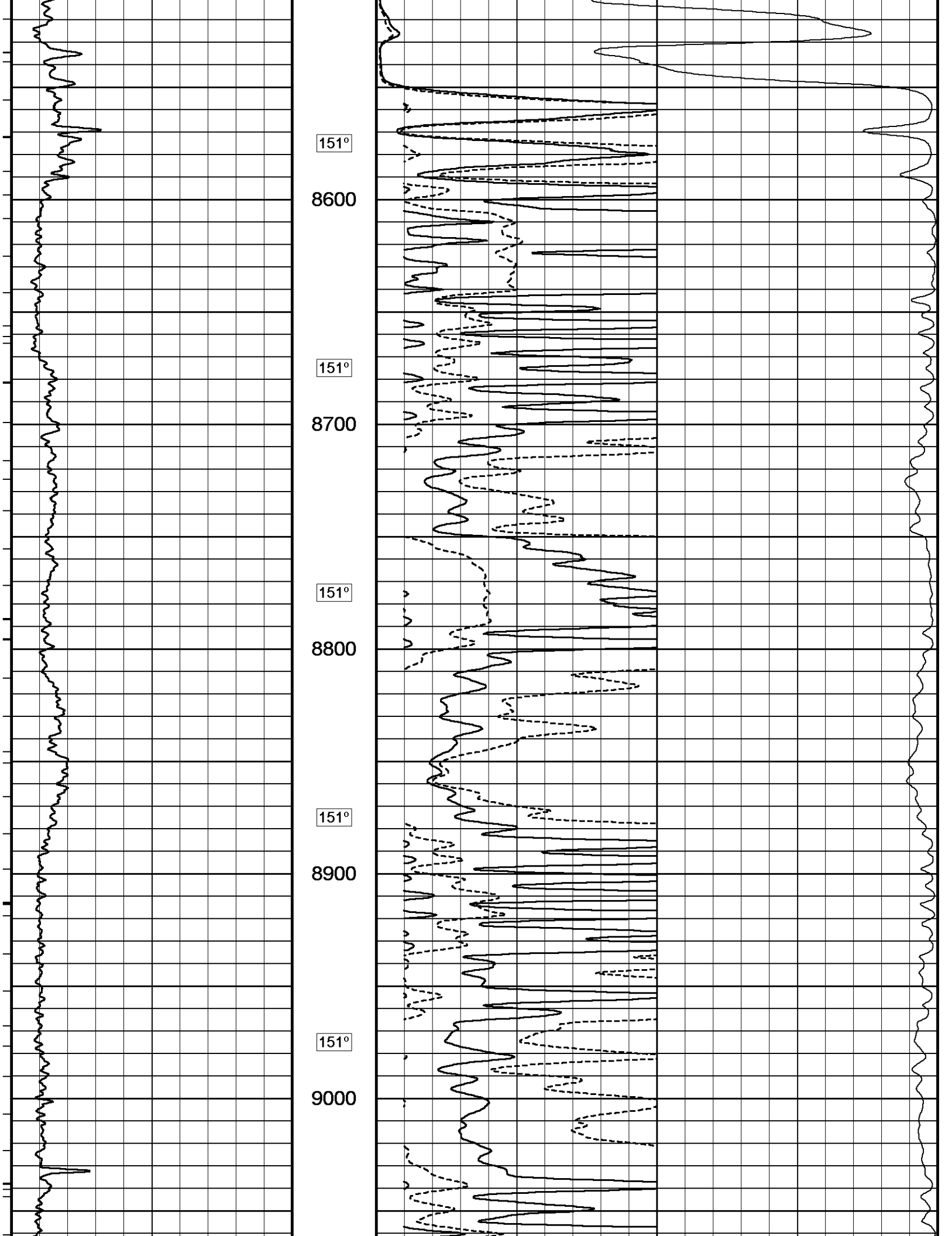


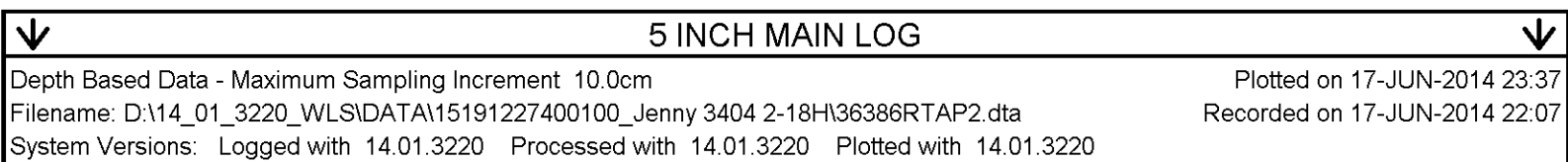
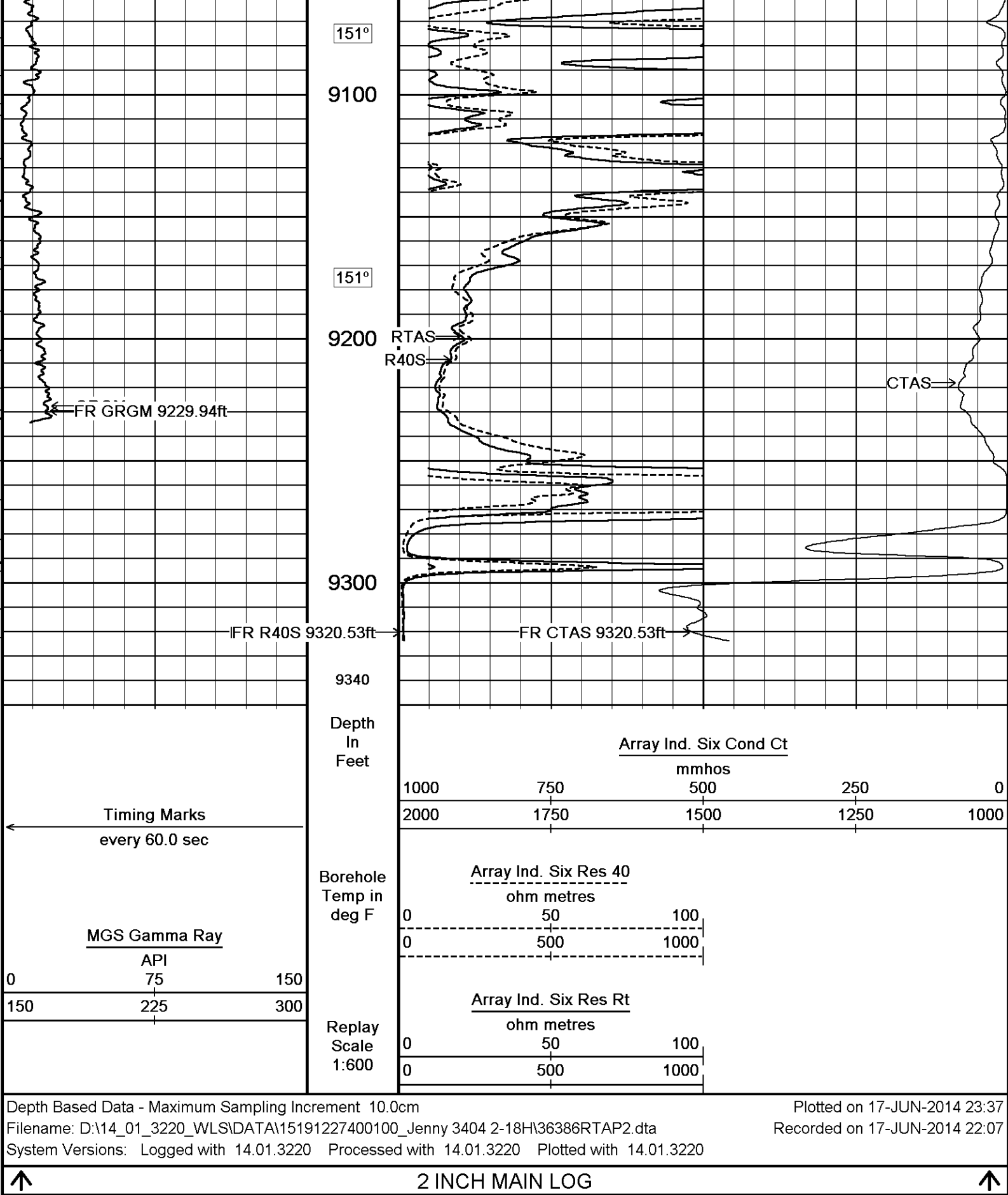


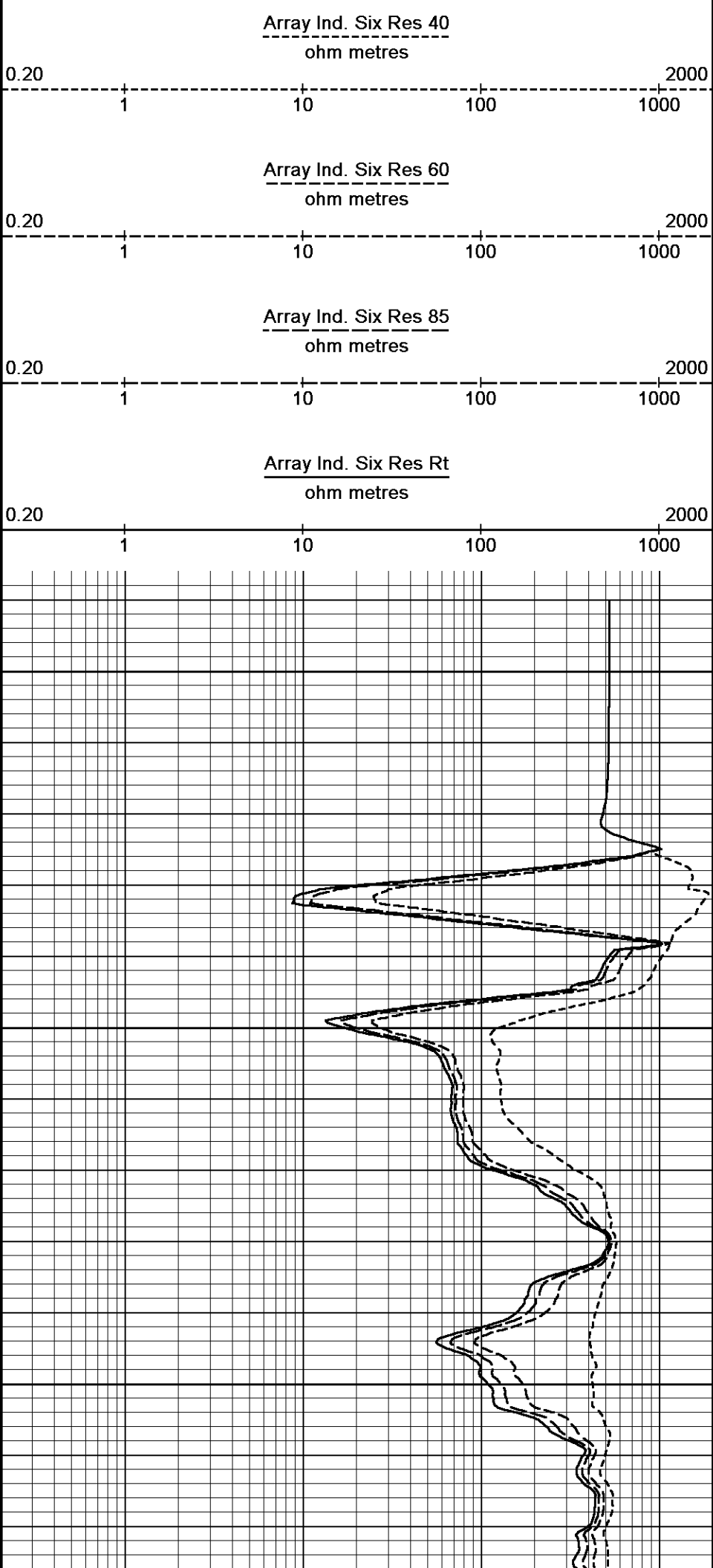
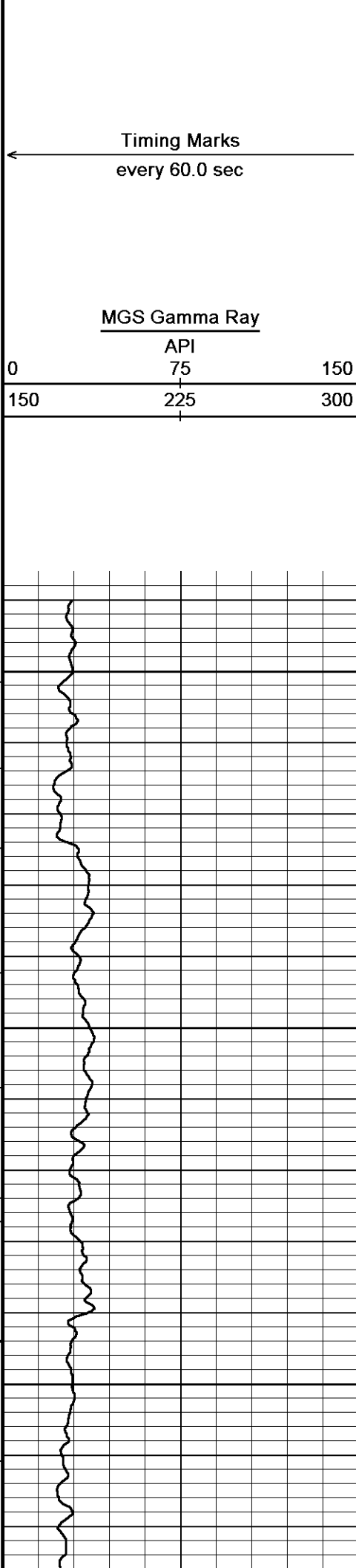


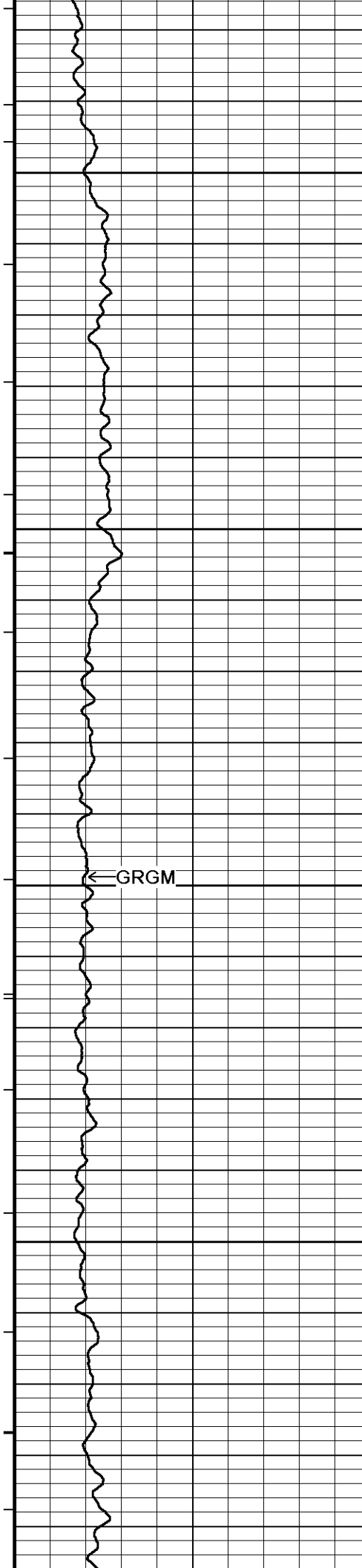












145°

5250

145°

5300

145°

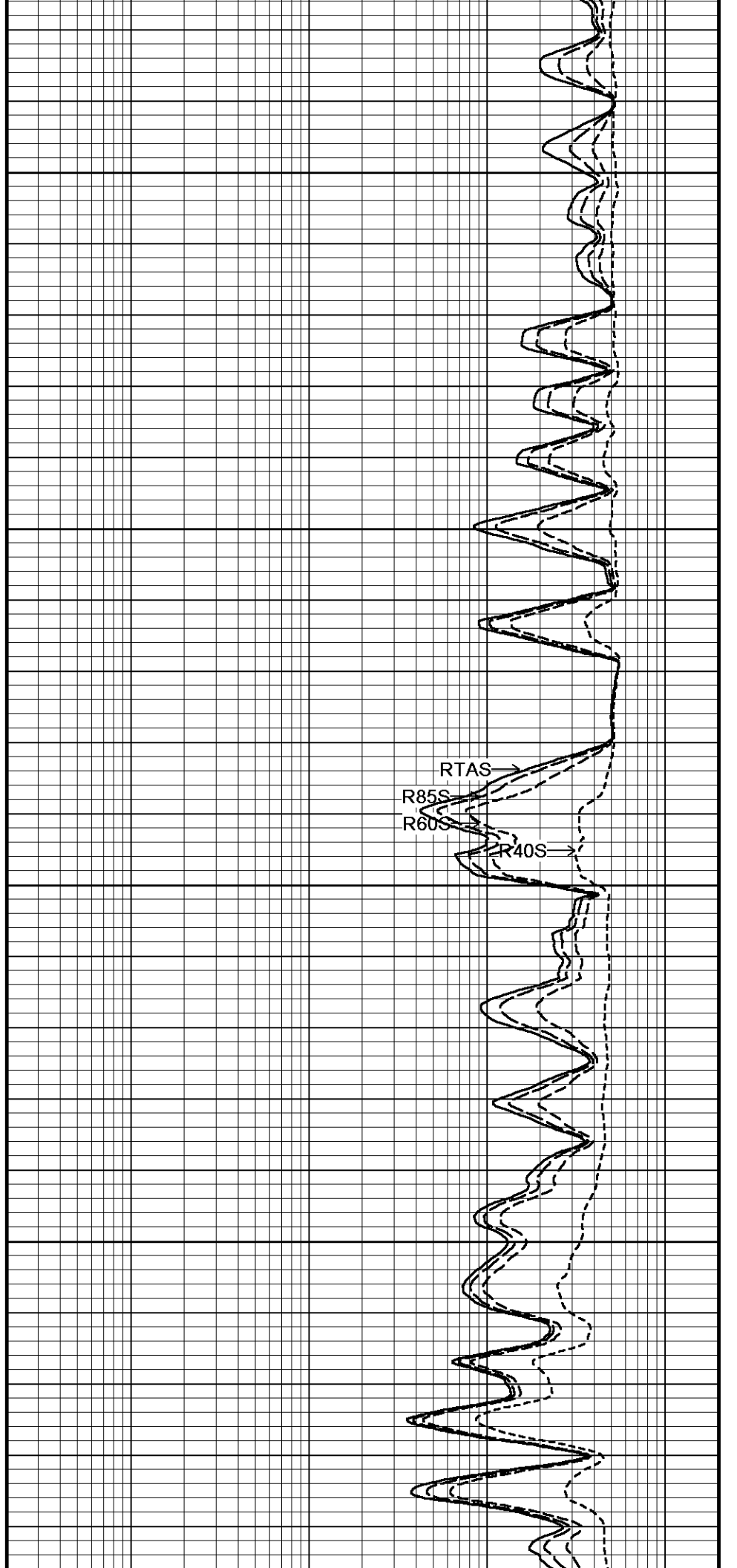
5350

145°

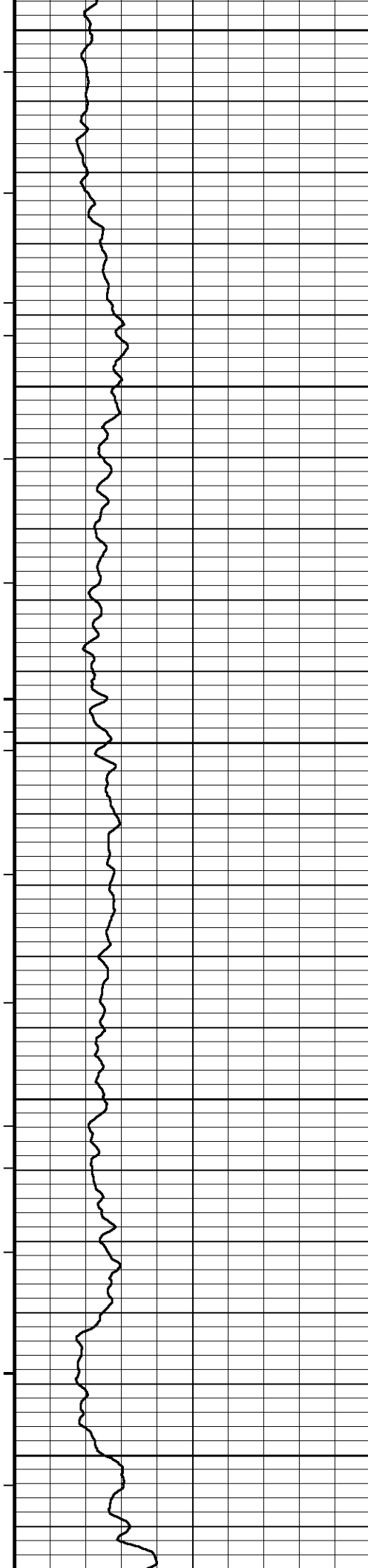
5400

146°

← GRGM



RTAS
R85S
R60S
R40S



5450

146°

5500

146°

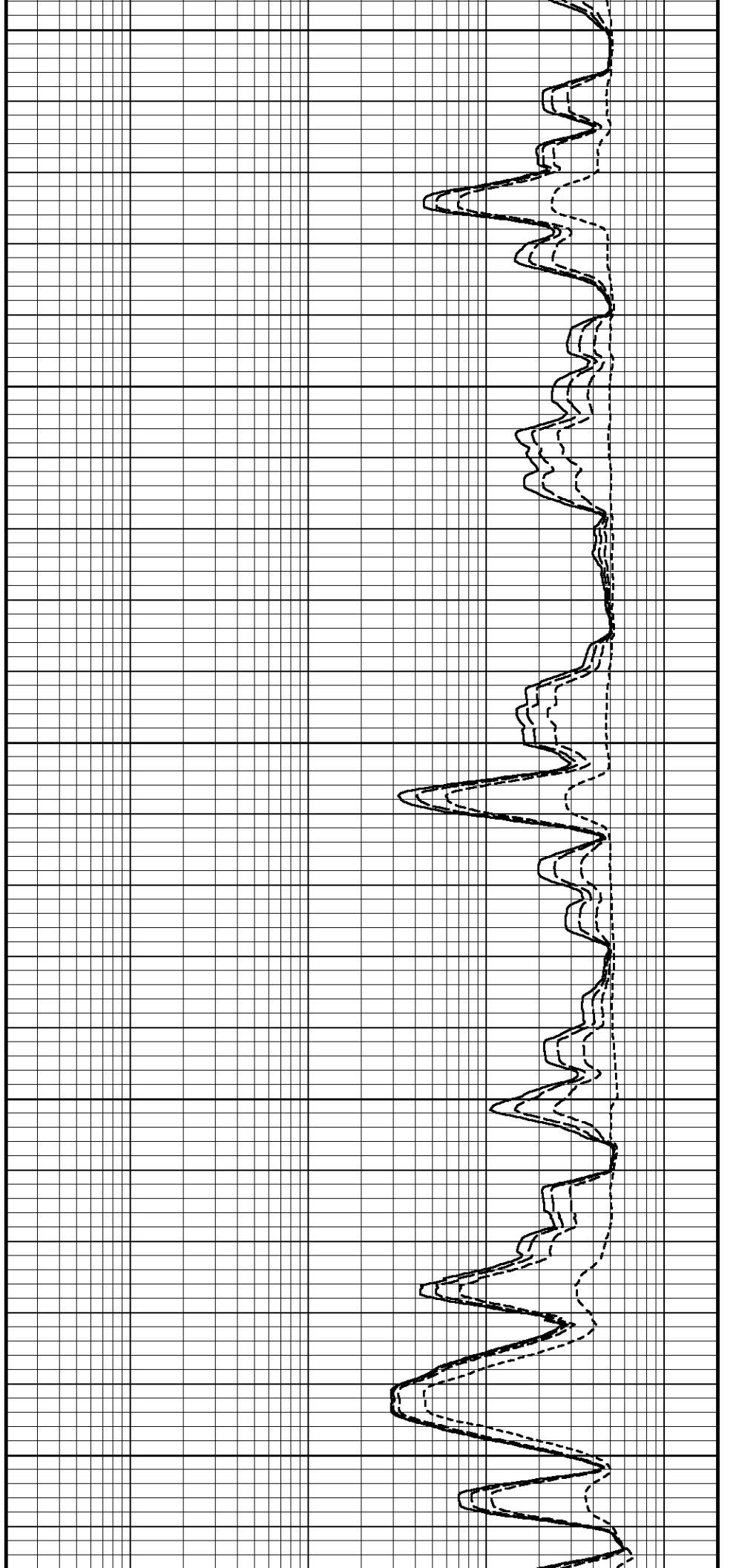
5550

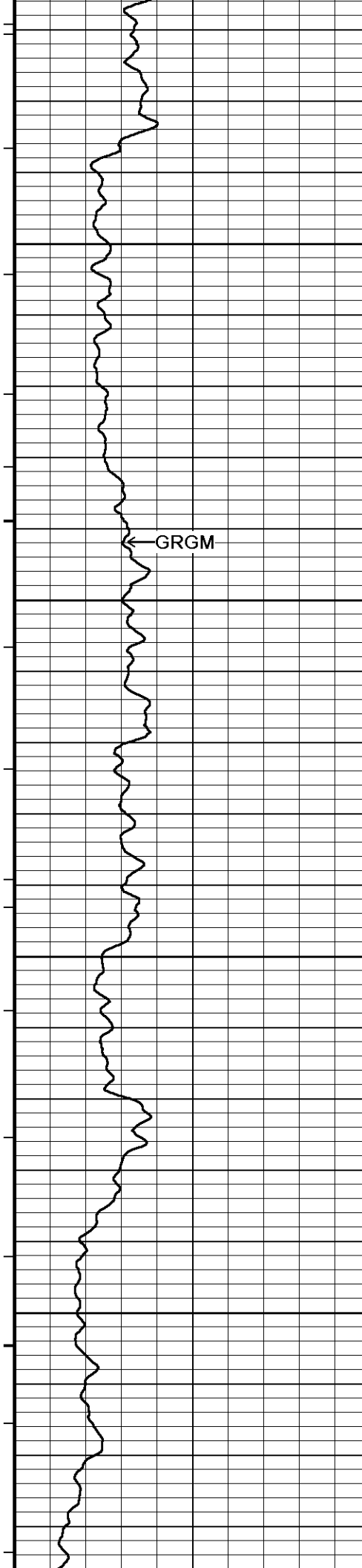
146°

5600

146°

5650





146°

5700

146°

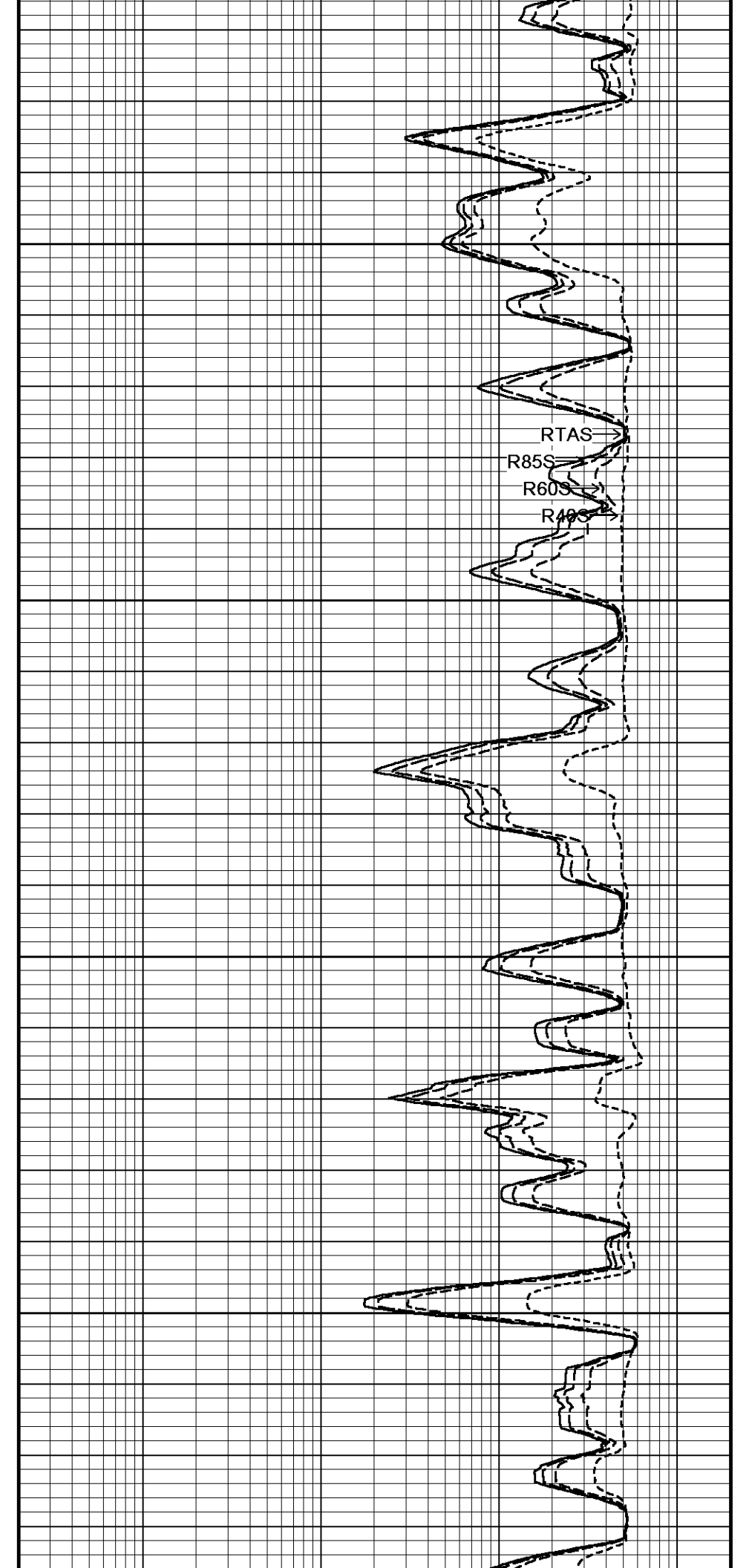
5750

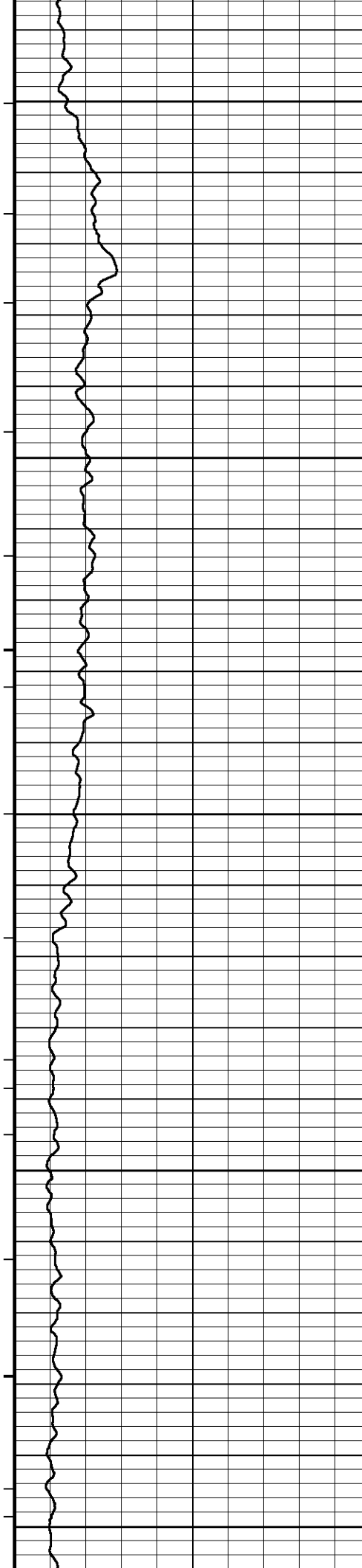
146°

5800

146°

5850





146°

5900

147°

5950

146°

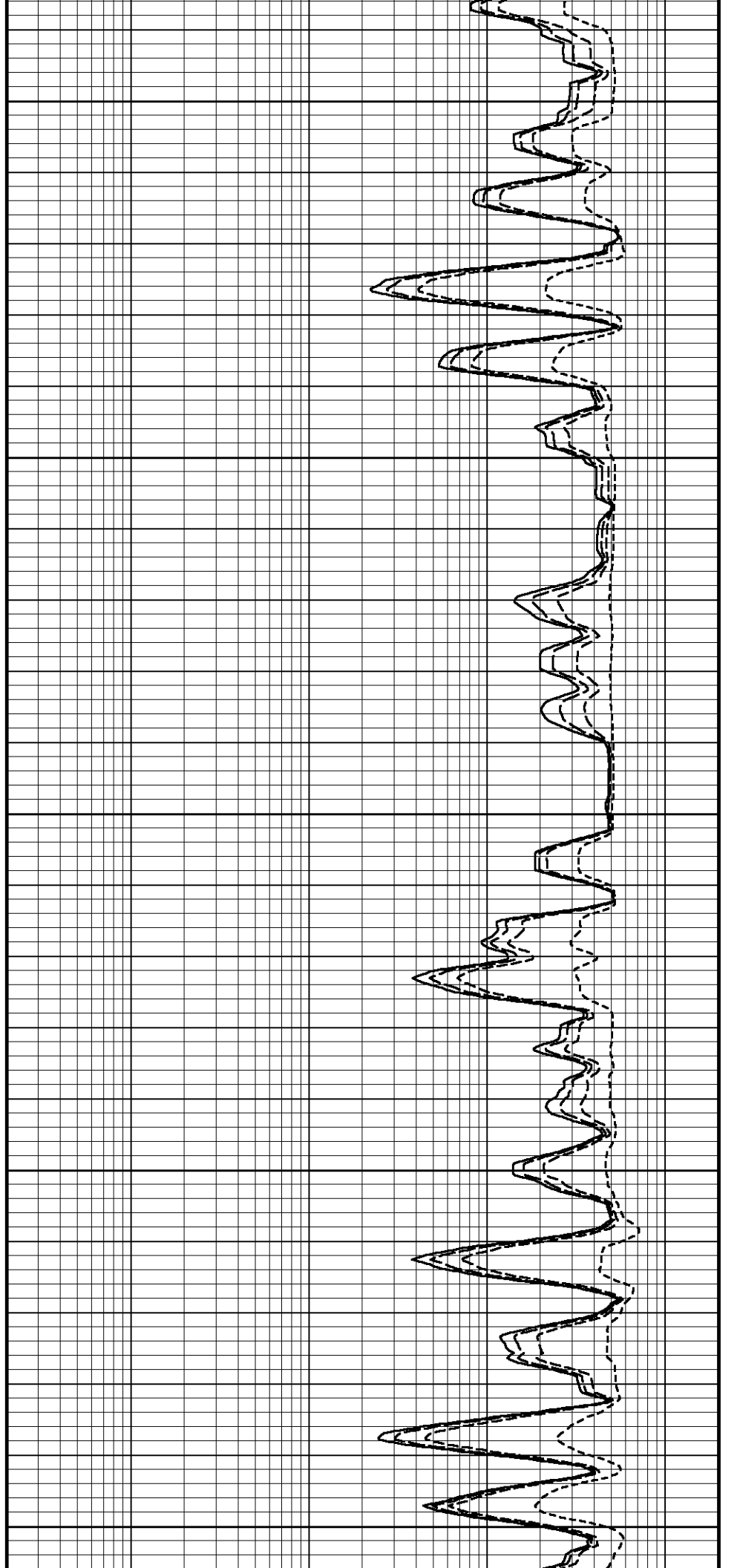
6000

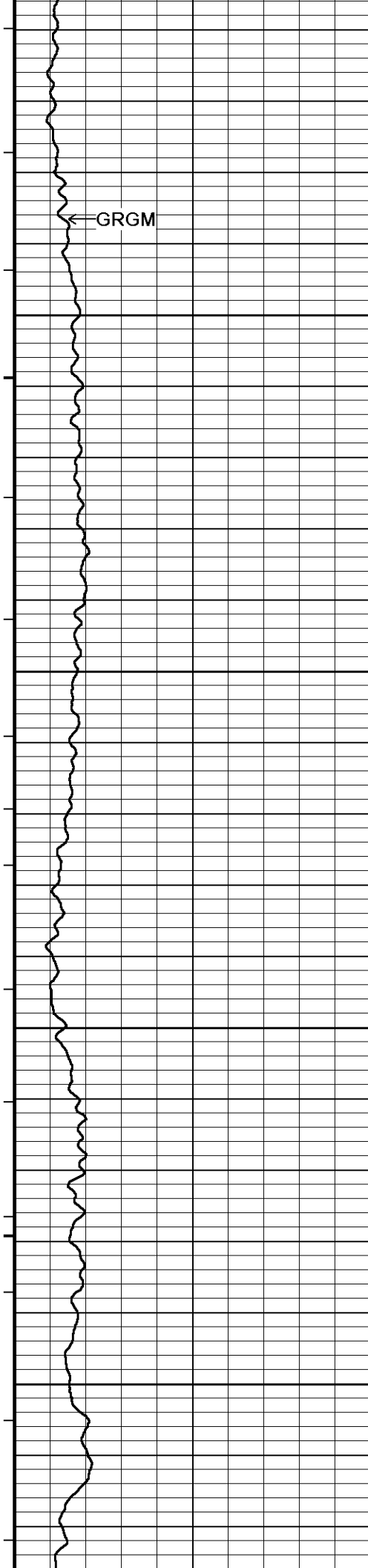
146°

6050

147°

6100





← GRGM

147°

6150

147°

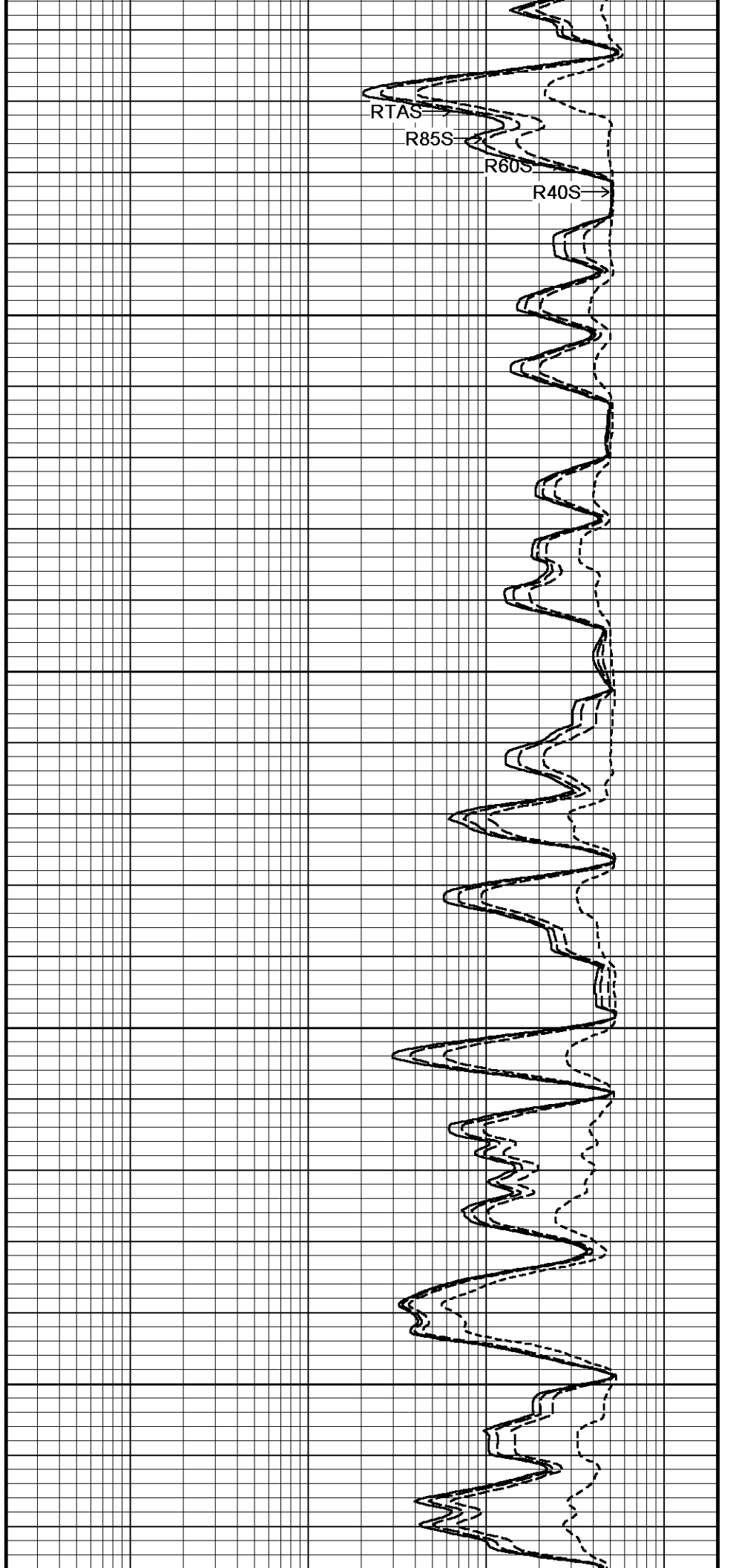
6200

147°

6250

147°

6300

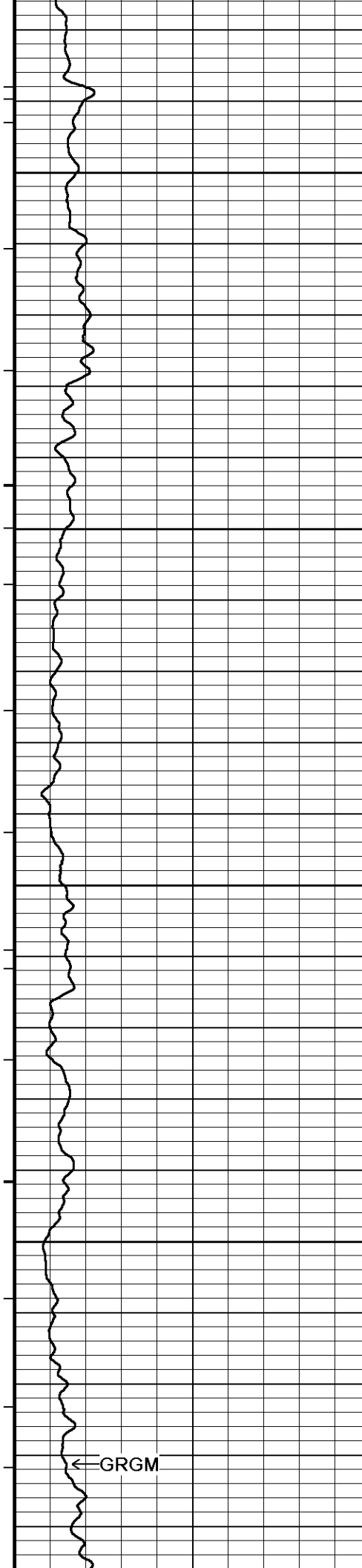


RTAS

R85S

R60S

R40S



147°

6350

147°

6400

148°

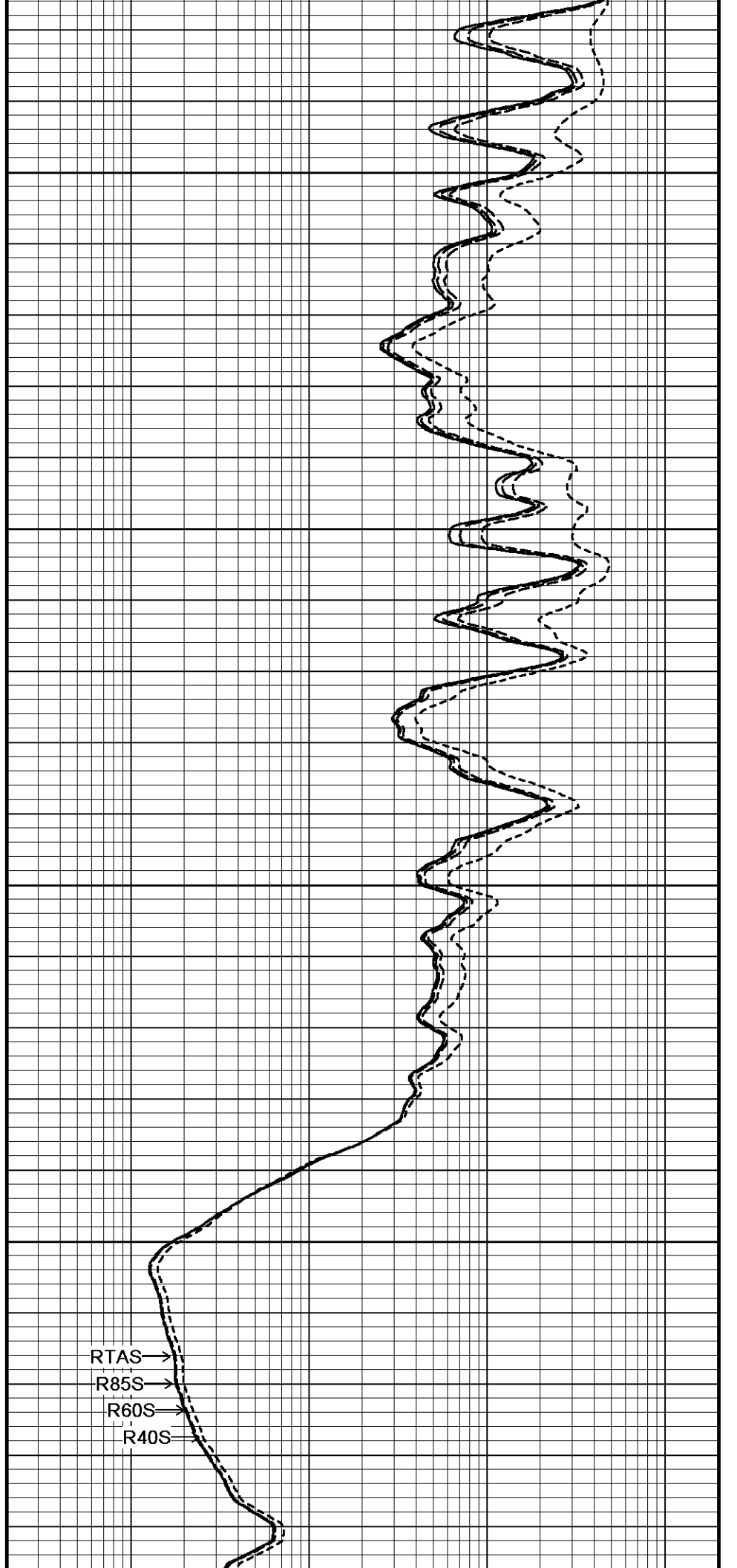
6450

148°

6500

148°

← GRGM

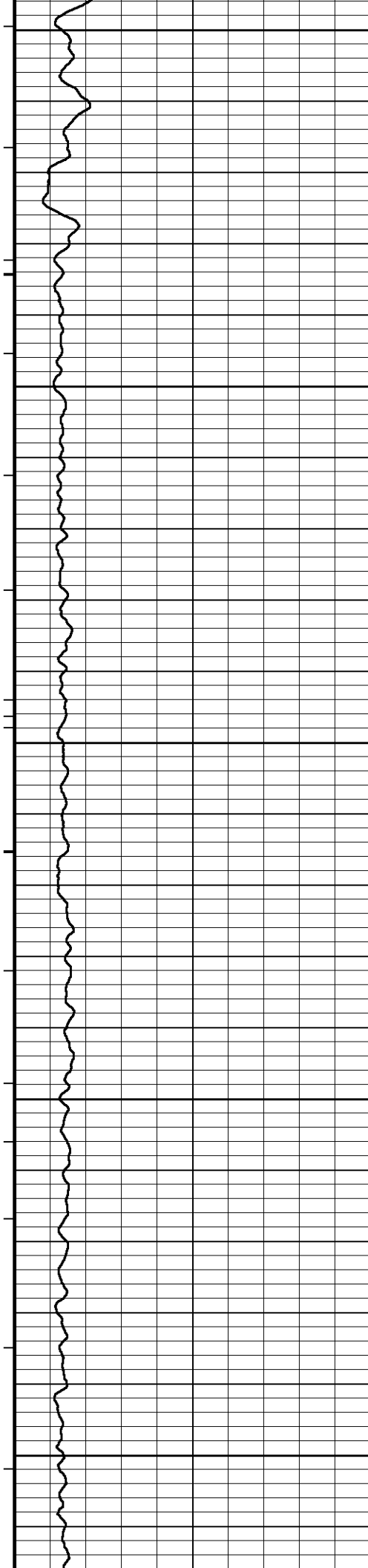


RTAS →

R85S →

R60S →

R40S →



6550

148°

6600

148°

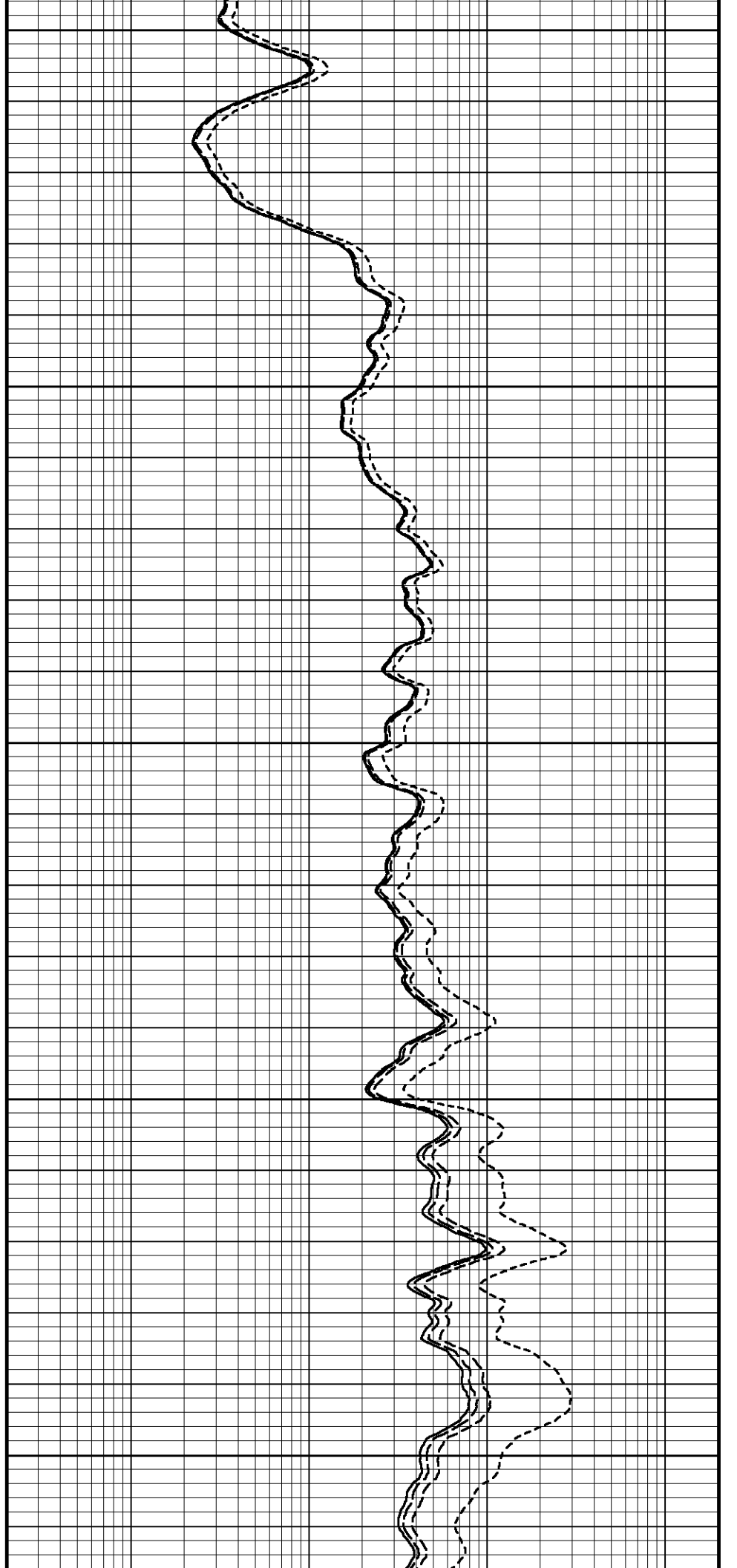
6650

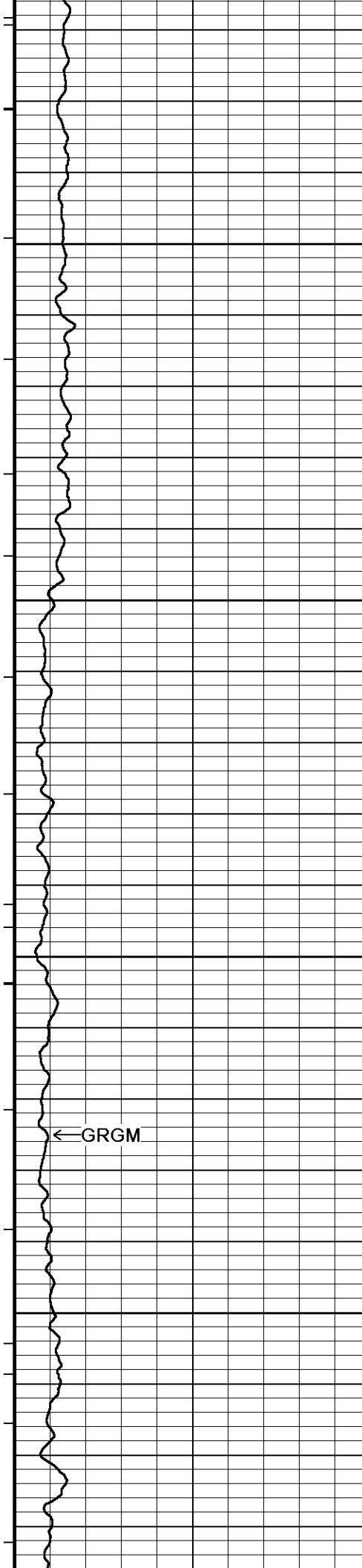
149°

6700

148°

6750





148°

6800

148°

6850

148°

6900

RTAS →

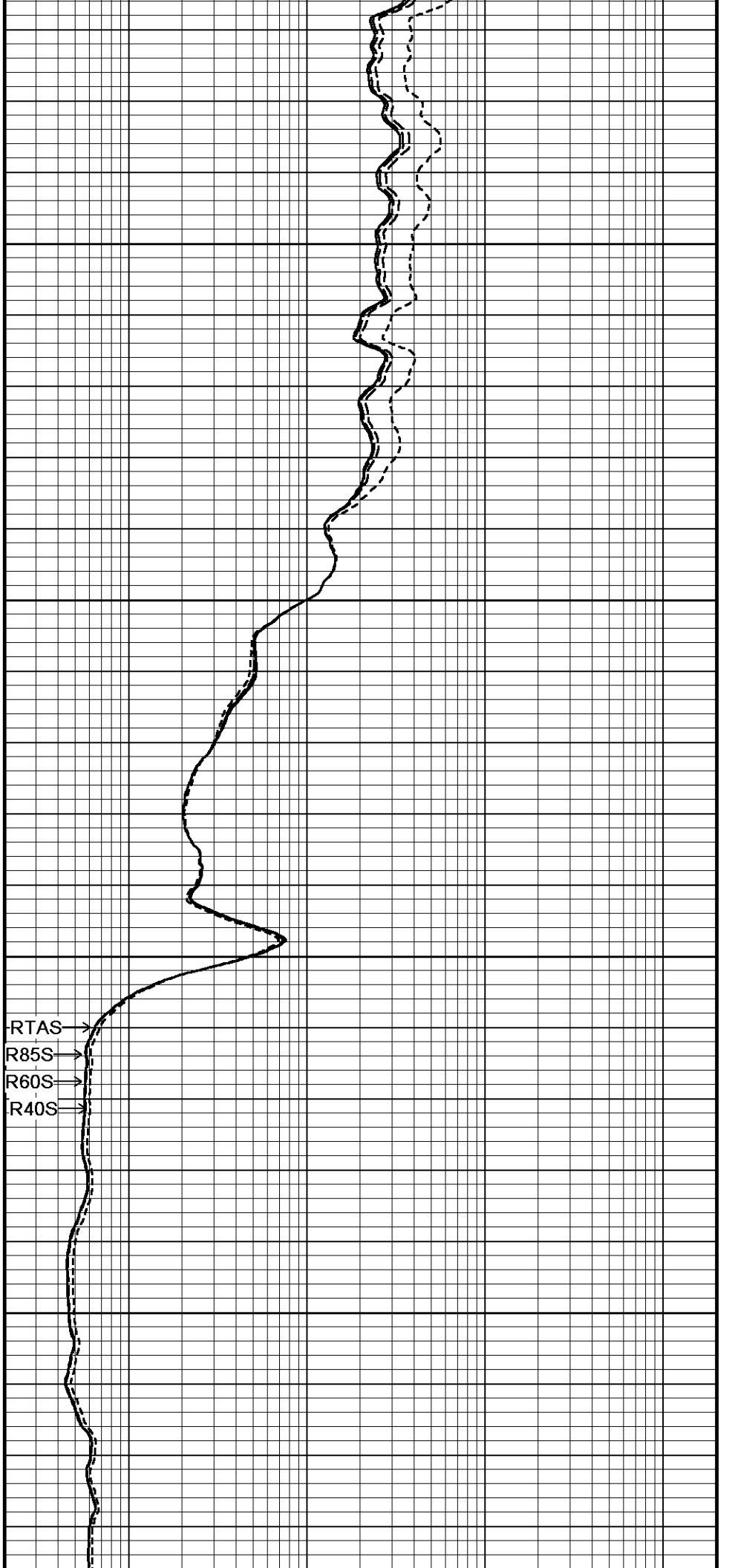
R85S →

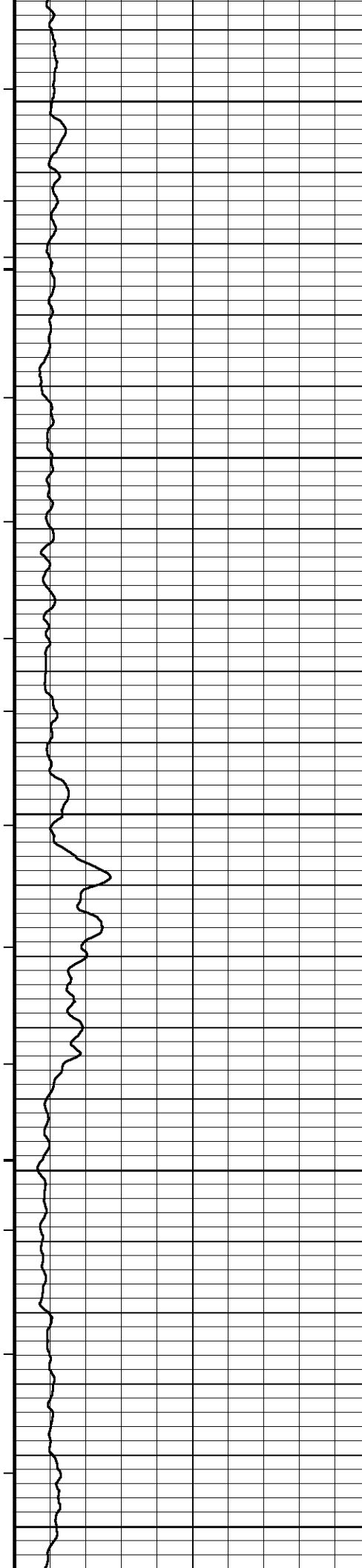
R60S →

R40S →

148°

6950





148°

7000

148°

7050

148°

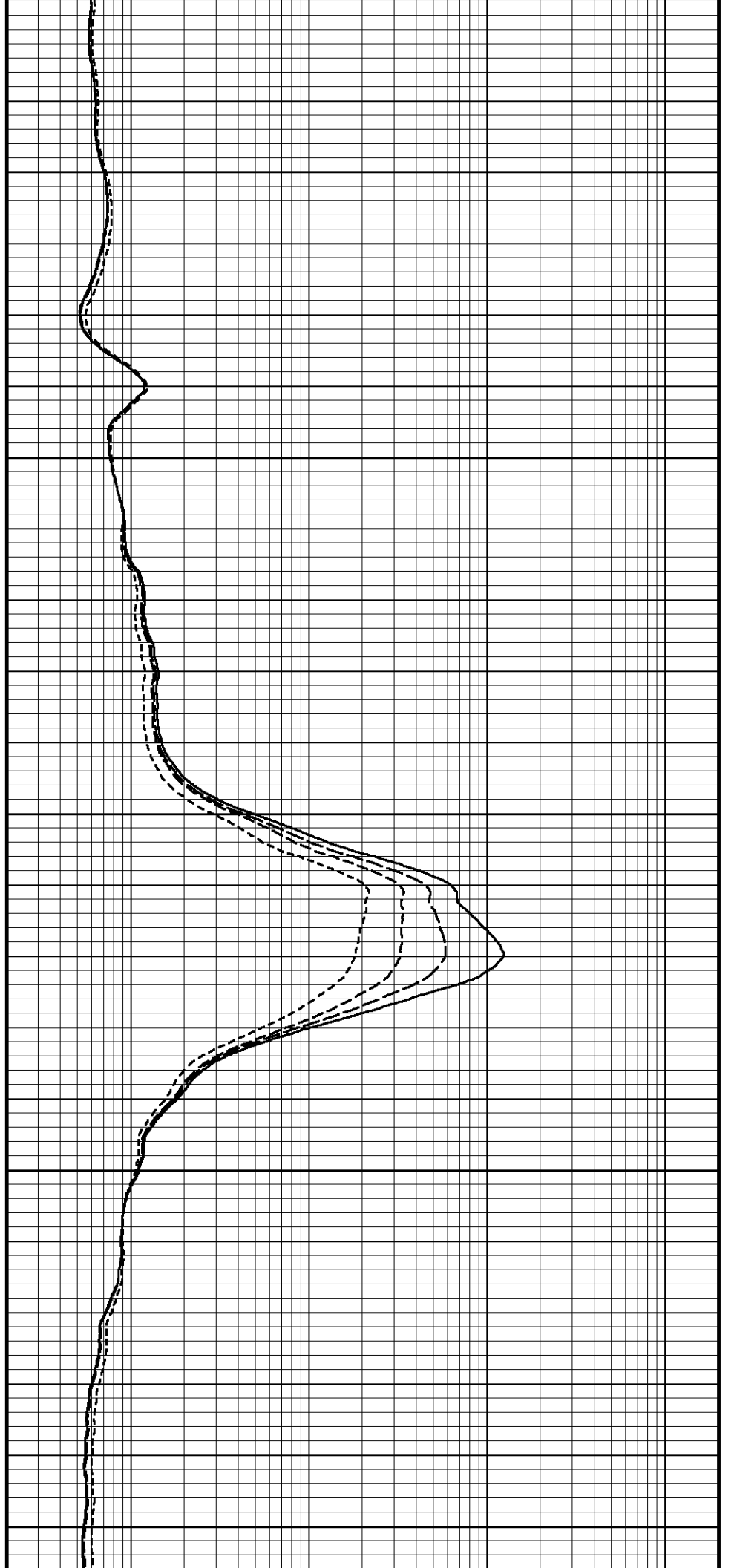
7100

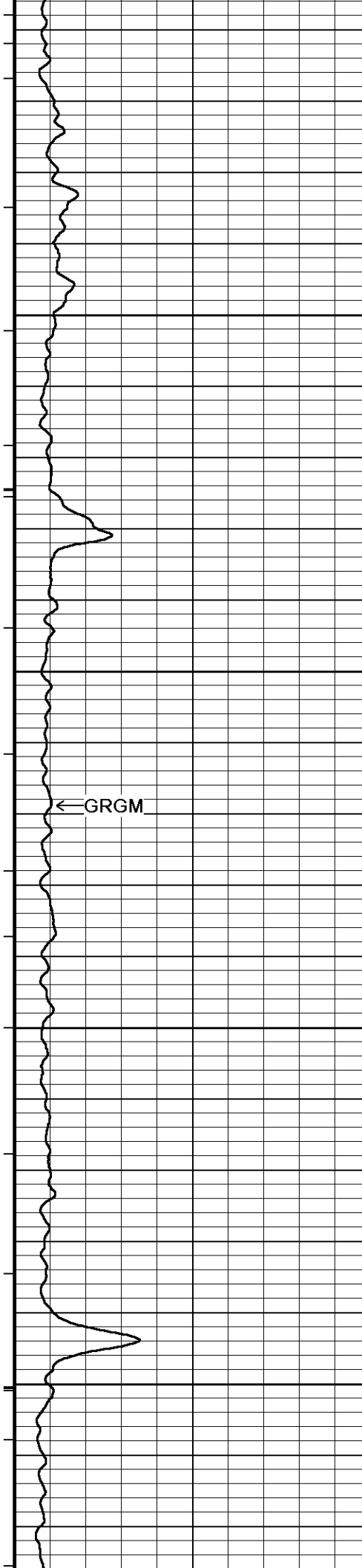
148°

7150

149°

7200





149°

7250

149°

7300

RTAS →

R85S →

R60S →

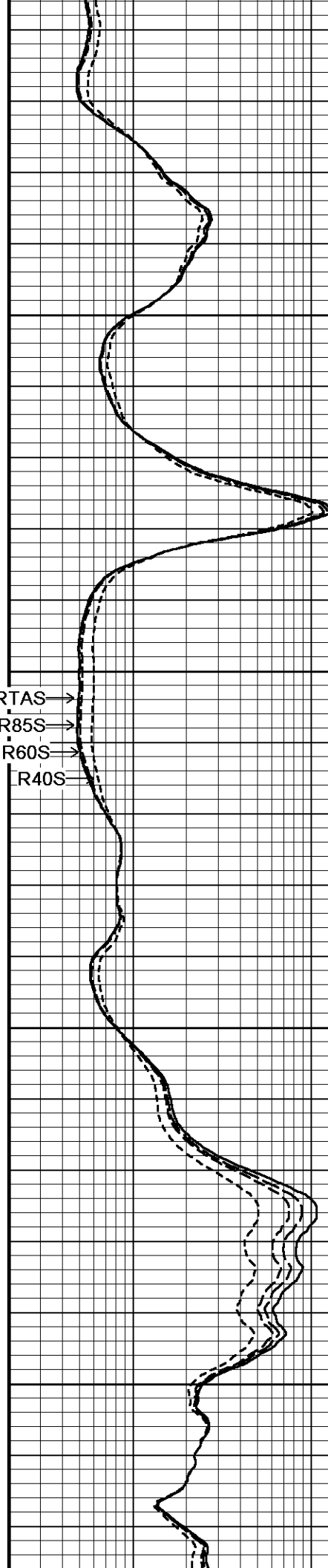
R40S →

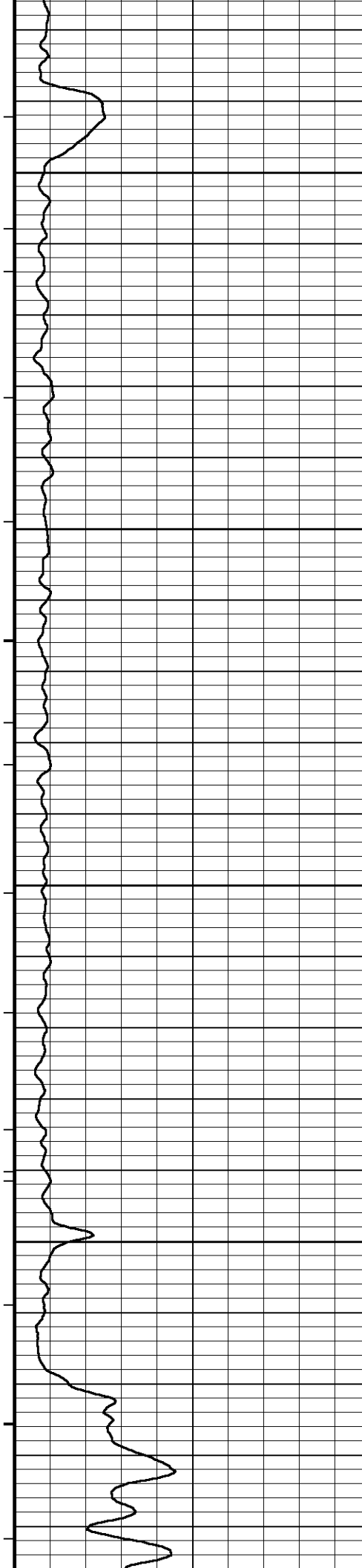
149°

7350

149°

7400





149°

7450

149°

7500

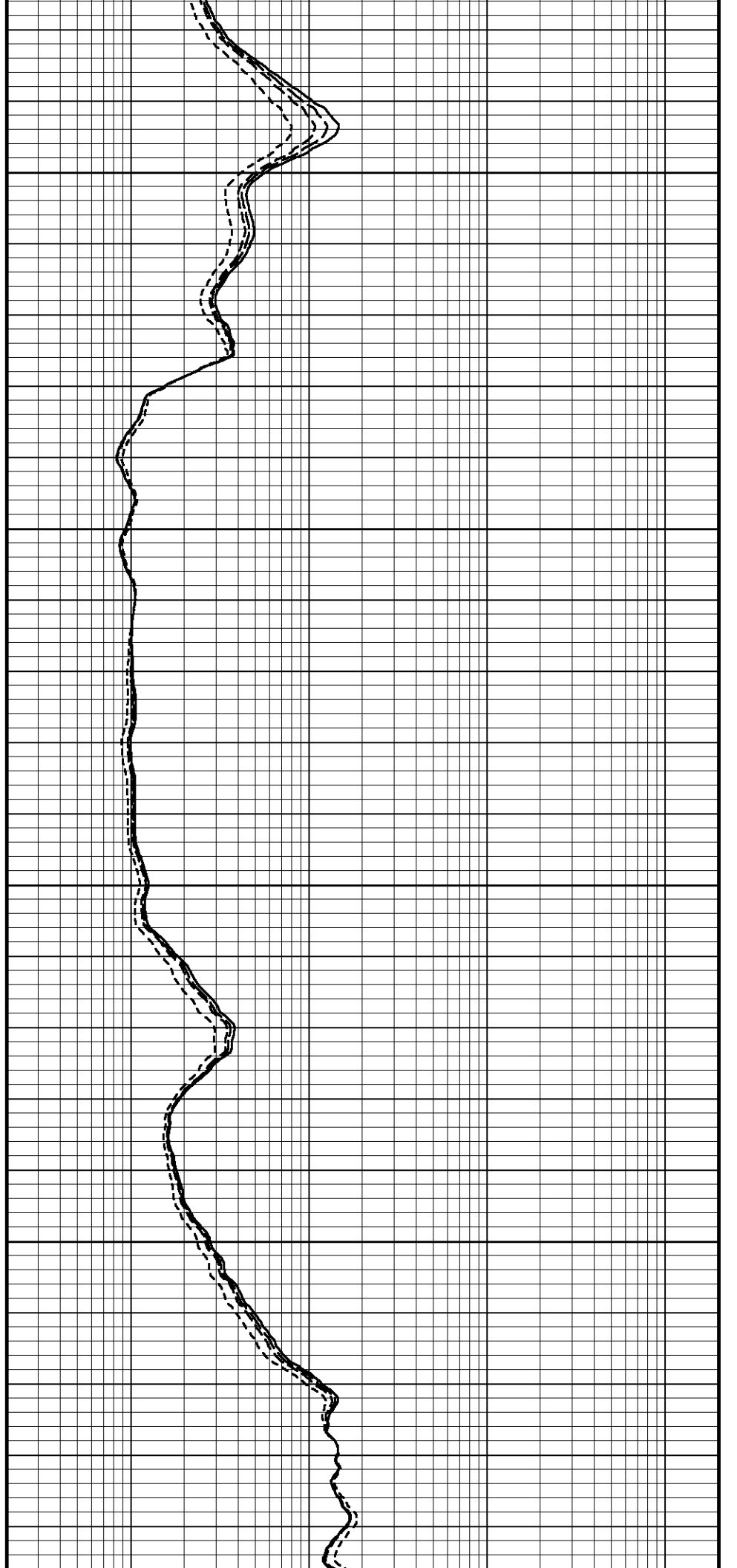
149°

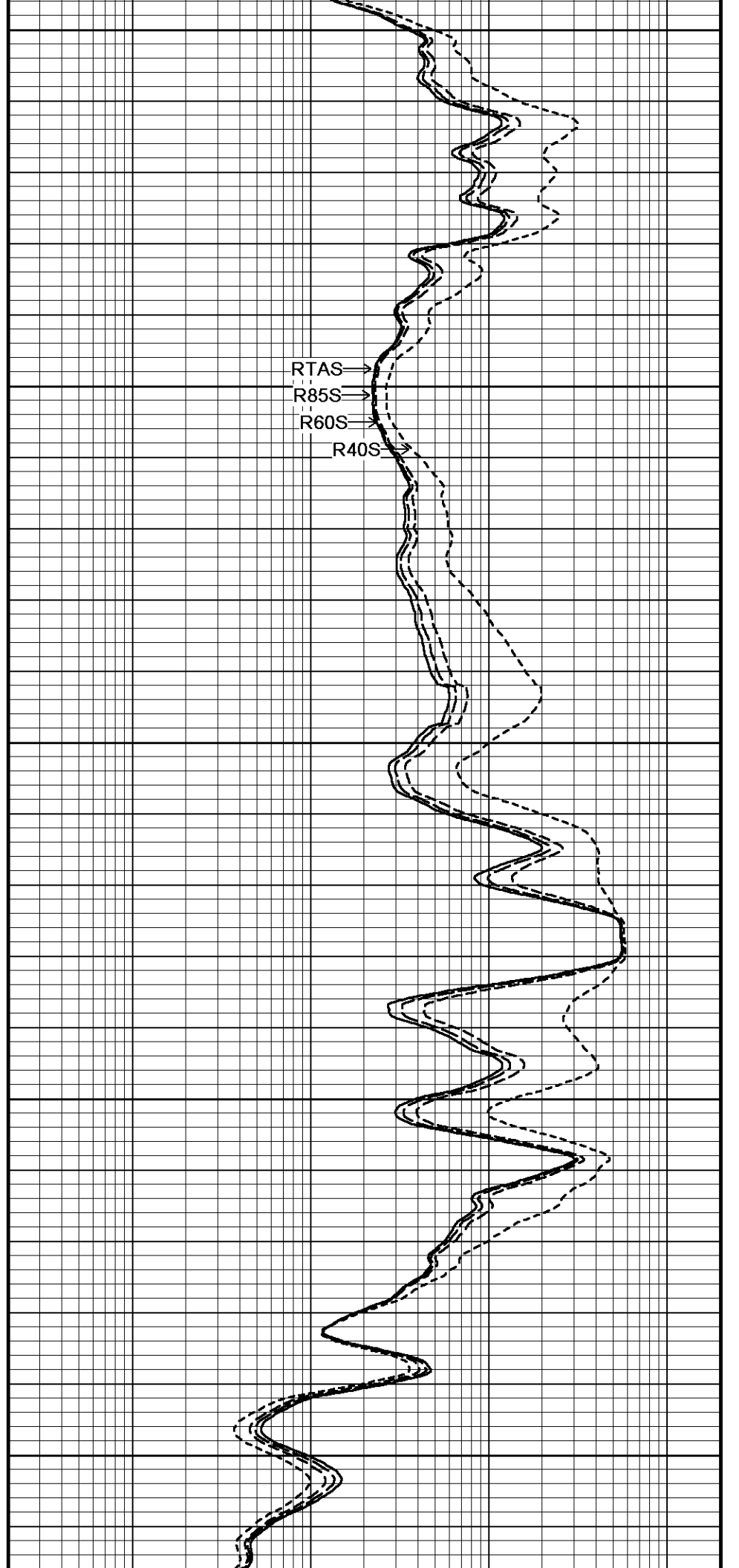
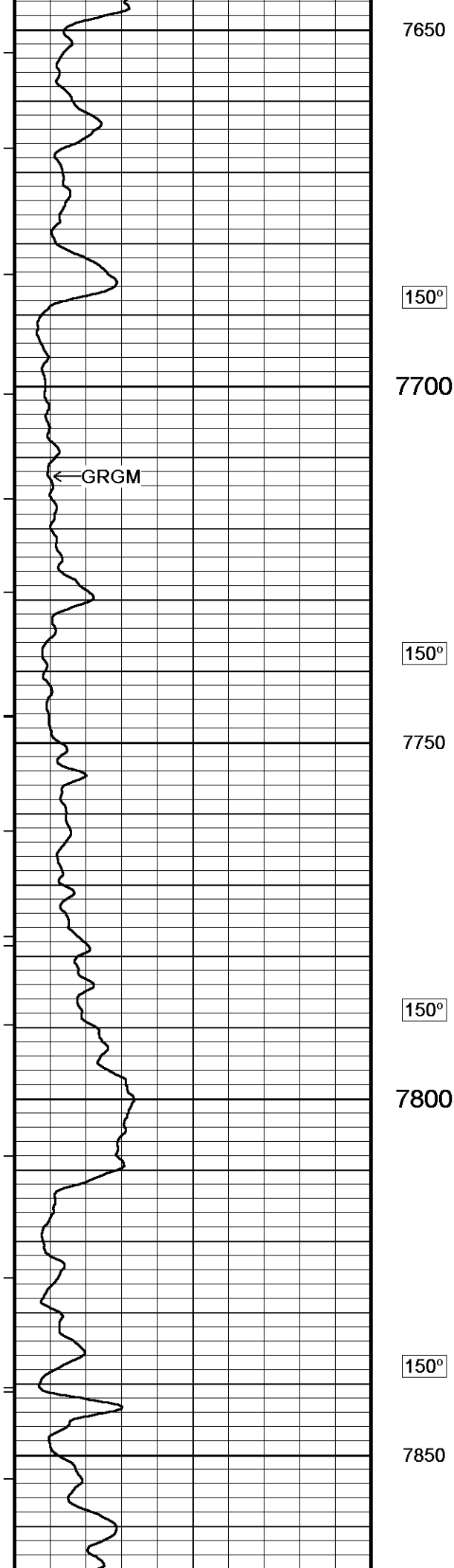
7550

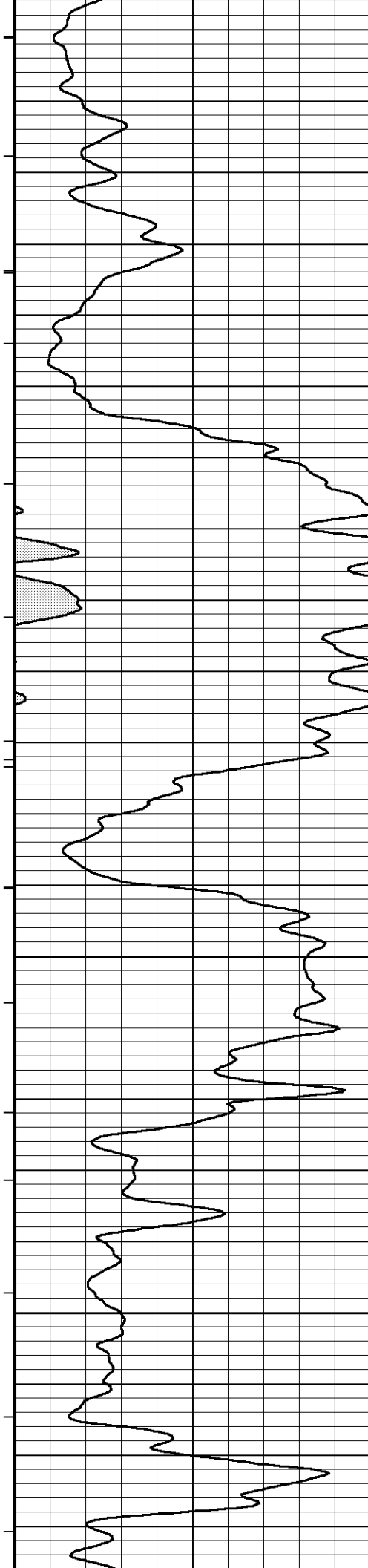
149°

7600

150°







150°

7900

150°

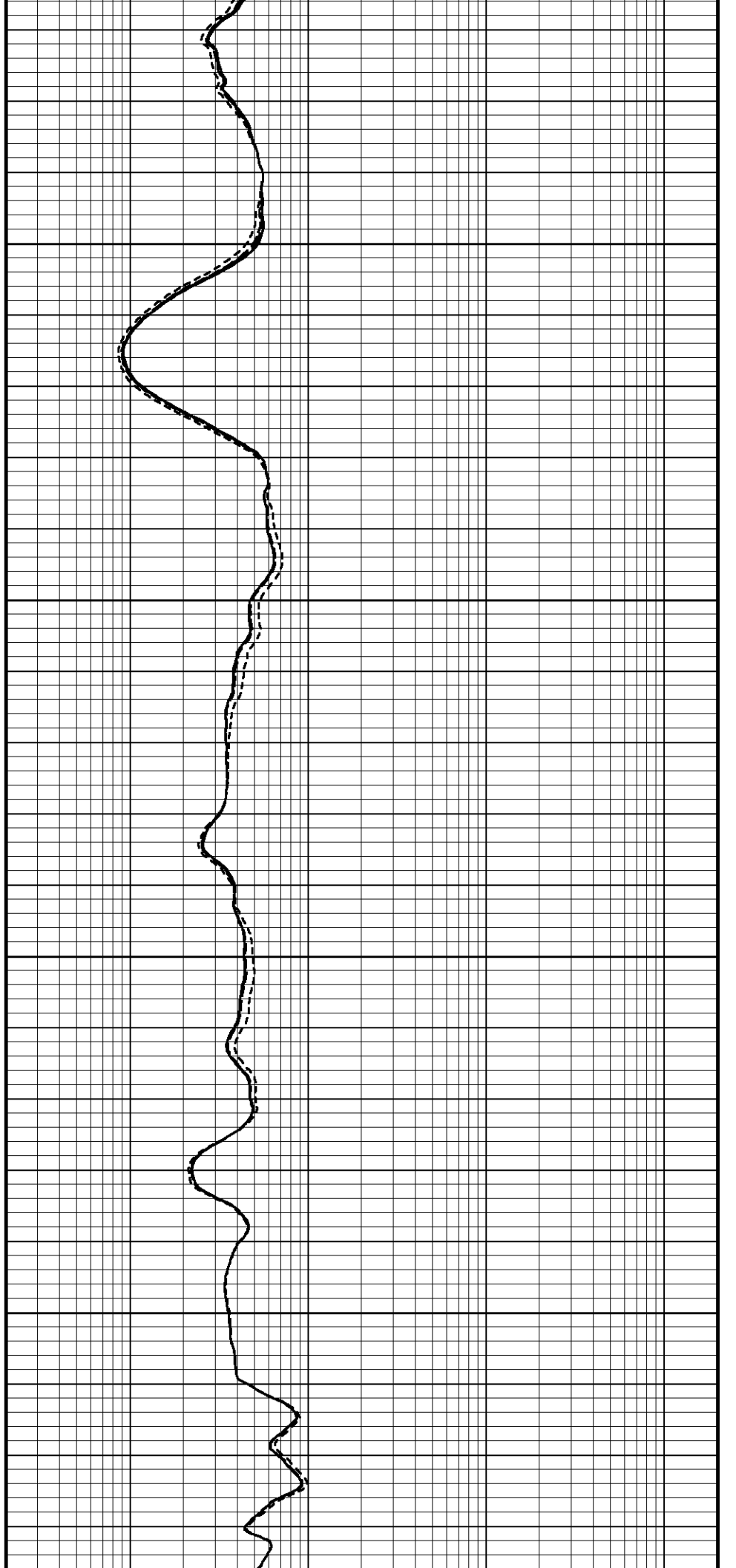
7950

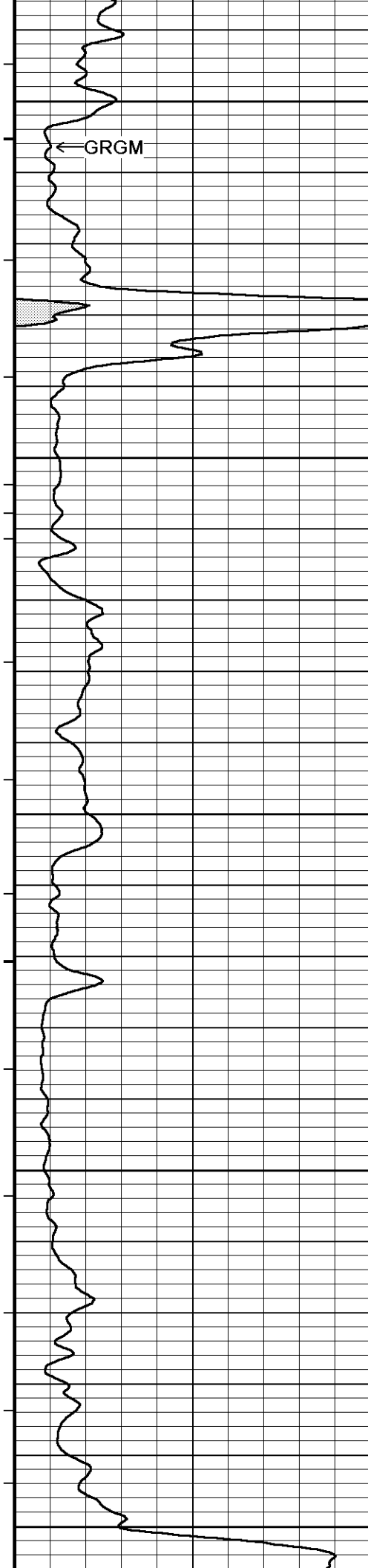
150°

8000

150°

8050





150°

8100

150°

8150

150°

8200

150°

8250

150°

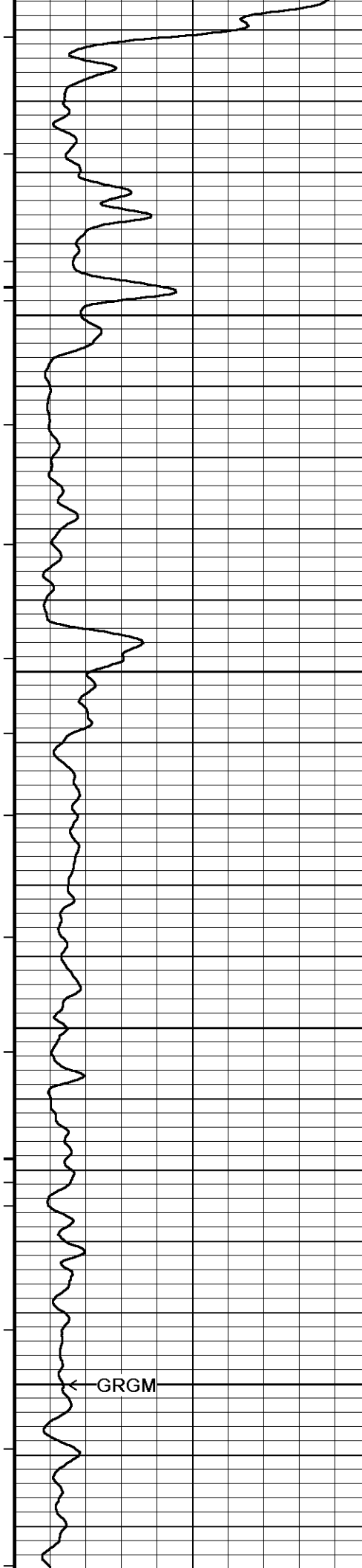
8300

RTAS

R85S

R60S

R40S



151°

8350

151°

8400

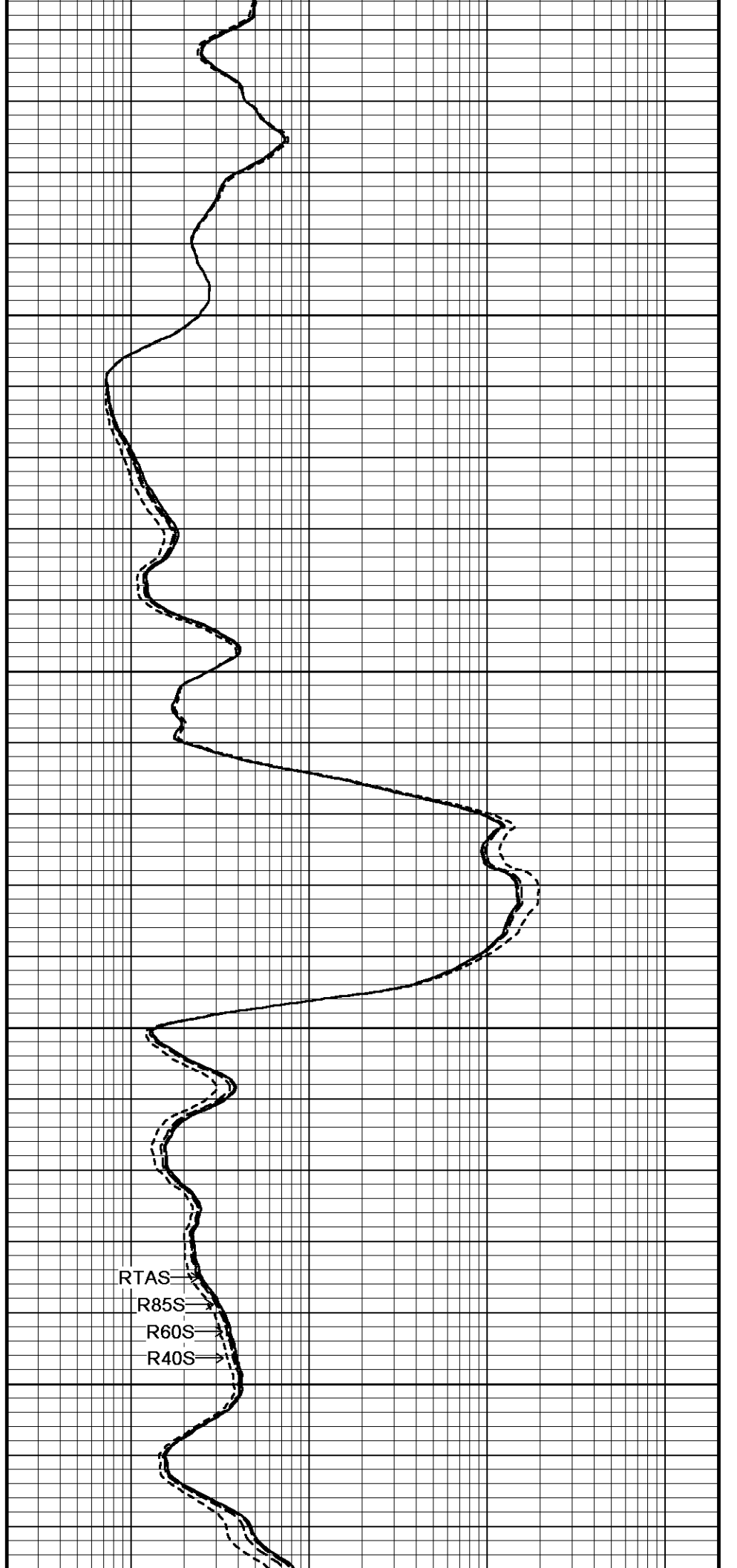
151°

8450

151°

8500

GRGM

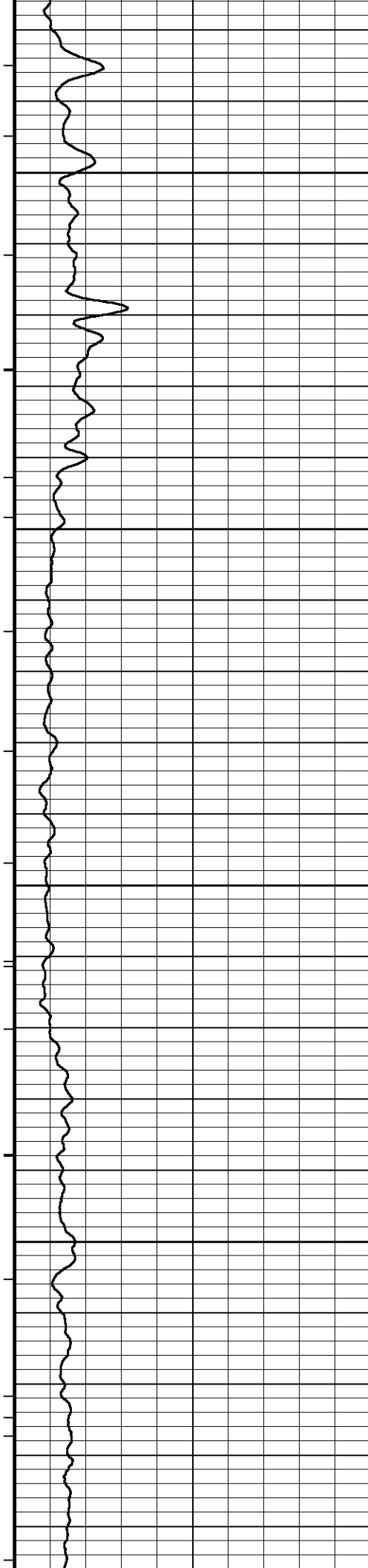


RTAS

R85S

R60S

R40S



151°

8550

151°

8600

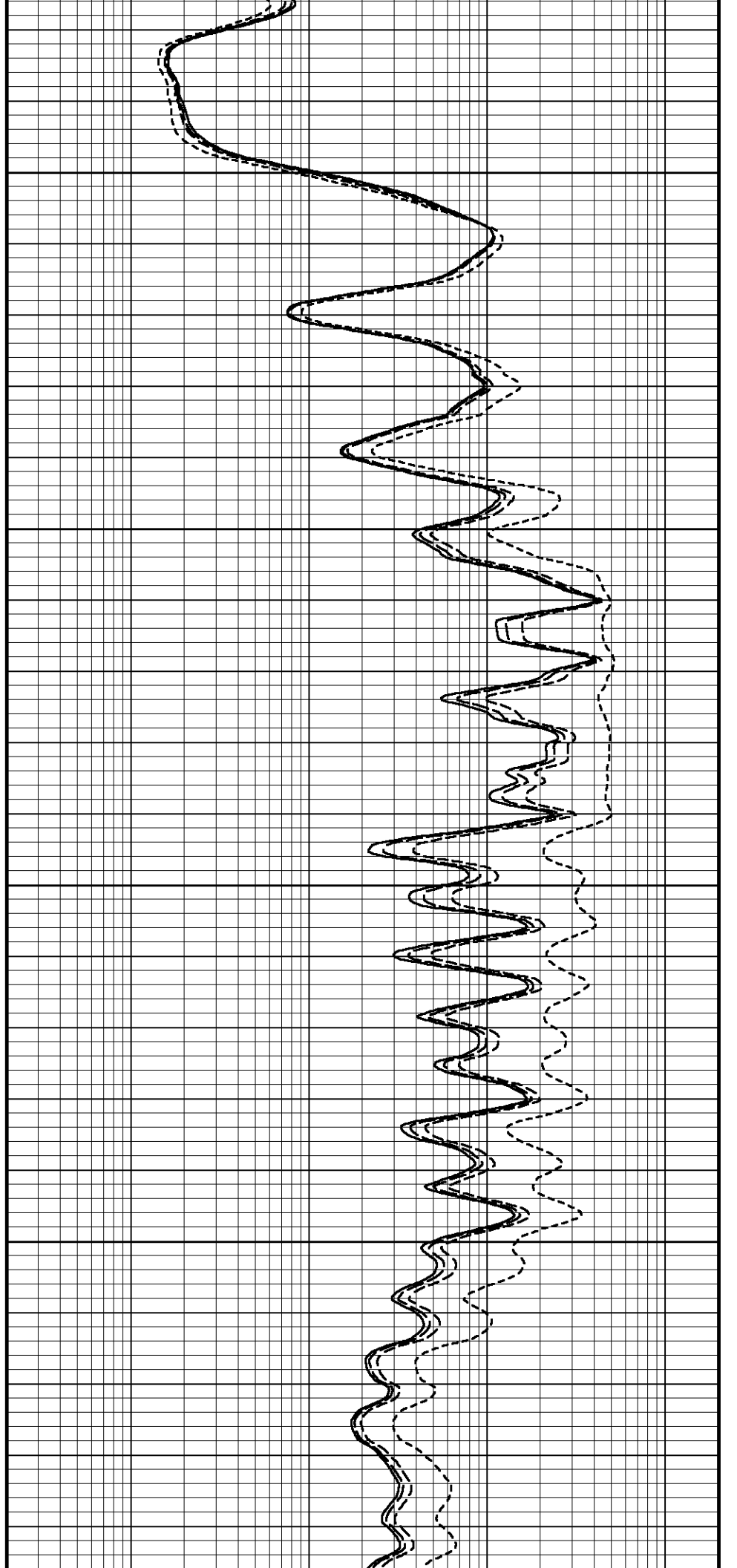
151°

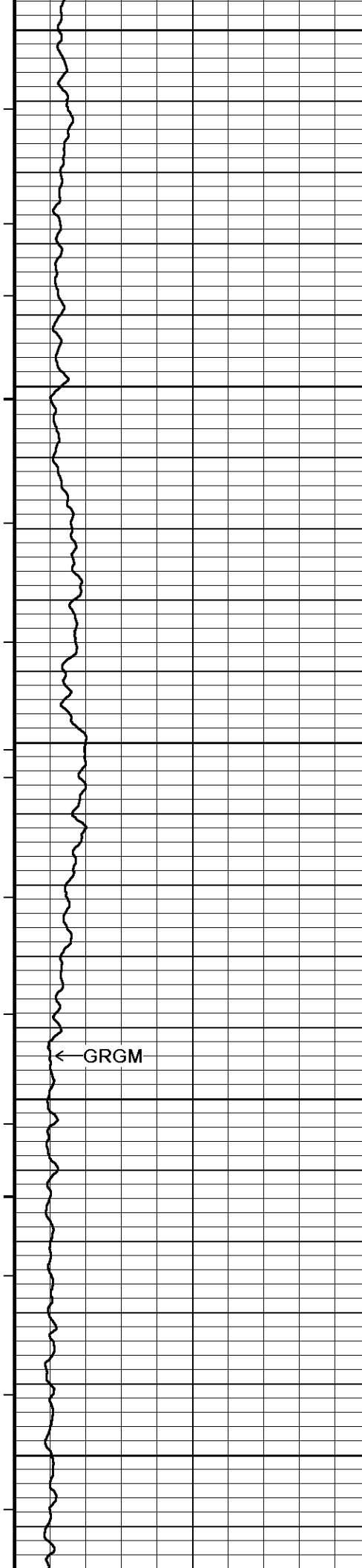
8650

151°

8700

151°





8750

151°

8800

151°

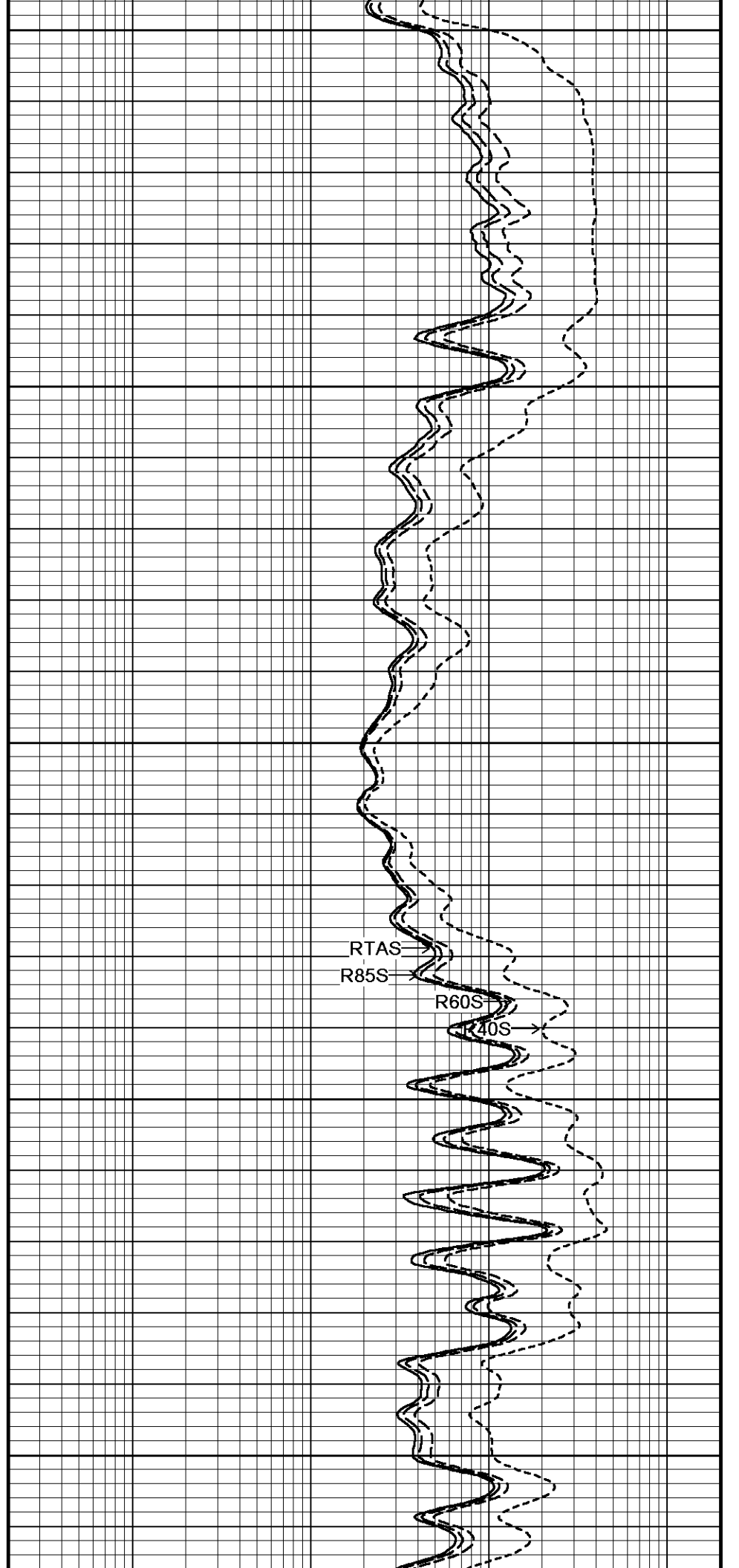
8850

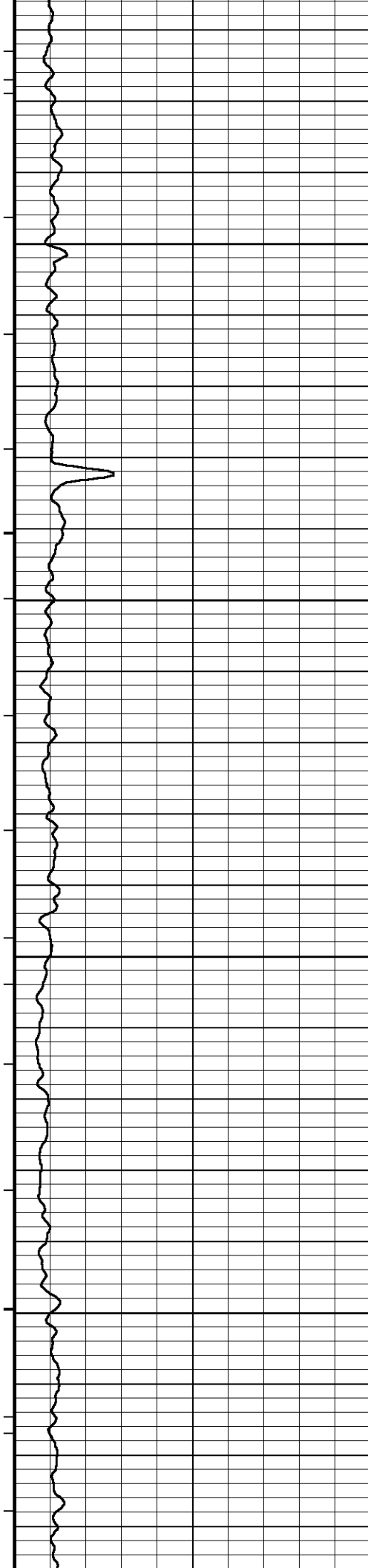
151°

8900

151°

8950





151°

9000

151°

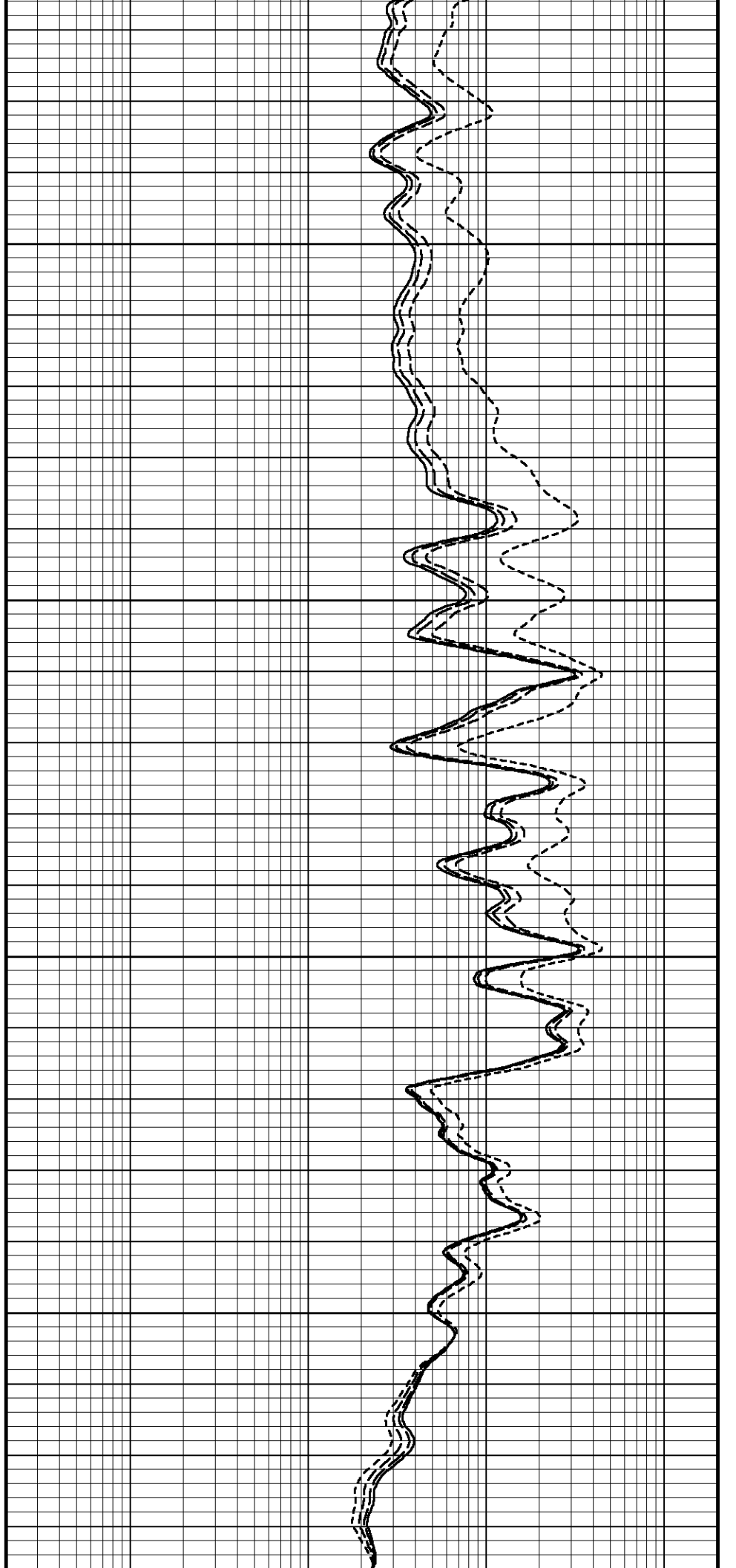
9050

151°

9100

151°

9150



151°

9200

9250

9300

9336

Depth
In
Feet

Borehole
Temp in
deg F

IFR R85S 9320.53ft

R40S

R60S

R85S

RTAS

← FR GRGM 9229.94ft

Timing Marks
every 60.0 sec

MGS Gamma Ray

API
75

0 150

150 300

Array Ind. Six Res 40
ohm metres

0.20

1

10

100

2000

1000

Array Ind. Six Res 60
ohm metres

0.20

1

10

100

2000

1000

Array Ind. Six Res 85
ohm metres

0.20

1

10

100

2000

1000

	Replay Scale 1:240	ohm metres 0.2011010010002000			
Depth Based Data - Maximum Sampling Increment 10.0cm					
Filename: D:\14_01_3220_WLS\DATA\15191227400100_Jenny 3404 2-18H\36386RTAP2.dta					
System Versions: Logged with 14.01.3220 Processed with 14.01.3220 Plotted with 14.01.3220					
↑		5 INCH MAIN LOG		↑	

BEFORE SURVEY CALIBRATION									
D:\14_01_3220_WLS\DATA\15191227400100_Jenny 3404 2-18H\36386RTAP2.dta									
General Constants All 000					Last Edited on 17-JUN-2014,22:30				
General Parameters									
Mud Resistivity	0.060			ohm-metres					
Mud Resistivity Temperature	84.000			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	Array Ind. One Res Rt								
RWA Constant A	0.610								
RWA Constant M	2.150								
SW/APOR Tool Source	0.000								
Strain Gauge Constants MMS-F.A 262					Last Edited on 07-MAY-2014,10:36				
Atmospheric Pressure	14.70			psi					
Serial Number	280584								
Calibration Date	10-Jan-2013								
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	-0.119	-0.117	-0.110	-0.109	-0.111	-0.111	-0.128	-0.127	
3000.0	5.062	5.064	5.072	5.073	5.072	5.072	5.056	5.056	
6000.0	10.254	10.256	10.265	10.267	10.266	10.268	10.251	10.253	
9000.0	15.457	15.460	15.470	15.473	15.472	15.476	15.458	15.461	
12000.0	20.673	20.675	20.688	20.690	20.692	20.695	20.679	20.682	
15000.0	25.901		25.919		25.926		25.916		
Gamma Calibration MGS-C.J 135					Field Calibration on 16-JUN-2014 10:01				
	Measured			Calibrated (API)					
Background	130			90					
Calibrator (Gross)	1367			947					
Calibrator (Net)	1238			857					
Gamma Constants MGS-C.J 135					Last Edited on 17-JUN-2014,15:53				
Gamma Calibrator Number	GRCG073								
Mud Density	1.02			gm/cc					
Caliper Source for Processing	Density Caliper								
Tool Position	Eccentred								
Concentration of KCl				kppm					
K Mud Type	Chloride								
K Mud Concentration	0.00			%					

SP Calibration MGS-C.J 135

Field Calibration on 16-JUN-2014,09:36

	Measured	Calibrated (mV)
Reference 1	100.0	100.0
Reference 2	-100.0	-100.0

High Resolution Temperature Calibration MGS-C.J 135

Field Calibration on 16-JUN-2014,09:35

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

High Resolution Temperature Constants MGS-C.J 135

Last Edited on 16-JUN-2014,09:35

Pre-filter Length 11

Neutron Calibration MDN-C.A 480

Base Calibration on 13-JUN-2014 11:46

Field Check on 16-JUN-2014 10:07

Base Calibration

	Measured		Calibrated (cps)	
	Near	Far	Near	Far
	2945	90	3714	110
Ratio	32.678		33.764	

Field Calibrator at Base

	Calibrated (cps)
	2349 3592
Ratio	0.654

Field Check

	Calibrated (cps)
	2319 3529
Ratio	0.657

Neutron Constants MDN-C.A 480

Last Edited on 17-JUN-2014,15:52

Neutron Source Id	HN553		
Neutron Jig Number	N639		
Air Hole Processing	Legacy		
Caliper Source for Processing	Density Caliper		
Stand-off	0.00	inches	
Mud Density	1.02	gm/cc	
Limestone Sigma	7.10	cu	
Sandstone Sigma	4.26	cu	
Dolomite Sigma	4.70	cu	
Formation Pressure Source	Constant Value		
Formation Pressure	0.00	kpsi	
Temperature Source	Constant Value		
Temperature	68.00	degrees F	
Mud Salinity	0.00	kppm	
Salinity Correction	Not Applied		
Formation Fluid Salinity Source	Constant Value		
Formation Fluid Salinity	0.00	kppm	
Barite Mud Correction	Not Applied		

FE Calibration MFE-C.A 396

Base Calibration on 15-MAY-2014 10:59

Field Check on 16-JUN-2014 09:08

Base Calibration

	Measured	Calibrated (ohm-m)
Reference 1	0.0	0.0
Reference 2	963.8	126.8

Base Check 281.1

Field Check 281.2

FE Constants MFE-C.A 396

Last Edited on 16-JUN-2014,09:35

Running Mode	No Sleeve		
MFE K Factor	0.1268		
Caliper Source for FE correction	Density Caliper		
Caliper Value for FE correction	N/A		
Rm Source for FE correction	Temperature Corr		
Temp. for Rm Corr.	MGS External Temperature		
Stand-off	0.5	inches	

Accelerometer Parameters MIE-B.A 254				
Date Of Last Accelerometer Calibration		15-JAN-2014,18:48		
	X Accelerometer	Y Accelerometer	Z Accelerometer	
Slope	-1.110273	-1.098533	-1.112225	
Offset	0.004286	0.006386	0.008361	

Accelerometer Constants MIE-B.A 254					Last Edited on 16-JUN-2014,09:03				
Accelerometer Calibrator Number		000							
Accelerometer Temperature Characterisation									
X Accelerometer									
Serial Number		1252							
Calibration Date		30-Jan-2013							
	B0	B1	B2	B3					
Bias(g)	0.00000e+000	9.98033e-006	-2.73699e-008	2.67348e-010					
	SF0	SF1	SF2	SF3					
Scale Factor(mA/g)	3.00000e+000	2.71471e-004	2.19072e-007	1.39504e-009					
Y Accelerometer									
Serial Number		1258							
Calibration Date		31-Jan-2013							
	B0	B1	B2	B3					
Bias(g)	0.00000e+000	1.91337e-006	5.08774e-010	2.82876e-010					
	SF0	SF1	SF2	SF3					
Scale Factor(mA/g)	3.00000e+000	2.66835e-004	2.99454e-007	9.78949e-010					
Z Accelerometer									
Serial Number		1096							
Calibration Date		29-Jun-2011							
	B0	B1	B2	B3					
Bias(g)	0.00000e+000	1.18445e-005	-1.40013e-009	1.45484e-010					
	SF0	SF1	SF2	SF3					
Scale Factor(mA/g)	3.00000e+000	2.85296e-004	2.19938e-007	1.07369e-009					

Magnetometer Parameters MIE-B.A 254				
Date Of Last Magnetometer Calibration		31-JAN-2014,09:10		
	X Magnetometer	Y Magnetometer	Z Magnetometer	
Slope	-1.000000	-1.012249	-0.996520	
Offset	0.000654	-0.016487	-0.005244	

Magnetometer Constants MIE-B.A 254		Last Edited on	
Magnetometer Calibrator Number	000		

Imager Pad Check MIE-B.A 254				Field Check on
Pad 1	Pad Not Tested	Pad 5	Pad Not Tested	
Pad 2	Pad Not Tested	Pad 6	Pad Not Tested	
Pad 3	Pad Not Tested	Pad 7	Pad Not Tested	
Pad 4	Pad Not Tested	Pad 8	Pad Not Tested	

Compact Micro Imager Constants MIE-B.A 254			Last Edited on 16-JUN-2014,09:03		
Sonde Configuration		Imager Mode			
Arm-Pad Kit		Normal Pads (12.25 in)			
Arm-Pad Kit Serial Number		N/A			
Centre Pad 1 Rotational Offset		0.00	degrees		
Image/Borehole Ovality Reference		Azimuth of Pad 1			
Non Active Buttons		Omit			
Search Angle		0.00	degrees		
Correlation Interval		3.28	feet		
Correlation Step		1.64	feet		
Current Offset		0.0000	mAmp		
Squasher Start		0.0500	mAmp		
Image Processing		Enabled			

Caliper Calibration MIE-B.A 254					Base Calibration on 16-JUN-2014 09:29				
Base Calibration					Field Calibration on 16-JUN-2014 09:34				

Base Calibration					
Reading No	Pads 1-5 Meas.	Pads 3-7 Meas.	Calibrator Size (in)		
1	29239	27425	6.00		
2	39185	37907	8.01		
3	49433	48435	10.01		
4	61507	60595	12.13		
5	0	0	0.00		
Reading No	Pad 2 Meas.	Pad 4 Meas.	Pad 6 Meas.	Pad 8 Meas.	Calibrator Size (in)
1	26097	26940	25881	26204	6.00
2	35139	35258	34166	34795	8.01
3	43717	44115	42995	43465	10.01
4	54123	54571	52862	53541	12.13
5	0	0	0	0	0.00
Field Calibration					
	Measured	Measured	Actual		
	Pads 1-5 Caliper(in)	Pads 3-7 Caliper(in)	Caliper(in)		
	6.01	6.06	6.00		
	Measured	Measured	Measured	Measured	Actual
	Pad 2 Caliper(in)	Pad 4 Caliper(in)	Pad 6 Caliper(in)	Pad 8 Caliper(in)	Caliper(in)
	3.03	3.00	2.98	3.00	6.00
Caliper Constants MIE-B.A 254					
Caliper Difference for BRKT			0.120	inches	
Navigation Constants MIE-B.A 254					
Magnetic Declination			4.18	degrees	East
Induction Calibration MAI-B.J 394					
Base Calibration on 04-OCT-2010,19:10					
Field Check on 16-JUN-2014 09:06					
Base Calibration					
Test Loop Calibration		Measured	Calibrated (mmho/m)		
Channel	Low	High	Low	High	
1	16.7	473.5	9.3	966.2	
2	5.6	368.9	7.6	821.4	
3	3.3	256.4	5.2	566.0	
4	1.8	133.4	2.6	279.2	
Array Temperature		22.1	Deg F		
Channel	Base Check (mmho/m)		Field Check (mmho/m)		
	Low	High	Low	High	
1			14.4	3834.7	
2			32.3	3652.4	
3			29.2	3084.3	
4			19.6	2069.2	
Deep			16.4	1912.3	
Medium			43.5	4145.1	
Shallow			50.4	5540.1	
Array Temperature			76.8	Deg F	
Induction Constants MAI-B.J 394					
Last Edited on 17-JUN-2014,22:35					
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		0.0050	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-B.J 394

Field Calibration on 10-JUN-2014,13:25

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

High Resolution Temperature Constants MAI-B.J 394

Last Edited on 10-JUN-2014,13:25

Pre-filter Length	11
-------------------	----

Caliper Calibration MPD-D.A 512

Base Calibration on 13-JUN-2014 14:03

Field Calibration on 16-JUN-2014 09:10

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	18248	4.00
2	27930	5.97
3	37808	7.96
4	47542	9.86
5	58659	11.88
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
5.92	5.97

Photo Density Calibration MPD-D.A 512

Base Calibration on 13-JUN-2014 13:56

Field Check on 16-JUN-2014 09:15

Density Calibration

Base Calibration	Measured		Calibrated (sdu)	
	Near	Far	Near	Far
Background	1328	1515		
Reference 1	58743	29103	59494	30754
Reference 2	24501	2866	24557	2522

Field Check at Base

1327.7	1514.6
--------	--------

Field Check

1326.3	1516.4
--------	--------

PE Calibration

Base Calibration	WS	Measured		Calibrated
		WH	Ratio	Ratio
Background	251	1191		
Reference 1	24772	58530	0.428	0.367
Reference 2	7270	24351	0.303	0.271

Field Check at Base

250.6	1191.2
-------	--------

Density Constants MPD-D.A 512

Last Edited on 17-JUN-2014,15:52

Density Source Id	P74840B	
Nylon Calibrator Number	756	
Aluminium Calibrator Number	633	
Density Shoe Profile	4 inch	
Caliper Source for Processing	Density Caliper	
PE Correction to Density	Not Applied	
Mud Density	1.02	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 (m)
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	0.00

DOWNHOLE EQUIPMENT

D:\14_01_3220_WLS\DATA\15191227400100_Jenny 3404 2-18H\36386RTAP2.dta

Shuttle Running Tool 3.5"

SRT-A.A 79 LG: 6.62 ft WT: 37.5 lb OD: 2.520 in

SKJ-E.A Compact Knuckle Joint

SKJ-E.A 165 LG: 2.17 ft WT: 24.3 lb OD: 2.240 in

Short Spacer

MLK-E.A 105 LG: 7.84 ft WT: 99.2 lb OD: 2.240 in



MBS-G.A 200v Compact Battery Sub
MBS-G.A 119 LG: 17.06 ft WT: 123.5 lb OD: 2.240 in

Compact Memory Sub F.A
MMS-F.A 262 LG: 5.20 ft WT: 37.5 lb OD: 2.244 in

Compact Tool Isolator sub.
MTI-C.A 151 LG: 1.54 ft WT: 13.2 lb OD: 2.244 in

Compact Short Gamma
MGS-C.J 135 LG: 3.41 ft WT: 24.3 lb OD: 2.244 in

- 93.93 ft GRGM - MGS Gamma Ray

- 91.94 ft GSXT - MGS External Temperature

Compact Collar Locator
MCL-B.J 60 LG: 3.17 ft WT: 26.5 lb OD: 2.244 in

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

SHA-J.A Compact Swivel Head Adaptor

SHA-J.A 438 LG: 2.30 ft WT: 22.0 lb OD: 2.244 in

SKJ-E.B Compact Knuckle Joint

SKJ-E.B 472 LG: 2.17 ft WT: 24.3 lb OD: 2.244 in

MIS-E.B Compact Inline Standoff sub

MIS-E.B 789 LG: 2.14 ft WT: 15.4 lb OD: 2.244 in

Compact Focussed Electric

MFE-C.A 396 LG: 6.05 ft WT: 48.5 lb OD: 2.240 in

48.22 ft FEFE - Shallow FE

MIS-D.A Compact Inline Bowspring sub

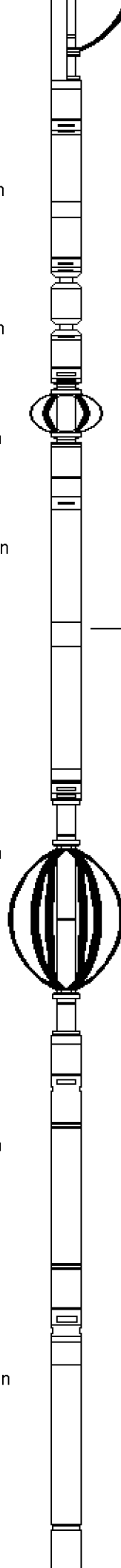
MIS-D.A 333 LG: 5.70 ft WT: 33.1 lb OD: 2.240 in

Compact MMI Memory Section

MIM-A.J 233 LG: 4.65 ft WT: 26.5 lb OD: 2.244 in

Compact MMI Electrode Section

MIE-B.A 254 LG: 13.96 ft WT: 99.2 lb OD: 4.094 in



MIS-D.B Compact Inline Bowspring sub
MIS-D.B 606 LG: 5.70 ft WT: 33.1 lb OD: 2.240 in

SKJ-E.B Compact Knuckle Joint
SKJ-E.B 469 LG: 2.17 ft WT: 24.3 lb OD: 2.244 in

MIS-E.B Compact Inline Standoff sub
MIS-E.B 564 LG: 2.14 ft WT: 15.4 lb OD: 2.244 in

Compact Induction
MAI-B.J 394 LG: 10.81 ft WT: 48.5 lb OD: 2.240 in

23.05 ft IECX - MIE Caliper X
23.05 ft IECY - MIE Caliper Y
22.54 ft IEC2 - MIE Caliper 2
22.54 ft IEC6 - MIE Caliper 6
22.54 ft IEC8 - MIE Caliper 8
22.54 ft IEC4 - MIE Caliper 4

3.34 ft R20O - Array Ind. One Res 20
3.34 ft R30O - Array Ind. One Res 30
3.34 ft R40O - Array Ind. One Res 40
3.34 ft R60O - Array Ind. One Res 60
3.34 ft R85O - Array Ind. One Res 85
3.34 ft RTAO - Array Ind. One Res Rt

Tool Zero (0.13ft from bottom)

Total Length: 135.27 ft Weight: 1029.6 lb

All measurements relative to tool zero.

COMPANY SANDRIDGE EXPLORATION AND PRODUCTION LLC
WELL JENNY 3404 2-18H
FIELD BLUFF
PROVINCE/COUNTY SUMNER
COUNTRY/STATE USA / KANSAS

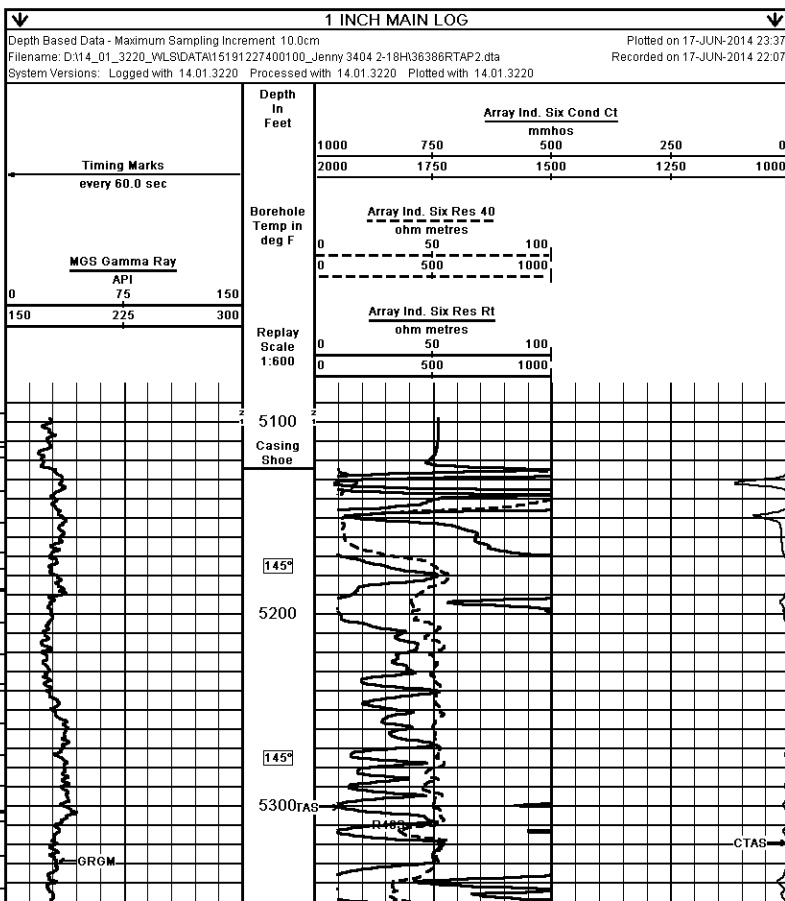
Elevation Kelly Bushing	1267.00	feet	First Reading	9321.00	feet
Elevation Drill Floor	1267.00	feet	Depth Driller	9352.00	feet
Elevation Ground Level	1249.00	feet	Depth Logger	9352.00	feet

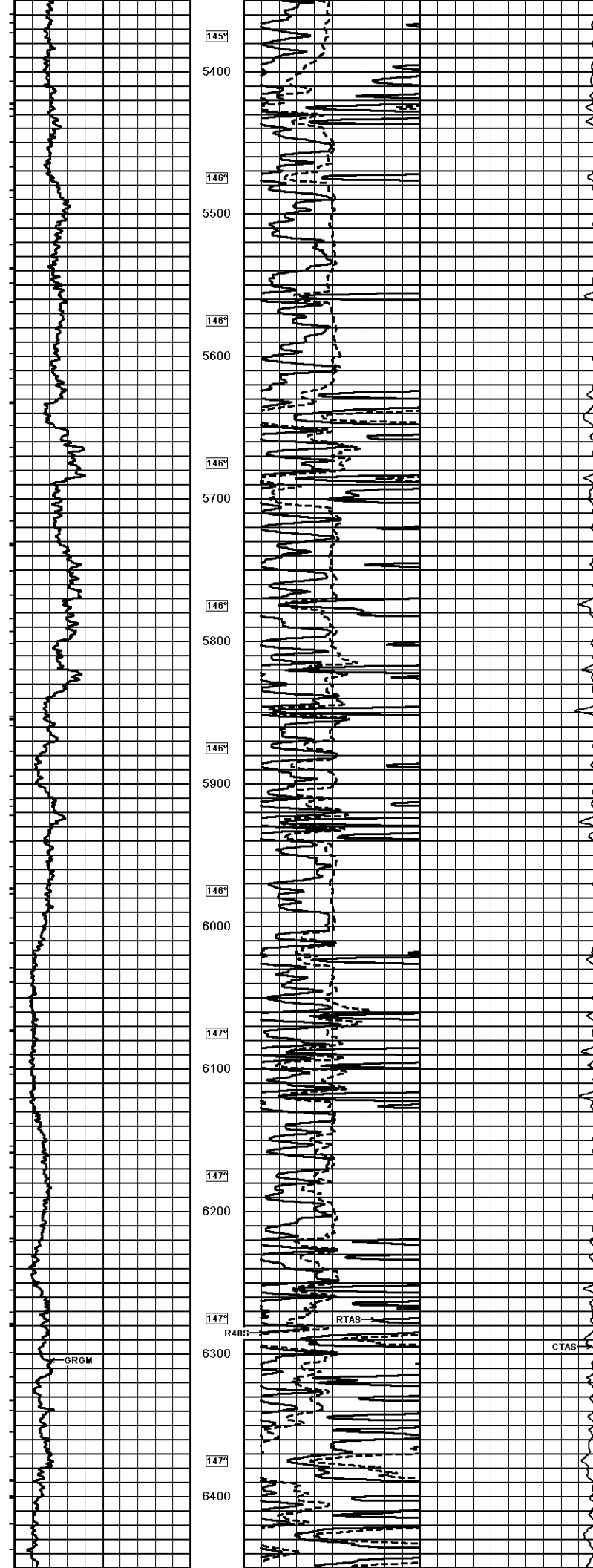


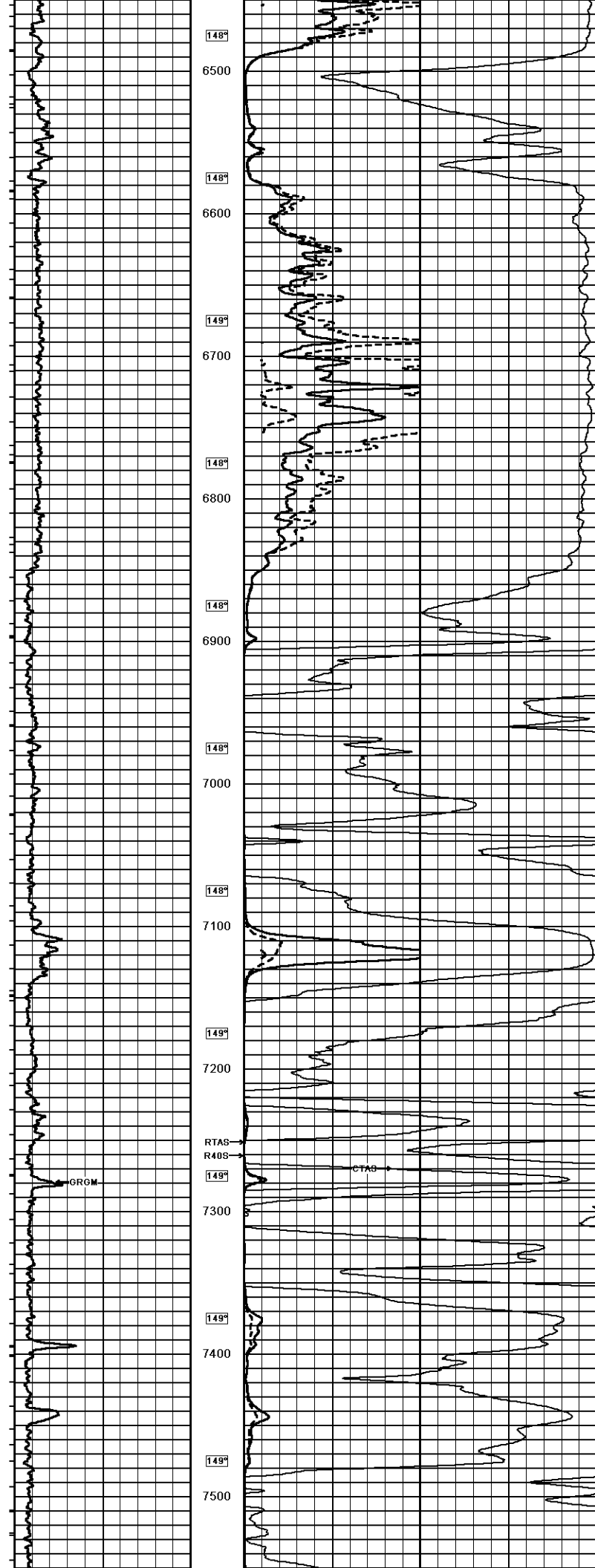
CML MESSENGER SHUTTLE
ARRAY INDUCTION
ELECTRIC LOG

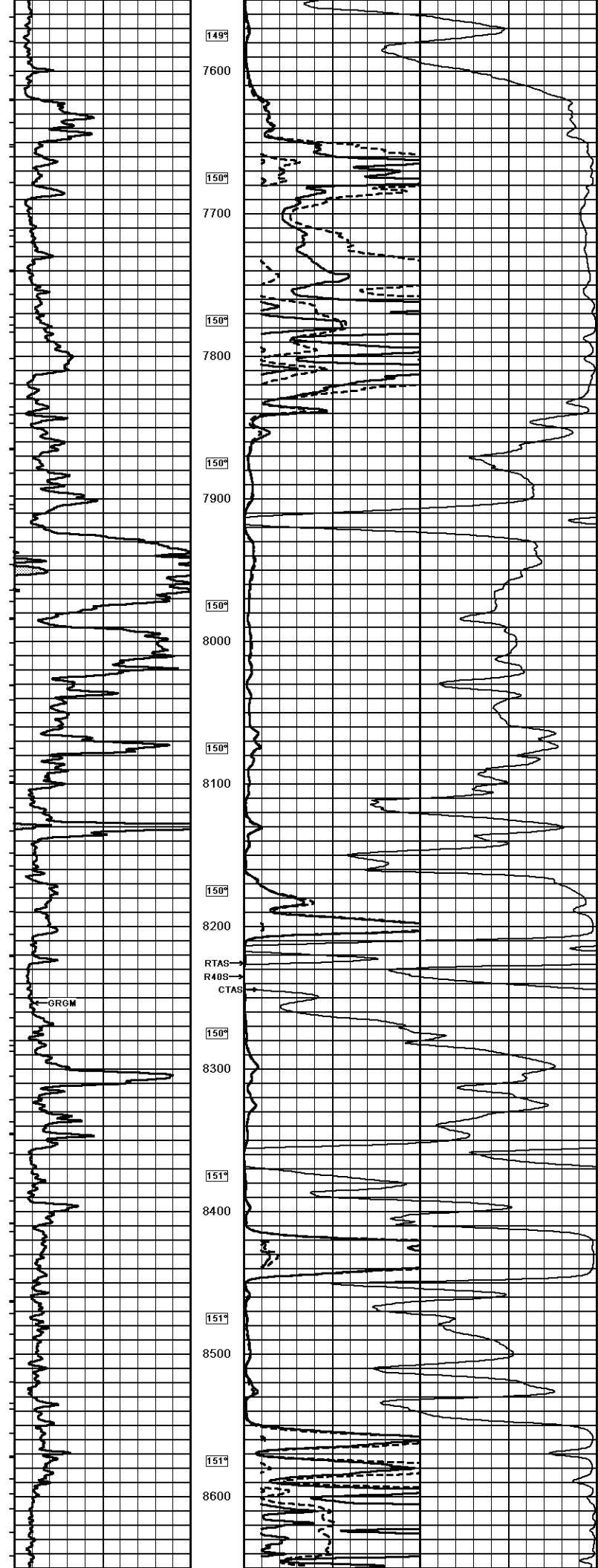
Weatherford®

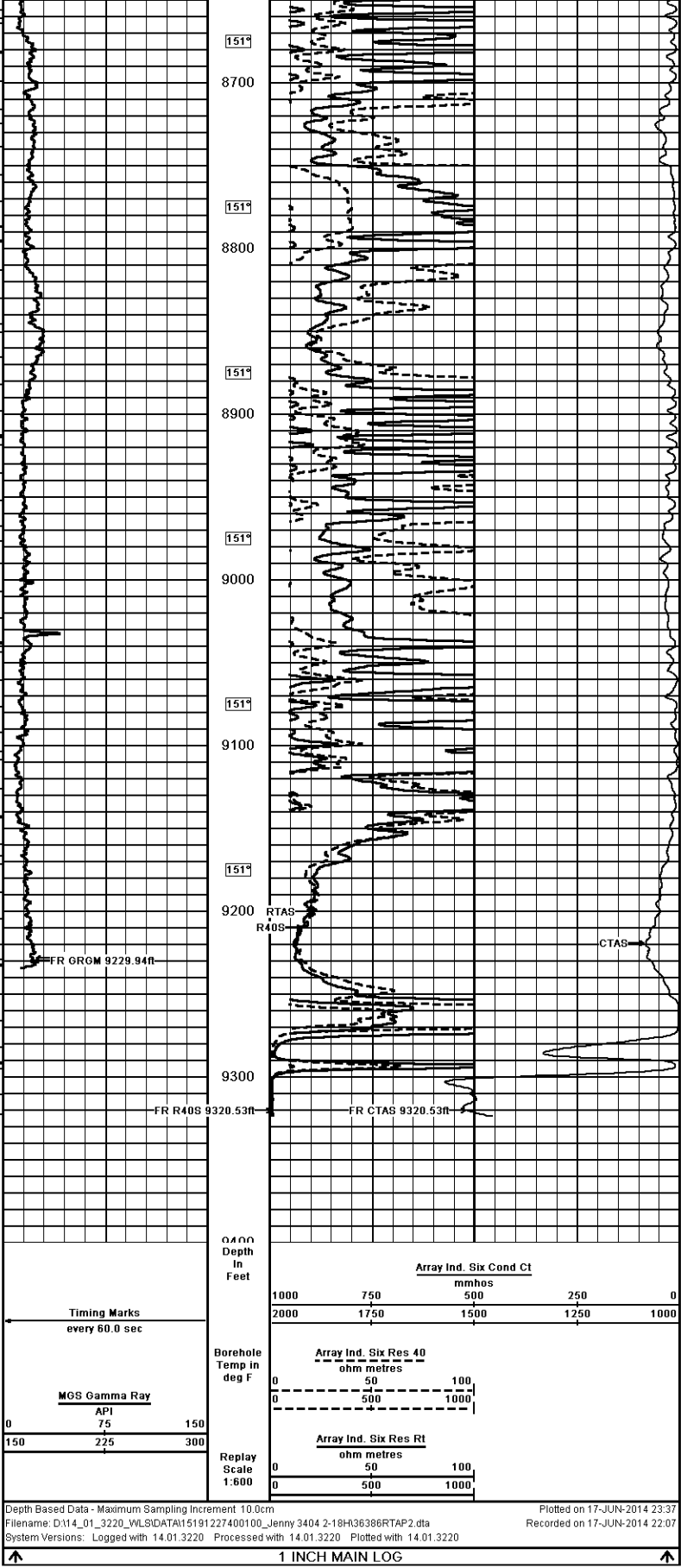
Weatherford		CML MESSENGER SHUTTLE ARRAY INDUCTION ELECTRIC LOG	
COMPANY	SANDRIDGE EXPLORATION AND PRODUCTION LLC	WELL	JENNY 3404 2-18H
FIELD	BLUFF	PROVINCE/COUNTY	SUMNER
COUNTRY/STATE	USA / KANSAS	LOCATION	SE SE SW NW 2440' FNL & 1100' FWL
PERMIT NUMBER	AFE # DC13850	SEC - 16	T1P- 34S R3E- 4W
Log Number	37.103828	Operator	Services
Longitude	97.739323	Latitude	37.103828
Permanent Datum G.L. Elevation	1249.00	Drilling Measured From	KB @ 18' AGL
Log Measured From	KB	Drilling Measured From	KB @ 18' AGL
Run Number	ONE	Service Order	3648-90113551
Depth Driller	9352.00	Depth Logger	9352.00
First Reading	9321.00	Log Reading	5120.00
Casing Driller	5121.00	Casing Logger	5124.00
Bit Size	6.125	Hole Fluid Type	WATER
Density/Viscosity	8.60	PH / Fluid Loss	10.00
Sample Source	FLOWLINE	Run @ Measured Temp	0.06 @ 84.0
Run @ Measured Temp	0.048 @ 84.0	Run @ Measured Temp	0.072 @ 84.0
Source Run / Hmc	CALC	Run @ BHT	0.035 @ 151.0
Time Since Circulation	16 HOURS	Max Recorded Temp	151.00
Equipment Base	18109	Recorded by	OTTMUELLER
Witnessed by	T BOAROMAN		











COMPANY		SANDRIDGE EXPLORATION AND PRODUCTION LLC			
WELL		JENNY 3404 2-18H			
FIELD		BLUFF			
PROVINCE/COUNTY		SUMNER			
COUNTRY/STATE		USA / KANSAS			
Elevation Kelly Bushing	1267.00	feet	First Reading	9321.00	feet
Elevation Drill Floor	1267.00	feet	Depth Driller	9352.00	feet
Elevation Ground Level	1249.00	feet	Depth Logger	9352.00	feet

