



Weatherford

CML MESSENGER SHUTTLE

ARRAY INDUCTION

LOG

COMPANY	SANDRIDGE ENERGY		
WELL	JENNIFER 3408 4-34H		
FIELD	STRANATHAN		
PROVINCE/COUNTY	HARPER		
COUNTRY/STATE	USA / KANSAS		
LOCATION	225' FSL & 660' FEL		
SEC	TWP	RGE	Other Services
34	34S	8W	MDN/ MPD
API Number	15-077-21902		
Permit Number			
Permanent Datum G.L., Elevation 1270 feet			Elevations: feet
Log Measured From DF			KB 1286.00
Drilling Measured From DF @ 16 FEET			DF 1286.00
			GL 1270.00
Date	09-FEB-2013		
Run Number	ONE		
Depth Driller	9142.00	feet	
Depth Logger	9142.00	feet	
First Reading	9109.00	feet	
Last Reading	5252.00	feet	
Casing Driller	5252.00	feet	
Casing Logger	5252.00	feet	
Bit Size	6.125	inches	
Hole Fluid Type	WATER		
Density / Viscosity	8.40 lb/USg	27.00 CP	
PH / Fluid Loss	10.00	100.00 ml/30Min	
Sample Source	FLOWLINE		
Rm @ Measured Temp	1.40 @ 77.0	ohm-m	
Rmf @ Measured Temp	1.12 @ 77.0	ohm-m	
Rmc @ Measured Temp	1.68 @ 77.0	ohm-m	
Source Rmf / Rmc	CALC	CALC	
Rm @ BHT	0.79 @135.0	ohm-m	
Time Since Circulation	1 HOUR		
Max Recorded Temp	135.00	deg F	
Equipment Name	COMPACT		
Equipment / Base	18064	OKC	
Recorded By	B.ALLEN		
Witnessed By	T. ALCORN		
AFE #/ S.O.	DC12262		3539588

BOREHOLE RECORD

Last Edited: 09-FEB-2013 13:18

Bit Size inches	Depth From feet	Depth To feet
12.250	0.00	780.00
8.750	780.00	5252.00
6.125	5252.00	9142.00

REMARKS

LOGGED WITH WLS VER 13.03.7779 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

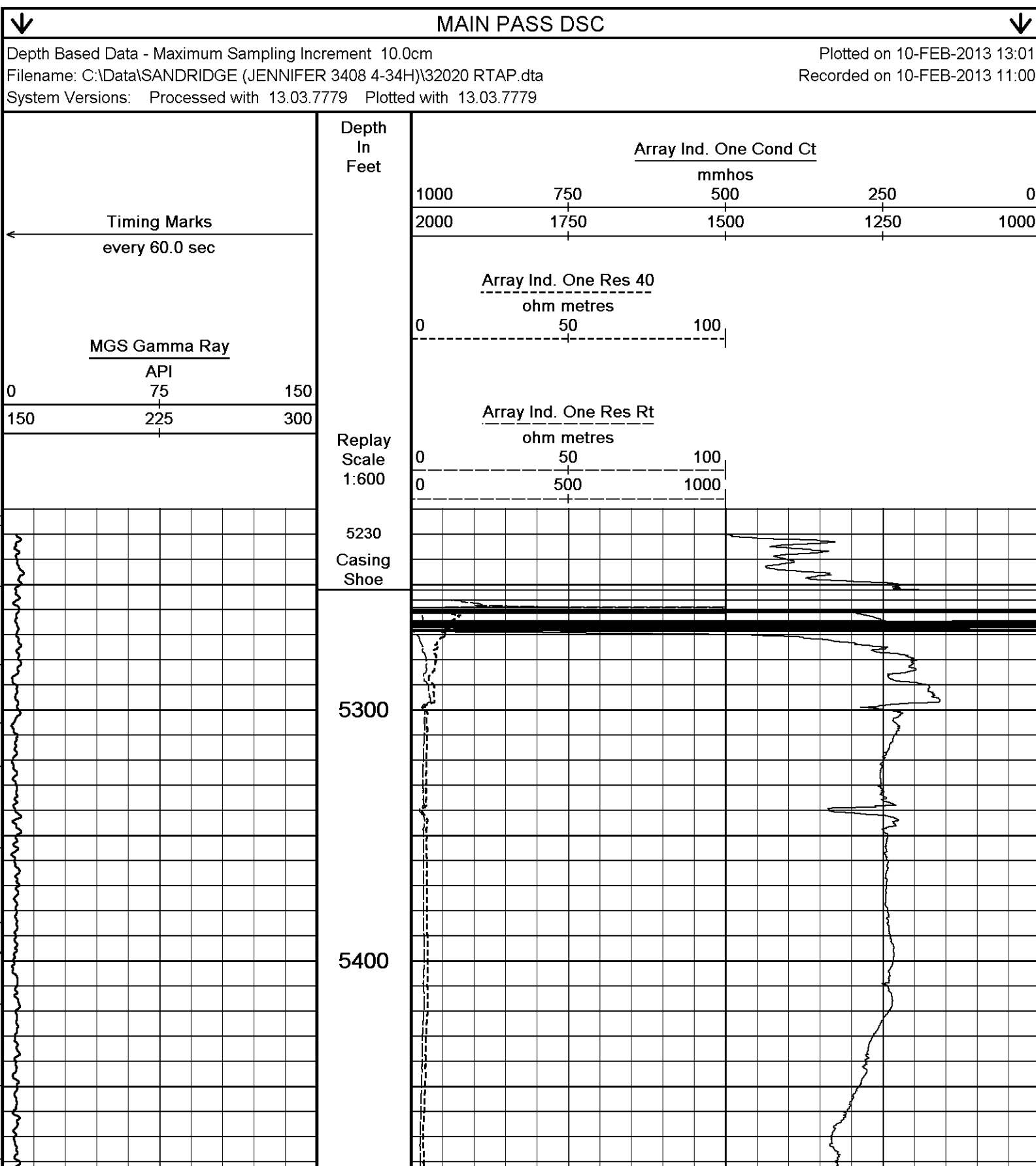
DRILL PIPE DEPTH DURING DEPLOYMENT - 9033

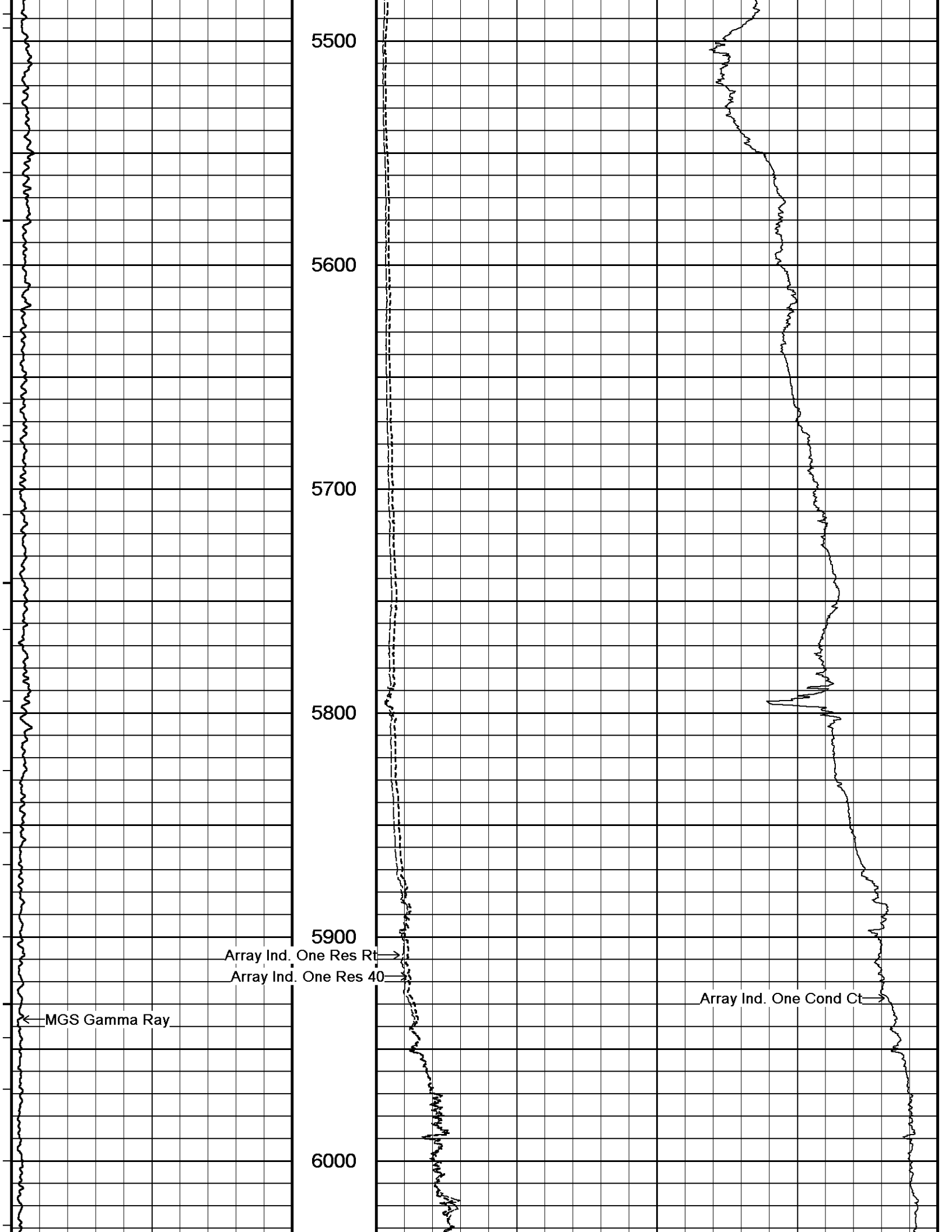
LOGGING TOOL DEPTH AFTER DEPLOYMENT: 9116

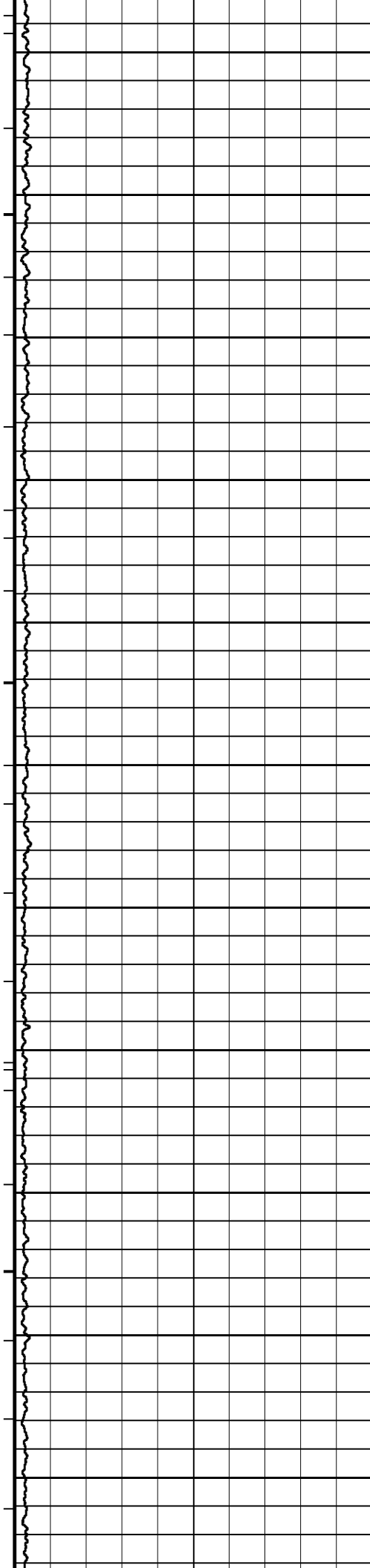
RIG PUMPED A SUITE PRIOR TO LOGGING BC OF A STICKY POINT 200 FEET ABOVE TD.

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.







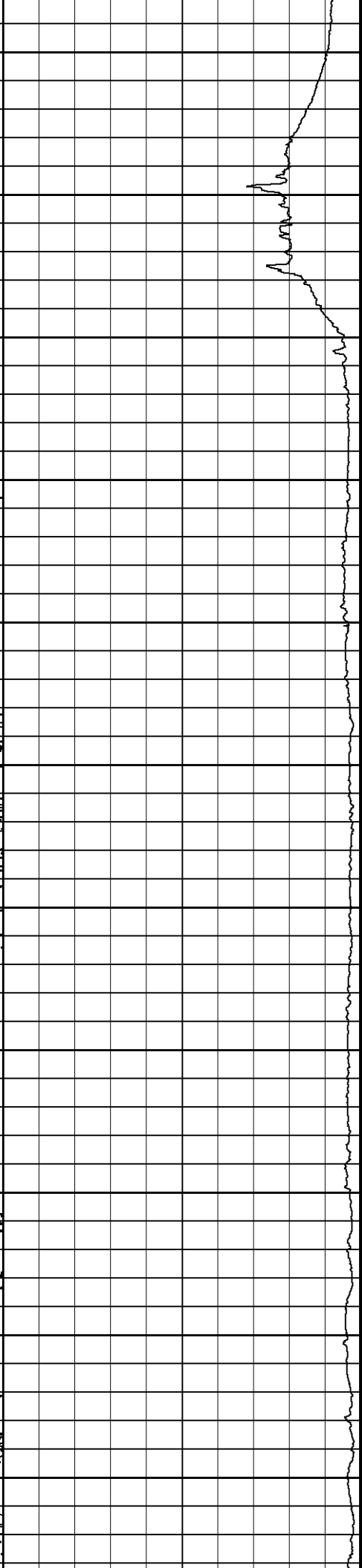
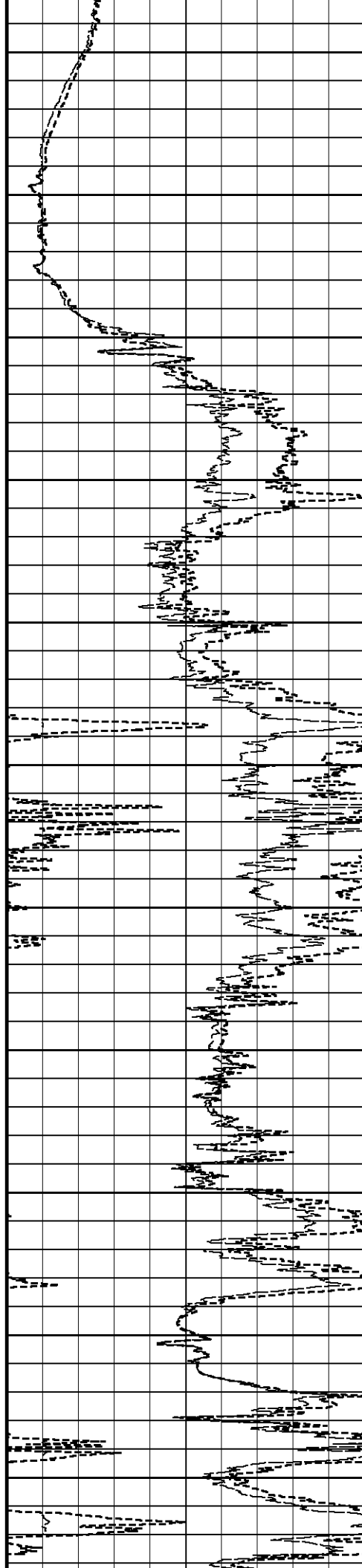
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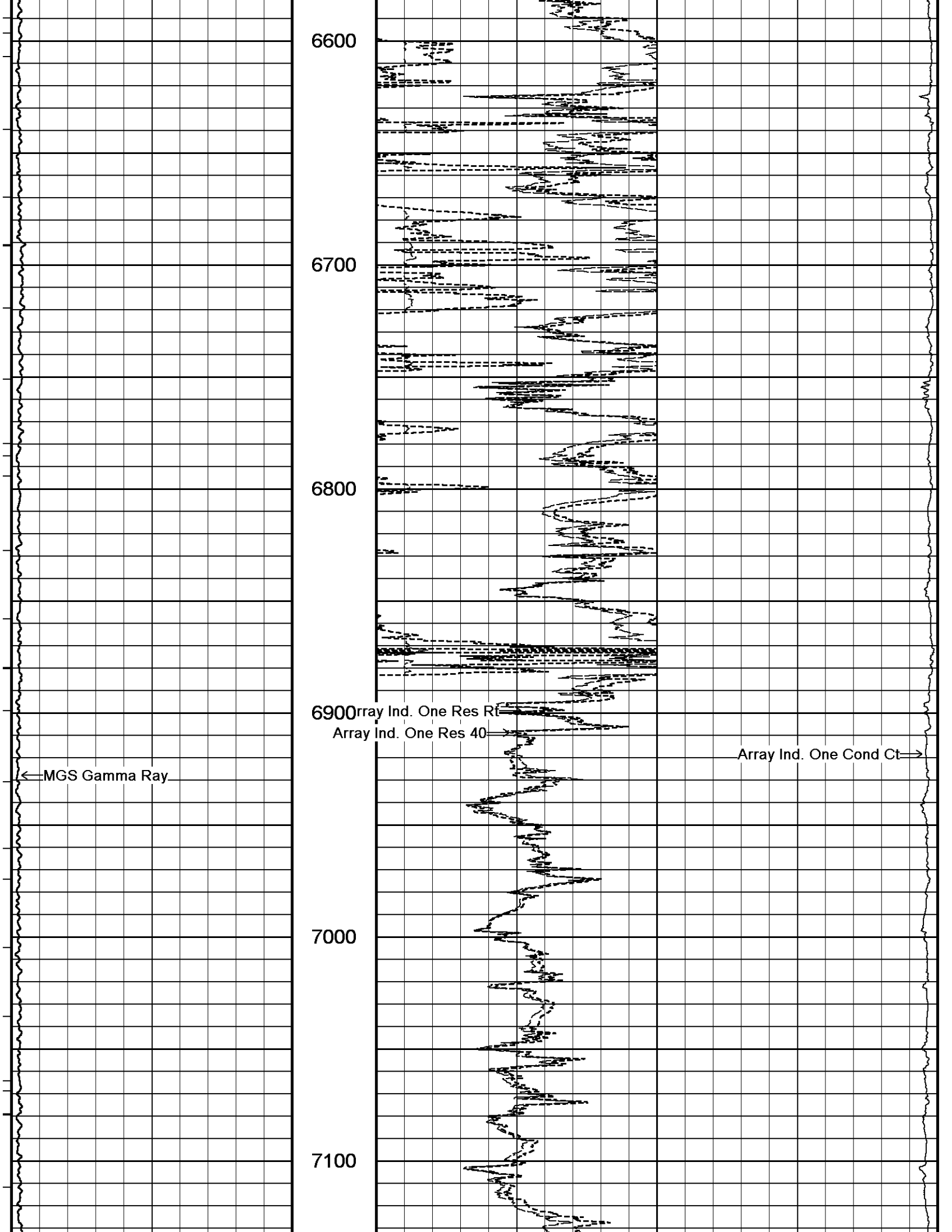
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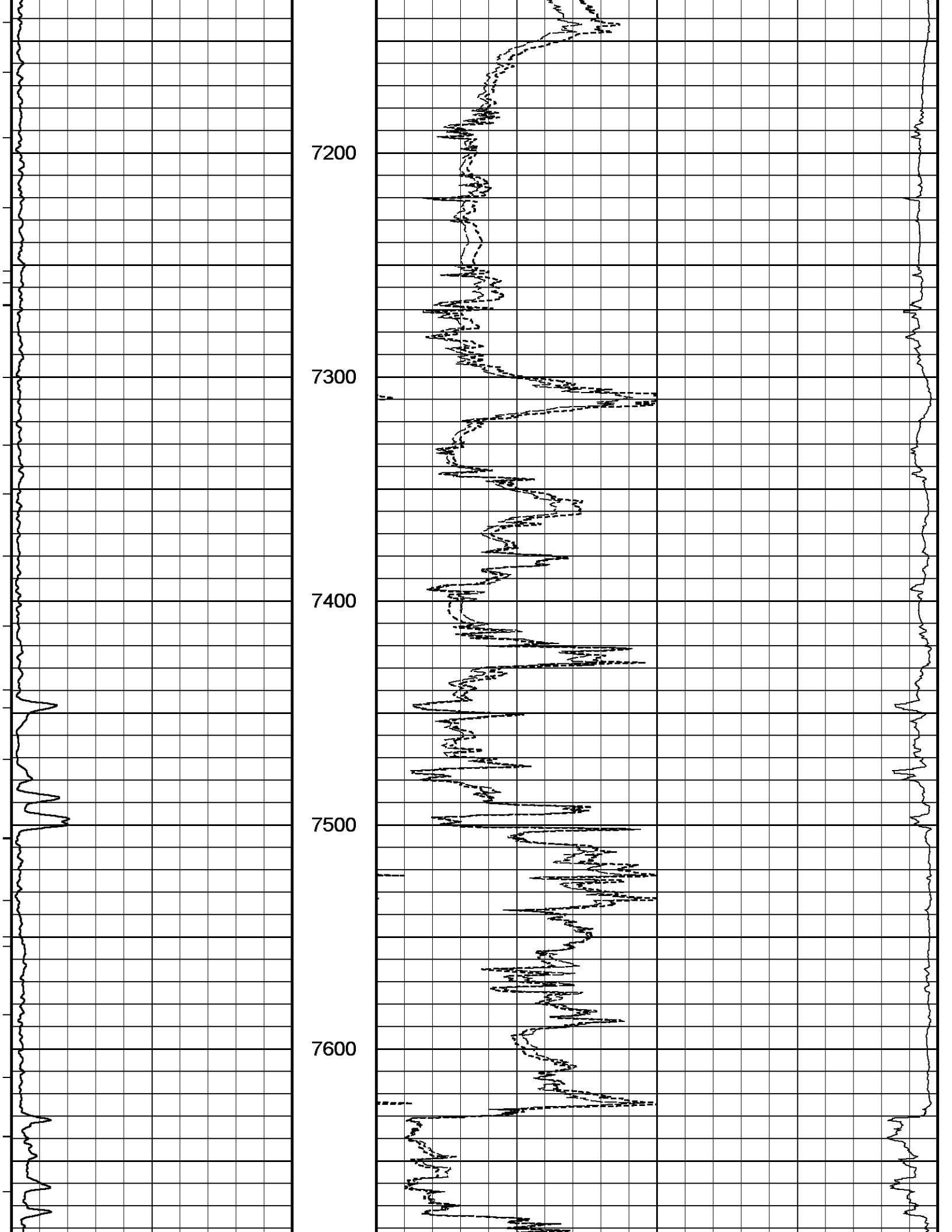
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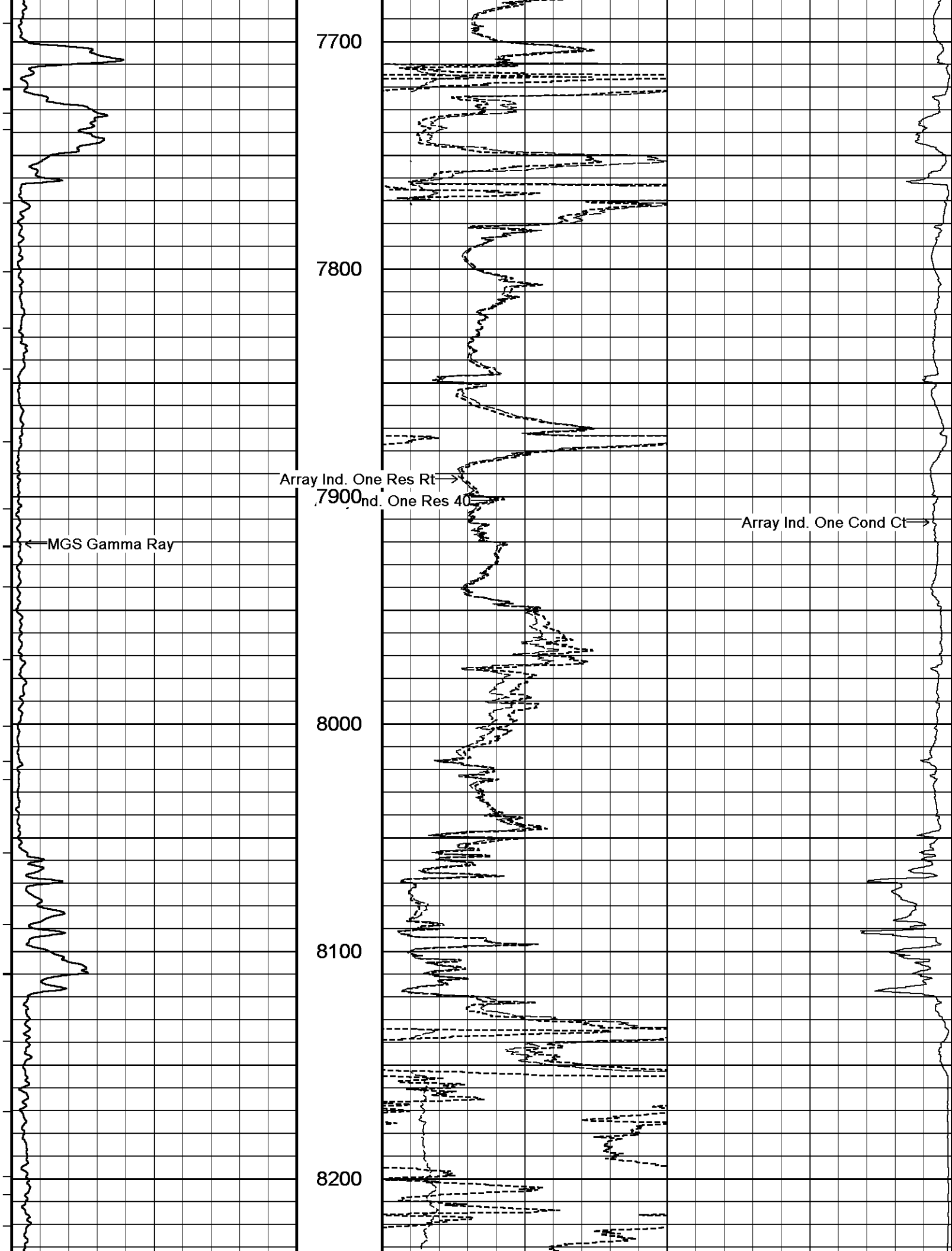
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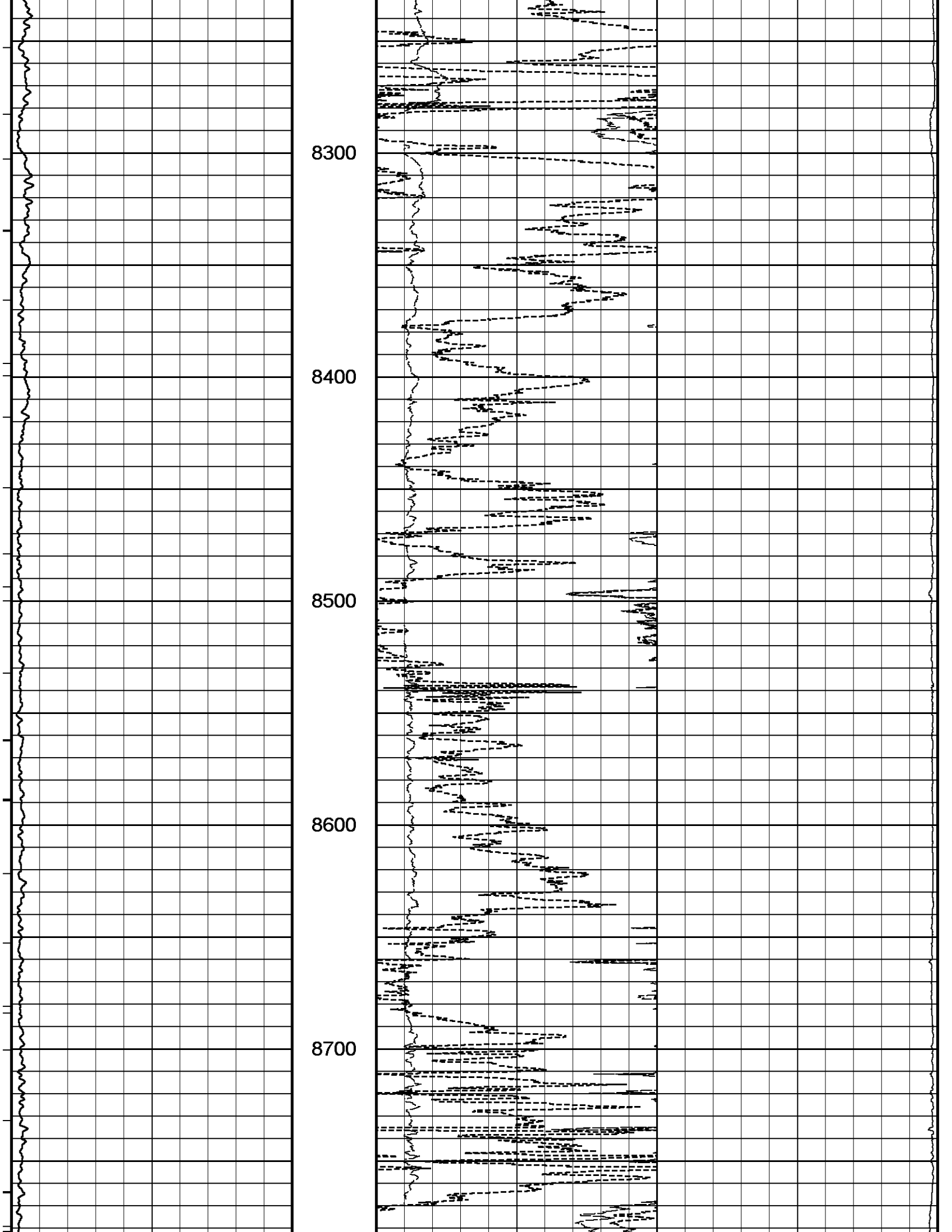
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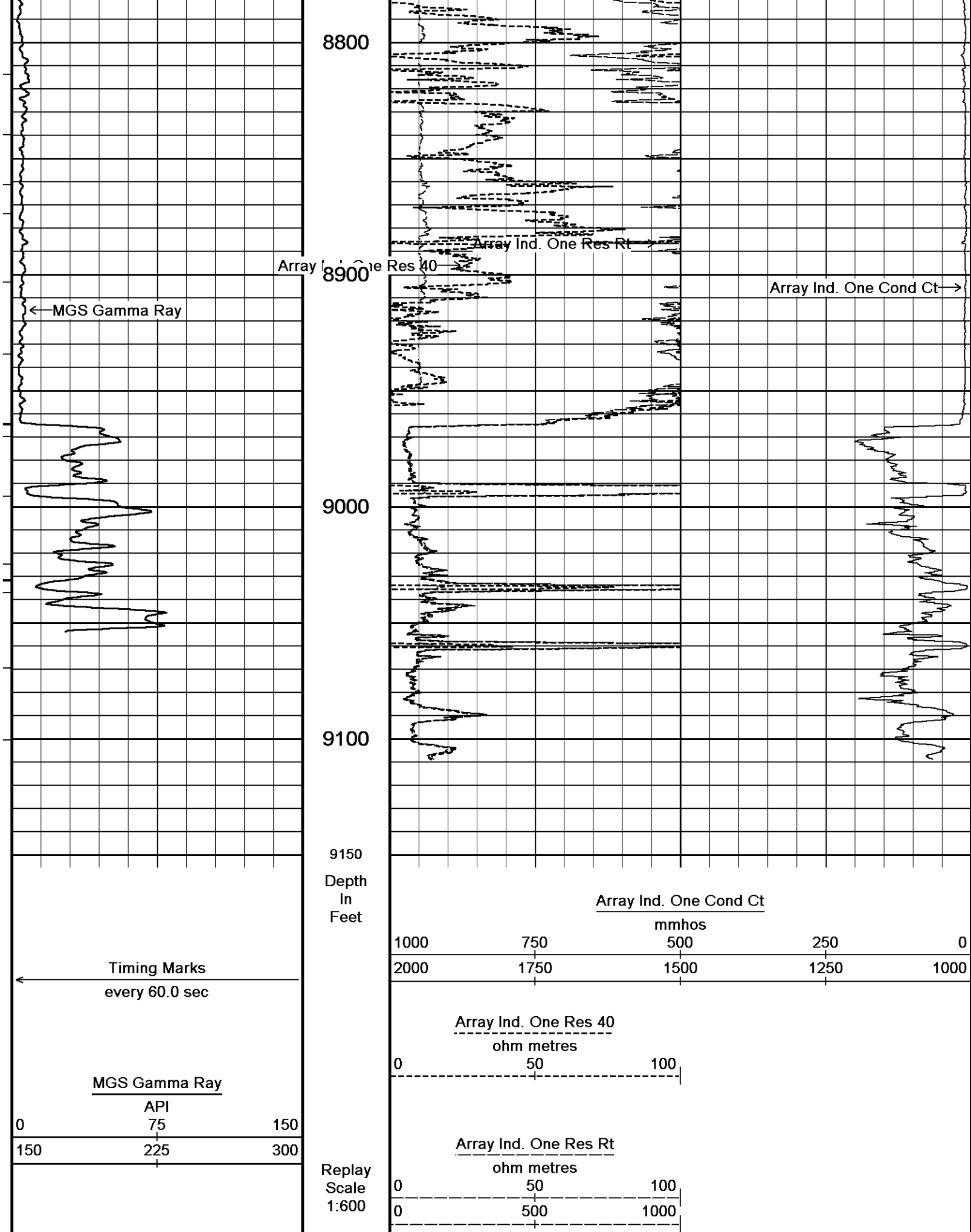




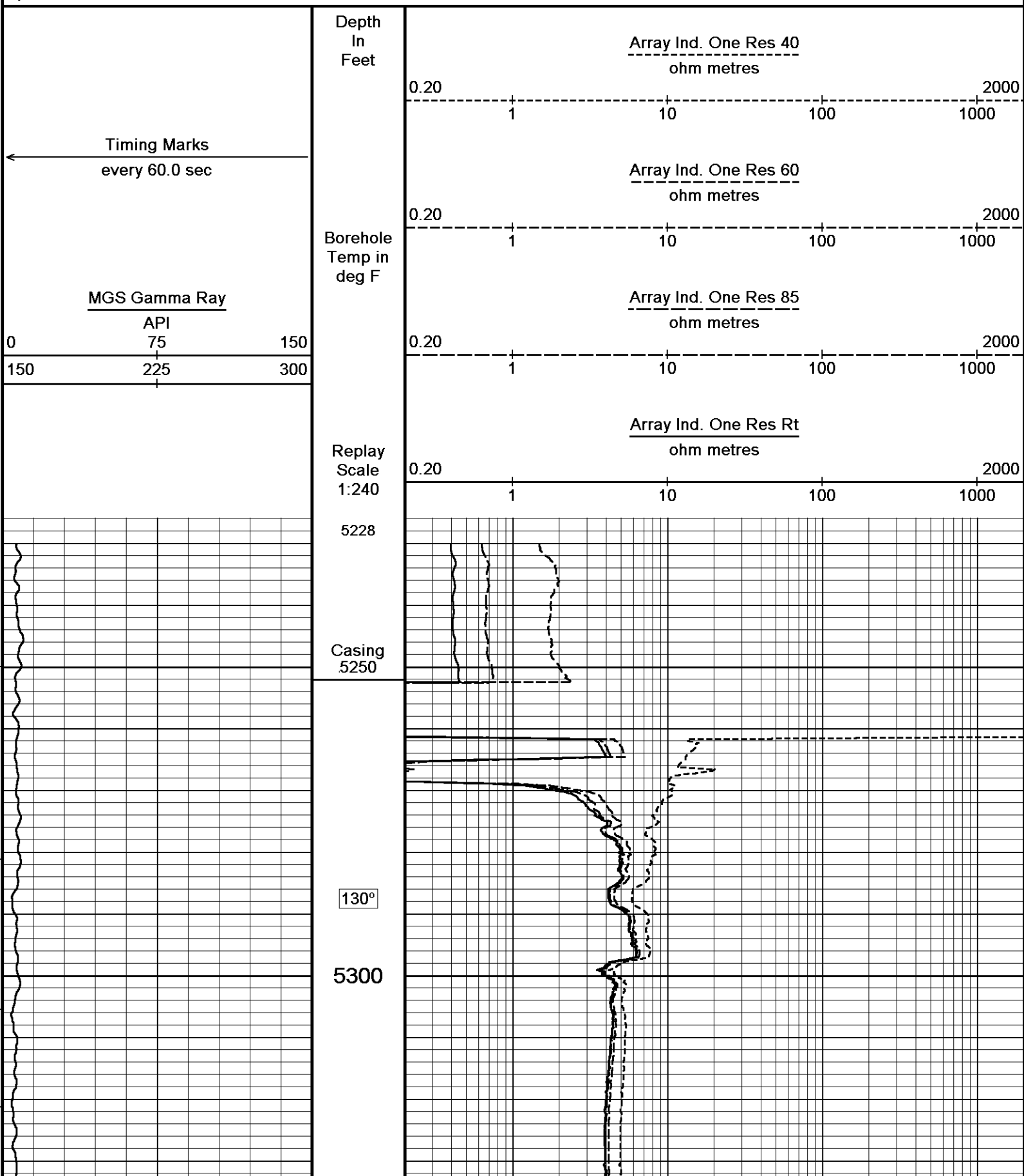


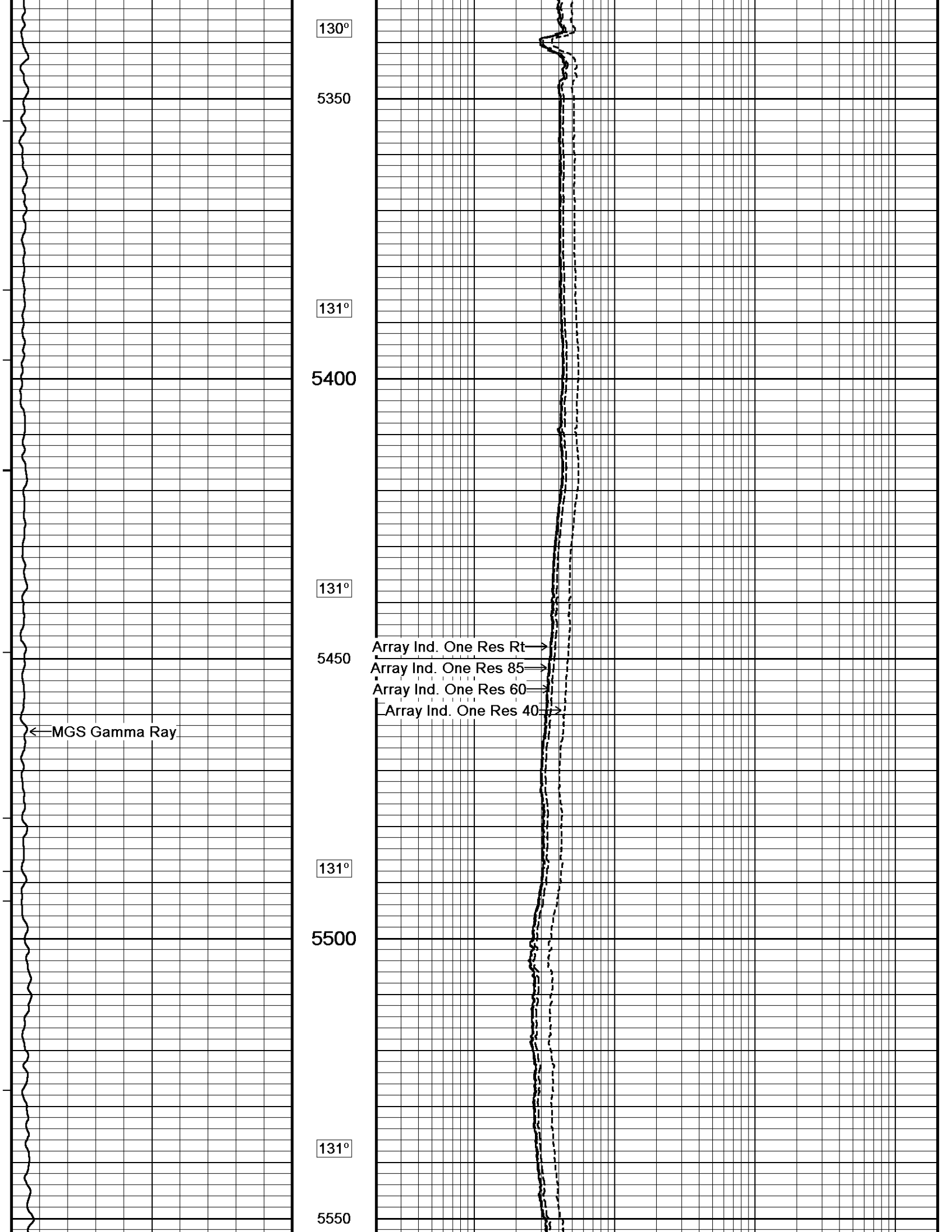


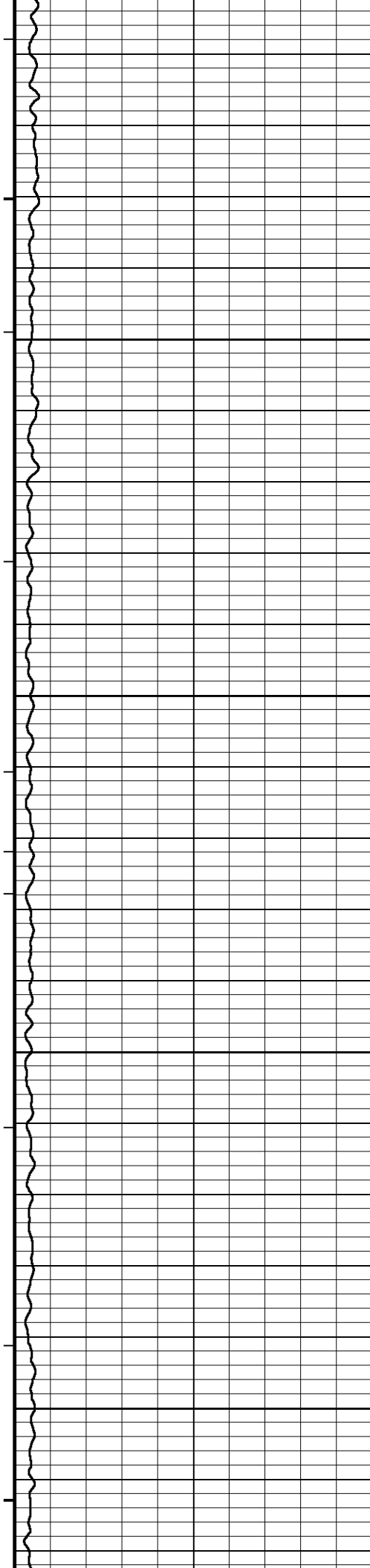




Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 10-FEB-2013 13:01
Filename: C:\Data\SANDRIDGE (JENNIFER 3408 4-34H)\32020 RTAP.dta
Recorded on 10-FEB-2013 11:00
System Versions: Processed with 13.03.7779 Plotted with 13.03.7779







131°

5600

131°

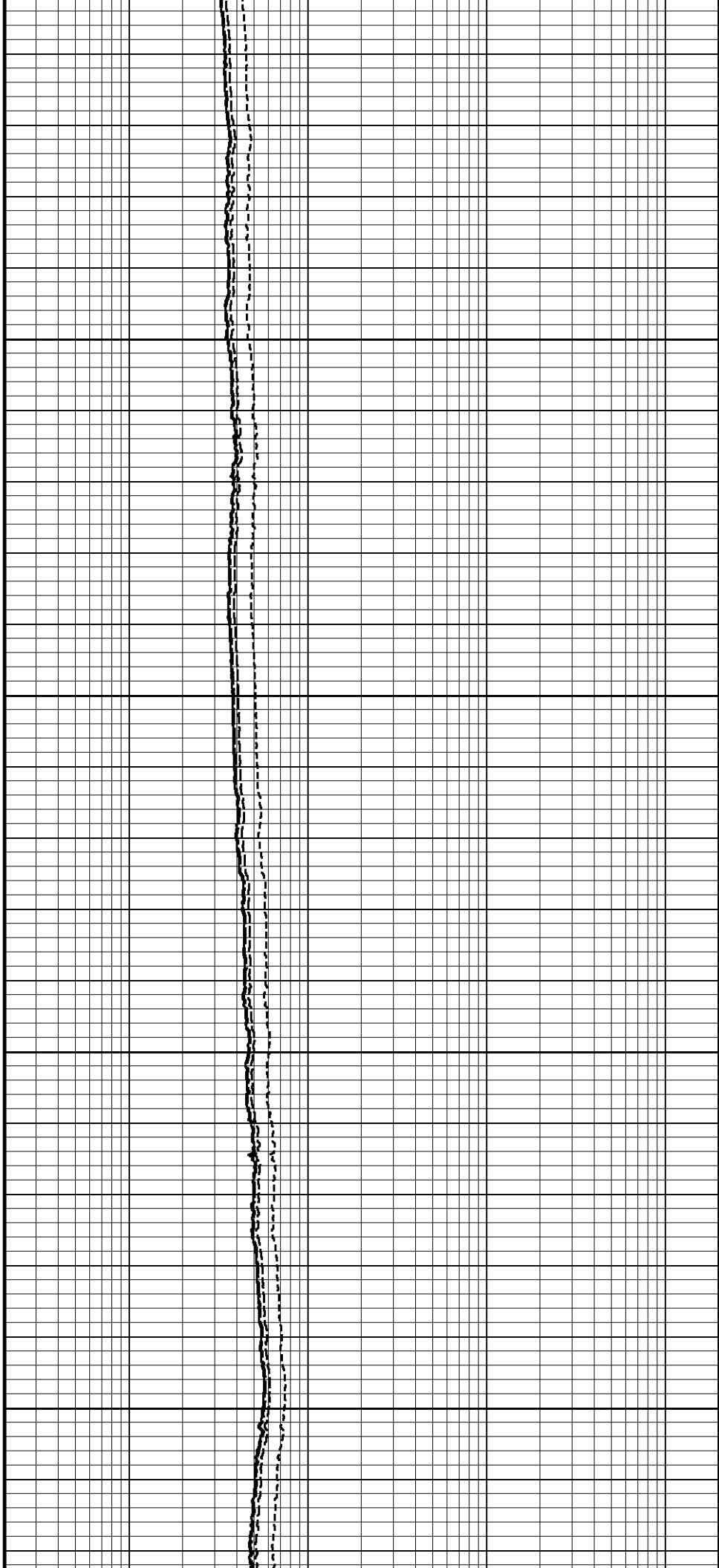
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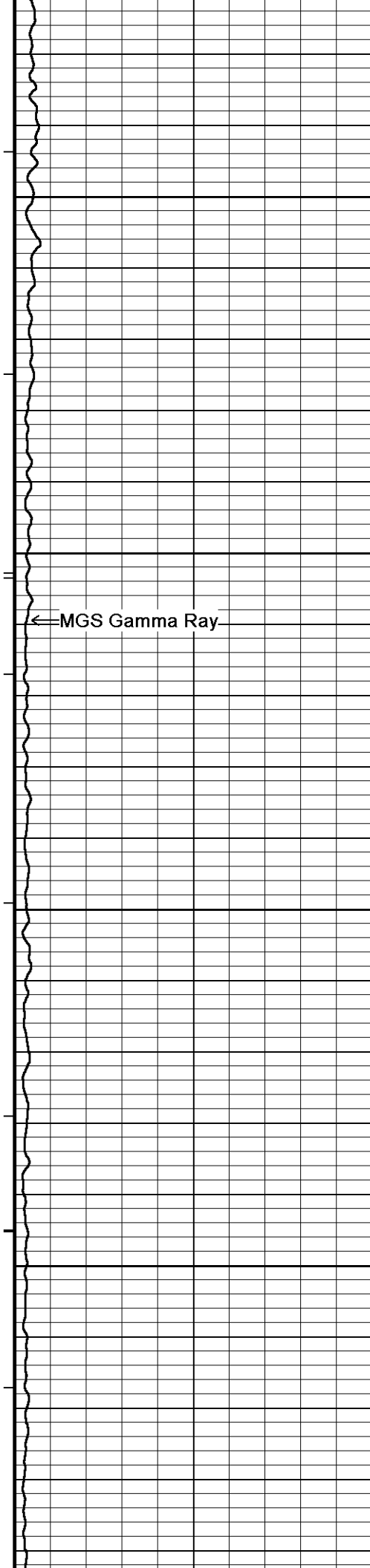
131°

5700

132°

5750





132°

5800

132°

5850

132°

5900

132°

5950

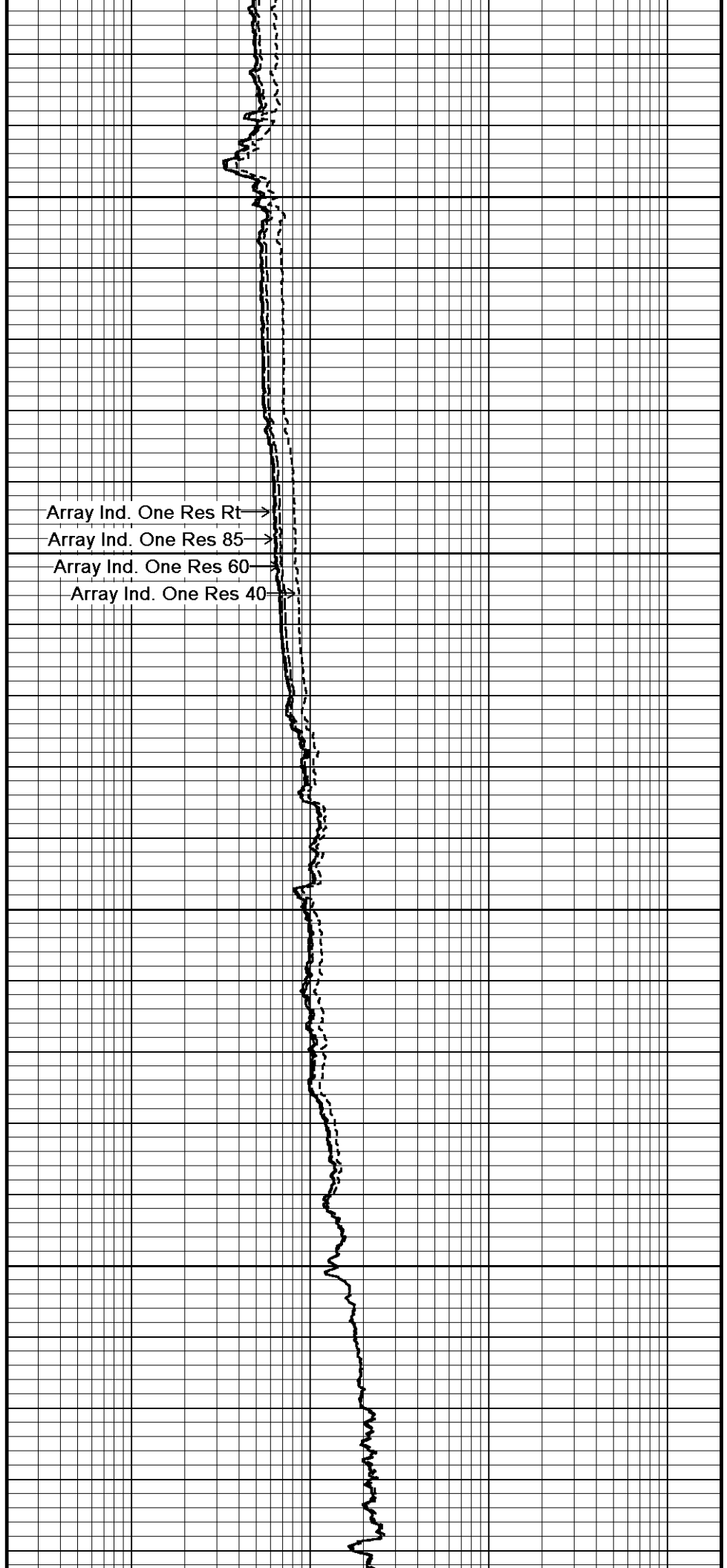
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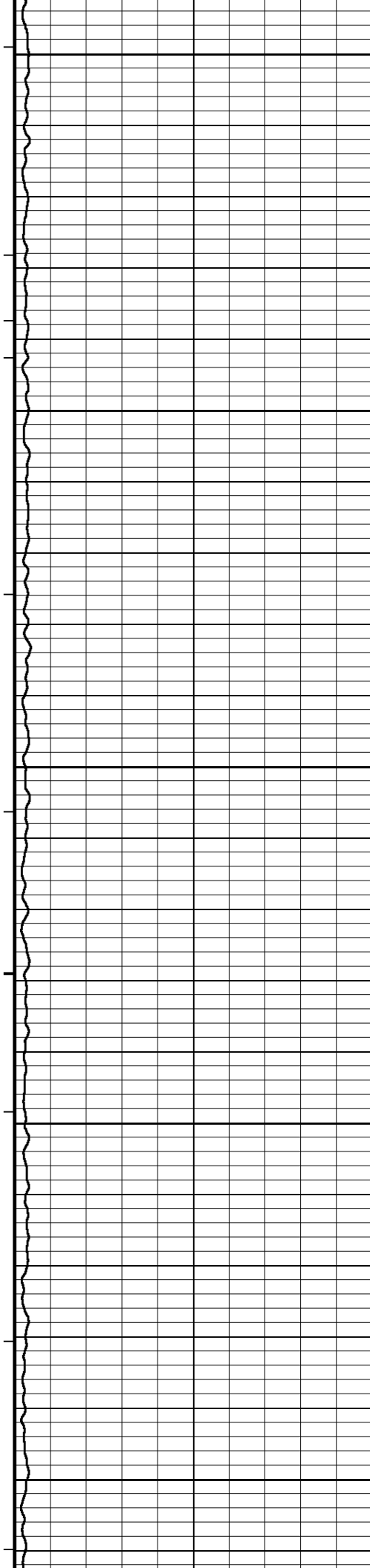
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Array Ind. One Res 85 →

Array Ind. One Res 60 →

Array Ind. One Res 40 →





6000

132°

6050

133°

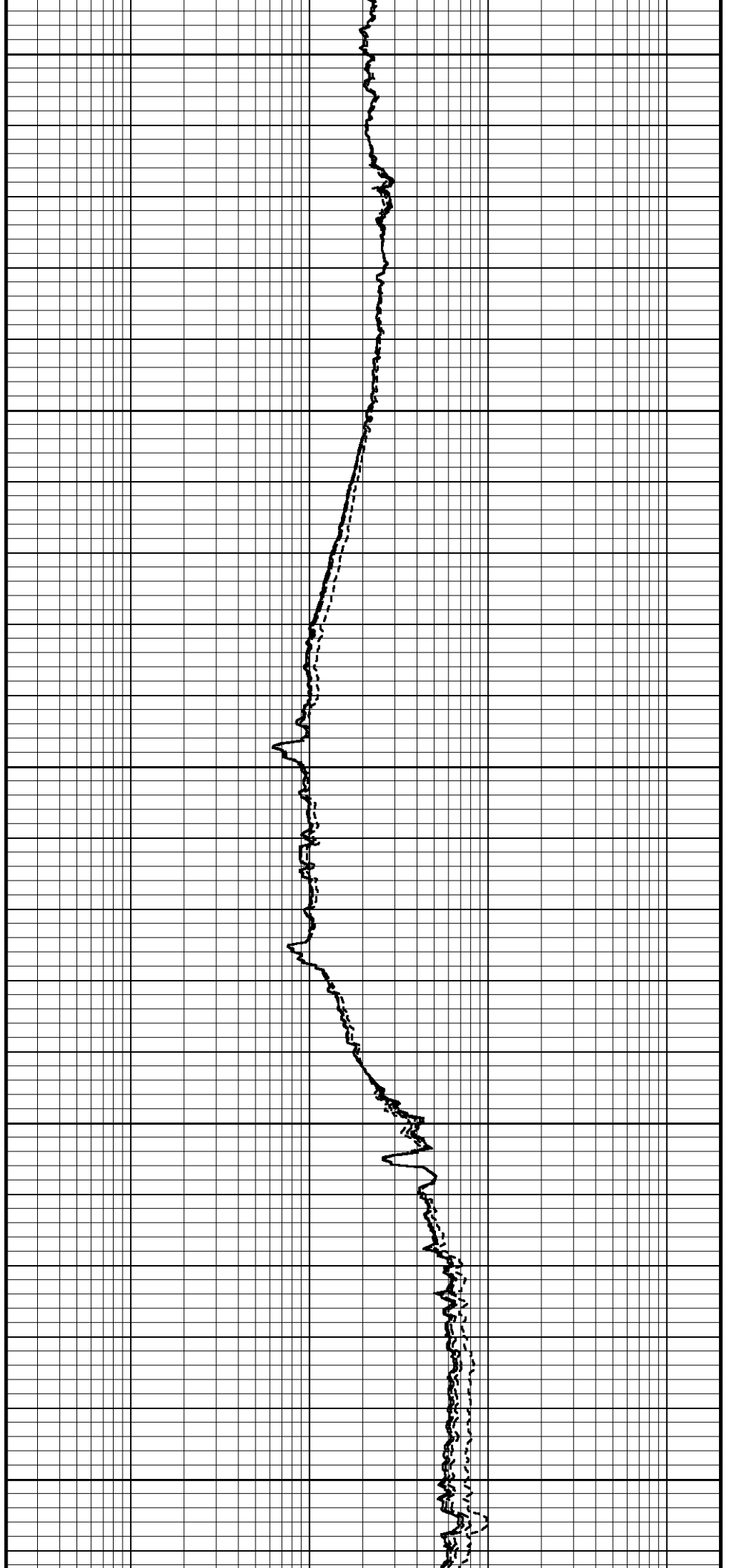
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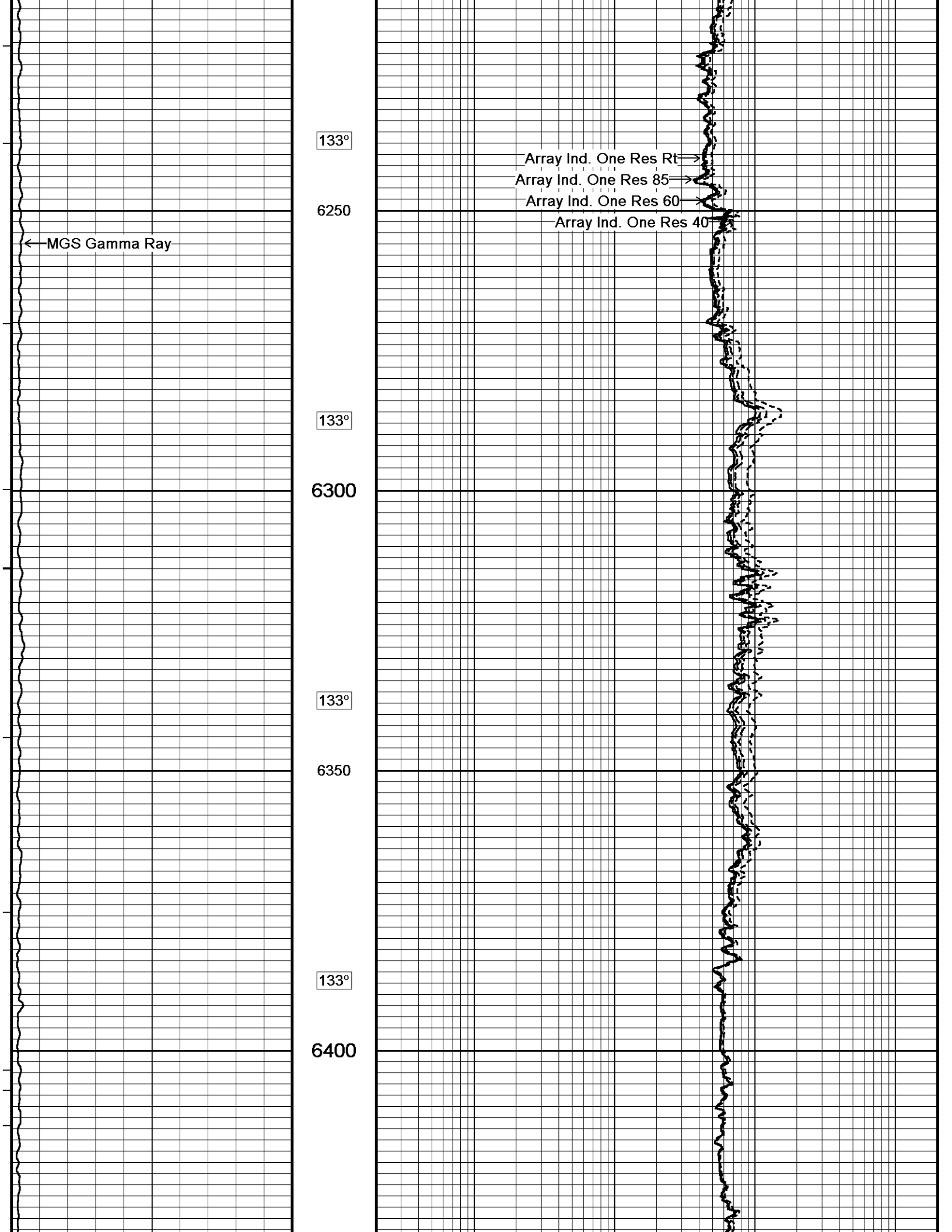
133°

6150

133°

6200





133°

Array Ind. One Res Rt
Array Ind. One Res 85
Array Ind. One Res 60
Array Ind. One Res 40

6250

← MGS Gamma Ray

133°

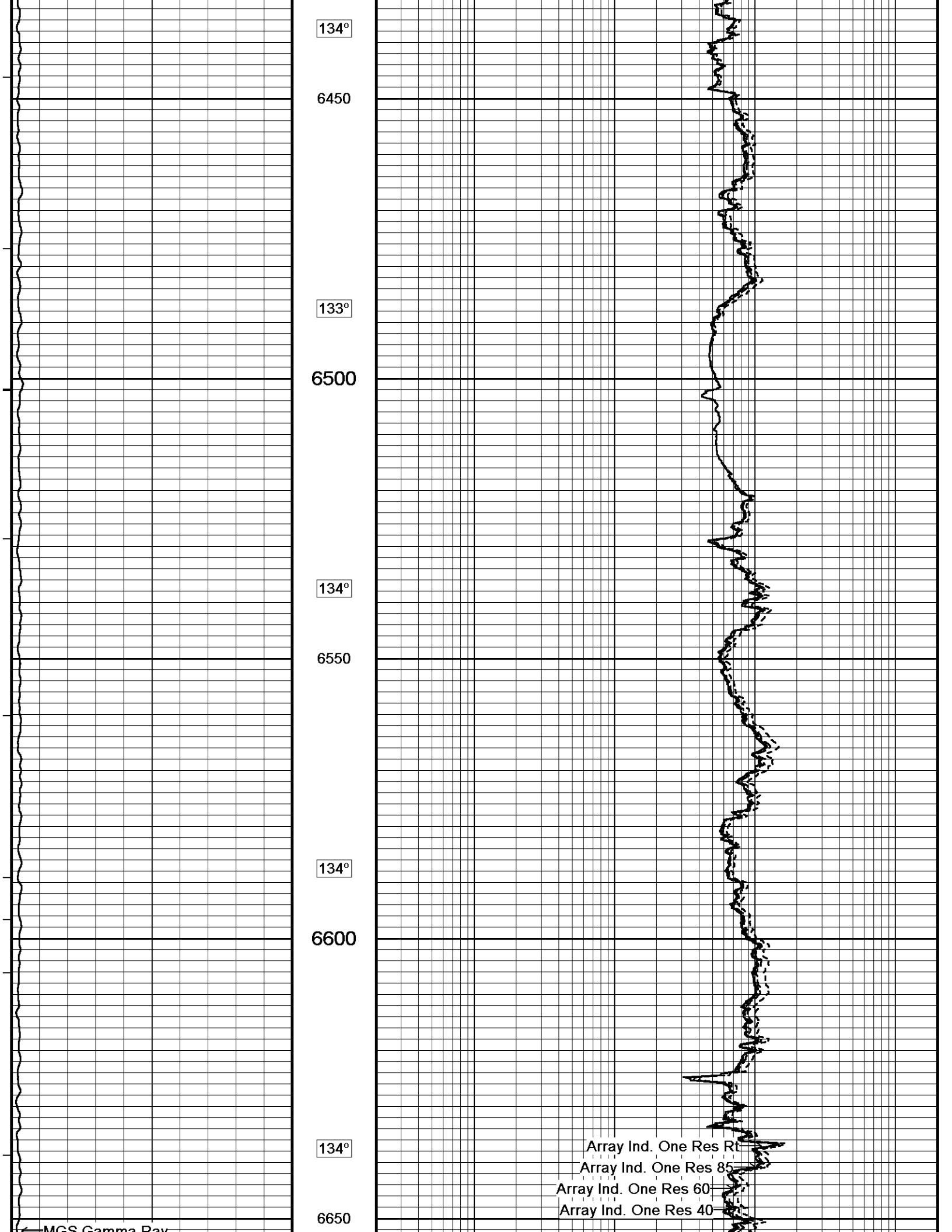
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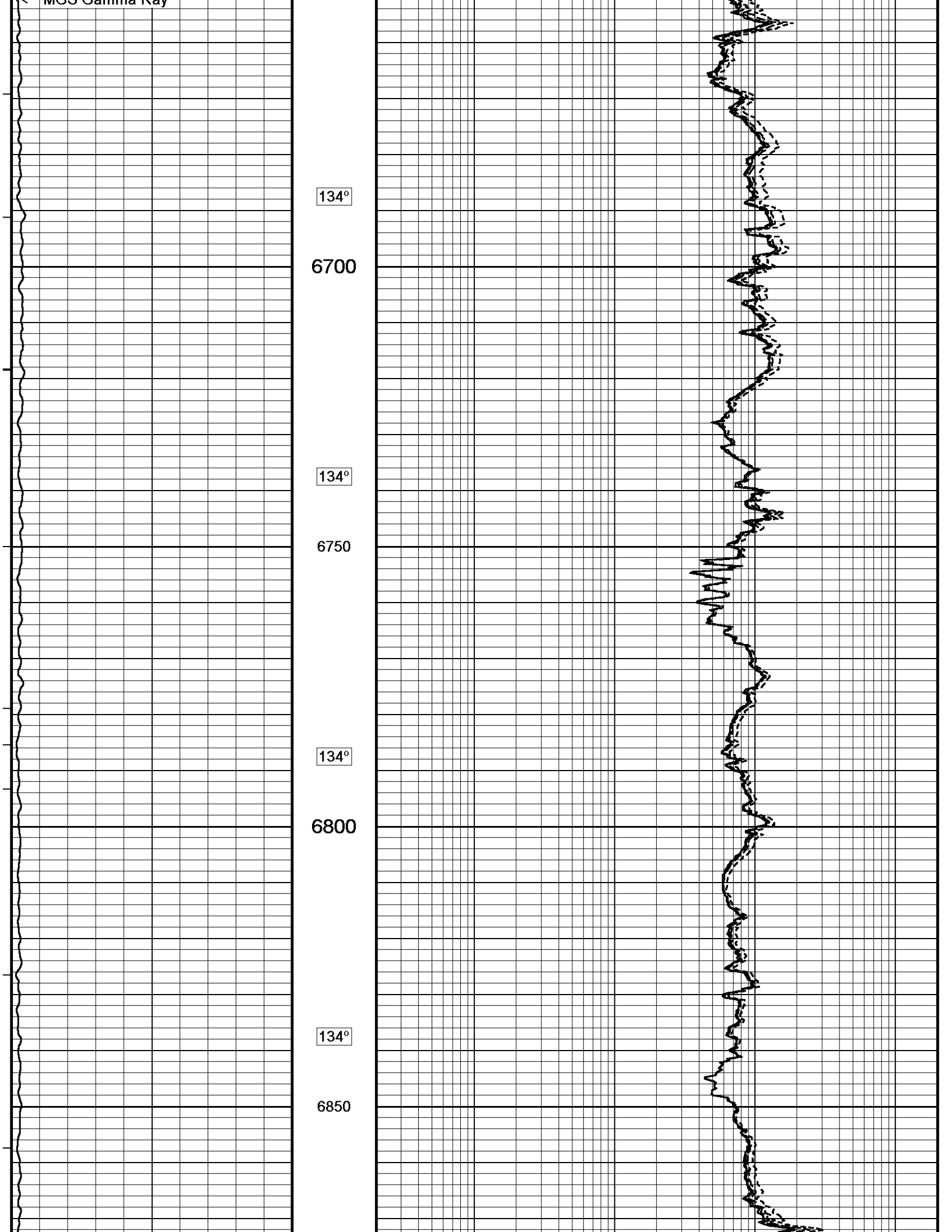
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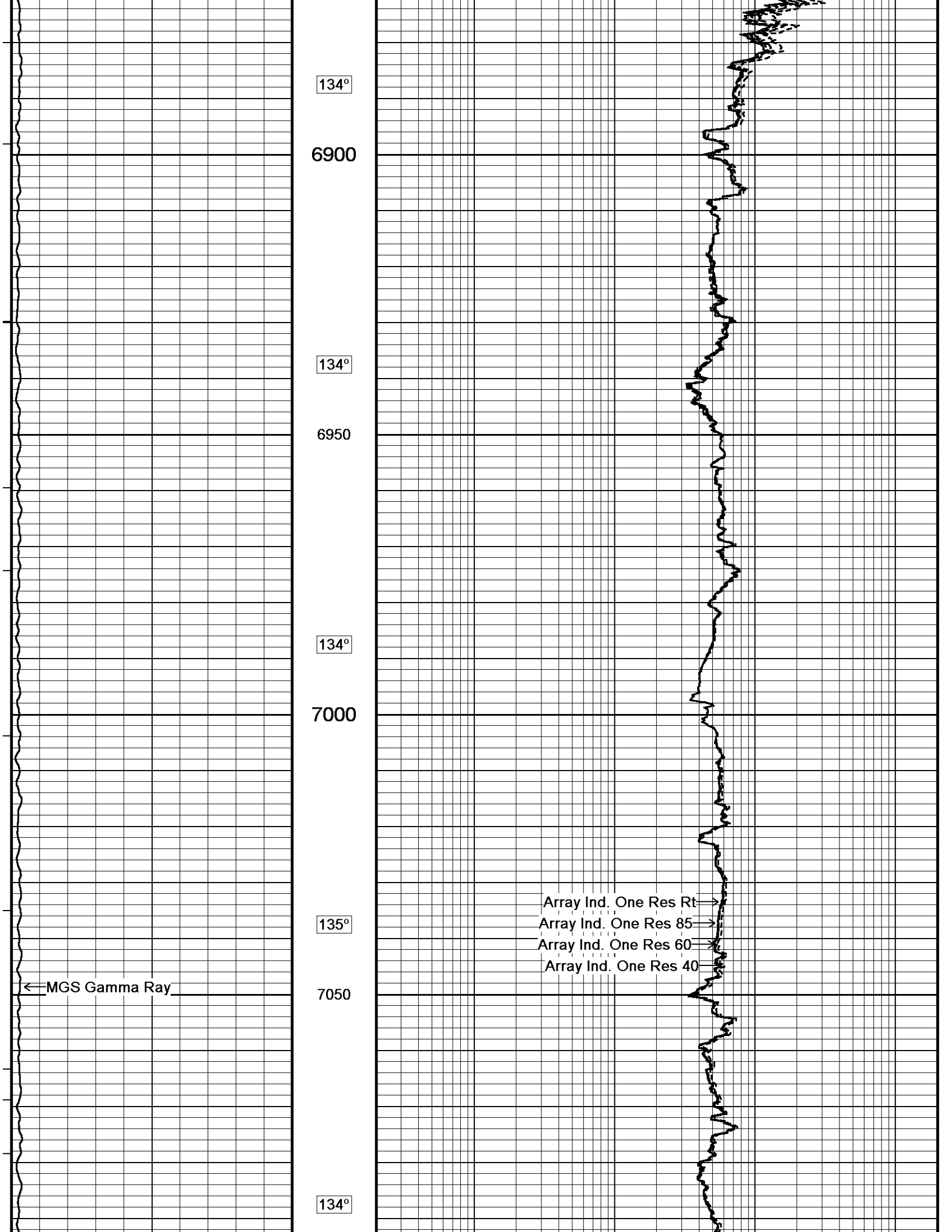
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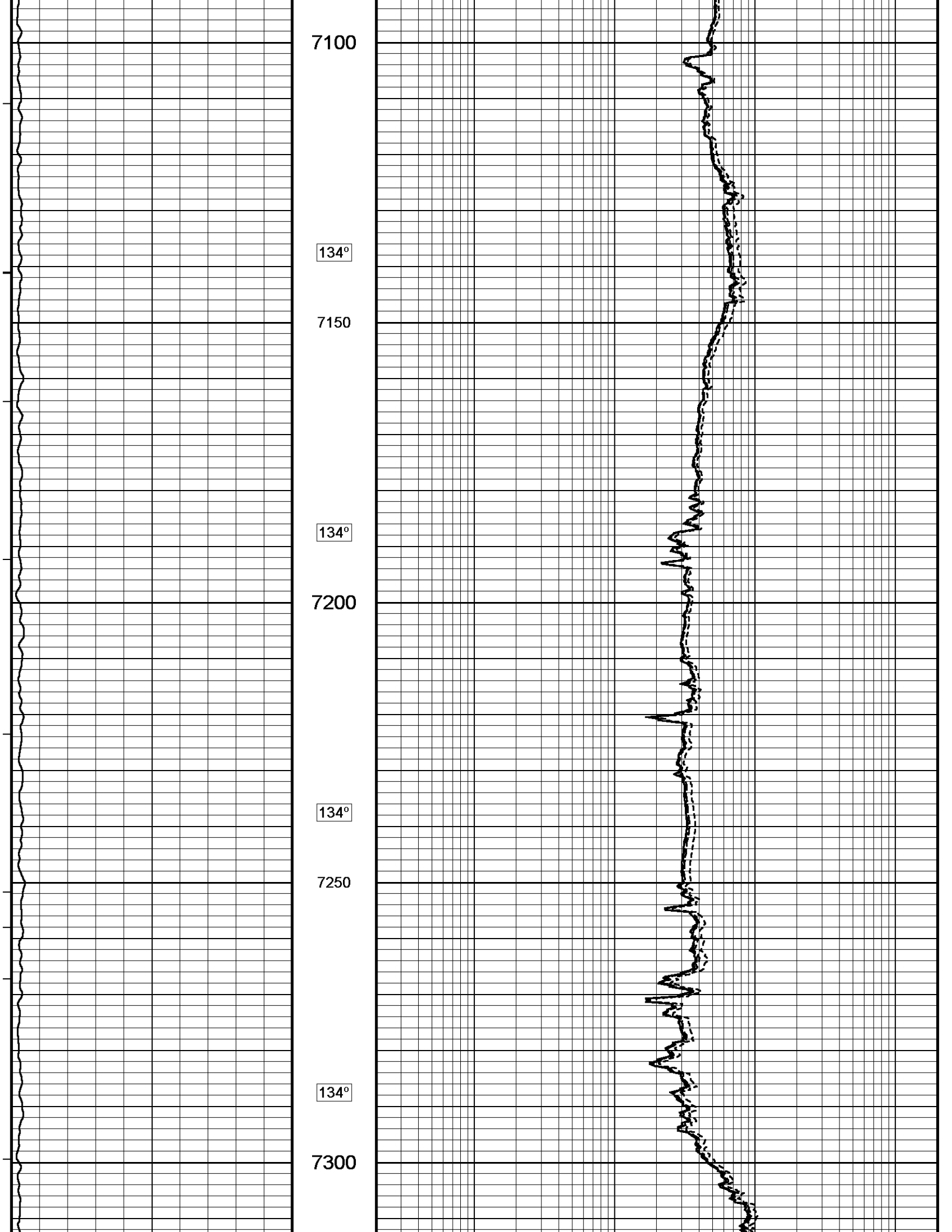
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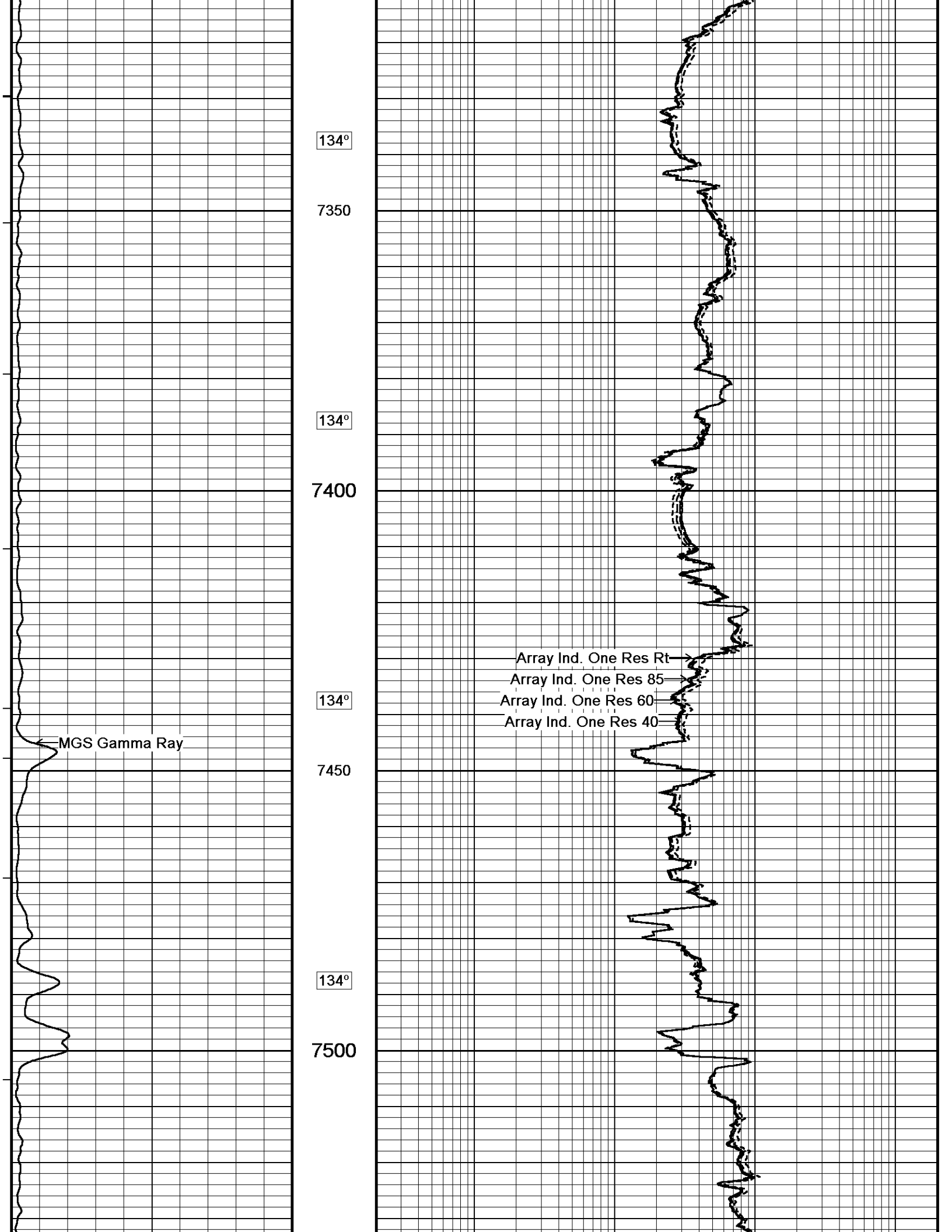
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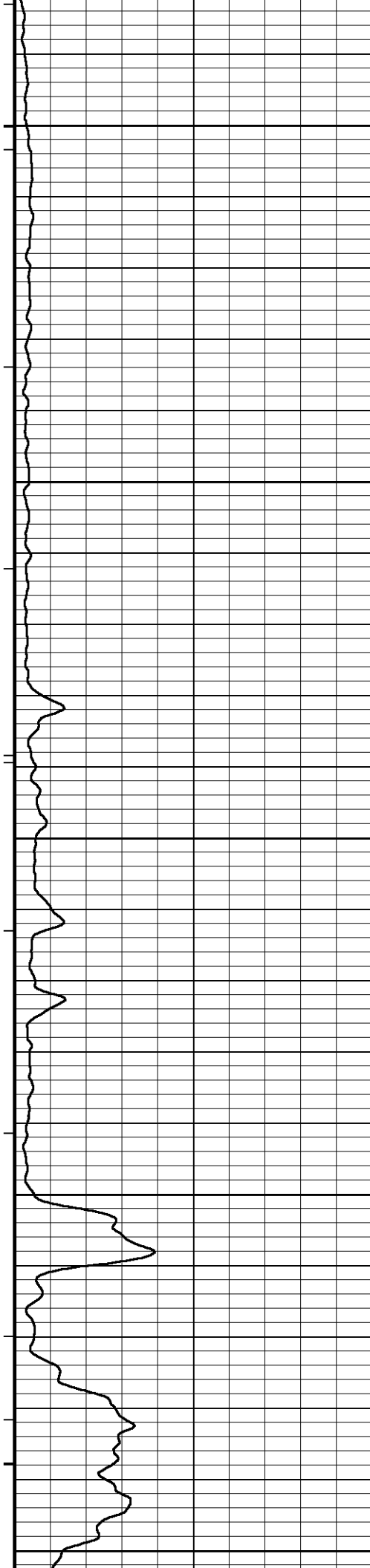












134°

7550

134°

7600

133°

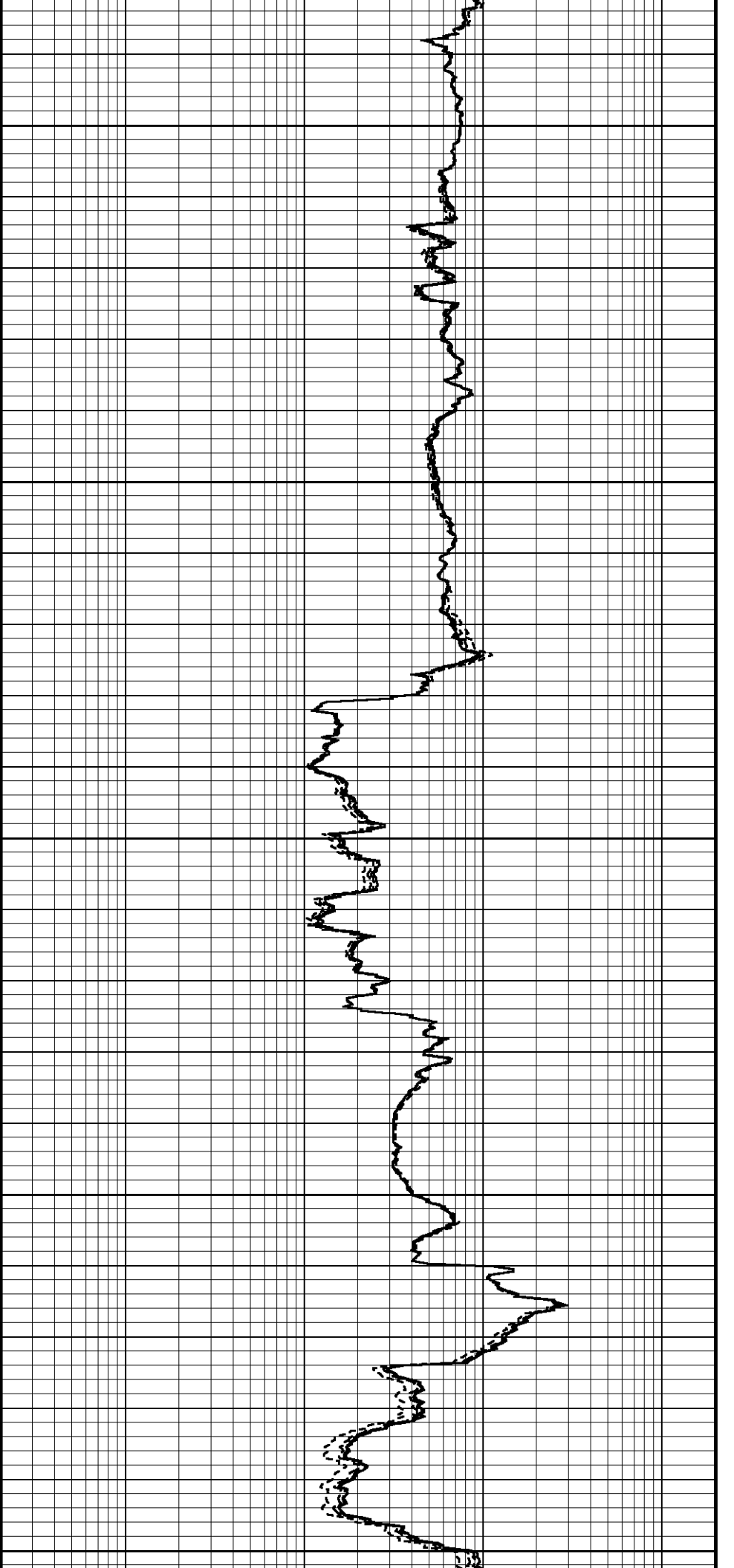
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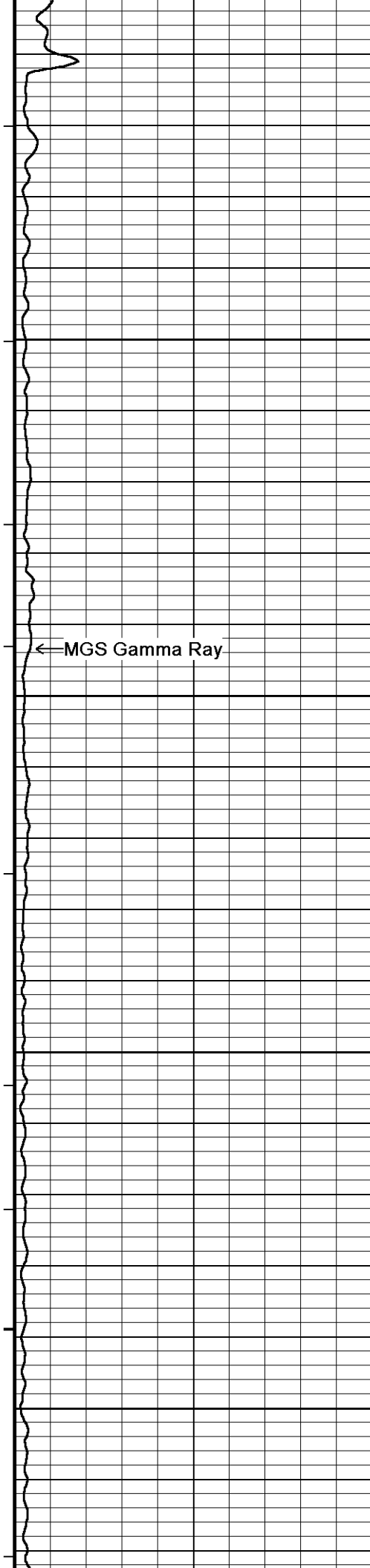
133°

7700

133°

7750





← MGS Gamma Ray

133°

7800

133°

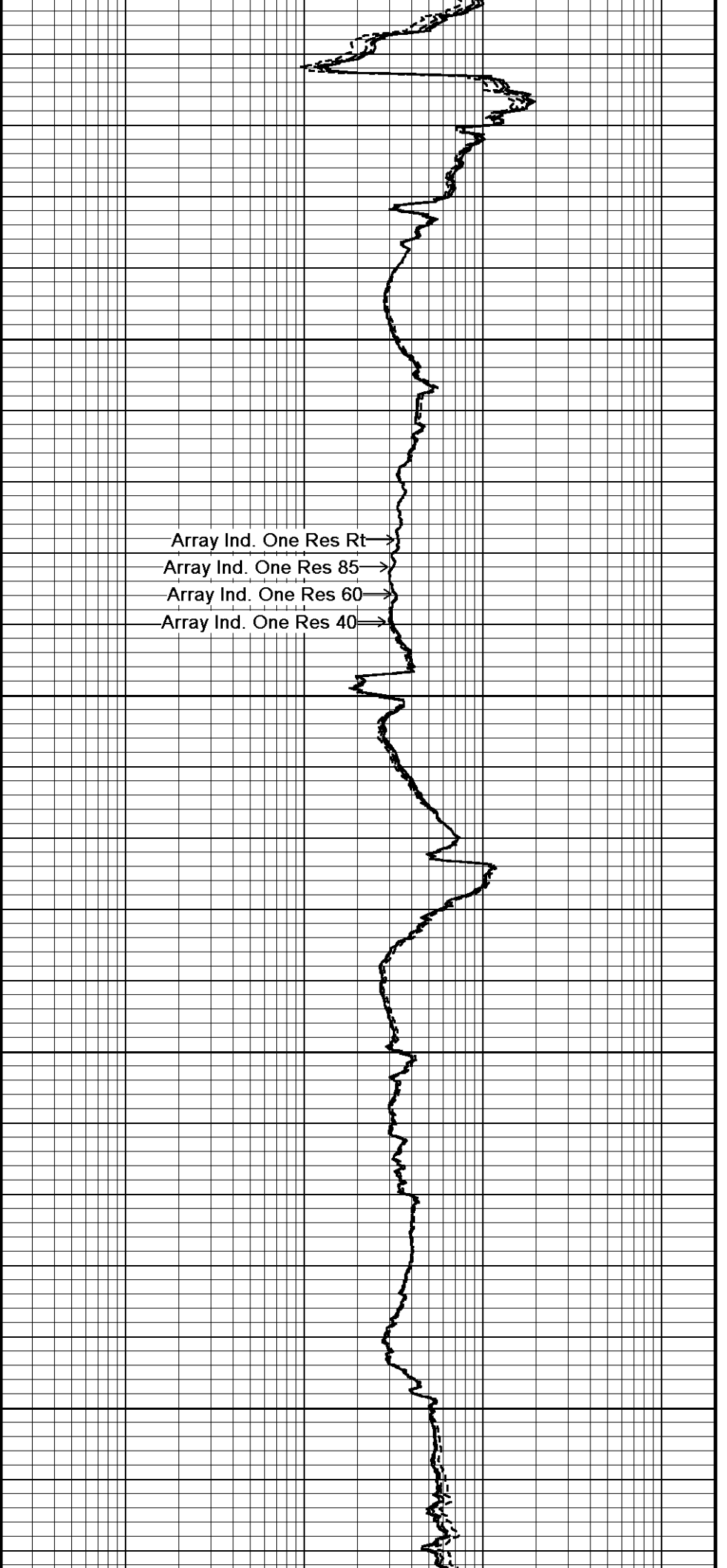
7850

133°

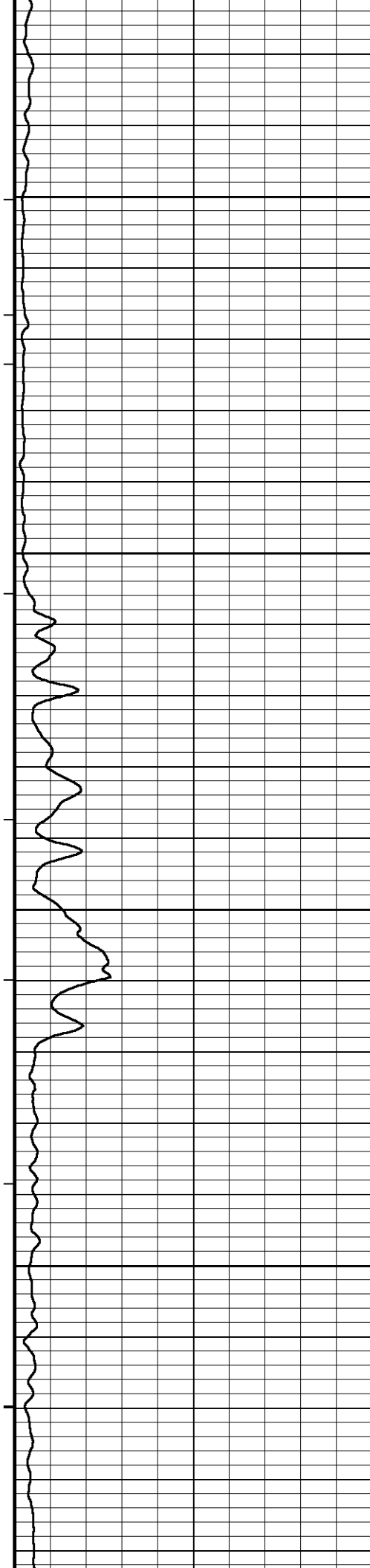
7900

133°

7950



Array Ind. One Res Rt →
Array Ind. One Res 85 →
Array Ind. One Res 60 →
Array Ind. One Res 40 →



133°

8000

132°

8050

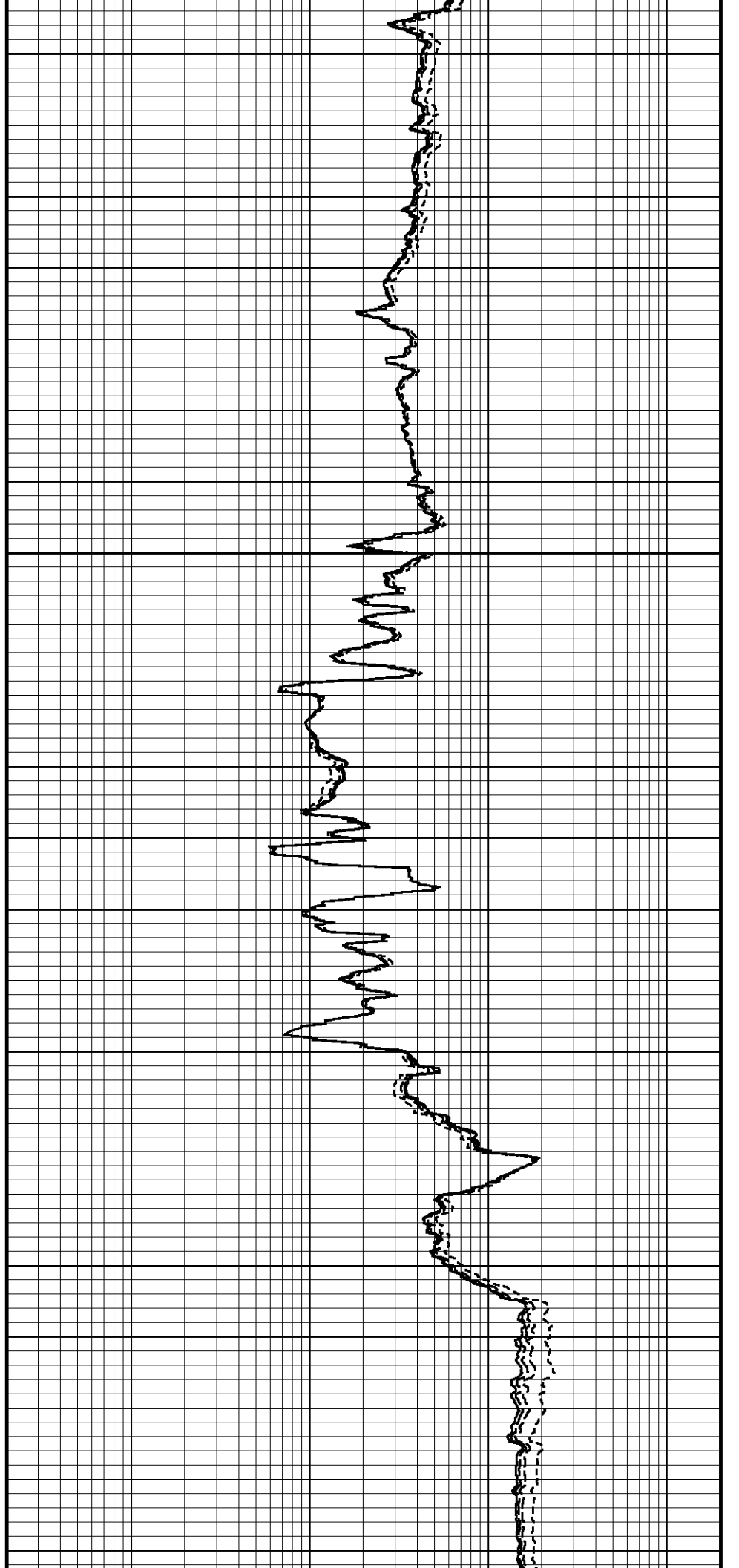
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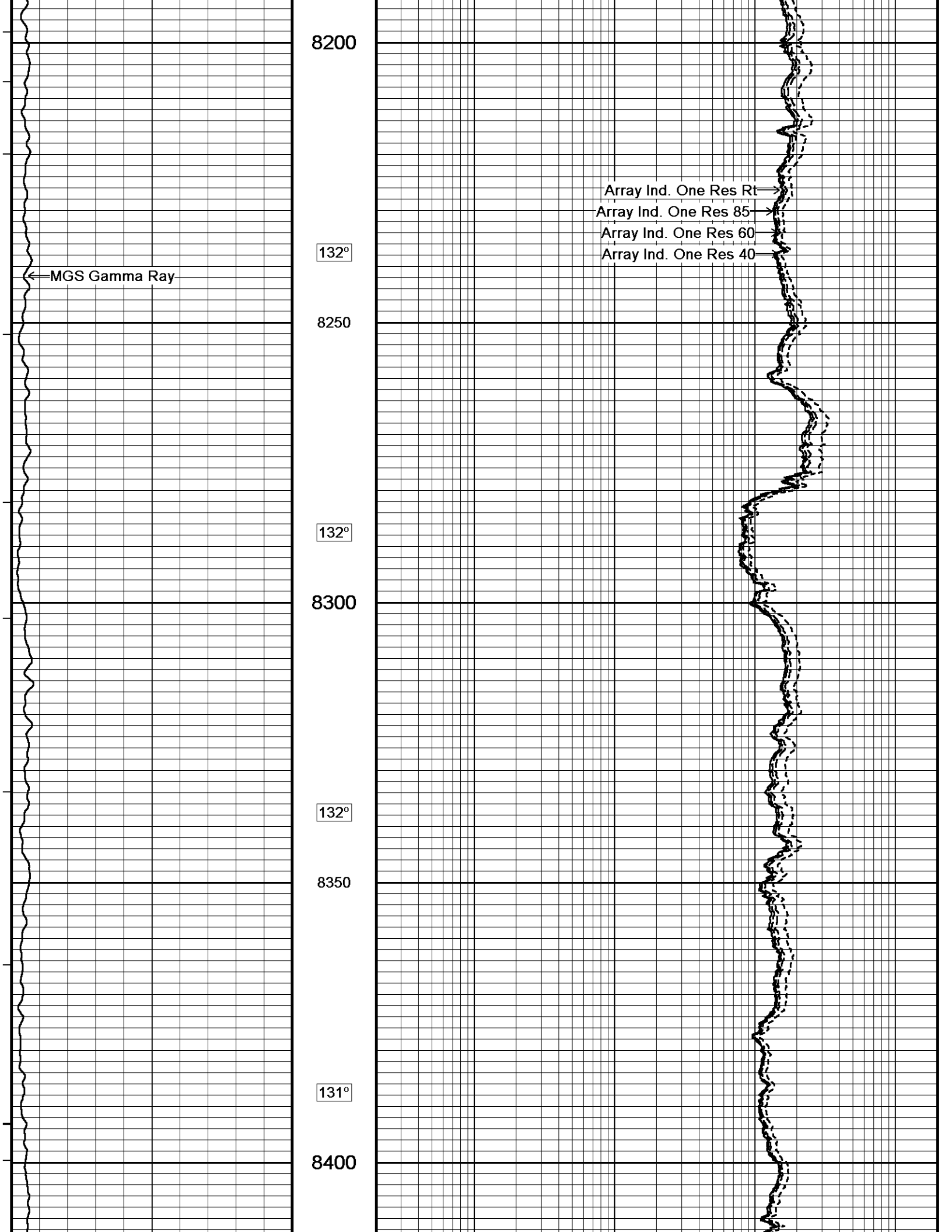
8100

132°

8150

132°





← MGS Gamma Ray

Array Ind. One Res Rt
Array Ind. One Res 85
Array Ind. One Res 60
Array Ind. One Res 40

8200

132°

8250

132°

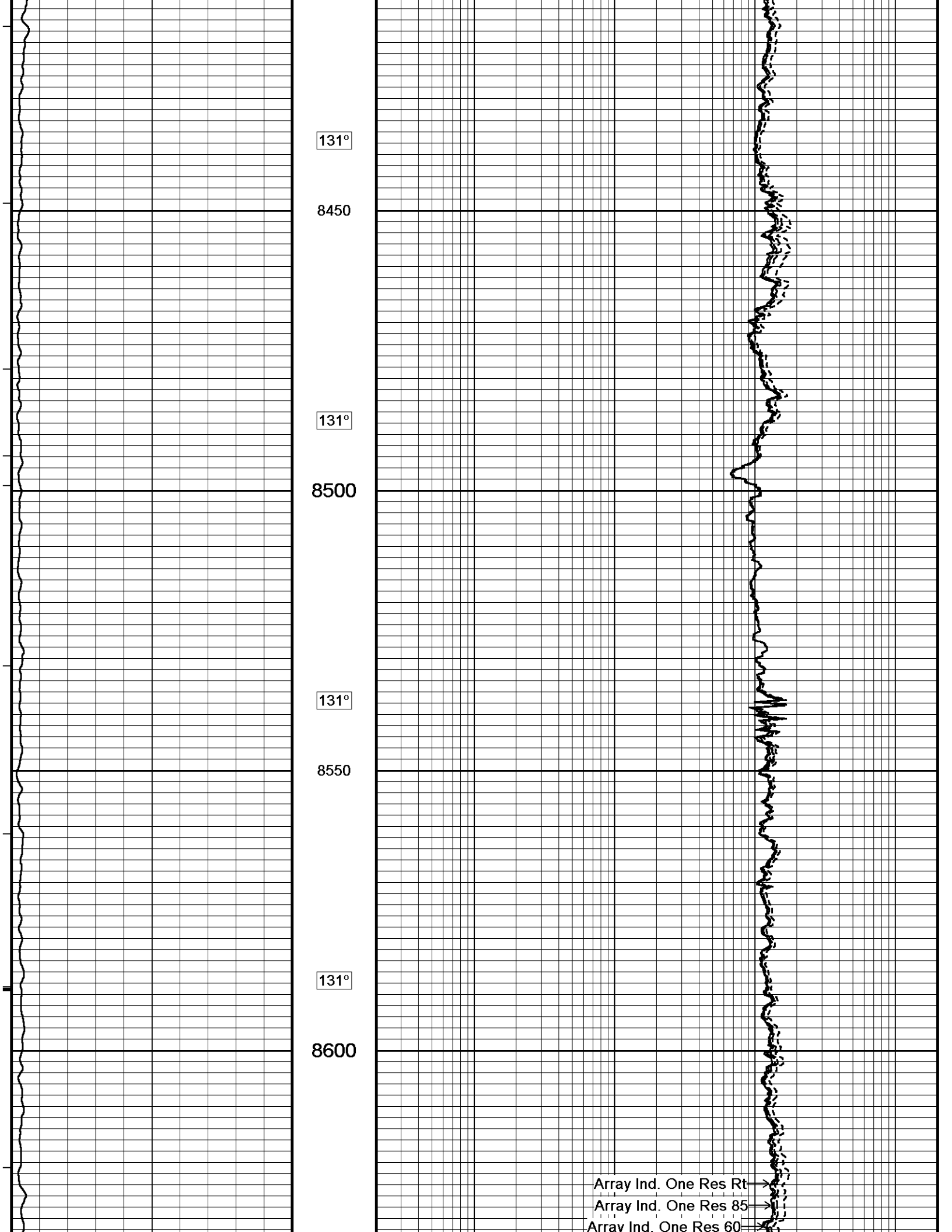
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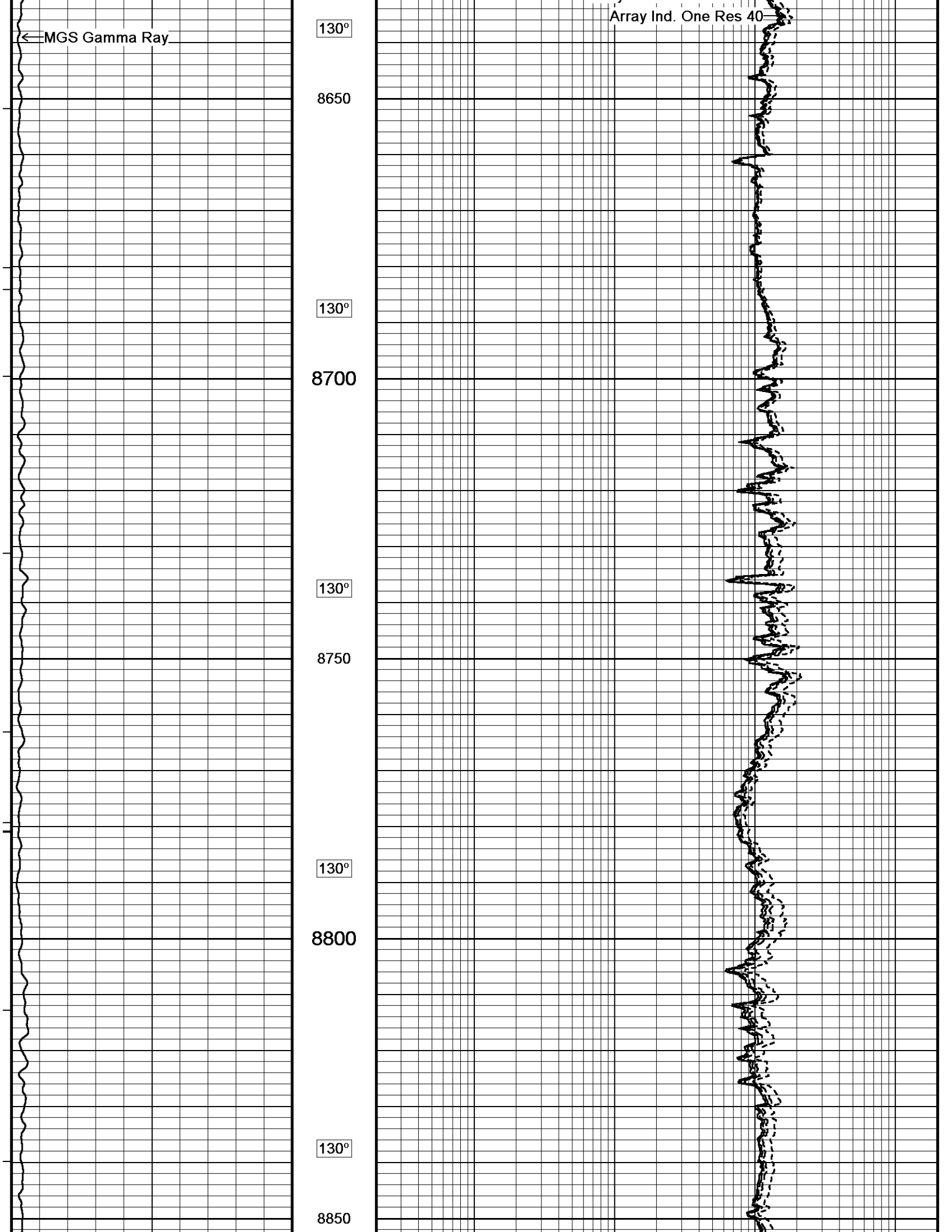
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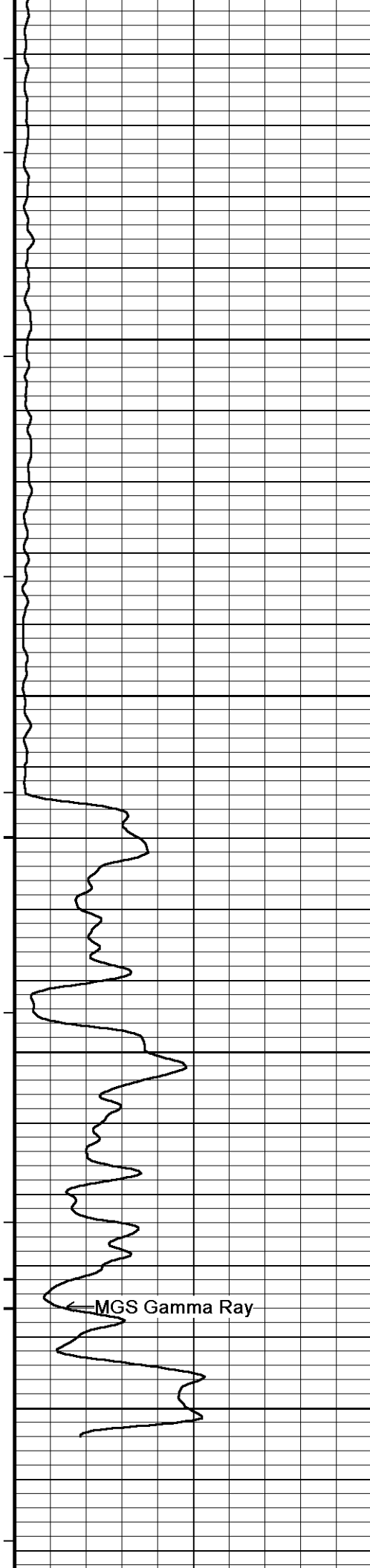
8350

131°

8400







130°

8900

130°

8950

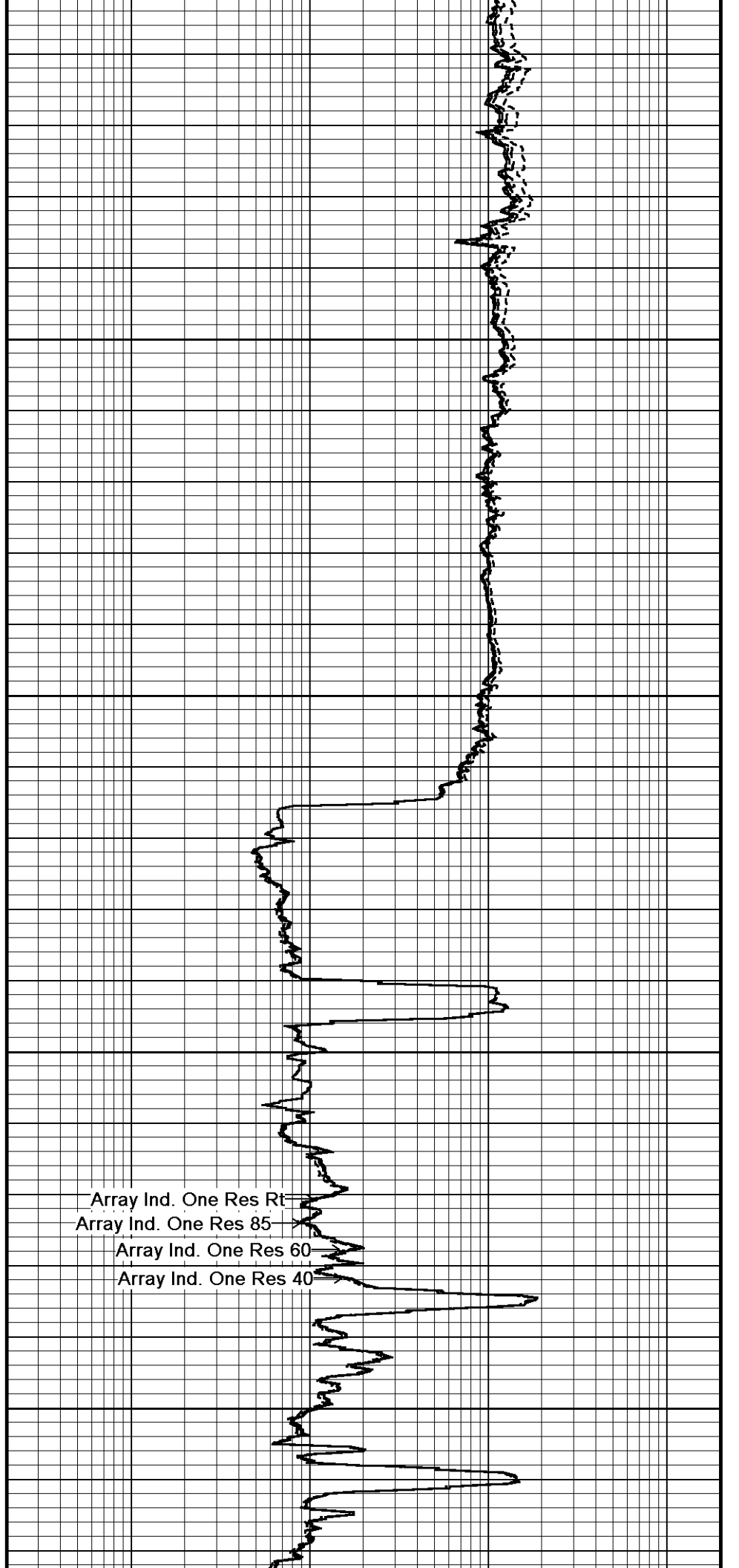
131°

9000

← MGS Gamma Ray

131°

9050

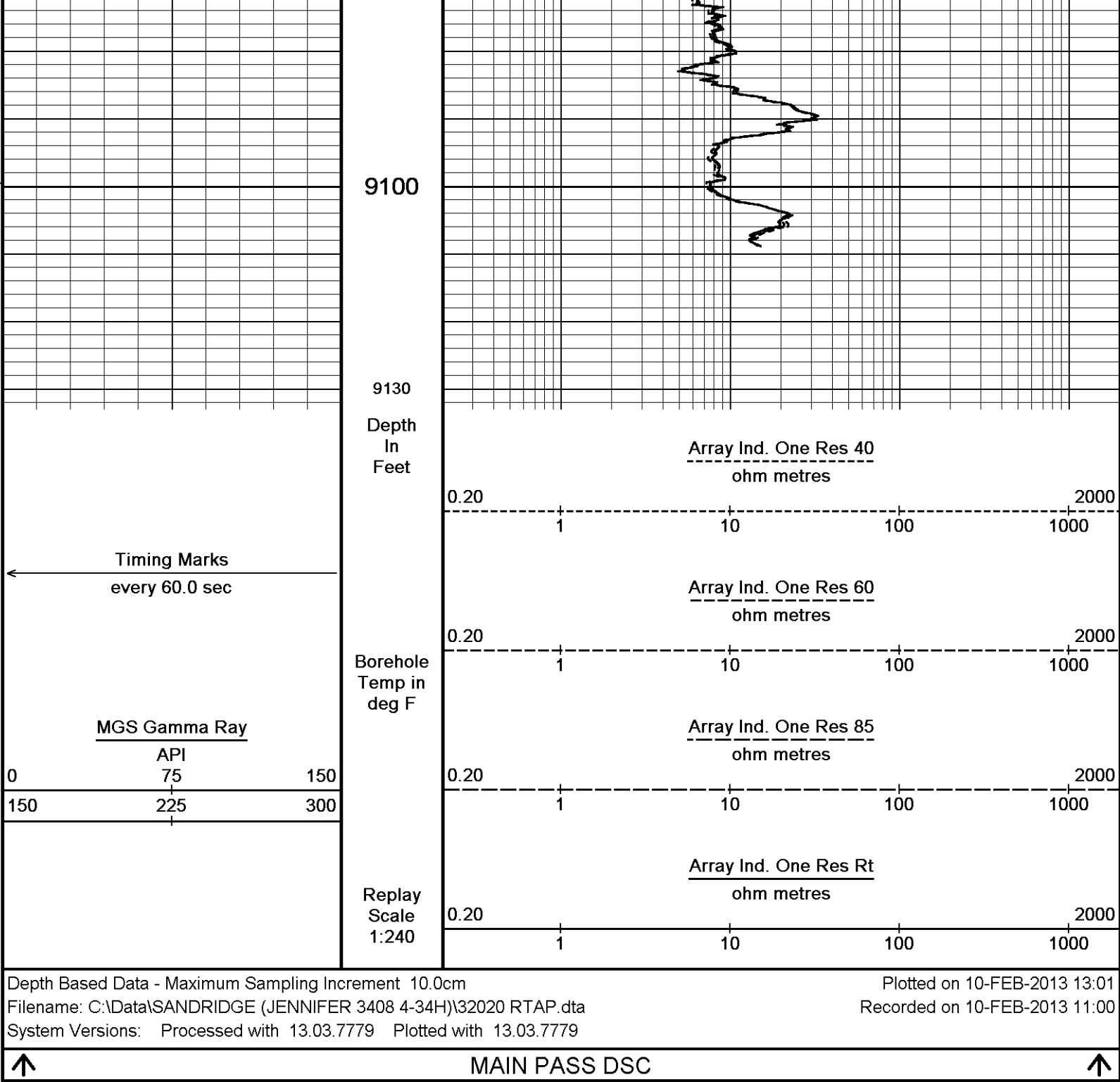


Array Ind. One Res Rt

Array Ind. One Res 85

Array Ind. One Res 60

Array Ind. One Res 40



BEFORE SURVEY CALIBRATION		
C:\Data\SANDRIDGE (JENNIFER 3408 4-34H)\32020 RTAP.dta		
General Constants All 000		Last Edited on 10-FEB-2013,11:13
General Parameters		
Mud Resistivity	1.400	ohm-metres
Mud Resistivity Temperature	77.000	degrees F
Water Level	0.000	feet
Density/Neutron 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	
Porosity used	Base Density Porosity
Resistivity used	Array Ind. One Res Rt
RWA Constant A	0.610
RWA Constant M	2.150

Down-hole Tension Calibration SMS 0

Field Calibration on 05-SEP-2012,13:01

Reading No	Measured	Calibrated (lbs)
1	15152.07	0.00
2	18386.74	2000.00

Strain Gauge Constants MMS-E.B 158

Last Edited on

Atmospheric Pressure	14.70	psi
Serial Number	0	
Calibration Date	000000000000	
Base Check Date		
Dead Weight Serial Number	0	
Dead Weight Gravitational Correction	1.0	
Temperature	75.0	150.0
Pressure psia	Inc.	Dec.
0.0	0.000	0.000
2000.0	0.000	0.000
4000.0	0.000	0.000
6000.0	0.000	0.000
8000.0	0.000	0.000
10000.0	0.000	0.000

Gamma Calibration MGS-C.J 133

Field Calibration on 09-FEB-2013 08:02

	Measured	Calibrated (API)
Background	37	14
Calibrator (Gross)	1836	710
Calibrator (Net)	1800	696

Gamma Constants MGS-C.J 133

Last Edited on 09-FEB-2013,12:46

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

SP Calibration MGS-C.J 133

Field Calibration on 07-FEB-2013,10:52

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

High Resolution Temperature Calibration MGS-C.J 133

Field Calibration on 09-FEB-2013,12:46

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

High Resolution Temperature Constants MGS-C.J 133

Last Edited on 09-FEB-2013,12:46

Pre-filter Length	11
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Neutron Calibration MDN-B.J 423

Base Calibration on 21-JAN-2013 09:28

Field Check on 09-FEB-2013 07:55

Base Calibration		
	Measured	Calibrated (cps)
	Near Far	Near Far
	2797 85	3714 110
Ratio	32.949	33.764
Field Calibrator at Base		Calibrated (cps)
		2242 3339
Ratio		0.671

Field Check	Calibrated (cps)		2206	3107
Ratio				
Neutron Constants MDN-B.J 423			Last Edited on 09-FEB-2013,12:46	
Neutron Source Id	000			
Neutron Jig Number	000			
Epithermal Neutron	No			
Caliper Source for Processing	Density Caliper			
Stand-off	0.00	inches		
Mud Density	0.99	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	None			
Temperature	N/A	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-B.A 247			Base Calibration on 07-DEC-2012 09:33 Field Check on 09-FEB-2013 07:40	
Base Calibration				
	Measured	Calibrated (ohm-m)		
Reference 1	0.0	0.0		
Reference 2	973.7	126.8		
Base Check		278.9		
Field Check		288.4		
FE Constants MFE-B.A 247			Last Edited on 09-FEB-2013,12:49	
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-C.A 427			Field Calibration on 07-FEB-2013,10:52	
	Measured	Calibrated(Deg F)		
Lower	10.00	10.00		
Upper	100.00	100.00		
High Resolution Temperature Constants MAI-C.A 427			Last Edited on 07-FEB-2013,10:51	
Pre-filter Length	11			
Induction Calibration MAI-C.A 427			Base Calibration on 27-JAN-2013,14:35 Field Check on 09-FEB-2013 07:39	
Base Calibration				
Test Loop Calibration		Measured	Calibrated (mmho/m)	
Channel	Low	High	Low	High
1	14.4	434.9	9.3	966.2
2	5.8	355.4	7.6	821.4
3	2.7	244.4	5.2	566.0
4	1.8	129.3	2.6	279.2
Array Temperature	22.9		Deg F	
Channel	Base Check (mmho/m)		Field Check (mmho/m)	
	Low	High	Low	High
1			17.1	4141.0
2			31.9	3771.5
3			31.3	3210.4
4			20.0	2124.5

Deep
Medium
Shallow

19.5 2019.8
45.9 4289.8
47.1 5681.3

Array Temperature

37.9 Deg F

Induction Constants MAI-C.A 427

Last Edited on 10-FEB-2013,11:13

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		0.0020	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	

Photo Density Calibration MPD-D.A 471

Base Calibration on 04-FEB-2013 13:31

Field Check on 09-FEB-2013 07:45

Density Calibration				
Base Calibration		Measured		Calibrated (sdu)
	Near	Far	Near	Far
Reference 1	54416	27473	59869	31110
Reference 2	22802	2732	24557	2522
Field Check at Base				
	1278.8	1479.3		
Field Check				
	1279.8	1470.5		
PE Calibration				
Base Calibration		Measured		Calibrated
	WS	WH	Ratio	Ratio
Background	247	1133		
Reference 1	24125	54197	0.450	0.369
Reference 2	7025	22646	0.315	0.271
Field Check at Base				
	247.3	1133.4		

Density Constants MPD-D.A 471

Last Edited on 09-FEB-2013,12:47

Density Source Id	243	
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	

Caliper Calibration MPD-D.A 471

Base Calibration on 04-FEB-2013 23:20

Field Calibration on 09-FEB-2013 07:48

Base Calibration		
Reading No	Measured	Calibrator Size (in)
1	19168	3.99
2	28887	5.97
3	38925	7.99
4	48364	9.86
5	59511	11.93
6	N/A	N/A
Field Calibration		
	Measured Caliper (in)	Actual Caliper (in)
	5.92	5.96

DOWNHOLE EQUIPMENT

C:\Data\SANDRIDGE (JENNIFER 3408 4-34H)\32020 RTAP.dta

Shuttle Running Tool 3.5")
 SRT-A.A 40 LG: 6.62 ft WT: 37.5 lb OD: 2.52 in

MBS-F.A 200v Compact Battery Sub
 MBS-F.A 112 LG: 10.61 ft WT: 70.5 lb OD: 2.24 in

Compact Memory Sub E.B
 MMS-E.B 158 LG: 5.20 ft WT: 37.5 lb OD: 2.24 in

Compact Tool Isolator sub.
 MTI-B.A 63 LG: 1.54 ft WT: 13.2 lb OD: 2.24 in

Compact Short Gamma
 MGS-C.J 133 LG: 3.41 ft WT: 24.3 lb OD: 2.24 in

Compact Collar Locator
 MCL-B.J 72 LG: 3.17 ft WT: 26.5 lb OD: 2.24 in



61.76 ft

GRGM - MGS Gamma Ray

59.77 ft

GSXT - MGS External Temperature

SKJ-E.B Compact Knuckle Joint
 SKJ-F B 458 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

SHA-J.A Compact Swivel Head Adaptor
SHA-J.A 432 LG: 2.30 ft WT: 22.0 lb OD: 2.24 in

MIS-A.A Compact Inline Bowspring sub
MIS-A.A 247 LG: 5.70 ft WT: 33.1 lb OD: 2.24 in

Compact Neutron
MDN-B.J 423 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in

Compact Density/Caliper
MPD-D.A 471 LG: 9.59 ft WT: 90.4 lb OD: 2.24 in

MIS-D.A Compact Inline Bowspring sub
MIS-D.A 315 LG: 5.70 ft WT: 33.1 lb OD: 2.24 in

SHA-J.B Compact Swivel Head Adaptor
SHA-J.B 595 LG: 2.30 ft WT: 22.0 lb OD: 2.24 in

SKJ-E.B Compact Knuckle Joint
SKJ-E.B 477 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

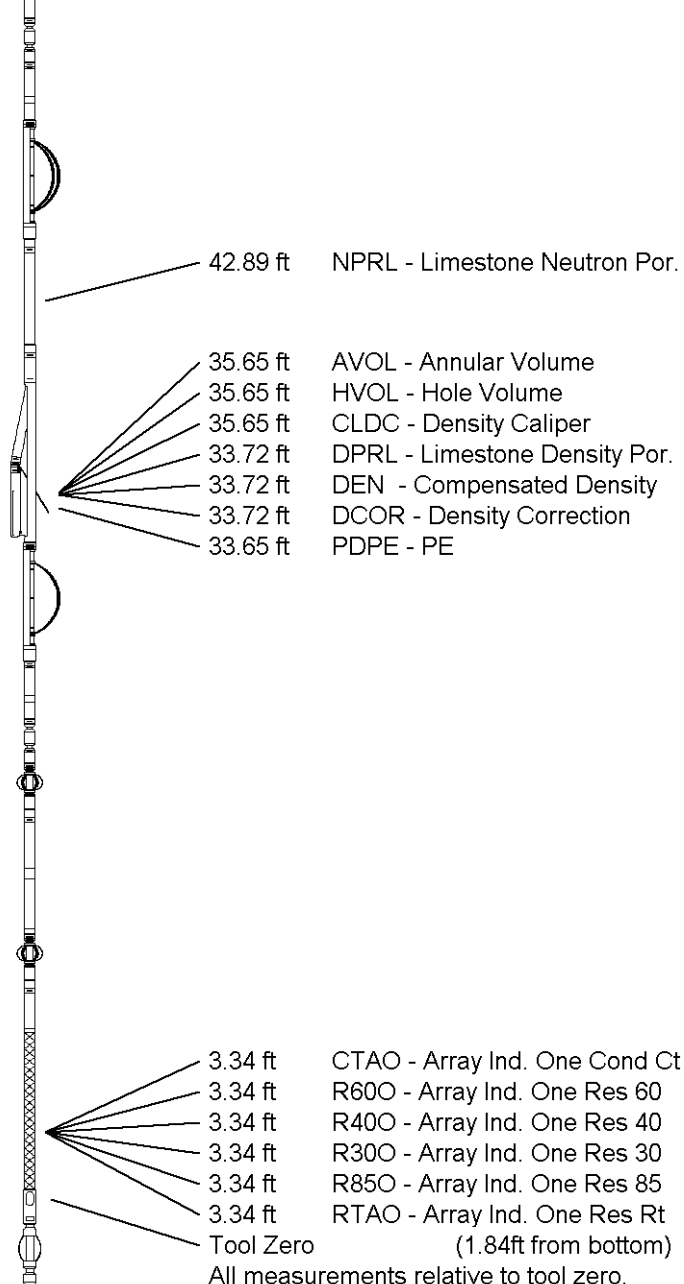
MIS-B Compact Inline Standoff sub
MIS-B 102 LG: 2.14 ft WT: 15.4 lb OD: 2.24 in

Compact Focussed Electric
MFE-B.A 247 LG: 6.05 ft WT: 48.5 lb OD: 2.24 in

MIS-E.A Compact Inline Standoff sub
MIS-E.A 336 LG: 2.14 ft WT: 15.4 lb OD: 2.24 in

Compact Induction
MAI-C.A 427 LG: 12.52 ft WT: 48.5 lb OD: 2.24 in

Total Length: 88.36 ft Weight: 637.1 lb



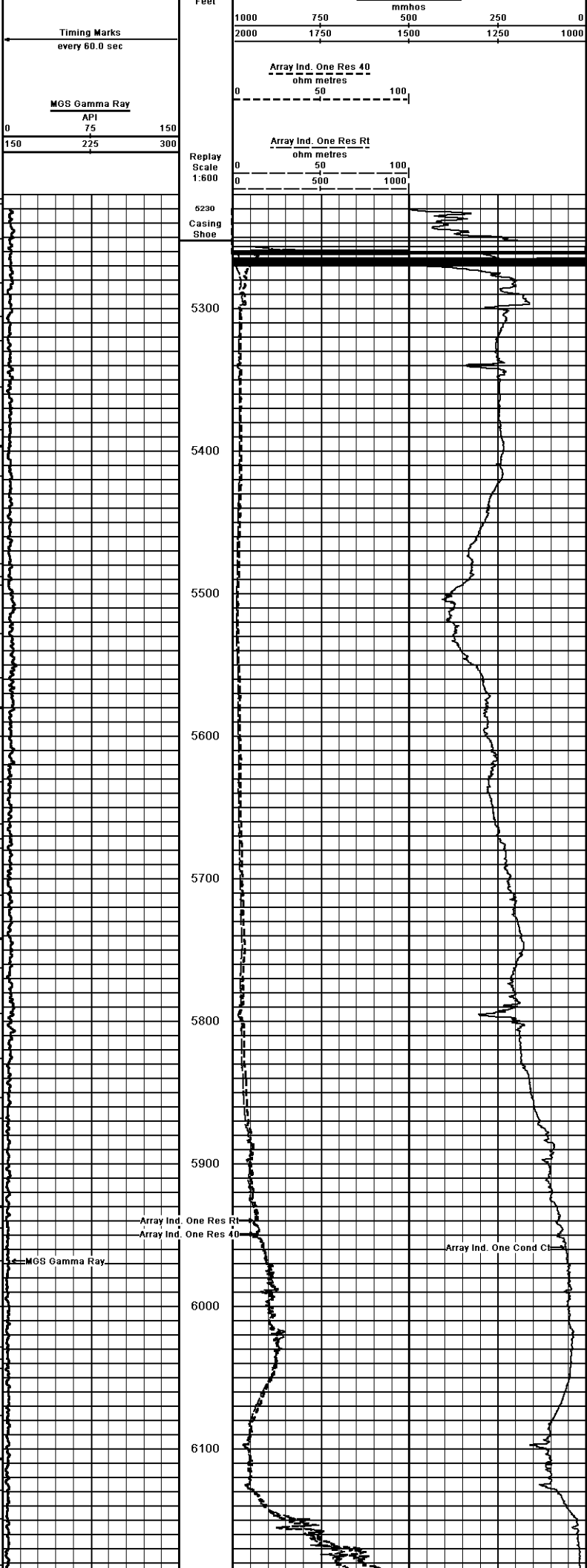
COMPANY SANDRIDGE ENERGY
WELL JENNIFER 3408 4-34H
FIELD STRANATHAN
PROVINCE/COUNTY HARPER
COUNTRY/STATE USA / KANSAS

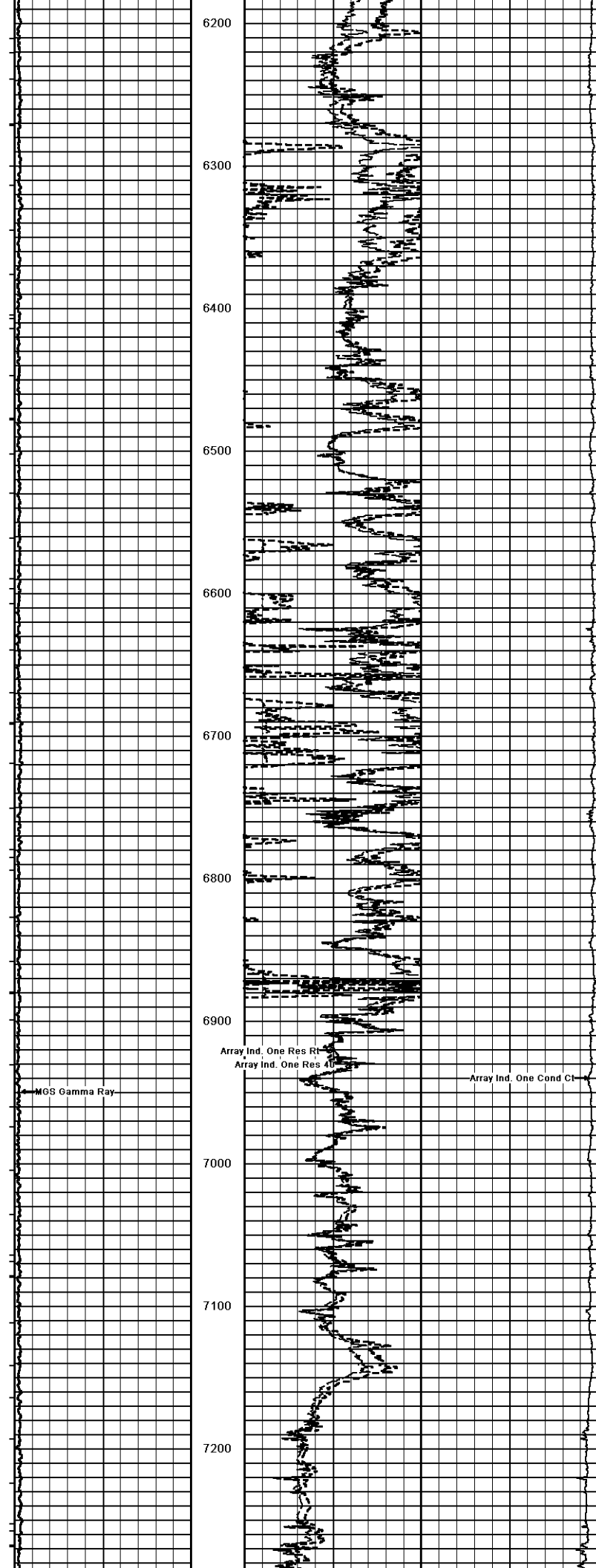
Elevation Kelly Bushing	1286.00	feet	First Reading	9109.00	feet
Elevation Drill Floor	1286.00	feet	Depth Driller	9142.00	feet
Elevation Ground Level	1270.00	feet	Depth Logger	9142.00	feet

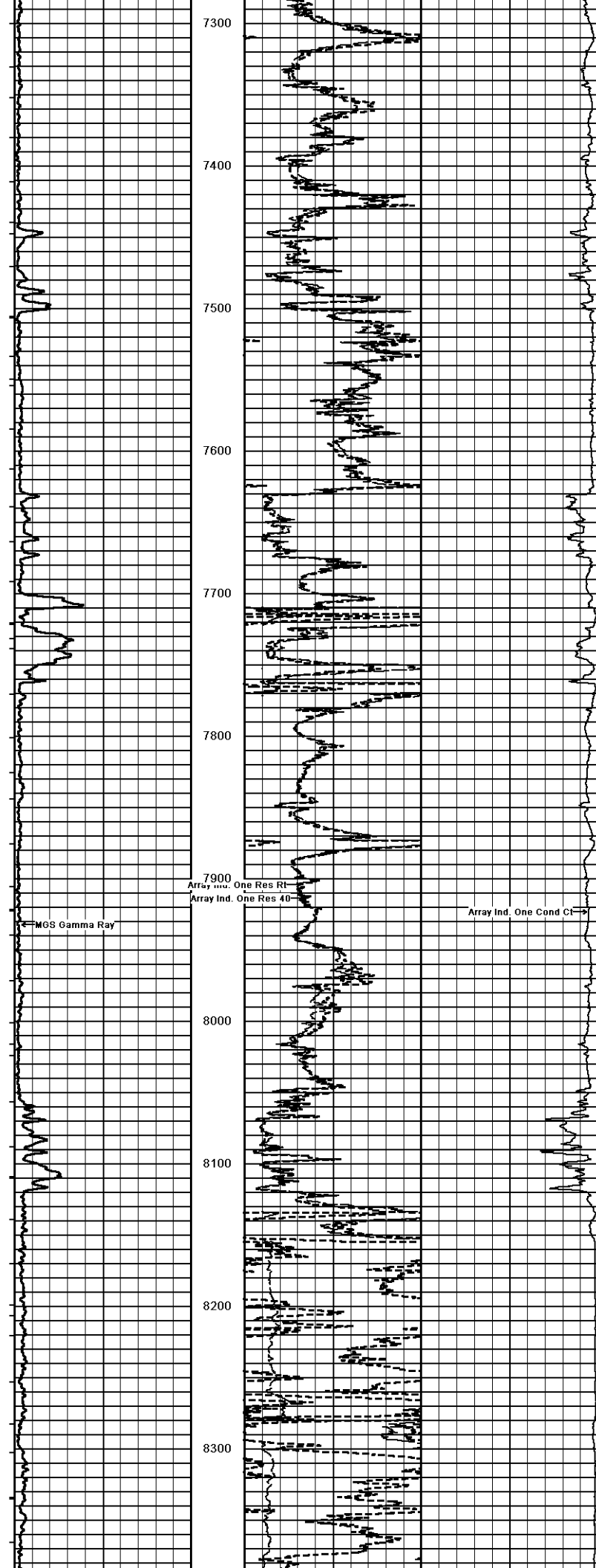


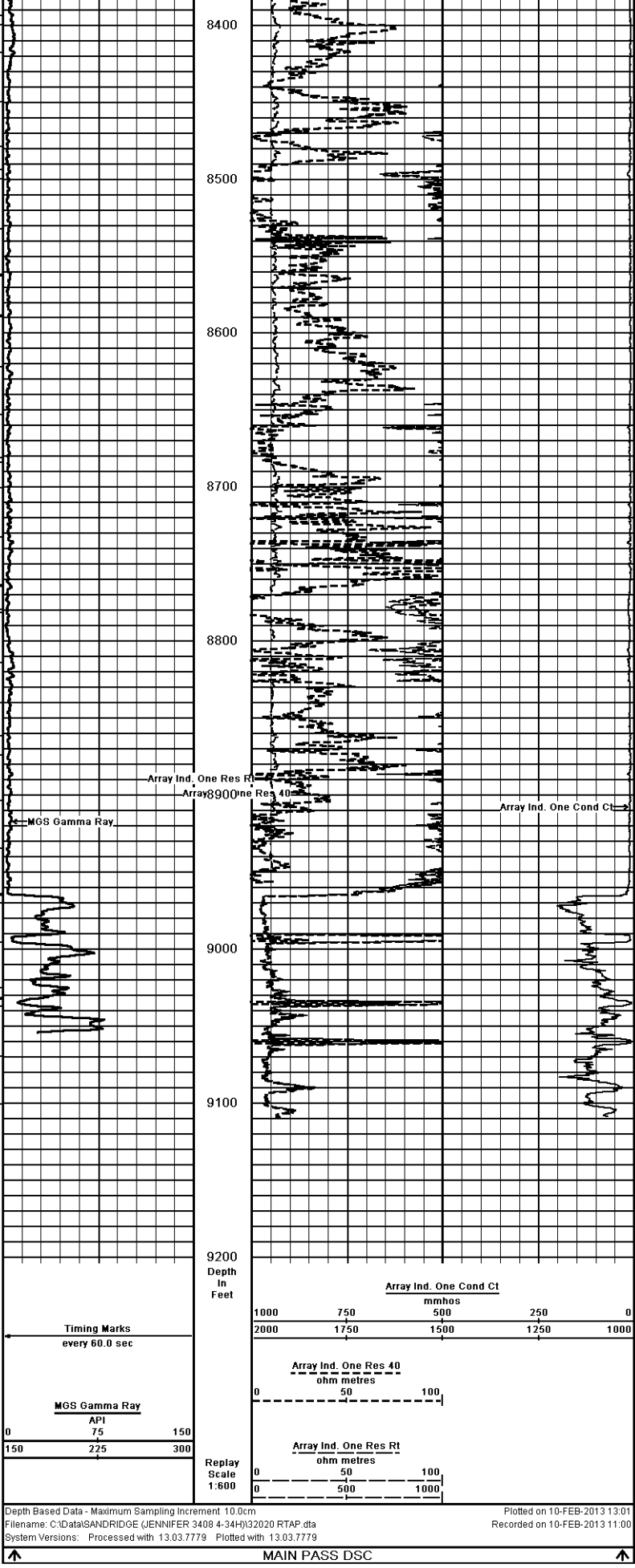
CML MESSENGER SHUTTLE
ARRAY INDUCTION
LOG

Weatherford®









COMPANY	SANDRIDGE ENERGY
WELL	JENNIFER 3408 4-34H
FIELD	STRANATHAN
PROVINCE/COUNTY	HARPER
COUNTRY/STATE	USA / KANSAS
Elevation Kelly Bushing	1286.00 feet
First Reading	9109.00 feet

Elevation Drill Floor	1286.00	feet	Depth Driller	9142.00	feet
Elevation Ground Level	1270.00	feet	Depth Logger	9142.00	feet
			CML MESSENGER SHUTTLE ARRAY INDUCTION LOG		