



Weatherford

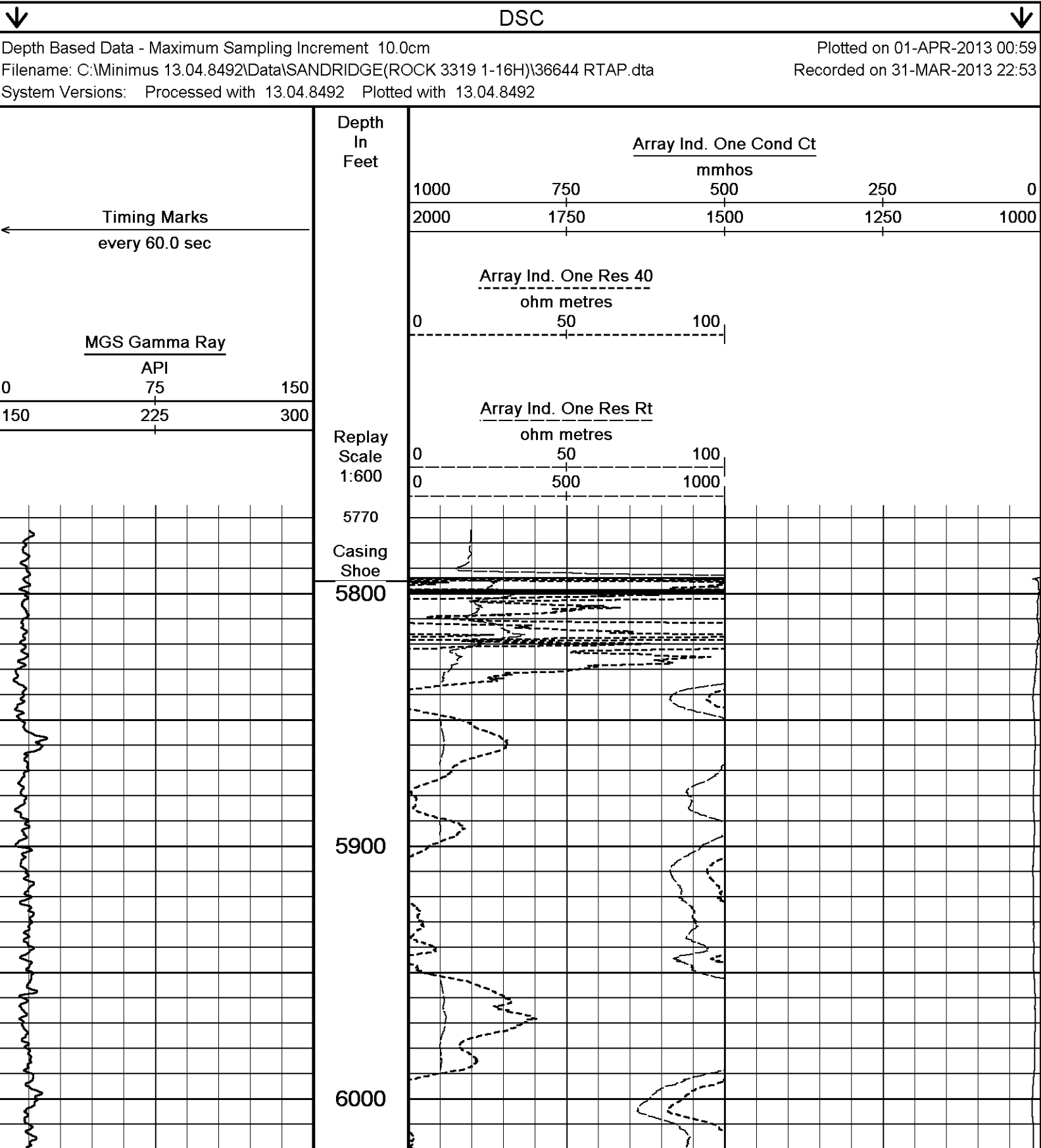
**CML MESSENGER SHUTTLE
ARRAY INDUCTION
LOG**

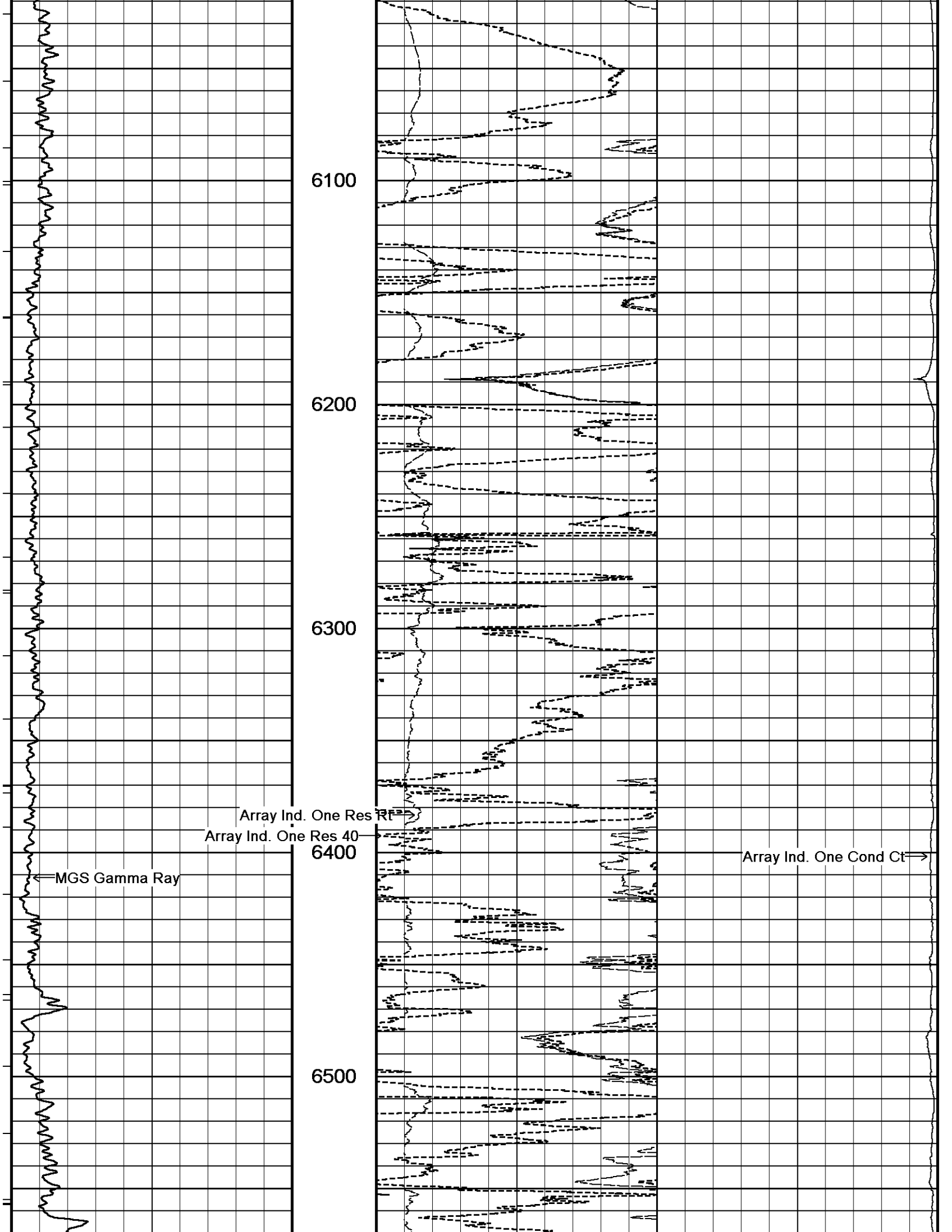
COMPANY			SANDRIDGE ENERGY		
WELL			ROCK 3319 1-16H		
FIELD			EAST COLLIER FLATS		
PROVINCE/COUNTY			COMANCHE		
COUNTRY/STATE			USA / KANSAS		
LOCATION			200' FSL & 660' FWL		
			S2 S2 SW SW		
SEC	TWP	RGE	Other Services		
6	34S	19W	MDN/MPD		
API Number		15-033-21696			
Permit Number					
Permanent Datum G.L., Elevation 1983 feet				Elevations:	
Log Measured From DF				KB	2001.00
Drilling Measured From DF @ 1983 FEET				DF	2001.00
				GL	1983.00
Date	31-MAR-2013				
Run Number	ONE				
Service Order	3539407				
Depth Driller	9615.00			feet	
Depth Logger	9615.00			feet	
First Reading	9507.00			feet	
Last Reading	5795.00			feet	
Casing Driller	5795.00			feet	
Casing Logger	5795.00			inches	
Bit Size	6.125				
Hole Fluid Type	WATER			lb/USg	
Density / Viscosity	9.10	lb/USg	34.00	CP	
PH / Fluid Loss	10.20		10.20		
Sample Source	FLOWLINE				
Rm @ Measured Temp	1.0 @ 79.0			ohm-m	
Rmf @ Measured Temp	0.80 @ 79.0			ohm-m	
Rmc @ Measured Temp	1.20 @ 79.0			ohm-m	
Source Rmf / Rmc	CALC		CALC		
Rm @ BHT	0.57 @138.0			ohm-m	
Time Since Circulation	1 HOUR				
Max Recorded Temp	138.00			deg F	
Equipment / Base	18006			OKC	
Recorded By	B.ALLEN				
Witnessed By	M. RODEN			J. HILEMAN	
AFE # S.O.	DC12155			3539407	

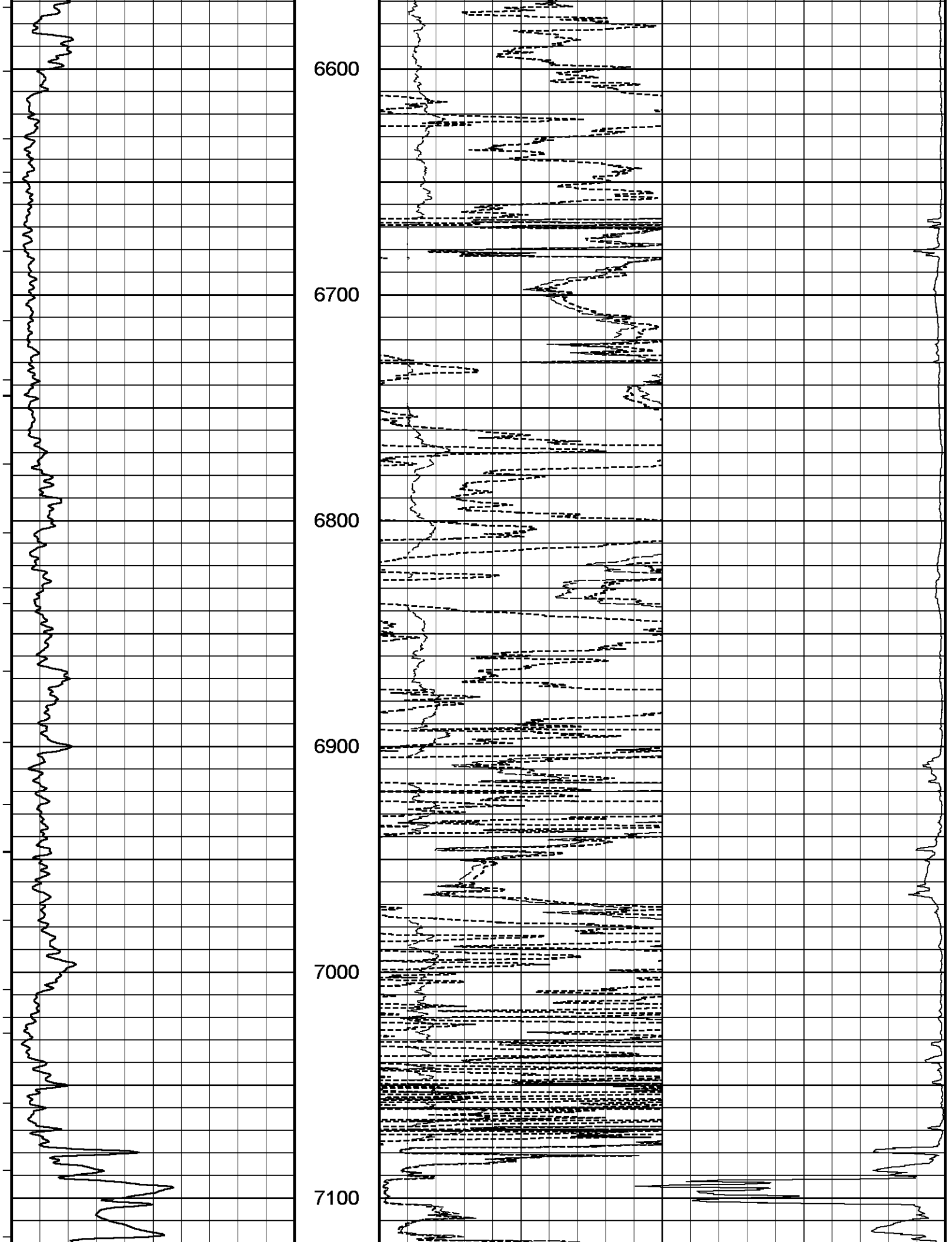
BOREHOLE RECORD			Last Edited: 31-MAR-2013 11:23
Bit Size inches	Depth From feet	Depth To feet	
12.250	0.00	329.00	
8.750	329.00	5795.00	
6.125	5795.00	9615.00	

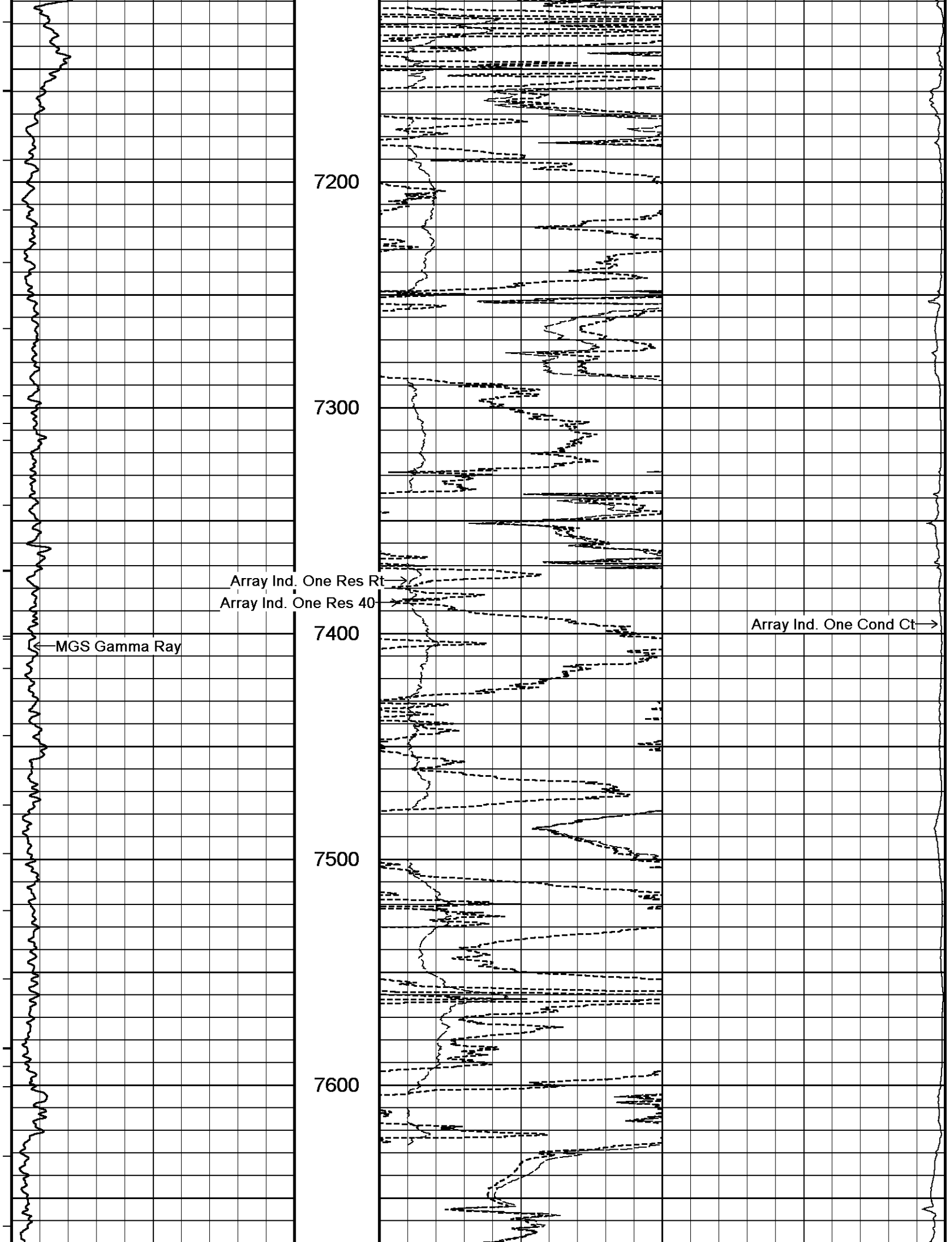
REMARKS
LOGGED WITH WLS VER 13.03.7779 SOFTWARE
WELL LOGGED USING MESSENGER METHOD OF DEPLOYMENT, AND MEMORY LOGGING SYSTEM
HARDWARE: MAI: ISA STANDOFF BELOW MPD: 4"PROFILE PLATE, MIS-A SINGLE SPRING DECENTRALIZER BELOW MDN: MISD DOUBLE SPRING DECENTRALIZER RAN ABOVE
2.71 G/CC DENSITY MATRIX USED TOCALCULATE POROSITY ALL INTERVALS LOGGED AND SCALED PER CUSTOMER REQUEST
DRILL PIPE DEPTH DURING DEPLOYMENT - 9430 LOGGING TOOL DEPTH AFTER DEPLOYMENT: 9513
4.5" CASING USED TO CALCULATE AHV
THE TOTCO DEPTH SYSTEM FAILED WHILE LOGGING THE WELL AT AROUND 5000 FEET. WE WERE ABLE TO GET DATA UP TO THAT POINT FOR NOW AND WILL WORK ON THE REST OF THE LOG PUTTING IT TOGETHER FROM SCRATCH.

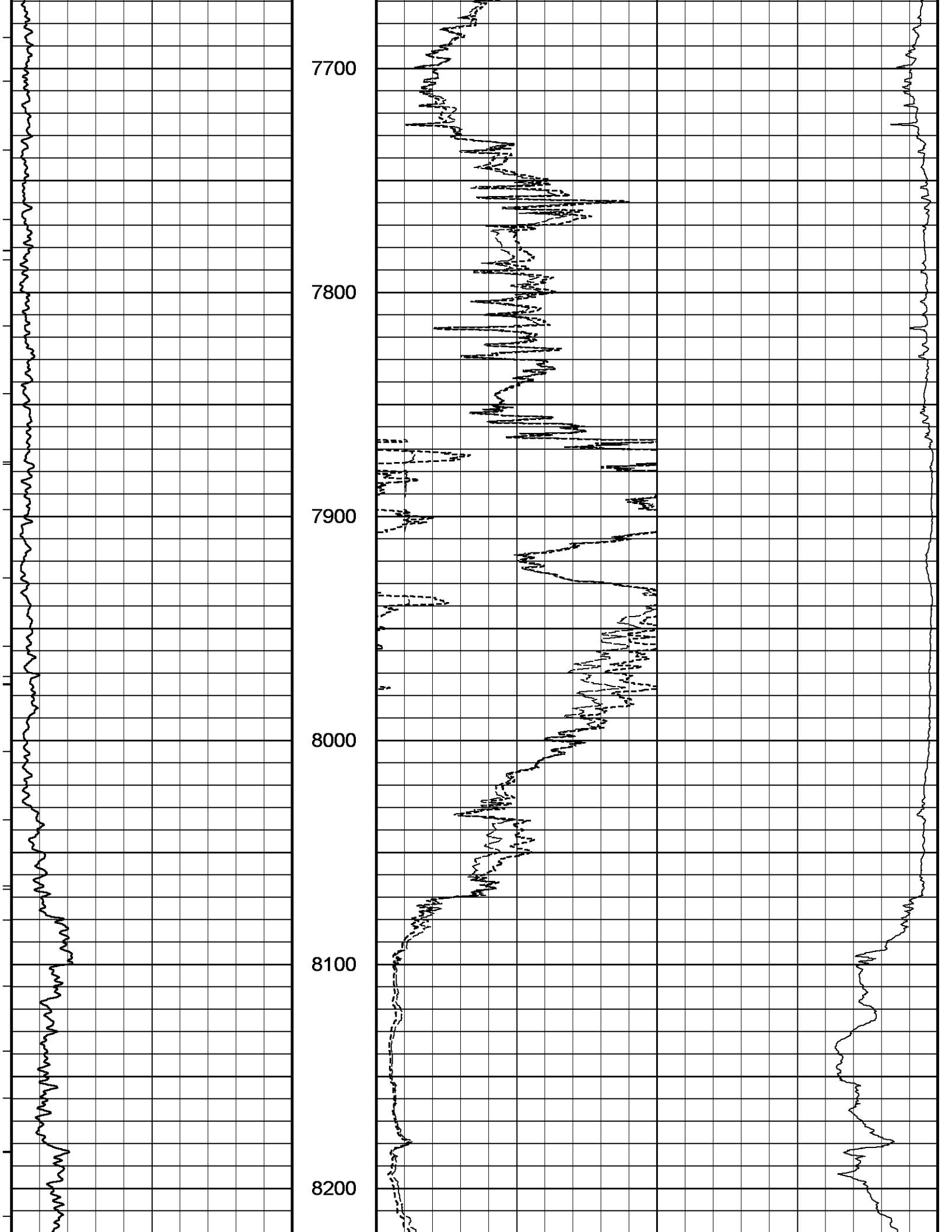
All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not, guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or wilful negligence on our part, be liable or responsible for any loss, costs, 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.

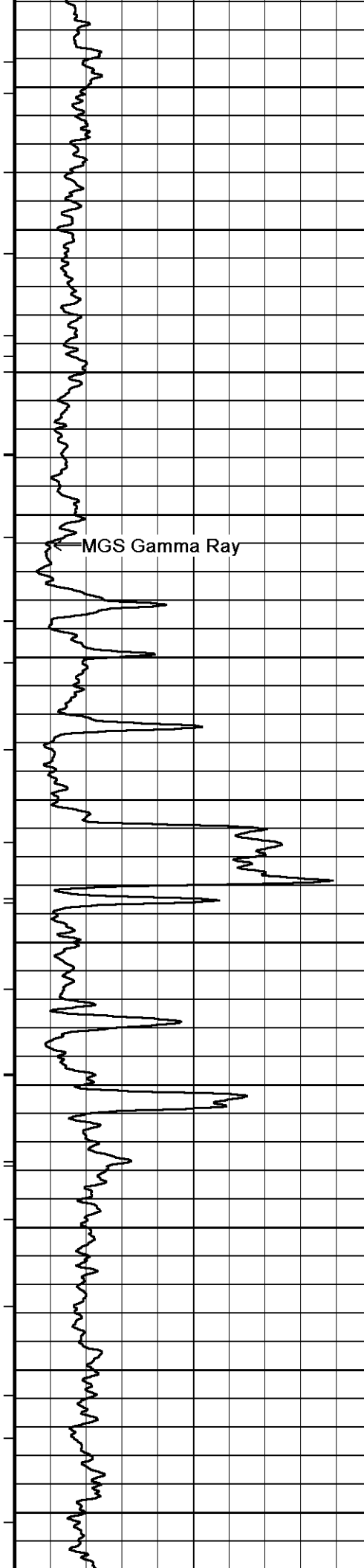












8300

Array Ind. One Res Rt

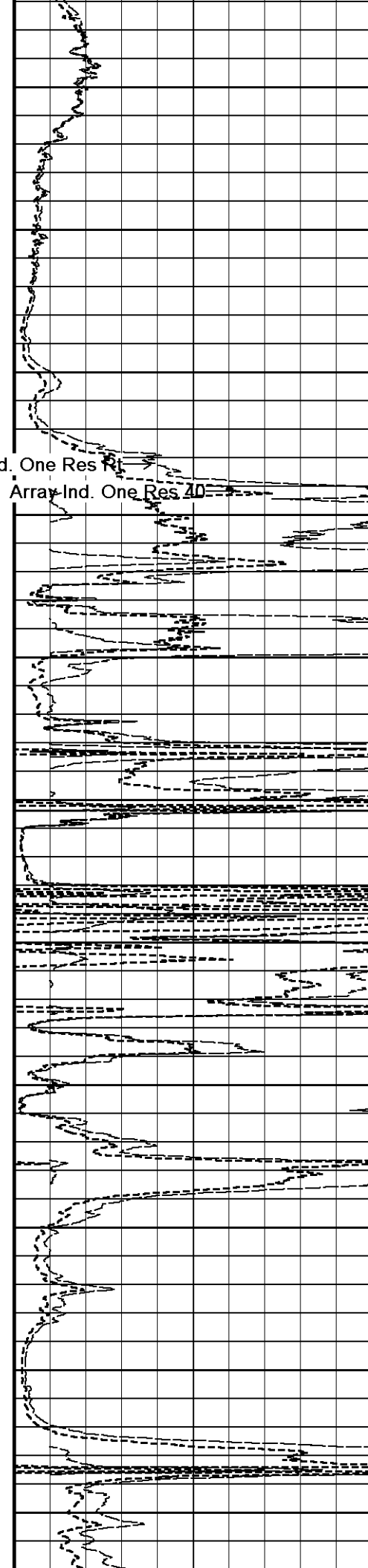
8400

Array Ind. One Res 40

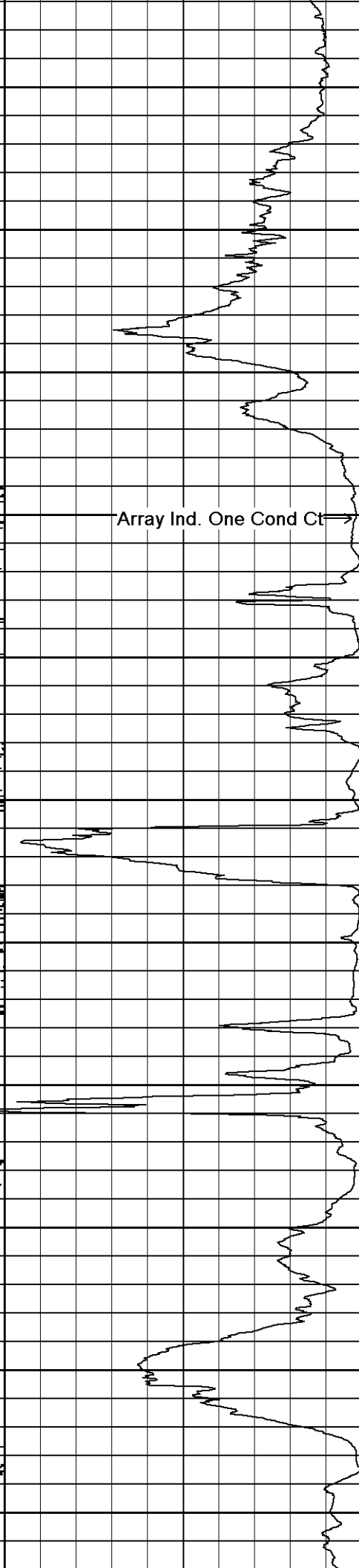
8500

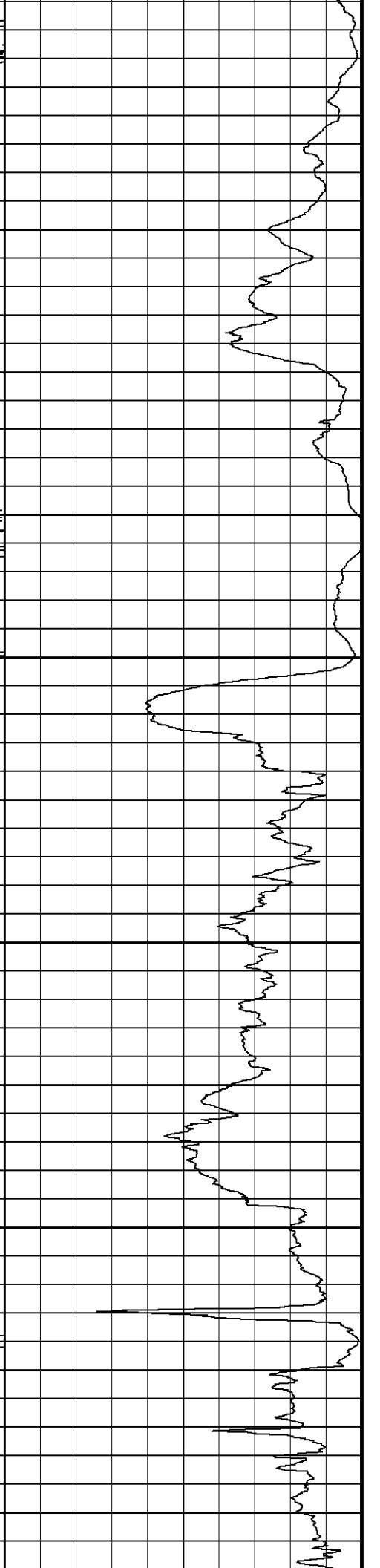
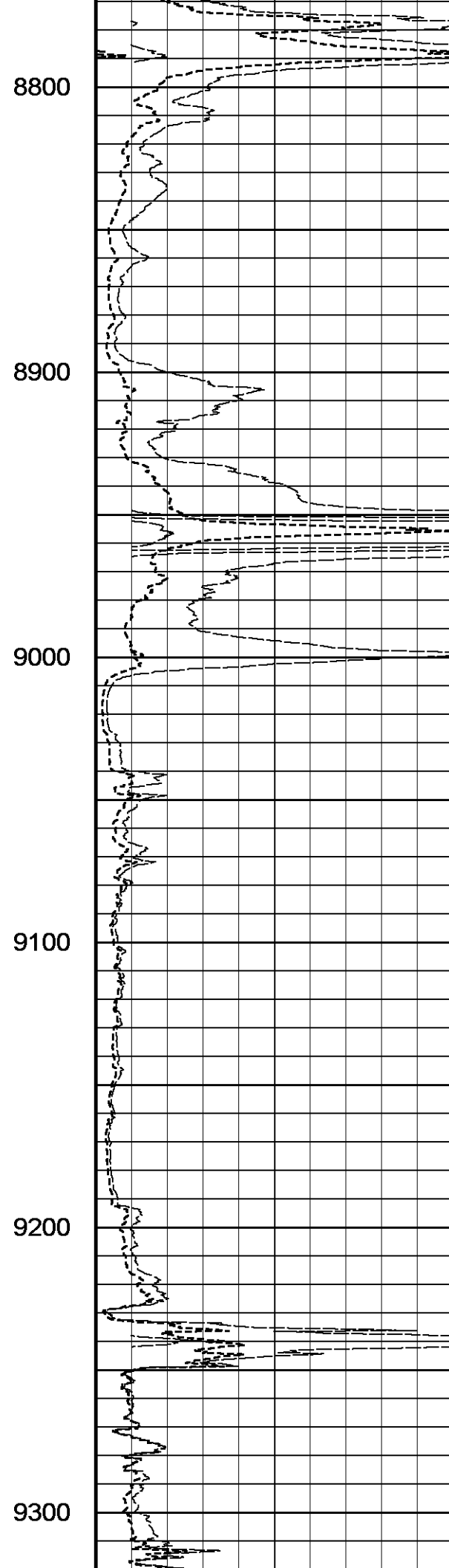
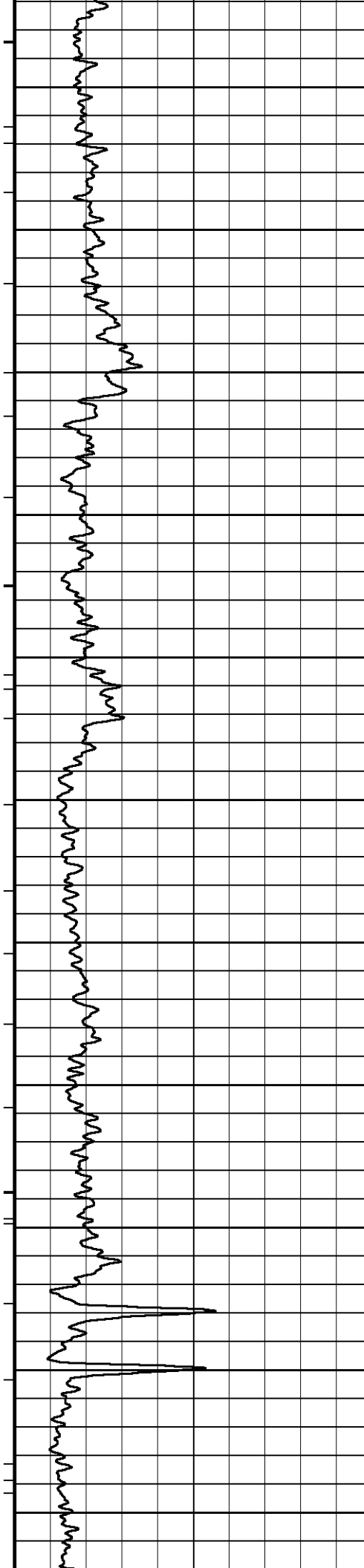
8600

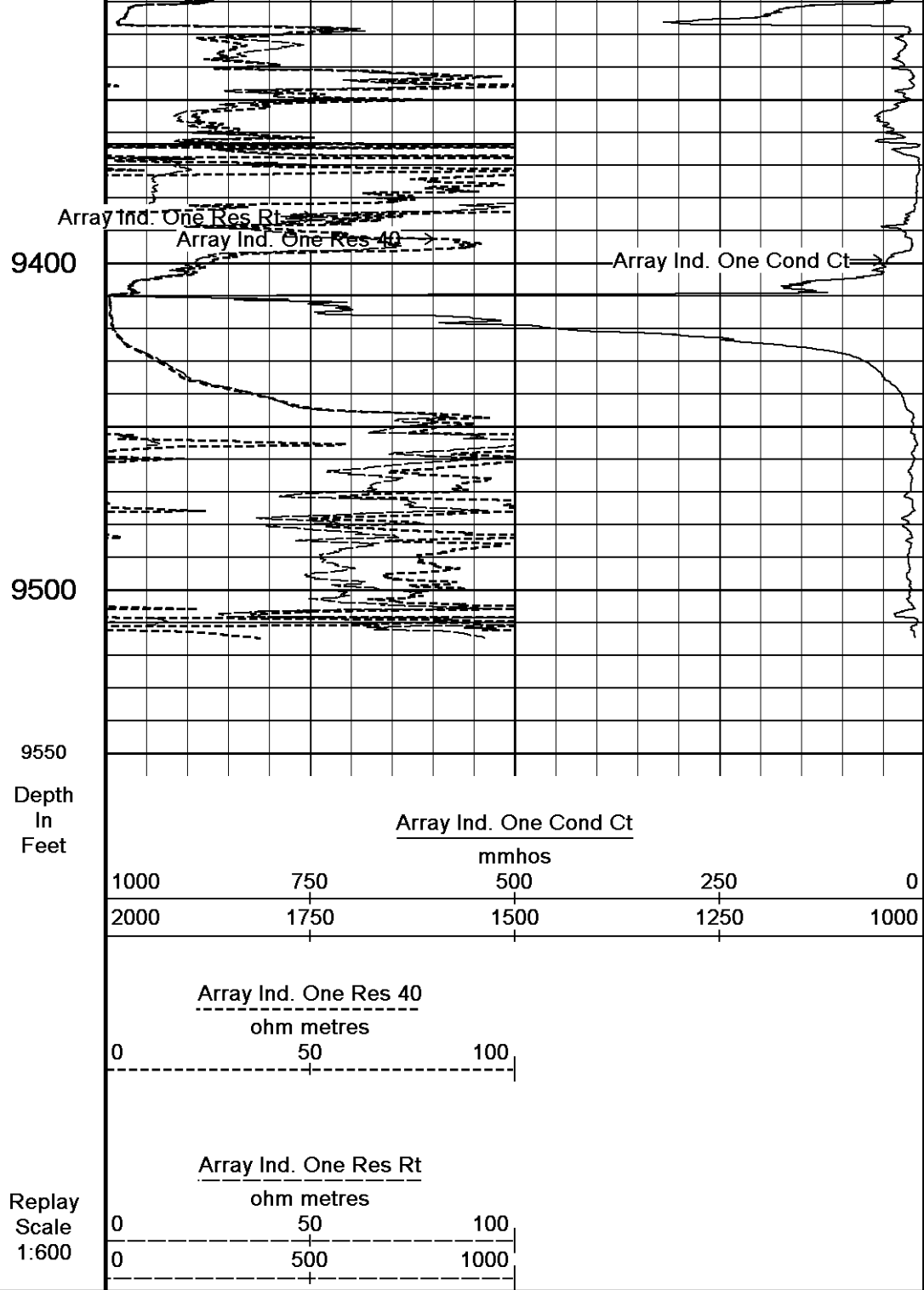
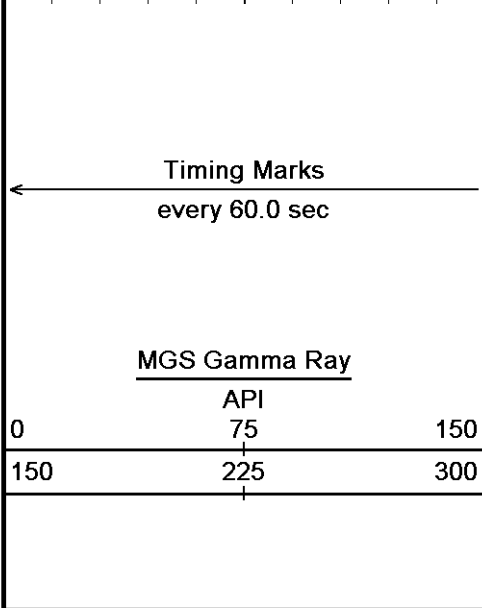
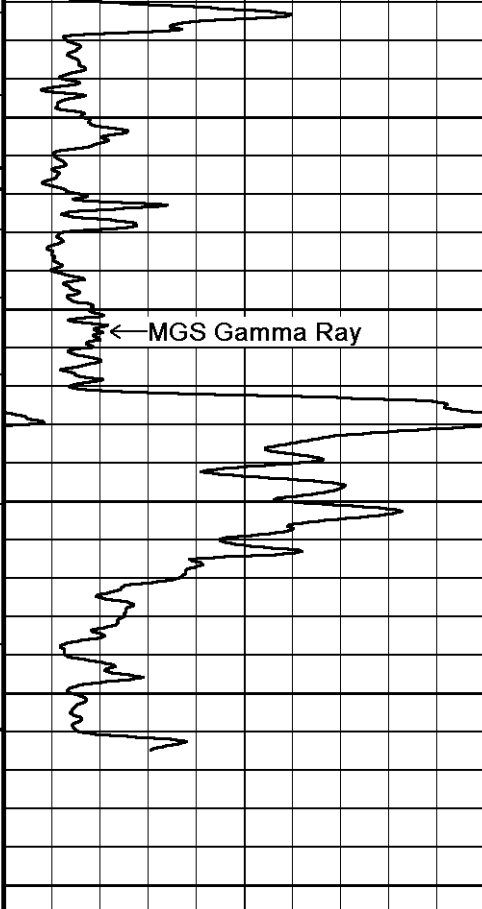
8700



Array Ind. One Cond Ct







Depth Based Data - Maximum Sampling Increment 10.0cm

Filename: C:\Minimus 13.04.8492\Data\SANDRIDGE(ROCK 3319 1-16H)\36644 RTAP.dta

System Versions: Processed with 13.04.8492 Plotted with 13.04.8492

Plotted on 01-APR-2013 00:59

Recorded on 31-MAR-2013 22:53

↑ DSC ↑

↓ DSC ↓

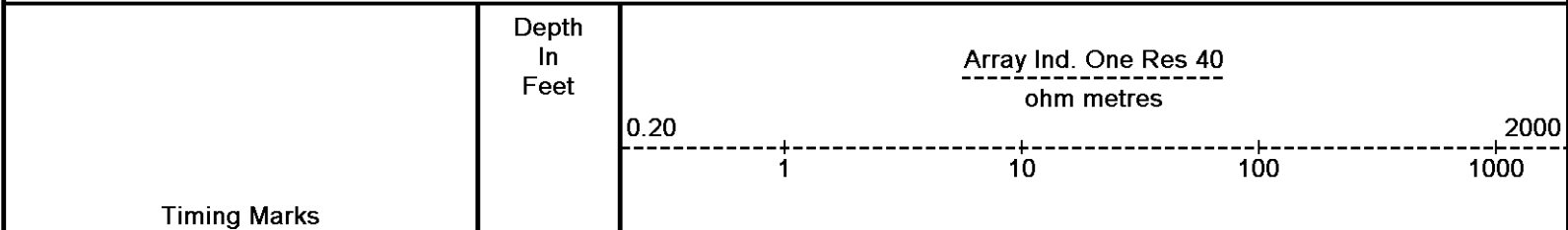
Depth Based Data - Maximum Sampling Increment 10.0cm

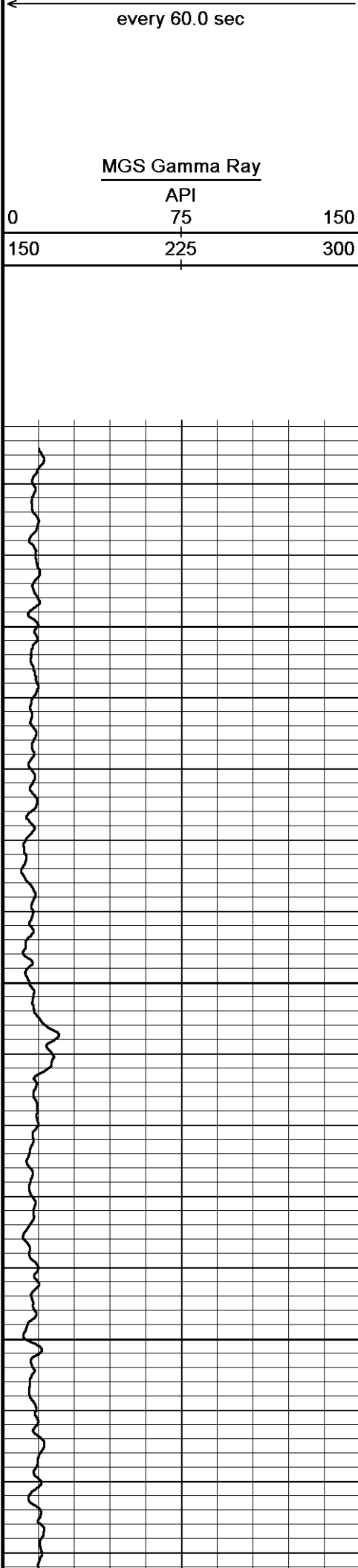
Filename: C:\Minimus 13.04.8492\Data\SANDRIDGE(ROCK 3319 1-16H)\36644 RTAP.dta

System Versions: Processed with 13.04.8492 Plotted with 13.04.8492

Plotted on 01-APR-2013 00:59

Recorded on 31-MAR-2013 22:53





Borehole Temp in deg F

Replay Scale 1:240

5774

Casing Shoe

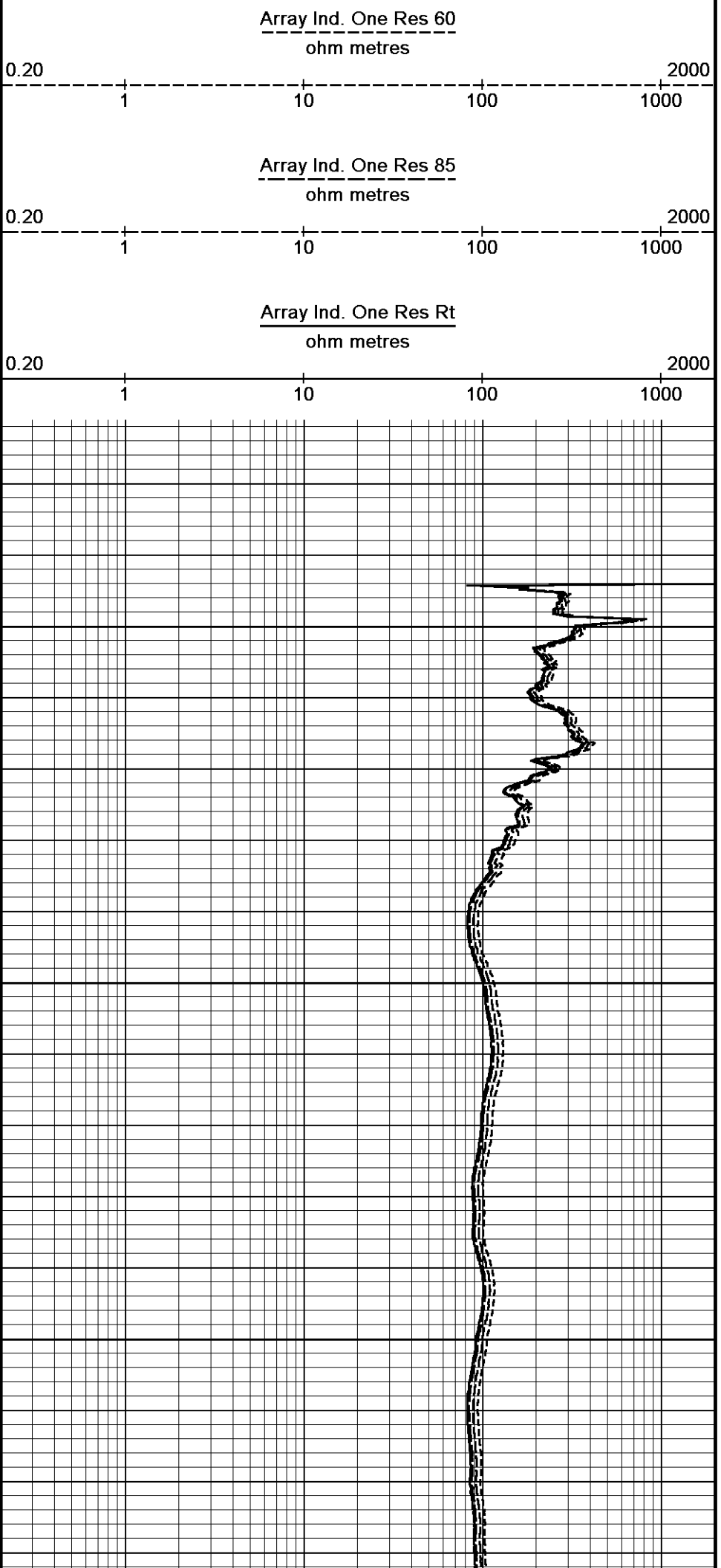
5800

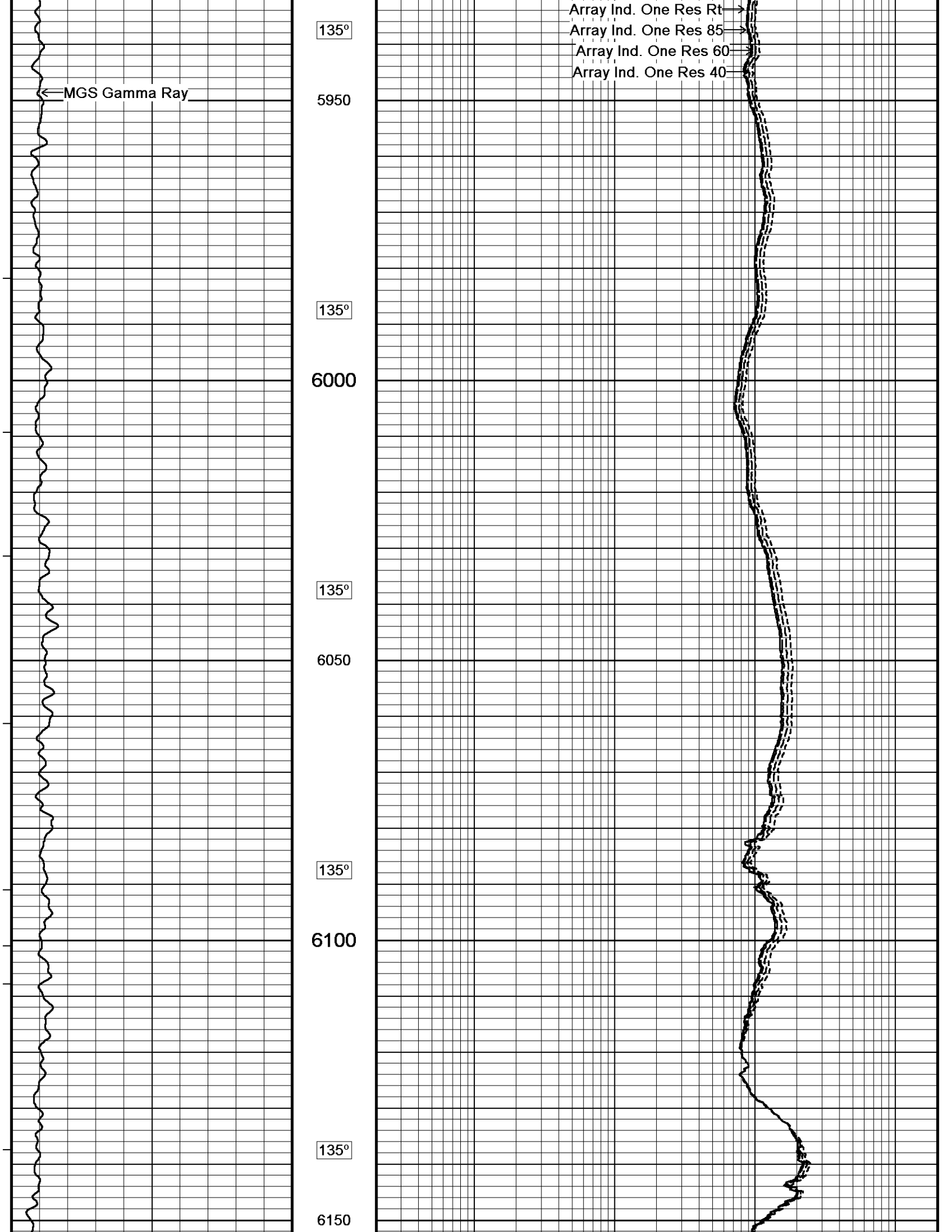
135°

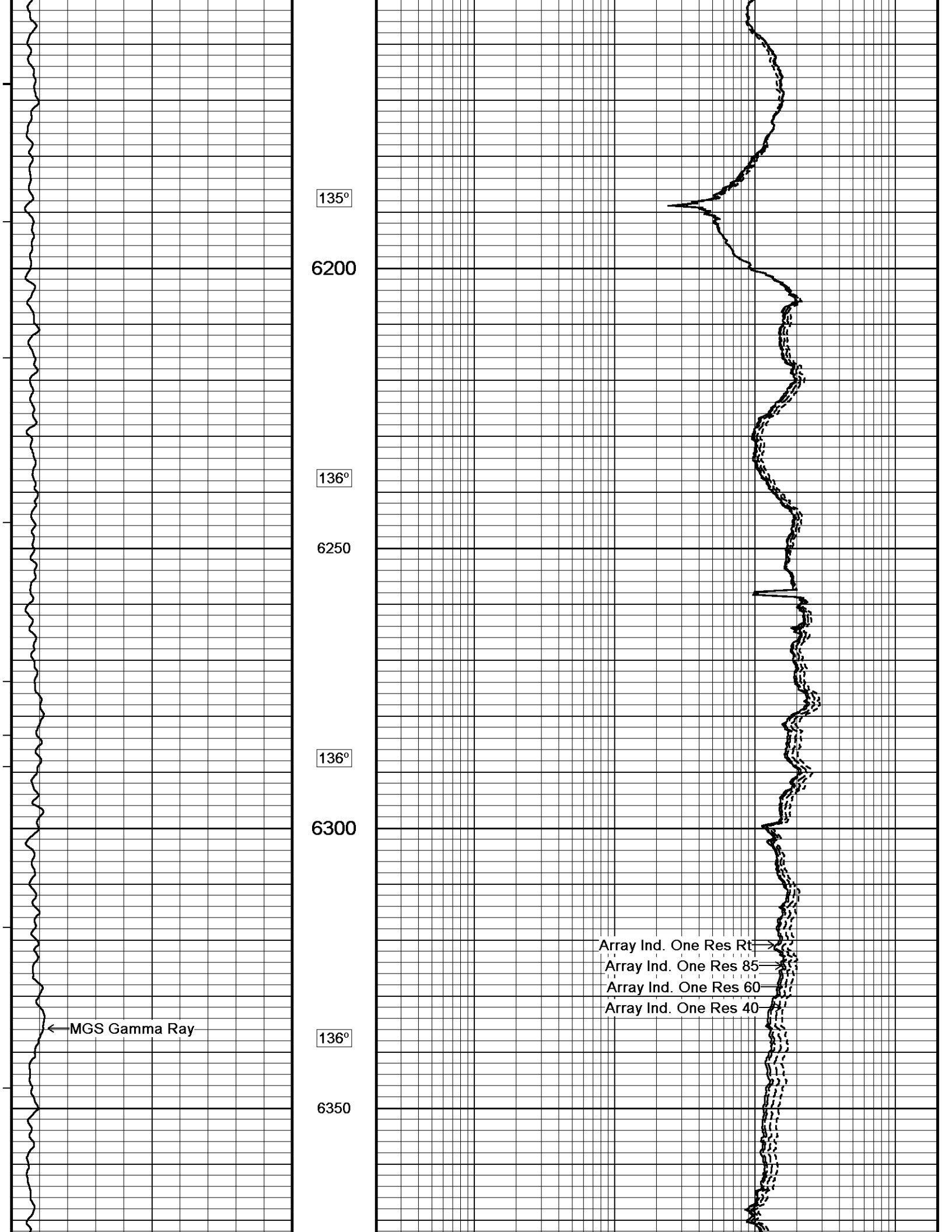
5850

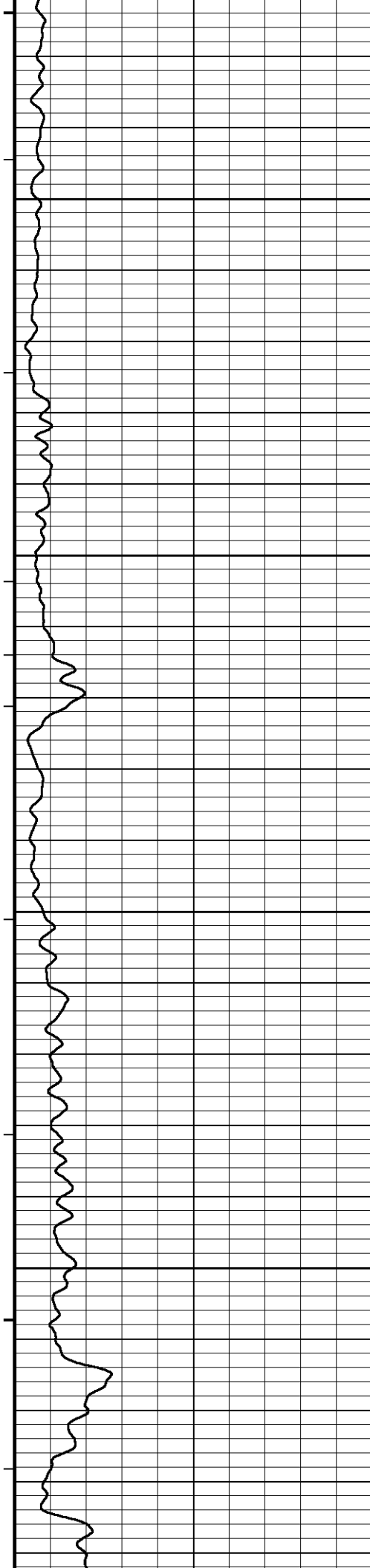
135°

5900









136°

6400

136°

6450

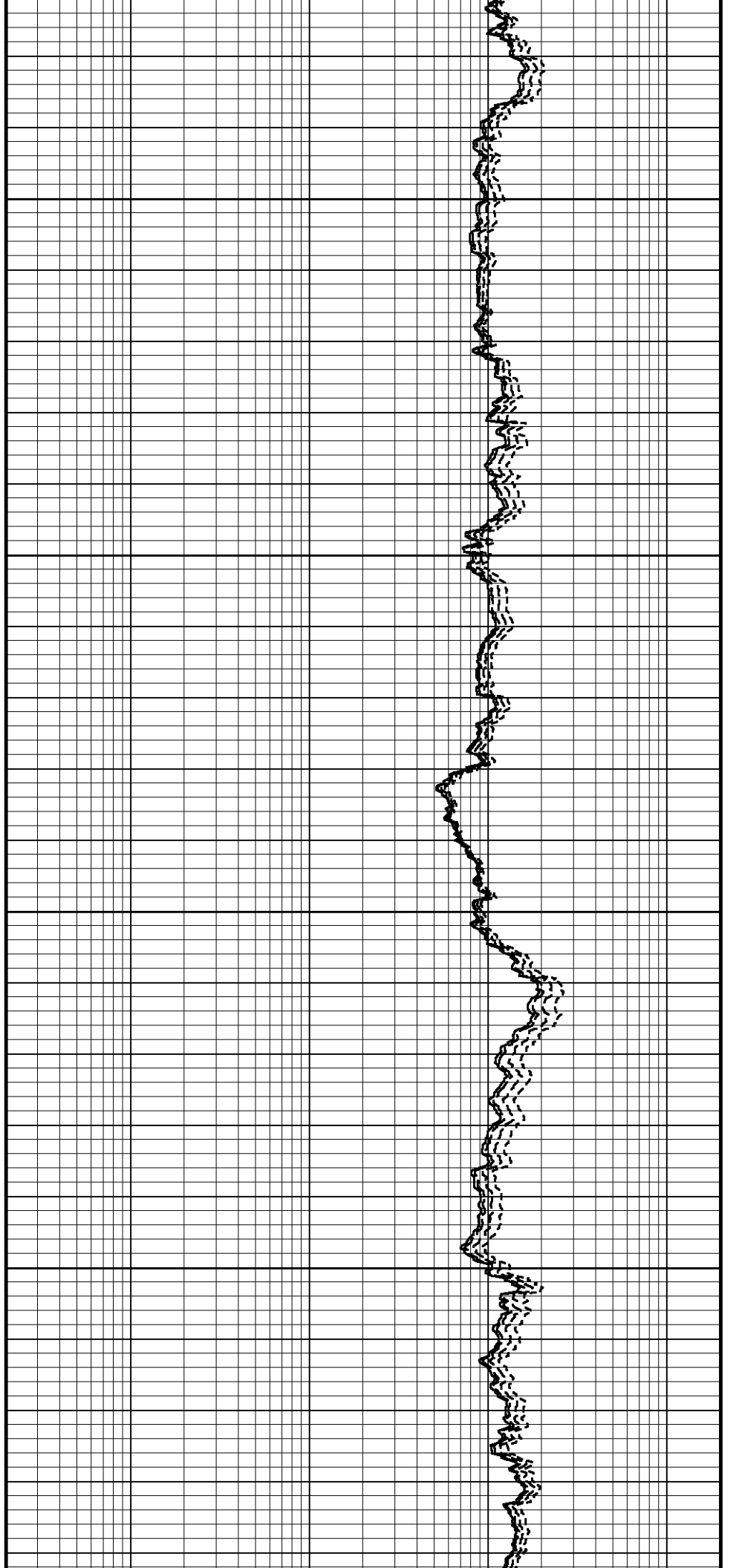
136°

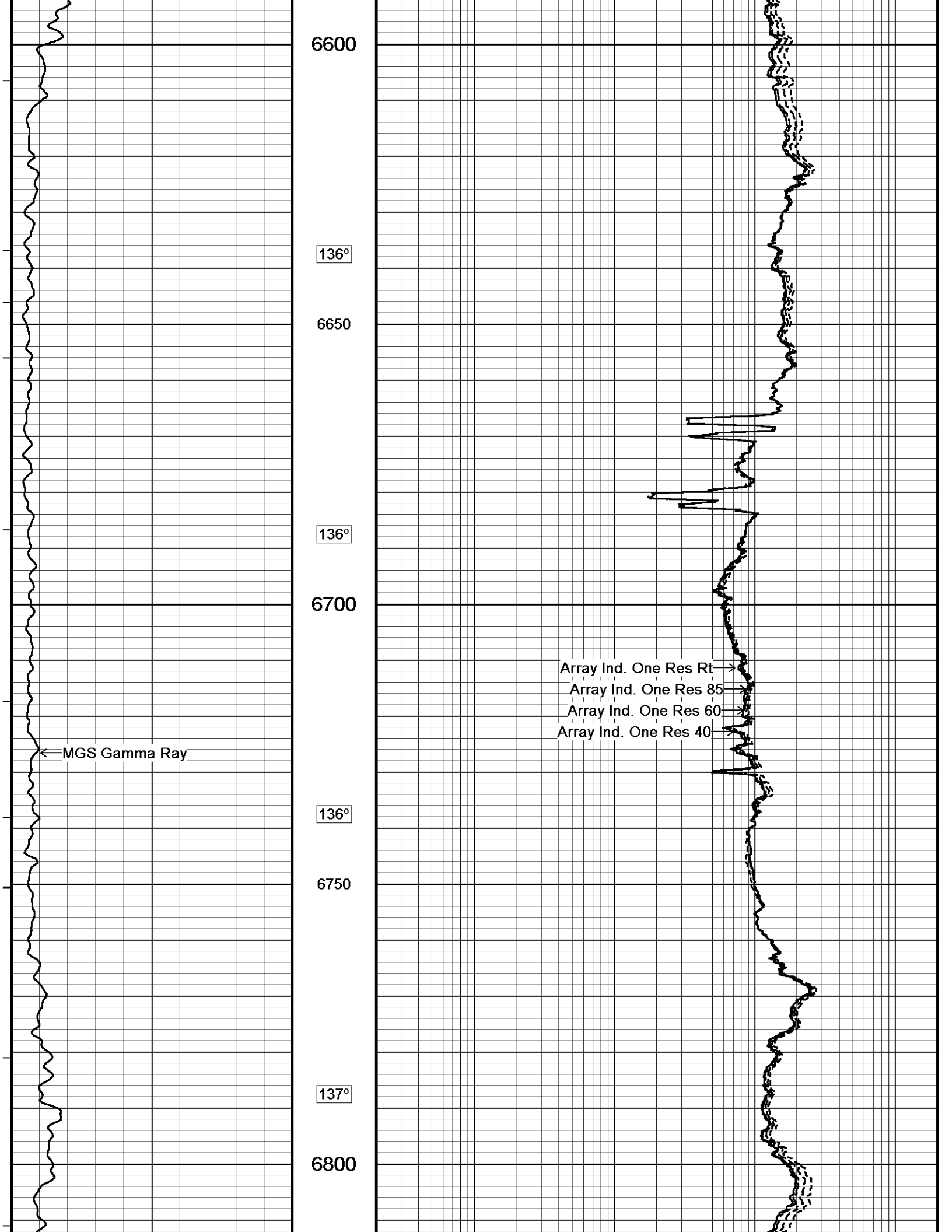
6500

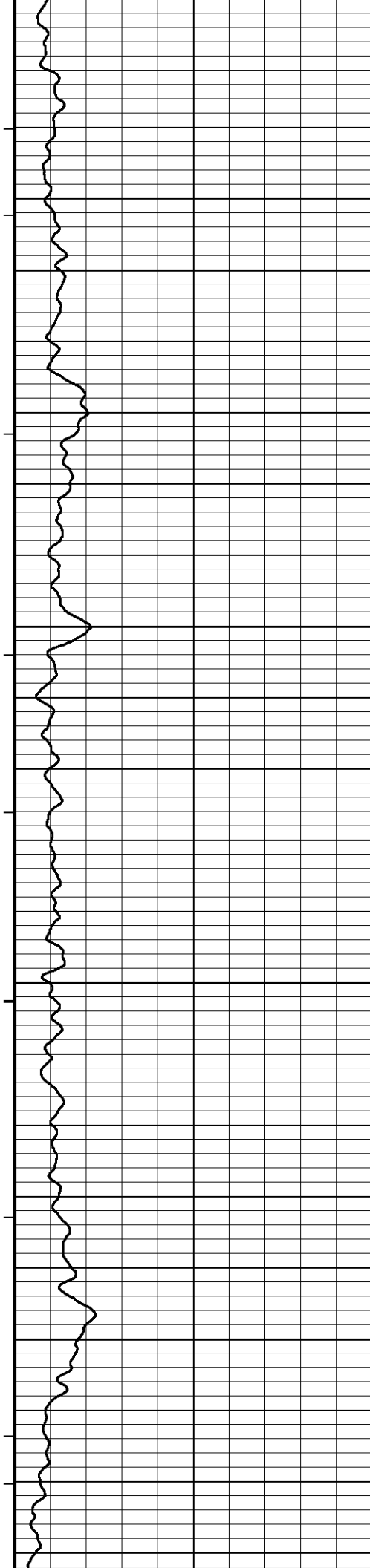
136°

6550

136°







137°

6850

137°

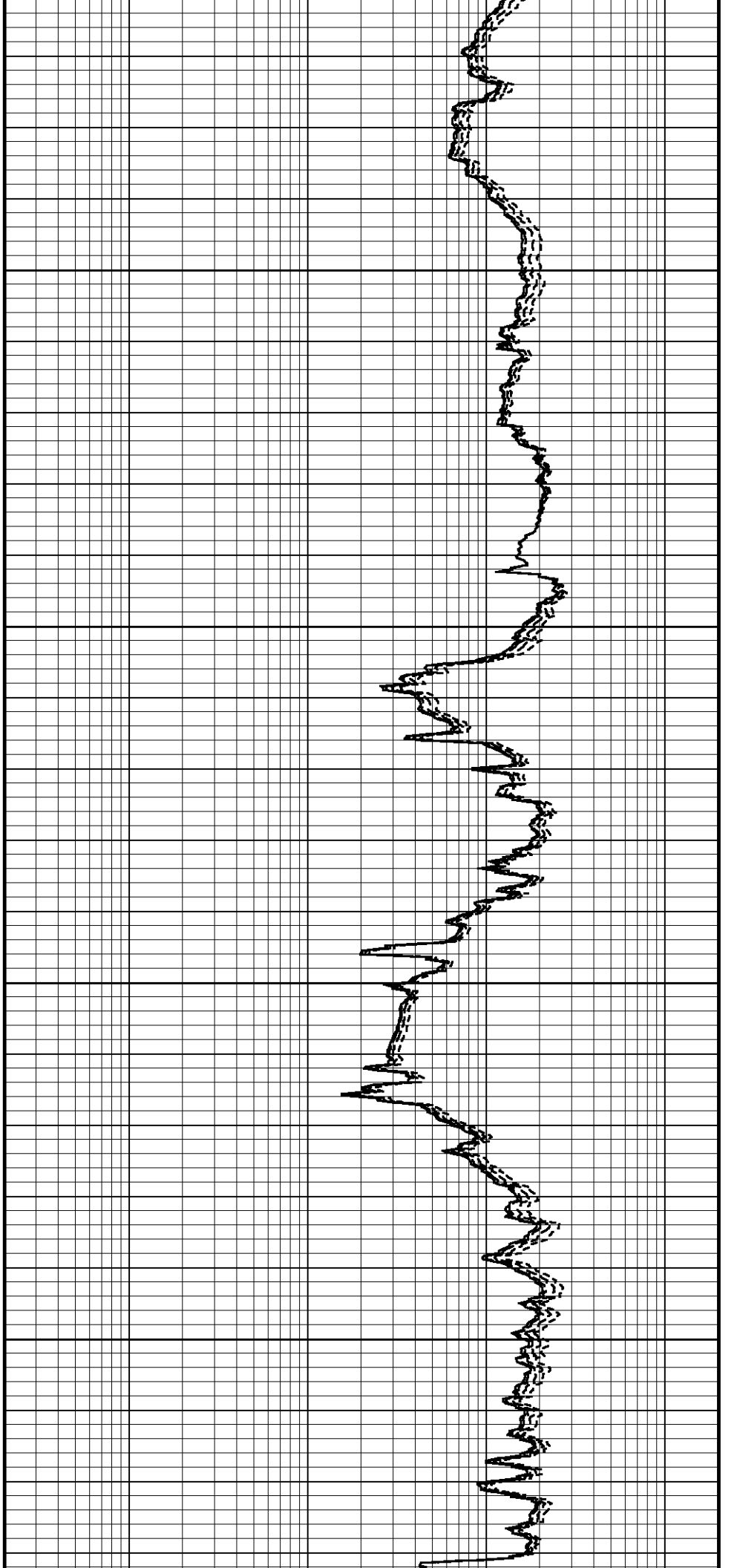
6900

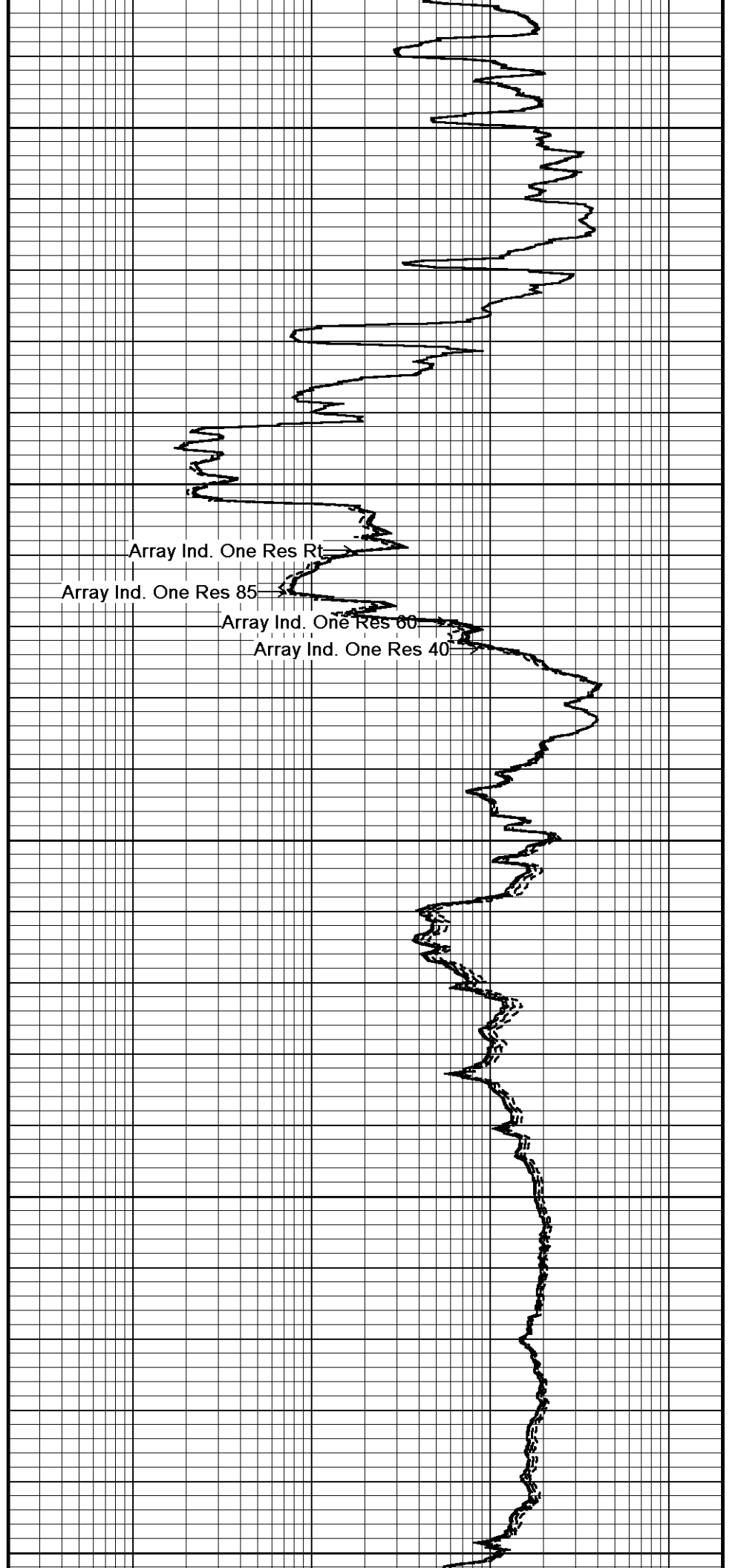
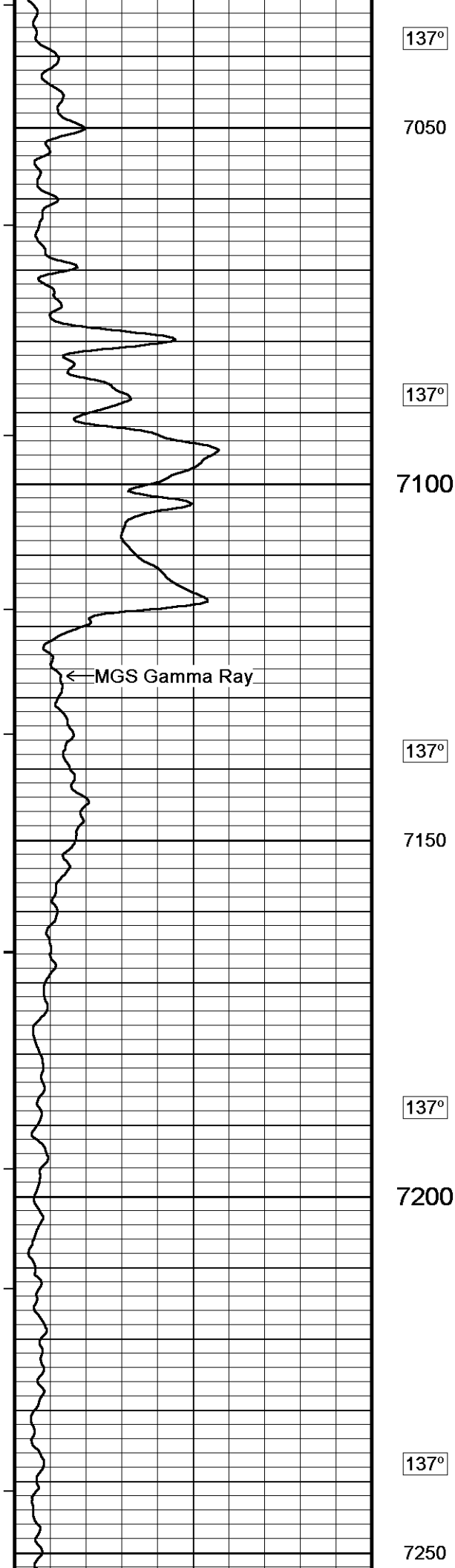
137°

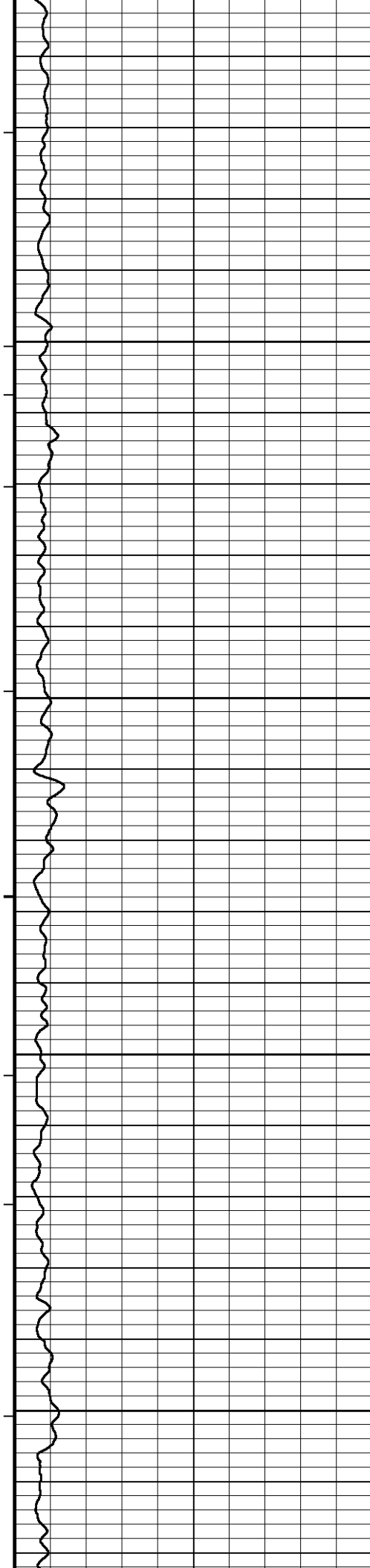
6950

137°

7000







137°

7300

137°

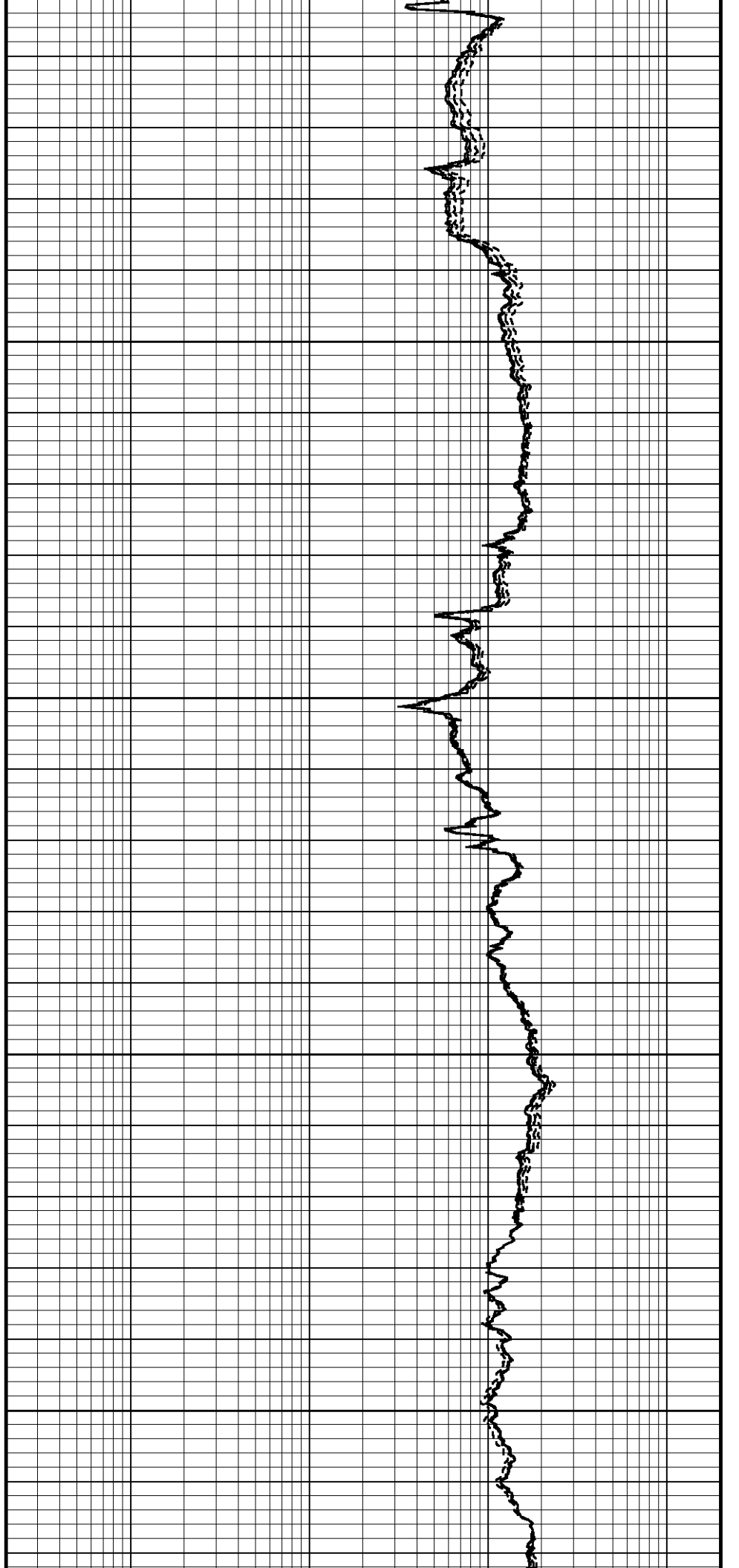
7350

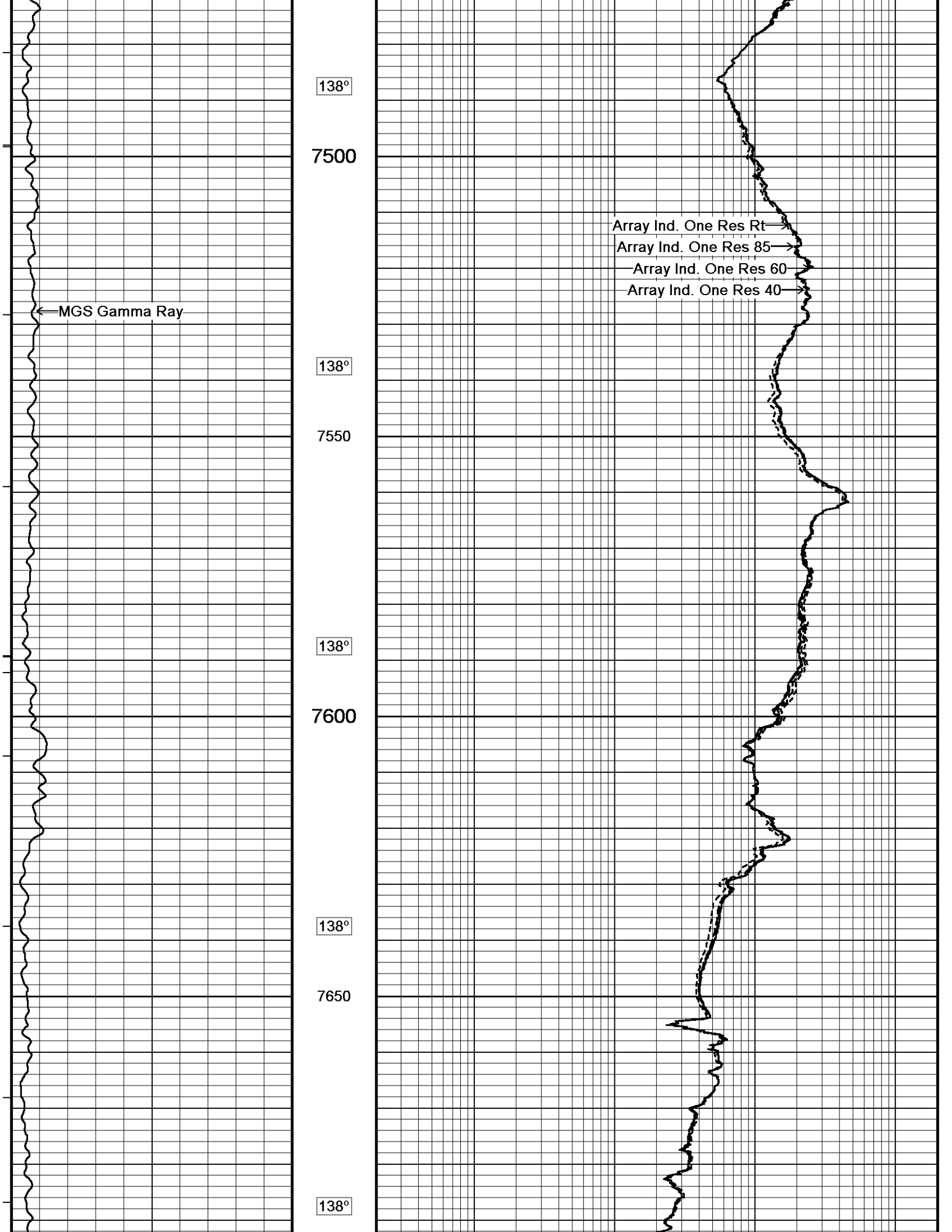
138°

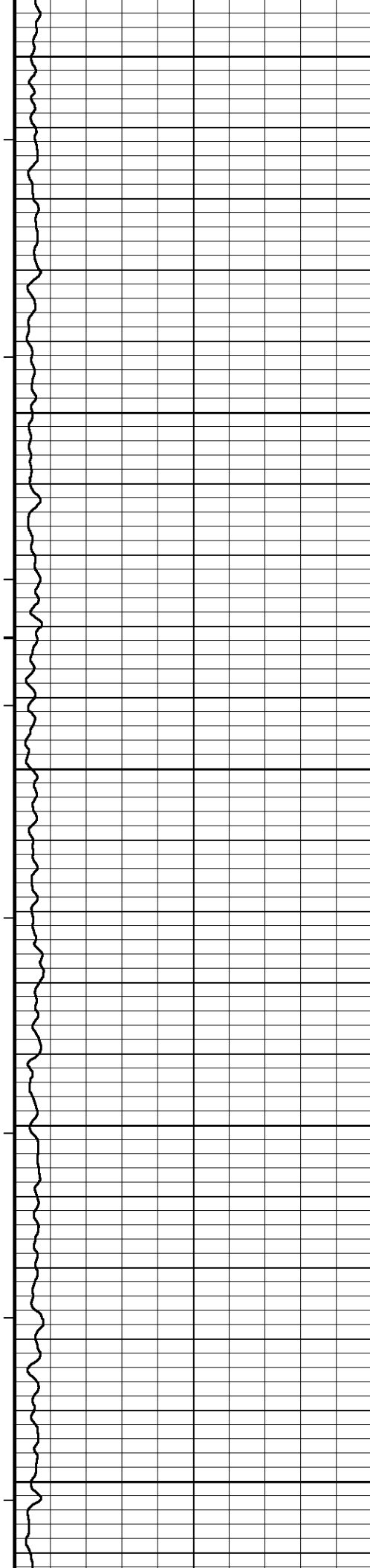
7400

138°

7450







7700

138°

7750

138°

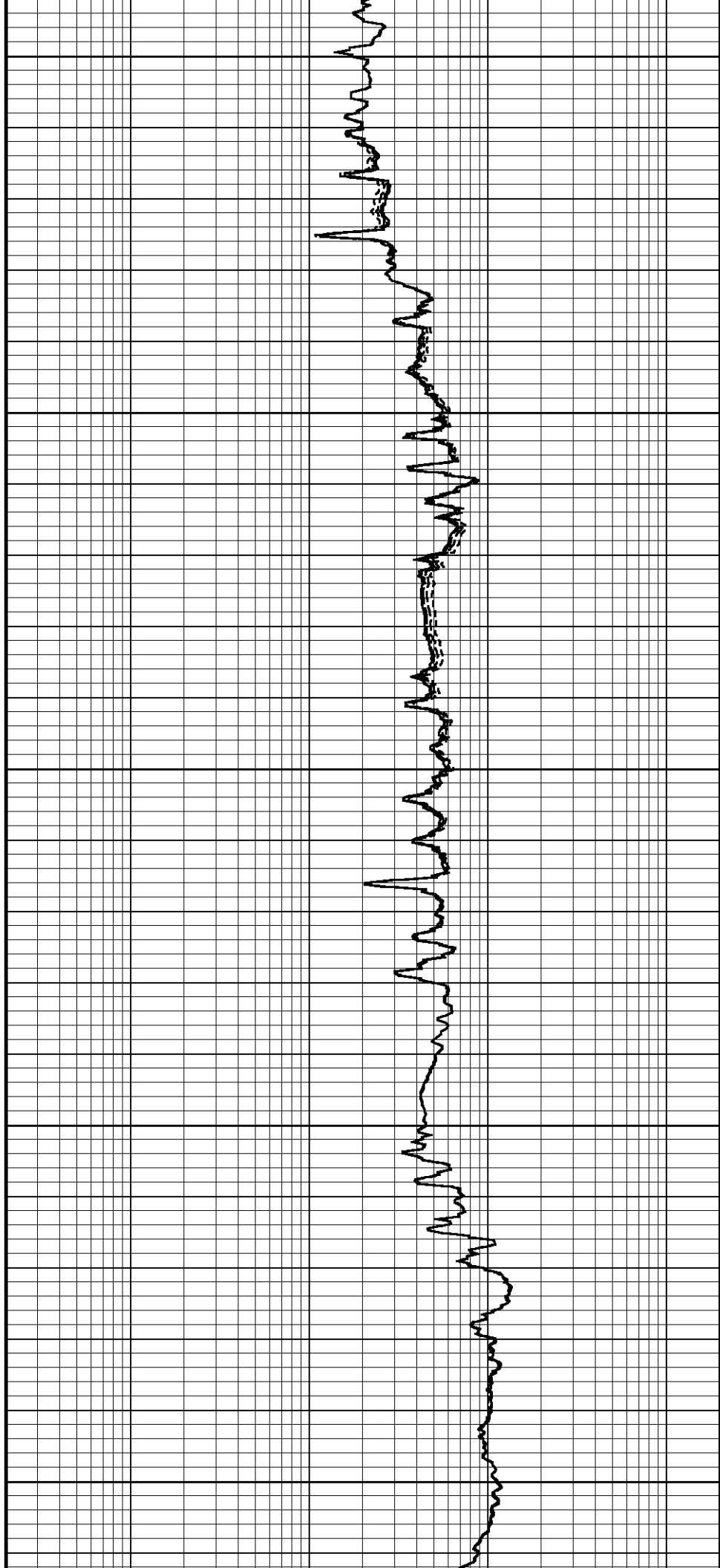
7800

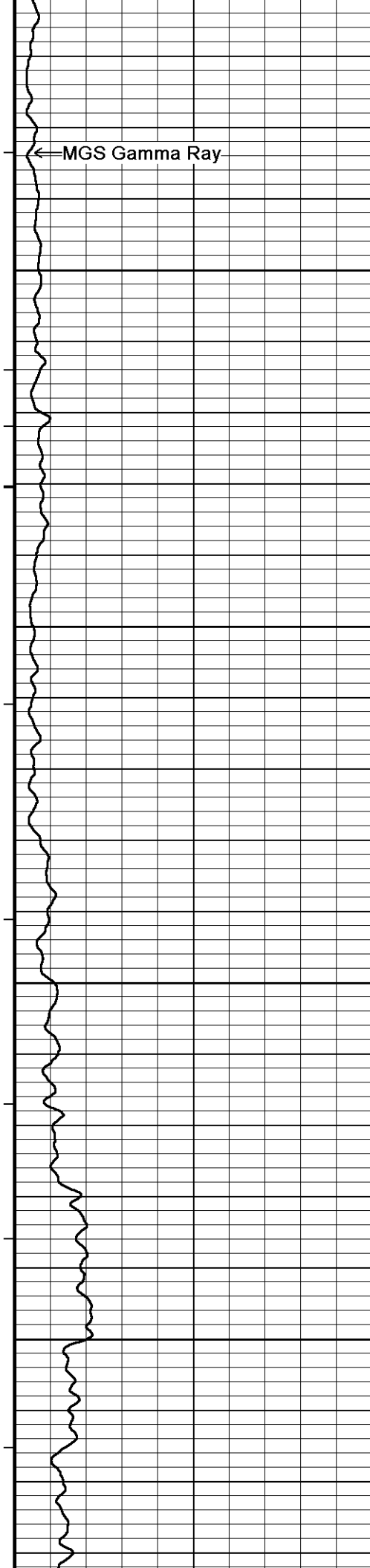
138°

7850

138°

7900





← MGS Gamma Ray

138°

7950

138°

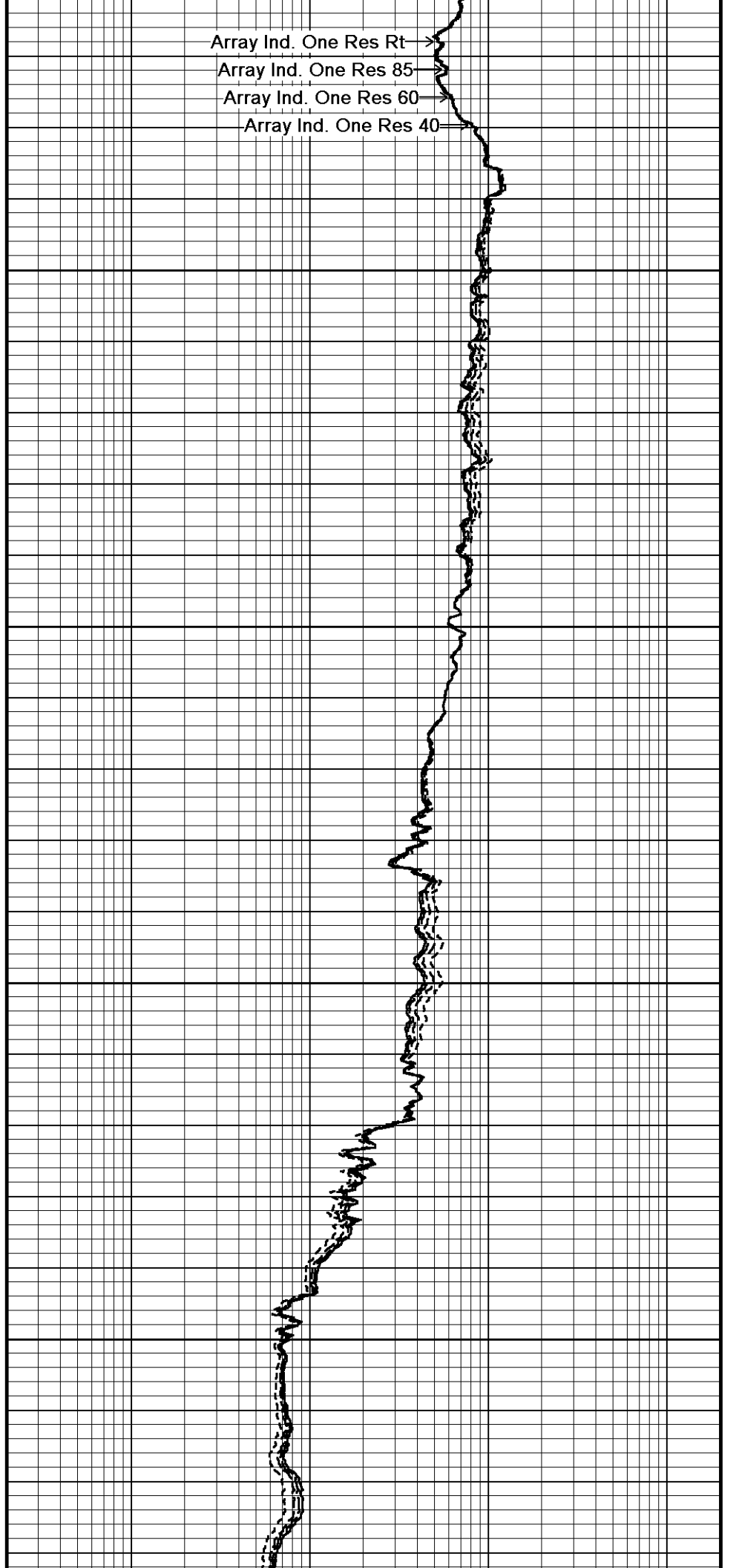
8000

138°

8050

138°

8100

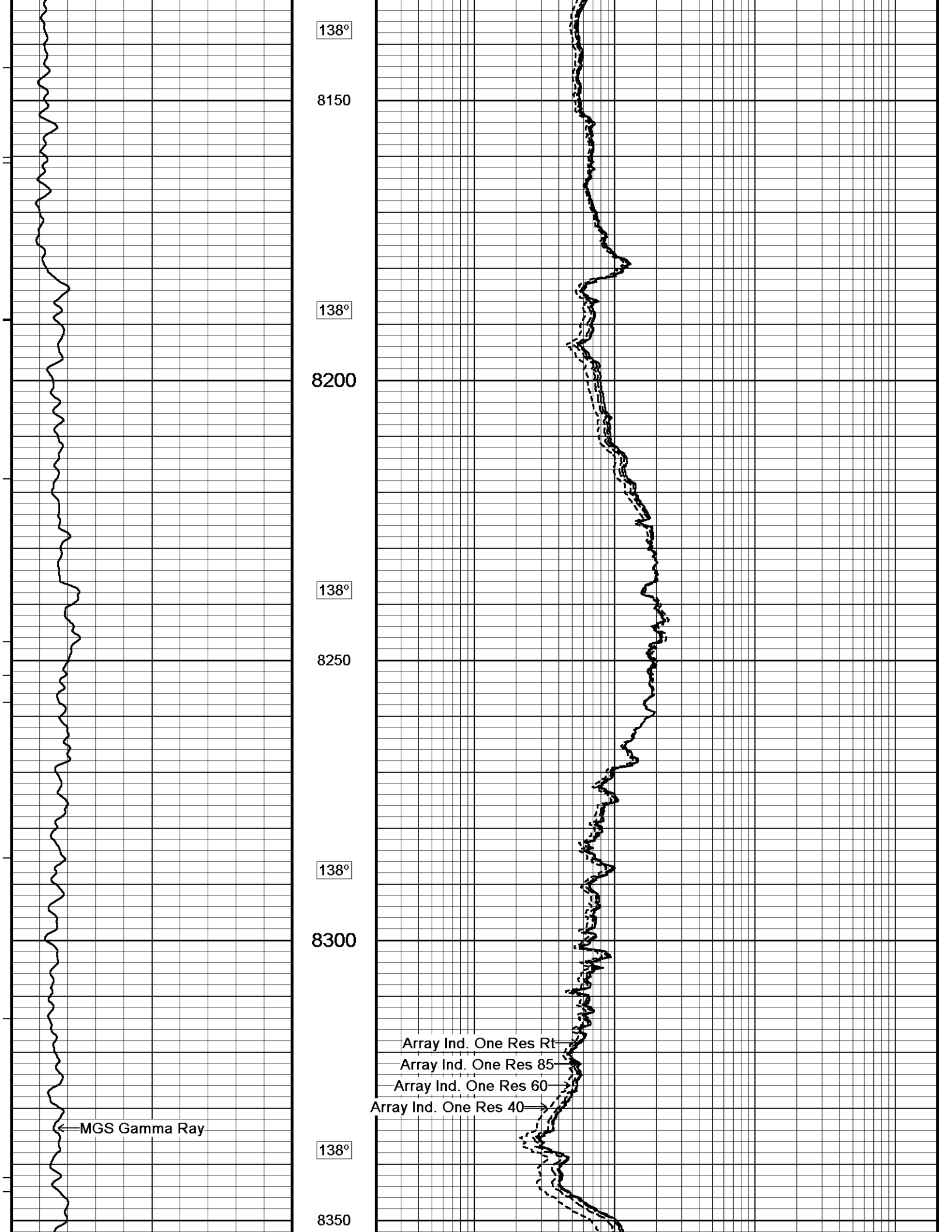


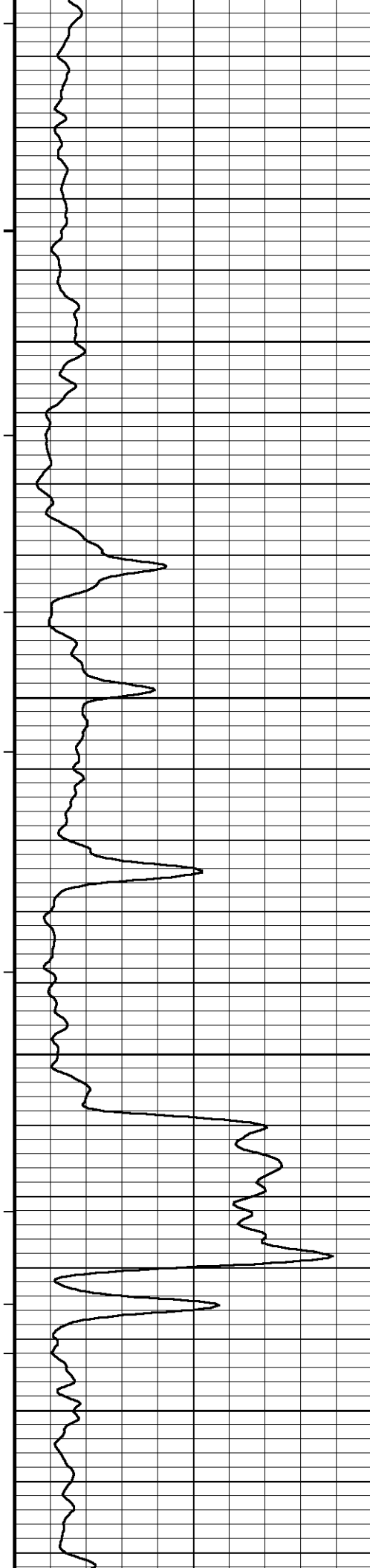
Array Ind. One Res Rt →

Array Ind. One Res 85 →

Array Ind. One Res 60 →

Array Ind. One Res 40 →





138°

8400

138°

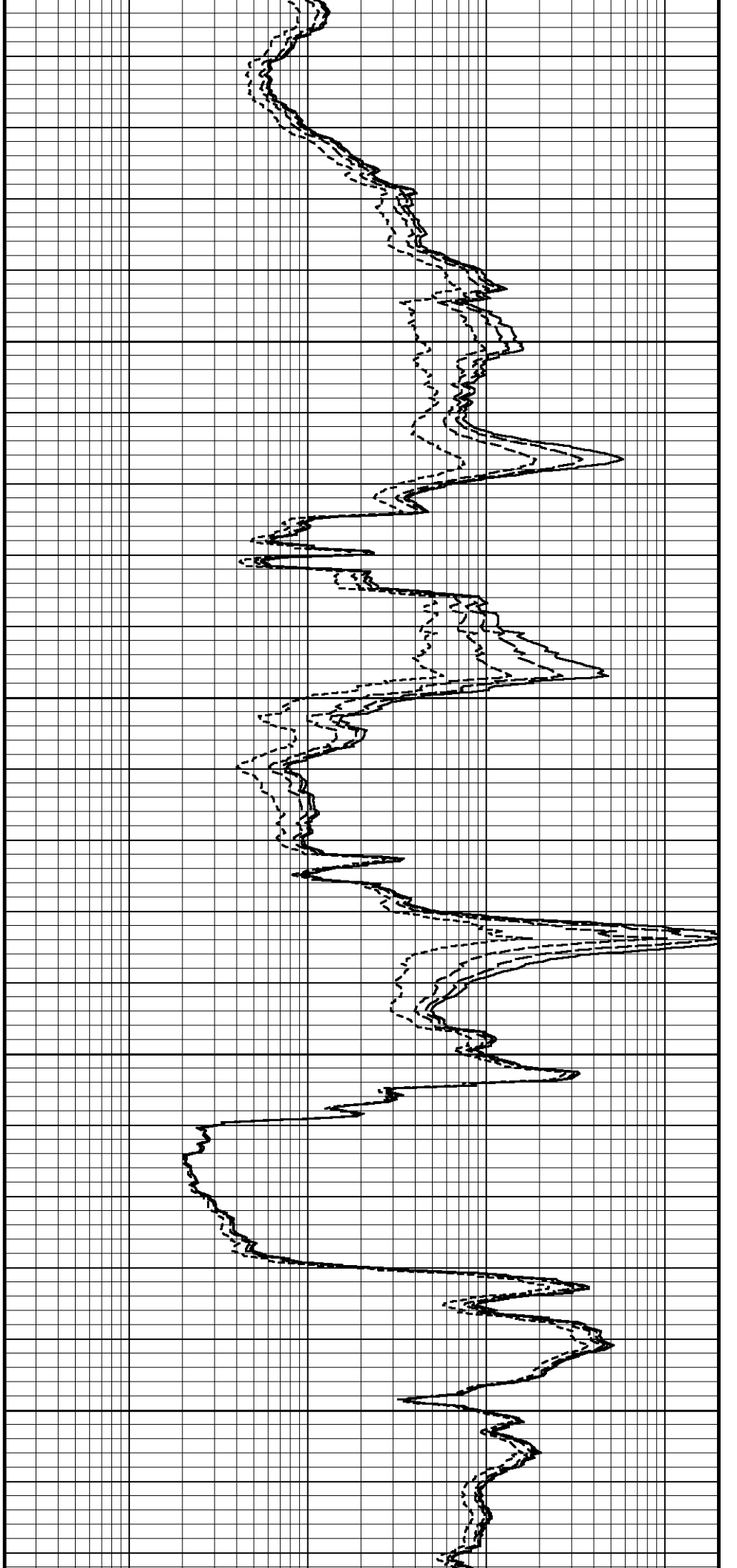
8450

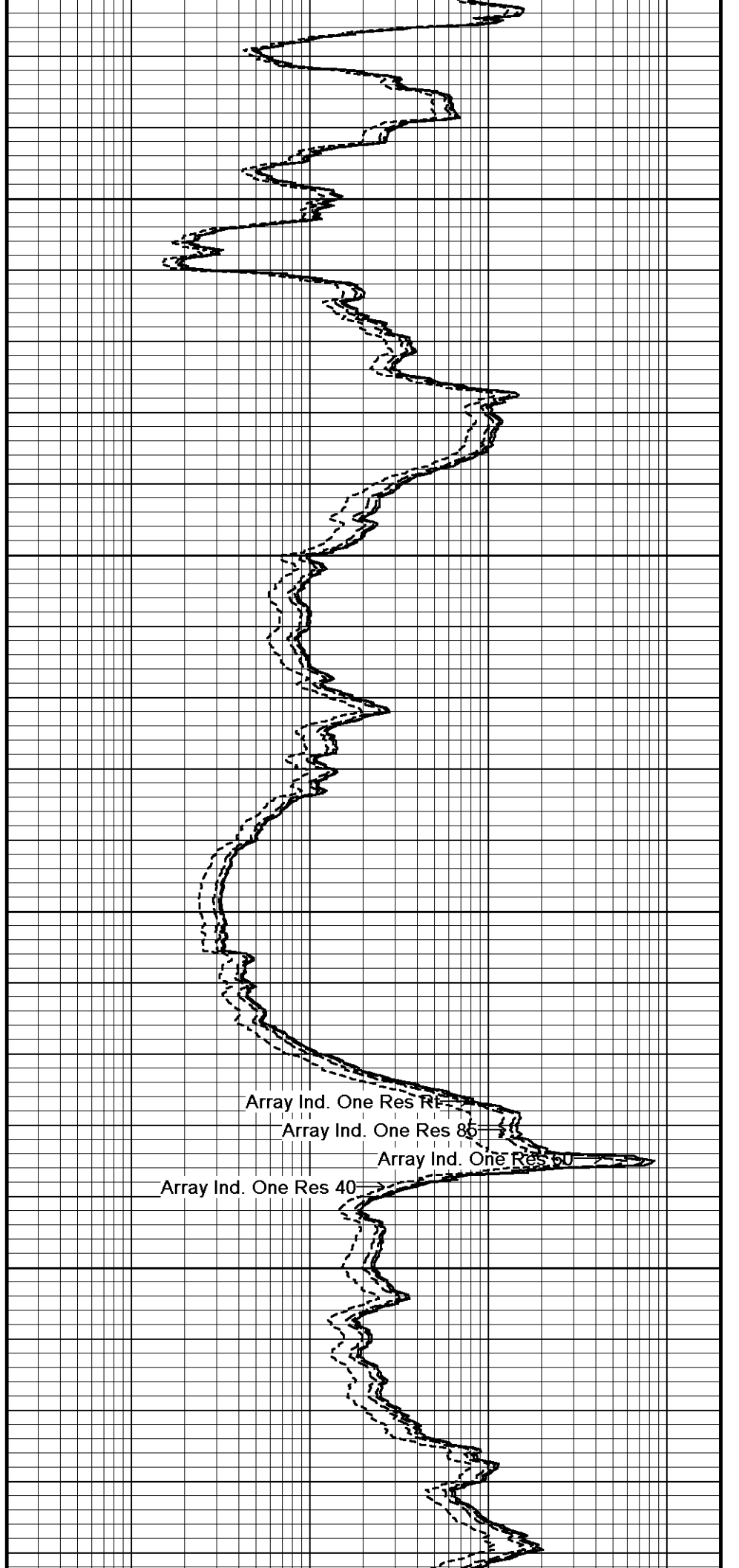
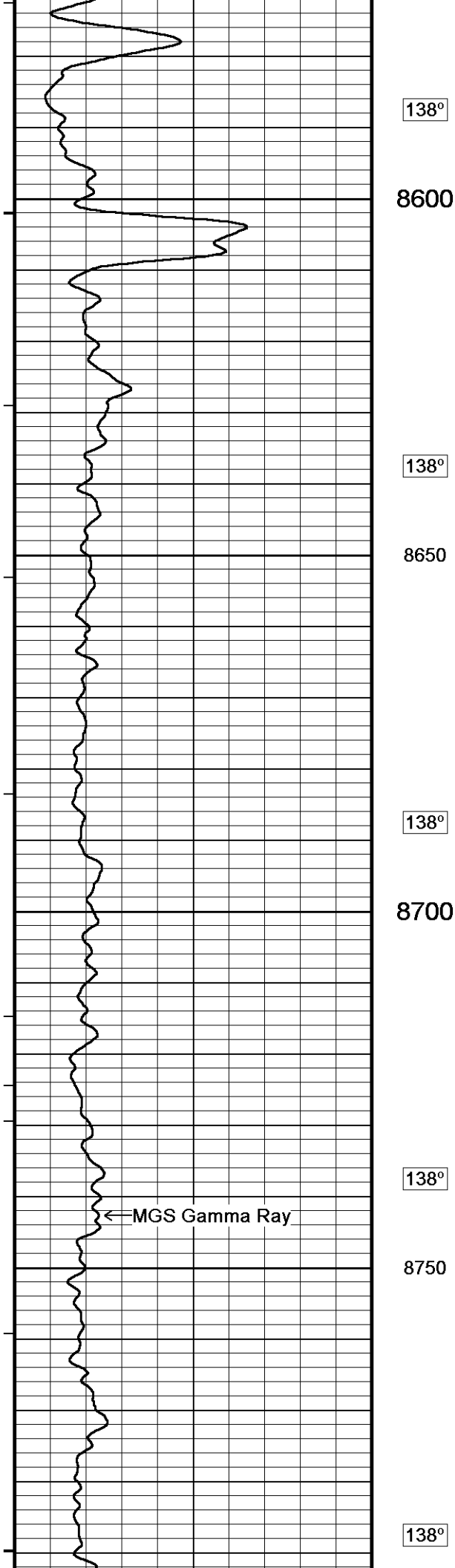
138°

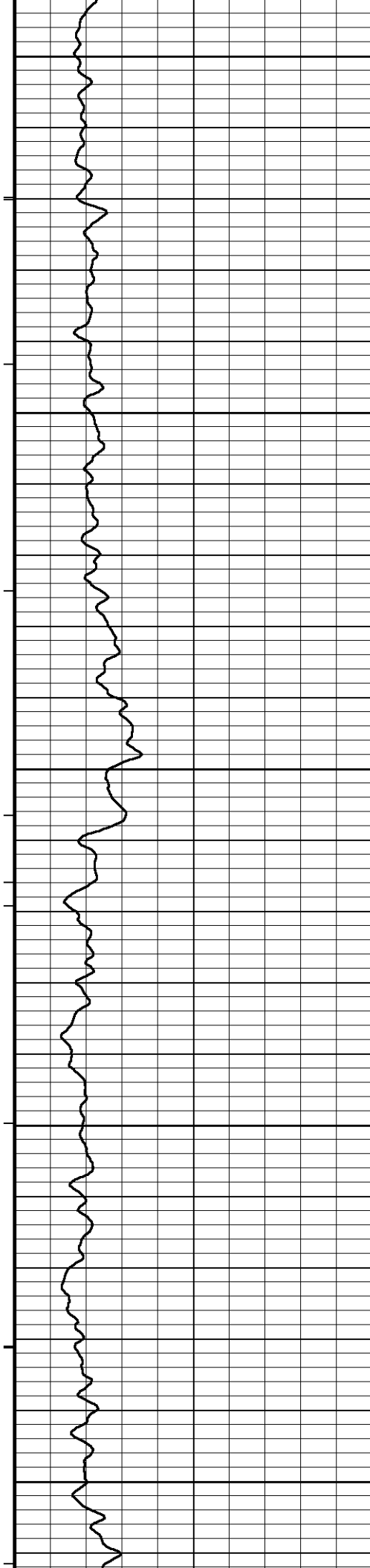
8500

138°

8550







8800

138°

8850

138°

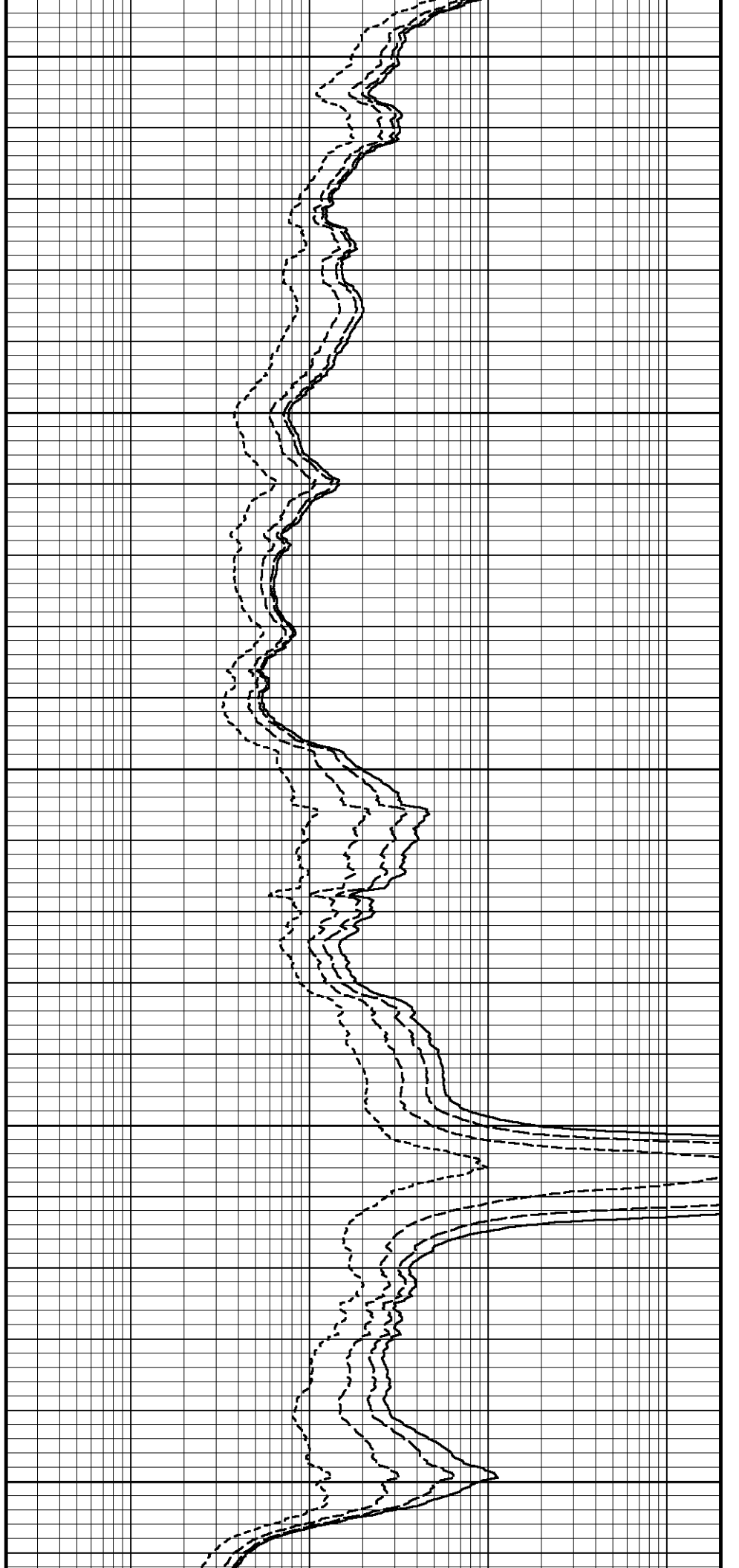
8900

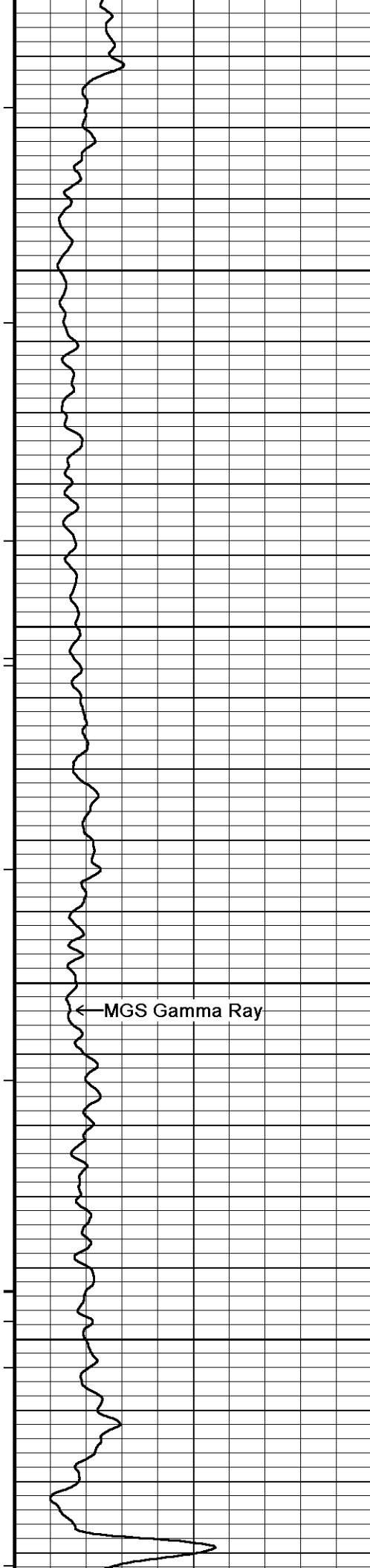
138°

8950

138°

9000





138°

9050

138°

9100

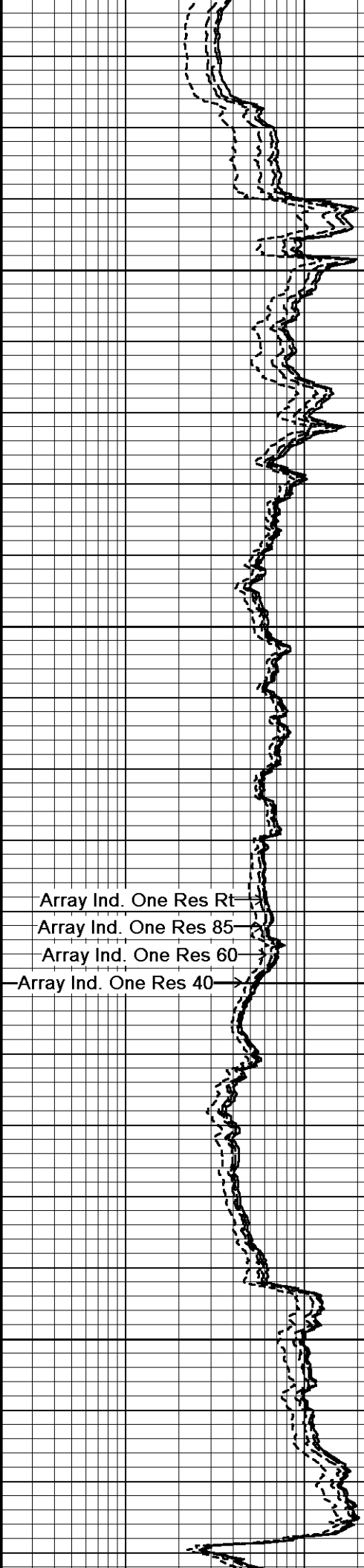
137°

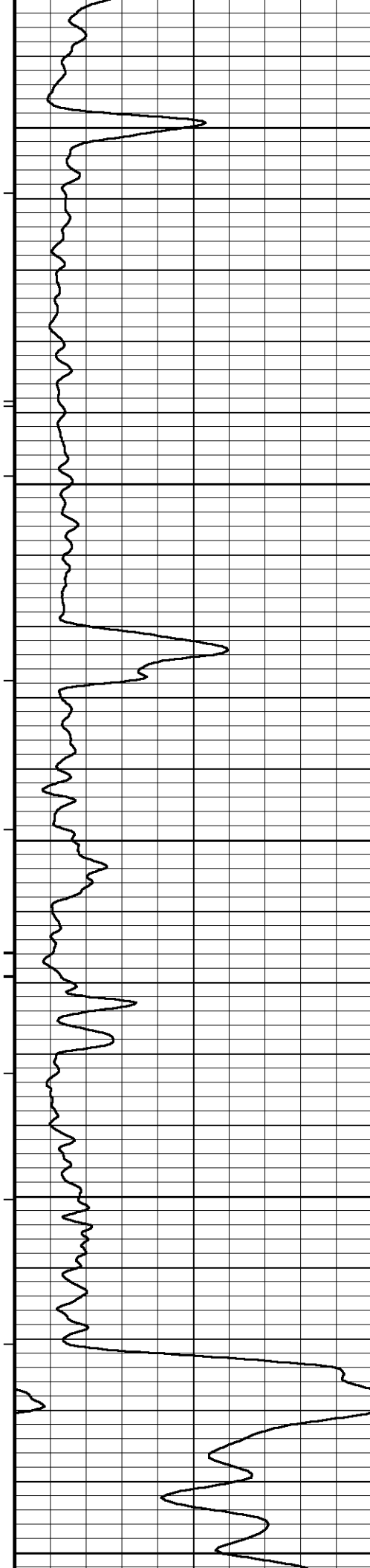
9150

137°

9200

← MGS Gamma Ray





137°

9250

137°

9300

137°

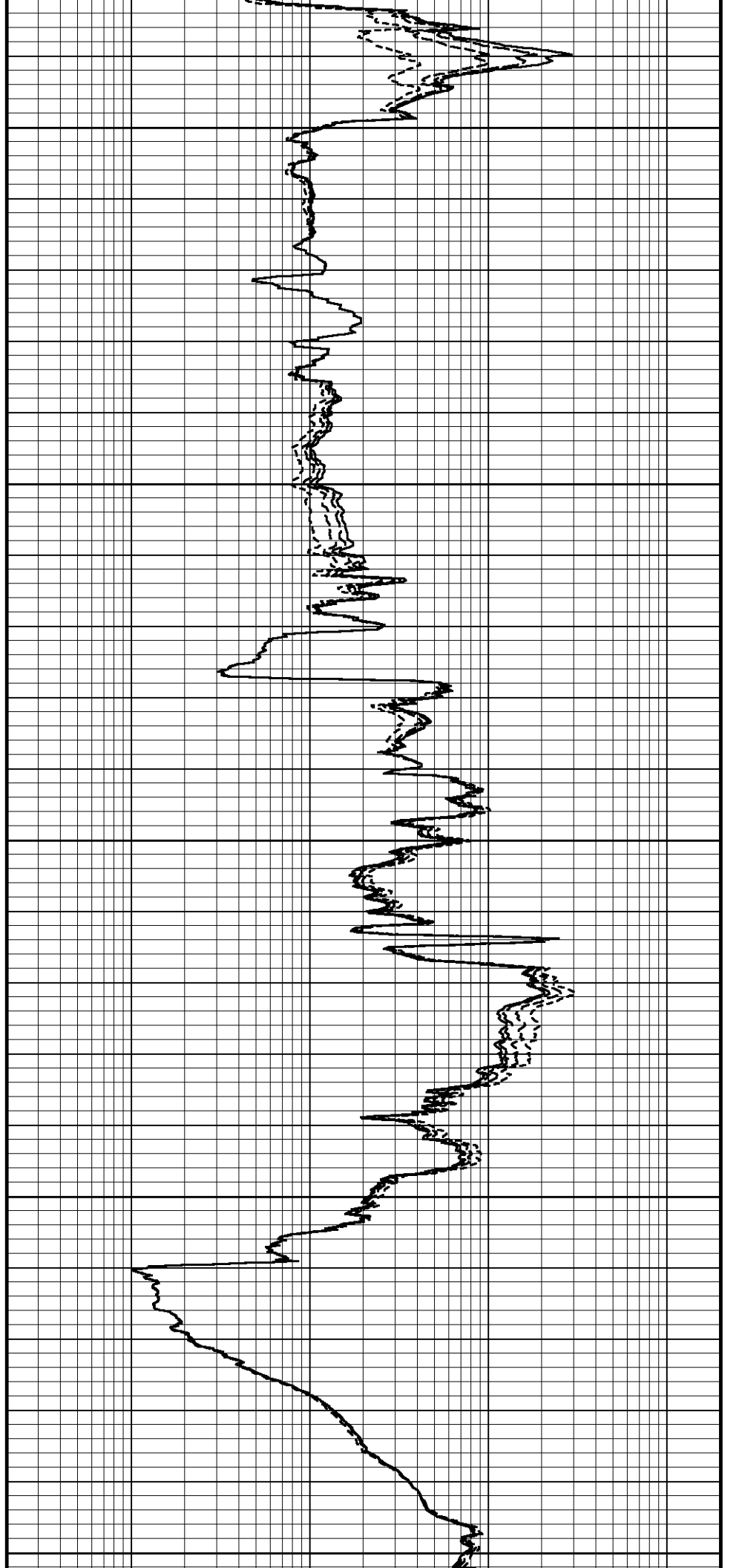
9350

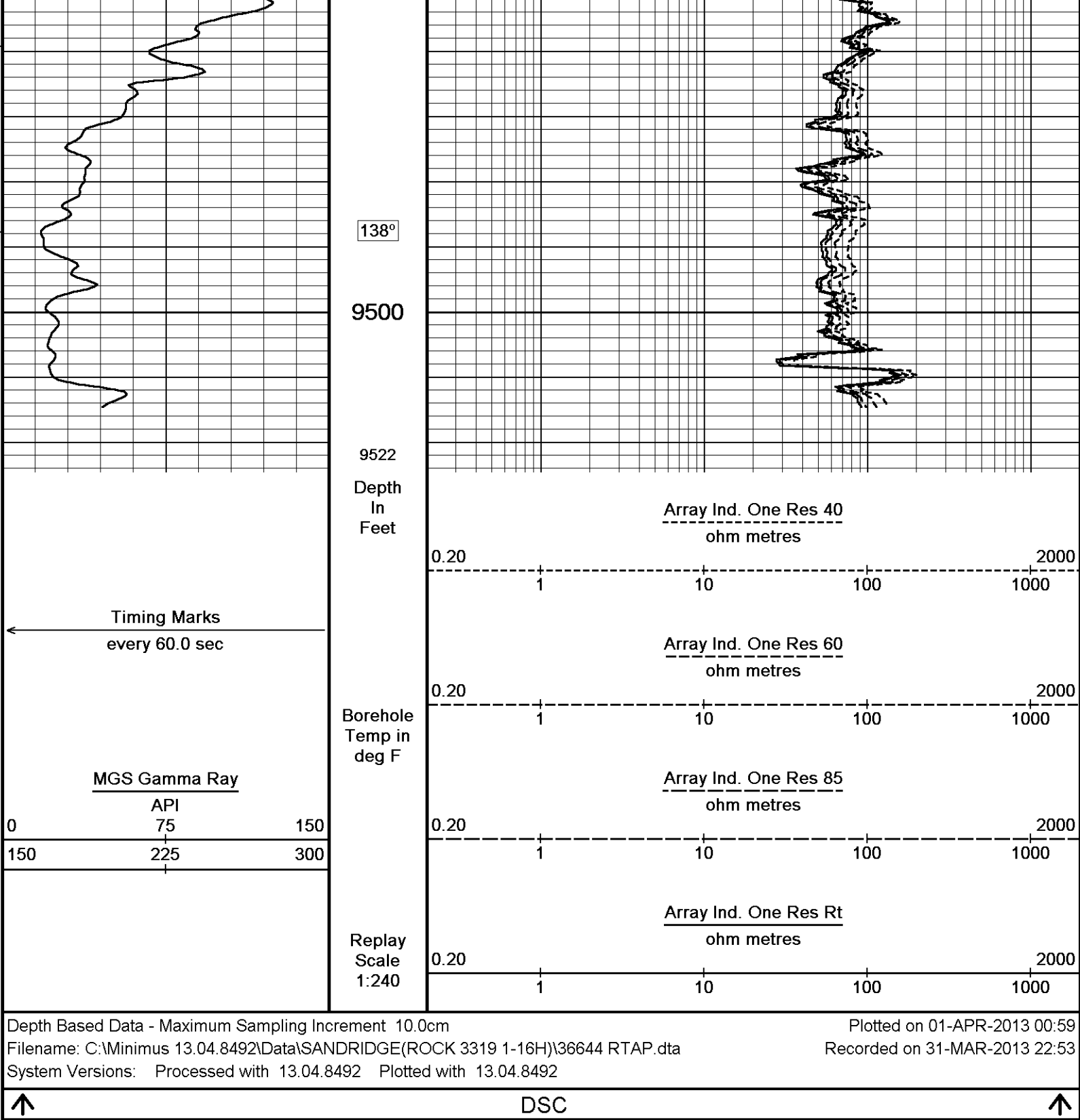
137°

9400

137°

9450





BEFORE SURVEY CALIBRATION		
C:\Minimus 13.04.8492\Data\SANDRIDGE(ROCK 3319 1-16H)\36644 RTAP.dta		
Down-hole Tension Calibration All 000		
Field Calibration on 24-FEB-2009 00:00		
Reading No	Measured	
1	14953.75	0.00
2	17846.38	1500.00
General Constants All 000		
Last Edited on 31-MAR-2013,23:07		
General Parameters		
Mud Resistivity	1.000	ohm-metres
Mud Resistivity Temperature	79.000	degrees F

Water Level	0.000	feet
Borehole Fluid Processing	Wet Hole	
Hole/Annular Volume and Differential Caliper Parameters		
HVOL Method	Single Caliper	
HVOL Caliper 1	Density Caliper	
HVOL Caliper 2	N/A	
Annular Volume Diameter	4.500	inches
Caliper for Differential Caliper	Density Caliper	
Rwa Parameters		
Porosity used	Limestone Density Por.	
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 167			Last Edited on 02-FEB-2013,08:19					
Atmospheric Pressure	14.70	psi						
Serial Number	262784							
Calibration Date	21-Jan-2011							
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	0.038	0.038	0.049	0.049	0.063	0.063	0.077	0.078
3000.0	5.218	5.220	5.230	5.232	5.244	5.246	5.257	5.259
6000.0	10.409	10.412	10.422	10.425	10.436	10.440	10.447	10.452
9000.0	15.610	15.615	15.623	15.628	15.638	15.643	15.650	15.656
12000.0	20.823	20.826	20.837	20.841	20.853	20.857	20.866	20.869
15000.0	26.048		26.064		26.081		26.093	

High Resolution Temperature Calibration MGS-C.J 136			Field Calibration on 21-MAR-2013,03:59
	Measured	Calibrated(Deg F)	
Lower	0.00	0.00	
Upper	0.00	0.00	

High Resolution Temperature Constants MGS-C.J 136		Last Edited on 21-MAR-2013,03:59
Pre-filter Length	11	

SP Calibration MGS-C.J 136			Field Calibration on 21-MAR-2013,03:58
	Measured	Calibrated (mV)	
Reference 1	102.2	98.7	
Reference 2	-94.7	-98.3	

Gamma Calibration MGS-C.J 136			Field Calibration on 29-MAR-2013 07:11
	Measured	Calibrated (API)	
Background	52	37	
Calibrator (Gross)	1831	1298	
Calibrator (Net)	1779	1261	

Gamma Constants MGS-C.J 136			Last Edited on 31-MAR-2013,11:24
Gamma Calibrator Number	BLUE		
Mud Density	1.09	gm/cc	
Caliper Source for Processing	Density Caliper		
Tool Position	Eccentred		
Concentration of KCl	0.00	kppm	

Neutron Calibration MDN-B.J 390		Base Calibration on 13-MAR-2013 10:42
Base Calibration		Field Check on 29-MAR-2013 07:05

	Measured		Calibrated (cps)	
	Near	Far	Near	Far
	2935	90	3714	110
Ratio	32.709		33.764	
Field Calibrator at Base	Calibrated (cps)			
			1296	1890
Ratio	0.685			
Field Check	Calibrated (cps)			
			1308	1886
Ratio	0.682			

Neutron Constants MDN-B.J 390			Last Edited on 29-MAR-2013,06:59		
Neutron Source Id	p33312b				
Neutron Jig Number	blue				
Epithermal Neutron	No				
Caliper Source for Processing	Density Caliper				
Stand-off	0.00	inches			
Mud Density	1.08	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.J 359			Base Calibration on 13-MAR-2013 10:08	
			Field Check on 29-MAR-2013 06:52	
Base Calibration				
	Measured	Calibrated (ohm-m)		
Reference 1	0.0	0.0		
Reference 2	960.4	126.8		
Base Check		280.9		
Field Check		280.9		

FE Constants MFE-B.J 359			Last Edited on 29-MAR-2013,06:51	
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

Induction Calibration MAI-A.A 158				Base Calibration on 13-MAR-2013,13:08	
				Field Check on 29-MAR-2013 06:51	
Base Calibration					
Test Loop Calibration		Measured		Calibrated (mmho/m)	
Channel	Low	High		Low	High
1	17.2	475.3		9.3	966.2
2	6.1	381.2		7.6	821.4
3	3.8	265.2		5.2	566.0
4	2.7	132.2		2.6	279.2
Array Temperature		22.3		Deg F	
Channel	Base Check (mmho/m)		Field Check (mmho/m)		
	Low	High	Low	High	
1			12.0	3815.1	
2			29.7	3531.1	
3			27.0	2981.9	
4			17.2	2275.2	

4		17.9	2097.8	
Deep		14.8	1944.1	
Medium		40.8	3888.1	
Shallow		46.7	5237.0	
Array Temperature			63.7	Deg F
Induction Constants MAI-A.A 158				Last Edited on 31-MAR-2013,23:07
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		0.0000	inches	
Borehole Corr. Rm Source		Temperature Corr		
Temp. for Rm Corr.		Borehole Temp. Unfilt.		
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 158				Field Calibration on 21-MAR-2013,03:55
	Measured	Calibrated(Deg F)		
Lower	0.00	0.00		
Upper	0.00	0.00		
High Resolution Temperature Constants MAI-A.A 158				Last Edited on 21-MAR-2013,03:55
Pre-filter Length		11		
Caliper Calibration MPD-C.J 393				Base Calibration on 13-MAR-2013 12:04 Field Calibration on 29-MAR-2013 06:58
Base Calibration				
Reading No	Measured	Calibrator Size (in)		
1	18720	4.01		
2	26961	5.96		
3	35472	7.98		
4	43564	9.86		
5	52656	11.88		
6	N/A	N/A		
Field Calibration				
	Measured Caliper (in)	Actual Caliper (in)		
	5.89	5.96		

Density Calibration

Base Calibration

	Measured		Calibrated (sdu)	
	Near	Far	Near	Far
Reference 1	58170	26184	59869	31110
Reference 2	23884	2608	24557	2522

Field Check at Base

1212.1 1324.7

Field Check

1202.4 1315.7

PE Calibration

Base Calibration

	WS	Measured		Calibrated	
		WH	Ratio	Ratio	
Background	223	1093			
Reference 1	25507	57978	0.444	0.369	
Reference 2	7124	23751	0.305	0.271	

Field Check at Base

222.7 1092.9

Field Check

219.9 1081.7

Density Constants MPD-C.J 393

Last Edited on 31-MAR-2013,11:24

Density Source Id	P21137B	
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	1.09	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	0.02	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	
0.00	0.00	

DOWNHOLE EQUIPMENT

C:\Minimus 13.04.8492\Data\SANDRIDGE(ROCK 3319 1-16H)\36644 RTAP.dta

Shuttle Running Tool 3.5")

SRT-A.A 69 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 167 LG: 5.20 ft WT: 37.5 lb OD: 2.24 in

Compact Tool Isolator sub.

MTI-B.A 67 LG: 1.54 ft WT: 13.2 lb OD: 2.24 in



Compact Short Gamma
MGS-C.J 136 LG: 3.41 ft WT: 24.3 lb OD: 2.24 in

Compact Collar Locator
MCL-B.J 60 LG: 3.17 ft WT: 26.5 lb OD: 2.24 in

SHA-J.A Compact Swivel Head Adaptor
SHA-J.A 454 LG: 2.30 ft WT: 22.0 lb OD: 2.24 in

SKJ-D.A Compact Knuckle Joint
SKJ-D.A 42 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

MIS-A.A Compact Inline Bowspring sub
MIS-A.A 260 LG: 5.70 ft WT: 33.1 lb OD: 2.24 in

Compact Neutron
MDN-B.J 390 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in

Compact Density/Caliper
MPD-C.J 393 LG: 9.59 ft WT: 90.4 lb OD: 2.24 in

MIS-D.B Compact Inline Bowspring sub
MIS-D.B 591 LG: 5.70 ft WT: 33.1 lb OD: 2.24 in

SHA-J.A Compact Swivel Head Adaptor
SHA-J.A 435 LG: 2.30 ft WT: 22.0 lb OD: 2.24 in

SKJ-D.A Compact Knuckle Joint
SKJ-D.A 41 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

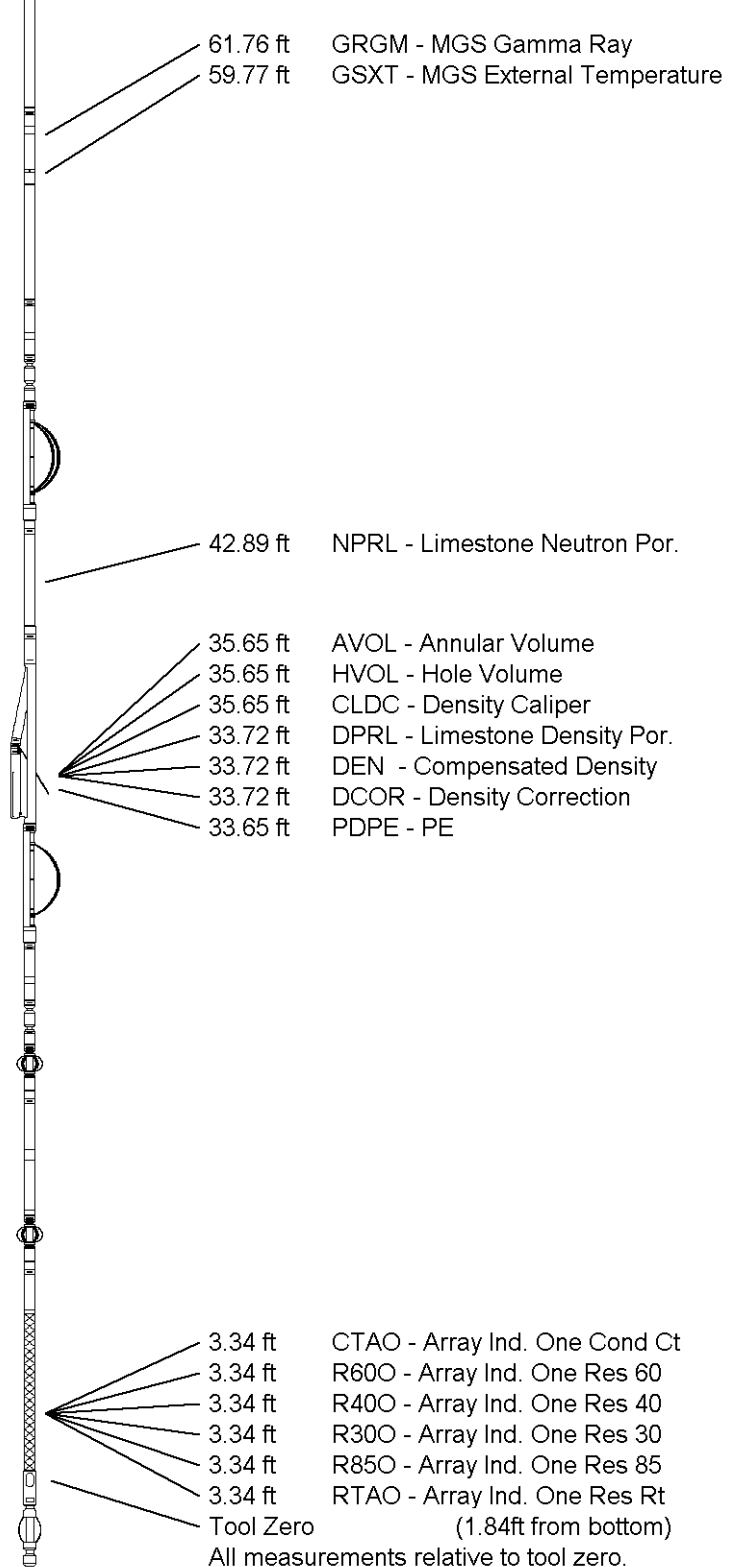
MIS-B Compact Inline Standoff sub
MIS-B 26 LG: 2.14 ft WT: 15.4 lb OD: 2.24 in

Compact Focussed Electric
MFE-B.J 359 LG: 6.05 ft WT: 48.5 lb OD: 2.24 in

MIS-B Compact Inline Standoff sub
MIS-B 27 LG: 2.14 ft WT: 15.4 lb OD: 2.24 in

Compact Induction
MAI-A.A 158 LG: 12.52 ft WT: 48.5 lb OD: 2.24 in

Total Length: 88.36 ft Weight: 637.1 lb

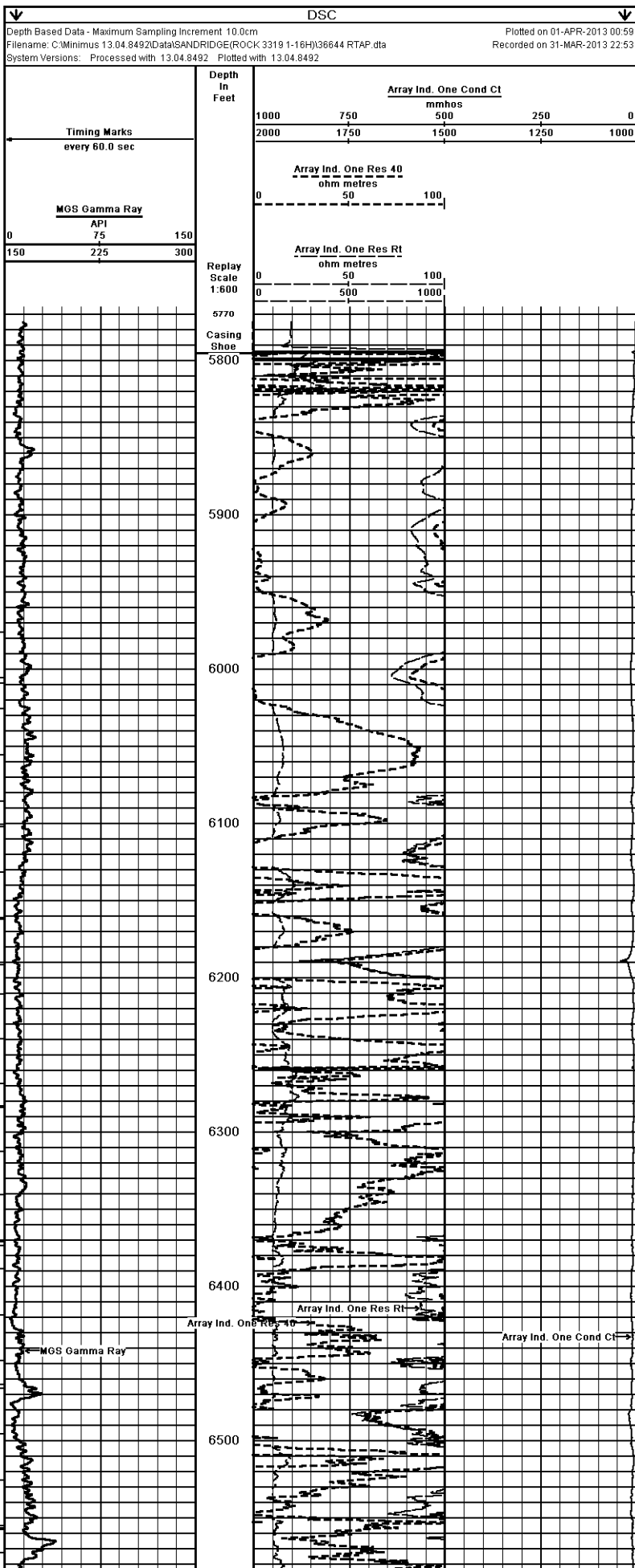


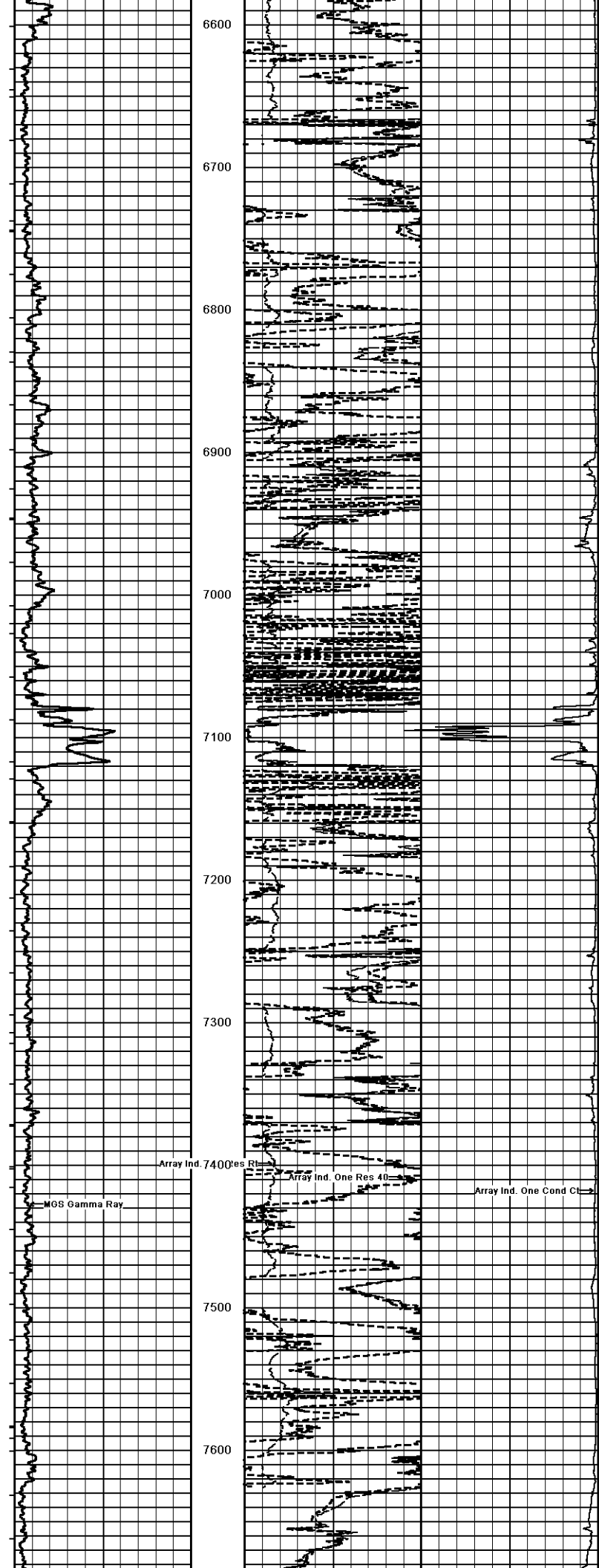
COMPANY	SANDRIDGE ENERGY
WELL	ROCK 3319 1-16H
FIELD	EAST COLLIER FLATS
PROVINCE/COUNTY	COMANCHE
COUNTRY/STATE	USA / KANSAS

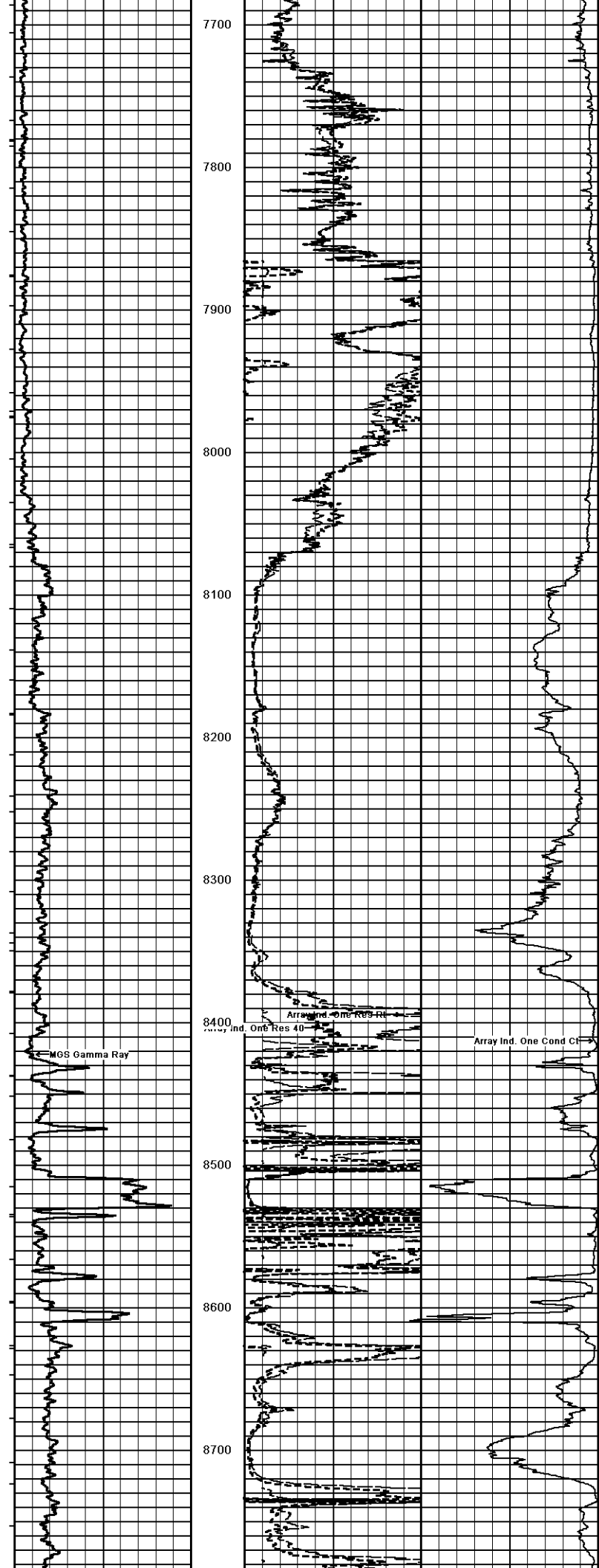
Elevation Kelly Bushing	2001.00	feet	First Reading	9507.00	feet
Elevation Drill Floor	2001.00	feet	Depth Driller	9615.00	feet
Elevation Ground Level	1983.00	feet	Depth Logger	9615.00	feet

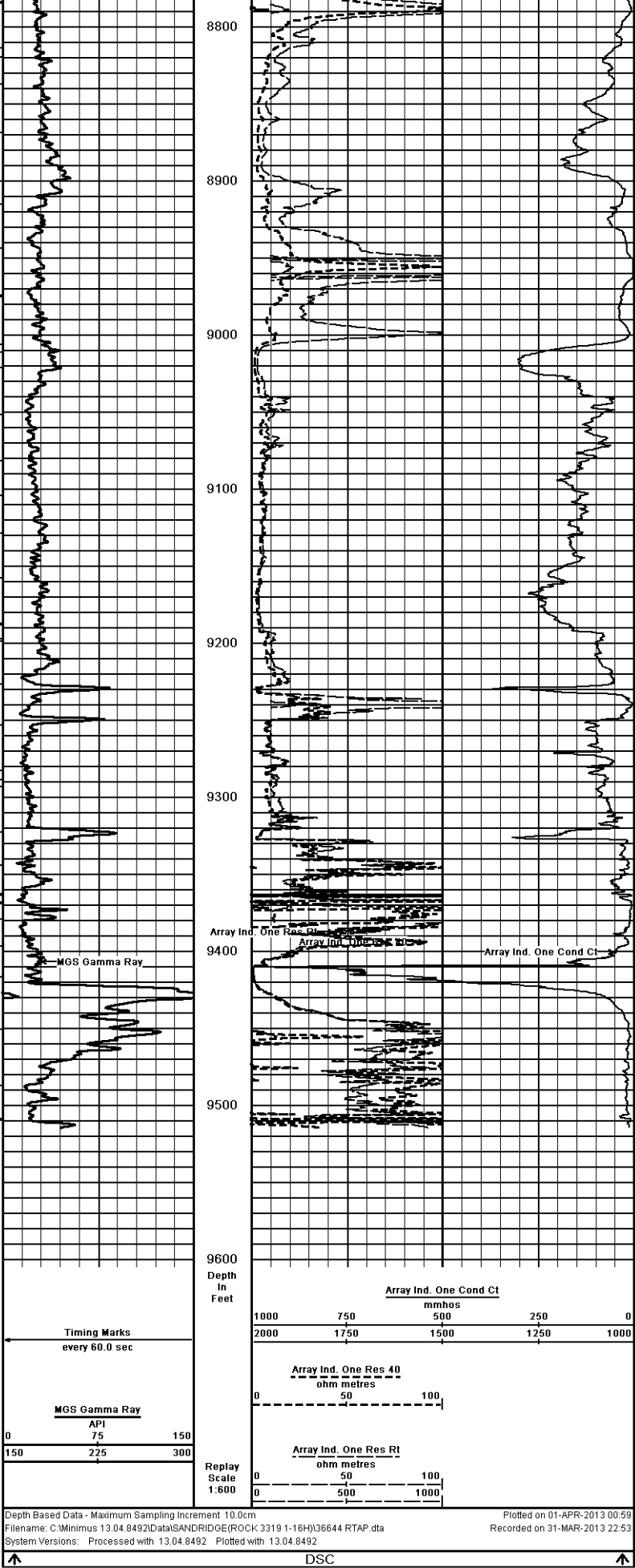


CML MESSENGER SHUTTLE









COMPANY	SANDRIDGE ENERGY
WELL	ROCK 3319 1-16H
FIELD	EAST COLLIER FLATS
PROVINCE/COUNTY	COMANCHE
COUNTRY/STATE	USA / KANSAS
Elevation Kelly Bushnell	2001.00 feet
First Reading	9507.00 feet

Elevation Drill Floor			2001.00	feet	Depth Driller			9615.00	feet
Elevation Ground Level			1983.00	feet	Depth Logger			9615.00	feet
					CML MESSENGER SHUTTLE ARRAY INDUCTION LOG				