CML MESSENGER SHUTTLE
ARRAY INDUCTION
LOG

COMPANY	DORADO E&P PARTNERS LLC
WELL	TOEWS 25-9-4 1H
FIELD	UNKNOWN
PROVINCE/COUNTY	RENO
COUNTRY/STATE	USA / KANSAS
LOCATION	SHL: 150' FNL & 450' FWL

SEC	TWP	RGE	Other Services
4	25S	9W	MPD/MDN
API Number 15-155-21592-01			CMI
Permit Number			

Permanent Datum G.L., Elevation 1698 feet
Log Measured From KB
Drilling Measured From K.B. @ 12 FEET

Elevations:	feet
KB	1710.00
DF	1708.00
GL	1698.00

Date	14-OCT-2012		
Run Number	ONE		
Depth Driller	9346.00	feet	
Depth Logger	9340.00	feet	
First Reading	9340.00	feet	
Last Reading	4467.00	feet	
Casing Driller	4467.00	feet	
Casing Logger	4467.00	feet	
Bit Size	6.125	inches	
Hole Fluid Type	WATER		
Density / Viscosity	8.50 lb/USg	28.00 CP	
PH / Fluid Loss	8.00	90.00 ml/30Min	
Sample Source	FLOWLINE		
Rm @ Measured Temp	0.96 @ 68.0	ohm-m	
Rmf @ Measured Temp	0.77 @ 68.0	ohm-m	
Rmc @ Measured Temp	1.15 @ 68.0	ohm-m	
Source Rmf / Rmc	CALC	CALC	
Rm @ BHT	0.51 @129.0	ohm-m	
Time Since Circulation	0 HOURS		
Max Recorded Temp	129.00	deg F	
Equipment Name	COMPACT		
Equipment / Base	18006	OKC	
Recorded By	D. ROWELL		
Witnessed By	D. WHEELER		
S.O.# / AFE	3538630		

BOREHOLE RECORD

Last Edited: 14-OCT-2012 20:08

Bit Size inches	Depth From feet	Depth To feet
6.125	4467.00	9346.00

CASING RECORD

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
INTERMED	7.000	0.00	4467.00	26.00

REMARKS

LOGGED WITH WLS VER 13.02.6600 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/C/C DENSITY MATRIX USED TOCALCULATE POROSITY
ALL INTERVALS LOGGED AND SCALED PER CUSTOMER REQUEST

LOGS WERE PUT BACK TO DEPTH USING MWD GAMMA RAY PROVIDED BY CUSTOMER

DRILL PIPE DEPTH DURING DEPLOYMENT - 9240
LOGGING TOOL DEPTH AFTER DEPLOYMENT: 9340

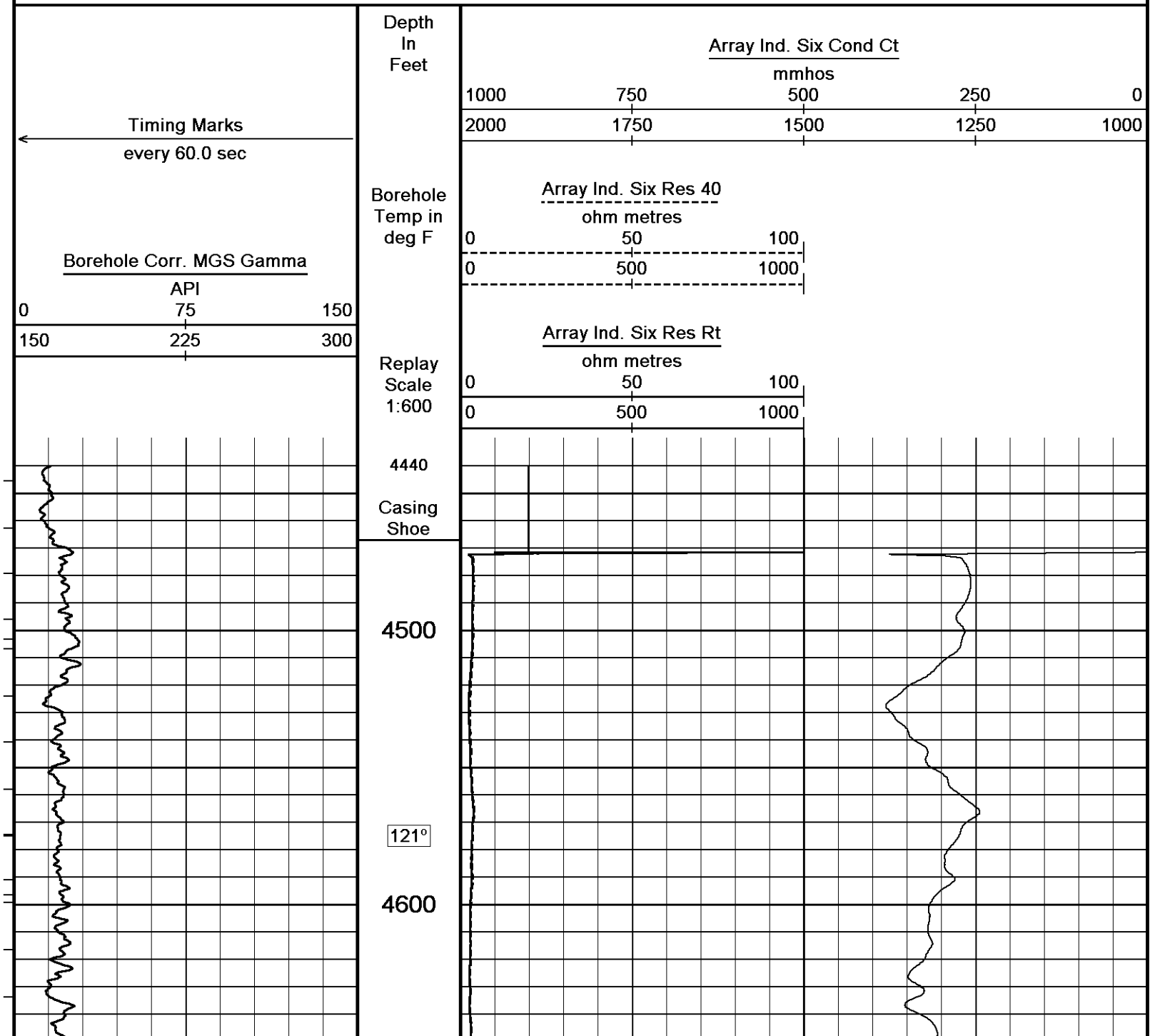
4.5" CASING USED TO CALCULATE AHV

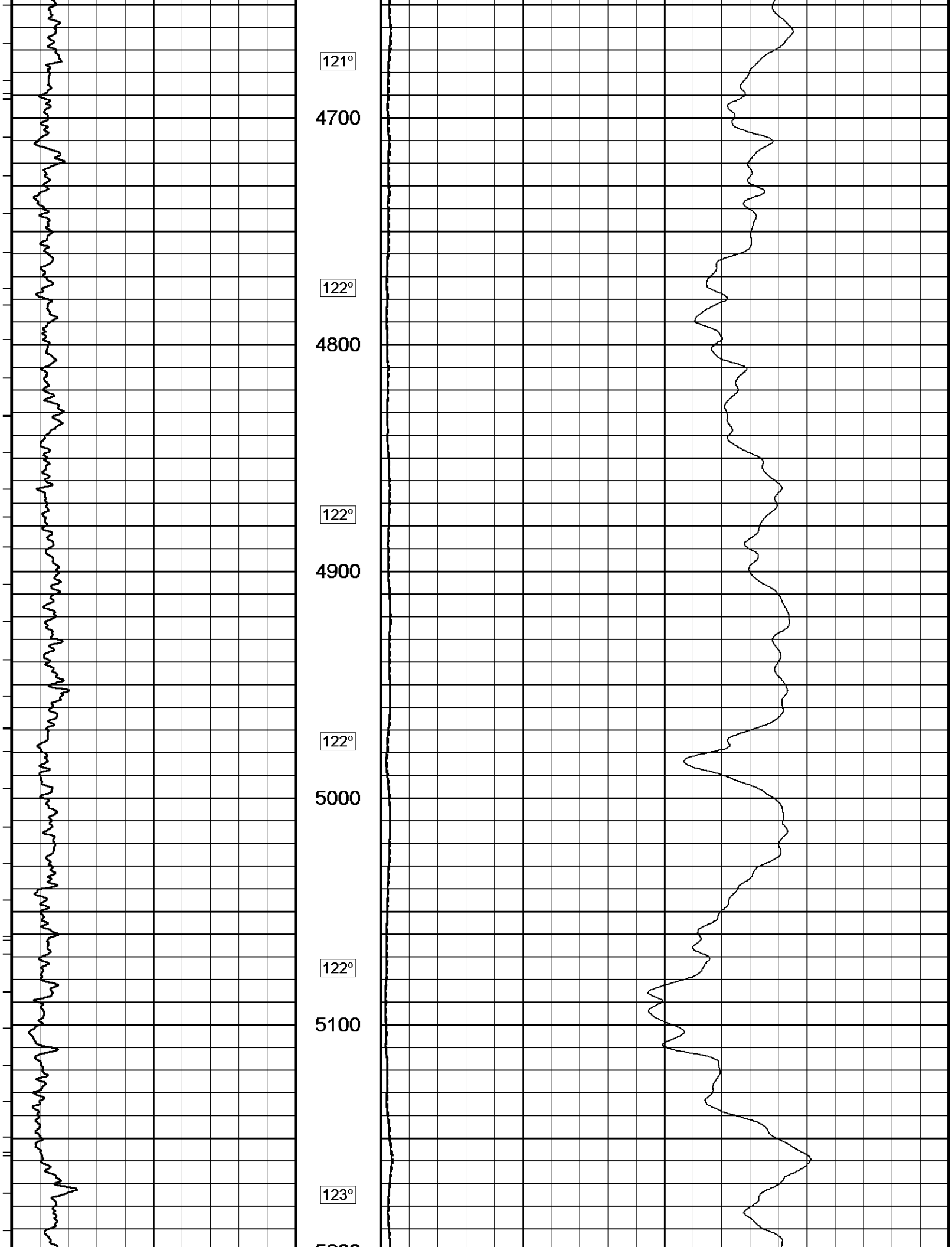
CHOLORIDES = 400

SERVICE ORDER # 3538630
RIG: DUKE 20
OPERATORS: S. WORLEY, J. TURNER

2 INCH MAIN LOG DSC

Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 15-OCT-2012 10:03
Filename: C:\Minimus 13.02.066\Data\DORADO (TOEWS 25-9-4)\28793 RTAP.dta
Recorded on 15-OCT-2012 09:21
System Versions: Processed with 13.02.6600 Plotted with 13.02.6600

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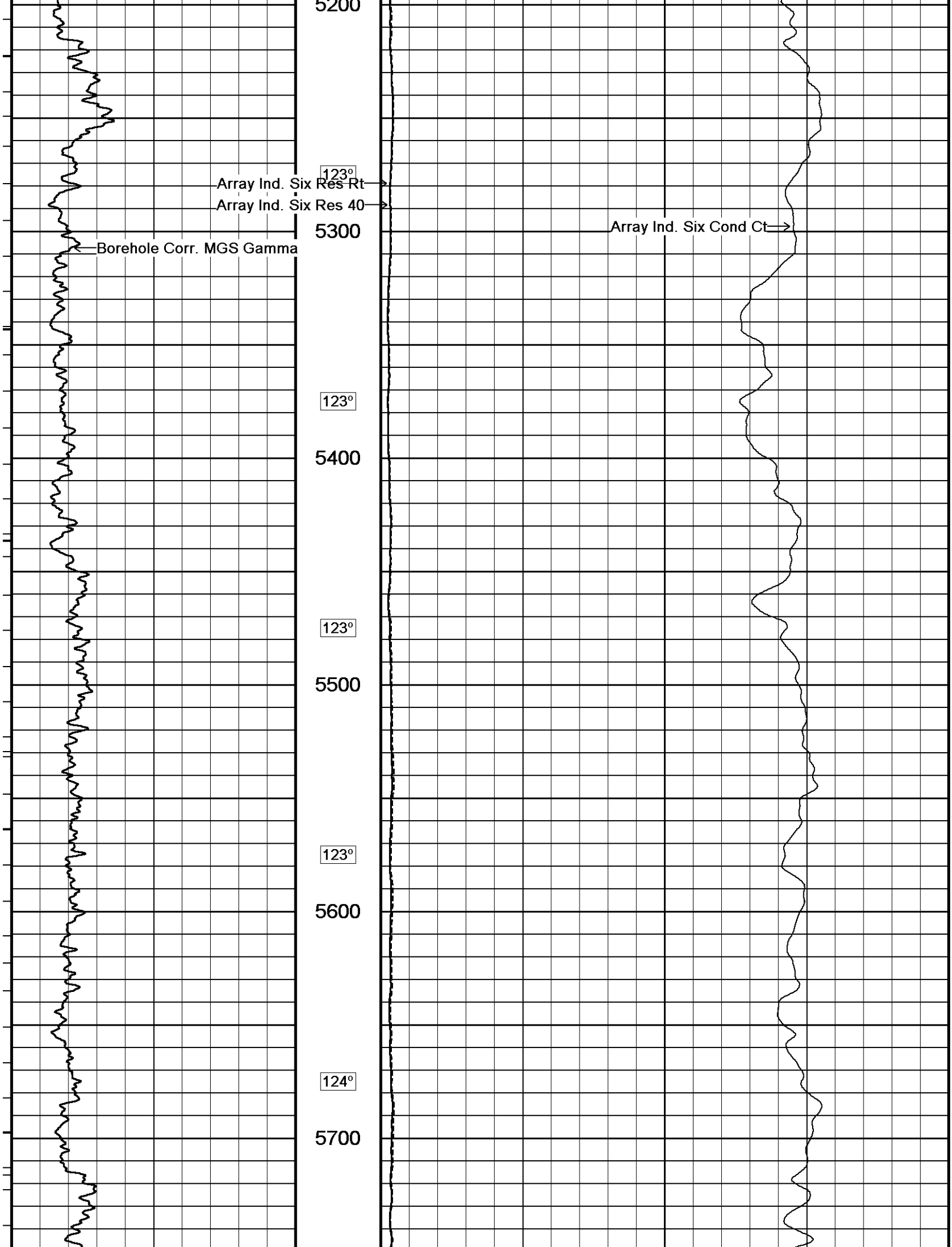
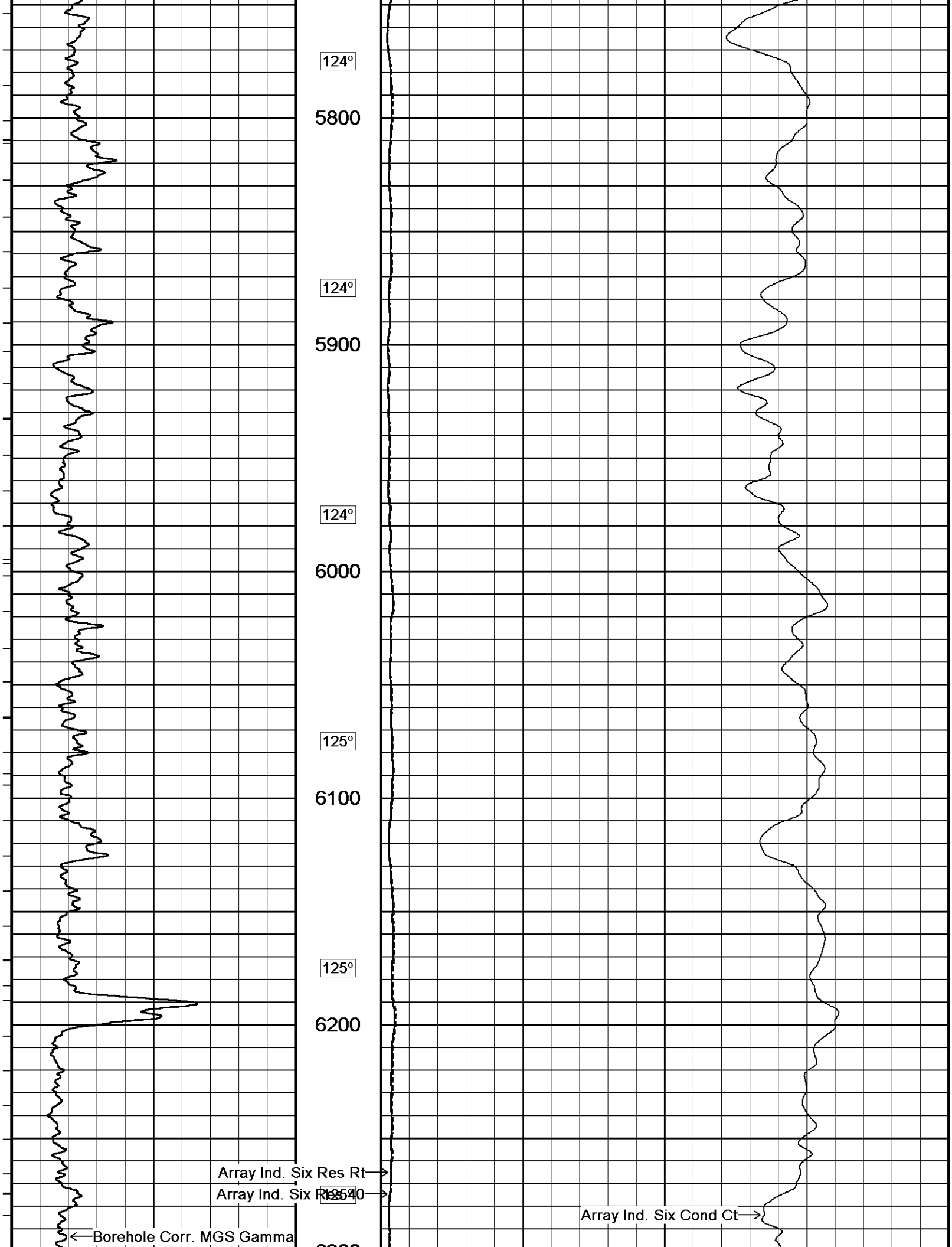
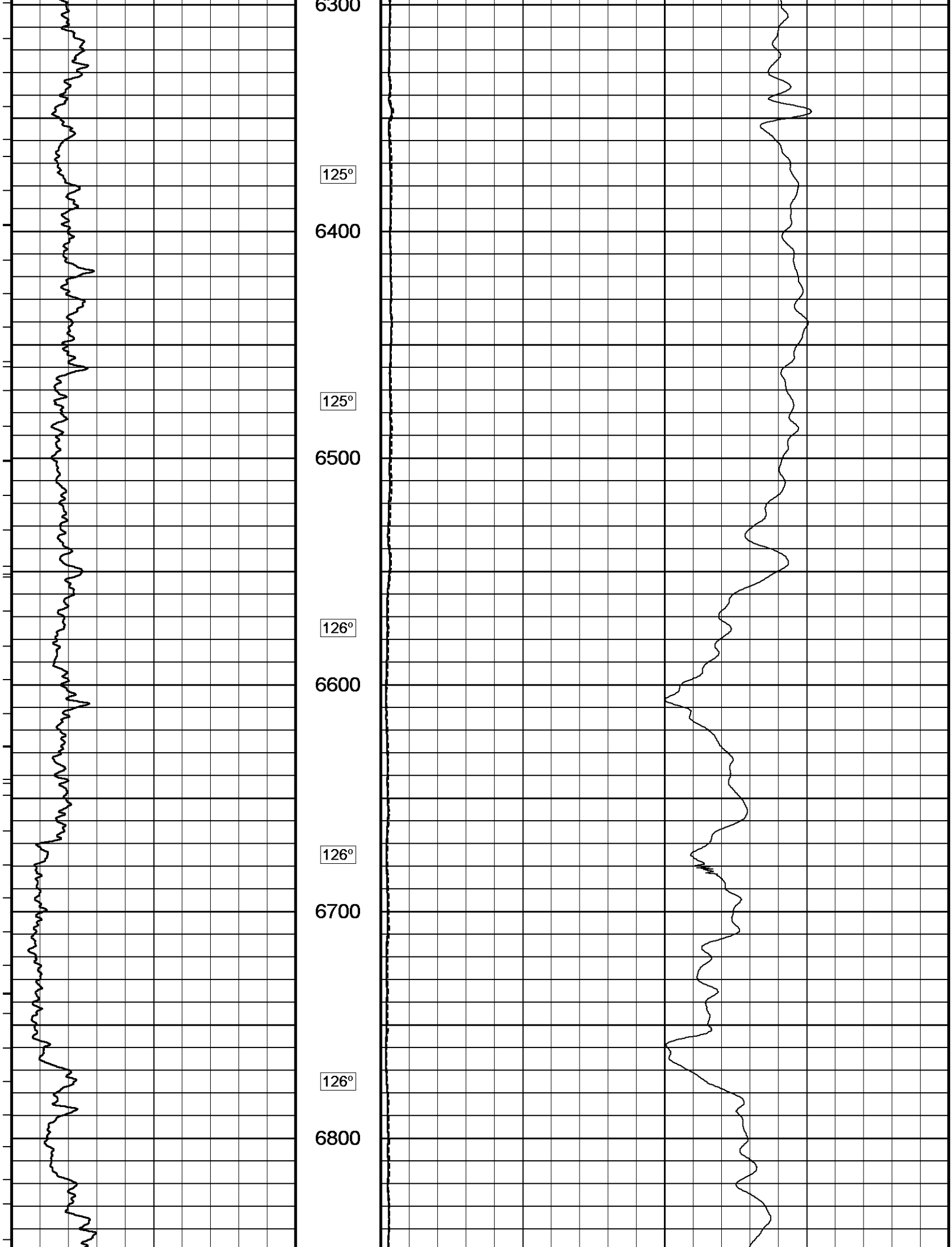
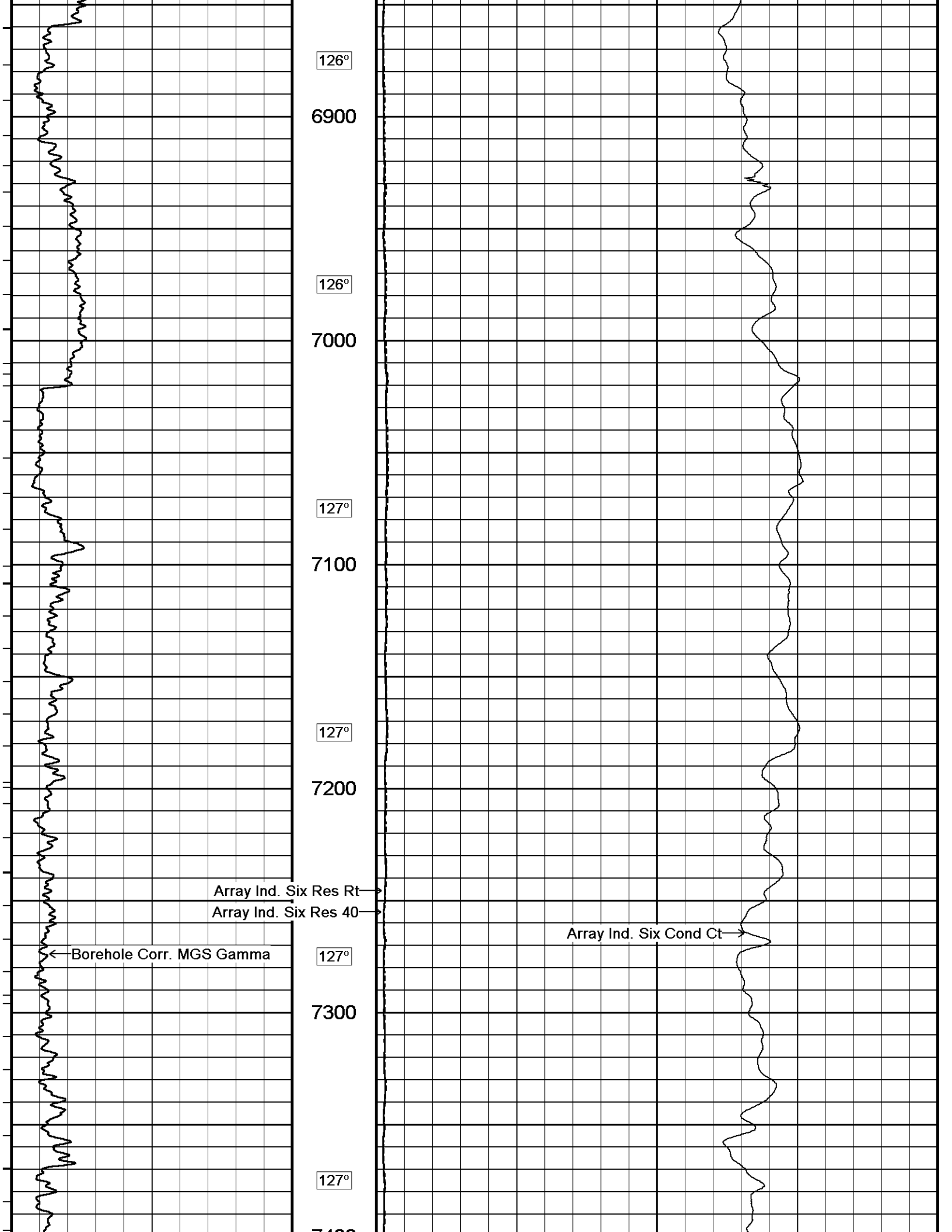
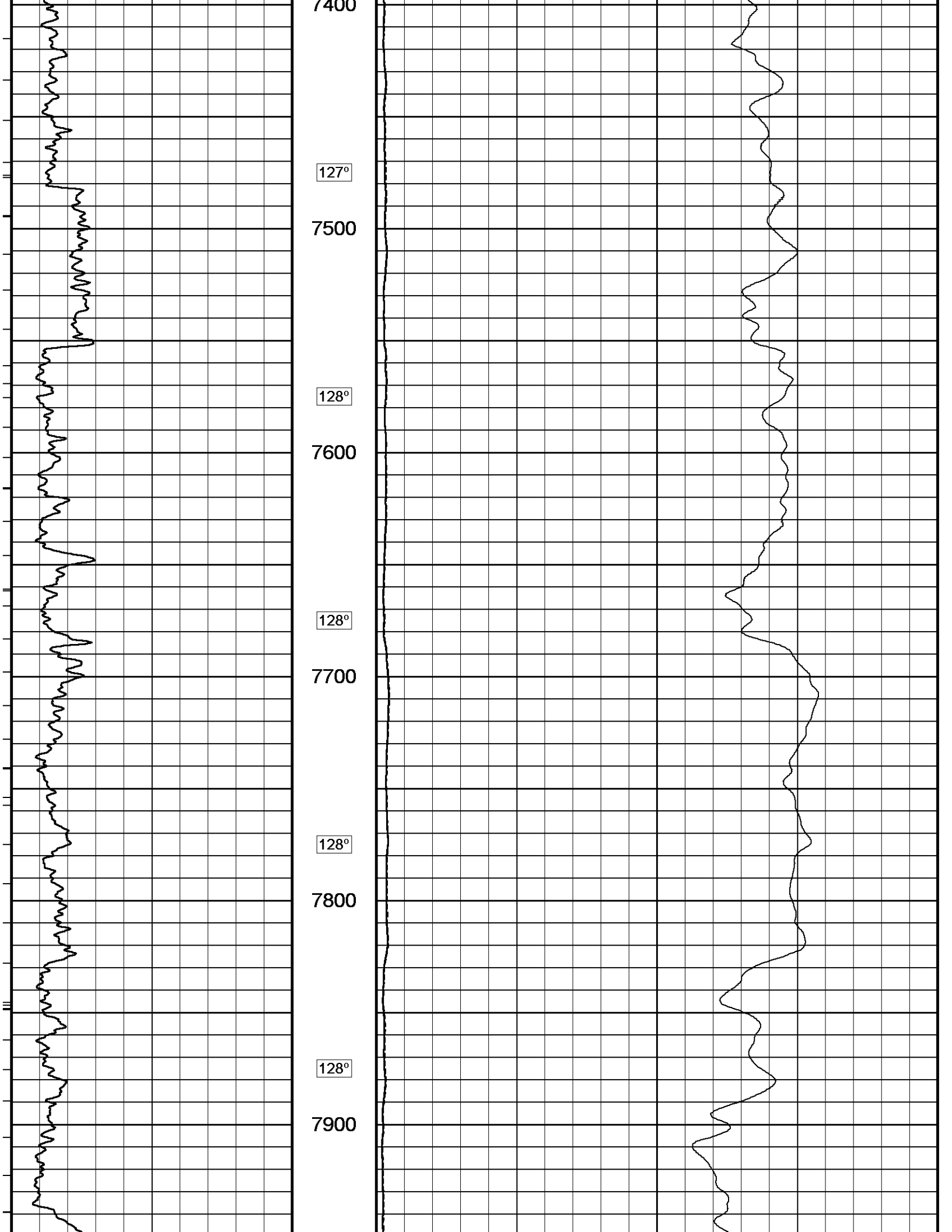
122°
4800
122°
4900
122°
5000
122°
5100
123°


5200
123°
Array Ind. Six Res Rt
Array Ind. Six Res 40
5300
Array Ind. Six Cond Ct
Borehole Corr. MGS Gamma
123°
5400
123°
5500
123°
5600
124°
5700


124°
5800
124°
5900
124°
6000
125°
6100
125°
6200
Array Ind. Six Res Rt
Array Ind. Six Res 40
Array Ind. Six Cond Ct
Borehole Corr. MGS Gamma


6300
125°
6400
125°
6500
126°
6600
126°
6700
126°
6800


126°
6900
126°
7000
127°
7100
127°
7200
Array Ind. Six Res Rt
Array Ind. Six Res 40
Array Ind. Six Cond Ct
Borehole Corr. MGS Gamma
127°
7300
127°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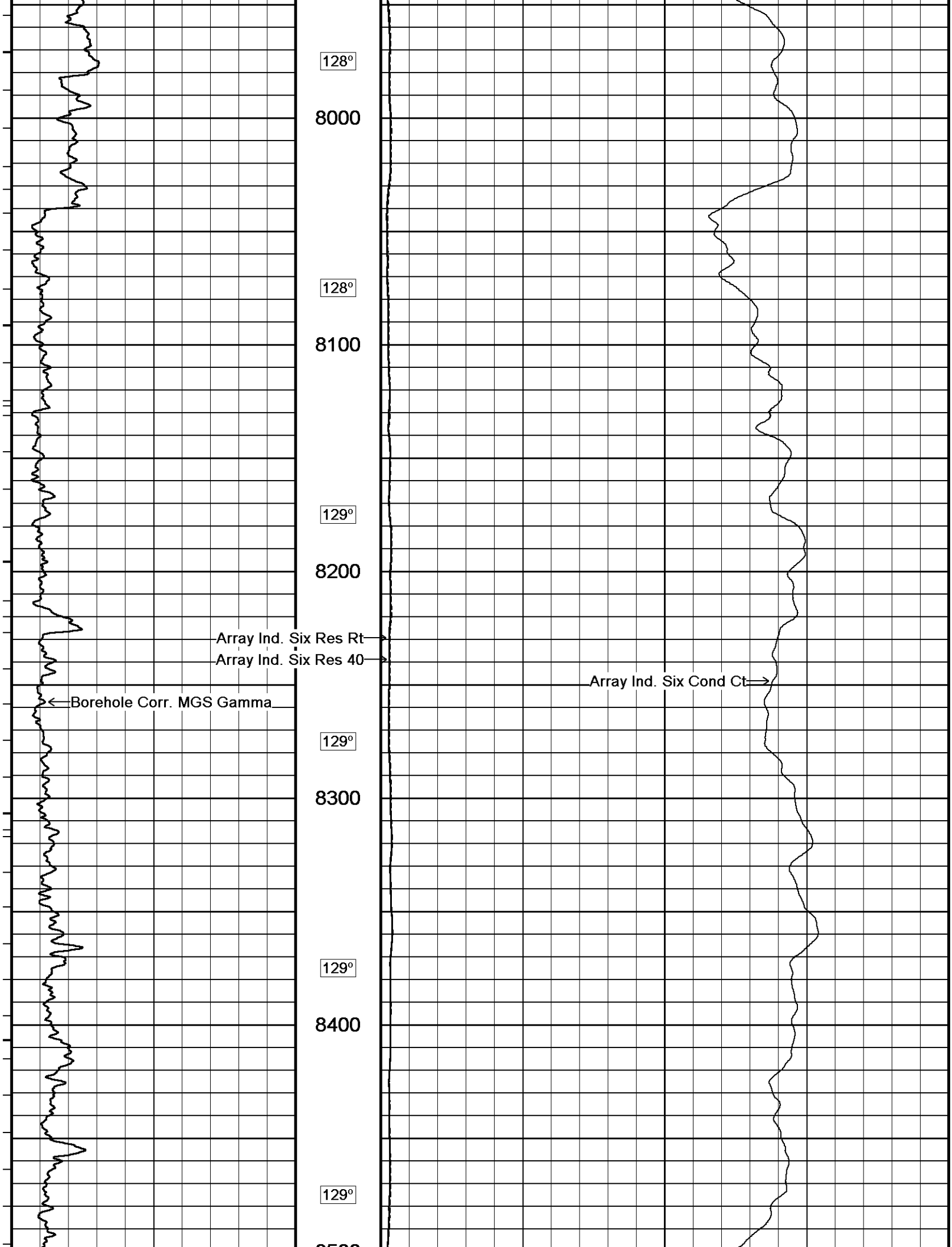
127°
7500
128°
7600
128°
7700
128°
7800
128°
7900


128°
8000
128°
8100
129°
8200
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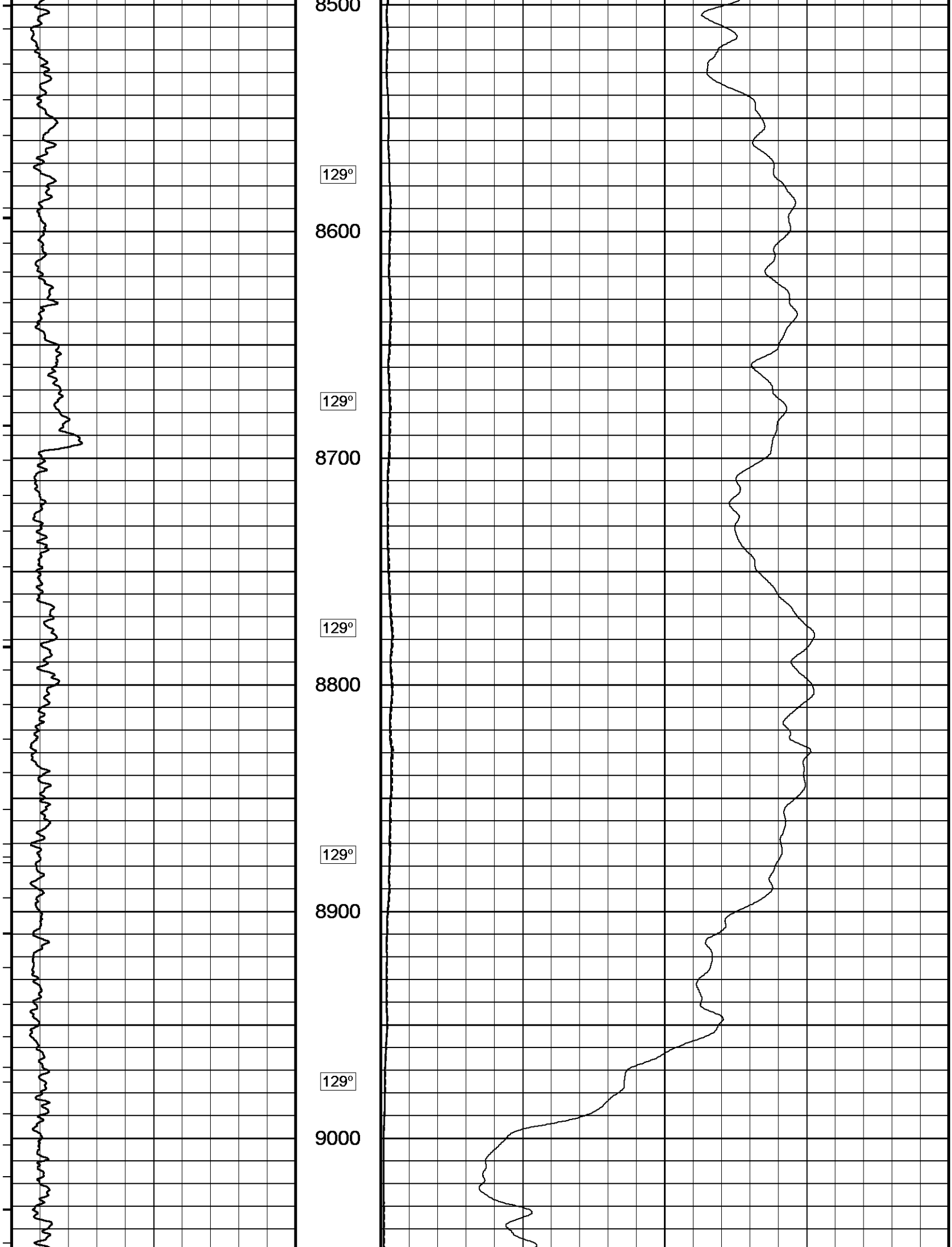
Array Ind. Six Res 40
Array Ind. Six Cond Ct
Borehole Corr. MGS Gamma
129°
8300
129°
8400
129°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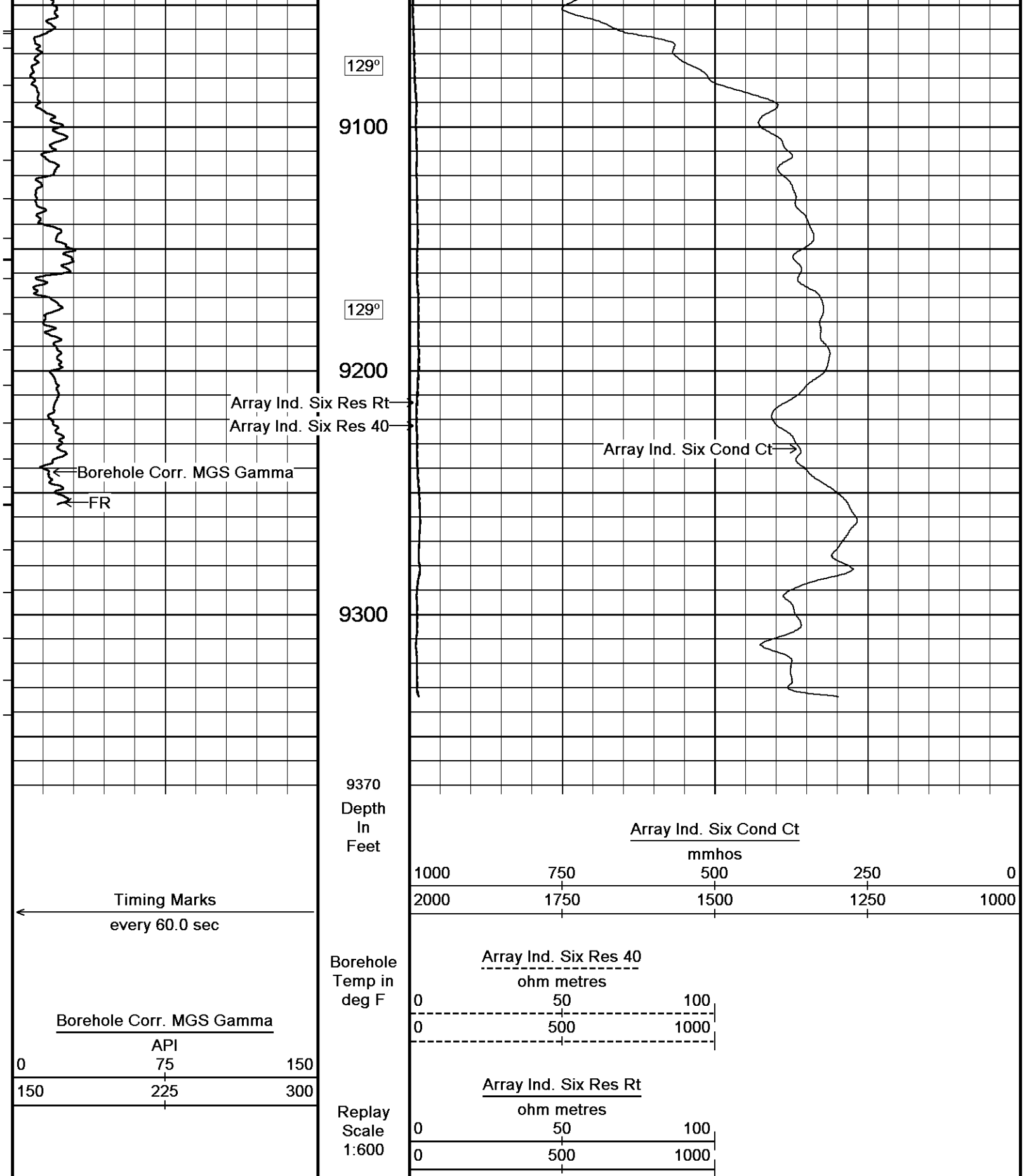
129°
8600
129°
8700
129°
8800
129°
8900
129°
9000



Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 15-OCT-2012 10:03
Filename: C:\Minimus 13.02.066\Data\DORADO (TOEWS 25-9-4)\28793 RTAP.dta
Recorded on 15-OCT-2012 09:21
System Versions: Processed with 13.02.6600 Plotted with 13.02.6600

2 INCH MAIN LOG DSC

5 INCH MAIN LOG DSC

Depth Based Data - Maximum Sampling Increment 10.0cm
Filename: C:\Minimus 13.02.066\Data\DORADO (TOEWS 25-9-4)\28793 RTAP.dta
System Versions: Processed with 13.02.6600 Plotted with 13.02.6600

Plotted on 15-OCT-2012 10:03
Recorded on 15-OCT-2012 09:21

Timing Marks
every 60.0 sec

Borehole Corr. MGS Gamma
API
0 75 150
150 225 300

Depth In Feet

Borehole Temp in deg F

Replay Scale 1:240

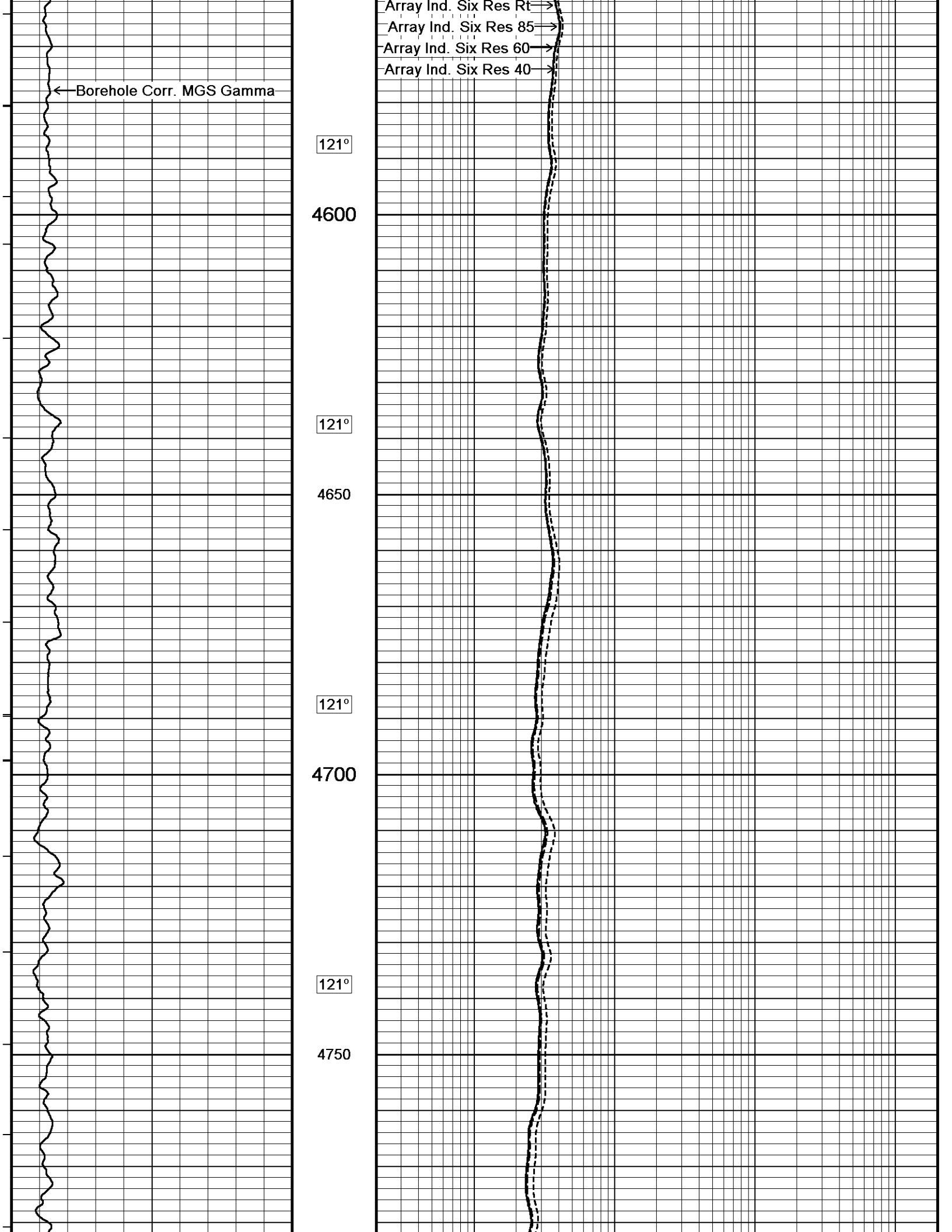
Array Ind. Six Res 40
ohm metres
0.20 1 10 100 1000 2000

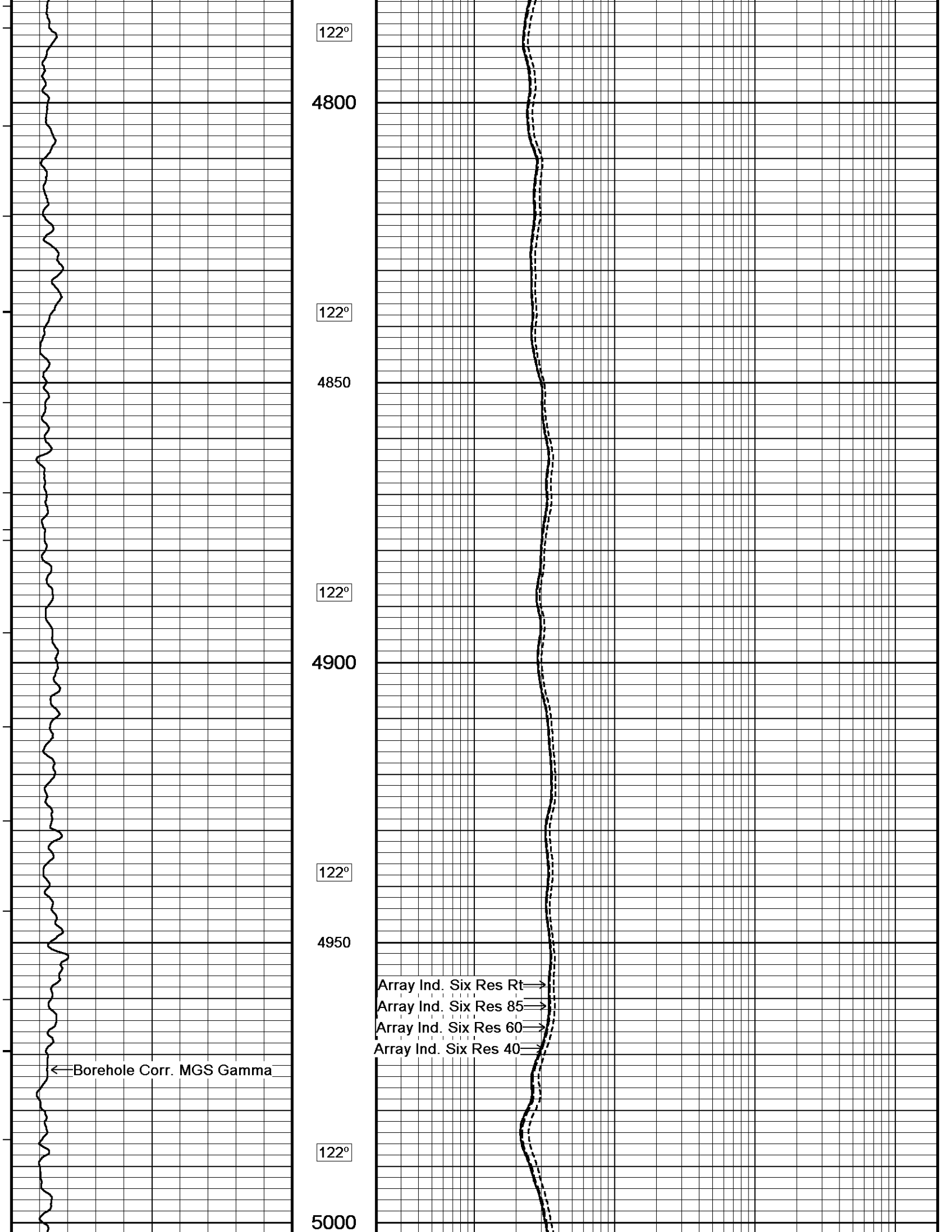
Array Ind. Six Res 60
ohm metres
0.20 1 10 100 1000 2000

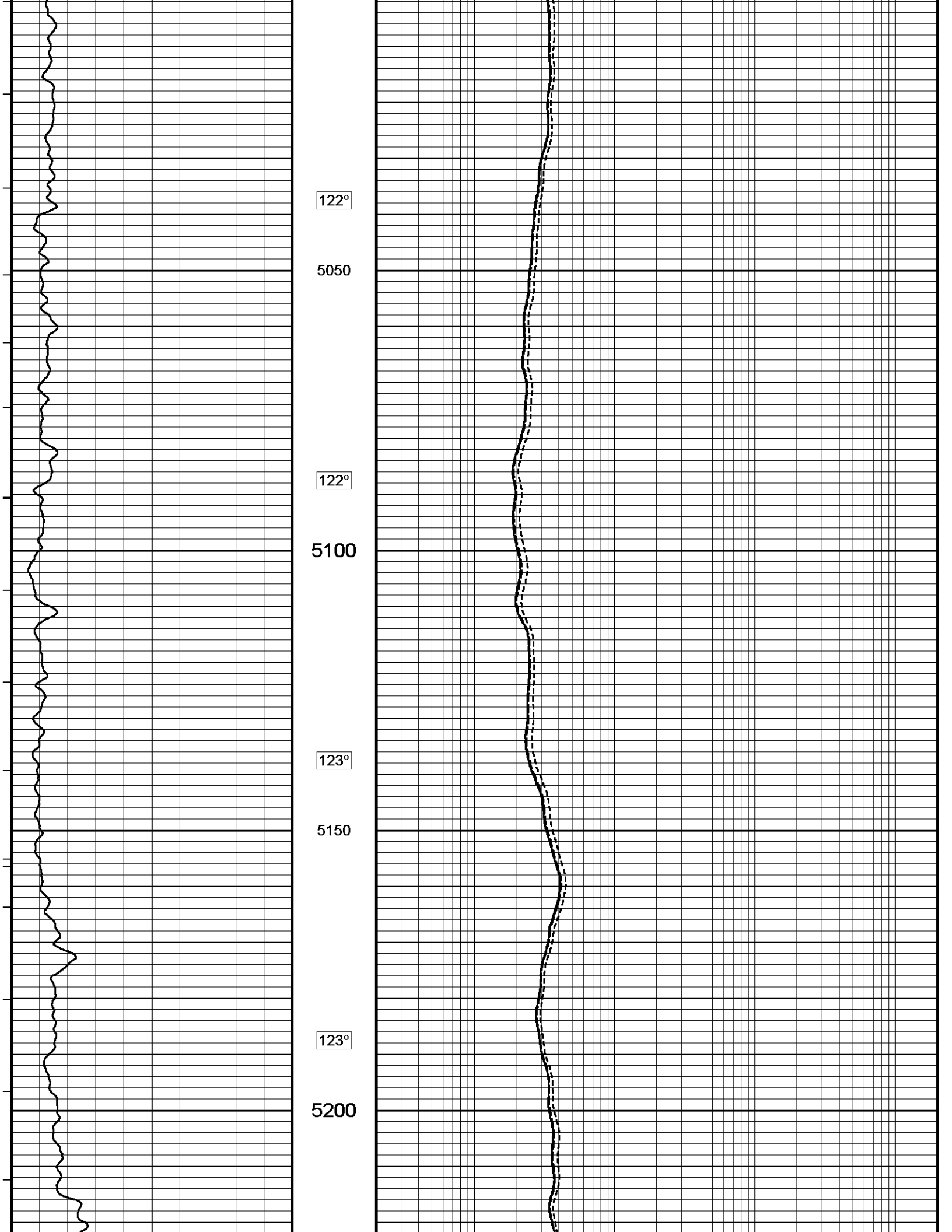
Array Ind. Six Res 85
ohm metres
0.20 1 10 100 1000 2000

Array Ind. Six Res Rt
ohm metres
0.20 1 10 100 1000 2000

4438
4450
Casing Shoe
121°
4500
121°
4550


Array Ind. Six Res Rt
Array Ind. Six Res 85
Array Ind. Six Res 60
Array Ind. Six Res 40
Borehole Corr. MGS Gamma
121°
4600
121°
4650
121°
4700
121°
4750


122°
4800
122°
4850
122°
4900
122°
4950
122°
5000
Array Ind. Six Res Rt
Array Ind. Six Res 85
Array Ind. Six Res 60
Array Ind. Six Res 40
Borehole Corr. MGS Gamma


122°
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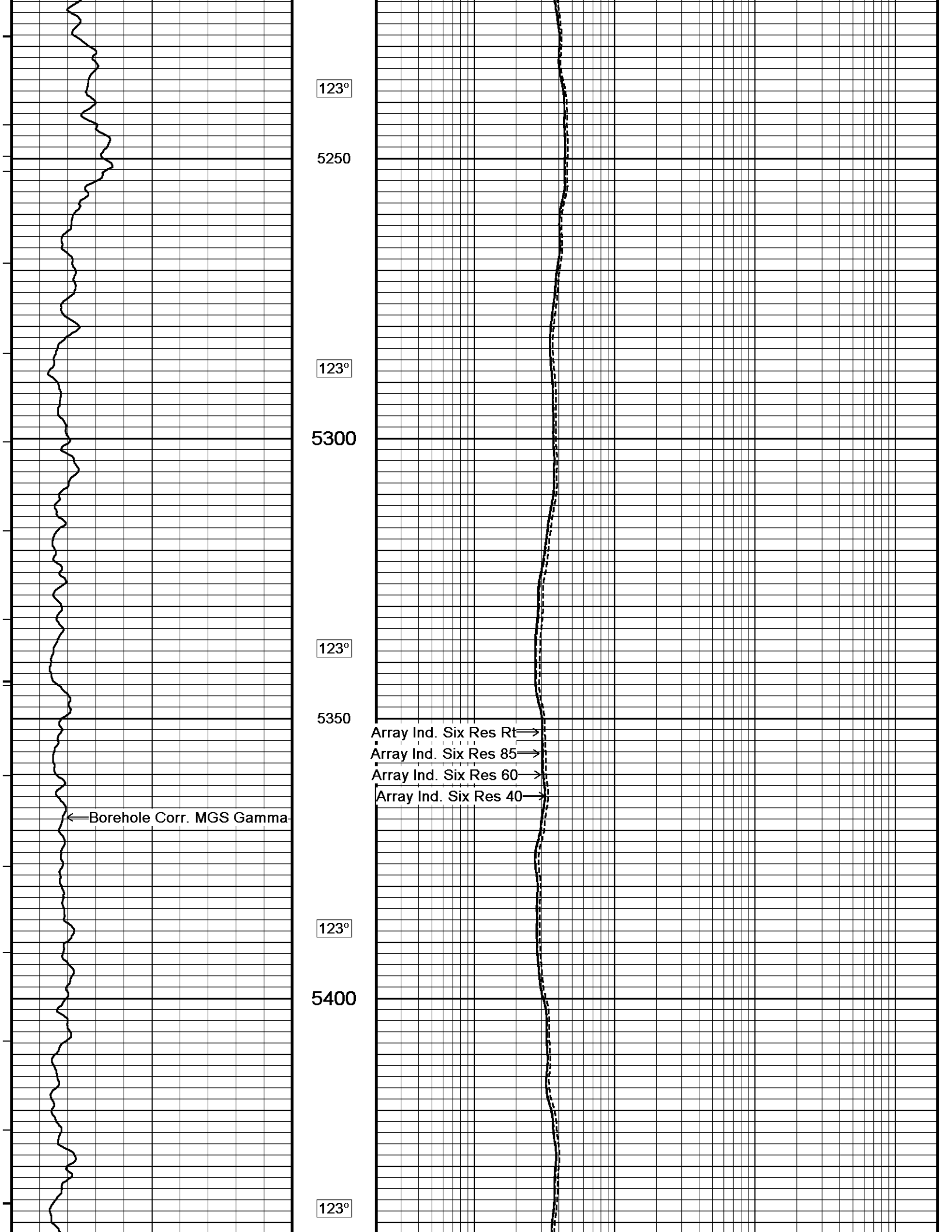
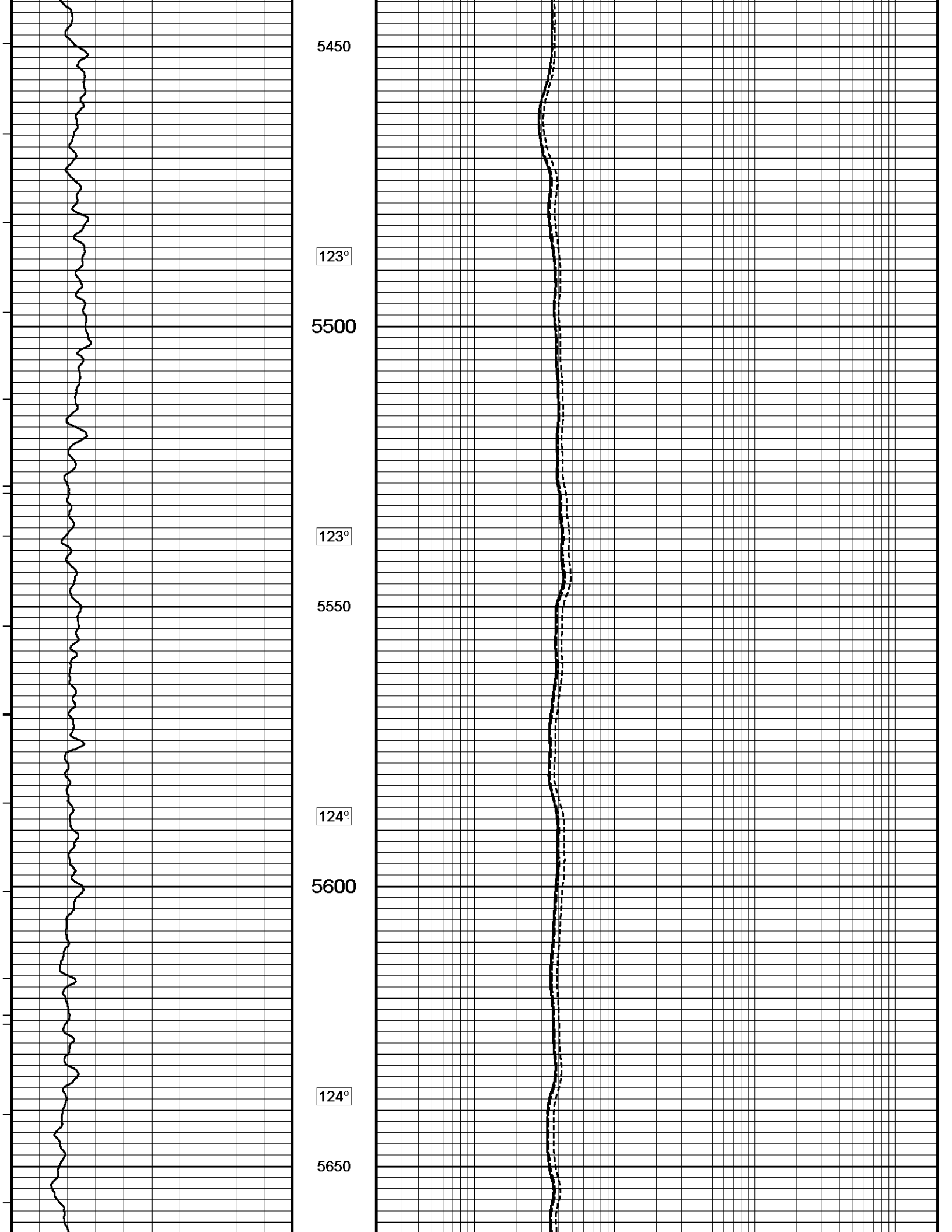
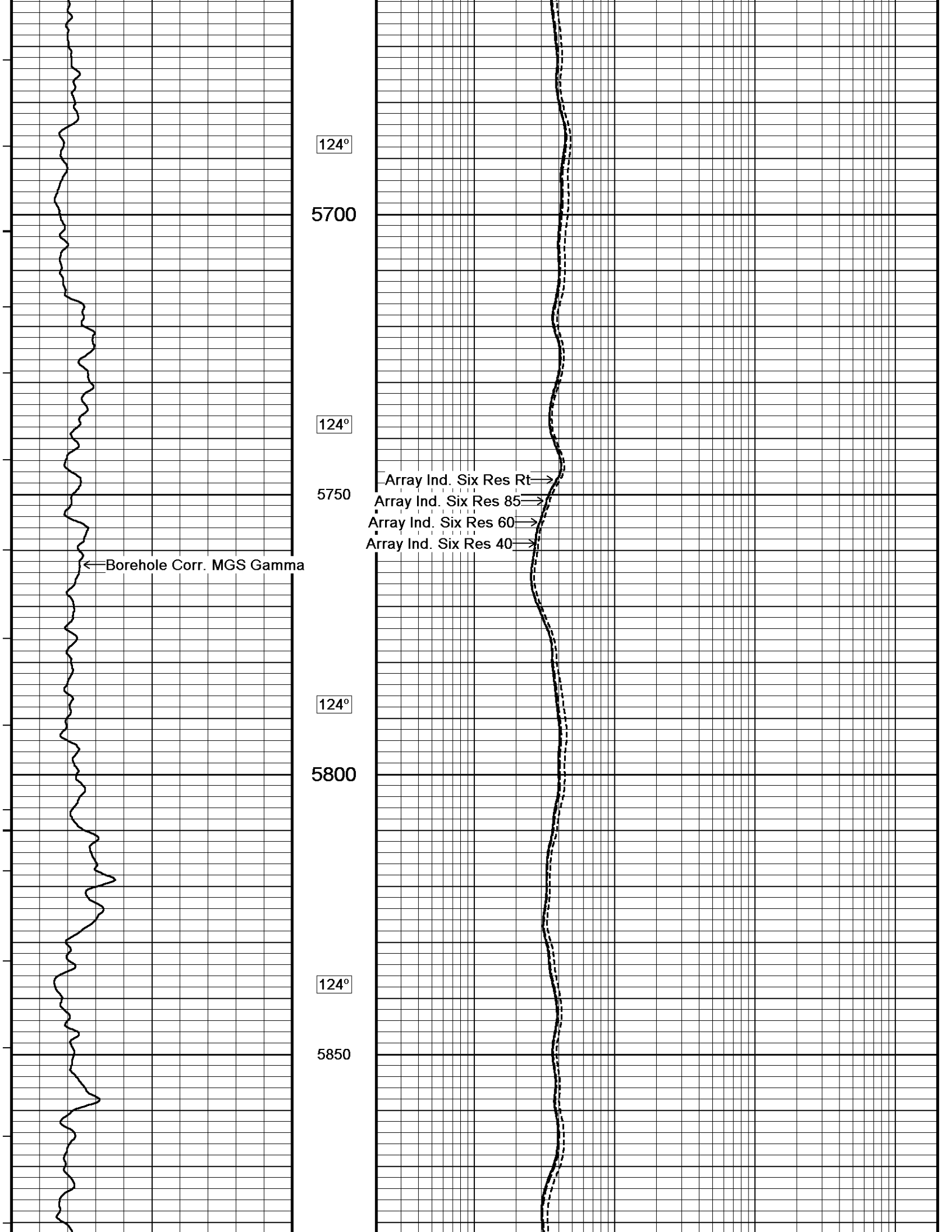
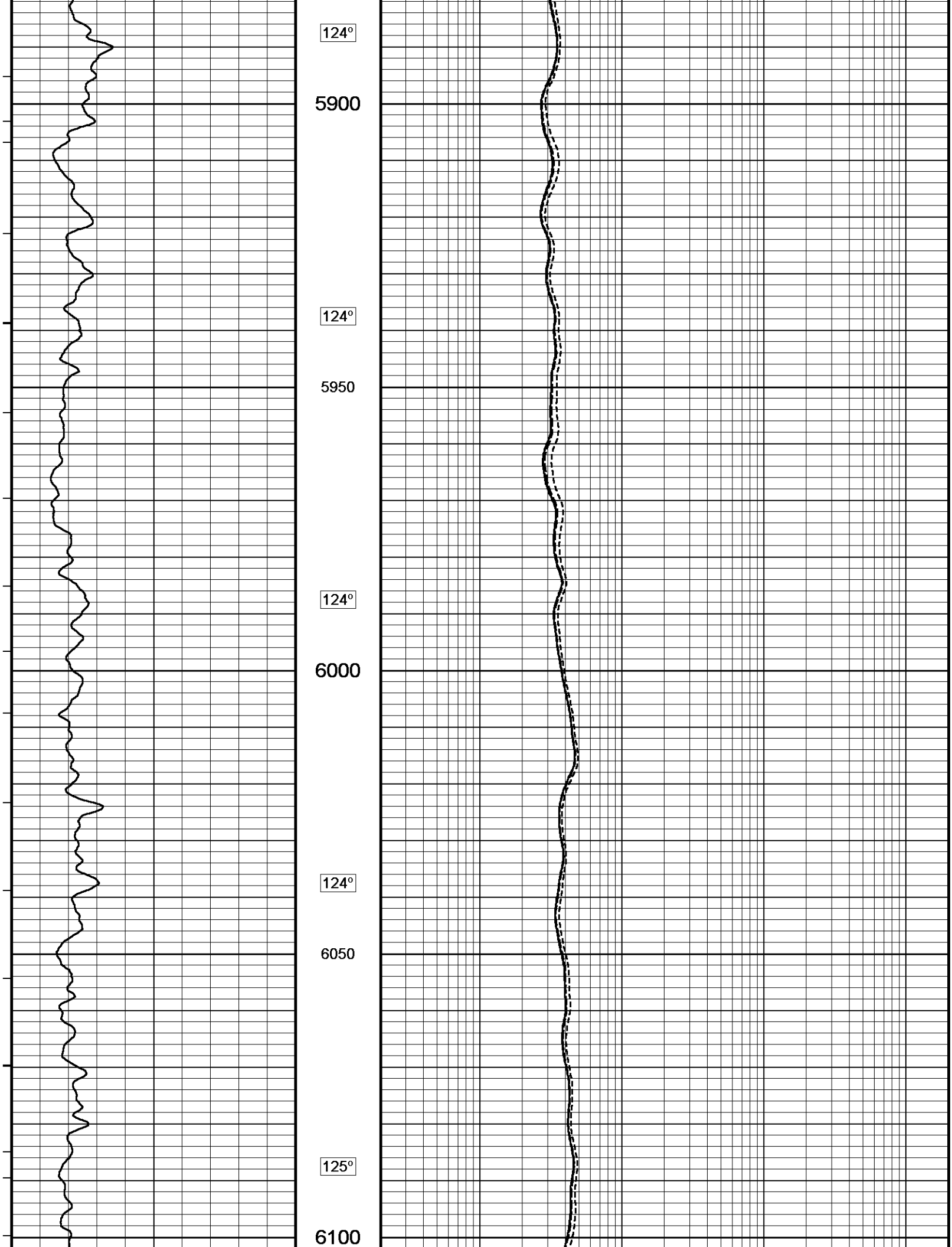
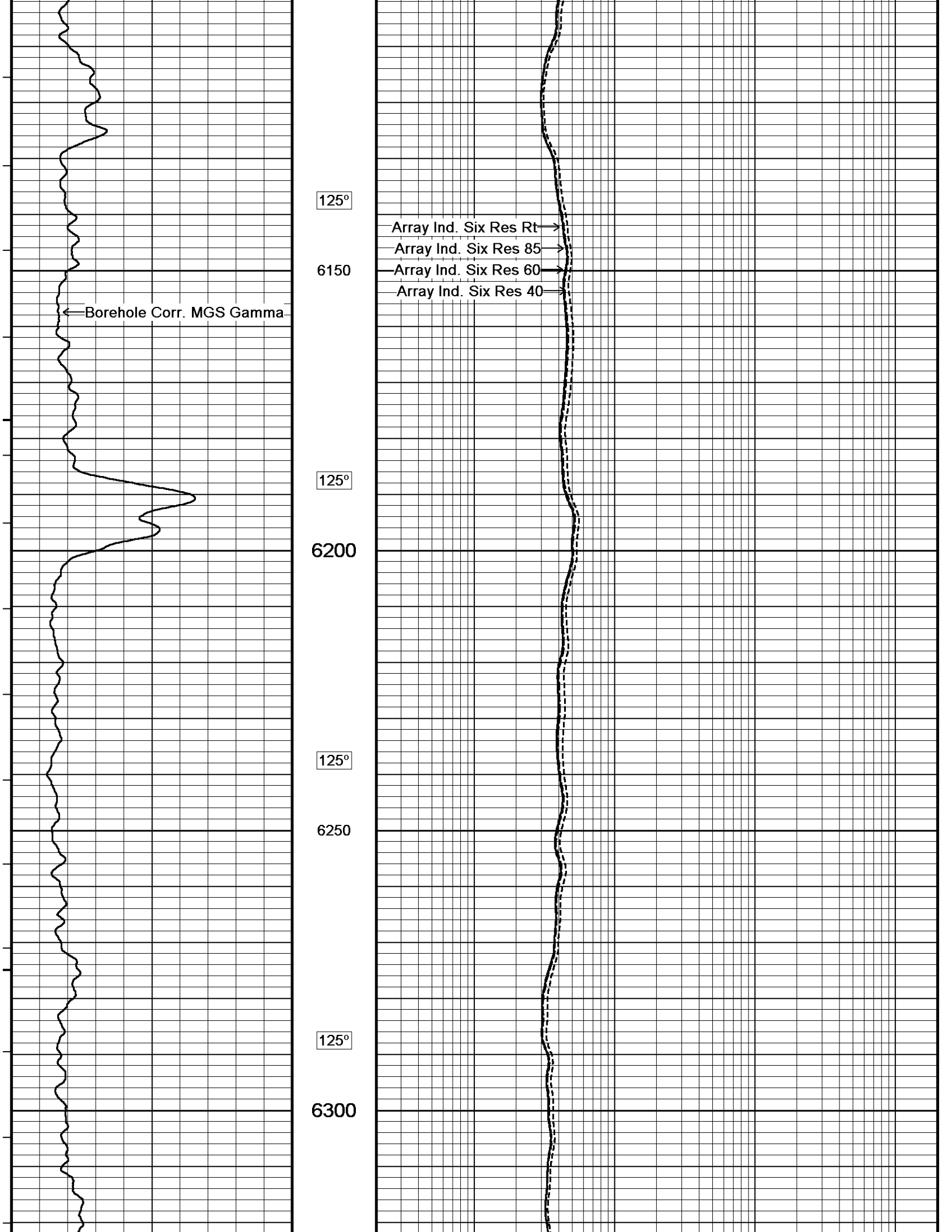
122°
5100
123°
5150
123°
5200

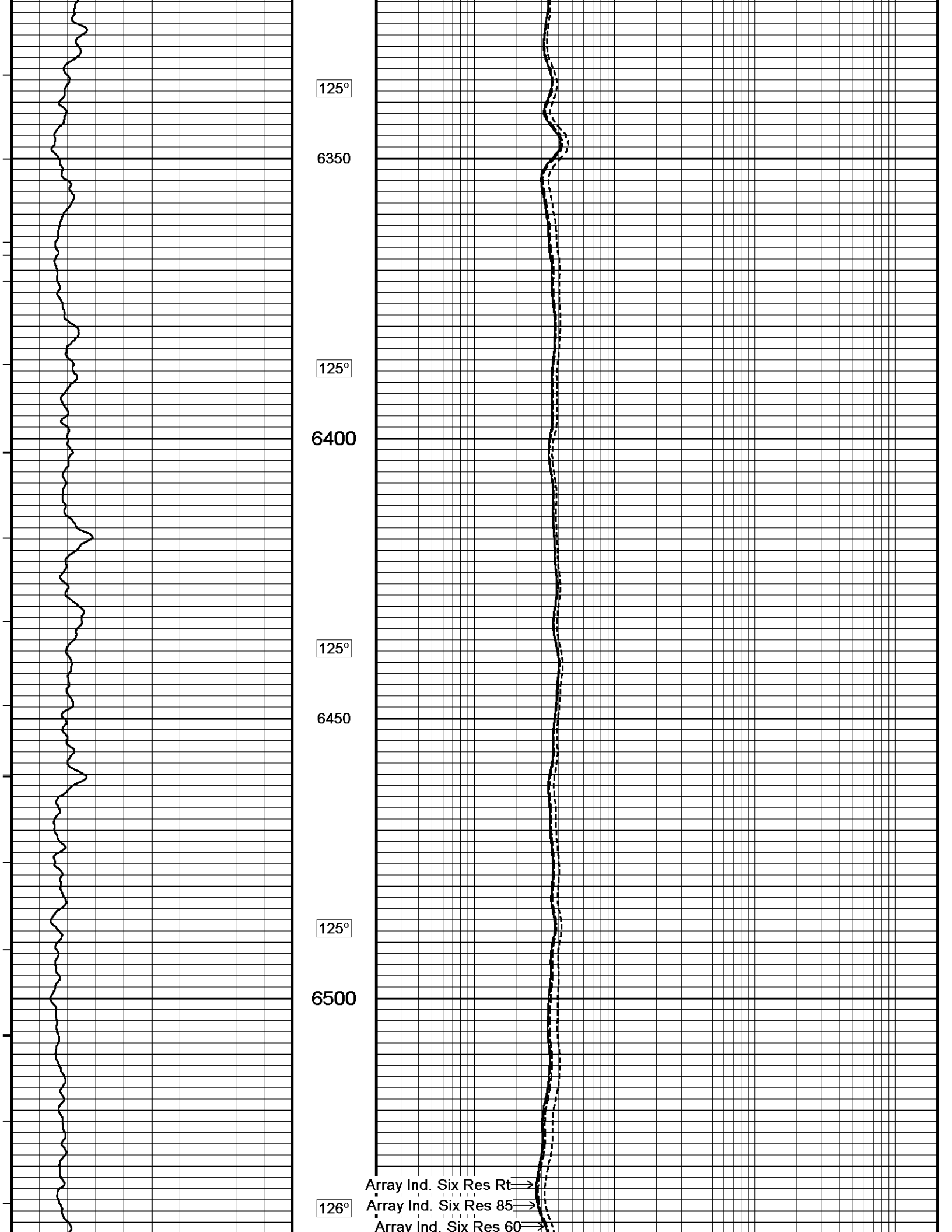

123°
5250
123°
5300
123°
5350
Array Ind. Six Res Rt
Array Ind. Six Res 85
Array Ind. Six Res 60
Array Ind. Six Res 40
Borehole Corr. MGS Gamma
123°
5400
123°

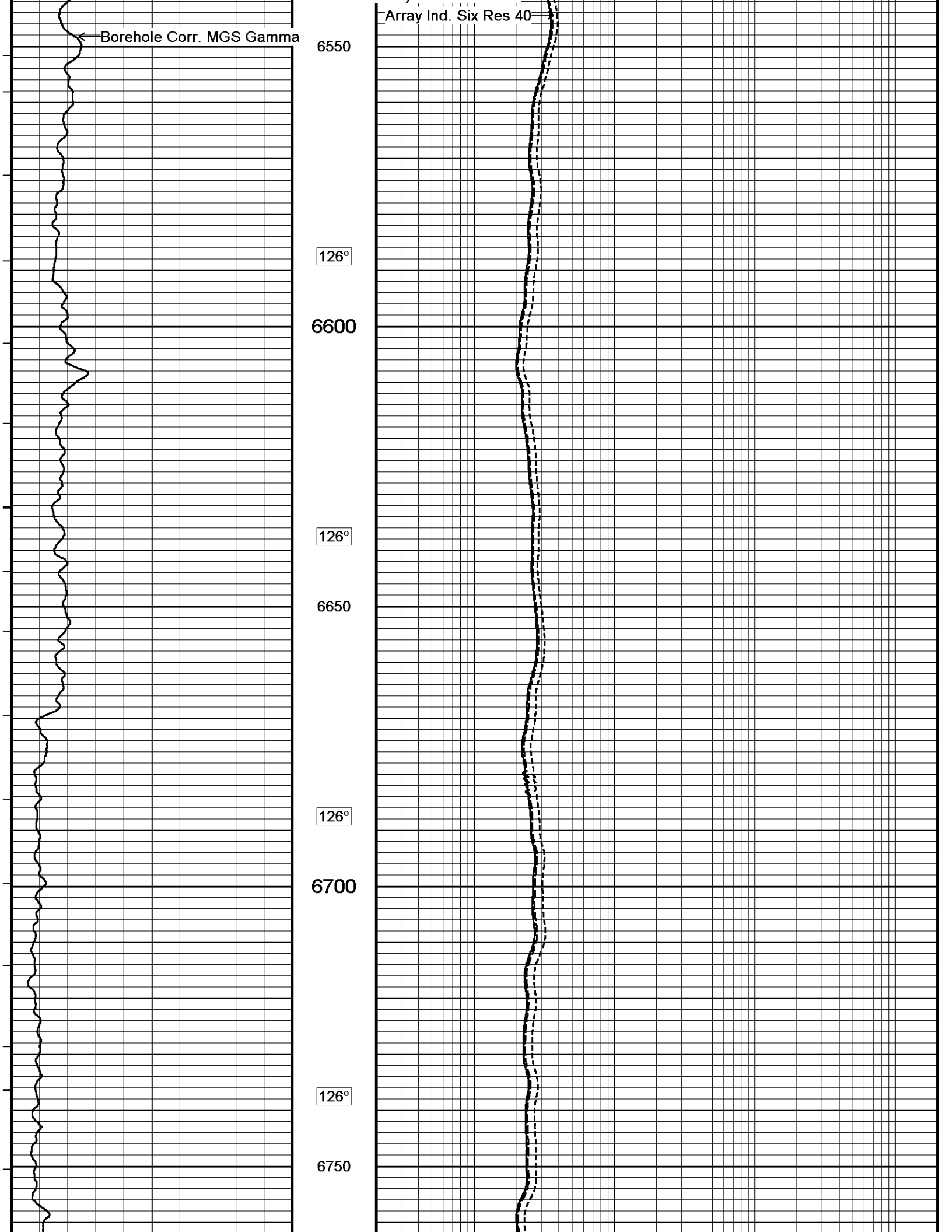

5450
123°
5500
123°
5550
124°
5600
124°
5650

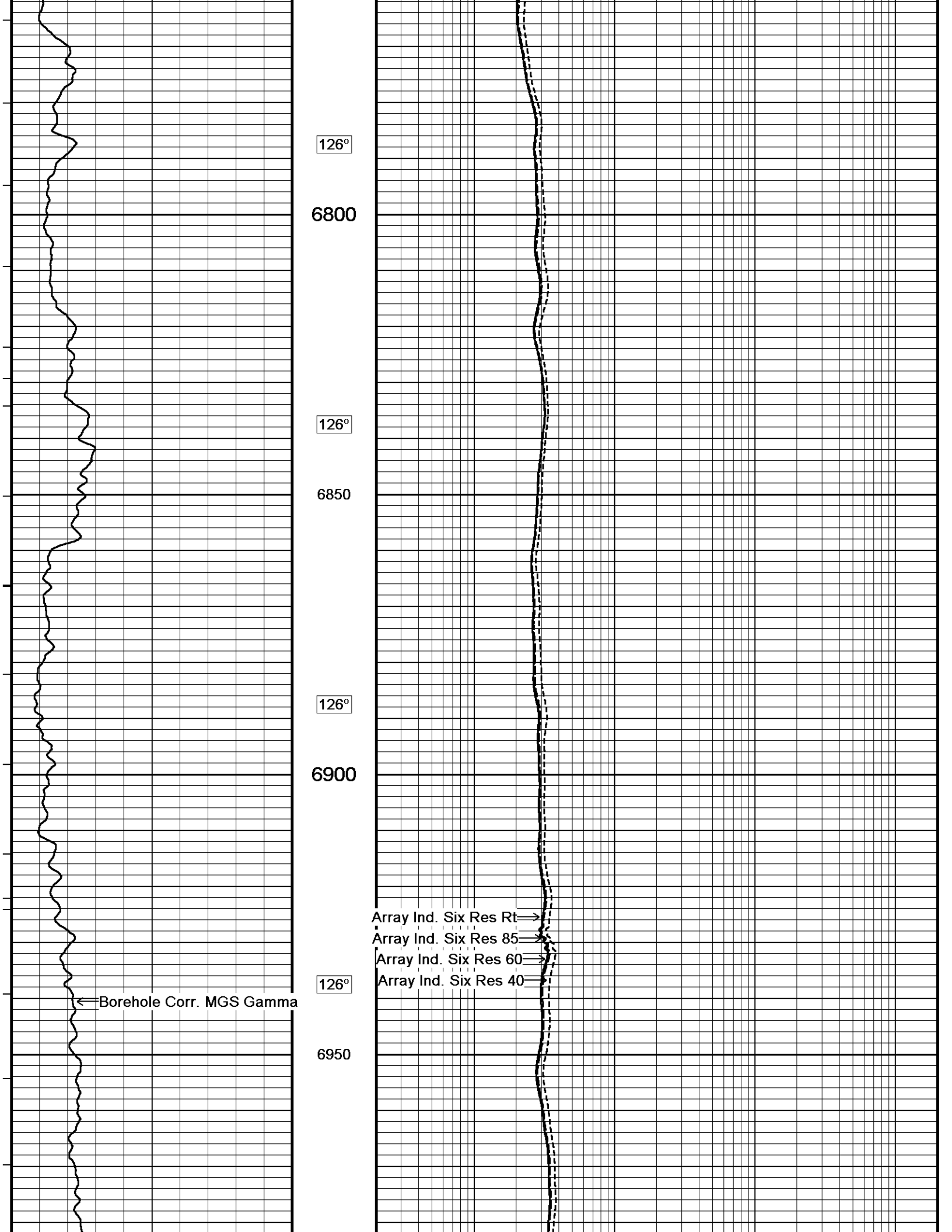

124°
5700
124°
Array Ind. Six Res Rt
5750
Array Ind. Six Res 85
Array Ind. Six Res 60
Array Ind. Six Res 40
Borehole Corr. MGS Gamma
124°
5800
124°
5850

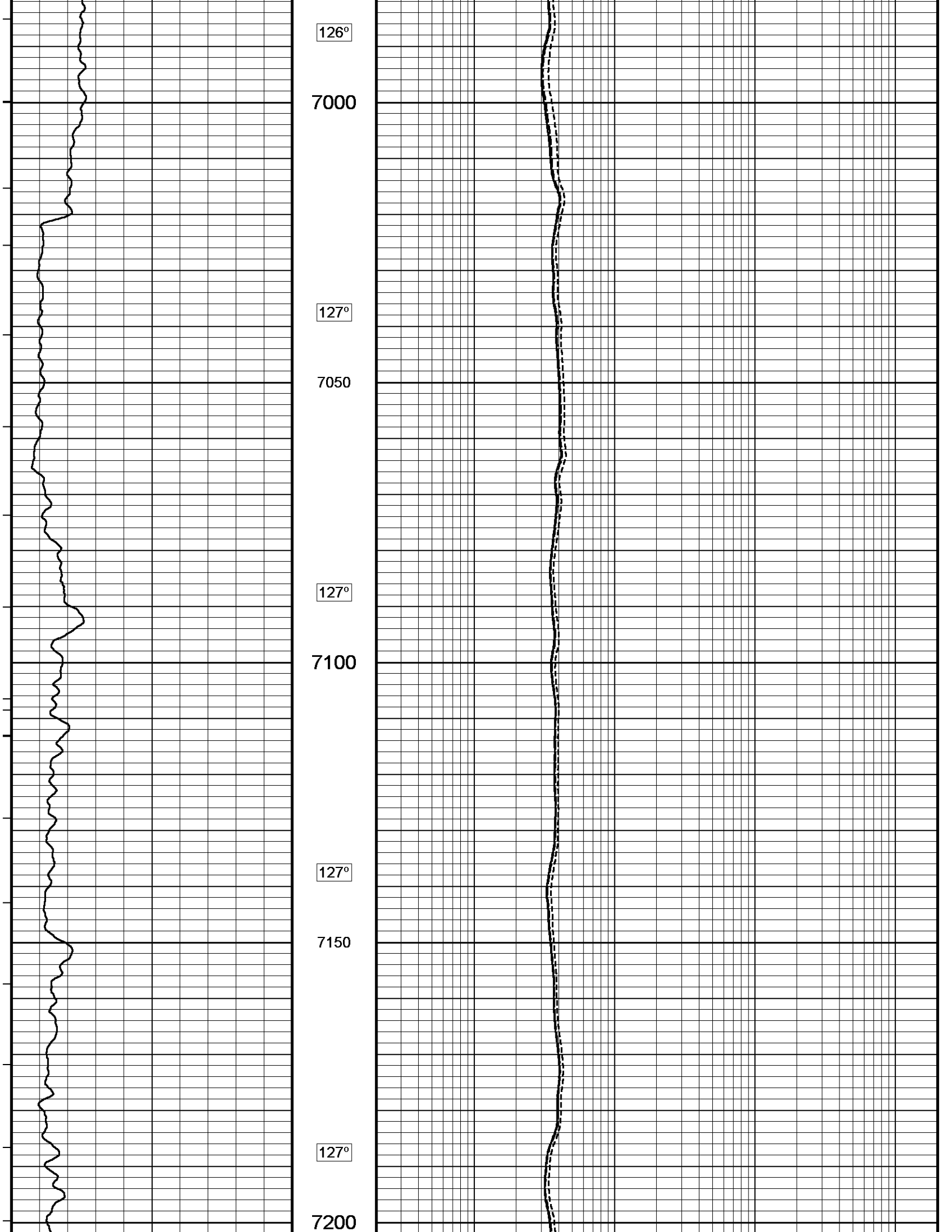

124°
5900
124°
5950
124°
6000
124°
6050
125°
6100


125°
Array Ind. Six Res Rt
Array Ind. Six Res 85
6150
Array Ind. Six Res 60
Array Ind. Six Res 40
Borehole Corr. MGS Gamma
125°
6200
125°
6250
125°
6300


125°
6350
125°
6400
125°
6450
125°
6500
126°
Array Ind. Six Res Rt
Array Ind. Six Res 85
Array Ind. Six Res 60


Borehole Corr. MGS Gamma
Array Ind. Six Res 40
6550
126°
6600
126°
6650
126°
6700
126°
6750


126°
6800
126°
6850
126°
6900
126°
6950
Array Ind. Six Res Rt
Array Ind. Six Res 85
Array Ind. Six Res 60
Array Ind. Six Res 40
Borehole Corr. MGS Gamma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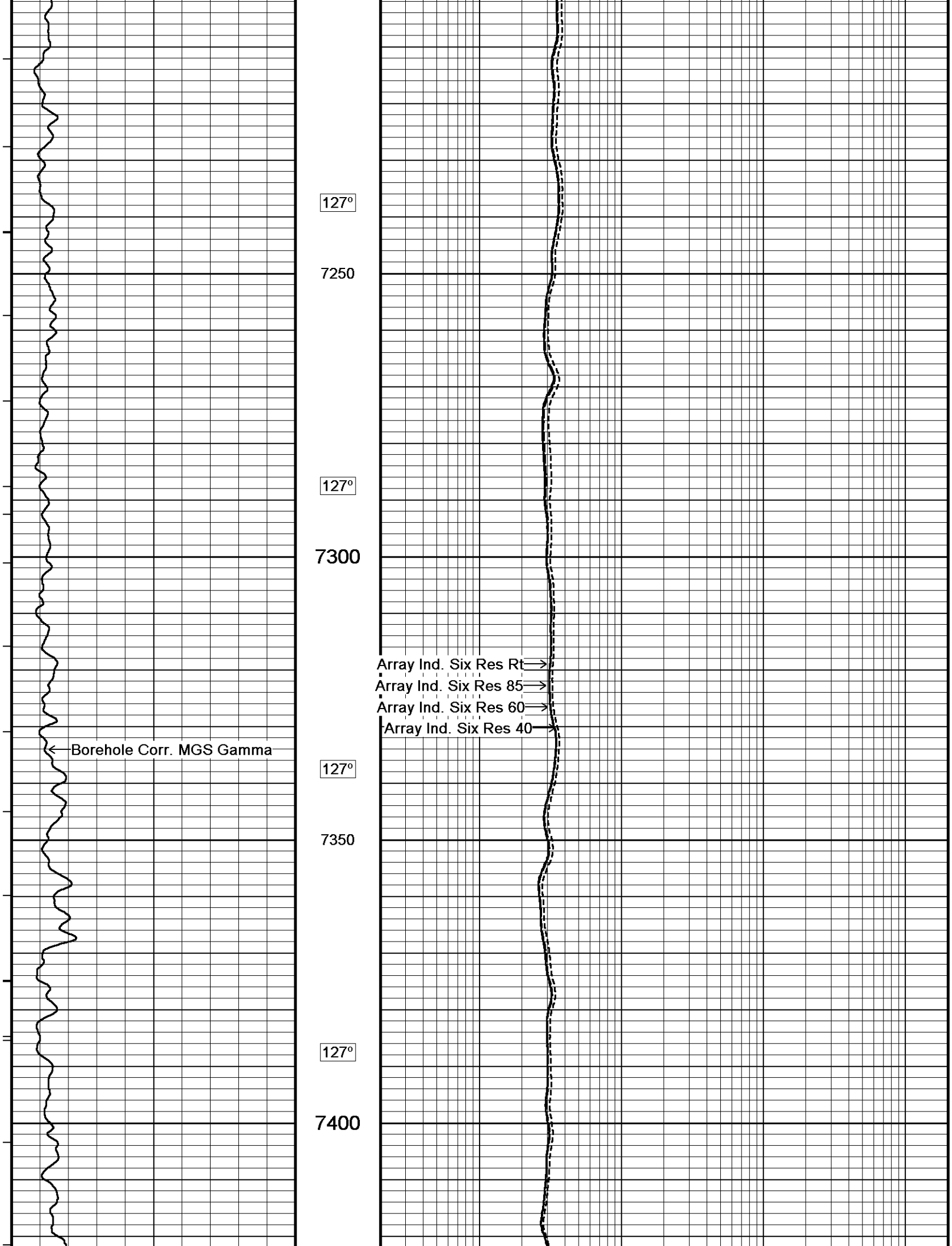
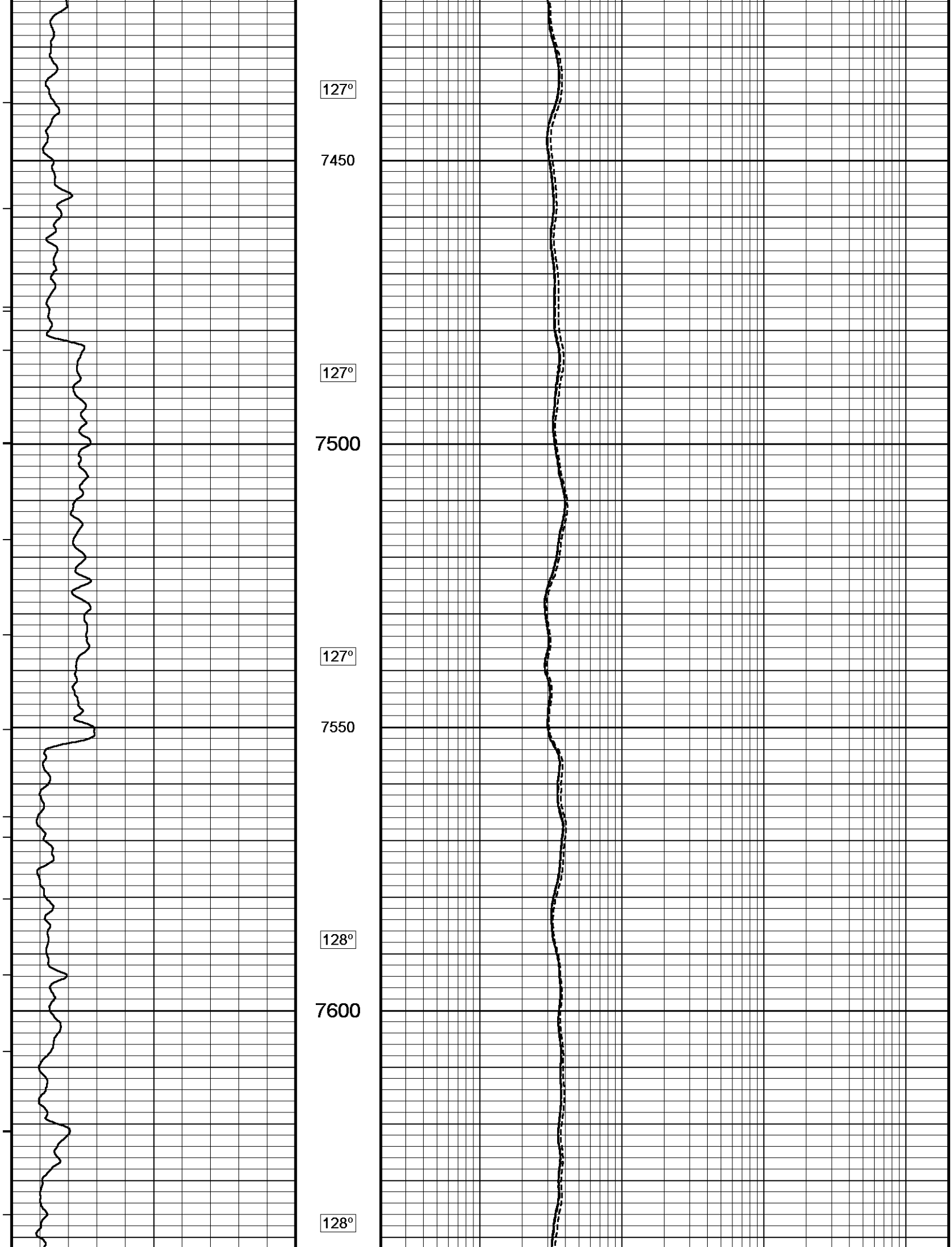
7000
127°
7050
127°
7100
127°
7150
127°
7200


127°
7250
127°
7300
Array Ind. Six Res Rt
Array Ind. Six Res 85
Array Ind. Six Res 60
Array Ind. Six Res 40
Borehole Corr. MGS Gamma
127°
7350
127°
7400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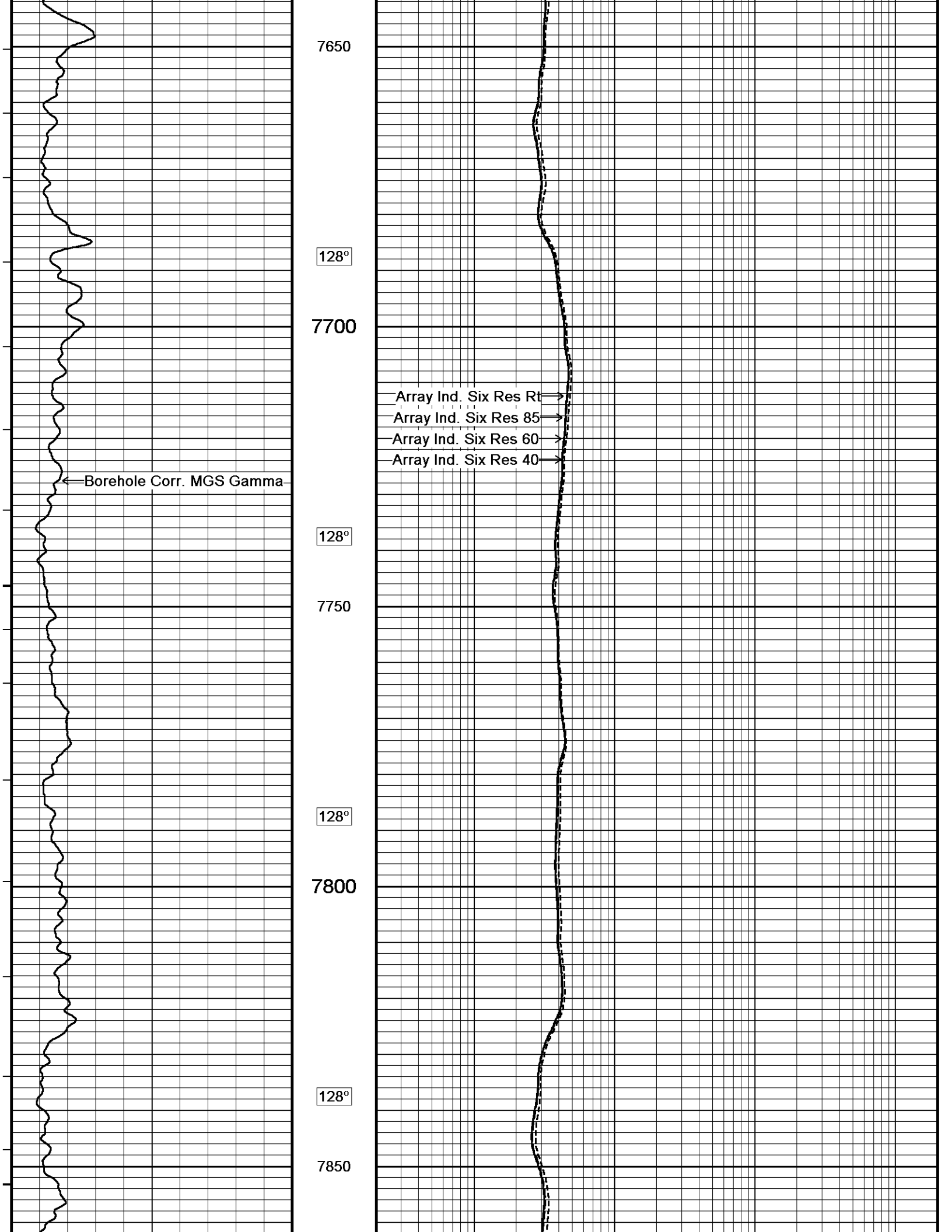
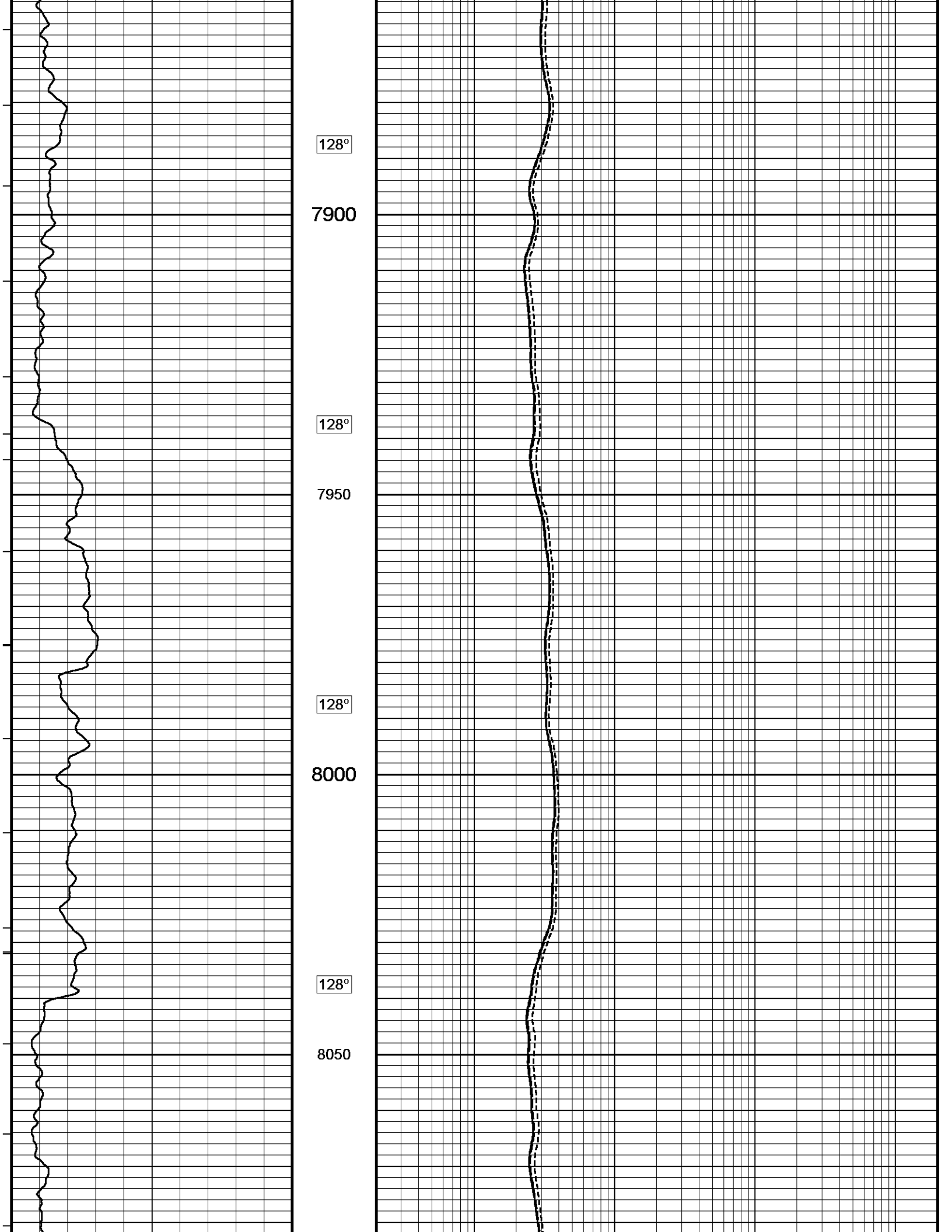
127°
7500
127°
7550
128°
7600
128°


7650
128°
7700
Array Ind. Six Res Rt
Array Ind. Six Res 85
Array Ind. Six Res 60
Array Ind. Six Res 40
Borehole Corr. MGS Gamma
128°
7750
128°
7800
128°
7850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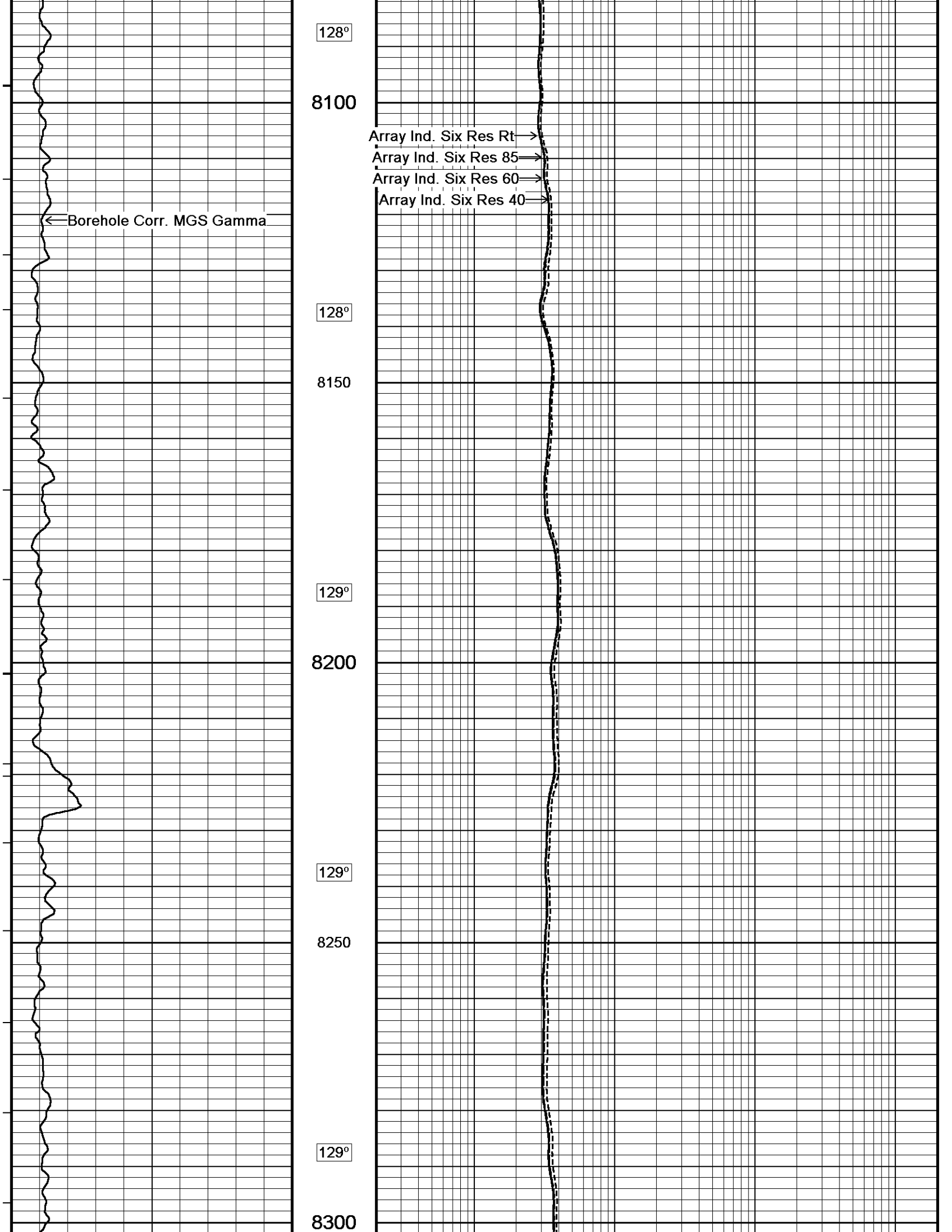
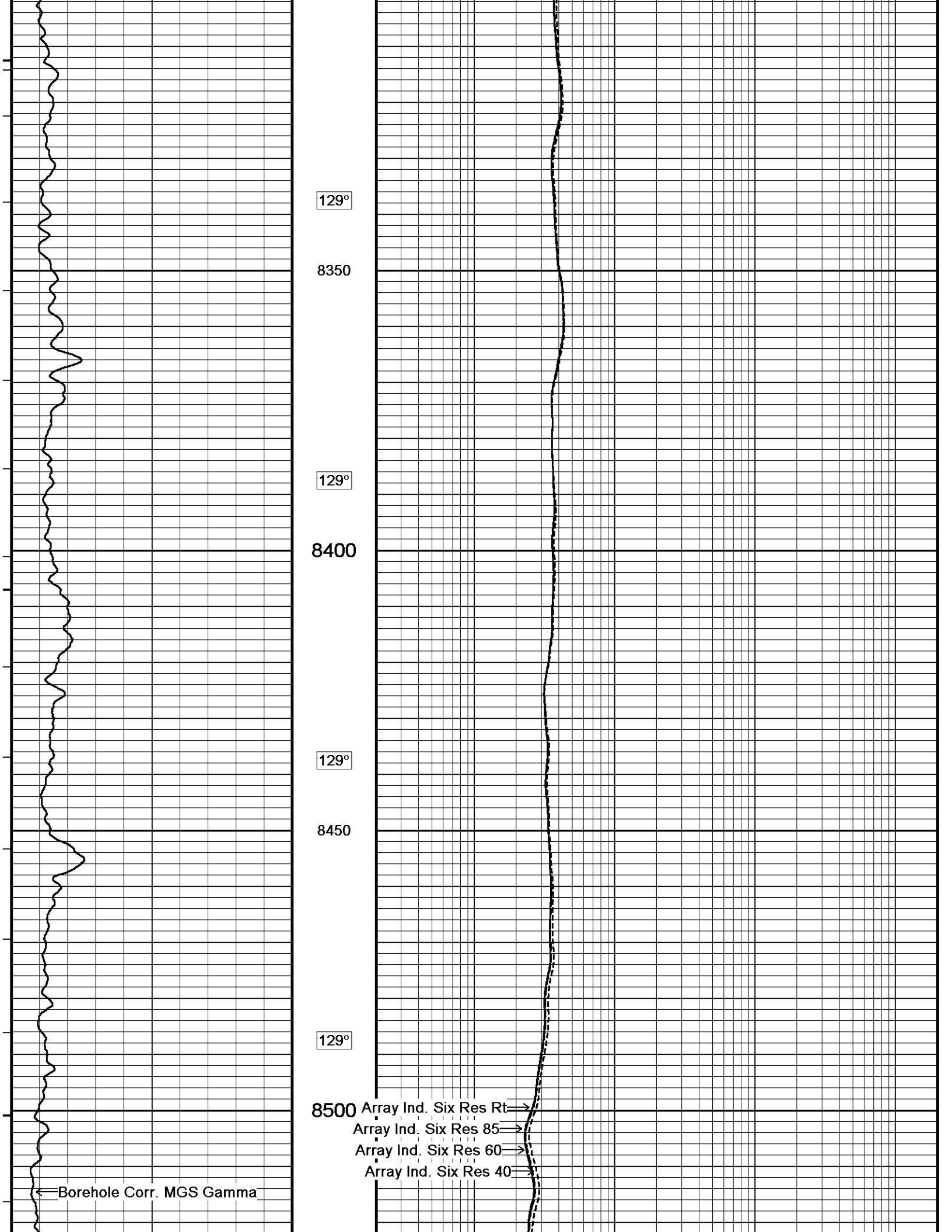
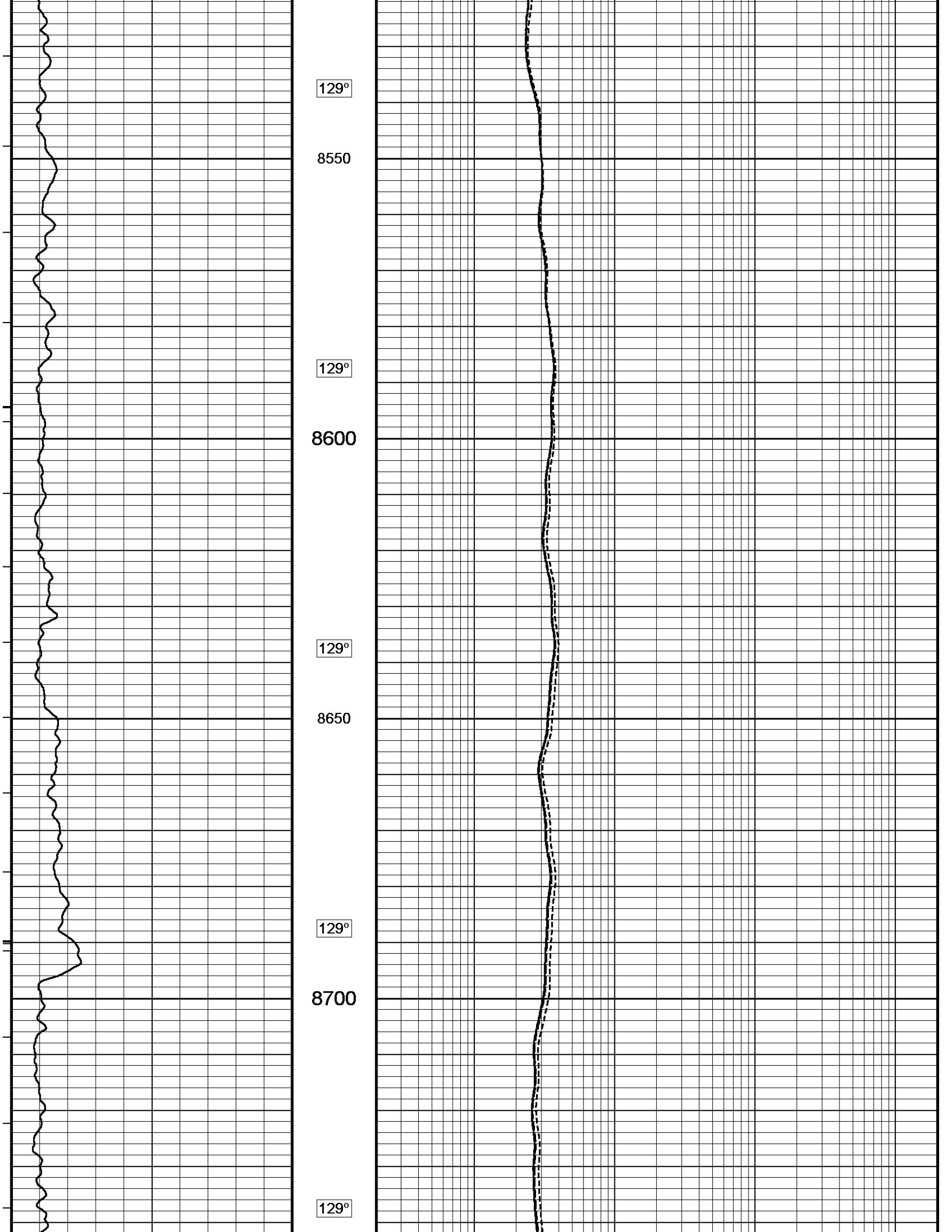
7900
128°
7950
128°
8000
128°
8050


128°
8100
Array Ind. Six Res Rt
Array Ind. Six Res 85
Array Ind. Six Res 60
Array Ind. Six Res 40
Borehole Corr. MGS Gamma
128°
8150
129°
8200
129°
8250
129°
8300


129°
8350
129°
8400
129°
8450
129°
8500
Array Ind. Six Res Rt
Array Ind. Six Res 85
Array Ind. Six Res 60
Array Ind. Six Res 40
Borehole Corr. MGS Gamma


129°
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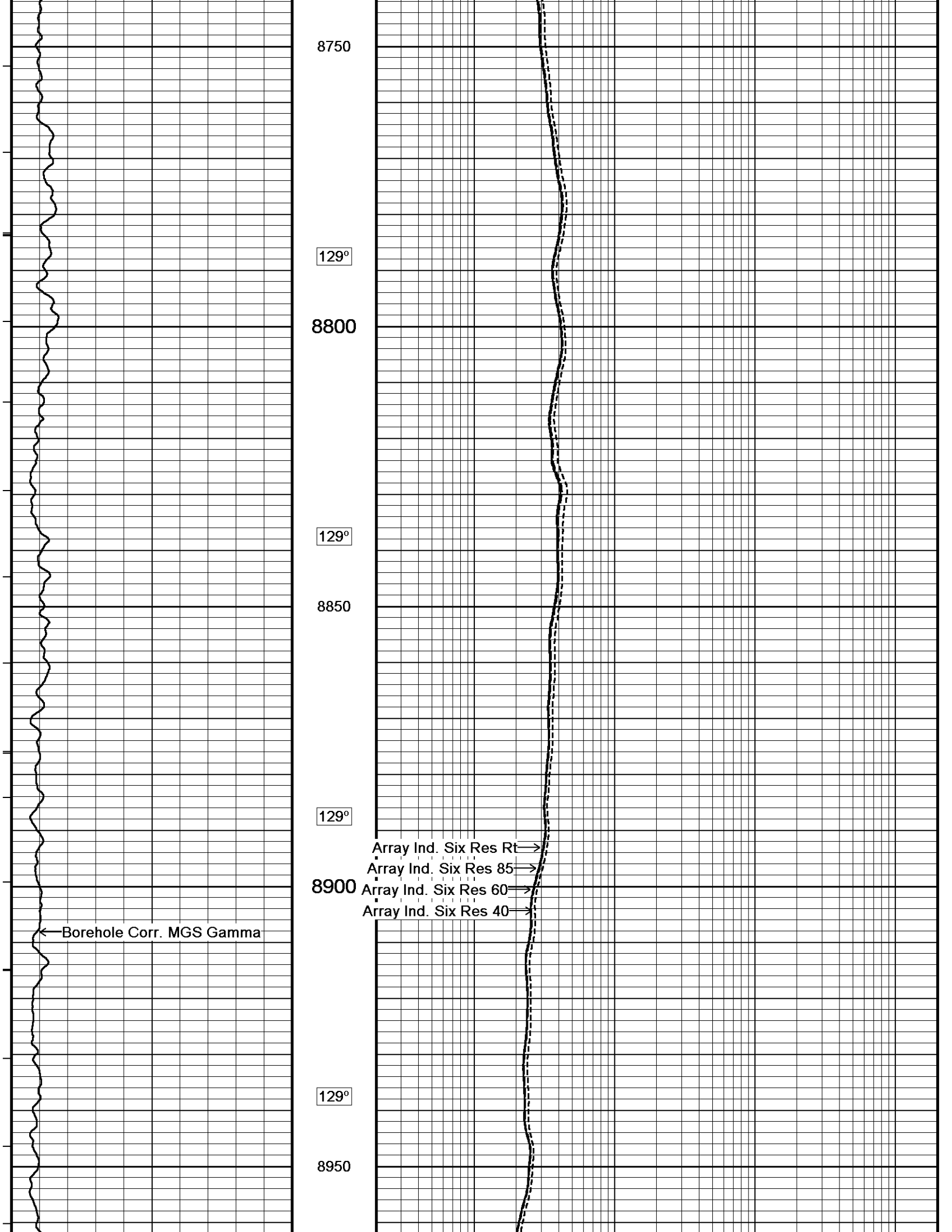
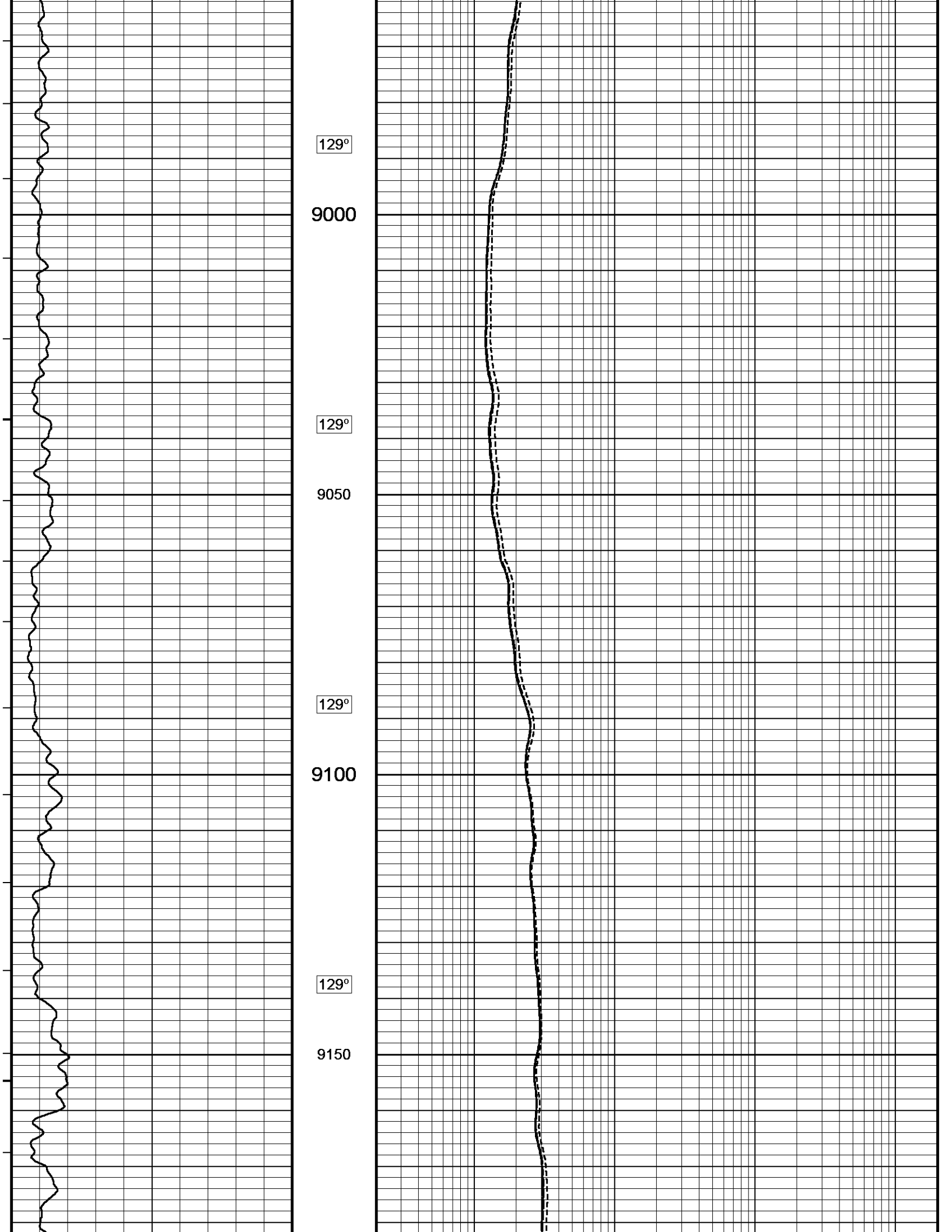
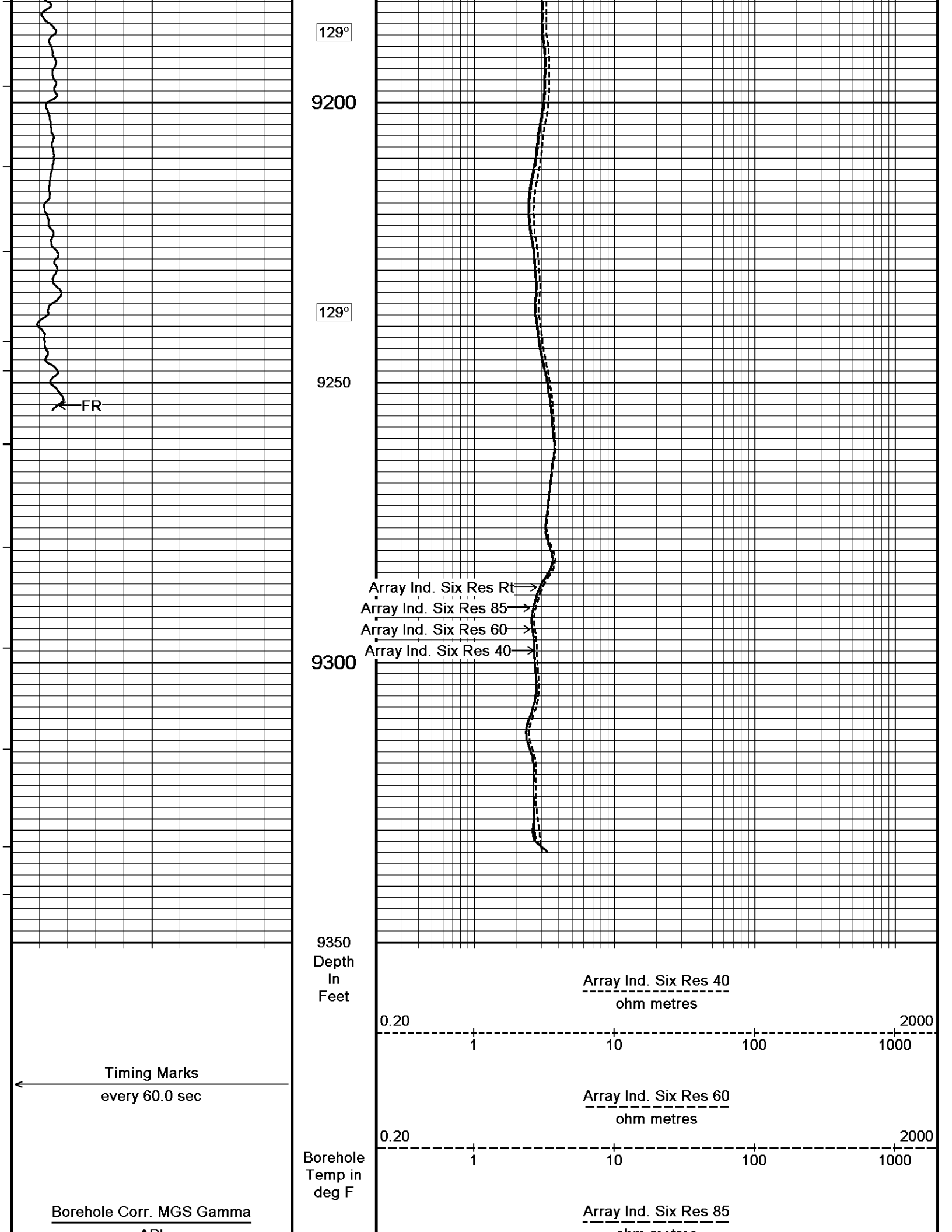
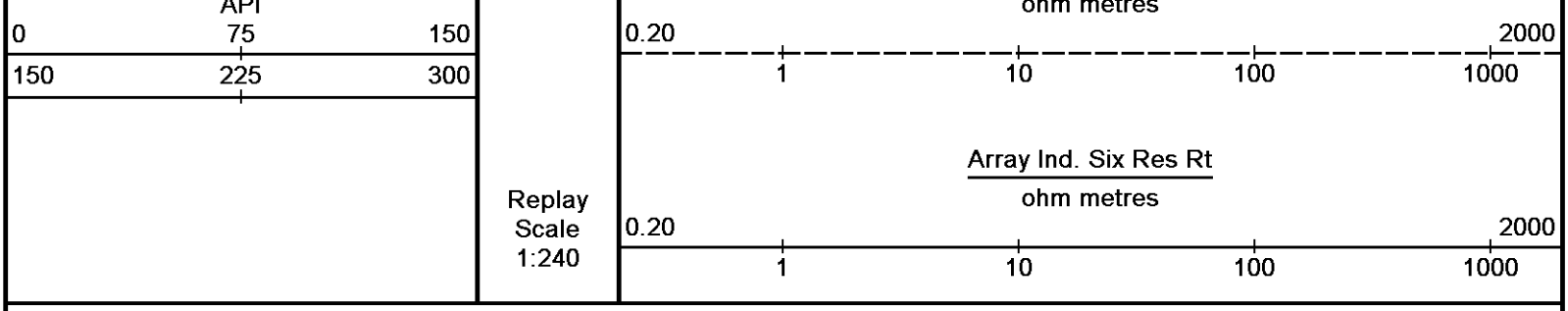
129°
8600
129°
8650
129°
8700
129°


8750
129°
8800
129°
8850
129°
8900
129°
8950
Array Ind. Six Res Rt
Array Ind. Six Res 85
Array Ind. Six Res 60
Array Ind. Six Res 40
Borehole Corr. MGS Gamma


129°
9000
129°
9050
129°
9100
129°
9150


129°
9200
129°
9250
FR
Array Ind. Six Res Rt
Array Ind. Six Res 85
Array Ind. Six Res 60
Array Ind. Six Res 40
9300
9350
Depth
In
Feet
Array Ind. Six Res 40
ohm metres
0.20
2000
1
10
100
1000
Timing Marks
every 60.0 sec
Array Ind. Six Res 60
ohm metres
0.20
2000
1
10
100
1000
Borehole
Temp in
deg F
Borehole Corr. MGS Gamma
Array Ind. Six Res 85



Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 15-OCT-2012 10:03
Filename: C:\Minimus 13.02.066\Data\DORADO (TOEWS 25-9-4)\28793 RTAP.dta — Recorded on 15-OCT-2012 09:21
System Versions: Processed with 13.02.6600 Plotted with 13.02.6600

5 INCH MAIN LOG DSC

BEFORE SURVEY CALIBRATION

C:\Minimus 13.02.066\Data\DORADO (TOEWS 25-9-4)\28793 RTAP.dta

Down-hole Tension Calibration All 000

Field Calibration on 24-FEB-2009 00:00

Reading No	Measured	0
1	14953.75	0.00
2	17846.38	1500.00

General Constants All 000

Last Edited on 15-OCT-2012,08:23

General Parameters		
Mud Resistivity	0.960	ohm-metres
Mud Resistivity Temperature	68.000	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	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. Six Res Rt	
RWA Constant A	0.610	
RWA Constant M	2.150	

Down-hole Tension Calibration SMS 0

Field Calibration on 29-MAR-2011 00:00

Reading No	Measured	0
1	15152.07	0.00
2	19175.97	2000.00

Strain Gauge Constants MMS-E.B 167

Last Edited on 03-AUG-2012 11:54

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		250.0		350.0	degrees F
Pressure psia	Inc.	Dec.	Inc.	Dec.	Inc.	Dec.	Inc.	Dec.
0.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2000.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4000.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
6000.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
8000.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10000.0	0.000		0.000		0.000		0.000	

MMS Parameters MMS-E.B 167

Last Edited on 14-OCT-2012 09:58

MMS Parameters MMS-E.B 107 — Last Edited on 11-OCT-2012 09:58

Logging Parameters

Firmware Version	2v40	
Caliper Open On	MAI	
Caliper Open Delay	0.0	minutes
Caliper Closed On	Unknown	
Caliper Closed Delay	N/A	minutes
Sample Rate	1.00	seconds
Use Deep Sleep	No	
Delay Deep Sleep	N/A	
Deep Sleep Wake Time	N/A	minutes
Deep Sleep Wake on Temperature	N/A	
Deep Sleep Wake Temperature	N/A	degrees C
Deep Sleep Wake on Pressure	N/A	
Deep Sleep Wake Pressure	N/A	psi
MMI Pad Pressure	8.0	

Release Parameters

Pulse Duration Base Level	10.0	seconds
Pulse Duration Transition Time	60.0	seconds
Pulse Duration Status Pulse From	20.0	seconds
Pulse Duration Caliper Close From	145.0	seconds
Pulse Duration Caliper Open From	150.0	seconds
Pulse Duration Release Pulse From	215.0	seconds
Pulse Duration Release Pulse To	280.0	seconds
Pulse Release Duration	240.0	seconds
Pulse Discriminator Pressure Band	96.0	seconds
Pulse Pressure Discriminator	213.0	seconds
Use Negative Pulsing	No	
Good Status Reply Open Hole	65535.0	seconds
Good Status Reply Cased Hole	20.0	seconds
Bad Status Reply	60.0	seconds
Status Pulse To	80.0	seconds
Caliper Close To	0.0	seconds
Caliper Open To	210.0	seconds

Configuration

MMS,MGS,MDN,MPD,MPD,MIM,MIE,MAI

Gamma Calibration MGS-C.J 135

Field Calibration on 23-SEP-2012 00:33

	Measured	Calibrated (API)
Background	141	97
Calibrator (Gross)	1972	1358
Calibrator (Net)	1831	1261

Gamma Constants MGS-C.J 135

Last Edited on 15-OCT-2012,08:24

Gamma Calibrator Number	BLUE	
Mud Density	1.02	gm/cc
Caliper Source for Processing	Density Caliper	
Tool Position	Eccentred	
Concentration of KCl	0.00	kppm

High Resolution Temperature Constants MGS-C.J 135

Last Edited on

Pre-filter Length	11

Neutron Calibration MDN-B.J 390

Base Calibration on 11-SEP-2012 09:59
Field Check on 20-SEP-2012 20:41

Base Calibration

	Measured		Calibrated (cps)	
	Near	Far	Near	Far
	3051	92	3714	110
Ratio	33.011		33.764	

Field Calibrator at Base

	Calibrated (cps)	
	1253	1859
Ratio	0.674	

Field Check	Calibrated (cps)	
	1244	1880
Ratio		0.662

Neutron Constants MDN-B.J 390

Last Edited on 15-OCT-2012,08:24

Neutron Source Id	P31112B	
Neutron Jig Number	EC13 BLUE	
Epithermal Neutron	No	
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	None	
Formation Pressure	N/A	kpsi
Temperature Source	Constant Value	
Temperature	20.00	degrees F
Mud Salinity	0.50	kppm
Salinity Correction	Applied	
Formation Fluid Salinity Source	None	
Formation Fluid Salinity	N/A	kppm
Barite Mud Correction	Not Applied	

Caliper Calibration MIE-A.J 233

Base Calibration on 03-JUL-2012 16:05
Field Calibration on 12-JUL-2012 11:59

Base Calibration

Reading No	Pads 1-5 Meas.	Pads 3-7 Meas.	Calibrator Size (in)
1	25479	25668	5.96
2	36118	36010	7.97
3	45775	45499	9.84
4	57747	57059	11.91
5	0	0	0.00

Reading No	Pad 2 Meas.	Pad 4 Meas.	Pad 6 Meas.	Pad 8 Meas.	Calibrator Size (in)
1	24613	24005	24629	24615	5.96
2	33696	32386	33383	33850	7.97
3	41885	40590	41925	42007	9.84
4	51911	50551	51787	51761	11.91
5	0	0	0	0	0.00

Field Calibration

Measured Pads 1-5 Caliper(in)	Measured Pads 3-7 Caliper(in)	Actual Caliper(in)
6.03	6.02	5.96

Measured Pad 2 Caliper(in)	Measured Pad 4 Caliper(in)	Measured Pad 6 Caliper(in)	Measured Pad 8 Caliper(in)	Actual Caliper(in)
3.06	3.01	3.04	3.03	5.96

Caliper Constants MIE-A.J 233

Last Edited on

Caliper Difference for BRKT	3.000	mm

Accelerometer Parameters MIE-A.J 233

Date Of Last Accelerometer Calibration 18-NOV-2011,14:08

	X Accelerometer	Y Accelerometer	Z Accelerometer
Slope	-1.106957	-1.101597	-1.096051
Offset	0.006667	0.007744	-0.005892

Accelerometer Constants MIE-A.J 233

Last Edited on 03-JUL-2012 15:41

Accelerometer Calibrator Number 000

Accelerometer Temperature Characterisation

X Accelerometer

Serial Number	1057			
Calibration Date	27-Apr-2011			
	B0	B1	B2	B3
Bias(g)	0.00000e+000	2.82020e-006	-3.02029e-008	1.94332e-010
	SF0	SF1	SF2	SF3

Scale Factor(mA/g)	3.00000e+000	2.77285e-004	1.89104e-007	1.67186e-009

Y Accelerometer

Serial Number	1073			
Calibration Date	02-May-2011			
	B0	B1	B2	B3
Bias(g)	0.00000e+000	-1.04005e-005	2.19294e-008	-1.31489e-010
	SF0	SF1	SF2	SF3
Scale Factor(mA/g)	3.00000e+000	2.69223e-004	2.39527e-007	9.12553e-010

Z Accelerometer

Serial Number	977			
Calibration Date	20-Jan-2011			
	B0	B1	B2	B3
Bias(g)	0.00000e+000	1.86594e-005	1.00709e-008	3.83419e-011
	SF0	SF1	SF2	SF3
Scale Factor(mA/g)	3.00000e+000	2.74913e-004	2.75506e-007	1.29284e-009

Magnetometer Parameters MIE-A.J 233

Date Of Last Magnetometer Calibration 03-JUL-2012,16:01

	X Magnetometer	Y Magnetometer	Z Magnetometer
Slope	-1.000000	-1.002341	-0.997182
Offset	0.005318	-0.018938	0.000387

Magnetometer Constants MIE-A.J 233

Last Edited on

Magnetometer Calibrator Number 000

Navigation Constants MIE-A.J 233

Last Edited on

Magnetic Declination 0.00 degrees East

Imager Pad Check MIE-A.J 233

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-A.J 233

Last Edited on 14-JUL-2012,15:28

Sonde Configuration	Imager Mode	degrees
Arm-Pad Kit	Normal Pads (12.25 in)	
Centre Pad 1 Rotational Offset	0.00	
Image/Borehole Ovality Reference	Azimuth of Pad 1	degrees
Non Active Buttons	Omit	feet
Search Angle	0.00	feet
Correlation Interval	3.28	mAmp
Correlation Step	1.64	mAmp
Current Offset	0.0000	
Squasher Start	N/A	
Image Processing	Enabled	

High Resolution Temperature Calibration MAI-B.J 389

Field Calibration on 19-OCT-2011 09:44

	Measured	Calibrated(Deg F)
Lower	10.00	50.00
Upper	100.00	212.00

High Resolution Temperature Constants MAI-B.J 389

Last Edited on

Pre-filter Length 11

Induction Calibration MAI-B.J 389

Base Calibration on 01-SEP-2012,07:44
Field Check on 23-SEP-2012 00:23

Base Calibration

Test Loop Calibration

Channel	Measured Low	Measured High	Calibrated (mmho/m) Low	Calibrated (mmho/m) High
1	16.7	465.5	9.3	966.2
2	6.4	384.0	7.6	821.4
3	3.1	258.9	5.2	566.0
4	1.8	133.7	2.6	279.2

Array Temperature		78.1	Deg F		

Channel	Base Check (mmho/m)		Field Check (mmho/m)		
	Low	High	Low	High	
1	0.0	0.0	14.1	3895.8	
2	0.0	0.0	29.3	3506.4	
3	0.0	0.0	29.3	3047.1	
4	0.0	0.0	19.6	2061.5	
Deep	0.0	0.0	19.1	2011.4	
Medium	0.0	0.0	42.2	4000.8	
Shallow	0.0	0.0	41.9	5148.8	
Array Temperature		0.0		77.5	Deg F

Induction Constants MAI-B.J 389

Last Edited on 15-OCT-2012,08:23

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	

Caliper Calibration MPD-C.J 435

Base Calibration on 31-AUG-2012 15:14
Field Calibration on 23-SEP-2012 00:38

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	16672	4.01
2	26192	5.96
3	36288	7.98
4	46016	9.86
5	56865	11.88
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
5.92	5.96

Photo Density Calibration MPD-C.J 435

Base Calibration on 31-AUG-2012 17:03
Field Check on 23-SEP-2012 00:29

Density Calibration

Base Calibration	Measured Near	Measured Far	Calibrated (sdu) Near	Calibrated (sdu) Far
Reference 1	56922	28137	59869	31110
Reference 2	23873	2636	24557	2522
Field Check at Base	1304.9	1353.6		
Field Check	1298.0	1349.4		

PE Calibration

Base Calibration	WS	Measured WH	Measured Ratio	Calibrated Ratio
Background	238	1169		
Reference 1	22710	56709	0.405	0.369
Reference 2	6509	23724	0.278	0.271
Field Check at Base	237.7	1169.4		
Field Check	237.0	1162.5		

Density Constants MPD-C.J 435

Last Edited on 15-OCT-2012,08:24

Density Source Id	p31112b	
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	1.02	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 (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:\Minimus 13.02.066\Data\DORADO (TOEWS 25-9-4)\28793 RTAP.dta

RUNNING TOOL
MLK-A 1 LG: 4.87 ft WT: 30.9 lb OD: 2.24 in

SKJ-D.A Compact Knuckle Joint
SKJ-D.A 81 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

Spacer - Empty Battery
MLK-A 2 LG: 14.23 ft WT: 30.9 lb OD: 2.24 in

Spacer - Empty Battery
MLK-A 3 LG: 14.23 ft WT: 30.9 lb OD: 2.24 in

MBS-G.A 200v Compact Battery Sub
MBS-G.A 115 LG: 17.06 ft WT: 123.5 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 62 LG: 1.54 ft WT: 13.2 lb OD: 2.24 in

Compact Short Gamma
MGS-C.J 135 LG: 3.41 ft WT: 24.3 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

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

MIS-D.B Compact Inline Bowspring sub
MIS-D.B 596 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 435 LG: 9.59 ft WT: 90.4 lb OD: 2.24 in

MIS-D.A Compact Inline Bowspring sub
MIS-D.A 609 LG: 5.70 ft WT: 33.1 lb OD: 2.24 in

SHA-F Compact Swivel Head Adaptor
SHA-F 33 LG: 2.74 ft WT: 26.5 lb OD: 2.24 in

SKJ-D.A Compact Knuckle Joint
SKJ-D.A 137 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

MIS-E.B Compact Inline Standoff sub
MIS-E.B 565 LG: 2.14 ft WT: 15.4 lb OD: 2.24 in

SHA-F Compact Swivel Head Adaptor
SHA-F 34 LG: 2.74 ft WT: 26.5 lb OD: 2.24 in

MIS-D.A Compact Inline Bowspring sub
MIS-D.A 390 LG: 5.70 ft WT: 33.1 lb OD: 2.24 in

Compact MMI Memory Section
MIM-A.A 209 LG: 4.65 ft WT: 26.5 lb OD: 2.24 in

Compact MMI Electrode Section
MIE-A.J 233 LG: 13.96 ft WT: 99.2 lb OD: 4.09 in

MIS-A.A Compact Inline Bowspring sub
MIS-A.A 91 LG: 5.70 ft WT: 33.1 lb OD: 2.24 in

MIS-E.B Compact Inline Standoff sub
MIS-E.B 573 LG: 2.14 ft WT: 15.4 lb OD: 2.24 in

Compact Induction
MAI-B.J 389 LG: 12.52 ft WT: 48.5 lb OD: 2.24 in

Total Length: 147.65 ft Weight: 917.1 lb

85.72 ft GGME - Borehole Corr. MGS Gamma
83.74 ft GSXT - MGS External Temperature
70.02 ft NPRL - Limestone Neutron Por.
62.78 ft CLDC - Density Caliper
60.85 ft DPRL - Limestone Density Por.
60.85 ft DEN - Compensated Density
60.85 ft DCOR - Density Correction
60.79 ft PDPE - PE
20.89 ft IECY - MIE Caliper Y
20.89 ft IECX - MIE Caliper X
3.34 ft CTAS - Array Ind. Six Cond Ct
3.34 ft R40S - Array Ind. Six Res 40
3.34 ft R30S - Array Ind. Six Res 30
3.34 ft R20S - Array Ind. Six Res 20
3.34 ft R60S - Array Ind. Six Res 60
3.34 ft R85S - Array Ind. Six Res 85
3.34 ft RTAS - Array Ind. Six Res Rt
Tool Zero (1.84ft from bottom)

All measurements relative to tool zero

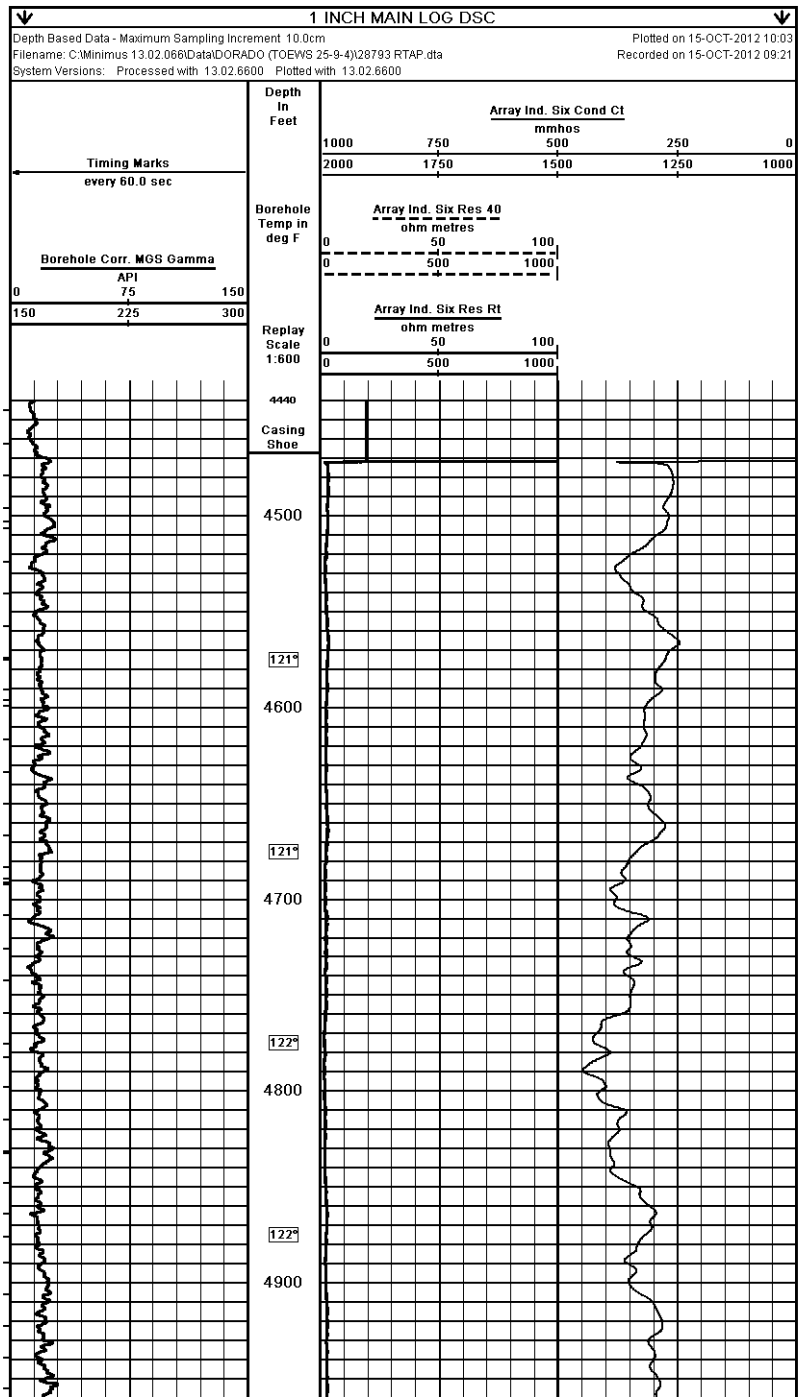
All measurements relative to tool zero.

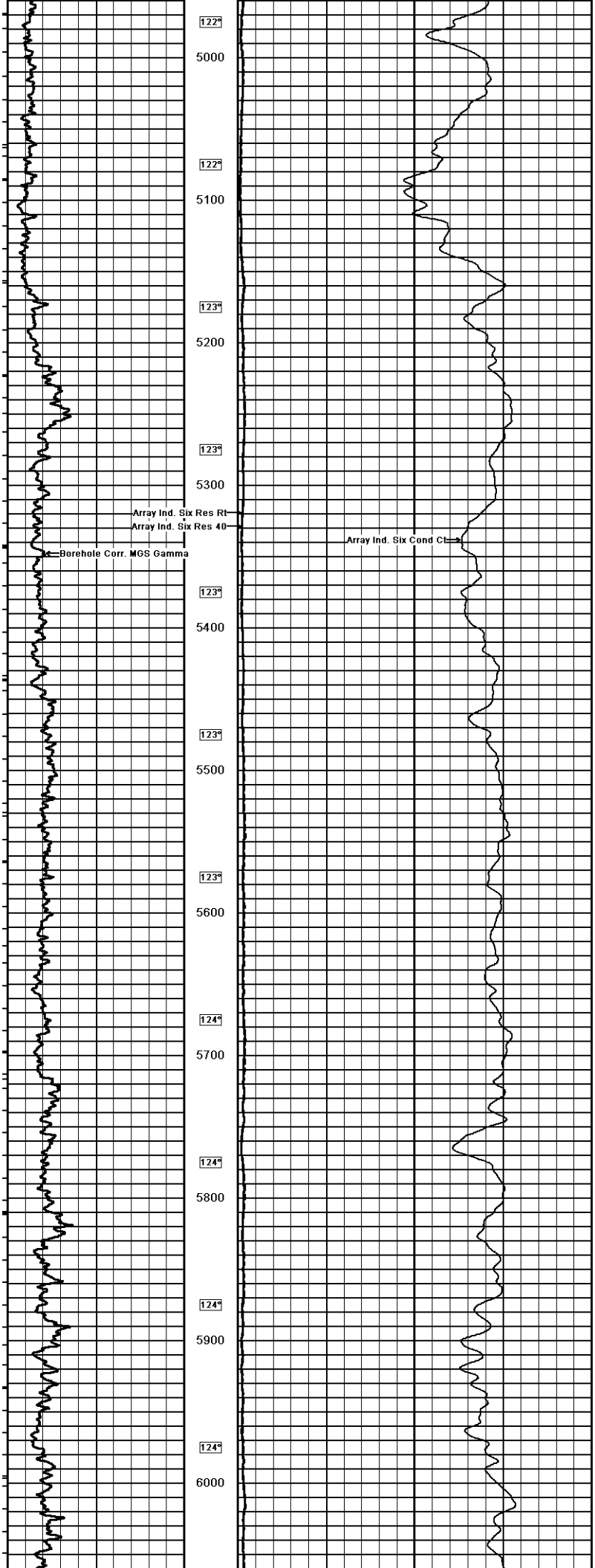
COMPANY	DORADO E&P PARTNERS LLC
WELL	TOEWS 25-9-4 1H
FIELD	UNKNOWN
PROVINCE/COUNTY	RENO
COUNTRY/STATE	USA / KANSAS

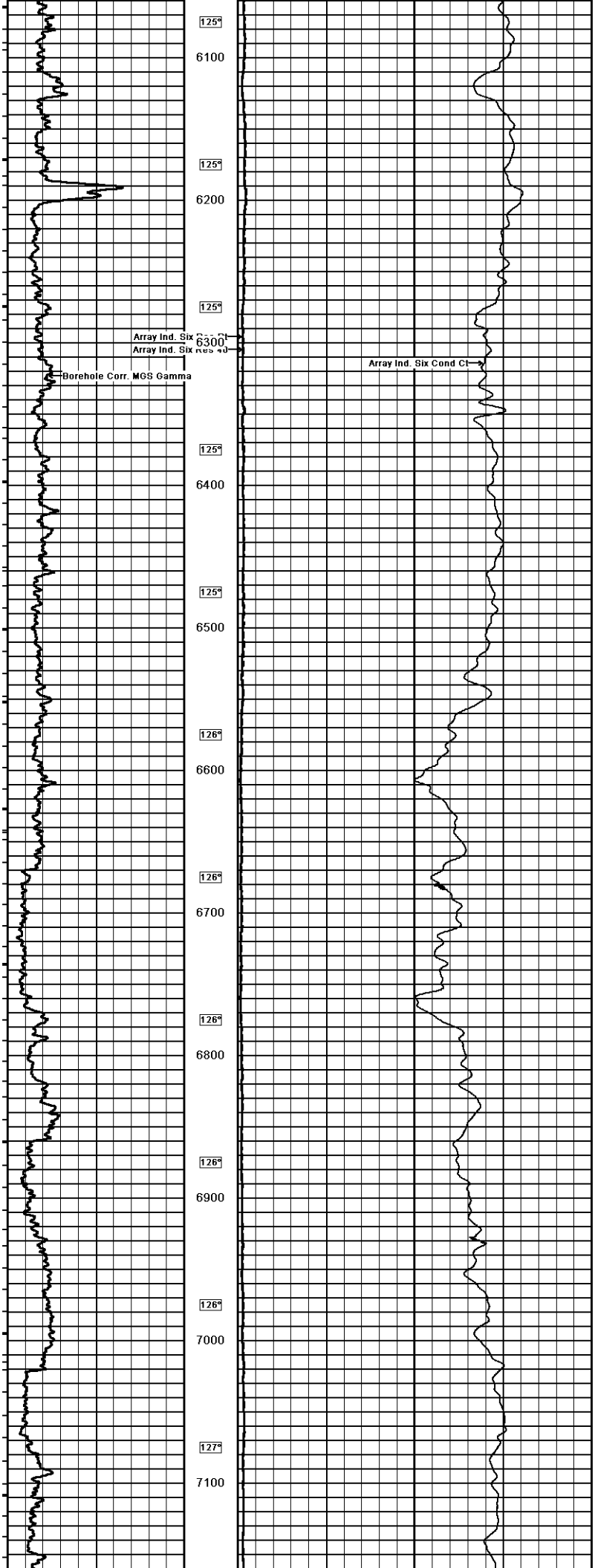
Elevation Kelly Bushing	1710.00	feet	First Reading	9340.00	feet
Elevation Drill Floor	1708.00	feet	Depth Driller	9346.00	feet
Elevation Ground Level	1698.00	feet	Depth Logger	9340.00	feet

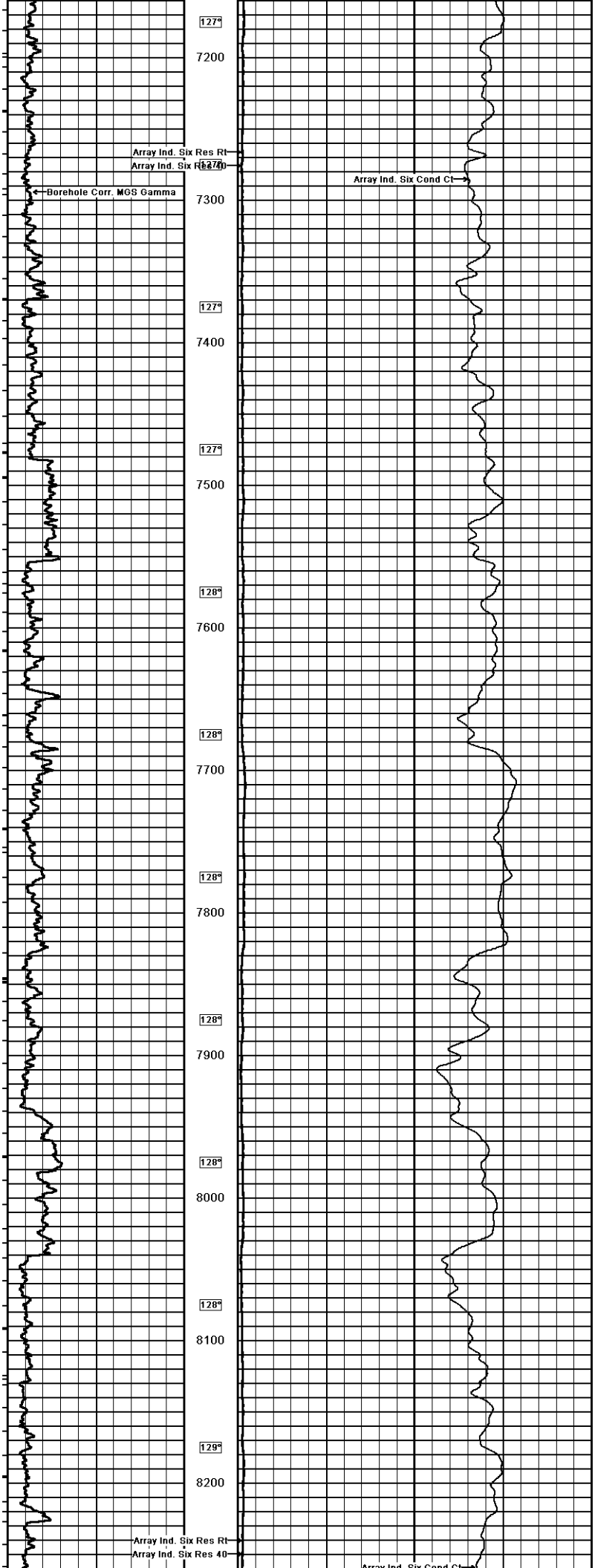
Weatherford®

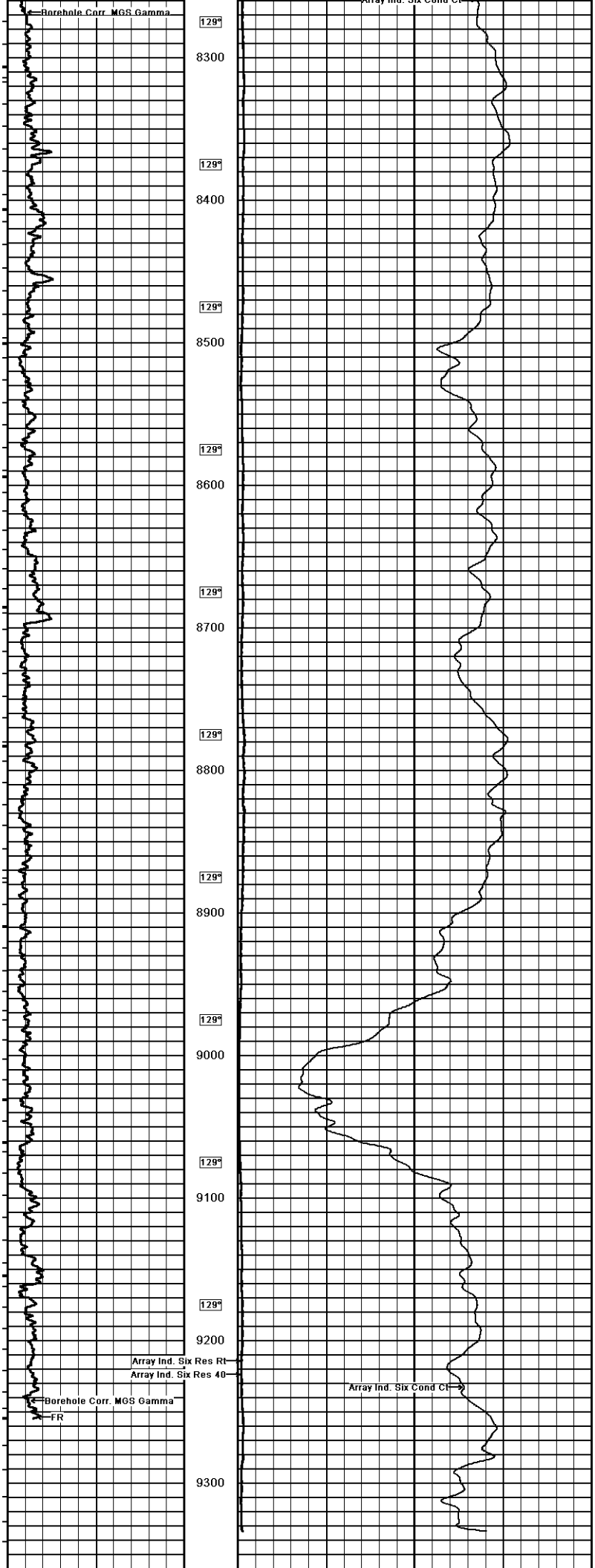
CML MESSENGER SHUTTLE ARRAY INDUCTION LOG

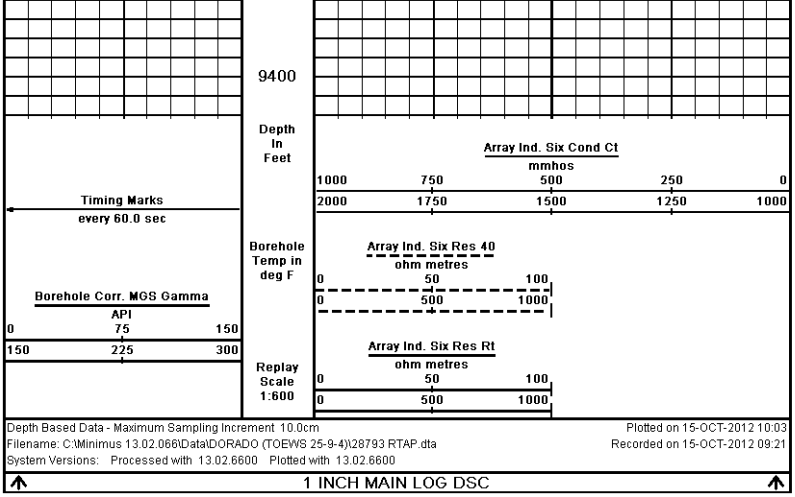



122°
5000
122°
5100
123°
5200
123°
5300
Array Ind. Six Res Rt
Array Ind. Six Res 40
Borehole Corr. MGS Gamma
Array Ind. Six Cond Ct
123°
5400
123°
5500
123°
5600
124°
5700
124°
5800
124°
5900
124°
6000


125°
6100
125°
6200
125°
Array Ind. Six
Array Ind. Six
6300
Array Ind. Six Cond Ct
Borehole Corr. MGS Gamma
125°
6400
125°
6500
126°
6600
126°
6700
126°
6800
126°
6900
126°
7000
127°
7100


127°
7200
Array Ind. Six Res Rt
Array Ind. Six Res 40
Array Ind. Six Cond Ct
Borehole Corr. MGS Gamma
7300
127°
7400
127°
7500
128°
7600
128°
7700
128°
7800
128°
7900
128°
8000
128°
8100
129°
8200
Array Ind. Six Res Rt
Array Ind. Six Res 40


Borehole Corr. MGS Gamma
Array Ind. Six Cond Ct
129°
8300
129°
8400
129°
8500
129°
8600
129°
8700
129°
8800
129°
8900
129°
9000
129°
9100
129°
9200
Array Ind. Six Res Rt
Array Ind. Six Res 40
Array Ind. Six Cond Ct
Borehole Corr. MGS Gamma
FR
9300



COMPANY	DORADO E&P PARTNERS LLC
WELL	TOEWS 25-9-4 1H
FIELD	UNKNOWN
PROVINCE/COUNTY	RENO
COUNTRY/STATE	USA / KANSAS

Elevation Kelly Bushing	1710.00	feet	First Reading	9340.00	feet
Elevation Drill Floor	1708.00	feet	Depth Driller	9346.00	feet
Elevation Ground Level	1698.00	feet	Depth Logger	9340.00	feet

Weatherford

CML MESSENGER SHUTTLE
ARRAY INDUCTION
LOG