Weatherford®

CML IMPULSE SHUTTLE ARRAY INDUCTION ELECTRIC LOG

COMPANY	SANDRIDGE EXPLORATION & PRODUCTIO
WELL	ELLIS 1-19H
FIELD	WILDCAT
PROVINCE/COUNTY	COMANCHE
COUNTRY/STATE	U.S.A.\ KANSAS
LOCATION	200' FNL & 660' FWL

40 Years of Wireline 1970 2010

SEC	TWP	RGE	Other Services
19	31S	19W	MPD/MDN

API Number 15-033-21605
Permit Number

Permanent Datum G.L., Elevation 2055 feet
Log Measured From K.B. @ 20 FT above Permanent Datum
Drilling Measured From K.B.

Elevations:	feet
KB	2075.00
DF	2073.00
GL	2055.00

Date	15-NOV-2011			
Run Number	ONE			
Depth Driller	9574.00	feet		
Depth Logger	9528.00	feet		
First Reading	9518.00	feet		
Last Reading	5200.00	feet		
Casing Driller	5595.00	feet		
Casing Logger	5589.00	feet		
Bit Size	6.125	inches		
Hole Fluid Type	WATER			
Density / Viscosity	8.60 lb/USg	31.00 CP		
PH / Fluid Loss	8.00			
Sample Source	FLOWLINE			
Rm @ Measured Temp	1.80 @ 68.0	ohm-m		
Rmf @ Measured Temp	1.44 @ 68.0	ohm-m		
Rmc @ Measured Temp	2.16 @ 68.0	ohm-m		
Source Rmf / Rmc	CALC	CALC		
Rm @ BHT	0.70 @125.0	ohm-m		
Time Since Circulation	6 HOURS			
Max Recorded Temp	125.00	deg F		
Equipment Name	COMPACT			
Equipment / Base	18077	OKC		
Recorded By	J. WELLBROCK		M GARRISON	
Witnessed By	KATHY GENTRY			
	3534296		DC 11450	

BOREHOLE RECORD

Last Edited: 15-NOV-2011 17:05

Bit Size inches	Depth From feet	Depth To feet
6.125	5595.00	9574.00

CASING RECORD

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	7.000	0.00	5595.00	17.00

REMARKS

WLS LOGGING SOFTWARE VERSION 11.02.3186 WAS USED

ALL LOGS WERE SET TO DEPTH WITH MWD GAMMA RAY

DRILL PIPE DEPTH DURING DEPLOYMENT: 9447
LOGGING TOOL DEPTH AFTER DEPLOYMENT: 9528

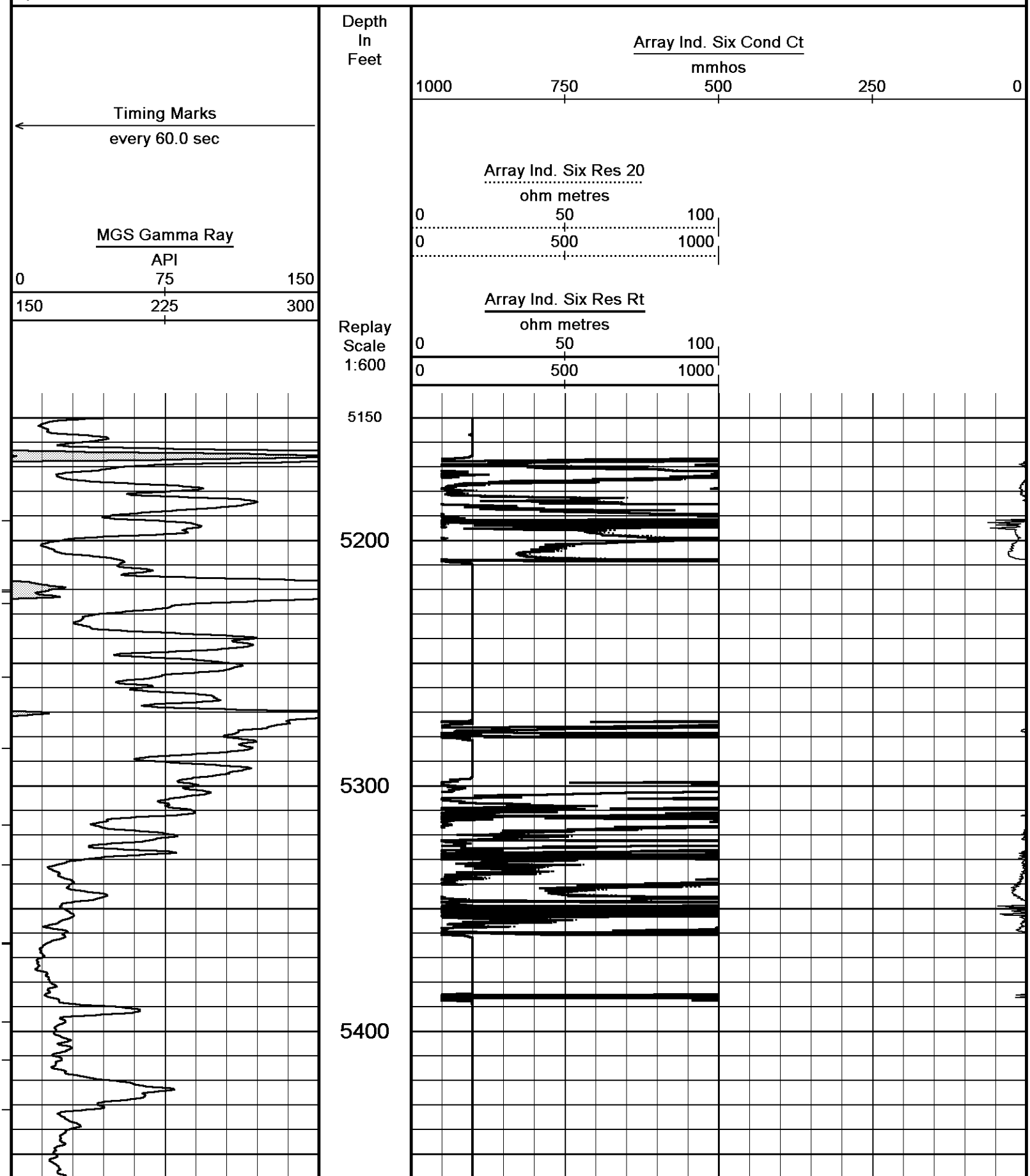
4.5 INCH PRODUCTION CASING USED TO CALCULATE ANNULAR HOLE VOLUMES

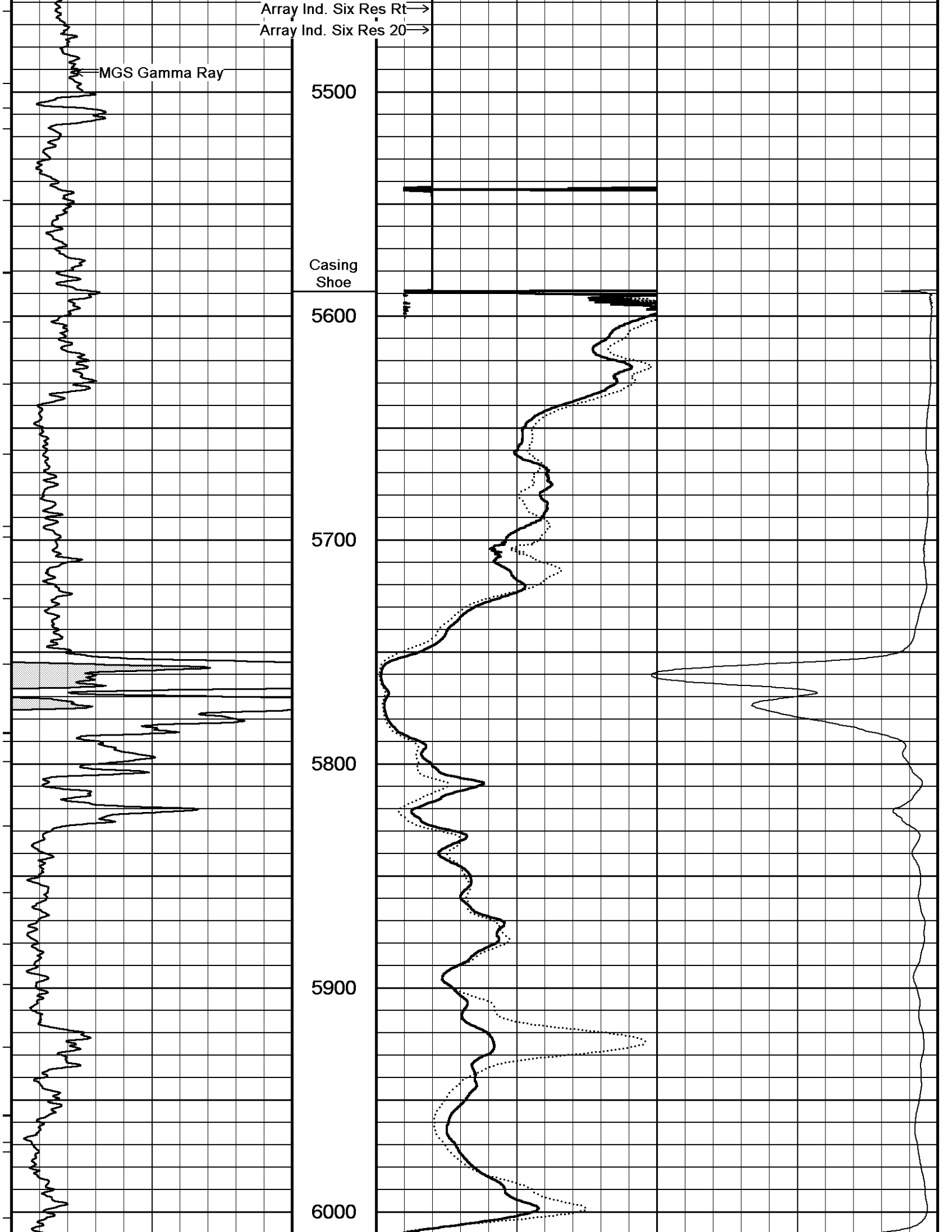
OPERATORS: J. TURNER / R. BRADSHAW
S.O: 3534296
RIG: LARIAT 38

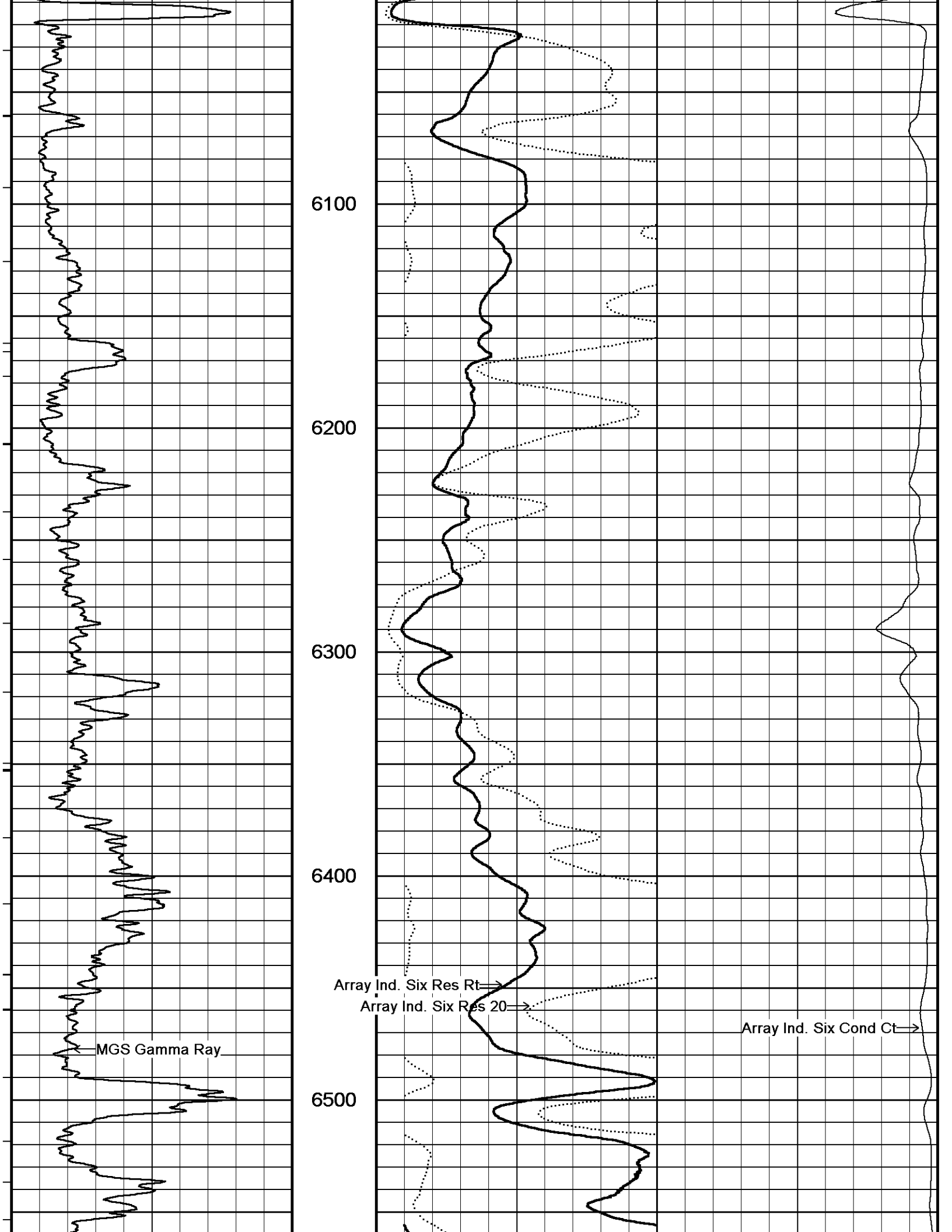
any loss, costs, damages or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to our general terms and conditions in our price schedule.

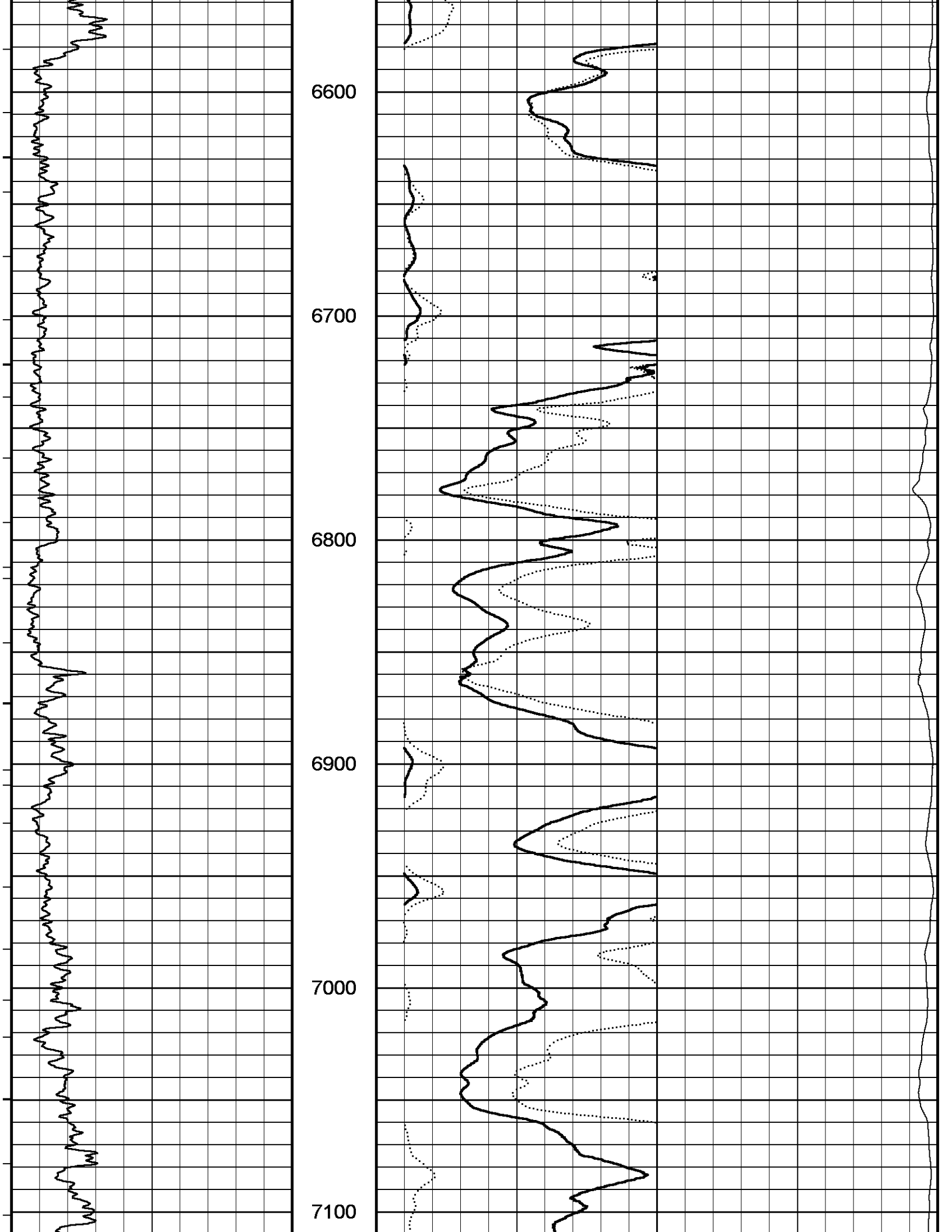
2 INCH MAIN LOG

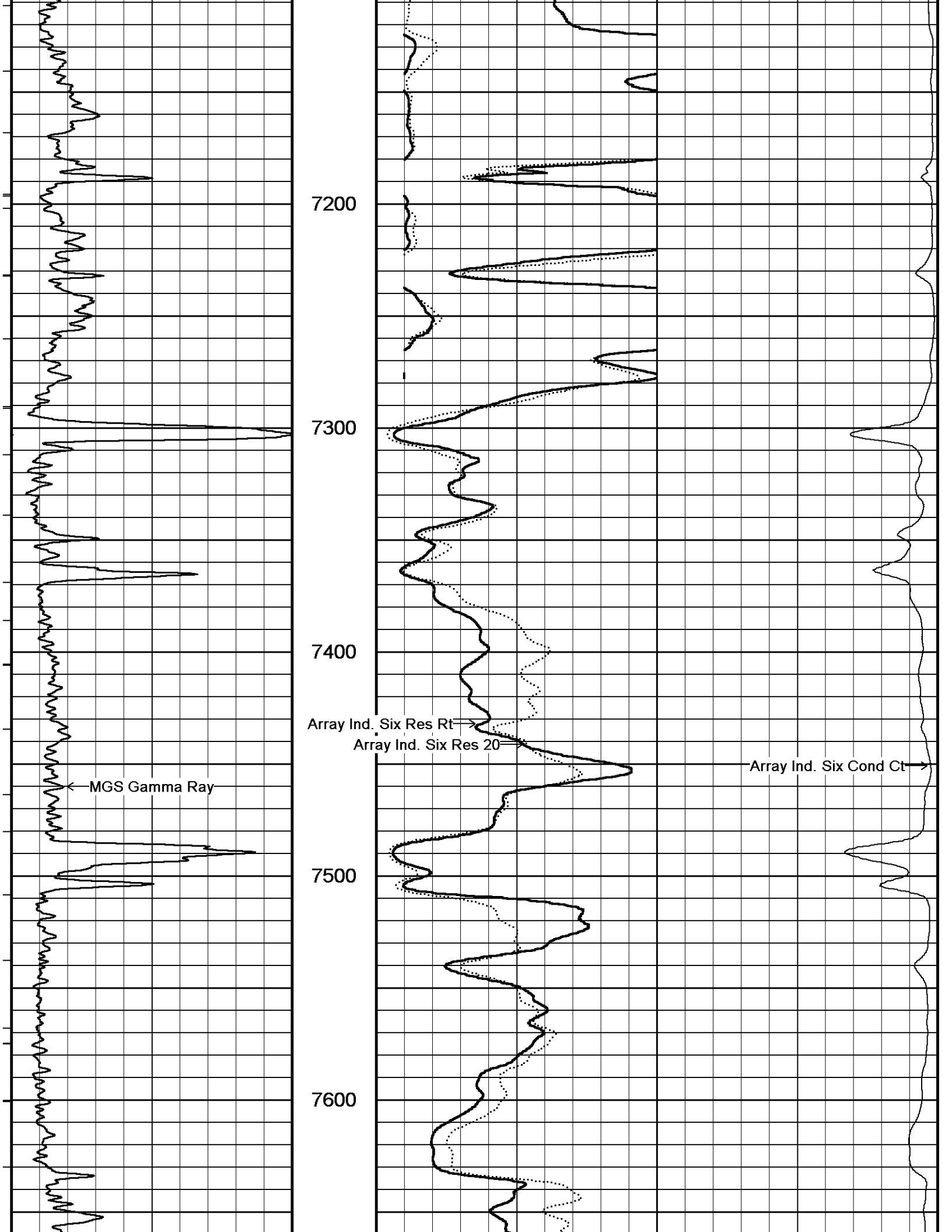
Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 16-NOV-2011 17:44
Filename: C:\Minimus\Data\SDRG (ELLIS 1-19H)\MMS 166 RTAP.dta
Recorded on 16-NOV-2011 15:37
System Versions: Processed with 11.02.3186 Plotted with 11.02.3186

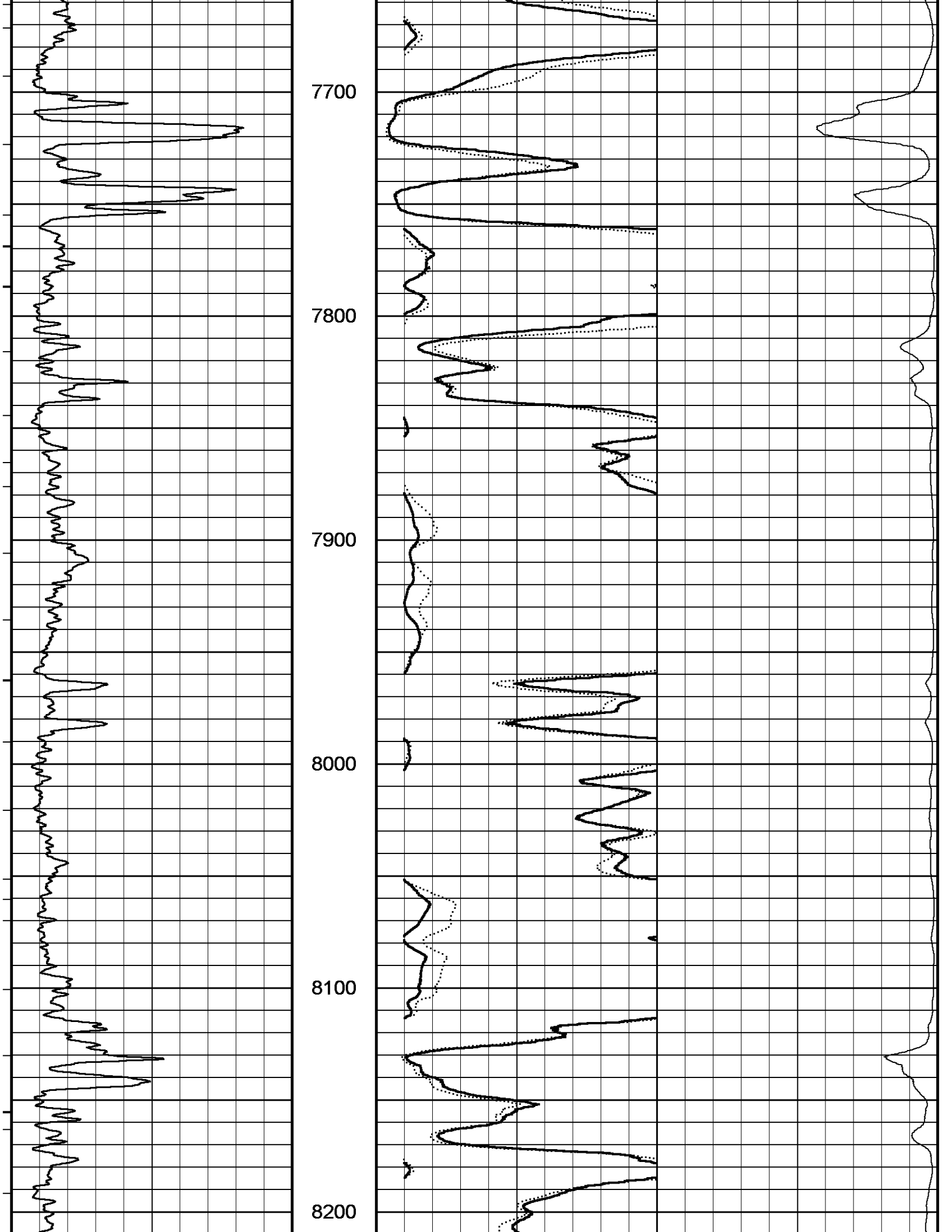



Array Ind. Six Res Rt
Array Ind. Six Res 20
MGS Gamma Ray
5500
Casing
Shoe
5600
5700
5800
5900
6000


6100
6200
6300
6400
6500
Array Ind. Six Res Rt
Array Ind. Six Res 20
Array Ind. Six Cond Ct
MGS Gamma Ray


6600
6700
6800
6900
7000
7100


7200
7300
7400
7500
7600
Array Ind. Six Res Rt
Array Ind. Six Res 20
MGS Gamma Ray
Array Ind. Six Cond Ct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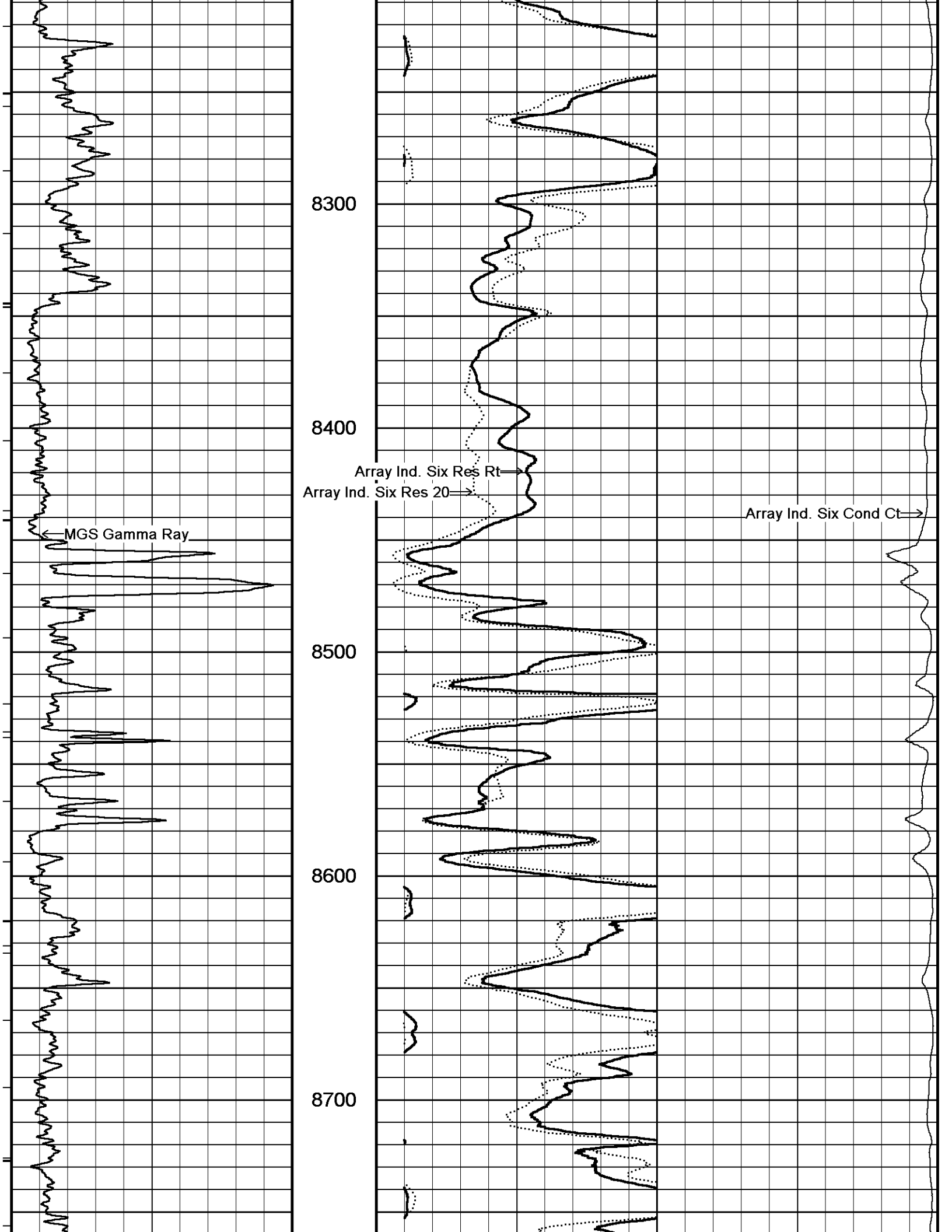
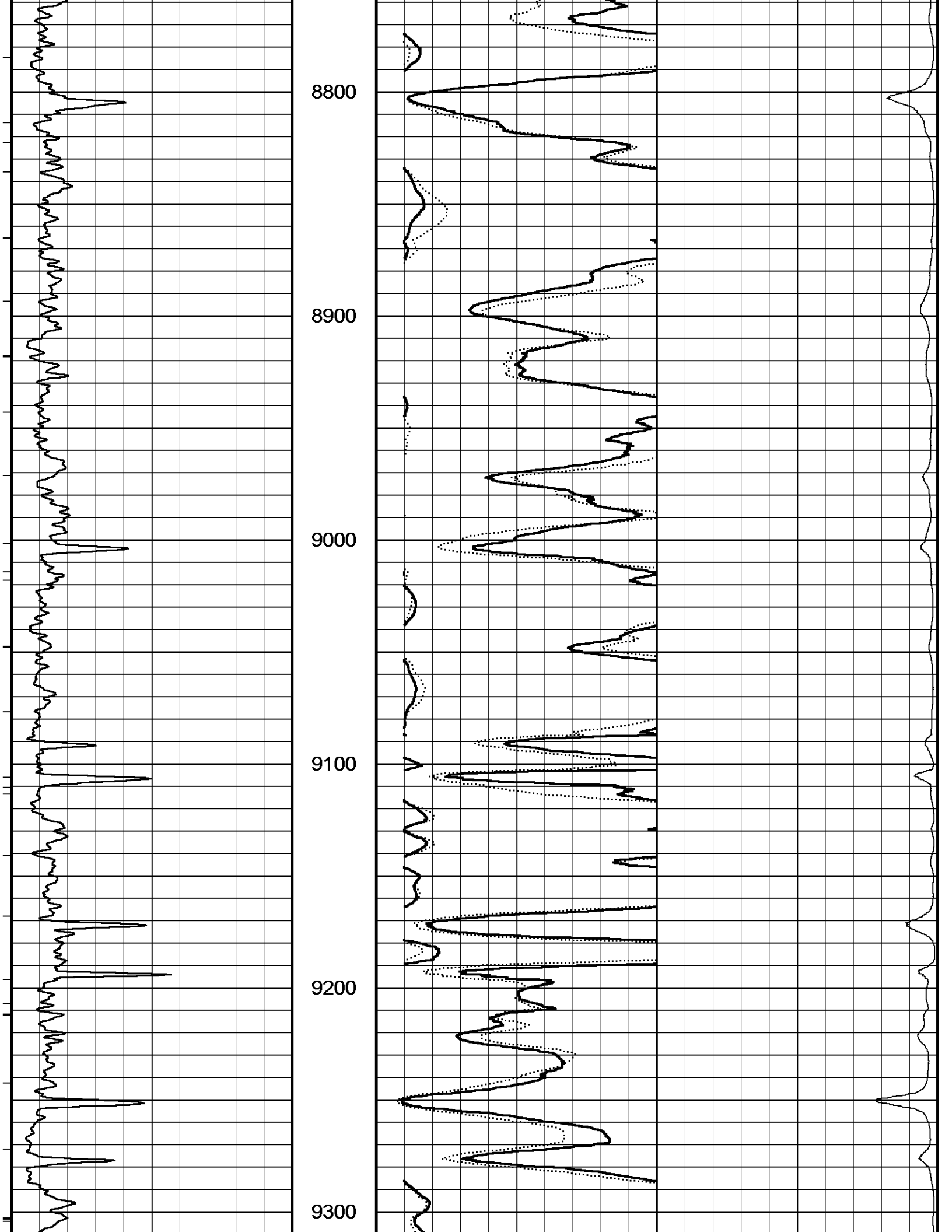
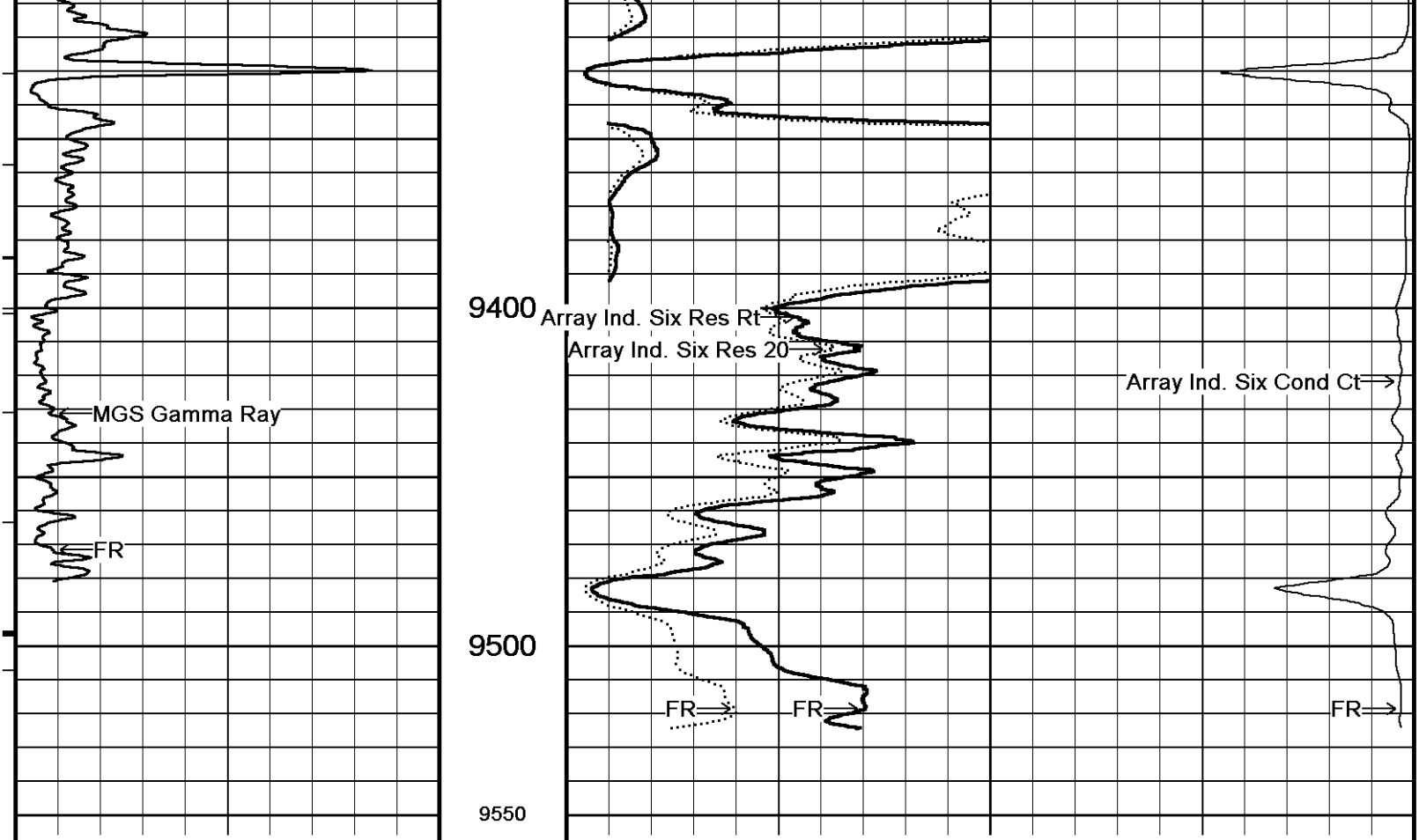
7800
7900
8000
8100
8200


8300
8400
8500
8600
8700
Array Ind. Six Res Rt
Array Ind. Six Res 20
Array Ind. Six Cond Ct
MGS Gamma Ray


8800
8900
9000
9100
9200
9300



9550

Depth In Feet

Timing Marks
every 60.0 sec

MGS Gamma Ray
API
0 75 150
150 225 300

Array Ind. Six Cond Ct
mmhos
1000 750 500 250 0

Array Ind. Six Res 20
ohm metres
0 50 100
0 500 1000

Array Ind. Six Res Rt
ohm metres
0 50 100
0 500 1000

Replay Scale 1:600

Depth Based Data - Maximum Sampling Increment 10.0cm
Filename: C:\Minimus\Data\SDRG (ELLIS 1-19H)\MMS 166 RTAP.dta
System Versions: Processed with 11.02.3186 Plotted with 11.02.3186

Plotted on 16-NOV-2011 17:44
Recorded on 16-NOV-2011 15:37

2 INCH MAIN LOG

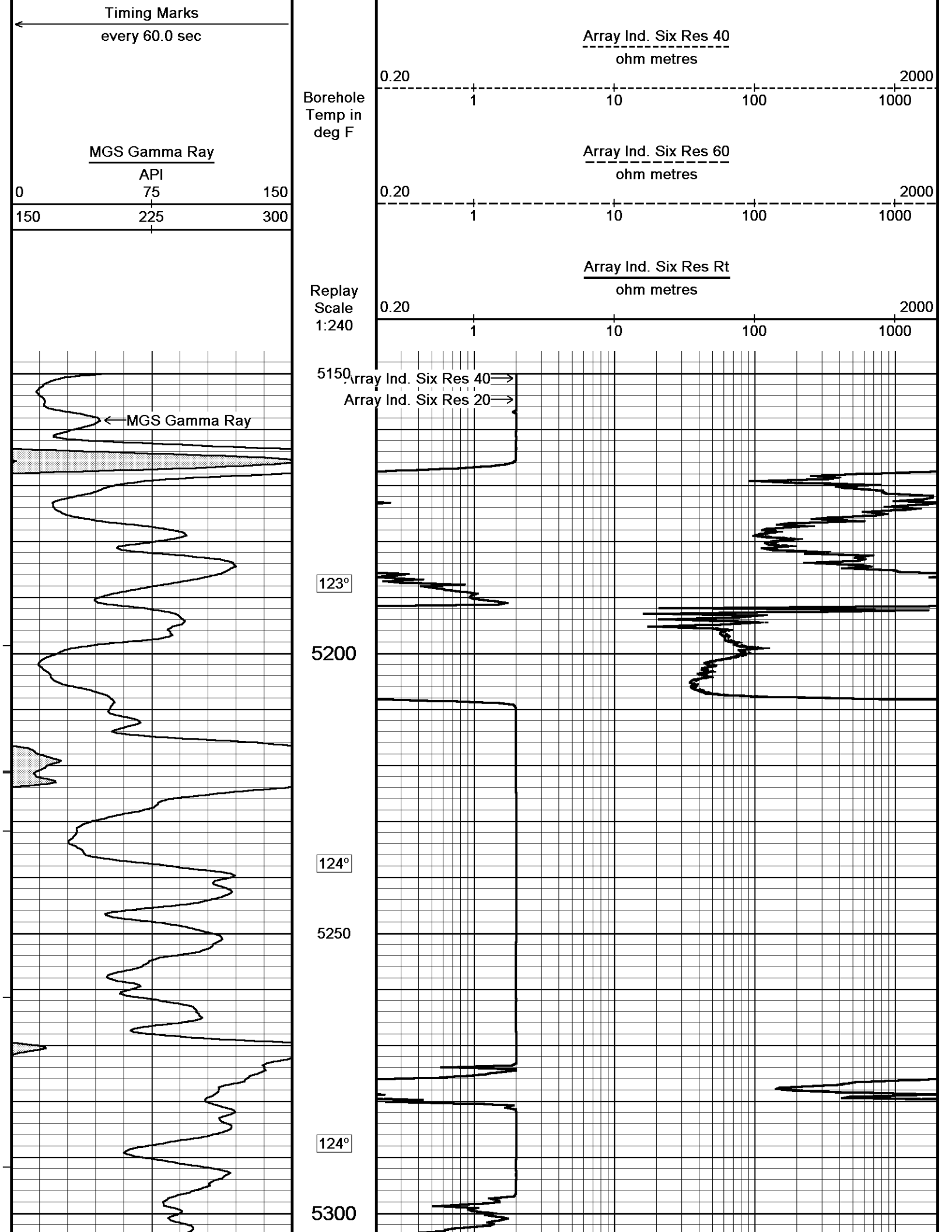
5 INCH MAIN LOG

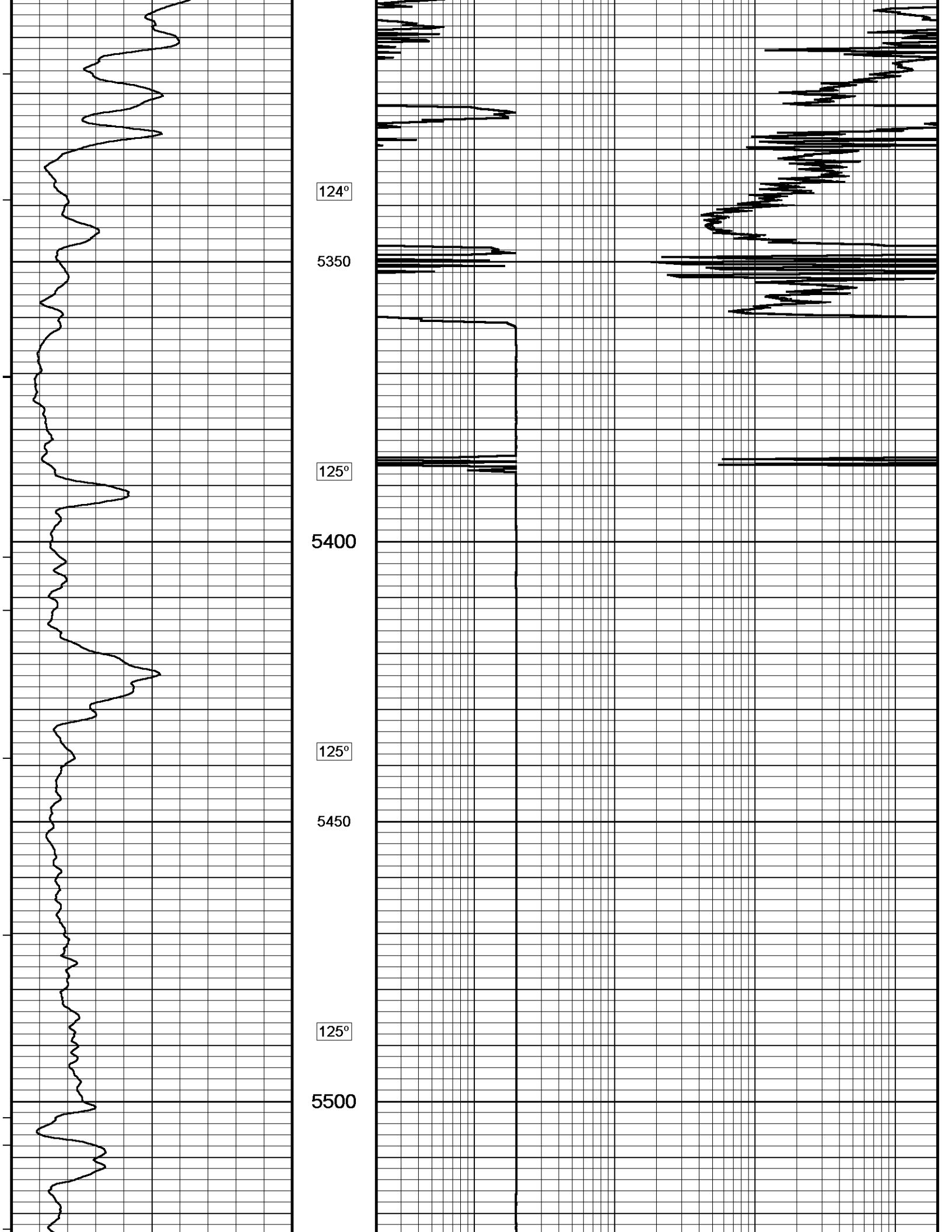
Depth Based Data - Maximum Sampling Increment 10.0cm
Filename: C:\Minimus\Data\SDRG (ELLIS 1-19H)\MMS 166 RTAP.dta
System Versions: Processed with 11.02.3186 Plotted with 11.02.3186

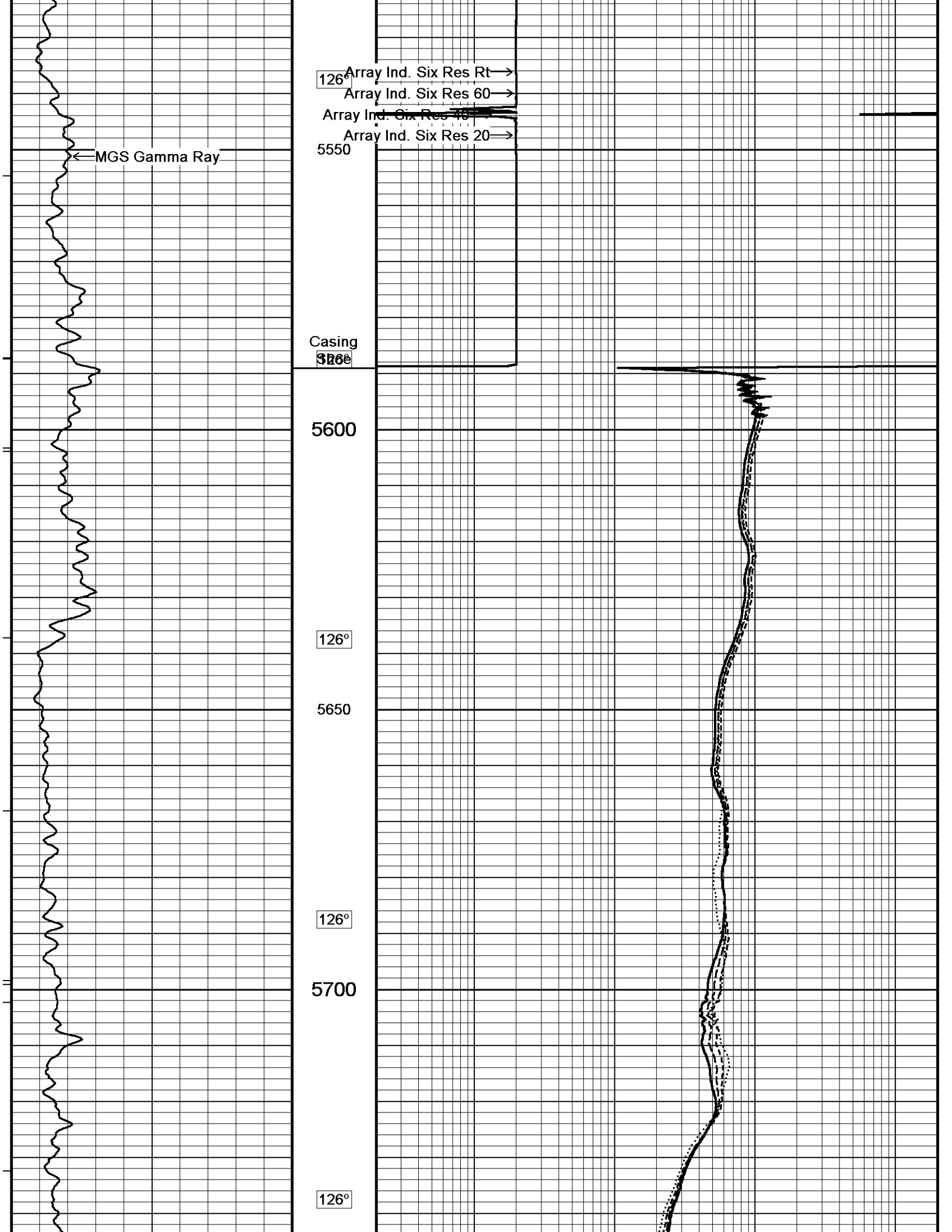
Plotted on 16-NOV-2011 17:44
Recorded on 16-NOV-2011 15:37

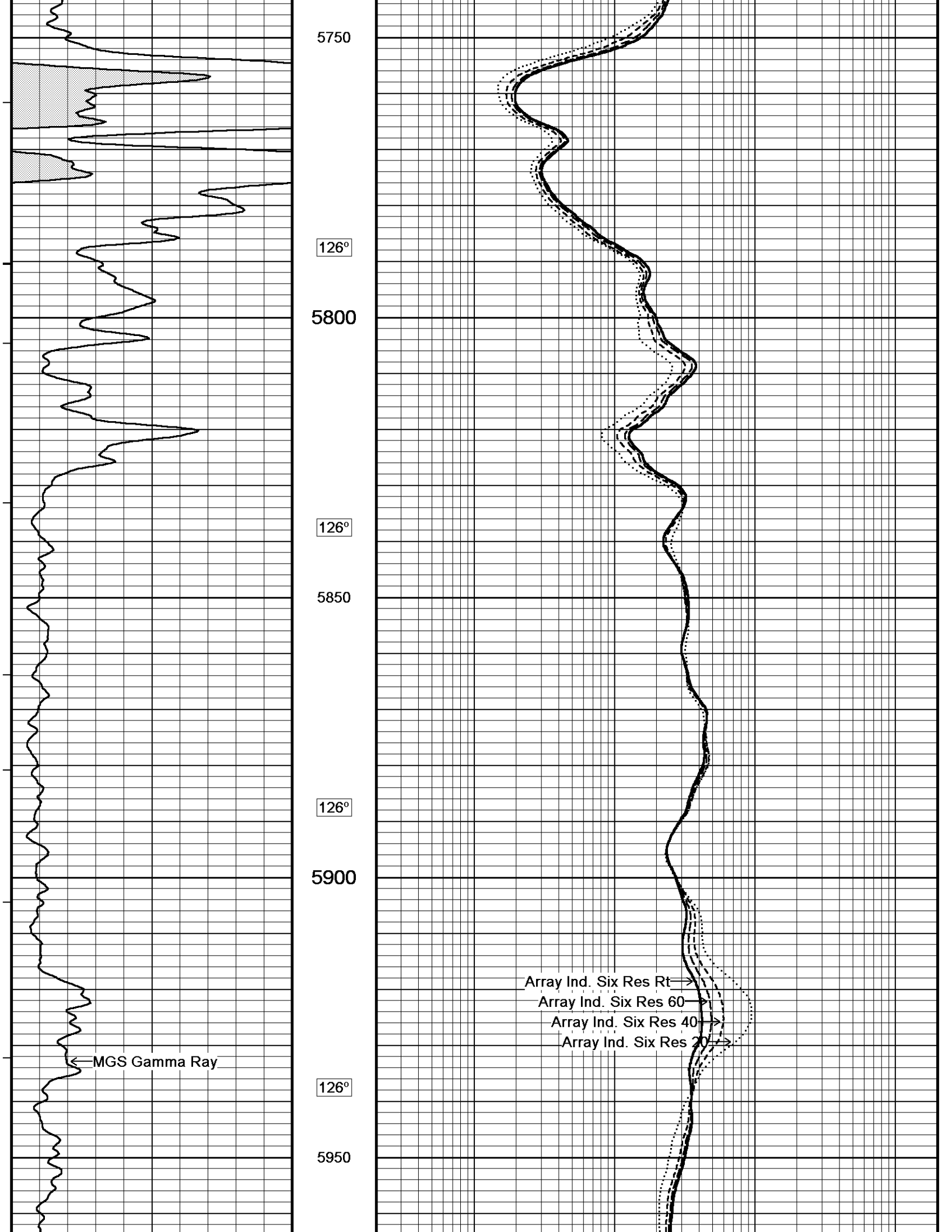
Depth In Feet

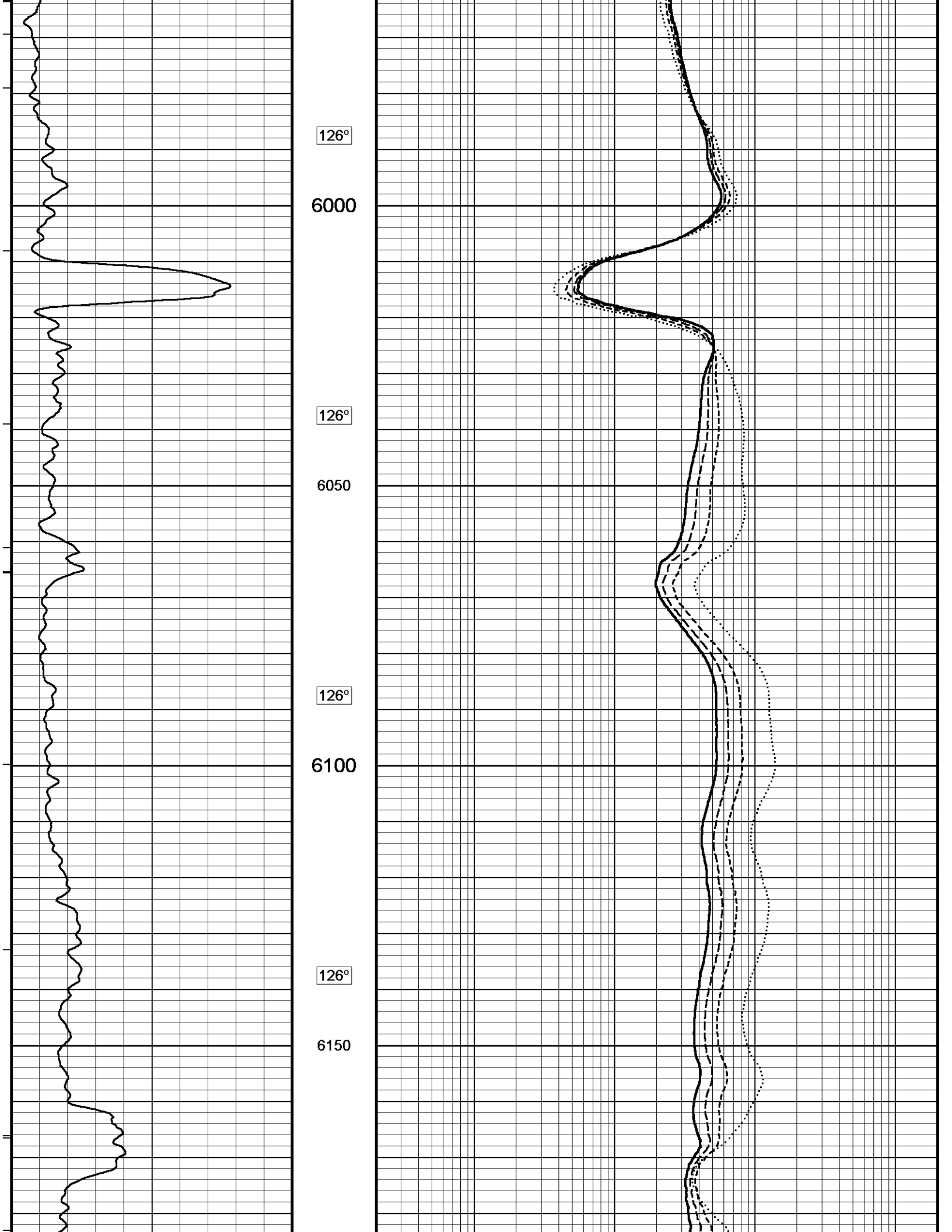
Array Ind. Six Res 20
ohm metres
0.20 2000
1 10 100 1000

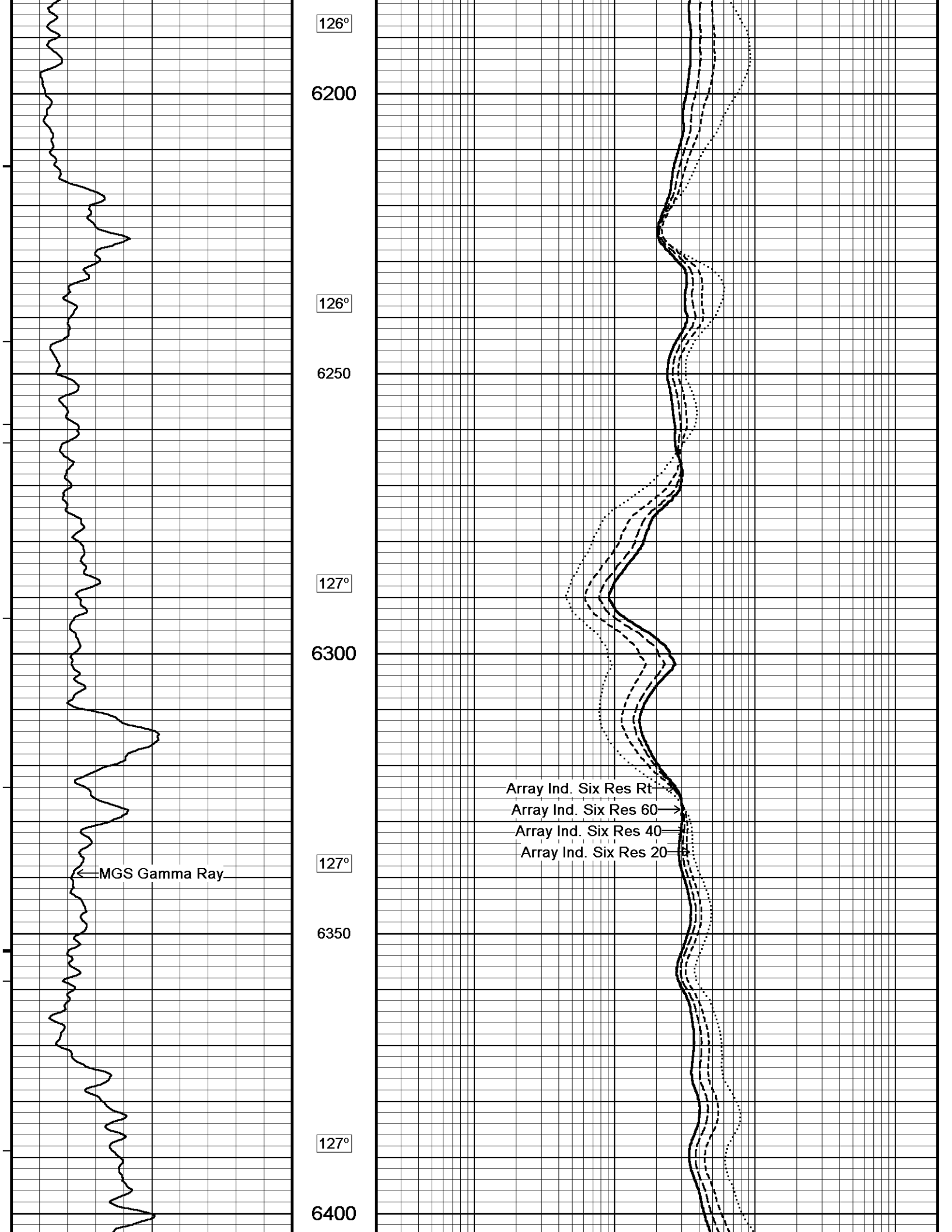

Timing Marks
every 60.0 sec
MGS Gamma Ray
API
0
75
150
150
225
300
Borehole Temp in deg F
Array Ind. Six Res 40
ohm metres
0.20
1
10
100
1000
2000
Array Ind. Six Res 60
ohm metres
0.20
1
10
100
1000
2000
Array Ind. Six Res Rt
ohm metres
0.20
1
10
100
1000
2000
Replay Scale 1:240
5150
Array Ind. Six Res 40
Array Ind. Six Res 20
MGS Gamma Ray
123°
5200
124°
5250
124°
5300

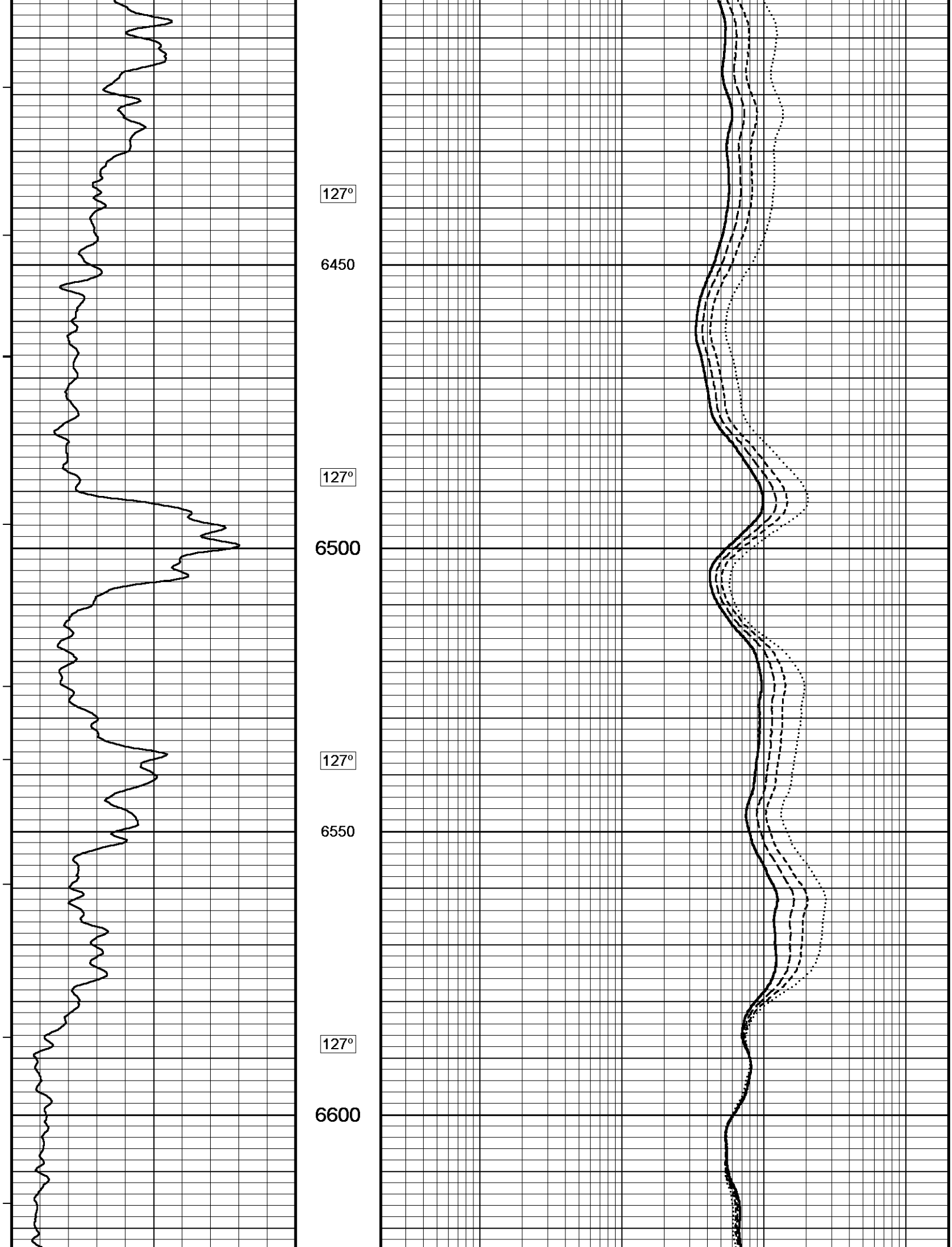

124°
5350
125°
5400
125°
5450
125°
5500

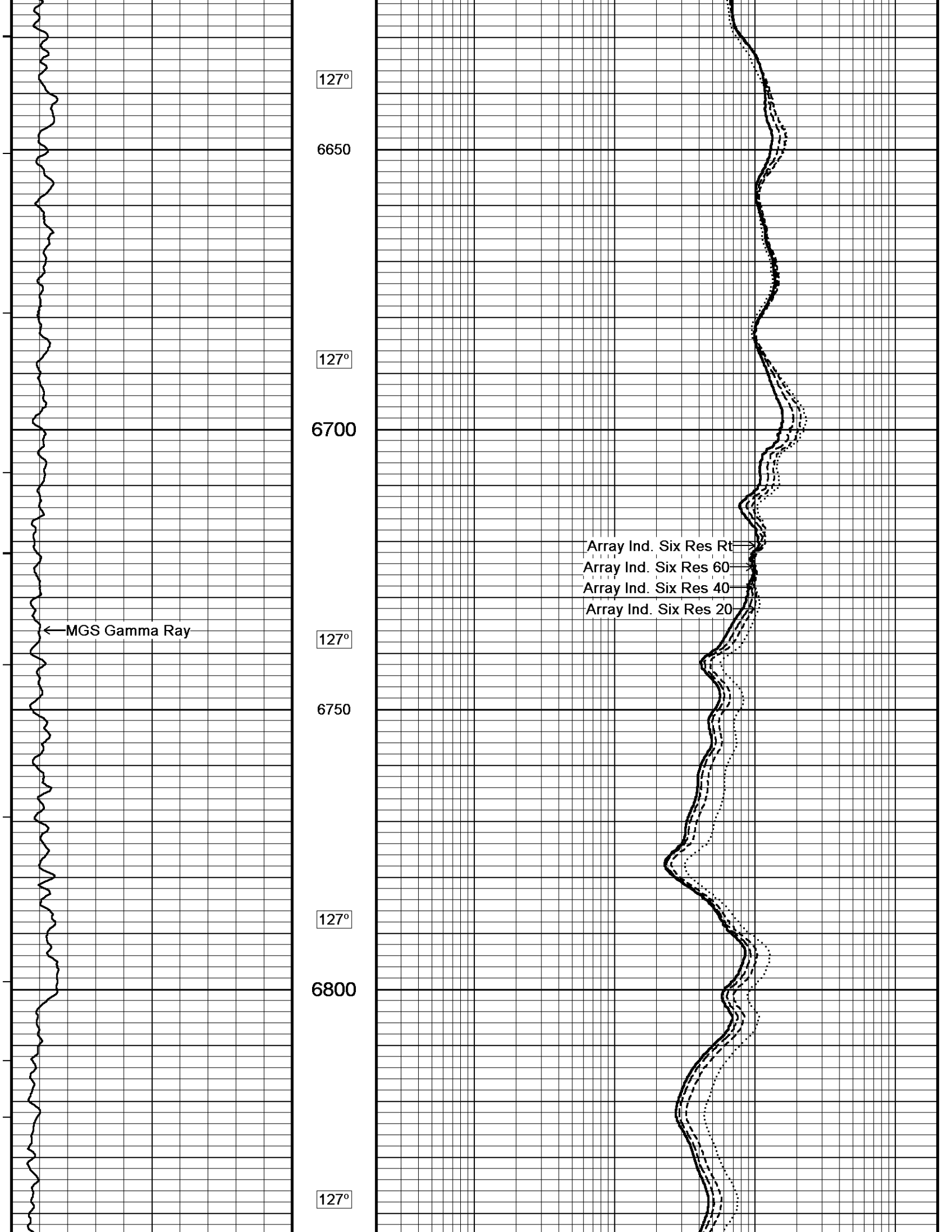

Array Ind. Six Res Rt
Array Ind. Six Res 60
Array Ind. Six Res 20
126°
5550
MGS Gamma Ray
Casing
5600
126°
5650
126°
5700
126°

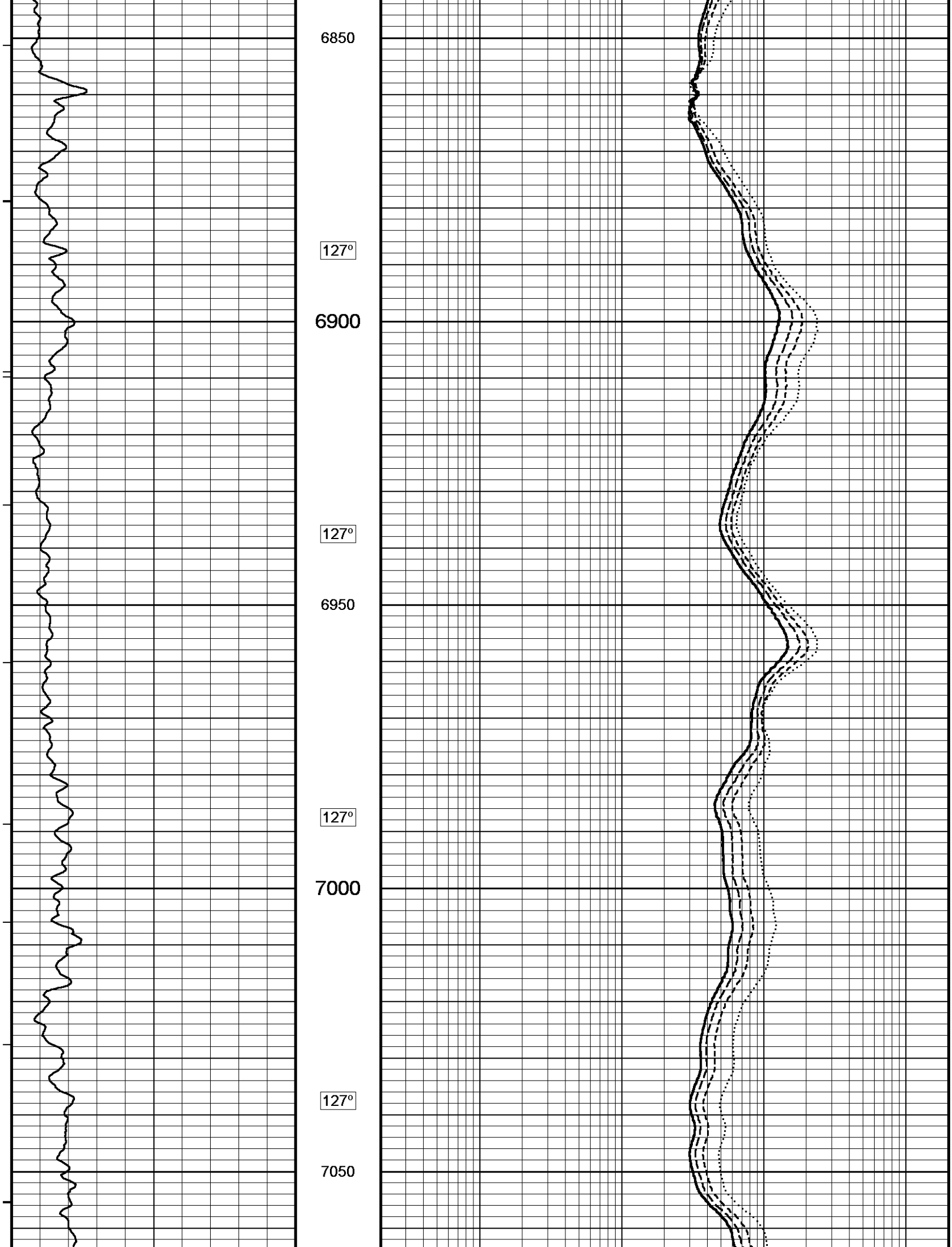

5750
126°
5800
126°
5850
126°
5900
126°
5950
MGS Gamma Ray
Array Ind. Six Res Rt
Array Ind. Six Res 60
Array Ind. Six Res 40
Array Ind. Six Res 20

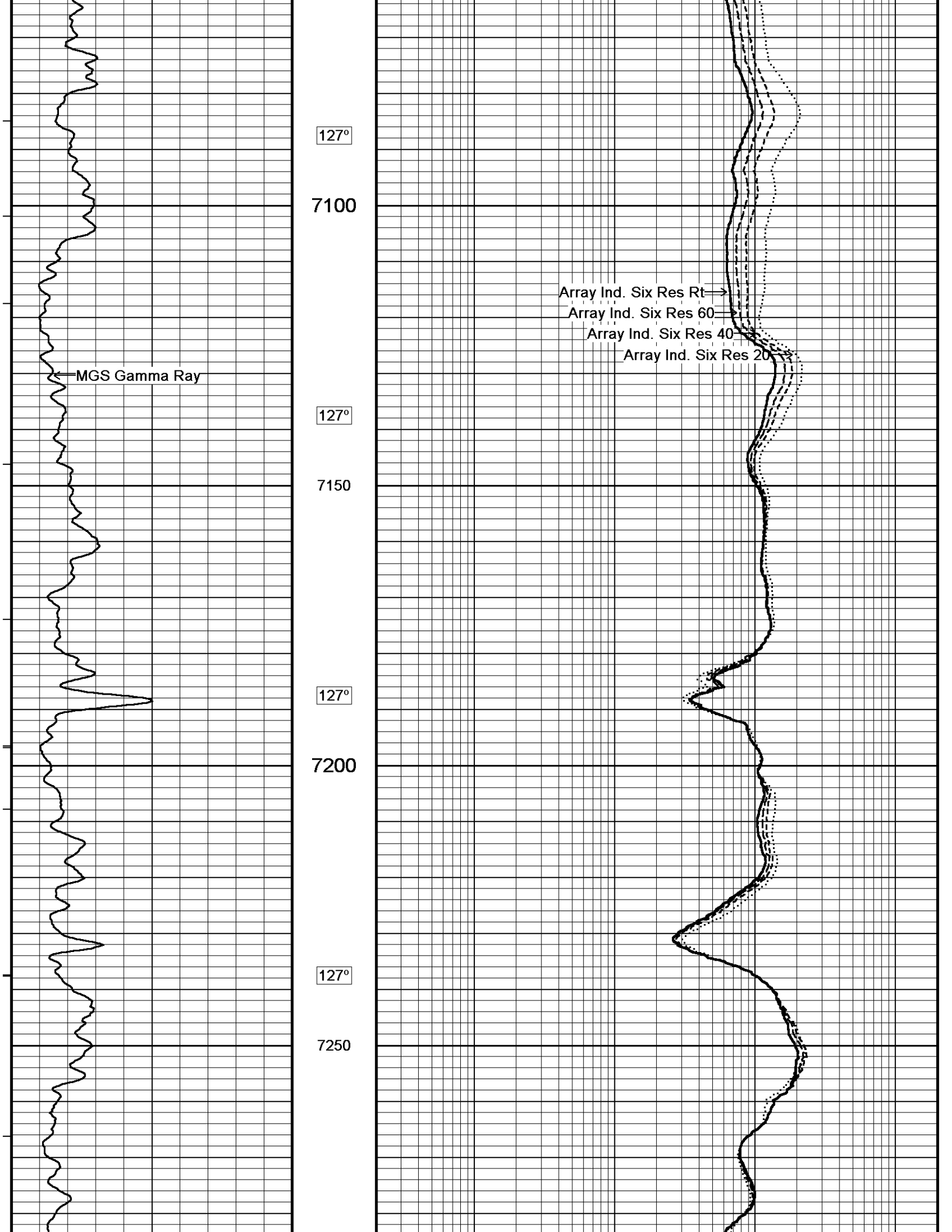

126°
6000
126°
6050
126°
6100
126°
6150

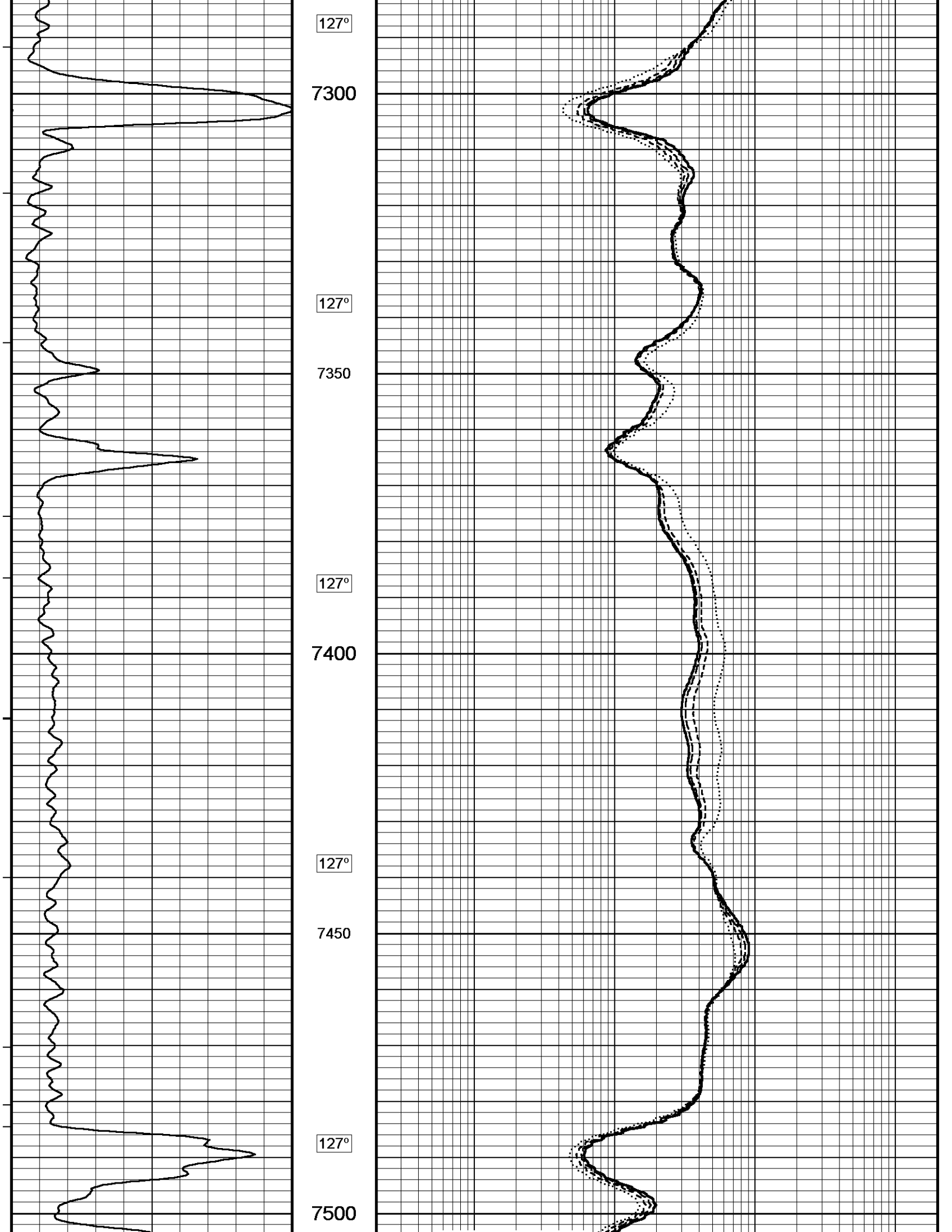

126°
6200
126°
6250
127°
6300
127°
6350
127°
6400
MGS Gamma Ray
Array Ind. Six Res Rt
Array Ind. Six Res 60
Array Ind. Six Res 40
Array Ind. Six Res 20

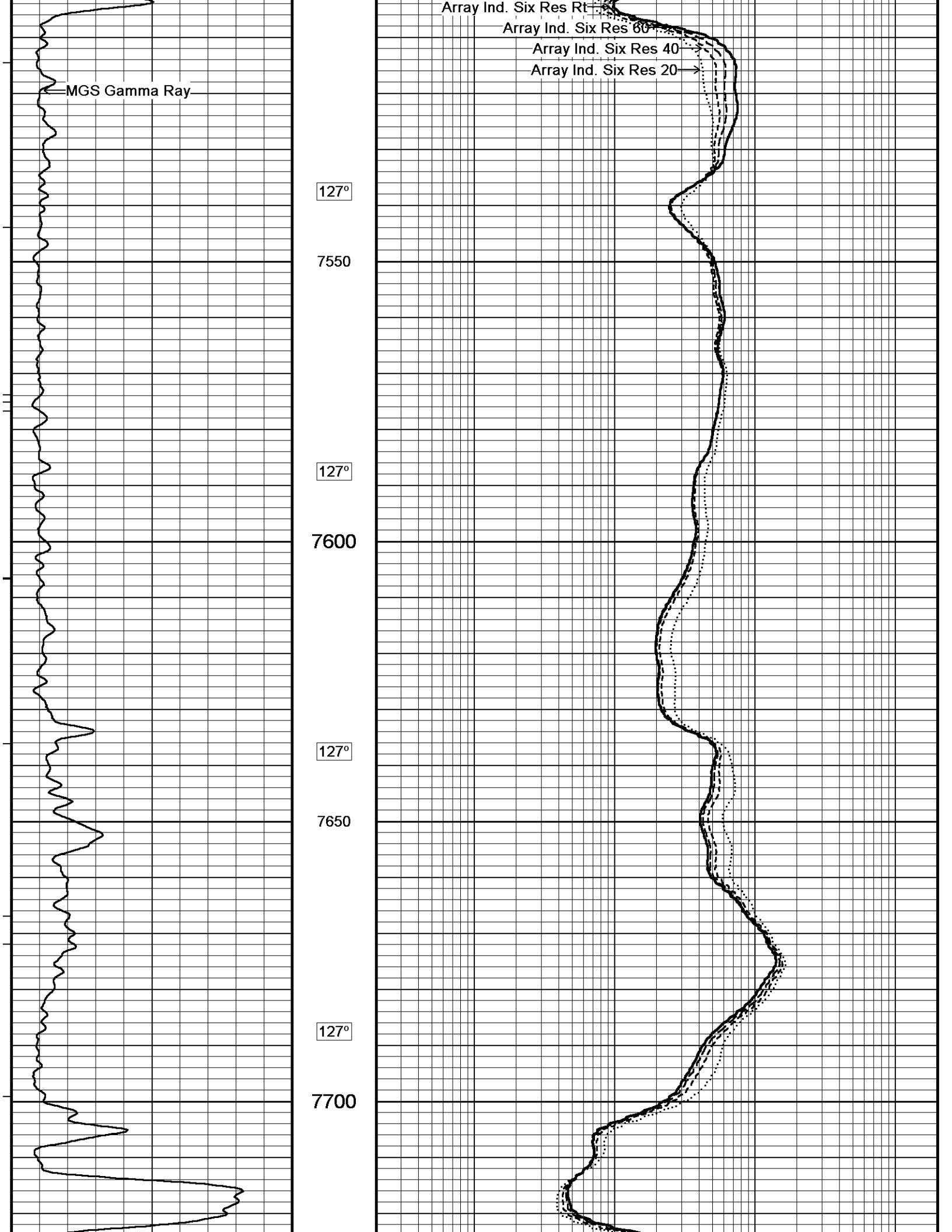

127°
6450
127°
6500
127°
6550
127°
6600

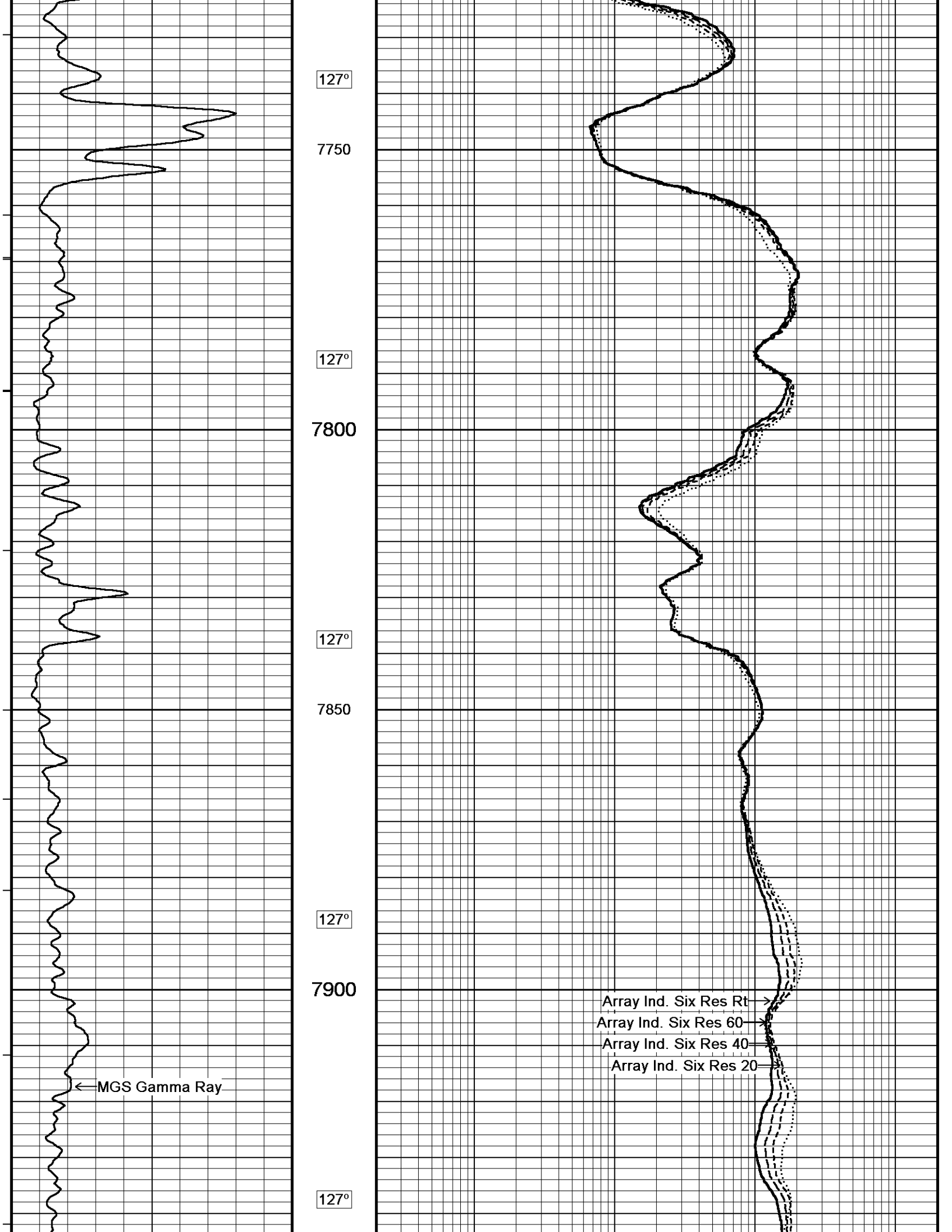

127°
6650
127°
6700
Array Ind. Six Res Rt
Array Ind. Six Res 60
Array Ind. Six Res 40
Array Ind. Six Res 20
MGS Gamma Ray
127°
6750
127°
6800
127°

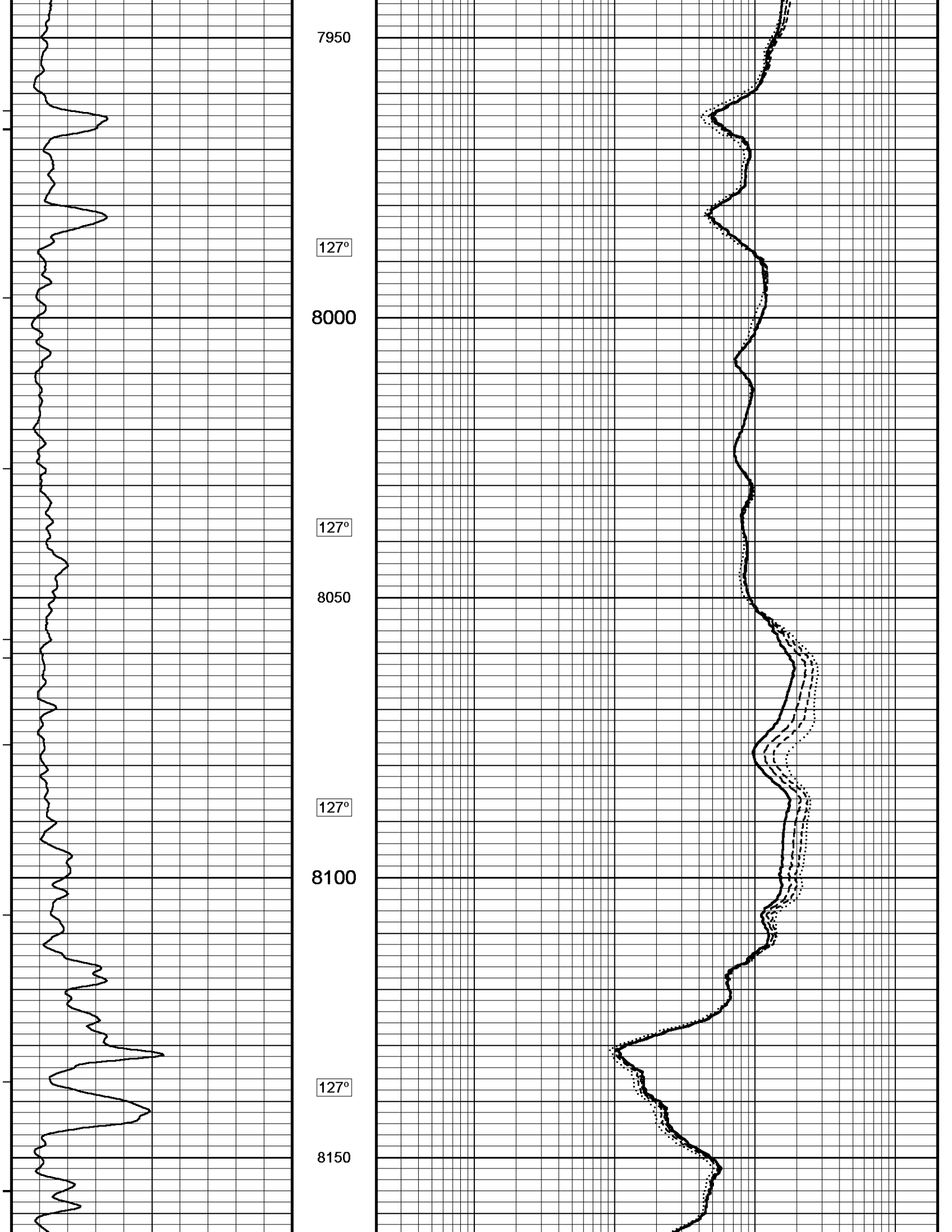

6850
127°
6900
127°
6950
127°
7000
127°
7050

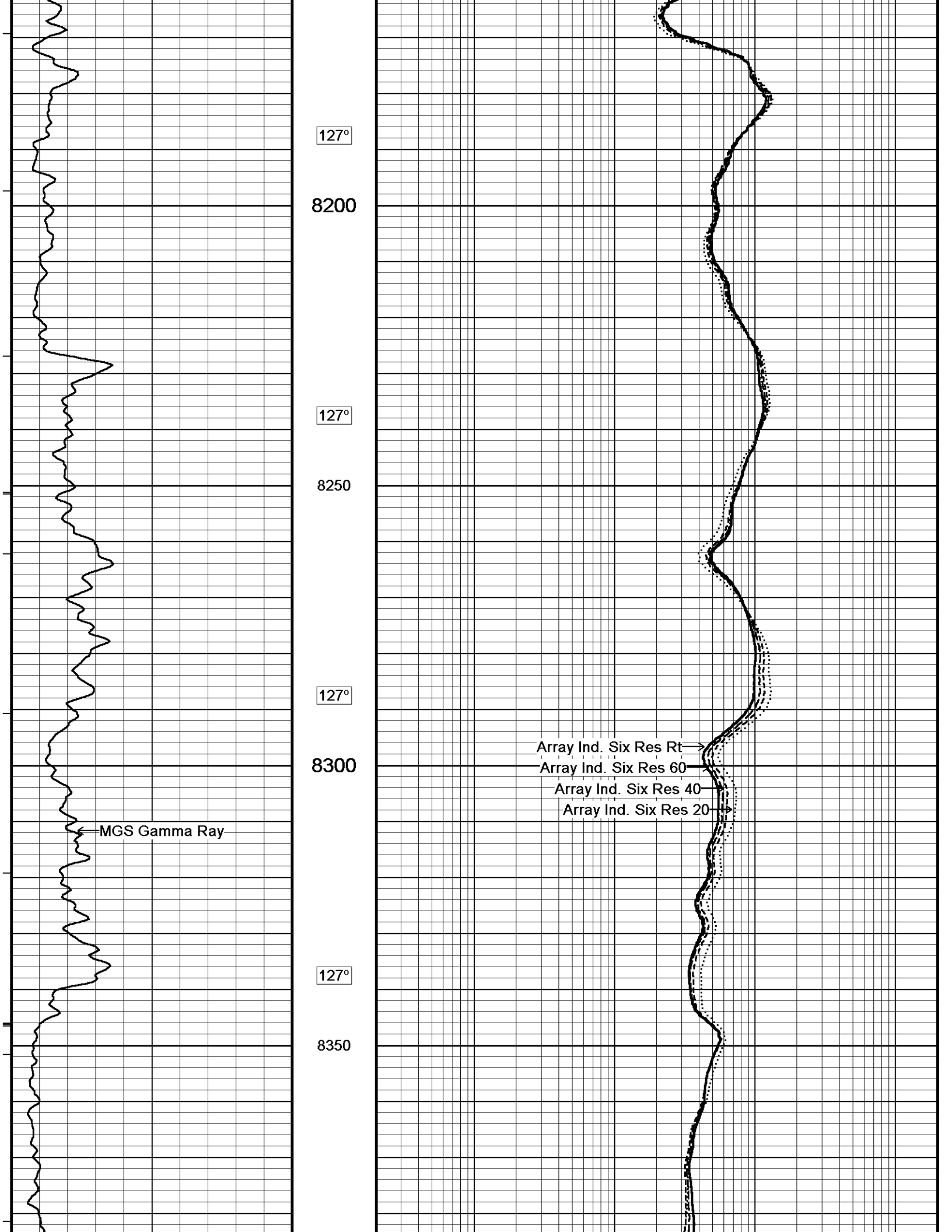

127°
7100
Array Ind. Six Res Rt
Array Ind. Six Res 60
Array Ind. Six Res 40
Array Ind. Six Res 20
MGS Gamma Ray
127°
7150
127°
7200
127°
7250

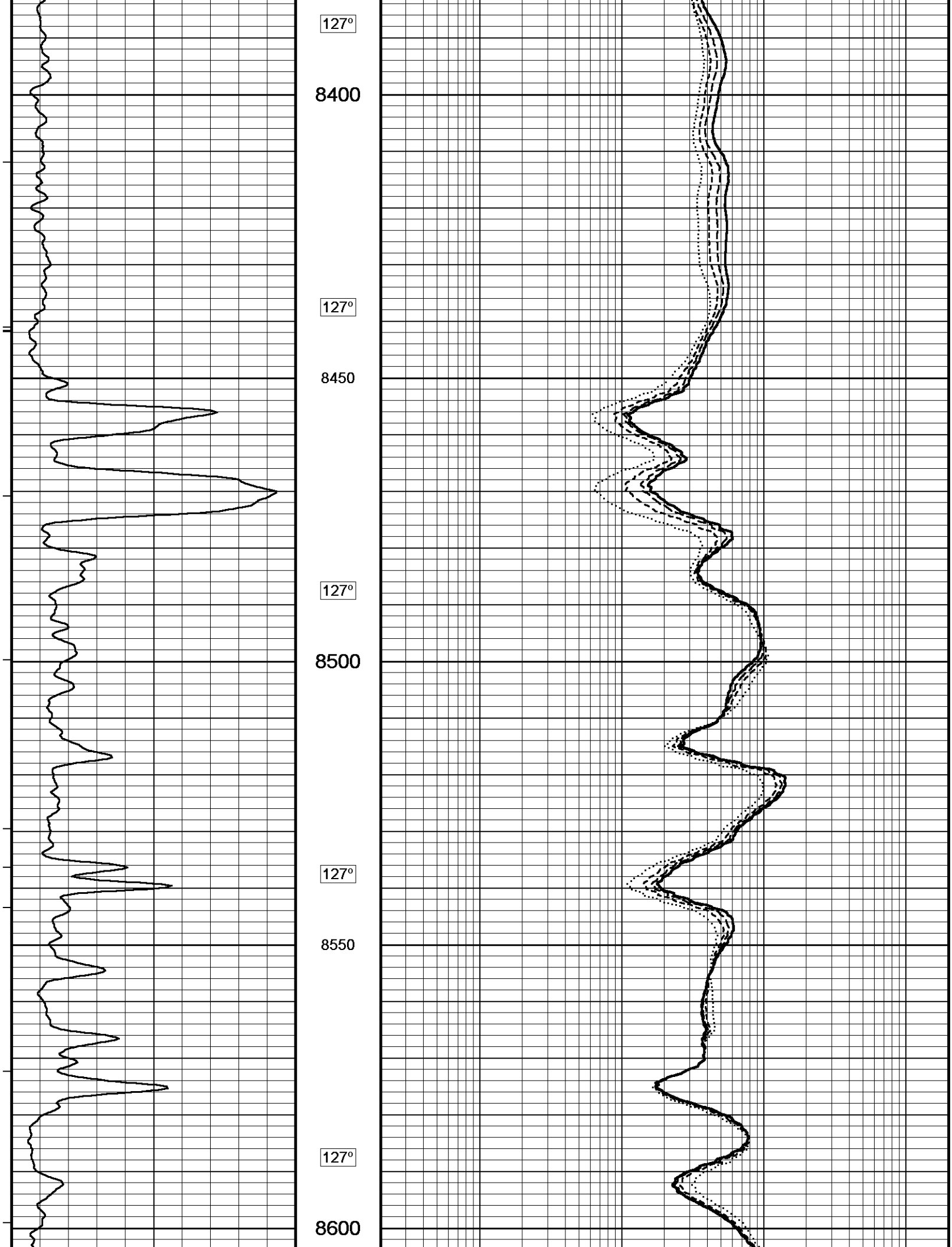

127°
7300
127°
7350
127°
7400
127°
7450
127°
7500

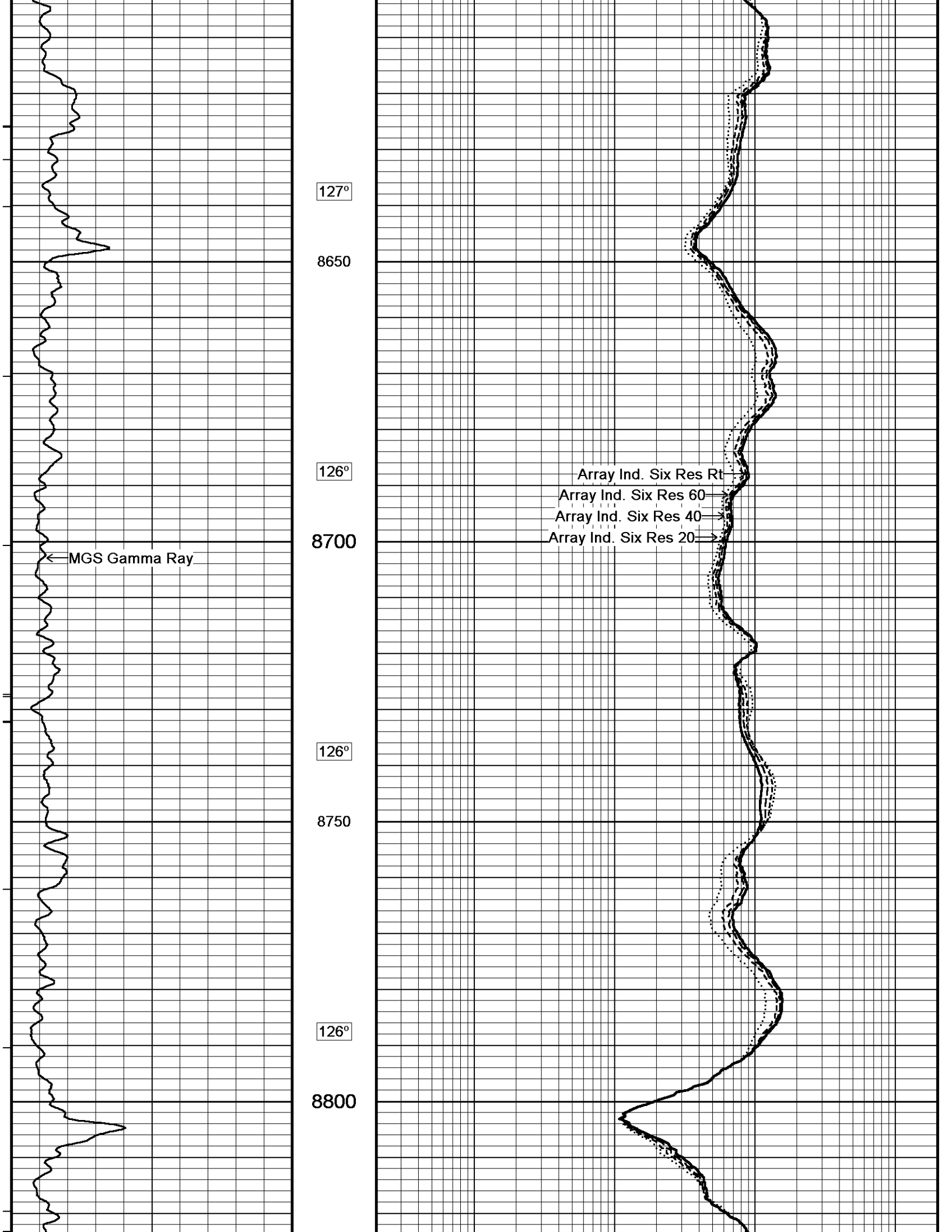

MGS Gamma Ray
Array Ind. Six Res Rt
Array Ind. Six Res 60
Array Ind. Six Res 40
Array Ind. Six Res 20
127°
7550
127°
7600
127°
7650
127°
7700

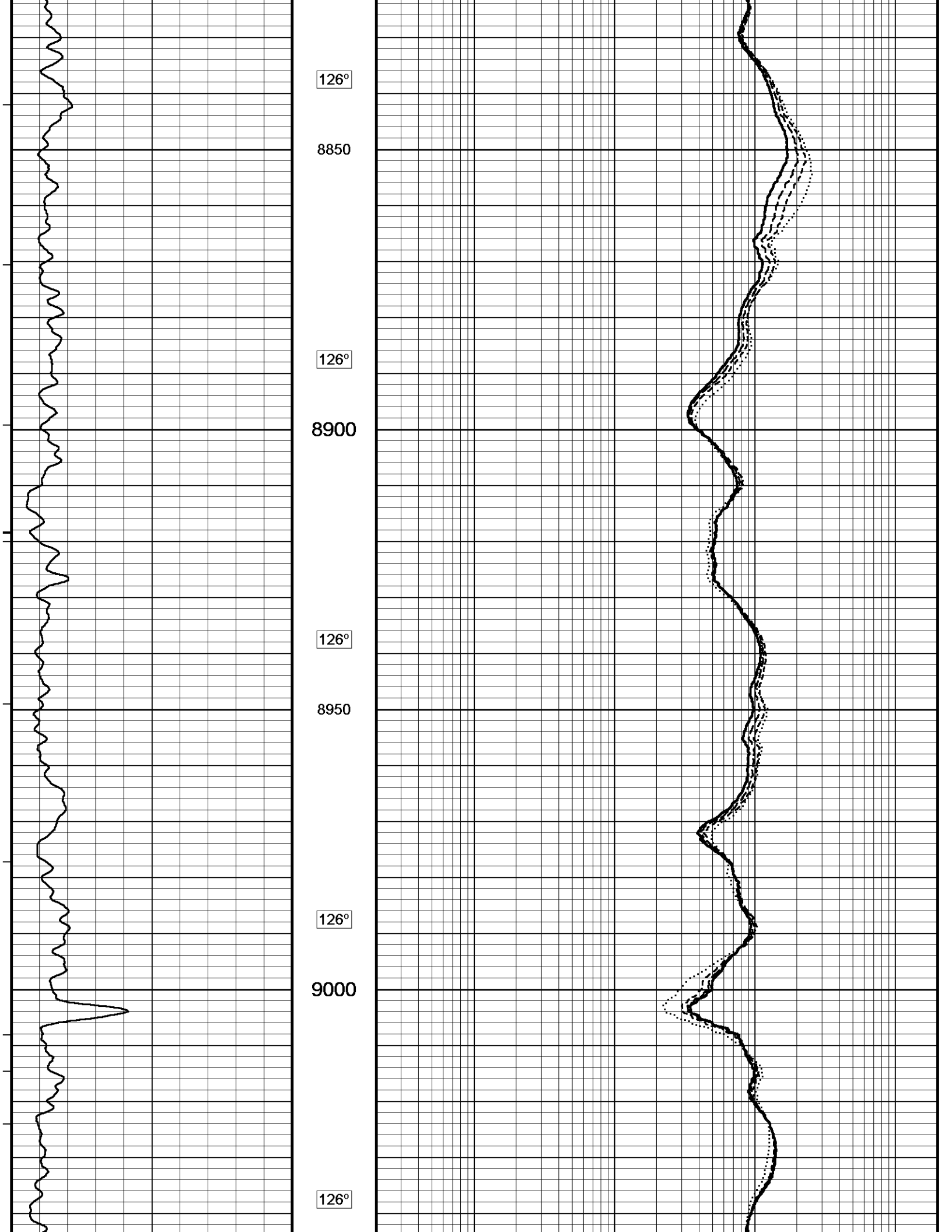

127°
7750
127°
7800
127°
7850
127°
7900
127°
MGS Gamma Ray
Array Ind. Six Res Rt
Array Ind. Six Res 60
Array Ind. Six Res 40
Array Ind. Six Res 20

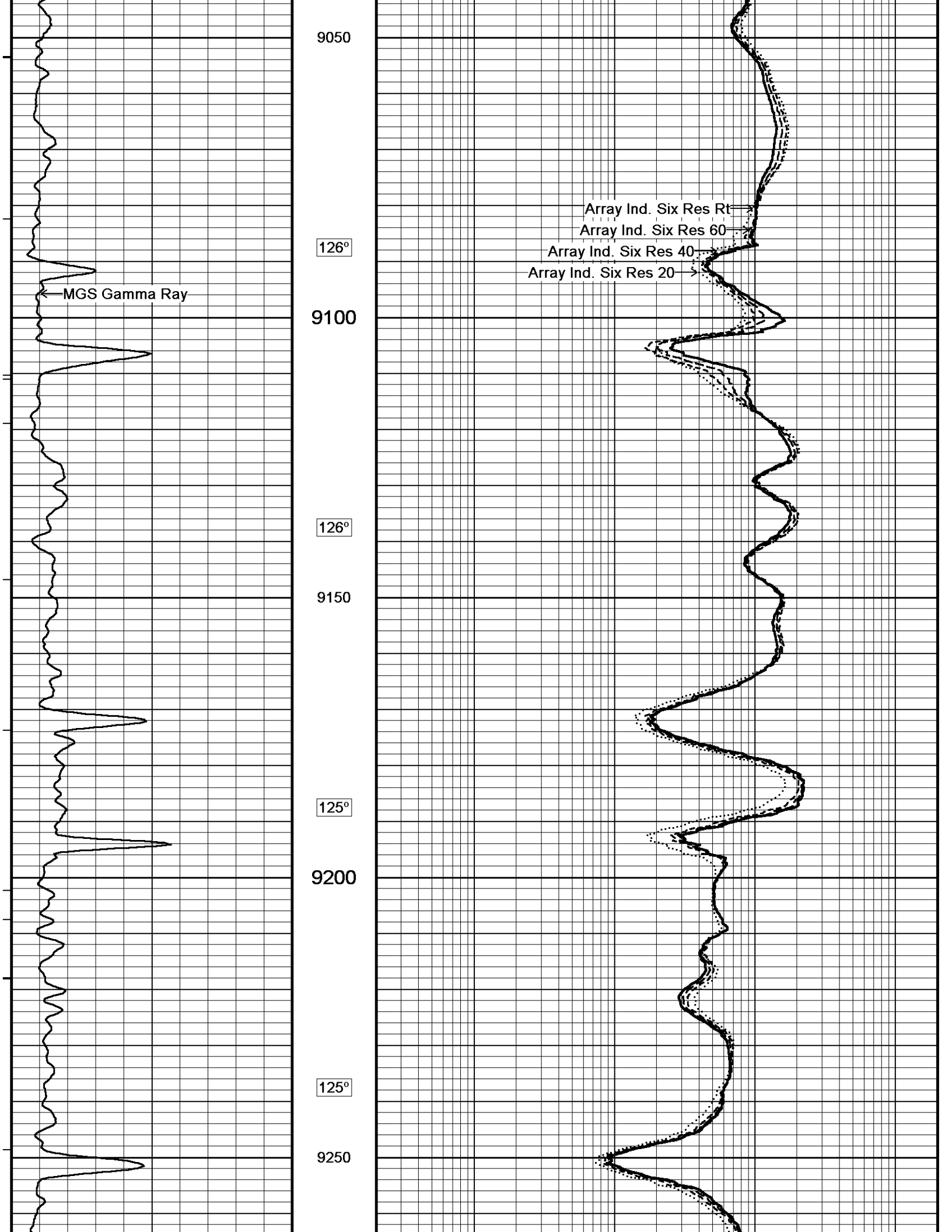

7950
127°
8000
127°
8050
127°
8100
127°
8150

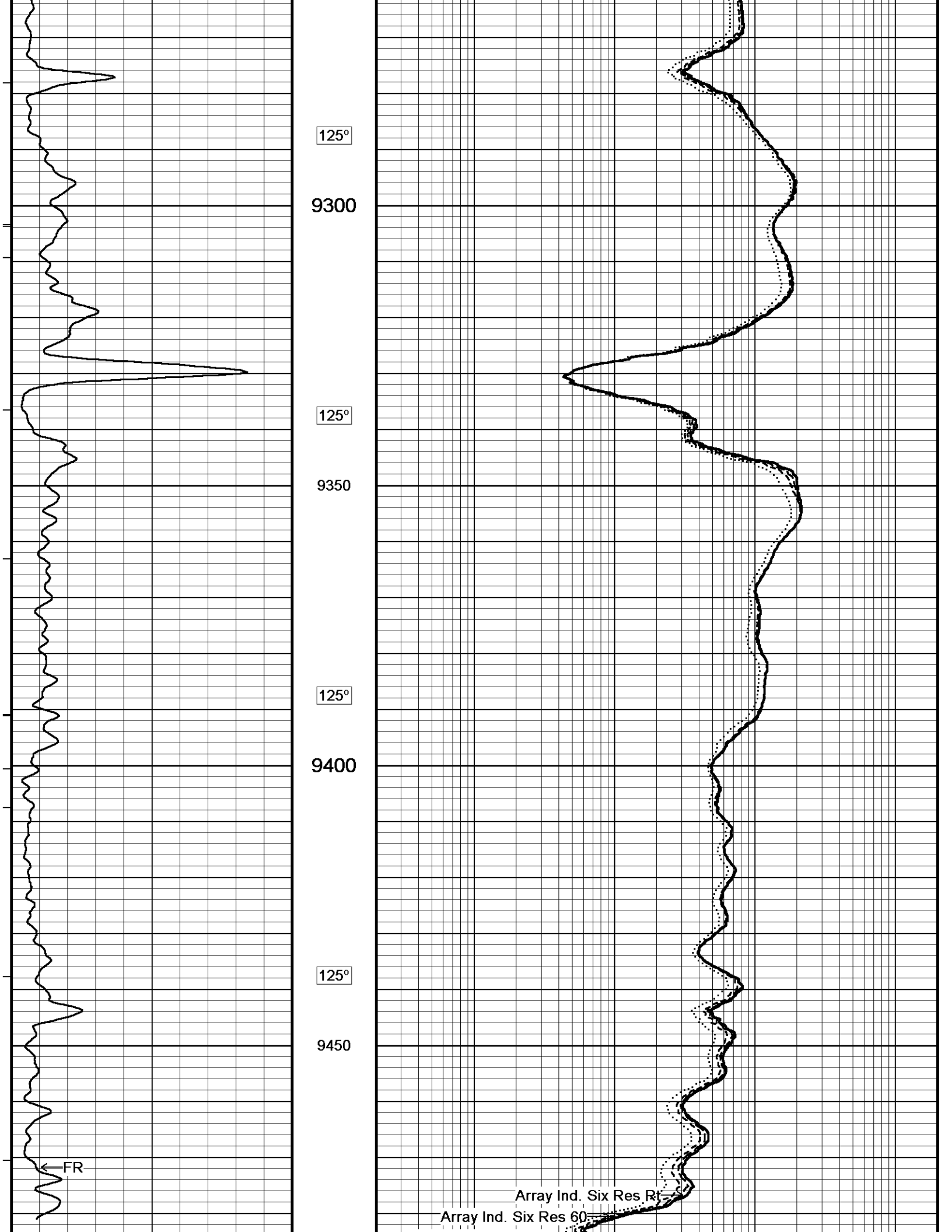

127°
8200
127°
8250
127°
8300
127°
8350
MGS Gamma Ray
Array Ind. Six Res Rt
Array Ind. Six Res 60
Array Ind. Six Res 40
Array Ind. Six Res 20

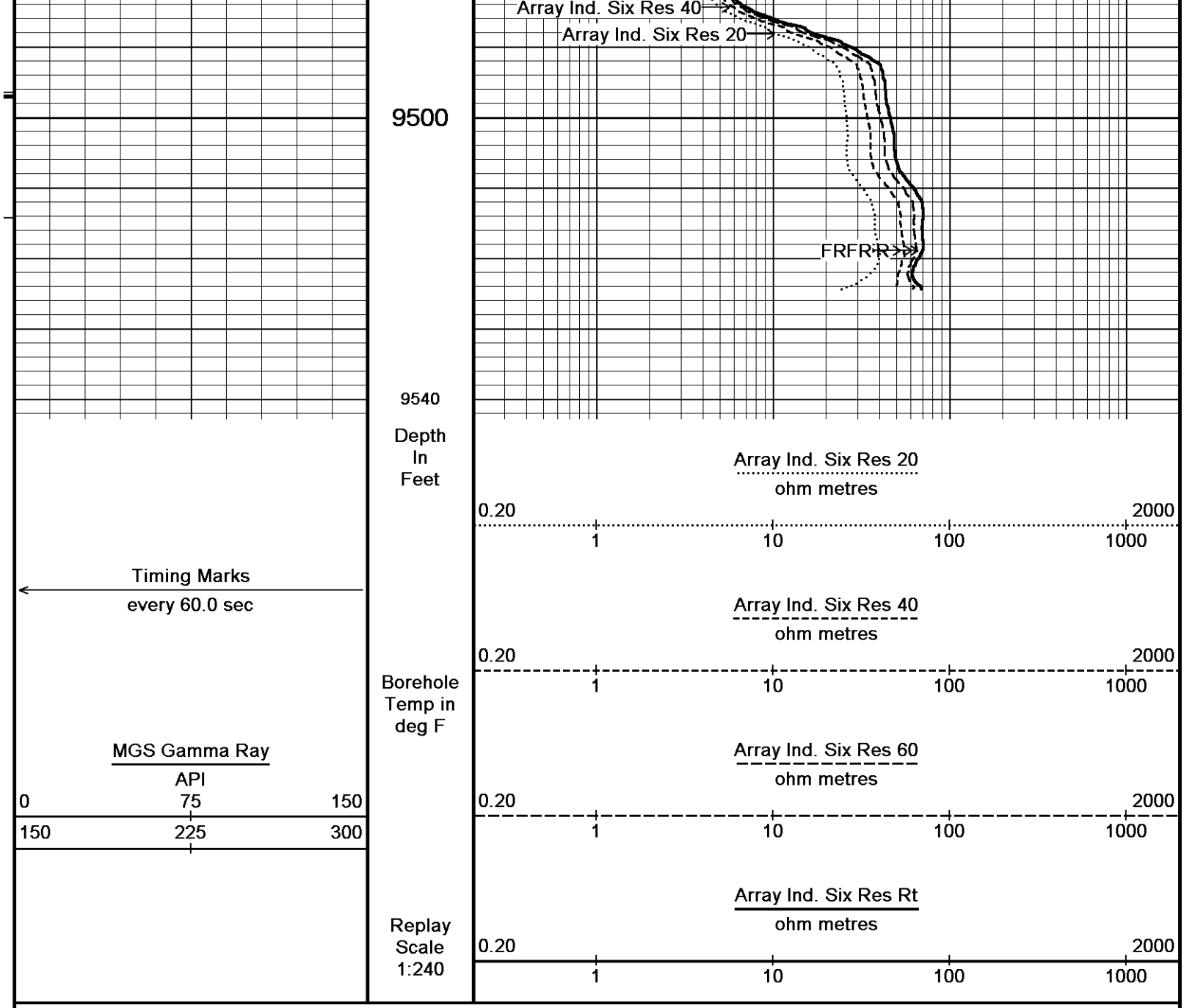

127°
8400
127°
8450
127°
8500
127°
8550
127°
8600


127°
8650
126°
8700
126°
8750
126°
8800
MGS Gamma Ray
Array Ind. Six Res Rt
Array Ind. Six Res 60
Array Ind. Six Res 40
Array Ind. Six Res 20


126°
8850
126°
8900
126°
8950
126°
9000
126°


9050
Array Ind. Six Res Rt
Array Ind. Six Res 60
126°
Array Ind. Six Res 40
Array Ind. Six Res 20
MGS Gamma Ray
9100
126°
9150
125°
9200
125°
9250


125°
9300
125°
9350
125°
9400
125°
9450
FR
Array Ind. Six Res Rt
Array Ind. Six Res 60



Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 16-NOV-2011 17:44
Filename: C:\Minimus\Data\SDRG (ELLIS 1-19H)\MMS 166 RTAP.dta
Recorded on 16-NOV-2011 15:37
System Versions: Processed with 11.02.3186 Plotted with 11.02.3186

5 INCH MAIN LOG

BEFORE SURVEY CALIBRATION

C:\Minimus\Data\SDRG (ELLIS 1-19H)\MMS 166 RTAP.dta

General Constants All 000

Last Edited on 07-NOV-2011,04:57

General Parameters		
Mud Resistivity	10001.000	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	None	

Rwa Parameters	
Porosity used	Limestone Density Por.
Resistivity used	Array Ind. Six Res Rt
RWA Constant A	0.610
RWA Constant M	2.150

Strain Gauge Constants SER-A 146

Last Edited on

Atmospheric Pressure	14.70	psi
Serial Number	0	
Calibration Date	01-JAN-1998	
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	

Gamma Constants MGS-C.J 134

Last Edited on

Gamma Calibrator Number	000	
Mud Density	1.00	gm/cc
Caliper Source for Processing	Bit Size	
Tool Position	Centred	
Concentration of KCl	0.00	kppm

High Resolution Temperature Constants MGS-C.J 134

Last Edited on

Pre-filter Length	11

Neutron Calibration MDN-A.B 165

Base Calibration on 26-APR-2011 12:35
Field Check on 17-AUG-2011,16:54

Base Calibration

	Measured		Calibrated (cps)	
	Near	Far	Near	Far
	3111	97	3714	110
Ratio	32.223		33.764	

Field Calibrator at Base

	Calibrated (cps)	
	2113	3004
Ratio	0.703	

Field Check

	Calibrated (cps)	
	2084	3011
Ratio	0.692	

Neutron Constants MDN-A.B 165

Last Edited on 17-AUG-2011,22:48

Neutron Source Id	N1055	
Neutron Jig Number	N489	
Epithermal Neutron	No	
Caliper Source for Processing	Density Caliper	
Stand-off	0.00	inches
Mud Density	1.01	gm/cc
Limestone Sigma	7.10	cu
Sandstone Sigma	4.26	cu
Dolomite Sigma	4.70	cu
Formation Pressure Source	Constant Value	
Formation Pressure	0.00	kpsi
Temperature Source	Constant Value	
Temperature	69.00	degrees F
Mud Salinity	0.00	kppm
Formation Fluid Salinity Source	Constant Value	
Formation Fluid Salinity	0.00	kppm
Barite Mud Correction	Not Applied	

Induction Calibration MAI-B_J 392

Base Calibration on 24-JUN-2011 15:35

Induction Calibration MAI-B.J 392

Base Calibration on 24-JUN-2011,15:55
Field Check on 05-NOV-2011 00:17

Base Calibration

Test Loop Calibration	Measured		Calibrated (mmho/m)	
Channel	Low	High	Low	High
1	17.1	467.1	9.3	966.2
2	6.1	375.5	7.6	821.4
3	3.2	259.2	5.2	566.0
4	2.2	129.4	2.6	279.2

Array Temperature 74.7 Deg F

Channel	Base Check (mmho/m)		Field Check (mmho/m)	
	Low	High	Low	High
1	0.0	0.0	10.8	3887.7
2	0.0	0.0	29.8	3589.7
3	0.0	0.0	28.5	3048.9
4	0.0	0.0	19.0	2140.2
Deep	0.0	0.0	16.9	2000.0
Medium	0.0	0.0	42.6	3972.8
Shallow	0.0	0.0	45.1	5304.1

Array Temperature 0.0 47.1 Deg F

Induction Constants MAI-B.J 392

Last Edited on 15-NOV-2011,17:12

Induction Model	RtAP-NC	
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 392

Field Calibration on 16-SEP-2011,06:02

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

High Resolution Temperature Constants MAI-B.J 392

Last Edited on

Pre-filter Length	11

Pre-filter Length 11

Caliper Calibration MPD-B 166

Base Calibration on 17-AUG-2011 17:15
Field Calibration on 03-OCT-2011,12:12

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	10560	4.02
2	20291	6.00
3	30079	8.03
4	40304	10.01
5	51120	12.01
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
6.00	6.00

Photo Density Calibration MPD-B 166

Base Calibration on 06-OCT-2011,22:10
Field Check on 05-NOV-2011 00:22

Density Calibration

Base Calibration

	Measured		Calibrated (sdu)	
	Near	Far	Near	Far
Reference 1	53551	25143	60364	31945
Reference 2	22130	2523	25079	2547

Field Check at Base

1205.3	1391.7

Field Check

1206.2	1380.8

PE Calibration

Base Calibration

		Measured		Calibrated
	WS	WH	Ratio	Ratio
Background	224	1080		
Reference 1	23650	53361	0.448	0.399
Reference 2	6176	21992	0.285	0.273

Field Check at Base

223.9	1079.8

Field Check

221.5	1079.3

Density Constants MPD-B 166

Last Edited on 05-NOV-2011,04:17

Density Source Id	236	
Nylon Calibrator Number	DNC-E-603	
Aluminium Calibrator Number	DAC-D-509	
Density Shoe Profile	4 inch	
Caliper Source for Processing	Density Caliper	
PE Correction to Density	Not Applied	
Mud Density	1.23	gm/cc
Mud Density Z/A Multiplier	1.10	
Mud Filtrate Density	1.00	gm/cc
Dry Hole Mud Filtrate Density	1.00	gm/cc
DNCT	0.00	gm/cc
CRCT	0.04	gm/cc
Density Z/A Correction	Advanced	

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

Shuttle Mechanical Release (SMR A)
SMR-A 148 LG: 8.53 ft WT: 77.2 lb OD: 2.52 in

Shuttle Electrical Release
SER-A 146 LG: 6.90 ft WT: 50.7 lb OD: 2.24 in

MBS-G.A 200v Compact Battery Sub
MBS-G.A 131 LG: 16.66 ft WT: 132.3 lb OD: 2.24 in

Compact Memory Sub E.B
MMS-E.B 166 LG: 5.20 ft WT: 37.5 lb OD: 2.24 in

Compact Tool Isolator sub.
MTI-B.A 61 LG: 1.54 ft WT: 13.2 lb OD: 2.24 in

Compact Short Gamma
MGS-C.J 134 LG: 3.41 ft WT: 24.3 lb OD: 2.24 in

SKJ-E.A Compact Knuckle Joint
SKJ-E.A 476 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

SHA-J.A Compact Swivel Head Adaptor
SHA-J.A 442 LG: 2.30 ft WT: 22.0 lb OD: 2.24 in

MIS-D.A Compact Inline Bowspring sub
MIS-D.A 606 LG: 5.70 ft WT: 33.1 lb OD: 2.24 in

Compact Neutron
MDN-A.B 165 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in

Compact Density/Caliper
MPD-B 166 LG: 9.59 ft WT: 90.4 lb OD: 2.24 in

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

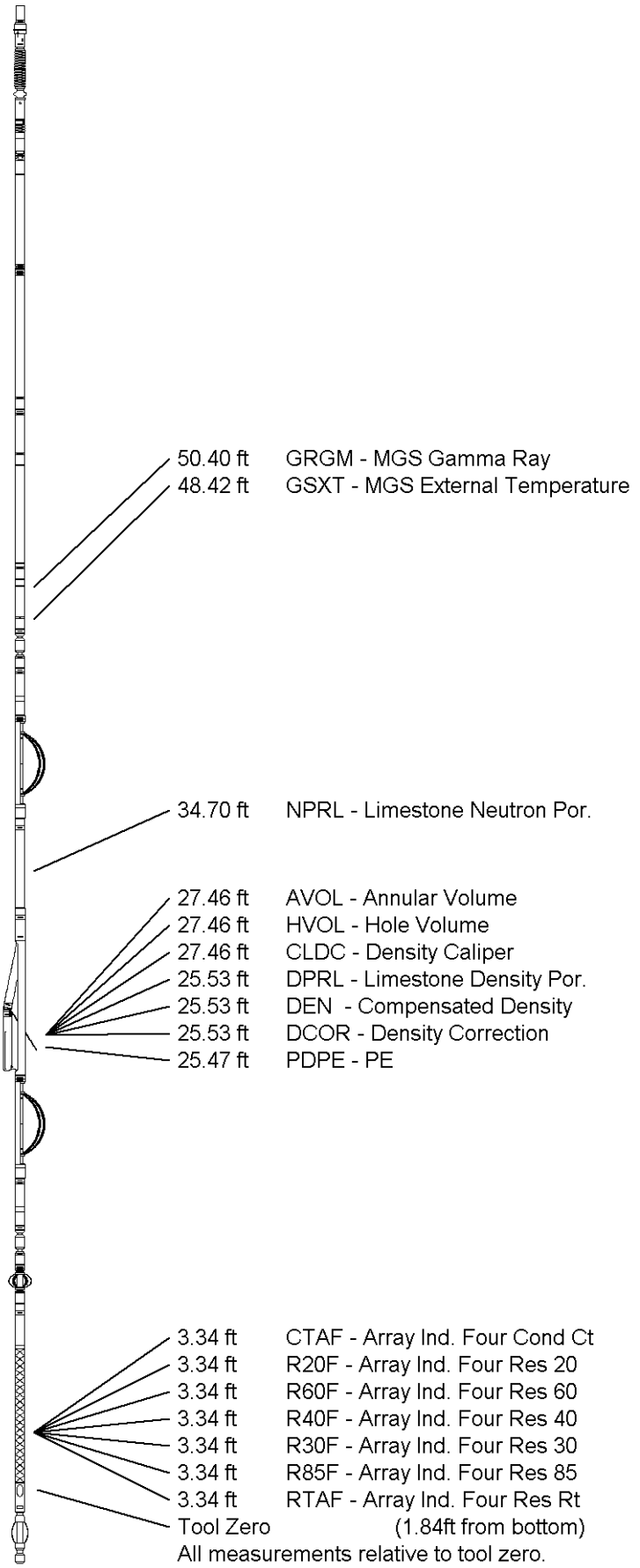
SHA-J.A Compact Swivel Head Adaptor
SHA-J.A 438 LG: 2.30 ft WT: 22.0 lb OD: 2.24 in

SKJ-E.B Compact Knuckle Joint
SKJ-E.B 436 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

MIS-E.B Compact Inline Standoff sub
MIS-E.B 577 LG: 2.14 ft WT: 15.4 lb OD: 2.24 in

Compact Induction
MAI-B.J 392 LG: 12.52 ft WT: 48.5 lb OD: 2.24 in

Total Length: 91.87 ft Weight: 698.9 lb



COMPANY	SANDRIDGE EXPLORATION & PRODUCTION, LLC
WELL	ELLIS 1-19H
FIELD	WILDCAT

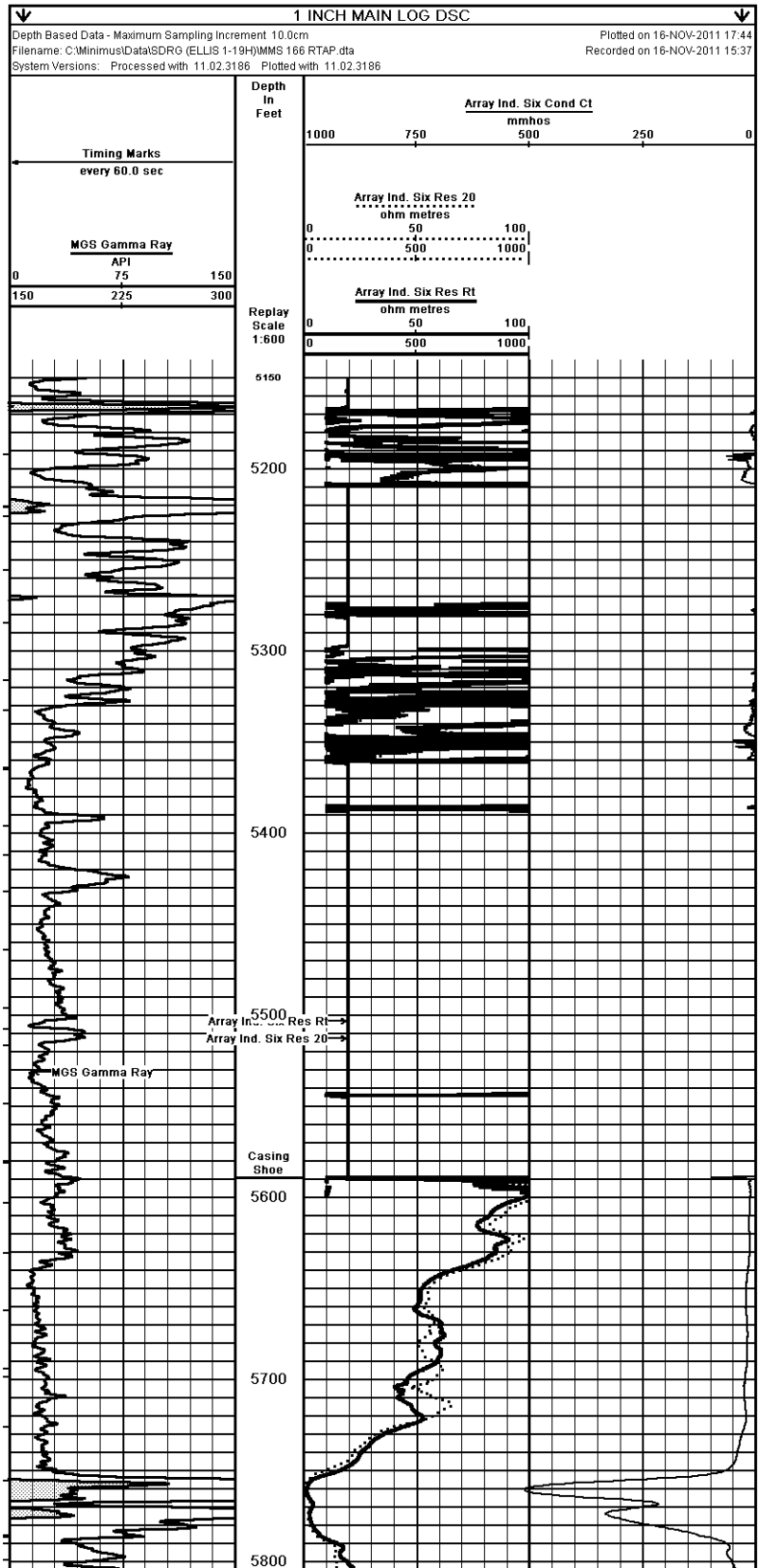
PROVINCE/COUNTY	COMANCHE
COUNTRY/STATE	U.S.A.\ KANSAS

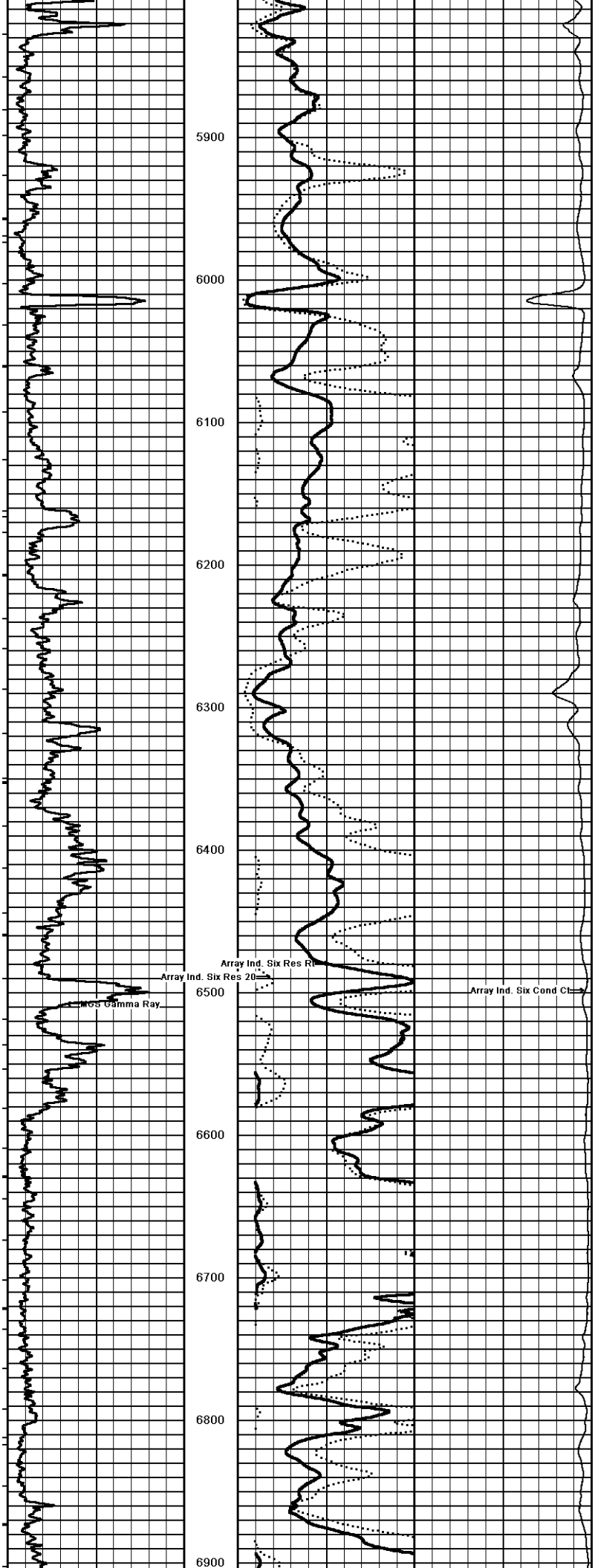
Elevation Kelly Bushing	2075.00	feet	First Reading	9518.00	feet
Elevation Drill Floor	2073.00	feet	Depth Driller	9574.00	feet
Elevation Ground Level	2055.00	feet	Depth Logger	9528.00	feet

Weatherford®

CML IMPULSE SHUTTLE
ARRAY INDUCTION
ELECTRIC LOG

40 Years of Wireline 1970 2010

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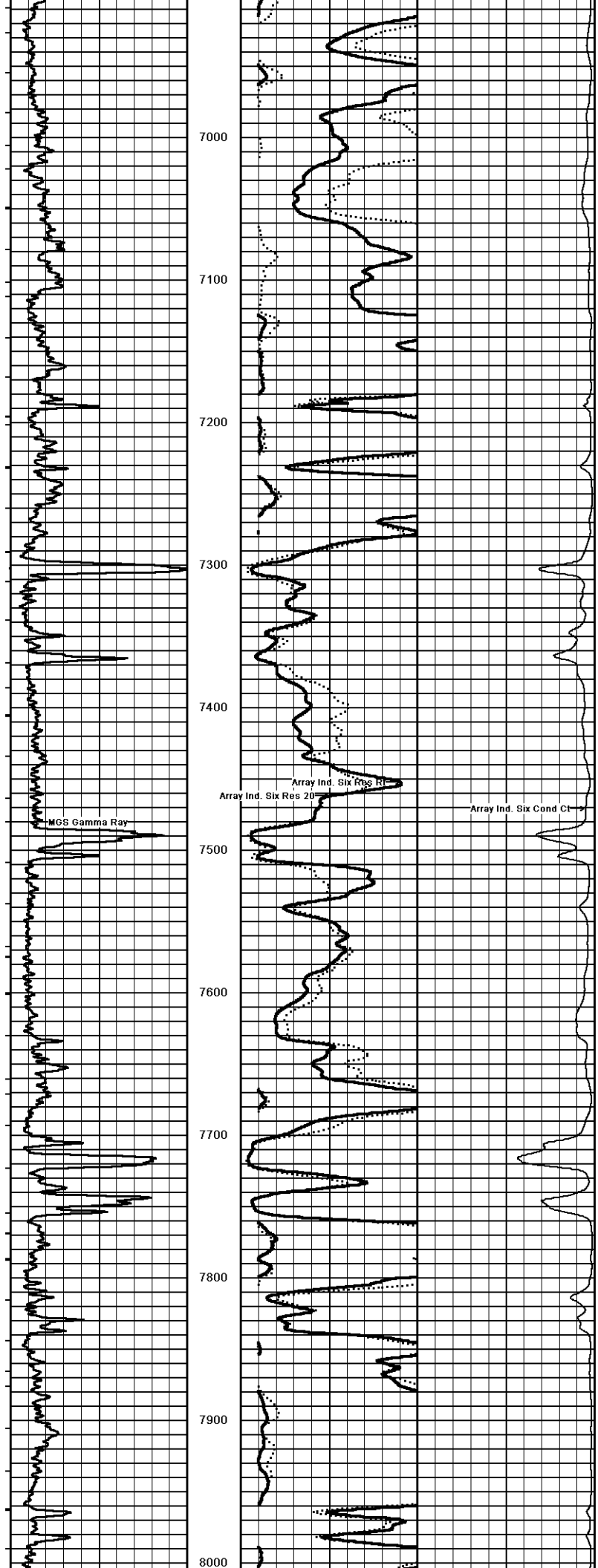
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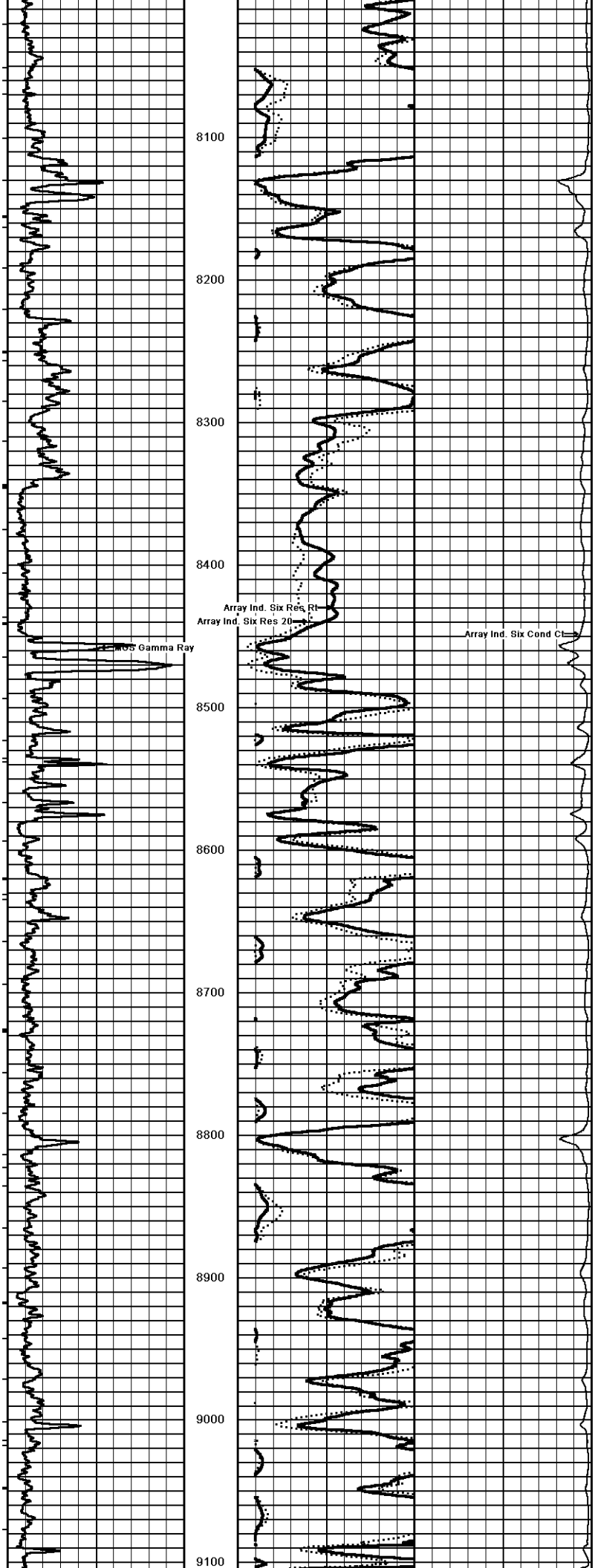
MGS Gamma Ray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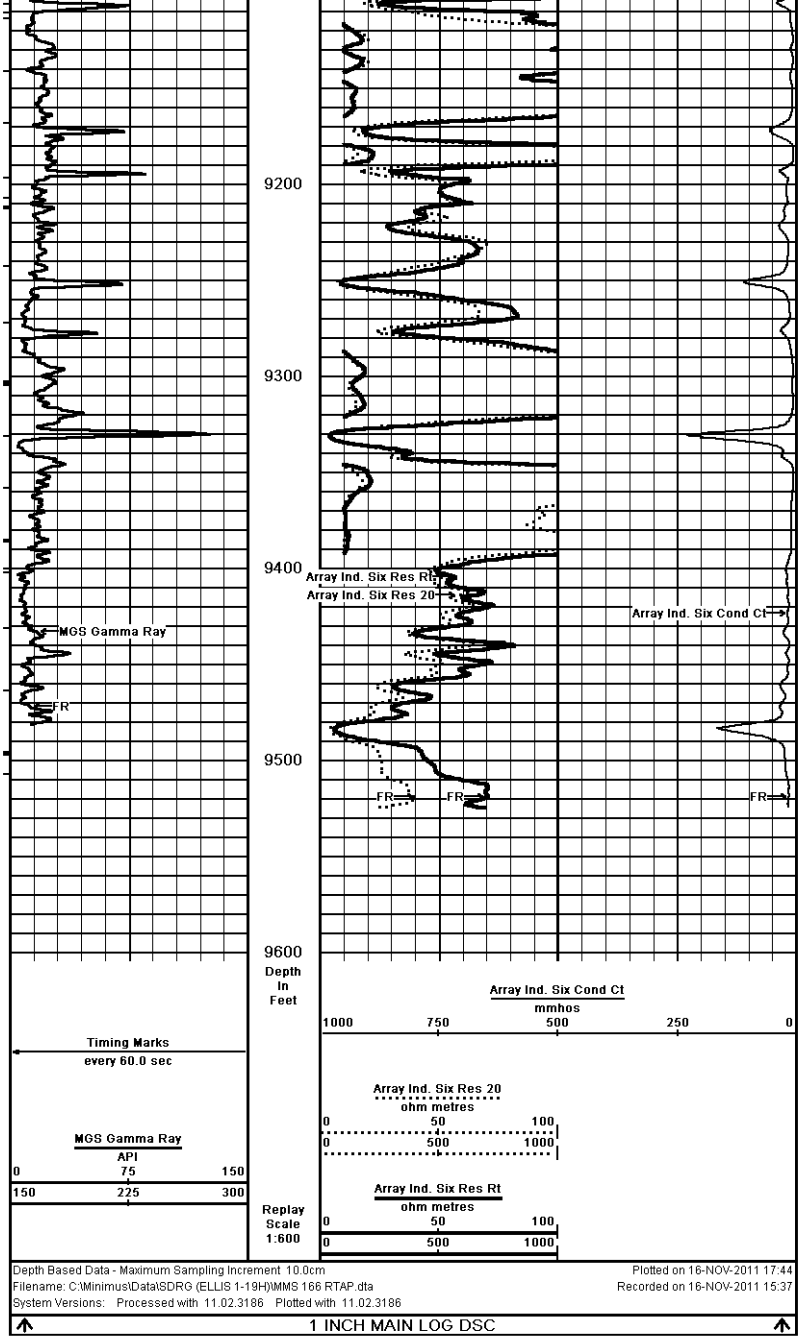
MGS Gamma Ray
Array Ind. Six Cond Ct



Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 16-NOV-2011 17:44
Filename: C:\Minimus\Data\SDRG (ELLIS 1-19H)\MMS 166 RTAP.dta
Recorded on 16-NOV-2011 15:37
System Versions: Processed with 11.02.3186 Plotted with 11.02.3186

1 INCH MAIN LOG DSC

COMPANY	SANDRIDGE EXPLORATION & PRODUCTION, LLC
WELL	ELLIS 1-19H
FIELD	WILDCAT
PROVINCE/COUNTY	COMANCHE
COUNTRY/STATE	U.S.A.\ KANSAS

Elevation Kelly Bushing	2075.00	feet	First Reading	9518.00	feet
Elevation Drill Floor	2073.00	feet	Depth Driller	9574.00	feet
Elevation Ground Level	2055.00	feet	Depth Logger	9528.00	feet

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ARRAY INDUCTION
ELECTRIC LOG

40 Years of Wireline