



Weatherford[®]

**CML IMPULSE SHUTTLE
ARRAY INDUCTION
LOG**

COMPANY SANDRIDGE EXPLORATION & PRODUCTION LLC
WELL PEPPER 3419 1-4H
FIELD SADDLE
PROVINCE/COUNTY COMANCHE
COUNTRY/STATE U.S.A./KANSAS
LOCATION SL:250' FNL & 660' FEL OF NE/4
BHL:330' FSL & 660' FEL

| SEC | TWP | RGE | Other Services | Elevations: |
|---|---------------|--------|----------------|--|
| 4 | 34S | 19W | MPD/MDN CMI | KB 2014.00 DF 2014.00 GL 1994.00 |
| API Number 15-033-216450100 | | | | |
| Permit Number | | | | |
| Permanent Datum GL, Elevation 1994 feet | | | | |
| Log Measured From KB | | | | |
| Drilling Measured From KB | | | | |
| Date | 09-JUL-2012 | | | |
| Run Number | TWO | | | |
| Depth Driller | 9804.00 | feet | | |
| Depth Logger | 9774.00 | feet | | |
| First Reading | 9770.00 | feet | | |
| Last Reading | 6000.00 | feet | | |
| Casing Driller | 6024.00 | feet | | |
| Casing Logger | 6024.00 | feet | | |
| Bit Size | 6.125 | inches | | |
| Hole Fluid Type | WBM | | | |
| Density / Viscosity | 8.90 | g/c3 | 32.00 | CP |
| PH / Fluid Loss | 9.50 | | | |
| Sample Source | FLOWLINE | | | |
| Rm @ Measured Temp | 1.50 @ 80.0 | ohm-m | | |
| Rmf @ Measured Temp | 1.20 @ 80.0 | ohm-m | | |
| Rmc @ Measured Temp | 1.80 @ 80.0 | ohm-m | | |
| Source Rmf / Rmc | CALC | CALC | | |
| Rm @ BHT | 0.88 @136.0 | ohm-m | | |
| Time Since Circulation | 2 HOURS | | | |
| Max Recorded Temp | 136.00 | deg F | | |
| Equipment Name | COMPACT | | | |
| Equipment / Base | 18077 | OKC | | |
| Recorded By | MIKE GARRISON | | | |
| Witnessed By | KATHY GENTRY | | | |
| | 3536270 | | | |

BOREHOLE RECORD

Last Edited: 11-JUL-2012 17:52

| Bit Size inches | Depth From feet | Depth To feet |
|--------------------|--------------------|------------------|
| 6.125 | 6025.00 | 9804.00 |

CASING RECORD

| Type | Size inches | Depth From feet | Shoe Depth feet | Weight pounds/ft |
|----------|----------------|--------------------|--------------------|---------------------|
| INTERMID | 7.000 | 0.00 | 6024.00 | 34.00 |

REMARKS

TOOLS RAN:SMR-152, SER-159, MLK-001, MLK-A1, 200V MBS-116,MMSE157, MGS-133, MDN-388, MPD-434,MIE-105, MAI-390 RAN IN COMBINATION

HARDWARE: MAI: ISA 0.5" STANDOFF USED BELOW MAI.
MDN: MIS-A DOUBLE BOWSPRING USED ABOVE MDN.
MPD: 4INCH PROFILE PLATE USED, MIS-A SINGLE BOWSPRING USED BELOW MPD
CMI: MIS-A CENTRALIZER RAN ABOVE AND BELOW CMI

2.71 G/CC DENSITY MATRIX USED TO CALCULATE POROSITY
ALL INTERVALS LOGGED AND SCALED PER CUSTOMER'S REQUEST.

DRILL PIPE DEPTH DURING DEPLOYMENT: 9678
LOGGING TOOL DEPTH AFTER DEPLOYMENT: 9774

ANNULAR HOLE VOLUME CALCULATED USING WITH 4.5 INCH PRODUCTION CASING

SERVICE ORDER # 3536720

RIG: LARIAT 38

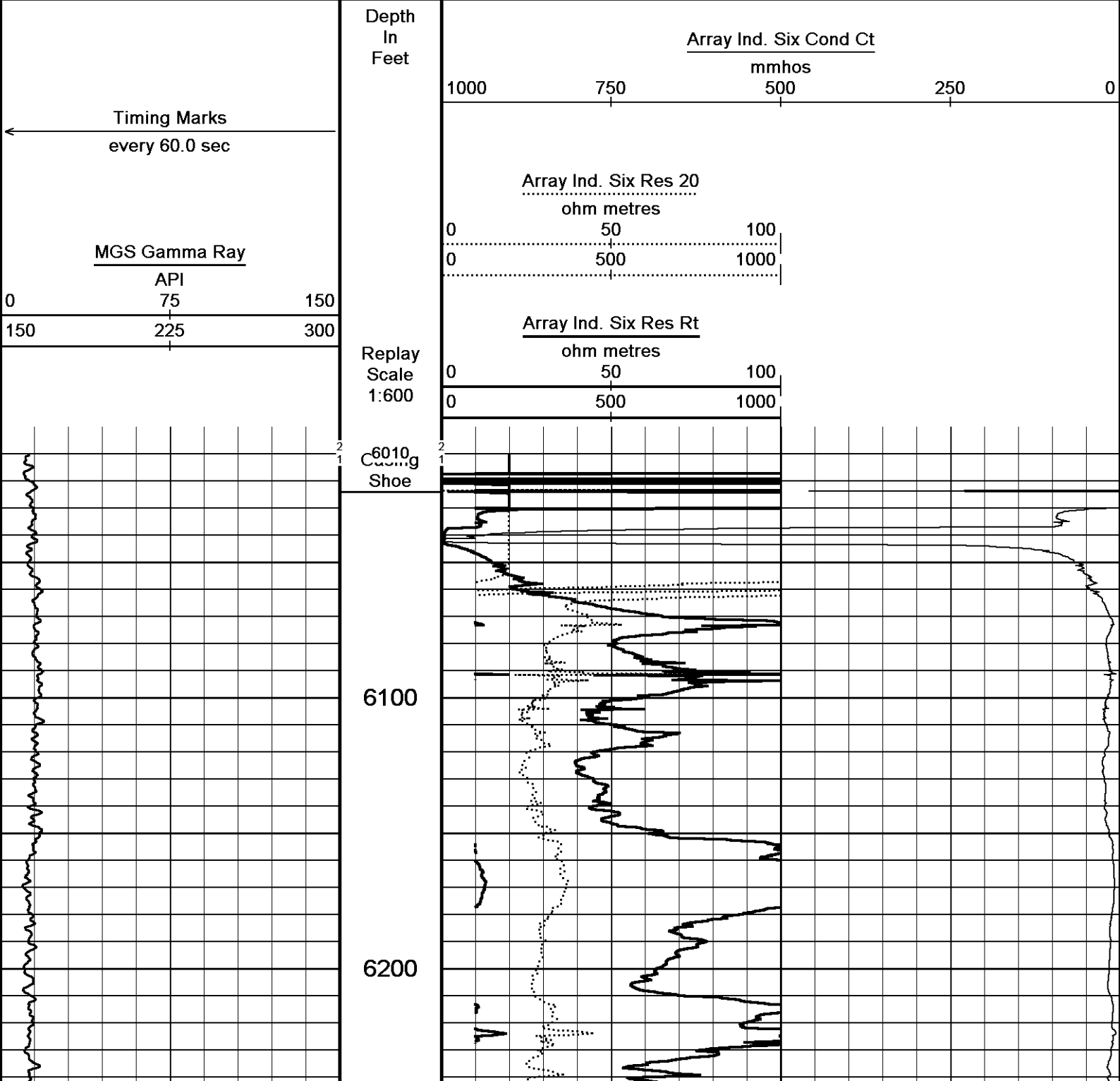
OPERATOR(S): RICK ROLLANS, KYLE CHAFFIN

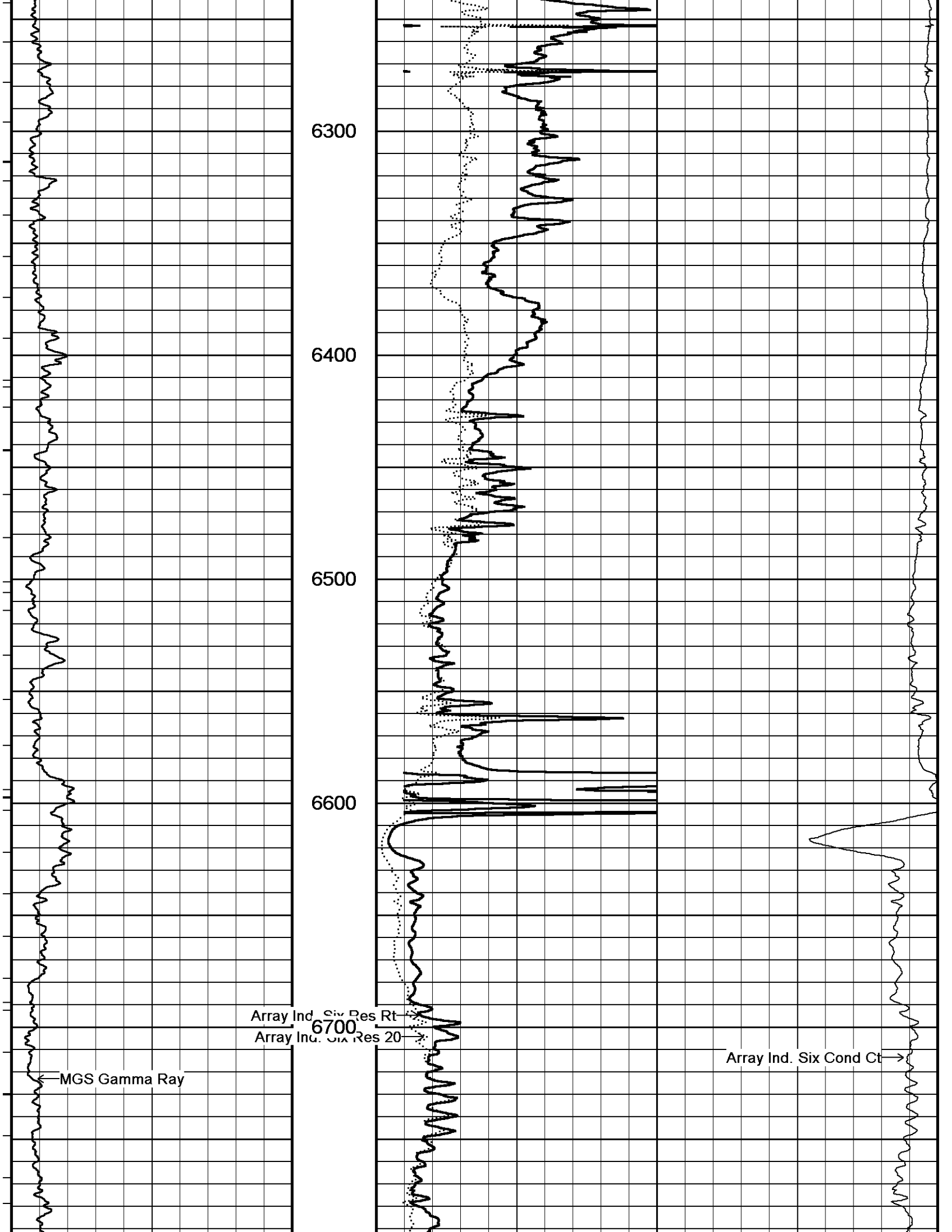
TOOLS DIDNT DEPLOY ON RUN ONE, DEPLOYED ON RUN TWO

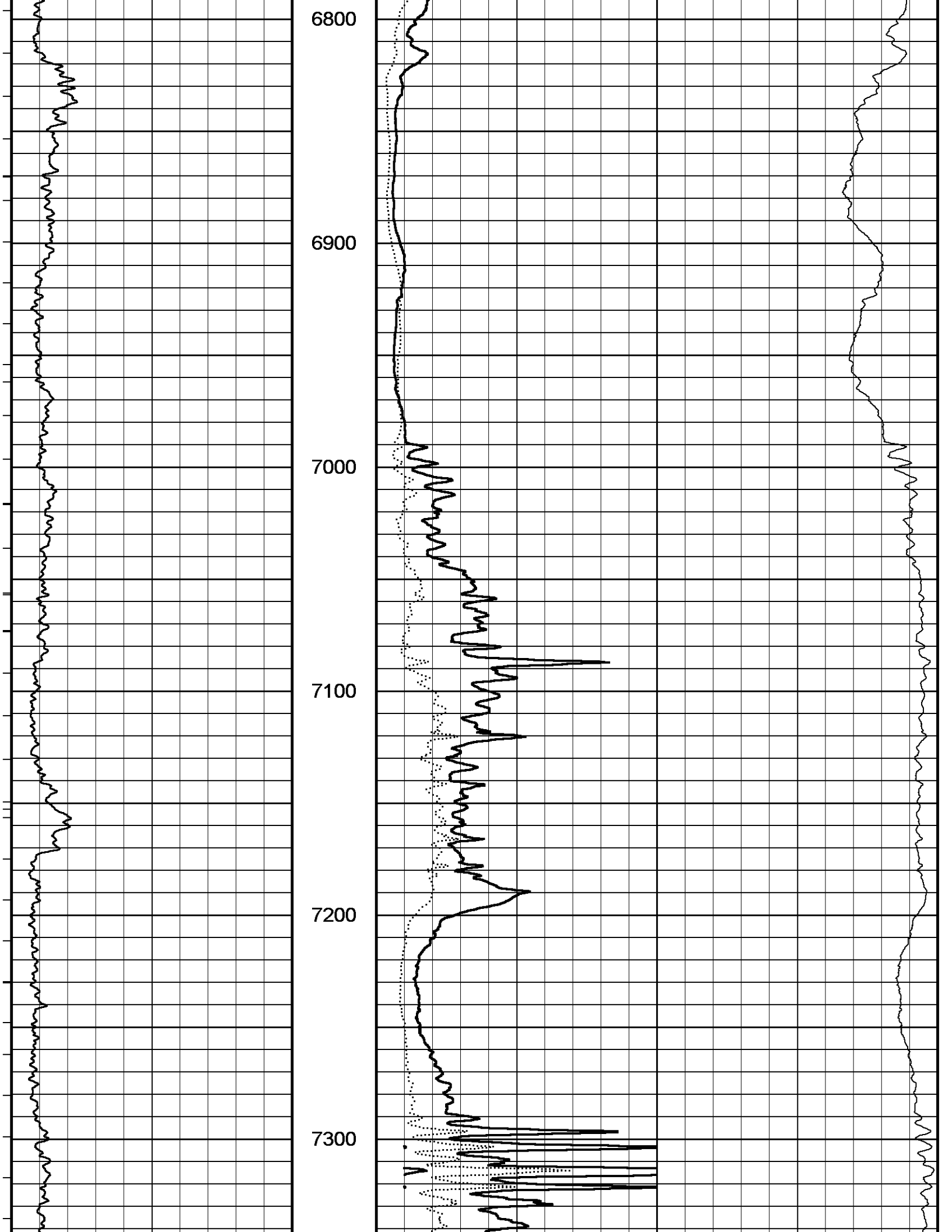
All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not, guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or wilful negligence on our part, be liable or responsible for any loss, costs,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

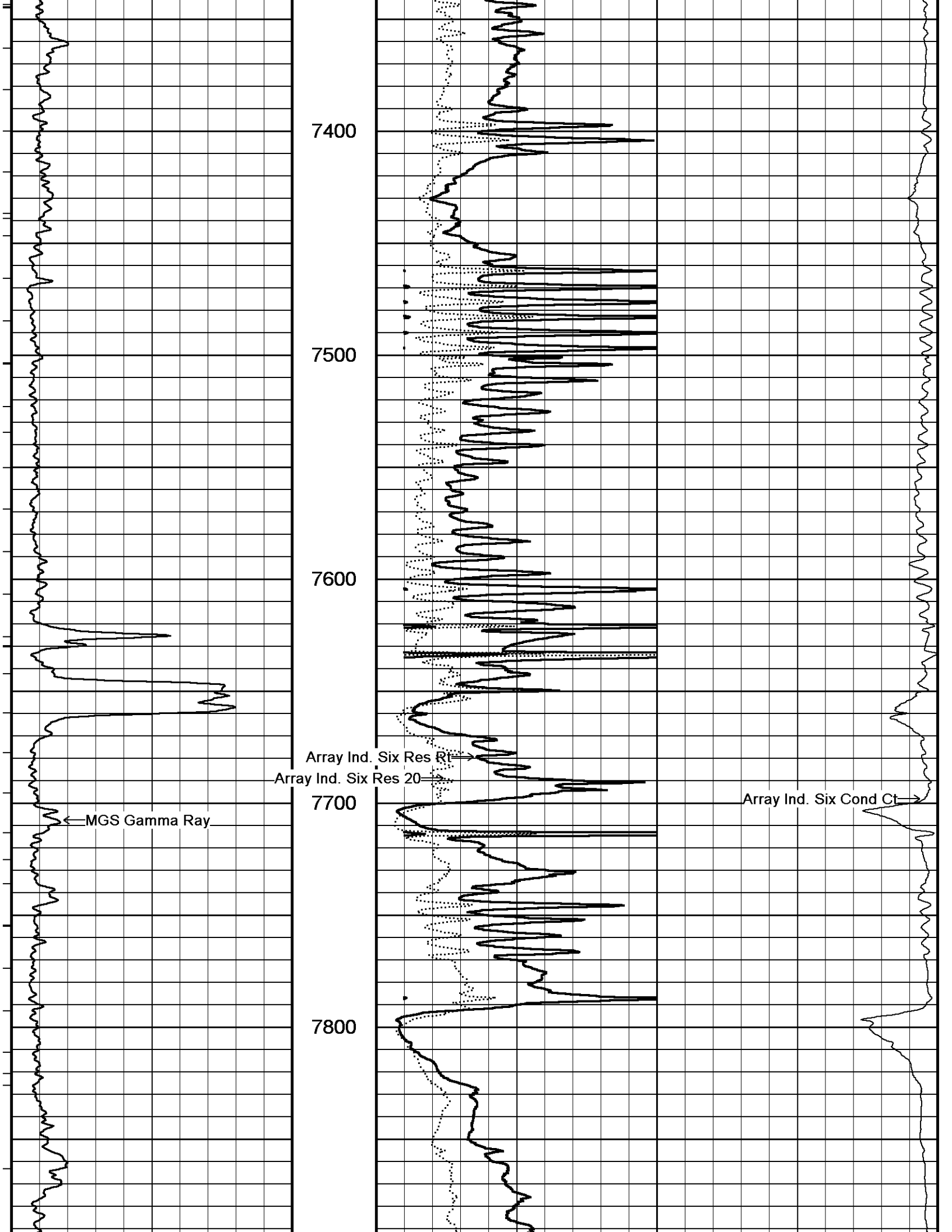
2 INCH MAIN LOG

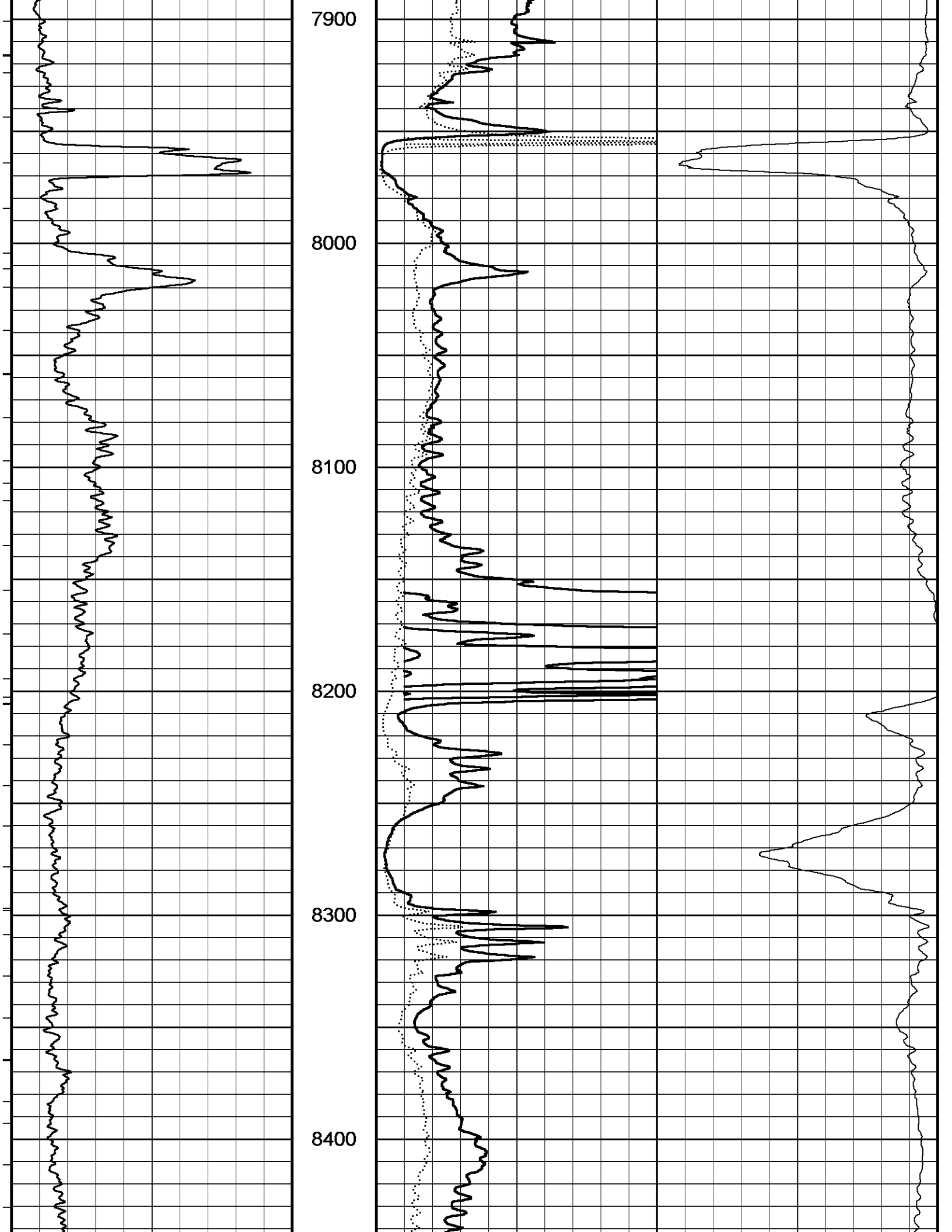
Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 11-JUL-2012 17:55
 Filename: C:\Data\SDRG(PEPPER 3419 1-4H)\PEPPER 3419 1-4H MAIN LOGS3.dta Recorded on 11-JUL-2012 15:23
 System Versions: Processed with 13.02.6600 Plotted with 13.02.6600

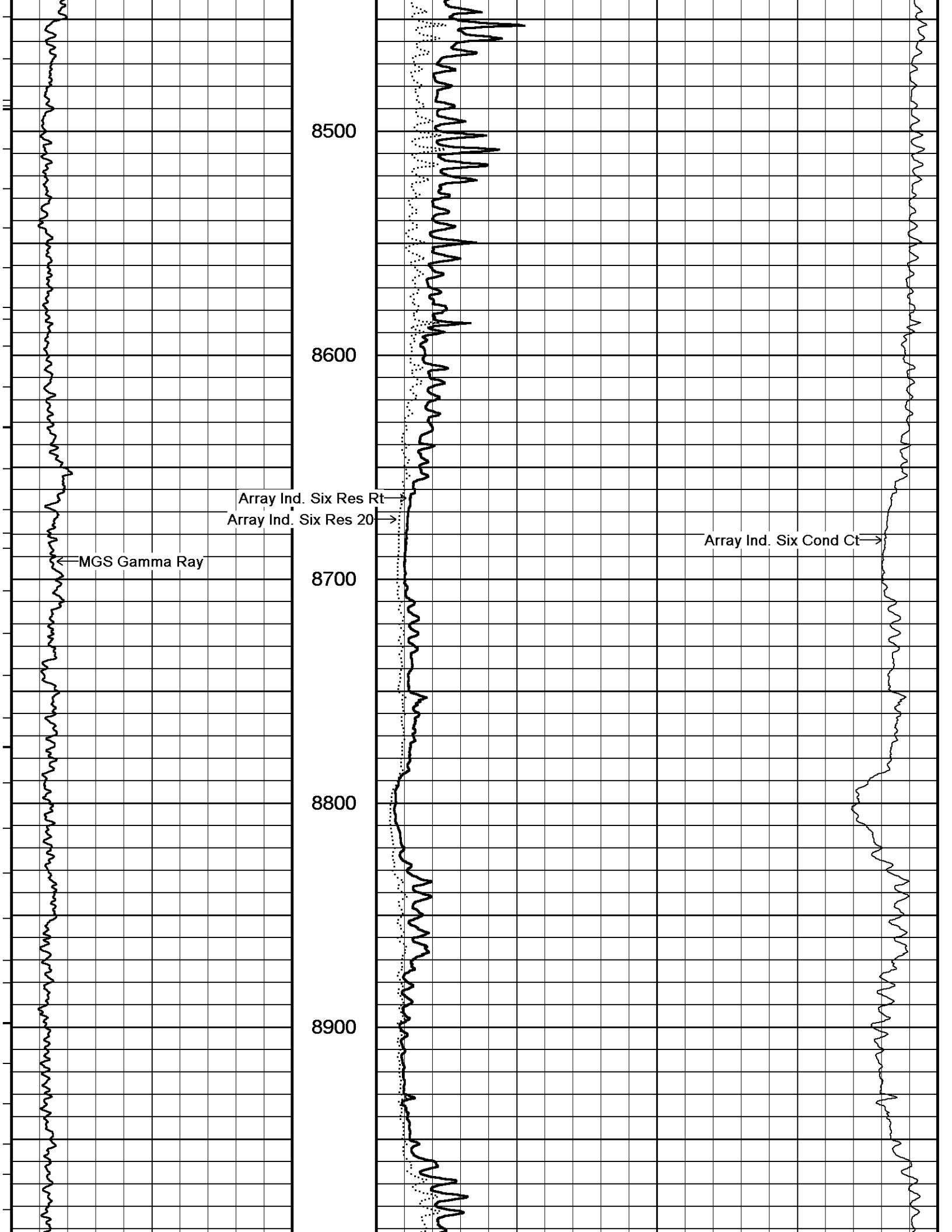


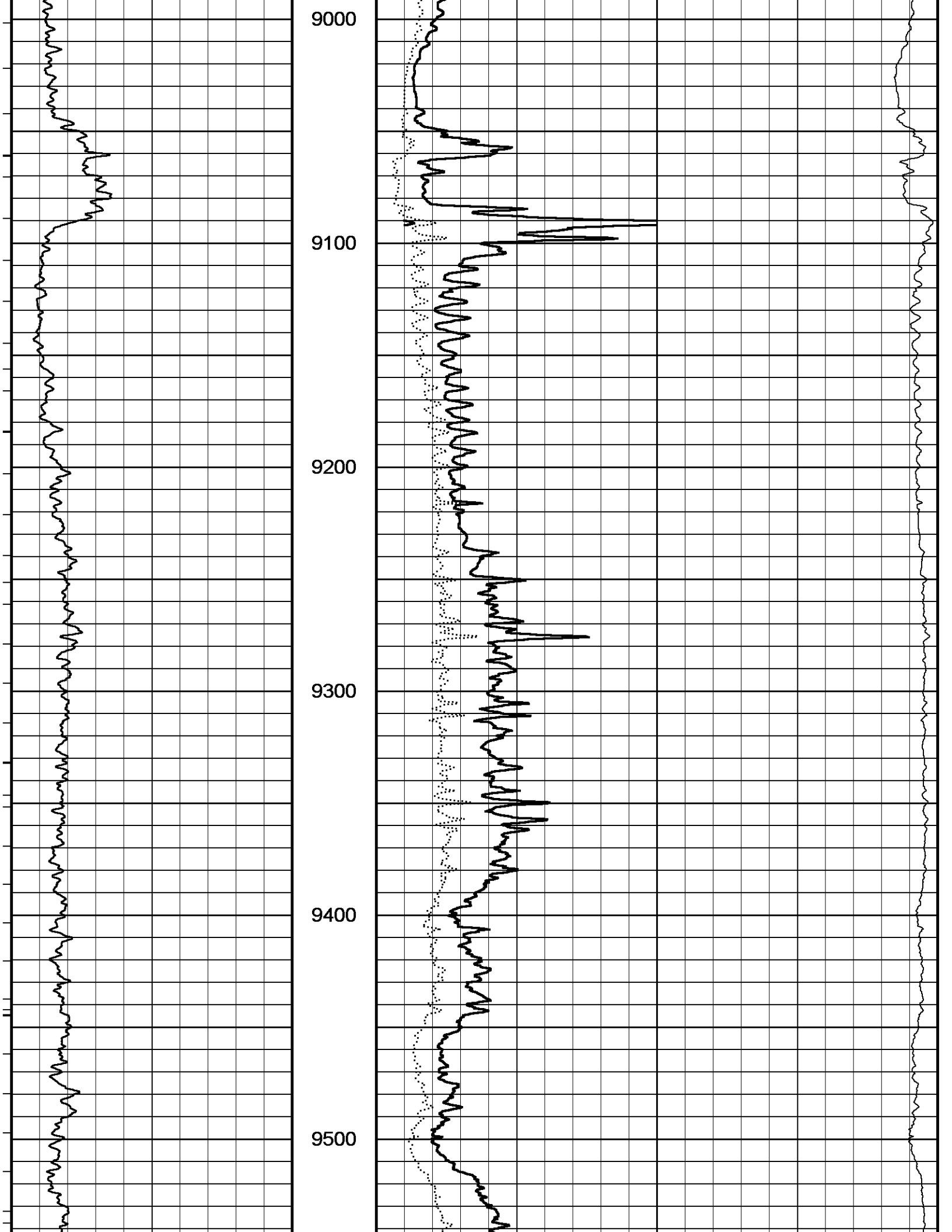


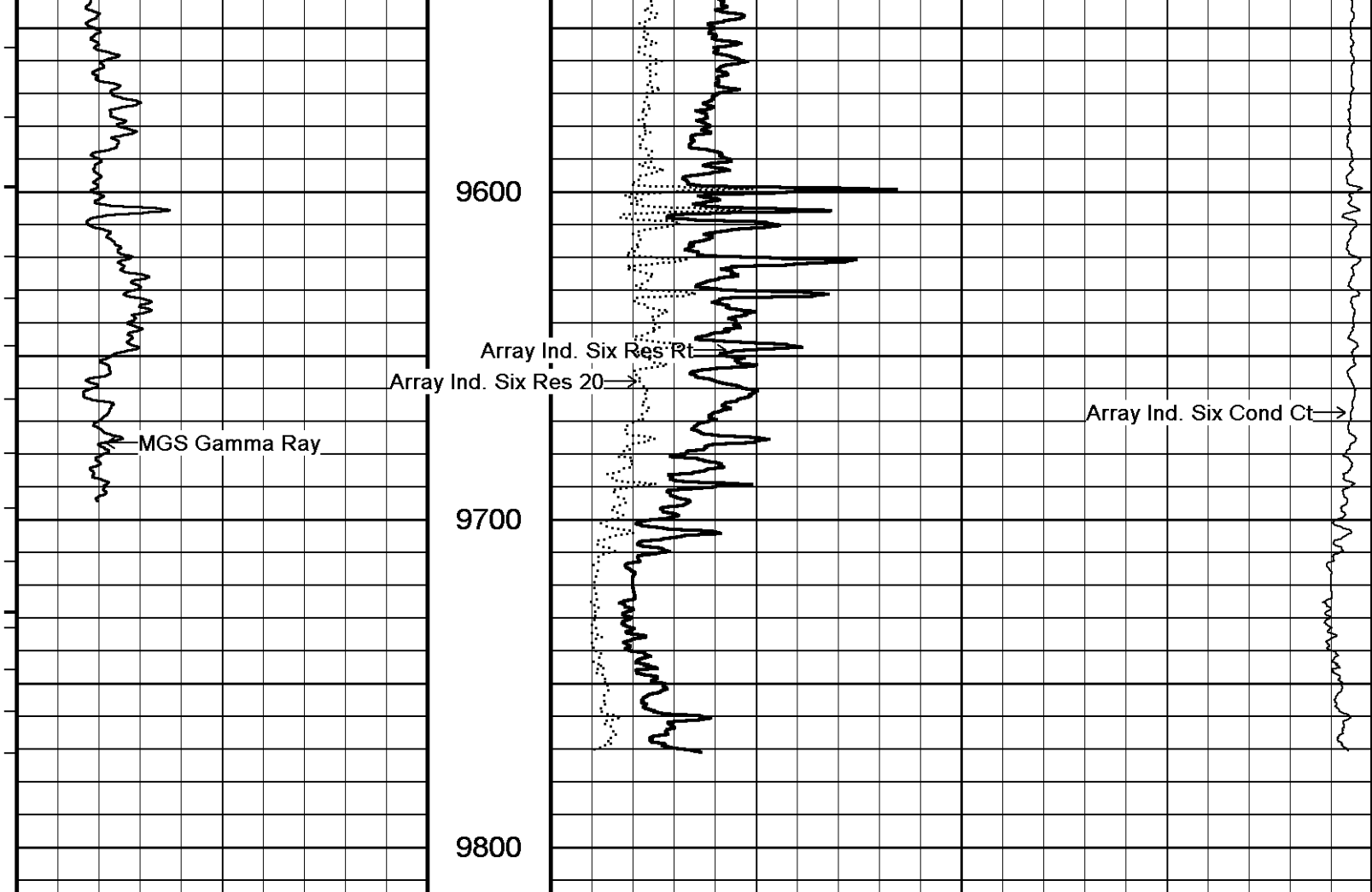












Timing Marks every 60.0 sec ←

MGS Gamma Ray

| | | |
|-----|-----|-----|
| API | | |
| 0 | 75 | 150 |
| 150 | 225 | 300 |

Replay Scale 1:600

Depth In Feet

Array Ind. Six Cond Ct

| | | | | |
|------|-----|-----|-----|---|
| 1000 | 750 | 500 | 250 | 0 |
|------|-----|-----|-----|---|

mmhos

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 |

Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 11-JUL-2012 17:55
 Filename: C:\Data\SDRG(PEPPER 3419 1-4H)\PEPPER 3419 1-4H MAIN LOGS3.dta Recorded on 11-JUL-2012 15:23
 System Versions: Processed with 13.02.6600 Plotted with 13.02.6600

↑ **2 INCH MAIN LOG** ↑

↓ **5 INCH MAIN LOG** ↓

Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 11-JUL-2012 17:55
 Filename: C:\Data\SDRG(PEPPER 3419 1-4H)\PEPPER 3419 1-4H MAIN LOGS3.dta Recorded on 11-JUL-2012 15:23
 System Versions: Processed with 13.02.6600 Plotted with 13.02.6600



Timing Marks
every 60.0 sec

←

MGs Gamma Ray
API
0 75 150
150 225 300

Borehole
Temp in
deg F

Replay
Scale
1:240

6008

Casing
Shoe

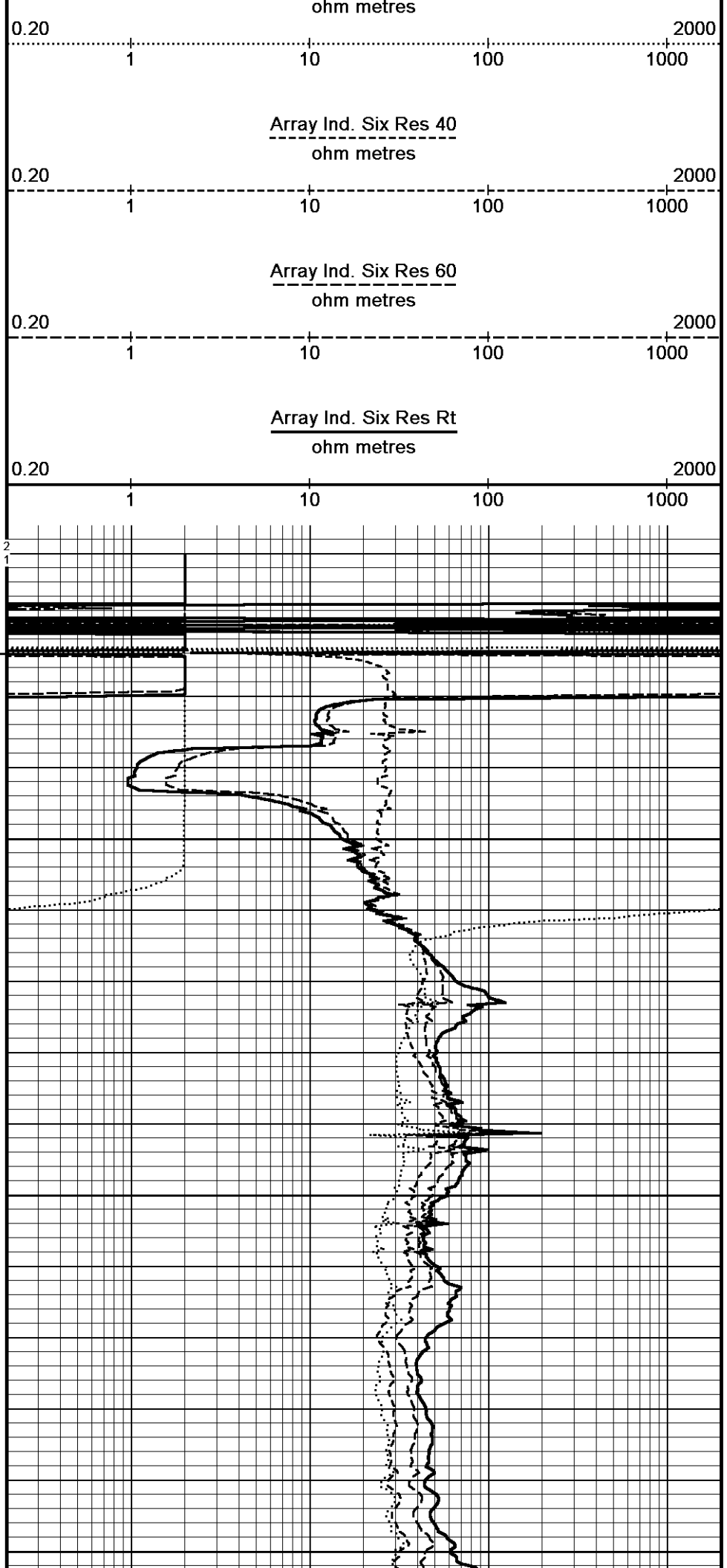
6050

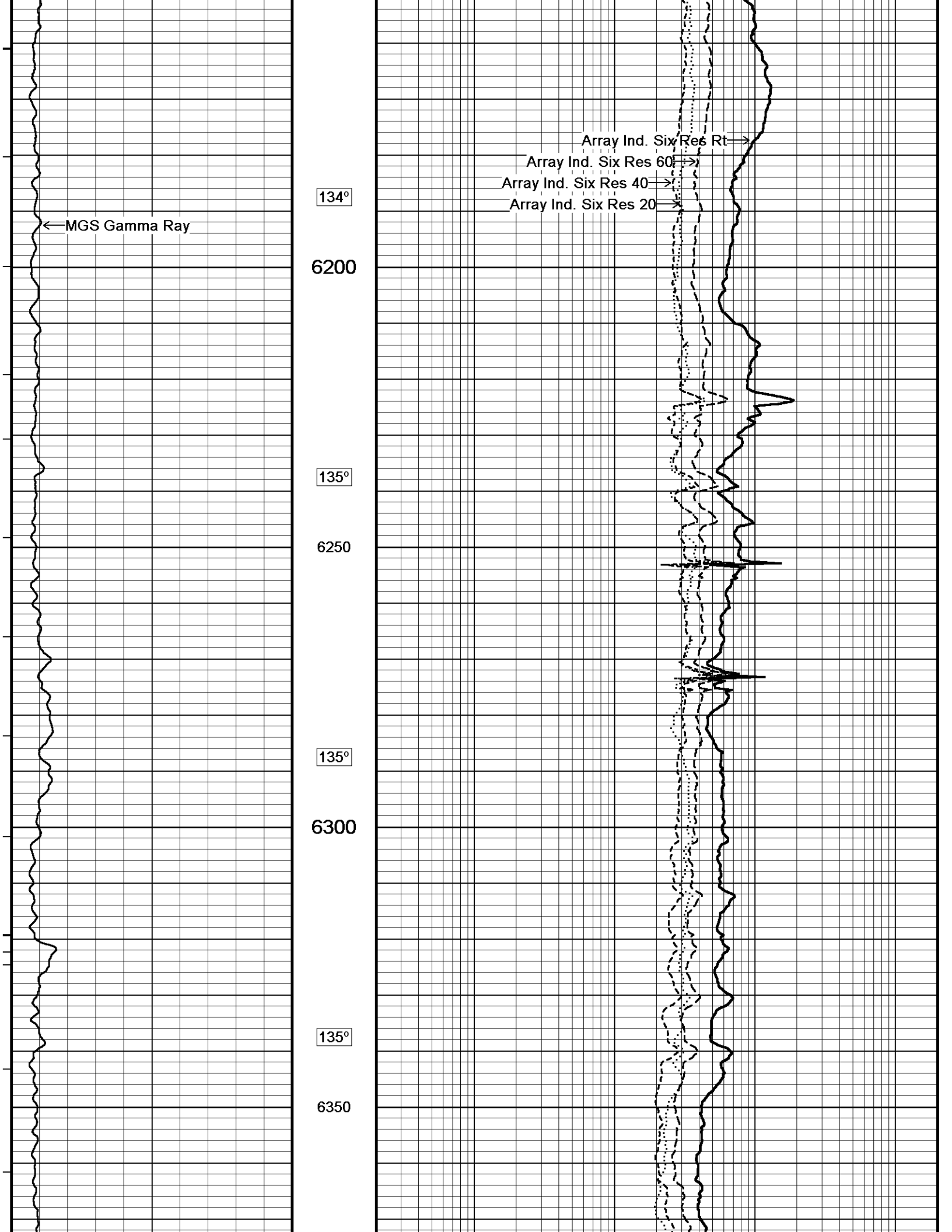
134°

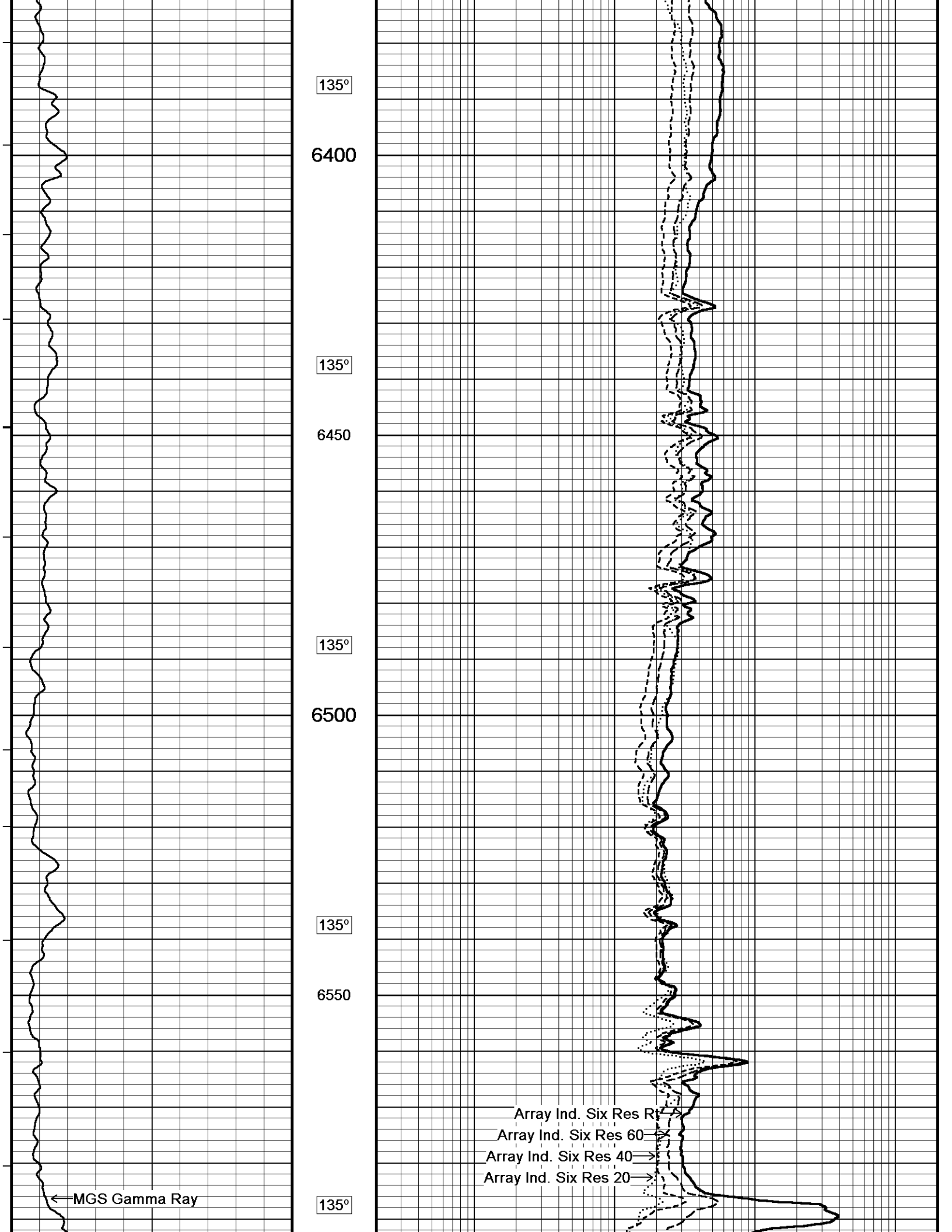
6100

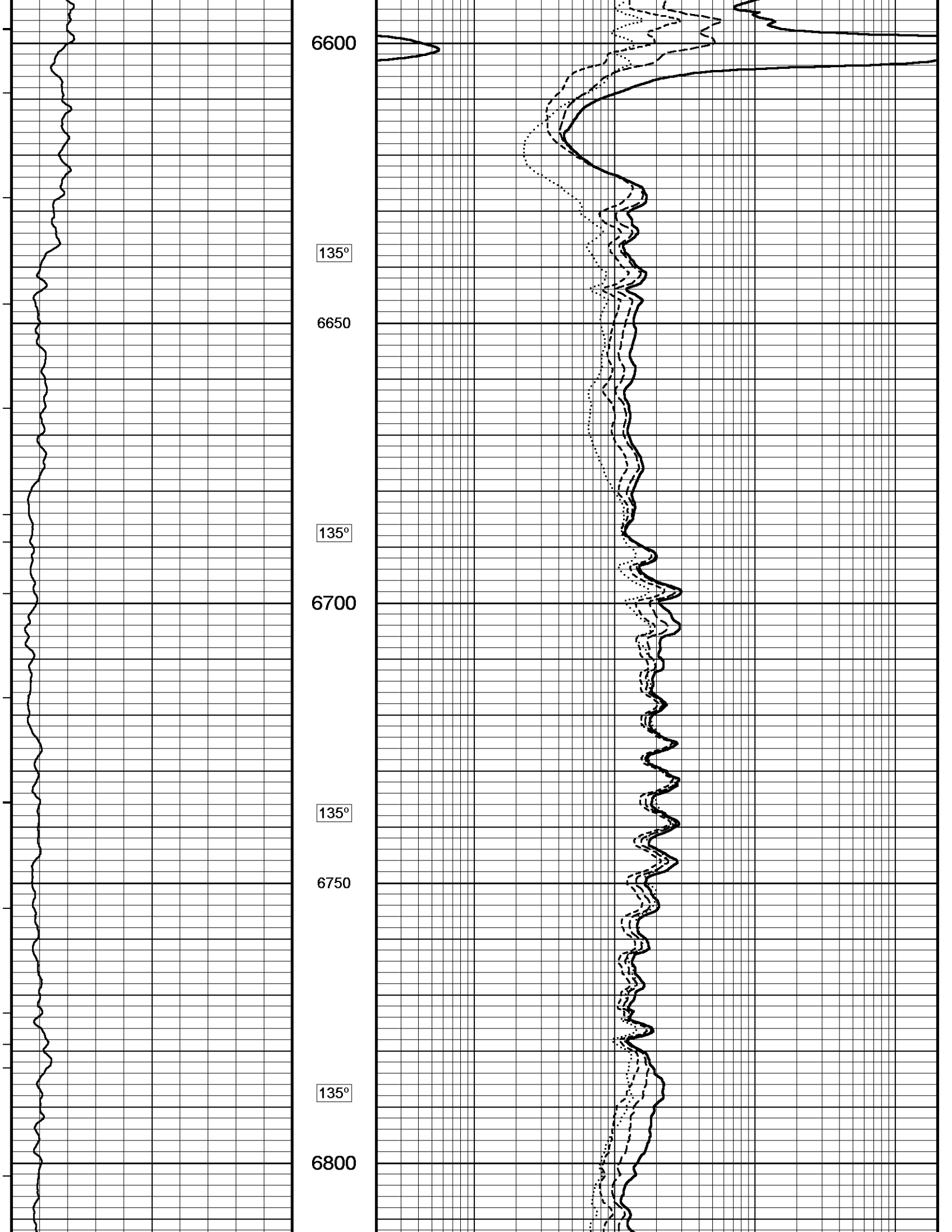
134°

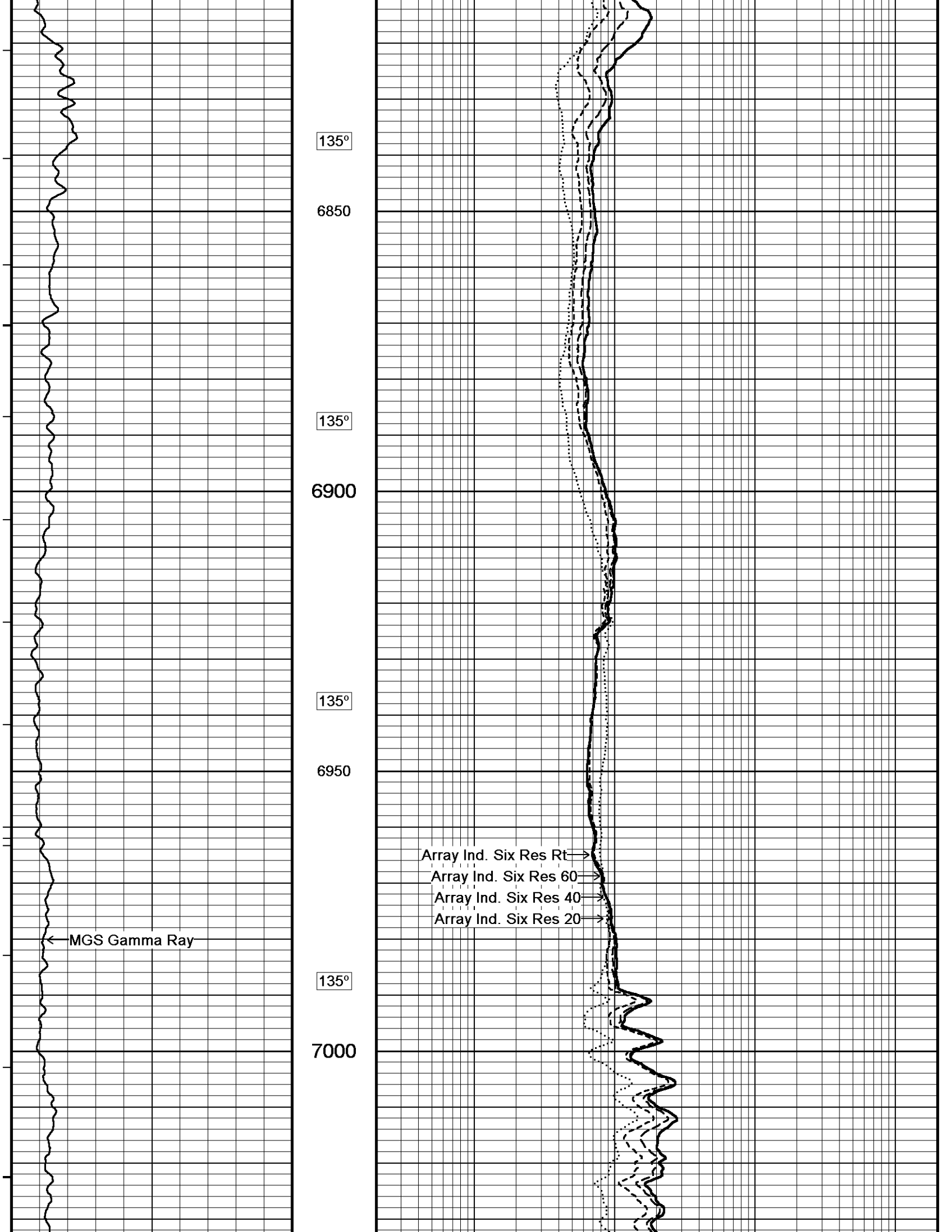
6150

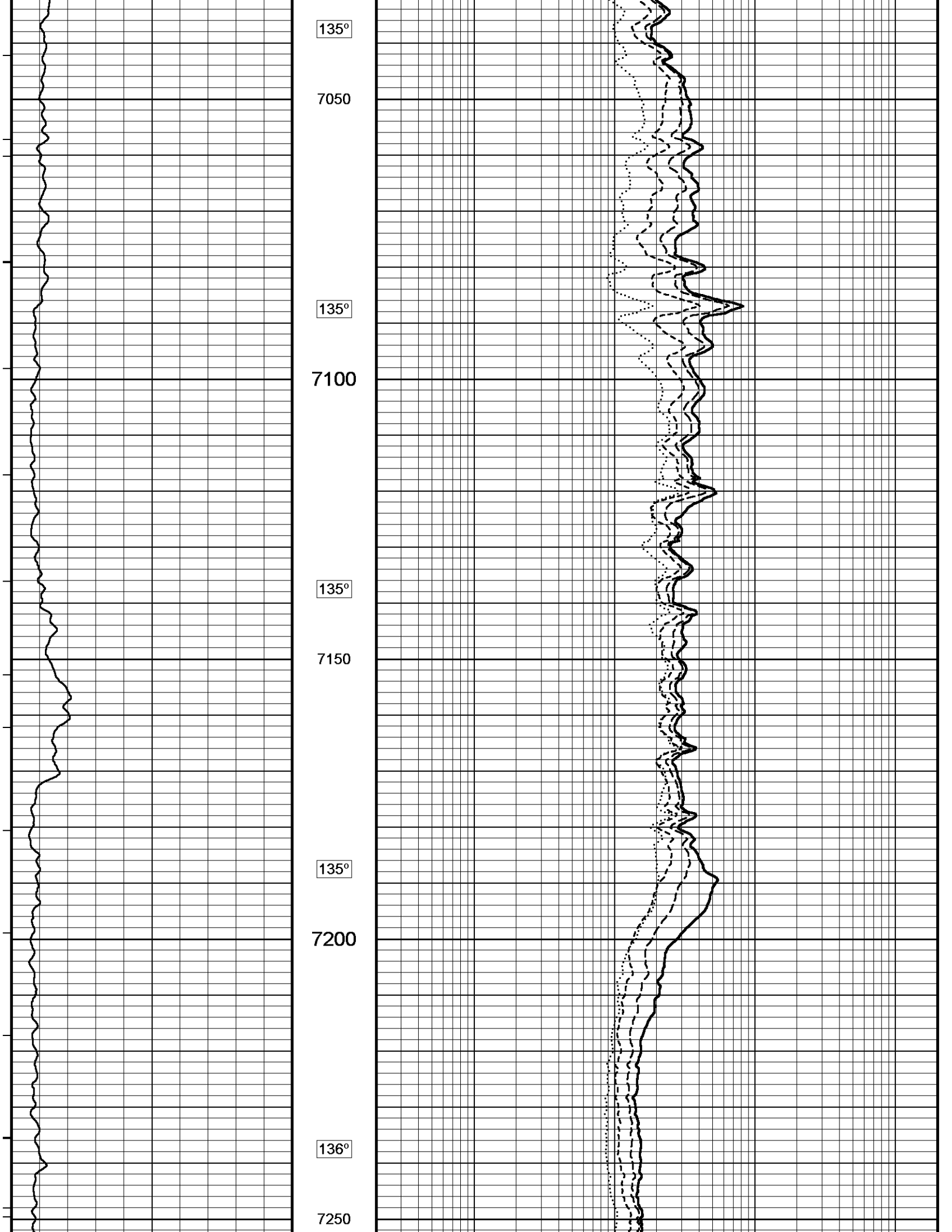


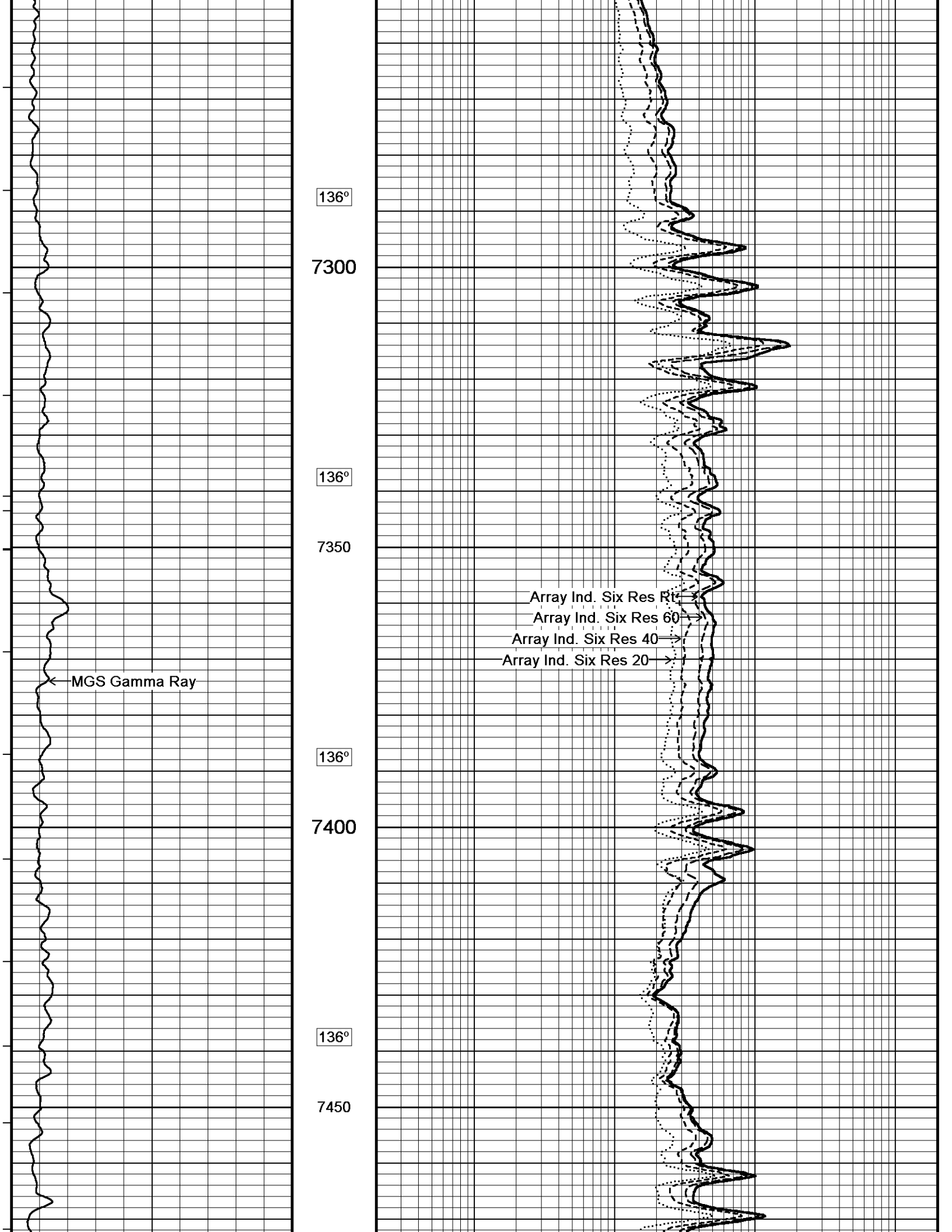












136°

7300

136°

7350

Array Ind. Six Res 80
Array Ind. Six Res 60
Array Ind. Six Res 40
Array Ind. Six Res 20

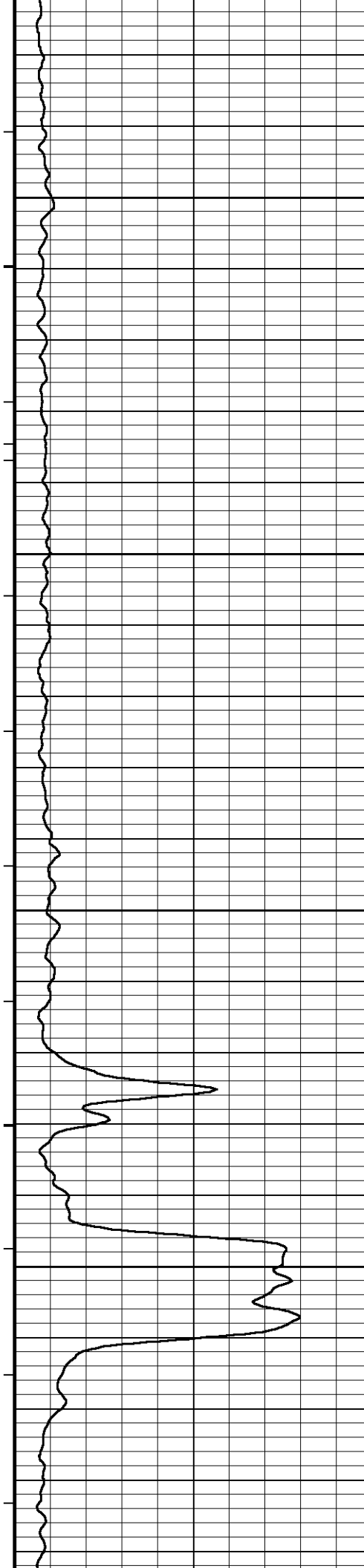
MGS Gamma Ray

136°

7400

136°

7450



136°

7500

136°

7550

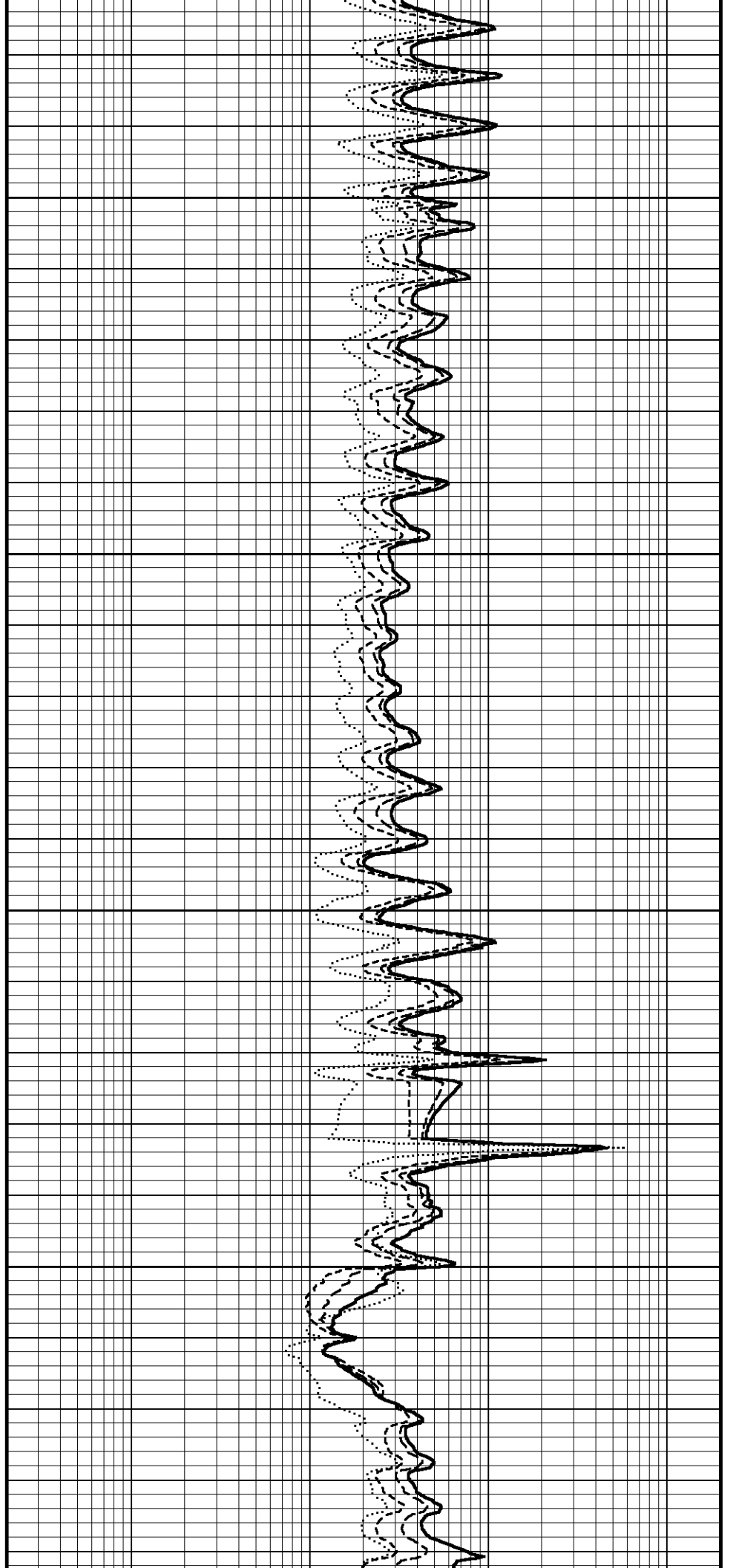
136°

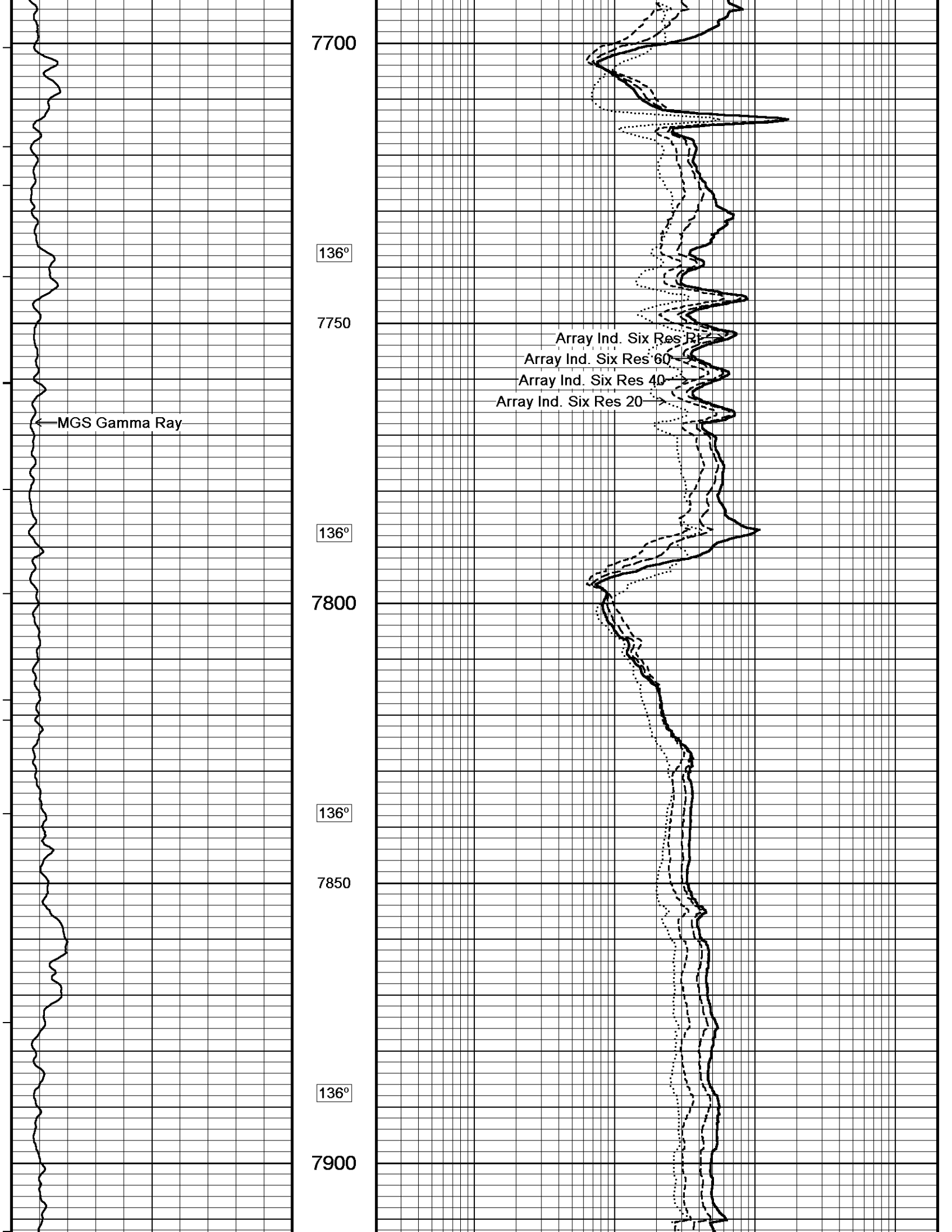
7600

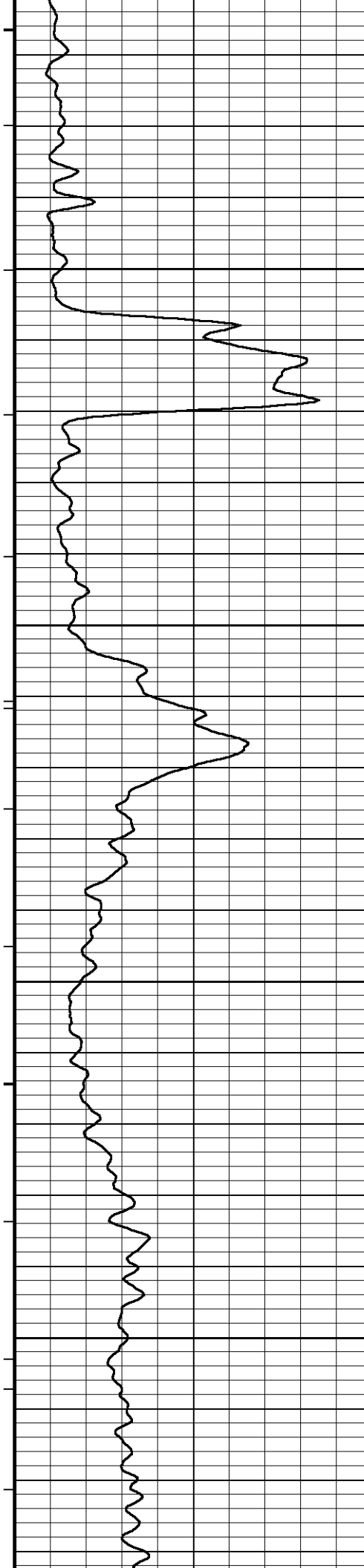
136°

7650

136°







136°

7950

136°

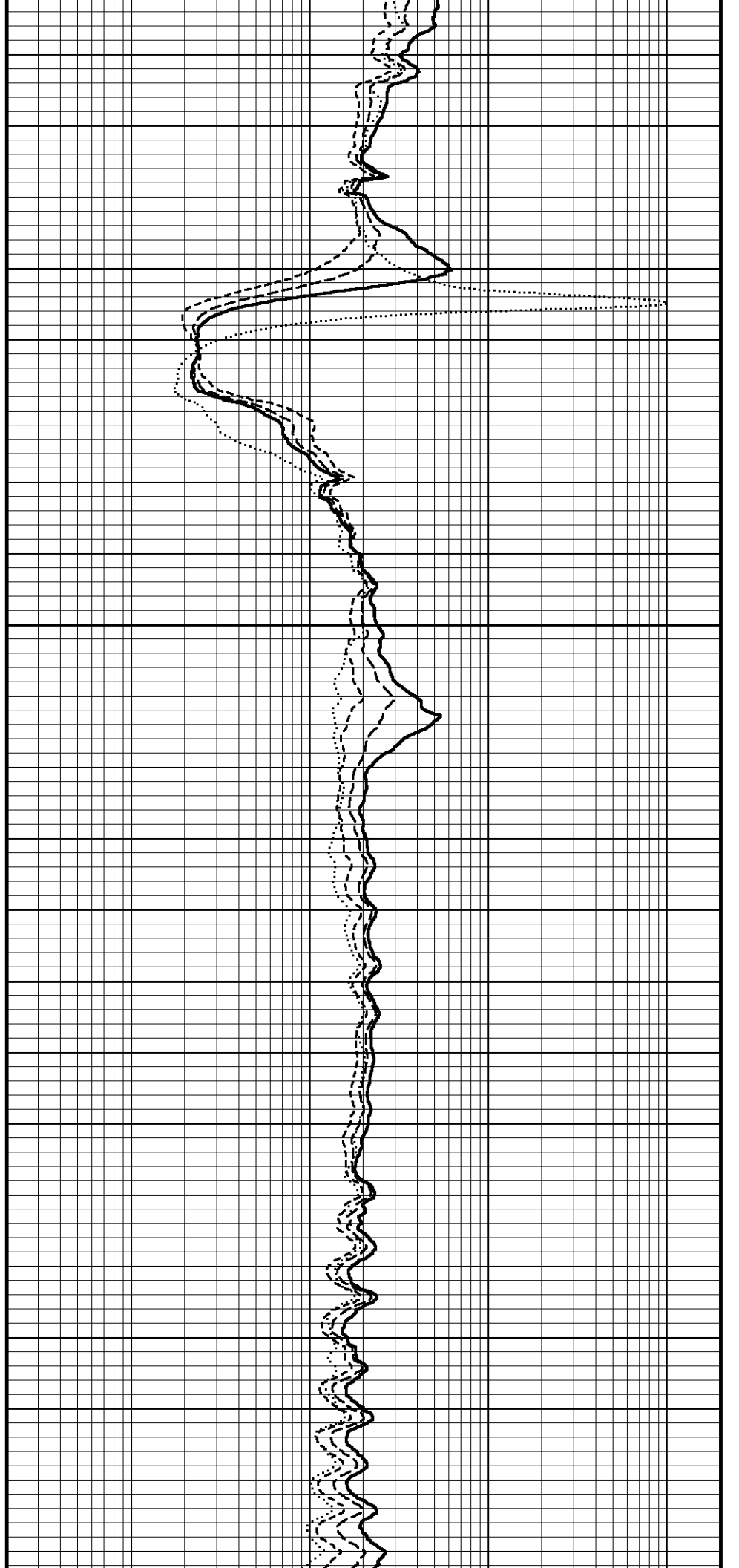
8000

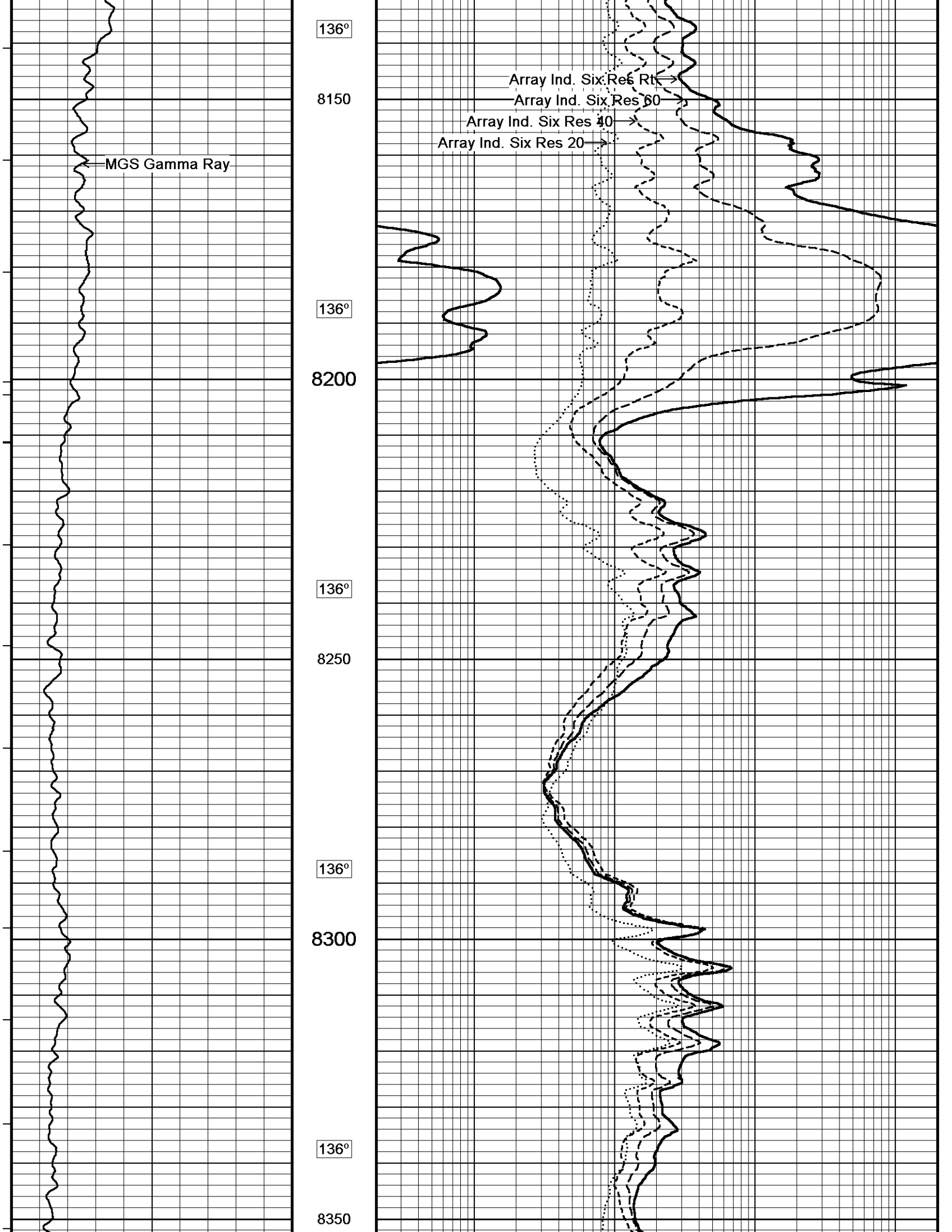
136°

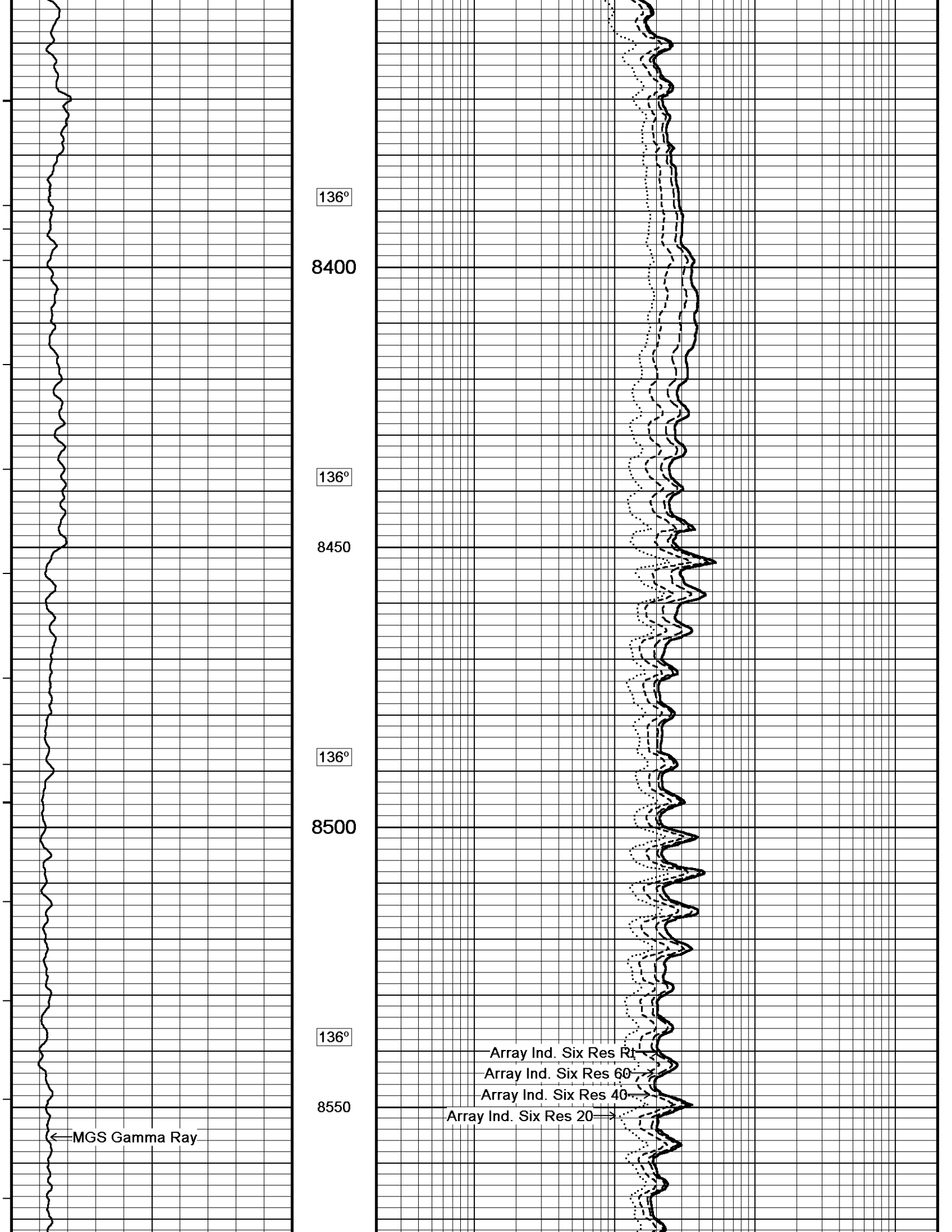
8050

136°

8100







136°

8400

136°

8450

136°

8500

136°

8550

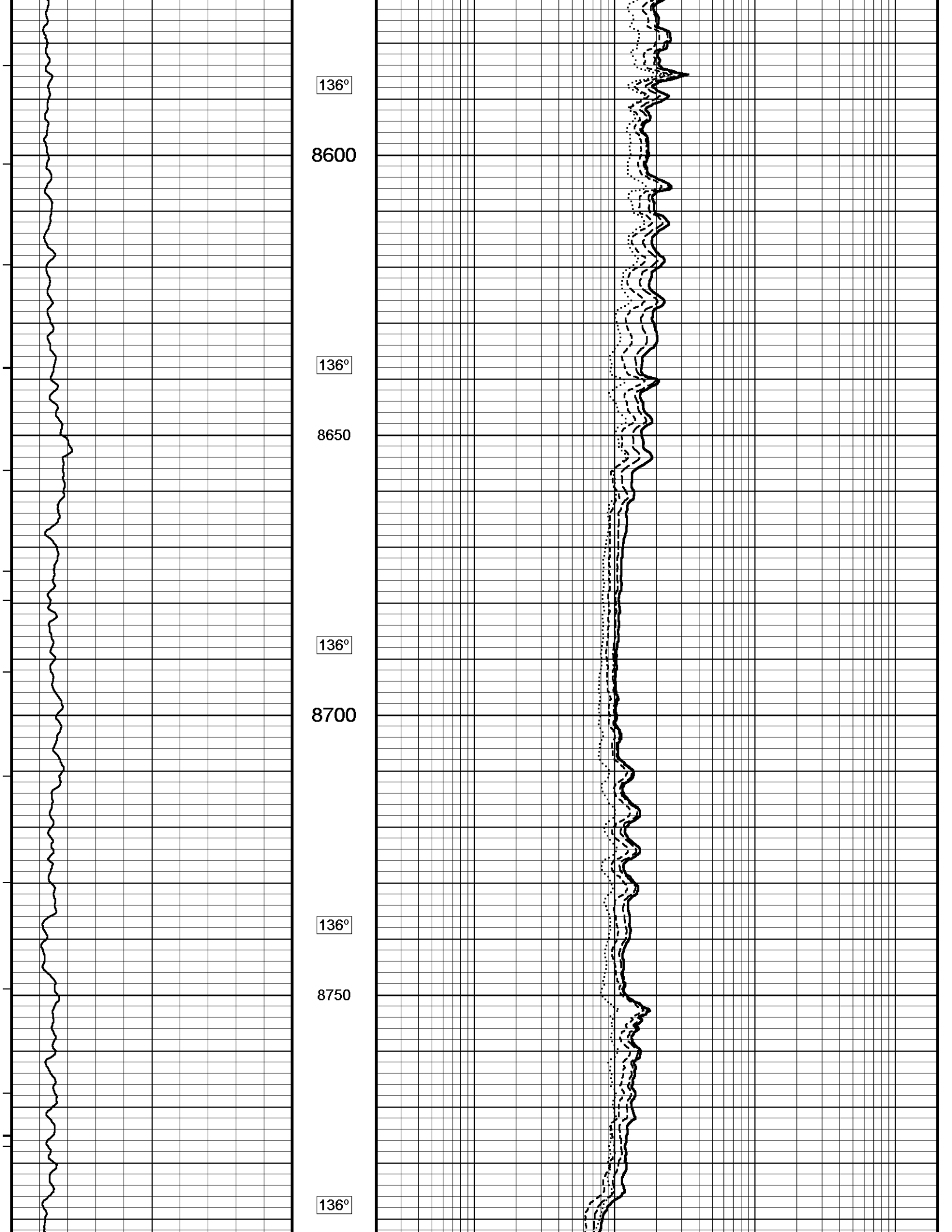
← MGS Gamma Ray

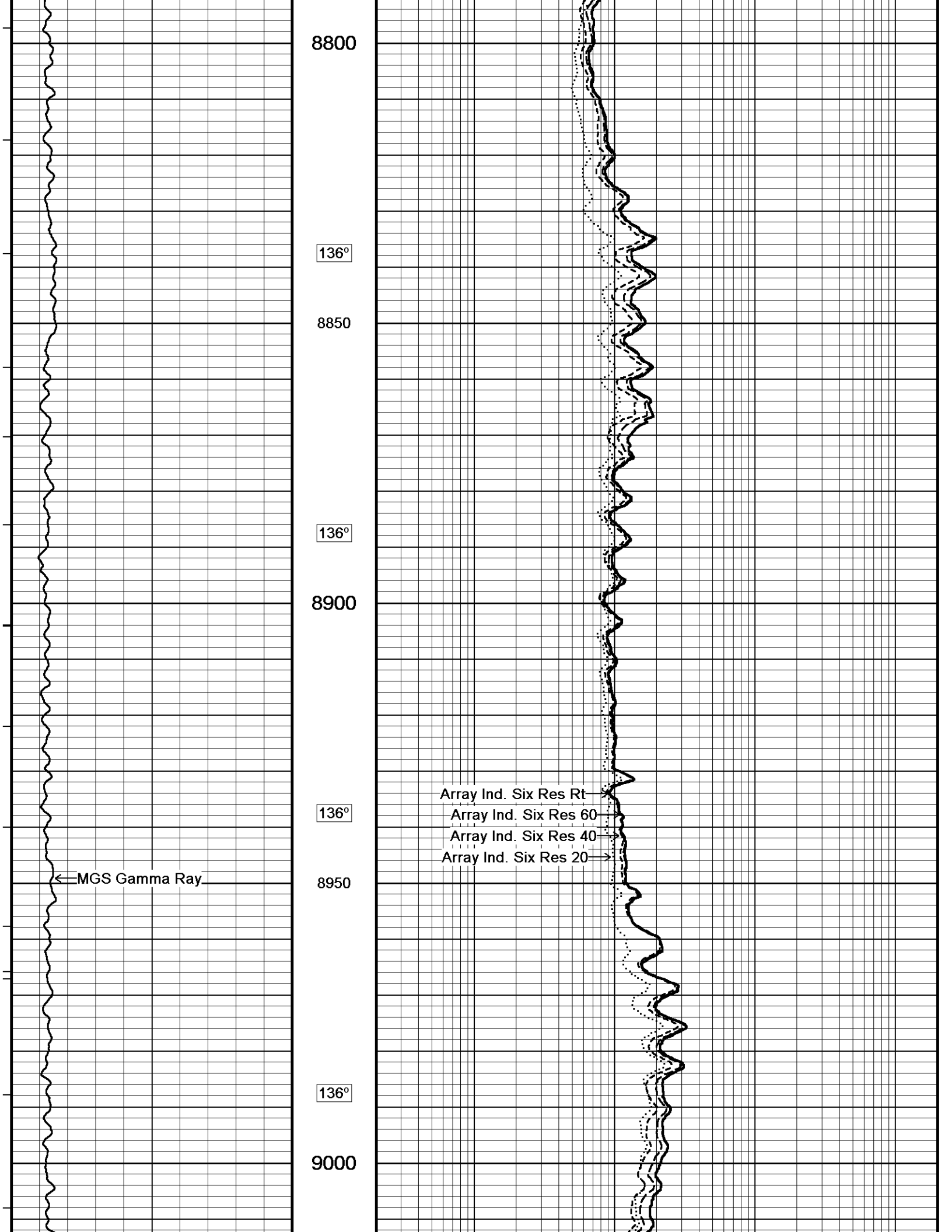
Array Ind. Six Res 20

Array Ind. Six Res 40

Array Ind. Six Res 60

Array Ind. Six Res 80





8800

136°

8850

136°

8900

Array Ind. Six Res Rt

136°

Array Ind. Six Res 60

Array Ind. Six Res 40

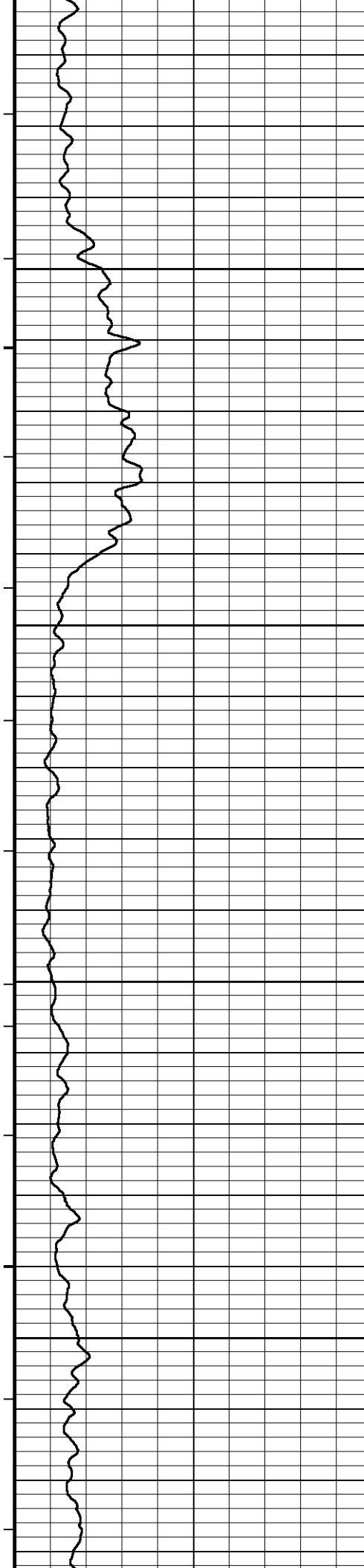
Array Ind. Six Res 20

8950

← MGS Gamma Ray

136°

9000



136°

9050

136°

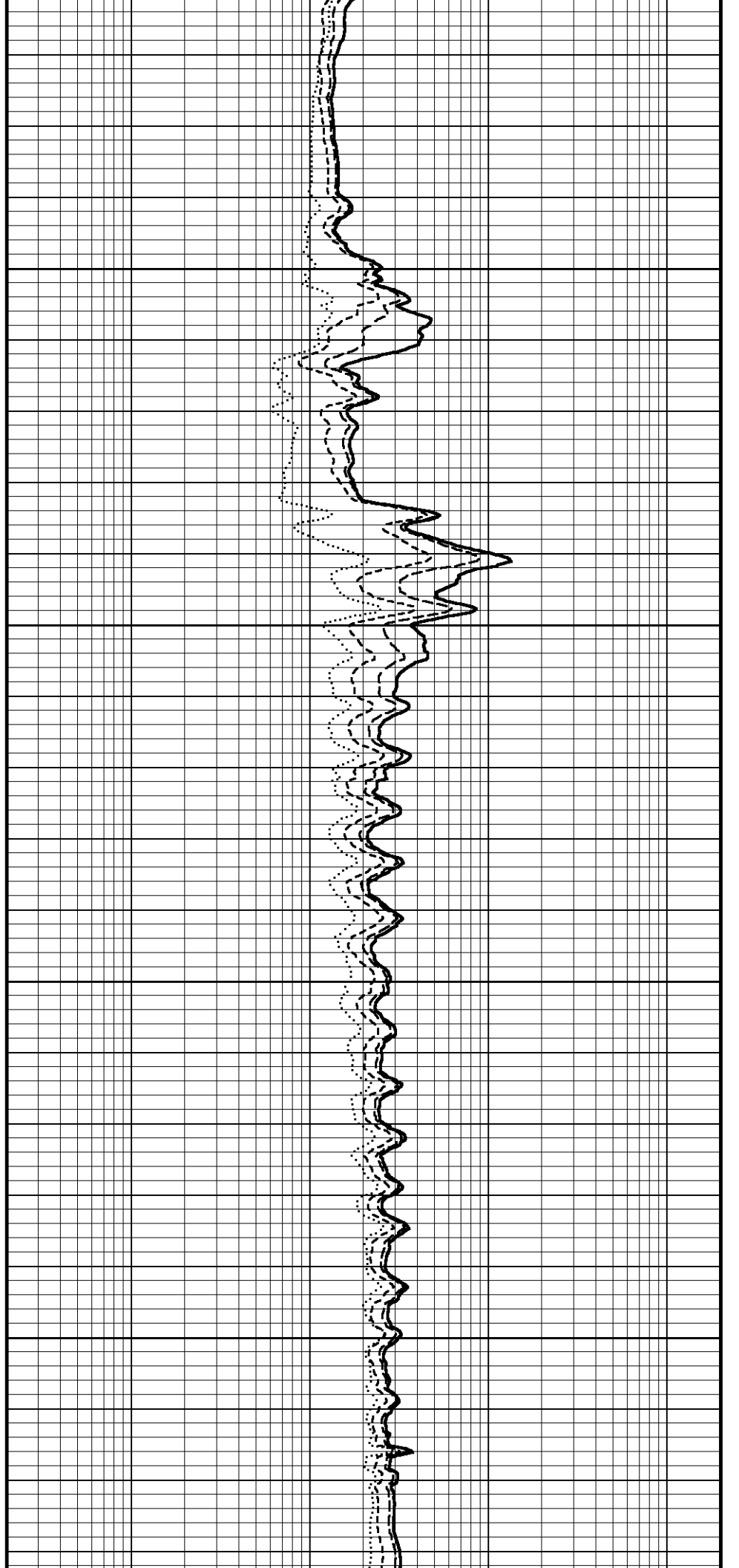
9100

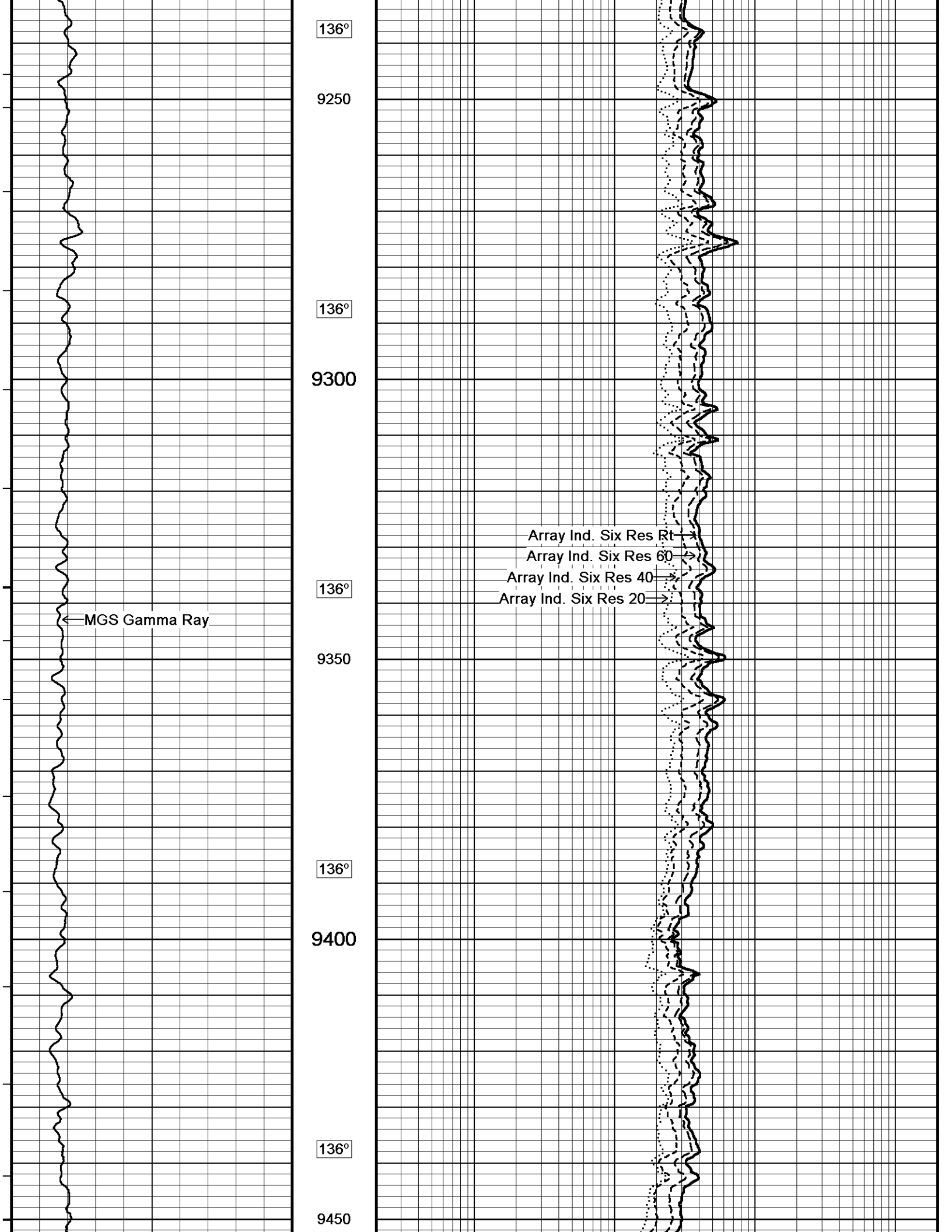
136°

9150

136°

9200





136°

9250

136°

9300

Array Ind. Six Res Rt

Array Ind. Six Res 60

Array Ind. Six Res 40

Array Ind. Six Res 20

136°

MGS Gamma Ray

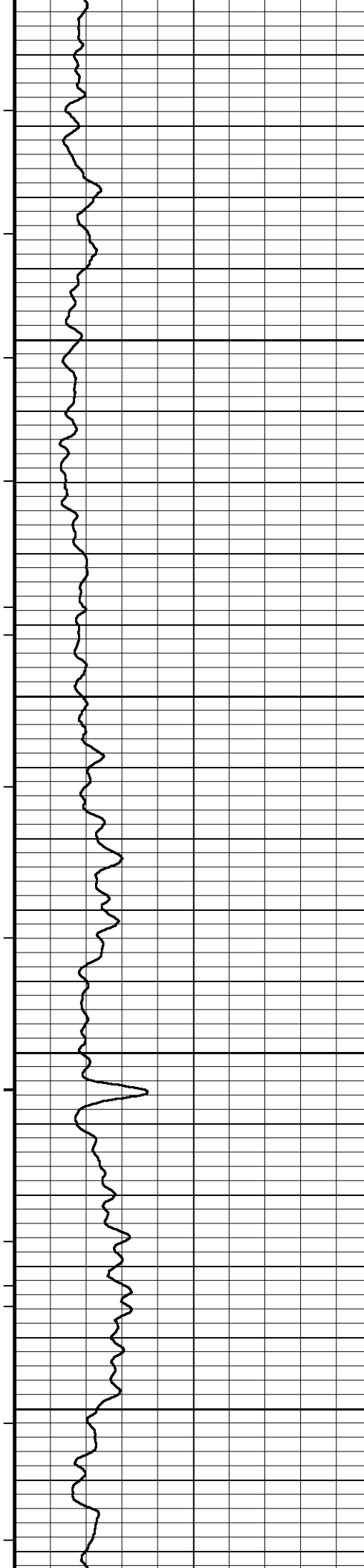
9350

136°

9400

136°

9450



136°

9500

136°

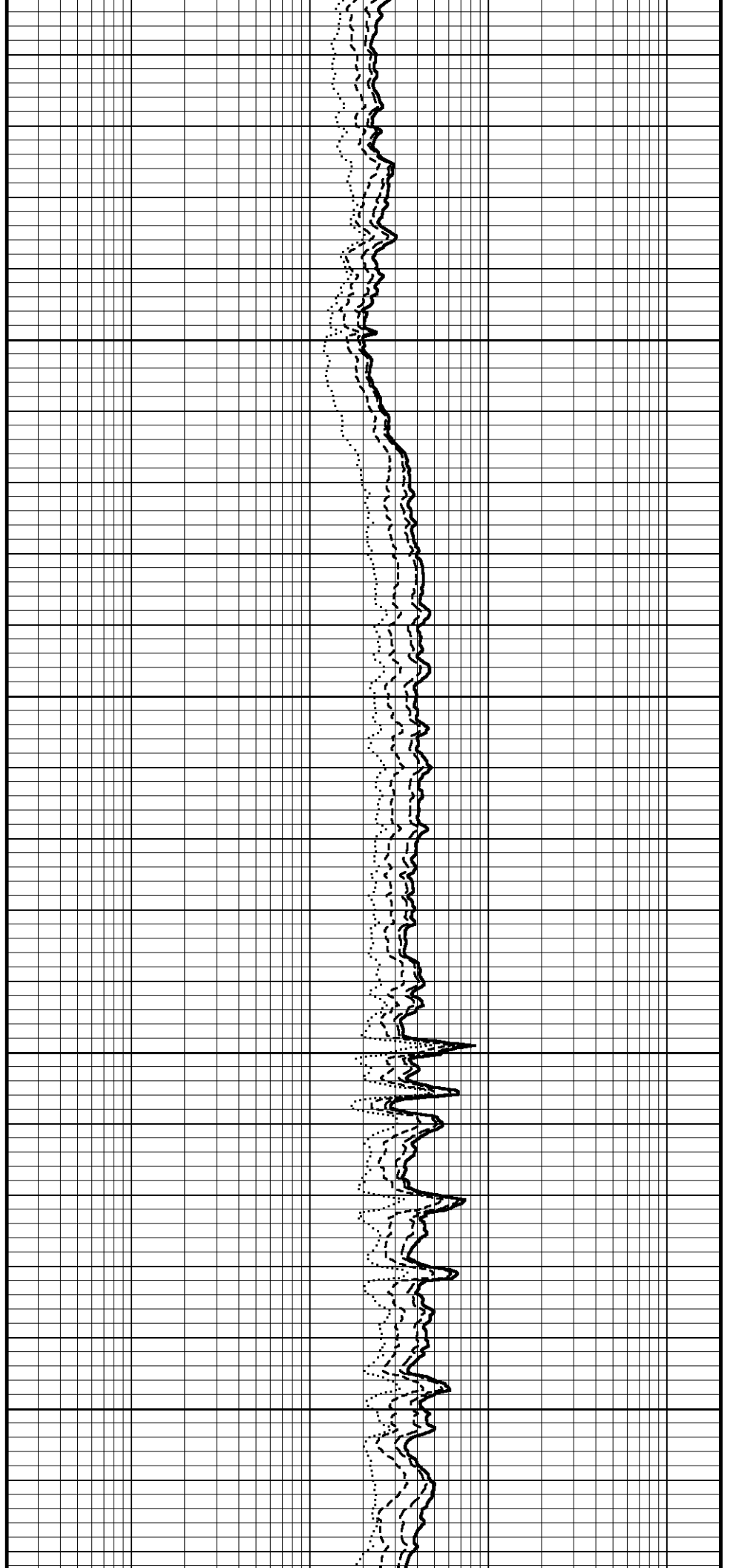
9550

136°

9600

136°

9650



137°

9700

9750

9786

Depth
In
Feet

Timing Marks
every 60.0 sec

MGS Gamma Ray

API

75

225

0 150

150 300

Borehole
Temp in
deg F

Replay
Scale
1:240

Array Ind. Six Res Rt
Array Ind. Six Res 60
Array Ind. Six Res 40
Array Ind. Six Res 20

Array Ind. Six Res 20
ohm metres

0.20 1 10 100 1000 2000

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



BEFORE SURVEY CALIBRATION

C:\Data\SDRG(PEPPER 3419 1-4H)\PEPPER 3419 1-4H MAIN LOGS3.dta

General Constants All 000

Last Edited on 11-JUL-2012,14:36

General Parameters

Mud Resistivity 1.500 ohm-metres
 Mud Resistivity Temperature 80.000 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 Base Density Porosity
 Resistivity used Deep Induction
 RWA Constant A 0.610
 RWA Constant M 2.150

Strain Gauge Constants SER-B.A 159

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 | | 250.0 | | 350.0 | | degrees F |
|---------------|-------|-------|-------|-------|-------|-------|-------|-------|-----------|
| | Inc. | Dec. | Inc. | Dec. | Inc. | Dec. | Inc. | Dec. | |
| Pressure psia | | | | | | | | | |
| 0.0 | 0.000 | 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 | 0.000 |
| 4000.0 | 0.000 | 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 | 0.000 |
| 8000.0 | 0.000 | 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 | | |

Strain Gauge Constants MMS-E.B 157

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 | | 250.0 | | 350.0 | | degrees F |
|---------------|-------|-------|-------|-------|-------|-------|-------|-------|-----------|
| | Inc. | Dec. | Inc. | Dec. | Inc. | Dec. | Inc. | Dec. | |
| Pressure psia | | | | | | | | | |
| 0.0 | 0.000 | 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 | 0.000 |
| 4000.0 | 0.000 | 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 | 0.000 |
| 8000.0 | 0.000 | 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 Calibration MGS-C.J 133

Field Calibration on 05-JUL-2012 15:00

| | Measured | Calibrated (API) |
|--------------------|----------|------------------|
| Background | 41 | 28 |
| Calibrator (Gross) | 1055 | 724 |
| Calibrator (Net) | 1014 | 696 |

Gamma Constants MGS-C.J 133

Last Edited on 05-JUL-2012,13:27

Gamma Calibrator Number 036
 Mud Density 1.00 gm/cc
 Caliper Source for Processing Density Caliper

Tool Position Eccentred 0.00 kppm
 Concentration of KCl

High Resolution Temperature Constants MGS-C.J 133 Last Edited on
 Pre-filter Length 11

Neutron Calibration MDN-B.J 388 Base Calibration on 29-JUN-2012,14:59
 Field Check on 05-JUL-2012 14:46

| | | | | |
|--------------------------|------|----------|------------------|------|
| Base Calibration | | | | |
| | | Measured | Calibrated (cps) | |
| | Near | Far | Near | Far |
| Ratio | 3277 | 100 | 3714 | 110 |
| | | 32.858 | 33.764 | |
| Field Calibrator at Base | | | Calibrated (cps) | |
| Ratio | | | 2207 | 3289 |
| | | | 0.671 | |
| Field Check | | | Calibrated (cps) | |
| Ratio | | | 2231 | 3352 |
| | | | 0.666 | |

Neutron Constants MDN-B.J 388 Last Edited on 05-JUL-2012,14:40

| | | |
|---------------------------------|-----------------|-----------|
| Neutron Source Id | N1055 | |
| Neutron Jig Number | N639 | |
| Epithermal Neutron | No | |
| Caliper Source for Processing | Density Caliper | |
| Stand-off | 0.00 | inches |
| Mud Density | 1.00 | gm/cc |
| Limestone Sigma | 7.10 | cu |
| Sandstone Sigma | 4.26 | cu |
| Dolomite Sigma | 4.70 | cu |
| Formation Pressure Source | Constant Value | |
| Formation Pressure | 0.00 | kpsi |
| Temperature Source | Constant Value | |
| Temperature | 68.00 | degrees F |
| Mud Salinity | 0.00 | kppm |
| Salinity Correction | Not Applied | |
| Formation Fluid Salinity Source | Constant Value | |
| Formation Fluid Salinity | 0.00 | kppm |
| Barite Mud Correction | Not Applied | |

Caliper Calibration MIE-A.A 105 Base Calibration on 09-JUL-2012,10:54
 Field Calibration on

| | | | | | |
|-------------------|----------------|----------------|----------------------|-------------|----------------------|
| Base Calibration | | | | | |
| Reading No | Pads 1-5 Meas. | Pads 3-7 Meas. | Calibrator Size (in) | | |
| 1 | 25412 | 26386 | 5.96 | | |
| 2 | 35368 | 36570 | 7.97 | | |
| 3 | 43357 | 46262 | 9.84 | | |
| 4 | 56756 | 59167 | 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 | 26179 | 24910 | 25666 | 24796 | 5.96 |
| 2 | 34930 | 33437 | 34126 | 33897 | 7.97 |
| 3 | 43939 | 40603 | 41291 | 43056 | 11.91 |
| 4 | 0 | 0 | 0 | 0 | 0.00 |
| 5 | 0 | 0 | 0 | 0 | 0.00 |
| Field Calibration | | | | | |
| | Measured | Measured | Actual | | |
| | 0 | 0 | 0 | | |
| | 0.00 | 0.00 | 0.00 | | |
| | Measured | Measured | Measured | Measured | Actual |
| | 0 | 0 | 0 | 0 | 0 |
| | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

Caliper Constants MIE-A.A 105 Last Edited on
 Caliper Difference for BRKT 3.000 mm

Accelerometer Parameters MIE-A.A 105

Date Of Last Accelerometer Calibration 29-FEB-2012,11:33

| | | | |
|--------|-----------------|-----------------|-----------------|
| | X Accelerometer | Y Accelerometer | Z Accelerometer |
| Slope | -1.112408 | -1.110445 | -1.120631 |
| Offset | 0.011742 | 0.001482 | 0.006930 |

Accelerometer Constants MIE-A.A 105

Last Edited on 09-JUL-2012,08:48

Accelerometer Calibrator Number 000

Accelerometer Temperature Characterisation

X Accelerometer

| | | | | |
|--------------------|--------------|---------------|--------------|---------------|
| Serial Number | 3745 | | | |
| Calibration Date | 10-Jul-2007 | | | |
| | B0 | B1 | B2 | B3 |
| Bias(g) | 0.00000e+000 | -2.02925e-005 | 6.54754e-008 | -1.79517e-010 |
| | SF0 | SF1 | SF2 | SF3 |
| Scale Factor(mA/g) | 3.00000e+000 | 2.48327e-004 | 4.75709e-007 | -6.03094e-011 |

Y Accelerometer

| | | | | |
|--------------------|--------------|--------------|---------------|---------------|
| Serial Number | 218 | | | |
| Calibration Date | 10-Jul-2007 | | | |
| | B0 | B1 | B2 | B3 |
| Bias(g) | 0.00000e+000 | 2.20530e-005 | -2.95334e-008 | 1.50437e-010 |
| | SF0 | SF1 | SF2 | SF3 |
| Scale Factor(mA/g) | 3.00000e+000 | 2.70587e-004 | 5.34011e-007 | -5.79861e-012 |

Z Accelerometer

| | | | | |
|--------------------|--------------|--------------|---------------|---------------|
| Serial Number | 231 | | | |
| Calibration Date | 10-Jul-2007 | | | |
| | B0 | B1 | B2 | B3 |
| Bias(g) | 0.00000e+000 | 4.37276e-006 | -7.93417e-011 | 8.17287e-011 |
| | SF0 | SF1 | SF2 | SF3 |
| Scale Factor(mA/g) | 3.00000e+000 | 2.74026e-004 | 6.12371e-007 | -2.15117e-010 |

Magnetometer Parameters MIE-A.A 105

Date Of Last Magnetometer Calibration 09-JUL-2012,10:55

| | | | |
|--------|----------------|----------------|----------------|
| | X Magnetometer | Y Magnetometer | Z Magnetometer |
| Slope | -1.000000 | -0.998568 | -0.980616 |
| Offset | 0.005777 | -0.016073 | 0.003505 |

Magnetometer Constants MIE-A.A 105

Last Edited on

Magnetometer Calibrator Number 000

Navigation Constants MIE-A.A 105

Last Edited on

Magnetic Declination 0.00 degrees East

Imager Pad Check MIE-A.A 105

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.A 105

Last Edited on 09-JUL-2012,08:49

| | | |
|----------------------------------|------------------------|---------|
| 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 | |

Base Calibration

Test Loop Calibration

| Channel | Measured | | Calibrated (mmho/m) | |
|---------|----------|-------|---------------------|-------|
| | Low | High | Low | High |
| 1 | 16.8 | 458.6 | 9.3 | 966.2 |
| 2 | 6.3 | 377.7 | 7.6 | 821.4 |
| 3 | 3.8 | 258.6 | 5.2 | 566.0 |
| 4 | 1.9 | 132.3 | 2.6 | 279.2 |

Array Temperature 77.9 Deg F

| Channel | Base Check (mmho/m) | | Field Check (mmho/m) | |
|---------|---------------------|------|----------------------|--------|
| | Low | High | Low | High |
| 1 | 0.0 | 0.0 | 15.4 | 3954.5 |
| 2 | 0.0 | 0.0 | 30.8 | 3557.2 |
| 3 | 0.0 | 0.0 | 28.5 | 3056.0 |
| 4 | 0.0 | 0.0 | 20.0 | 2084.2 |
| Deep | 0.0 | 0.0 | 17.5 | 2002.6 |
| Medium | 0.0 | 0.0 | 41.0 | 4005.1 |
| Shallow | 0.0 | 0.0 | 46.0 | 5251.5 |

Array Temperature 0.0 90.7 Deg F

Induction Constants MAI-B.J 390

Last Edited on 11-JUL-2012,17:30

| | | |
|-----------------------------------|--------------------------|------------|
| Induction Model | RtAP-WBM | |
| Caliper for Borehole Corr. | Bit Size | |
| 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 | 0.0060 | 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 390

Field Calibration on 07-NOV-2011 02:31

| | Measured | Calibrated(Deg F) |
|-------|----------|-------------------|
| Lower | 50.00 | 50.00 |
| Upper | 100.00 | 100.00 |

High Resolution Temperature Constants MAI-B.J 390

Last Edited on

Photo Density Calibration MPD-C.J 434

Base Calibration on 29-JUN-2012 10:58
Field Check on 05-JUL-2012 14:40

Density Calibration

| Base Calibration | Measured | | Calibrated (sdu) | |
|------------------|----------|-------|------------------|-------|
| | Near | Far | Near | Far |
| Reference 1 | 52940 | 25712 | 59869 | 31110 |
| Reference 2 | 21852 | 2601 | 24557 | 2522 |

Field Check at Base

1309.1 1448.8

Field Check

1303.1 1448.2

PE Calibration

| Base Calibration | WS | Measured | | Calibrated Ratio |
|------------------|-------|----------|-------|------------------|
| | | WH | Ratio | |
| Background | 237 | 1166 | | |
| Reference 1 | 21674 | 52729 | 0.416 | 0.369 |
| Reference 2 | 6063 | 21699 | 0.284 | 0.271 |

Field Check at Base

237.1 1166.2

Field Check

236.8 1163.4

Density Constants MPD-C.J 434

Last Edited on 29-JUN-2012,10:13

| | | |
|-------------------------------|-----------------|-------|
| Density Source Id | 236 | |
| 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 | 1.00 | gm/cc |
| Mud Density Z/A Multiplier | 1.11 | |
| Mud Filtrate Density | 1.00 | gm/cc |
| Dry Hole Mud Filtrate Density | 1.00 | gm/cc |
| DNCT | 0.00 | gm/cc |
| CRCT | 0.00 | gm/cc |
| Density Z/A Correction | Hybrid | |
| Matrix density (gm/cc) | Depth (m) | |
| 2.71 | | |
| 0.00 | 0.00 | |
| 0.00 | 0.00 | |
| 0.00 | 0.00 | |
| 0.00 | 0.00 | |
| 0.00 | 0.00 | |
| 0.00 | 0.00 | |
| 0.00 | 0.00 | |
| 0.00 | 0.00 | |

Caliper Calibration MPD-C.J 434

Base Calibration on 29-JUN-2012 11:22
Field Calibration on 05-JUL-2012 14:35

| Base Calibration | Measured | Calibrator Size (in) |
|------------------|----------|----------------------|
| Reading No | | |
| 1 | 16576 | 4.02 |
| 2 | 26320 | 6.00 |
| 3 | 36352 | 8.03 |
| 4 | 46544 | 10.02 |
| 5 | 57344 | 12.01 |
| 6 | N/A | N/A |

Field Calibration

| Measured Caliper (in) | Actual Caliper (in) |
|-----------------------|---------------------|
| 5.94 | 6.00 |

Shuttle Mechanical Release (SMR A)
 SMR-A 152 LG: 8.53 ft WT: 77.2 lb OD: 2.52 in

Shuttle Electrical Release
 SER-B.A 159 LG: 6.90 ft WT: 50.7 lb OD: 2.24 in

MBS-G.A 200v Compact Battery Sub
 MBS-G.A 116 LG: 10.22 ft WT: 66.1 lb OD: 2.24 in

Spacer - Empty Battery
 MLK-A 1 LG: 14.23 ft WT: 30.9 lb OD: 2.24 in

SKJ-E.B Compact Knuckle Joint
 SKJ-E.B 478 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

Compact Memory Sub E.B
 MMS-E.B 157 LG: 5.20 ft WT: 37.5 lb OD: 2.24 in

SKJ-E.B Compact Knuckle Joint
 SKJ-E.B 455 LG: 2.17 ft WT: 24.3 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 69 LG: 3.17 ft WT: 26.5 lb OD: 2.24 in

SKJ-E.B Compact Knuckle Joint
 SKJ-E.B 479 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

SHA-J.A Compact Swivel Head Adaptor
 SHA-J.A 431 LG: 2.30 ft WT: 22.0 lb OD: 2.24 in

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

Compact Neutron
 MDN-B.J 388 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in

Compact Density/Caliper
 MPD-C.J 434 LG: 9.59 ft WT: 90.4 lb OD: 2.24 in

MIS-A.A Compact Inline Bowspring sub
 MIS-A.A 275 LG: 5.70 ft WT: 33.1 lb OD: 2.24 in

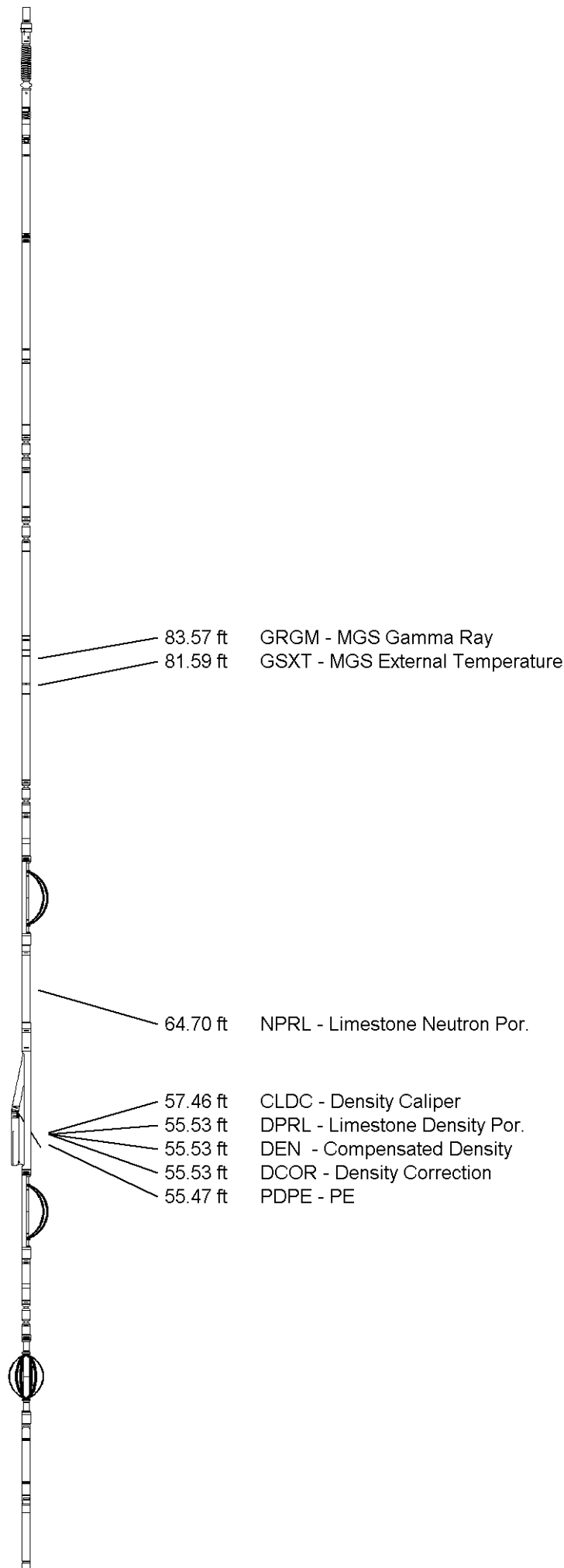
SHA-J.A Compact Swivel Head Adaptor
 SHA-J.A 434 LG: 2.30 ft WT: 22.0 lb OD: 2.24 in

SKJ-E.B Compact Knuckle Joint
 SKJ-E.B 474 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

MIS-A.A Compact Inline Bowspring sub
 MIS-A.A 62 LG: 5.70 ft WT: 33.1 lb OD: 2.24 in

Compact MMI Memory Section
 MIM-A.A 105 LG: 4.65 ft WT: 26.5 lb OD: 2.24 in

Compact MMI Electrode Section



MIE-A.A 105 LG: 13.96 ft WT: 99.2 lb OD: 4.09 in

MIS-D.B Compact Inline Bowspring sub
 MIS-D.B 593 LG: 5.70 ft WT: 33.1 lb OD: 2.24 in

MIS-E.B Compact Inline Standoff sub
 MIS-E.B 575 LG: 2.14 ft WT: 15.4 lb OD: 2.24 in

Compact Induction
 MAI-B.J 390 LG: 10.81 ft WT: 48.5 lb OD: 2.24 in

Total Length: 135.45 ft Weight: 930.4 lb



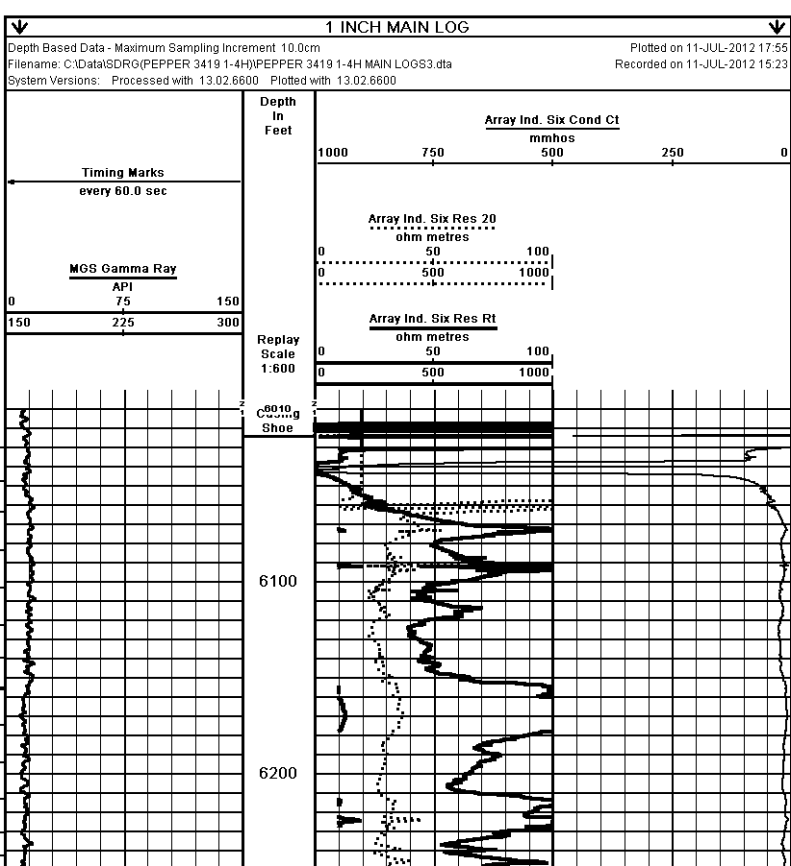
- 3.34 ft CTAS - Array Ind. Six Cond Ct
 - 3.34 ft R40S - Array Ind. Six Res 40
 - 3.34 ft R30S - Array Ind. Six Res 30
 - 3.34 ft R20S - Array Ind. Six Res 20
 - 3.34 ft R60S - Array Ind. Six Res 60
 - 3.34 ft R85S - Array Ind. Six Res 85
 - 3.34 ft RTAS - Array Ind. Six Res Rt
 - Tool Zero (0.13ft from bottom)
- All measurements relative to tool zero.

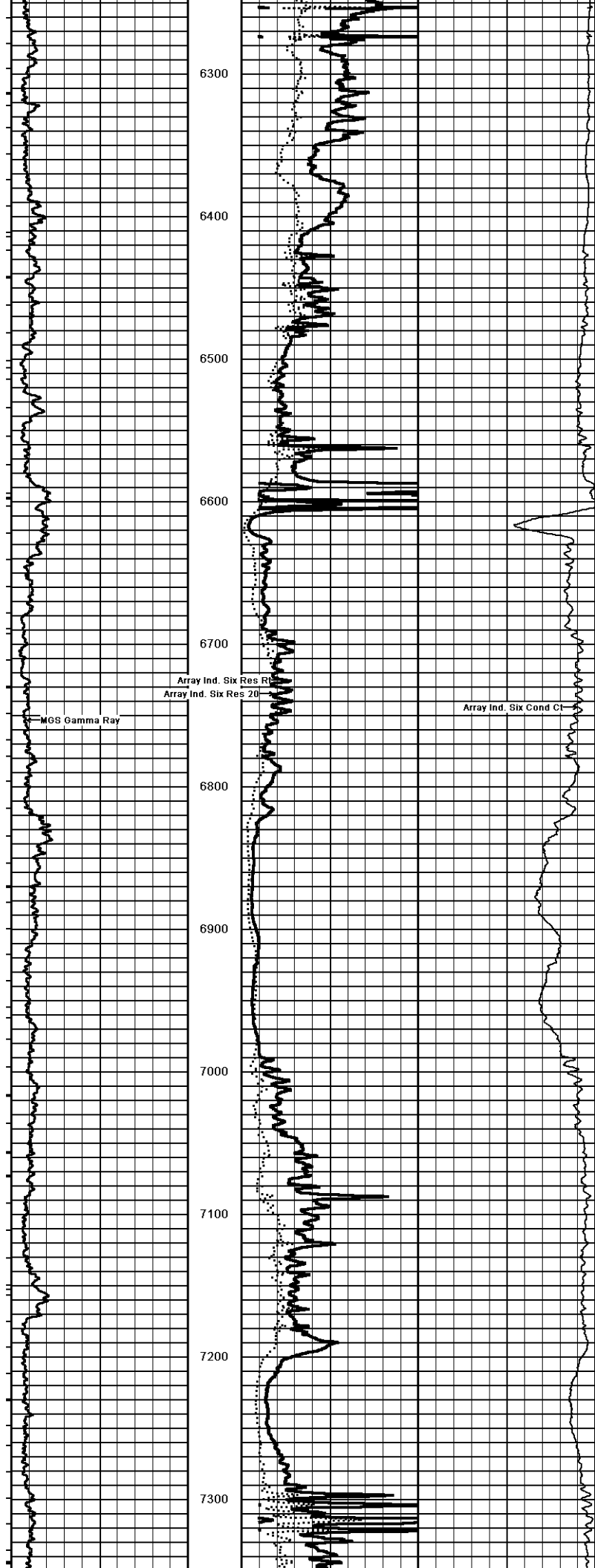
| | |
|-----------------|--|
| COMPANY | SANDRIDGE EXPLORATION & PRODUCTION LLC |
| WELL | PEPPER 3419 1-4H |
| FIELD | SADDLE |
| PROVINCE/COUNTY | COMANCHE |
| COUNTRY/STATE | U.S.A./KANSAS |

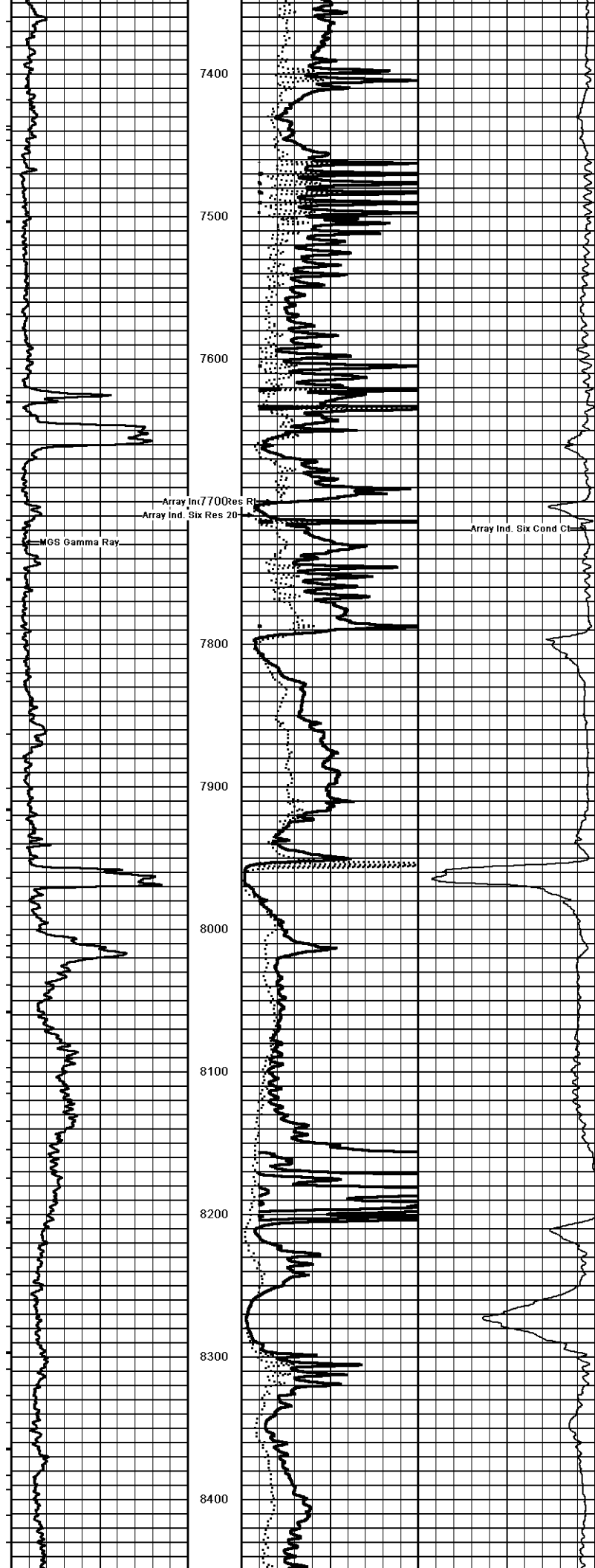
| | | | | | |
|-------------------------|---------|------|---------------|---------|------|
| Elevation Kelly Bushing | 2014.00 | feet | First Reading | 9770.00 | feet |
| Elevation Drill Floor | 2014.00 | feet | Depth Driller | 9804.00 | feet |
| Elevation Ground Level | 1994.00 | feet | Depth Logger | 9774.00 | feet |

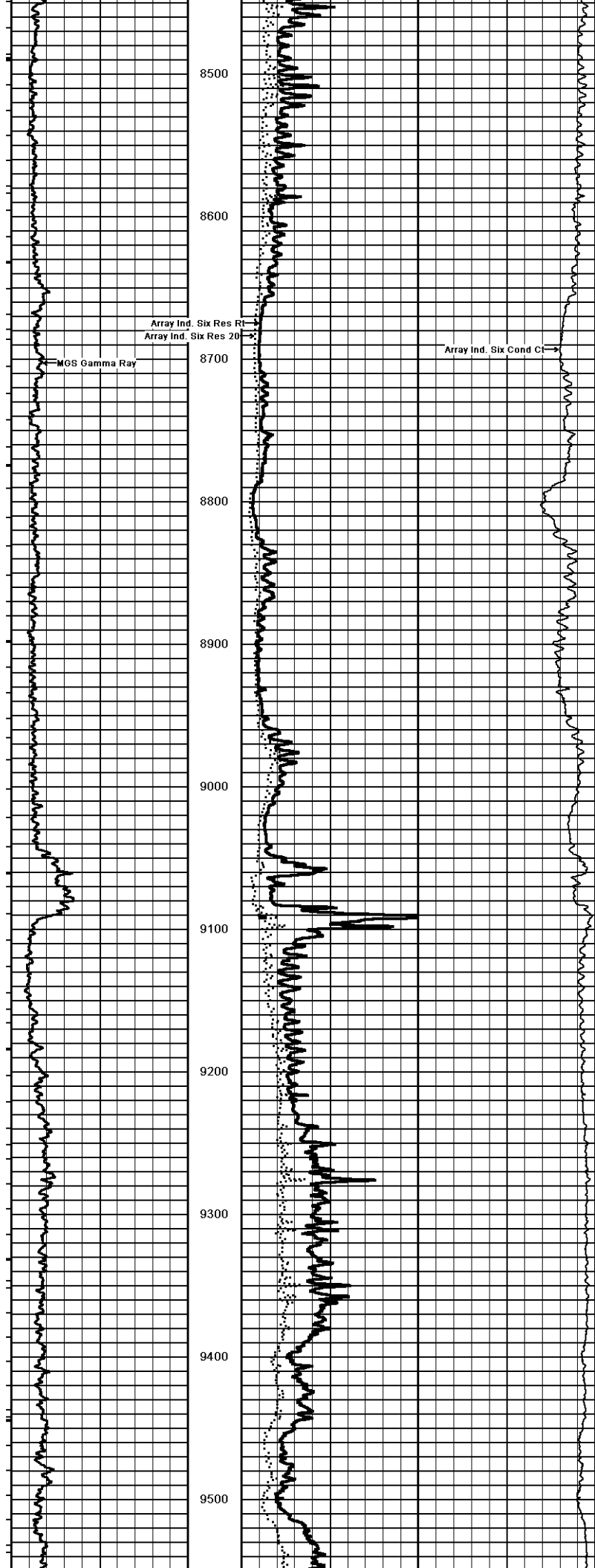


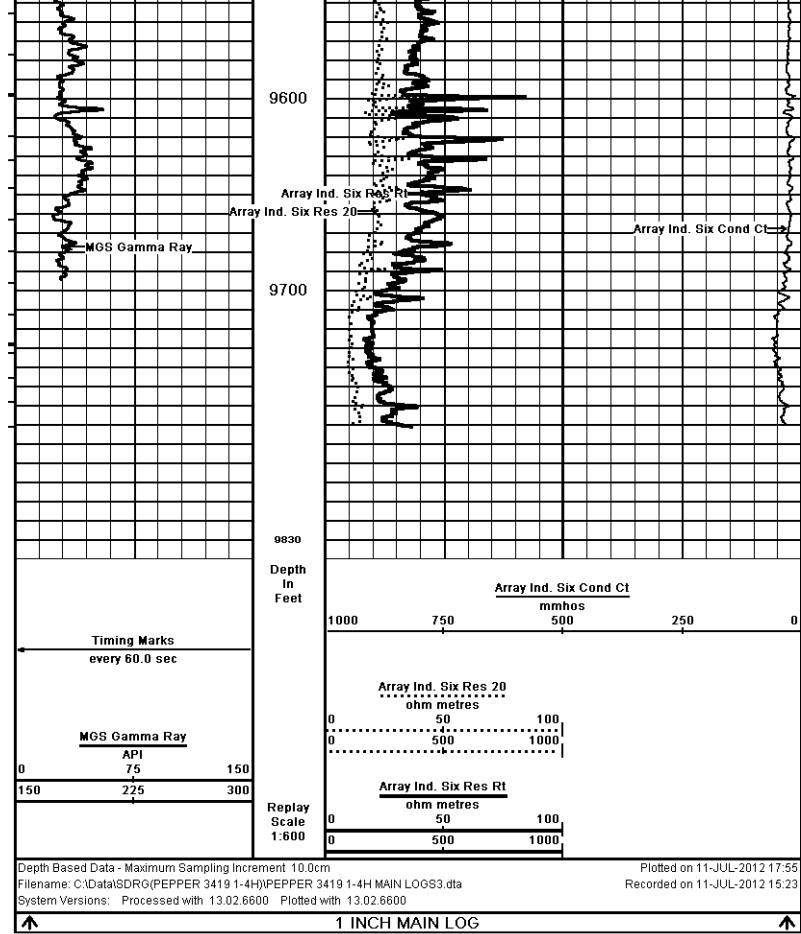
CML IMPULSE SHUTTLE
 ARRAY INDUCTION
 LOG












1 INCH MAIN LOG

| | | | | | |
|--|--|---|---------------|---------|------|
| COMPANY | SANDRIDGE EXPLORATION & PRODUCTION LLC | | | | |
| WELL | PEPPER 3419 1-4H | | | | |
| FIELD | SADDLE | | | | |
| PROVINCE/COUNTY | COMANCHE | | | | |
| COUNTRY/STATE | U.S.A./KANSAS | | | | |
| Elevation Kelly Bushing | 2014.00 | feet | First Reading | 9770.00 | feet |
| Elevation Drill Floor | 2014.00 | feet | Depth Driller | 9804.00 | feet |
| Elevation Ground Level | 1994.00 | feet | Depth Logger | 9774.00 | feet |
|  | | CML IMPULSE SHUTTLE ARRAY INDUCTION LOG | | | |