



Weatherford

COMPACT TRIPLE COMBO

QUICKLOOK

LOG

COMPANY

ALTA MESA SERVICES, LP

WELL

ML INVESTMENTS 2-3

FIELD

WILDCAT

PROVINCE/COUNTY

PAYETTE

COUNTRY/STATE

U.S.A. / IDAHO

LOCATION

SHL: 2444' FNL& 1352' FWL

SEC 3

TWP 8N

RGE 4W

Other Services

API Number

11-075-20029

Permanent Datum G.L., Elevation 2635 feet

Log Measured From KB

Drilling Measured From KB @ 13.5 FT

Date

3-JAN-2016

Run Number

ONE

Service Order

2653-138717807

Depth Driller

5034.00 feet

Depth Logger

5034.00 feet

First Reading

5006.00 feet

Last Reading

1111.00 feet

Casing Driller

1105.00 feet

Casing Logger

1111.00 feet

Bit Size

8.750 inches

Hole Fluid Type

WBM

Density / Viscosity

9.70 lb/USg 55.00 sec/qt

PH / Fluid Loss

9.50 9.20 ml/30Min

Sample Source

FLOWLINE

Rm @ Measured Temp

1.84 @ 75.0 ohm-m

Rmf @ Measured Temp

1.47 @ 75.0 ohm-m

Rmc @ Measured Temp

2.21 @ 75.0 ohm-m

Source Rmf / Rmc

CALC CALC

Rm @ BHT

0.83 @170.0 ohm-m

Time Since Circulation

0 HOURS

Max Recorded Temp

170.00 deg F

Equipment / Base

13173 CASPER

Recorded By

W. HANKS

Witnessed By

MIKE MCMENNAMY

Elevations:
KB 2648.50
DF 2647.00
GL 2635.00

BOREHOLE RECORD

Last Edited: 01-JAN-2016 20:41

Bit Size inches	Depth From feet	Depth To feet
8.750	1105.00	5034.00

CASING RECORD

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	9.625	0.00	1105.00	40.00

REMARKS

SOFTWARE VERSION USED: 15.03.5939
 TOOLS CONVEYED VIA DRILL PIPE/COMPACT WELL SHUTTLE

LOGS RECORDED USING A 200V MEMORY LOGGING SYSTEM
 200V EXTENDED BATTERIES USED TO POWER TOOLSTRING

ALL DEPTHS RECORDED WITH WEATHERFORD ADVANTAGE DEPTH SYSTEM IN CONJUNCTION WITH RIG PASON EDR SYSTEM
 ALL DEPTHS CORRECTED TO DRILLER'S STRAP DEPTH

TIGHT PULLS, BOREHOLE SIZE, AND RUGOSITY MAY AFFECT DATA QUALITY

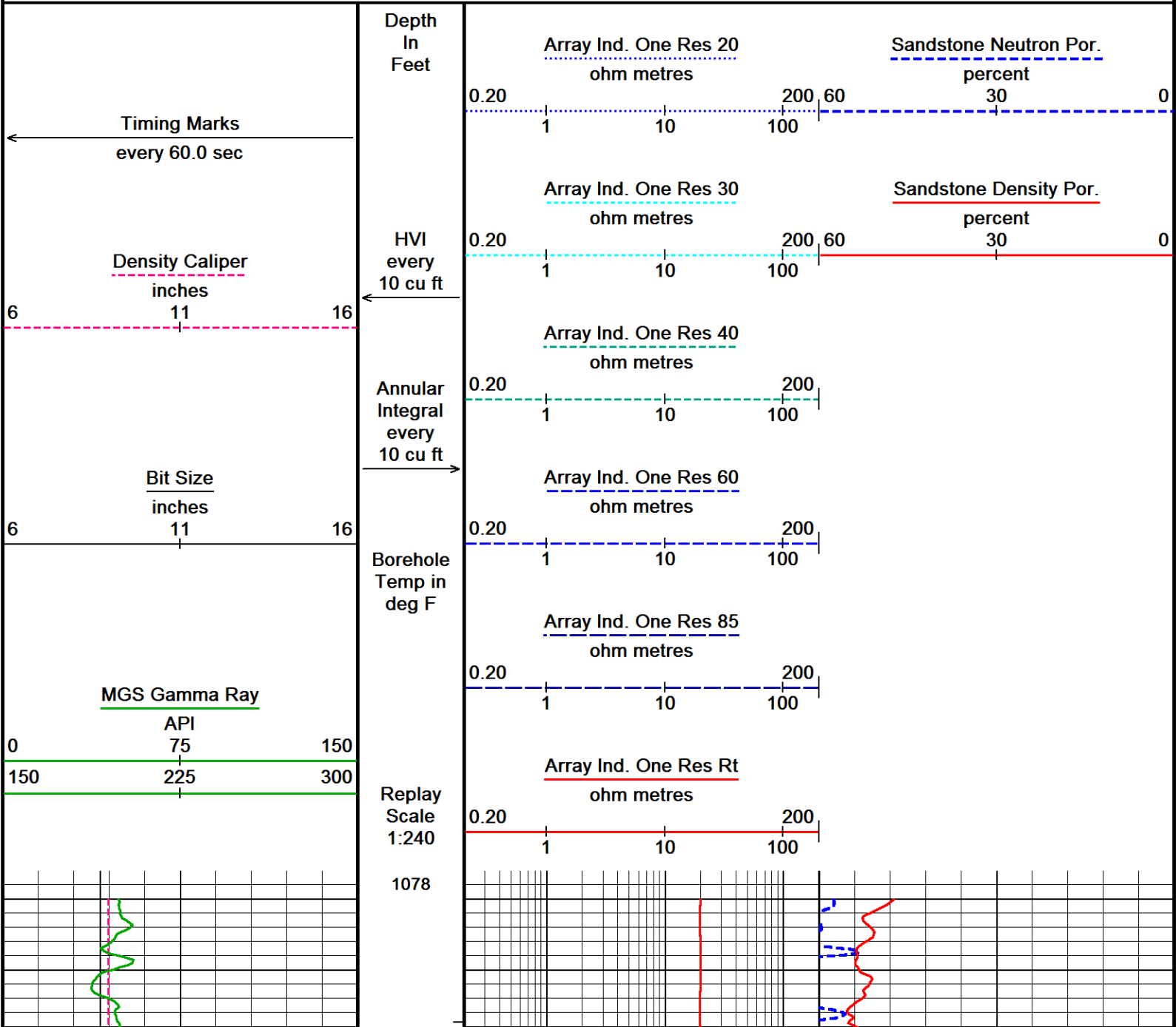
HARDWARE USED: MPD - 4 INCH PROFILE PLATE
 MAI - INDUCTION STANDOFF ASSEMBLY
 MFE AND MAI STOOD OFF 0.5 INCHES USING ISA AND MISE ANCILLARIES

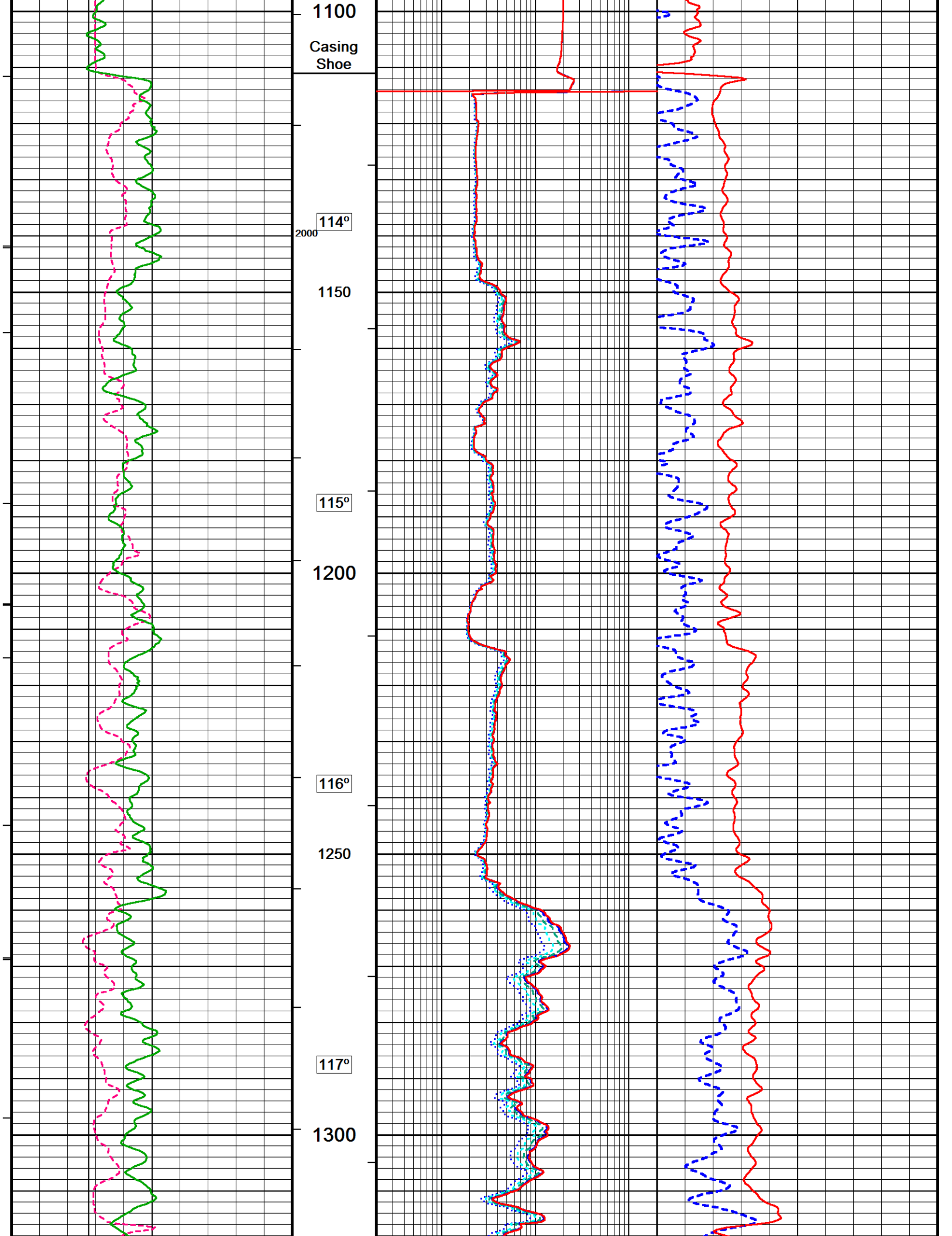
5.5 INCH PRODUCTION CASING SIZE USED TO CALCULATE ANNULAR HOLE VOLUME
 ANNULAR HOLE VOLUME FROM T.D. TO SURFACE CASING : 1375 CUBIC FEET
 TOTAL HOLE VOLUME FROM T.D. TO SURFACE CASING: 2015 CUBIC FEET

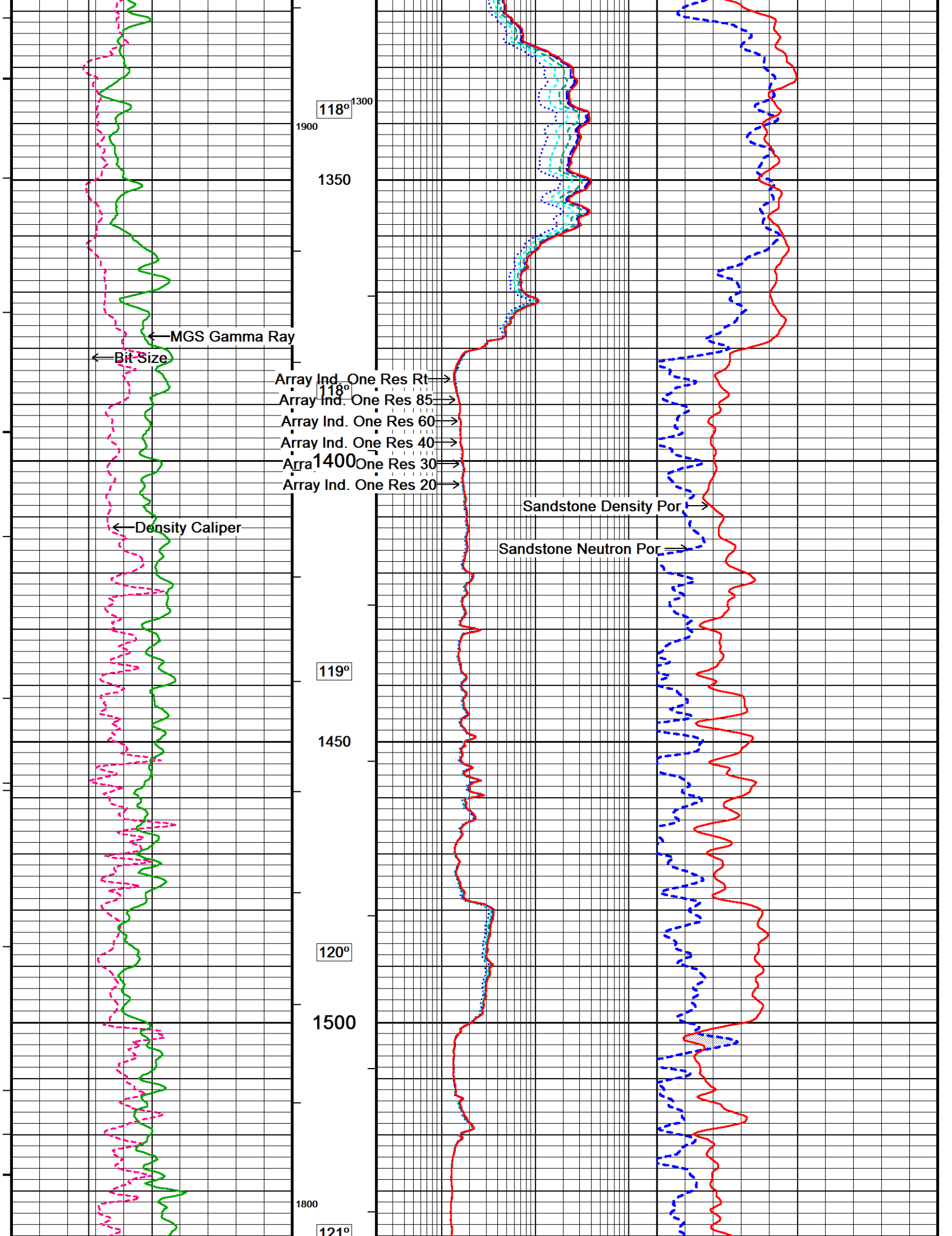
In interpreting, communicating or providing information and/or making recommendations, either written or oral, as to logs or test or other data, type or amount of material, or Work or other service to be furnished, or manner of performance, or in predicting results to be obtained, the Contractor will give the Company the benefit of the Contractor's best judgment based on its experience and will perform all such Work in a good and workmanlike manner. Any interpretation of test or other data, and any recommendation or reservoir description based upon such interpretations, are opinions based upon inferences from measurements and empirical relationships and assumptions, which inferences and assumptions are not infallible, and with respect to which professional engineers and analysts may differ. ACCORDINGLY ANY INTERPRETATION OR RECOMMENDATION RESULTING FROM THE SERVICES WILL BE AT THE SOLE RISK OF THE COMPANY, AND THE CONTRACTOR CANNOT AND DOES NOT WARRANT THE ACCURACY, CORRECTNESS OR COMPLETENESS OF ANY SUCH INTERPRETATION OR RECOMMENDATION, WHICH INTERPRETATIONS AND RECOMMENDATIONS SHOULD NOT, THEREFORE, UNDER ANY CIRCUMSTANCES BE RELIED UPON AS THE SOLE OR MAIN BASIS FOR ANY DRILLING, COMPLETION, WELL TREATMENT, PRODUCTION OR FINANCIAL DECISION, OR ANY PROCEDURE INVOLVING ANY RISK TO THE SAFETY OF ANY DRILLING ACTIVITY, DRILLING RIG OR ITS CREW OR ANY OTHER INDIVIDUAL. THE COMPANY HAS FULL RESPONSIBILITY FOR ALL DECISIONS CONCERNING THE SERVICES.

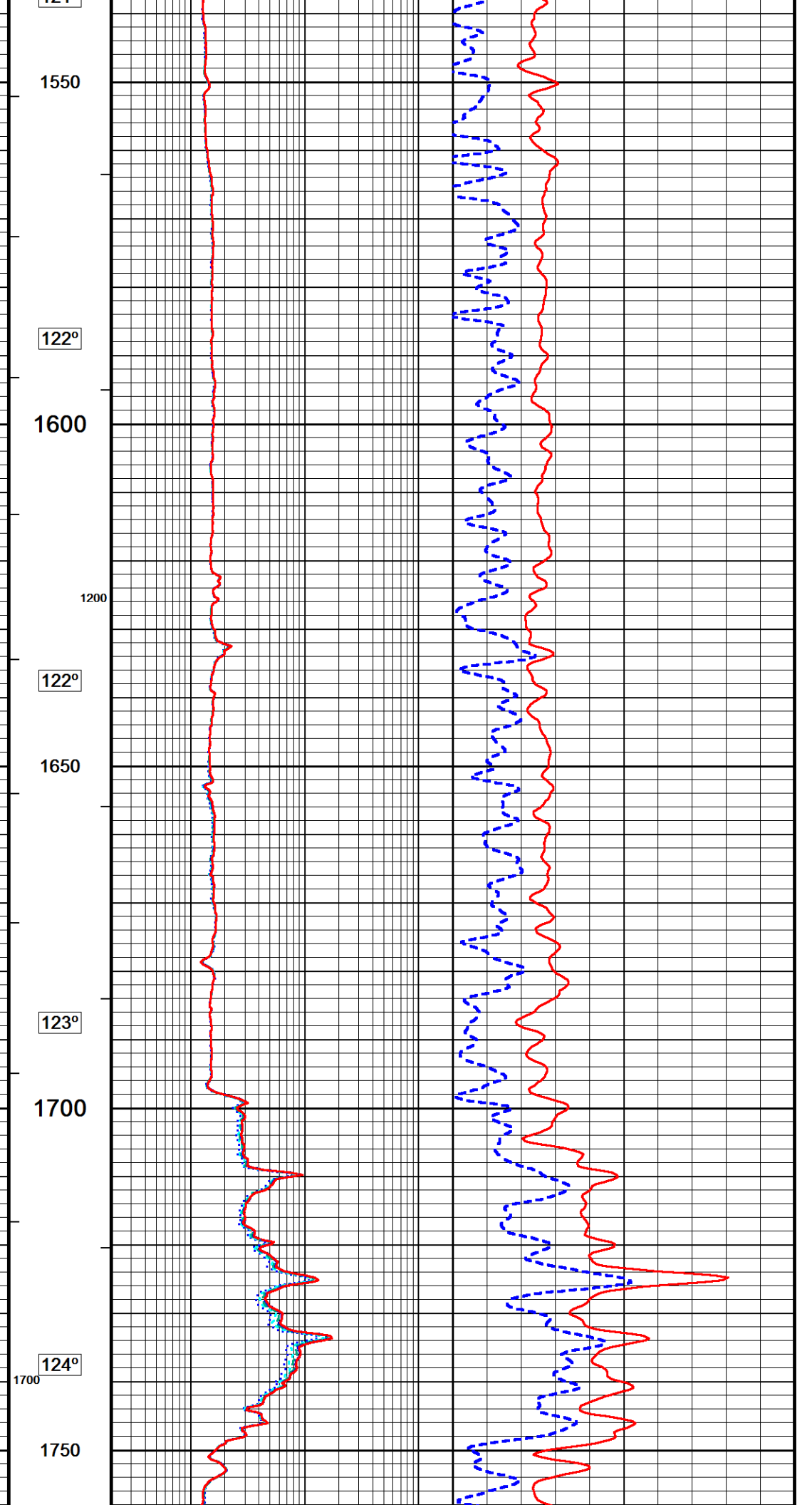
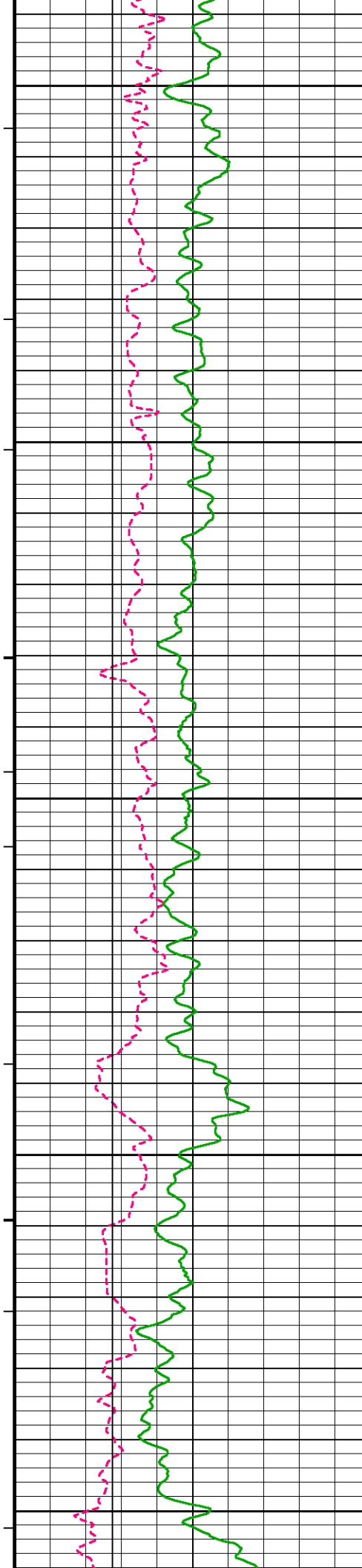
5 INCH MAIN LOG

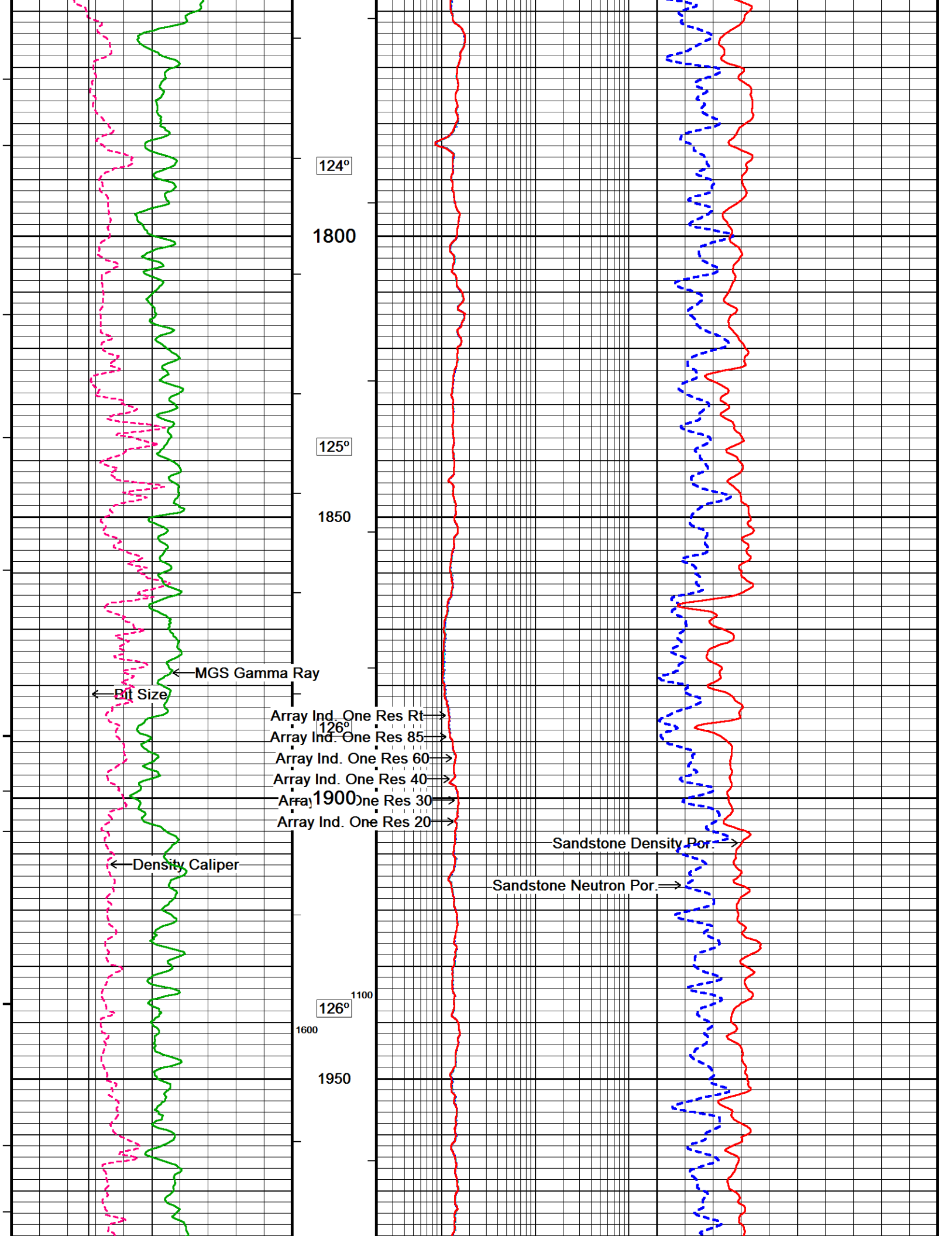
Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 12-JAN-2016 12:01
 Filename: C:\Users\jenkinlm\AppData\Local\Temp\Weatherford ...ML Investments 2-3_MMS Depth.dta Recorded on 03-JAN-2016 21:46
 System Versions: Logged with 15.03.5939 Processed with 15.03.4802 Plotted with 13.08.1505











124°

1800

125°

1850

126°

1900

126°

1100

1600

1950

MGS Gamma Ray

Bit Size

Density Caliper

Array Ind. One Res Rt

Array Ind. One Res 85

Array Ind. One Res 60

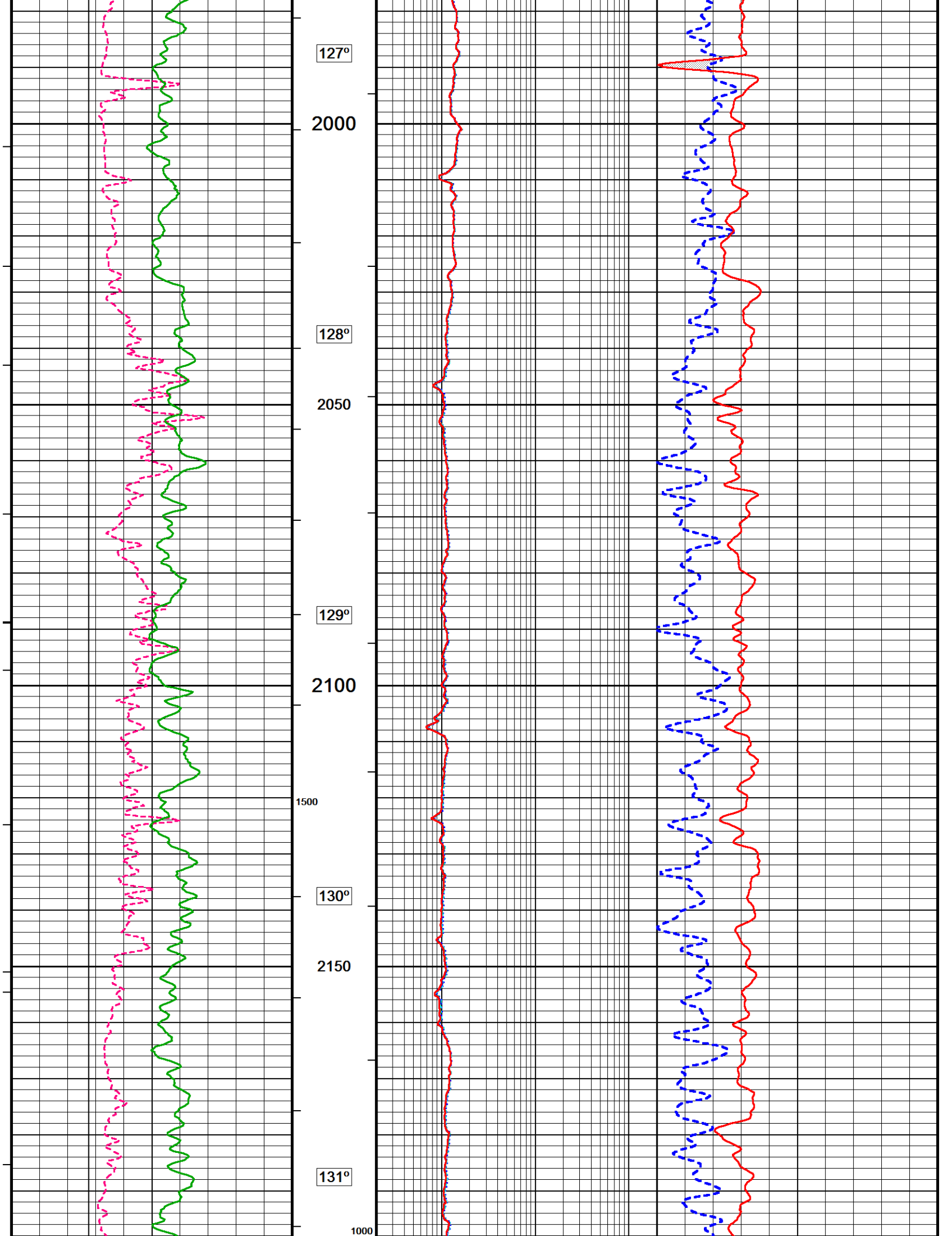
Array Ind. One Res 40

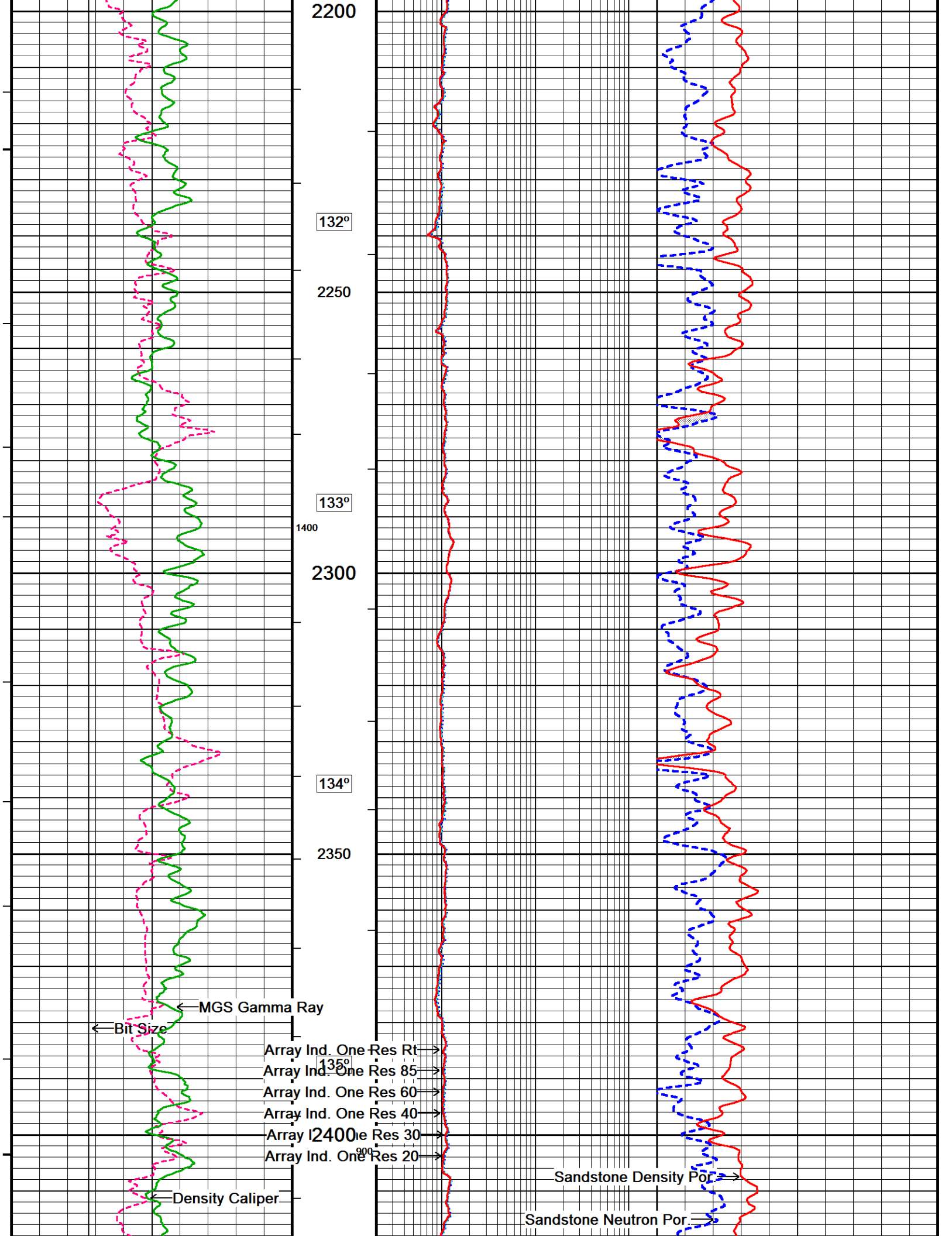
Array Ind. One Res 30

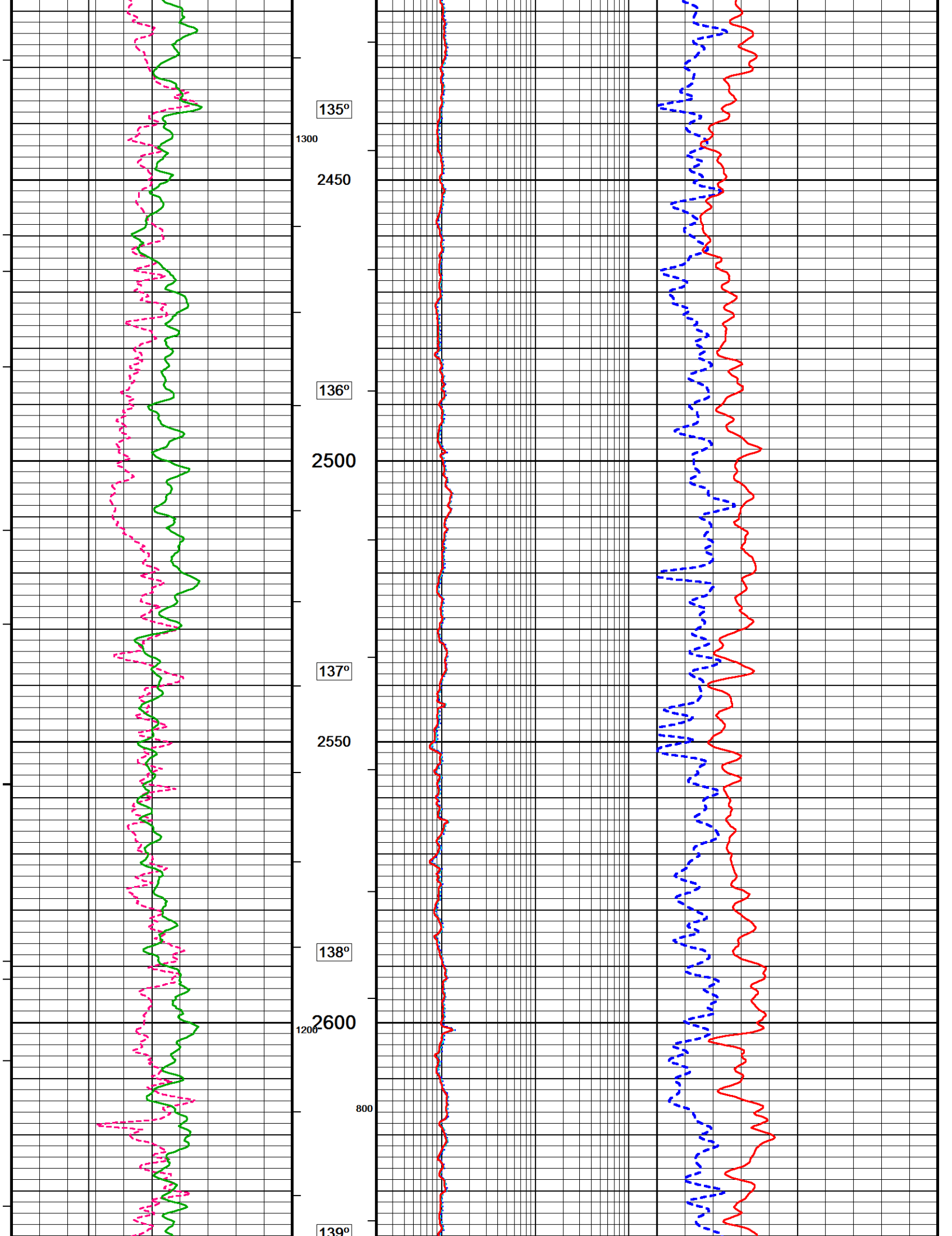
Array Ind. One Res 20

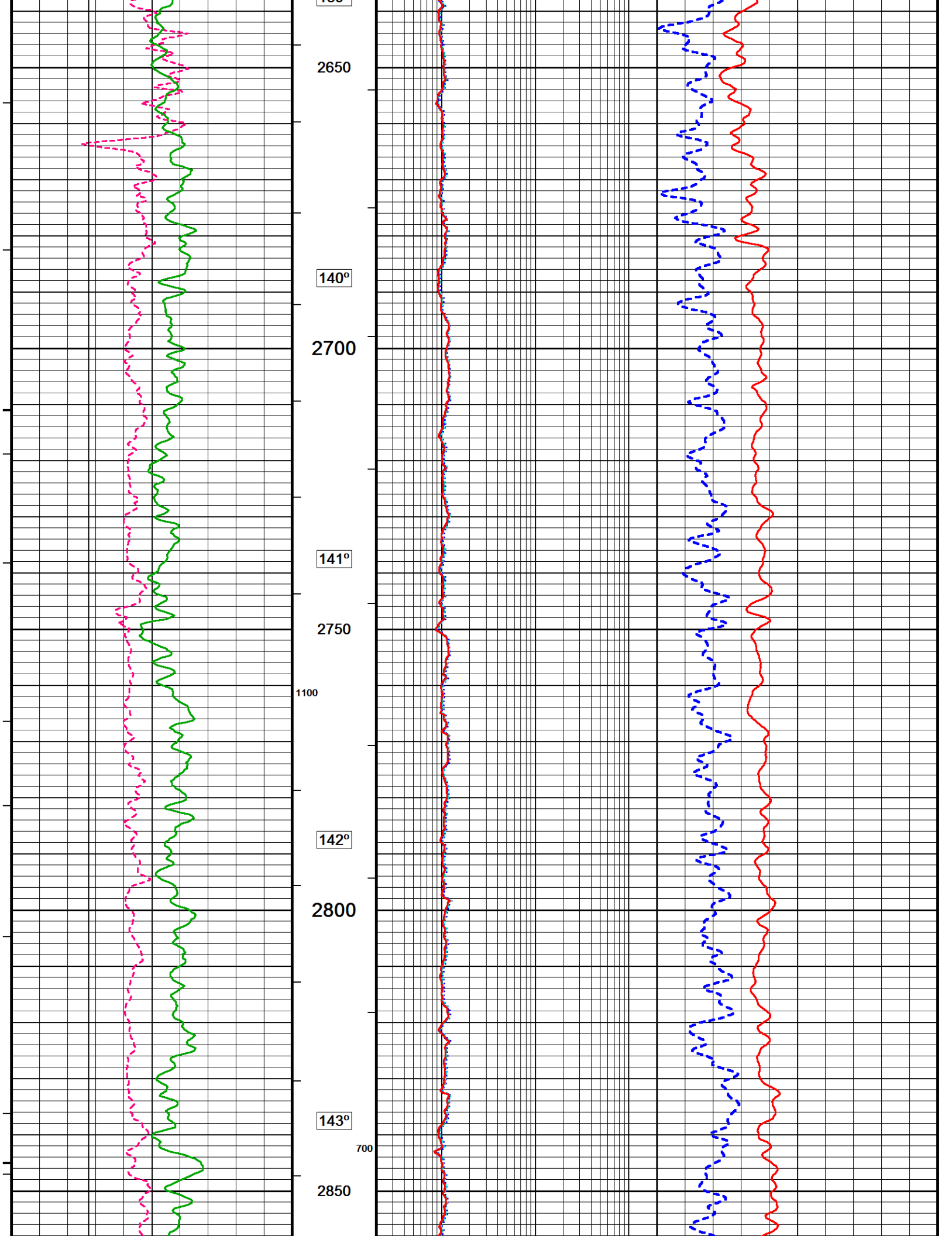
Sandstone Density Por.

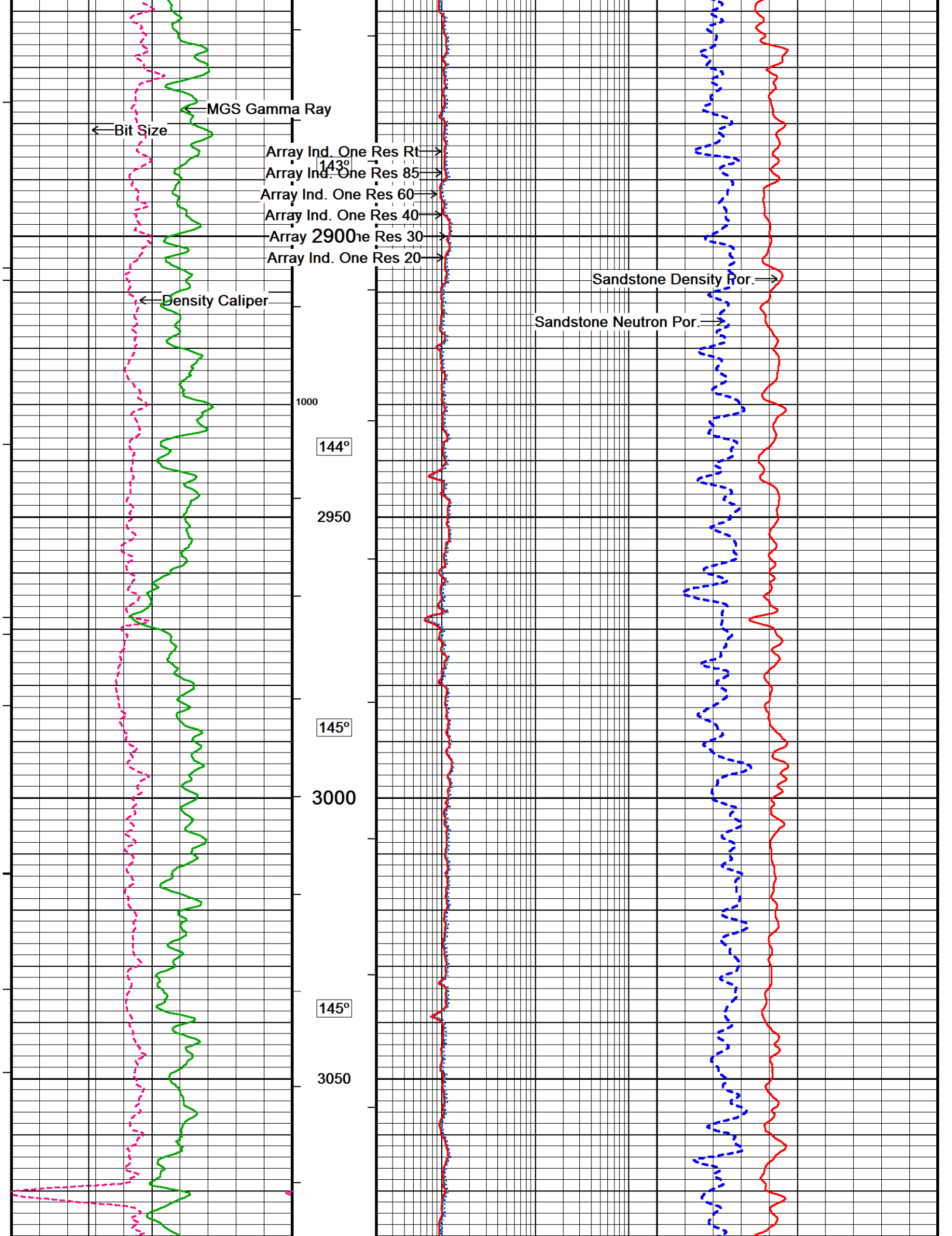
Sandstone Neutron Por.

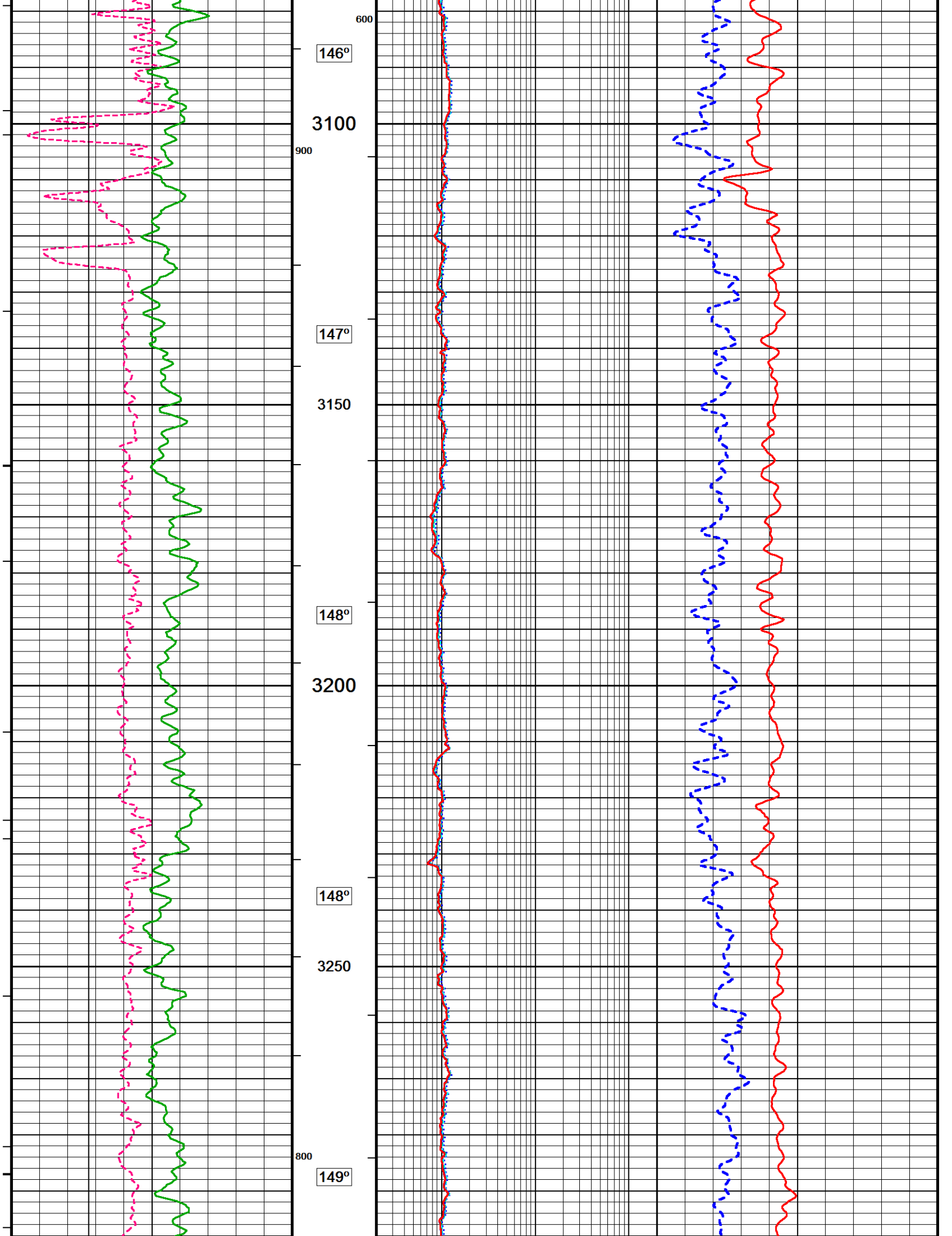


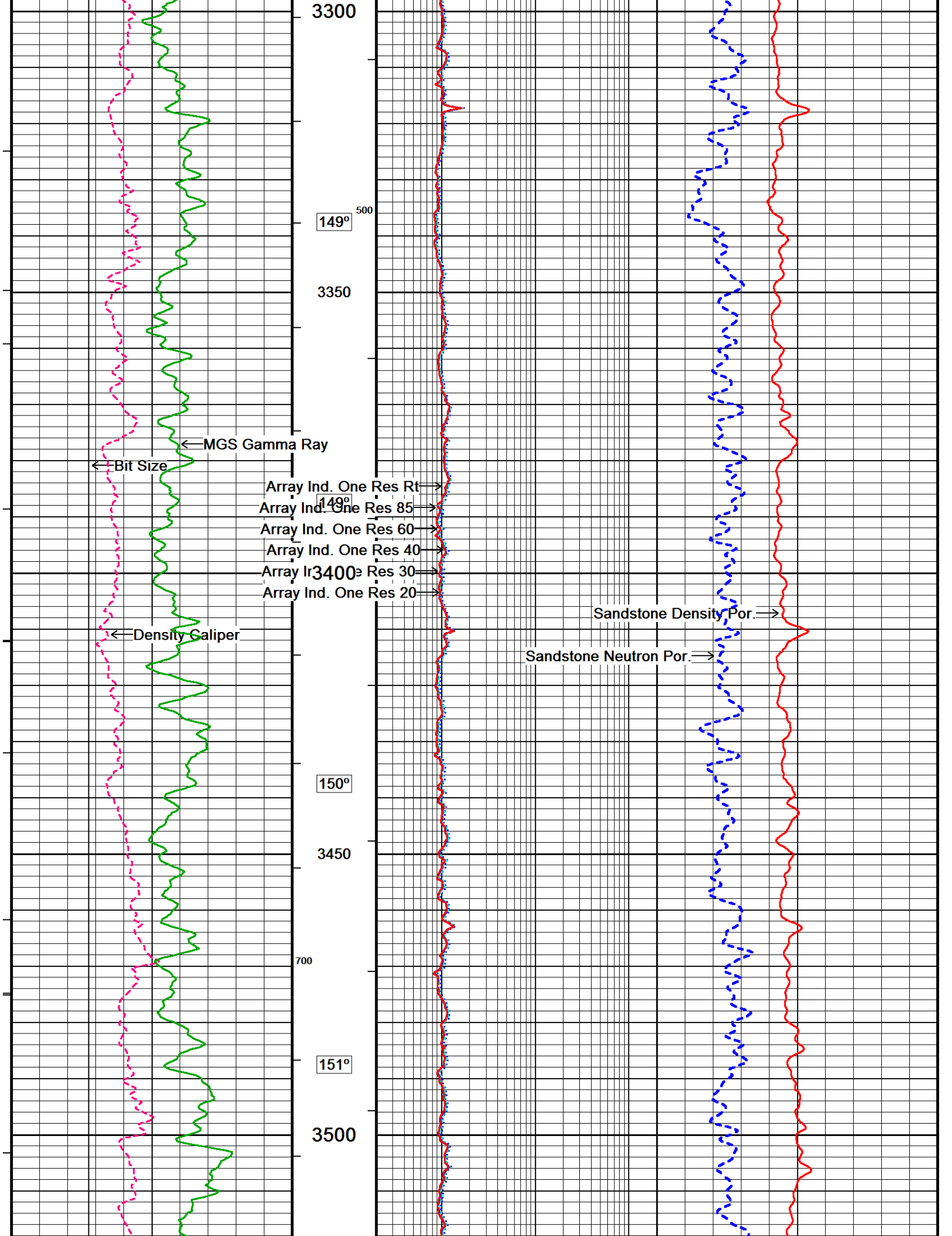












3300

149°

3350

← MGS Gamma Ray

← Bit Size

Array Ind. One Res 85 →

Array Ind. One Res 60 →

Array Ind. One Res 40 →

Array Ind. One Res 30 →

Array Ind. One Res 20 →

← Density Caliper

Sandstone Density Por. →

Sandstone Neutron Por. →

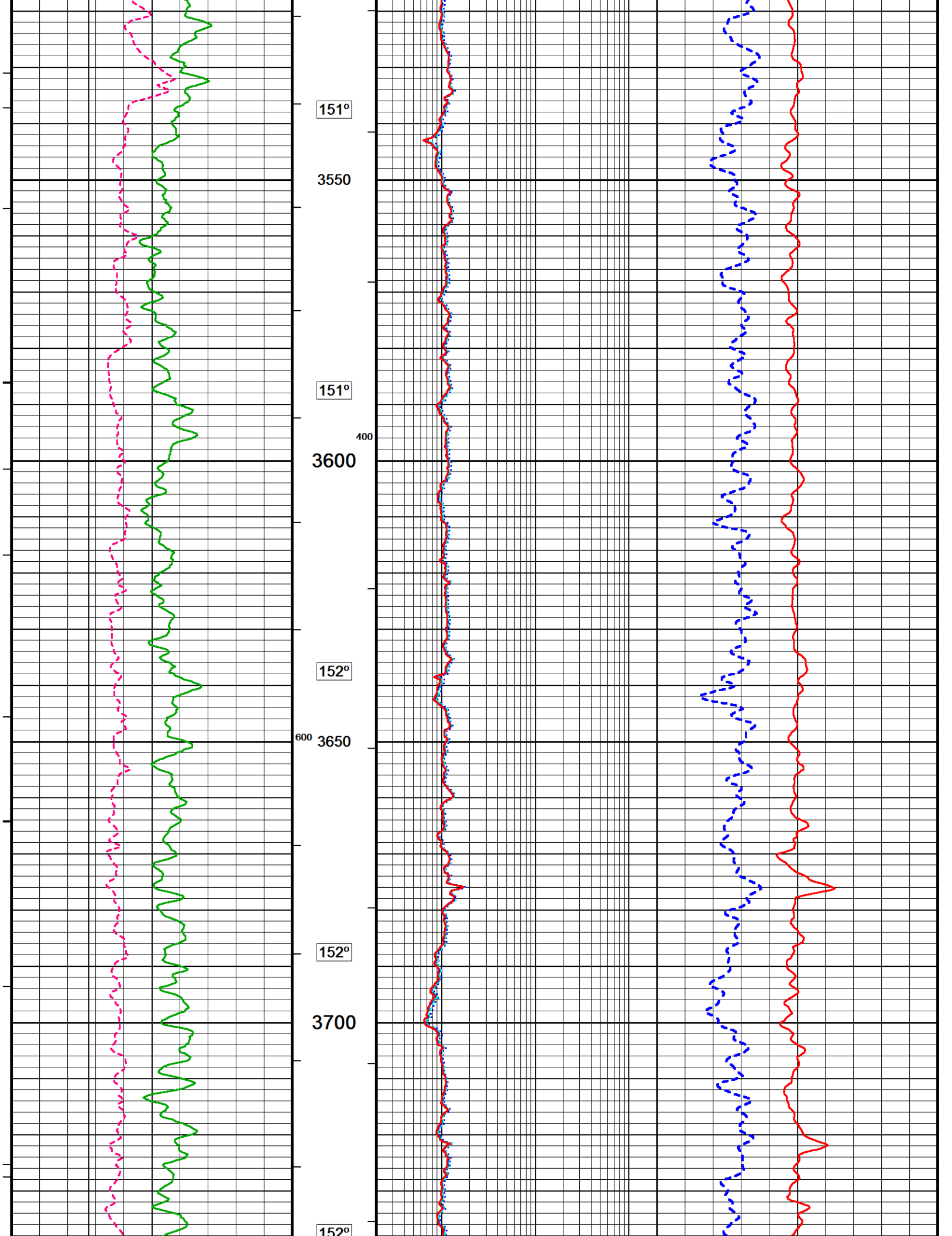
150°

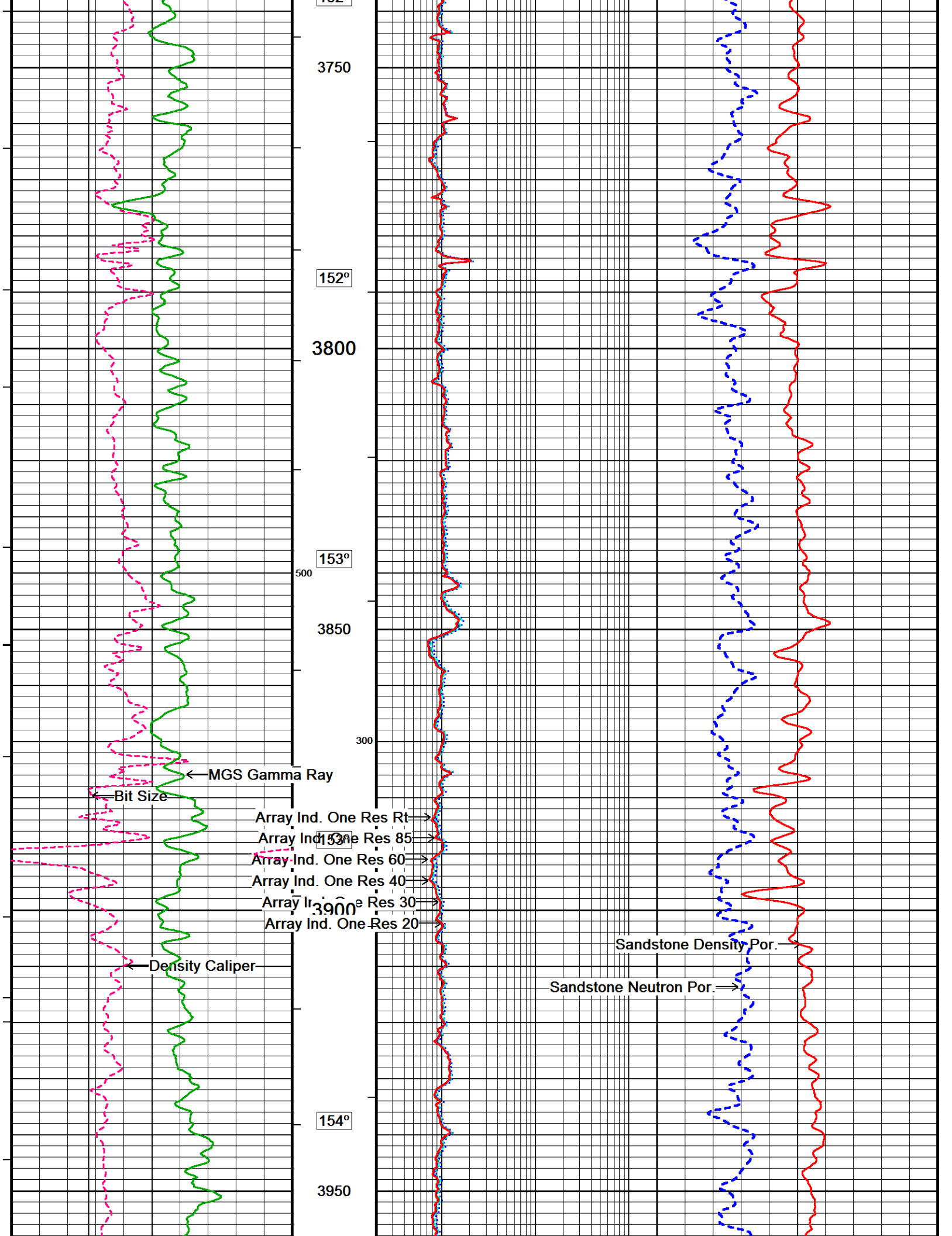
3450

700

151°

3500





3750

152°

3800

153°

3850

153°

3900

154°

3950

500

300

← MGS Gamma Ray

← Bit Size

Array Ind. One Res Rt →

Array Ind. One Res 85 →

Array Ind. One Res 60 →

Array Ind. One Res 40 →

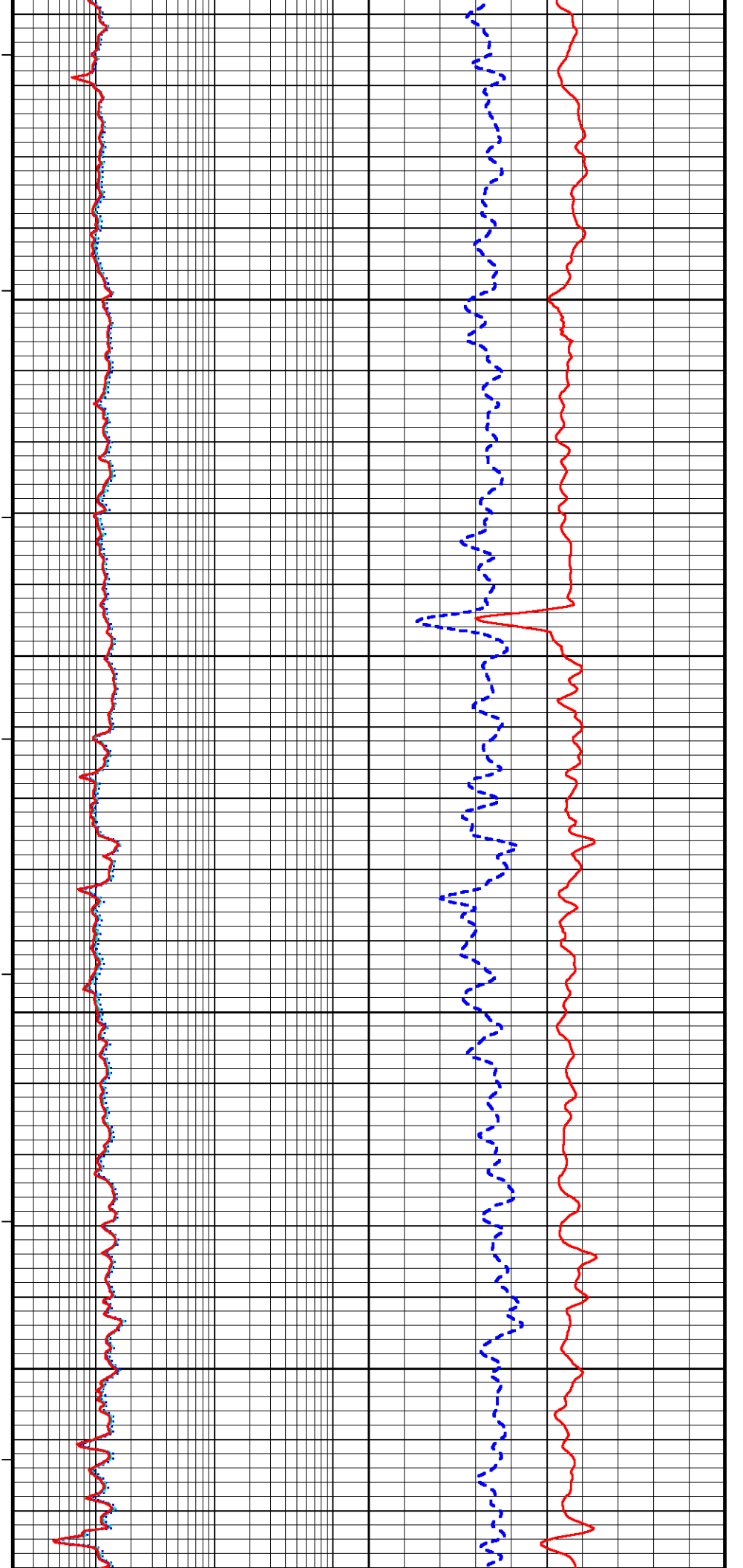
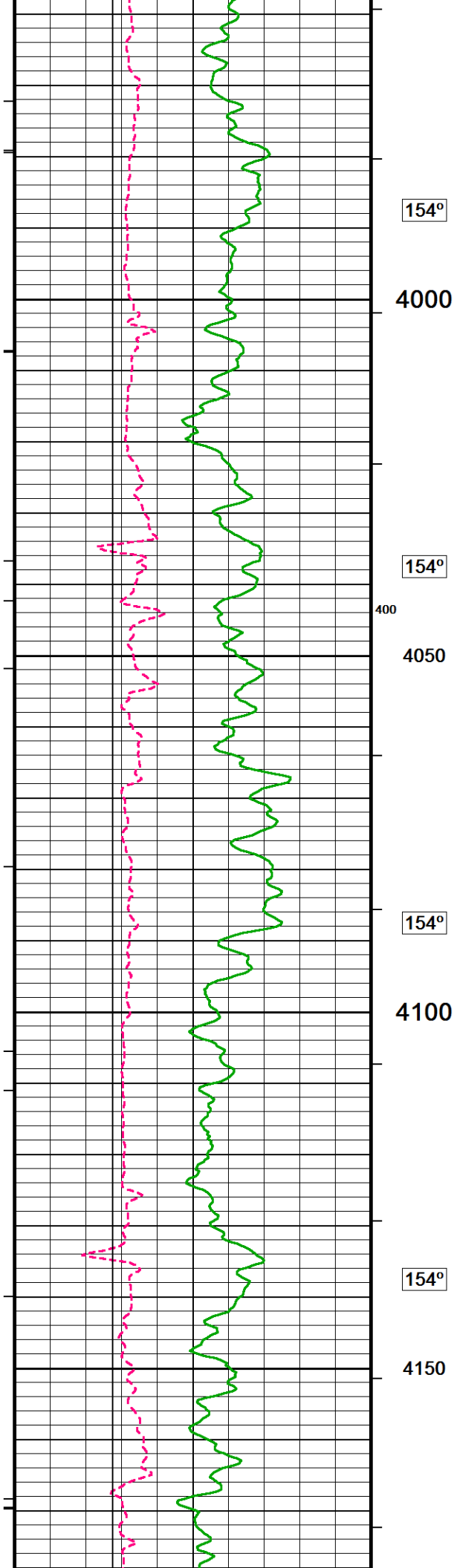
Array Ind. One Res 30 →

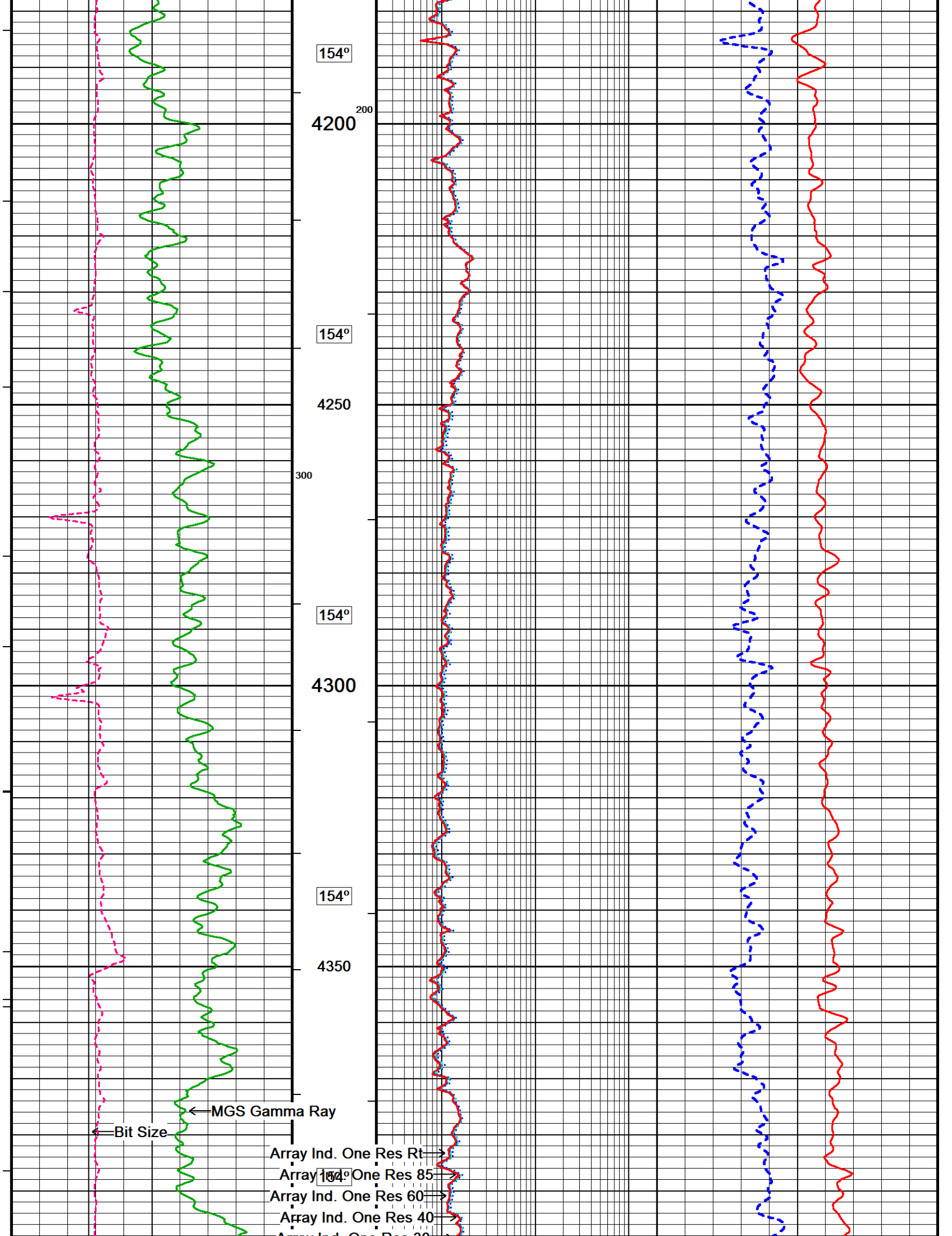
Array Ind. One Res 20 →

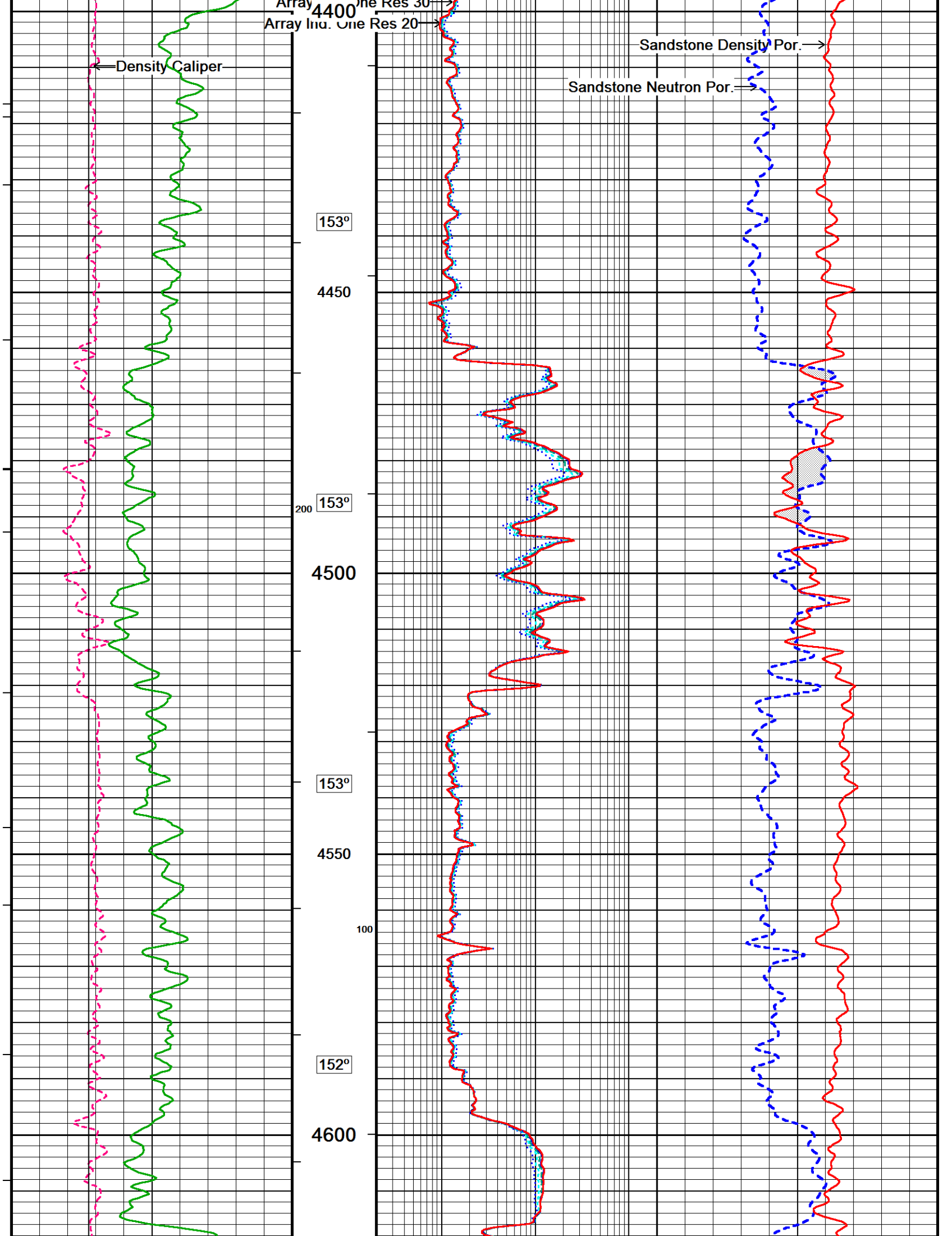
← Density Caliper

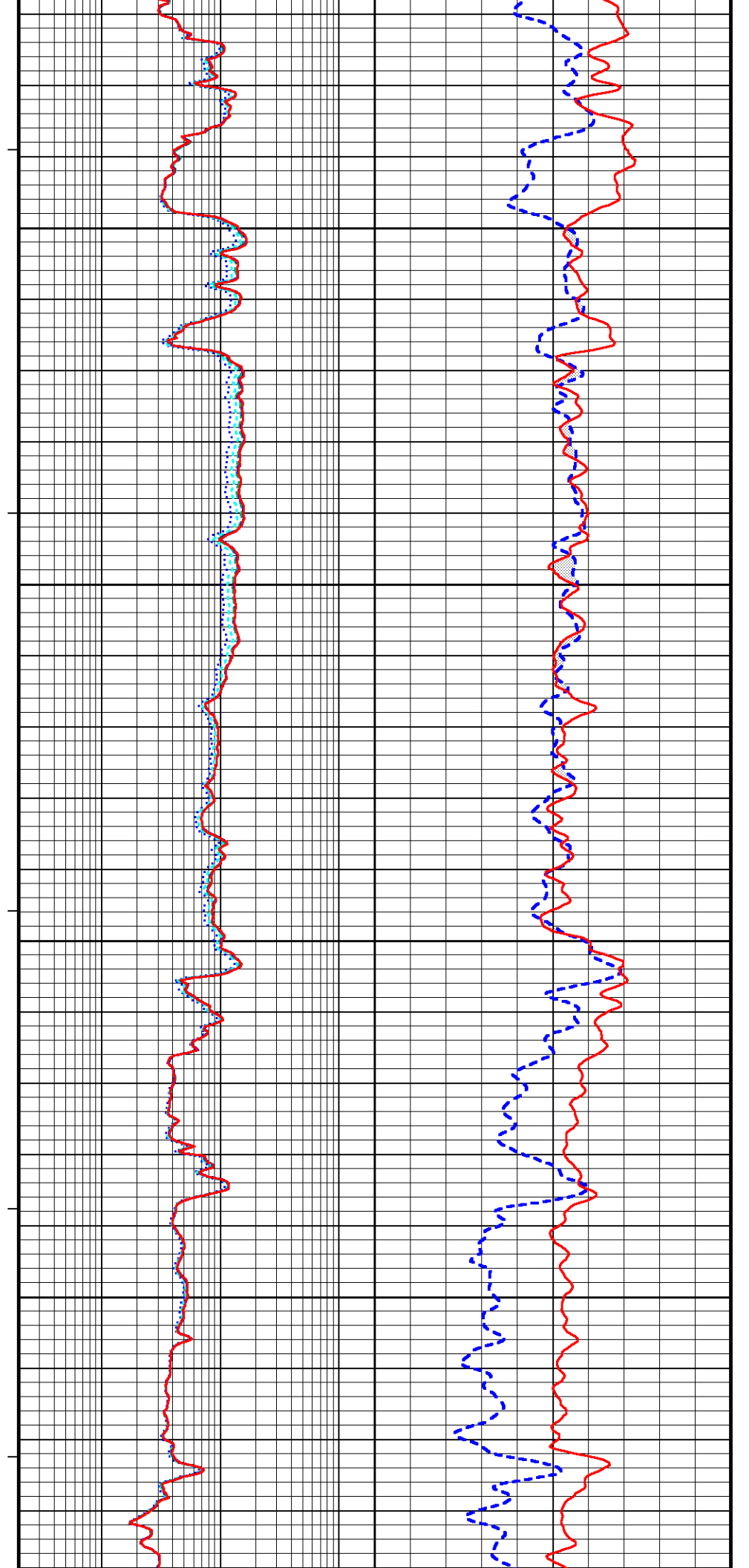
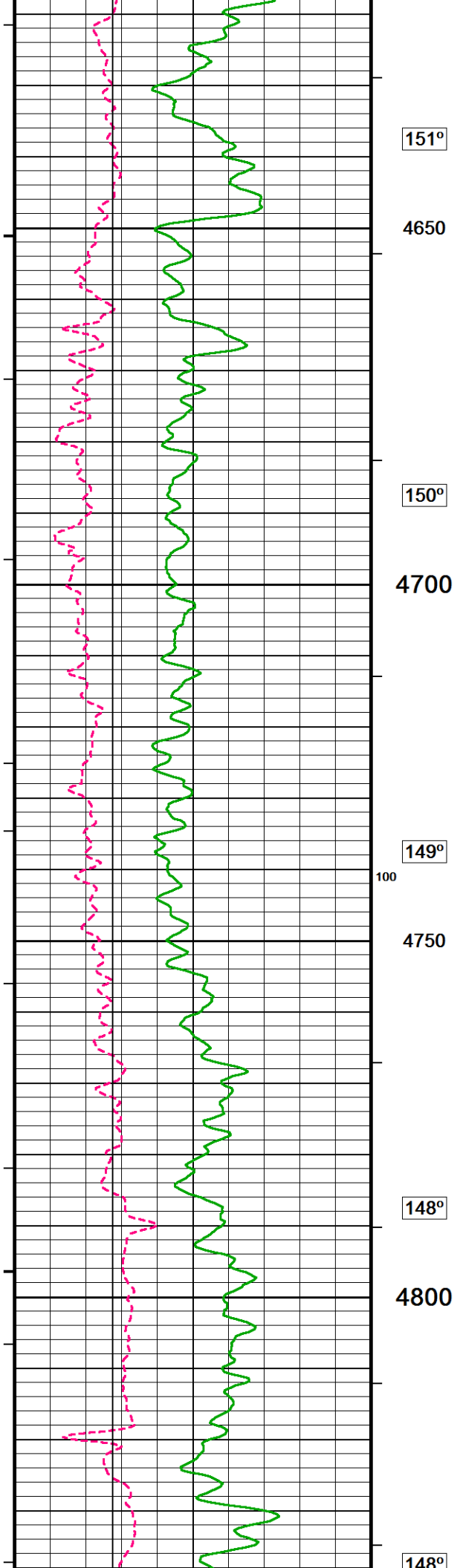
Sandstone Density Por. →

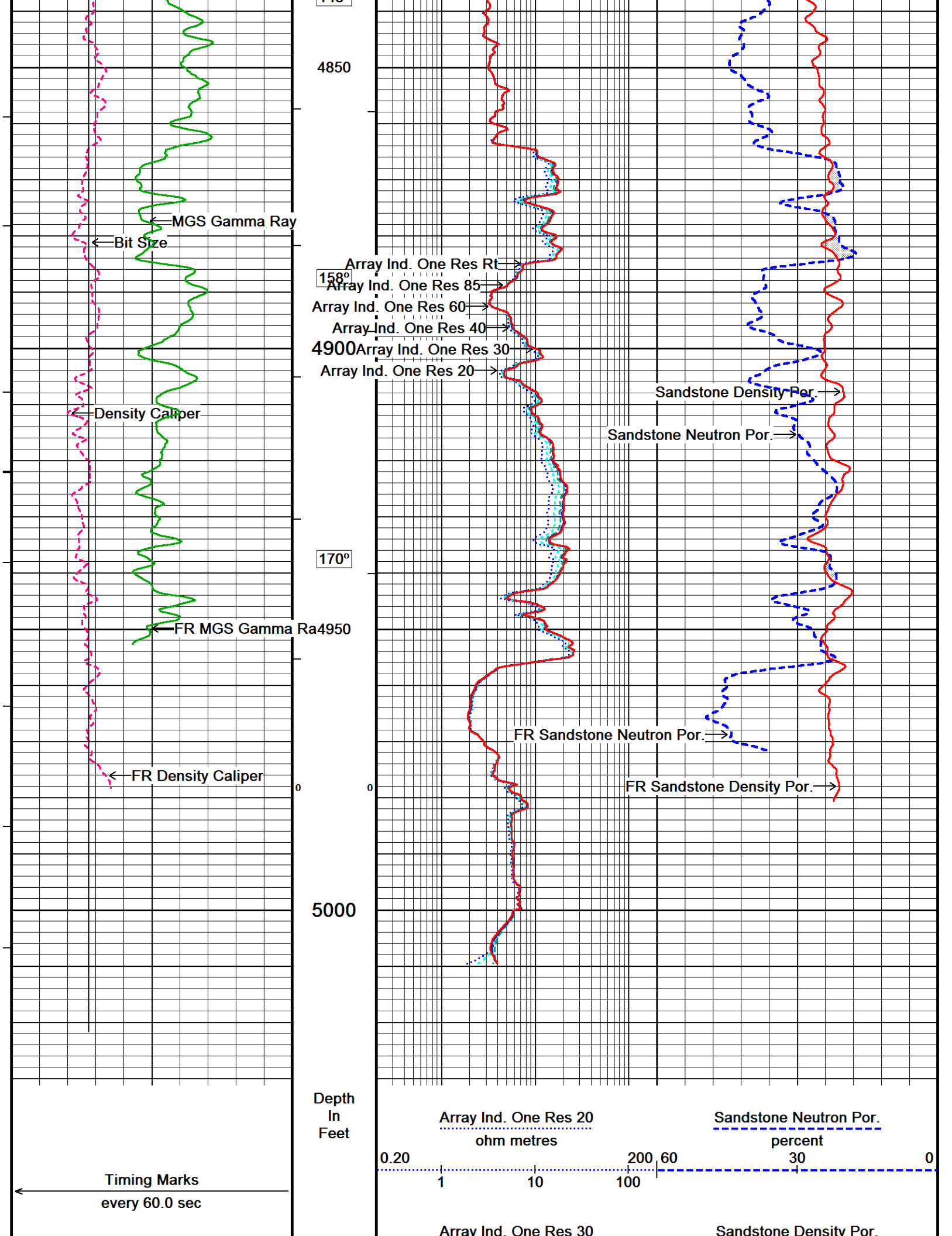
Sandstone Neutron Por. →

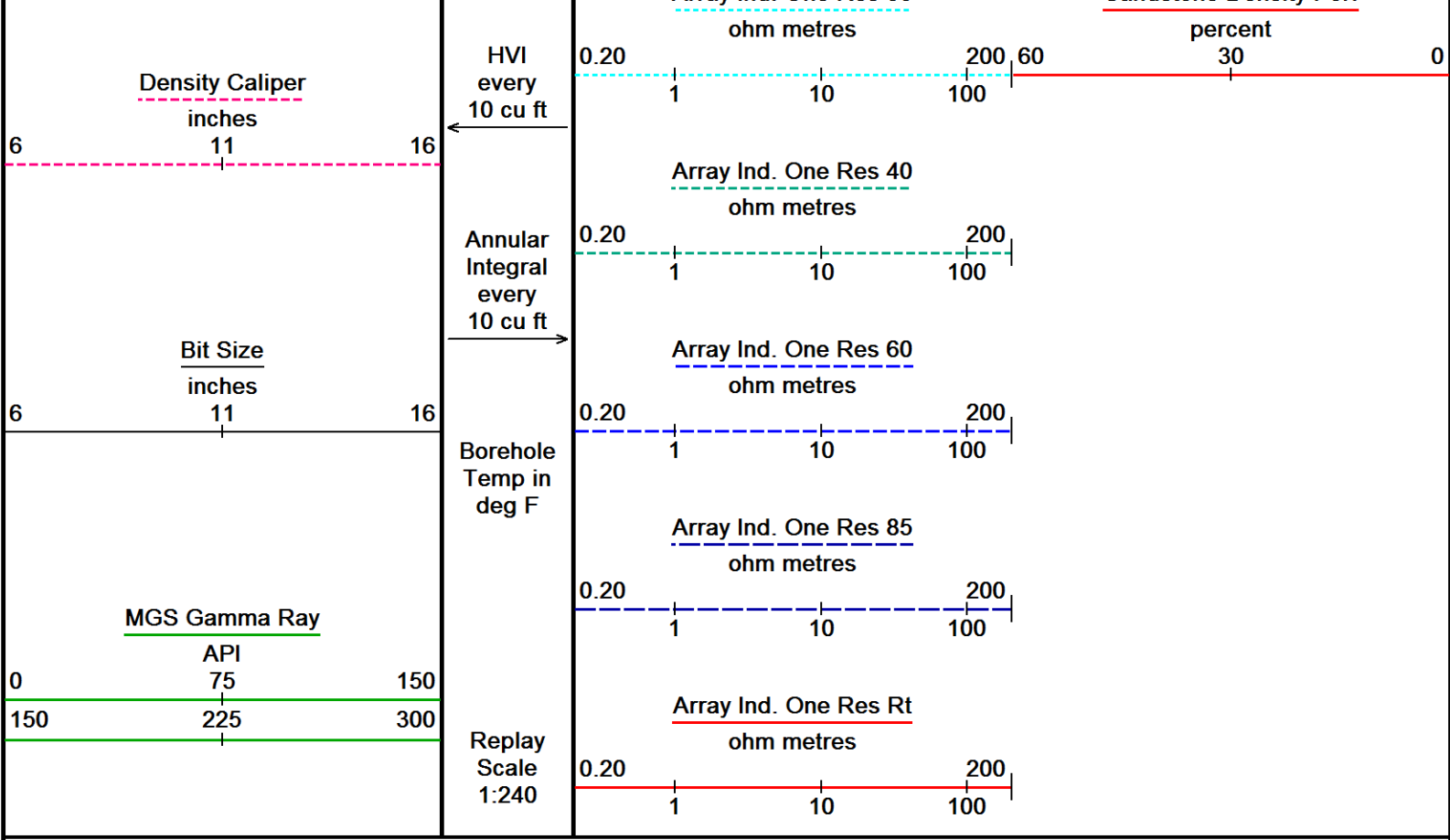












Depth Based Data - Maximum Sampling Increment 10.0cm
 Plotted on 12-JAN-2016 12:01
 Filename: C:\Users\jenkinlm\AppData\Local\Temp\Weatherford ...ML Investments 2-3_MMS Depth.dta
 Recorded on 03-JAN-2016 21:46
 System Versions: Logged with 15.03.5939 Processed with 15.03.4802 Plotted with 13.08.1505

5 INCH MAIN LOG

BEFORE SURVEY CALIBRATION
 C:\Users\jenkinlm\AppData\Local\Temp\Weatherford PreView17\0ML Investments 2-3_MMS Depth.dta

Down-hole Tension Calibration All 000 Field Calibration on 24-OCT-2010 03:34

Reading No	Measured	
1	15659.85	0.00
2	15734.68	370.00

General Constants All 000 Last Edited on 03-JAN-2016,20:30

General Parameters		
Mud Resistivity	1.840	ohm-metres
Mud Resistivity Temperature	75.000	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	5.500	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	
SW/APOR Tool Source	0.000	

Down-hole Tension Calibration SMS 0 Field Calibration on 06-DEC-2015 12:26

Reading No	Measured	Calibrated (lbs)
1	14812.44	0.00
2	16116.38	770.00

Strain Gauge Constants MMS-F.A 256

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
Pressure psia	Inc.	Dec.
	Inc.	Dec.
0.0	0.000	0.000
2000.0	0.000	0.000
4000.0	0.000	0.000
6000.0	0.000	0.000
8000.0	0.000	0.000
10000.0	0.000	0.000

MMS Parameters MMS-F.A 256

Last Edited on 02-JAN-2016 15:24

Logging Parameters

Firmware Version	2v59	
Caliper Open On	MAI	
Caliper Open Delay		minutes
Caliper Closed On	Unknown	
Caliper Closed Delay	N/A	minutes
Sample Rate	0.50	seconds
Use Deep Sleep	Yes	
Delay Deep Sleep	No	
Deep Sleep Wake Time	360.0	minutes
Deep Sleep Wake on Temperature	No	
Deep Sleep Wake Temperature	N/A	degrees C
Deep Sleep Wake on Pressure	No	
Deep Sleep Wake Pressure	N/A	psi
MMI Pad Pressure	0.0	

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		seconds
Caliper Open To	210.0	seconds

Configuration

MMS,MGS,MDN,MPD,MPD,MVC,MFE,MAI

Gamma Calibration MGS-D.A 218

Field Calibration on 01-JAN-2016 09:43

	Measured	Calibrated (API)
Background	239	163
Calibrator (Gross)	1580	1075
Calibrator (Net)	1340	912

Gamma Constants MGS-D.A 218

Last Edited on 03-JAN-2016,20:32

Gamma Calibrator Number	GRCC.072		
Mud Density	1.00	gm/cc	
Caliper Source for Processing	Density Caliper		
Tool Position	Eccentred		
Concentration of KCl		kppm	
K Mud Type	Chloride		
K Mud Concentration	0.00	%	

SP Calibration MGS-D.A 218			Field Calibration on 03-JAN-2016,20:31
	Measured	Calibrated (mV)	
Reference 1	100.0	100.0	
Reference 2	-100.0	-100.0	

High Resolution Temperature Calibration MGS-D.A 218			Field Calibration on 01-JAN-2016,11:23
	Measured	Calibrated(Deg F)	
Lower	10.00	10.00	
Upper	100.00	100.00	

High Resolution Temperature Constants MGS-D.A 218		Last Edited on 01-JAN-2016,11:23
Pre-filter Length	11	

Neutron Calibration MDN-C.A 464			Base Calibration on 22-DEC-2015 11:26	Field Check on 01-JAN-2016 09:50
Base Calibration				
		Measured	Calibrated (cps)	
	Near	Far	Near	Far
Ratio	3110	94	3714	110
	32.973		33.764	
Field Calibrator at Base			Calibrated (cps)	
Ratio			1358	2009
			0.676	
Field Check			Calibrated (cps)	
Ratio			1351	2014
			0.671	

Neutron Constants MDN-C.A 464			Last Edited on 03-JAN-2016,20:32
Neutron Source Id	N-1057		
Neutron Jig Number	5922NE		
Epithermal Neutron			
Caliper Source for Processing	Density Caliper		
Stand-off	0.00	inches	
Mud Density	1.00	gm/cc	
Limestone Sigma	7.10	cu	
Sandstone Sigma	7.00	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		

Caliper Calibration MVC-A.A 142			Base Calibration on 02-MAR-2015 18:53	Field Calibration on 02-MAR-2015 18:54
Base Calibration				
Reading No	Measured	Calibrator Size (in)		
1	7260	3.98		
2	14114	5.96		
3	20994	7.97		
4	27677	9.84		
5	35131	11.91		
6	N/A	N/A		
Field Calibration				

Measured Caliper (in)
11.91

Actual Caliper (in)
11.91

FE Calibration MFE-C.A 416

Base Calibration on 22-DEC-2015 08:56
Field Check on 01-JAN-2016 09:51

Base Calibration

	Measured	Calibrated (ohm-m)
Reference 1	0.0	0.0
Reference 2	966.4	126.8
Base Check		280.0
Field Check		279.9

FE Constants MFE-C.A 416

Last Edited on 03-JAN-2016,20:33

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	Global Value: Temperature Corrected	
Temp. for Rm Corr.	MGS External Temperature	
Stand-off	0.5	inches

High Resolution Temperature Calibration MAI-B.J 374

Field Calibration on 11-MAR-2013,14:43

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

High Resolution Temperature Constants MAI-B.J 374

Last Edited on 03-OCT-2015,00:50

Pre-filter Length	11
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Induction Calibration MAI-B.J 374

Base Calibration on 19-NOV-2015,11:14
Field Check on 01-JAN-2016 09:54

Base Calibration

Test Loop Calibration Channel	Measured		Calibrated (mmho/m)	
	Low	High	Low	High
1	16.0	476.0	9.3	966.2
2	5.4	382.2	7.6	821.4
3	3.7	260.5	5.2	566.0
4	1.8	133.4	2.6	279.2

Array Temperature	71.2	Deg F
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Channel	Base Check (mmho/m)		Field Check (mmho/m)	
	Low	High	Low	High
1	14.2	3783.1	11.0	3781.2
2	31.3	3499.4	30.7	3499.9
3	27.8	3020.8	27.3	3021.4
4	19.7	2056.2	19.5	2057.1
Deep	16.0	1969.7	15.4	1970.2
Medium	40.6	3985.8	40.6	3986.9
Shallow	48.4	5172.9	47.8	5173.5

Array Temperature	54.6	14.5	Deg F
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Induction Constants MAI-B.J 374

Last Edited on 03-JAN-2016,20:33

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	Global Value: Temperature Corrected	
Temp. for Rm Corr.	MGS External Temperature	
Squasher Start	0.0020	mhos/metre
Squasher Offset	N/A	mhos/metre

Borehole Normalisation			
DRM1	0.0000	DRC1	0.0000
DRM2	0.0000	DRC2	0.0000
MRM1	0.0000	MRC1	0.0000
MRM2	0.0000	MRC2	0.0000
SRM1	0.0000	SRC1	0.0000
SRM2	0.0000	SRC2	0.0000

Calibration Site Corrections

Channel 1	0.00	mmhos/metre
Channel 2	0.00	mmhos/metre
Channel 3	0.00	mmhos/metre
Channel 4	0.00	mmhos/metre

Apparent Porosity and Water Saturation Constants

Archie Constant (A)	1.00	
Cementation Exponent (M)	2.00	
Saturation Exponent (N)	2.00	
Saturation of Water for Apor	100.00	percent
Resistivity of Water for Apor and Sw	0.05	ohm-m
Resistivity of Mud Filtrate for Sw	0.00	ohm-m
Source for Rt	0.00	
Source for Rxo	0.00	

Photo Density Calibration MPD-D.A 460

Base Calibration on 21-DEC-2015 19:57
Field Check on 01-JAN-2016 09:29

Density Calibration

Base Calibration	Measured		Calibrated (sdu)	
	Near	Far	Near	Far
Background	1291	1478		
Reference 1	56698	26810	59443	30683
Reference 2	22893	2664	24540	2525

Field Check at Base

1290.6 1477.8

Field Check

1291.0 1484.8

PE Calibration

Base Calibration	WS	Measured		Calibrated Ratio
		WH	Ratio	
Background	247	1161		
Reference 1	25089	56493	0.449	0.372
Reference 2	7028	22752	0.314	0.271

Field Check at Base

246.8 1161.4

Field Check

246.0 1160.3

Density Constants MPD-D.A 460

Last Edited on 02-JAN-2016,14:25

Density Source Id	P50562B
Nylon Calibrator Number	DNC.E.652
Aluminium Calibrator Number	DAC.D.631
Density Shoe Profile	4 inch
Caliper Source for Processing	Density Caliper
PE Correction to Density	Not Applied
Mud Density	1.16 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)
2.65	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

Caliper Calibration MPD-D.A 460

Base Calibration on 21-DEC-2015 19:22
Field Calibration on 01-JAN-2016 09:24

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	17045	3.98
2	25382	5.96
3	33898	7.98
4	42022	9.84
5	51604	11.91
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
7.84	7.97

DOWNHOLE EQUIPMENT

C:\Users\jenkinlm\AppData\Local\Temp\Weatherford PreView17\0\MML Investments 2-3_MMS Depth.dta

Shuttle Running Tool 3.5"
SRT-A 5 LG: 6.47 ft WT: 37.5 lb OD: 2.520 in

200v Compact Battery Sub
MBS-F.A 119 LG: 17.06 ft WT: 123.5 lb OD: 2.240 in

Compact Memory Sub F.A
MMS-F.A 256 LG: 5.20 ft WT: 37.5 lb OD: 2.244 in

Compact Tool Isolator sub.
MTI-C.A 99 LG: 1.54 ft WT: 13.2 lb OD: 2.244 in

Compact Short Gamma
MGS-D.A 218 LG: 3.41 ft WT: 24.3 lb OD: 2.244 in

Compact Collar Locator
MCL-C.A 123 LG: 3.17 ft WT: 26.5 lb OD: 2.244 in

Compact Knuckle Joint
SKJ-E.B 533 LG: 2.17 ft WT: 24.3 lb OD: 2.244 in

Compact Swivel Head Adaptor
SHA-J.B 679 LG: 2.30 ft WT: 22.0 lb OD: 2.244 in

Compact Inline Bowspring sub
MIS-D.B 734 LG: 5.70 ft WT: 33.1 lb OD: 2.240 in

Compact Neutron
MDN-C.A 464 LG: 5.04 ft WT: 50.7 lb OD: 2.244 in

Compact Density/Caliper
MPD-D.A 460 LG: 9.59 ft WT: 90.4 lb OD: 2.244 in



64.11 ft GRGM - MGS Gamma Ray
62.13 ft GSXT - MGS External Temperature

45.25 ft NPRS - Sandstone Neutron Por.

38.01 ft AVOL - Annular Volume
38.01 ft HVOL - Hole Volume
38.01 ft CLDC - Density Caliper

Compact Vee Arm Caliper
 MVC-A.A 142 LG: 8.06 ft WT: 61.7 lb OD: 2.244 in

Compact Swivel Head Adaptor
 SHA-J.B 511 LG: 2.30 ft WT: 22.0 lb OD: 2.244 in

Compact Knuckle Joint
 SKJ-E.B 611 LG: 2.17 ft WT: 24.3 lb OD: 2.244 in

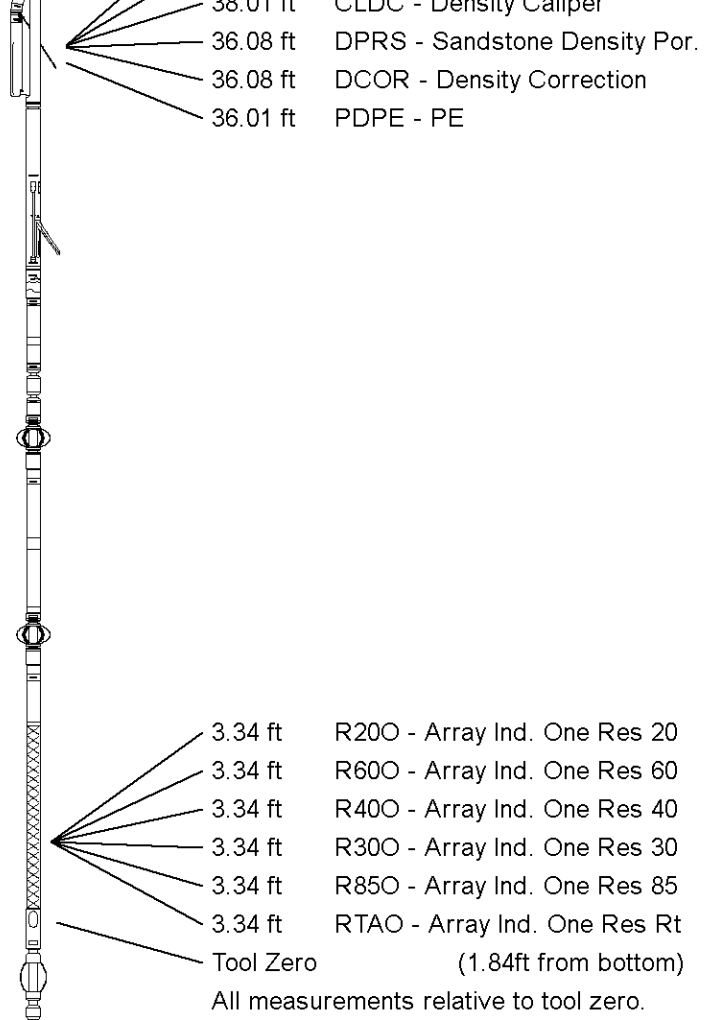
Compact Inline Standoff sub
 MIS-E.B 643 LG: 2.14 ft WT: 15.4 lb OD: 2.244 in

Compact Focussed Electric
 MFE-C.A 416 LG: 6.05 ft WT: 48.5 lb OD: 2.244 in

Compact Inline Standoff sub
 MIS-E.B 786 LG: 2.14 ft WT: 15.4 lb OD: 2.244 in

Compact Induction
 MAI-B.J 374 LG: 12.52 ft WT: 48.5 lb OD: 2.240 in

Total Length: 97.02 ft Weight: 718.7 lb



COMPANY	ALTA MESA SERVICES, LP
WELL	ML INVESTMENTS 2-3
FIELD	WILDCAT
PROVINCE/COUNTY	PAYETTE
COUNTRY/STATE	U.S.A. / IDAHO

Elevation Kelly Bushing	2648.50	feet	First Reading		feet
Elevation Drill Floor	2647.00	feet	Depth Driller	5034.00	feet
Elevation Ground Level	2635.00	feet	Depth Logger	5034.00	feet



Weatherford[®]

COMPACT TRIPLE COMBO
 QUICKLOOK
 LOG