



Weatherford®

**COMPACT TRIPLE COMBO
SPECTRAL GAMMA RAY
QUICKLOOK LOG**

COMPANY		WHITTING OIL AND GAS CORPORATION	
WELL		RAZOR 21C-0908	
FIELD		REDTAIL	
PROVINCE/COUNTY WELD		U.S.A. / COLORADO	
LOCATION		329' FNL & 1098' FWL	
SEC 21	TWP 10N	RGE 58W	Other Services COMPACT IMAGER
API Number 05-123-39523			
Permanent Datum G.L., Elevation 4844 feet			Elevations: KB 4861.00 DF 4861.00 GL 4844.00
Log Measured From KB			
Drilling Measured From K.B. @ 17 FEET			
Date	17-AUG-2014		
Run Number	ONE		
Service Order	4725-95388534		
Depth Driller	14236.00	feet	
Depth Logger	14236.00	feet	
First Reading	14210.00	feet	
Last Reading	6209.00	feet	
Casing Driller	6213.00	feet	
Casing Logger	6209.00	feet	
Bit Size	6.000	inches	
Hole Fluid Type	WBM		
Density / Viscosity	9.50 lb/USg	38.00 type in	
PH / Fluid Loss	9.00	6.40 ml/30Min	
Sample Source	FLOWLINE		
Rm @ Measured Temp	0.92 @ 81.0	ohm-m	
Rmf @ Measured Temp	0.74 @ 81.0	ohm-m	
Rmc @ Measured Temp	1.10 @ 81.0	ohm-m	
Source Rmf / Rmc	CALC	CALC	
Rm @ BHT	0.34 @224.0	ohm-m	
Time Since Circulation	1 HOUR		
Max Recorded Temp	224.00	deg F	
Equipment / Base	18086	Casper	
Recorded By	K. SALLER		
Witnessed By	P. BUCKNAM	GEOLOGIST	
WSL	B. MILLER	WSL	

BOREHOLE RECORD				Last Edited: 17-AUG-2014 16:28	
Bit Size inches		Depth From feet		Depth To feet	
6.000		6213.00		14236.00	
CASING RECORD					
Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft	
INTERMED	7.000	1704.00	6213.00	29.00	
SURFACE	9.625	0.00	1704.00	40.00	

REMARKS
LOGGED WITH WLS 14.01.3220
LOGGED USING MESSENGER SHUTTLE METHOD OF DEPLOYMENT
HARDWARE: MDN: MIS-A SINGLE BOWSPRING USED ABOVE MDN MPD: 4INCH PROFILE PLATE USED, MIS-A SINGLE BOWSPRING USED BELOW MPD CMI: OVER BODY BASKET AND MIS-D BASKETS PLACED ABOVE AND BELOW FOR CENTRALIZATION SGS: RAN BELOW CMI. ECCENTRALIZED WITH SKJ.
2.71 G/CC DENSITY MATRIX USED TO CALCULATE POROSITY
ALL INTERVALS LOGGED AND SCALED PER CUSTOMER'S REQUEST
LONGITUDE: -103.871036 LATITUDE: 40.830142

DEPTH: 40.030142

DRILL PIPE DEPTH DURING DEPLOYMENT: 14,112 FEET
LOGGING TOOL DEPTH AFTER DEPLOYMENT: 14,216 FEET

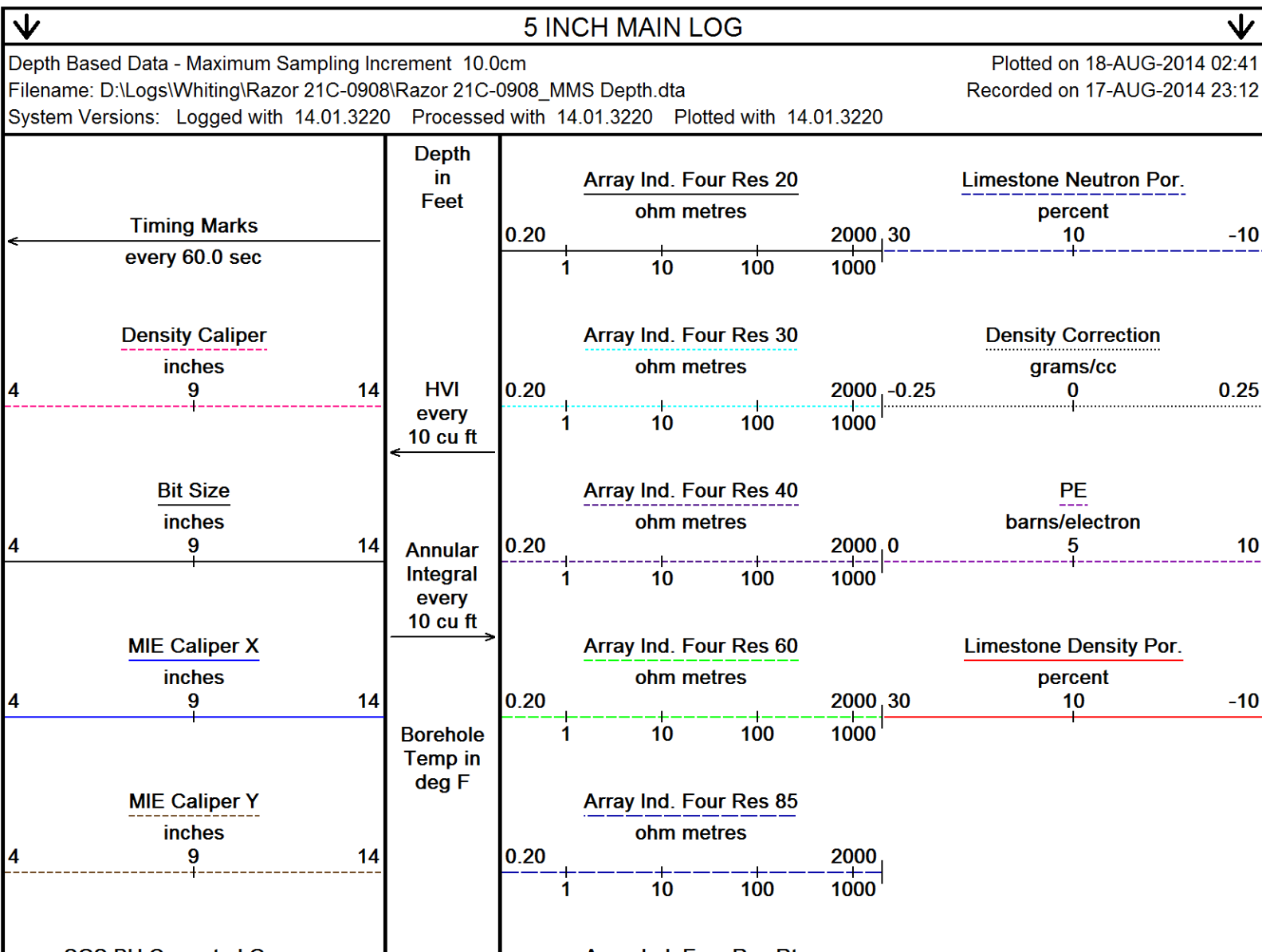
ROTATED LAST 23 STANDS DOWN AT 15RPM TO REACH TD - EXCESSIVE STICK/SLIP SEEN WHEN NOT ROTATING
ROTATING 15RPM FOR FIRST 1500FT WHILE LOGGING DUE TO EXCESSIVE STICK/SLIP OFF BOTTOM IN ATTEMPT TO IMPROVE
MICRO-IMAGER DATA.

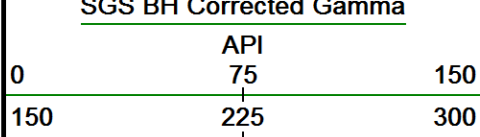
ANNULAR HOLE VOLUME FROM TD TO 7"-29# CASING AT 6209 FEET = 675 CUBIC FEET.
TOTAL HOLE VOLUME FROM TD TO 7"-29# CASING AT 6209 FEET = 1560 CUBIC FEET.

OPERATORS: S.LANDON, J. GERDES

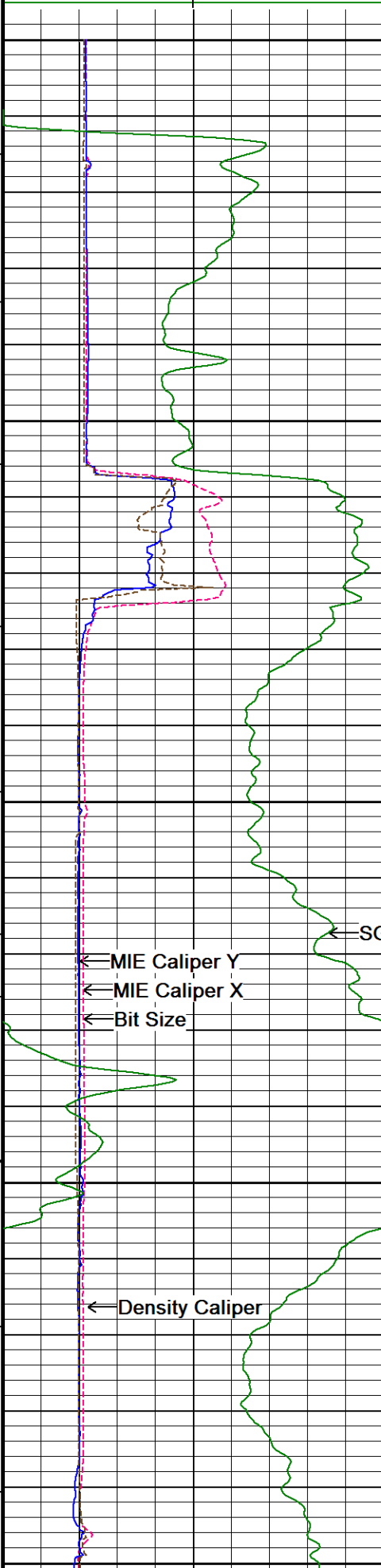
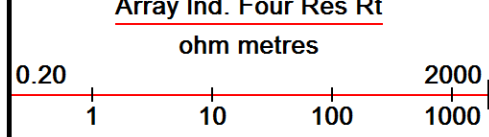
RIG:CADE 23

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.





Replay
Scale
1:240



6150

209°

6200
Casing
Shoe

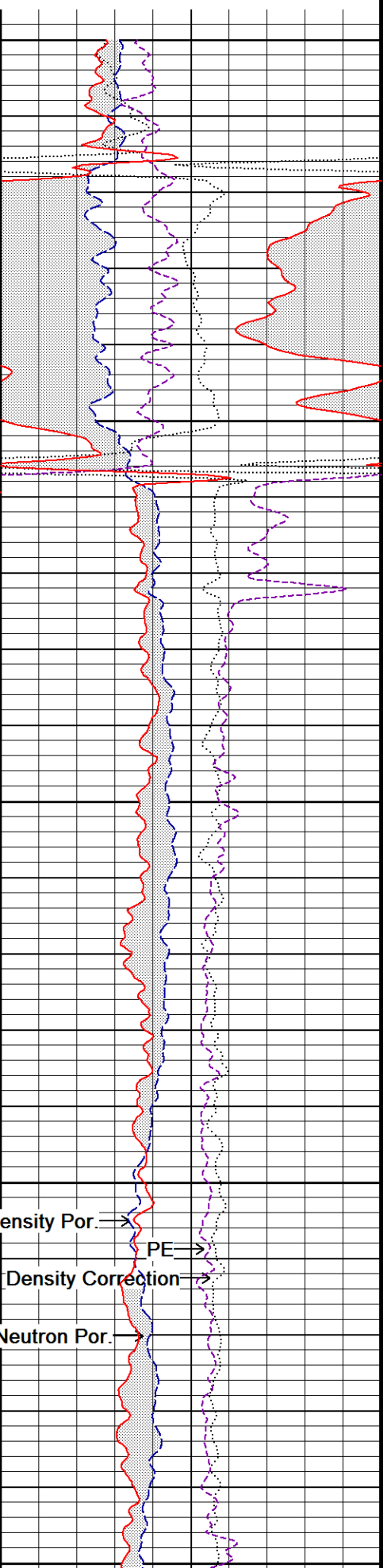
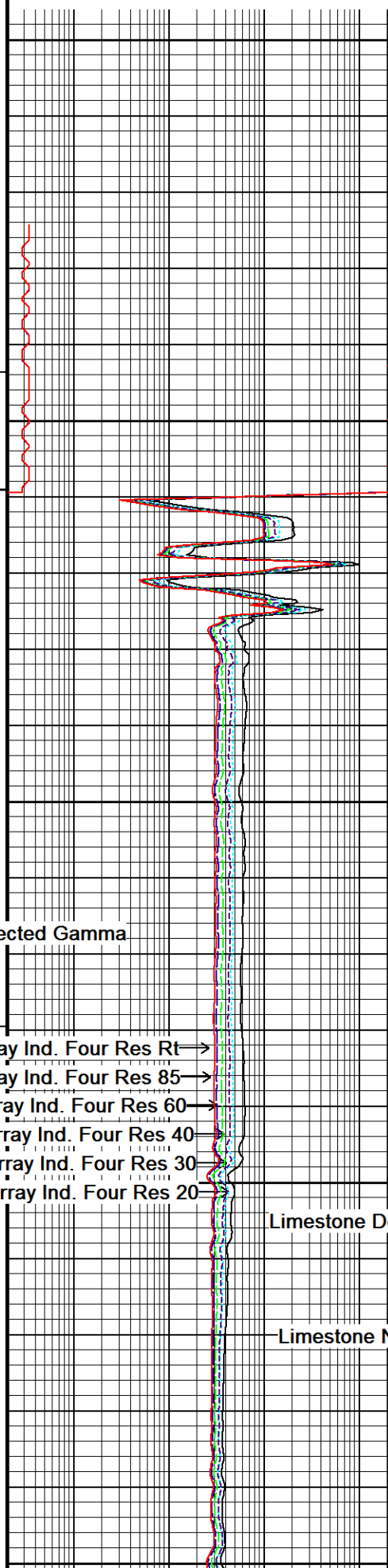
209°

6250

6300

209°

6350



← SGS BH Corrected Gamma

← MIE Caliper Y

← MIE Caliper X

← Bit Size

← Density Caliper

→ Array Ind. Four Res Rt

→ Array Ind. Four Res 85

→ Array Ind. Four Res 60

→ Array Ind. Four Res 40

→ Array Ind. Four Res 30

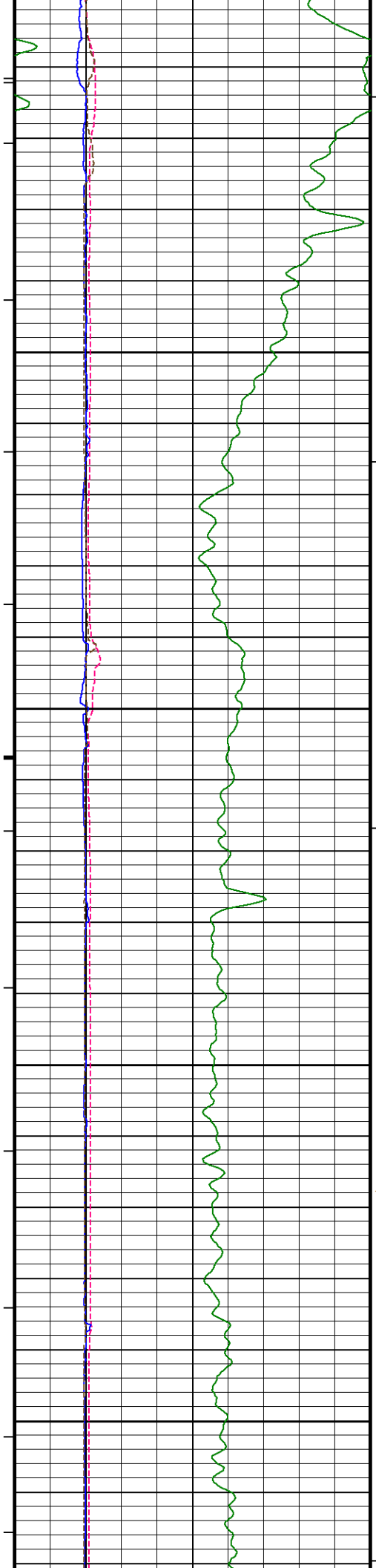
→ Array Ind. Four Res 20

→ Limestone Density Por.

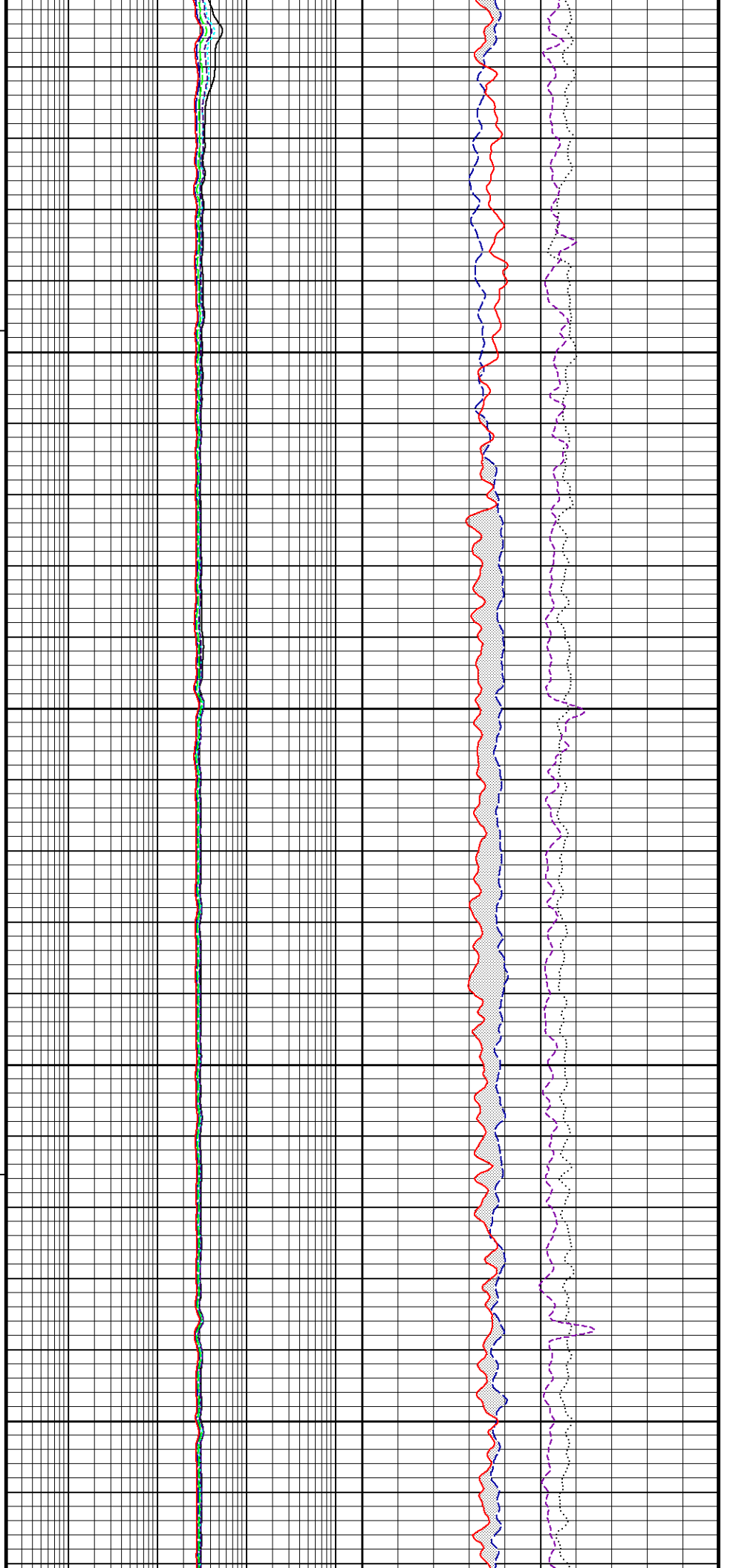
→ PE

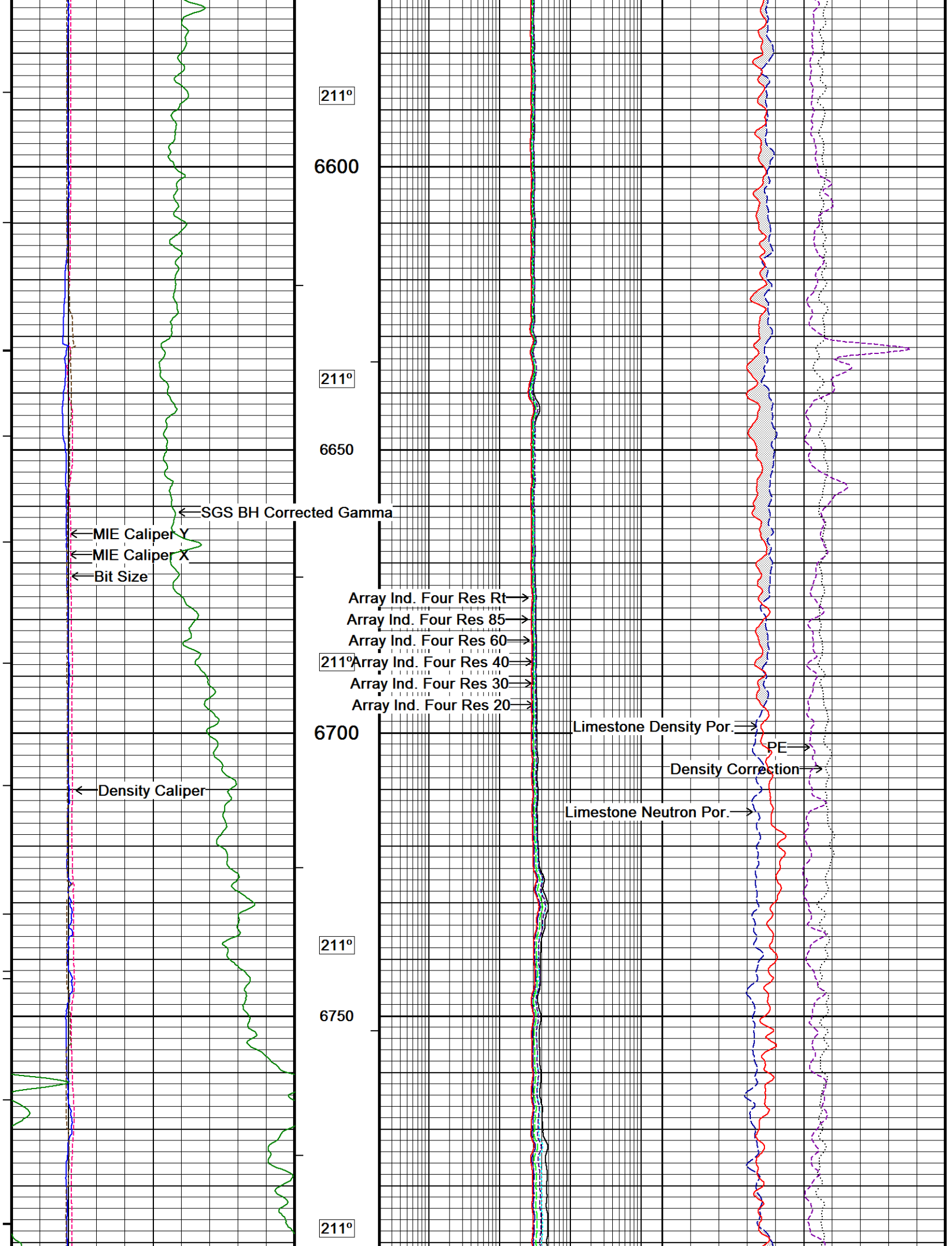
→ Density Correction

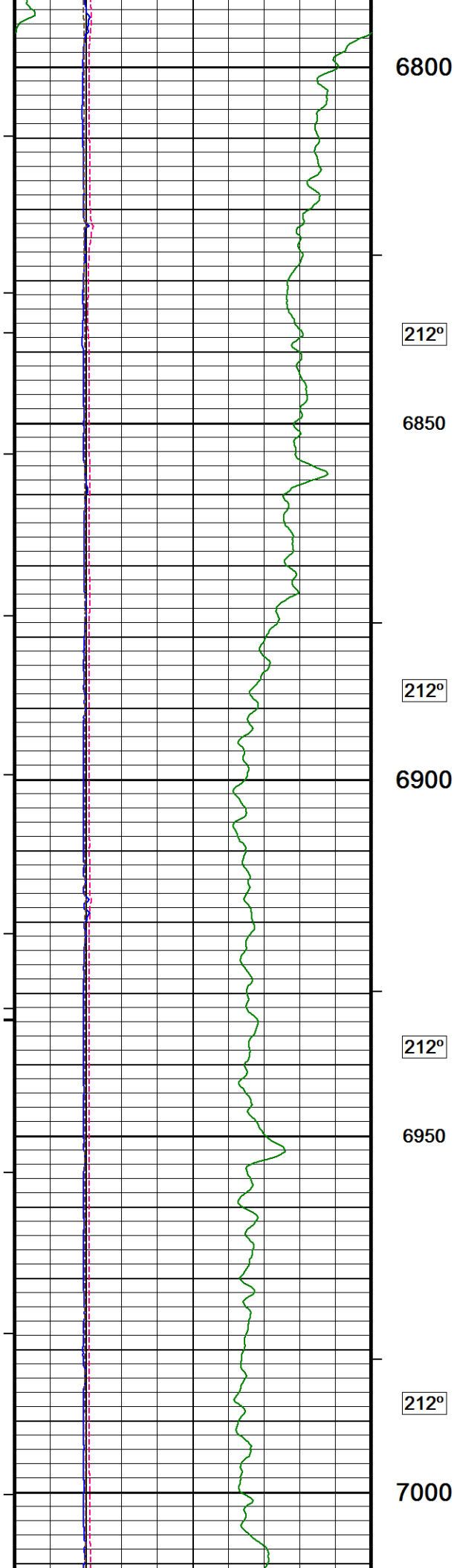
→ Limestone Neutron Por.



210°
6400
210°
6450
210°
6500
1500
210°
6550







6800

212°

6850

212°

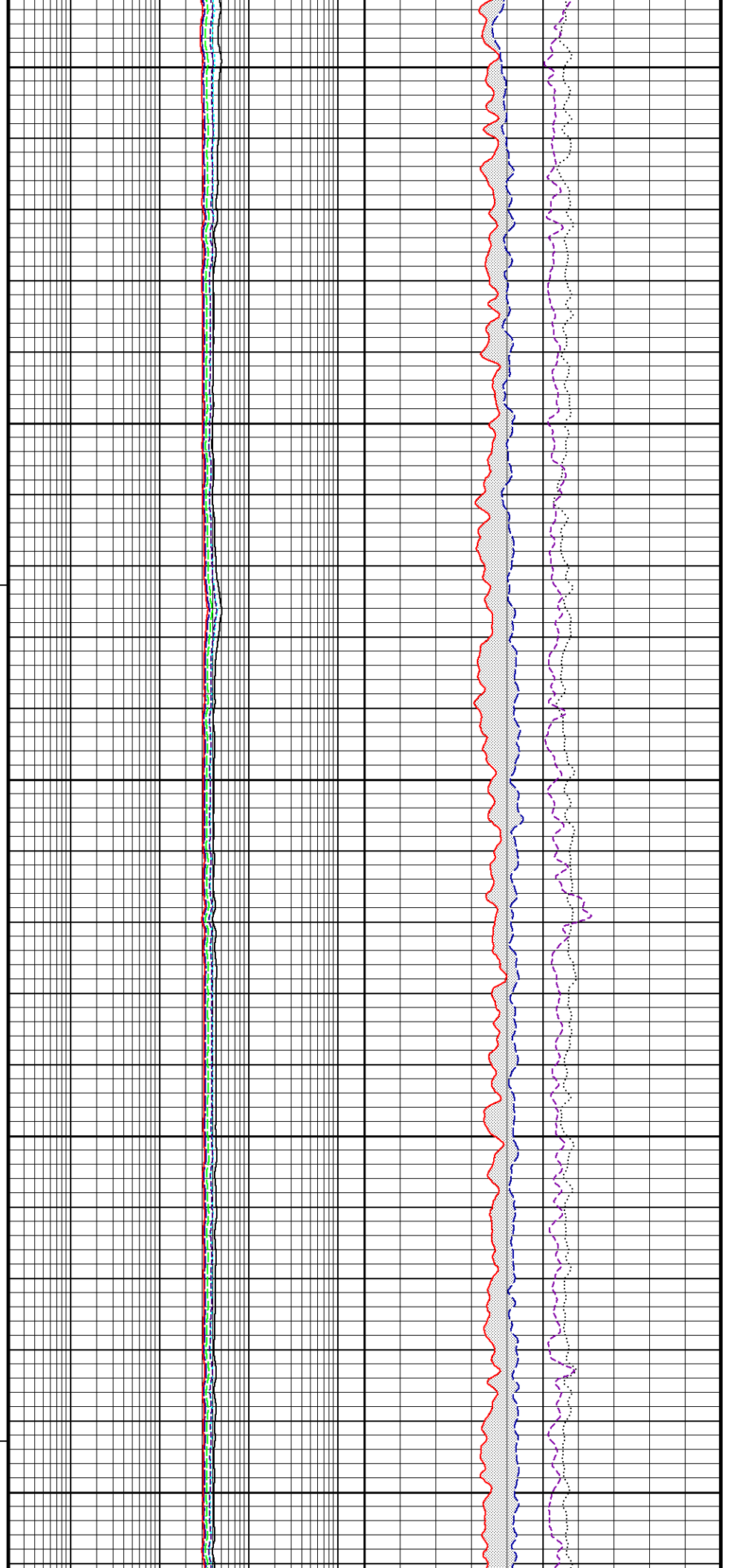
6900

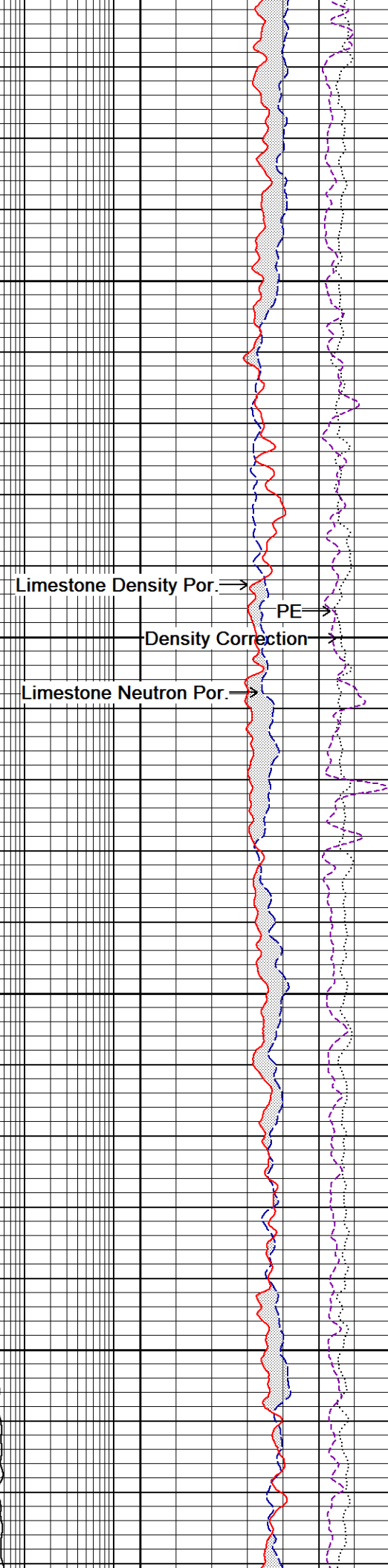
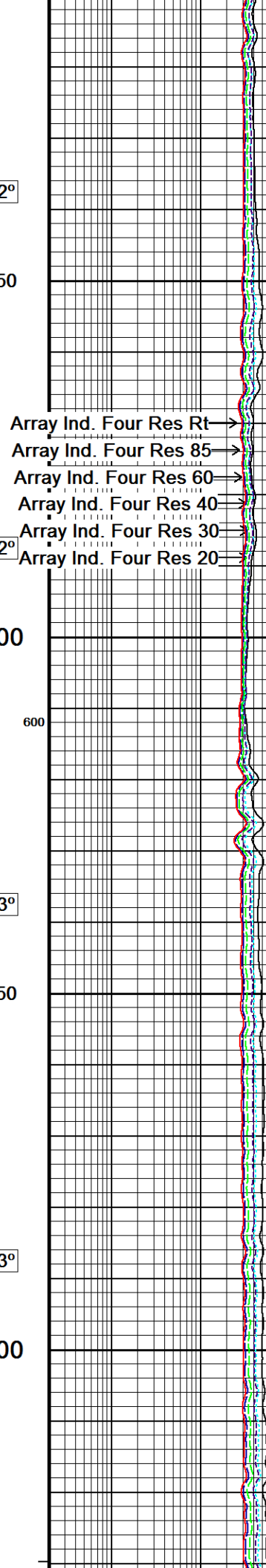
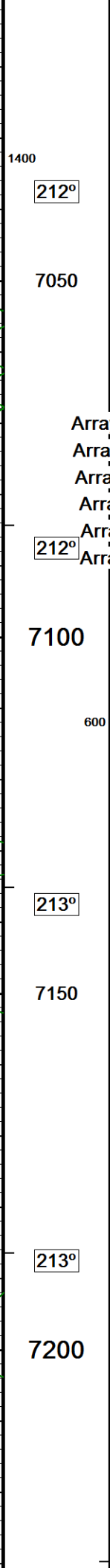
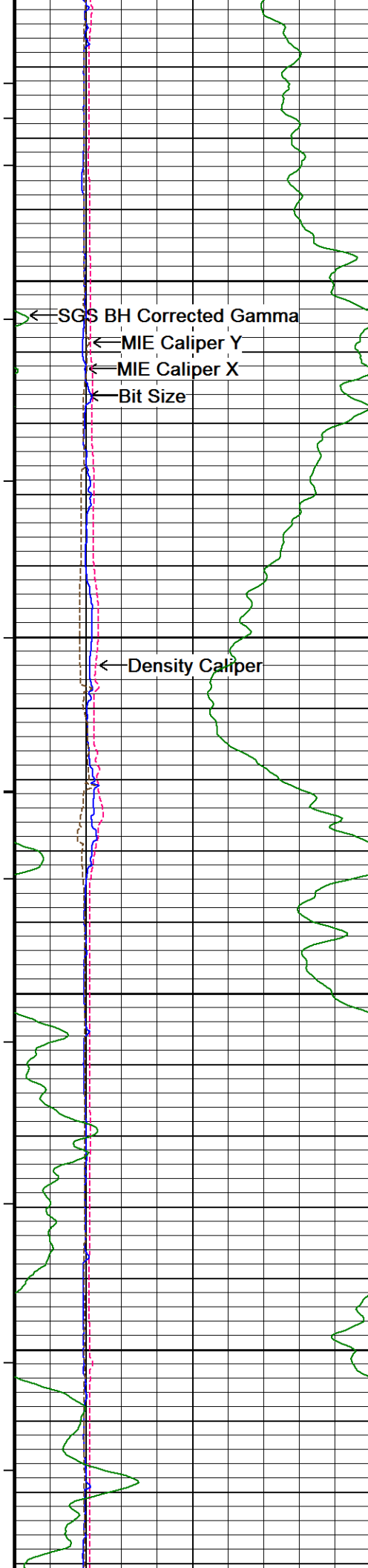
212°

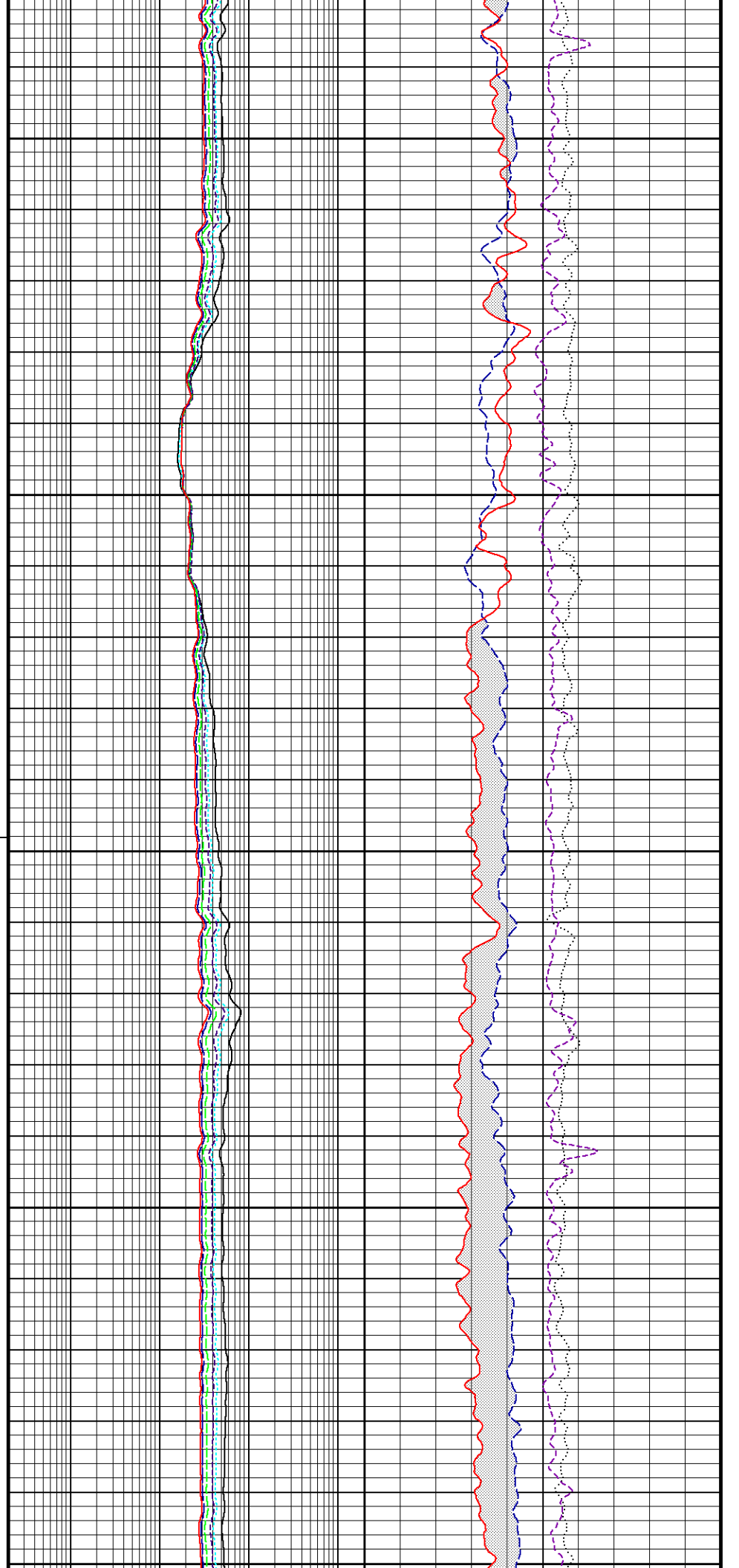
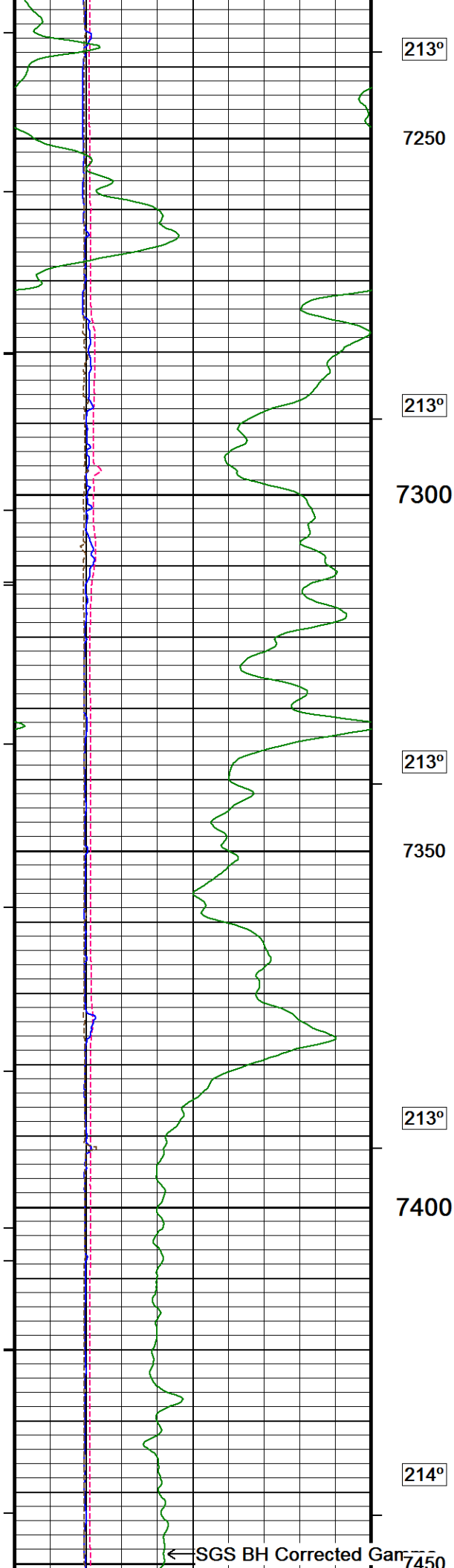
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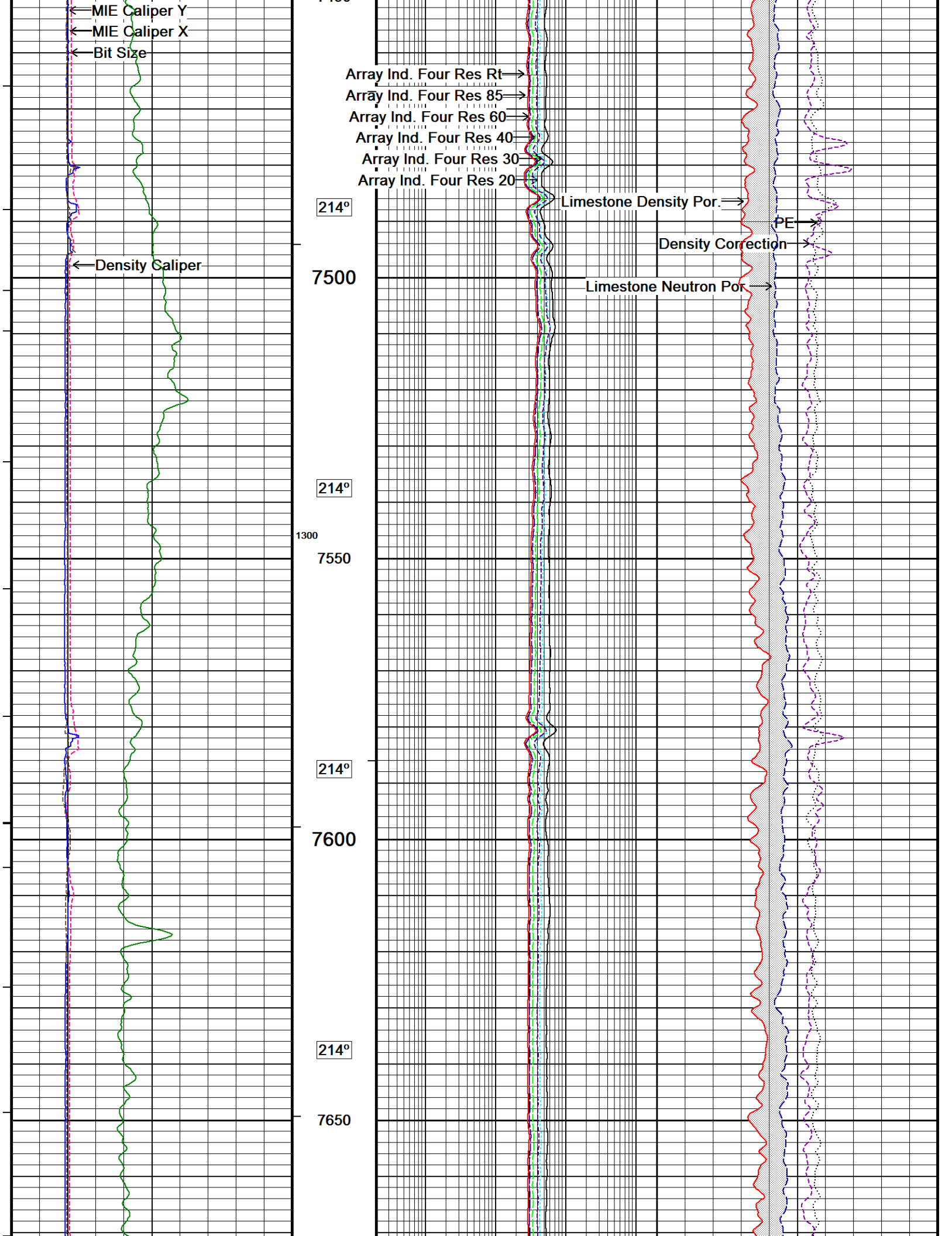
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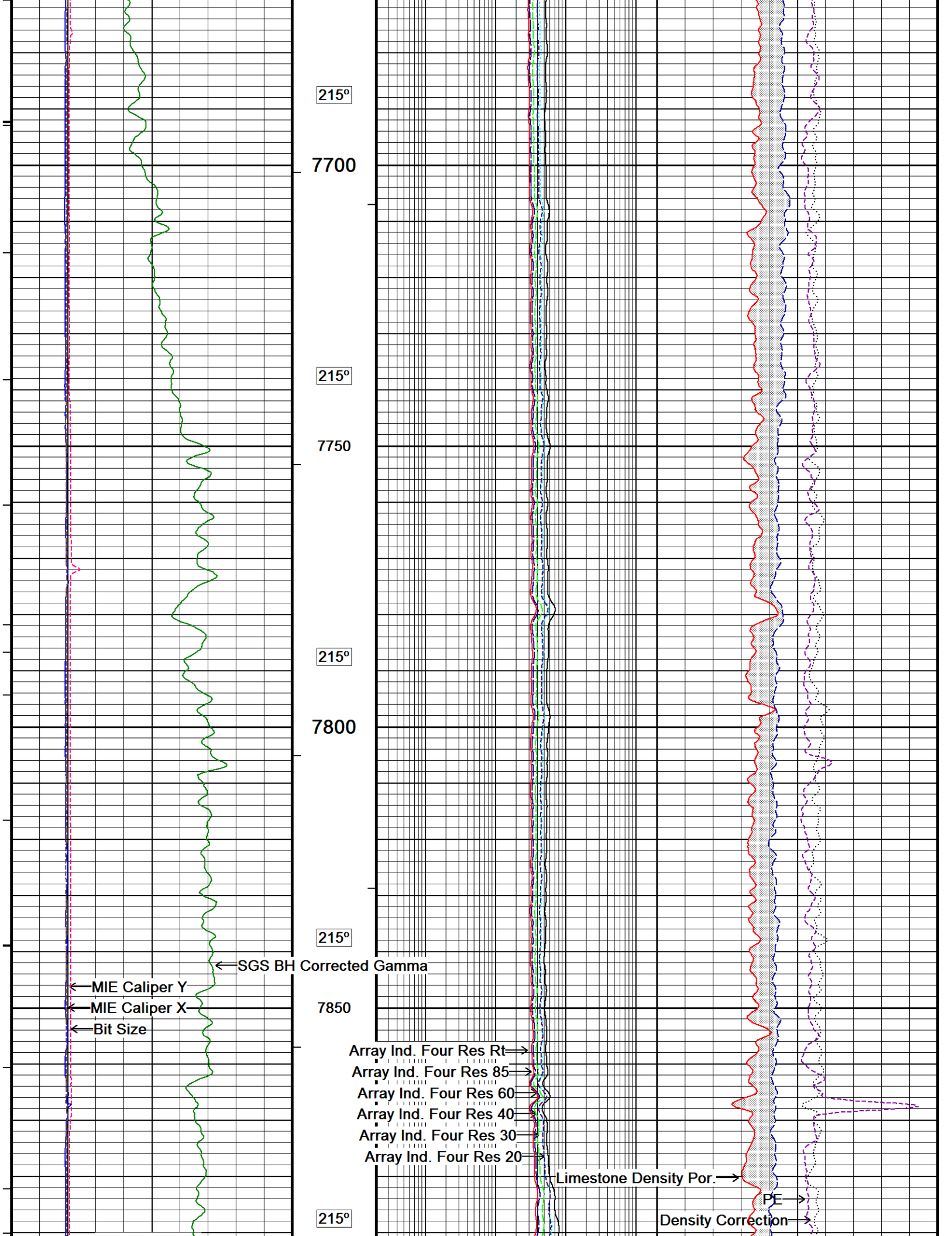
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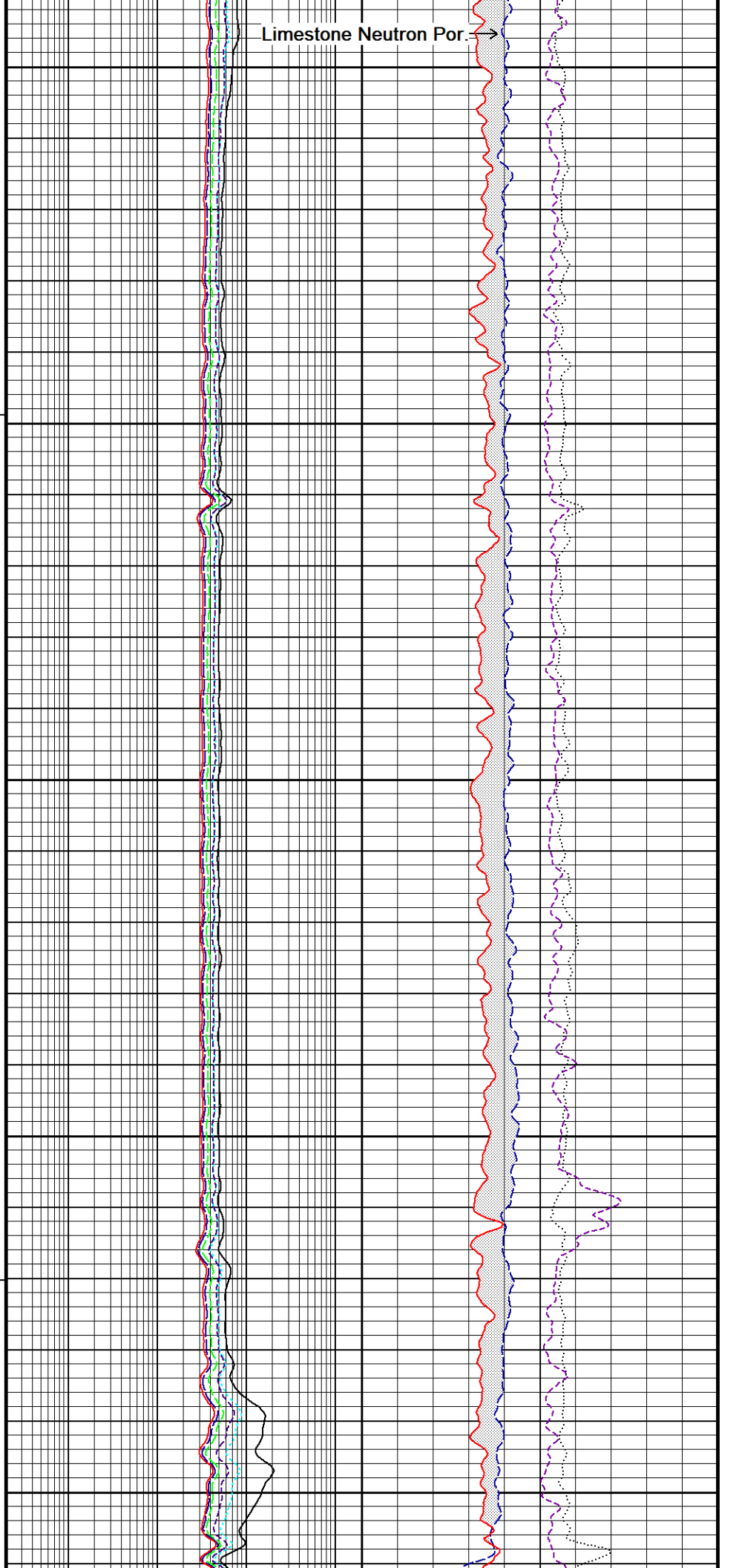
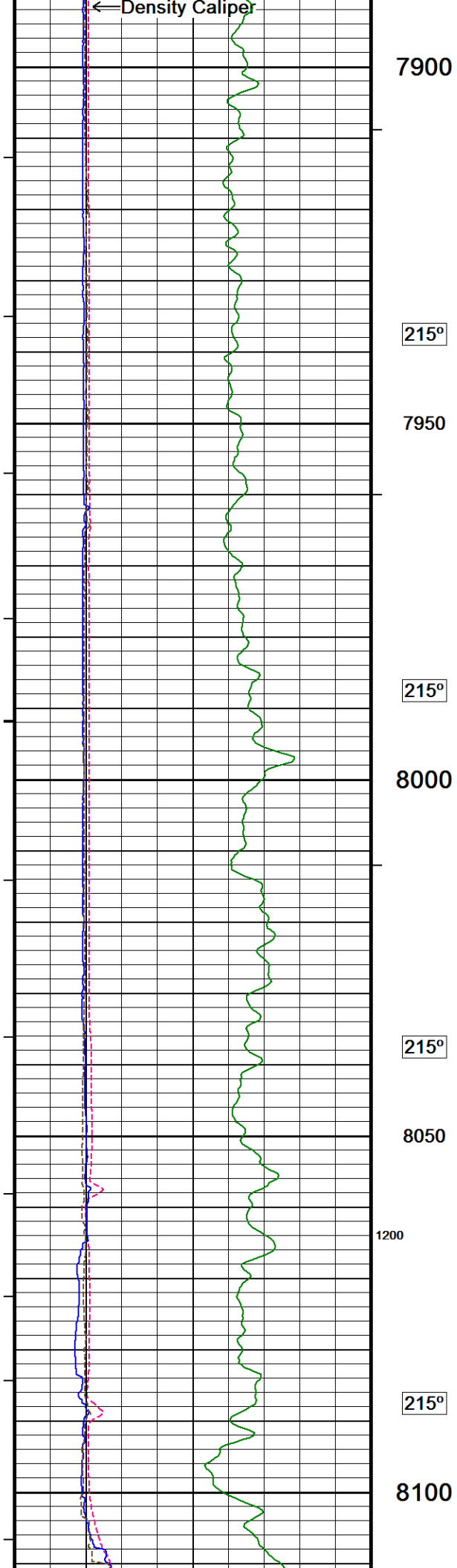


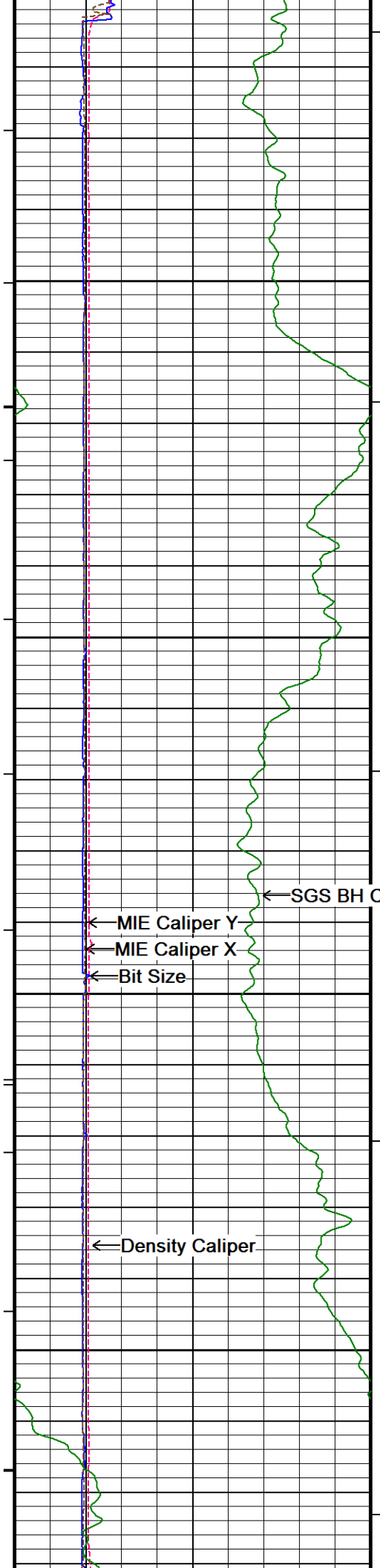












216°
8150

216°
8200

216°
8250

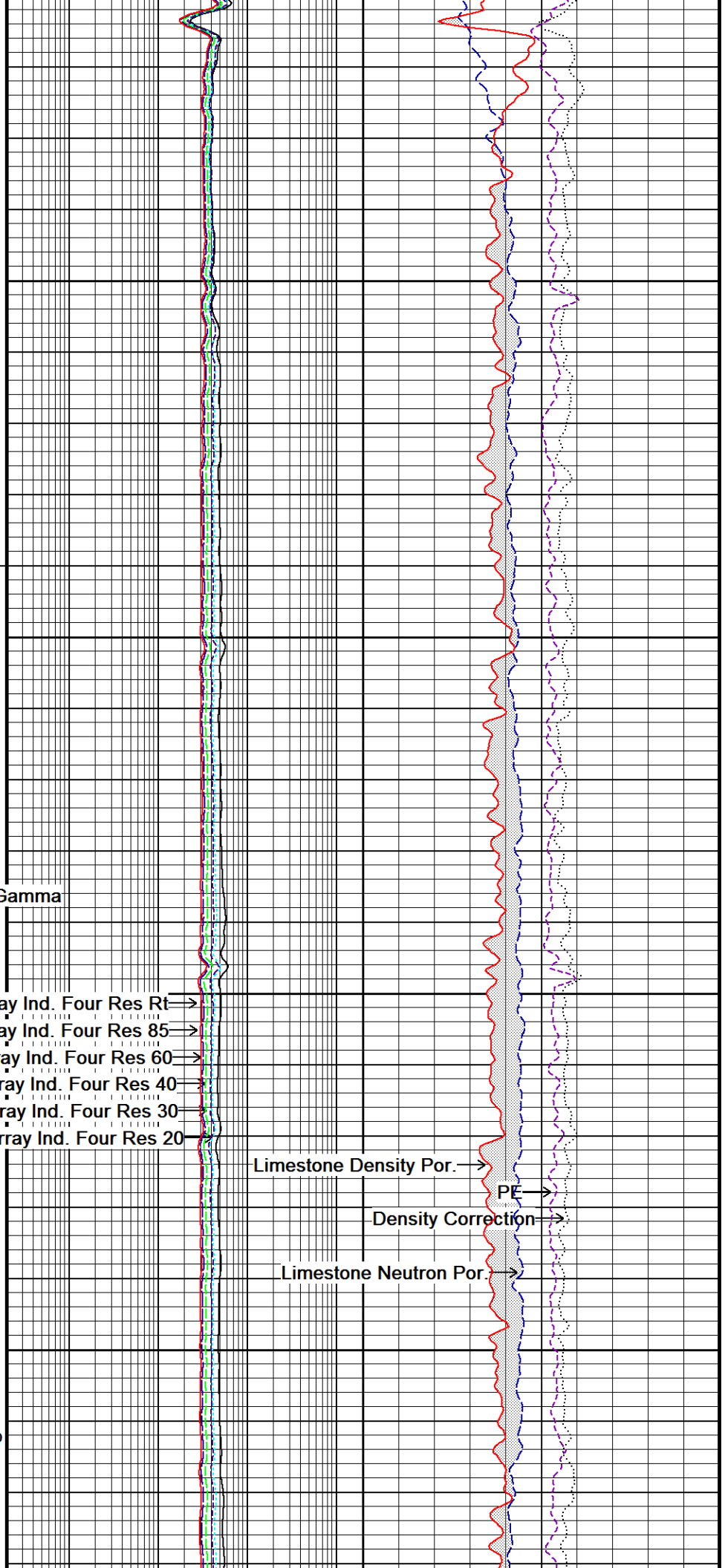
216°
8300

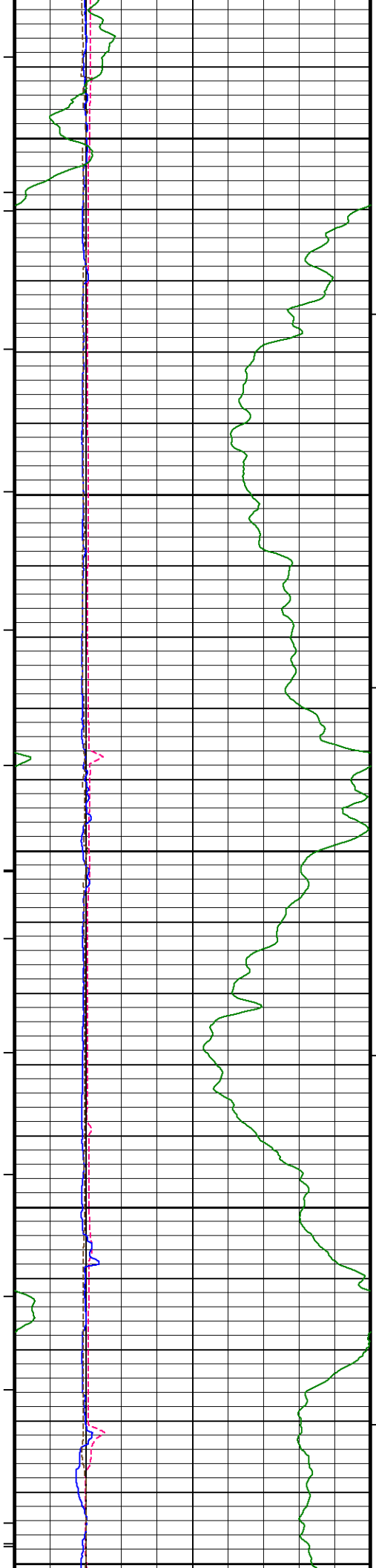
500

← MIE Caliper Y
← MIE Caliper X
← Bit Size
← SGS BH Corrected Gamma
← Density Caliper

Array Ind. Four Res Rt
Array Ind. Four Res 85
Array Ind. Four Res 60
Array Ind. Four Res 40
Array Ind. Four Res 30
Array Ind. Four Res 20

Limestone Density Por.
PE
Density Correction
Limestone Neutron Por.





216°

8350

216°

8400

217°

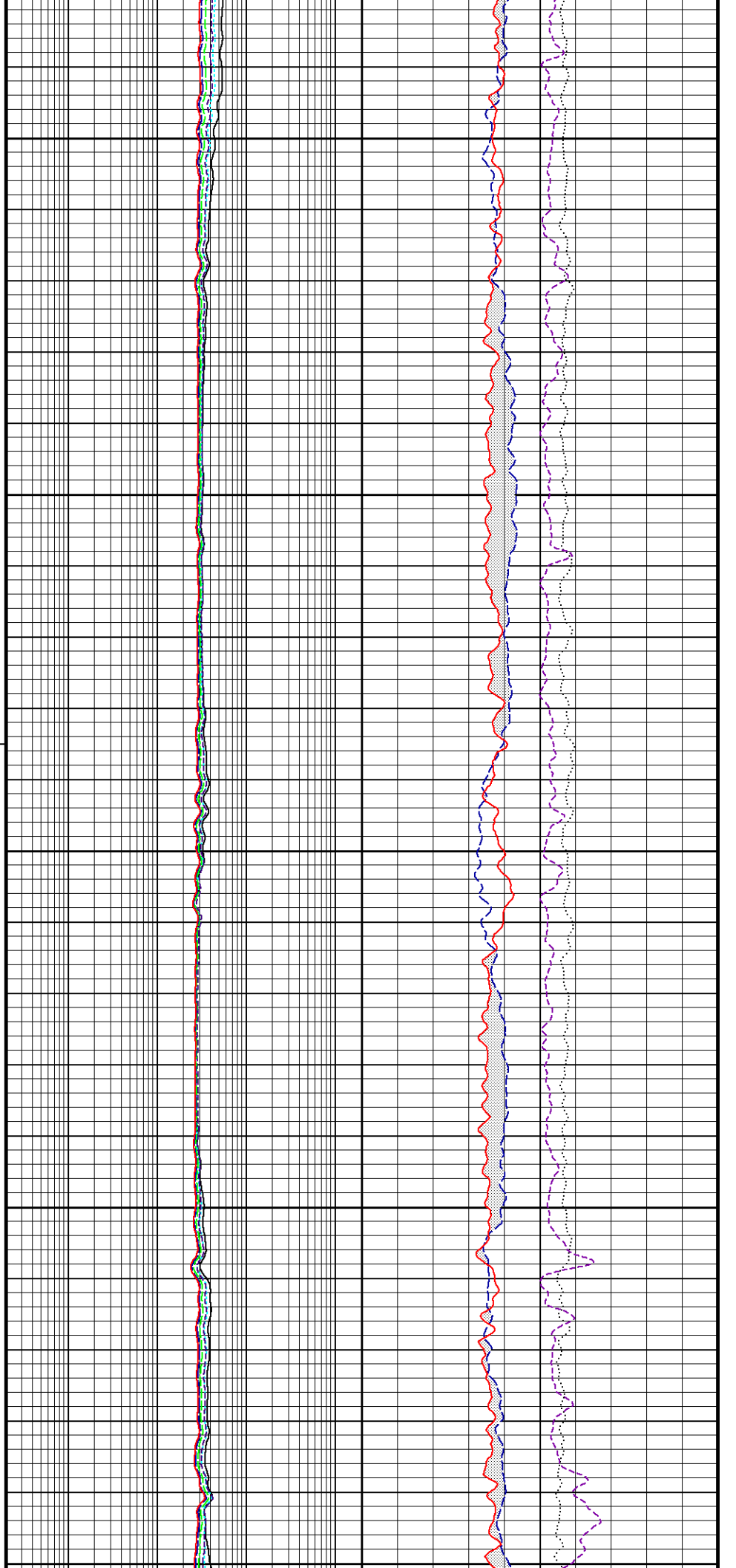
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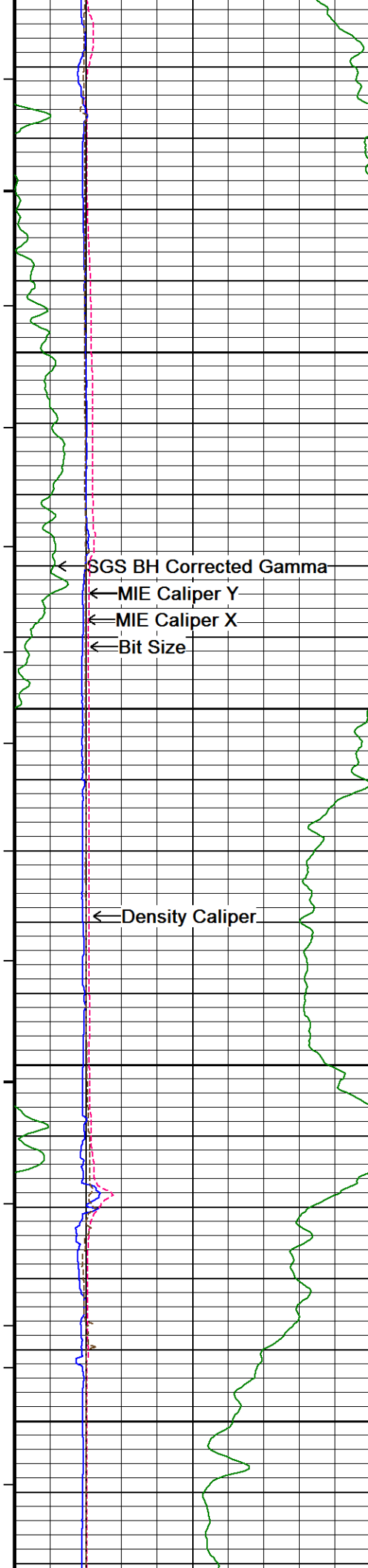
217°

8500

217°

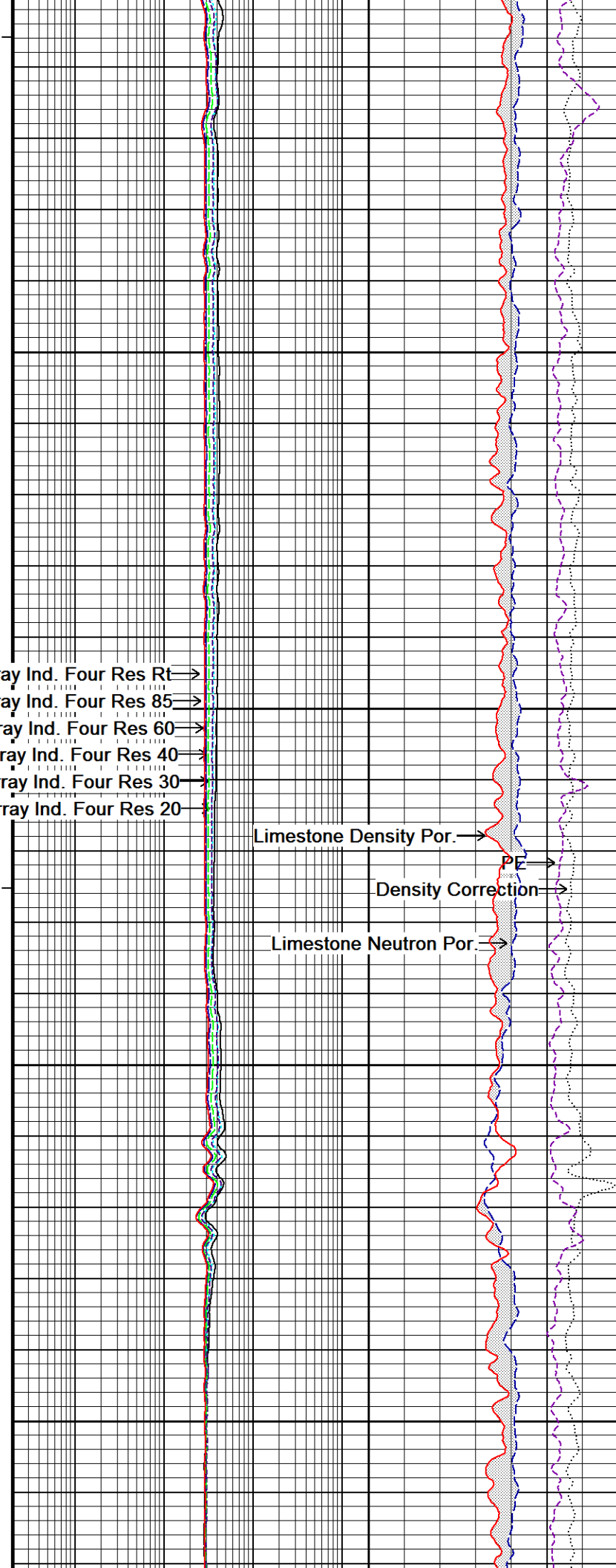
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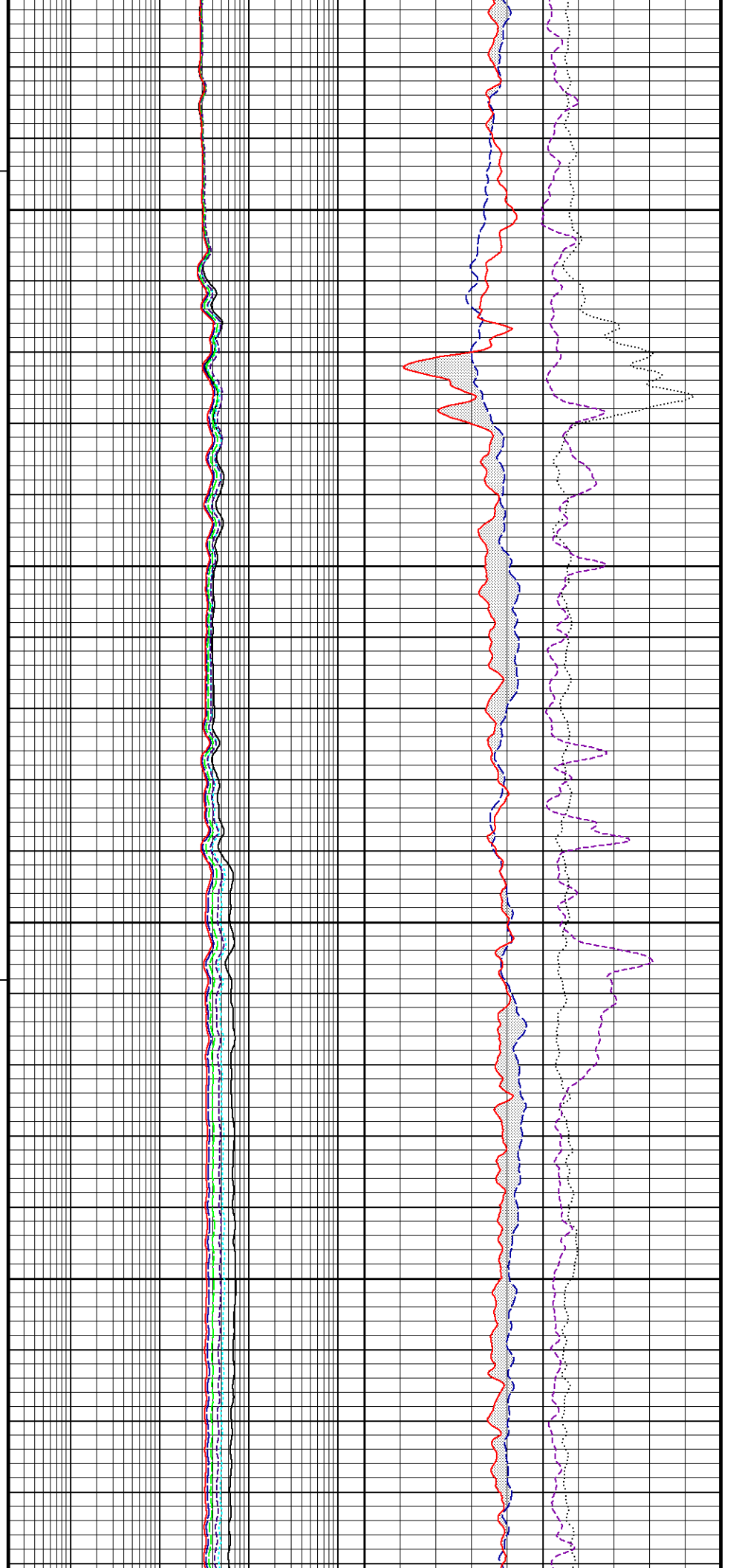
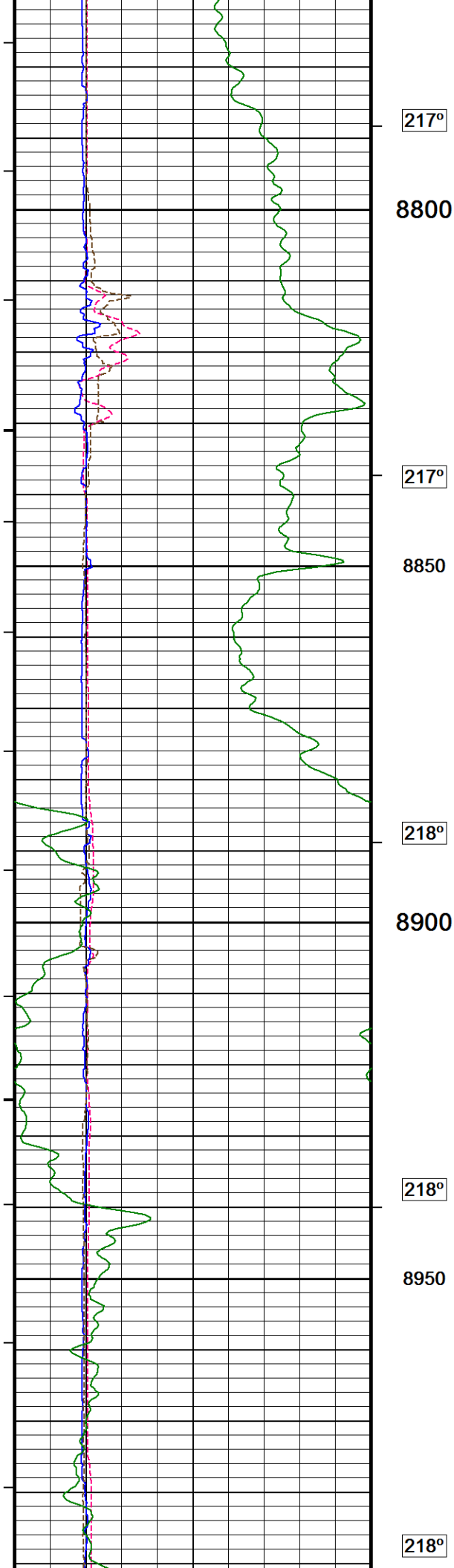


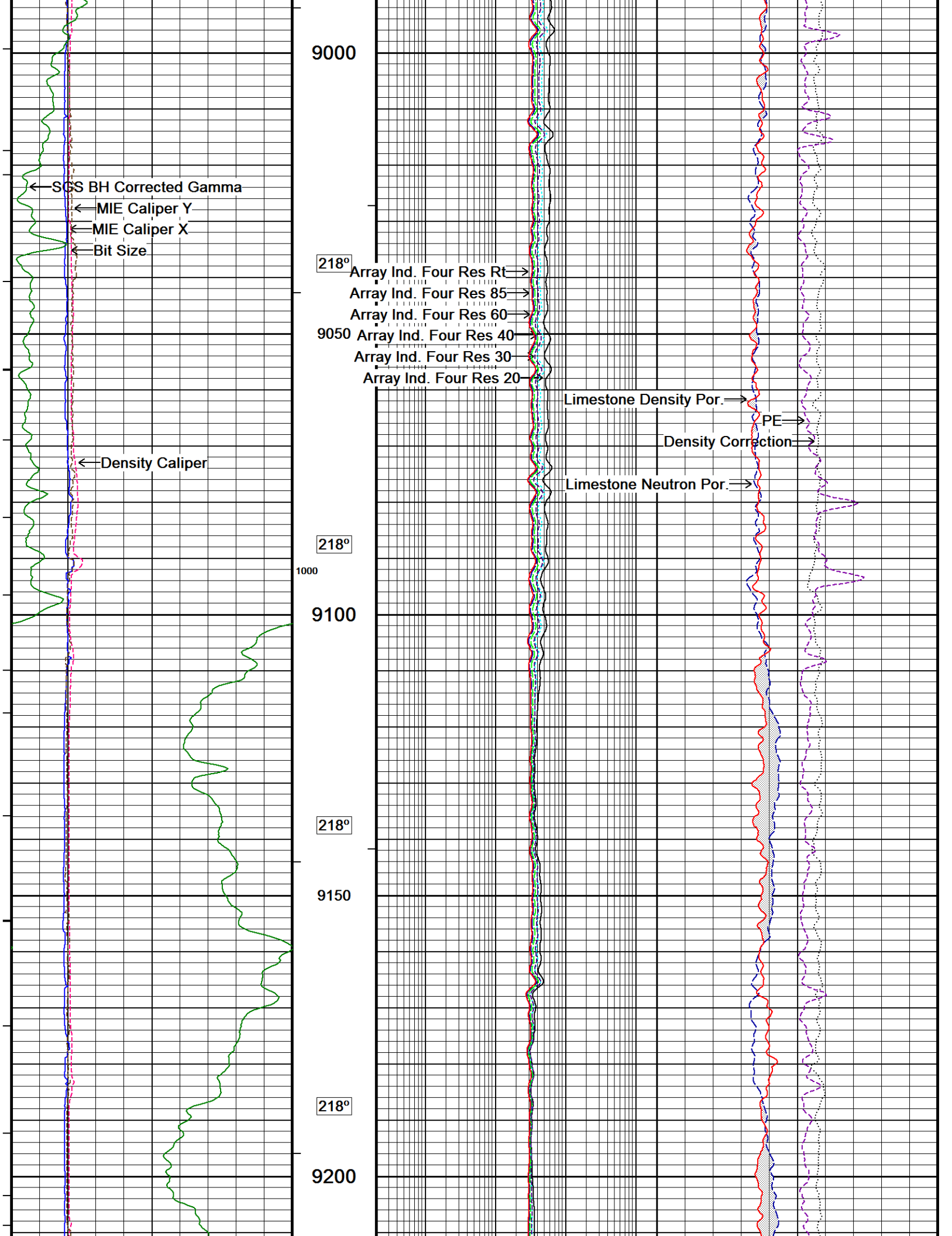
1100
217°
8600
217°
8650
217°
8700
217°
8750

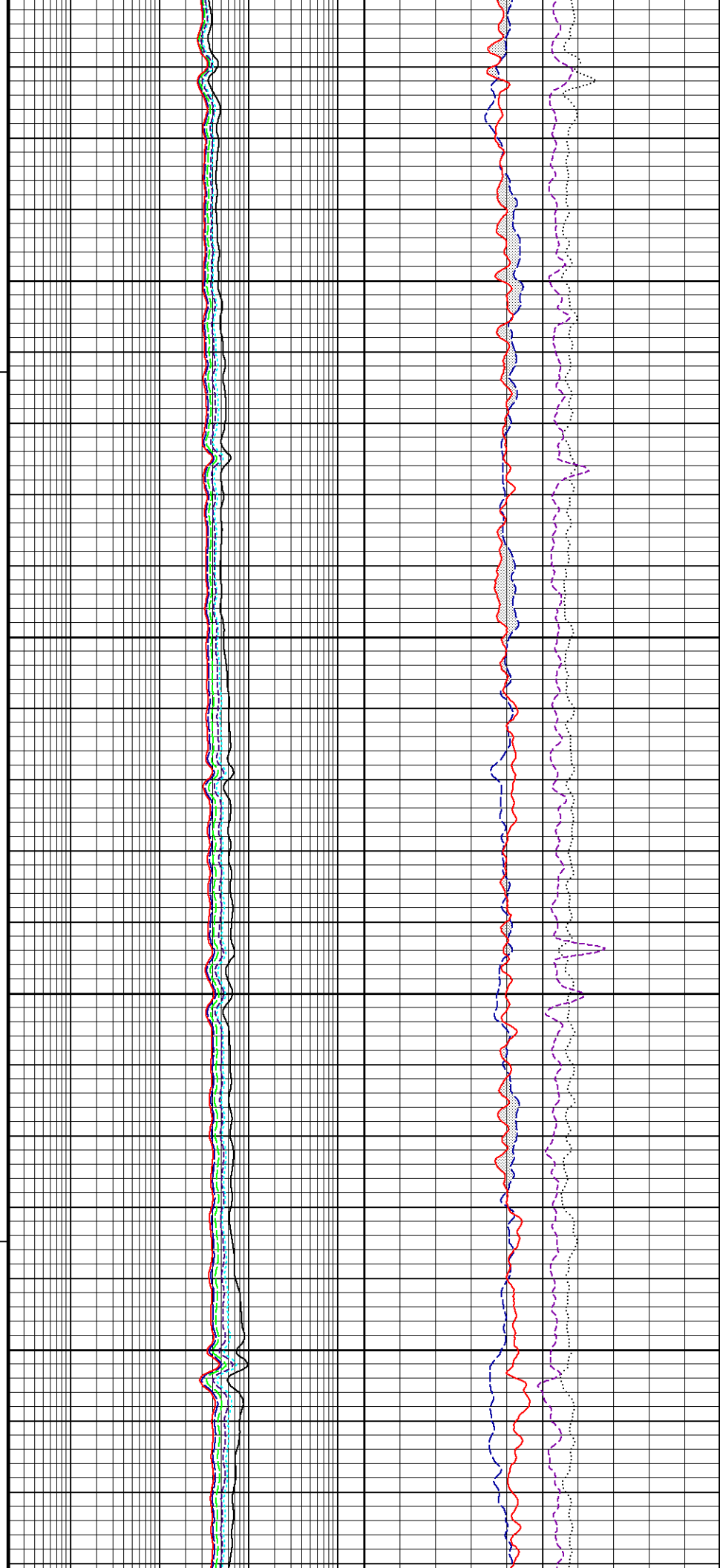
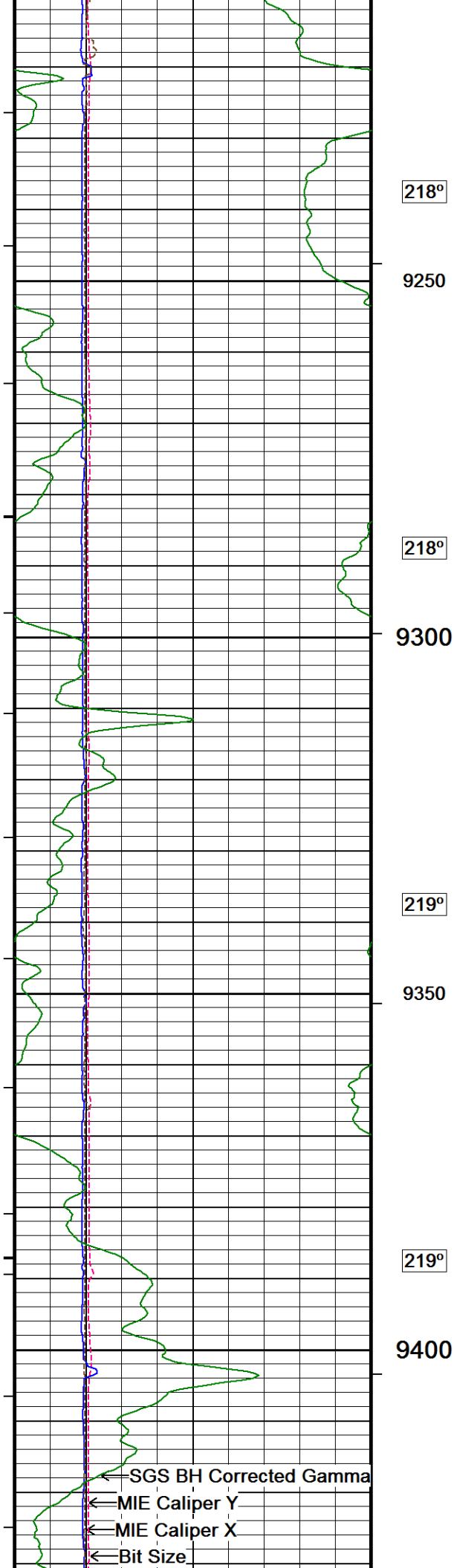
Array Ind. Four Res Rt
Array Ind. Four Res 85
Array Ind. Four Res 60
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Array Ind. Four Res 20

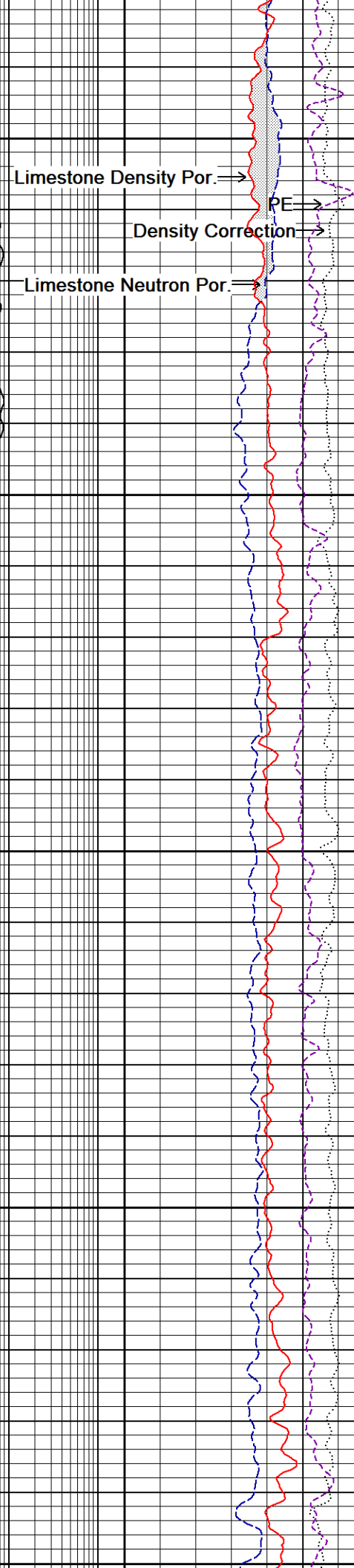
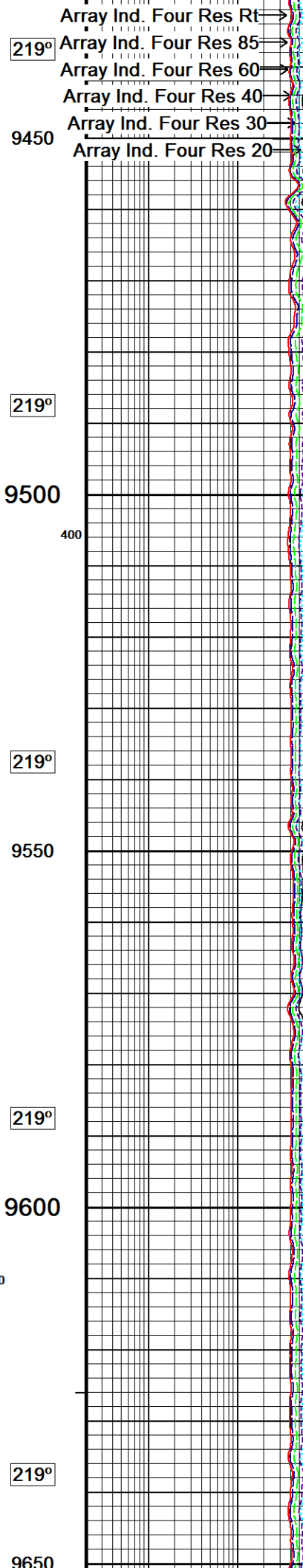
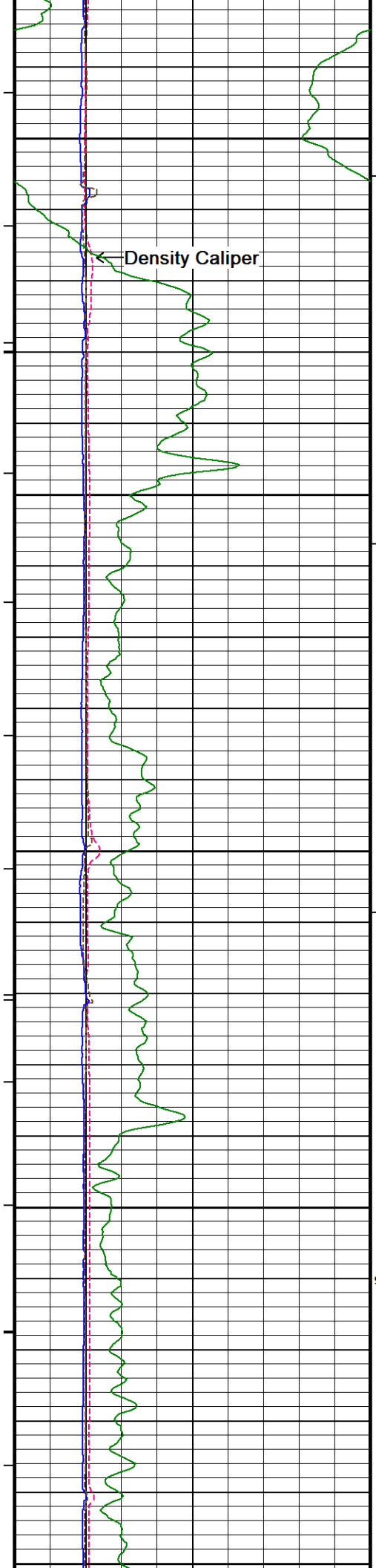


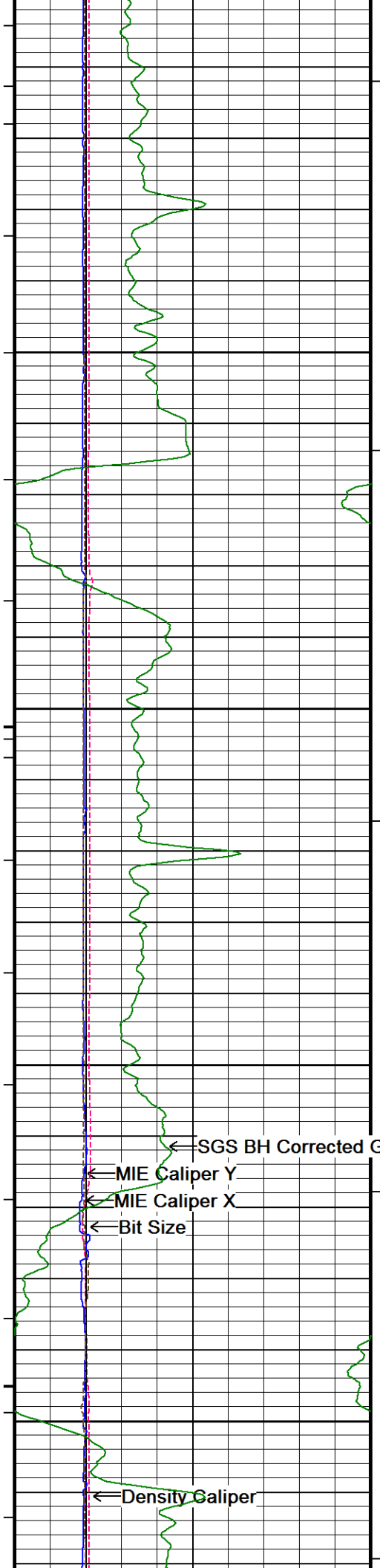
Limestone Density Por.
PE
Density Correction
Limestone Neutron Por.











219°
9700
219°
9750
219°
9800
220°
9850

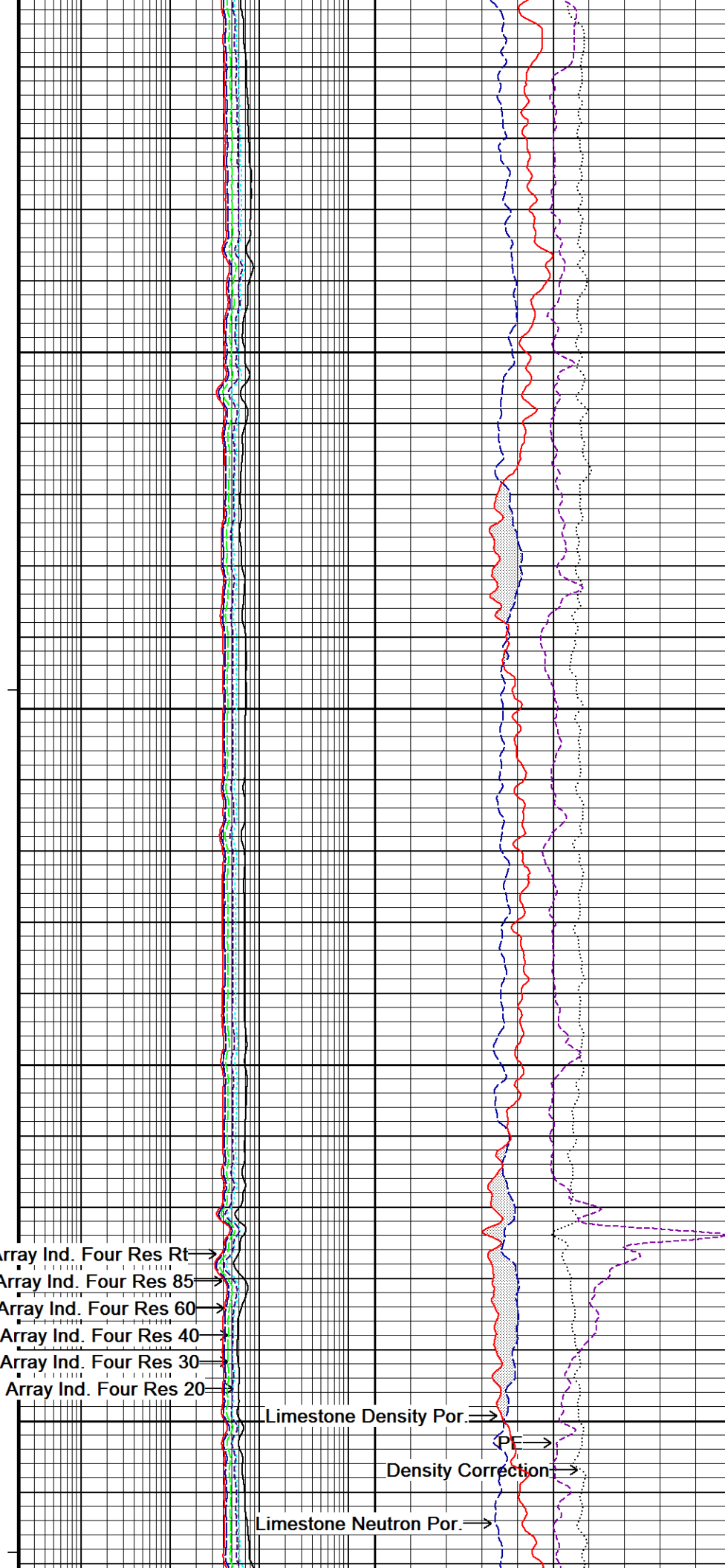
SGS BH Corrected Gamma

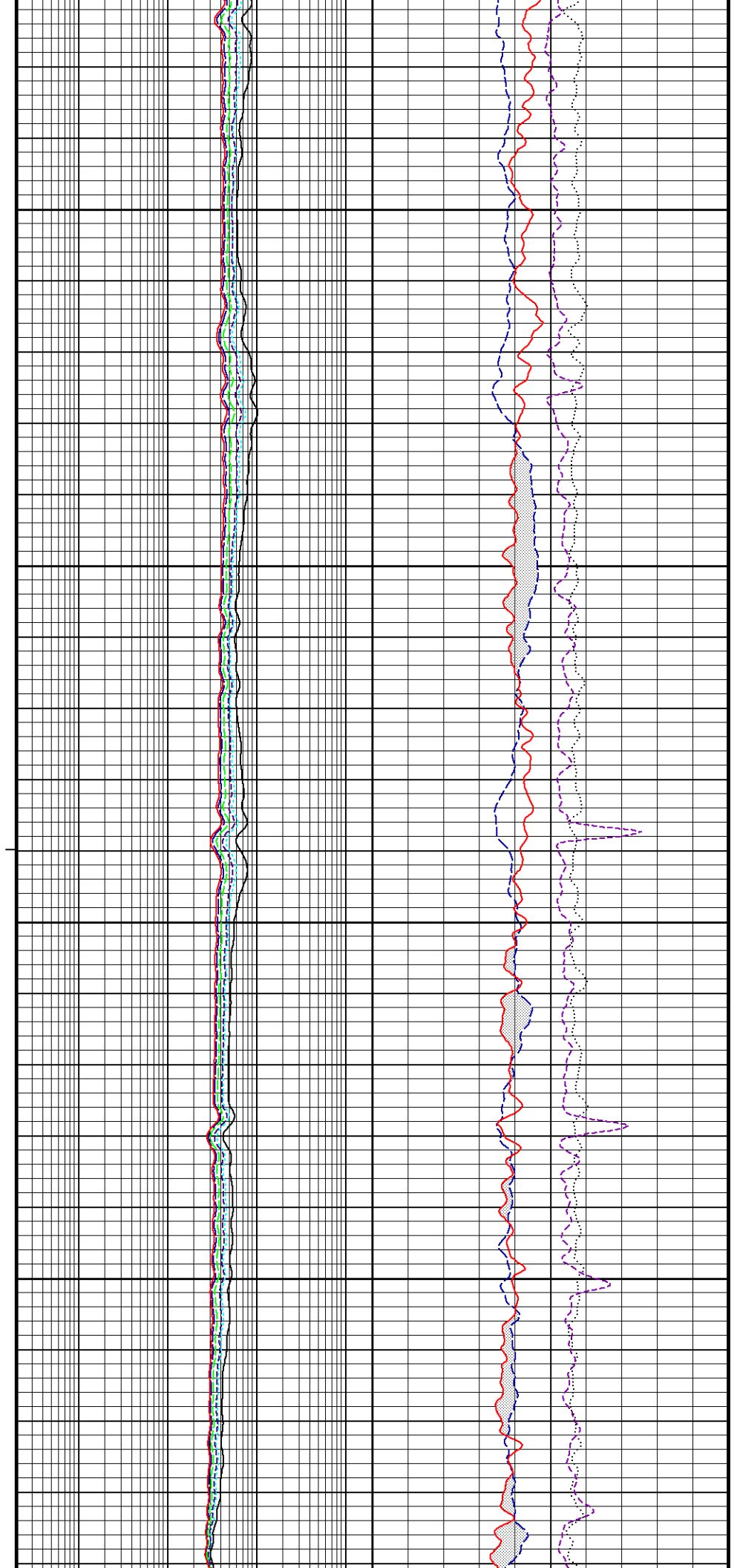
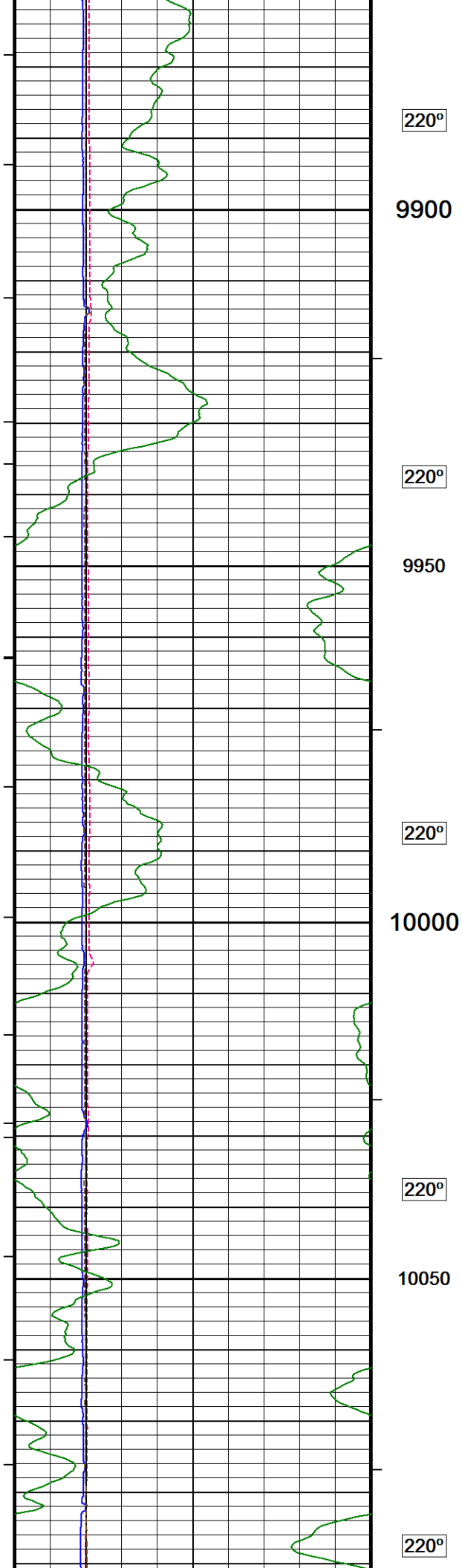
MIE Caliper Y
MIE Caliper X
Bit Size

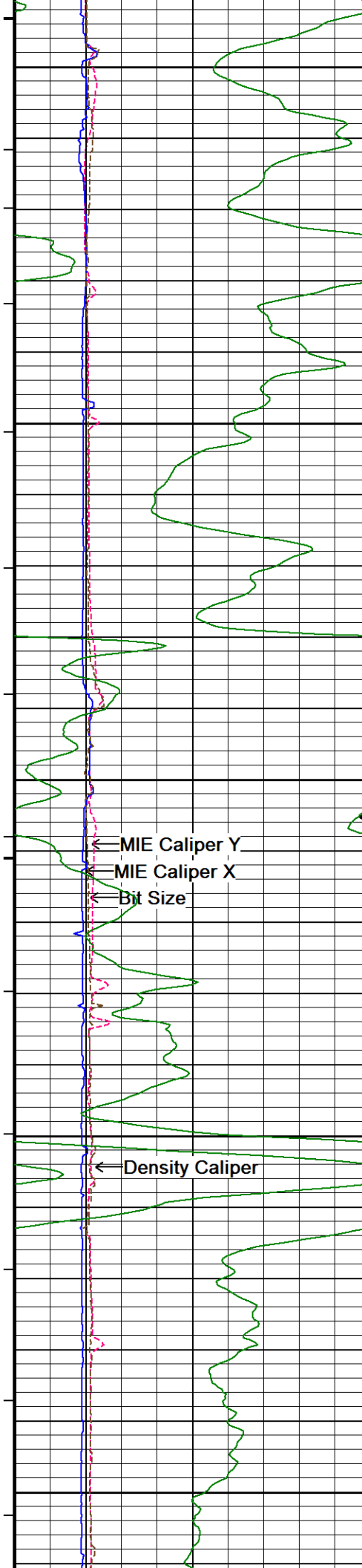
Density Caliper

Array Ind. Four Res Rt
Array Ind. Four Res 85
Array Ind. Four Res 60
Array Ind. Four Res 40
Array Ind. Four Res 30
Array Ind. Four Res 20

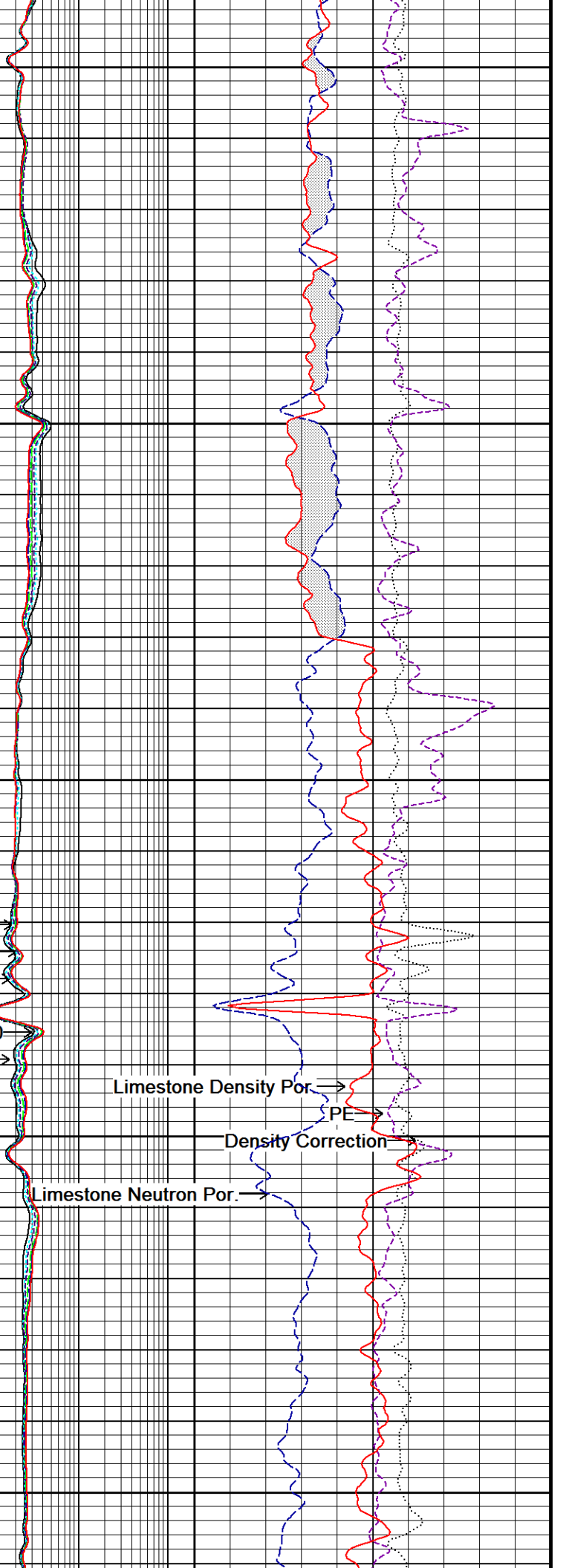
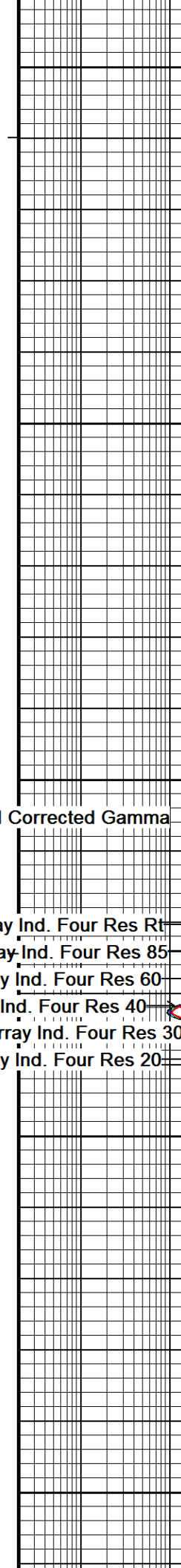
Limestone Density Por.
PE
Density Correction
Limestone Neutron Por.

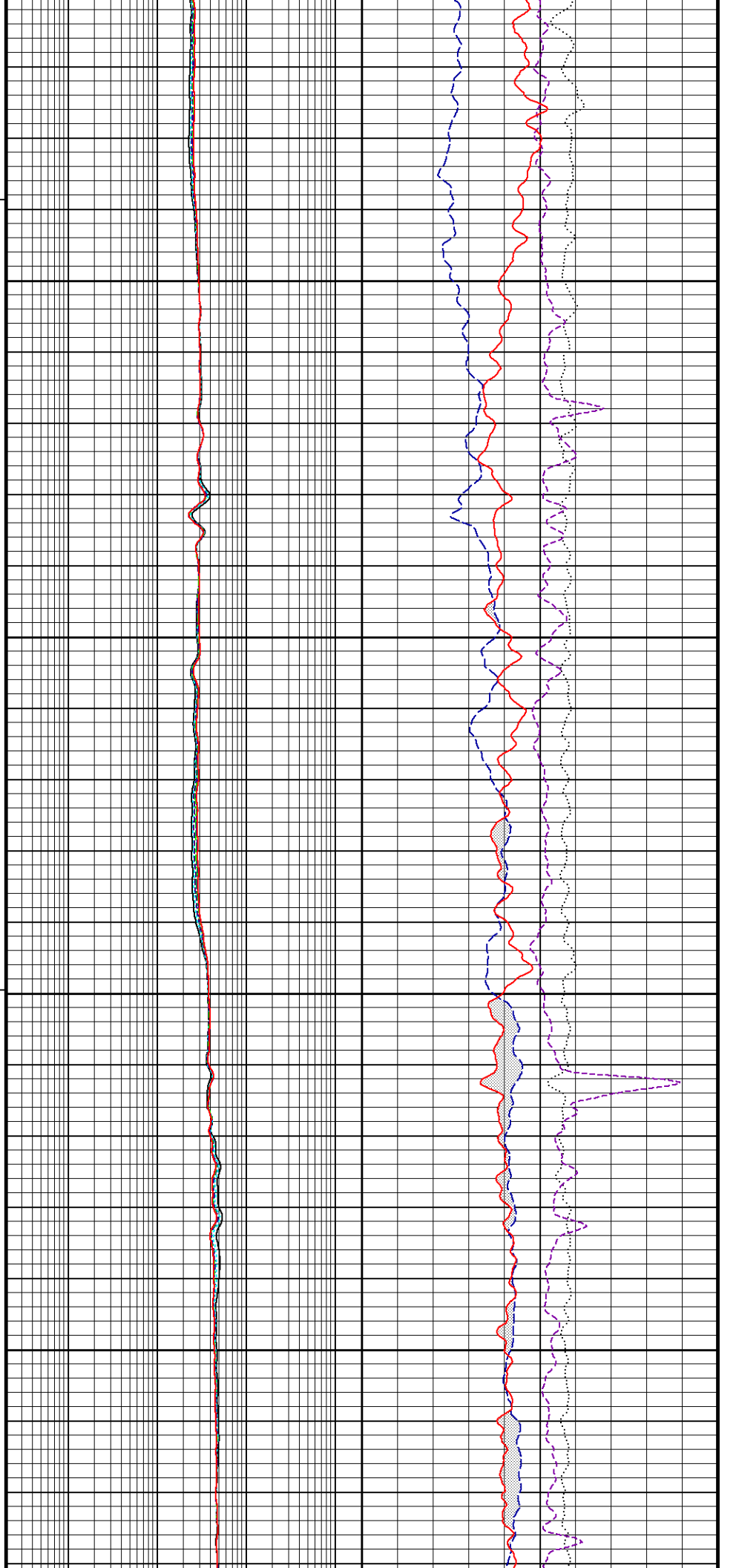
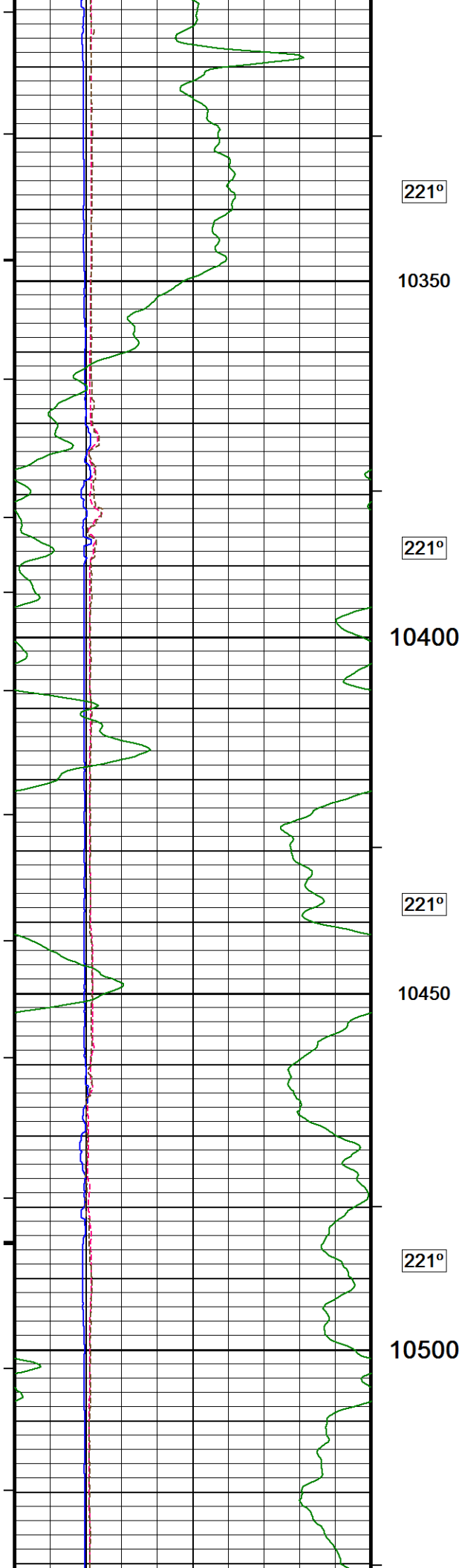


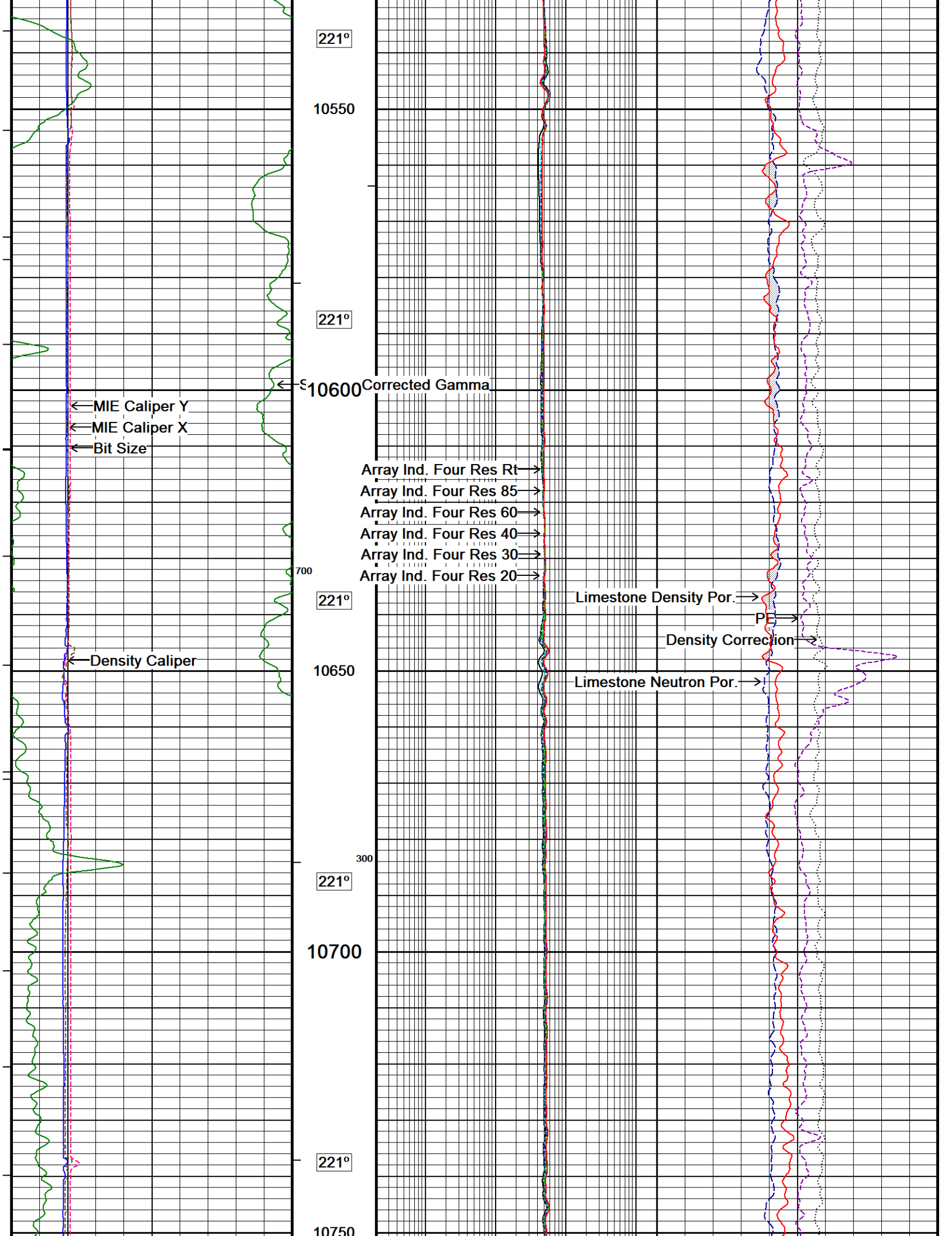


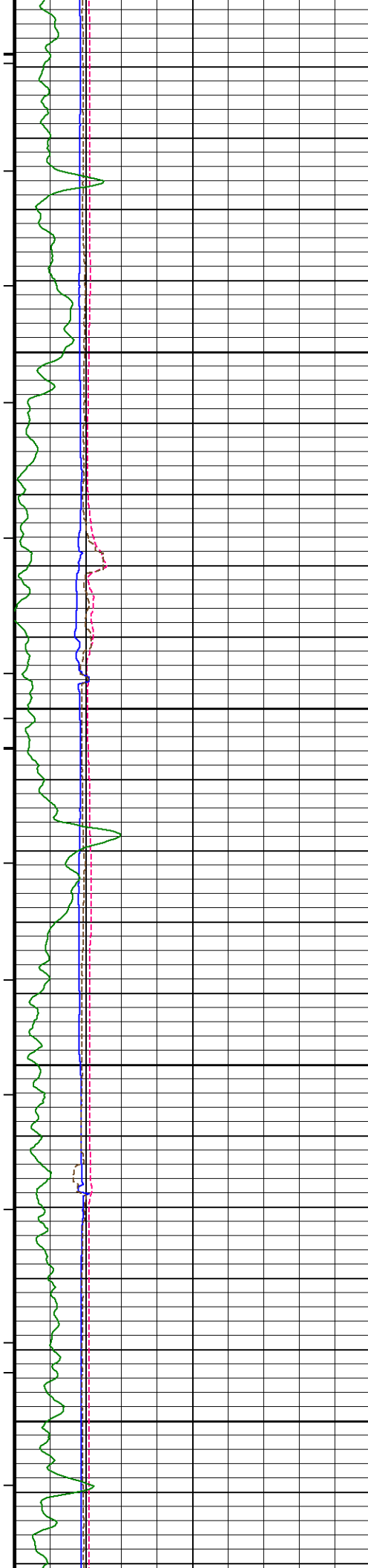


10100
800
220°
10150
220°
10200
10250
221°
10300

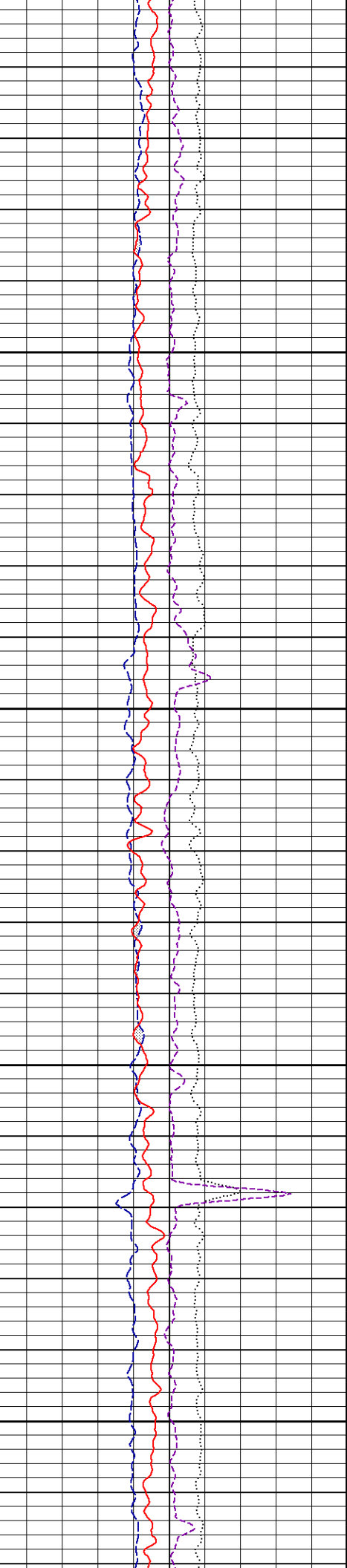
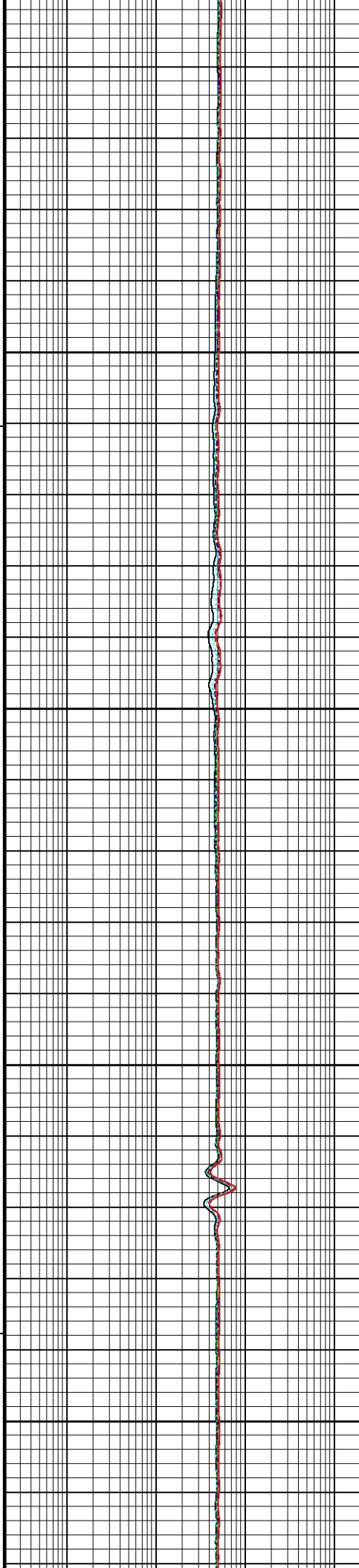


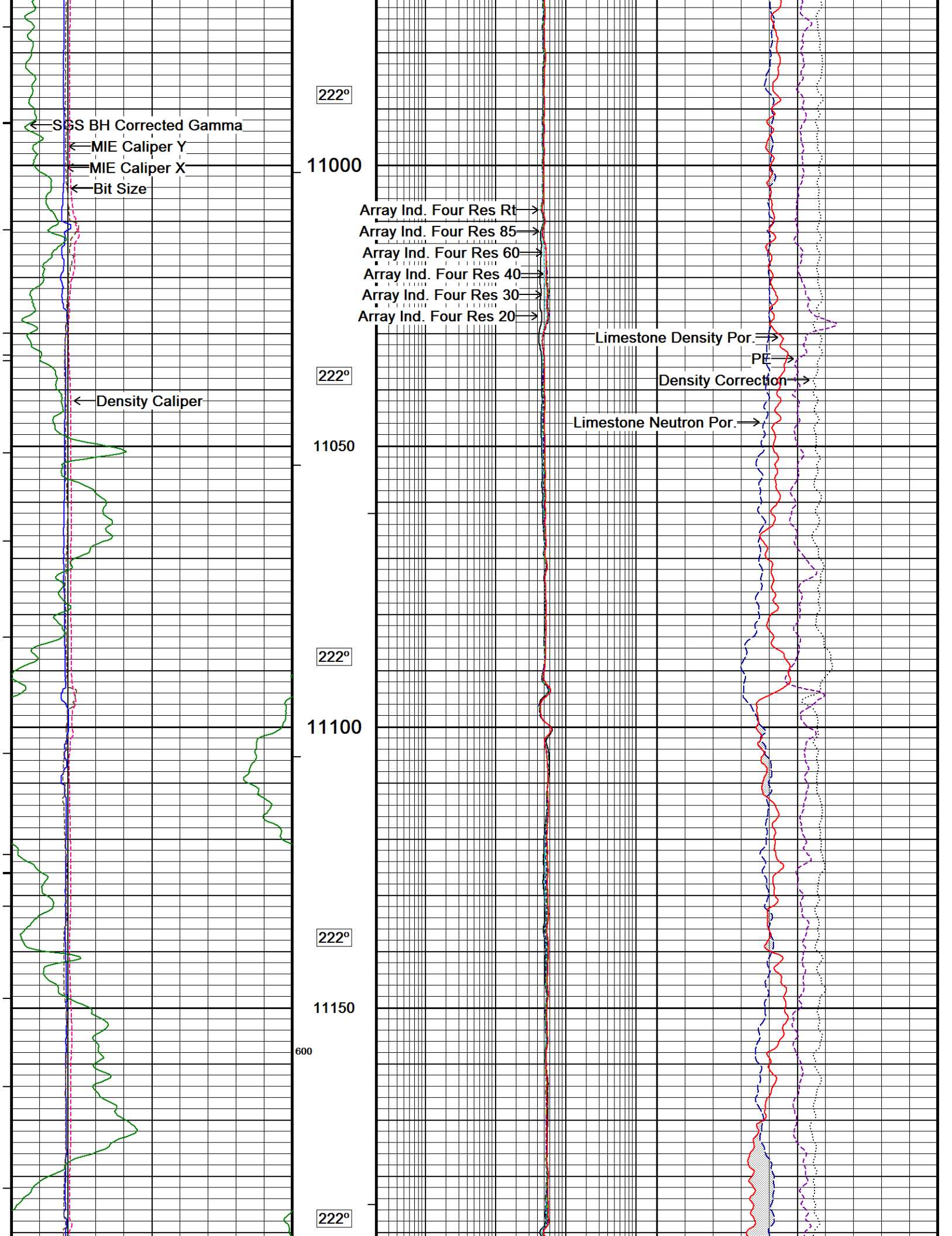


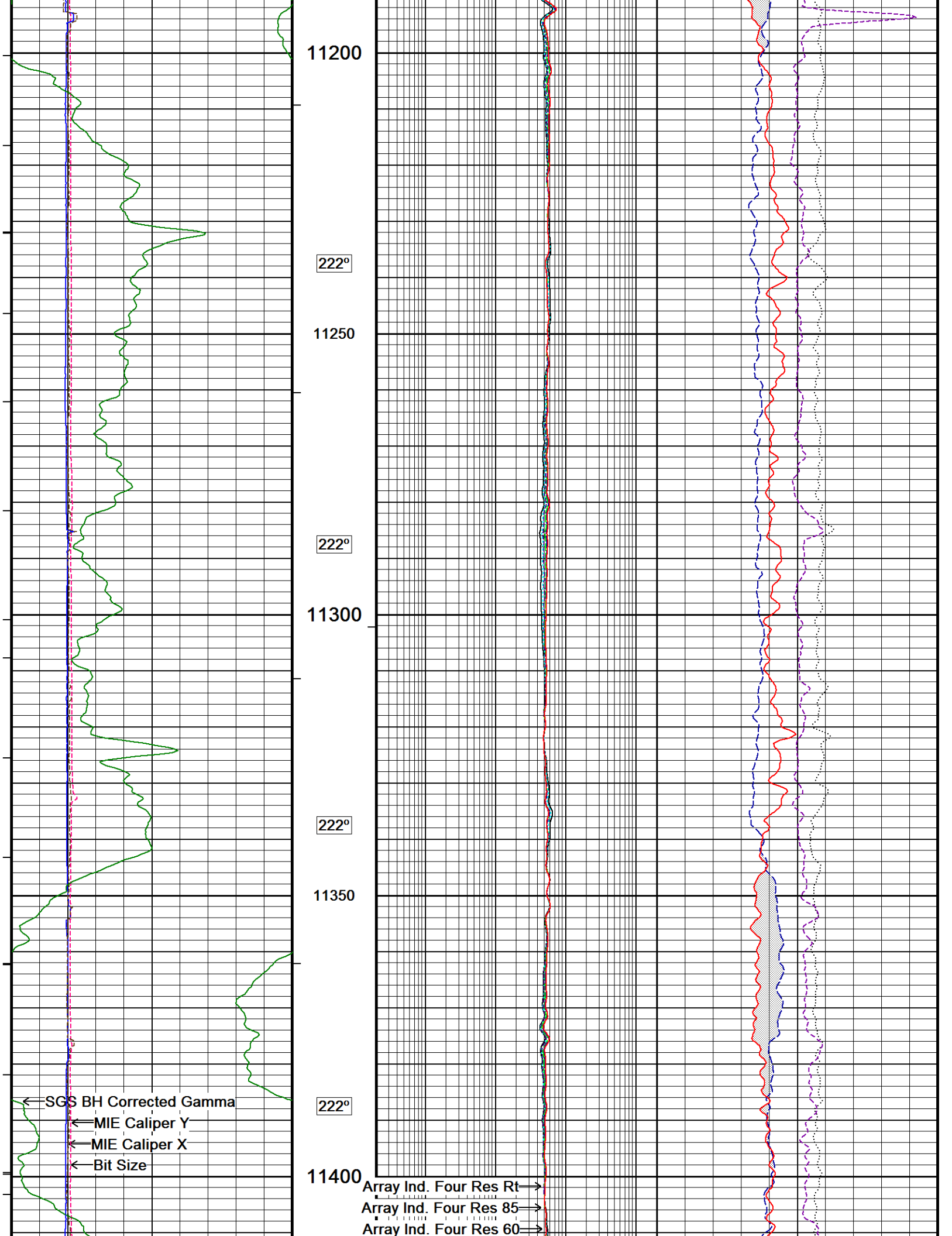


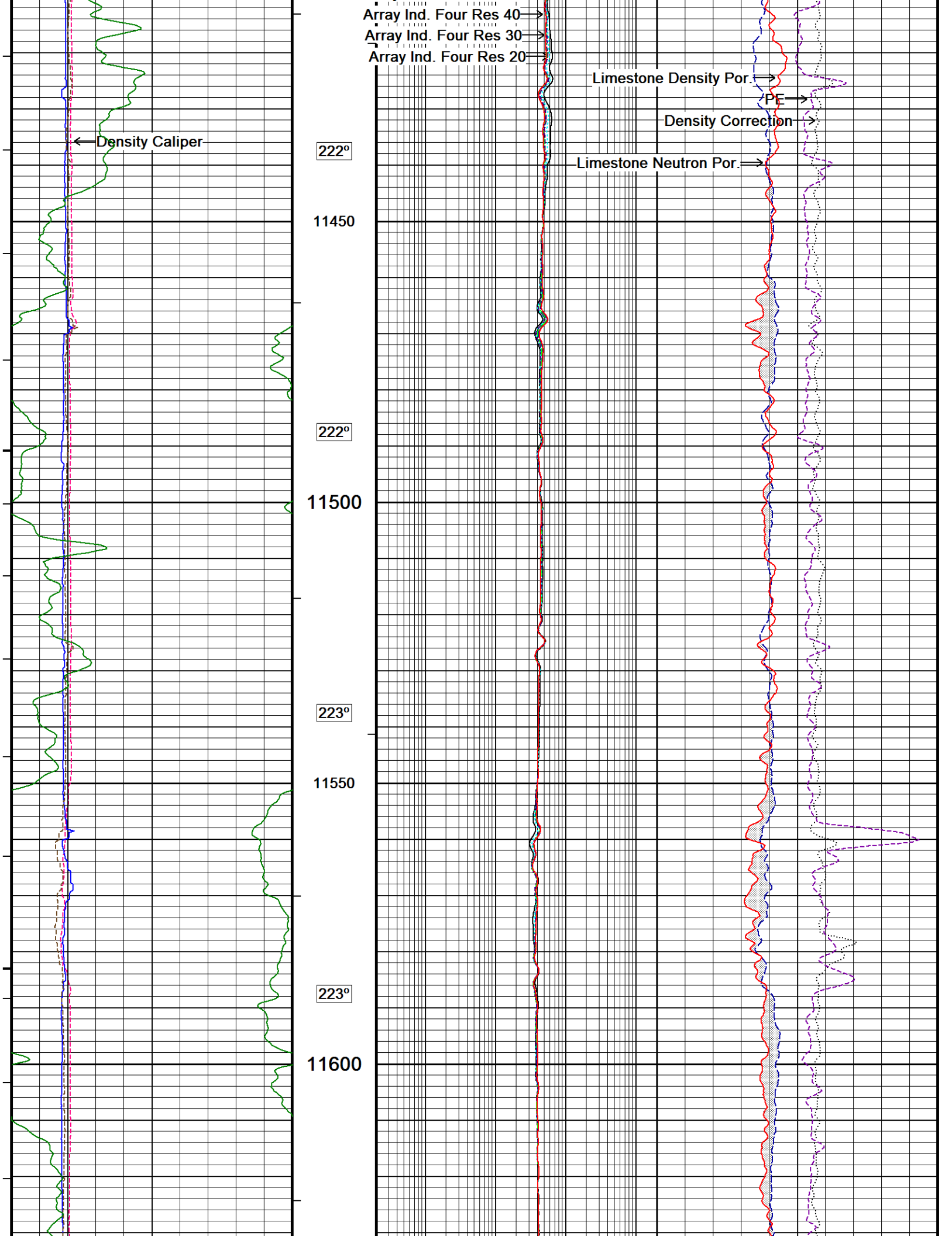


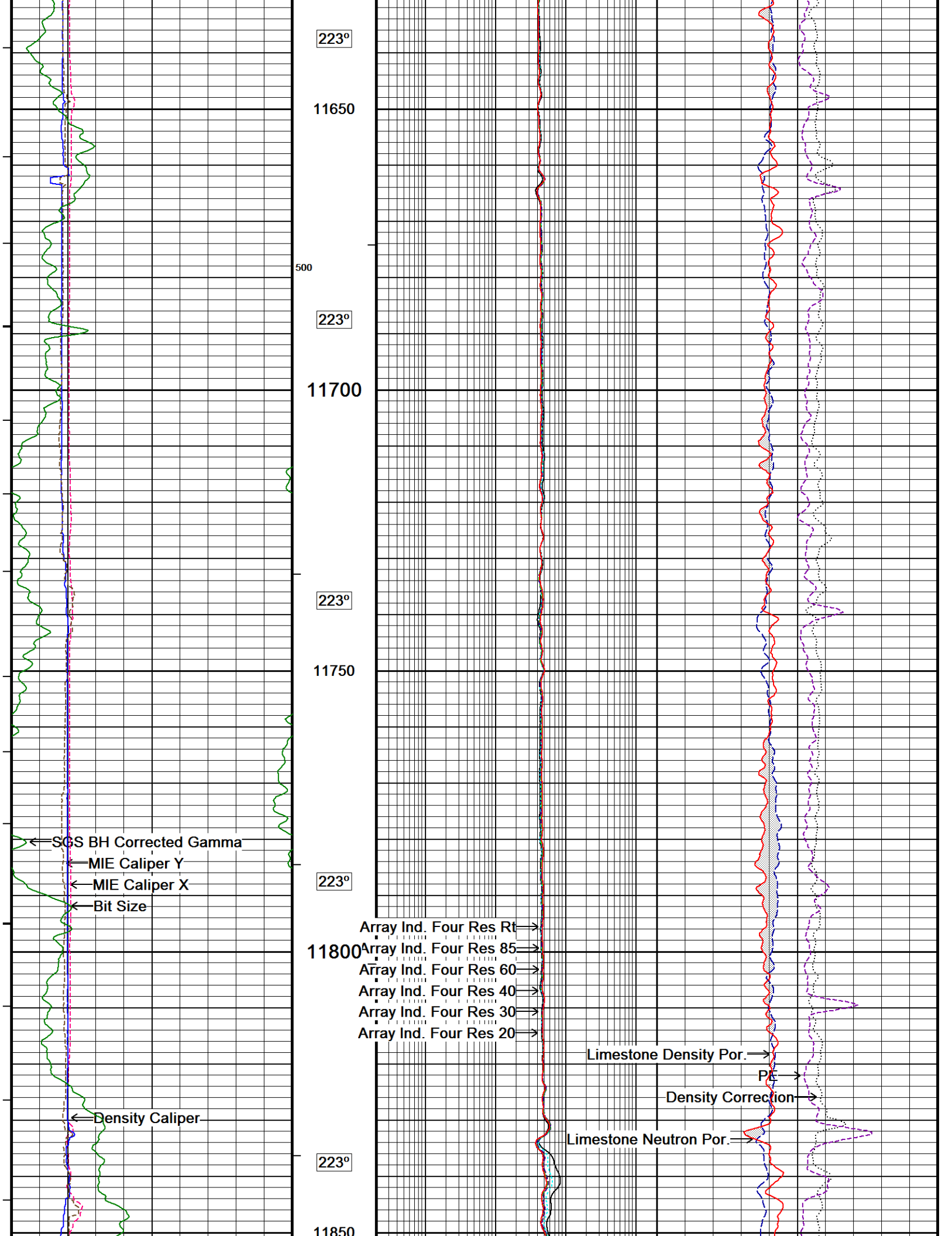
221°
10800
222°
10850
222°
10900
222°
10950

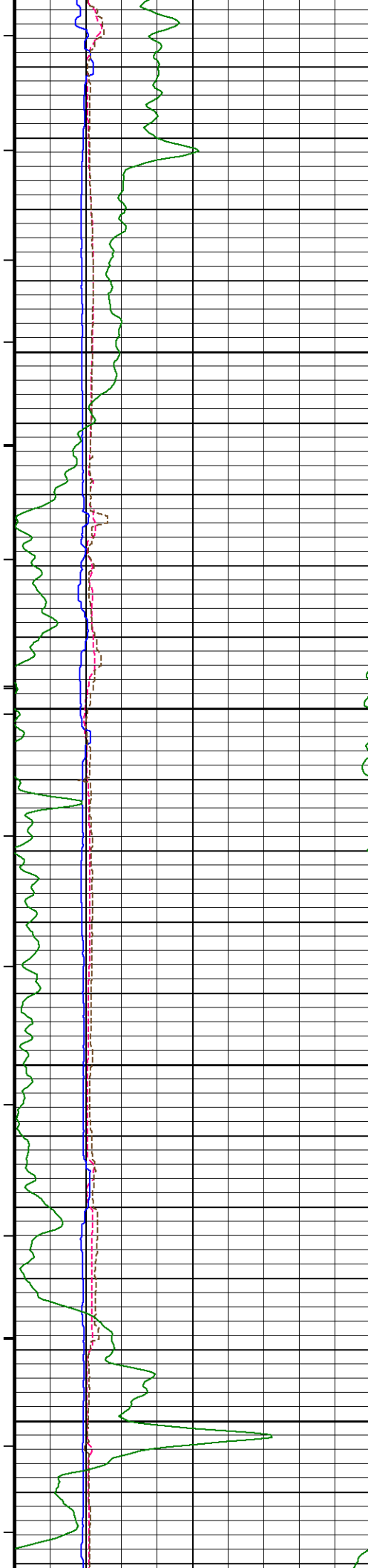




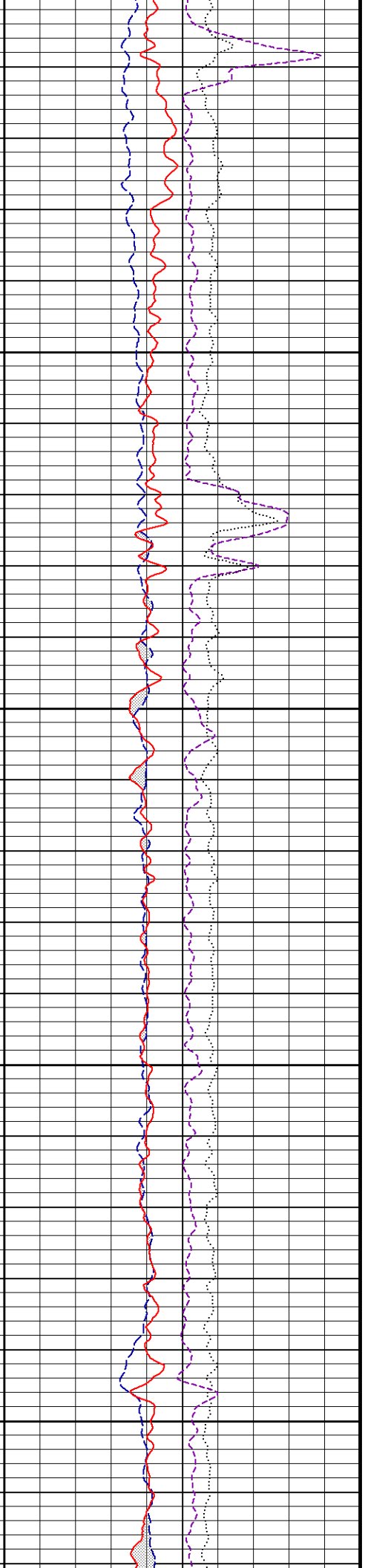
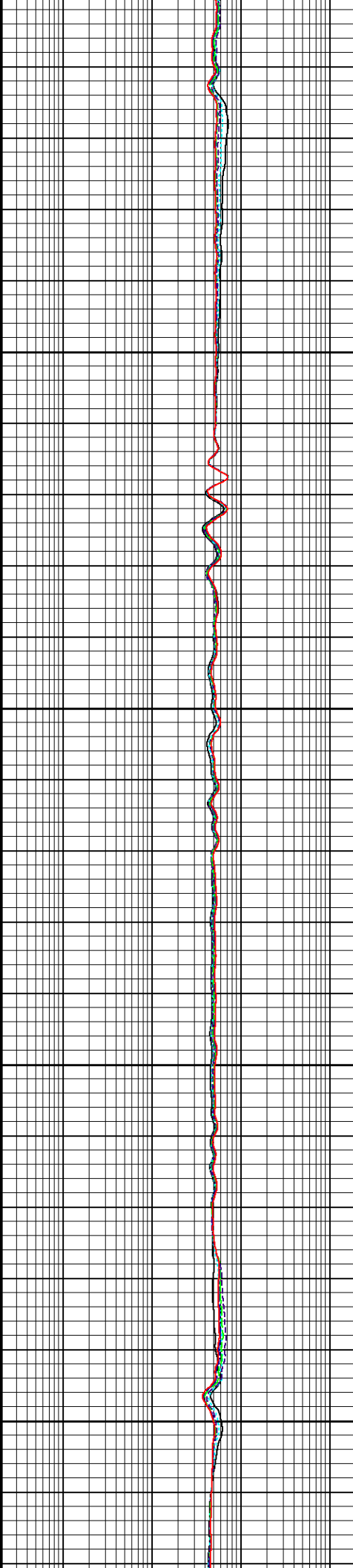


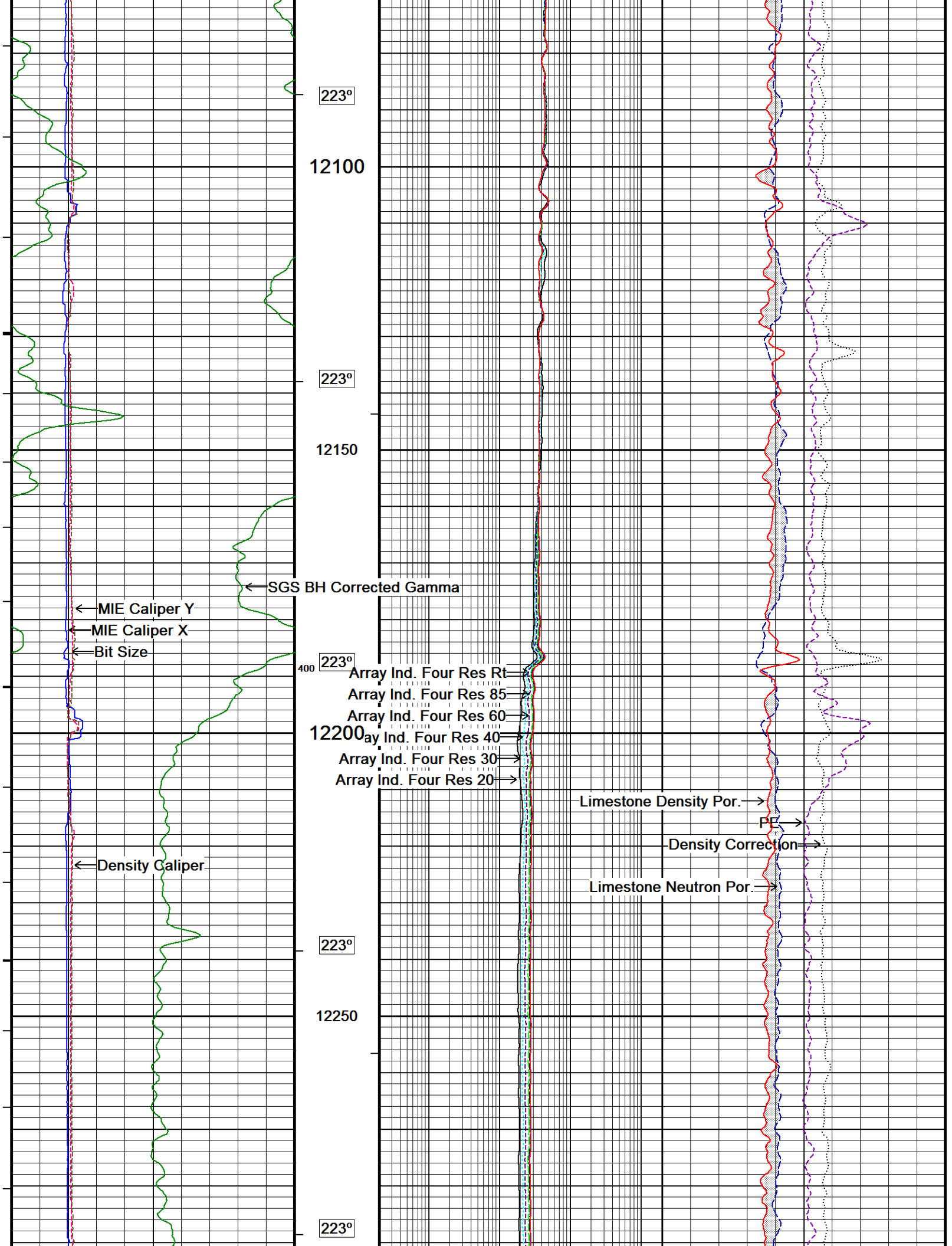


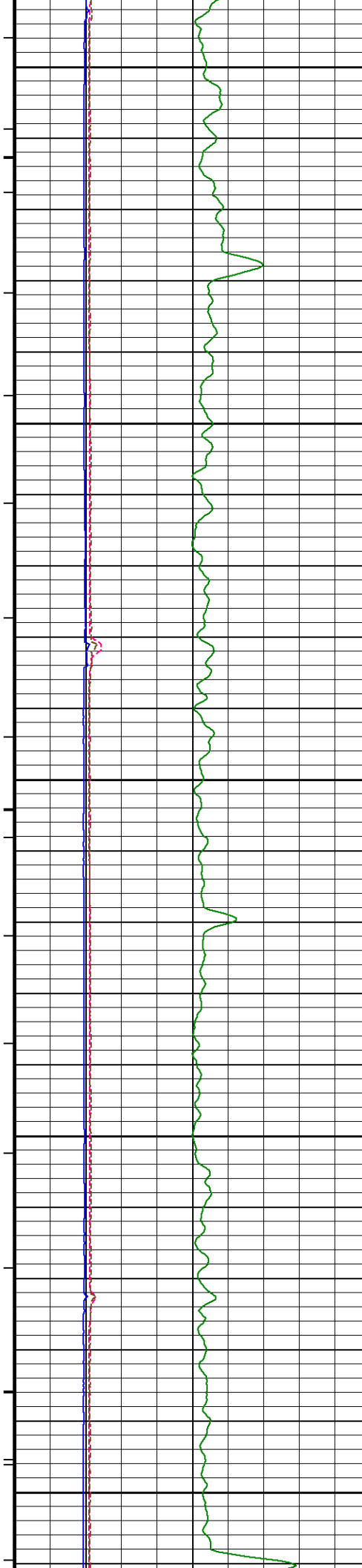




223°
11900
200
223°
11950
223°
12000
223°
12050







12300

223°

12350

223°

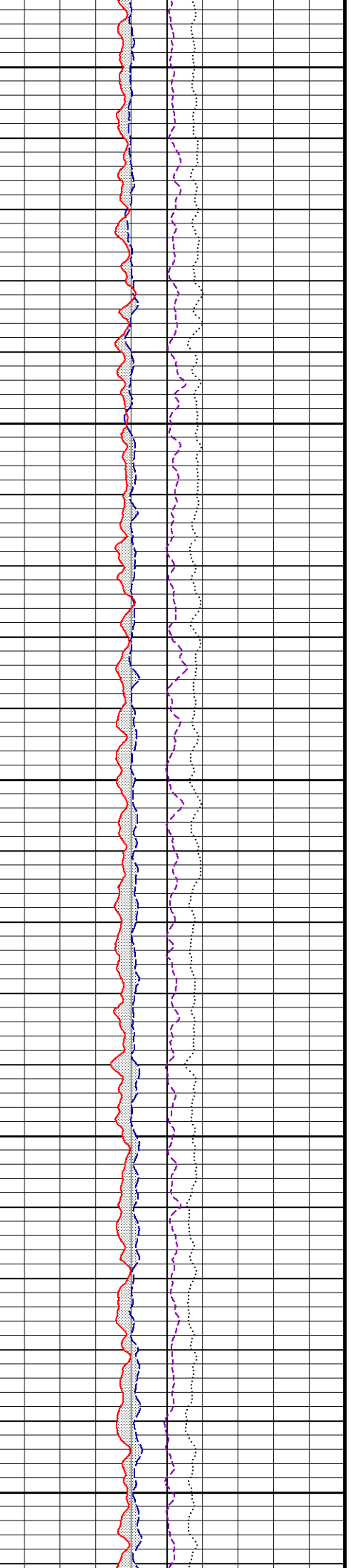
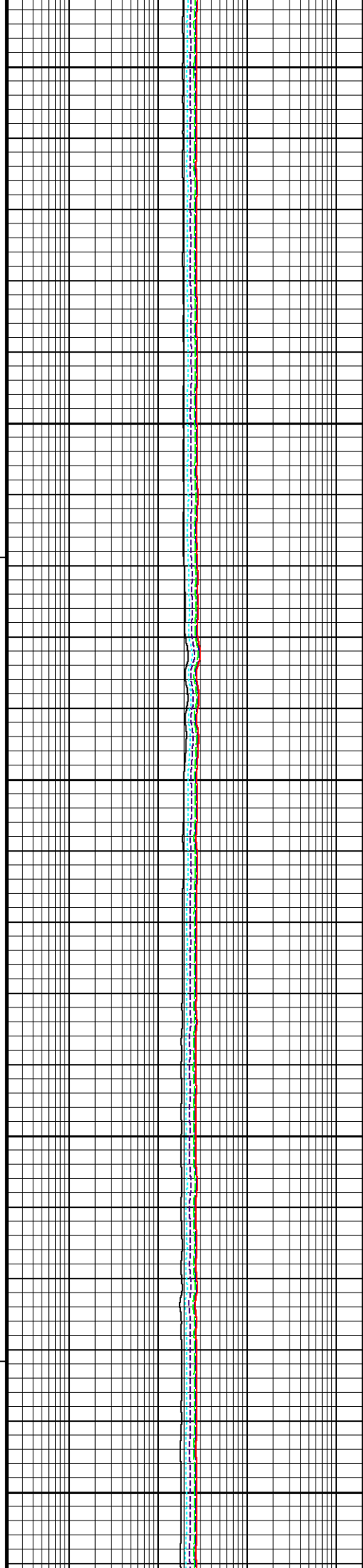
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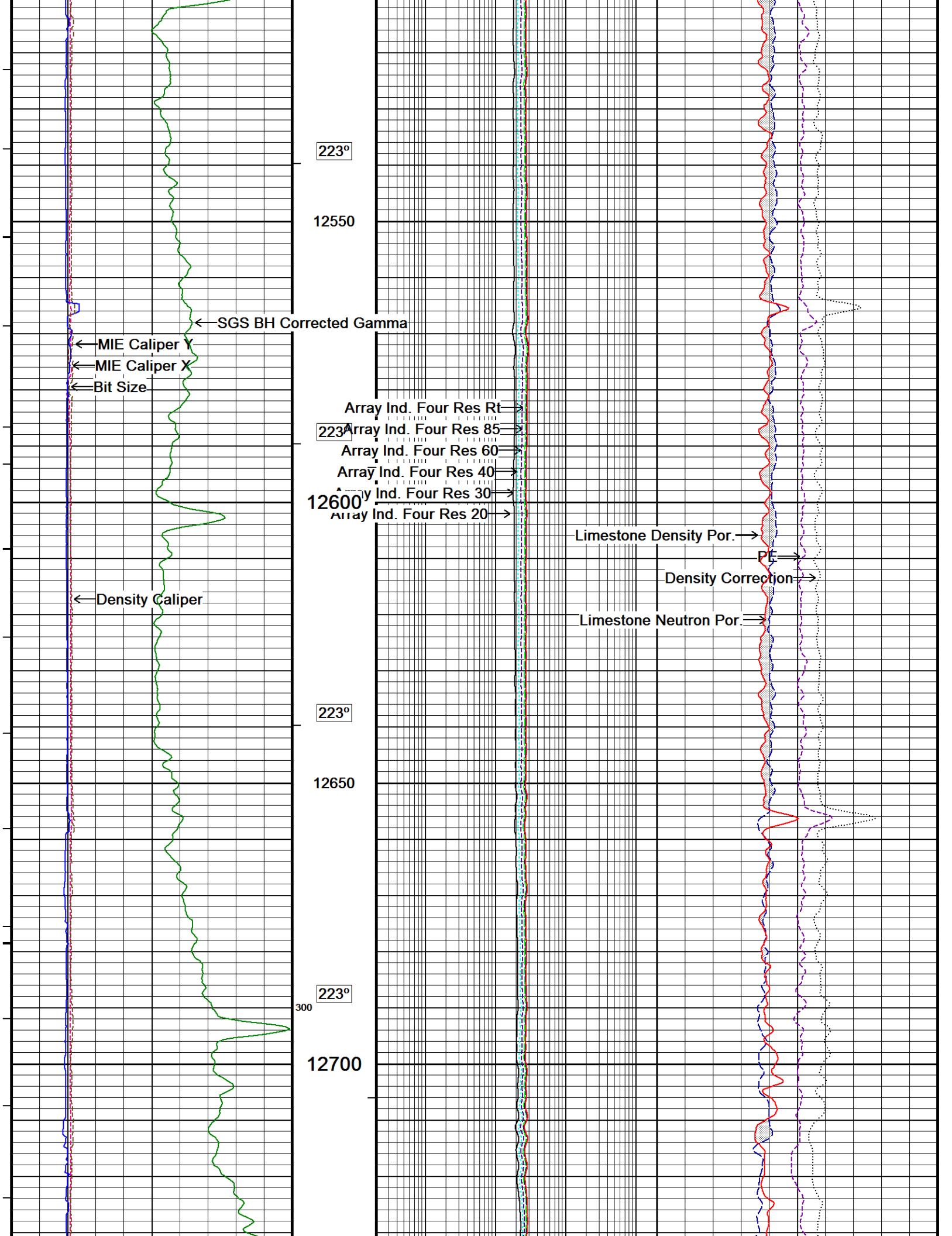
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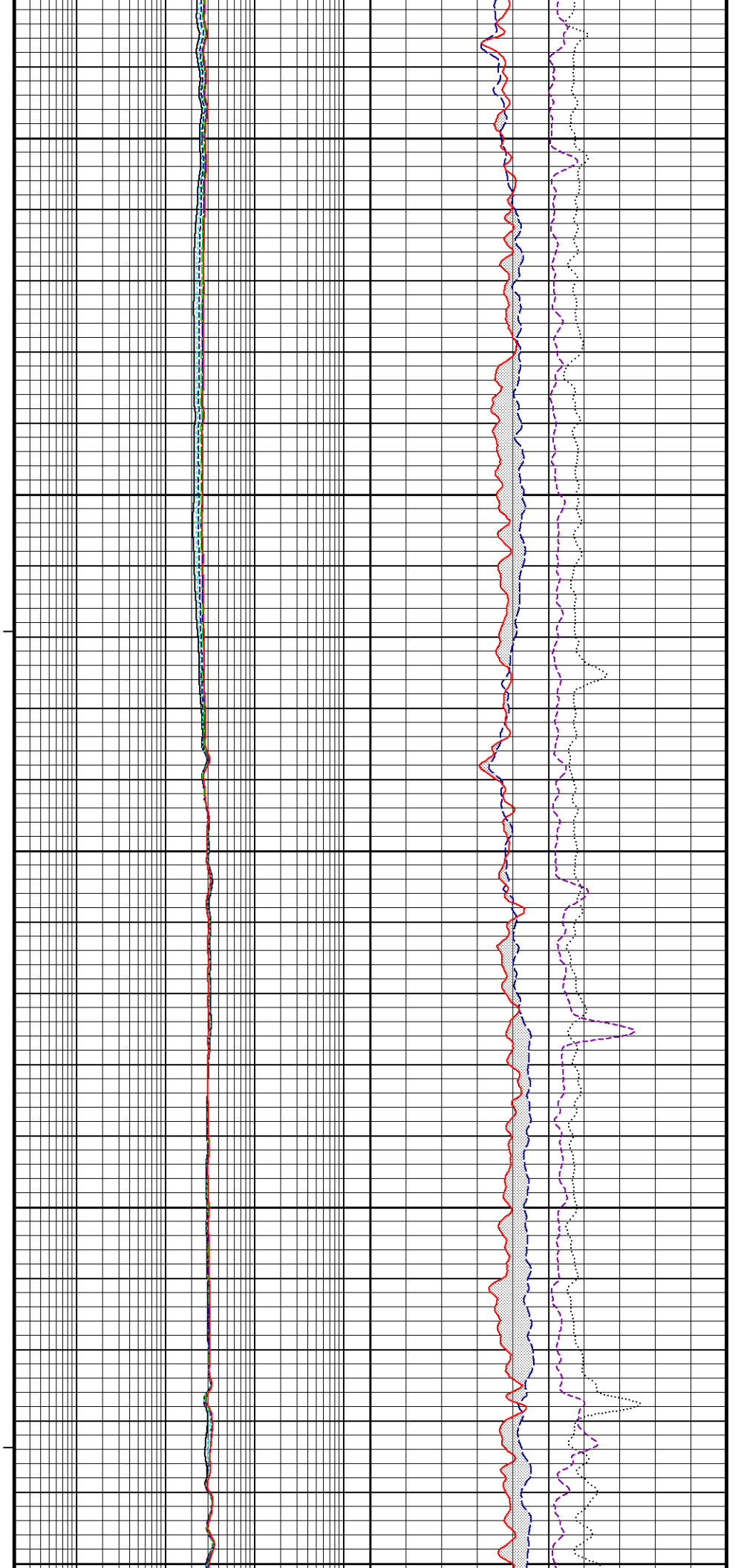
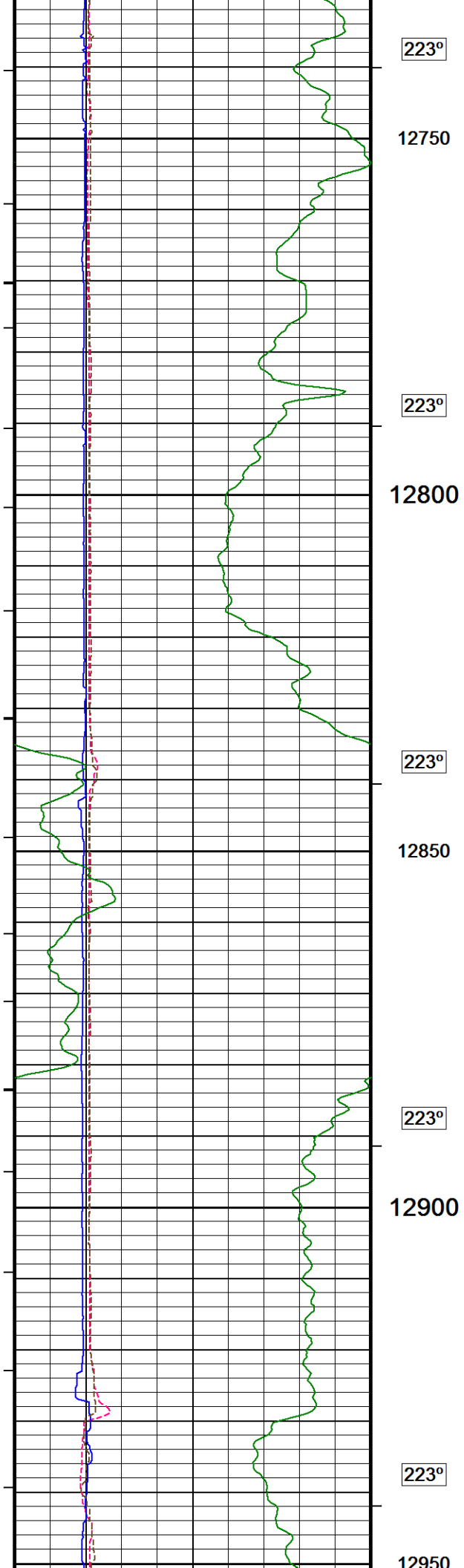
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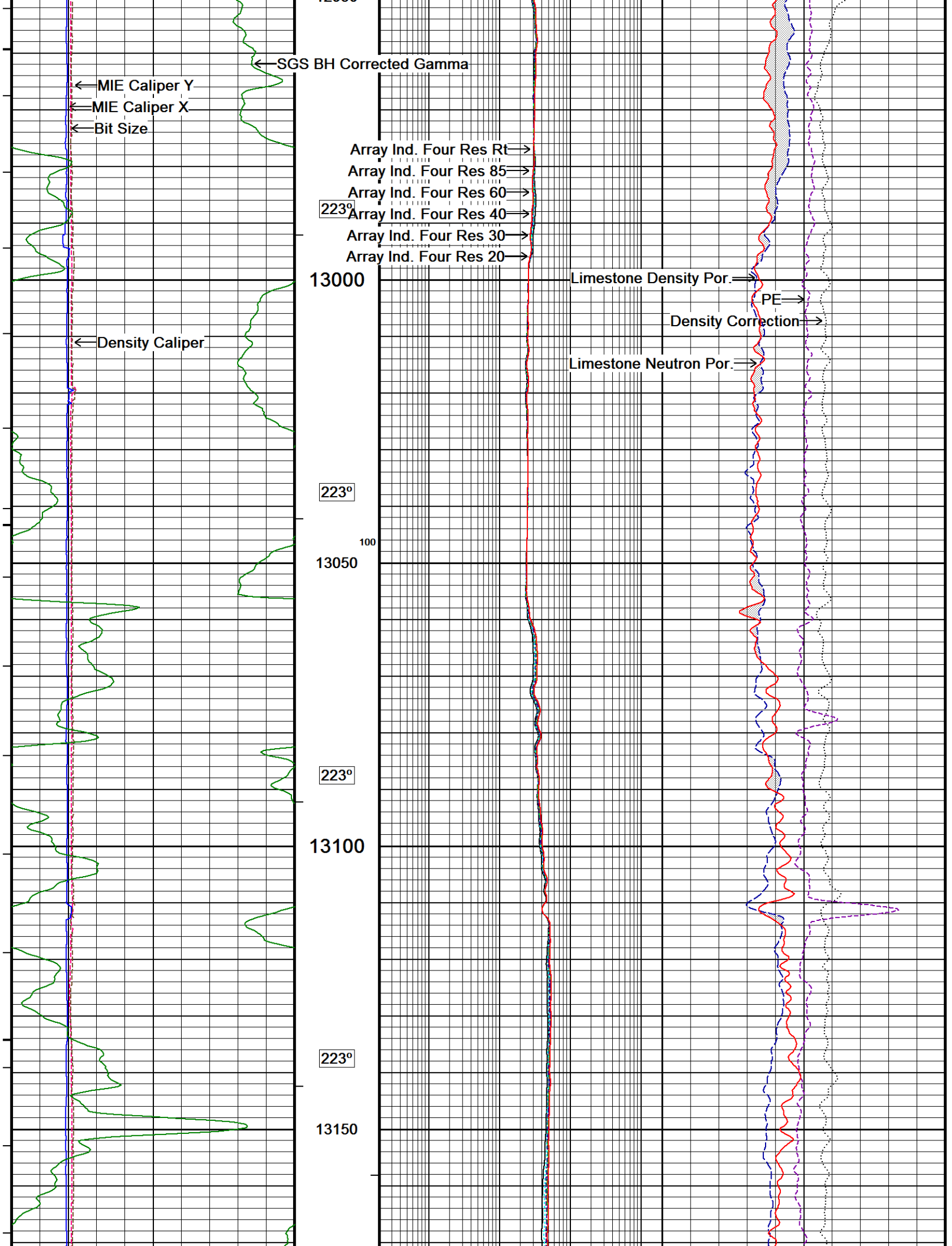
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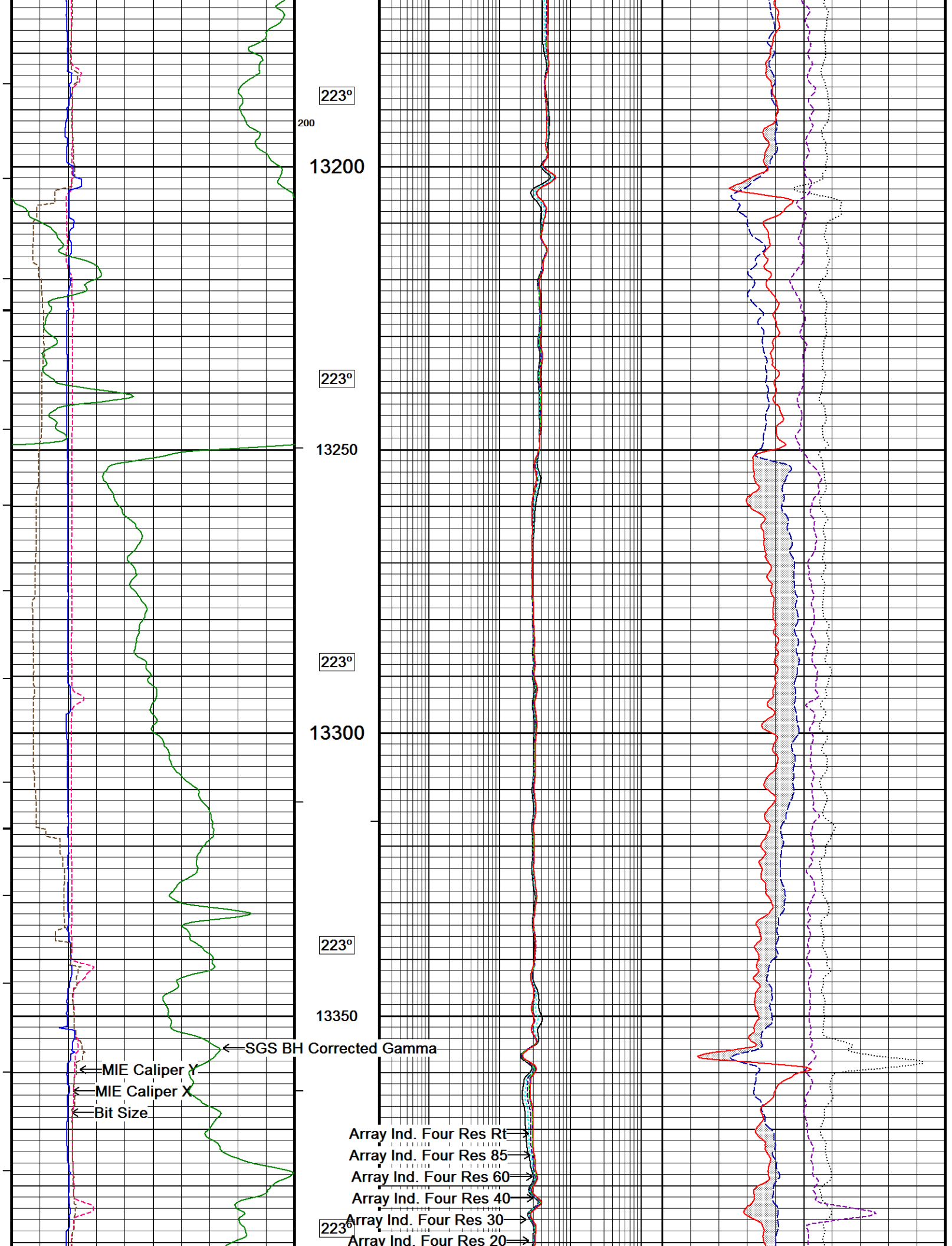
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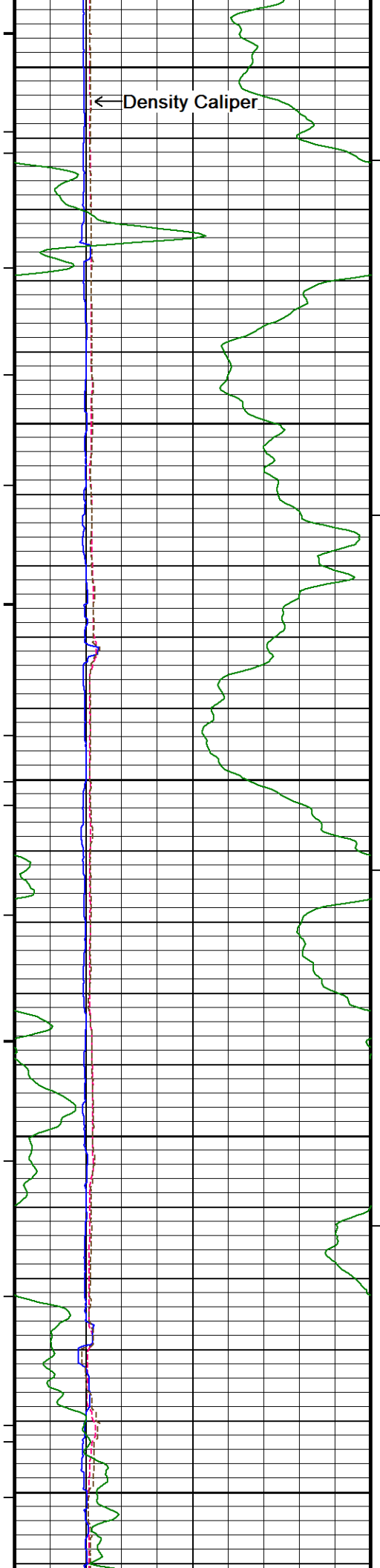












13400

223°

13450

223°

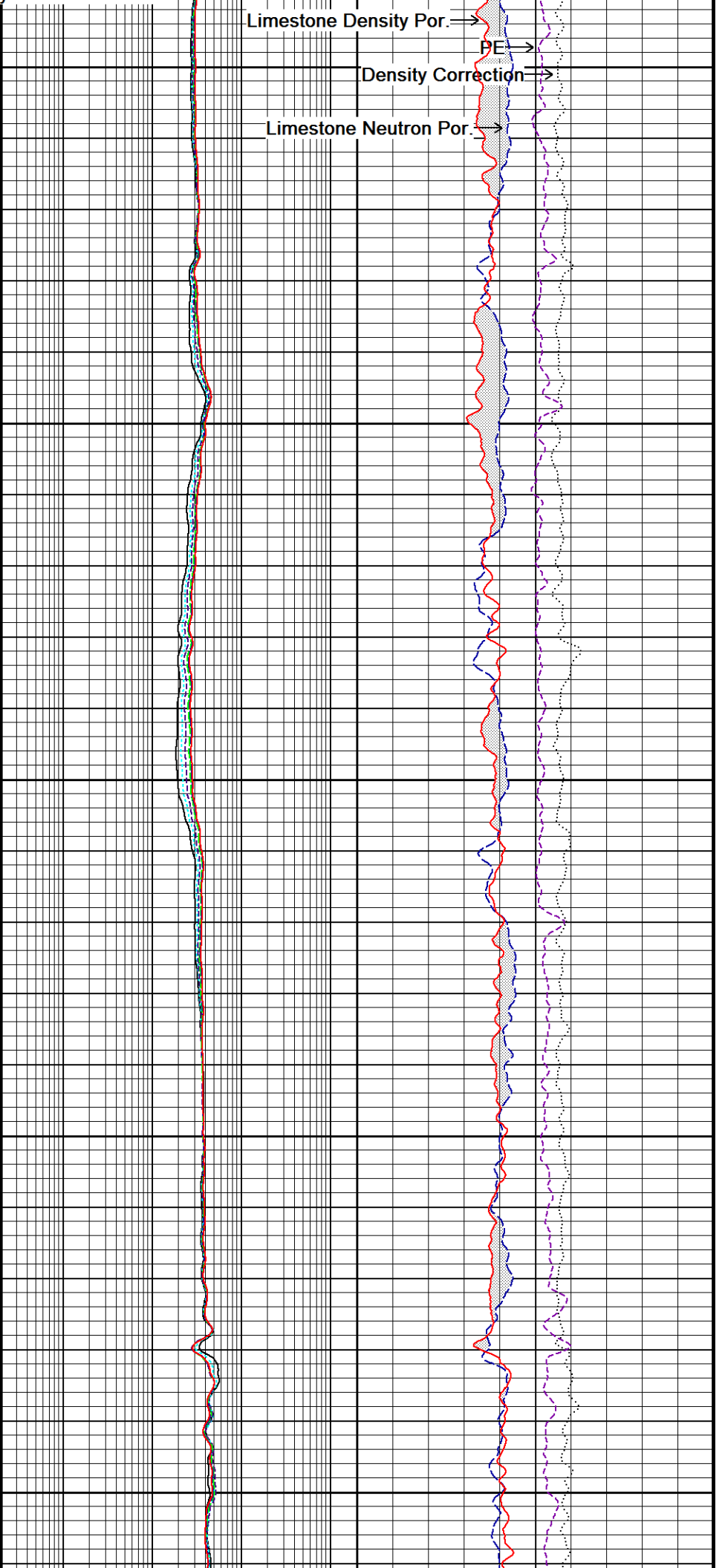
13500

223°

13550

223°

13600

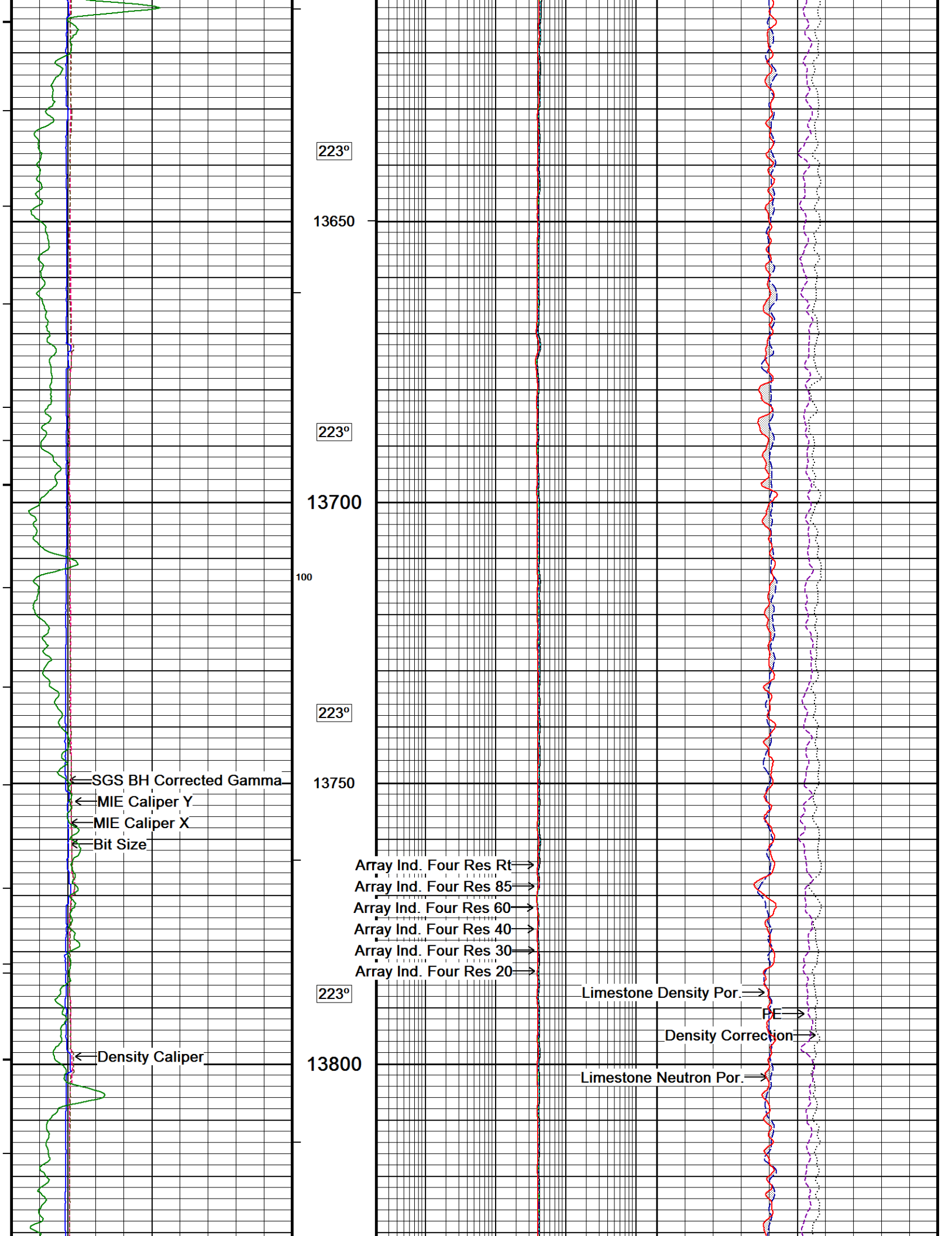


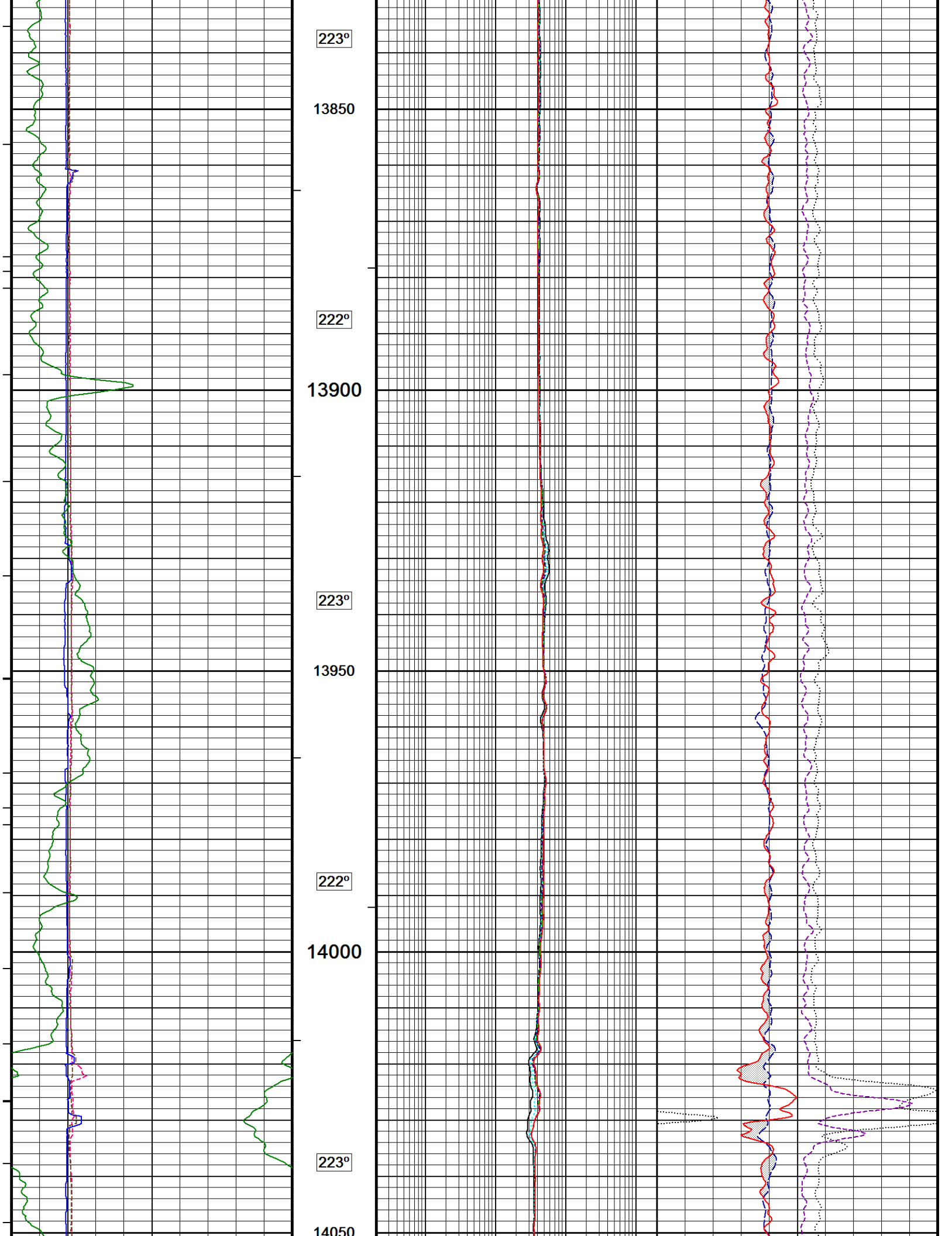
Limestone Density Por. →

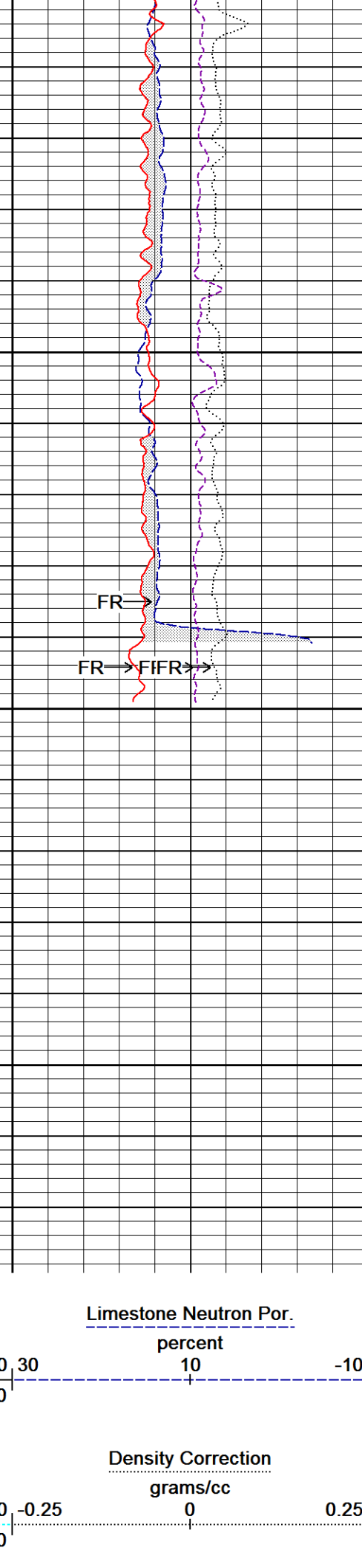
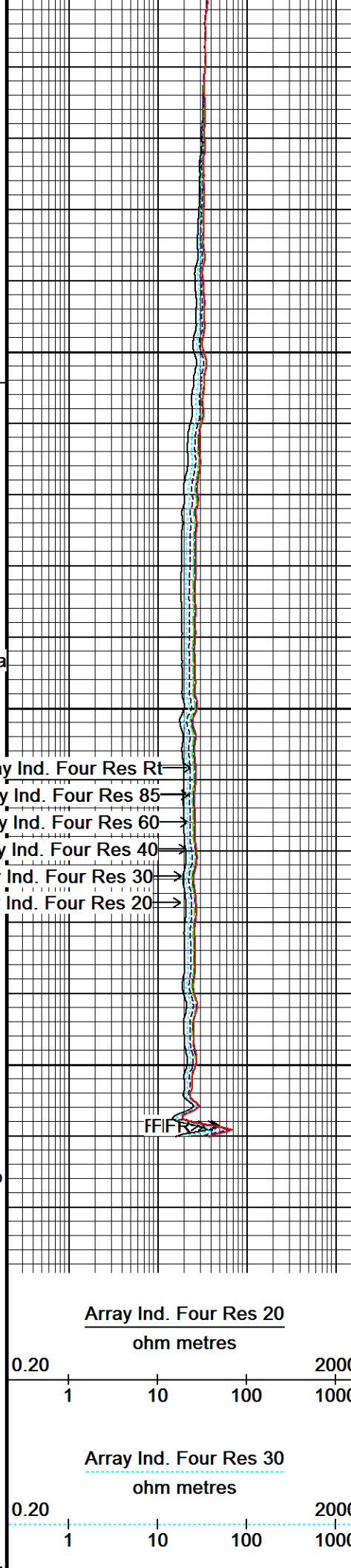
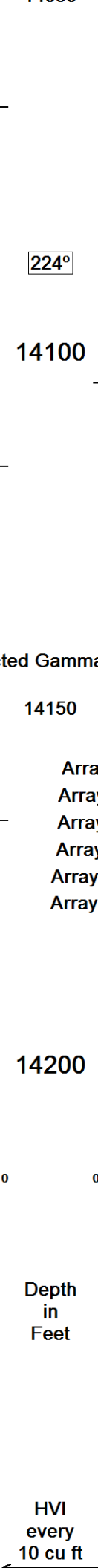
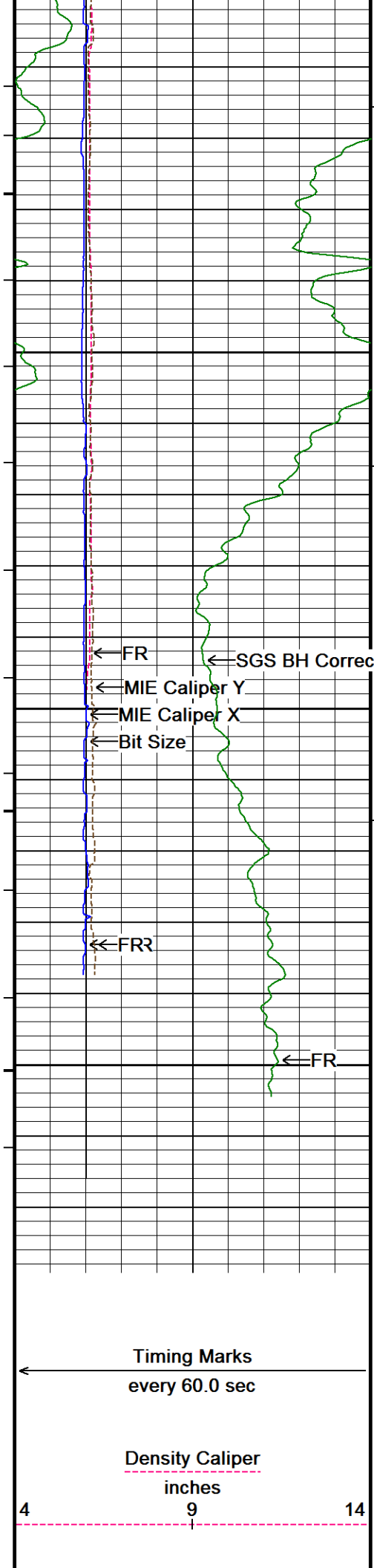
PE →

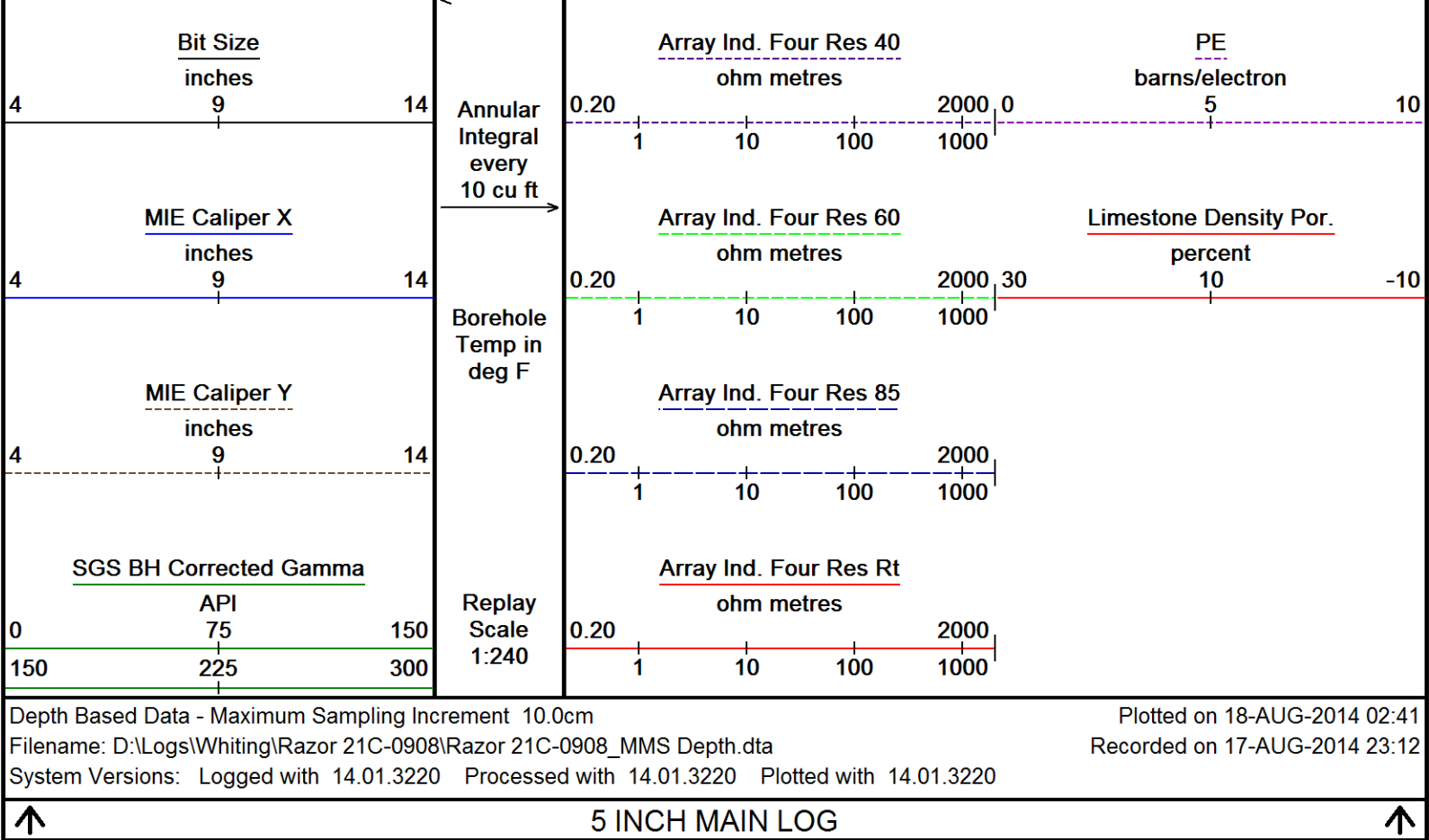
Density Correction →

Limestone Neutron Por. →









BEFORE SURVEY CALIBRATION				D:\Logs\Whiting\Razor 21C-0908\Razor 21C-0908_MMS Depth.dta	
General Constants All 000			Last Edited on 17-AUG-2014,17:03		
General Parameters					
Mud Resistivity	0.920	ohm-metres			
Mud Resistivity Temperature	81.000	degrees F			
Water Level	0.000	feet			
Borehole Fluid Processing	Wet Hole				
Hole/Annular Volume and Differential Caliper Parameters					
HVOL Method	XY Caliper				
HVOL Caliper 1	MIE Diam. X Armswing				
HVOL Caliper 2	MIE Diam. Y Armswing				
Annular Volume Diameter	4.500	inches			
Caliper for Differential Caliper	MIE Diam. X Armswing				
Rwa Parameters					
Porosity used	Base Density Porosity				
Resistivity used	Array Ind. Four Res Rt				
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 03-MAR-2014 17:38		
Reading No	Measured	Calibrated (lbs)			
1	15344.12	0.00			
2	16163.79	590.00			
Strain Gauge Constants MMS-F.A 248			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.	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-F.A 248

Last Edited on 16-AUG-2014 17:23

Logging Parameters

Firmware Version	2v52	
Caliper Open On	MAI	
Caliper Open Delay		minutes
Caliper Closed On	Unknown	
Caliper Closed Delay	N/A	minutes
Sample Rate	1.00	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	8.0	

Release Parameters

Pulse Duration Base Level	5.0	seconds
Pulse Duration Transition Time	30.0	seconds
Pulse Duration Status Pulse From	10.0	seconds
Pulse Duration Caliper Close From	72.0	seconds
Pulse Duration Caliper Open From	75.0	seconds
Pulse Duration Release Pulse From	107.0	seconds
Pulse Duration Release Pulse To	140.0	seconds
Pulse Release Duration	120.0	seconds
Pulse Discriminator Pressure Band	171.0	seconds
Pulse Pressure Discriminator	382.0	seconds
Use Negative Pulsing	No	
Good Status Reply Open Hole	65535.0	seconds
Good Status Reply Cased Hole	10.0	seconds
Bad Status Reply	30.0	seconds
Status Pulse To	40.0	seconds
Caliper Close To		seconds
Caliper Open To	105.0	seconds

Configuration

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

Gamma Calibration MGS-D.A 218

Field Calibration on 16-AUG-2014 08:49

	Measured	Calibrated (API)
Background	177	104
Calibrator (Gross)	1075	632
Calibrator (Net)	898	528

Gamma Constants MGS-D.A 218

Last Edited on 17-AUG-2014,17:02

Gamma Calibrator Number	224	
Mud Density	1.14	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 10-AUG-2014,17:45

Measured	Calibrated (mV)
----------	-----------------

Reference 1	Measured	Calibrated (mV)
Reference 2	-100.0	-100.0
High Resolution Temperature Calibration MGS-D.A 218		
	Measured	Calibrated(Deg F)
Lower	30.00	30.00
Upper	200.00	200.00
High Resolution Temperature Constants MGS-D.A 218		
Pre-filter Length		11
Neutron Calibration MDN-B.J 427		Base Calibration on 13-AUG-2014 10:23 Field Check on 16-AUG-2014 08:30
Base Calibration		
	Measured	Calibrated (cps)
	Near Far	Near Far
	2972 91	3714 110
Ratio	32.769	33.764
Field Calibrator at Base		Calibrated (cps)
		2227 3272
Ratio		0.681
Field Check		Calibrated (cps)
		2206 3271
Ratio		0.674
Neutron Constants MDN-B.J 427		Last Edited on 17-AUG-2014,17:01
Neutron Source Id	P44385B	
Neutron Jig Number	NJ6628	
Air Hole Processing	Modified Ratio	
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	
Imager Pad Check MIE-A.A 125		Field Check on 28-JUL-2014 14:37
Pad 1	20/20 Buttons Verified	Pad 5 20/20 Buttons Verified
Pad 2	24/24 Buttons Verified	Pad 6 24/24 Buttons Verified
Pad 3	20/20 Buttons Verified	Pad 7 20/20 Buttons Verified
Pad 4	24/24 Buttons Verified	Pad 8 24/24 Buttons Verified
Compact Micro Imager Constants MIE-A.A 125		Last Edited on 17-JAN-2014,11:21
Sonde Configuration	Imager Mode	
Arm-Pad Kit	Normal Pads (12.25 in)	
Arm-Pad Kit Serial Number		
Centre Pad 1 Rotational Offset	0.00	degrees
Image/Borehole Ovality Reference	Azimuth of Pad 1	
Non Active Buttons	Omit	
Search Angle	0.00	degrees
Correlation Interval	3.28	feet
Correlation Step	1.64	feet
Current Offset	0.0000	mAmp
Squasher Start	0.0500	mAmp
Image Processing	Enabled	

Magnetic Declination		0.00	degrees	East
Magnetometer Parameters MIE-A.A 125				
Date Of Last Magnetometer Calibration		21-MAY-2014,15:53		
	X Magnetometer	Y Magnetometer	Z Magnetometer	
Slope	-1.000000	-0.998397	-0.988599	
Offset	0.012919	-0.017168	0.009969	

Magnetometer Constants MIE-A.A 125				Last Edited on
Magnetometer Calibrator Number		000		

Accelerometer Parameters MIE-A.A 125				
Date Of Last Accelerometer Calibration		21-MAY-2014,10:10		
	X Accelerometer	Y Accelerometer	Z Accelerometer	
Slope	-1.108385	-1.106299	-1.113631	
Offset	0.004188	-0.002654	-0.003372	

Accelerometer Constants MIE-A.A 125			Last Edited on 14-AUG-2014,09:06	
Accelerometer Calibrator Number		000		
Accelerometer Temperature Characterisation				
X Accelerometer				
Serial Number	867			
Calibration Date	25-Jun-2009			
	B0	B1	B2	B3
Bias(g)	0.00000e+000	8.88300e-006	1.42920e-008	-7.14234e-011
	SF0	SF1	SF2	SF3
Scale Factor(mA/g)	3.00000e+000	2.84901e-004	3.65464e-007	1.00140e-009
Y Accelerometer				
Serial Number	898			
Calibration Date	12-Apr-2010			
	B0	B1	B2	B3
Bias(g)	0.00000e+000	3.09504e-006	-4.17750e-009	1.00603e-010
	SF0	SF1	SF2	SF3
Scale Factor(mA/g)	3.00000e+000	2.73446e-004	3.06615e-007	8.00001e-010
Z Accelerometer				
Serial Number	883			
Calibration Date	10-Apr-2010			
	B0	B1	B2	B3
Bias(g)	0.00000e+000	8.19055e-006	-3.32398e-008	7.38691e-011
	SF0	SF1	SF2	SF3
Scale Factor(mA/g)	3.00000e+000	2.68615e-004	3.36203e-007	6.38362e-010

Caliper Calibration MIE-A.A 125				Base Calibration on 16-AUG-2014 08:59	
				Field Calibration on 16-AUG-2014 09:01	
Base Calibration					
Reading No	Pads 1-5 Meas.	Pads 3-7 Meas.	Calibrator Size (in)		
1	26465	26635	5.96		
2	36695	36908	7.98		
3	46259	46323	9.86		
4	56815	56947	11.88		
5	0	0	0.00		
Reading No	Pad 2 Meas.	Pad 4 Meas.	Pad 6 Meas.	Pad 8 Meas.	Calibrator Size (in)
1	25558	24202	23467	23520	5.96
2	34403	32772	31600	31991	7.98
3	42799	40867	39342	39899	9.86
4	52565	50298	48043	49174	11.88
5	0	0	0	0	0.00

Field Calibration					
	Measured	Measured	Actual		
	Pads 1-5 Caliper(in)	Pads 3-7 Caliper(in)	Caliper(in)		
	5.94	5.92	5.96		
	Measured	Measured	Measured	Measured	Actual

Measured	Measured	Measured	Measured	Actual
Pad 2 Caliper(in)	Pad 4 Caliper(in)	Pad 6 Caliper(in)	Pad 8 Caliper(in)	Caliper(in)
2.97	2.97	3.04	3.00	5.96

Caliper Constants	MIE-A.A 125	Last Edited on 06-MAR-2012 18:40
Caliper Difference for BRKT	0.120	inches

Induction Calibration	MAI-B.J 434	Base Calibration on 24-JAN-2012,20:11	Field Check on 16-AUG-2014 08:15
Base Calibration			
Test Loop Calibration	Measured	Calibrated (mmho/m)	
Channel	Low High	Low High	
1	14.7 442.4	9.3 966.2	
2	5.0 355.7	7.6 821.4	
3	3.2 250.0	5.2 566.0	
4	1.6 129.2	2.6 279.2	
Array Temperature	23.6	Deg F	
Channel	Base Check (mmho/m)	Field Check (mmho/m)	
	Low High	Low High	
1	0.0 0.0	19.1 4104.9	
2	0.0 0.0	34.6 3792.3	
3	0.0 0.0	30.1 3170.7	
4	0.0 0.0	20.7 2139.8	
Deep	0.0 0.0	16.9 1970.7	
Medium	0.0 0.0	44.0 4227.4	
Shallow	0.0 0.0	54.2 5755.3	
Array Temperature	0.0	75.8	Deg F

Induction Constants	MAI-B.J 434	Last Edited on 17-AUG-2014,16:53
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	1.0000	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	

High Resolution Temperature Calibration MAI-B.J 434

		Measured		Calibrated(Deg C)		Field Calibration on 24-JAN-2012,20:11	
Lower		10.00		10.00			
Upper		100.00		100.00			
High Resolution Temperature Constants MAI-B.J 434						Last Edited on	
Pre-filter Length		11					
Photo Density Calibration MPD-C.J 377						Base Calibration on 23-JUL-2014 18:54	
						Field Check on 16-AUG-2014 08:19	
Density Calibration							
Base Calibration				Measured		Calibrated (sdu)	
		Near	Far	Near		Far	
Background		1315	1528				
Reference 1		52972	28114	59443	30683		
Reference 2		21695	2761	25113	2508		
Field Check at Base							
		1314.8	1528.4				
Field Check							
		1320.4	1539.3				
PE Calibration							
Base Calibration				Measured		Calibrated	
		WS	WH	Ratio		Ratio	
Background		245	1175				
Reference 1		20955	52770	0.401	0.372		
Reference 2		5969	21550	0.281	0.268		
Field Check at Base							
		244.9	1175.4				
Field Check							
		243.7	1182.7				
Density Constants MPD-C.J 377						Last Edited on 17-AUG-2014,17:01	
Density Source Id		P44264B					
Nylon Calibrator Number		652					
Aluminium Calibrator Number		659					
Density Shoe Profile		4 inch					
Caliper Source for Processing		Density Caliper					
PE Correction to Density		Not Applied					
Mud Density		1.14		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					
0.00		0.00					
Caliper Calibration MPD-C.J 377						Base Calibration on 24-JUL-2014 19:38	
						Field Calibration on 16-AUG-2014 08:23	
Base Calibration							
Reading No		Measured		Calibrator Size (in)			
1		15841		4.00			
2		23887		5.96			
3		32305		7.98			
4		40384		9.86			
5		49264		11.88			

Field Calibration

Measured Caliper (in)
5.88

Actual Caliper (in)
5.96

Spectral Gamma Calibration SGS-E.J 135

Base Calibration on 08-AUG-2014 11:18
Field Calibration on 13-AUG-2014 17:30

Base Calibration

Potassium Calibrator

	Gate 1	Gate 2	Gate 3	Gate 4	Gate 5
Background	112.6	38.0	4.5	1.6	2.6
Calibrator (Gross)	232.7	123.4	29.3	1.6	2.8
Calibrator (Net)	120.2	85.4	24.8	-0.0	0.2

	K %	U ppm	Th ppm
Concentrations	5.9	0.0	0.0

Uranium Calibrator

	Gate 1	Gate 2	Gate 3	Gate 4	Gate 5
Background	112.6	38.0	4.5	1.6	2.6
Calibrator (Gross)	545.3	195.5	17.1	12.0	5.8
Calibrator (Net)	432.7	157.4	12.6	10.4	3.2

	K %	U ppm	Th ppm
Concentrations	0.0	16.6	0.0

Thorium Calibrator

	Gate 1	Gate 2	Gate 3	Gate 4	Gate 5
Background	112.6	38.0	4.5	1.6	2.6
Calibrator (Gross)	414.4	155.6	11.9	6.8	17.5
Calibrator (Net)	301.8	117.5	7.4	5.1	15.0

	K %	U ppm	Th ppm
Concentrations	0.0	0.0	44.7

Mixture Calibrator

	Gate 1	Gate 2	Gate 3	Gate 4	Gate 5
Background	112.6	38.0	4.5	1.6	2.6
Calibrator (Gross)	889.9	367.2	48.9	14.7	20.2
Calibrator (Net)	777.4	329.2	44.4	13.1	17.6

Field Calibration

Gamma Ray

	Measured	Calibrated (API)
Background	171	35
Calibrator (Gross)	1361	275
Calibrator (Net)	1189	240

Mixture Calibrator

	Gate 1	Gate 2	Gate 3	Gate 4	Gate 5
Background	111.9	41.1	4.9	1.7	3.3
Calibrator (Gross)	892.2	374.0	49.1	15.8	21.4
Calibrator (Net)	780.3	333.0	44.2	14.0	18.1

Spectral Gamma Constants SGS-E.J 135

Last Edited on 17-AUG-2014,17:00

Background Calibrator Number	440	
Mixture Calibrator Number	450	
Potassium Calibrator Number	500	
Uranium Calibrator Number	506	
Thorium Calibrator Number	503	
Mud Density	1.14	gm/cc
Caliper Source for Processing	Density Caliper	
Tool Position	Eccentred	
Concentration of KCl		kppm
K Mud Type	Chloride	
K Mud Concentration	0.00	%

Shuttle Running Tool 3.5"

SRT-A.A 68 LG: 6.62 ft WT: 37.5 lb OD: 2.520 in

Compact Linker 200V STD

MLK-A 1 LG: 8.53 ft WT: 30.9 lb OD: 2.240 in

Compact Linker 400V EXT

MLK-A 2 LG: 14.23 ft WT: 30.9 lb OD: 2.240 in

MIS-E.A Compact Inline Standoff sub

MIS-E.A 183 LG: 2.14 ft WT: 15.4 lb OD: 2.244 in

SHA-J.B Compact Swivel Head Adaptor

SHA-J.B 677 LG: 2.30 ft WT: 22.0 lb OD: 2.244 in

SKJ-E.B Compact Knuckle Joint

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

MBS-F.A 200v Compact Battery Sub

MBS-F.A 63 LG: 17.06 ft WT: 123.5 lb OD: 2.240 in

Compact Memory Sub F.A

MMS-F.A 248 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-B.J 51 LG: 3.17 ft WT: 26.5 lb OD: 2.244 in

SKJ-E.B Compact Knuckle Joint

SKJ-E.B 597 LG: 2.17 ft WT: 24.3 lb OD: 2.244 in

SHA-J.B Compact Swivel Head Adaptor

SHA-J.B 678 LG: 2.30 ft WT: 22.0 lb OD: 2.244 in

MIS-D.B Compact Inline Bowspring sub

MIS-D.B 731 LG: 5.70 ft WT: 33.1 lb OD: 2.240 in

Compact Neutron

MDN-B.J 427 LG: 5.04 ft WT: 50.7 lb OD: 2.244 in

Compact Density/Caliper

MPD-C.J 377 LG: 9.59 ft WT: 90.4 lb OD: 2.244 in

MIS-D.B Compact Inline Bowspring sub

MIS-D.B 723 LG: 5.70 ft WT: 33.1 lb OD: 2.240 in

SHA-J.B Compact Swivel Head Adaptor

SHA-J.B 589 LG: 2.30 ft WT: 22.0 lb OD: 2.244 in

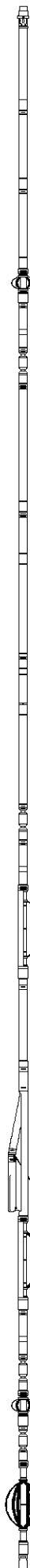
SKJ-E.B Compact Knuckle Joint

SKJ-E.B 612 LG: 2.17 ft WT: 24.3 lb OD: 2.244 in

MIS-E.B Compact Inline Standoff sub

MIS-E.B 693 LG: 2.14 ft WT: 15.4 lb OD: 2.244 in

SKJ-E.A Compact Knuckle Joint



93.69 ft

GSXT - MGS External Temperature

76.81 ft

NPRL - Limestone Neutron Por.

69.57 ft

AVOL - Annular Volume

69.57 ft

HVOL - Hole Volume

69.57 ft

CLDC - Density Caliper

67.64 ft

DPRL - Limestone Density Por.

67.64 ft

DCOR - Density Correction

67.58 ft

PDPE - PE

SKJ-E.A Compact Knuckle Joint
SKJ-E.A 244 LG: 2.17 ft WT: 24.3 lb OD: 2.244 in

MIS-D.A Compact Inline Bowspring sub
MIS-D.A 437 LG: 5.70 ft WT: 33.1 lb OD: 2.240 in

Compact MMI Memory Section
MIM-A.A 125 LG: 4.65 ft WT: 26.5 lb OD: 2.244 in

Compact MMI Electrode Section
MIE-A.A 125 LG: 13.96 ft WT: 99.2 lb OD: 4.094 in

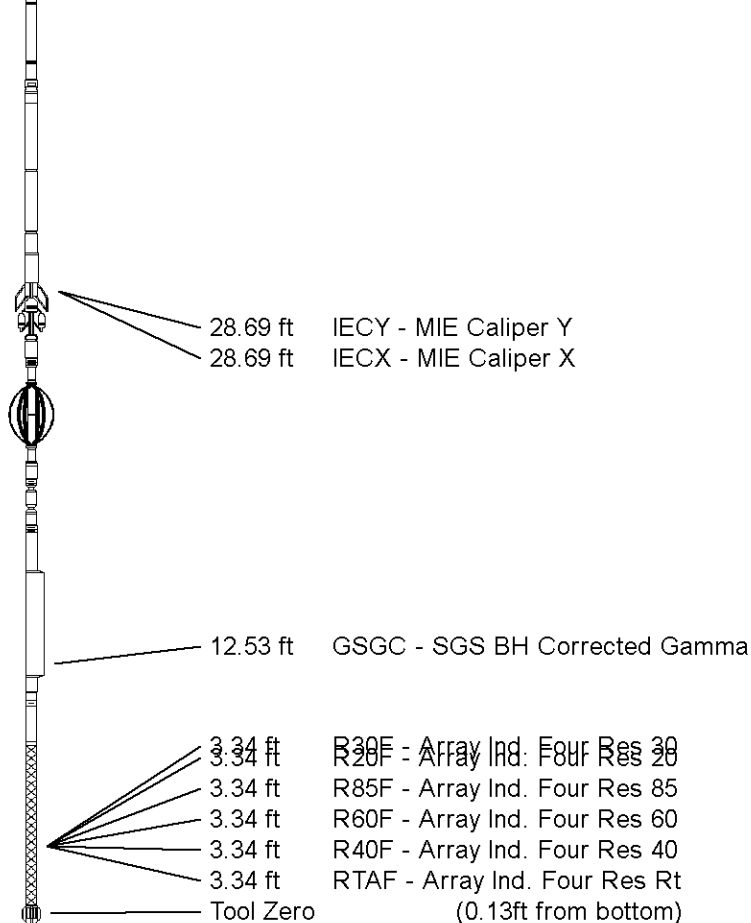
MIS-D.B Compact Inline Bowspring sub
MIS-D.B 654 LG: 5.70 ft WT: 33.1 lb OD: 2.240 in

SKJ-E.A Compact Knuckle Joint
SKJ-E.A 245 LG: 2.17 ft WT: 24.3 lb OD: 2.244 in

Spectral Gamma Ray Sub
SGS-E.J 135 LG: 7.78 ft WT: 105.8 lb OD: 3.543 in

Compact Induction
MAI-B.J 434 LG: 10.81 ft WT: 48.5 lb OD: 2.244 in

Total Length: 156.38 ft Weight: 1095.7 lb



COMPANY	WHITING OIL AND GAS CORPORATION
WELL	RAZOR 21C-0908
FIELD	REDTAIL
PROVINCE/COUNTY	WELD
COUNTRY/STATE	U.S.A. / COLORADO

Elevation Kelly Bushing	4861.00	feet	First Reading	14210.00	feet
Elevation Drill Floor	4861.00	feet	Depth Driller	14236.00	feet
Elevation Ground Level	4844.00	feet	Depth Logger	14236.00	feet



Weatherford®

COMPACT TRIPLE COMBO
SPECTRAL GAMMA RAY
QUICKLOOK LOG