

HALLIBURTON

DUAL SPACED NEUTRON
SPECTRAL DENSITY
ARRAY COMPENSATED
TRUE RESISTIVITY

COMPANY		NOBLE ENERGY INC	
WELL		VIGILANT STATE AC16-01	
FIELD		WATTENBERG	
COUNTY		WELD	
STATE		CO	
Permanent Datum		GL	
Log measured from		KB	
Drilling measured from		KB	
Date	27-Jun-13	Elev. 4866.0 ft	Elev. 4879.0 ft
Run No.	ONE		
Depth - Driller	8990.00 ft		
Depth - Logger	8975.0 ft		
Bottom - Logged Interval	8973.0 ft		
Top - Logged Interval	150.0 ft		
Casing - Driller	9.625 in @ 782.0 ft		
Casing - Logger	775.0 ft		
Bit Size	8.750 in		
Type Fluid in Hole	WATER-BASED MUD		
Density	8.6 ppq	38.00 s/qt	
PH	10.00 pH	7.8 cp/m	
Source of Sample	MUD TANK		
Rm @ Meas. Temperature	0.467 ohmm @ 75.50 degF		
Rmf @ Meas. Temperature	0.39 ohmm @ 81.50 degF		
Rmc @ Meas. Temperature	0.860 ohmm @ 78.30 degF		
Source Rmf	MEASURED	MEASURED	
Rm @ BHT	0.16 ohmm @ 240.0 degF		
Time Since Circulation	12.1 hr		
Time on Bottom	28-Jun-13 00:08		
Max. Rec. Temperature	240.0 degF @ 8975.0 ft		
Equipment	11871076	GL, CO	
Recorded By	P. DIMPL		
Witnessed By	HUEY DAUGHERTY		

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Service Ticket No.: 900546567				API Serial No.: 0512337246000				PGM Version: WL INSITE R3.6.0 (Build 3)											
CHANGE IN MUD TYPE OR ADDITIONAL SAMPLE								RESISTIVITY SCALE CHANGES											
Date	Sample No.					Type Log	Depth	Scale Up Hole	Scale Down Hole										
Depth-Driller																			
Type Fluid in Hole																			
Density	Viscosity																		
Ph	Fluid Loss																		
Source of Sample								RESISTIVITY EQUIPMENT DATA											
Rm @ Meas. Temp	@		@			Run No.	Tool Type & No.	Pad Type	Tool Pos.	Other									
Rmf @ Meas. Temp.	@		@			ONE	ACRt 90194258	N/A	CENT	N/A									
Rmc @ Meas. Temp.	@		@				-E7486-												
Source Rmf	Rmc					ONE	HFDT	1.6 GHZ	ECENT	N/A									
Rm @ BHT	@		@				I328M444P706												
Rmf @ BHT	@		@																
Rmc @ BHT	@		@																
EQUIPMENT DATA																			
GAMMA				ACOUSTIC				DENSITY				NEUTRON							
Run No.	ONE		Run No.	ONE		Run No.	ONE		Run No.	ONE									
Serial No.	11958949		Serial No.	U01T02R04L03		Serial No.	10951314		Serial No.	10993888									
Model No.	GTET		Model No.	WSTT-I		Model No.	SDLT-I		Model No.	DSNT-I									
Diameter	3.625"		No. of Cent.	2		Diameter	4.5"		Diameter	3.625"									
Detector Model No.	GTET		Spacing	0.5'		Log Type	GAMMA-GAMMA		Log Type	NEU-THERM									
Type	SCINT					Source Type	Cs137		Source Type	Am241Be									
Length	8"		LSA [Y/N]	Y		Serial No.	5153GW		Serial No.	DSN-388									
Distance to Source	19'		FWDA [Y/N]	Y		Strength	1.5" Ci		Strength	15 Ci									
LOGGING DATA																			
GENERAL				GAMMA				ACOUSTIC				DENSITY				NEUTRON			

GENERAL			GAMMA		ACOUSTIC		DENSITY		NEUTRON					
Run	Depth		Speed	Scale		Scale		Matrix	Scale		Matrix	Scale		Matrix
No.	From	To	ft/min	L	R	L	R		L	R		L	R	
ONE	8975	775	REC	0 API	250 API	45 %	-15 %	47.5 us/ft	45 %	-15 %	2.71 g/cc	45 %	-15 %	LIME
ONE	775	150	REC	0 API	250 API	45 %	-15 %							
DIRECTIONAL INFORMATION														
Maximum Deviation @									KOP @					
Remarks: RUN ONE: RWCH/GTET/CSNG/DSNT/SDLT/HFDT/FLEX/IDT/ICT/WSTT/ACRT/BN														
ANNULAR HOLE VOLUME CALCULATED USING 7.0 INCH CASING														
CHLORIDES REPORTED TO BE 900 ppm														
TENSION PULLS, HOLE RUGOSITY AND WASHOUTS MAY AFFECT LOG QUALITY AND REPEATABILITY														
REPEAT RAN NEAR TOP 200' OF NIOBRARA PER CUSTOMER REQUEST														
DATA SPLICED AT 3100'														
YOU CREW TODAY: B. RIDDEL, T. RAFF, B. CALDWELL RIG: ENSIGN 121														
THANK YOU FOR CHOOSING HALLIBURTON ENERGY SERVICES, GRAND JUNCTION, CO (970) 523-3600														
HALLIBURTON DOES NOT GUARANTEE THE ACCURACY OF ANY INTERPRETATION OF THE LOG DATA, CONVERSION OF LOG DATA TO PHYSICAL ROCK PARAMETERS OR RECOMMENDATIONS WHICH MAY BE GIVEN BY HALLIBURTON PERSONNEL OR WHICH APPEAR ON THE LOG OR IN ANY OTHER FORM. ANY USER OF SUCH DATA, INTERPRETATIONS, CONVERSIONS, OR RECOMMENDATIONS AGREES THAT HALLIBURTON IS NOT RESPONSIBLE EXCEPT WHERE DUE TO GROSS NEGLIGENCE OR WILLFUL MISCONDUCT, FOR ANY LOSS, DAMAGES, OR EXPENSES RESULTING FROM THE USE THEREOF.														
HALLIBURTON														



PARAMETERS REPORT

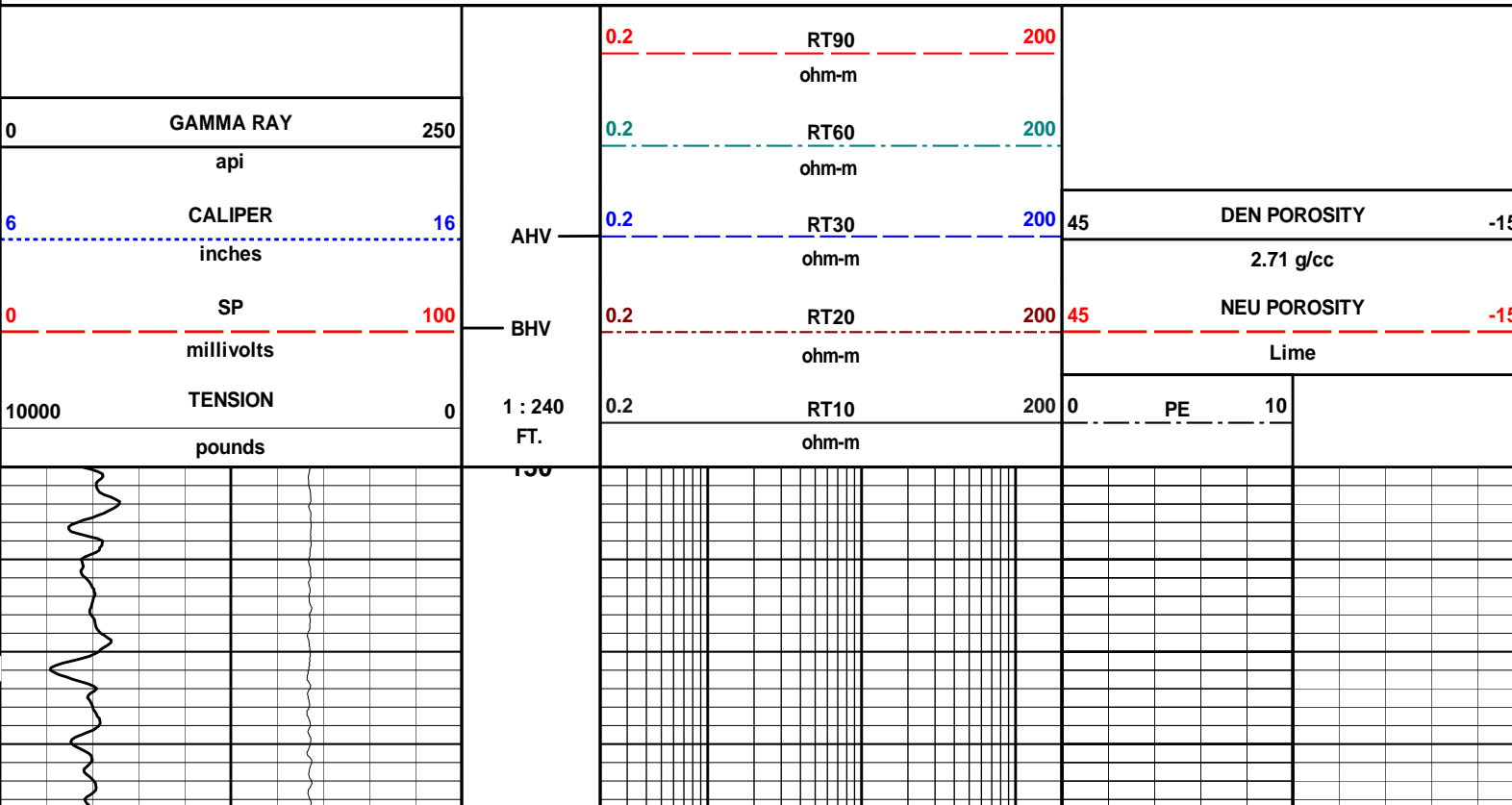
Depth ((ft))	Tool Name	Mnemonic	Description	Value	Units
TOP					
	SHARED	BS	Bit Size	8.750	in
	SHARED	UBS	Use Bit Size instead of Caliper for all applications.	No	
	SHARED	MDBS	Mud Base	Water	
	SHARED	MDWT	Borehole Fluid Weight	8.600	ppg
	SHARED	WAGT	Weighting Agent	Natural	
	SHARED	BSAL	Borehole salinity	950.00	ppm
	SHARED	FSAL	Formation Salinity NaCl	0.00	ppm
	SHARED	KPCT	Percent K in Mud by Weight?	0.00	%
	SHARED	RMUD	Mud Resistivity	0.440	ohmm
	SHARED	TRM	Temperature of Mud	85.5	degF
	SHARED	CSD	Logging Interval is Cased?	No	
	SHARED	ICOD	AHV Casing OD	7.000	in
	SHARED	ST	Surface Temperature	75.0	degF
	SHARED	TD	Total Well Depth	8990.00	ft
	SHARED	BHT	Bottom Hole Temperature	170.0	degF
	SHARED	SVTM	Navigation and Survey Master Tool	IDT	
	SHARED	AZTM	High Res Z Accelerometer Master Tool	IDT	
	SHARED	TEMM	Temperature Master Tool	NONE	
	SHARED	BHSM	Borehole Size Master Tool	NONE	
	Rwa / CrossPlot	XPOK	Process Crossplot?	Yes	
	Rwa / CrossPlot	FCHO	Select Source of F	Automatic	
	Rwa / CrossPlot	AFAC	Archie A factor	0.6200	

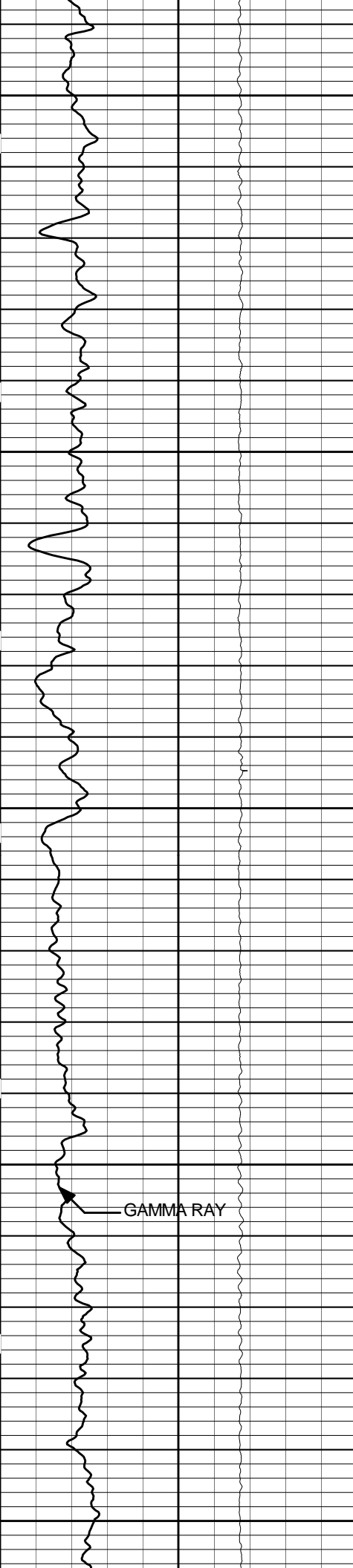
	Rwa / CrossPlot	MFAC	Archie M factor	2.1500	
	Rwa / CrossPlot	RMFR	Rmf Reference	0.39	ohmm
	Rwa / CrossPlot	TMFR	Rmf Ref Temp	81.50	degF
	Rwa / CrossPlot	RWA	Resistivity of Formation Water	0.05	ohmm
	Rwa / CrossPlot	ADP	Use Air Porosity to calculate CrossplotPhi	No	
	GTET	GROK	Process Gamma Ray?	Yes	
	GTET	GRSO	Gamma Tool Standoff	0.250	in
	GTET	GEOK	Process Gamma Ray EVR?	No	
	GTET	TPOS	Tool Position for Gamma Ray Tools.	Eccentered	
	CSNG	CGOK	Process CSNG Data?	Yes	
	CSNG	CENT	Is Tool Centralized?	No	
	CSNG	GBOK	Gamma Enviromental Corrections?	Yes	
	CSNG	BARF	Barite Correction Factor	1.00	
	CSNG	ORDG	Use Fixed Gain	No	
	CSNG	ORDO	Use Fixed Offset	No	
	CSNG	ORDR	Use Fixed Resolution Degradation Factor	No	
	DSNT	DNOK	Process DSN?	Yes	
	DSNT	DEOK	Process DSN EVR?	No	
	DSNT	NLIT	Neutron Lithology	Limestone	
	DSNT	DNSO	DSN Standoff - 0.25 in (6.35 mm) Recommended	0.250	in
	DSNT	DNTP	Temperature Correction Type	None	
	DSNT	DPRS	DSN Pressure Correction Type	None	
	DSNT	SHCO	View More Correction Options	No	
	DSNT	UTVD	Use TVD for Gradient Corrections?	No	
	DSNT	LHWT	Logging Horizontal Water Tank?	No	
	SDLT	CLOK	Process Caliper Outputs?	Yes	
	SDLT Pad	DNOK	Process Density?	Yes	
	SDLT Pad	DNOK	Process Density EVR?	No	
	SDLT Pad	CB	Logging Calibration Blocks?	No	
	SDLT Pad	SPVT	SDLT Pad Temperature Valid?	Yes	
	SDLT Pad	DTWN	Disable temperature warning	No	
	SDLT Pad	DMA	Formation Density Matrix	2.710	g/cc
	SDLT Pad	DFL	Formation Density Fluid	1.000	g/cc
	HFDT-I	HFOK	Do HFDT Calculations?	Yes	
	HFDT-I	RMF	Mud Filtrate Resistivity	0.39	ohmm
	HFDT-I	RMFT	Temperature of Mud Filtrate	81.50	degF
	HFDT-I	MDIL	Matrix Dielectric Constant	4.650	
	HFDT-I	HRTC	HFDT Insite Temperature Correction Source	PADTEMP1	
	HFDT-I	CLOK	Process Caliper Outputs?	Yes	
	HFDT-I	SAO	SDL Backup Arm Offset	0.00	in
	HFDT-I	PAO	Pad Arm Offset	0.00	in
	HFDT-I	MLOK	Process MicroLog Outputs?	No	
	HFDT-I	MINO	Microlog Lateral Offset	0.00	ohmm
	HFDT-I	MNOO	Microlog Normal Offset	0.00	ohmm
	IDT	WRTI	Survey Writing Interval	30	ft
	IDT	SOPT	Smoothing Option	None	
	ICT	CLOK	Process Caliper Outputs?	Yes	
	ICT	NAVS	Navigation Source Tool	IDT	
	Wavesonic-I	WSOK	Process WSTT?	Yes	
	Wavesonic-I	AFIL	Adaptive Filtering?	No	
	Wavesonic-I	PINT	Process 1 Sample and Skip	0	
	Wavesonic-I	PROM	Process Mode: M=1,MX=2,MY=3,MXY=4	4	
	Wavesonic-I	DTSH	Delta -T Shale	100.00	uspf

Wavesonic-I	DTMT	Delta -T Matrix Type	Limestone 47.5	
Wavesonic-I	DTMA	Delta -T Matrix	57.00	uspf
Wavesonic-I	DTFL	Delta -T Fluid	189.00	uspf
Wavesonic-I	RHOM	Matrix Density	2.7100	g/cc
Wavesonic-I	RHOF	Fluid Density	1.0000	g/cc
Wavesonic-I	SMTH	Semblance Threshold	0.25	
Wavesonic-I	VPVS	VPVS Ratio for Porosity	1.40	
Wavesonic-I	APEQ	Acoustic Porosity Equation	Wylie	
Wavesonic-I	NAVS	Navigation Source Tool	IDT	
ACRt Sonde	RTOK	Process ACRt?	Yes	
ACRt Sonde	MNSO	Minimum Tool Standoff	1.50	in
ACRt Sonde	TCS1	Temperature Correction Source	FP Lwr & FP Upr	
ACRt Sonde	TPOS	Tool Position	Centered	
ACRt Sonde	RMOP	Rmud Source	Mud Cell	
ACRt Sonde	RMIN	Minimum Resistivity for MAP	0.20	ohmm
ACRt Sonde	RMIN	Maximum Resistivity for MAP	200.00	ohmm
ACRt Sonde	THQY	Threshold Quality	0.50	
ACRt Sonde	MRFX	Fixed mud resistivity	2000	ohmm
BOTTOM				
Data: NOB_VGS_AC16-01\0001 TRIPLE-BLACK\008 28-Jun-13 00:08 Up @8982.3f				Date: 28-Jun-13 01:48:04

HALLIBURTON	Plot Time: 28-Jun-13 08:14:57 Plot Range: 150 ft to 8977.67 ft Data: NOB_VGS_AC16-01\Well Based*\ Plot File: \\COMP\I_ENCANA_TRIPLE_M
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MAIN PASS 5" = 100'





200

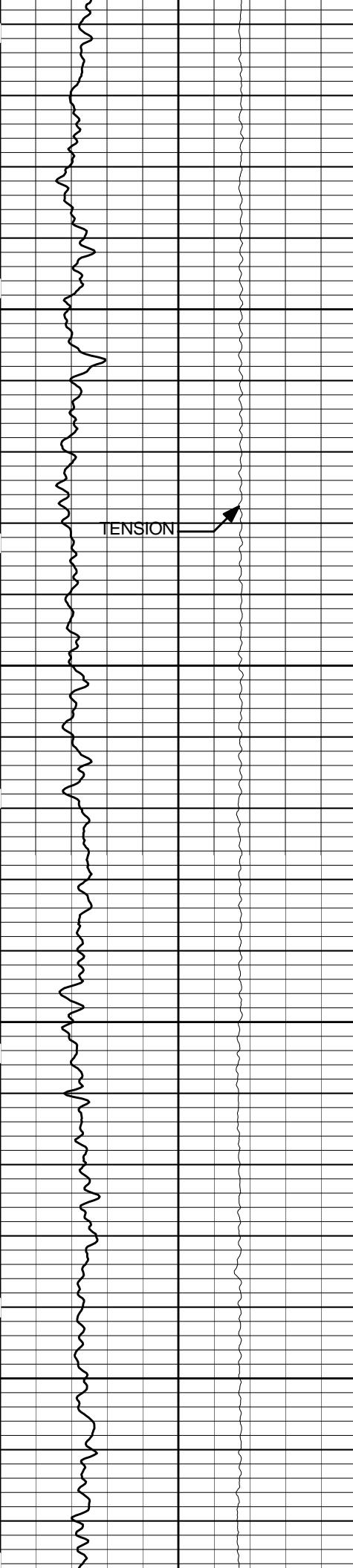
250

300

350

400

GAMMA RAY

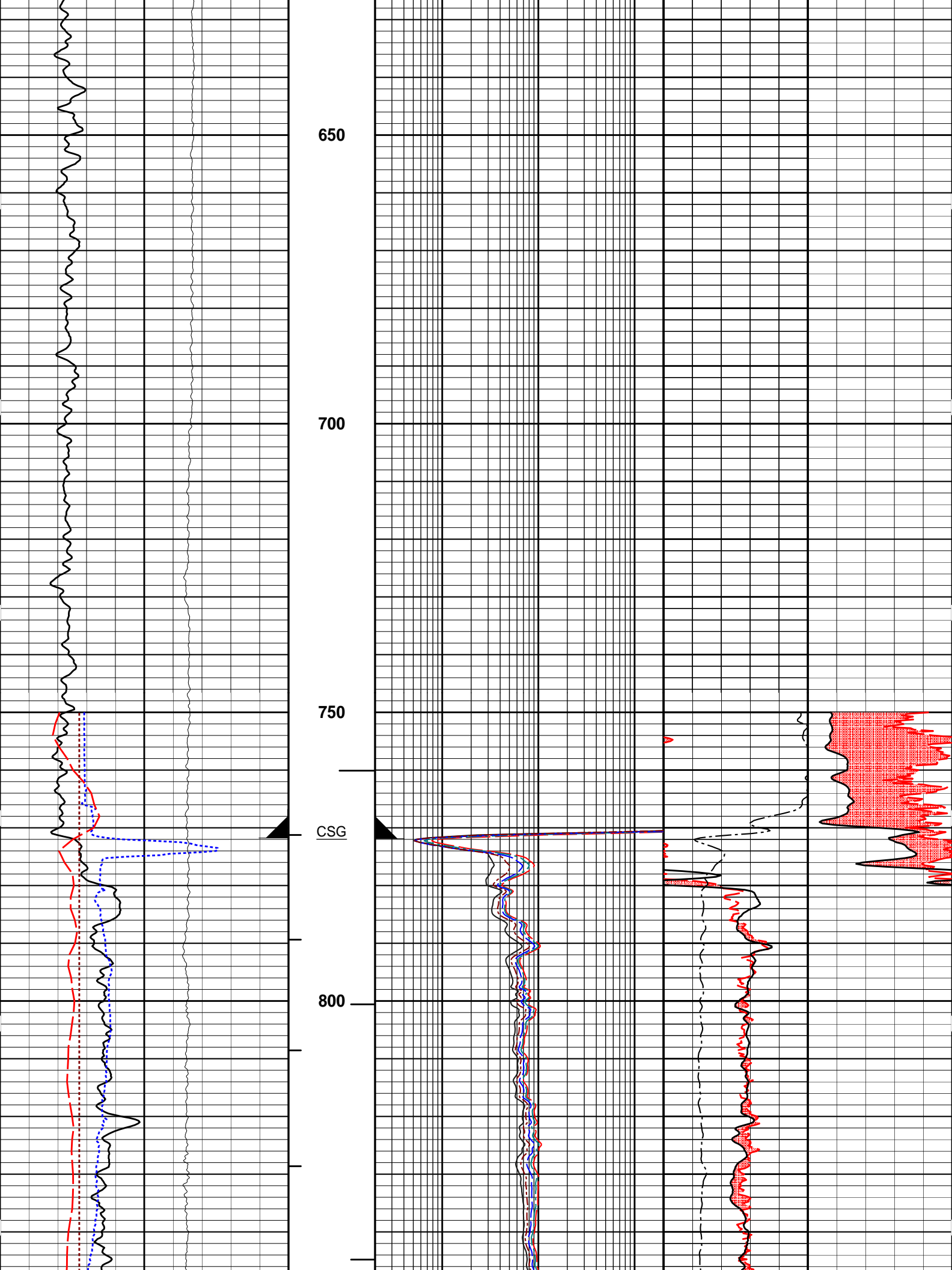


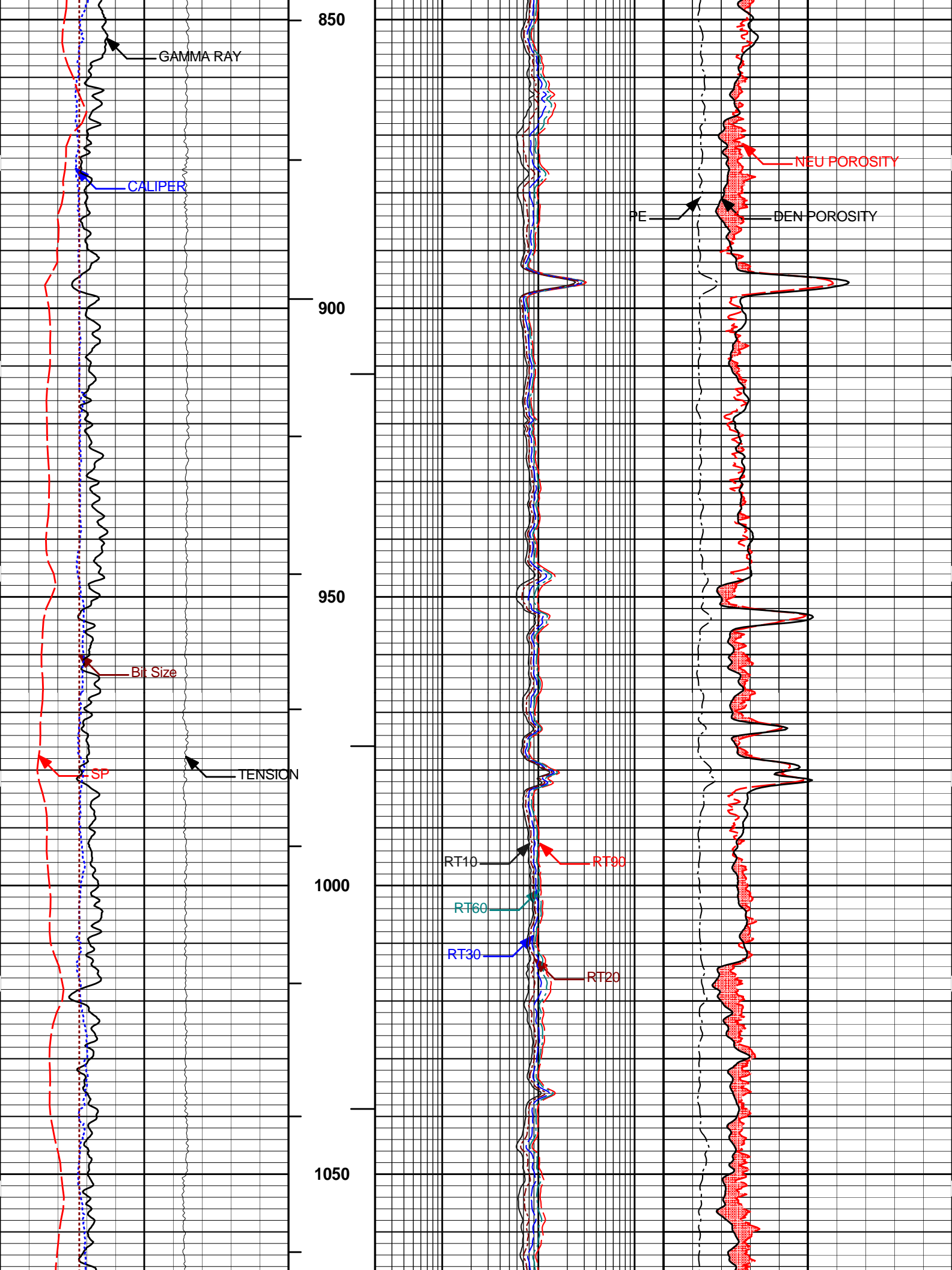
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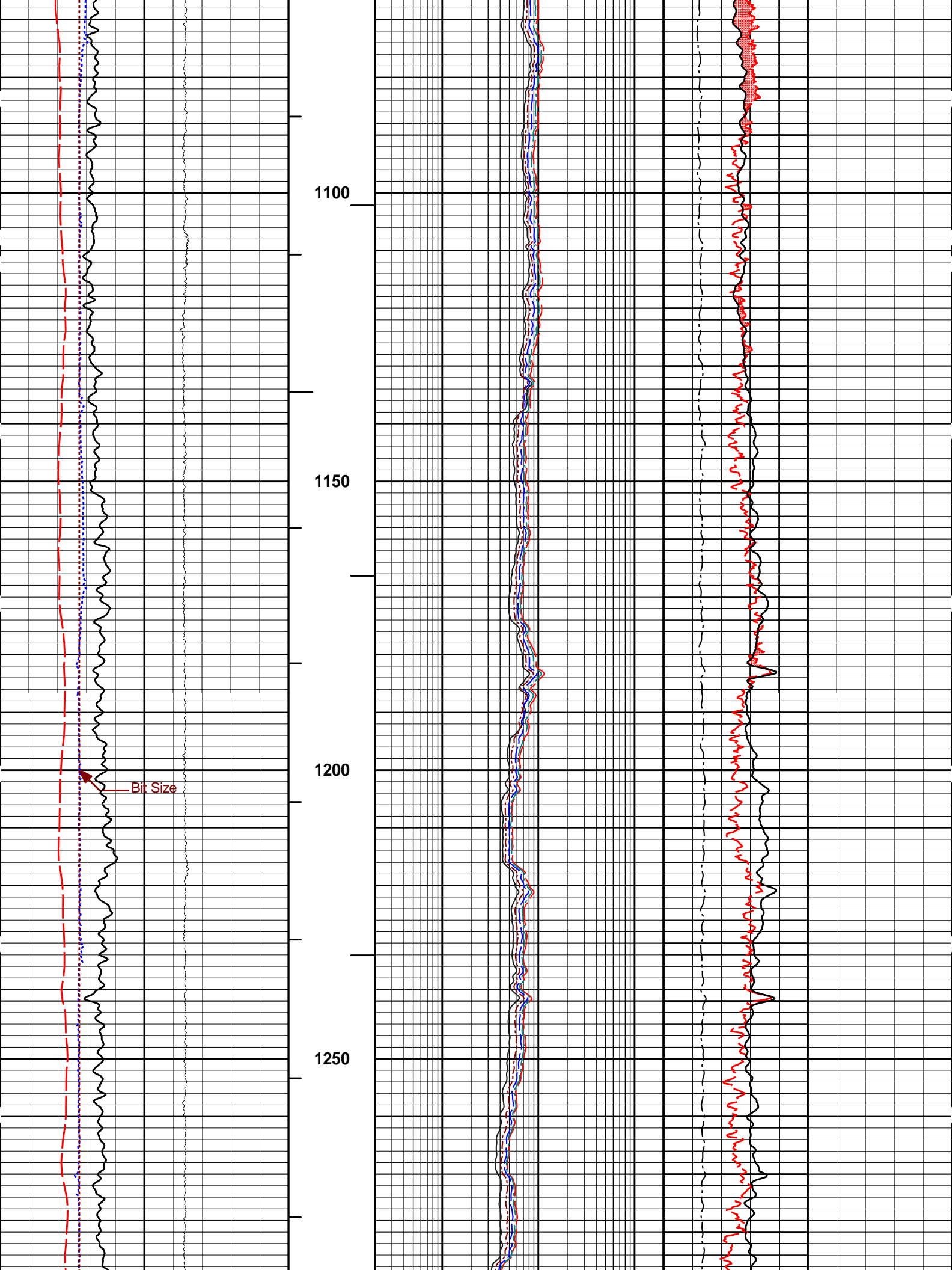
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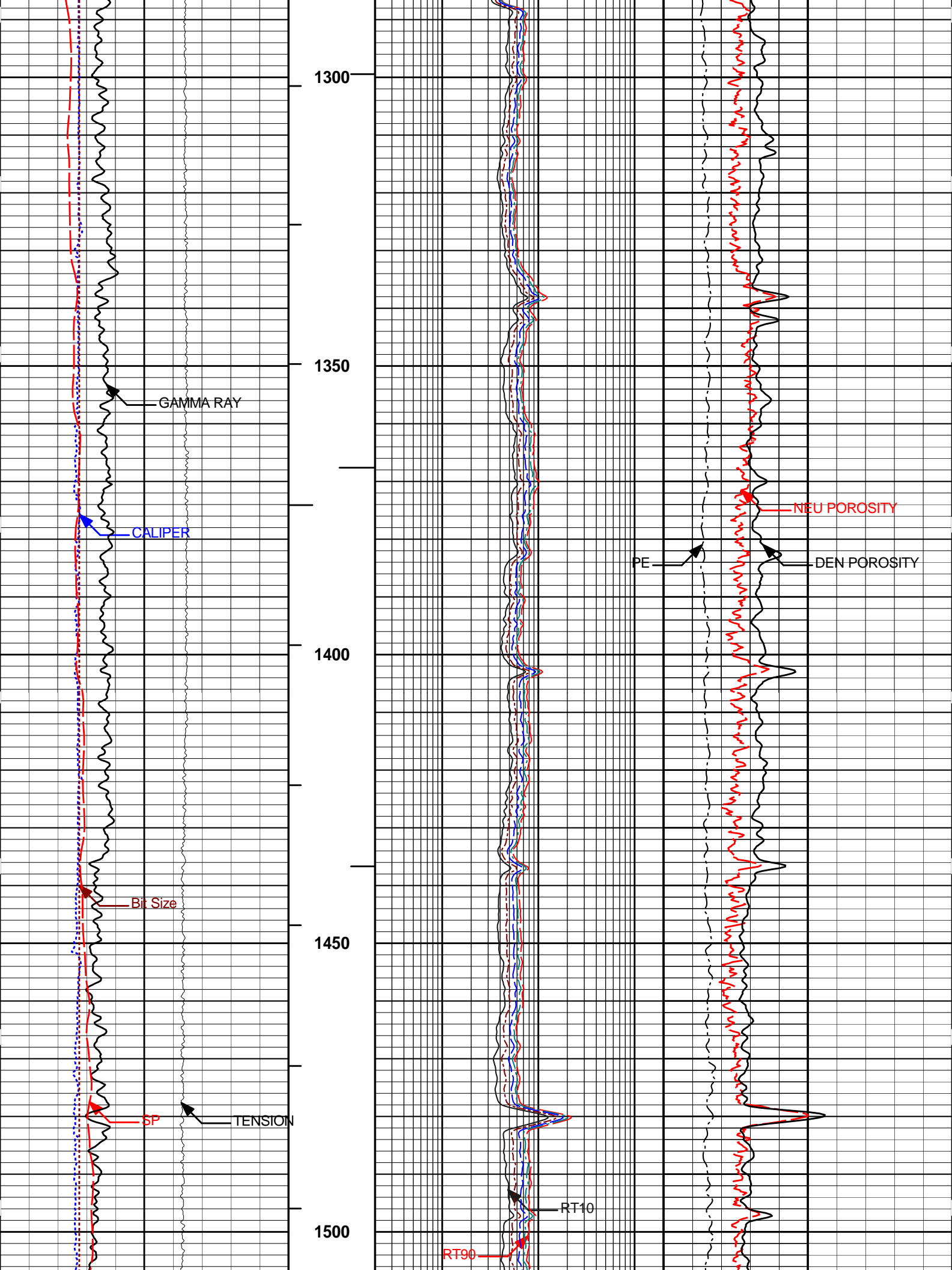
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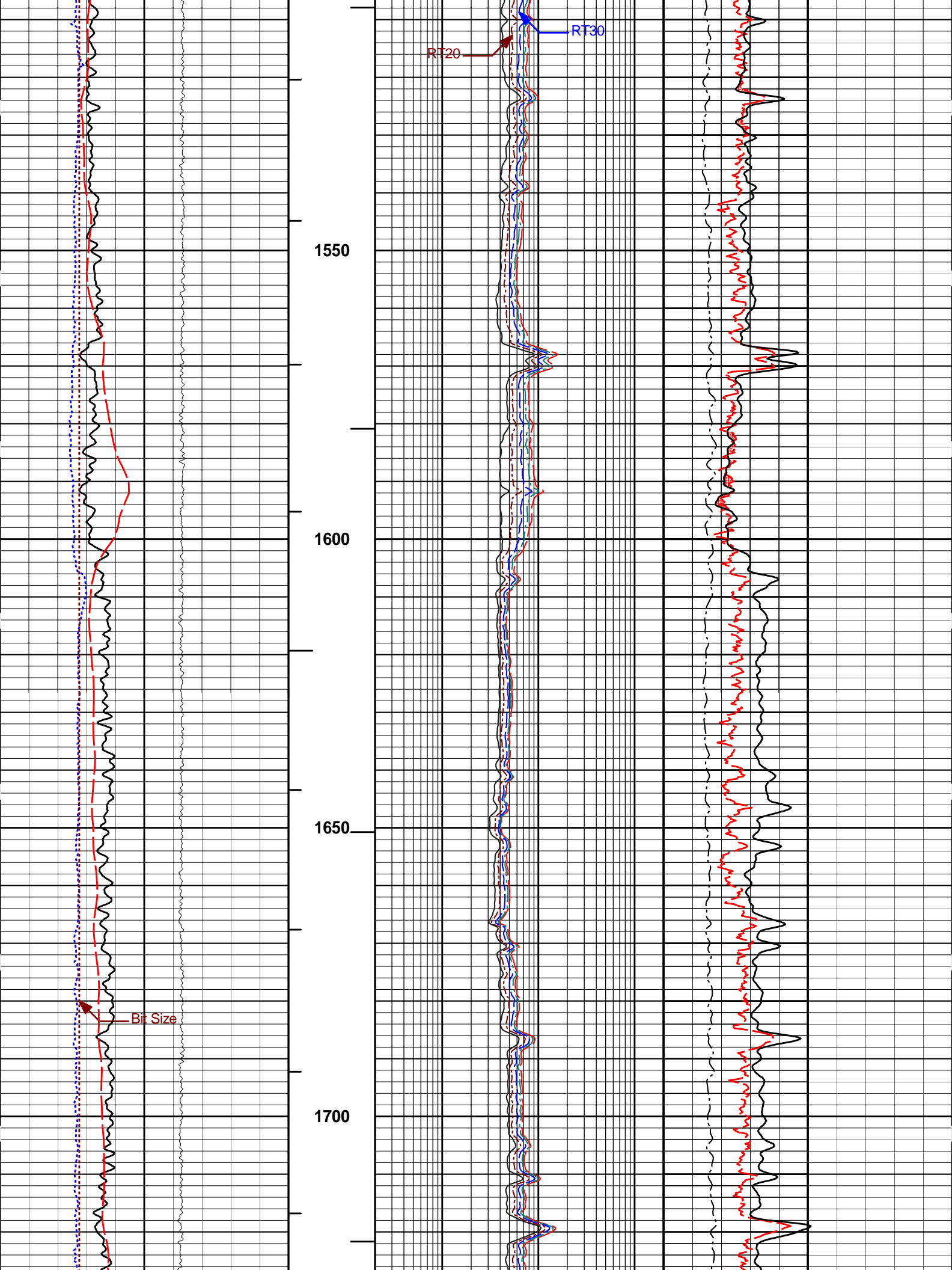
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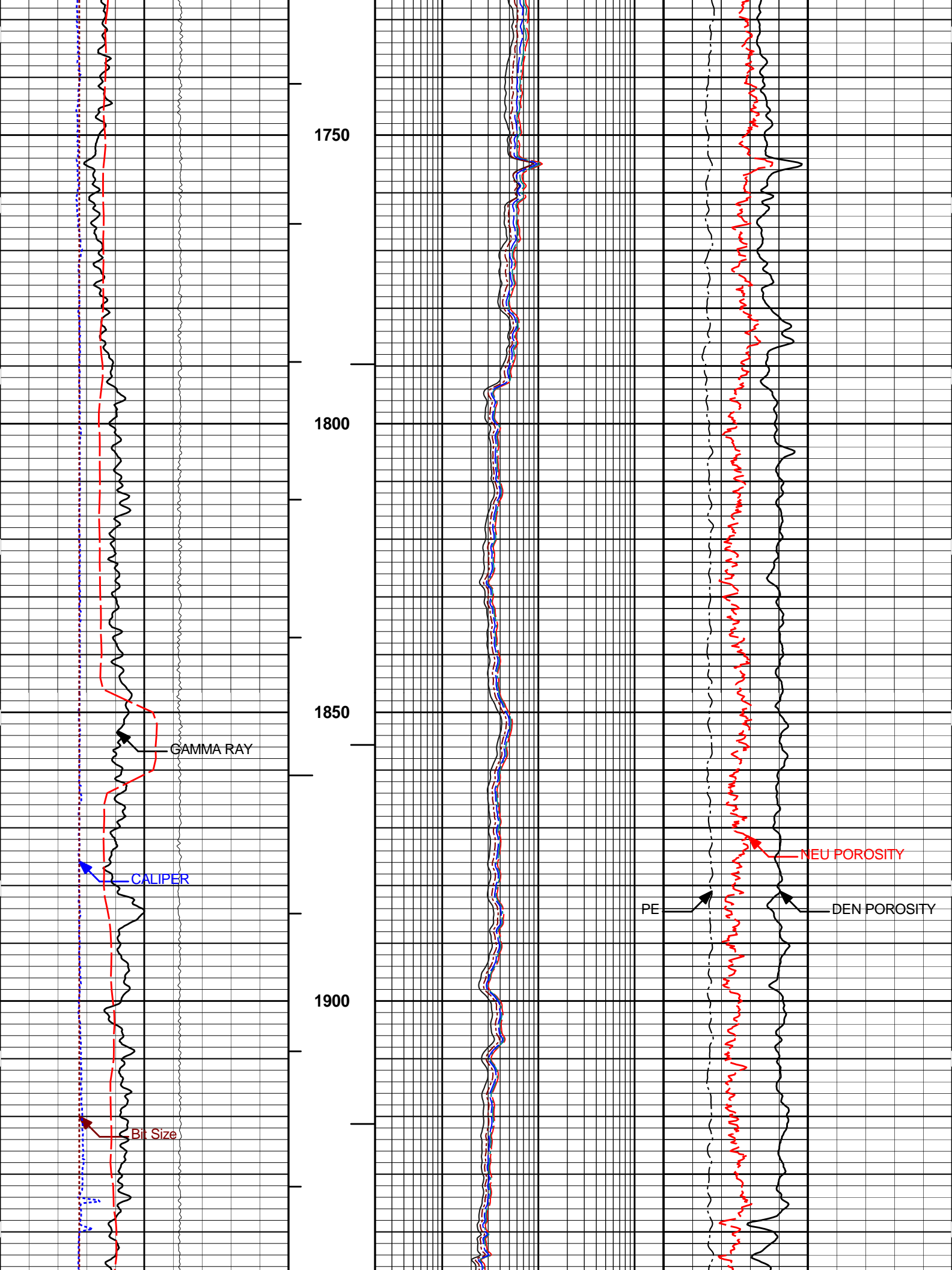


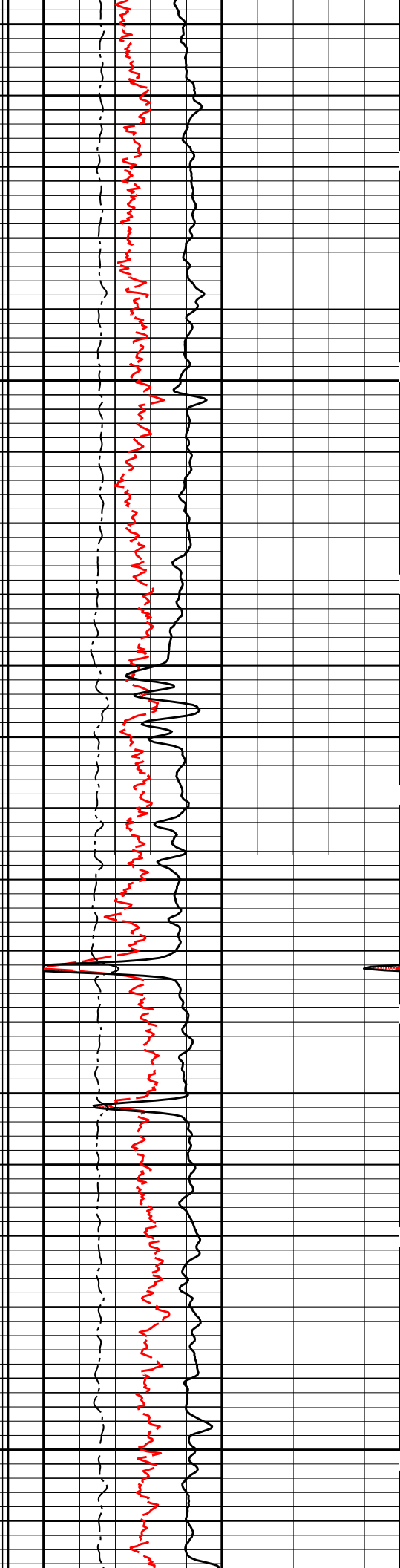
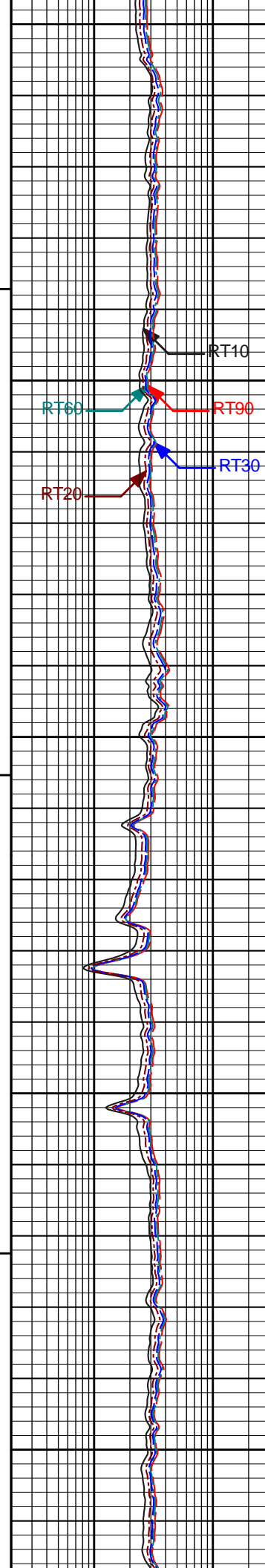
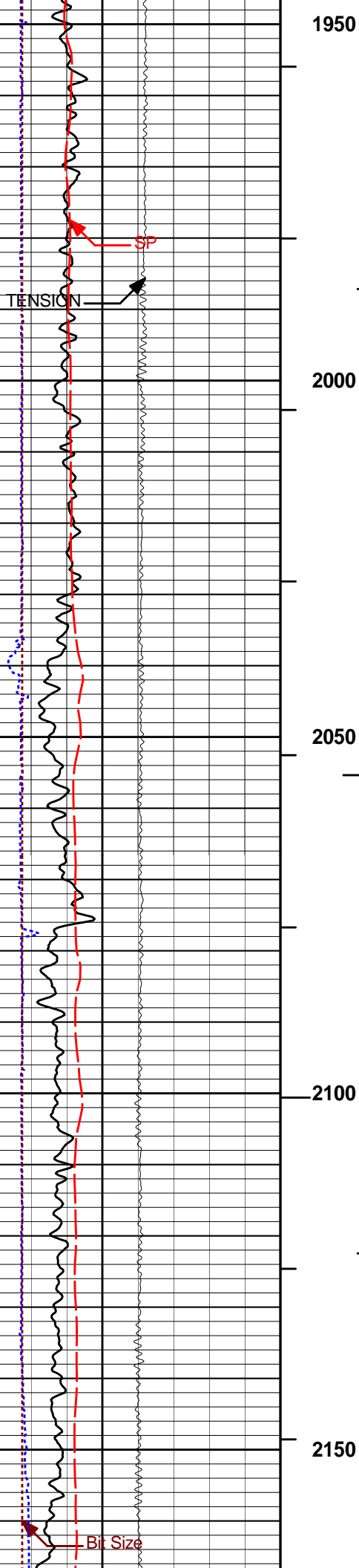


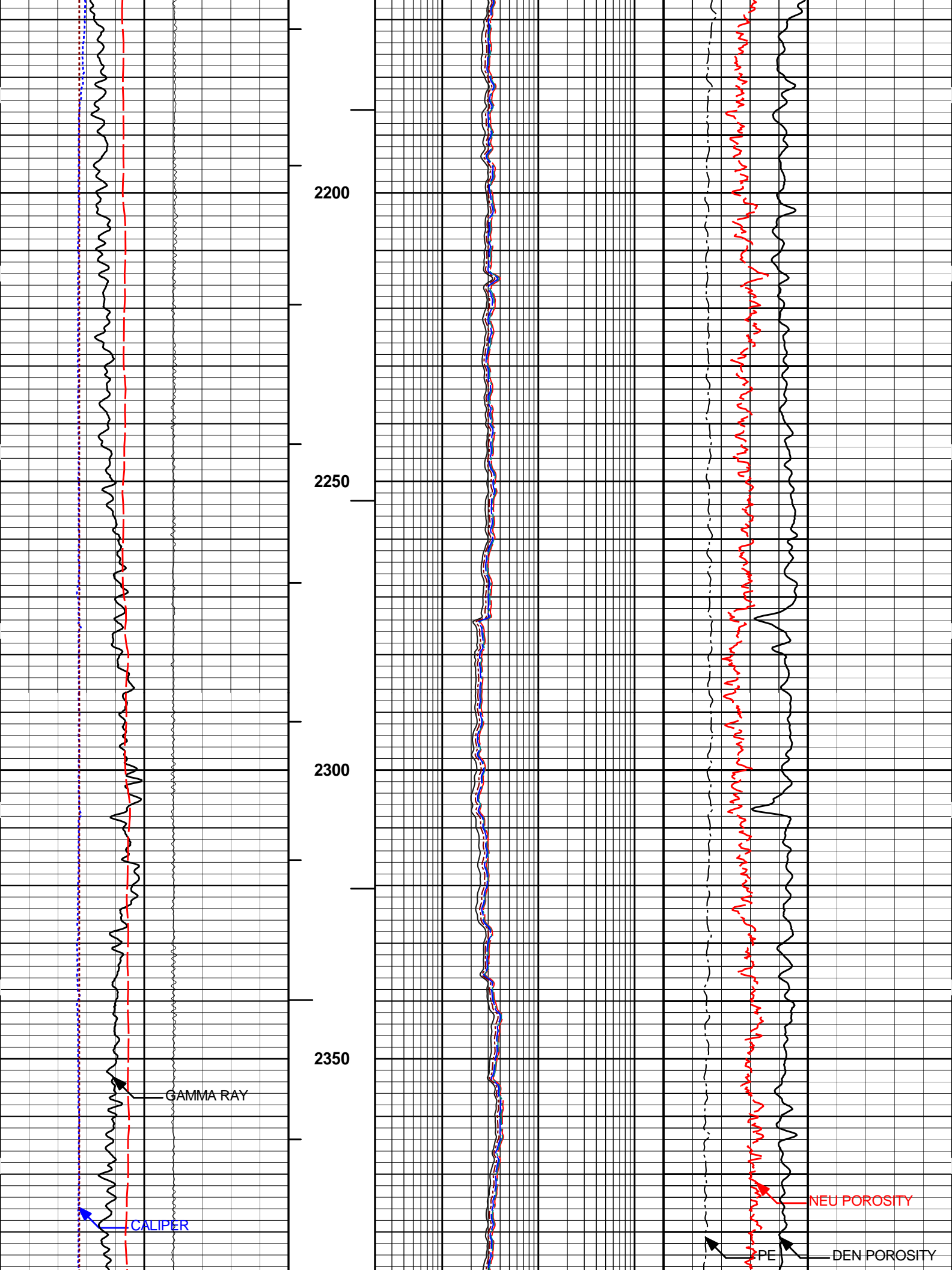


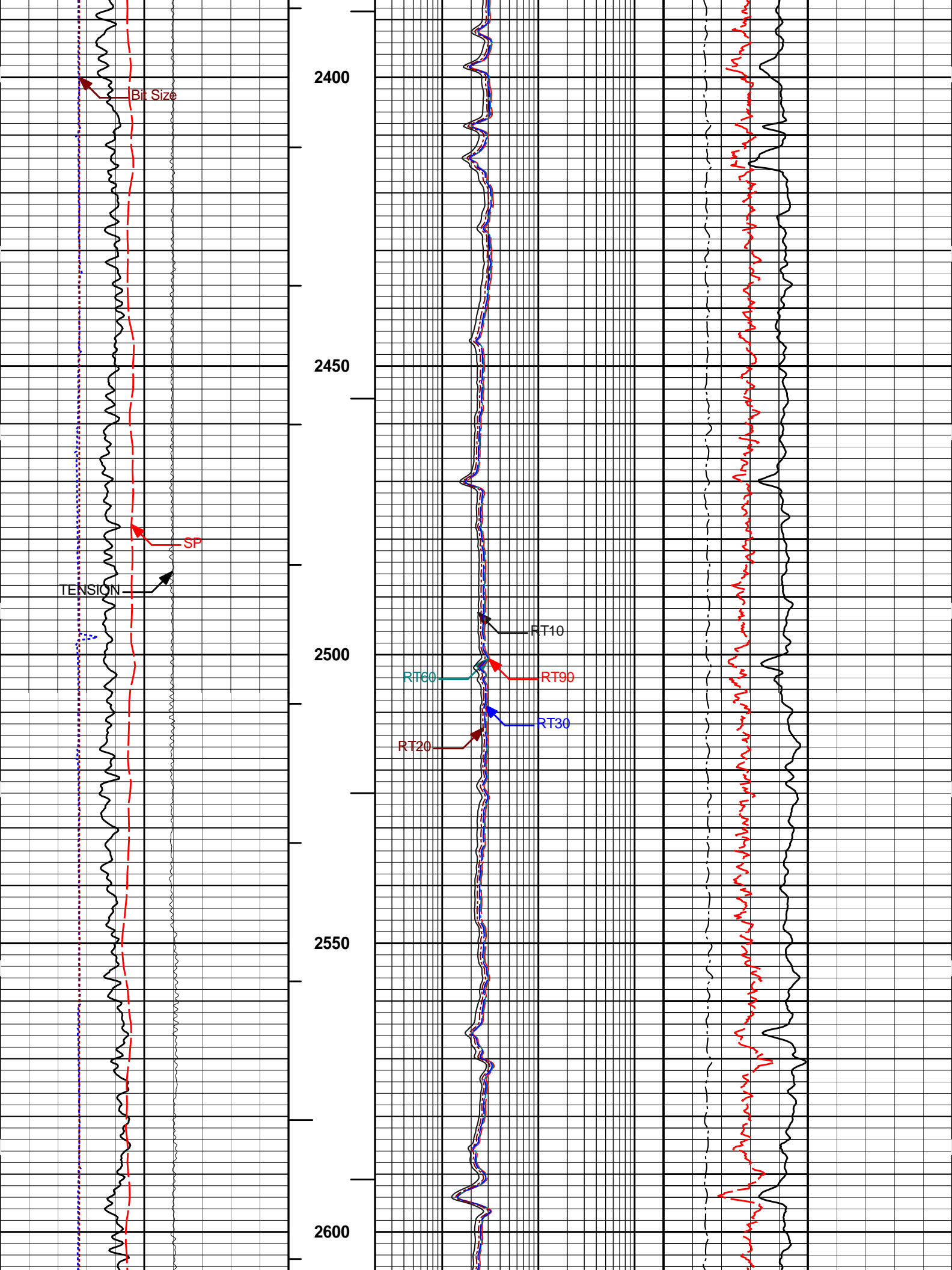


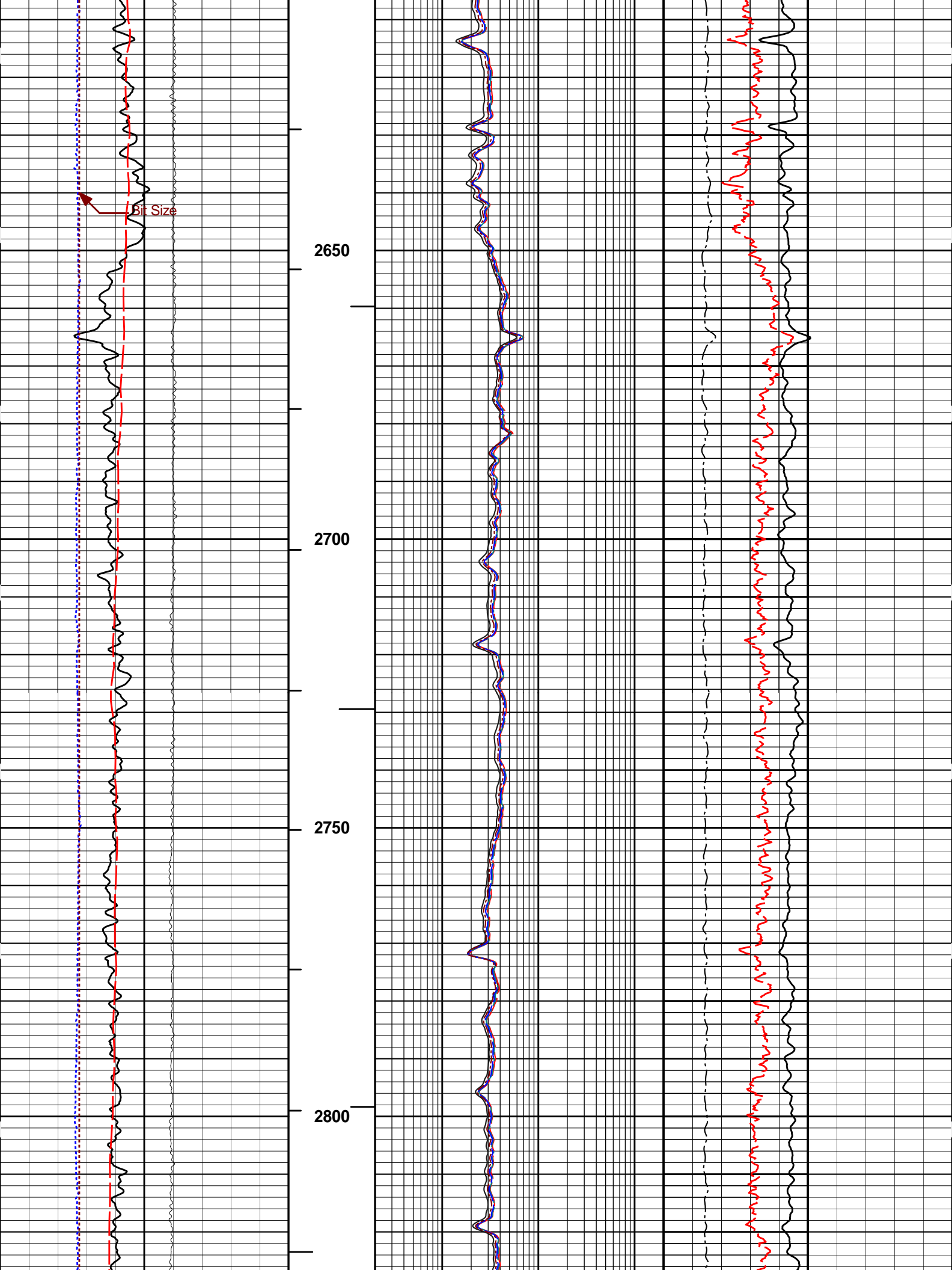


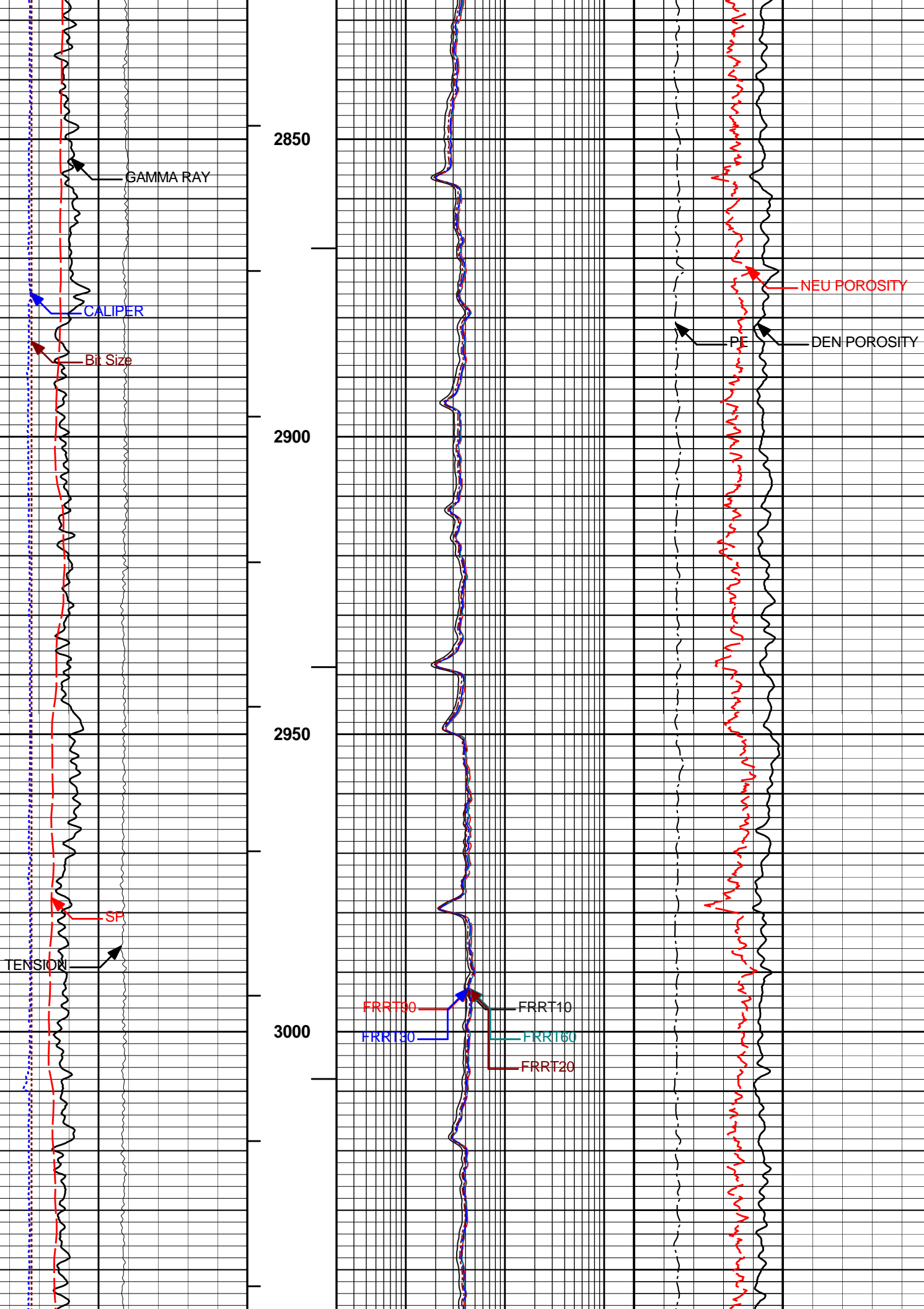


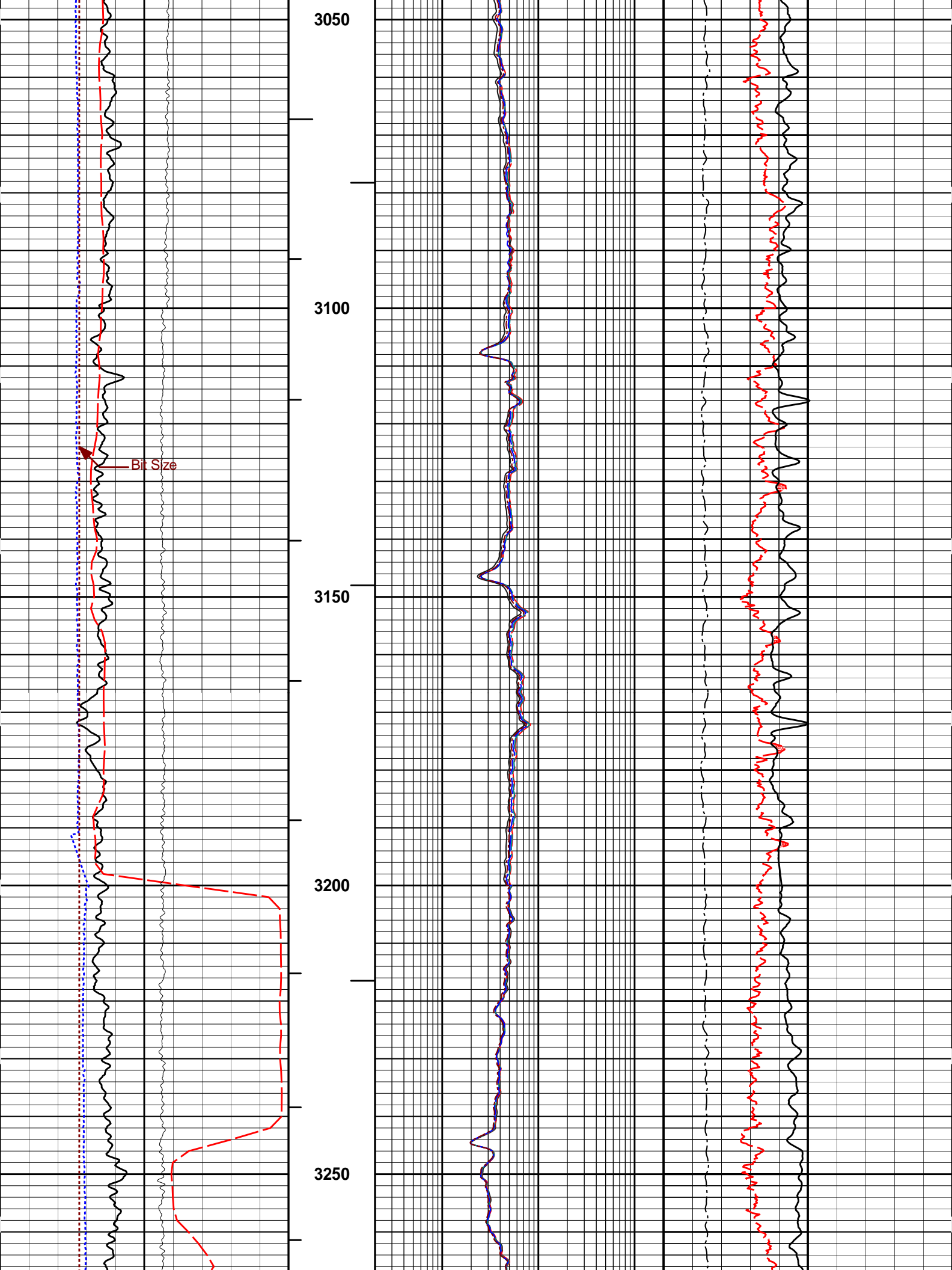


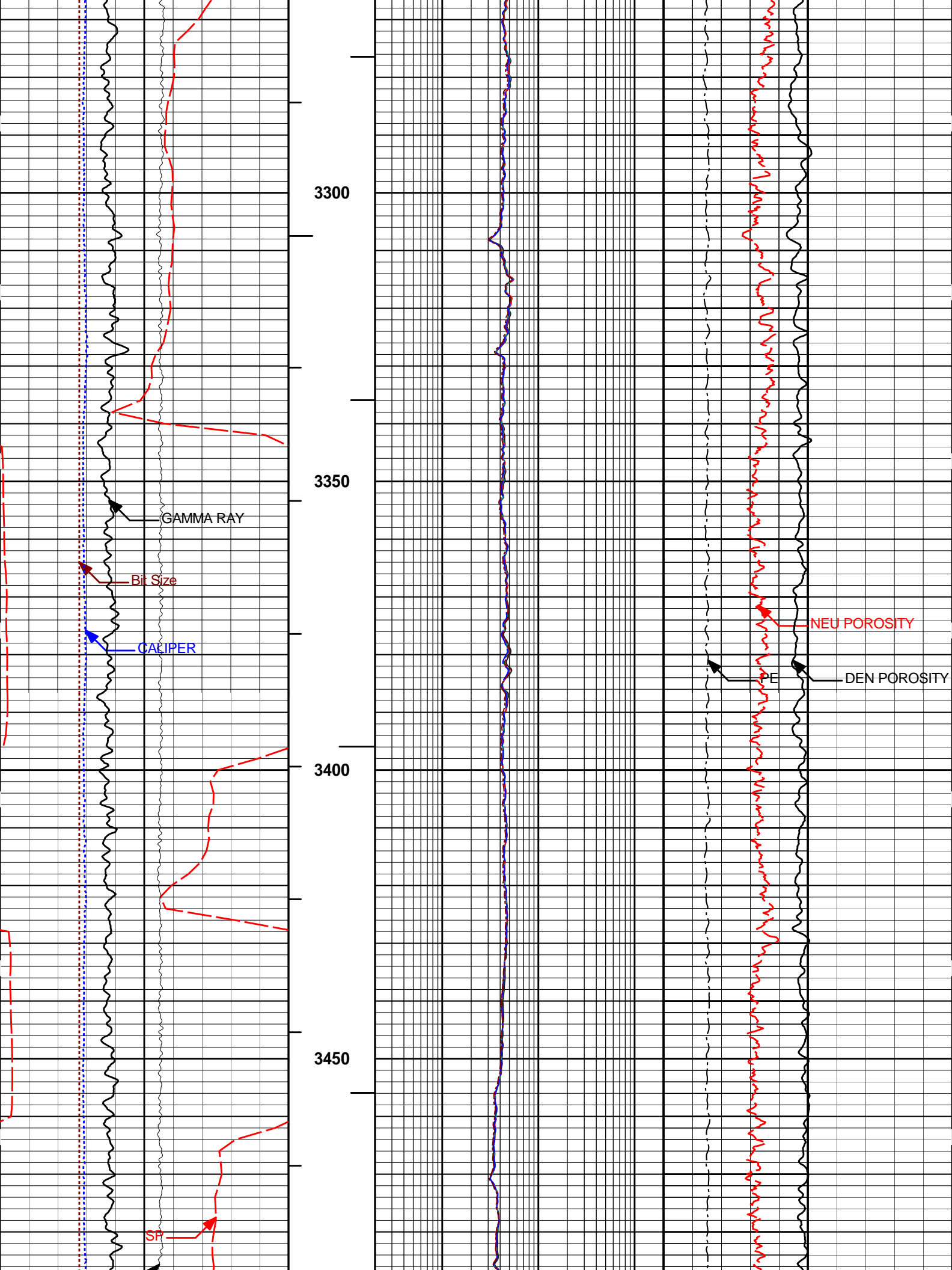


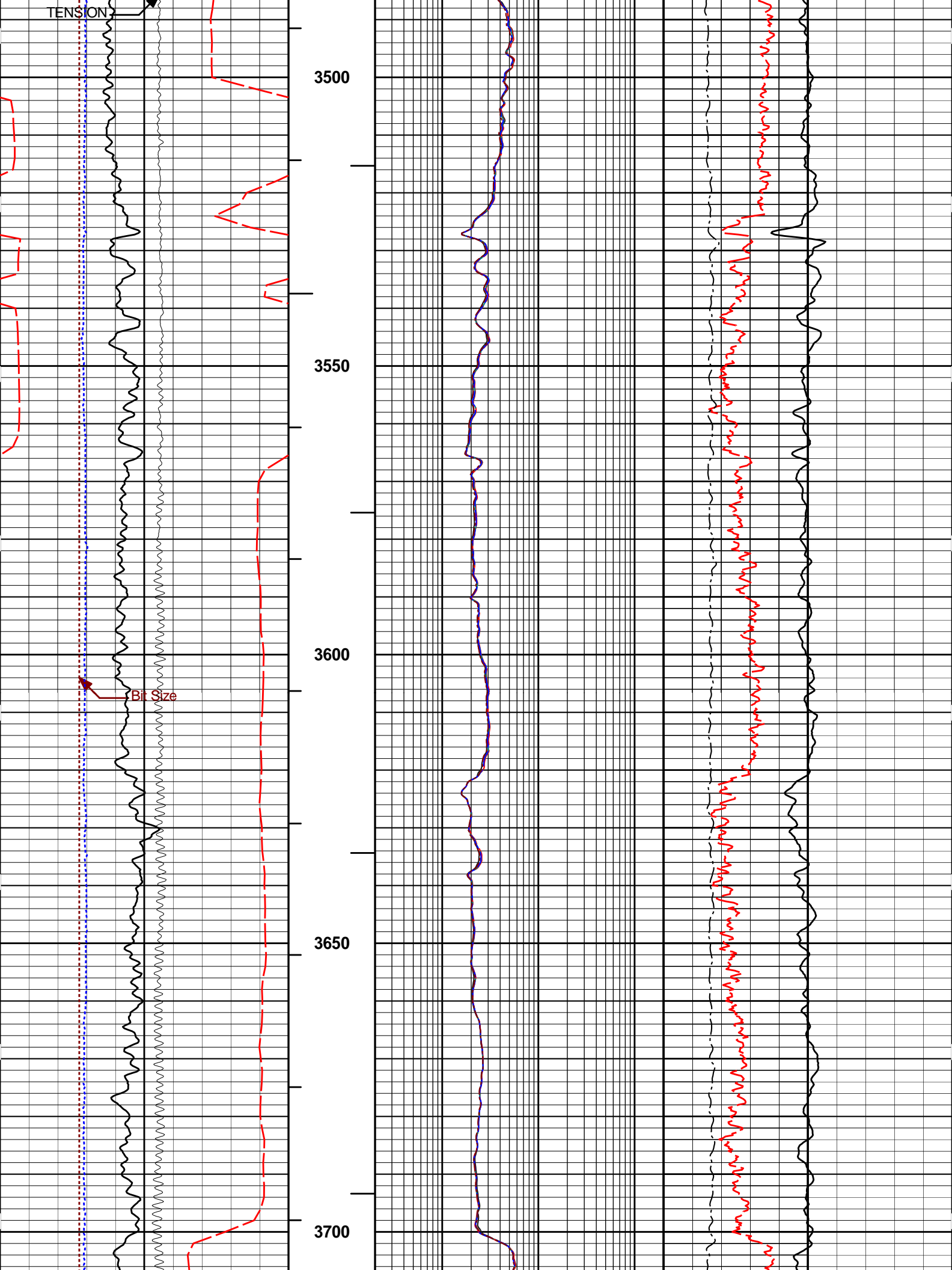


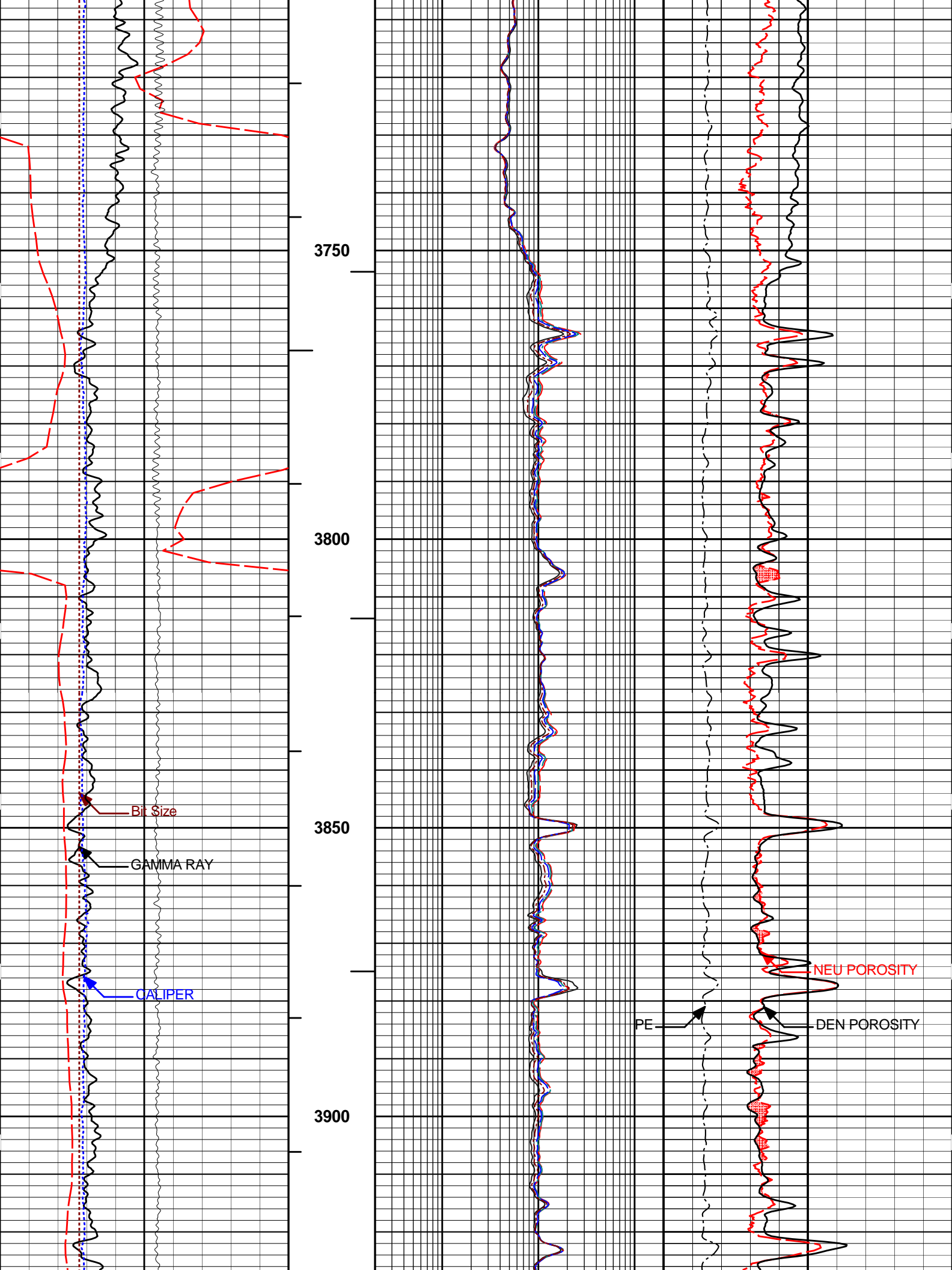


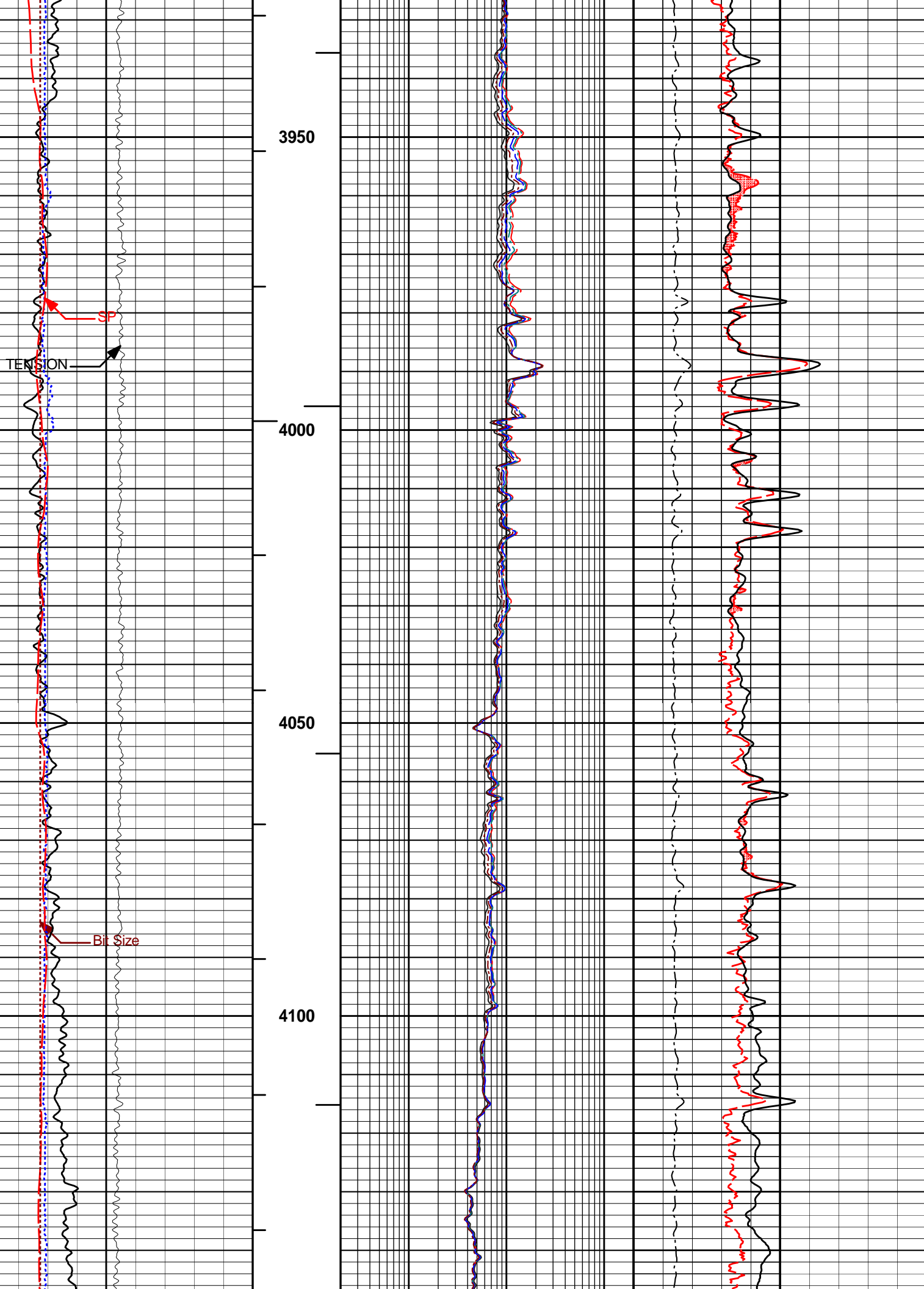


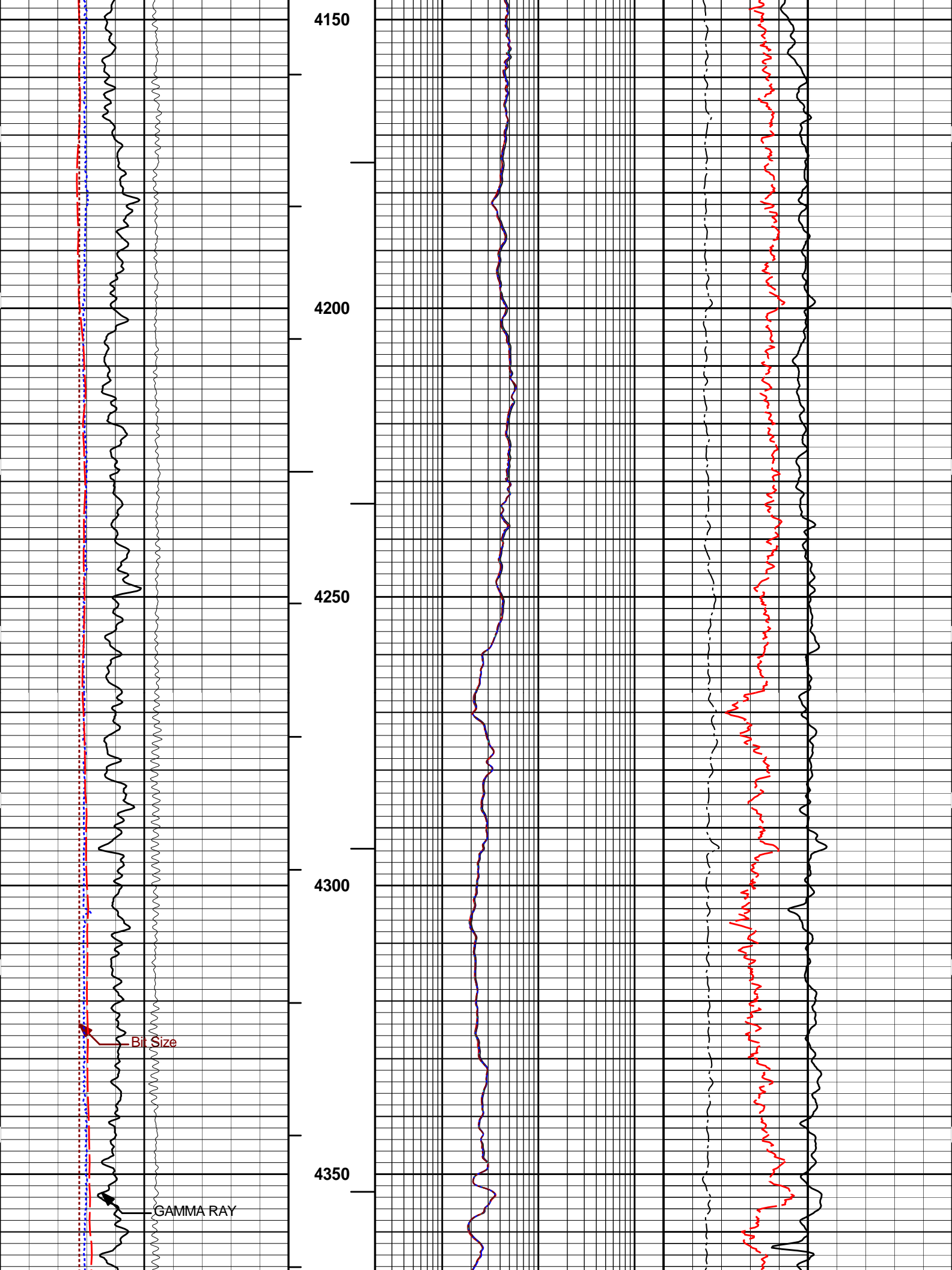


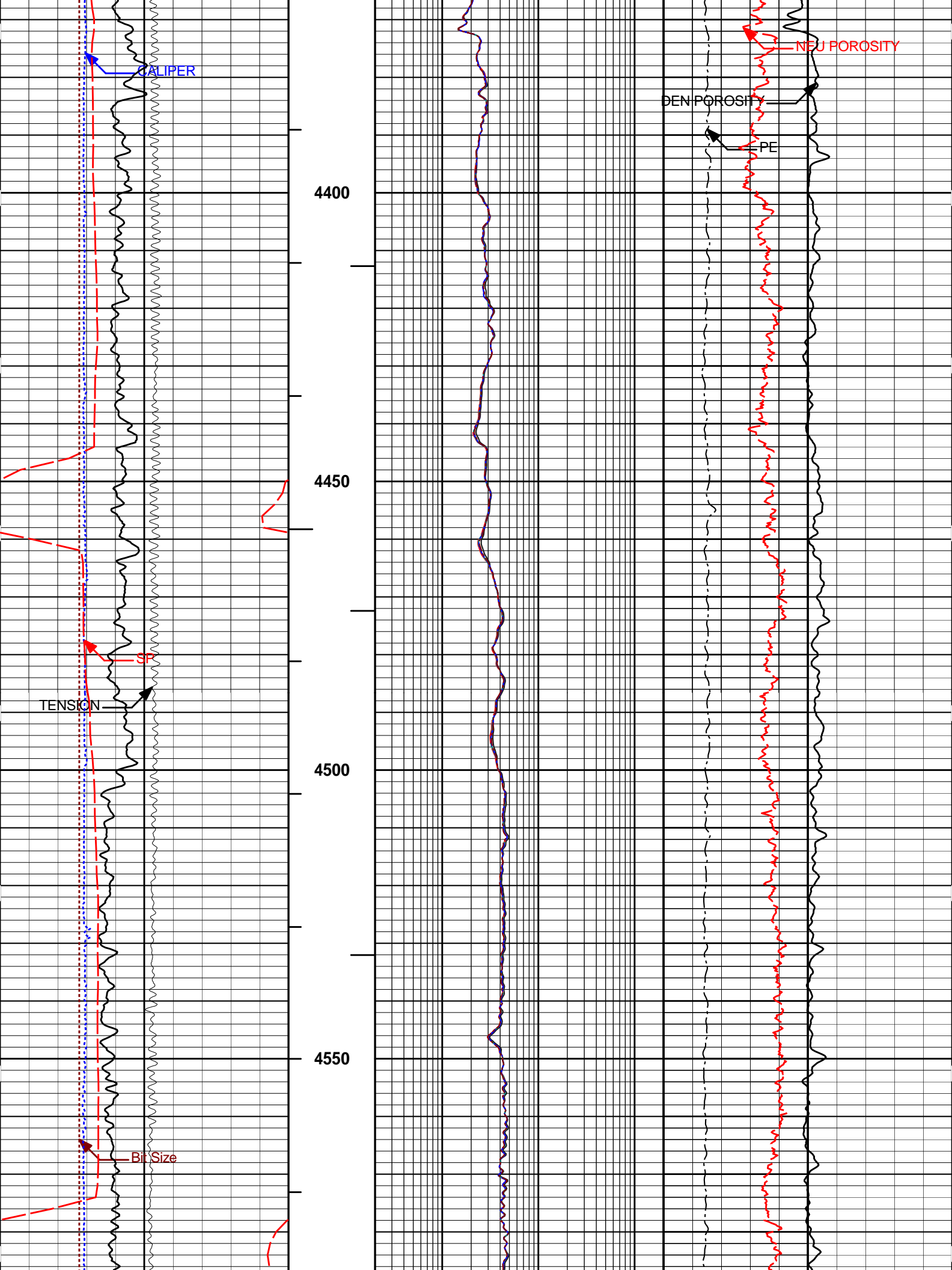


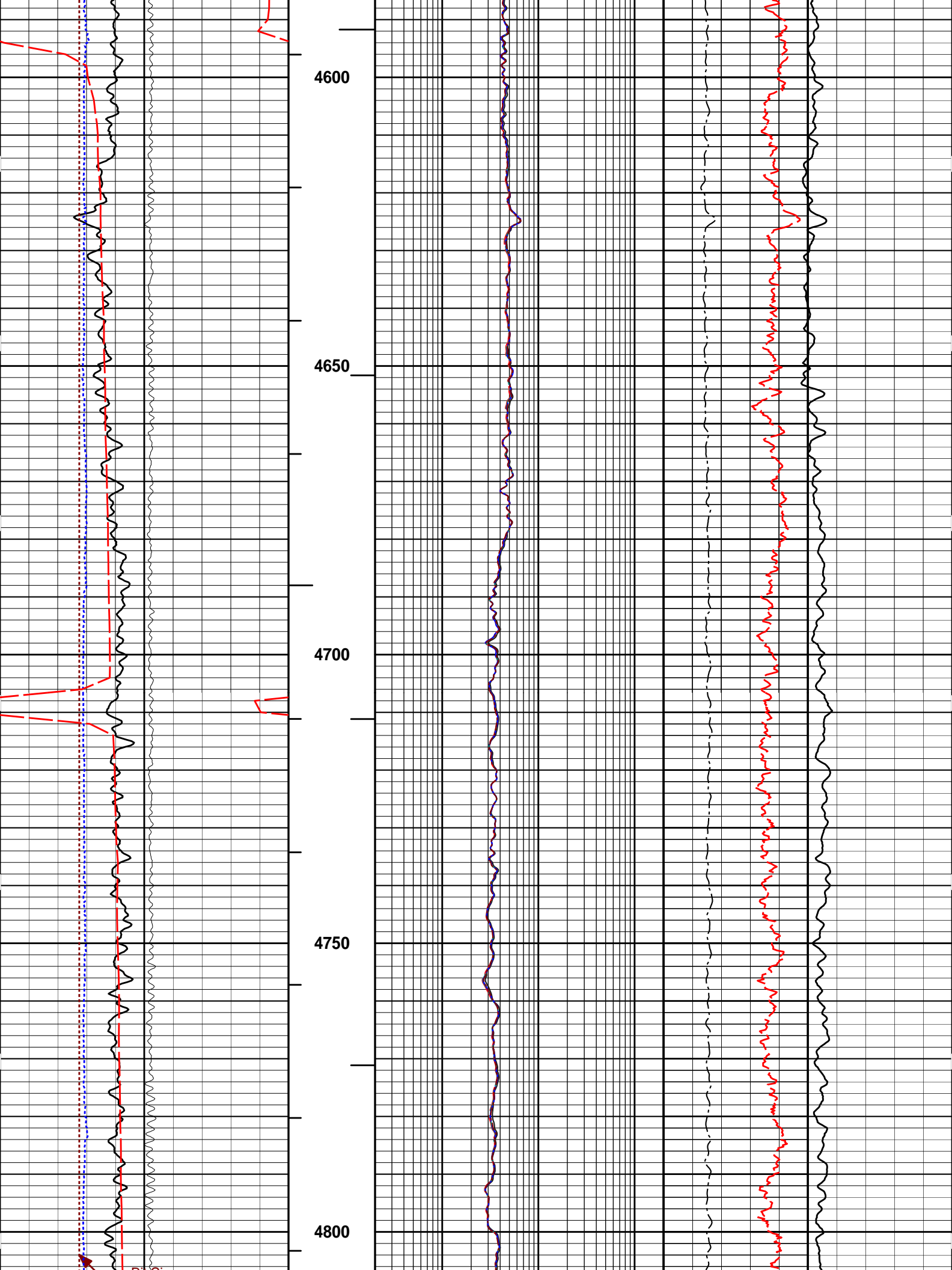


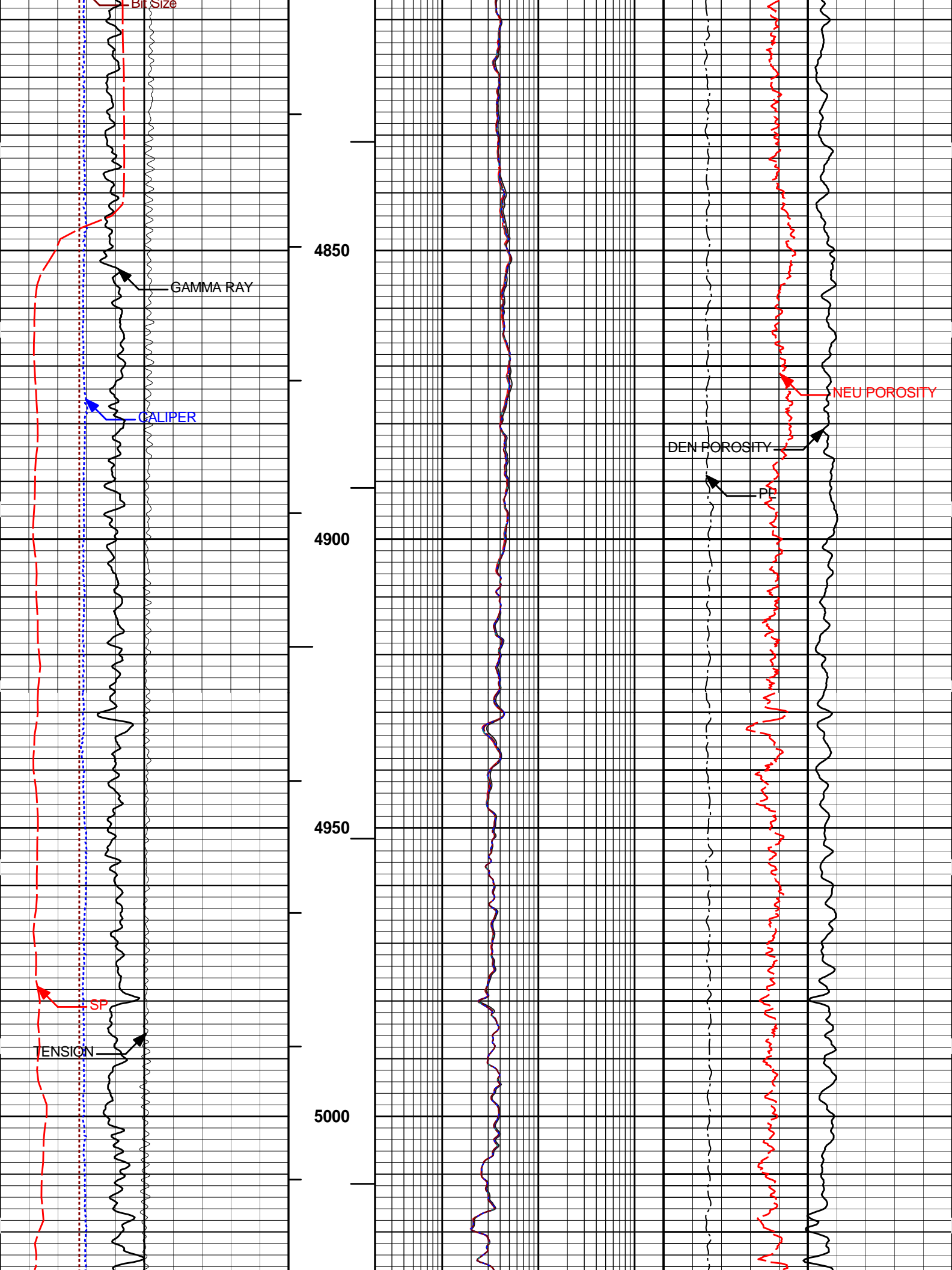


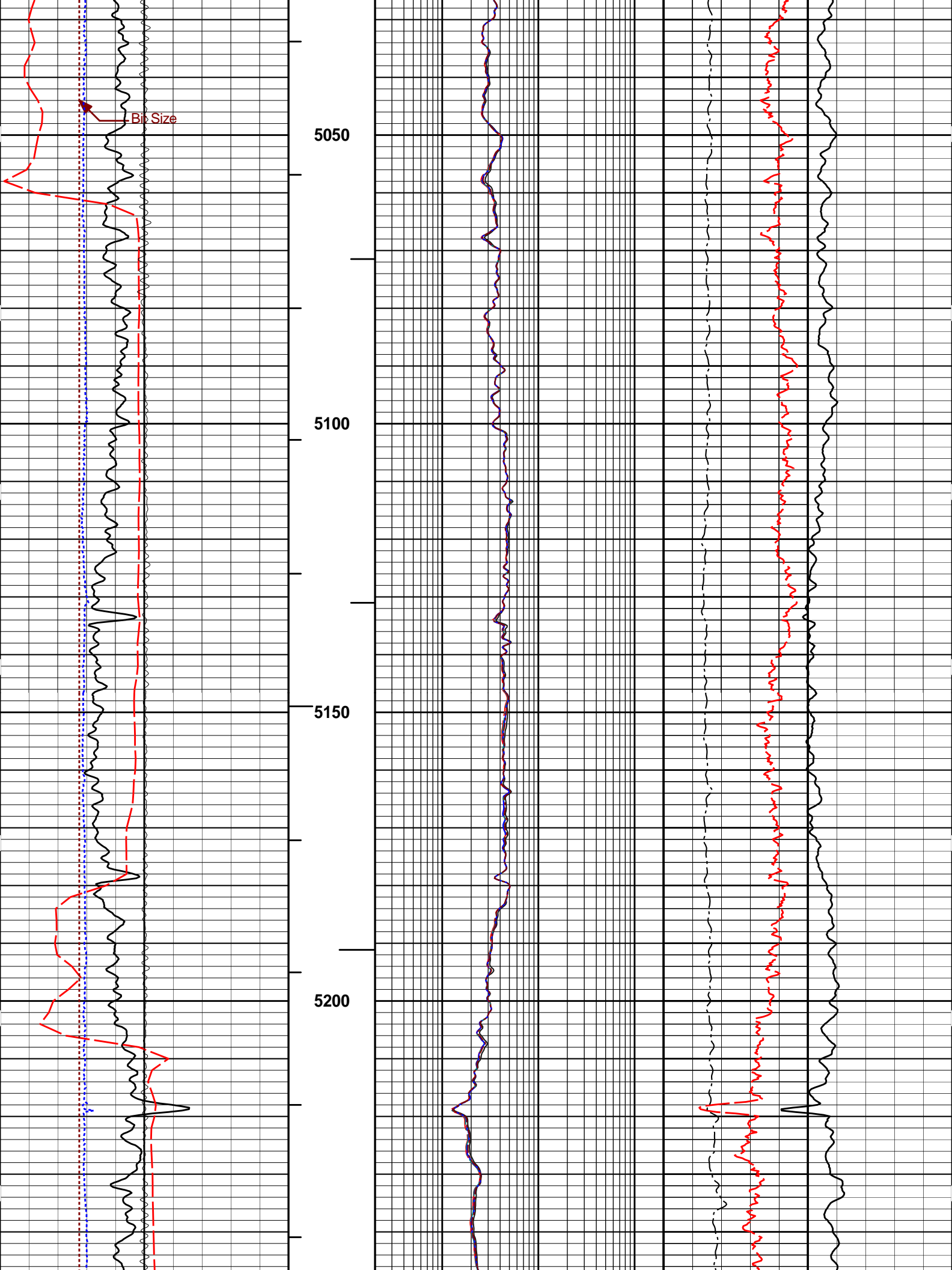


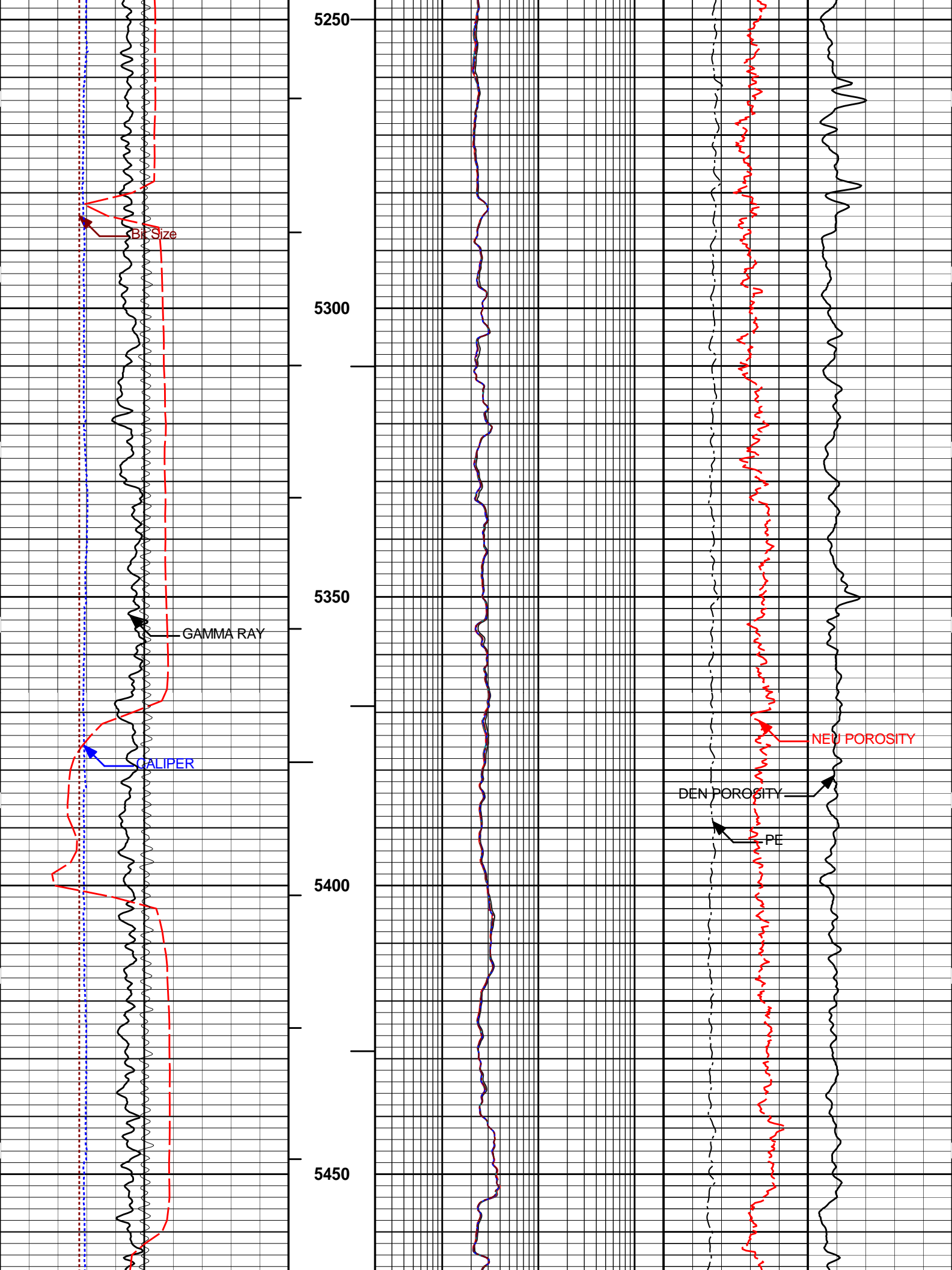


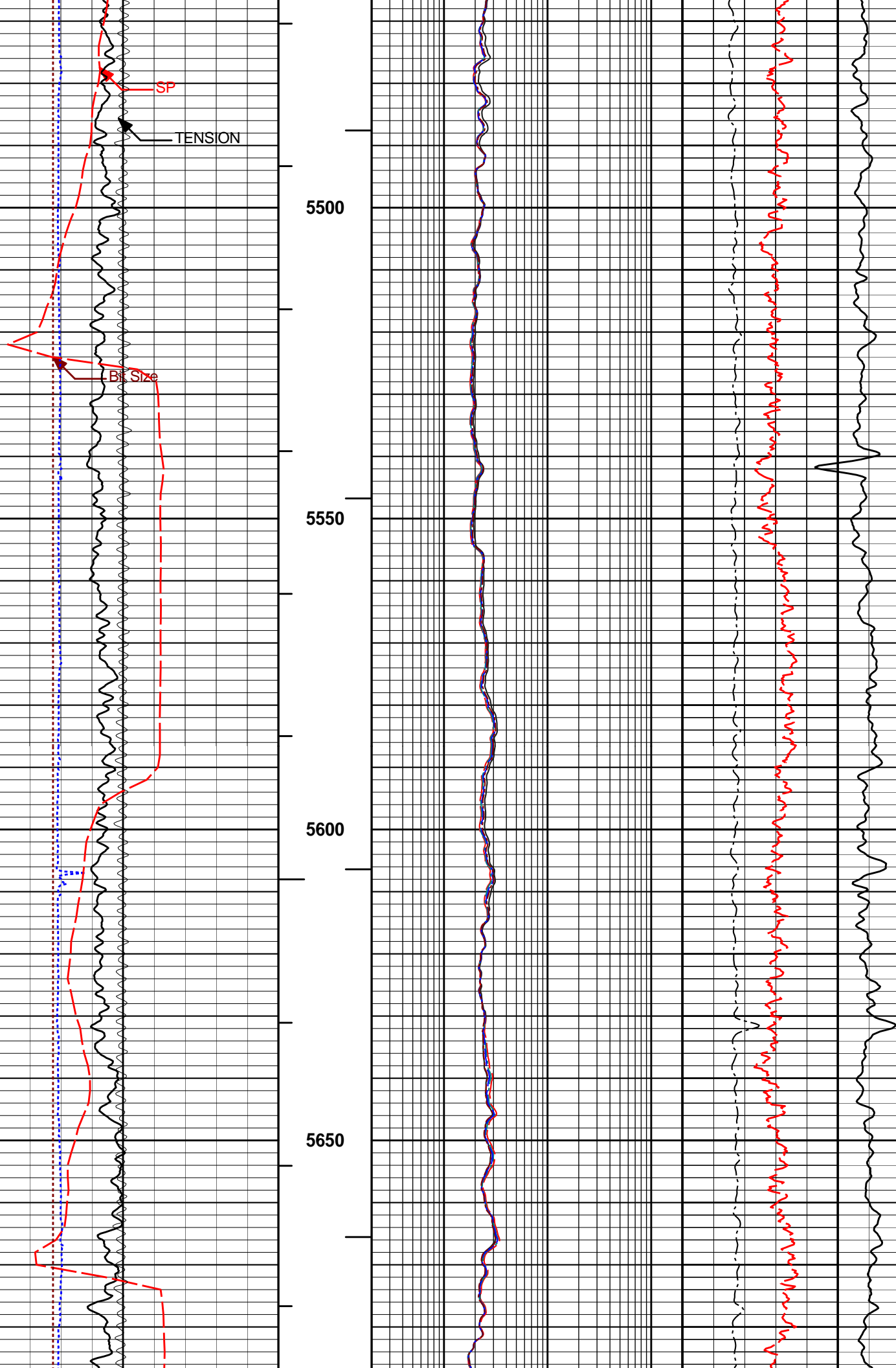


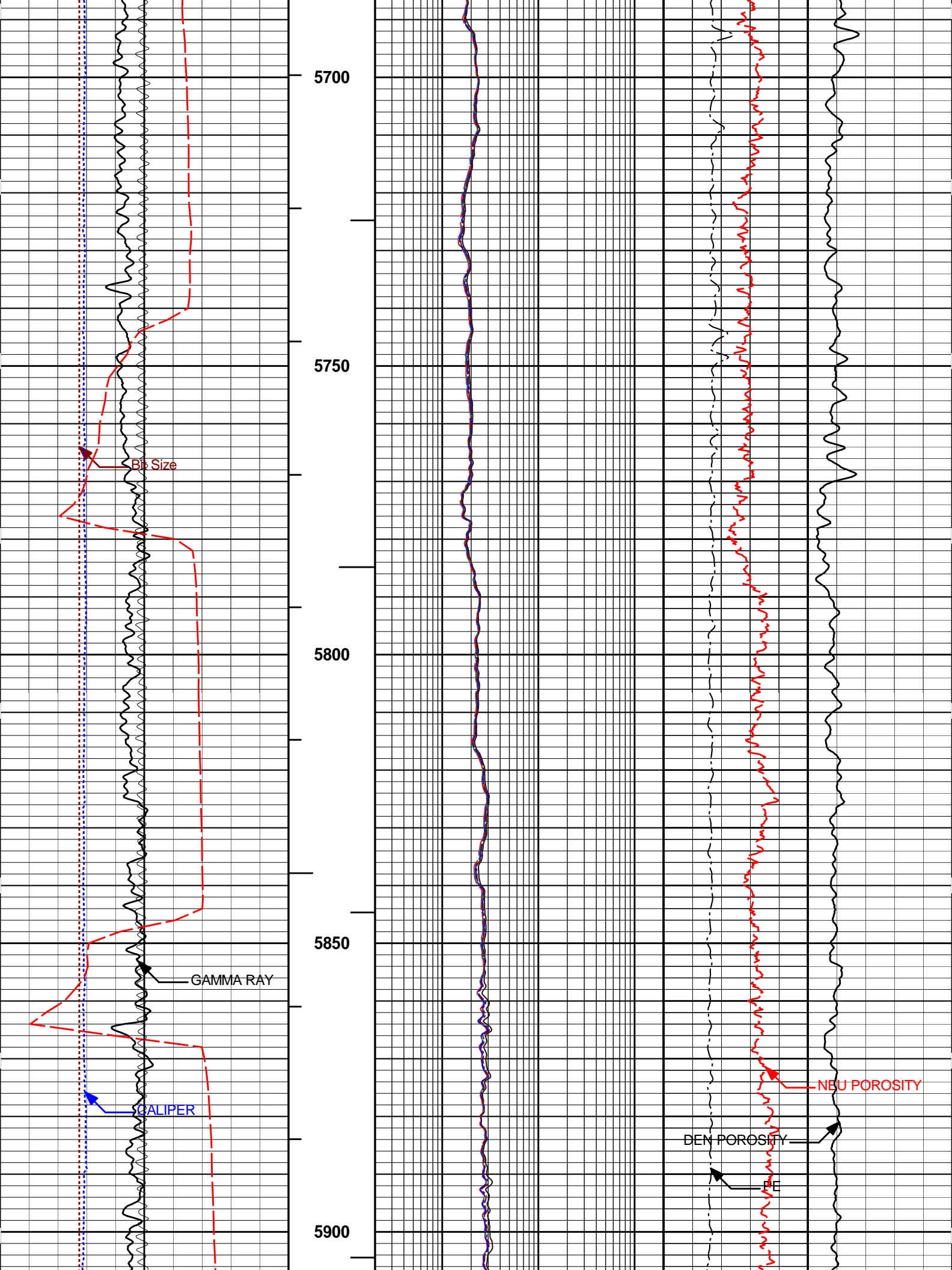


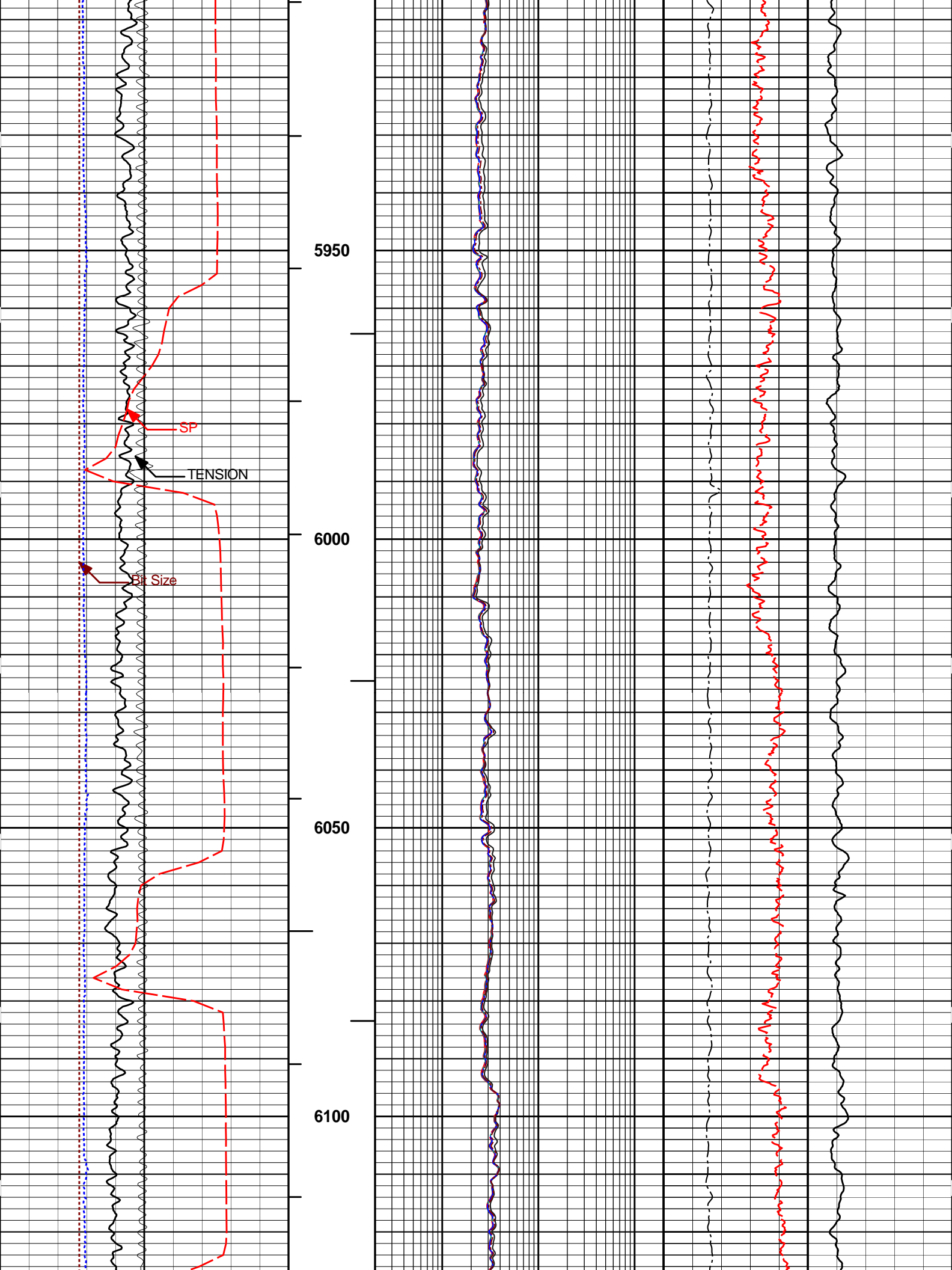


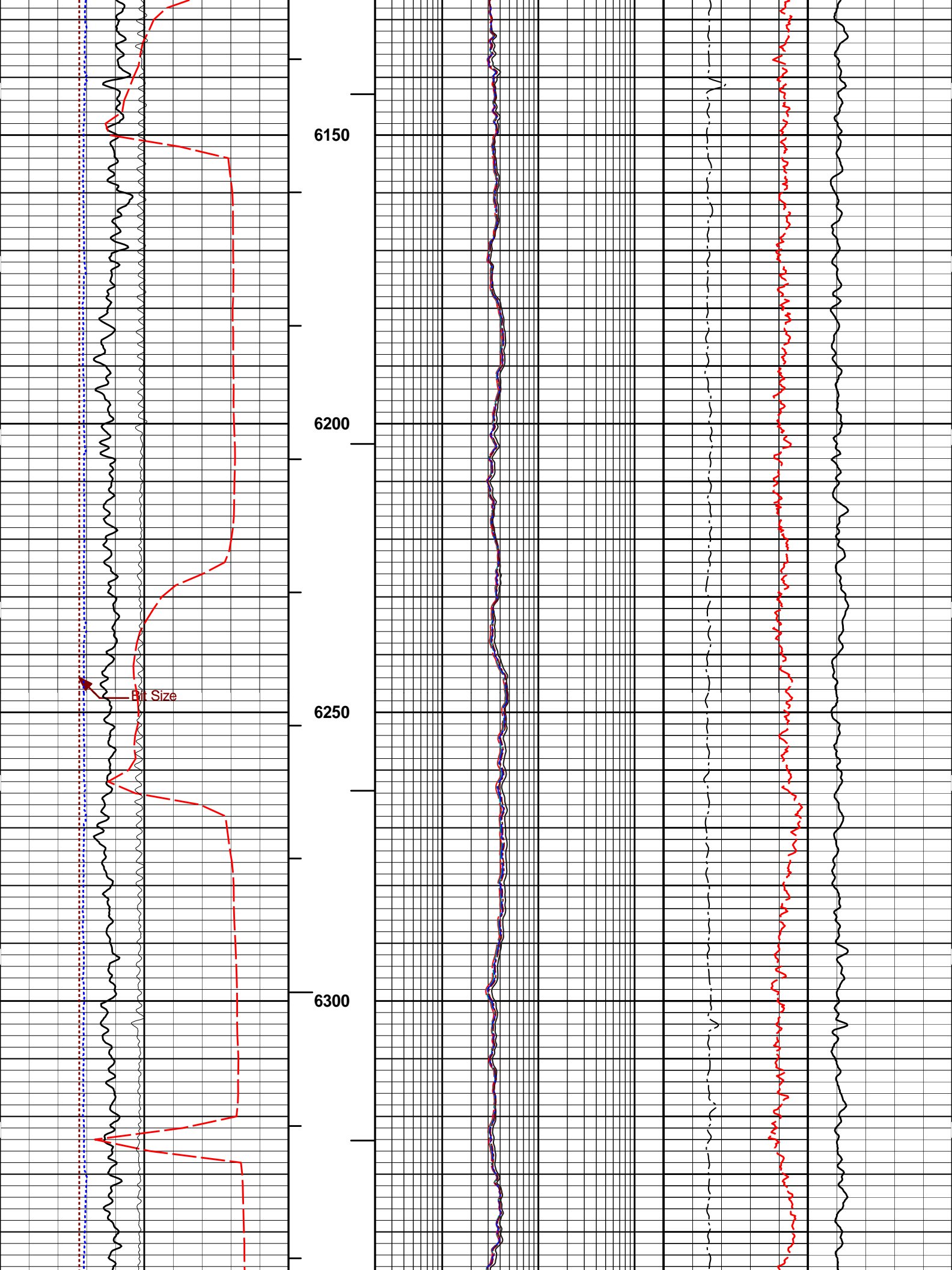


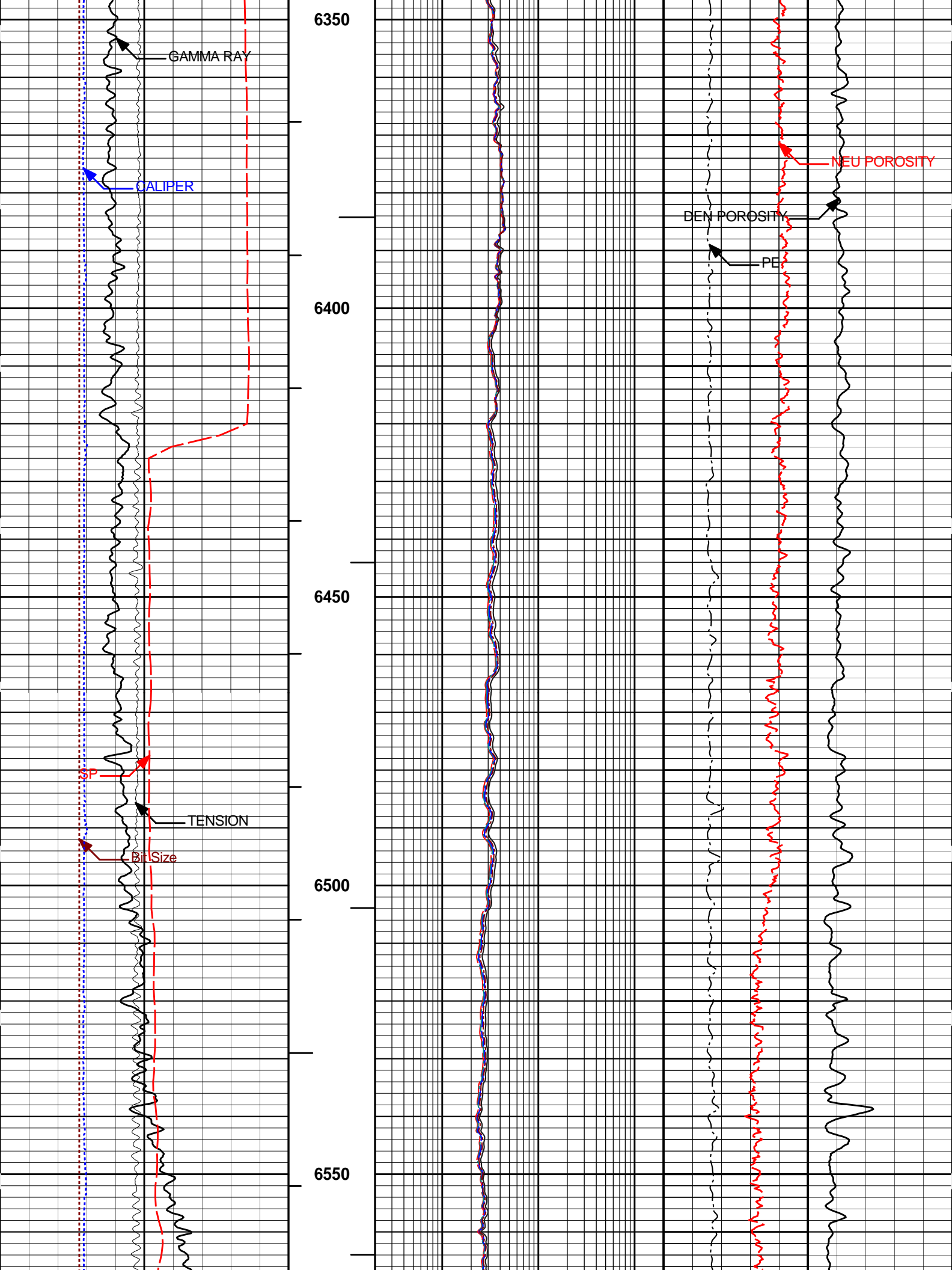


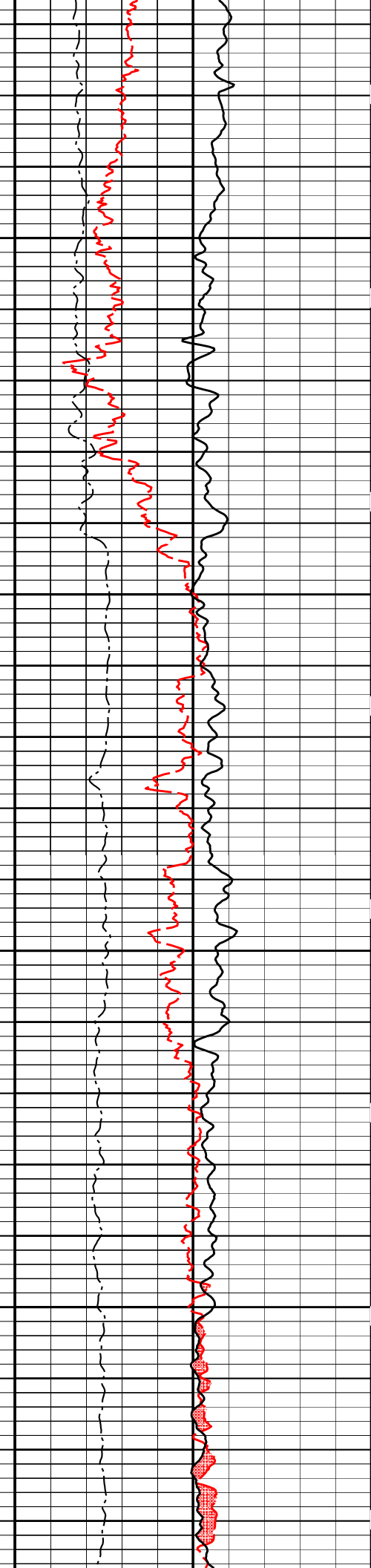
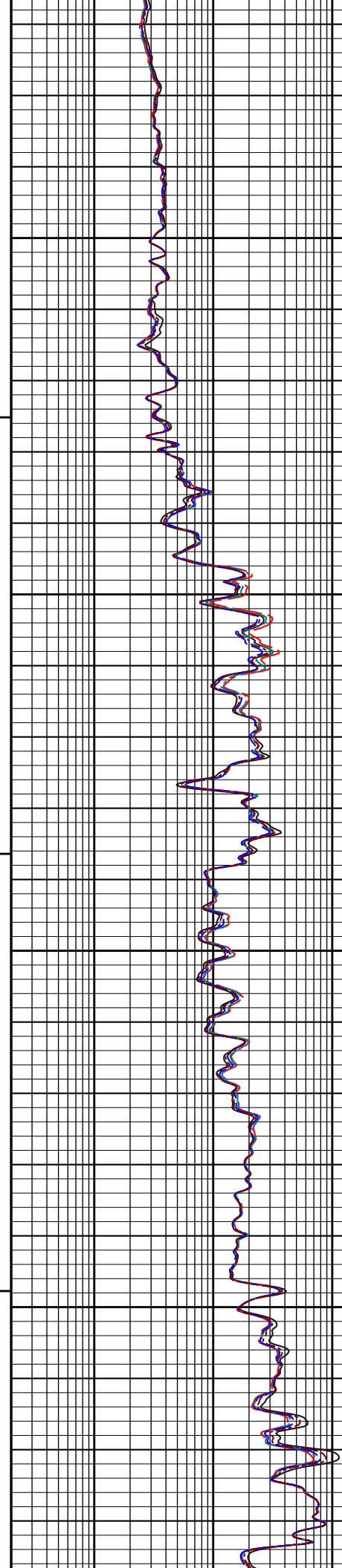
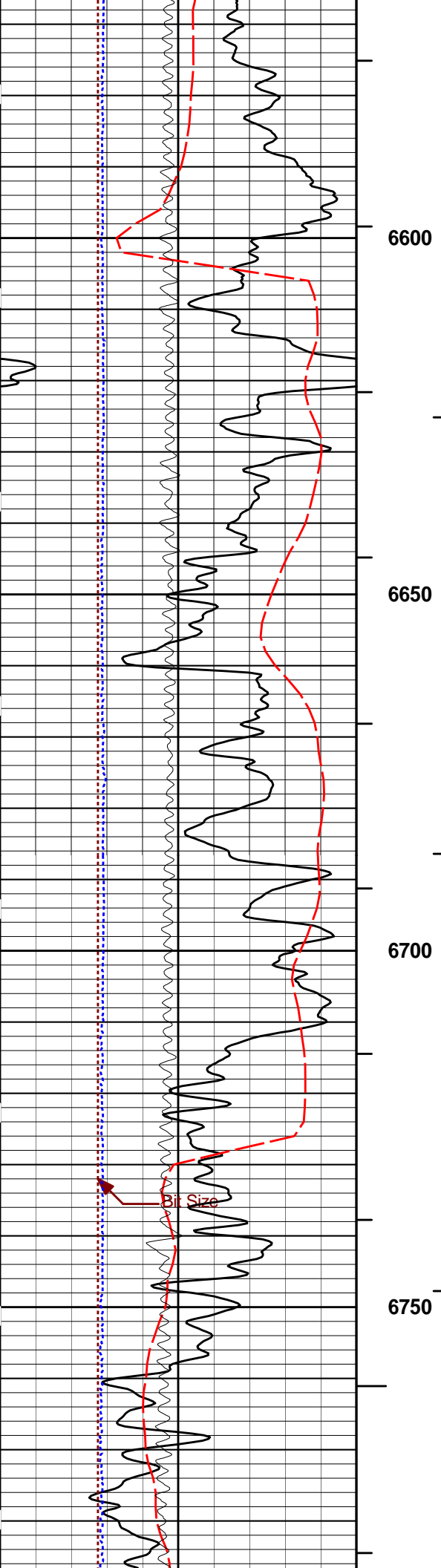


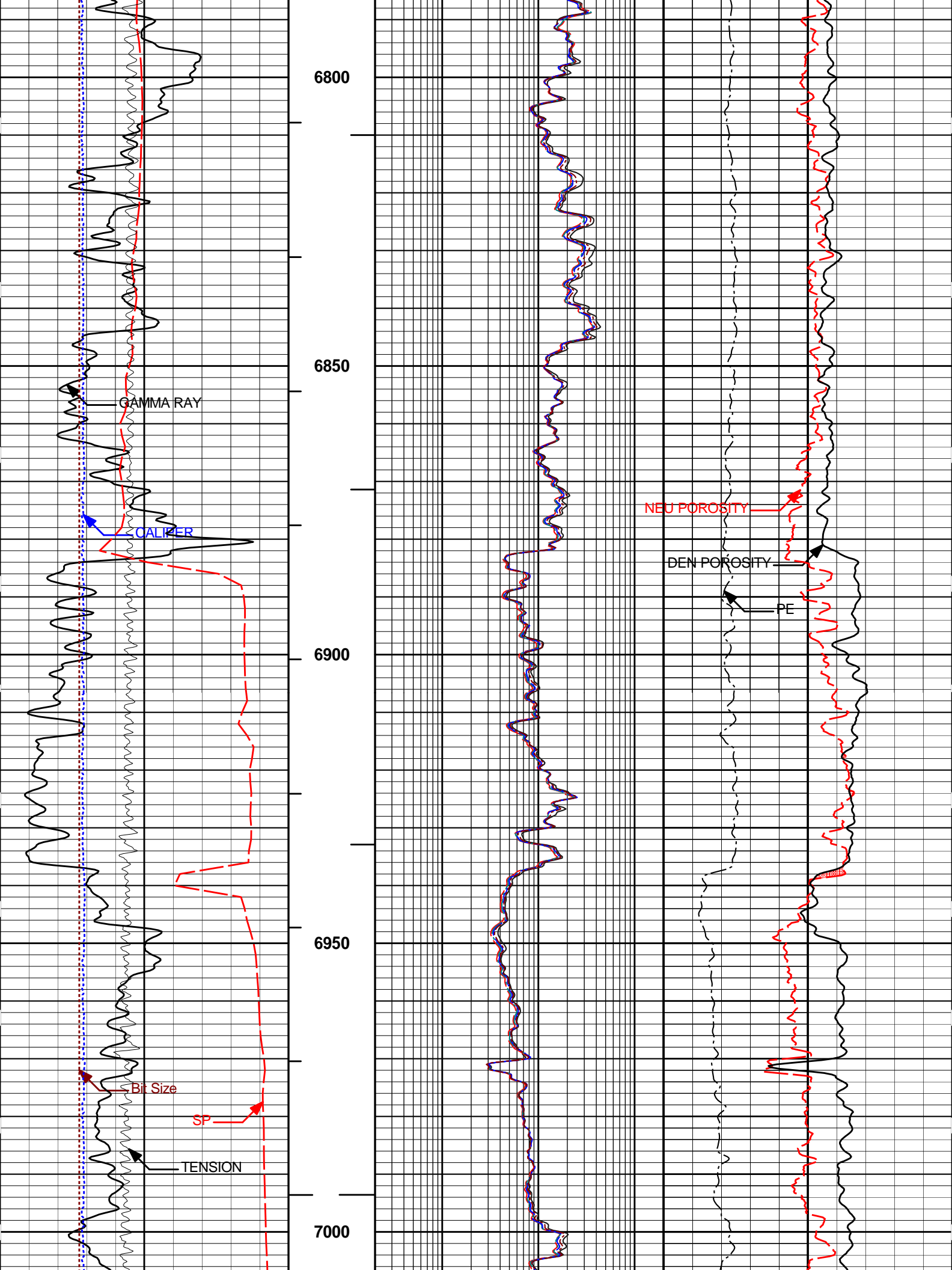


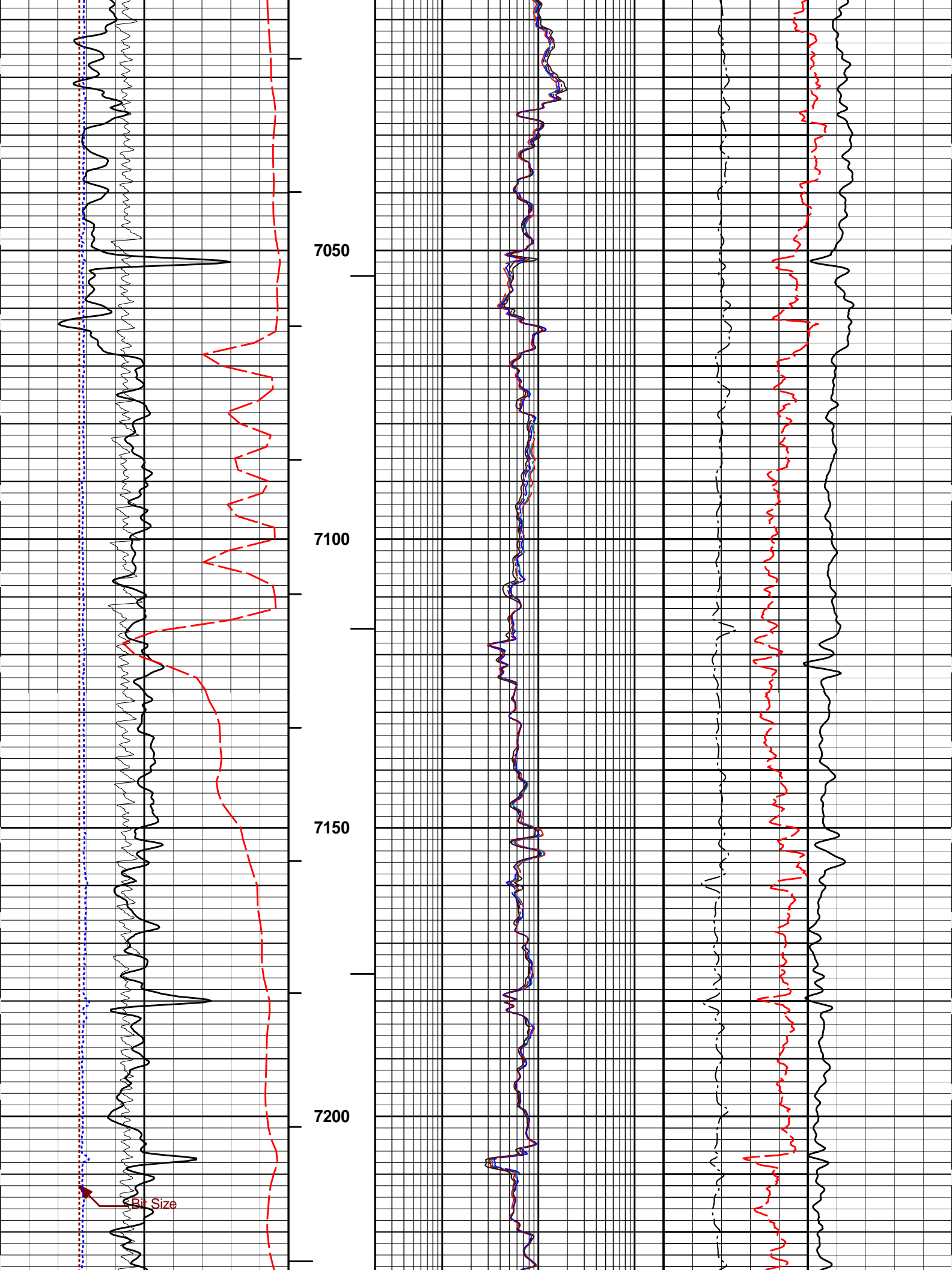


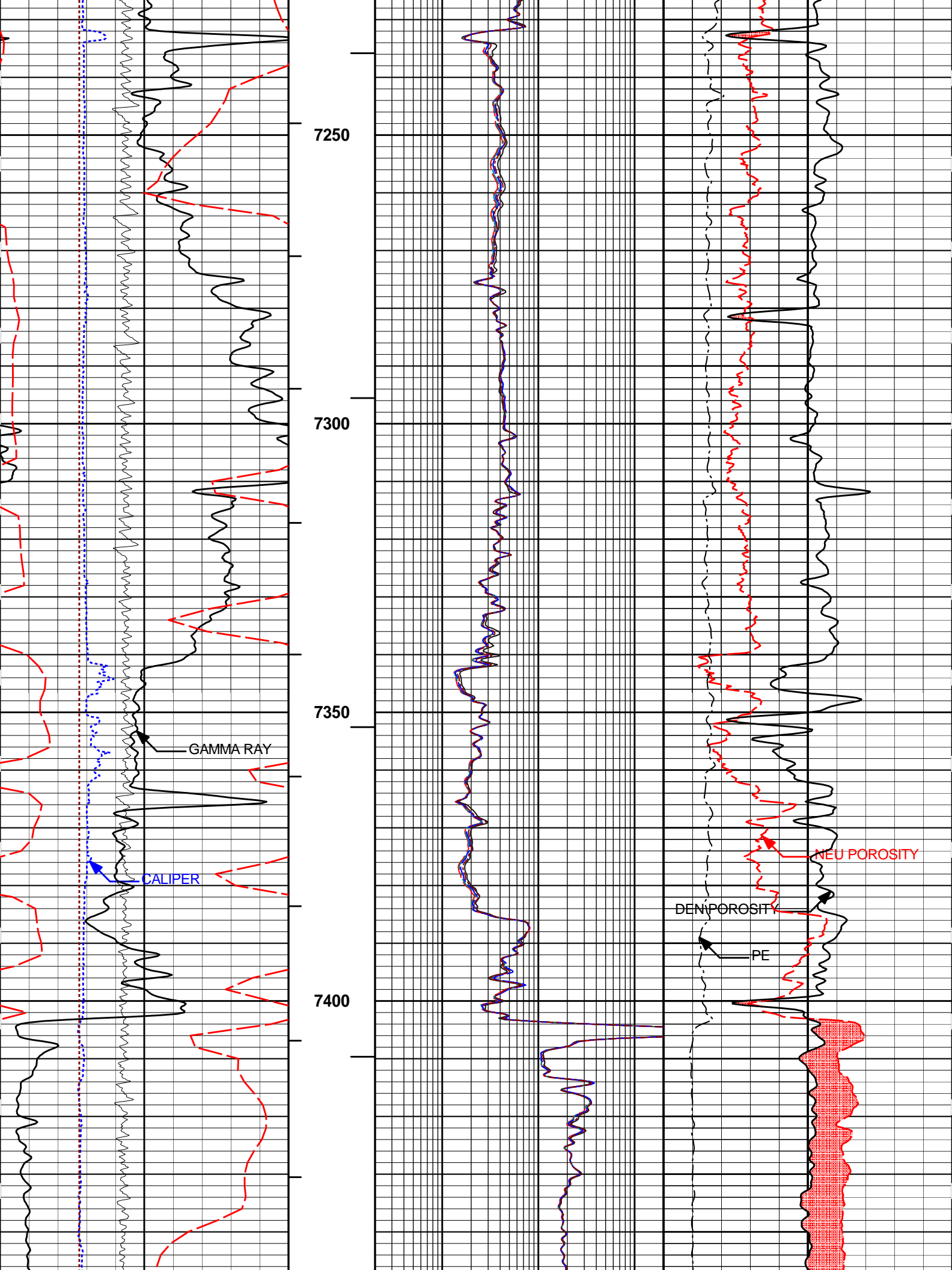


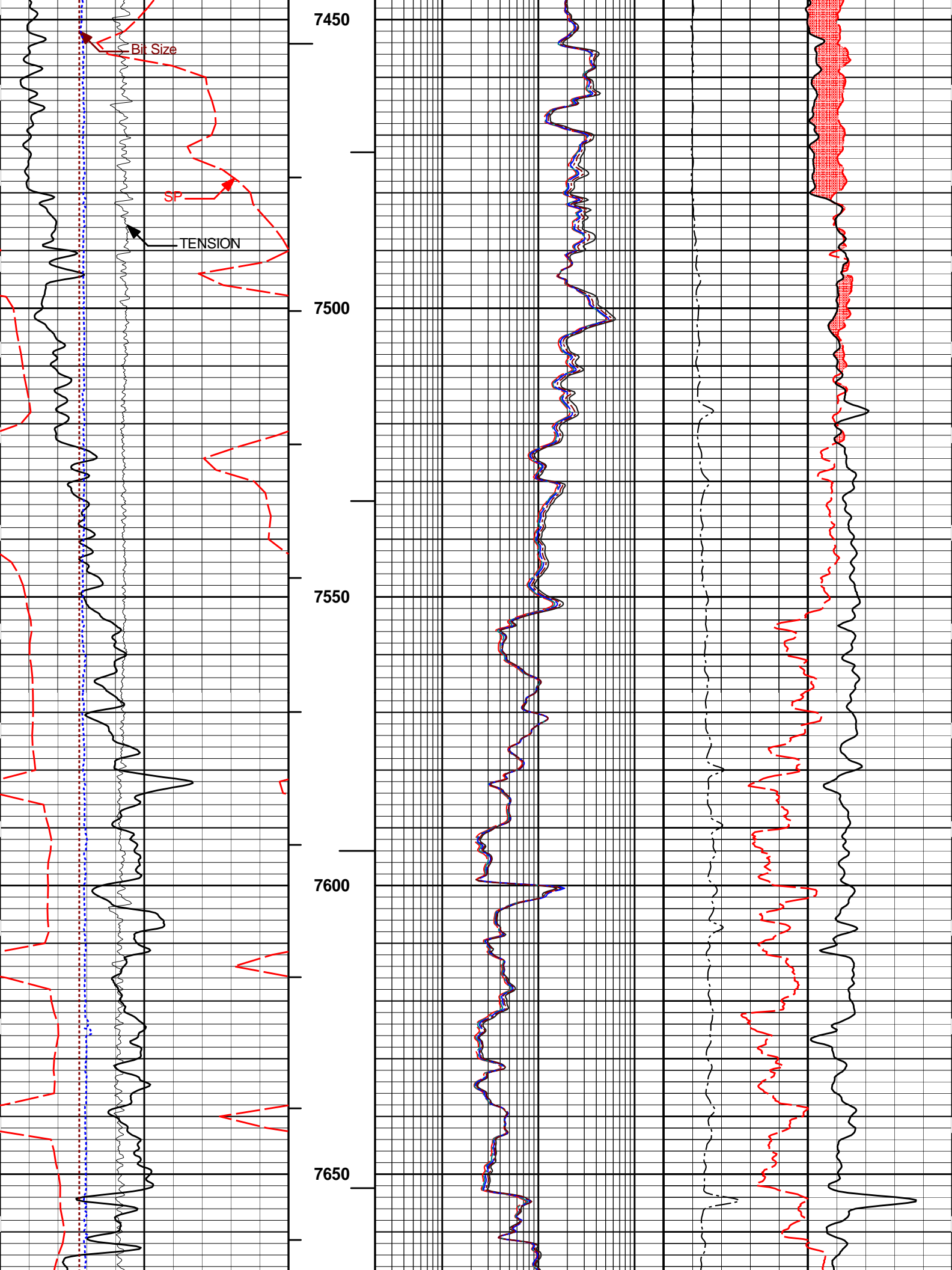


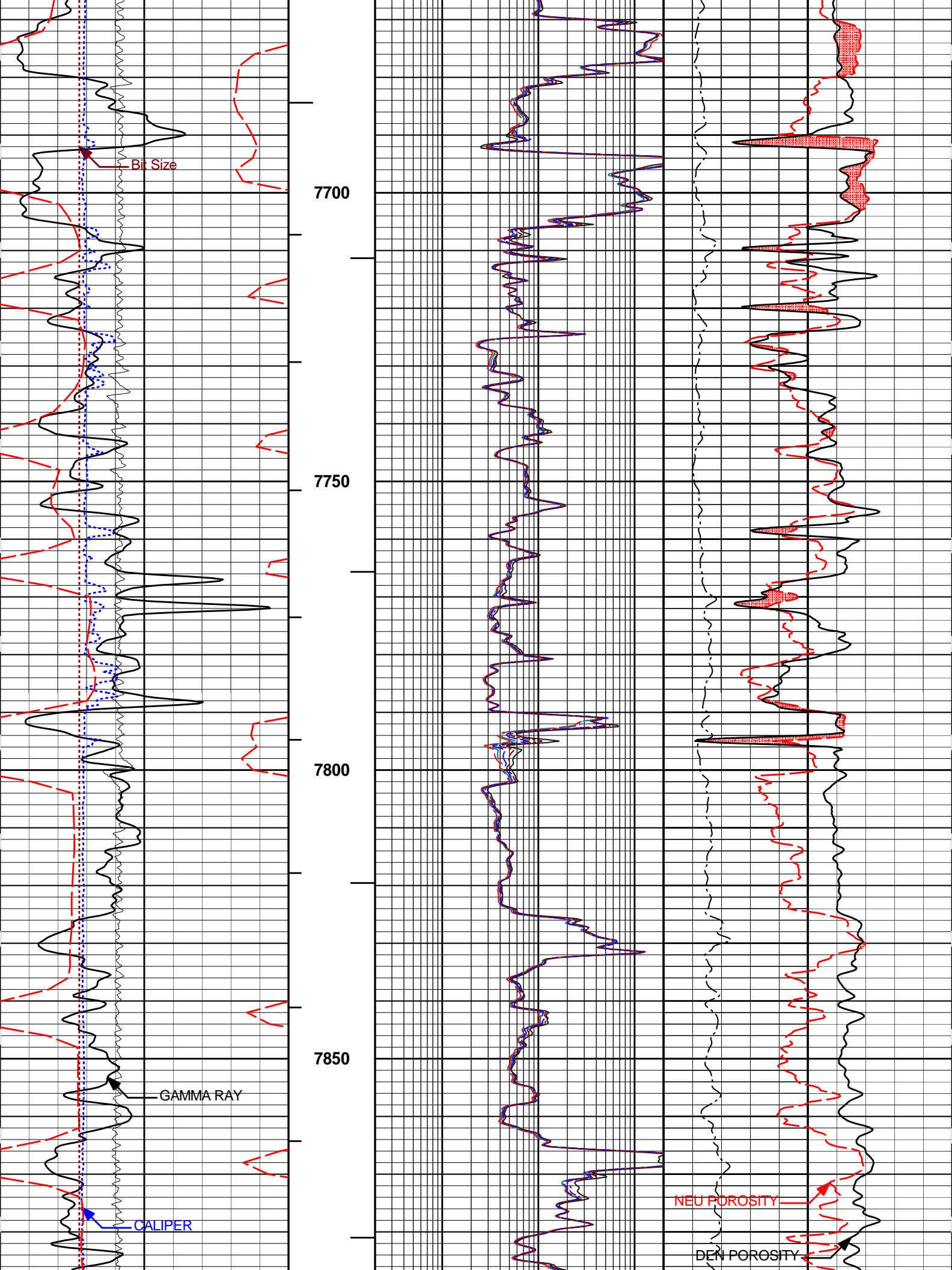


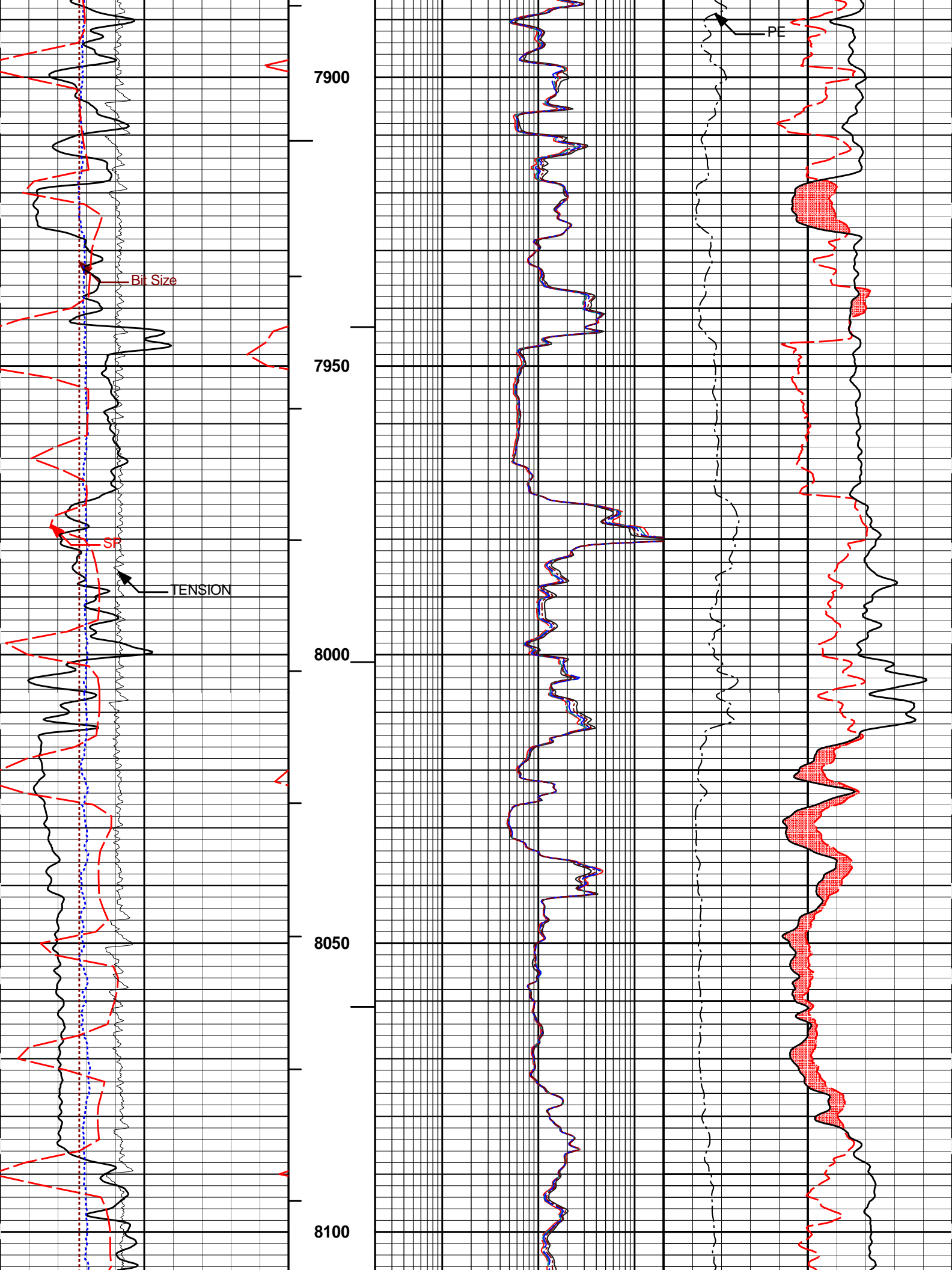


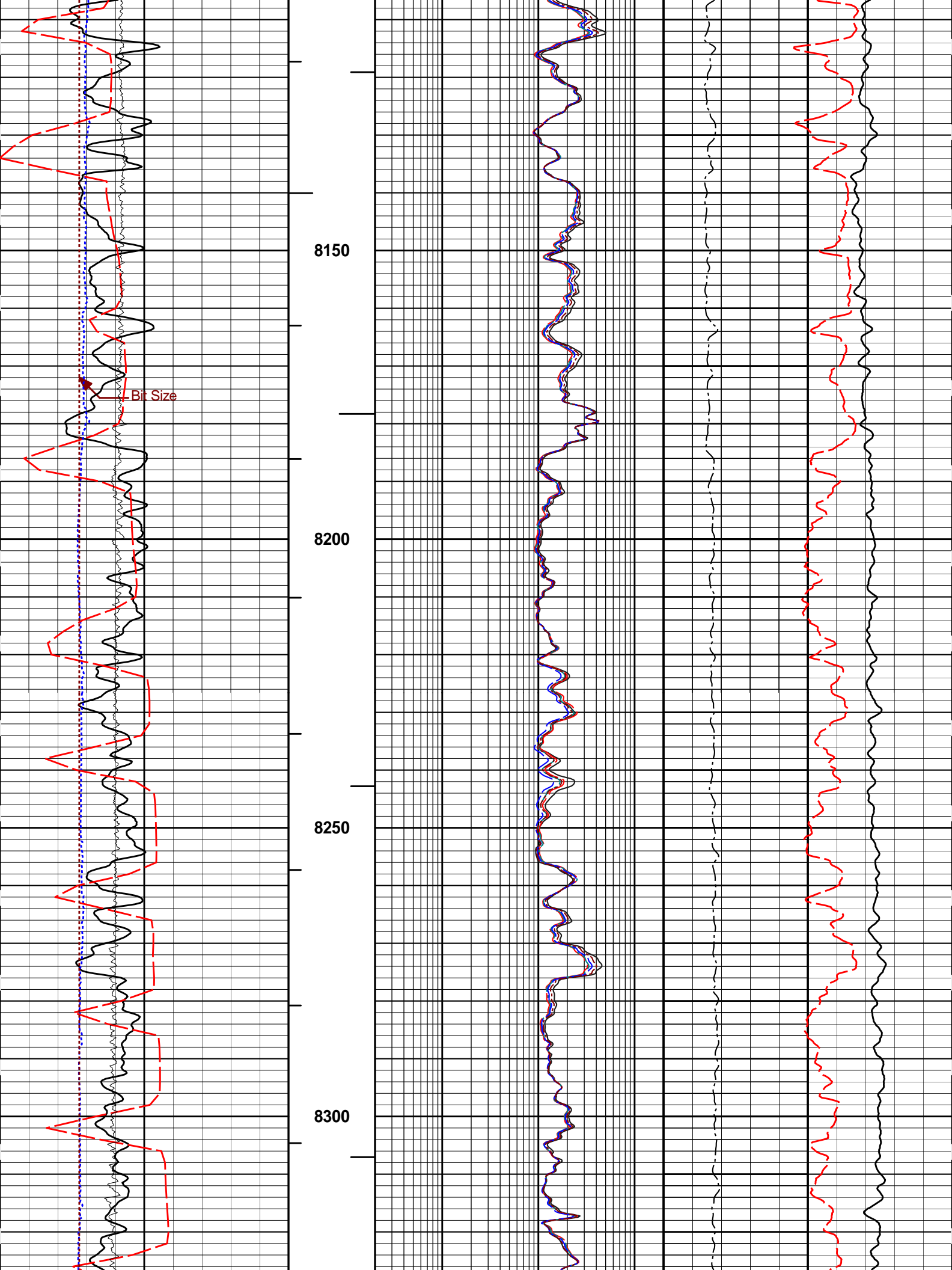


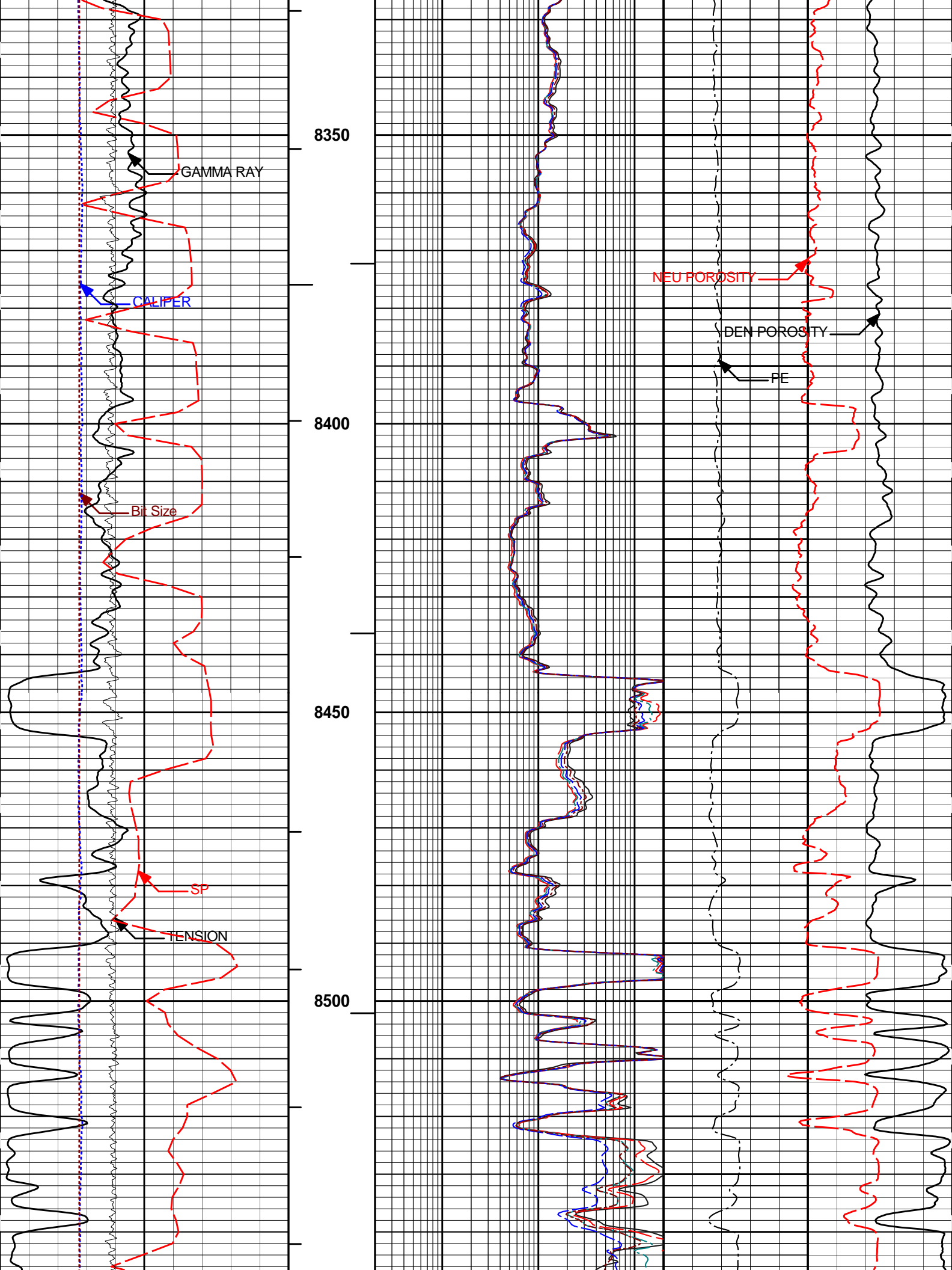


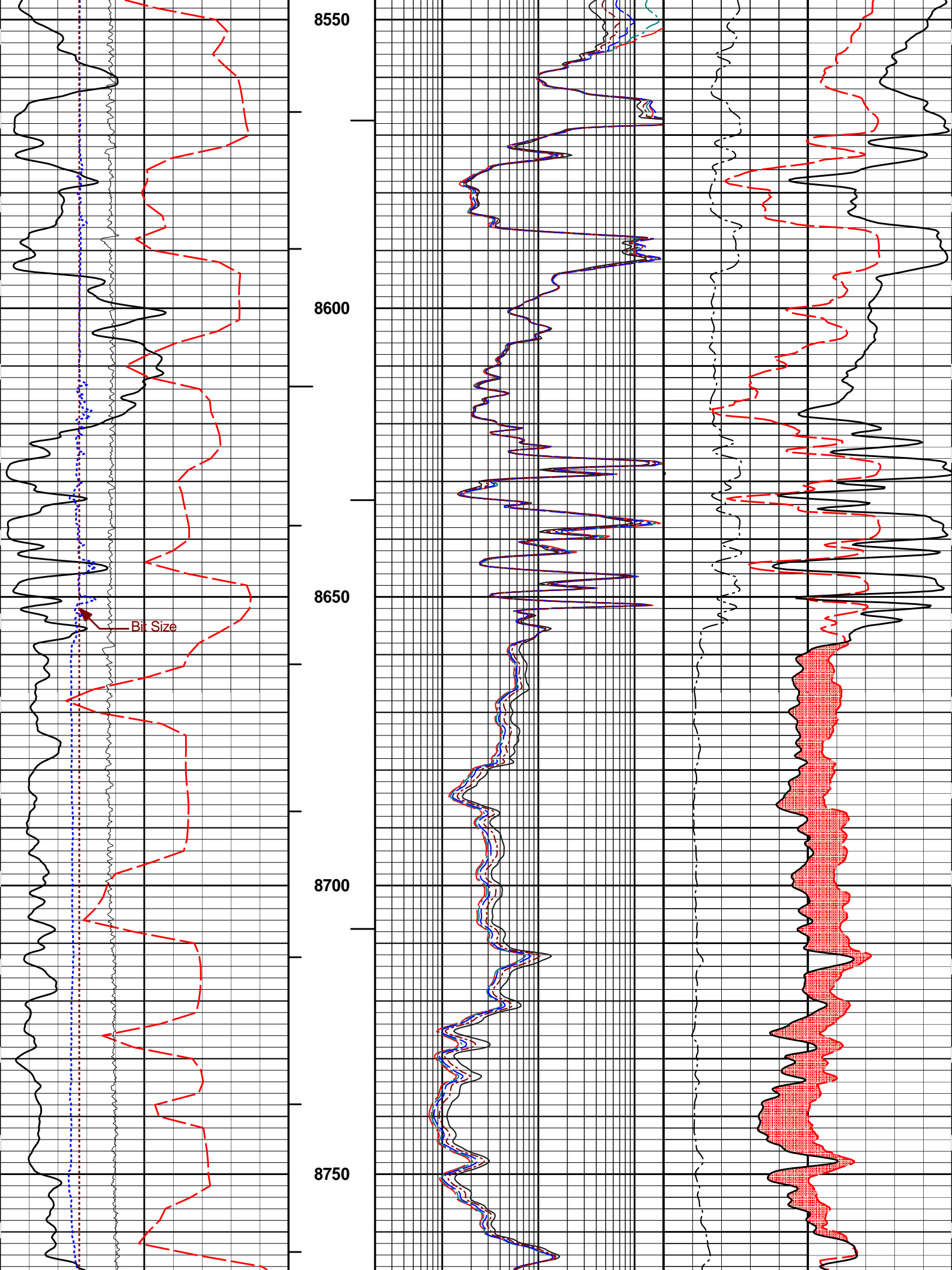


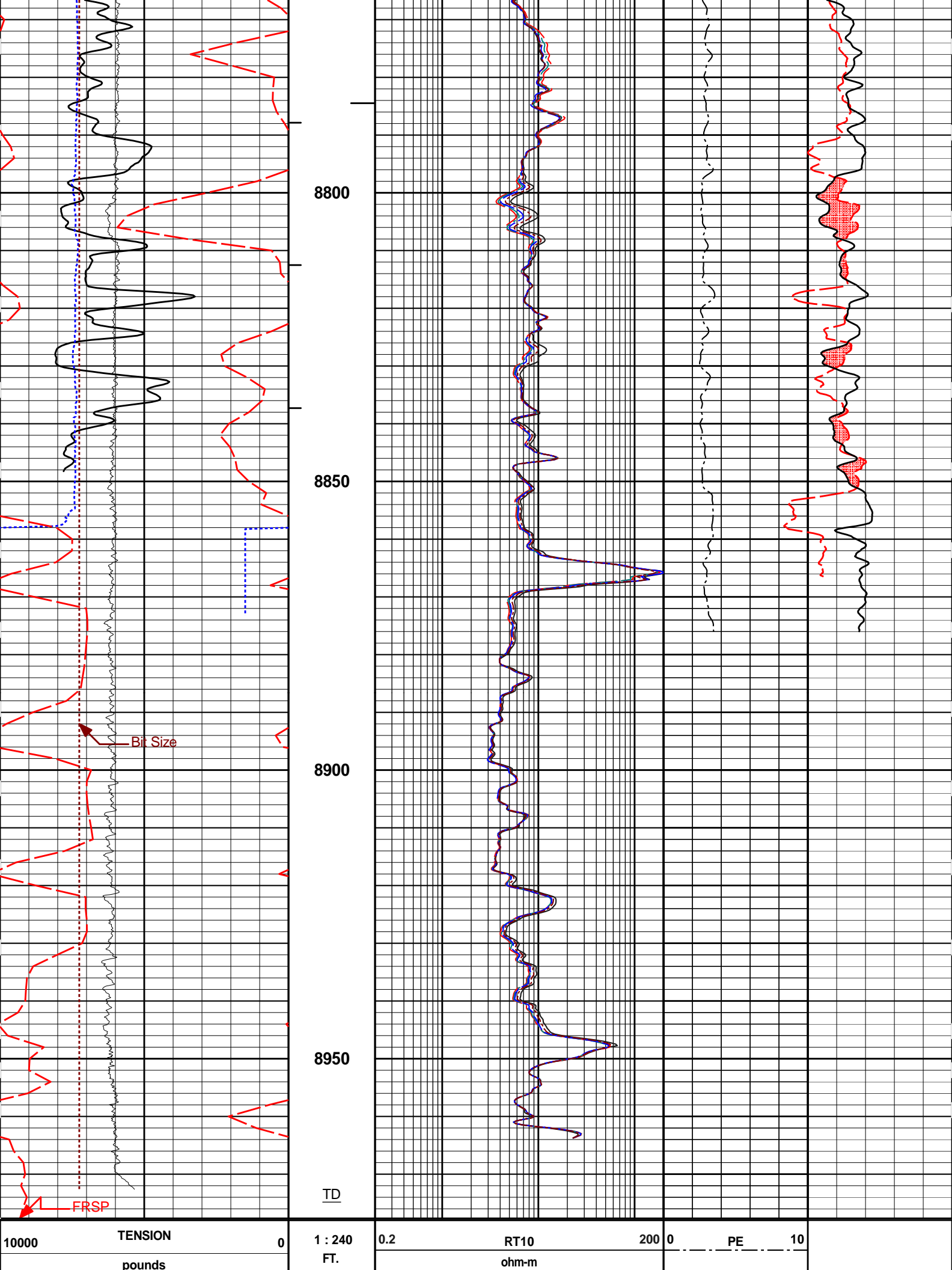












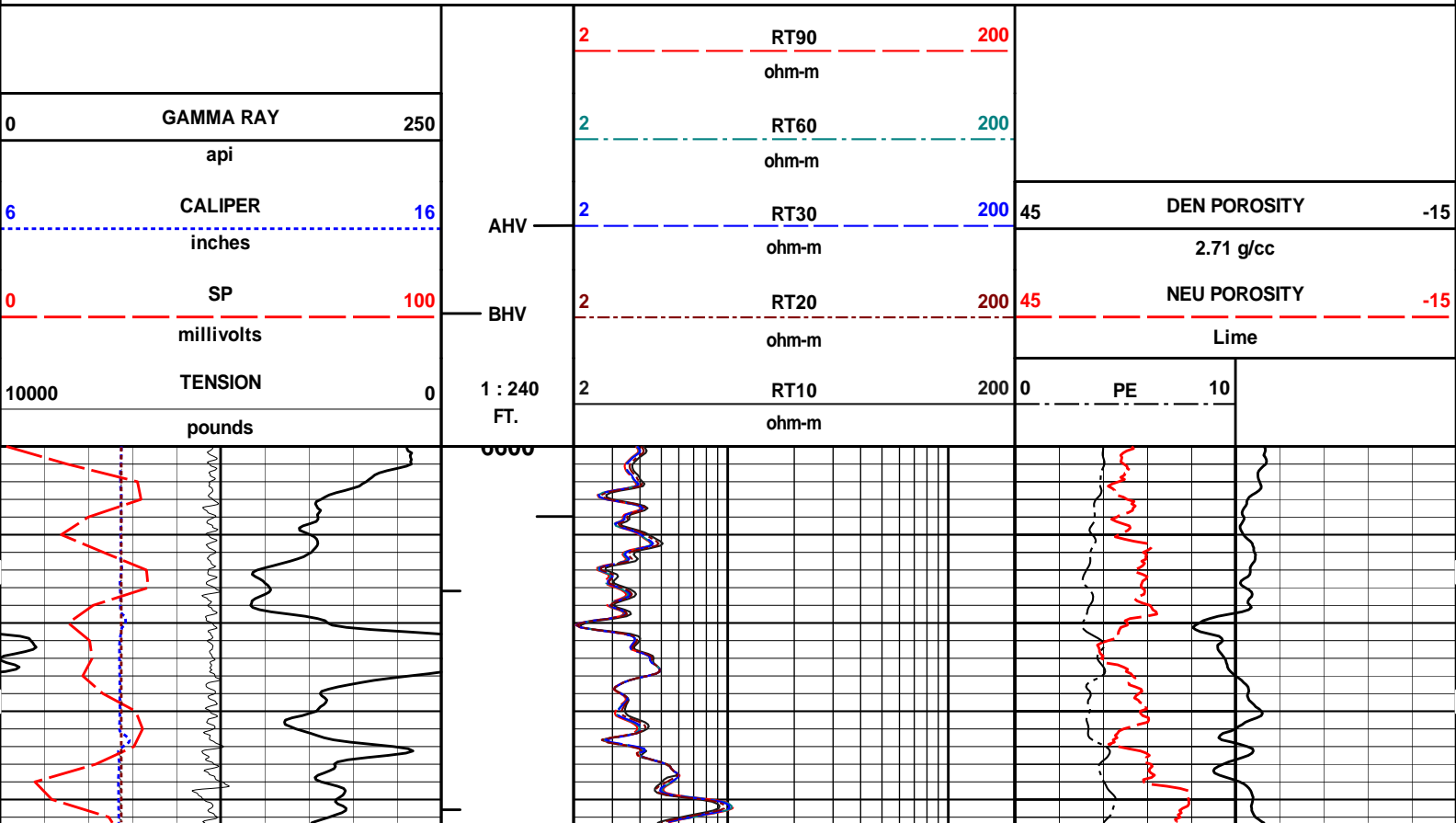
0	SP	100	BHV	0.2	RT20	200	45	NEU POROSITY	-15
	millivolts				ohm-m			Lime	
6	CALIPER	16	AHV	0.2	RT30	200	45	DEN POROSITY	-15
	inches				ohm-m			2.71 g/cc	
0	GAMMA RAY	250		0.2	RT60	200			
	api				ohm-m				
				0.2	RT90	200			
					ohm-m				

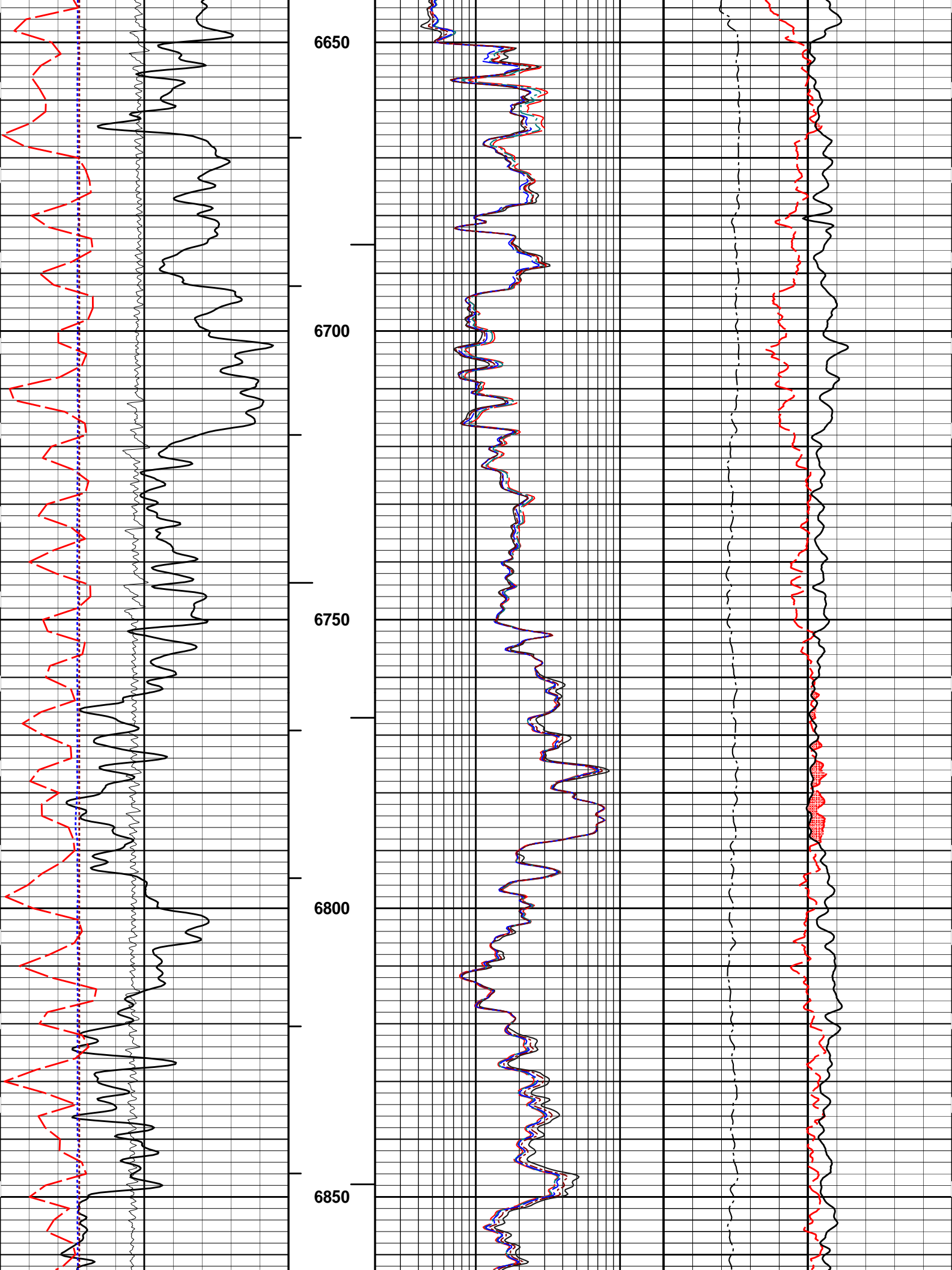
HALLIBURTON	Plot Time: 28-Jun-13 08:16:38 Plot Range: 150 ft to 8977.67 ft Data: NOB_VGS_AC16-01\Well Based*\ Plot File: \\COMPI\ENCANA_TRIPLE_M
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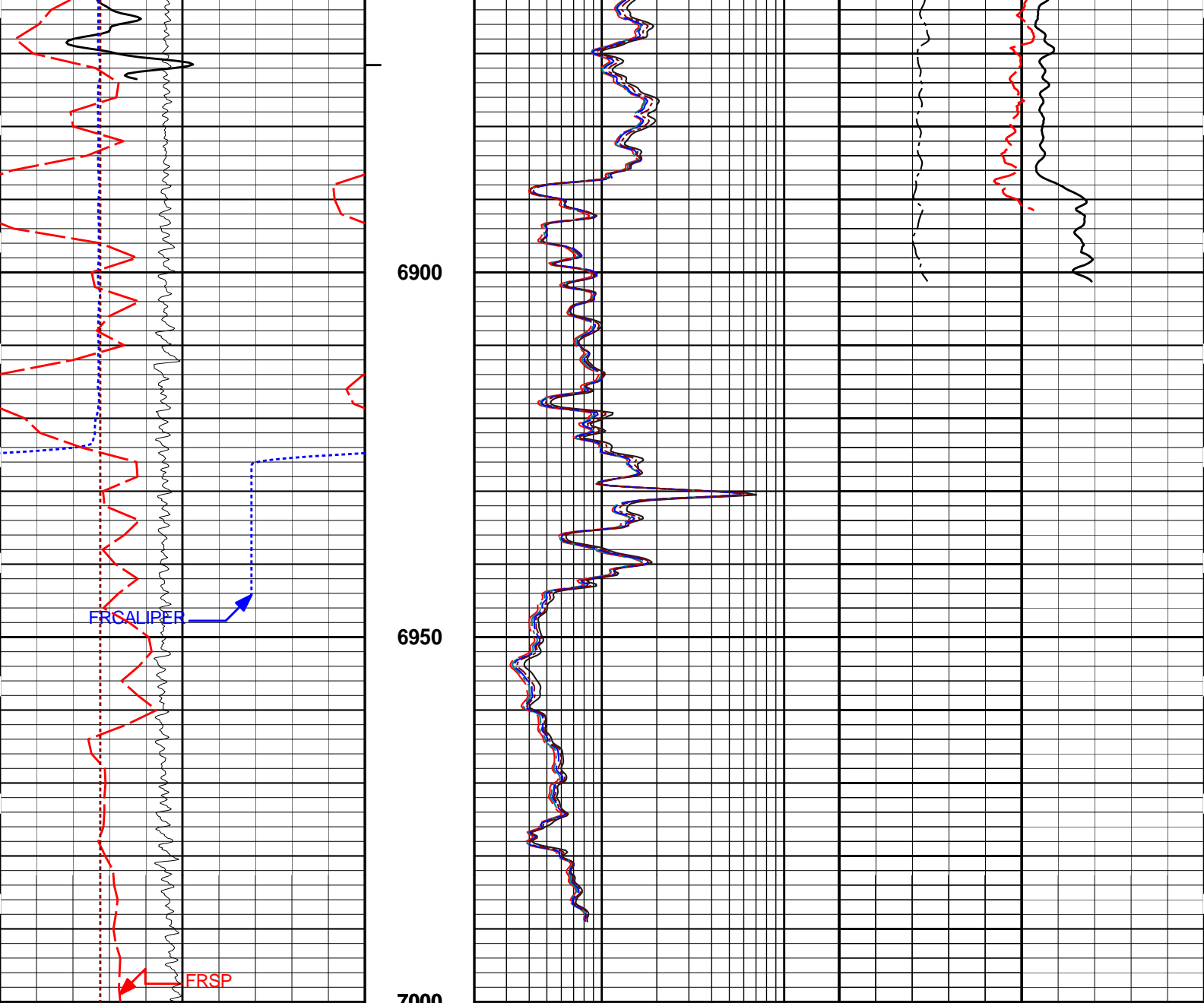
MAIN PASS 5" = 100'

HALLIBURTON	Plot Time: 28-Jun-13 08:16:39 Plot Range: 6600 ft to 7000.5 ft Data: NOB_VGS_AC16-01\Well Based\REPEAT\ Plot File: \\COMPI\ENCANA_TRIPLE_M
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REPEAT PASS 5" = 100'







10000	TENSION	0	1 : 240 FT.	2	RT10	200	0	PE	10		
	pounds					ohm-m					
0	SP	100	— BHV	2	RT20	200	45	NEU POROSITY			-15
	millivolts					ohm-m			Lime		
6	CALIPER	16	— AHV	2	RT30	200	45	DEN POROSITY			-15
	inches					ohm-m			2.71 g/cc		
0	GAMMA RAY	250		2	RT60	200					
	api				ohm-m						
				2	RT90	200					
					ohm-m						

HALLIBURTON

Plot Time: 28-Jun-13 08:16:46
 Plot Range: 6600 ft to 7000.5 ft
 Data: NOB_VGS_AC16-01\Well Based\REPEAT\
 Plot File: \\COMPL\ENCANA_TRIPLE_M

REPEAT PASS 5" = 100'

CALIBRATION REPORT

NATURAL GAMMA RAY TOOL SHOP CALIBRATION

Tool Name: GTET - 11958949

Engineer: P. DIMPFL

Software Version: WL INSITE R3.6.0 (Build 3)

Reference Calibration Date: 18-May-13 18:33:24

Calibration Date: 17-Jun-13 10:52:23

Calibration Version: 1

Calibrator Source S/N: MP051807-04
Calibrator API Reference:239.00 api
Equivalent Calibrator API Reference:243.2 api

Measurement	Measured	Calibrated	Units
Background	85.0	81.9	api
Background + Calibrator	337.4	325.1	api
Calibrator	252.4	243.2	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION

Tool Name: GTET - 11958949

Engineer: P. DIMPFL

Software Version: WL INSITE R3.6.0 (Build 3)

Reference Calibration Date: 17-Jun-13 10:52:23

Calibration Date: 27-Jun-13 11:05:00

Calibration Version: 1

Calibrator Source S/N: MP051807-04
Calibrator API Reference:239.00 api
Equivalent Calibrator API Reference:243.2 api

Field Verification	Shop	Field	Units
Background	81.9	91.4	api
Background + Calibrator	325.1	331.4	api
Calibrator	243.2	240.0	api

Shop	Field	Difference	Tolerance
243.2	240.0	3.2	+/- 9.00

CSNG-FS SHOP CALIBRATION

Tool Name: CSNG - 10971168

Engineer: P. DIMPFL

Software Version: WL INSITE R3.6.0 (Build 3)

Source SN: MP051807-04

Reference Calibration Date: 13-Mar-13 14:53:51

Calibration Date: 25-Jun-13 14:28:37

Calibration Version: 1

TITANIUM CASE	Measured	Calibrated	Units
60 KEV Peak Channel #	48.0	48.0	Channel #
239 KEV Peak Channel #	23.6	23.7	Channel #
583 KEV Peak Channel #	52.5	52.4	Channel #
2614 KEV Peak Channel #	214.6	214.1	Channel #
Calibrate Temperature	78.3	88.8	degF

Pass/Fail Summary	Centroid
239 KEV Peak	Passed
583 KEV Peak	Passed
2614 KEV Peak	Passed

Blanket Reference Value: 239.00 API
Calibrator Value: 271.4 API

	Counts	Units	Measured	Calibrated	Units
Thorium Blanket	1936.5	CPS	337.8	371.5	API
Background	521.6	CPS	61.9	100.1	API

Gamma Ray Gain: 0.97
Expected Gain Range: 0.85 - 1.15
Gamma Gain Check: Passed

CSNG-FS FIELD CALIBRATION

Tool Name:	CSNG - 10971168	Reference Calibration Date:	25-Jun-13 14:28:37
Engineer:	P. DIMPFL	Calibration Date:	27-Jun-13 11:14:22
Software Version:	WL INSITE R3.6.0 (Build 3)	Calibration Version:	1
Source SN:			

TITANIUM CASE	Shop	Field	Units
60 KEV Peak Channel #	48.0	48.0	Channel #
239 KEV Peak Channel #	23.7	23.7	Channel #
583 KEV Peak Channel #	52.4	52.5	Channel #
2614 KEV Peak Channel #	214.1	214.1	Channel #
Calibrate Temperature	88.8	95.2	degF

Pass/Fail Summary	Centroid
239 KEV Peak	Passed
583 KEV Peak	Passed
2614 KEV Peak	Passed

Blanket Reference Value: 239.00 API
Calibrator Value: 271.4 API

	Counts	Units	Measured	Calibrated	Units
Thorium Blanket	1831.7	CPS	371.5	354.8	API
Background	430.4	CPS	100.1	83.4	API

Gamma Ray Gain: 0.97
Expected Gain Range: 0.85 - 1.15
Gamma Gain Check: Passed

DUAL SPACED NEUTRON SHOP CALIBRATION

Tool Name:	DSNT - 10993888	Reference Calibration Date:	13-May-13 07:51:17
Engineer:	J. KRONABLE	Calibration Date:	16-Jun-13 18:58:42
Software Version:	WL INSITE R3.6.0 (Build 3)	Calibration Version:	1

Logging Source S/N: DSN-388
Tank Serial Number: GJ-WATERTANK
Reference value assigned to Tank: 52.750
Snow Block S/N: GJ
Calibration Tank Water Temperature: 72 degF
Min. Tool Housing Outside Diameter: 3.625 in

Measurement	Prev. Value	New Value	Control Limit On New Value
Gain:	1.001	0.998	0.900 - 1.100

WATER TANK SUMMARY (Horizontal Water Tank)				
Measurement	Current Reading (Previous Coef.)	Calibrated (New Coef.)	Change	Control Limit On Change
Porosity (decp):	0.2179	0.2169	0.0010	+/- 0.0020
Calibrated Ratio:	9.96	9.93	0.032	+/- 0.050

VERIFIER		
Measurement	Value	Control Limit
Snow-Block Porosity (decp):	0.0718	0.02000 - 0.09000

PASS/FAIL SUMMARY	
Background Check:	Passed
Gain-Range Check:	Passed
Snow-Block Check:	Passed

DUAL SPACED NEUTRON FIELD CALIBRATION			
Tool Name:	DSNT - 10993888	Reference Calibration Date:	16-Jun-13 18:58:42
Engineer:	P. DIMPFL	Calibration Date:	27-Jun-13 11:17:29
Software Version:	WL INSITE R3.6.0 (Build 3)	Calibration Version:	1

Logging Source S/N: DSN-388
Snow Block S/N: GJ

NEUTRON FIELD-CHECK SUMMARY				
	Shop	Field	Difference	Control Limit On Change
Snow-Block Porosity (decp):	0.0718	0.0806	0.0088	+/- 0.0150

PASS/FAIL SUMMARY	
Block Change Check:	Passed
Snow Block Stat Check:	Passed
Temperature Check:	Passed

DENSITY CALIPER SHOP CALIBRATION			
Tool Name:	SDLT - 10951314	Reference Calibration Date:	18-May-13 18:51:53
Engineer:	P. DIMPFL	Calibration Date:	17-Jun-13 11:02:37
Software Version:	WL INSITE R3.6.0 (Build 3)	Calibration Version:	1
Host Tool Name:	DSNT - 10993888		

CALIBRATION COEFFICIENTS			
Measurement	Previous Value	New Value	Control Limit On New Value
Pad Offset	-1668.88	-1299.29	-7000.00 - -1000.00
Pad Gain	0.0003696	0.0003700	0.000200 - 0.000600
Arm Offset	-2548.70	-2832.78	-5000.00 - 3000.00
Arm Gain	0.0005410	0.0005407	0.000300 - 0.000700
Arm Power	-0.000003913	-0.000003978	-0.000010000 - 0.000010000

The ring diameter is computed from: $\text{DIAMETER} = \text{PAD EXTENSION} + \text{ARM EXTENSION} + \text{TOOL DIAMETER}$
Tool Diameter: 4.50 in

CALIBRATION RINGS				
Measurement	Current Reading	Calibrated	Change	Control Limit On

Measurement	(Previous Coeff.)	(New Coeff.)	Change	New Value
PAD EXTENSION:				
Small Ring (in)	1.86	2.00	0.14	+/- 0.20
Medium Ring (in)	3.61	3.75	0.14	+/- 0.20
RING DIAMETER:				
Small Ring (in)	6.51	6.50	-0.01	+/- 0.20
Medium Ring (in)	8.26	8.25	-0.01	+/- 0.20
Large Ring (in)	15.01	15.00	-0.01	+/- 0.20

PASS/FAIL SUMMARY	
Calibration-Coefficients Range Check:	Passed
Ring-Measurement Check:	Passed
PASS/FAIL SUMMARY	
Calibration-Coefficients Range Check:	Passed

SPECTRAL DENSITY SHOP CALIBRATION			
Tool Name:	SDLT Pad - 10746390	Reference Calibration Date:	13-May-13 09:15:11
Engineer:	P. DIMPFL	Calibration Date:	16-Jun-13 20:21:09
Software Version:	WL INSITE R3.6.0 (Build 3)	Calibration Version:	1

Logging Source S/N: 5153 GW		
Aluminum Block S/N: 63094	Density: 2.608g/cc	Pe: 3.230
Magnesium Block S/N: 63387	Density: 1.681g/cc	Pe: 2.600

DENSITY CALIBRATION SUMMARY			
Measurement	Previous Value	New Value	Control Limit
Near Bar Gain	1.0154	1.0112	0.90 - 1.10
Near Dens Gain	1.0018	0.9971	0.90 - 1.10
Near Peak Gain	0.9912	0.9964	0.90 - 1.10
Near Lith Gain	0.9561	0.9609	0.90 - 1.10
Far Bar Gain	1.0118	1.0127	0.90 - 1.10
Far Dens Gain	1.0003	0.9989	0.90 - 1.10
Far Peak Gain	0.9938	0.9939	0.90 - 1.10
Far Lith Gain	0.9708	0.9661	0.90 - 1.10
Near Bar Offset	0.0267	0.0680	NONE
Near Dens Offset	0.1381	0.1827	NONE
Near Peak Offset	0.2054	0.1663	NONE
Near Lith Offset	0.4728	0.4364	NONE
Far Bar Offset	-0.0164	-0.0241	NONE
Far Dens Offset	0.0678	0.0800	NONE
Far Peak Offset	0.1008	0.0993	NONE
Far Lith Offset	0.2405	0.2746	NONE
Near Bar Background	894.81	892.19	700 - 1450
Near Dens Background	299.02	297.75	230 - 480
Near Peak Background	132.78	131.98	100 - 210
Near Lith Background	160.46	162.23	125 - 260
Far Bar Background	551.37	548.59	450 - 900
Far Dens Background	213.95	213.94	175 - 345
Far Peak Background	84.44	83.95	70 - 140
Far Lith Background	88.01	87.89	75 - 145

CALIBRATION BLOCK SUMMARY			
Current	Calibrated	Control Limit	

Measurement	Reading (Previous Coef)	Calibrated (New Coef)	Change	Control Limit On Change
MAGNESIUM				
Density (g/cc)	1.677	1.681	0.004	+/- 0.015
Pe	2.574	2.562	-0.012	+/- 0.150
ALUMINUM				
Density (g/cc)	2.603	2.608	0.005	+/- 0.01500
Pe	3.168	3.182	0.014	+/- 0.150

TOOL SUMMARY				
Measurement	Near Detector		Far Detector	
	Value	Control Limits	Value	Control Limits
QUALITY				
Background	-0.0008	+/- 0.0110	0.0003	+/- 0.0140
Magnesium Block	-0.0009	+/- 0.0110	-0.0019	+/- 0.0140
Aluminum Block	-0.0003	+/- 0.0110	-0.0019	+/- 0.0140
Resolution	8.87	6.00 - 11.50	9.58	6.00 - 11.50
Internal Verifier(B+D+P+L)	1484	1200 - 2700	934	800 - 1700

PASS/FAIL SUMMARY	
Background Quality Check:	Passed
Background Range Check:	Passed
Background Resolution Check:	Passed
Background Verification Check:	Passed
Magnesium Quality Check:	Passed
Aluminum Quality Check:	Passed
Gains Check:	Passed
Changes in Calibration Blocks:	Passed

SPECTRAL DENSITY FIELD CHECK

Tool Name:	SDLT Pad - 10746390	Reference Calibration Date:	16-Jun-13 20:21:09
Engineer:	P. DIMPFL	Calibration Date:	27-Jun-13 11:05:28
Software Version:	WL INSITE R3.6.0 (Build 3)	Calibration Version:	1

Pad Temperature: 114.0 degF

DENSITY FIELD CALIBRATION SUMMARY				
Measurement	Shop	Field	Change	Control Limit +/-
Near (B+D+P+L) cps	1484.146	1482.370	-1.776	15.529
Far (B+D+P+L) cps	934.365	938.779	4.414	16.528
Near Resolution	8.87	8.85	-0.020	0.50
Far Resolution	9.58	9.77	0.190	1.00

PASS/FAIL SUMMARY	
Bkg Quality Check:	Passed
Bkg Resolution Check:	Passed
Bkg Verification Check:	Passed

SDLT CALIPER FIELD CALIBRATION

Tool Name:	SDLT - 10951314	Reference Calibration Date:	17-Jun-13 11:02:37
Engineer:	P. DIMPFL	Calibration Date:	27-Jun-13 11:08:23
Software Version:	WL INSITE R3.6.0 (Build 3)	Calibration Version:	1

MEASURED CALIPER VALUES

Measurement	Shop	Field	Change	Control Limit On New Value
Pad Extension	3.75	3.74	-0.01	+/- 0.10
Ring Diameter	8.25	8.27	0.02	+/- 0.15

PASS/FAIL SUMMARY

Pad Extension Check:	Passed
Diameter Check:	Passed

INSITE HIGH FREQUENCY DIELECTRIC SHOP CALIBRATION

Tool Name:	HFDT-I - I328M444P706	Reference Calibration Date:	08-Jun-13 13:45:25
Engineer:	B. RIDDEL	Calibration Date:	08-Jun-13 13:48:55
Software Version:	WL INSITE R3.6.0 (Build 3)	Calibration Version:	1

RATIO - AIR HANG ELECTRONICS CALIBRATION

Measurement	Previous Value	New Value	Control Limit
UM_TXU	1.5388	1.5379	None
ML_TXU	1.0212	1.0185	None
UL_TXU	1.5585	1.5535	None
UM_TXL	1.7172	1.7196	None
ML_TXL	3.2607	3.2619	None
UL_TXL	5.5535	5.5631	None

DPHASE - AIR HANG ELECTRONICS CALIBRATION

Measurement	Previous Value	New Value	Control Limit
UM_TXU	78.8844	78.9148	None
ML_TXU	80.1765	80.1436	None
UL_TXU	159.0609	159.0583	None
UM_TXL	-85.4272	-85.0350	None
ML_TXL	-86.6486	-86.9585	None
UL_TXL	184.9733	185.0557	None

RATIO - VERIFYING with MANDREL AIR HANG CALIBRATED CONSTANTS

Measurement	Previous Value	New Value	Control Limit
UM_TXU	1.8302	1.8307	None
ML_TXU	1.8330	1.8308	None
UL_TXU	3.3274	3.3241	None
UM_TXL	1.8289	1.8224	None
ML_TXL	1.8302	1.8119	None
UL_TXL	3.3202	3.2748	None
UM_COM	1.9247	1.9204	1.3613 - 2.2688
ML_COM	1.7176	1.7103	1.3613 - 2.2688
UL_COM	3.2978	3.2752	2.4698 - 4.1163

DPHASE - VERIFYING with MANDREL AIR HANG CALIBRATED CONSTANTS

Measurement	Previous Value	New Value	Control Limit
UM_TXU	29.4338	29.4571	None
ML_TXU	29.4804	29.4289	None
UL_TXU	58.9183	58.8830	None
UM_TXL	30.5510	30.9750	None
ML_TXL	30.9759	30.7486	None
UL_TXL	58.5669	58.7640	None
UM_COM	30.0101	30.0424	22.5000 - 37.5000
ML_COM	30.2105	30.2624	22.5000 - 37.5000
UL_COM	58.7426	58.8235	44.7750 - 74.6250

INSITE HIGH FREQUENCY DIELECTRIC FIELD CALIBRATION

Tool Name: HFDT-I - I328M444P706		Reference Calibration Date: 08-Jun-13 13:48:55	
Engineer: P. DIMPFL		Calibration Date: 27-Jun-13 11:35:17	
Software Version: WL INSITE R3.6.0 (Build 3)		Calibration Version: 1	

	RATIO - VERIFYING with MANDREL AIR HANG CALIBRATED CONSTANTS			
	Measurement	Shop Value	Field Value	Control Limit
	UM_TXU	1.8307	1.8043	None
	ML_TXU	1.8308	1.9473	None
	UL_TXU	3.3241	3.4802	None
	UM_TXL	1.8224	2.0845	None
	ML_TXL	1.8119	2.3762	None
	UL_TXL	3.2748	4.9212	None
	UM_COM	1.9204	2.0245	1.3613 - 2.2688
	ML_COM	1.7103	1.9828	1.3613 - 2.2688
	UL_COM	3.2752	4.0359	2.4698 - 4.1163
	DPHASE - VERIFYING with MANDREL AIR HANG CALIBRATED CONSTANTS			
	Measurement	Shop Value	Field Value	Control Limit
	UM_TXU	29.4571	30.5369	None
	ML_TXU	29.4289	31.7906	None
	UL_TXU	58.8830	62.3402	None
	UM_TXL	30.9750	28.6422	None
	ML_TXL	30.7486	26.6776	None
	UL_TXL	58.7640	52.5287	None
	UM_COM	30.0424	29.4159	22.5000 - 37.5000
	ML_COM	30.2624	29.4078	22.5000 - 37.5000
	UL_COM	58.8235	57.4344	44.7750 - 74.6250

CONTACT TEMPERATURE TOOL SHOP CALIBRATION			
Tool Name: HFDT-I - I328M444P706		Reference Calibration Date: 01-Jan-70 00:00:00	
Engineer: B. RIDDEL		Calibration Date: 08-Jun-13 14:40:55	
Software Version: WL INSITE R3.6.0 (Build 3)		Calibration Version: 1	

	CALIBRATION COEFFICIENT SUMMARY				
	Measured Temp	Calibrated Temp	Units		
	Low Value	82.78	77.00	degF	
	Middle Value	147.40	150.00	degF	
	High Value	207.10	213.00	degF	
	.				
			Reference Temp	Units	
	Calibration Point Low Ref		77.00	degF	
	Calibration Point Middle Ref		150.00	degF	
	Calibration Point High Ref		213.00	degF	
			Calibration Coefficient		
	Pwr2		-0.00		
	Gain		1.23		
	Offset		-8.82		

DENSITY CALIPER SHOP CALIBRATION			
Tool Name: HFDT-I - I328M444P706		Reference Calibration Date: 08-Jun-13 15:03:37	
Engineer: B. RIDDEL		Calibration Date: 08-Jun-13 15:08:32	
Software Version: WL INSITE R3.6.0 (Build 3)		Calibration Version: 1	

CALIBRATION COEFFICIENTS			
Measurement	Previous Value	New Value	Control Limit On New Value
Pad Offset	-2605.82	-2488.94	-7000.00 - -1000.00
Pad Gain	0.0003887	0.0003816	0.000200 - 0.000600
Arm Offset	-3686.08	-3705.54	-5000.00 - 3000.00
Arm Gain	0.0005459	0.0005411	0.000300 - 0.000700
Arm Power	-0.000004073	-0.000003800	-0.000010000 - 0.000010000

The ring diameter is computed from: DIAMETER = PAD EXTENSION + ARM EXTENSION + TOOL DIAMETER

Tool Diameter: 4.50 in

CALIBRATION RINGS				
Measurement	Current Reading (Previous Coeff.)	Calibrated (New Coeff.)	Change	Control Limit On New Value
PAD EXTENSION:				
Small Ring (in)	1.99	2.00	0.01	+/- 0.20
Medium Ring (in)	3.77	3.75	-0.02	+/- 0.20
RING DIAMETER:				
Small Ring (in)	6.49	6.50	0.01	+/- 0.20
Medium Ring (in)	8.25	8.25	0.00	+/- 0.20
Large Ring (in)	15.00	15.00	0.00	+/- 0.20

PASS/FAIL SUMMARY	
Calibration-Coefficients Range Check:	Passed
Ring-Measurement Check:	Passed
PASS/FAIL SUMMARY	
Calibration-Coefficients Range Check:	Passed

SDLT CALIPER FIELD CALIBRATION			
Tool Name:	HFDT-I - I328M444P706	Reference Calibration Date:	08-Jun-13 15:08:32
Engineer:	P. DIMPFL	Calibration Date:	27-Jun-13 11:33:30
Software Version:	WL INSITE R3.6.0 (Build 3)	Calibration Version:	1

MEASURED CALIPER VALUES				
Measurement	Shop	Field	Change	Control Limit On New Value
Pad Extension	3.75	3.84	0.09	+/- 0.10
Ring Diameter	8.25	8.31	0.06	+/- 0.15

PASS/FAIL SUMMARY	
Pad Extension Check:	Passed
Diameter Check:	Passed

ACCELEROMETER AND MAGNETOMETER SHOP CALIBRATION			
Tool Name:	IDT - 11277451	Reference Calibration Date:	22-Dec-11 12:25:38
Engineer:	R. TWEETEN	Calibration Date:	12-Dec-12 09:29:09
Software Version:	WL INSITE R3.8.0 (Build 2)	Calibration Version:	1

Reference Gravity Field: 1.0000 g

Reference Magnetic Field: 52800.0000 nT

* QF : value of 0 is shown for bad quality if | data - reference | > (2 * standard deviation) and > (0.5% of reference value)

ACCELEROMETER CALIBRATION RAW DATA VALUE					
Raw Acc X	Raw Acc Y	Raw Acc Z	Quality(Gravity)	Quality Error(%)	QF
0.4260	0.5884	0.0061	1.0002	99.9820	1

0.4269	-0.3684	-0.0061	1.0002	99.9829	1
-0.5599	-0.4780	-0.0063	1.0000	99.9967	1
-0.4375	0.6033	-0.0067	1.0000	99.9953	1
0.5831	0.4446	-0.0061	1.0000	99.9994	1
-0.0172	0.7436	-0.0064	0.9999	99.9936	1
0.6184	0.3018	0.1163	0.9998	99.9824	1
-0.0564	0.7421	-0.0065	1.0001	99.9927	1
0.7216	0.0940	-0.0061	1.0001	99.9879	1
-0.0078	-0.7309	-0.0061	0.9999	99.9889	1
-0.7395	-0.0298	-0.0065	1.0000	99.9995	1
-0.0143	0.0013	0.3591	1.0000	99.9969	1
0.6578	-0.1071	-0.1504	0.9999	99.9929	1

ACCELEROMETER QUALITY SUMMARY

Average Calculated Gravity Field	1.0000	g
Standard Deviation Calculated Gravity Field	0.0001	g

ACCELEROMETER GAIN AND OFFSET

	GAIN	OFFSET
ACC X	1.3631752729	0.0093273642
ACC Y	1.3562285900	-0.0086623570
ACC Z	2.7358396053	0.0174727775

* QF : value of 0 is shown for bad quality if | data - reference | > (3 * standard deviation) and > (1% of reference value)

MAGNETOMETER CALIBRATION RAW DATA VALUE

Raw Mag X	Raw Mag Y	Raw Mag Z	Quality(Magnetic)	Quality Error(%)	QF
-0.1621	1.2632	-0.0843	53389.0742	98.8843	1
1.2405	0.2697	-0.0857	53529.2031	98.6189	1
0.1707	-1.2622	-0.0893	54134.3047	97.4729	1
-1.2427	-0.1685	-0.0880	52686.8008	99.7856	1
-0.0479	-1.0868	0.4088	51367.3828	97.2867	1
-1.0982	-0.5665	-0.3070	53254.3945	99.1394	1
0.2701	-1.0216	-0.6403	52368.3047	99.1824	1
-0.9920	-0.3106	-0.6376	51226.5664	97.0200	1
-0.1738	1.0402	-0.6485	51847.8633	98.1967	1
1.0246	0.2544	-0.6342	51825.9453	98.1552	1
-0.2197	-0.5608	0.9200	52932.6523	99.7488	1
-0.7837	-0.0929	-0.9906	54458.1367	96.8596	1

MAGNETOMETER QUALITY SUMMARY

Average Calculated Magnetic Field	52751.7188	nT
Standard Deviation Calculated Magnetic Field	1052.5829	nT

MAGNETOMETER GAIN AND OFFSET

	GAIN	OFFSET
MAG X	42089.3085937500	159.4645385742
MAG Y	42207.0781250000	-351.8444519043
MAG Z	46856.6171875000	3174.7180175781

Noise Level Value: 0.000219 cnts

Noise Level Cal Value: 0.0006 g

ICT SHOP CALIBRATION

Tool Name: ICT - 11294351

Reference Calibration Date: 12-Jun-13 11:56:52

Engineer: P. DIMPFL

Calibration Date: 25-Jun-13 10:54:12


Software Version: WL INSITE R3.6.0 (Build 3)		Calibration Version: 1		
	CALIPERS AND RINGS			
	Ring	Measured	Calibrated	Units
	CALIPER 1:			
	Small Ring	3.64	3.65	in
	Medium Ring	8.06	8.00	in
	Large Ring	15.17	15.00	in
	X-Large Ring	21.04	21.00	in
	CALIPER 2:			
	Small Ring	3.72	3.65	in
	Medium Ring	8.00	8.00	in
	Large Ring	15.14	15.00	in
	X-Large Ring	21.09	21.00	in
	CALIPER 3:			
	Small Ring	3.62	3.65	in
	Medium Ring	7.99	8.00	in
	Large Ring	15.01	15.00	in
	X-Large Ring	20.94	21.00	in
	CALIPER 4:			
	Small Ring	3.59	3.65	in
	Medium Ring	7.94	8.00	in
	Large Ring	14.93	15.00	in
	X-Large Ring	20.89	21.00	in
	CALIPER 5:			
	Small Ring	3.61	3.65	in
	Medium Ring	7.94	8.00	in
	Large Ring	14.91	15.00	in
	X-Large Ring	21.00	21.00	in
	CALIPER 6:			
	Small Ring	3.67	3.65	in
	Medium Ring	8.09	8.00	in
	Large Ring	15.09	15.00	in
	X-Large Ring	21.05	21.00	in
ICT FIELD CALIBRATION				
Tool Name: ICT - 11294351		Reference Calibration Date: 25-Jun-13 10:54:12		
Engineer: P. DIMPFL		Calibration Date: 27-Jun-13 11:29:31		
Software Version: WL INSITE R3.6.0 (Build 3)		Calibration Version: 1		
	CALIPERS			
	Caliper	Shop	Field	Units
	Caliper 1	8.00	7.92	in
	Caliper 2	8.00	8.07	in
	Caliper 3	8.00	8.06	in
	Caliper 4	8.00	8.12	in
	Caliper 5	8.00	8.01	in
	Caliper 6	8.00	7.92	in
ARRAY COMPENSATED TRUE RESISTIVITY SHOP CALIBRATION				
Tool Name: ACRt Sonde - 90194258-E7486-		Reference Calibration Date: 07-Jun-13 10:39:58		
Engineer: B. RIDDEL		Calibration Date: 07-Jun-13 11:19:51		
Software Version: WL INSITE R3.6.0 (Build 3)		Calibration Version: 1		
Host Tool Name: ACRt Instrument - 11287482				

TYPICAL GAIN RANGE									
Subarray	R12KHz			R36KHz			R72KHz		
	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper
A1 (80")	0.95	1.00	1.05	0.95	1.00	1.05	0.95	1.00	1.05
A2 (50")	0.95	1.01	1.05	0.95	1.01	1.05	0.95	1.01	1.05
A3 (29")	0.95	1.00	1.05	0.95	1.00	1.05	0.95	1.00	1.05
A4 (17")	0.95	1.00	1.05	0.95	1.00	1.05	0.95	1.00	1.05
A5 (10")	N/A	N/A	N/A	0.95	0.99	1.05	0.95	0.99	1.05
A6 (6")	N/A	N/A	N/A	0.95	0.98	1.05	0.95	0.98	1.05
TYPICAL SONDE OFFSET RANGE									
Subarray	R12KHz			R36KHz			R72KHz		
	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper
A1 (80")	-5	-0.70	2	-6	-3.99	-2	-8	-4.93	-2
A2 (50")	-7	-1.87	0	-7	-3.73	0	-7	-4.30	0
A3 (29")	-27	-10.50	-9	-9	-3.42	-3	-7	-2.87	-1
A4 (17")	-180	-101.92	-60	-45	-31.52	-15	-39	-25.49	-13
A5 (10")	N/A	N/A	N/A	-150	-67.67	-50	-80	-35.27	-10
A6 (6")	N/A	N/A	N/A	175	281.98	525	90	144.02	270
TRANSMITTER CURRENT GAIN					R-MUD VERIFICATION				
Signal	Lower	R	Upper		Signal	Lower (ohm-m)	Measured (ohm-m)	Upper (ohm-m)	
12K		0.6	0.92	1.3	Mud Cell	0.95	1.00	1.05	
36K		1.0	1.79	2.0					
72K		1.0	1.16	2.0					
PASS/FAIL SUMMARY									
GAIN RANGE CHK					PASS				
SONDE OFFSET RANGE CHK					PASS				
Tx CURRENT GAIN					PASS				
Rmud VERIFICATION					PASS				
TOOL OK TO LOG									
CALIBRATION SUMMARY									
Sensor	Shop	Field	Post	Difference	Tolerance	Units			
GTET-11958949									
Gamma Ray Calibrator	243.2	240.0	-----	3.2	+/- 9.00	api			
CSNG-10971168									
60 KEV Peak Channel #	48.0	48.0	-----	0.0	-----	Channel #			
239 KEV Peak Channel #	23.7	23.7	-----	0.0	-----	Channel #			
583 KEV Peak Channel #	52.4	52.5	-----	-0.1	-----	Channel #			
2614 KEV Peak Channel #	214.1	214.1	-----	0.0	-----	Channel #			
DSNT-10993888									
Snow-Block Porosity	0.0718	0.0806	-----	-0.0088	+/- 0.0150	decp			
SDLT-10951314									
Pad Extension	3.75	3.74	-----	0.01	+/-0.10	in			
Ring Diameter	8.25	8.27	-----	-0.02	+/-0.15	in			
SDLT Pad-10746390									
Near(B+D+P+L)	1484.146	1482.370	-----	1.776	+/-15.529	cps			
Far(B+D+P+L)	934.365	938.779	-----	-4.414	+/-16.528	cps			

Pad Extension	3.75	3.84	-----	-0.09	+/-0.10	in
Ring Diameter	8.25	8.31	-----	-0.06	+/-0.15	in
ICT-11294351						
Caliper 1	8.00	7.92	-----	0.08	+/-0.25	in
Caliper 2	8.00	8.07	-----	-0.07	+/-0.25	in
Caliper 3	8.00	8.06	-----	-0.06	+/-0.25	in
Caliper 4	8.00	8.12	-----	-0.12	+/-0.25	in
Caliper 5	8.00	8.01	-----	-0.01	+/-0.25	in
Caliper 6	8.00	7.92	-----	0.08	+/-0.25	in
ACRt Sonde-90194258-E7486-						
Mud Cell	1.00	-----	-----	0.00	-----	ohm-m
Data: NOB_VGS_AC16-01\0001 TRIPLE-BLACK\008 28-Jun-13 00:08 Up @8982.3f						
Date: 28-Jun-13 01:46:43						

HALLIBURTON

TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
RWCH-11013846 135.00 lbs		Ø 3.625 in →		← Load Cell @ 135.89 ft ← BH Temperature @ 135.32 ft	6.25 ft	139.57 ft
GTET-11958949 165.00 lbs		Ø 3.625 in →		← GammaRay @ 127.26 ft	8.52 ft	133.32 ft
CSNG-10971168 114.00 lbs	UnivWearRing3.6- 10736164 5.00 lbs	Ø 4.200 in* Ø 3.625 in →		← CSNG @ 119.18 ft	8.17 ft	124.80 ft
DSNT-10993888 174.00 lbs	DSN Decentralizer- 10993887 6.60 lbs	Ø 5.000 in* Ø 3.625 in →		← DSN Far @ 109.70 ft ← DSN Near @ 108.95 ft	9.69 ft	116.64 ft
						106.95 ft

SDLT-10951314
360.00 lbs

SDLT Pad-10746390
65.00 lbs

Ø 4.500 in →

Ø 4.750 in* →

10.81 ft

SDL Caliper @ 98.95 ft
SDL @ 98.94 ft

96.14 ft

HFDT-I-
I328M444P706
435.00 lbs

Ø 4.500 in →

Ø 4.750 in →

16.14 ft

Receiver Upper @ 83.16 ft
HFDT-I Receiver @ 83.06 ft
Receiver Middle @ 83.06 ft
HFDT Microlog @ 83.00 ft
Receiver Lower @ 82.96 ft
HFDT-I Caliper @ 82.82 ft
HFDT-I Pad @ 82.28 ft

80.00 ft

Flex Joint -
Pressure Comp-
10981149
140.00 lbs

Ø 3.625 in →

5.97 ft

74.03 ft

IDT-11277451
150.00 lbs

Ø 3.625 in →

7.58 ft

66.45 ft

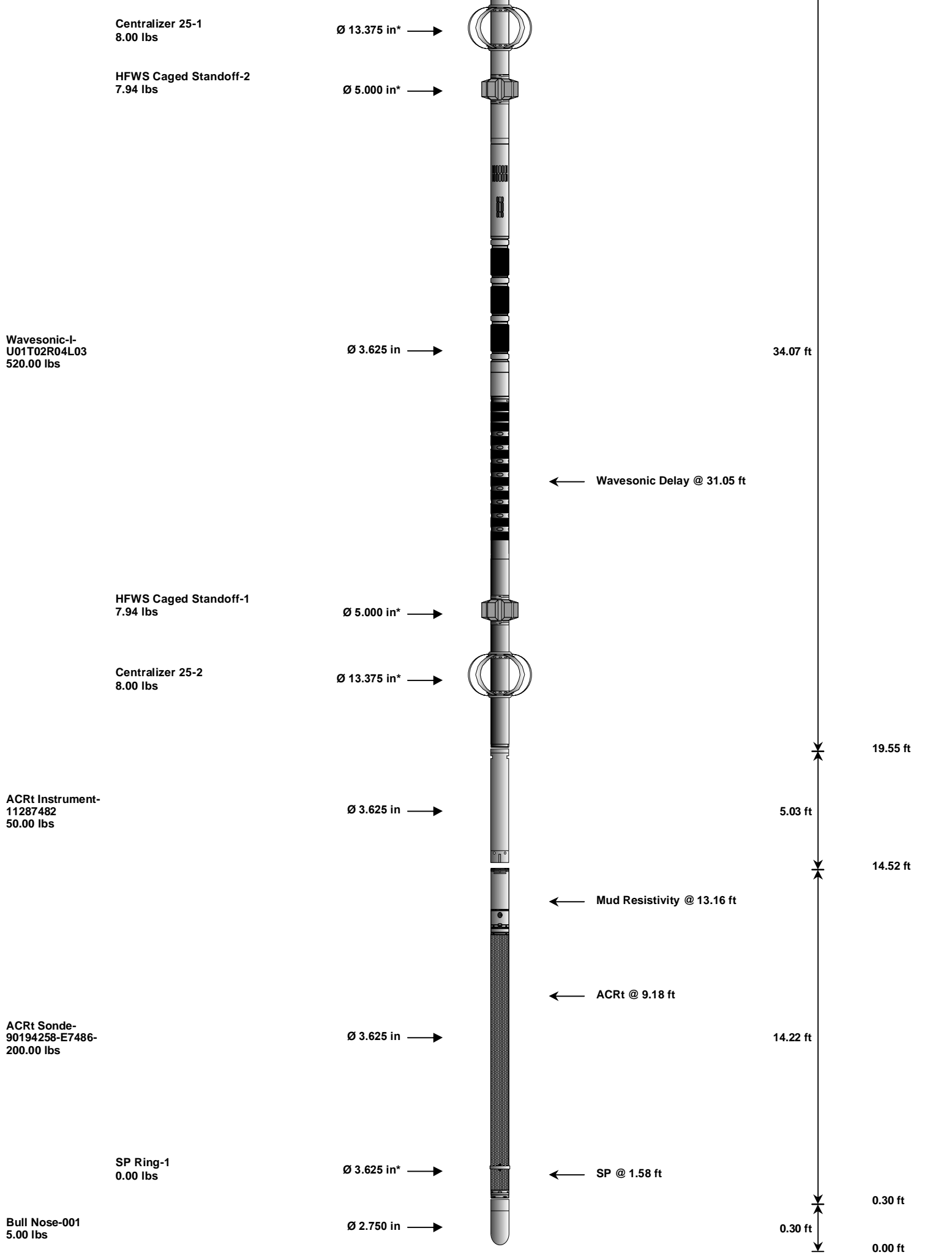
ICT-11294351
330.00 lbs

Ø 3.625 in →

12.83 ft

ICT Caliper @ 56.41 ft

53.62 ft



Mnemonic	Tool Name	Serial	Weight	Length	Accumulated Length	Max.Log. Speed
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Memoritic	Tool Name	Number	(lbs)	(ft)	Length (ft)	Speed (fpm)
RWCH	Releasable Wireline Cable Head	11013846	135.00	6.25	133.32	300.00
GTET	Gamma Telemetry Tool	11958949	165.00	8.52	124.80	60.00
CSNG	Compensated Spectral Natural Gamma	10971168	114.00	8.17	116.64	15.00
UWR3P6	Universal Wear Ring 3 5-8 inch	10736164	5.00	0.35	*	120.72 300.00
DSNT	Dual Spaced Neutron	10993888	174.00	9.69	106.95	60.00
DCNT	DSN Decentralizer	10993887	6.60	5.13	*	110.28 300.00
SDLT	Spectral Density Tool	10951314	360.00	10.81	96.14	60.00
SDLP	Density Insite Pad	10746390	65.00	2.55	*	98.35 60.00
HFDT	High Frequency Dielectric Tool	I328M444P706	435.00	16.14	80.00	30.00
FLEX	Flex Joint - Pressure Compensated	10981149	140.00	5.97	74.03	300.00
IDT	Insite Directional Tool	11277451	150.00	7.58	66.45	30.00
ICT	Six Independent Arm Caliper	11294351	330.00	12.83	53.62	30.00
WSTT	WaveSonic Insite	U01T02R04L03	520.00	34.07	19.55	30.00
OBCEN	Centralizer - 25 in. Overbody	2	8.00	2.08	*	21.55 300.00
HFCS	Hostile Full Wave Sonic Caged Metal and Rubber Standoff	1	7.94	1.33	*	24.72 300.00
HFCS	Hostile Full Wave Sonic Caged Metal and Rubber Standoff	2	7.94	1.33	*	46.95 300.00
OBCEN	Centralizer - 25 in. Overbody	1	8.00	2.08	*	49.14 300.00
ACRt	Array Compensated True Resistivity Instrument Section	11287482	50.00	5.03	14.52	300.00
ACRt	Array Compensated True Resistivity Sonde Section	90194258-E7486-	200.00	14.22	0.30	300.00
SP	SP Ring	1	0.00	0.25	*	1.58 300.00
BLNS	Bull Nose	001	5.00	0.30	0.00	300.00
Total			2,886.48	139.57		
* Not included in Total Length and Length Accumulation.						
Data: NOB_VGS_AC16-01\0001 TRIPLE-BLACK\IDLE						
Date: 27-Jun-13 21:50:35						

COMPANY	NOBLE ENERGY INC		
WELL	VIGILANT STATE AC16-01		
FIELD	WATTENBERG		
COUNTY	WELD	STATE	CO
HALLIBURTON		DUAL SPACED NEUTRON SPECTRAL DENSITY ARRAY COMPENSATED TRUE RESISITIVITY	