

HALLIBURTON

DUAL SPACED NEUTRON
SPECTRAL DENSITY

COMPANY				ELM RIDGE EXPLORATION CO LLC			
WELL				IGE 129			
FIELD/BLOCK				IGNACIO BLANCO			
COUNTY				LA PLATA			
STATE				CO			
Permanent Datum				GL			
Log measured from				KB			
Drilling measured from				KB			
Date				20-Jul-14			
Run No.				ONE			
Depth - Driller				3362.00 ft			
Depth - Logger				3360.0 ft			
Bottom - Logged Interval				3358.0 ft			
Top - Logged Interval				500.0 ft			
Casing - Driller				8.625 in @ 532.0 ft			
Casing - Logger				532.0 ft			
Bit Size				7.875 in @			
Type Fluid in Hole				Water Based Mud			
Density				9.4 ppg			
Viscosity				48.00 s/qt			
PH				9.00 pH			
Fluid Loss				6.2 cpm			
Source of Sample				MUD TANK			
Rm @ Meas. Temperature				2.05 ohmm @ 75.00 degF			
Rmf @ Meas. Temperature				N/A @ N/A			
Rmc @ Meas. Temperature				N/A @ N/A			
Source Rmf				N/A			
Rmc				N/A			
Rm @ BHT				1.23 ohmm @ 129.0 degF			
Time Since Circulation				4.4 hr			
Time on Bottom				20-Jul-14 16:52			
Max. Rec. Temperature				129.0 degF @ 3362.0 ft			
Equipment				11871076			
Location				GJ CO			
Recorded By				B. RIDDEL			
Witnessed By				D. GILES			

COMPANY		ELM RIDGE EXPLORATION CO LLC	
WELL		IGE 129	
FIELD/BLOCK		IGNACIO BLANCO	
COUNTY		LA PLATA	
STATE		CO	
API No.		05067099080000	
Location		SURFACE HOLE LOCATION: 1140' FSL & 987' FWL	
Sect.		9	
Twp.		33N	
Rge.		8W	
Elev.		6711.0 ft	
D.F.		6723.0 ft	
G.L.		6711.0 ft	
Other Services:		RWCH ACRT	

Fold here

Service Ticket No.: 901521416				API Serial No.: 05067099080000				PGM Version: WL INSITE R4.2.0 (Build 2)							
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		N/A		FREE		N/A	
Rmc @ Meas. Temp.		@		@				I-11585787							
Source Rmf		Rmc						S-11585797							
Rm @ BHT		@		@											
Rmf @ BHT		@		@											
Rmc @ BHT		@		@											
EQUIPMENT DATA															
GAMMA				ACOUSTIC				DENSITY				NEUTRON			
Run No.		ONE		Run No.				Run No.		ONE		Run No.		ONE	
Serial No.		11958949		Serial No.				Serial No.		10951300		Serial No.		10993888	
Model No.		GTET		Model No.				Model No.		SDLT		Model No.		DSNT	
Diameter		3.625"		No. of Cent.				Diameter		4.5"		Diameter		3.625"	
Detector Model No.		GTET		Spacing				Log Type		GAMMA-GAMMA		Log Type		NEU-THERM	
Type		SCINT						Source Type		Cs137		Source Type		Am241Be	
Length		8"		LSA [Y/N]				Serial No.		5153GW		Serial No.		DSN-388	
Distance to Source		9'		FWDA [Y/N]				Strength		1.5 Ci		Strength		15 Ci	
LOGGING DATA															

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	3360	500	REC	0 API	200 API				30 %	-10 %	2.65 g/cc	30 %	-10 %	SAND
DIRECTIONAL INFORMATION														
Maximum Deviation						@	KOP						@	
Remarks:														
RUN ONE: RWCH/GTET/DSNT/SDLT/FLEX/ACRT/BN														
BORHOLE RUGOSITY, TENSION PULLS, LCM ADDITIVE, AND WASHOUTS MAY EFFECT LOG QUALITY AND REPEATABILITY														
CHLORIDES REPORTED TO BE 600 ppm														
ANNULAR HOLE VOLUME CALCULATED USING 5.5-INCH CASING.														
Rmf & Rmc NOT MEASURED DUE TO FAULTY EQUIPMENT														
YOU CREW TODAY: B. CALDWELL, T. RAFF, A. KOBE										RIG: BEARCAT #1				
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.														
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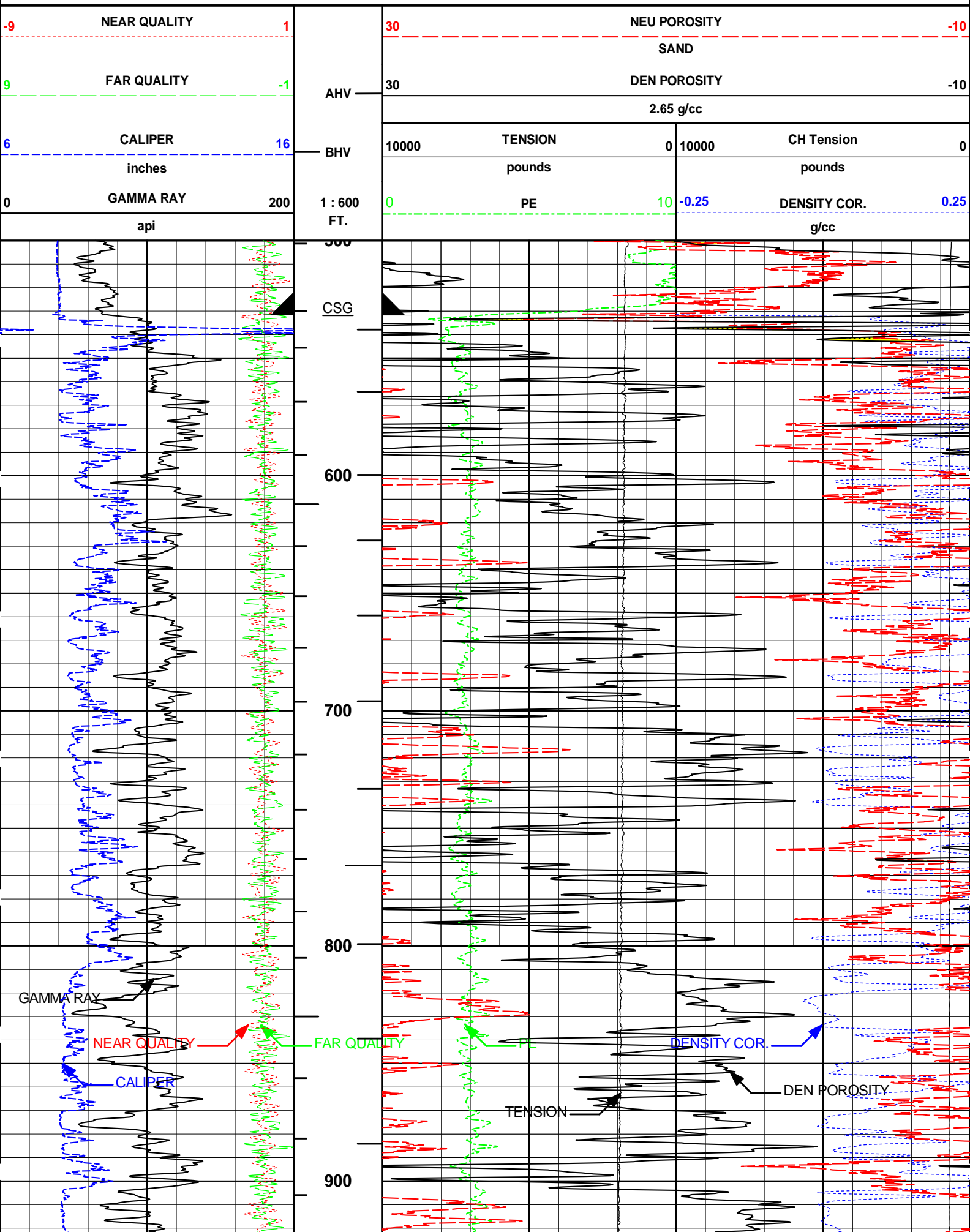
PARAMETERS REPORT

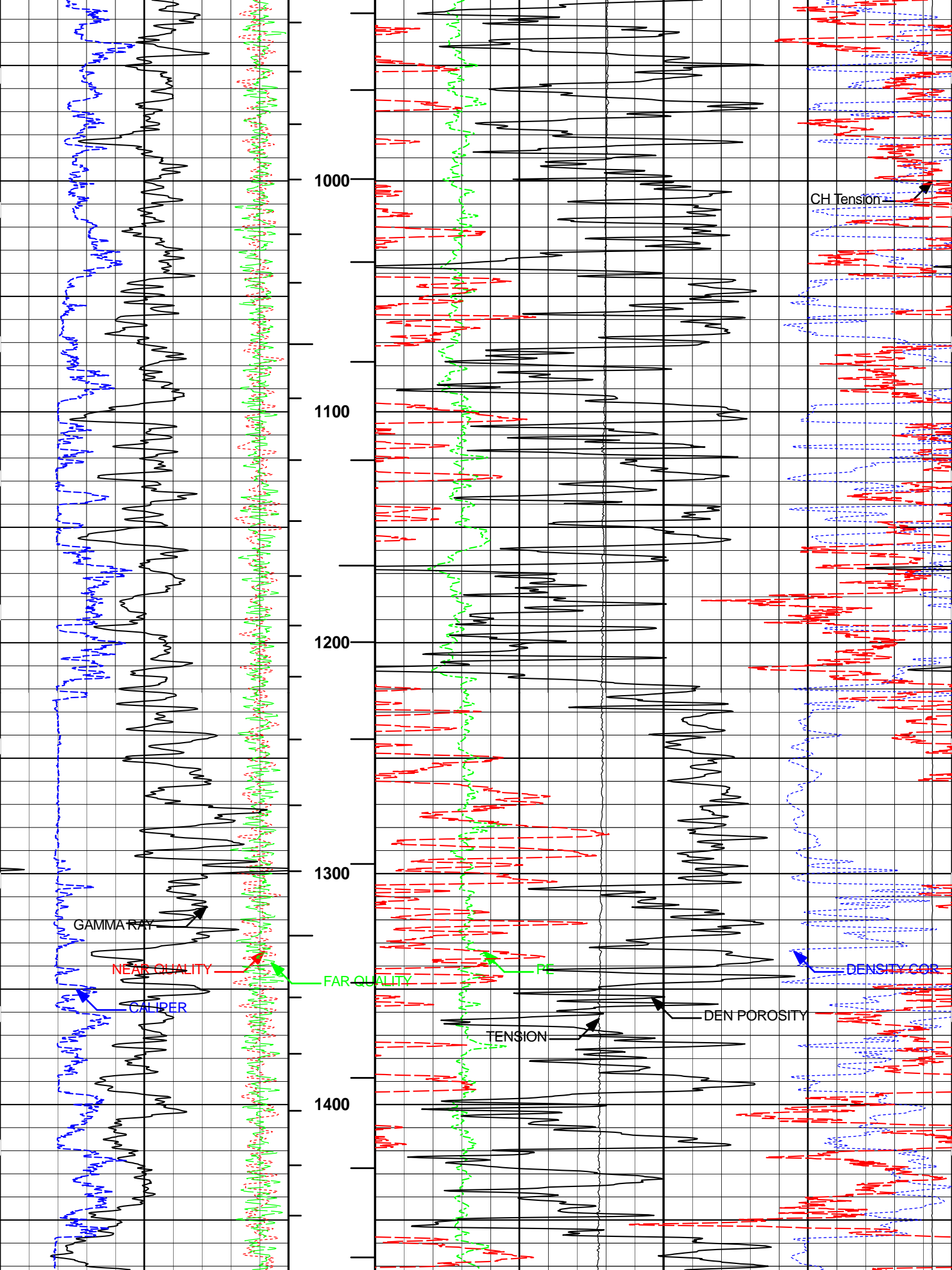
Depth (ft)	Tool Name	Mnemonic	Description	Value	Units
TOP					
	SHARED	BS	Bit Size	7.875	in
	SHARED	UBS	Use Bit Size instead of Caliper for all applications.	No	
	SHARED	MDBS	Mud Base	Water	
	SHARED	MDWT	Borehole Fluid Weight	9.400	ppg
	SHARED	WAGT	Weighting Agent	Natural	
	SHARED	BSAL	Borehole salinity	600.00	ppm
	SHARED	FSAL	Formation Salinity NaCl	0.00	ppm
	SHARED	KPCT	Percent K in Mud by Weight?	0.00	%
	SHARED	RMUD	Mud Resistivity	2.050	ohmm
	SHARED	TRM	Temperature of Mud	69.0	degF
	SHARED	CSD	Logging Interval is Cased?	No	
	SHARED	ICOD	AHV Casing OD	5.500	in
	SHARED	ST	Surface Temperature	75.0	degF
	SHARED	TD	Total Well Depth	3362.00	ft
	SHARED	BHT	Bottom Hole Temperature	200.0	degF
	SHARED	SVTM	Navigation and Survey Master Tool	NONE	
	SHARED	AZTM	High Res Z Accelerometer Master Tool	GTET	
	SHARED	TEMM	Temperature 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	

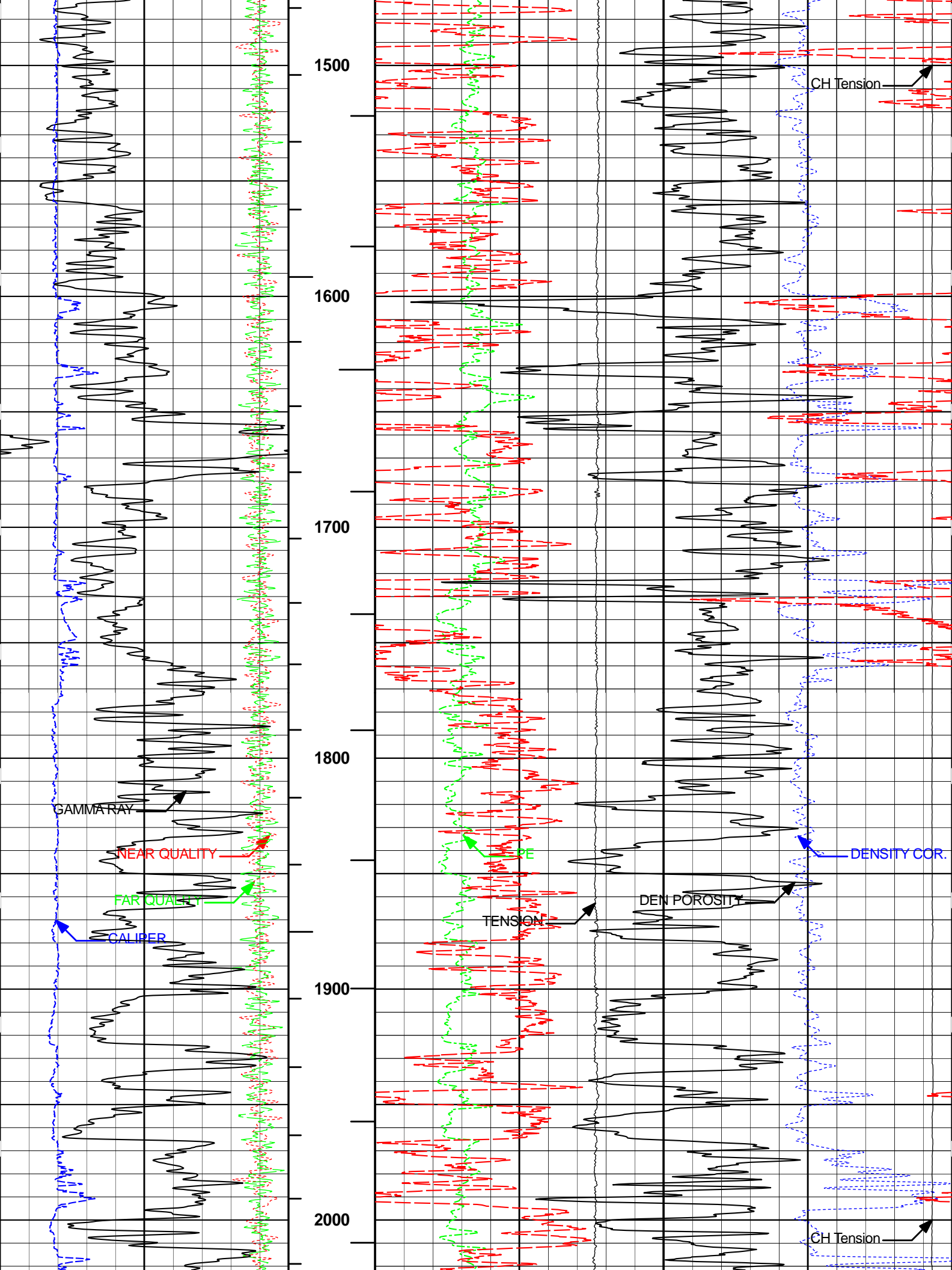
Rwa / CrossPlot	MFAC	Archie M factor	2.1500	
Rwa / CrossPlot	RMFR	Rmf Reference	0.10	ohmm
Rwa / CrossPlot	TMFR	Rmf Ref Temp	75.00	degF
Rwa / CrossPlot	RWA	Resistivity of Formation Water	0.05	ohmm
Rwa / CrossPlot	ADP	Use Air Porosity to calculate CrossplotPhi	No	
Rwa / CrossPlot	BHSM	Borehole Size Source Tool	SDLT	
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	
GTET	BHSM	Borehole Size Source Tool	SDLT	
DSNT	DNOK	Process DSN?	Yes	
DSNT	DEOK	Process DSN EVR?	No	
DSNT	NLIT	Neutron Lithology	Sandstone	
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	
DSNT	BHSM	Borehole Size Source Tool	SDLT	
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	2.650	g/cc
SDLT Pad	DFL	Formation Density Fluid	1.000	g/cc
SDLT Pad	BHSM	Borehole Size Source Tool	SDLT	
ACRt Sonde	RTOK	Process ACRt?	Yes	
ACRt Sonde	MNSO	Minimum Tool Standoff	1.50	in
ACRt Sonde	TCS1	Temperature Correction Source	FP Lwr & FP Up	
ACRt Sonde	TPOS	Tool Position	Free Hanging	
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
ACRt Sonde	BHSM	Borehole Size Source Tool	SDLT	
BOTTOM				
Data: ELM_IGE_129\0001 TRIPLENDLE			Date: 20-Jul-14 17:25:07	

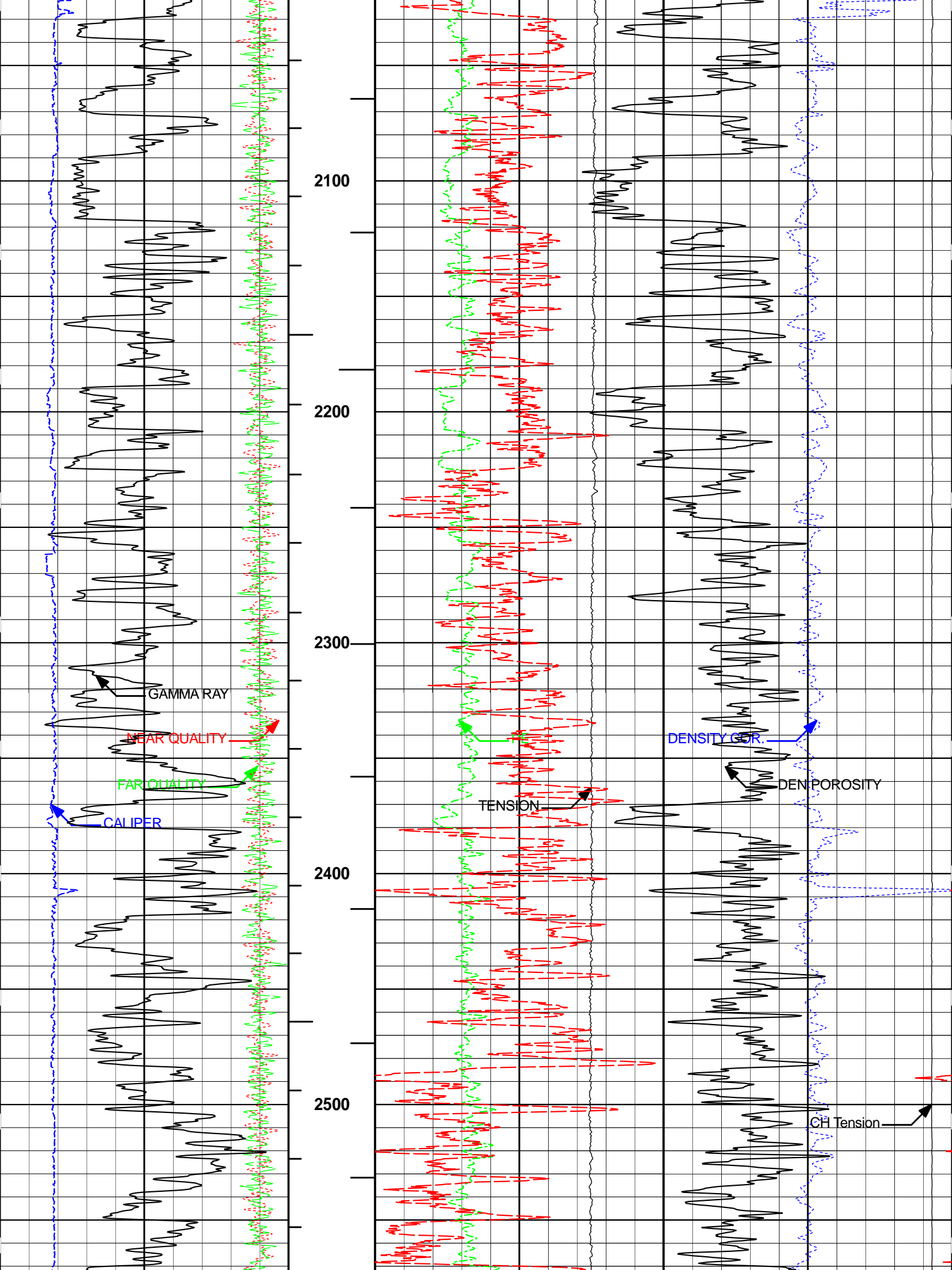
HALLIBURTON	Plot Time: 20-Jul-14 18:23:46 Plot Range: 500 ft to 3363.15 ft Data: ELM_IGE_129\Well Based\MAIN Plot File: \\PORO\ _POR_2"
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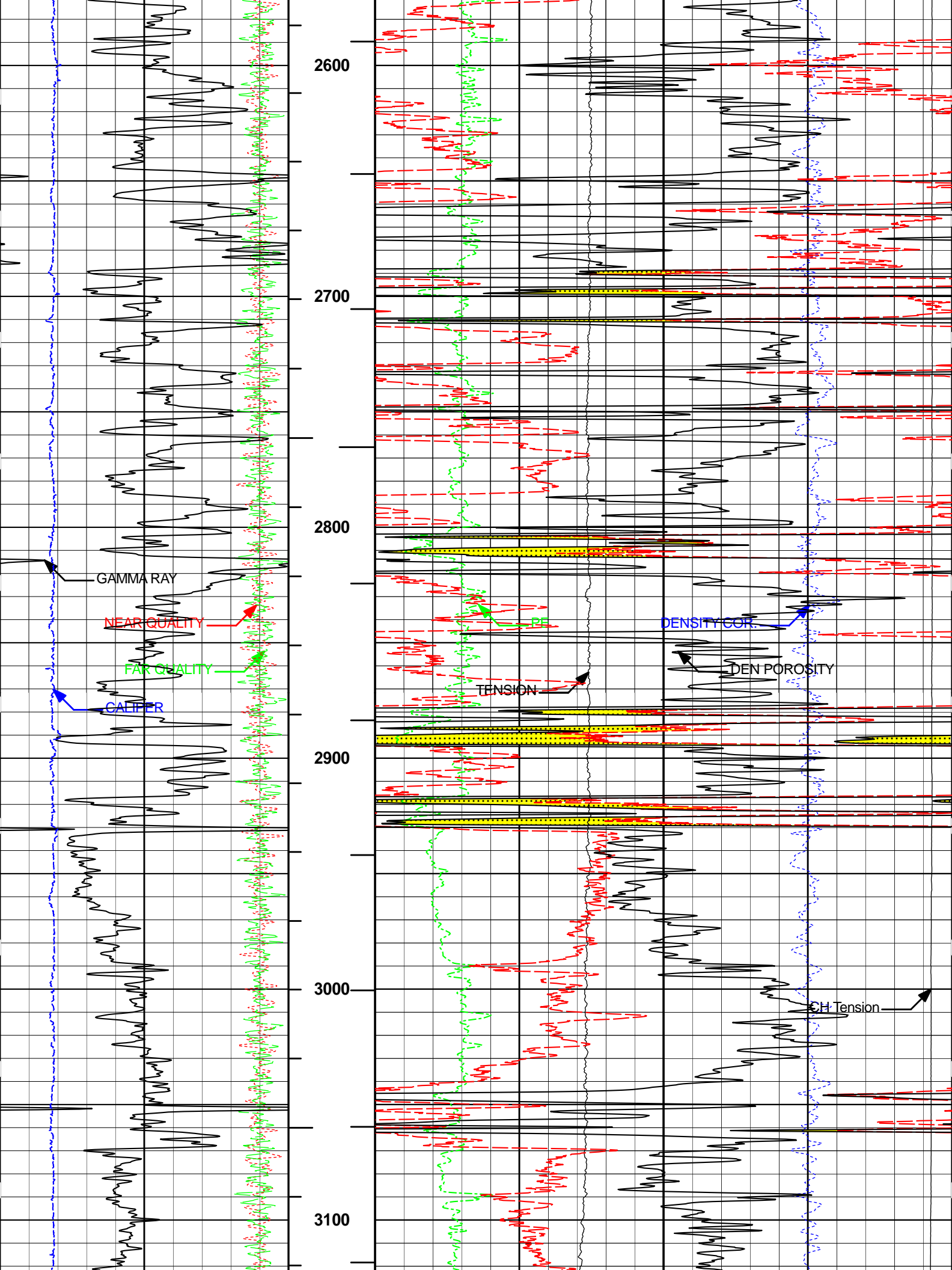
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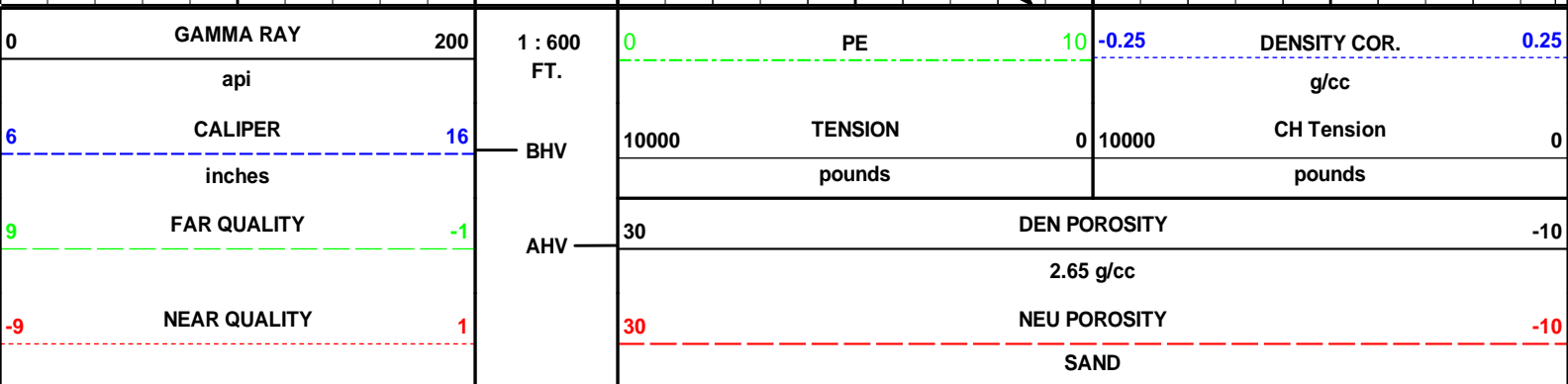








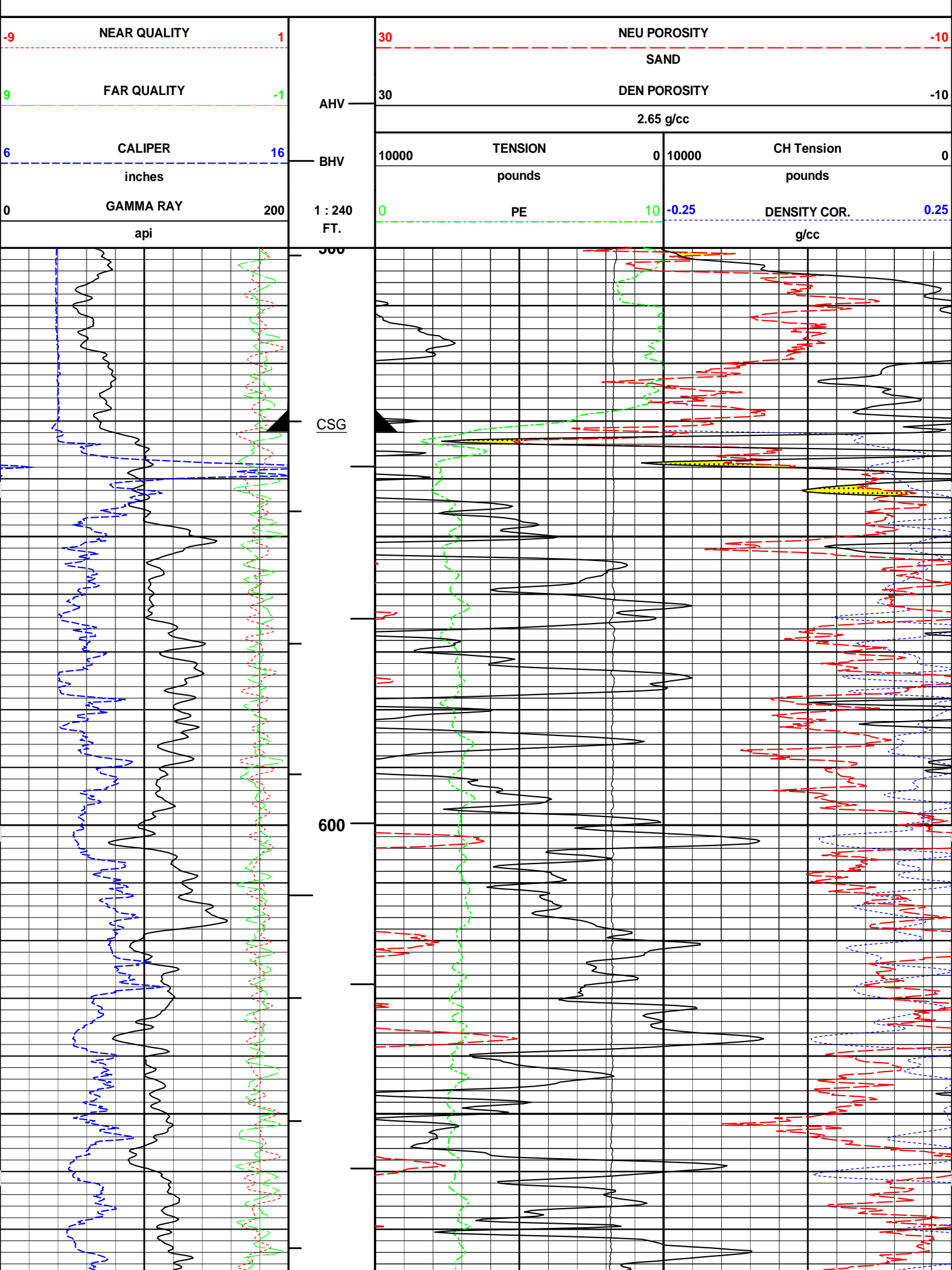


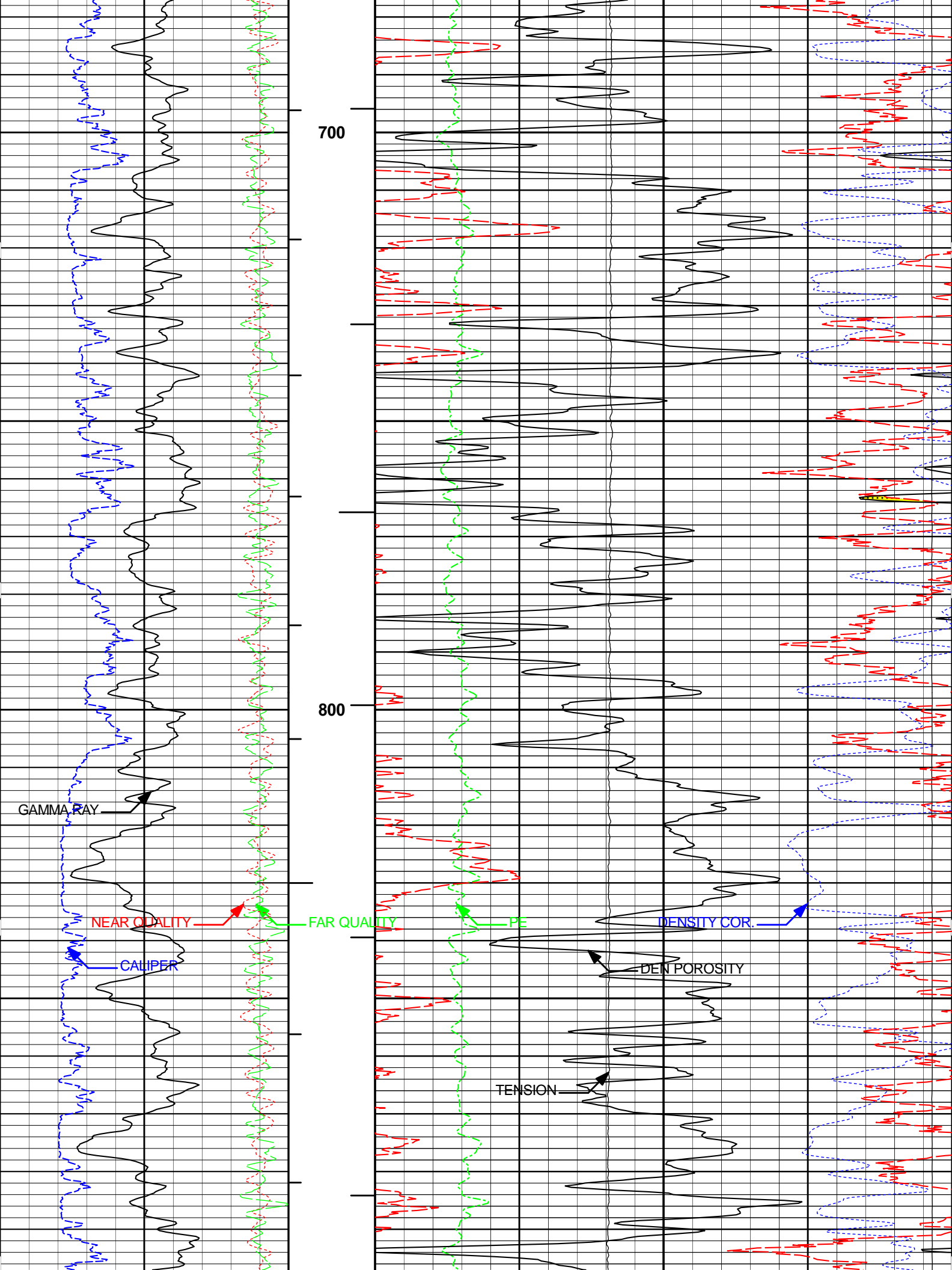


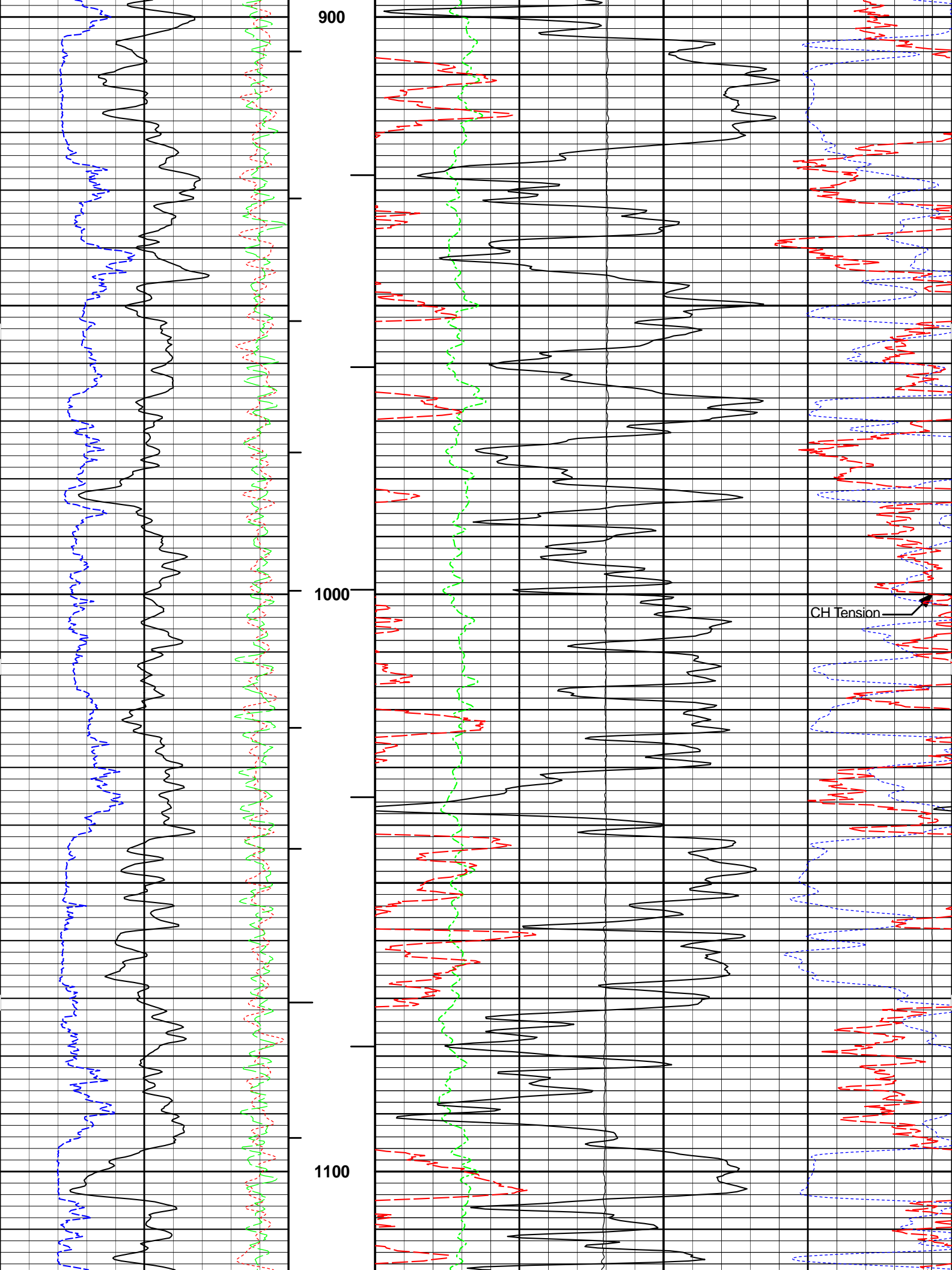
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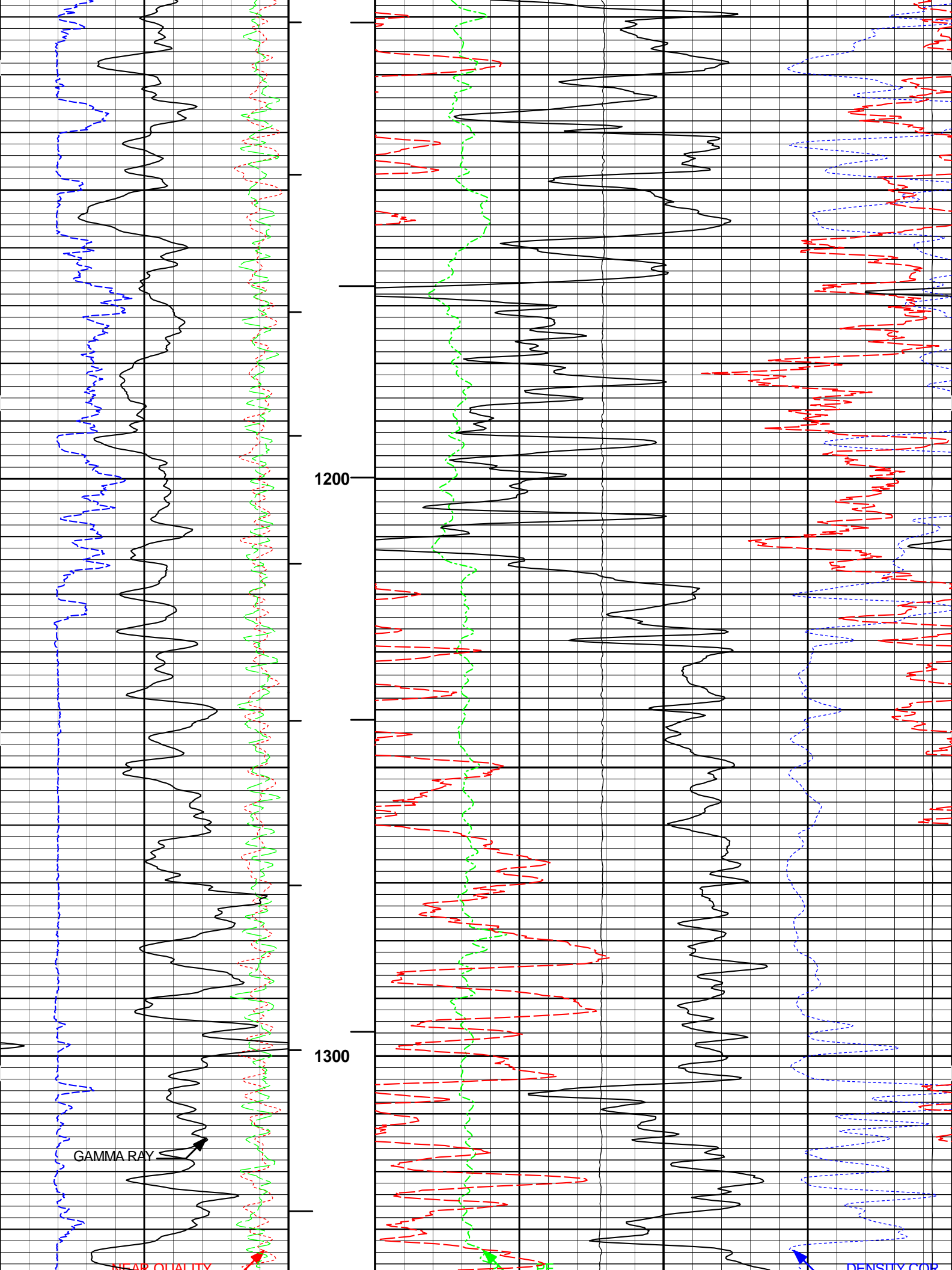
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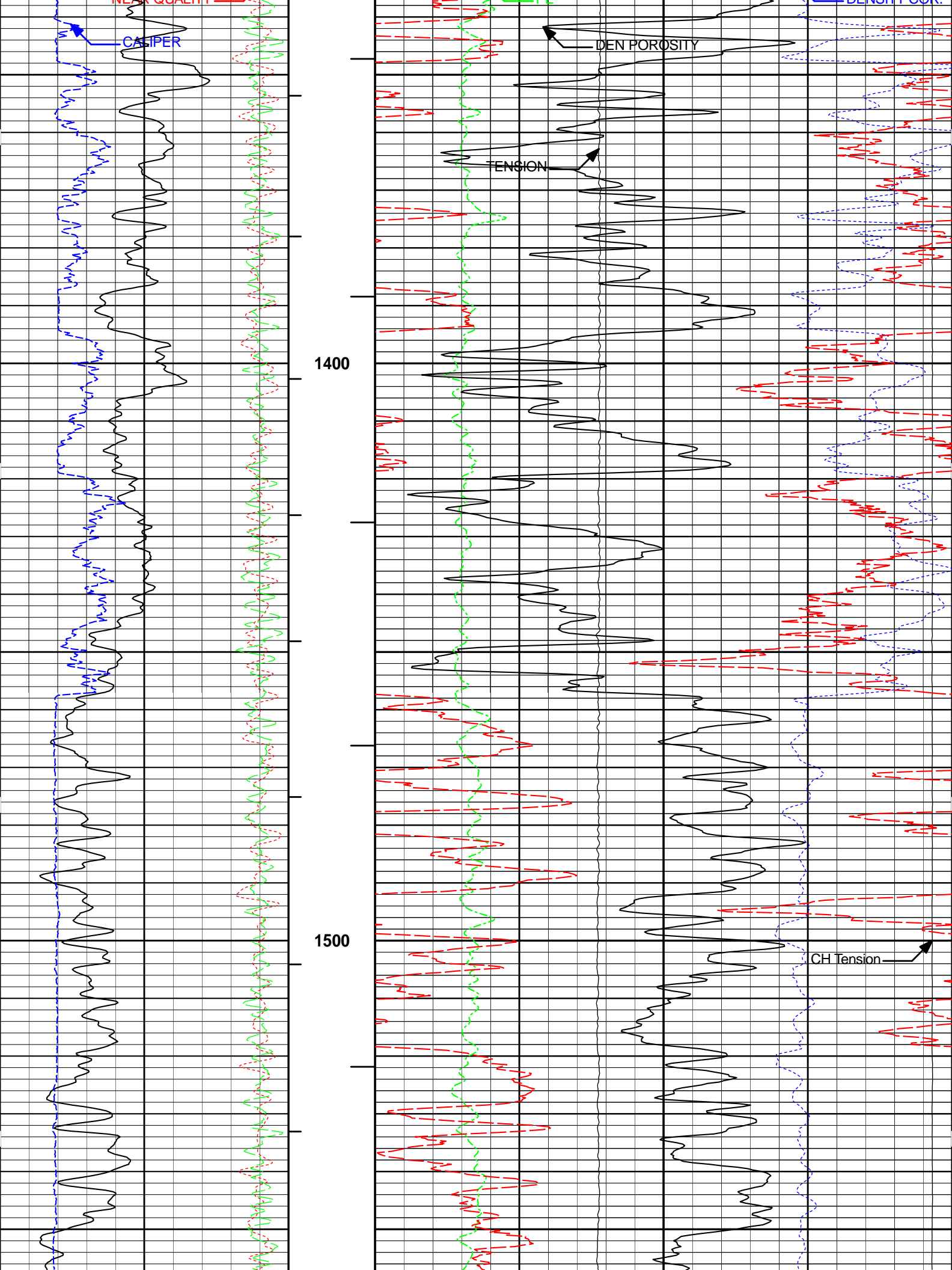
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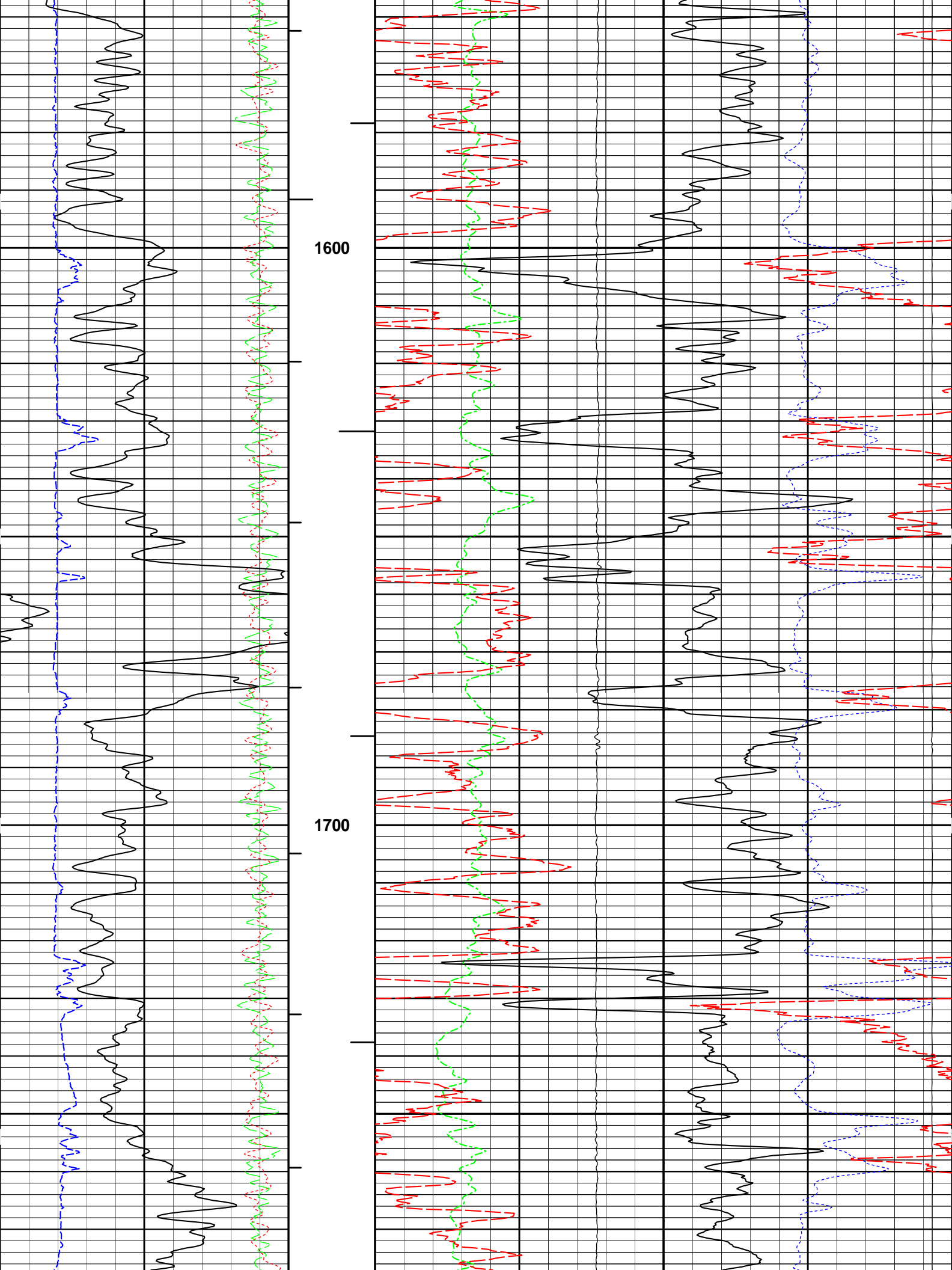


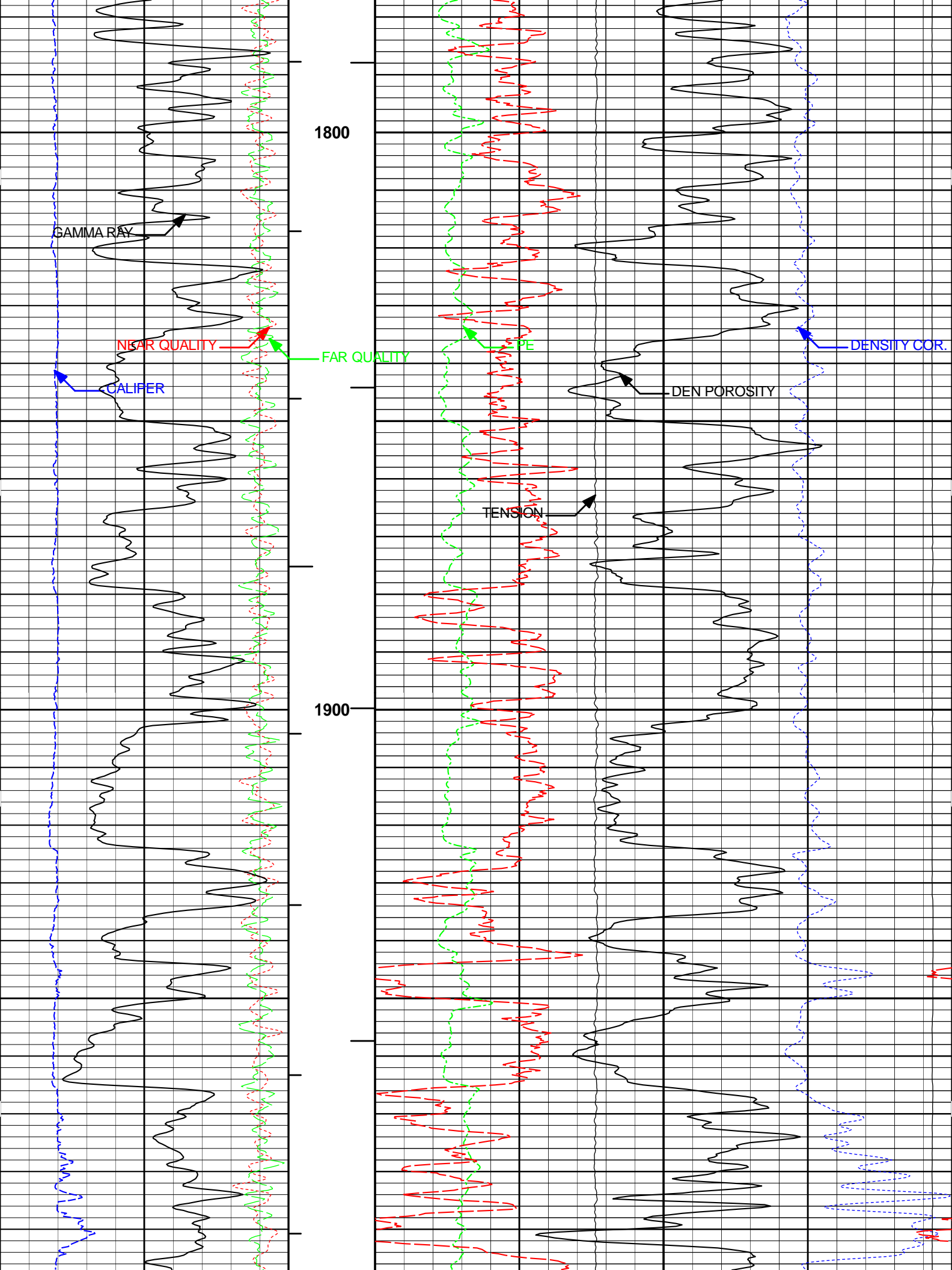


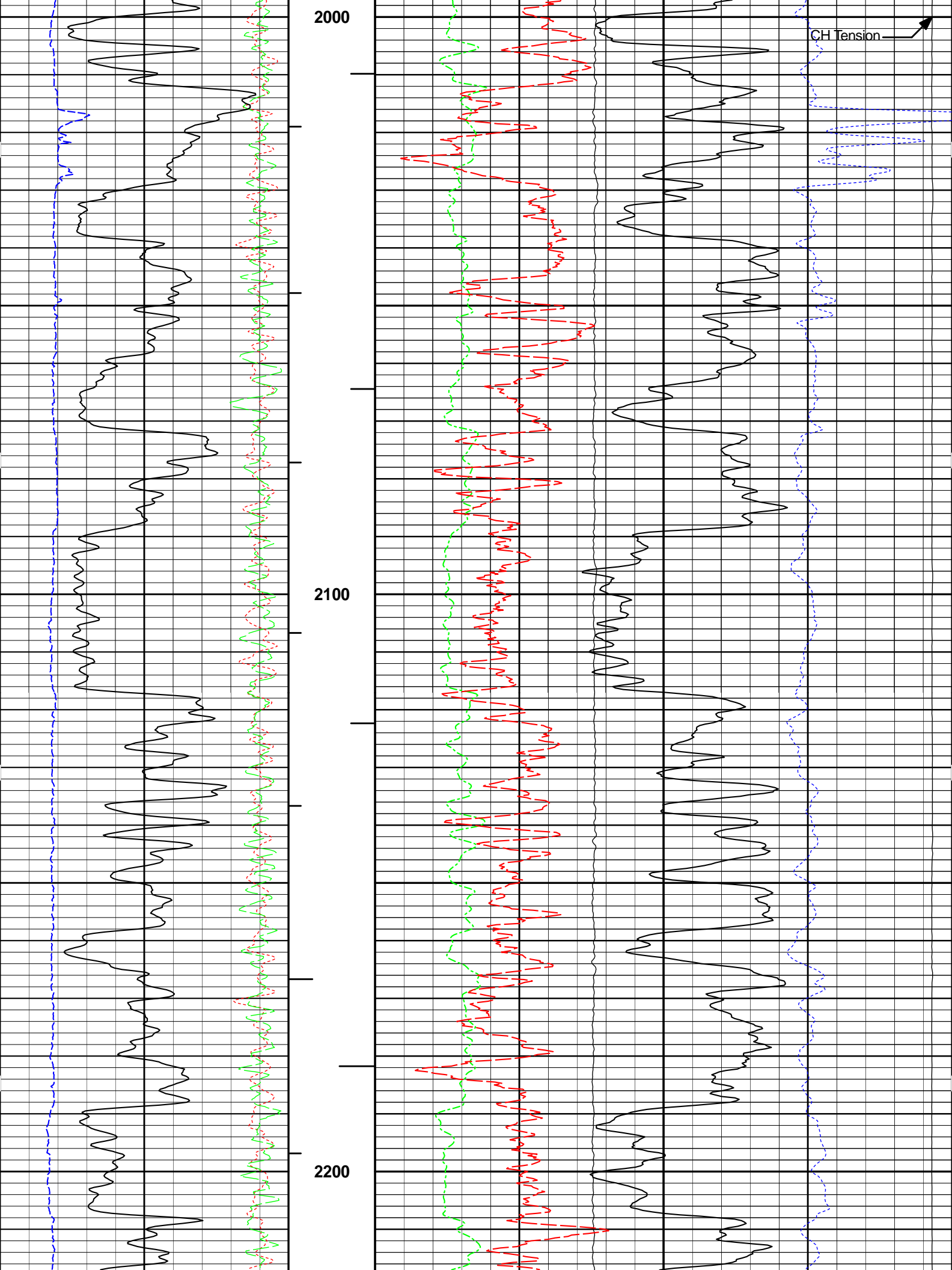


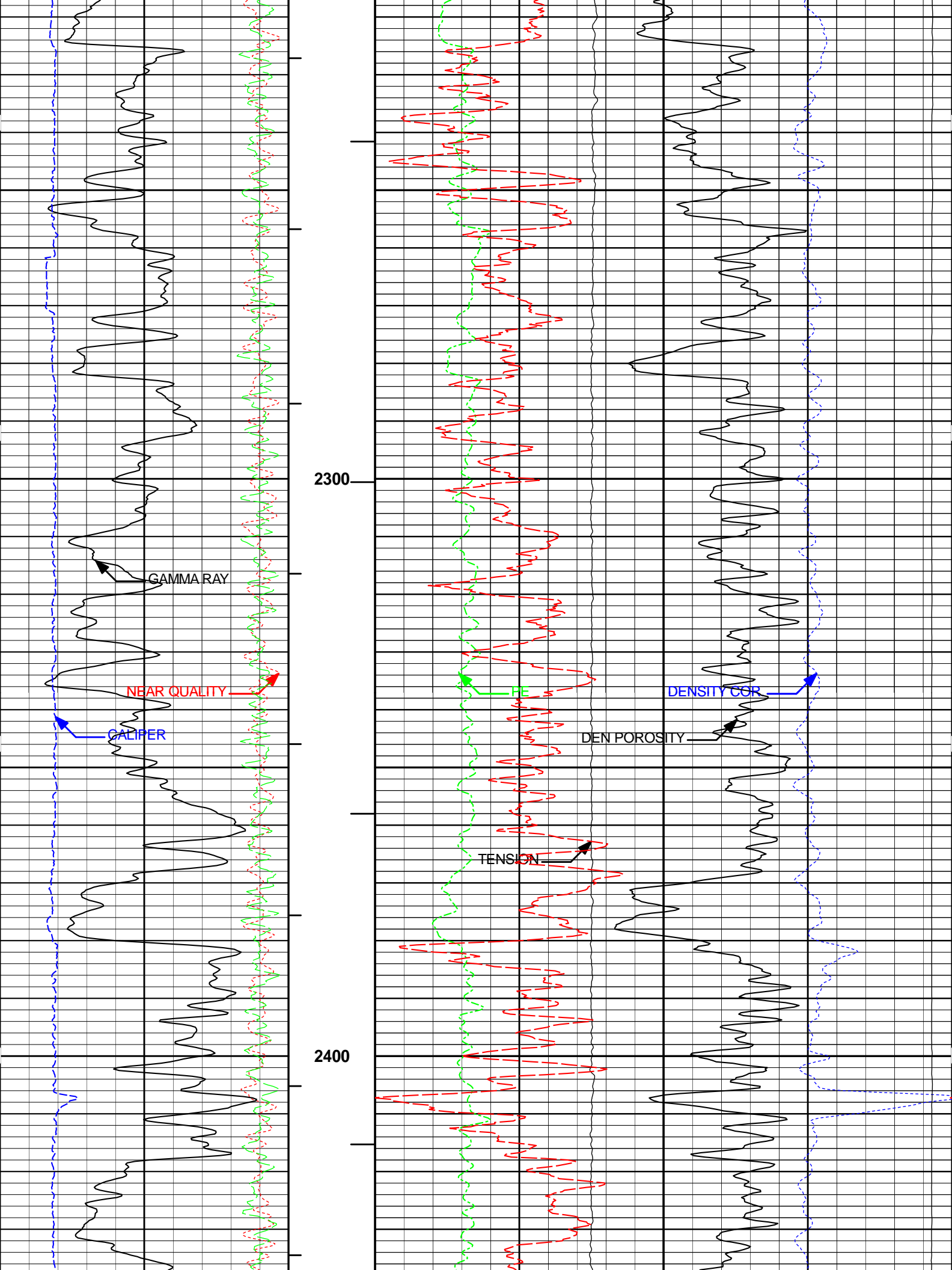


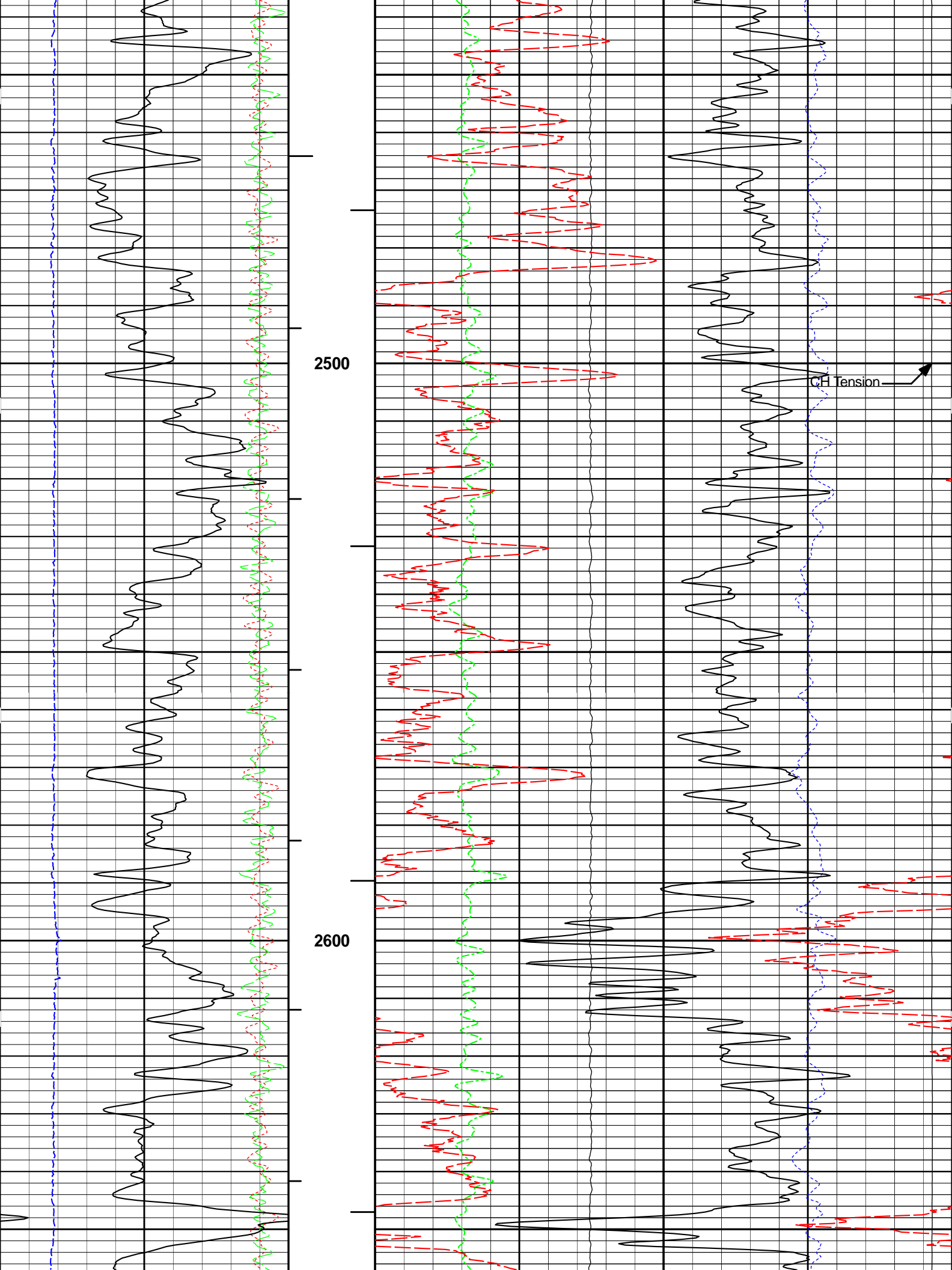


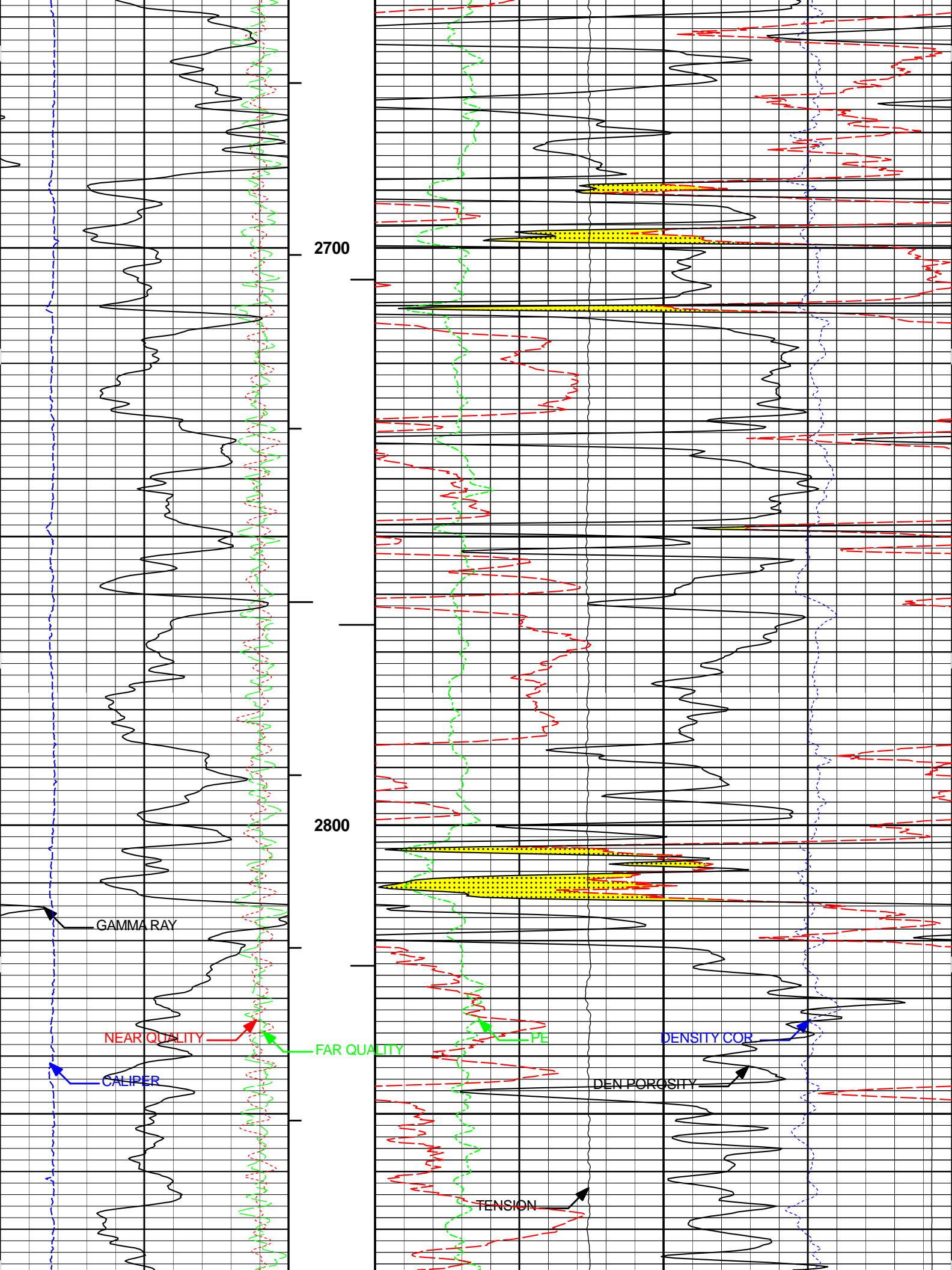


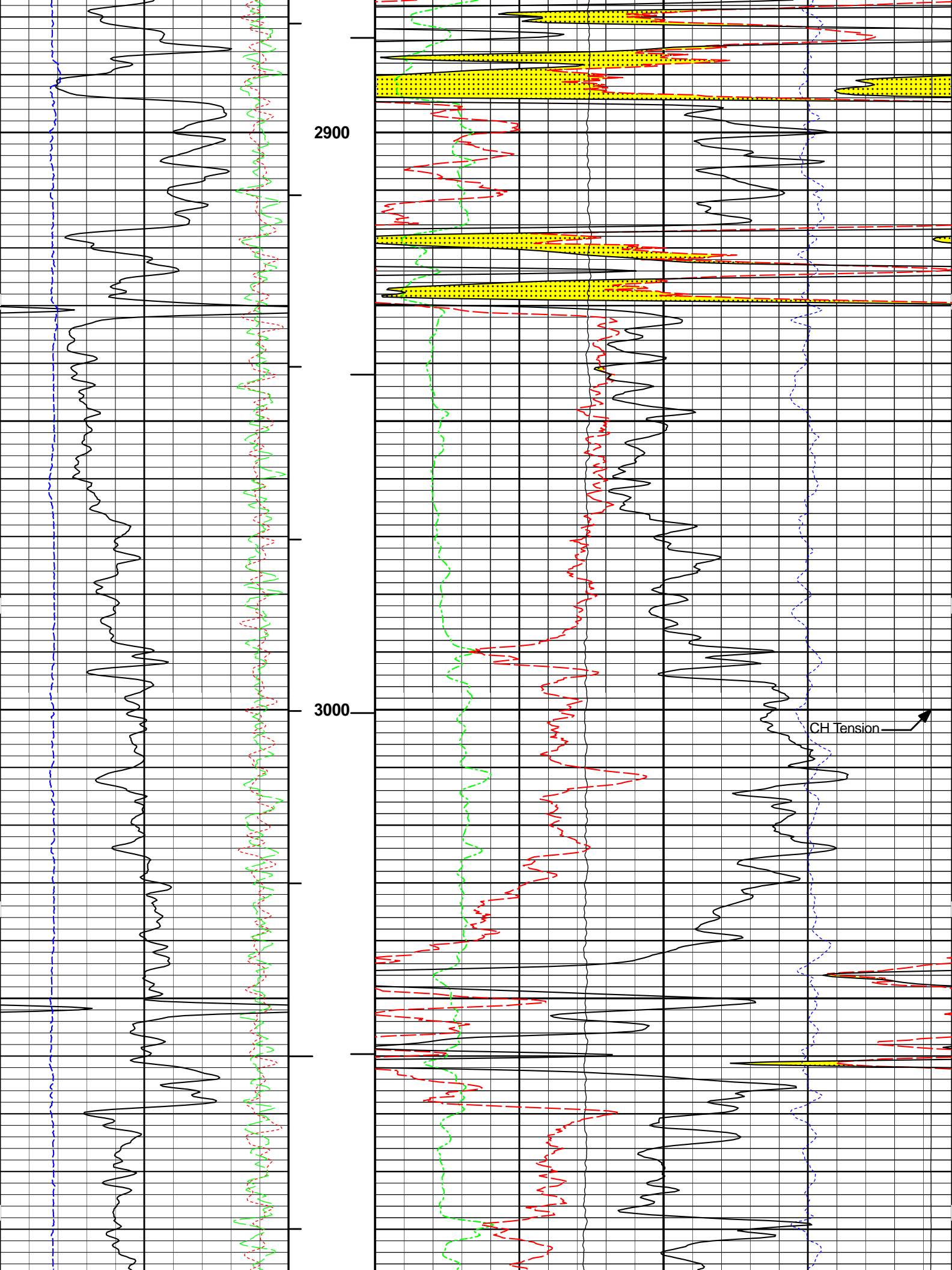


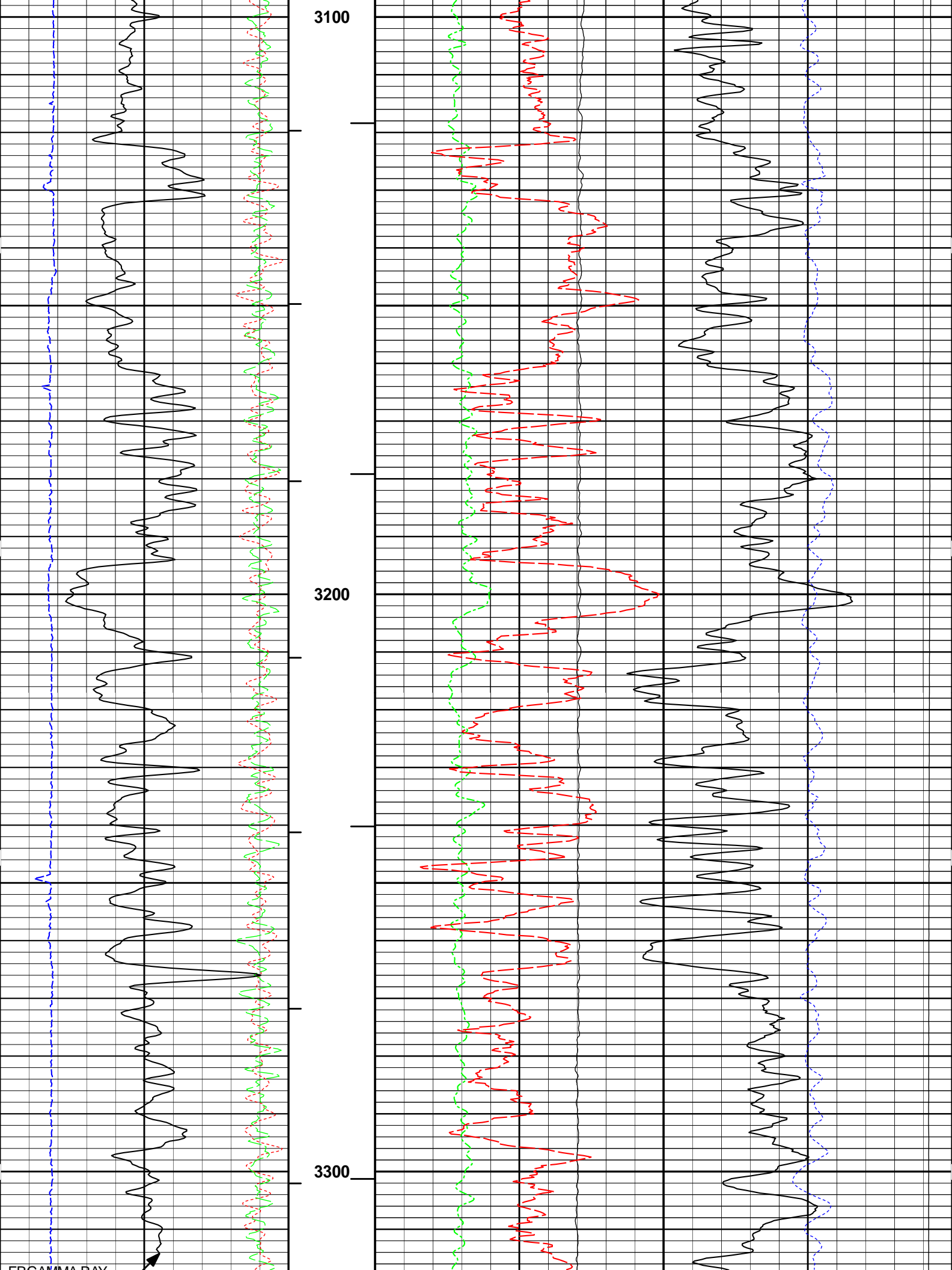


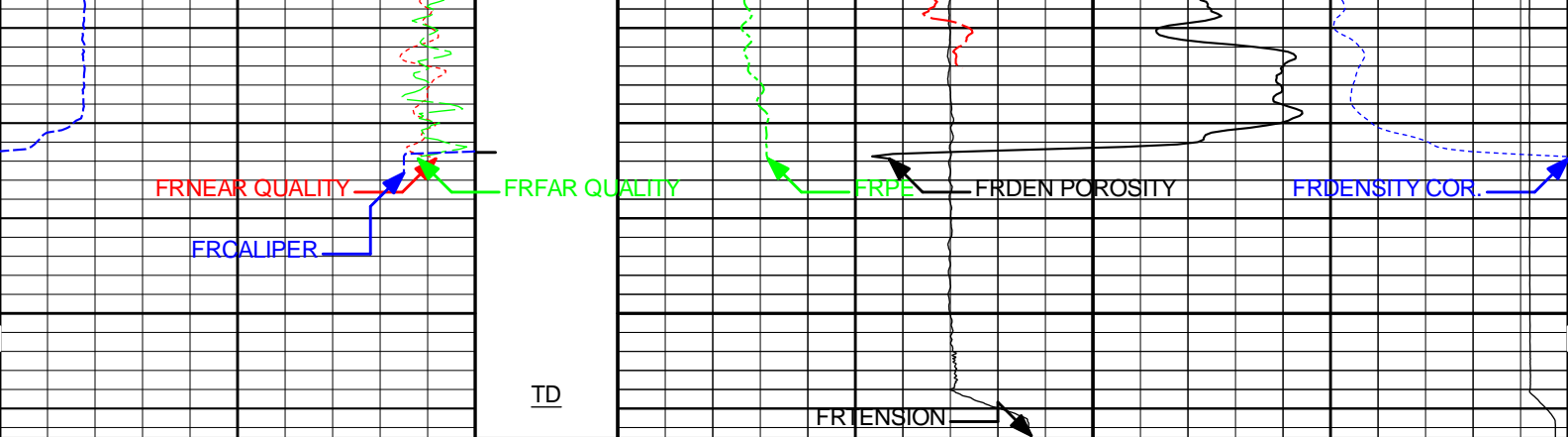












0	GAMMA RAY	200	1 : 240 FT.	0	PE	10	-0.25	DENSITY COR.	0.25
	api							g/cc	
6	CALIPER	16	BHV	10000	TENSION	0	10000	CH Tension	0
	inches				pounds			pounds	
9	FAR QUALITY	-1	AHV	30	DEN POROSITY				-10
					2.65 g/cc				
-9	NEAR QUALITY	1		30	NEU POROSITY				-10
					SAND				

HALLIBURTON

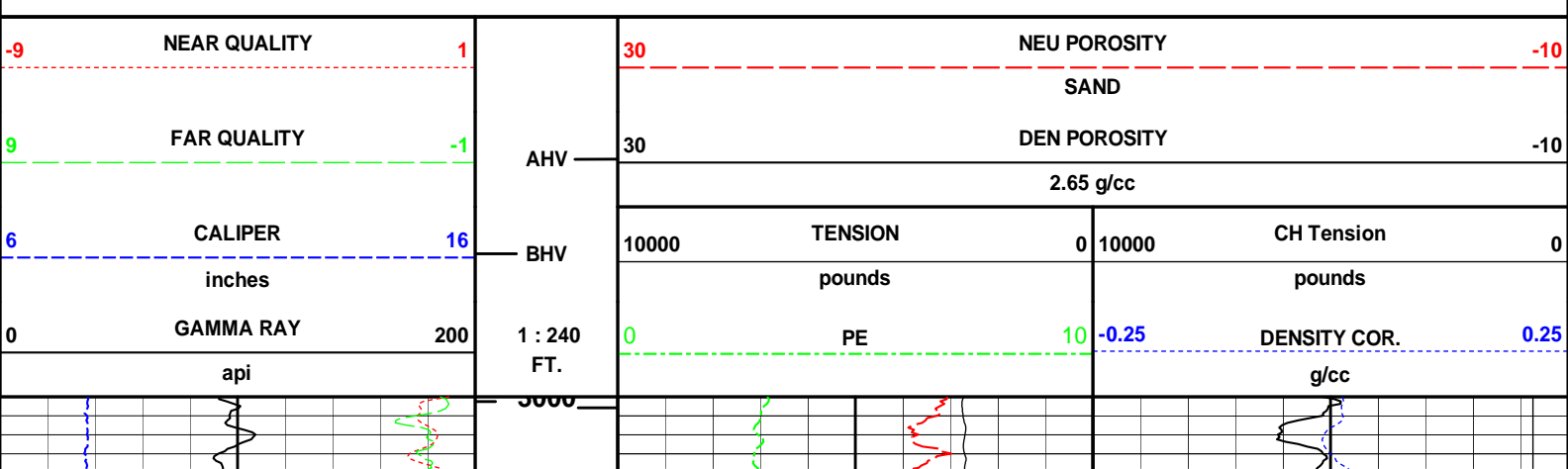
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Plot File: \\PORO\POR5IN_M

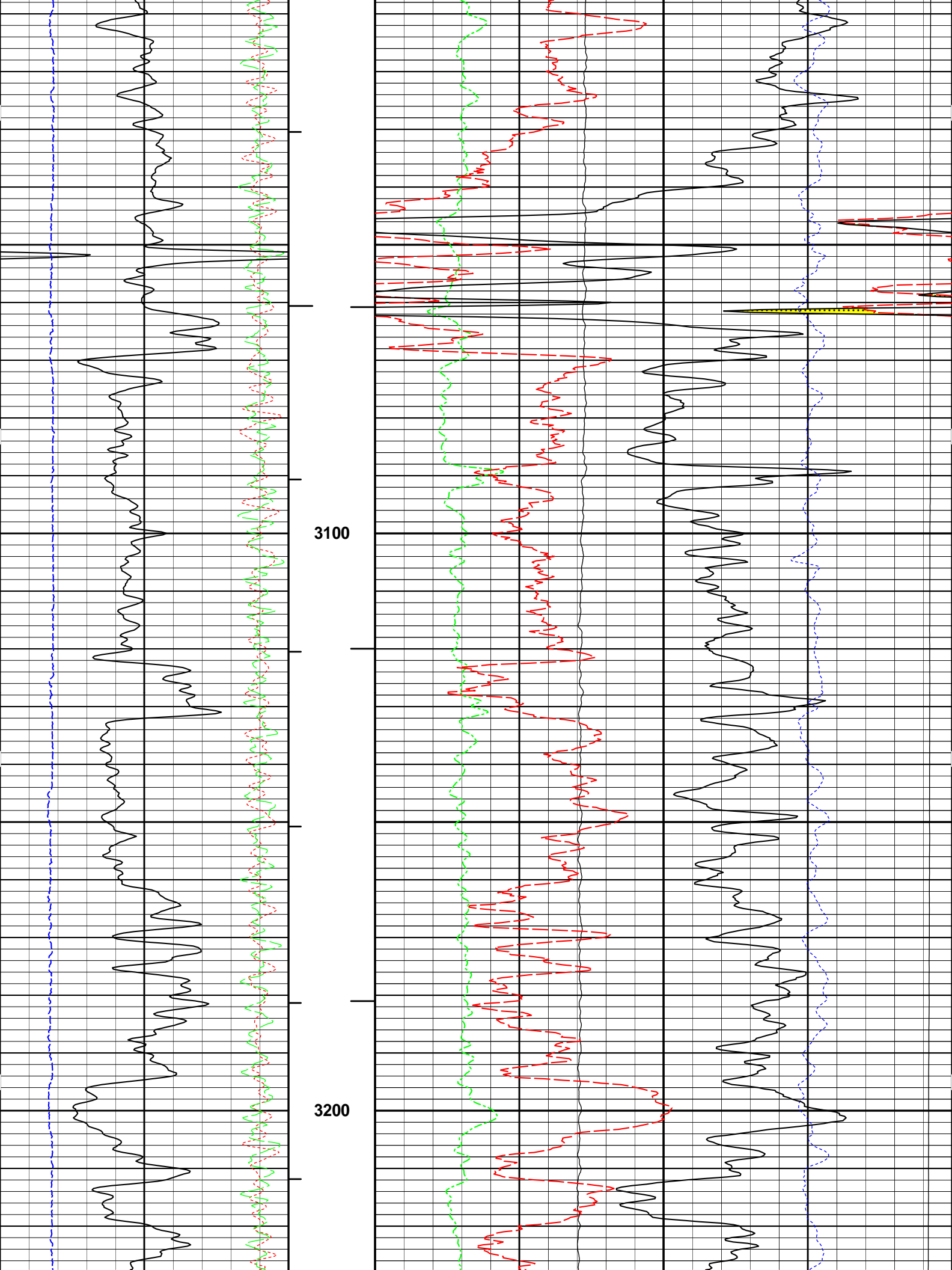
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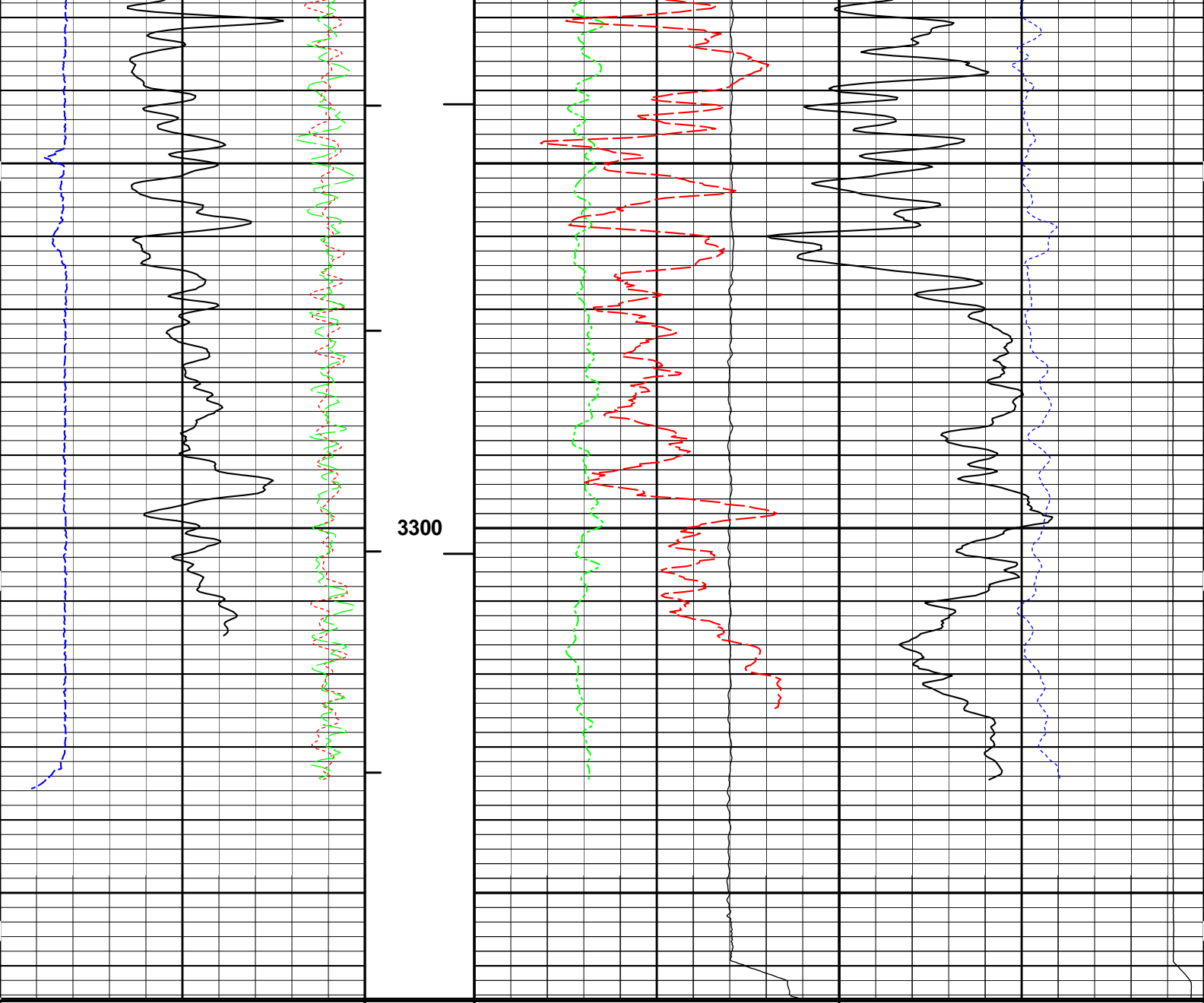
HALLIBURTON

Plot Time: 20-Jul-14 18:23:57
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Plot File: \\PORO\POR5IN_R

REPEAT PASS 5" = 100'







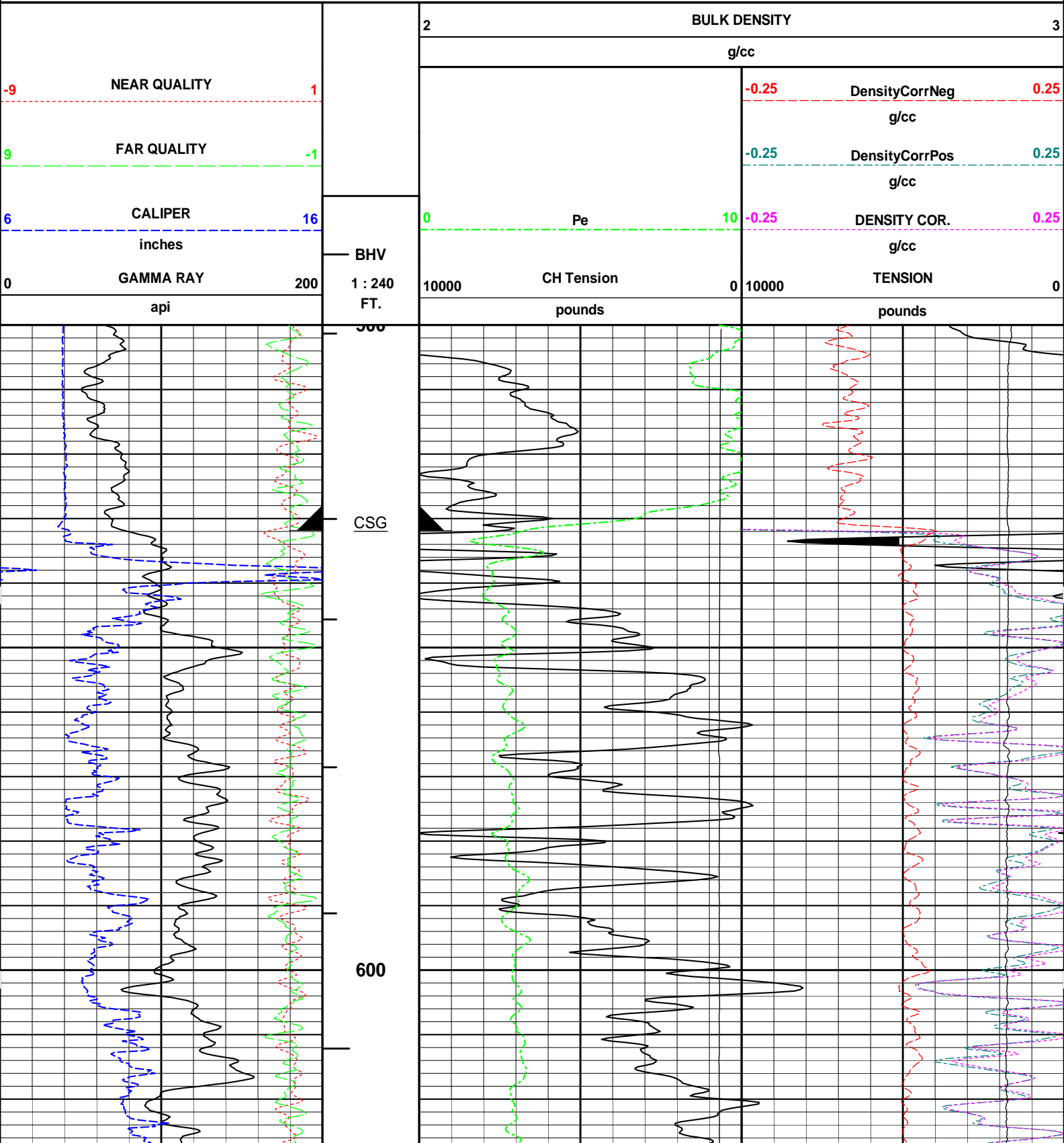
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	api							g/cc	
6	CALIPER	16	BHV	10000	TENSION	0	10000	CH Tension	0
	inches				pounds			pounds	
9	FAR QUALITY	-1	AHV	30	DEN POROSITY				-10
					2.65 g/cc				
-9	NEAR QUALITY	1		30	NEU POROSITY				-10
					SAND				

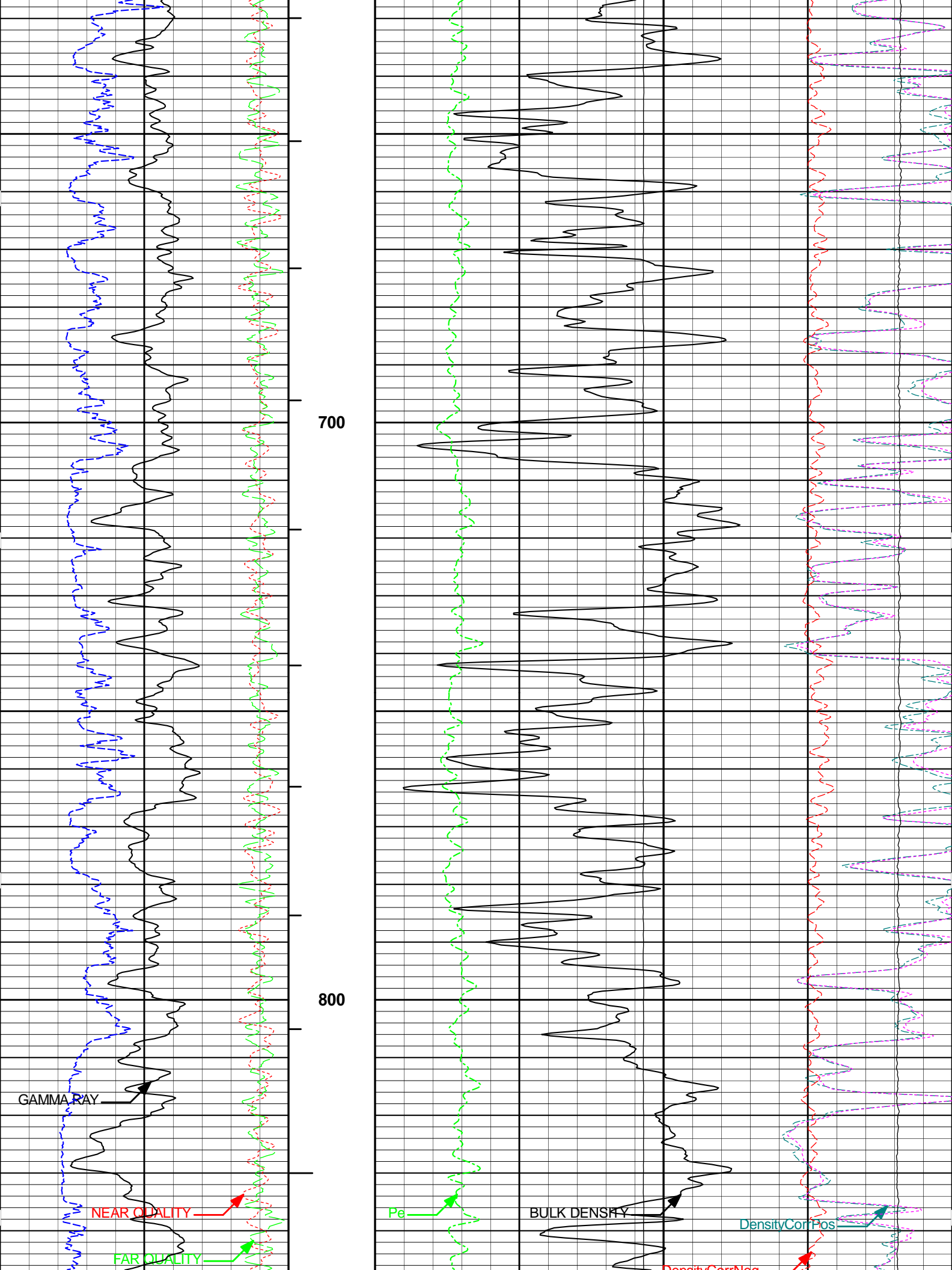
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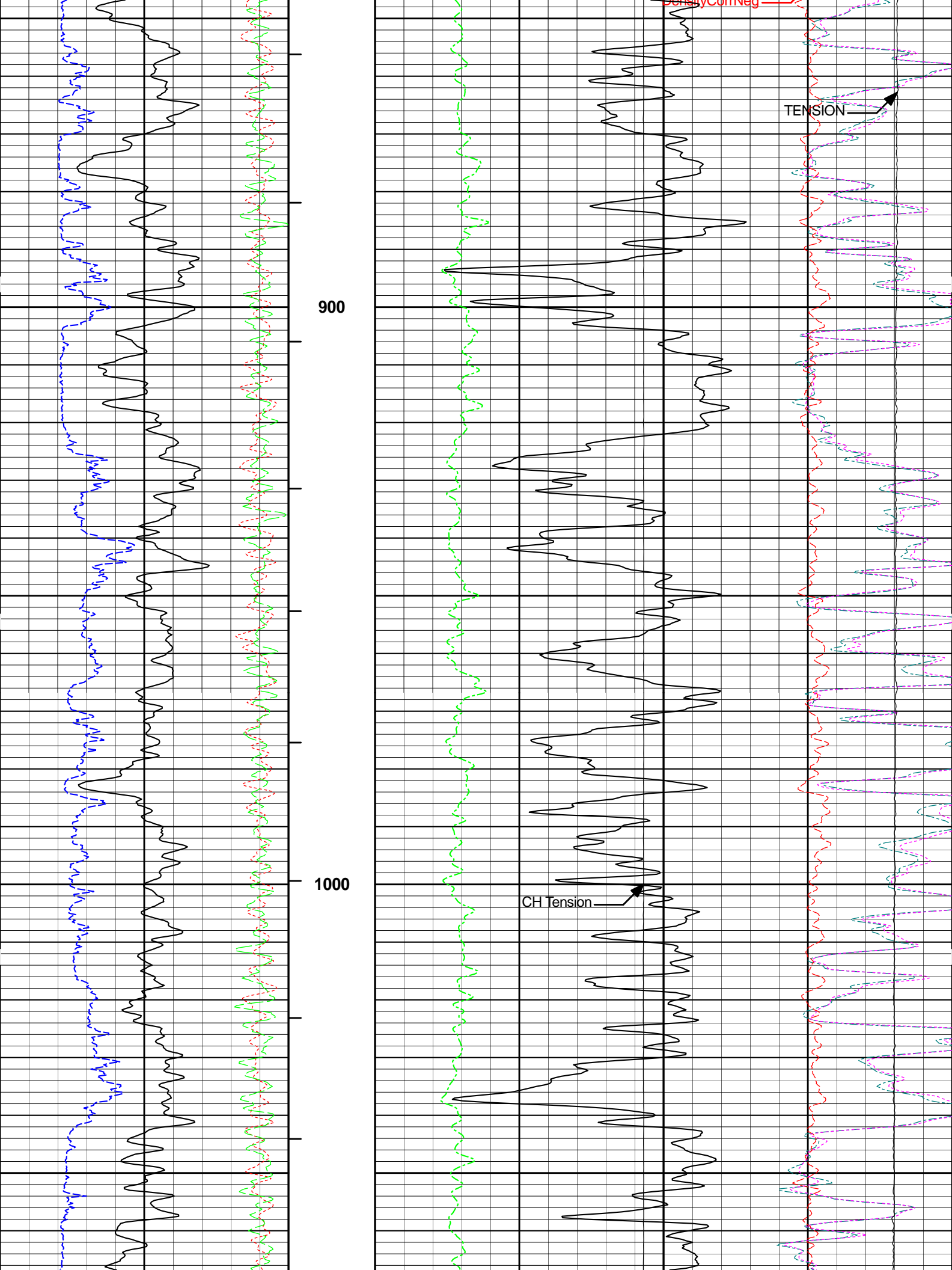
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 Plot Range: 3000 ft to 3364.52 ft
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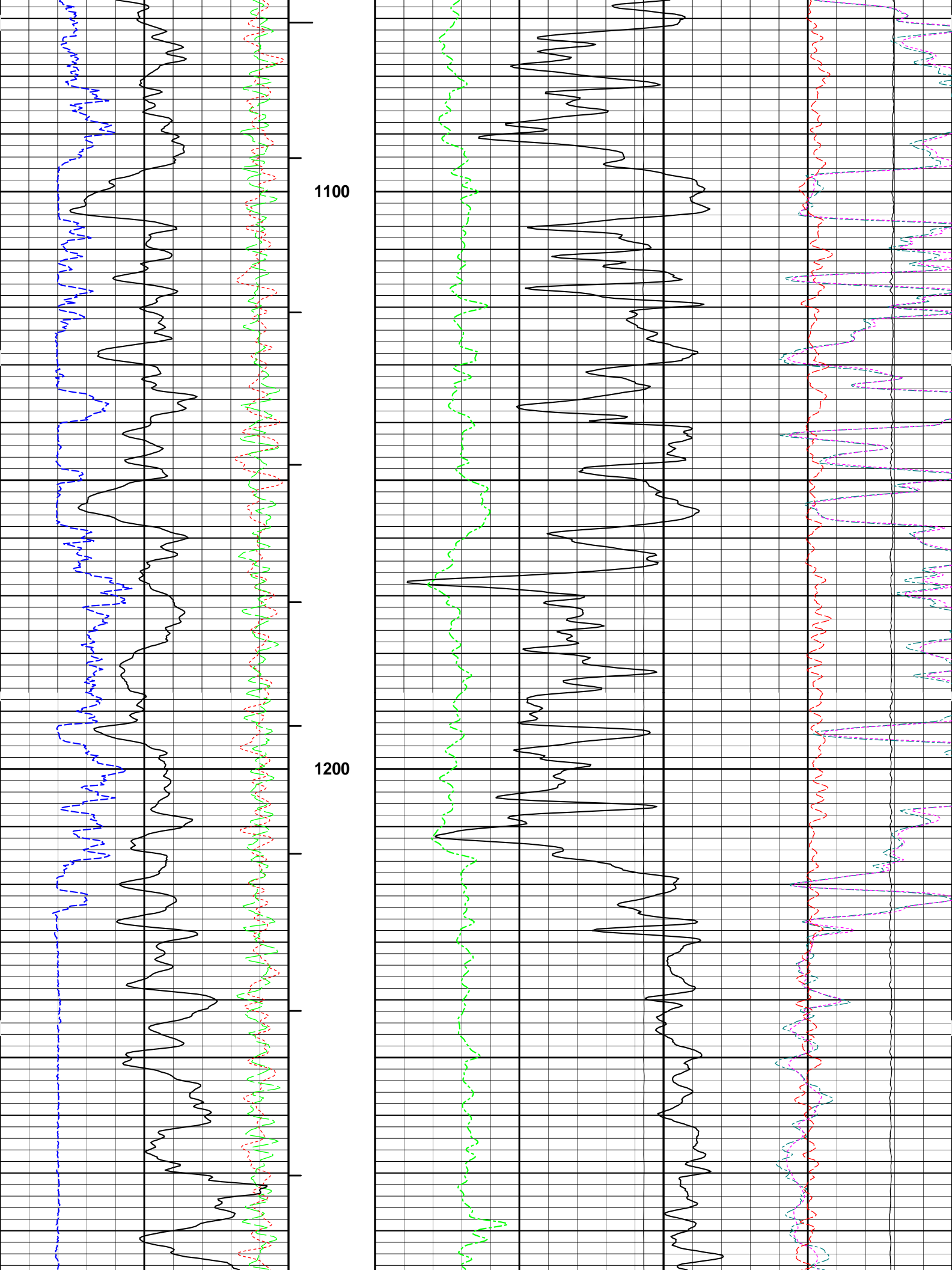
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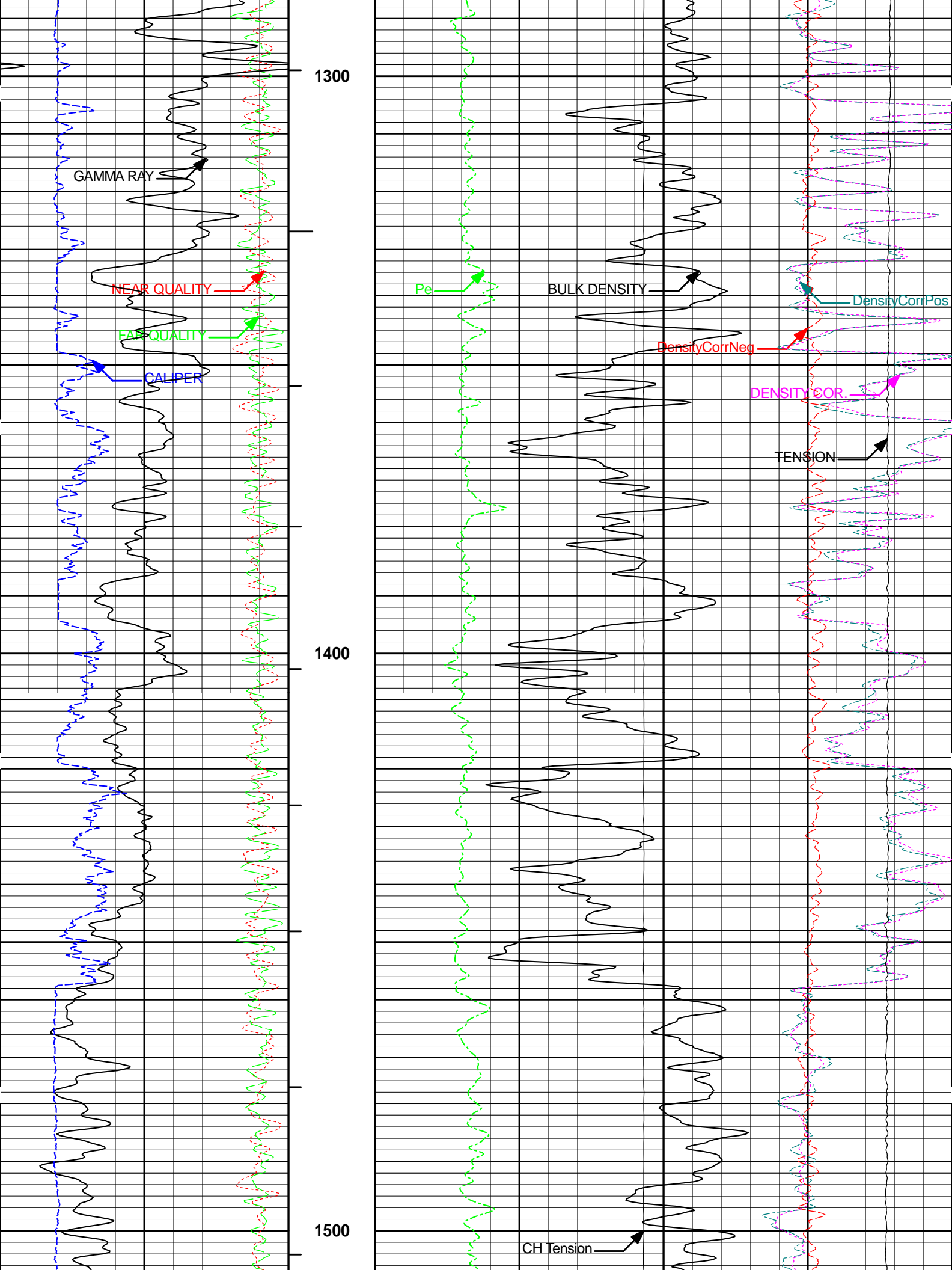
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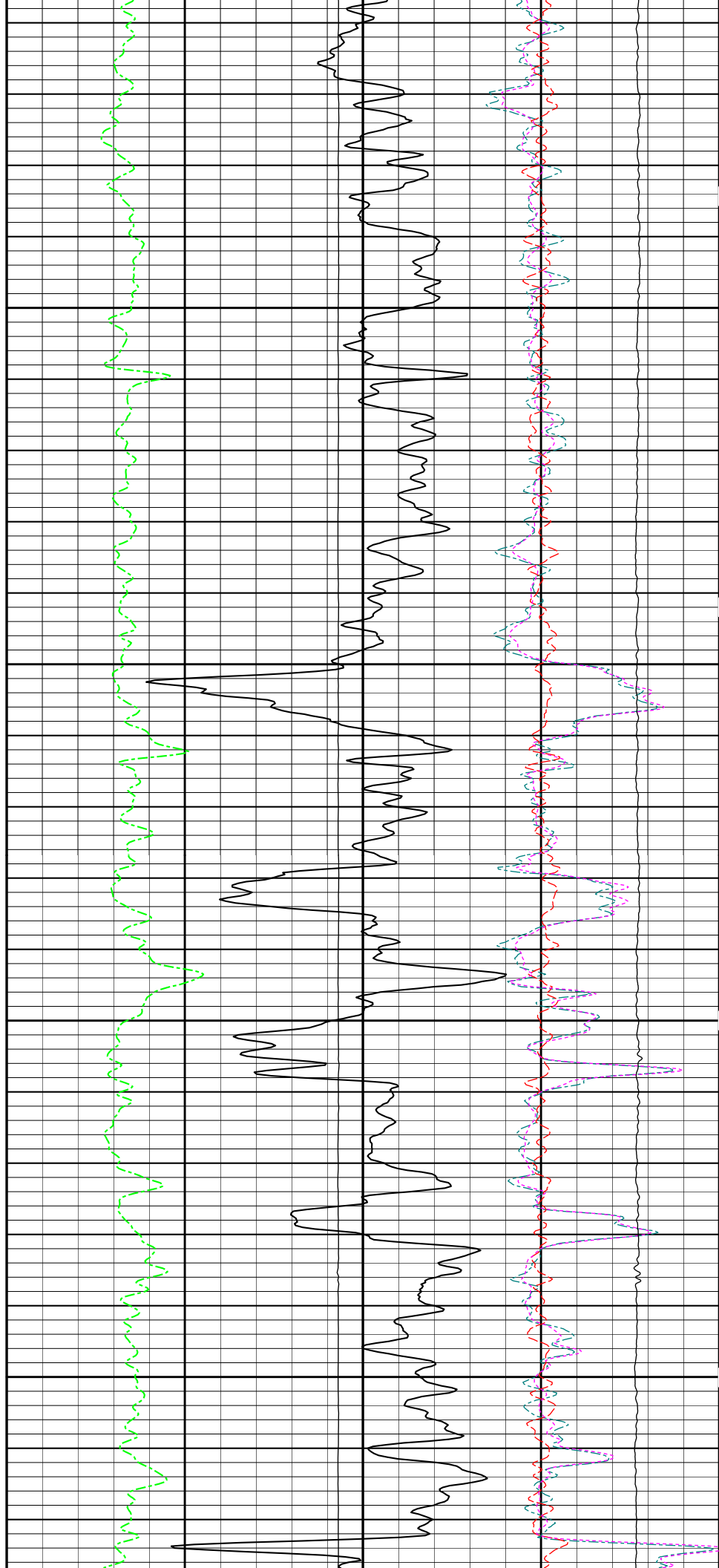
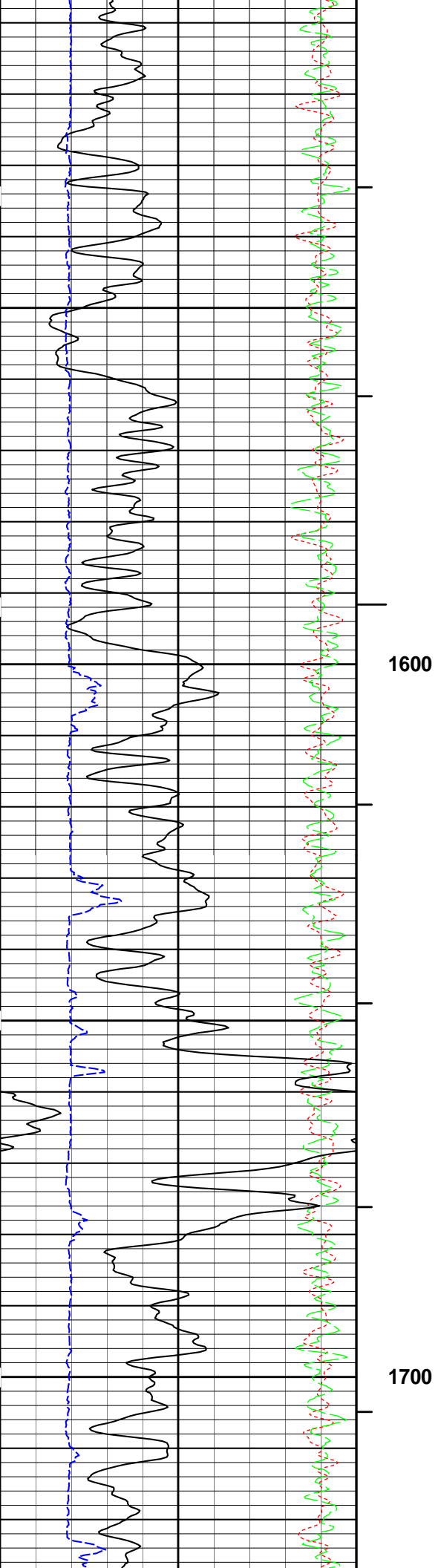


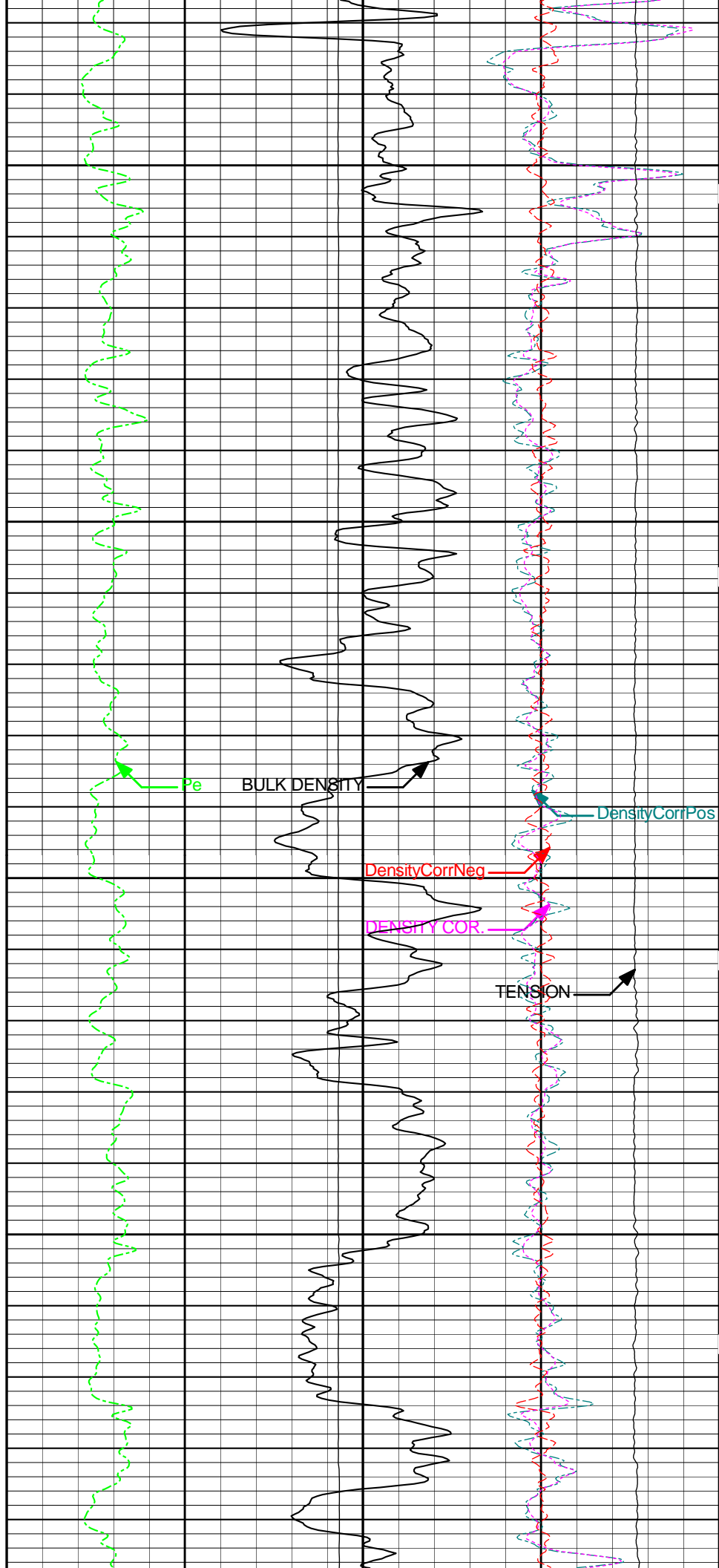
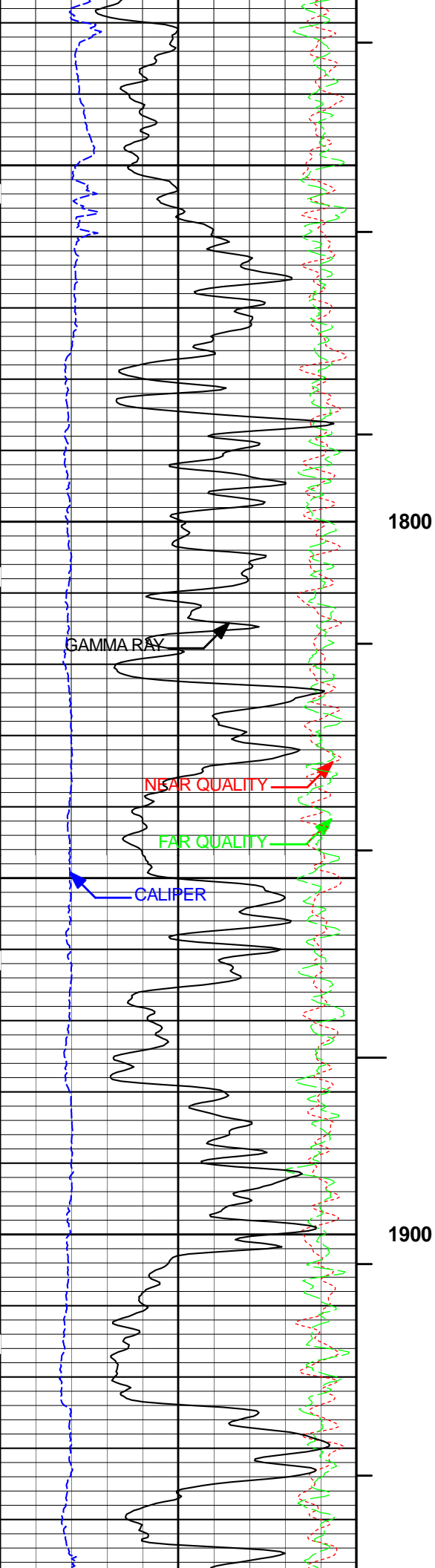


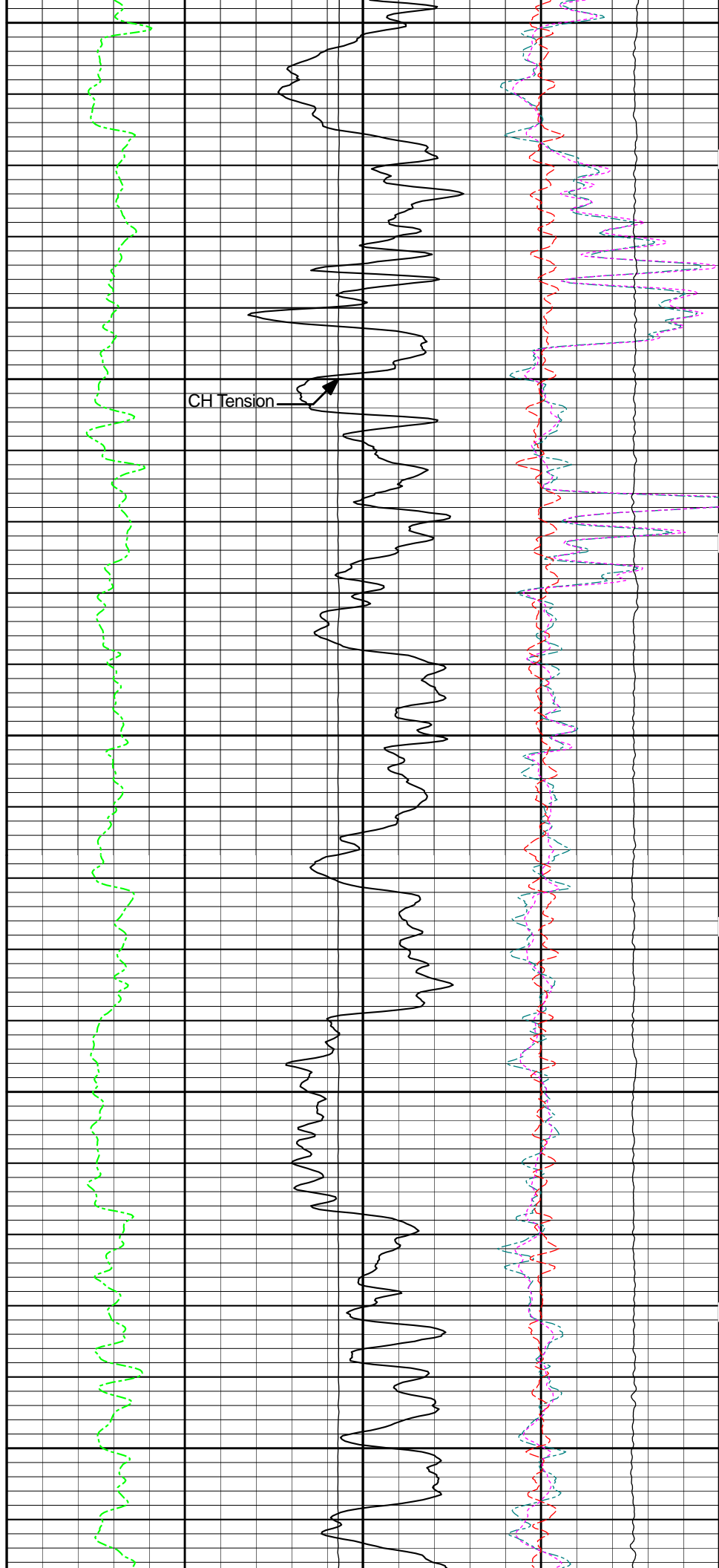
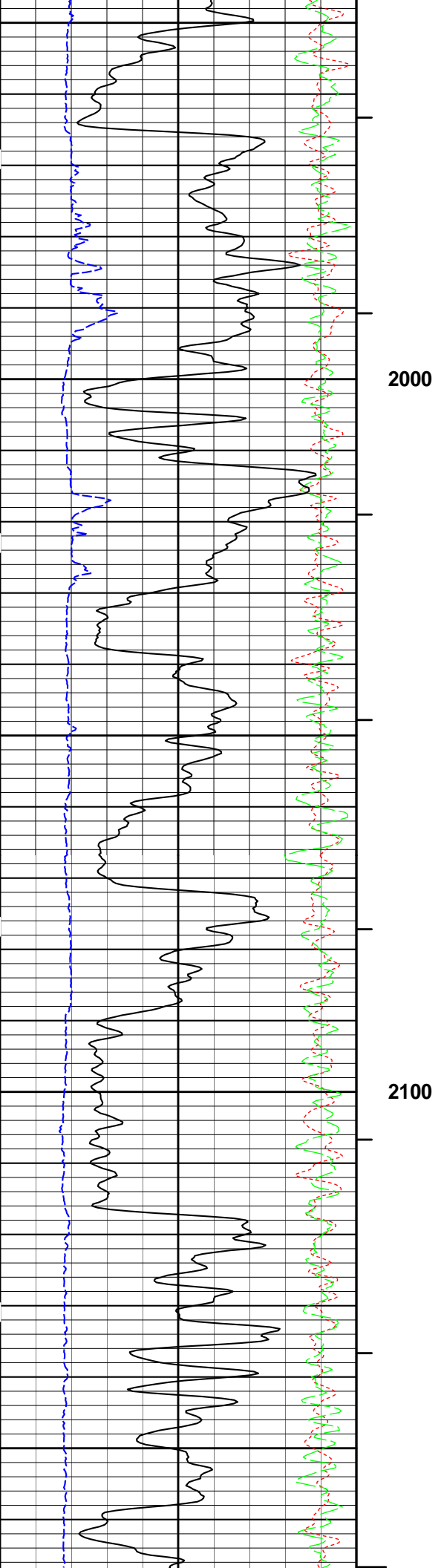


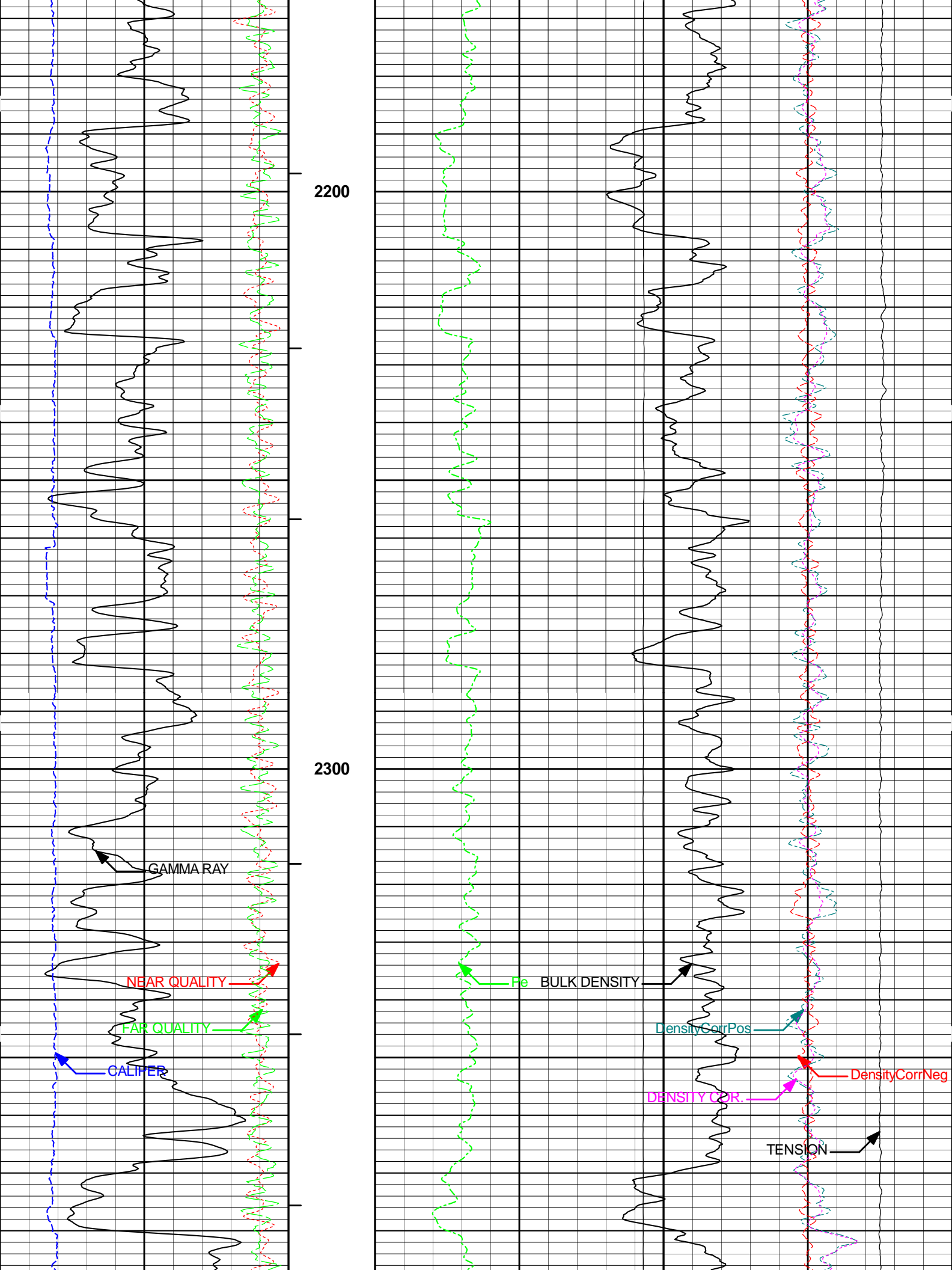


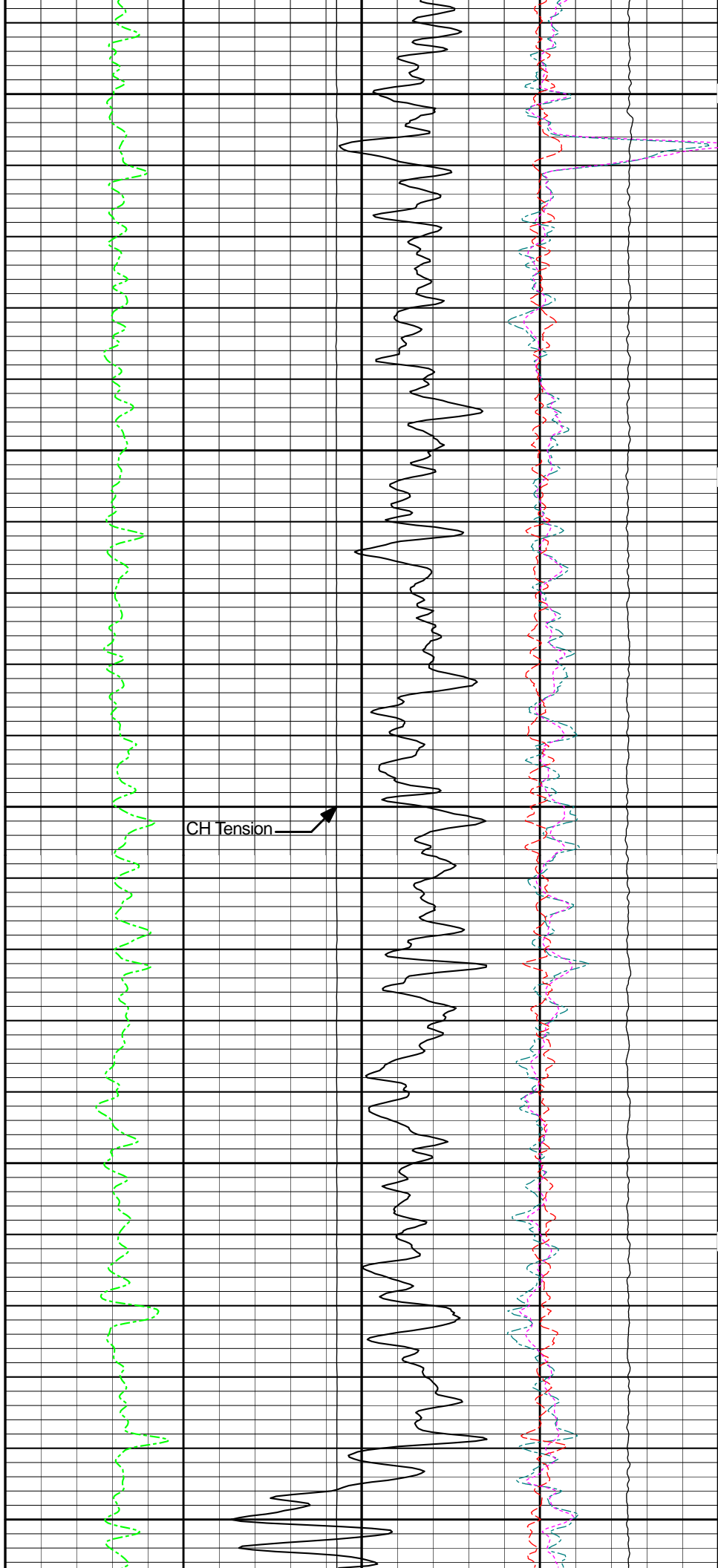
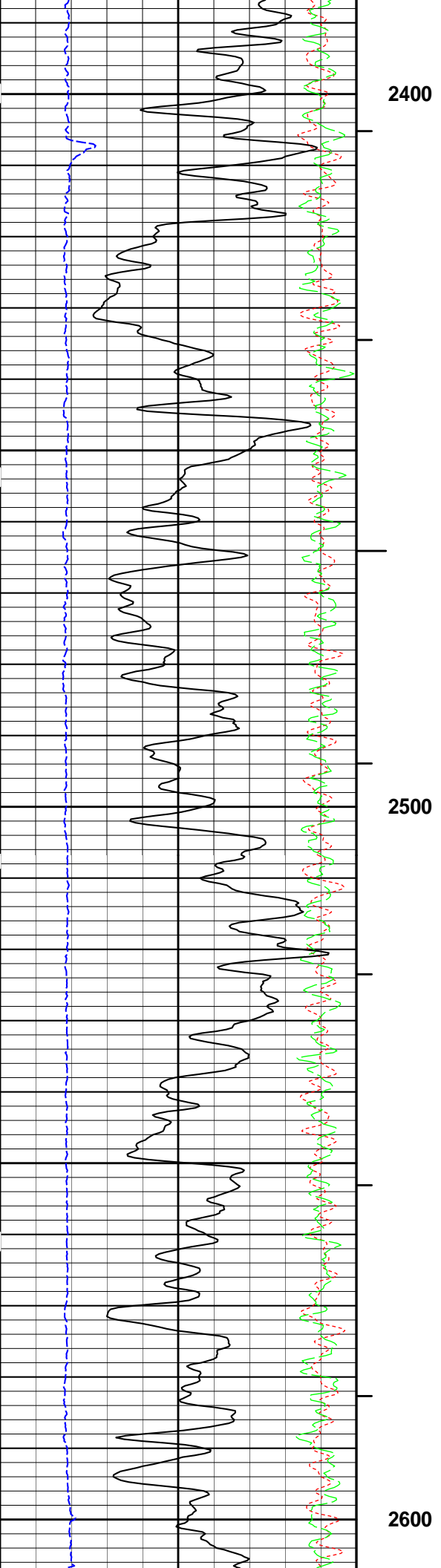


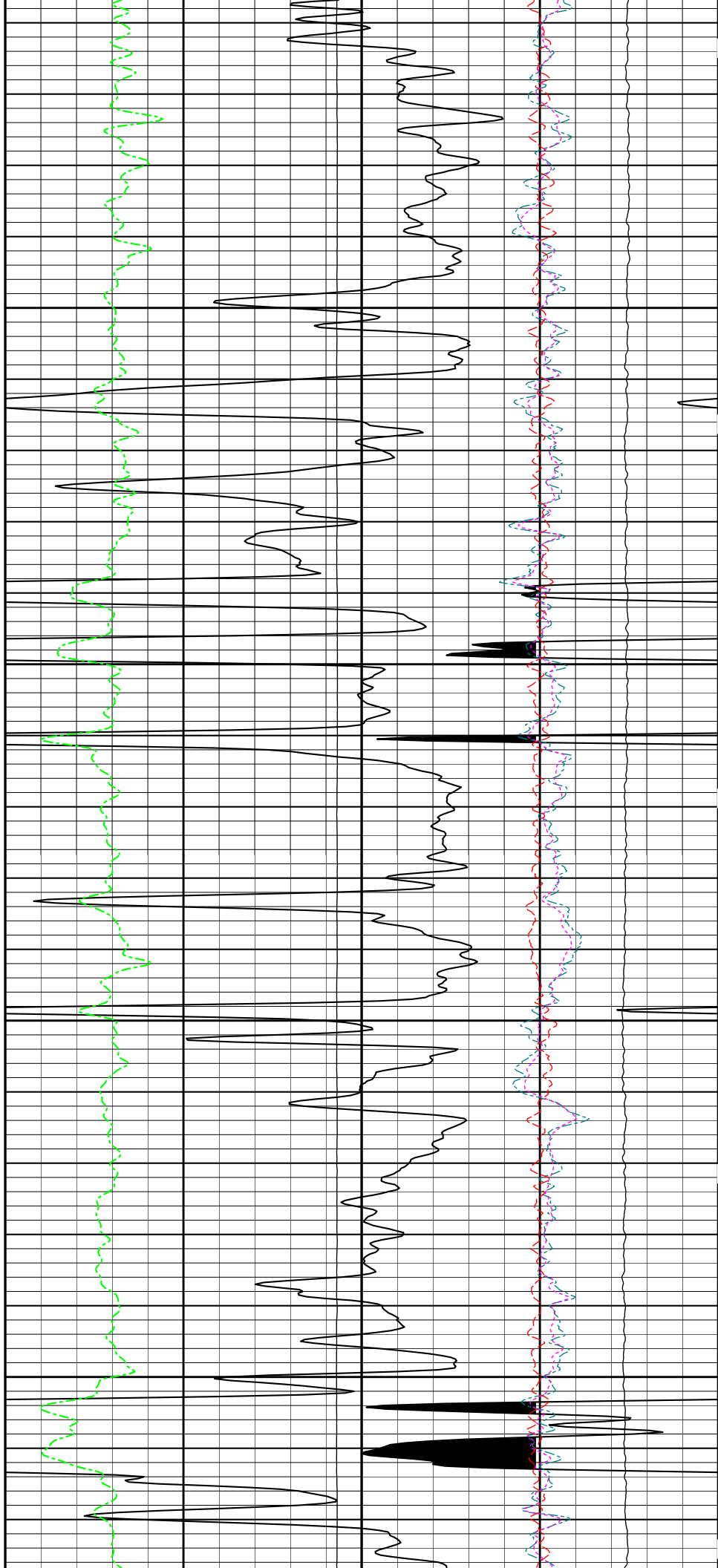
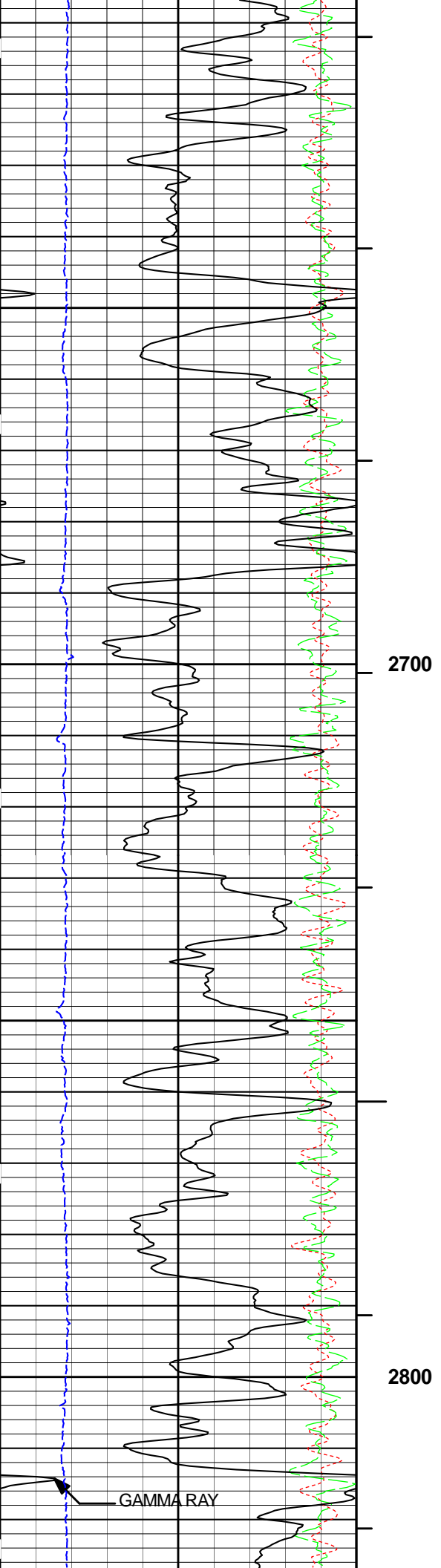


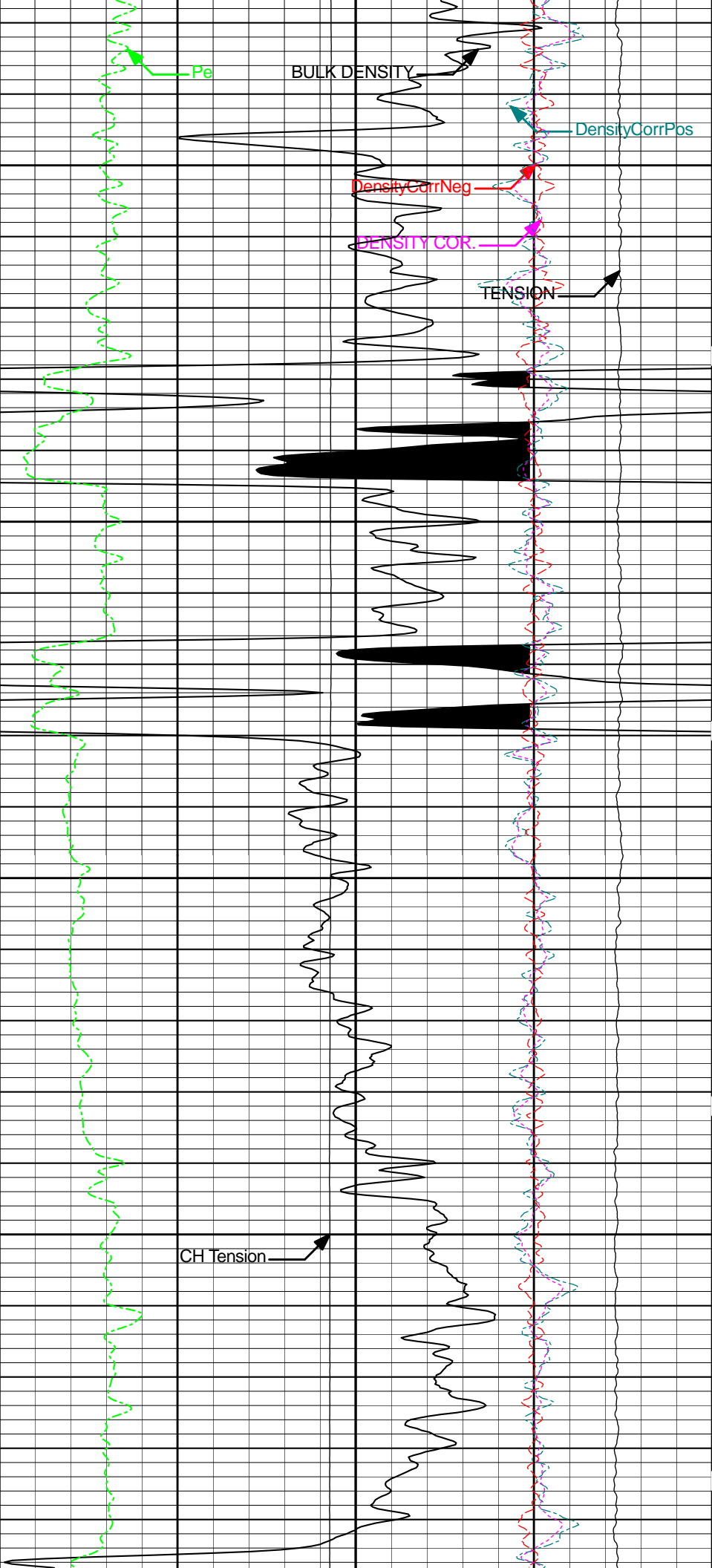
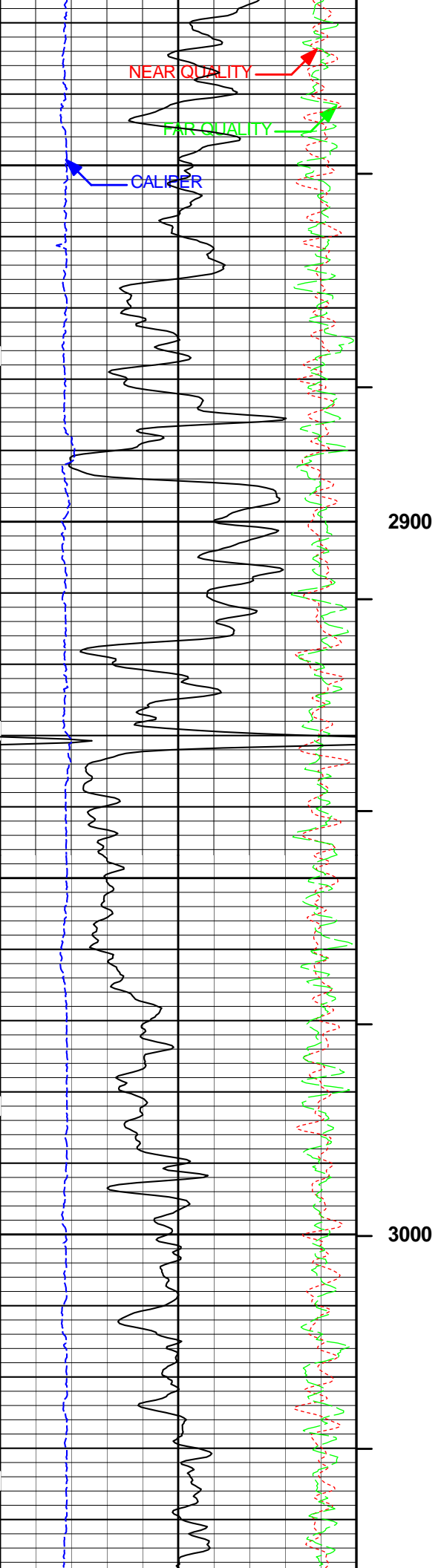


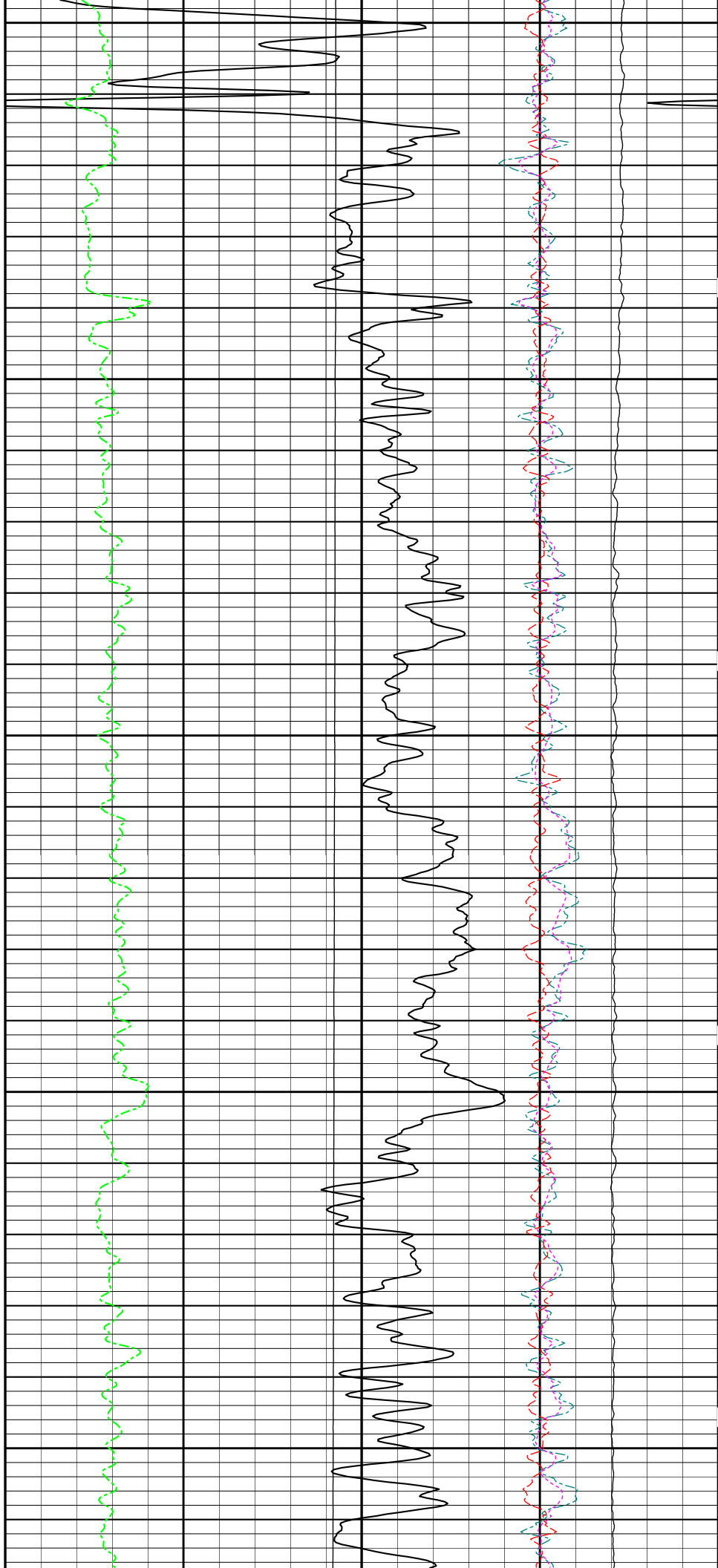
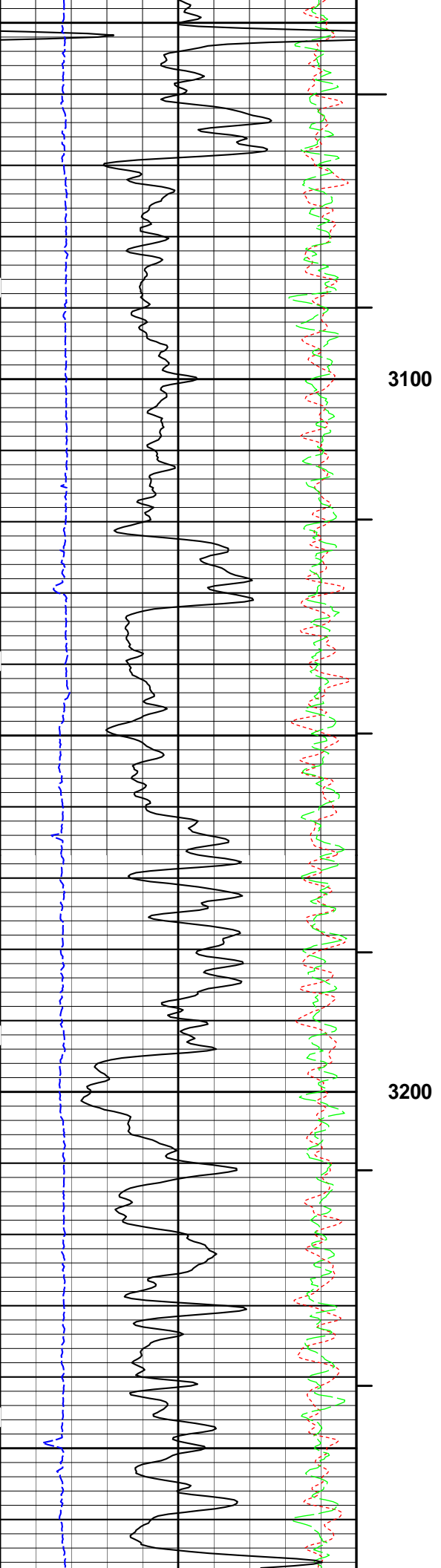


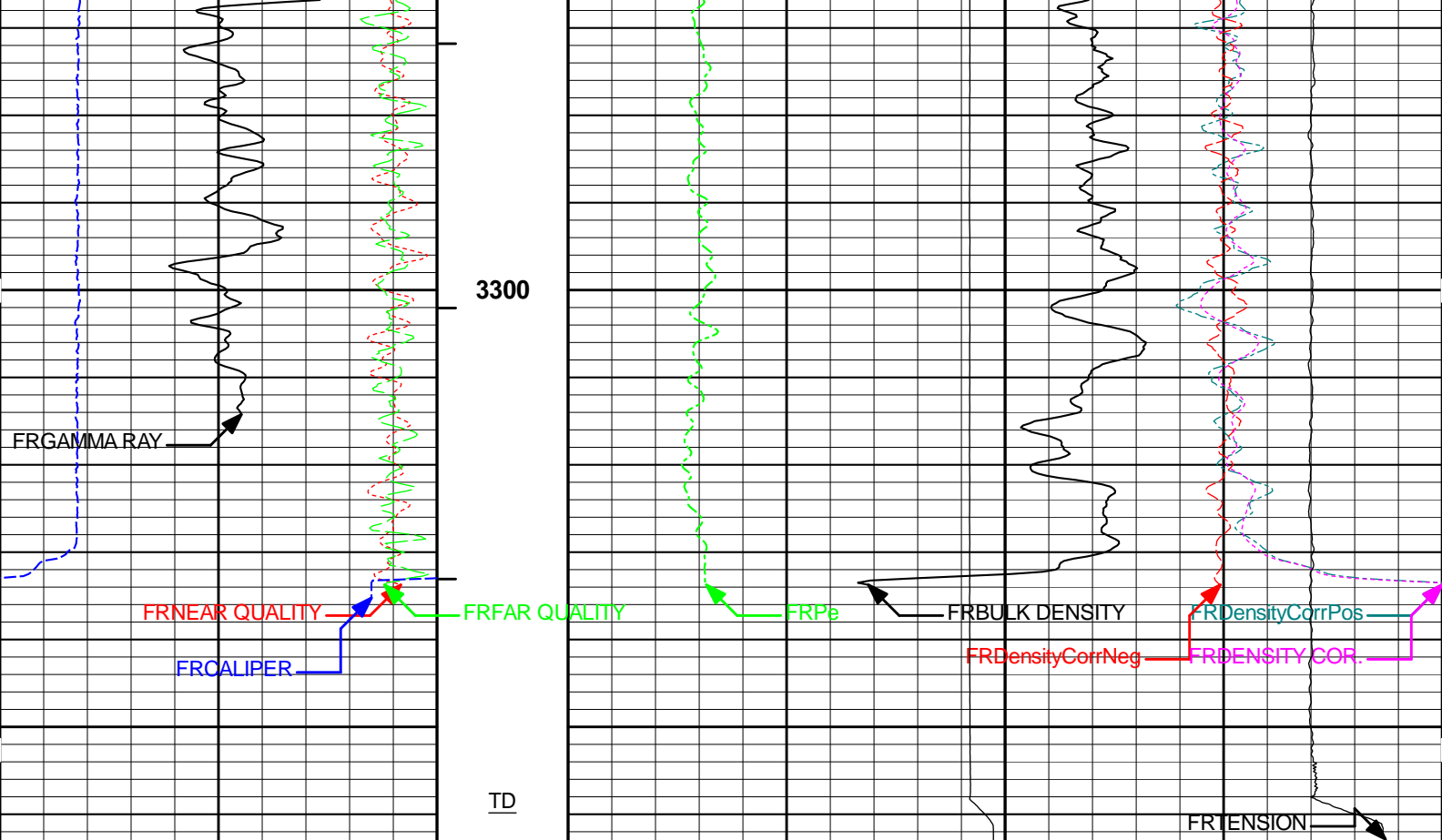












0	GAMMA RAY	200	1 : 240 FT.	10000	CH Tension	0	10000	TENSION	0
	api				pounds			pounds	
6	CALIPER	16		0	Pe	10	-0.25	DENSITY COR.	0.25
	inches		BHV					g/cc	
9	FAR QUALITY	-1					-0.25	DensityCorrPos	0.25
								g/cc	
-9	NEAR QUALITY	1					-0.25	DensityCorrNeg	0.25
								g/cc	
				2	BULK DENSITY				3
					g/cc				

HALLIBURTON

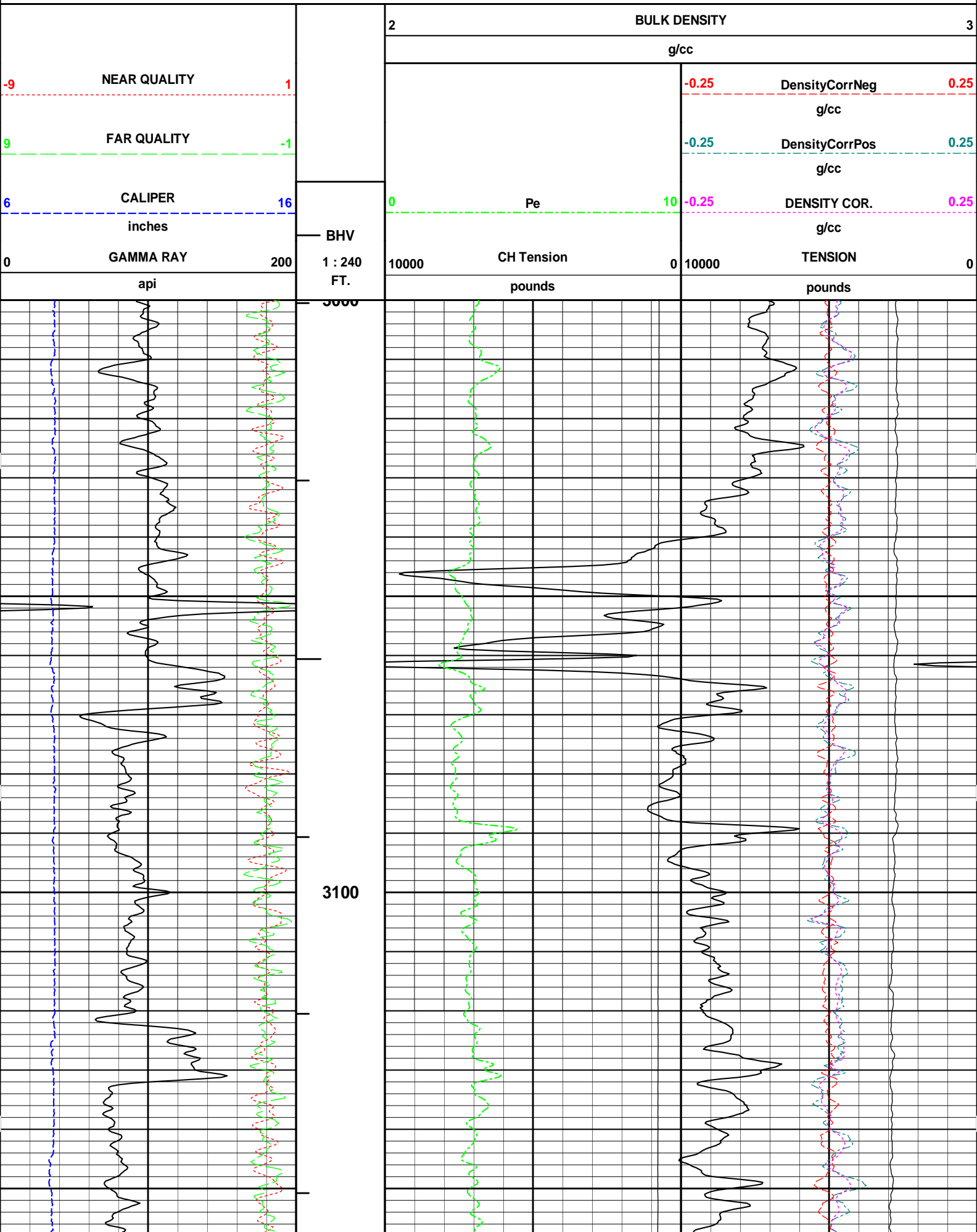
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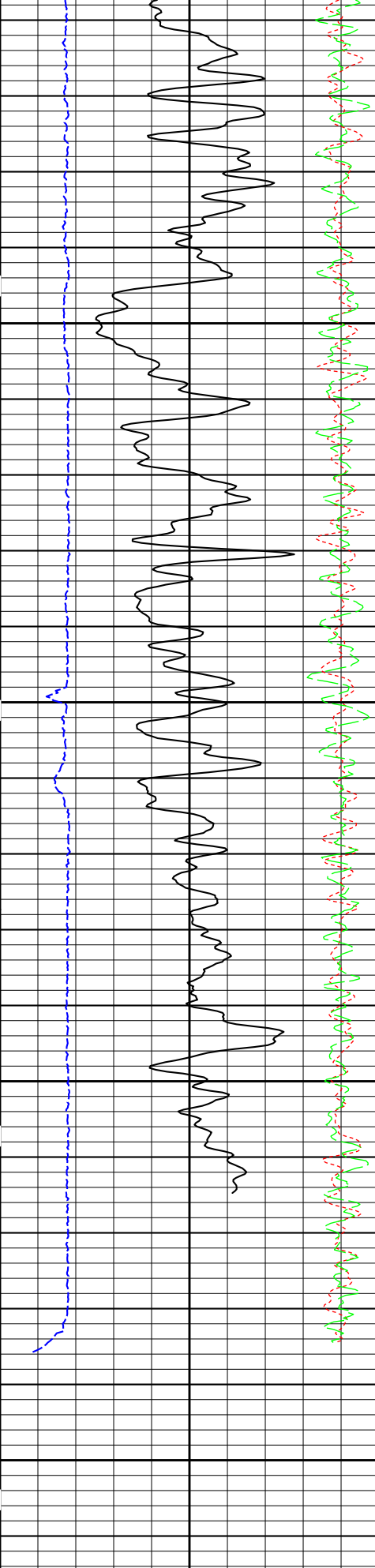
MAIN PASS 5" = 100'

HALLIBURTON

Plot Time: 20-Jul-14 18:24:05
 Plot Range: 3000 ft to 3364.52 ft
 Data: ELM_IGE_129\Well Based\REPEAT\
 Plot File: \\PORO\ RHOB_R

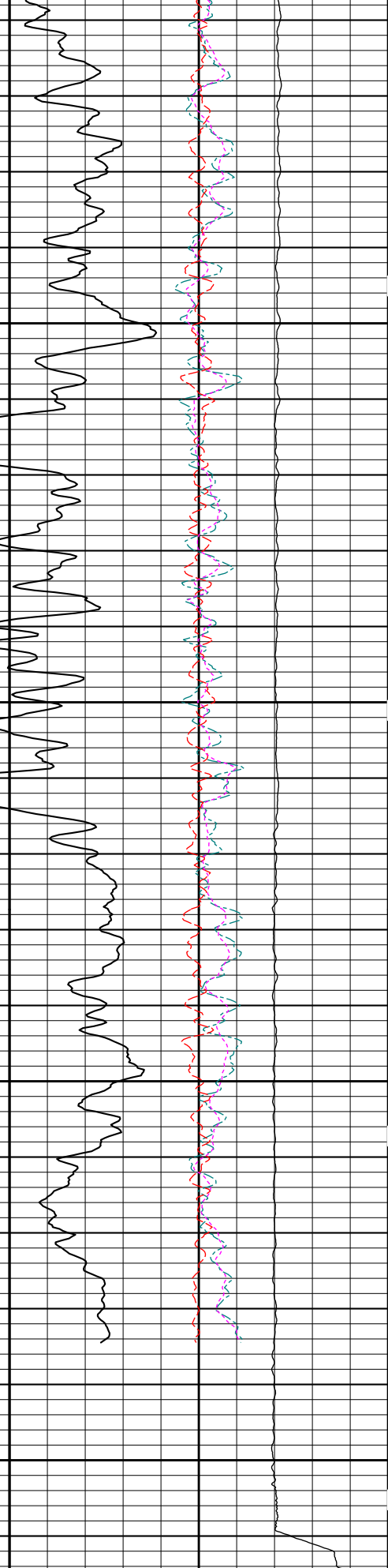
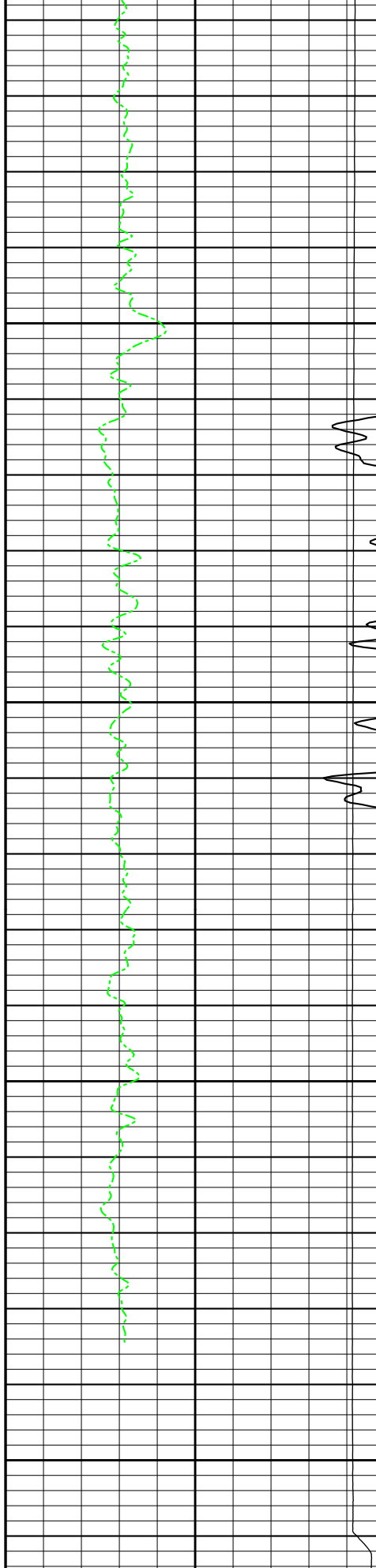
REPEAT PASS 5" = 100'





3200

3300



CALIPER	16	0	Pe	10	-0.25	DENSITY COR.	0.25
inches						g/cc	
FAR QUALITY	-1				-0.25	DensityCorrPos	0.25
NEAR QUALITY	1				-0.25	DensityCorrNeg	0.25
						g/cc	
		2	BULK DENSITY				3
			g/cc				

HALLIBURTON

Plot Time: 20-Jul-14 18:24:07
Plot Range: 3000 ft to 3364.52 ft
Data: ELM_IGE_129\Well Based\REPEAT\
Plot File: \\PORO\RHOB_R

REPEAT PASS 5" = 100'

HALLIBURTON

CALIBRATION REPORT

NATURAL GAMMA RAY TOOL SHOP CALIBRATION

Tool Name:	GTET - 11958949	Reference Calibration Date:	22-Jun-14 20:48:36
Engineer:	P. DIMPFL	Calibration Date:	10-Jul-14 10:47:44
Software Version:	WL INSITE R4.2.0 (Build 2)	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	23.7	23.9	api
Background + Calibrator	265.3	267.0	api
Calibrator	241.6	243.2	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION

Tool Name:	GTET - 11958949	Reference Calibration Date:	10-Jul-14 10:47:44
Engineer:	B. RIDDEL	Calibration Date:	20-Jul-14 15:31:28
Software Version:	WL INSITE R4.2.0 (Build 2)	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	23.9	33.6	api
Background + Calibrator	267.0	277.3	api
Calibrator	243.2	243.7	api

Shop	Field	Difference	Tolerance
243.2	243.7	-0.5	+/- 9.00

DUAL SPACED NEUTRON SHOP CALIBRATION

Tool Name:	DSNT - 10993888	Reference Calibration Date:	25-May-14 14:24:28
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Tool Name:	DSNT - 10993888	Reference Calibration Date:	28-Jun-14 10:40:51
Engineer:	B. RIDDEL	Calibration Date:	28-Jun-14 10:40:51
Software Version:	WL INSITE R4.2.0 (Build 2)	Calibration Version:	1

Logging Source S/N: DSN-388
Tank Serial Number: GJ WATER TANK
Reference value assigned to Tank: 52.750
Snow Block S/N: GJ SNOW BLOCK
Calibration Tank Water Temperature: 70 degF
Min. Tool Housing Outside Diameter: 3.625 in

CALIBRATION CONSTANTS			
Measurement	Prev. Value	New Value	Control Limit On New Value

Gain:	0.993	0.989	0.900 - 1.100
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WATER TANK SUMMARY (Horizontal Water Tank)				
Measurement	Current Reading (Previous Coef.)	Calibrated (New Coef.)	Change	Control Limit On Change

Porosity (decp):	0.2180	0.2169	0.0011	+/- 0.0020
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Calibrated Ratio:	9.97	9.93	0.036	+/- 0.050
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VERIFIER		
Measurement	Value	Control Limit

Snow-Block Porosity (decp):	0.0677	0.02000 - 0.09000
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PASS/FAIL SUMMARY	
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Background Check:	Passed
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Gain-Range Check:	Passed
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Snow-Block Check:	Passed
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DUAL SPACED NEUTRON FIELD CALIBRATION			
Tool Name:	DSNT - 10993888	Reference Calibration Date:	28-Jun-14 10:40:51
Engineer:	B. RIDDEL	Calibration Date:	20-Jul-14 15:34:37
Software Version:	WL INSITE R4.2.0 (Build 2)	Calibration Version:	1

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

NEUTRON FIELD-CHECK SUMMARY				
	Shop	Field	Difference	Control Limit On Change

Snow-Block Porosity (decp):	0.0677	0.0667	-0.0010	+/- 0.0150
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PASS/FAIL SUMMARY	
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Block Change Check:	Passed
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Snow Block Stat Check:	Passed
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Temperature Check:	Passed
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DENSITY CALIPER SHOP CALIBRATION			
Tool Name:	SDLT - 10951300	Reference Calibration Date:	10-Jul-14 11:07:24
Engineer:	P. DIMPFL	Calibration Date:	10-Jul-14 11:12:44
Software Version:	WL INSITE R4.2.0 (Build 2)	Calibration Version:	1
Host Tool Name:	DSNT - 10993888		

CALIBRATION COEFFICIENTS			
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Measurement	Previous Value	New Value	Control Limit On New Value
Pad Offset	-2172.26	-2293.52	-7000.00 - -1000.00
Pad Gain	0.0003726	0.0003755	0.000200 - 0.000600
Arm Offset	-3465.87	-2435.91	-5000.00 - 3000.00
Arm Gain	0.0005189	0.0004306	0.000300 - 0.000700
Arm Power	-0.000002402	0.000004077	-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)	2.03	2.00	-0.03	+/- 0.20
Medium Ring (in)	3.77	3.75	-0.02	+/- 0.20
RING DIAMETER:				
Small Ring (in)	6.39	6.50	0.11	+/- 0.20
Medium Ring (in)	8.31	8.25	-0.06	+/- 0.20
Large Ring (in)	15.04	15.00	-0.04	+/- 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:	SDLT - 10951300	Reference Calibration Date:	10-Jul-14 11:12:44
Engineer:	B. RIDDEL	Calibration Date:	20-Jul-14 15:31:41
Software Version:	WL INSITE R4.2.0 (Build 2)	Calibration Version:	1

MEASURED CALIPER VALUES				
Measurement	Shop	Field	Change	Control Limit On New Value
Pad Extension	3.75	3.67	-0.08	+/- 0.10
Ring Diameter	8.25	8.23	-0.02	+/- 0.15

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

SPECTRAL DENSITY SHOP CALIBRATION			
Tool Name:	SDLT Pad - 10865876	Reference Calibration Date:	25-May-14 15:18:52
Engineer:	B. RIDDEL	Calibration Date:	28-Jun-14 12:17:40
Software Version:	WL INSITE R4.2.0 (Build 2)	Calibration Version:	1

Logging Source S/N: 5153GW

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	1.0541	1.0235	0.90 - 1.10
Near Dens Gain	1.0299	1.0169	0.90 - 1.10
Near Back Gain	1.0185	1.0166	0.90 - 1.10

Near Peak Gain	1.0183	1.0188	0.90 - 1.10
Near Lith Gain	0.9975	0.9896	0.90 - 1.10
Far Bar Gain	1.0156	1.0115	0.90 - 1.10
Far Dens Gain	1.0025	1.0003	0.90 - 1.10
Far Peak Gain	1.0001	0.9977	0.90 - 1.10
Far Lith Gain	0.9826	0.9770	0.90 - 1.10
Near Bar Offset	-0.3054	-0.0278	NONE
Near Dens Offset	-0.0868	0.0302	NONE
Near Peak Offset	0.0052	0.0199	NONE
Near Lith Offset	0.1622	0.2260	NONE
Far Bar Offset	-0.0060	0.0261	NONE
Far Dens Offset	0.0908	0.1086	NONE
Far Peak Offset	0.0984	0.1163	NONE
Far Lith Offset	0.2118	0.2551	NONE
Near Bar Background	871.13	869.66	700 - 1450
Near Dens Background	287.76	291.23	230 - 480
Near Peak Background	129.50	129.43	100 - 210
Near Lith Background	155.43	157.91	125 - 260
Far Bar Background	535.04	536.80	450 - 900
Far Dens Background	209.06	208.59	175 - 345
Far Peak Background	82.88	83.12	70 - 140
Far Lith Background	85.74	86.65	75 - 145

CALIBRATION BLOCK SUMMARY				
Measurement	Current Reading (Previous Coef)	Calibrated (New Coef)	Change	Control Limit On Change
MAGNESIUM				
Density (g/cc)	1.680	1.681	0.001	+/- 0.015
Pe	2.558	2.560	0.002	+/- 0.150
ALUMINUM				
Density (g/cc)	2.606	2.608	0.002	+/- 0.01500
Pe	3.154	3.180	0.026	+/- 0.150

TOOL SUMMARY				
Measurement	Near Detector		Far Detector	
	Value	Control Limits	Value	Control Limits
QUALITY				
Background	-0.0009	+/- 0.0110	0.0016	+/- 0.0140
Magnesium Block	0.0011	+/- 0.0110	-0.0023	+/- 0.0140
Aluminum Block	0.0003	+/- 0.0110	0.0003	+/- 0.0140
Resolution	9.09	6.00 - 11.50	9.51	6.00 - 11.50
Internal Verifier(B+D+P+L)	1448	1200 - 2700	915	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 - 10865876

Reference Calibration Date: 28-Jun-14 12:17:40

Engineer: B. RIDDEL

Calibration Date: 20-Jul-14 15:31:54

Software Version: WL INSITE R4.2.0 (Build 2)

Calibration Version: 1

Pad Temperature: 101.1 degF

DENSITY FIELD CALIBRATION SUMMARY

Measurement	Shop	Field	Change	Control Limit +/-
Near (B+D+P+L) cps	1448.228	1447.513	-0.715	15.352
Far (B+D+P+L) cps	915.163	910.806	-4.357	16.409
Near Resolution	9.09	8.91	-0.180	0.50
Far Resolution	9.51	9.41	-0.100	1.00

PASS/FAIL SUMMARY

Bkg Quality Check:	Passed
Bkg Resolution Check:	Passed
Bkg Verification Check:	Passed

ARRAY COMPENSATED TRUE RESISTIVITY SHOP CALIBRATION

Tool Name: ACRt Sonde - 11585797

Reference Calibration Date: 08-Jul-14 09:48:08

Engineer: P. DIMPFL

Calibration Date: 08-Jul-14 09:59:43

Software Version: WL INSITE R4.2.0 (Build 2)

Calibration Version: 1

Host Tool Name: ACRt Instrument - 11585787

TYPICAL GAIN RANGE

Subarray	R12KHz			R36KHz			R72KHz		
	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper
A1 (80")	0.95	1.0076	1.05	0.95	1.0083	1.05	0.95	1.0046	1.05
A2 (50")	0.95	1.0155	1.05	0.95	1.0168	1.05	0.95	1.0181	1.05
A3 (29")	0.95	1.0049	1.05	0.95	1.0050	1.05	0.95	1.0037	1.05
A4 (17")	0.95	1.0005	1.05	0.95	0.9982	1.05	0.95	0.9992	1.05
A5 (10")	N/A	N/A	N/A	0.95	1.0103	1.05	0.95	1.0105	1.05
A6 (6")	N/A	N/A	N/A	0.95	0.9903	1.05	0.95	0.9898	1.05

SONDE OFFSET

Subarray	R12KHz	R36KHz	R72KHz
	(mmho/m)	(mmho/m)	(mmho/m)
A1 (80")	-1.314	-4.277	-5.318
A2 (50")	-2.286	-3.322	-4.747
A3 (29")	-15.677	-4.432	-3.326
A4 (17")	-119.917	-35.740	-27.414
A5 (10")	N/A	-97.982	-50.478
A6 (6")	N/A	311.054	157.558

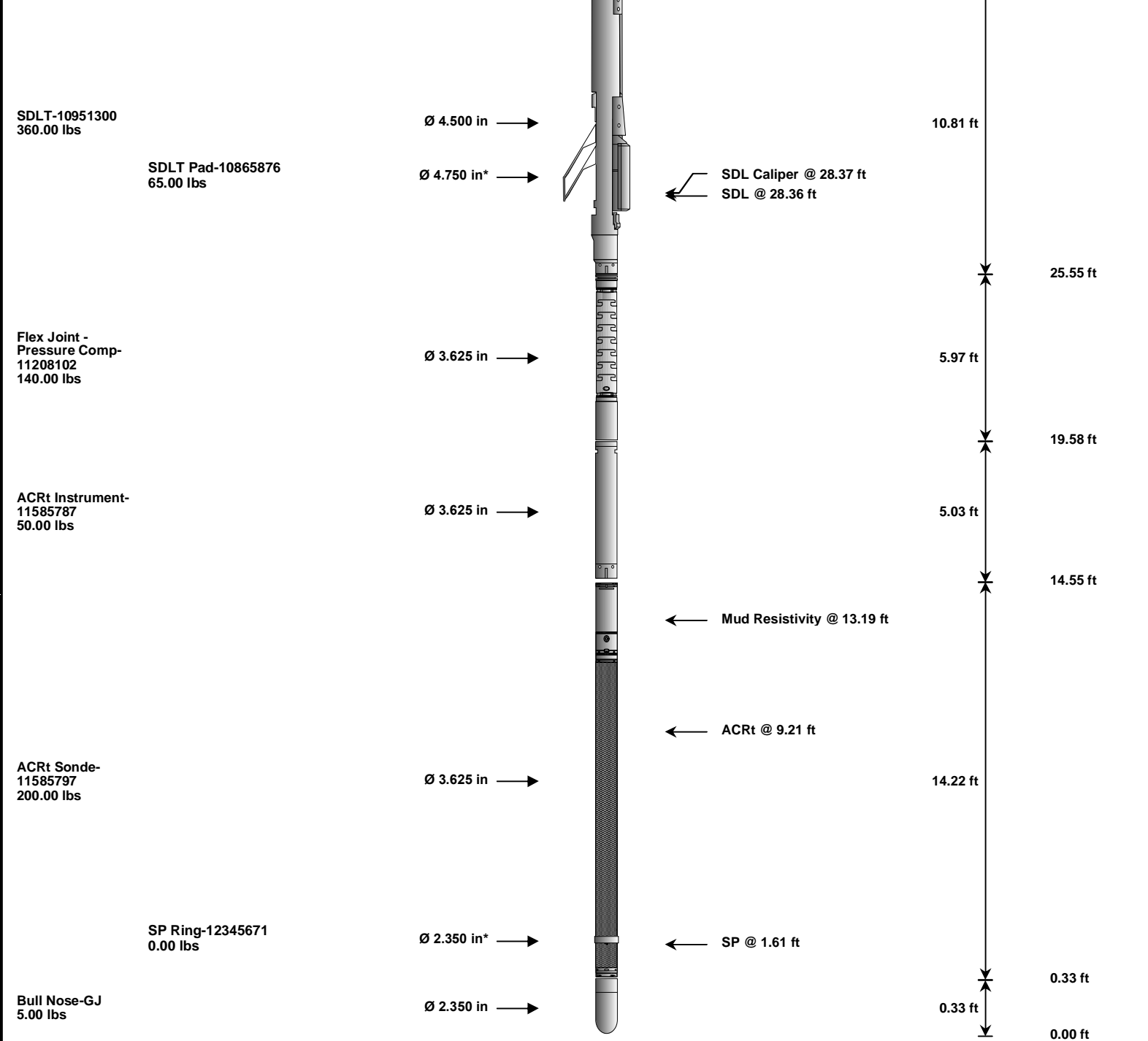
TRANSMITTER CURRENT GAIN

Signal	Lower	R	Upper
12K	0.6	0.88	1.3
36K	1.0	1.83	2.0
72K	1.0	1.13	2.0

R-MUD VERIFICATION

Signal	Lower (ohm-m)	Measured (ohm-m)	Upper (ohm-m)
Mud Cell	0.95	1.00	1.05

PASS/FAIL SUMMARY						
GAIN RANGE CHK				PASS		
SONDE OFFSET CHK				PASS		
TOOL OK TO LOG						
CALIBRATION SUMMARY						
Sensor	Shop	Field	Post	Difference	Tolerance	Units
GTET-11958949						
Gamma Ray Calibrator	243.2	243.7	-----	-0.5	+/- 9.00	api
DSNT-10993888						
Snow-Block Porosity	0.0677	0.0667	-----	0.0010	+/- 0.0150	decp
SDLT-10951300						
Pad Extension	3.75	3.67	-----	0.08	+/-0.10	in
Ring Diameter	8.25	8.23	-----	0.02	+/-0.15	in
SDLT Pad-10865876						
Near(B+D+P+L)	1448.228	1447.513	-----	0.715	+/-15.352	cps
Far(B+D+P+L)	915.163	910.806	-----	4.357	+/-16.409	cps
ACRt Sonde-11585797						
Mud Cell	1.00	-----	-----	0.00	-----	ohm-m
Data: ELM IGE 129\0001 TRIPLEVDLE				Date: 20-Jul-14 15:44:23		
HALLIBURTON						
TOOL STRING DIAGRAM REPORT						
Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
RWCH-A032 135.00 lbs		Ø 3.625 in →		← Load Cell @ 57.14 ft ← BH Temperature @ 56.57 ft	6.25 ft	60.82 ft
GTET-11958949 165.00 lbs		Ø 3.625 in →		← GammaRay @ 48.51 ft	8.52 ft	54.57 ft
						46.05 ft
DSNT-10993888 174.00 lbs		Ø 3.625 in →		← DSN Far @ 39.11 ft ← DSN Near @ 38.36 ft	9.69 ft	
						36.36 ft



Mnemonic	Tool Name	Serial Number	Weight (lbs)	Length (ft)	Accumulated Length (ft)	Max.Log. Speed (fpm)
RWCH	Releasable Wireline Cable Head	A032	135.00	6.25	54.57	300.00
GTET	Gamma Telemetry Tool	11958949	165.00	8.52	46.05	60.00
DSNT	Dual Spaced Neutron	10993888	174.00	9.69	36.36	60.00
SDLT	Spectral Density Tool	10951300	360.00	10.81	25.55	60.00
SDLP	Density Insite Pad	10865876	65.00	2.55	* 27.76	60.00
FLEX	Flex Joint - Pressure Compensated	11208102	140.00	5.97	19.58	300.00
ACRt	Array Compensated True Resistivity Instrument Section	11585787	50.00	5.03	14.55	120.00
ACRt	Array Compensated True Resistivity Sonde Section	11585797	200.00	14.22	0.33	120.00
SP	SP Ring	12345671	0.00	0.25	* 1.61	300.00
BLNS	Bull Nose	GJ	5.00	0.33	0.00	300.00
Total			1,294.00	60.82		
* Not included in Total Length and Length Accumulation.						
Data: ELM_IGE_129\0001 TRIPLE\IDLE					Date: 20-Jul-14 15:43:19	

WELL	IGE 129		
FIELD	IGNACIO BLANCO		
COUNTY	LA PLATA	STATE	CO
HALLIBURTON		DUAL SPACED NEUTRON SPECTRAL DENSITY	