HALLIBURTON

DUAL SPACED NEUTRON SPECTRAL DENSITY LOG

COMPANY SANDRIDGE ENERGY
WELL EASTON 3419 1-21
FIELD/BLOCK COMANCHE COUNTY
COUNTY COMANCHE
STATE KANSAS

COMPANY **SANDRIDGE ENERGY**
WELL **EASTON 3419 1-21**
FIELD/BLOCK **COMANCHE COUNTY**
COUNTY **COMANCHE** STATE **KANSAS**

API No. 15-033-21706
Location (SHL) 350' FNL & 1980' FEL

Sect. 21 Twp. 34S Rge. 19W

Other Services:
SDL / DSN
CSNG
WSTT
ICT / IDT
ACRT
MRIL

Permanent Datum	GL	Elev. 1875.0 ft	Elev.: K.B. 1887.5 ft
Log measured from	KB	, 12.5 ft above perm. Datum	D.F. 1886.5 ft
Drilling measured from	KB		G.L. 1875.0 ft

Date		10-May-13					
Run No.		ONE					
Depth - Driller		6140.00 ft					
Depth - Logger		6122.0 ft					
Bottom - Logged Interval		6099					
Top - Logged Interval		836					
Casing - Driller		8.625 in @ 834.0 ft		@		@	
Casing - Logger		836.0 ft					
Bit Size		7.875 in		@		@	
Type Fluid in Hole		WATER BASED					
Density	Viscosity	8.8 ppg	65.00 s/qt				
PH	Fluid Loss	11.00 pH	4.4 cptm				
Source of Sample		MUD PIT					
Rm @ Meas. Temperature		0.370 ohmm @ 75.00 degF		@		@	
Rmf @ Meas. Temperature		0.31 ohmm @ 70.00 degF		@		@	
Rmc @ Meas. Temperature		0.420 ohmm @ 70.00 degF		@		@	
Source Rmf	Rmc	MEASURED	MEASURED				
Rm @ BHT		0.20 ohmm @ 142.0 degF		@		@	
Time Since Circulation		12.5 hr					
Time on Bottom		11-May-13 03:26					
Max. Rec. Temperature		142.0 degF @ 6122.0 ft		@		@	
Equipment	Location	10782954	LIBERAL				
Recorded By		S. INGERSOLL					
Witnessed By		NAKOA WILLIAMS					

Fold here

PGM Version: WL INSITE R3.8.4 (Build 5)

Service Ticket No.: 900424243 API Serial No.: 15-033-21706

CHANGE IN MUD TYPE OR ADDITIONAL SAMPLE

Date	Sample No.			
Depth-Driller				
Type Fluid in Hole				
Density	Viscosity			
Ph	Fluid Loss			
Source of Sample				
Rm @ Meas. Temp		@	@	@
Rmf @ Meas. Temp.		@	@	@
Rmc @ Meas. Temp.		@	@	@
Source Rmf	Rmc			
Rm @ BHT		@	@	@
Rmf @ BHT		@	@	@
Rmc @ BHT		@	@	@

RESISTIVITY SCALE CHANGES

	Type Log	Depth	Scale Up Hole	Scale Down Hole

RESISTIVITY EQUIPMENT DATA

	Run No.	Tool Type & No.	Pad Type	Tool Pos.	Other
@	ONE	ACRT	N/A	1.5" S.O.	
@		10929775			
@					
@					
@					

EQUIPMENT DATA

GAMMA		ACOUSTIC		DENSITY		NEUTRON	
Run No.	ONE	Run No.	ONE	Run No.	ONE	Run No.	ONE
Serial No.	10811258	Serial No.	10855599	Serial No.	10673803	Serial No.	10735145
Model No.	GTET	Model No.	WSTT	Model No.	SDLT	Model No.	DSNT
Diameter	3.625"	No. of Cent.	2	Diameter	5.3"	Diameter	3.625"
Detector Model No.	T-102	Spacing	.5'	Log Type	GAM-GAM	Log Type	NEU-NEU
Type	SCINT			Source Type	CS-137	Source Type	AM-241BE
Length	8"	LSA [Y/N]	YES	Serial No.	5073GW	Serial No.	DSN-436
Distance to Source	N/A	FWDA [Y/N]	YES	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	6122	836	REC	0	150	30	-10	47.6 us/ft	30	-10	2.71 gm/cc	30	-10	LIME

DIRECTIONAL INFORMATION

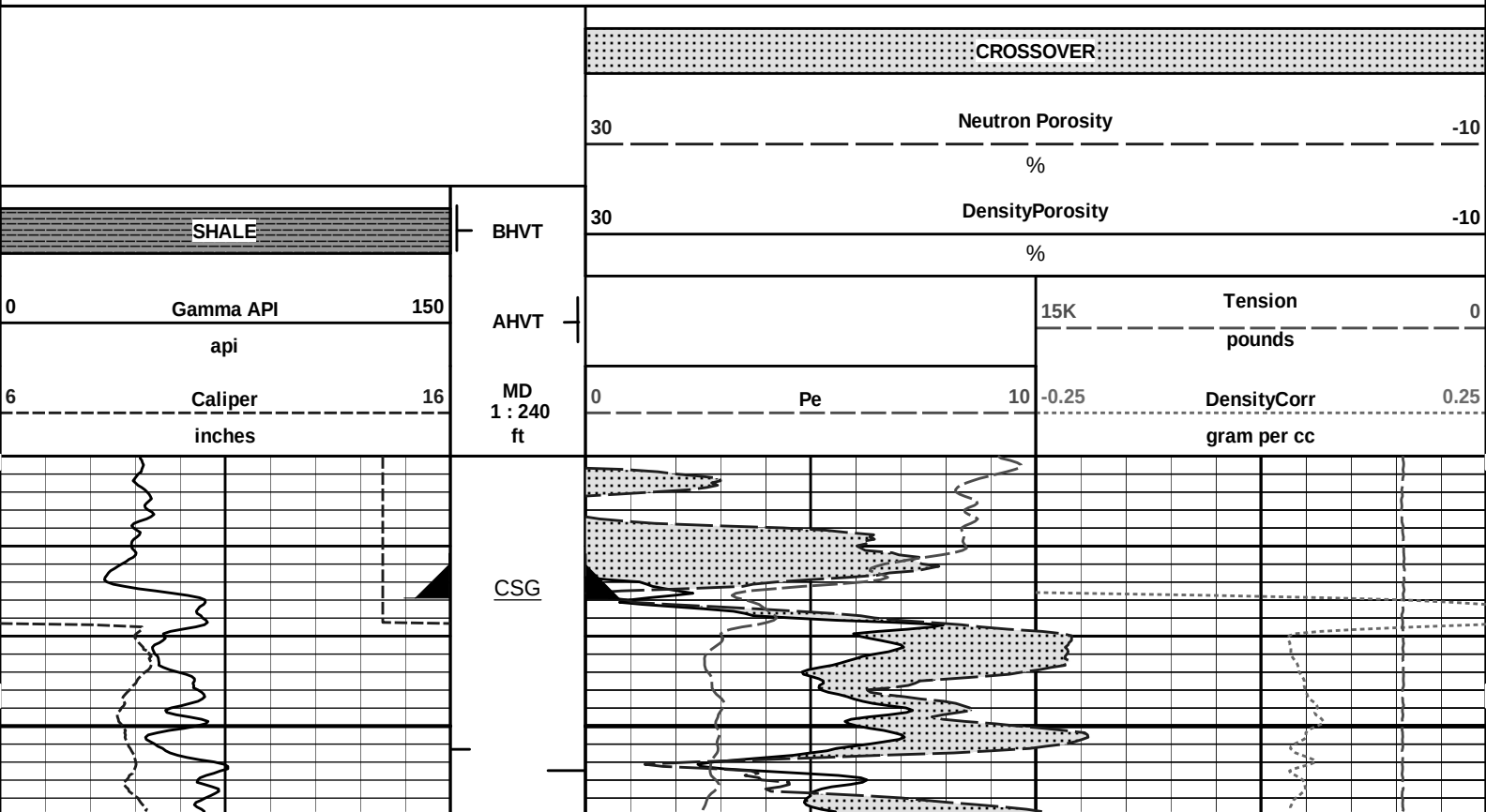
Maximum Deviation	@	KOP	@

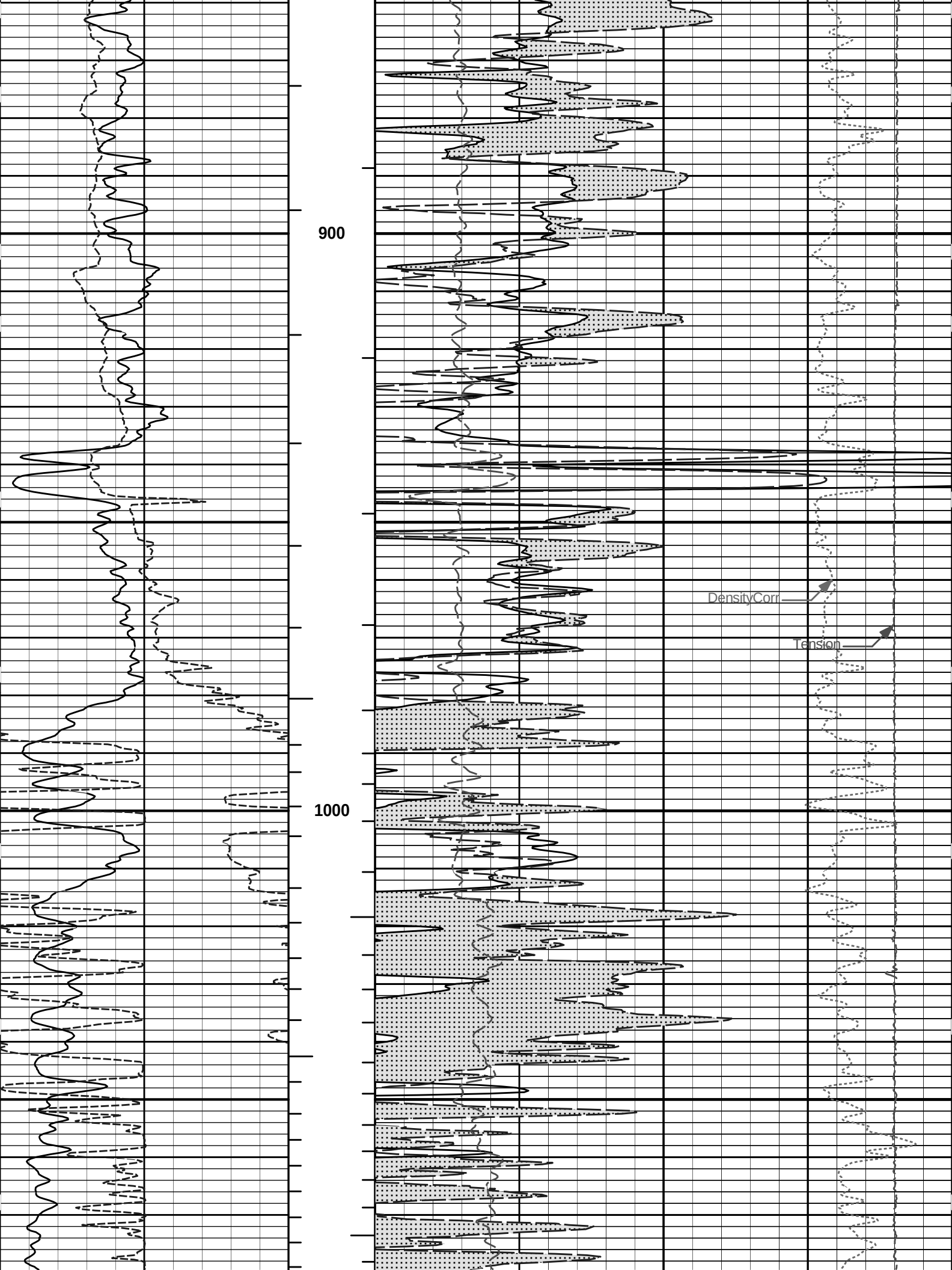
Remarks: ANNULAR HOLE VOLUME CALCULATED FOR 5.5 INCH CASING.

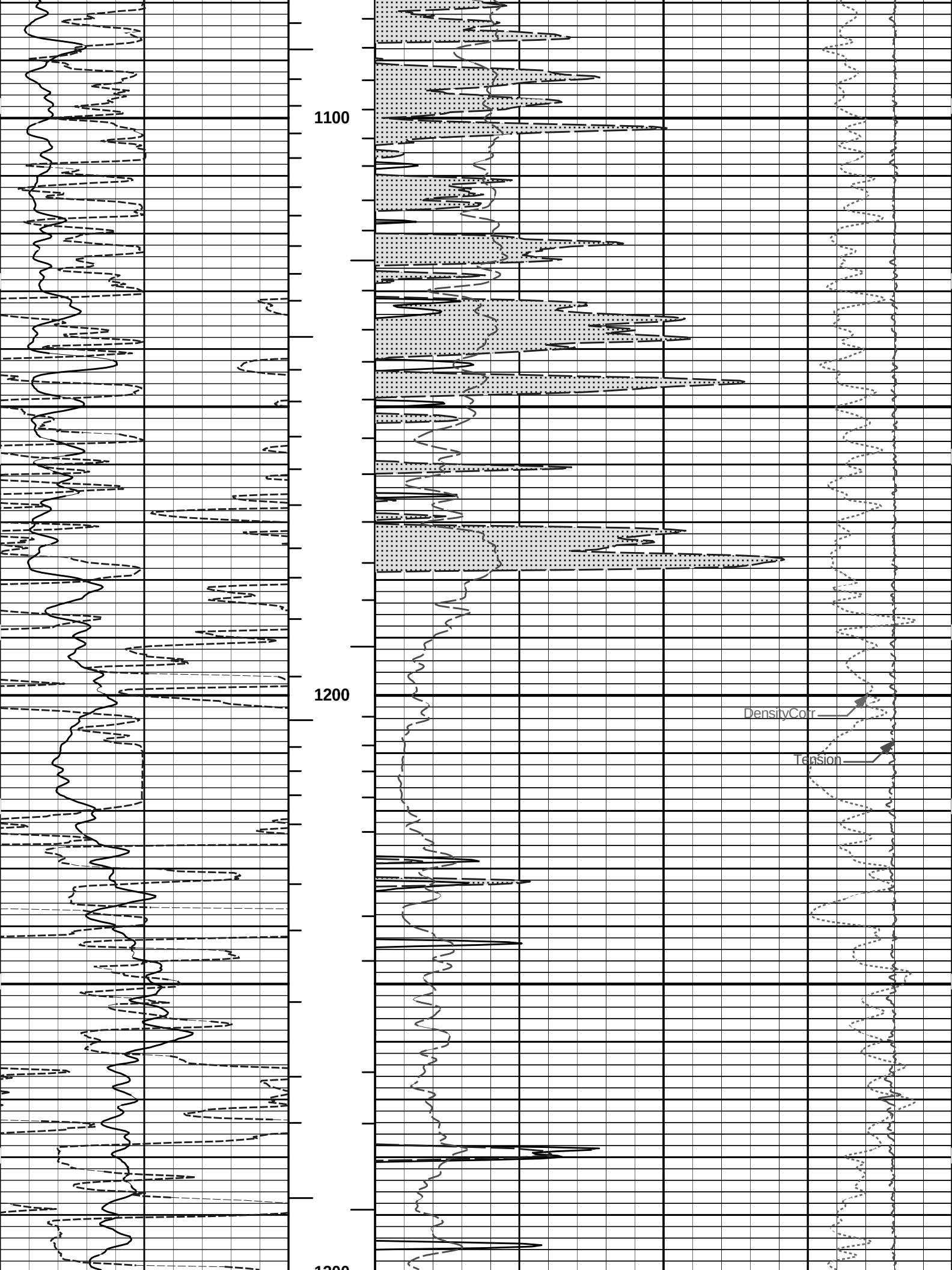
HALLIBURTON

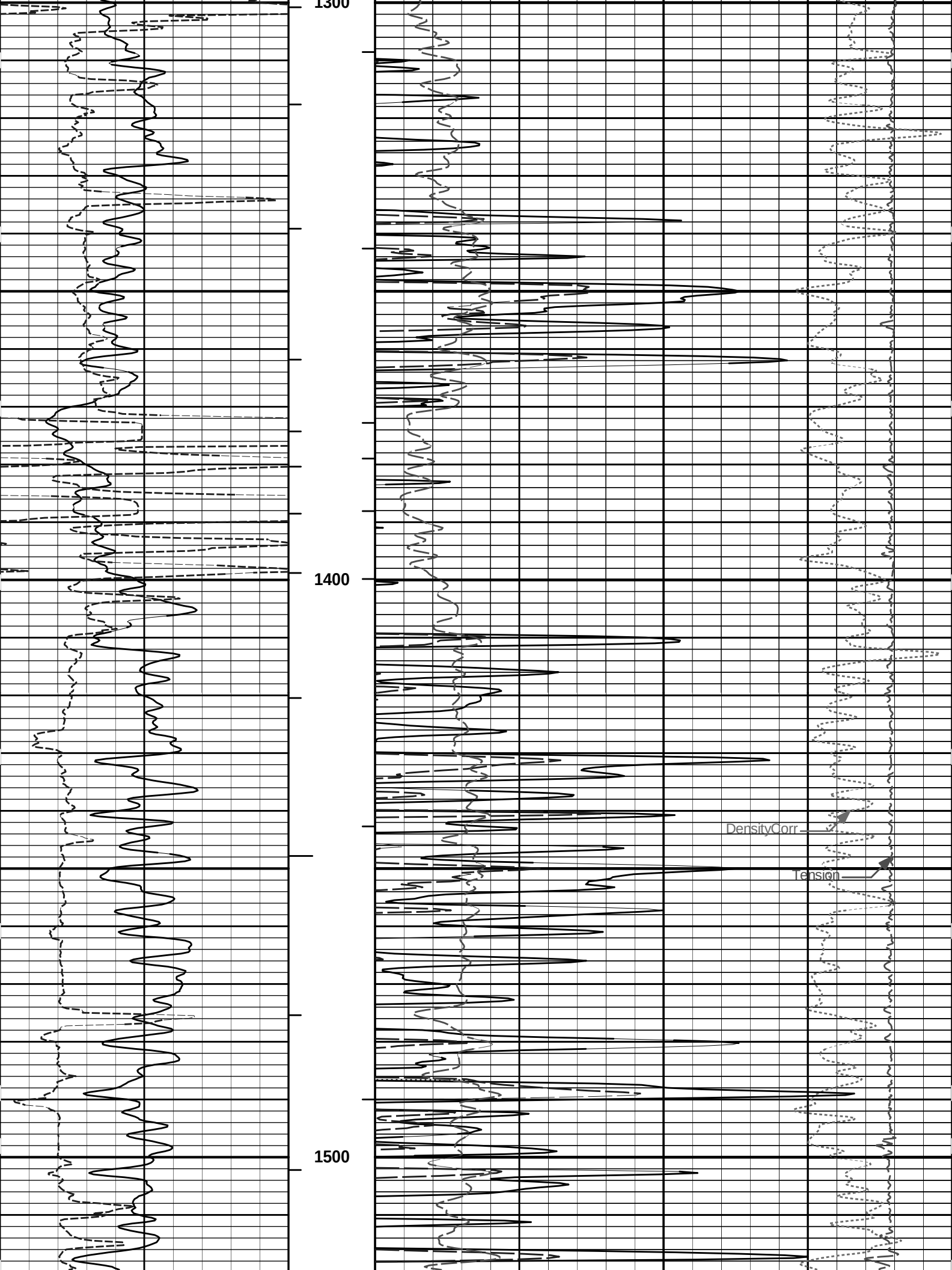
Plot Time: 11-May-13 13:56:58
Plot Range: 820 ft to 6121.58 ft
Data: EASTON3419_1-21\Well Based\CASING
Plot File: \\POROSITY\Poro_IQ_5_MAIN_LIB

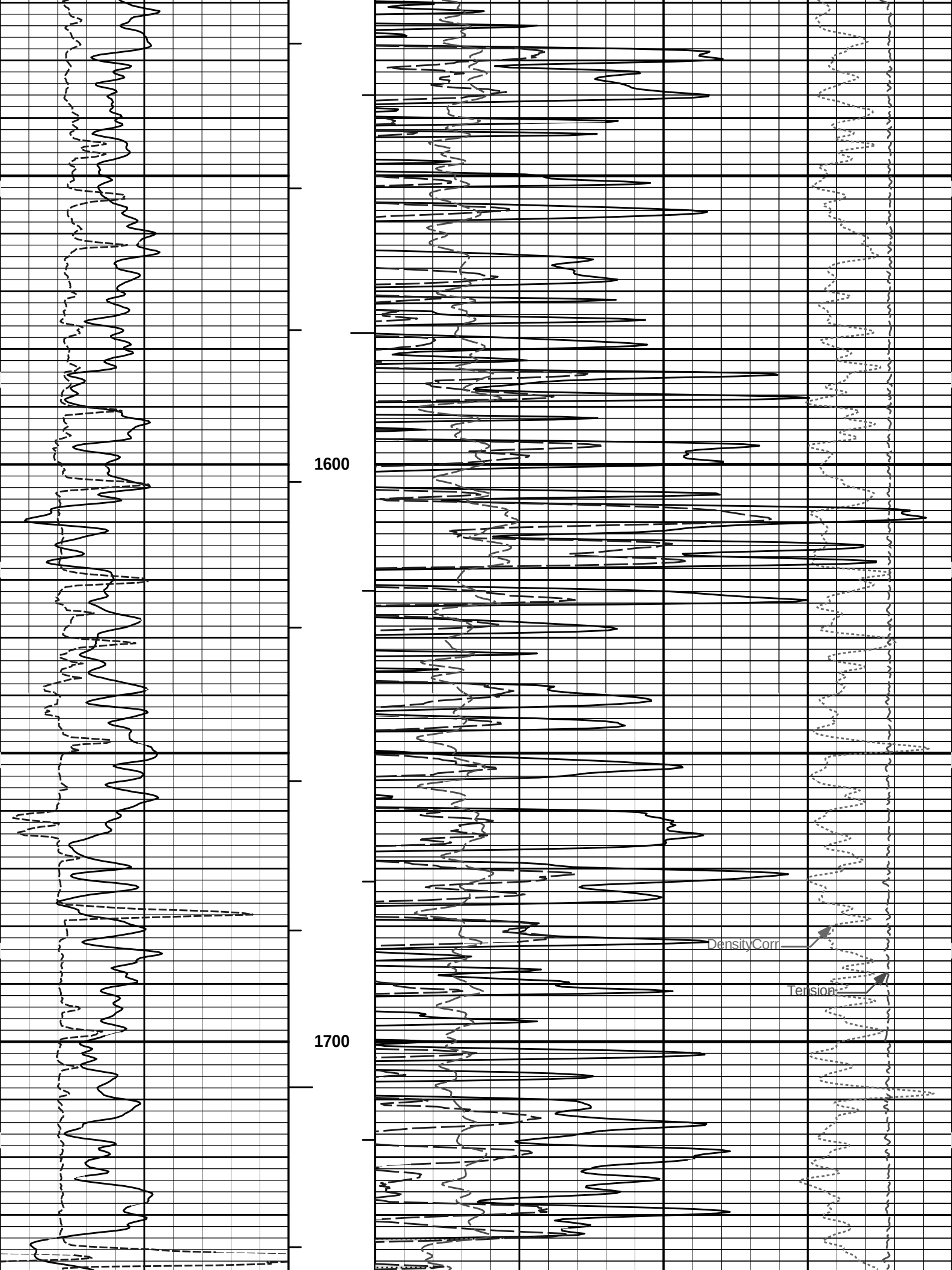
5 INCH MAIN LOG

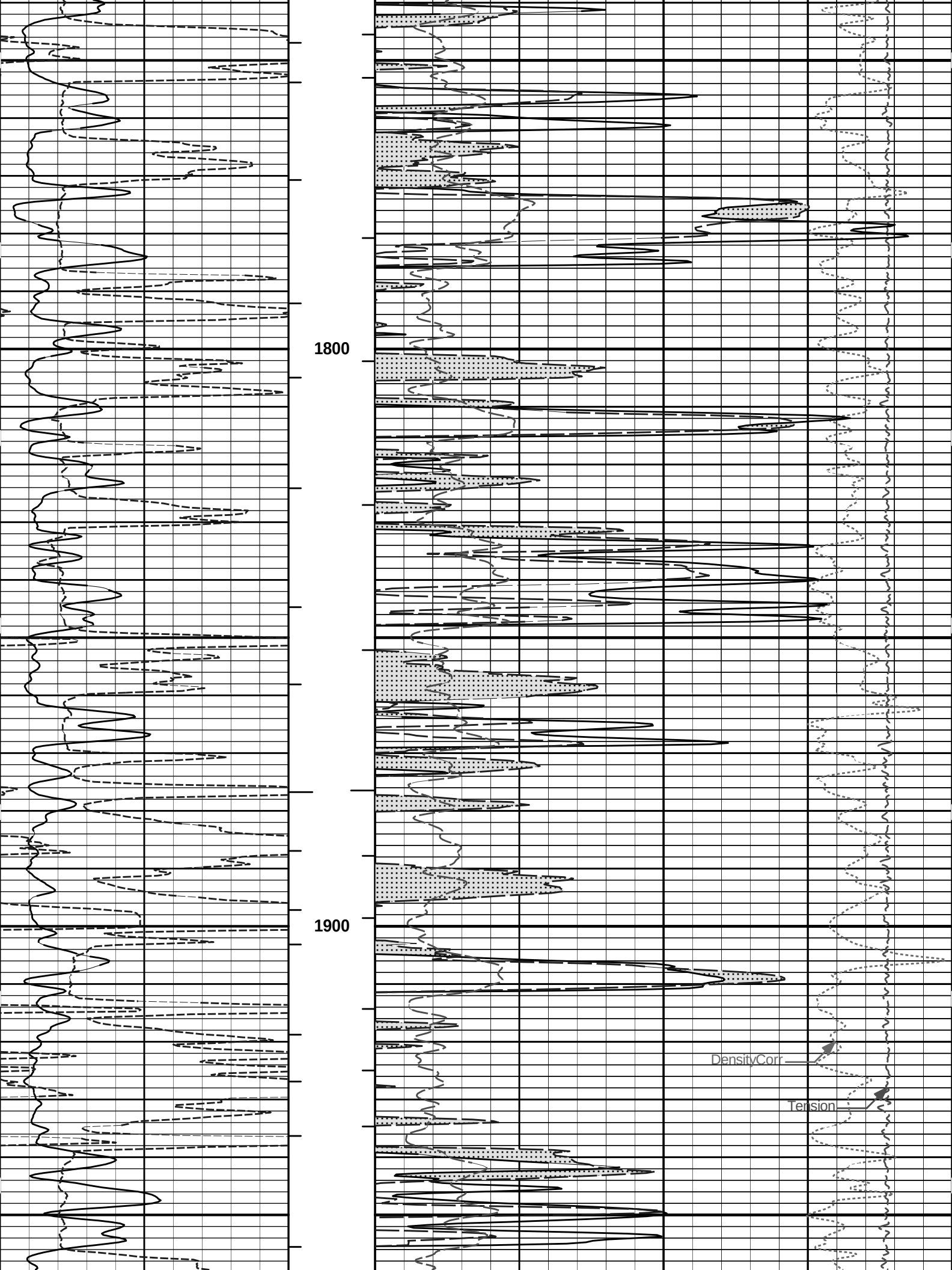


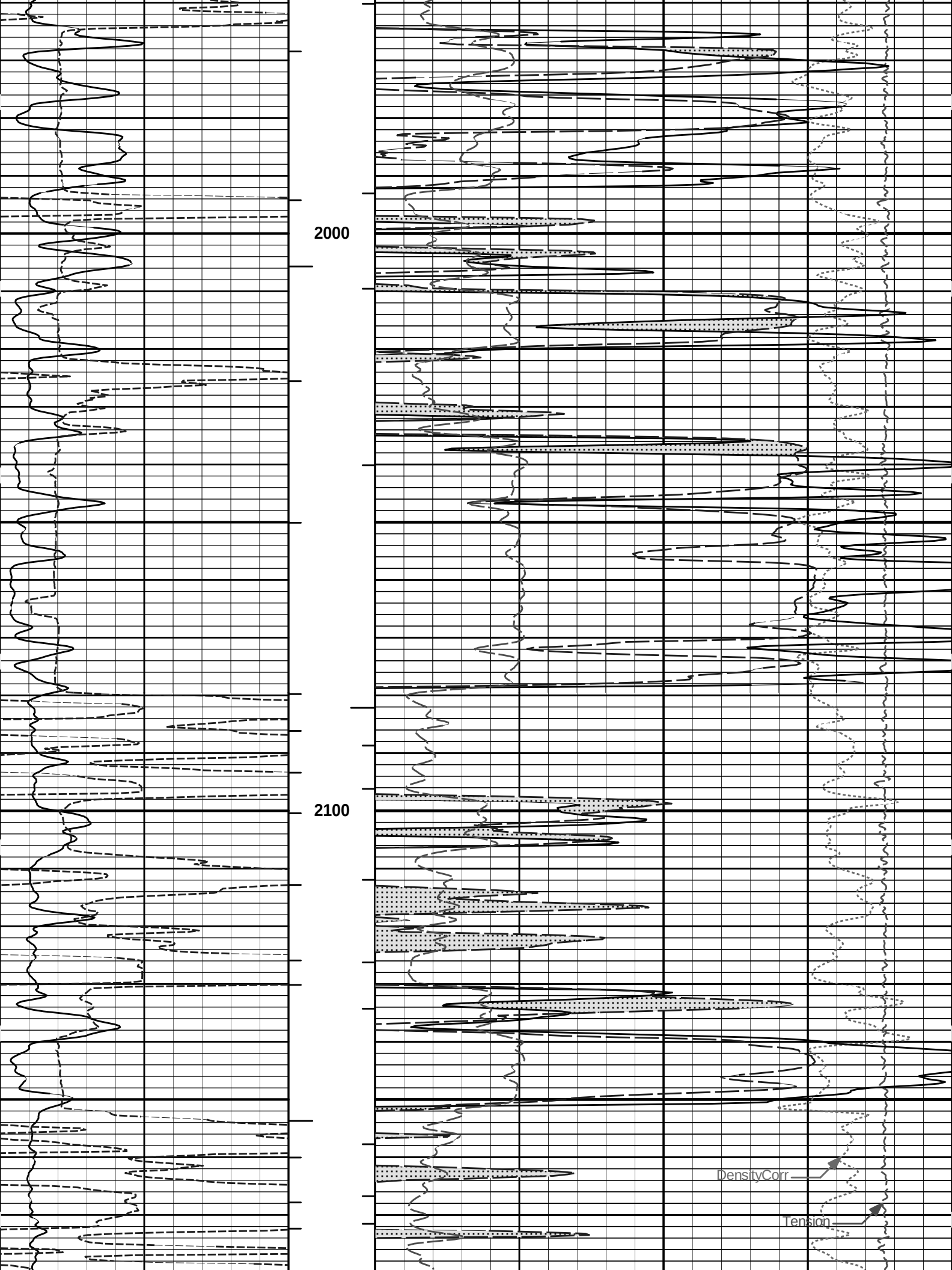

900
1000
DensityCorr
Tension

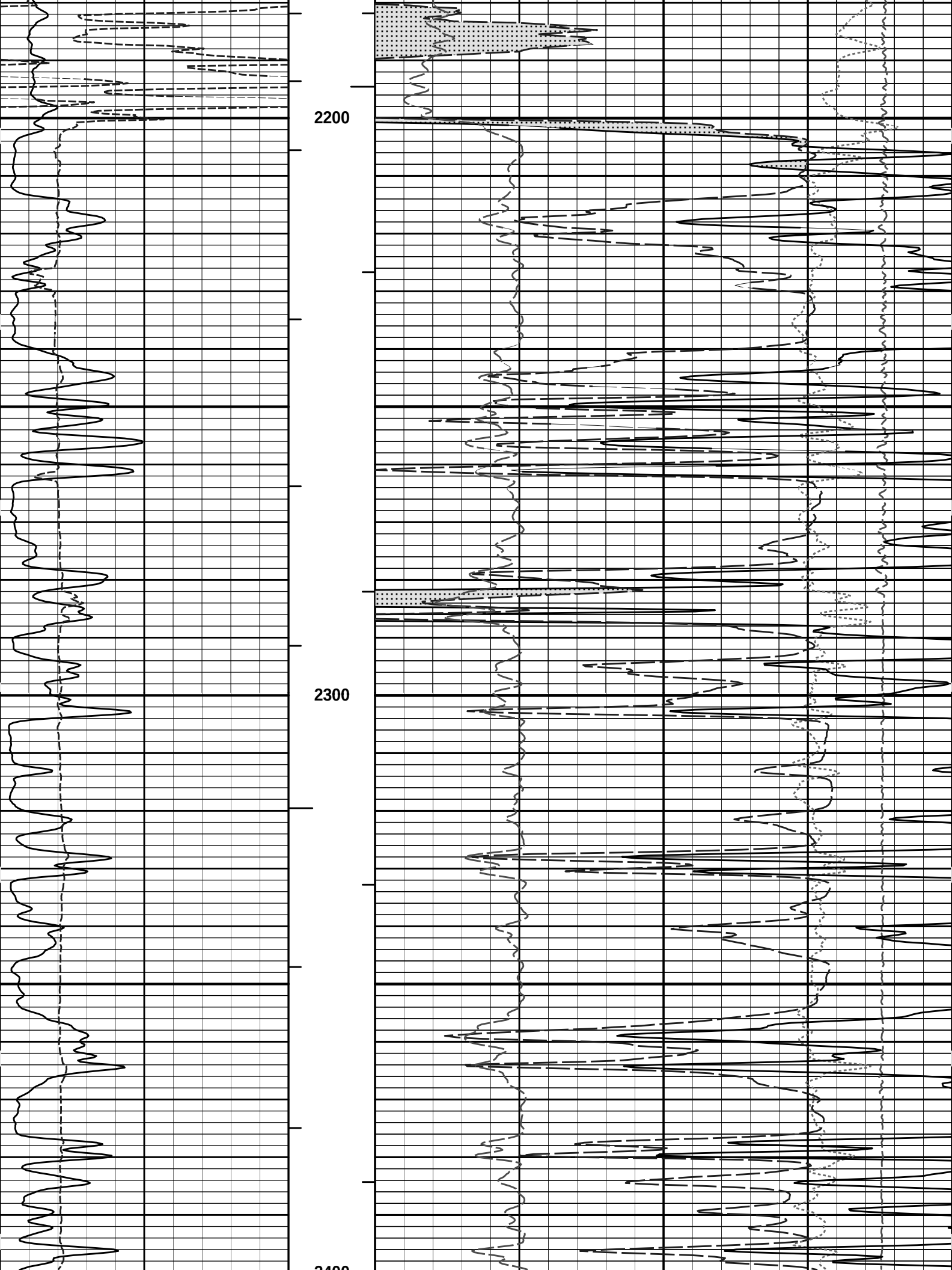

1100
1200
DensityCorr
Tension

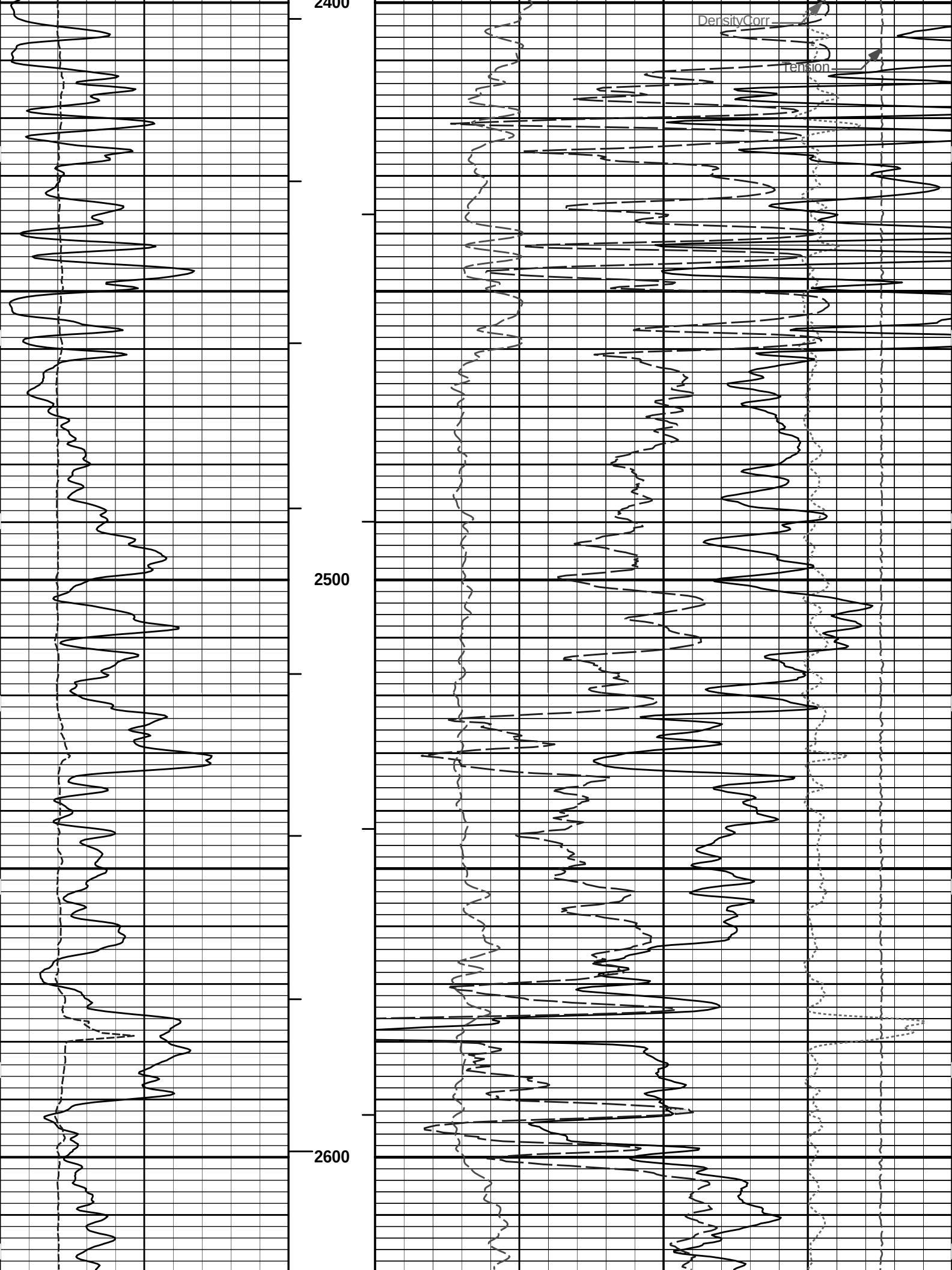

1300
1400
1500
DensityCorr
Tension

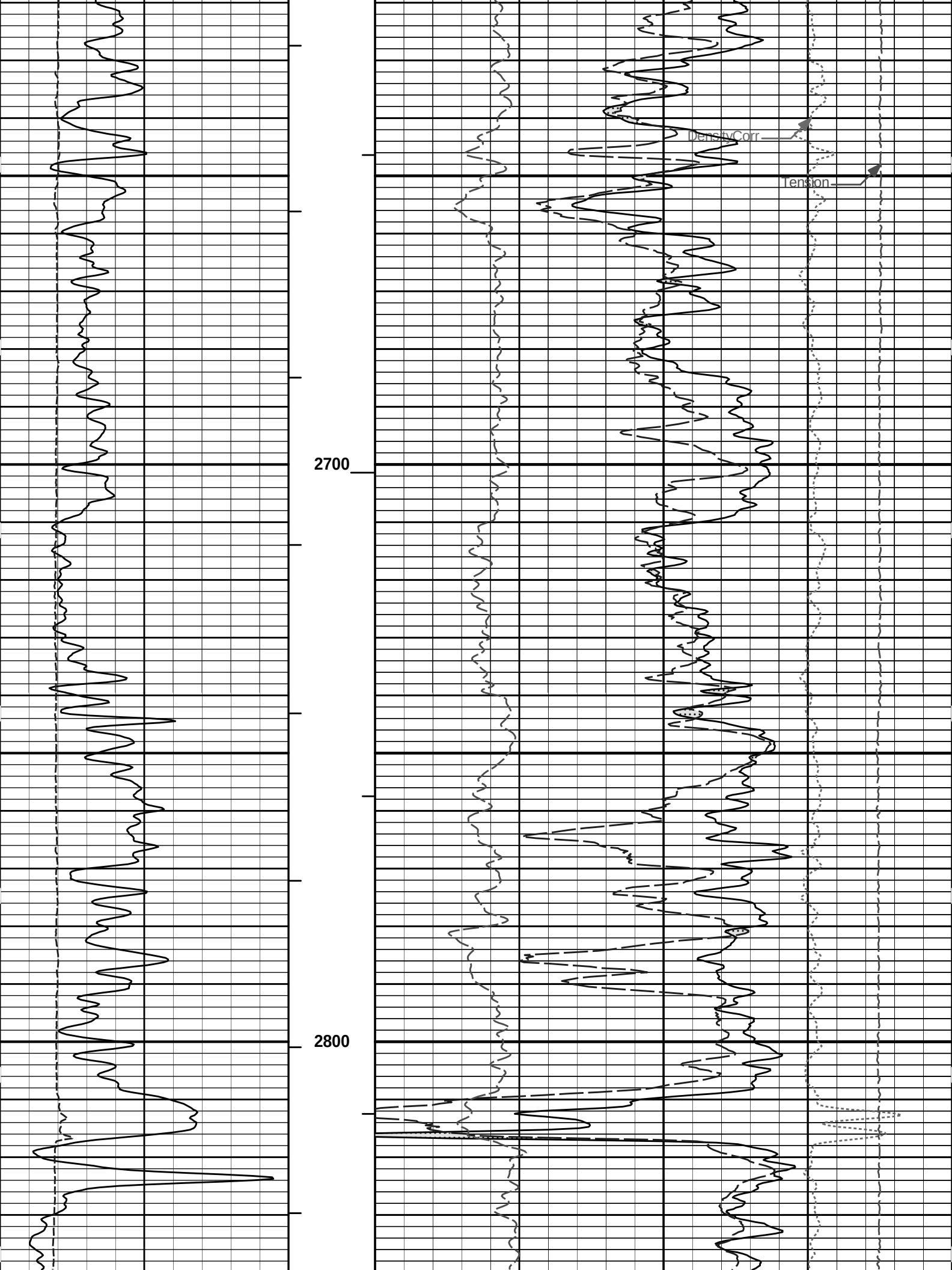

1600
1700
DensityCorr
Tension

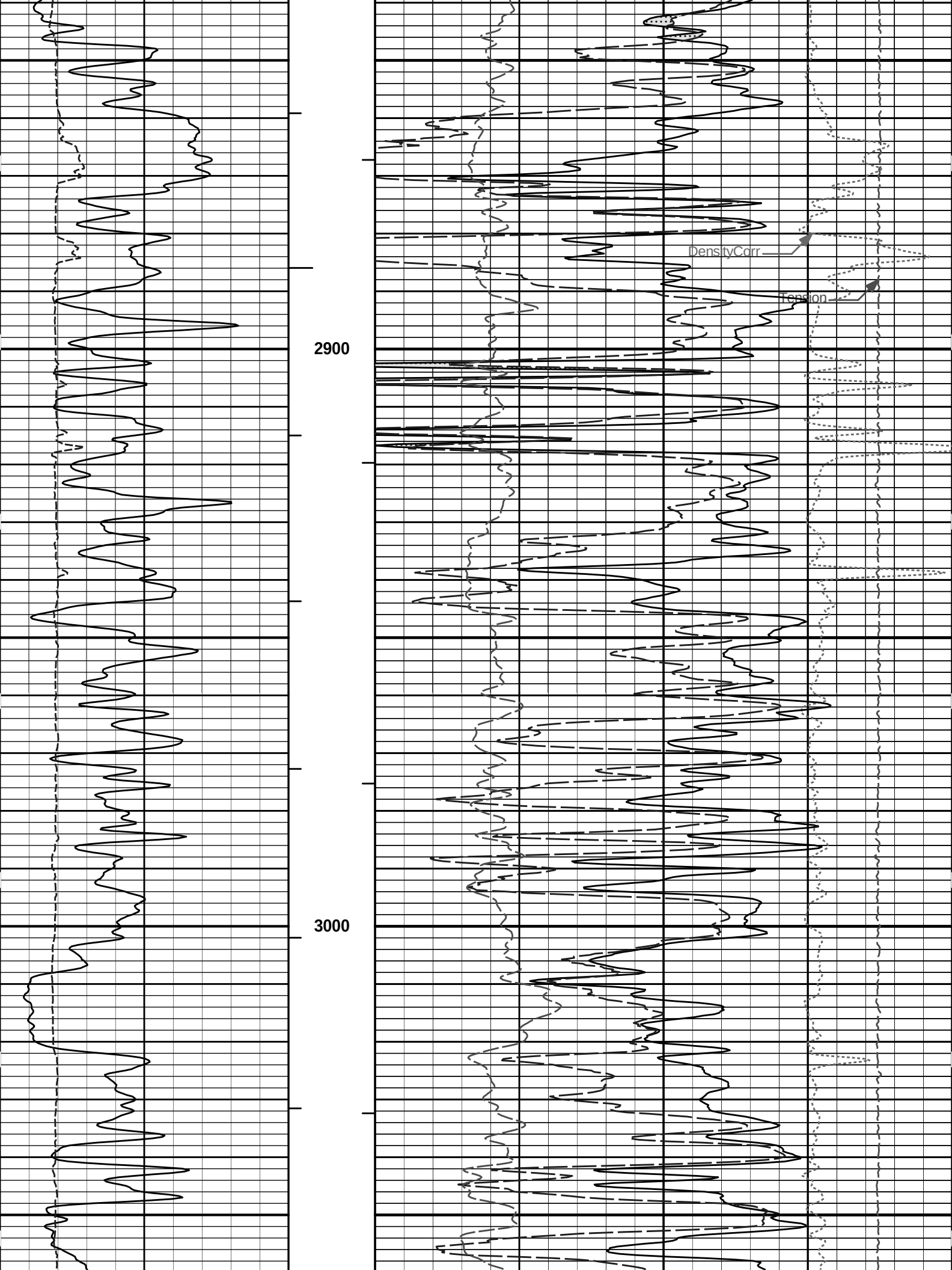

1800
1900
DensityCorr
Tension

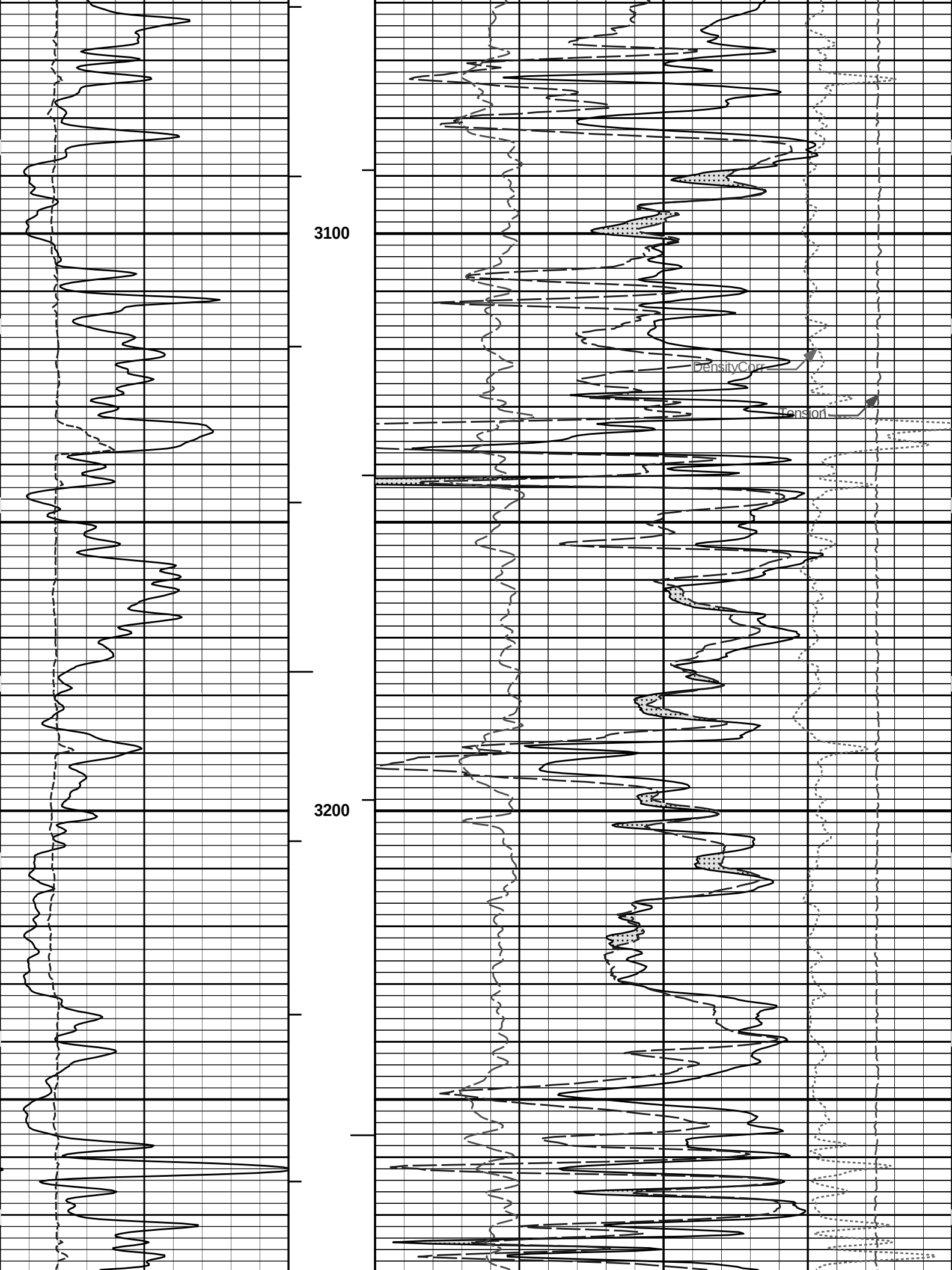

2000
2100
DensityCorr
Tension

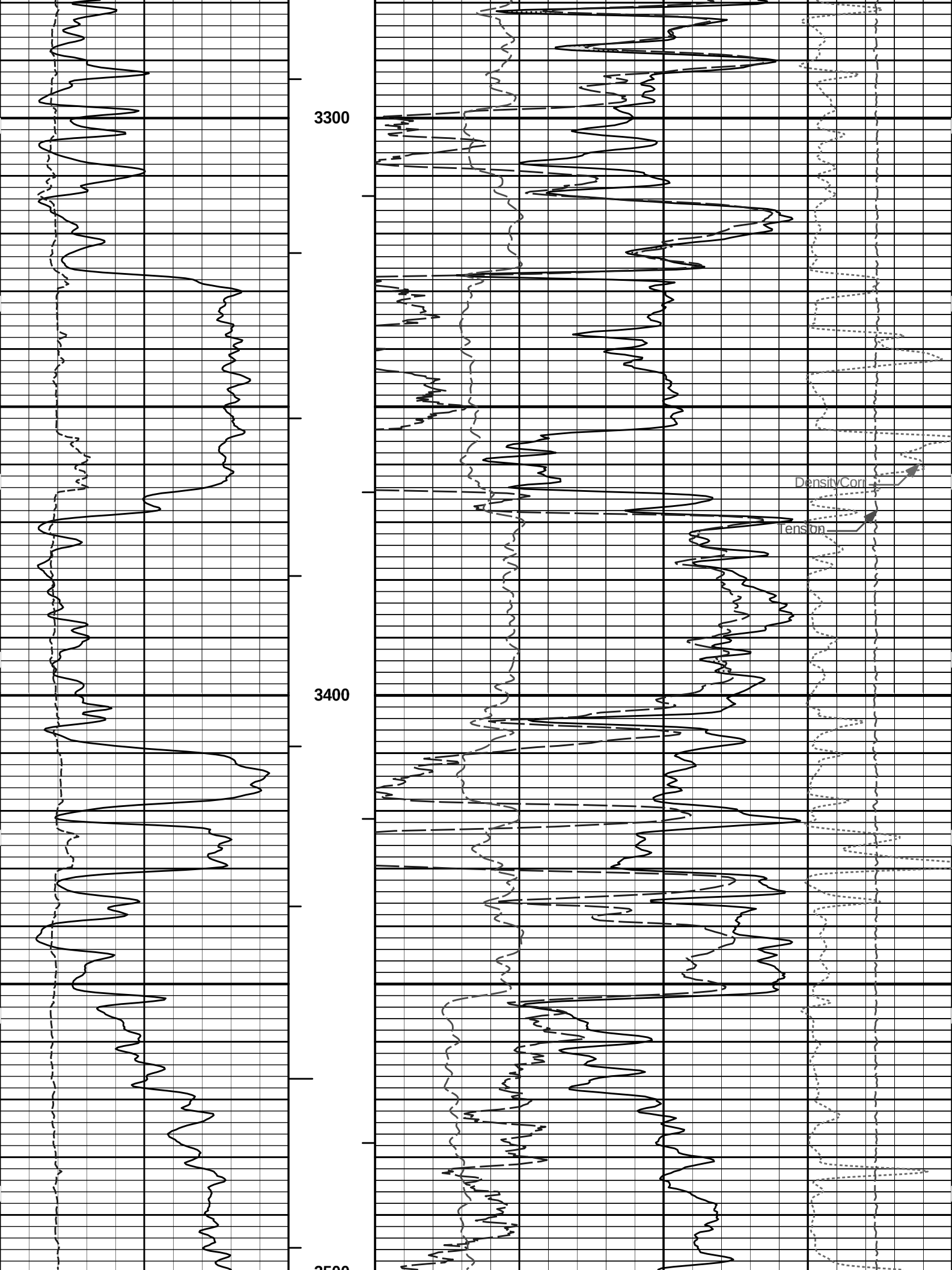

2200
2300
2400

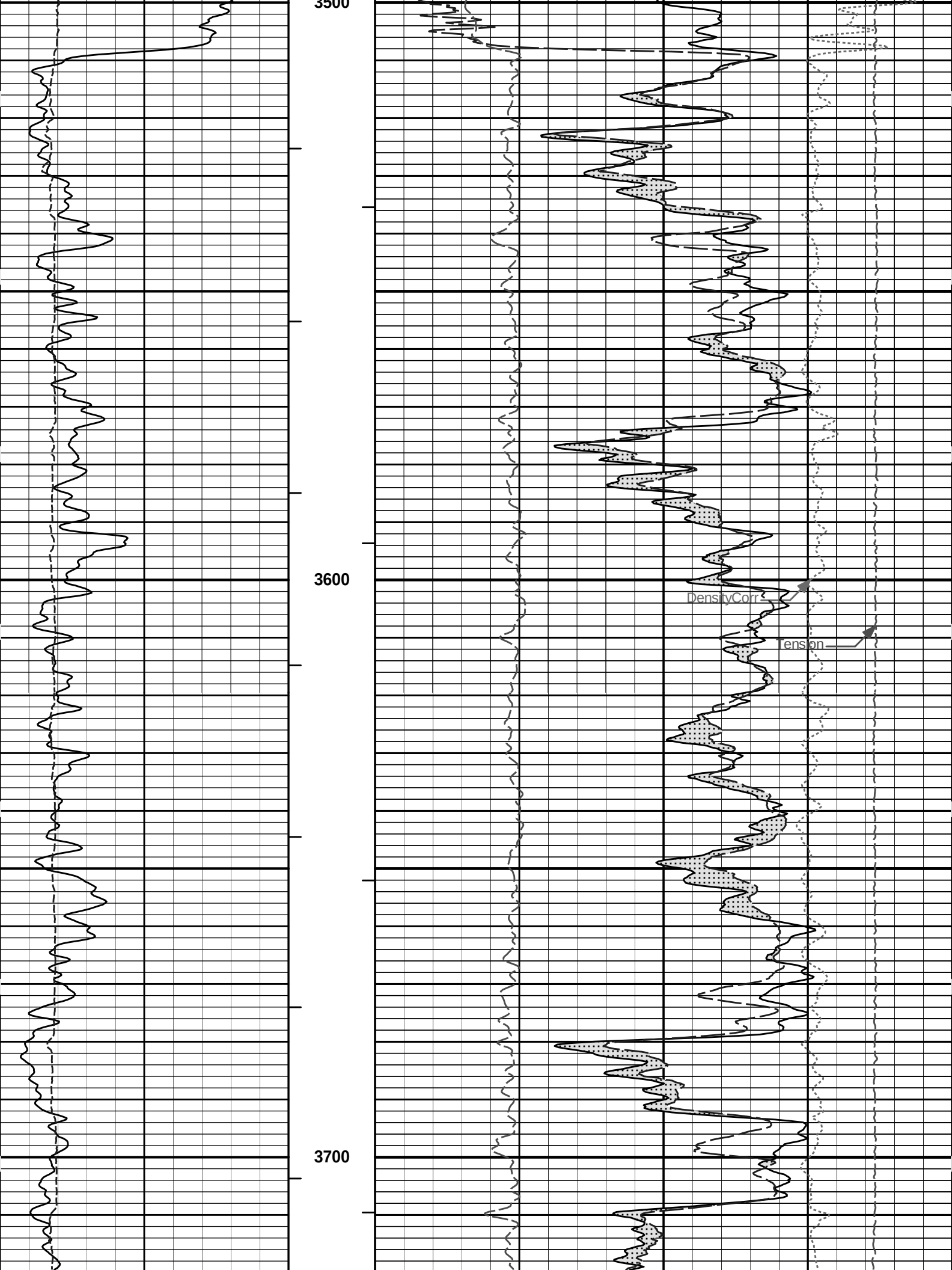

2400
2500
2600
DensityCorr
Tension

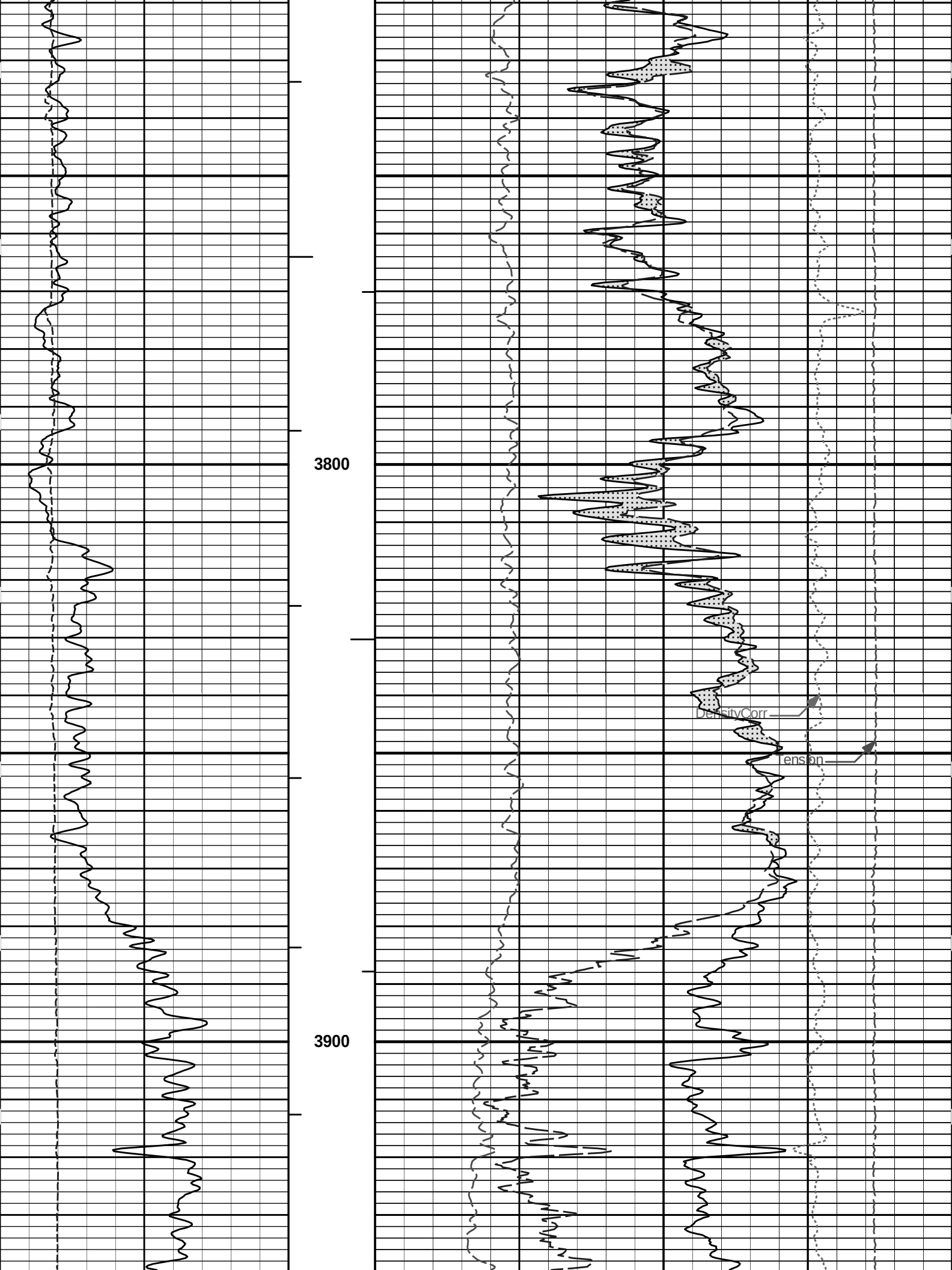

DensityCorr
Tension
2700
2800

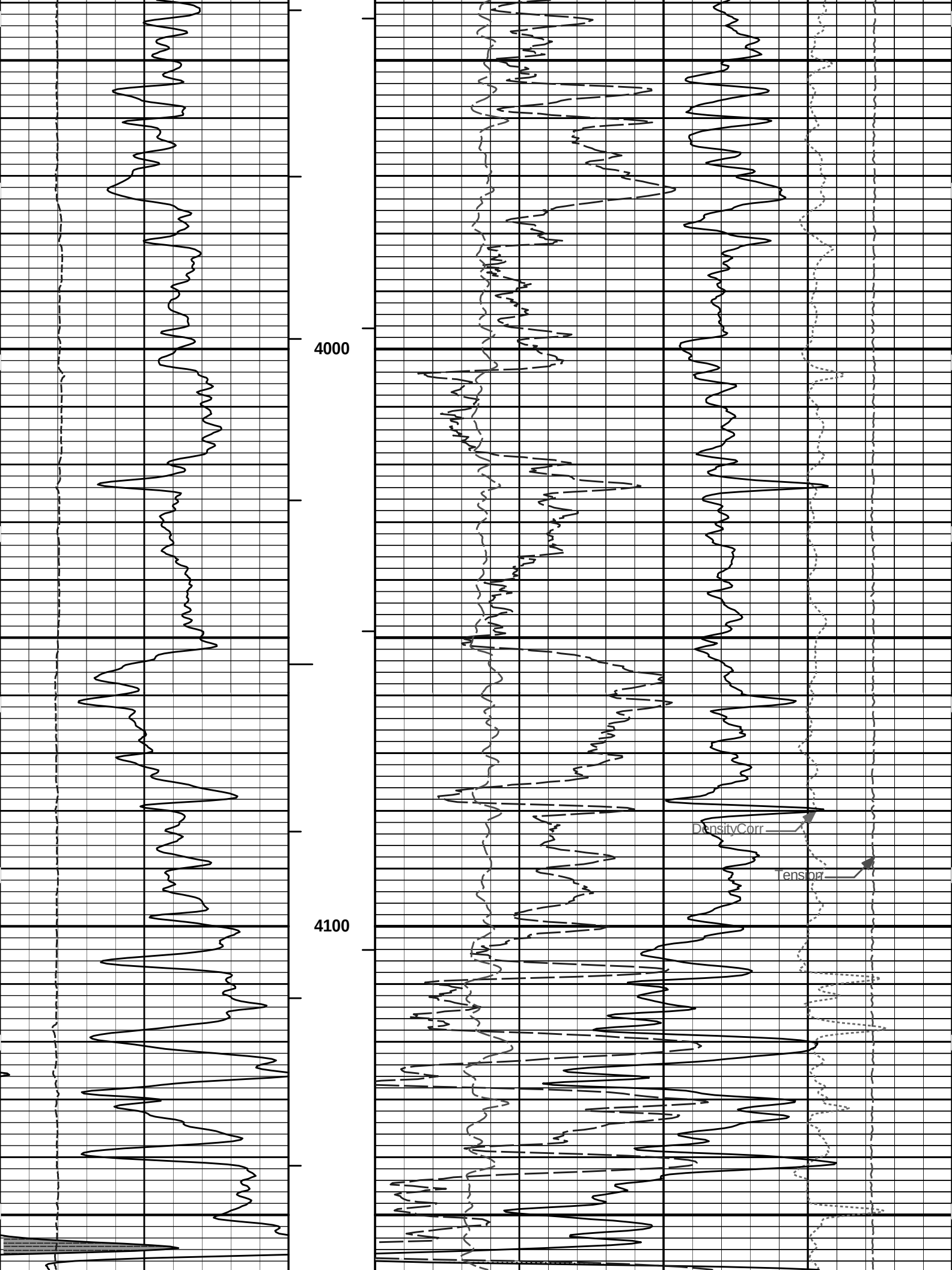

DensityCorr
Tension
2900
3000

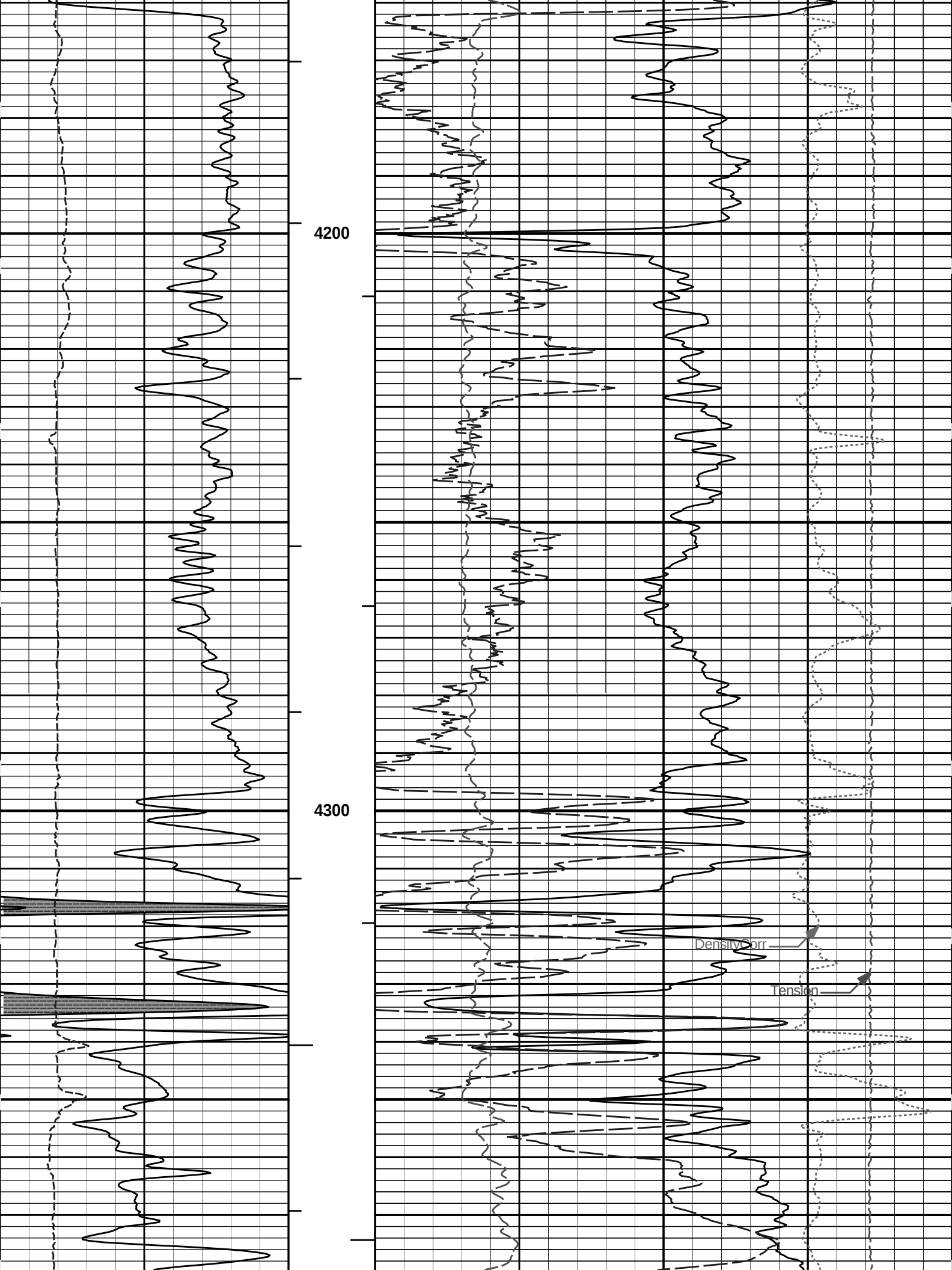

3100
3200
DensityCorr
Tension

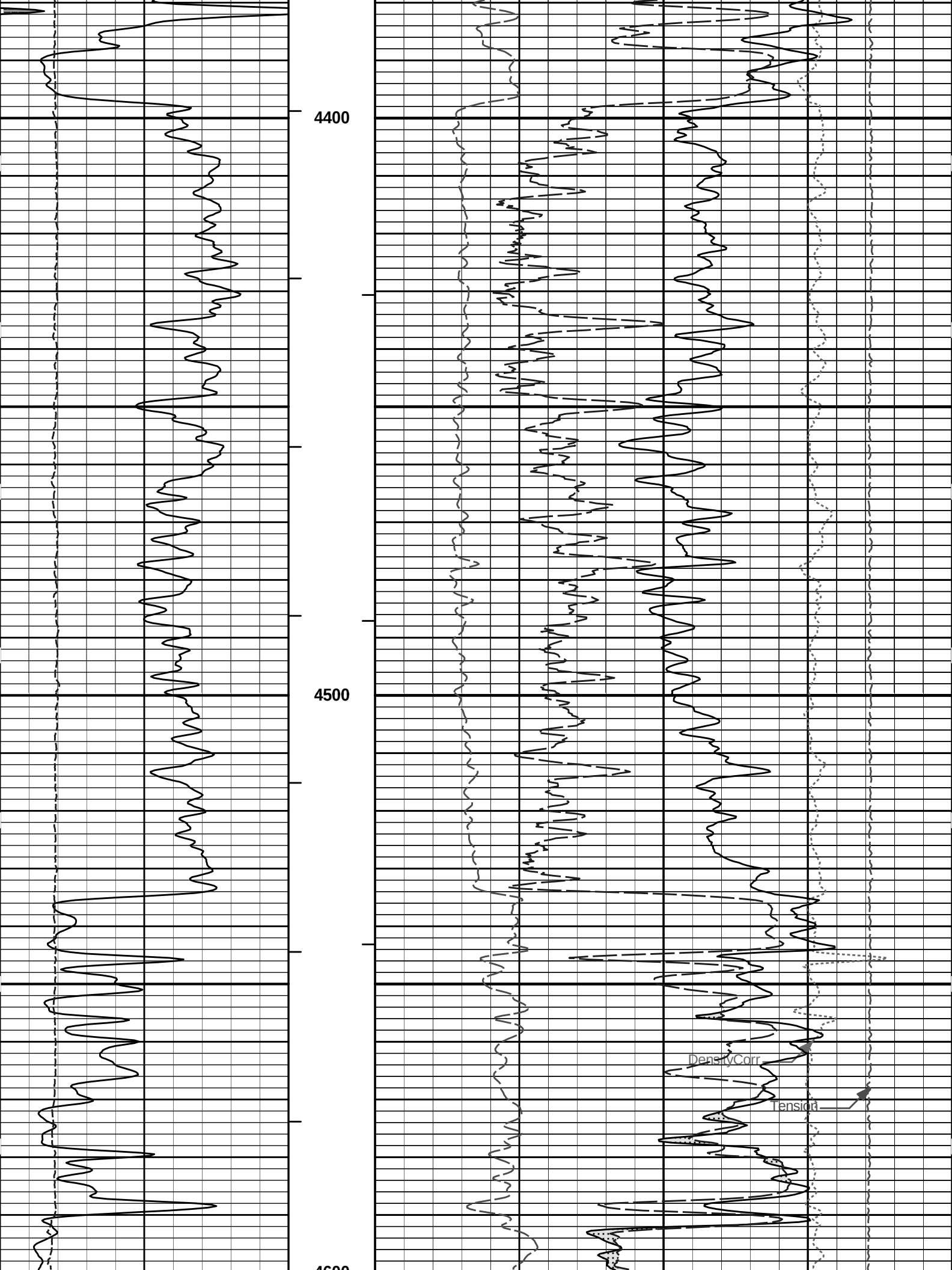

3300
3400
DensityCorr
Tension

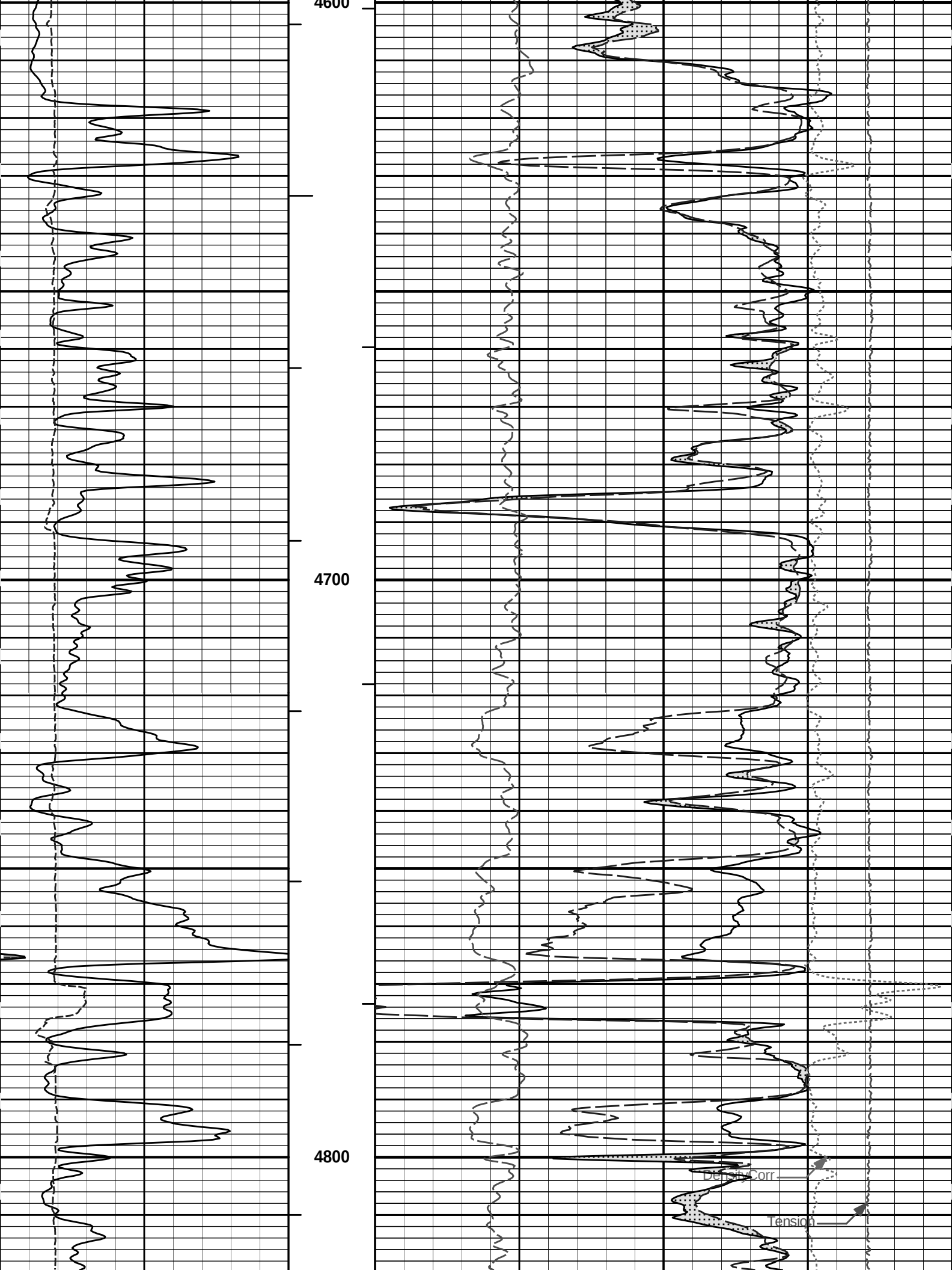

3500
3600
3700
DensityCorr
Tension

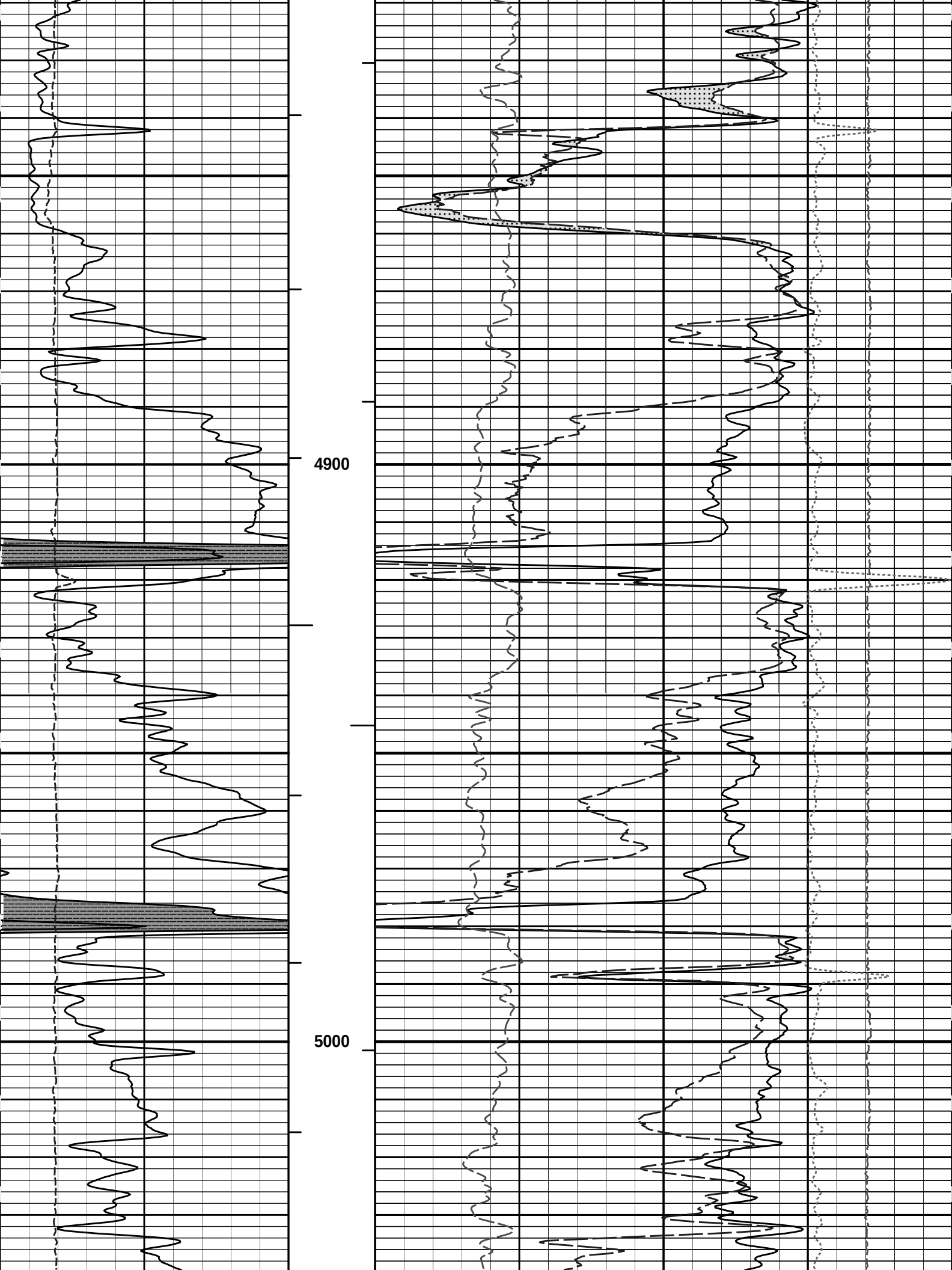

3800
3900
DensityCorr
Tension

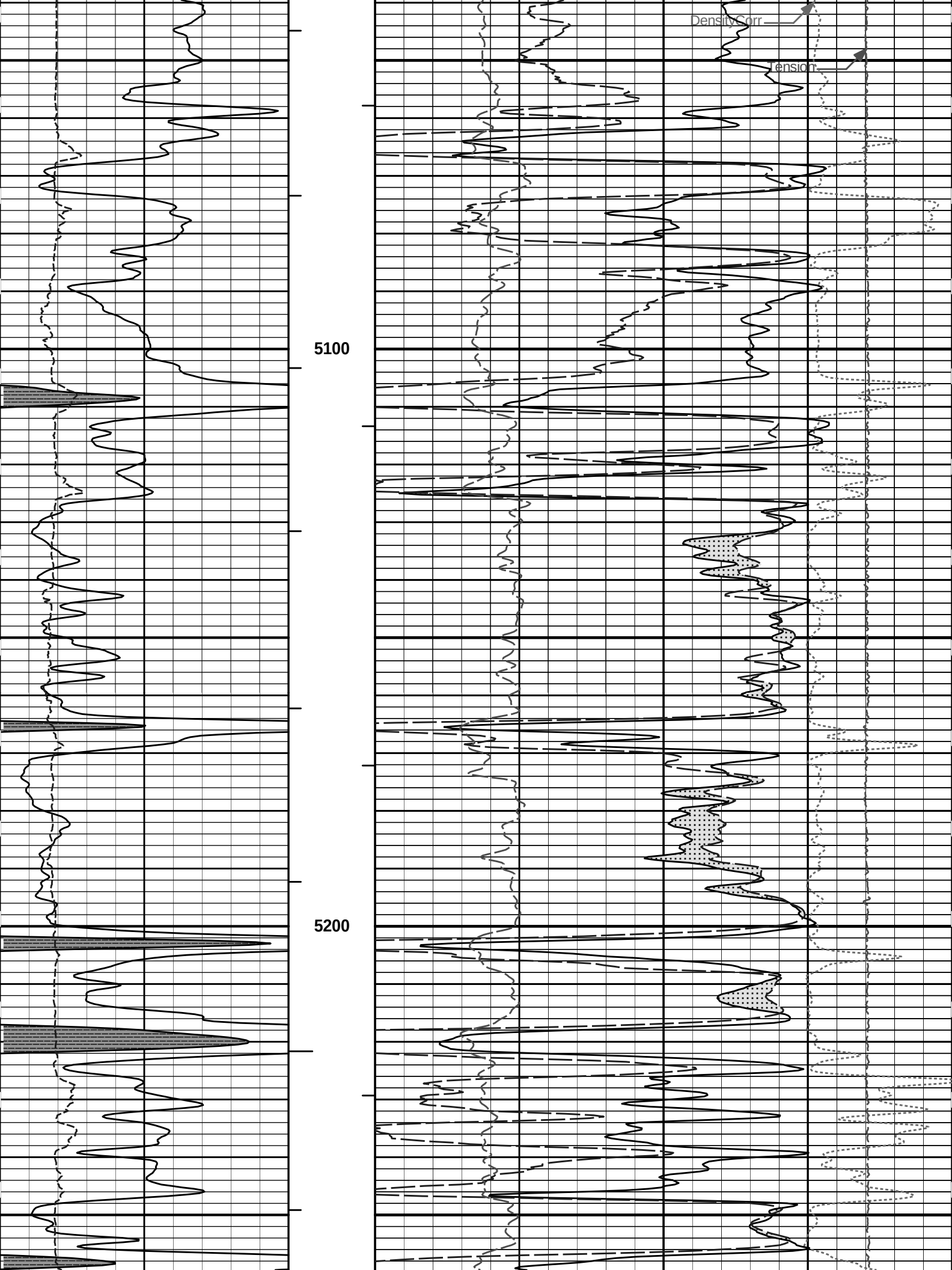

4000
4100
DensityCorr
Tension

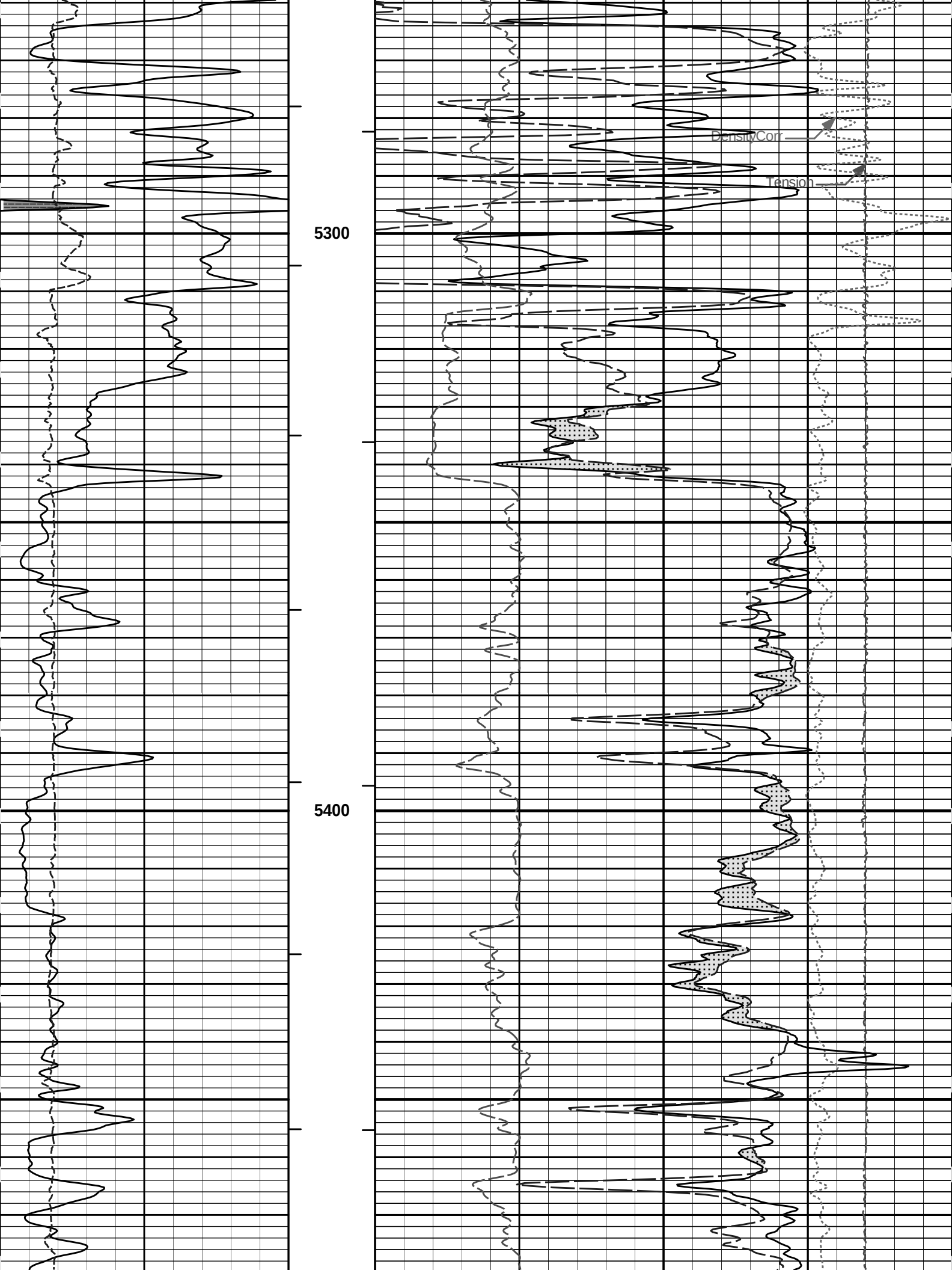

4200
4300
DensityCorr
Tension

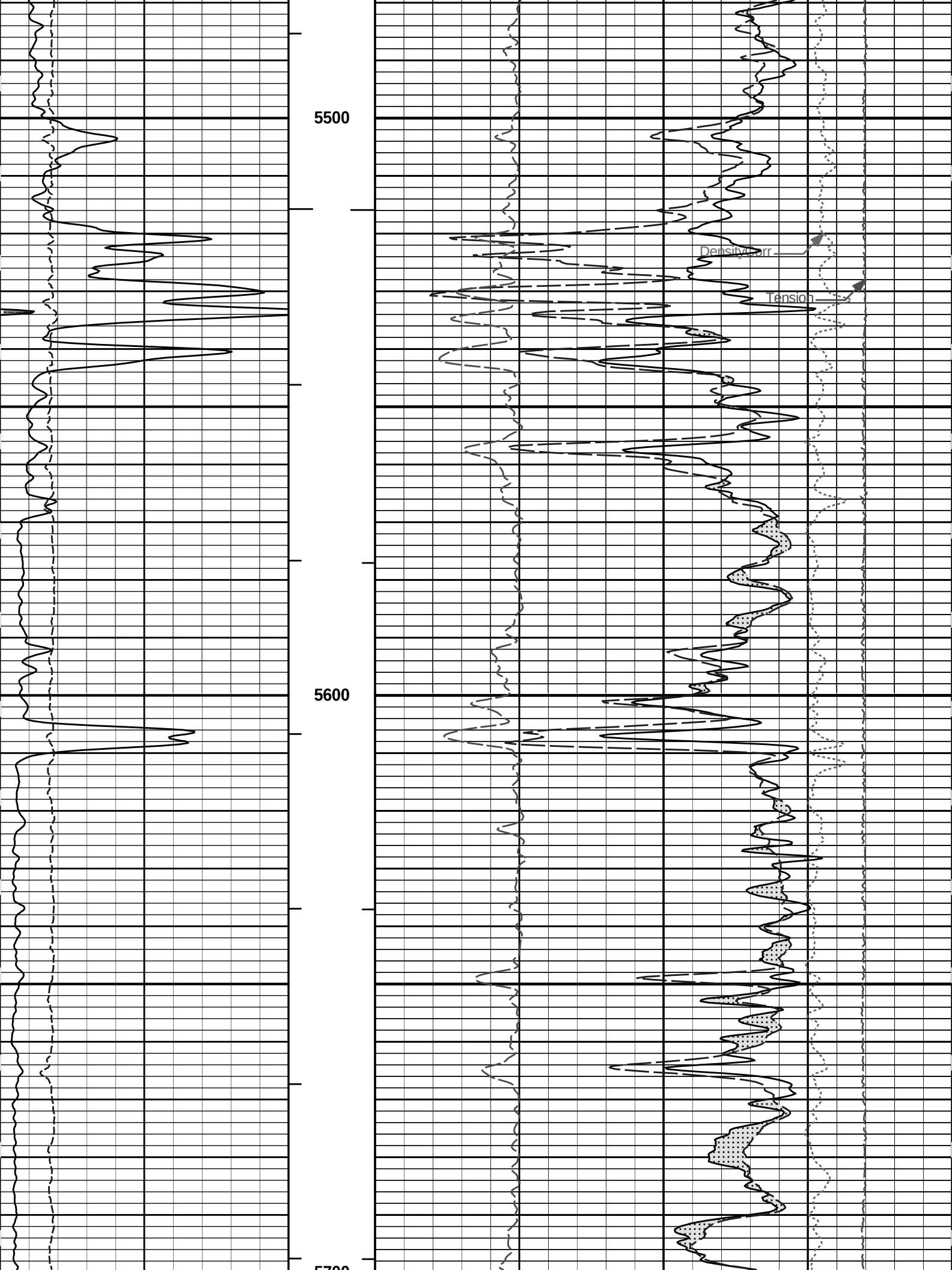

4400
4500
4600
DensityCorr
Tension

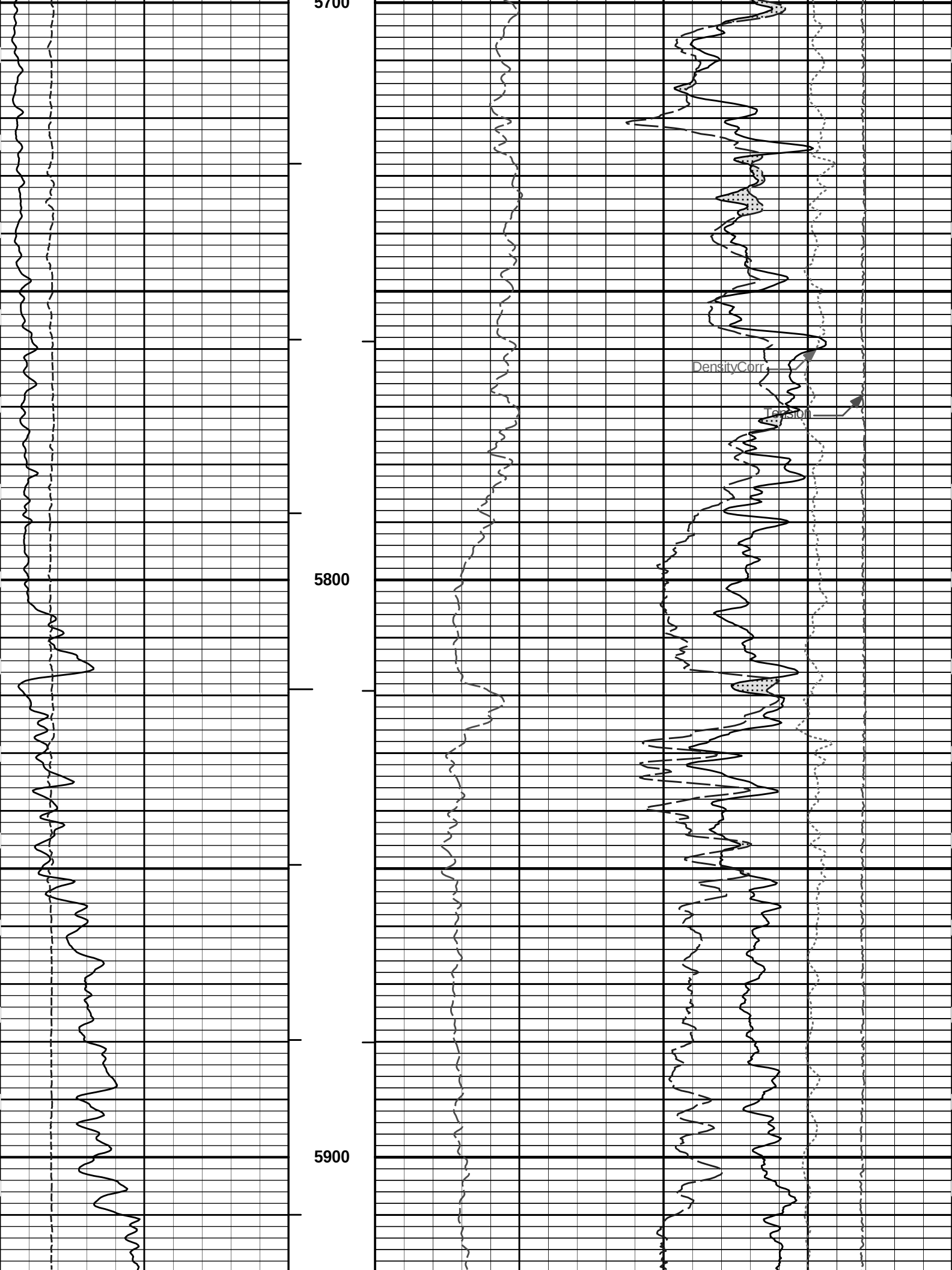

4600
4700
4800
DensityCorr
Tension

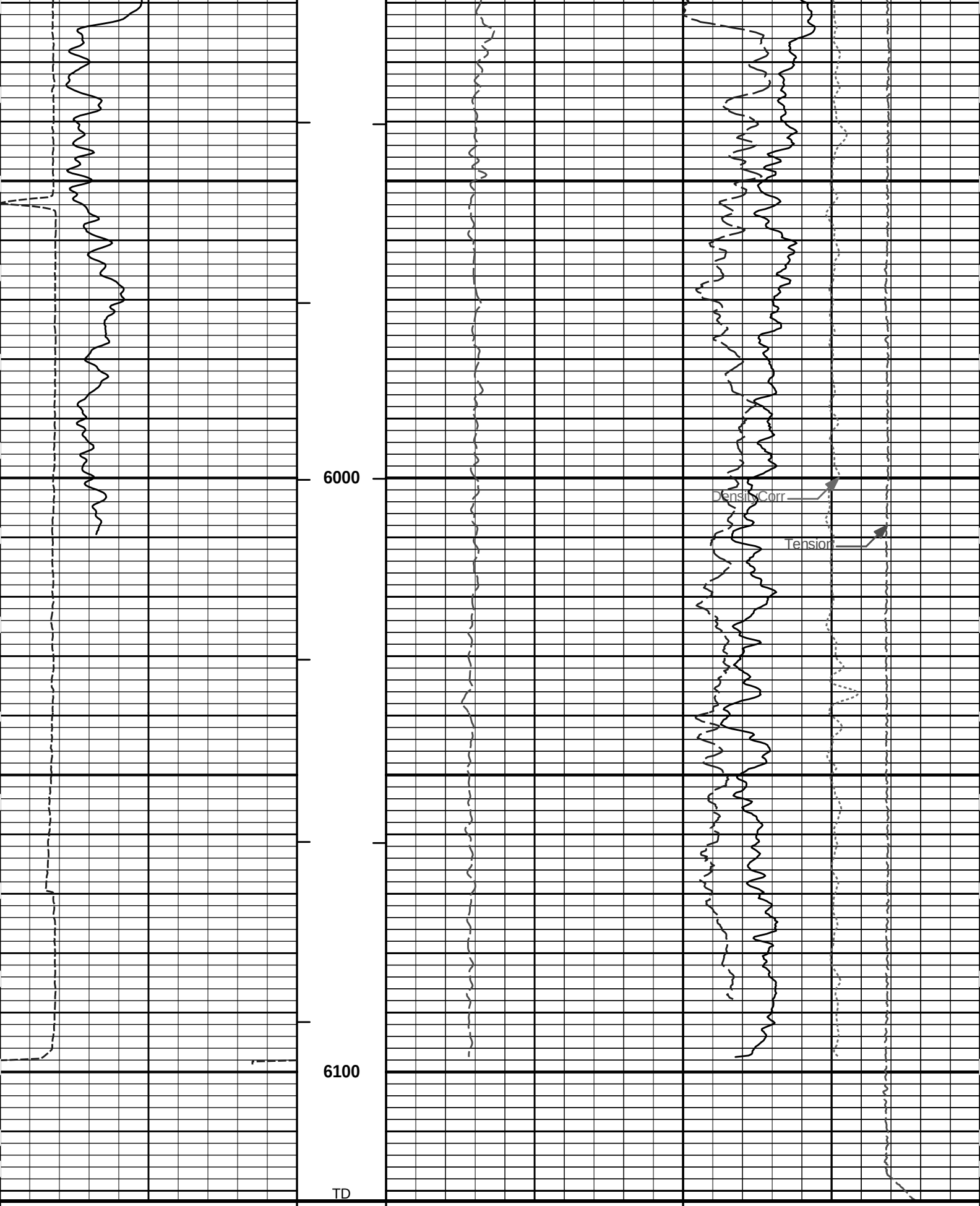

4900
5000


DensityCorr
Tension
5100
5200

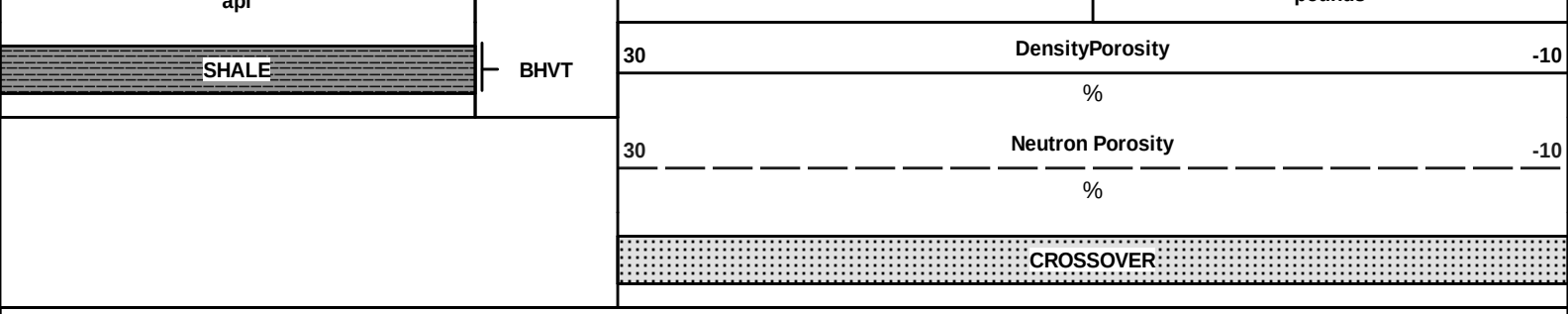

DensityCorr
Tension
5300
5400


5500
5600
Density Corr
Tension


5700
5800
5900
DensityCorr
Tension



6 Caliper 16	MD 1 : 240 ft	0 Pe 10	-0.25 DensityCorr 0.25	
inches			gram per cc	
0 Gamma API 150	AHVT		15K Tension 0	
api			pounds	



HALLIBURTON

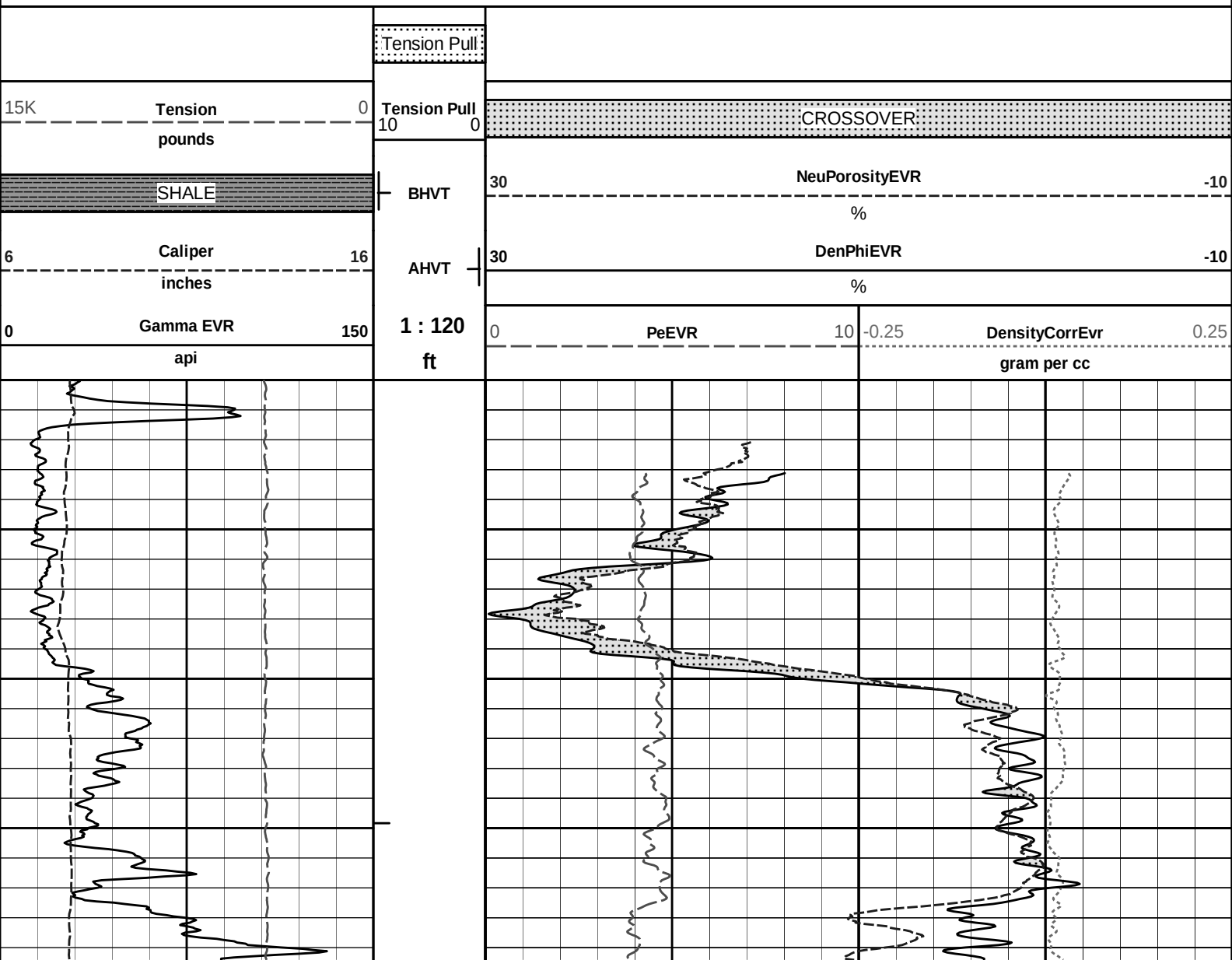
Plot Time: 11-May-13 13:57:48
Plot Range: 820 ft to 6121.58 ft
Data: EASTON3419_1-21\Well Based\CASING\
Plot File: \\POROSITY\Poro_IQ_5_MAIN_LIB

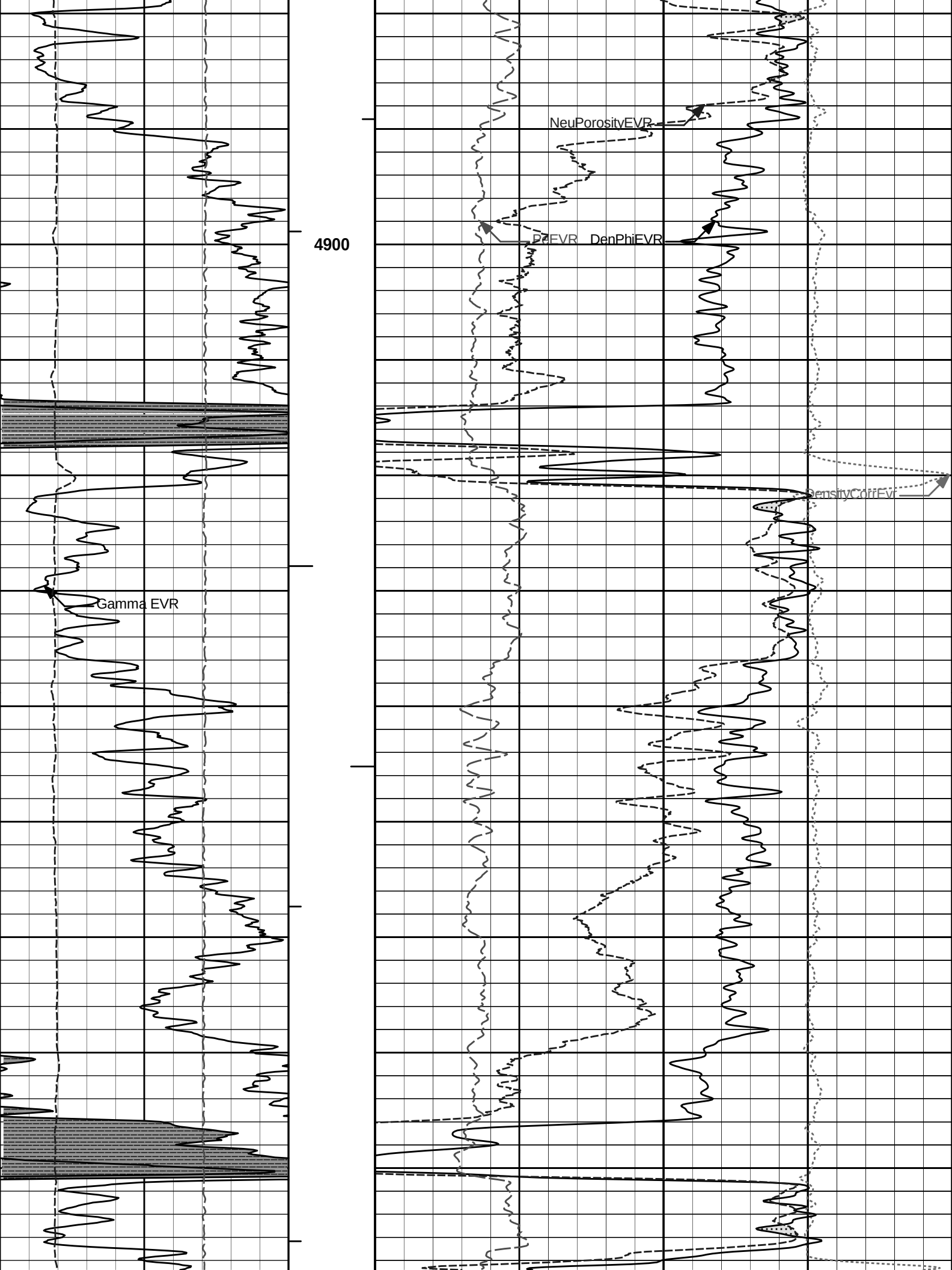
5 INCH MAIN LOG

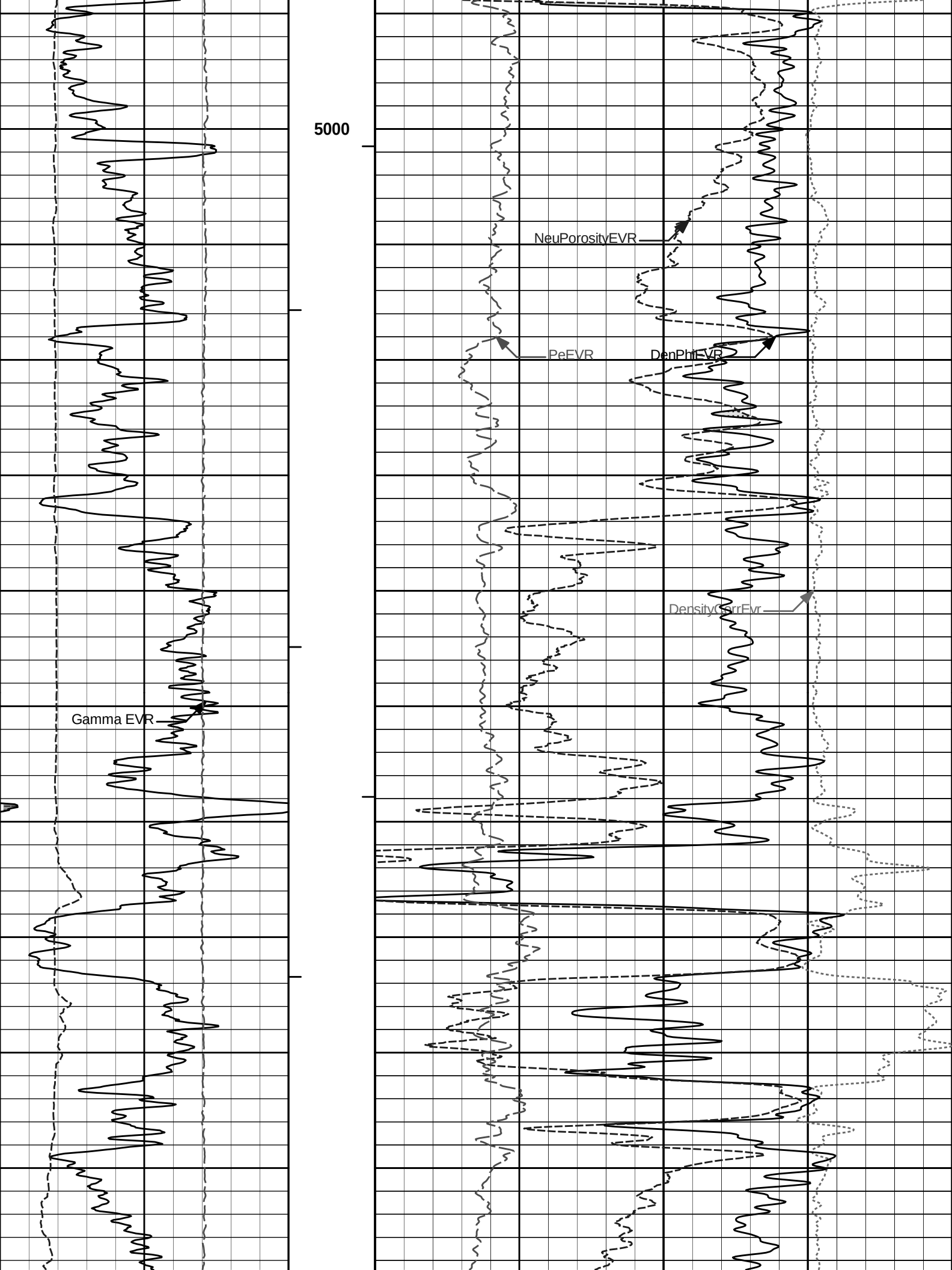
HALLIBURTON

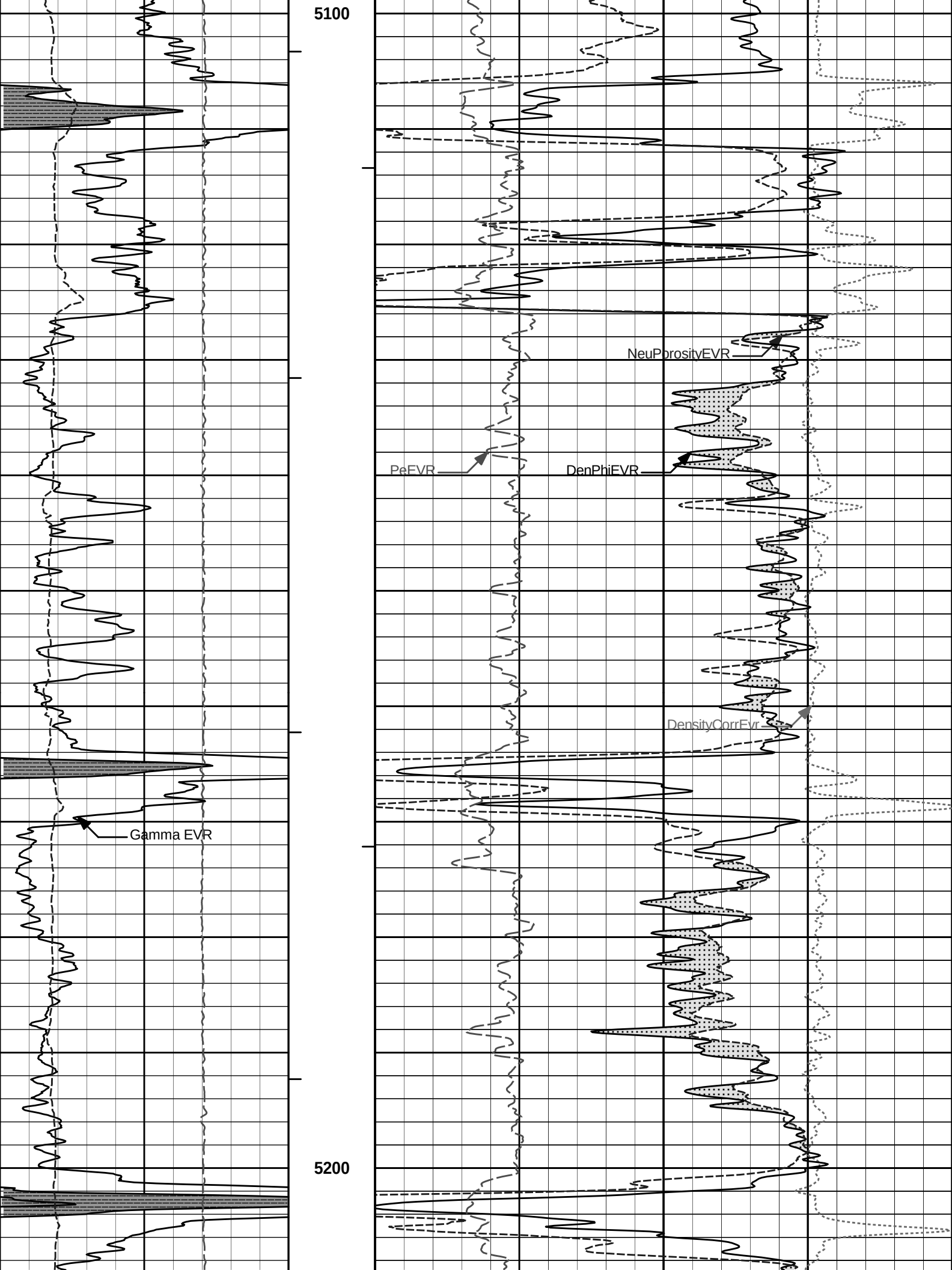
Plot Time: 11-May-13 13:57:49
Plot Range: 4840 ft to 6121.58 ft
Data: EASTON3419_1-21\Well Based\EVR*
Plot File: \\POROSITY\Poro_IQ_EVR_LIB

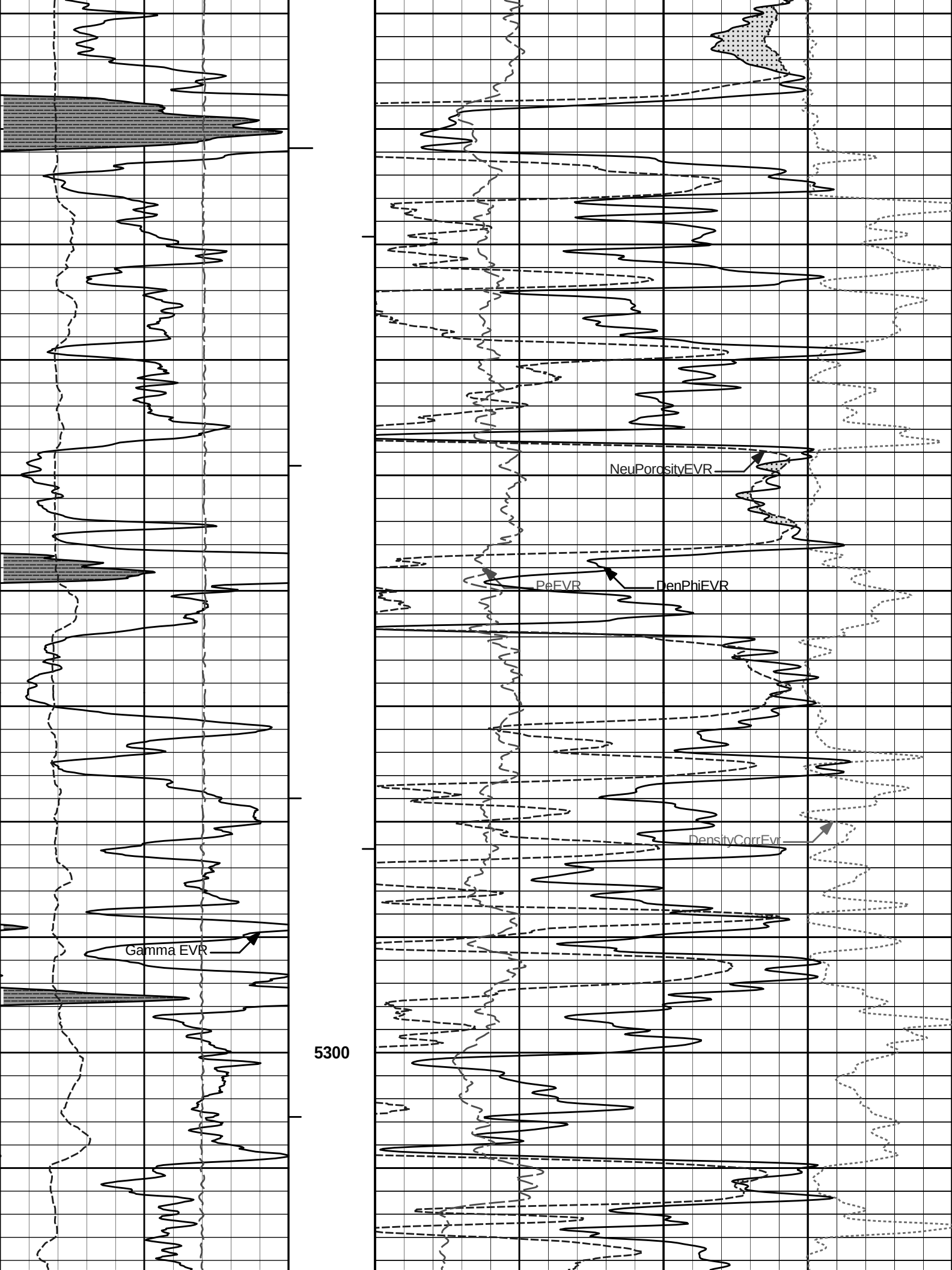
MAIN PASS 10" = 100'

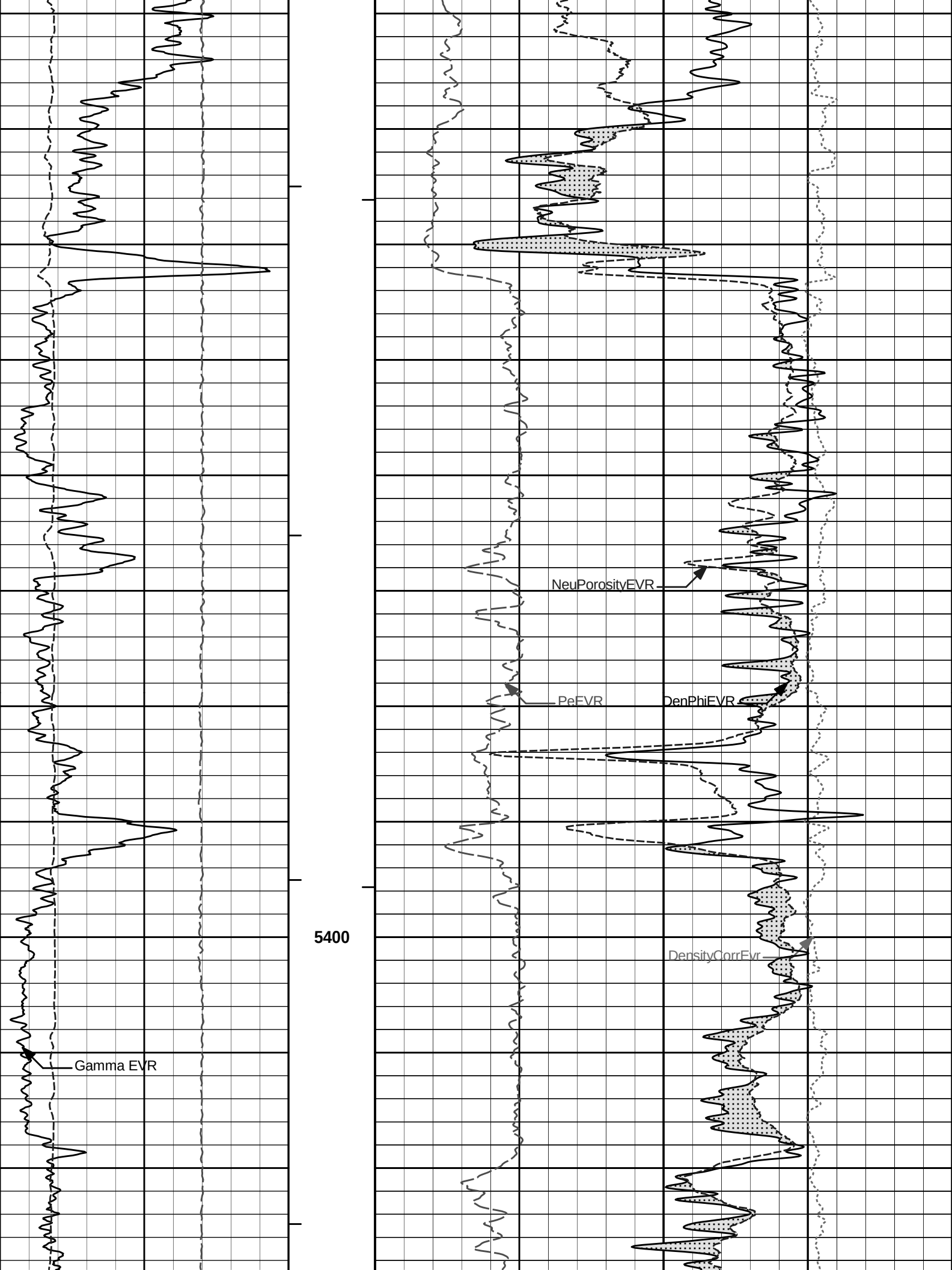


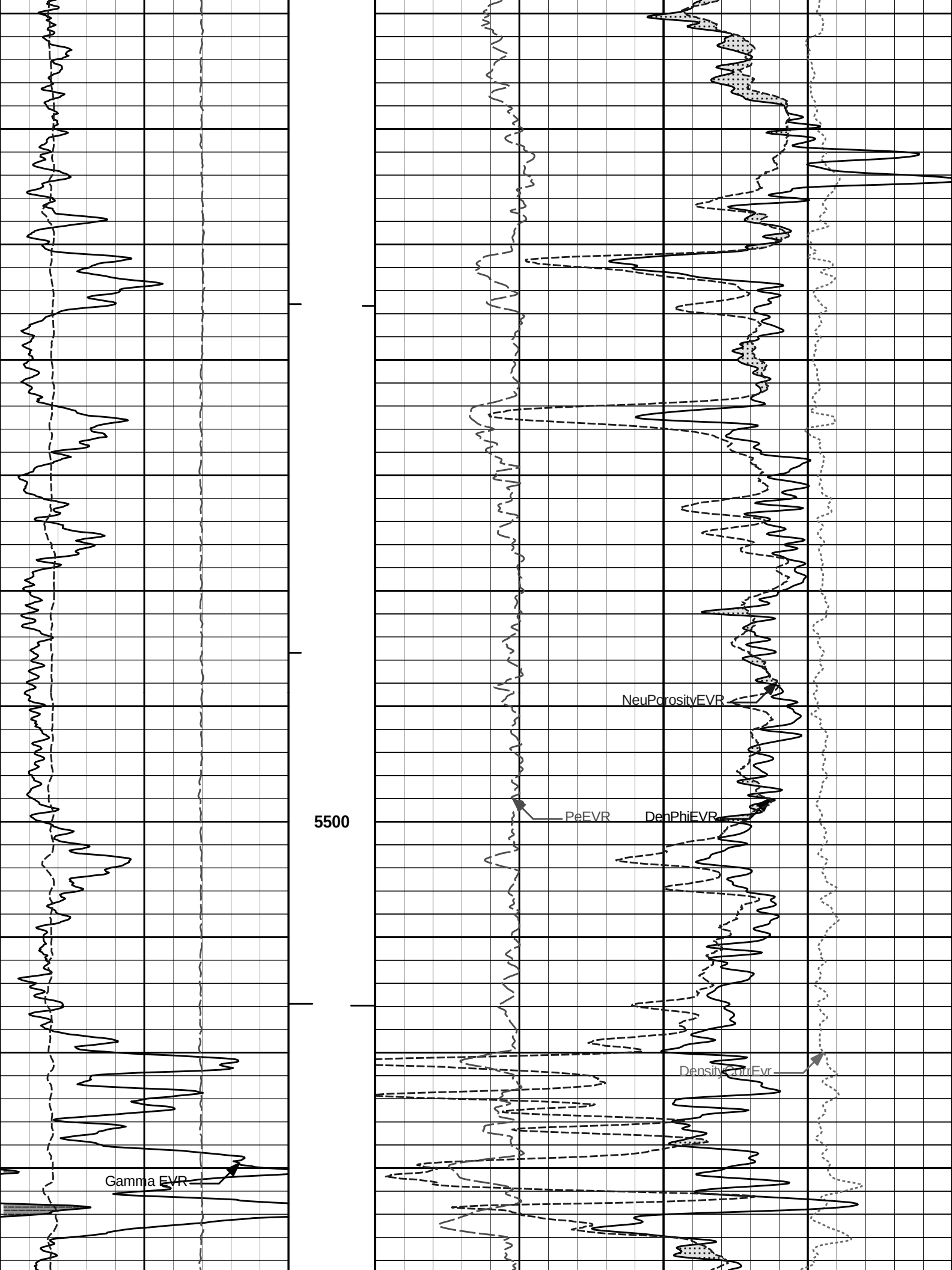

NeuPorosityEVR
4900
DenPhiEVR
DensityCorrEvr
Gamma EVR

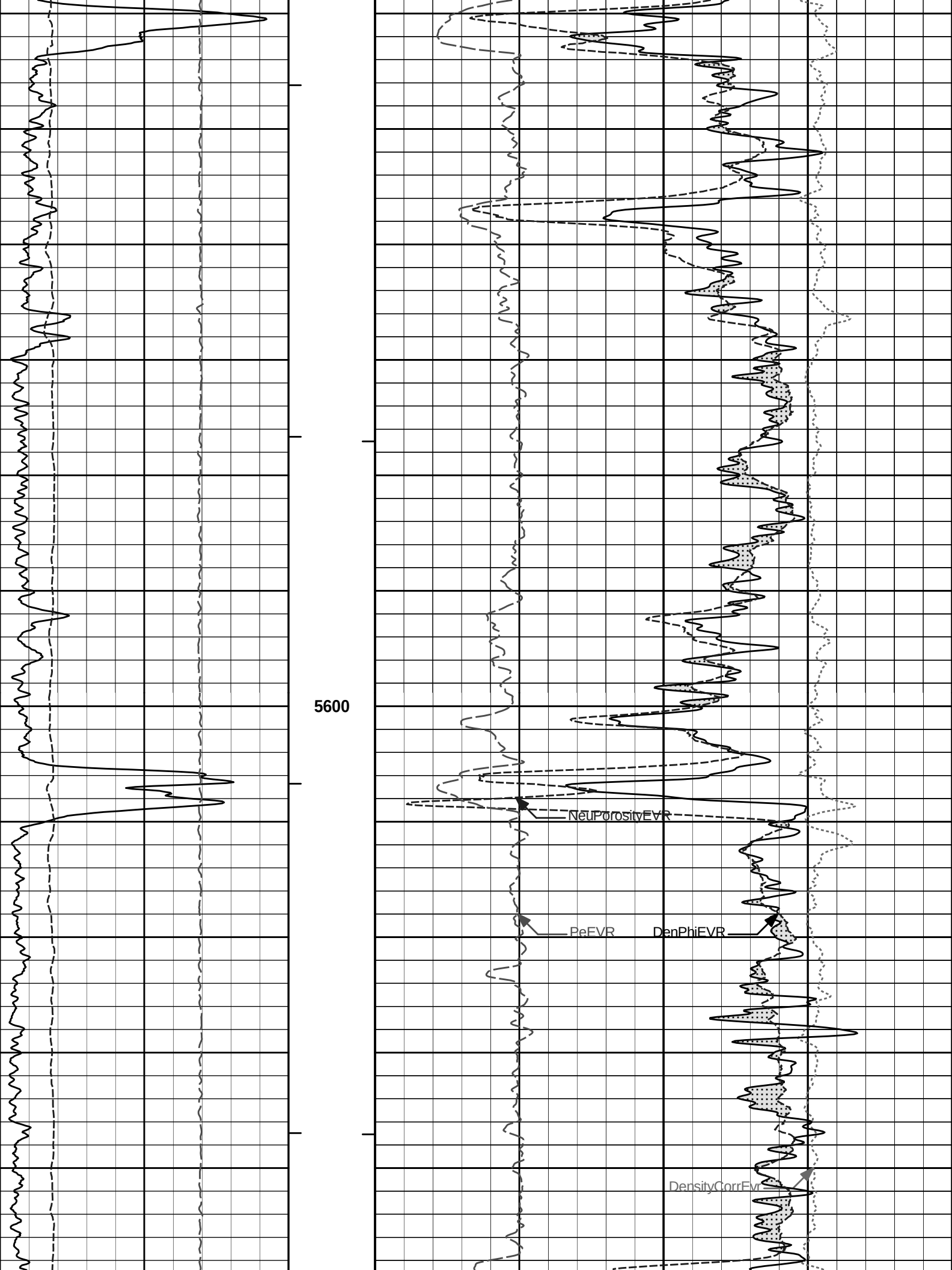

5000
NeuPorosityEVR
PeEVR
DenPhiEVR
DensityCorrEvr
Gamma EVR

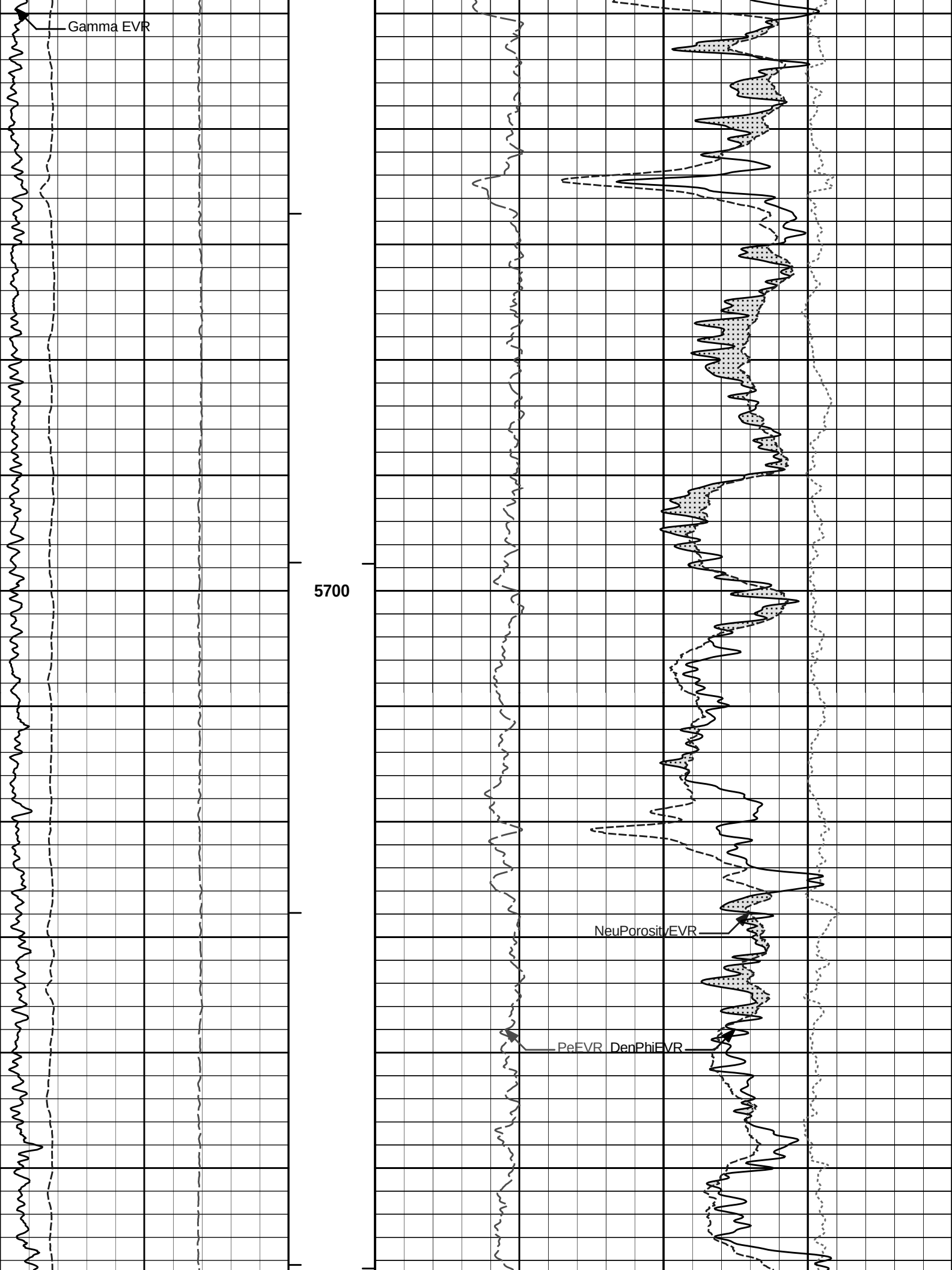

5100
5200
Gamma EVR
PeEVR
NeuPorosityEVR
DenPhiEVR
DensityCorrEvr

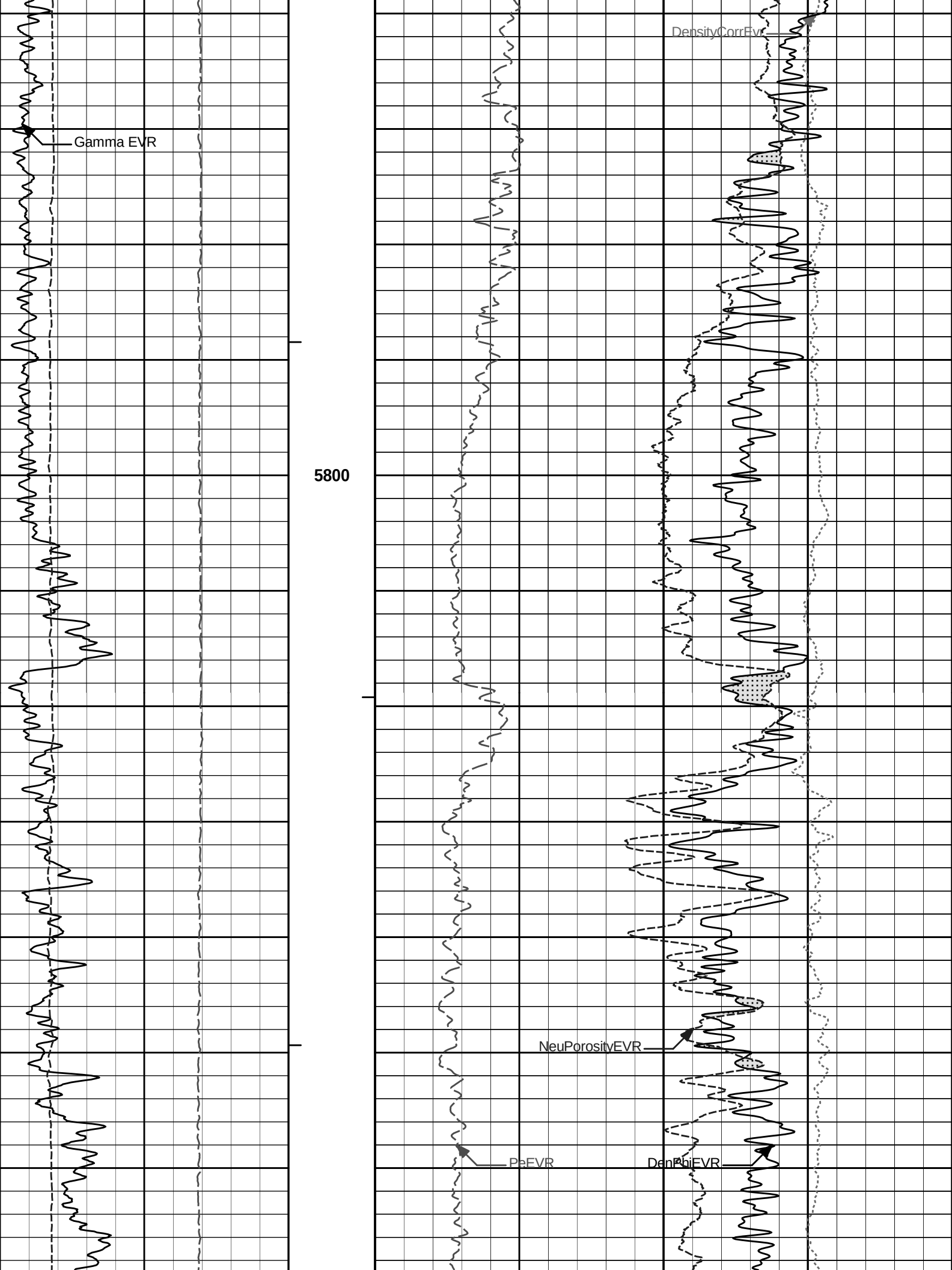

NeuPorosityEVR
PeEVR
DenPhiEVR
DensityCorrEvr
Gamma EVR
5300

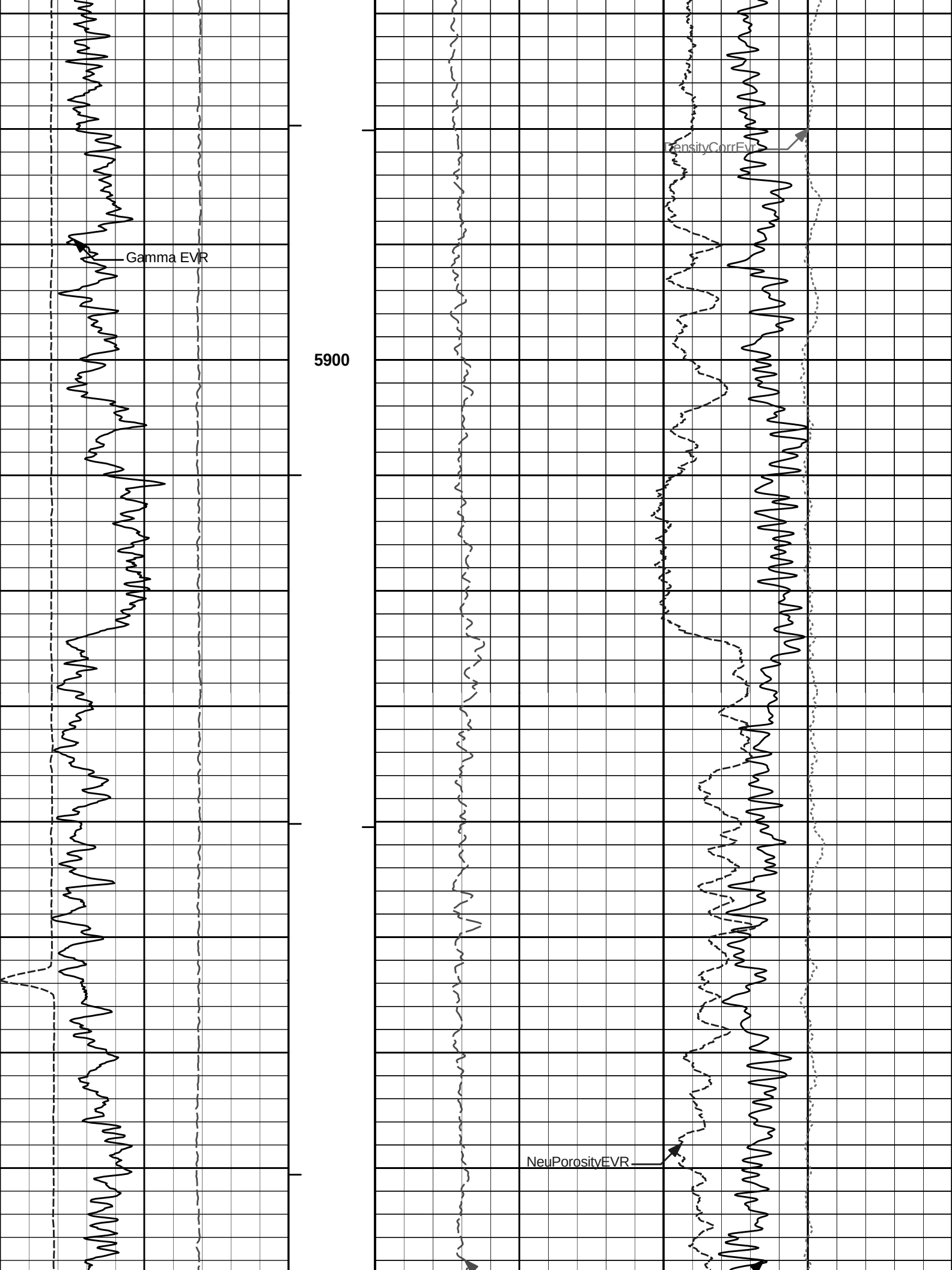

NeuPorosityEVR
PeEVR
DenPhiEVR
5400
DensityCorrEvr
Gamma EVR

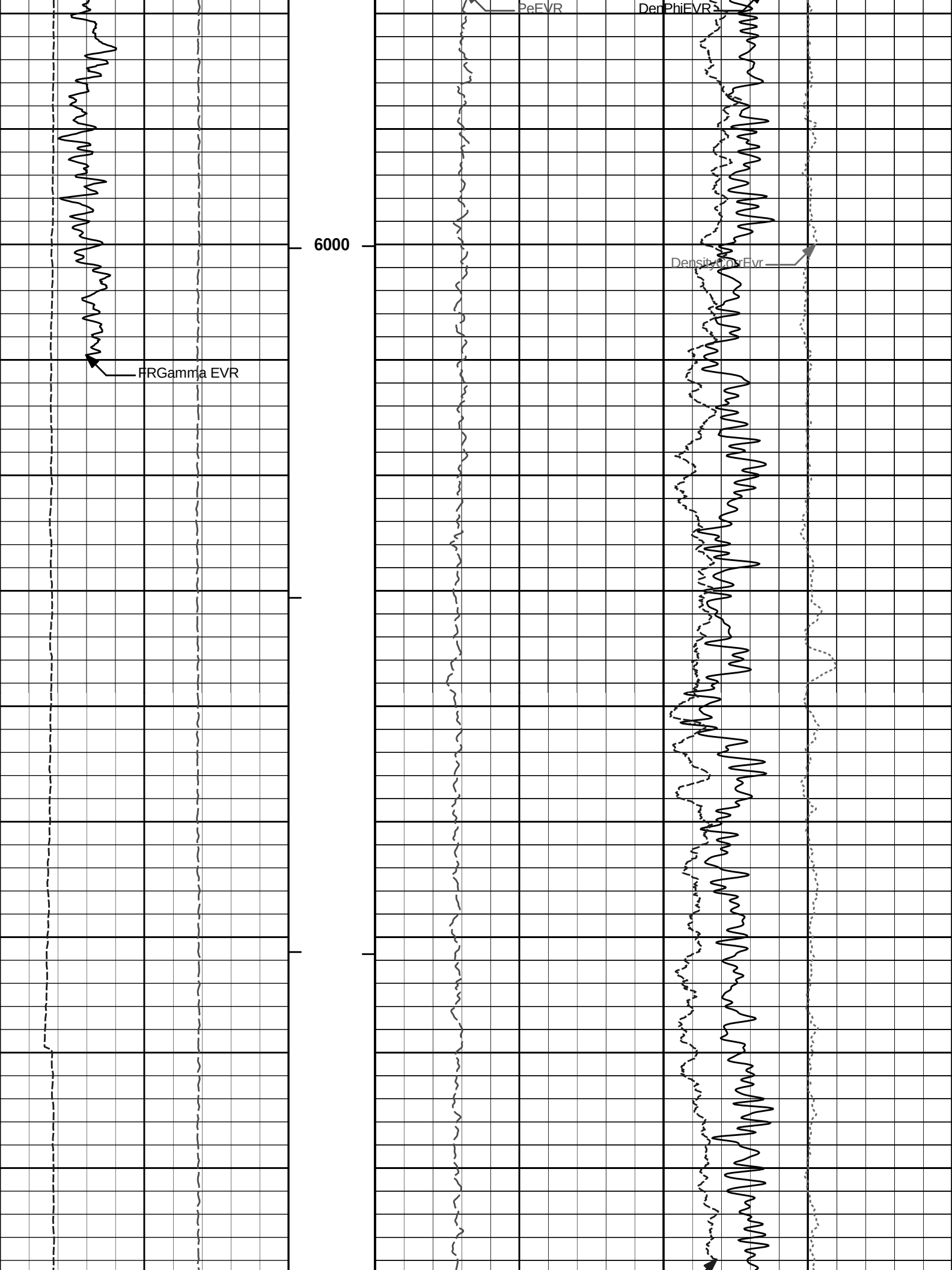

NeuPorosityEVR
PeEVR
DenPhiEVR
5500
DensityCorrEvr
Gamma EVR

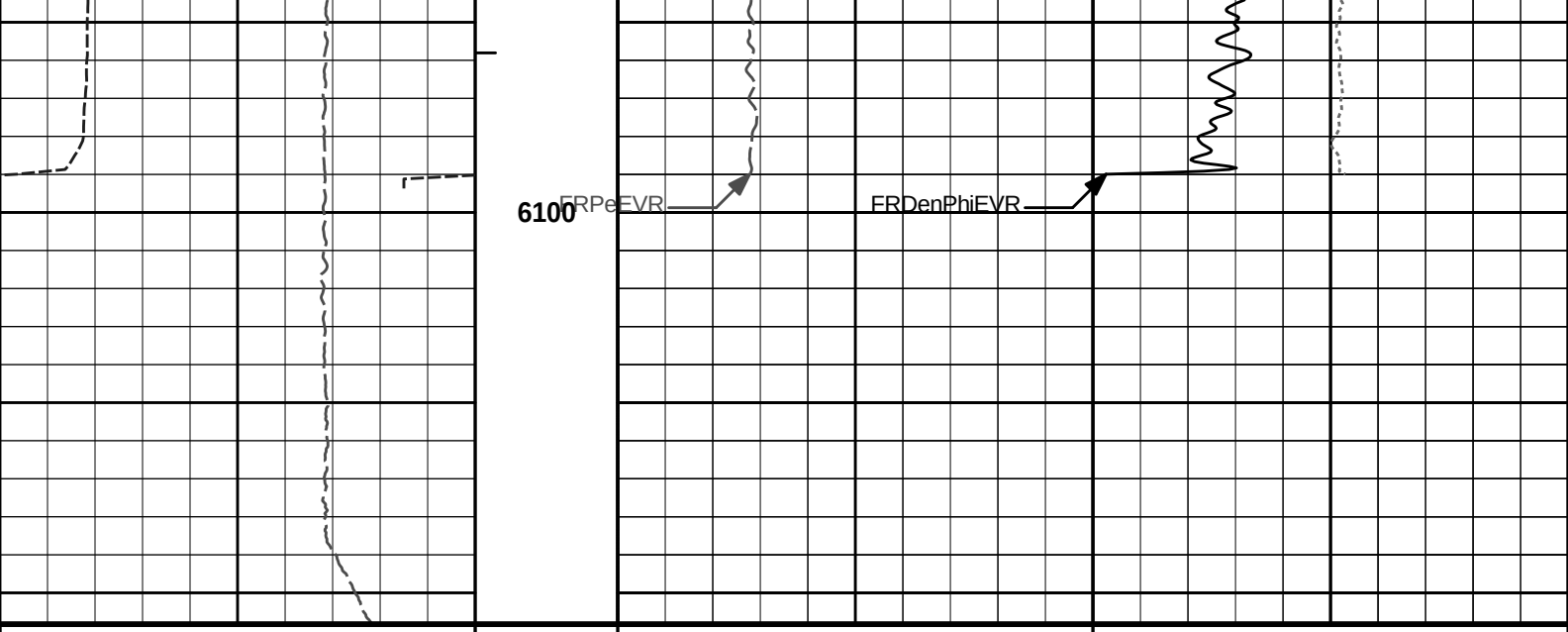

5600
NeuPorosityEVR
PeEVR
DenPhiEVR
DensityCorrEvr

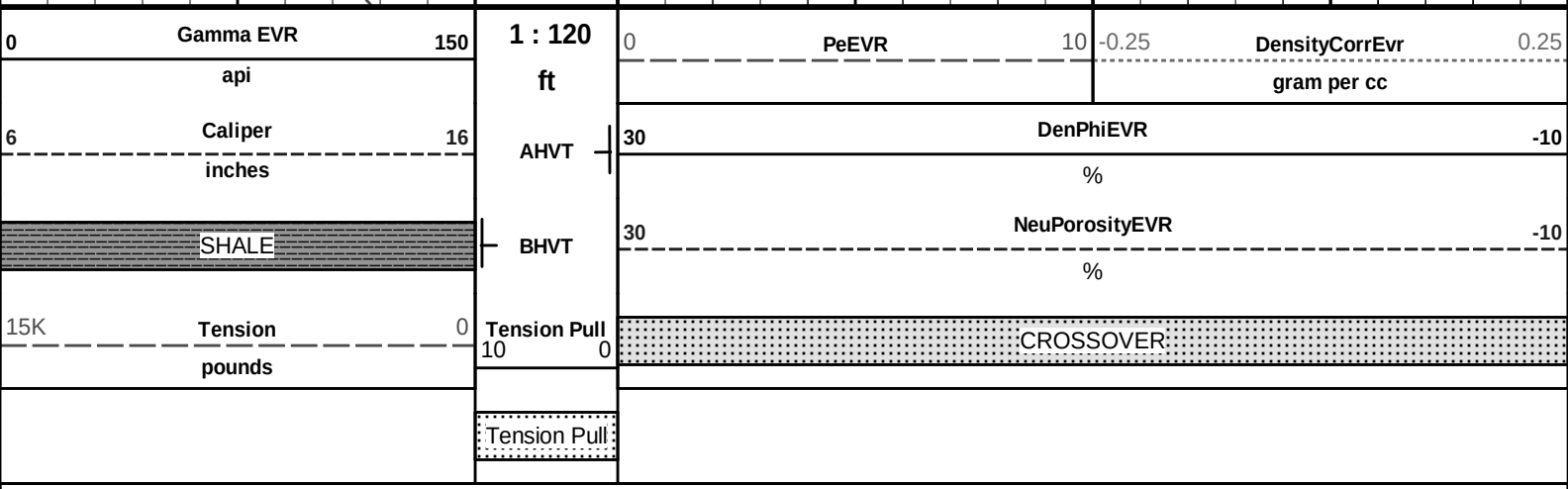

Gamma EVR
5700
NeuPorosityEVR
PeEVR
DenPhiEVR


Gamma EVR
5800
DensityCorrEVR
NeuPorosityEVR
PeEVR
DenPhiEVR


Gamma EVR
5900
DensityCorrEvr
NeuPorosityEVR


PeEVR
DenPhiEVR
6000
DensityCorEvr
FRGamma EVR





HALLIBURTON

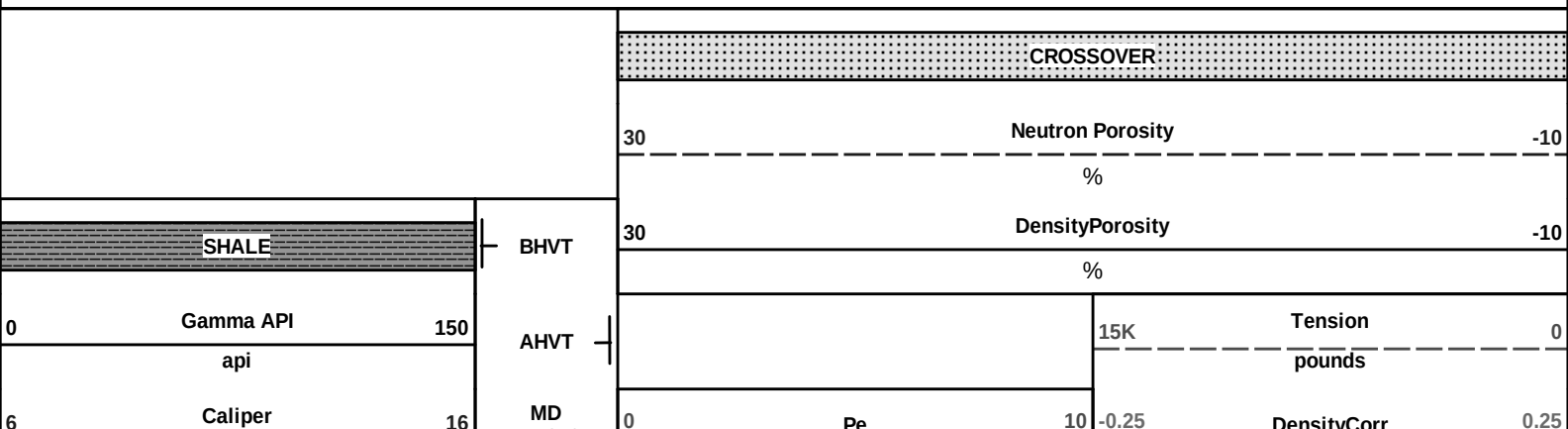
Plot Time: 11-May-13 13:58:14
Plot Range: 4840 ft to 6121.58 ft
Data: EASTON3419_1-21\Well Based\EVR*
Plot File: \\POROSITY\Poro_IQ_EVR_LIB

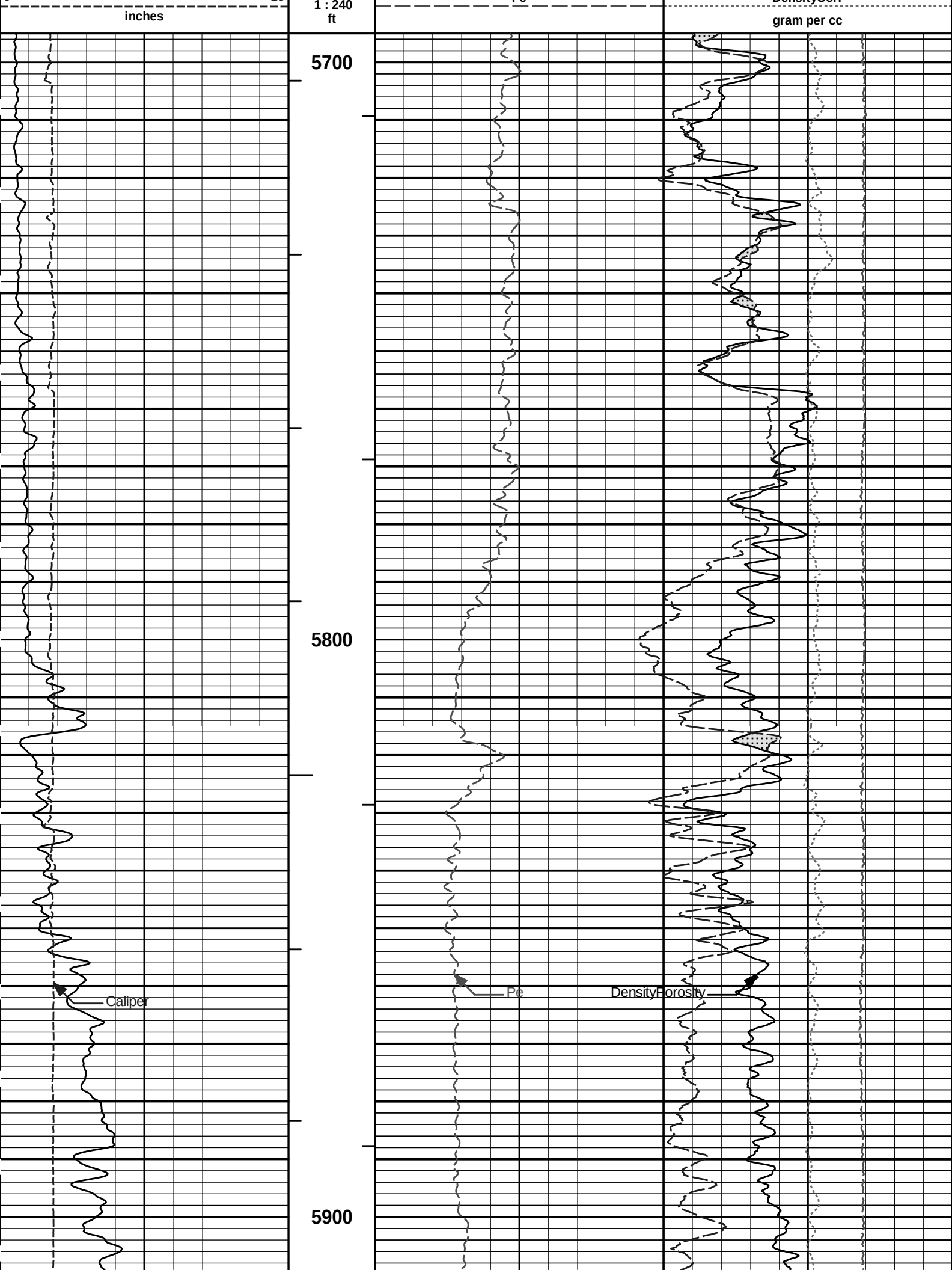
MAIN PASS 10" = 100'

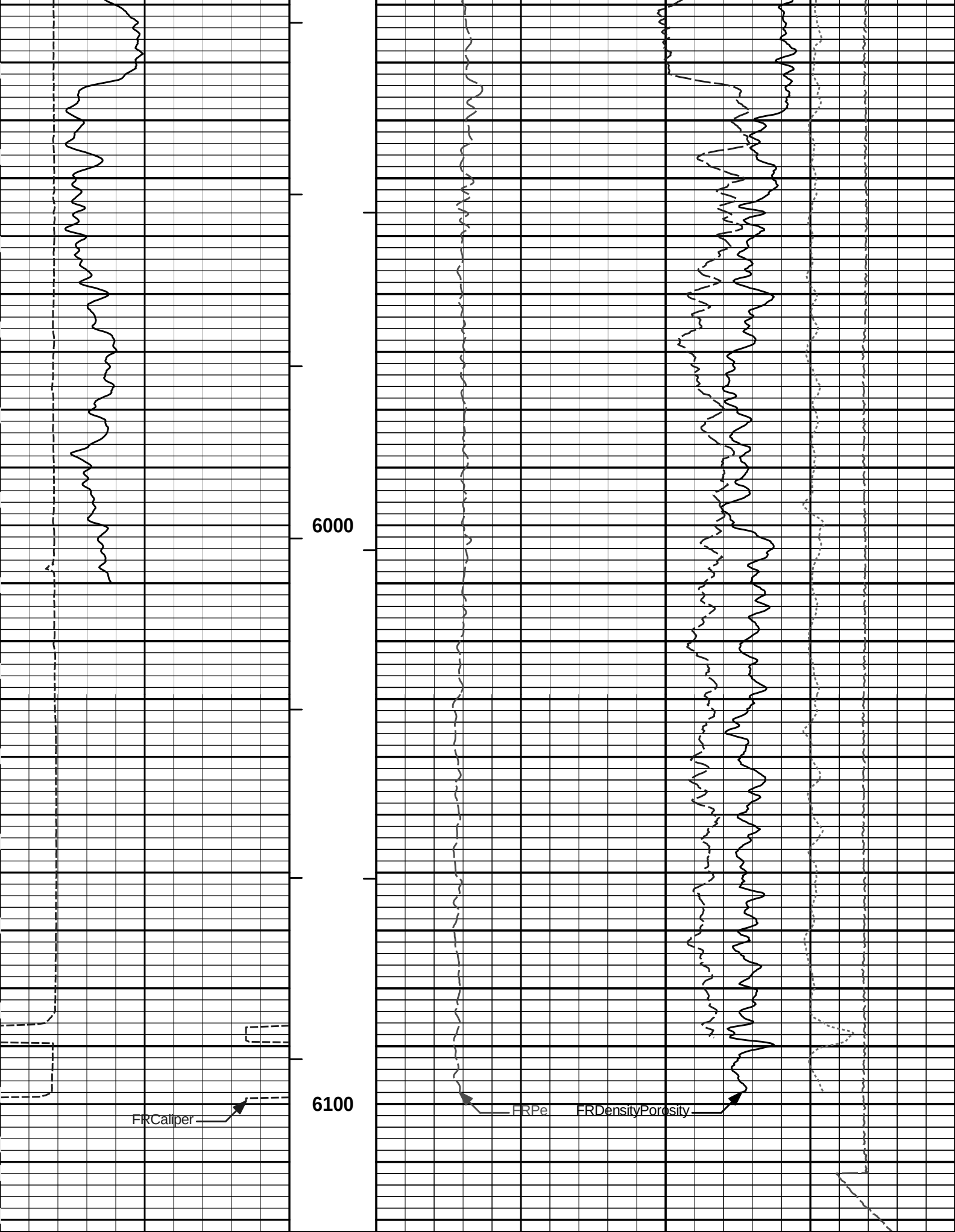
HALLIBURTON

Plot Time: 11-May-13 13:58:14
Plot Range: 5695 ft to 6122.08 ft
Data: EASTON3419_1-21\Well Based\REPEAT
Plot File: \\POROSITY\Poro_IQ_5_REP_LIB

REPEAT SECTION




inches
1 : 240
ft
gram per cc
5700
5800
5900
Caliper
Pe
DensityPorosity



Caliper	MD	Pe	DensityCorr
6 — 16	1 : 240	0 — 10	-0.25 — 0.25
inches	ft		

inches

0 Gamma API 150

api

SHALE

ft

AHVT

BHVT

gram per cc

15K Tension 0

pounds

30 DensityPorosity -10

%

30 Neutron Porosity -10

%

CROSSOVER

HALLIBURTON

Plot Time: 11-May-13 13:58:20
Plot Range: 5695 ft to 6122.08 ft
Data: EASTON3419_1-21\Well Based\REPEAT\
Plot File: \\POROSITY\Poro_IQ_5_REP_LIB

REPEAT SECTION

HALLIBURTON

Plot Time: 11-May-13 13:58:20
Plot Range: 820 ft to 6121.58 ft
Data: EASTON3419_1-21\Well Based\CASING\
Plot File: \\-LOCAL-\EASTON3419_1-21\Well Based\POROSITY\BULKD_5_MAIN_LIB

5 INCH MAIN LOG

SHALE

0 Gamma Ray 150

api

18 FarQuality -2

-18 NearQuality 2

6 Caliper 16

inches

BHV ft3

AHV ft3

MD 1 : 240 ft

2 Bulk Density 3

g/cc

15K Tension 0

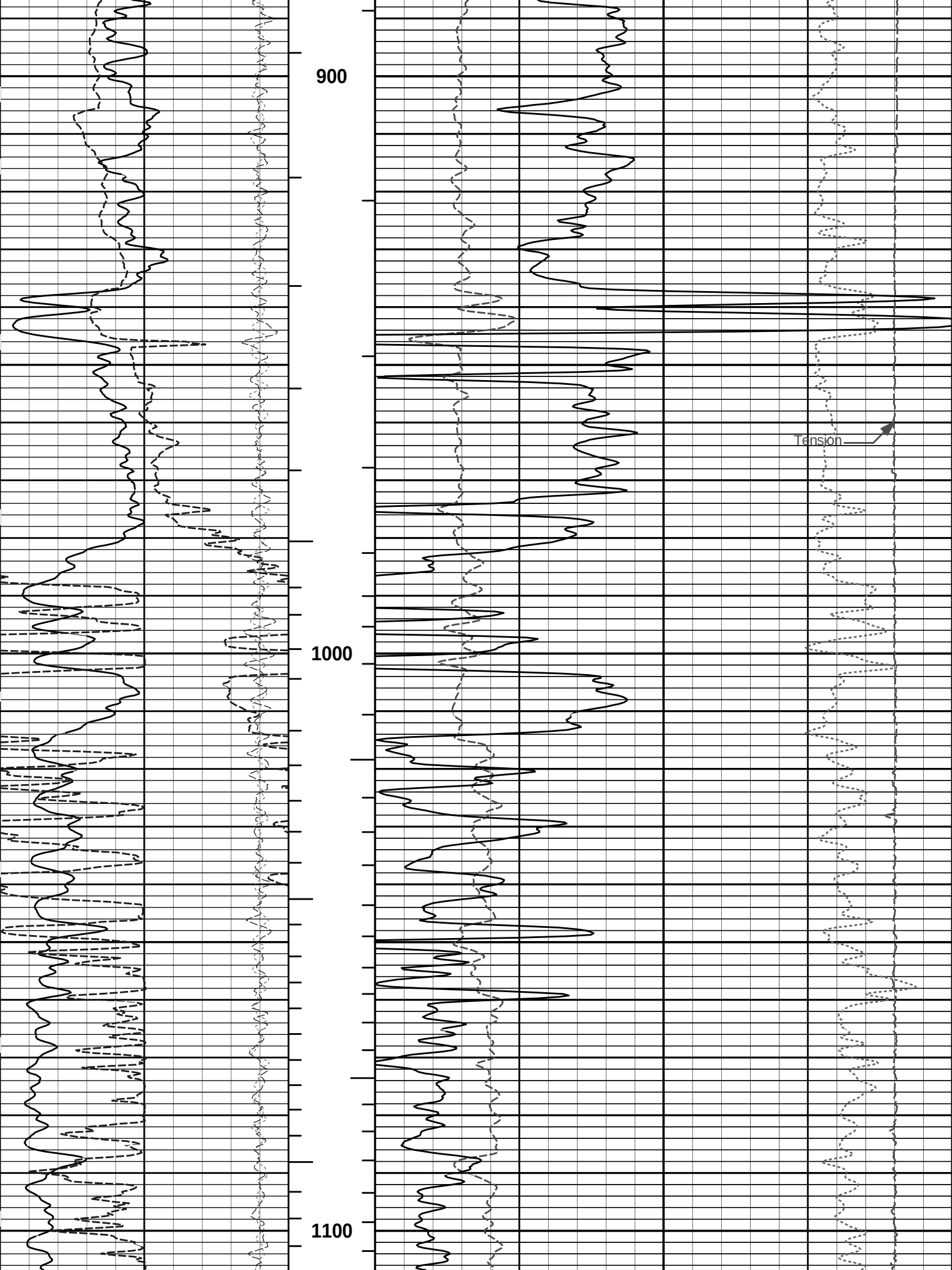
pounds

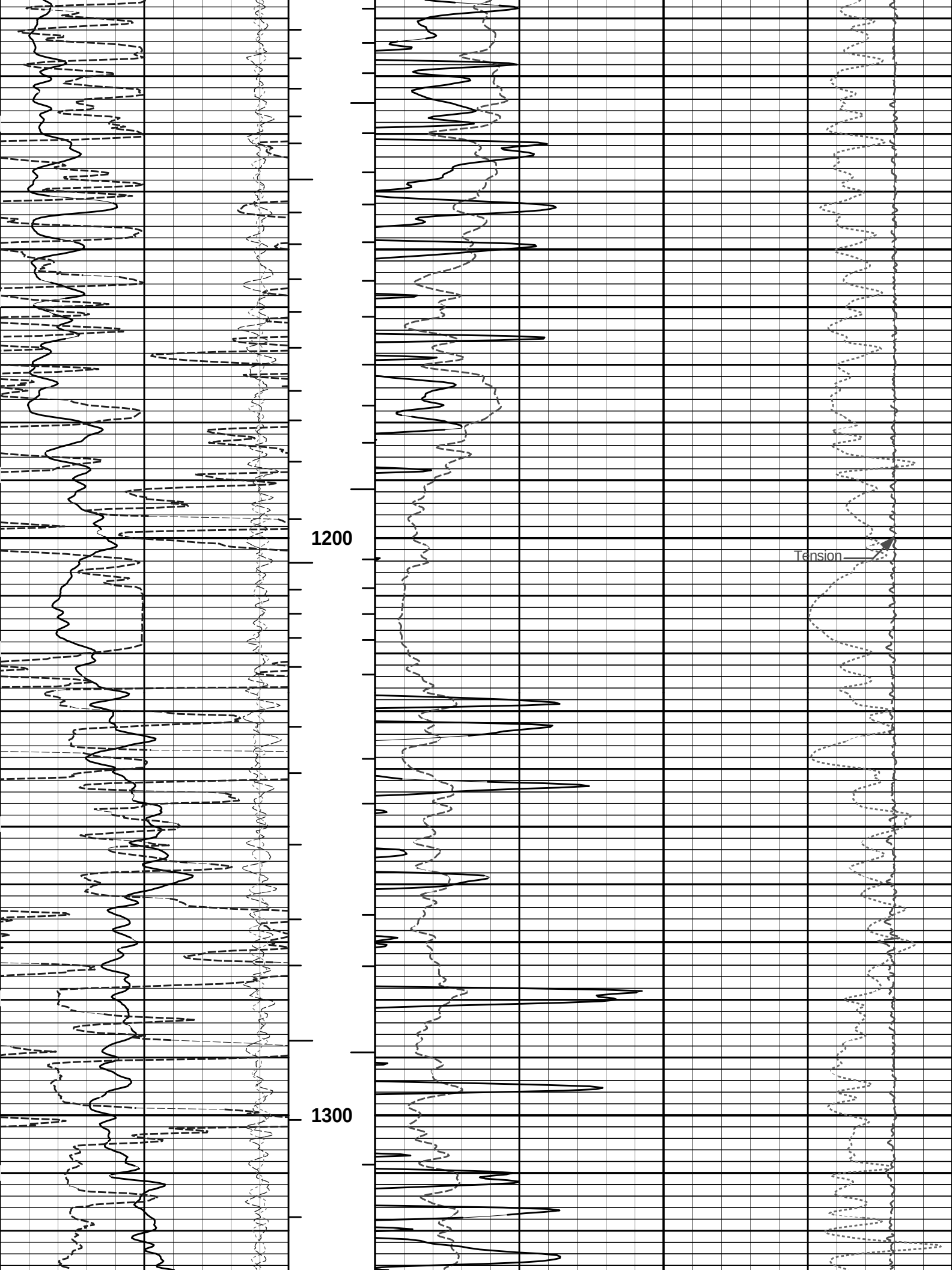
0 Pe 10

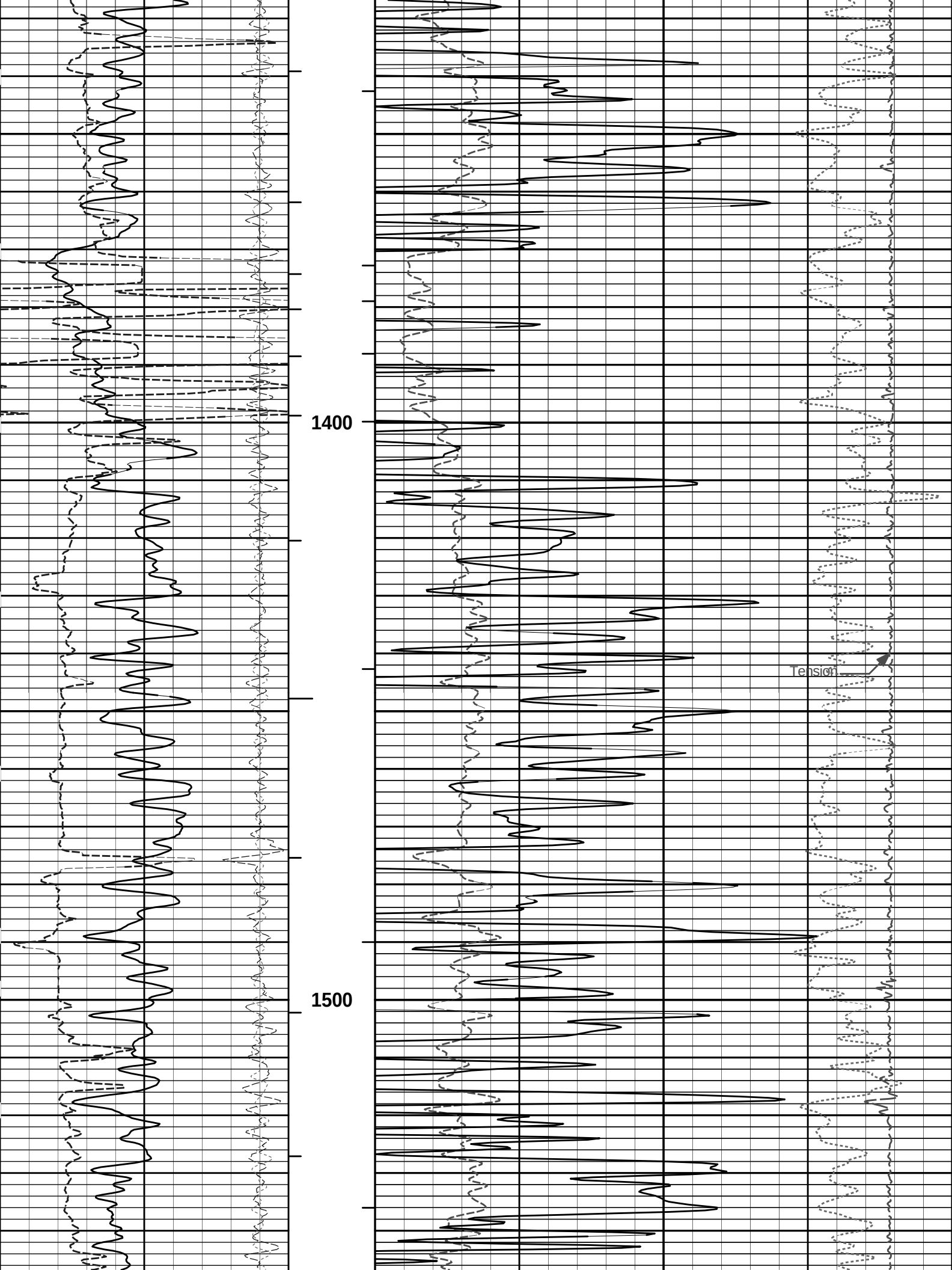
-0.25 DensityCorr 0.25

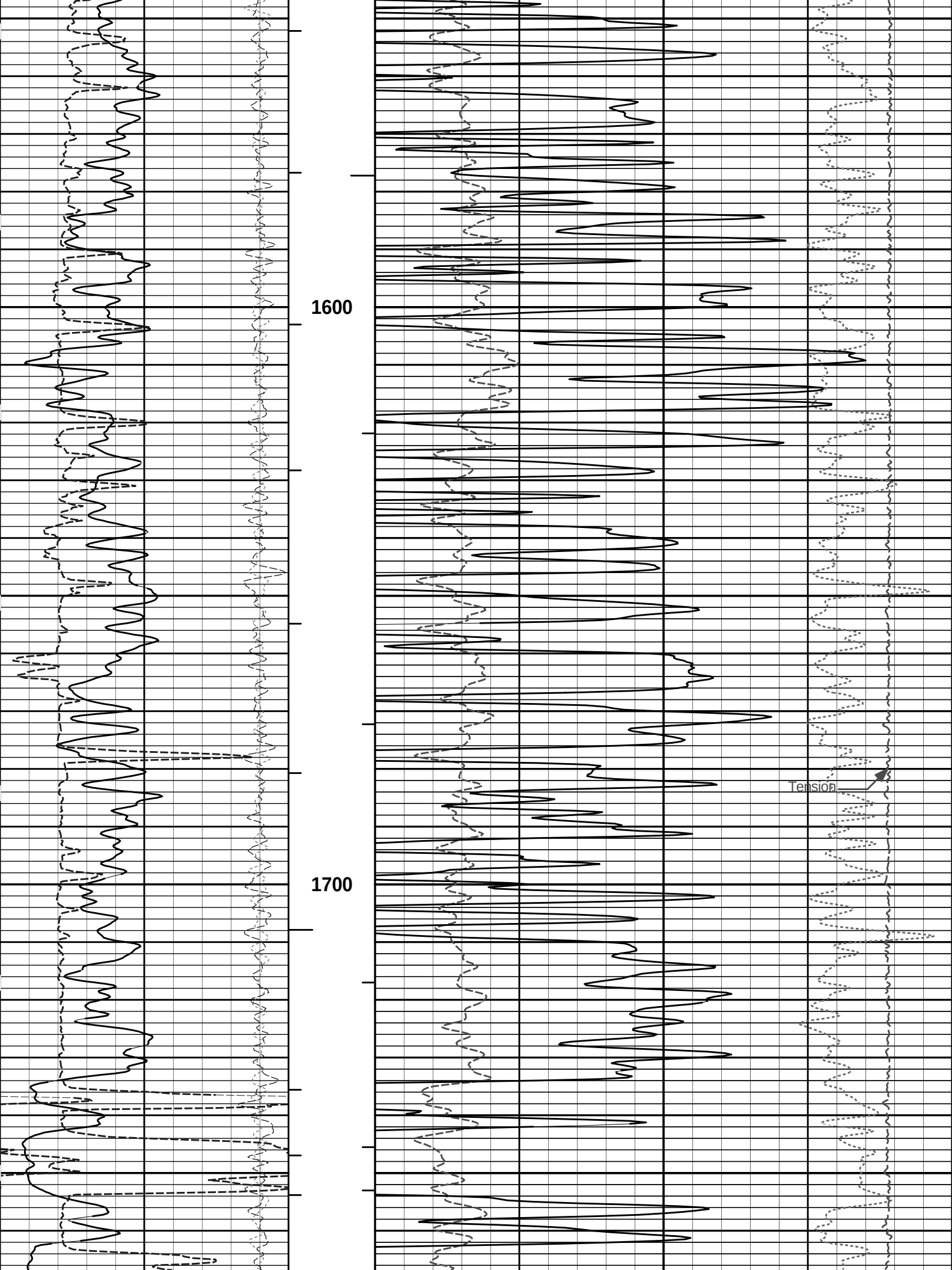
g/cc

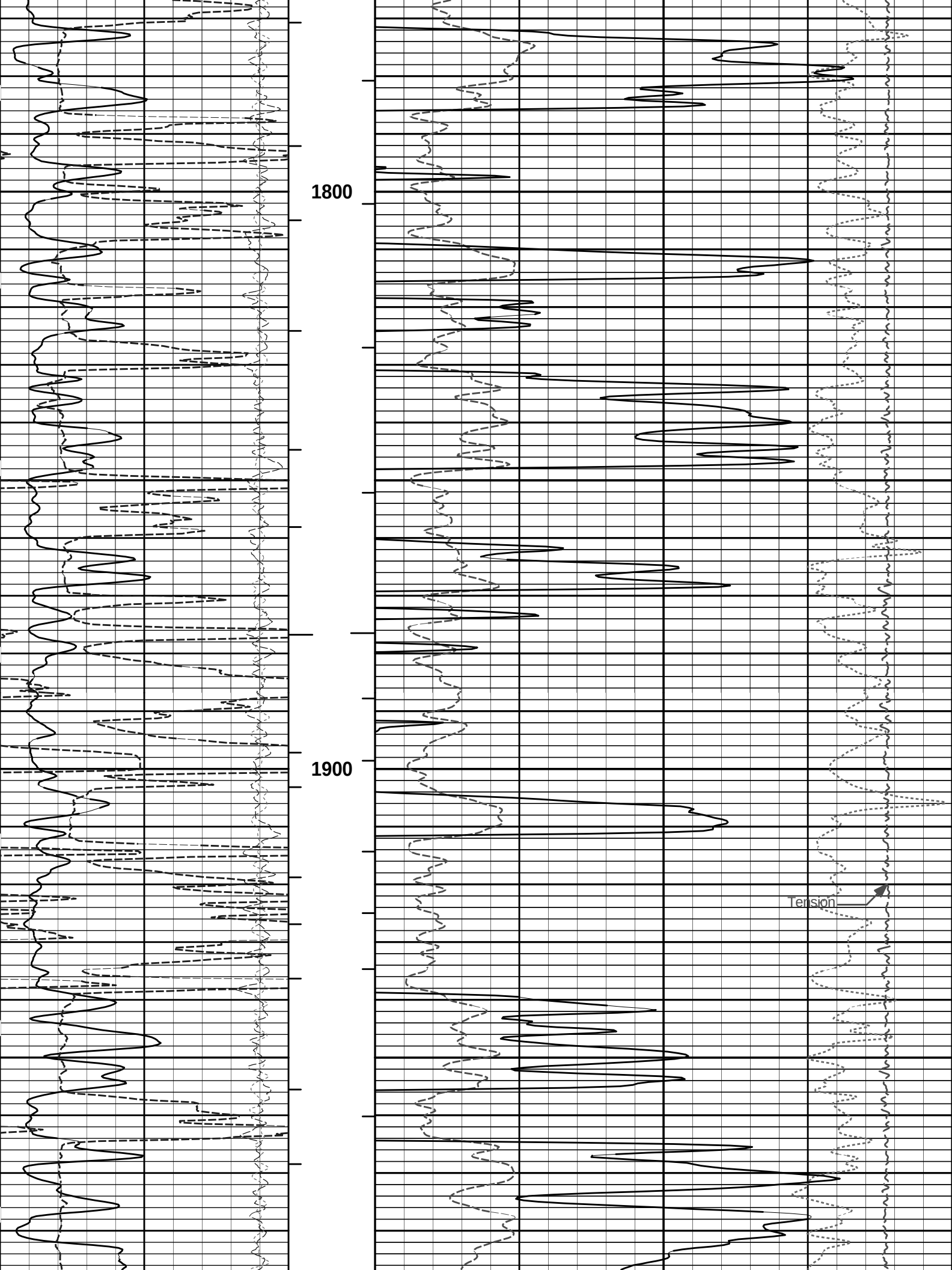
CSG

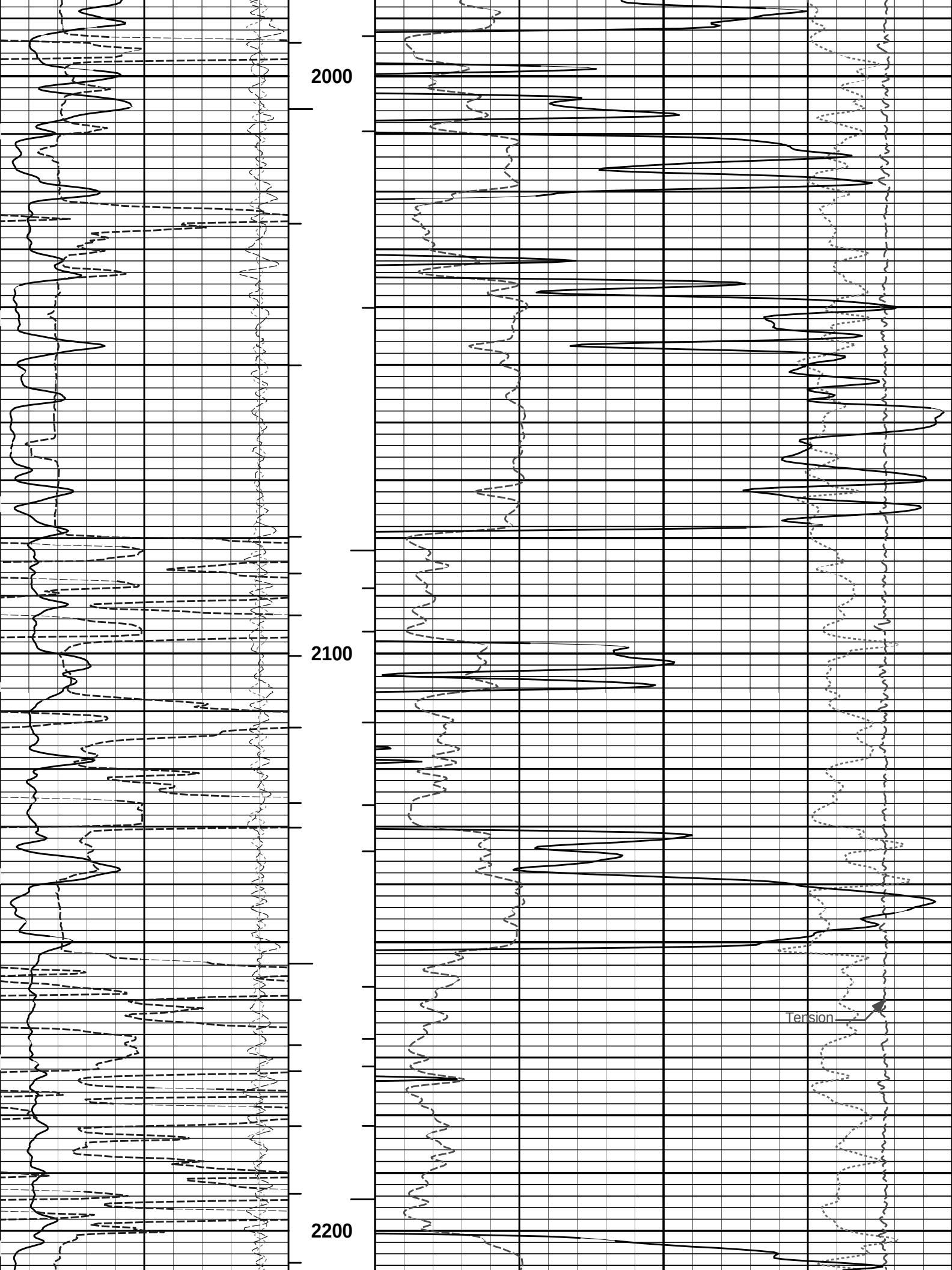

900
1000
1100
Tension

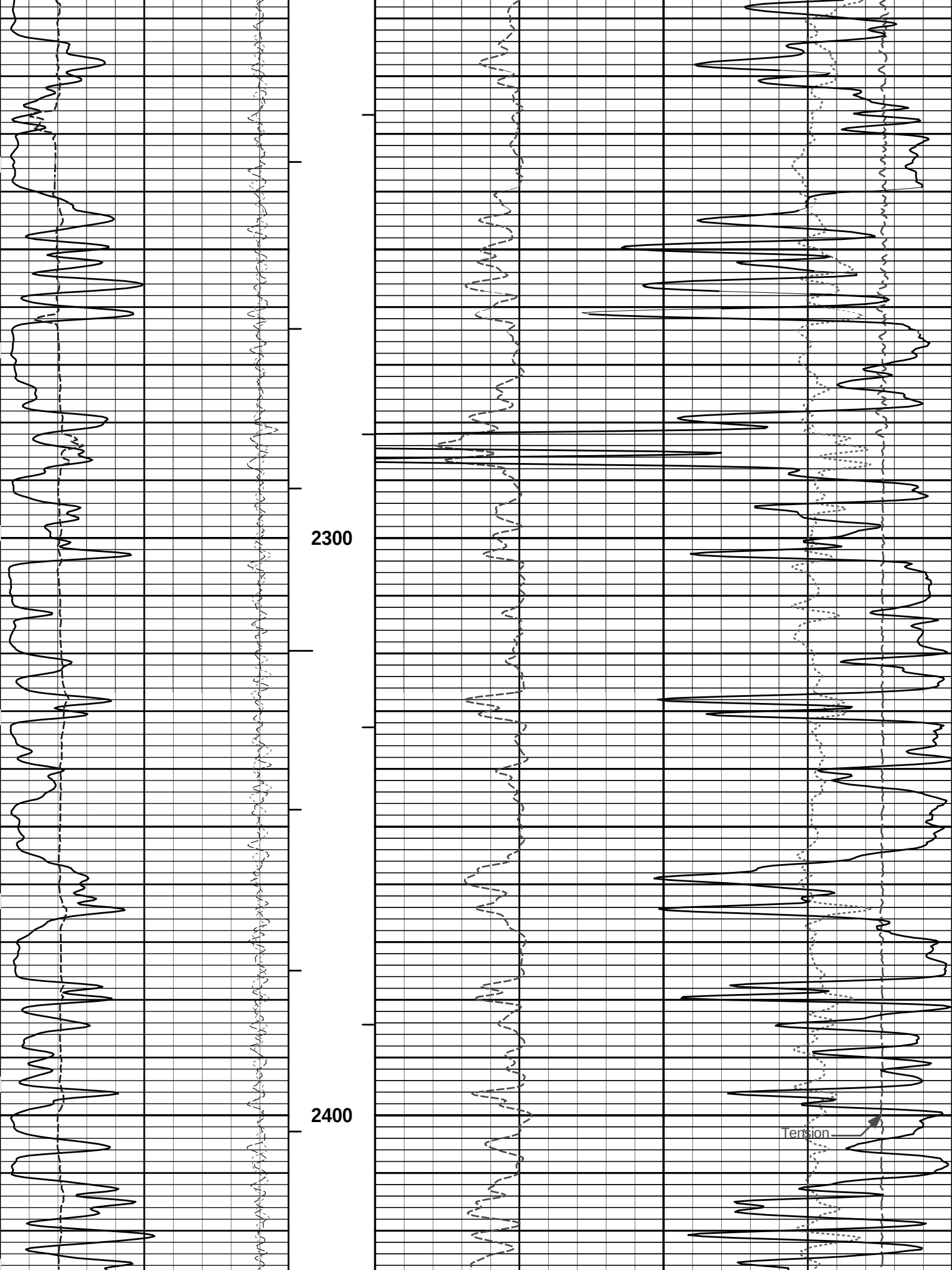

1200
1300
Tension

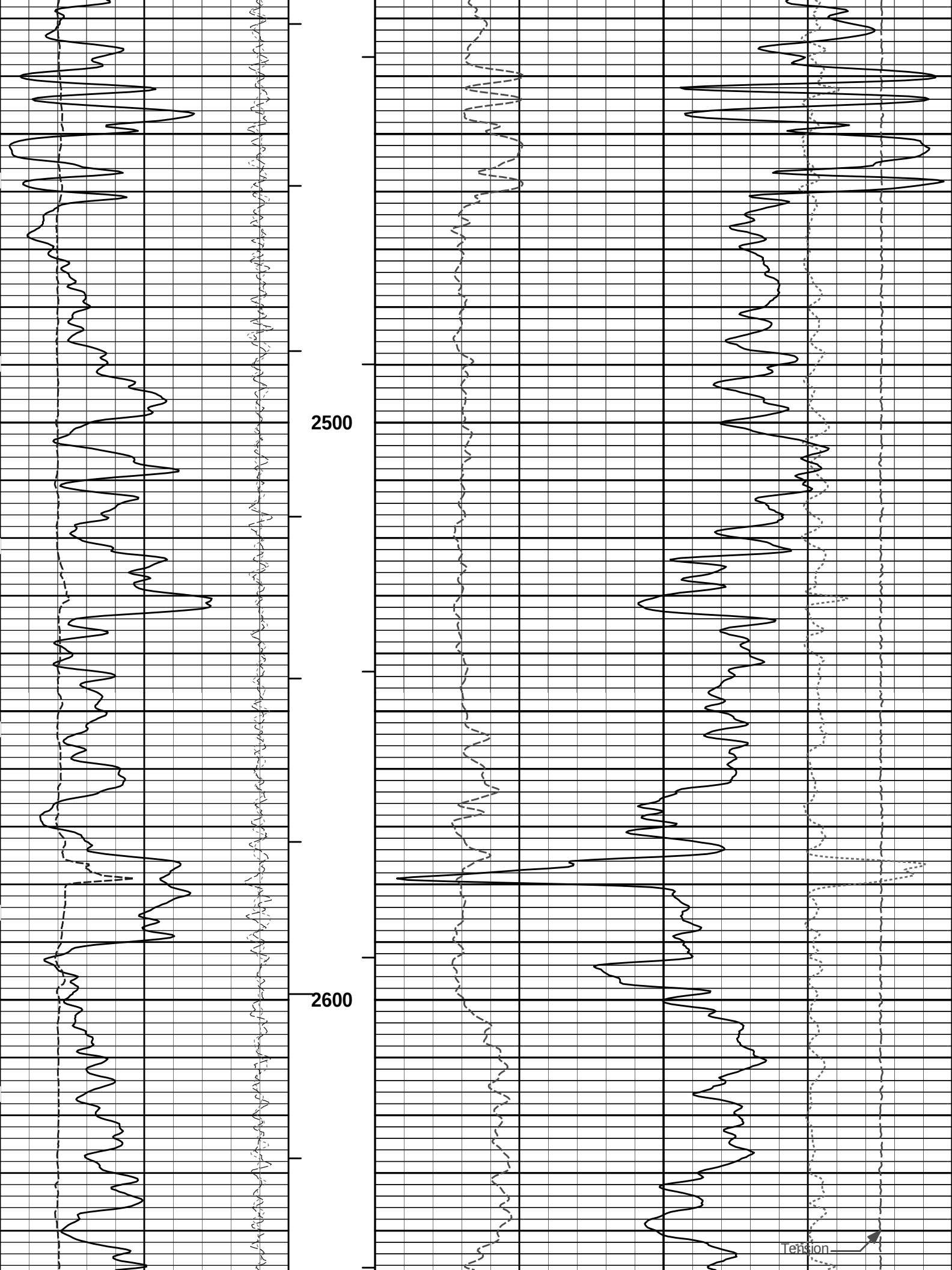

1400
1500
Tension

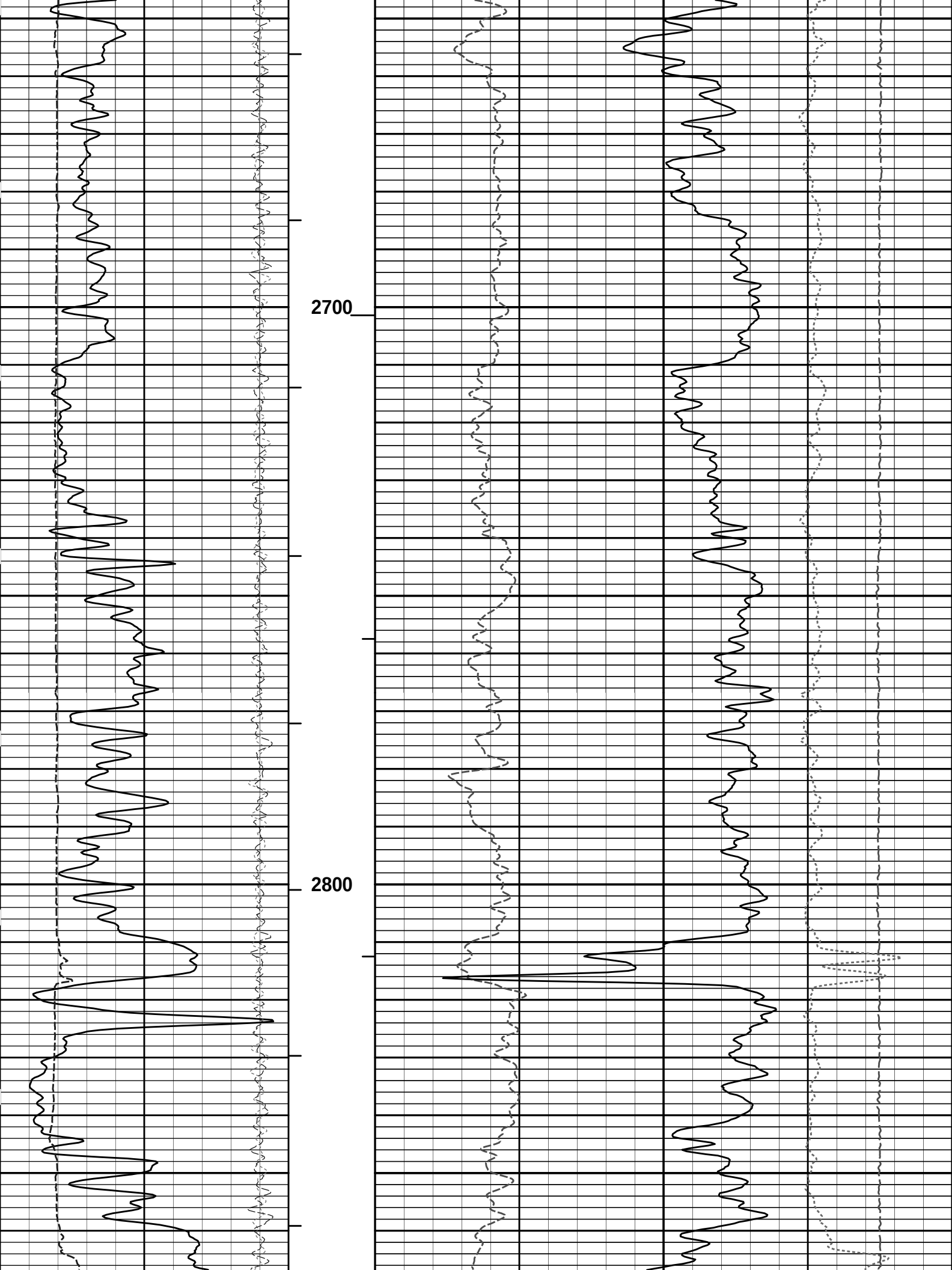

1600
1700
Tension

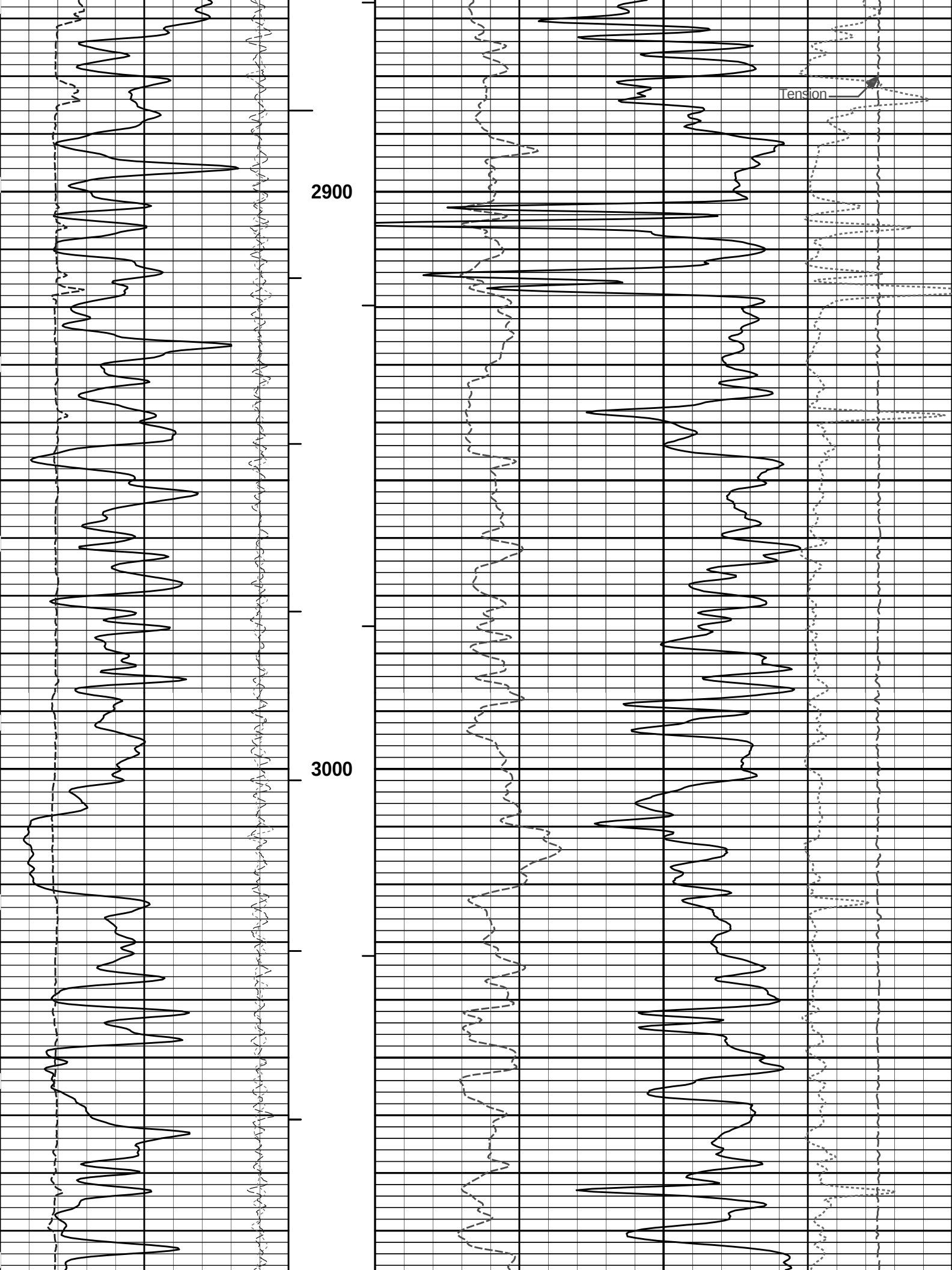

1800
1900
Tension

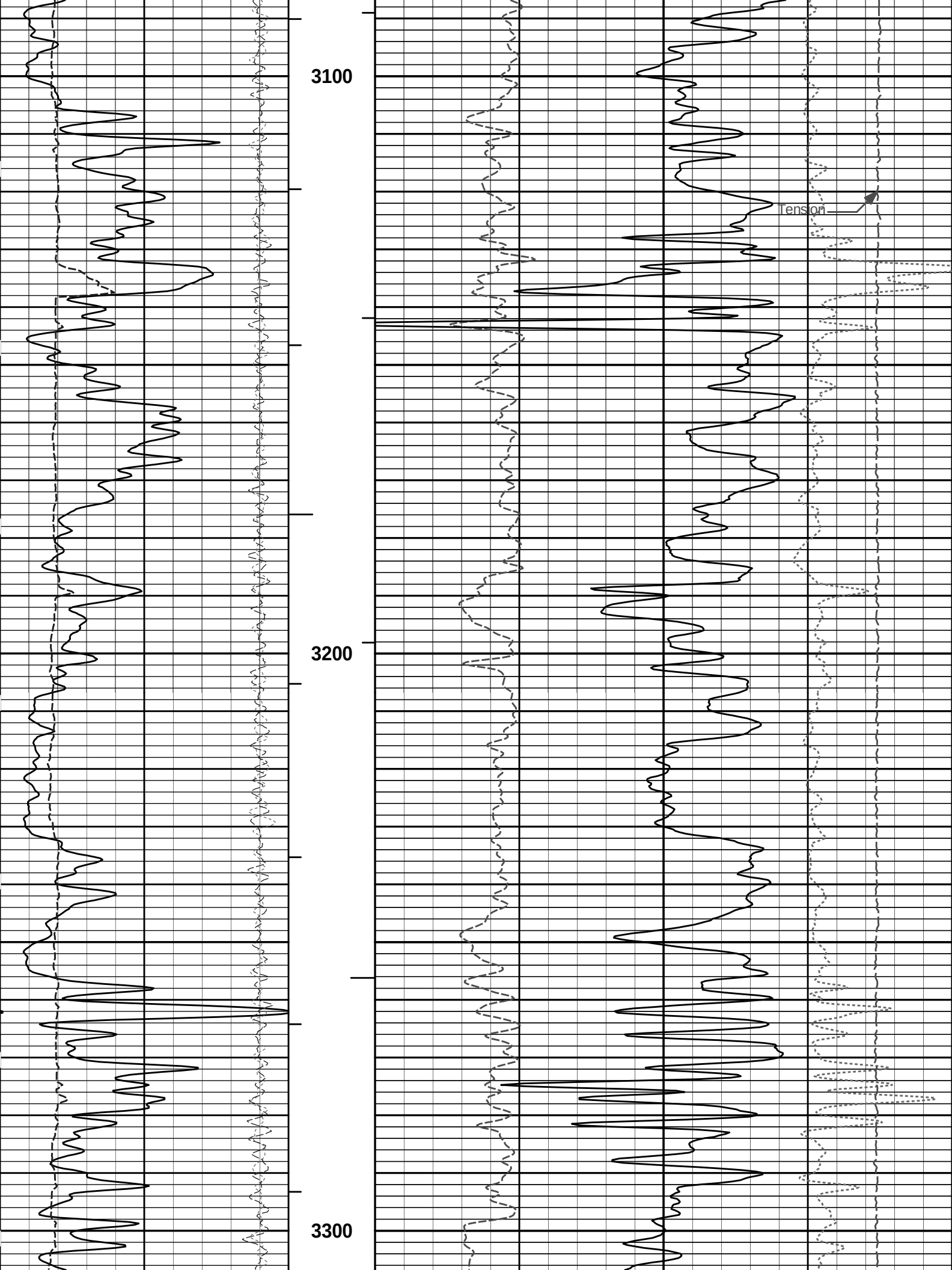

2000
2100
2200
Tension

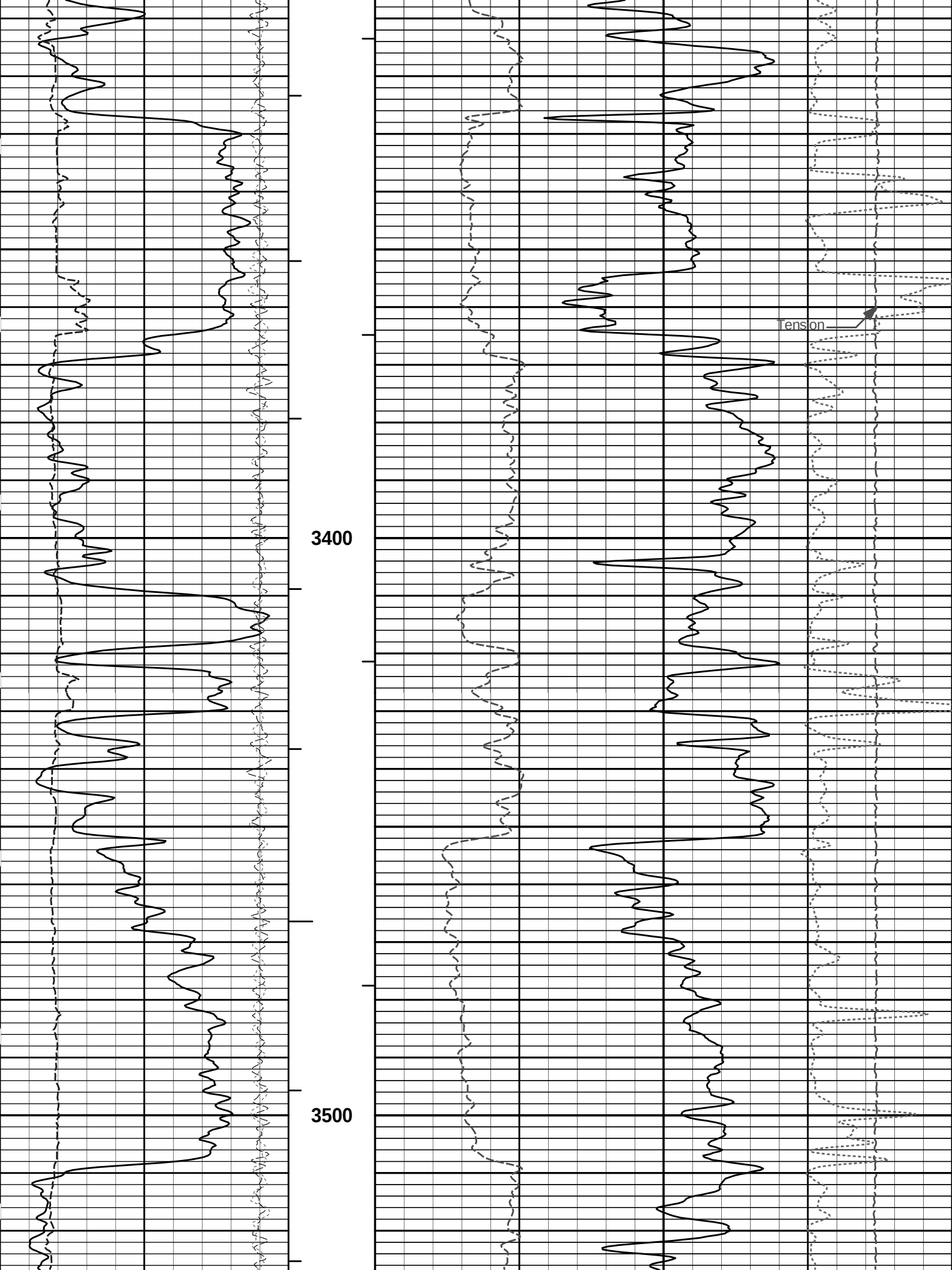

2300
2400
Tension

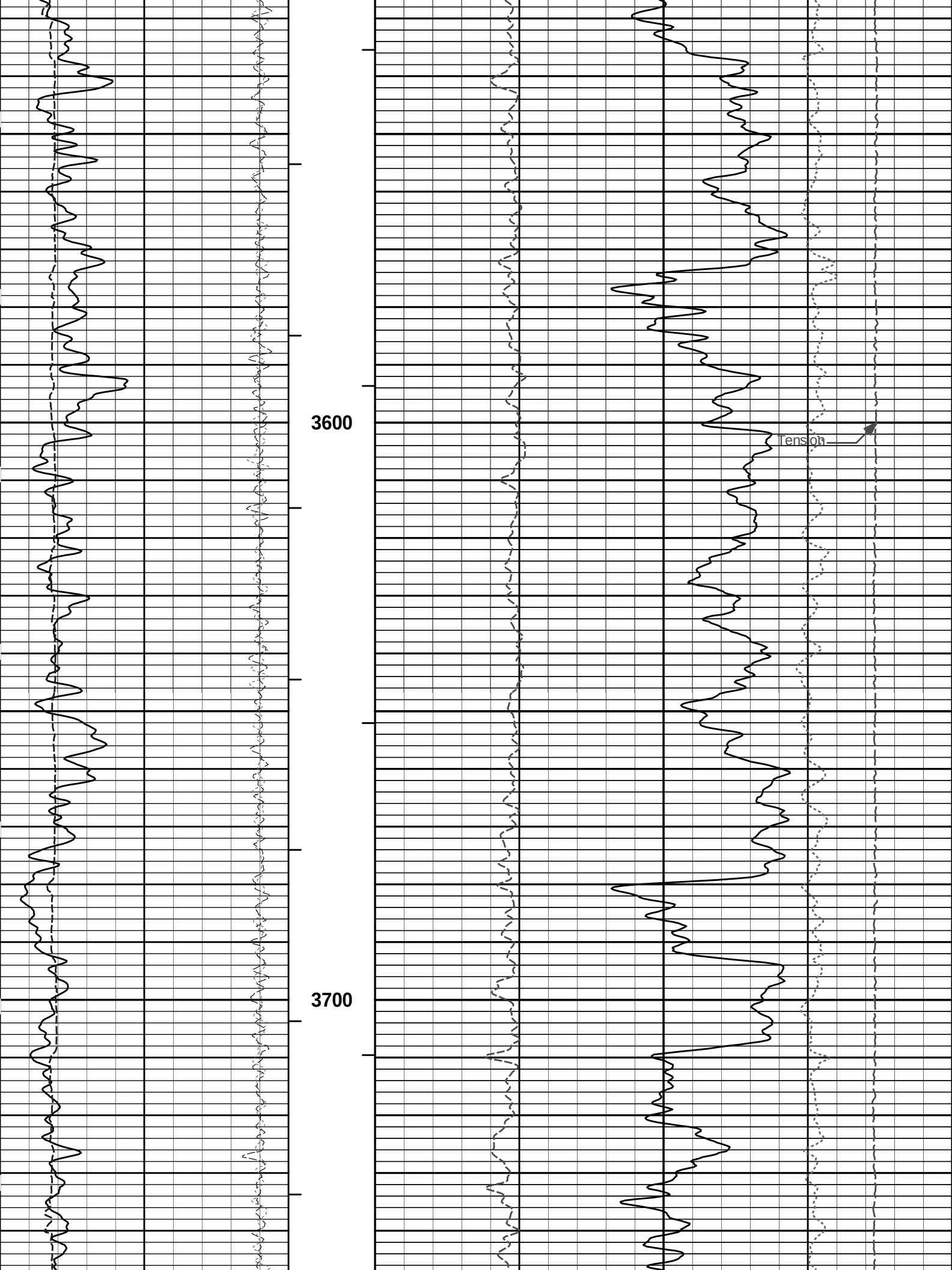

2500
2600
Tension

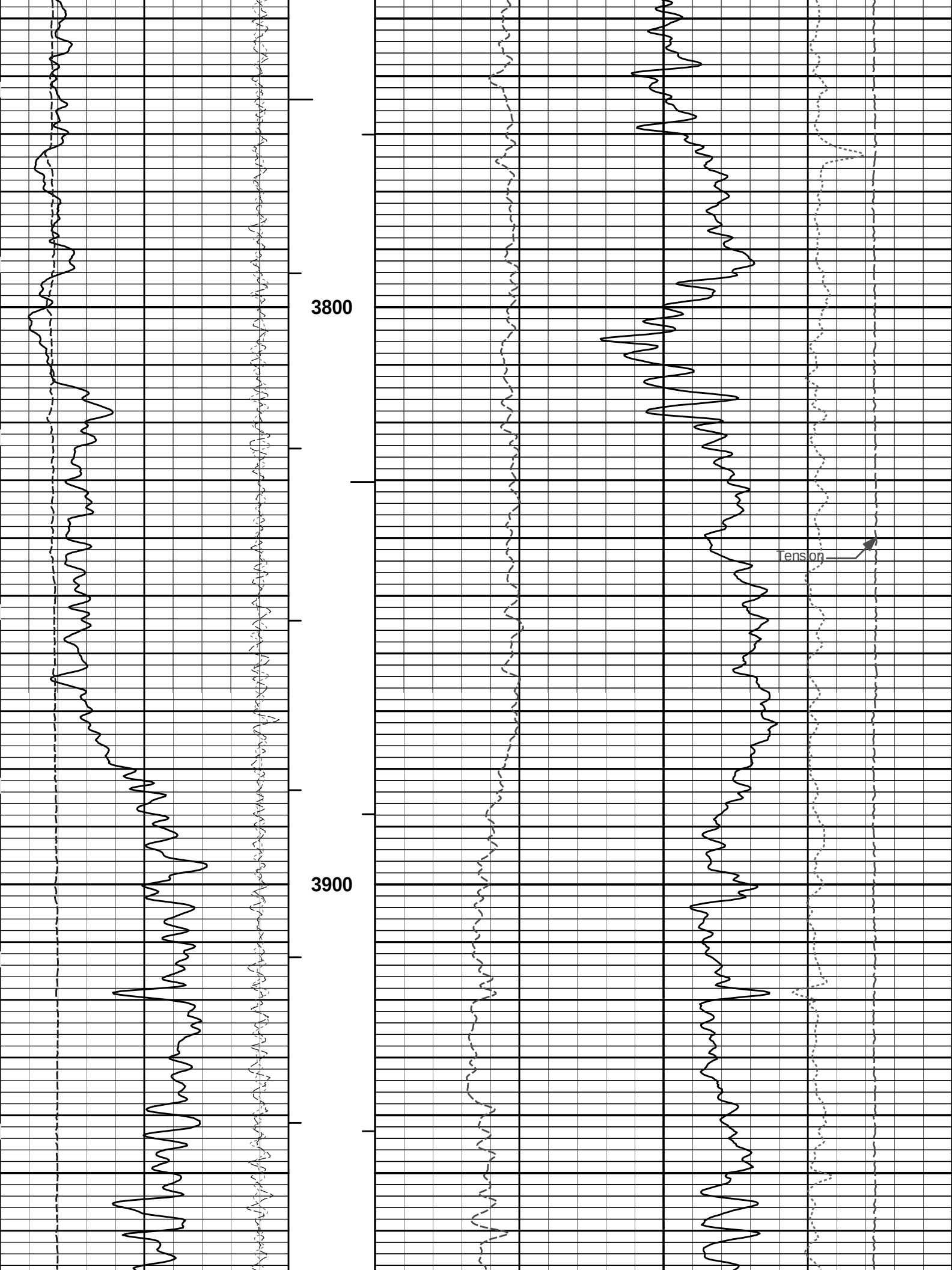

2700
2800

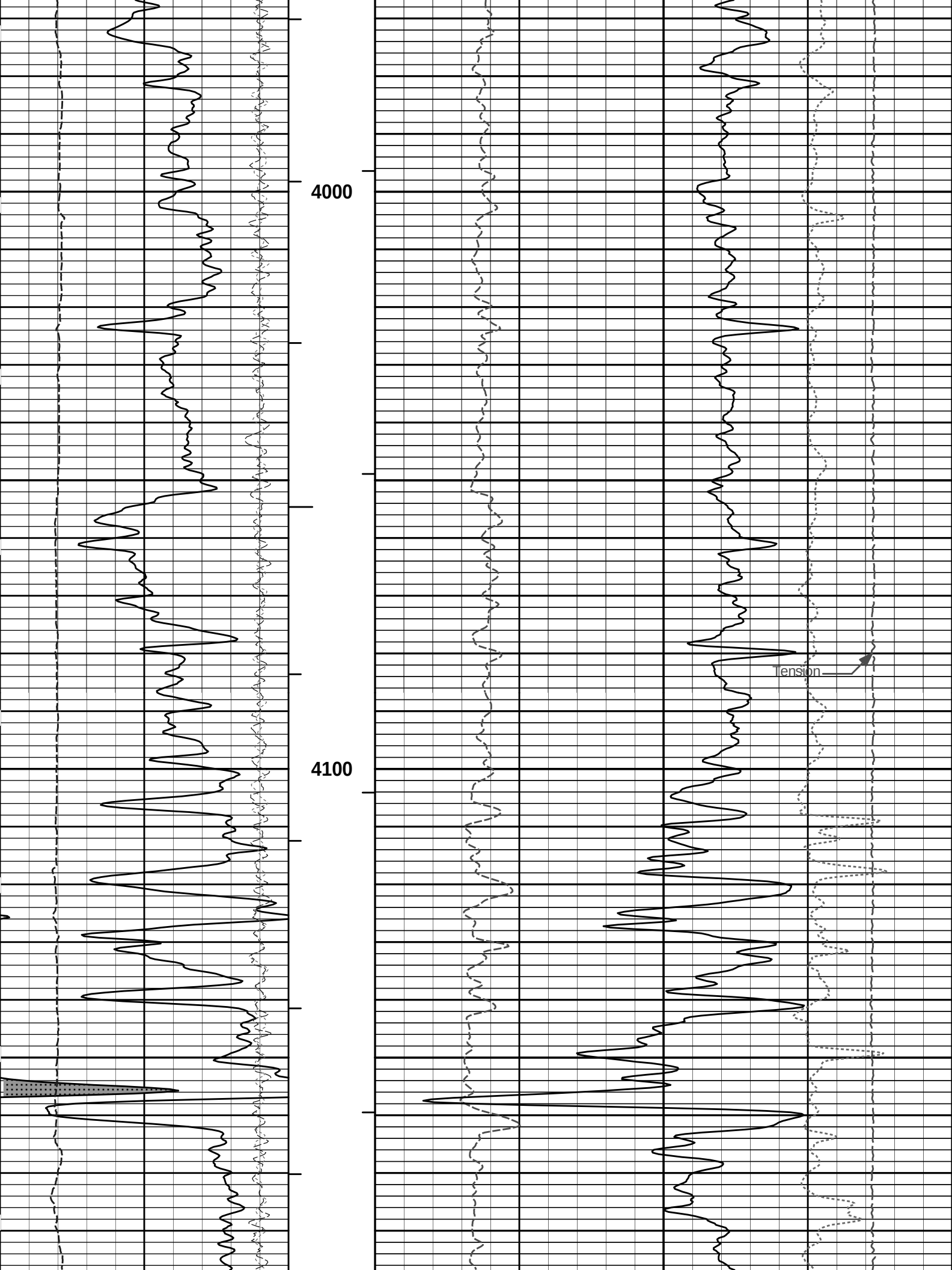

Tension
2900
3000

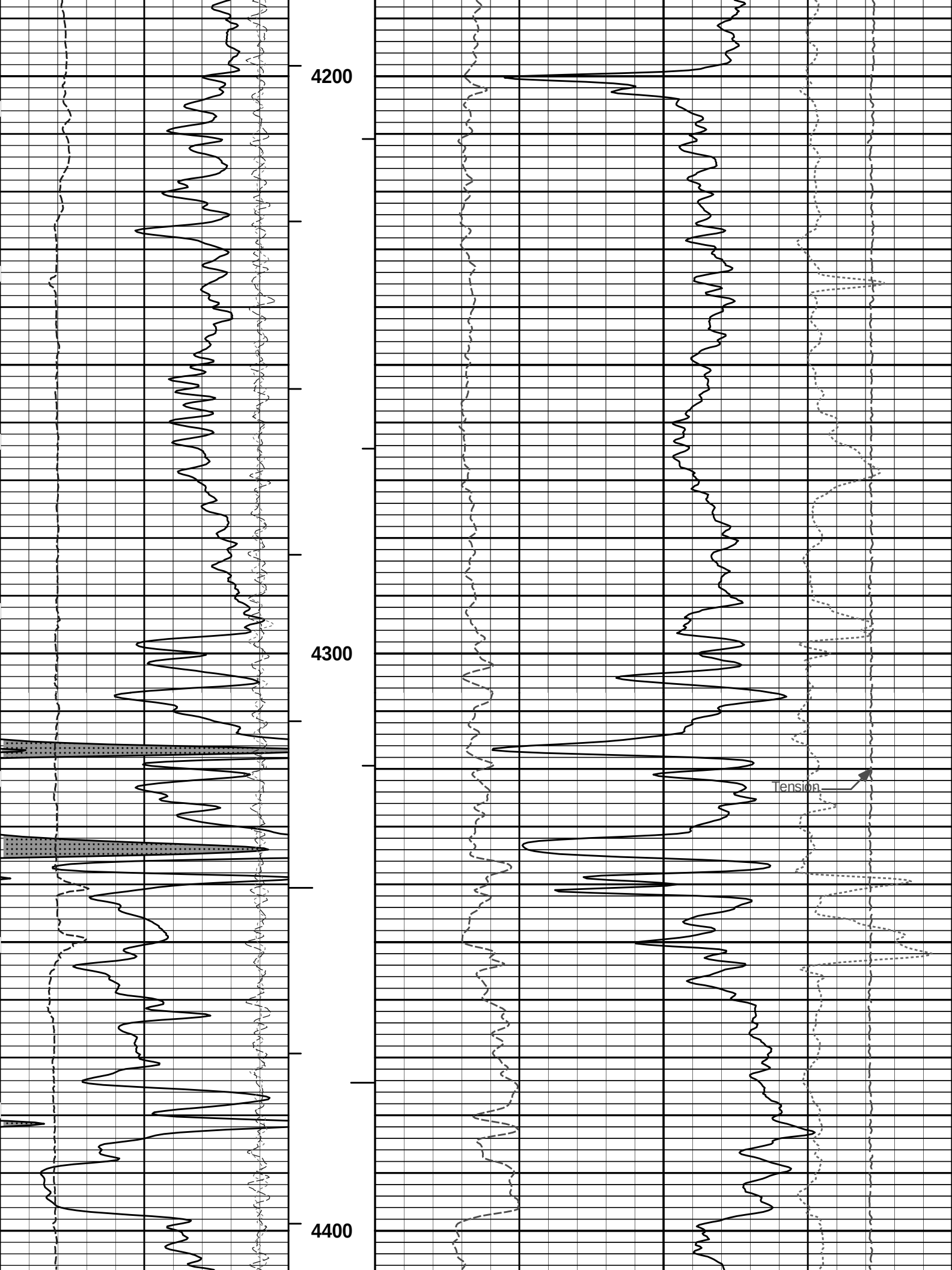

3100
3200
3300
Tension

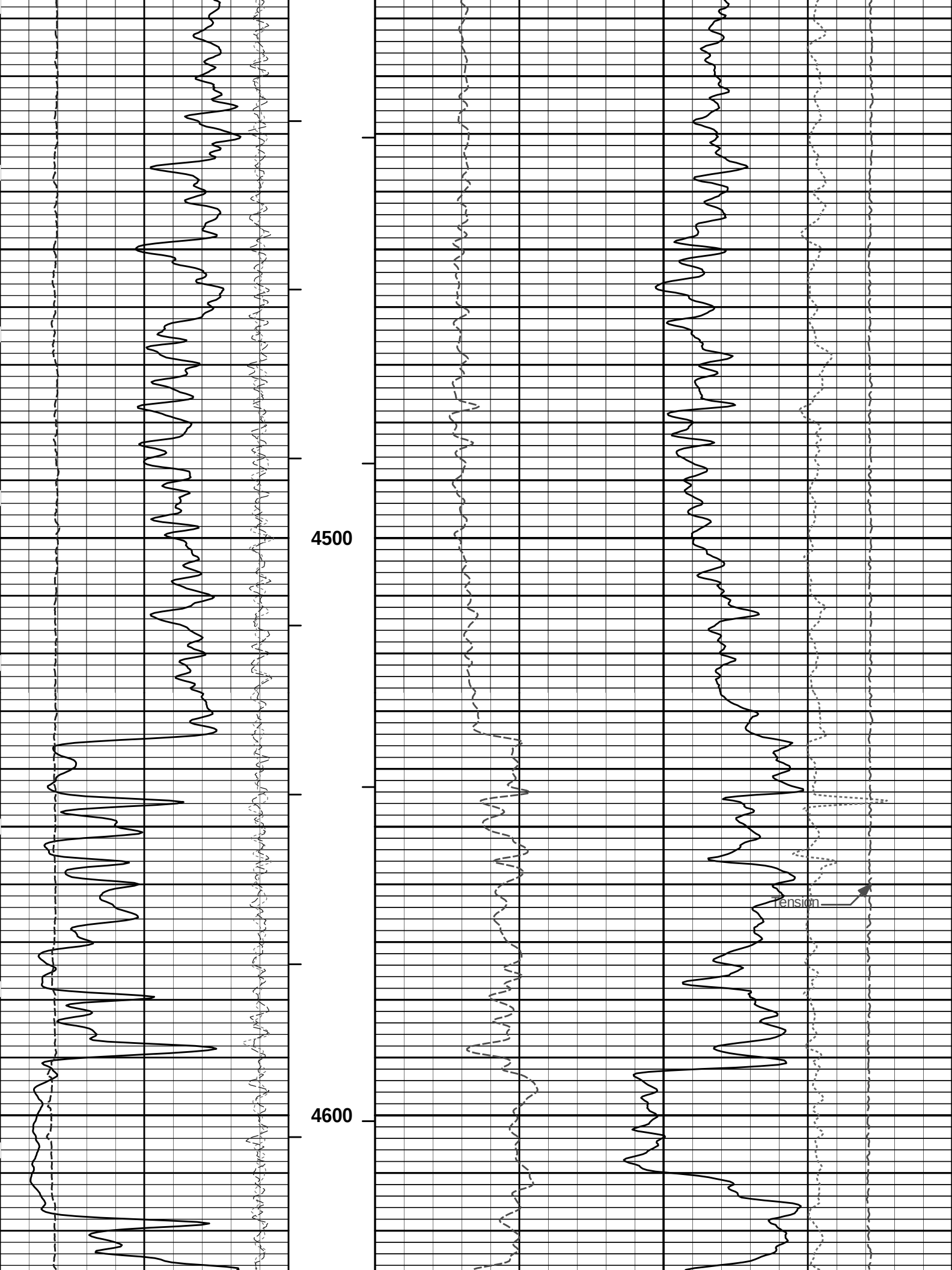

Tension
3400
3500

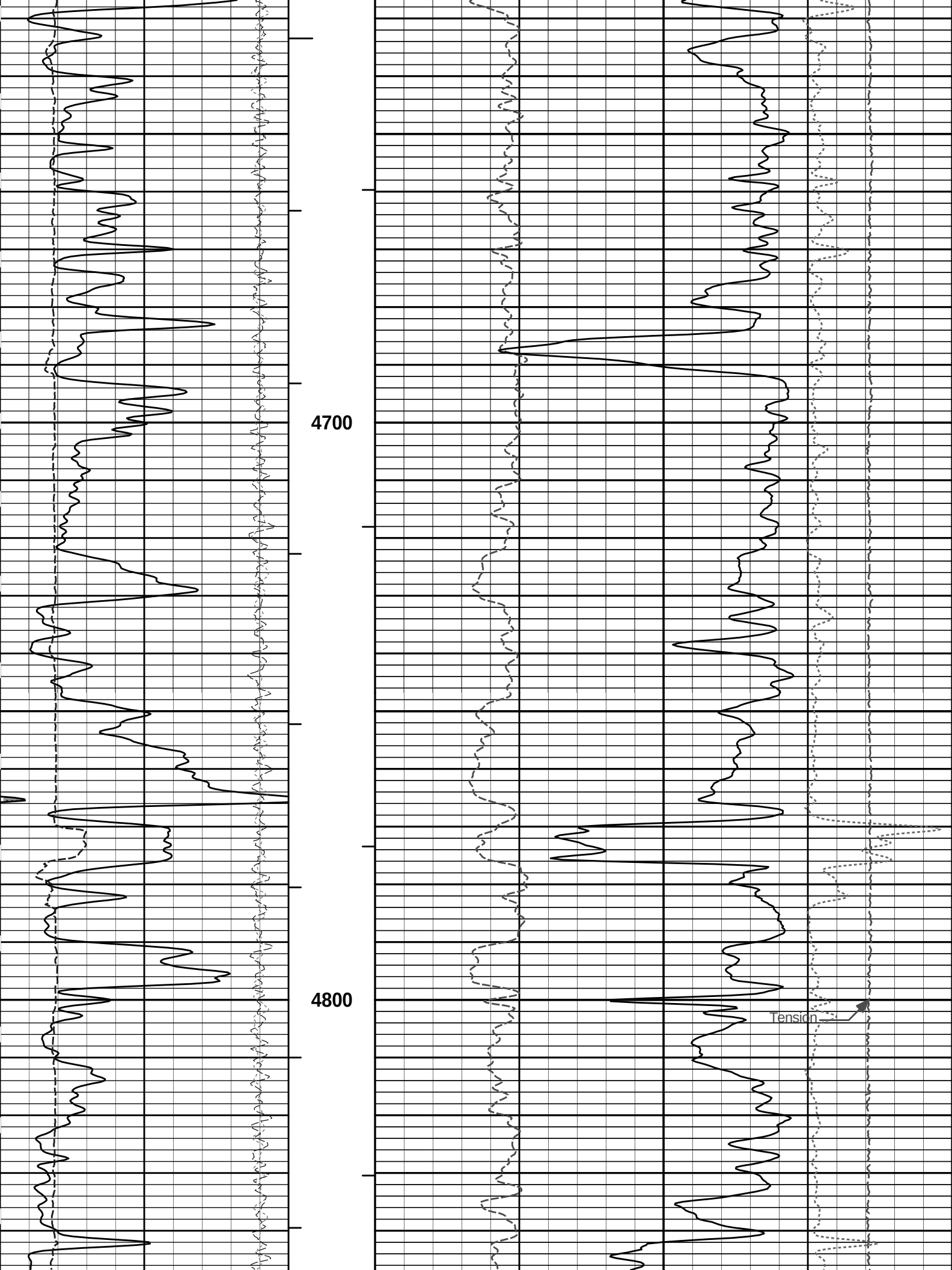

3600
3700
Tension

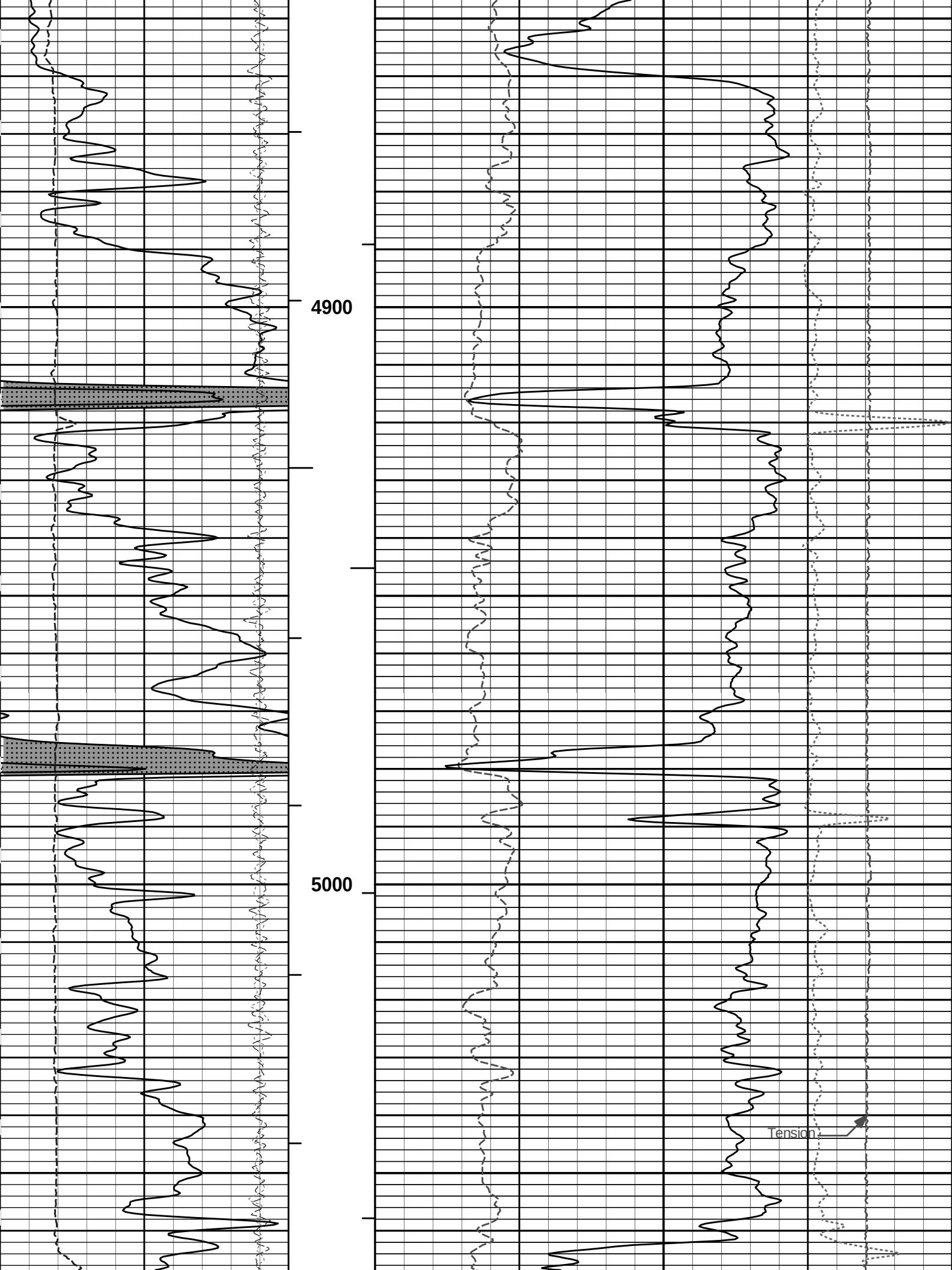

3800
3900
Tension

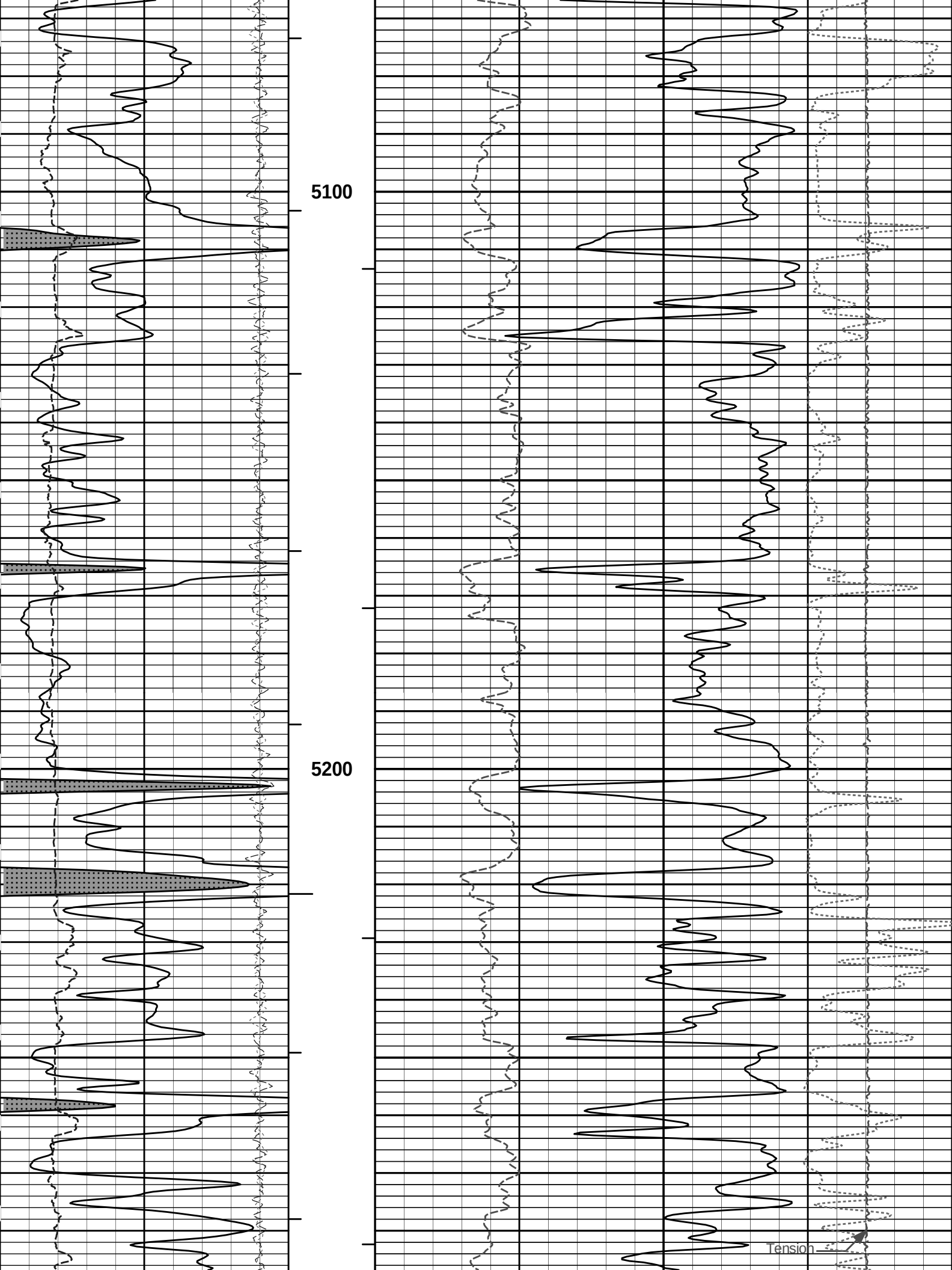

4000
4100
Tension

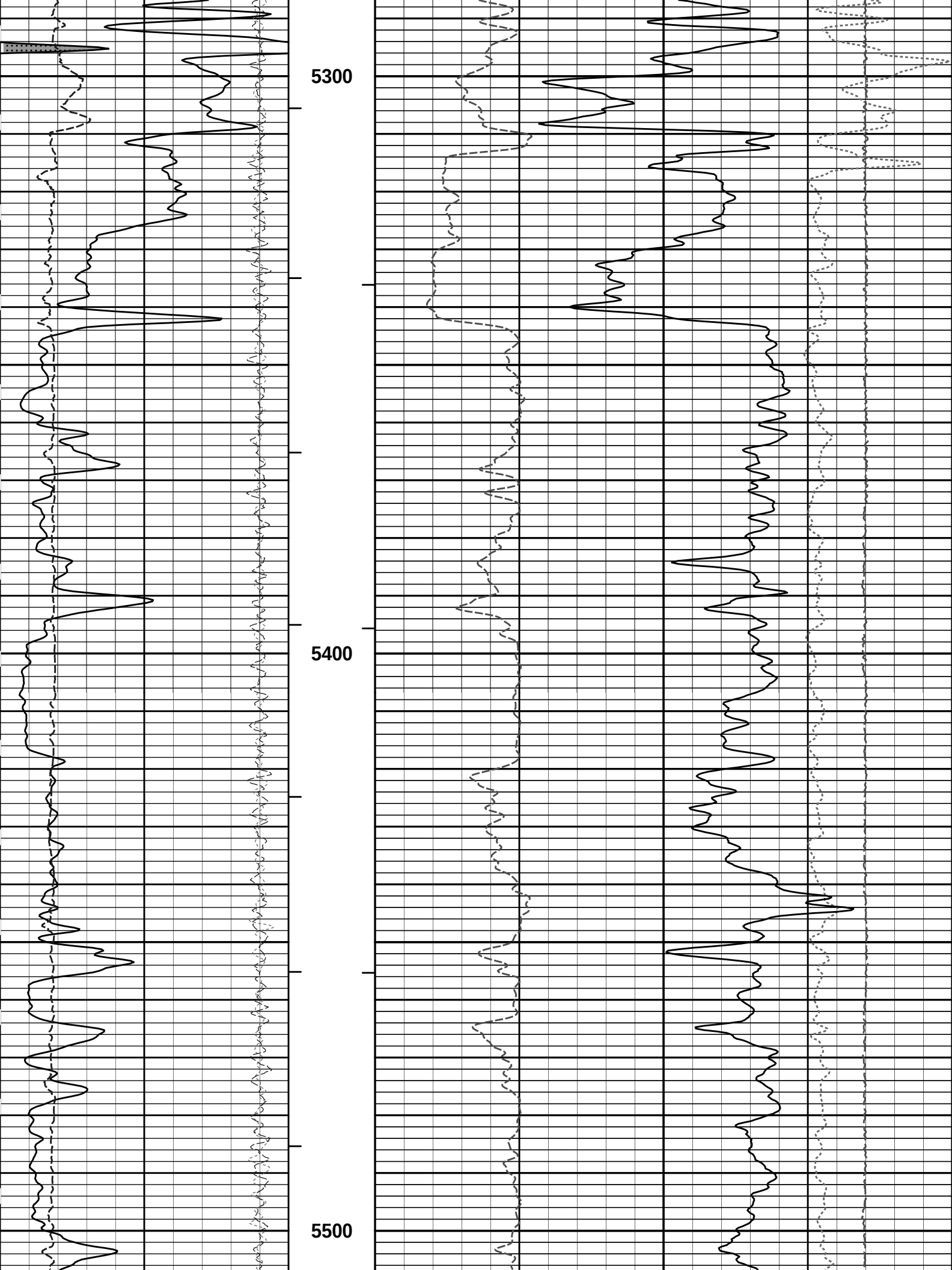

4200
4300
4400
Tension

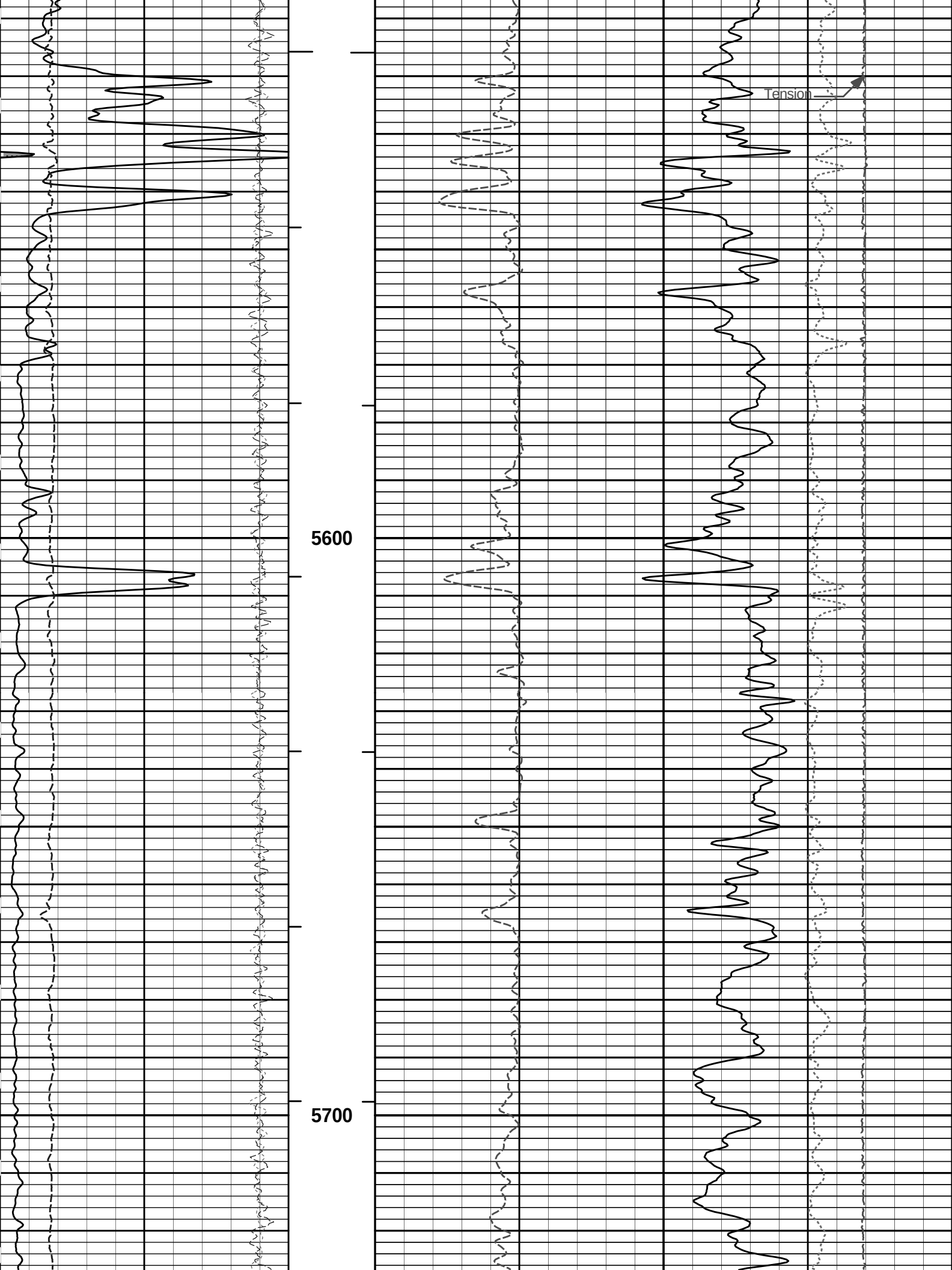

4500
4600
Tension

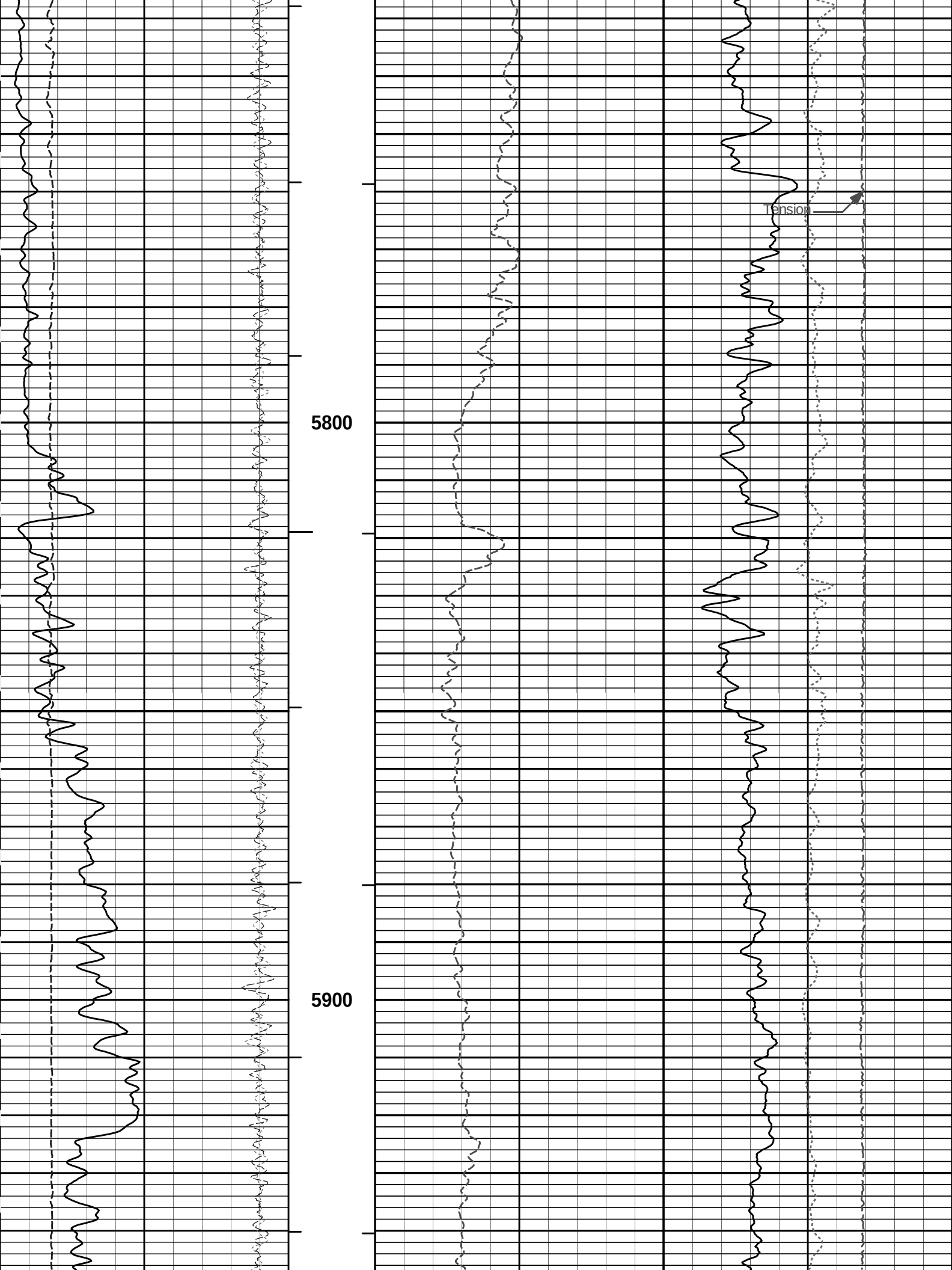

4700
4800
Tension

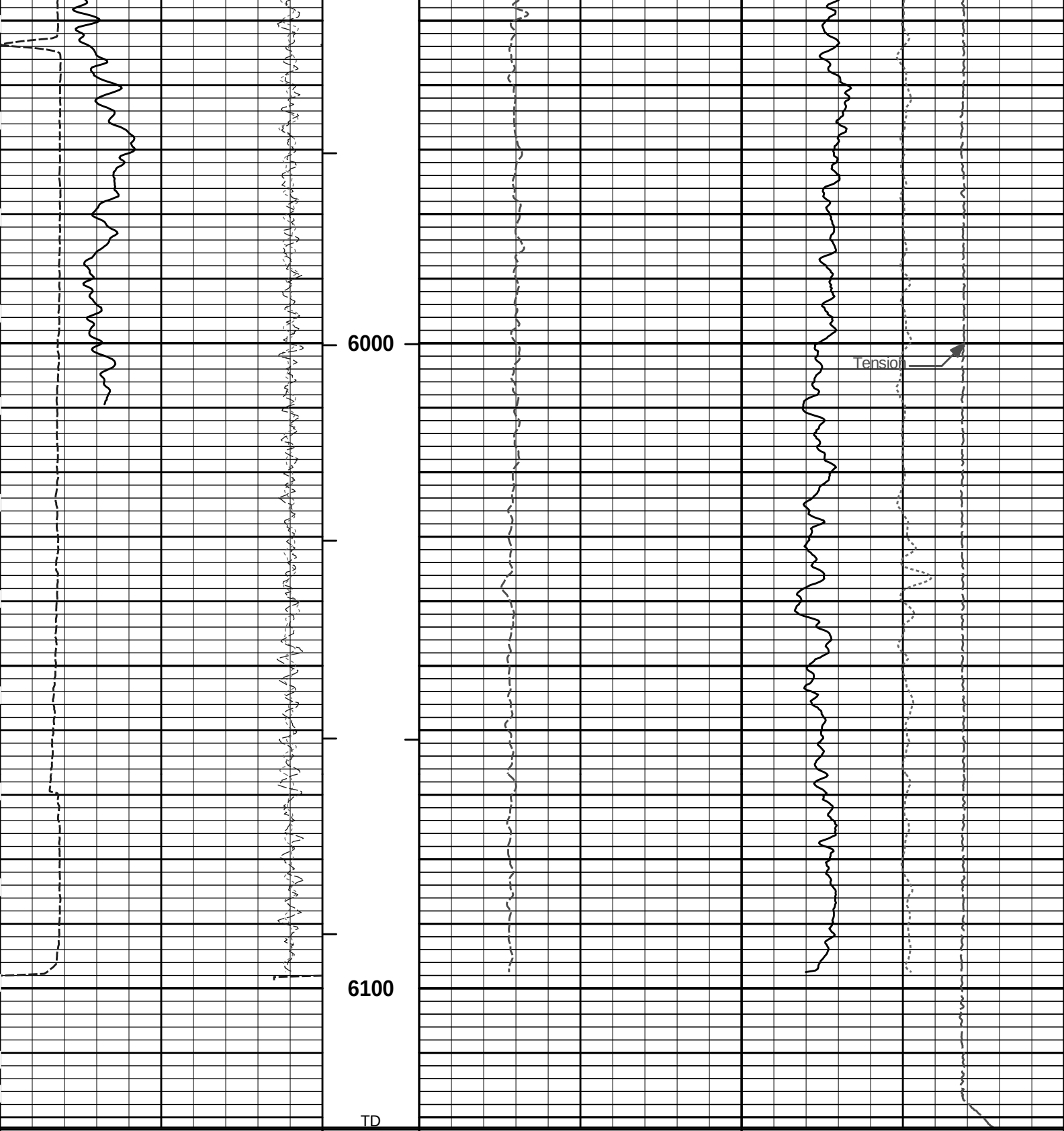

4900
5000
Tension


5100
5200
Tension


5300
5400
5500


Tension
5600
5700


Tension
5800
5900



6 Caliper 16	MD 1 : 240 ft	0 Pe 10
inches		
-18 NearQuality 2	AHV ft3	
18 FarQuality -2	BHV ft3	2 Bulk Density 3
		g/cc
0 Gamma Ray 150		
api		
SHALE		

-0.25 DensityCorr 0.25
g/cc
15K Tension 0
pounds

SHALE

HALLIBURTON

Plot Time: 11-May-13 13:58:33
Plot Range: 820 ft to 6121.58 ft
Data: EASTON3419_1-21\Well Based\CASING\
Plot File: \\-LOCAL-\EASTON3419_1-21\Well Based\POROSITY\BULKD_5_MAIN_LIB

5 INCH MAIN LOG

HALLIBURTON

Plot Time: 11-May-13 13:58:33
Plot Range: 4840 ft to 6121.58 ft
Data: EASTON3419_1-21\Well Based\EVR\
Plot File: \\-LOCAL-\EASTON3419_1-21\Well Based\POROSITY\BULKD_5_EVR

10 INCH MAIN LOG

MAIN SECTION 10" PER 100'
EVR

SHALE

Tension Pull

0 **Gamma EVR** 150
api

18 **FarQuality** -2

-18 **NearQuality** 2

6 **Caliper** 16
inches

Tension Pull
10 0

AHV
ft3

BHV
ft3

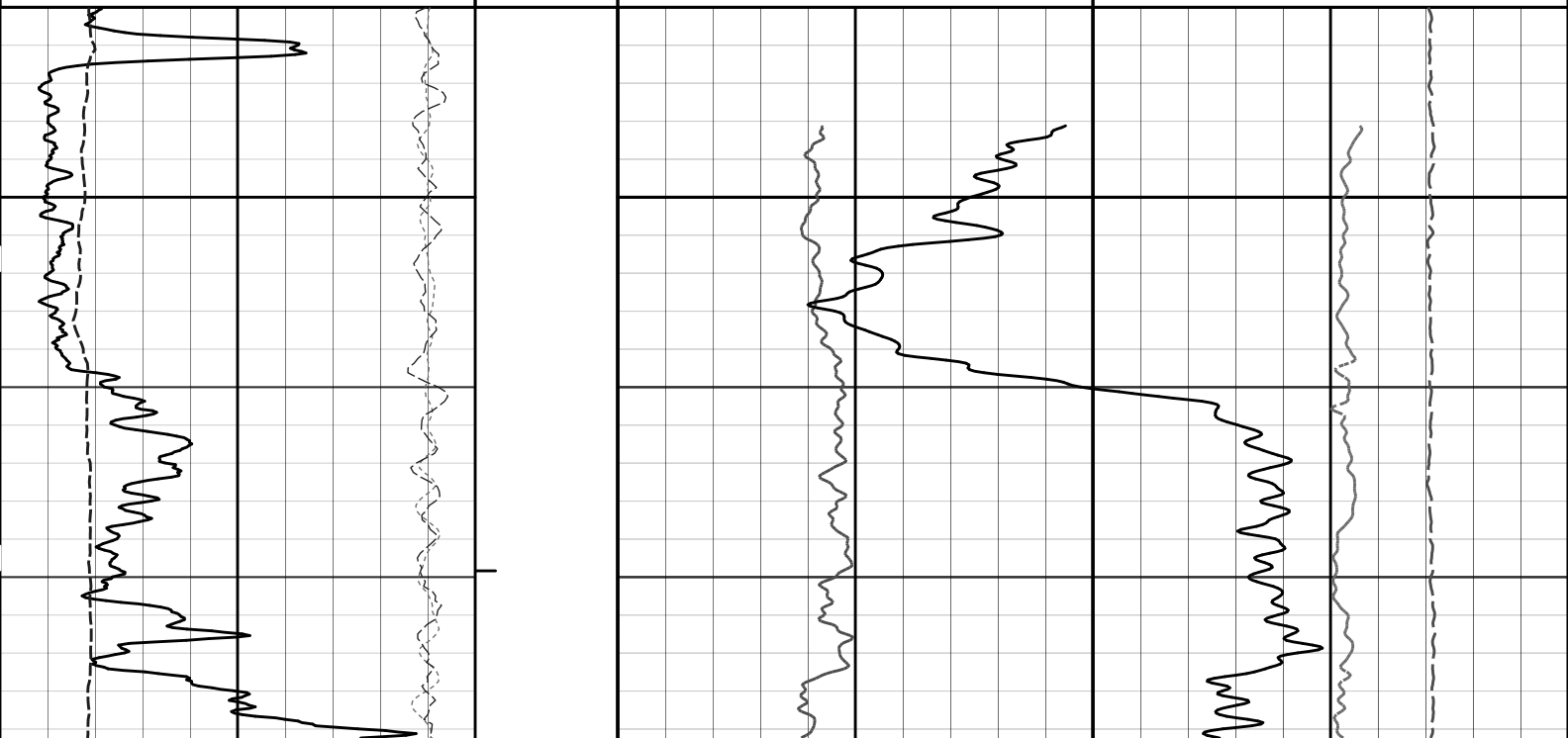
1 : 120
ft

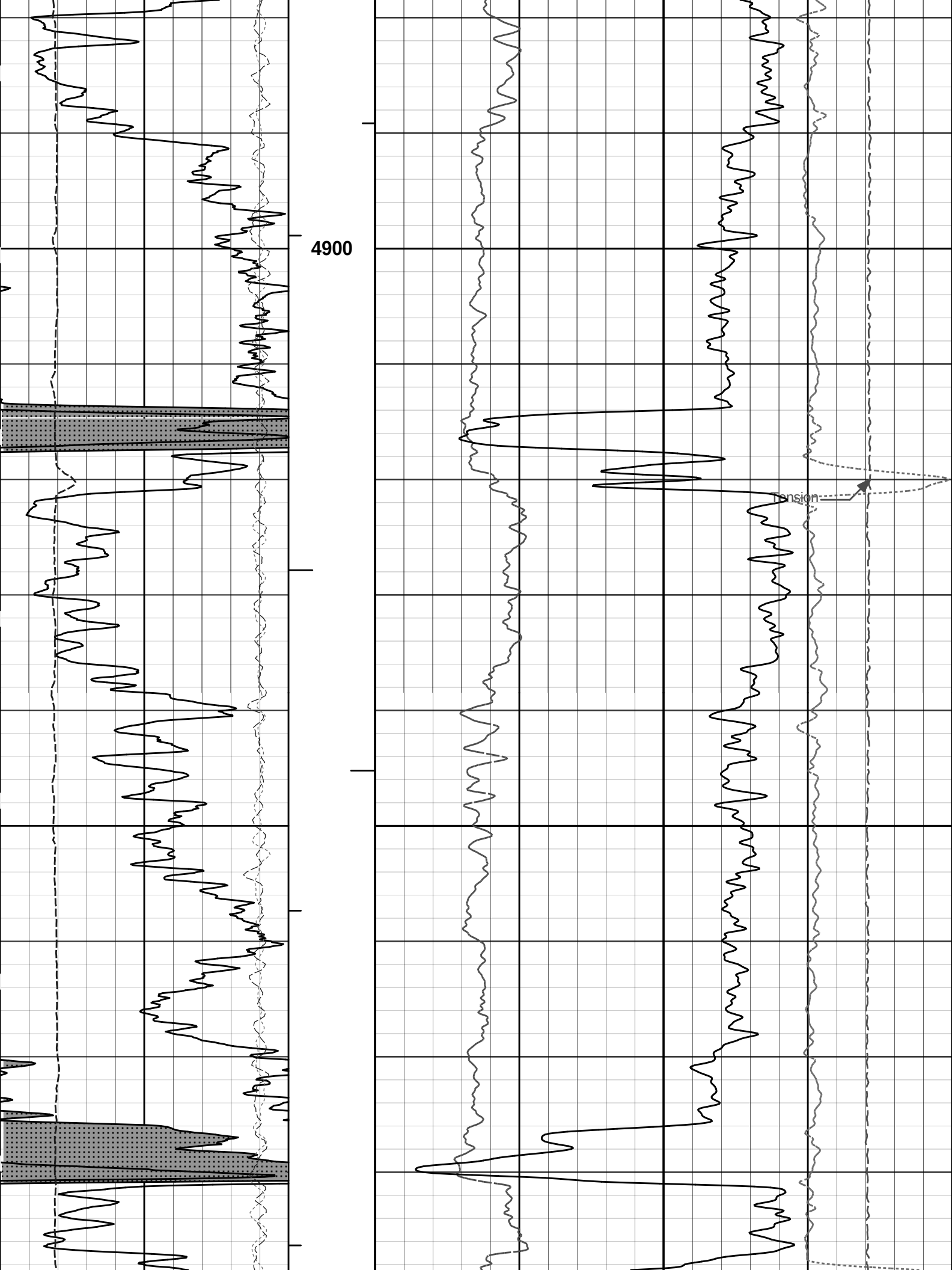
2 **DensityEVR** 3
g/cc

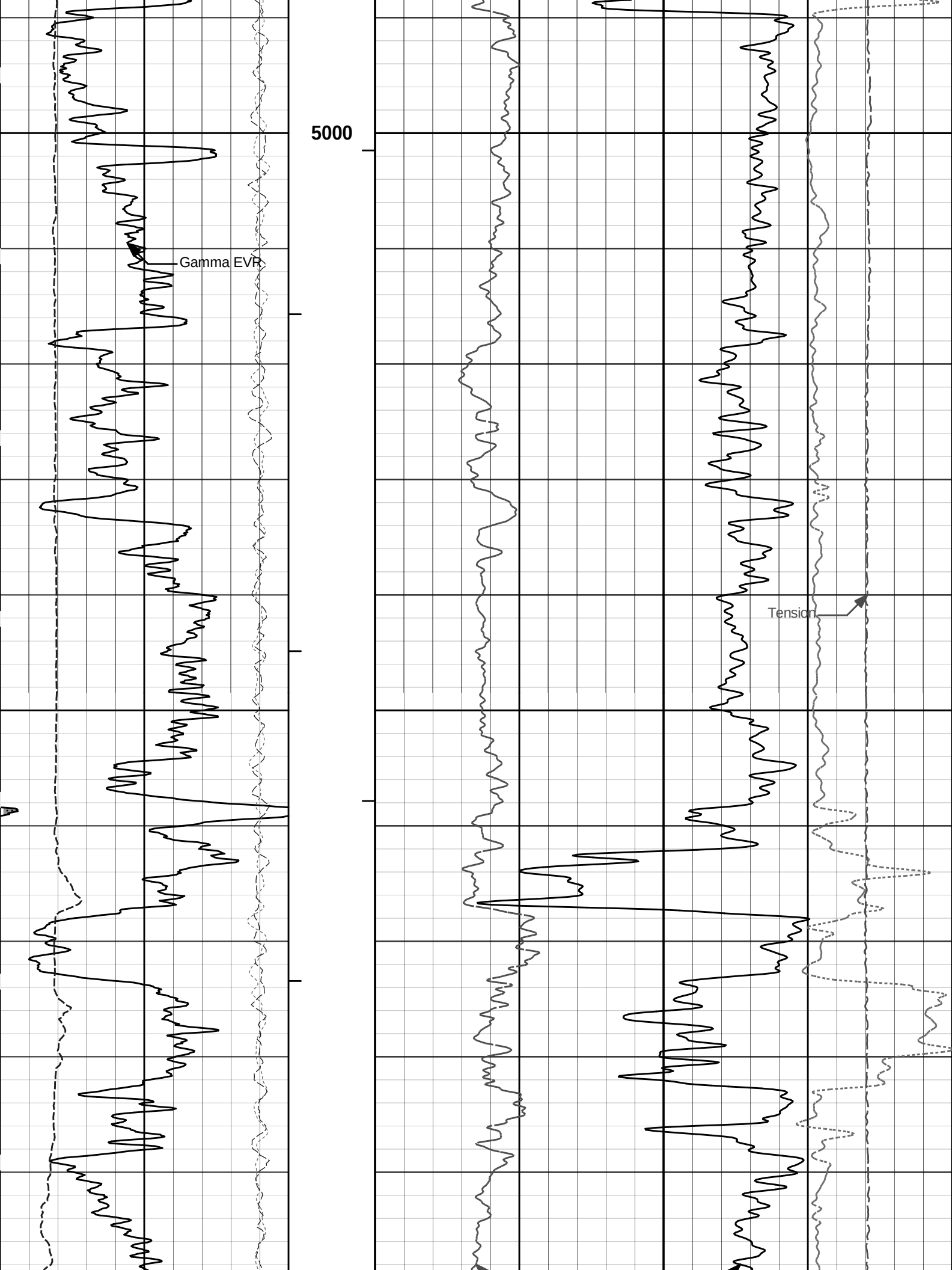
0 **PeEVR** 10

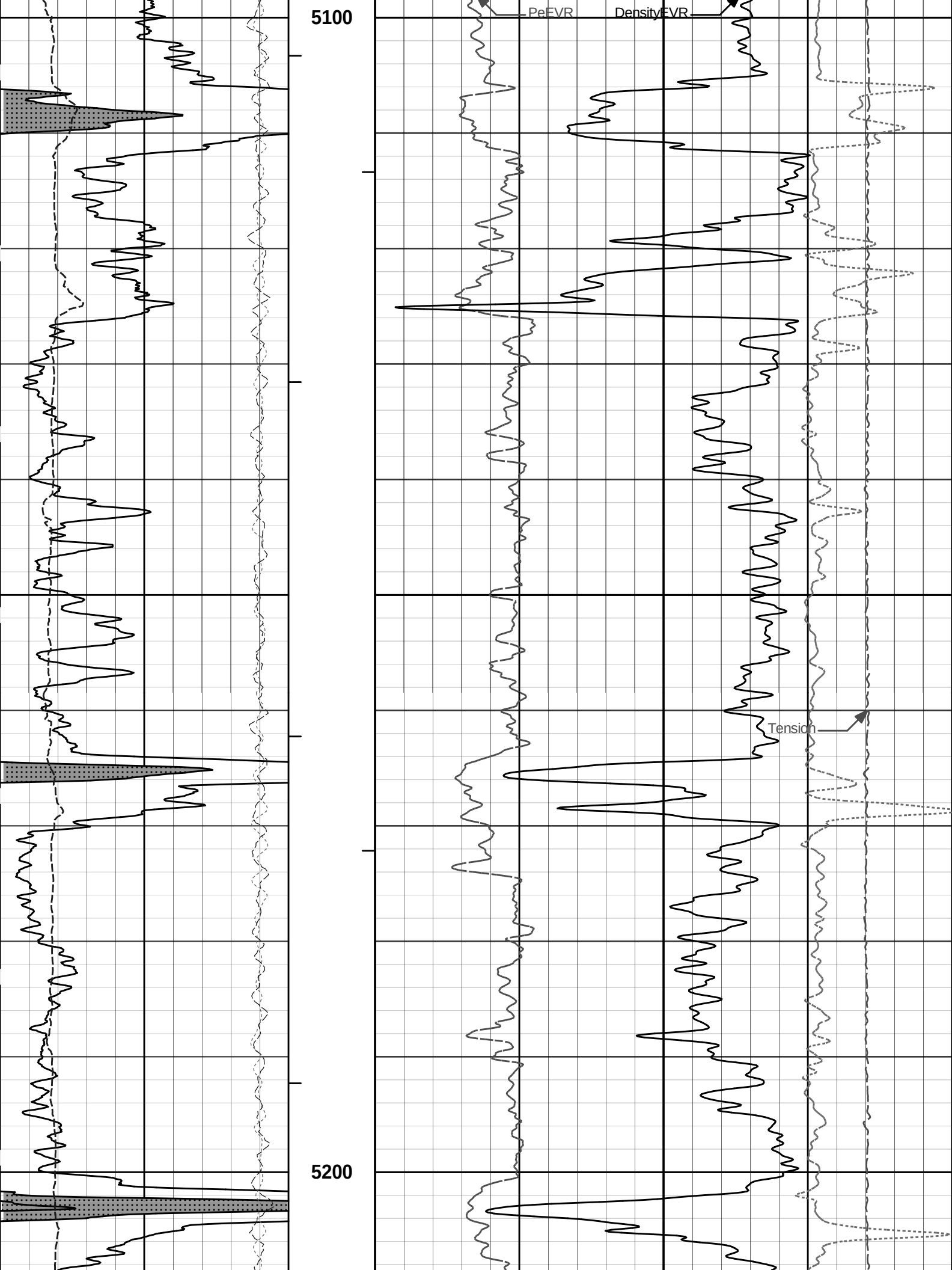
15K **Tension** 0
pounds

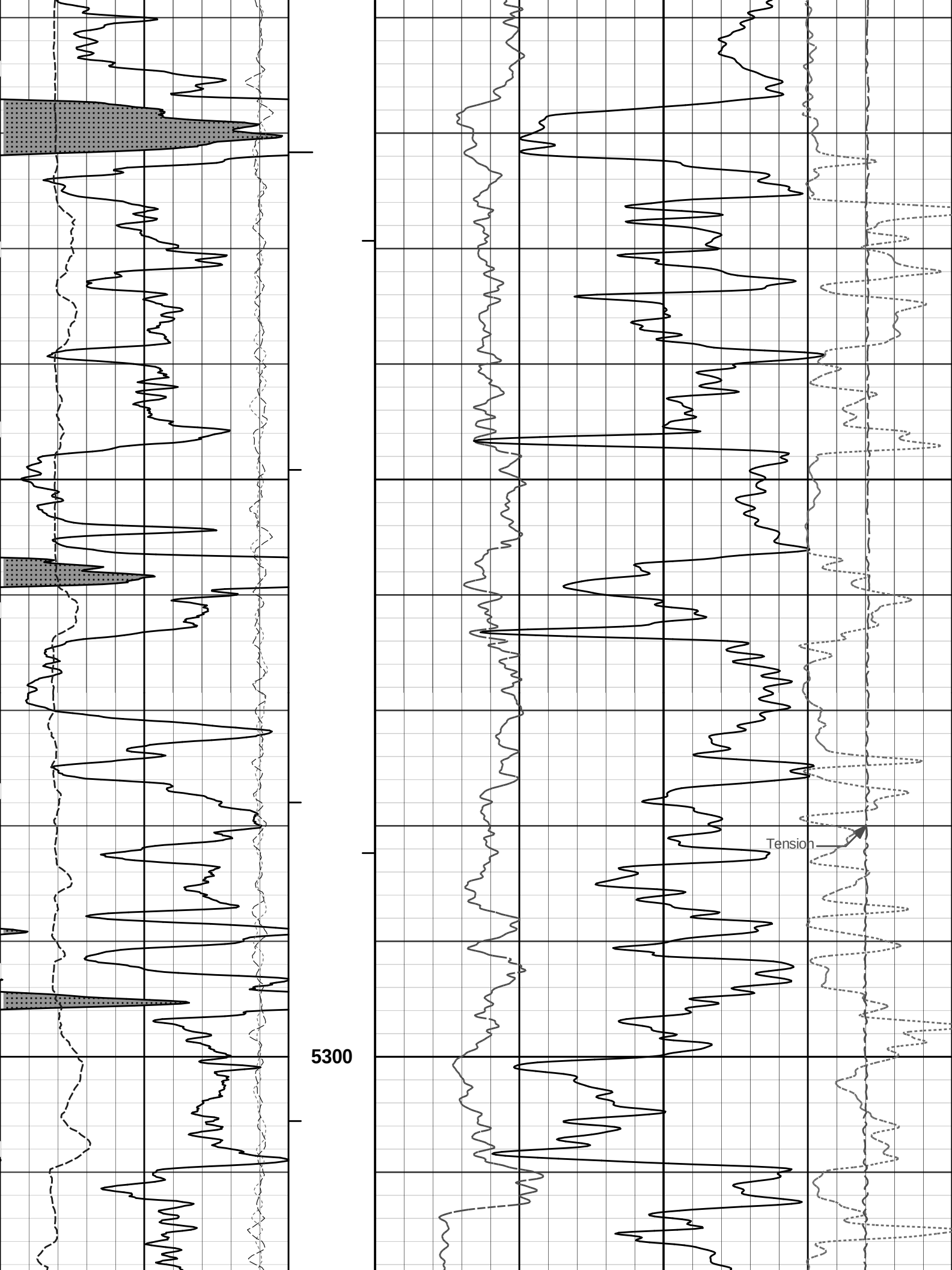
-0.25 **DensityCorrEvr** 0.25
g/cc

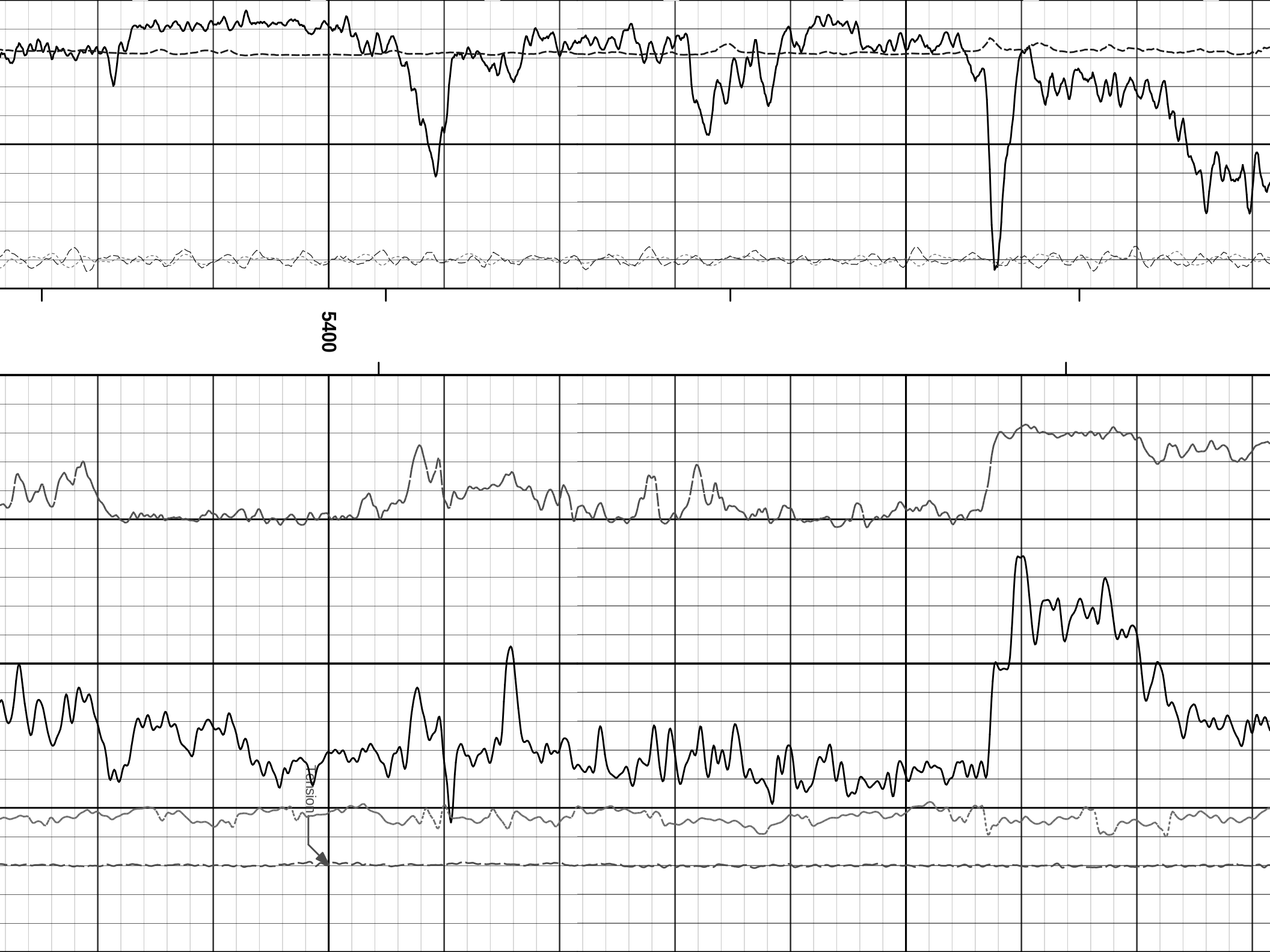


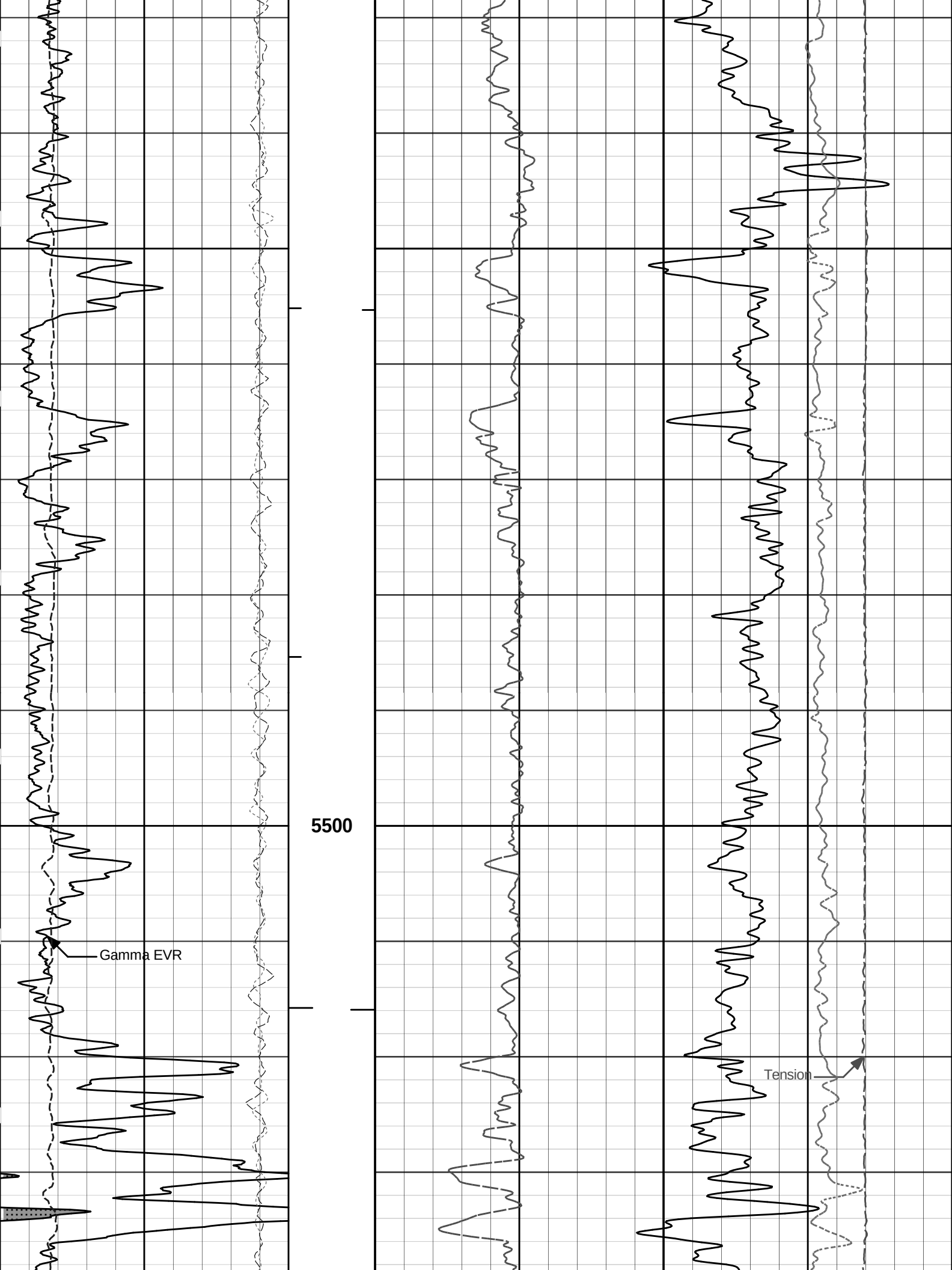

4900
Tension

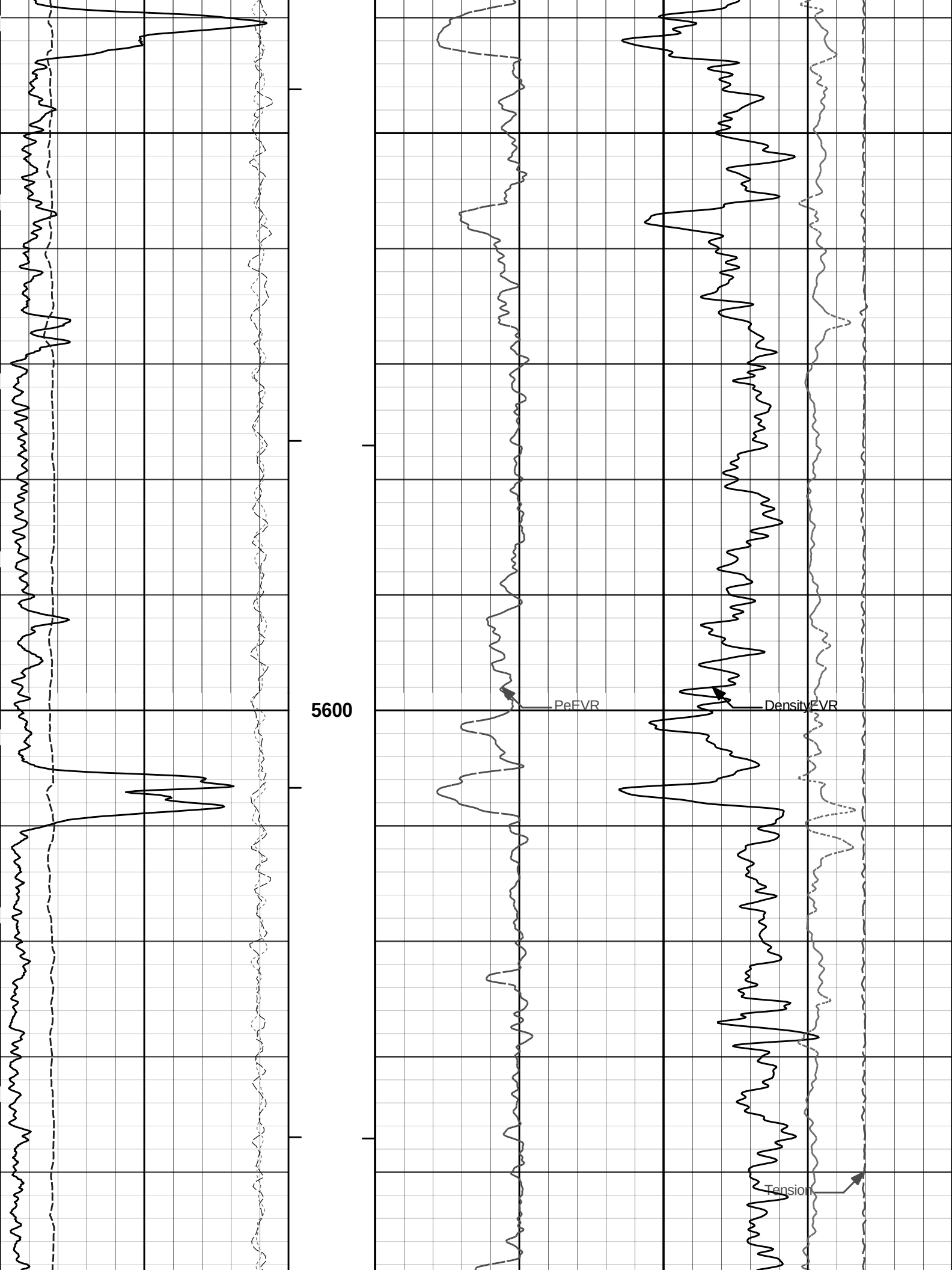

5000
Gamma EVR
Tension

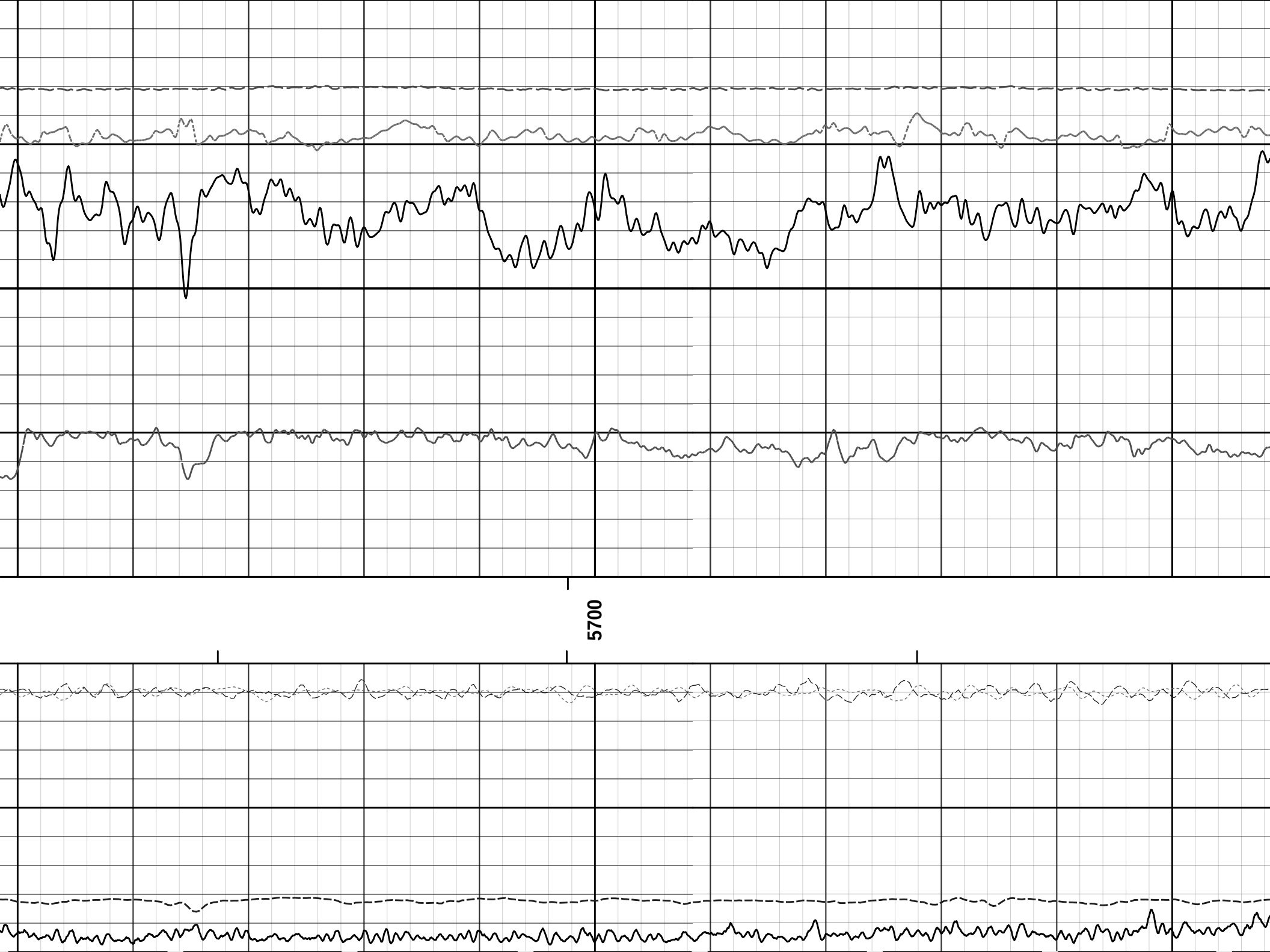

5100
PeEVR
DensityEVR
Tension
5200

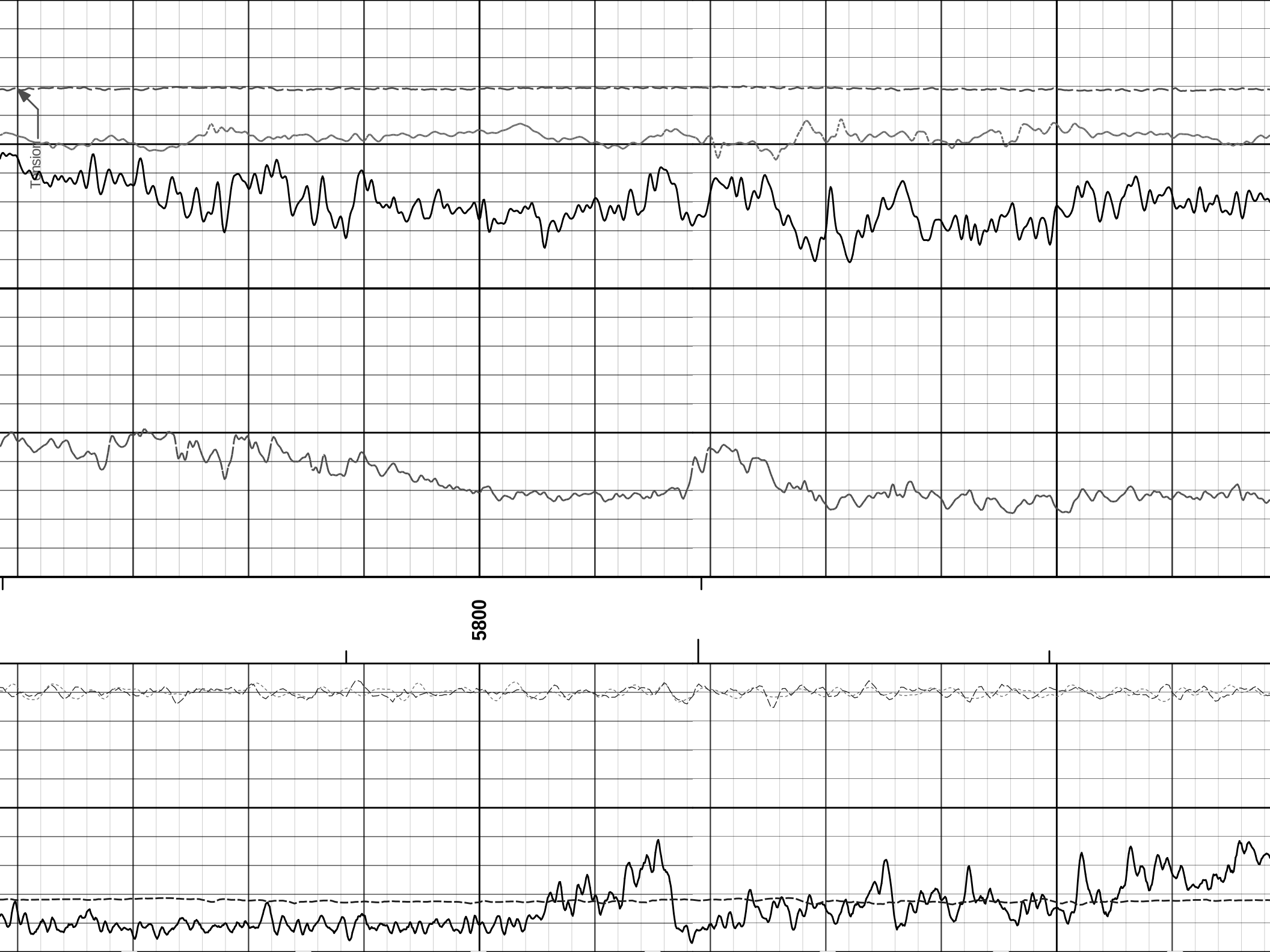

Tension
5300

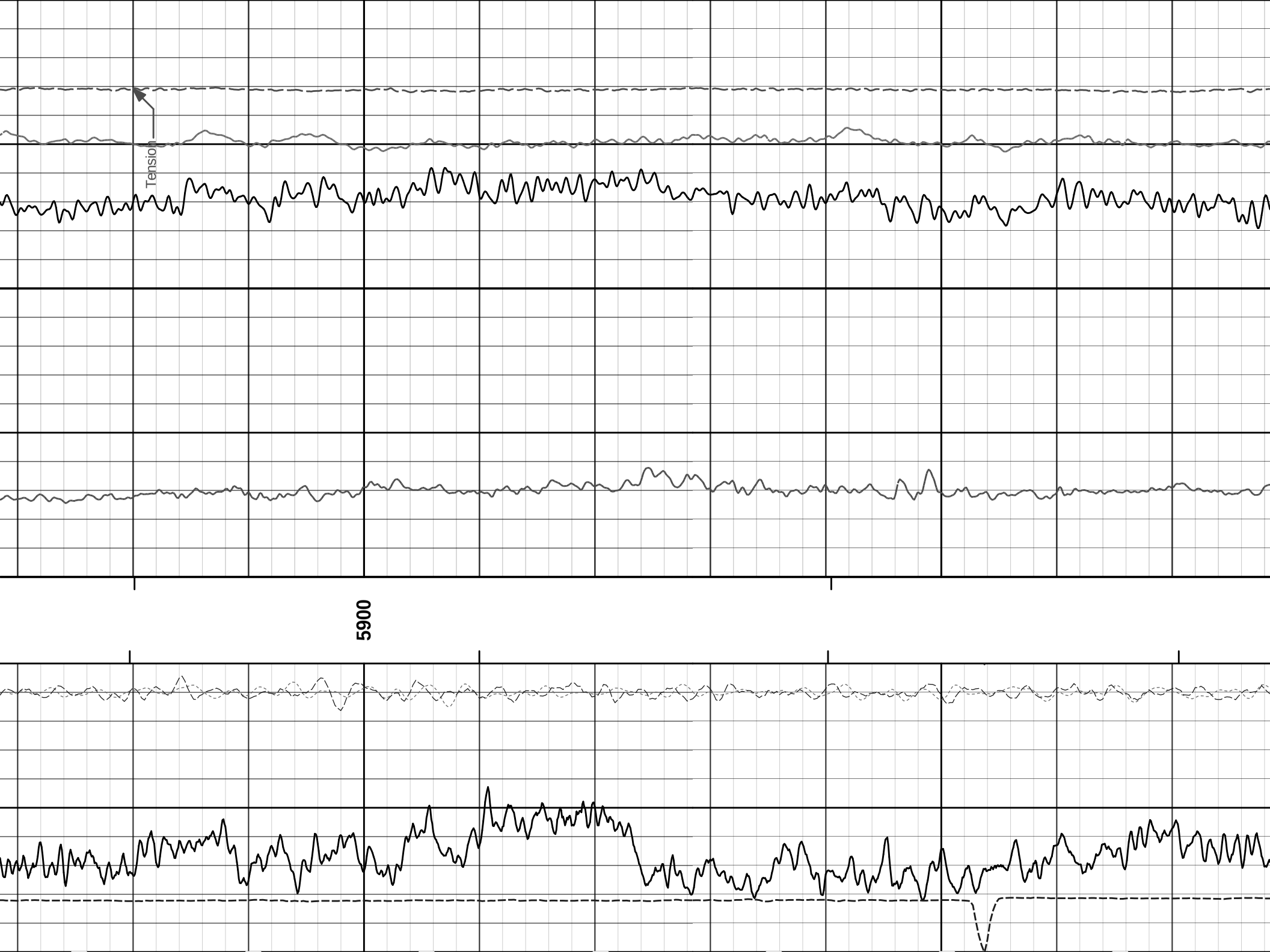

5400
Tension

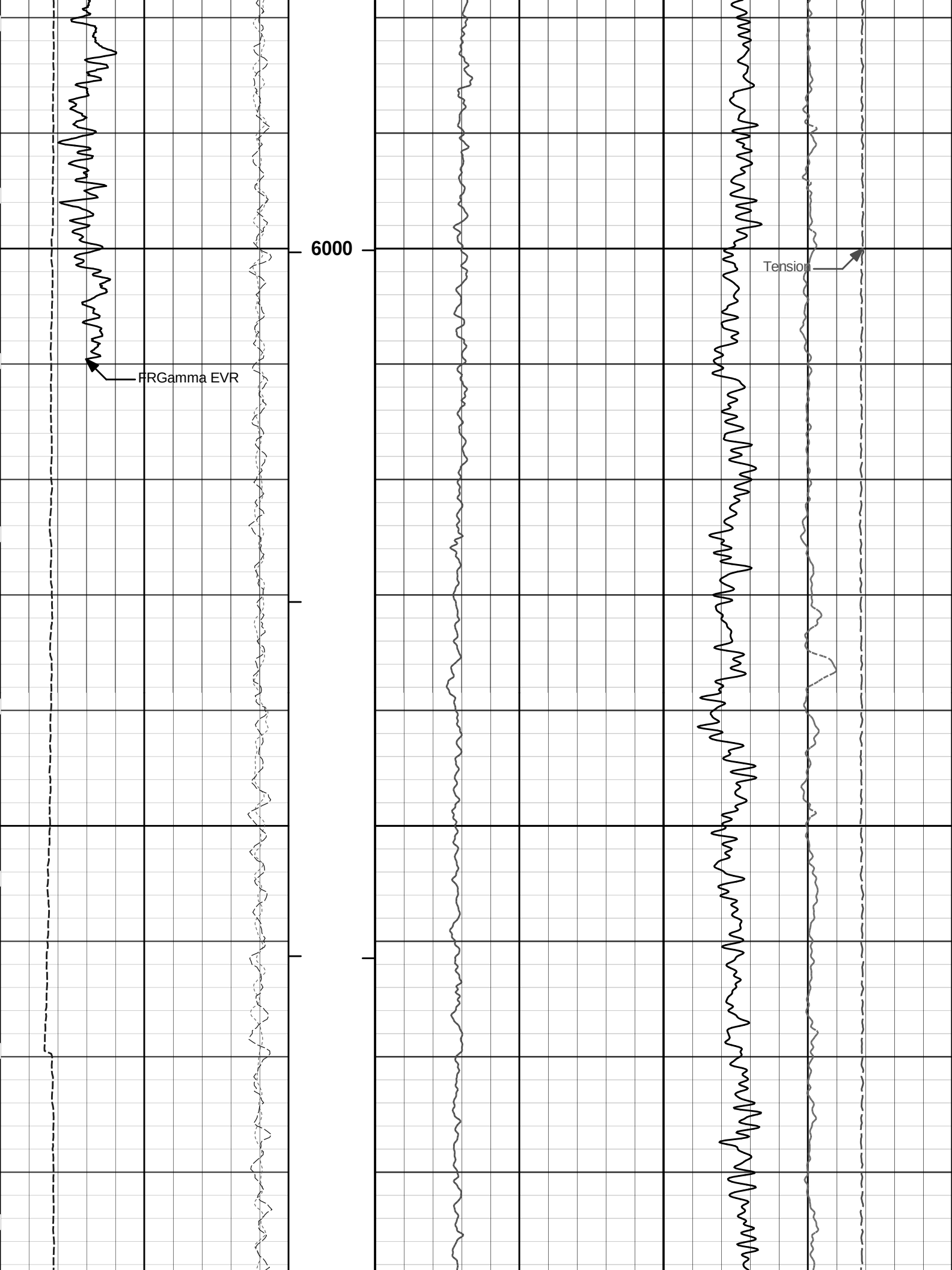

5500
Gamma EVR
Tension

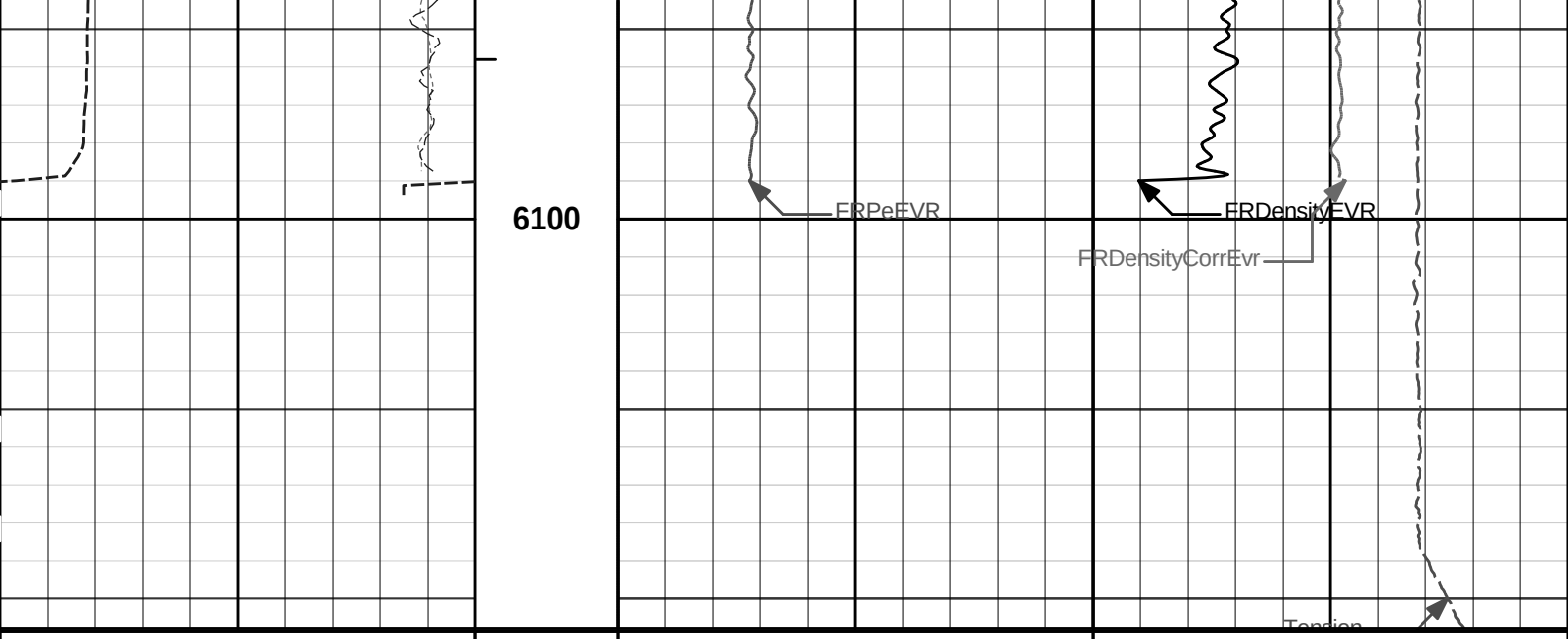

5600
PeEVR
DensityEVR
Tension


5700


Tension
5800


Tension
5900


6000
FRGamma EVR
Tension



6 Caliper 16 inches	1 : 120 ft	0 PeEVR 10
-18 NearQuality 2	BHV ft3	
18 FarQuality -2	AHV ft3	2 DensityEVR 3 g/cc
0 Gamma EVR 150 api	Tension Pull 10 0	
SHALE	Tension Pull	

-0.25 DensityCorrEvr 0.25 g/cc
15K Tension 0 pounds

HALLIBURTON

Plot Time: 11-May-13 13:58:42
Plot Range: 4840 ft to 6121.58 ft
Data: EASTON3419_1-21\Well Based\EVR
Plot File: \\-LOCAL-\EASTON3419_1-21\Well Based\POROSITY\BULKD_5_EVR

10 INCH MAIN LOG

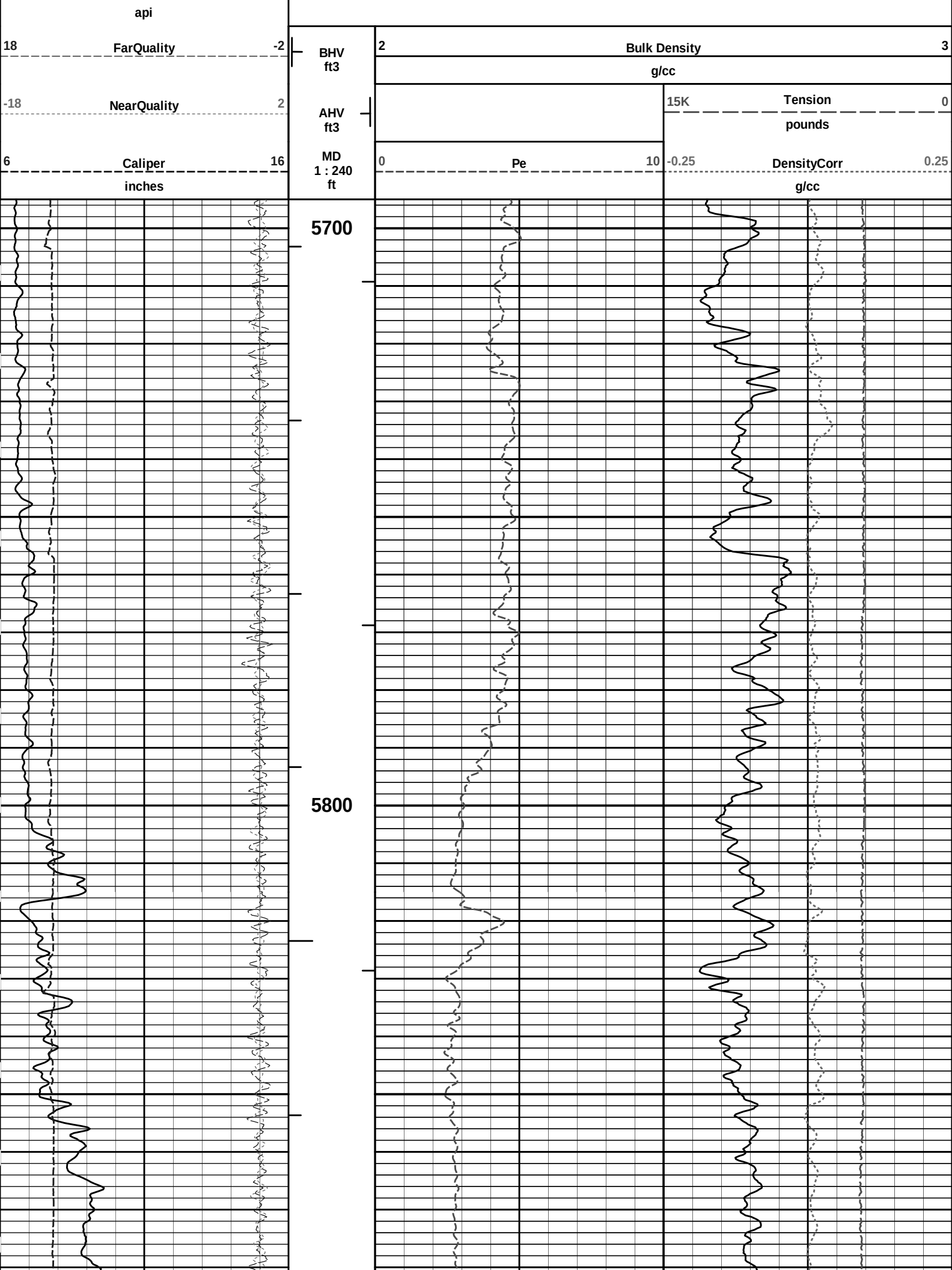
MAIN SECTION 10" PER 100'
EVR

HALLIBURTON

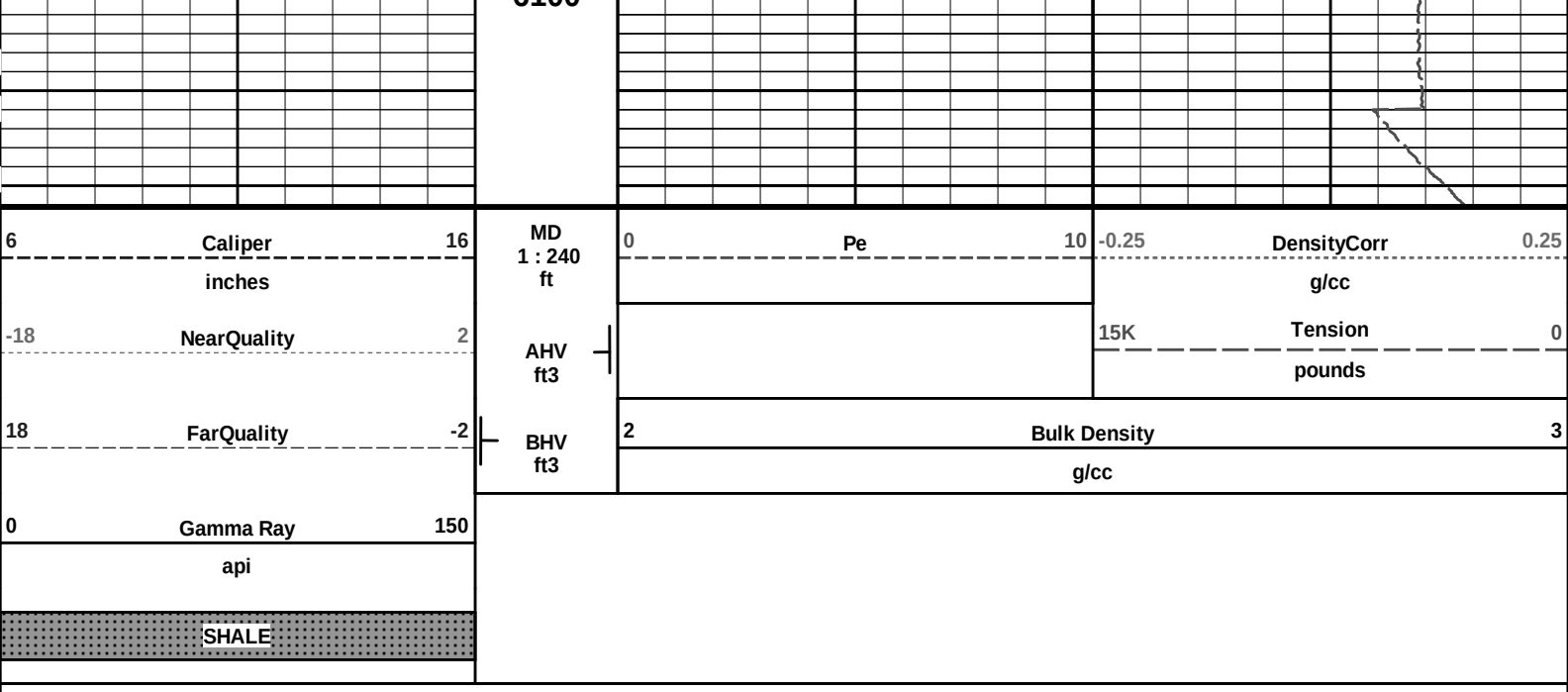
Plot Time: 11-May-13 13:58:42
Plot Range: 5695 ft to 6122.08 ft
Data: EASTON3419_1-21\Well Based\REPEAT
Plot File: \\-LOCAL-\EASTON3419_1-21\Well Based\POROSITY\BULKD_5_REP_LIB

REPEAT SECTION

SHALE
0 Gamma Ray 150


api
18
FarQuality
-2
-18
NearQuality
2
6
Caliper
16
inches
BHV
ft3
AHV
ft3
MD
1 : 240
ft
2
Bulk Density
3
g/cc
15K
Tension
0
pounds
0
Pe
10
-0.25
DensityCorr
0.25
g/cc
5700
5800


5900
6000
6100



HALLIBURTON

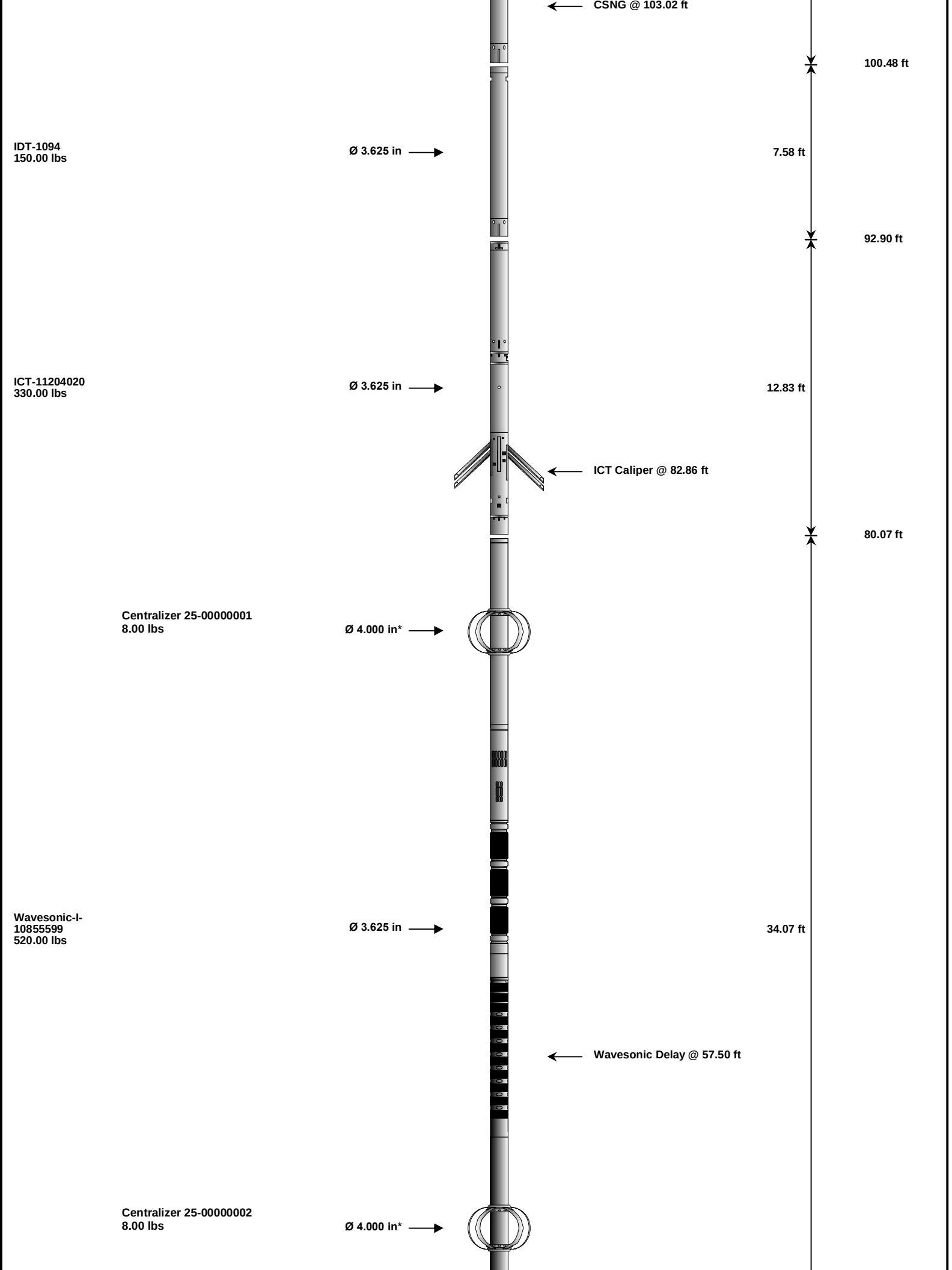
Plot Time: 11-May-13 13:58:45
Plot Range: 5695 ft to 6122.08 ft
Data: EASTON3419_1-21\Well Based\REPEAT\
Plot File: \\-LOCAL-\EASTON3419_1-21\Well Based\POROSITY\BULKD_5_REP_LIB

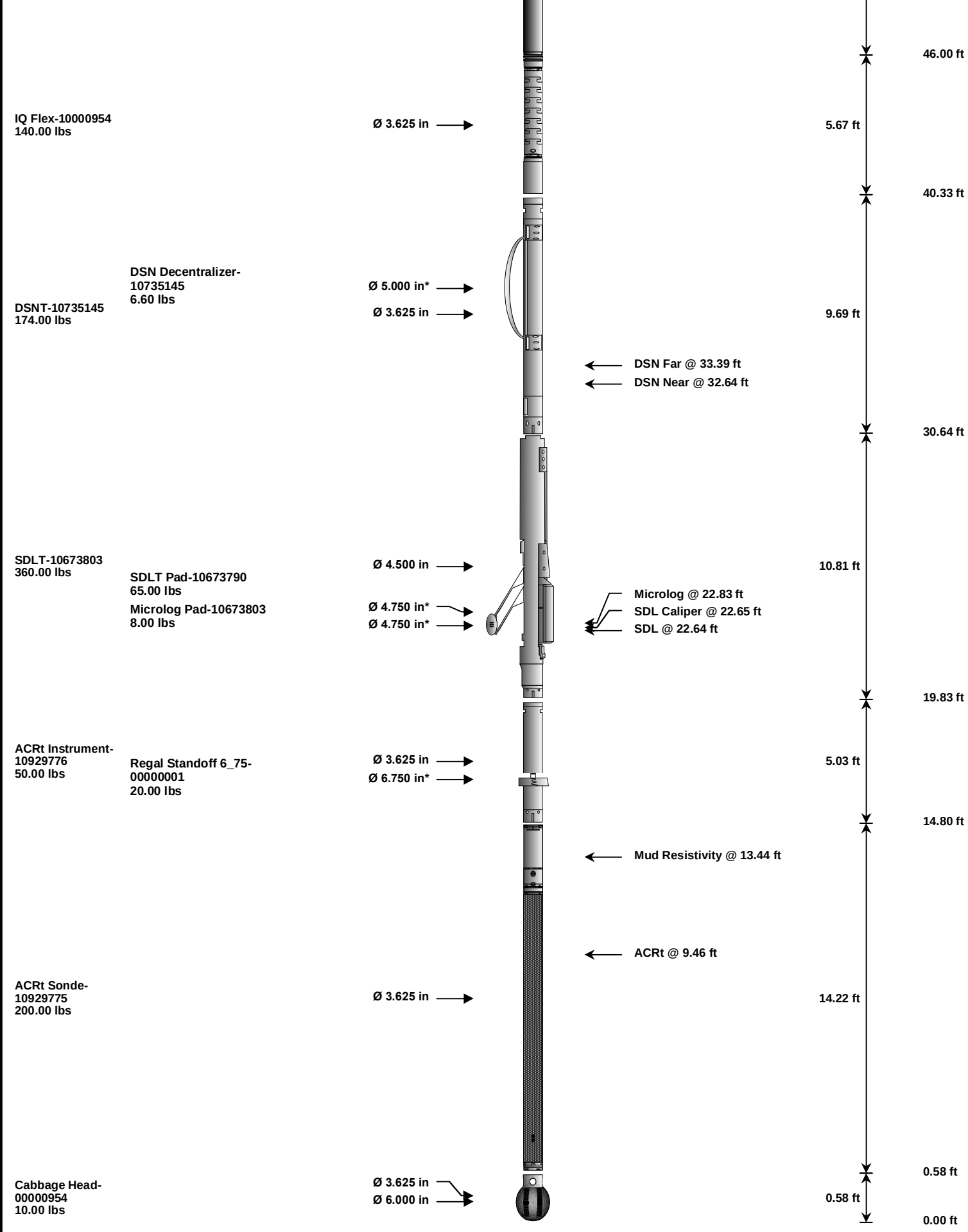
REPEAT SECTION

HALLIBURTON

TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
						124.89 ft
CH_HOS-954 37.50 lbs		Ø 2.750 in		Temperature @ 123.86 ft	3.03 ft	
						121.86 ft
XOHD-00000001 20.00 lbs		Ø 2.750 in Ø 3.625 in			0.95 ft	
						120.91 ft
SP Sub-12345678 60.00 lbs		Ø 3.625 in		SP @ 119.13 ft	3.74 ft	
						117.17 ft
GTET-10811258 165.00 lbs		Ø 3.625 in		GammaRay @ 111.11 ft	8.52 ft	
						108.65 ft
CSNG-10965402 114.00 lbs		Ø 3.625 in			8.17 ft	


CSNG @ 103.02 ft
100.48 ft
IDT-1094
150.00 lbs
Ø 3.625 in
7.58 ft
92.90 ft
ICT-11204020
330.00 lbs
Ø 3.625 in
12.83 ft
ICT Caliper @ 82.86 ft
80.07 ft
Centralizer 25-00000001
8.00 lbs
Ø 4.000 in*
Wavesonic-I-
10855599
520.00 lbs
Ø 3.625 in
34.07 ft
Wavesonic Delay @ 57.50 ft
Centralizer 25-00000002
8.00 lbs
Ø 4.000 in*



Mnemonic	Tool Name	Serial Number	Weight (lbs)	Length (ft)	Accumulated Length (ft)	Max.Log. Speed (fpm)
CH_HOS	Hostile Cable Head with Load Cell	954	37.50	3.03	121.86	300.00
XOHD	Hostile to Dits Cross Over	00000001	20.00	0.95	120.91	300.00
SP	SP Sub	12345678	60.00	3.74	117.17	300.00

GTET	Gamma Telemetry Tool	10811258	165.00	8.52		108.65	60.00
CSNG	Compensated Spectral Natural Gamma	10965402	114.00	8.17		100.48	15.00
IDT	Insite Directional Tool	1094	150.00	7.58		92.90	30.00
ICT	Six Independent Arm Caliper	11204020	330.00	12.83		80.07	30.00
WSTT	WaveSonic Insite	10855599	520.00	34.07		46.00	30.00
OBCEN	Centralizer - 25 in. Overbody	00000001	8.00	2.08	*	74.91	300.00
OBCEN	Centralizer - 25 in. Overbody	00000002	8.00	2.08	*	49.02	300.00
IQF	IQ Flex tool	10000954	140.00	5.67		40.33	300.00
DSNT	Dual Spaced Neutron	10735145	174.00	9.69		30.64	60.00
DCNT	DSN Decentralizer	10735145	6.60	5.13	*	33.97	300.00
SDLT	Spectral Density Tool	10673803	360.00	10.81		19.83	60.00
SDLP	Density Insite Pad	10673790	65.00	2.55	*	22.04	60.00
MICP	Microlog Pad	10673803	8.00	1.00	*	22.33	60.00
ACRt	Array Compensated True Resistivity Instrument Section	10929776	50.00	5.03		14.80	300.00
RSOF	Regal Standoff 6.75in	00000001	20.00	0.52	*	16.33	300.00
ACRt	Array Compensated True Resistivity Sonde Section	10929775	200.00	14.22		0.58	300.00
CBHD	Cabbage Head	00000954	10.00	0.58		0.00	300.00
Total			**2,446.10**	**124.89**			

* Not included in Total Length and Length Accumulation.

Data: EASTON3419_1-21\0001 SP-GTET-CSNG-IDT-ICT-WAVE-FLEX-DSN-SDL-ACRT-CH\IDLE **Date: 10-May-13 03:16:12**

HALLIBURTON

PARAMETERS REPORT

Depth (ft)	Tool Name	Mnemonic	Description	Value	Units
TOP					
	GTET	GEOK	Process Gamma Ray EVR?	No	
	DSNT	DEOK	Process DSN EVR?	No	
	SDLT Pad	DNOK	Process Density EVR?	No	
4840.00					
	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	8.800	ppg
	SHARED	WAGT	Weighting Agent	Natural	
	SHARED	BSAL	Borehole salinity	0.00	ppm
	SHARED	FSAL	Formation Salinity NaCl	0.00	ppm
	SHARED	KPCT	Percent K in Mud by Weight?	0.00	%
	SHARED	RMUD	Mud Resistivity	1.000	ohmm
	SHARED	TRM	Temperature of Mud	75.0	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	6040.00	ft
	SHARED	BHT	Bottom Hole Temperature	135.0	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	ICT	
	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	
GTET	GROK	Process Gamma Ray?	Yes	
GTET	GRSO	Gamma Tool Standoff	0.000	in
GTET	GEOK	Process Gamma Ray EVR?	Yes	
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	
IDT	WRTI	Survey Writing Interval	30	ft
IDT	SOPT	Smoothing Option	None	
ICT	CLOK	Process Caliper Outputs?	Yes	
ICT	DARM	Disable Caliper Arm	No	
ICT	ATDS	Arm To Disable	0	
ICT	REPM	Method to replace arm?	Caliper Average	
ICT	ARMV	Diameter to use for disabled arm	0.00	in
ICT	DARM	Disable Second Caliper Arm	No	
ICT	ATDS	Second Arm To Disable	0	
ICT	REPM	Method to replace second arm?	Caliper Average	
ICT	ARMV	Diameter to use for second disabled arm	0.00	in
ICT	NAVS	Navigation Source Tool	IDT	
ICT	CL1O	Radius 1 Offset	0.0	in
ICT	CL2O	Radius 2 Offset	0.0	in
ICT	CL3O	Radius 3 Offset	0.0	in
ICT	CL4O	Radius 4 Offset	0.0	in
ICT	CL5O	Radius 5 Offset	0.0	in
ICT	CL6O	Radius 6 Offset	0.0	in
ICT	BHVC	Radius type for borehole volume calcuations	Elliptical	
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	User define	
Wavesonic-I	DTMA	Delta -T Matrix	47.60	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	
DSNT	DNOK	Process DSN?	Yes	
DSNT	DEOK	Process DSN EVR?	Yes	
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?	Yes	
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
Microlog Pad	MLOK	Process MicroLog Outputs?	Yes	
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	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

BOTTOM

Data: EASTON3419_1-21\0001 SP-GTET-CSNG-IDT-ICT-WAVE-FLEX-DSN-SDL-ACRT-CH\008 11-May-13 03:26 Up @6121.8f **Date: 11-May-13 06:59:28**

HALLIBURTON

CALIBRATION REPORT

NATURAL GAMMA RAY TOOL SHOP CALIBRATION

Tool Name:	**GTET - 10811258**	**Reference Calibration Date:**	**15-Apr-13 13:29:21**
Engineer:	**S. INGERSOLL**	**Calibration Date:**	**28-Apr-13 06:43:47**
Software Version:	**WL INSITE R3.8.4 (Build 5)**	**Calibration Version:**	**1**

Calibrator Source S/N: TB-185

Calibrator API Reference:228.00 api

Equivalent Calibrator API Reference:232.0 api

Measurement	Measured	Calibrated	Units
Background	21.8	21.9	api
Background + Calibrator	252.7	253.9	api
Calibrator	230.9	232.0	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION

Tool Name:	**GTET - 10811258**	**Reference Calibration Date:**	**28-Apr-13 06:43:47**
Engineer:	**S. INGERSOLL**	**Calibration Date:**	**09-May-13 13:07:32**
Software Version:	**WL INSITE R3.8.4 (Build 5)**	**Calibration Version:**	**1**

Calibrator Source S/N: TB-185

Calibrator API Reference:228.00 api

Equivalent Calibrator API Reference:232.0 api

Field Verification	Shop	Field	Units
Background	21.9	50.8	api
Background + Calibrator	253.9	281.4	api

Calibrator	232.0	230.6	api

Shop	Field	Difference	Tolerance
232.0	230.6	1.4	+/- 9.00

DUAL SPACED NEUTRON SHOP CALIBRATION

Tool Name: DSNT - 10735145 **Reference Calibration Date:** 06-Apr-13 14:26:57

Engineer: S. INGERSOLL **Calibration Date:** 06-Apr-13 14:46:21

Software Version: WL INSITE R3.8.4 (Build 5) **Calibration Version:** 1

Logging Source S/N: DSN-436

Tank Serial Number: 105060

Reference value assigned to Tank: 51.680

Snow Block S/N: 08910

Calibration Tank Water Temperature: 68 degF

Min. Tool Housing Outside Diameter: 3.625 in

CALIBRATION CONSTANTS

Measurement	Prev. Value	New Value	Control Limit On New Value
Gain:	0.939	0.943	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):	0.2097	0.2110	0.0012	+/- 0.0020
Calibrated Ratio:	9.69	9.73	0.042	+/- 0.050

VERIFIER

Measurement	Value	Control Limit
Snow-Block Porosity (decp):	0.0557	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 - 10735145 **Reference Calibration Date:** 06-Apr-13 14:46:21

Engineer: S. INGERSOLL **Calibration Date:** 09-May-13 13:14:22

Software Version: WL INSITE R3.8.4 (Build 5) **Calibration Version:** 1

Logging Source S/N: DSN-436

Snow Block S/N: 08910

NEUTRON FIELD-CHECK SUMMARY

	Shop	Field	Difference	Control Limit On Change
Snow-Block Porosity (decp):	0.0557	0.0649	0.0091	+/- 0.0150

PASS/FAIL SUMMARY

Block Change Check:	Passed
Snow Block Stat Check:	Passed
Temperature Check:	Passed

DENSITY CALIPER SHOP CALIBRATION

Tool Name:	**SDLT - 10673803**	**Reference Calibration Date:**	**12-Mar-13 13:18:16**
Engineer:	**S. INGERSOLL**	**Calibration Date:**	**06-Apr-13 11:17:59**
Software Version:	**WL INSITE R3.8.4 (Build 5)**	**Calibration Version:**	**1**
Host Tool Name:	**DSNT - 10735145**		

CALIBRATION COEFFICIENTS

Measurement	Previous Value	New Value	Control Limit On New Value
Pad Offset	-3673.34	-3914.89	-7000.00 - -1000.00
Pad Gain	0.0003767	0.0003787	0.000200 - 0.000600
Arm Offset	-4510.72	-4687.37	-5000.00 - 3000.00
Arm Gain	0.0005258	0.0005214	0.000300 - 0.000700
Arm Power	-0.000005867	-0.000005578	-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)	2.08	2.00	-0.08	+/- 0.20
Medium Ring (in)	3.82	3.75	-0.07	+/- 0.20
RING DIAMETER:				
Small Ring (in)	6.69	6.50	-0.19	+/- 0.20
Medium Ring (in)	8.45	8.25	-0.20	+/- 0.20
Large Ring (in)	15.17	15.00	-0.17	+/- 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 - 10673803**	**Reference Calibration Date:**	**06-Apr-13 11:17:59**
Engineer:	**S. INGERSOLL**	**Calibration Date:**	**09-May-13 13:19:20**
Software Version:	**WL INSITE R3.8.4 (Build 5)**	**Calibration Version:**	**1**

MEASURED CALIPER VALUES

Measurement	Shop	Field	Change	Control Limit On New Value
Pad Extension	3.75	3.70	-0.05	+/- 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 - 10673790**	**Reference Calibration Date:**	**08-Mar-13 10:59:51**
Engineer:	**S. INGERSOLL**	**Calibration Date:**	**06-Apr-13 10:52:32**
Software Version:	**WL INSITE R3.8.4 (Build 5)**	**Calibration Version:**	**1**

Logging Source S/N: 5073GW

Aluminum Block S/N: LIBERAL ALUMINUM Density: 2.598g/cc Pe: 3.170

DENSITY CALIBRATION SUMMARY			
Measurement	**Previous Value**	**New Value**	**Control Limit**
Near Bar Gain	1.0454	1.0398	0.90 - 1.10
Near Dens Gain	1.0294	1.0240	0.90 - 1.10
Near Peak Gain	1.0365	1.0258	0.90 - 1.10
Near Lith Gain	1.0200	0.9927	0.90 - 1.10
Far Bar Gain	1.0122	1.0104	0.90 - 1.10
Far Dens Gain	0.9984	0.9996	0.90 - 1.10
Far Peak Gain	0.9923	0.9901	0.90 - 1.10
Far Lith Gain	0.9628	0.9649	0.90 - 1.10
Near Bar Offset	-0.1593	-0.1092	NONE
Near Dens Offset	-0.0054	0.0392	NONE
Near Peak Offset	-0.0399	0.0451	NONE
Near Lith Offset	0.0863	0.3094	NONE
Far Bar Offset	0.0668	0.0814	NONE
Far Dens Offset	0.1592	0.1474	NONE
Far Peak Offset	0.1733	0.1907	NONE
Far Lith Offset	0.3389	0.3173	NONE
Near Bar Background	865.49	868.29	700 - 1450
Near Dens Background	284.22	285.68	230 - 480
Near Peak Background	124.49	124.18	100 - 210
Near Lith Background	154.41	154.56	125 - 260
Far Bar Background	581.01	578.73	450 - 900
Far Dens Background	229.46	226.38	175 - 345
Far Peak Background	91.16	89.43	70 - 140
Far Lith Background	95.46	94.98	75 - 145

CALIBRATION BLOCK SUMMARY				
Measurement	**Current Reading (Previous Coef)**	**Calibrated (New Coef)**	**Change**	**Control Limit On Change**
MAGNESIUM				
Density (g/cc)	1.685	1.684	-0.001	+/- 0.015
Pe	2.526	2.557	0.031	+/- 0.150
ALUMINUM				
Density (g/cc)	2.600	2.598	-0.002	+/- 0.01500
Pe	3.135	3.126	-0.009	+/- 0.150

TOOL SUMMARY				
Measurement	**Near Detector**		**Far Detector**	
	Value	**Control Limits**	**Value**	**Control Limits**
QUALITY				
Background	0.0001	+/- 0.0110	-0.0002	+/- 0.0140
Magnesium Block	0.0000	+/- 0.0110	0.0011	+/- 0.0140
Aluminum Block	0.0003	+/- 0.0110	0.0000	+/- 0.0140
Resolution	8.65	6.00 - 11.50	8.96	6.00 - 11.50
Internal Verifier(B+D+P+L)	1433	1200 - 2700	990	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 - 10673790 **Reference Calibration Date:** 06-Apr-13 10:52:32

Engineer: S. INGERSOLL **Calibration Date:** 09-May-13 12:58:33

Software Version: WL INSITE R3.8.4 (Build 5) **Calibration Version:** 1

Pad Temperature: 68.2 degF

DENSITY FIELD CALIBRATION SUMMARY

Measurement	Shop	Field	Change	Control Limit +/-
Near (B+D+P+L) cps	1432.712	1428.991	-3.721	15.275
Far (B+D+P+L) cps	989.522	985.233	-4.289	16.863
Near Resolution	8.65	8.67	0.020	0.50
Far Resolution	8.96	9.21	0.250	1.00

PASS/FAIL SUMMARY

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

CALIBRATION SUMMARY

Sensor	Shop	Field	Post	Difference	Tolerance	Units
GTET-10811258						
Gamma Ray Calibrator	232.0	230.6	----------	1.4	+/- 9.00	api
DSNT-10735145						
Snow-Block Porosity	0.0557	0.0649	----------	-0.0092	+/- 0.0150	decp
SDLT-10673803						
Pad Extension	3.75	3.70	----------	0.05	+/-0.10	in
Ring Diameter	8.25	8.23	----------	0.02	+/-0.15	in
SDLT Pad-10673790						
Near(B+D+P+L)	1432.712	1428.991	----------	3.721	+/-15.275	cps
Far(B+D+P+L)	989.522	985.233	----------	4.289	+/-16.863	cps

HALLIBURTON

INPUTS, DELAYS AND FILTERS TABLE

Mnemonic	Input Description	Delay (ft)	Filter Type	Filter Length (ft)
Depth Panel				
TENS	Tension	0.00	NO	
CH_HOS				
DHTN	DownholeTension	0.00	BLK	0.000
SP Sub				
PLTC	Plot Control Mask	119.13	NO	

SP	Spontaneous Potential	119.13	BLK	1.250
SPR	Raw Spontaneous Potential	119.13	NO	
SPO	Spontaneous Potential Offset	119.13	NO	
	GTET			
TPUL	Tension Pull	111.11	NO	
GR	Natural Gamma Ray API	111.11	TRI	1.750
GRU	Unfiltered Natural Gamma Ray API	111.11	NO	
EGR	Natural Gamma Ray API with Enhanced Vertical Resolution	111.11	W	1.416 , 0.750
ACCZ	Accelerometer Z	0.00	BLK	0.083
DEVI	Inclination	0.00	NO	
	CSNG			
TPUL	Tension Pull	103.02	NO	
STAT	Status	103.02	NO	
FRMC	Tool Frame Count	103.02	BLK	0.250
TFRM	Total Frames	103.02	NO	
LSPD	Line Speed	103.02	BLK	0.250
CTIM	Accumulation time for sample	103.02	BLK	0.250
NOIS	Spectral Noise	103.02	BLK	0.250
STAB	Stabilizer Voltage in mv	103.02	BLK	0.250
STBP	Stabilizer 60 KEV Peak	103.02	BLK	0.250
AMER	Americium	103.02	BLK	0.250
FTMP	Flask PCB Temperature	103.02	BLK	0.250
SPEL	Low Energy Spectrum	103.02	BLK	0.250
SPEH	High Energy Spectrum	103.02	BLK	0.250
SSP	Stabilization Energy Spectrum	103.02	BLK	0.250
CSPC	CSNG Lo Hi Spectrum Data	103.02	NO	
	IDT			
TPUL	Tension Pull	93.90	NO	
ACCX	Accelerometer X	93.90	NO	
ACCY	Accelerometer Y	93.90	NO	
ACCZ	Accelerometer Z	93.90	NO	
MAGX	magnetometer x with unit	93.90	NO	
MAGY	Magnetometer Y with unit	93.90	NO	
MAGZ	magnetometer z with unit	93.90	NO	
IAMP	Accelerometer Temperature	93.90	NO	
MTMP	Magnetometer Temperature	93.90	NO	
	ICT			
TPUL	Tension Pull	82.86	NO	
	Arm Potentiometer excitation V	80.07	NO	
	Caliper 1 measurement	82.86	BLK	1.250
	Caliper 2 measurement	82.86	BLK	1.250
	Caliper 3 measurement	82.86	BLK	1.250
	Caliper 4 measurement	82.86	BLK	1.250
	Caliper 5 measurement	82.86	BLK	1.250
	Caliper 6 measurement	82.86	BLK	1.250
	Caliper Global measurement	82.86	BLK	1.250
MOTI	Motor Current	80.07	NO	
MOT1	Motor Voltage Monitor 1	80.07	NO	
STA1	Status word #1	80.07	NO	
STA2	Status word #2	80.07	NO	
PRES	Caliper percentage of total compression of the spring	80.07	NO	
HAZI	Hole Azimuth	82.86	NO	

HAZI	Hole Azimuth	82.86	NO
RB	Relative Bearing	82.86	NO
AZI1	PAD1 Azimuth	82.86	NO
DEVI	Inclination	82.86	NO

Wavesonic-I			
TPUL	Tension Pull	57.50	NO
DPSX	Dipole Source X Structurel	46.00	NO
DPSY	Dipole Source Y Structurel	46.00	NO
DPSM	Monopole Source Structure	46.00	NO
WVST	Wavesonic Compressed Data	57.50	NO
TPUL	Tension Pull	57.50	NO
XMS1	Wave Sonic Status Word 1	46.00	NO
XMS2	Wave Sonic Status Word 2	46.00	NO
XMS1	Wave Sonic XMITStatus Word 1	46.00	NO
XMS1	Wave Sonic XMITStatus Word 2	46.00	NO
F1HA	Dipole 1 HV After	46.00	NO
F1HB	Dipole 1 HV Before	46.00	NO
F2HA	Dipole 2 HV After	46.00	NO
F2HB	Dipole 2 HV Before	46.00	NO
F3HA	Monopole HV After	46.00	NO
F3HB	Monopole HV Before	46.00	NO
INVT	Input Voltage	46.00	NO
5VOL	5 Volts	46.00	NO
MI5A	Minus 5 Volts Analog	46.00	NO
ITMP	Instrument Temperature	46.00	NO
PL5A	Plus 5 Volts Analog	46.00	NO
5VD	Plus 5 Volts Digital	46.00	NO
TCUR	Tool Current	46.00	NO
SUPV	Supply Voltage	46.00	NO
PRVT	Preregulated voltage	46.00	NO
PRVT	Pre-regulated voltage Xmter	46.00	NO
TEMP	Temperature	46.00	NO
ACQN	Acquisition Number	46.00	NO
XDP	Delay Reference	57.50	NO
MITM	MIT Mode	57.50	NO
VERS	Version	46.00	NO
D1CT	Dipole 1 Compressed Word Count	57.50	NO
D2CT	Dipole 2 Compressed Word Count	57.50	NO
MCNT	Monopole Compressed Word Count	57.50	NO
SEQN	Sequence Number	46.00	NO
FREV	Firmware Revision	46.00	NO
MSMP	Monopole Sample Rate	46.00	NO
MSMP	Dipole Sample Rate	46.00	NO
MFWF	Monopole Firing Waveform	46.00	NO
MFRQ	Monopole Frequency	46.00	NO
MDLY	Monopole Delay	46.00	NO
DXWF	Dipole X Firing Waveform	46.00	NO
XFRQ	Dipole X Frequency	46.00	NO
XDLY	Dipole X Delay	46.00	NO
DYWF	Dipole Y Firing Waveform	46.00	NO
YFRQ	Dipole Y Frequency	46.00	NO
YDLY	Dipole Y Delay	46.00	NO
DPSX	Dipole Source X Structurel	46.00	NO
DPSY	Dipole Source Y Structurel	46.00	NO
DPSM	Monopole Source Structure	46.00	NO

WVST	Wavesonic Compressed Data	57.50	NO
AUTM	Auto Mode	46.00	NO
SONM	tool mode for sonic - 0 for normal or 3 for calibration	46.00	NO
MSL	Monopole Lower Travel Time	57.50	NO
MSH	Monopole Upper Travel Time	57.50	NO
MLFC	Monopole-1 Lower Filter Bandpass Frequency Cut-off	46.00	NO
MUFC	Monopole-1 Upper Filter Bandpass Frequency Cut-off	46.00	NO
DLTT	Dipole Lower Travel Time	46.00	NO
DUTT	Dipole Upper Travel Time	46.00	NO
DLFC	Dipole Lower Filter Bandpass Frequency Cut-off	46.00	NO
DUFC	Dipole Upper Filter Bandpass Frequency Cut-off	46.00	NO
MUTE	WaveSonic Mute/Enable Channels and Sides map	46.00	NO
MUTS	Mute/Enable Sides	46.00	NO
WSRB	Relative Bearing	57.50	NO
WSAZ	WSX Azimuth Pad 1	57.50	NO
TPUL	Tension Pull	57.50	NO
WMP	Summed array of Monopole for SIDES - A,B,C,D	57.50	NO
WXX	Dipole X for SIDES - A-C	57.50	NO
WYY	Dipole Y for SIDES - B-D	57.50	NO
WXY	Dipole X for SIDES - B-D	57.50	NO
WYX	Dipole Y for SIDES - A-C	57.50	NO
TPUL	Tension Pull	57.50	NO
WMA	Monopole Waveform Side A - Channel 1 to Channel 8 Receivers	57.50	NO
WMB	Monopole Waveform Side B - Channel 1 to Channel 8 Receivers	57.50	NO
WMC	Monopole Waveform Side C - Channel 1 to Channel 8 Receivers	57.50	NO
WMD	Monopole Waveform Side D - Channel 1 to Channel 8 Receivers	57.50	NO
WXA	Dipole X Waveform Side A - Channel 1 to Channel 8 Receivers	57.50	NO
WXB	Dipole X Waveform Side B - Channel 1 to Channel 8 Receivers	57.50	NO
WXC	Dipole X Waveform Side C - Channel 1 to Channel 8 Receivers	57.50	NO
WXD	Dipole X Waveform Side D - Channel 1 to Channel 8 Receivers	57.50	NO
WYA	Dipole Y Waveform Side A - Channel 1 to Channel 8 Receivers	57.50	NO
WYB	Dipole Y Waveform Side B - Channel 1 to Channel 8 Receivers	57.50	NO
WYC	Dipole Y Waveform Side C - Channel 1 to Channel 8 Receivers	57.50	NO
WYD	Dipole Y Waveform Side D - Channel 1 to Channel 8 Receivers	57.50	NO
GAR1	Gain Side A Receiver 1	46.00	NO
GAR2	Gain Side A Receiver 2	46.00	NO
GAR3	Gain Side A Receiver 3	46.00	NO
GAR4	Gain Side A Receiver 4	46.00	NO
GAR5	Gain Side A Receiver 5	46.00	NO
GAR6	Gain Side A Receiver 6	46.00	NO
GAR7	Gain Side A Receiver 7	46.00	NO
GAR8	Gain Side A Receiver 8	46.00	NO
GBR1	Gain Side B Receiver 1	46.00	NO
GBR2	Gain Side B Receiver 2	46.00	NO
GBR3	Gain Side B Receiver 3	46.00	NO
GBR4	Gain Side B Receiver 4	46.00	NO
GBR5	Gain Side B Receiver 5	46.00	NO
GBR6	Gain Side B Receiver 6	46.00	NO
GBR7	Gain Side B Receiver 7	46.00	NO

GBR8	Gain Side B Receiver 8	46.00	NO	
GCR1	Gain Side C Receiver 1	46.00	NO	
GCR2	Gain Side C Receiver 2	46.00	NO	
GCR3	Gain Side C Receiver 3	46.00	NO	
GCR4	Gain Side C Receiver 4	46.00	NO	
GCR5	Gain Side C Receiver 5	46.00	NO	
GCR6	Gain Side C Receiver 6	46.00	NO	
GCR7	Gain Side C Receiver 7	46.00	NO	
GCR8	Gain Side C Receiver 8	46.00	NO	
GDR1	Gain Side D Receiver 1	46.00	NO	
GDR2	Gain Side D Receiver 2	46.00	NO	
GDR3	Gain Side D Receiver 3	46.00	NO	
GDR4	Gain Side D Receiver 4	46.00	NO	
GDR5	Gain Side D Receiver 5	46.00	NO	
GDR6	Gain Side D Receiver 6	46.00	NO	
GDR7	Gain Side D Receiver 7	46.00	NO	
GDR8	Gain Side D Receiver 8	46.00	NO	
	DSNT			
TPUL	Tension Pull	32.54	NO	
RNDS	Near Detector Telemetry Counts	32.64	BLK	1.417
RFDS	Far Detector Telemetry Counts	33.39	TRI	0.583
DNTT	DSN Tool Temperature	32.64	NO	
DSNS	DSN Tool Status	32.54	NO	
ERND	Near Detector Telemetry Counts EVR	32.64	BLK	0.000
ERFD	Far Detector Telemetry Counts EVR	33.39	BLK	0.000
ENTM	DSN Tool Temperature EVR	32.64	NO	
	SDLT			
TPUL	Tension Pull	22.65	NO	
PCAL	Pad Caliper	22.65	TRI	0.250
ACAL	Arm Caliper	22.65	TRI	0.250
	ACRt Sonde			
TPUL	Tension Pull	2.97	NO	
F1R1	ACRT 12KHz - 80in R value	9.22	BLK	0.000
F1X1	ACRT 12KHz - 80in X value	9.22	BLK	0.000
F1R2	ACRT 12KHz - 50in R value	6.72	BLK	0.000
F1X2	ACRT 12KHz - 50in X value	6.72	BLK	0.000
F1R3	ACRT 12KHz - 29in R value	5.22	BLK	0.000
F1X3	ACRT 12KHz - 29in X value	5.22	BLK	0.000
F1R4	ACRT 12KHz - 17in R value	4.22	BLK	0.000
F1X4	ACRT 12KHz - 17in X value	4.22	BLK	0.000
F1R5	ACRT 12KHz - 10in R value	3.72	BLK	0.000
F1X5	ACRT 12KHz - 10in X value	3.72	BLK	0.000
F1R6	ACRT 12KHz - 6in R value	3.47	BLK	0.000
F1X6	ACRT 12KHz - 6in X value	3.47	BLK	0.000
F2R1	ACRT 36KHz - 80in R value	9.22	BLK	0.000
F2X1	ACRT 36KHz - 80in X value	9.22	BLK	0.000
F2R2	ACRT 36KHz - 50in R value	6.72	BLK	0.000
F2X2	ACRT 36KHz - 50in X value	6.72	BLK	0.000
F2R3	ACRT 36KHz - 29in R value	5.22	BLK	0.000
F2X3	ACRT 36KHz - 29in X value	5.22	BLK	0.000
F2R4	ACRT 36KHz - 17in R value	4.22	BLK	0.000
F2X4	ACRT 36KHz - 17in X value	4.22	BLK	0.000

F2R5	ACRT 36KHz - 10in R value	3.72	BLK	0.000
F2X5	ACRT 36KHz - 10in X value	3.72	BLK	0.000
F2R6	ACRT 36KHz - 6in R value	3.47	BLK	0.000
F2X6	ACRT 36KHz - 6in X value	3.47	BLK	0.000
F3R1	ACRT 72KHz - 80in R value	9.22	BLK	0.000
F3X1	ACRT 72KHz - 80in X value	9.22	BLK	0.000
F3R2	ACRT 72KHz - 50in R value	6.72	BLK	0.000
F3X2	ACRT 72KHz - 50in X value	6.72	BLK	0.000
F3R3	ACRT 72KHz - 29in R value	5.22	BLK	0.000
F3X3	ACRT 72KHz - 29in X value	5.22	BLK	0.000
F3R4	ACRT 72KHz - 17in R value	4.22	BLK	0.000
F3X4	ACRT 72KHz - 17in X value	4.22	BLK	0.000
F3R5	ACRT 72KHz - 10in R value	3.72	BLK	0.000
F3X5	ACRT 72KHz - 10in X value	3.72	BLK	0.000
F3R6	ACRT 72KHz - 6in R value	3.47	BLK	0.000
F3X6	ACRT 72KHz - 6in X value	3.47	BLK	0.000
RMUD	Mud Resistivity	12.76	BLK	0.000
F1RT	Transmitter Current Raw 12K X Receiver	2.97	BLK	0.000
F1XT	Transmitter Reference 12 KHz Imaginary Signal	2.97	BLK	0.000
F2RT	Transmitter Reference 36 KHz Real Signal	2.97	BLK	0.000
F2XT	Transmitter Reference 36 KHz Imaginary Signal	2.97	BLK	0.000
F3RT	Transmitter Reference 72 KHz Real Signal	2.97	BLK	0.000
F3XT	Transmitter Reference 72 KHz Imaginary Signal	2.97	BLK	0.000
TFPU	Upper Feedpipe Temperature Calculated	2.97	BLK	0.000
TFPL	Lower Feedpipe Temperature Calculated	2.97	BLK	0.000
ITMP	Instrument Temperature	2.97	BLK	0.000
TCVA	Temperature Correction Values Loop Off	2.97	NO	
TIDV	Instrument Temperature Derivative	2.97	NO	
TUDV	Upper Temperature Derivative	2.97	NO	
TLDV	Lower Temperature Derivative	2.97	NO	
TRBD	Receiver Board Temperature	2.97	NO	
	SDLT Pad			
TPUL	Tension Pull	22.64	NO	
NAB	Near Above	22.46	BLK	0.920
NHI	Near Cesium High	22.46	BLK	0.920
NLO	Near Cesium Low	22.46	BLK	0.920
NVA	Near Valley	22.46	BLK	0.920
NBA	Near Barite	22.46	BLK	0.920
NDE	Near Density	22.46	BLK	0.920
NPK	Near Peak	22.46	BLK	0.920
NLI	Near Lithology	22.46	BLK	0.920
NBAU	Near Barite Unfiltered	22.46	BLK	0.250
NLIU	Near Lithology Unfiltered	22.46	BLK	0.250
FAB	Far Above	22.81	BLK	0.250
FHI	Far Cesium High	22.81	BLK	0.250
FLO	Far Cesium Low	22.81	BLK	0.250
FVA	Far Valley	22.81	BLK	0.250
FBA	Far Barite	22.81	BLK	0.250
FDE	Far Density	22.81	BLK	0.250
FPK	Far Peak	22.81	BLK	0.250
FLI	Far Lithology	22.81	BLK	0.250
PTMP	Pad Temperature	22.65	BLK	0.920
NHV	Near Detector High Voltage	22.04	NO	
FHV	Far Detector High Voltage	22.04	NO	
ITMP	Instrument Temperature	22.04	NO	

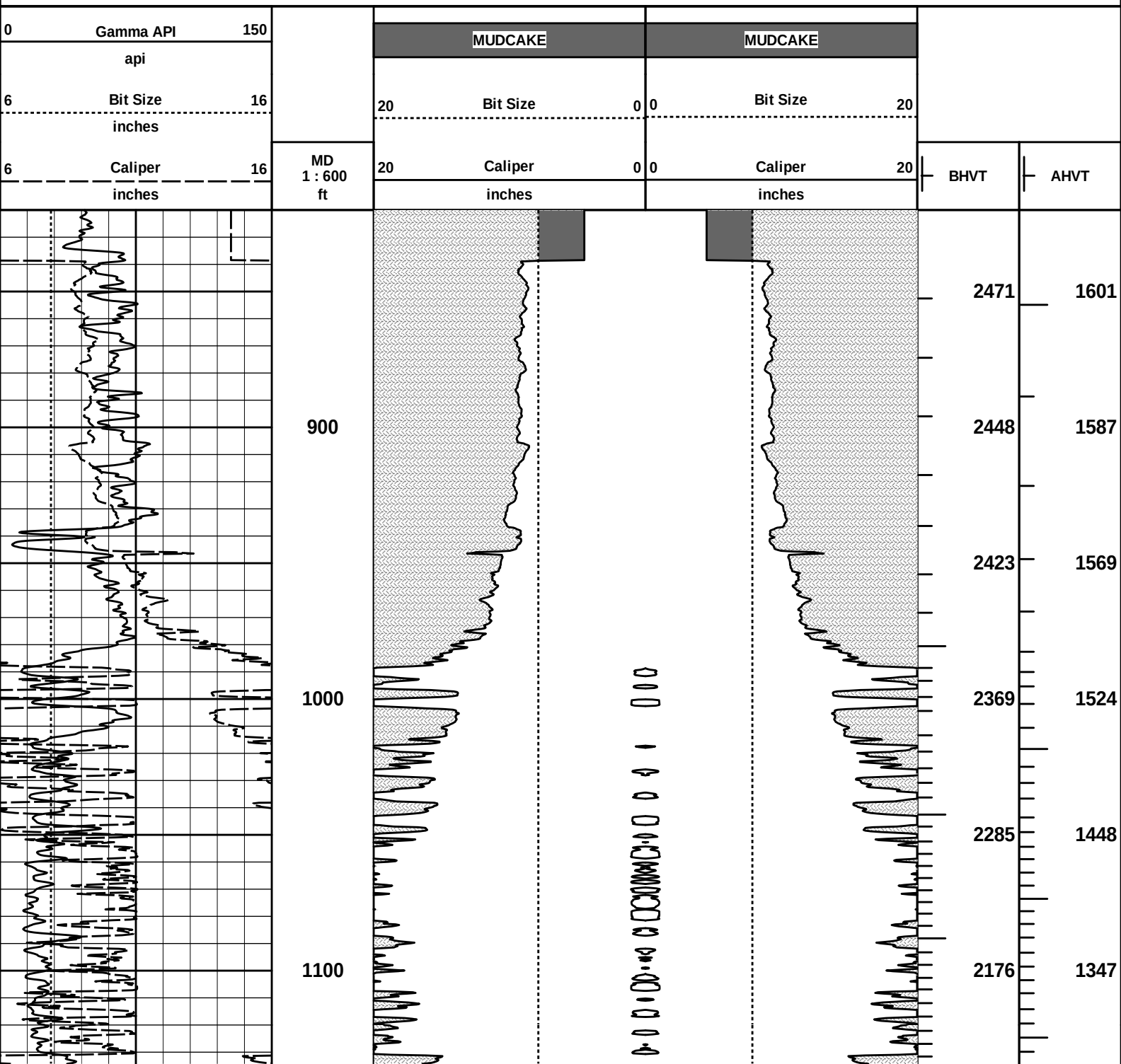
TTMP	Instrument Temperature	22.04	NO	
DDHV	Detector High Voltage	22.04	NO	
	Microlog Pad			
TPUL	Tension Pull	22.83	NO	
MINV	Microlog Lateral	22.83	BLK	0.750
MNOR	Microlog Normal	22.83	BLK	0.750

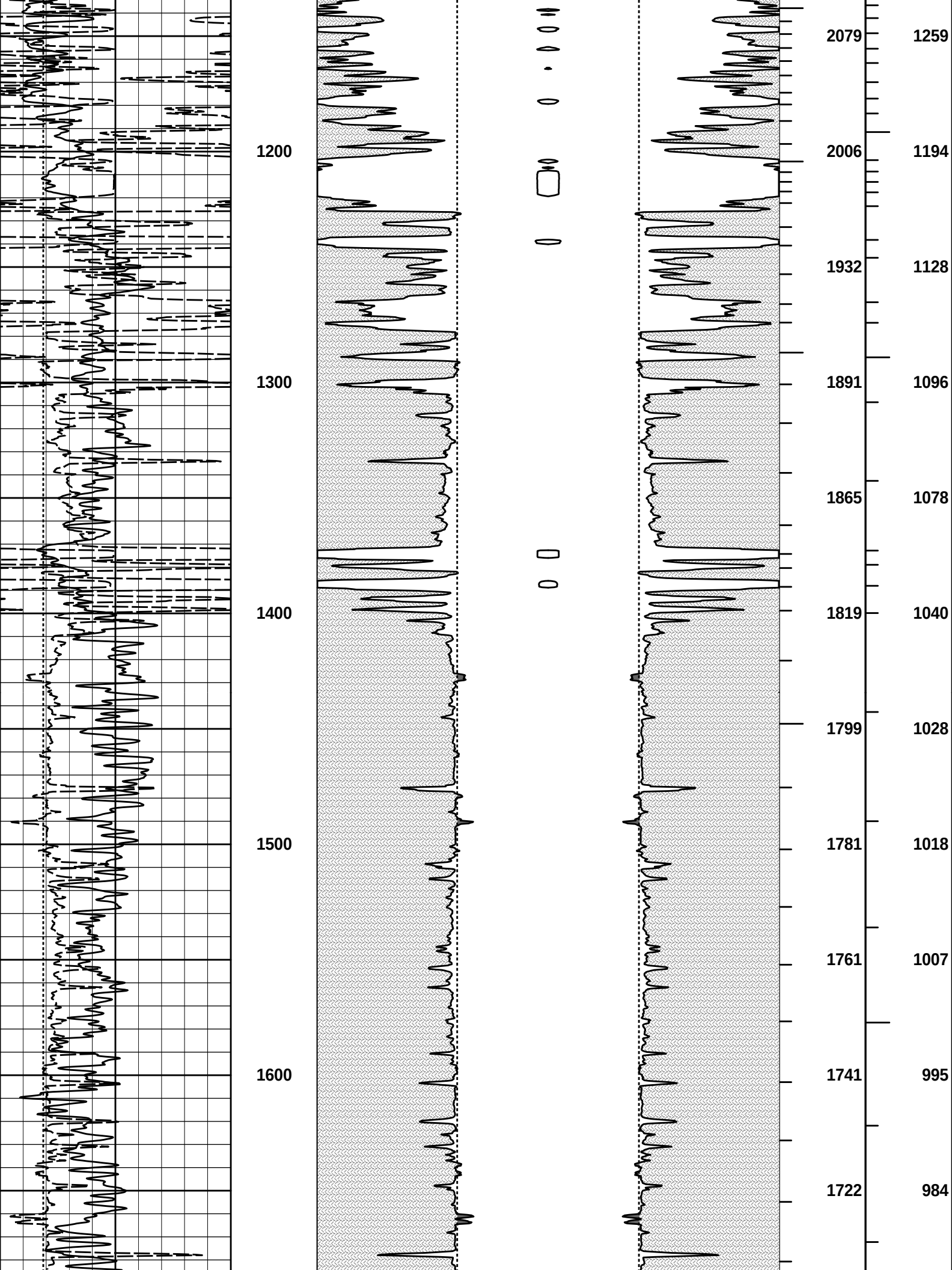
Data: EASTON3419_1-21\0001 SP-GTET-CSNG-IDT-ICT-WAVE-FLEX-DSN-SDL-ACRT-CH\008 11-May-13 03:26 Up @6121.8f **Date: 11-May-13 06:58:39**

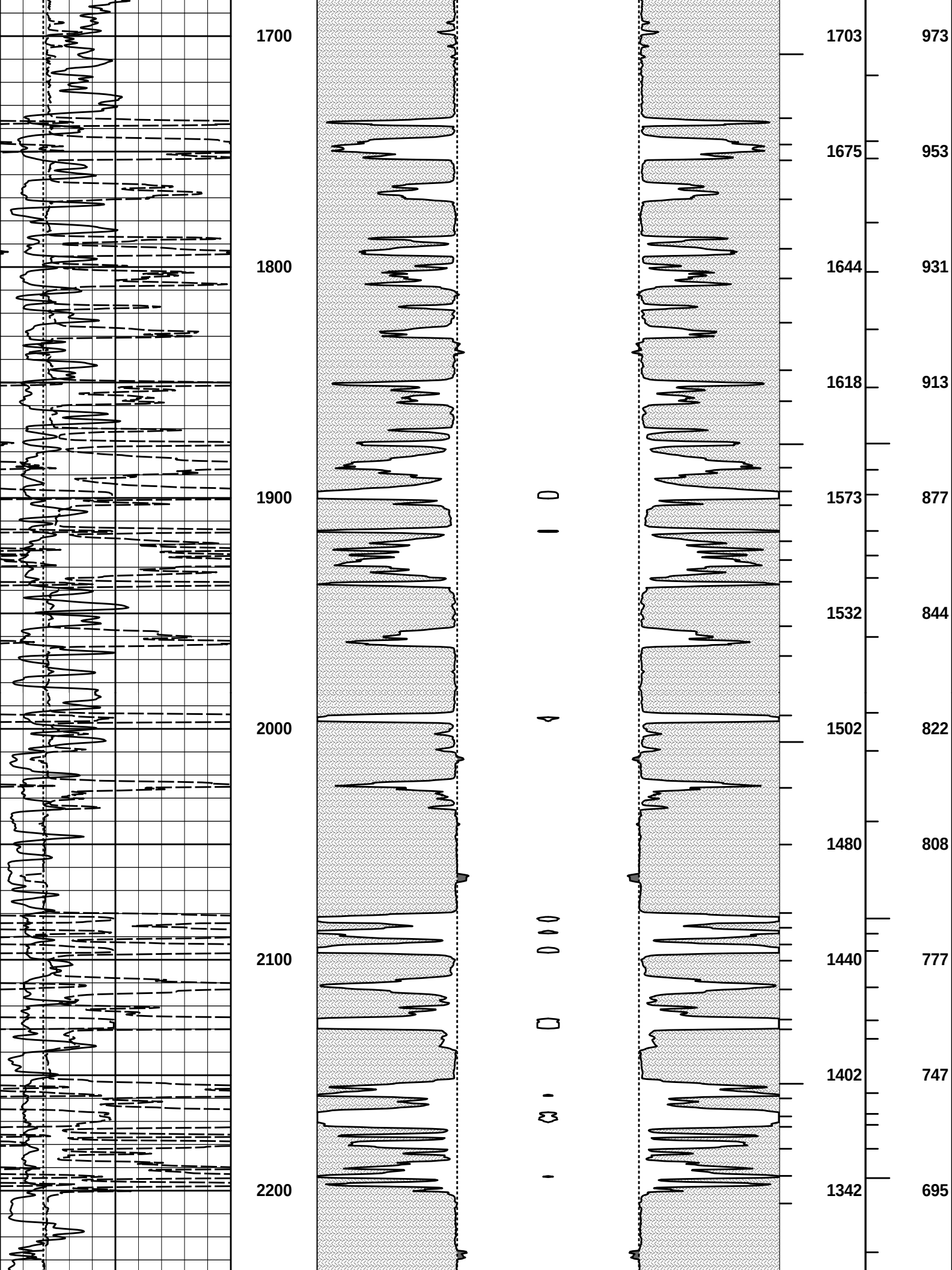
HALLIBURTON

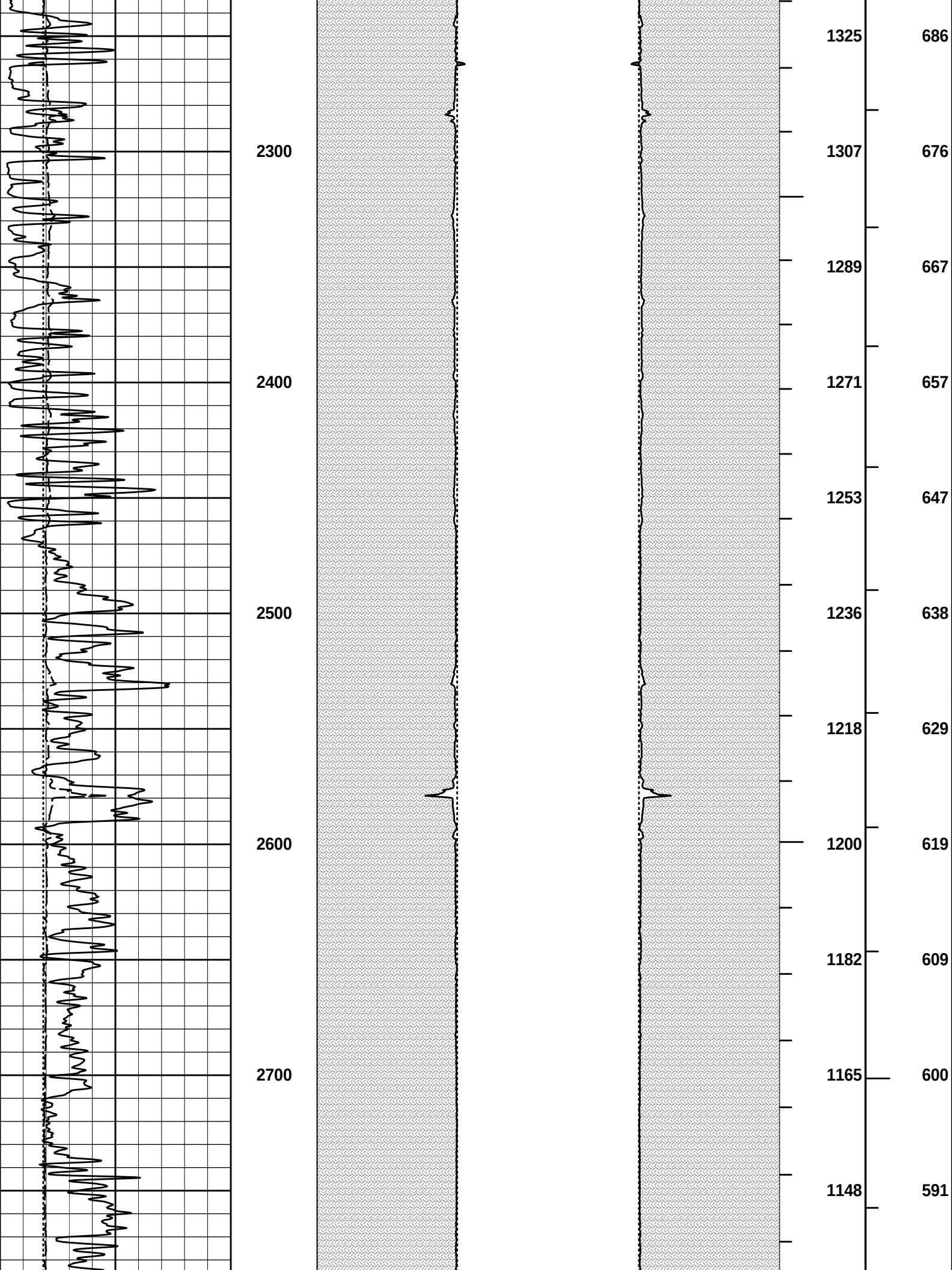
Plot Time: 11-May-13 13:58:46
Plot Range: 820 ft to 6121.58 ft
Data: EASTON3419_1-21\Well Based\CASING
Plot File: \\-LOCAL-\EASTON3419_1-21\Well Based\POROSITY\AHV_2_IQ_LIB

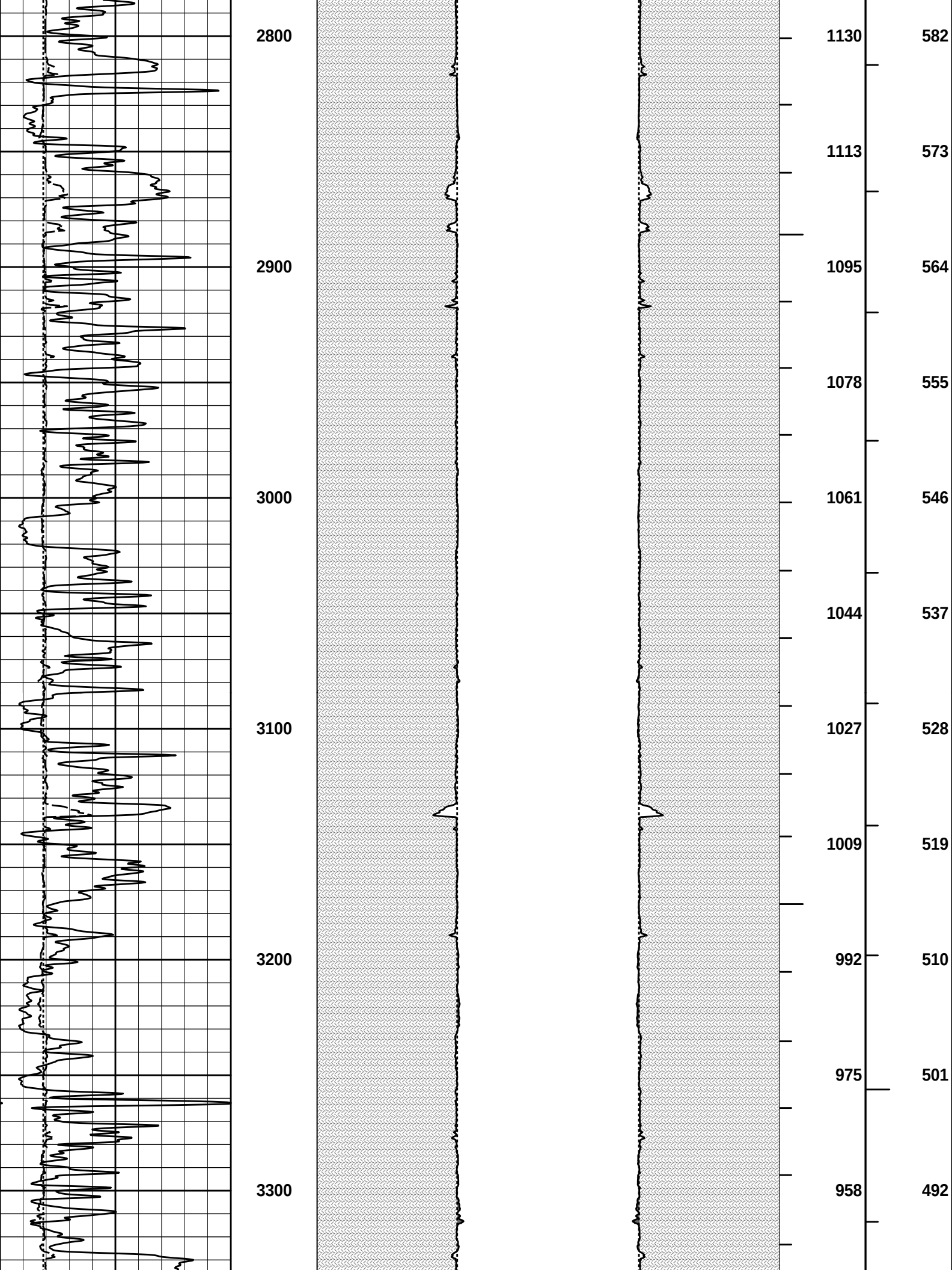
ANNULAR HOLE VOLUME PLOT

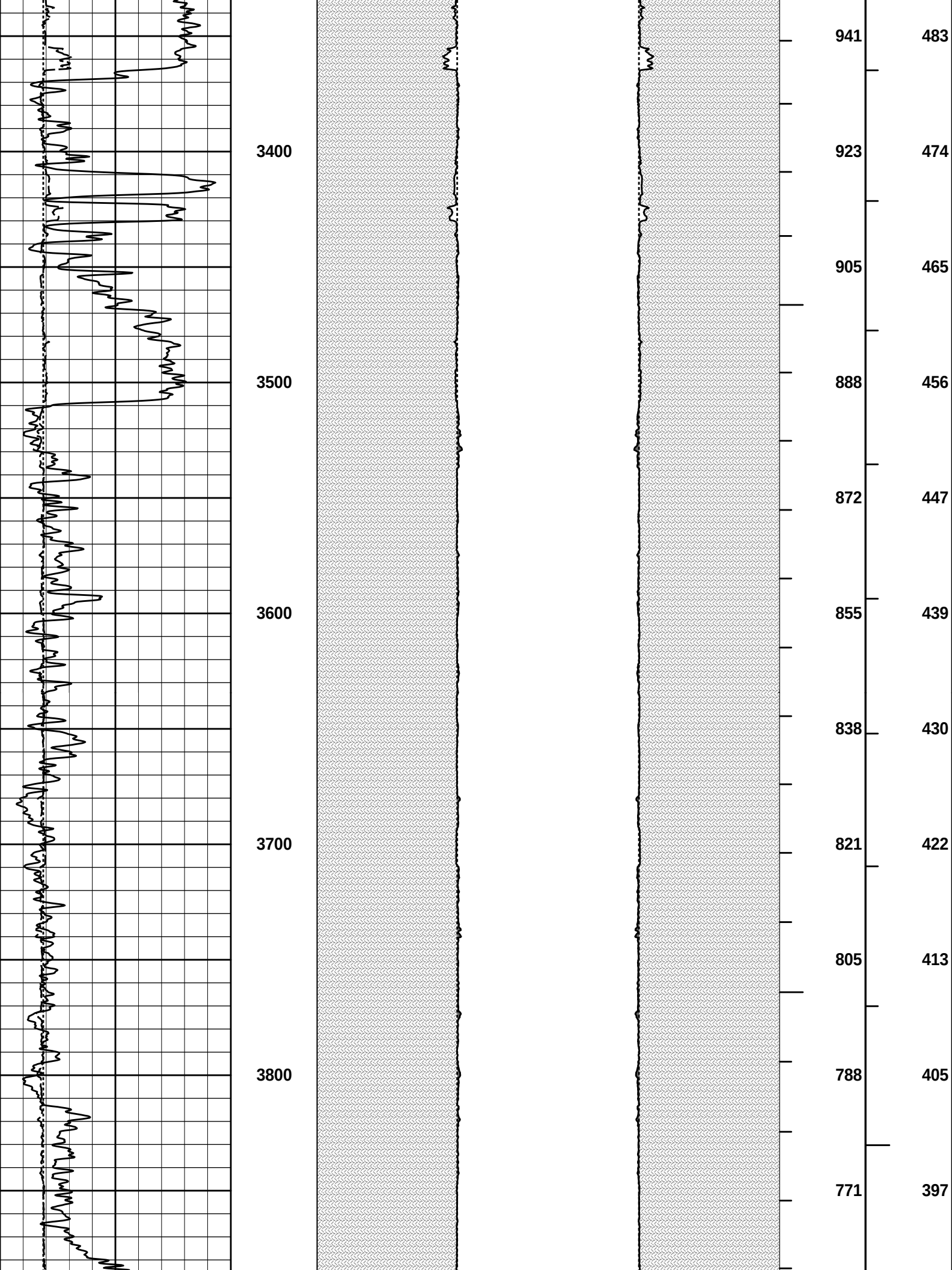


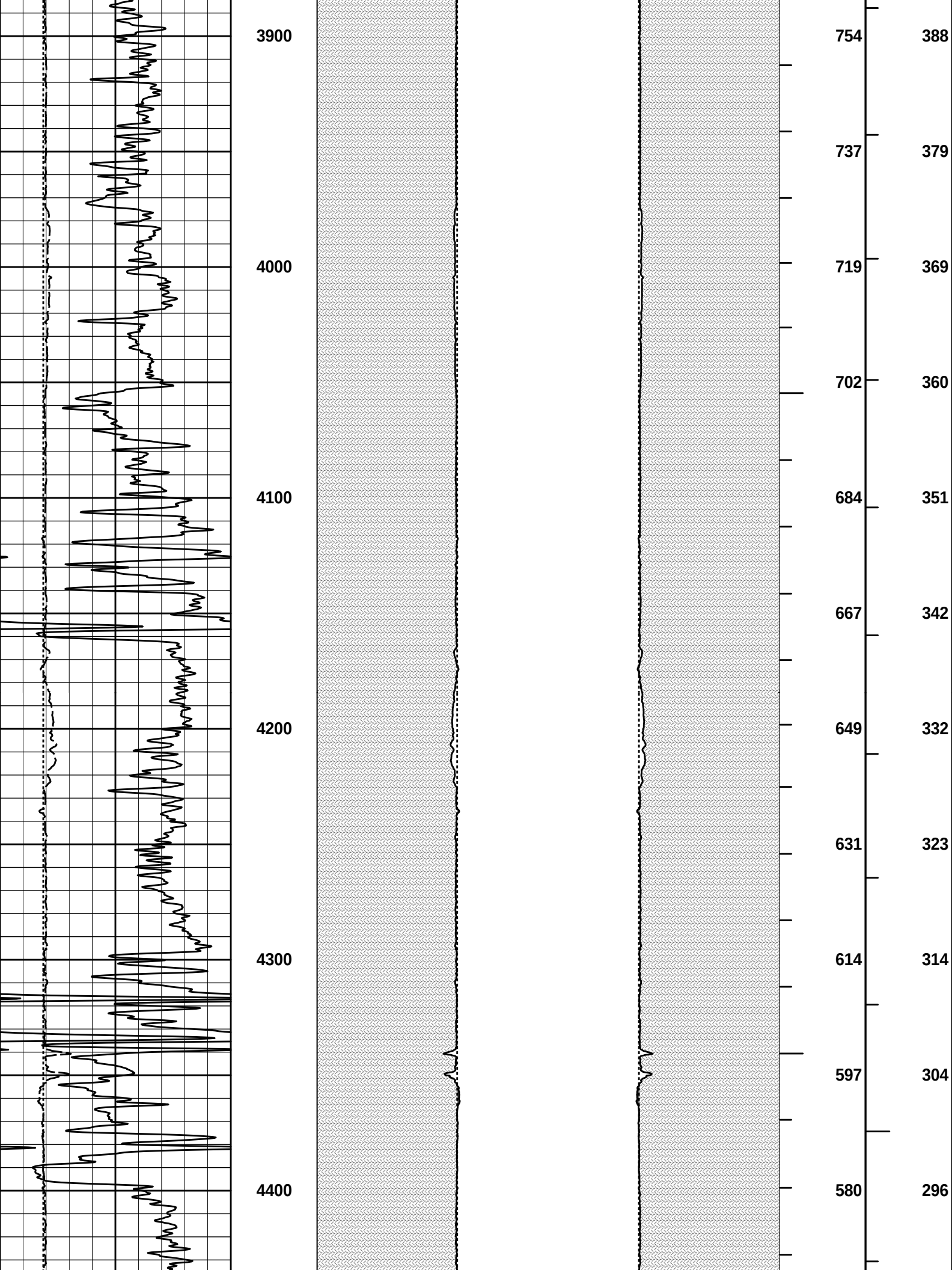

1200
1300
1400
1500
1600
2079
2006
1932
1891
1865
1819
1799
1781
1761
1741
1722
1259
1194
1128
1096
1078
1040
1028
1018
1007
995
984

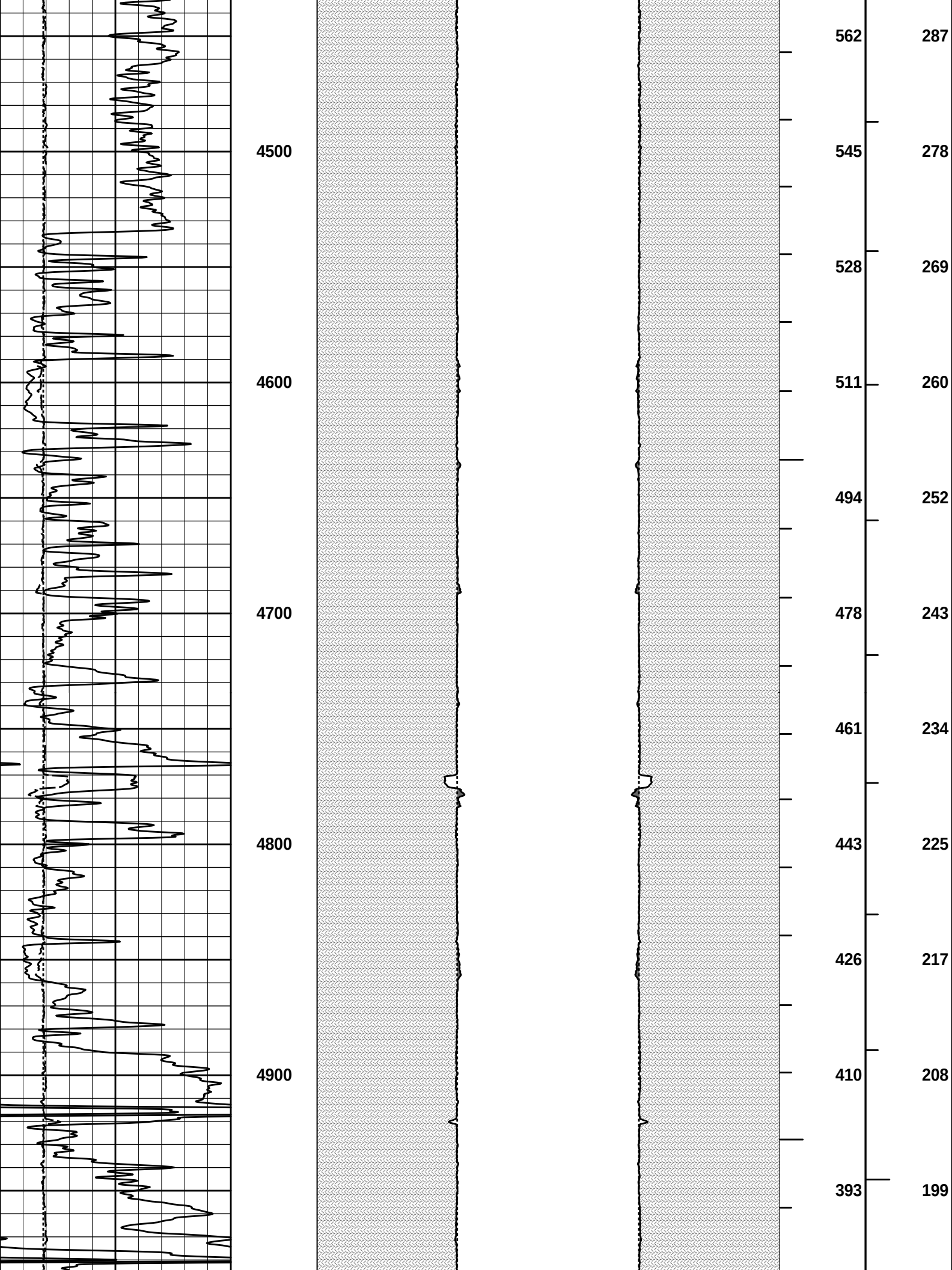

1700
1800
1900
2000
2100
2200
1703
1675
1644
1618
1573
1532
1502
1480
1440
1402
1342
973
953
931
913
877
844
822
808
777
747
695

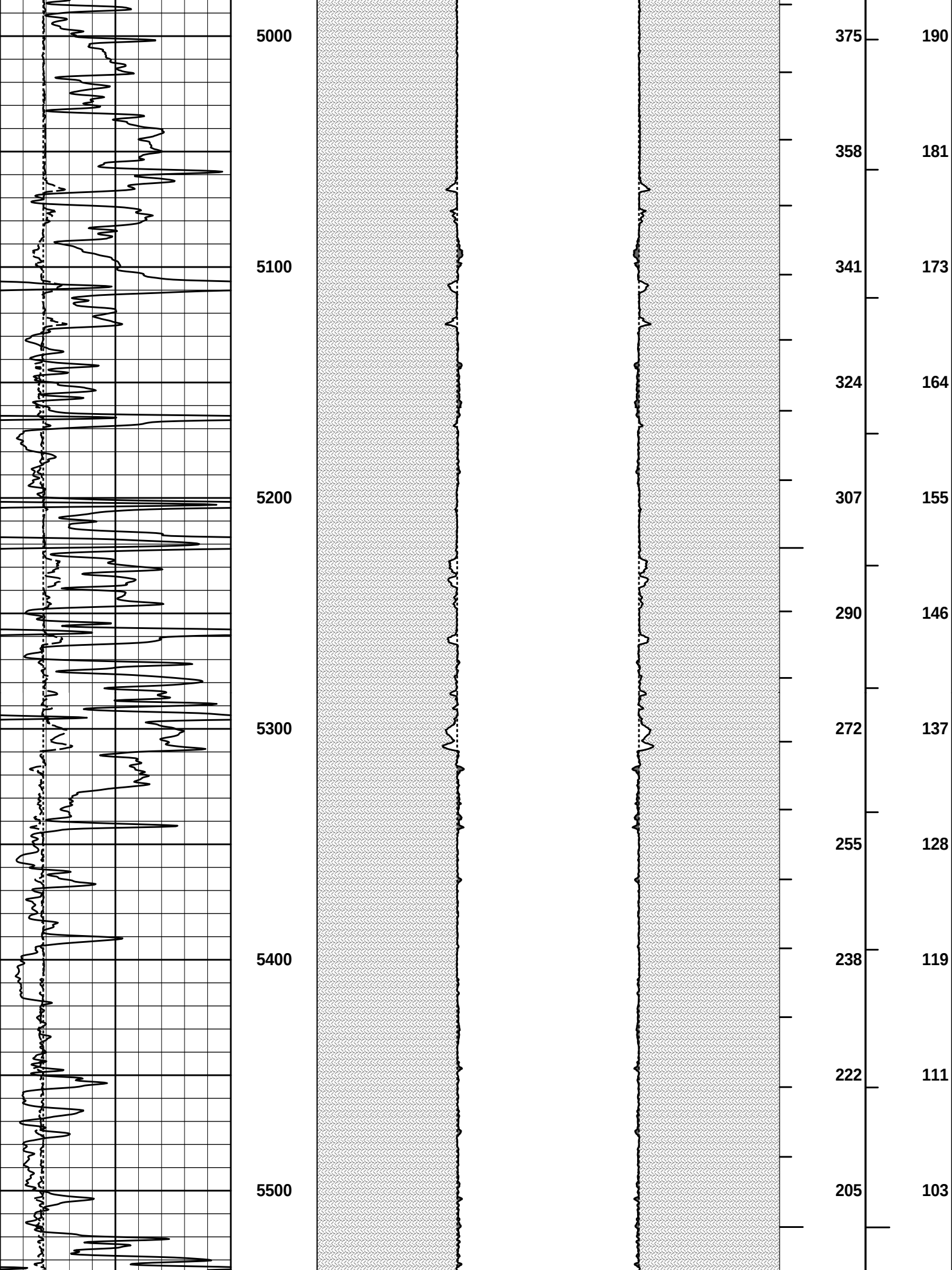

2300
2400
2500
2600
2700
1325
1307
1289
1271
1253
1236
1218
1200
1182
1165
1148
686
676
667
657
647
638
629
619
609
600
591

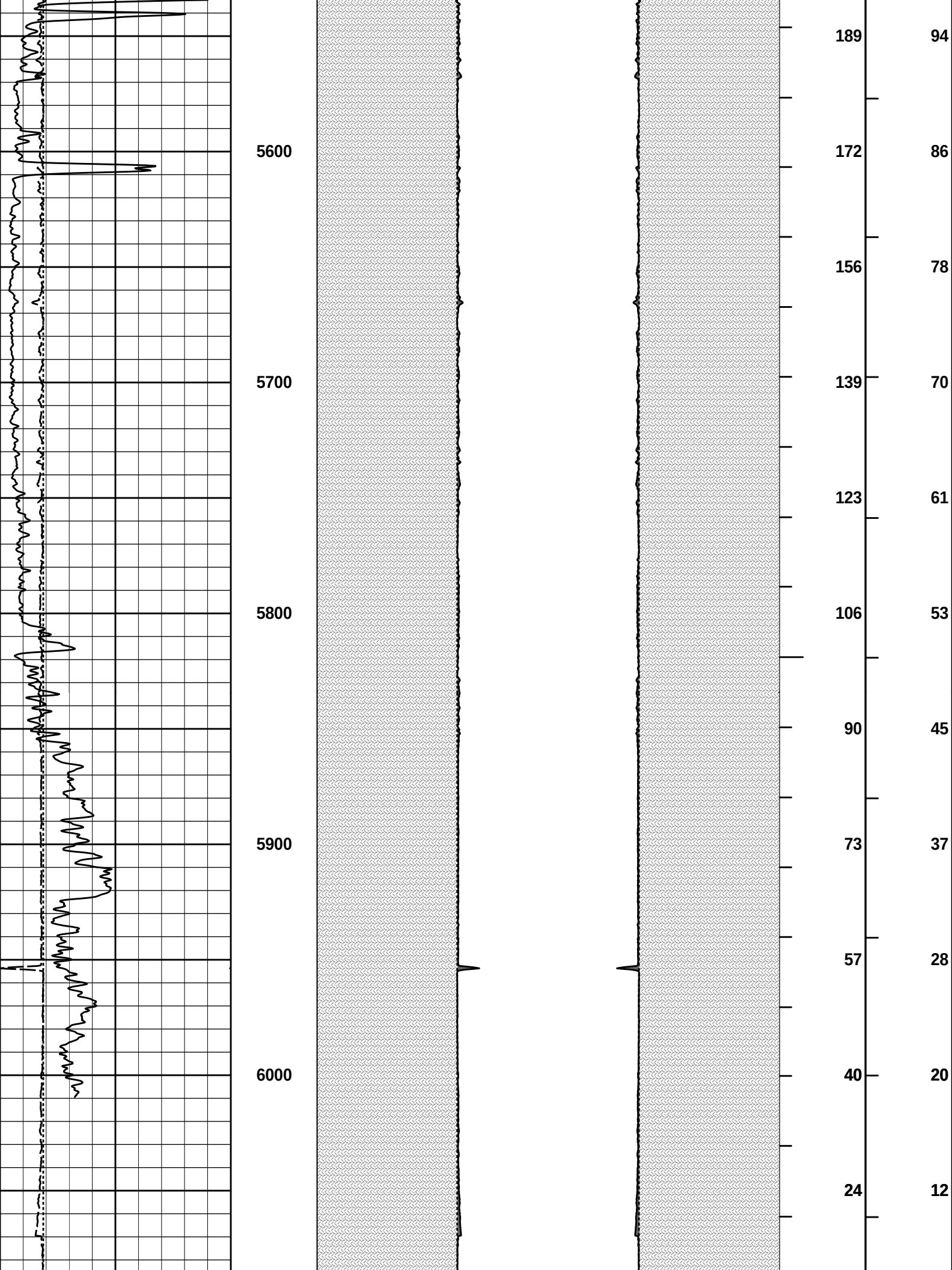

2800
2900
3000
3100
3200
3300
1130
1113
1095
1078
1061
1044
1027
1009
992
975
958
582
573
564
555
546
537
528
519
510
501
492

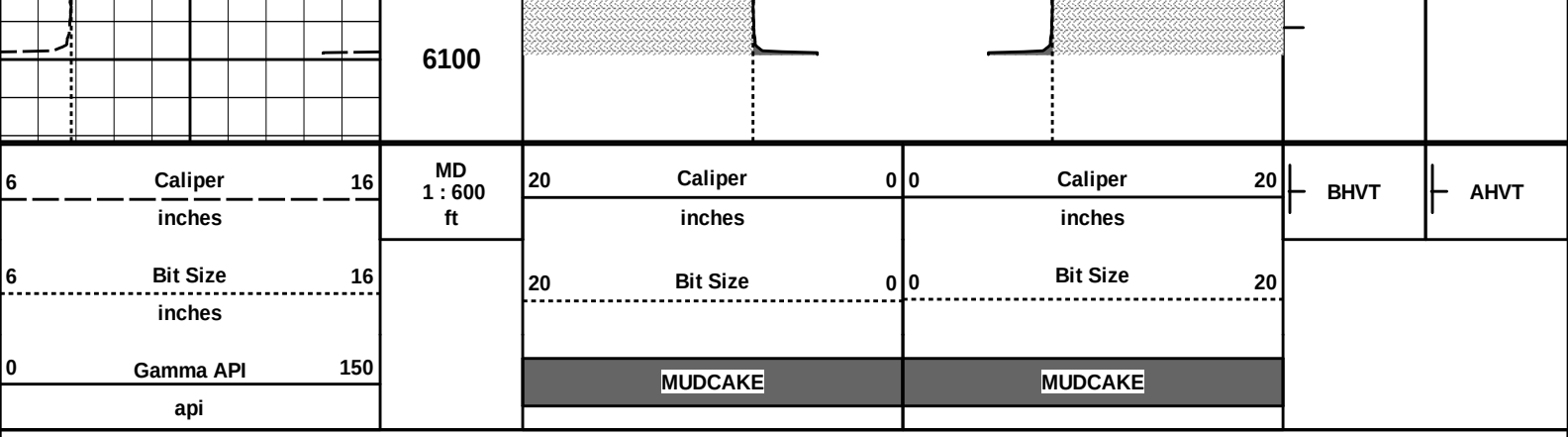

3400
3500
3600
3700
3800
941
923
905
888
872
855
838
821
805
788
771
483
474
465
456
447
439
430
422
413
405
397


3900
4000
4100
4200
4300
4400
754
737
719
702
684
667
649
631
614
597
580
388
379
369
360
351
342
332
323
314
304
296


4500
4600
4700
4800
4900
562
545
528
511
494
478
461
443
426
410
393
287
278
269
260
252
243
234
225
217
208
199


5000
5100
5200
5300
5400
5500
375
358
341
324
307
290
272
255
238
222
205
190
181
173
164
155
146
137
128
119
111
103


5600
5700
5800
5900
6000
189
172
156
139
123
106
90
73
57
40
24
94
86
78
70
61
53
45
37
28
20
12



HALLIBURTON

Plot Time: 11-May-13 13:58:55
Plot Range: 820 ft to 6121.58 ft
Data: EASTON3419_1-21\Well Based\CASING\
Plot File: \\-LOCAL-\EASTON3419_1-21\Well Based\POROSITY\AHV_2_IQ_LIB

ANNULAR HOLE VOLUME PLOT

COMPANY	**SANDRIDGE ENERGY**		
WELL	**EASTON 3419 1-21**		
FIELD	**COMANCHE COUNTY**		
COUNTY	**COMANCHE**	STATE	**KANSAS**

HALLIBURTON

DUAL SPACED NEUTRON SPECTRAL DENSITY LOG