

# HALLIBURTON

## HIGH RESOLUTION INDUCTION

COMPANY		LARAMIE ENERGY PARTNERS II	
WELL		FEDERAL No. 29-15C	
FIELD		RULISON	
COUNTY		GARFIELD	
STATE		CO	
Permanent Datum		GL	Elev. 6204.0 ft
Log measured from		KB	Elev. 19.0 ft above perm. Datum
Drilling measured from		KB	Elev. 6222.0 ft
Date		25-Aug-08	Elev. 6204.0 ft
Run No.		ONE	
Depth - Driller		10128.0 ft	
Depth - Logger		10160.0 ft	
Bottom - Logged Interval		10150.0 ft	
Top - Logged Interval		1516.0 ft	
Casing - Driller		8.625 in @ 1515.0 ft	@
Casing - Logger		1516.0 ft	@
Bit Size		7.875 in	@
Type Fluid in Hole		GEL-CHEM	@
Density		11.9 ppq	54.00 s/qt
PH		9.70 pH	10.0 cpm
Source of Sample		MUD TANK	
Rm @ Meas. Temperature		1.67 ohmm @ 70.60 degF	@
Rmf @ Meas. Temperature		1.25 ohmm @ 67.00 degF	@
Rmc @ Meas. Temperature		3.32 ohmm @ 67.00 degF	@
Source Rmf		MEAS.	MEAS.
Rm @ BHT		0.50 ohmm @ 252.0 degF	@
Time Since Circulation		9.5 hr	
Time on Bottom		25-Aug-08 04:19	
Max. Rec. Temperature		252.0 degF @ 10160.0 ft	@
Equipment		10748912	G.J.
Recorded By		C. GUILLETT	K. WOOD
Witnessed By		F. PFANNENSTIEL	

Fold here

Service Ticket No.: 6103041				API Serial No.: 050451579300				PGM Version: WL INSITE R2.2 (Build 9)							
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		HRID-I91S0180		N/A		1.5" S.O.		N/A	
Rmc @ Meas. Temp.		@		@											
Source Rmf		Rmc		CALC.		CALC.									
Rm @ BHT		0.50 ohmm @ 252.0 degF		@											
Rmf @ BHT		0.35 ohmm @ 252.0 degF		@											
Rmc @ BHT		0.94 ohmm @ 252.0 degF		@											
EQUIPMENT DATA															
GAMMA				ACOUSTIC				DENSITY				NEUTRON			
Run No.		ONE		Run No.				Run No.		ONE		Run No.		ONE	
Serial No.		044_2		Serial No.				Serial No.		I458M069_2		Serial No.		108728_2	
Model No.		D4TGX		Model No.				Model No.		SDL_DC		Model No.		DSN-II	
Diameter		3.625"		No. of Cent.				Diameter		4.5"		Diameter		3.625"	
Detector Model No.		D4TGX		Spacing				Log Type		GAMMA-GAMMA		Log Type		THERMAL	
Type		SCINT.						Source Type		Cs137		Source Type		Am241Be	
Lenath		8"		LSA IY/NI				Serial No.		3026GW		Serial No.		DSN-108	

Distance to Source	16.3'	FWDA [Y/N ]		Strength	1.5 Ci	Strength	18.5 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	T.D.	CSG.	REC	0	200				30%	-10%	2.68 g/cc	30%	-10%	SAND	
DIRECTIONAL INFORMATION															
Maximum Deviation				@				KOP				@			
Remarks: RWCH-D4TGX-DSN-SDL-HRID-WERE RAN IN COMBINATION.															
HOLE RUGOSITY AND TENSION PULLS MAY AFFECT LOG QUALITY.															
A.H.V. CALCULATED FOR 4.50" CASING.															
CHLORIDES REPORTED AT 2500 mg/L.															
LATITUDE: 39.49 N // LONGITUDE: 107.80 W															
YOUR CREW TODAY IS J. NEFF AND G. BOOK. RIG: GREYWOLF # 708.															
THANK YOU FOR CHOOSING HALLIBURTON ENERGY SERVICES - GRAND JUNCTION, CO - (970) 523-3600.															
HALLIBURTON DOES NOT GUARANTEE THE ACCURACY OF ANY INTERPRETATION OF THE LOG DATA, CONVERSION OF LOG DATA TO PHYSICAL ROCK PARAMETERS OR RECOMMENDATIONS WHICH MAY BE GIVEN BY HALLIBURTON PERSONNEL OR WHICH APPEAR ON THE LOG OR IN ANY OTHER FORM. ANY USER OF SUCH DATA, INTERPRETATIONS, CONVERSIONS, OR RECOMMENDATIONS AGREES THAT HALLIBURTON IS NOT RESPONSIBLE EXCEPT WHERE DUE TO GROSS NEGLIGENCE OR WILLFUL MISCONDUCT, FOR ANY LOSS, DAMAGES, OR EXPENSES RESULTING FROM THE USE THEREOF.															
HALLIBURTON															

HALLIBURTON					
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	MDWT	Borehole Fluid Weight	11.900	ppg
	SHARED	RMUD	Mud Resistivity	1.670	ohmm
	SHARED	TRM	Temperature of Mud	75.0	degF
	SHARED	OBM	Oil Based Mud System?	No	
	SHARED	CSD	Logging Interval is Cased?	No	
	SHARED	ICOD	AHV Casing OD	4.500	in
	SHARED	ST	Surface Temperature	75.0	degF
	SHARED	TD	Total Well Depth	10160.00	ft
	SHARED	BHT	Bottom Hole Temperature	252.0	degF
	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

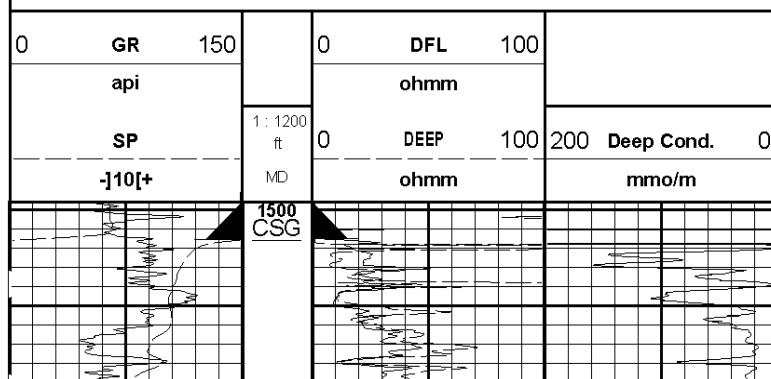
Rwa / CrossPlot	TMFR	Rmf Ref Temp	75.00	degF
Rwa / CrossPlot	RWA	Resistivity of Formation Water	0.05	ohmm
D4TGX	GROK	Process Gamma Ray?	Yes	
D4TGX	GRSO	Gamma Tool Standoff	0.000	in
D4TGX	GEOK	Process Gamma Ray EVR?	No	
DSN_II	DNOK	Process DSN?	Yes	
DSN_II	DEOK	Process DSN EVR?	No	
DSN_II	NLIT	Neutron Lithology	Sandstone	
DSN_II	DNSO	DSNTool Standoff	0.000	in
DSN_II	DNTP	Temperature Correction Type	None	
DSN_II	DPRS	DSN Pressure Correction Type	None	
DSN_II	SHCO	View More Correction Options	No	
DSN_II	UTVD	Use TVD for Gradient Corrections?	No	
DSN_II		Logging Horizontal Water Tank?	No	
SDL_DC	DNOK	Process Density?	Yes	
SDL_DC	DNOK	Process Density EVR?	No	
SDL_DC	AD	Is Hole Air Drilled?	No	
SDL_DC	CB	Use Calibration Blocks?	No	
SDL_DC	SPVT	SDLT Pad Temperature Valid?	Yes	
SDL_DC	MDTP	Weighted Mud Correction Type?	Barite	
SDL_DC	DMA	Formation Density Matrix	2.680	g/cc
SDL_DC	DFL	Formation Density Fluid	1.000	g/cc
SDL_DC	CLOK	Process Caliper Outputs?	Yes	
HRID	HRE	Do HRI Induction Calculation?	Yes	
HRID	DFLE	Do DFL Calculation?	Yes	
HRID	PYRI	Pyrite Switch	Off	
HRID	CSDP	Casing Depth	1496.0	ft
HRID	HDSP	Spike Reduction Filter Type	DELTA	
HRID	HRTC	Temperature Correction Source	None	
HRID	MMRS	Hrimap Minimum Resistivity	0.20	
HRID	MXRS	Hrimap Maximum Resistivity	200.00	

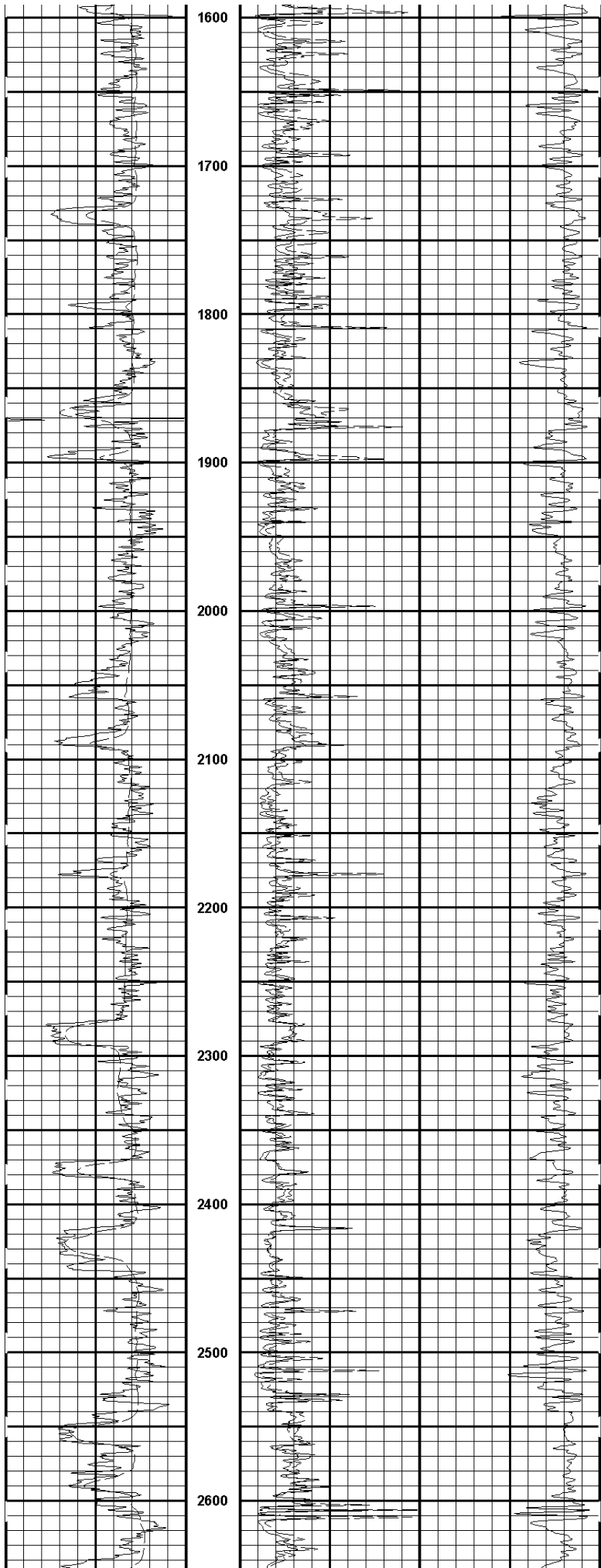
BOTTOM

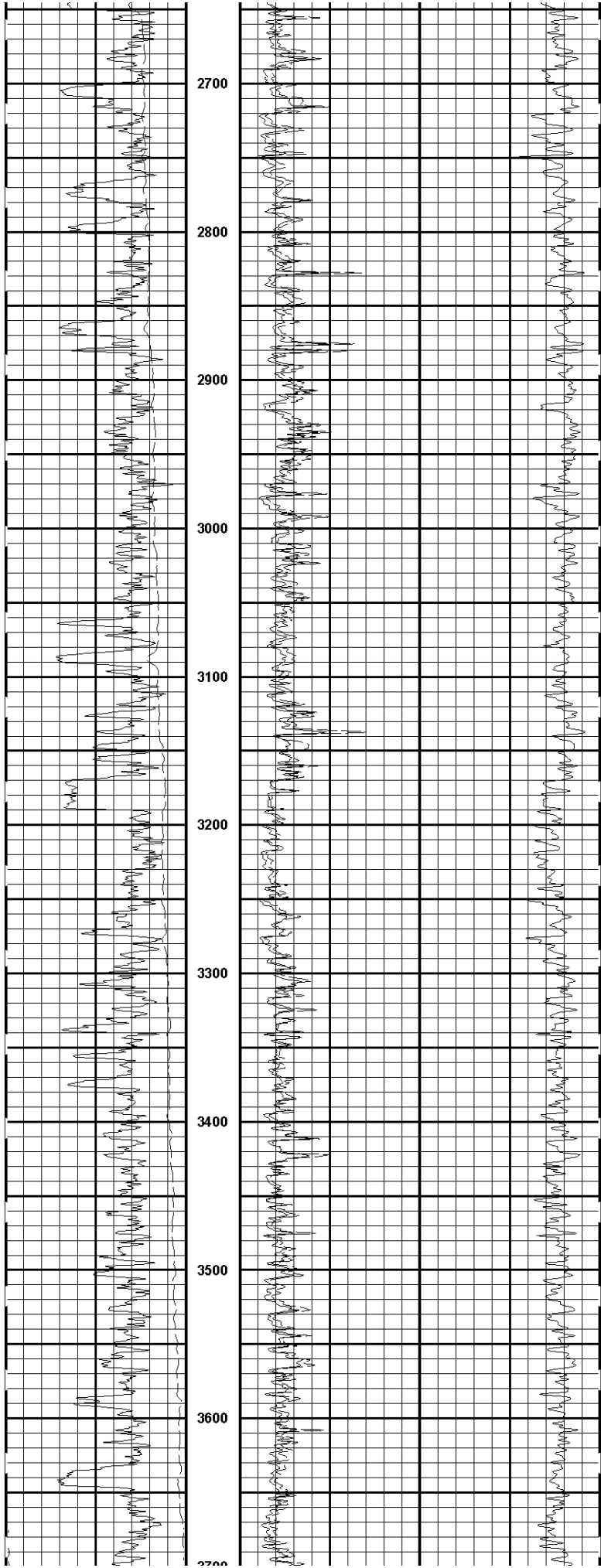
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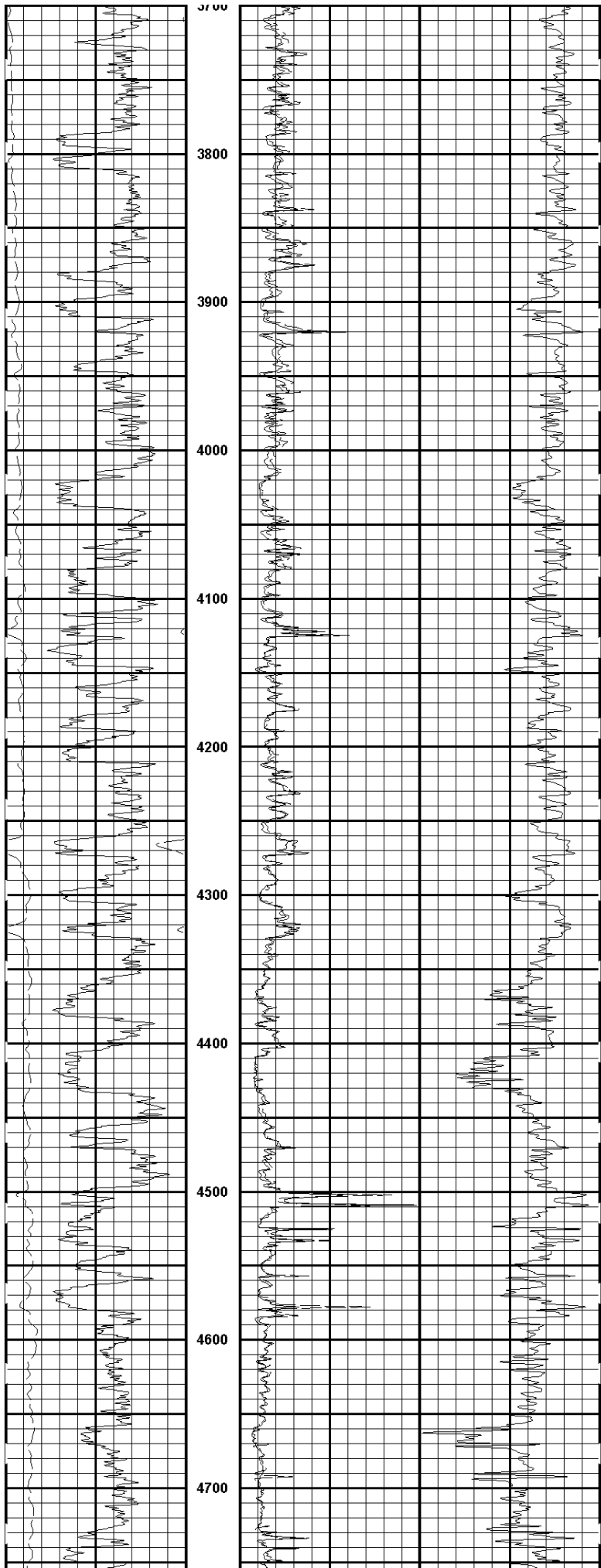
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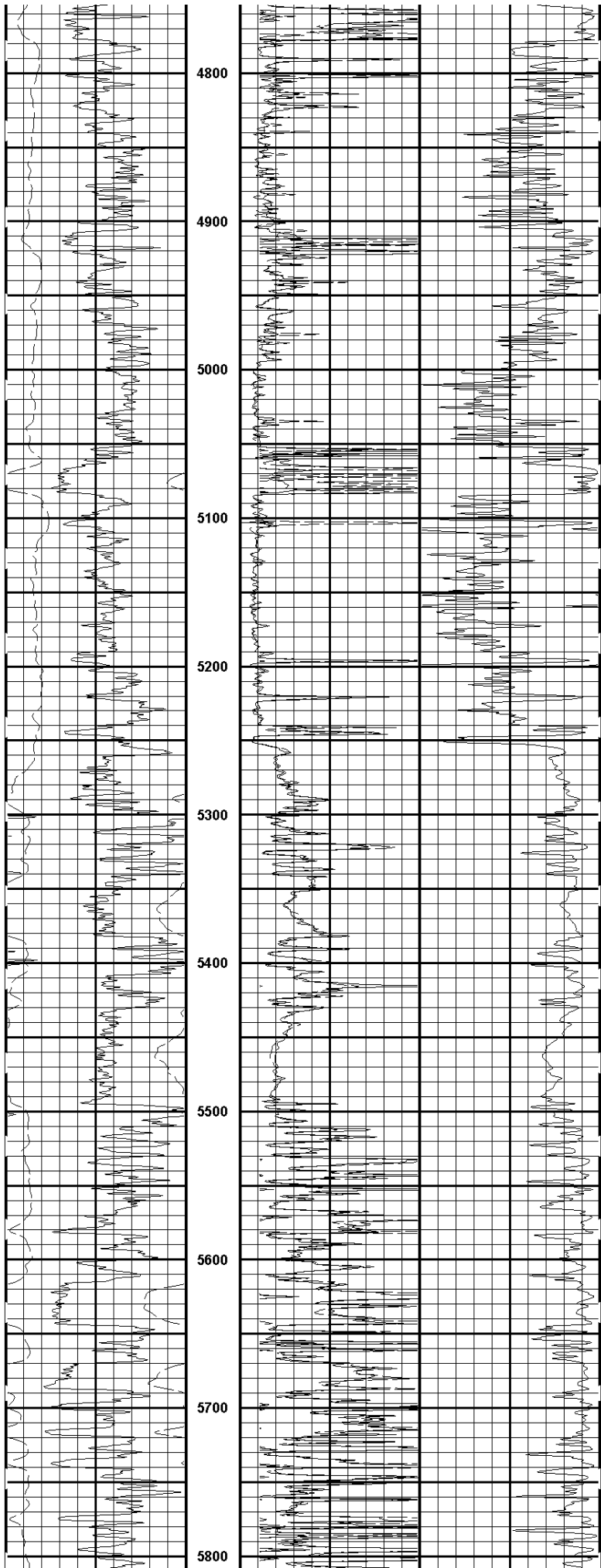
**MAIN PASS 1" = 100'**

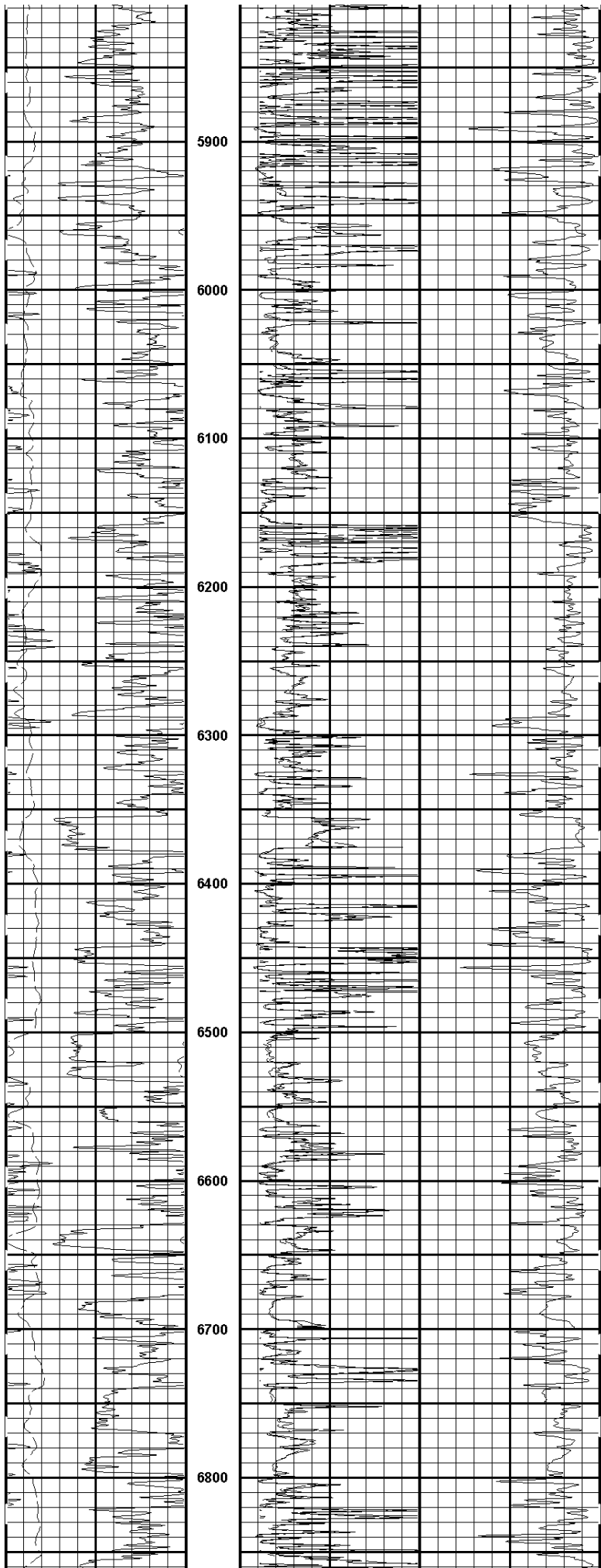




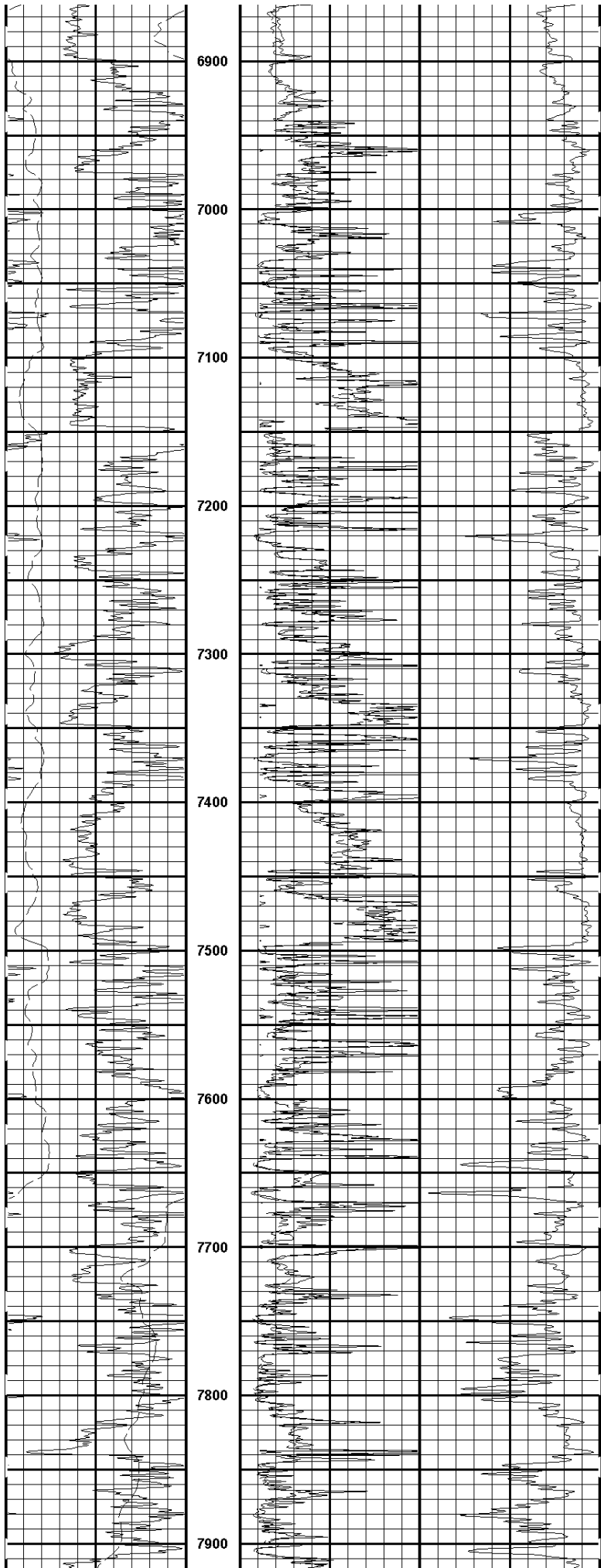


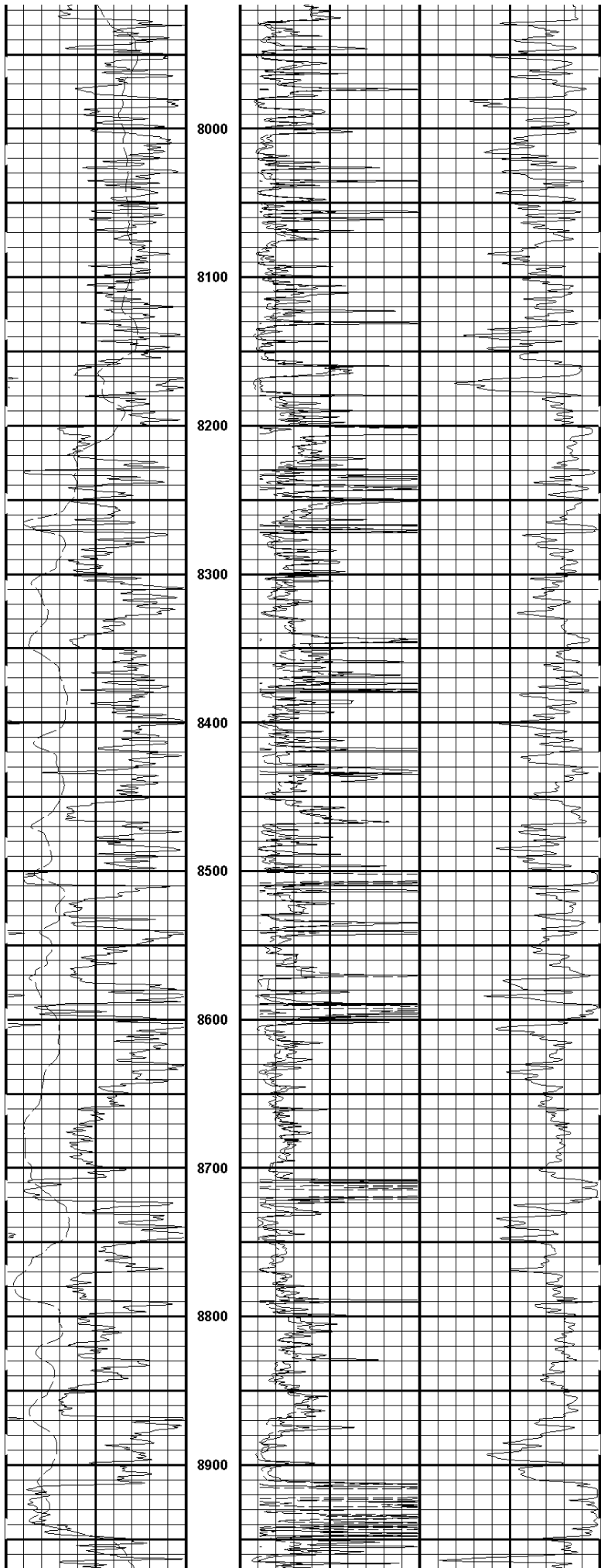


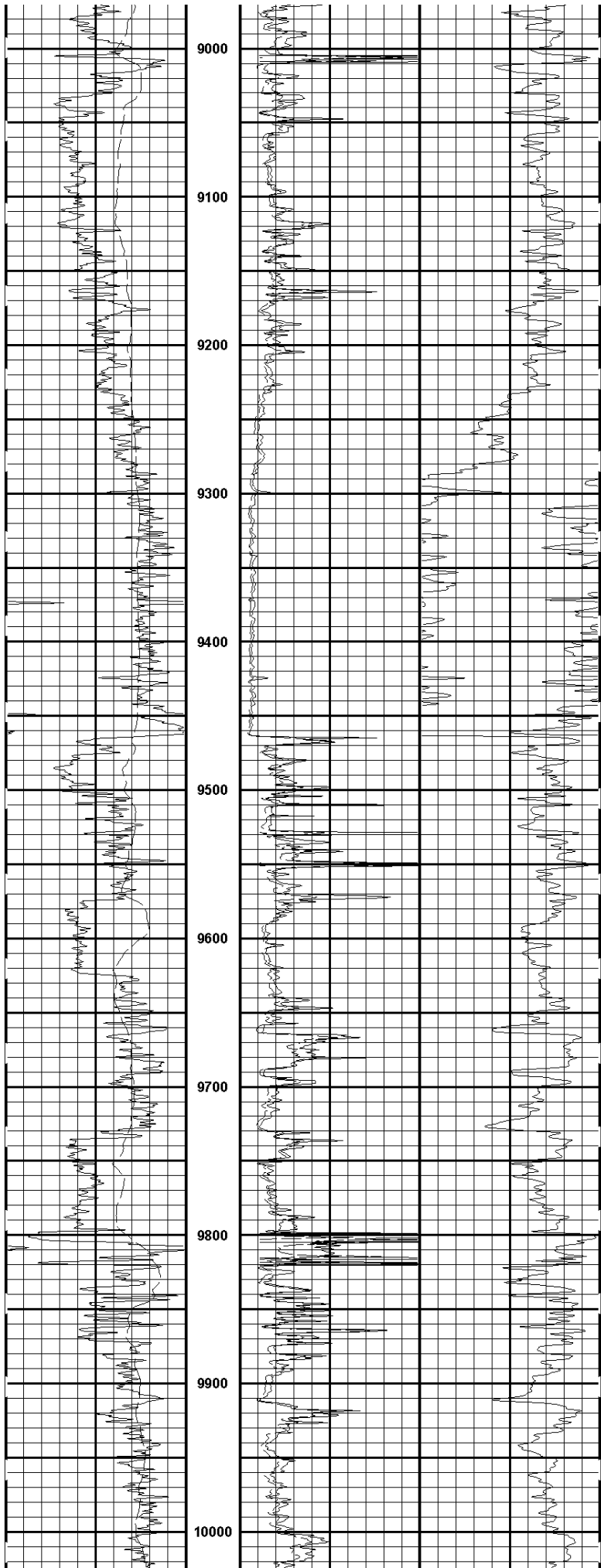


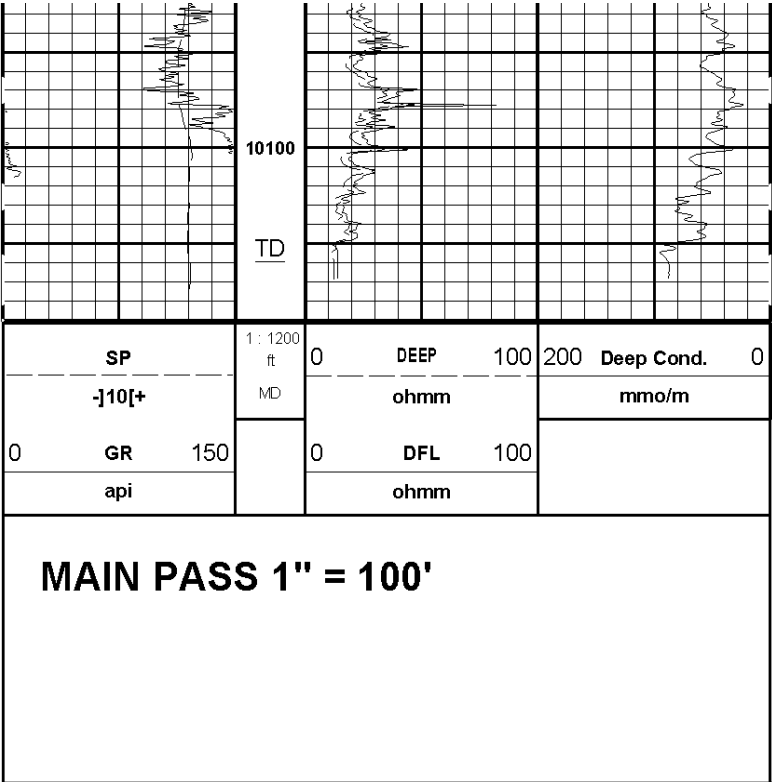








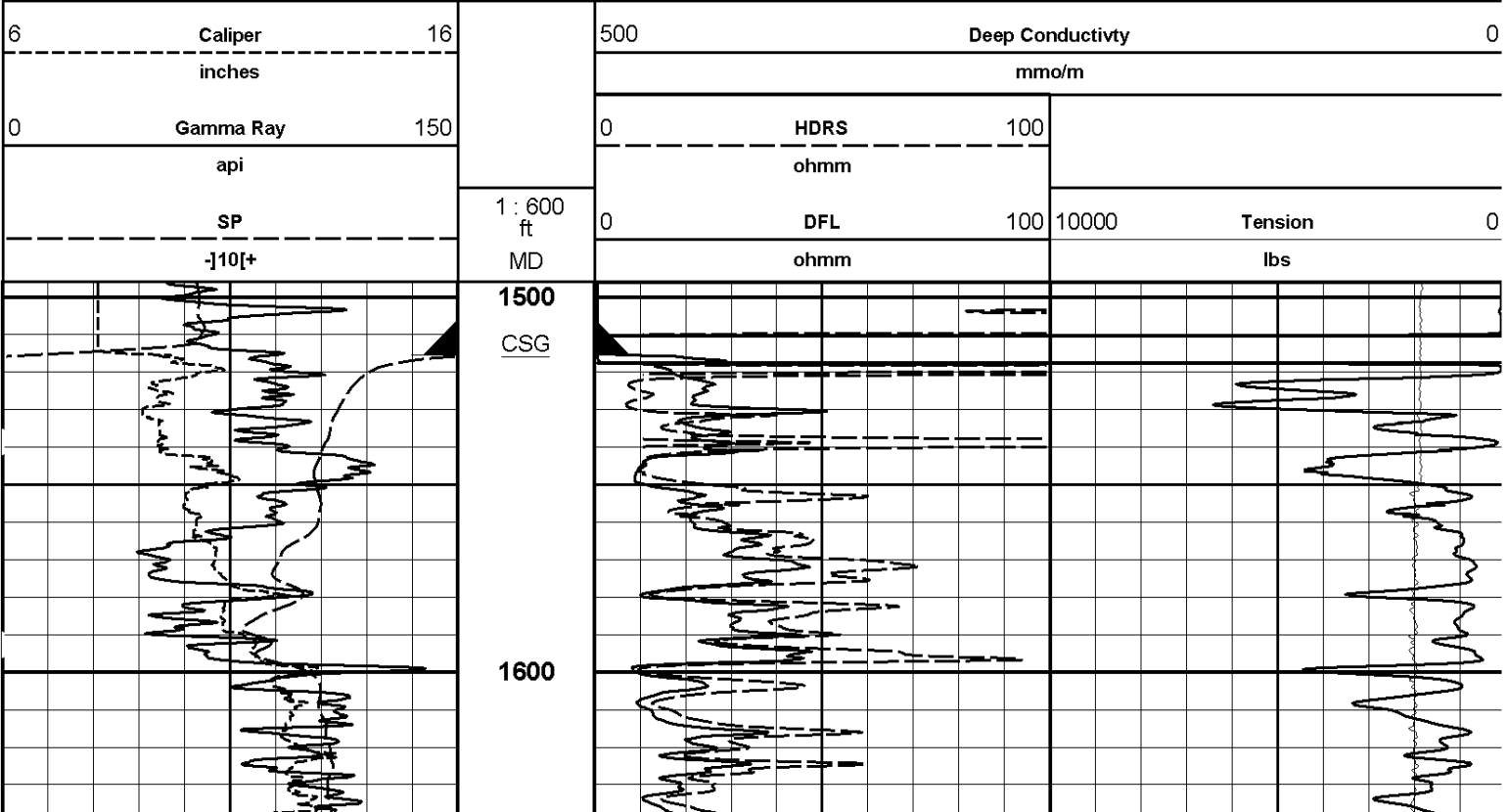


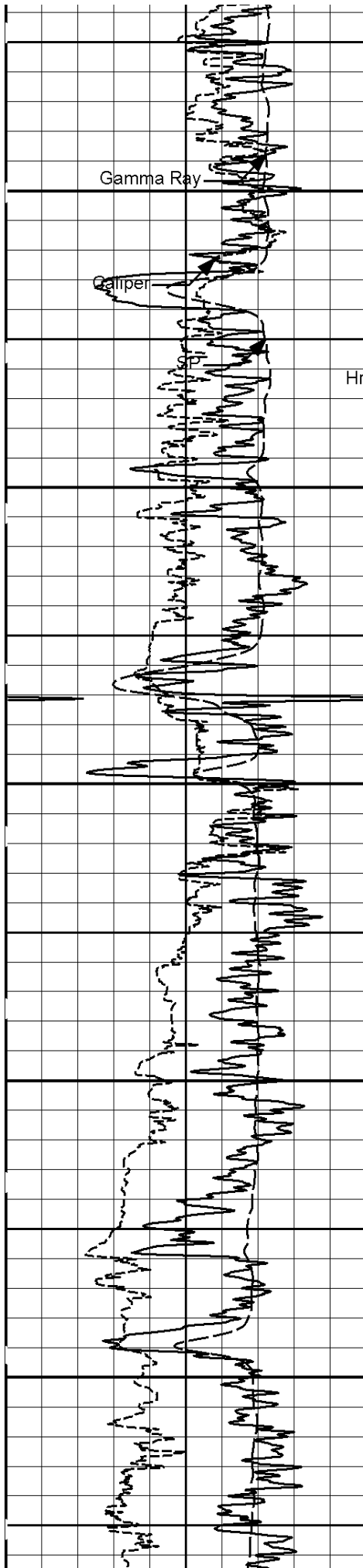


HALLIBURTON

Plot Time: 25-Aug-08 08:36:46  
Plot Range: 1496 ft to 10190 ft  
Data: LAR\_FED\_29\_15C\Well Based\MAIN PASS - CASING\  
Plot File: \\-LOCAL-LAR\_FED\_29\_15C\0001 TRIPLE\HRI\HRI\_2IN

MAIN PASS 2\"/>





1700

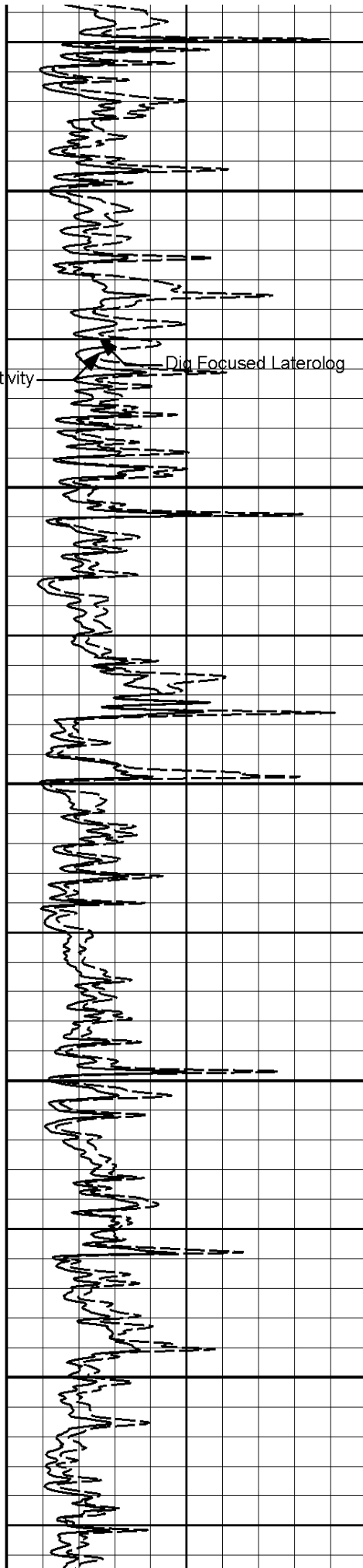
Hi Deep Resistivity

1800

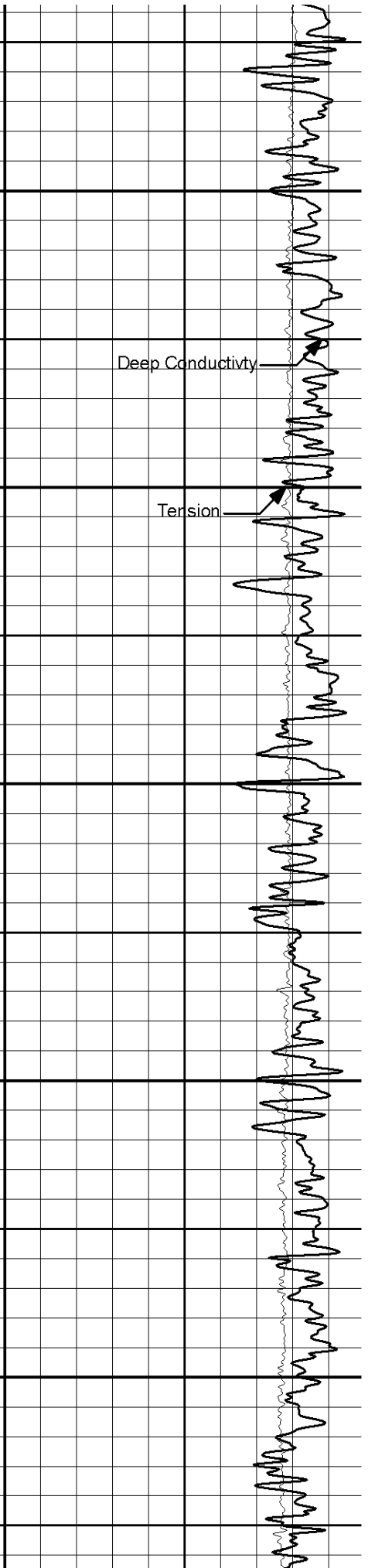
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2000

2100

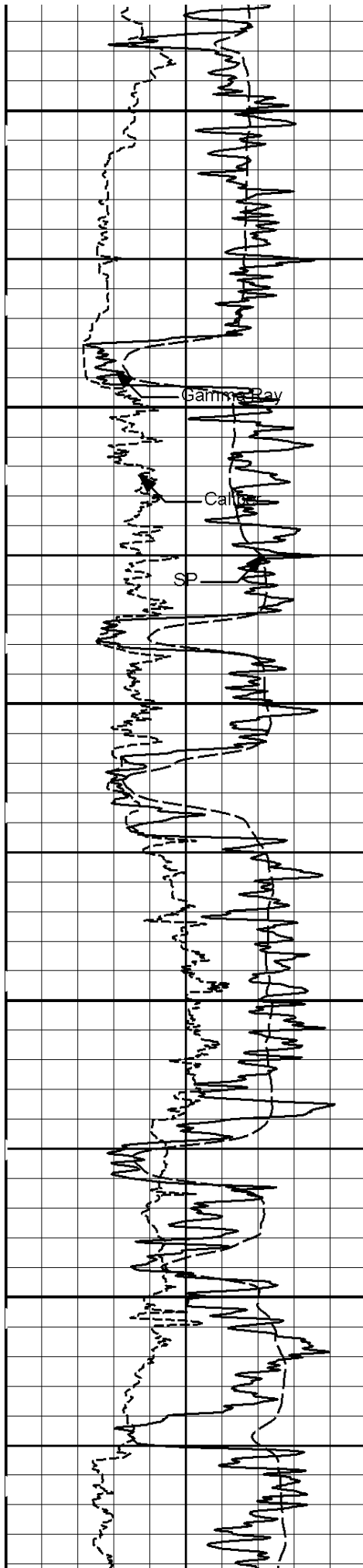


Dip Focused Laterolog



Deep Conductivity

Tension



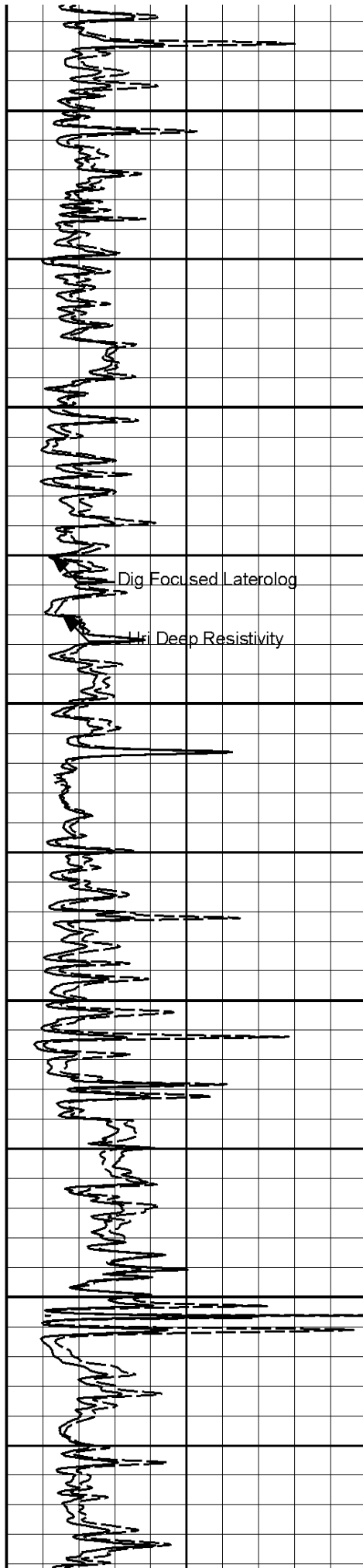
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2300

2400

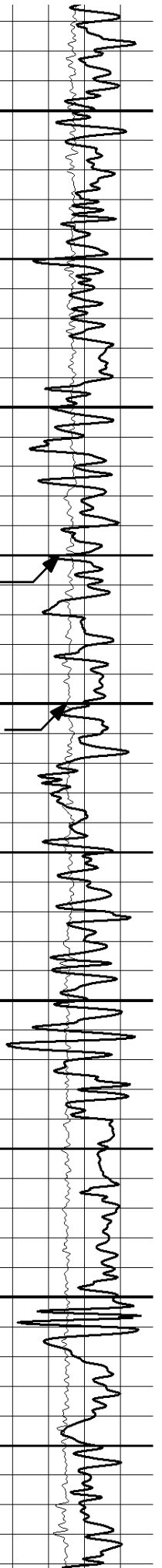
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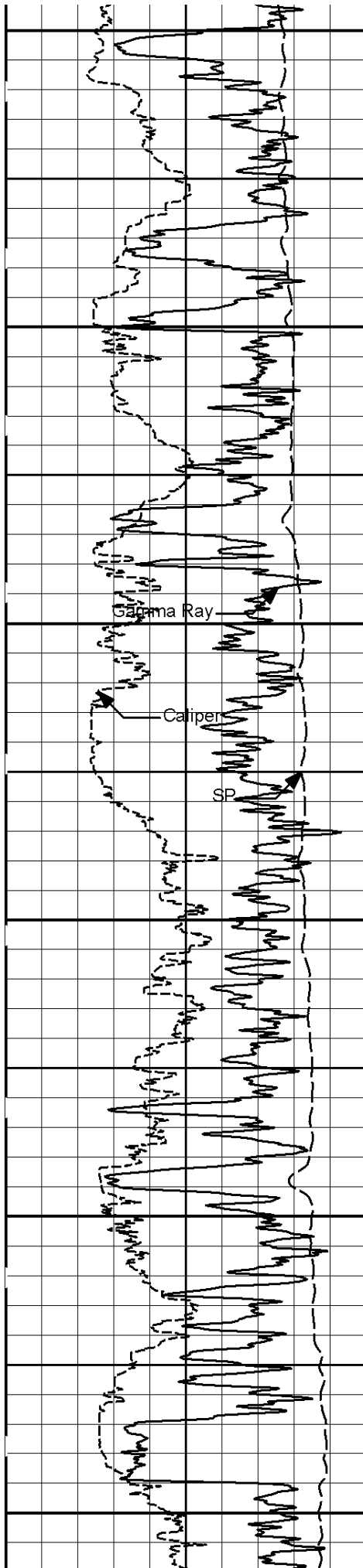
2600



Deep Conductivity

Tension





2700

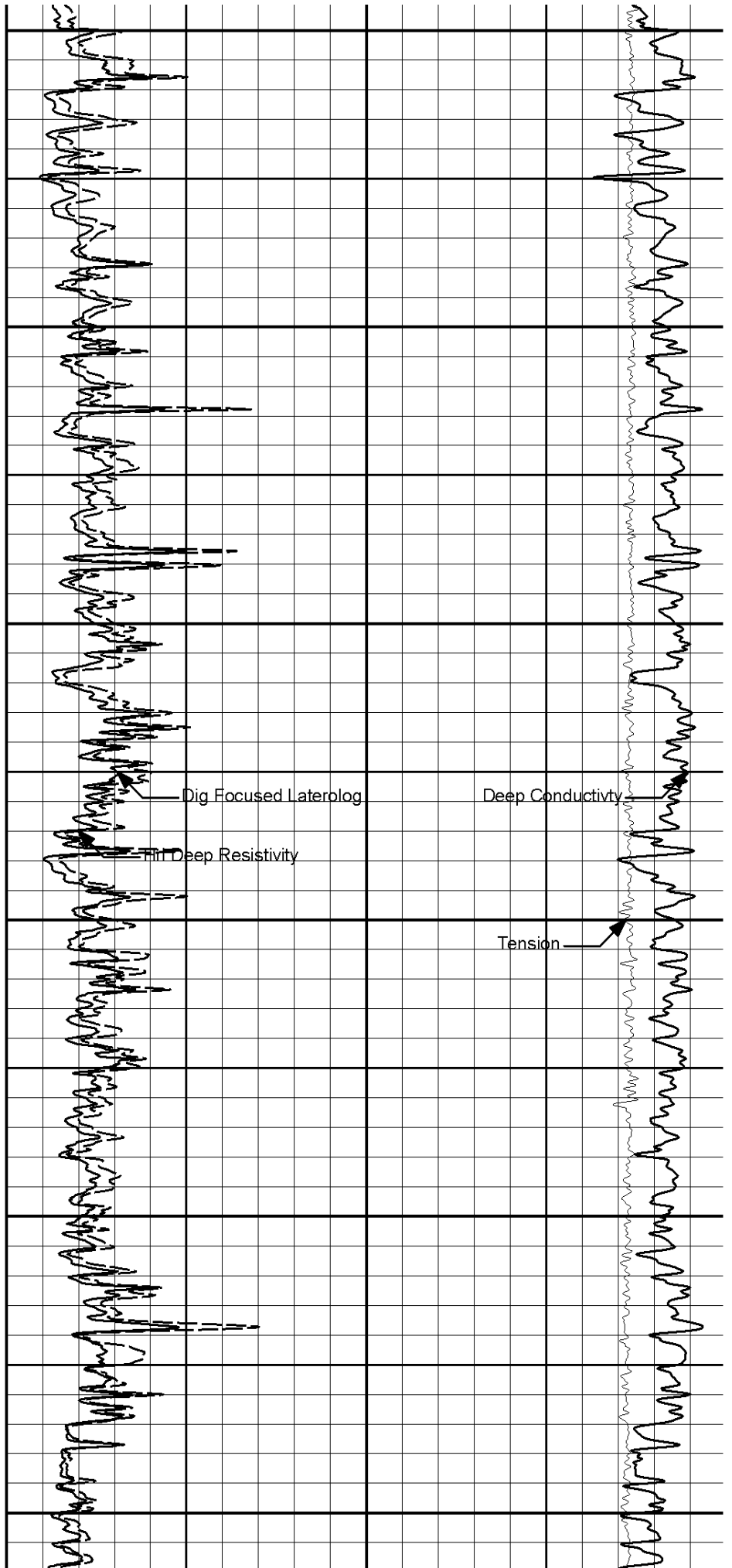
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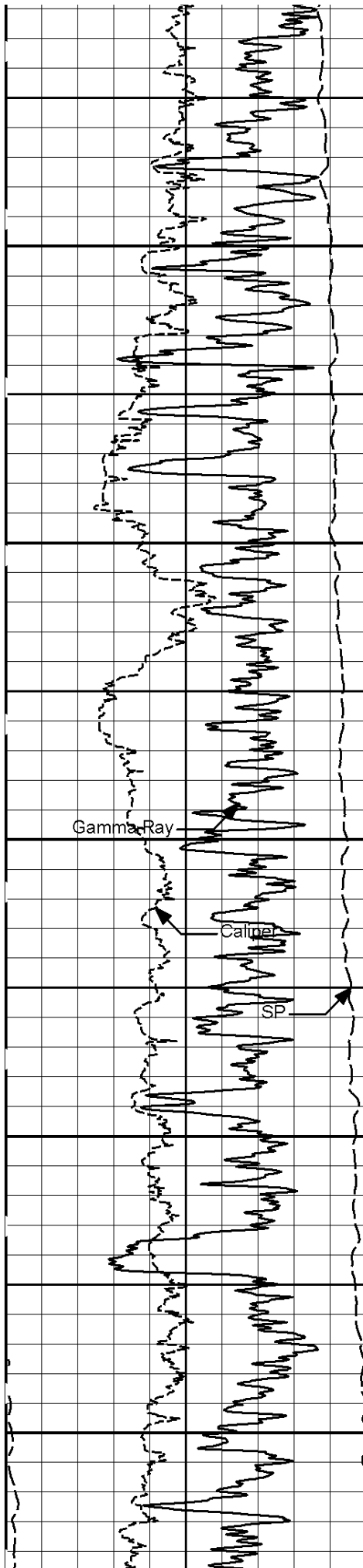
2900

3000

3100

3200





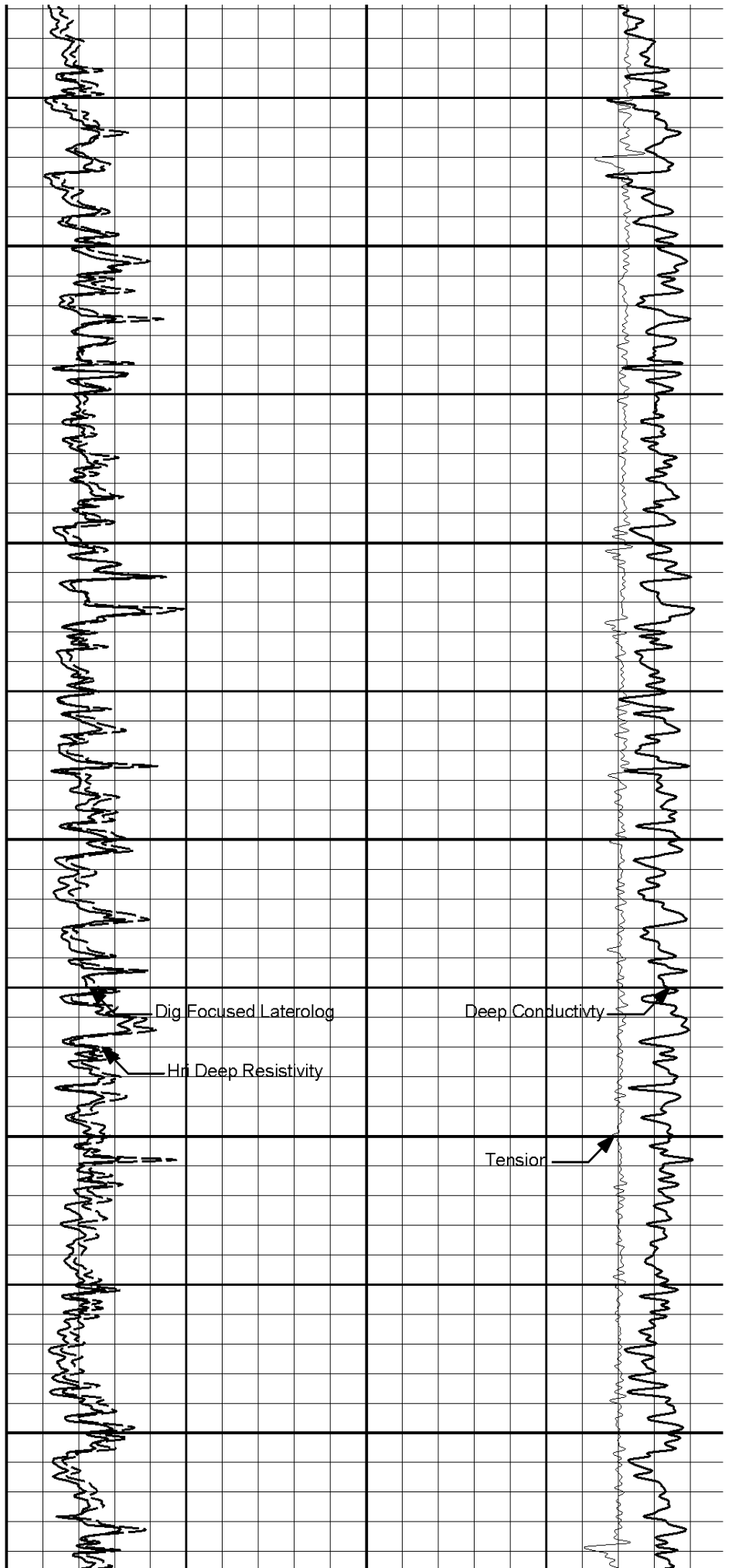
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3400

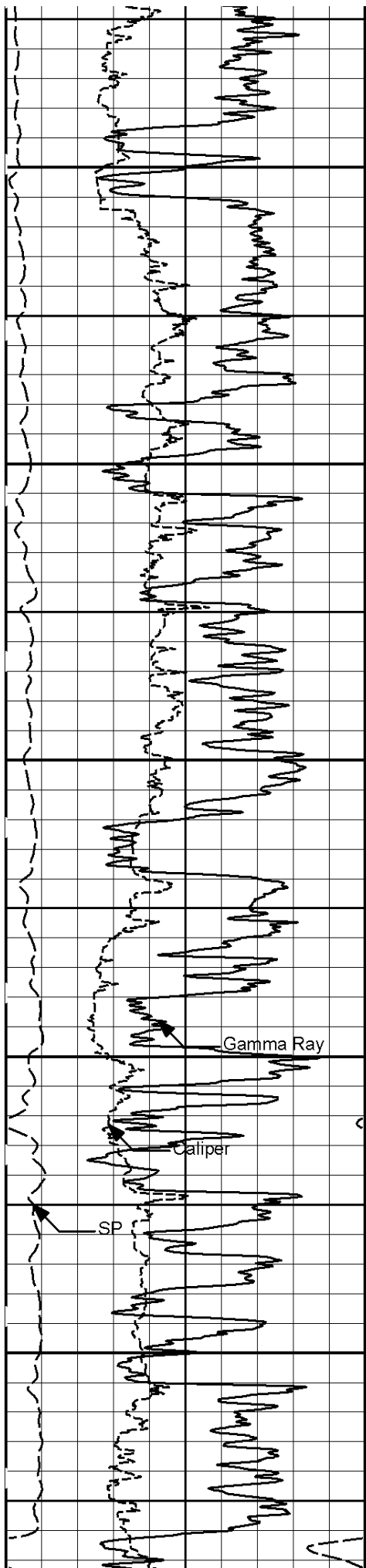
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3600

3700







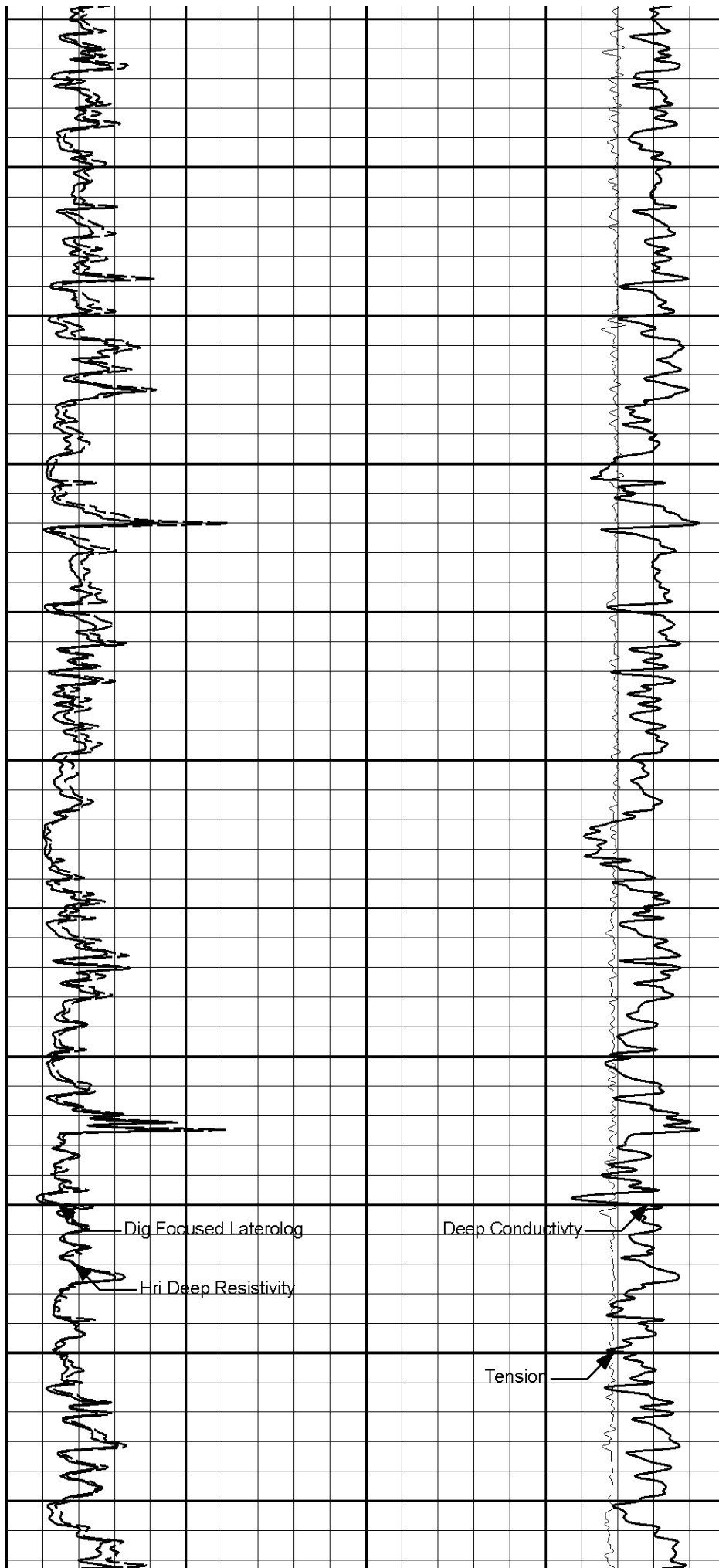
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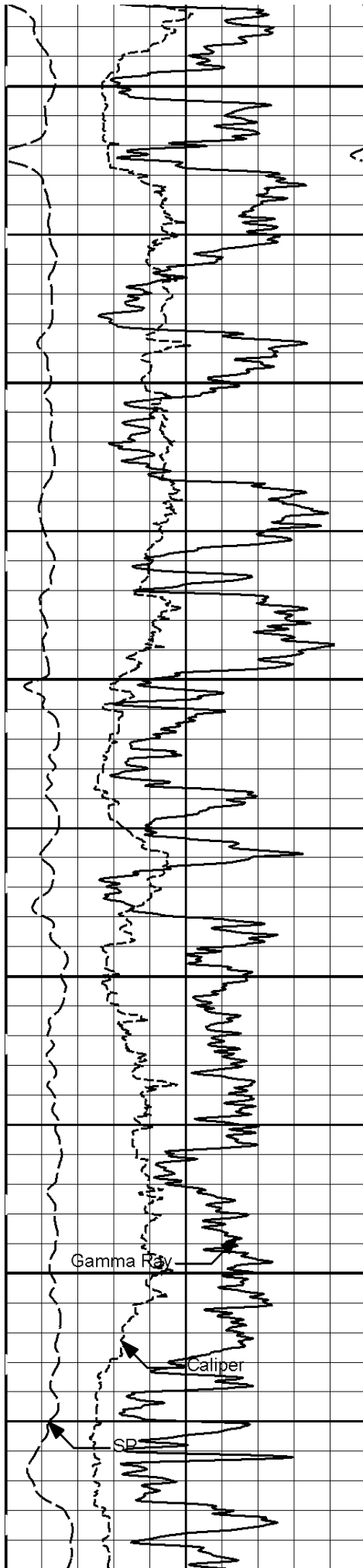
3900

4000

4100

4200





4300

4400

4500

4600

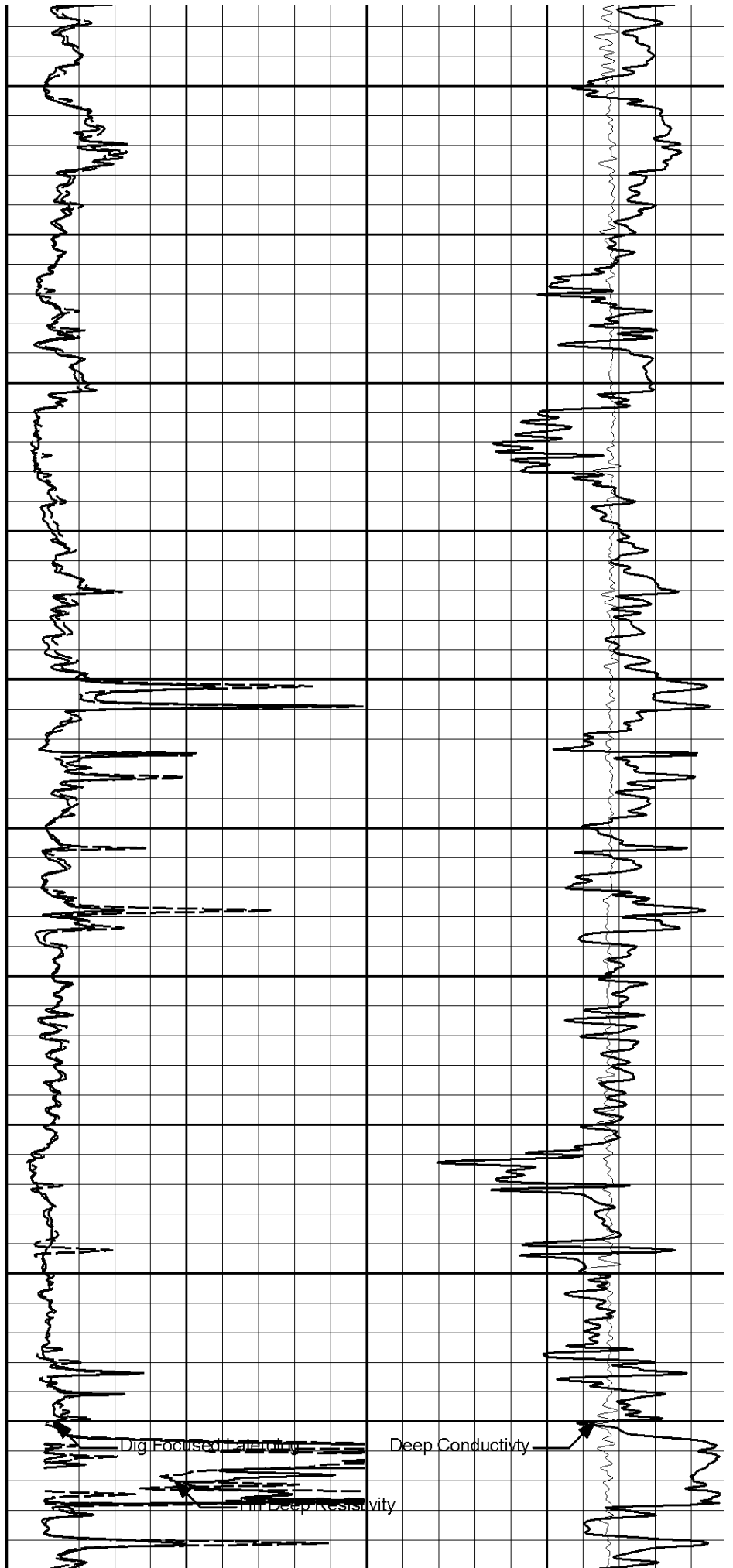
4700

4800

Gamma Ray

Caliper

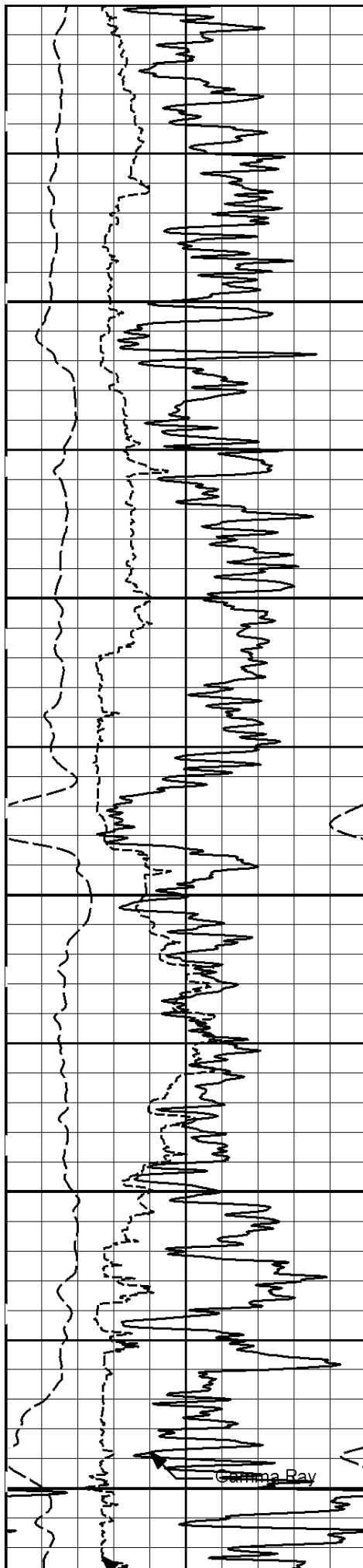
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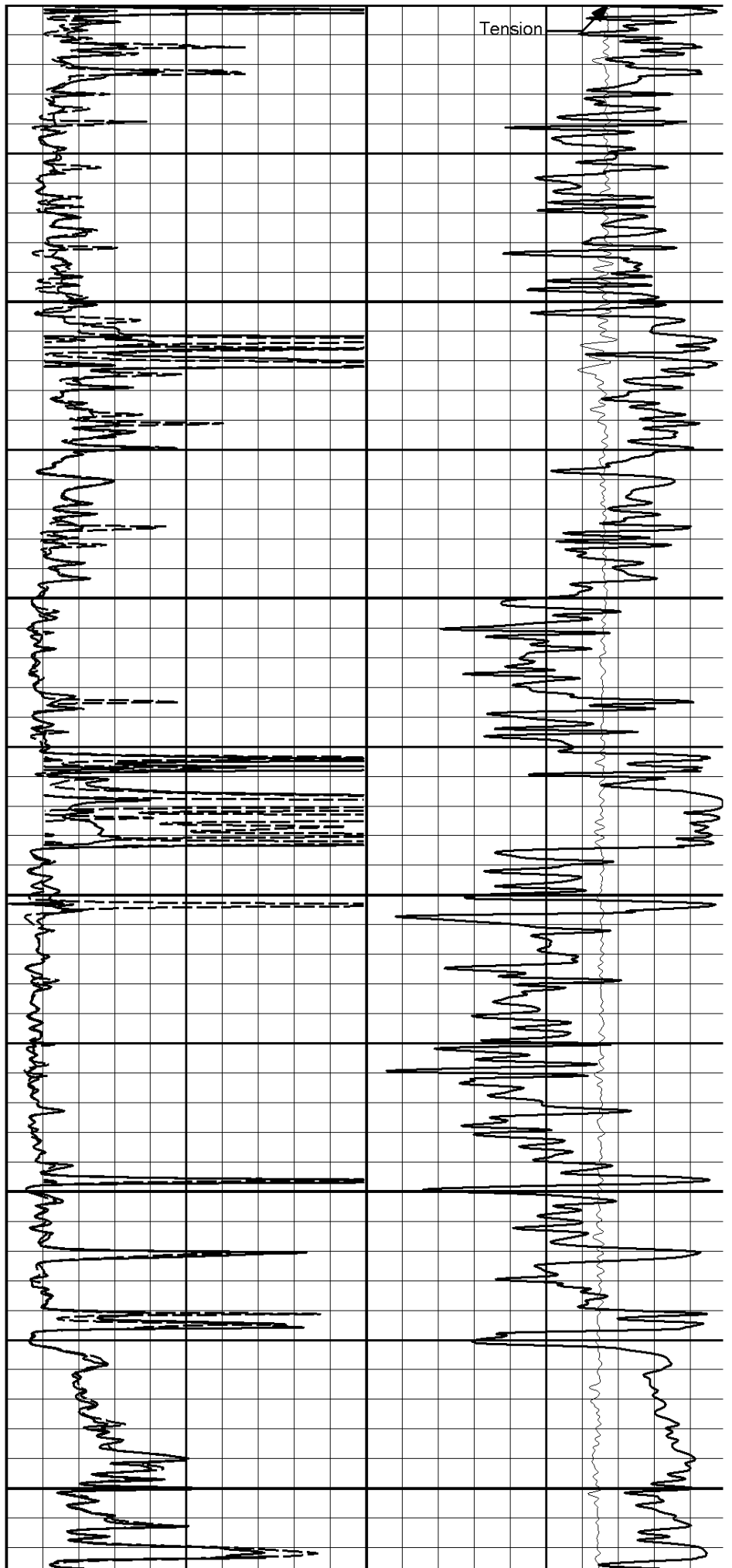
Dig Focused Imaging

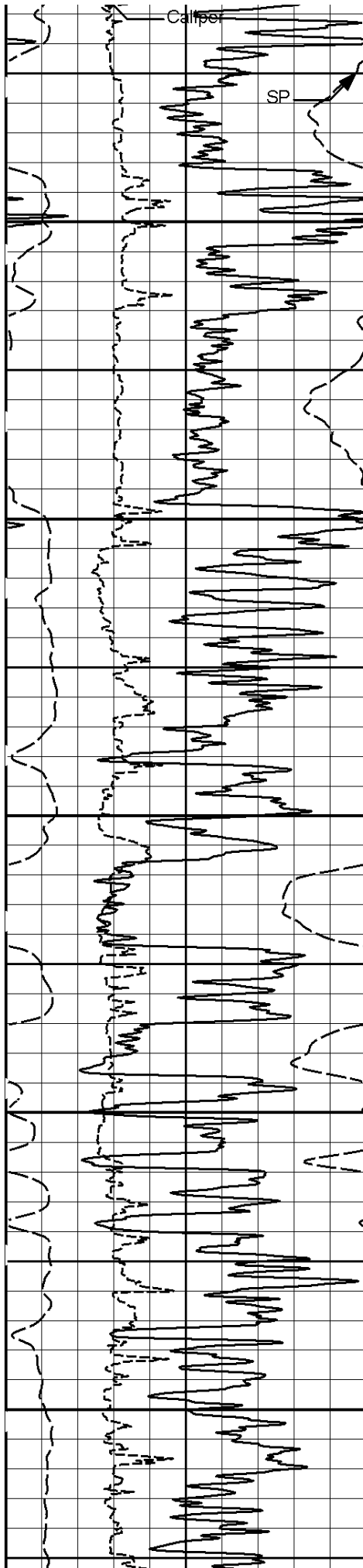
Deep Conductivity

1m Deep Resistivity



4800  
4900  
5000  
5100  
5200  
5300





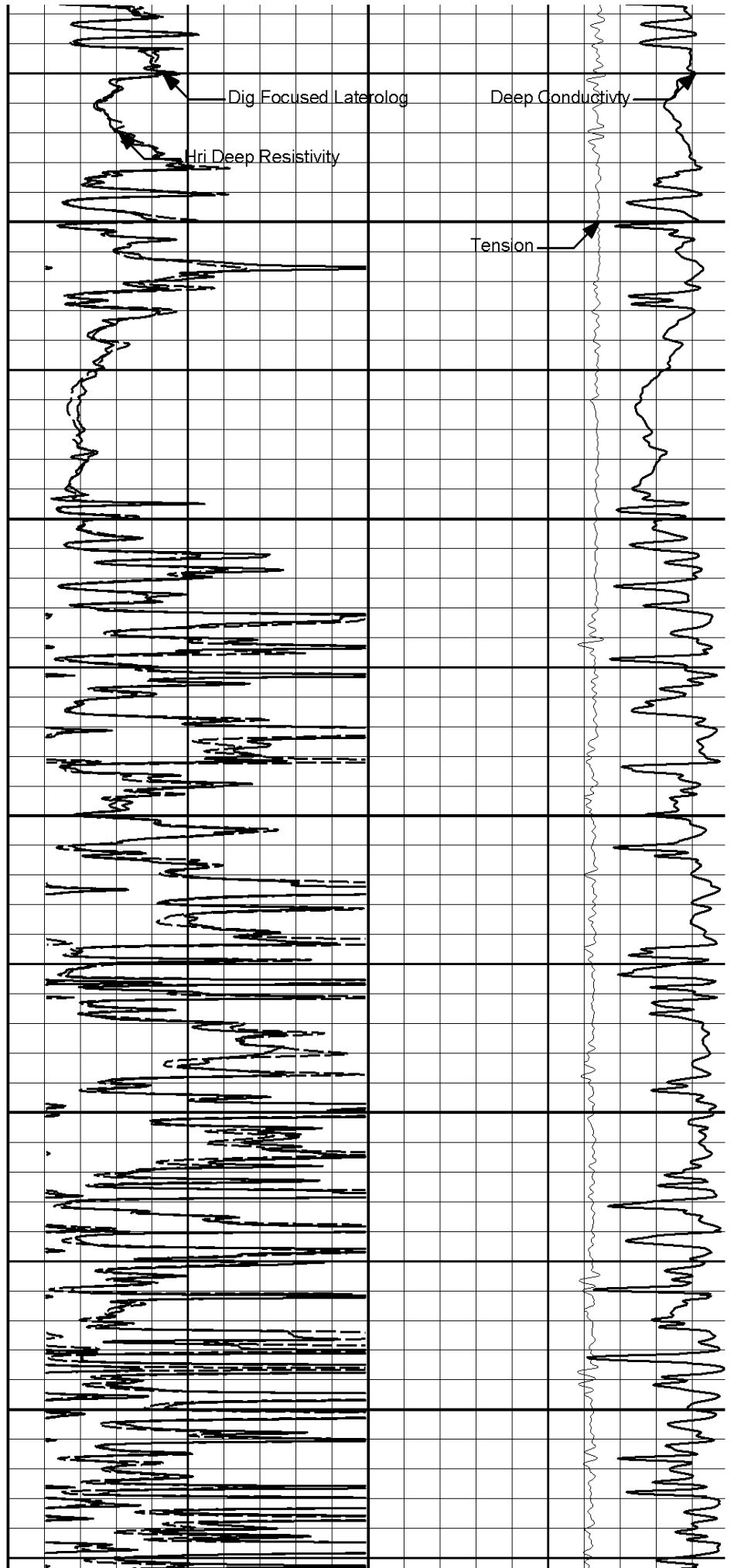
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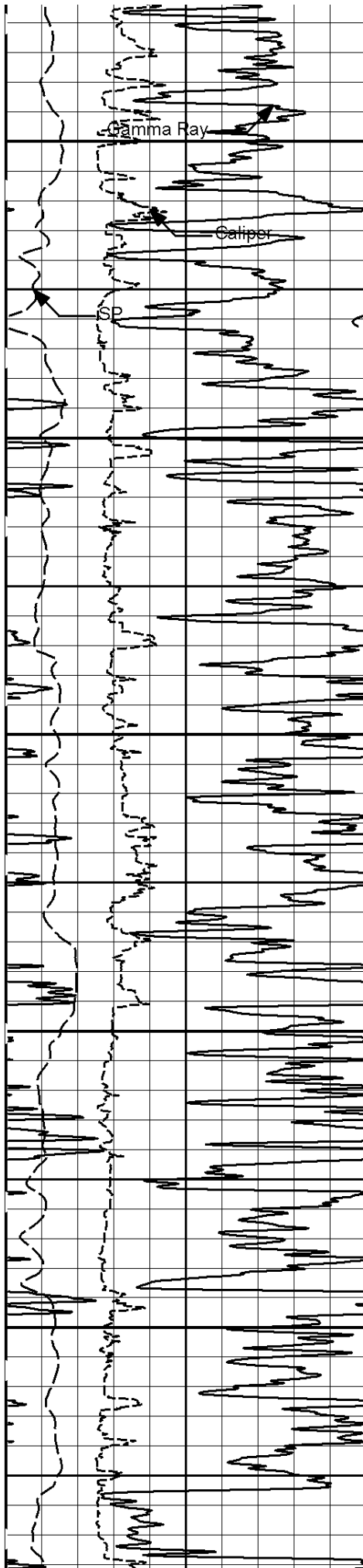
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5600

5700

5800





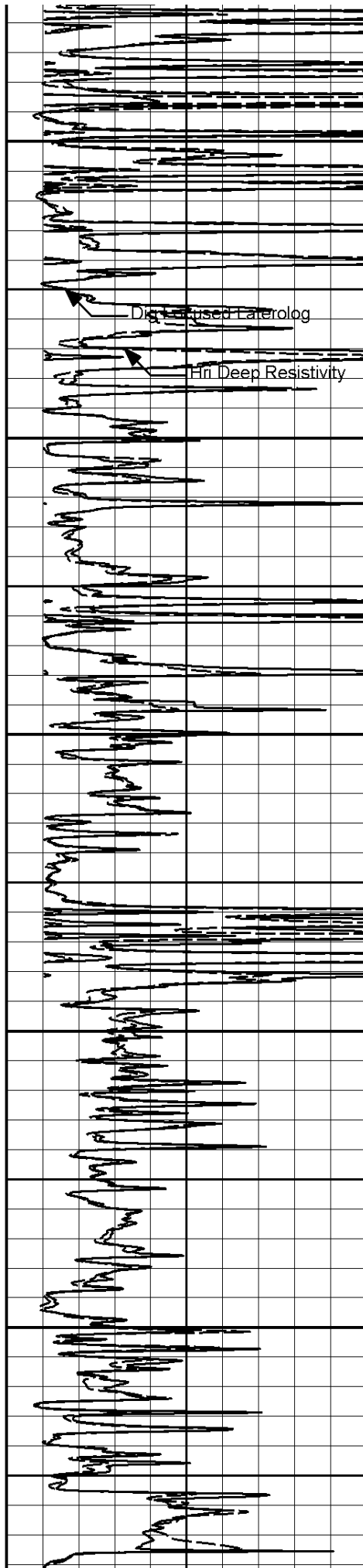
5900

6000

6100

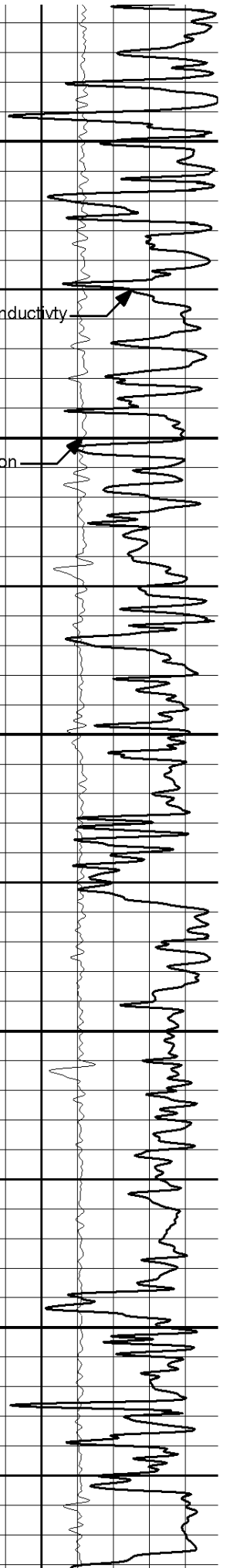
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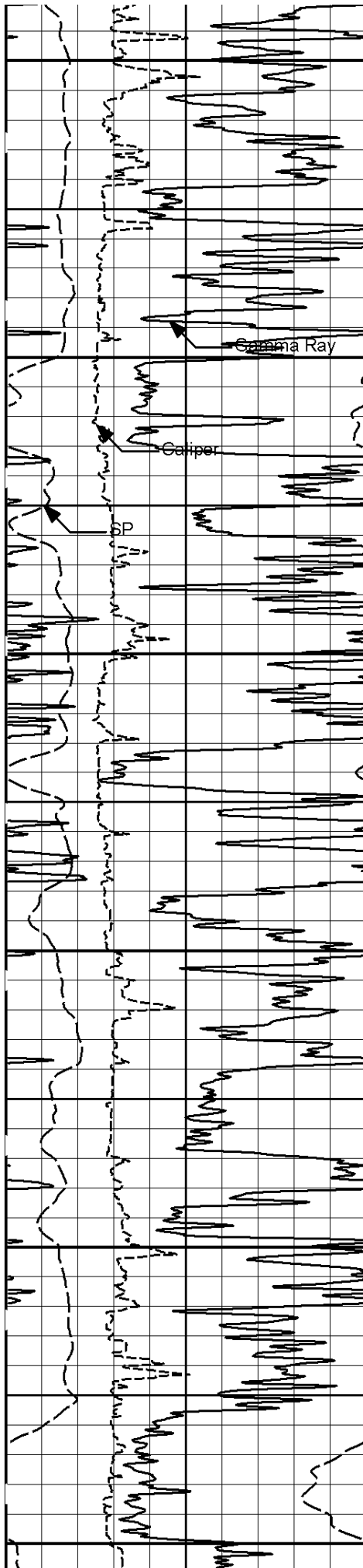
6300



Deep Conductivity

Tension





6400

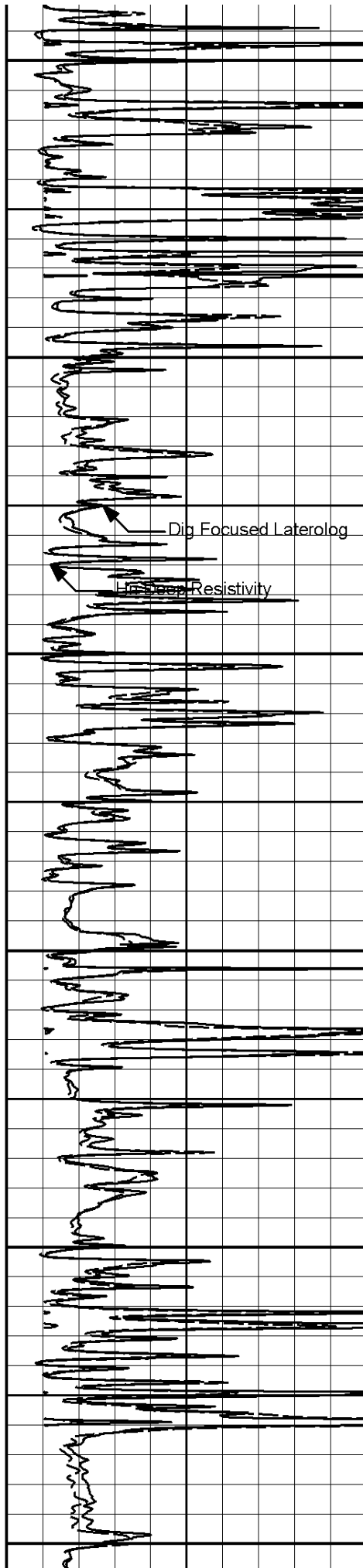
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6600

6700

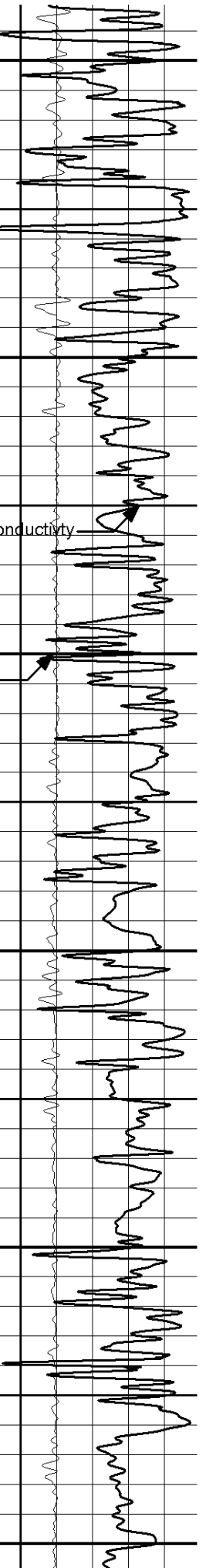
6800

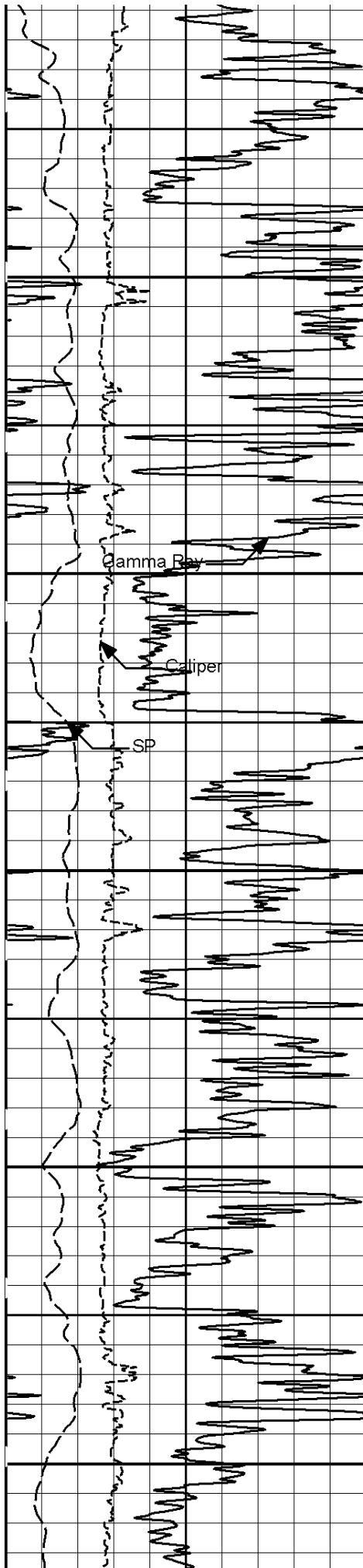
6900



Deep Conductivity

Tension





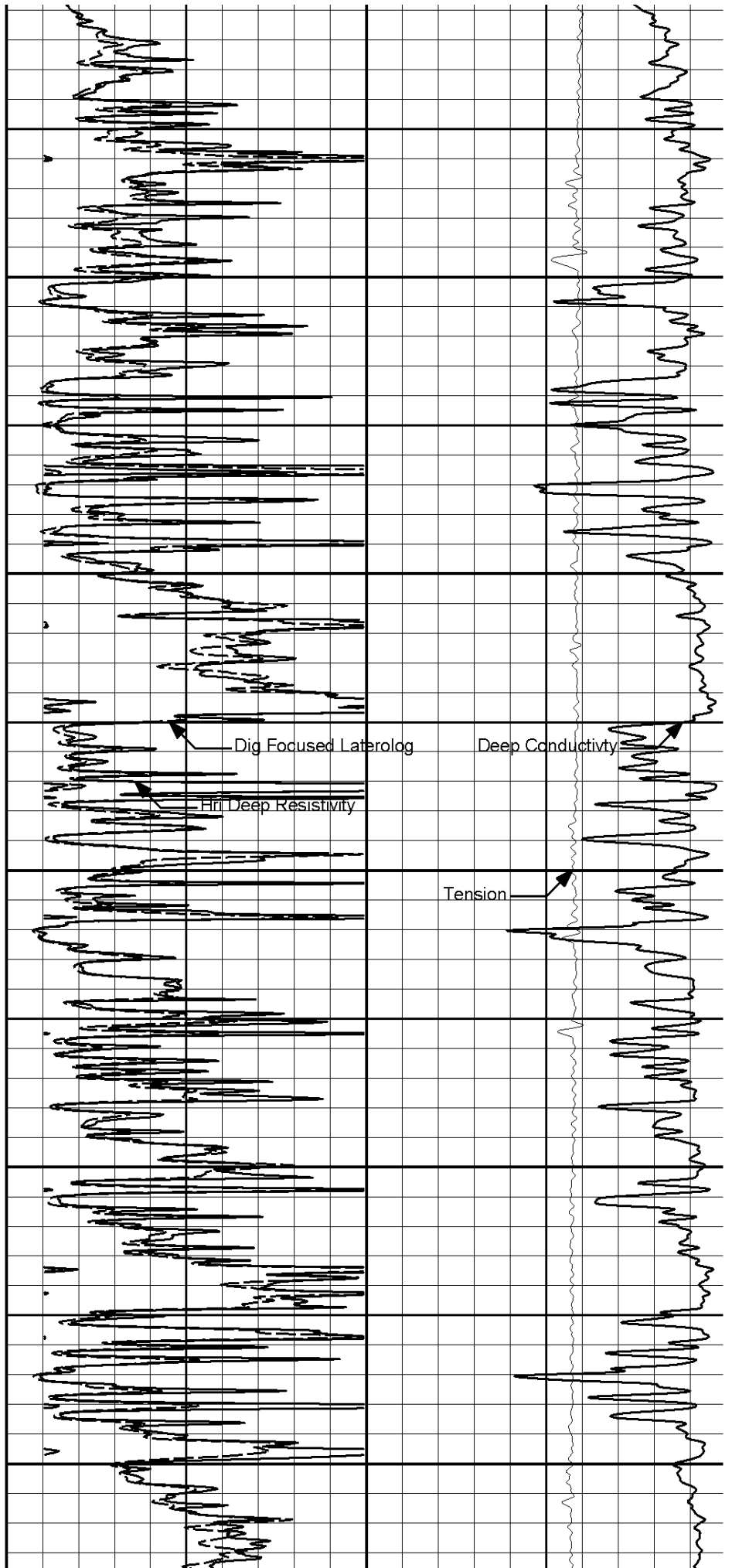
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7100

7200

7300

7400

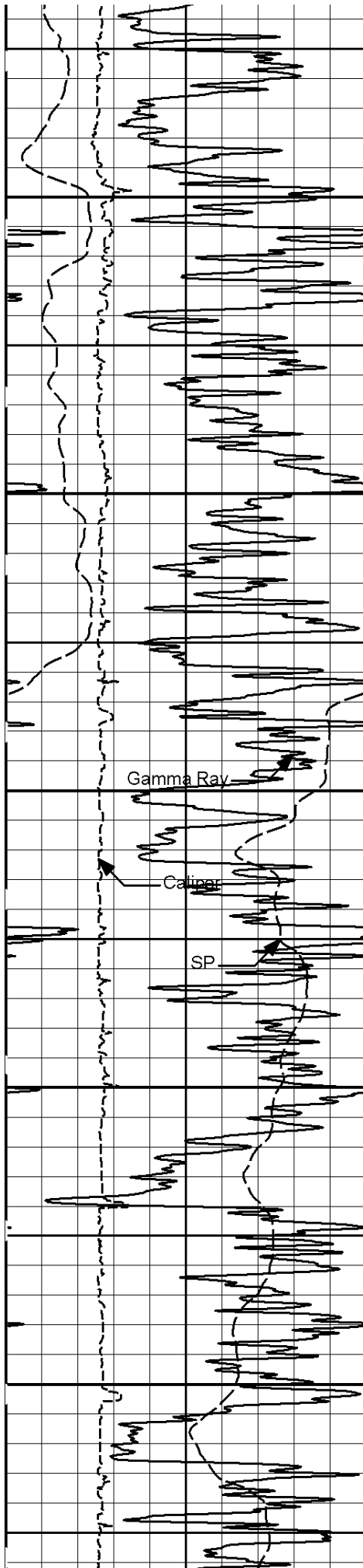


Dig Focused Laterolog

Fm Deep Resistivity

Deep Conductivity

Tension



7500

7600

7700

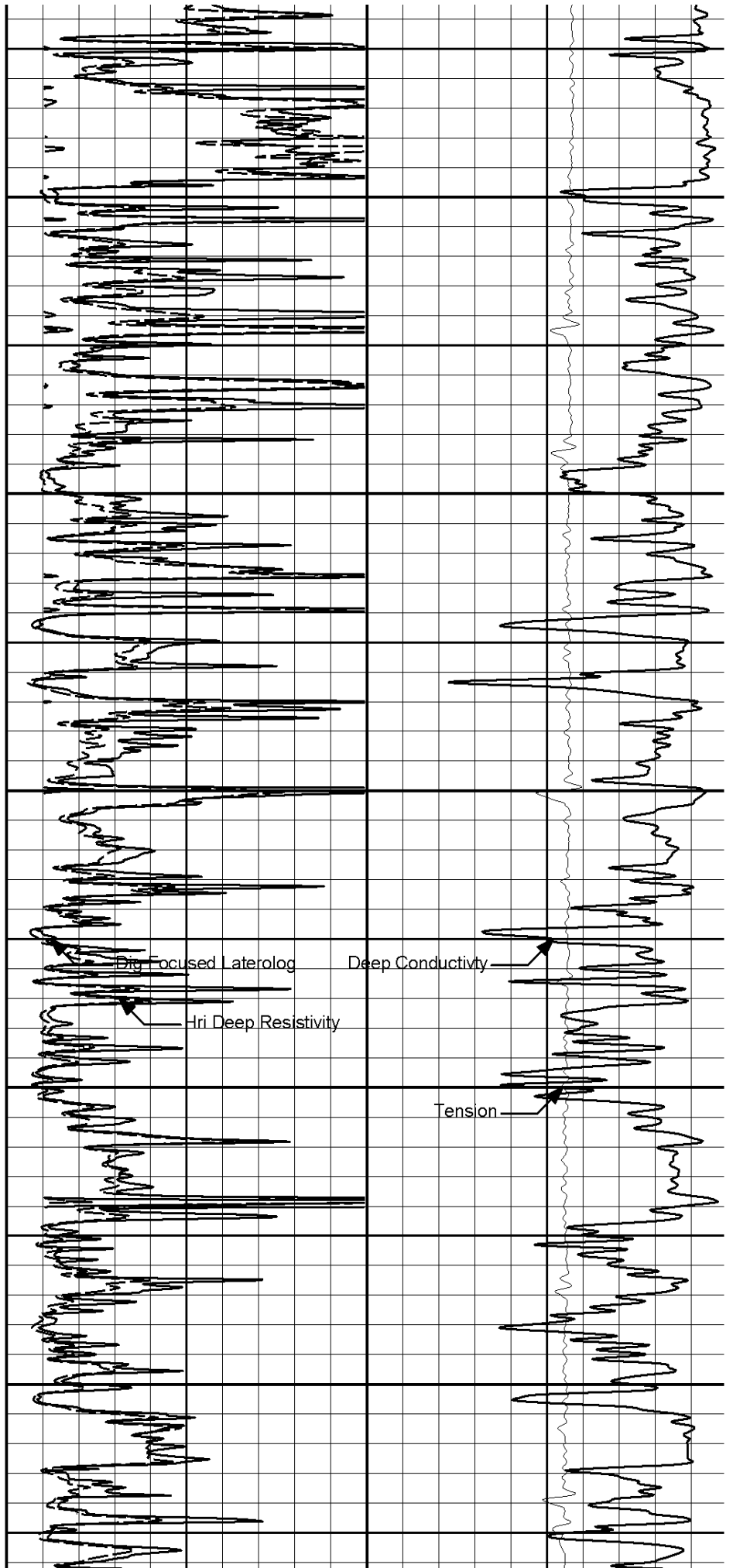
7800

7900

Gamma Ray

Caliper

SP



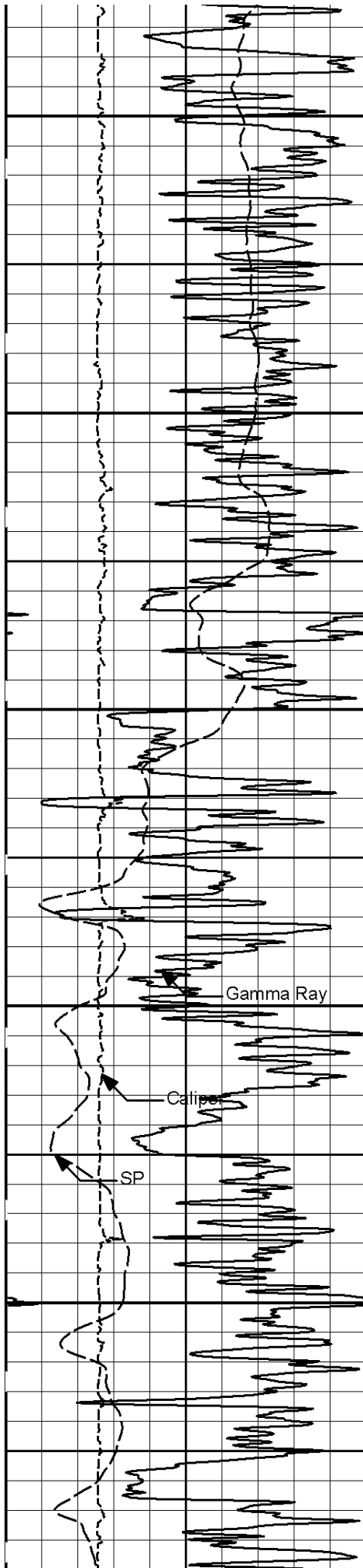
Dig Focused Laterolog

Deep Resistivity

Deep Conductivity

Tension





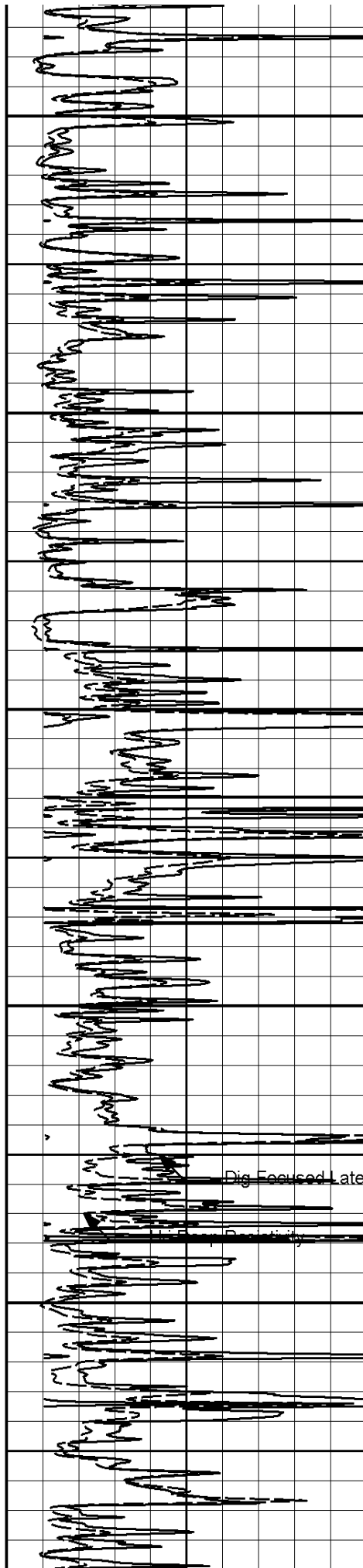
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8100

8200

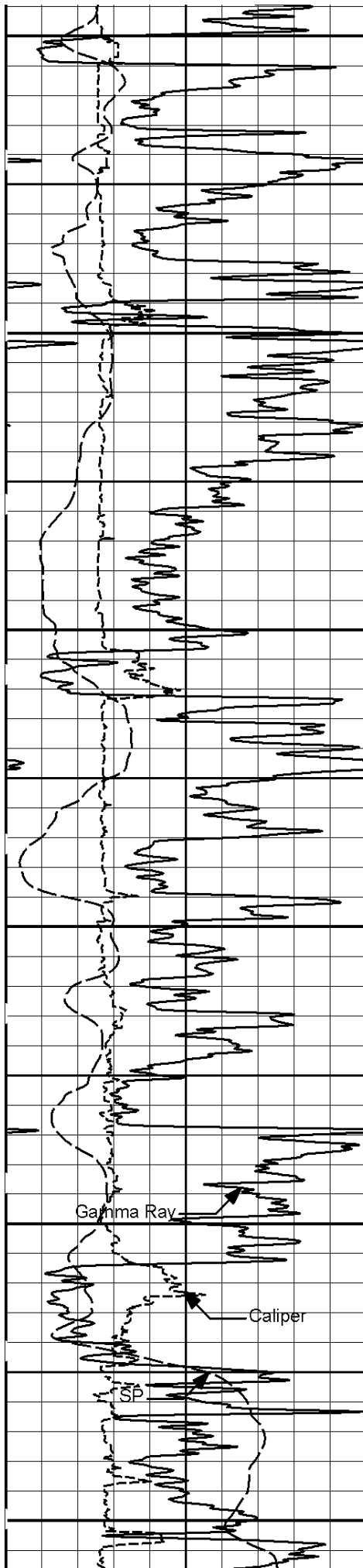
8300

8400



Deep Conductivity

Tension



8500

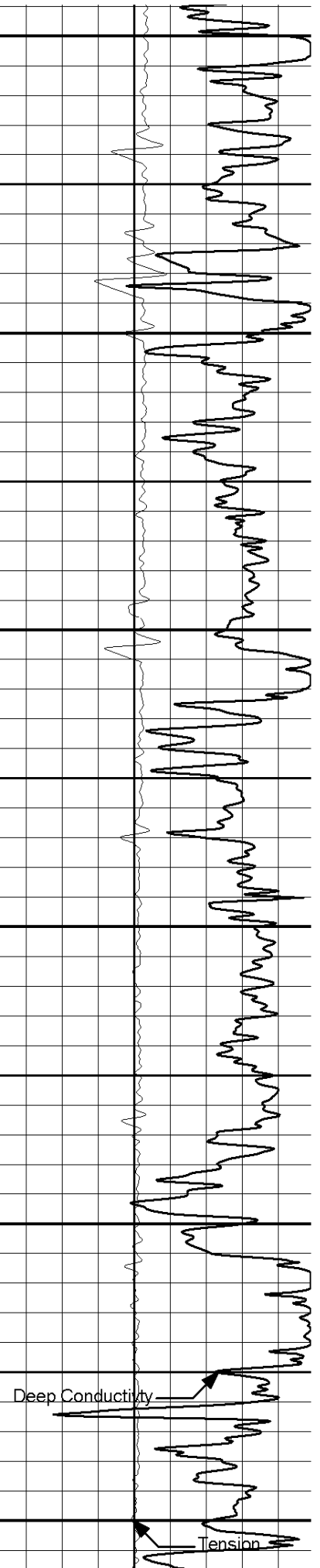
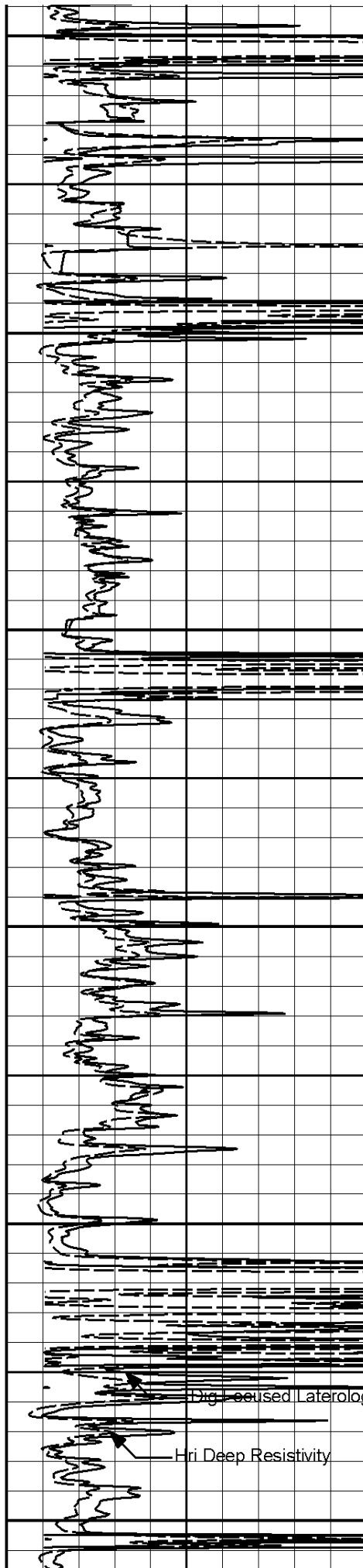
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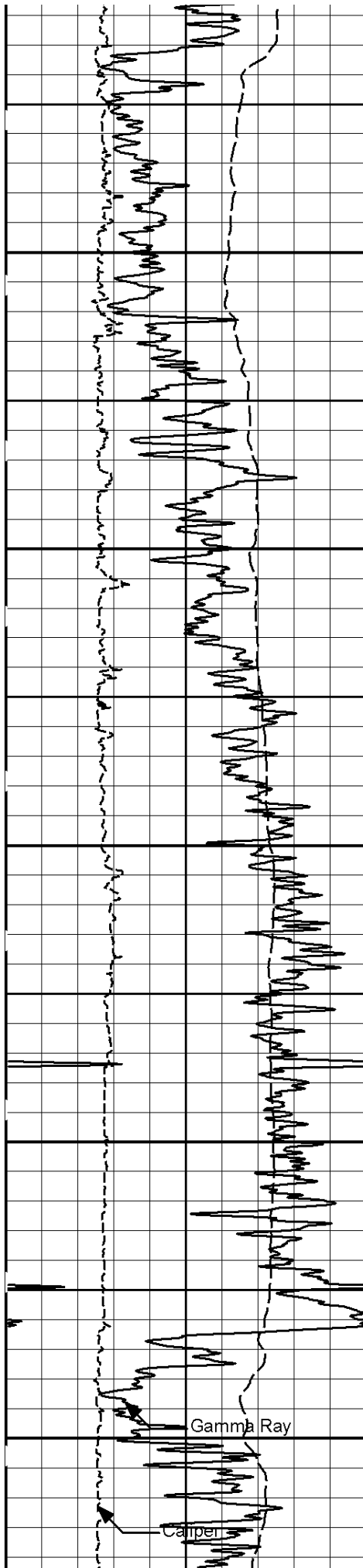
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8800

8900

9000





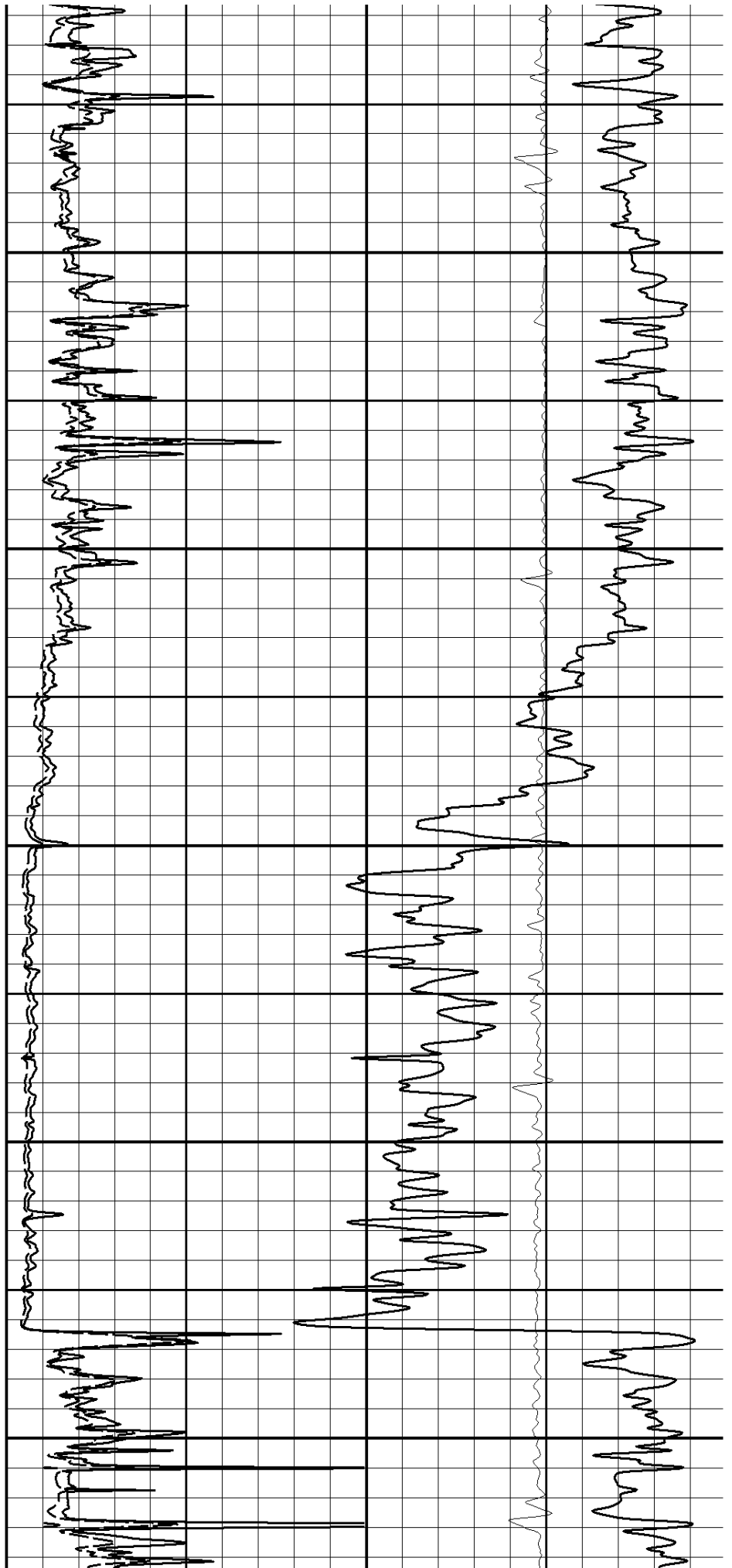
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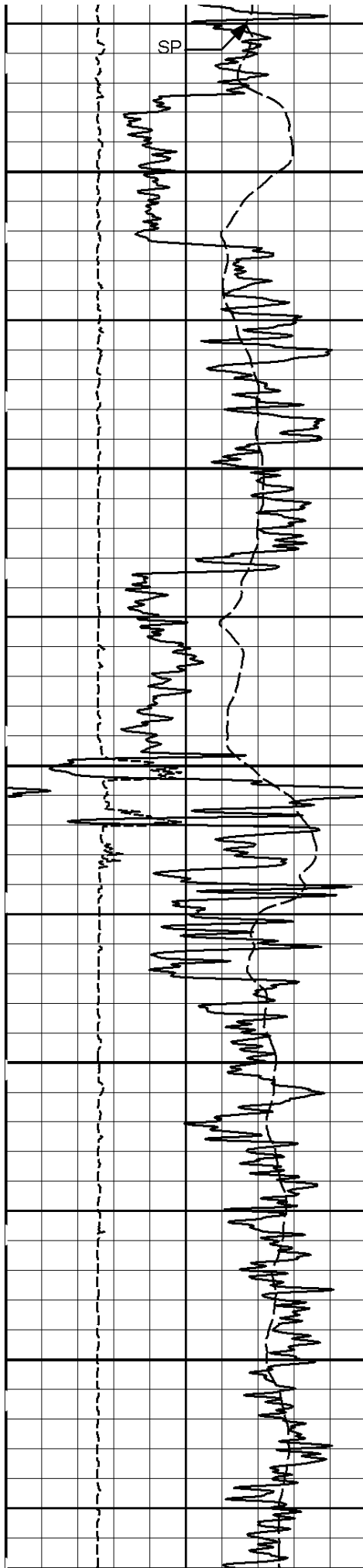
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9300

9400

9500





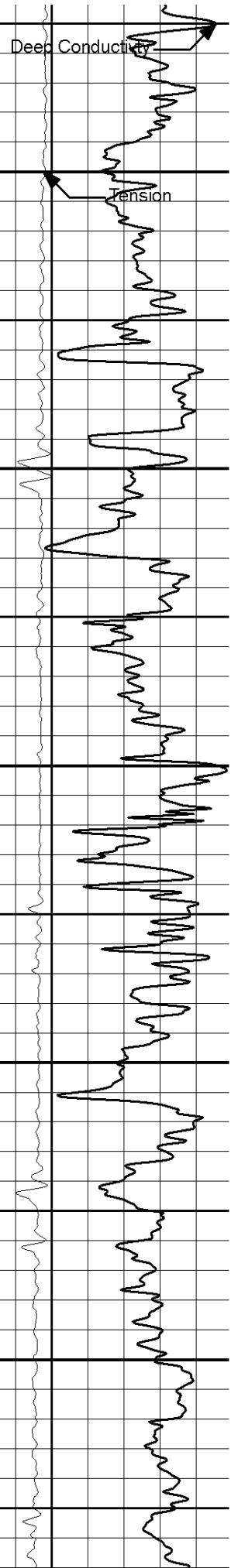
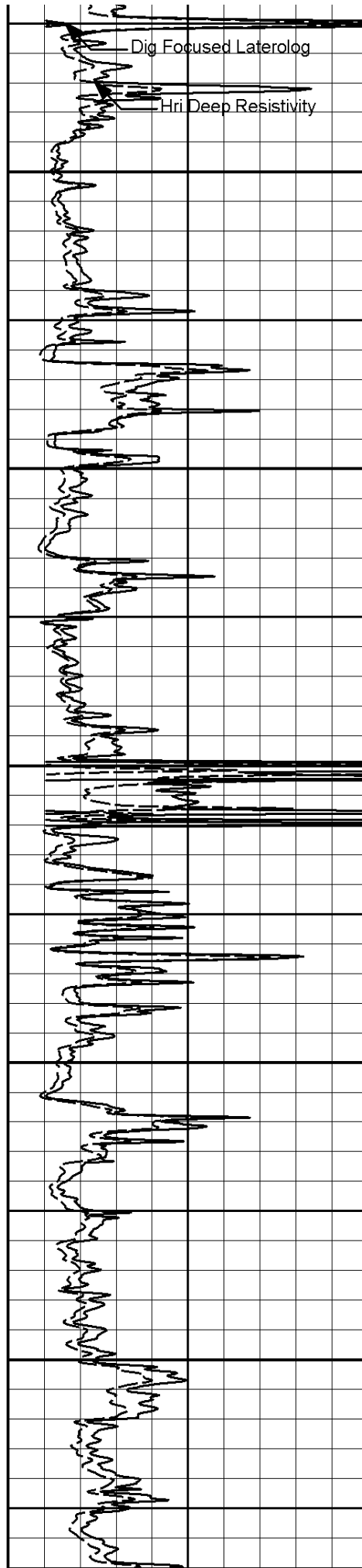
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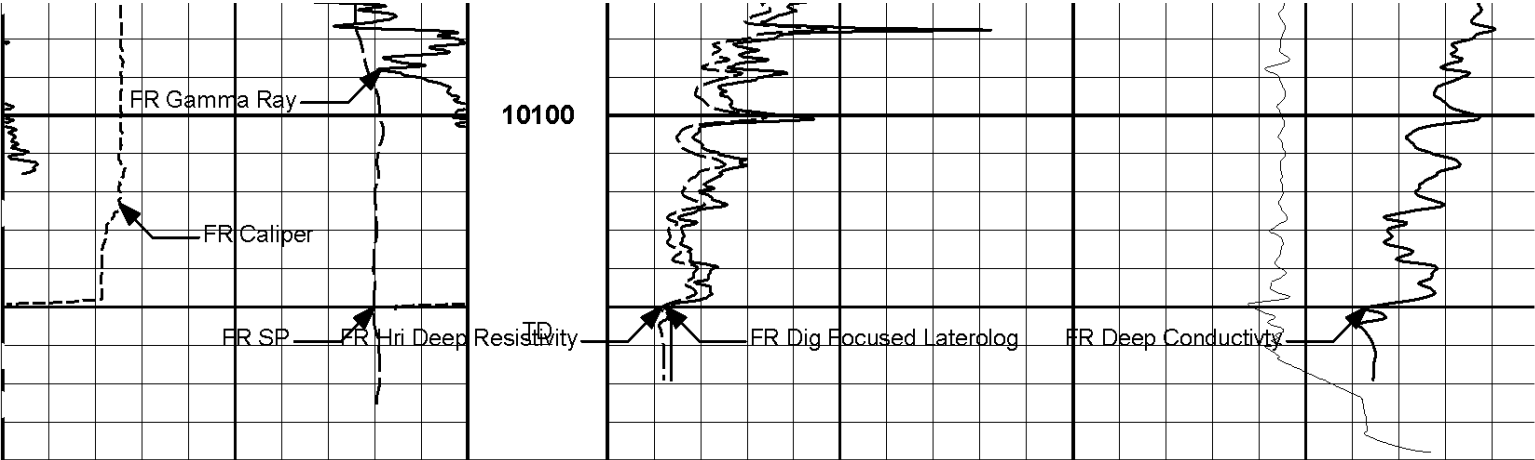
9700

9800

9900

10000





SP		1 : 600 ft MD	0	DFL	100	10000	Tension	0
-]10[+			ohmm			lbs		
0	Gamma Ray	150		0	HDRS	100		
api		ohmm						
6	Caliper	16		500 Deep Conductivty0				
inches				mmo/m				

HALLIBURTON

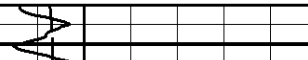
Plot Time: 25-Aug-08 08:36:49  
Plot Range: 1496 ft to 10190 ft  
Data: LAR\_FED\_29\_15C\Well Based\MAIN PASS - CASING\  
Plot File: \\-LOCAL-LAR\_FED\_29\_15C\0001 TRIPLE\HRI\HRI\_2IN

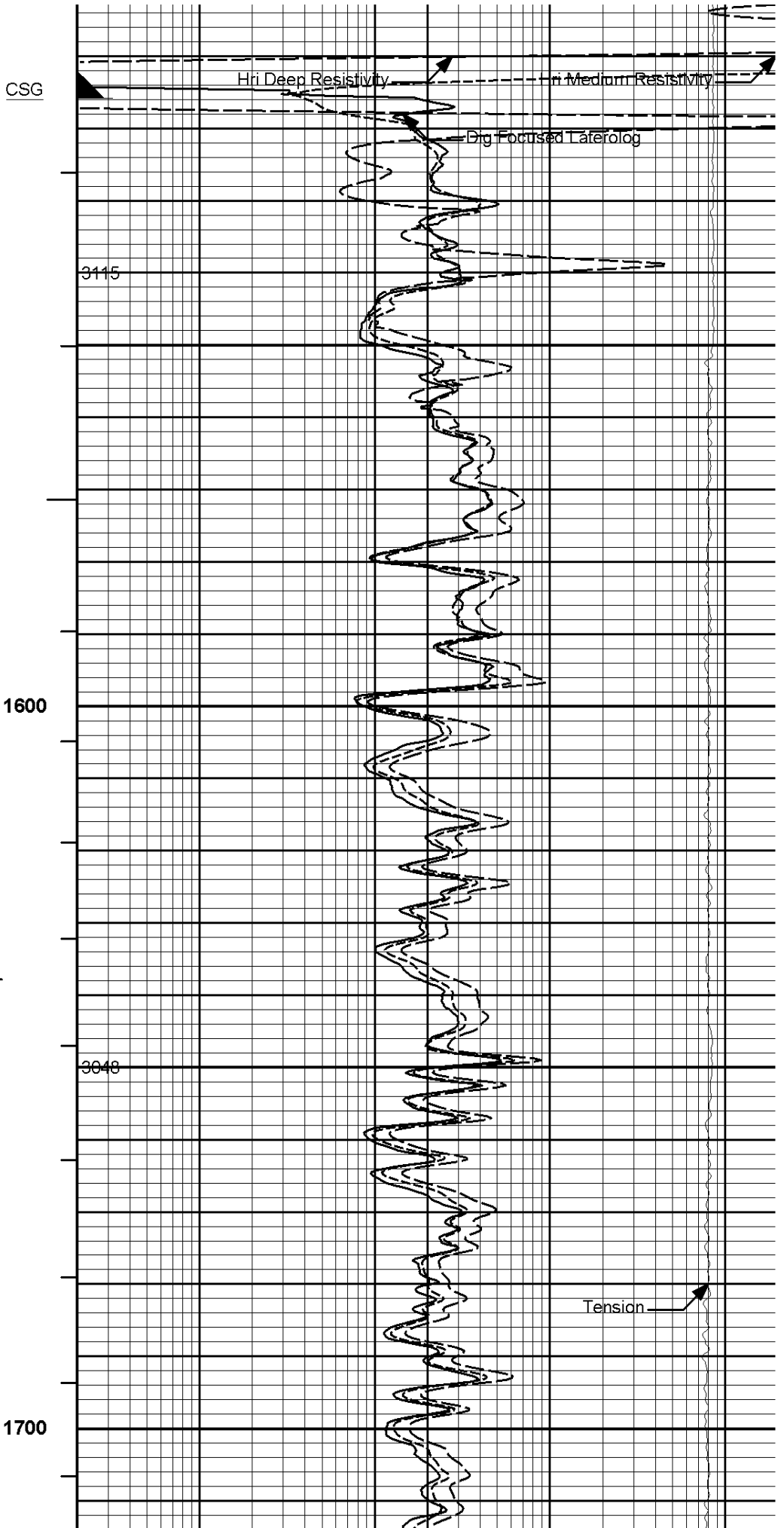
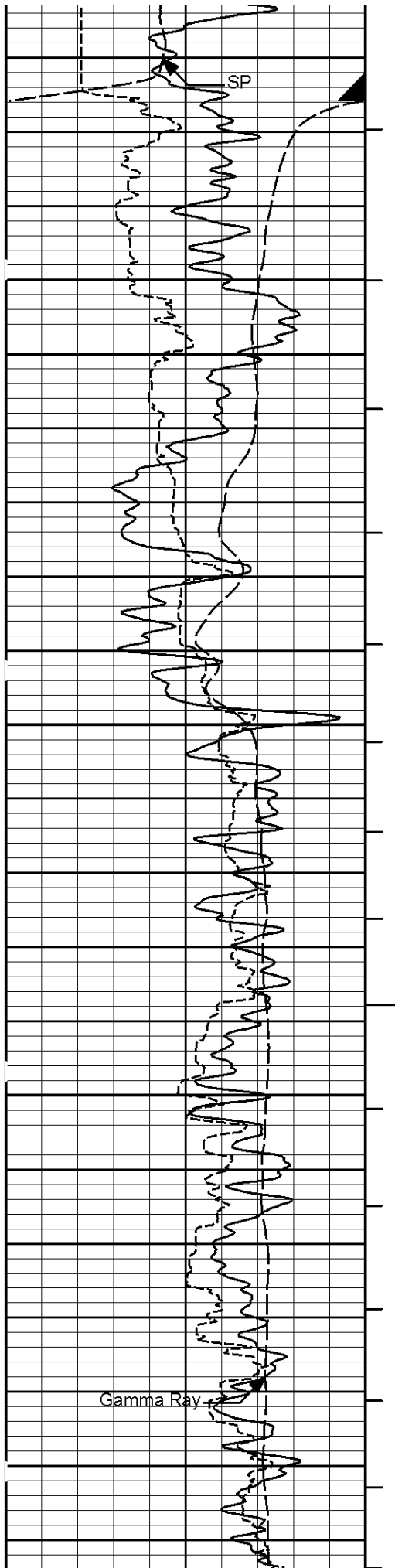
MAIN PASS 2" = 100'

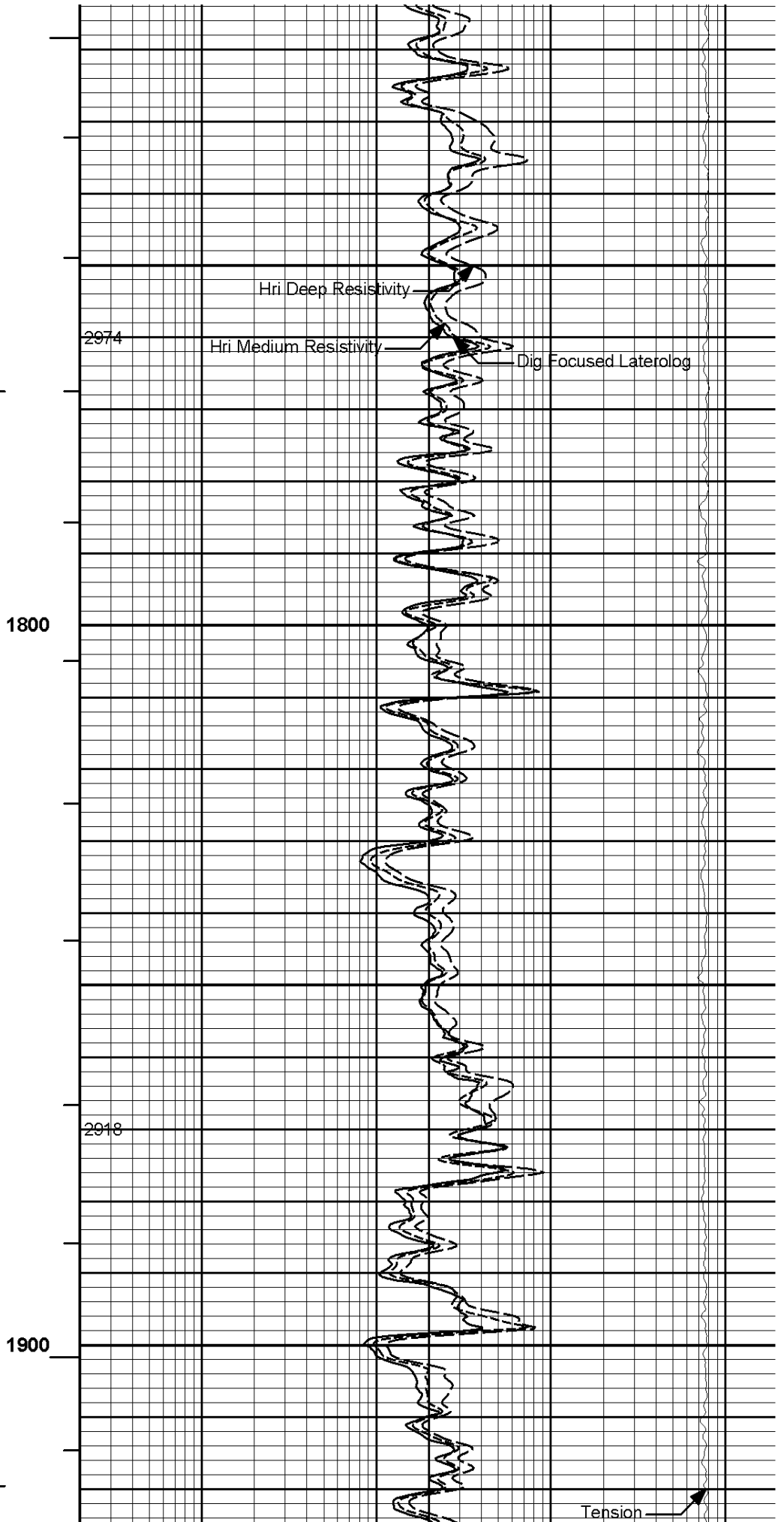
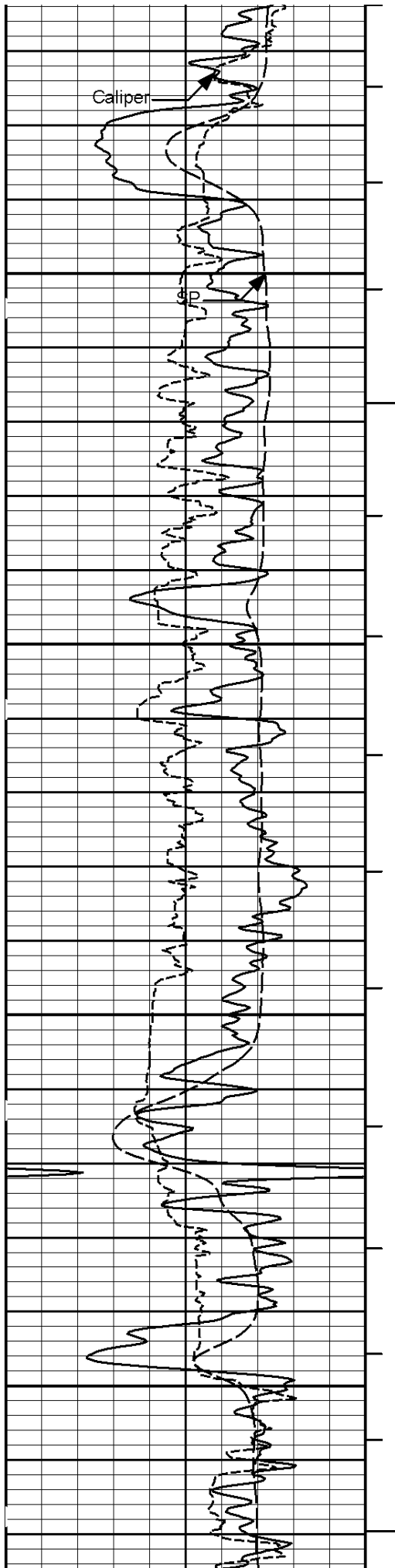
HALLIBURTON

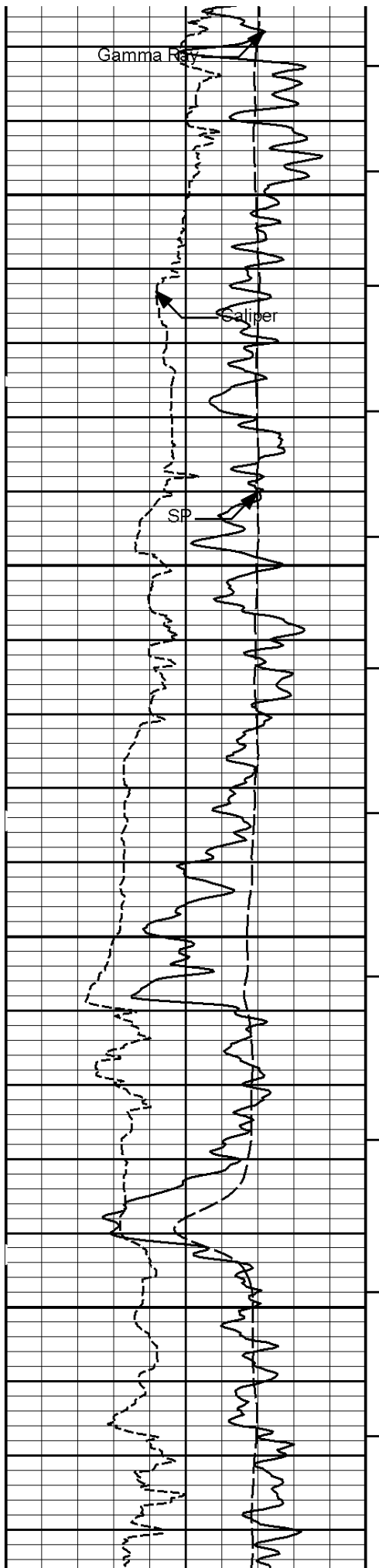
Plot Time: 25-Aug-08 08:36:49  
Plot Range: 1496 ft to 10188 ft  
Data: LAR\_FED\_29\_15C\Well Based\MAIN PASS - CASING\  
Plot File: \\-LOCAL-LAR\_FED\_29\_15C\0001 TRIPLE\HRI\HRI\_5IN

MAIN PASS 5" = 100'

		AHV ft3	0.2	DFL		2000
			ohmm			
6	Caliper	1 : 240 ft MD	0.2	HMRS		2000
	inches		ohmm			
0	Gamma Ray		0.2	HDRS		2000
	api		ohmm			
	SP		10000		Tension	0
	-]10[+		lbs			
		1500				

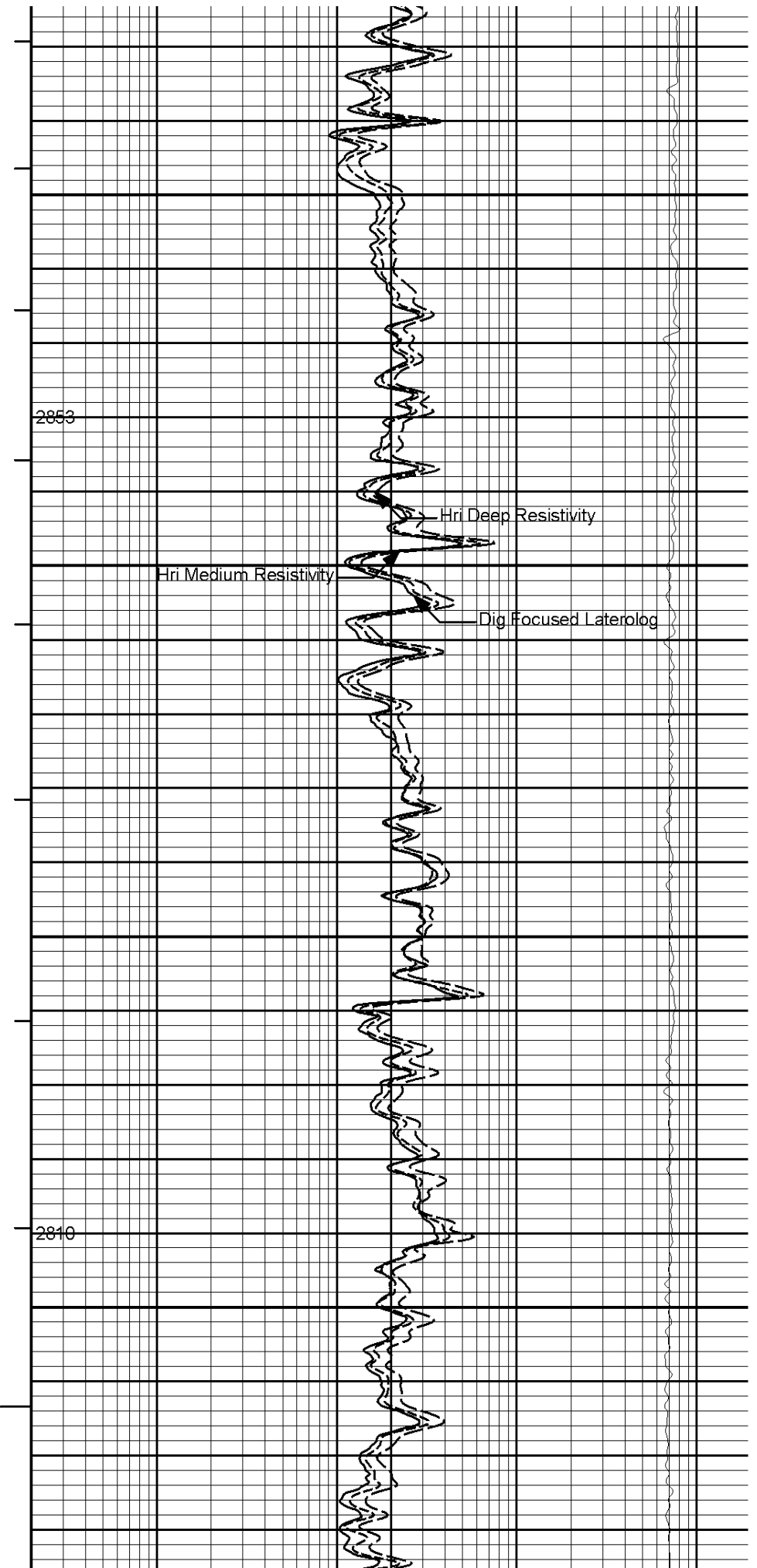






2000

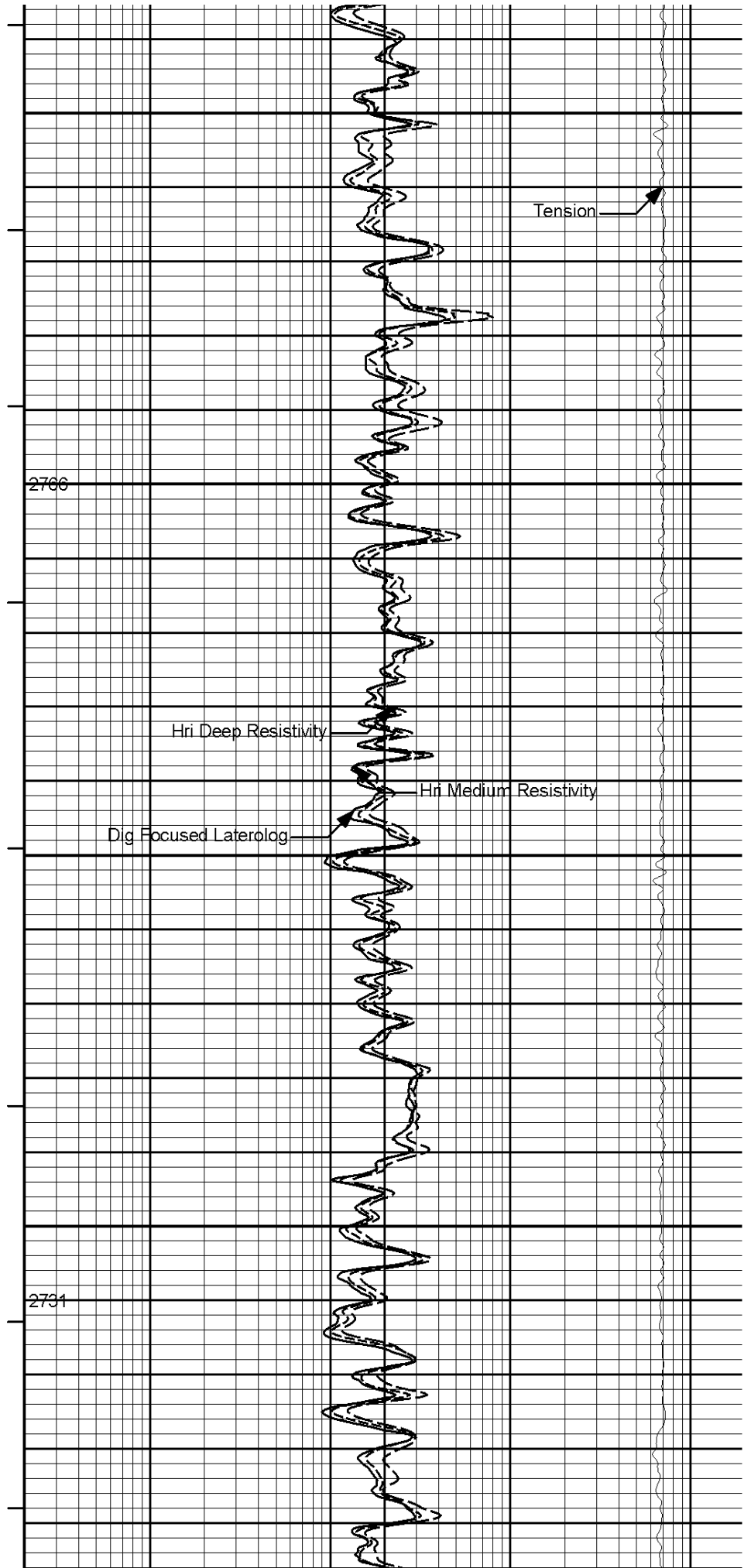
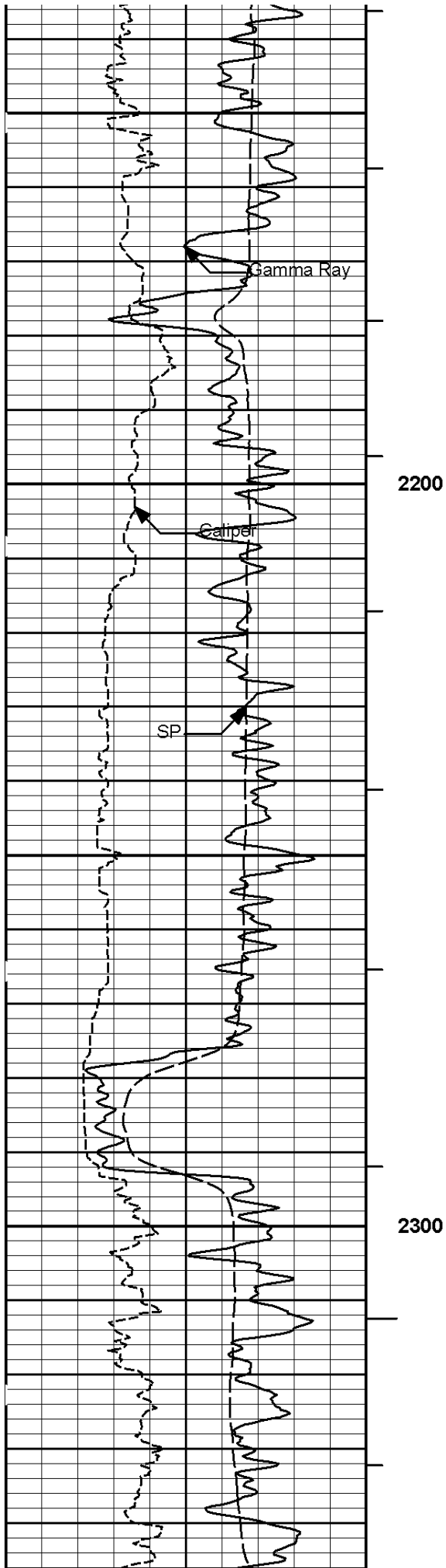
2100

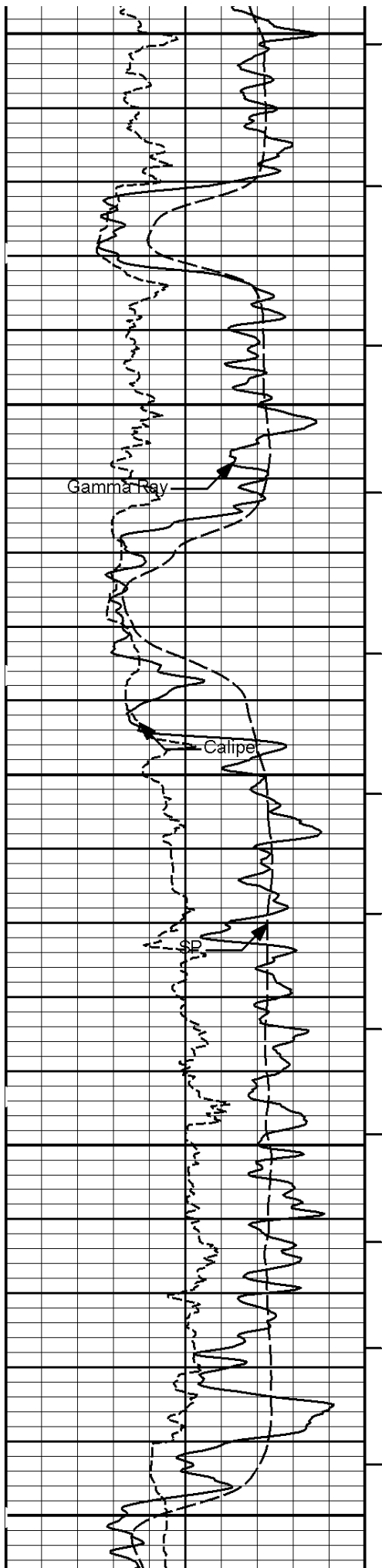


2853

2810





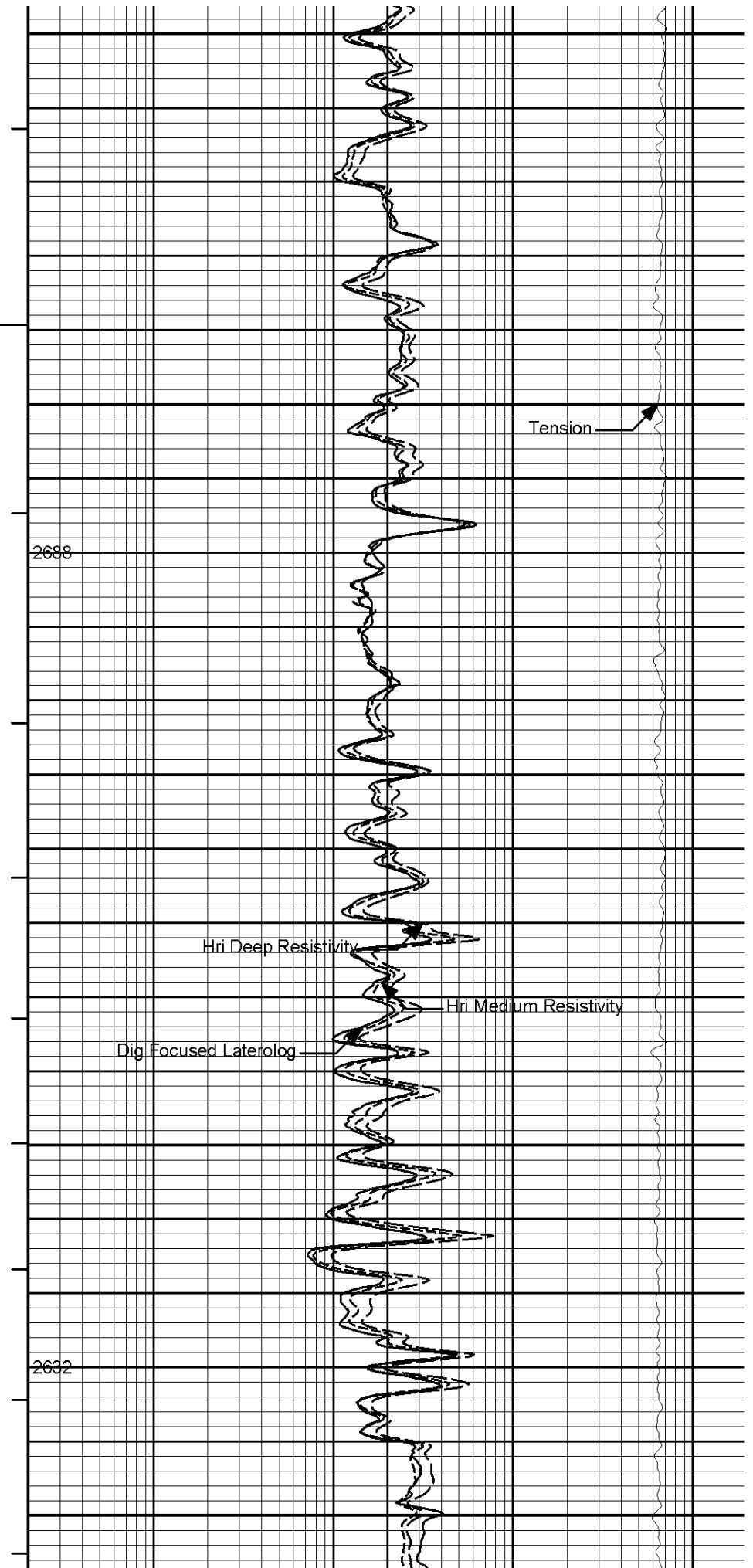


2400

Gamma Ray

Caliper

2500



Tension

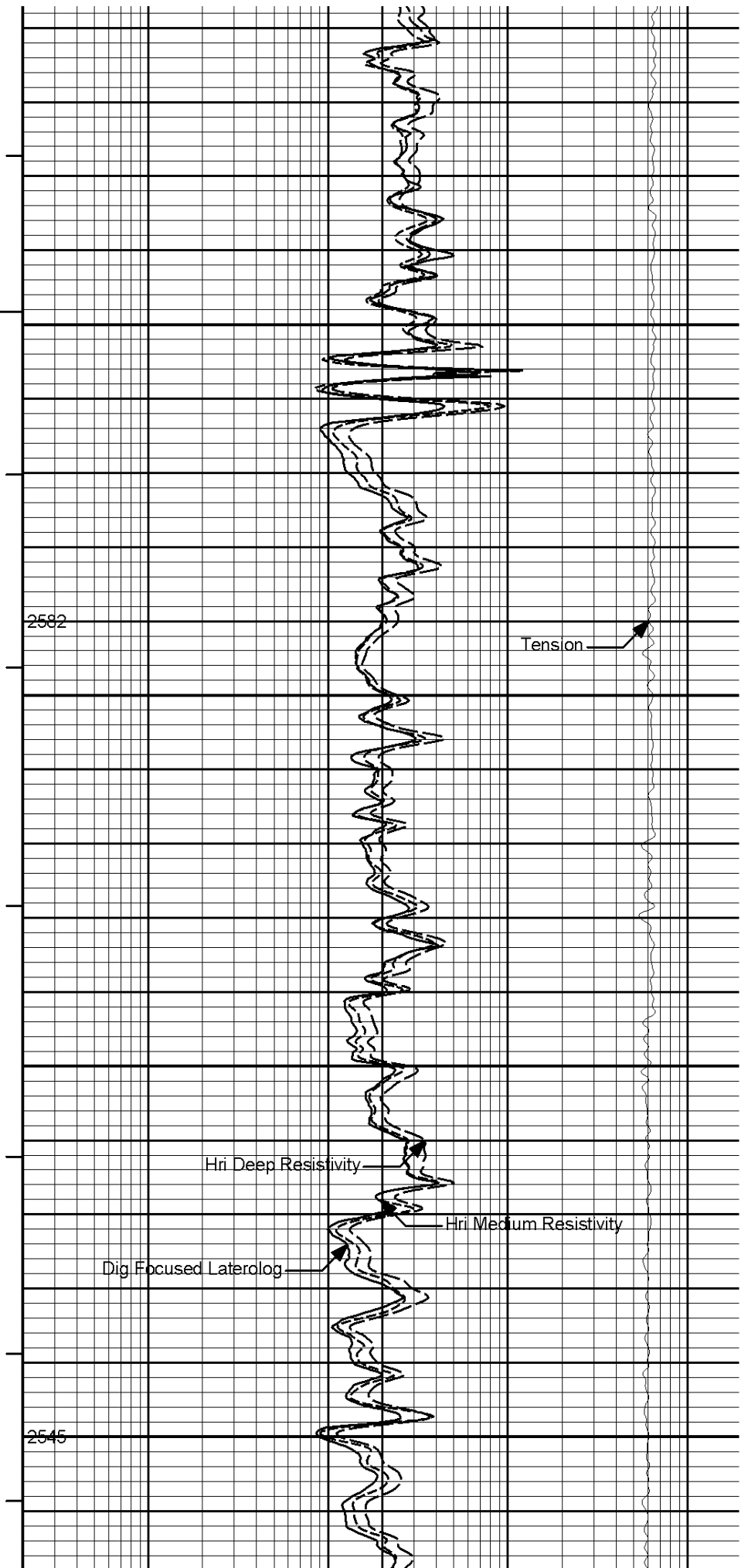
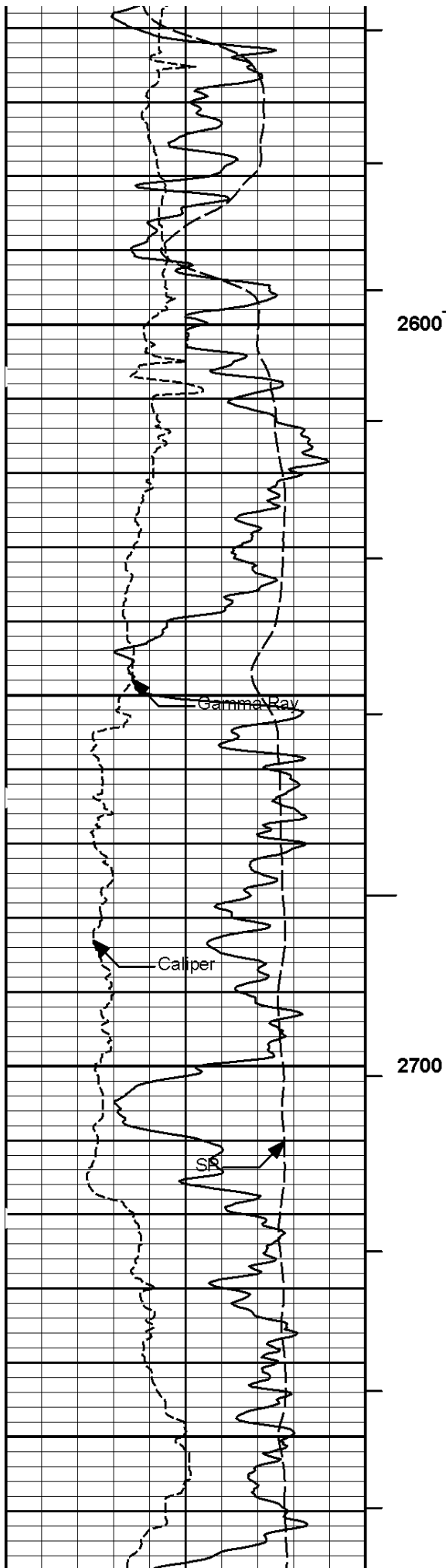
2688

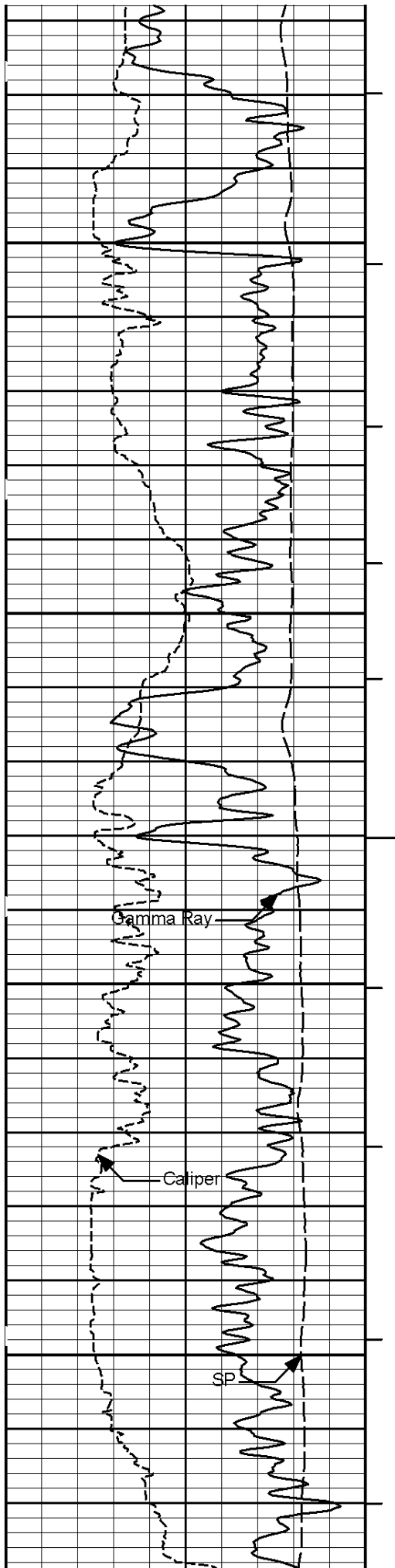
Hri Deep Resistivity

Hri Medium Resistivity

Dig Focused Laterolog

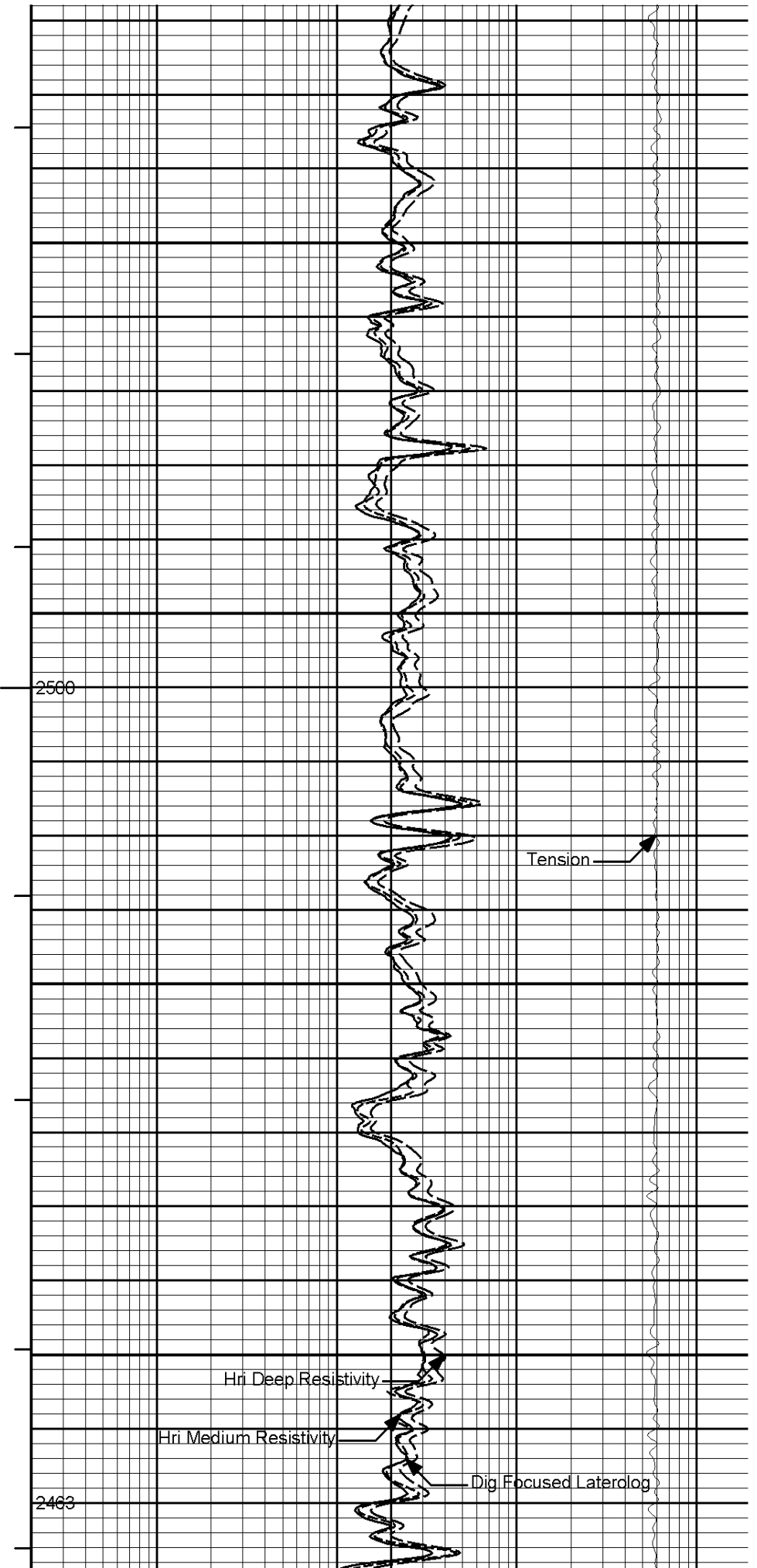
2632





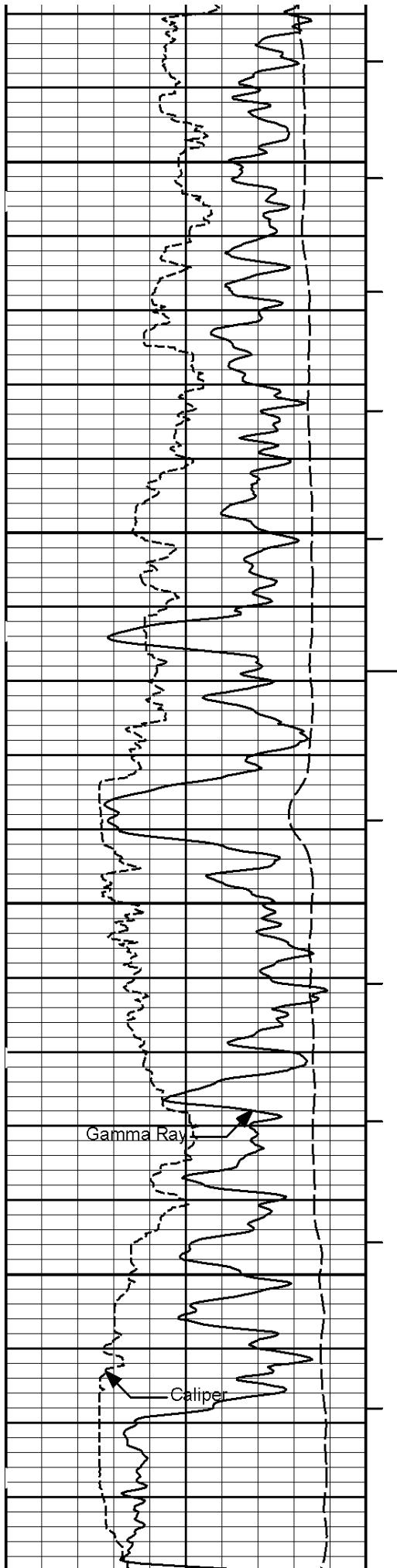
2800

2900



2500

2463

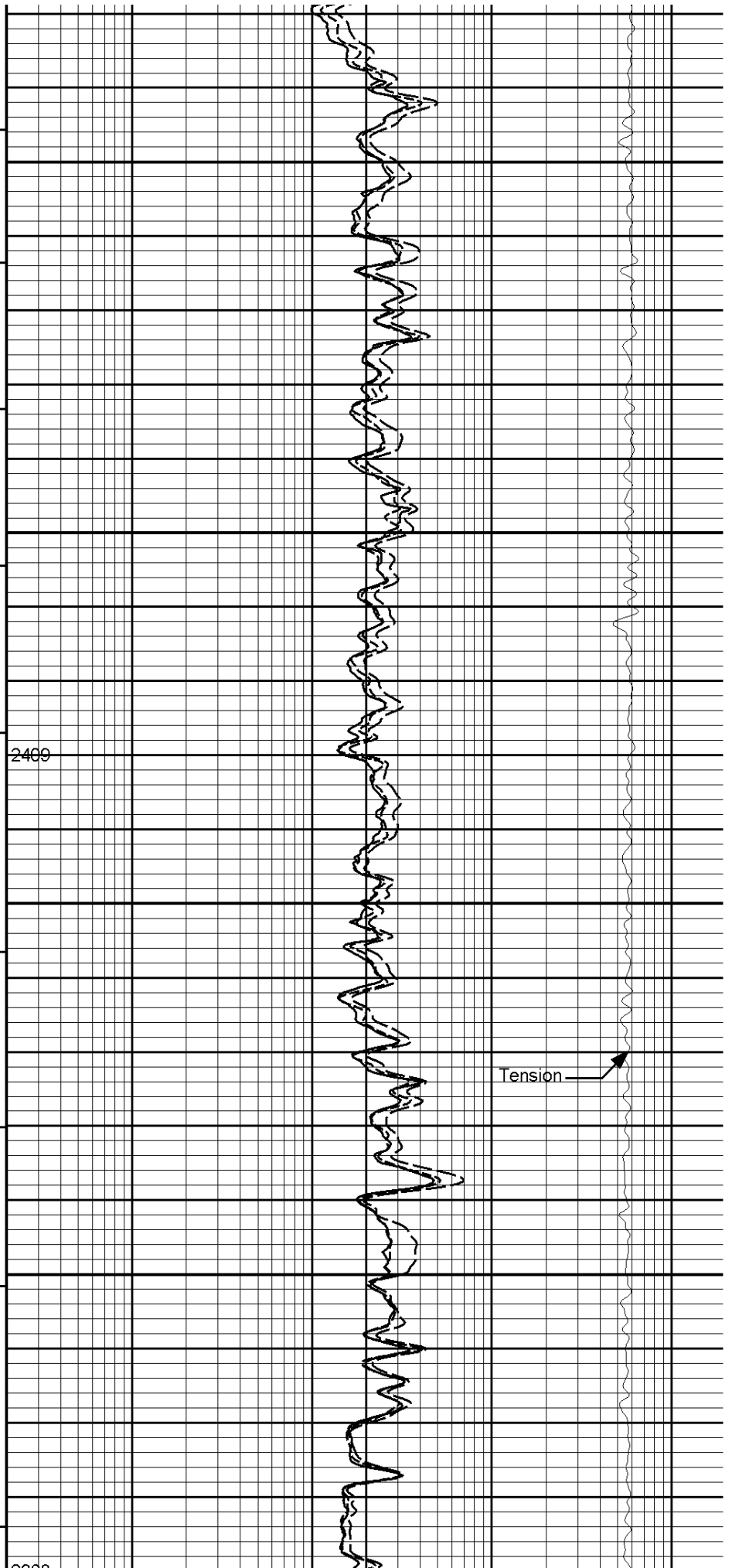


3000

3100

Gamma Ray

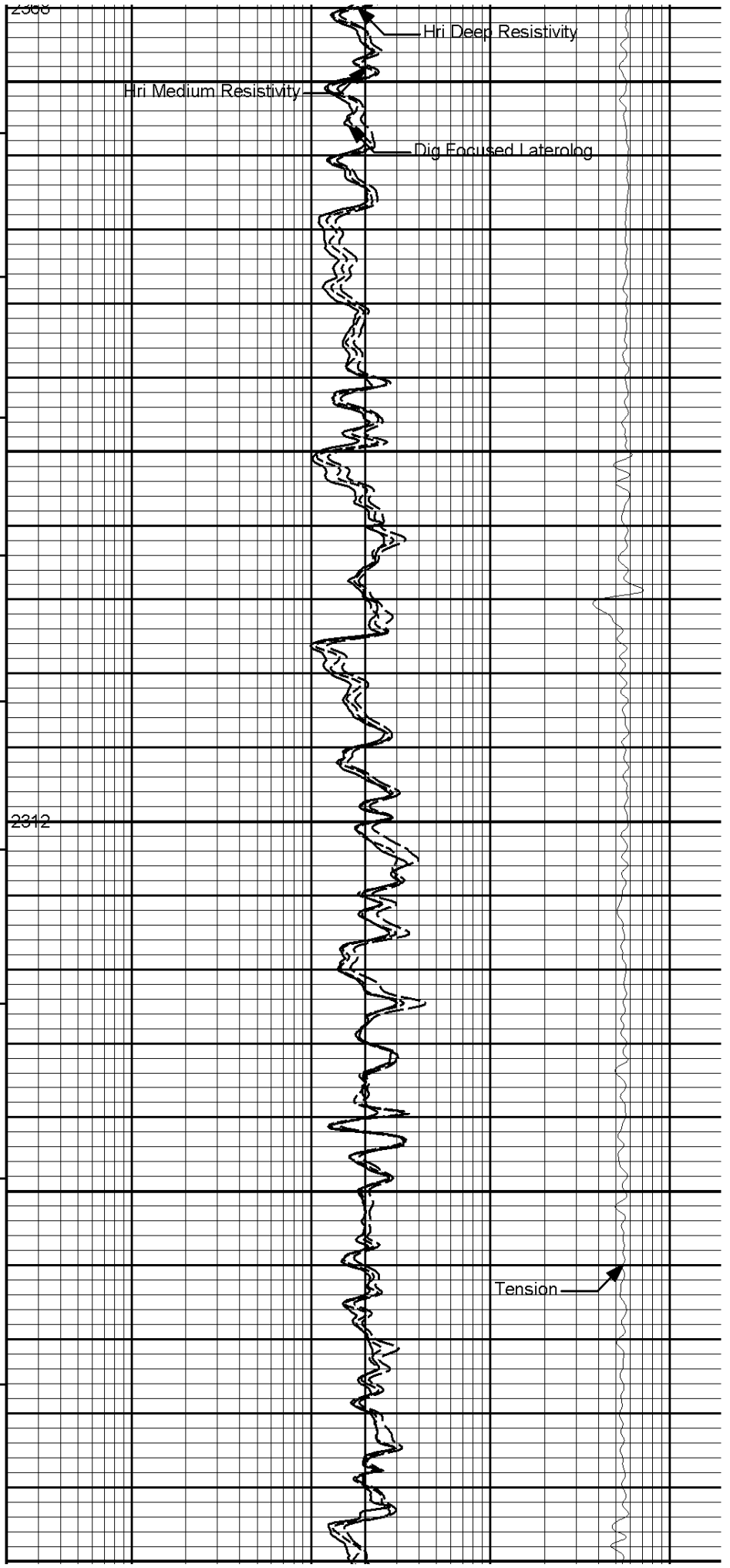
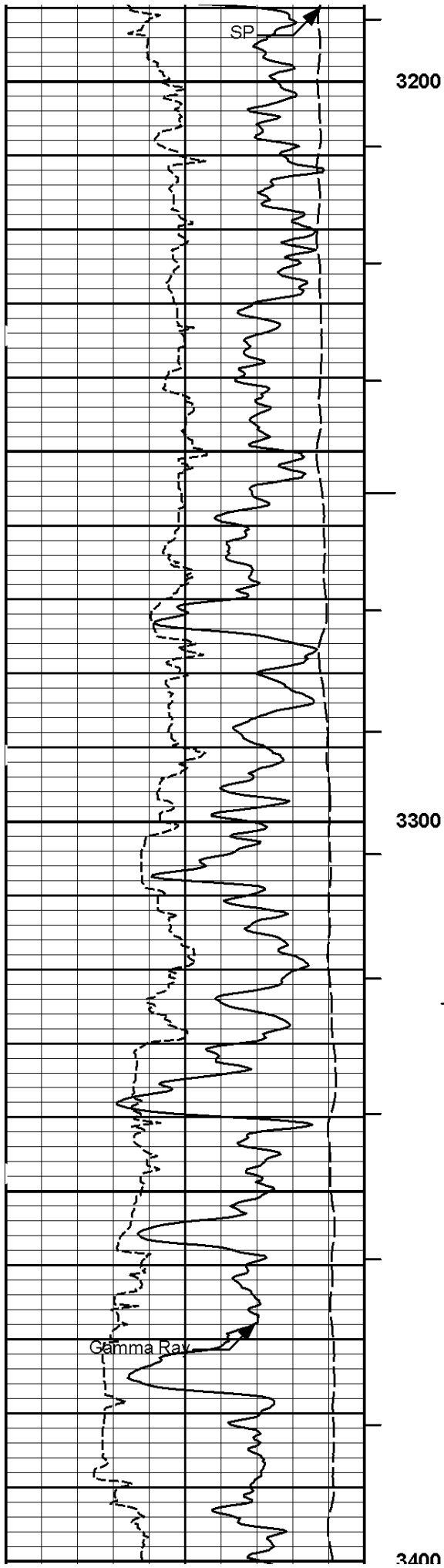
Caliper

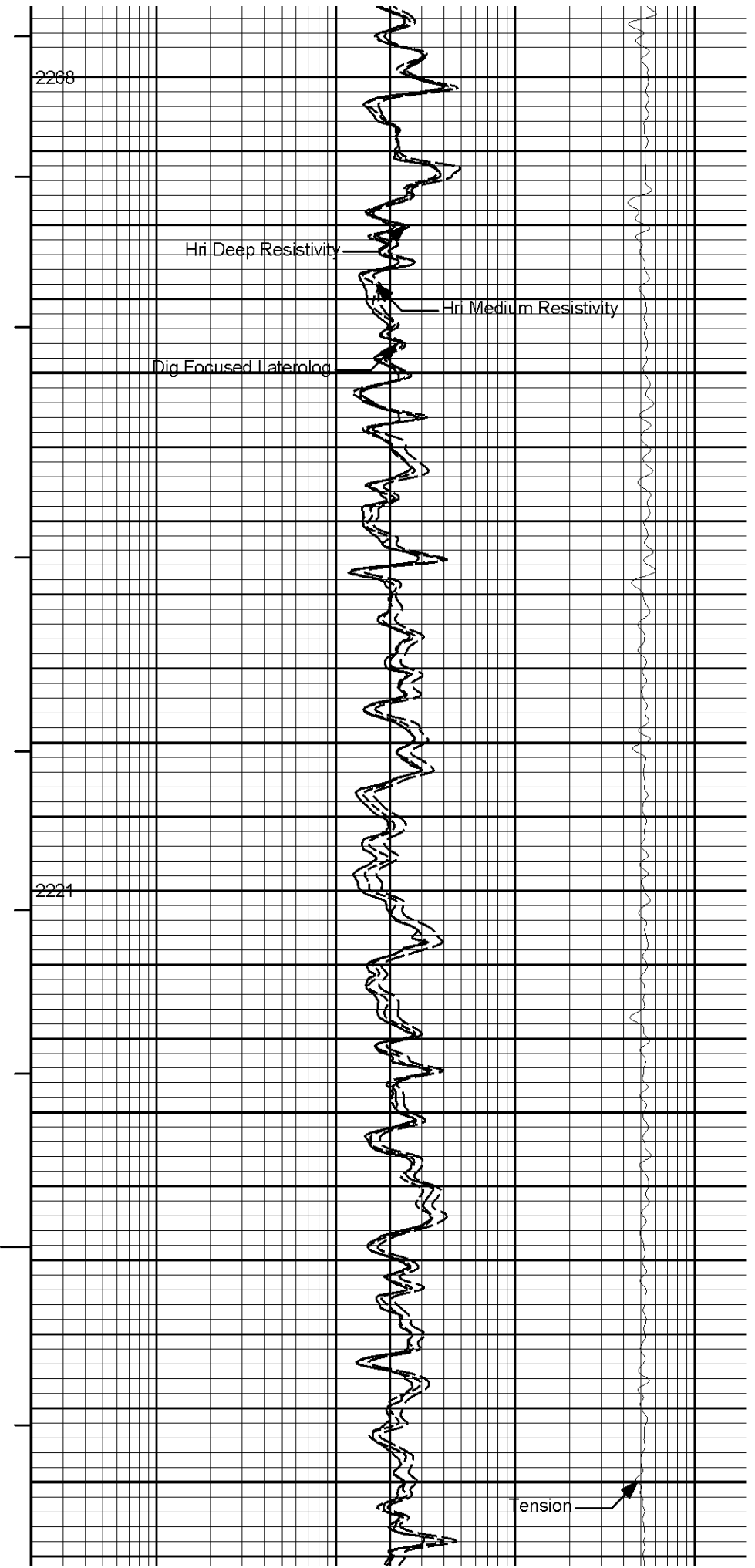
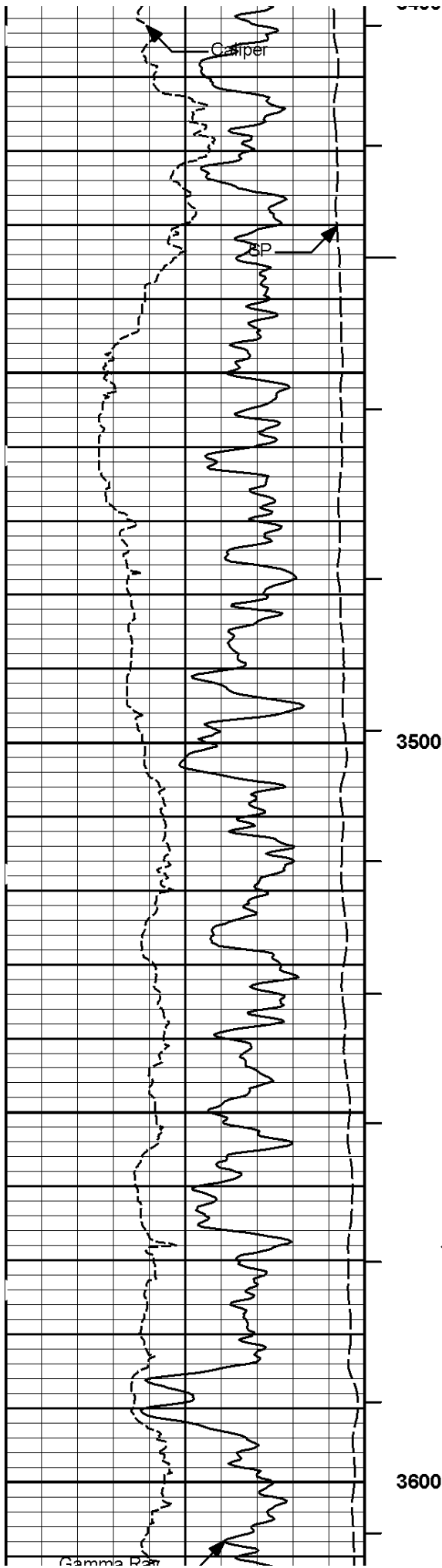


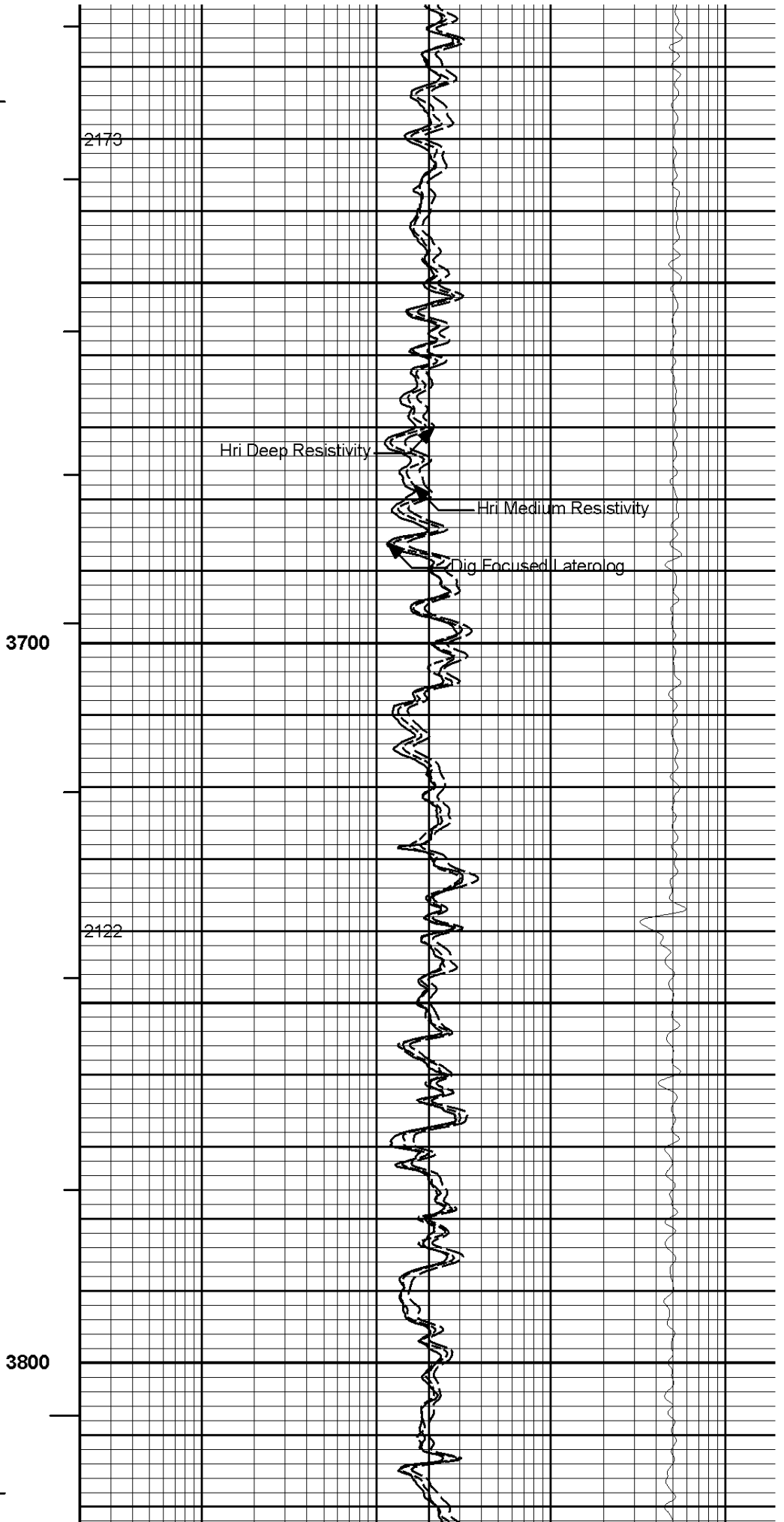
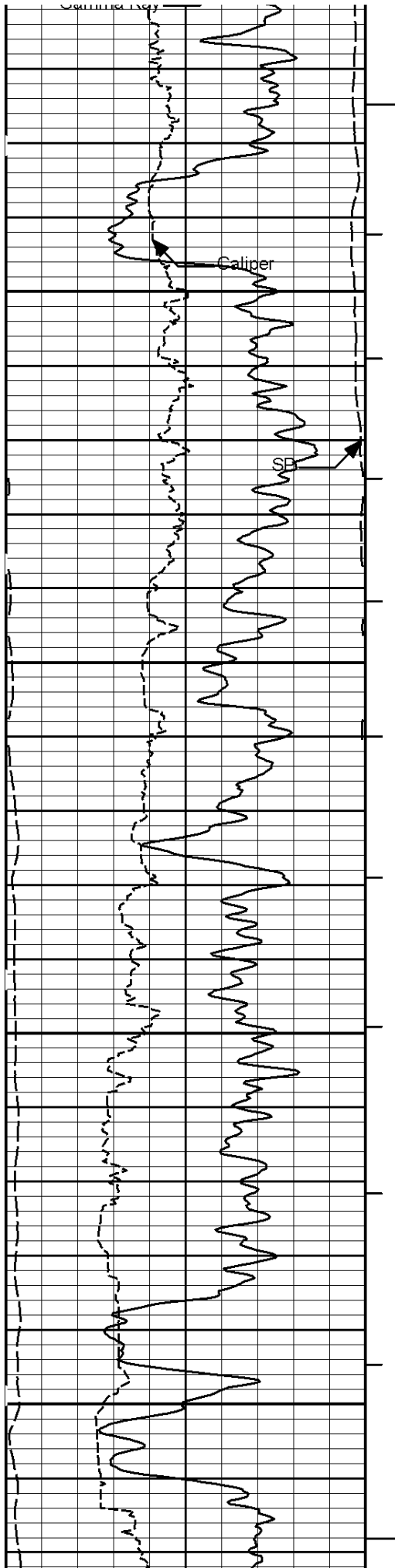
2400

3000

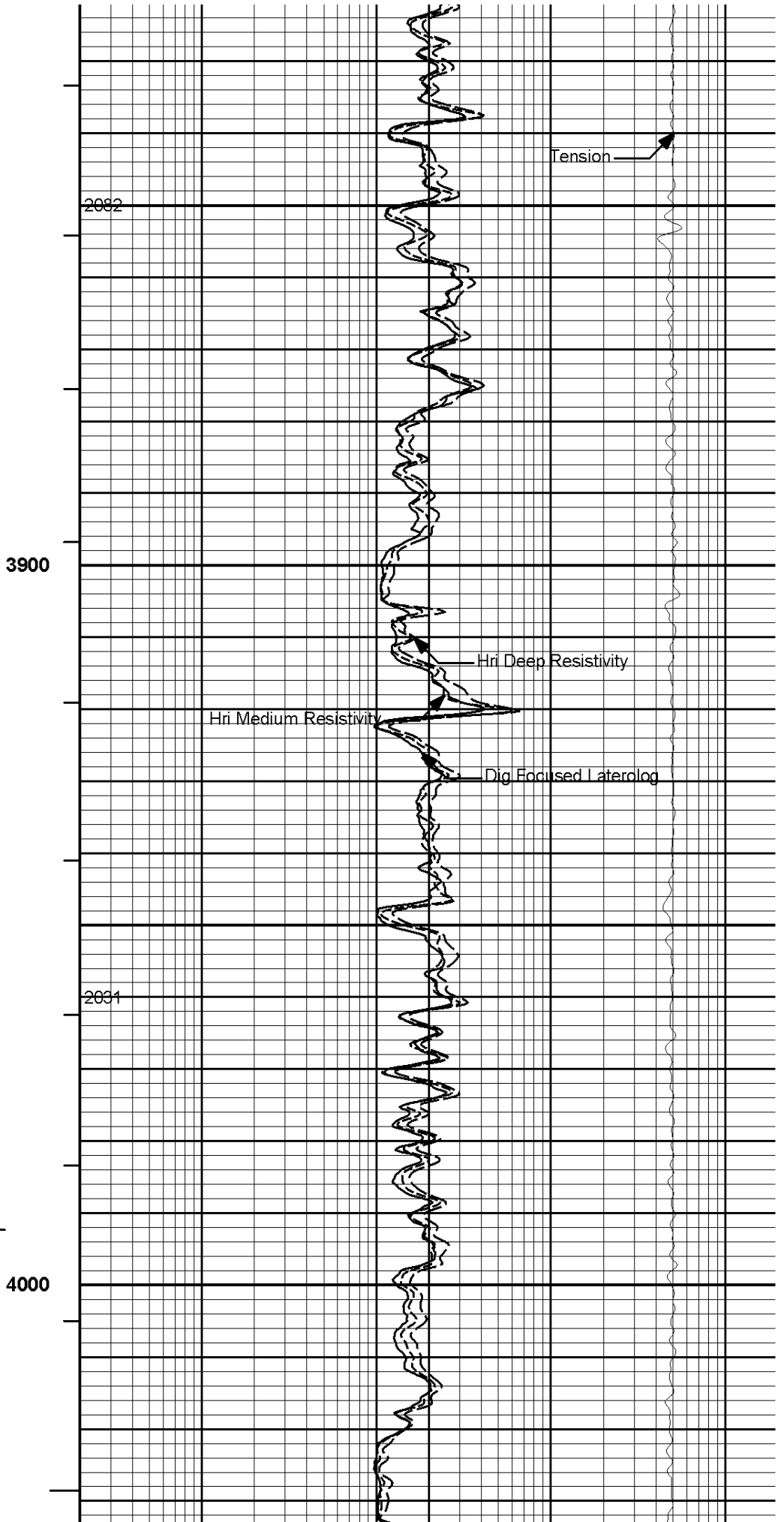
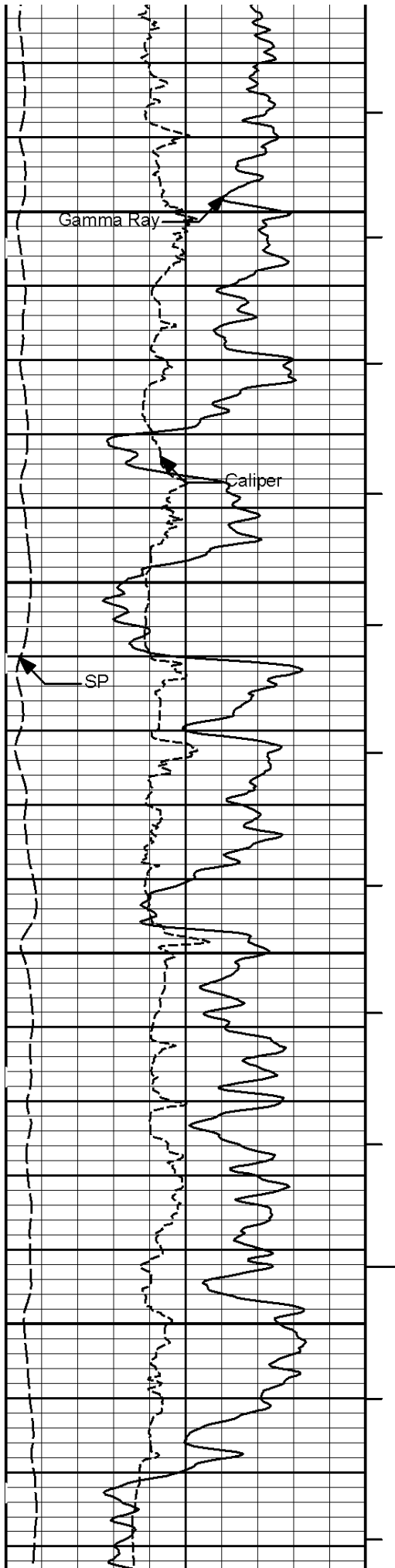
Tension

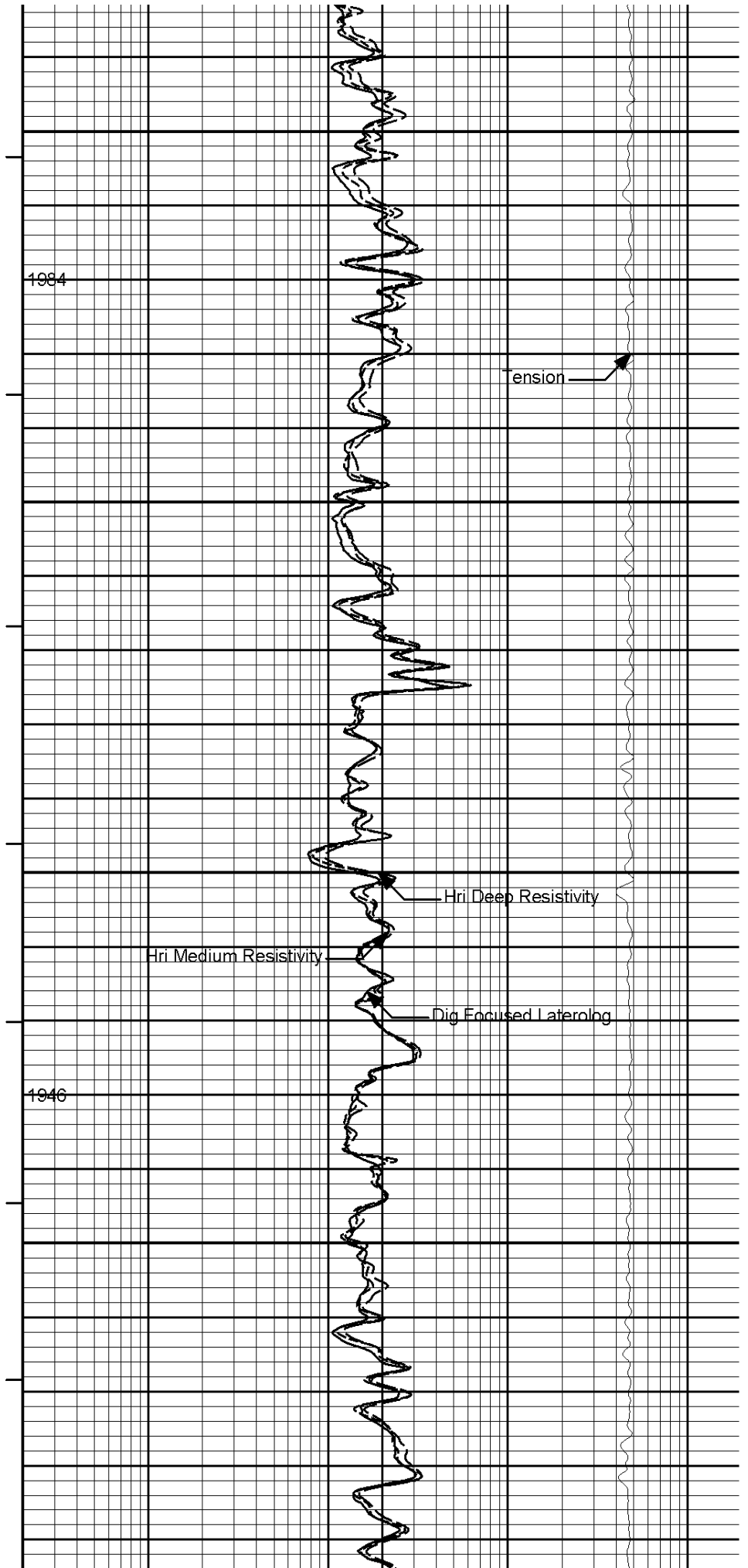
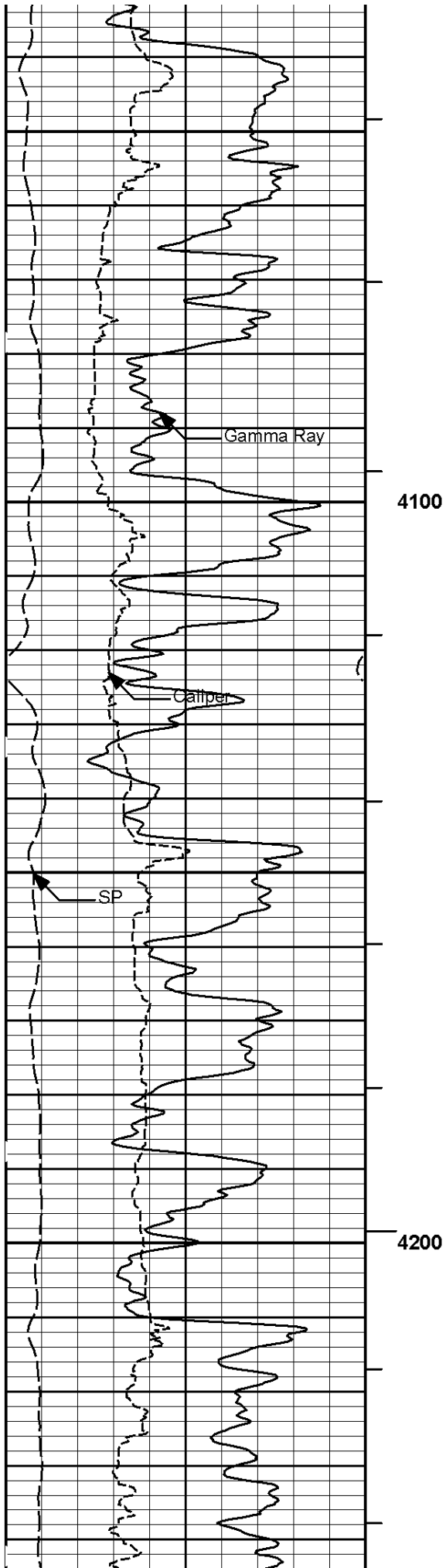


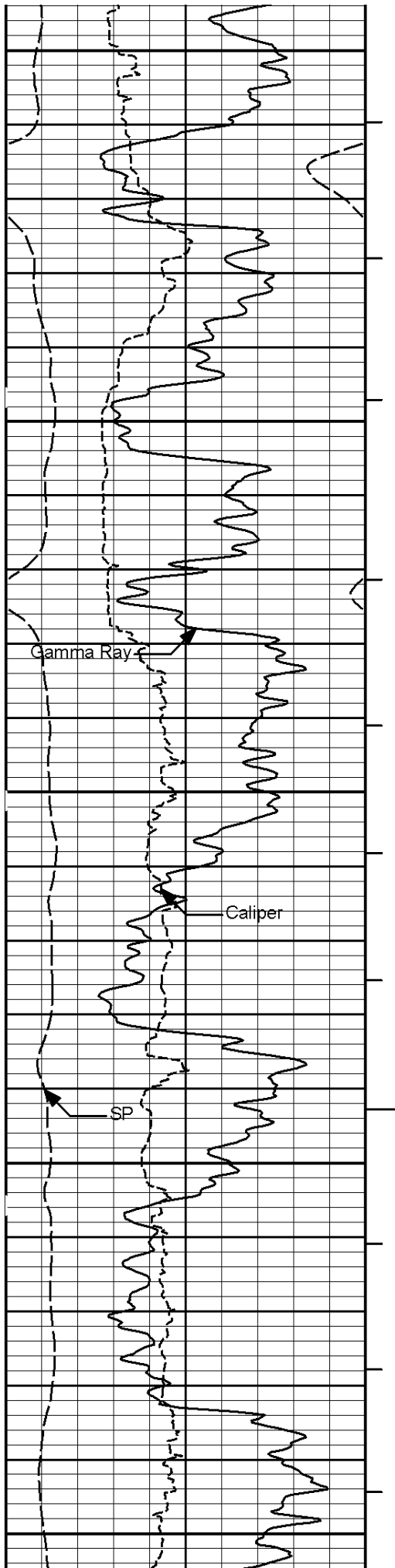






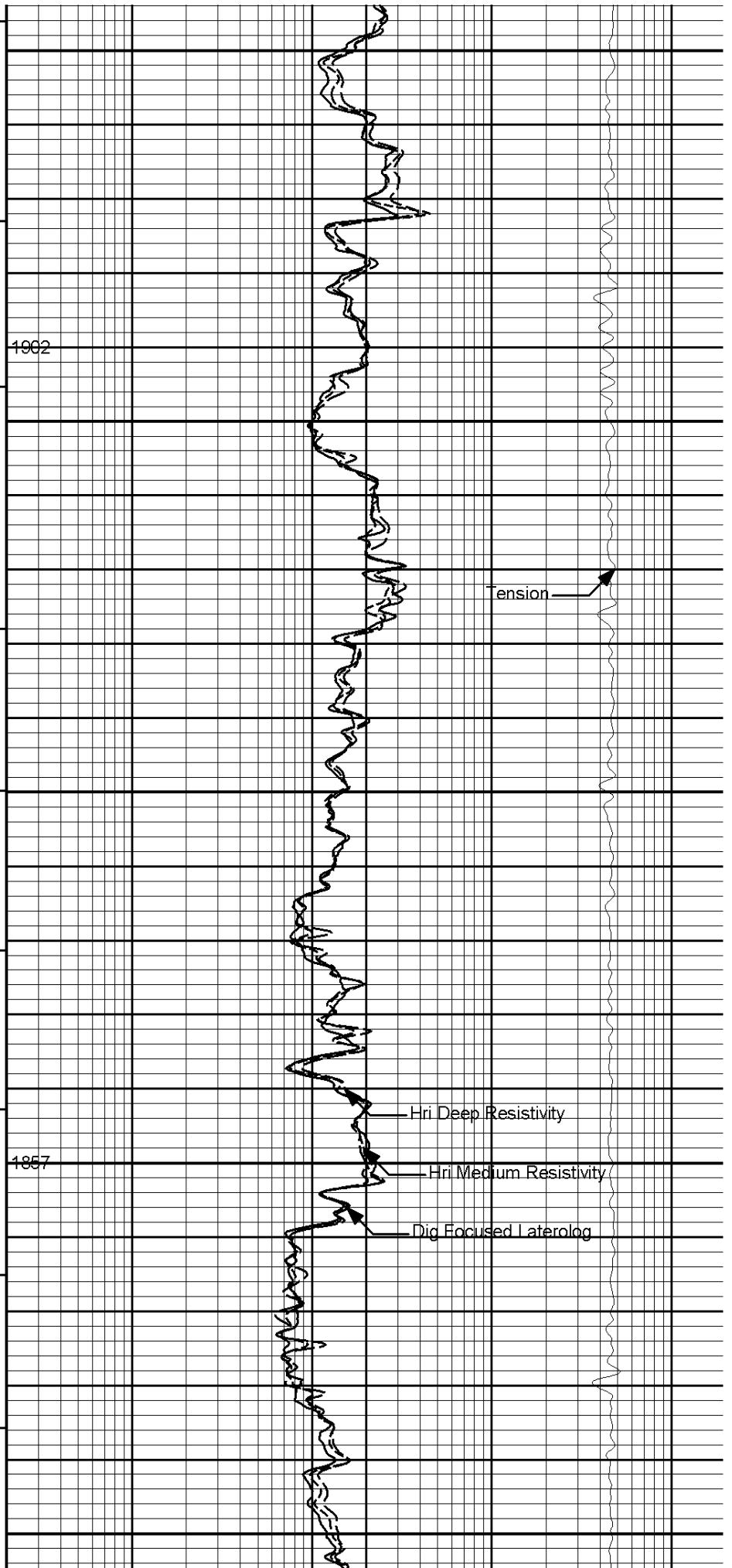


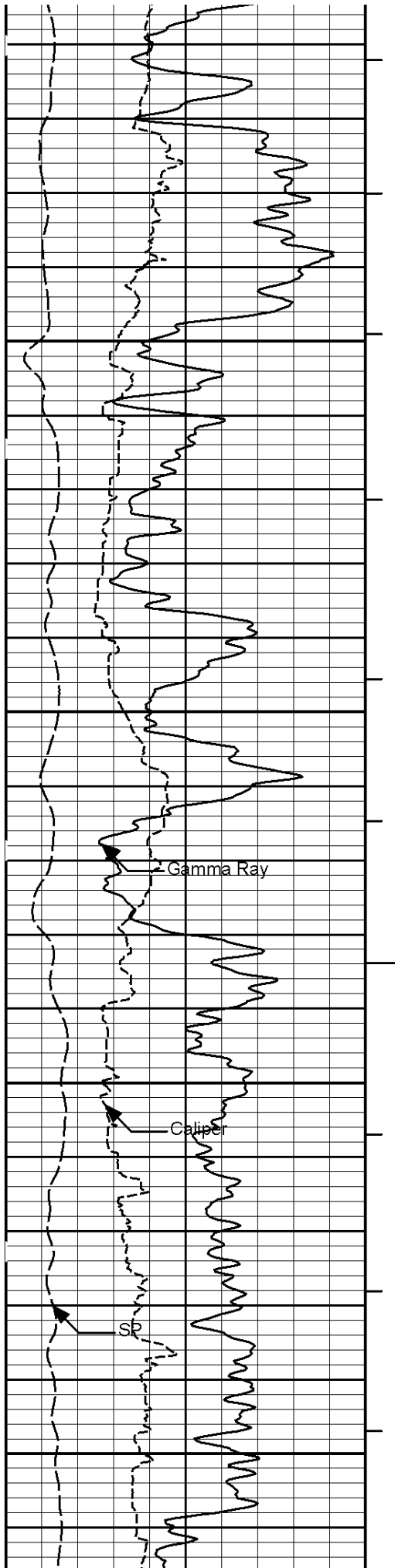




4300

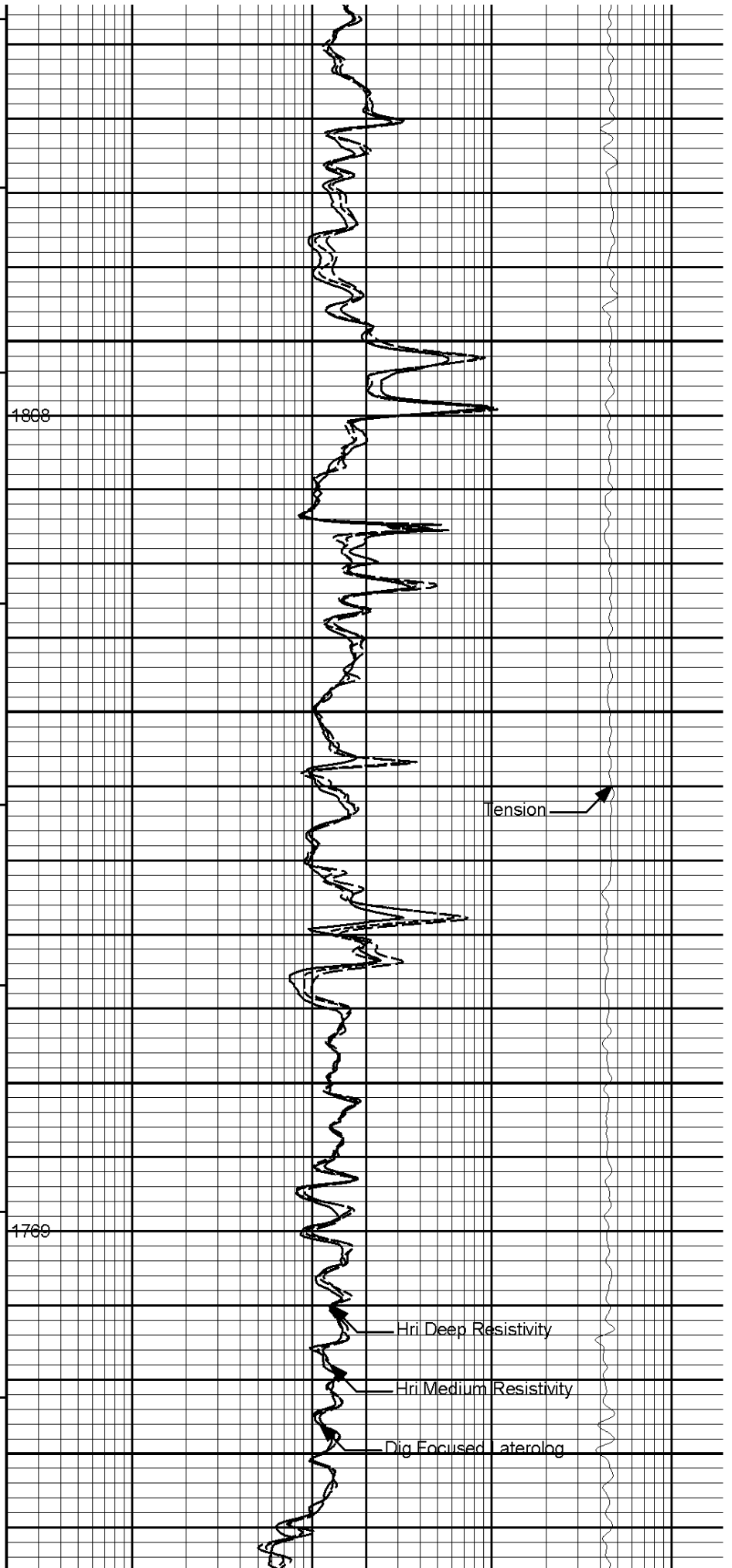
4400





4500

4600



1808

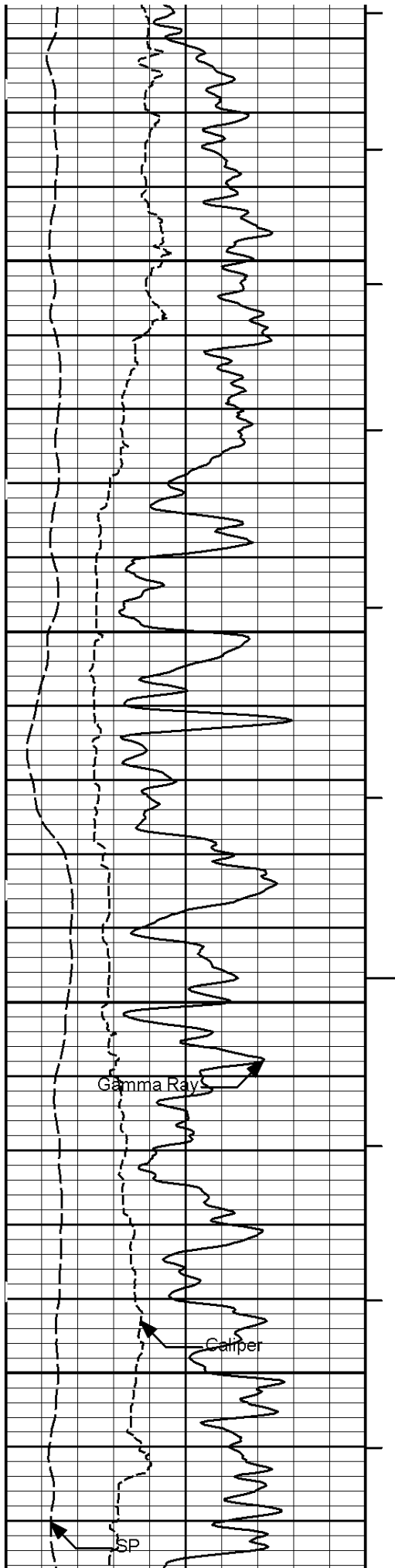
1769

Tension

Hri Deep Resistivity

Hri Medium Resistivity

Dig Focused Laterolog



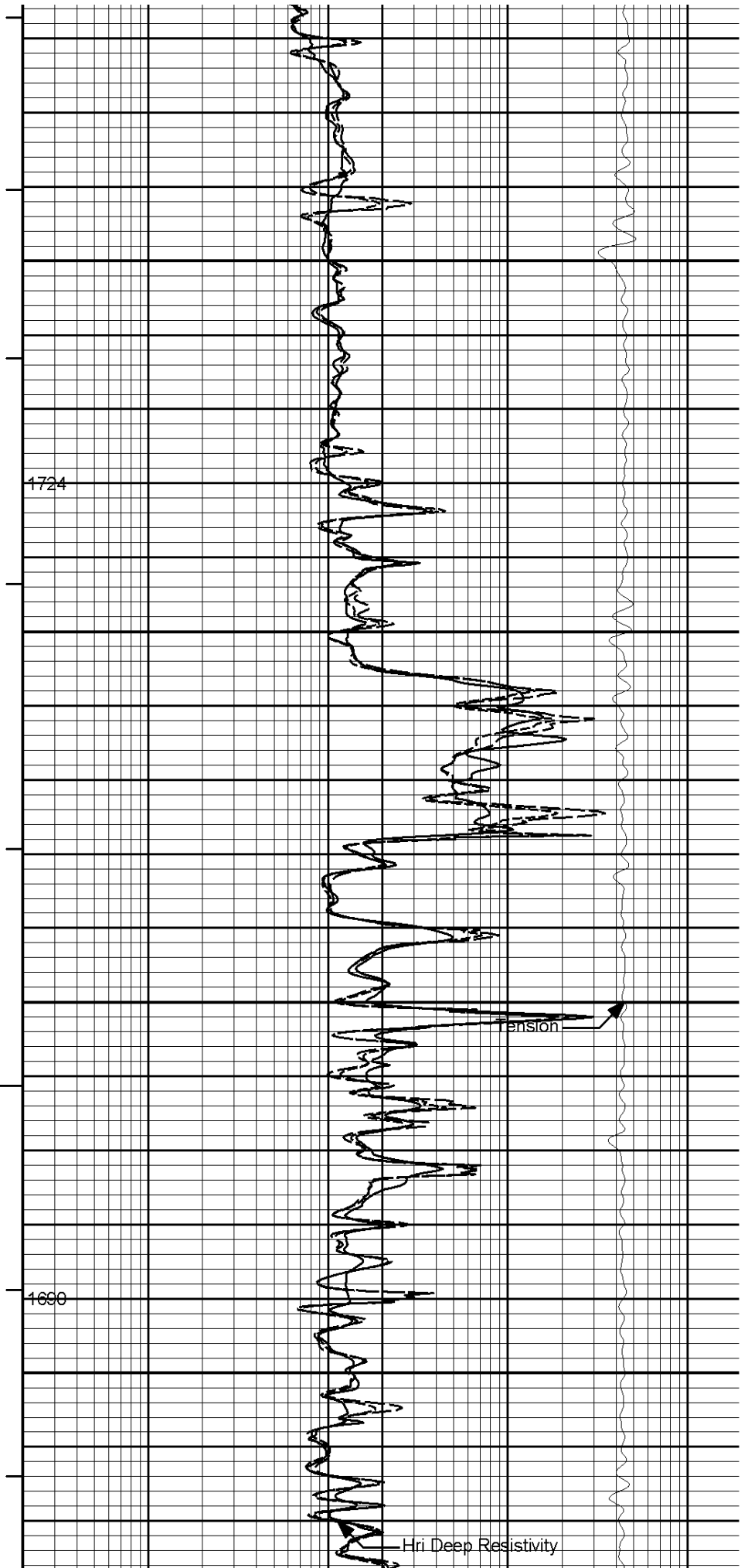
4700

4800

Gamma Ray

Caliper

SP

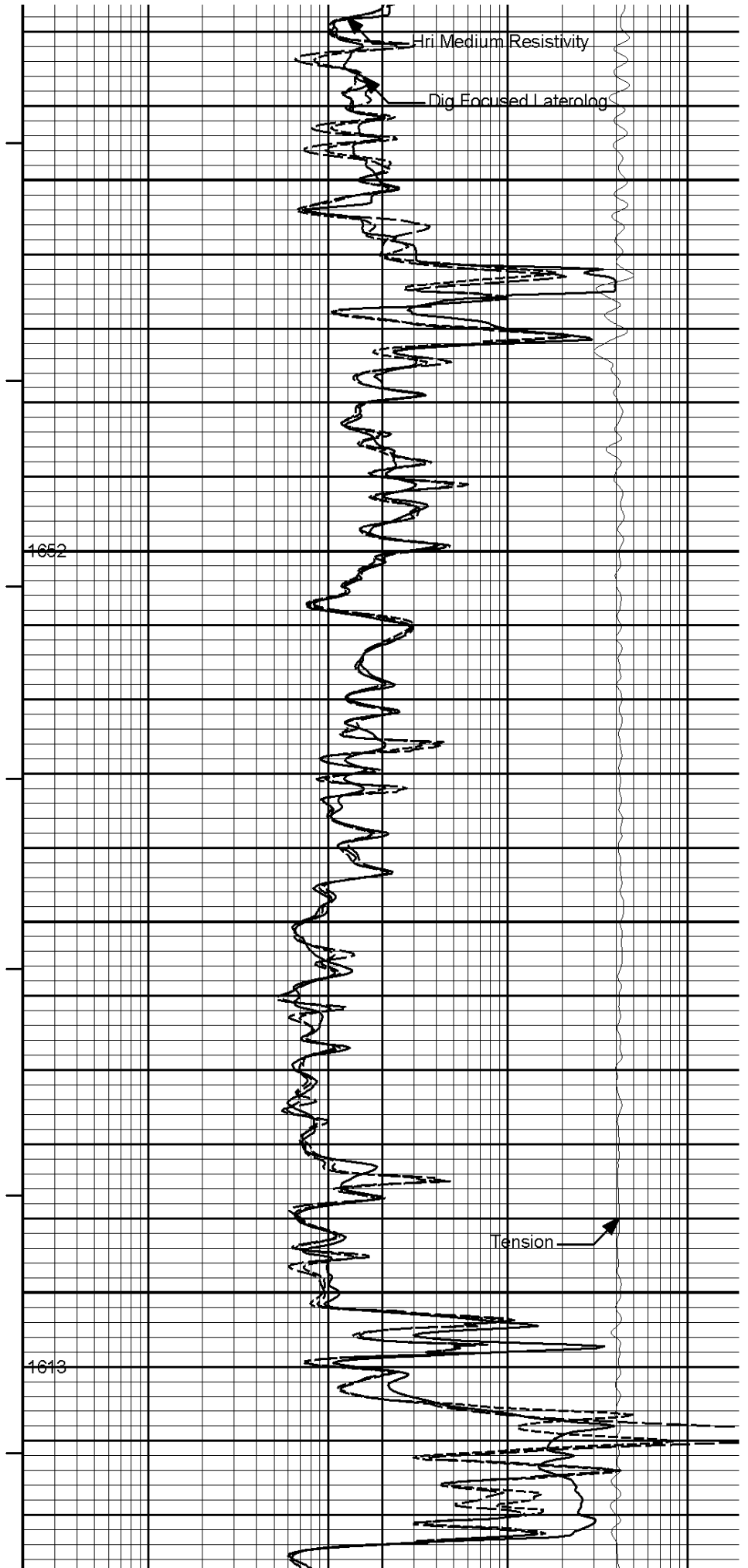
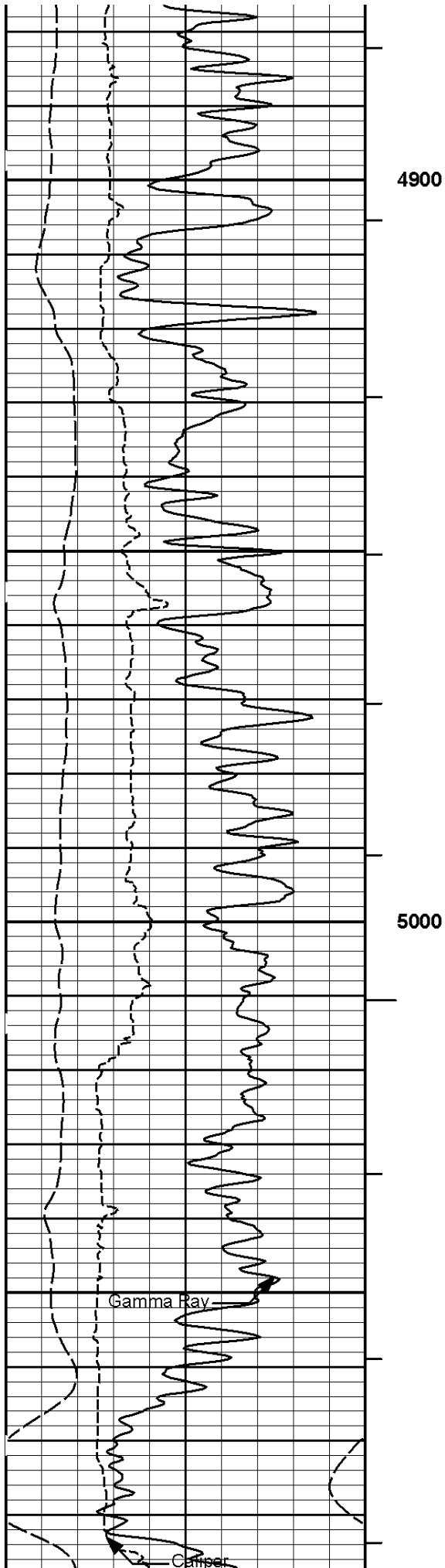


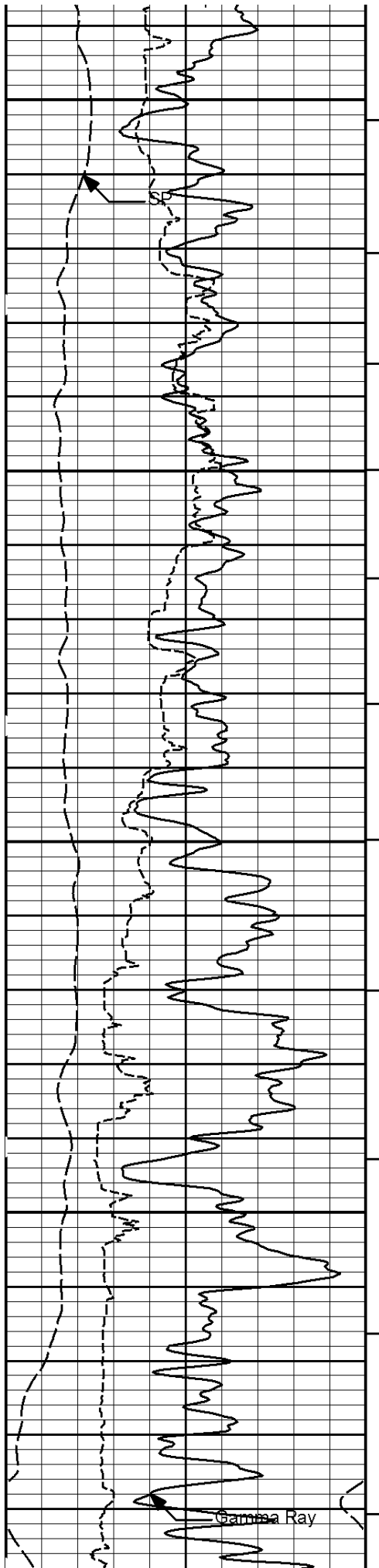
4724

4890

Tension

Hri Deep Resistivity

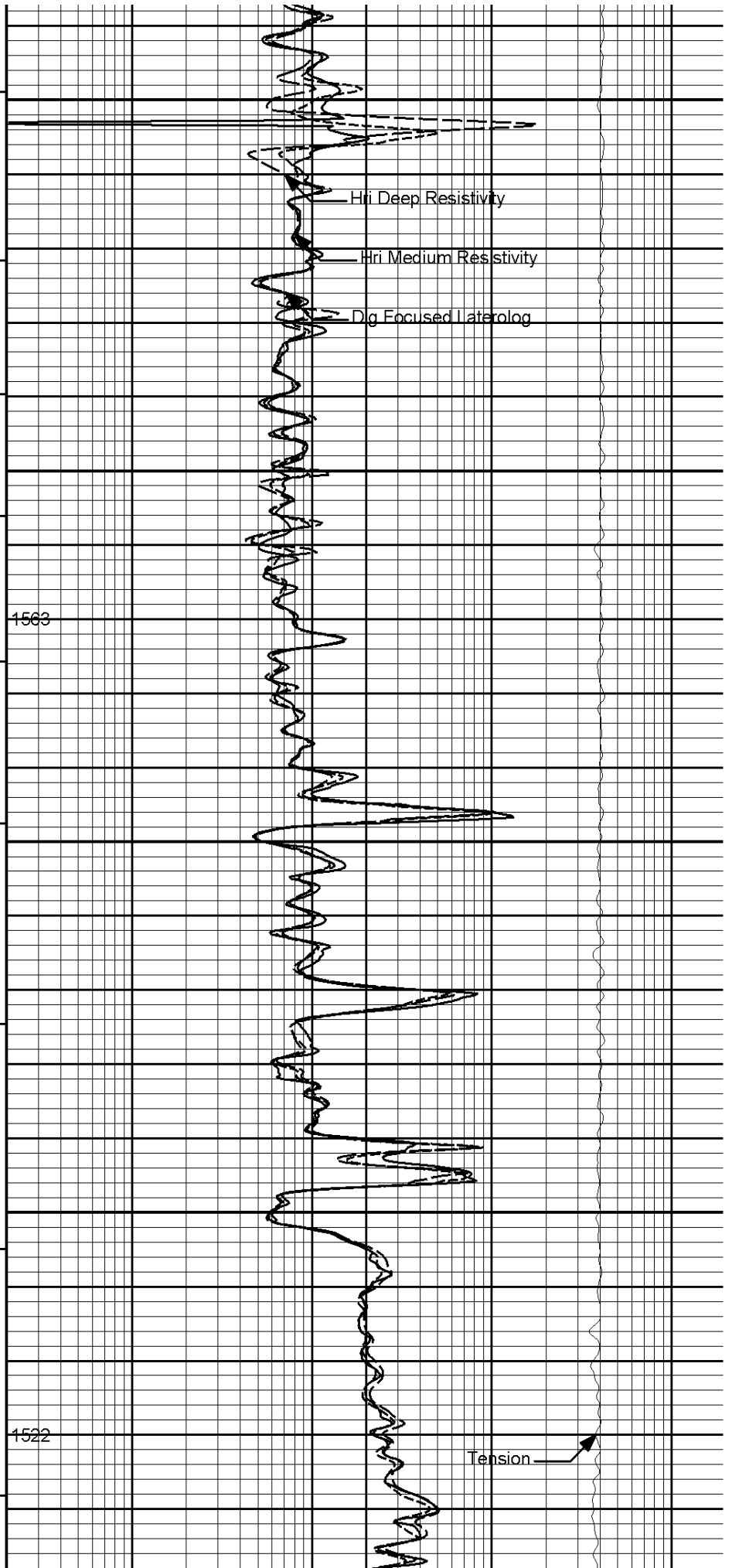




5100

5200

Gamma Ray



Hri Deep Resistivity

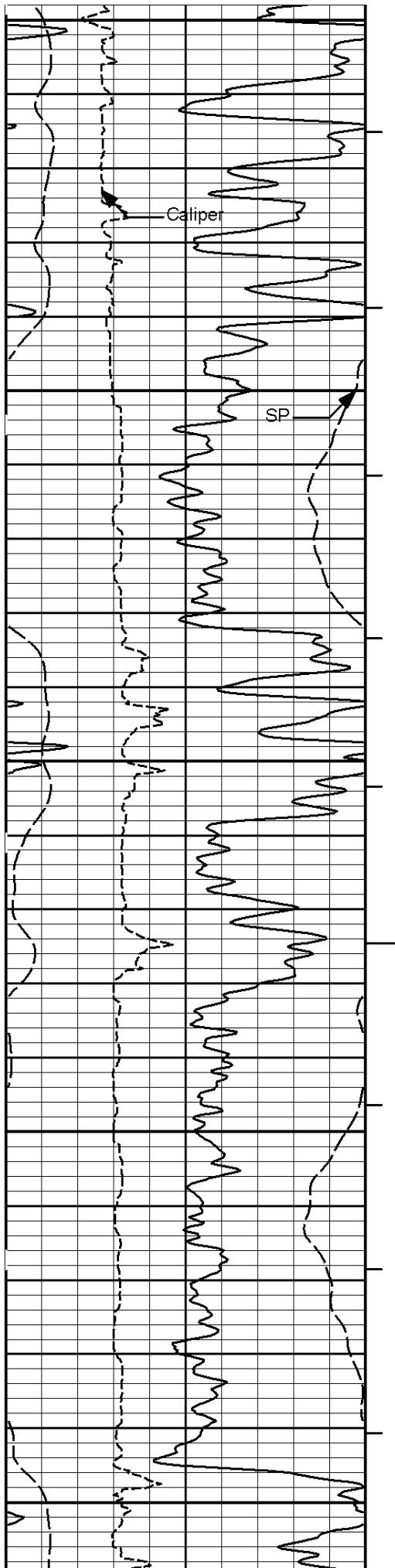
Hri Medium Resistivity

Dig Focused Laterolog

1563

1522

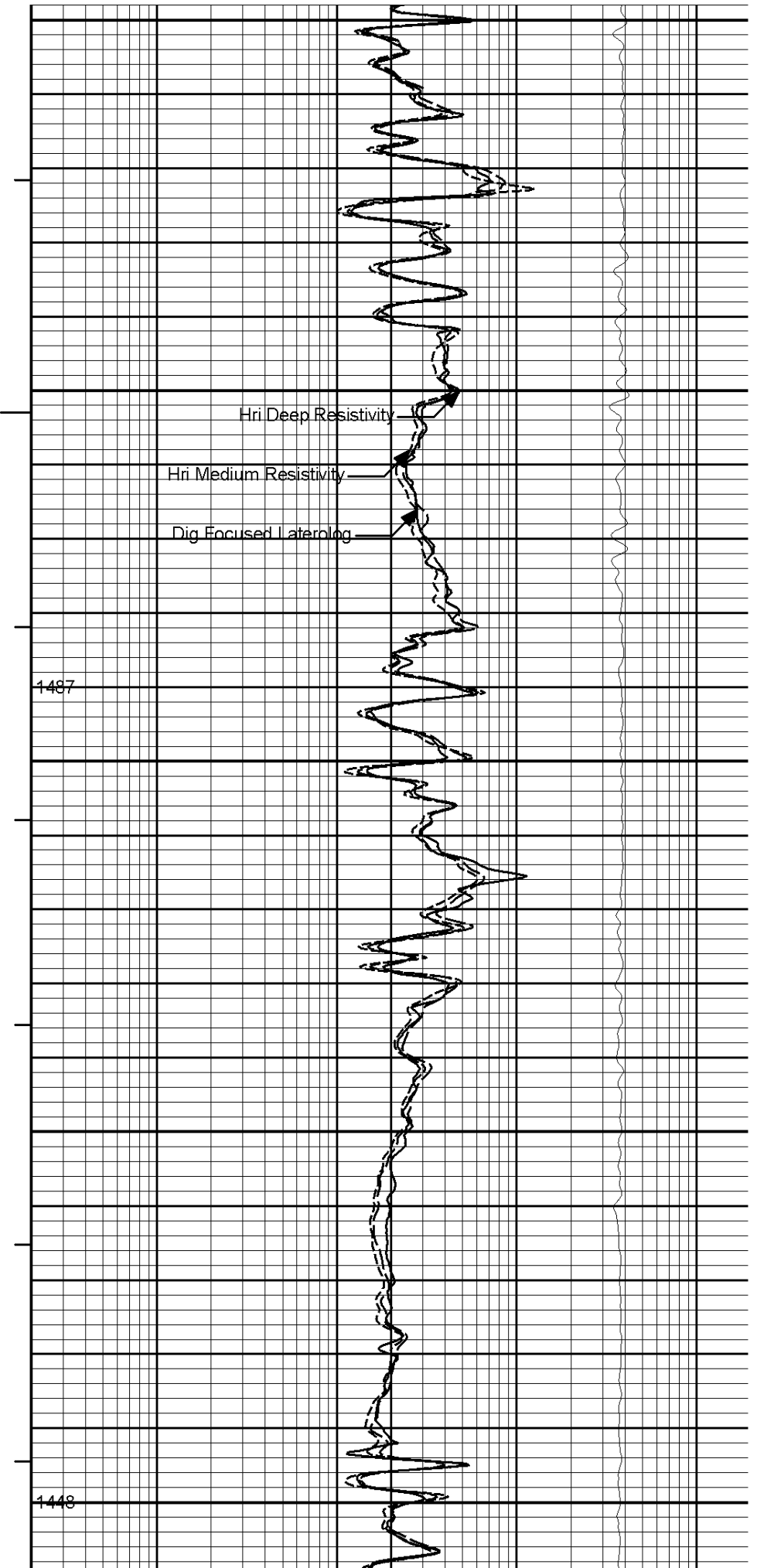
Tension



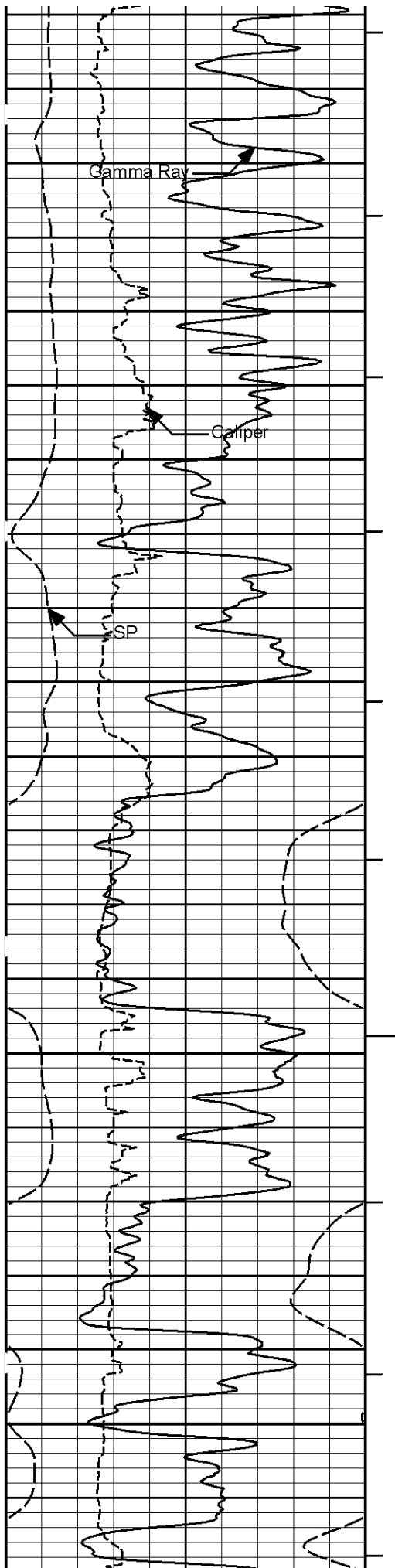
5300

5400

5500

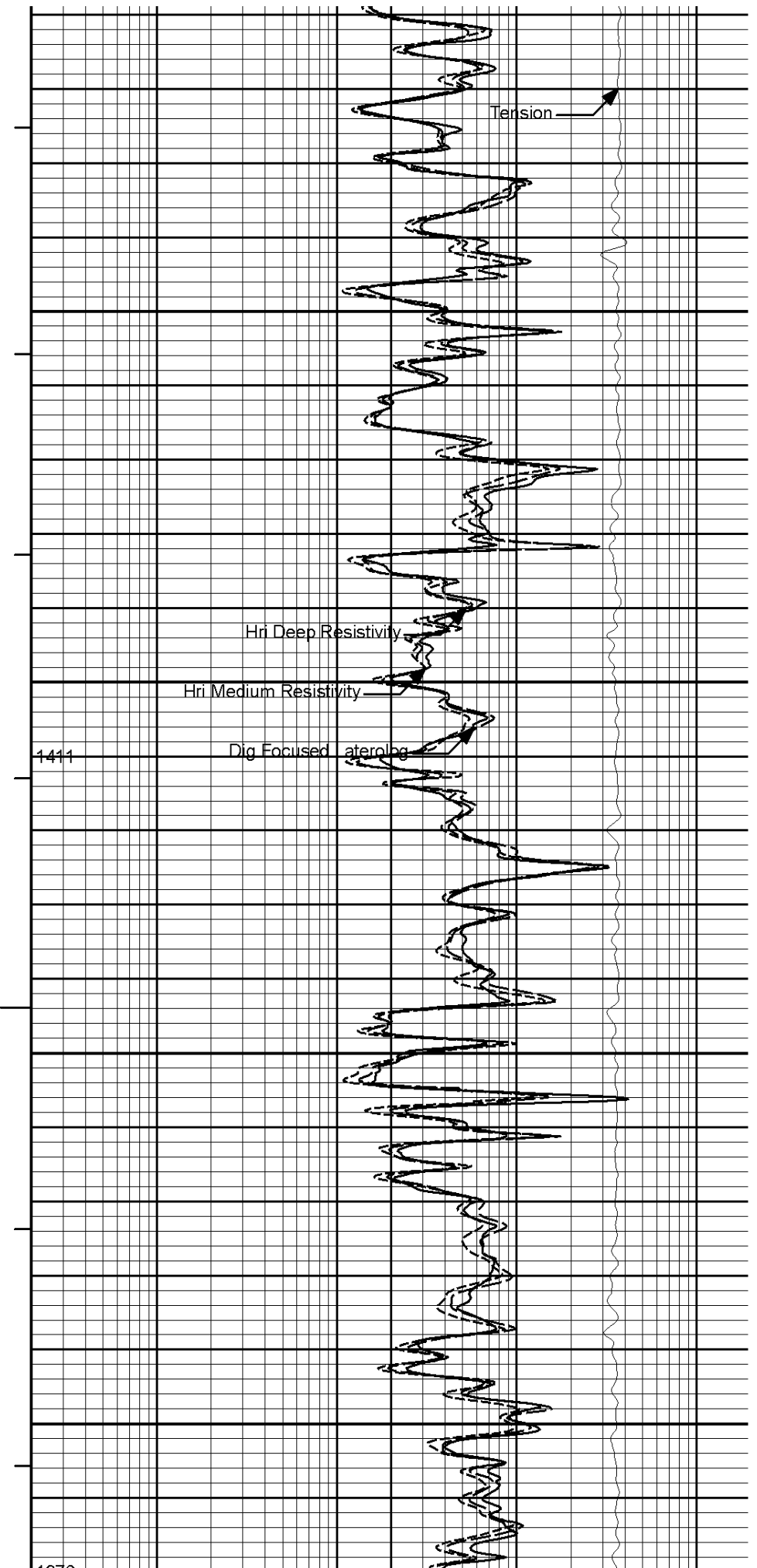






5600

5700



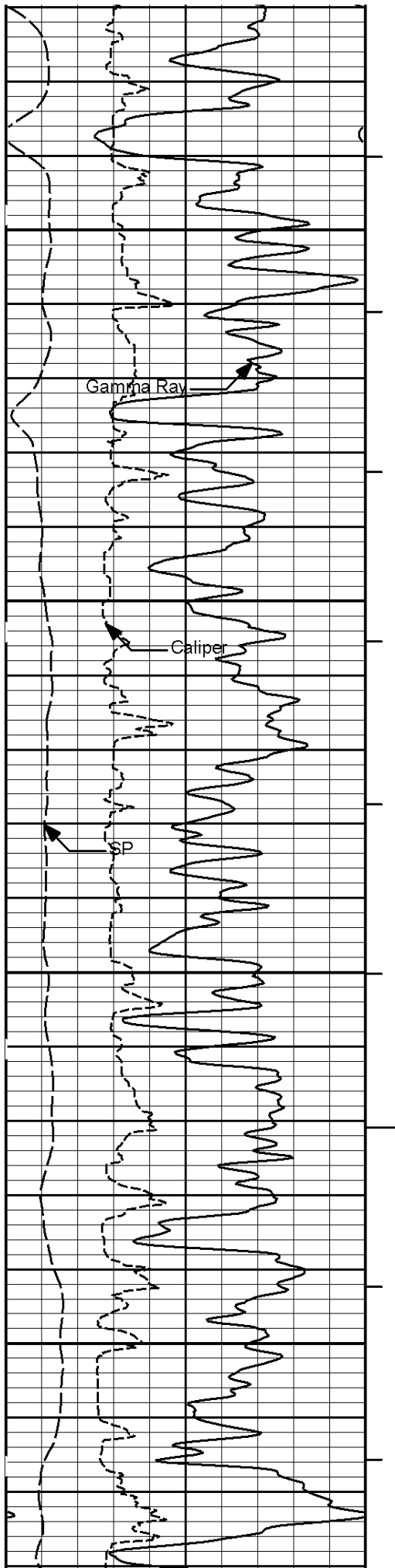
Hri Deep Resistivity

Hri Medium Resistivity

Dig Focused laterolog

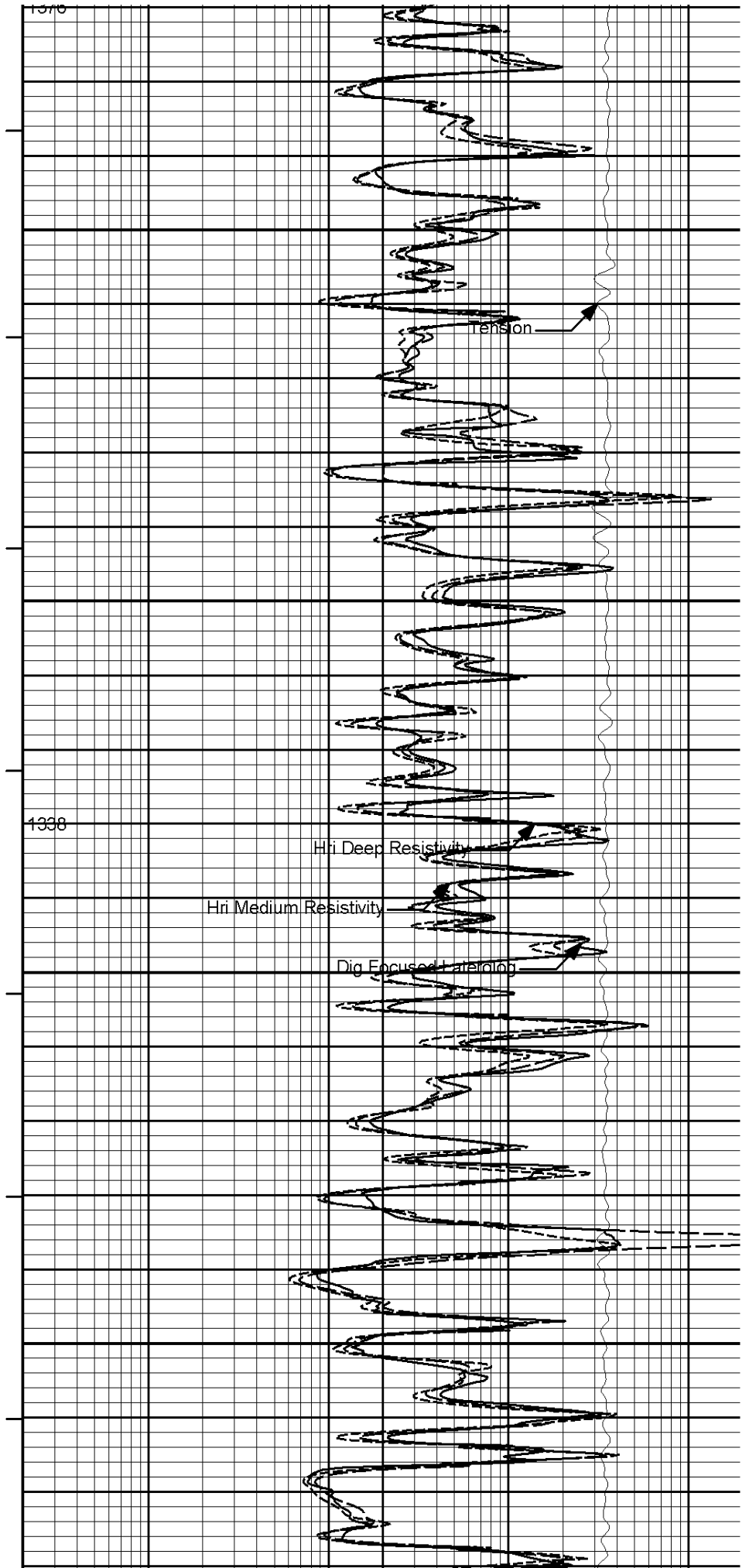
Tension

1411



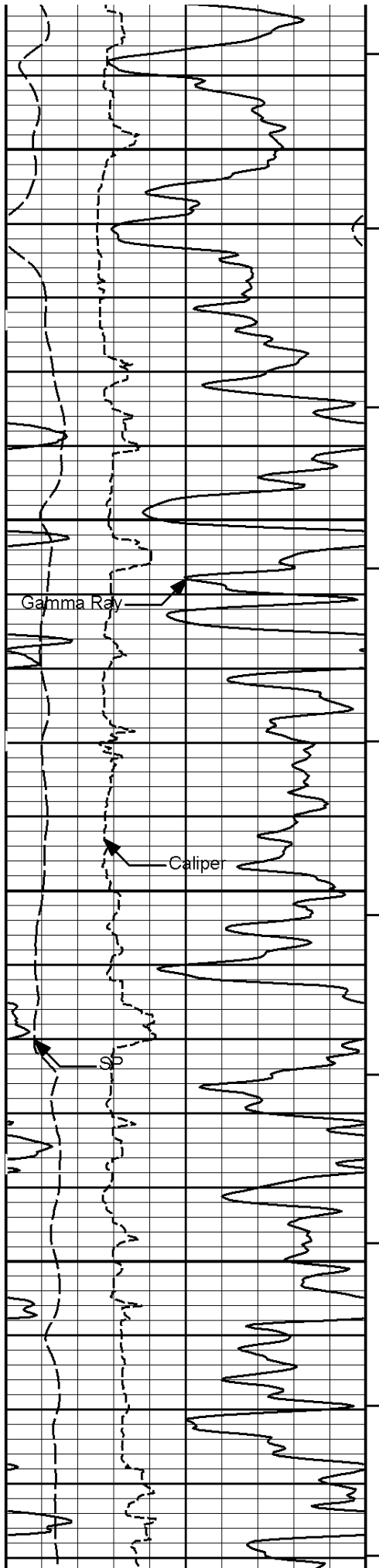
5800

5900



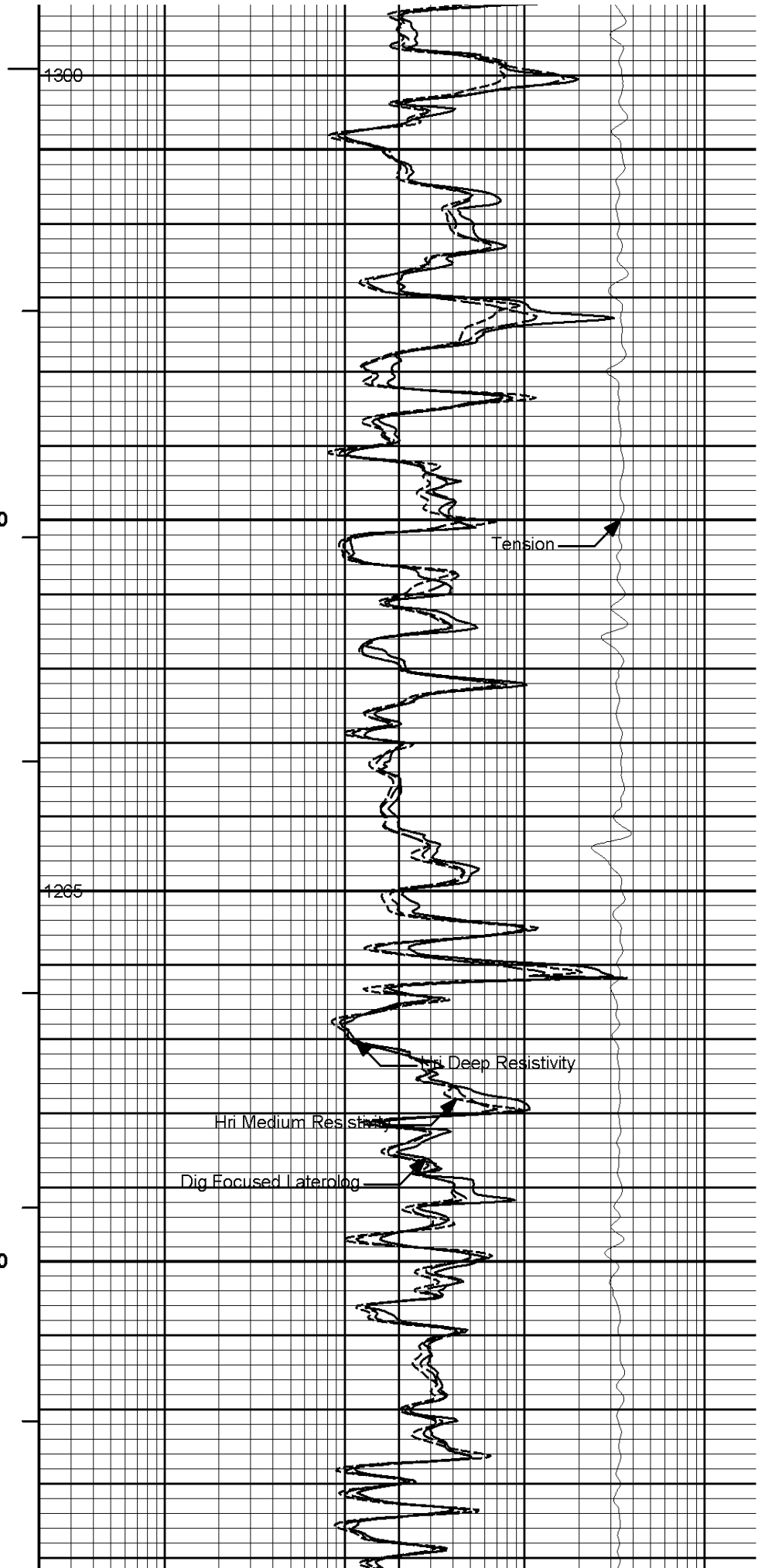
1370

1338



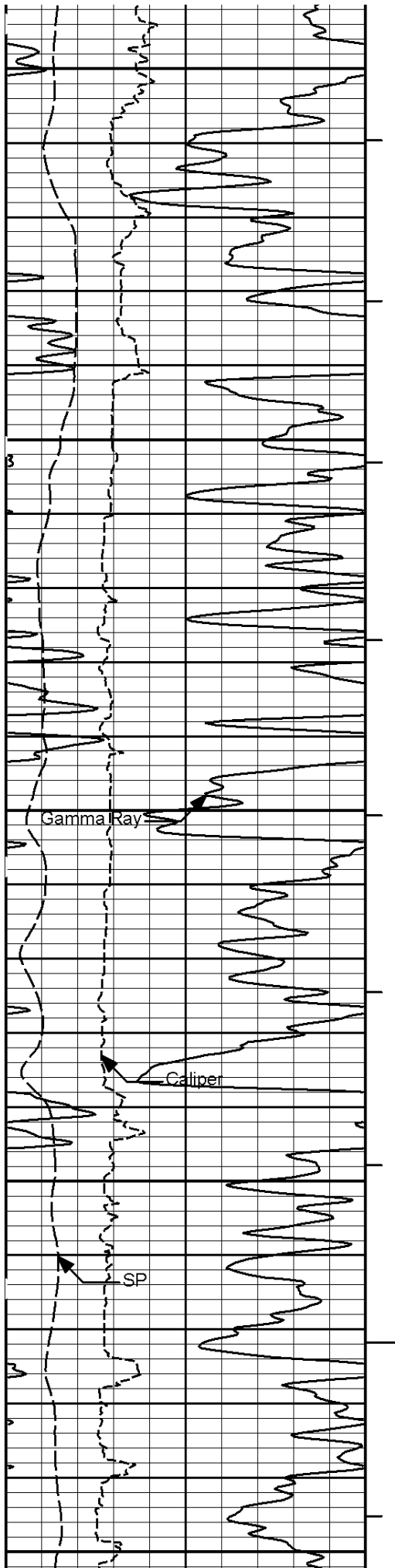
6000

6100



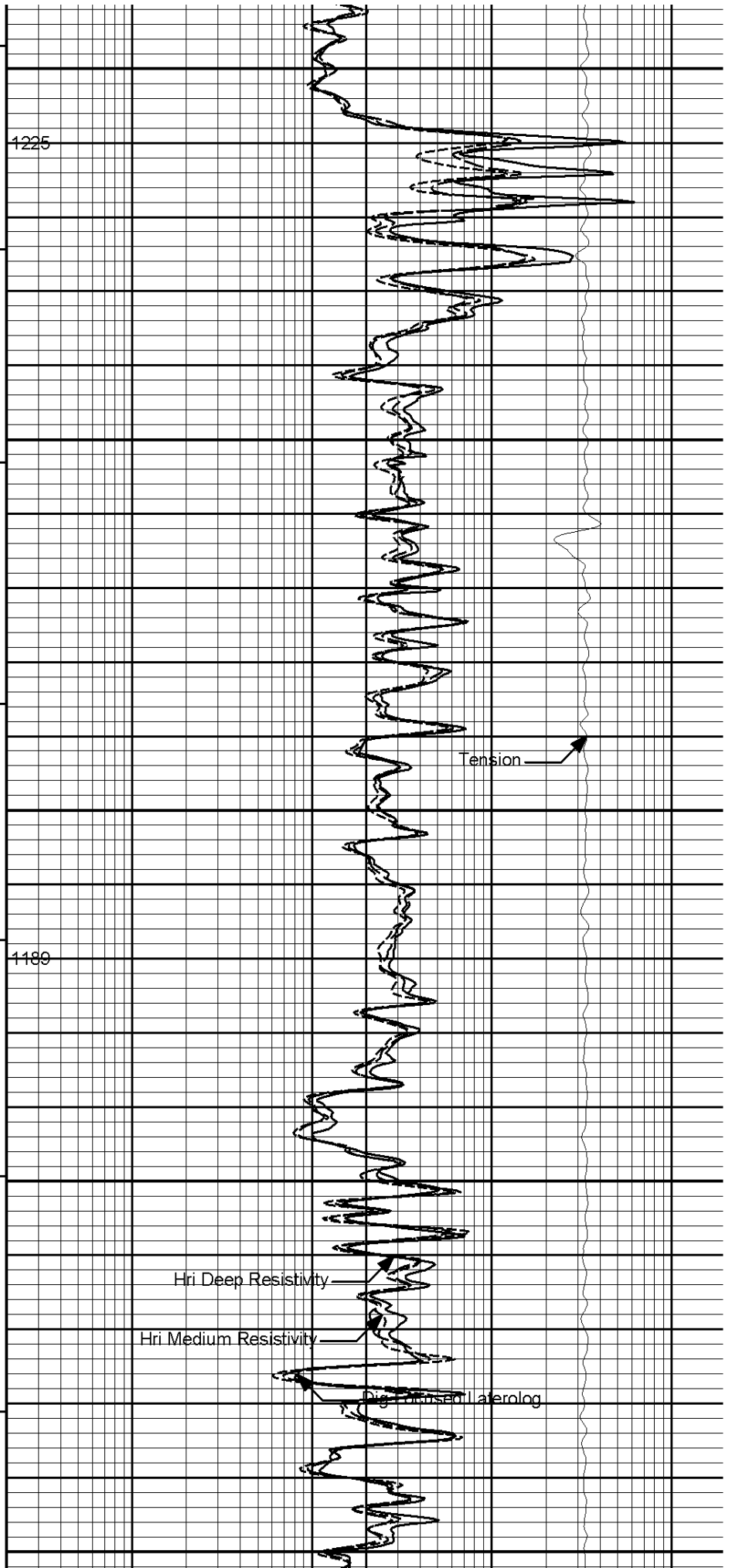
1300

1265



6200

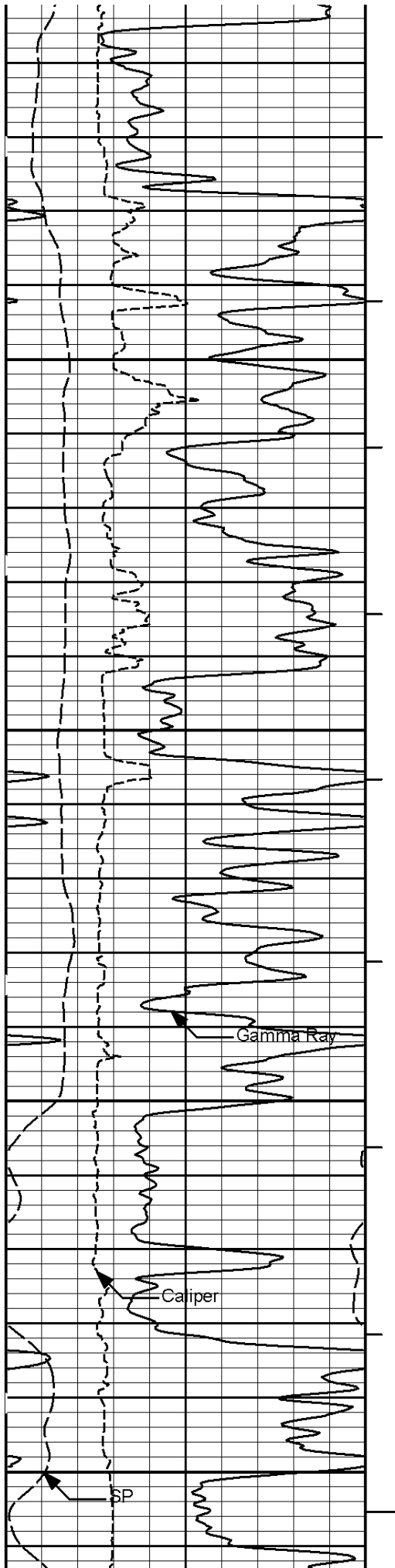
6300



1225

1189

Tension



6400

6500

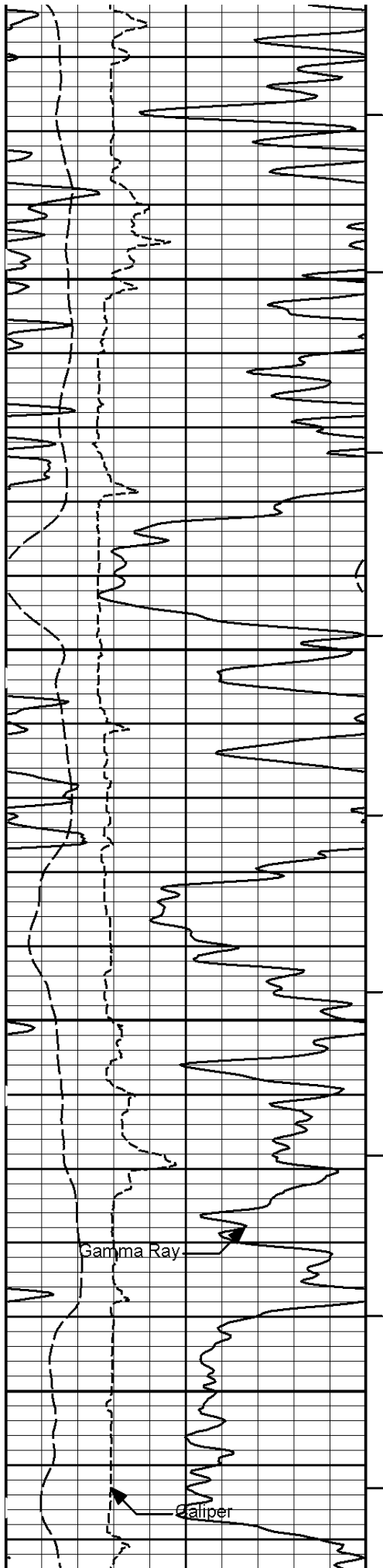
1155

1148

Hri Deep Resistivity

Hri Medium Resistivity

Tension

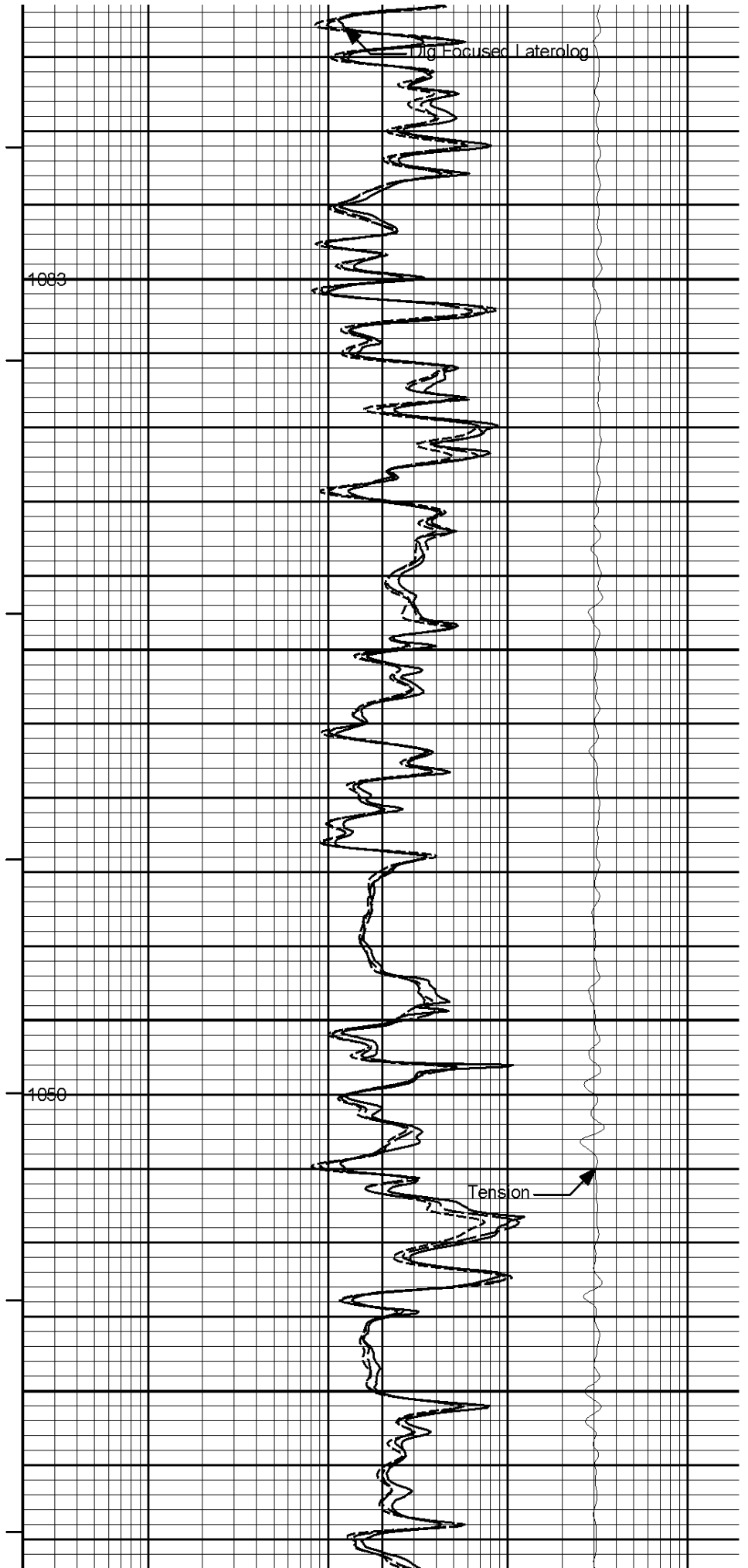


6600

6700

Gamma Ray

Caliper

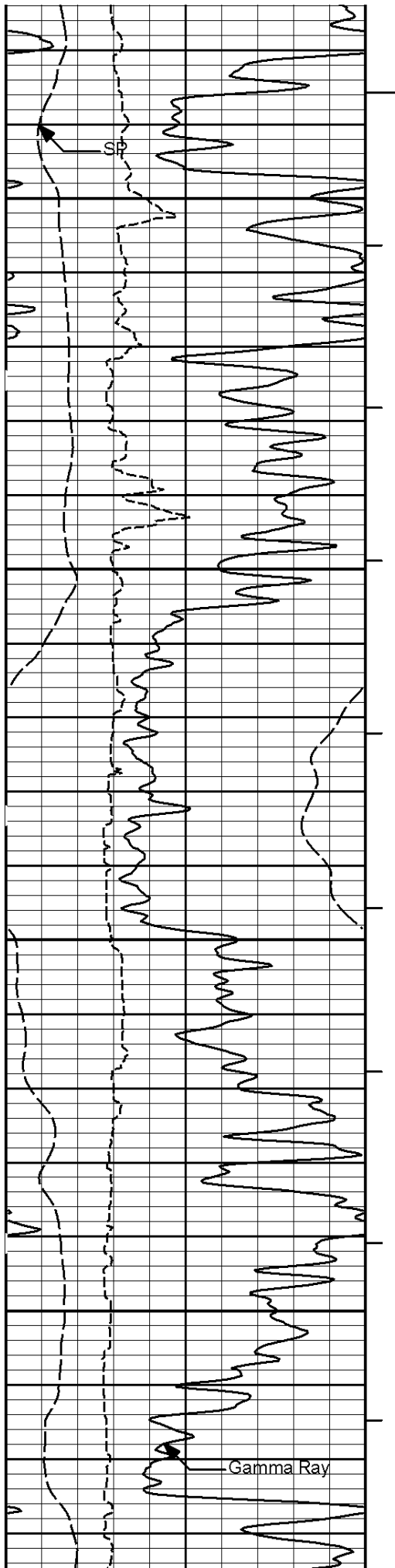


1000

1050

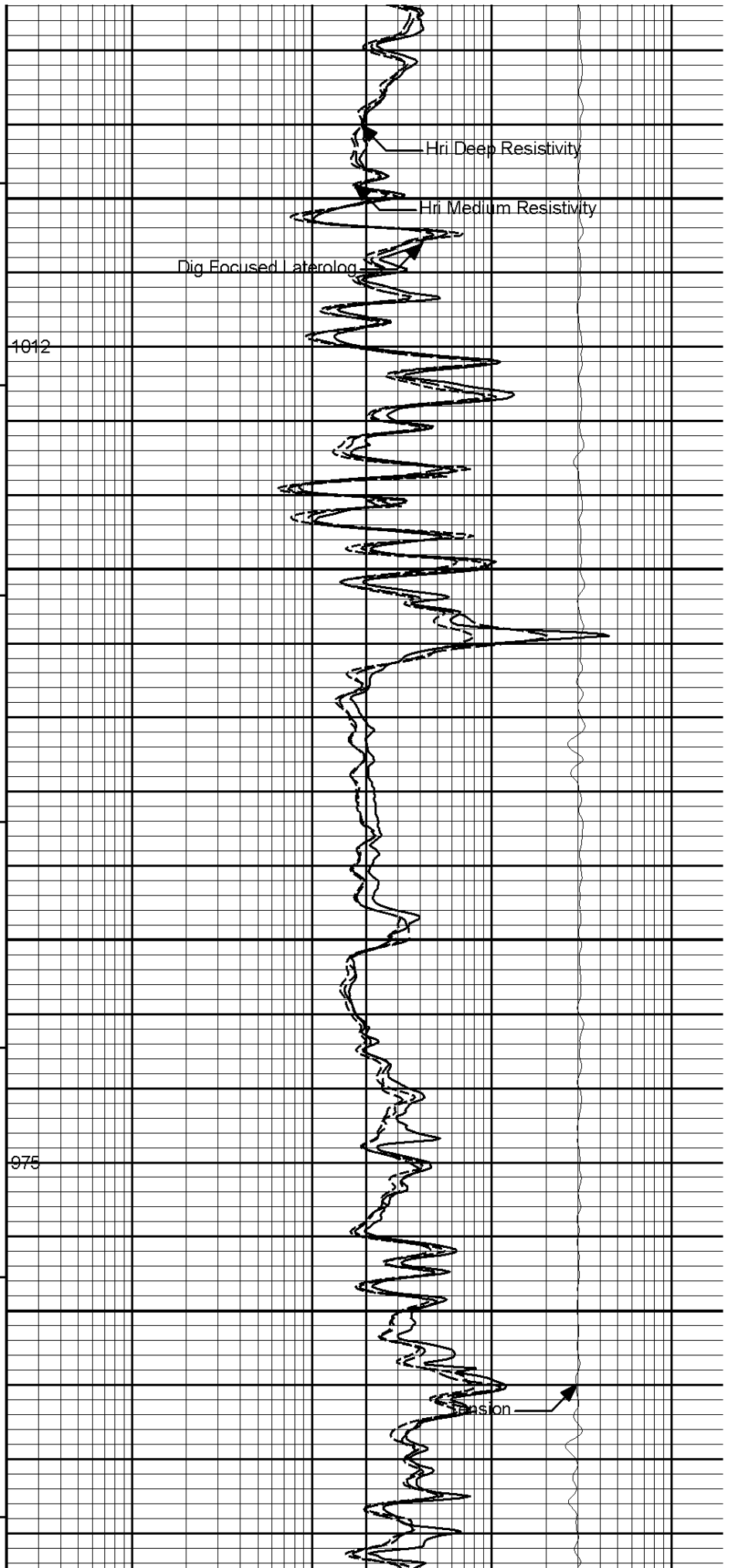
Dig Focused Laterolog

Tension



6800

6900



Hri Deep Resistivity

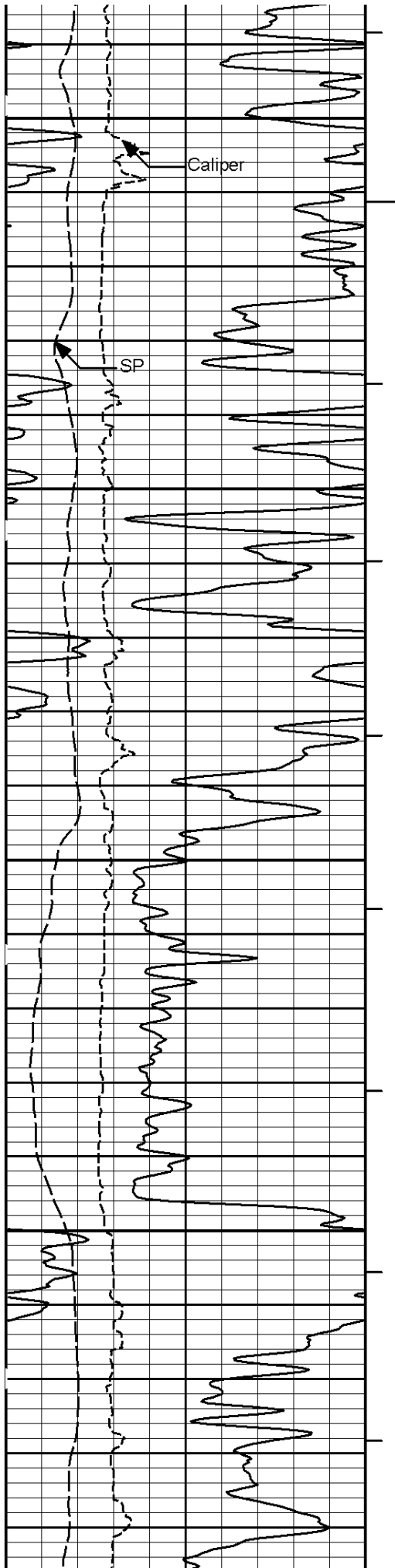
Hri Medium Resistivity

Dig Focused Laterolog

1012

975

Division

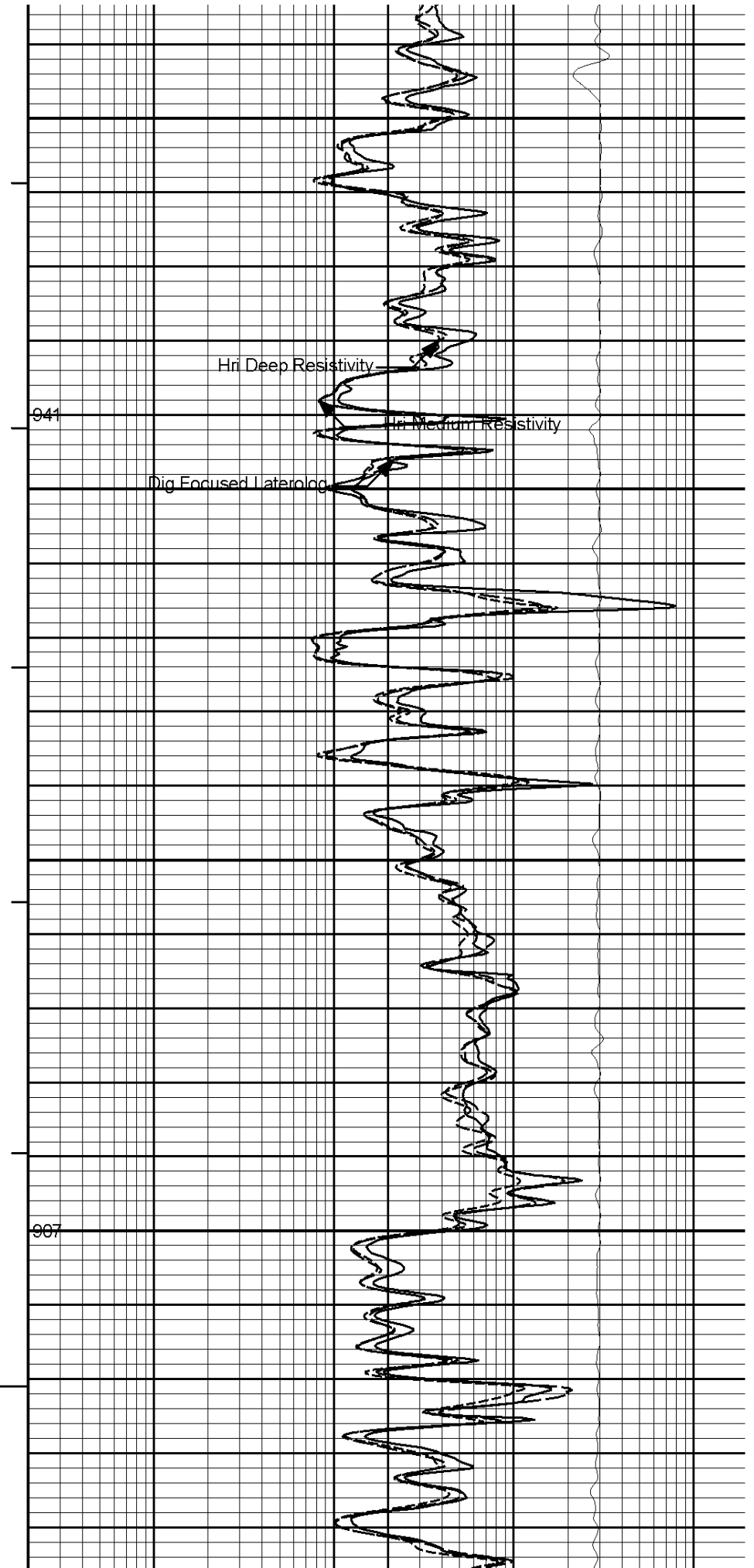


7000

Caliper

SP

7100



Hri Deep Resistivity

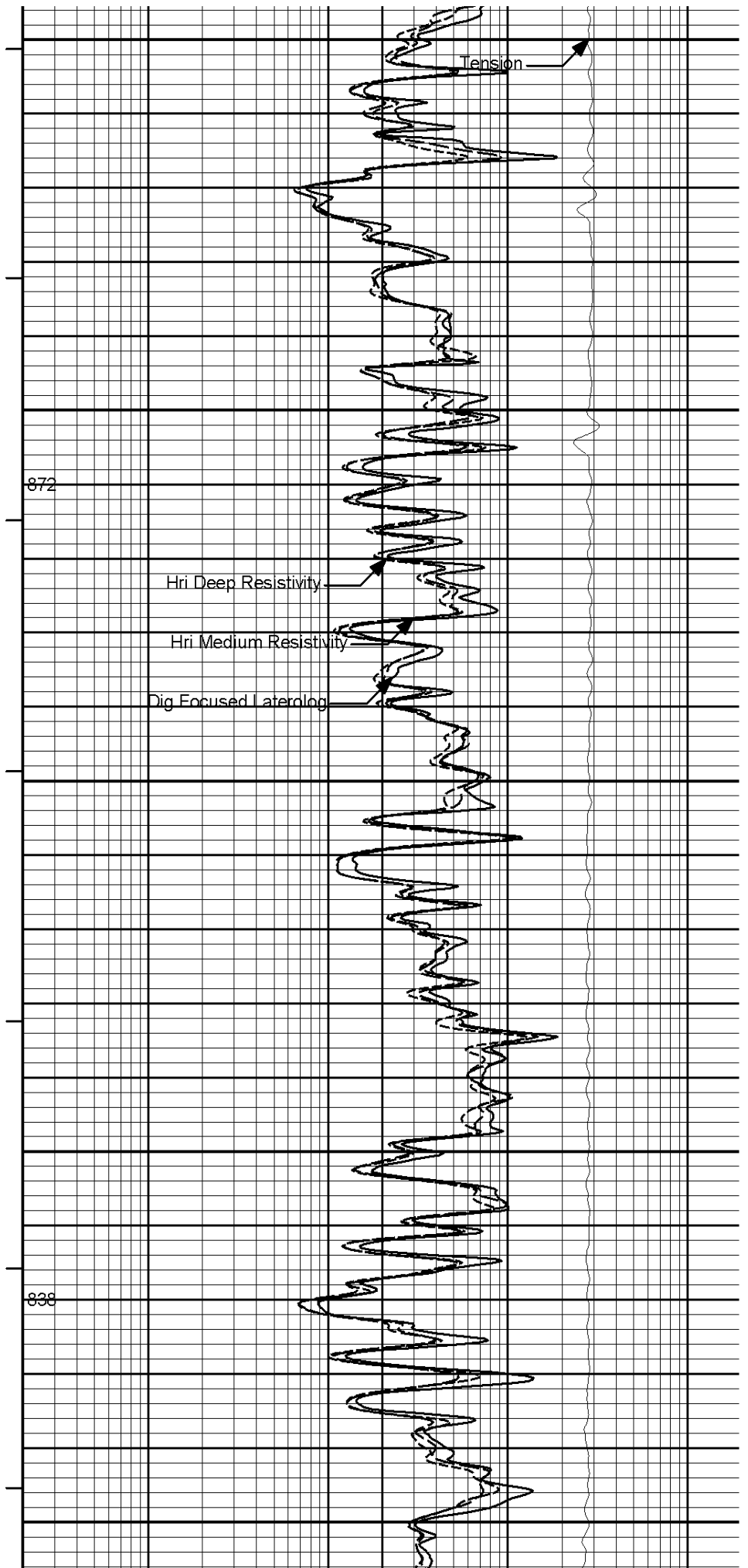
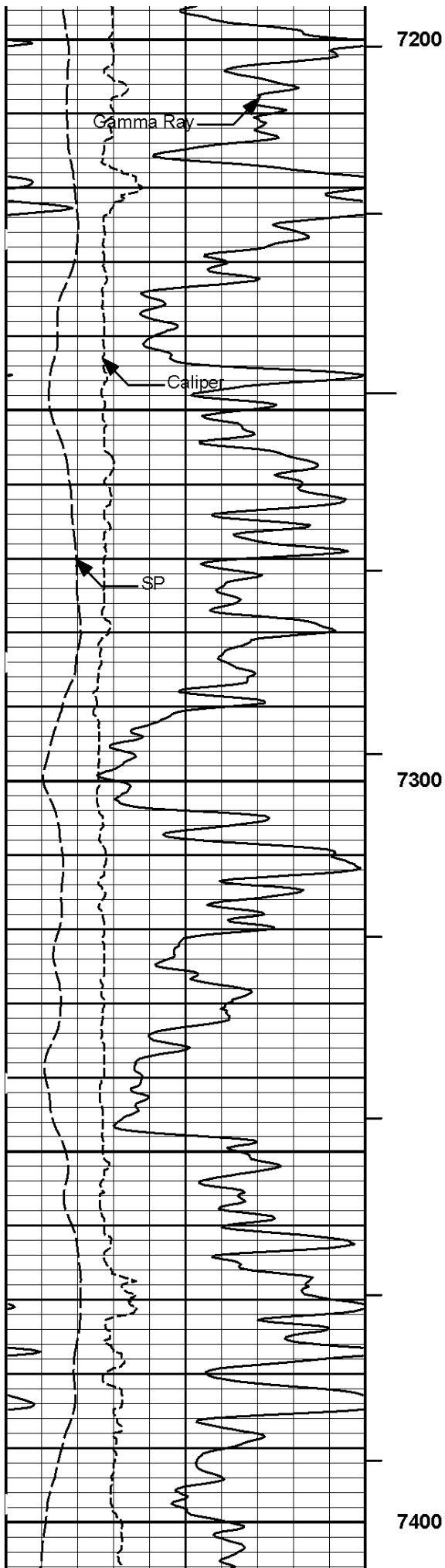
941

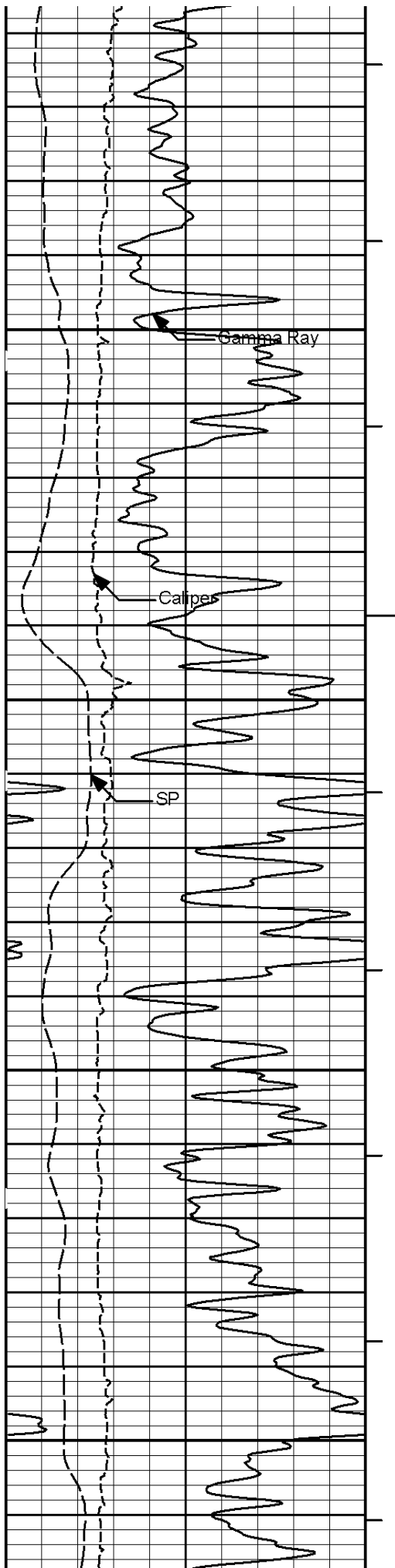
Hri Medium Resistivity

Dig Focused Laterolog

997

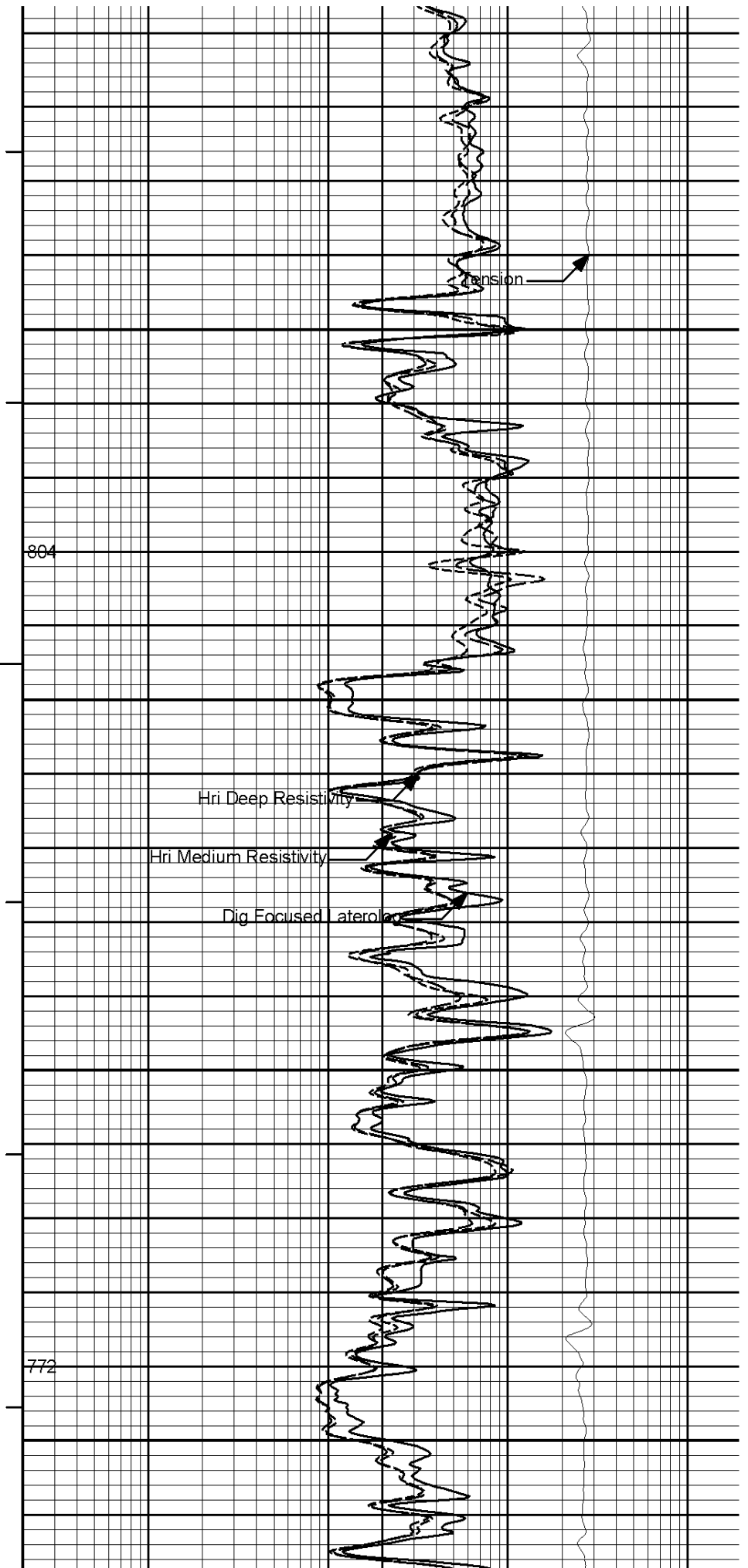






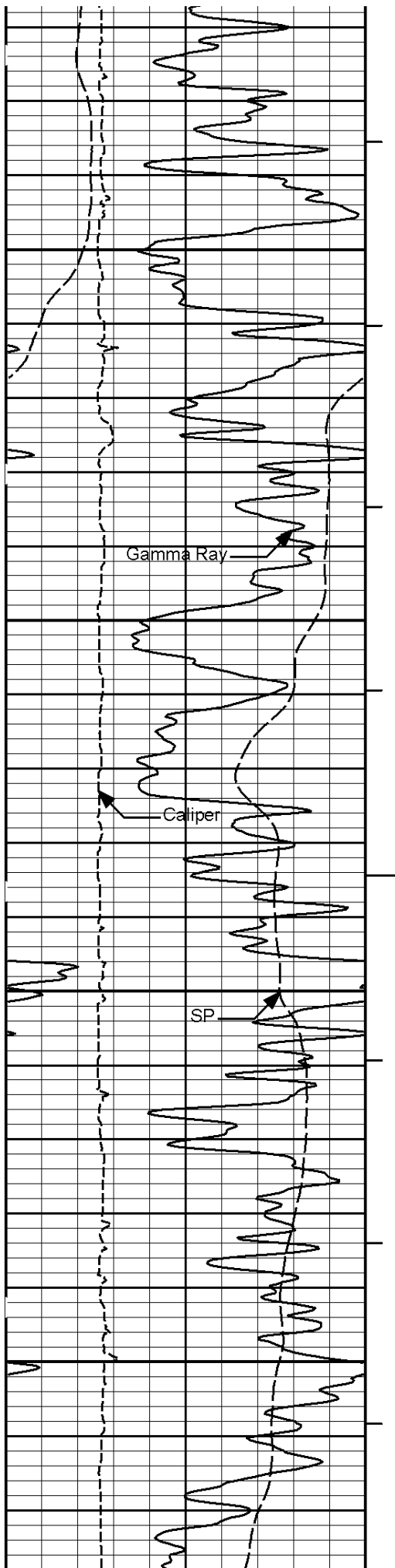
7500

7600



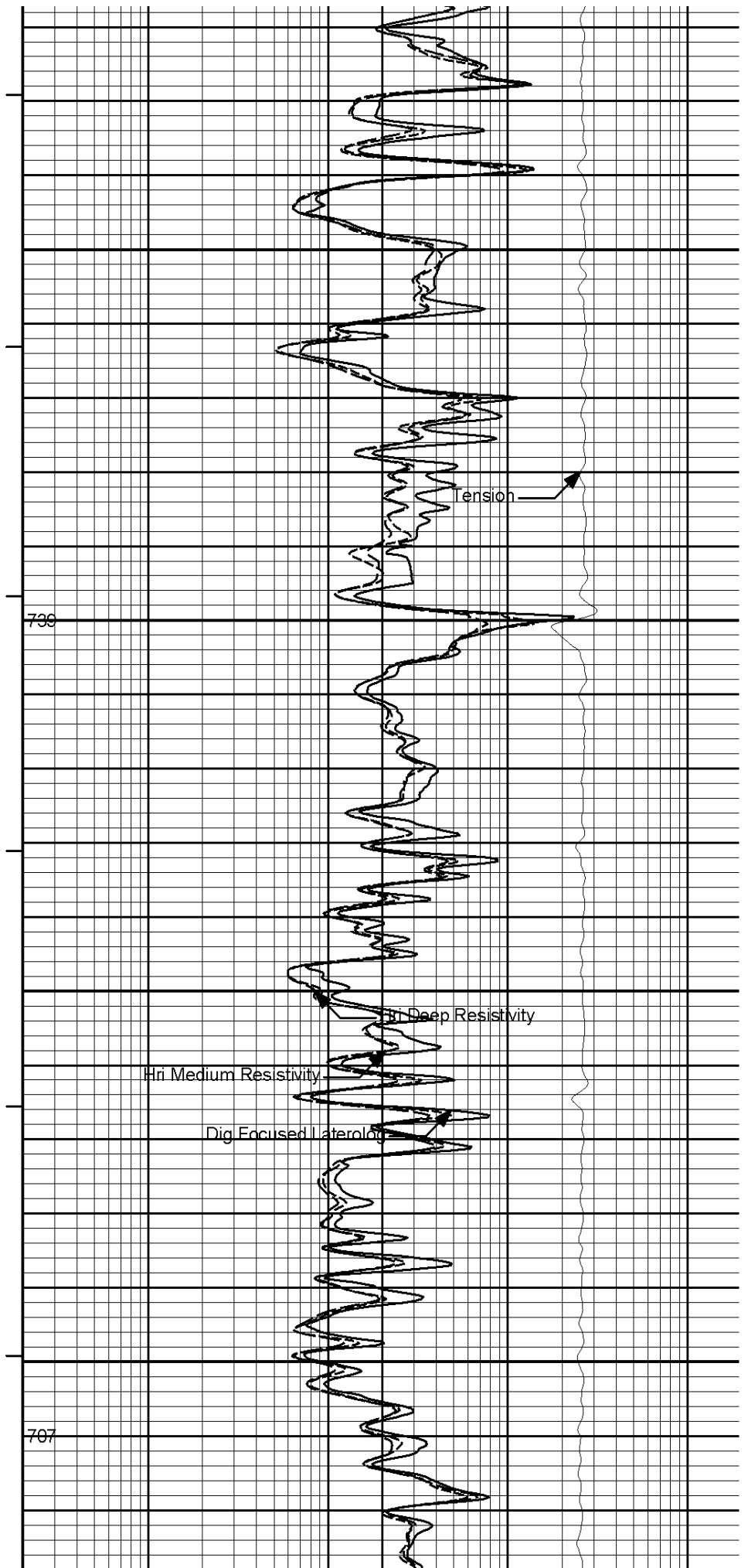
804

772



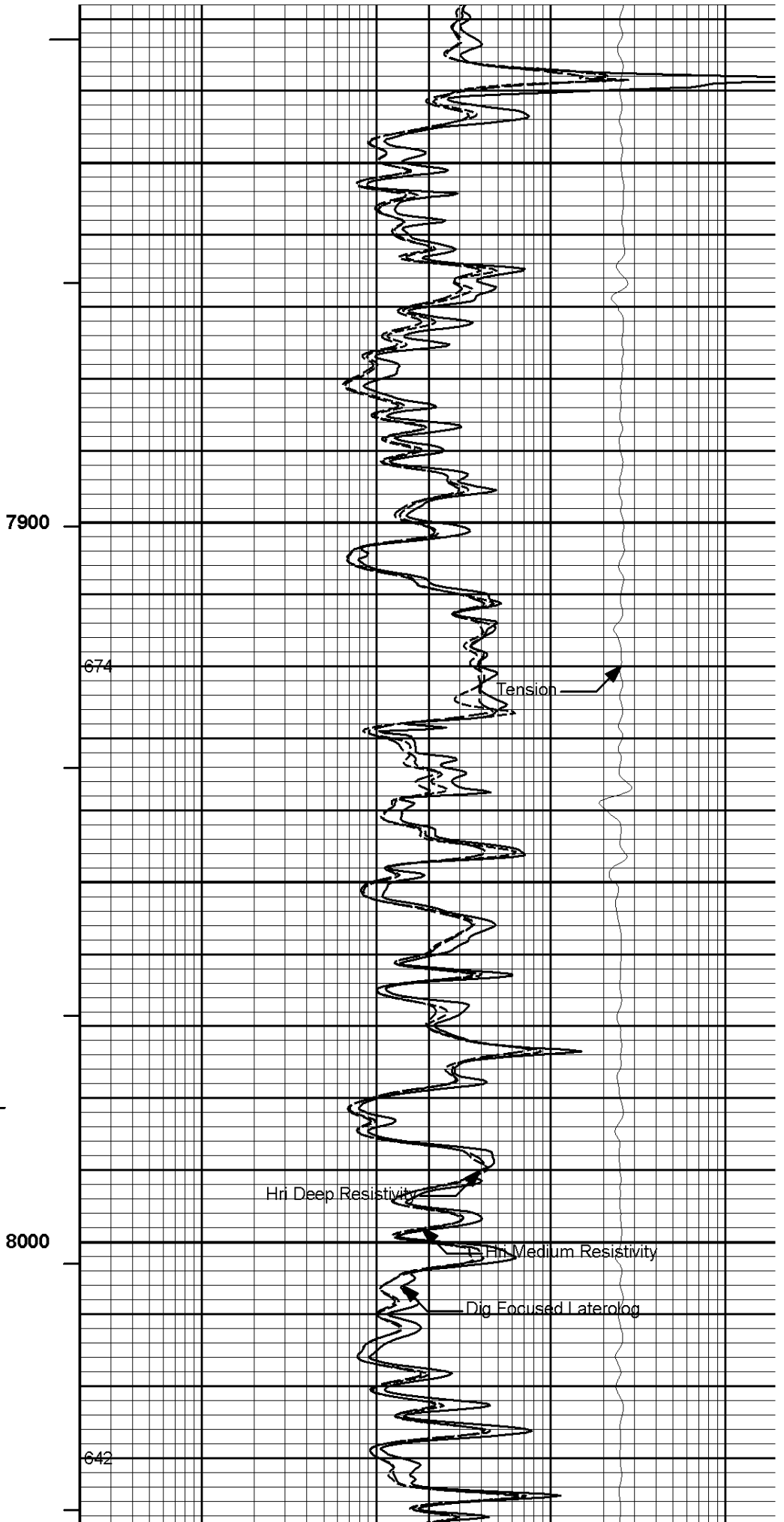
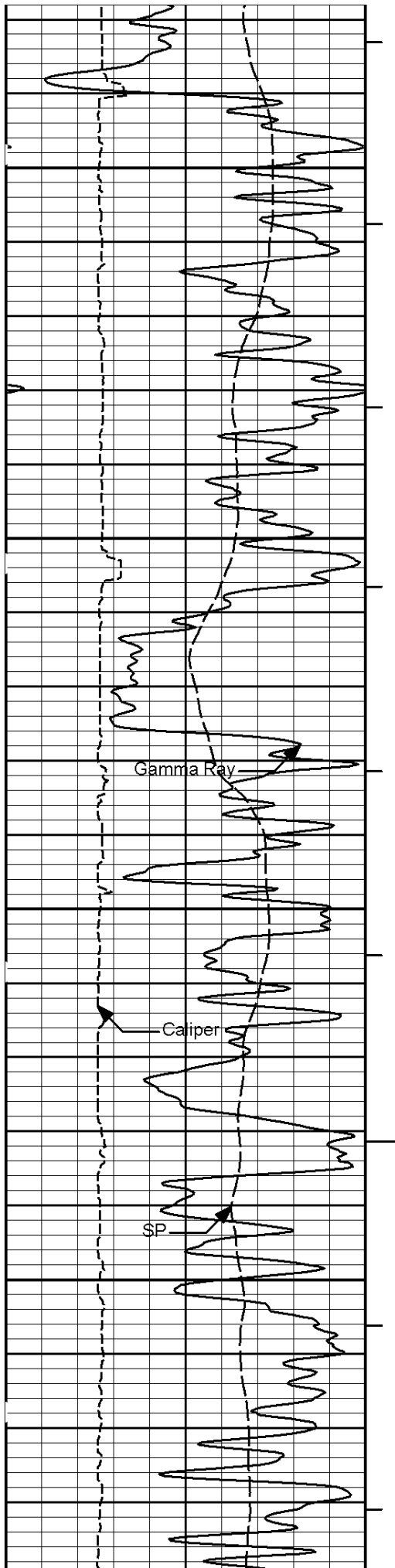
7700

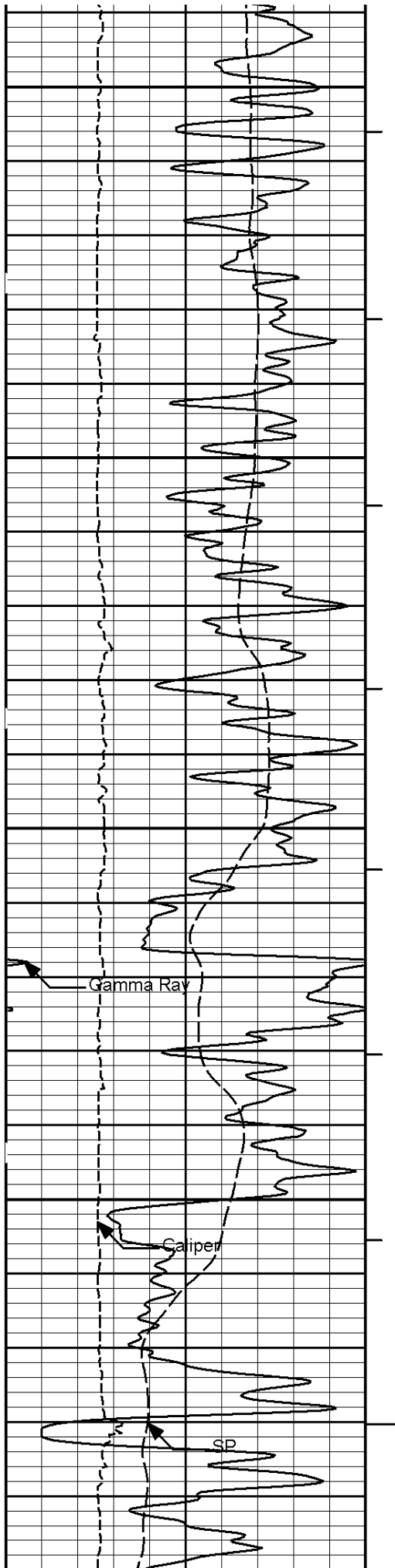
7800



7700

7800





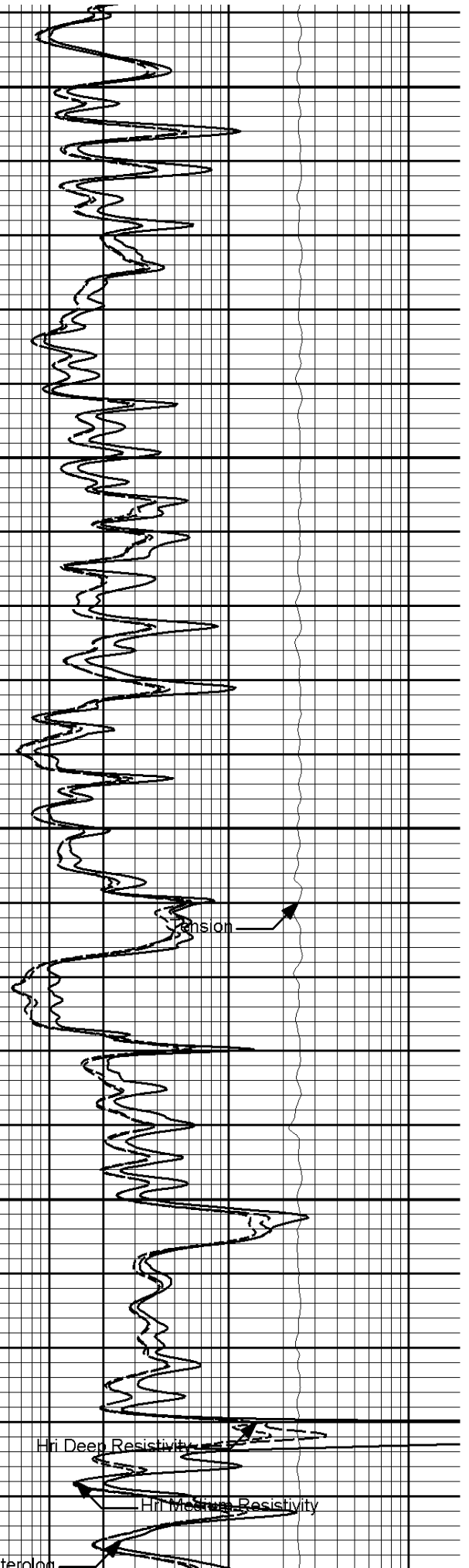
8100

616

8200

576

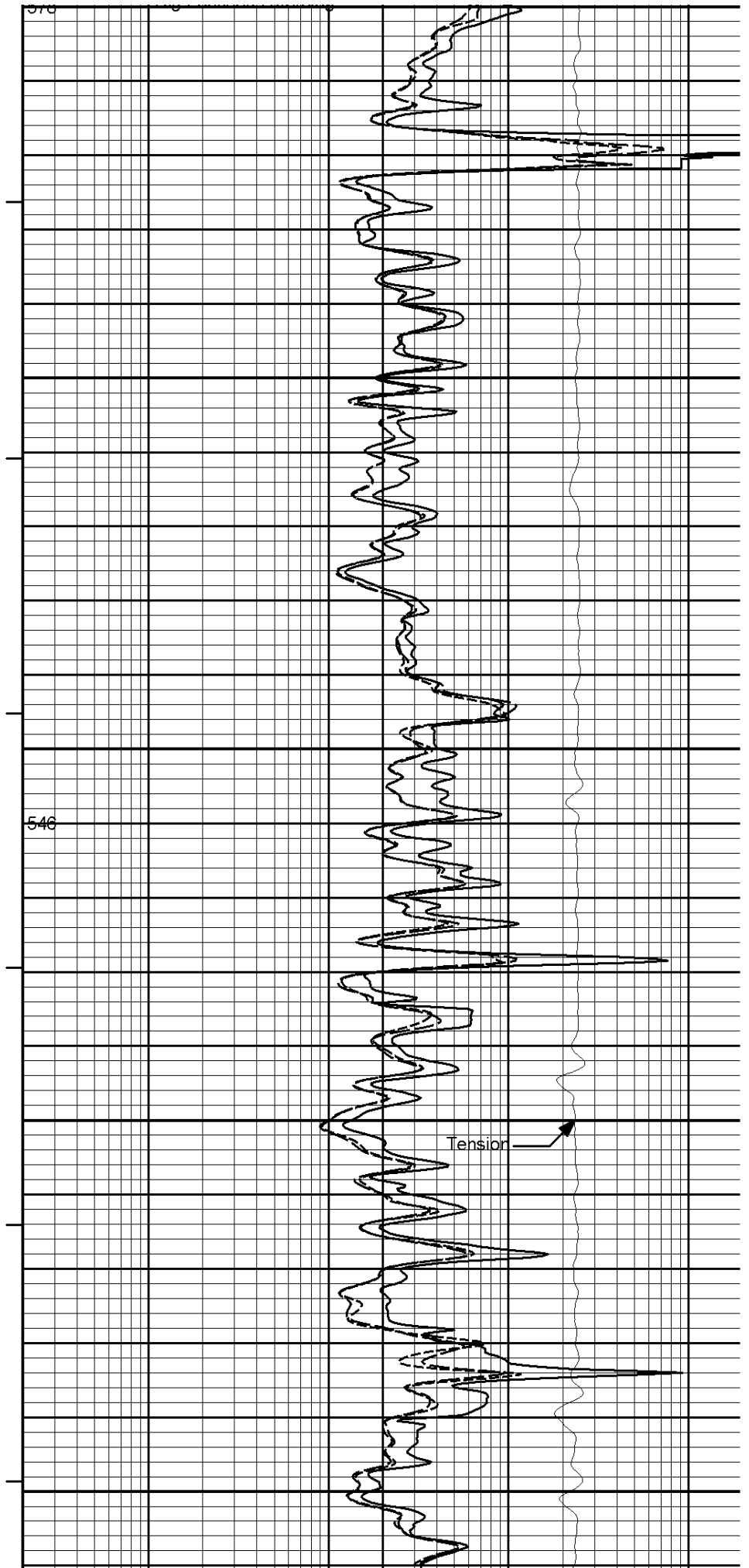
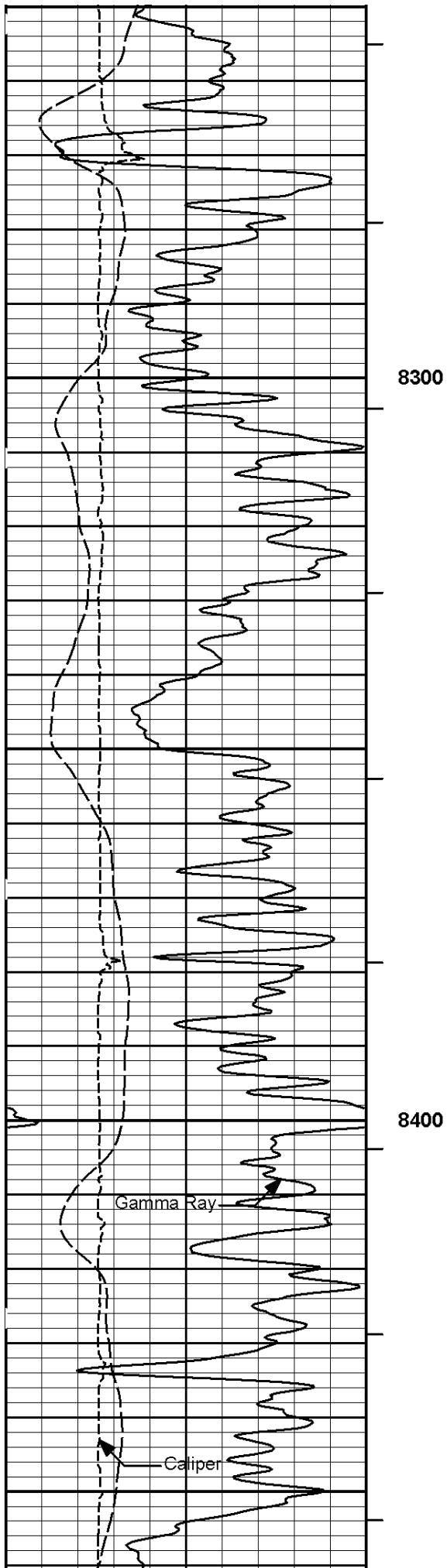
Dir Focused Laterolog

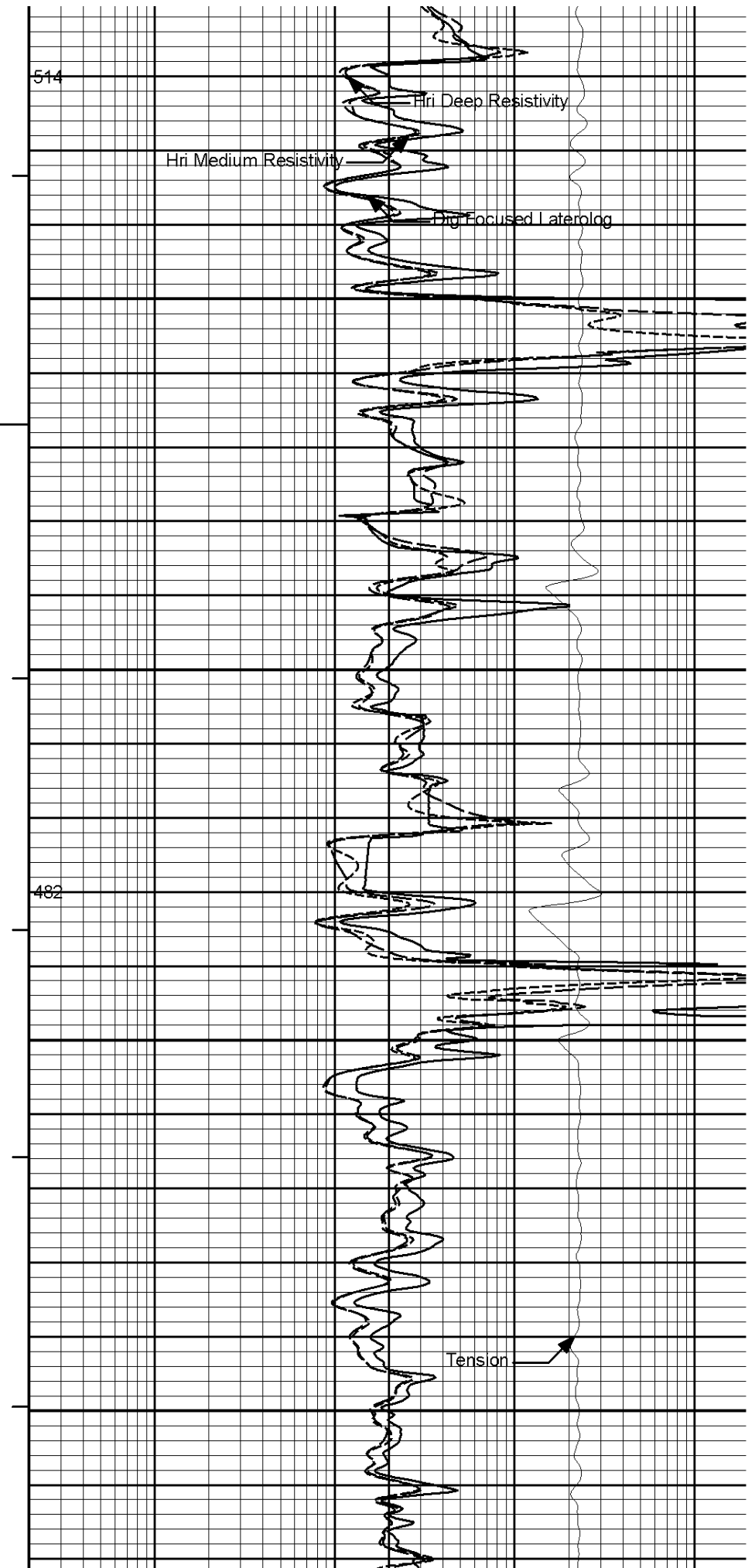
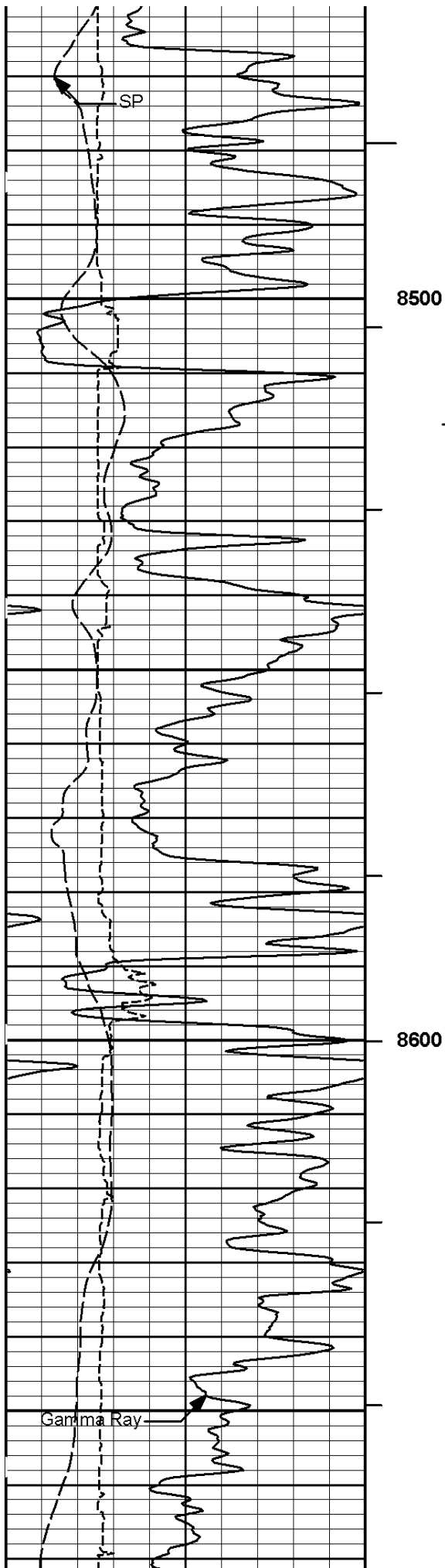


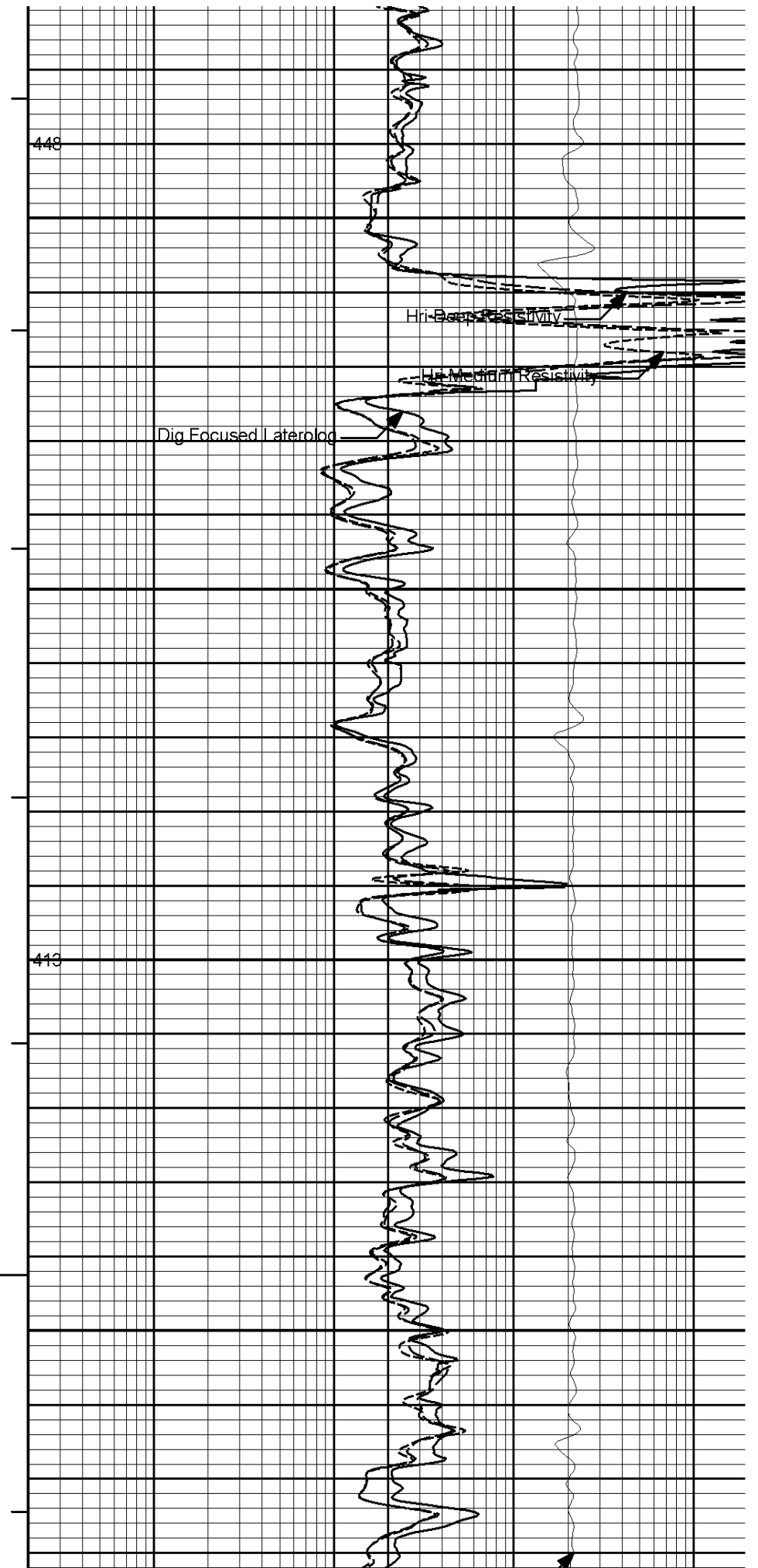
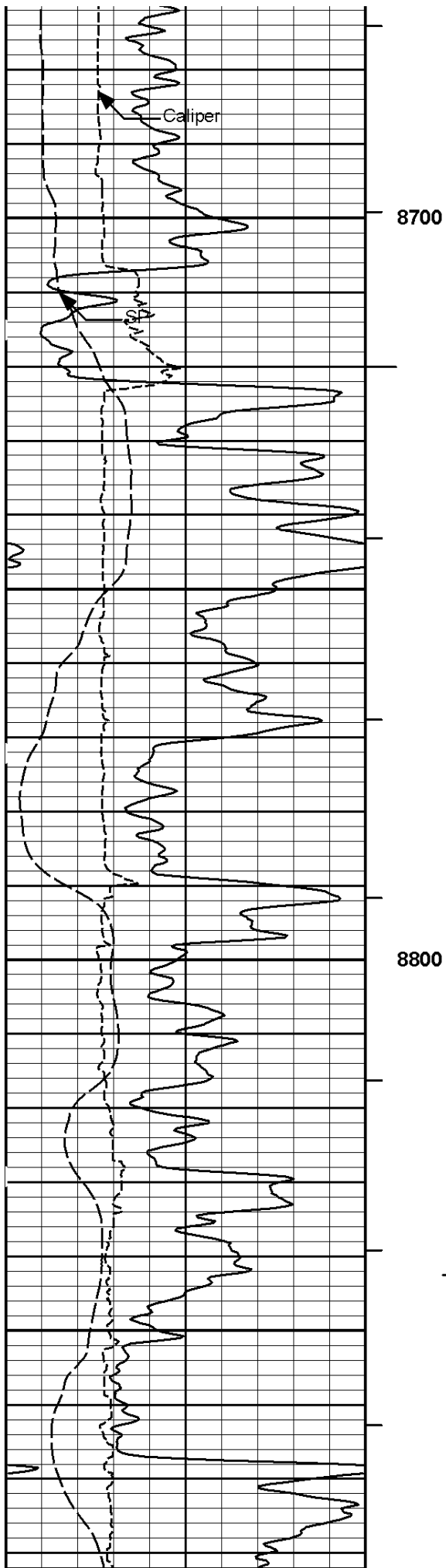
Hi Deep Resistivity

Hi Medium Resistivity

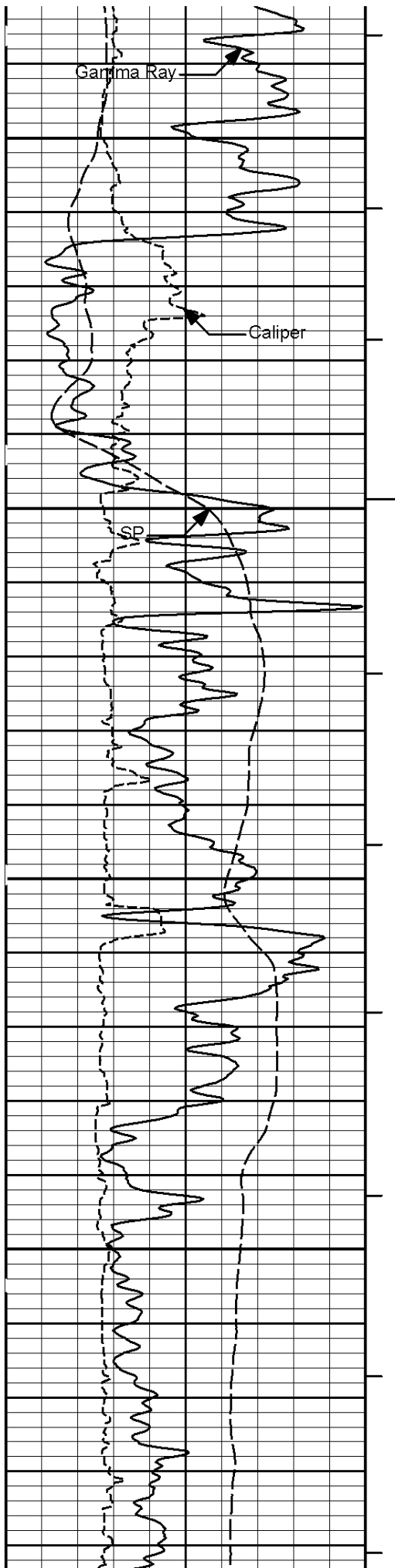
Tension





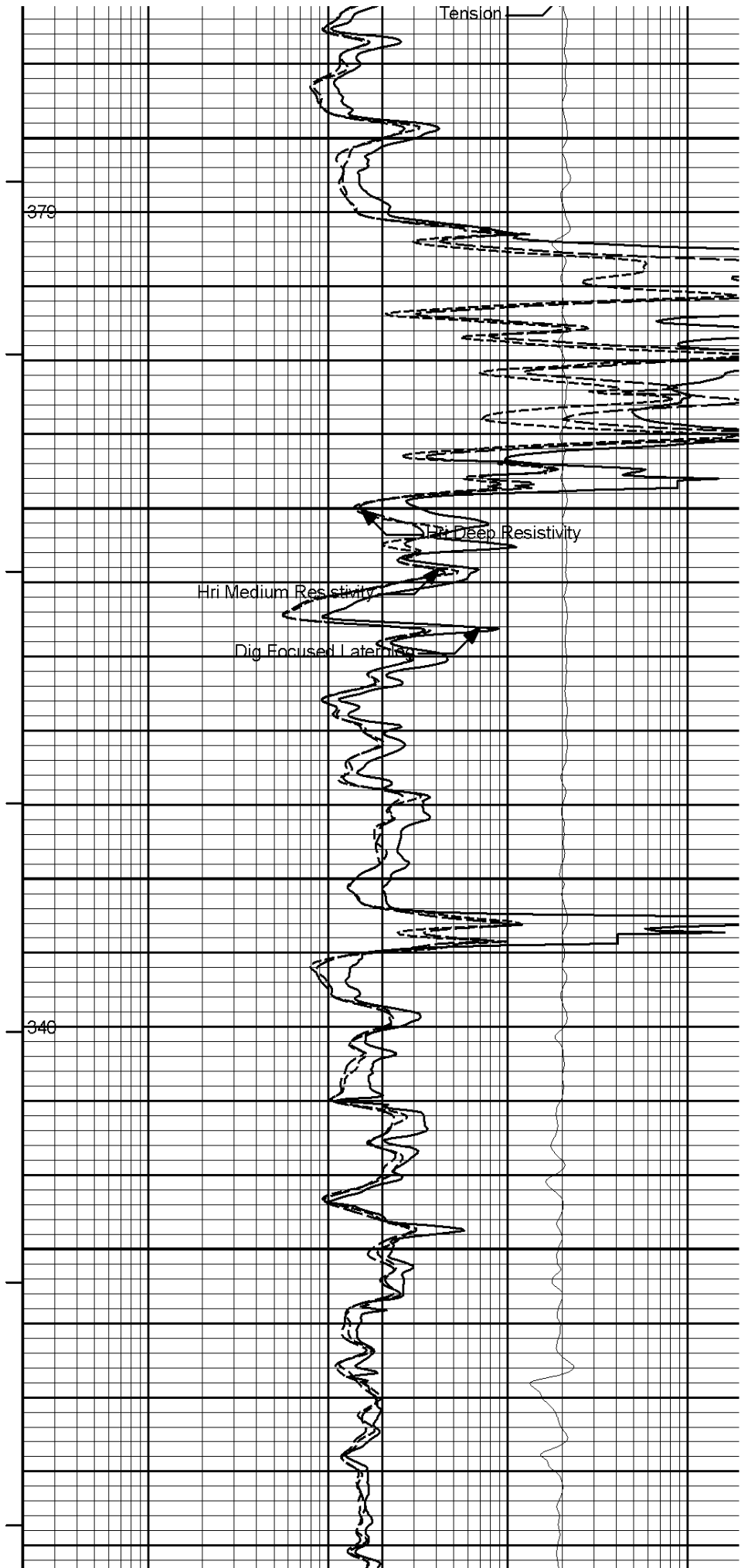






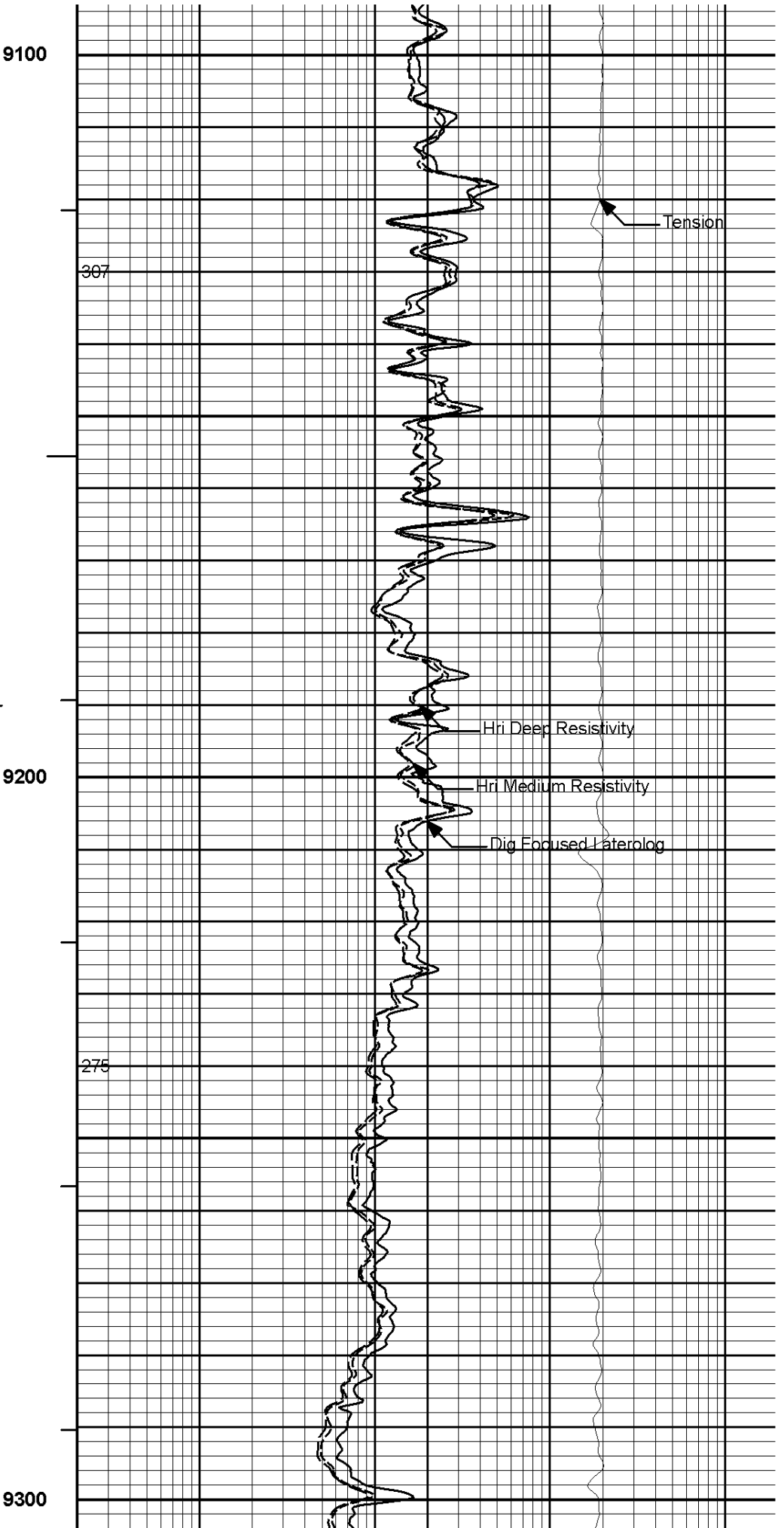
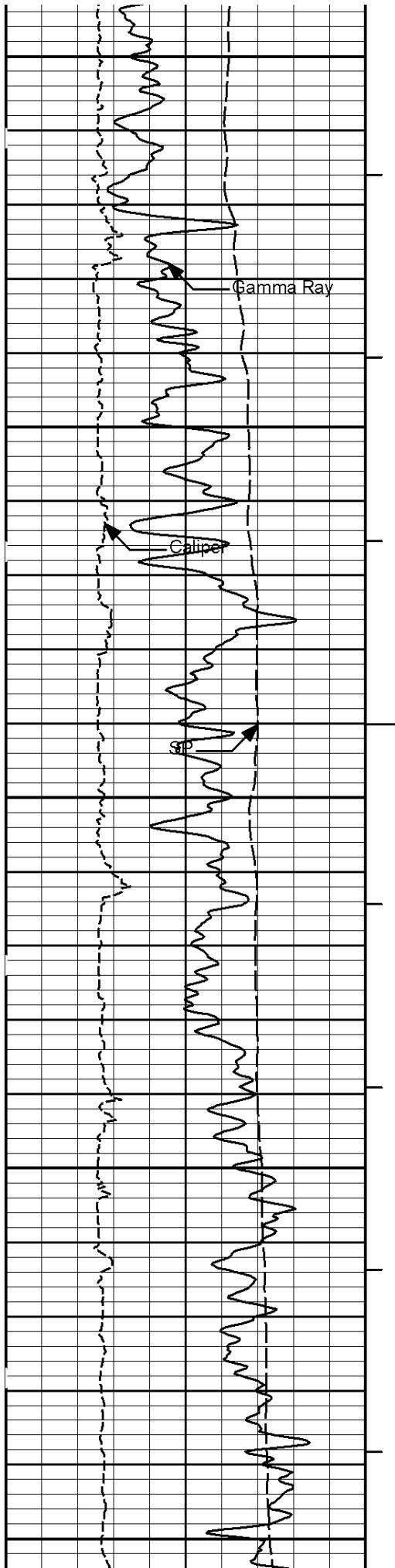
8900

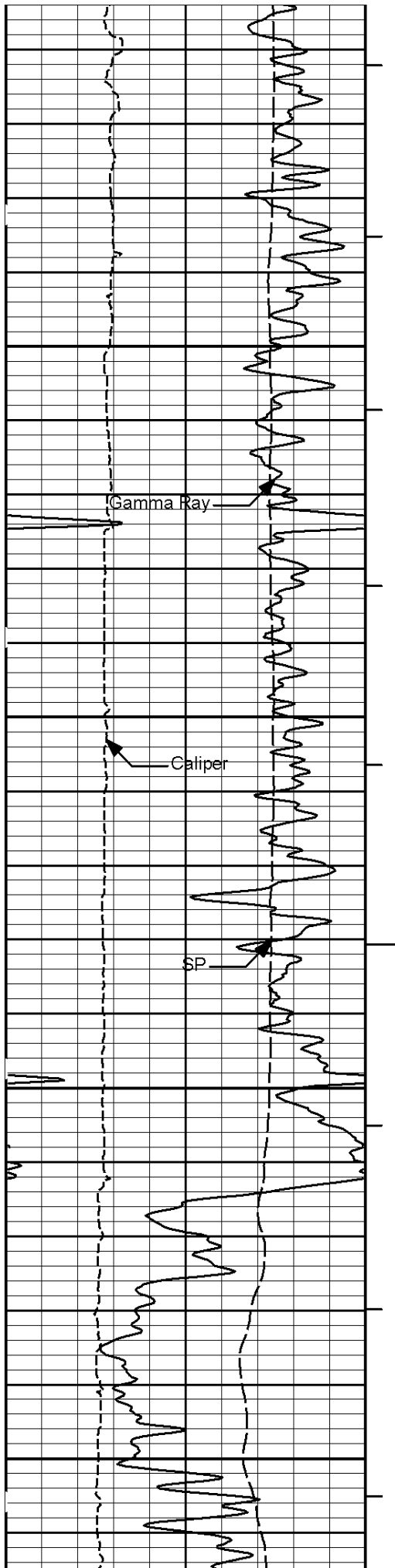
9000



379

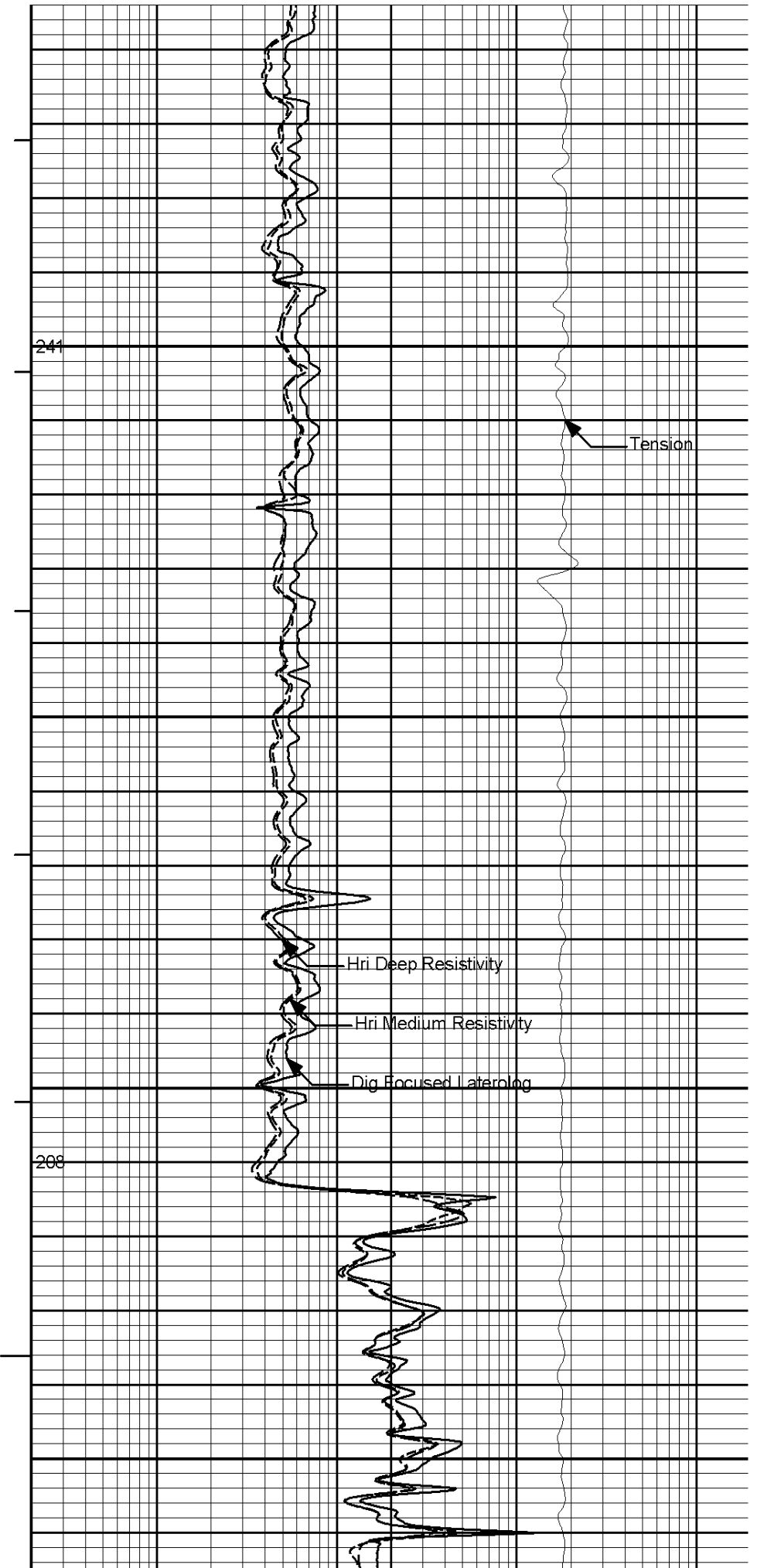
346





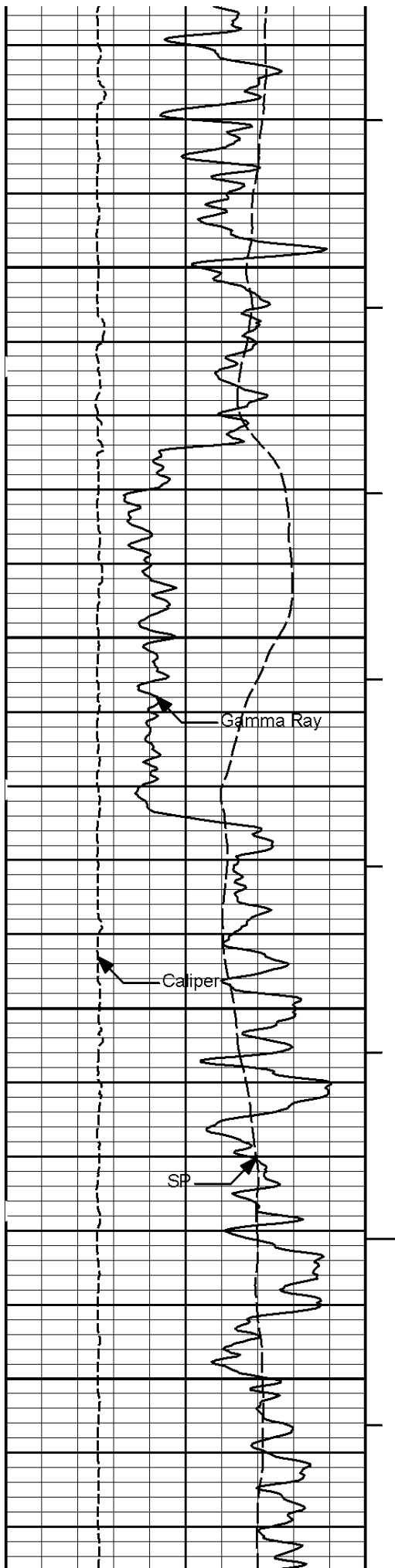
9400

9500



244

268



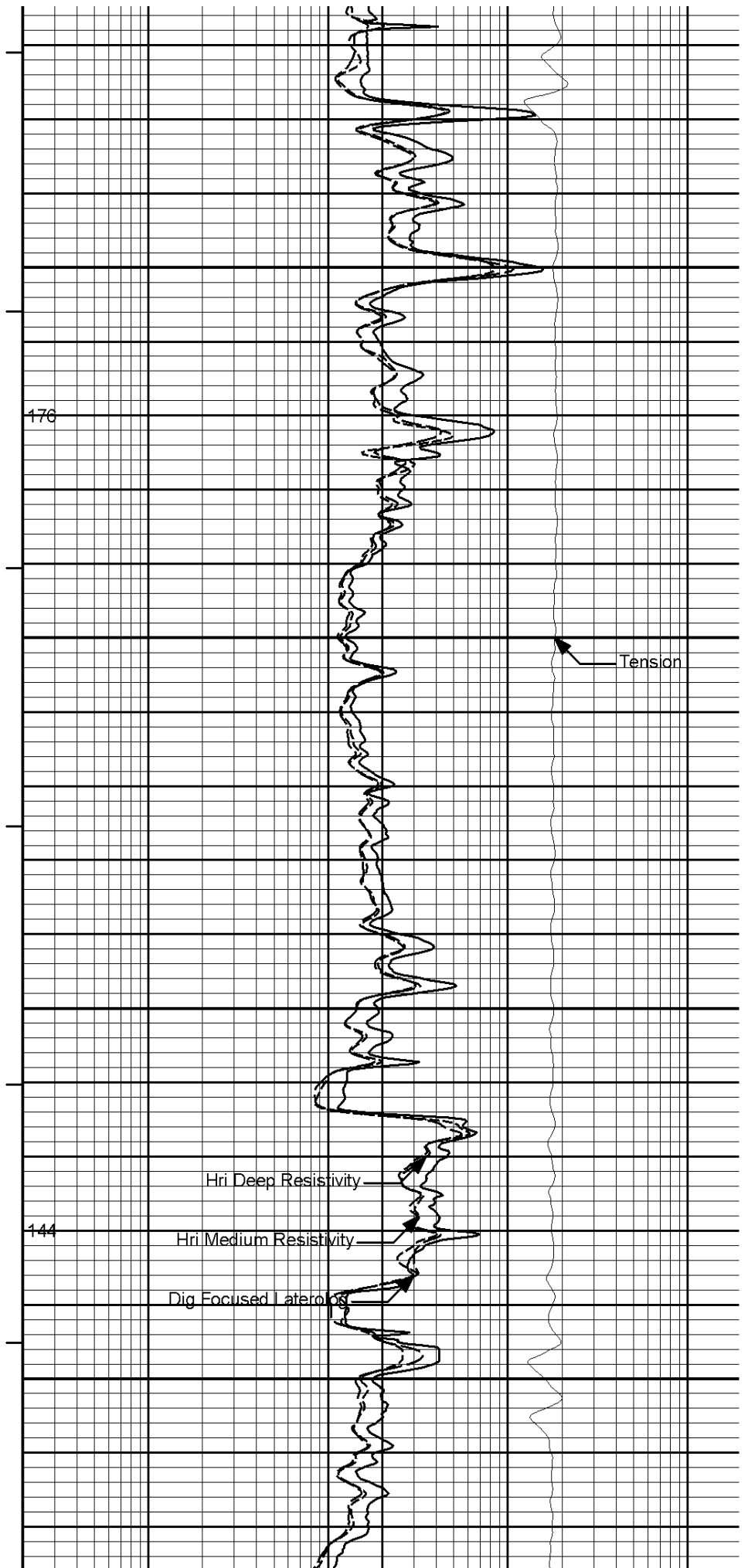
9600

Gamma Ray

Caliper

SP

9700



176

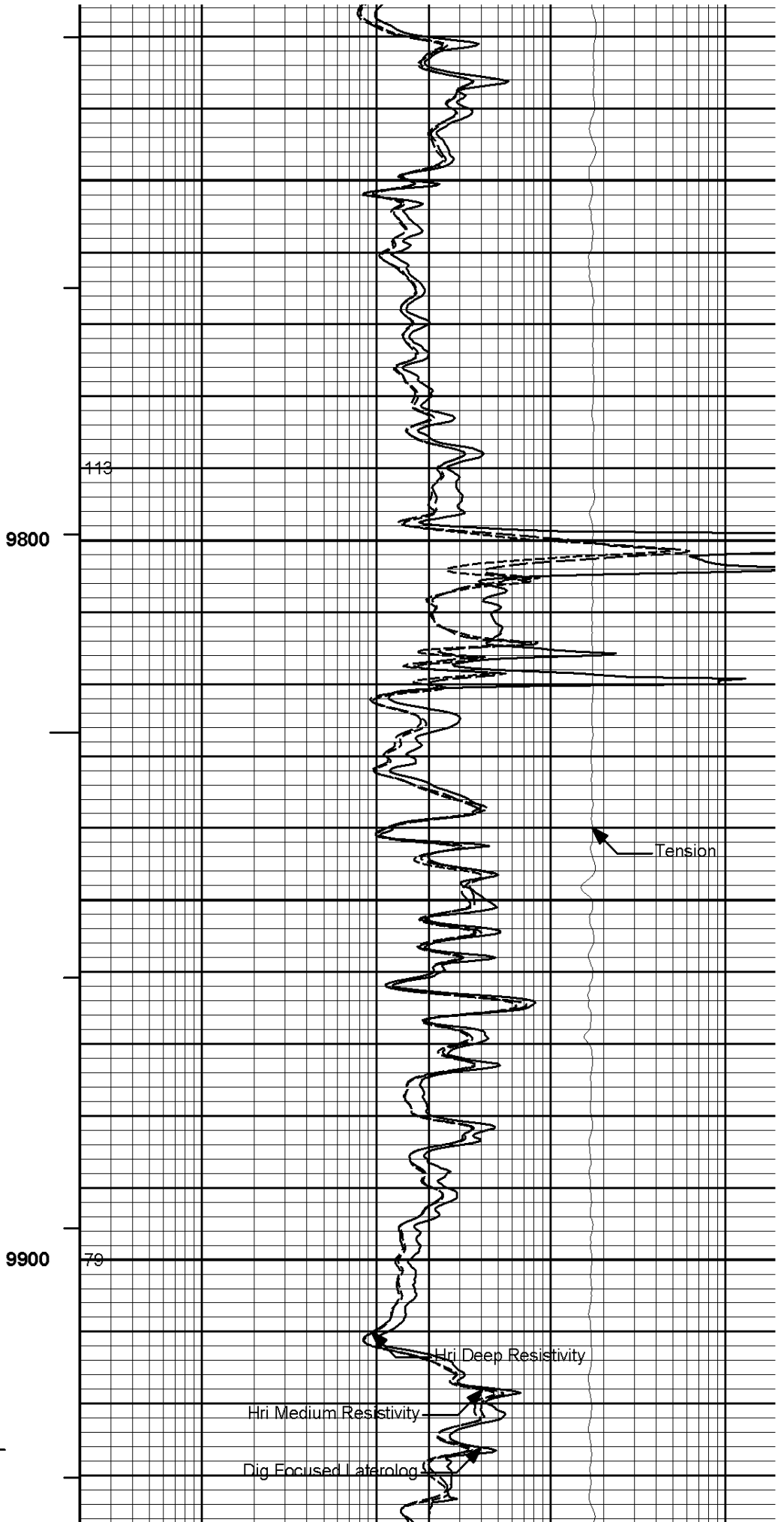
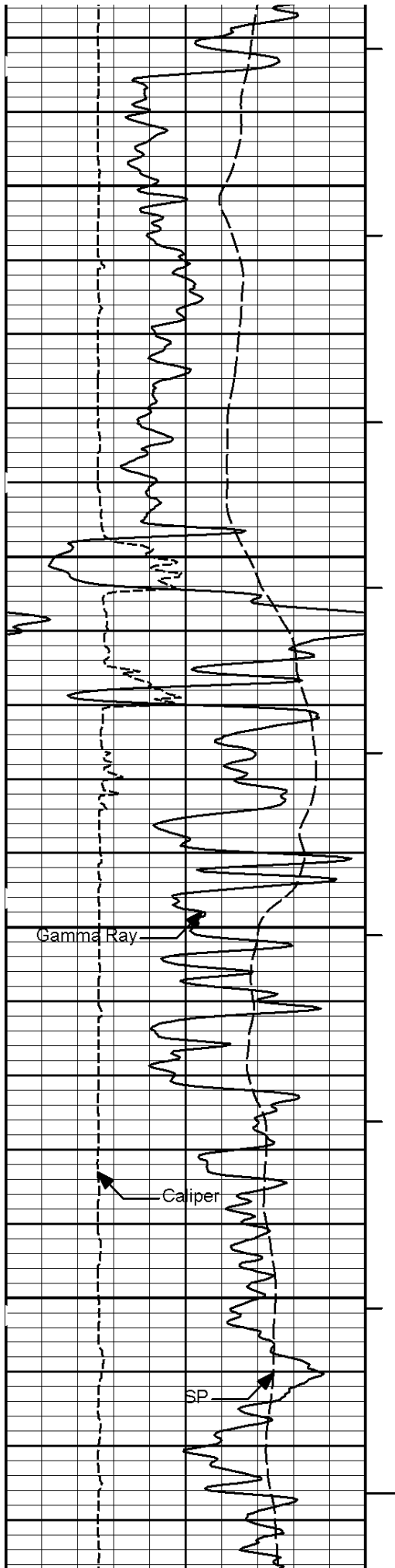
Tension

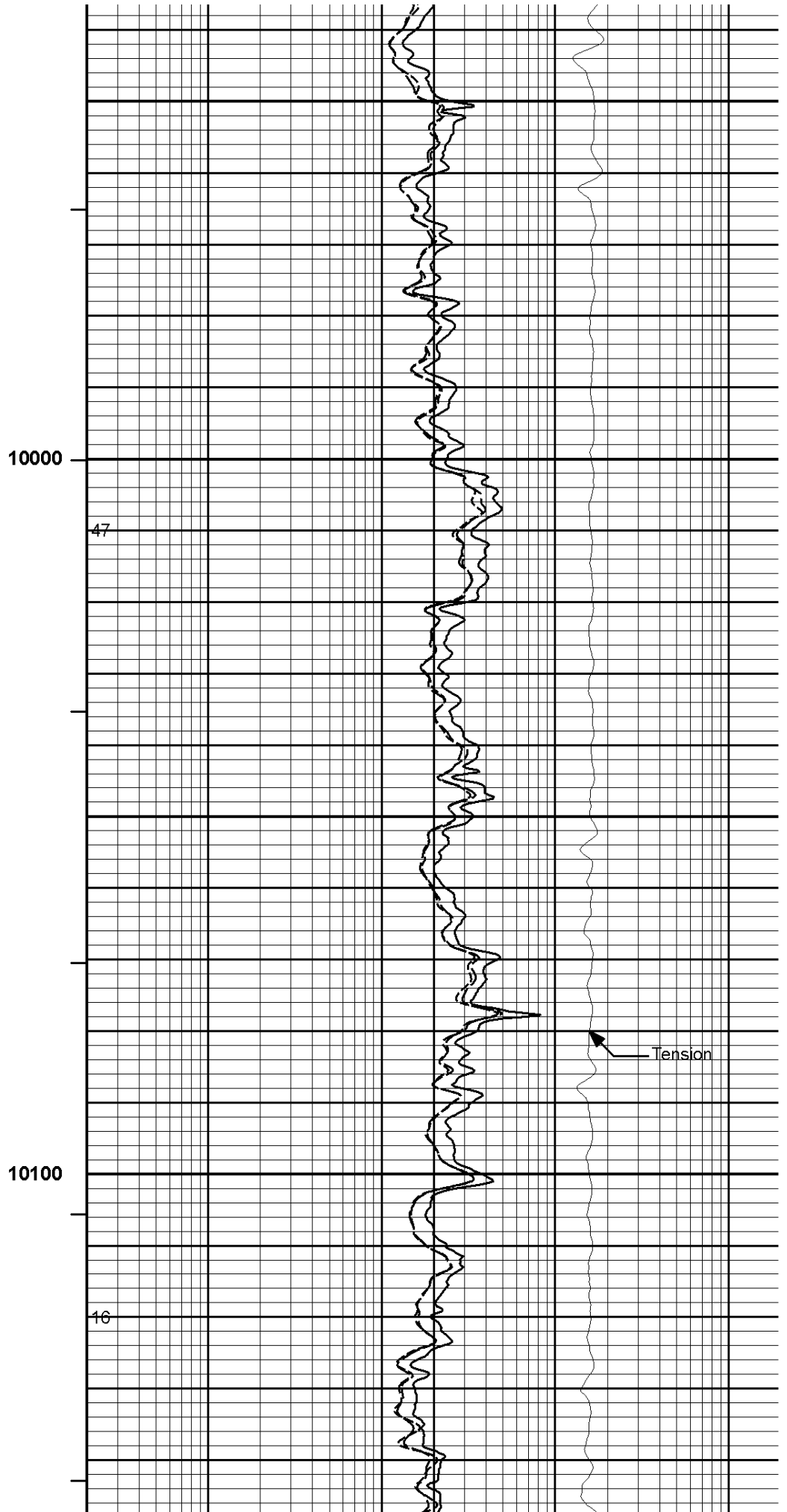
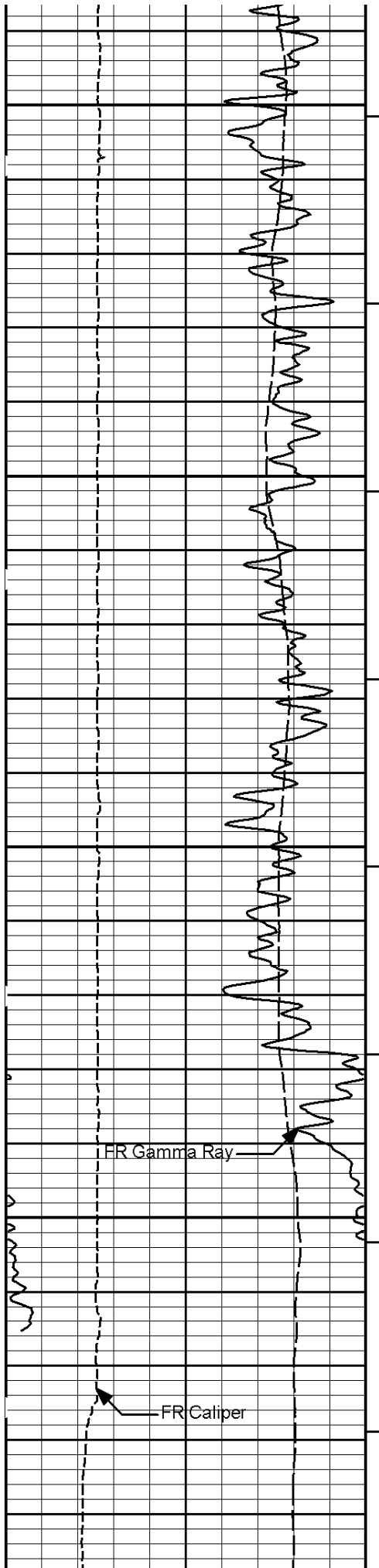
Hri Deep Resistivity

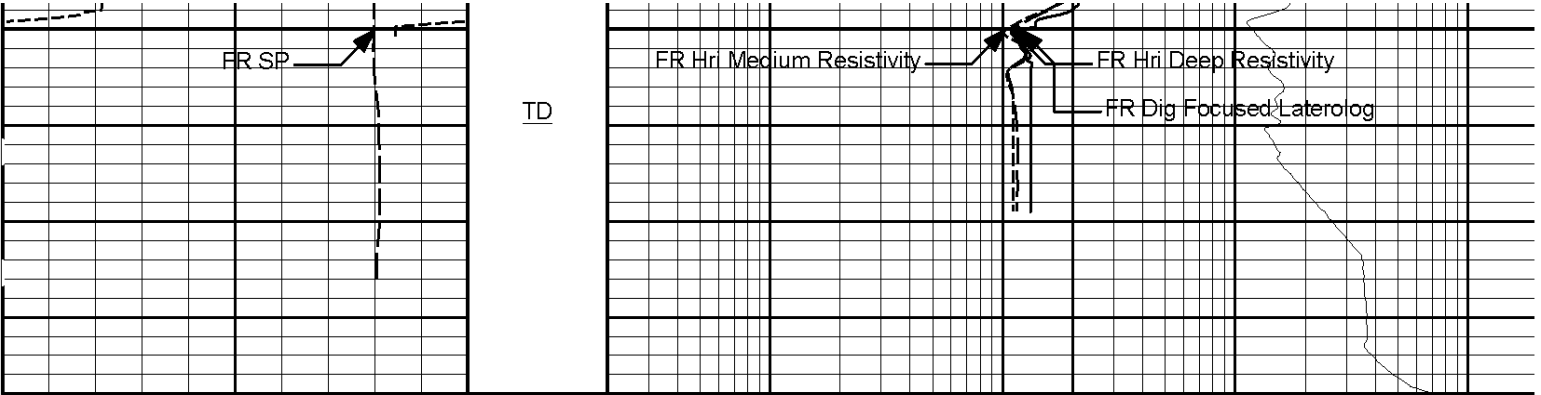
Hri Medium Resistivity

Dig Focused Laterolog

144







SP		1 : 240 ft MD		10000	Tension	0	
-]10[+				lbs			
0	Gamma Ray	150	0.2	HDRS			2000
api				ohmm			
6	Caliper	16	0.2	HMRS			2000
inches				ohmm			
			0.2	DFL			2000
				ohmm			

HALLIBURTON


Plot Time: 25-Aug-08 08:36:55  
Plot Range: 1496 ft to 10188 ft  
Data: LAR\_FED\_29\_15CWell BasedMAIN PASS - CASING\  
Plot File: \\-LOCAL-LAR\_FED\_29\_15C0001 TRIPLEHRI\HRI\_5IN

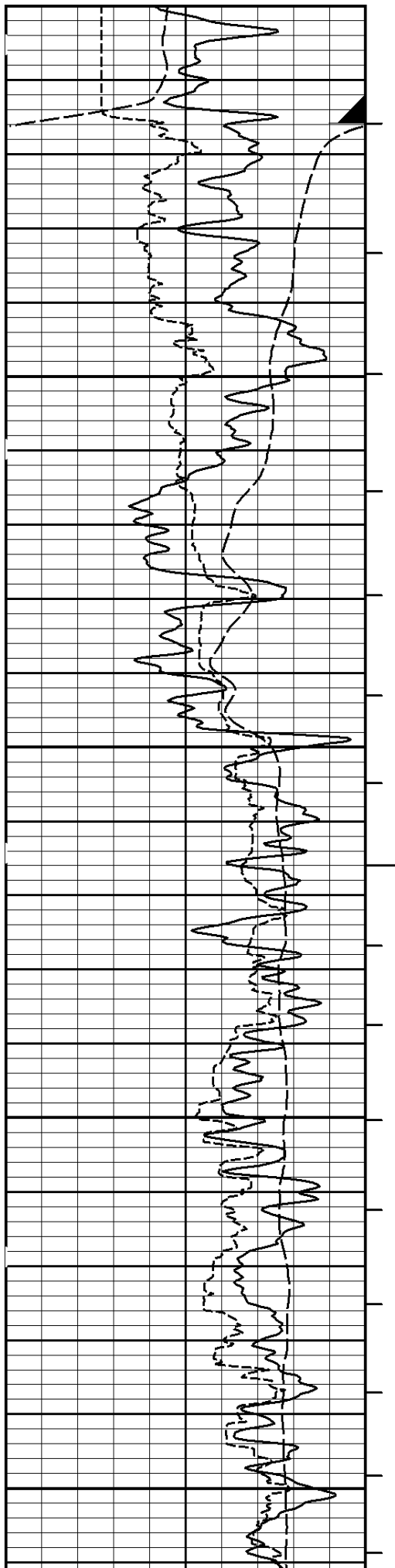
MAIN PASS 5" = 100'

HALLIBURTON

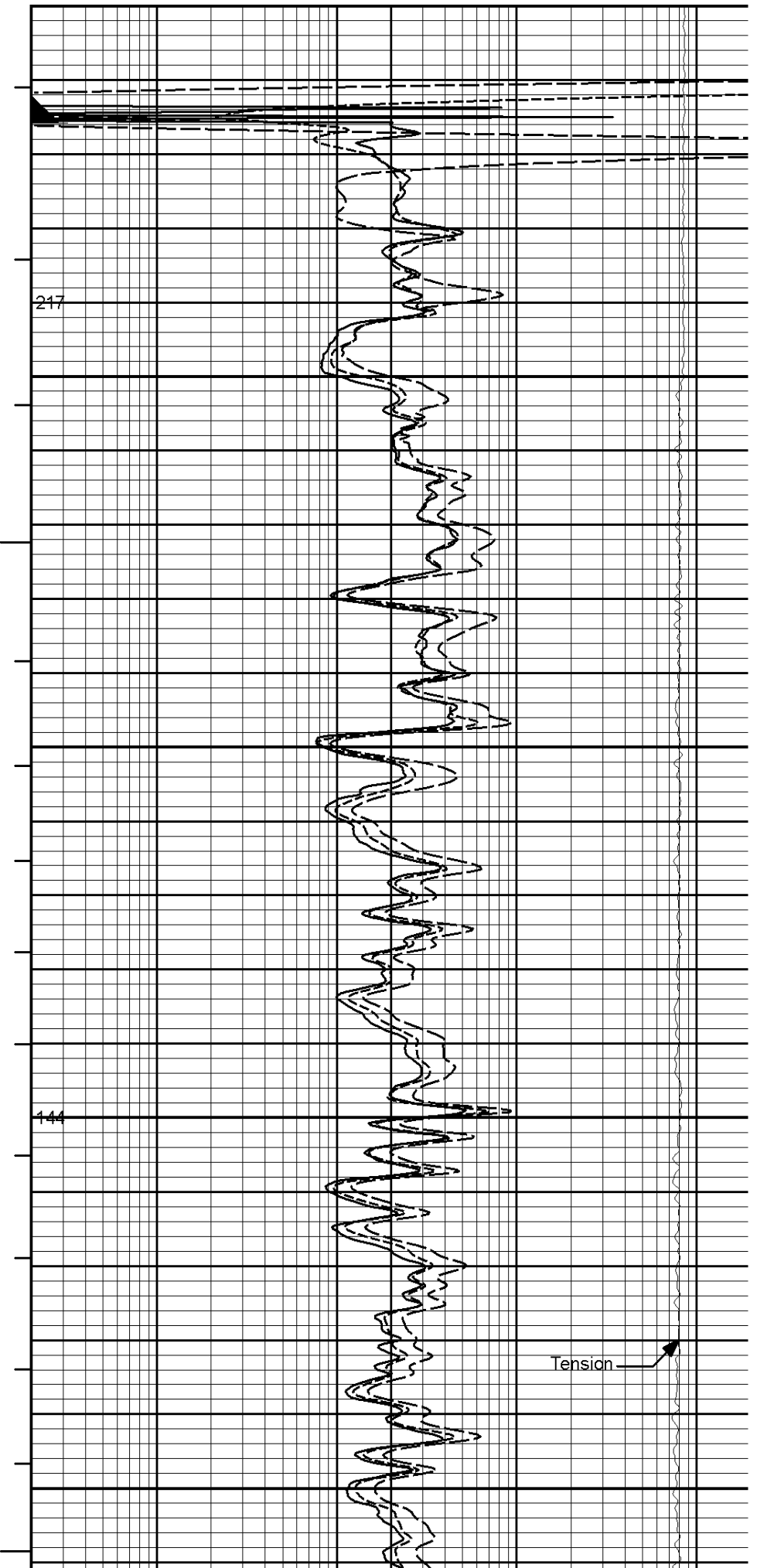
Plot Time: 25-Aug-08 08:36:55  
Plot Range: 1496 ft to 1736 ft  
Data: LAR\_FED\_29\_15CWell BasedREPEAT\  
Plot File: \\-LOCAL-LAR\_FED\_29\_15C0001 TRIPLEHRI\HRI\_REPEAT

REPEAT PASS 5" = 100'

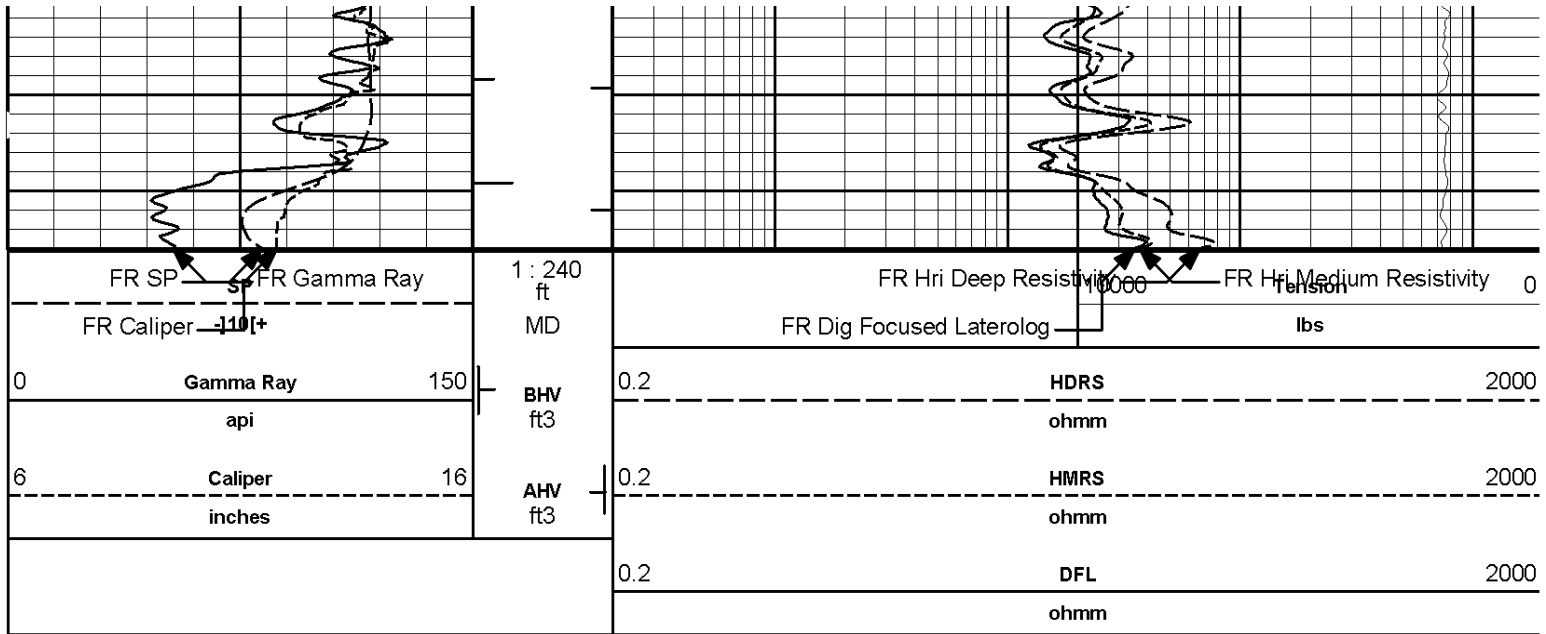
			0.2	DFL		2000	
			ohmm				
6	Caliper	16	0.2	HMRS		2000	
inches				ohmm			
0	Gamma Ray	150	0.2	HDRS		2000	
api				ohmm			
SP		1 : 240 ft MD			10000	Tension	0
-j10[+					lbs		
			1500				



1500  
CSG  
217  
1600  
144  
1700







**HALLIBURTON**

Plot Time: 25-Aug-08 08:36:56  
 Plot Range: 1496 ft to 1736 ft  
 Data: LAR\_FED\_29\_15C\Well Based\REPEAT\  
 Plot File: \\-LOCAL-LAR\_FED\_29\_15C\0001 TRIPLE\HRI\HRI\_REPEAT

**REPEAT PASS 5" = 100'**

**HALLIBURTON**

## CALIBRATION REPORT

### DITS 4 TELEMETRY GAMMA SHOP CALIBRATION (GIBRALTAR)

Tool Name: D4TGX - 044\_2

Reference Calibration Date: 03-Aug-08 15:02:33

Engineer: D. RENNER

Calibration Date: 14-Aug-08 19:53:50

Software Version: WL INSITE R2.2 (Build 9)

Calibration Version: 1

Calibrator Source S/N: 10770395

Calibrator API Reference: 262.00 api

Measurement	Measured	Calibrated	Units
Background	43.1	42.9	api
Background + Calibrator	306.0	304.9	api
Calibrator	261.8	262.0	api

### DITS 4 TELEMETRY GAMMA FIELD CALIBRATION (GIBRALTAR)

Tool Name: D4TGX - 044\_2

Reference Calibration Date: 14-Aug-08 19:53:50

Engineer: T. MCKEE

Calibration Date: 24-Aug-08 16:12:49

Software Version: WL INSITE R2.2 (Build 9)

Calibration Version: 1

Calibrator Source S/N: 10770395

Calibrator API Reference: 262.00 api

Field Verification	Shop	Field	Units
Background	42.9	120.7	api
Background + Calibrator	304.9	385.0	api

Background + Calibrator	304.3	303.0	api
Calibrator	262.0	264.3	api
<b>Shop</b>	<b>Field</b>	<b>Difference</b>	<b>Tolerance</b>
262.0	264.3	-2.3	+/- 9.00

DITS 4 TELEMETRY GAMMA POST CALIBRATION (GIBALTAR)			
Tool Name:	D4TGX - 044_2	Reference Calibration Date:	24-Aug-08 16:12:49
Engineer:	C. GULLETT	Calibration Date:	25-Aug-08 08:19:02
Software Version:	WL INSITE R2.2 (Build 9)	Calibration Version:	1

Calibrator Source S/N: 10770395  
 Calibrator API Reference:262.00 api

Post Verification	Field	Post	Units
Background	120.7	42.3	api
Background + Calibrator	385.0	305.2	api
Calibrator	264.3	262.9	api

Shop	Field	Post	Difference	Tolerance
262.0	264.3	262.9	1.4	+/- 9.00

DUAL SPACED NEUTRON SHOP CALIBRATION			
Tool Name:	DSN_II - 108728_2	Reference Calibration Date:	28-Jun-08 14:35:59
Engineer:	M. LEE	Calibration Date:	03-Aug-08 15:31:12
Software Version:	WL INSITE R2.2 (Build 2)	Calibration Version:	1

Logging Source S/N: DSN-108  
 Calibrator Source S/N: CAL\_10  
 Water Tank S/N: GJ\_TANK  
 Water Tank Value: 52.750  
 Snow Block S/N: TRUCK\_2  
 Calibration Tank Water Temperature: 80 degF  
 Min. Tool Housing Outside Diameter: 3.460 in

WATER TANK SUMMARY (Horizontal Water Tank)

Measurement	Measured	Calibrated	Units
Ratio	6.446	6.450	
Porosity	0.11738	0.11749	decp

SNOW BLOCK SUMMARY

Measurement	Measured	Calibrated	Units
Ratio	5.205	5.213	
Porosity	0.09988	0.09946	decp

DSN Sensitivity: 1.113

DUAL SPACED NEUTRON FIELD CALIBRATION			
Tool Name:	DSN_II - 108728_2	Reference Calibration Date:	03-Aug-08 15:31:12
Engineer:	T. MCKEE	Calibration Date:	24-Aug-08 16:03:13
Software Version:	WL INSITE R2.2 (Build 9)	Calibration Version:	1

Logging Source S/N: DSN-108  
 Calibrator Source S/N: CAL\_10

Snow Block S/N: TRUCK\_2

SNOW BLOCK SUMMARY

Measurement	Shop	Field	Units
Ratio	5.213	5.192	
Porosity	0.09946	0.09918	decg

DSN Sensitivity: 1.113

DUAL SPACED NEUTRON POST CALIBRATION

Tool Name:	DSN_II - 108728_2	Reference Calibration Date:	24-Aug-08 16:03:13
Engineer:	C. GULLETT	Calibration Date:	25-Aug-08 08:32:15
Software Version:	WL INSITE R2.2 (Build 9)	Calibration Version:	1

Logging Source S/N: DSN-108  
Calibrator Source S/N: CAL\_10  
Snow Block S/N: TRUCK\_2

SNOW BLOCK SUMMARY

Measurement	Field	Post	Units
Ratio	5.192	5.190	
Porosity	0.09918	0.09910	decg

DSN Sensitivity: 1.113

SPECTRAL DENSITY SHOP CALIBRATION

Tool Name:	SDL_DC - I458M069_2	Reference Calibration Date:	13-Aug-08 17:05:49
Engineer:	D. RENNER	Calibration Date:	13-Aug-08 17:38:24
Software Version:	WL INSITE R2.2 (Build 9)	Calibration Version:	1

Logging Source S/N: 3026GW  
Aluminum Block S/N: 63094                      Density: 2.610g/cc  
Magnesium Block S/N: 63387                    Density: 1.685g/cc

DENSITY CALIBRATION SUMMARY

Measurement	Previous Value	New Value	Control Limit
Near Bar Gain	0.9676	0.9769	0.85 - 1.15
Near Dens Gain	0.9834	0.9918	0.85 - 1.15
Near Peak Gain	0.9661	0.9661	0.85 - 1.15
Near Lith Gain	0.9450	0.9354	0.85 - 1.15
Far Bar Gain	1.0053	1.0063	0.85 - 1.15
Far Dens Gain	0.9953	0.9952	0.85 - 1.15
Far Peak Gain	0.9920	0.9906	0.85 - 1.15
Far Lith Gain	0.9812	0.9846	0.85 - 1.15
Near Bar Offset	0.5023	0.4130	NONE
Near Dens Offset	0.3142	0.2368	NONE
Near Peak Offset	0.4396	0.4409	NONE
Near Lith Offset	0.6815	0.7688	NONE
Far Bar Offset	0.2125	0.2021	NONE
Far Dens Offset	0.2907	0.2911	NONE
Far Peak Offset	0.2978	0.3111	NONE
Far Lith Offset	0.3016	0.2734	NONE

Near Bar Background	1182.12	1177.30	700 - 1500
Near Dens Background	476.01	474.36	290 - 600
Near Peak Background	205.27	204.40	130 - 280
Near Lith Background	201.77	200.92	125 - 270
Far Bar Background	462.92	460.55	350 - 750
Far Dens Background	184.27	185.05	140 - 300
Far Peak Background	79.11	79.83	50 - 130
Far Lith Background	77.15	76.60	50 - 130

#### CALIBRATION BLOCK SUMMARY

Measurement	Current Reading (Previous Coef)	Calibrated (New Coef)	Change	Control Limit On Change
MAGNESIUM				
Density (g/cc)	1.683	1.685	0.002	+/- 0.015
Pe	2.524	2.520	-0.004	+/- 0.150
ALUMINUM				
Density (g/cc)	2.609	2.610	0.001	+/- 0.01500
Pe	3.130	3.100	-0.030	+/- 0.150

#### TOOL SUMMARY

Measurement	Near Detector		Far Detector	
	Value	Control Limits	Value	Control Limits
QUALITY				
Background	0.0027	+/- 0.0110	0.0062	+/- 0.0140
Magnesium Block	-0.0052	+/- 0.0110	-0.0005	+/- 0.0140
Aluminum Block	-0.0010	+/- 0.0110	0.0015	+/- 0.0140
Resolution	8.84	6.00 - 11.00	9.72	6.00 - 11.00
Internal Verifier(B+D+P+L)	2057	1250 - 2700	802	600 - 1300

#### 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:	SDL_DC - I458M069_2	Reference Calibration Date:	13-Aug-08 17:38:24
Engineer:	T. MCKEE	Calibration Date:	24-Aug-08 15:58:21
Software Version:	WL INSITE R2.2 (Build 9)	Calibration Version:	1

Aluminum Block S/N: 63094      Density: 2.610g/cc  
Magnesium Block S/N: 63387      Density: 1.685g/cc  
Pad Temperature: 70.2 degF

#### DENSITY FIELD CALIBRATION SUMMARY

Measurement	Shop	Field	Change	Control Limit +/-
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Near (B+D+P+L) cps	2056.983	2067.804	10.821	18.104
Far (B+D+P+L) cps	802.029	800.541	-1.488	15.680
Near Resolution	8.84	8.92	0.080	0.50
Far Resolution	9.89	9.72	0.170	1.00

#### PASS/FAIL SUMMARY

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

#### SPECTRAL DENSITY POST CHECK

Tool Name:	SDL_DC - I458M069_2	Reference Calibration Date:	24-Aug-08 15:58:21
Engineer:	C. GULLETT	Calibration Date:	25-Aug-08 08:16:29
Software Version:	WL INSITE R2.2 (Build 9)	Calibration Version:	1

Aluminum Block S/N: 63094 Density: 2.610g/cc  
 Magnesium Block S/N: 63387 Density: 1.685g/cc  
 Pad Temperature: 64.9 degF

#### DENSITY POST CALIBRATION SUMMARY

Measurement	Field	Post	Change	Control Limit +/-
Near (B+D+P+L) cps	2067.804	2057.273	-10.531	20.123
Far (B+D+P+L) cps	800.541	800.448	-0.093	16.941
Near Resolution	8.92	8.86	-0.060	0.50
Far Resolution	9.89	9.89	0.000	1.00

#### PASS/FAIL SUMMARY

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

#### CALIPER SHOP CALIBRATION

Tool Name:	SDL_DC - I458M069_2	Reference Calibration Date:	13-Aug-08 17:46:44
Engineer:	D. RENNER	Calibration Date:	13-Aug-08 17:50:21
Software Version:	WL INSITE R2.2 (Build 9)	Calibration Version:	1

#### MEASURED CALIPER RINGS

Measurement	Current Reading (Previous Coeff.)	Calibrated (New Coeff.)	Change
RING DIAMETER:			
Ring #1 (in)	6.37	6.50	-0.13
Ring #2 (in)	13.81	13.81	0.00

#### CALIPER FIELD CALIBRATION

Tool Name:	SDL_DC - I458M069_2	Reference Calibration Date:	13-Aug-08 17:50:21
Engineer:	T. MCKEE	Calibration Date:	24-Aug-08 16:06:14
Software Version:	WL INSITE R2.2 (Build 9)	Calibration Version:	1

#### MEASURED CALIPER RINGS

Measurement	Shop	Field	Change	Control Limit On New Value
Ring #1 (in)	6.37	6.77	0.39	+/- 0.50

#### PASS/FAIL SUMMARY

Ring #1 Check:					Passed	
CALIPER POST CALIBRATION						
Tool Name:		SDL_DC - I458M069_2		Reference Calibration Date:		24-Aug-08 16:06:14
Engineer:		C. GULLETT		Calibration Date:		25-Aug-08 08:17:57
Software Version:		WL INSITE R2.2 (Build 9)		Calibration Version:		1
MEASURED CALIPER RING						
Measurement	Field	Post	Change	Control Limit On New Value		
Ring #1 (in)	6.77	6.29	-0.48	+/- 0.50		
PASS/FAIL SUMMARY						
Ring #1 Check:			Passed			
HIGH RESOLUTION INDUCTION SHOP CALIBRATION						
Tool Name:		HRID - I91S0180		Reference Calibration Date:		21-Apr-08 12:17:20
Engineer:		M. LEE		Calibration Date:		21-Apr-08 12:25:59
Software Version:		WL INSITE R2.0 (Build 22)		Calibration Version:		1
HIGH RESOLUTION INDUCTION SHOP CALIBRATION SUMMARY						
TEST LOOP RESPONSE						
1 - Test Loop Closed		Measured Signal		Nominal		Units
		R	X	R	X	
HRD		1976	1972	1976	1972	MMHOS
HRM		2838	2832	2838	2832	MMHOS
2 - Test Loop Off(Sonde Error)		Measured Signal		Nominal		Units
		R	X	R	X	
HRD		-5	-39	+/- 15	+/- 100	MMHOS
HRM		-8	-94	+/- 15	+50/-150	MMHOS
ELECTRONICS RELATIVE GAIN						
Set		Nominal				
	Magnitude	Phase	Magnitude	Phase		
HRD	1.00	-1.42	1. +/- .1	0. +/- 5		
HRM	1.00	-1.37	1. +/- .1	0. +/- 5		
Temperature at time of calibration:		67.42 degF				
**** NOTICE ****						
THE HIGH RESOLUTION INDUCTION TOOL (HRID) IS A CONTINUAL SELF-CALIBRATING TOOL. DURING LOGGING, THE TOOL CONSTANTLY SELF-UPDATES ITS COEFFICIENTS, THE SHOP CALIBRATION IS PERFORMED UNDER VERY STRINGENT CONDITIONS. SINCE THE TOOL IS SELF-CALIBRATING DURING LOGGING, FIELD AND POST CALIBRATIONS ARE NOT AVAILABLE OR NECESSARY FOR THE HRID TOOL.						
CALIBRATION SUMMARY						
Sensor	Shop	Field	Post	Difference	Tolerance	Units
D4TGX-044_2						
Gamma Ray Calibrator	262.0	264.3	262.9	1.4	+/- 9.00	api
DSN_II-108728_2						
Snow Block Porosity	0.09946	0.09918	0.09910	0.00008	+/- 0.00900	decP
SDL_DC-I458M069_2						
Near(B+D+P+L)	2056.983	2067.804	2057.273	10.531	+/-20.123	cps

Far(B+D+P+L)	802.029	800.541	800.448	0.093	+/-16.941	cps
Ring #1	6.50	6.77	6.29	0.48	+/-0.500	in

Data: LAR\_FED\_29\_15C\0001 TRIPLE\IDLE

Date: 25-Aug-08 08:34:29

# HALLIBURTON

## CUSTOMER EVENT LOG


Event Type	Time & Date	Depth (ft)	Event Description
	25-Aug-08 03:07:07	1893.00	Logging 001 25-Aug-08 03:07 Up @1892.8f
	25-Aug-08 03:17:37	1372.31	Halting 001 25-Aug-08 03:07 Up @1892.8f
	25-Aug-08 03:18:45	1274.75	Logging 002 25-Aug-08 03:18 Dn @1277.5f
	25-Aug-08 04:19:04	10178.26	Halting 002 25-Aug-08 03:18 Dn @1277.5f
	25-Aug-08 04:19:44	10188.25	Logging 003 25-Aug-08 04:19 Up 10188.5f
	25-Aug-08 06:57:28	1394.81	Halting 003 25-Aug-08 04:19 Up 10188.5f

Data: LAR\_FED\_29\_15C\0001 TRIPLE\HW11047

Date: 25-Aug-08 07:07:44

# HALLIBURTON

## TOOL STRING DIAGRAM REPORT

Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
RWCH-10763226 135.00 lbs	Ø 3.625 in →		← Load Cell @ 76.32 ft ← BH Temperature @ 75.75 ft	6.25 ft	80.00 ft
			← GammaRay @ 72.07 ft	73.75 ft	
D4TGX-044_2 221.00 lbs	Ø 3.625 in →		← Z-Accelerometer @ 65.34 ft	9.63 ft	
				64.12 ft	
DSN_II-108728_2 195.80 lbs	Ø 3.625 in →		← Neutron Porosity @ 55.77 ft	10.25 ft	
				53.87 ft	

SDL\_DC-I458M069\_2  
420.00 lbs

Ø 4.500 in →

19.43 ft

← SDL Caliper @ 36.94 ft  
← SDL @ 36.48 ft

34.44 ft

HRID-I91S0180  
445.00 lbs

Ø 3.625 in →

33.33 ft

← HRID @ 9.91 ft  
← SP @ 9.81 ft

Spacer-SPACER  
10.00 lbs


Ø 3.625 in →

1.00 ft

1.11 ft

0.11 ft



Bull Nose-GJ01 5.00 lbs		Ø 2.750 in →				0.11 ft		0.00 ft	
Mnemonic		Tool Name		Serial Number	Weight (lbs)	Length (ft)	Accumulated Length (ft)	Max.Log. Speed (fpm)	
RWCH	Releasable Wireline Cable Head			10763226	135.00	6.25	73.75	300.00	
D4TGX	DITS Telemetry Gamma - Gibraltar Class			044_2	221.00	9.63	64.12	60.00	
DSN_II	Dual Spaced Neutron-II Tool			108728_2	195.80	10.25	53.87	60.00	
SDLD	SDL (D) with (C) Mandrel w/ EVR			I458M069_2	420.00	19.43	34.44	60.00	
HRID	High Resolution Induction Tool Dits			I91S0180	445.00	33.33	1.11	100.00	
SP	SP Ring			PROTO1	0.00	0.00	*	9.81	300.00
SPC	Test			SPACER	10.00	1.00	0.11	100.00	
BLNS	Bull Nose			GJ01	5.00	0.11	0.00	300.00	
Total					1,431.80	80.00			
* Not included in Total Length and Length Accumulation.									
Data: LAR_FED_29_15C\0001 TRIPLE\001 25-Aug-08 03:07 Up @1892.8f								Date: 25-Aug-08 07:08:01	

COMPANY	LARAMIE ENERGY PARTNERS II		
WELL	FEDERAL No. 29-15C		
FIELD	RULISON		
COUNTY	GARFIELD	STATE	CO
HALLIBURTON		HIGH RESOLUTION INDUCTION	