HALLIBURTON

SPECTRAL DENSITY
DUAL SPACED NEUTRON
HIGH RESOLITION INDUCTION

COMPANY LARAMIE ENERGY II
WELL LEVERICH 31-15B
FIELD RULISON
COUNTY GARFIELD STATE CO

COMPANY LARAMIE ENERGY II
WELL LEVERICH 31-15B
FIELD RULISON
COUNTY GARFIELD
STATE CO

API No. 050451572400
Location SURFACE: 822' FSL, 1975' FEL
BOTTOM: 822' FSL, 1975' FEL

Other Services:
NONE

Sect. 31 Twp. 6S Rge. 93W

Permanent Datum	GL	Elev. 7134.0 ft	Elev.: K.B. 7155.0 ft
Log measured from	KB	21.0 ft above perm. Datum	D.F. 7154.0 ft
Drilling measured from	KB		G.L. 7134.0 ft

Date		13-Oct-08					
Run No.		ONE					
Depth - Driller		9750.0 ft					
Depth - Logger		9745.0 ft					
Bottom - Logged Interval		9735.0 ft					
Top - Logged Interval		1505.0 ft					
Casing - Driller		8.625 in	@ 1500.0 ft	@		@	
Casing - Logger		1505.0 ft					
Bit Size		7.875 in		@		@	
Type Fluid in Hole		HTG/GX-22					
Density	Viscosity	10.0 ppg	59.00 s/qt				
PH	Fluid Loss	10.00 pH	8.0 cptm				
Source of Sample		MUD TANK					
Rm @ Meas. Temperature		1.99 ohmm	@ 58.40 degF	@		@	
Rmf @ Meas. Temperature		1.54 ohmm	@ 57.70 degF	@		@	
Rmc @ Meas. Temperature		2.81 ohmm	@ 58.70 degF	@		@	
Source Rmf	Rmc	MEAS.	MEAS.				
Rm @ BHT		0.60 ohmm	@ 210.0 degF	@		@	
Time Since Circulation		12.0 hr					
Time on Bottom		13-Oct-08 12:29					
Max. Rec. Temperature		210.0 degF	@ 9745.0 ft	@		@	
Equipment	Location	10549593	G.J.				
Recorded By		J. GEISER					
Witnessed By		M. BLAKLEY					

Fold here

Service Ticket No.: 6232027 API Serial No.: 050451572400 PGM Version: WL INSITE R2.2 (Build 9)

CHANGE IN MUD TYPE OR ADDITIONAL SAMPLE

	Sample No.				
Date					
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	CALC	CALC		
Rm @ BHT		0.60 ohmm @ 210.0 degF	@	@	
Rmf @ BHT		0.46 ohmm @ 210.0 degF	@	@	
Rmc @ BHT		0.84 ohmm @ 210.0 degF	@	@	

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
Rm @ Meas. Temp	@	@	@	@	
Rmf @ Meas. Temp.	ONE	HRID-I81S0944	N/A	1.5" STANDOFF	N/A
Rmc @ Meas. Temp.	@	@	@	@	
Source Rmf	Rmc				
Rm @ BHT	@	@	@	@	
Rmf @ BHT	@	@	@	@	
Rmc @ BHT	@	@	@	@	

EQUIPMENT DATA

	GAMMA		ACOUSTIC		DENSITY		NEUTRON	
Run No.	ONE	Run No.		Run No.	ONE	Run No.	ONE	
Serial No.	034	Serial No.		Serial No.	I709MC136	Serial No.	108734	
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	241Be	
Length	8"	LSA [Y/N]		Serial No.	2189GW	Serial No.	DSN-60	
Distance to Source	16'	FWDA [Y/N]		Strength	1.5 Ci	Strength	18.5 Ci	

LOGGING DATA

GENERAL GAMMA ACOUSTIC DENSITY NEUTRON

GENERAL				GAMMA		ACOUSTIC			DENSITY			NEUTRON		
Run	Depth		Speed	Scale		Scale		Matrix	Scale		Matrix	Scale		Matrix
No.	From	To	ft/min	L	R	L	R		L	R		L	R	
ONE	TD	SURF	REC	0 api	200 api				30 %	-10 %	2.68 g/cc	30 %	-10 %	SAND

DIRECTIONAL INFORMATION

Maximum Deviation @ KOP @

Remarks: RWCH-D4TGX-DSN-SDL-HRI WERE RUN IN COMBINATION.

TENSION PULLS AND HOLE RUGOSITY MAY AFFECT DATA QUALITY.

AHV CALCULATED FOR 4.5" CASING.

CHLORIDES REPORTED AT 2300 mg/L.

LATITUDE: 39.480 N // LONGITUDE: 107.810 W

YOUR CREW TODAY IS: A. LEWIS, J. WILKERSON, T. LUDEMAN, R. MONTEGOMERY. RIG: SST 5

THANK YOU FOR CHOOSING HALLIBURTON ENERGY SERVICES - GRAND JUNCTION, COLORADO (970) 523-5600

HALLIBURTON

PARAMETERS REPORT

Depth (ft)	Tool Name	Mnemonic	Description	Value	Units
TOP					
	SHARED	BHT	Bottom Hole Temperature	210.0	degF
9111.67					
	SHARED	BS	Bit Size	7.875	in
	SHARED	UBS	Use Bit Size instead of Caliper for all applications.	No	
	SHARED	MDWT	Borehole Fluid Weight	10.500	ppg
	SHARED	RMUD	Mud Resistivity	1.990	ohmm
	SHARED	TRM	Temperature of Mud	58.4	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	9750.00	ft
	SHARED	BHT	Bottom Hole Temperature	185.0	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	1495.0	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	

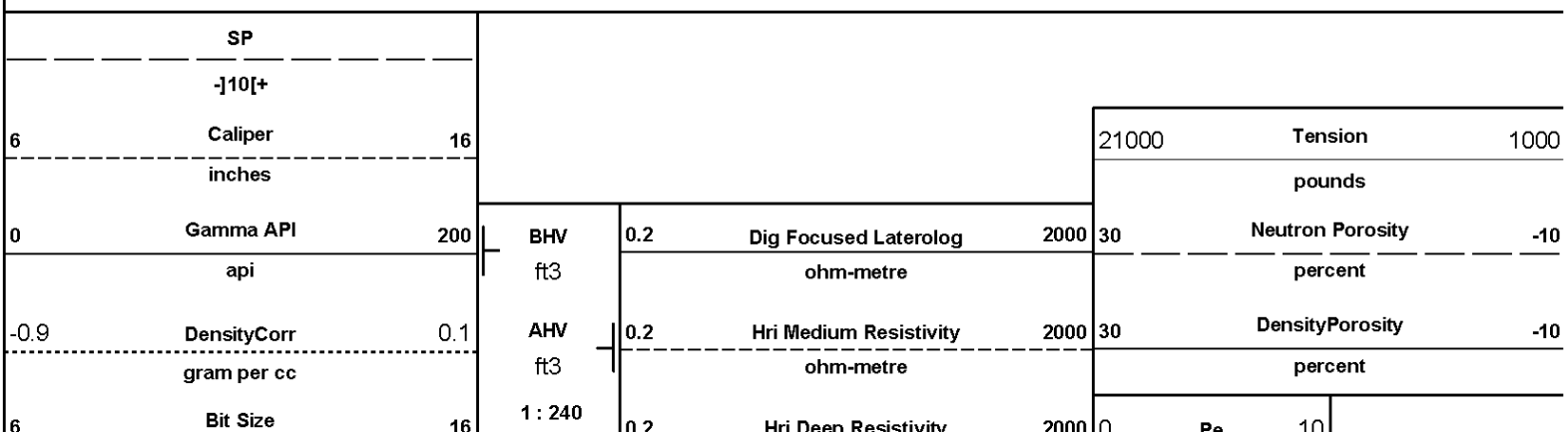
BOTTOM

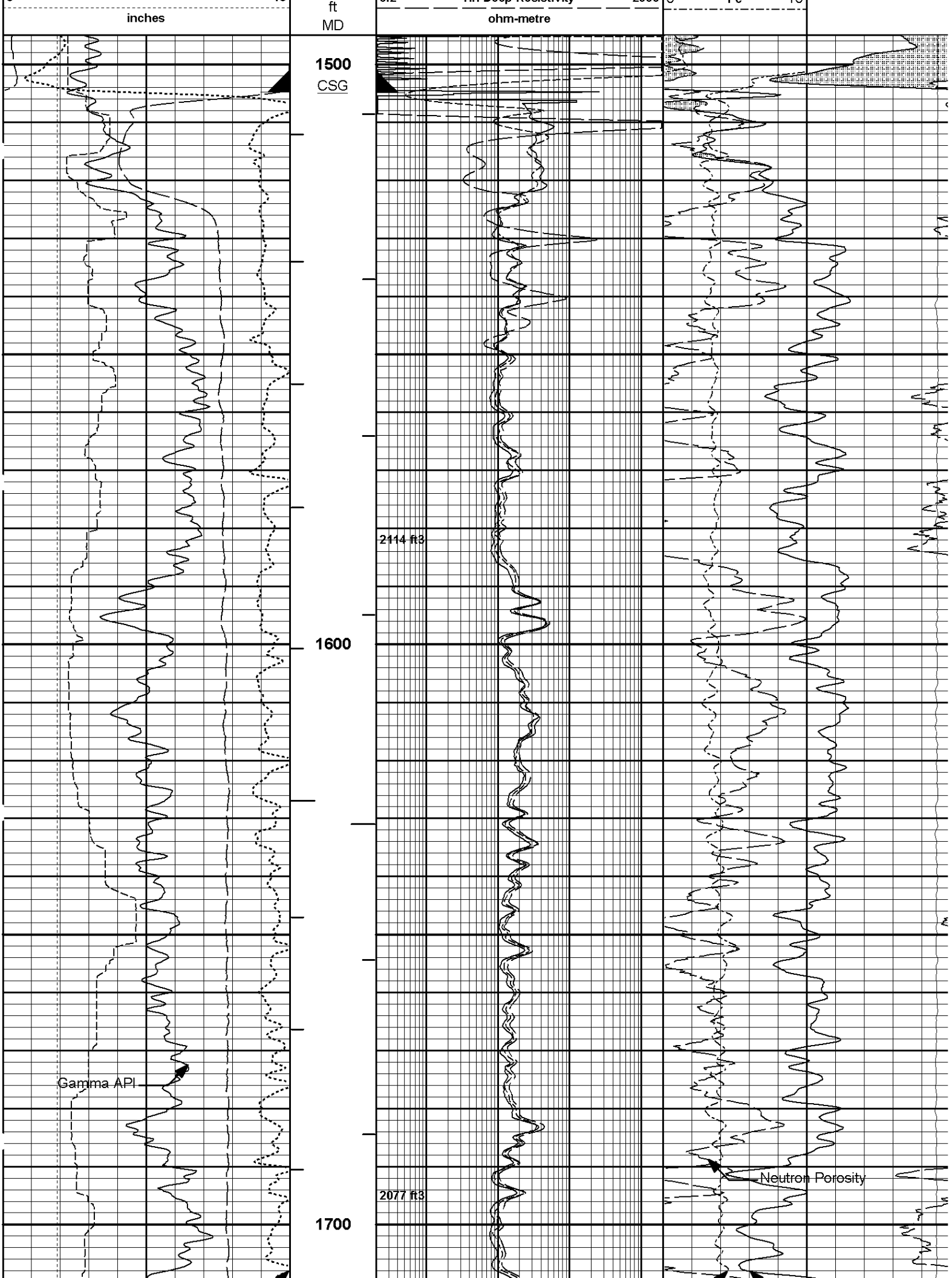
Data: LAR_LEV_31_15B\0001 TRIPLE-DC\003 13-Oct-08 12:29 Up @9766.5f **Date: 13-Oct-08 13:40:21**

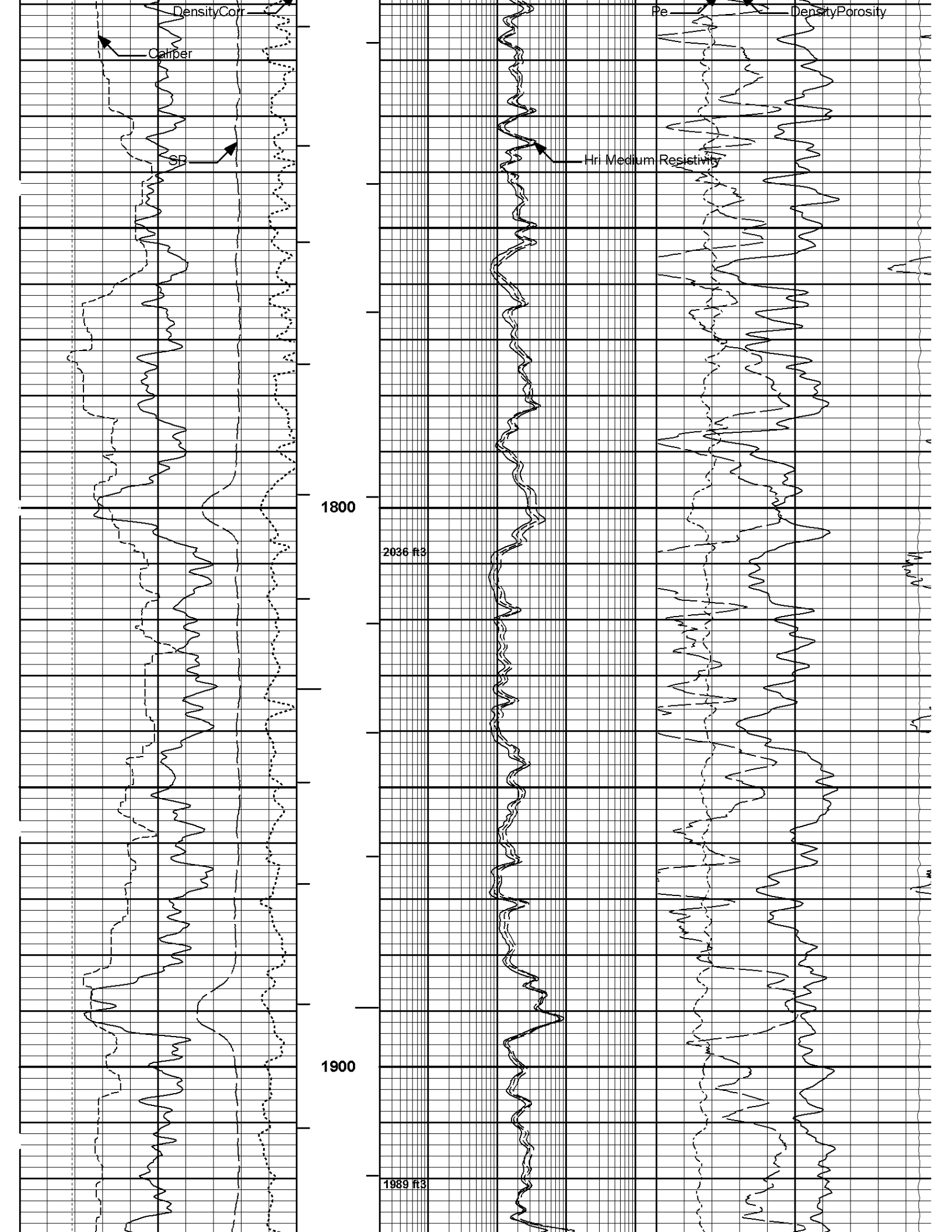
HALLIBURTON

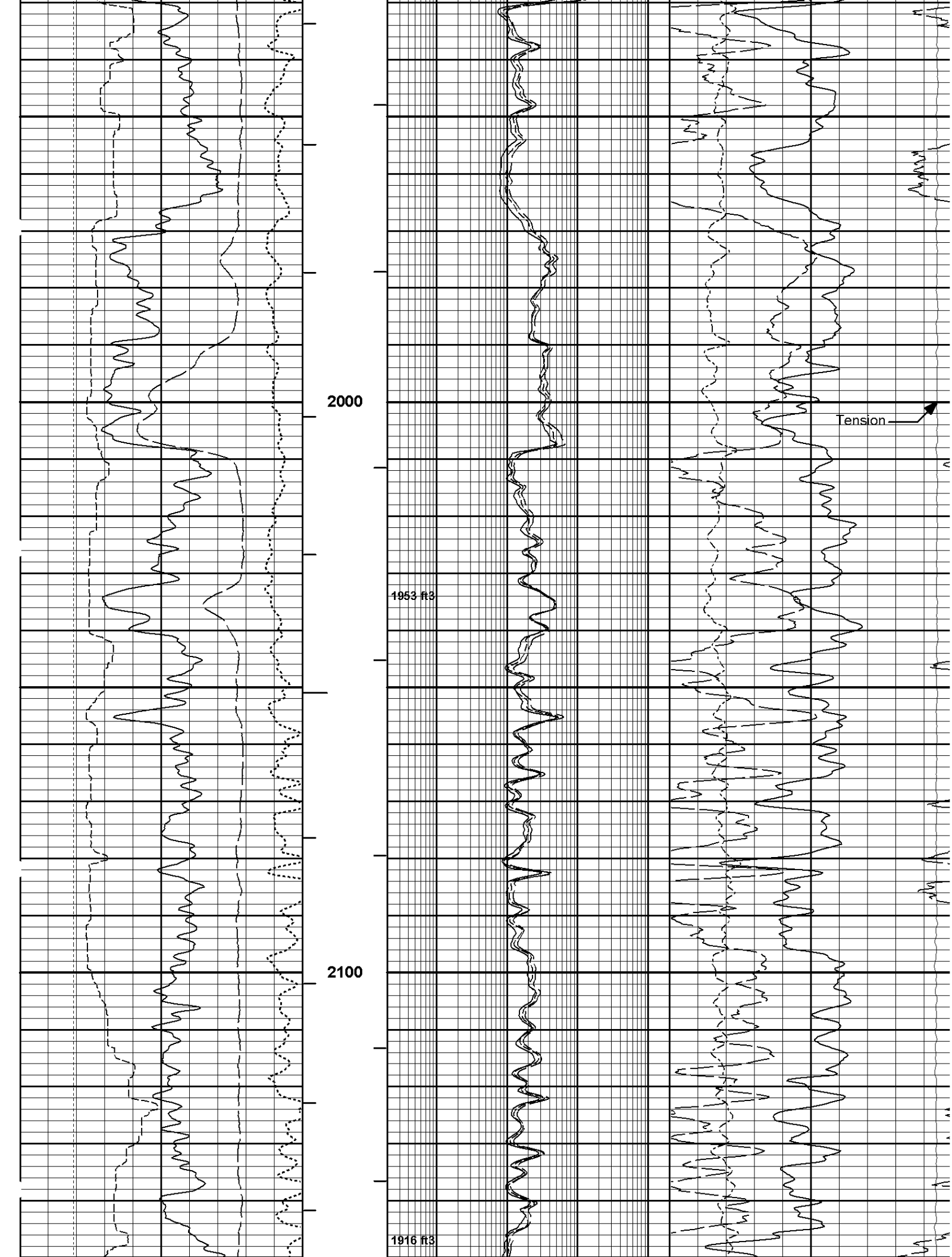
Plot Time: 13-Oct-08 16:27:00
Plot Range: 1495 ft to 9755 ft
Data: LAR_LEV_31_15B\Well Based*
Plot File: \\TRIPLE\DITS_COMPOSITE_HRI_5IN_RM

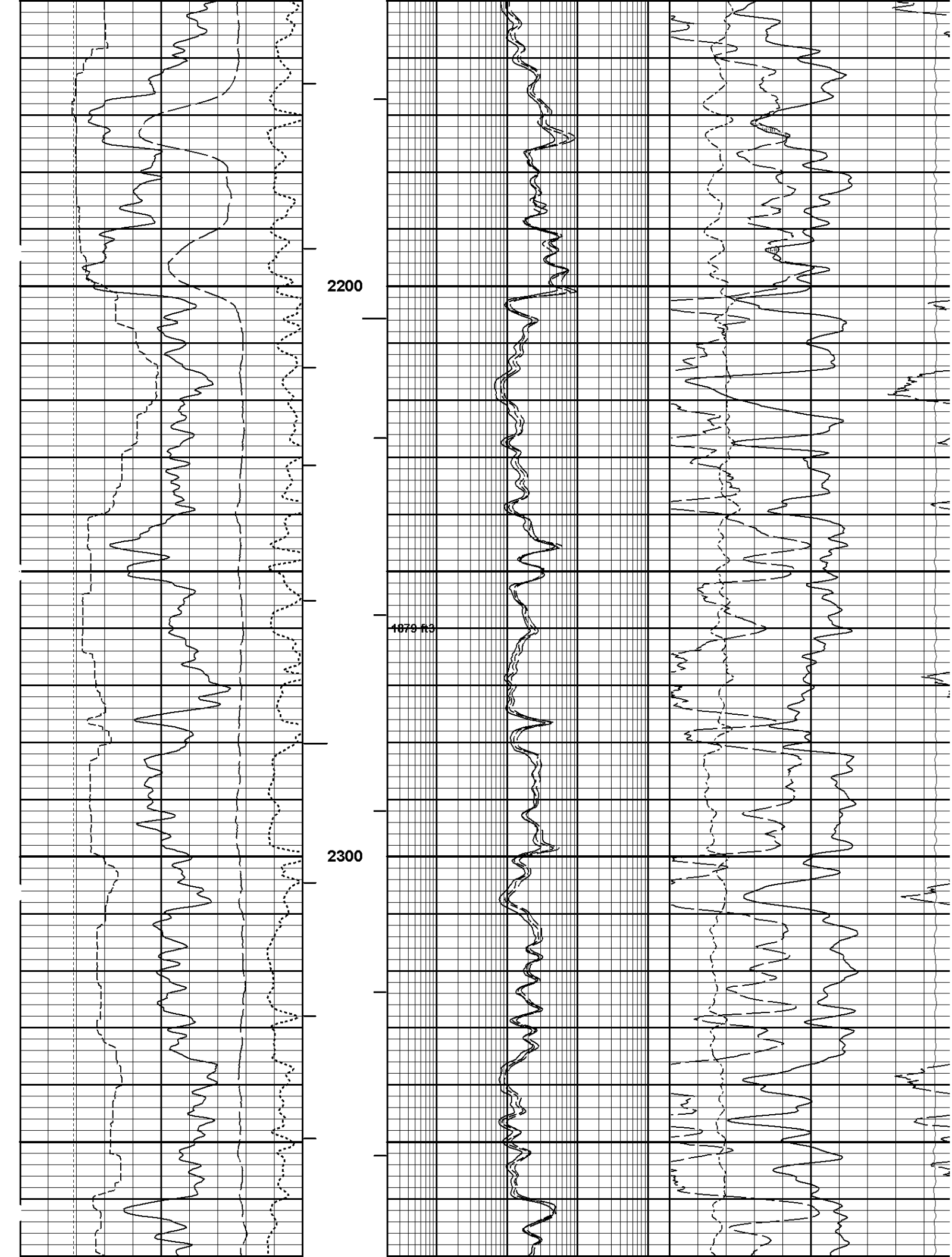
MAIN PASS 5" = 100'

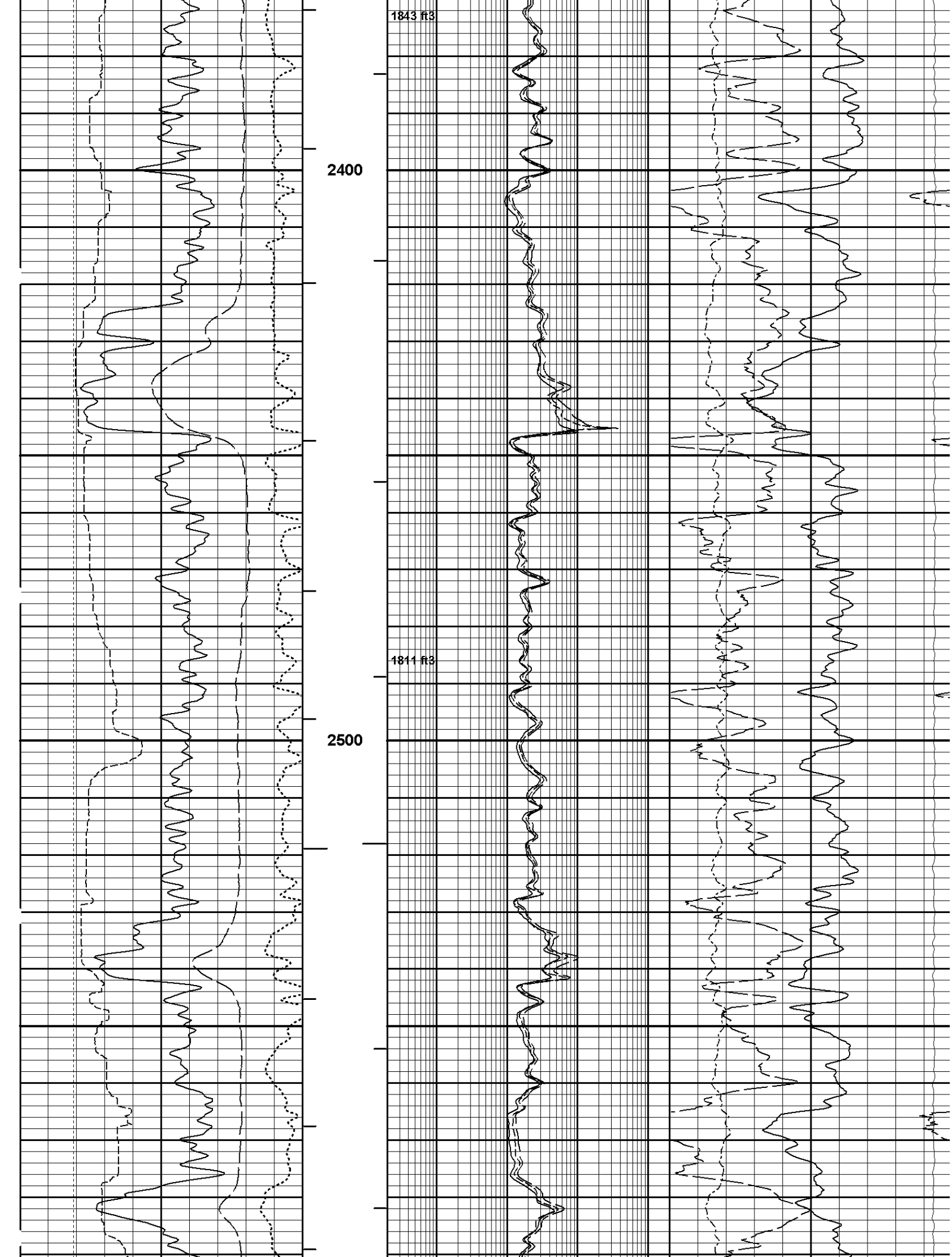


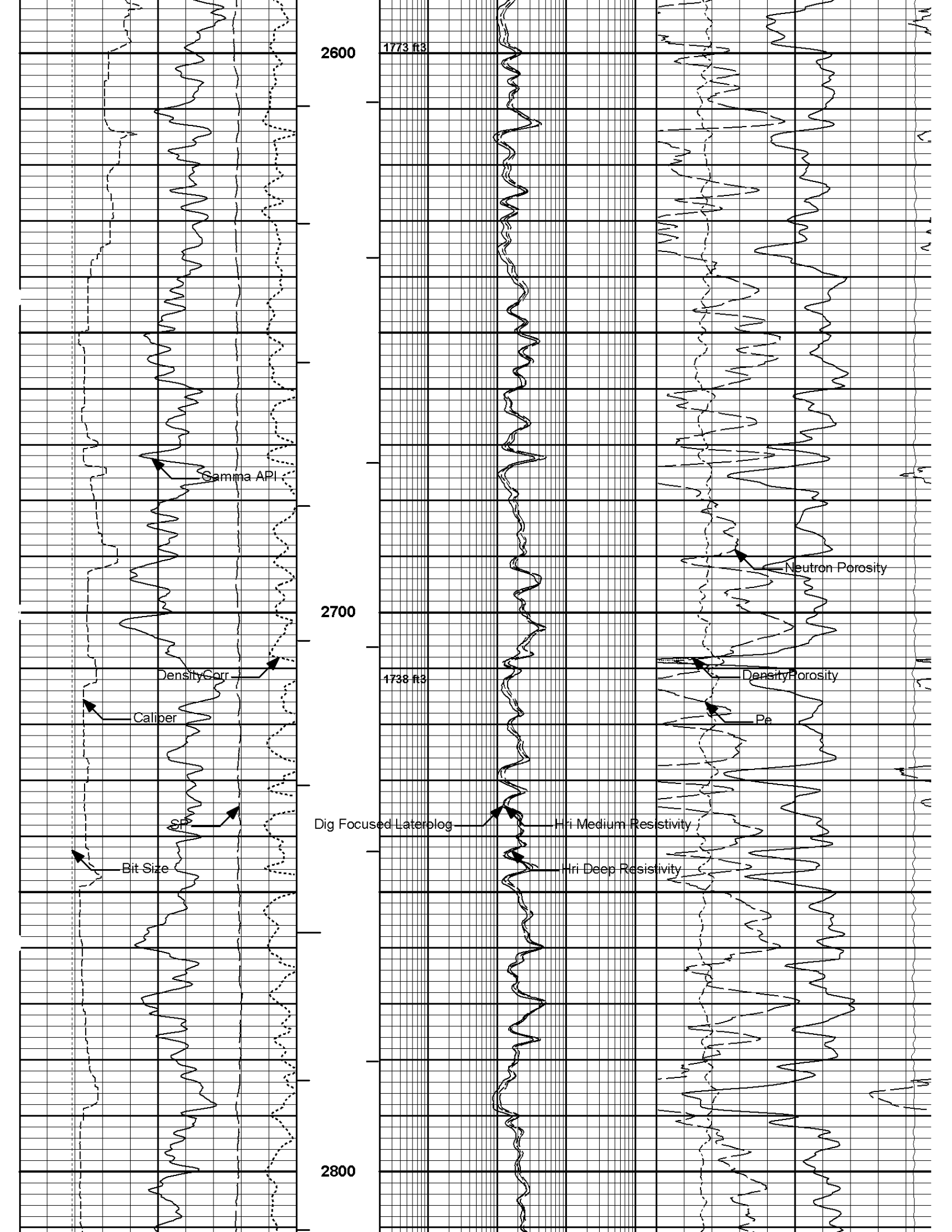

inches
ft
MD
ohm-metre
1500
CSG
2114 ft3
1600
2077 ft3
1700
Gamma API
Neutron Porosity

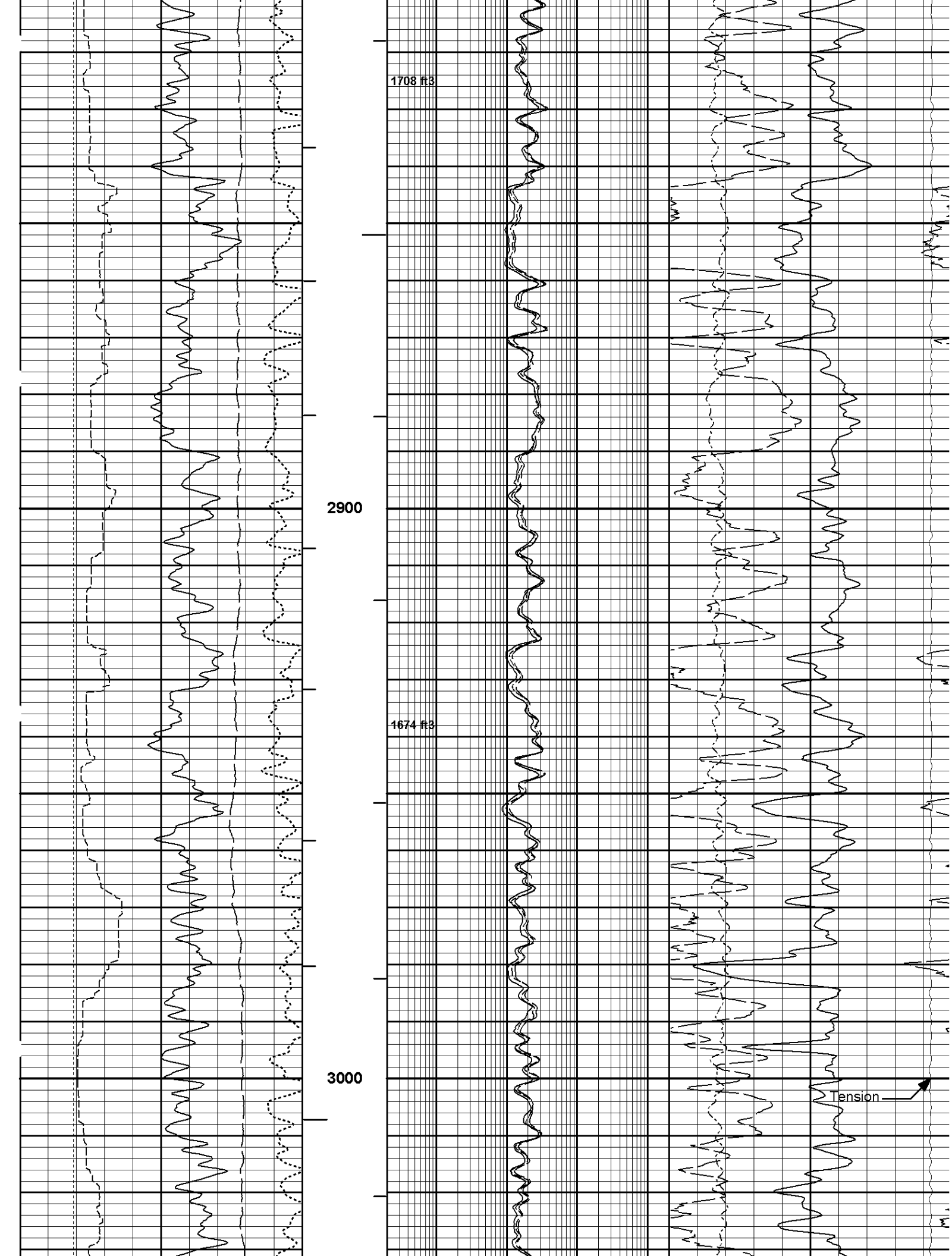

DensityCorr
Caliper
SP
Hri Medium Resistivity
Pe
DensityPorosity
1800
2036 ft3
1900
1989 ft3

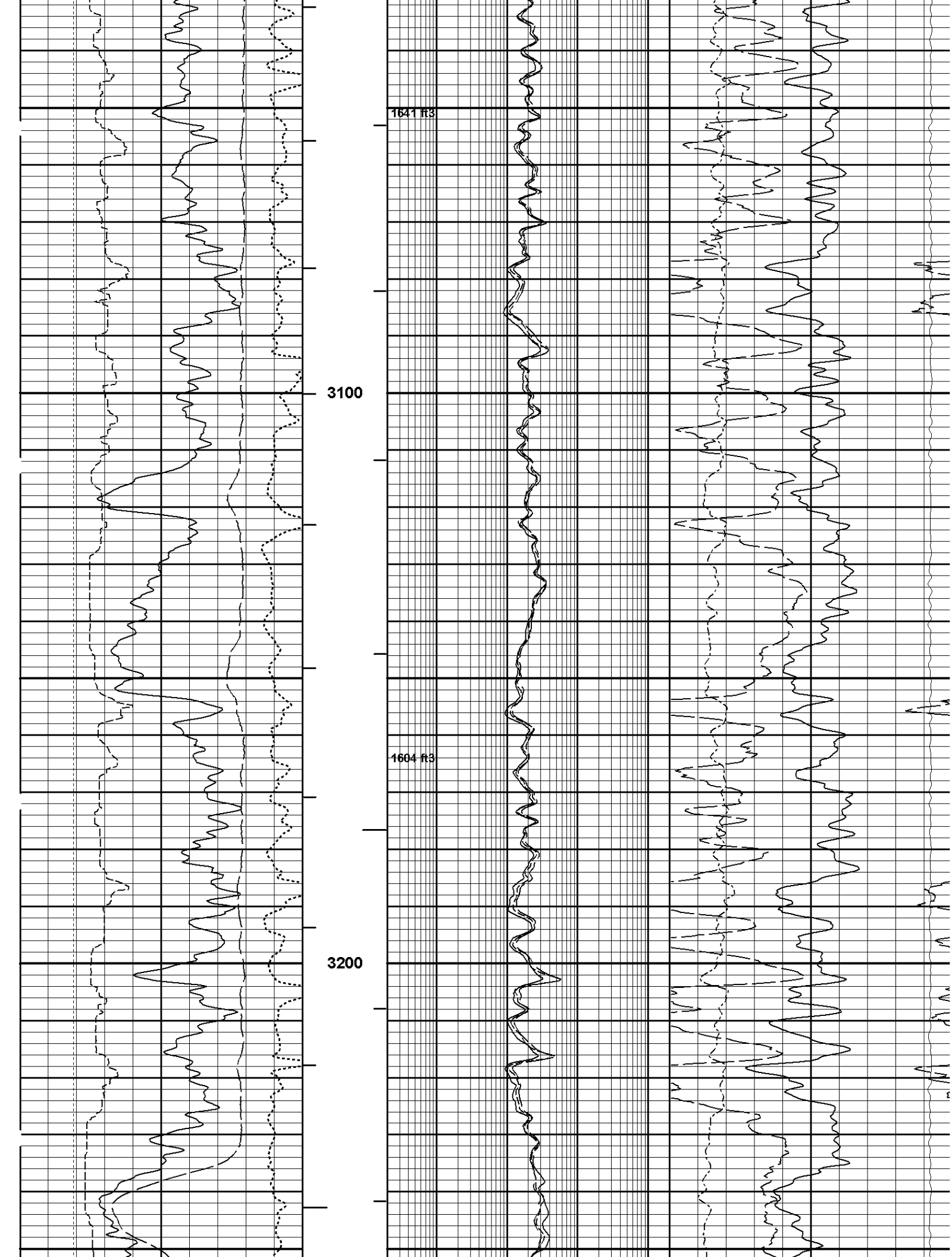

2000
Tension
1953 ft3
2100
1916 ft3

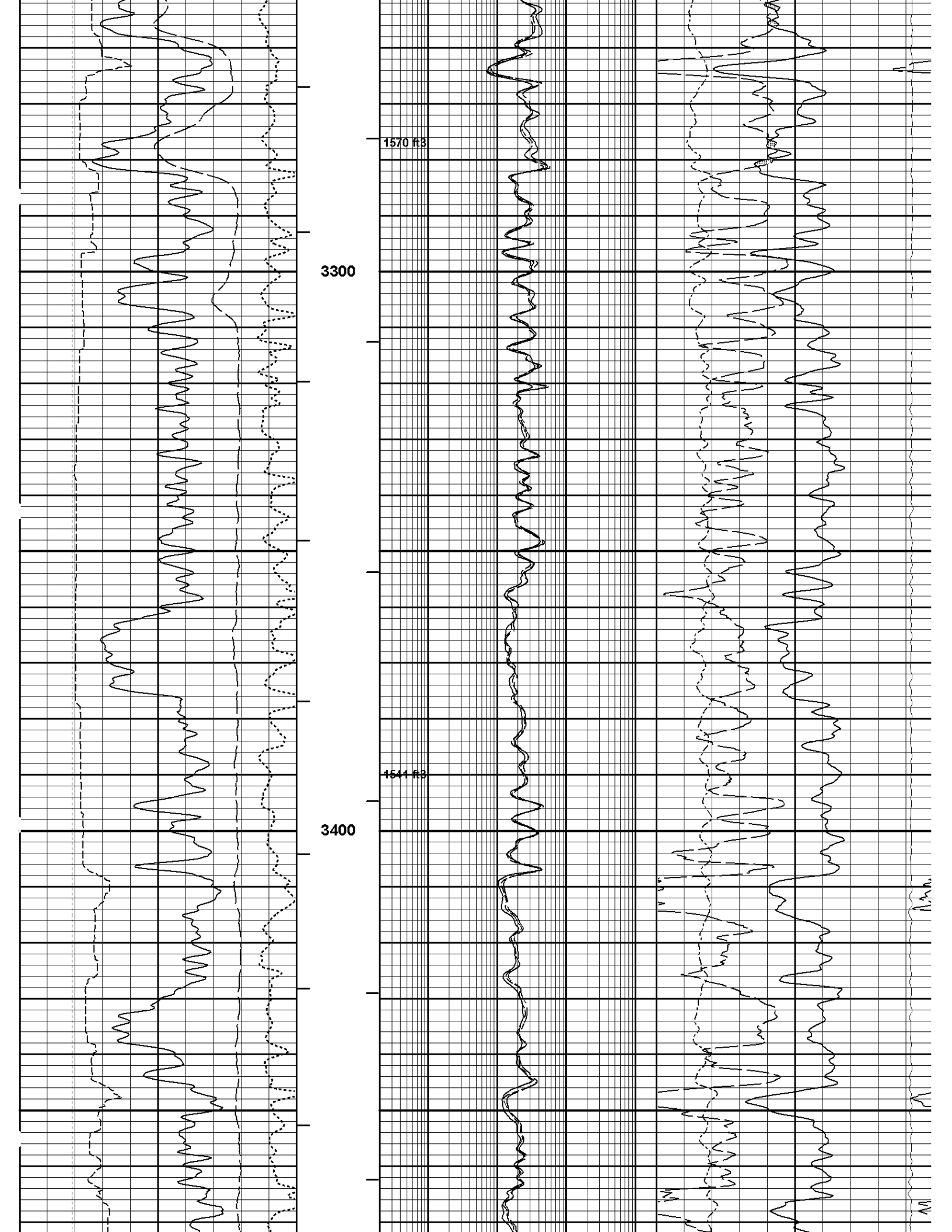

2200
1879 R3
2300

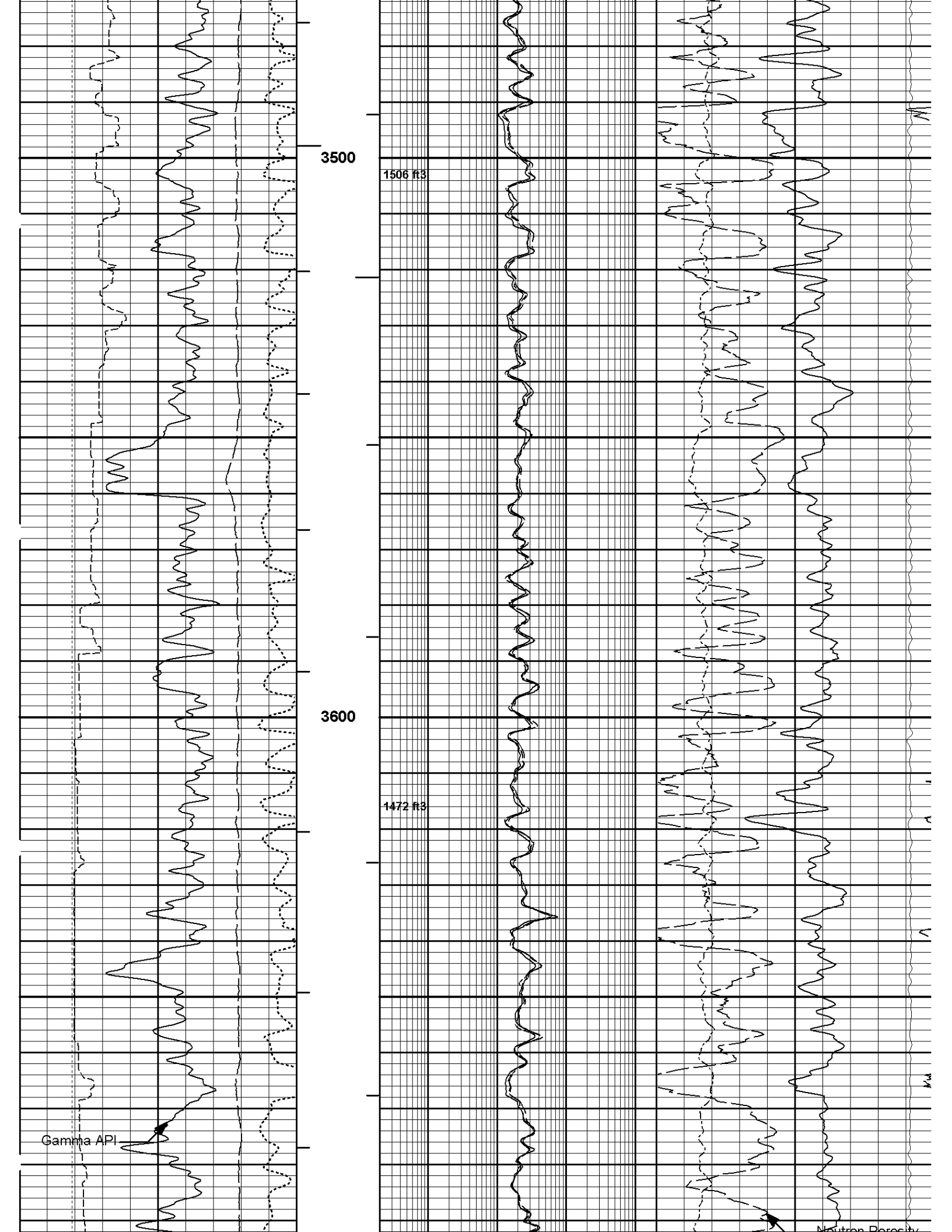

1843 ft3
2400
1811 ft3
2500

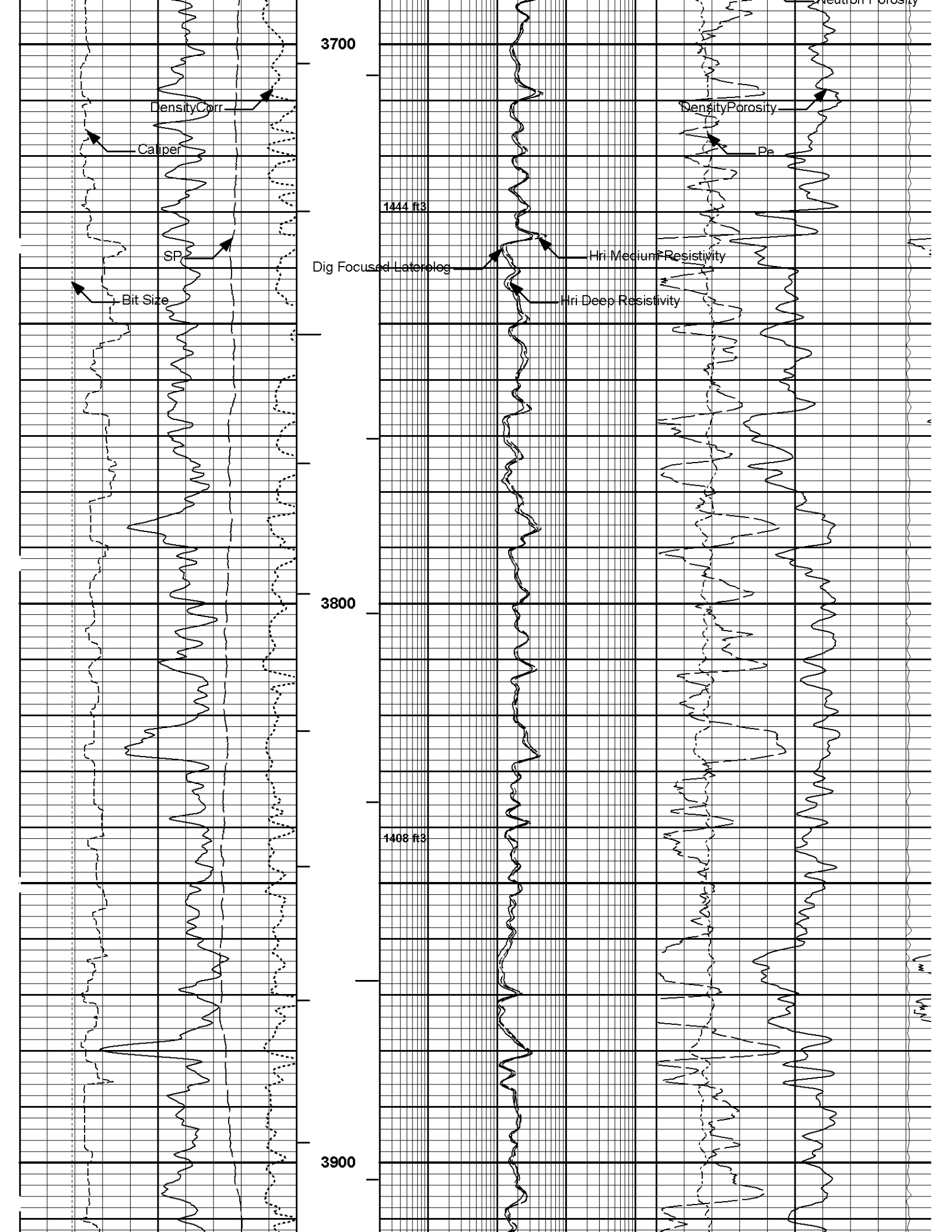

2600
1773 ft3
2700
1738 ft3
2800
Gamma API
DensityCorr
Caliber
SP
Bit Size
Dig Focused Laterolog
Hri Medium Resistivity
Hri Deep Resistivity
Neutron Porosity
DensityPorosity
Pe

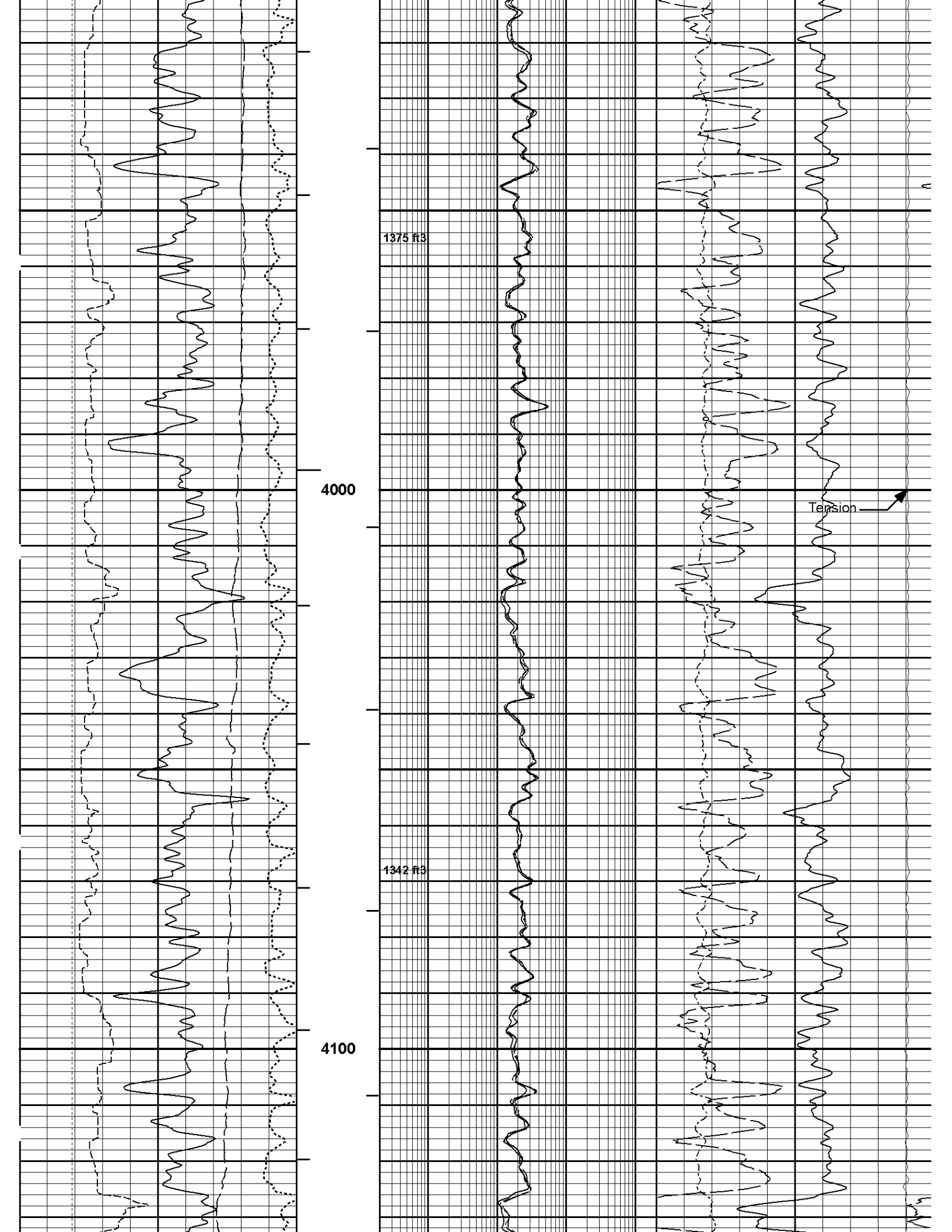

1708 ft3
2900
1674 ft3
3000
Tension

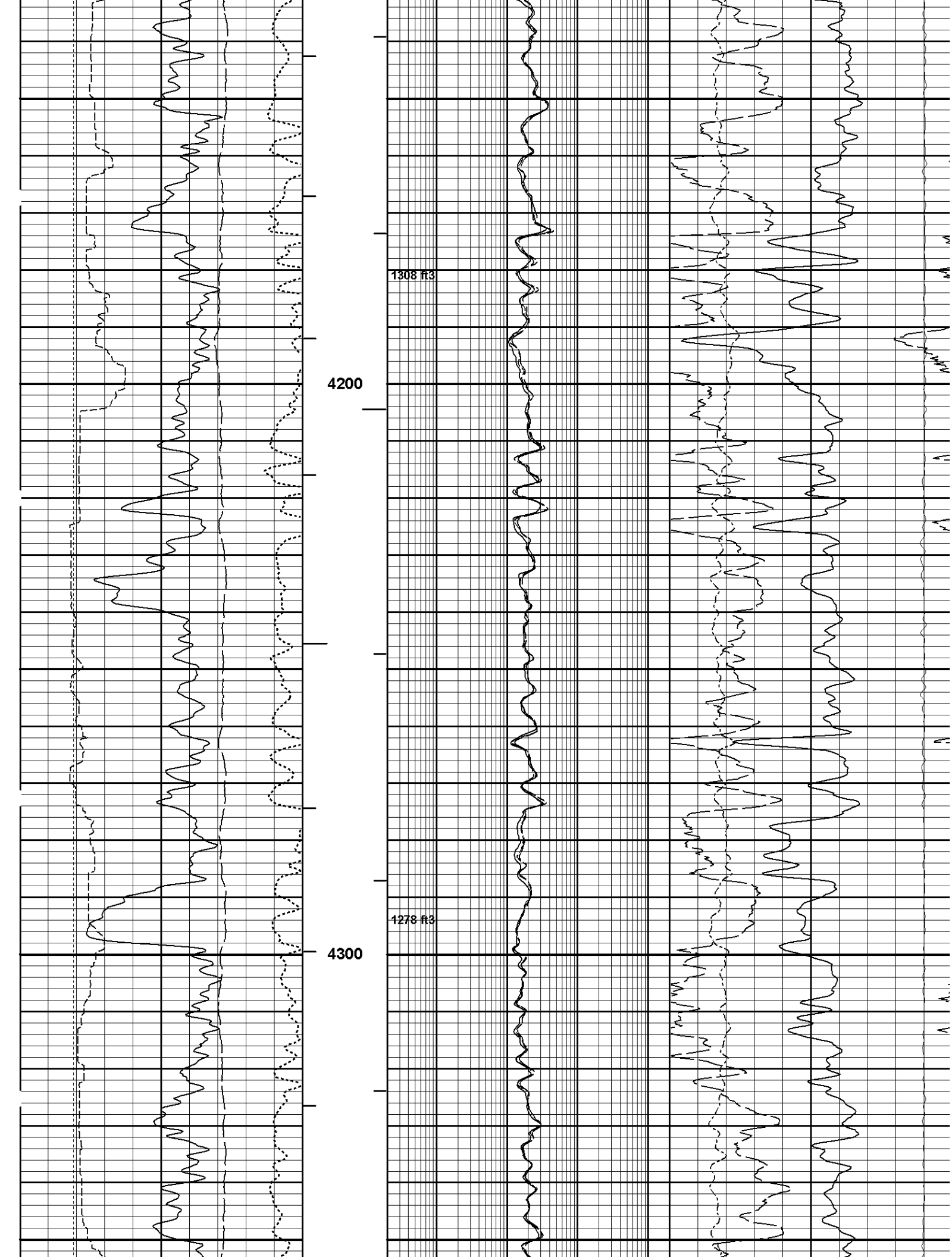

1641 ft3
3100
1604 ft3
3200

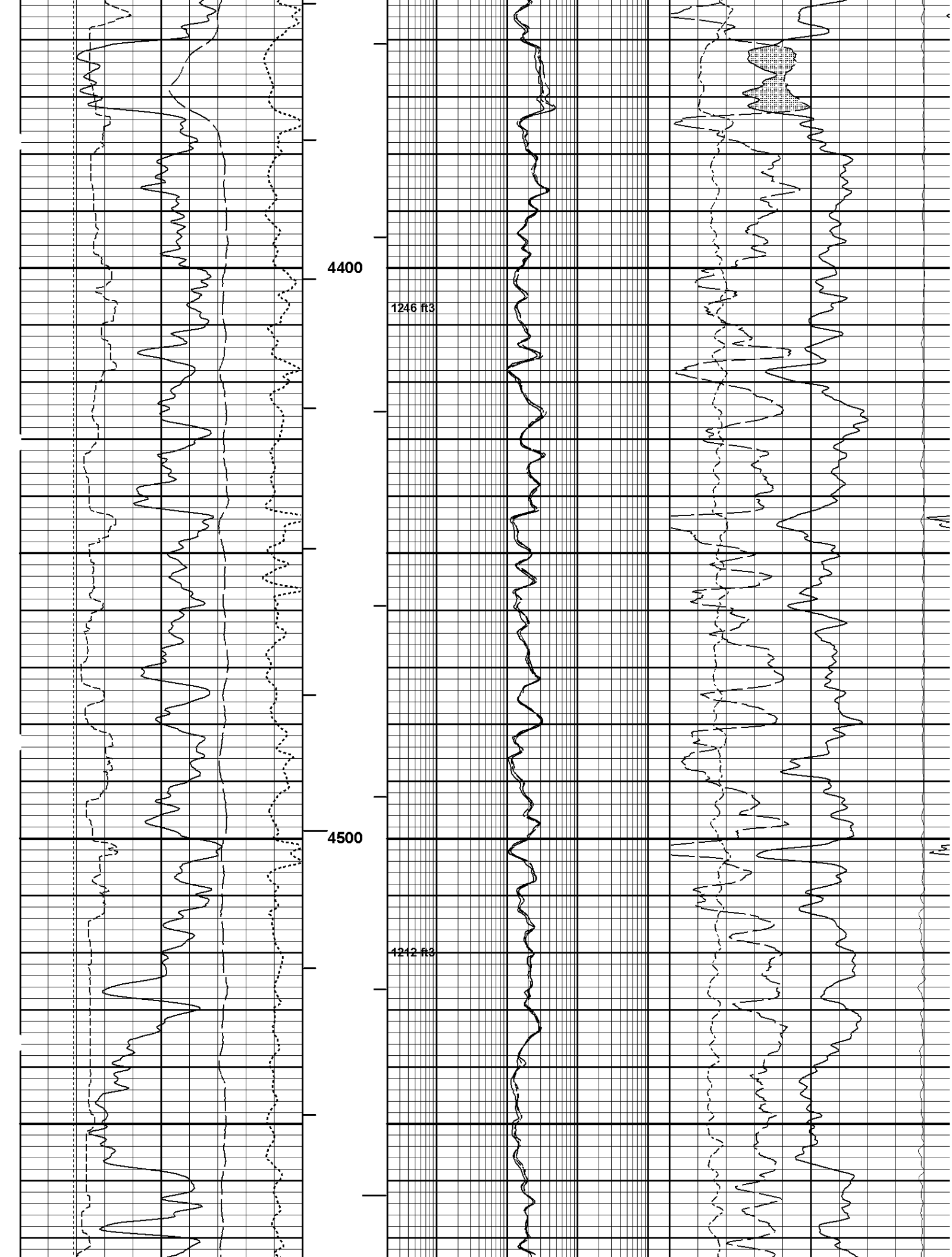

1570 ft3
3300
4541 ft3
3400

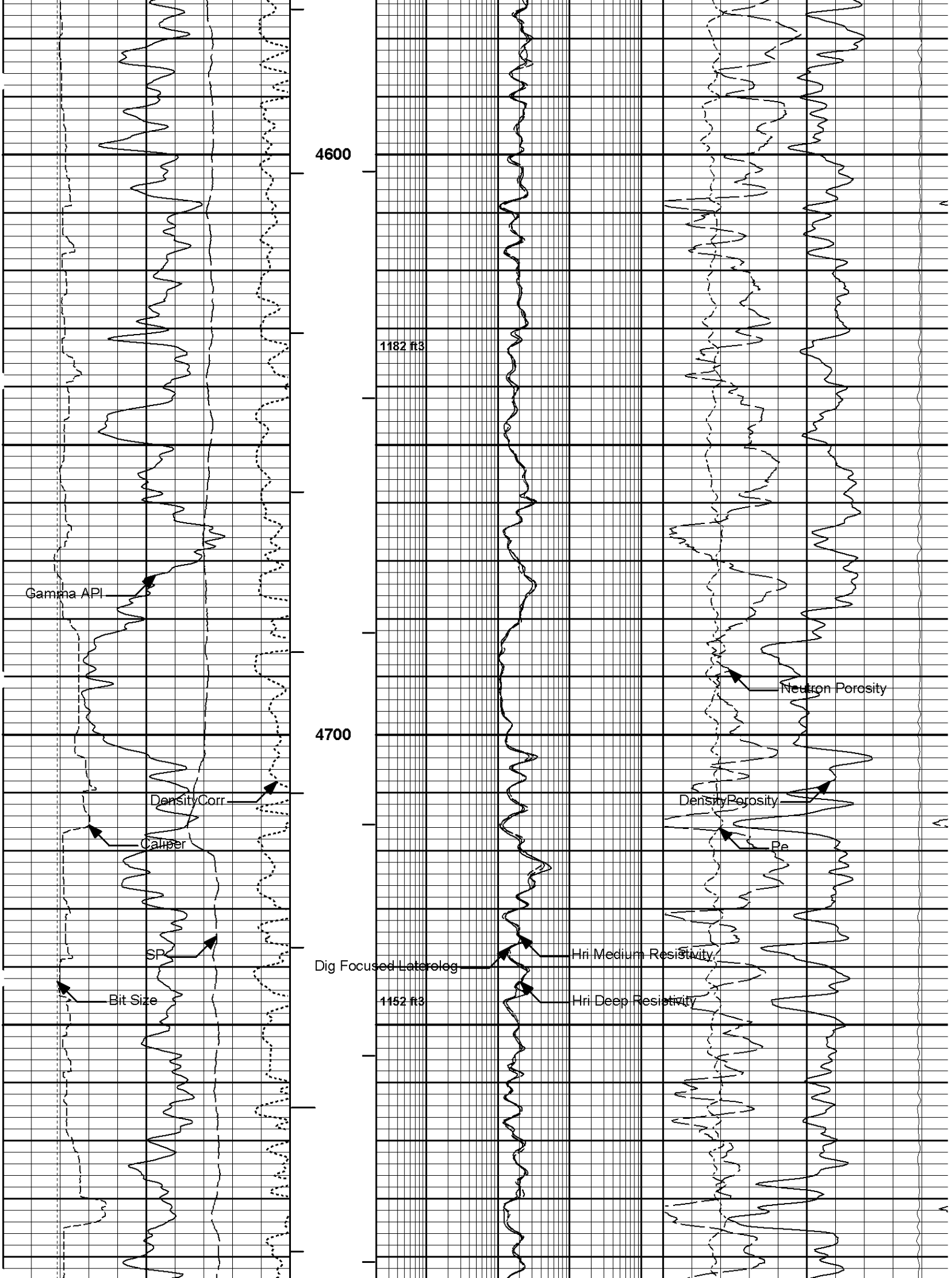

3500
1506 ft3
3600
1472 ft3
Gamma API
Neutron Porosity

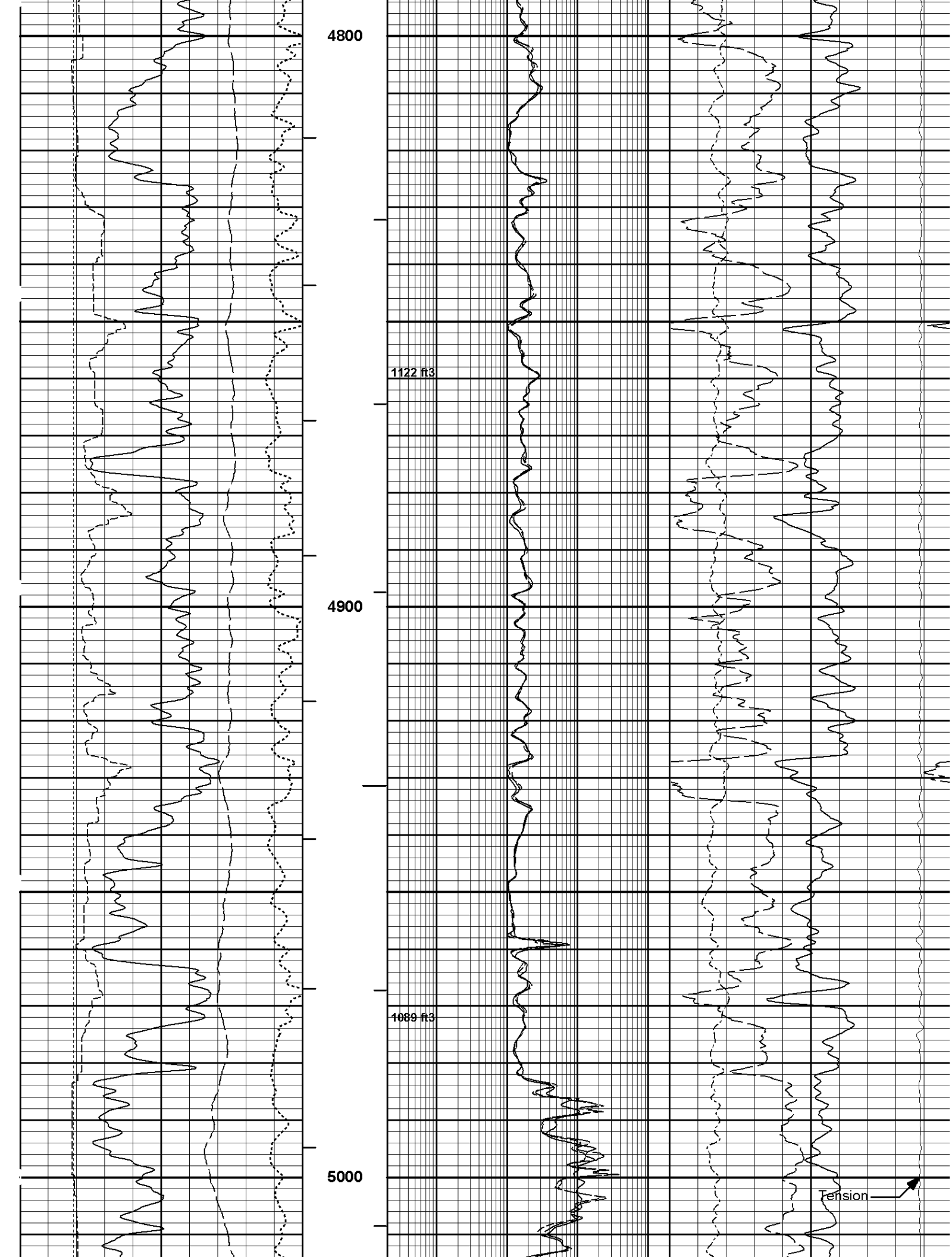

3700
3800
3900
DensityCorr
Caliper
SP
Bit Size
1444 ft3
1408 ft3
Dig Focused Laterolog
Hri Medium Resistivity
Hri Deep Resistivity
DensityPorosity
Pe
Neutron Porosity

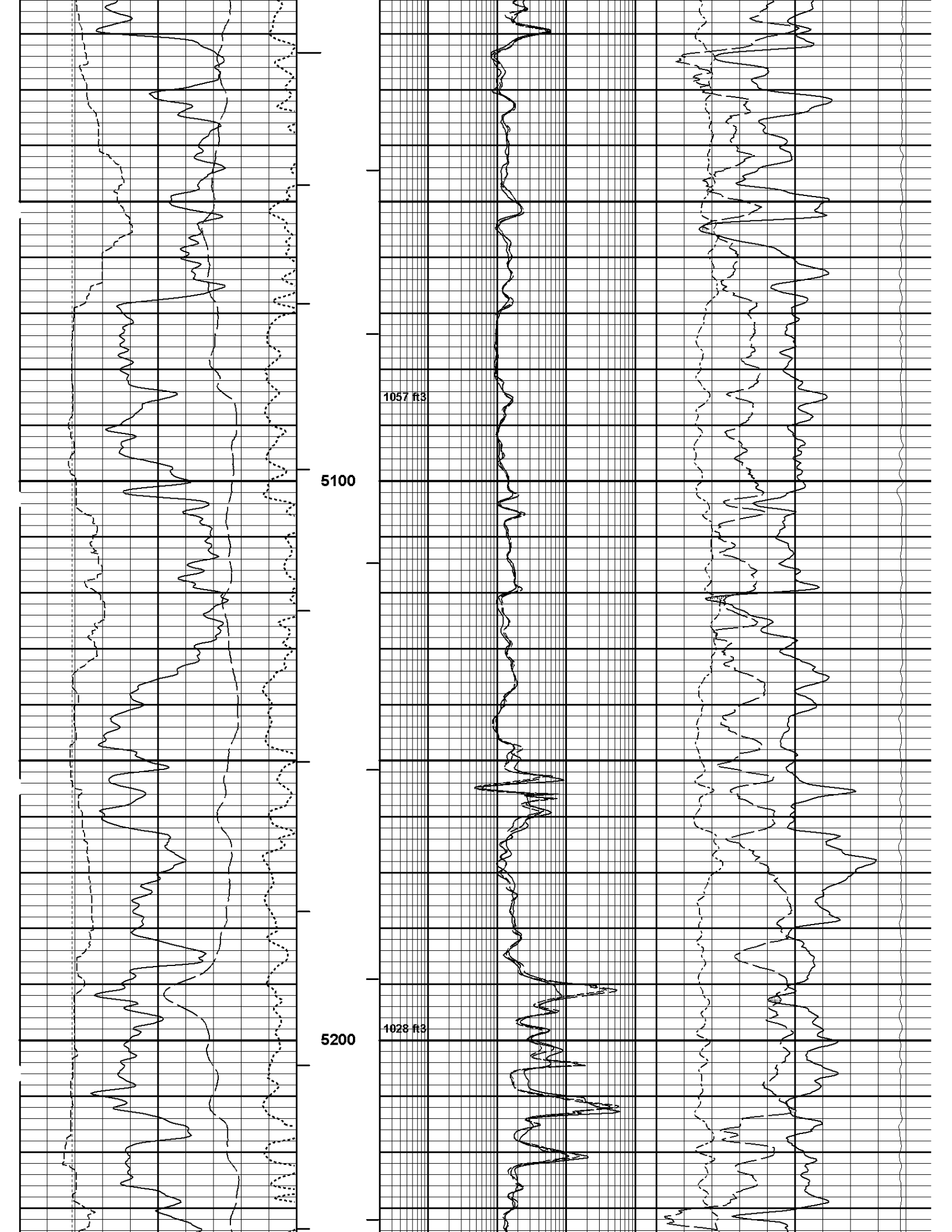

1375 ft3
4000
Tension
1342 ft3
4100

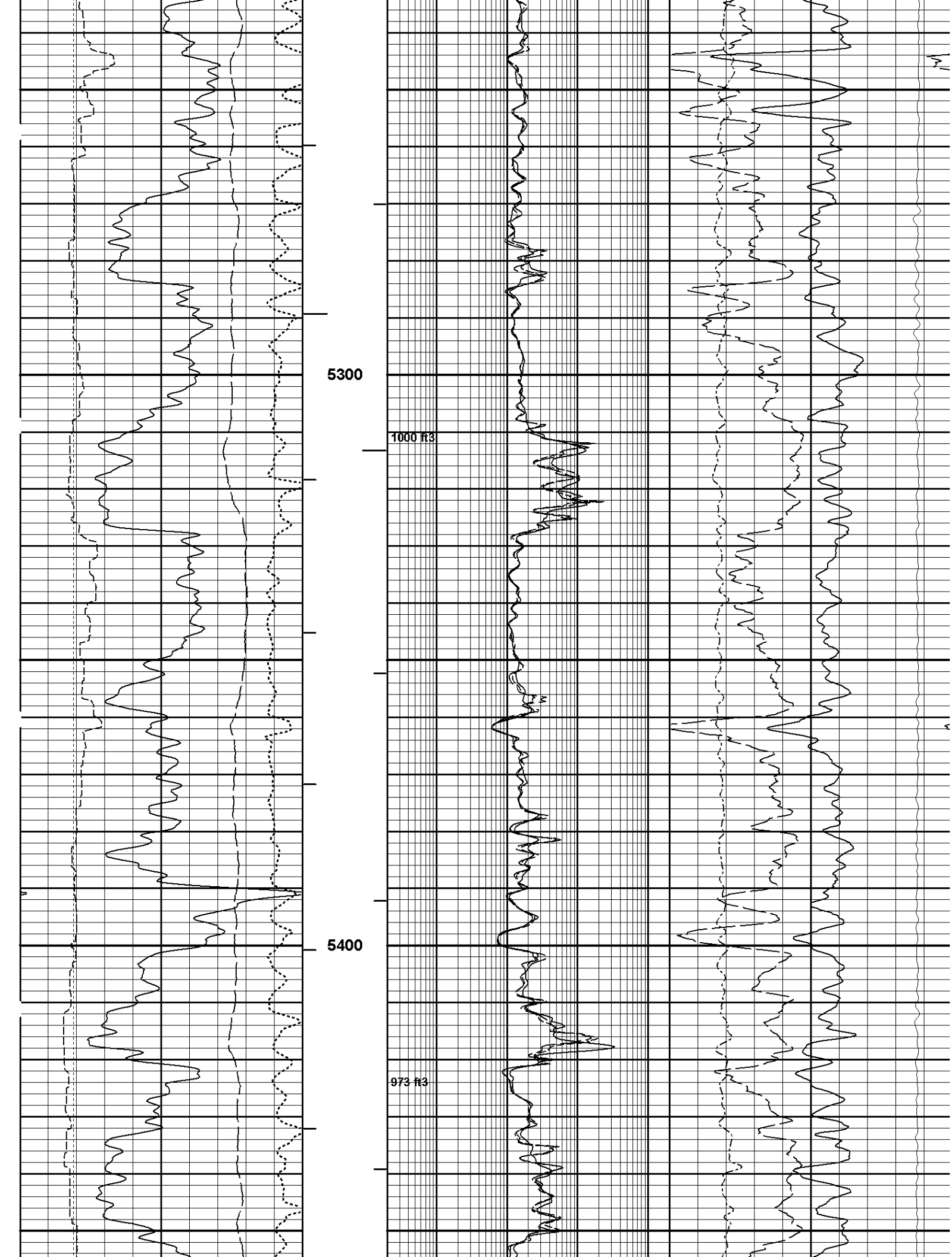

1308 ft3
4200
1278 ft3
4300

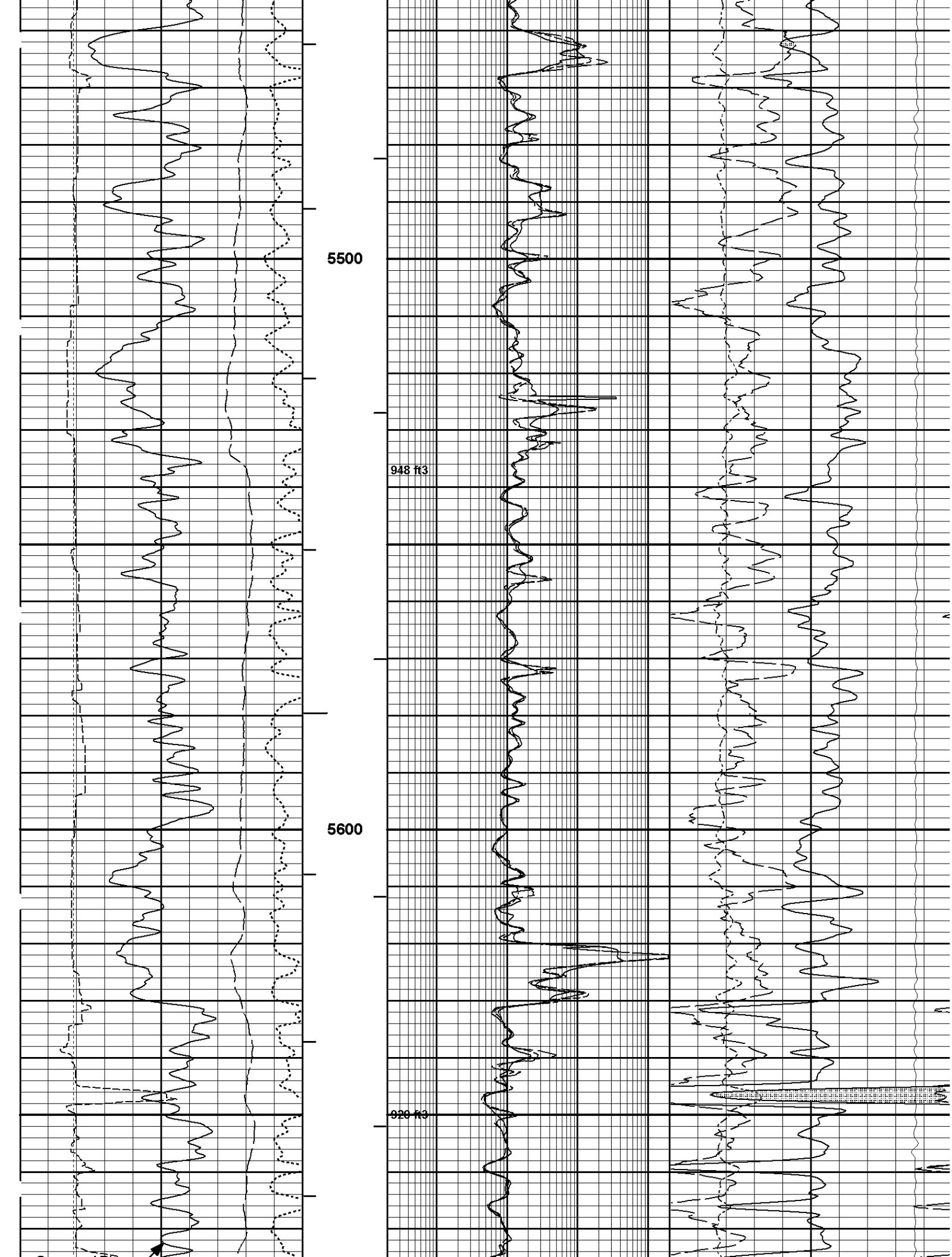

4400
1246 ft3
4500
1212 ft3

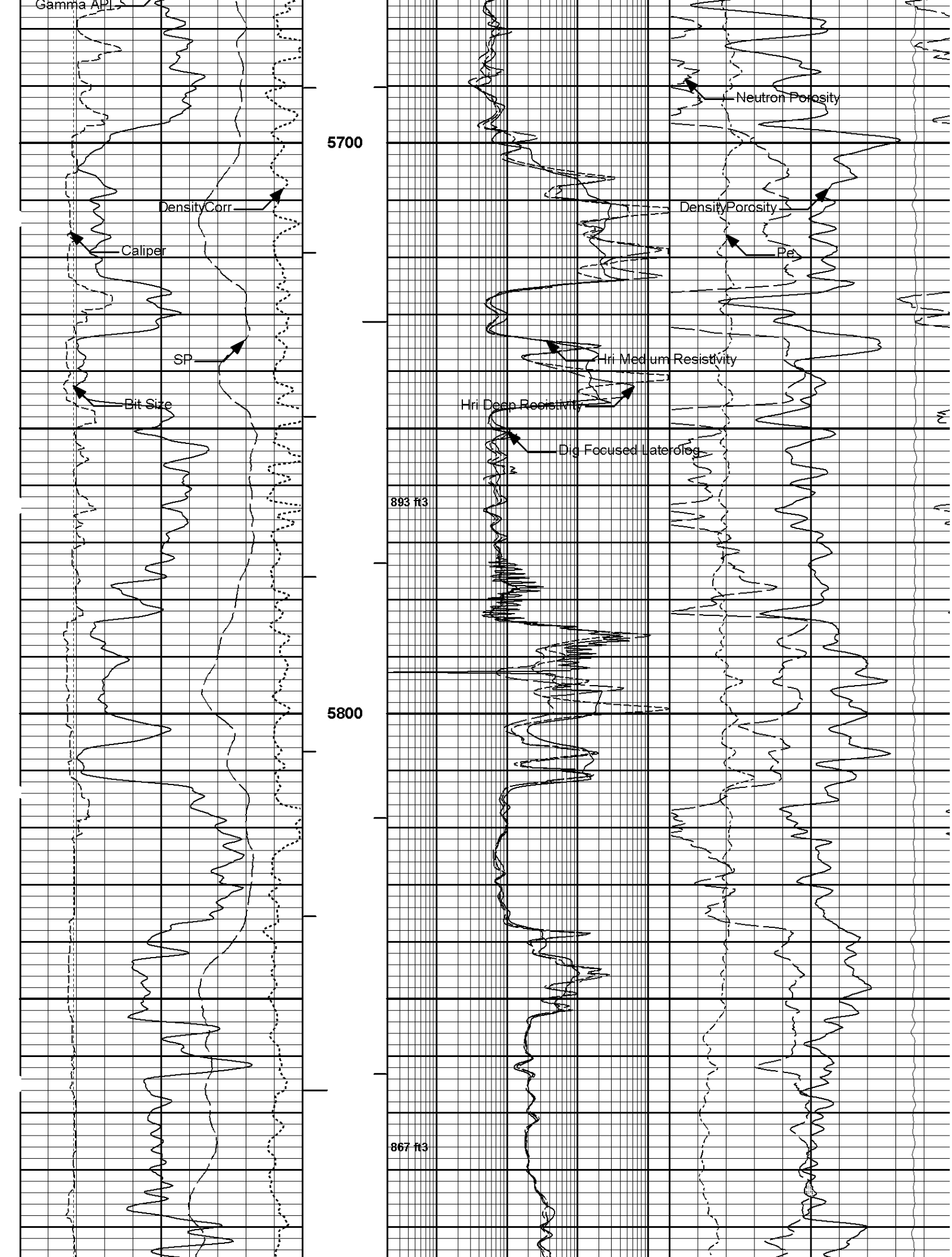

4600
1182 ft3
Gamma API
Neutron Porosity
4700
DensityCorr
DensityPorosity
Caliper
Pe
SP
Hri Medium Resistivity
Dig Focused Laterolog
Bit Size
1152 ft3
Hri Deep Resistivity

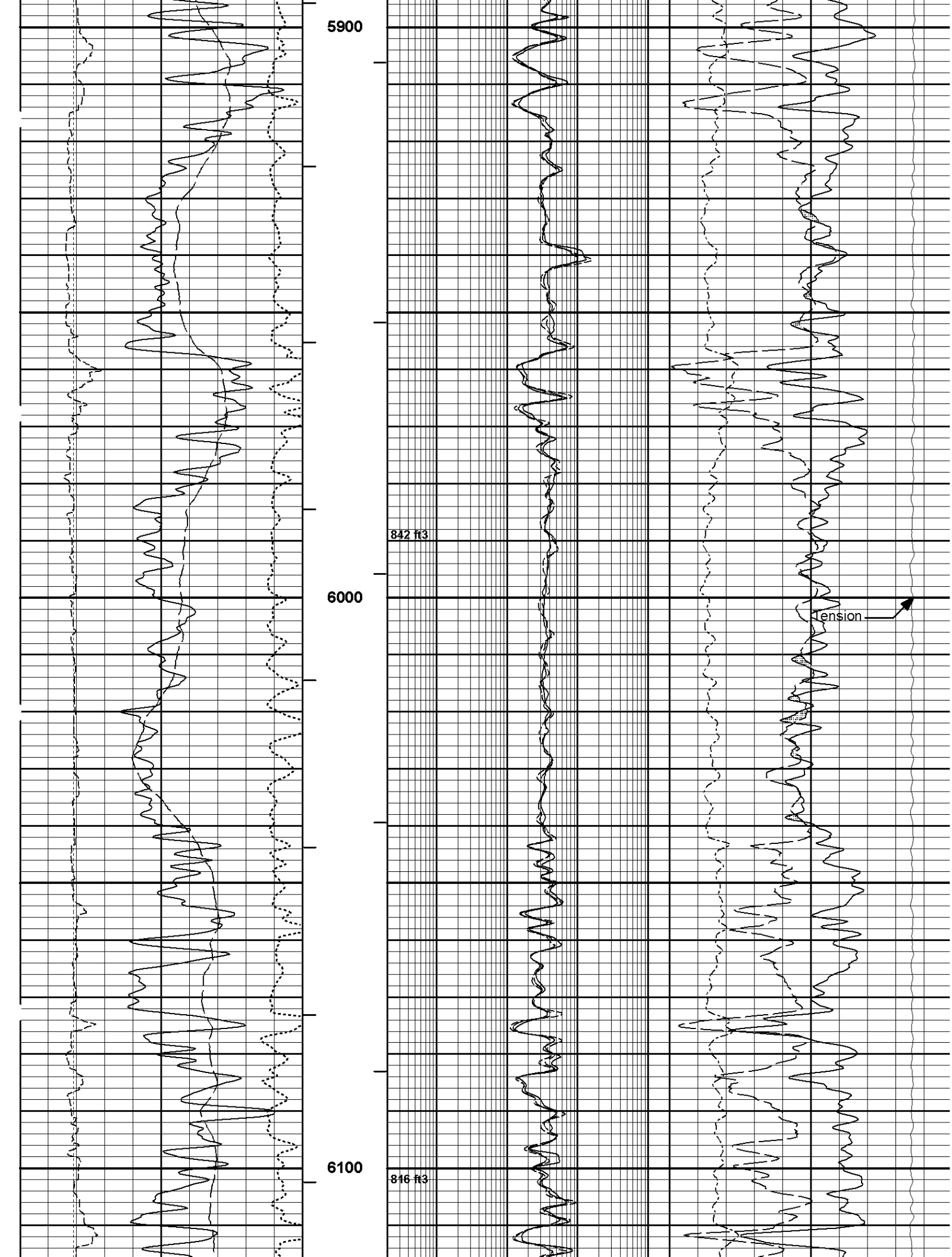

4800
1122 ft3
4900
1089 ft3
5000
Tension

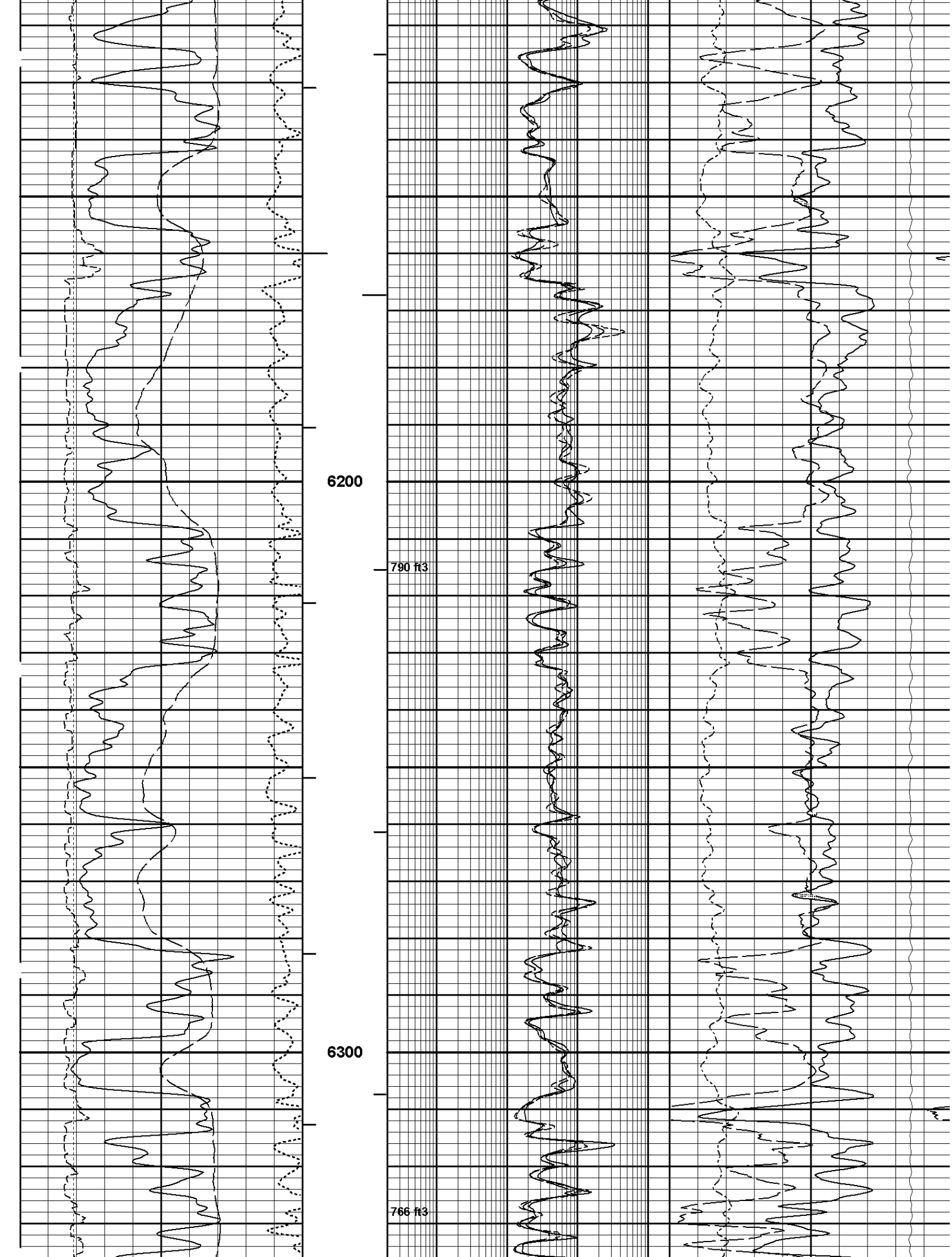

1057 ft3
5100
1028 ft3
5200

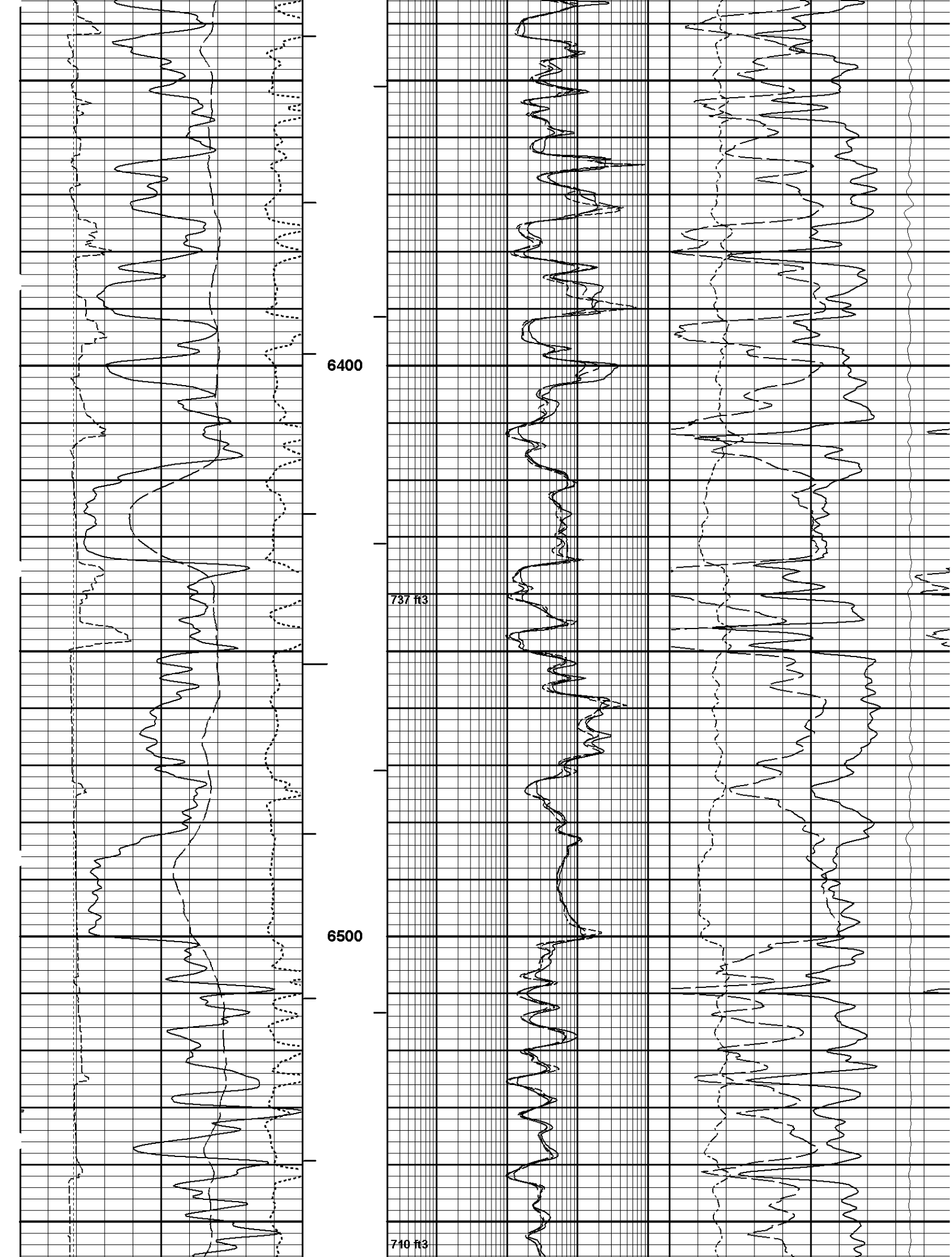

5300
1000 ft3
5400
973 ft3

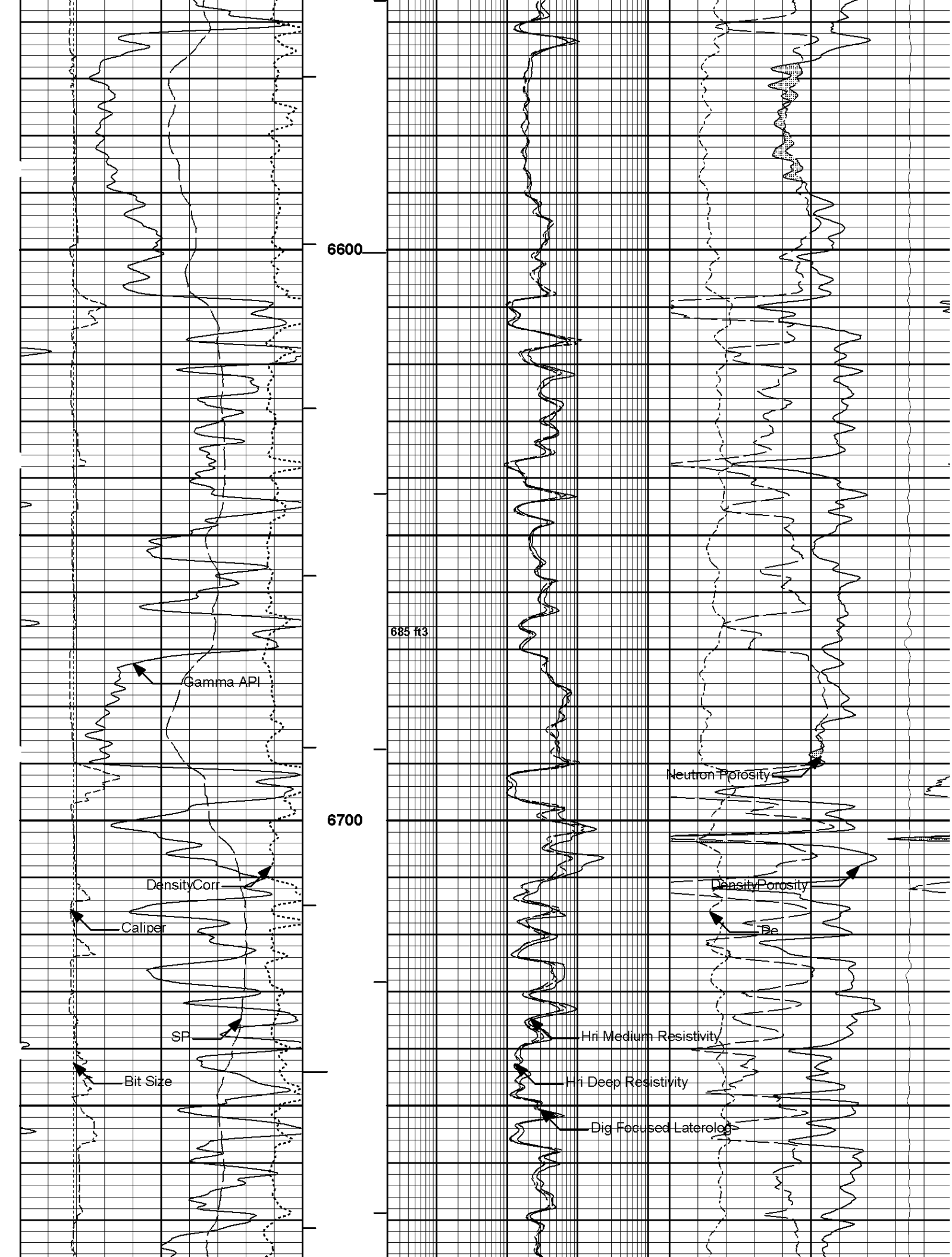

5500
948 ft3
5600
920 ft3

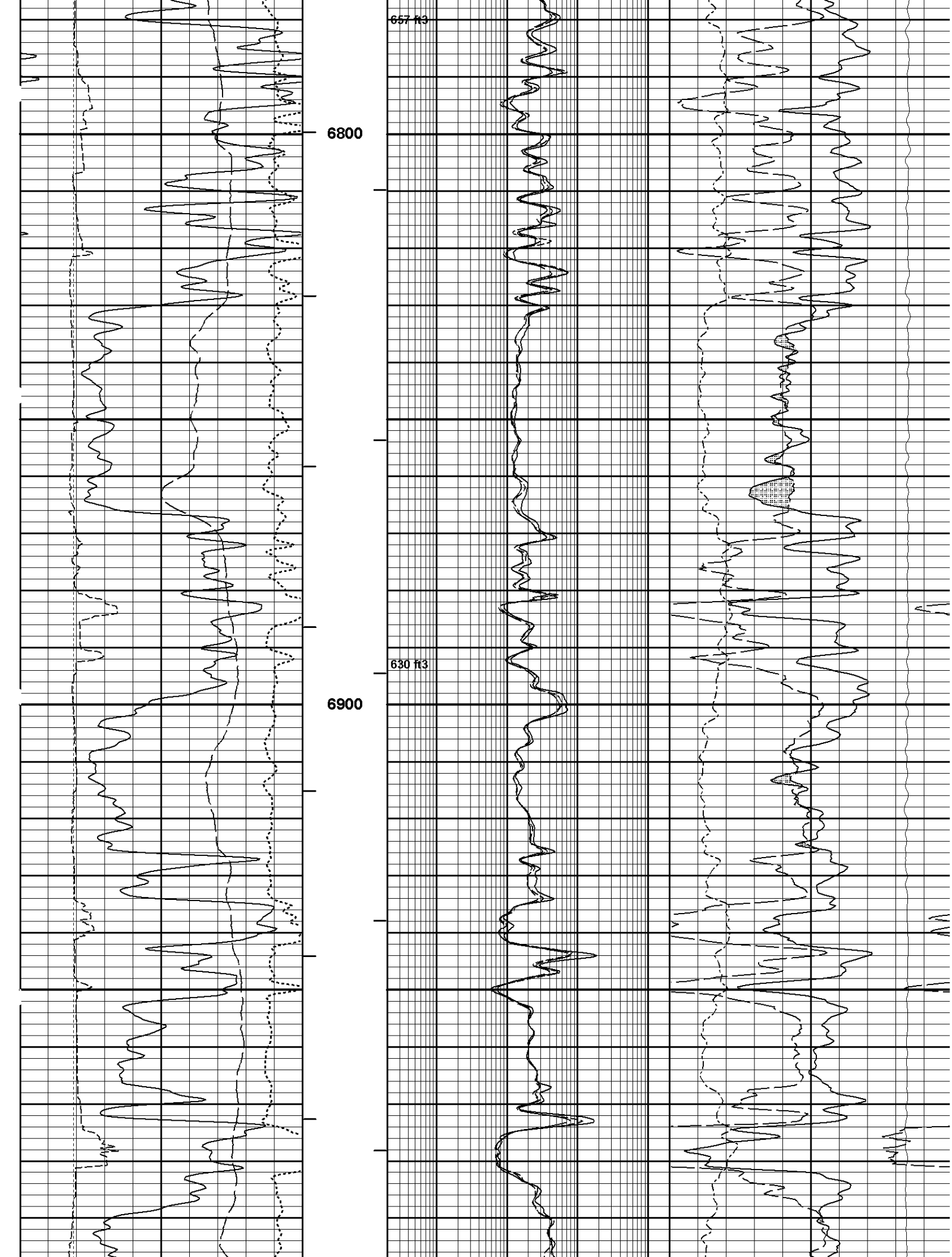

Gamma API
DensityCorr
Caliper
SP
Bit Size
Neutron Porosity
DensityPorosity
Pe
Hri Medium Resistivity
Hri Deep Resistivity
Dig Focused Laterolog
5700
5800
893 ft3
867 ft3

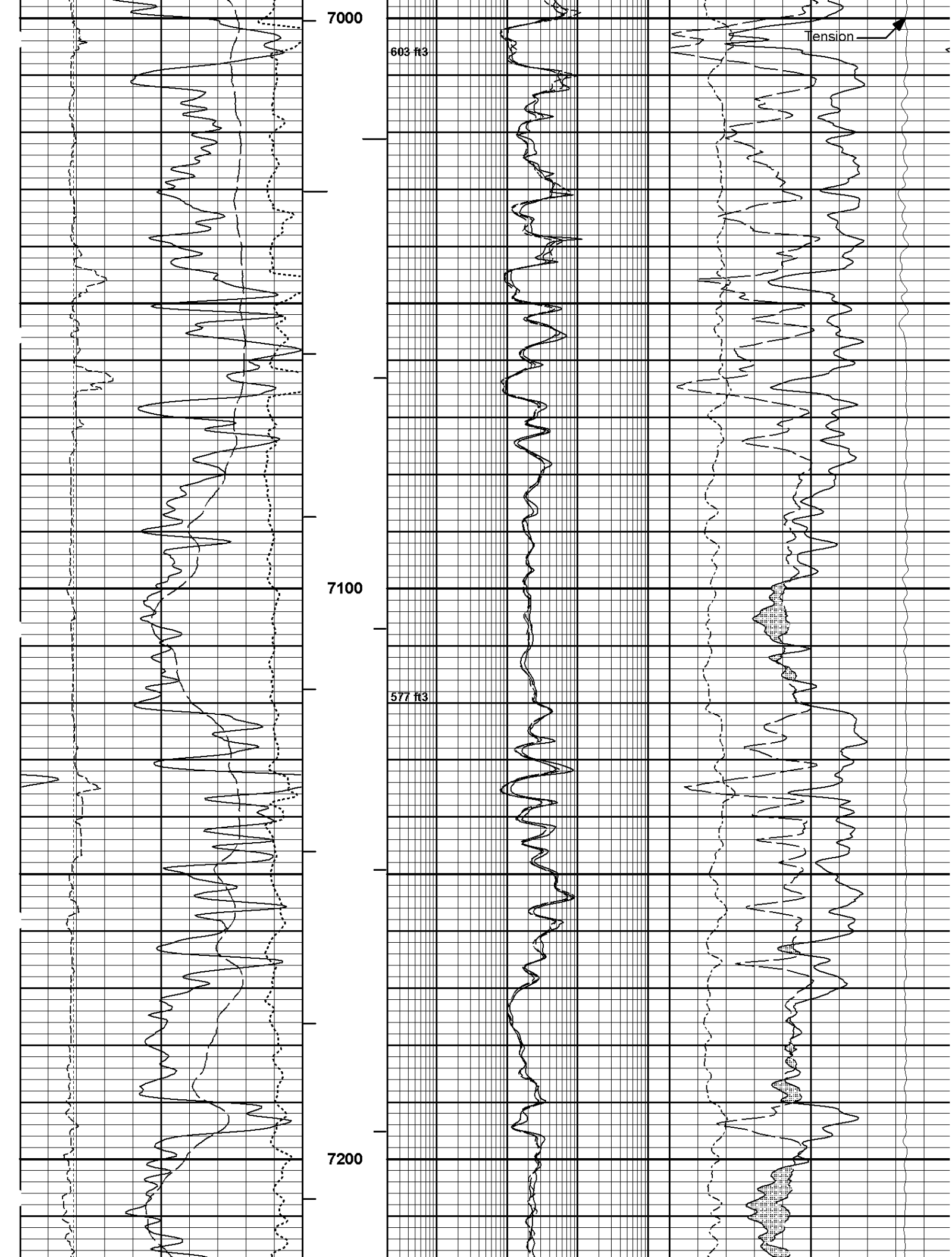

5900
842 ft3
6000
Tension
6100
816 ft3

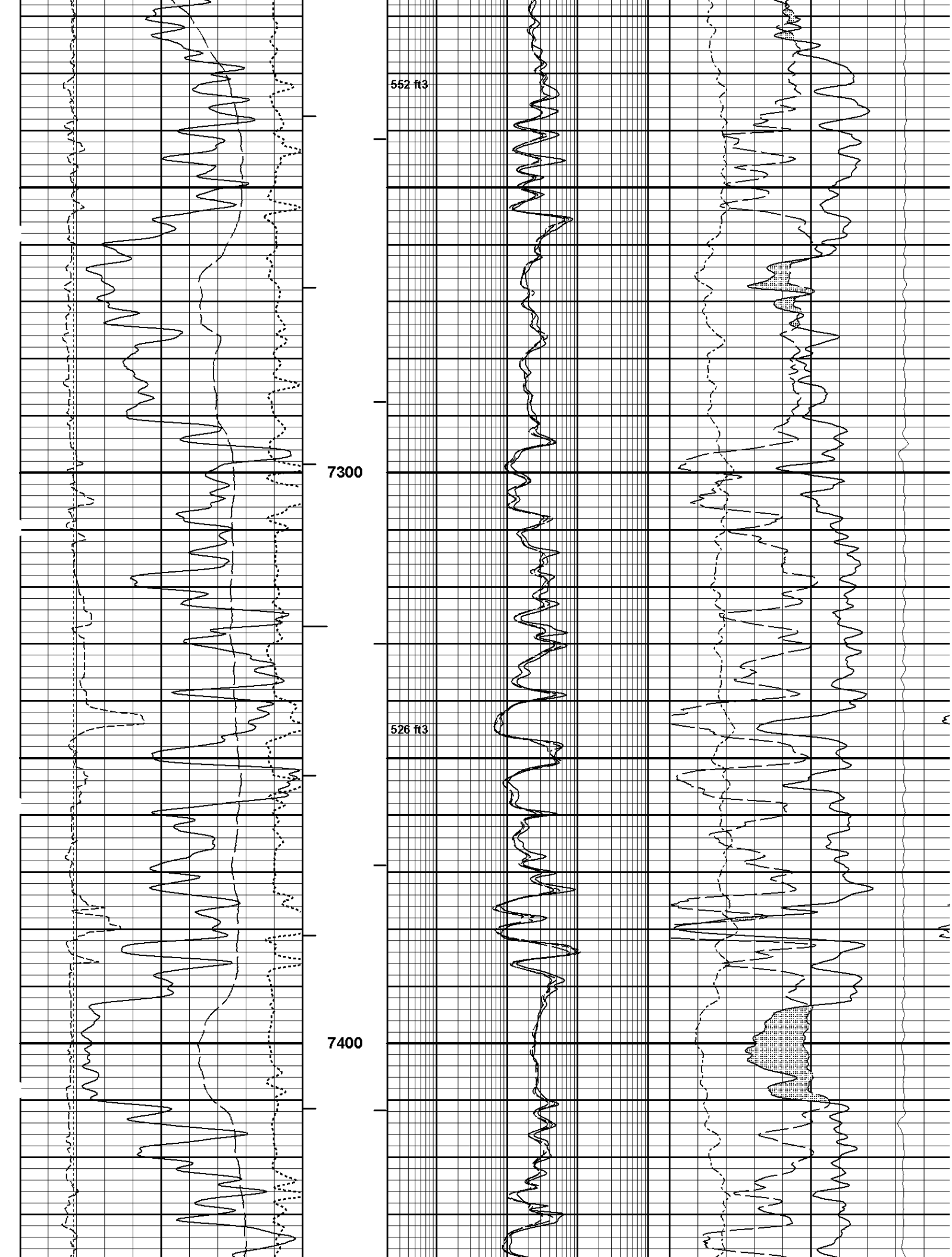

6200
790 ft3
6300
766 ft3

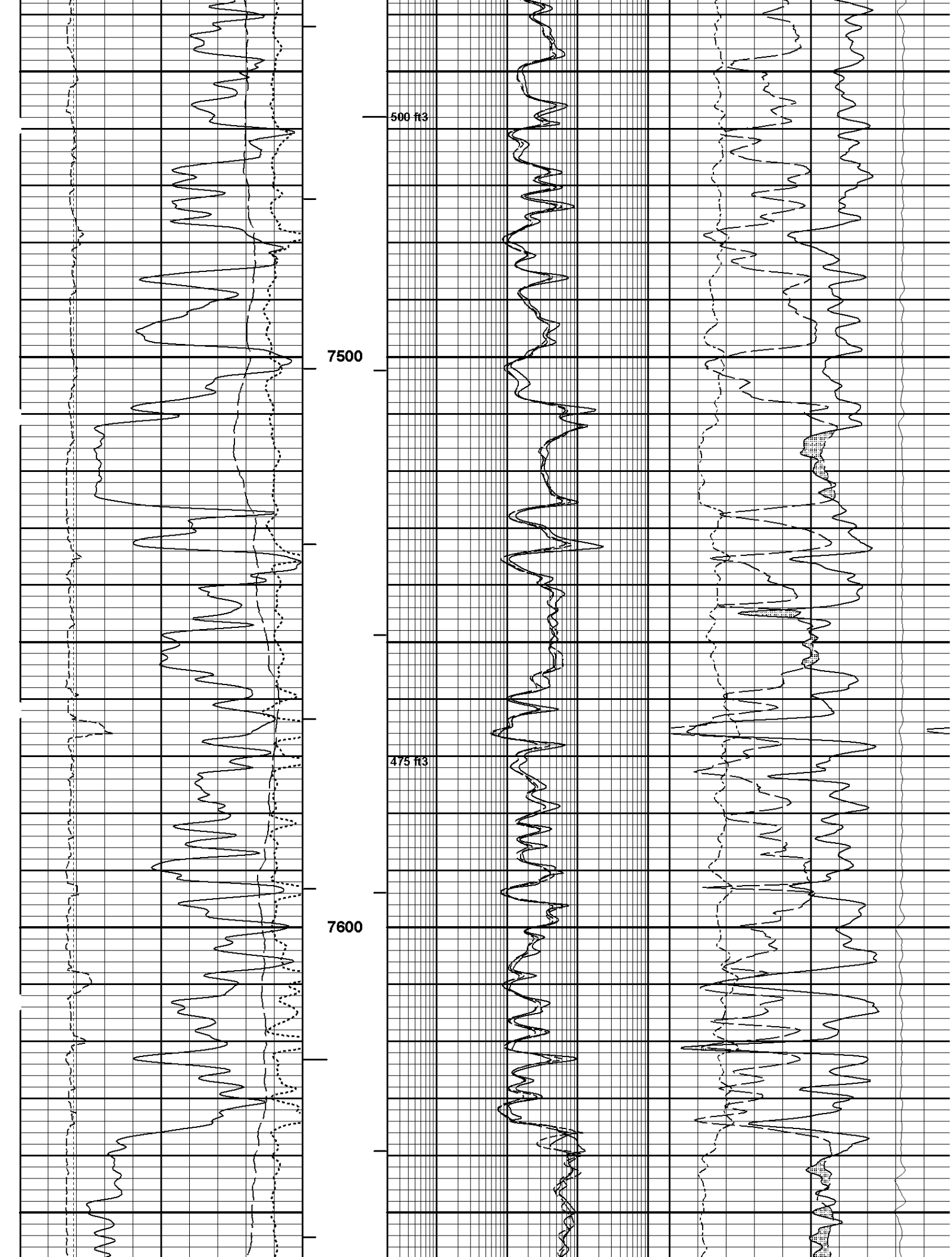

6400
737 ft3
6500
710 ft3

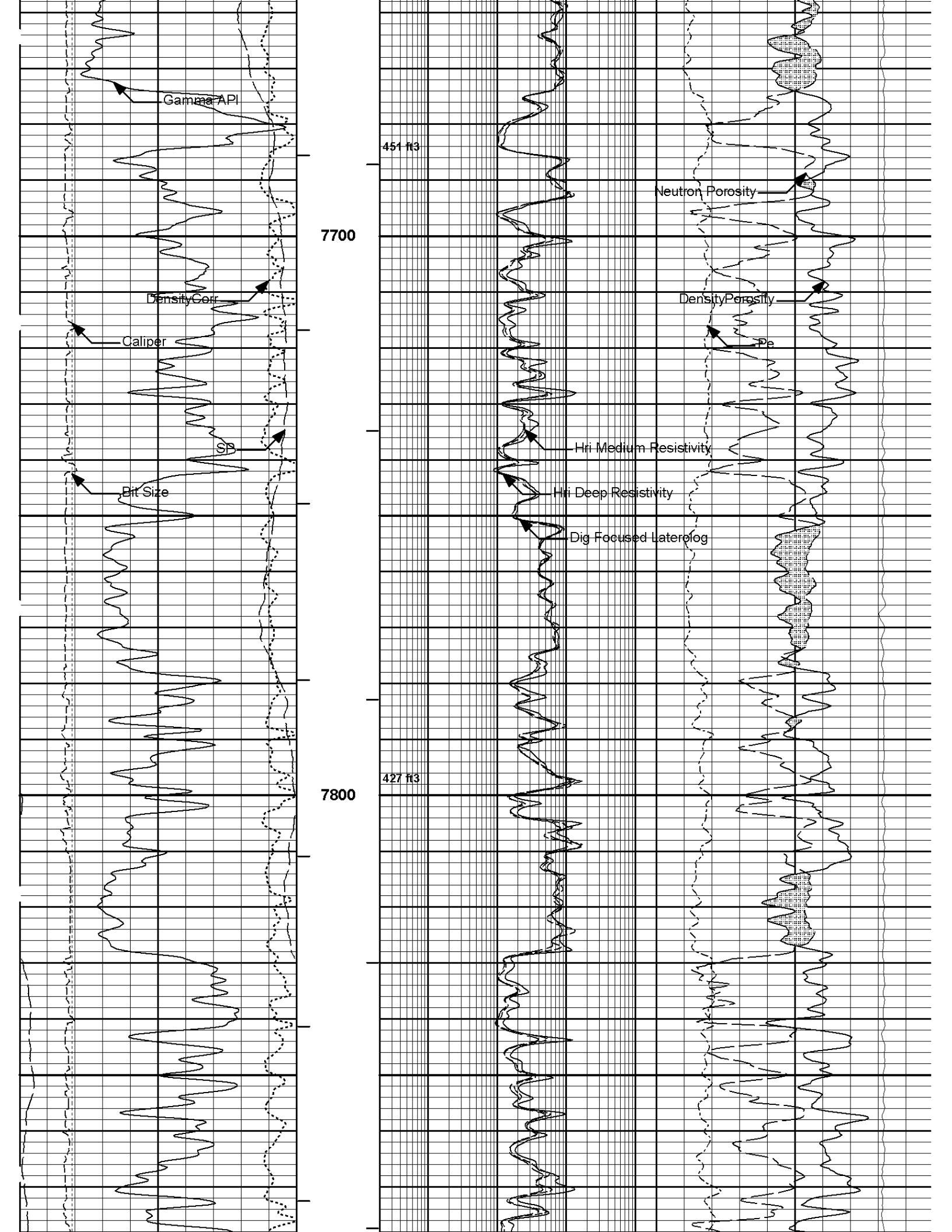

6600
6700
685 ft3
Gamma API
DensityCorr
Caliper
SP
Bit Size
Neutron Porosity
DensityPorosity
Pe
Hri Medium Resistivity
Hri Deep Resistivity
Dig Focused Laterolog

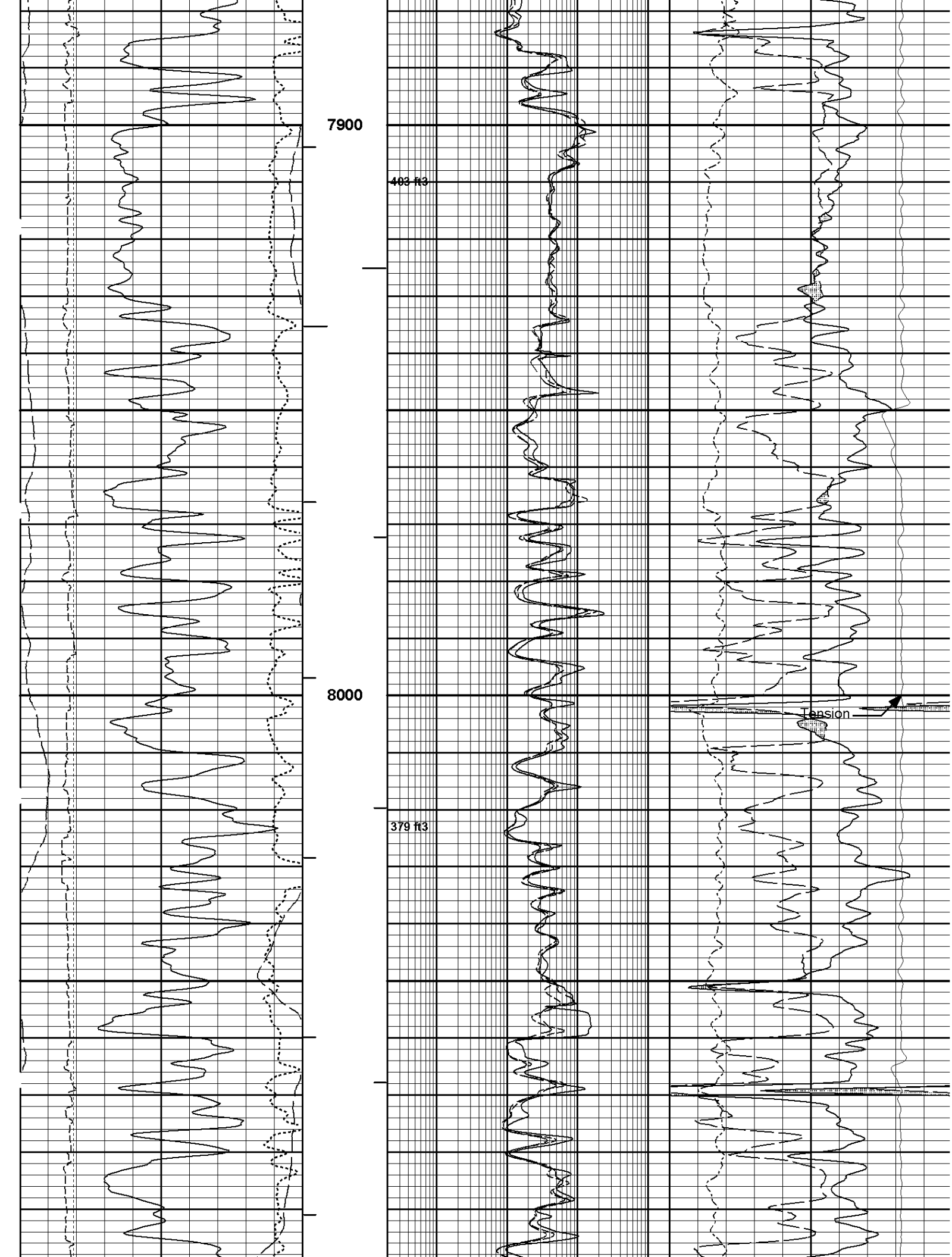

657 ft3
6800
630 ft3
6900

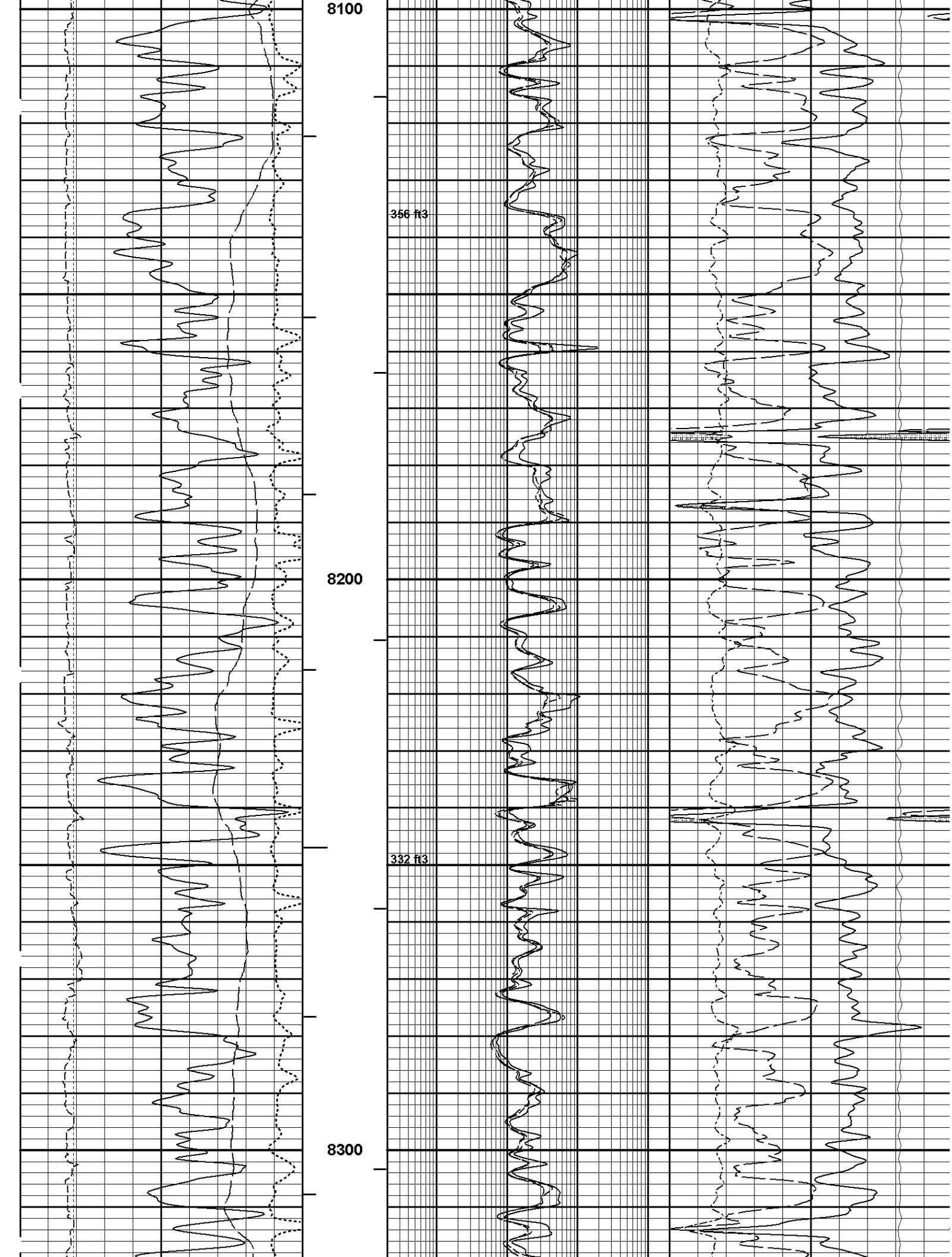

7000
603 ft3
Tension
7100
577 ft3
7200

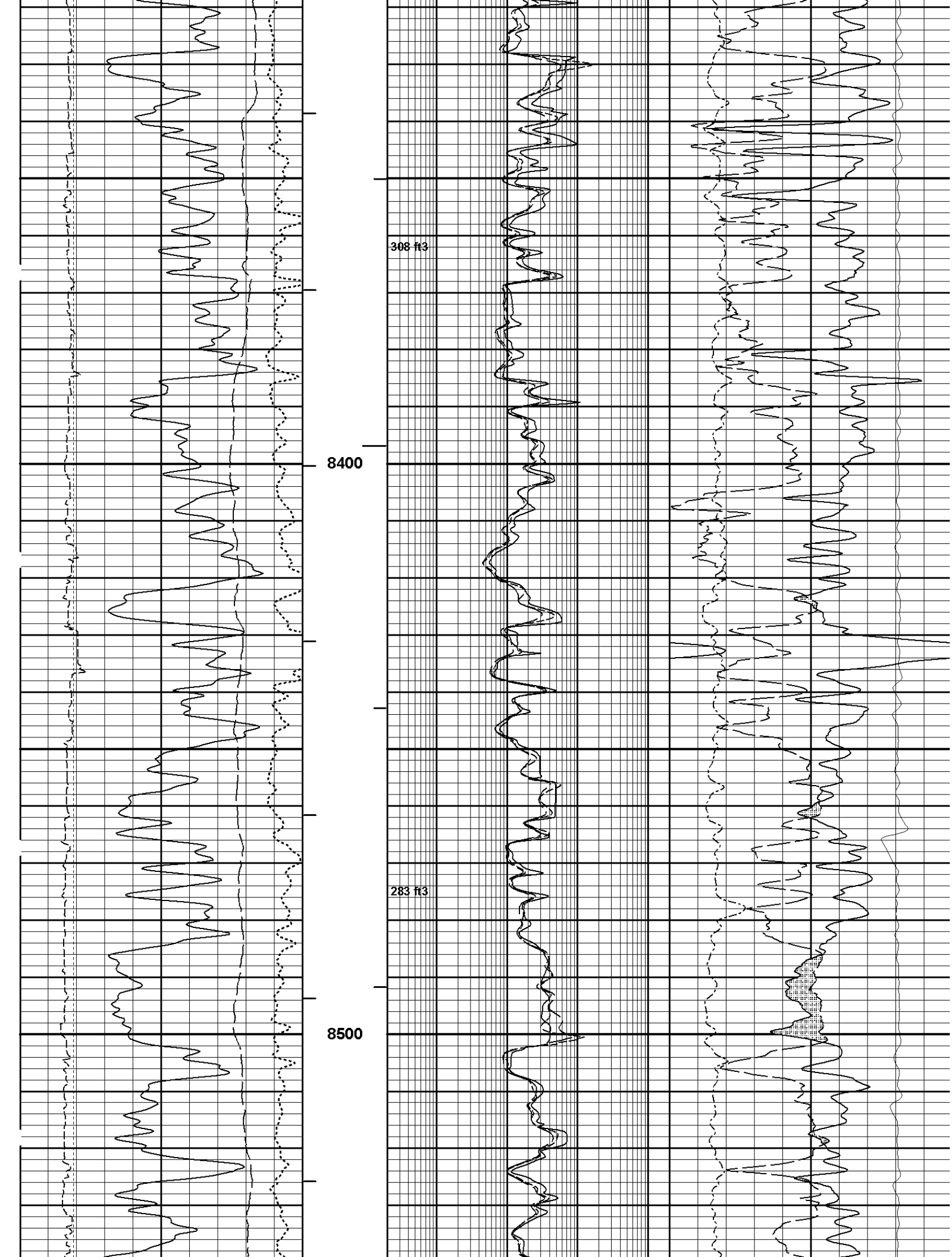

552 ft3
7300
526 ft3
7400

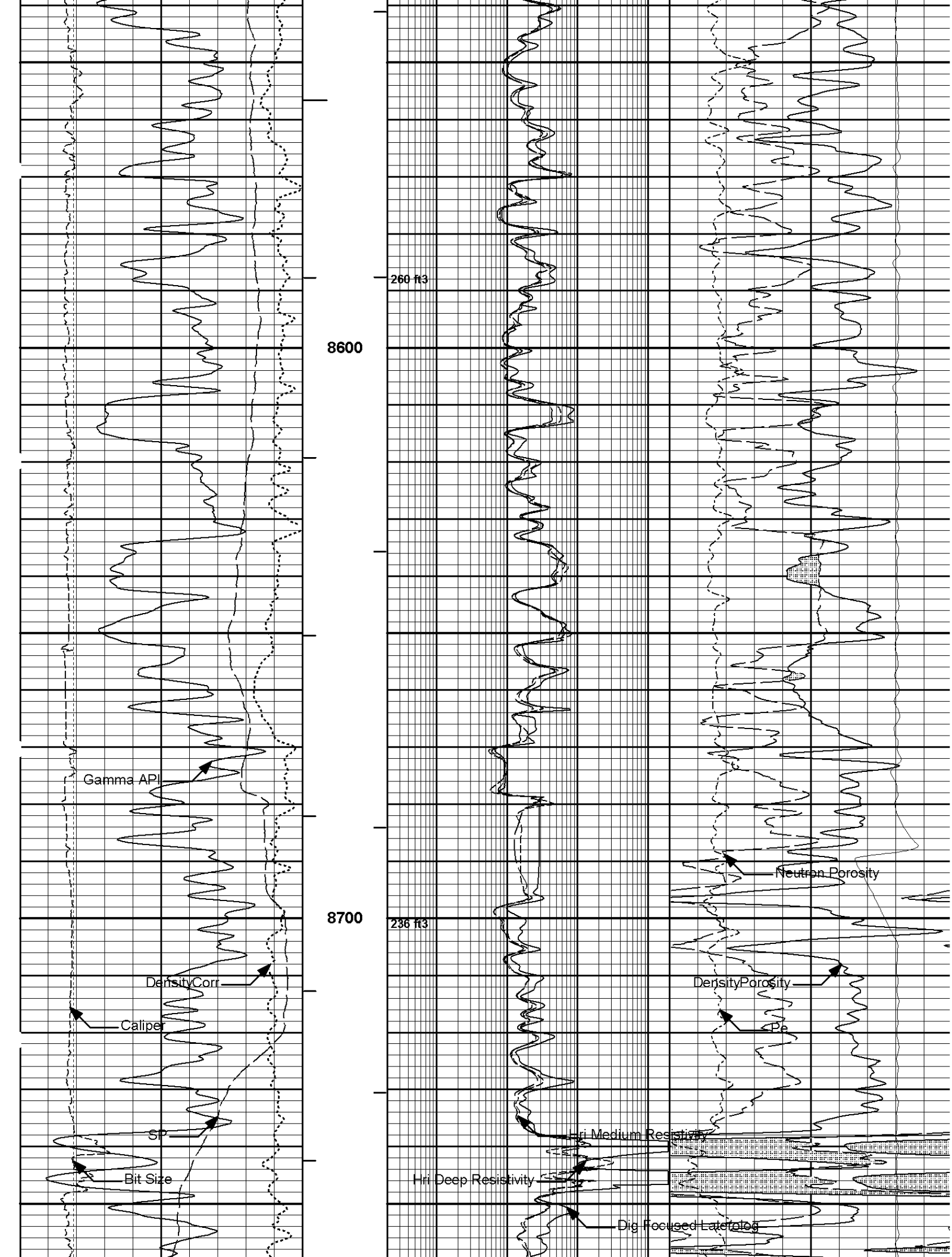

500 ft3
7500
475 ft3
7600

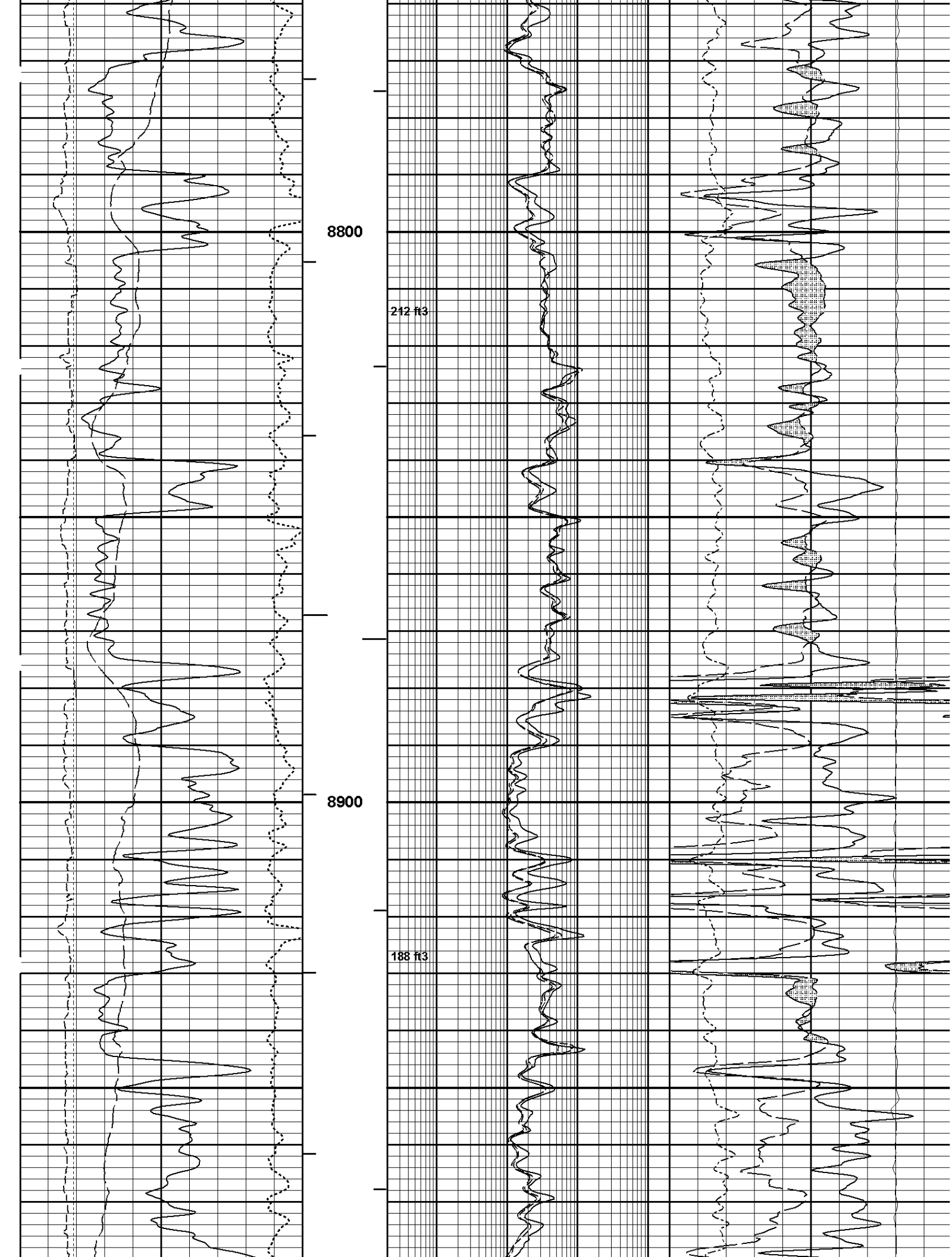

Gamma API
451 ft3
Neutron Porosity
7700
DensityCorr
DensityPorosity
Caliper
Pe
SP
Hri Medium Resistivity
Bit Size
Hri Deep Resistivity
Dig Focused Laterolog
427 ft3
7800

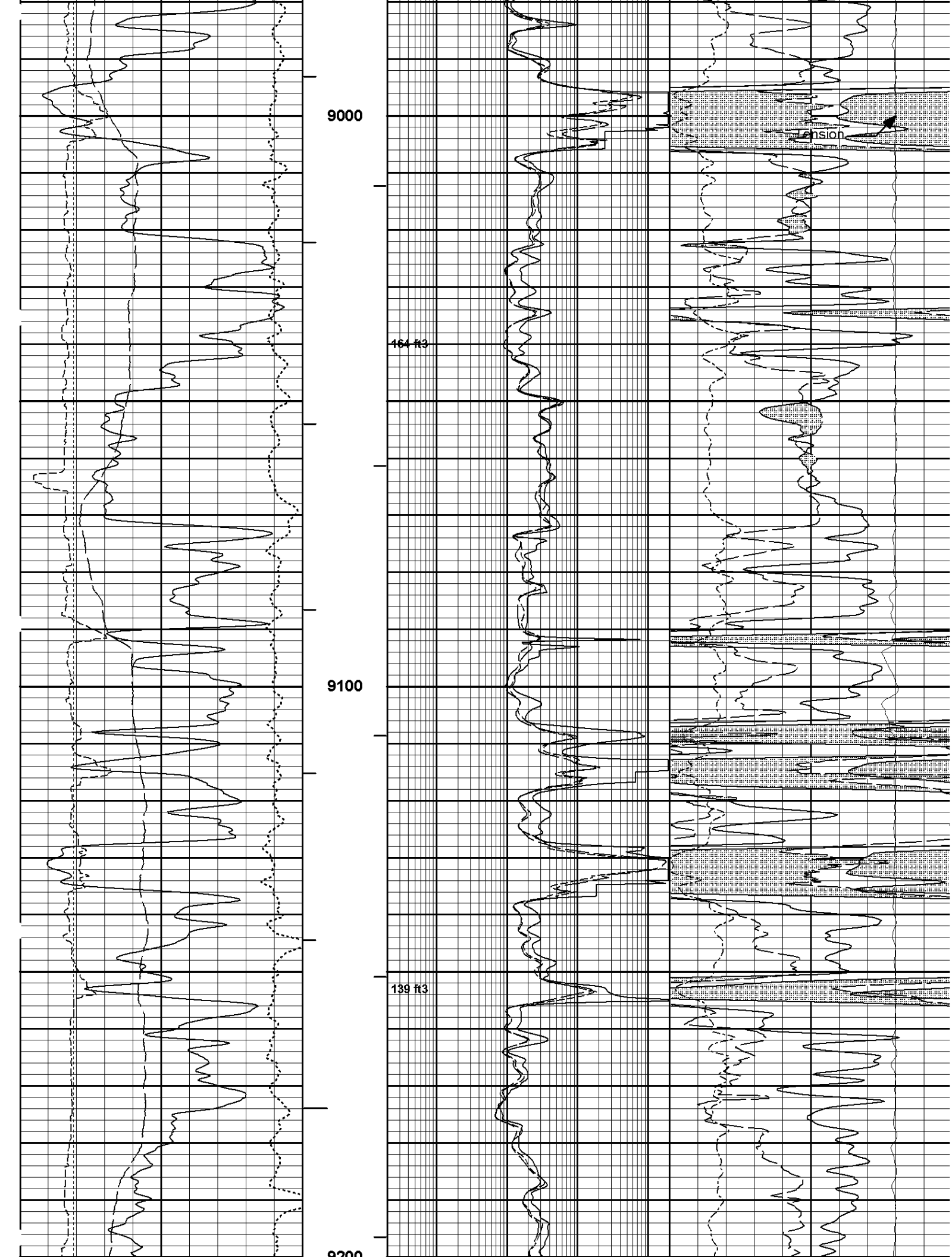

7900
403 ft3
8000
Tension
379 ft3

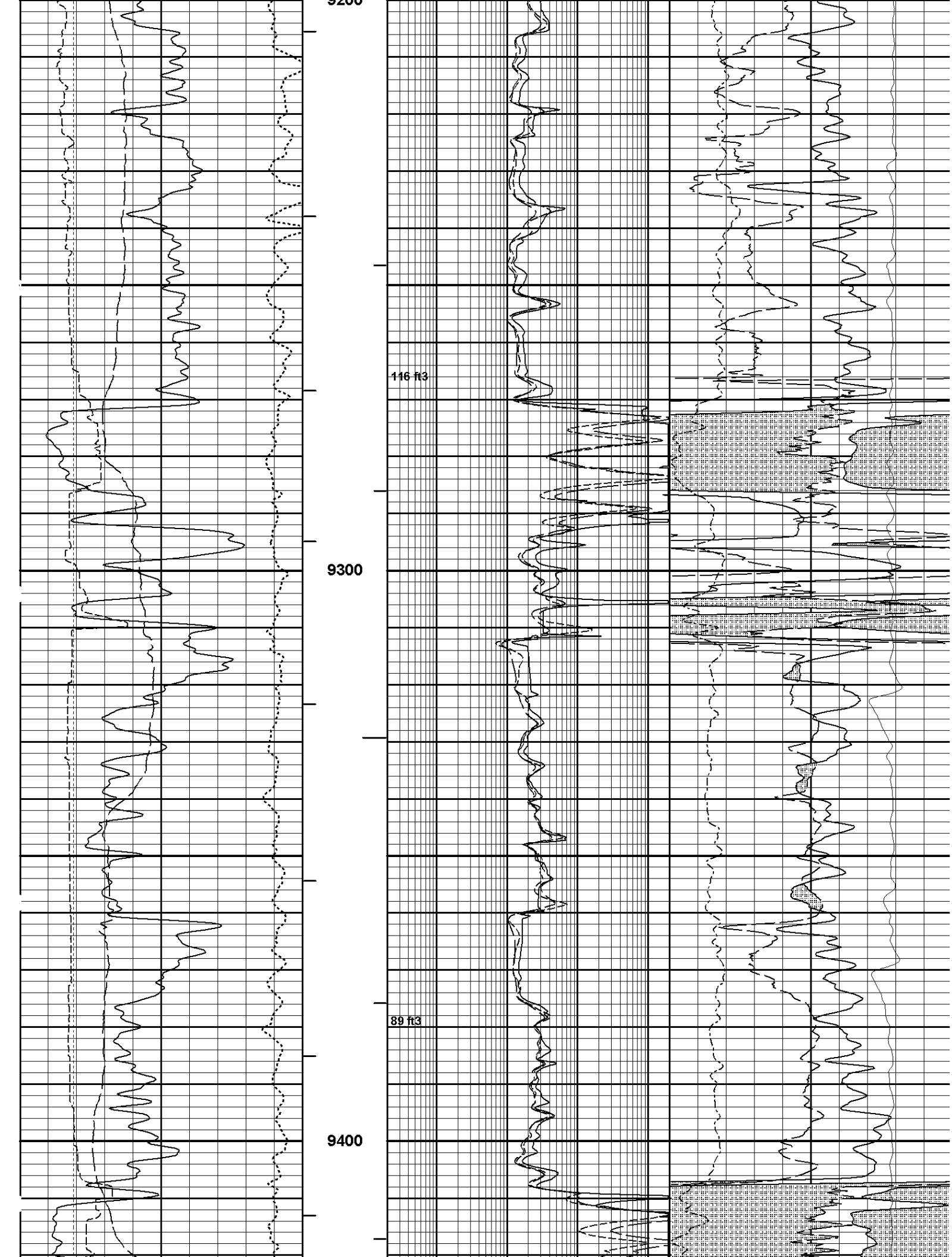

8100
356 ft3
8200
332 ft3
8300

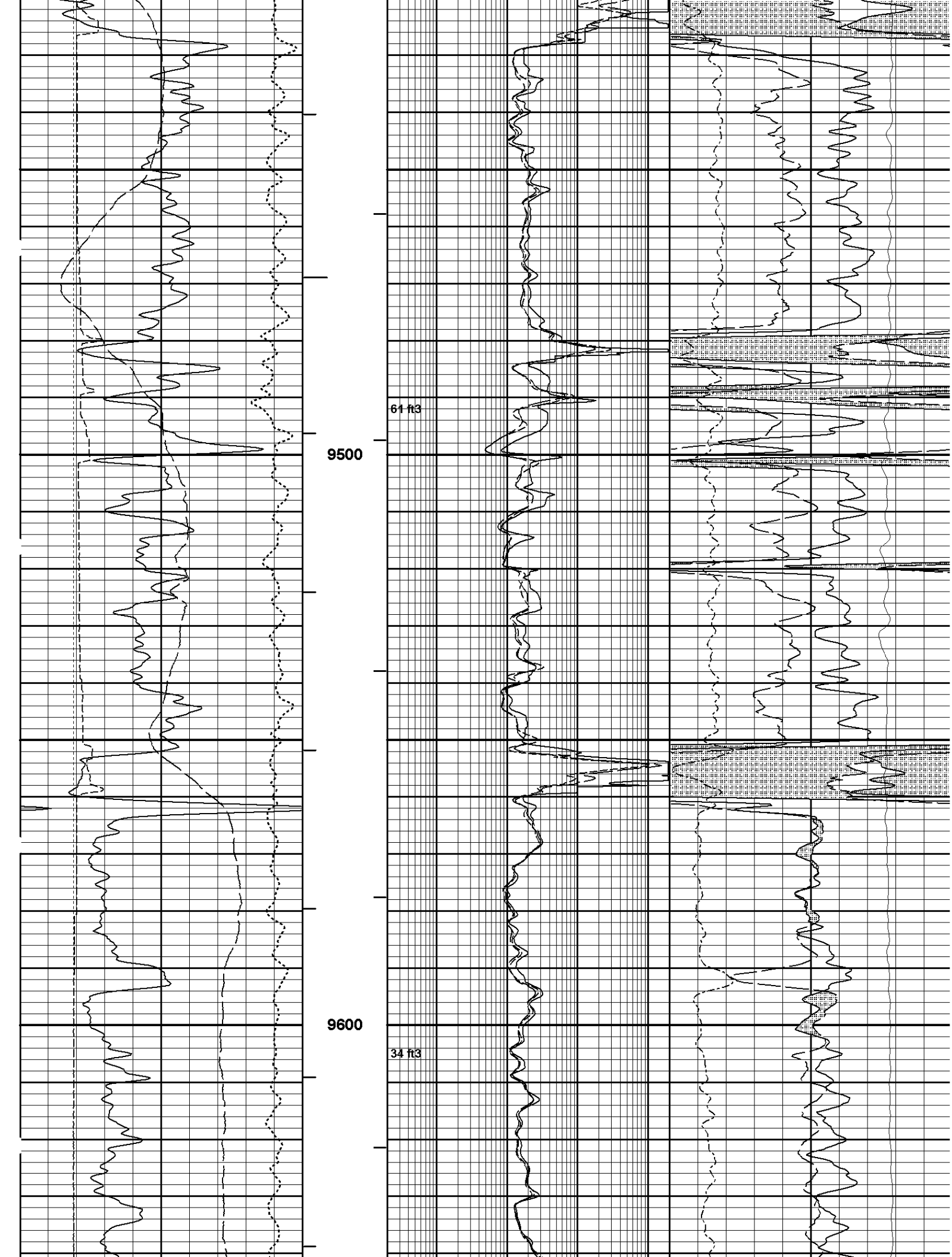

308 ft3
8400
283 ft3
8500

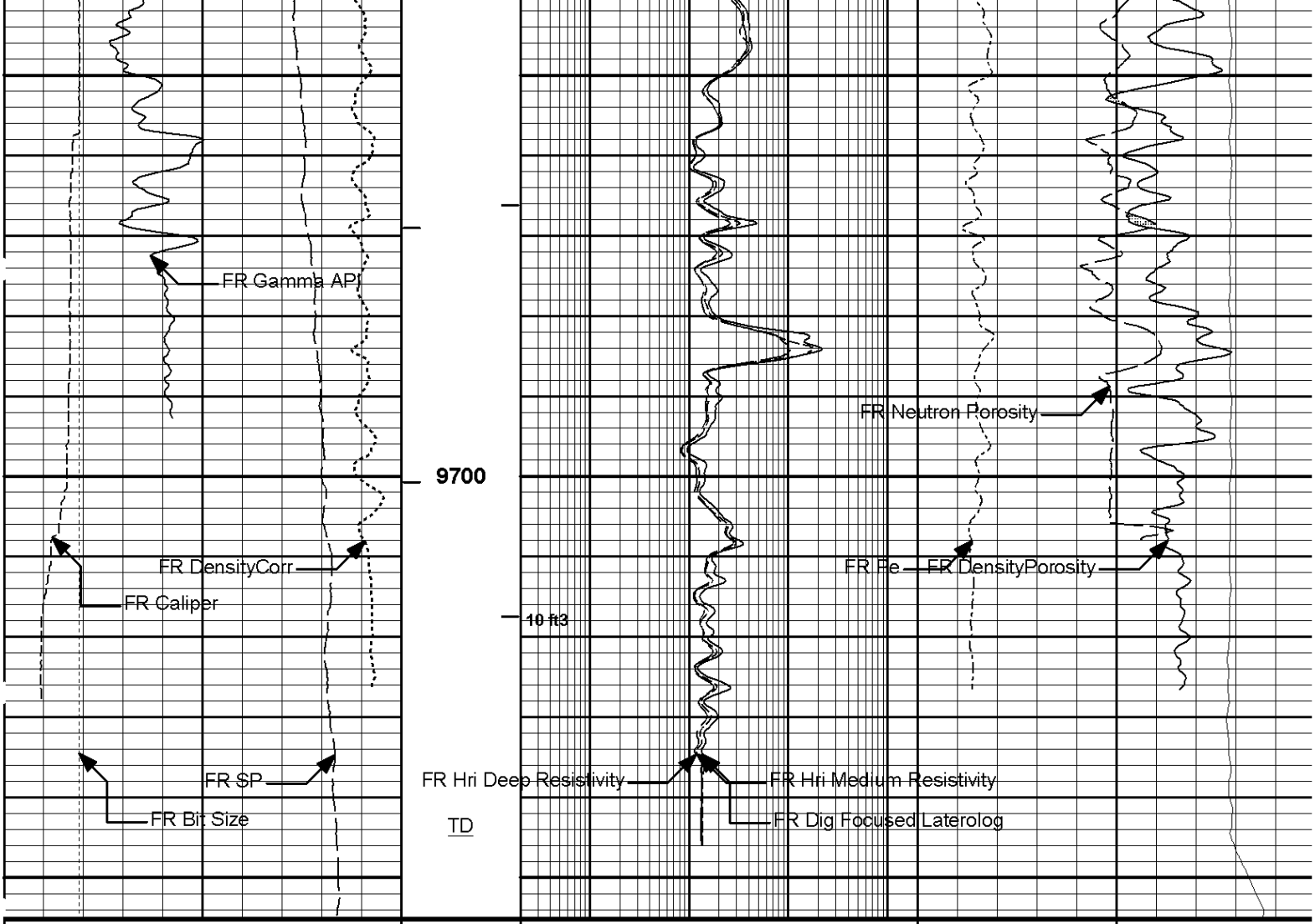

260 ft3
8600
Gamma API
Neutron Porosity
8700
236 ft3
DensityCorr
DensityPorosity
Caliper
Pe
SP
Hri Medium Resistivity
Bit Size
Hri Deep Resistivity
Dig Focused Laterolog


8800
212 ft3
8900
188 ft3


9000
Tension
164 ft3
9100
139 ft3
9200


9200
116 ft3
9300
89 ft3
9400


61 ft3
9500
9600
34 ft3



6	Bit Size	16	1 : 240	0.2	Hri Deep Resistivity	2000	0 Pe 10
	inches		ft MD		ohm-metre		
-0.9	DensityCorr	0.1	AHV	0.2	Hri Medium Resistivity	2000	30 DensityPorosity -10
	gram per cc		ft3		ohm-metre		percent
0	Gamma API	200	BHV	0.2	Dig Focused Laterolog	2000	30 Neutron Porosity -10
	api		ft3		ohm-metre		percent
6	Caliper	16					21000 Tension 1000
	inches						pounds
	SP						
	-]10[+						

HALLIBURTON

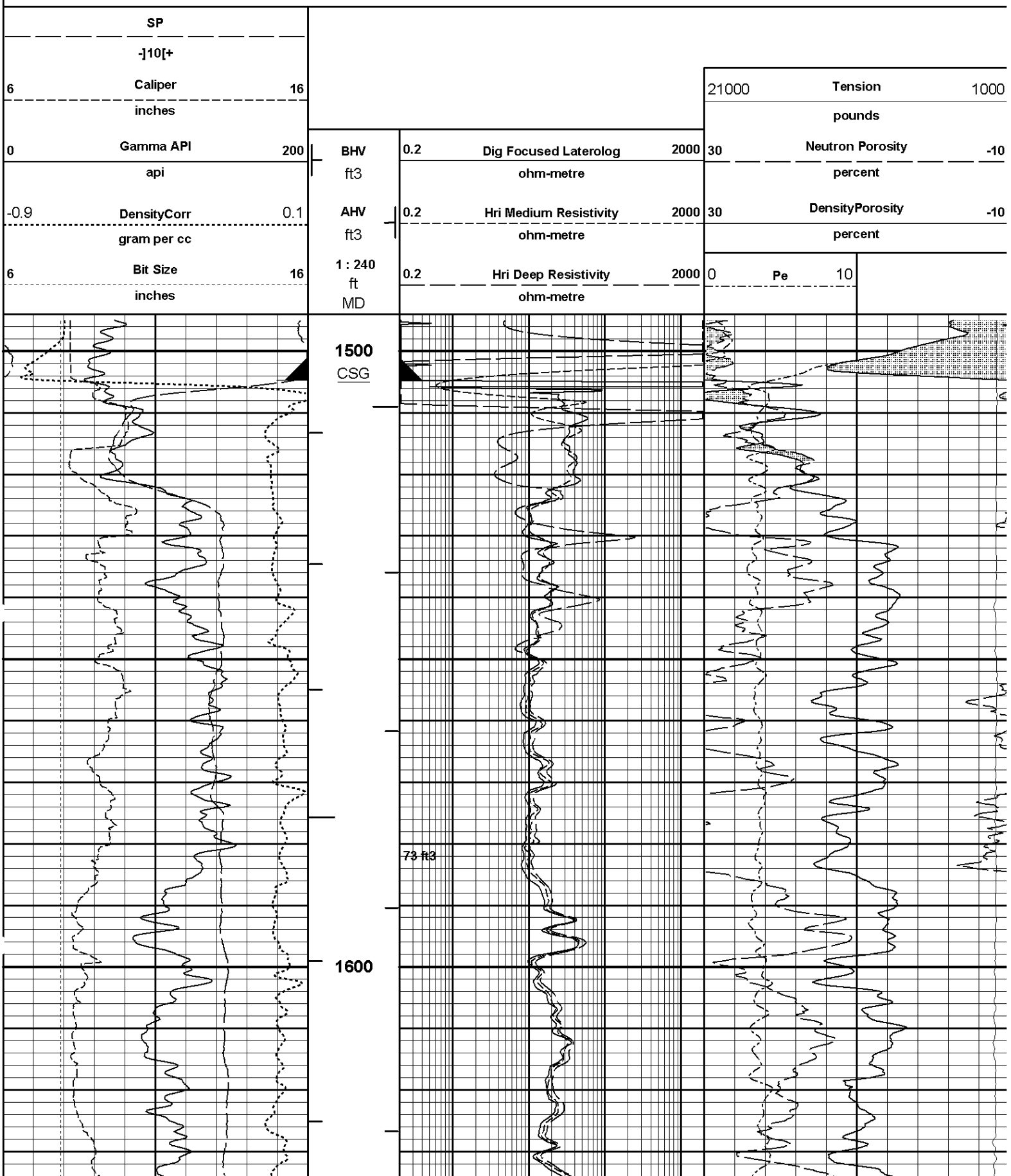
Plot Time: 13-Oct-08 16:27:16
Plot Range: 1495 ft to 9755 ft
Data: LAR_LEV_31_15B\Well Based*\
Plot File: \\TRIPLE\DITS_COMPOSITE_HRI_5IN_RM

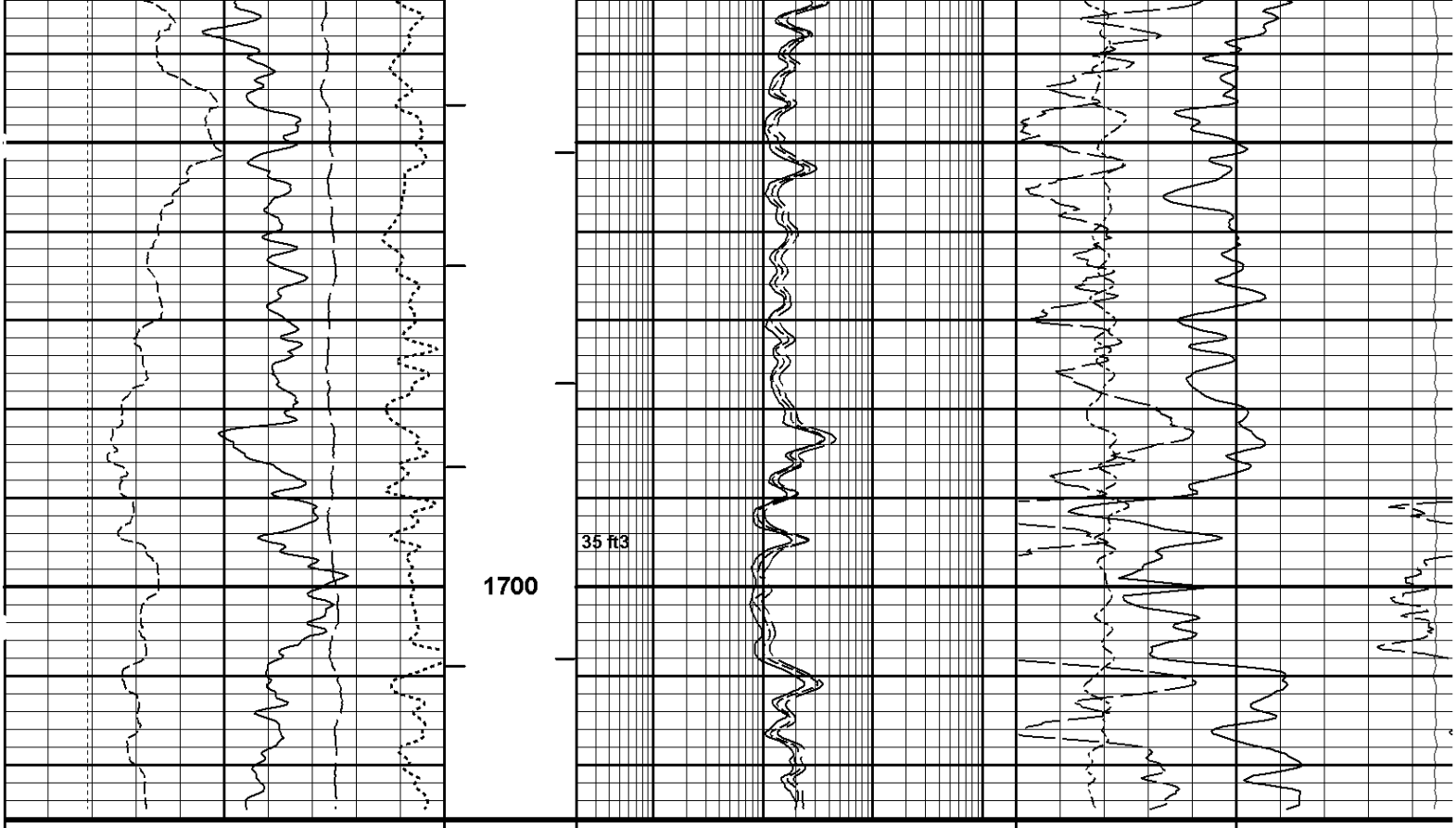
MAIN PASS 5" = 100'

HALLIBURTON

Plot Time: 13-Oct-08 16:27:16
Plot Range: 1494 ft to 1726 ft
Data: LAR_LEV_31_15B\Well Based\REPEAT\
Plot File: \\TRIPLE\REPEAT

REPEAT PASS 5" = 100'





6	Bit Size	16	1 : 240	0.2	Hri Deep Resistivity	2000	0 Pe 10
	inches		ft		ohm-metre		
			MD				
-0.9	DensityCorr	0.1	AHV	0.2	Hri Medium Resistivity	2000	30 DensityPorosity -10
	gram per cc		ft3		ohm-metre		percent
0	Gamma API	200	BHV	0.2	Dig Focused Laterolog	2000	30 Neutron Porosity -10
	api		ft3		ohm-metre		percent
6	Caliper	16					21000 Tension 1000
	inches						pounds
	SP						
	-]10[+						

HALLIBURTON

Plot Time: 13-Oct-08 16:27:18
Plot Range: 1494 ft to 1726 ft
Data: LAR_LEV_31_15B\Well Based\REPEAT\
Plot File: \\TRIPLE\REPEAT

REPEAT PASS 5" = 100'

HALLIBURTON

CALIBRATION REPORT

DITS 4 TELEMETRY GAMMA SHOP CALIBRATION (GIBRALTAR)

Tool Name:	D4TGX - 034	Reference Calibration Date:	24-Jul-08 11:29:25
Engineer:	M. BIERY	Calibration Date:	05-Sep-08 15:24:54
Software Version:	WL INSITE R2.2 (Build 9)	Calibration Version:	1

Calibrator Source S/N: TB-255

Calibrator API Reference:253.00 api

Measurement	Measured	Calibrated	Units
Background	150.9	150.4	api
Background + Calibrator	404.7	403.4	api
Calibrator	252.5	253.0	api

DITS 4 TELEMETRY GAMMA FIELD CALIBRATION (GIBRALTAR)

Tool Name: D4TGX - 034 **Reference Calibration Date:** 05-Sep-08 15:24:54

Engineer: J. GEISER **Calibration Date:** 12-Oct-08 12:14:26

Software Version: WL INSITE R2.2 (Build 9) **Calibration Version:** 1

Calibrator Source S/N: TB-255

Calibrator API Reference:253.00 api

Field Verification	Shop	Field	Units
Background	150.4	49.9	api
Background + Calibrator	403.4	305.5	api
Calibrator	253.0	255.6	api

Shop	Field	Difference	Tolerance
253.0	255.6	-2.6	+/- 9.00

DITS 4 TELEMETRY GAMMA POST CALIBRATION (GIBRALTAR)

Tool Name: D4TGX - 034 **Reference Calibration Date:** 12-Oct-08 12:14:26

Engineer: J. GEISER **Calibration Date:** 13-Oct-08 16:11:12

Software Version: WL INSITE R2.2 (Build 9) **Calibration Version:** 1

Calibrator Source S/N: TB-255

Calibrator API Reference:253.00 api

Post Verification	Field	Post	Units
Background	49.9	31.2	api
Background + Calibrator	305.5	288.6	api
Calibrator	255.6	257.4	api

Shop	Field	Post	Difference	Tolerance
253.0	255.6	257.4	-1.8	+/- 9.00

DUAL SPACED NEUTRON SHOP CALIBRATION

Tool Name: DSN_II - 108734 **Reference Calibration Date:** 06-Oct-08 16:12:09

Engineer: J. GEISER **Calibration Date:** 06-Oct-08 16:38:05

Software Version: WL INSITE R2.2 (Build 9) **Calibration Version:** 1

Logging Source S/N: DSN-60

Calibrator Source S/N: CAL-131

Water Tank S/N: GJ_TANK

Water Tank Value: 52.750

Snow Block S/N: OH477-(10549593)

Calibration Tank Water Temperature: 66 degF

Min. Tool Housing Outside Diameter: 3.434 in

WATER TANK SUMMARY (Horizontal Water Tank)

Measurement	Measured	Calibrated	Units
Ratio	6.459	6.450	
Porosity	0.11774	0.11749	decp

SNOW BLOCK SUMMARY

Measurement	Measured	Calibrated	Units
Ratio	6.009	6.031	
Porosity	0.11643	0.11600	decp

DSN Sensitivity: 1.063

DUAL SPACED NEUTRON FIELD CALIBRATION

Tool Name:	**DSN_II - 108734**	**Reference Calibration Date:**	**06-Oct-08 16:38:05**
Engineer:	**J. GEISER**	**Calibration Date:**	**12-Oct-08 12:27:06**
Software Version:	**WL INSITE R2.2 (Build 9)**	**Calibration Version:**	**1**

Logging Source S/N: DSN-60
Calibrator Source S/N: CAL-131
Snow Block S/N: OH477-(10549593)

SNOW BLOCK SUMMARY

Measurement	Shop	Field	Units
Ratio	6.031	6.029	
Porosity	0.11600	0.11631	decp

DSN Sensitivity: 1.063

DUAL SPACED NEUTRON POST CALIBRATION

Tool Name:	**DSN_II - 108734**	**Reference Calibration Date:**	**12-Oct-08 12:27:06**
Engineer:	**J. GEISER**	**Calibration Date:**	**13-Oct-08 16:20:31**
Software Version:	**WL INSITE R2.2 (Build 9)**	**Calibration Version:**	**1**

Logging Source S/N: DSN-60
Calibrator Source S/N: CAL-131
Snow Block S/N: OH477-(10549593)

SNOW BLOCK SUMMARY

Measurement	Field	Post	Units
Ratio	6.029	5.957	
Porosity	0.11631	0.11422	decp

DSN Sensitivity: 1.063

SPECTRAL DENSITY SHOP CALIBRATION

Tool Name:	**SDL_DC - I709MC136**	**Reference Calibration Date:**	**15-Sep-08 12:07:35**
Engineer:	**D. RENNER**	**Calibration Date:**	**10-Oct-08 10:02:25**
Software Version:	**WL INSITE R2.2 (Build 9)**	**Calibration Version:**	**1**

Logging Source S/N: 2189GW
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	1.0012	1.0379	0.85 - 1.15
Near Dens Gain	0.9977	1.0217	0.85 - 1.15
Near Peak Gain	0.9848	1.0274	0.85 - 1.15
Near Lith Gain	1.0095	1.0350	0.85 - 1.15

Far Bar Gain	1.0238	1.0309	0.85 - 1.15
Far Dens Gain	1.0031	1.0119	0.85 - 1.15
Far Peak Gain	0.9958	1.0049	0.85 - 1.15
Far Lith Gain	0.9975	1.0044	0.85 - 1.15
Near Bar Offset	0.3793	0.0196	NONE
Near Dens Offset	0.3289	0.0955	NONE
Near Peak Offset	0.3855	0.0020	NONE
Near Lith Offset	0.1713	-0.0627	NONE
Far Bar Offset	0.2264	0.1448	NONE
Far Dens Offset	0.3817	0.2846	NONE
Far Peak Offset	0.4888	0.3905	NONE
Far Lith Offset	0.6094	0.5339	NONE
Near Bar Background	965.02	965.21	700 - 1500
Near Dens Background	397.65	394.35	290 - 600
Near Peak Background	174.37	174.28	130 - 280
Near Lith Background	167.56	168.66	125 - 270
Far Bar Background	487.18	487.07	350 - 750
Far Dens Background	184.09	183.60	140 - 300
Far Peak Background	74.32	73.64	50 - 130
Far Lith Background	75.78	76.39	50 - 130

CALIBRATION BLOCK SUMMARY

Measurement	Current Reading (Previous Coef)	Calibrated (New Coef)	Change	Control Limit On Change
MAGNESIUM				
Density (g/cc)	1.681	1.685	0.004	+/- 0.015
Pe	2.521	2.520	-0.001	+/- 0.150
ALUMINUM				
Density (g/cc)	2.610	2.610	0.000	+/- 0.01500
Pe	3.208	3.210	0.002	+/- 0.150

TOOL SUMMARY

Measurement	Near Detector		Far Detector	
	Value	Control Limits	Value	Control Limits
QUALITY				
Background	0.0010	+/- 0.0110	0.0047	+/- 0.0140
Magnesium Block	-0.0005	+/- 0.0110	-0.0072	+/- 0.0140
Aluminum Block	0.0000	+/- 0.0110	-0.0047	+/- 0.0140
Resolution	8.94	6.00 - 11.00	10.18	6.00 - 11.00
Internal Verifier(B+D+P+L)	1703	1250 - 2700	821	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

SPECTRAL DENSITY FIELD CHECK

Tool Name:	**SDL_DC - I709MC136**	**Reference Calibration Date:**	**10-Oct-08 10:02:25**
Engineer:	**J. GEISER**	**Calibration Date:**	**12-Oct-08 12:19:56**
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: 47.5 degF

DENSITY FIELD CALIBRATION SUMMARY

Measurement	Shop	Field	Change	Control Limit +/-
Near (B+D+P+L) cps	1702.502	1699.847	-2.655	16.561
Far (B+D+P+L) cps	820.699	820.275	-0.424	15.804
Near Resolution	8.94	9.04	0.100	0.50
Far Resolution	10.19	10.18	0.010	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 - I709MC136**	**Reference Calibration Date:**	**12-Oct-08 12:19:56**
Engineer:	**J. GEISER**	**Calibration Date:**	**13-Oct-08 16:24:56**
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: 59.0 degF

DENSITY POST CALIBRATION SUMMARY

Measurement	Field	Post	Change	Control Limit +/-
Near (B+D+P+L) cps	1699.847	1699.473	-0.374	18.397
Far (B+D+P+L) cps	820.275	819.431	-0.844	17.079
Near Resolution	9.04	9.05	0.010	0.50
Far Resolution	10.22	10.19	0.030	1.00

PASS/FAIL SUMMARY

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

CALIPER SHOP CALIBRATION

Tool Name:	**SDL_DC - I709MC136**	**Reference Calibration Date:**	**24-Sep-08 15:52:30**
Engineer:	**D. RENNER**	**Calibration Date:**	**10-Oct-08 10:21:21**
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)	5.85	6.00	-0.15
Ring #2 (in)	13.49	13.50	-0.01

CALIPER FIELD CALIBRATION

Tool Name:	**SDL_DC - I709MC136**	**Reference Calibration Date:**	**10-Oct-08 10:21:21**
Engineer:	**J. GEISER**	**Calibration Date:**	**12-Oct-08 12:11:59**

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)	5.85	5.96	0.11	+/- 0.50

PASS/FAIL SUMMARY

Ring #1 Check: Passed

CALIPER POST CALIBRATION

Tool Name: SDL_DC - I709MC136 Reference Calibration Date: 12-Oct-08 12:11:59

Engineer: J. GEISER Calibration Date: 13-Oct-08 16:08:26

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)	5.96	6.04	0.08	+/- 0.50

PASS/FAIL SUMMARY

Ring #1 Check: Passed

HIGH RESOLUTION INDUCTION SHOP CALIBRATION

Tool Name: HRID - I81S0944 Reference Calibration Date: 25-Jul-08 14:06:02

Engineer: J. GEISER Calibration Date: 17-Sep-08 10:59:41

Software Version: WL INSITE R2.2 (Build 9) Calibration Version: 1

HIGH RESOLUTION INDUCTION SHOP CALIBRATION SUMMARY

TEST LOOP RESPONSE

1 - Test Loop Closed	Measured Signal R	Measured Signal X	Nominal R	Nominal X	Units
HRD	1976	1972	1976	1972	MMHOS
HRM	2838	2832	2838	2832	MMHOS

2 - Test Loop Off(Sonde Error)	Measured Signal R	Measured Signal X	Nominal R	Nominal X	Units
HRD	-4	-94	+/- 15	+/- 100	MMHOS
HRM	-11	-112	+/- 15	+50/-150	MMHOS

ELECTRONICS RELATIVE GAIN

	Set Magnitude	Set Phase	Nominal Magnitude	Nominal Phase
HRD	1.00	-1.38	1. +/- .1	0. +/- 5
HRM	1.00	-1.29	1. +/- .1	0. +/- 5

Temperature at time of calibration: 83.23 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

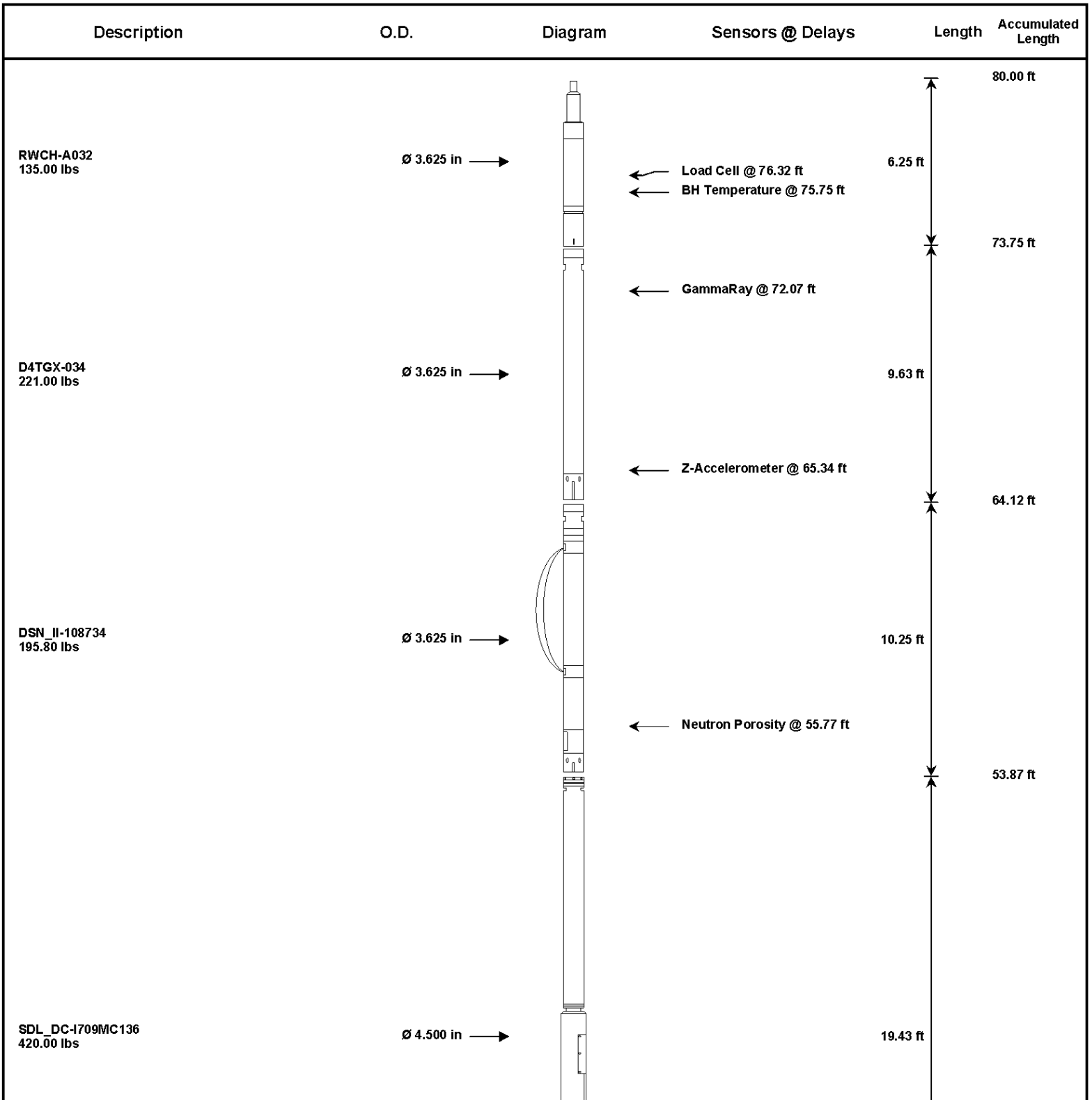
Sensor	Shop	Field	Post	Difference	Tolerance	Units
D4TGX-034						

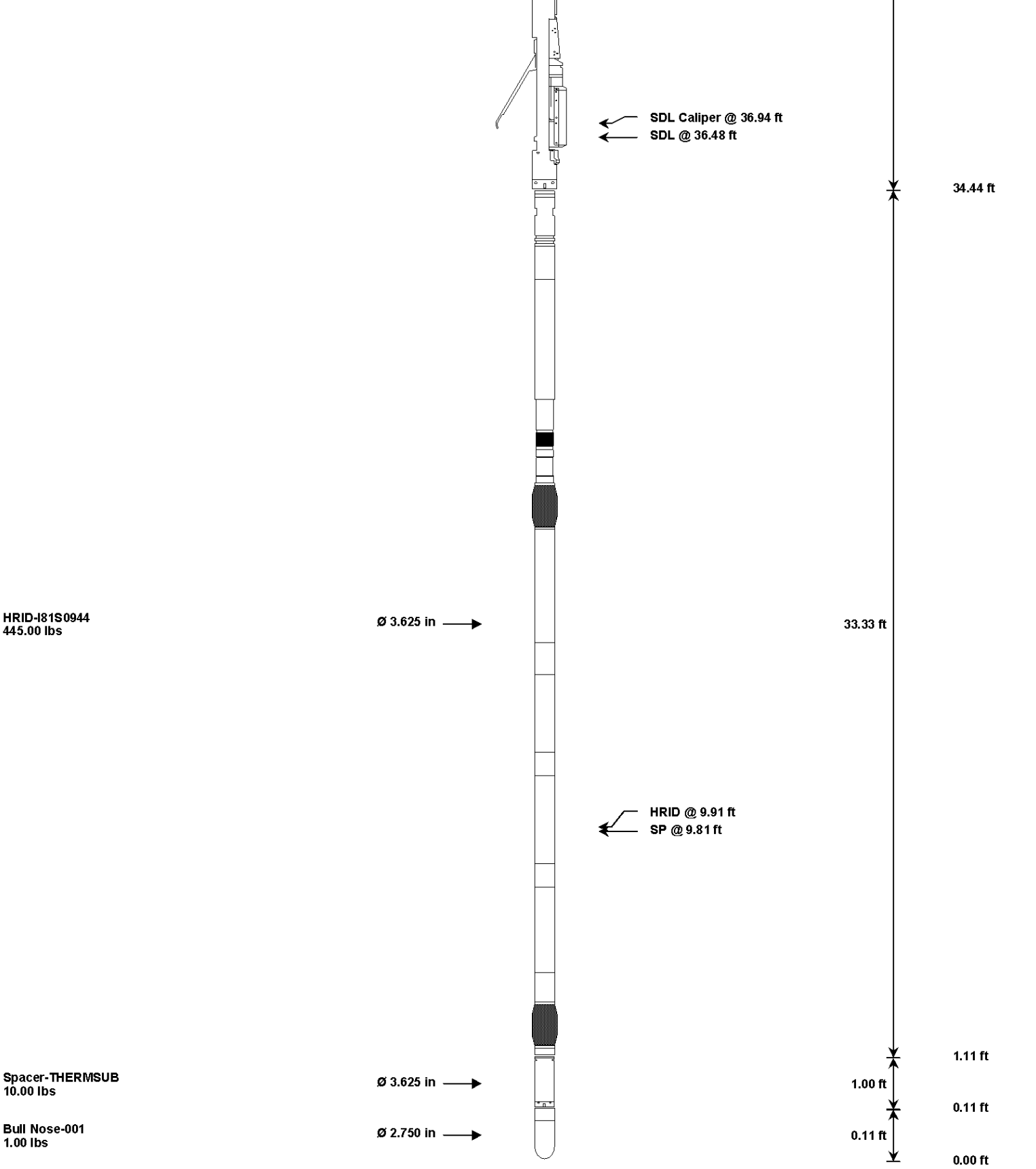
Gamma Ray Calibrator	253.0	255.6	257.4	-1.8	+/- 9.00	api
DSN_II-108734						
Snow Block Porosity	0.11600	0.11631	0.11422	0.00209	+/- 0.00900	decp
SDL_DC-I709MC136						
Near(B+D+P+L)	1702.502	1699.847	1699.473	0.374	+/-18.397	cps
Far(B+D+P+L)	820.699	820.275	819.431	0.844	+/-17.079	cps
Field Block Density	2.130	0.000	0.000	0.000	+/-0.01500	g/cc
Ring #1	6.00	5.96	6.04	-0.08	+/-0.500	in

Data: LAR_LEV_31_15B\0001 TRIPLE-DC\IDLE **Date: 13-Oct-08 16:26:10**

HALLIBURTON

TOOL STRING DIAGRAM REPORT





Mnemonic	Tool Name	Serial Number	Weight (lbs)	Length (ft)		Accumulated Length (ft)	Max.Log. Speed (fpm)
RWCH	Releasable Wireline Cable Head	A032	135.00	6.25		73.75	300.00
D4TGX	DITS Telemetry Gamma - Gibraltar Class	034	221.00	9.63		64.12	60.00
DSN_II	Dual Spaced Neutron-II Tool	108734	195.80	10.25		53.87	60.00
SDLD	SDL (D) with (C) Mandrel w/ EVR	I709MC136	420.00	19.43		34.44	60.00
HRID	High Resolution Induction Tool Dits	I81S0944	445.00	33.33		1.11	100.00
SP	SP Ring	PROTO1	0.00	0.00	*	9.81	300.00
SPC	Test	THERMSUB	10.00	1.00		0.11	100.00
BLNS	Bull Nose	001	1.00	0.11		0.00	300.00

Total			1,427.80	80.00

* Not included in Total Length and Length Accumulation.

Data: LAR_LEV_31_15B\0001 TRIPLE-DC\002 13-Oct-08 11:43 Dn @2013.5f Date: 13-Oct-08 11:58:02

HALLIBURTON

CUSTOMER EVENT LOG

Event Type	Time & Date	Depth (ft)	Event Description
	13-Oct-08 11:29:32	1799.50	Logging 001 13-Oct-08 11:29 Up @1802.3f
	13-Oct-08 11:39:14	1454.61	Halting 001 13-Oct-08 11:29 Up @1802.3f
	13-Oct-08 11:43:57	2009.00	Logging 002 13-Oct-08 11:43 Dn @2013.5f
	13-Oct-08 12:29:08	9767.33	Halting 002 13-Oct-08 11:43 Dn @2013.5f
	13-Oct-08 12:29:17	9766.50	Logging 003 13-Oct-08 12:29 Up @9766.5f
	13-Oct-08 15:09:01	1368.56	Halting 003 13-Oct-08 12:29 Up @9766.5f
	13-Oct-08 15:10:37	9766.00	Relogging 003.01 13-Oct-08 15:09 Up
	13-Oct-08 15:15:39	1366.23	Halting 003.01 13-Oct-08 15:09 Up

Data: LAR_LEV_31_15B\0001 TRIPLE-DC\HWI0782 Date: 13-Oct-08 15:17:48

COMPANY	LARAMIE ENERGY II		
WELL	LEVERICH 31-15B		
FIELD	RULISON		
COUNTY	GARFIELD	STATE	CO

HALLIBURTON

SPECTRAL DENSITY
DUAL SPACED NEUTRON
HIGH RESOLITION INDUCTION