HALLIBURTON

SPECTRAL DENSITY DUAL SPACED NEUTRON LOG

COMPANY OXY USA INC
WELL ELIZABETH A COX #5
FIELD LEMON NW
COUNTY HASKELL STATE KANSAS

COMPANY **OXY USA INC**
WELL **ELIZABETH A COX #5**
FIELD **LEMON NW**
COUNTY **HASKELL** STATE **KANSAS**

API No. 15-081-21942
Location 1455' FSL & 330' FEL
Sect. 8 Twp. 30S Rge. 33W

Other Services:
ACRT
MICRO
BSAT

Permanent Datum		GL		Elev. 2969.0 ft	Elev.: K.B. 2980.0 ft
Log measured from		KB		11.0 ft above perm. Datum	D.F. 2978.0 ft
Drilling measured from		KB			G.L. 2969.0 ft
Date		09-Jun-11			
Run No.		ONE			
Depth - Driller		5560.00 ft			
Depth - Logger		5545.0 ft			
Bottom - Logged Interval		5507.0 ft			
Top - Logged Interval		3800.0 ft			
Casing - Driller		9.625 in	@ 1840.0 ft	@	@
Casing - Logger		1839.0 ft			
Bit Size		8.750 in		@	@
Type Fluid in Hole		WATER BASED MUD			
Density	Viscosity	9.1 ppg	41.00 s/qt		
PH	Fluid Loss	8.90 pH	6.6 cptm		
Source of Sample		FLOW LINE			
Rm @ Meas. Temperature		0.909 ohmm	@ 85.00 degF	@	@
Rmf @ Meas. Temperature		0.80 ohmm	@ 81.00 degF	@	@
Rmc @ Meas. Temperature		1.050 ohmm	@ 81.00 degF	@	@
Source Rmf	Rmc	MEASURED	MEASURED		
Rm @ BHT		0.61 ohmm	@ 130.0 degF	@	@
Time Since Circulation		7.0 hr			
Time on Bottom		09-Jun-11 23:31			
Max. Rec. Temperature		120.0 degF	@ 5545.0 ft	@	@
Equipment	Location	10549592	LIBERAL		
Recorded By		C.PARKER			
Witnessed By		M.ATWOOD			

Fold here

Service Ticket No.: 8233459
API Serial No.: 15-081-21942
PGM Version: WL INSITE R3.2.5 (Build 2)

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					
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
Rm @ Meas. Temp	@	@	@	@	@
Rmf @ Meas. Temp.	@	@	@	@	@
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.	10811258		Serial No.		Serial No.	M73803	Serial No.	10735145
Model No.	GTET		Model No.		Model No.	SDLT	Model No.	DSNT
Diameter	3.625		No. of Cent.		Diameter	4.5	Diameter	3.625
Detector Model No.	T-102		Spacing		Log Type	GAM-GAM	Log Type	NEU-NEU
Type	SCINT				Source Type	Cs137	Source Type	Am241Be
Length	8"		LSA [Y/N]		Serial No.	5073GW	Serial No.	dsn436
Distance to Source	10'		FWDA [Y/N]		Strength	1.5Ci	Strength	15Ci

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	3800	REC	0	150				30%	-10%	2.71	30%	-10%	lime

DIRECTIONAL INFORMATION

Maximum Deviation @ KOP @

Remarks: ANNULAR HOLE VOLUME CALCULATED FOR 7 INCH CASING

CHLORIDES 1500 MG/L: LCM 4 #/BBL

GPS COORDINATES: 37° 19' N, 100° 54' W

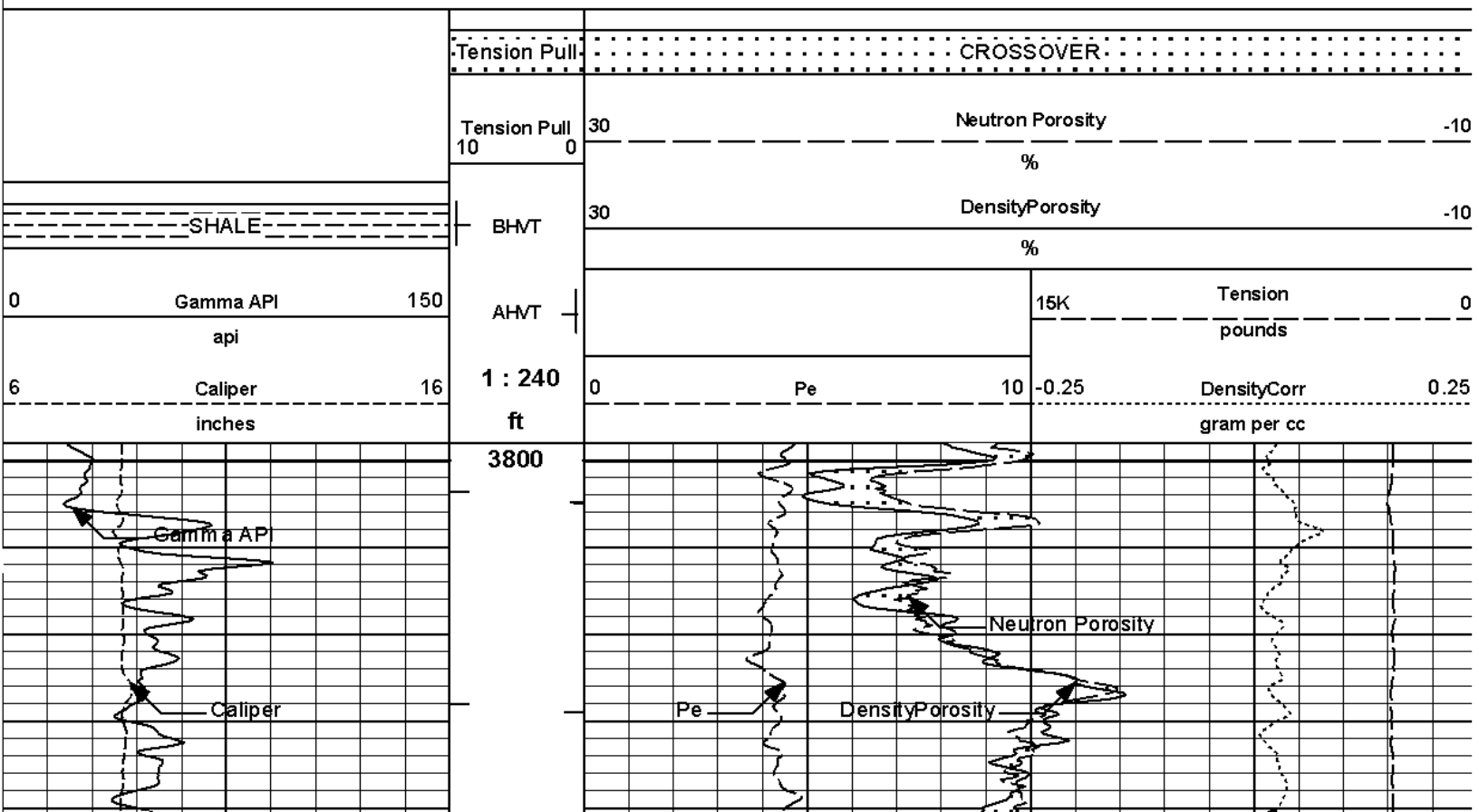
TODAY'S CREW: P.COBLE, A. VAQUERA

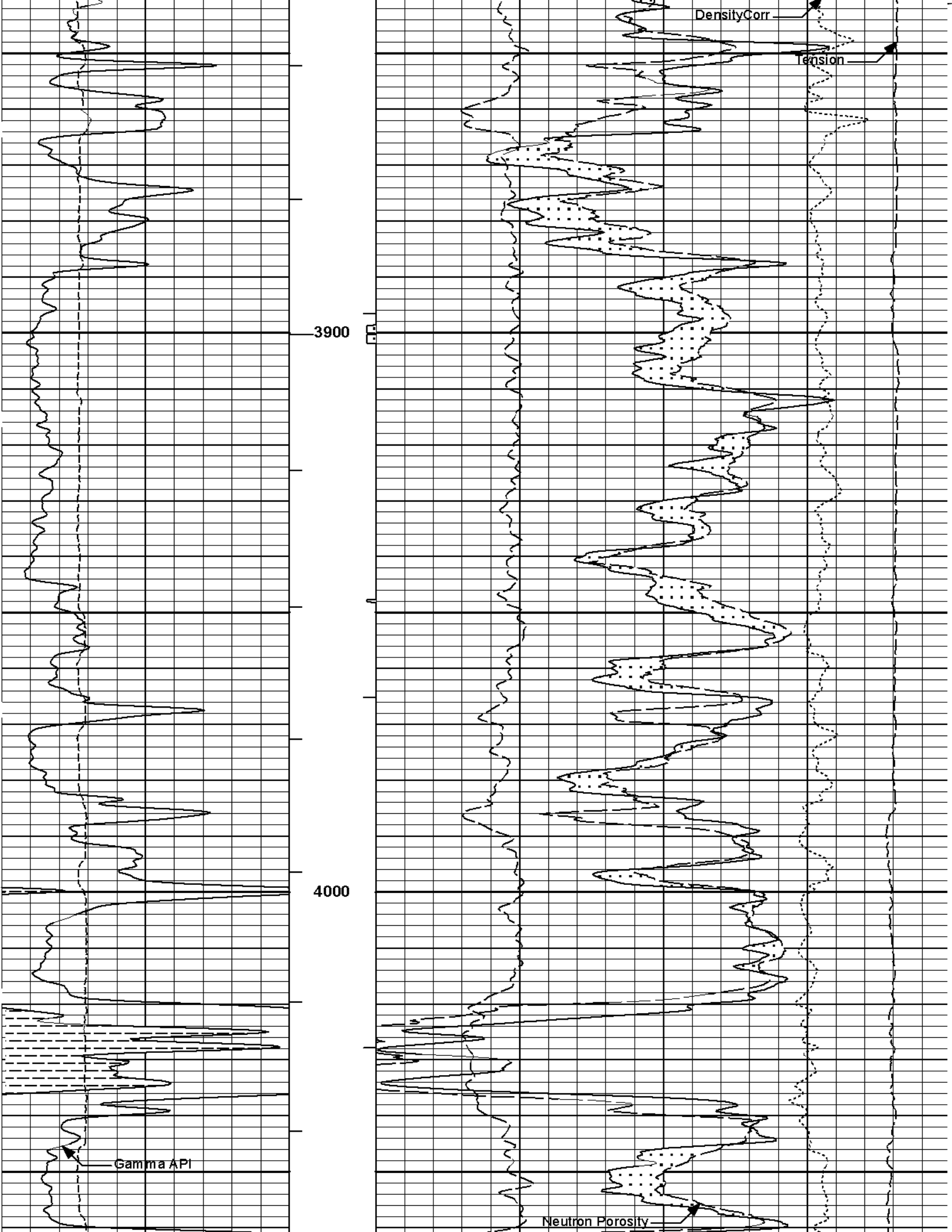
THANK YOU FOR CHOOSING HALLIBURTON ENERGY SERVICES LIBERAL, KANSAS 620 624 8123

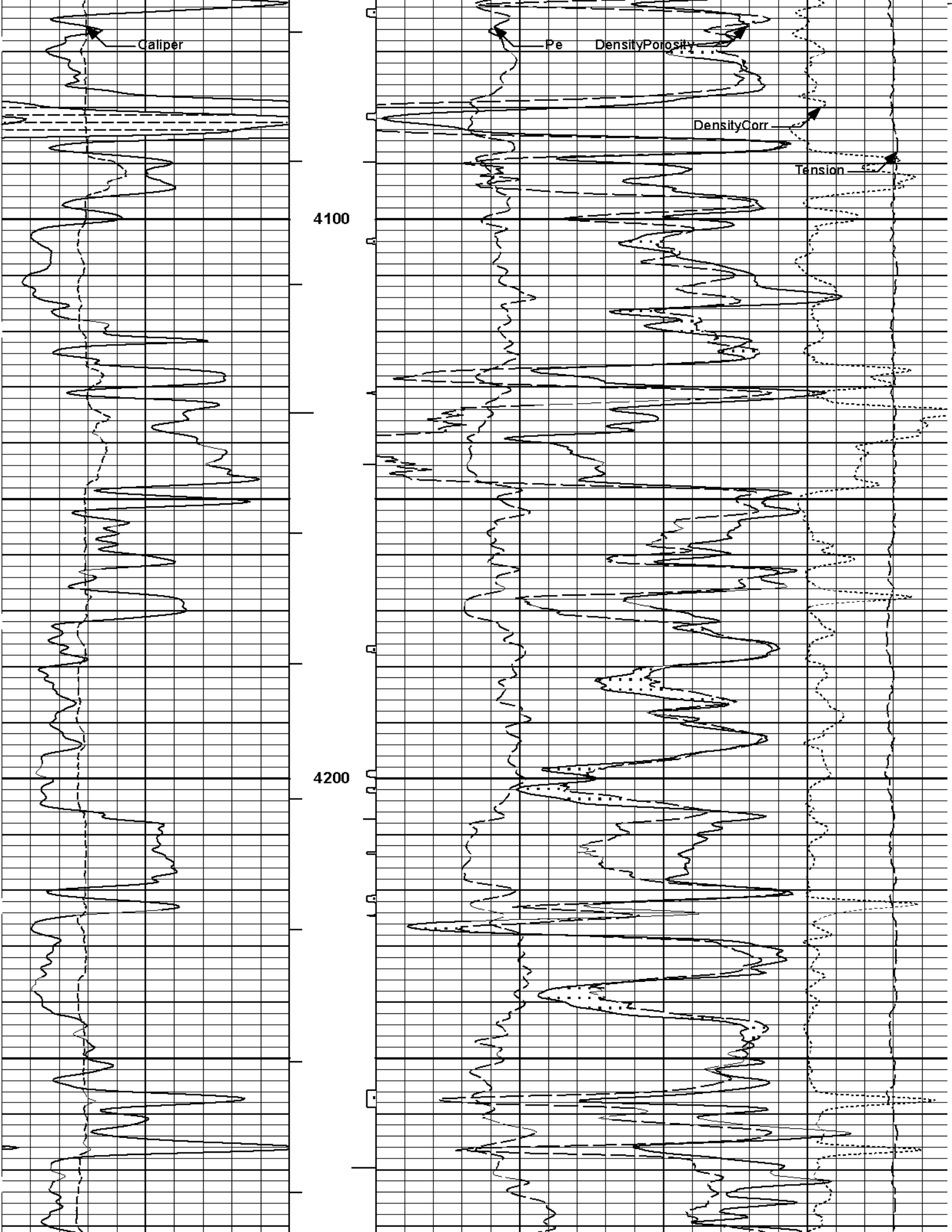
HALLIBURTON

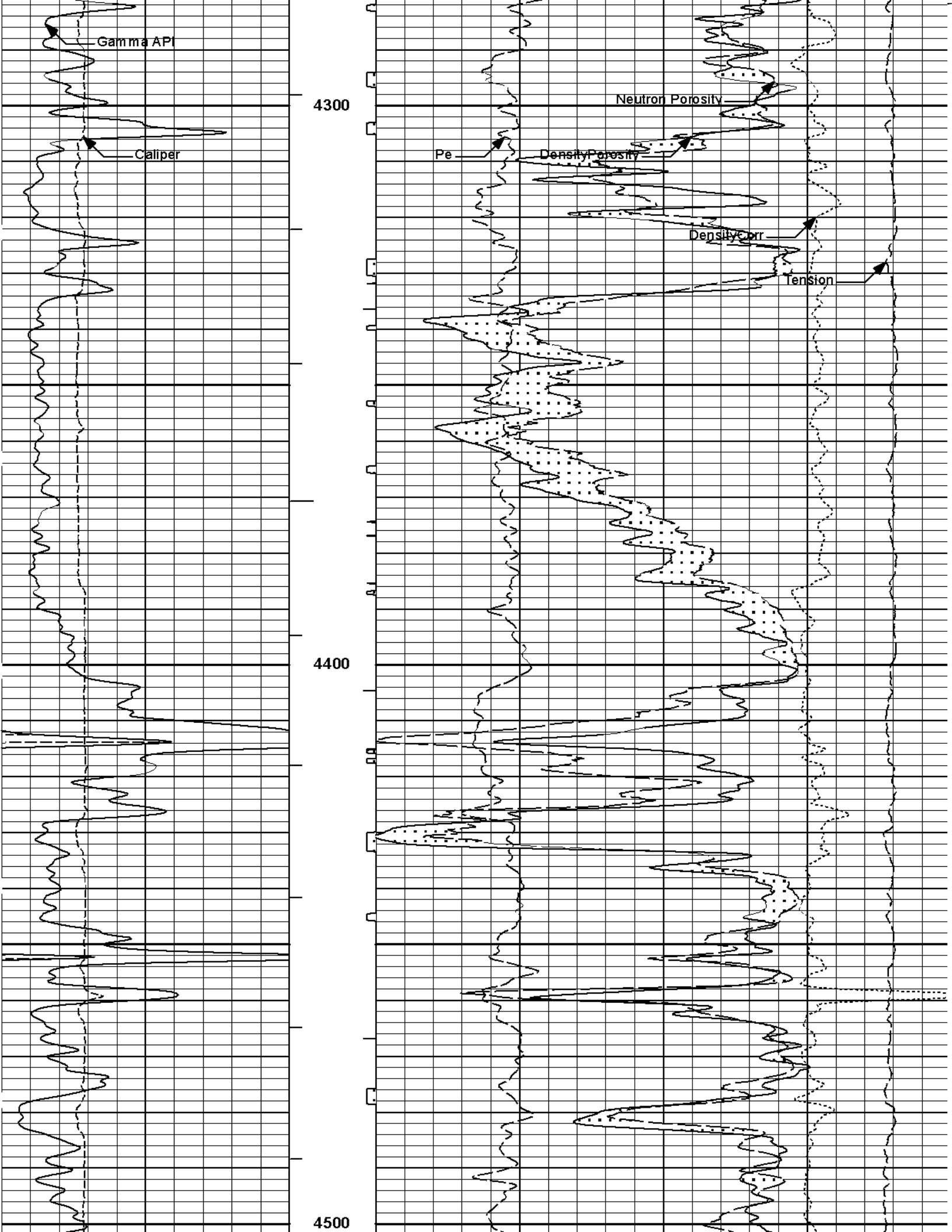
Plot Time: 10-Jun-11 02:04:13
Plot Range: 3798 ft to 5548.42 ft
Data: ELIZABETH_A_COX\Well Based\DAQ-0001-004\
Plot File: \\PORO\Poro_IQ_5_MAIN_LIB

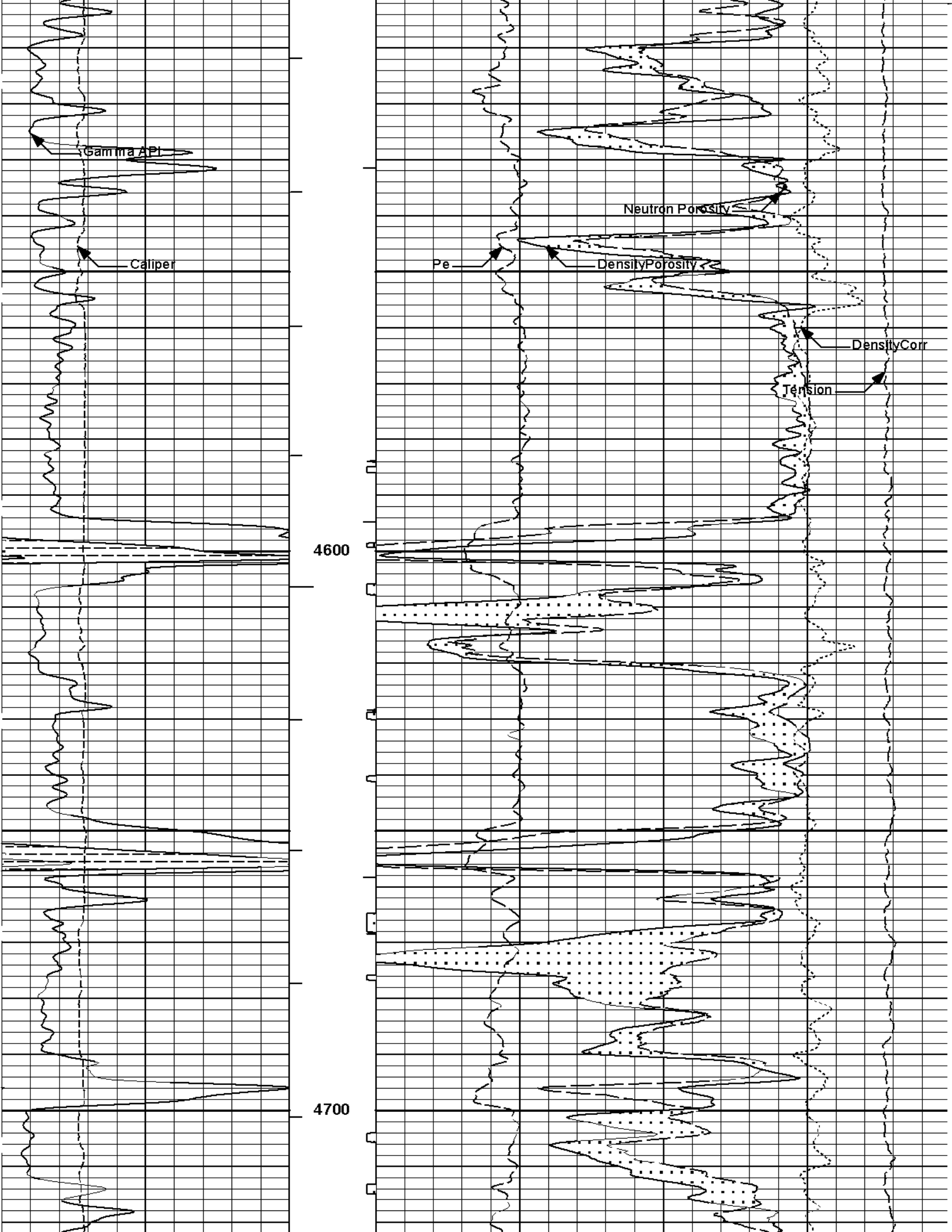
5 INCH MAIN LOG

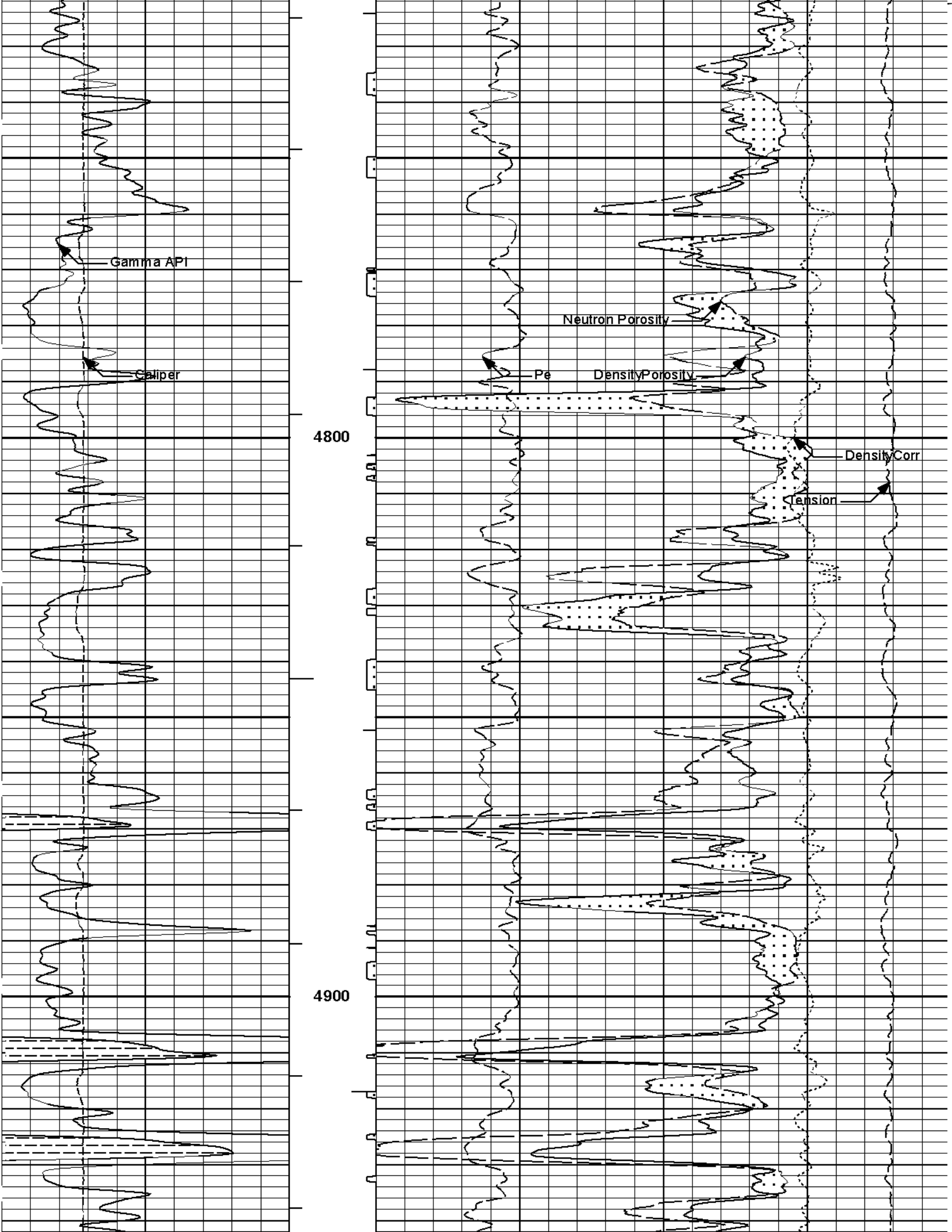


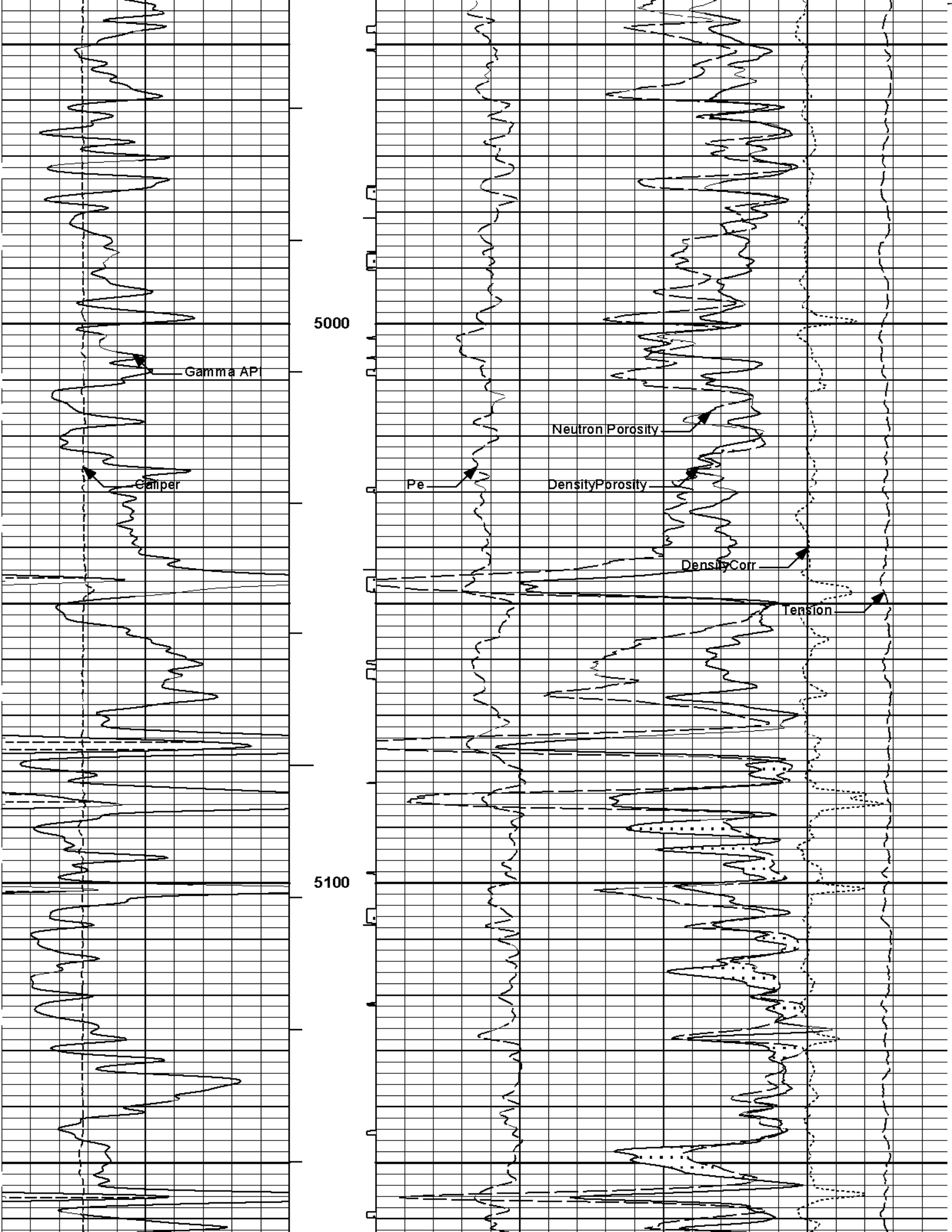

DensityCorr
Tension
3900
4000
Gamma API
Neutron Porosity

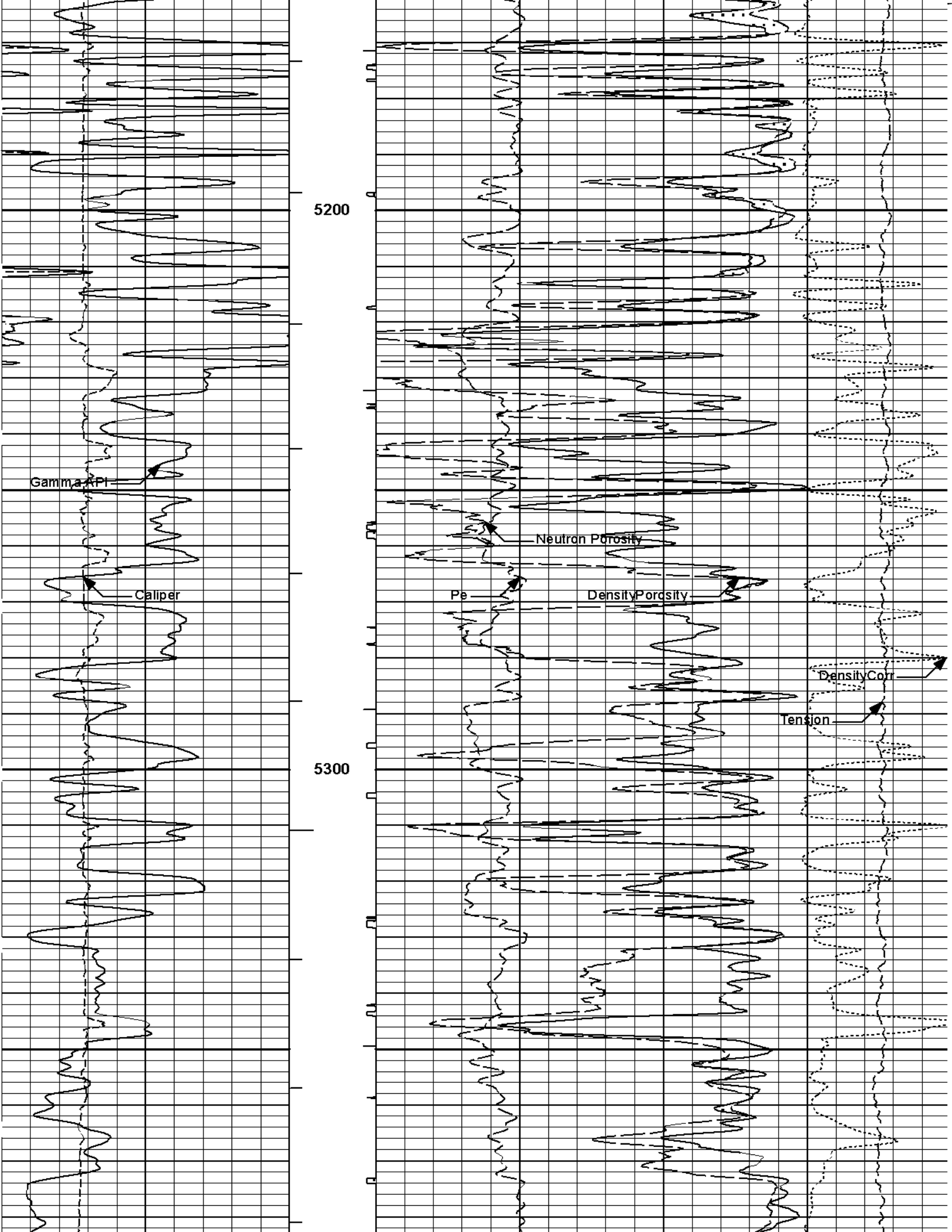

Caliper
Pe
DensityPorosity
DensityCorr
Tension
4100
4200

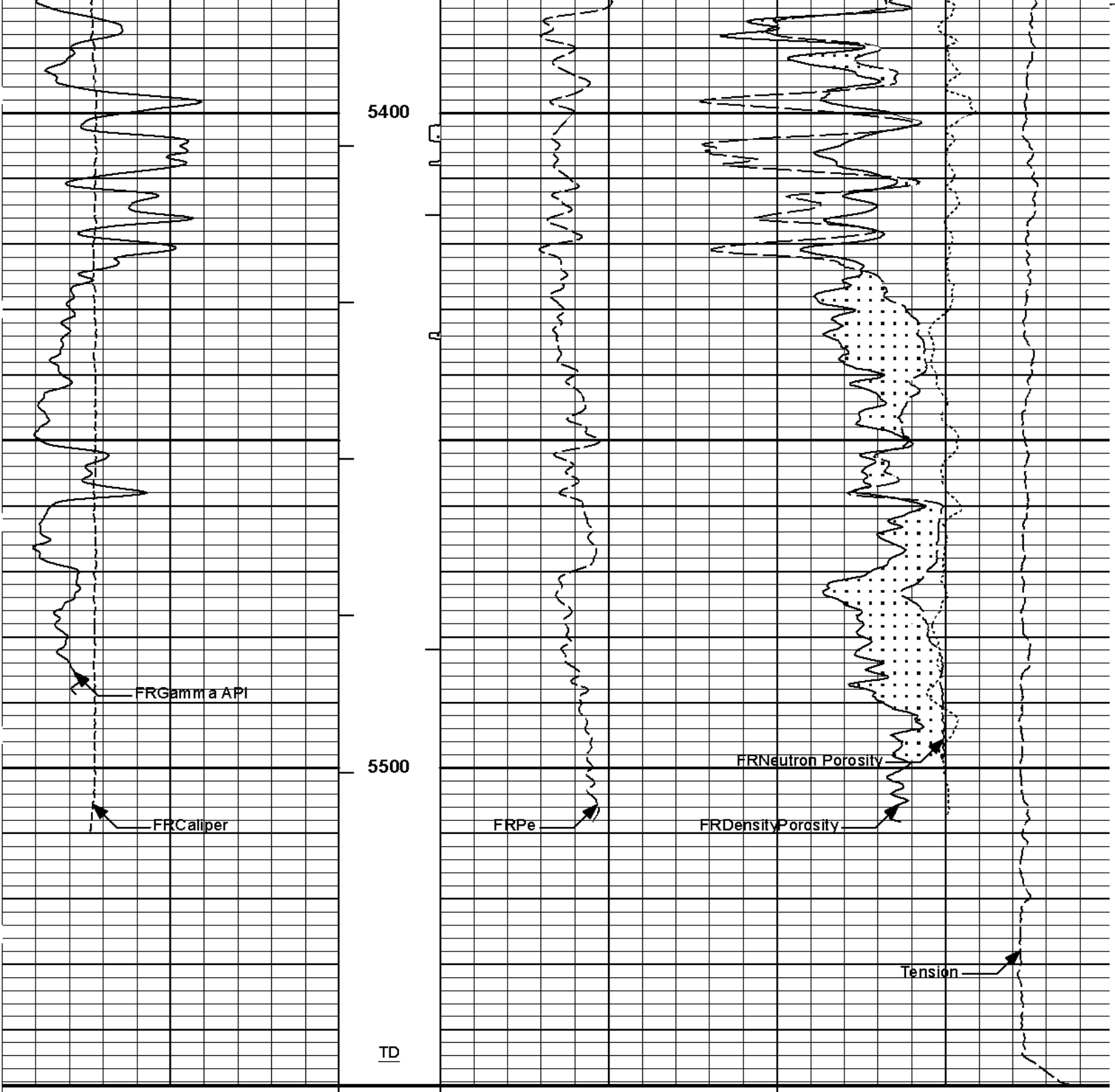

Gamma API
Caliper
4300
Neutron Porosity
Pe
DensityPorosity
DensityCorr
Tension
4400
4500


Gamma API
Caliper
Neutron Porosity
Pe
DensityPorosity
DensityCorr
Tension
4600
4700


Gamma API
Caliper
Neutron Porosity
Pe
DensityPorosity
4800
DensityCorr
Tension
4900


5000
5100
Gamma API
Caliper
Pe
Neutron Porosity
DensityPorosity
DensityCorr
Tension


5200
5300
Gamma API
Caliper
Neutron Porosity
Pe
DensityPorosity
DensityCorr
Tension



6 Caliper 16 inches	1 : 240 ft	0 Pe 10 | -0.25 DensityCorr 0.25 gram per cc
0 Gamma API 150 api	AHVT	15K Tension 0 pounds
SHALE	BHVT	30 DensityPorosity -10 %
	Tension Pull 10 0	30 Neutron Porosity -10 %
	Tension Pull	CROSSOVER

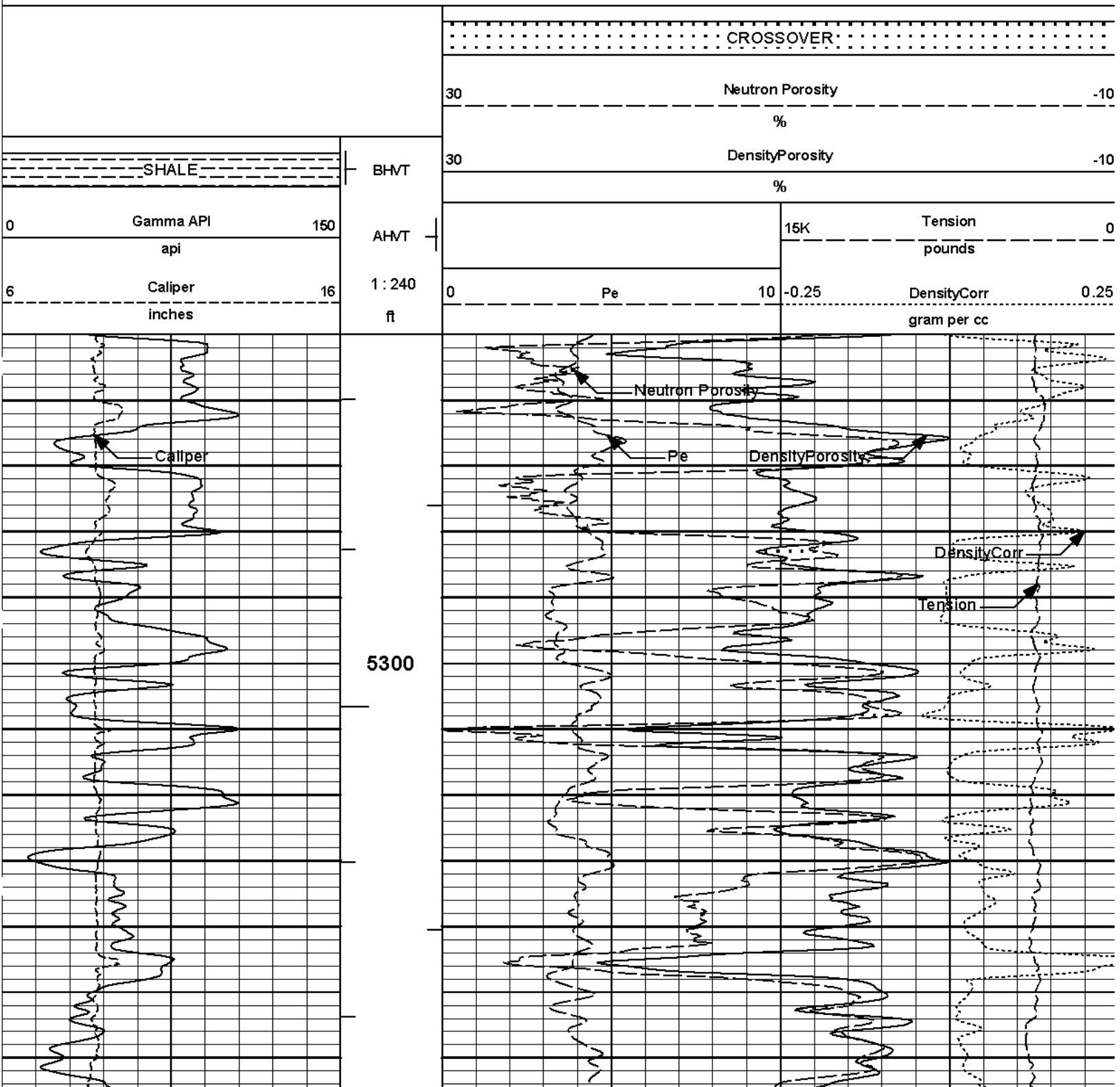
Plot Range: 3798 ft to 5548.42 ft
Data: ELIZABETH_A_COX\Well Based\DAQ-0001-004\
Plot File: \\PORO\Poro_IQ_5_MAIN_LIB

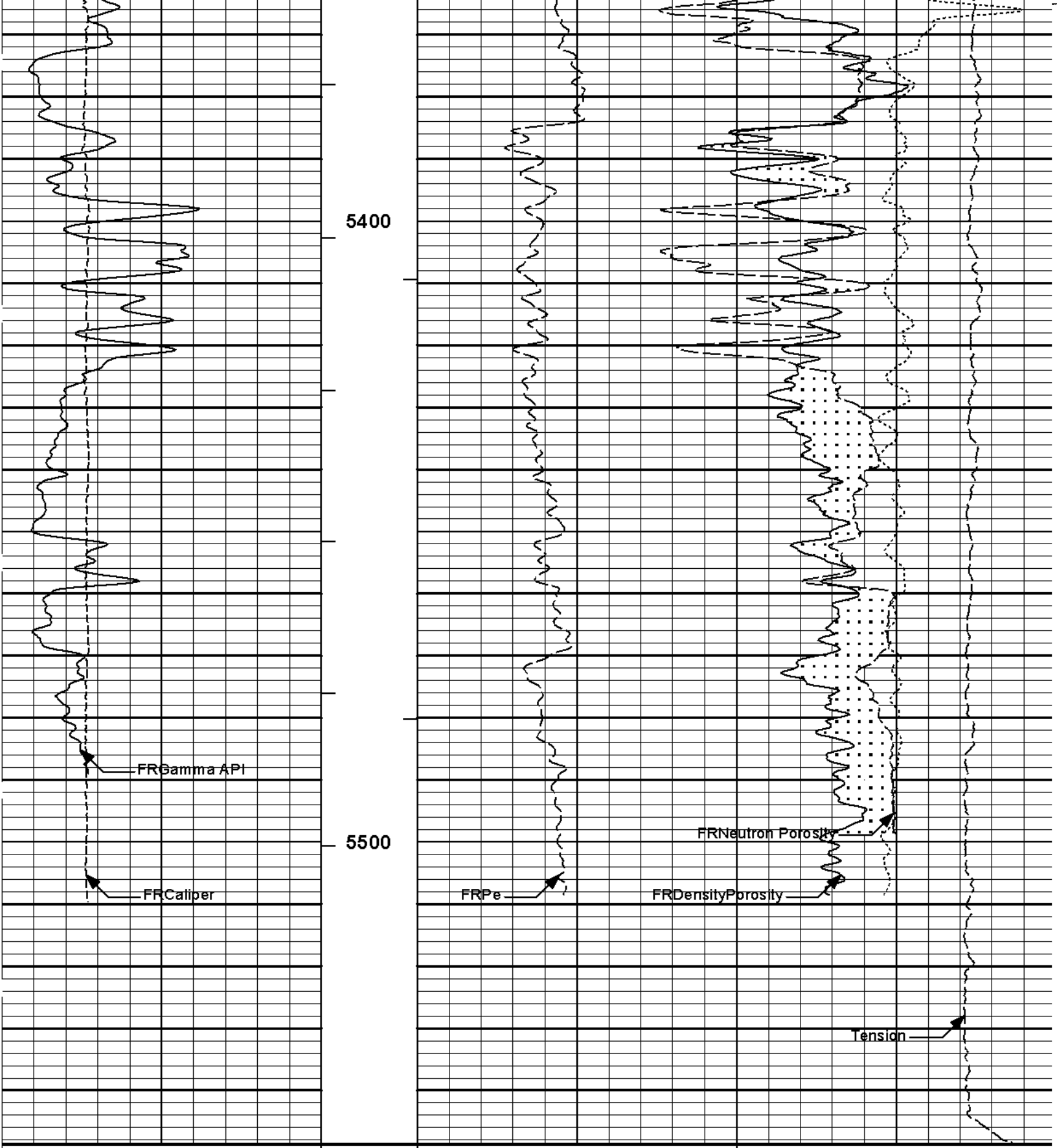
5 INCH MAIN LOG

HALLIBURTON

Plot Time: 10-Jun-11 02:04:16
Plot Range: 5250 ft to 5548.5 ft
Data: ELIZABETH_A_COX\Well Based\DAQ-0001-003\
Plot File: \\PORO\Poro_IQ_5_REP_LIB

REPEAT SECTION





6 Caliper 16	1 : 240	0 Pe 10
inches	ft	
0 Gamma API 150	AHVT	
api		
SHALE	BHVT	

-0.25 DensityCorr 0.25	
gram per cc	
15K Tension 0	
pounds	
30 DensityPorosity -10	
%	
30 Neutron Porosity -10	

%

CROSSOVER

HALLIBURTON

Plot Time: 10-Jun-11 02:04:17
Plot Range: 5250 ft to 5548.5 ft
Data: ELIZABETH_A_COX\Well Based\DAQ-0001-003\
Plot File: \\PORO\Poro_IQ_5_REP_LIB

REPEAT SECTION

HALLIBURTON

Plot Time: 10-Jun-11 02:04:17
Plot Range: 3798 ft to 5548.42 ft
Data: ELIZABETH_A_COX\Well Based\DAQ-0001-004\
Plot File: \\-LOCAL-\ELIZABETH_A_COX\0001 SP-GTET-DSN-SDL-BSAT-ACRT-CH\PORO\BULKD_5_MAIN_LIB

5 INCH MAIN LOG

SHALE

Tension Pull

0 Gamma Ray 150
api

18 FarQuality -2

-18 NearQuality 2

6 Caliper 16
inches

Tension Pull
10 0

AHV
ft3

BHV
ft3

1 : 240
ft

2 Bulk Density 3
g/cc

15K Tension 0
pounds

0 Pe 10

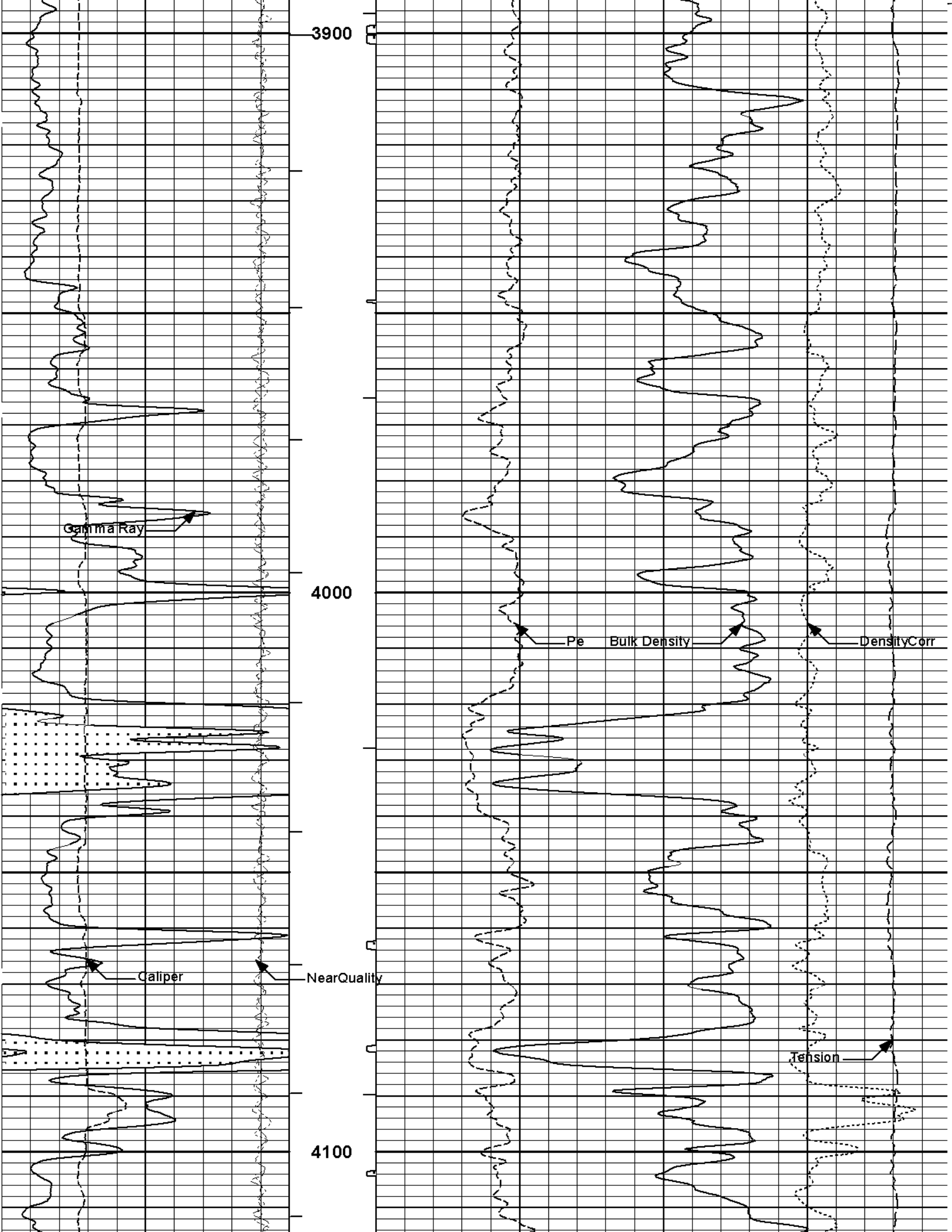
-0.25 DensityCorr 0.25
g/cc

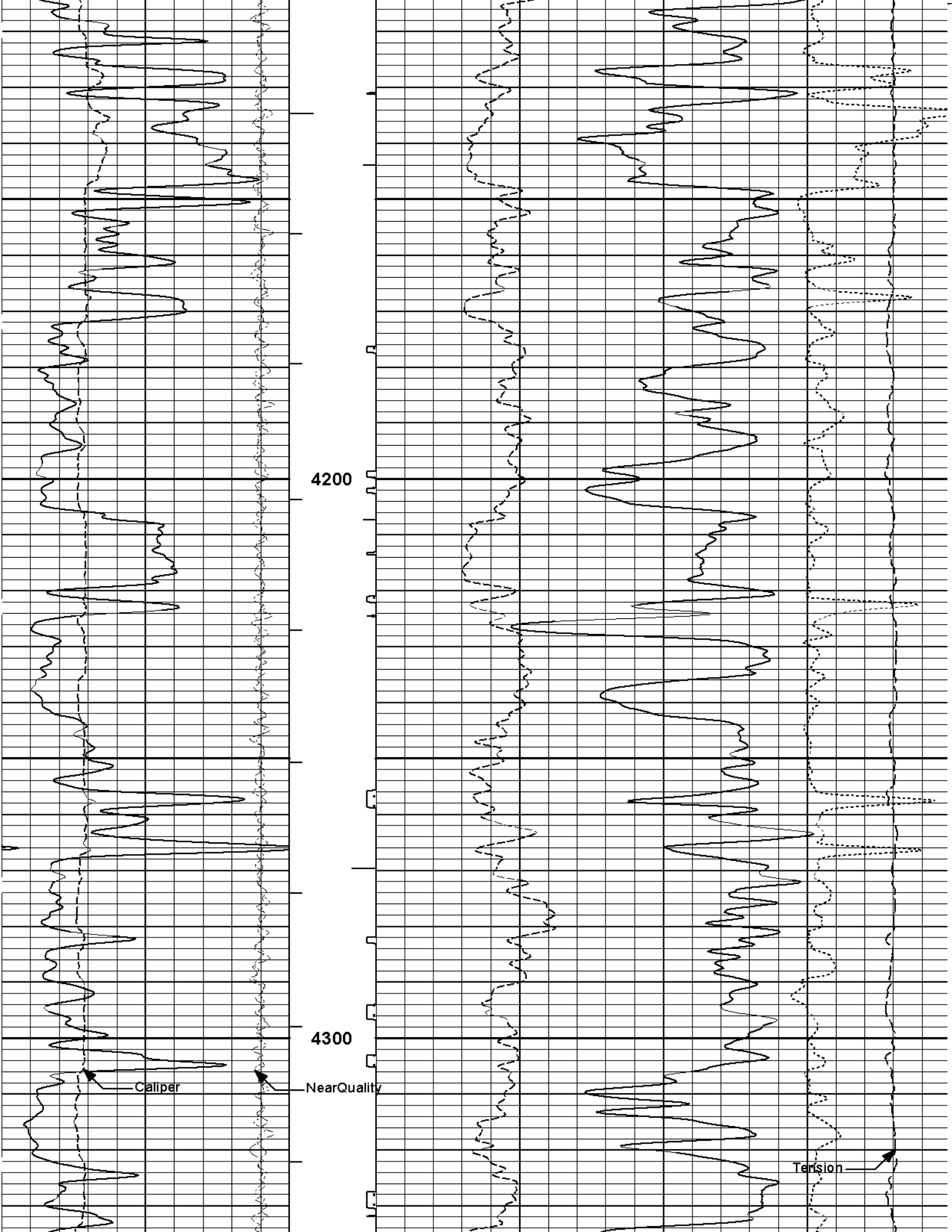
3800

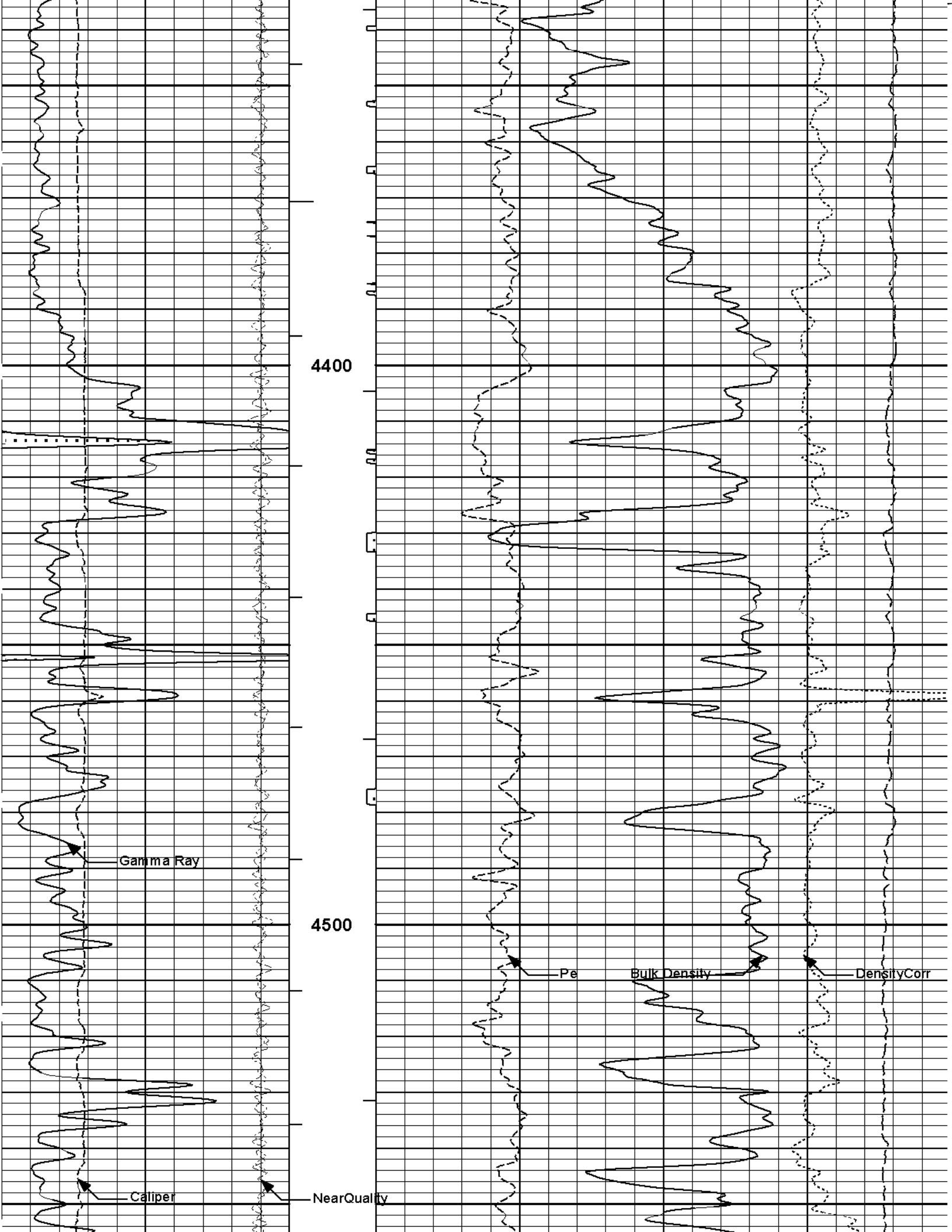
Caliper

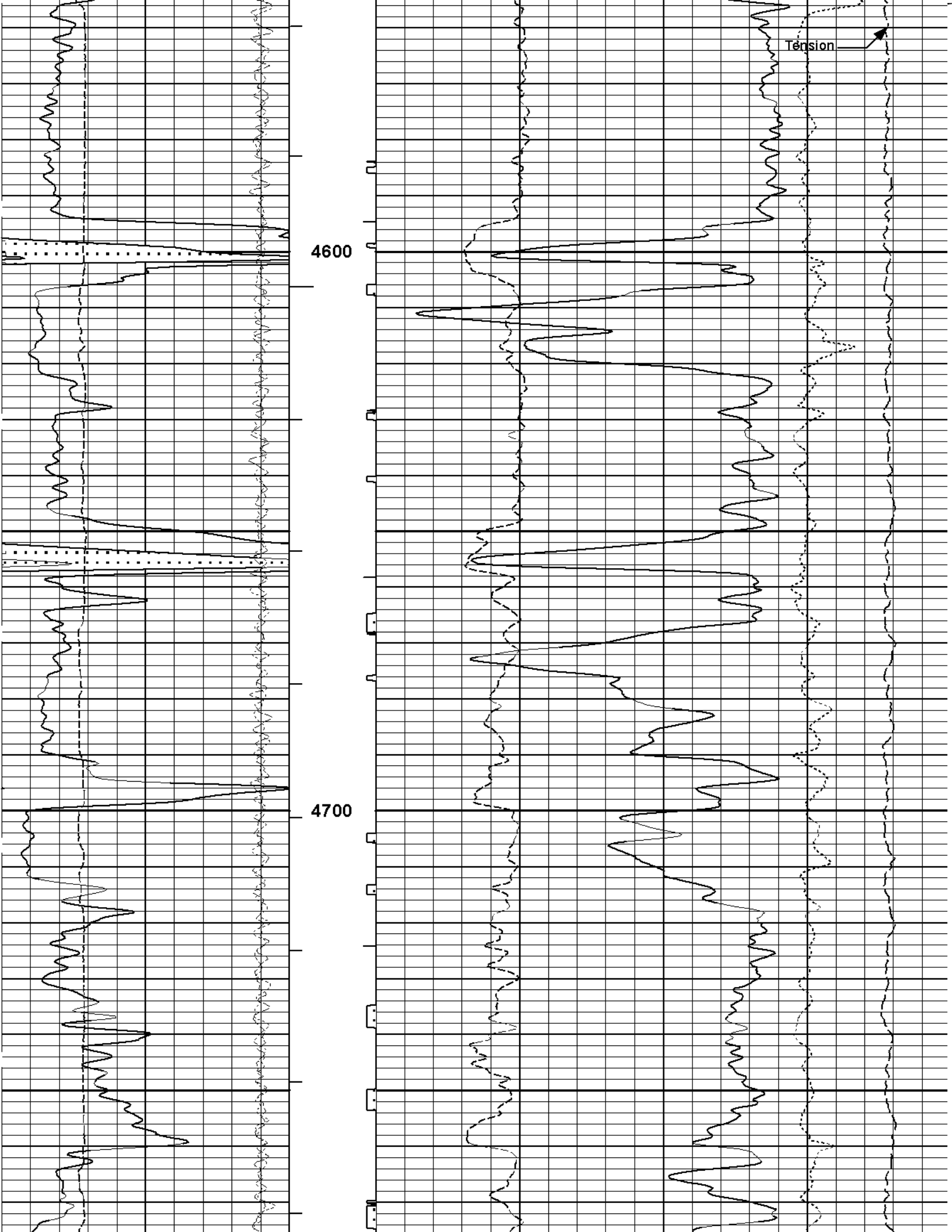
NearQuality

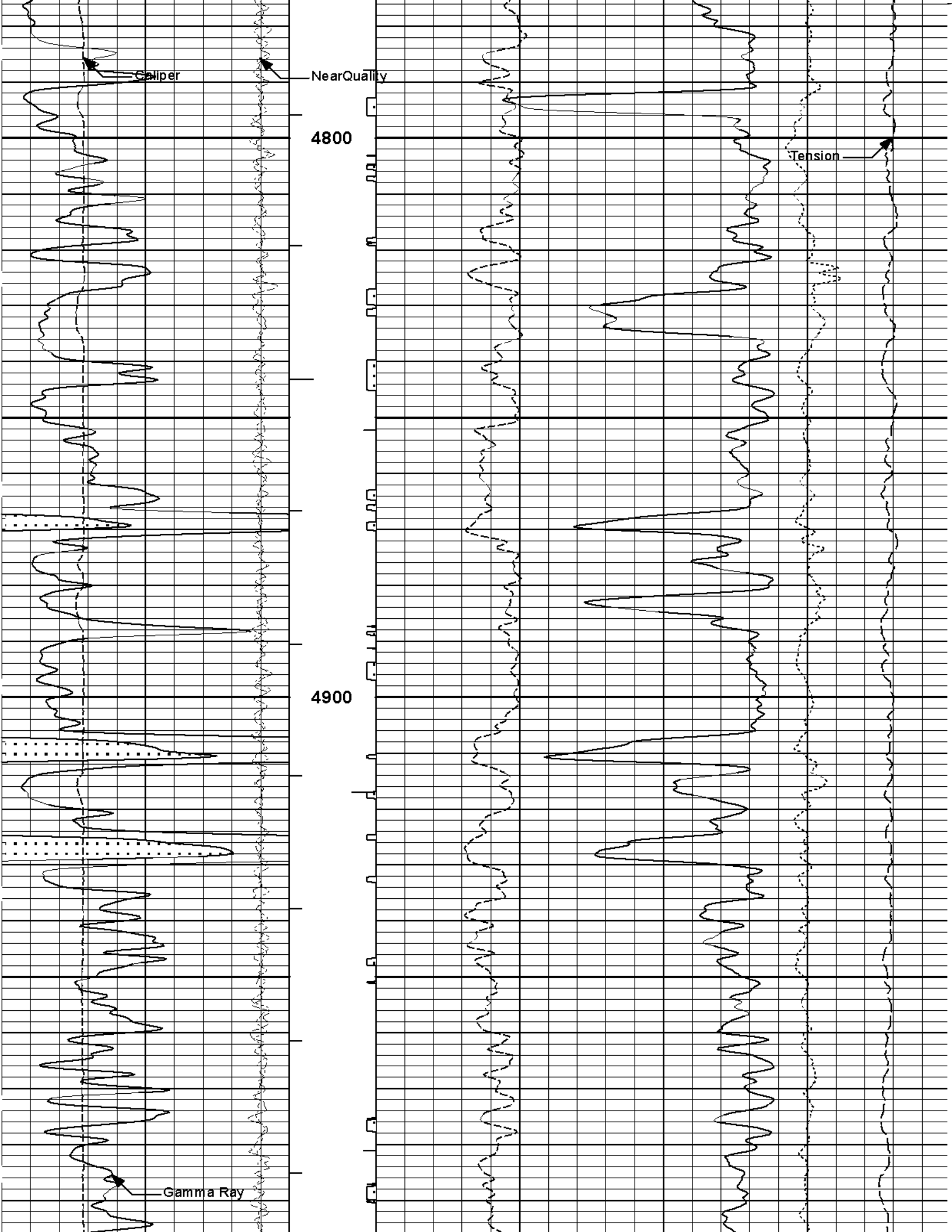
Tension

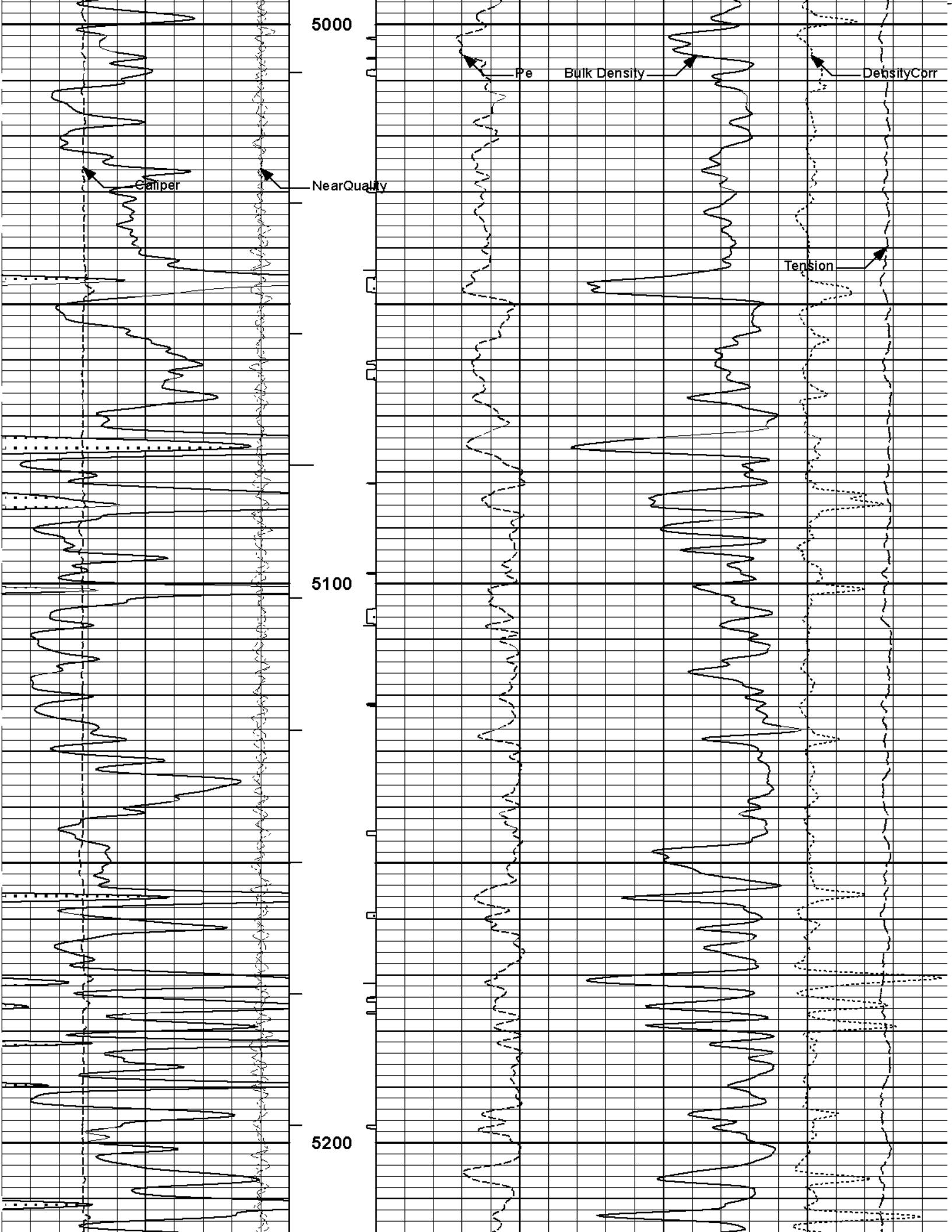

3900
4000
4100
Gamma Ray
Caliper
NearQuality
Pe
Bulk Density
DensityCorr
Tension

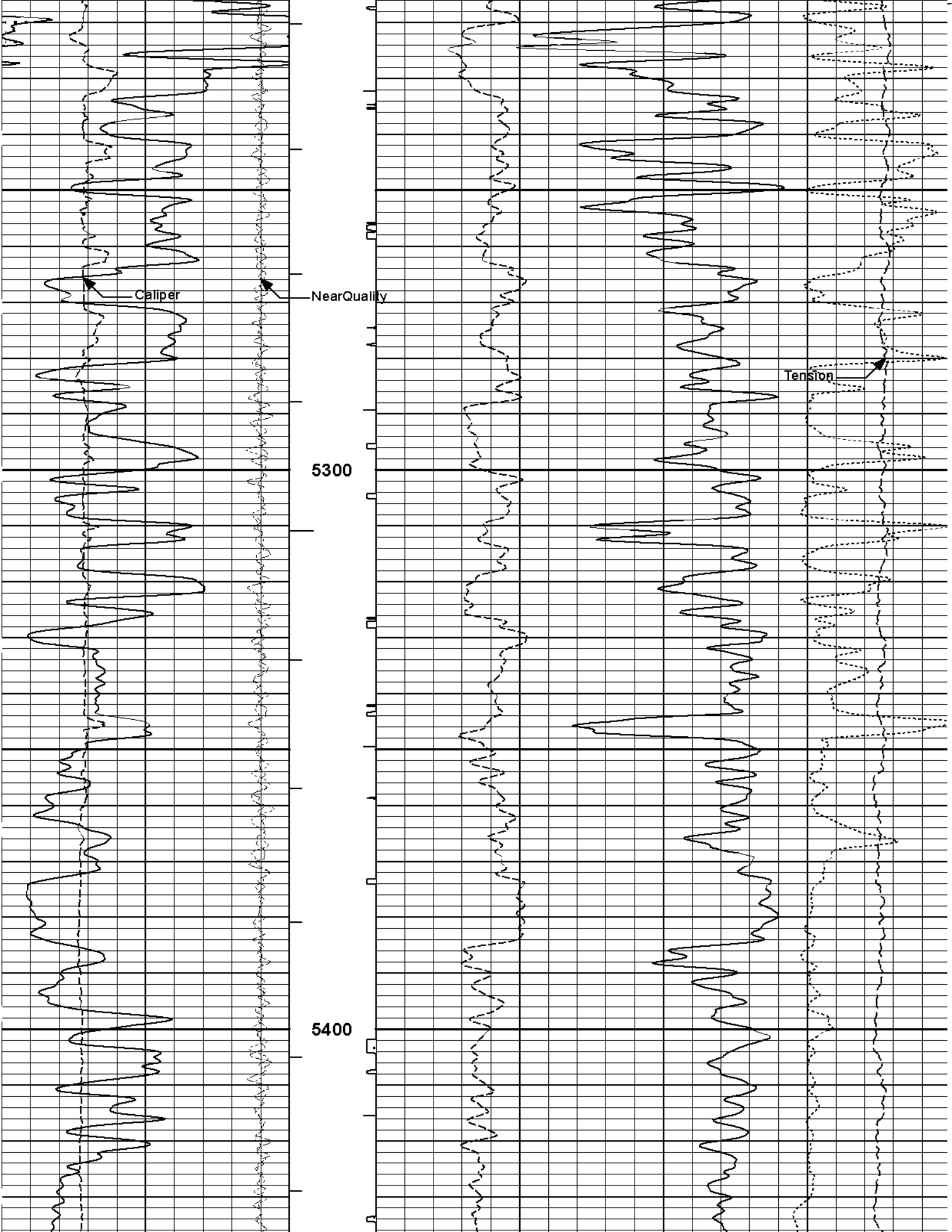

4200
4300
Caliper
NearQuality
Tension

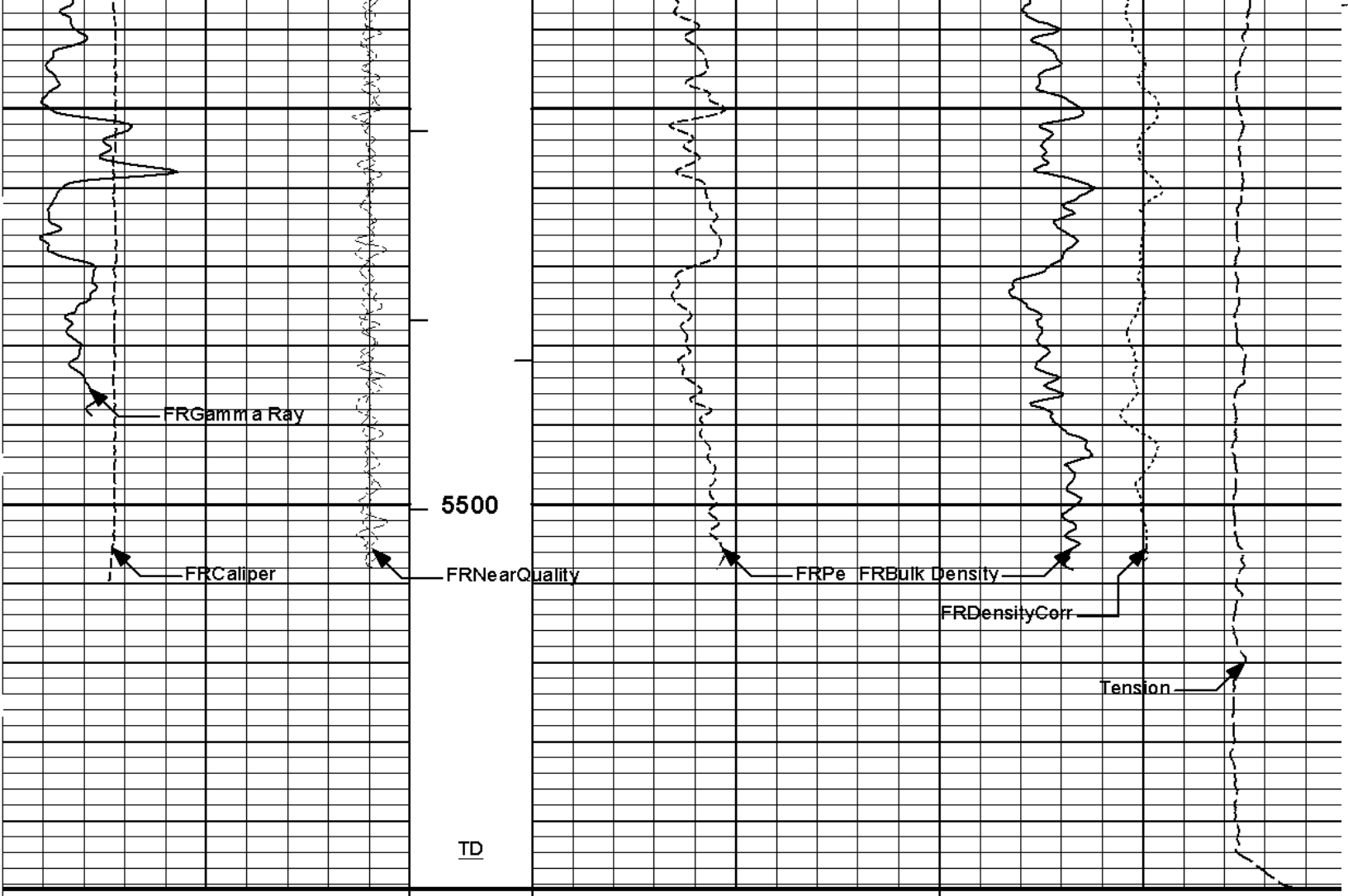

4400
4500
Gamma Ray
Caliper
NearQuality
Pe
Bulk Density
DensityCorr


Tension
4600
4700


Caliper
NearQuality
4800
Tension
4900
Gamma Ray


5000
5100
5200
Caliper
NearQuality
Pe
Bulk Density
DensityCorr
Tension


Caliper
NearQuality
Tension
5300
5400



6 Caliper 16	1 : 240 ft	0 Pe 10	-0.25 DensityCorr 0.25	
inches			g/cc	
-18 NearQuality 2	BHV ft3		15K Tension 0	
			pounds	
18 FarQuality -2	AHV ft3	2 Bulk Density 3		
		g/cc		
0 Gamma Ray 150	Tension Pull 10 0			
api				
SHALE	Tension Pull			

HALLIBURTON

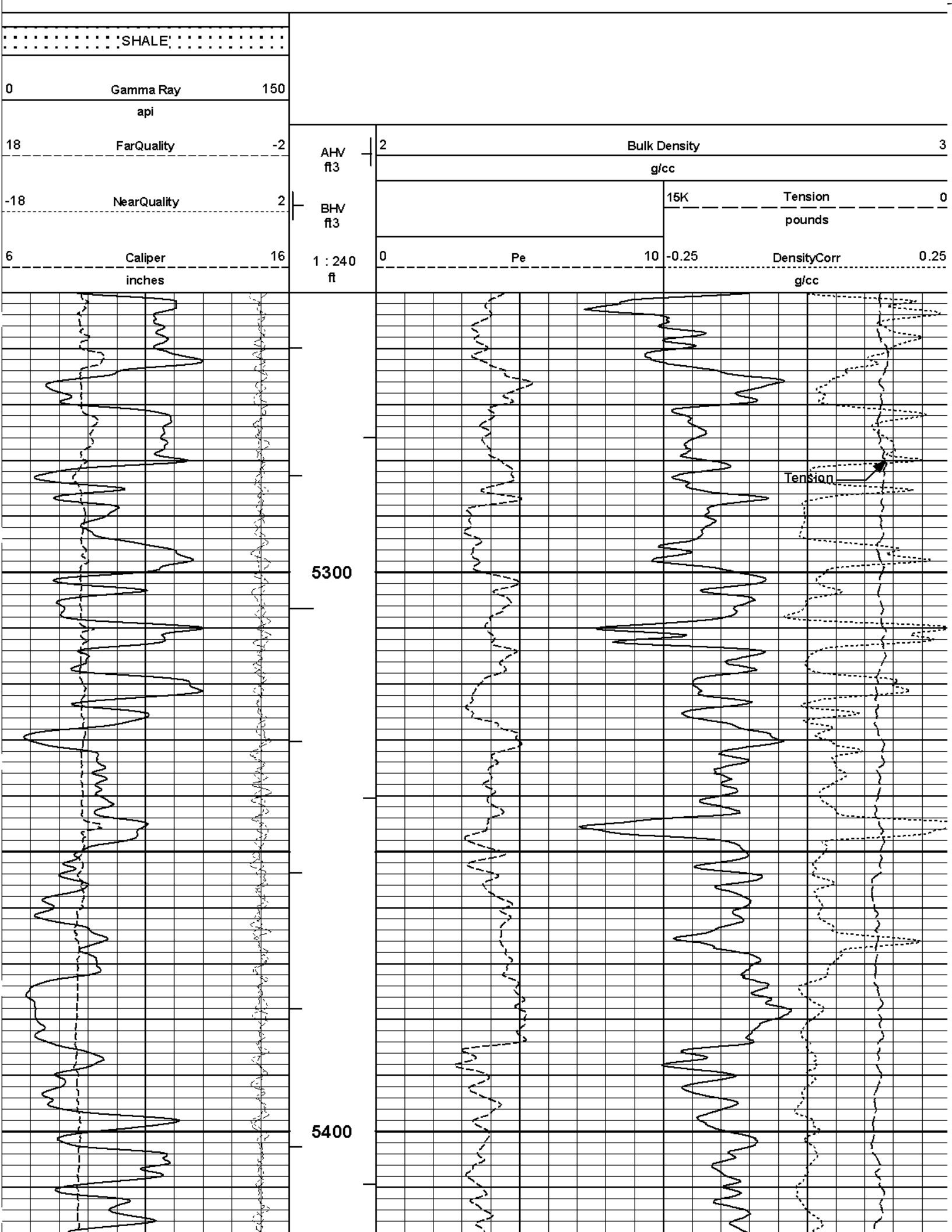
Plot Time: 10-Jun-11 02:04:20
Plot Range: 3798 ft to 5548.42 ft
Data: ELIZABETH_A_COX\Well Based\DAQ-0001-004\
Plot File: \\-LOCAL-\ELIZABETH_A_COX\0001 SP-GTET-DSN-SDL-BSAT-ACRT-CHPORO\BULKD_5_MAIN_LIB

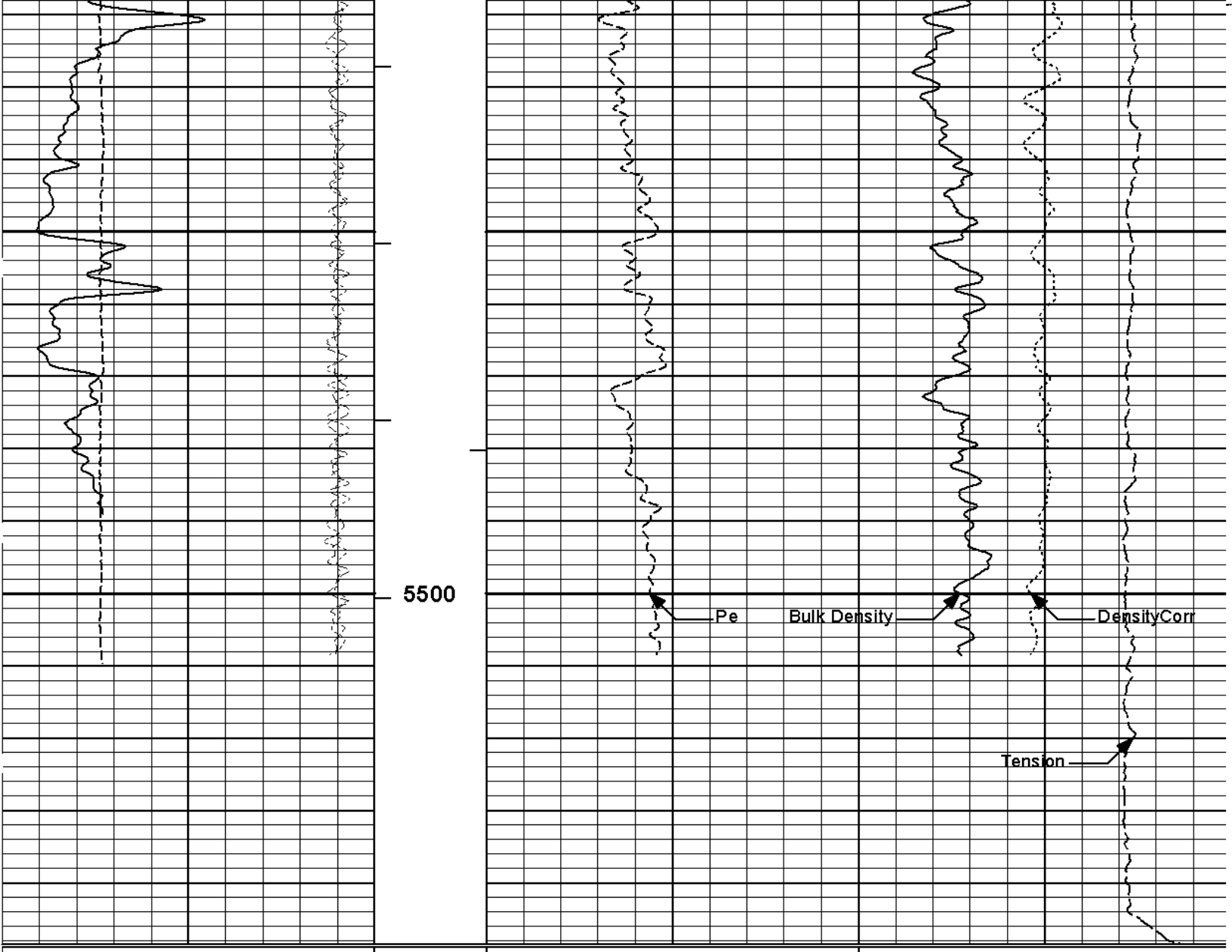
5 INCH MAIN LOG

HALLIBURTON

Plot Time: 10-Jun-11 02:04:20
Plot Range: 5250 ft to 5548.5 ft
Data: ELIZABETH_A_COX\Well Based\DAQ-0001-003\
Plot File: \\-LOCAL-\ELIZABETH_A_COX\0001 SP-GTET-DSN-SDL-BSAT-ACRT-CHPORO\BULKD_5_REP_LIB

REPEAT SECTION


SHALE
0
Gamma Ray
150
api
18
FarQuality
-2
-18
NearQuality
2
6
Caliper
16
inches
AHV
ft3
BHV
ft3
1 : 240
ft
2
Bulk Density
3
g/cc
15K
Tension
0
pounds
0
Pe
10
-0.25
DensityCorr
0.25
g/cc
Tension
5300
5400



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

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

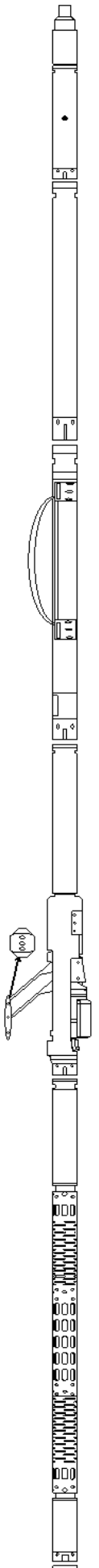
HALLIBURTON

Plot Time: 10-Jun-11 02:04:21
Plot Range: 5250 ft to 5548.5 ft
Data: ELIZABETH_A_COX\Well Based\DAQ-0001-003\
Plot File: \\-LOCAL-\ELIZABETH_A_COX\0001 SP-GTET-DSN-SDL-BSAT-ACRT-CHPORO\BULKD_5_REP_LIB

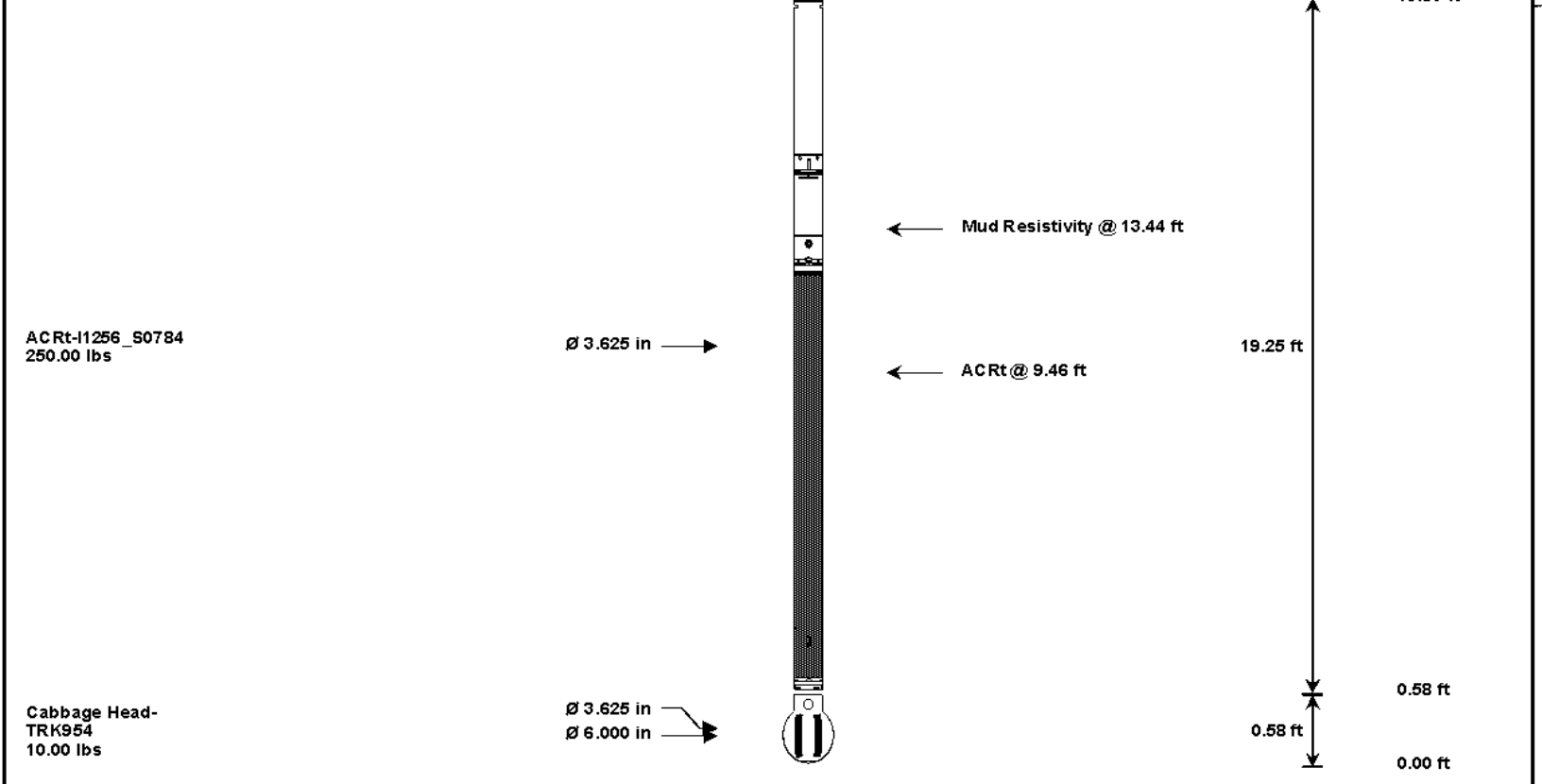
REPEAT SECTION

HALLIBURTON

TOOL STRING DIAGRAM REPORT



Description	Overbody Description	O.D.	Sensors @ Delays	Length	Accumulated Length
					70.28 ft
Cable Head-PROT01 30.00 lbs		Ø 3.625 in		1.92 ft	
					68.36 ft
SP Sub-TRK954 60.00 lbs		Ø 3.625 in	SP @ 66.59 ft	3.74 ft	
					64.63 ft
GTET-10811258 165.00 lbs		Ø 3.625 in		8.52 ft	
			GammaRay @ 58.56 ft		
					56.10 ft
	DSN Decentralizer-11005605 6.60 lbs	Ø 3.625 in*			
DSNT-10735145 174.00 lbs		Ø 3.625 in		9.69 ft	
			DSN Far @ 49.17 ft DSN Near @ 48.42 ft		
					46.42 ft
SDLT-I145_M73803_P90 360.00 lbs		Ø 4.500 in		10.81 ft	
		Ø 4.750 in	SDL Microlog @ 38.60 ft SDL Caliper @ 38.42 ft SDL @ 38.41 ft		
					35.60 ft
BSAT-10747683 300.00 lbs		Ø 3.625 in	Sonic Receivers @ 27.09 ft	15.77 ft	
					19.83 ft



Mnemonic	Tool Name	Serial Number	Weight (lbs)	Length (ft)		Accumulated Length (ft)	Max.Log. Speed (fpm)
CH	Standard OH Cable Head	PROT01	30.00	1.92		68.36	300.00
SP	SP Sub	TRK954	60.00	3.74		64.63	300.00
GTET	Gamma Telemetry Tool	10811258	165.00	8.52		56.10	60.00
DSNT	Dual Spaced Neutron	10735145	174.00	9.69		46.42	60.00
DCNT	DSN Decentralizer	11005605	6.60	5.13	*	49.75	300.00
SDLT	Spectral Density Tool	I145_M73803_P90	360.00	10.81		35.60	60.00
BSAT	Borehole Sonic Array Tool	10747683	300.00	15.77		19.83	60.00
ACRt	Array Compensated True Resistivity	I1256_S0784	250.00	19.25		0.58	300.00
CBHD	Cabbage Head	TRK954	10.00	0.58		0.00	300.00
Total			**1,355.60**	**70.28**			

* Not included in Total Length and Length Accumulation.

Data: ELIZABETH_A_COX\0001 SP-GTET-DSN-SDL-BSAT-ACRT-CH\IDLE

Date: 09-Jun-11 22:26:51

HALLIBURTON

CALIBRATION REPORT

NATURAL GAMMA RAY TOOL SHOP CALIBRATION

Tool Name:	**GTET - 10811258**	**Reference Calibration Date:**	**07-Feb-11 20:34:22**
Engineer:	**C. MARLOWE**	**Calibration Date:**	**20-May-11 16:40:55**
Software Version:	**WL INSITE R3.3.2 (Build 2)**	**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	29.6	29.3	api
Background + Calibrator	264.3	261.2	api
Calibrator	234.7	232.0	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION

Tool Name:	**GTET - 10811258**	**Reference Calibration Date:**	**20-May-11 16:40:55**
Engineer:	**C.PARKER**	**Calibration Date:**	**09-Jun-11 22:05:01**
Software Version:	**WL INSITE R3.2.5 (Build 2)**	**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	29.3	36.6	api
Background + Calibrator	261.2	263.7	api
Calibrator	232.0	227.1	api

Shop	Field	Difference	Tolerance
232.0	227.1	4.9	+/- 9.00

NATURAL GAMMA RAY TOOL POST CALIBRATION

Tool Name:	**GTET - 10811258**	**Reference Calibration Date:**	**09-Jun-11 22:05:01**
Engineer:	**C.PARKER**	**Calibration Date:**	**10-Jun-11 01:54:43**
Software Version:	**WL INSITE R3.2.5 (Build 2)**	**Calibration Version:**	**1**

Calibrator Source S/N: TB-185

Calibrator API Reference:228.00 api

Calibrator API Reference:232.0 api

Post Verification	Field	Post	Units
Background	36.6	39.5	api
Background + Calibrator	263.7	271.3	api
Calibrator	227.1	231.7	api

Shop	Field	Post	Difference	Tolerance
232.0	227.1	231.7	-4.6	+/- 9.00

DUAL SPACED NEUTRON SHOP CALIBRATION

Tool Name:	**DSNT - 10735145**	**Reference Calibration Date:**	**27-Apr-11 15:28:18**
Engineer:	**S. JUNG**	**Calibration Date:**	**18-May-11 21:10:57**
Software Version:	**WL INSITE R3.3.2 (Build 2)**	**Calibration Version:**	**1**

Logging Source S/N: DSN-436

Tank Serial Number: 105060

Reference value assigned to Tank: 51.680

Snow Block S/N: TRK_954

Calibration Tank Water Temperature: 70 degF

Min. Tool Housing Outside Diameter: 3.615 in

CALIBRATION CONSTANTS

Measurement	Prev. Value	New Value	Control Limit On New Value
Gain:	0.940	0.938	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):	0.2109	0.2103	0.0006	+/- 0.0020
Calibrated Ratio:	9.73	9.70	0.021	+/- 0.050

VERIFIER

Measurement	Value	Control Limit
Snow-Block Porosity (decp):	0.0534	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:**	**18-May-11 21:10:57**
Engineer:	**C.PARKER**	**Calibration Date:**	**09-Jun-11 22:07:45**
Software Version:	**WL INSITE R3.2.5 (Build 2)**	**Calibration Version:**	**1**

Logging Source S/N: DSN-436

Snow Block S/N: TRK_954

NEUTRON FIELD-CHECK SUMMARY

	Shop	Field	Difference	Control Limit On Change
Snow-Block Porosity (decp):	0.0534	0.0599	0.0065	+/- 0.0150

PASS/FAIL SUMMARY

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

DUAL SPACED NEUTRON POST CALIBRATION

Tool Name:	**DSNT - 10735145**	**Reference Calibration Date:**	**09-Jun-11 22:07:45**
Engineer:	**C.PARKER**	**Calibration Date:**	**10-Jun-11 01:59:56**
Software Version:	**WL INSITE R3.2.5 (Build 2)**	**Calibration Version:**	**1**

Logging Source S/N: DSN-436

Snow Block S/N: TRK_954

NEUTRON POST-CHECK SUMMARY

	Field Value	Post Value	Difference	Control Limit On Change
Snow-Block Porosity (decp):	0.0599	0.0534	-0.0065	+/- 0.0150

PASS/FAIL SUMMARY

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

SPECTRAL DENSITY SHOP CALIBRATION

Tool Name:	**SDLT - I145_M73803_P90**	**Reference Calibration Date:**	**18-Apr-11 16:16:34**
Engineer:	**S. JUNG**	**Calibration Date:**	**18-May-11 17:44:44**
Software Version:	**WL INSITE R3.3.2 (Build 2)**	**Calibration Version:**	**1**

Logging Source S/N: 5073GW

Aluminum Block S/N: 63061	Density: 2.591g/cc	Pe: 3.170
Magnesium Block S/N: 63393	Density: 1.690g/cc	Pe: 2.594

DENSITY CALIBRATION SUMMARY

Measurement	Previous Value	New Value	Control Limit
Near Bar Gain	1.0353	1.0080	0.90 - 1.10
Near Dens Gain	1.0190	1.0081	0.90 - 1.10

Near Peak Gain	1.0375	1.0056	0.90 - 1.10
Near Lith Gain	1.0104	0.9844	0.90 - 1.10
Far Bar Gain	0.9985	0.9923	0.90 - 1.10
Far Dens Gain	0.9857	0.9826	0.90 - 1.10
Far Peak Gain	0.9787	0.9743	0.90 - 1.10
Far Lith Gain	0.9483	0.9481	0.90 - 1.10
Near Bar Offset	-0.1619	0.0954	NONE
Near Dens Offset	-0.0185	0.0893	NONE
Near Peak Offset	-0.1666	0.1119	NONE
Near Lith Offset	0.0392	0.2668	NONE
Far Bar Offset	0.0968	0.1571	NONE
Far Dens Offset	0.1909	0.2226	NONE
Far Peak Offset	0.1991	0.2358	NONE
Far Lith Offset	0.3455	0.3443	NONE
Near Bar Background	906.37	902.15	700 - 1450
Near Dens Background	299.38	299.70	230 - 480
Near Peak Background	131.43	131.63	100 - 210
Near Lith Background	160.58	160.75	125 - 260
Far Bar Background	606.95	604.55	450 - 900
Far Dens Background	238.34	237.94	175 - 345
Far Peak Background	95.49	94.36	70 - 140
Far Lith Background	98.93	98.09	75 - 145

CALIBRATION BLOCK SUMMARY

Measurement	Current Reading (Previous Coef)	Calibrated (New Coef)	Change	Control Limit On Change
MAGNESIUM				
Density (g/cc)	1.683	1.690	0.007	+/- 0.015
Pe	2.585	2.557	-0.028	+/- 0.150
ALUMINUM				
Density (g/cc)	2.581	2.591	0.010	+/- 0.01500
Pe	3.147	3.131	-0.016	+/- 0.150

TOOL SUMMARY

Measurement	Near Detector		Far Detector	
	Value	Control Limits	Value	Control Limits
QUALITY				
Background	-0.0012	+/- 0.0110	-0.0012	+/- 0.0140
Magnesium Block	0.0005	+/- 0.0110	-0.0014	+/- 0.0140
Aluminum Block	-0.0003	+/- 0.0110	0.0007	+/- 0.0140
Resolution	8.83	6.00 - 11.50	9.03	6.00 - 11.50
Internal Verifier(B+D+P+L)	1494	1200 - 2700	1035	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 - I145_M73803_P90**	**Reference Calibration Date:**	**18-May-11 17:44:44**
Engineer:	**C.PARKER**	**Calibration Date:**	**09-Jun-11 22:06:43**
Software Version:	**WL INSITE R3.2.5 (Build 2)**	**Calibration Version:**	**1**

Pad Temperature: 85.8 degF

DENSITY FIELD CALIBRATION SUMMARY

Measurement	Shop	Field	Change	Control Limit +/-
Near (B+D+P+L) cps	1494.227	1497.874	3.647	15.578
Far (B+D+P+L) cps	1034.943	1045.449	10.506	17.132
Near Resolution	8.83	9.03	0.200	0.50
Far Resolution	9.03	9.64	0.610	1.00

PASS/FAIL SUMMARY

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

SPECTRAL DENSITY POST CHECK

Tool Name:	**SDLT - I145_M73803_P90**	**Reference Calibration Date:**	**09-Jun-11 22:06:43**
Engineer:	**C.PARKER**	**Calibration Date:**	**10-Jun-11 01:54:56**
Software Version:	**WL INSITE R3.2.5 (Build 2)**	**Calibration Version:**	**1**

Pad Temperature: 78.8 degF

DENSITY POST CALIBRATION SUMMARY

Measurement	Field	Post	Change	Control Limit +/-
Near (B+D+P+L) cps	1497.874	1498.604	0.730	15.578
Far (B+D+P+L) cps	1045.449	1043.996	-1.453	17.132
Near Resolution	9.03	9.28	0.250	0.50
Far Resolution	9.64	10.10	0.460	1.00

PASS/FAIL SUMMARY

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

DENSITY CALIPER SHOP CALIBRATION

Tool Name:	**SDLT - I145_M73803_P90**	**Reference Calibration Date:**	**02-May-11 15:41:59**
Engineer:	**C. MARLOWE**	**Calibration Date:**	**20-May-11 16:52:52**
Software Version:	**WL INSITE R3.3.2 (Build 2)**	**Calibration Version:**	**1**

CALIBRATION COEFFICIENTS

Measurement	Previous Value	New Value	Control Limit On New Value
Pad Offset	-2768.27	-2676.44	-7000.00 - -1000.00
Pad Gain	0.0003975	0.0003965	0.000200 - 0.000600
Arm Offset	-1369.12	-1687.08	-5000.00 - 3000.00
Arm Gain	0.0005355	0.0005317	0.000300 - 0.000700
Arm Power	-0.000006321	-0.000006112	-0.000010 - 0.000010

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

Tool Diameter: 4.50 in

CALIBRATION RINGS

Measurement	Current Reading (Previous Coeff.)	Calibrated (New Coeff.)	Change	Control Limit On New Value
PAD EXTENSION:				
Small Ring (in)	1.97	2.00	0.03	+/- 0.20
Medium Ring (in)	3.72	3.75	0.03	+/- 0.20
RING DIAMETER:				
Small Ring (in)	6.64	6.50	-0.14	+/- 0.20
Medium Ring (in)	8.39	8.25	-0.14	+/- 0.20
Large Ring (in)	15.10	15.00	-0.10	+/- 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 - I145_M73803_P90**	**Reference Calibration Date:**	**20-May-11 16:52:52**
Engineer:	**C.PARKER**	**Calibration Date:**	**09-Jun-11 22:10:42**
Software Version:	**WL INSITE R3.2.5 (Build 2)**	**Calibration Version:**	**1**

MEASURED CALIPER VALUES

Measurement	Shop	Field	Change	Control Limit On New Value
Pad Extension	3.75	3.80	0.05	+/- 0.10
Ring Diameter	8.25	8.15	-0.10	+/- 0.15

PASS/FAIL SUMMARY

Pad Extension Check:	Passed
Diameter Check:	Passed

SDLT CALIPER POST CALIBRATION

Tool Name:	**SDLT - I145_M73803_P90**	**Reference Calibration Date:**	**09-Jun-11 22:10:42**
Engineer:	**C.PARKER**	**Calibration Date:**	**10-Jun-11 02:02:32**
Software Version:	**WL INSITE R3.2.5 (Build 2)**	**Calibration Version:**	**1**

MEASURED CALIPER VALUES

Measurement	Field	Post	Change	Control Limit On New Value
Pad Extension	3.80	3.83	0.03	+/- 0.10
Ring Diameter	8.15	8.21	0.06	+/- 0.15

PASS/FAIL SUMMARY

Pad Extension Check:	Passed
Diameter Check:	Passed

CALIBRATION SUMMARY

Sensor	Shop	Field	Post	Difference	Tolerance	Units
GTET-10811258						
Gamma Ray Calibrator	232.0	227.1	231.7	-4.6	+/- 9.00	api
DSNT-10735145						
Snow-Block Porosity	0.0534	0.0599	0.0534	0.0065	+/- 0.0150	decp
SDLT-I145_M73803_P90						
Near(B+D+P+L)	1494.227	1497.874	1498.604	-0.730	+/-15.578	cps
Far(B+D+P+L)	1034.943	1045.449	1043.996	1.453	+/-17.132	cps

Pad Extension	3.75	3.80	3.83	-0.03	+/-0.10	in
Ring Diameter	8.25	8.15	8.21	-0.060	+/-0.15	in

Data: ELIZABETH_A_COX\0001 SP-GTET-DSN-SDL-BSAT-ACRT-CH\IDLE Date: 10-Jun-11 02:02:57

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PARAMETERS REPORT

Depth (ft)	Tool Name	Mnemonic	Description	Value	Units
TOP					
	DSNT	DNOK	Process DSN?	No	
	SDLT	DNOK	Process Density?	No	
	SDLT	MLOK	Process MicroLog Outputs?	No	
3740.00					
	SHARED	BS	Bit Size	8.750	in
	SHARED	UBS	Use Bit Size instead of Caliper for all applications.	No	
	SHARED	MDBS	Mud Base	Water	
	SHARED	MDWT	Borehole Fluid Weight	9.100	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	0.909	ohmm
	SHARED	TRM	Temperature of Mud	75.0	degF
	SHARED	CSD	Logging Interval is Cased?	No	
	SHARED	ICOD	AHV Casing OD	7.000	in
	SHARED	ST	Surface Temperature	75.0	degF
	SHARED	TD	Total Well Depth	5560.00	ft
	SHARED	BHT	Bottom Hole Temperature	130.0	degF
	SHARED	SVTM	Navigation and Survey Master Tool	NONE	
	SHARED	AZTM	High Res Z Accelerometer Master Tool	GTET	
	SHARED	TEMM	Temperature Master Tool	NONE	
	SHARED	BHSM	Borehole Size Master Tool	NONE	
	GTET	GROK	Process Gamma Ray?	Yes	
	GTET	GRSO	Gamma Tool Standoff	0.000	in
	GTET	GEOK	Process Gamma Ray EVR?	No	
	GTET	TPOS	Tool Position	Centered	
	DSNT	DNOK	Process DSN?	Yes	
	DSNT	DEOK	Process DSN EVR?	No	
	DSNT	NLIT	Neutron Lithology	Limestone	
	DSNT	DNSO	DSN Standoff - 0.25 in (6.35 mm) Recommended	0.250	in
	DSNT	DNTP	Temperature Correction Type	None	
	DSNT	DPRS	DSN Pressure Correction Type	None	
	DSNT	SHCO	View More Correction Options	No	
	DSNT	UTVD	Use TVD for Gradient Corrections?	No	
	DSNT	LHWT	Logging Horizontal Water Tank?	No	
	SDLT	DNOK	Process Density?	Yes	
	SDLT	DNOK	Process Density EVR?	No	
	SDLT	CB	Logging Calibration Blocks?	No	
	SDLT	SPVT	SDLT Pad Temperature Valid?	Yes	
	SDLT	DTWN	Disable temperature warning	No	
	SDLT	DMA	Formation Density Matrix	2.710	g/cc
	SDLT	DFL	Formation Density Fluid	1.000	g/cc

	SDLT	CLOK	Process Caliper Outputs?	Yes	
	SDLT	MLOK	Process MicroLog Outputs?	Yes	
	BSAT	MBOK	Compute BCAS Results?	Yes	
	BSAT	FLLO	Frequency Filter Low Pass Value?	5000	Hz
	BSAT	FLHI	Frequency Filter High Pass Value?	27000	Hz
	BSAT	DTFL	Delta -T Fluid	189.00	uspf
	BSAT	DTMT	Delta -T Matrix Type	User define	
	BSAT	DTMA	Delta -T Matrix	47.60	uspf
	BSAT	DTSH	Delta -T Shale	100.00	uspf
	BSAT	SPEQ	Acoustic Porosity Equation	Wylie	
	ACRt	RTOK	Process ACRt?	Yes	
	ACRt	MNSO	Minimum Tool Standoff	1.50	in
	ACRt	TCS1	Temperature Correction Source	FP Lwr & FP Upr	
	ACRt	TPOS	Tool Position	Free Hanging	
	ACRt	RMOP	Rmud Source	Mud Cell	
	ACRt	RMIN	Minimum Resistivity for MAP	0.20	ohmm
	ACRt	RMIN	Maximum Resistivity for MAP	200.00	ohmm
	ACRt	THQY	Threshold Quality	0.50	

BOTTOM

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INPUTS, DELAYS AND FILTERS TABLE

Mnemonic	Input Description	Delay (ft)	Filter Type	Filter Length (ft)
	Depth Panel			
TENS	Tension	0.00	NO	
	SP Sub			
PLTC	Plot Control Mask	66.58	NO	
SP	Spontaneous Potential	66.58	BLK	1.250
SPR	Raw Spontaneous Potential	66.58	NO	
SPO	Spontaneous Potential Offset	66.58	NO	
	GTET			
TPUL	Tension Pull	58.56	NO	
GR	Natural Gamma Ray API	58.56	TRI	1.750
GRU	Unfiltered Natural Gamma Ray API	58.56	NO	
EGR	Natural Gamma Ray API with Enhanced Vertical Resolution	58.56	W	1.416 , 0.750
ACCZ	Accelerometer Z	0.00	BLK	0.083
DEVI	Inclination	0.00	NO	
	DSNT			
TPUL	Tension Pull	48.32	NO	
RNDS	Near Detector Telemetry Counts	48.42	BLK	1.417
RFDS	Far Detector Telemetry Counts	49.17	TRI	0.583
DNTT	DSN Tool Temperature	48.42	NO	
DSNS	DSN Tool Status	48.32	NO	
ERND	Near Detector Telemetry Counts EVR	48.42	BLK	0.000
ERFD	Far Detector Telemetry Counts EVR	49.17	BLK	0.000
ENTM	DSN Tool Temperature EVR	48.42	NO	
	SDLT			
TPUL	Tension Pull	38.41	NO	

NAB	Near Above	38.24	BLK	0.920
NHI	Near Cesium High	38.24	BLK	0.920
NLO	Near Cesium Low	38.24	BLK	0.920
NVA	Near Valley	38.24	BLK	0.920
NBA	Near Barite	38.24	BLK	0.920
NDE	Near Density	38.24	BLK	0.920
NPK	Near Peak	38.24	BLK	0.920
NLI	Near Lithology	38.24	BLK	0.920
NBAU	Near Barite Unfiltered	38.24	BLK	0.250
NLIU	Near Lithology Unfiltered	38.24	BLK	0.250
FAB	Far Above	38.58	BLK	0.250
FHI	Far Cesium High	38.58	BLK	0.250
FLO	Far Cesium Low	38.58	BLK	0.250
FVA	Far Valley	38.58	BLK	0.250
FBA	Far Barite	38.58	BLK	0.250
FDE	Far Density	38.58	BLK	0.250
FPK	Far Peak	38.58	BLK	0.250
FLI	Far Lithology	38.58	BLK	0.250
PTMP	Pad Temperature	38.42	BLK	0.920
NHV	Near Detector High Voltage	35.60	NO	
FHV	Far Detector High Voltage	35.60	NO	
ITMP	Instrument Temperature	35.60	NO	
DDHV	Detector High Voltage	35.60	NO	
TPUL	Tension Pull	38.42	NO	
PCAL	Pad Caliper	38.42	TRI	0.250
ACAL	Arm Caliper	38.42	TRI	0.250
TPUL	Tension Pull	38.60	NO	
MINV	Microlog Lateral	38.60	BLK	0.750
MNOR	Microlog Normal	38.60	BLK	0.750

BSAT

TPUL	Tension Pull	27.09	NO	
STAT	Status	27.09	NO	
DLYT	Delay Time	27.09	NO	
SI	Sample Interval	27.09	NO	
TXRX	Raw Telemetry 10 Receivers	27.09	NO	
FRMC	Tool Frame Count	27.09	NO	

ACRt

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 Reference 12 KHz Real Signal	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	

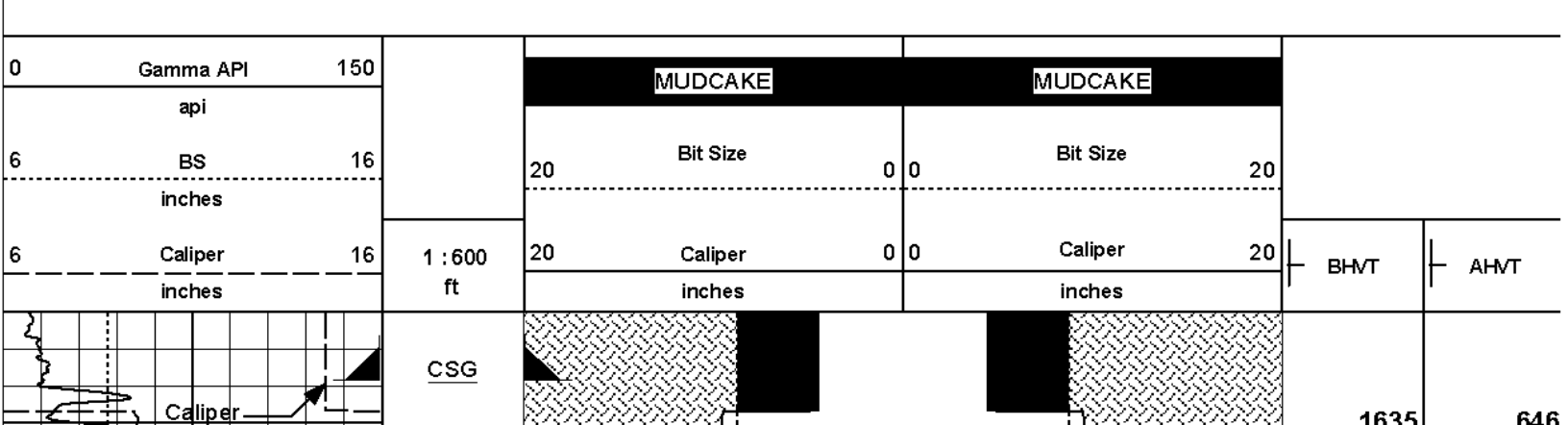
Data: ELIZABETH_A_COX\0001 SP-GTET-DSN-SDL-BSAT-ACRT-CH\IDLE

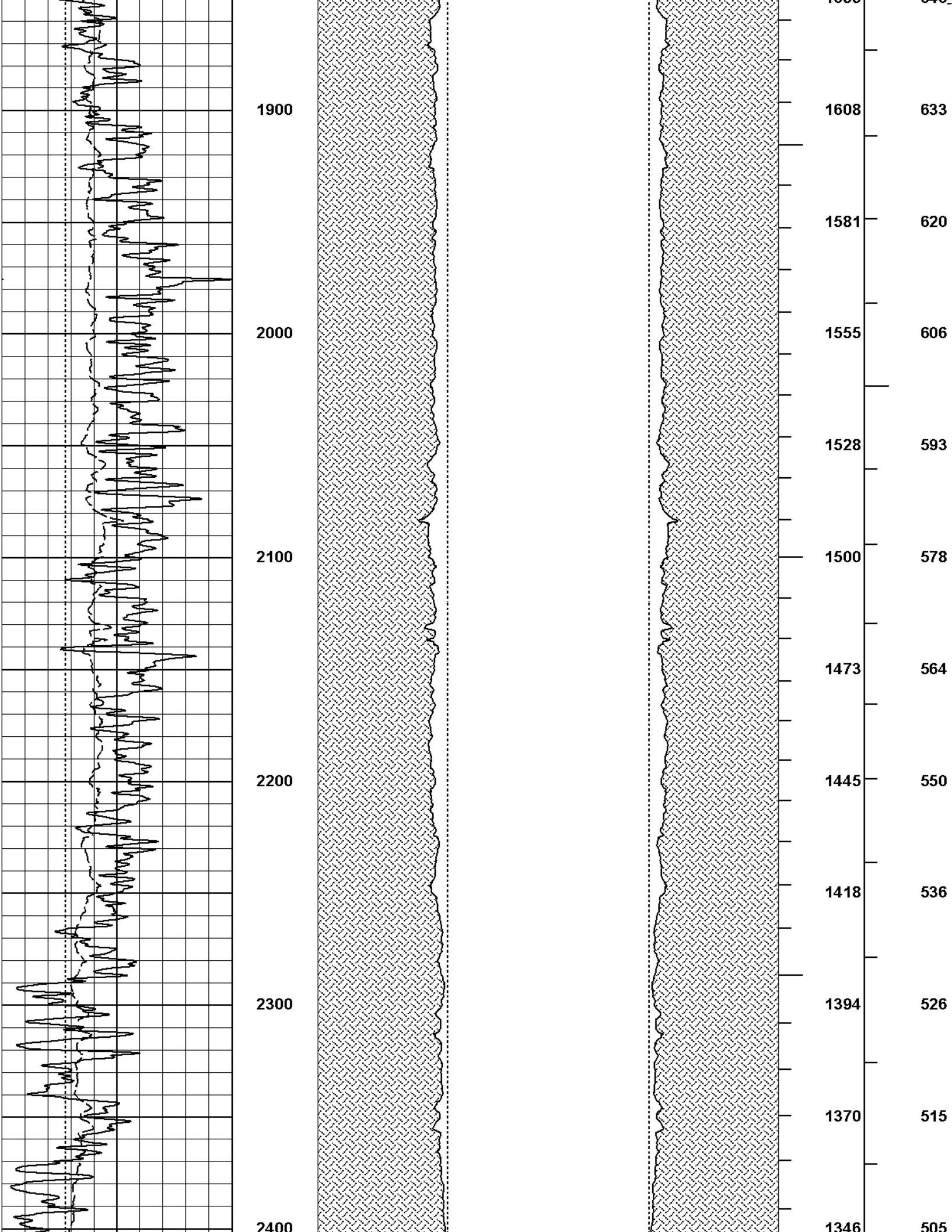
Date: 09-Jun-11 23:11:21

HALLIBURTON

Plot Time: 10-Jun-11 02:04:21
Plot Range: 1820 ft to 5548.42 ft
Data: ELIZABETH_A_COX\Well Based\DAQ-0001-004\
Plot File: \\-LOCAL-\ELIZABETH_A_COX\0001 SP-GTET-DSN-SDL-BSAT-ACRT-CH\PORO\AHV_7_INCH_2_IQ_LIB

ANNULAR HOLE VOLUME PLOT (7 INCH)

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633
1581
620
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550
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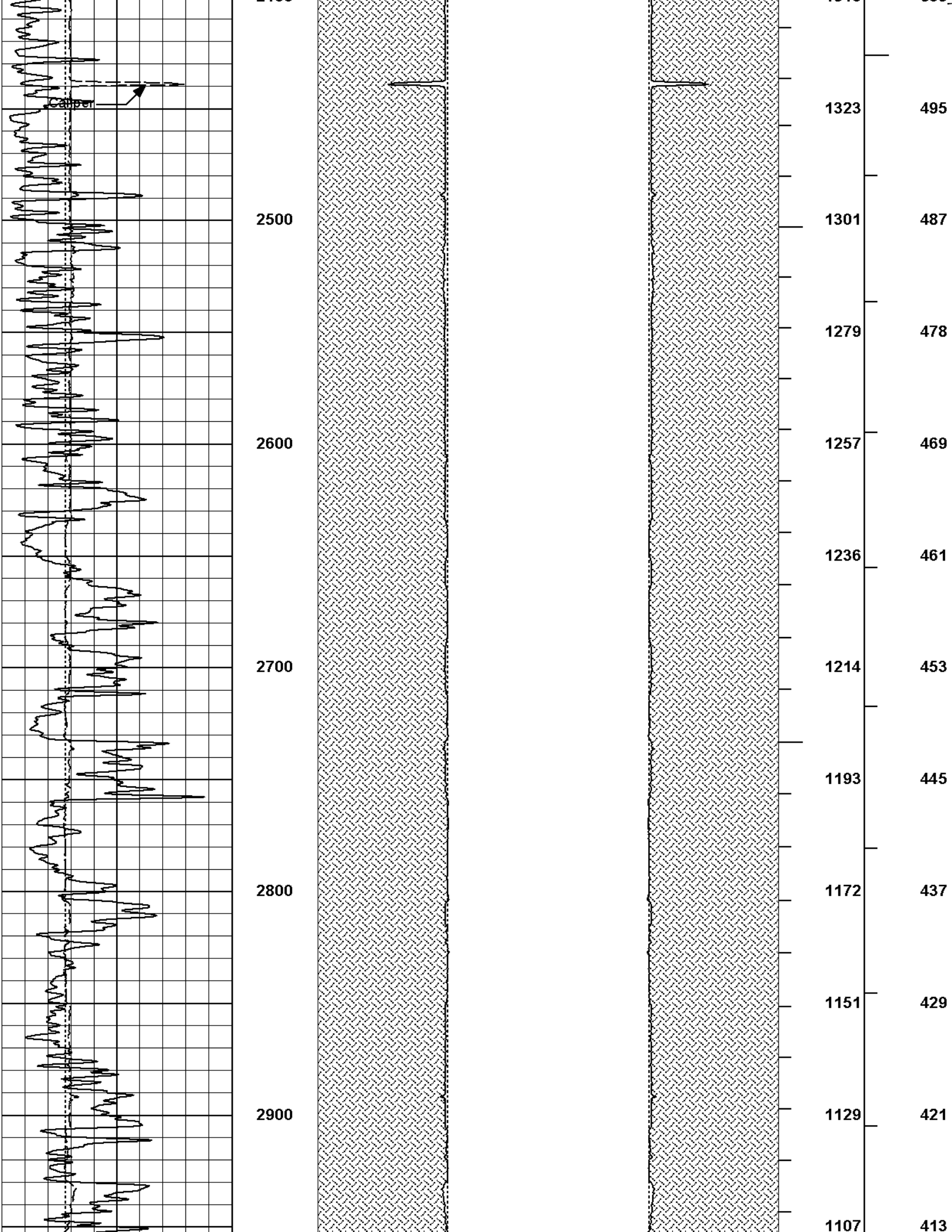
536
1394
526
1370
515
1346
505


Caliper
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487
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478
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469
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461
1214
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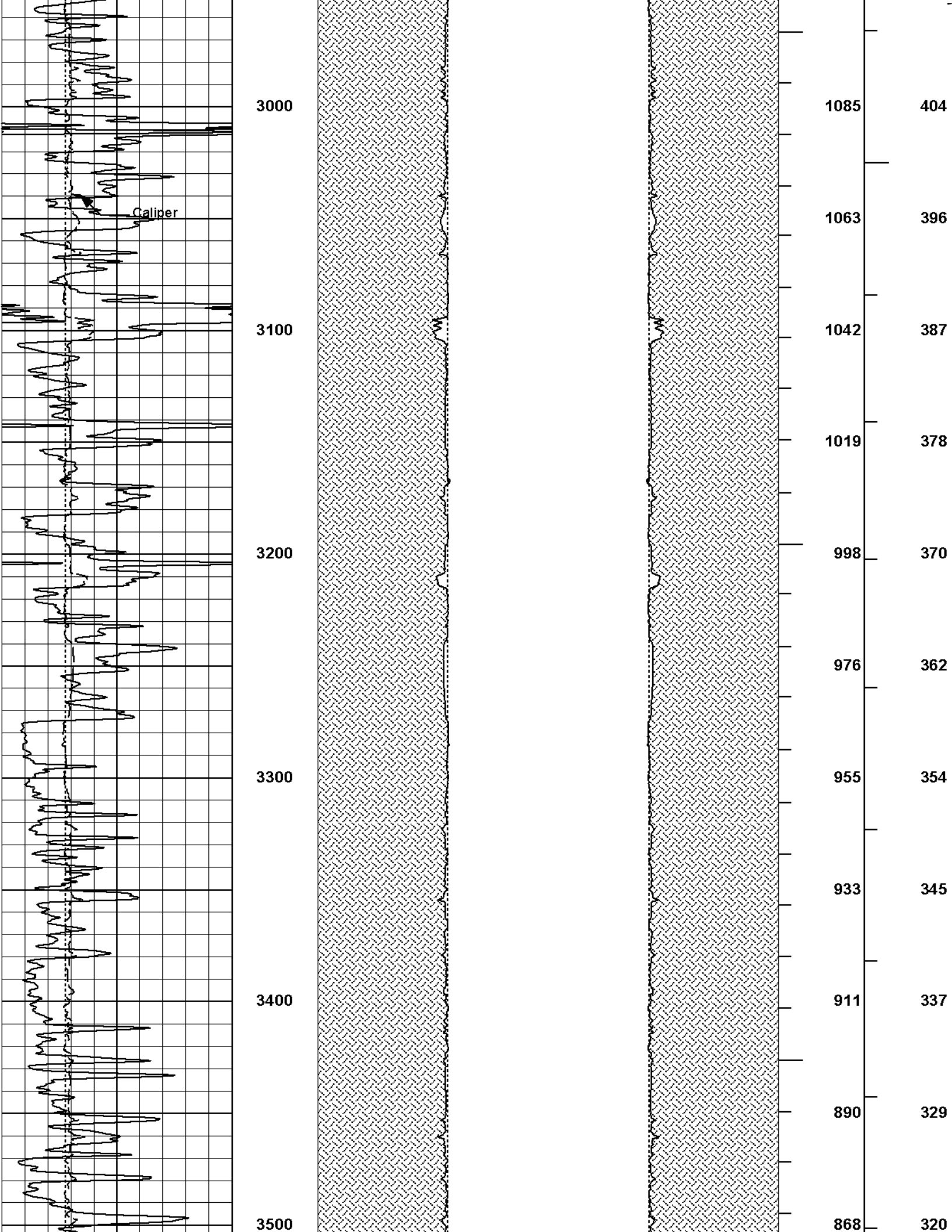
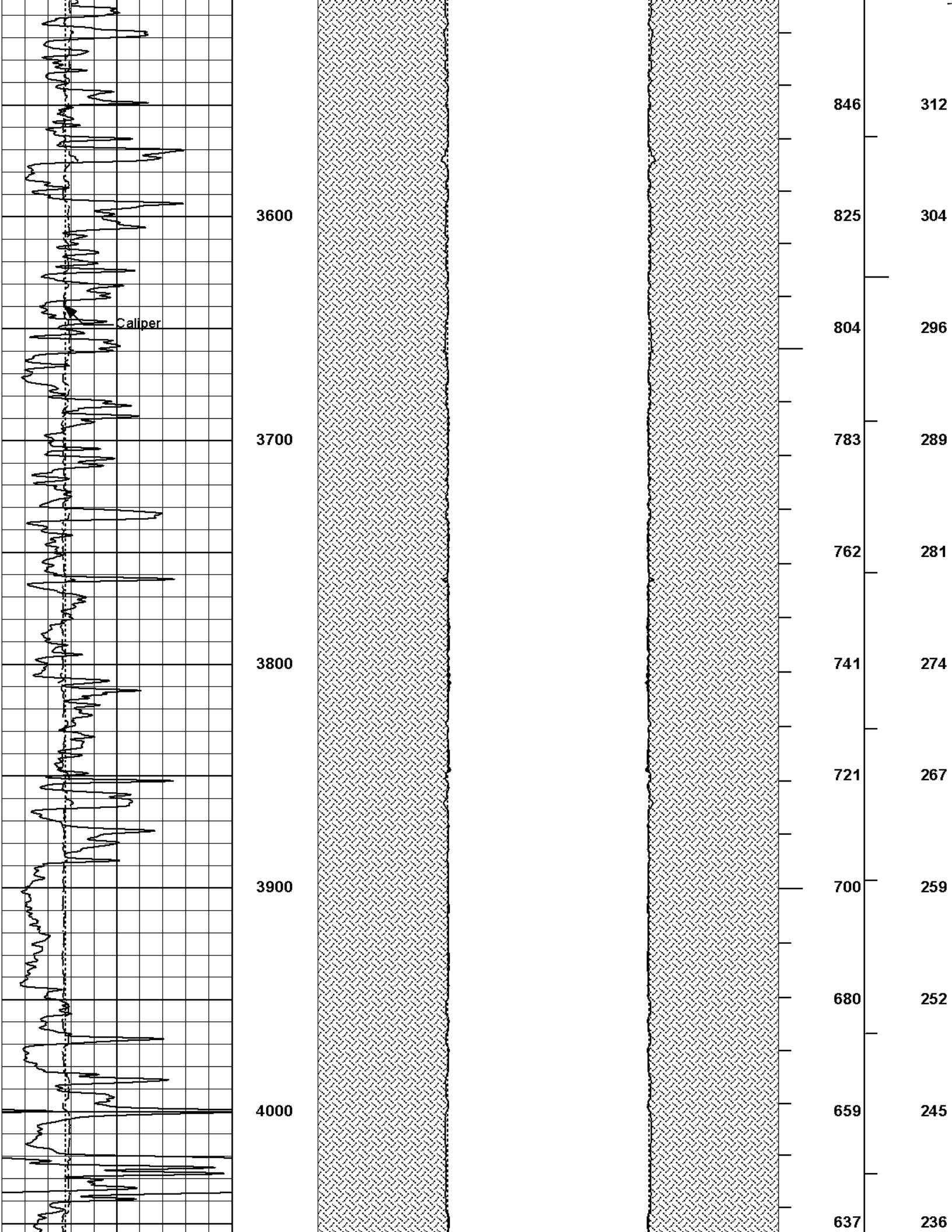
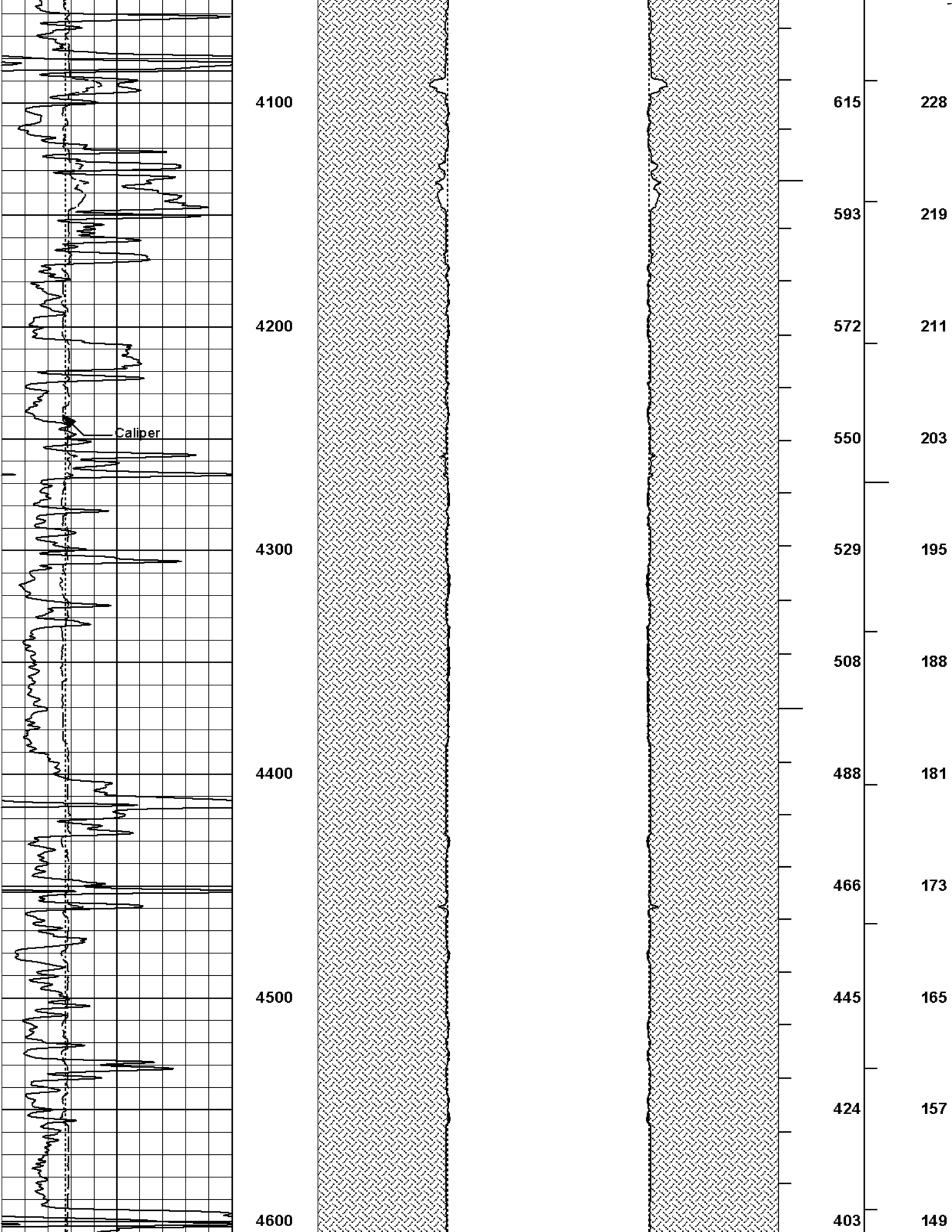
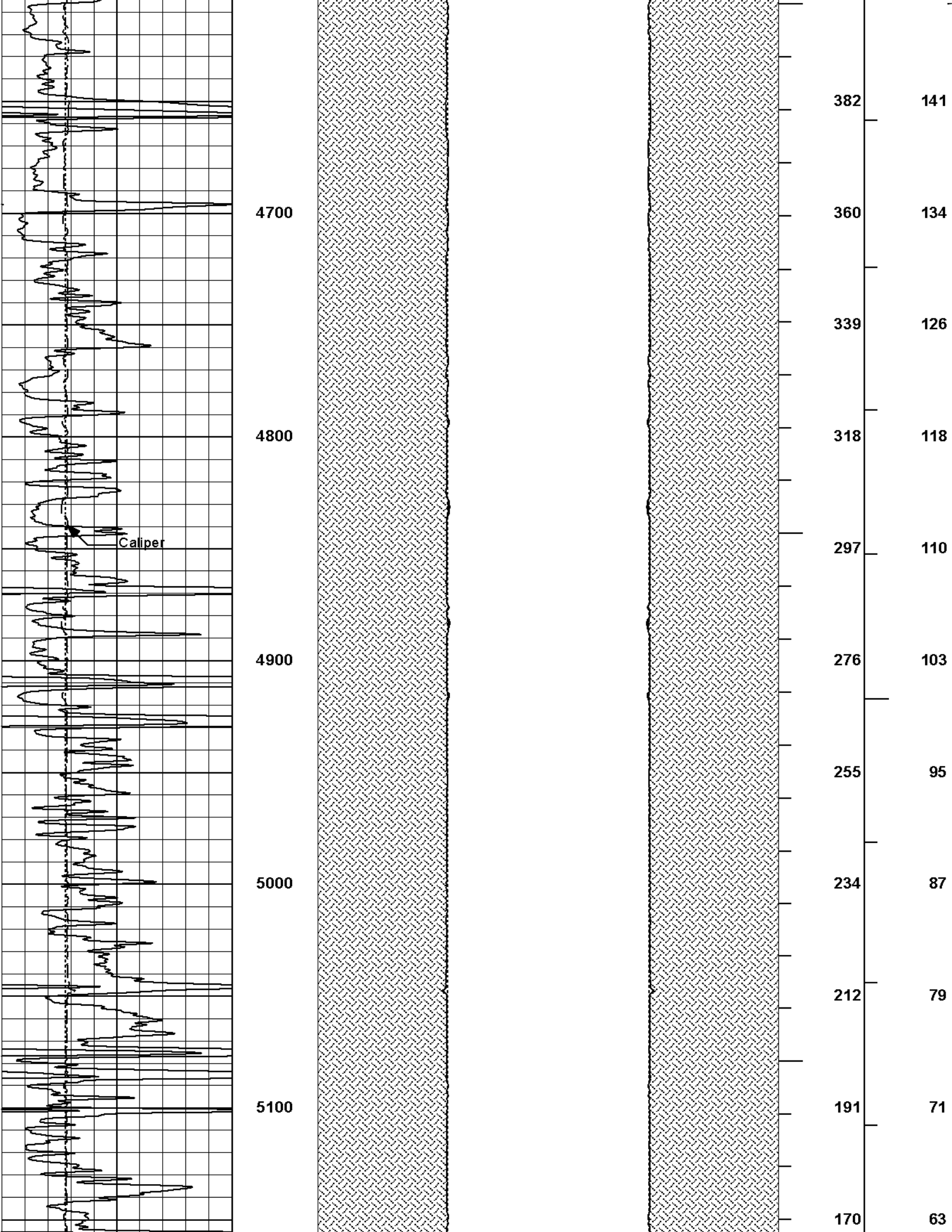
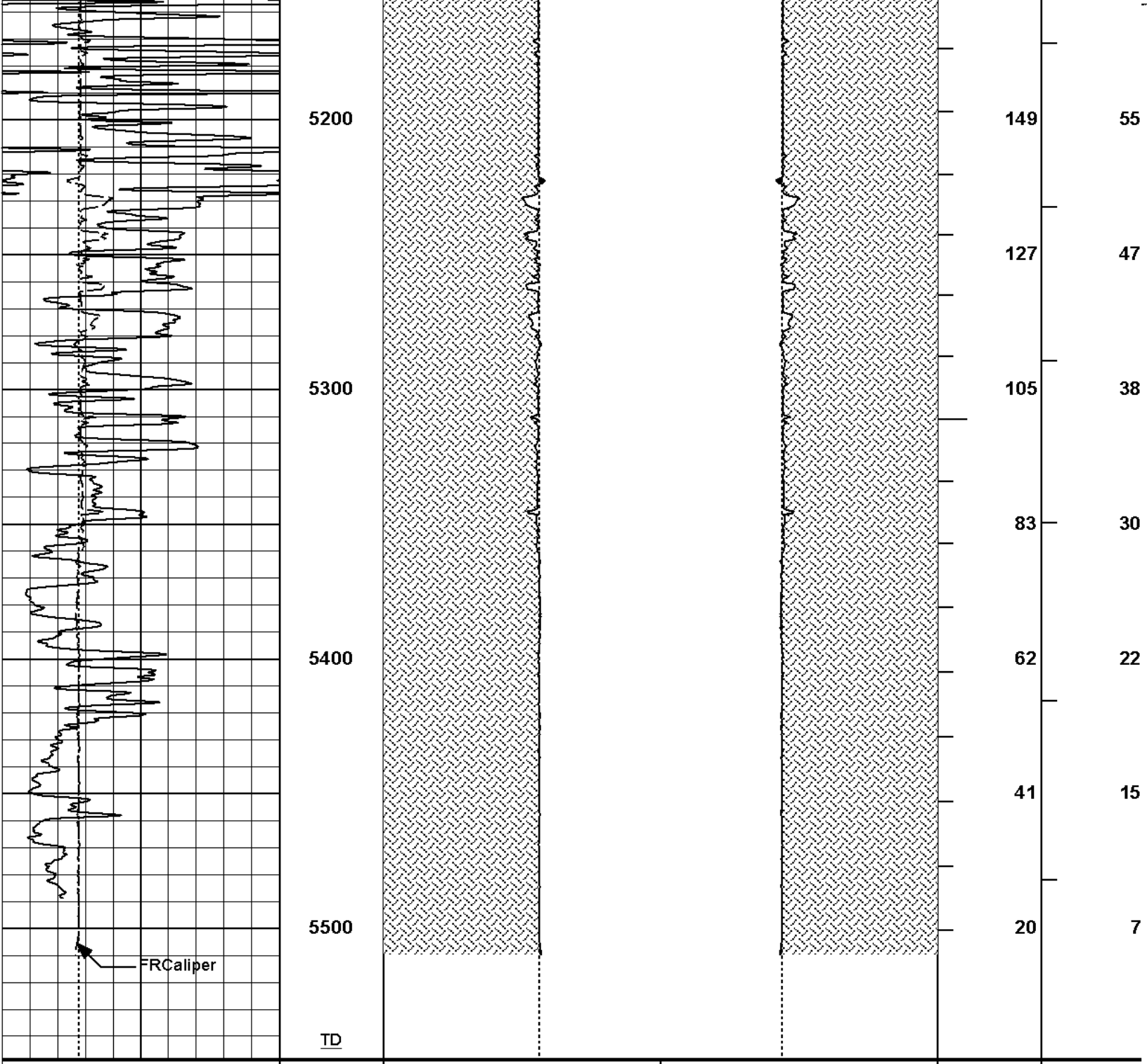
1193
445
1172
437
1151
429
1129
421
1107
413


Caliper
3000
3100
3200
3300
3400
3500
1085
1063
1042
1019
998
976
955
933
911
890
868
404
396
387
378
370
362
354
345
337
329
320


Caliper
3600
3700
3800
3900
4000
846
312
825
304
804
296
783
289
762
281
741
274
721
267
700
259
680
252
659
245
637
236


4100
4200
4300
4400
4500
4600
Caliper
615
593
572
550
529
508
488
466
445
424
403
228
219
211
203
195
188
181
173
165
157
149


Caliper
4700
4800
4900
5000
5100
382
360
339
318
297
276
255
234
212
191
170
141
134
126
118
110
103
95
87
79
71
63



6 Caliper 16		1 : 600 ft	20 Caliper 0		0 Caliper 20		BHVT	AHVT
inches			inches		inches			
6 BS 16			Bit Size 20 0		Bit Size 0 20			
inches								
0 Gamma API 150			MUDCAKE		MUDCAKE			
api								

HALLIBURTON

Plot Time: 10-Jun-11 02:04:24
Plot Range: 1820 ft to 5548.42 ft
Data: ELIZABETH_A_COX\Well Based\DAQ-0001-004\
Plot File: \\-LOCAL-\ELIZABETH_A_COX\0001 SP-GTET-DSN-SDL-BSAT-ACRT-CHPORO\AHV_7_INCH_2_IQ_LIB

ANNULAR HOLE VOLUME PLOT (7 INCH)

COMPANY	**OXY USA INC**		
WELL	**ELIZABETH A COX #5**		
FIELD	**LEMON NW**		
COUNTY	**HASKELL**	STATE	**KANSAS**

HALLIBURTON

SPECTRAL DENSITY
DUAL SPACED NEUTRON
LOG