

HALLIBURTON

SPECTRAL DENSITY DUAL SPACED NEUTRON LOG

COMPANY		OXY USA INC	
WELL		BCU #407W	
FIELD		PLEASANT PRAIRIE SE	
COUNTY		HASKELL	
STATE		KANSAS	
Permanent Datum Log measured from Drilling measured from	GL KB KB	Sect. 31 Twp. 27S Rge. 33W	Elev. 2996.9 ft D.F. G.L. 3007.9 ft 3006.9 ft 2996.9 ft
	API No. 15-081-21998 Location (SHL) 650' FNL & 1670' FEL		
Date	15-Oct-12		
Run No.	ONE		
Depth - Driller	5746.00 ft		
Depth - Logger	5724.0 ft		
Bottom - Logged Interval	5680		
Top - Logged Interval	4000		
Casing - Driller	8.625 in @ 1803.0 ft		@
Casing - Logger	1802.0 ft		
Bit Size	7.875 in		@
Type Fluid in Hole	WATER BASED MUD		
Density	9.1 ppg	51.00 s/qt	
PH	10.30 pH	10.0 cp/m	
Source of Sample	FLOWLINE		
Rm @ Meas. Temperature	1.010 ohmm @ 75.00 degF		@
Rmf @ Meas. Temperature	0.71 ohmm @ 75.00 degF		@
Rmc @ Meas. Temperature	1.250 ohmm @ 75.00 degF		@
Source Rmf	MEASURED	MEASURED	
Rm @ BHT	0.54 ohmm @ 145.0 degF		@
Time Since Circulation	21.3 hr		
Time on Bottom	15-Oct-12 16:19		
Max. Rec. Temperature	145.0 degF @ 5724.0 ft		@
Equipment	10782954	LIBERAL	
Recorded By	S. INGERSOLL		
Witnessed By	GENE BLUBY		

Fold here

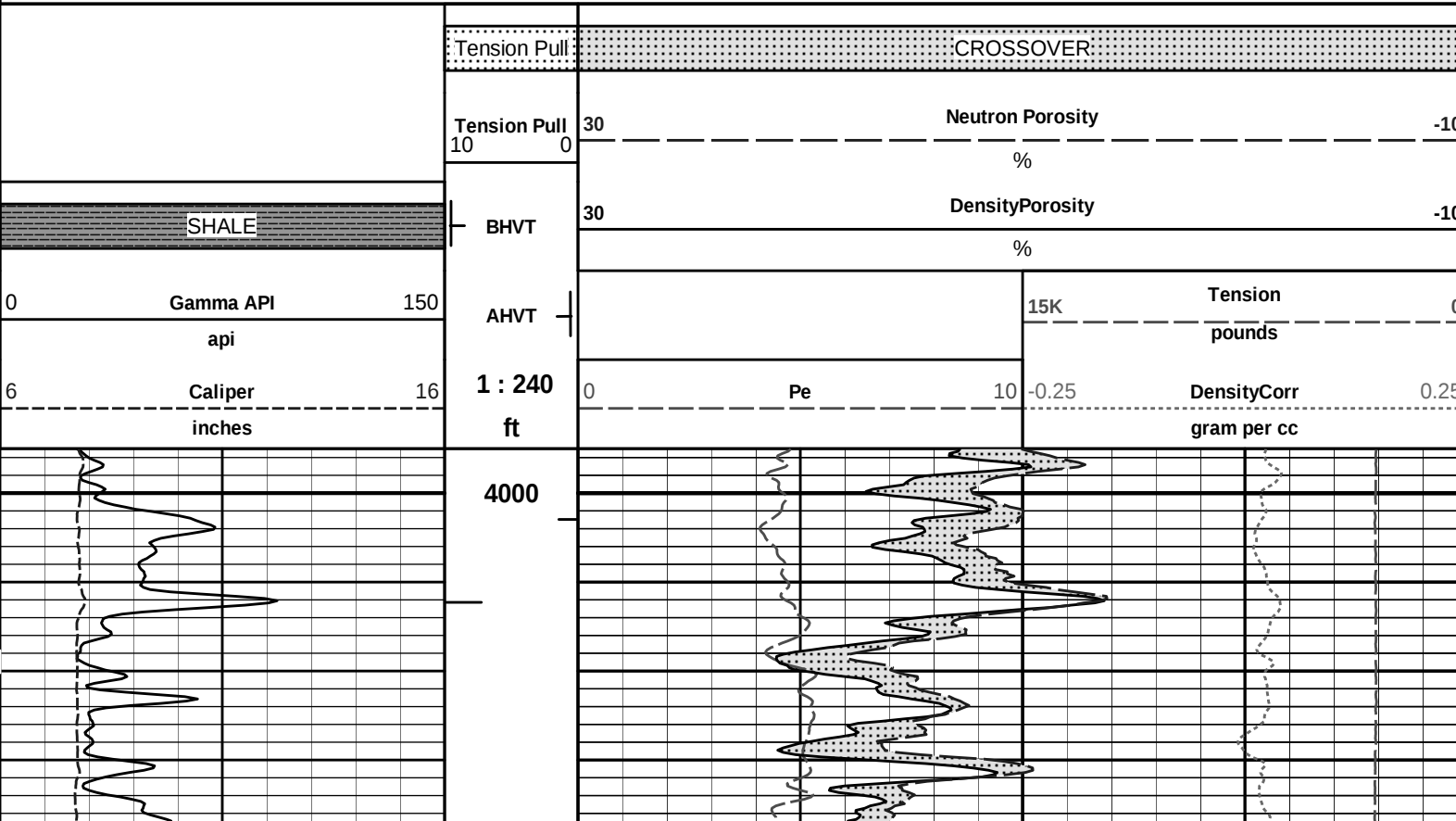
Service Ticket No.: 9884910						API Serial No.: 15-081-21998						PGM Version: WL INSITE R3.6.0 (Build 3)							
CHANGE IN MUD TYPE OR ADDITIONAL SAMPLE										RESISTIVITY SCALE CHANGES									
Date	Sample No.					Type Log	Depth	Scale Up Hole				Scale Down Hole							
Depth-Driller																			
Type Fluid in Hole																			
Density	Viscosity																		
Ph	Fluid Loss																		
Source of Sample						RESISTIVITY EQUIPMENT DATA													
Rm @ Meas. Temp		@		@		Run No.	Tool Type & No.	Pad Type		Tool Pos.		Other							
Rmf @ Meas. Temp.		@		@		ONE	ACRT	N/A		1.5" S.O.									
Rmc @ Meas. Temp.		@		@			I776_S775												
Source Rmf	Rmc																		
Rm @ BHT		@		@															
Rmf @ BHT		@		@															
Rmc @ BHT		@		@															
EQUIPMENT DATA																			
GAMMA				ACOUSTIC				DENSITY				NEUTRON							
Run No.	ONE			Run No.	ONE			Run No.	ONE			Run No.	ONE						
Serial No.	10748374			Serial No.	10747684			Serial No.	10685803			Serial No.	10755066						
Model No.	GTET			Model No.	BSAT			Model No.	SDLT			Model No.	DSNT						
Diameter	3.625"			No. of Cent.	2			Diameter	4.5"			Diameter	3.625"						
Detector Model No.	GTET			Spacing	.5"			Log Type	GAM-GAM			Log Type	NEU-NEU						
Type	SCINT							Source Type	CS-137			Source Type	AM-241BE						
Length	8"			LSA [Y/N]				Serial No.	5073GW			Serial No.	DSN-436						
Distance to Source	N/A			FWDA [Y/N]				Strength	1.5 CI			Strength	15 CI						

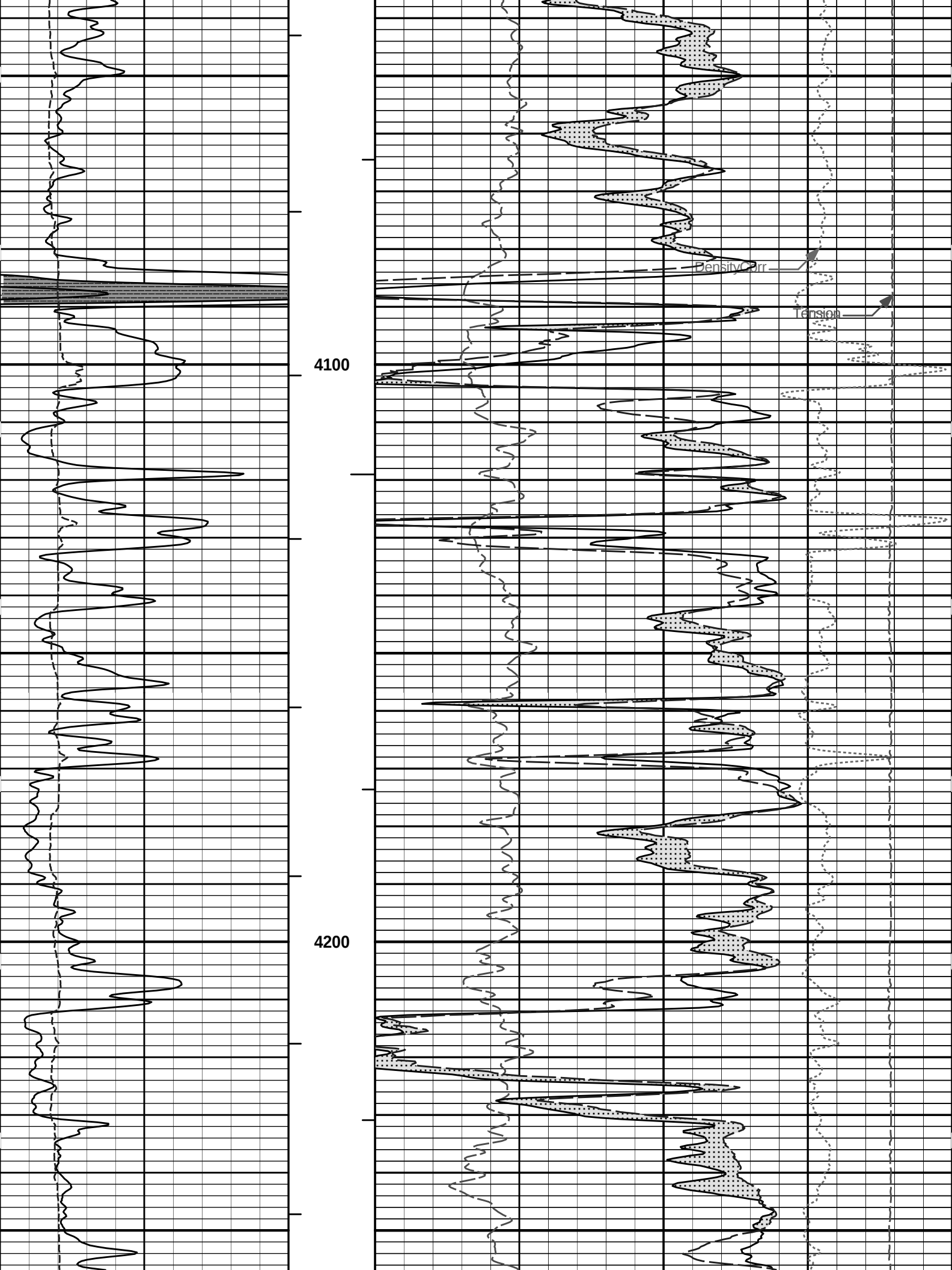
GENERAL			GAMMA		ACOUSTIC		DENSITY		NEUTRON					
Run	Depth		Speed	Scale		Scale		Matrix	Scale		Matrix	Scale		Matrix
No.	From	To	ft/min	L	R	L	R		L	R		L	R	
ONE	4724	1802	REC	0	150	30	-10	47.6 us/ft	30	-10	2.71 gm/cc	30	-10	LIME
DIRECTIONAL INFORMATION														
Maximum Deviation @								KOP @						
Remarks: ANNULAR HOLE VOLUME CALCULATED FOR 5.5 INCH CASING.														
CHLORIDES REPORTED AT 2200 mg/L.														
SP-GTET-DSNT-SDLT-BSAT-ACRT RAN IN COMBINATION.														
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														

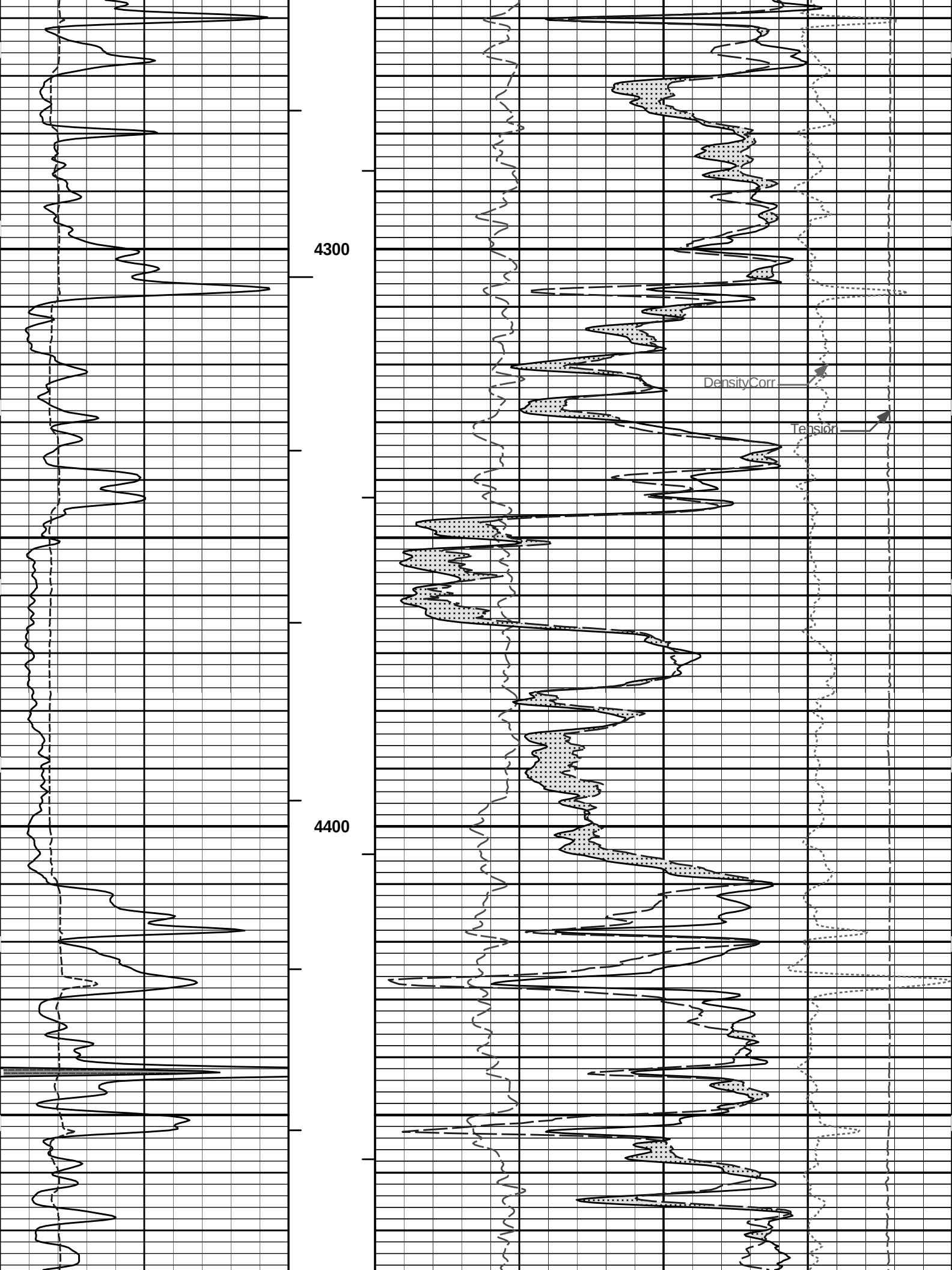
HALLIBURTON

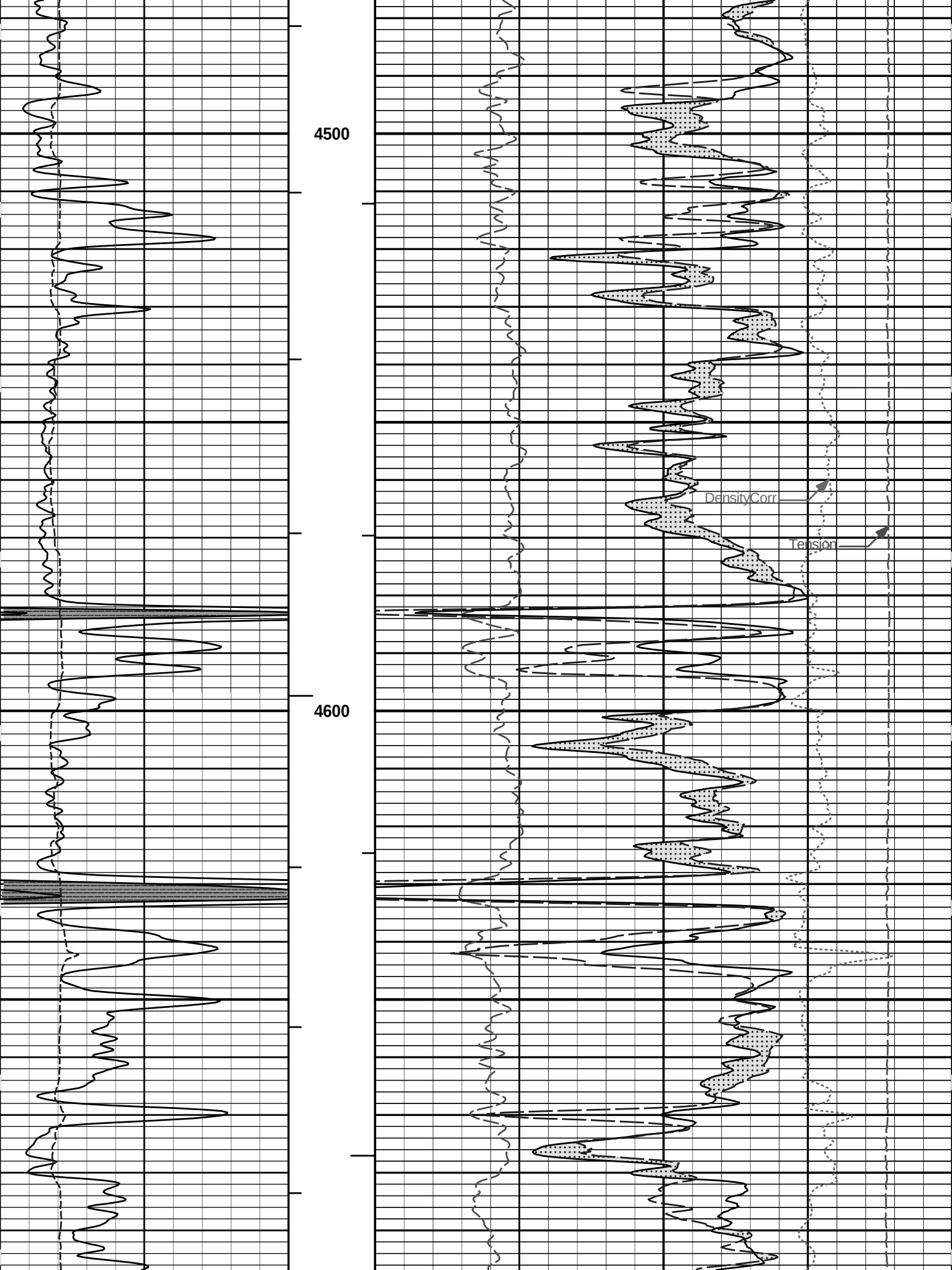
Plot Time: 15-Oct-12 20:56:18
Plot Range: 3995 ft to 5723.25 ft
Data: oxy_BCU#407W\Well Based\MAIN PASS
Plot File: \\POROSITY\IPoro_IQ_5_MAIN_LIB

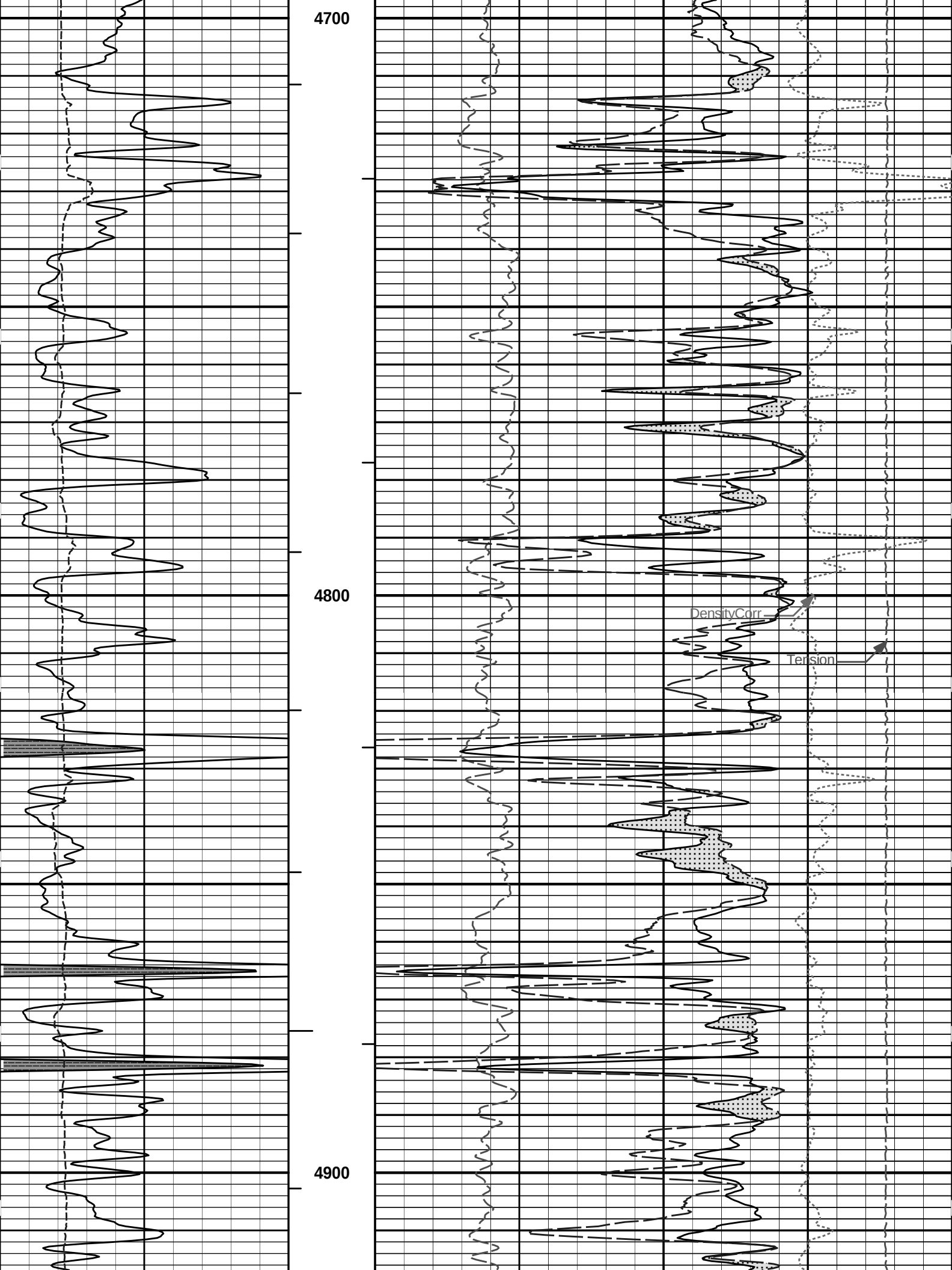
5 INCH MAIN LOG

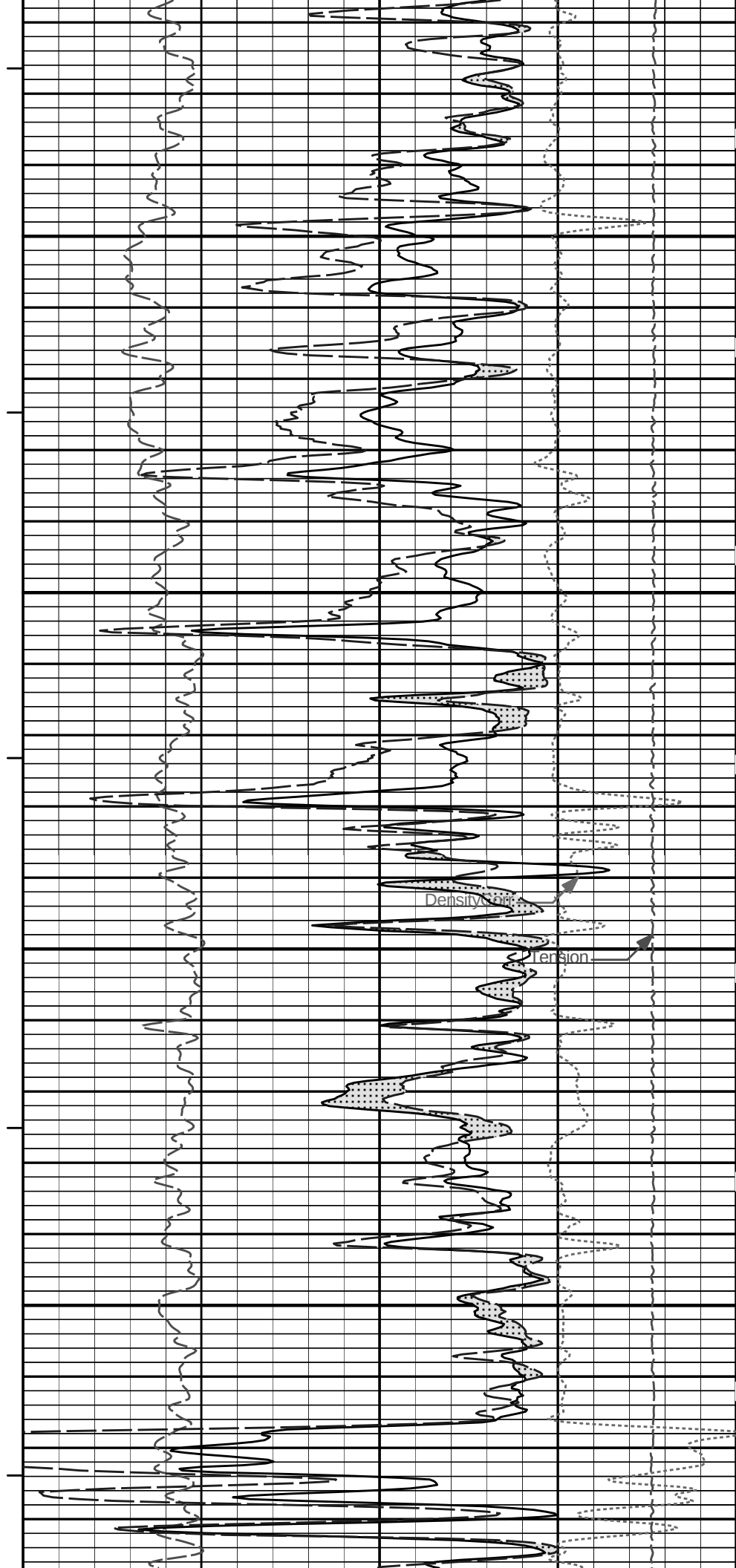
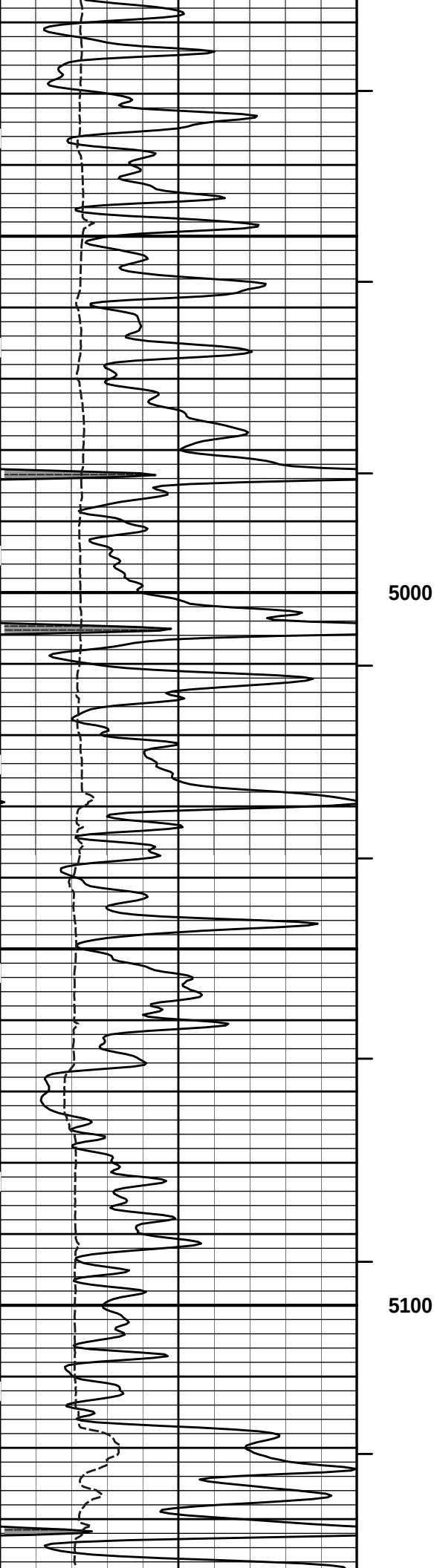


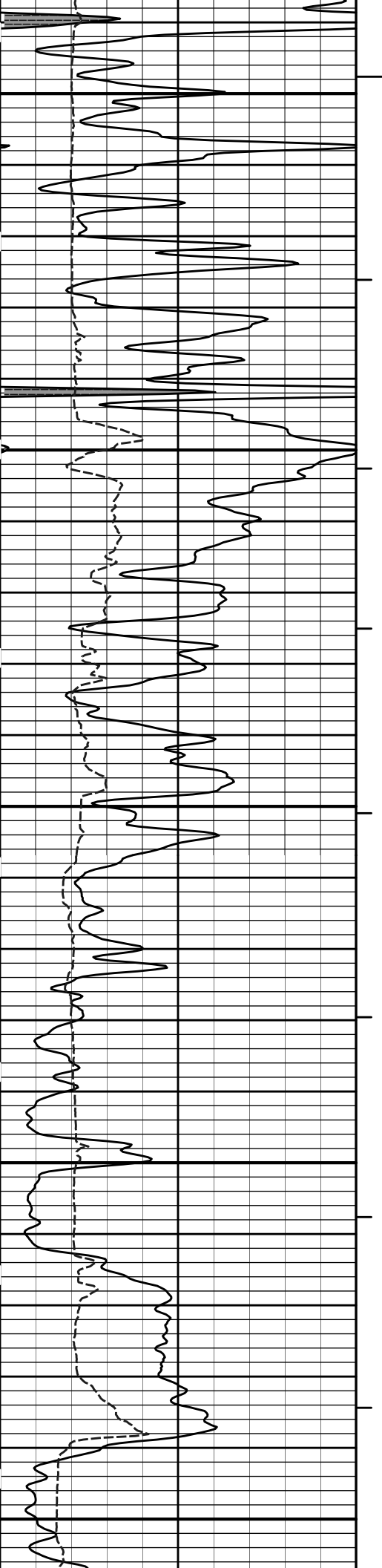






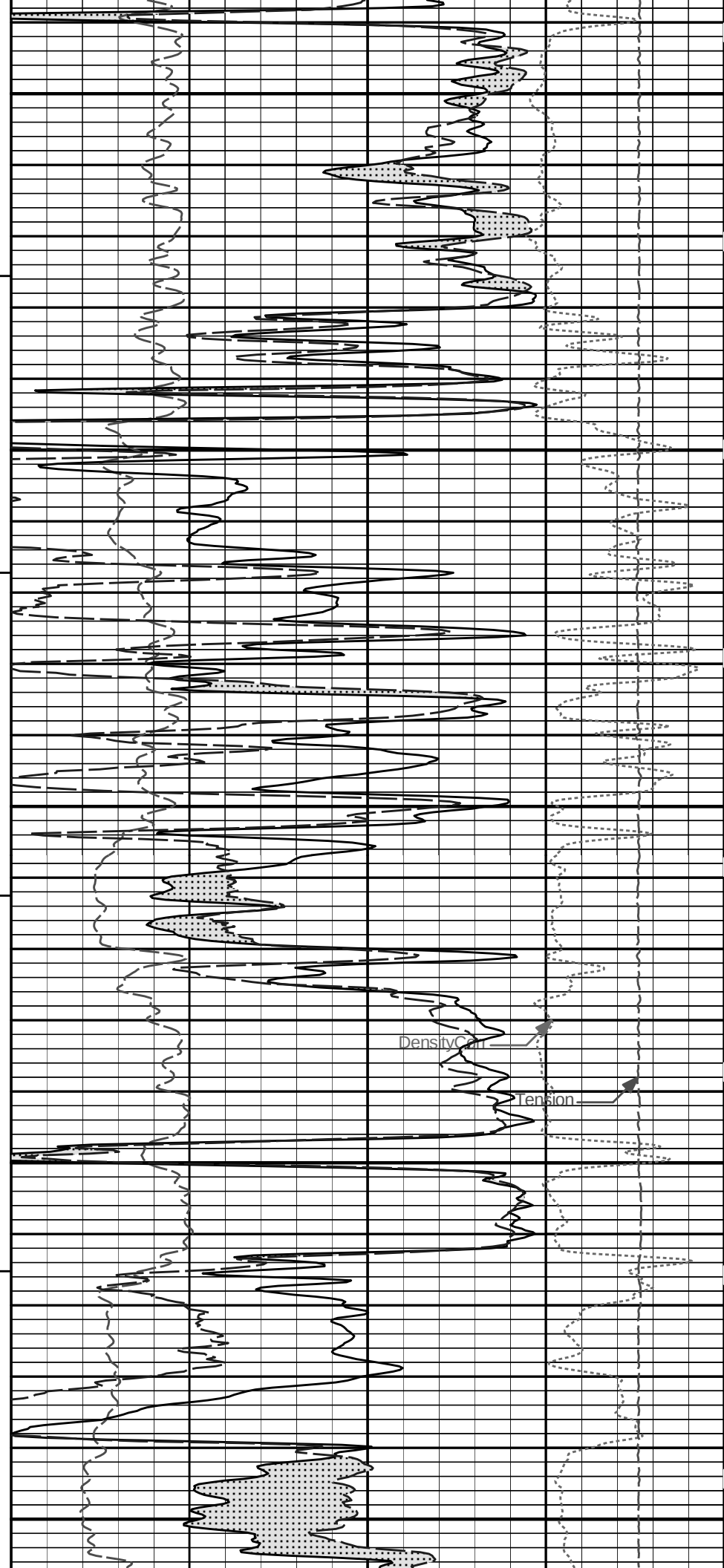






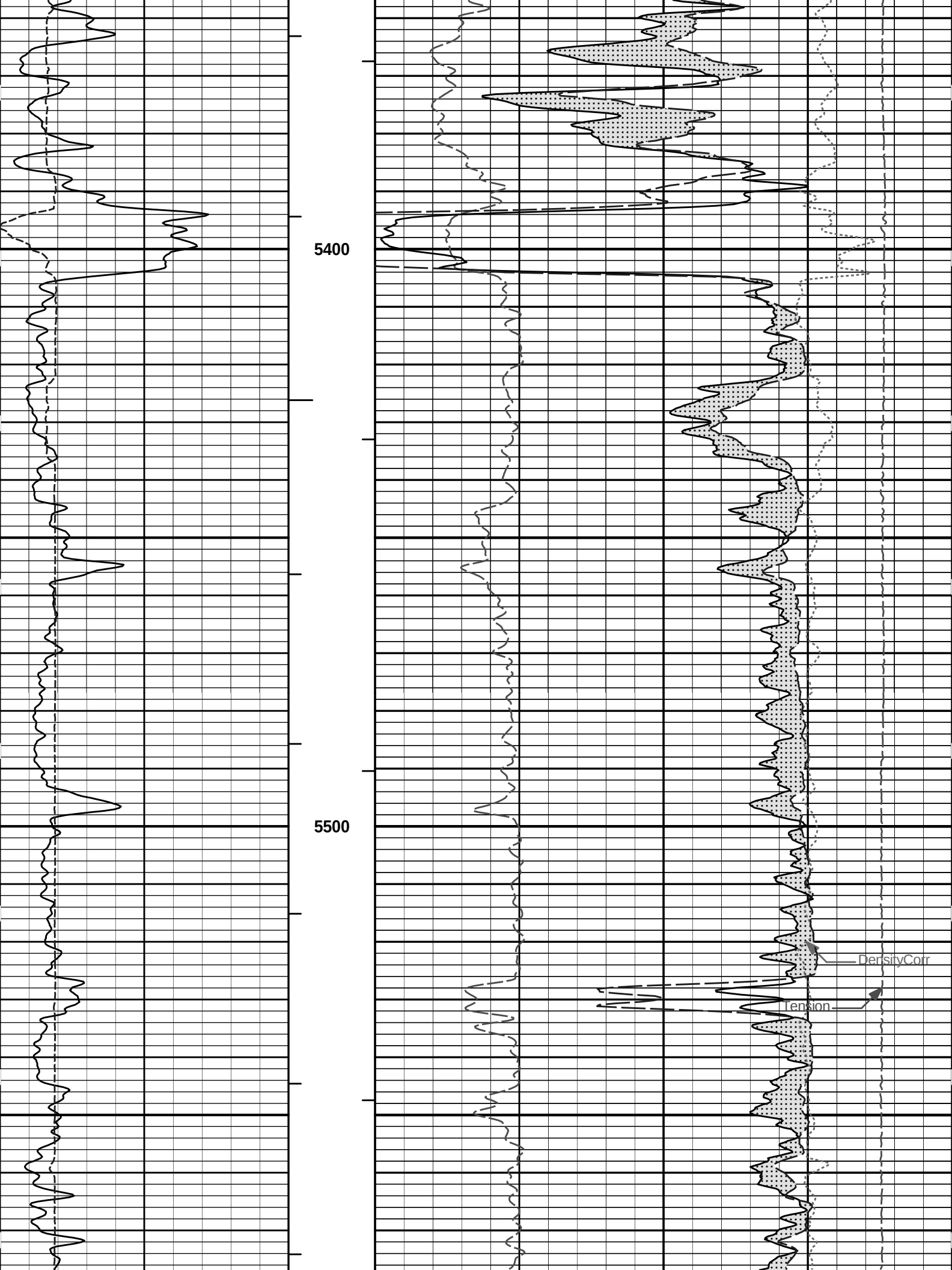
5200

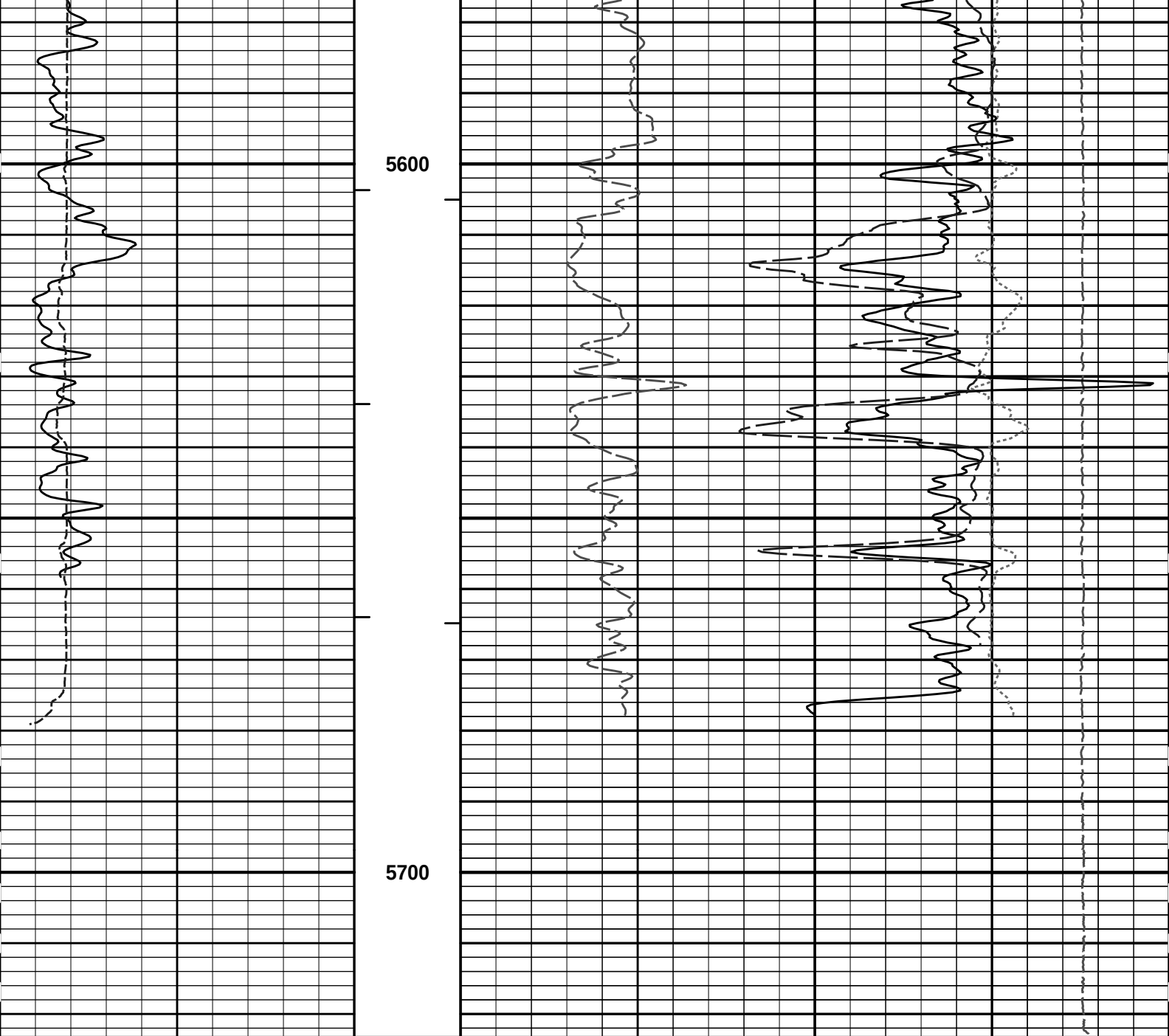
5300



DensityCap

Tension



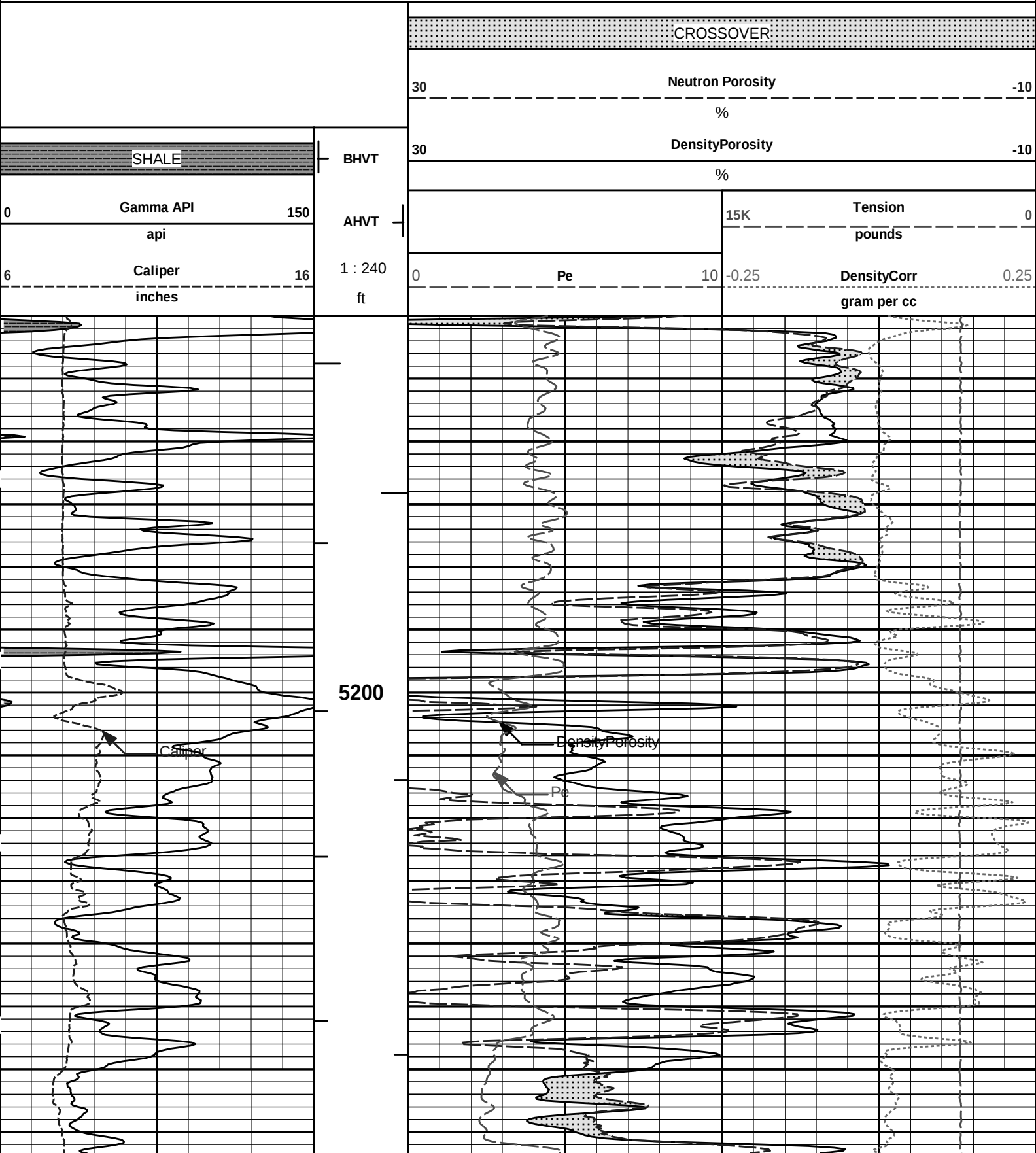


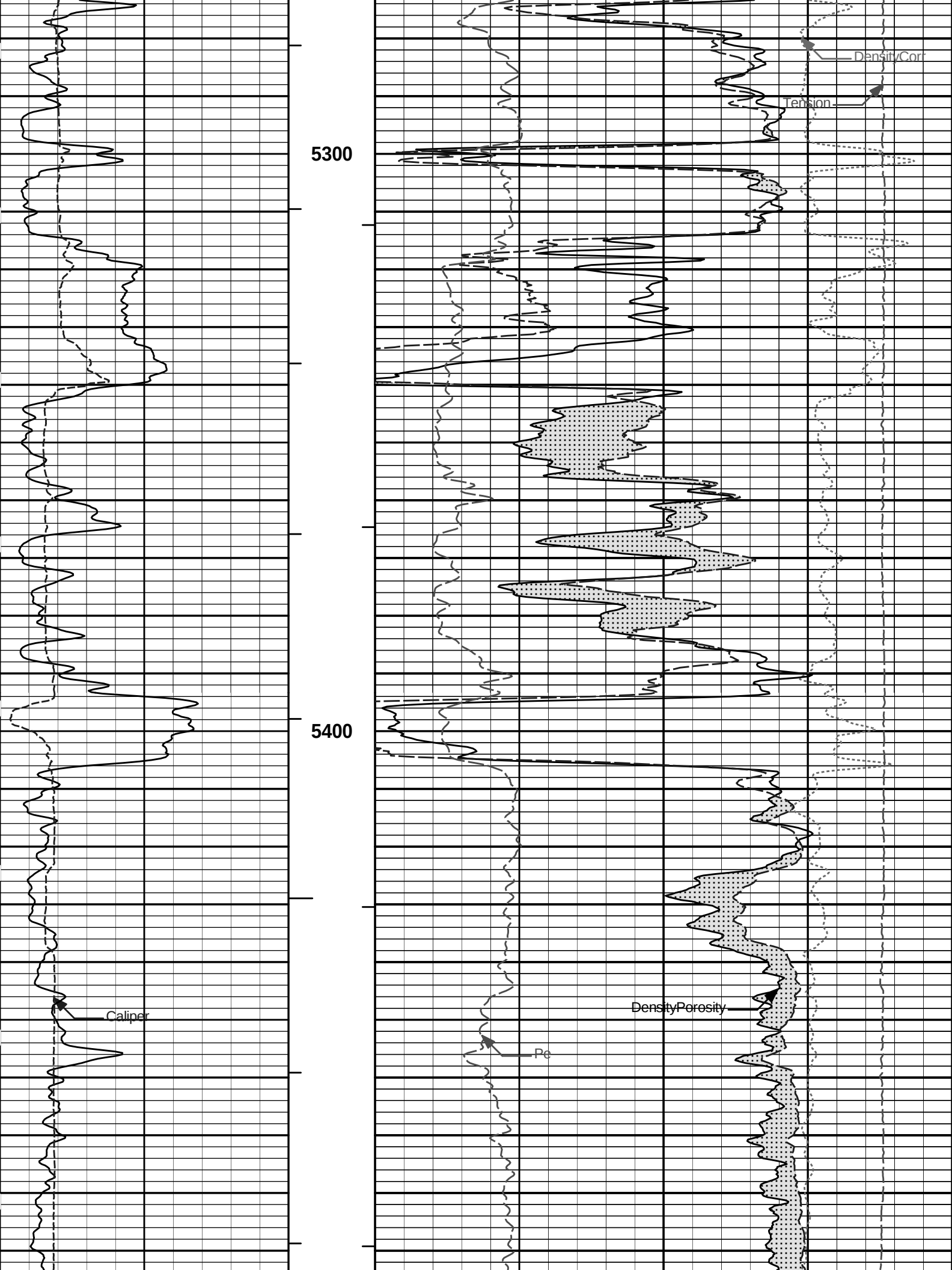
6	Caliper	16	1 : 240	0	Pe	10	-0.25	DensityCorr	0.25
	inches		ft					gram per cc	
0	Gamma API	150	AHVT				15K	Tension	0
	api							pounds	
	SHALE		BHVT	30	DensityPorosity				-10
					%				
			Tension Pull	30	Neutron Porosity				-10
			10		%				
			Tension Pull		CROSSOVER:				

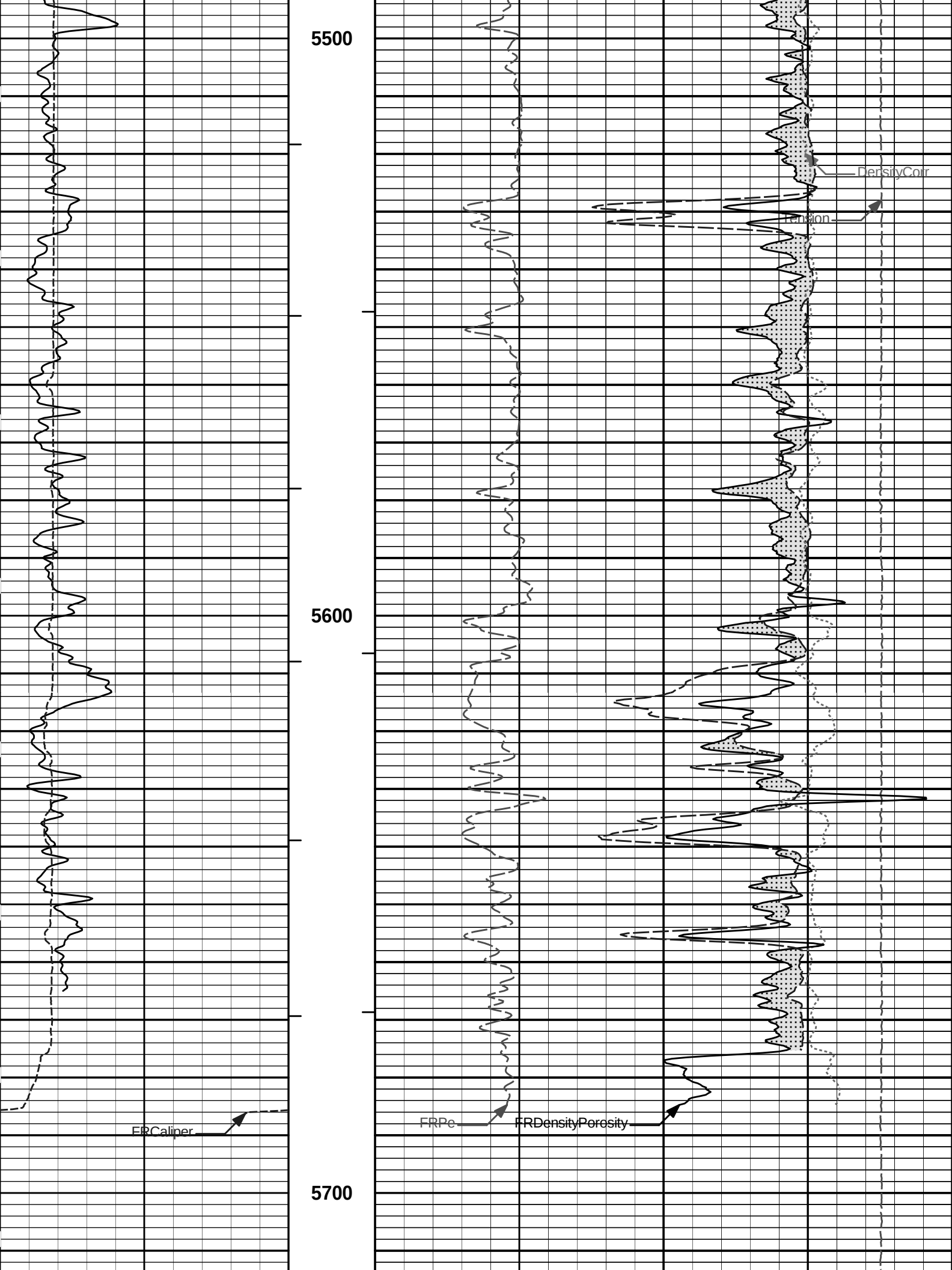
HALLIBURTON

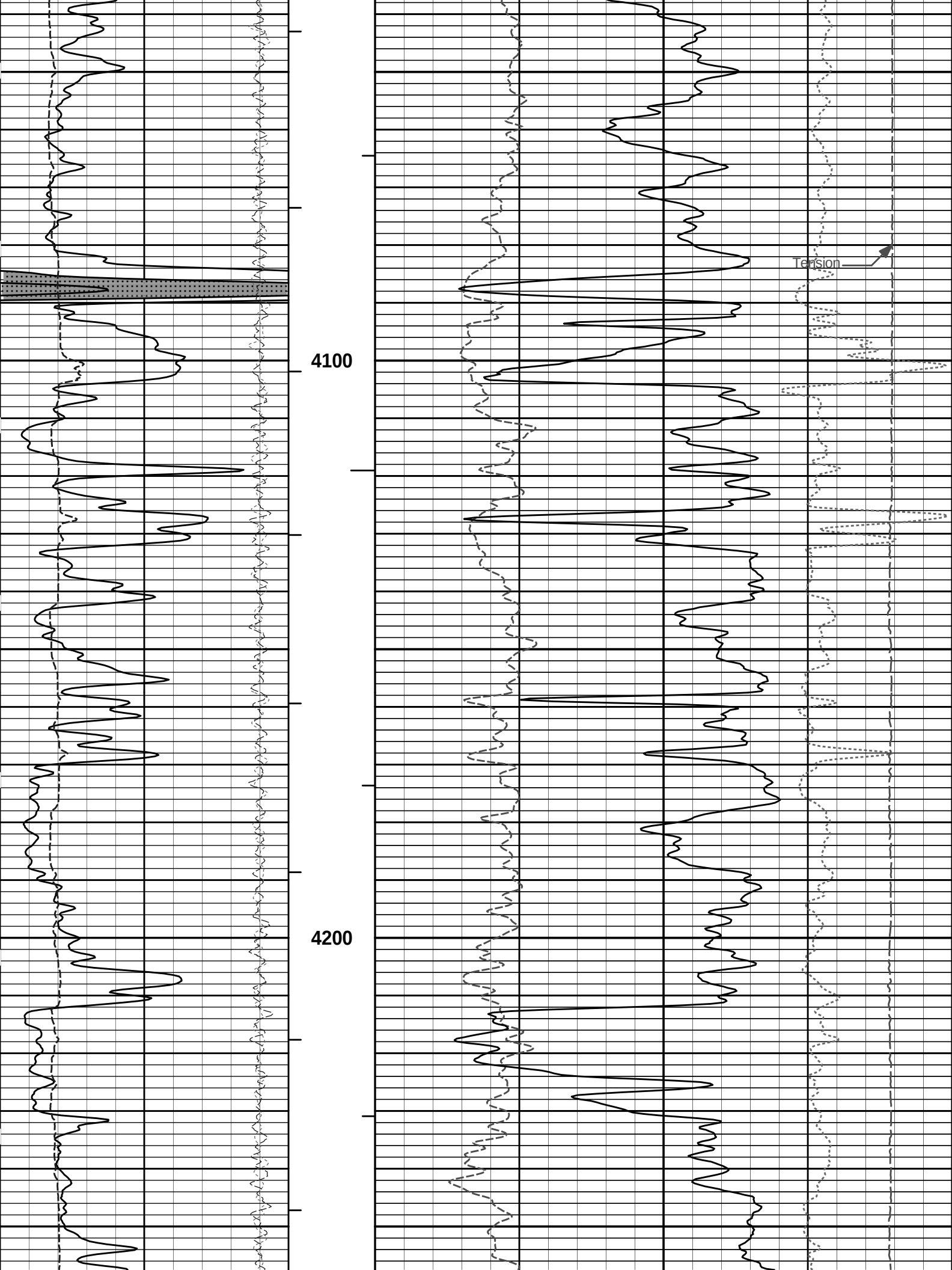
Plot Time: 15-Oct-12 20:56:41
Plot Range: 3995 ft to 5723.25 ft
Data: oxy_BCU#407W\Well Based\MAIN PASS\I
Plot File: \\POROSITY\Porosity_IQ_5_MAIN_LIB

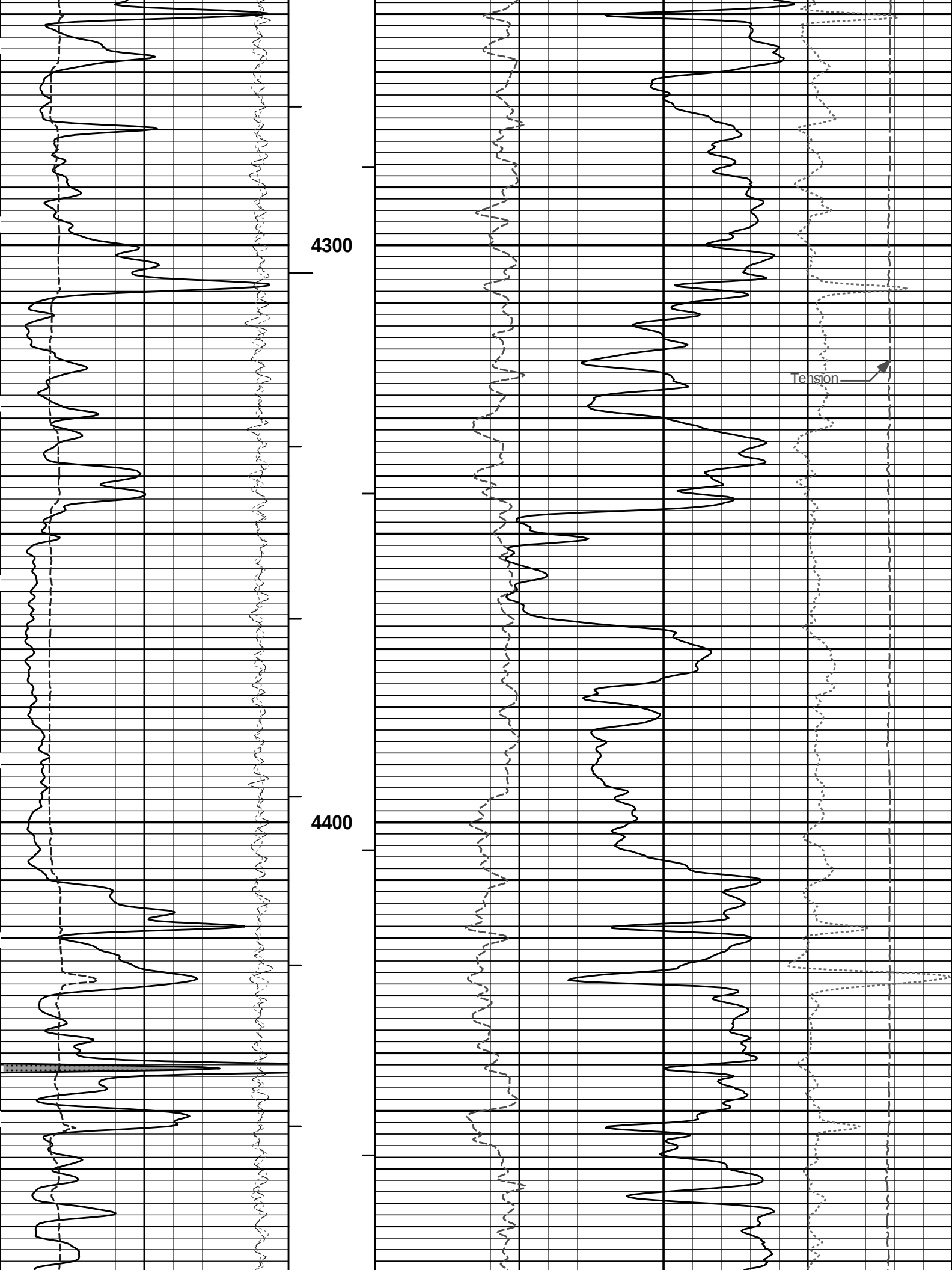
REPEAT SECTION

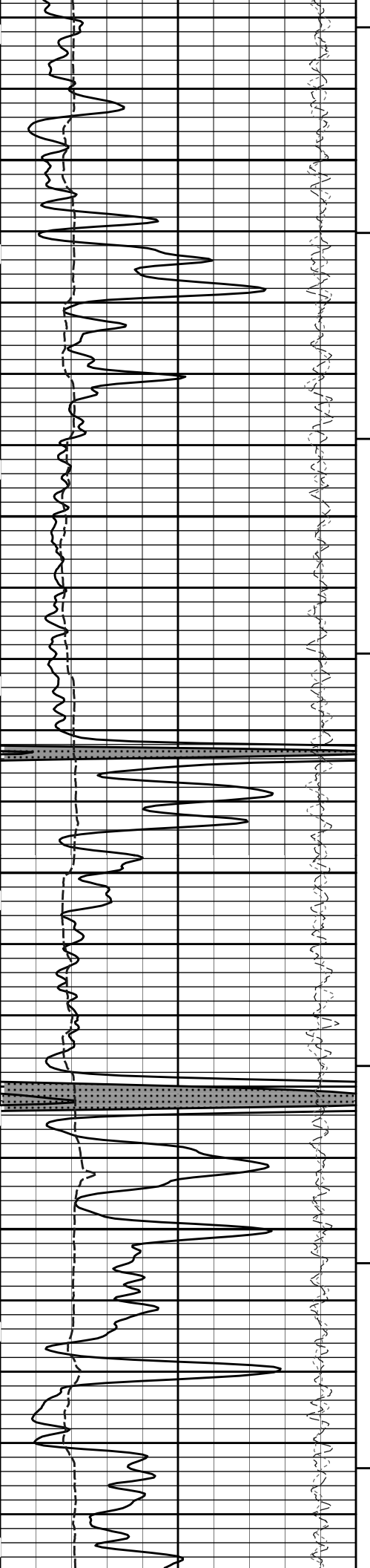






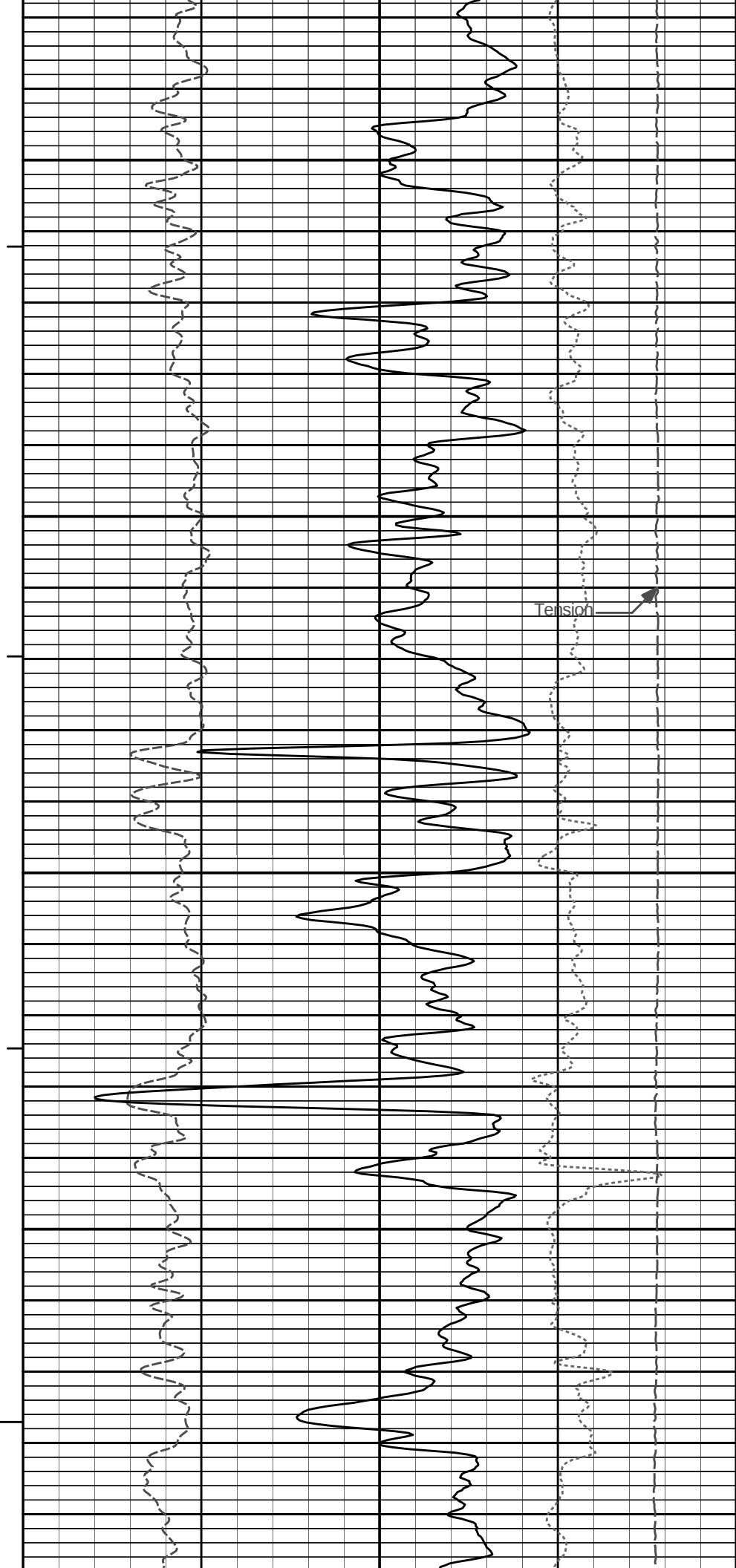


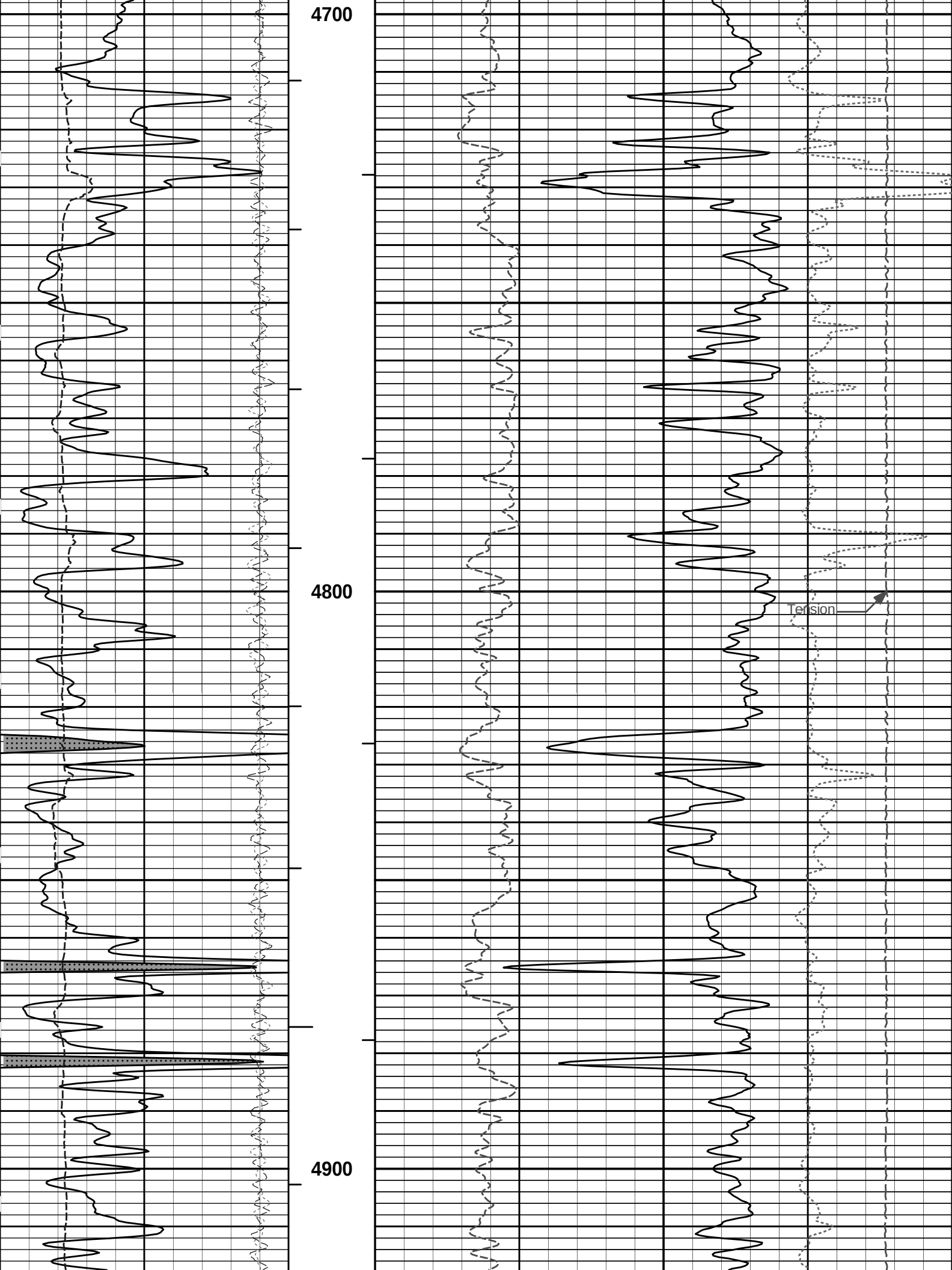


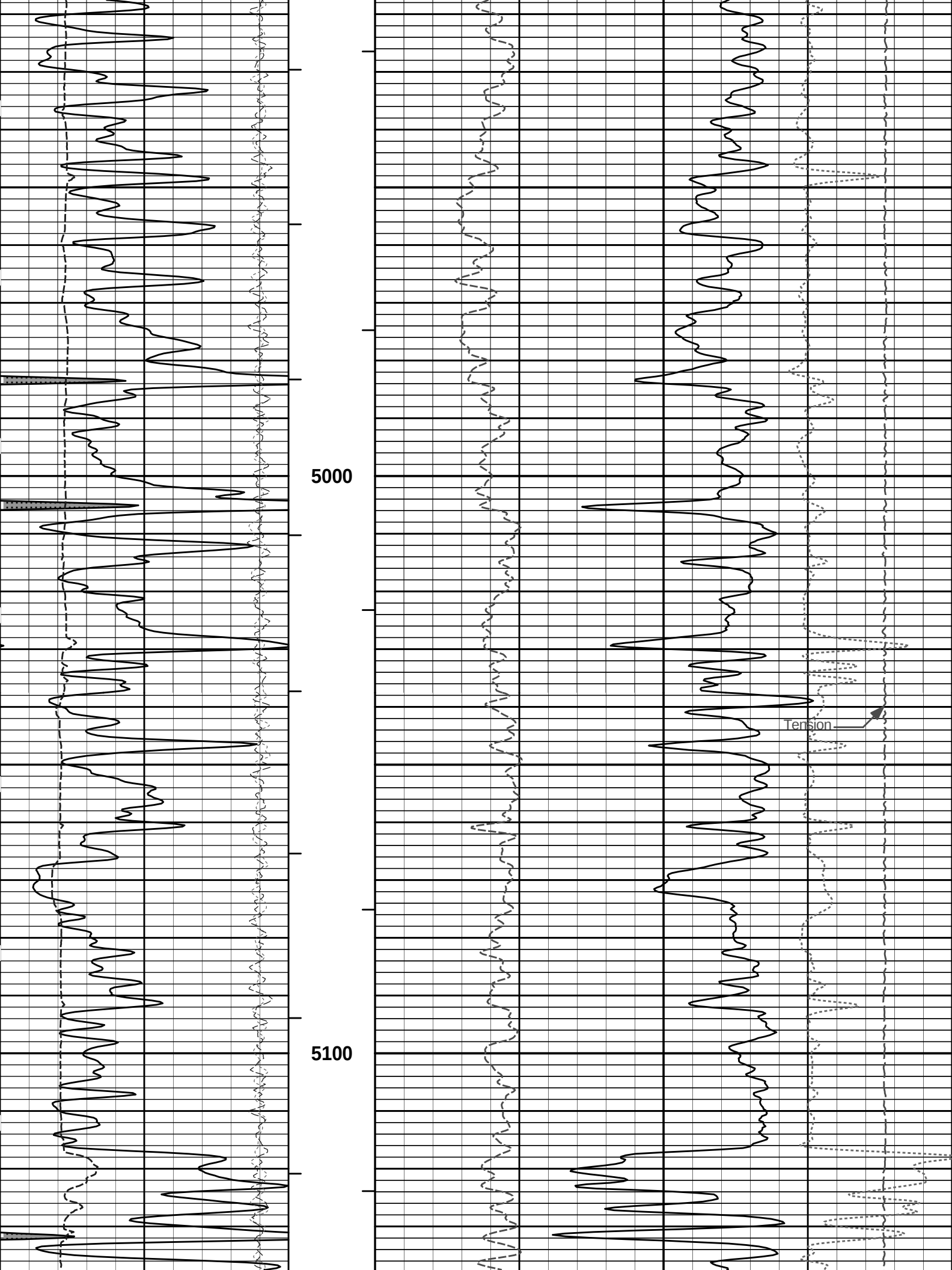


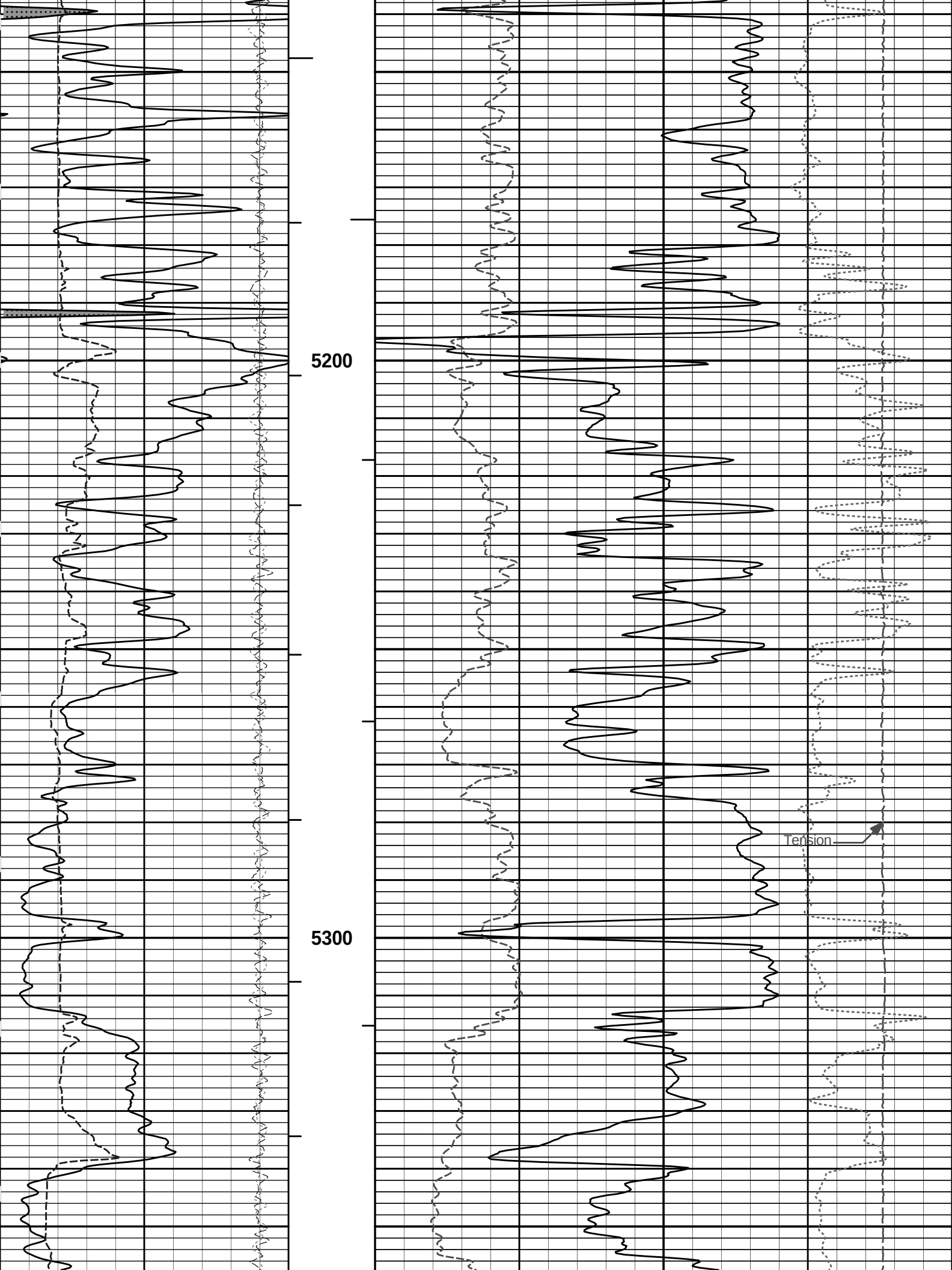
4500

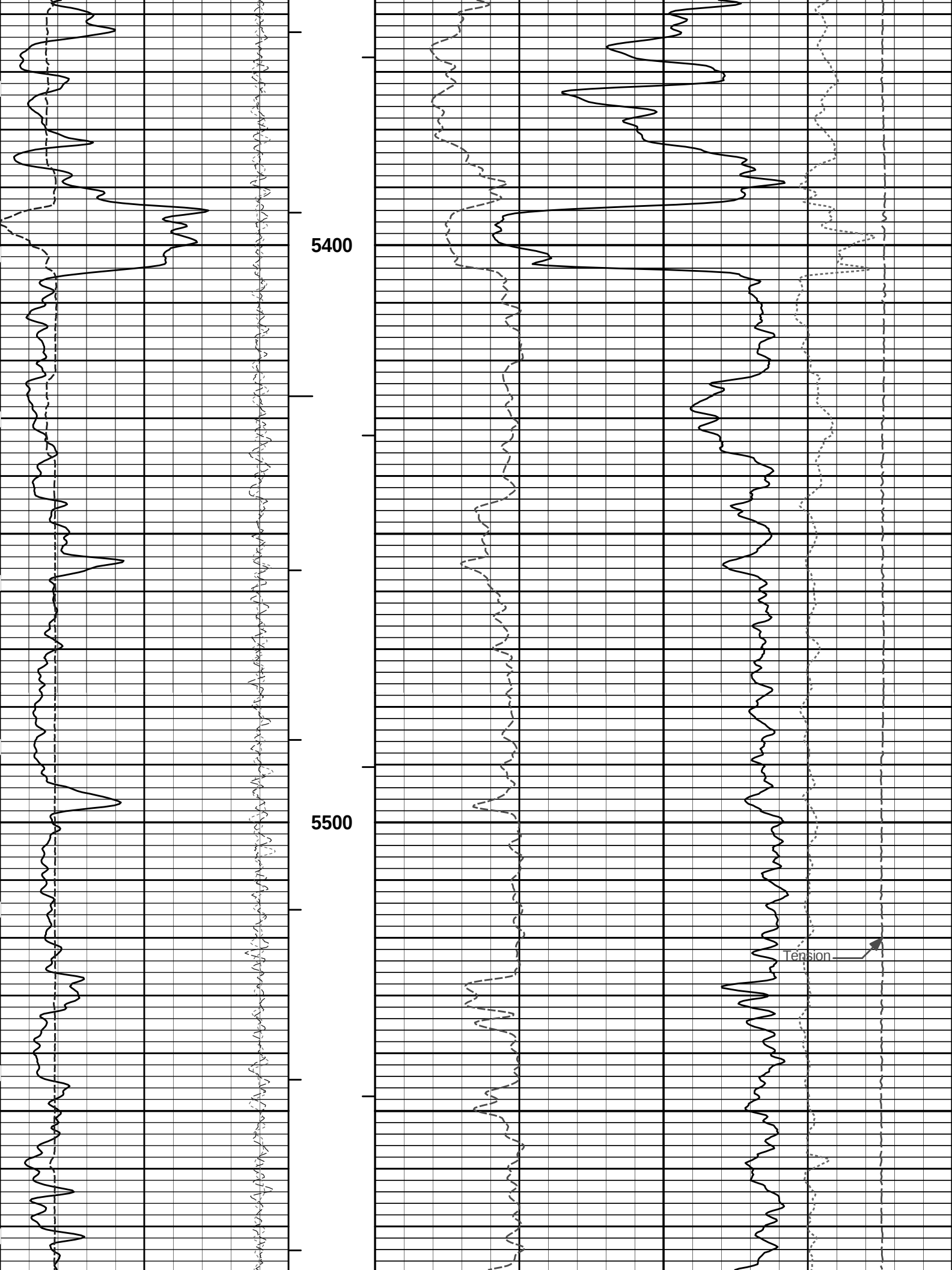
4600

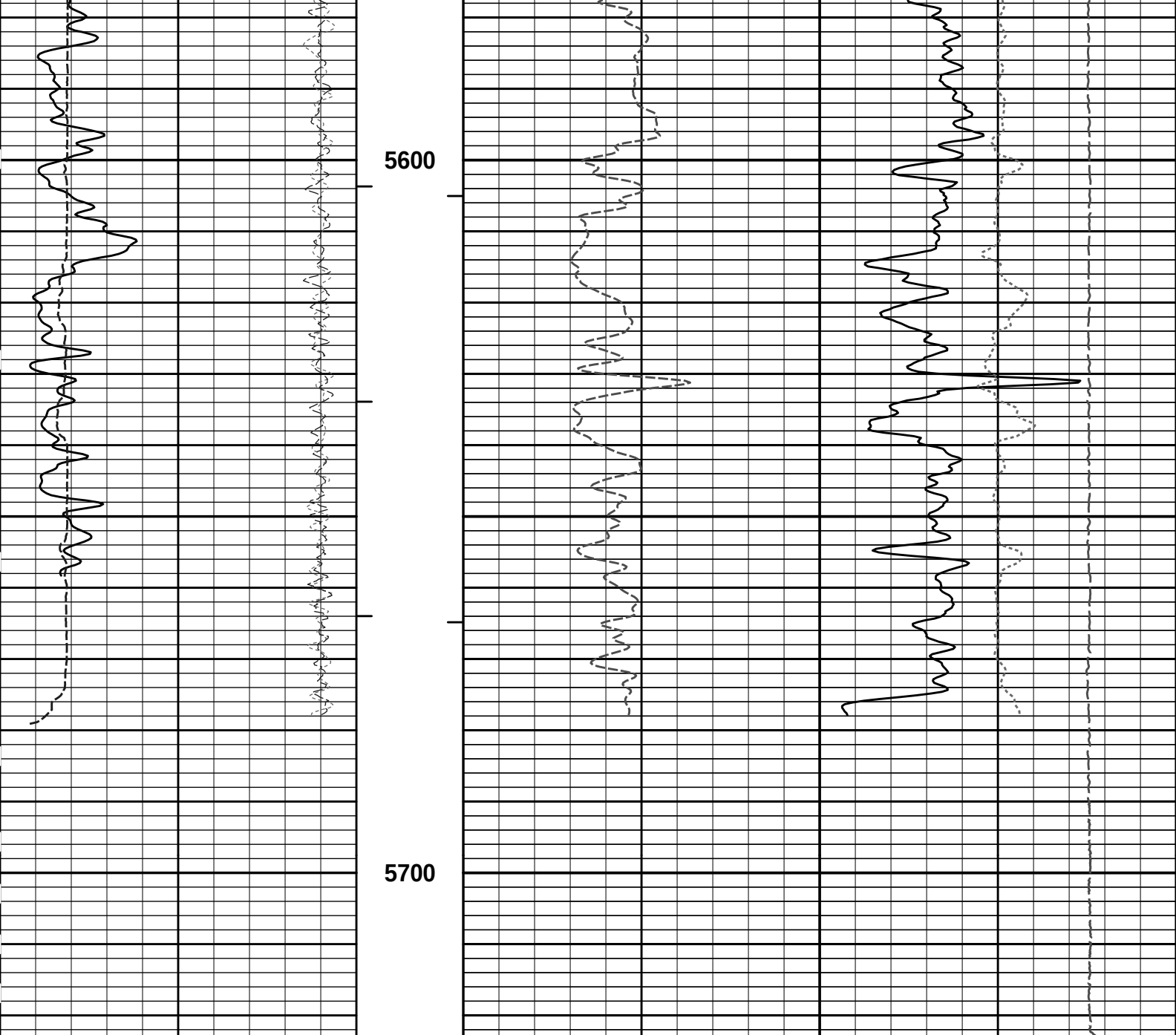












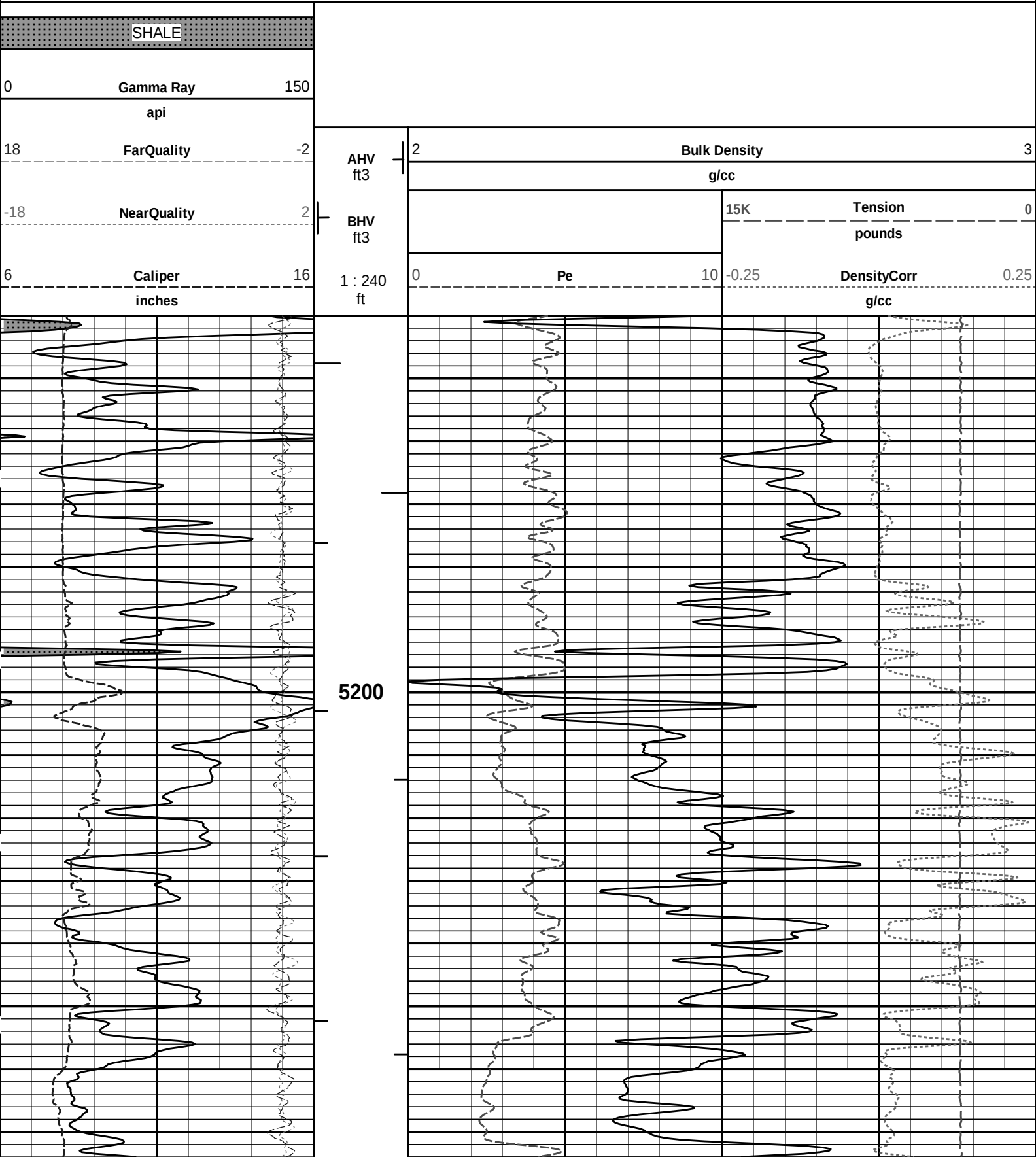
6	Caliper	16	1 : 240	0	Pe	10	-0.25	DensityCorr	0.25
	inches		ft					g/cc	
-18	NearQuality	2	BHV				15K	Tension	0
			ft3					pounds	
18	FarQuality	-2	AHV	2	Bulk Density				
			ft3		g/cc				
0	Gamma Ray	150	Tension Pull						
	api		10	0					
	SHALE		Tension Pull						

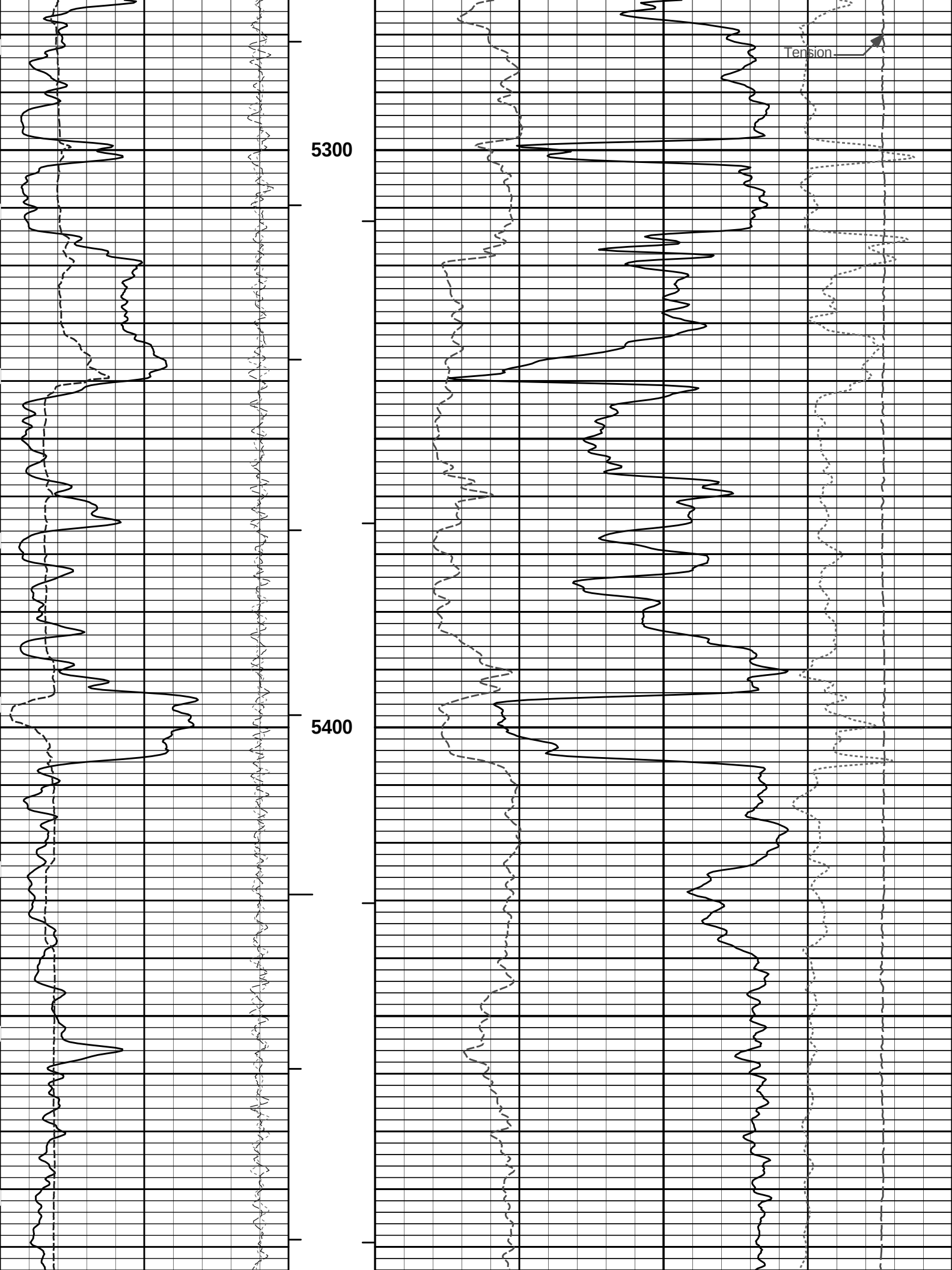
HALLIBURTON

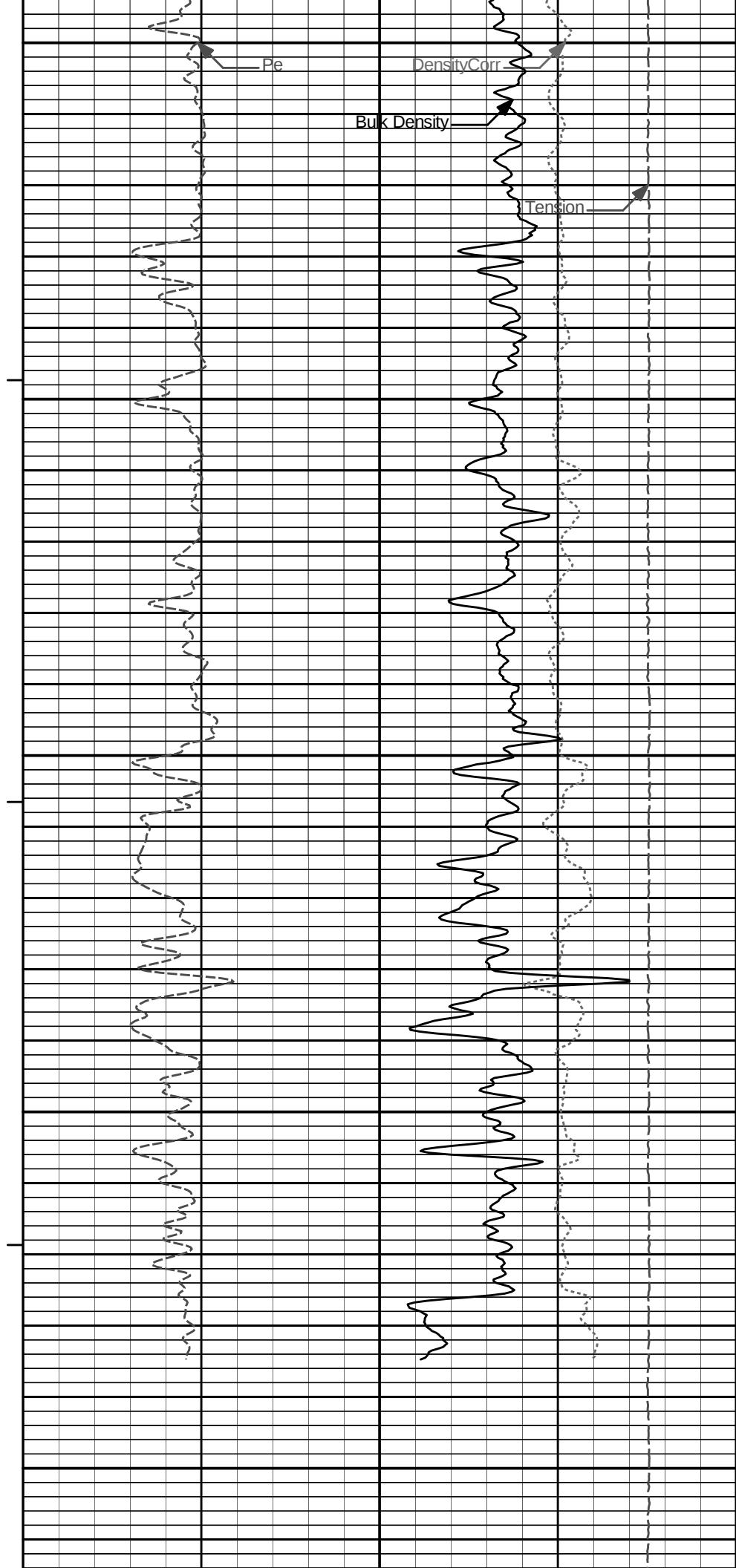
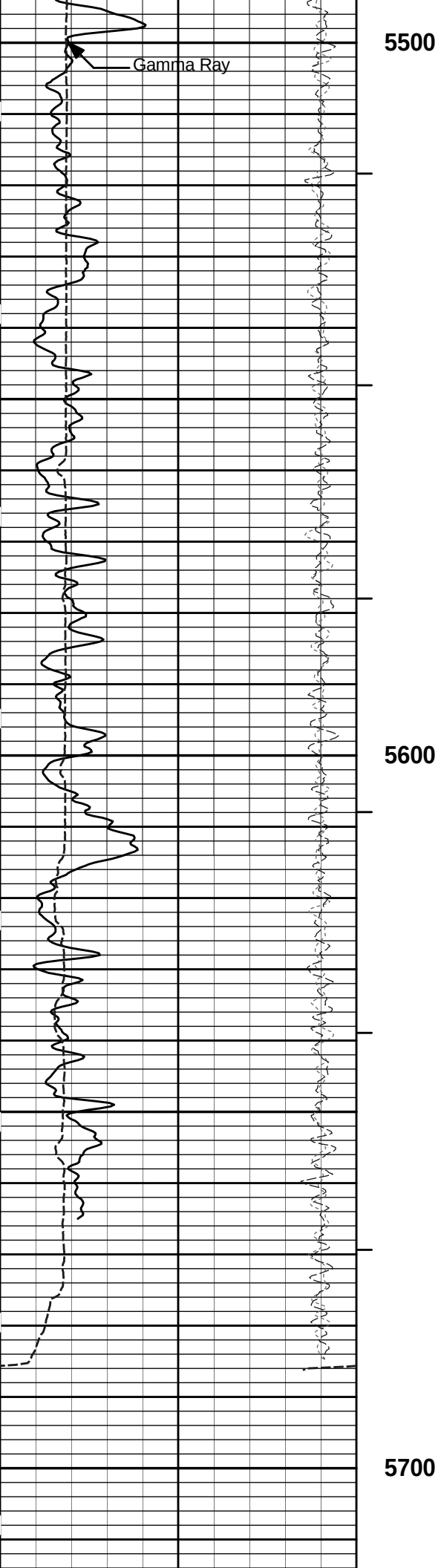
Plot Time: 15-Oct-12 20:57:00
Plot Range: 3995 ft to 5723.25 ft
Data: oxy_BCU#407WIWell Based\MAIN PASS\
Plot File: \\-LOCAL-loxy_BCU#407WIWell Based\POROSITY\BULKD_5_MAIN_LIB

5 INCH MAIN LOG

REPEAT SECTION







Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length	
Cable Head- PROT01 30.00 lbs		Ø 3.625 in →			1.92 ft	75.95 ft	
						3.74 ft	74.03 ft
SP Sub-TRK954 60.00 lbs		Ø 3.625 in →		← SP @ 72.26 ft			
						8.52 ft	70.30 ft
GTET-10748374 165.00 lbs		Ø 3.625 in →		← GammaRay @ 64.23 ft			
						61.78 ft	
	DSN Decentralizer- 10755066 6.60 lbs	Ø 5.000 in* →					
DSNT-10755066 174.00 lbs		Ø 3.625 in →				9.69 ft	
				← DSN Far @ 54.84 ft ← DSN Near @ 54.09 ft			
						52.09 ft	

SDLT-10685803
360.00 lbs

SDLT Pad-10714945
65.00 lbs
Microlog Pad-10685803
8.00 lbs

Ø 4.500 in →

Ø 4.750 in* →
Ø 4.750 in* →

Microlog @ 44.28 ft
SDL Caliper @ 44.09 ft
SDL @ 44.08 ft

10.81 ft

41.28 ft

Flex Joint-
10939592
140.00 lbs

Ø 3.625 in →

5.67 ft

Centralizer 25-001
8.00 lbs

Ø 4.000 in* →

35.61 ft

BSAT-10747684
300.00 lbs

Ø 3.625 in →

← Sonic Receivers @ 27.09 ft

15.77 ft

19.83 ft

ACRt Instrument-
I776
50.00 lbs

Centralizer 25-002
8.00 lbs

Ø 3.625 in →
Ø 4.000 in* →

5.03 ft

14.80 ft

← Mud Resistivity @ 13.44 ft

← ACRt @ 9.46 ft

ACRt Sonde-
I776_S775
200.00 lbs

Ø 3.625 in →

14.22 ft

Cabbage Head-
TRK954
10.00 lbs

Ø 3.625 in →
Ø 6.000 in →

0.58 ft

0.58 ft

0.00 ft

Serial

Weight Length

Accumulated

Max.Log.

Mnemonic	Tool Name	Serial Number	Weight (lbs)	Length (ft)	Length (ft)	Speed (fpm)	
CH	Standard OH Cable Head	PROT01	30.00	1.92	74.03	300.00	
SP	SP Sub	TRK954	60.00	3.74	70.30	300.00	
GTET	Gamma Telemetry Tool	10748374	165.00	8.52	61.78	60.00	
DSNT	Dual Spaced Neutron	10755066	174.00	9.69	52.09	60.00	
DCNT	DSN Decentralizer	10755066	6.60	5.13	*	55.42	300.00
SDLT	Spectral Density Tool	10685803	360.00	10.81	41.28	60.00	
MICP	Microlog Pad	10685803	8.00	1.00	*	43.78	60.00
SDLP	Density Insite Pad	10714945	65.00	2.55	*	43.49	60.00
FLEX	Flex Joint	10939592	140.00	5.67	35.61	300.00	
BSAT	Borehole Sonic Array Tool	10747684	300.00	15.77	19.83	60.00	
OBCEN	Centralizer - 25 in. Overbody	001	8.00	2.08	*	33.31	300.00
ACRt	Array Compensated True Resistivity Instrument Section	I776	50.00	5.03	14.80	300.00	
OBCEN	Centralizer - 25 in. Overbody	002	8.00	2.08	*	16.10	300.00
ACRt	Array Compensated True Resistivity Sonde Section	I776_S775	200.00	14.22	0.58	300.00	
CBHD	Cabbage Head	TRK954	10.00	0.58	0.00	300.00	
Total			1,584.60	75.95			
* Not included in Total Length and Length Accumulation.							
Data: oxy_BCU#407WI0001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-CHIDLE					Date: 15-Oct-12 14:20:33		

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	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	0.660	ohmm	
	SHARED	TRM	Temperature of Mud	75.0	degF	
	SHARED	CSD	Logging Interval is Cased?	No		
	SHARED	ICOD	AHV Casing OD	5.500	in	
	SHARED	ST	Surface Temperature	75.0	degF	
	SHARED	TD	Total Well Depth	5746.00	ft	
	SHARED	BHT	Bottom Hole Temperature	140.0	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		
	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 /	RWA	Resistivity of Formation Water	0.05	ohmm	

CrossPlot	RWA	Resistivity of Formation Water	0.05	ohmm
Rwa / CrossPlot	ADP	Use Air Porosity to calculate CrossplotPhi	No	
GTET	GROK	Process Gamma Ray?	Yes	
GTET	GRSO	Gamma Tool Standoff	0.000	in
GTET	GEOK	Process Gamma Ray EVR?	No	
GTET	TPOS	Tool Position for Gamma Ray Tools.	Eccentered	
DSNT	DNOK	Process DSN?	Yes	
DSNT	DEOK	Process DSN EVR?	No	
DSNT	NLIT	Neutron Lithology	Limestone	
DSNT	DSNO	DSN Standoff - 0.25 in (6.35 mm) Recommended	0.250	in
DSNT	DNTP	Temperature Correction Type	None	
DSNT	DPRS	DSN Pressure Correction Type	None	
DSNT	SHCO	View More Correction Options	No	
DSNT	UTVD	Use TVD for Gradient Corrections?	No	
DSNT	LHWT	Logging Horizontal Water Tank?	No	
SDLT	CLOK	Process Caliper Outputs?	Yes	
SDLT Pad	DNOK	Process Density?	Yes	
SDLT Pad	DNOK	Process Density EVR?	No	
SDLT Pad	CB	Logging Calibration Blocks?	No	
SDLT Pad	SPVT	SDLT Pad Temperature Valid?	Yes	
SDLT Pad	DTWN	Disable temperature warning	No	
SDLT Pad	DMA	Formation Density Matrix	2.710	g/cc
SDLT Pad	DFL	Formation Density Fluid	1.000	g/cc
Microlog Pad	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 Sonde	RTOK	Process ACRT?	Yes	
ACRt Sonde	MNSO	Minimum Tool Standoff	1.50	in
ACRt Sonde	TCS1	Temperature Correction Source	FP Lwr & FP Up	
ACRt Sonde	TPOS	Tool Position	Free Hanging	
ACRt Sonde	RMOP	Rmud Source	Mud Cell	
ACRt Sonde	RMIN	Minimum Resistivity for MAP	0.20	ohmm
ACRt Sonde	RMIN	Maximum Resistivity for MAP	200.00	ohmm
ACRt Sonde	THQY	Threshold Quality	0.50	
ACRt Sonde	MRFX	Fixed mud resistivity	2000	ohmm
BOTTOM				
Data: oxy_BCU#407W0001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-CHI005 15-Oct-12 16:18 Up @5724.0f				Date: 15-Oct-12 18:31:42

HALLIBURTON

CALIBRATION REPORT

NATURAL GAMMA RAY TOOL SHOP CALIBRATION

Tool Name: GTET - 10748374

Reference Calibration Date: 18-Sep-12 17:08:34

Engineer: T. HYDE

Calibration Date: 02-Oct-12 10:47:13

Software Version: WL INSITE R3.6.0 (Build 3)

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	40.5	40.0	api
Background + Calibrator	275.4	272.0	api
Calibrator	234.8	232.0	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION

Tool Name:	GTET - 10748374	Reference Calibration Date:	02-Oct-12 10:47:13
Engineer:	S. INGERSOLL	Calibration Date:	13-Oct-12 10:28:18
Software Version:	WL INSITE R3.6.0 (Build 3)	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	40.0	36.6	api
Background + Calibrator	272.0	268.8	api
Calibrator	232.0	232.2	api

Shop	Field	Difference	Tolerance
232.0	232.2	-0.2	+/- 9.00

DUAL SPACED NEUTRON SHOP CALIBRATION

Tool Name:	DSNT - 10755066	Reference Calibration Date:	30-Sep-12 13:09:21
Engineer:	T. HYDE	Calibration Date:	30-Sep-12 13:31:25
Software Version:	WL INSITE R3.6.0 (Build 3)	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: 71 degF

Min. Tool Housing Outside Diameter: 3.620 in

CALIBRATION CONSTANTS			
Measurement	Prev. Value	New Value	Control Limit On New Value
Gain:	0.948	0.951	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):	0.2100	0.2107	0.0007	+/- 0.0020
Calibrated Ratio:	9.69	9.72	0.023	+/- 0.050

VERIFIER		
Measurement	Value	Control Limit
Snow-Block Porosity (decP):	0.0581	0.02000 - 0.09000

PASS/FAIL SUMMARY	
Background Check:	Passed
Gain-Range Check:	Passed
Snow-Block Check:	Passed

DENSITY CALIPER SHOP CALIBRATION					
Tool Name:	SDLT - 10685803		Reference Calibration Date:	30-Sep-12 15:15:28	
Engineer:	T. HYDE		Calibration Date:	30-Sep-12 15:20:02	
Software Version:	WL INSITE R3.6.0 (Build 3)		Calibration Version:	1	
Host Tool Name:	DSNT - 10755066				
	CALIBRATION COEFFICIENTS				
	Measurement	Previous Value	New Value	Control Limit On New Value	
	Pad Offset	-4756.69	-4873.17	-7000.00 - -1000.00	
	Pad Gain	0.0003785	0.0003762	0.000200 - 0.000600	
	Arm Offset	-1910.52	-1855.72	-5000.00 - 3000.00	
	Arm Gain	0.0005476	0.0005483	0.000300 - 0.000700	
	Arm Power	-0.000007447	-0.000007411	-0.000010000 - 0.000010000	
The ring diameter is computed from: DIAMETER = PAD EXTENSION + ARM EXTENSION + TOOL DIAMETER					
Tool Diameter: 4.50 in					
	CALIBRATION RINGS				
	Measurement	Current Reading (Previous Coeff.)	Calibrated (New Coeff.)	Change	Control Limit On New Value
	PAD EXTENSION:				
	Small Ring (in)	2.06	2.00	-0.06	+/- 0.20
	Medium Ring (in)	3.82	3.75	-0.07	+/- 0.20
	RING DIAMETER:				
	Small Ring (in)	6.51	6.50	-0.01	+/- 0.20
Medium Ring (in)	8.26	8.25	-0.01	+/- 0.20	
Large Ring (in)	15.00	15.00	0.00	+/- 0.20	
	PASS/FAIL SUMMARY				
	Calibration-Coefficients Range Check:			Passed	
	Ring-Measurement Check:			Passed	
	PASS/FAIL SUMMARY				
	Calibration-Coefficients Range Check:			Passed	

SPECTRAL DENSITY SHOP CALIBRATION				
Tool Name:	SDLT Pad - 10714945		Reference Calibration Date:	19-Aug-12 11:07:52
Engineer:	T. HYDE		Calibration Date:	30-Sep-12 14:22:02
Software Version:	WL INSITE R3.6.0 (Build 3)		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	0.9590	0.9656	0.90 - 1.10
	Near Dens Gain	0.9683	0.9659	0.90 - 1.10
	Near Peak Gain	0.9846	0.9627	0.90 - 1.10
	Near Lith Gain	0.9842	0.9549	0.90 - 1.10
	Far Bar Gain	0.9833	0.9857	0.90 - 1.10
	Far Dens Gain	0.9769	0.9809	0.90 - 1.10
	Far Peak Gain	0.9722	0.9745	0.90 - 1.10
	Far Lith Gain	0.9472	0.9527	0.90 - 1.10
	Near Bar Offset	0.6134	0.5753	NONE

Near Bar Offset	0.5039	0.5397	NONE
Near Peak Offset	0.3458	0.5351	NONE
Near Lith Offset	0.3151	0.5631	NONE
Far Bar Offset	0.2663	0.2770	NONE
Far Dens Offset	0.3035	0.2992	NONE
Far Peak Offset	0.3006	0.3121	NONE
Far Lith Offset	0.4090	0.4017	NONE

Near Bar Background	985.51	988.66	700 - 1450
Near Dens Background	329.00	328.22	230 - 480
Near Peak Background	142.86	143.53	100 - 210
Near Lith Background	172.21	173.93	125 - 260
Far Bar Background	503.39	501.27	450 - 900
Far Dens Background	195.21	193.97	175 - 345
Far Peak Background	76.80	75.74	70 - 140
Far Lith Background	81.48	80.74	75 - 145

CALIBRATION BLOCK SUMMARY				
Measurement	Current Reading (Previous Coef)	Calibrated (New Coef)	Change	Control Limit On Change
MAGNESIUM				
Density (g/cc)	1.698	1.690	-0.008	+/- 0.015
Pe	2.434	2.555	0.121	+/- 0.150
ALUMINUM				
Density (g/cc)	2.593	2.591	-0.002	+/- 0.01500
Pe	3.051	3.129	0.078	+/- 0.150

TOOL SUMMARY				
Measurement	Near Detector		Far Detector	
	Value	Control Limits	Value	Control Limits
QUALITY				
Background	-0.0002	+/- 0.0110	0.0001	+/- 0.0140
Magnesium Block	-0.0012	+/- 0.0110	-0.0009	+/- 0.0140
Aluminum Block	-0.0002	+/- 0.0110	-0.0006	+/- 0.0140
Resolution	9.77	6.00 - 11.50	9.21	6.00 - 11.50
Internal Verifier(B+D+P+L)	1634	1200 - 2700	852	800 - 1700

PASS/FAIL SUMMARY	
Background Quality Check:	Passed
Background Range Check:	Passed
Background Resolution Check:	Passed
Background Verification Check:	Passed
Magnesium Quality Check:	Passed
Aluminum Quality Check:	Passed
Gains Check:	Passed
Changes in Calibration Blocks:	Passed

SPECTRAL DENSITY FIELD CHECK

Tool Name: SDLT Pad - 10714945

Reference Calibration Date: 30-Sep-12 14:22:02

Engineer: S. INGERSOLL

Calibration Date: 13-Oct-12 10:43:57

Software Version: WL INSITE R3.6.0 (Build 3)

Calibration Version: 1

DENSITY FIELD CALIBRATION SUMMARY

Measurement	Shop	Field	Change	Control Limit +/-
Near (B+D+P+L) cps	1634.342	1633.005	-1.337	16.246
Far (B+D+P+L) cps	851.718	860.608	8.890	16.006
Near Resolution	9.77	9.90	0.130	0.50
Far Resolution	9.21	9.37	0.160	1.00

PASS/FAIL SUMMARY

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

MICRO LOG SHOP CALIBRATION

Tool Name:	Microlog Pad - 10685803	Reference Calibration Date:	30-Sep-12 15:31:05
Engineer:	T. HYDE	Calibration Date:	30-Sep-12 15:34:21
Software Version:	WL INSITE R3.6.0 (Build 3)	Calibration Version:	1
Host Tool Name:	DSNT - 10755066		

CALIBRATION COEFFICIENT SUMMARY

Measurement	Micro Log Normal		Micro Log Lateral		Units
	Measured	Calibrated	Measured	Calibrated	
Tool Zero	-0.12	-0.11	-0.01	-0.01	ohmm
Calibration Point #1	-0.01	0.00	-0.00	0.00	ohmm
Calibration Point #2	20.01	20.00	20.00	20.00	ohmm
Internal Reference	19.94	19.94	20.04	20.03	ohmm

Measurement	Micro Log Normal Tool Value	Micro Log Lateral Tool Value	Units
Tool Zero	0.24	0.17	V
Calibration Point #1	29.33	4.16	V
Calibration Point #2	5313.38	6882.99	V
Internal Reference	5296.33	6894.51	V

MICRO LOG FIELD CHECK

Tool Name:	Microlog Pad - 10685803	Reference Calibration Date:	30-Sep-12 15:34:21
Engineer:	T. HYDE	Calibration Date:	13-Oct-12 10:26:04
Software Version:	WL INSITE R3.6.0 (Build 3)	Calibration Version:	1

Measurement	Micro Log Normal		Micro Log Lateral		Units
	Shop	Field	Shop	Field	
Tool Zero	-0.11	-0.11	-0.01	0.00	ohmm
Internal Reference	19.94	19.84	20.03	19.94	ohmm

Summary

Signal	Shop	Field	Difference	Tolerance
Microlog Normal	19.94	19.84	0.10	+/- 0.80
Microlog Lateral	20.03	19.94	0.09	+/- 0.80

SDLT CALIPER FIELD CALIBRATION

Tool Name:	SDLT - 10685803	Reference Calibration Date:	30-Sep-12 15:20:02
Engineer:	S. INGERSOLL	Calibration Date:	13-Oct-12 10:47:32
Software Version:	WL INSITE R3.6.0 (Build 3)	Calibration Version:	1

MEASURED CALIPER VALUES

MEASURED CALIPER VALUES									
Measurement			Shop		Field		Change		Control Limit On New Value
Pad Extension			3.75		3.78		0.03		+/- 0.10
Ring Diameter			8.25		8.33		0.08		+/- 0.15
PASS/FAIL SUMMARY									
Pad Extension Check:							Passed		
Diameter Check:							Passed		

ARRAY COMPENSATED TRUE RESISTIVITY SHOP CALIBRATION									
Tool Name:		ACRt Sonde - I776_S775				Reference Calibration Date:		18-Aug-12 11:31:49	
Engineer:		J. BOLLUM				Calibration Date:		23-Sep-12 10:59:02	
Software Version:		WL INSITE R3.6.0 (Build 3)				Calibration Version:		1	
Host Tool Name:		ACRt Instrument - I776							

TYPICAL GAIN RANGE									
Subarray	R12KHz			R36KHz			R72KHz		
	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper
A1 (80")	0.95	1.01	1.05	0.95	1.02	1.05	0.95	1.01	1.05
A2 (50")	0.95	1.02	1.05	0.95	1.02	1.05	0.95	1.02	1.05
A3 (29")	0.95	1.02	1.05	0.95	1.02	1.05	0.95	1.02	1.05
A4 (17")	0.95	1.01	1.05	0.95	1.01	1.05	0.95	1.01	1.05
A5 (10")	N/A	N/A	N/A	0.95	1.01	1.05	0.95	1.01	1.05
A6 (6")	N/A	N/A	N/A	0.95	1.00	1.05	0.95	0.99	1.05

TYPICAL SONDE OFFSET RANGE									
Subarray	R12KHz			R36KHz			R72KHz		
	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper
A1 (80")	-5	-1.62	2	-6	-4.68	-2	-8	-5.05	-2
A2 (50")	-7	-3.46	0	-7	-4.38	0	-7	-4.45	0
A3 (29")	-27	-15.08	-9	-9	-4.91	-3	-7	-3.00	-1
A4 (17")	-180	-103.13	-60	-45	-32.93	-15	-39	-26.29	-13
A5 (10")	N/A	N/A	N/A	-150	-105.52	-50	-80	-50.94	-10
A6 (6")	N/A	N/A	N/A	175	256.24	525	90	131.35	270

TRANSMITTER CURRENT GAIN					R-MUD VERIFICATION			
Signal	Lower	R	Upper		Signal	Lower (ohm-m)	Measured (ohm-m)	Upper (ohm-m)
12K	0.6	0.85	1.3		Mud Cell	0.95	0.99	1.05
36K	1.0	1.18	2.0					
72K	1.0	1.46	2.0					

PASS/FAIL SUMMARY									
GAIN RANGE CHK							PASS		
SONDE OFFSET RANGE CHK							PASS		
Tx CURRENT GAIN							PASS		
Rmud VERIFICATION							PASS		
TOOL OK TO LOG									

CALIBRATION SUMMARY									
Sensor	Shop	Field	Post	Difference	Tolerance	Units			

GTET-10748374						
Gamma Ray Calibrator	232.0	232.2	-----	-0.2	+/- 9.00	api
DSNT-10755066						
Snow-Block Porosity	0.0581	-----	-----	0.0000	+/- ---	decp
SDLT-10685803						
Pad Extension	3.75	3.78	-----	-0.03	+/-0.10	in
Ring Diameter	8.25	8.33	-----	-0.08	+/-0.15	in
SDLT Pad-10714945						
Near(B+D+P+L)	1634.342	1633.005	-----	1.337	+/-16.246	cps
Far(B+D+P+L)	851.718	860.608	-----	-8.890	+/-16.006	cps
Microlog Pad-10685803						
MicroLog Normal	19.94	19.84	-----	0.10	+/-0.80	ohmm
MicroLog Lateral	20.03	19.94	-----	0.09	+/-0.80	ohmm
ACRt Sonde-I776_S775						
Mud Cell	0.99	-----	-----	0.00	-----	ohm-m
Data: oxy_BCU#407W10001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-CH1005 15-Oct-12 16:18 Up @5724.0f					Date: 15-Oct-12 18:38:11	

HALLIBURTON

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	72.25	NO	
SP	Spontaneous Potential	72.25	BLK	1.250
SPR	Raw Spontaneous Potential	72.25	NO	
SPO	Spontaneous Potential Offset	72.25	NO	
GTET				
TPUL	Tension Pull	64.23	NO	
GR	Natural Gamma Ray API	64.23	TRI	1.750
GRU	Unfiltered Natural Gamma Ray API	64.23	NO	
EGR	Natural Gamma Ray API with Enhanced Vertical Resolution	64.23	W	1.416 , 0.750
ACCZ	Accelerometer Z	0.00	BLK	0.083
DEVI	Inclination	0.00	NO	
DSNT				
TPUL	Tension Pull	53.99	NO	
RNDS	Near Detector Telemetry Counts	54.09	BLK	1.417
RFDS	Far Detector Telemetry Counts	54.84	TRI	0.583
DNTT	DSN Tool Temperature	54.09	NO	
DSNS	DSN Tool Status	53.99	NO	
ERND	Near Detector Telemetry Counts EVR	54.09	BLK	0.000
ERFD	Far Detector Telemetry Counts EVR	54.84	BLK	0.000
ENTM	DSN Tool Temperature EVR	54.09	NO	
SDLT				
TPUL	Tension Pull	44.09	NO	
PCAL	Pad Caliper	44.09	TRI	0.250
ACAL	Arm Caliper	44.09	TRI	0.250
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	
GMOD	Gain processing mode	19.83	NO	
ACRt Sonde				
TPUL	Tension Pull	2.97	NO	
F1R1	ACRT 12KHz - 80in R value	9.22	BLK	0.000
F1X1	ACRT 12KHz - 80in X value	9.22	BLK	0.000
F1R2	ACRT 12KHz - 50in R value	6.72	BLK	0.000
F1X2	ACRT 12KHz - 50in X value	6.72	BLK	0.000
F1R3	ACRT 12KHz - 29in R value	5.22	BLK	0.000
F1X3	ACRT 12KHz - 29in X value	5.22	BLK	0.000
F1R4	ACRT 12KHz - 17in R value	4.22	BLK	0.000
F1X4	ACRT 12KHz - 17in X value	4.22	BLK	0.000
F1R5	ACRT 12KHz - 10in R value	3.72	BLK	0.000
F1X5	ACRT 12KHz - 10in X value	3.72	BLK	0.000
F1R6	ACRT 12KHz - 6in R value	3.47	BLK	0.000
F1X6	ACRT 12KHz - 6in X value	3.47	BLK	0.000
F2R1	ACRT 36KHz - 80in R value	9.22	BLK	0.000
F2X1	ACRT 36KHz - 80in X value	9.22	BLK	0.000
F2R2	ACRT 36KHz - 50in R value	6.72	BLK	0.000
F2X2	ACRT 36KHz - 50in X value	6.72	BLK	0.000
F2R3	ACRT 36KHz - 29in R value	5.22	BLK	0.000
F2X3	ACRT 36KHz - 29in X value	5.22	BLK	0.000
F2R4	ACRT 36KHz - 17in R value	4.22	BLK	0.000
F2X4	ACRT 36KHz - 17in X value	4.22	BLK	0.000
F2R5	ACRT 36KHz - 10in R value	3.72	BLK	0.000
F2X5	ACRT 36KHz - 10in X value	3.72	BLK	0.000
F2R6	ACRT 36KHz - 6in R value	3.47	BLK	0.000
F2X6	ACRT 36KHz - 6in X value	3.47	BLK	0.000
F3R1	ACRT 72KHz - 80in R value	9.22	BLK	0.000
F3X1	ACRT 72KHz - 80in X value	9.22	BLK	0.000
F3R2	ACRT 72KHz - 50in R value	6.72	BLK	0.000
F3X2	ACRT 72KHz - 50in X value	6.72	BLK	0.000
F3R3	ACRT 72KHz - 29in R value	5.22	BLK	0.000
F3X3	ACRT 72KHz - 29in X value	5.22	BLK	0.000
F3R4	ACRT 72KHz - 17in R value	4.22	BLK	0.000
F3X4	ACRT 72KHz - 17in X value	4.22	BLK	0.000
F3R5	ACRT 72KHz - 10in R value	3.72	BLK	0.000
F3X5	ACRT 72KHz - 10in X value	3.72	BLK	0.000
F3R6	ACRT 72KHz - 6in R value	3.47	BLK	0.000
F3X6	ACRT 72KHz - 6in X value	3.47	BLK	0.000
RMUD	Mud Resistivity	12.76	BLK	0.000
F1RT	Transmitter 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	Tool Joint Temperature	2.97	BLK	0.000

ITMP	Instrument Temperature	2.97	BLK	0.000
TCVA	Temperature Correction Values Loop Off	2.97	NO	
TIDV	Instrument Temperature Derivative	2.97	NO	
TUDV	Upper Temperature Derivative	2.97	NO	
TLDV	Lower Temperature Derivative	2.97	NO	
TRBD	Receiver Board Temperature	2.97	NO	
SDLT Pad				
TPUL	Tension Pull	44.08	NO	
NAB	Near Above	43.90	BLK	0.920
NHI	Near Cesium High	43.90	BLK	0.920
NLO	Near Cesium Low	43.90	BLK	0.920
NVA	Near Valley	43.90	BLK	0.920
NBA	Near Barite	43.90	BLK	0.920
NDE	Near Density	43.90	BLK	0.920
NPK	Near Peak	43.90	BLK	0.920
NLI	Near Lithology	43.90	BLK	0.920
NBAU	Near Barite Unfiltered	43.90	BLK	0.250
NLIU	Near Lithology Unfiltered	43.90	BLK	0.250
FAB	Far Above	44.26	BLK	0.250
FHI	Far Cesium High	44.26	BLK	0.250
FLO	Far Cesium Low	44.26	BLK	0.250
FVA	Far Valley	44.26	BLK	0.250
FBA	Far Barite	44.26	BLK	0.250
FDE	Far Density	44.26	BLK	0.250
FPK	Far Peak	44.26	BLK	0.250
FLI	Far Lithology	44.26	BLK	0.250
PTMP	Pad Temperature	44.09	BLK	0.920
NHV	Near Detector High Voltage	43.49	NO	
FHV	Far Detector High Voltage	43.49	NO	
ITMP	Instrument Temperature	43.49	NO	
DDHV	Detector High Voltage	43.49	NO	
Microlog Pad				
TPUL	Tension Pull	44.28	NO	
MINV	Microlog Lateral	44.28	BLK	0.750
MNOR	Microlog Normal	44.28	BLK	0.750
Data: oxy_BCU#407W0001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-CH005 15-Oct-12 16:18 Up @5724.0f			Date: 15-Oct-12 18:30:14	
COMPANY	OXY USA INC			
WELL	BCU #407W			
FIELD	PLEASANT PRAIRIE SE			
COUNTY	HASKELL	STATE	KANSAS	
HALLIBURTON		SPECTRAL DENSITY DUAL SPACED NEUTRON LOG		