

HALLIBURTON

SPECTRAL DENSITY DUAL SPACED NEUTRON LOG

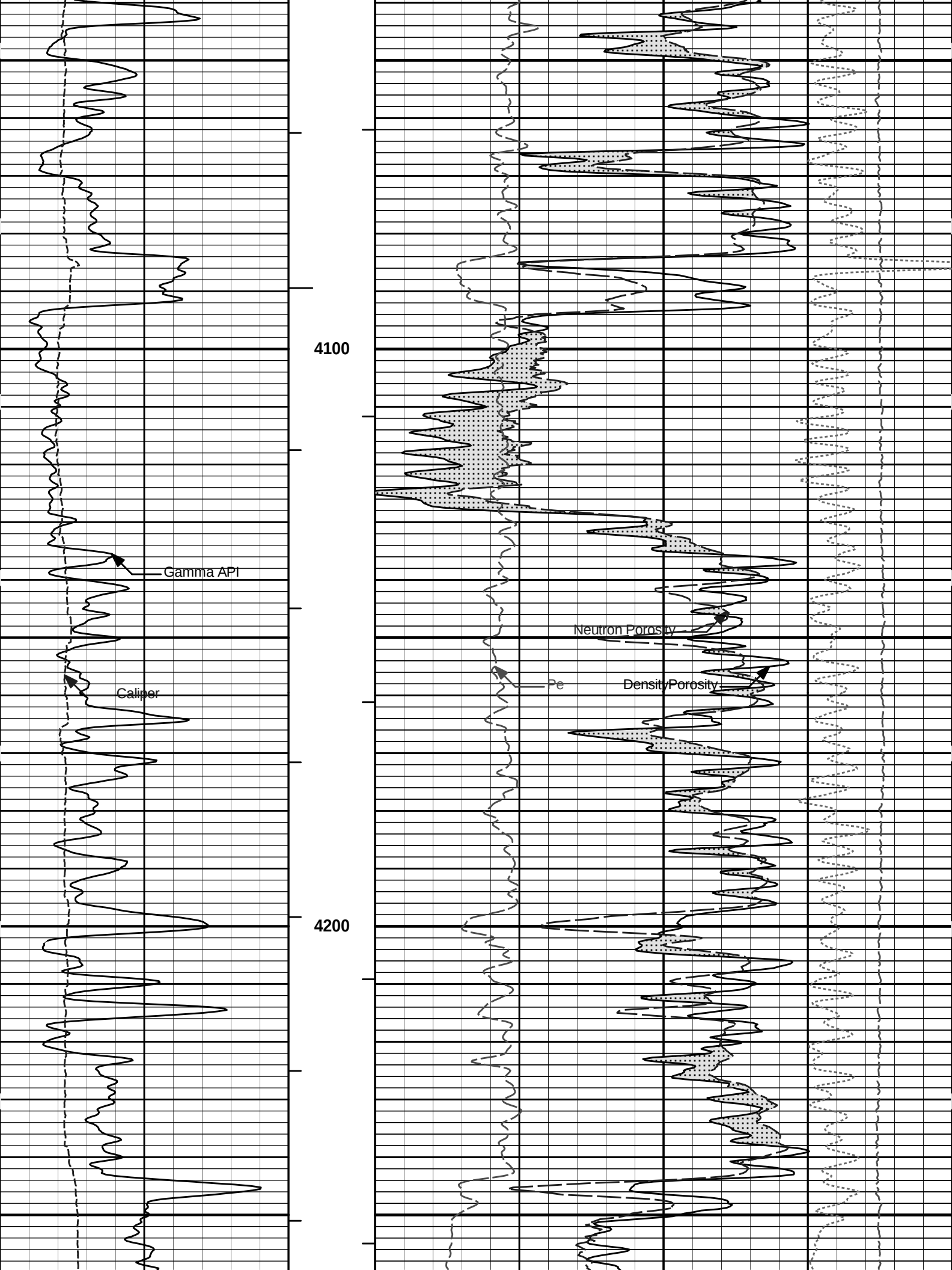
COMPANY				OXY USA INC.							
WELL				KU B-4							
FIELD/BLOCK				ARROYO							
COUNTY				STANTON							
STATE				KANSAS							
Permanent Datum		GL		Sect. 17		Twp. 29S		Rge. 41W		Other Services: MICROLOG ACRT BSAT	
Log measured from		KB		Location		(SHL) 1439' FSL & 1159' FEL		Elev. 3412.9 ft		Elev.: K.B. 3424.0 ft	
Drilling measured from		KB						11.1 ft above perm. Datum		D.F. 3423.0 ft	
										G.L. 3412.9 ft	
Date		20-Jun-13									
Run No.		ONE									
Depth - Driller		5645.00 ft									
Depth - Logger		5640.0 ft									
Bottom - Logged Interval		5596.0 ft									
Top - Logged Interval		4000.0 ft									
Casing - Driller		8.625 in		@ 1800.0 ft				@			
Casing - Logger		1800.0 ft									
Bit Size		7.875 in						@			
Type Fluid in Hole		WATER BASED MUD									
Density		8.5 ppg		37.00 s/qt							
PH		11.00 pH		8.0 cp/m							
Source of Sample		MUD PIT									
Rm @ Meas. Temperature		2.750 ohmm		@ 75.00 degF				@			
Rmf @ Meas. Temperature		2.30 ohmm		@ 75.00 degF				@			
Rmc @ Meas. Temperature		3.300 ohmm		@ 75.00 degF				@			
Source Rmf		Rmc		MEASURED							
Rm @ BHT		2.74 ohmm		@ 75.0 degF				@			
Time Since Circulation		7.0 hr									
Time on Bottom		20-Jun-13 03:36									
Max. Rec. Temperature		133.0 degF		@ 5640.0 ft				@			
Equipment		Location		10546696		LIBERAL					
Recorded By		J. BOLLOW									
Witnessed By		G. FLAGG									

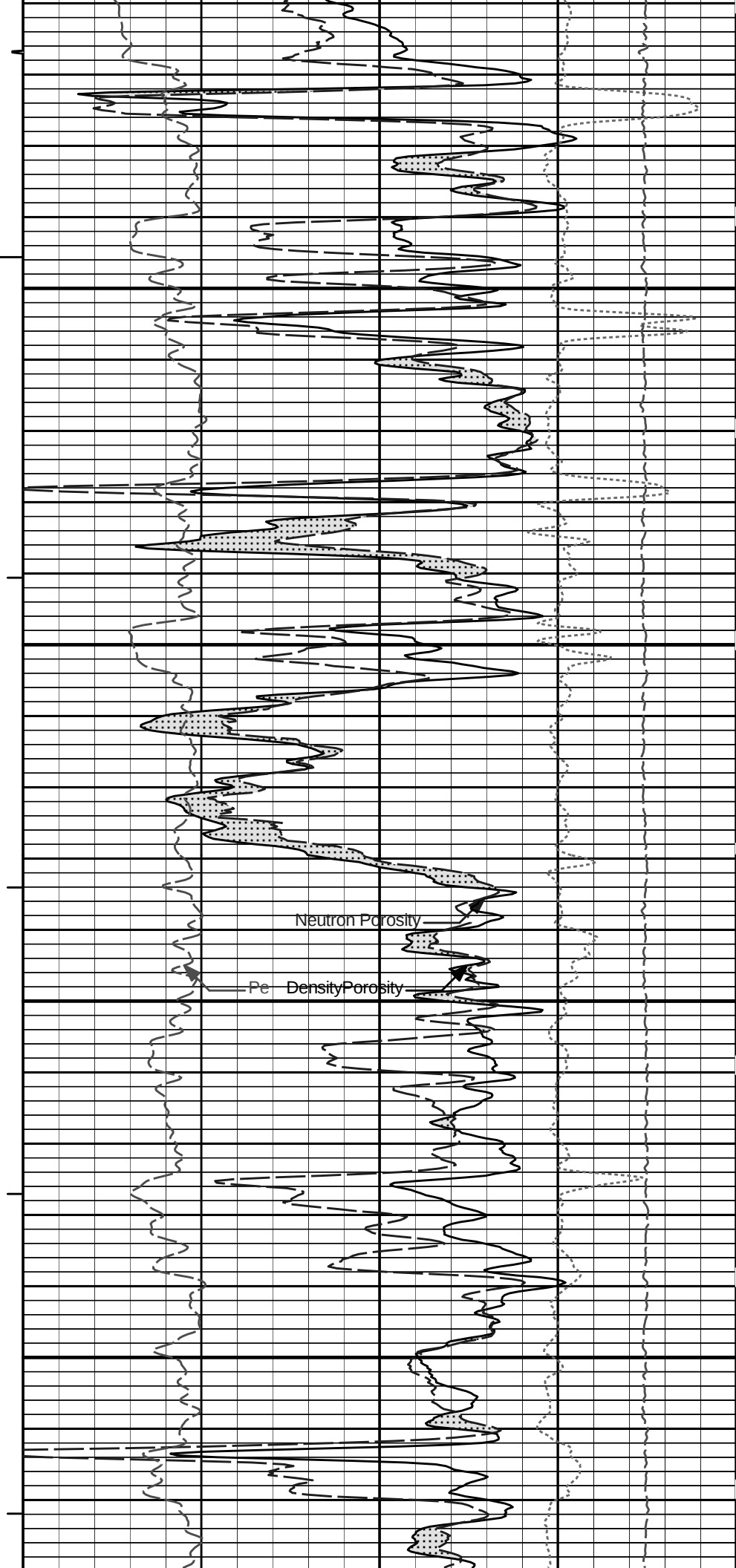
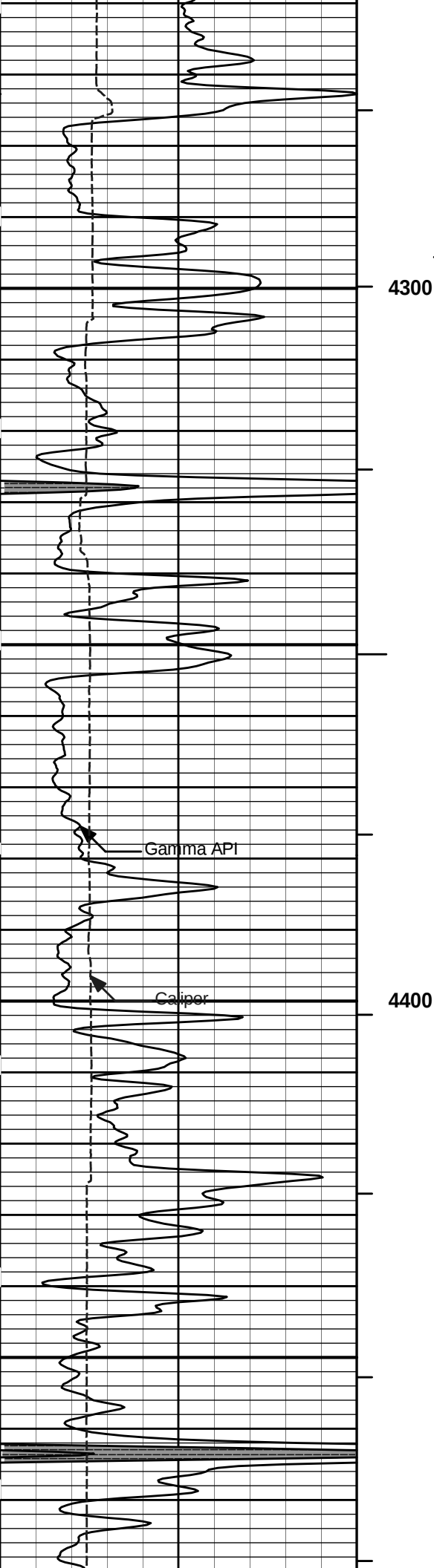
Fold here

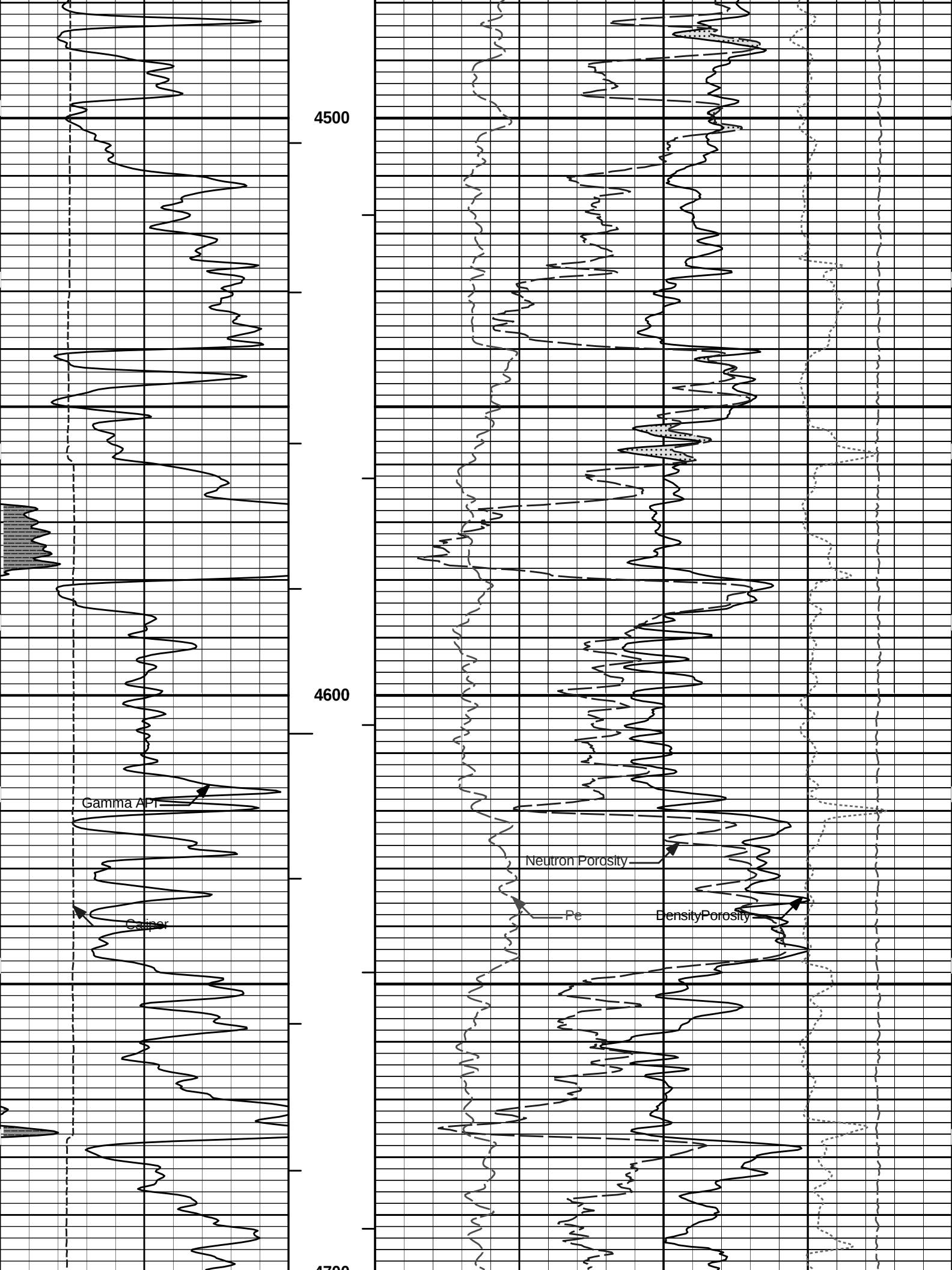
Service Ticket No.: 900523447				API Serial No.: 15187212340000				PGM Version: WL INSITE R3.8.4 (Build 5)							
CHANGE IN MUD TYPE OR ADDITIONAL SAMPLE						RESISTIVITY SCALE CHANGES									
Date		Sample No.				Type Log		Depth		Scale Up Hole		Scale Down Hole			
Depth-Driller															
Type Fluid 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.		@		@											
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.		GTET		Serial No.				Serial No.		10865884		Serial No.		11055304	
Model No.		11048627		Model No.				Model No.		SDLT-I		Model No.		DSNT-I	
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.		5168GW		Serial No.		DSN-424	
Distance to Source		10'		FWDA [Y/N]				Strength		1.5 CI		Strength		15 CI	
LOGGING DATA															

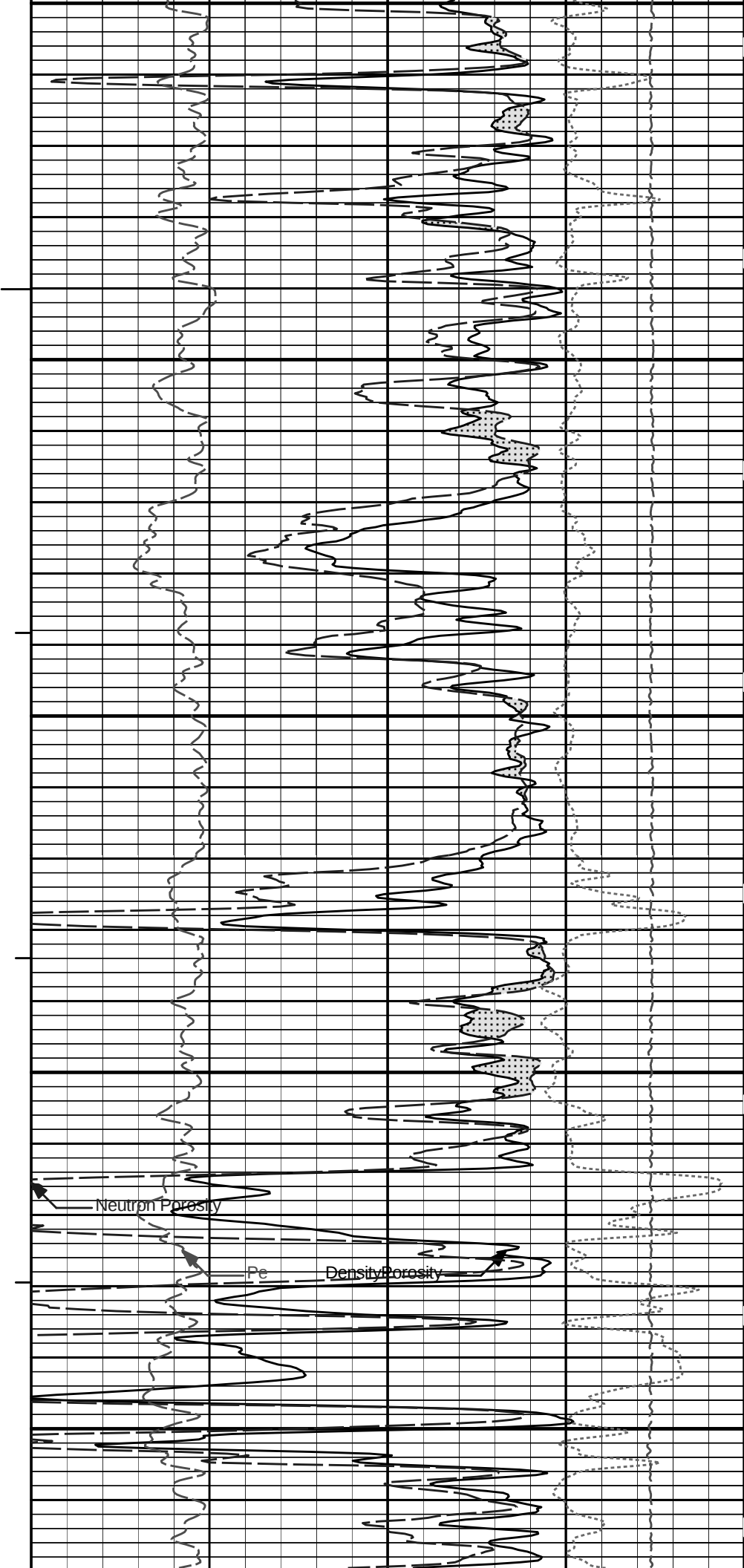
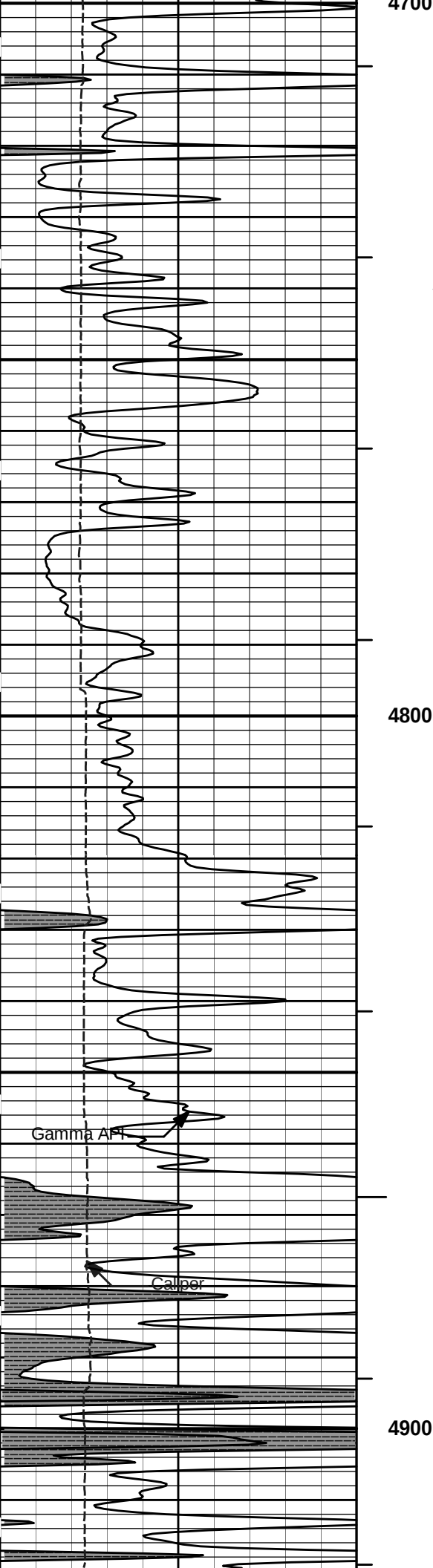
GENERAL			GAMMA		ACOUSTIC			DENSITY			NEUTRON					
Run	Depth		Speed	Scale		Scale		Matrix	Scale		Matrix	Scale		Matrix		
No.	From	To	ft/min	L	R	L	R		L	R		L	R			
ONE	5640	4000	REC	0	150				30	-10	2.71	30	-10	LIME		
DIRECTIONAL INFORMATION																
Maximum Deviation								@	KOP							@
Remarks: ANNULAR HOLE VOLUME CALCULATED FOR 5.5-INCH CASING																
CHLORIDES REPORTED AT 600 MG/L																
LCM REPORTED AT 6 LB/BSL																
GTET-DSNT-SDLT-BSAT-ACRT RUN IN COMBINATION																
TODAY'S CREW: B. TERRELL & V. JAIME																
THANK YOU FOR CHOOSING HALLIBURTON ENERGY SERVICES LIBERAL, KS. 620-624-8123																
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																

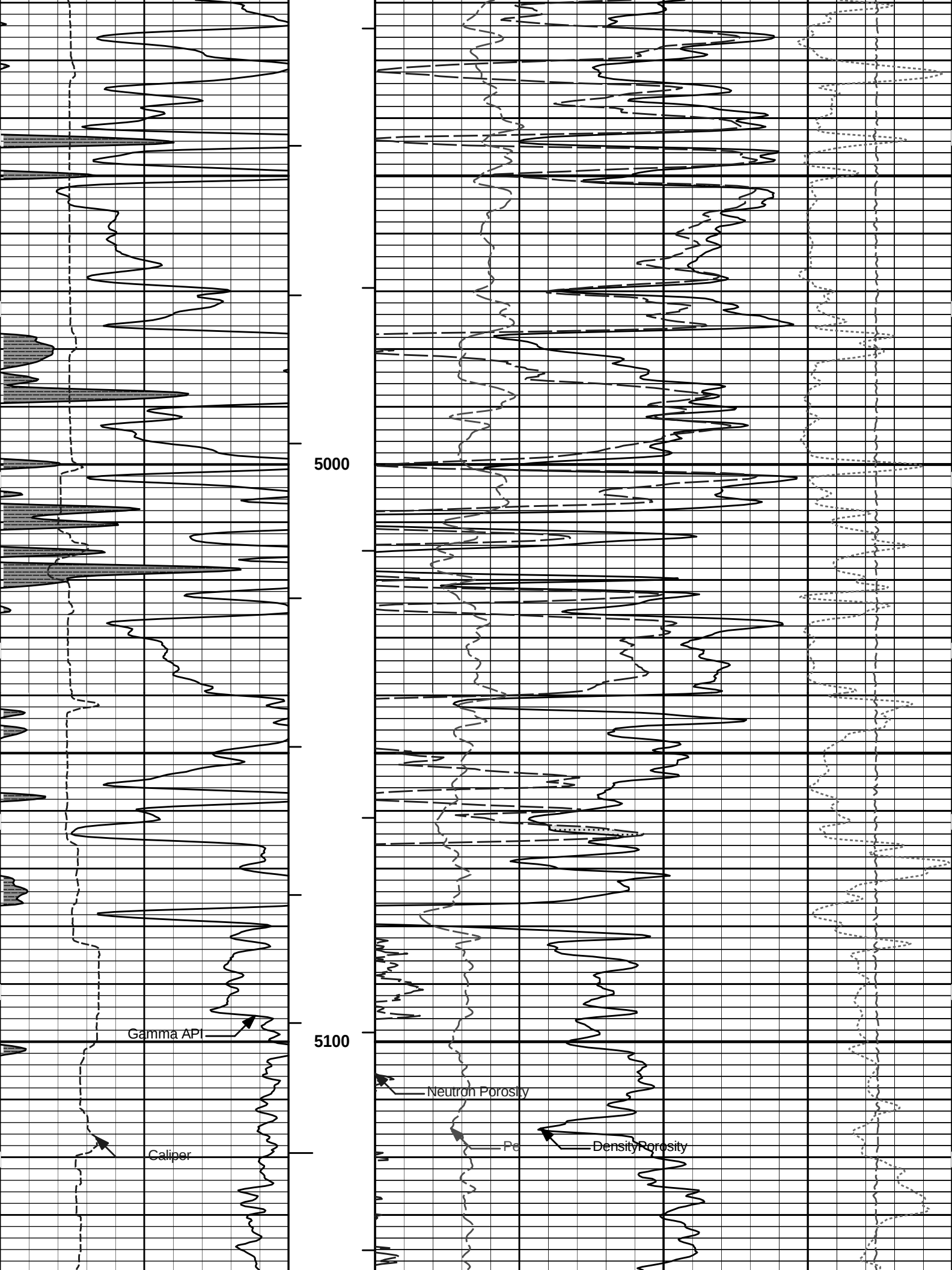
		Tension Pull	CROSSOVER				
		Tension Pull 10 0	30	Neutron Porosity %			-10
SHALE		BHVT	30	DensityPorosity %			-10
0	Gamma API	150	AHVT	15K	Tension pounds		(
6	Caliper	16	MD 1 : 240 ft	0	10	-0.25	DensityCorr gram per cc

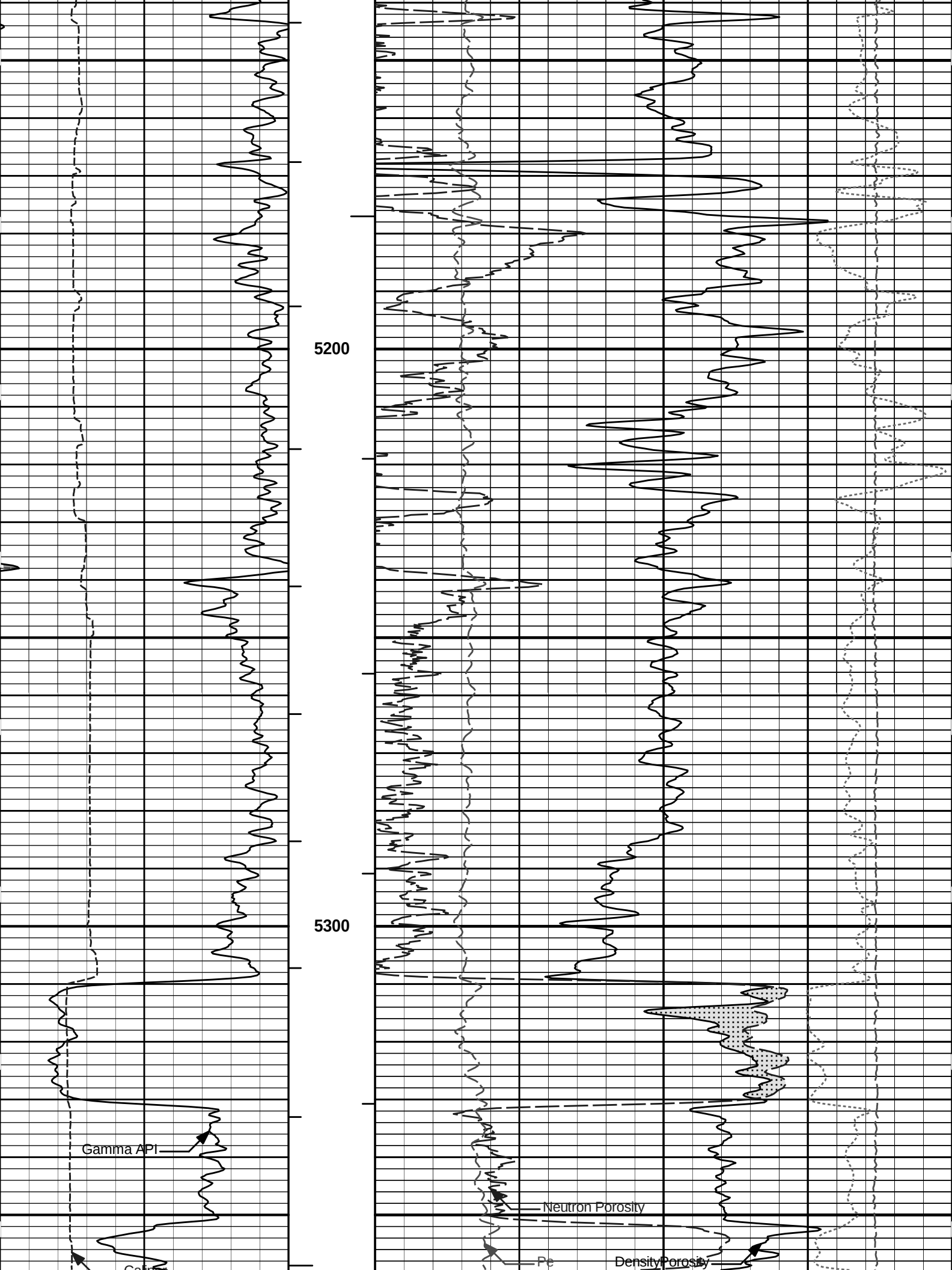


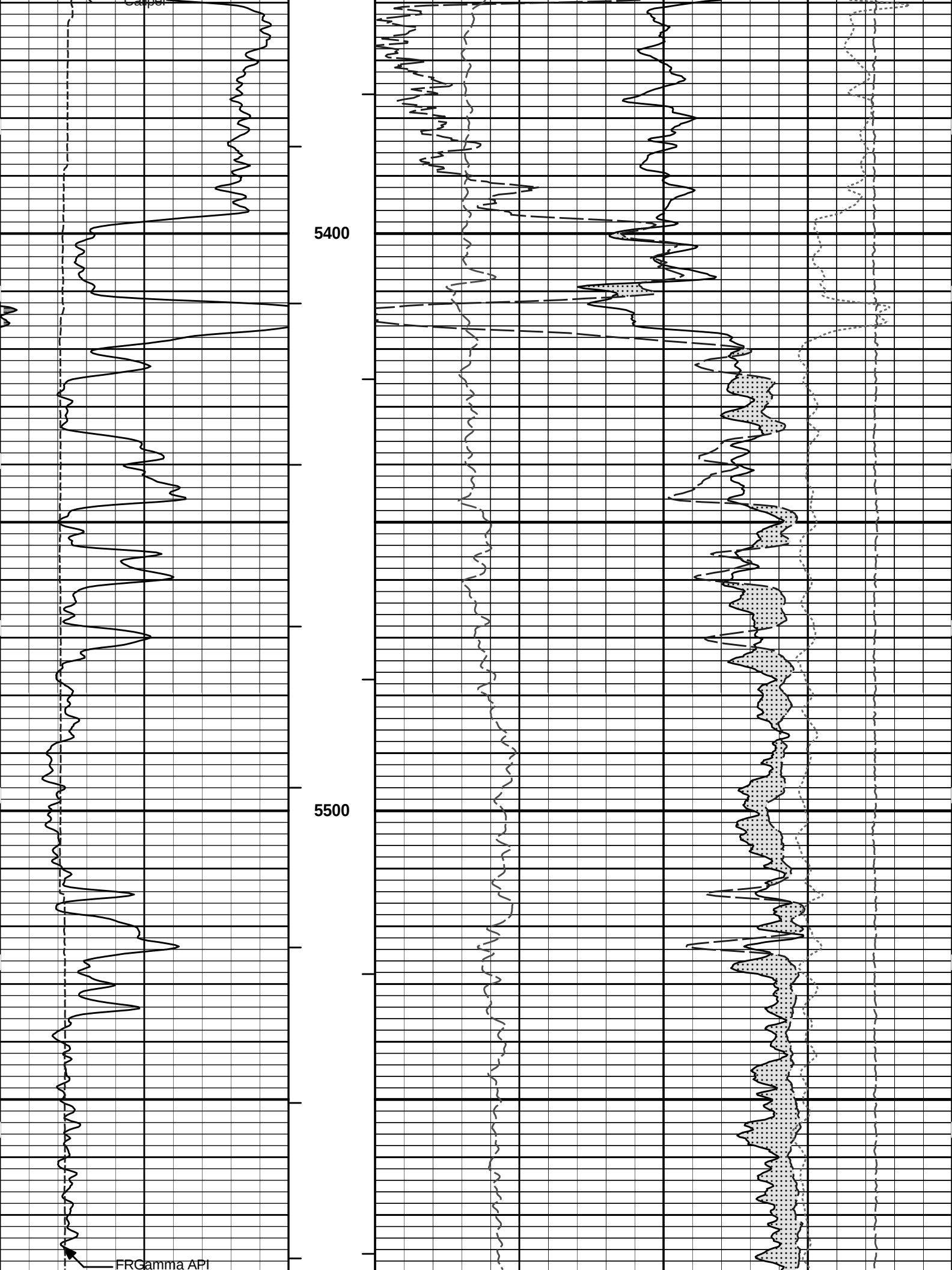


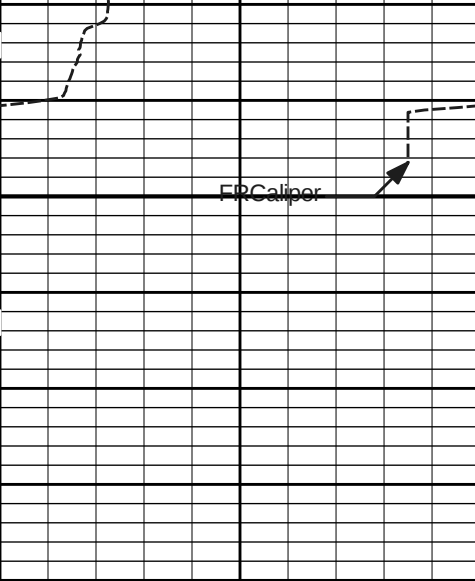




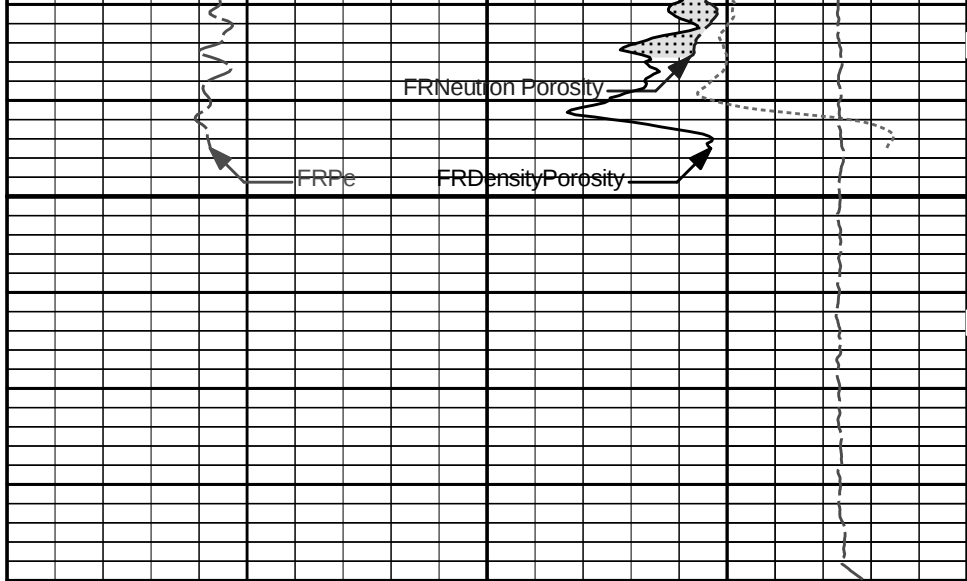








5600



6	Caliper	16
	inches	
0	Gamma API	150
	api	
	SHALE	

MD 1 : 240 ft
AHVT
BHVT
Tension Pull 10 0
Tension Pull

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

HALLIBURTON

Plot Time: 21-Jun-13 08:48:46
Plot Range: 4000 ft to 5640.58 ft
Data: KU_B-4\Well Based\DETAIL\
Plot File: \\PORO\Porosity_IQ_5_MAIN_LIB

5 INCH MAIN LOG

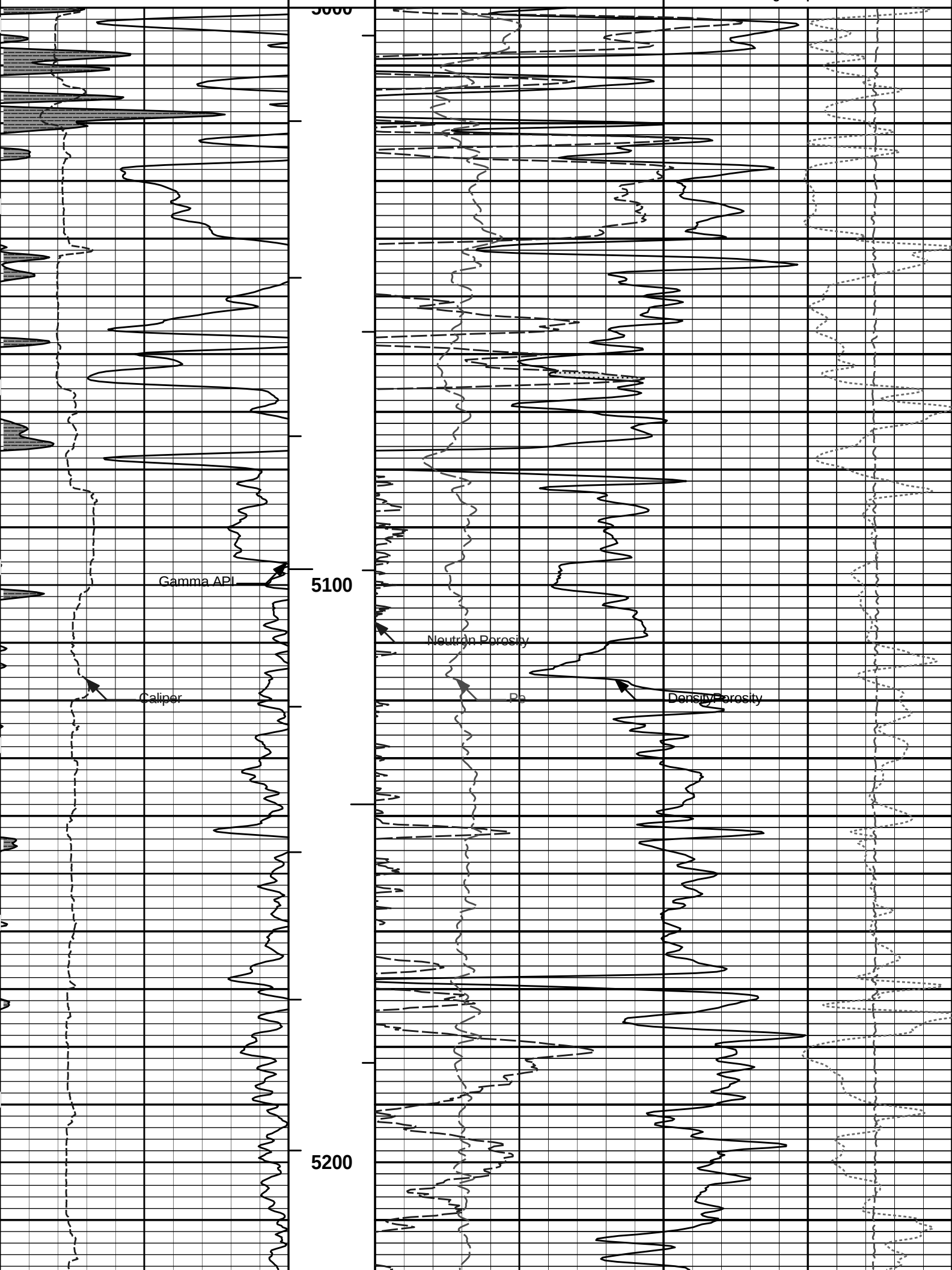
HALLIBURTON

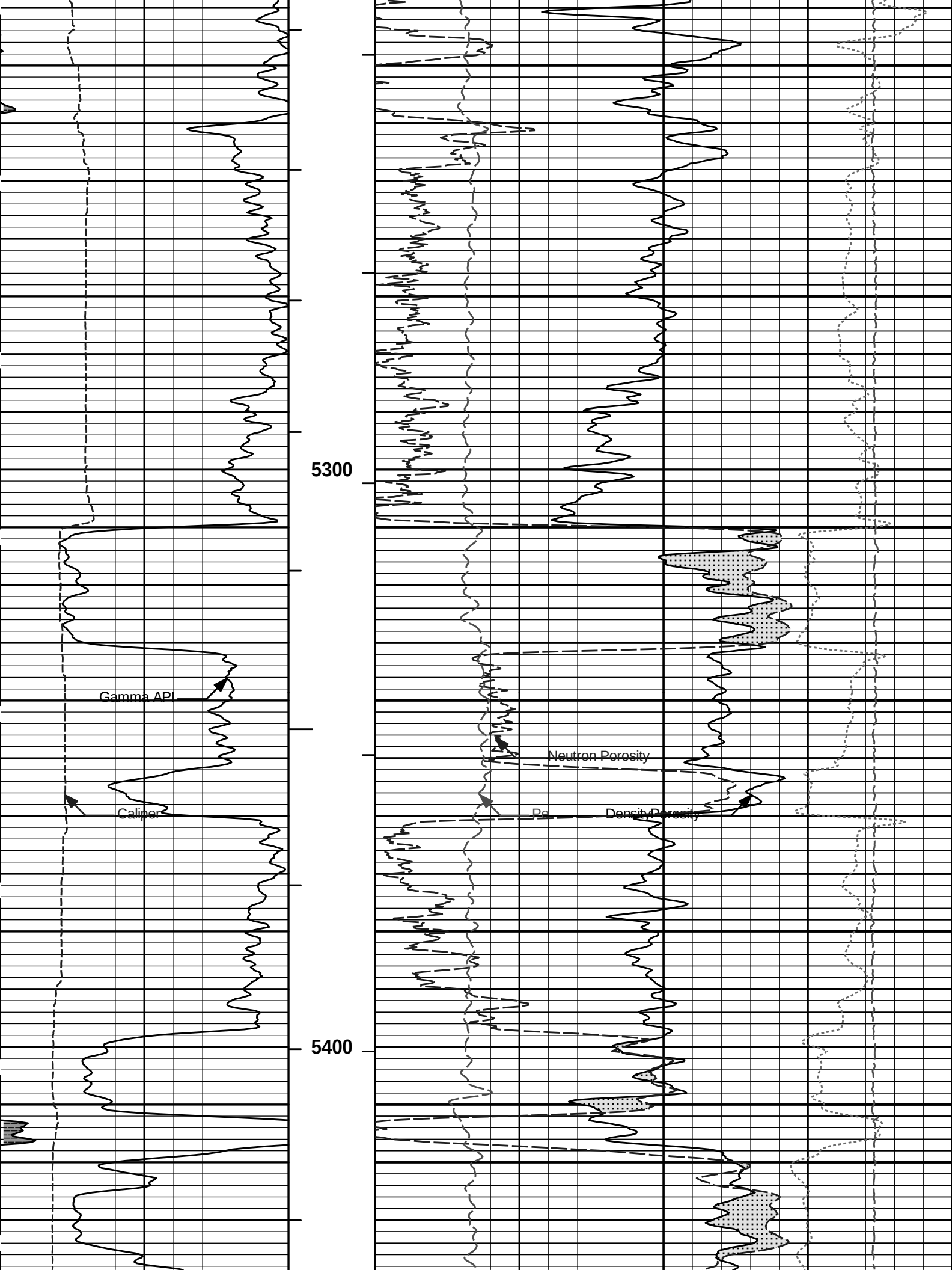
Plot Time: 21-Jun-13 08:48:47
Plot Range: 5000 ft to 5643.58 ft
Data: KU_B-4\Well Based\REPEAT\
Plot File: \\PORO\Porosity_IQ_5_REP_LIB

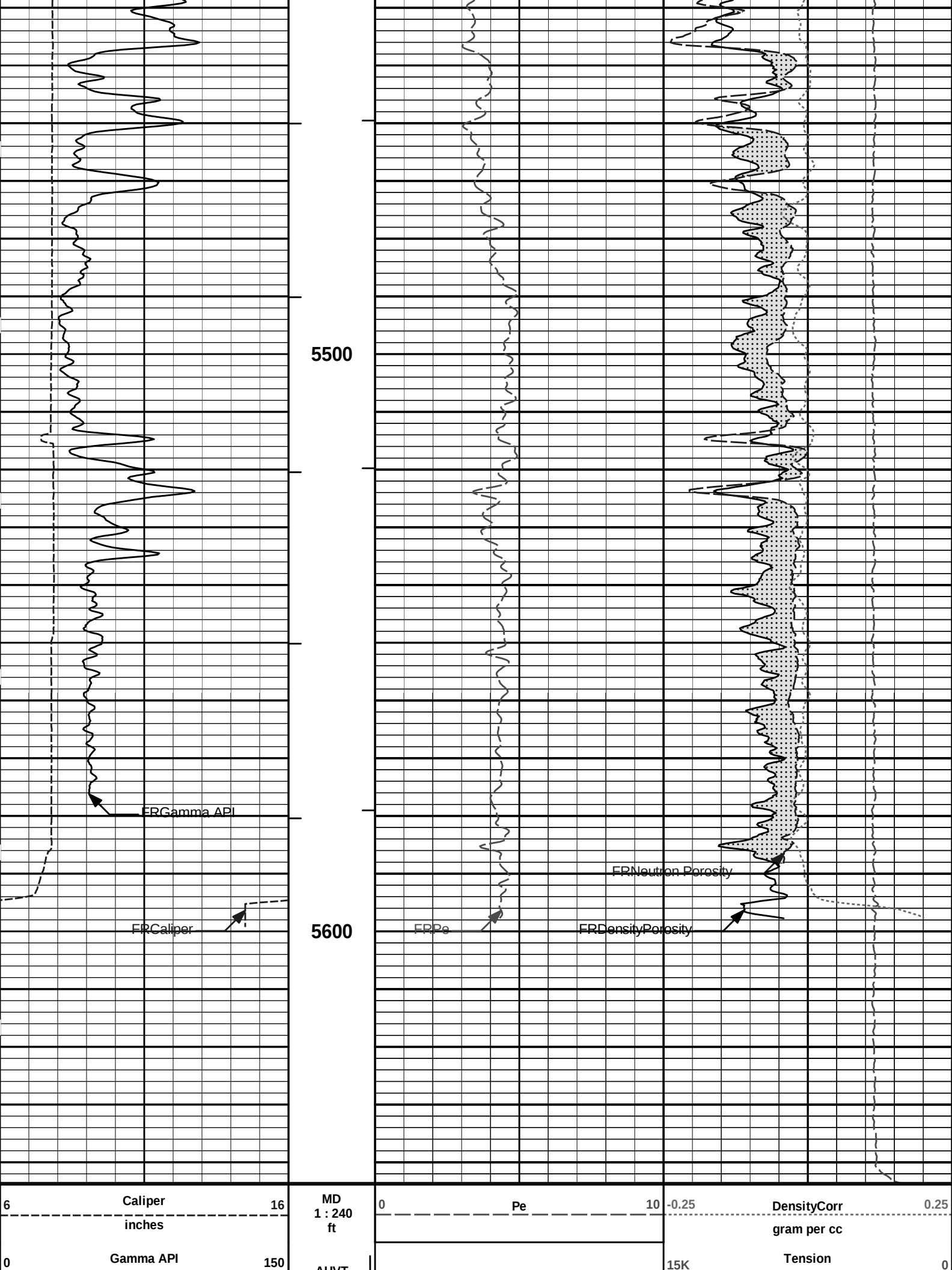
REPEAT SECTION

	SHALE	BHVT
0	Gamma API	150
	api	
6	Caliper	16
	inches	

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







api	AHV		pounds
SHALE	BHVT	30	DensityPorosity -10
			%
		30	Neutron Porosity -10
			%
			CROSSOVER

HALLIBURTON

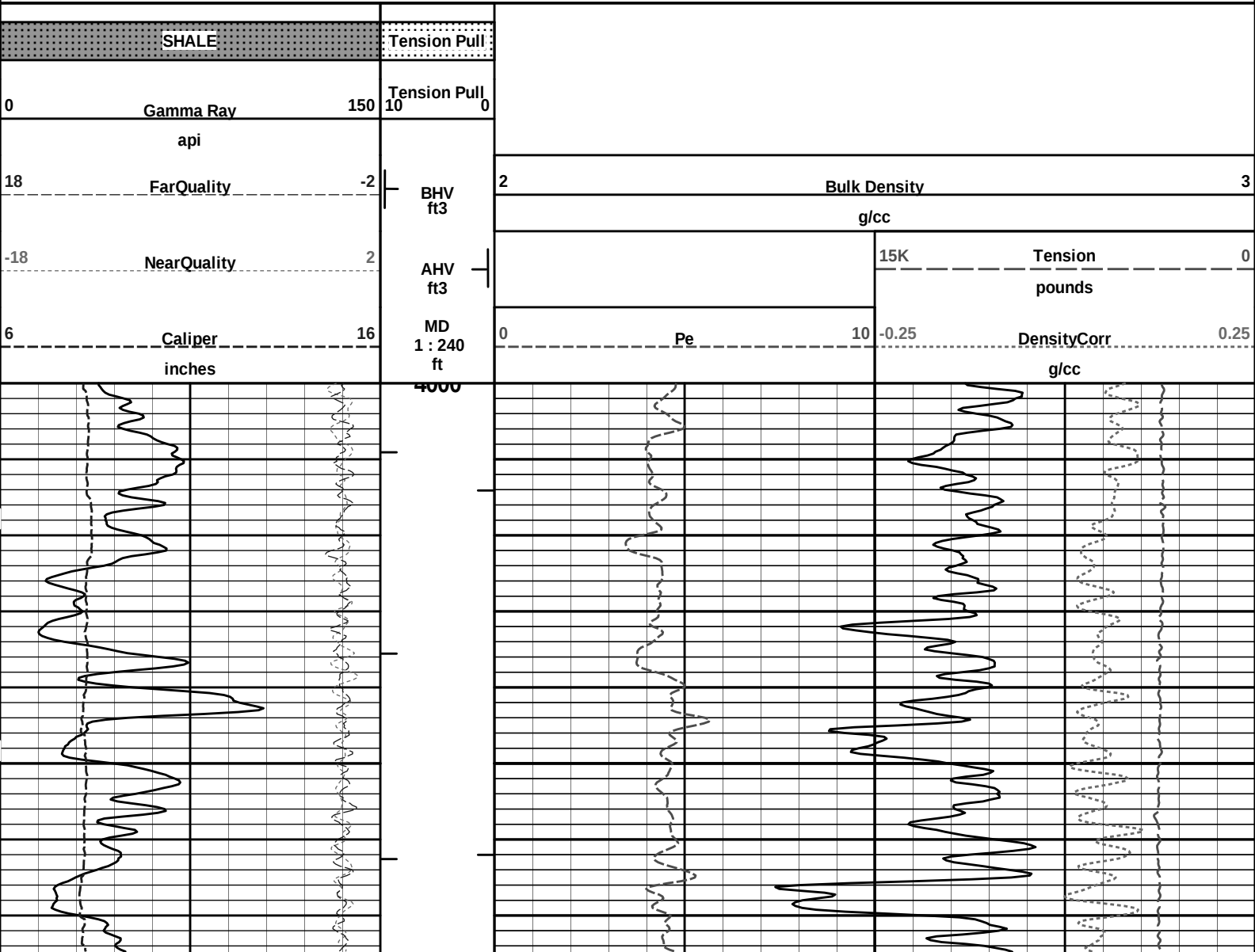
Plot Time: 21-Jun-13 08:48:51
Plot Range: 5000 ft to 5643.58 ft
Data: KU_B-4\Well Based\REPEAT\
Plot File: \\PORO\Poro_IQ_5_REP_LIB

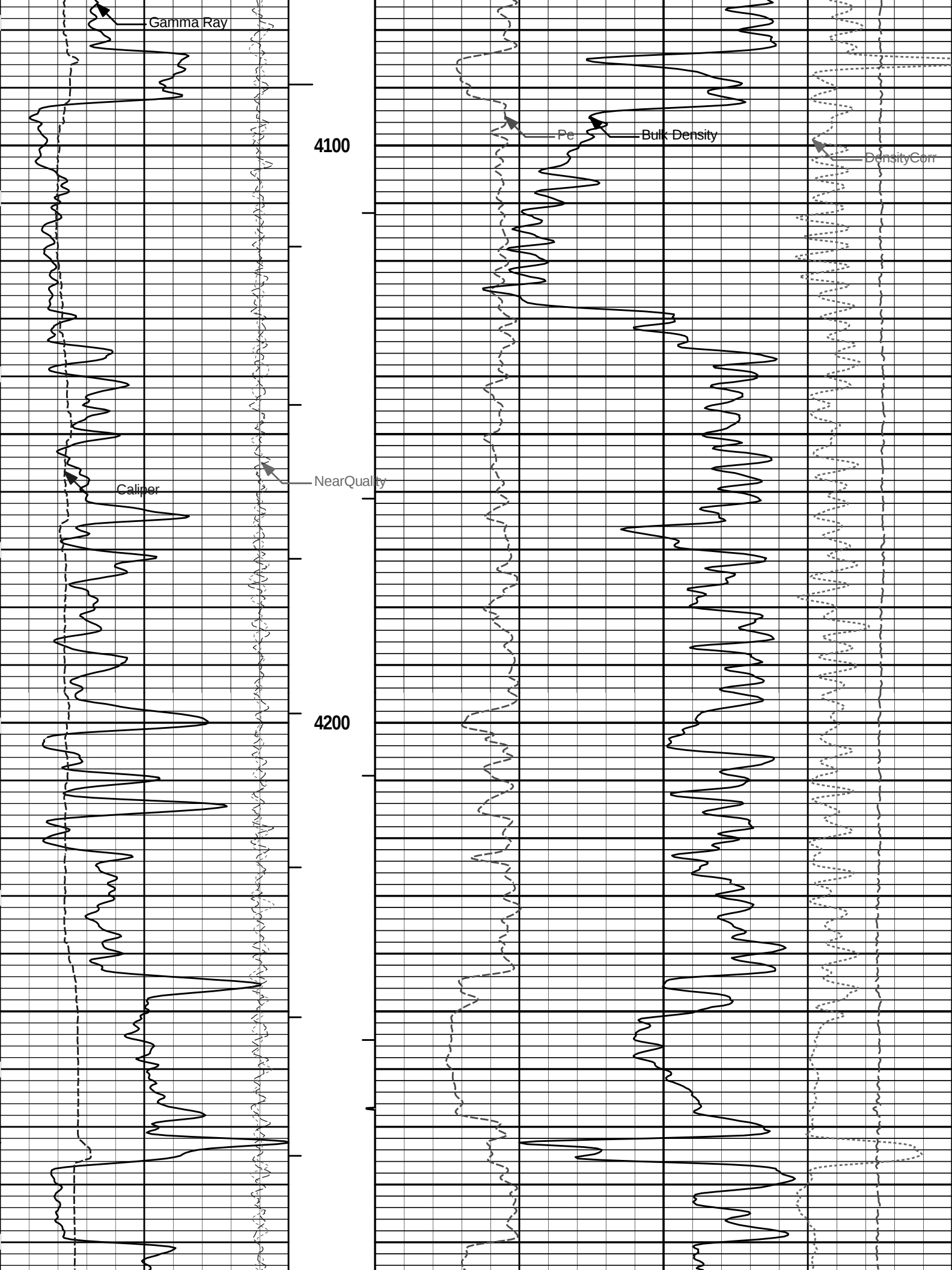
REPEAT SECTION

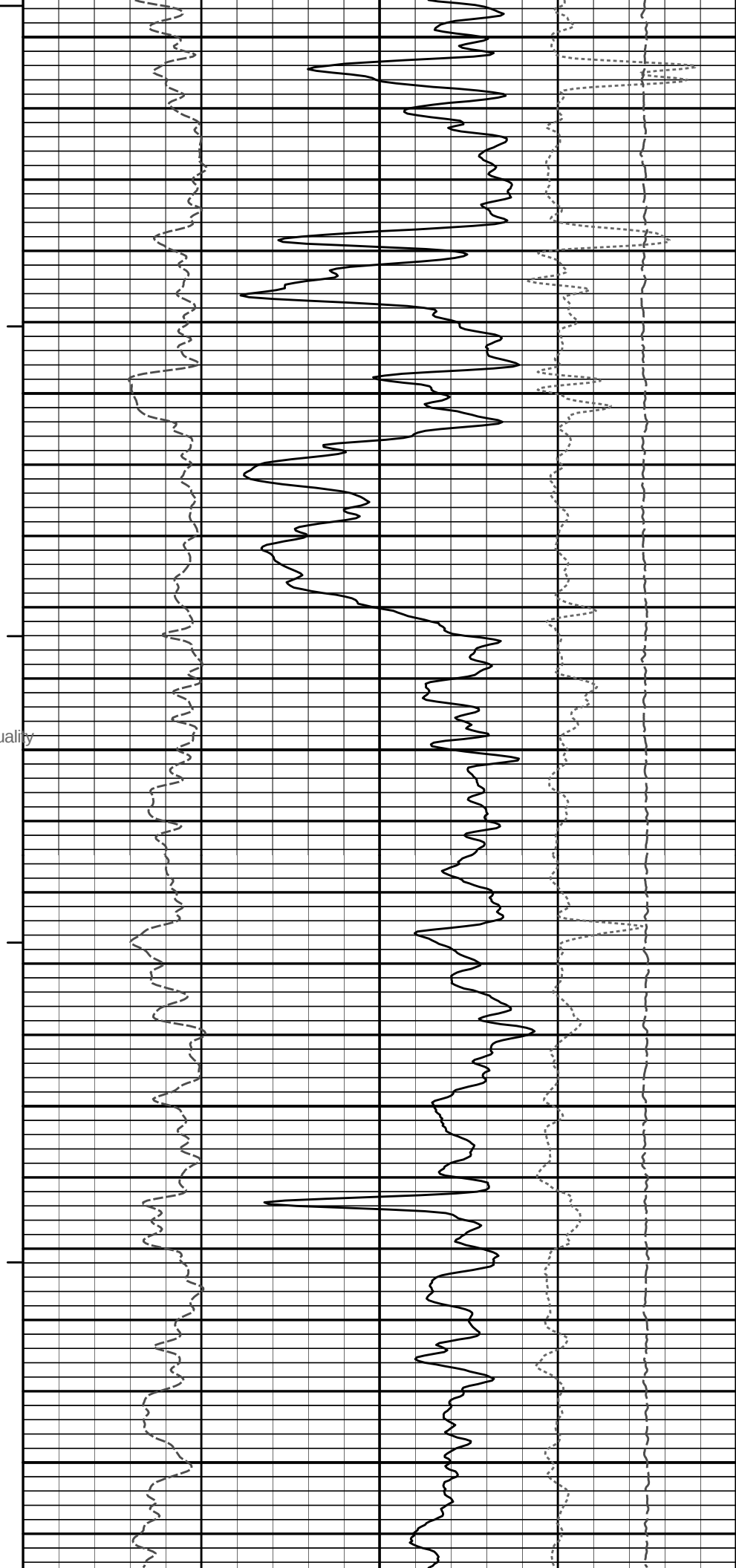
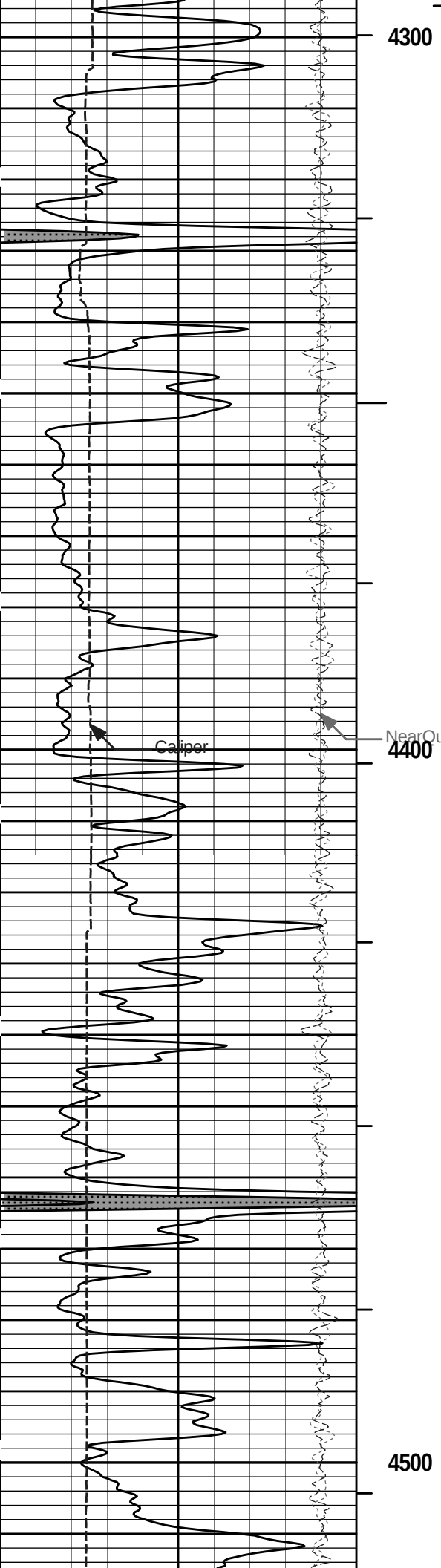
HALLIBURTON

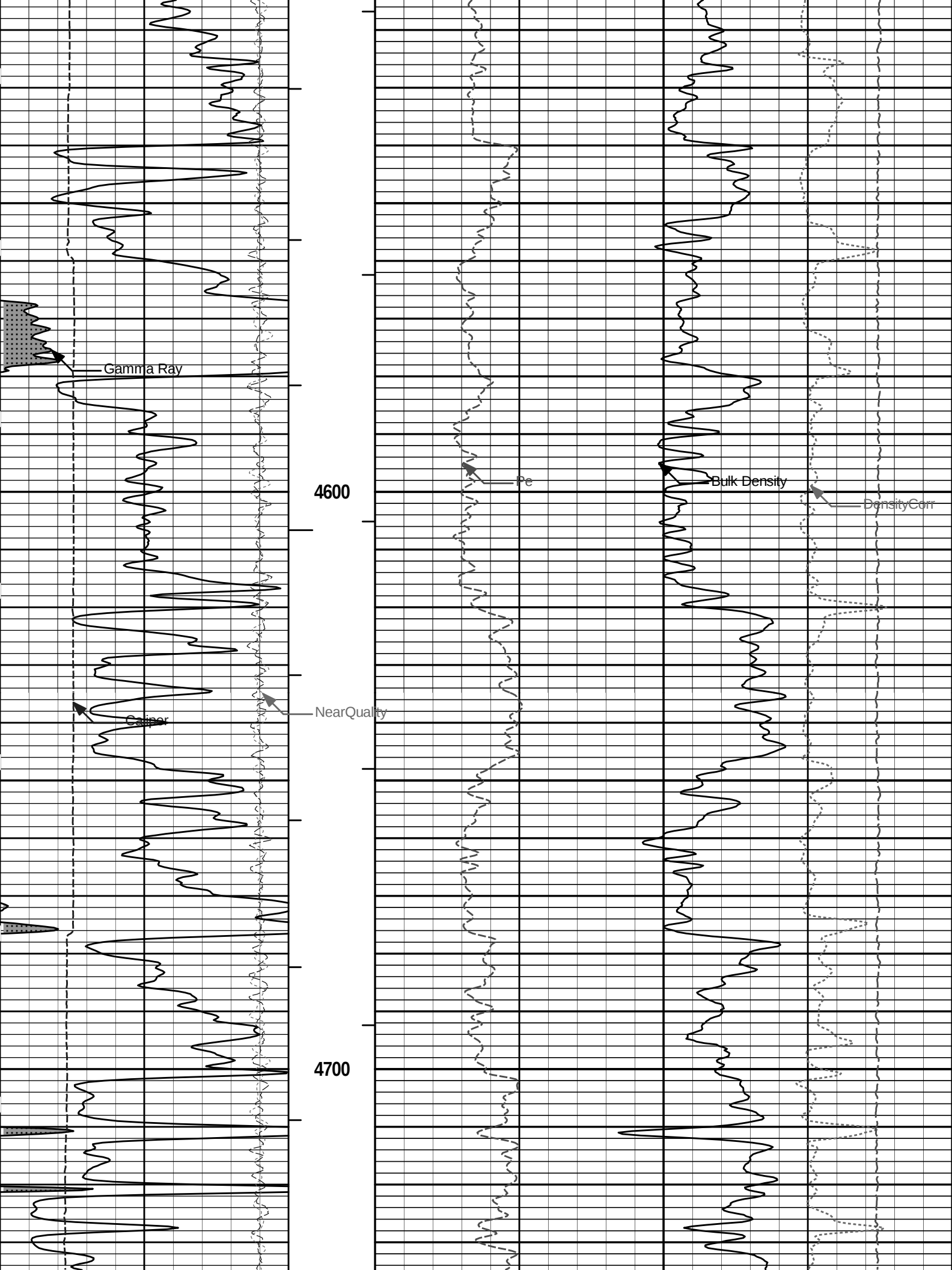
Plot Time: 21-Jun-13 08:48:51
Plot Range: 4000 ft to 5640.58 ft
Data: KU_B-4\Well Based\DETAIL\
Plot File: \\LOCAL-KU_B-4\0001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-CH\PORO\BULKD_5_MAIN_LIB

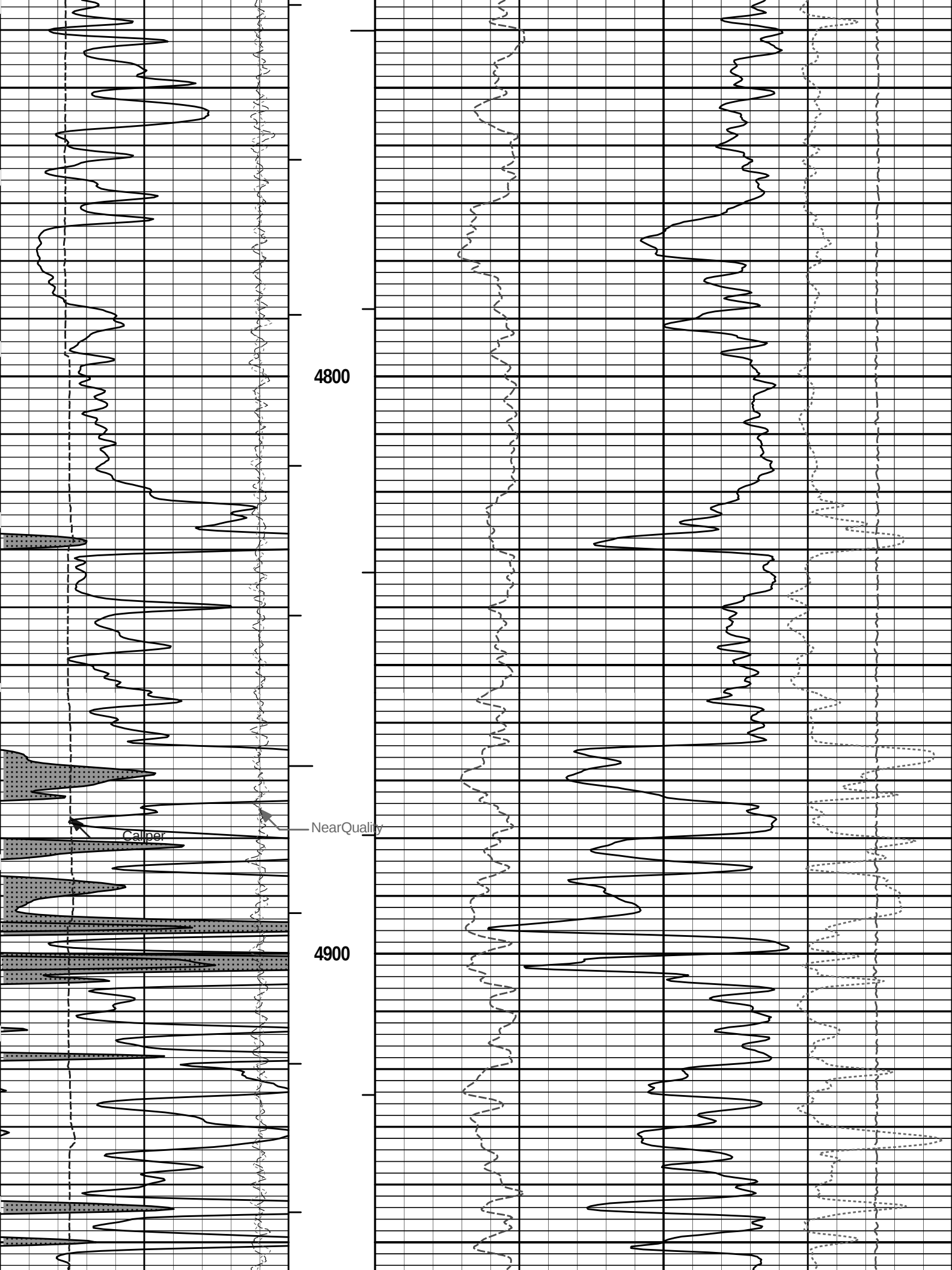
5 INCH MAIN LOG

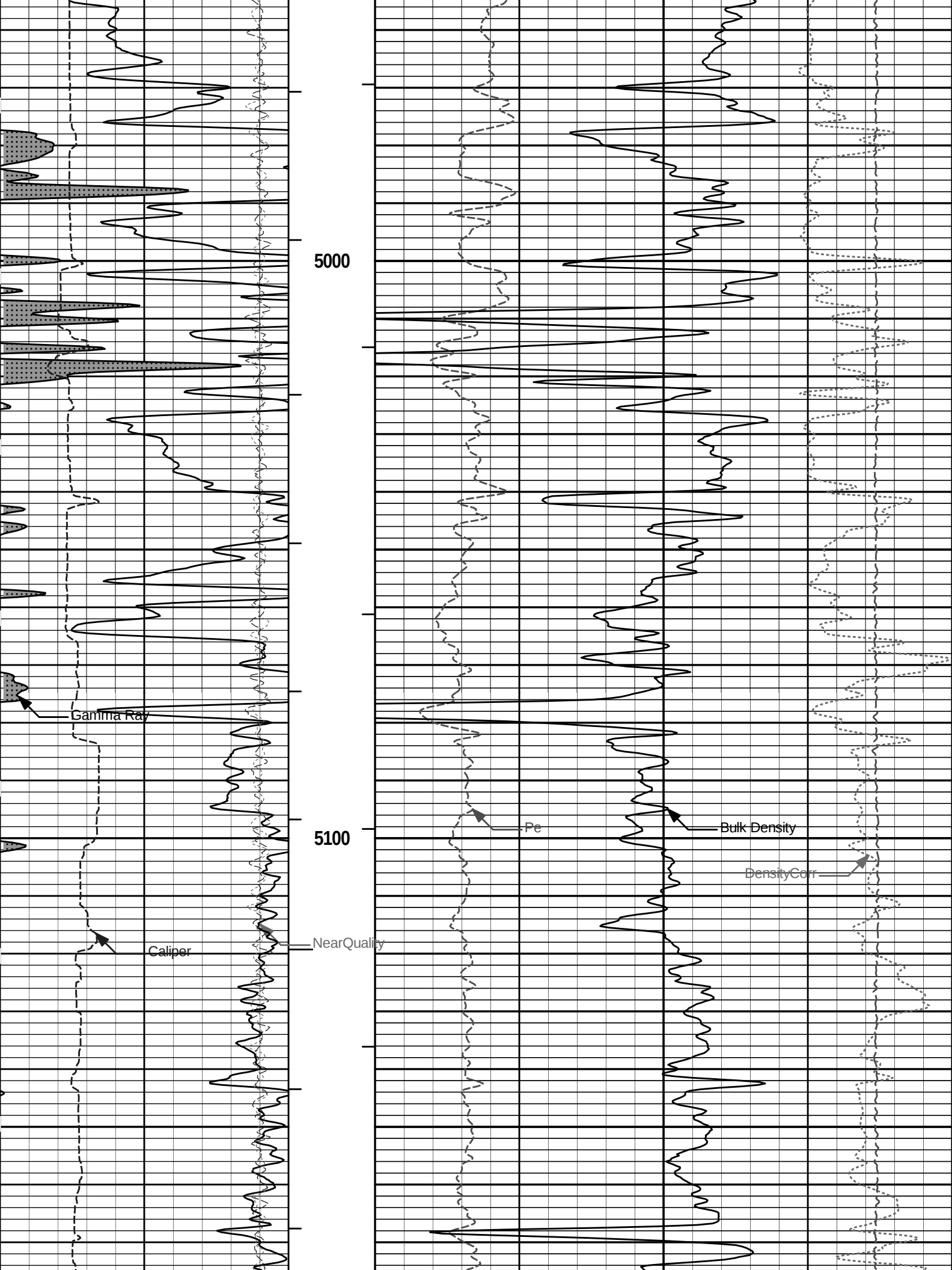


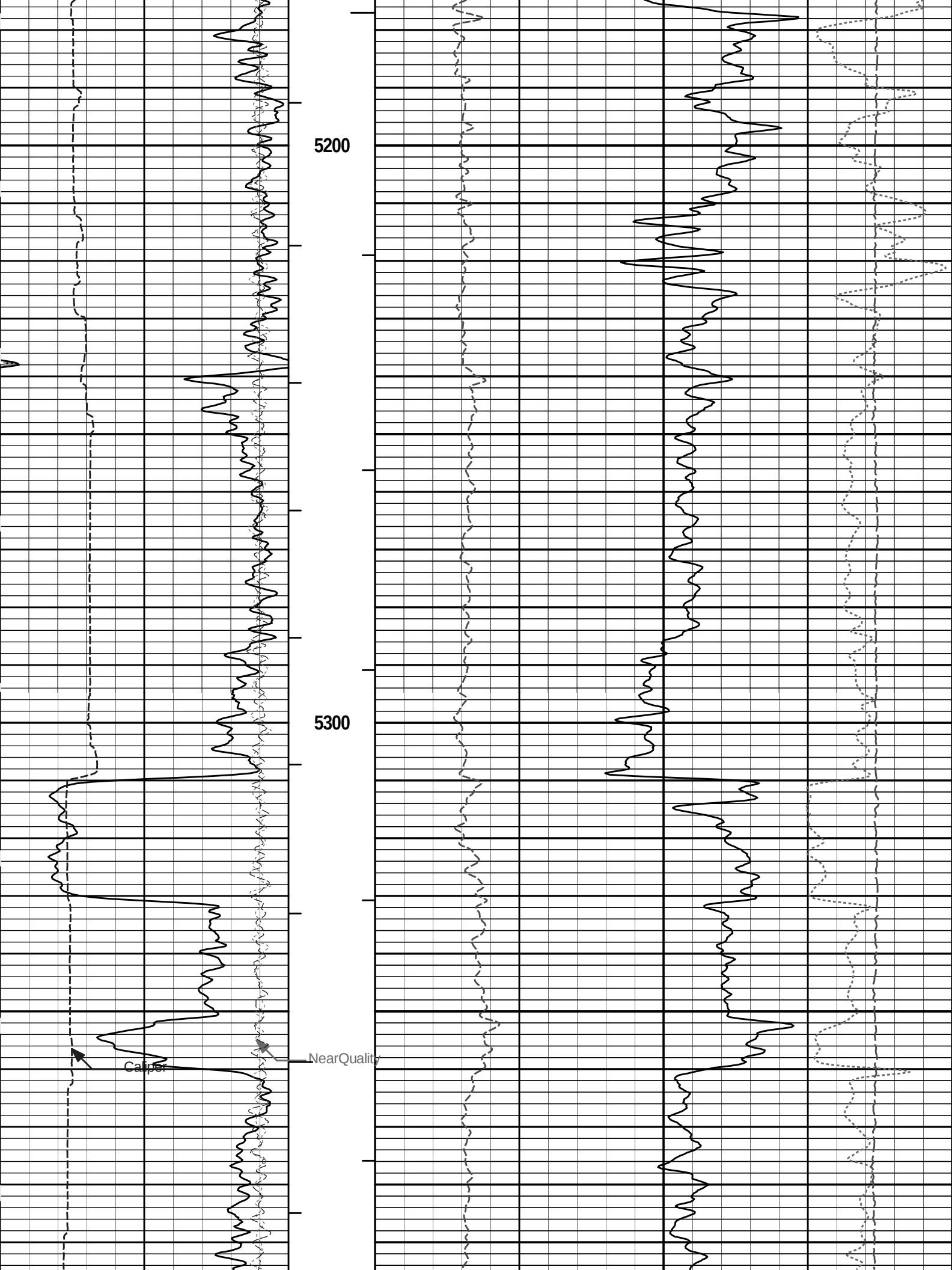


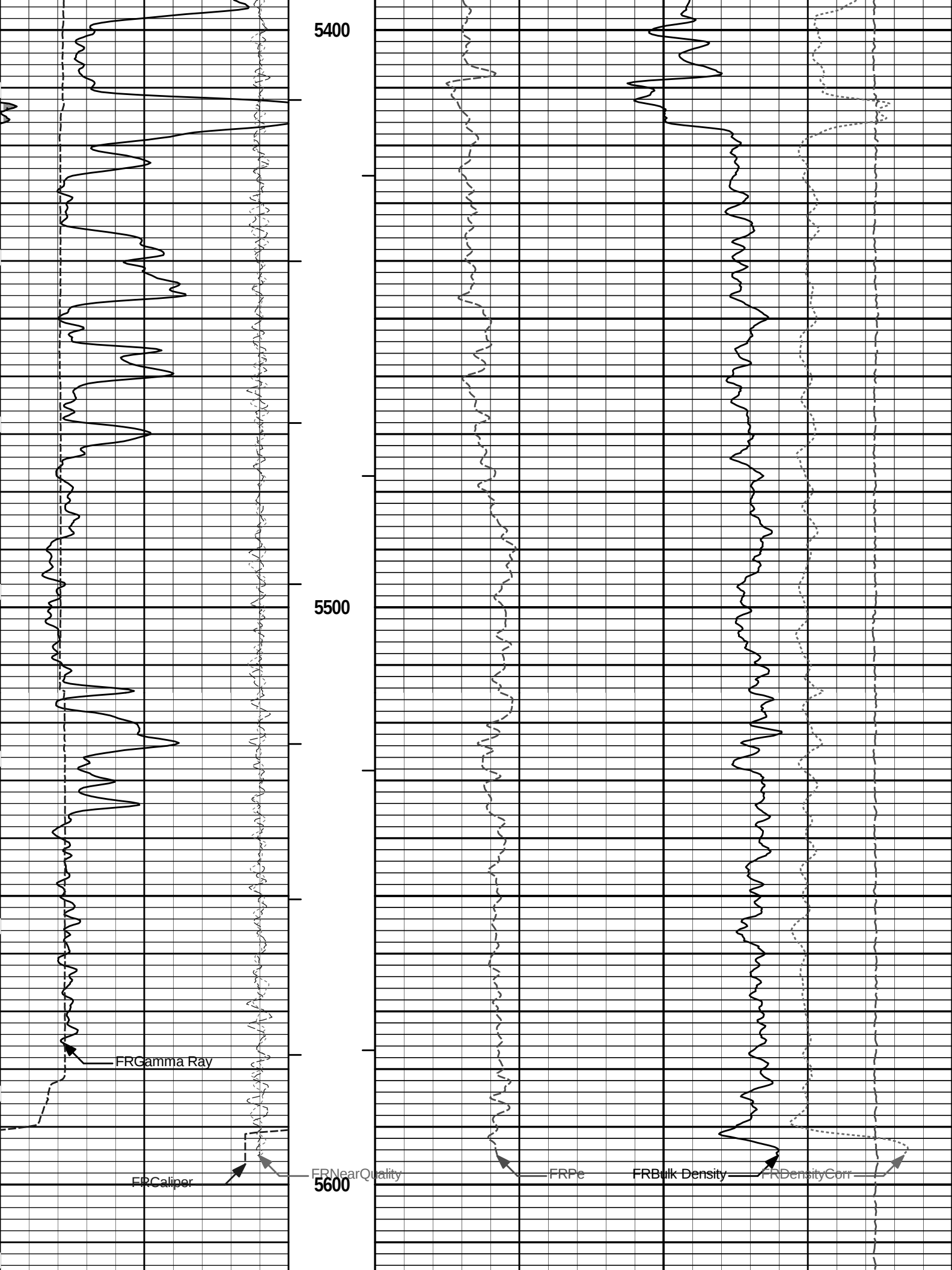


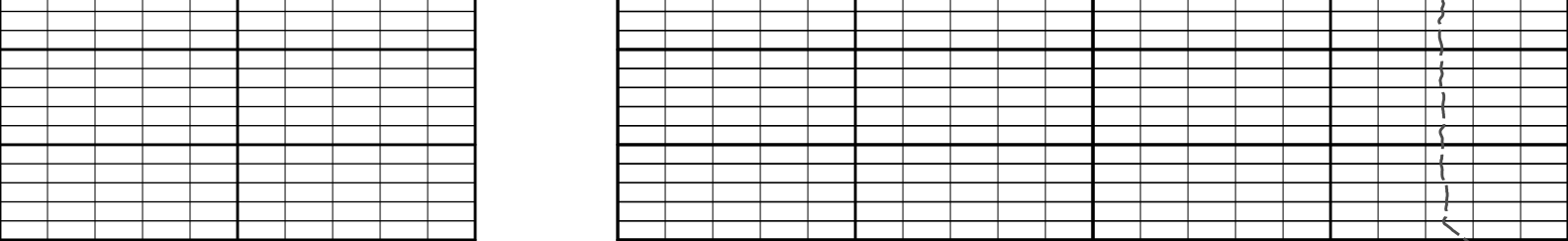












6	Caliper	16	MD	0	Pe	10	-0.25	DensityCorr	0.25
	inches		1 : 240					g/cc	
-18	NearQuality	2	AHV				15K	Tension	0
			ft3					pounds	
18	FarQuality	-2	BHV	2	Bulk Density				3
			ft3		g/cc				
0	Gamma Ray	150	Tension Pull	0					
	api								
	SHALE		Tension Pull						

HALLIBURTON

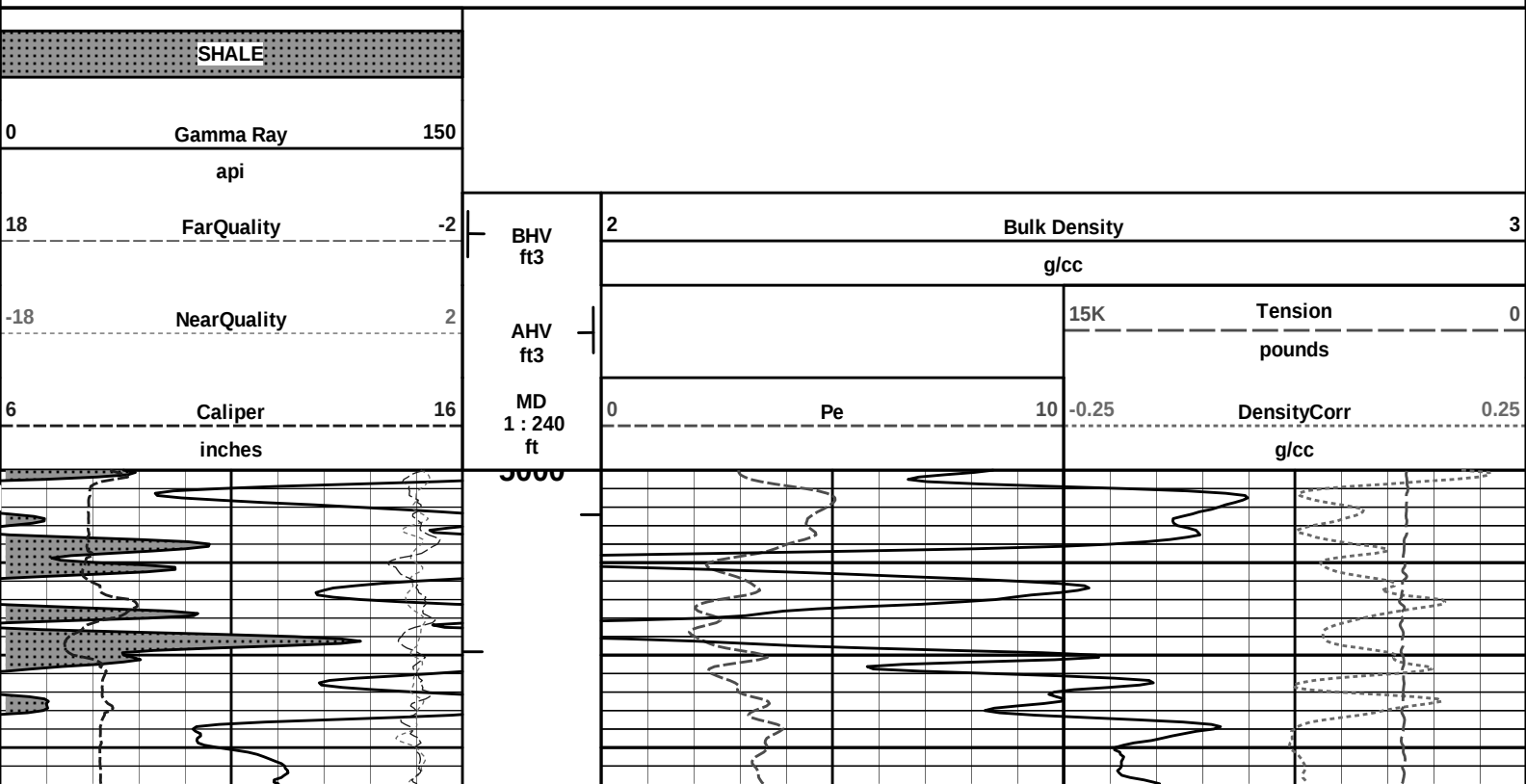
Plot Time: 21-Jun-13 08:48:59
Plot Range: 4000 ft to 5640.58 ft
Data: KU_B-4\Well Based\DETAIL\
Plot File: \\-LOCAL-\\KU_B-4\\0001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-CHIPORO\\BULKD_5_MAIN_LIB

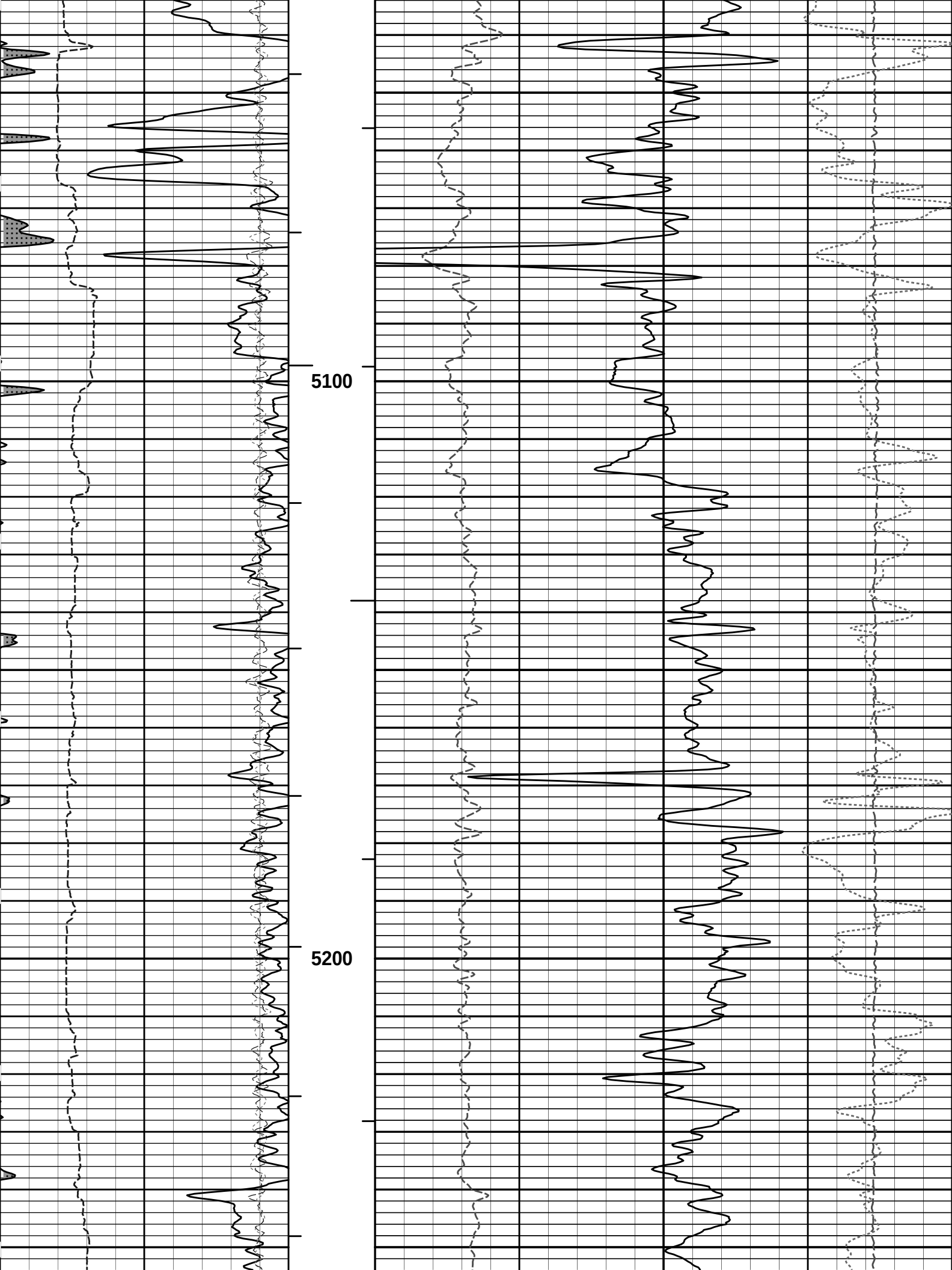
5 INCH MAIN LOG

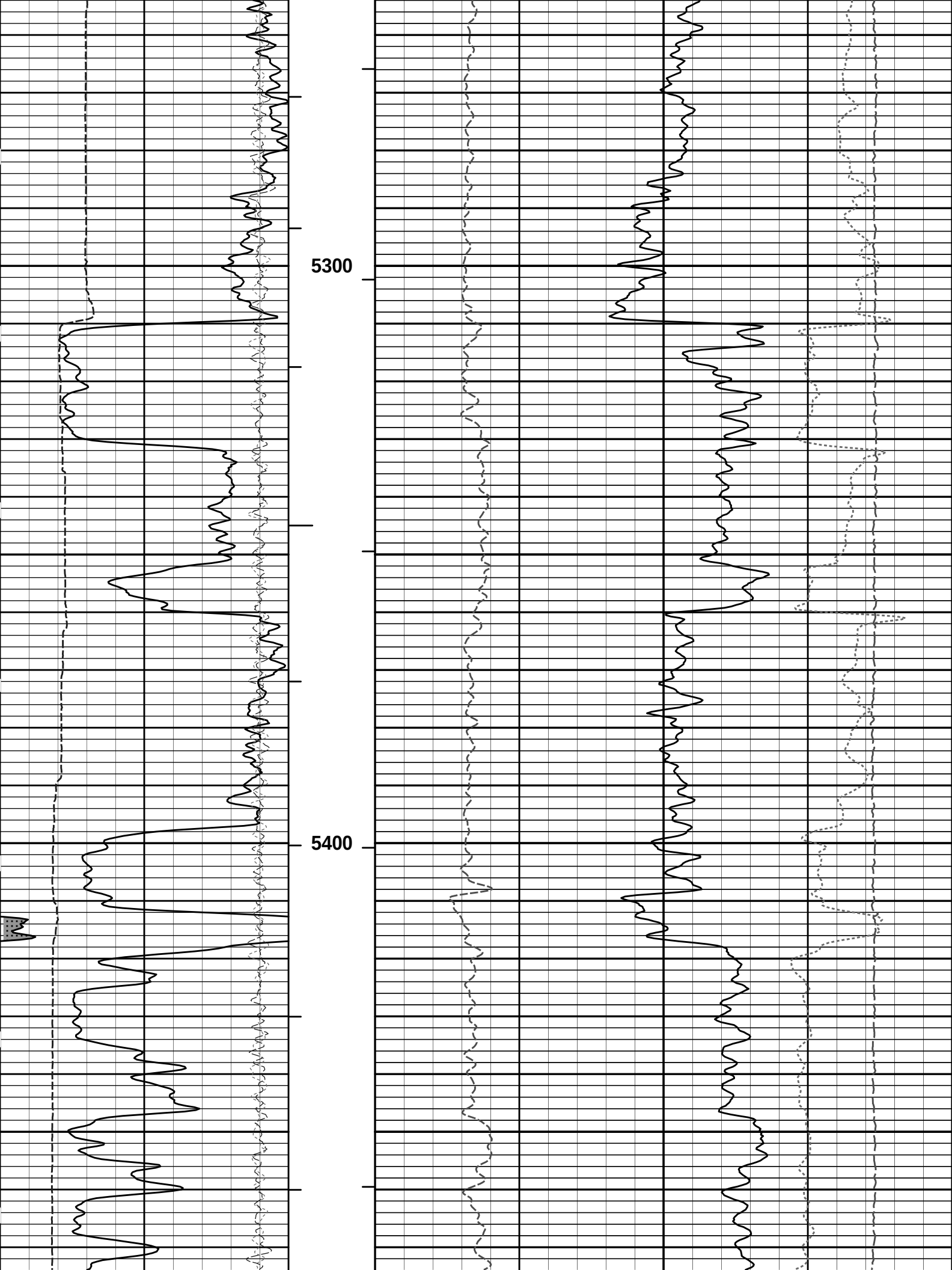
HALLIBURTON

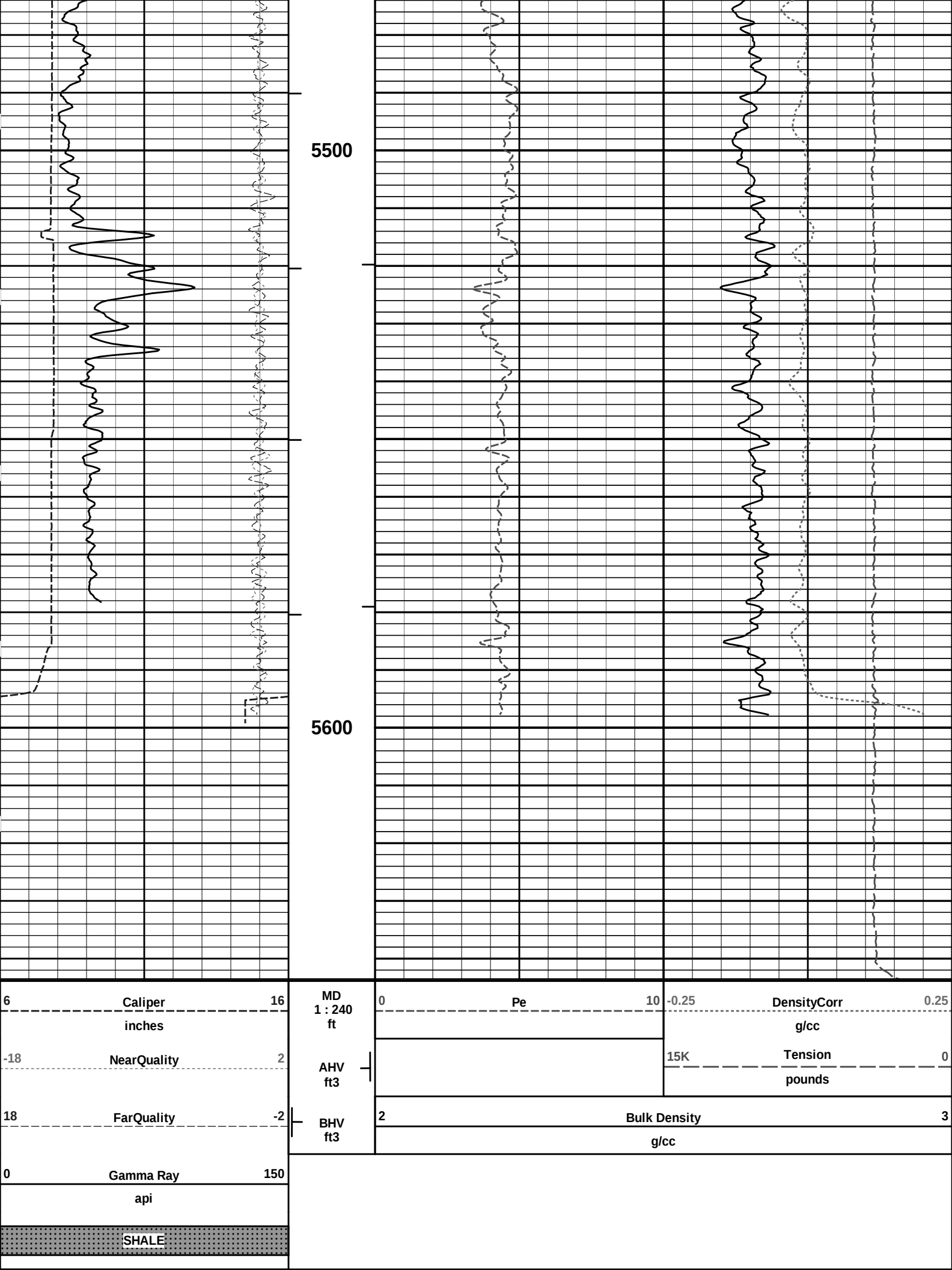
Plot Time: 21-Jun-13 08:48:59
Plot Range: 5000 ft to 5643.58 ft
Data: KU_B-4\Well Based\\REPEAT\
Plot File: \\-LOCAL-\\KU_B-4\\0001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-CHIPORO\\BULKD_5_REP_LIB

REPEAT SECTION









5500

5600

6	Caliper	16
	inches	
-18	NearQuality	2
18	FarQuality	-2
0	Gamma Ray	150
	api	
	SHALE	

MD
1 : 240
ft

AHV
ft3

BHV
ft3

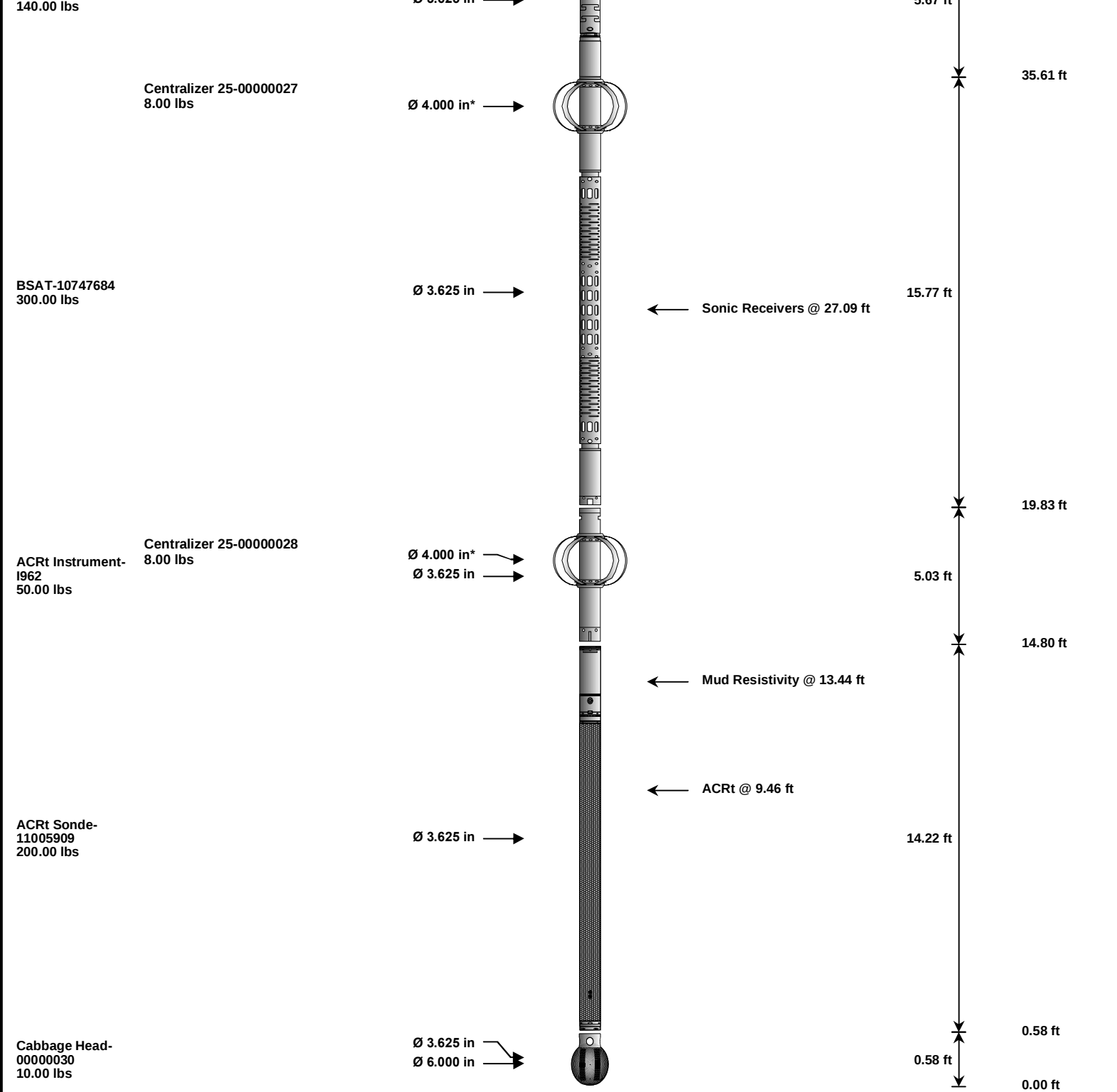
0	Pe	10	-0.25	DensityCorr	0.25
				g/cc	
			15K	Tension	0
				pounds	
2	Bulk Density				3
	g/cc				

REPEAT SECTION

HALLIBURTON

TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
CH_HOS-CH_696 37.50 lbs		Ø 2.750 in →		← Temperature @ 76.98 ft	3.03 ft	78.01 ft
XOHD-TRK696 20.00 lbs		Ø 2.750 in → Ø 3.625 in →			0.95 ft	74.98 ft
						74.03 ft
SP Sub-11441455 60.00 lbs		Ø 3.625 in →		← SP @ 72.26 ft	3.74 ft	
						70.30 ft
GTET-11048627 165.00 lbs		Ø 3.625 in →		← GammaRay @ 64.23 ft	8.52 ft	
						61.78 ft
DSNT-11055304 174.00 lbs	DSN Decentralizer-11005605 6.60 lbs	Ø 5.000 in* → Ø 3.625 in →		← DSN Far @ 54.84 ft ← DSN Near @ 54.09 ft	9.69 ft	
						52.09 ft
SDLT-11014296 360.00 lbs	SDLT Pad-10865884 65.00 lbs Microlog Pad-11014296 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-001		Ø 3.625 in →			5.67 ft	



Mnemonic	Tool Name	Serial Number	Weight (lbs)	Length (ft)	Accumulated Length (ft)	Max.Log. Speed (fpm)
CH_HOS	Hostile Cable Head with Load Cell	CH_696	37.50	3.03	74.98	300.00
XOHD	Hostile to Dits Cross Over	TRK696	20.00	0.95	74.03	300.00
SP	SP Sub	11441455	60.00	3.74	70.30	300.00
GTET	Gamma Telemetry Tool	11048627	165.00	8.52	61.78	60.00
DSNT	Dual Spaced Neutron	11055304	174.00	9.69	52.09	60.00
DCNT	DSN Decentralizer	11005605	6.60	5.13	* 55.42	300.00
SDLT	Spectral Density Tool	11014296	360.00	10.81	41.28	60.00
MICP	Microlog Pad	11014296	8.00	1.00	* 43.78	60.00
SDLP	Density Insite Pad	10865884	65.00	2.55	* 43.49	60.00
FLEX	Flex Joint	001	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	00000027	8.00	2.08	* 33.50	300.00
ACRt	Array Compensated True Resistivity Instrument Section	I962	50.00	5.03	14.80	300.00
OBCEN	Centralizer - 25 in. Overbody	00000028	8.00	2.08	* 16.80	300.00
ACRt	Array Compensated True Resistivity Sonde Section	11005909	200.00	14.22	0.58	300.00

CBHD	Cabbage Head	00000030	10.00	0.58	0.00	300.00
Total			1,612.10	78.01		
* Not included in Total Length and Length Accumulation.						
Data: KU_B-4\0001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-CHIDLE				Date: 20-Jun-13 02:44:43		

HALLIBURTON

CALIBRATION REPORT

NATURAL GAMMA RAY TOOL SHOP CALIBRATION			
Tool Name:	GTET - 11048627	Reference Calibration Date:	06-Jun-13 12:46:30
Engineer:	SHELDON INGERSOLL	Calibration Date:	17-Jun-13 14:38:32
Software Version:	WL INSITE R3.8.4 (Build 5)	Calibration Version:	1
Calibrator Source S/N: TB146			
Calibrator API Reference:265.00 api			
Equivalent Calibrator API Reference:269.6 api			
	Measurement	Measured	Calibrated Units
	Background	16.6	16.4 api
	Background + Calibrator	288.6	286.1 api
	Calibrator	272.1	269.6 api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION				
Tool Name:	GTET - 11048627	Reference Calibration Date:	17-Jun-13 14:38:32	
Engineer:	J. BOLLLOM	Calibration Date:	19-Jun-13 09:47:57	
Software Version:	WL INSITE R3.8.4 (Build 5)	Calibration Version:	1	
Calibrator Source S/N: TB146				
Calibrator API Reference:265.00 api				
Equivalent Calibrator API Reference:269.6 api				
Field Verification		Shop	Field	Units
Background		16.4	29.3	api
Background + Calibrator		286.1	299.0	api
Calibrator		269.6	269.7	api
Shop		Field	Difference	Tolerance
269.6		269.7	-0.1	+/- 9.00

MICRO LOG SHOP CALIBRATION			
Tool Name:	Microlog Pad - 11014296	Reference Calibration Date:	30-May-13 08:15:42
Engineer:	J. BOLLLOM	Calibration Date:	09-Jun-13 12:00:28
Software Version:	WL INSITE R3.8.4 (Build 5)	Calibration Version:	1
Host Tool Name:	DSNT - 11055304		

CALIBRATION COEFFICIENT SUMMARY					
Measurement	Micro Log Normal		Micro Log Lateral		Units
	Measured	Calibrated	Measured	Calibrated	
Tool Zero	-0.06	-0.09	-0.01	-0.01	ohmm
Calibration Point #1	0.03	0.00	-0.01	0.00	ohmm
Calibration Point #2	20.01	20.00	20.04	20.00	ohmm
Internal Reference	19.93	19.92	20.02	19.99	ohmm
Micro Log Normal		Micro Log Lateral			

	Measurement	Micro Log Normal Tool Value		Micro Log Lateral Tool Value		Units
	Tool Zero	0.63		0.40		V
	Calibration Point #1	25.02		2.34		V
	Calibration Point #2	5298.56		6877.77		V
	Internal Reference	5276.63		6873.02		V

MICRO LOG FIELD CHECK						
Tool Name:	Microlog Pad - 11014296			Reference Calibration Date:	09-Jun-13 12:00:28	
Engineer:	J. BOLLUM			Calibration Date:	19-Jun-13 09:45:07	
Software Version:	WL INSITE R3.8.4 (Build 5)			Calibration Version:	1	

	Measurement	Micro Log Normal		Micro Log Lateral		
		Shop	Field	Shop	Field	Units
	Tool Zero	-0.09	-0.09	-0.01	-0.01	ohmm
	Internal Reference	19.92	19.92	19.99	20.00	ohmm
Summary						
	Signal	Shop	Field	Difference		Tolerance
	Microlog Normal	19.92	19.92	0.00		+/- 0.80
	Microlog Lateral	19.99	20.00	-0.01		+/- 0.80

CALIBRATION SUMMARY						
Sensor	Shop	Field	Post	Difference	Tolerance	Units
GTET-11048627						
Gamma Ray Calibrator	269.6	269.7	-----	-0.1	+/- 9.00	api
Microlog Pad-11014296						
MicroLog Normal	19.92	19.92	-----	0.00	+/-0.80	ohmm
MicroLog Lateral	19.99	20.00	-----	-0.01	+/-0.80	ohmm

Data: KU_B-4\0001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-CHMILE					Date: 20-Jun-13 03:24:06	
---	--	--	--	--	--------------------------	--

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	8.500	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	2.000	ohmm
	SHARED	TRM	Temperature of Mud	75.0	degF
	SHARED	CSD	Logging Interval is Cased?	No	
	SHARED	ICOD	AHV Casing OD	5.500	in
	SHARED	ST	Surface Temperature	75.0	degF
	SHARED	TD	Total Well Depth	5645.00	ft
	SHARED	BHT	Bottom Hole Temperature	200.0	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 / 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	DNSO	DSN Standoff - 0.25 in (6.35 mm) Recommended	0.250	in
	DSNT	DNTP	Temperature Correction Type	None	
	DSNT	DPRS	DSN Pressure Correction Type	None	
	DSNT	SHCO	View More Correction Options	No	
	DSNT	UTVD	Use TVD for Gradient Corrections?	No	
	DSNT	LHWT	Logging Horizontal Water Tank?	No	
	SDLT	CLOK	Process Caliper Outputs?	Yes	
	SDLT Pad	DNOK	Process Density?	Yes	
	SDLT Pad	DNOK	Process Density EVR?	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					

HALLIBURTON

INPUTS, DELAYS AND FILTERS TABLE

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

F1X1	ACRT 12KHz - 80in X value	9.22	BLK	0.000
F1R2	ACRT 12KHz - 50in R value	6.72	BLK	0.000
F1X2	ACRT 12KHz - 50in X value	6.72	BLK	0.000
F1R3	ACRT 12KHz - 29in R value	5.22	BLK	0.000
F1X3	ACRT 12KHz - 29in X value	5.22	BLK	0.000
F1R4	ACRT 12KHz - 17in R value	4.22	BLK	0.000
F1X4	ACRT 12KHz - 17in X value	4.22	BLK	0.000
F1R5	ACRT 12KHz - 10in R value	3.72	BLK	0.000
F1X5	ACRT 12KHz - 10in X value	3.72	BLK	0.000
F1R6	ACRT 12KHz - 6in R value	3.47	BLK	0.000
F1X6	ACRT 12KHz - 6in X value	3.47	BLK	0.000
F2R1	ACRT 36KHz - 80in R value	9.22	BLK	0.000
F2X1	ACRT 36KHz - 80in X value	9.22	BLK	0.000
F2R2	ACRT 36KHz - 50in R value	6.72	BLK	0.000
F2X2	ACRT 36KHz - 50in X value	6.72	BLK	0.000
F2R3	ACRT 36KHz - 29in R value	5.22	BLK	0.000
F2X3	ACRT 36KHz - 29in X value	5.22	BLK	0.000
F2R4	ACRT 36KHz - 17in R value	4.22	BLK	0.000
F2X4	ACRT 36KHz - 17in X value	4.22	BLK	0.000
F2R5	ACRT 36KHz - 10in R value	3.72	BLK	0.000
F2X5	ACRT 36KHz - 10in X value	3.72	BLK	0.000
F2R6	ACRT 36KHz - 6in R value	3.47	BLK	0.000
F2X6	ACRT 36KHz - 6in X value	3.47	BLK	0.000
F3R1	ACRT 72KHz - 80in R value	9.22	BLK	0.000
F3X1	ACRT 72KHz - 80in X value	9.22	BLK	0.000
F3R2	ACRT 72KHz - 50in R value	6.72	BLK	0.000
F3X2	ACRT 72KHz - 50in X value	6.72	BLK	0.000
F3R3	ACRT 72KHz - 29in R value	5.22	BLK	0.000
F3X3	ACRT 72KHz - 29in X value	5.22	BLK	0.000
F3R4	ACRT 72KHz - 17in R value	4.22	BLK	0.000
F3X4	ACRT 72KHz - 17in X value	4.22	BLK	0.000
F3R5	ACRT 72KHz - 10in R value	3.72	BLK	0.000
F3X5	ACRT 72KHz - 10in X value	3.72	BLK	0.000
F3R6	ACRT 72KHz - 6in R value	3.47	BLK	0.000
F3X6	ACRT 72KHz - 6in X value	3.47	BLK	0.000
RMUD	Mud Resistivity	12.76	BLK	0.000
F1RT	Transmitter Current Raw 12K X Receiver	2.97	BLK	0.000
F1XT	Transmitter Reference 12 KHz Imaginary Signal	2.97	BLK	0.000
F2RT	Transmitter Reference 36 KHz Real Signal	2.97	BLK	0.000
F2XT	Transmitter Reference 36 KHz Imaginary Signal	2.97	BLK	0.000
F3RT	Transmitter Reference 72 KHz Real Signal	2.97	BLK	0.000
F3XT	Transmitter Reference 72 KHz Imaginary Signal	2.97	BLK	0.000
TFPU	Upper Feedpipe Temperature Calculated	2.97	BLK	0.000
TFPL	Lower Feedpipe Temperature Calculated	2.97	BLK	0.000
ITMP	Instrument Temperature	2.97	BLK	0.000
TCVA	Temperature Correction Values Loop Off	2.97	NO	
TIDV	Instrument Temperature Derivative	2.97	NO	
TUDV	Upper Temperature Derivative	2.97	NO	
TLDV	Lower Temperature Derivative	2.97	NO	
TRBD	Receiver Board Temperature	2.97	NO	
SDLT Pad				
TPUL	Tension Pull	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	

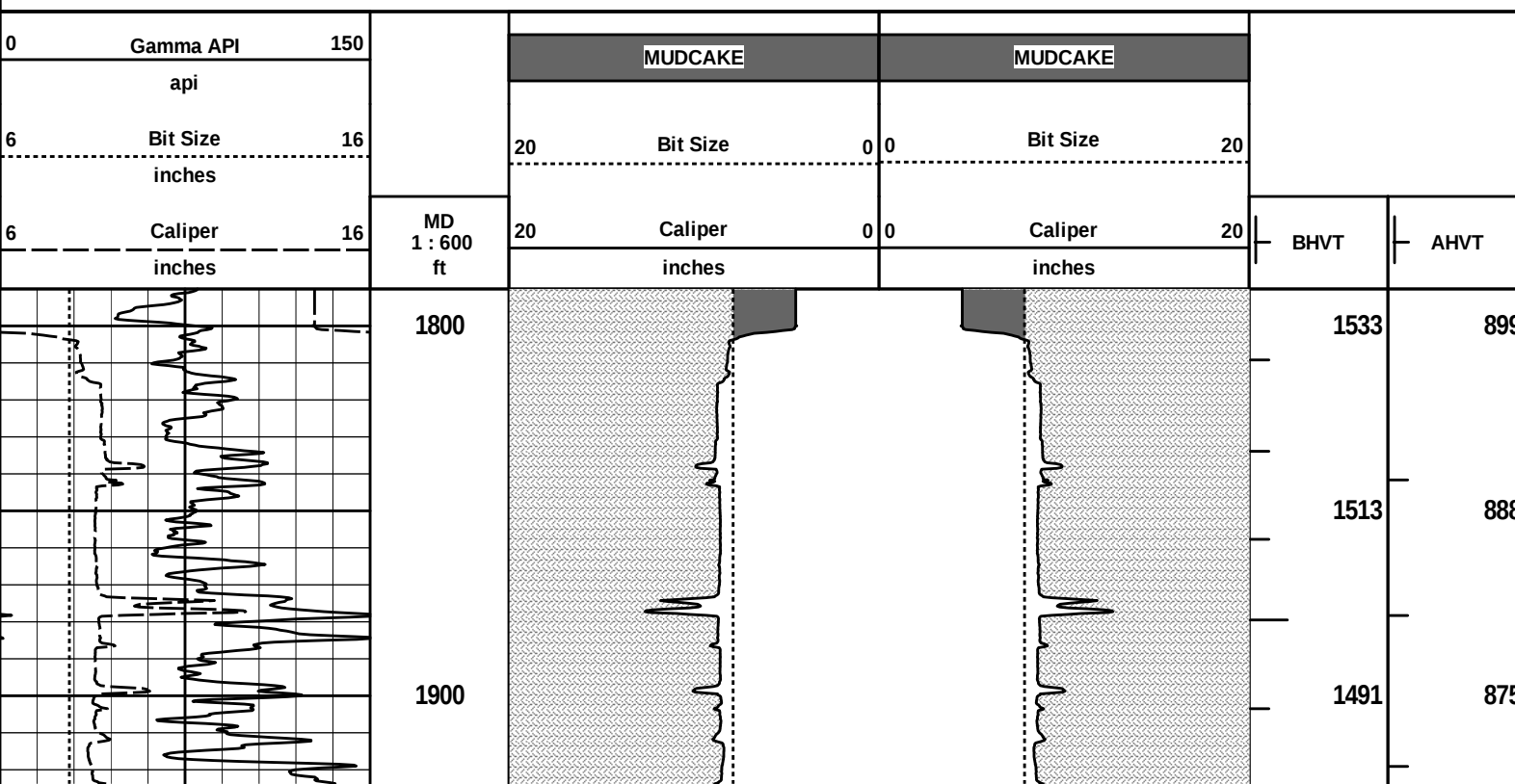
Microlog Pad				
TPUL	Tension Pull	44.28	NO	
MINV	Microlog Lateral	44.28	BLK	0.750
MNOR	Microlog Normal	44.28	BLK	0.750

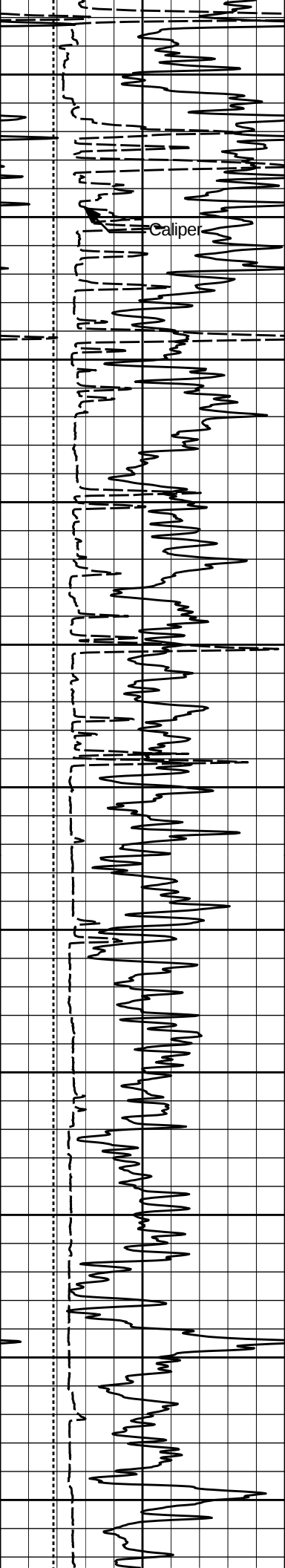
Data: KU_B-4\0001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-CHIIDLE

Date: 20-Jun-13 02:45:19

HALLIBURTON	Plot Time: 21-Jun-13 08:49:18
	Plot Range: 1790 ft to 5640.58 ft
	Data: KU_B-4\Well Based\CASING\
	Plot File: \\LOCAL-1\KU_B-4\0001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-CHIPORO\AHV_2_IQ_LIB

ANNULAR HOLE VOLUME PLOT





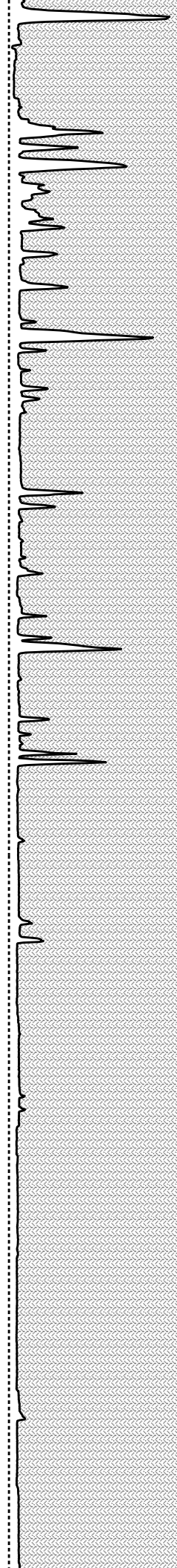
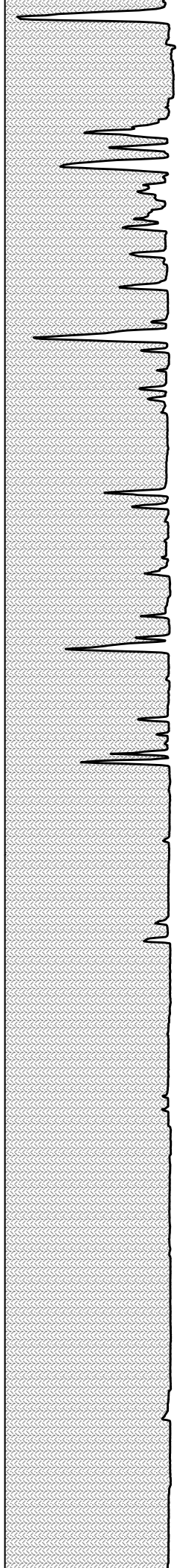
2000

2100

2200

2300

2400



1467

1441

1414

1393

1371

1348

1328

1308

1288

1269

1249

859

840

822

809

796

781

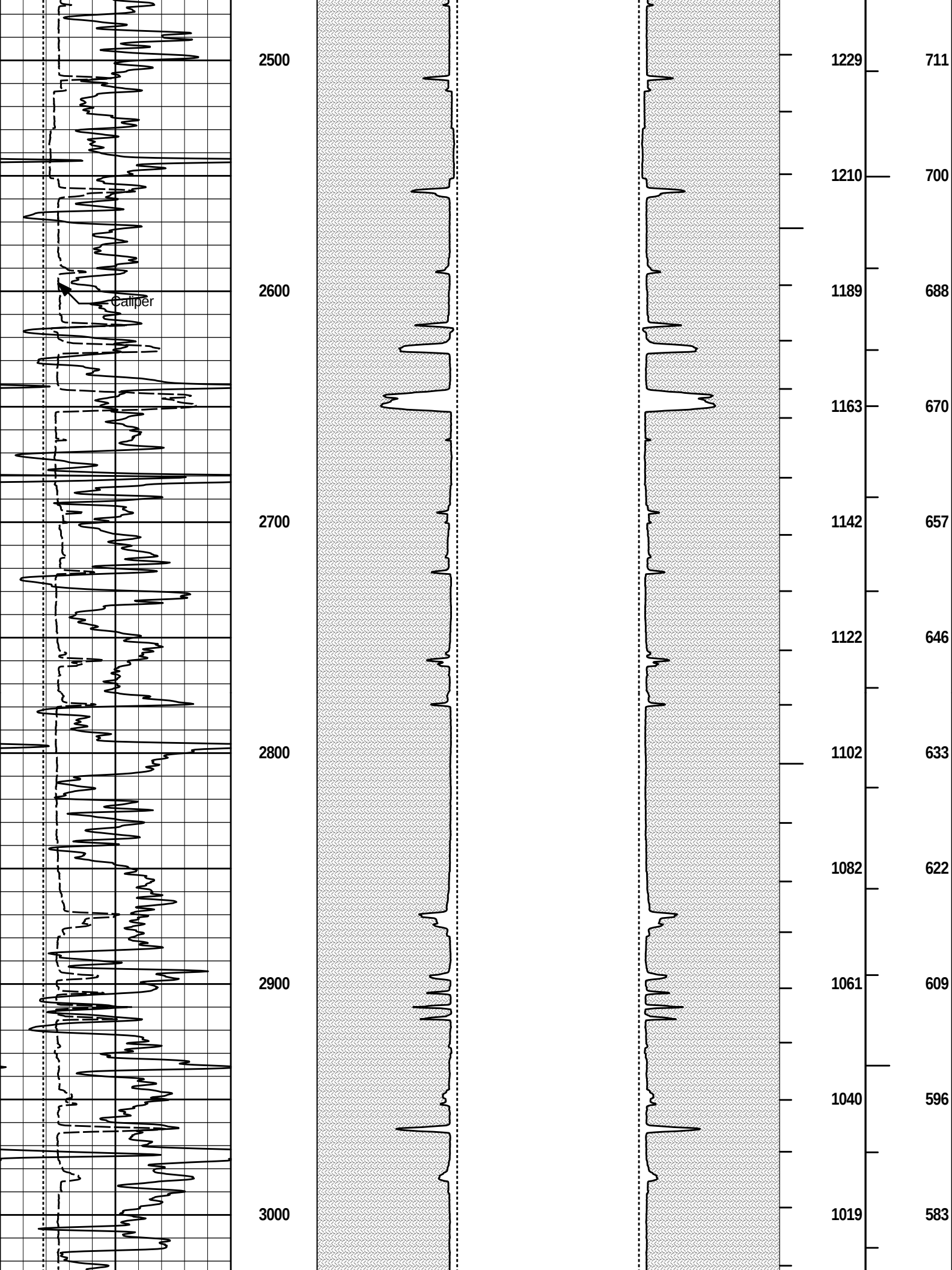
769

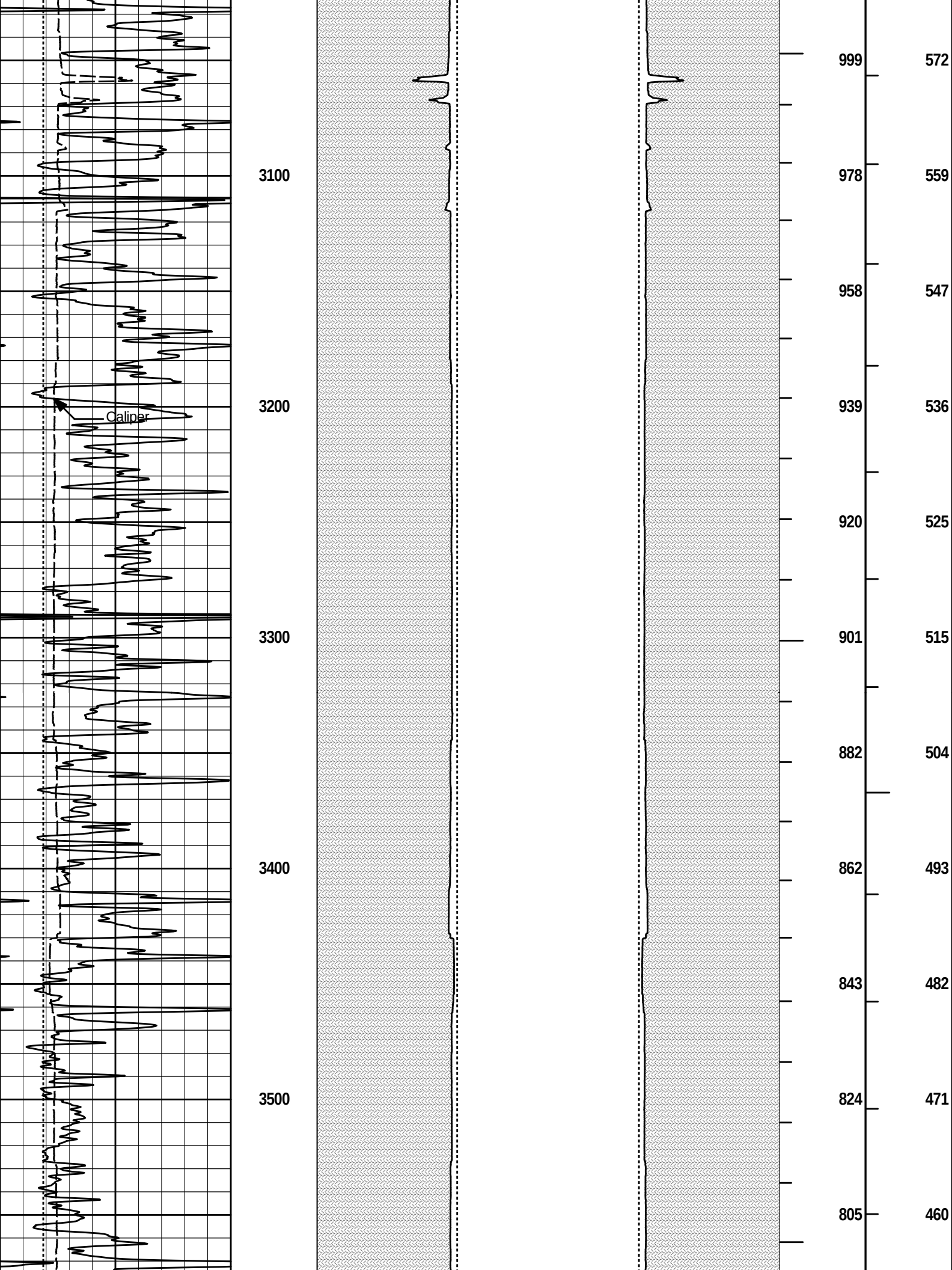
757

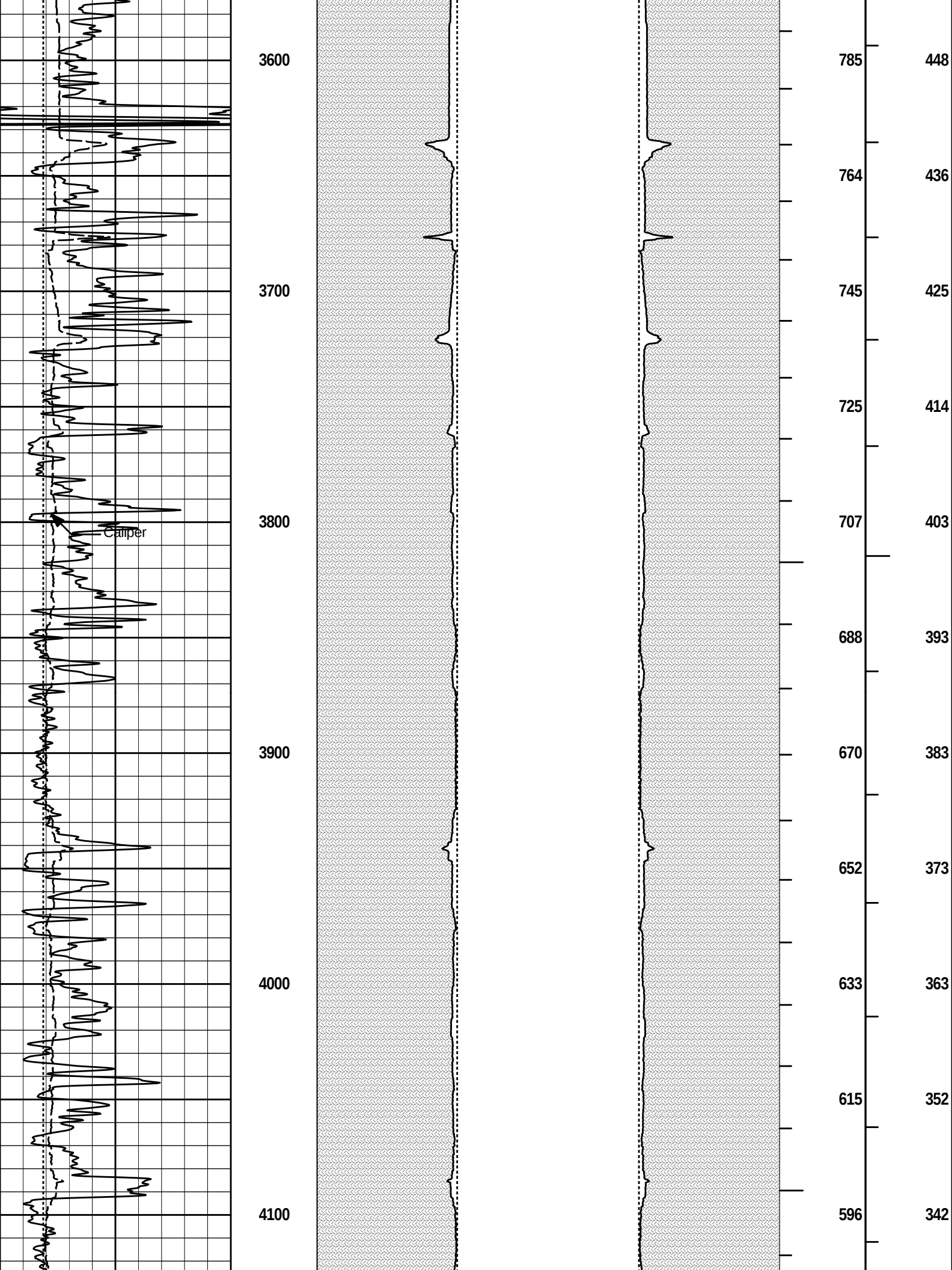
745

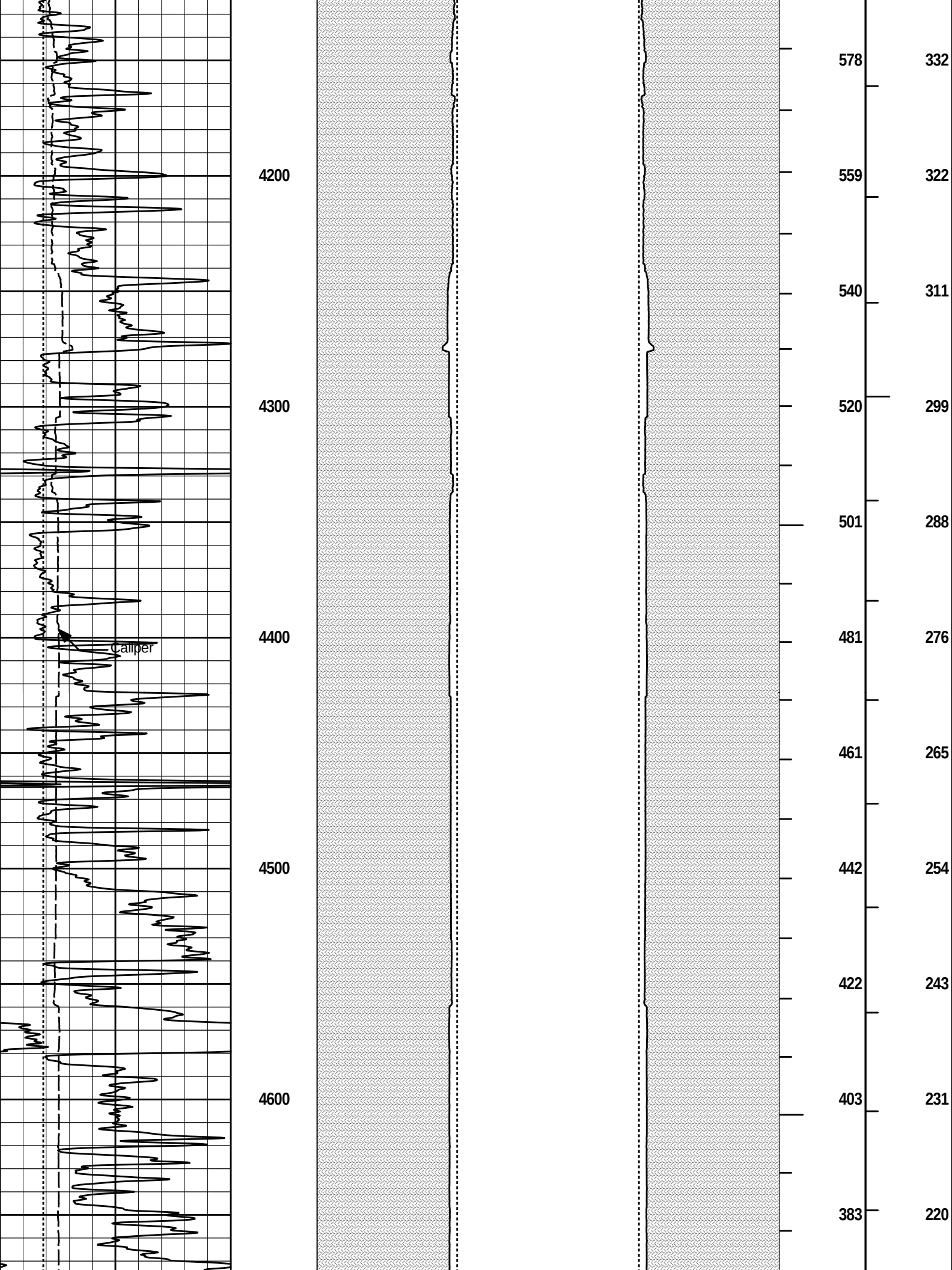
734

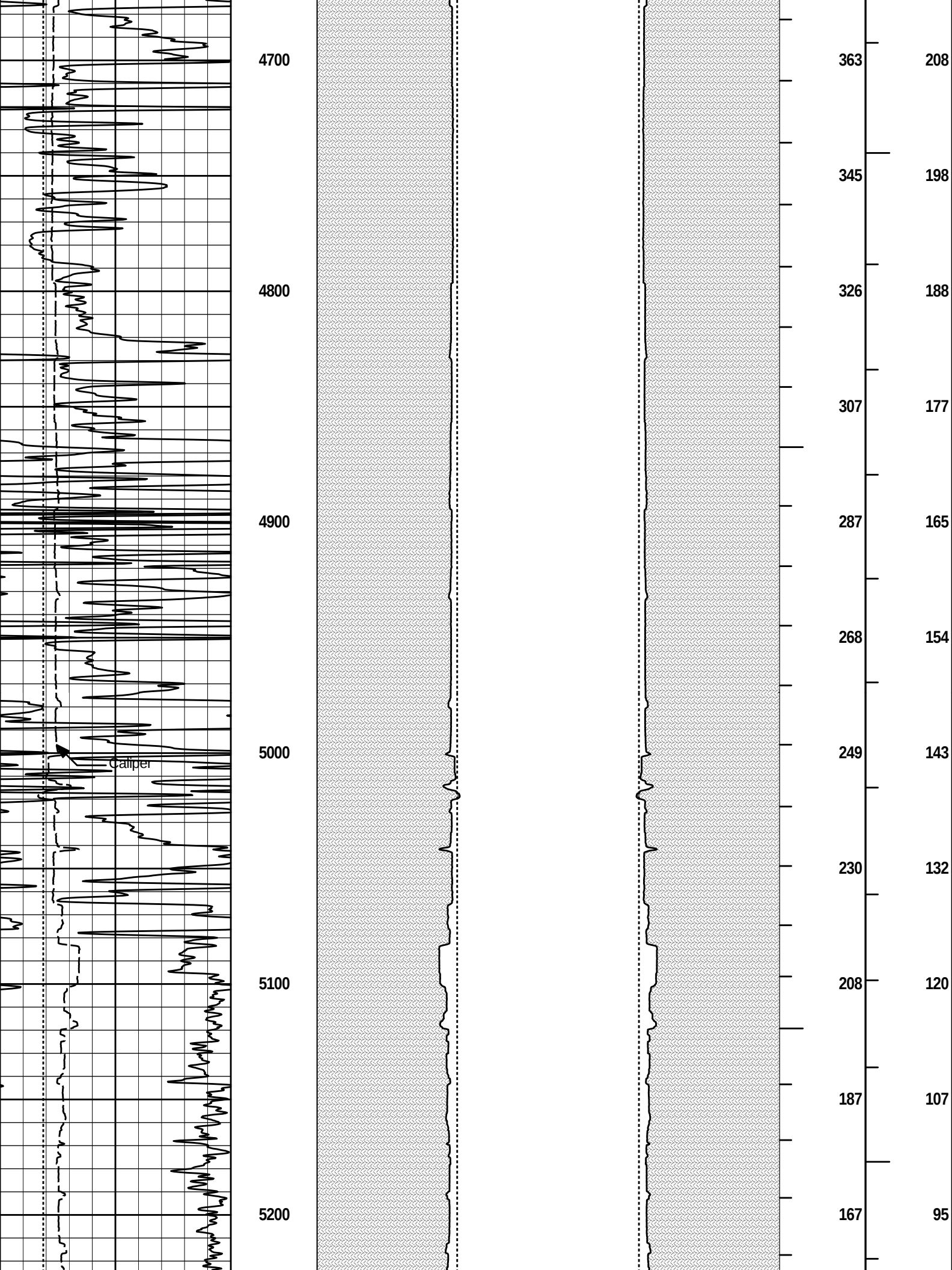
723

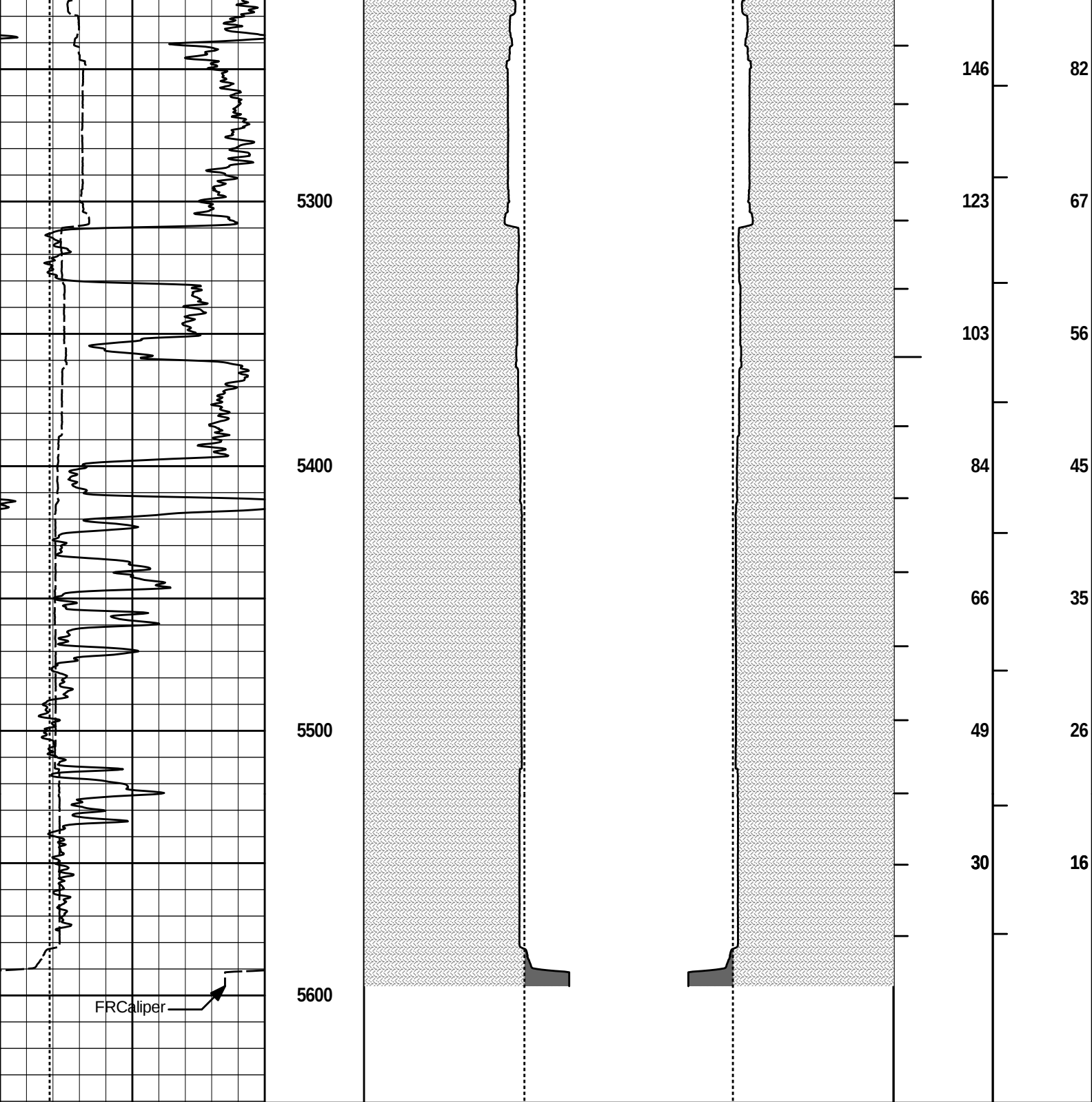












6	Caliper	16	MD 1 : 600 ft	20	Caliper	0 0	20	BHVT	AHVT
	inches				inches				
6	Bit Size	16		20	Bit Size	0 0	20		
	inches								
0	Gamma API	150			MUDCAKE				
	api								

HALLIBURTON

Plot Time: 21-Jun-13 08:49:26
Plot Range: 1790 ft to 5640.58 ft
Data: KU_B-4\Well Based\CASING\
Plot File: \\LOCAL-KU_B-4\0001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-CHIPORO\AHV_2_IQ_LIB

ANNUAL HOLE VOLUME PLOT

ANNULAR HOLE VOLUME TEST

COMPANY	OXY USA INC.		
WELL	KU B-4		
FIELD	ARROYO		
COUNTY	STANTON	STATE	KANSAS
HALLIBURTON		SPECTRAL DENSITY DUAL SPACED NEUTRON LOG	