

HALLIBURTON

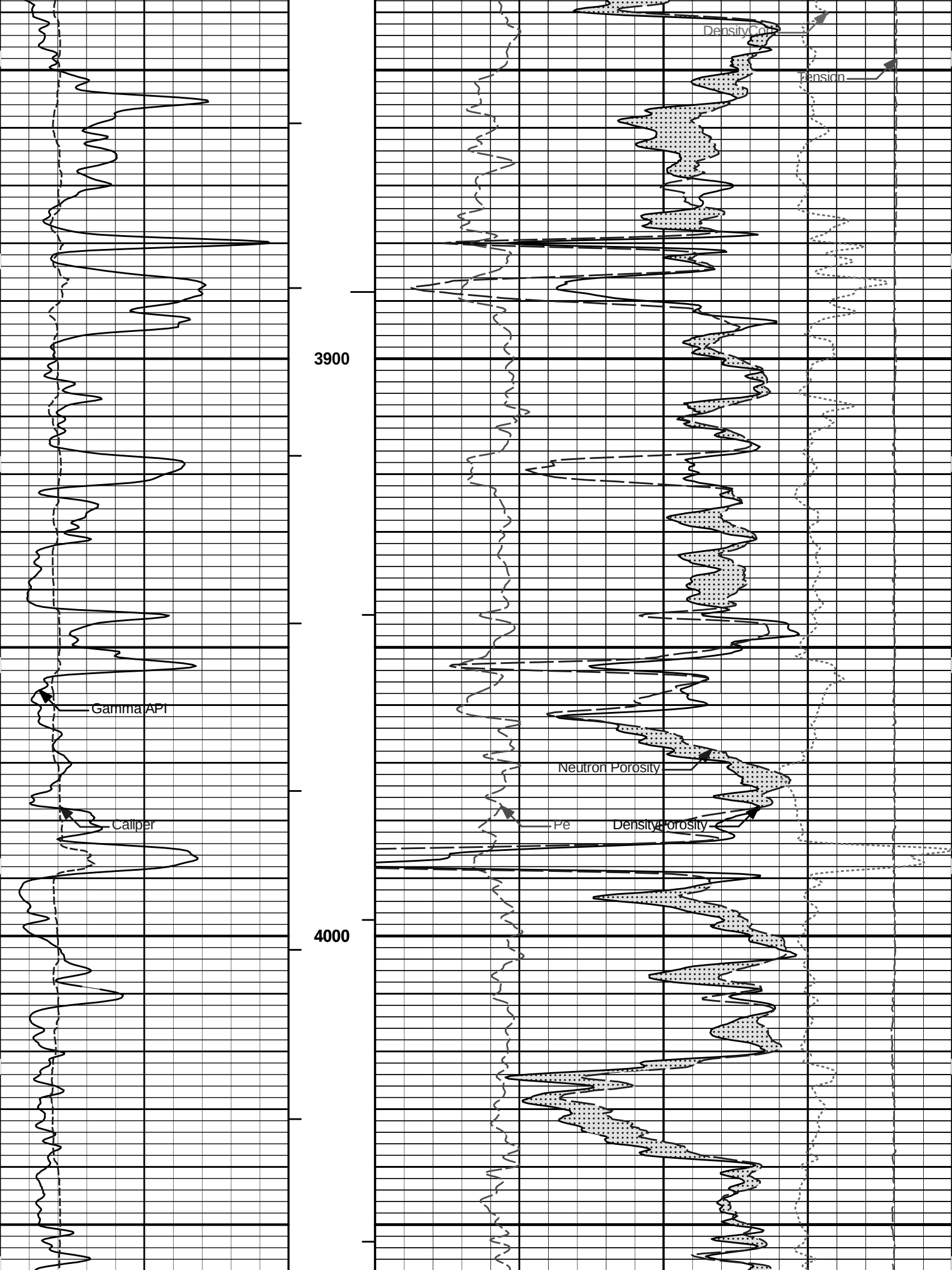
SPECTRAL DENSITY DUAL SPACED NEUTRON LOG

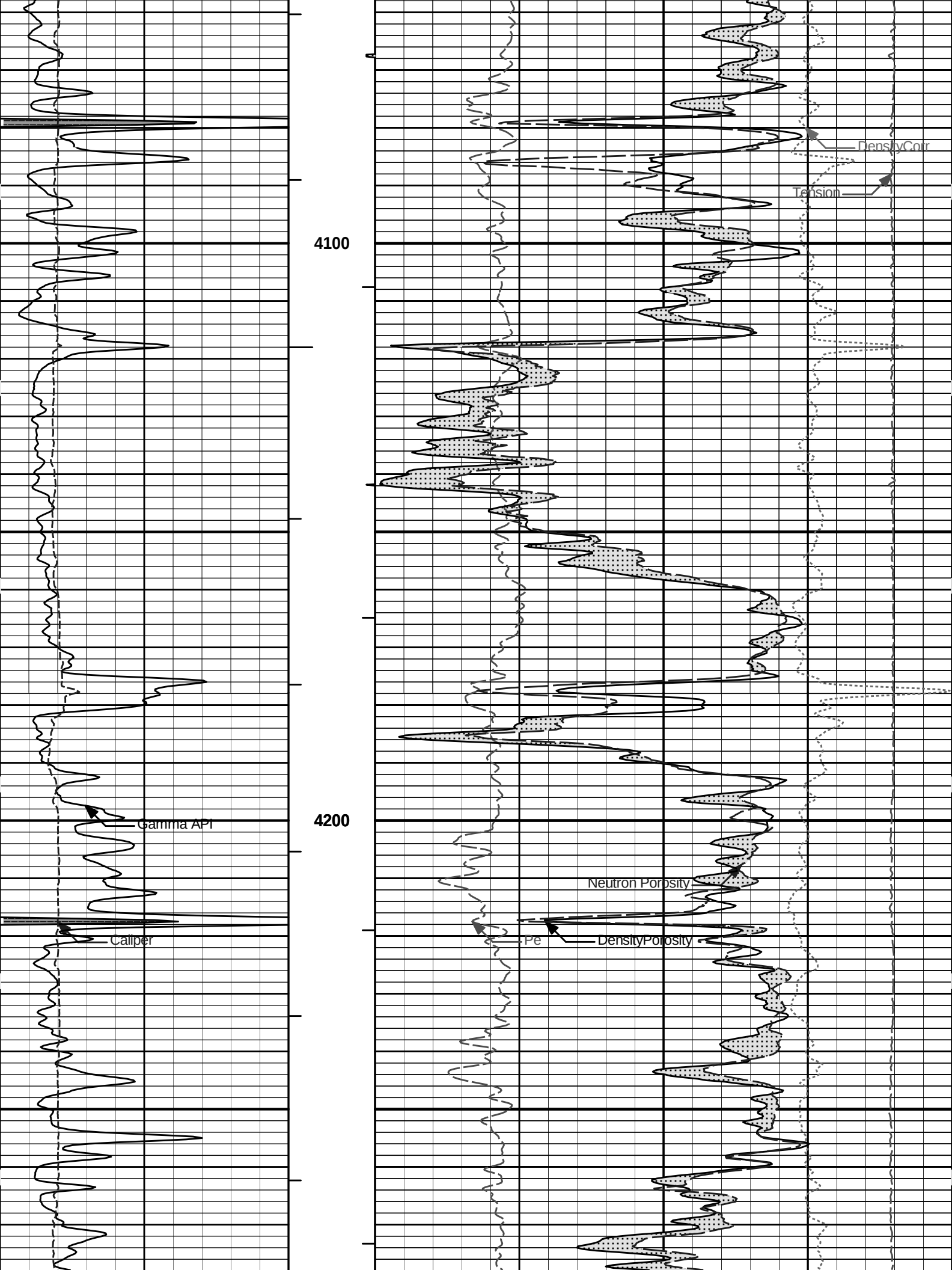
COMPANY		OXY USA INC	
WELL		SMU #319	
FIELD		SEQUOYAH MORROW UNIT	
COUNTY		FINNEY	
STATE		KANSAS	
Permanent Datum	GROUND LEVEL	Elev. 2942.0 ft	Elev. K.B. 2953.0 ft
Log measured from	KELLY BUSHING	11.0 ft above perm. Datum	D.F. 2952.0 ft
Drilling measured from	KELLY BUSHING		G.L. 2942.0 ft
Date	28-Apr-12		
Run No.	ONE		
Depth - Driller	4995.00 ft		
Depth - Logger	4976.0 ft		
Bottom - Logged Interval	4938.0 ft		
Top - Logged Interval	3600.0 ft		
Casing - Driller	9.625 in @ 1822.0 ft		@
Casing - Logger	1829.0 ft		
Bit Size	7.875 in		@
Type Fluid in Hole	WATER BASED MUD		
Density	9.0 ppq	48.00 s/qt	
PH	8.50 pH	9.4 cp/m	
Source of Sample	FLOWLINE		
Rm @ Meas. Temperature	1.450 ohmm @ 82.00 degF		@
Rmf @ Meas. Temperature	1.50 ohmm @ 67.00 degF		@
Rmc @ Meas. Temperature	2.180 ohmm @ 67.00 degF		@
Source Rmf	MEASURED	MEASURED	
Rm @ BHT	0.72 ohmm @ 128.0 degF		@
Time Since Circulation	12.2 hr		
Time on Bottom	28-Apr-12 21.13		
Max. Rec. Temperature	128.0 degF @ 4976.0 ft		@
Equipment	10782954 PV OK		
Recorded By	C. HAVERKAMP		
Witnessed By	A. GARNER		
	D. PRATT		

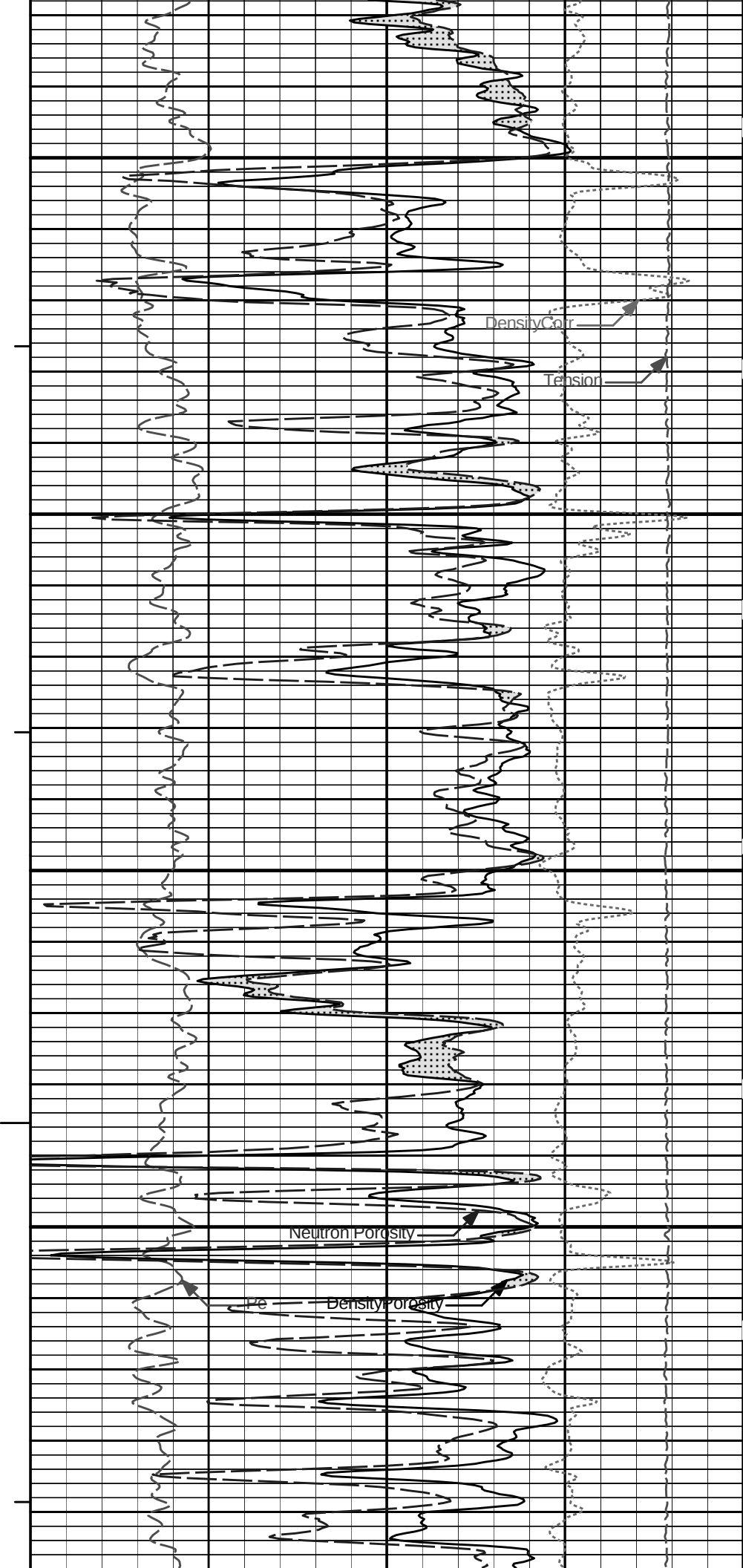
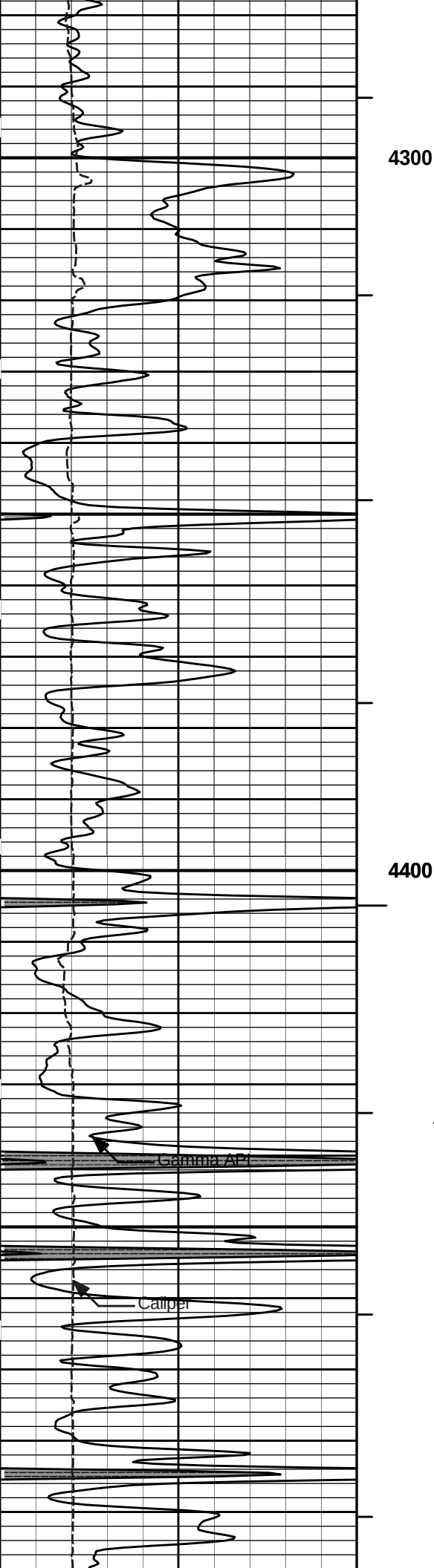
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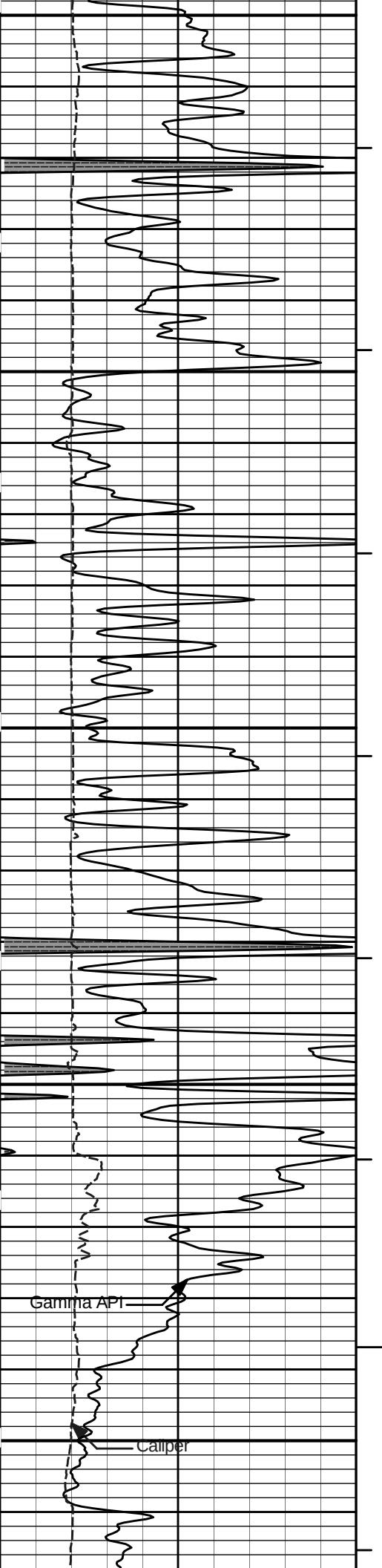
Service Ticket No.: 9466909						API Serial No.: 15-055-22139						PGM Version: WL INSITE R3.4.2 (Build 2)											
CHANGE IN MUD TYPE OR ADDITIONAL SAMPLE												RESISTIVITY SCALE CHANGES											
Date		Sample No.										Type Log		Depth		Scale Up Hole		Scale Down Hole					
Depth-Driller																							
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.		10811258		Serial No.								Serial No.		45		Serial No.		10755066					
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.		DSN-436					
Distance to Source		10'		FWDA [Y/N]								Strength		1.5 CI		Strength		1.5 CI					

5 INCH MAIN LOG









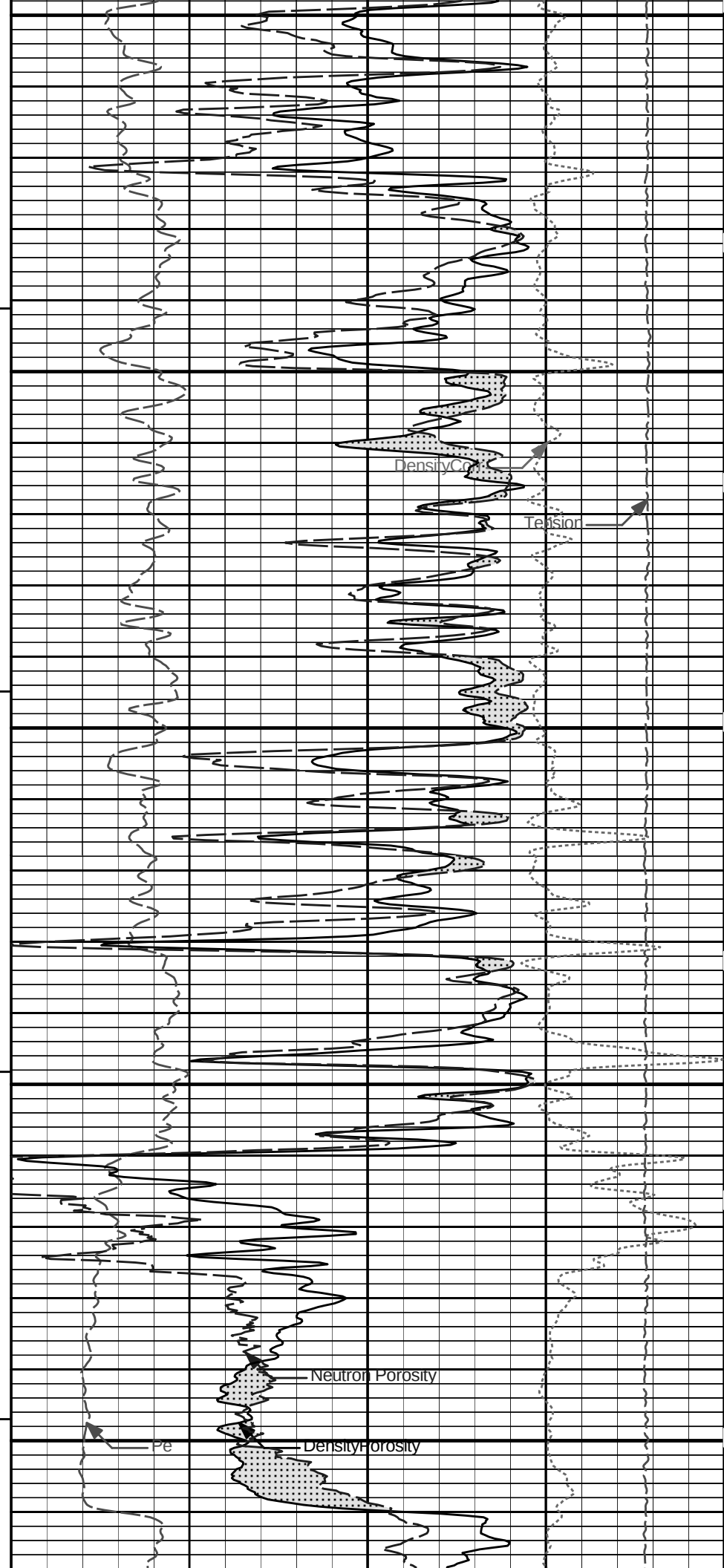
4500

4600

4700

Gamma API

Caliper



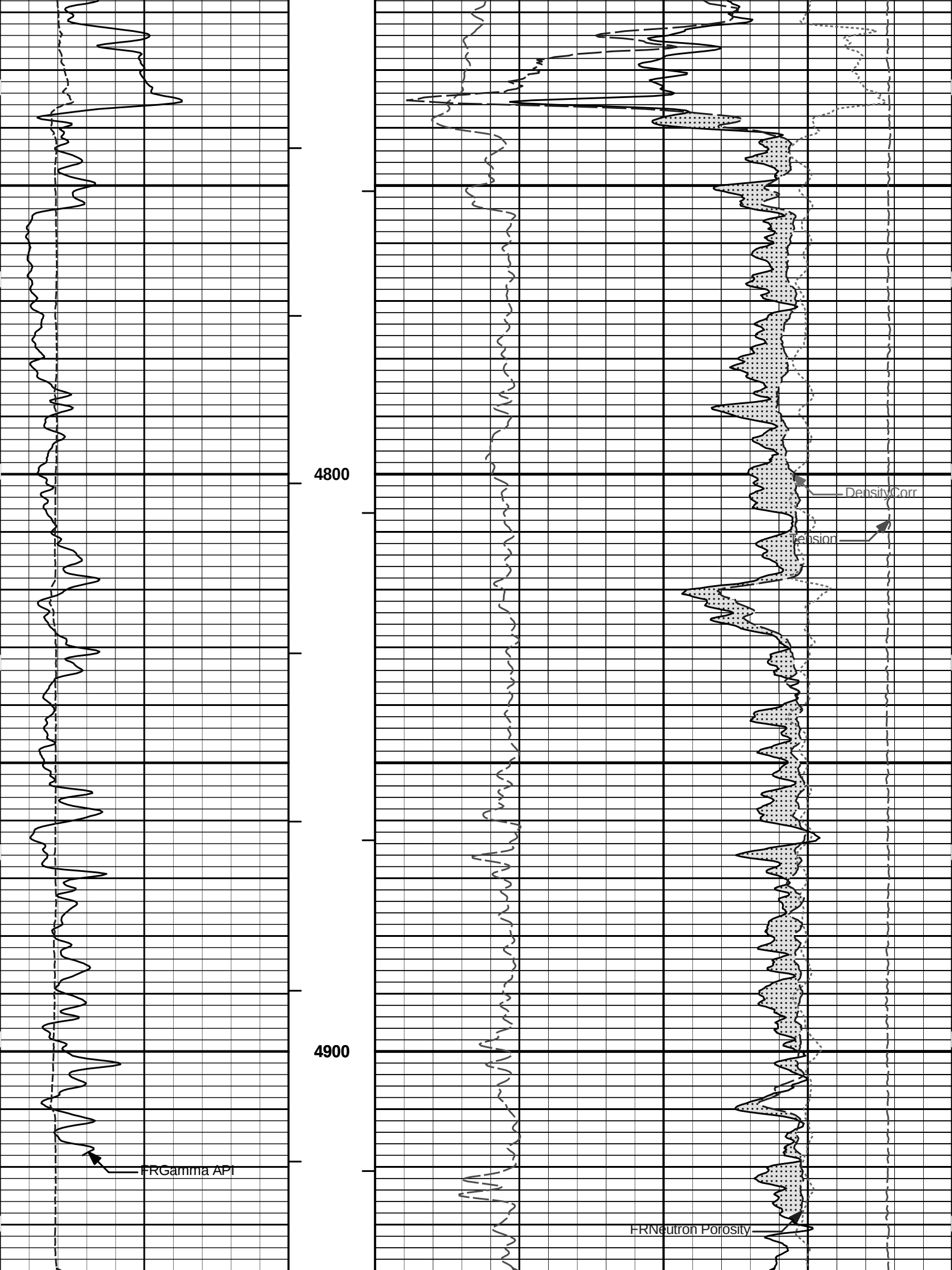
Density

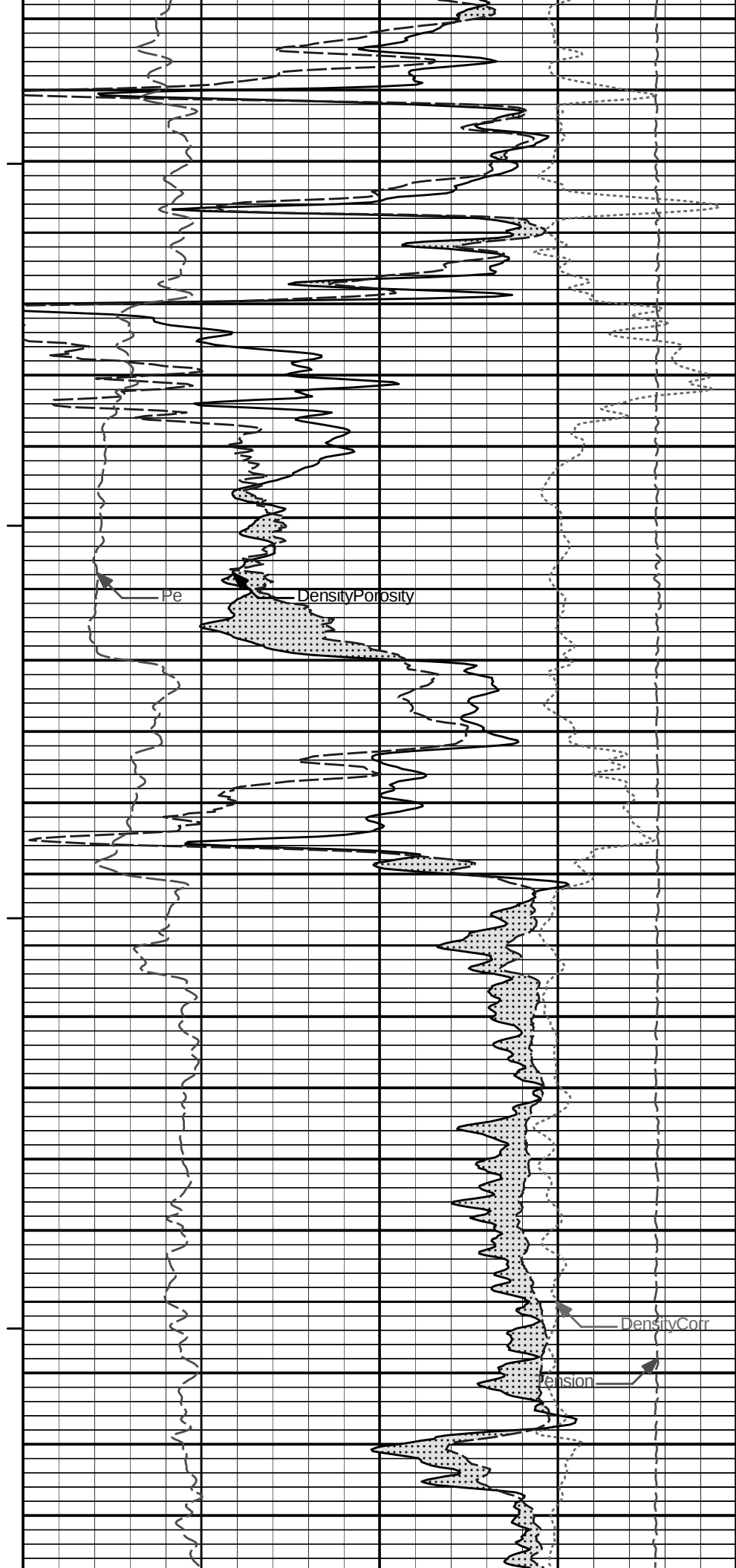
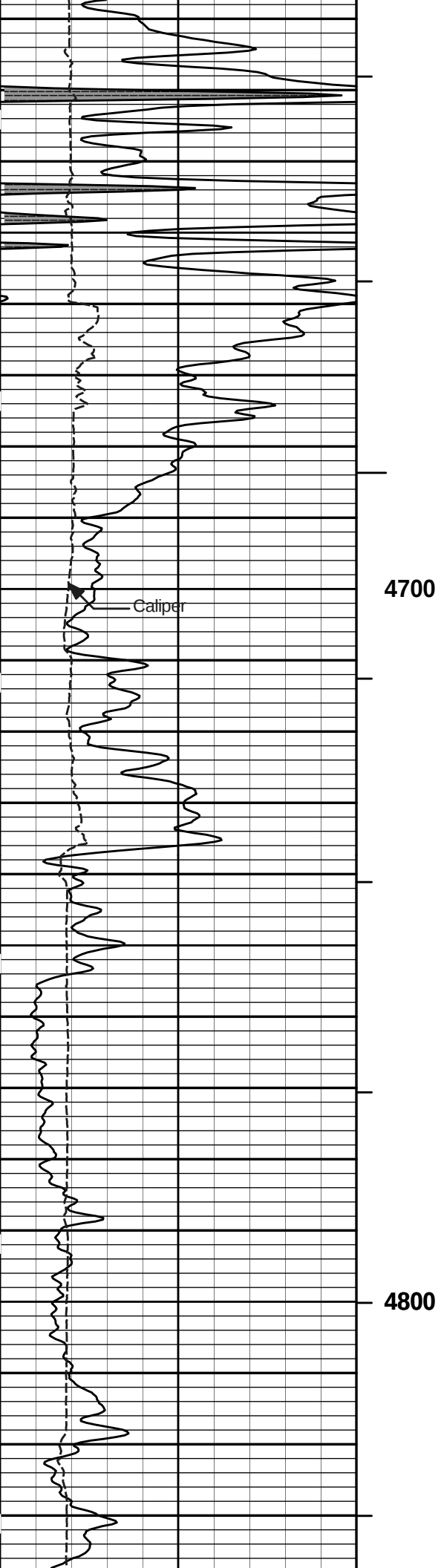
Tension

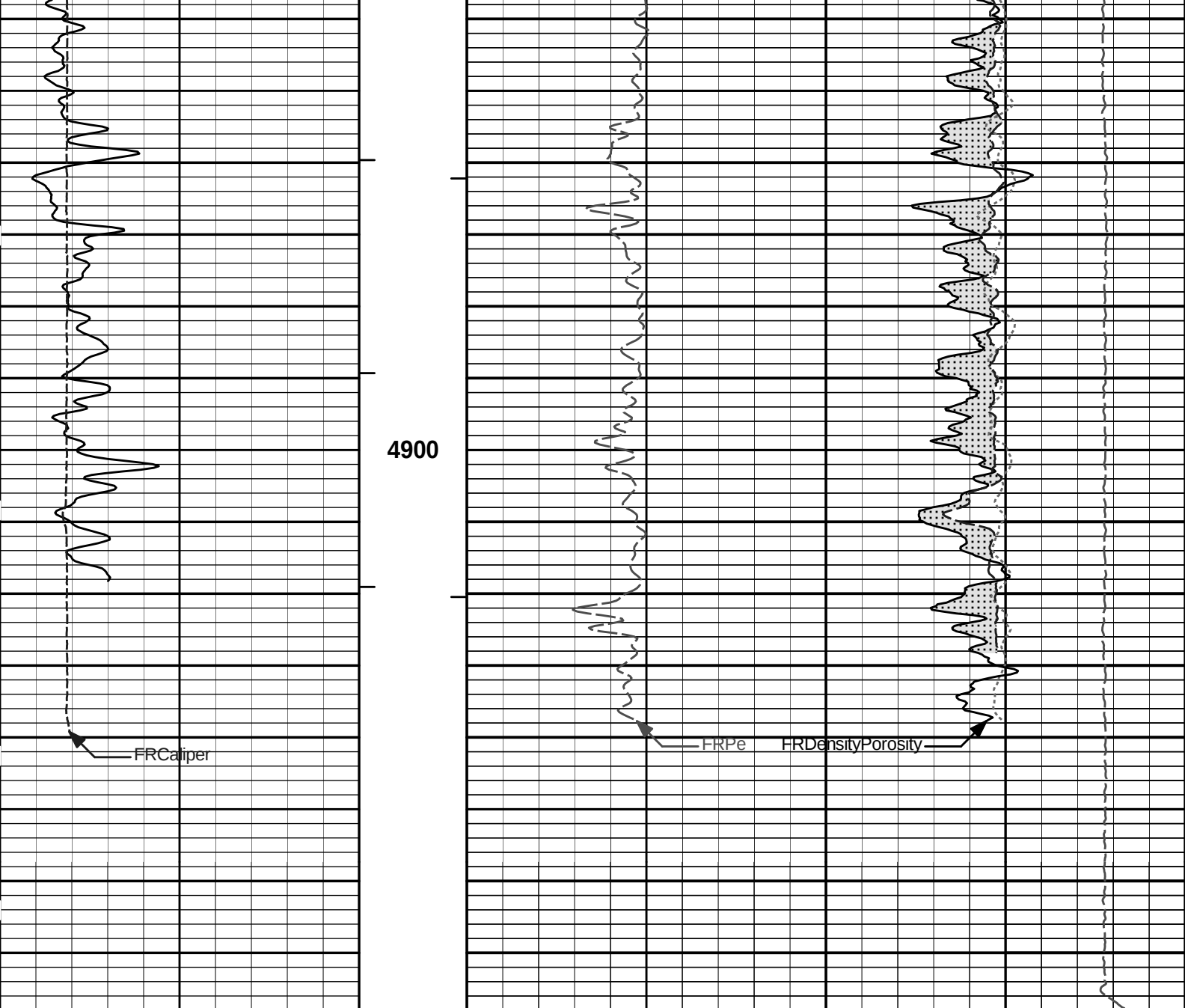
Neutron Porosity

Density Porosity

Pe







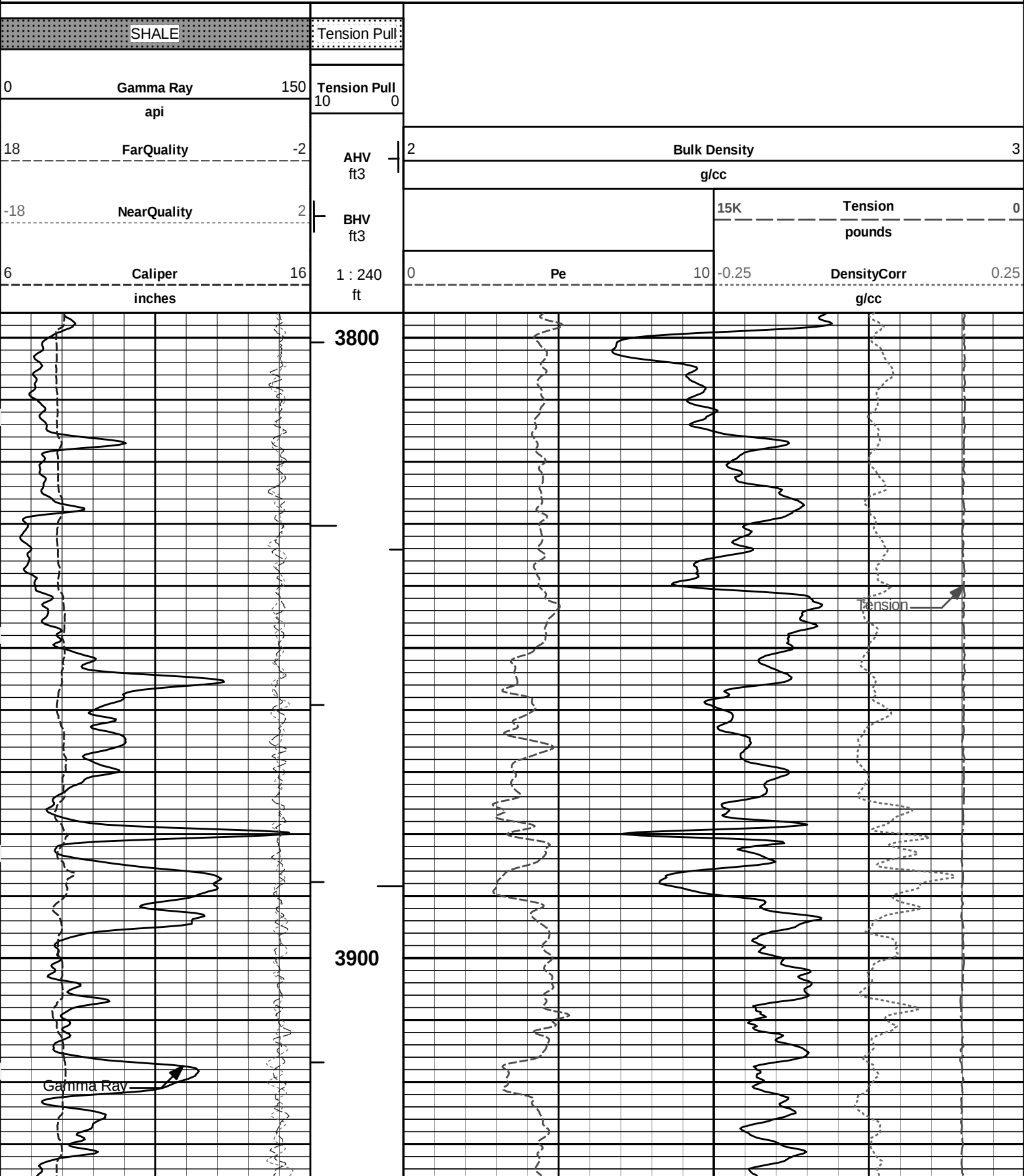
6	Caliper	16	1 : 240	0	Pe	10	-0.25	DensityCorr	0.25
	inches		ft					gram per cc	
0	Gamma API	150	AHVT			15K		Tension	0
	api							pounds	
	SHALE		BHVT	30	DensityPorosity			-10	
					%				
				30	Neutron Porosity			-10	
					%				
					CROSSOVER				

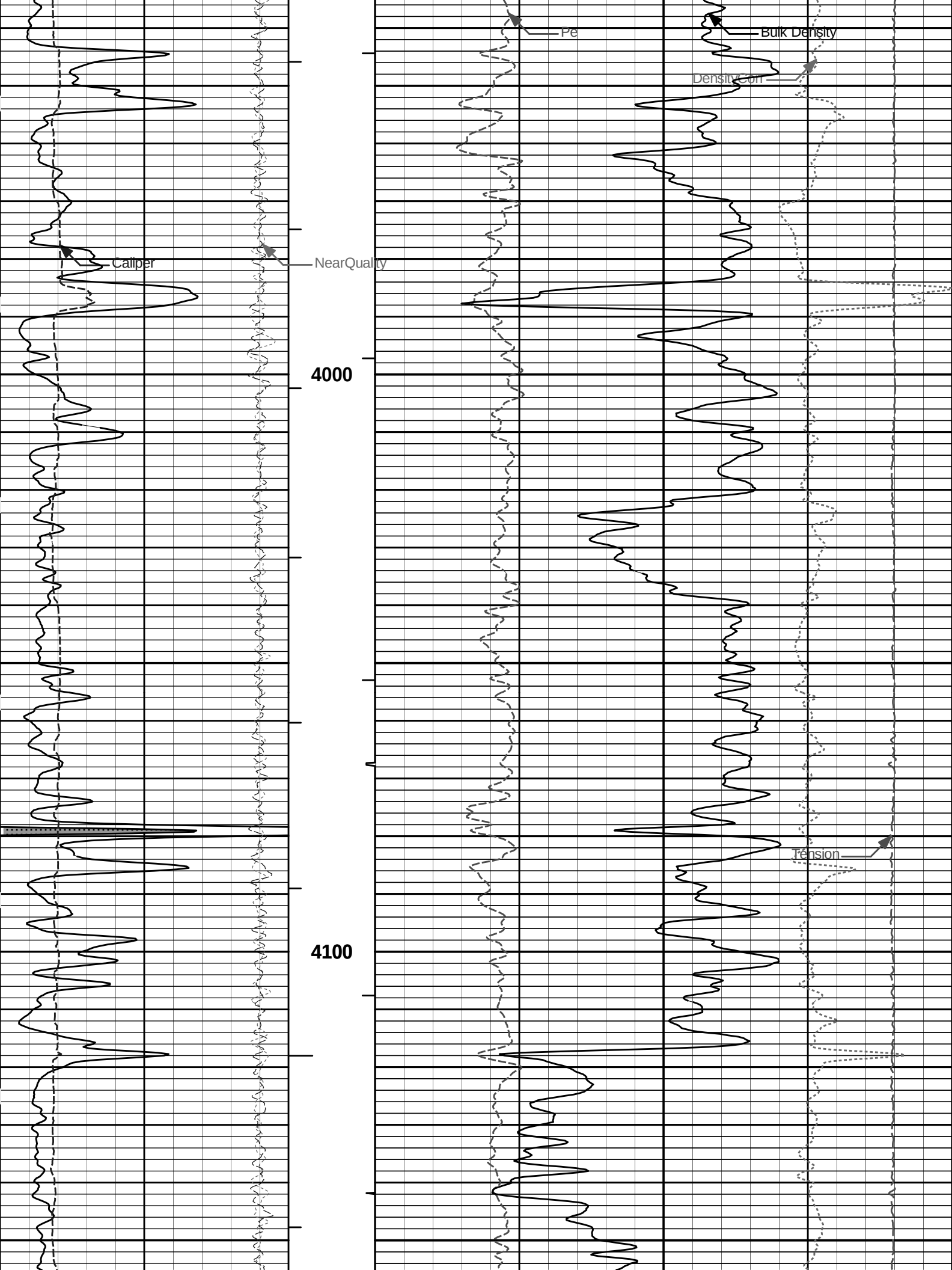
HALLIBURTON

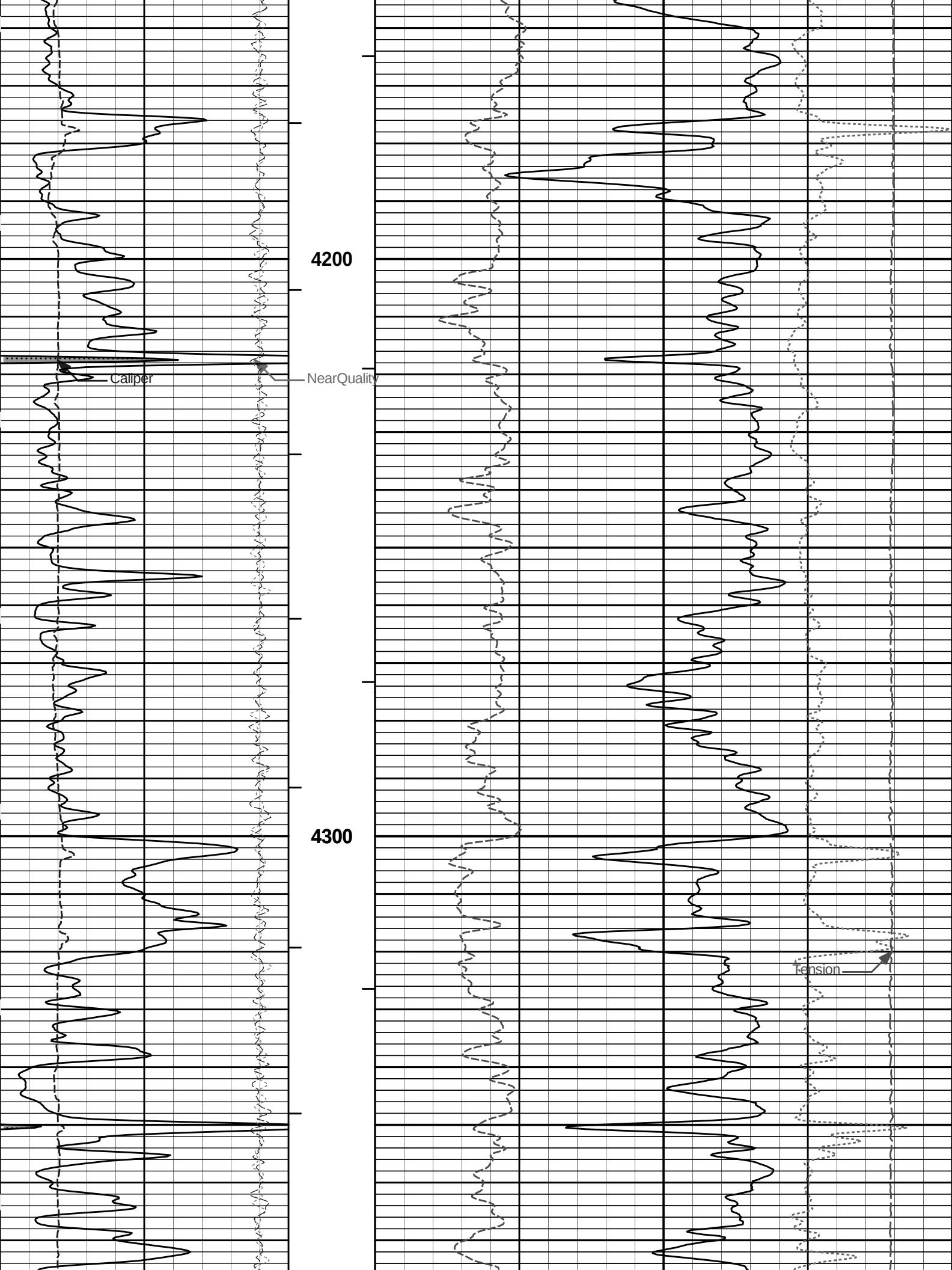
Plot Time: 29-Apr-12 00:30:29
 Plot Range: 4597.5 ft to 4977.92 ft
 Data: SMU_319\Well Based\QUAD_REPEAT\
 Plot File: \IPORO\Porosity_Q5_REP_LIB

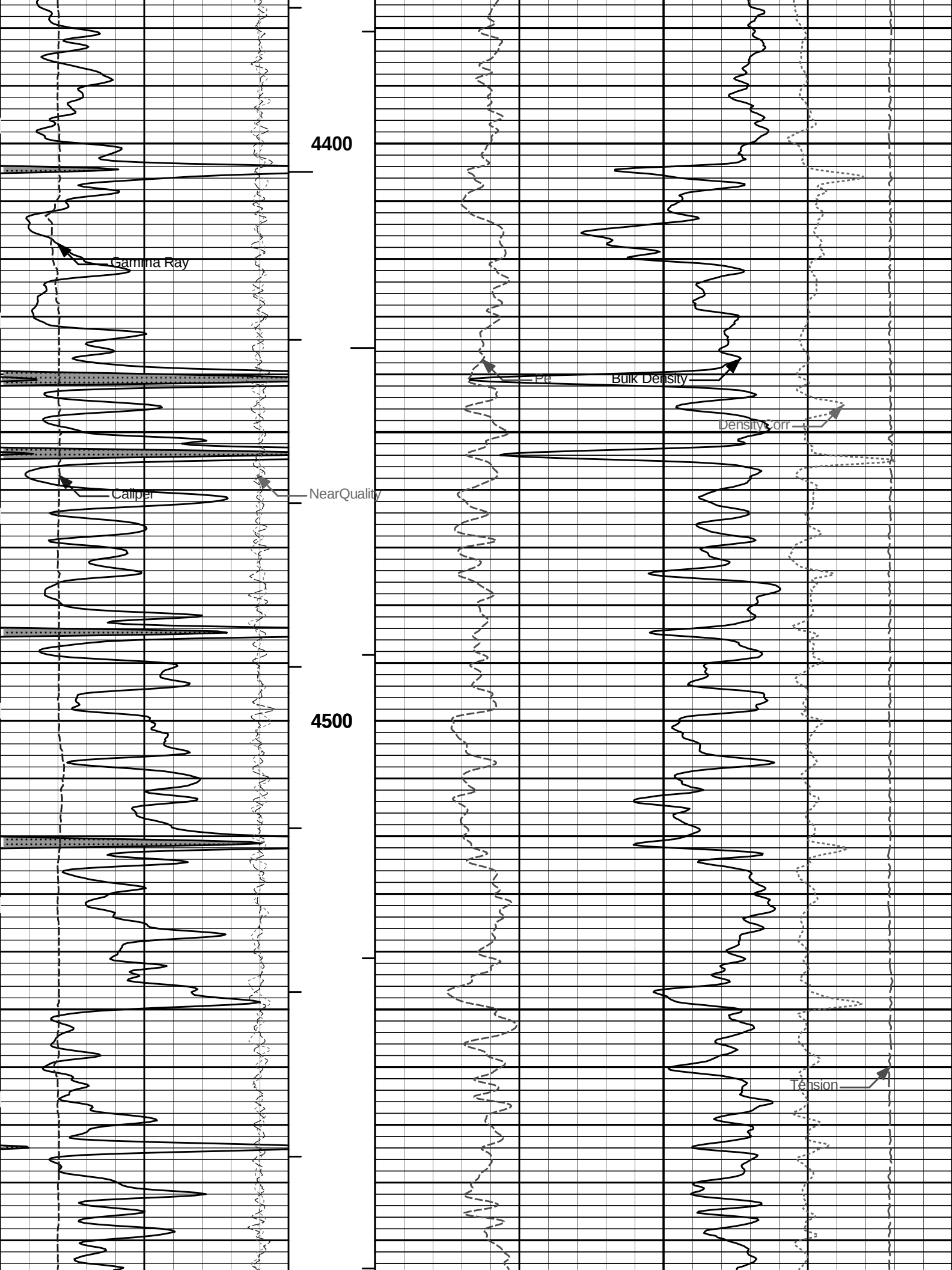
REPEAT SECTION

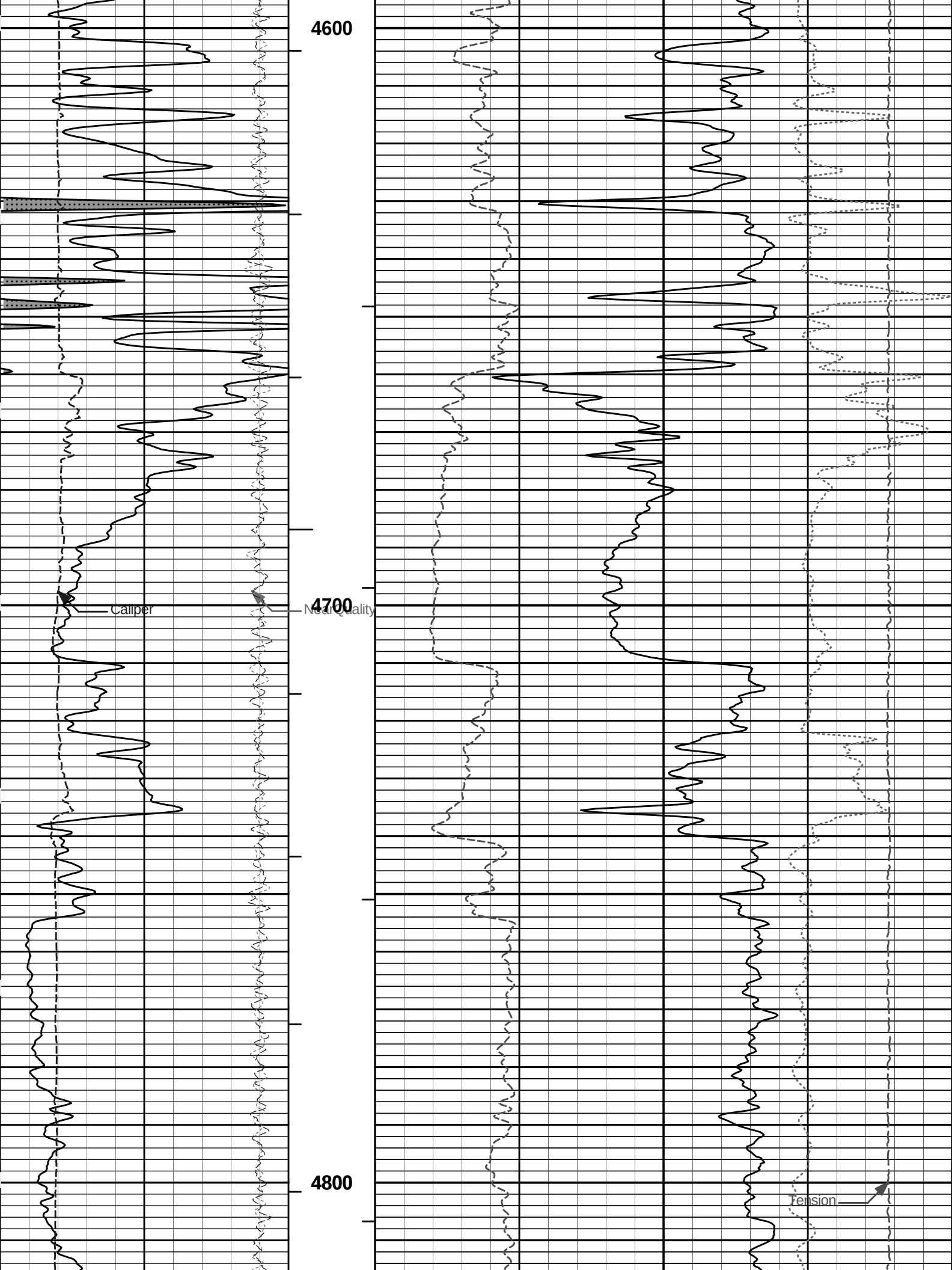
5 INCH MAIN LOG

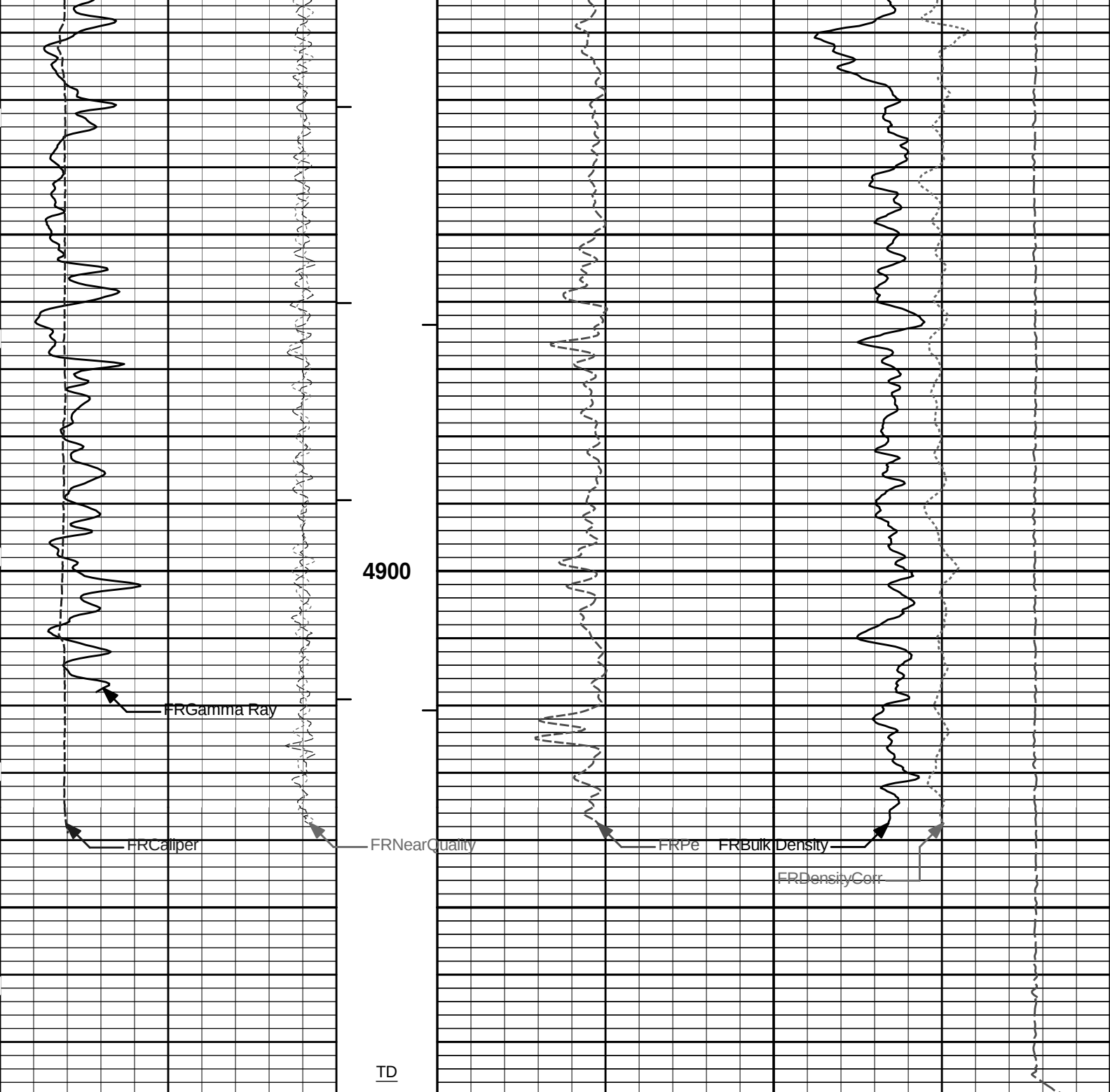








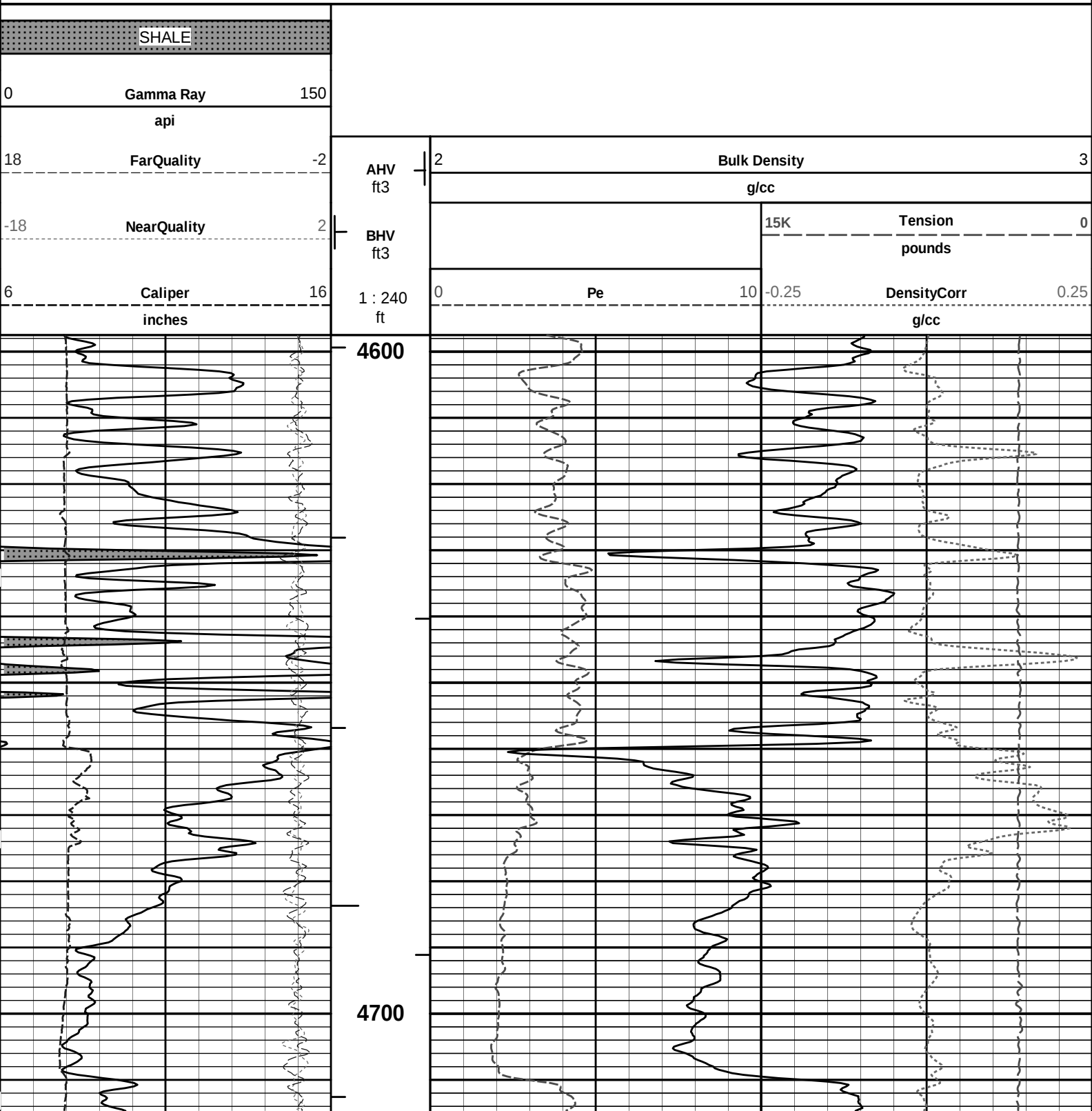


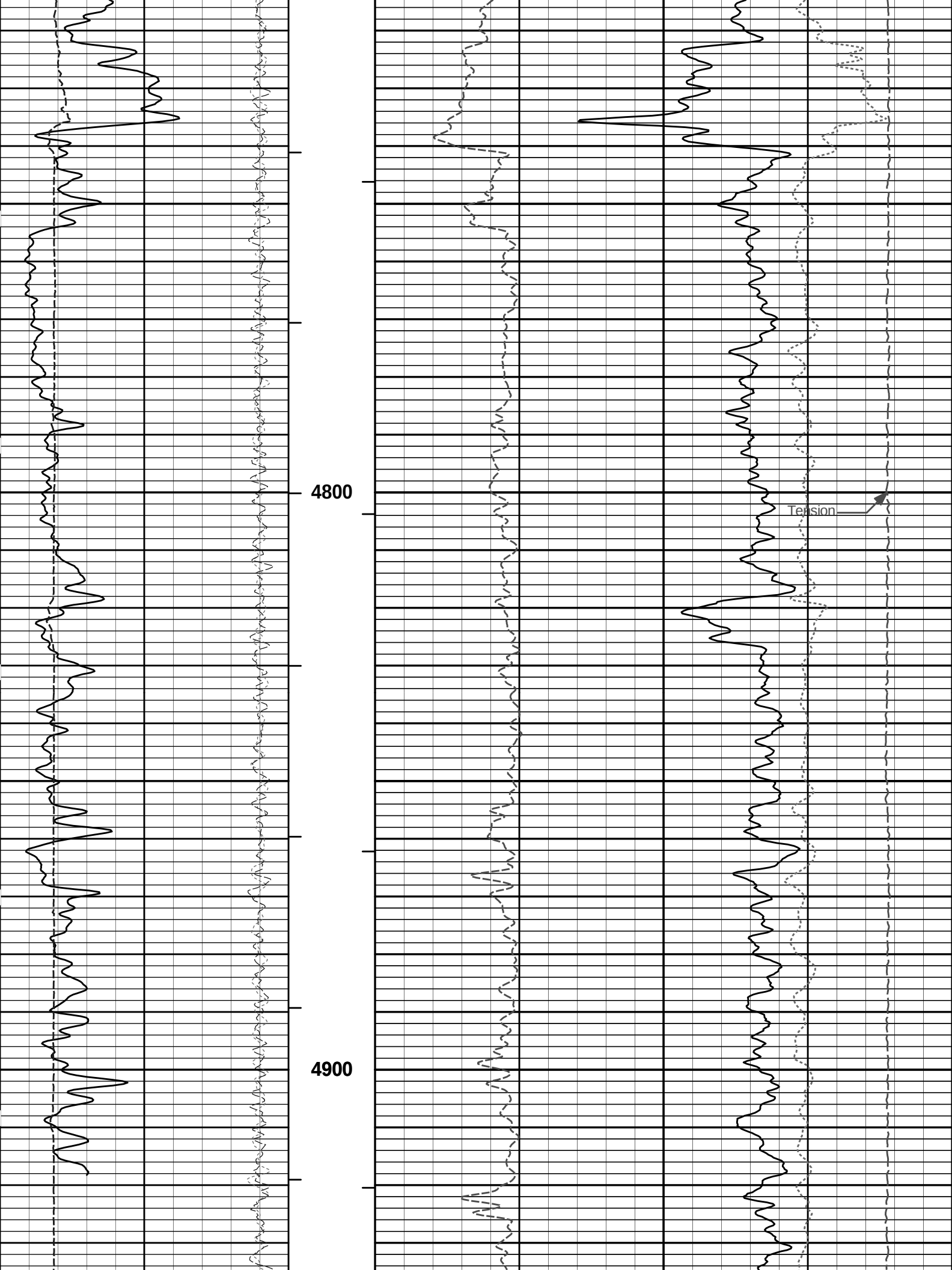


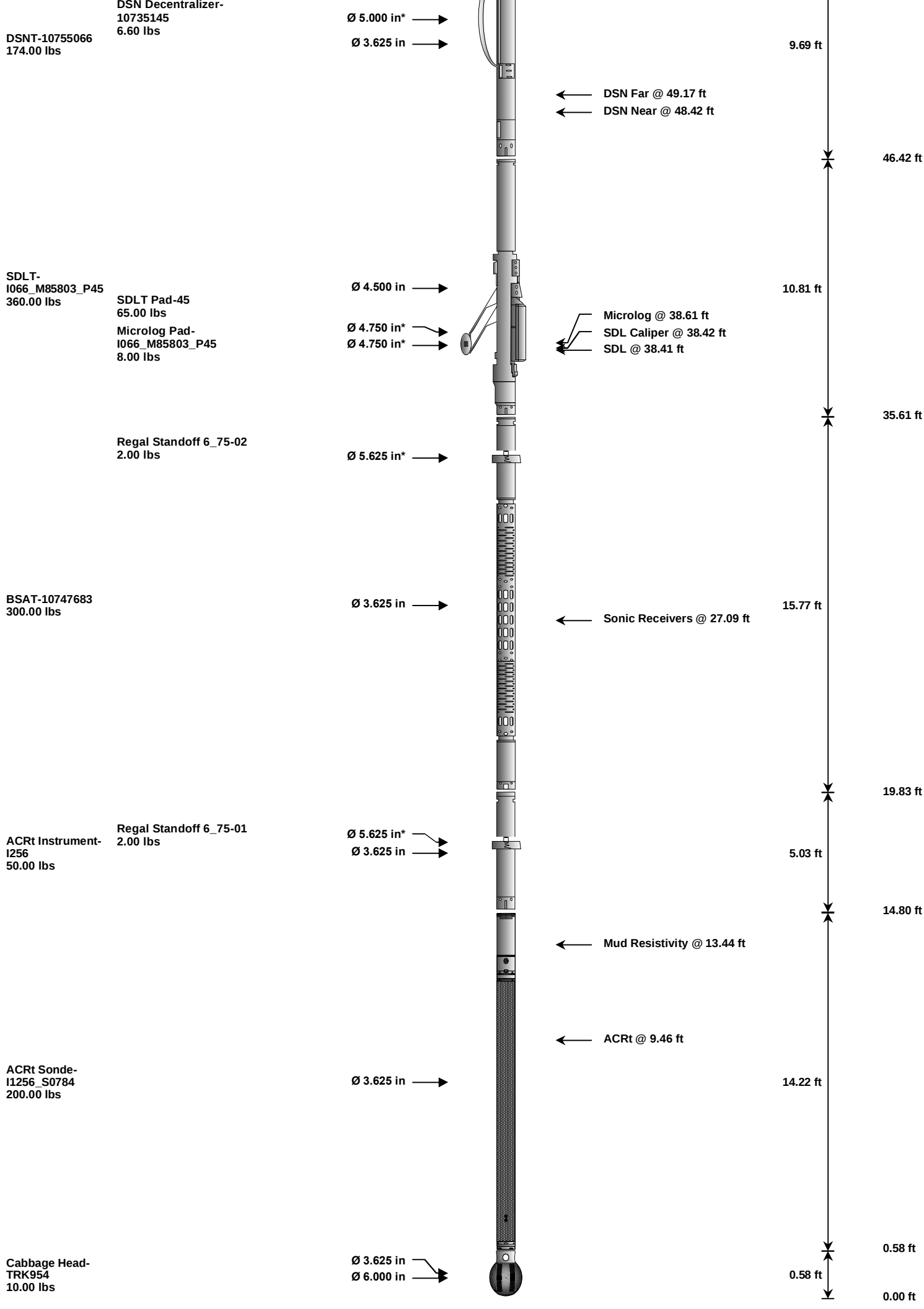
6	Caliper	16	1 : 240	0	Pe	10	-0.25	DensityCorr	0.25
	inches		ft					g/cc	
-18	NearQuality	2	BHV				15K	Tension	0
			ft3					pounds	
18	FarQuality	-2	AHV	2	Bulk Density				
			ft3		g/cc				
0	Gamma Ray	150	Tension Pull						
	api		10	0					
	SHALE		Tension Pull						

REPEAT SECTION

Plot File: \\-LOCAL-\\SMU_319\\0001 SP-GTET-DSN-SDL-BSAT-ACRT-CH\\PORO\\BULKD_5_REP_LIB







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	11441709	60.00	3.74	64.63	300.00	
GTET	Gamma Telemetry Tool	10811258	165.00	8.52	56.11	60.00	
DSNT	Dual Spaced Neutron	10755066	174.00	9.69	46.42	60.00	
DCNT	DSN Decentralizer	10735145	6.60	5.13	*	49.75	300.00
SDLT	Spectral Density Tool	I066_M85803_P45	360.00	10.81	35.61	60.00	
MICP	Microlog Pad	I066_M85803_P45	8.00	1.00	*	38.11	60.00
SDLP	Density Insite Pad	45	65.00	2.55	*	37.82	60.00
BSAT	Borehole Sonic Array Tool	10747683	300.00	15.77	19.83	60.00	
RSOF	Regal Standoff 6.75in	02	2.00	0.52	*	33.63	300.00
ACRt	Array Compensated True Resistivity Instrument Section	I256	50.00	5.03	14.80	300.00	
RSOF	Regal Standoff 6.75in	01	2.00	0.52	*	17.40	300.00
ACRt	Array Compensated True Resistivity	I1256_S0784	200.00	14.22	0.58	300.00	
CBHD	Cabbage Head	TRK954	10.00	0.58	0.00	300.00	
Total			1,432.60	70.28			
* Not included in Total Length and Length Accumulation.							
Data: SMU_319\0001 SP-GTET-DSN-SDL-BSAT-ACRT-CH\IDLE					Date: 28-Apr-12 19:37:04		

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	9.000	ppg
	SHARED	WAGT	Weighting Agent	Natural	
	SHARED	BSAL	Borehole salinity	1300.00	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	4995.00	ft
	SHARED	BHT	Bottom Hole Temperature	125.0	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?	No	
	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	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 Upr	
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	
BOTTOM				
Data: SMU_319\0001 SP-GTET-DSN-SDL-BSAT-ACRT-CH\IDLE			Date: 28-Apr-12 19:37:55	

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	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				

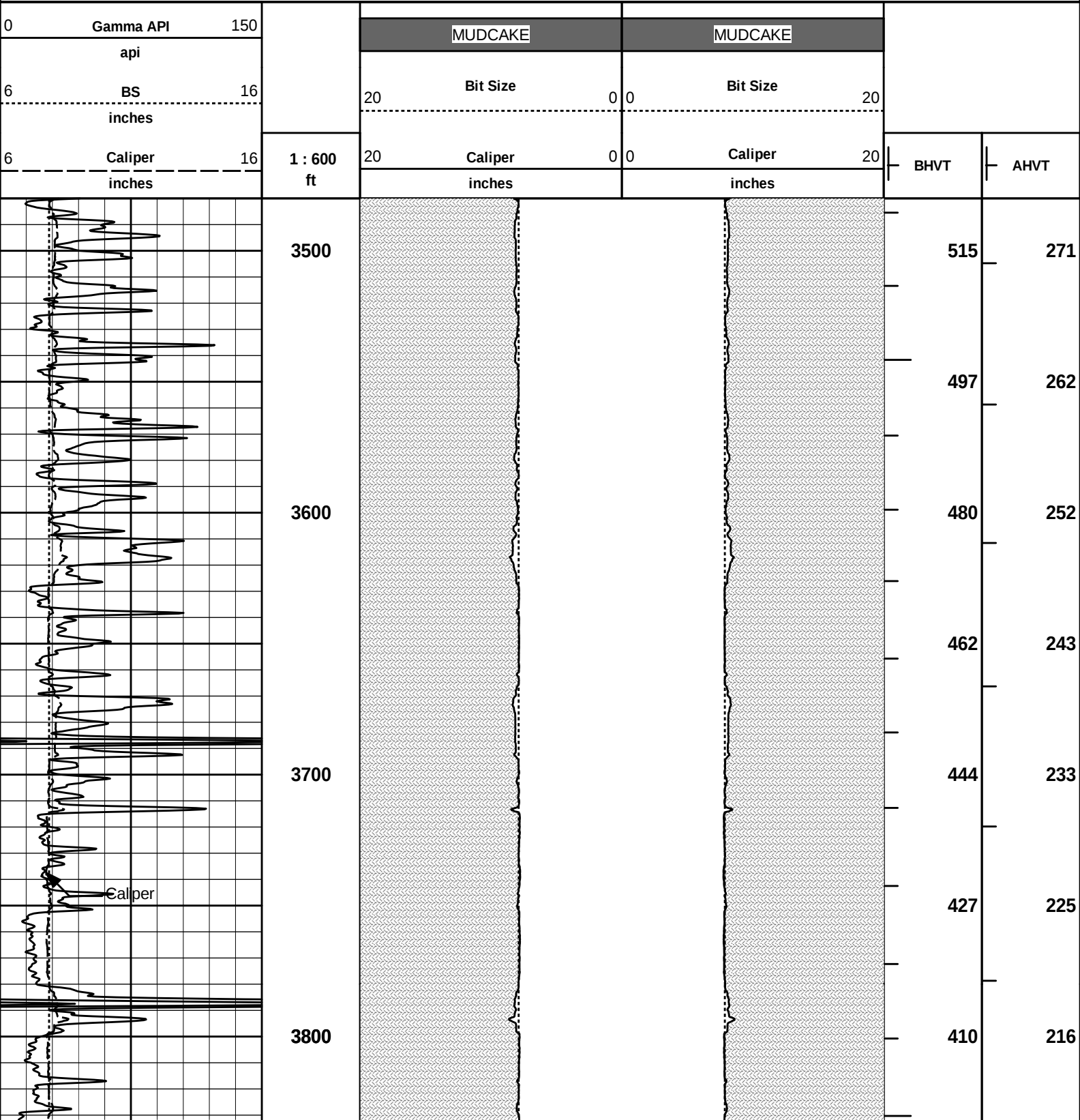
GRET				
TPUL	Tension Pull	58.56	NO	
GR	Natural Gamma Ray API	58.56	TRI	1.750
GRU	Unfiltered Natural Gamma Ray API	58.56	NO	
EGR	Natural Gamma Ray API with Enhanced Vertical Resolution	58.56	W	1.416 , 0.750
ACCZ	Accelerometer Z	0.00	BLK	0.083
DEVI	Inclination	0.00	NO	
DSNT				
TPUL	Tension Pull	48.32	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	38.42	NO	
PCAL	Pad Caliper	38.42	TRI	0.250
ACAL	Arm Caliper	38.42	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	
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

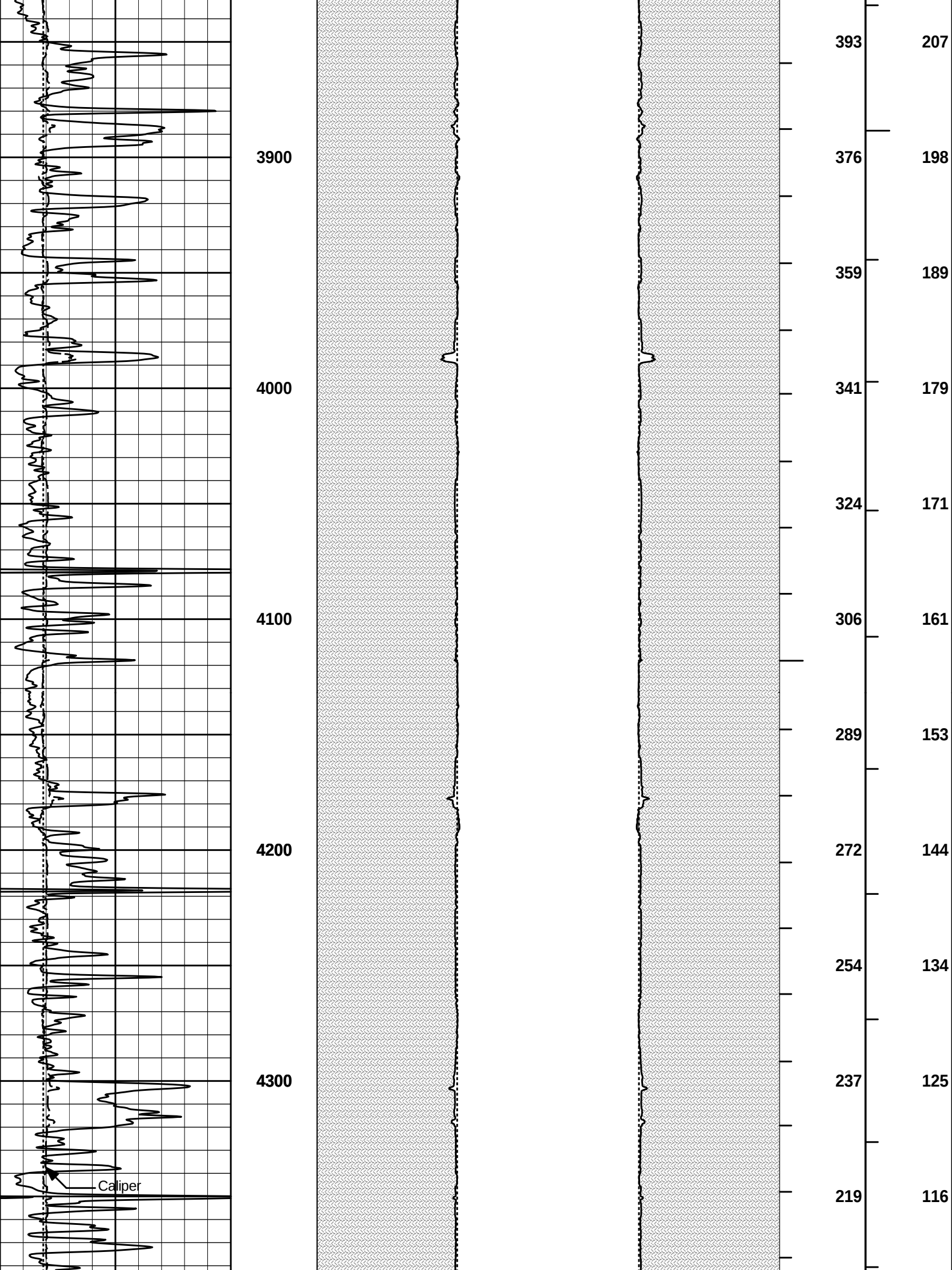
F3R1	ACRT 72KHz - 80in R value	9.22	BLK	0.000
F3X1	ACRT 72KHz - 80in X value	9.22	BLK	0.000
F3R2	ACRT 72KHz - 50in R value	6.72	BLK	0.000
F3X2	ACRT 72KHz - 50in X value	6.72	BLK	0.000
F3R3	ACRT 72KHz - 29in R value	5.22	BLK	0.000
F3X3	ACRT 72KHz - 29in X value	5.22	BLK	0.000
F3R4	ACRT 72KHz - 17in R 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	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	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	37.81	NO	
FHV	Far Detector High Voltage	37.81	NO	
ITMP	Instrument Temperature	37.81	NO	
DDHV	Detector High Voltage	37.81	NO	
Microlog Pad				
TPUL	Tension Pull	38.60	NO	

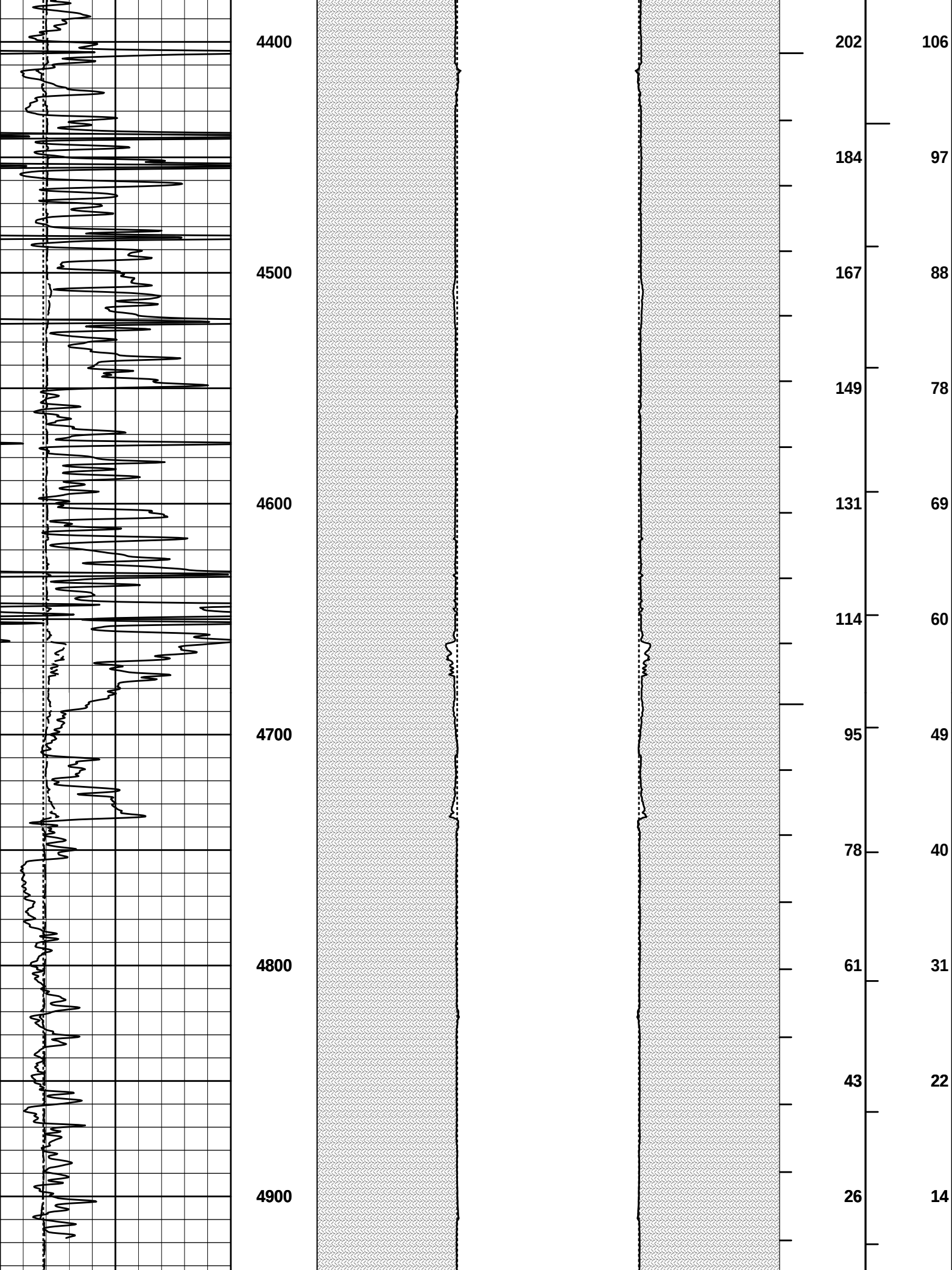
MINV	Microlog Lateral	38.60	BLK	0.750
MNOR	Microlog Normal	38.60	BLK	0.750
Data: SMU_319\0001 SP-GTET-DSN-SDL-BSAT-ACRT-CH\IDLE				Date: 28-Apr-12 19:37:35

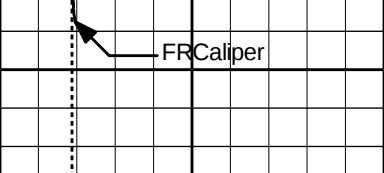
HALLIBURTON Plot Time: 29-Apr-12 00:30:33 Plot Range: 3480 ft to 4977.67 ft Data: SMU_319\Well Based\DAQ-0001-003\ Plot File: \\-LOCAL-\\SMU_319\0001 SP-GTET-DSN-SDL-BSAT-ACRT-CHIPORO\AHV_5_5_INCH_2_IQ_LIB	
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ANNULAR HOLE VOLUME PLOT (5.5 INCH)







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

HALLIBURTON

Plot Time: 29-Apr-12 00:30:36
Plot Range: 3480 ft to 4977.67 ft
Data: SMU_319\Well Based\DAQ-0001-003\
Plot File: \\-LOCAL-\\SMU_319\\0001 SP-GTET-DSN-SDL-BSAT-ACRT-CHIPORO\\AHV_5_5_INCH_2_IQ_LIB

ANNULAR HOLE VOLUME PLOT (5.5 INCH)

COMPANY	OXY USA INC		
WELL	SMU #319		
FIELD	SEQUOYAH MORROW UNIT		
COUNTY	FINNEY	STATE	KANSAS
HALLIBURTON		SPECTRAL DENSITY DUAL SPACED NEUTRON LOG	