HALLIBURTON

SPECTRAL DENSITY DUAL SPACED NEUTRON LOG

COMPANY HARTMAN OIL CO., INC.
WELL WILKINSON #3-22
FIELD/BLOCK WILDCAT
COUNTY SCOTT
STATE KANSAS

COMPANY **HARTMAN OIL CO., INC.**

WELL **WILKINSON #3-22**

FIELD/BLOCK **WILDCAT**

COUNTY **SCOTT** STATE **KANSAS**

API No. 15-171-20951

Location 335' FSL & 2656' FEL

Sect. 22 Twp. 17S Rge. 34W

Other Services:
MICROLOG
ACRT
BSAT

Permanent Datum	GL	Elev. 3086.0 ft	Elev.: K.B. 3097.0 ft
Log measured from	KB	11.0 ft above perm. Datum	D.F. 3096.0 ft
Drilling measured from	KB		G.L. 3086.0 ft

Date		31-May-13					
Run No.		ONE					
Depth - Driller		4930.00 ft					
Depth - Logger		4932.0 ft					
Bottom - Logged Interval		4888.0 ft					
Top - Logged Interval		2350.0 ft					
Casing - Driller		8.625 in @ 339.0 ft		@		@	
Casing - Logger		330.0 ft					
Bit Size		7.875 in		@		@	
Type Fluid in Hole		WATER BASED					
Density	Viscosity	9.1 ppg	56.00 s/qt				
PH	Fluid Loss	10.50 pH	8.8 cptm				
Source of Sample		MUD PIT					
Rm @ Meas. Temperature		0.300 ohmm @ 75.00 degF		@		@	
Rmf @ Meas. Temperature		0.22 ohmm @ 75.00 degF		@		@	
Rmc @ Meas. Temperature		0.350 ohmm @ 75.00 degF		@		@	
Source Rmf	Rmc	MEASURED	MEASURED				
Rm @ BHT		0.17 ohmm @ 135.0 degF		@		@	
Time Since Circulation		5.0 hr					
Time on Bottom		31-May-13 11:10					
Max. Rec. Temperature		135.0 degF @ 4932.0 ft		@		@	
Equipment	Location	10782954	LIBERAL				
Recorded By		J. BOLLOM					
Witnessed By		K. NOAH					

Fold here

Service Ticket No.: 900461286 API Serial No.: 15-171-20951 PGM Version: WL INSITE R3.8.4 (Build 5)

CHANGE IN MUD TYPE OR ADDITIONAL SAMPLE

RESISTIVITY SCALE CHANGES

	Sample No.	Type Log	Depth	Scale Up Hole	Scale Down Hole
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 EQUIPMENT DATA

	Run No.	Tool Type & No.	Pad Type	Tool Pos.	Other
Rm @ Meas. Temp	@	@			
Rmf @ Meas. Temp.	@	@			
Rmc @ Meas. Temp.	@	@			
Source Rmf					
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.	10673790	Serial No.	10755066
Model No.	GTET		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.	"GTET		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	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	4932	3800	REC	0	150				30	-10	2.71	30	-10	LIME
ONE	2450	2350	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 7,500 PPM

LCM REPORTED AT 2 LB/BBL

GTET-DSNT-SDLT-BSAT-ACRT RUN IN COMBINATION

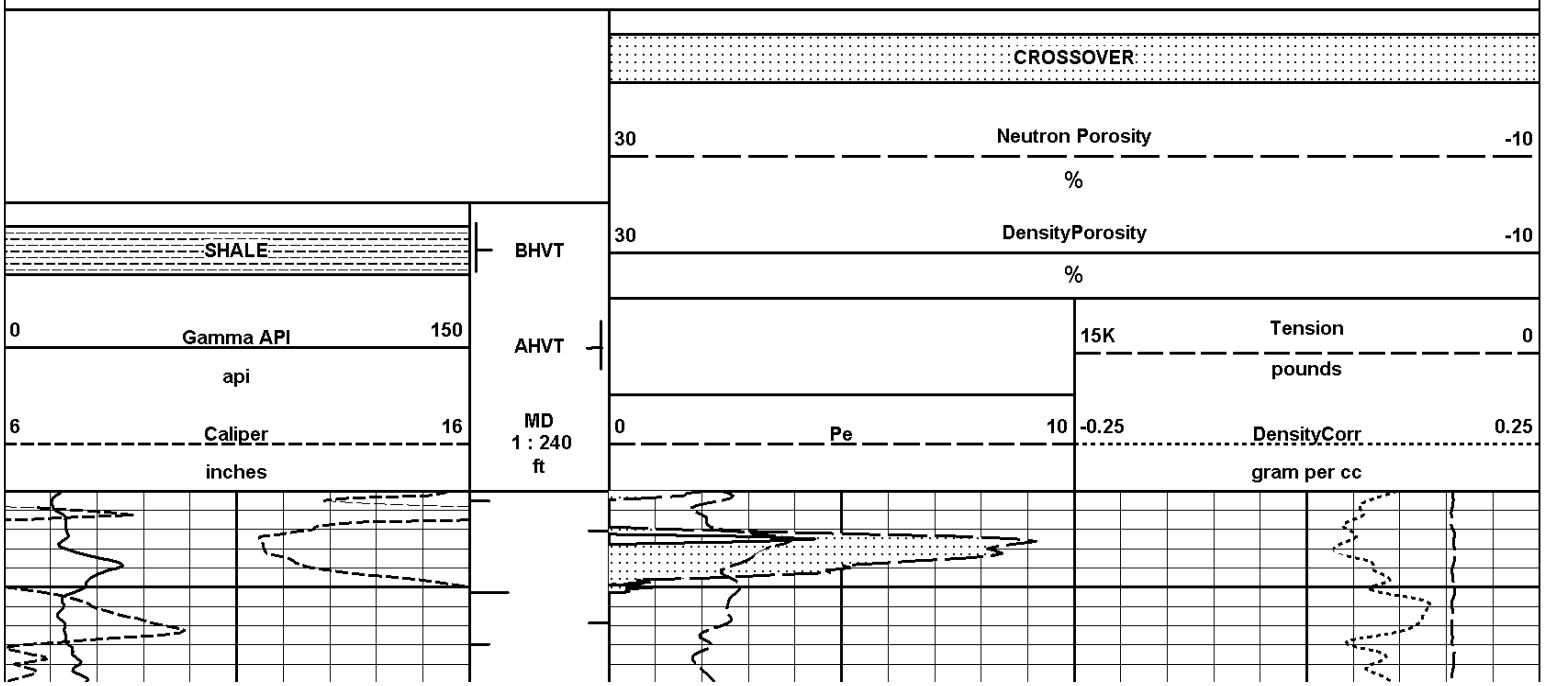
TODAY'S CREW: J. ALBRIGHT & V. JAIME

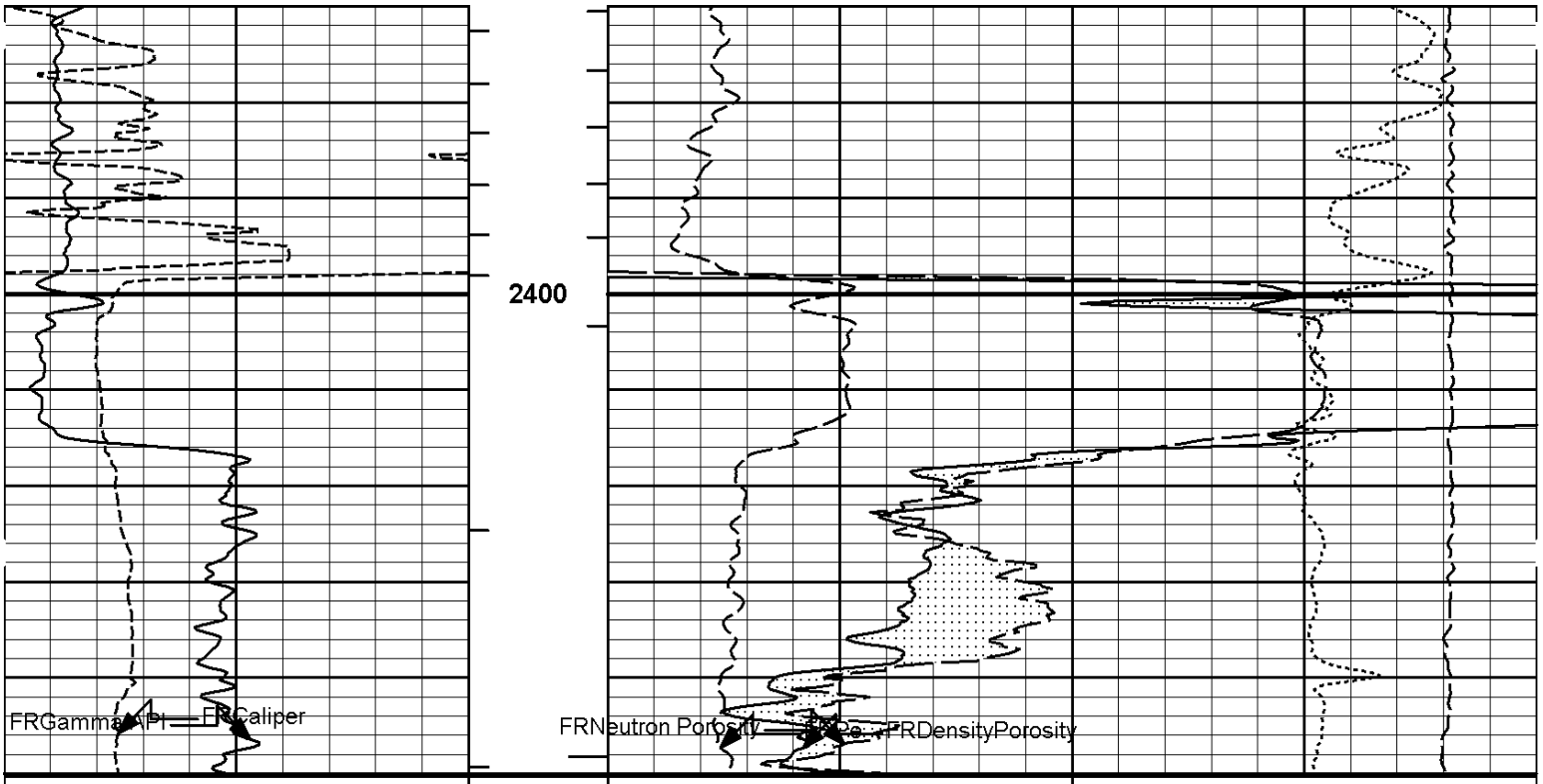
THANK YOU FOR CHOOSING HALLIBURTON ENERGY SERVICES LIBERAL, KS. 620-624-8123

HALLIBURTON

Plot Time: 31-May-13 15:35:40
Plot Range: 2350 ft to 2450 ft
Data: WILKINSON_3_22\Well Based\ANHY
Plot File: \\PORO\Poro_IQ_5_MAIN_LIB

5 INCH MAIN LOG





6 Caliper 16
inches

0 Gamma API 150
api

SHALE

MD
1 : 240
ft

AHVT

BHVT

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: 31-May-13 15:35:44
Plot Range: 2350 ft to 2450 ft
Data: WILKINSON_3_22\Well Based\ANHY\
Plot File: \\PORO\Poro_IQ_5_MAIN_LIB

5 INCH MAIN LOG

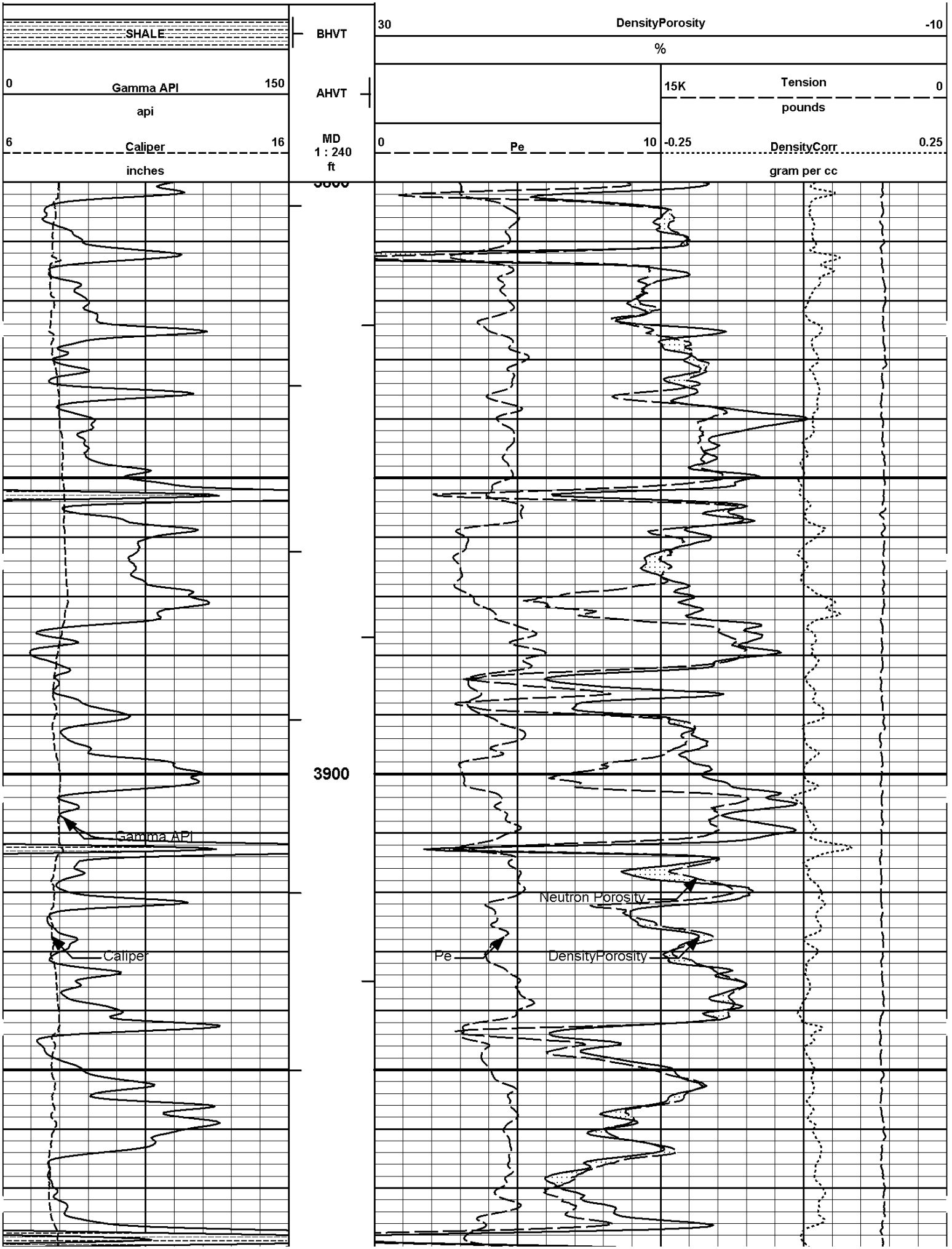
HALLIBURTON

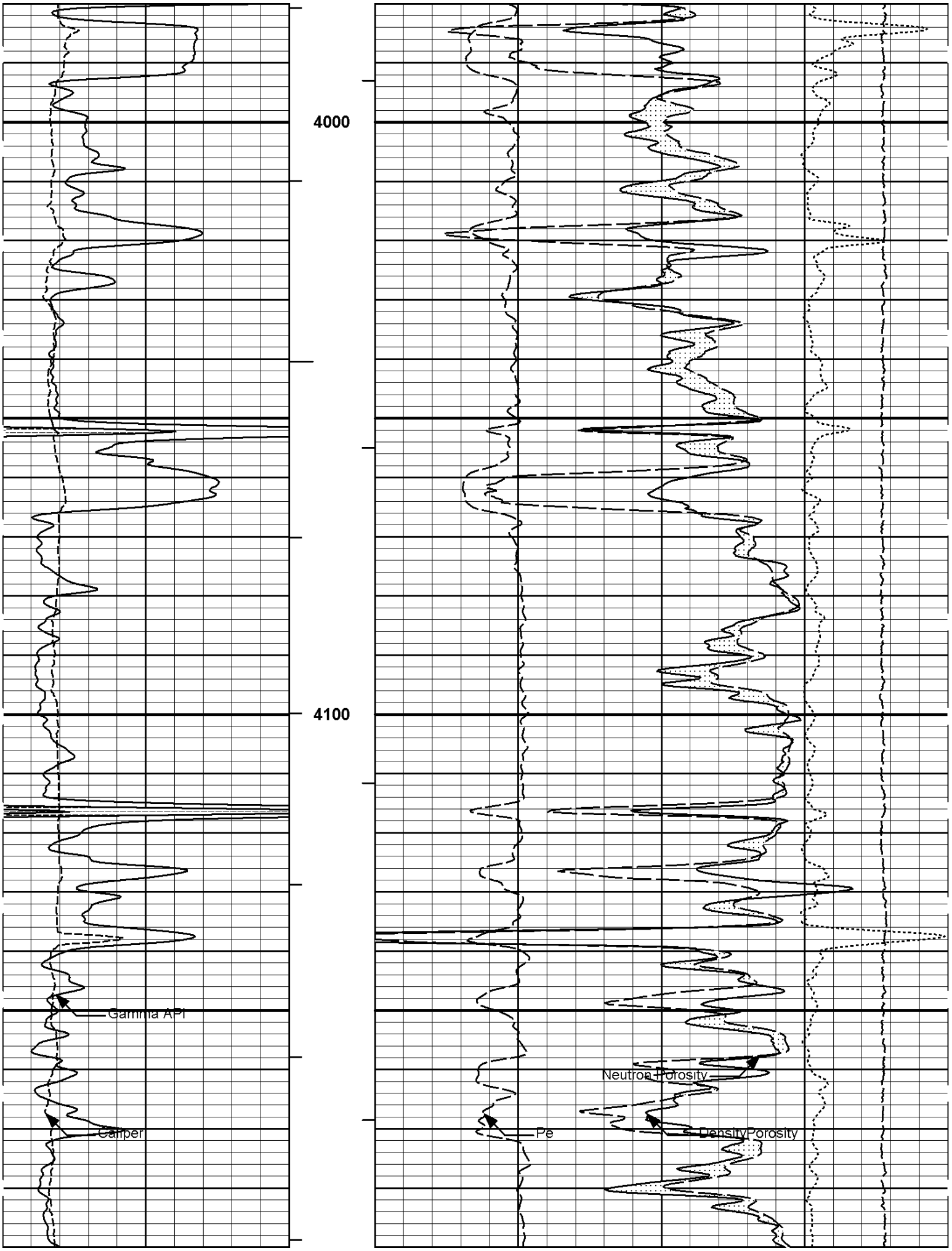
Plot Time: 31-May-13 15:35:44
Plot Range: 3800 ft to 4936.17 ft
Data: WILKINSON_3_22\Well Based\DETAIL\
Plot File: \\PORO\Poro_IQ_5_MAIN_LIB

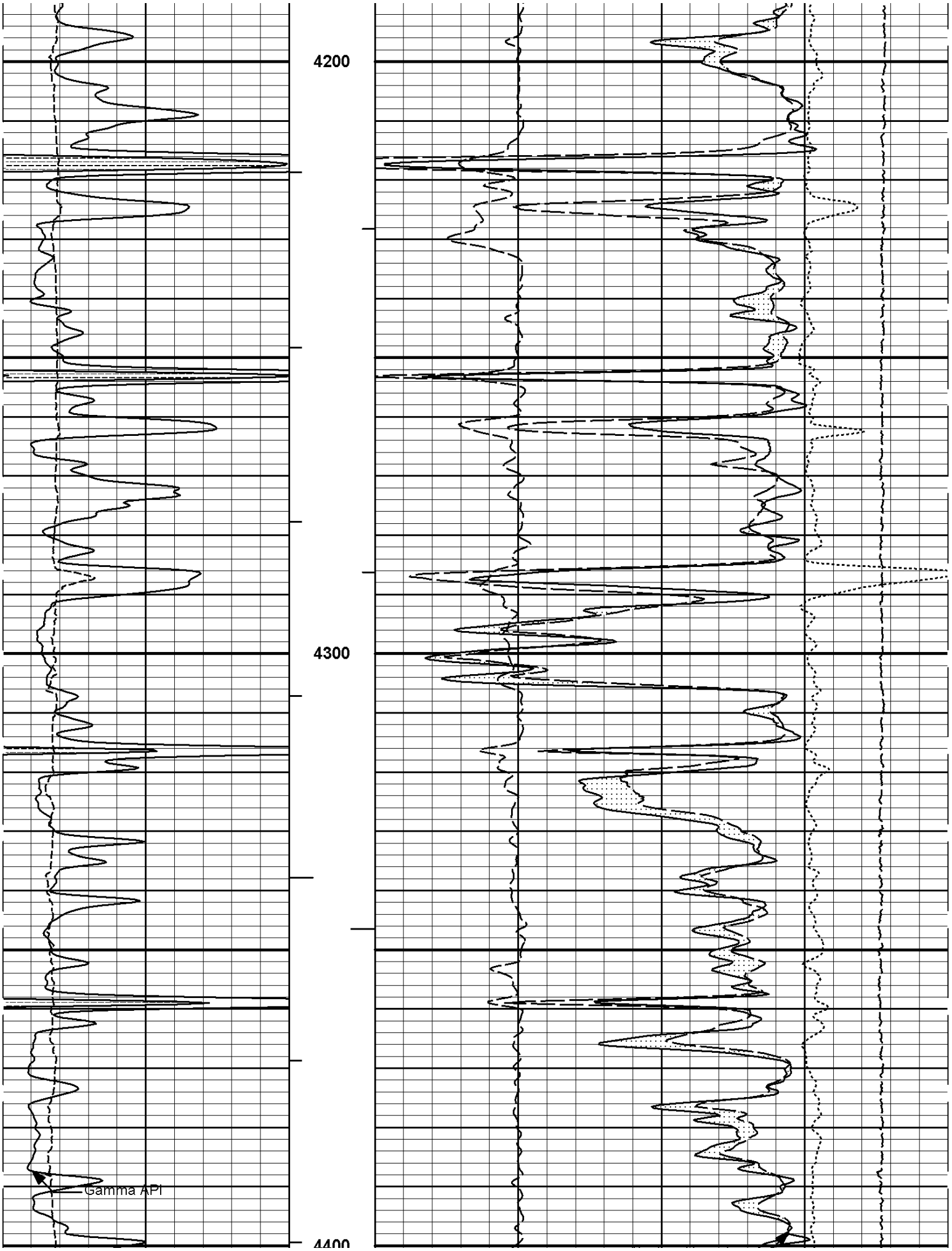
5 INCH MAIN LOG

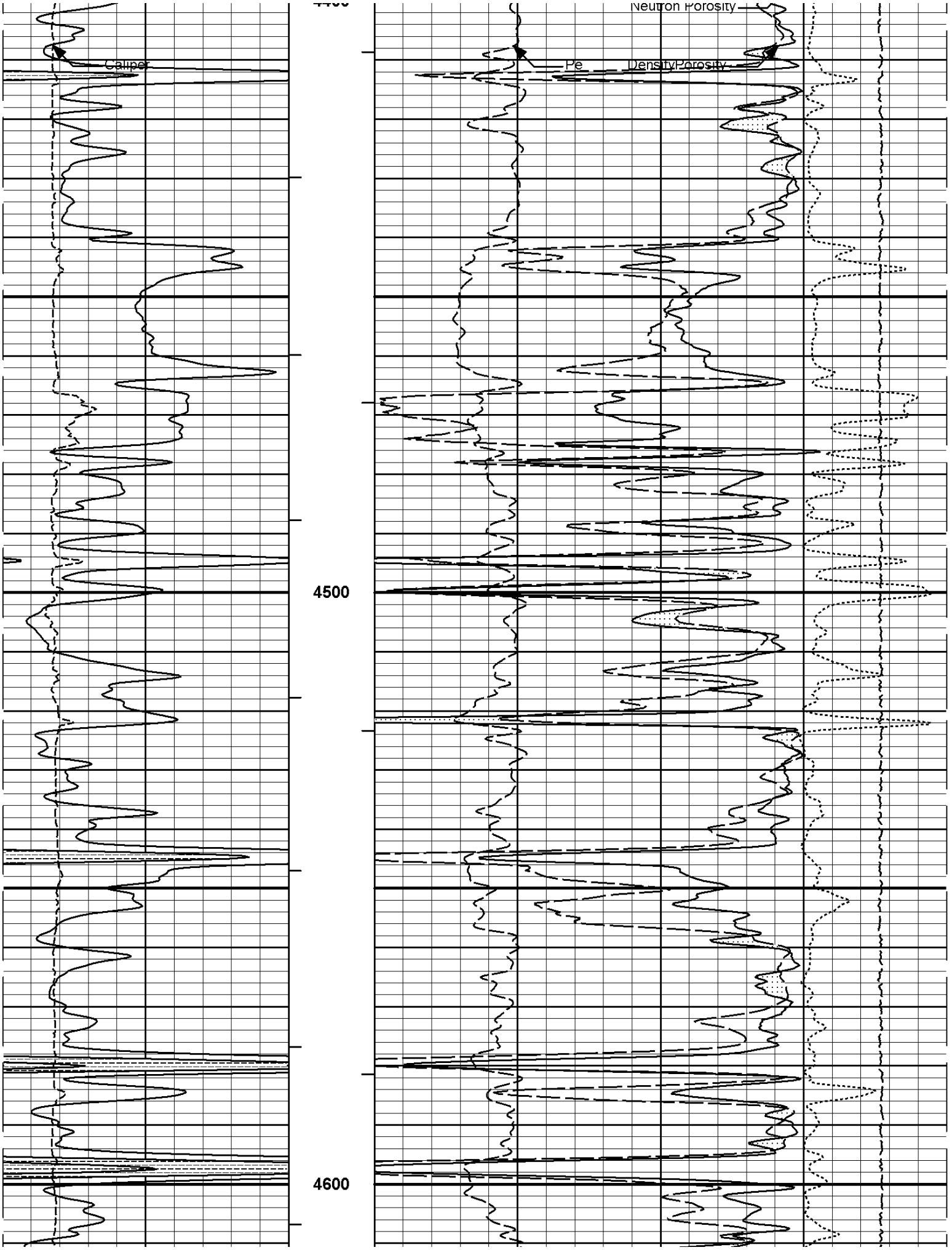
CROSSOVER

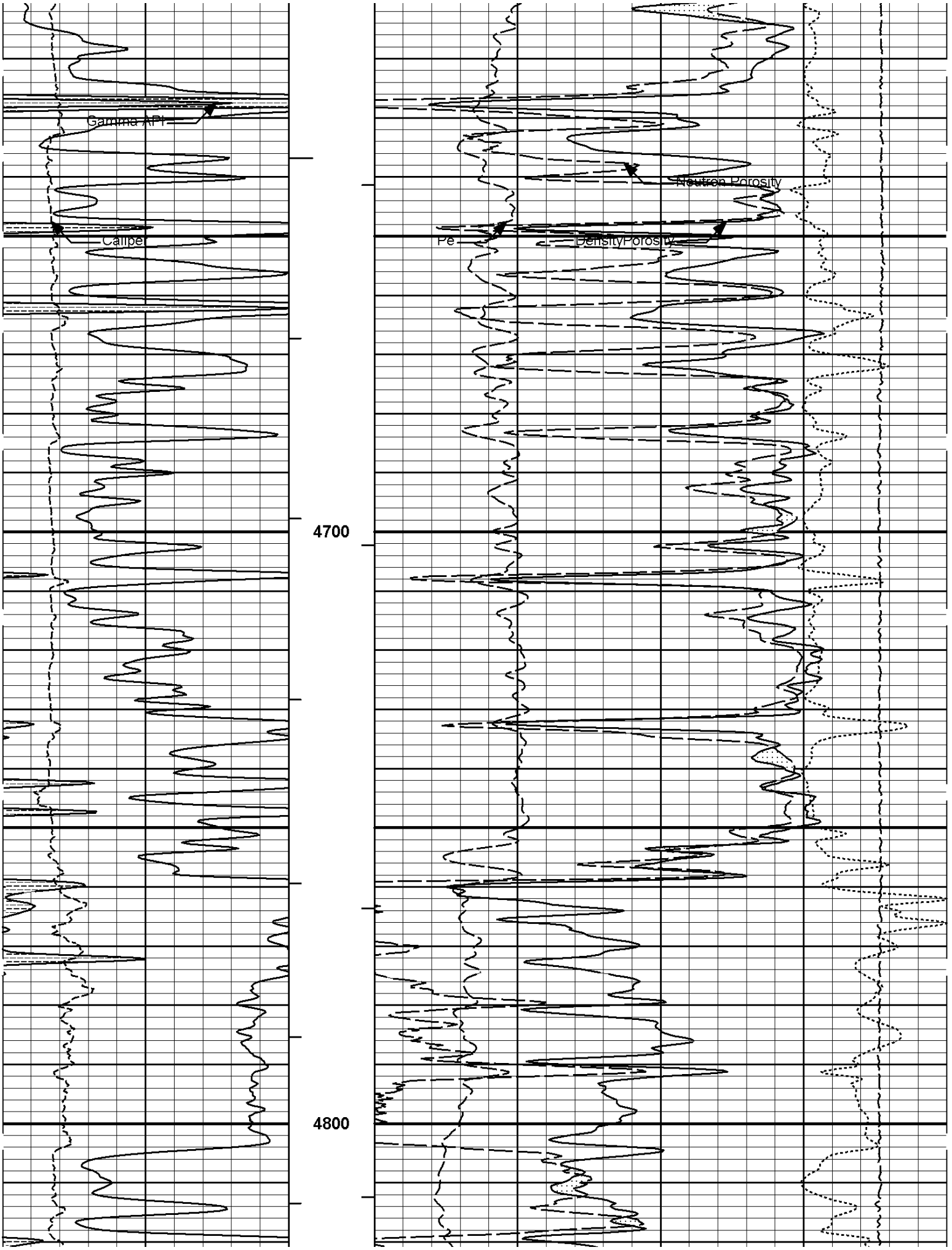
30 Neutron Porosity -10
%

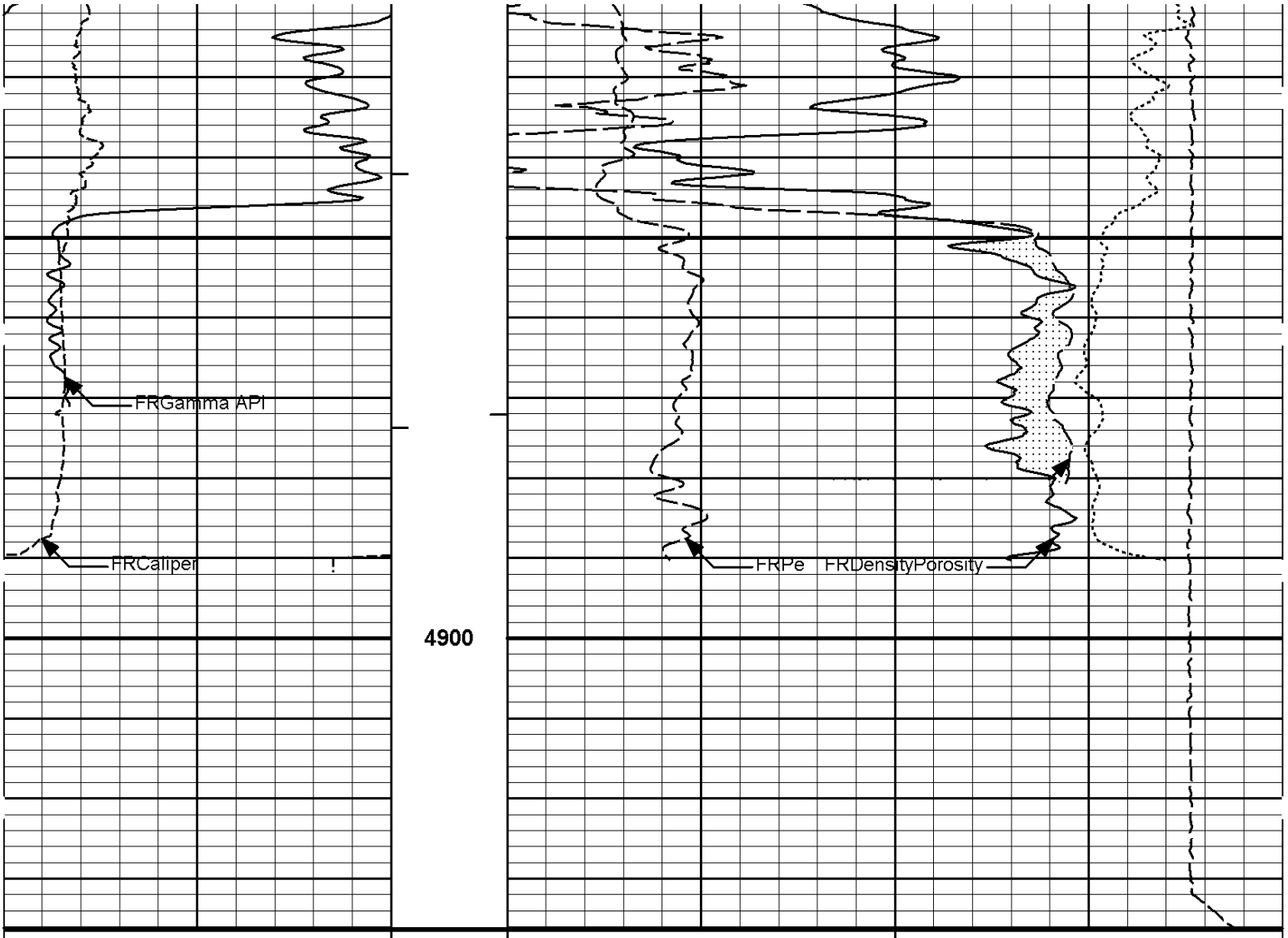

SHALE
BHVT
AHVT
MD
1 : 240
ft
0
Gamma API
150
api
6
Caliper
16
inches
30
DensityPorosity
-10
%
15K
Tension
0
pounds
0
Pe
10
-0.25
DensityCorr
0.25
gram per cc
3900
Gamma API
Caliper
Neutron Porosity
Pe
DensityPorosity


4000
4100
Gamma API
Caliper
Neutron Porosity
Pe
Density Porosity


4200
4300
4400
Gamma API


Caliper
Pe
DensityPorosity
Neutron Porosity
4500
4600


Gamma API
Caliper
Neutron Porosity
Pe
DensityPorosity
4700
4800



6 Caliper 16	MD 1 : 240 ft	0 Pe 10
inches		
0 Gamma API 150	AHVT	15K Tension 0
api		pounds
SHALE	BHVT	

-0.25 DensityCorr 0.25	
gram per cc	
30 DensityPorosity -10	
%	
30 Neutron Porosity -10	
%	
CROSSOVER	

HALLIBURTON

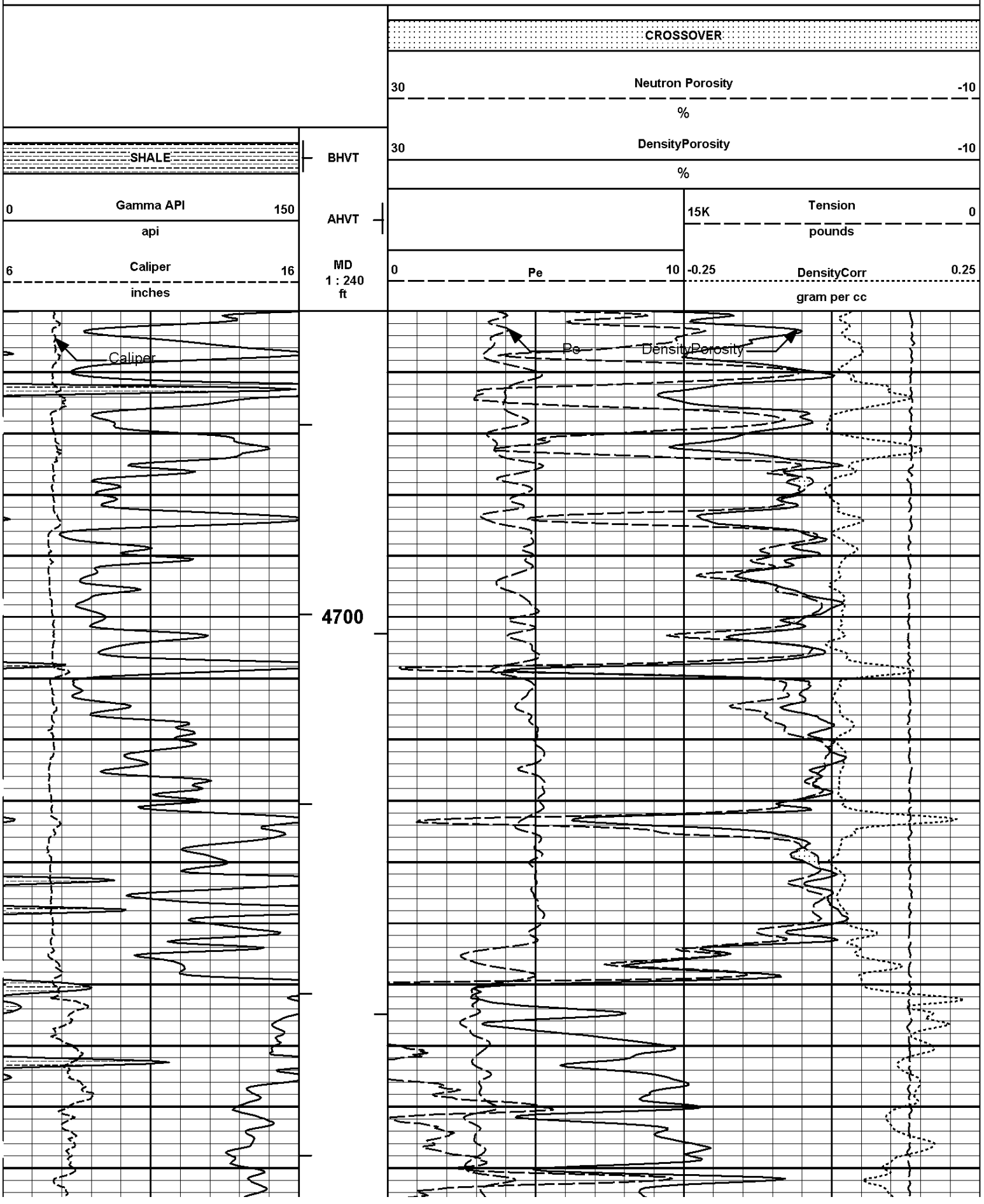
Plot Time: 31-May-13 15:35:51
Plot Range: 3800 ft to 4936.17 ft
Data: WILKINSON_3_22\Well Based\DETAIL\
Plot File: \\PORO\Poro_IQ_5_MAIN_LIB

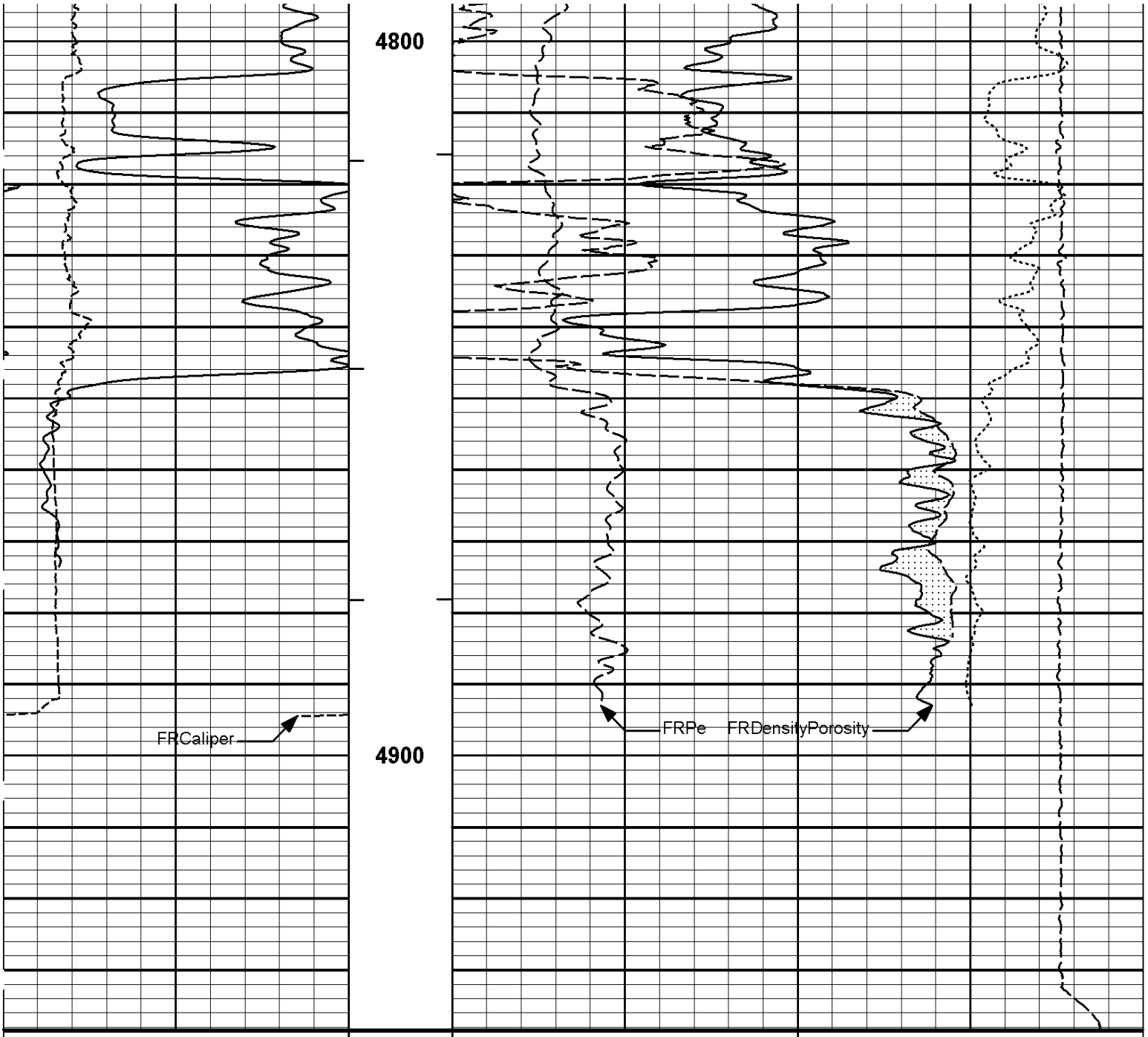
5 INCH MAIN LOG

HALLIBURTON

Plot Time: 31-May-13 15:35:51
Plot Range: 4650 ft to 4938.33 ft
Data: WILKINSON_3_22\Well Based\REPEAT\
Plot File: \\PORO\Poro_IQ_5_REP_LIB

REPEAT SECTION





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

-0.25 DensityCorr 0.25
gram per cc

HALLIBURTON

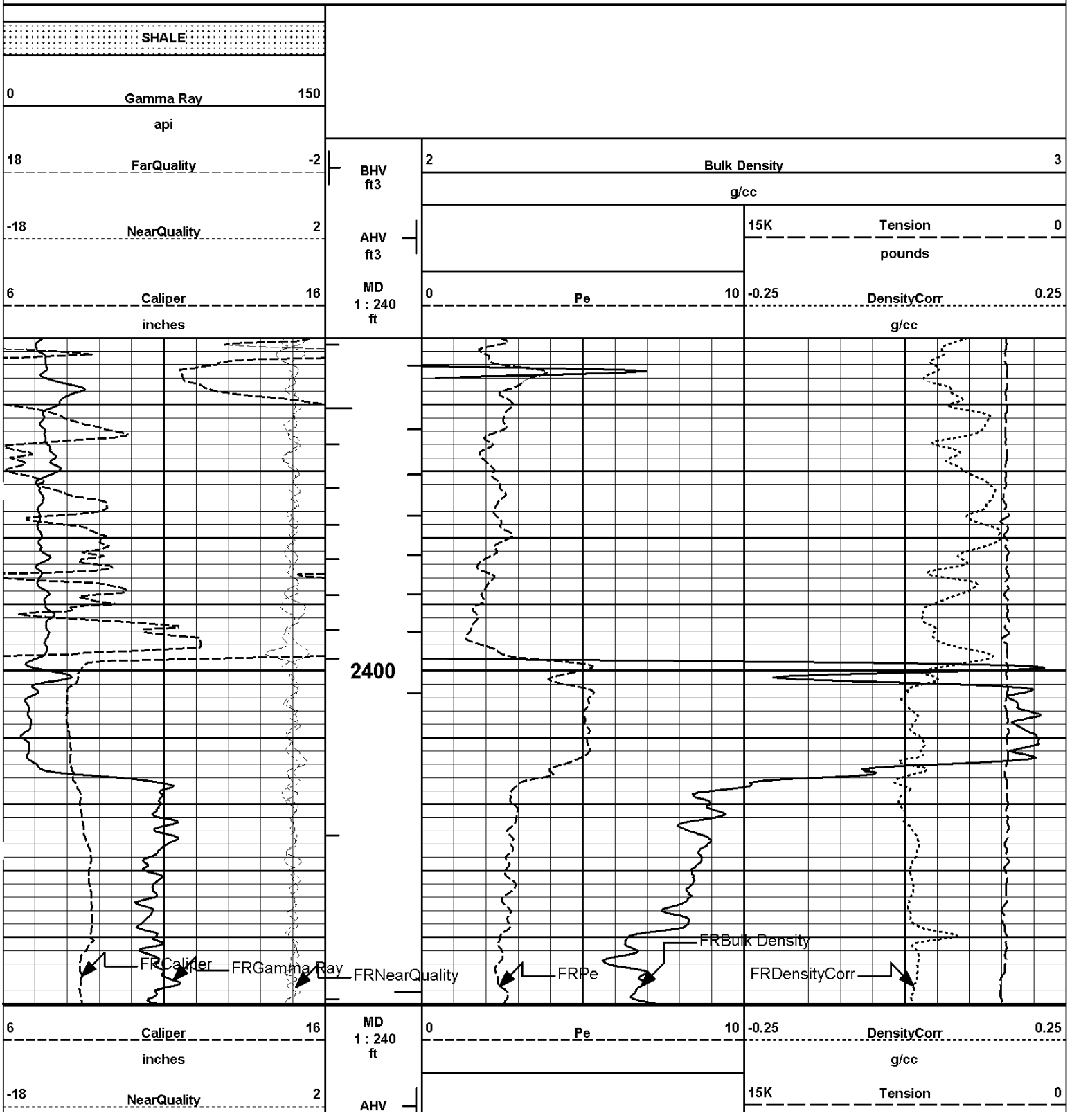
Plot Time: 31-May-13 15:35:55
Plot Range: 4650 ft to 4938.33 ft
Data: WILKINSON_3_22\Well Based\REPEAT\
Plot File: \\PORO\Poro_IQ_5_REP_LIB

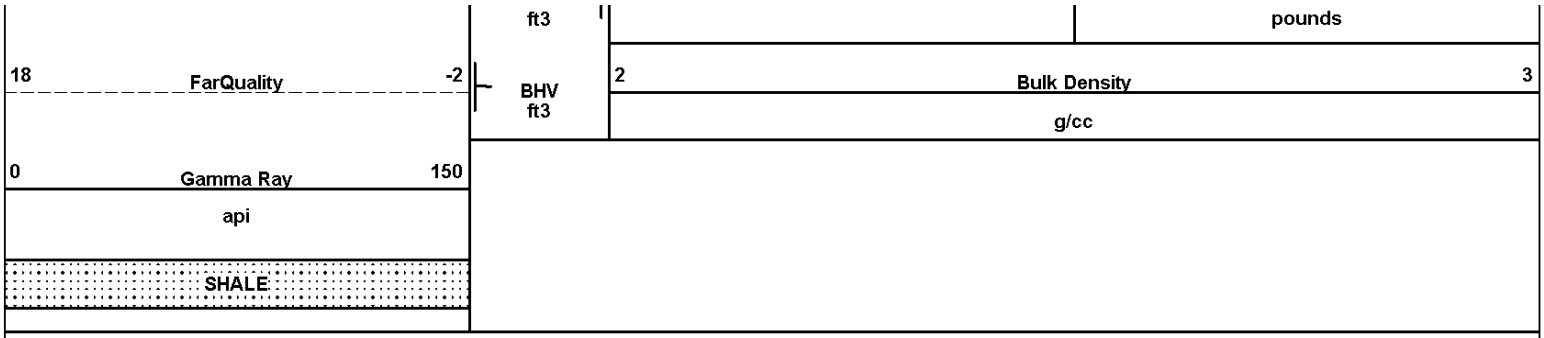
REPEAT SECTION

HALLIBURTON

Plot Time: 31-May-13 15:35:55
Plot Range: 2350 ft to 2450 ft
Data: WILKINSON_3_22\Well Based\ANHY\
Plot File: \\-LOCAL-\WILKINSON_3_22\0002 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-CH\PORO\BULKD_5_MAIN_LIB

5 INCH MAIN LOG





HALLIBURTON

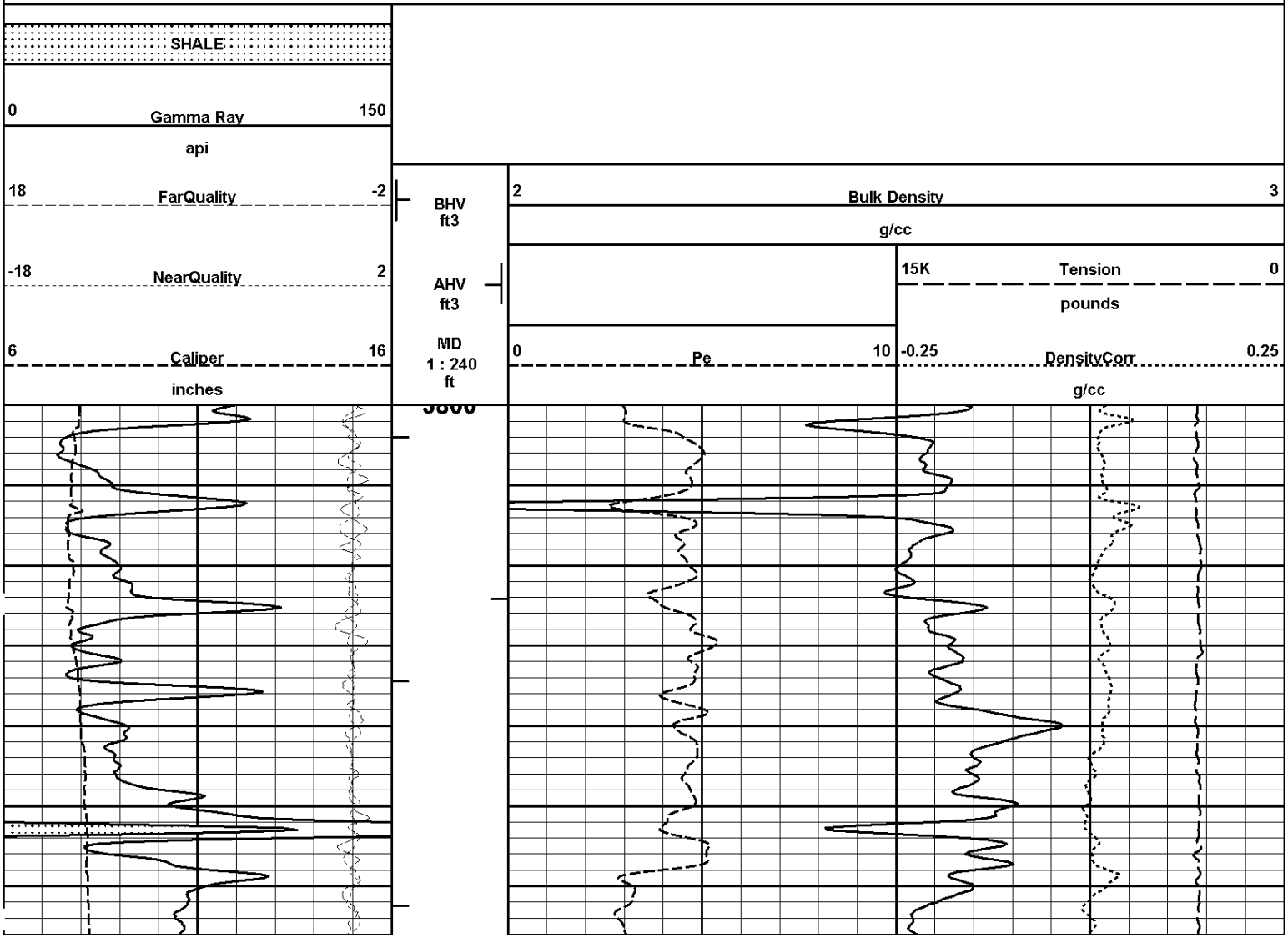
Plot Time: 31-May-13 15:35:58
Plot Range: 2350 ft to 2450 ft
Data: WILKINSON_3_22\Well Based\ANHY\
Plot File: \\-LOCAL-\WILKINSON_3_22\0002 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-CH\PORO\BULKD_5_MAIN_LIB

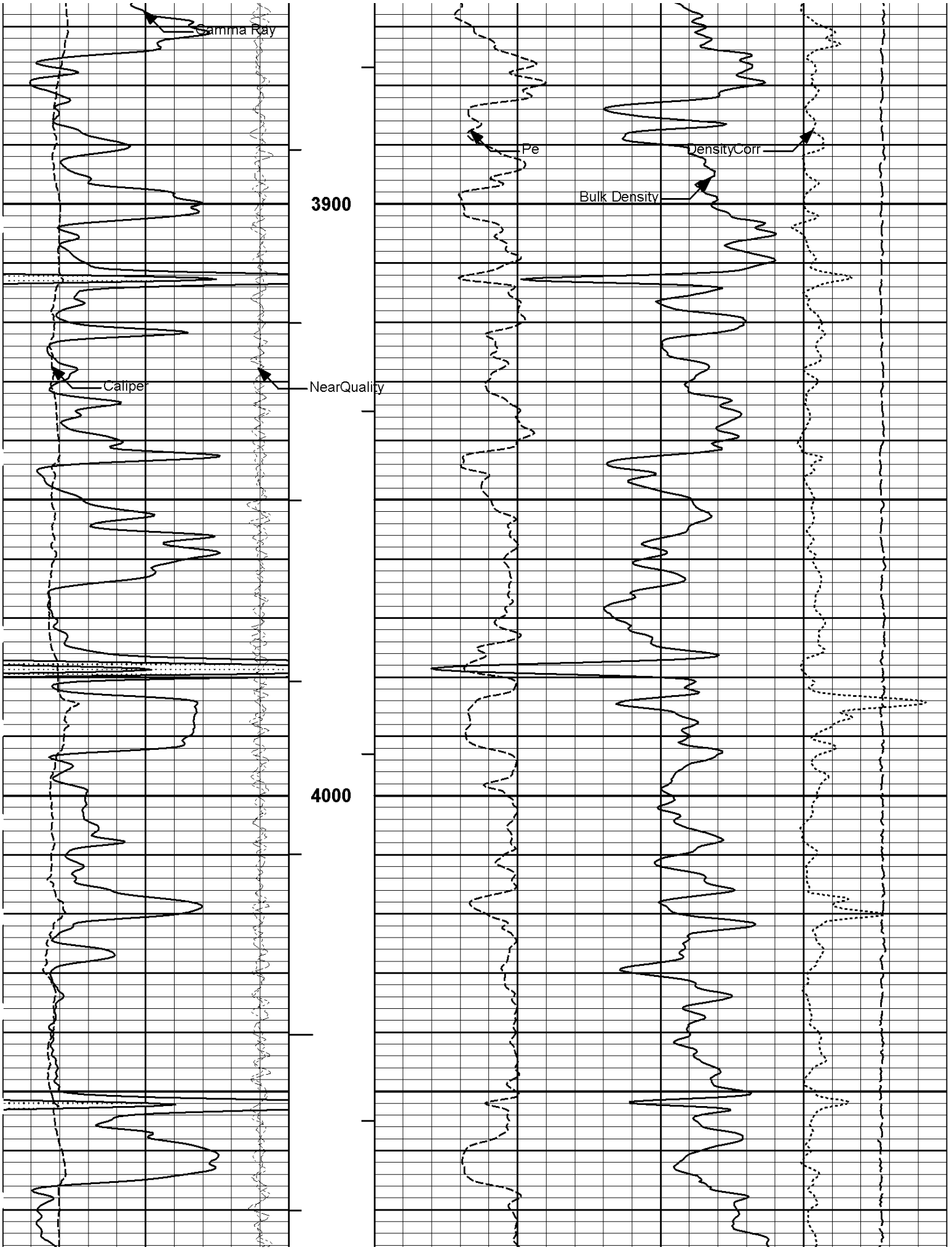
5 INCH MAIN LOG

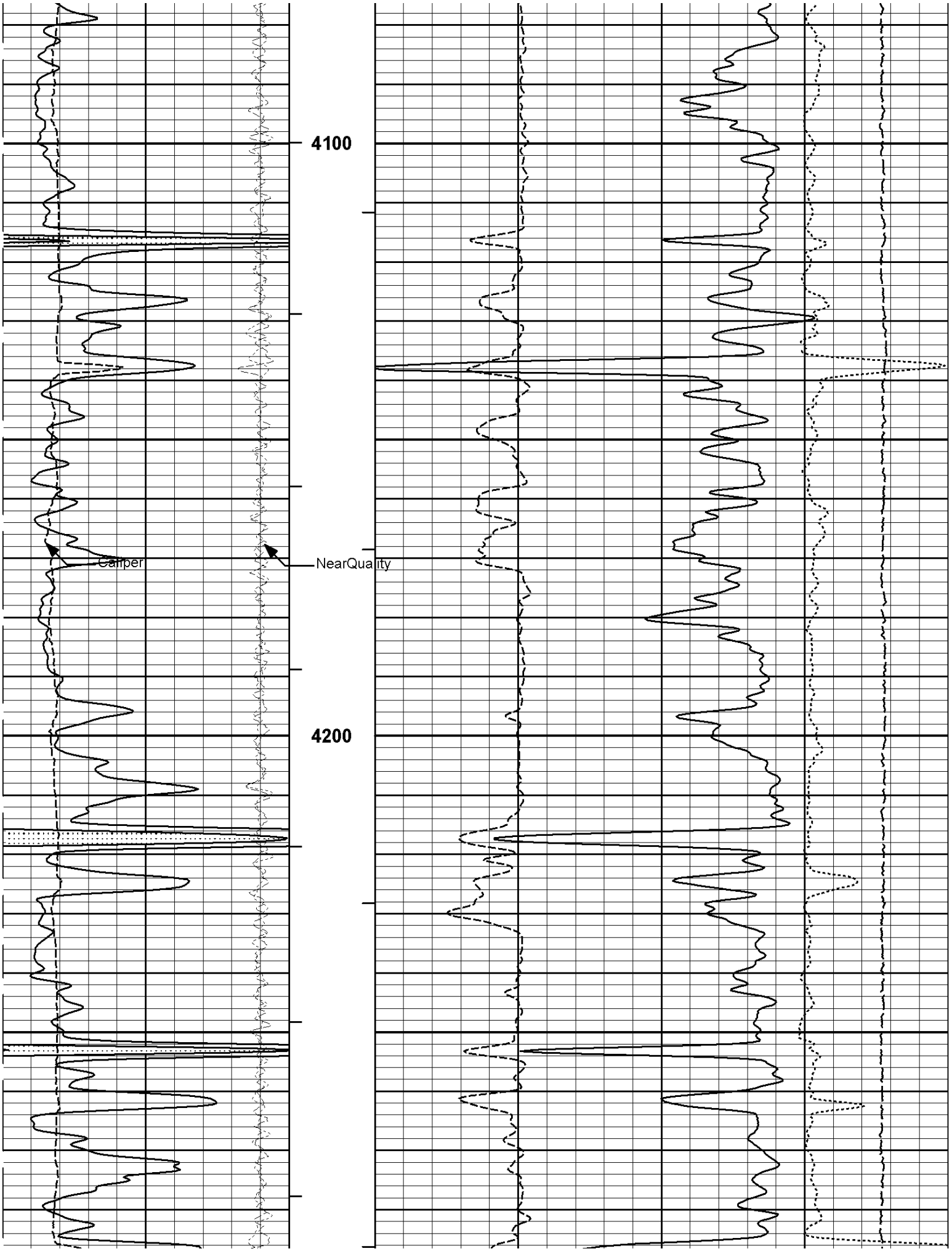
HALLIBURTON

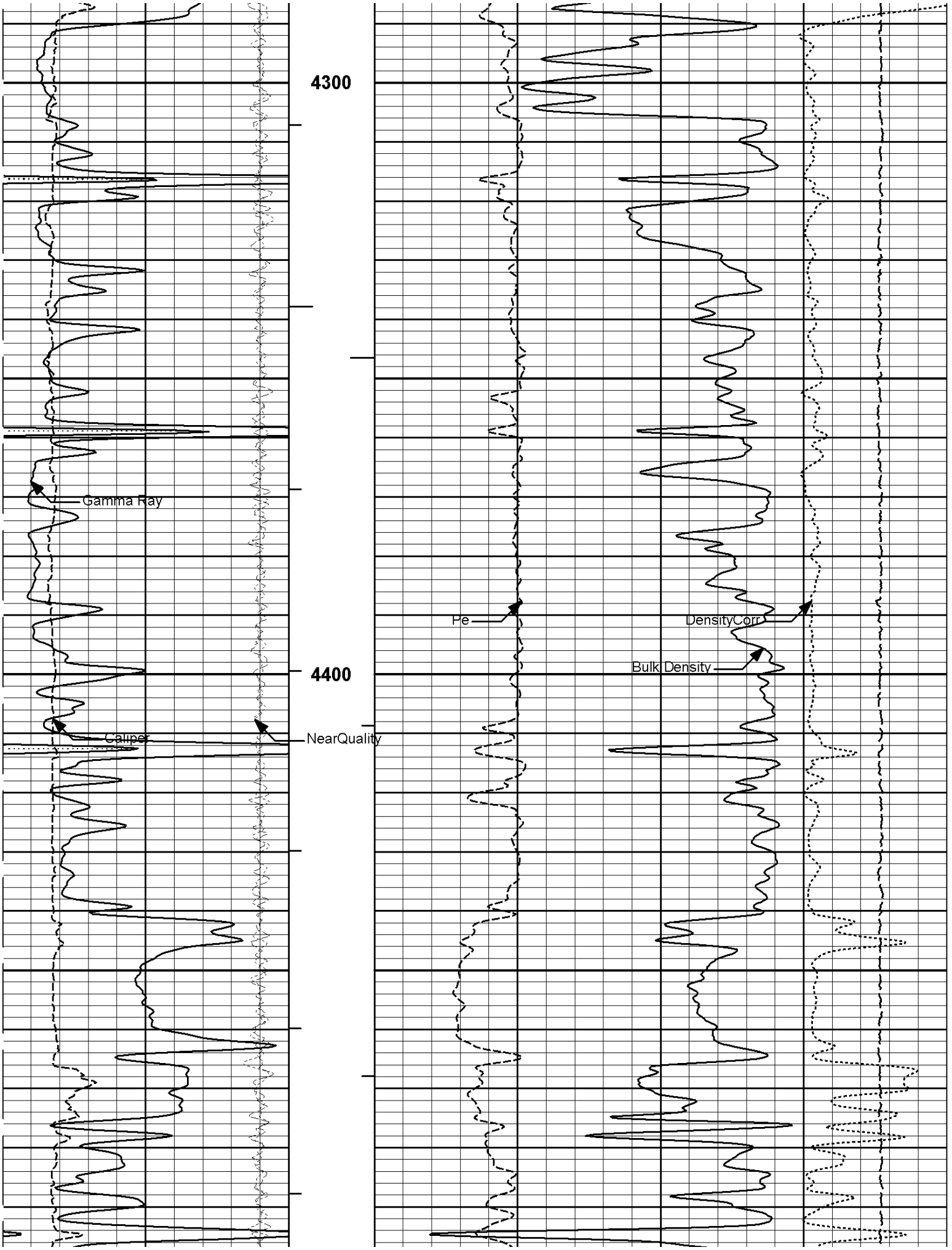
Plot Time: 31-May-13 15:35:59
Plot Range: 3800 ft to 4936.17 ft
Data: WILKINSON_3_22\Well Based\DETAIL\
Plot File: \\-LOCAL-\WILKINSON_3_22\0002 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-CH\PORO\BULKD_5_MAIN_LIB

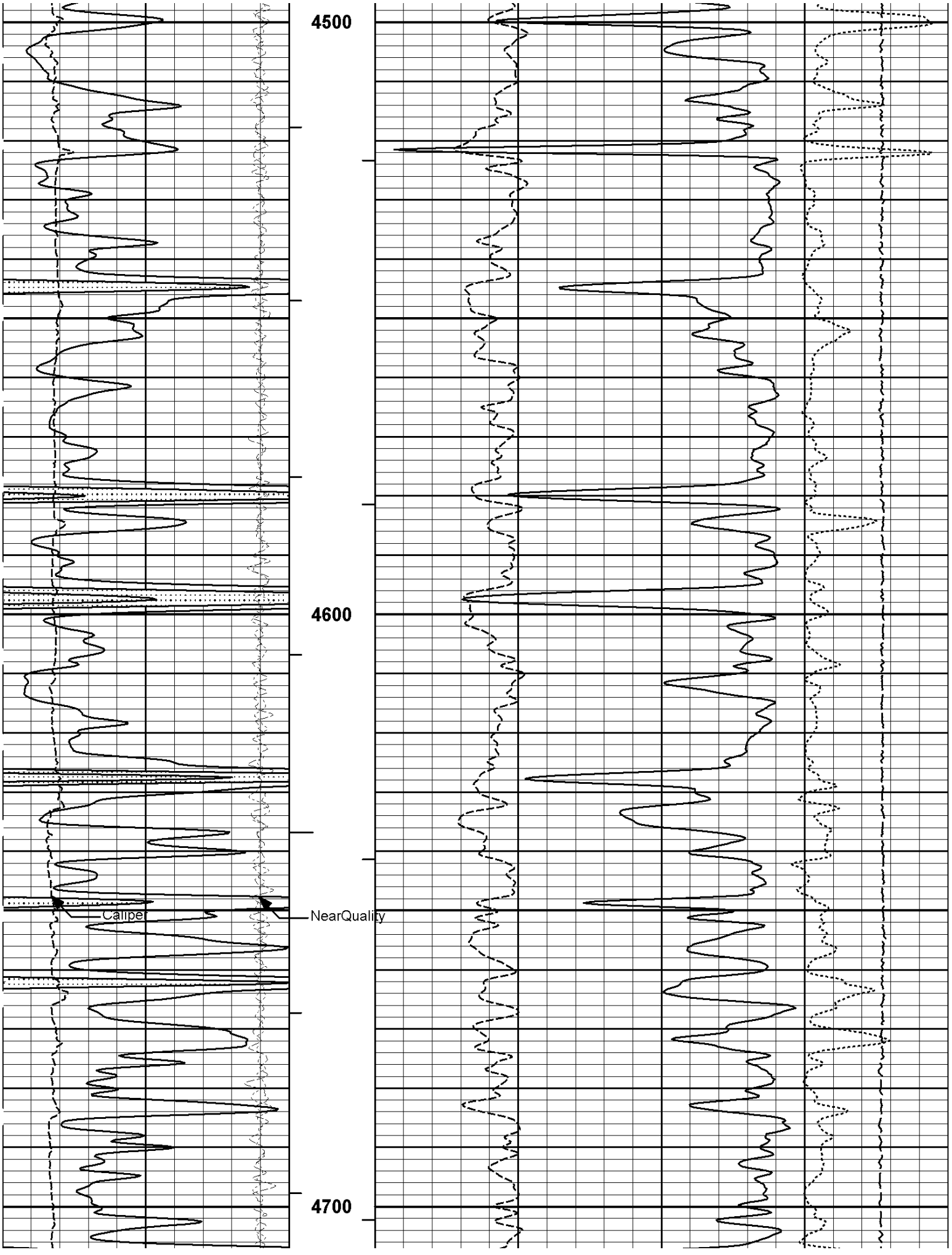
5 INCH MAIN LOG

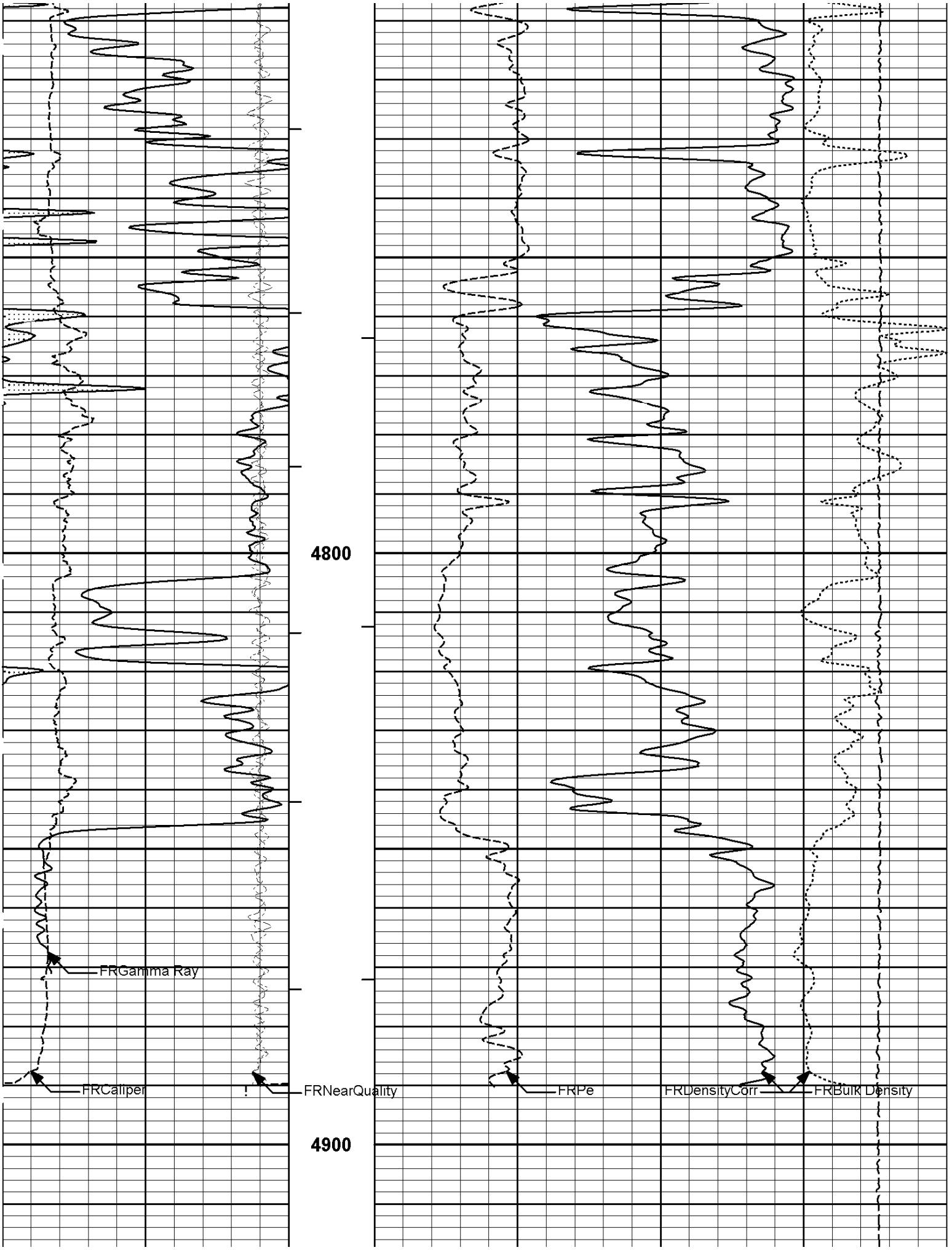


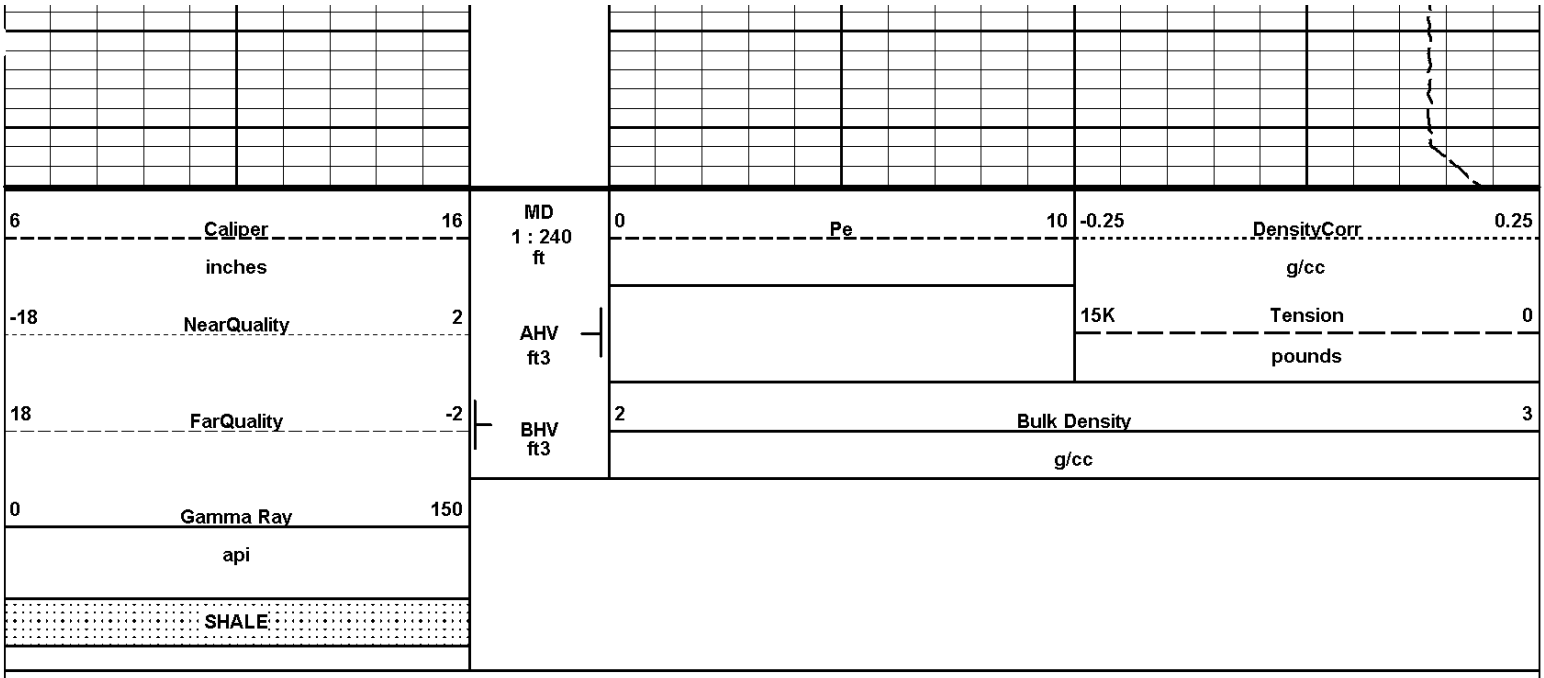

Gamma Ray
Pe
DensityCorr
Bulk Density
3900
Caliper
NearQuality
4000


4100
4200
Caliper
NearQuality


4300
4400
Gamma Ray
Caliper
NearQuality
Pe
DensityCorr
Bulk Density


4500
4600
4700
Caliper
NearQuality


4800
4900
FRGamma Ray
FRCaliper
FRNearQuality
FRPe
FRDensityCorr
FRBulk Density



HALLIBURTON

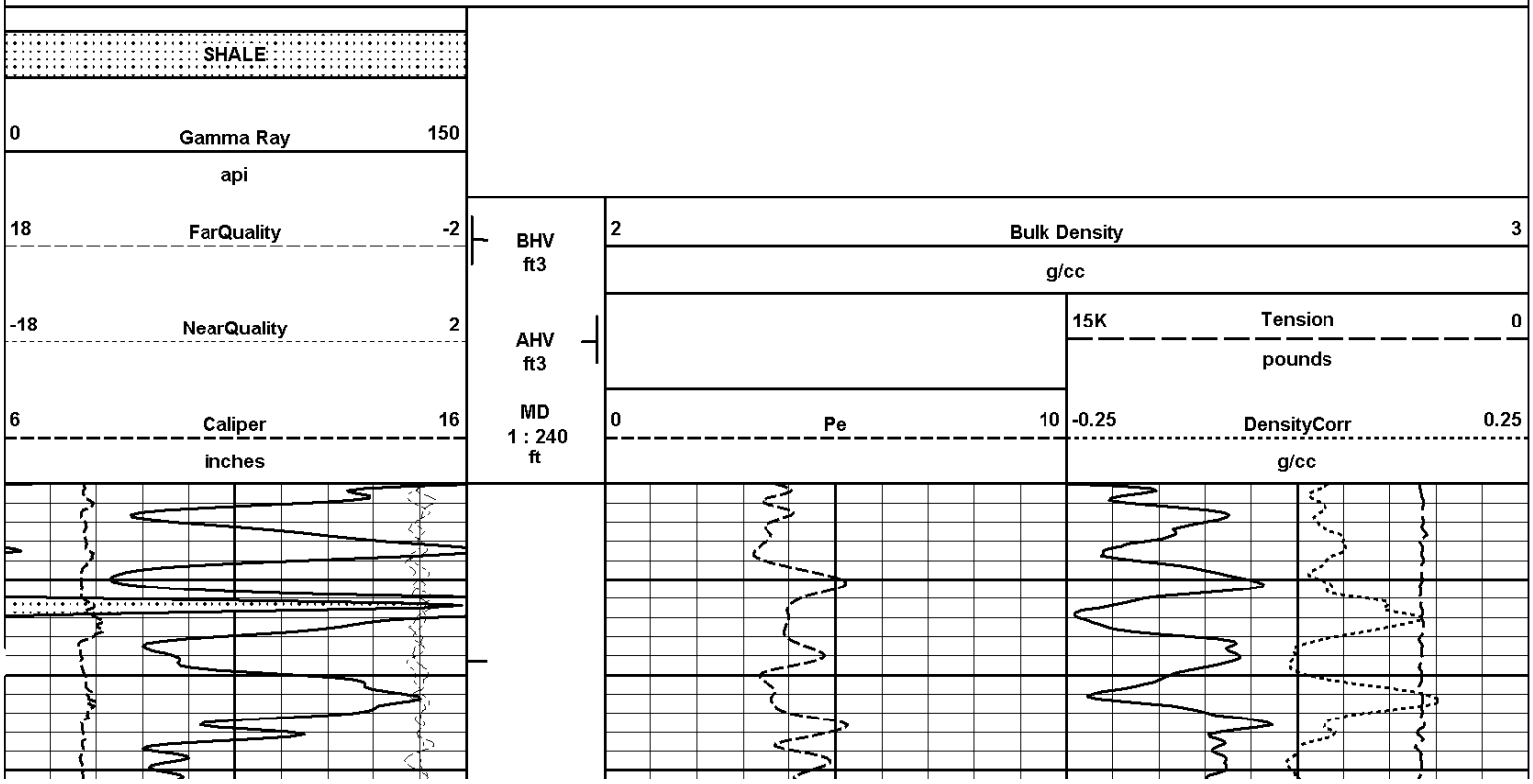
Plot Time: 31-May-13 15:36:03
Plot Range: 3800 ft to 4936.17 ft
Data: WILKINSON_3_22\Well Based\DETAIL\
Plot File: \\-LOCAL-\WILKINSON_3_22\0002 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-CH\PORO\BULKD_5_MAIN_LIB

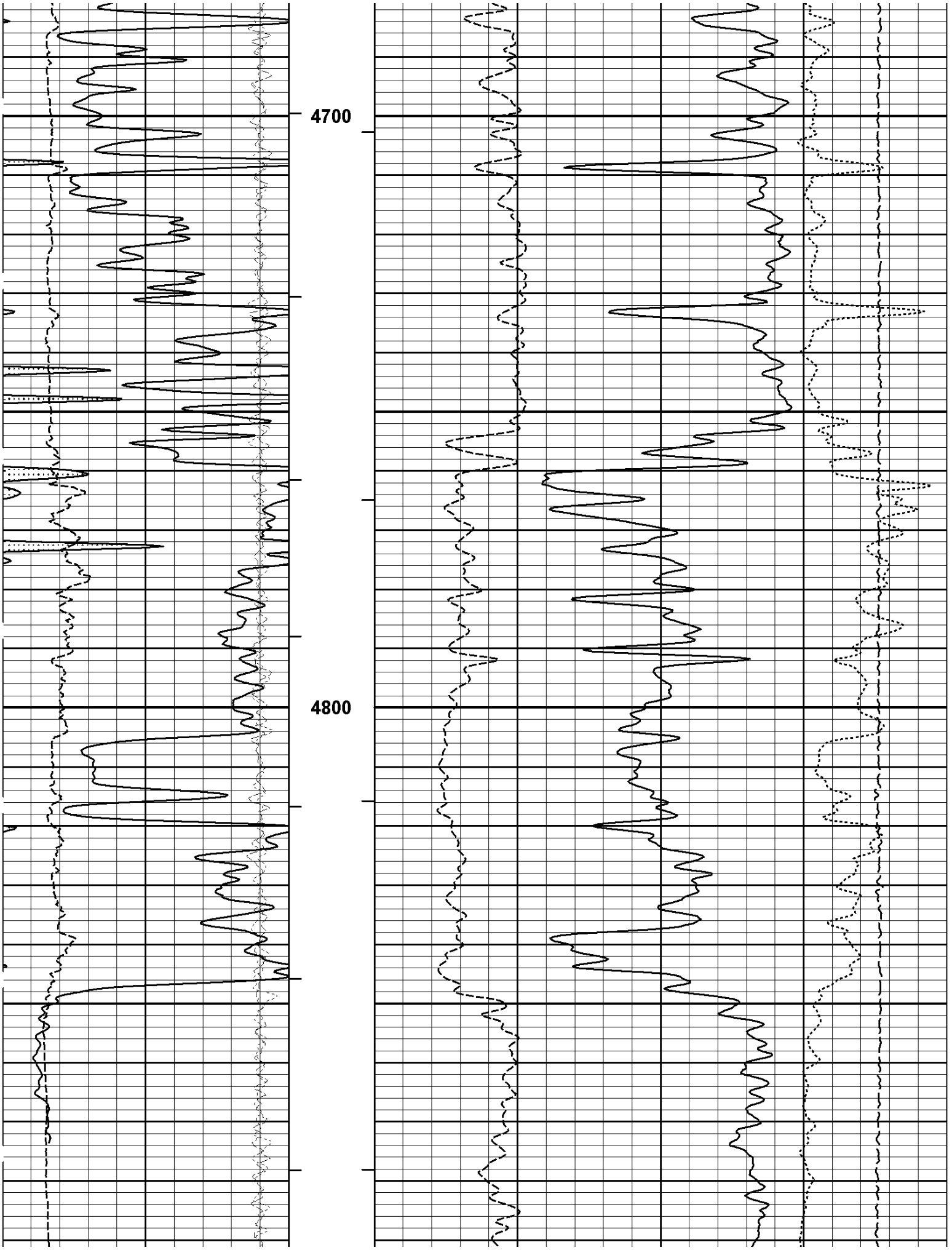
5 INCH MAIN LOG

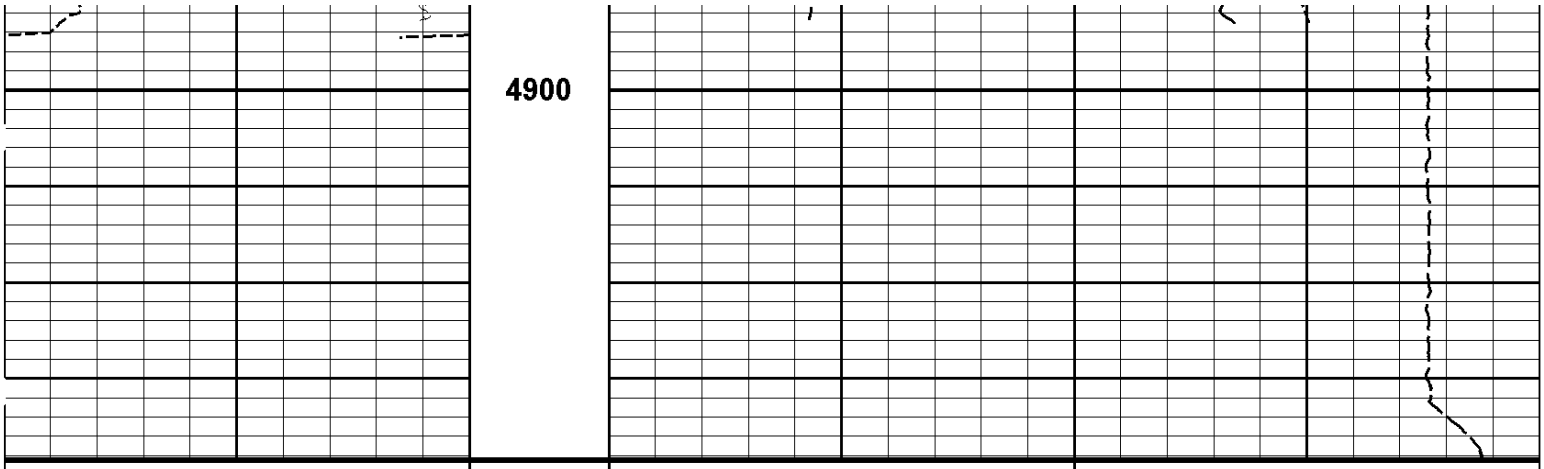
HALLIBURTON

Plot Time: 31-May-13 15:36:04
Plot Range: 4650 ft to 4938.33 ft
Data: WILKINSON_3_22\Well Based\REPEAT\
Plot File: \\-LOCAL-\WILKINSON_3_22\0002 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-CH\PORO\BULKD_5_REP_LIB

REPEAT SECTION




4700
4800



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

HALLIBURTON

Plot Time: 31-May-13 15:36:06
Plot Range: 4650 ft to 4938.33 ft
Data: WILKINSON_3_22\Well Based\REPEAT\
Plot File: \\-LOCAL-\WILKINSON_3_22\0002 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-CH\PORO\BULKD_5_REP_LIB

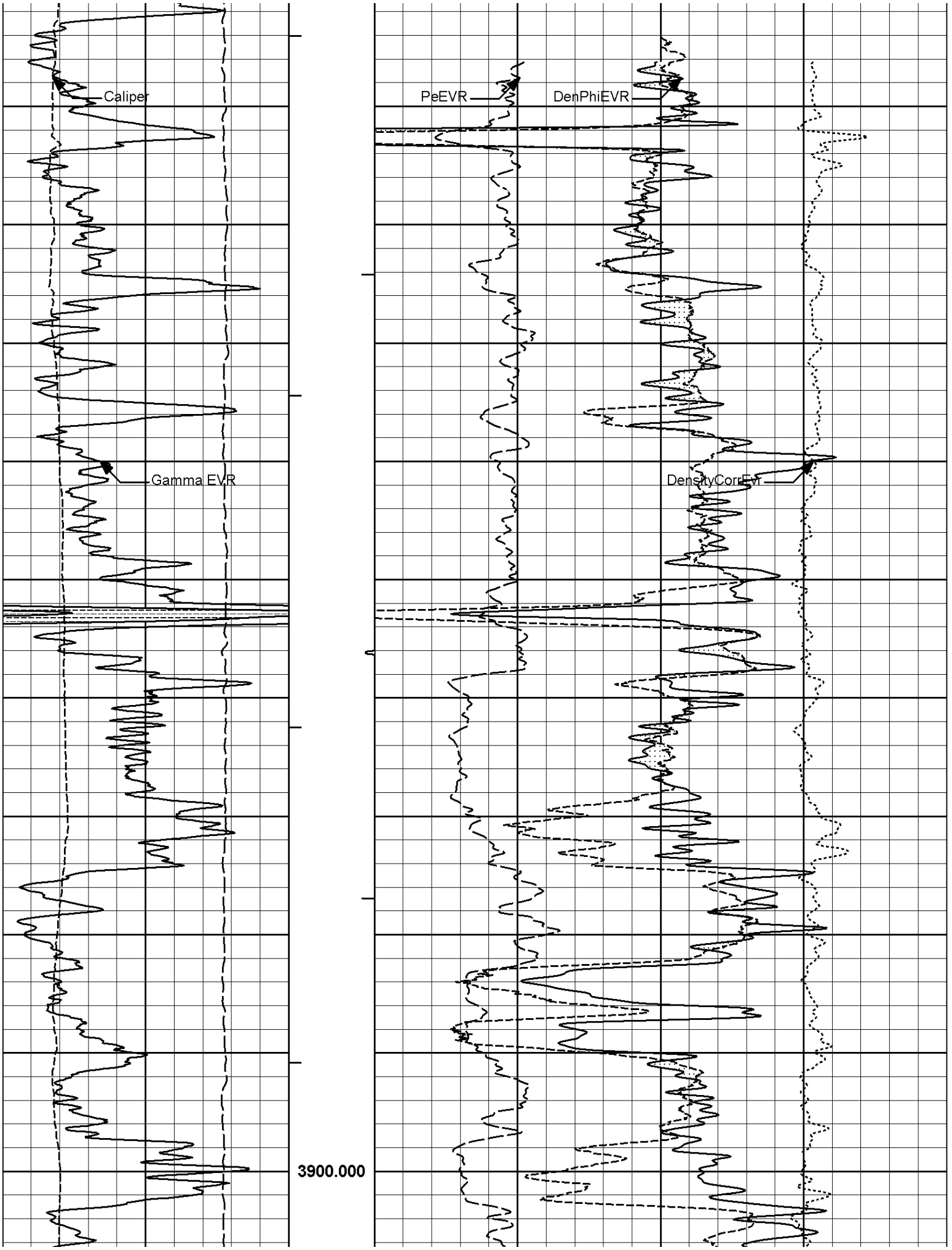
REPEAT SECTION

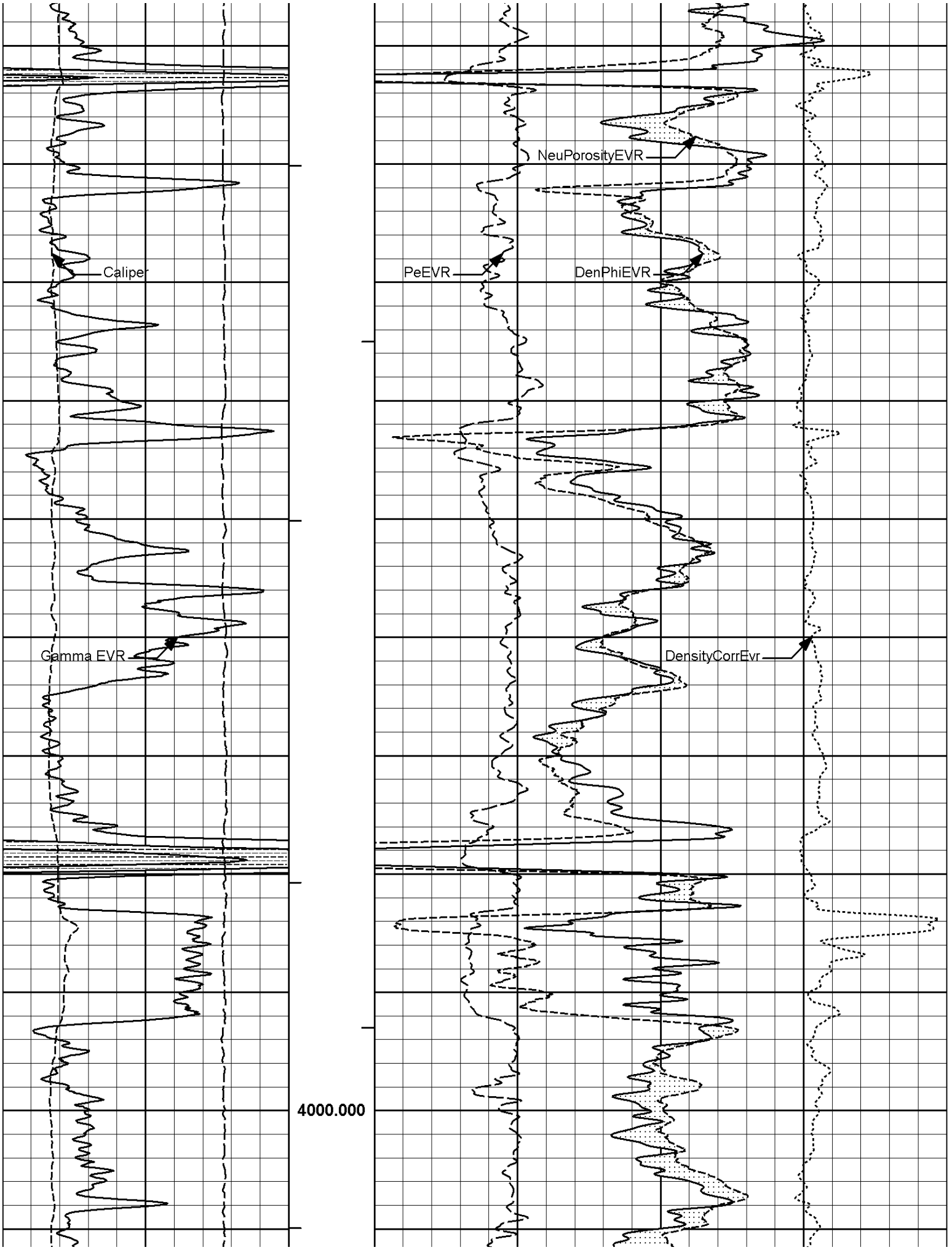
HALLIBURTON

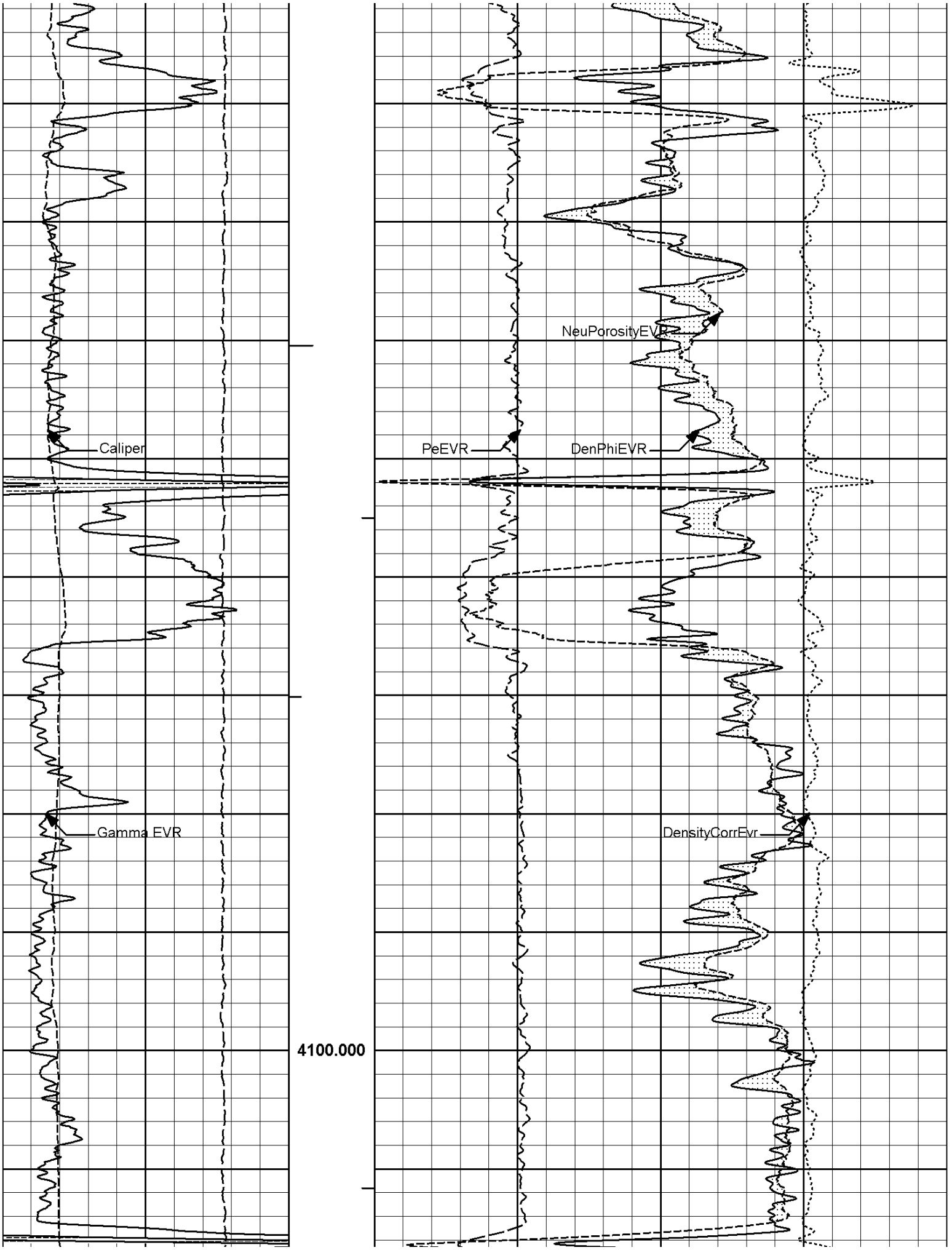
Plot Time: 31-May-13 15:36:07
Plot Range: 3800 ft to 4936.17 ft
Data: WILKINSON_3_22\Well Based**
Plot File: \\PORO\Poro_IQ_EVR_LIB

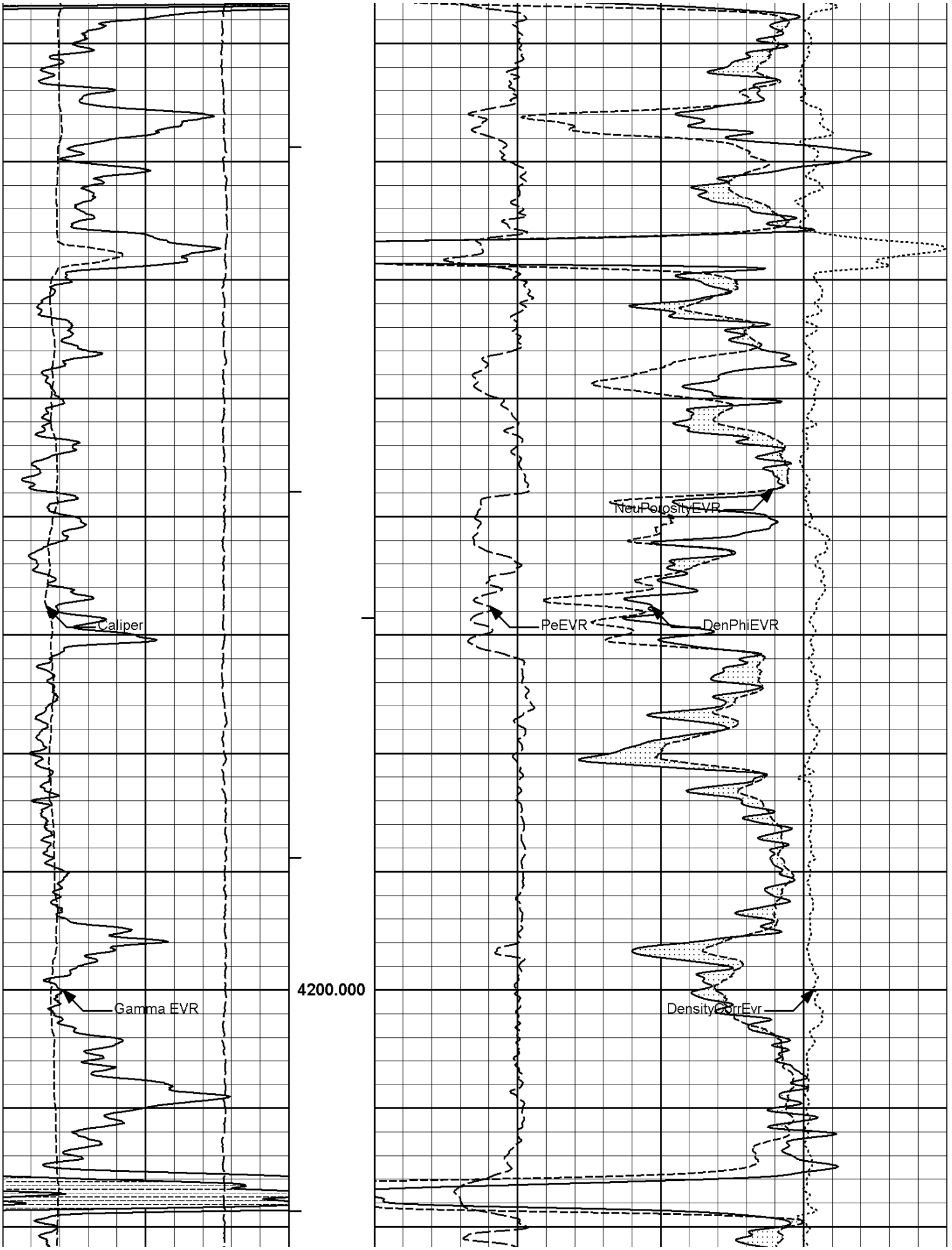
MAIN PASS 10" = 100'

		Tension Pull		
15K Tension 0	Tension Pull 10 0	CROSSOVER		
pounds				
SHALE	BHVT	30 NeuPorosityEVR -10		
		%		
6 Caliper 16	AHVT	30 DenPhiEVR -10		
inches		%		
0 Gamma EVR 150	1 : 120 ft	0 PeEVR 10	-0.25 DensityCorrEvr 0.25	
api			gram per cc	


Caliper
Gamma EVR
PeEVR
DenPhiEVR
DensityCorrEVR
3900.000


Caliper
Gamma EVR
NeuPorosityEVR
PeEVR
DenPhiEVR
DensityCorrEvr
4000.000


Caliper
Gamma EVR
NeuPorosityEVR
PeEVR
DenPhiEVR
DensityCorrEvr
4100.000


Caliper
Gamma EVR
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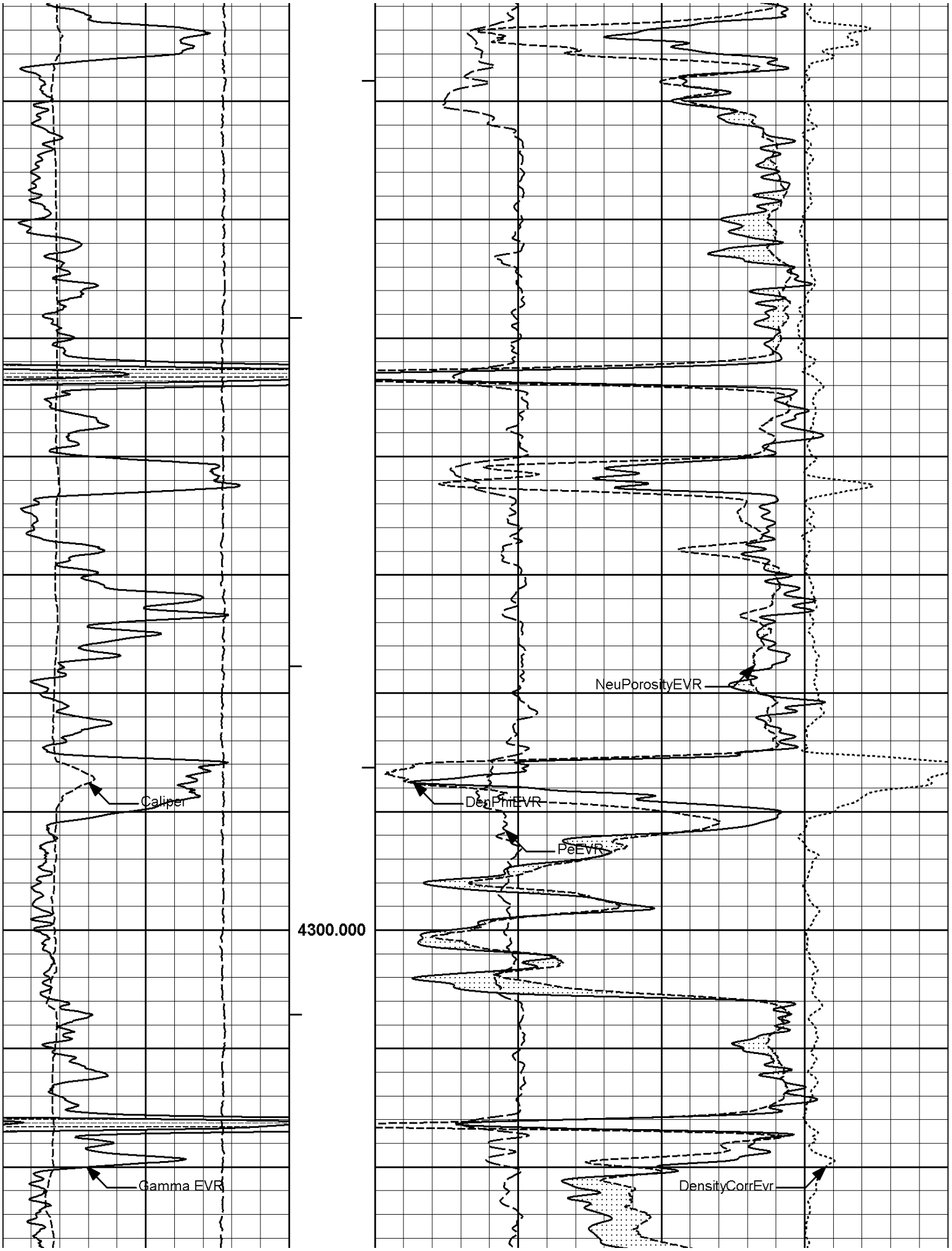
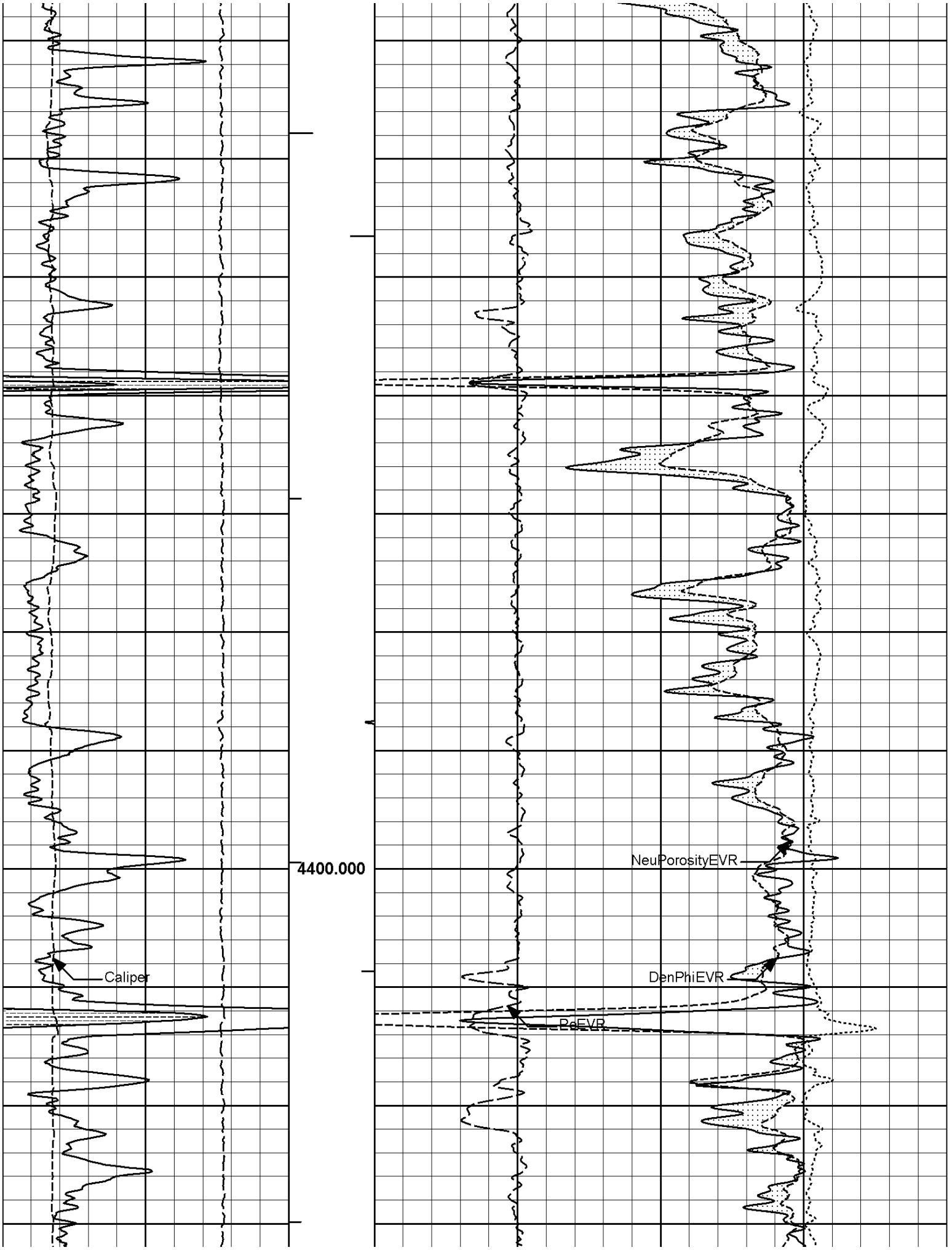
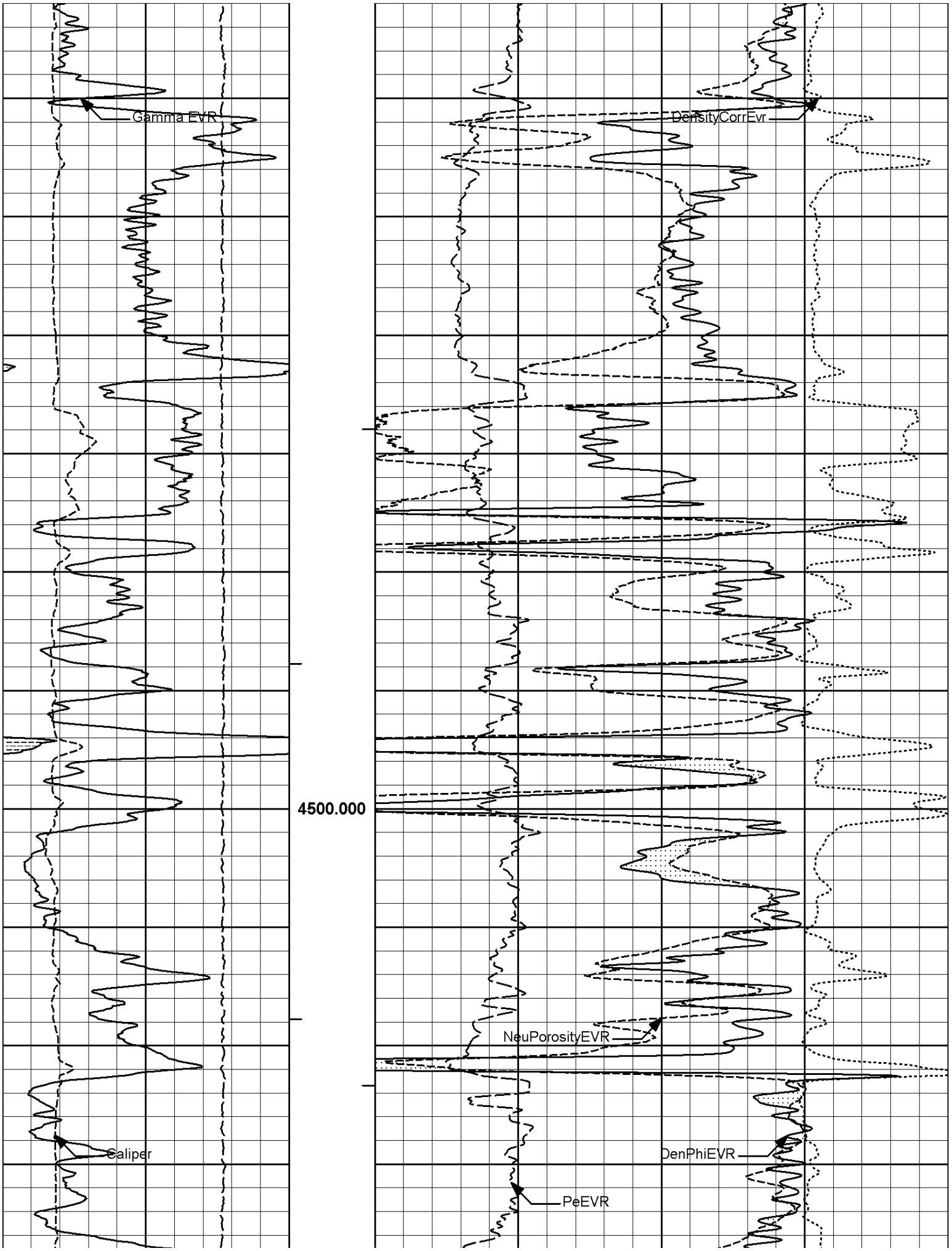
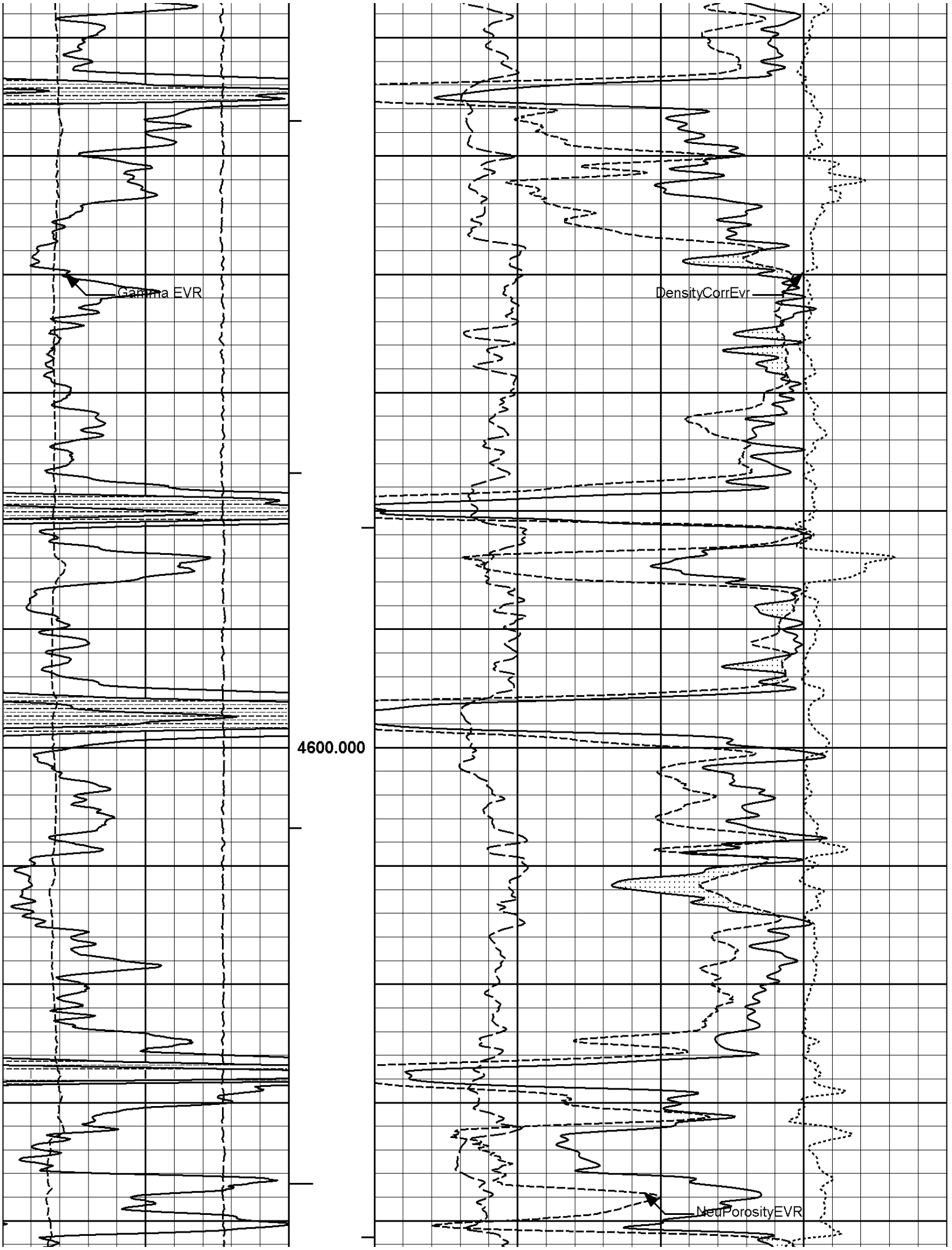
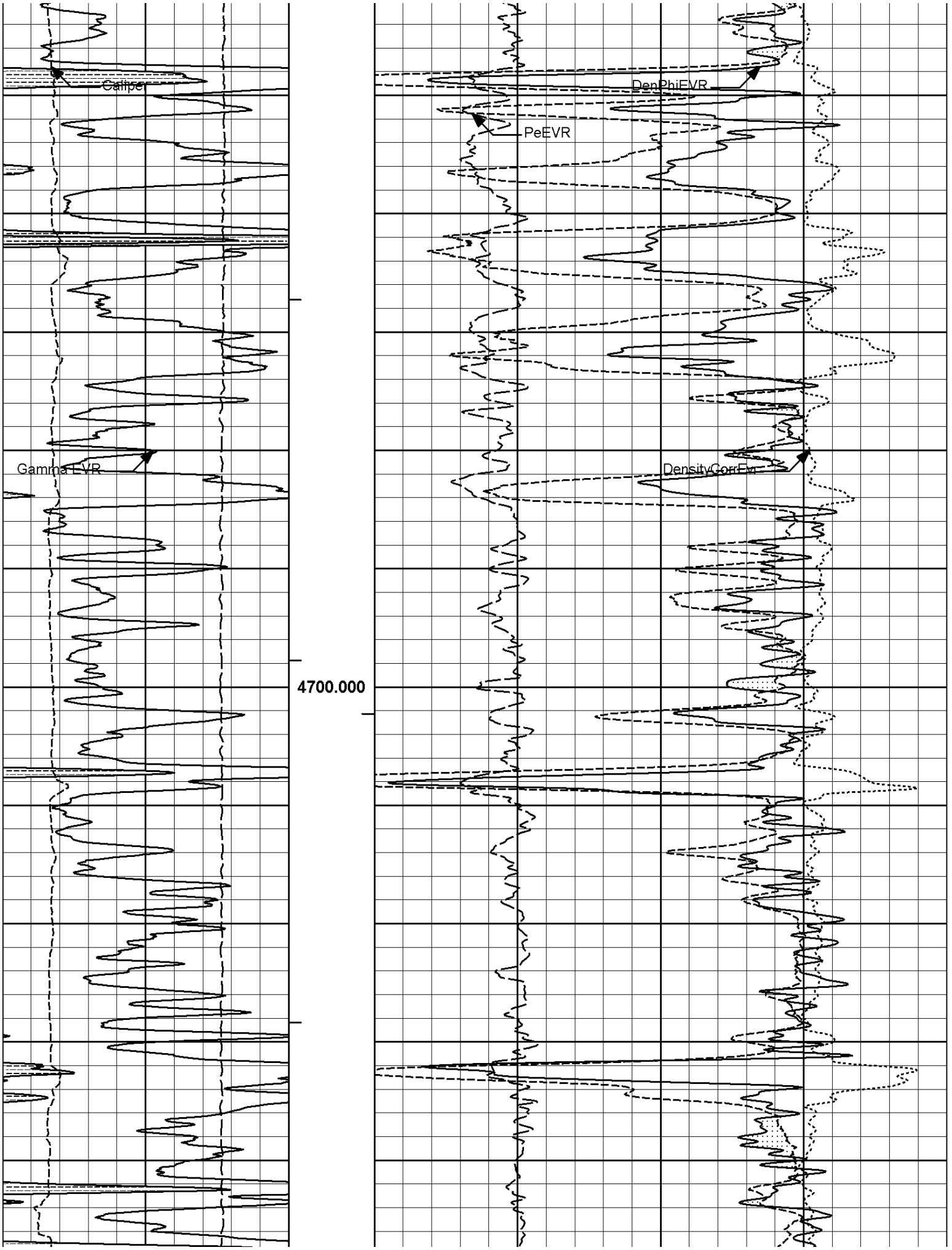
NeuPorositEVR
PeEVR
DenPhiEVR
DensityCorrEvr

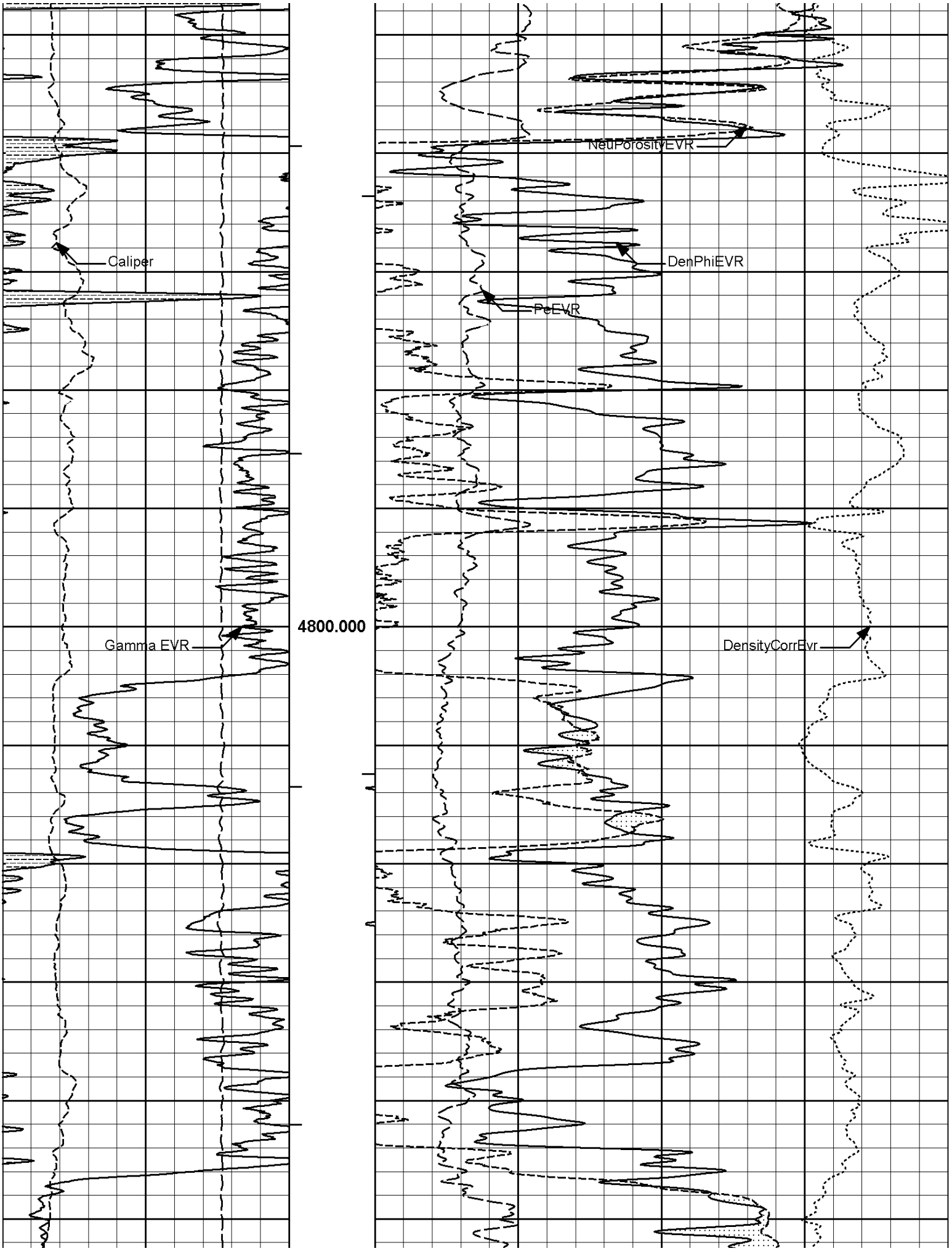

Caliper
Gamma EVR
NeuPorosityEVR
DenPhiEVR
PeEVR
DensityCorrEvr
4300.000


4400.000
Caliper
NeuPorosityEVR
DenPhiEVR
PeEVR


Gamma EVR
DensityCorrEvr
4500.000
NeuPorosityEVR
Caliper
DenPhiEVR
PeEVR


Gamma EVR
DensityCorrEvr
4600.000
NeuPorosityEVR


Caliper
DenPhiEVR
PeEVR
Gamma EVR
DensityCorrEvr
4700.000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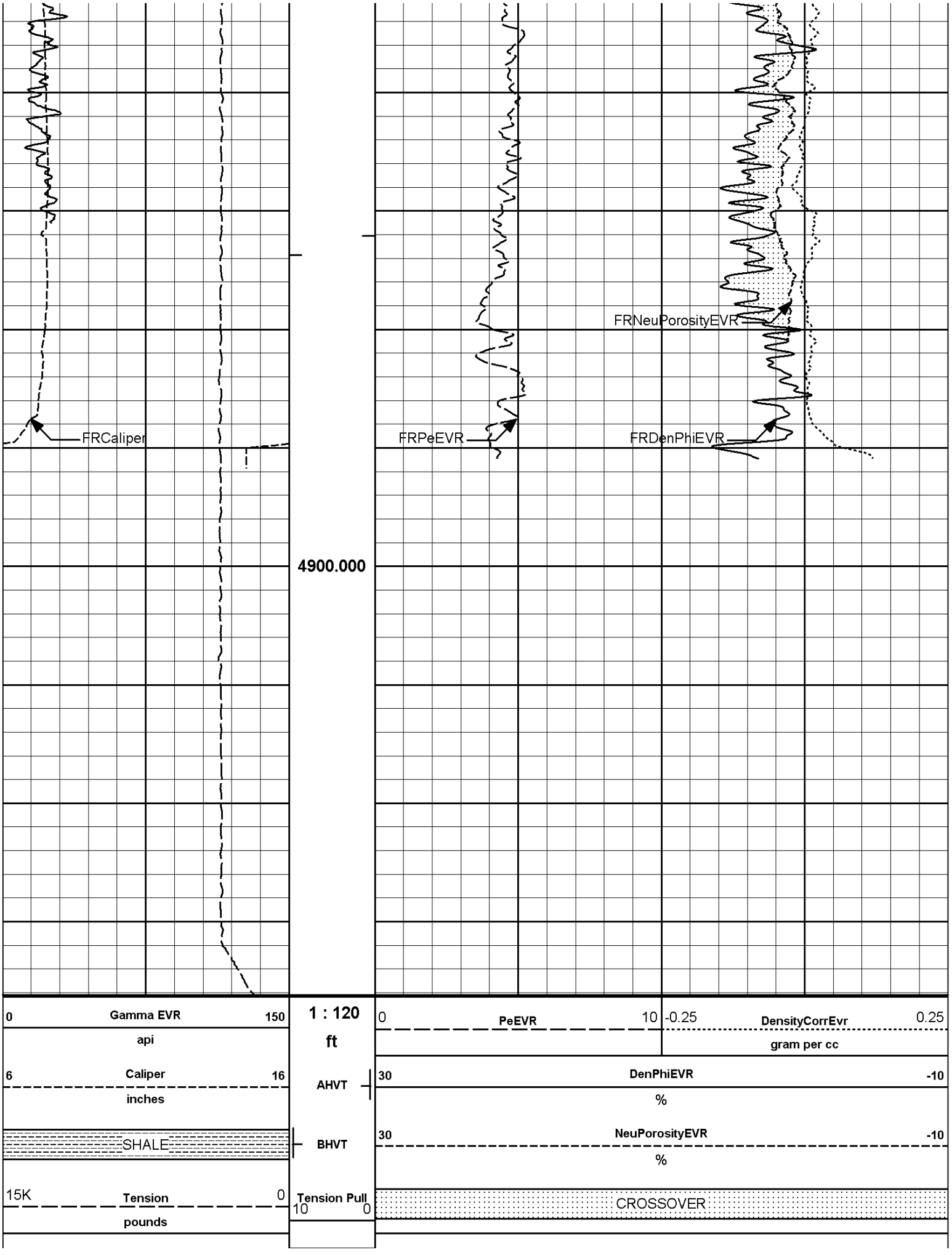
Gamma EVR
4800.000
NeuPorosityEVR
DenPhiEVR
PeEVR
DensityCorrEvr


FRCaliper
FRPeEVR
FRNeuPorosityEVR
FRDenPhiEVR
4900.000
0
Gamma EVR
150
api
6
Caliper
16
inches
SHALE
15K
Tension
0
pounds
1 : 120
ft
AHVT
BHVT
Tension Pull
10
0
0
PeEVR
10
-0.25
DensityCorrEvr
0.25
gram per cc
30
DenPhiEVR
-10
%
30
NeuPorosityEVR
-10
%
CROSSOVER

Tension Pull

HALLIBURTON

Plot Time: 31-May-13 15:38:05
Plot Range: 3800 ft to 4936.17 ft
Data: WILKINSON_3_22\Well Based**
Plot File: \\PORO\Poro_IQ_EVR_LIB

MAIN PASS 10" = 100'

HALLIBURTON

PARAMETERS REPORT

Depth (ft)	Tool Name	Mnemonic	Description	Value	Units
TOP					
	DSNT	DEOK	Process DSN EVR?	No	
	SDLT Pad	DNOK	Process Density EVR?	No	
2350.00					
	DSNT	DEOK	Process DSN EVR?	Yes	
	SDLT Pad	DNOK	Process Density EVR?	Yes	
2450.00					
	DSNT	DEOK	Process DSN EVR?	No	
	SDLT Pad	DNOK	Process Density EVR?	No	
3800.00					
	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	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	4930.00	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?	Yes	
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?	Yes	
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	
ACRt Sonde	MRFX	Fixed mud resistivity	2000	ohmm

BOTTOM

Data: WILKINSON_3_22\0001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-CH\IDLE **Date: 31-May-13 11:25:57**

HALLIBURTON

CALIBRATION REPORT

NATURAL GAMMA RAY TOOL SHOP CALIBRATION

NATURAL GAMMA RAY TOOL SHOP CALIBRATION

Tool Name:	**GTET - 10811258**	**Reference Calibration Date:**	**15-Apr-13 13:29:21**
Engineer:	**S. INGERSOLL**	**Calibration Date:**	**28-Apr-13 06:43:47**
Software Version:	**WL INSITE R3.8.4 (Build 5)**	**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	21.8	21.9	api
Background + Calibrator	252.7	253.9	api
Calibrator	230.9	232.0	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION

Tool Name:	**GTET - 10811258**	**Reference Calibration Date:**	**28-Apr-13 06:43:47**
Engineer:	**S. INGERSOLL**	**Calibration Date:**	**31-May-13 05:41:04**
Software Version:	**WL INSITE R3.8.4 (Build 5)**	**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	21.9	42.4	api
Background + Calibrator	253.9	272.2	api
Calibrator	232.0	229.8	api

Shop	Field	Difference	Tolerance
232.0	229.8	2.2	+/- 9.00

DUAL SPACED NEUTRON SHOP CALIBRATION

Tool Name:	**DSNT - 10755066**	**Reference Calibration Date:**	**06-Apr-13 15:10:53**
Engineer:	**S. INGERSOLL**	**Calibration Date:**	**19-May-13 13:08:19**
Software Version:	**WL INSITE R3.8.4 (Build 5)**	**Calibration Version:**	**1**

Logging Source S/N: DSN-436
Tank Serial Number: 105060
Reference value assigned to Tank: 51.680
Snow Block S/N: 08910
Calibration Tank Water Temperature: 62 degF
Min. Tool Housing Outside Diameter: 3.620 in

CALIBRATION CONSTANTS

Measurement	Prev. Value	New Value	Control Limit On New Value
Gain:	0.953	0.953	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	0.2106	0.0002	+/- 0.0020
Calibrated Ratio:	9.72	9.72	0.007	+/- 0.050

VERIFIER

Measurement	Value	Control Limit
Snow-Block Porosity (decp):	0.0623	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 - 10755066**	**Reference Calibration Date:**	**19-May-13 13:08:19**
Engineer:	**S. INGERSOLL**	**Calibration Date:**	**31-May-13 05:52:30**
Software Version:	**WL INSITE R3.8.4 (Build 5)**	**Calibration Version:**	**1**

Logging Source S/N: DSN-436

Snow Block S/N: 08910

NEUTRON FIELD-CHECK SUMMARY

	Shop	Field	Difference	Control Limit On Change
Snow-Block Porosity (decp):	0.0623	0.0708	0.0085	+/- 0.0150

PASS/FAIL SUMMARY

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

DENSITY CALIPER SHOP CALIBRATION

Tool Name:	**SDLT - 10685803**	**Reference Calibration Date:**	**19-May-13 15:44:37**
Engineer:	**S. INGERSOLL**	**Calibration Date:**	**19-May-13 15:50:35**
Software Version:	**WL INSITE R3.8.4 (Build 5)**	**Calibration Version:**	**1**
Host Tool Name:	**DSNT - 10755066**		

CALIBRATION COEFFICIENTS

Measurement	Previous Value	New Value	Control Limit On New Value
Pad Offset	-4357.36	-4230.06	-7000.00 - -1000.00
Pad Gain	0.0003788	0.0003699	0.000200 - 0.000600
Arm Offset	-2461.29	-2699.81	-5000.00 - 3000.00
Arm Gain	0.0005111	0.0005328	0.000300 - 0.000700
Arm Power	-0.000004591	-0.000006367	-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)	2.00	2.00	0.00	+/- 0.20
Medium Ring (in)	3.79	3.75	-0.04	+/- 0.20
RING DIAMETER:				
Small Ring (in)	6.51	6.50	-0.01	+/- 0.20
Medium Ring (in)	8.22	8.25	0.03	+/- 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 - 10685803**	**Reference Calibration Date:**	**19-May-13 15:50:35**
Engineer:	**S. INGERSOLL**	**Calibration Date:**	**31-May-13 05:45:46**
Software Version:	**WL INSITE R3.8.4 (Build 5)**	**Calibration Version:**	**1**

MEASURED CALIPER VALUES

Measurement	Shop	Field	Change	Control Limit On New Value
Pad Extension	3.75	3.70	-0.05	+/- 0.10
Ring Diameter	8.25	8.28	0.03	+/- 0.15

PASS/FAIL SUMMARY

Pad Extension Check:	Passed
Diameter Check:	Passed

SPECTRAL DENSITY SHOP CALIBRATION

Tool Name:	**SDLT Pad - 10673790**	**Reference Calibration Date:**	**06-Apr-13 10:52:32**
Engineer:	**S. INGERSOLL**	**Calibration Date:**	**18-May-13 21:41:33**
Software Version:	**WL INSITE R3.8.4 (Build 5)**	**Calibration Version:**	**1**

Logging Source S/N: 5073GW

Aluminum Block S/N: LIBERAL ALUMINUM	Density: 2.598g/cc	Pe: 3.170
Magnesium Block S/N: LIBERAL MAG BLOCK	Density: 1.684g/cc	Pe: 2.598

DENSITY CALIBRATION SUMMARY

Measurement	Previous Value	New Value	Control Limit
Near Bar Gain	1.0398	1.0467	0.90 - 1.10
Near Dens Gain	1.0240	1.0386	0.90 - 1.10
Near Peak Gain	1.0258	1.0598	0.90 - 1.10
Near Lith Gain	0.9927	1.0491	0.90 - 1.10
Far Bar Gain	1.0104	1.0107	0.90 - 1.10
Far Dens Gain	0.9996	0.9993	0.90 - 1.10
Far Peak Gain	0.9901	0.9920	0.90 - 1.10
Far Lith Gain	0.9649	0.9604	0.90 - 1.10
Near Bar Offset	-0.1092	-0.1729	NONE
Near Dens Offset	0.0392	-0.0887	NONE
Near Peak Offset	0.0451	-0.2382	NONE
Near Lith Offset	0.3094	-0.1653	NONE
Far Bar Offset	0.0814	0.0790	NONE
Far Dens Offset	0.1474	0.1500	NONE
Far Peak Offset	0.1907	0.1726	NONE
Far Lith Offset	0.3173	0.3450	NONE
Near Bar Background	868.29	864.83	700 - 1450
Near Dens Background	285.68	283.75	230 - 480

Near Peak Background	124.18	124.36	100 - 210
Near Lith Background	154.56	152.79	125 - 260
Far Bar Background	578.73	576.79	450 - 900
Far Dens Background	226.38	226.46	175 - 345
Far Peak Background	89.43	90.61	70 - 140
Far Lith Background	94.98	93.93	75 - 145

CALIBRATION BLOCK SUMMARY

Measurement	Current Reading (Previous Coef)	Calibrated (New Coef)	Change	Control Limit On Change
MAGNESIUM				
Density (g/cc)	1.683	1.684	0.001	+/- 0.015
Pe	2.548	2.564	0.016	+/- 0.150
ALUMINUM				
Density (g/cc)	2.600	2.598	-0.002	+/- 0.01500
Pe	3.041	3.133	0.092	+/- 0.150

TOOL SUMMARY

Measurement	Near Detector		Far Detector	
	Value	Control Limits	Value	Control Limits
QUALITY				
Background	-0.0002	+/- 0.0110	-0.0016	+/- 0.0140
Magnesium Block	-0.0006	+/- 0.0110	-0.0009	+/- 0.0140
Aluminum Block	-0.0003	+/- 0.0110	0.0002	+/- 0.0140
Resolution	8.65	6.00 - 11.50	8.83	6.00 - 11.50
Internal Verifier(B+D+P+L)	1426	1200 - 2700	988	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 - 10673790**	**Reference Calibration Date:**	**18-May-13 21:41:33**
Engineer:	**S. INGERSOLL**	**Calibration Date:**	**31-May-13 05:40:53**
Software Version:	**WL INSITE R3.8.4 (Build 5)**	**Calibration Version:**	**1**

Pad Temperature: 71.7 degF

DENSITY FIELD CALIBRATION SUMMARY

Measurement	Shop	Field	Change	Control Limit +/-
Near (B+D+P+L) cps	1425.734	1423.381	-2.353	15.240
Far (B+D+P+L) cps	987.787	991.381	3.594	16.853
Near Resolution	8.65	8.75	0.100	0.50
Far Resolution	8.83	9.08	0.250	1.00

PASS/FAIL SUMMARY

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

CALIBRATION SUMMARY

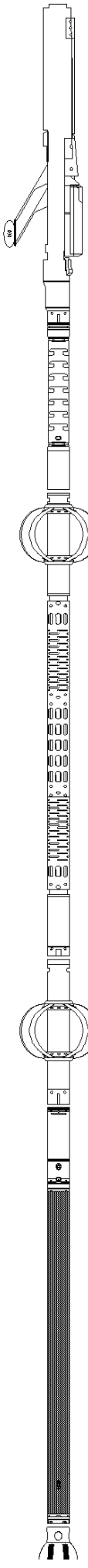
Sensor	Shop	Field	Post	Difference	Tolerance	Units
GTET-10811258						
Gamma Ray Calibrator	232.0	229.8	----------	2.2	+/- 9.00	api
DSNT-10755066						
Snow-Block Porosity	0.0623	0.0708	----------	-0.0085	+/- 0.0150	decp
SDLT-10685803						
Pad Extension	3.75	3.70	----------	0.05	+/-0.10	in
Ring Diameter	8.25	8.28	----------	-0.03	+/-0.15	in
SDLT Pad-10673790						
Near(B+D+P+L)	1425.734	1423.381	----------	2.353	+/-15.240	cps
Far(B+D+P+L)	987.787	991.381	----------	-3.594	+/-16.853	cps

Data: WILKINSON_3_22\0001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-CH\IDLE Date: 31-May-13 10:26:20

HALLIBURTON

TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
						76.90 ft
Cable Head-12345678 30.00 lbs		Ø 3.625 in →			1.92 ft	
		Ø 2.750 in →				74.98 ft
XOHD-00000001 20.00 lbs		Ø 3.625 in →			0.95 ft	
						74.03 ft
SP Sub-12345678 60.00 lbs		Ø 3.625 in →		← SP @ 72.26 ft	3.74 ft	
						70.30 ft
GTET-10811258 165.00 lbs		Ø 3.625 in →			8.52 ft	
				← 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-10673790
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-00000001
140.00 lbs

Ø 3.625 in

5.67 ft

35.61 ft

Centralizer 25-00000001
8.00 lbs

Ø 4.000 in*

BSAT-10747684
300.00 lbs

Ø 3.625 in

Sonic Receivers @ 27.09 ft

15.77 ft

19.83 ft

ACRt Instrument-10929776
50.00 lbs

Centralizer 25-00000002
8.00 lbs

Ø 4.000 in*

Ø 3.625 in

5.03 ft

14.80 ft

Mud Resistivity @ 13.44 ft

ACRt @ 9.46 ft

ACRt Sonde-10929775
200.00 lbs

Ø 3.625 in

14.22 ft

0.58 ft

Cabbage Head-00000954

Ø 3.625 in

Ø 6.000 in

0.58 ft

10.00 lbs

0.00 ft

Mnemonic	Tool Name	Serial Number	Weight (lbs)	Length (ft)		Accumulated Length (ft)	Max.Log. Speed (fpm)
CH	Standard OH Cable Head	12345678	30.00	1.92		74.98	300.00
XOHD	Hostile to Dits Cross Over	00000001	20.00	0.95		74.03	300.00
SP	SP Sub	12345678	60.00	3.74		70.30	300.00
GTET	Gamma Telemetry Tool	10811258	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	10673790	65.00	2.55	*	43.49	60.00
FLEX	Flex Joint	00000001	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	00000001	8.00	2.08	*	33.06	300.00
ACRt	Array Compensated True Resistivity Instrument Section	10929776	50.00	5.03		14.80	300.00
OBCEN	Centralizer - 25 in. Overbody	00000002	8.00	2.08	*	16.34	300.00
ACRt	Array Compensated True Resistivity Sonde Section	10929775	200.00	14.22		0.58	300.00
CBHD	Cabbage Head	00000954	10.00	0.58		0.00	300.00
Total			**1,604.60**	**76.90**			

* Not included in Total Length and Length Accumulation.

Data: WILKINSON_3_22\0001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-CH\IDLE **Date: 31-May-13 10:22:56**

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 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

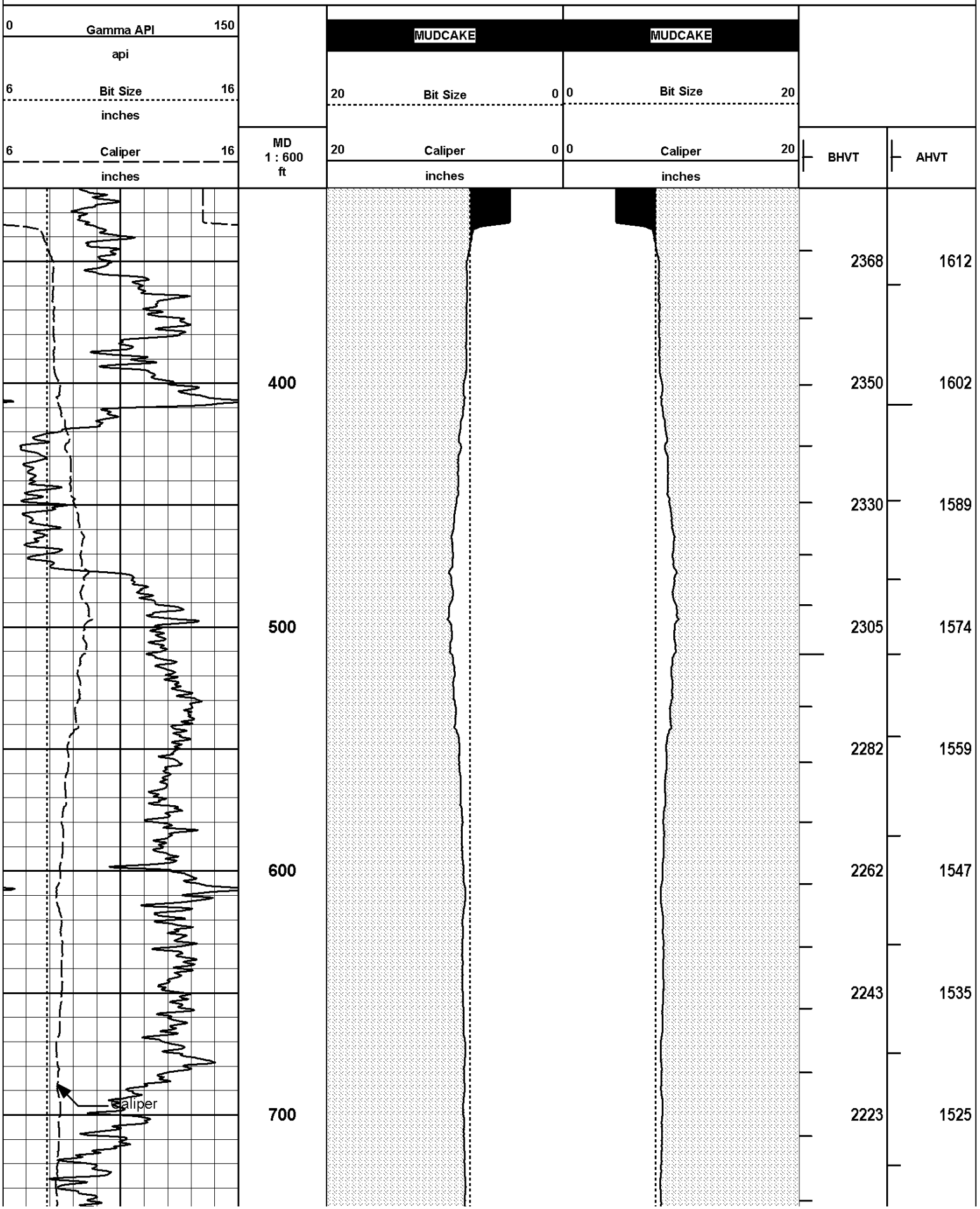
TPUL	Tension Pull	44.08	NO	
NAB	Near Above	43.90	BLK	0.920
NHI	Near Cesium High	43.90	BLK	0.920
NLO	Near Cesium Low	43.90	BLK	0.920
NVA	Near Valley	43.90	BLK	0.920
NBA	Near Barite	43.90	BLK	0.920
NDE	Near Density	43.90	BLK	0.920
NPK	Near Peak	43.90	BLK	0.920
NLI	Near Lithology	43.90	BLK	0.920
NBAU	Near 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	

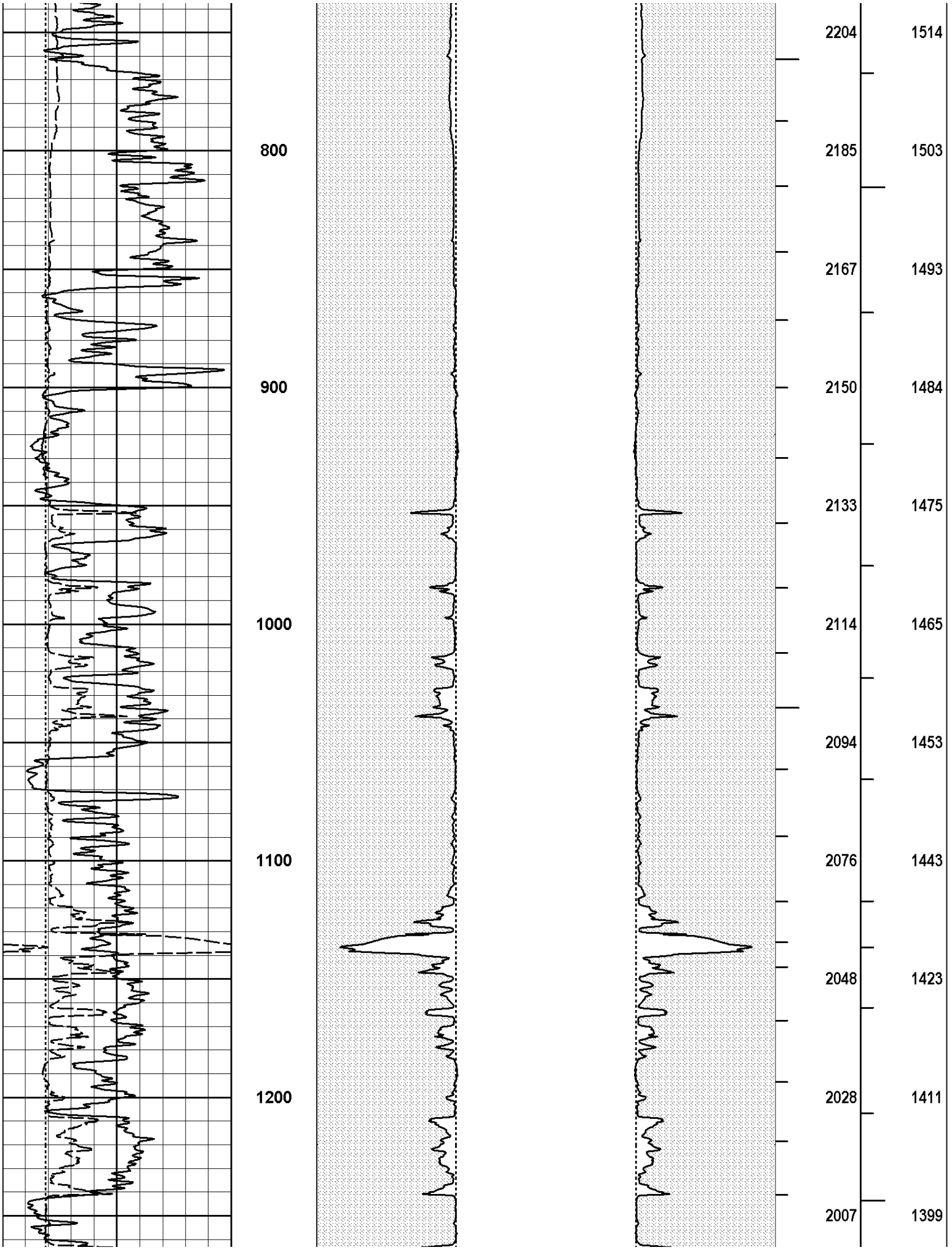
Microlog Pad

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

Data: WILKINSON_3_22\0001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-CH\IDLE **Date: 31-May-13 10:23:28**

ANNULAR HOLE VOLUME PLOT




800
900
1000
1100
1200
2204
2185
2167
2150
2133
2114
2094
2076
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2028
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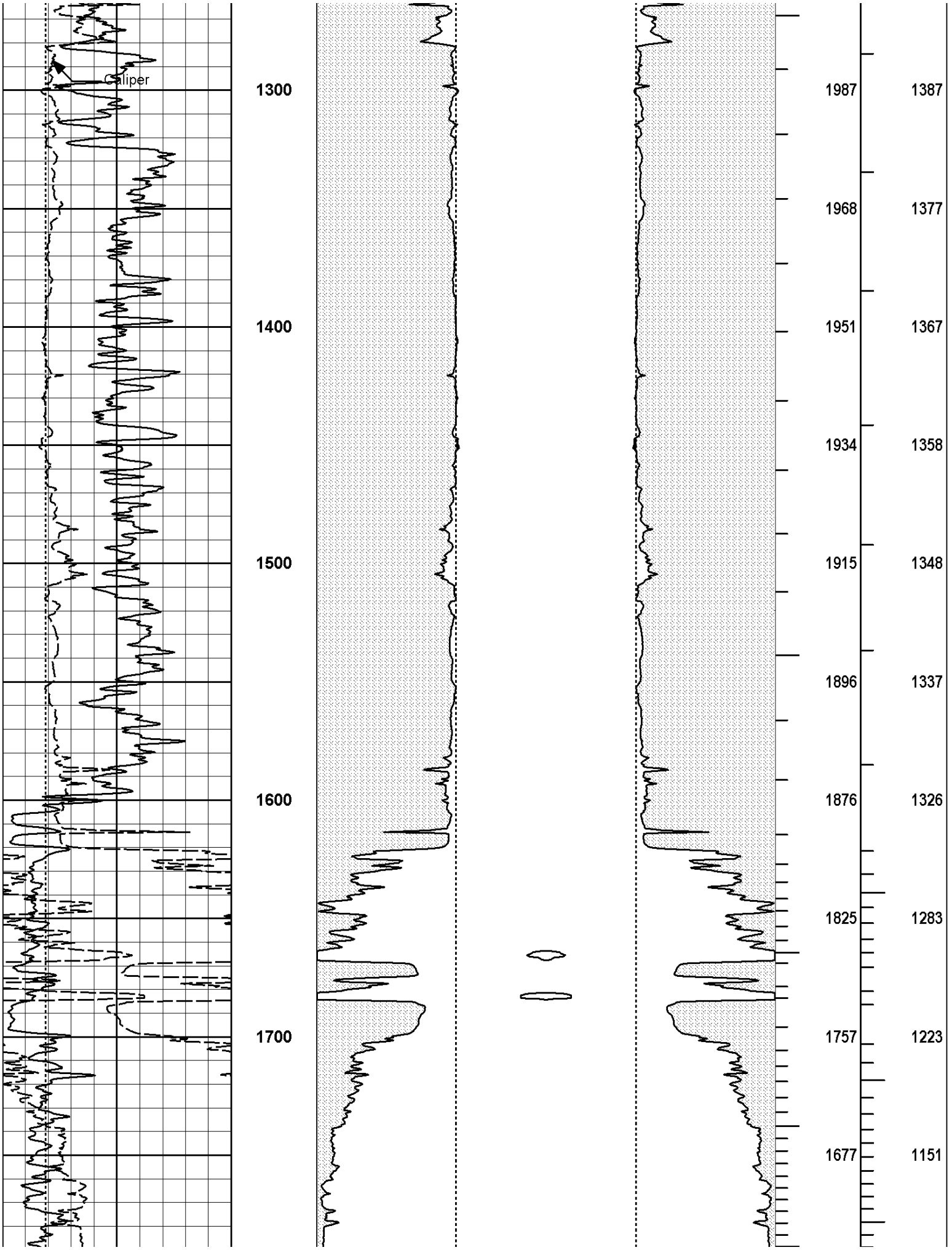
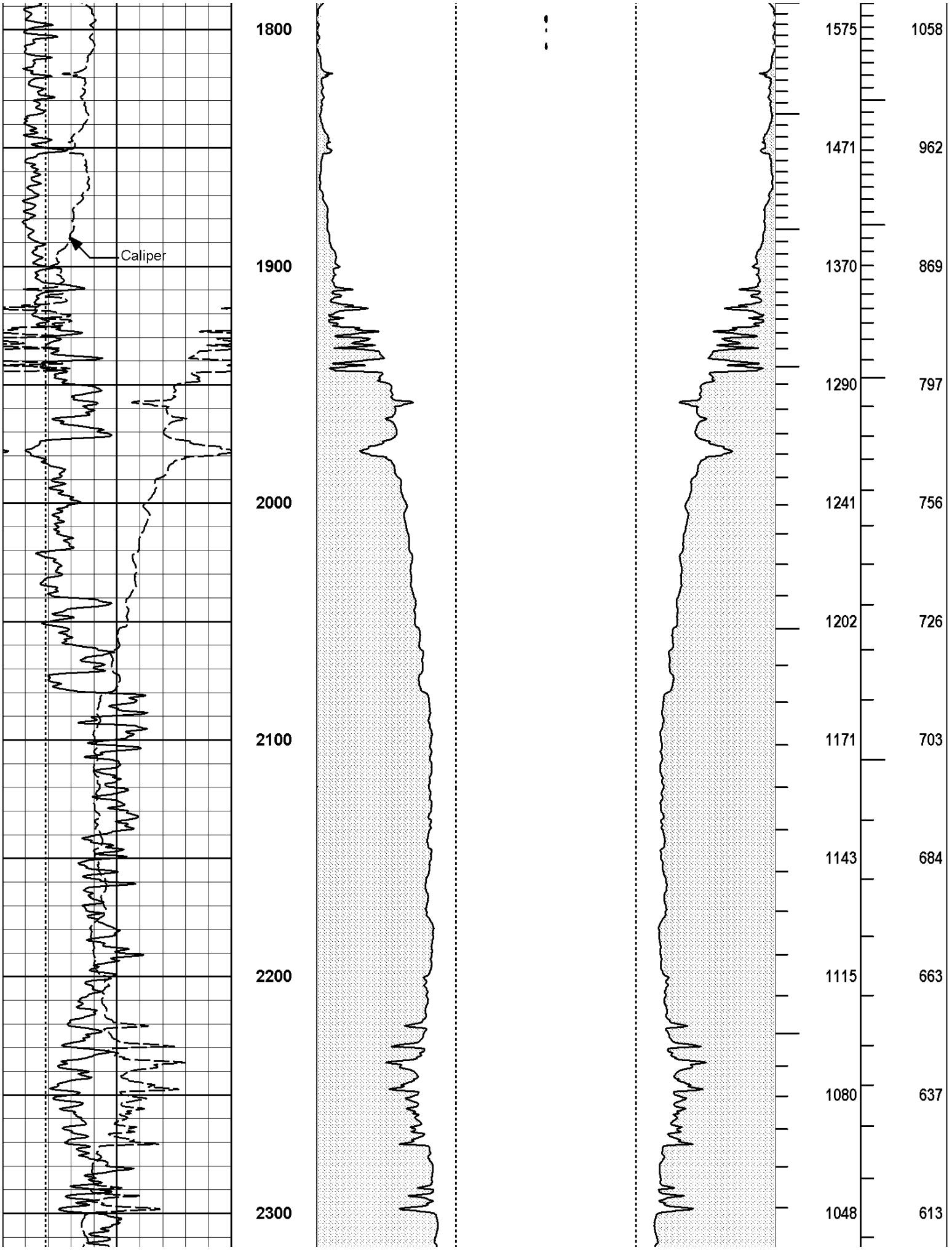
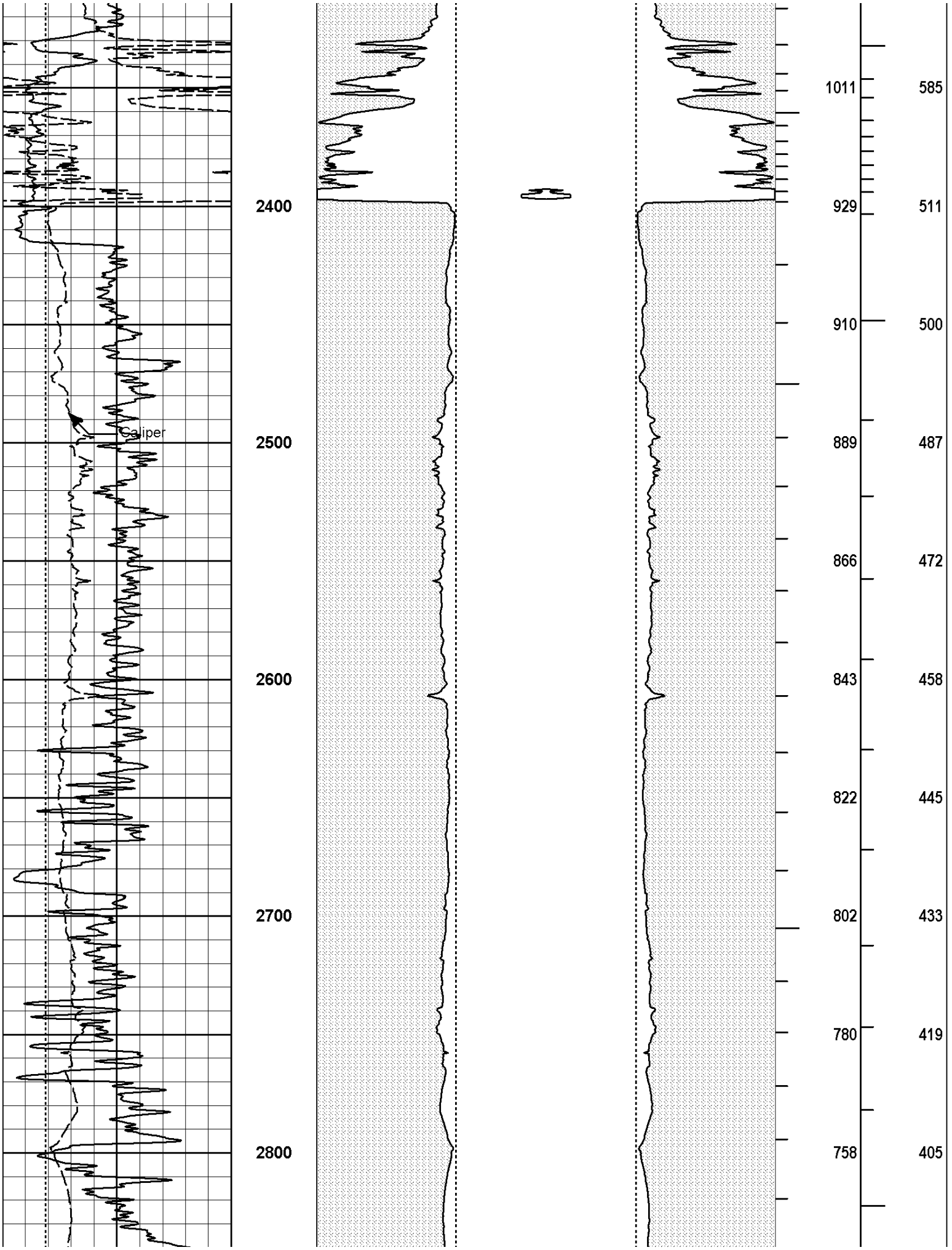
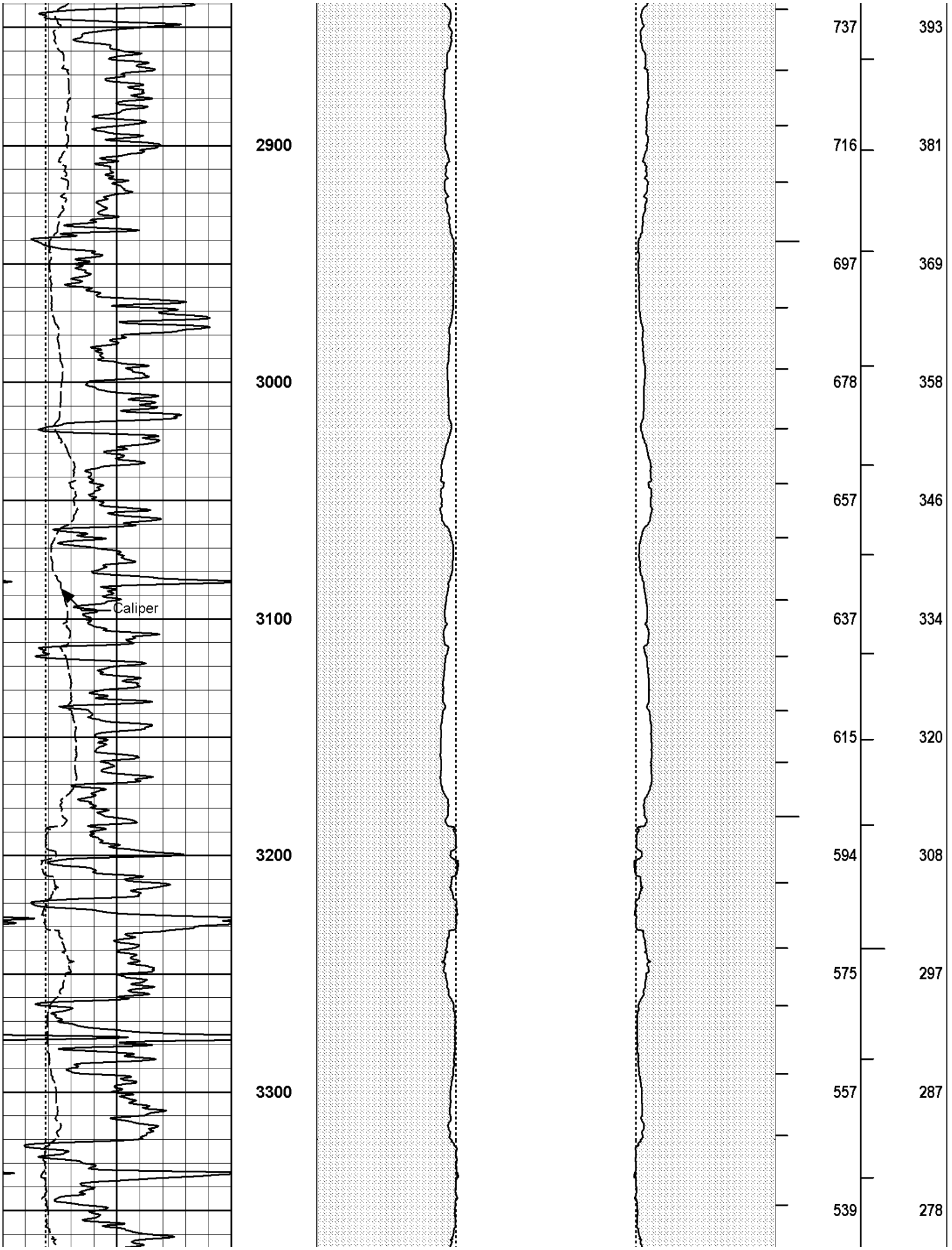
1443
1423
1411
1399


Caliper
1300
1400
1500
1600
1700
1987
1387
1968
1377
1951
1367
1934
1358
1915
1348
1896
1337
1876
1326
1825
1283
1757
1223
1677
1151


Caliper
1800
1900
2000
2100
2200
2300
1575
1471
1370
1290
1241
1202
1171
1143
1115
1080
1048
1058
962
869
797
756
726
703
684
663
637
613


Caliper
2400
2500
2600
2700
2800
1011
929
910
889
866
843
822
802
780
758
585
511
500
487
472
458
445
433
419
405


Caliper
2900
3000
3100
3200
3300
737
716
697
678
657
637
615
594
575
557
539
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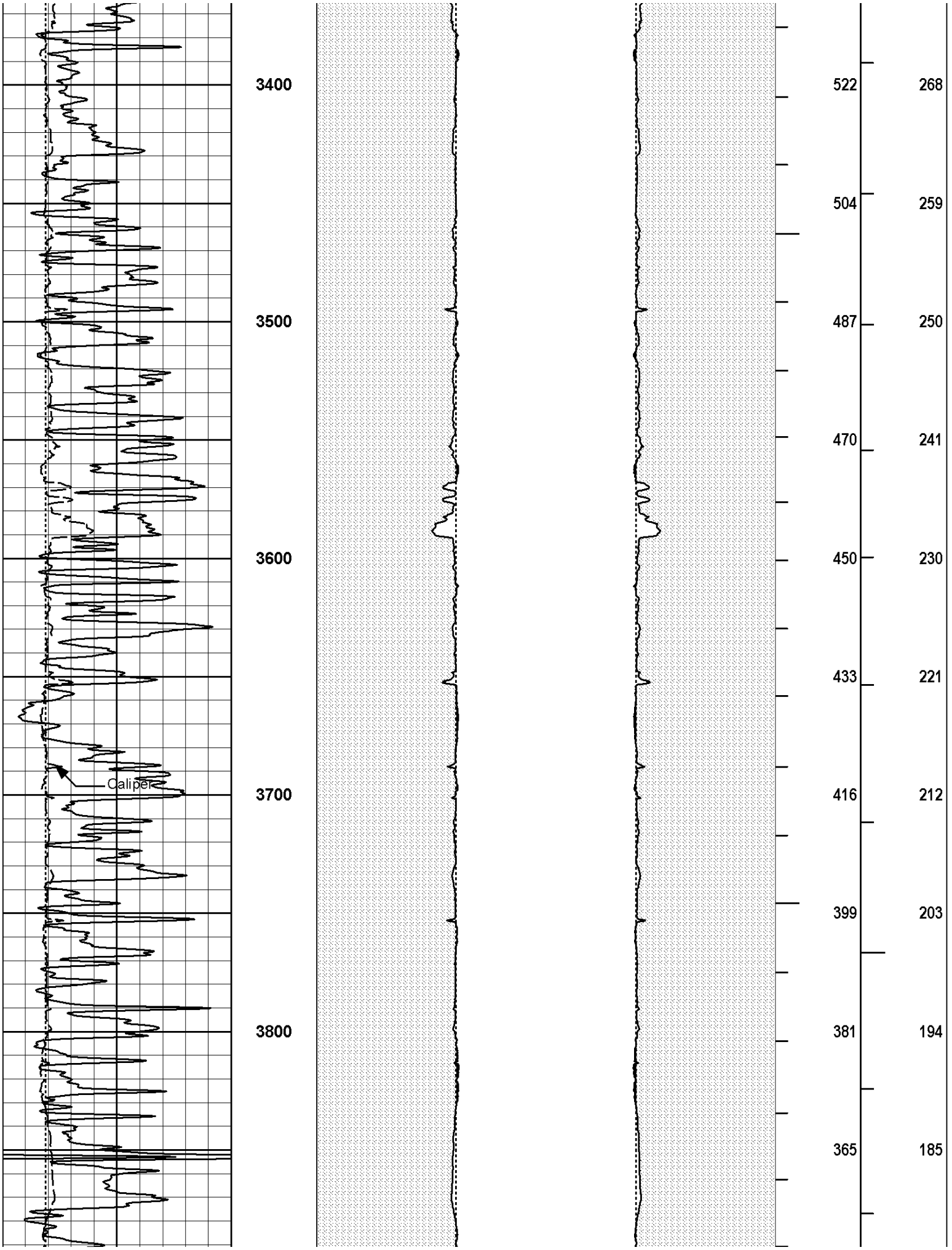
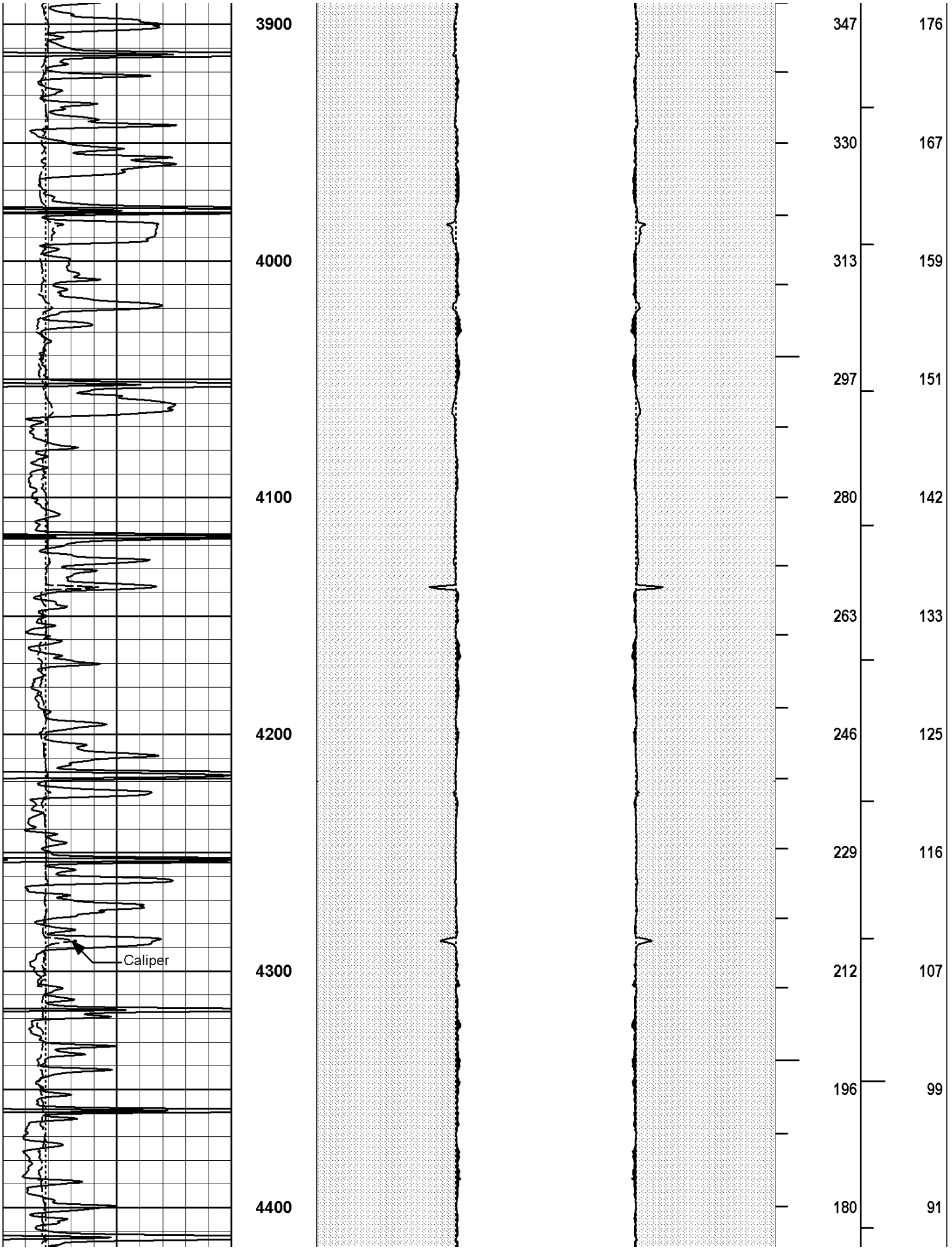
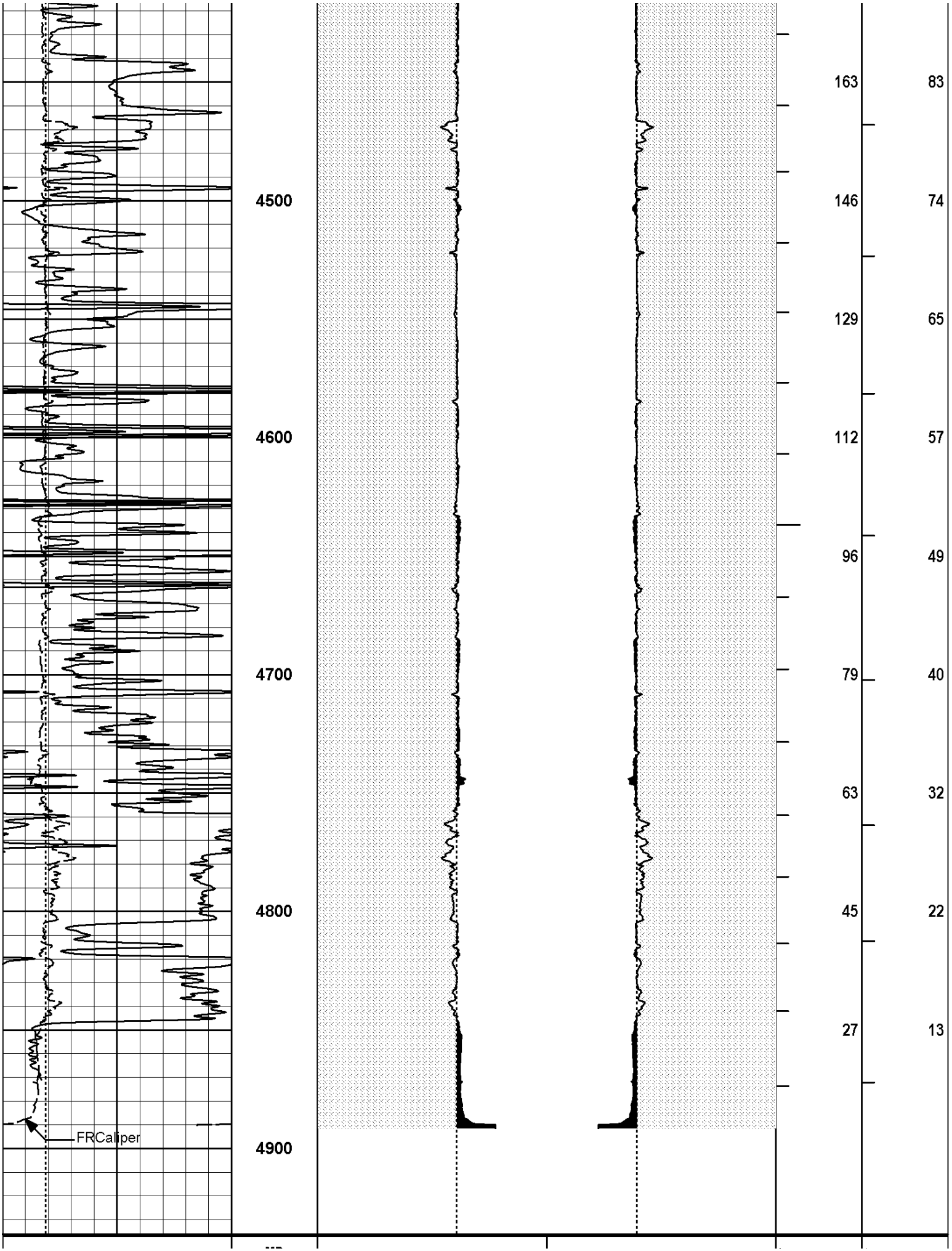
381
369
358
346
334
320
308
297
287
278


3400
3500
3600
3700
3800
Caliper
522
504
487
470
450
433
416
399
381
365
268
259
250
241
230
221
212
203
194
185


3900
4000
4100
4200
4300
4400
Caliper
347
330
313
297
280
263
246
229
212
196
180
176
167
159
151
142
133
125
116
107
99
91


4500
4600
4700
4800
4900
FRCaliper
163
146
129
112
96
79
63
45
27
83
74
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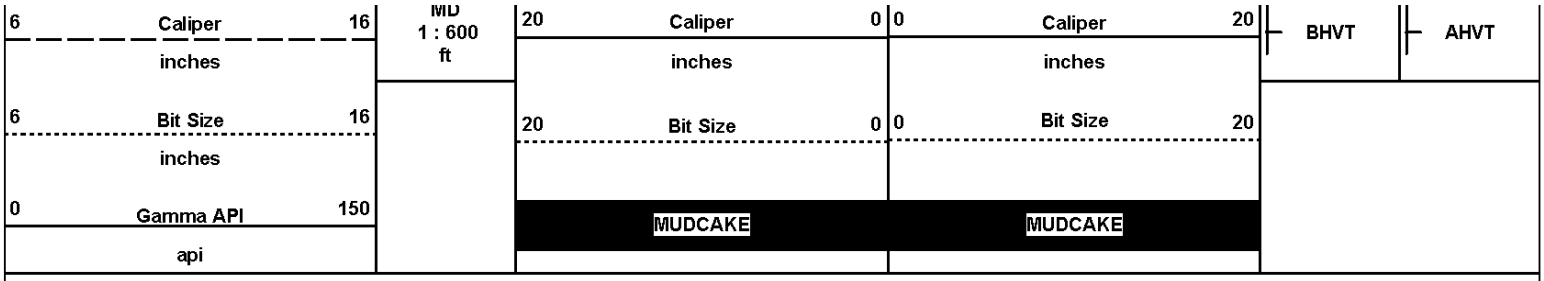
57
49
40
32
22
13



HALLIBURTON

Plot Time: 31-May-13 15:38:11
Plot Range: 320 ft to 4936.17 ft
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Plot File: \\-LOCAL-\WILKINSON_3_22\0002 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-CH\PORO\AHV_2_IQ_LIB

ANNULAR HOLE VOLUME PLOT

COMPANY	HARTMAN OIL CO., INC.		
WELL	WILKINSON #3-22		
FIELD	WILDCAT		
COUNTY	SCOTT	STATE	KANSAS

HALLIBURTON

SPECTRAL DENSITY
DUAL SPACED NEUTRON
LOG