

HALLIBURTON

SPECTRAL DENSITY
DUAL SPACED NEUTRON
LOG

COMPANY		HARTMAN OIL CO., INC.	
WELL		ROSE 4-1	
FIELD/BLOCK		AMERICAN BEAUTY	
COUNTY		WICHITA	
STATE		KANSAS	
Permanent Datum Log measured from Drilling measured from		GL KB KB	
Date		18-Aug-14	
Run No.		ONE	
Depth - Driller		4770.00 ft	
Depth - Logger		4768.0 ft	
Bottom - Logged Interval		4724.0 ft	
Top - Logged Interval		2350.0 ft	
Casing - Driller		8.625 in @ 345.0 ft	
Casing - Logger		342.0 ft	
Bit Size		7.875 in	
Type Fluid in Hole		Water Based Mud	
Density		9.4 ppq	
PH		10.00 pH	
Source of Sample		MUD PIT	
Rm @ Meas. Temperature		0.210 ohmm @ 75.00 degF	
Rmf @ Meas. Temperature		0.18 ohmm @ 75.00 degF	
Rmc @ Meas. Temperature		0.250 ohmm @ 75.00 degF	
Source Rmf		MEASURED	
Rm @ BHT		0.13 ohmm @ 123.0 degF	
Time Since Circulation		4.0000 hr	
Time on Bottom		18-Aug-14 07:39	
Max. Rec. Temperature		123.0 degF @ 4768.0 ft	
Equipment		11072142 LIBERAL	
Recorded By		J. BOLLOM	
Witnessed By		K. NOAH	

COMPANY	HARTMAN OIL CO., INC.
WELL	ROSE 4-1
FIELD/BLOCK	AMERICAN BEAUTY
COUNTY	WICHITA
STATE	KANSAS
Sect. 1	Twp. 16S Rge. 35W
API No.	15-203-20281-00-00
Location	(SHL) 330' FNL & 1310' FWL E2-NE-NW-NW
Other Services:	MICROLOG DSNT, SDLT BSAT
Elev. 3066.0 ft	Elev.: K.B. 3077.0 ft
11.0 ft above perm. Datum	D.F. 3076.0 ft
	G.L. 3066.0 ft

Fold here

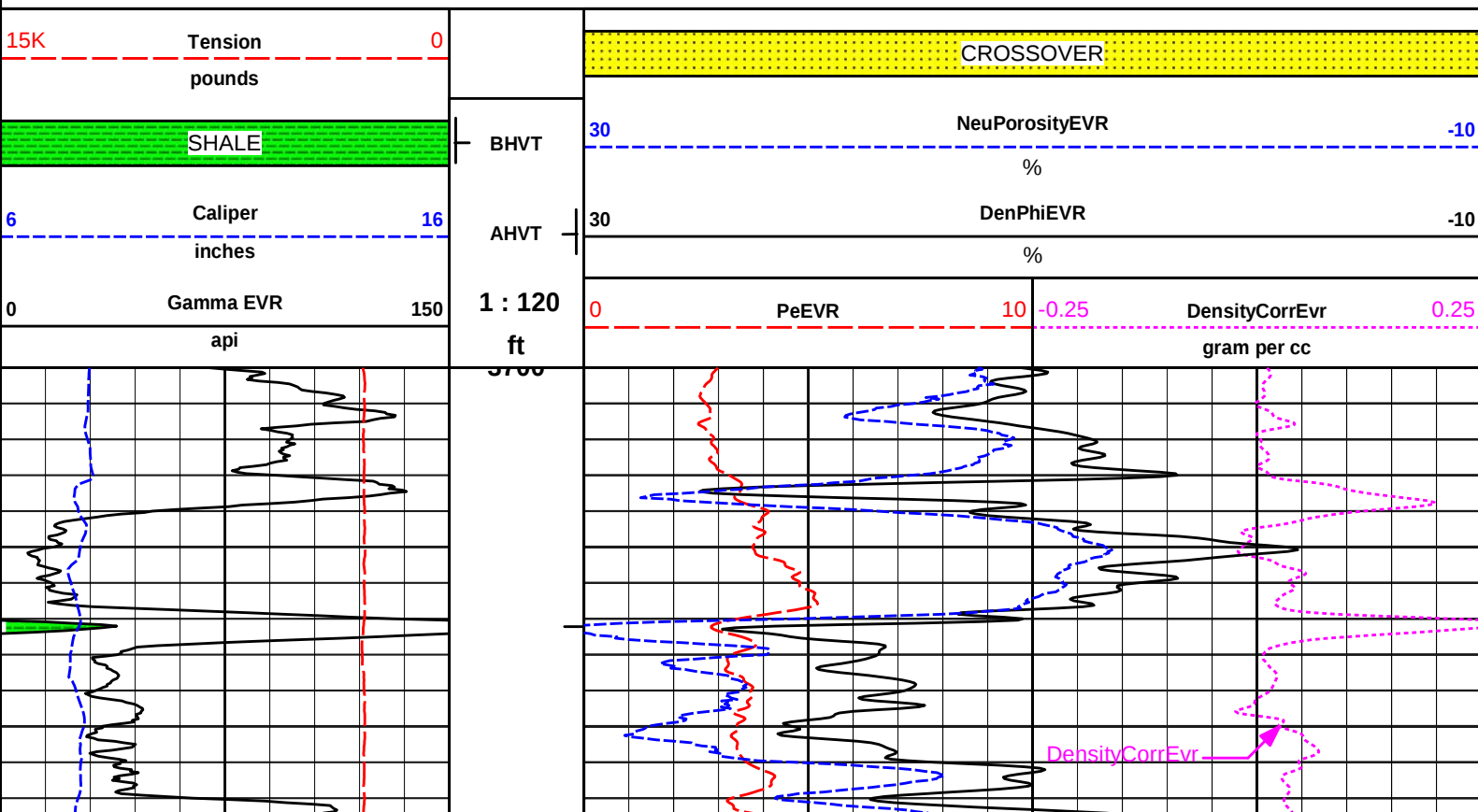
Service Ticket No.: 901589273				API Serial No.: 15-203-20281-00-00				PGM Version: WL INSITE R4.2.0 (Build 2)							
CHANGE IN MUD TYPE OR ADDITIONAL SAMPLE						RESISTIVITY SCALE CHANGES									
Date		Sample No.				Type Log		Depth		Scale Up Hole		Scale Down Hole			
Depth-Driller															
Type 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.		11048627		Serial No.				Serial No.		10865884		Serial No.		11055304	
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.		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															

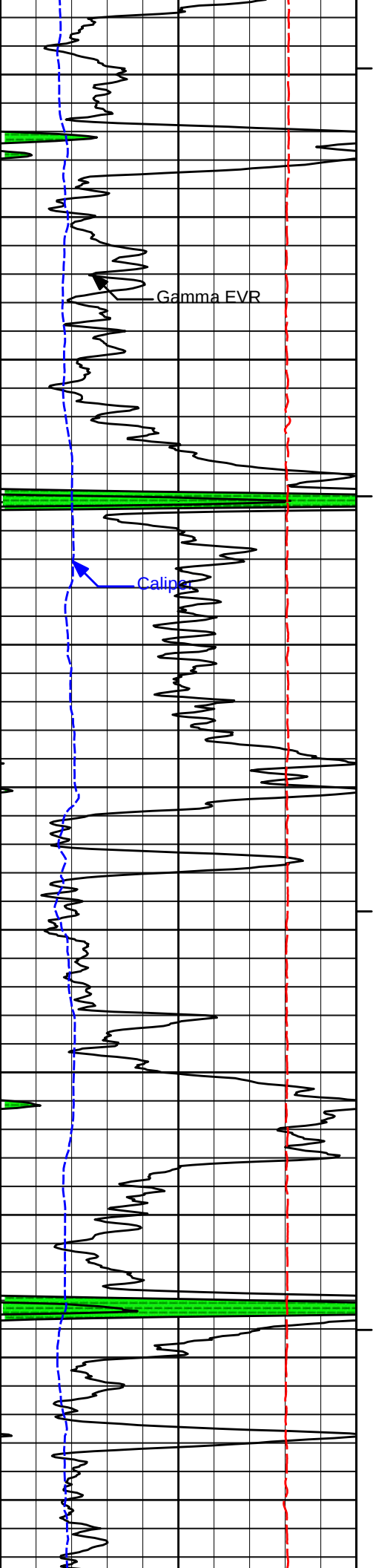
GENERAL				GAMMA		ACOUSTIC			DENSITY			NEUTRON		
Run	Depth		Speed	Scale		Scale		Matrix	Scale		Matrix	Scale		Matrix
No.	From	To	ft/min	L	R	L	R		L	R		L	R	
ONE	4768	3700	REC	0	150				30	-10	2.71	30	-10	LIME
ONE	2450	2350	REC	0	150				30	-10	2.71	30	-10	LIME
DIRECTIONAL INFORMATION														
Maximum Deviation @									KOP @					
Remarks: ANNULAR HOLE VOLUME CALCULATED FOR 5.5-INCH CASING														
CHLORIDES REPORTED AT 7,400 PPM														
LCM REPORTED AT 4 LB/BBL														
GTET-DSNT-SDLT-BSAT-ACRT RUN IN COMBINATION														
TODAY'S CREW: F. VILLA & M. GRAHAM														
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														

HALLIBURTON

Plot Time: 18-Aug-14 10:47:21
Plot Range: 3700 ft to 4774.5 ft
Data: ROSE_4-1\Well Based\DETAIL_BOTTOM*
Plot File: \\POROI\Poroi IQ EVR LIB

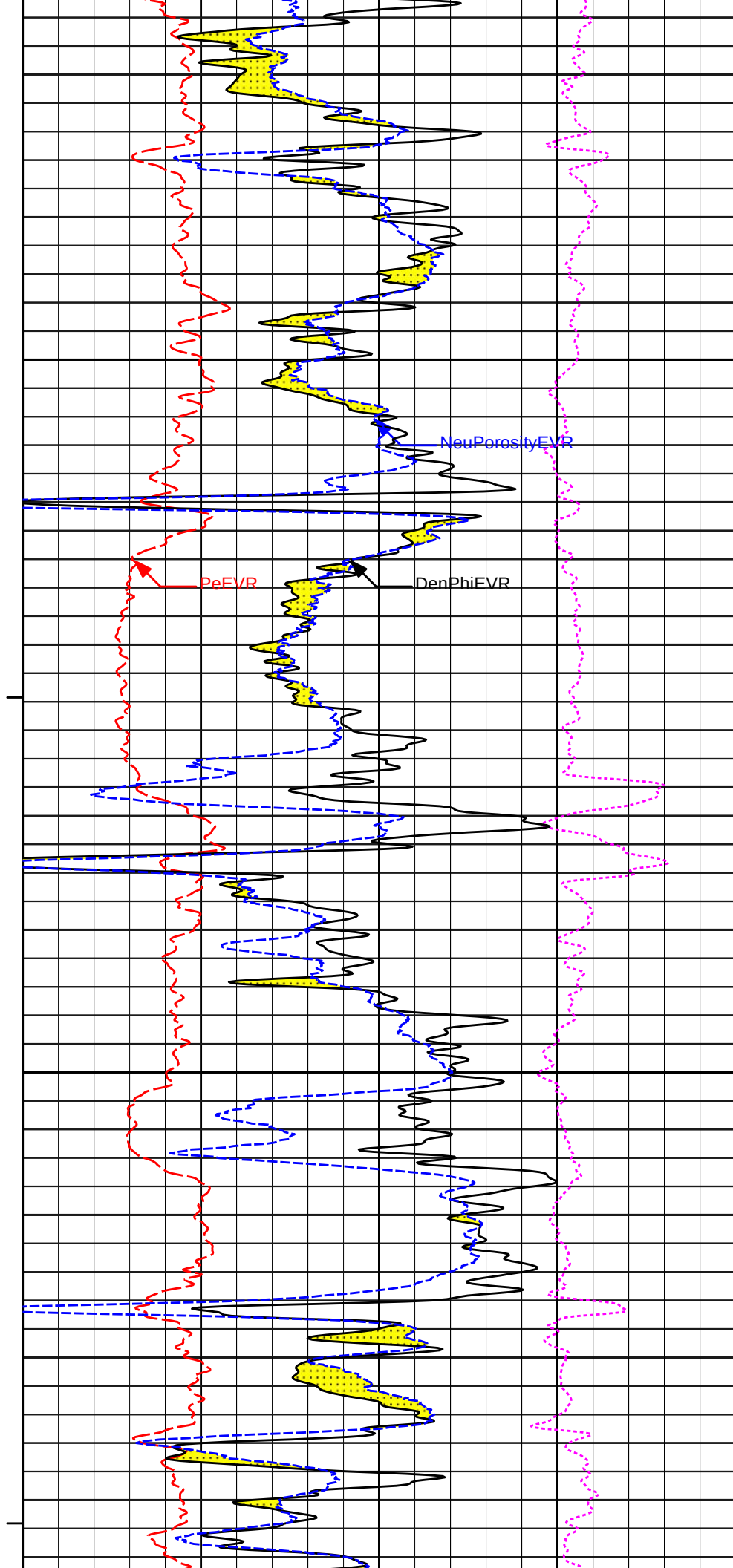
MAIN PASS EVR 10" = 100'

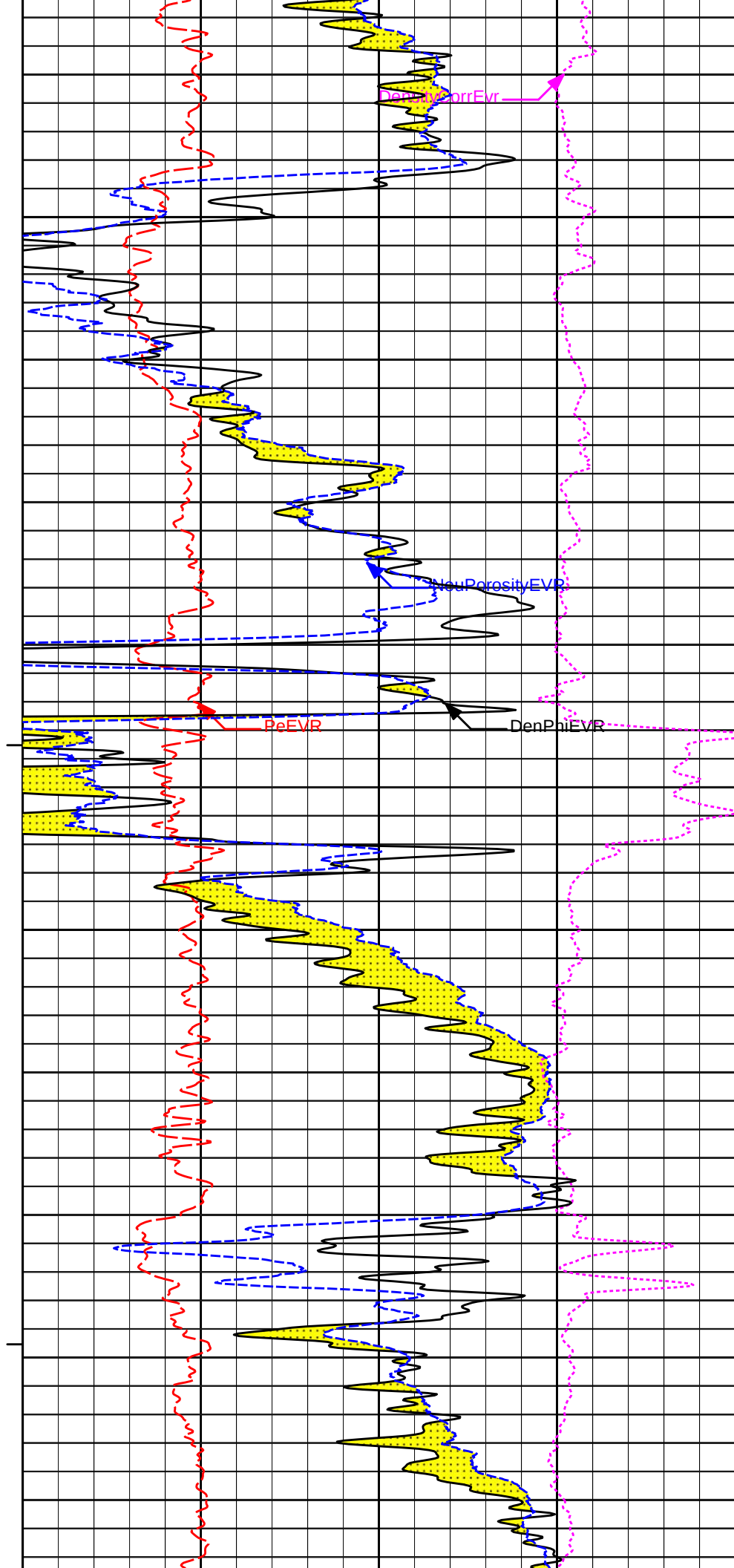
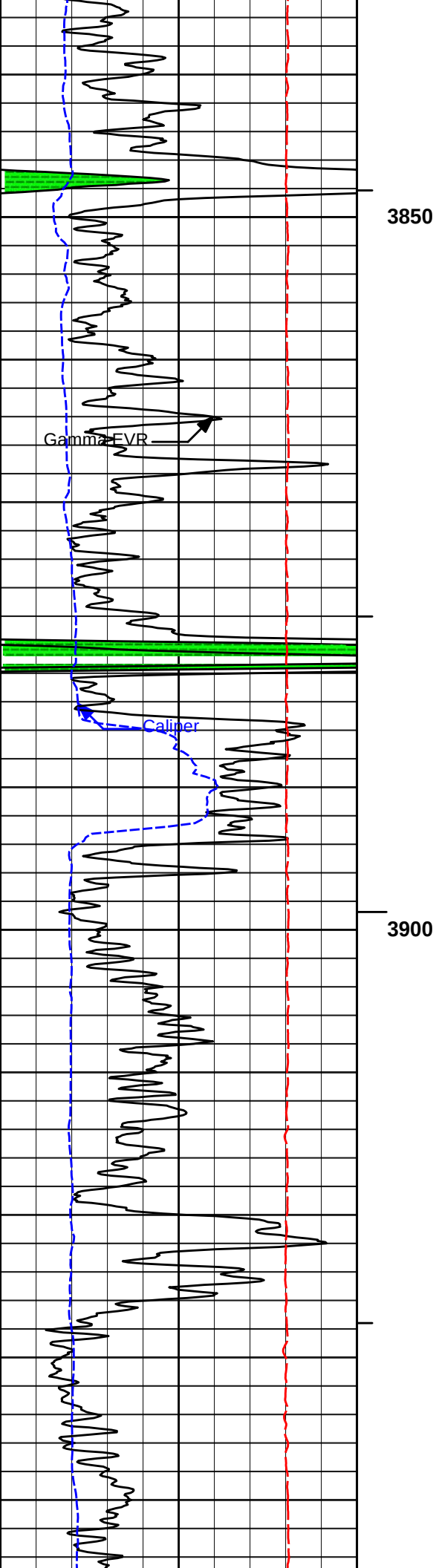


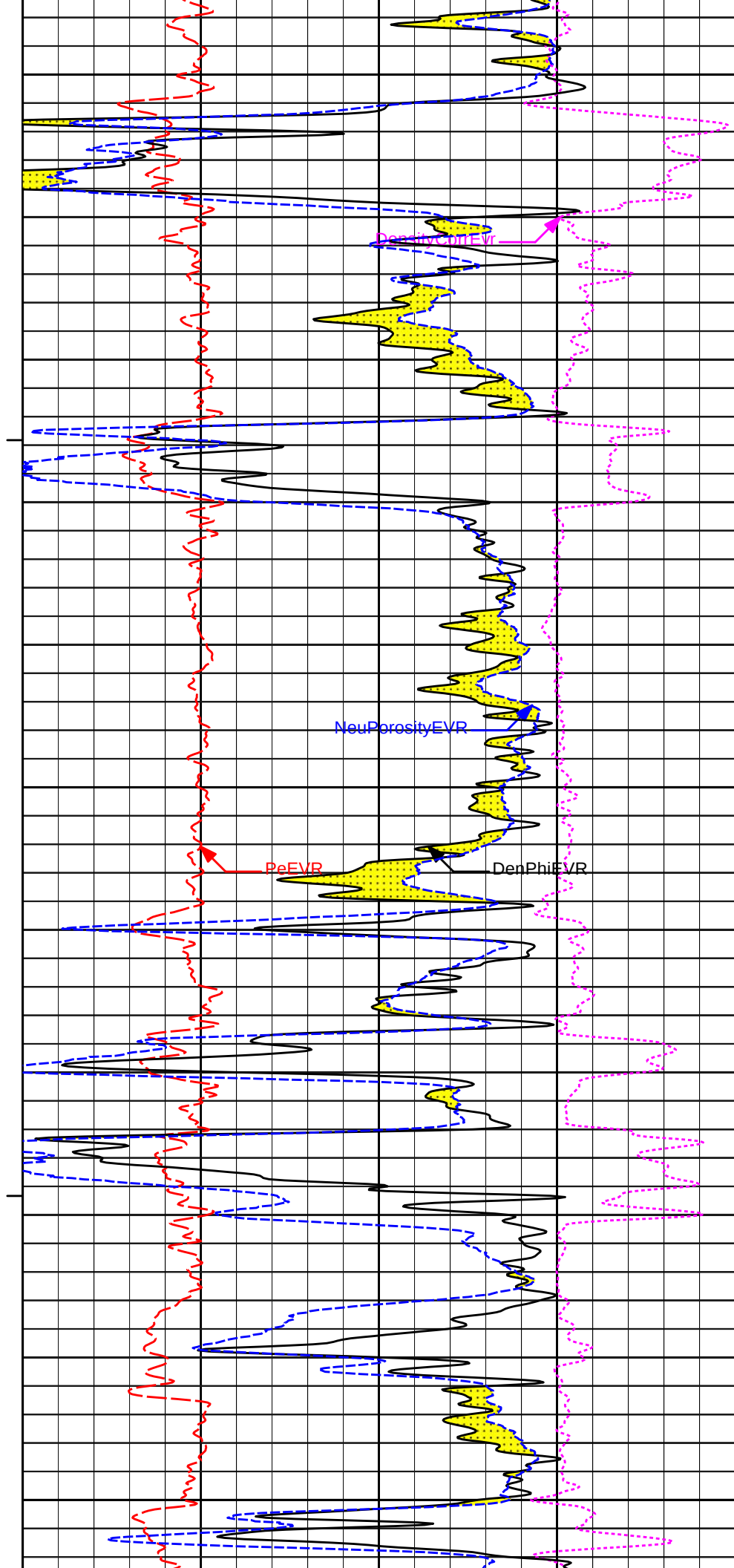
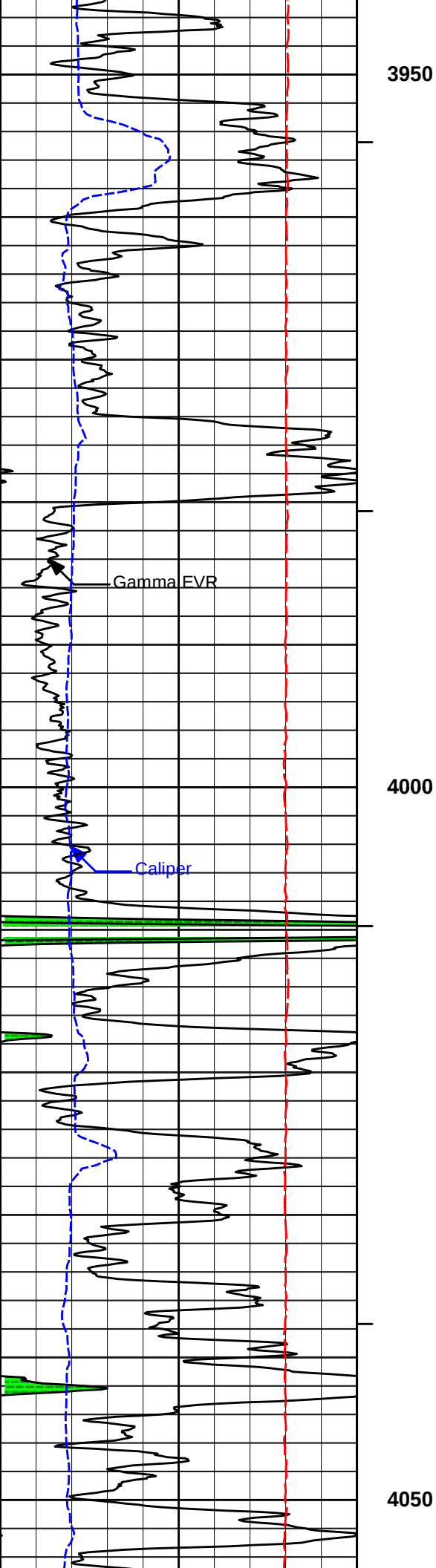


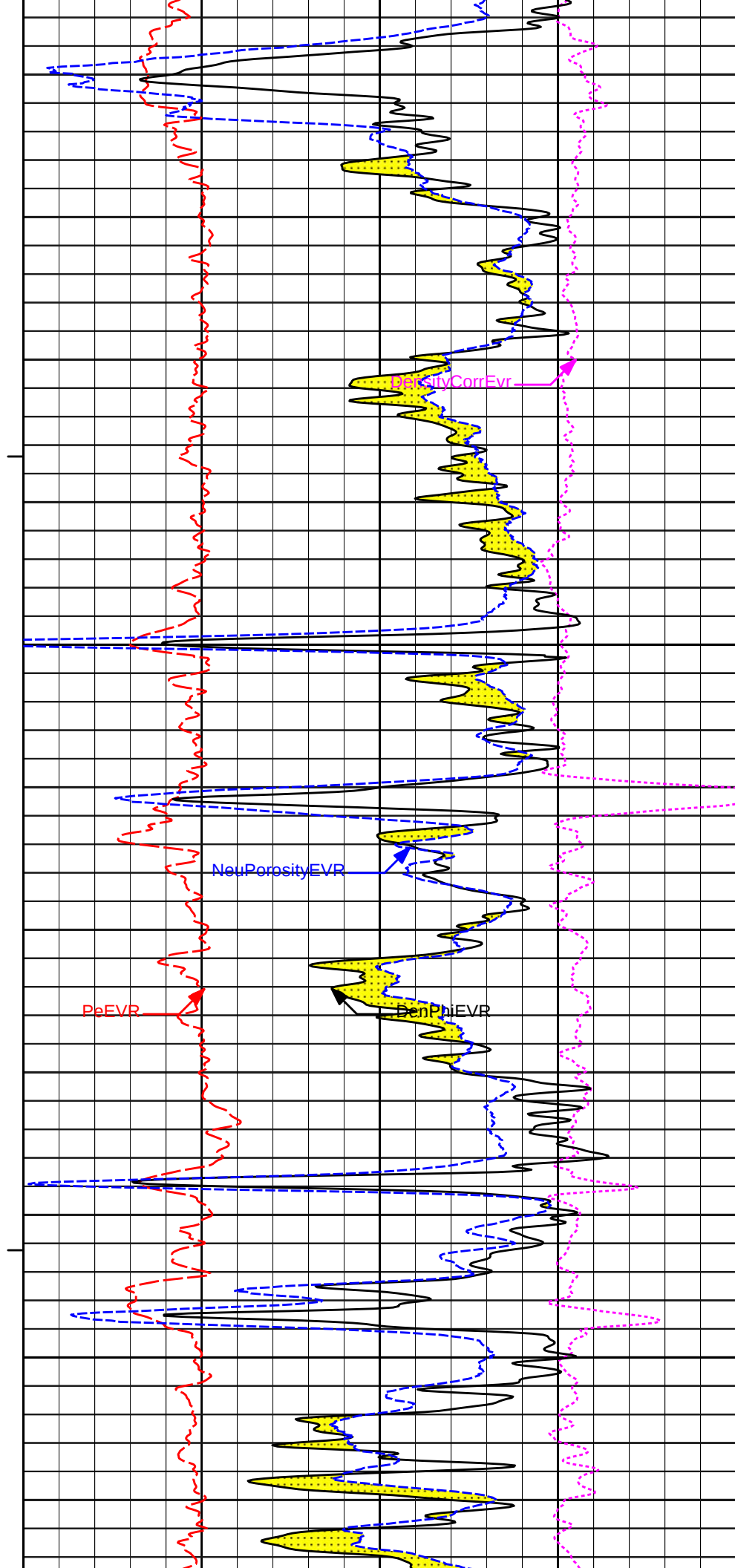
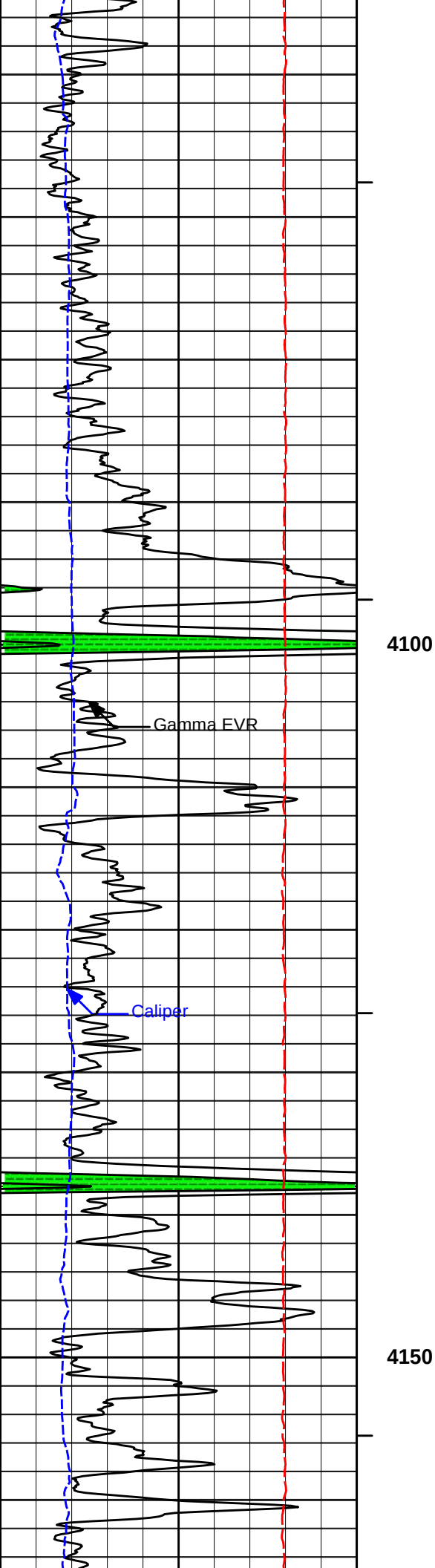
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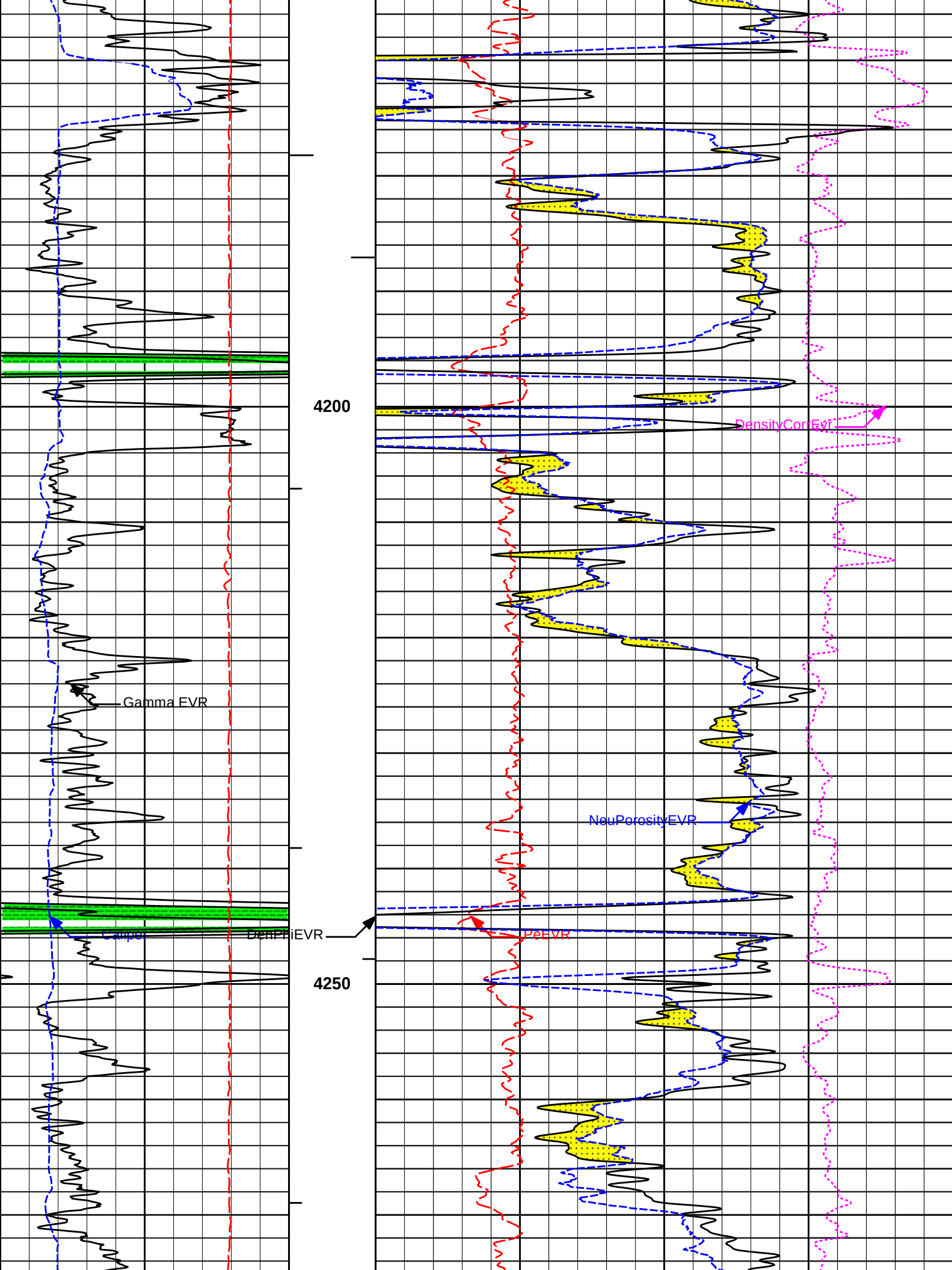
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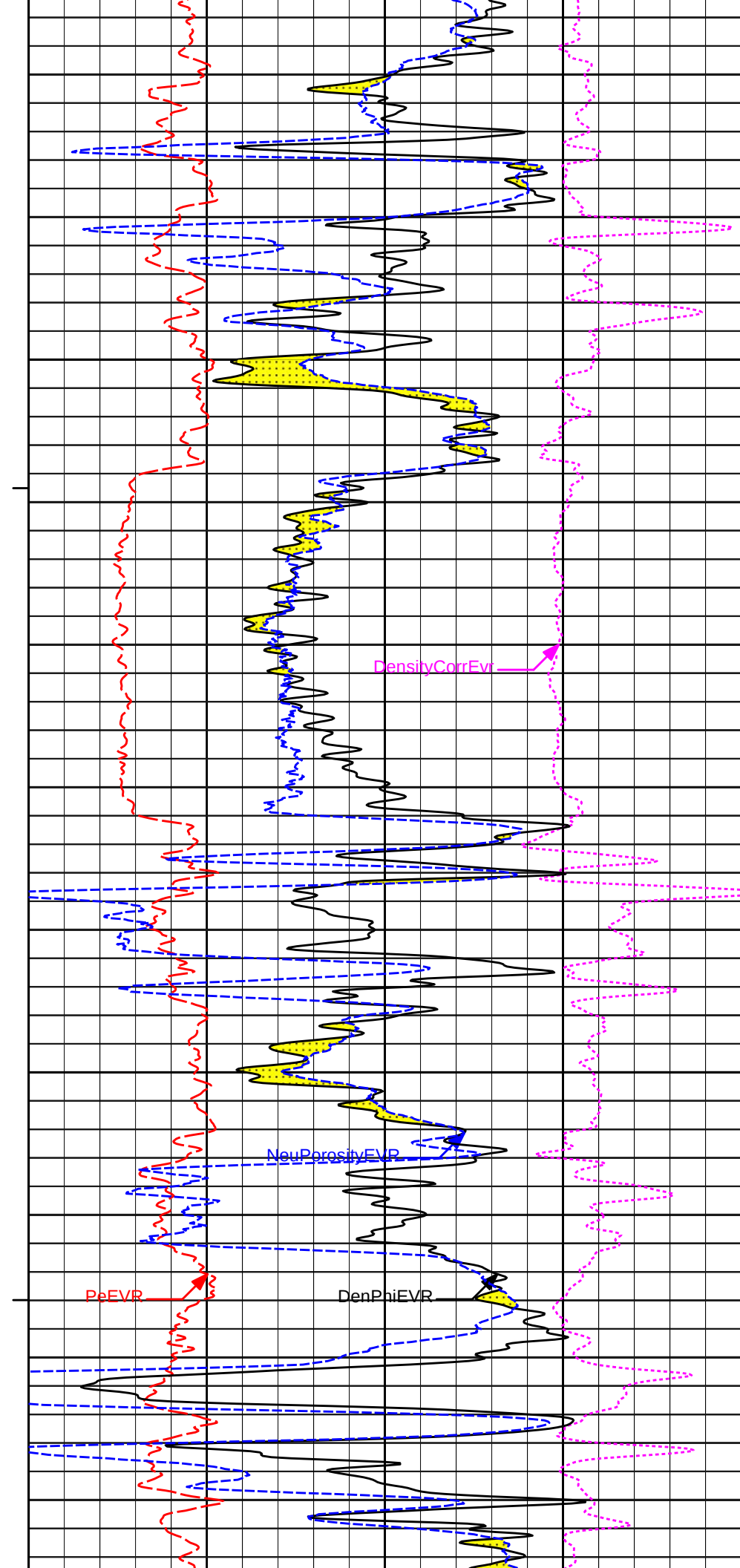
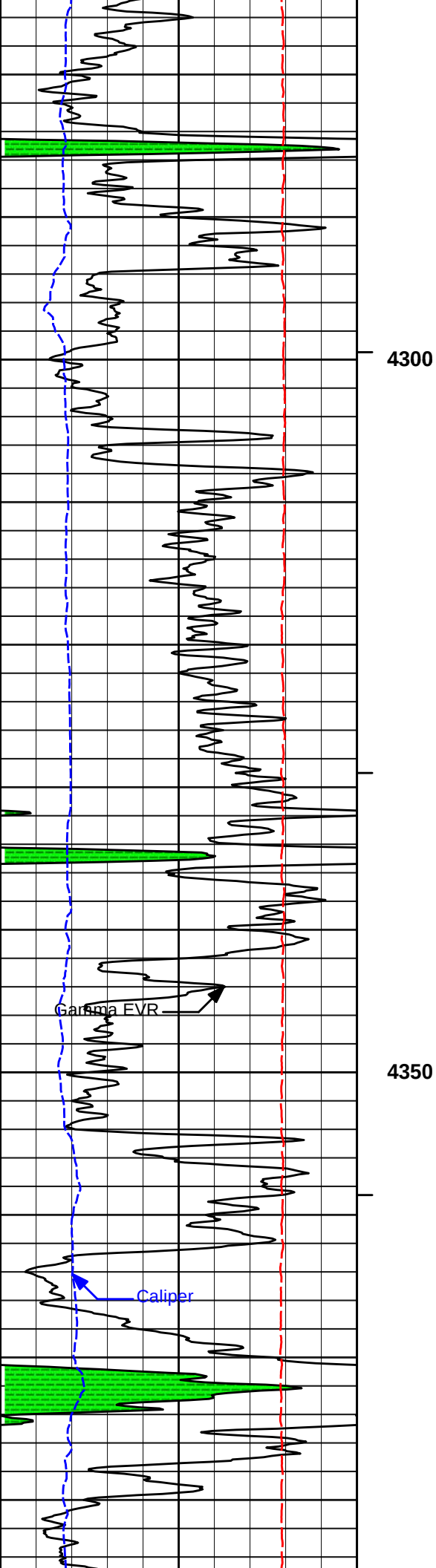


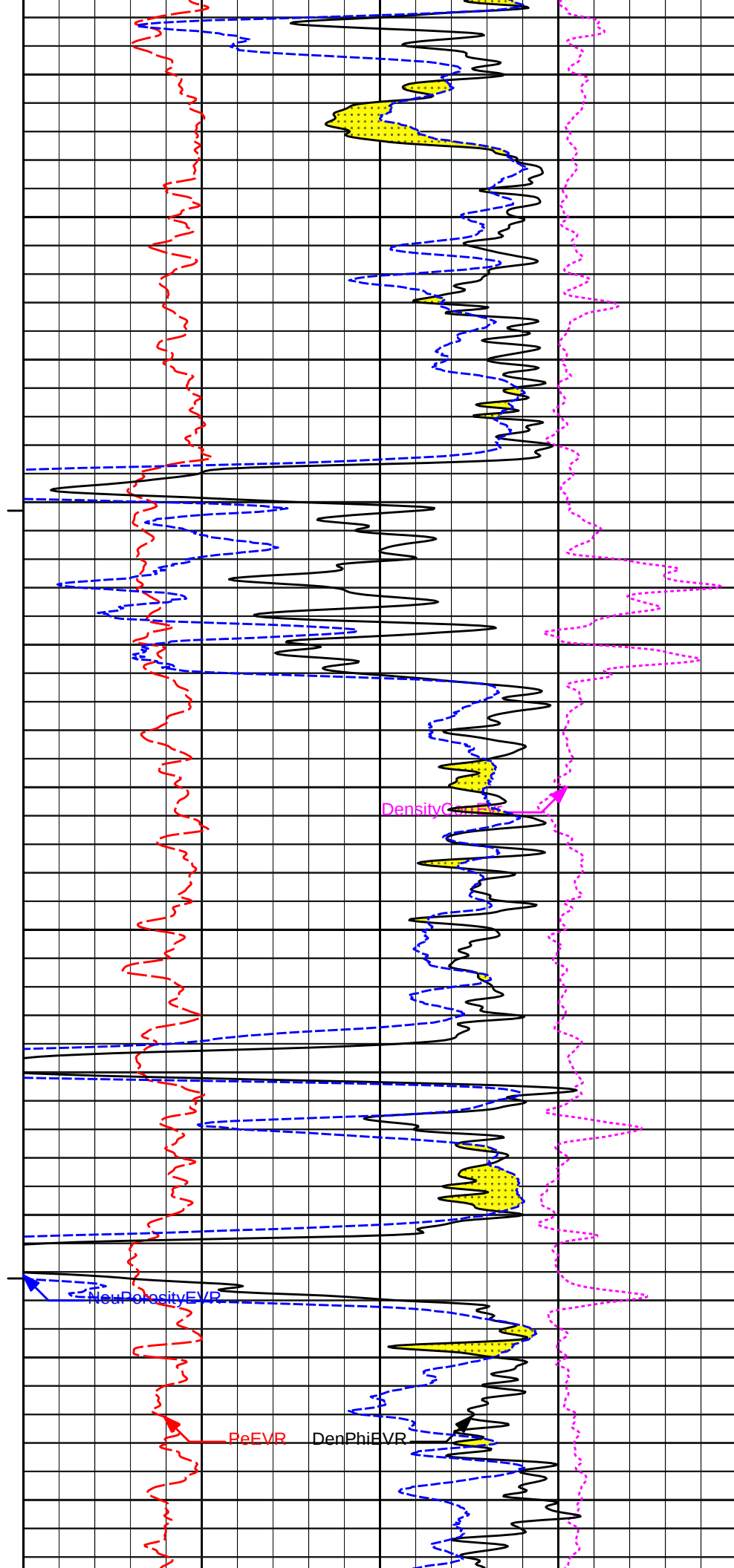
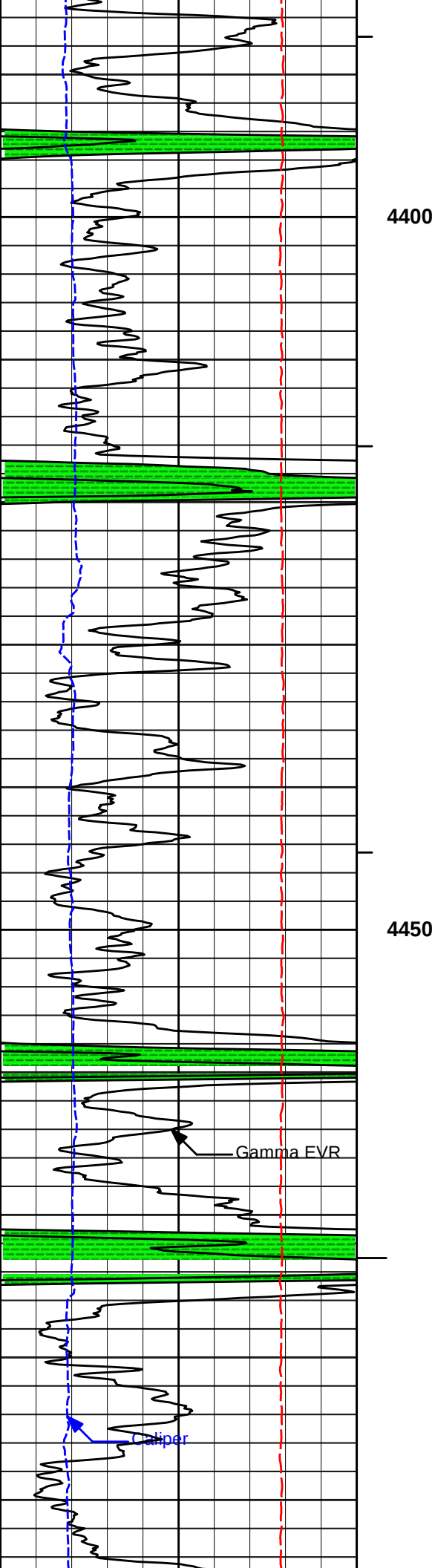


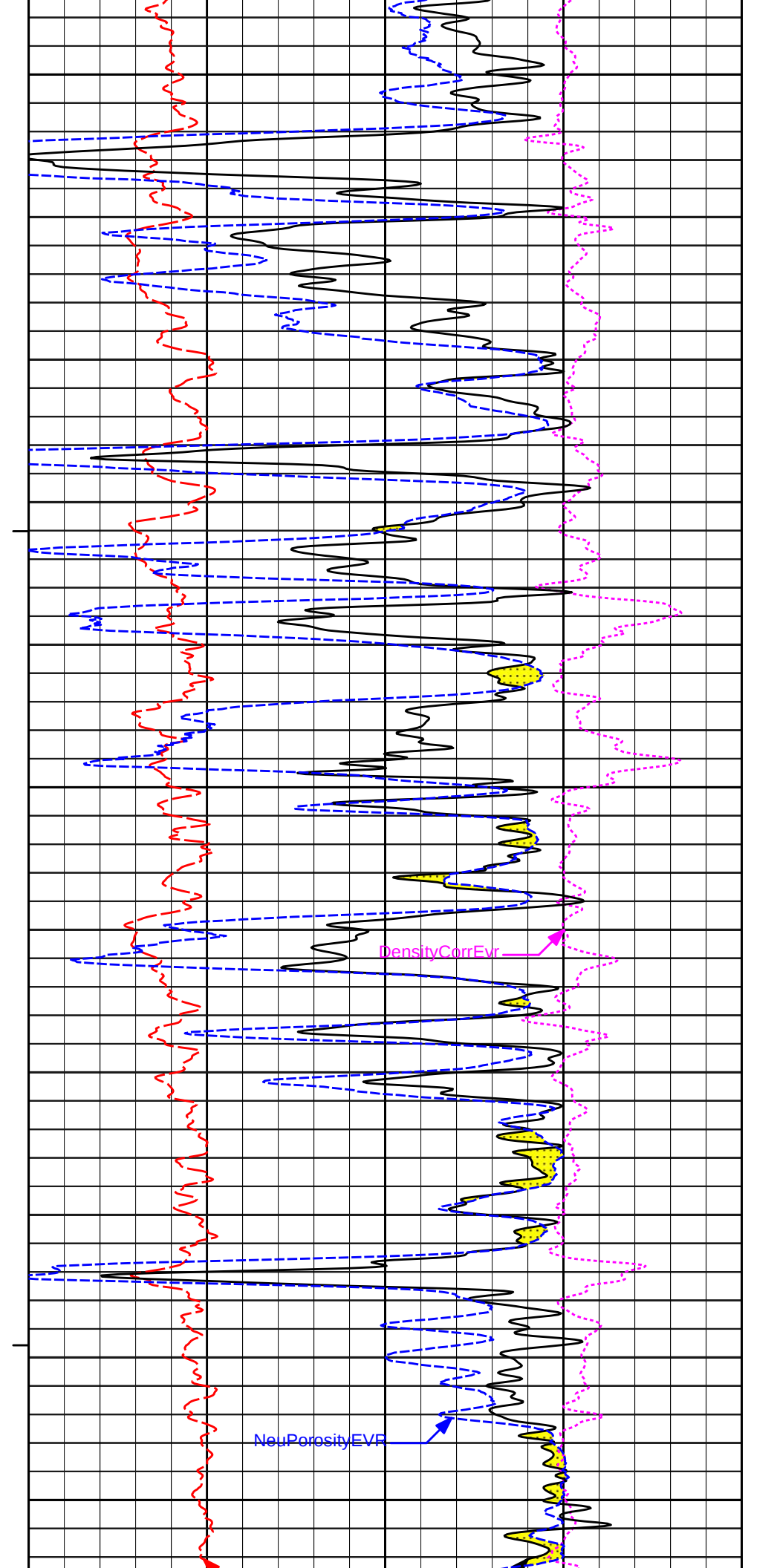
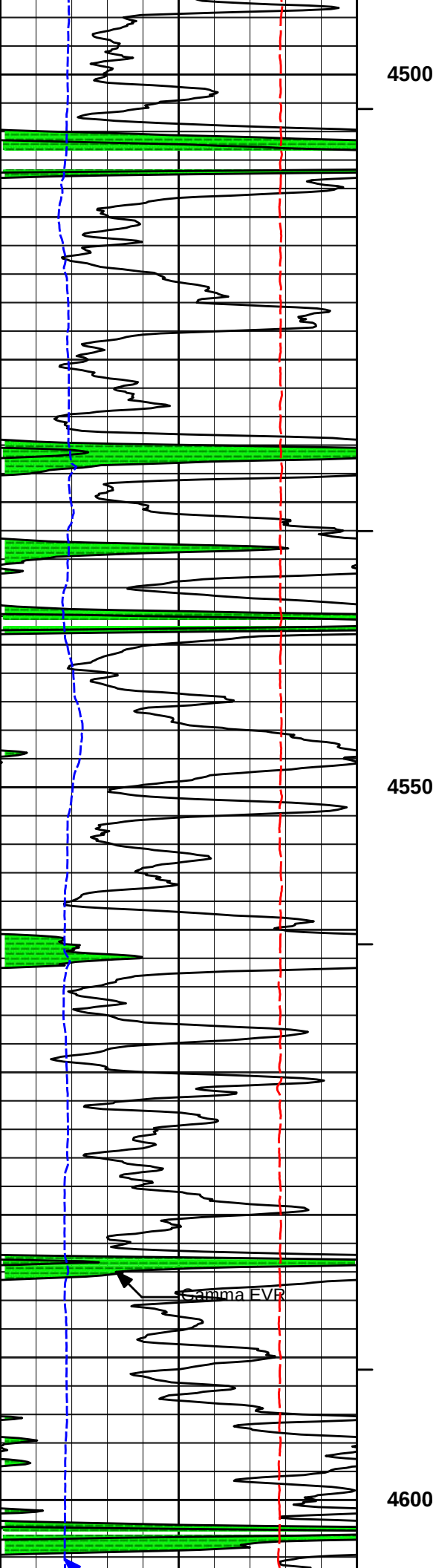


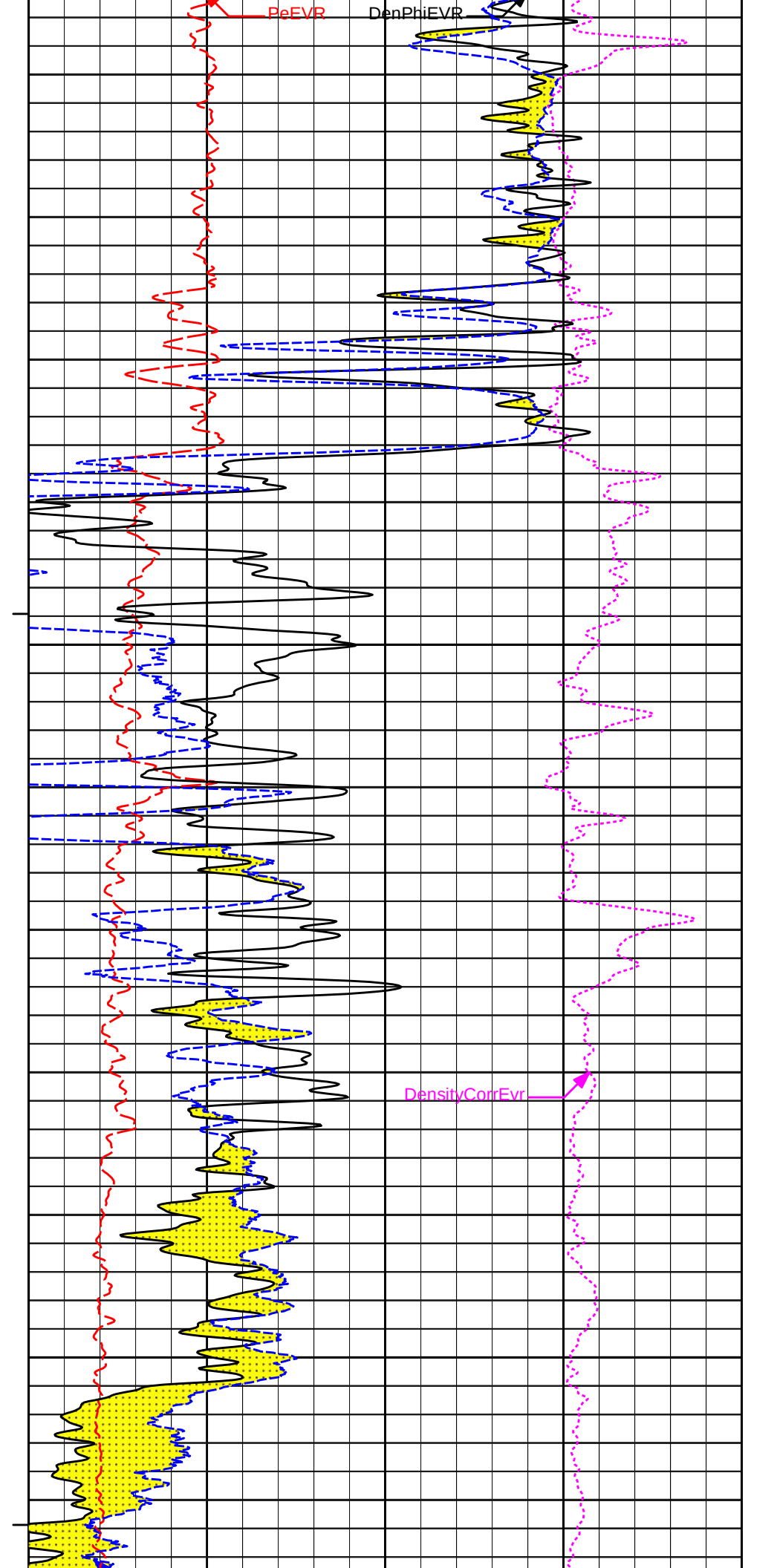
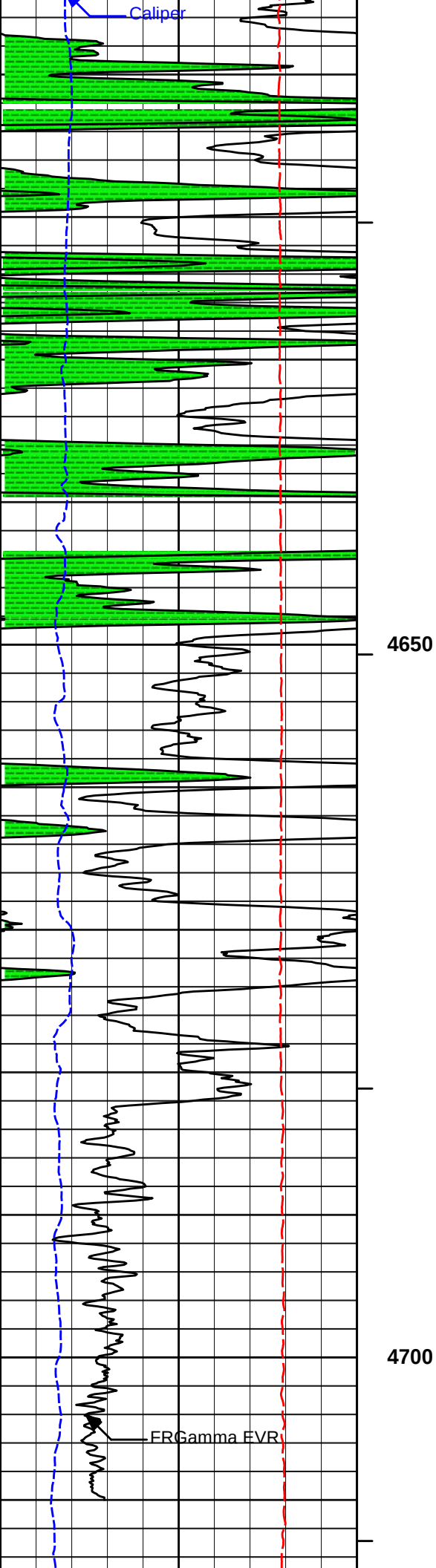


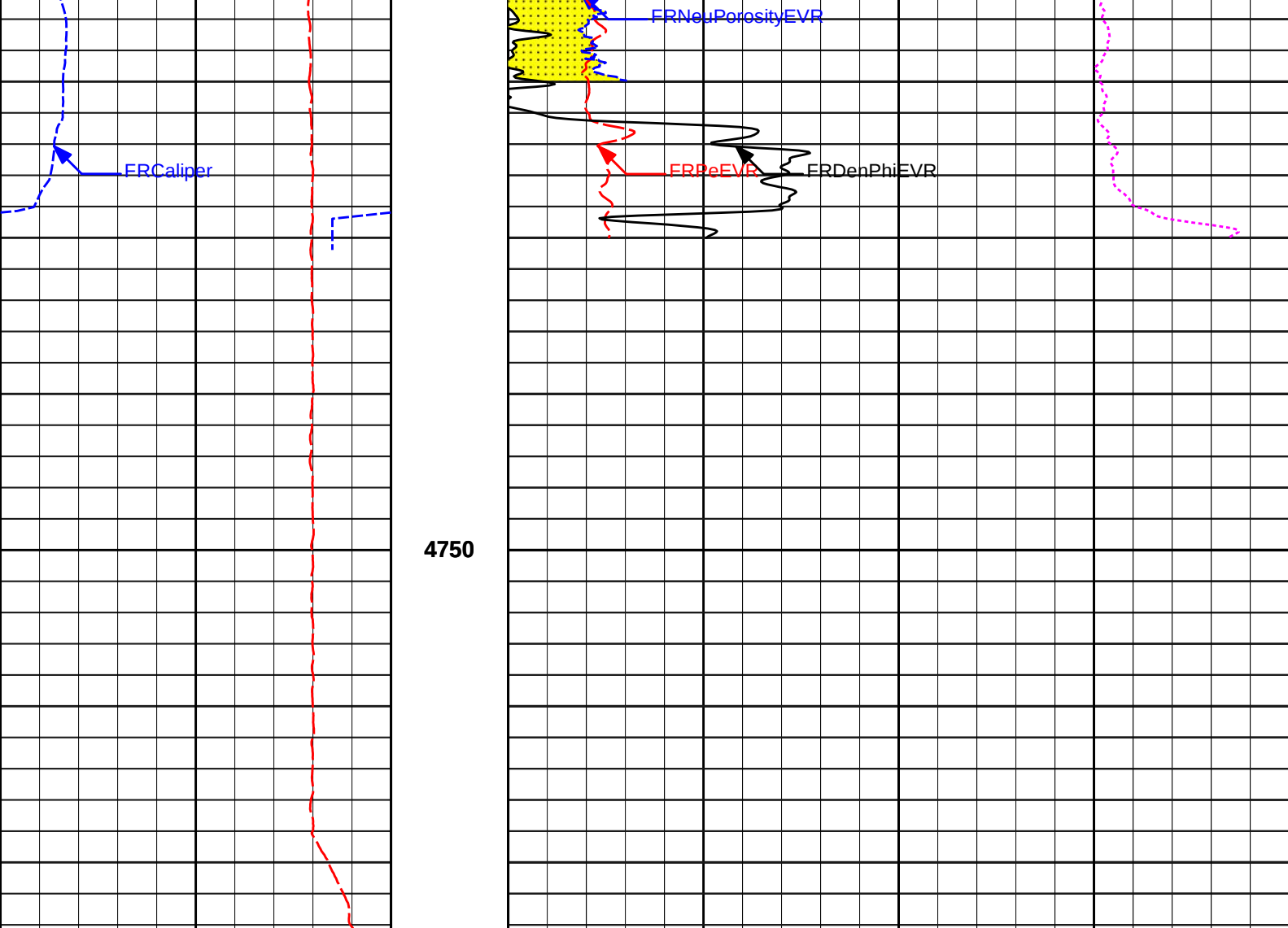












0	Gamma EVR	150	1 : 120 ft	0	PeEVR	10	-0.25	DensityCorrEvr	0.25	
	api								gram per cc	
6	Caliper	16	AHVT	30	DenPhiEVR					-10
	inches				%					
	SHALE		BHVT	30	NeuPorosityEVR					-10
					%					
15K	Tension	0			CROSSOVER					
	pounds									

HALLIBURTON

Plot Time: 18-Aug-14 10:47:37
Plot Range: 3700 ft to 4774.5 ft
Data: ROSE_4-1\Well Based\DETAIL_BOTTOM\
Plot File: \\POROI\PorosityEVR_LIB

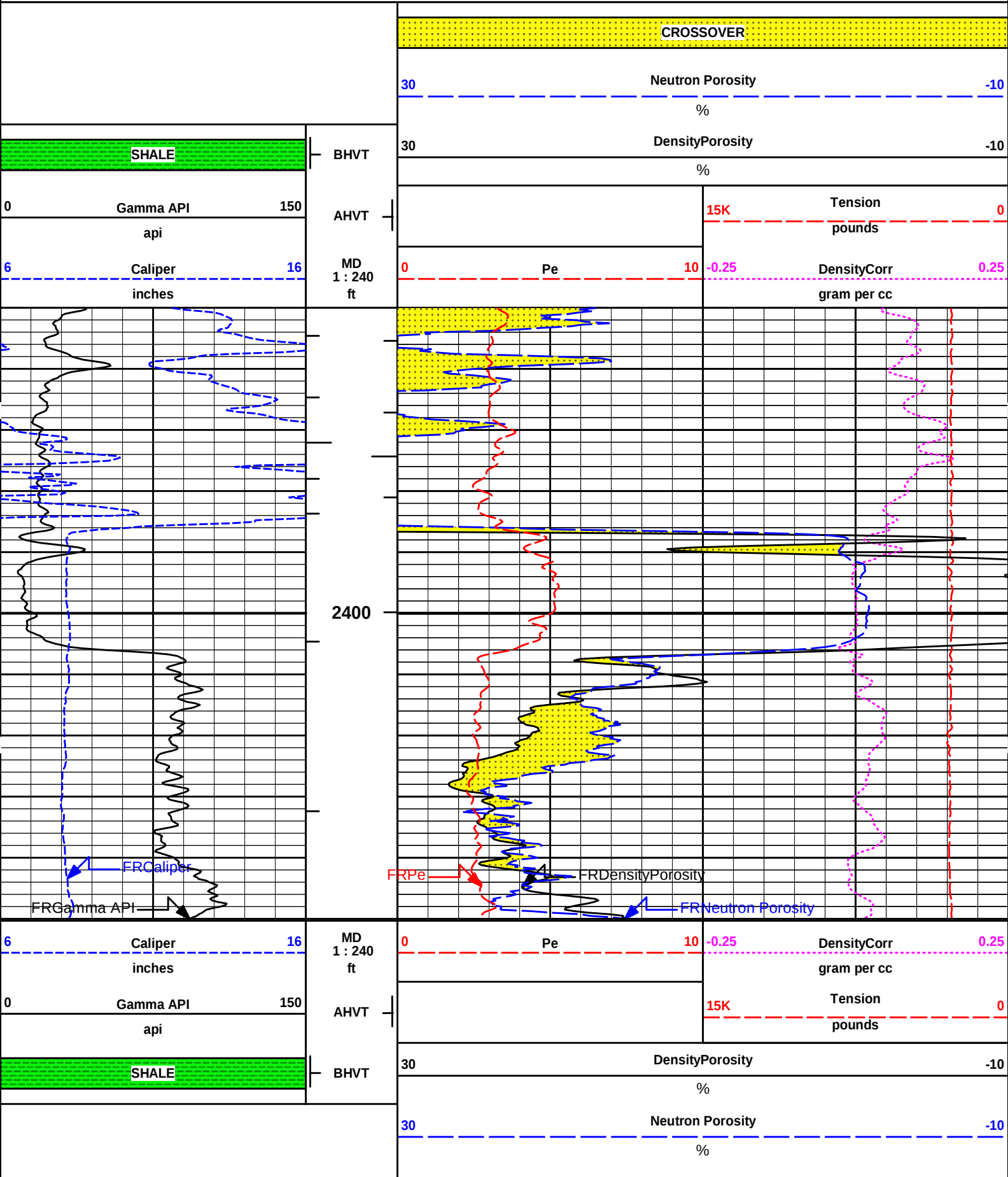
MAIN PASS EVR 10" = 100'

HALLIBURTON

Plot Time: 18-Aug-14 10:47:37
Plot Range: 2350 ft to 2450 ft
Data: ROSE_4-1\Well Based\DETAIL_TOP\
Plot File: \\POROI\PorosityEVR_LIB

5 INCH MAIN LOG

MEASURED DEPTH
MAIN SECTION 5" PER 100'



CROSSOVER

HALLIBURTON

Plot Time: 18-Aug-14 10:47:39
Plot Range: 2350 ft to 2450 ft
Data: ROSE_4-1\Well Based\DETAIL_TOP\
Plot File: \\PORO\Porosity_IQ_5_MAIN_LIB

5 INCH MAIN LOG

MEASURED DEPTH
MAIN SECTION 5" PER 100'

HALLIBURTON

Plot Time: 18-Aug-14 10:47:39
Plot Range: 3700 ft to 4774.5 ft
Data: ROSE_4-1\Well Based\DETAIL_BOTTOM\
Plot File: \\PORO\Porosity_IQ_5_MAIN_LIB

5 INCH MAIN LOG

MEASURED DEPTH
MAIN SECTION 5" PER 100'

CROSSOVER

30 Neutron Porosity -10
%

30 Density Porosity -10
%

SHALE

0 Gamma API 150
api

6 Caliper 16
inches

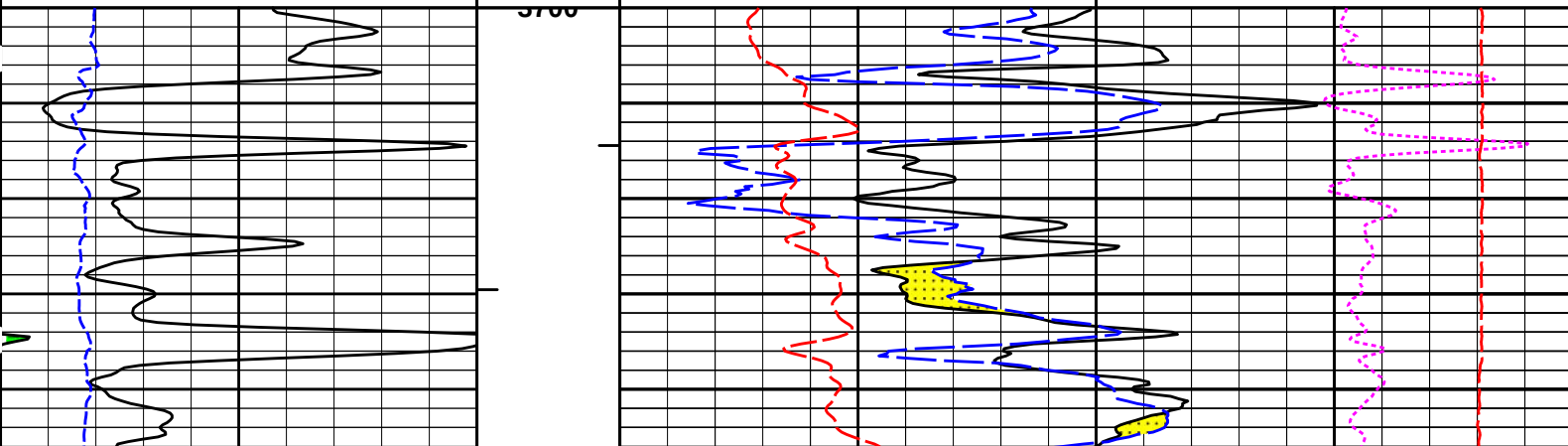
BHVT

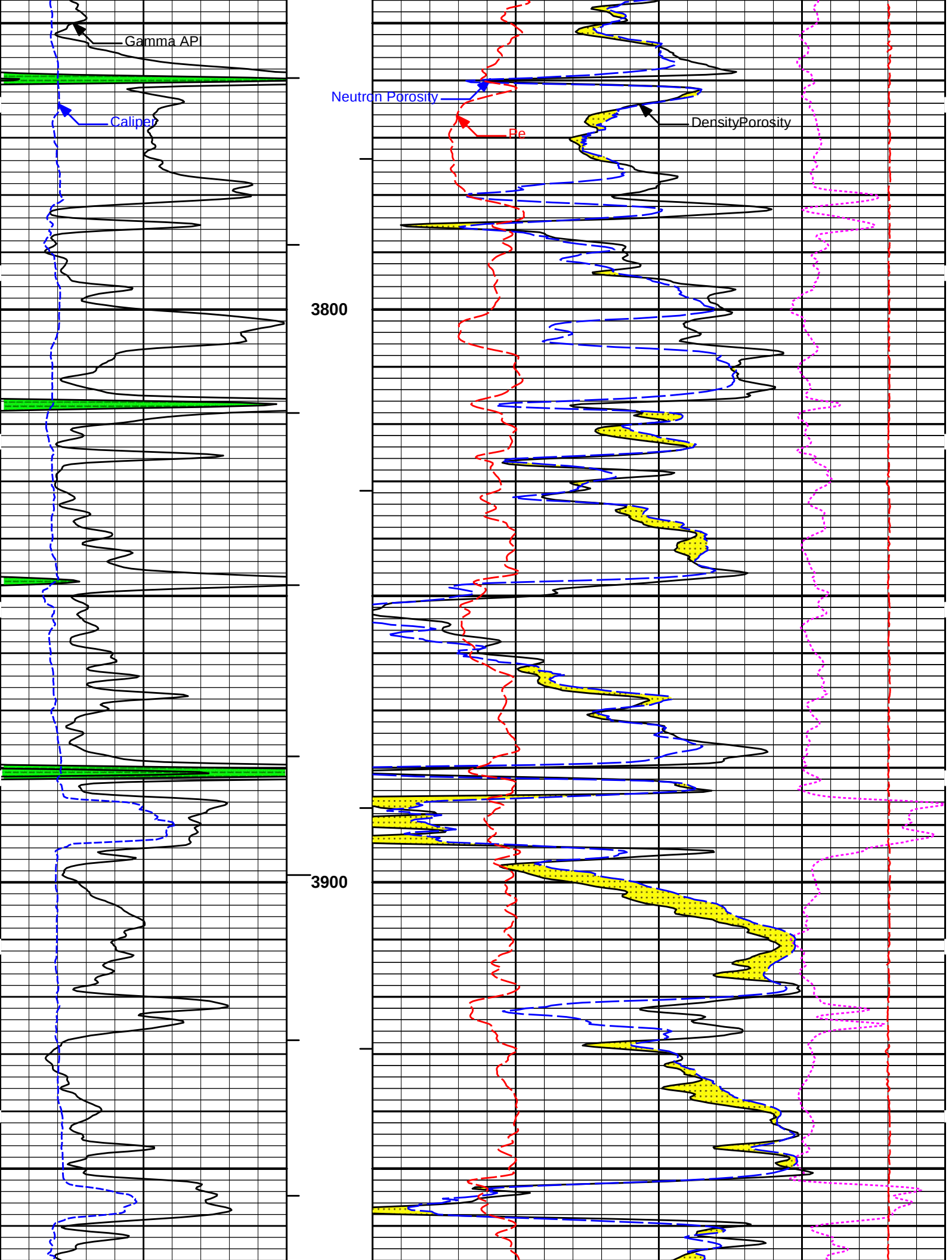
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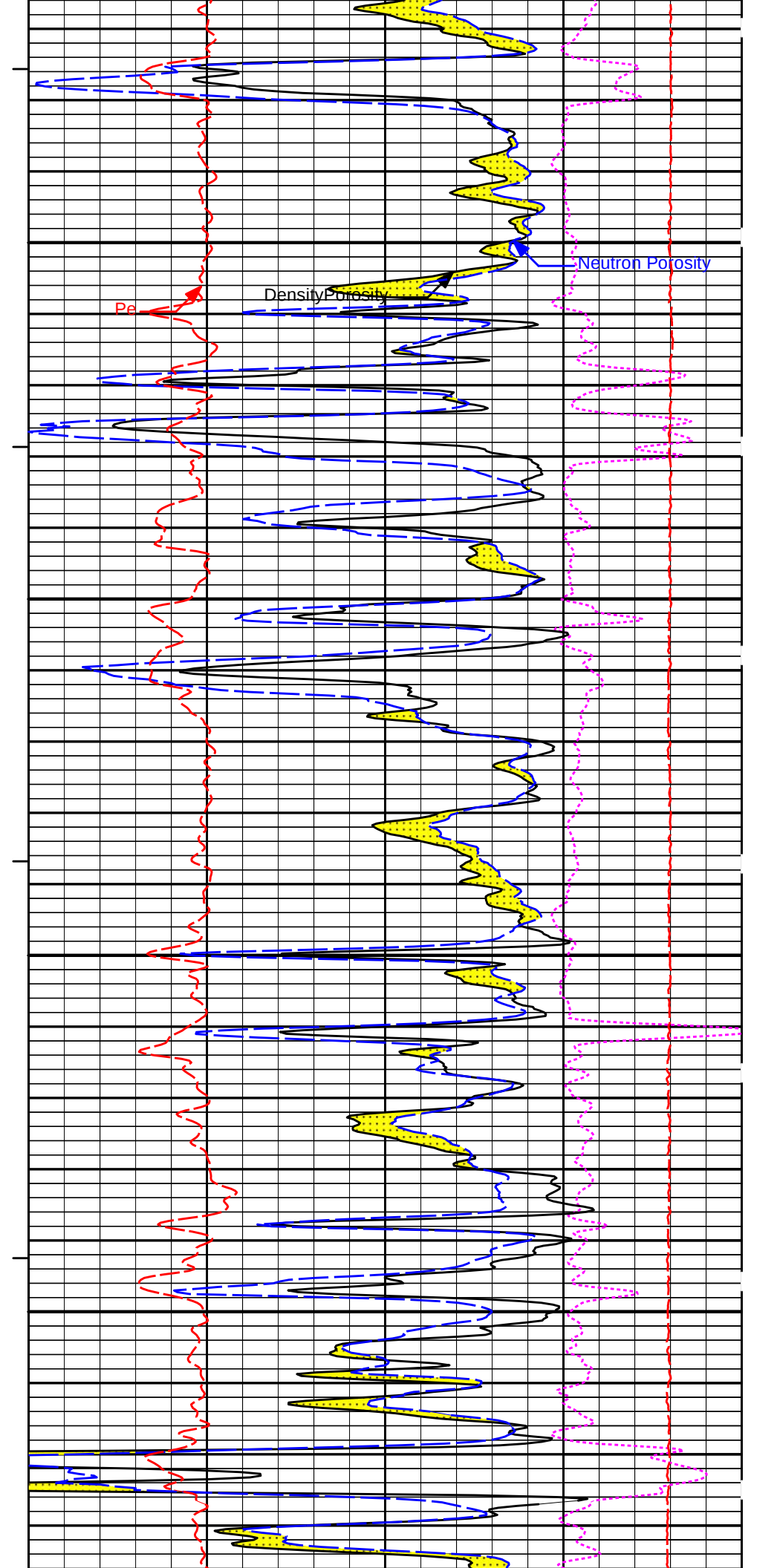
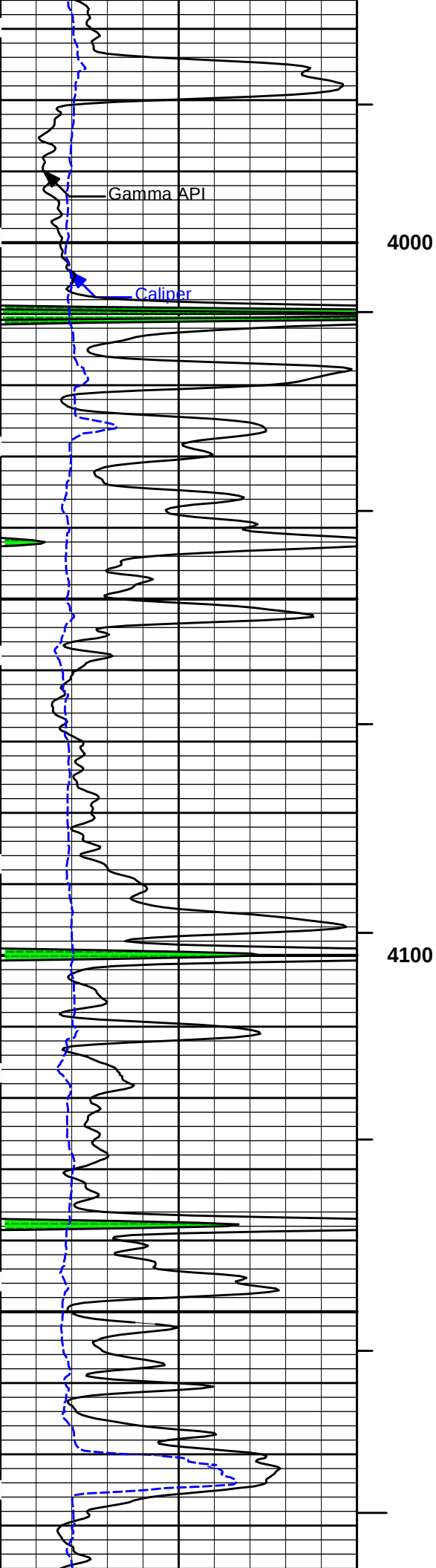
MD
1 : 240
ft

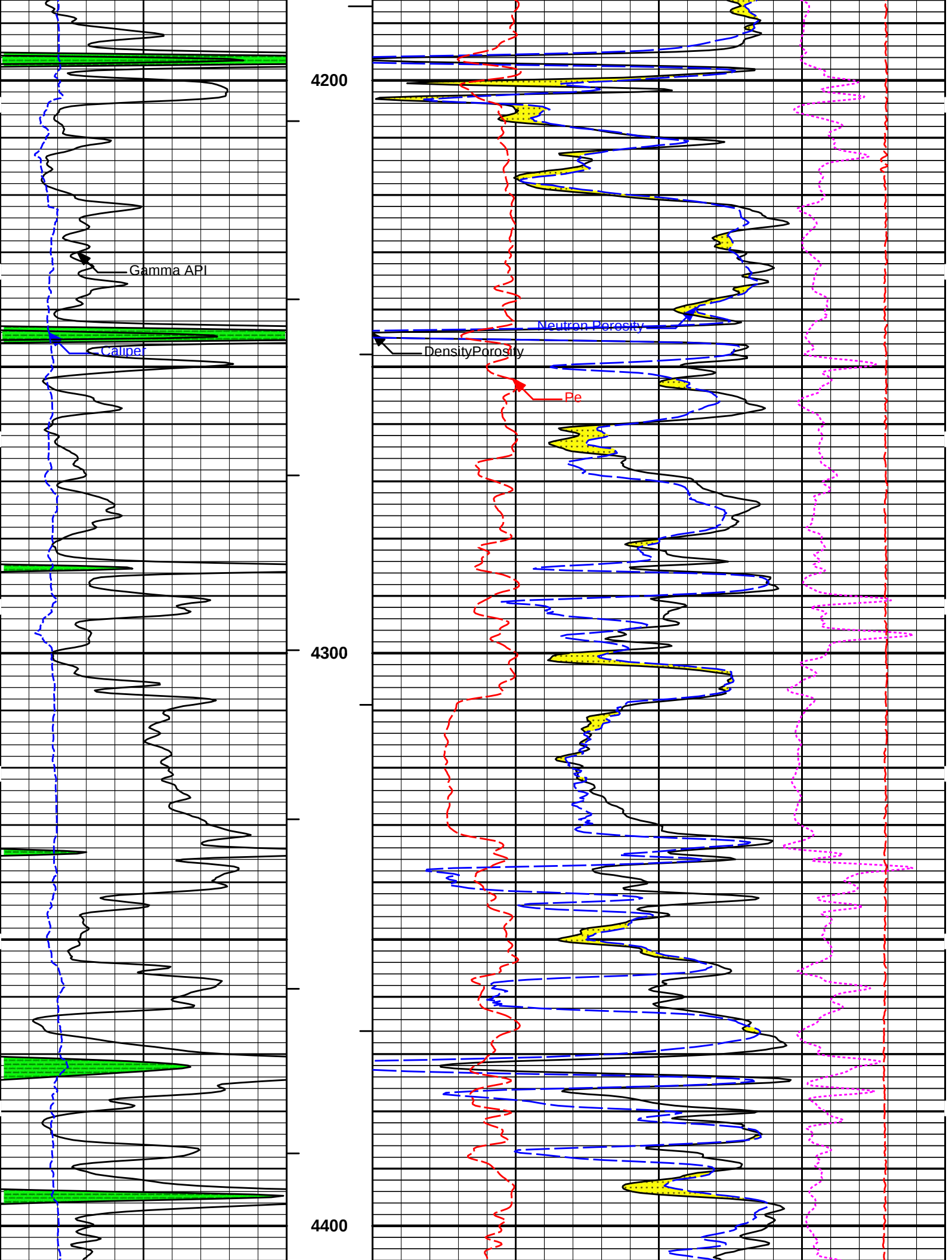
15K Tension 0
pounds

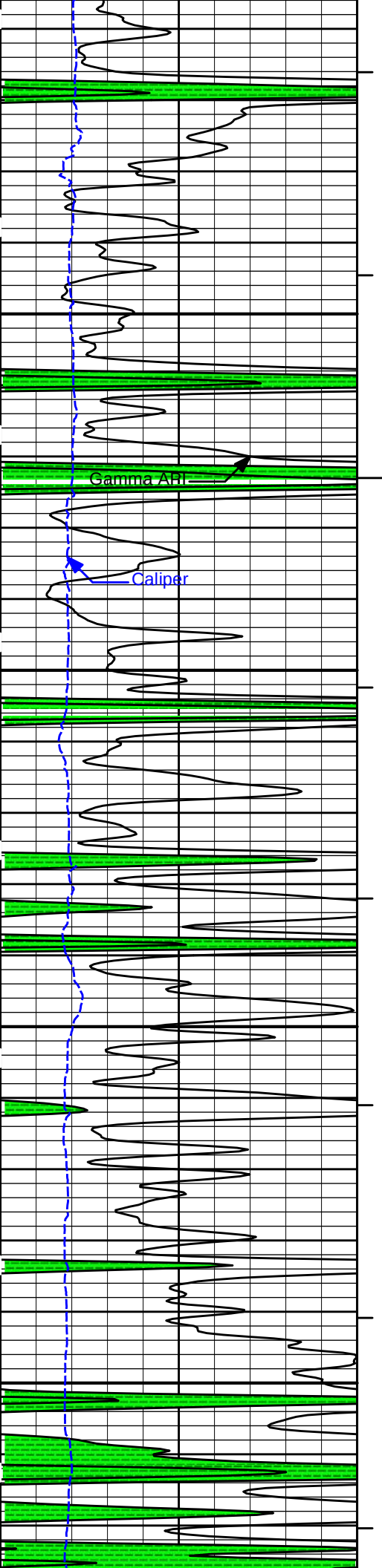
0 Pe 10 -0.25 Density Corr 0.25
gram per cc





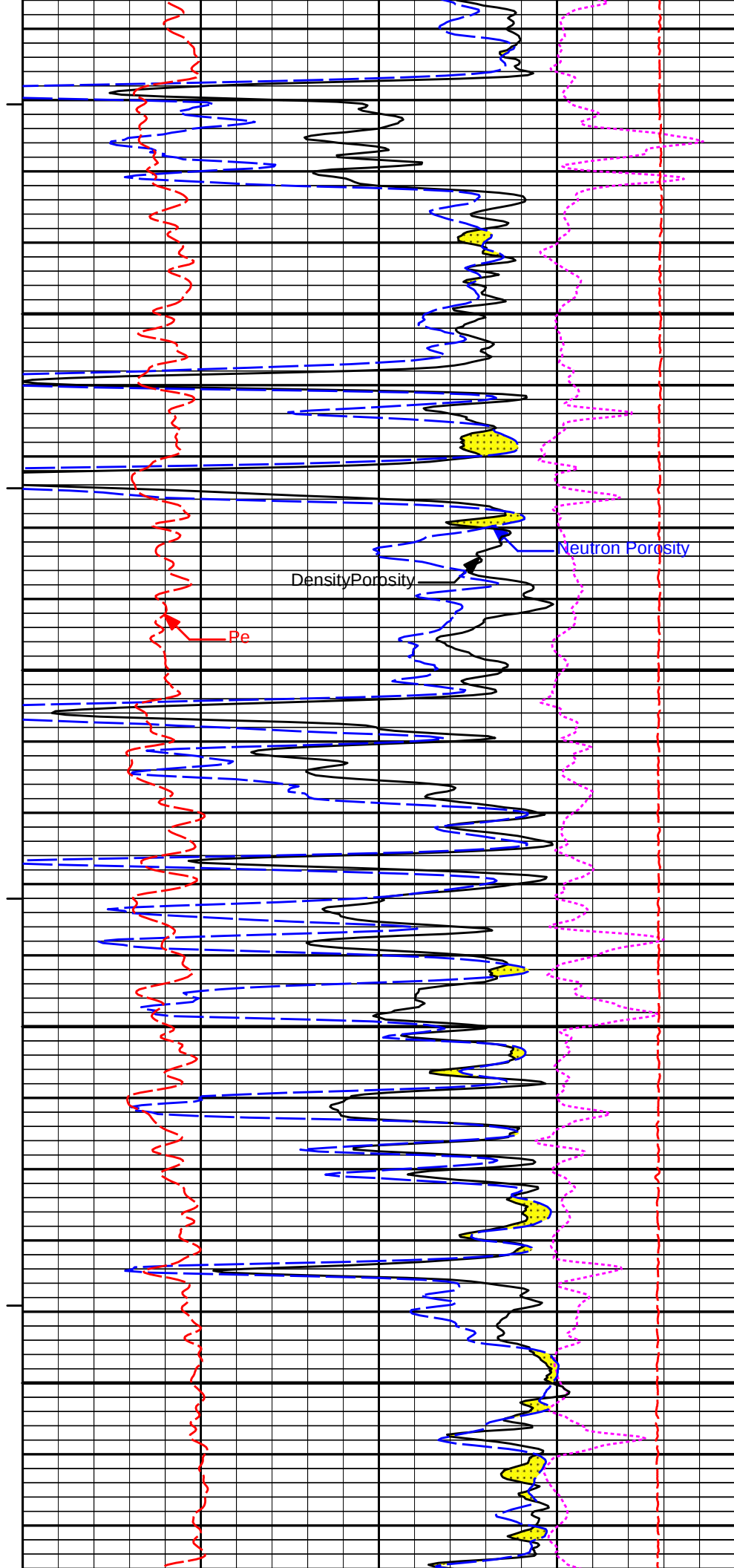


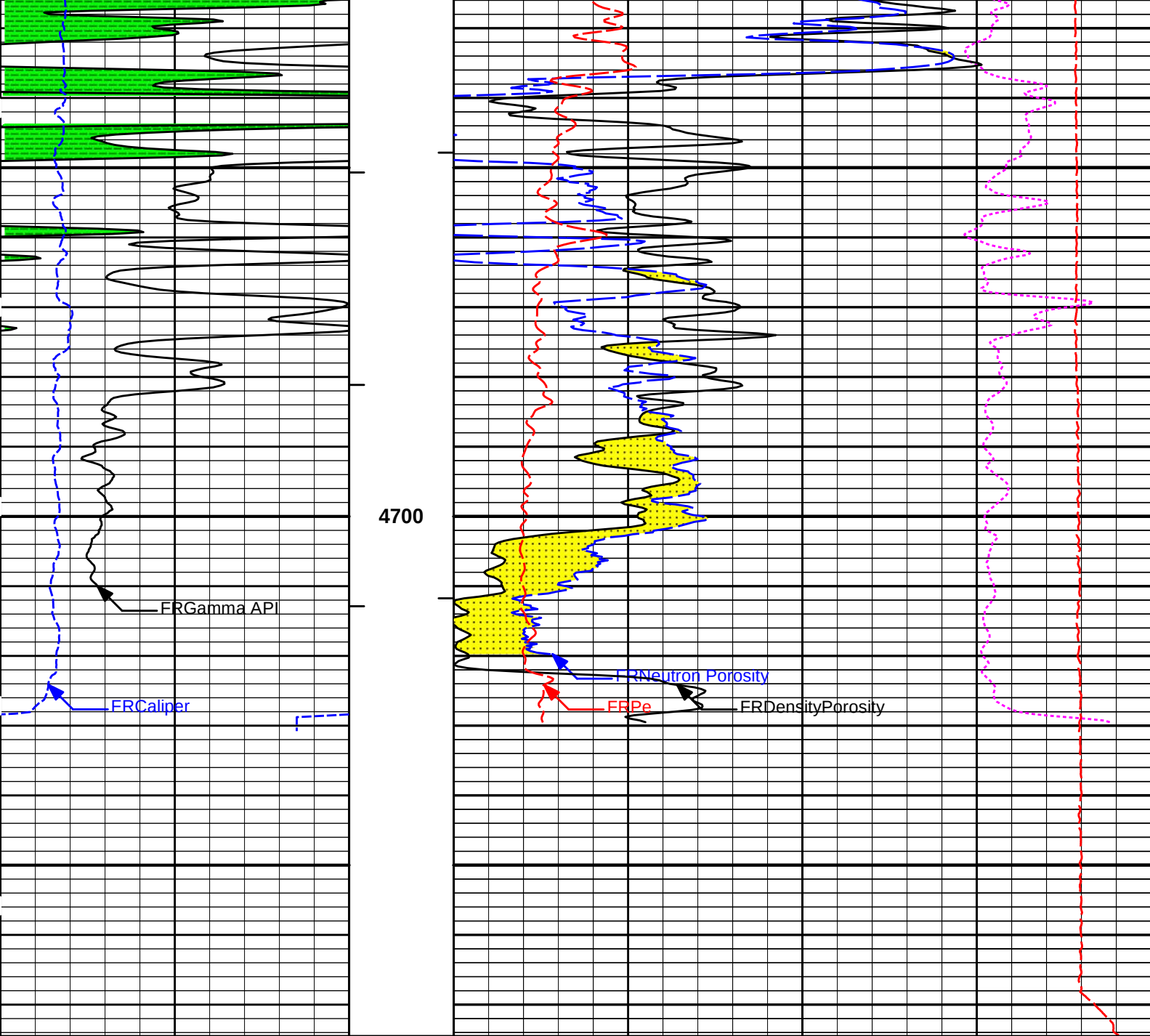




4500

4600





6	Caliper	16	MD 1 : 240 ft		0	Pe	10	-0.25	DensityCorr	0.25
	inches									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: 18-Aug-14 10:47:41
 Plot Range: 3700 ft to 4774.5 ft
 Data: ROSE_4-1\Well Based\DETAIL_BOTTOM\
 Plot File: \\POROI\Poro_IQ_5_MAIN_LIB

REPEAT SECTION

Plot Time: 18-Aug-14 10:47:41
Plot Range: 4500 ft to 4774 ft
Data: ROSE_4-1\Well Based\REPEAT\
Plot File: \\PORO\Porosity_IQ_5_REP_LIB

SHALE

BHVT

0 Gamma API 150

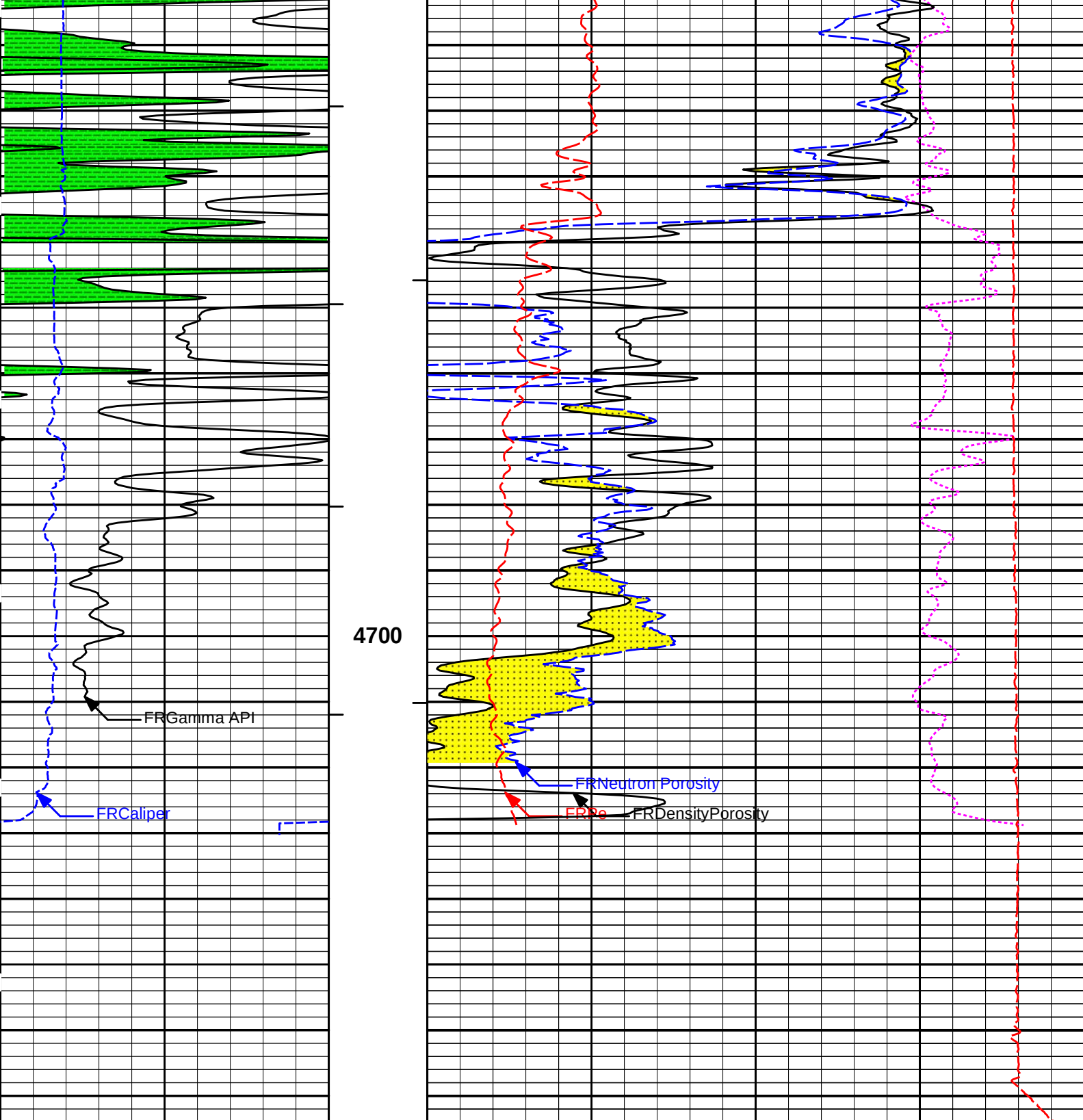
api

6 Caliper 16

inches

MD
1 : 240
ft

4600

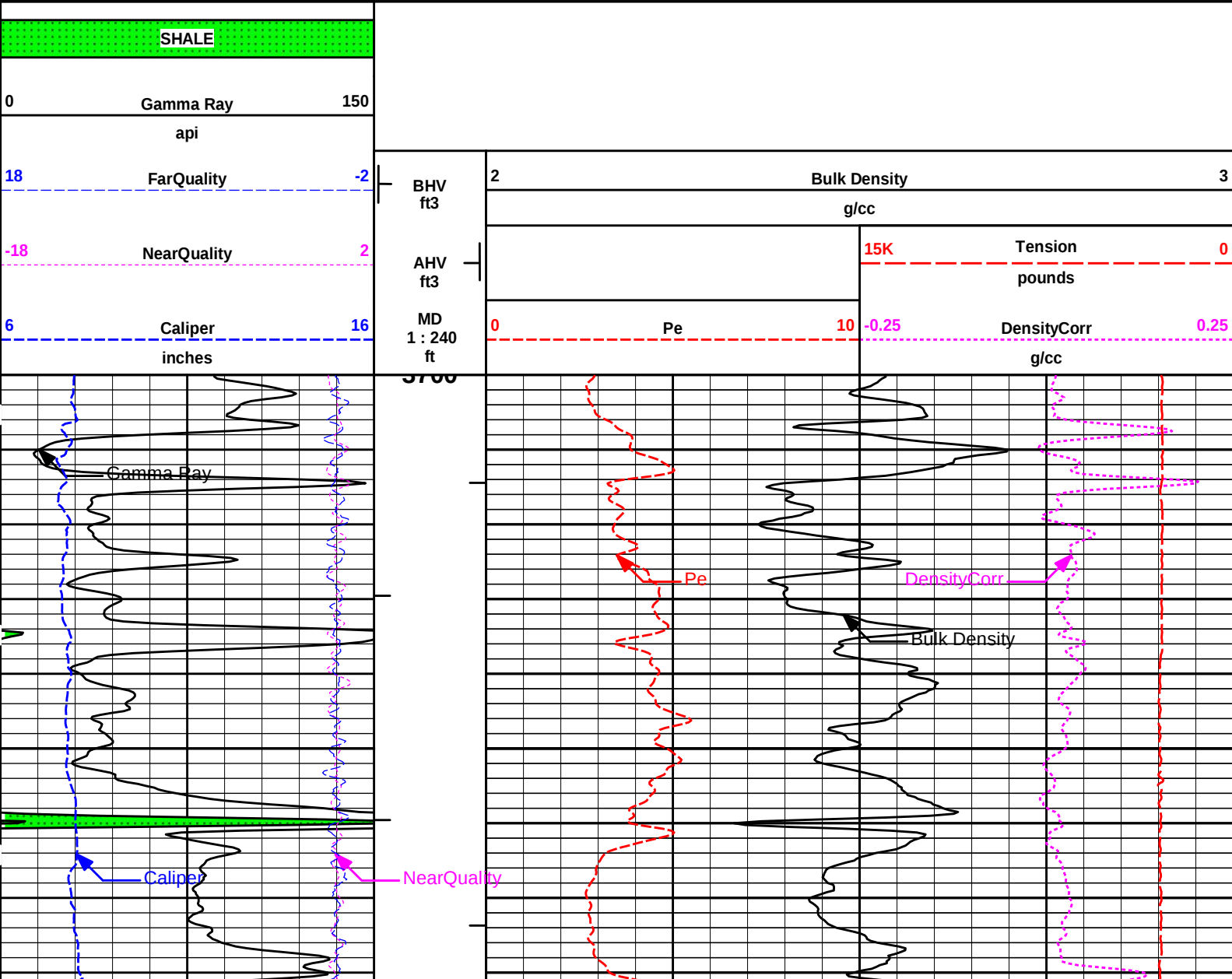


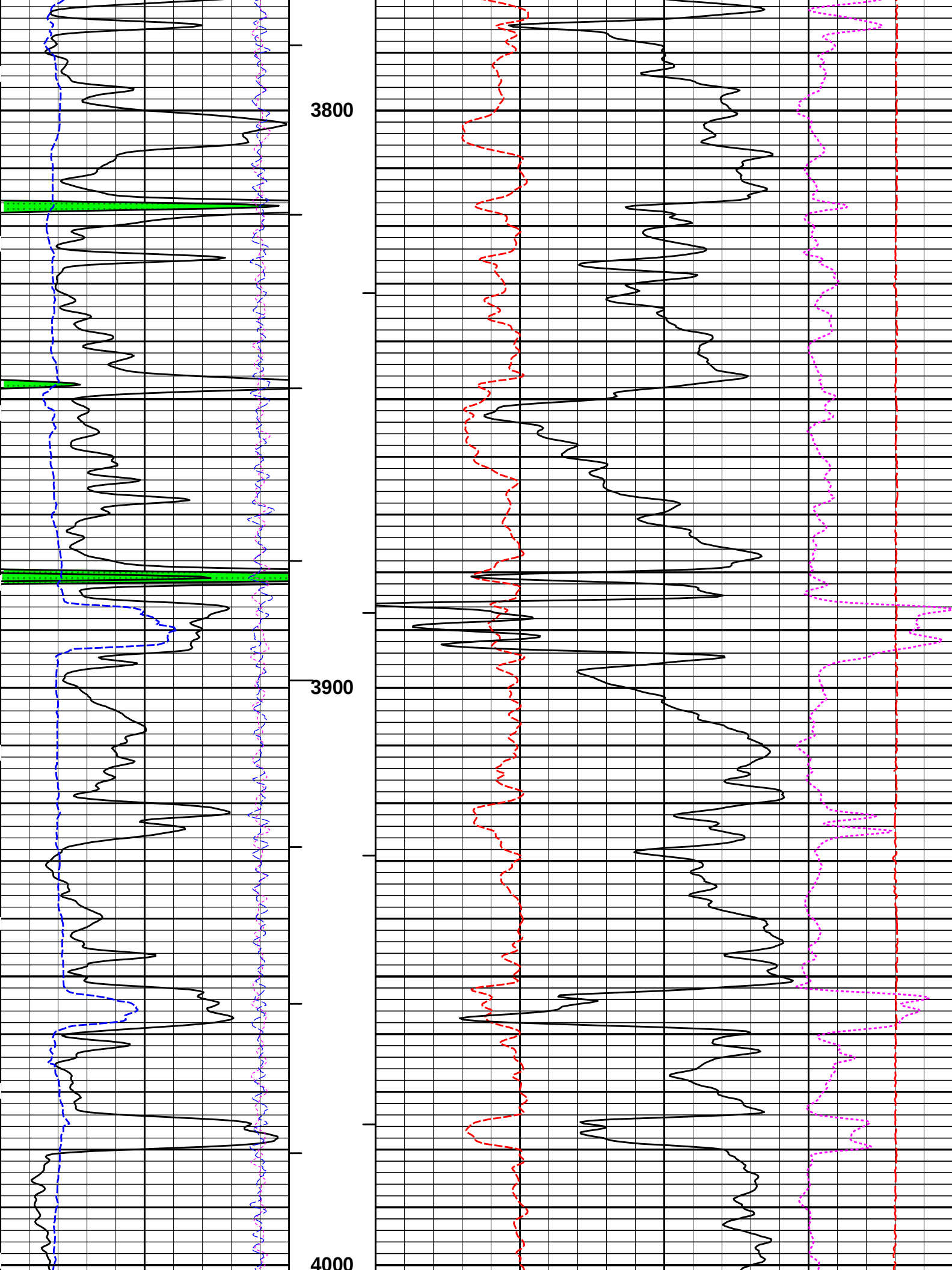
6	Caliper	16	MD	0	Pe	10	-0.25	DensityCorr	0.25
	inches		1 : 240					gram per cc	
0	Gamma API	150	AHVT			15K		Tension	0
	api							pounds	
	SHALE		BHVT	30	DensityPorosity				-10
					%				
				30	Neutron Porosity				-10
					%				
					CROSSOVER				

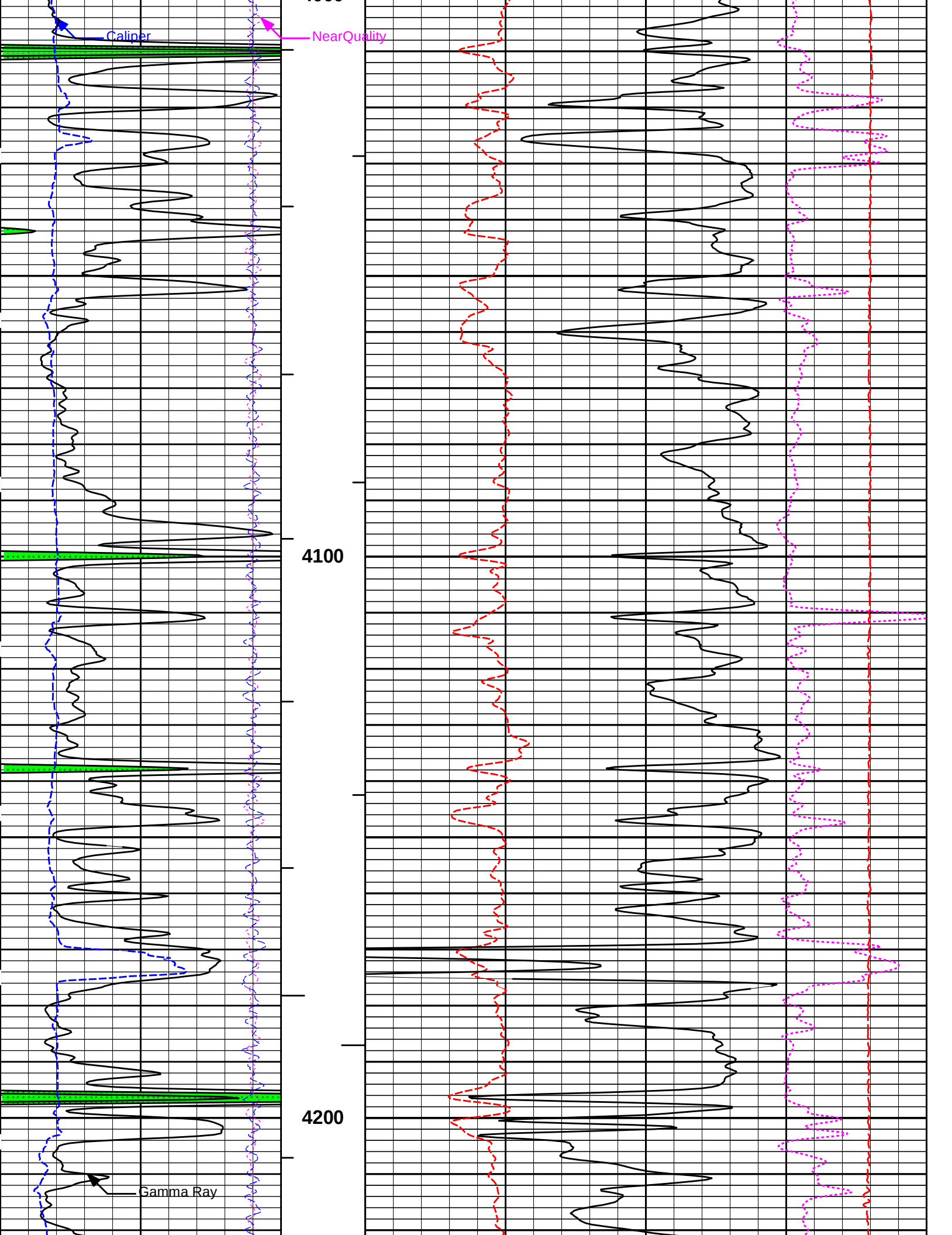
REPEAT SECTION

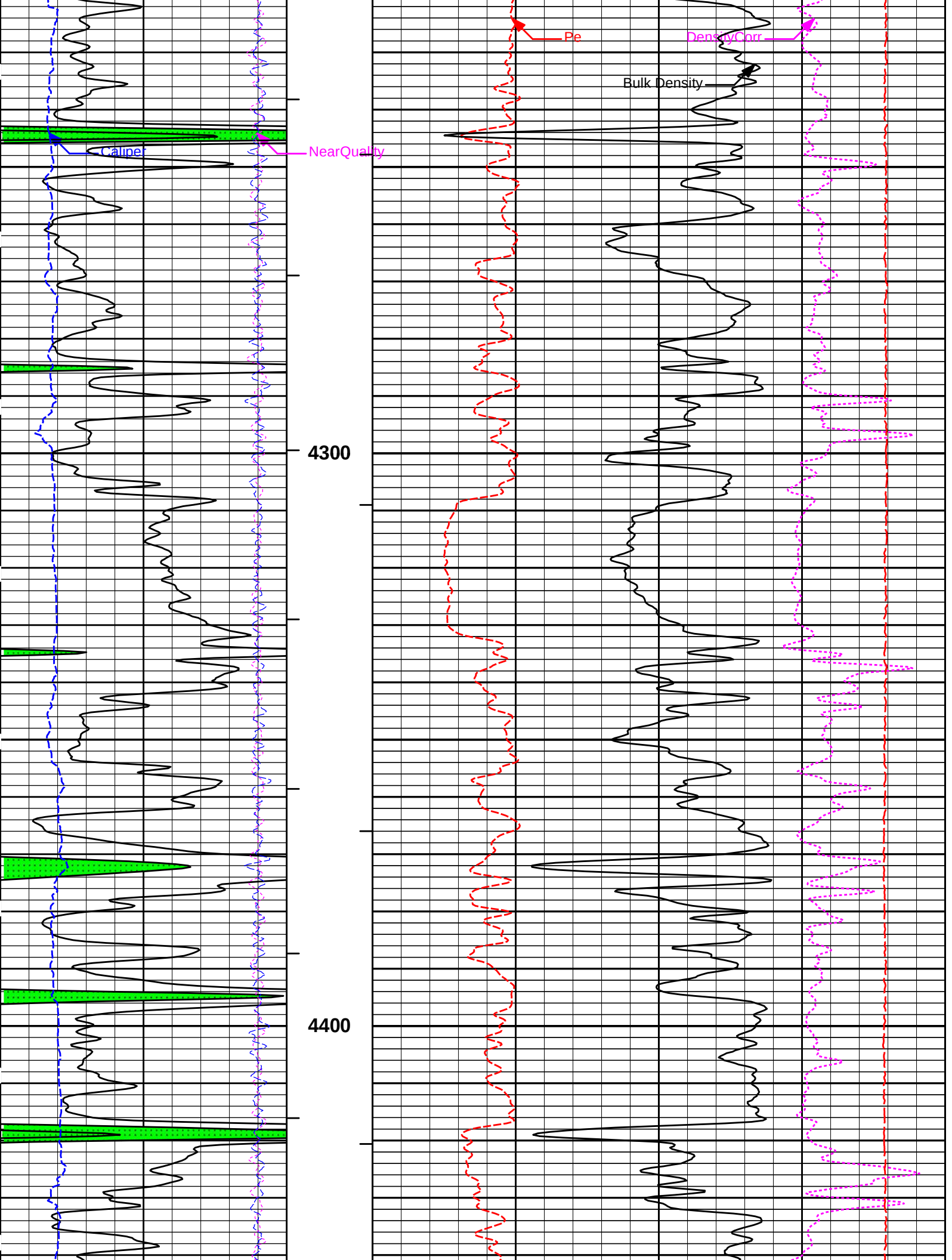
5 INCH MAIN LOG

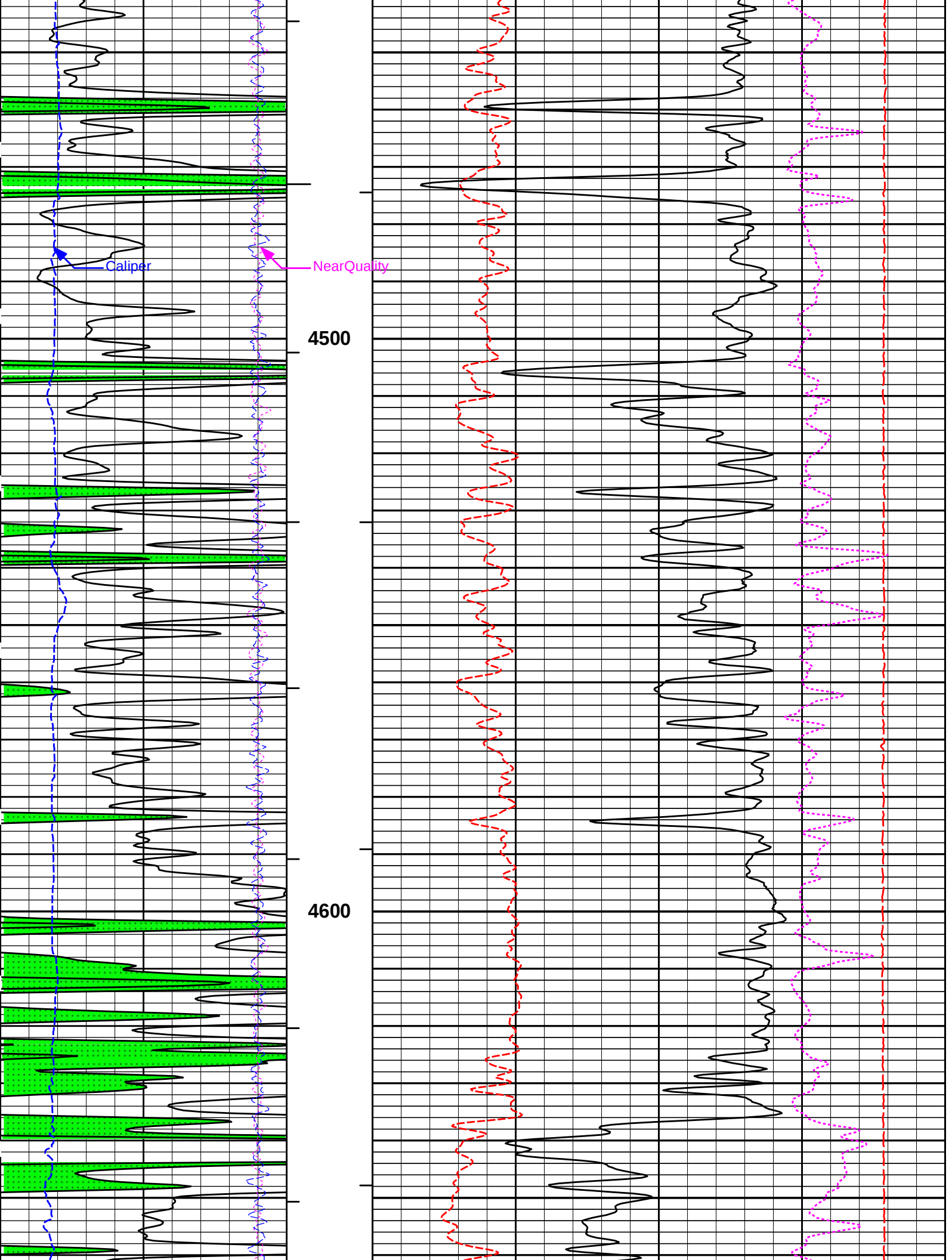
MEASURED DEPTH
MAIN SECTION 5" PER 100'



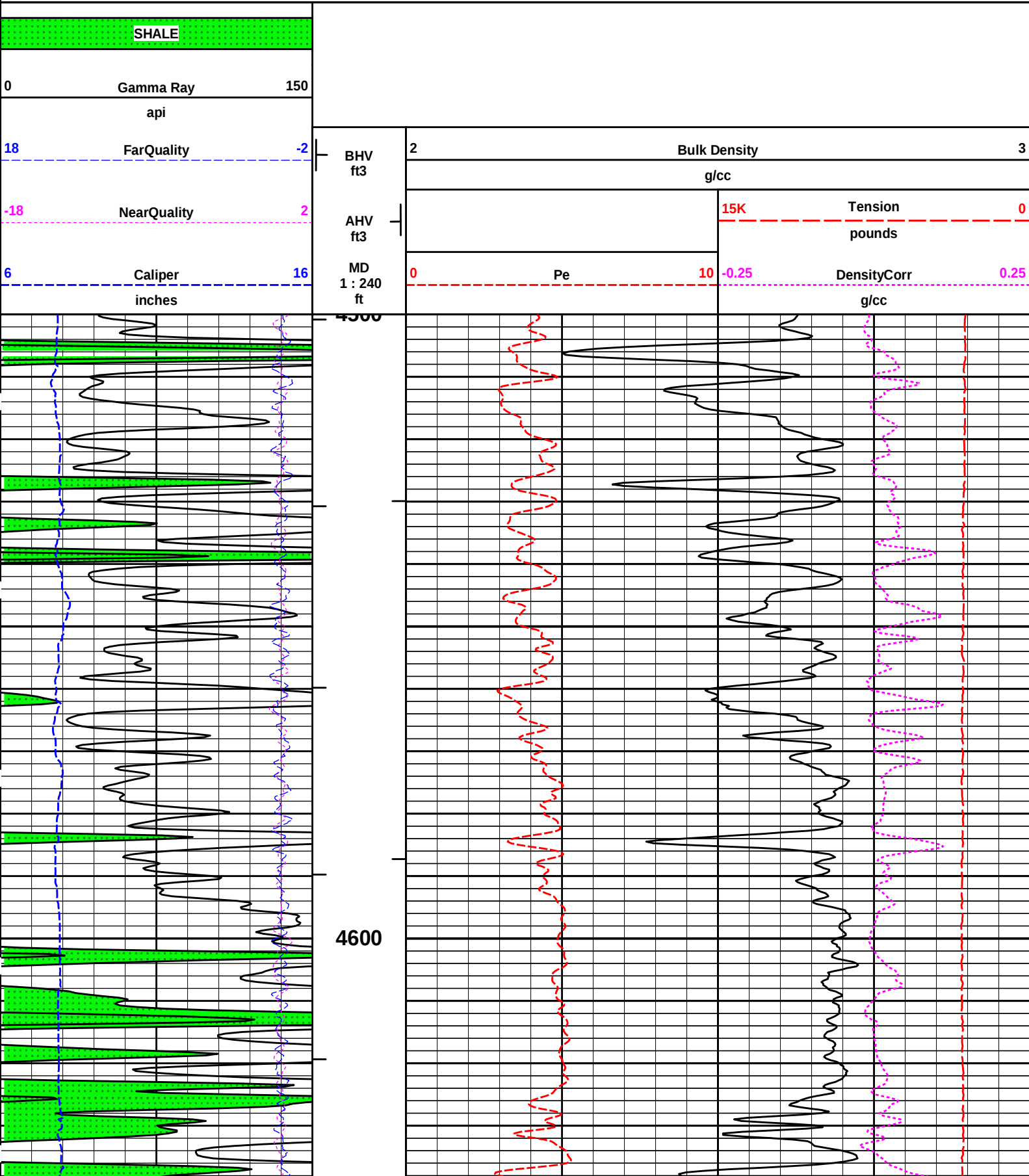


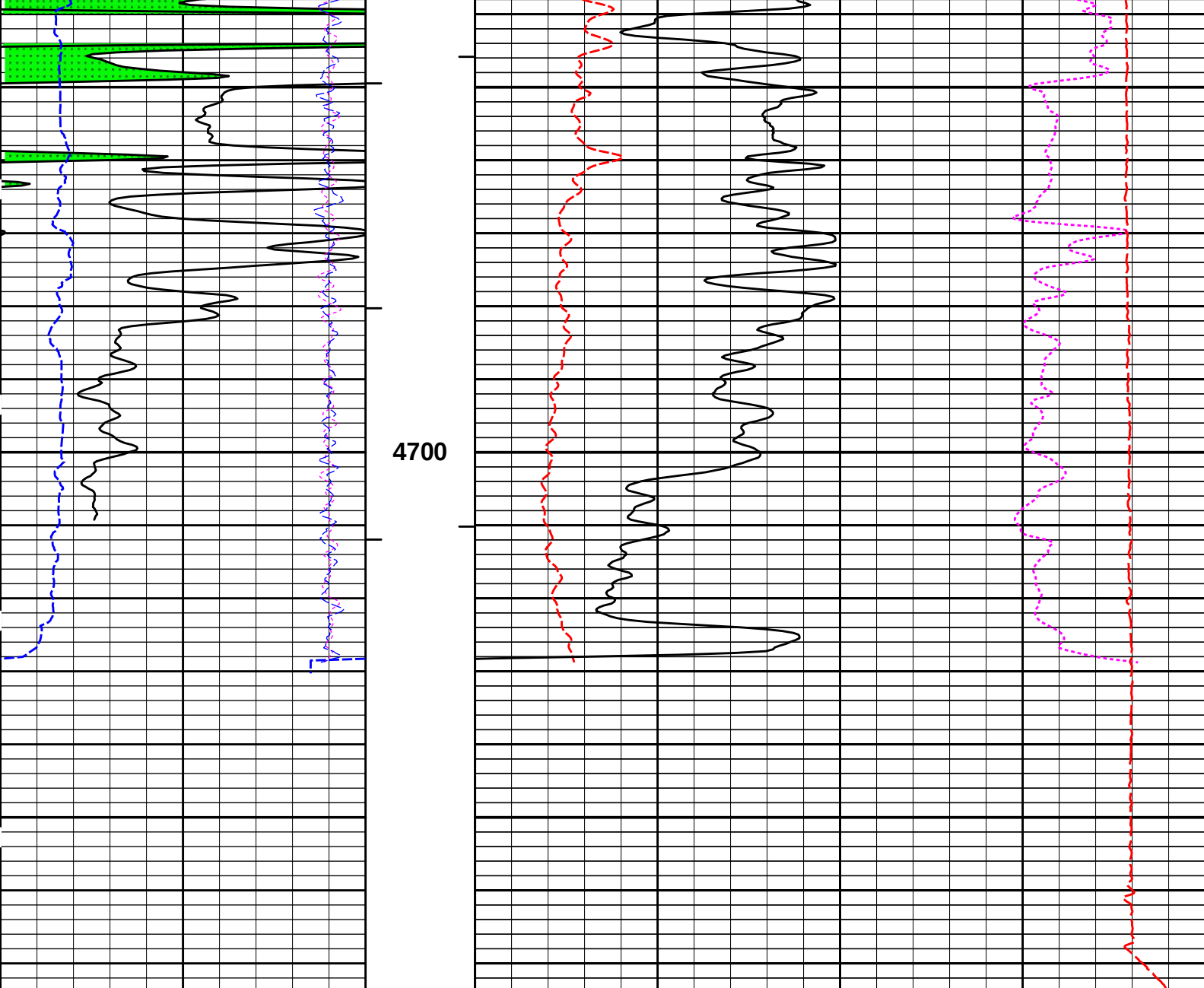






REPEAT SECTION

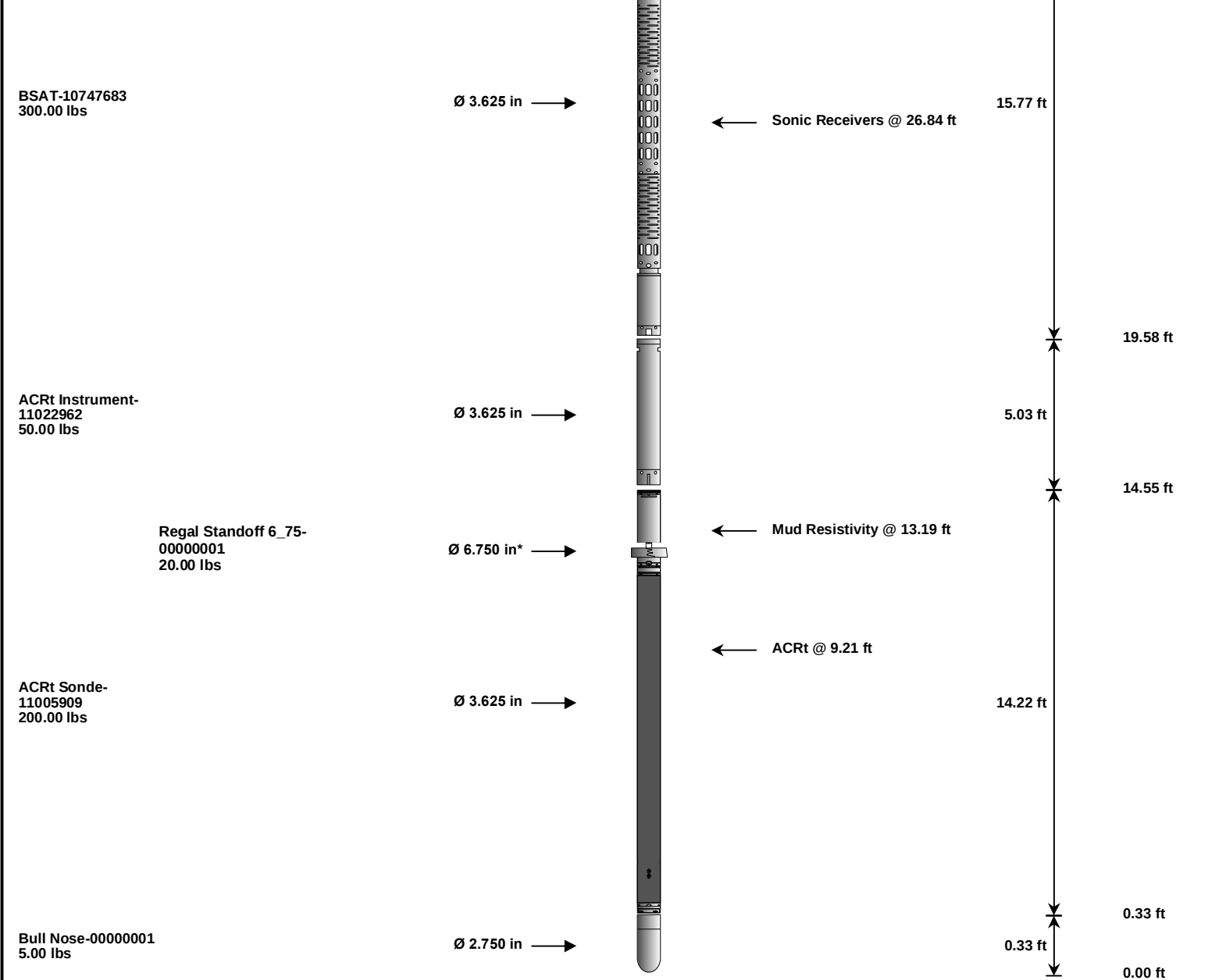




6 Caliper inches -18 NearQuality 18 FarQuality 0 Gamma Ray api SHALE	16	MD 1 : 240 ft AHV ft3 BHV ft3	0	Pe	10	-0.25	DensityCorr	0.25	
							g/cc		
					15K	Tension	0		pounds
	2		Bulk Density					3	
			g/cc						

TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
RWCH-12156658 135.00 lbs		Ø 3.625 in →		Load Cell @ 76.35 ft BH Temperature @ 75.79 ft	6.25 ft	80.04 ft
SP Sub-12345678 60.00 lbs		Ø 3.625 in →		SP @ 72.01 ft	3.74 ft	73.79 ft
GTET-11048627 165.00 lbs		Ø 3.625 in →		GammaRay @ 63.99 ft	8.52 ft	70.05 ft
DSNT-11055304 174.00 lbs		Ø 3.625 in →		DSN Far @ 54.59 ft DSN Near @ 53.84 ft	9.69 ft	61.53 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 @ 44.03 ft SDL Caliper @ 43.84 ft SDL @ 43.83 ft	10.81 ft	51.84 ft
IQ Flex-00000001 140.00 lbs		Ø 3.625 in →			5.67 ft	41.03 ft
						35.36 ft



Mnemonic		Tool Name	Serial Number	Weight (lbs)	Length (ft)	Accumulated Length (ft)	Max.Log. Speed (fpm)	
RWCH	Releasable Wireline Cable Head		12156658	135.00	6.25	73.79	300.00	
SP	SP Sub		12345678	60.00	3.74	70.05	300.00	
GTET	Gamma Telemetry Tool		11048627	165.00	8.52	61.53	60.00	
DSNT	Dual Spaced Neutron		11055304	174.00	9.69	51.84	60.00	
SDLT	Spectral Density Tool		11014296	360.00	10.81	41.03	60.00	
SDLP	Density Insite Pad		10865884	65.00	2.55	*	43.24	60.00
MICP	Microlog Pad		11014296	8.00	1.00	*	43.53	60.00
IQF	IQ Flex tool		00000001	140.00	5.67	35.36	300.00	
BSAT	Borehole Sonic Array Tool		10747683	300.00	15.77	19.58	60.00	
ACRt	Array Compensated True Resistivity Instrument Section		11022962	50.00	5.03	14.55	120.00	
ACRt	Array Compensated True Resistivity Sonde Section		11005909	200.00	14.22	0.33	120.00	
RSOF	Regal Standoff 6.75in		00000001	20.00	0.52	*	12.25	300.00
BLNS	Bull Nose		00000001	5.00	0.33	0.00	300.00	
Total				1,682.00	80.04			
* Not included in Total Length and Length Accumulation.								
Data: ROSE_4-110001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-BNI001 18-Aug-14 08:28 Dn @-6.3f						Date: 18-Aug-14 08:28:22		

CALIBRATION REPORT

NATURAL GAMMA RAY TOOL SHOP CALIBRATION

Tool Name:	GTET - 11048627	Reference Calibration Date:	09-Jul-14 10:31:38
Engineer:	SUHAIL BISHTI	Calibration Date:	07-Aug-14 21:30:09
Software Version:	WL INSITE R4.2.0 (Build 2)	Calibration Version:	1

Calibrator Source S/N: Error
 Calibrator API Reference:265.00 api
 Equivalent Calibrator API Reference:269.6 api

Measurement	Measured	Calibrated	Units
Background	53.0	53.5	api
Background + Calibrator	319.9	323.2	api
Calibrator	266.9	269.6	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION

Tool Name:	GTET - 11048627	Reference Calibration Date:	07-Aug-14 21:30:09
Engineer:	J. BOLLLOM	Calibration Date:	18-Aug-14 08:10:26
Software Version:	WL INSITE R4.2.0 (Build 2)	Calibration Version:	1

Calibrator Source S/N: Error
 Calibrator API Reference:265.00 api
 Equivalent Calibrator API Reference:269.6 api

Field Verification	Shop	Field	Units
Background	53.5	45.2	api
Background + Calibrator	323.2	313.9	api
Calibrator	269.6	268.7	api

Shop	Field	Difference	Tolerance
269.6	268.7	0.9	+/- 9.00

DUAL SPACED NEUTRON SHOP CALIBRATION

Tool Name:	DSNT - 11055304	Reference Calibration Date:	07-Aug-14 18:52:00
Engineer:	SUHAIL BISHTI	Calibration Date:	07-Aug-14 19:08:14
Software Version:	WL INSITE R4.2.0 (Build 2)	Calibration Version:	1

Logging Source S/N: DSN-424
 Tank Serial Number: LIBERAL WATER TANK
 Reference value assigned to Tank: 51.680
 Snow Block S/N: 10013313
 Calibration Tank Water Temperature: 85 degF
 Min. Tool Housing Outside Diameter: 3.625 in

CALIBRATION CONSTANTS			
Measurement	Prev. Value	New Value	Control Limit On New Value
Gain:	0.976	0.975	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):	0.2110	0.2110	0.0000	+/- 0.0020
Calibrated Ratio:	9.73	9.73	0.001	+/- 0.050

VERIFIER		
Measurement	Value	Control Limit

Snow-Block Porosity (decp): 0.0598 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 - 11055304 Reference Calibration Date: 07-Aug-14 19:08:14
Engineer: J. BOLLUM Calibration Date: 18-Aug-14 08:15:40
Software Version: WL INSITE R4.2.0 (Build 2) Calibration Version: 1

Logging Source S/N: DSN-424

Snow Block S/N: 10013313

NEUTRON FIELD-CHECK SUMMARY

	Shop	Field	Difference	Control Limit On Change
Snow-Block Porosity (decp):	0.0598	0.0472	-0.0126	+/- 0.0150

PASS/FAIL SUMMARY

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

DENSITY CALIPER SHOP CALIBRATION

Tool Name: SDLT - 11014296 Reference Calibration Date: 13-Aug-14 11:36:42
Engineer: J. BOLLUM Calibration Date: 13-Aug-14 11:40:55
Software Version: WL INSITE R4.2.0 (Build 2) Calibration Version: 1
Host Tool Name: DSNT - 11055304

CALIBRATION COEFFICIENTS

Measurement	Previous Value	New Value	Control Limit On New Value
Pad Offset	-3753.24	-3758.82	-7000.00 - -1000.00
Pad Gain	0.0003788	0.0003790	0.000200 - 0.000600
Arm Offset	-2802.84	-3106.76	-5000.00 - 3000.00
Arm Gain	0.0004763	0.0005035	0.000300 - 0.000700
Arm Power	-0.000002548	-0.000004280	-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)	3.75	3.75	0.00	+/- 0.20
RING DIAMETER:				
Small Ring (in)	6.55	6.50	-0.05	+/- 0.20
Medium Ring (in)	8.24	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																																																																																																																
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SDLT CALIPER FIELD CALIBRATION																																																																																																																
Tool Name:	SDLT - 11014296		Reference Calibration Date:	13-Aug-14 11:40:55																																																																																																												
Engineer:	J. BOLLLOM		Calibration Date:	18-Aug-14 08:13:18																																																																																																												
Software Version:	WL INSITE R4.2.0 (Build 2)		Calibration Version:	1																																																																																																												
MEASURED CALIPER VALUES <table><tr><th>Measurement</th><th>Shop</th><th>Field</th><th>Change</th><th>Control Limit On New Value</th></tr><tr><td>Pad Extension</td><td>3.75</td><td>3.80</td><td>0.05</td><td>+/- 0.10</td></tr><tr><td>Ring Diameter</td><td>8.25</td><td>8.16</td><td>-0.09</td><td>+/- 0.15</td></tr></table>					Measurement	Shop	Field	Change	Control Limit On New Value	Pad Extension	3.75	3.80	0.05	+/- 0.10	Ring Diameter	8.25	8.16	-0.09	+/- 0.15																																																																																													
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Tool Name:	SDLT Pad - 10865884		Reference Calibration Date:	07-Aug-14 20:23:10																																																																																																												
Engineer:	SUHAIL BISHTI		Calibration Date:	07-Aug-14 20:44:57																																																																																																												
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Logging Source S/N: 5168 GW																																																																																																																
Aluminum Block S/N: LIBERAL ALUMINUM		Density: 2.598g/cc	Pe: 3.170																																																																																																													
Magnesium Block S/N: LIBERAL MAGNESIUM		Density: 1.684g/cc	Pe: 2.598																																																																																																													
DENSITY CALIBRATION SUMMARY <table><tr><th>Measurement</th><th>Previous Value</th><th>New Value</th><th>Control Limit</th></tr><tr><td>Near Bar Gain</td><td>1.0535</td><td>1.0549</td><td>0.90 - 1.10</td></tr><tr><td>Near Dens Gain</td><td>1.0284</td><td>1.0243</td><td>0.90 - 1.10</td></tr><tr><td>Near Peak Gain</td><td>1.0322</td><td>1.0271</td><td>0.90 - 1.10</td></tr><tr><td>Near Lith Gain</td><td>0.9822</td><td>0.9843</td><td>0.90 - 1.10</td></tr><tr><td>Far Bar Gain</td><td>1.0160</td><td>1.0149</td><td>0.90 - 1.10</td></tr><tr><td>Far Dens Gain</td><td>1.0005</td><td>1.0031</td><td>0.90 - 1.10</td></tr><tr><td>Far Peak Gain</td><td>0.9956</td><td>0.9965</td><td>0.90 - 1.10</td></tr><tr><td>Far Lith Gain</td><td>0.9660</td><td>0.9658</td><td>0.90 - 1.10</td></tr><tr><td colspan="4"></td></tr><tr><td>Near Bar Offset</td><td>-0.2707</td><td>-0.2846</td><td>NONE</td></tr><tr><td>Near Dens Offset</td><td>-0.0575</td><td>-0.0224</td><td>NONE</td></tr><tr><td>Near Peak Offset</td><td>-0.1032</td><td>-0.0589</td><td>NONE</td></tr><tr><td>Near Lith Offset</td><td>0.2824</td><td>0.2659</td><td>NONE</td></tr><tr><td>Far Bar Offset</td><td>0.0354</td><td>0.0439</td><td>NONE</td></tr><tr><td>Far Dens Offset</td><td>0.1323</td><td>0.1075</td><td>NONE</td></tr><tr><td>Far Peak Offset</td><td>0.1222</td><td>0.1143</td><td>NONE</td></tr><tr><td>Far Lith Offset</td><td>0.2790</td><td>0.2788</td><td>NONE</td></tr><tr><td colspan="4"></td></tr><tr><td>Near Bar Background</td><td>800.12</td><td>795.72</td><td>700 - 1450</td></tr><tr><td>Near Dens Background</td><td>267.28</td><td>265.80</td><td>230 - 480</td></tr><tr><td>Near Peak Background</td><td>116.57</td><td>116.81</td><td>100 - 210</td></tr><tr><td>Near Lith Background</td><td>143.06</td><td>143.11</td><td>125 - 260</td></tr><tr><td>Far Bar Background</td><td>496.37</td><td>494.78</td><td>450 - 900</td></tr><tr><td>Far Dens Background</td><td>193.86</td><td>193.94</td><td>175 - 345</td></tr><tr><td>Far Peak Background</td><td>76.32</td><td>77.45</td><td>70 - 140</td></tr><tr><td>Far Lith Background</td><td>80.27</td><td>79.40</td><td>75 - 145</td></tr></table>					Measurement	Previous Value	New Value	Control Limit	Near Bar Gain	1.0535	1.0549	0.90 - 1.10	Near Dens Gain	1.0284	1.0243	0.90 - 1.10	Near Peak Gain	1.0322	1.0271	0.90 - 1.10	Near Lith Gain	0.9822	0.9843	0.90 - 1.10	Far Bar Gain	1.0160	1.0149	0.90 - 1.10	Far Dens Gain	1.0005	1.0031	0.90 - 1.10	Far Peak Gain	0.9956	0.9965	0.90 - 1.10	Far Lith Gain	0.9660	0.9658	0.90 - 1.10					Near Bar Offset	-0.2707	-0.2846	NONE	Near Dens Offset	-0.0575	-0.0224	NONE	Near Peak Offset	-0.1032	-0.0589	NONE	Near Lith Offset	0.2824	0.2659	NONE	Far Bar Offset	0.0354	0.0439	NONE	Far Dens Offset	0.1323	0.1075	NONE	Far Peak Offset	0.1222	0.1143	NONE	Far Lith Offset	0.2790	0.2788	NONE					Near Bar Background	800.12	795.72	700 - 1450	Near Dens Background	267.28	265.80	230 - 480	Near Peak Background	116.57	116.81	100 - 210	Near Lith Background	143.06	143.11	125 - 260	Far Bar Background	496.37	494.78	450 - 900	Far Dens Background	193.86	193.94	175 - 345	Far Peak Background	76.32	77.45	70 - 140	Far Lith Background	80.27	79.40	75 - 145
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CALIBRATION BLOCK SUMMARY				
Measurement	Current Reading (Previous Coef)	Calibrated (New Coef)	Change	Control Limit On Change
MAGNESIUM				
Density (g/cc)	1.683	1.683	-0.000	+/- 0.015
Pe	2.579	2.569	-0.010	+/- 0.150
ALUMINUM				
Density (g/cc)	2.596	2.597	0.002	+/- 0.01500
Pe	3.148	3.138	-0.010	+/- 0.150

TOOL SUMMARY				
Measurement	Near Detector		Far Detector	
	Value	Control Limits	Value	Control Limits
QUALITY				
Background	0.0004	+/- 0.0110	0.0001	+/- 0.0140
Magnesium Block	-0.0005	+/- 0.0110	-0.0003	+/- 0.0140
Aluminum Block	-0.0009	+/- 0.0110	0.0000	+/- 0.0140
Resolution	8.52	6.00 - 11.50	8.93	6.00 - 11.50
Internal Verifier(B+D+P+L)	1321	1200 - 2700	846	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 - 10865884	Reference Calibration Date:	07-Aug-14 20:44:57
Engineer:	J. BOLLUM	Calibration Date:	18-Aug-14 08:10:56
Software Version:	WL INSITE R4.2.0 (Build 2)	Calibration Version:	1

Pad Temperature: 75.2 degF

DENSITY FIELD CALIBRATION SUMMARY				
Measurement	Shop	Field	Change	Control Limit +/-
Near (B+D+P+L) cps	1321.442	1318.834	-2.608	14.709
Far (B+D+P+L) cps	845.568	845.293	-0.275	15.966
Near Resolution	8.52	8.52	0.000	0.50
Far Resolution	8.93	9.26	0.330	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-11048627						
Gamma Ray Calibrator	269.6	268.7	-----	0.9	+/- 9.00	api
DSNT-11055304						
Snow-Block Porosity	0.0598	0.0472	-----	0.0126	+/- 0.0150	decp
SDLT-11014296						
Pad Extension	3.75	3.80	-----	-0.05	+/-0.10	in
Ring Diameter	8.25	8.16	-----	0.09	+/-0.15	in
SDLT Pad-10865884						
Near(B+D+P+L)	1321.442	1318.834	-----	2.608	+/-14.709	cps
Far(B+D+P+L)	845.568	845.293	-----	0.275	+/-15.966	cps

Data: ROSE 4-110001 SP-GTET-DSN-SDI -FI EX-BSAT-ACRT-BN001 18-Aug-14 08:28 Dn @-6.3f Date: 18-Aug-14 08:29:38

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	9.400	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	4770.00	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	
	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	
	Rwa / CrossPlot	BHSM	Borehole Size Source Tool	SDLT	
	GTET	GROK	Process Gamma Ray?	Yes	
	GTET	GRSO	Gamma Tool Standoff	0.000	in
	GTET	GEOK	Process Gamma Ray EVR?	Yes	
	GTET	TPOS	Tool Position for Gamma Ray Tools.	Eccentered	
	GTET	BHSM	Borehole Size Source Tool	SDLT	

DSNT	DNOK	Process DSN?	Yes	
DSNT	DEOK	Process DSN EVR?	Yes	
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	
DSNT	BHSM	Borehole Size Source Tool	SDLT	
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
SDLT Pad	BHSM	Borehole Size Source Tool	SDLT	
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
ACRt Sonde	BHSM	Borehole Size Source Tool	SDLT	
BOTTOM				
Data: ROSE_4-1\0001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-BN\001 18-Aug-14 08:28 Dn @-6.3f				Date: 18-Aug-14 08:28:48

HALLIBURTON INPUTS, DELAYS AND FILTERS TABLE				
Mnemonic	Input Description	Delay (ft)	Filter Type	Filter Length (ft)
Depth Panel				
TENS	Tension	0.00	NO	
Rwa / CrossPlot				
TPUL	Tension Pull	80.04	NO	
BS	Bit Size	80.04	NO	
HDIA	Measured Hole Diameter	0.00	NO	

RWCH				
DHTN	DownholeTension	0.00	BLK	0.000
SP Sub				
PLTC	Plot Control Mask	72.01	NO	
SP	Spontaneous Potential	72.01	BLK	1.250
SPR	Raw Spontaneous Potential	72.01	NO	
SPO	Spontaneous Potential Offset	72.01	NO	
GTET				
TPUL	Tension Pull	63.99	NO	
GR	Natural Gamma Ray API	63.99	TRI	1.750
GRU	Unfiltered Natural Gamma Ray API	63.99	NO	
EGR	Natural Gamma Ray API with Enhanced Vertical Resolution	63.99	W	1.416 , 0.750
HDIA	Measured Hole Diameter	0.00	NO	
ACCZ	Accelerometer Z	0.00	BLK	0.083
DEVI	Inclination	0.00	NO	
DSNT				
TPUL	Tension Pull	53.74	NO	
RNDS	Near Detector Telemetry Counts	53.84	BLK	1.417
RFDS	Far Detector Telemetry Counts	54.59	TRI	0.583
DNTT	DSN Tool Temperature	53.84	NO	
DSNS	DSN Tool Status	53.74	NO	
ERND	Near Detector Telemetry Counts EVR	53.84	BLK	0.000
ERFD	Far Detector Telemetry Counts EVR	54.59	BLK	0.000
ENTM	DSN Tool Temperature EVR	53.84	NO	
HDIA	Measured Hole Diameter	0.00	NO	
SDLT				
TPUL	Tension Pull	43.84	NO	
PCAL	Pad Caliper	43.84	TRI	0.250
ACAL	Arm Caliper	43.84	TRI	0.250
BSAT				
TPUL	Tension Pull	26.84	NO	
STAT	Status	26.84	NO	
DLYT	Delay Time	26.84	NO	
SI	Sample Interval	26.84	NO	
TXRX	Raw Telemetry 10 Receivers	26.84	NO	
FRMC	Tool Frame Count	26.84	NO	
GMOD	Gain processing mode	19.58	NO	
ACRt Sonde				
TPUL	Tension Pull	2.73	NO	
F1R1	ACRT 12KHz - 80in R value	8.98	BLK	0.000
F1X1	ACRT 12KHz - 80in X value	8.98	BLK	0.000
F1R2	ACRT 12KHz - 50in R value	6.48	BLK	0.000
F1X2	ACRT 12KHz - 50in X value	6.48	BLK	0.000
F1R3	ACRT 12KHz - 29in R value	4.98	BLK	0.000
F1X3	ACRT 12KHz - 29in X value	4.98	BLK	0.000
F1R4	ACRT 12KHz - 17in R value	3.98	BLK	0.000
F1X4	ACRT 12KHz - 17in X value	3.98	BLK	0.000
F1R5	ACRT 12KHz - 10in R value	3.48	BLK	0.000
F1X5	ACRT 12KHz - 10in X value	3.48	BLK	0.000

F1R6	ACRT 12KHz - 6in R value	3.23	BLK	0.000
F1X6	ACRT 12KHz - 6in X value	3.23	BLK	0.000
F2R1	ACRT 36KHz - 80in R value	8.98	BLK	0.000
F2X1	ACRT 36KHz - 80in X value	8.98	BLK	0.000
F2R2	ACRT 36KHz - 50in R value	6.48	BLK	0.000
F2X2	ACRT 36KHz - 50in X value	6.48	BLK	0.000
F2R3	ACRT 36KHz - 29in R value	4.98	BLK	0.000
F2X3	ACRT 36KHz - 29in X value	4.98	BLK	0.000
F2R4	ACRT 36KHz - 17in R value	3.98	BLK	0.000
F2X4	ACRT 36KHz - 17in X value	3.98	BLK	0.000
F2R5	ACRT 36KHz - 10in R value	3.48	BLK	0.000
F2X5	ACRT 36KHz - 10in X value	3.48	BLK	0.000
F2R6	ACRT 36KHz - 6in R value	3.23	BLK	0.000
F2X6	ACRT 36KHz - 6in X value	3.23	BLK	0.000
F3R1	ACRT 72KHz - 80in R value	8.98	BLK	0.000
F3X1	ACRT 72KHz - 80in X value	8.98	BLK	0.000
F3R2	ACRT 72KHz - 50in R value	6.48	BLK	0.000
F3X2	ACRT 72KHz - 50in X value	6.48	BLK	0.000
F3R3	ACRT 72KHz - 29in R value	4.98	BLK	0.000
F3X3	ACRT 72KHz - 29in X value	4.98	BLK	0.000
F3R4	ACRT 72KHz - 17in R value	3.98	BLK	0.000
F3X4	ACRT 72KHz - 17in X value	3.98	BLK	0.000
F3R5	ACRT 72KHz - 10in R value	3.48	BLK	0.000
F3X5	ACRT 72KHz - 10in X value	3.48	BLK	0.000
F3R6	ACRT 72KHz - 6in R value	3.23	BLK	0.000
F3X6	ACRT 72KHz - 6in X value	3.23	BLK	0.000
RMUD	Mud Resistivity	12.52	BLK	0.000
F1RT	Transmitter Reference 12 KHz Real Signal	2.73	BLK	0.000
F1XT	Transmitter Reference 12 KHz Imaginary Signal	2.73	BLK	0.000
F2RT	Transmitter Reference 36 KHz Real Signal	2.73	BLK	0.000
F2XT	Transmitter Reference 36 KHz Imaginary Signal	2.73	BLK	0.000
F3RT	Transmitter Reference 72 KHz Real Signal	2.73	BLK	0.000
F3XT	Transmitter Reference 72 KHz Imaginary Signal	2.73	BLK	0.000
TFPU	Upper Feedpipe Temperature Calculated	2.73	BLK	0.000
TFPL	Lower Feedpipe Temperature Calculated	2.73	BLK	0.000
ITMP	Instrument Temperature	2.73	BLK	0.000
TCVA	Temperature Correction Values Loop Off	2.73	NO	
TIDV	Instrument Temperature Derivative	2.73	NO	
TUDV	Upper Temperature Derivative	2.73	NO	
TLDV	Lower Temperature Derivative	2.73	NO	
TRBD	Receiver Board Temperature	2.73	NO	
HDIA	Measured Hole Diameter	0.00	NO	
SDLT Pad				
TPUL	Tension Pull	43.83	NO	
NAB	Near Above	43.66	BLK	0.920
NHI	Near Cesium High	43.66	BLK	0.920
NLO	Near Cesium Low	43.66	BLK	0.920
NVA	Near Valley	43.66	BLK	0.920
NBA	Near Barite	43.66	BLK	0.920
NDE	Near Density	43.66	BLK	0.920
NPK	Near Peak	43.66	BLK	0.920
NLI	Near Lithology	43.66	BLK	0.920
NBAU	Near Barite Unfiltered	43.66	BLK	0.250
NLIU	Near Lithology Unfiltered	43.66	BLK	0.250
FAB	Far Above	44.94	BLK	0.250

FAB	Far Above	44.01	BLK	0.250
FHI	Far Cesium High	44.01	BLK	0.250
FLO	Far Cesium Low	44.01	BLK	0.250
FVA	Far Valley	44.01	BLK	0.250
FBA	Far Barite	44.01	BLK	0.250
FDE	Far Density	44.01	BLK	0.250
FPK	Far Peak	44.01	BLK	0.250
FLI	Far Lithology	44.01	BLK	0.250
PTMP	Pad Temperature	43.84	BLK	0.920
NHV	Near Detector High Voltage	43.24	NO	
FHV	Far Detector High Voltage	43.24	NO	
ITMP	Instrument Temperature	43.24	NO	
DDHV	Detector High Voltage	43.24	NO	
HDIA	Measured Hole Diameter	0.00	NO	

Microlog Pad

TPUL	Tension Pull	44.03	NO	
MINV	Microlog Lateral	44.03	BLK	0.750
MNOR	Microlog Normal	44.03	BLK	0.750

Data: ROSE_4-1\0001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-BN\001 18-Aug-14 08:28 Dn @-6.3f

Date: 18-Aug-14 08:28:55

HALLIBURTON

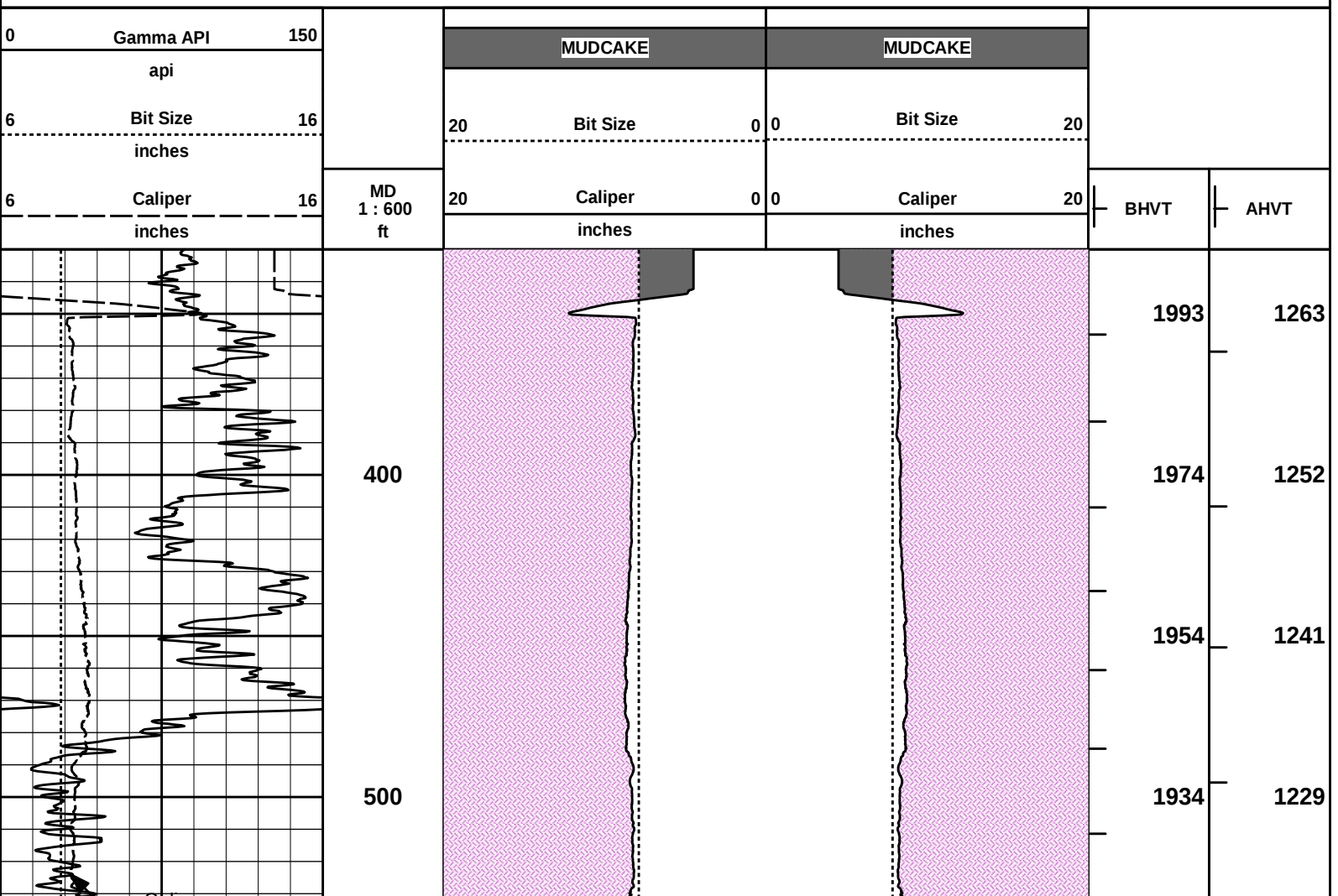
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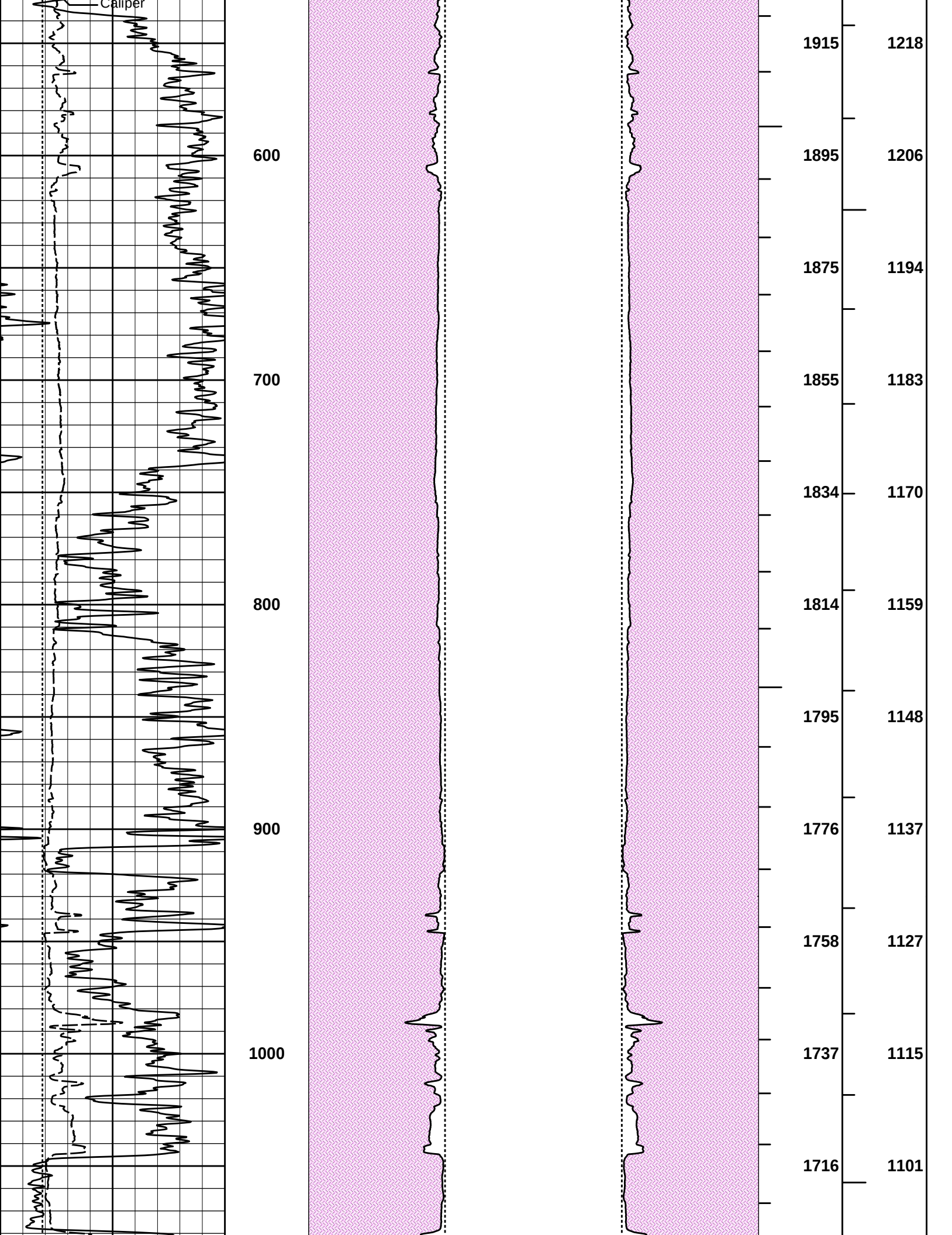
Plot Range: 330 ft to 4774.5 ft

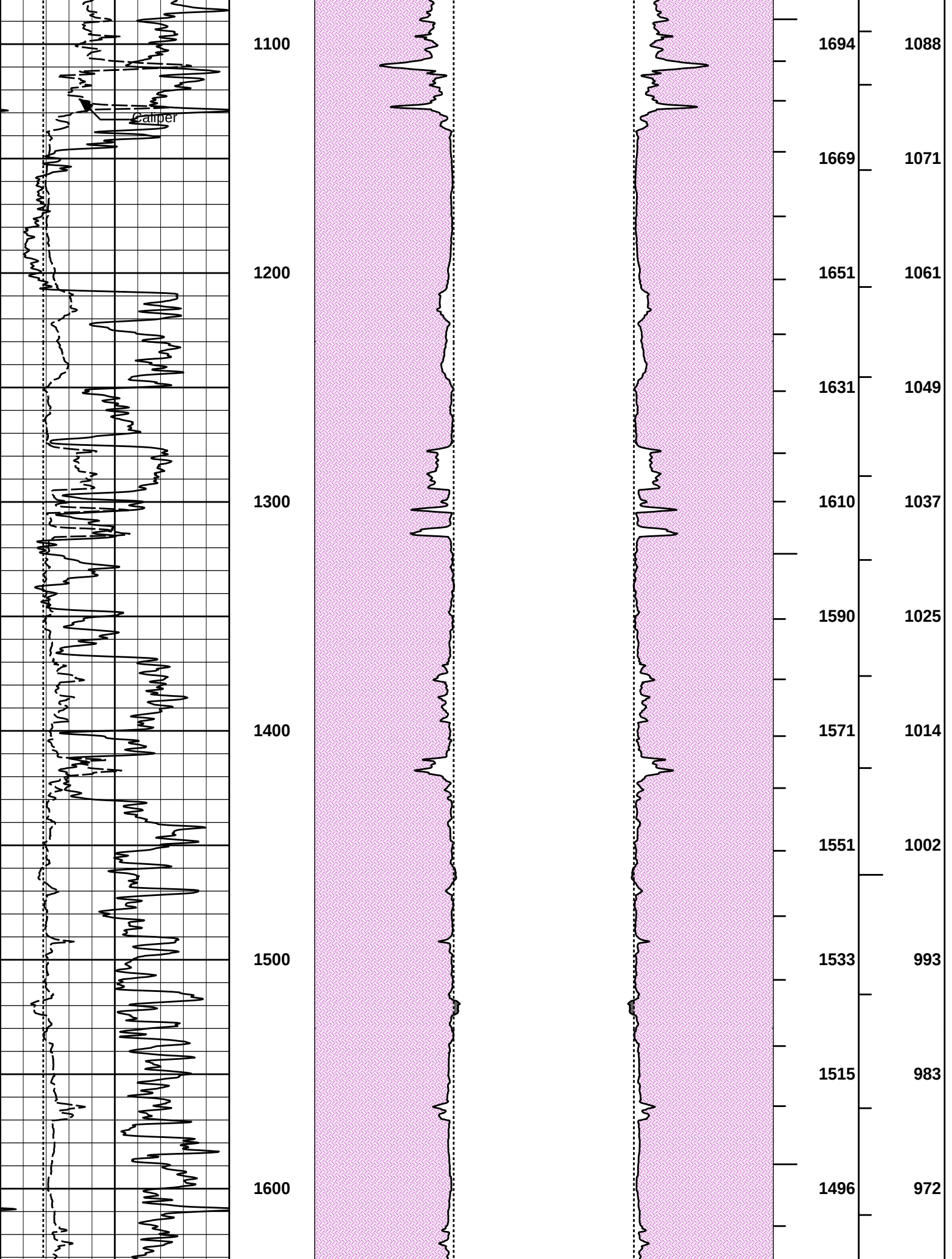
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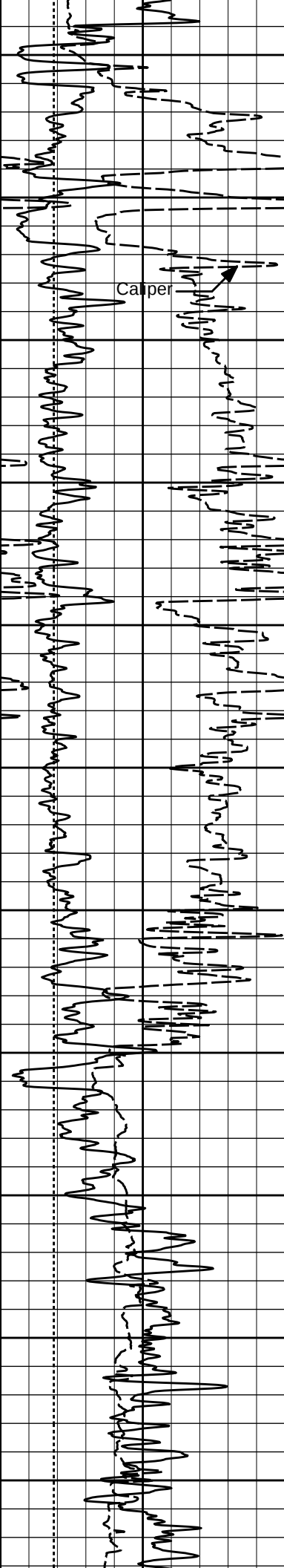
Plot File: \\LOCAL-1\ROSE_4-1\0001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-BN\PORO\AHV_2_IQ_LIB

ANNULAR HOLE VOLUME PLOT









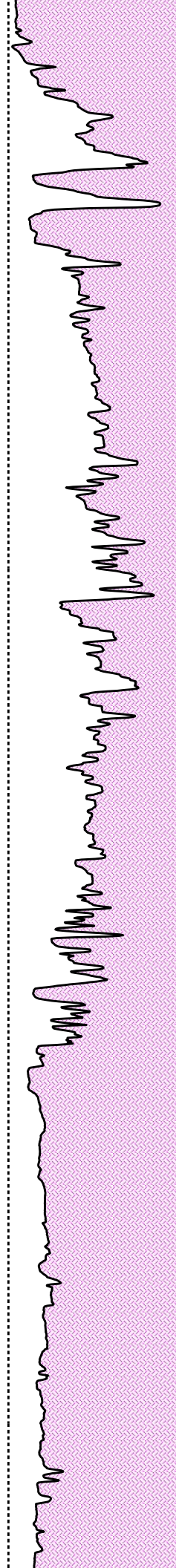
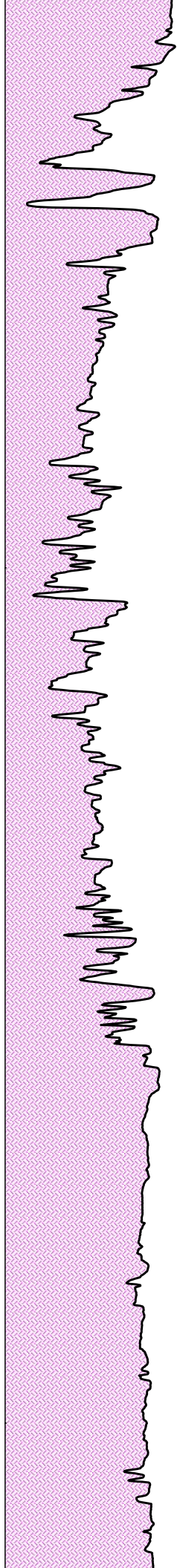
1700

1800

1900

2000

2100



1477

961

1434

927

1390

891

1335

844

1277

794

1220

745

1169

703

1128

670

1101

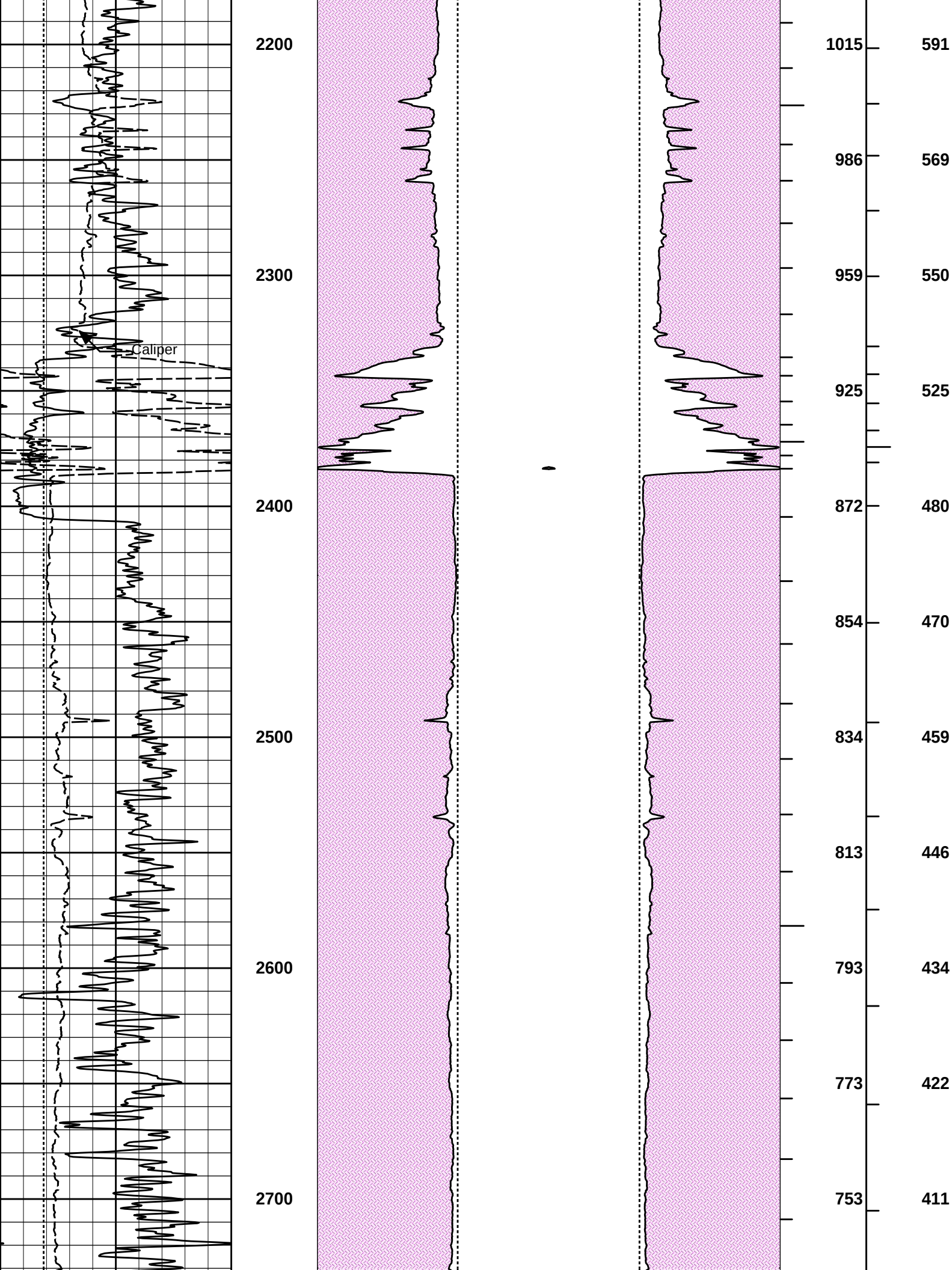
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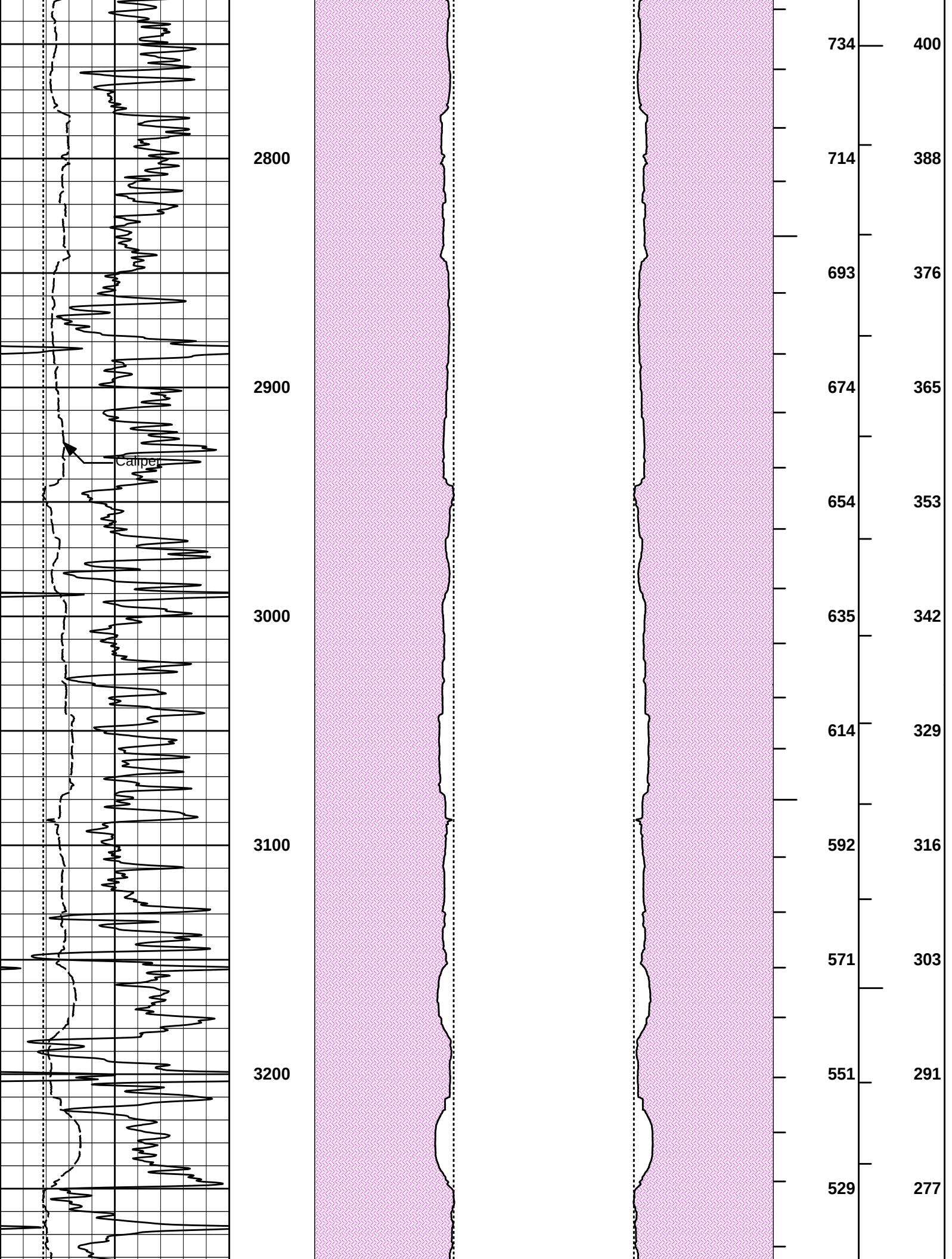
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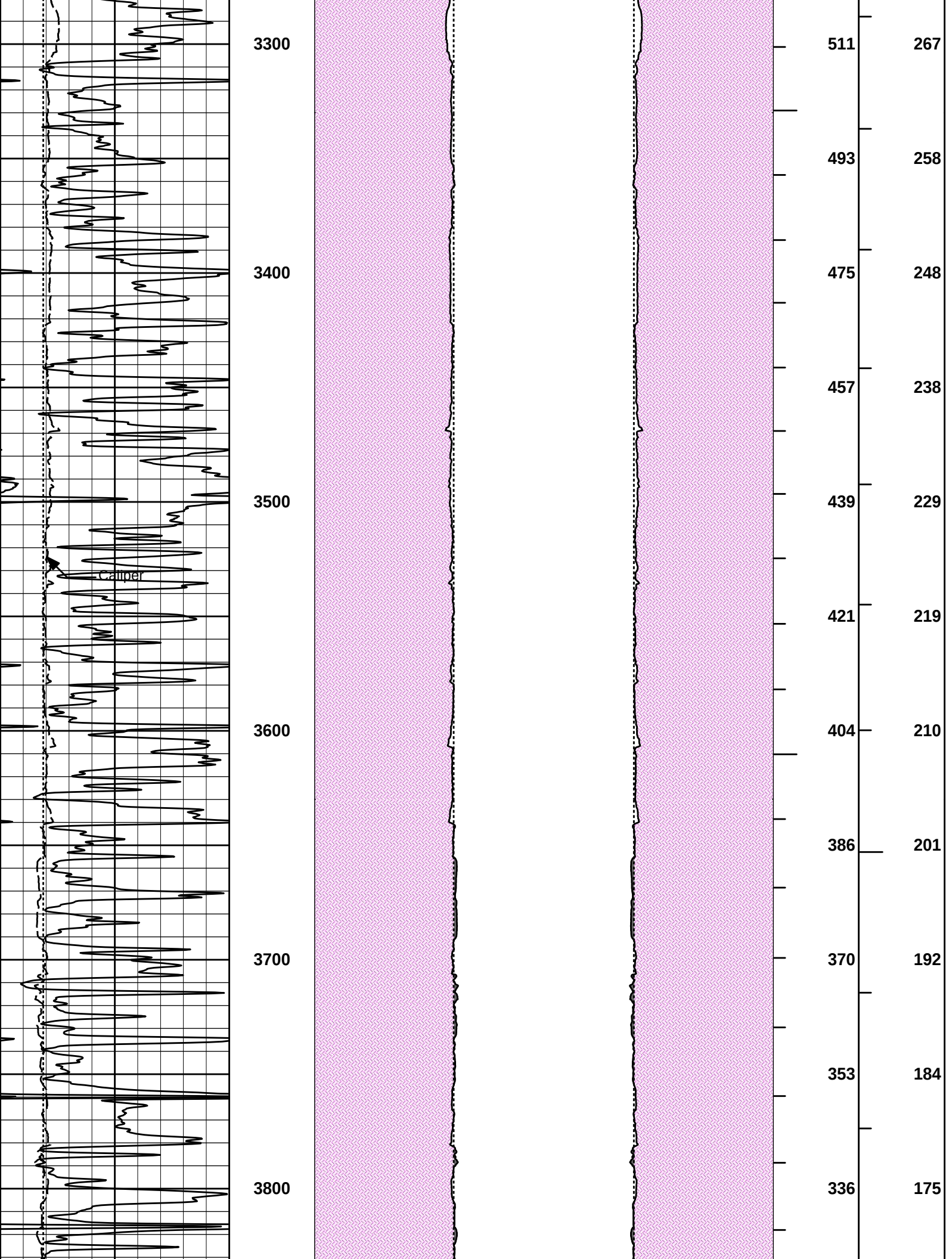
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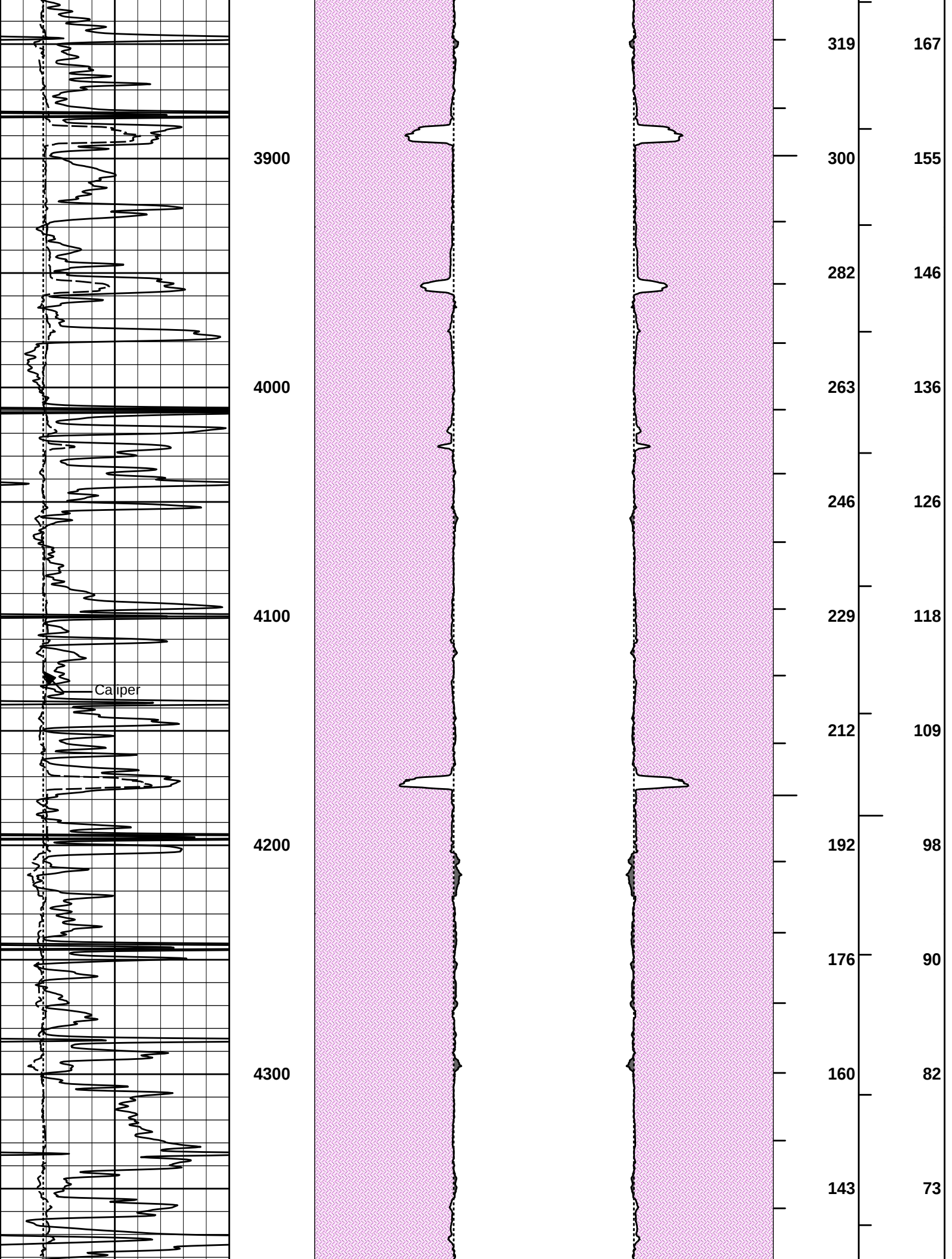
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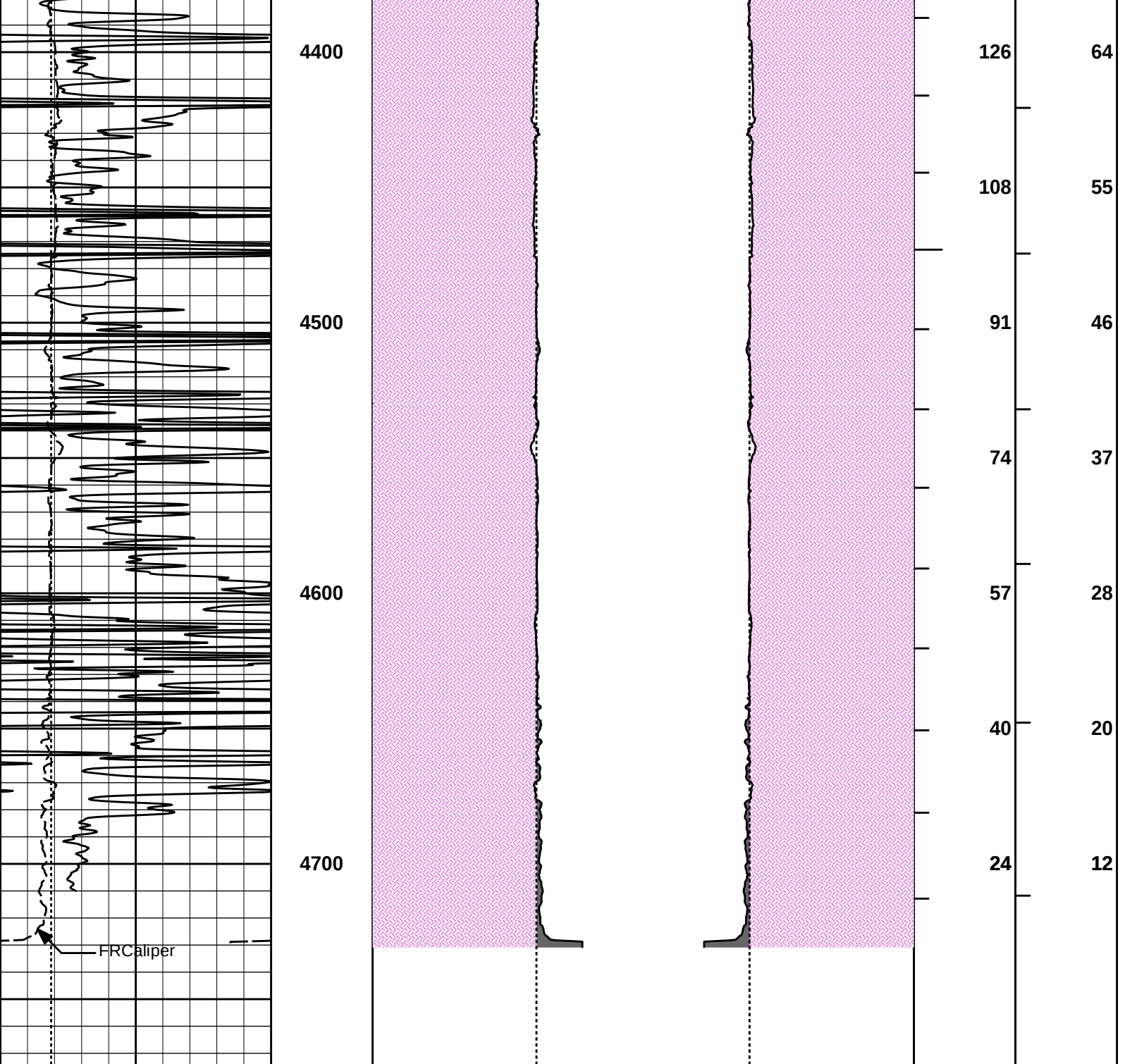
609











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

COMPANY	HARTMAN OIL CO., INC.		
WELL	ROSE 4-1		
FIELD	AMERICAN BEAUTY		
COUNTY	WICHITA	STATE	KANSAS

HALLIBURTON

SPECTRAL DENSITY
DUAL SPACED NEUTRON
LOG