HALLIBURTON

DUAL SPACED NEUTRON SPECTRAL DENSITY LOG

COMPANY	SANDRIDGE ENERGY
WELL	LAMBERT 3014 1-34
FIELD/BLOCK	SKINNER
COUNTY	BARBER
STATE	KANSAS

COMPANY SANDRIDGE ENERGY
WELL LAMBERT 3014 1-34
FIELD/BLOCK SKINNER
COUNTY BARBER STATE KANSAS

API No. 15007241190000
Location S2-S2-S2-SE
165' FSL 1320' FEL

Other Services:
ACRT
DSNT/SDLT
MICRO
MRIL

Sect. 34 Twp. 30S Rge. 14W

Permanent Datum	GL	Elev. 1735.0 ft	Elev.: K.B. 1751.2 ft
Log measured from	KB	16.2 ft above perm. Datum	D.F. 1749.2 ft
Drilling measured from	KB		G.L. 1735.0 ft

Date	19-Jan-14		
Run No.	ONE		
Depth - Driller	4638.00 ft		
Depth - Logger	4628.0 ft		
Bottom - Logged Interval	4605.0 ft		
Top - Logged Interval	1033.0 ft		
Casing - Driller	9.625 in @ 1033.0 ft	@	@
Casing - Logger	1033.0 ft		
Bit Size	8.750 in	@	@
Type Fluid in Hole	WATER BASED		
Density / Viscosity	9.2 ppg / 48.00 s/qt		
PH / Fluid Loss	11.00 pH / 4.4 cptm		
Source of Sample	MUD PIT		
Rm @ Meas. Temperature	0.420 ohmm @ 87.00 degF	@	@
Rmf @ Meas. Temperature	0.36 ohmm @ 87.00 degF	@	@
Rmc @ Meas. Temperature	0.480 ohmm @ 87.00 degF	@	@
Source Rmf / Rmc	MEASURED / MEASURED		
Rm @ BHT	0.33 ohmm @ 112.0 degF	@	@
Time Since Circulation	6.0 hr		
Time on Bottom	19-Jan-14 17:11		
Max. Rec. Temperature	112.0 degF @ 4628.0 ft	@	@
Equipment / Location	11230668 / LIBERAL		
Recorded By	THOMAS HYDE		
Witnessed By	S. MORRISON	T. BOARDMAN	

Fold here

Service Ticket No.: 901047413 API Serial No.: 15007241190000 PGM Version: WL INSITE R3.8.4 (Build 5)

CHANGE IN MUD TYPE OR ADDITIONAL SAMPLE					
Date	Sample No.				
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 SCALE CHANGES			
Type Log	Depth	Scale Up Hole	Scale Down Hole

RESISTIVITY EQUIPMENT DATA				
Run No.	Tool Type & No.	Pad Type	Tool Pos.	Other

EQUIPMENT DATA

GAMMA		ACOUSTIC		DENSITY		NEUTRON	
Run No.	ONE	Run No.		Run No.	ONE	Run No.	ONE
Serial No.	11039640	Serial No.		Serial No.	10673803	Serial No.	10735145
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	18'	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	4628	1033	REC	0	150				30	-10	2.71	30	-10	LIME

DIRECTIONAL INFORMATION

Maximum Deviation @	KOP @

Remarks: CHLORIDES REPORTED AT 4200 MG/L

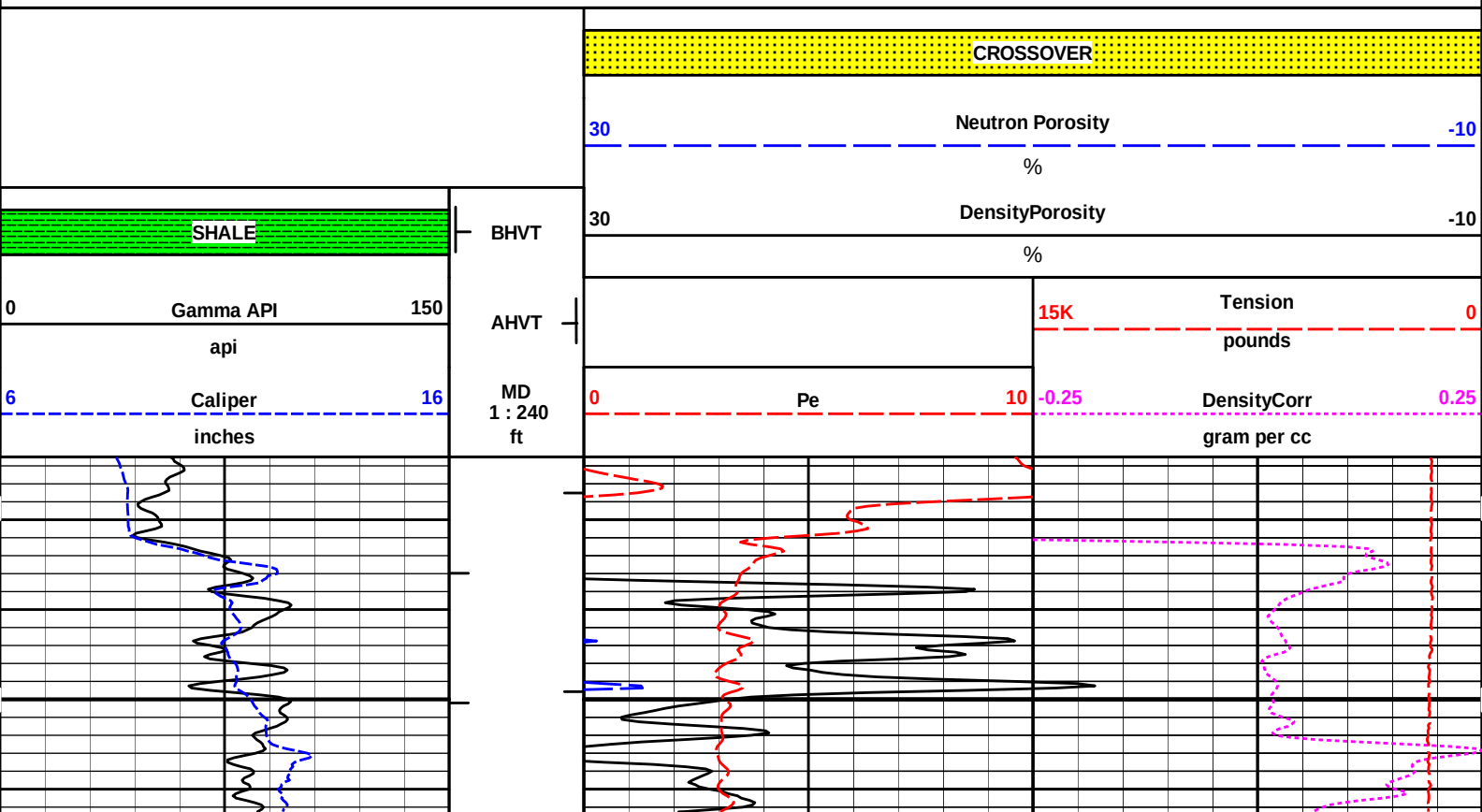
TODAY'S CREW K. KING D. MILLER

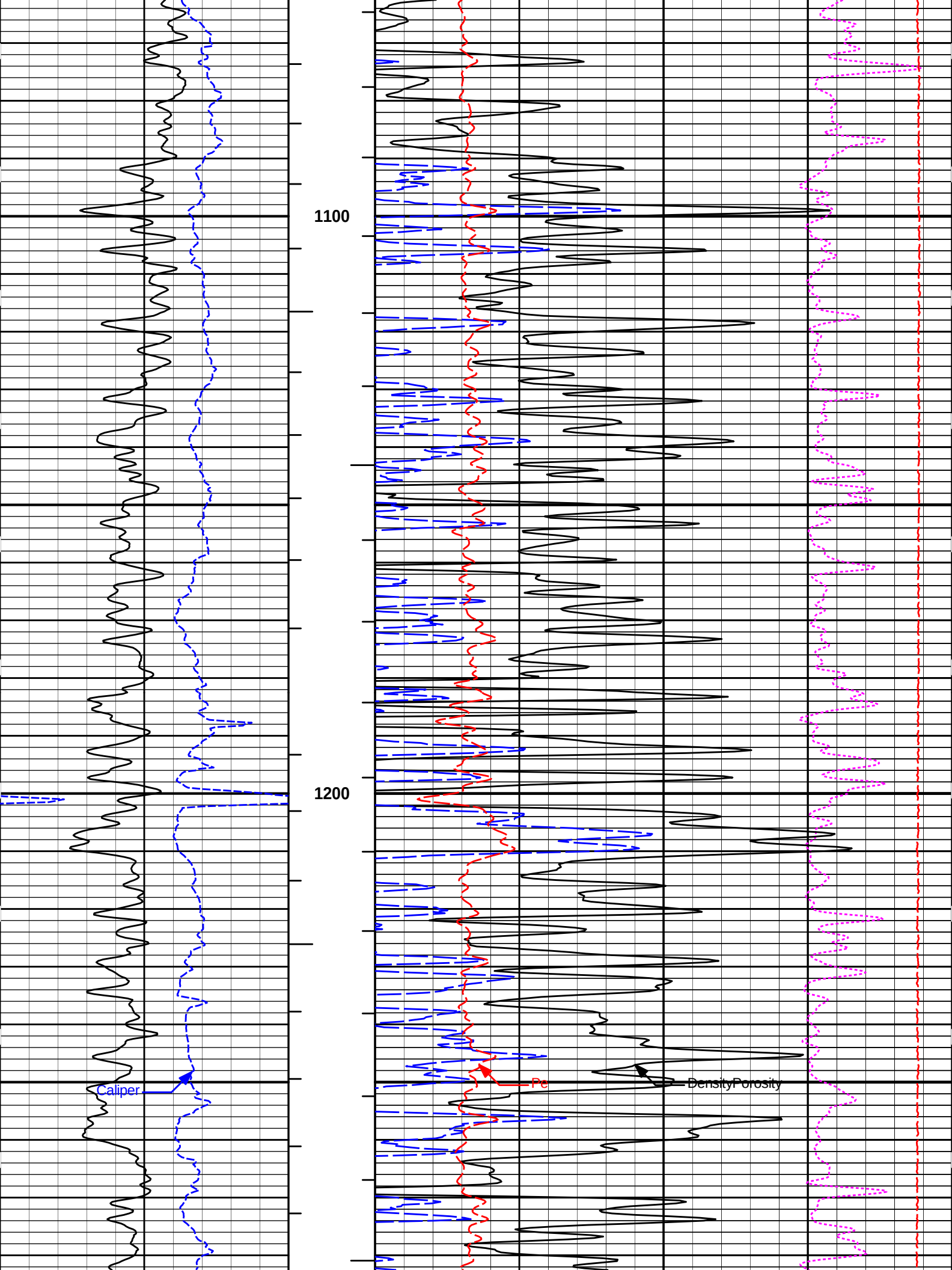
THANK YOU FOR CHOOSING HALLIBURTON ENERGY SERVICES LIBERAL, KANSAS 620-624-8123

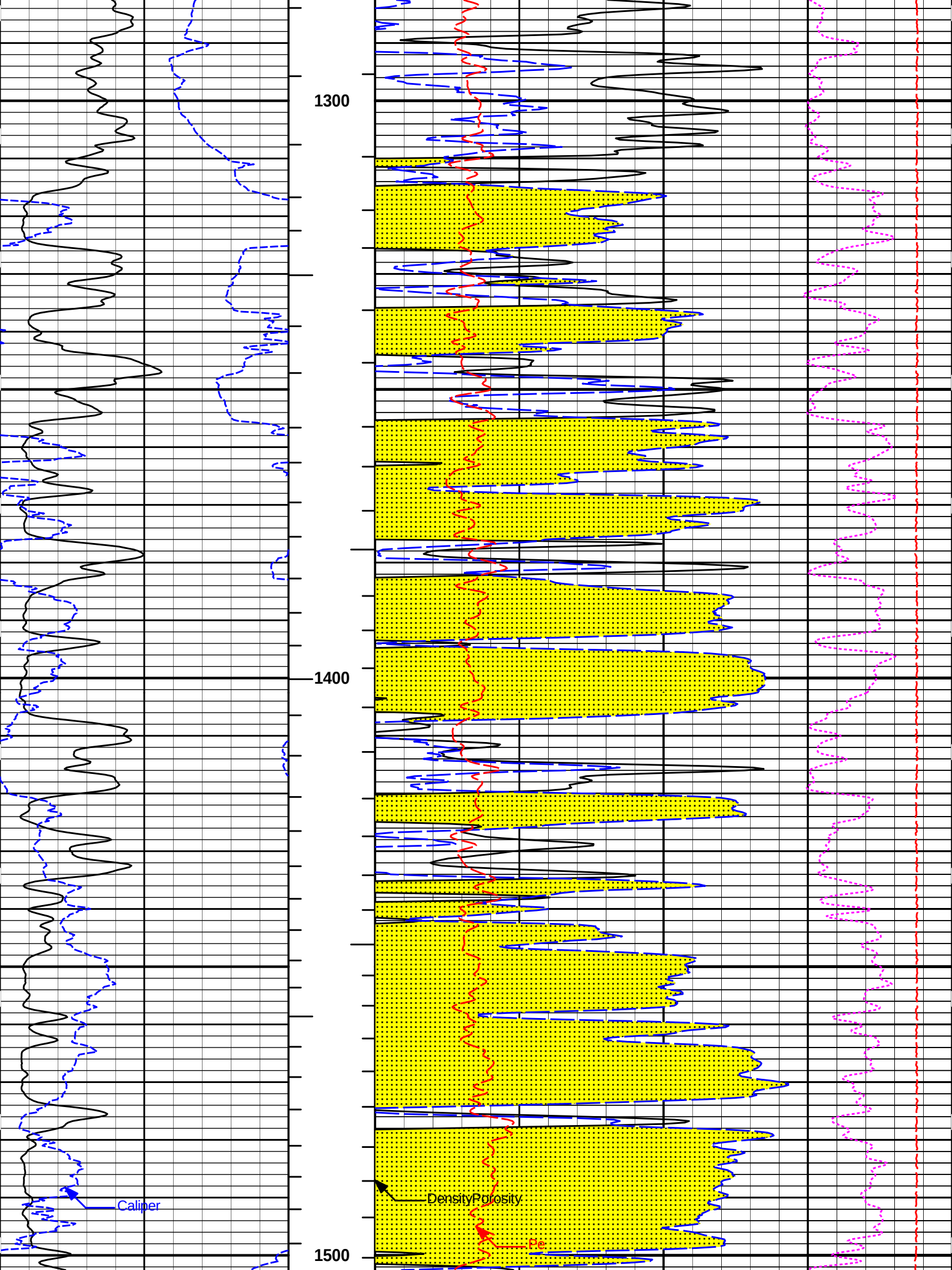
HALLIBURTON

Plot Time: 19-Jan-14 20:08:56
Plot Range: 1023 ft to 4630.92 ft
Data: LAMBERT 3014\Well Based\DAQ-0001-005
Plot File: \\PORO\Poro_IQ_5_MAIN_LIB

5 INCH MAIN LOG




1100
1200
Caliper
Pe
DensityPorosity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1400
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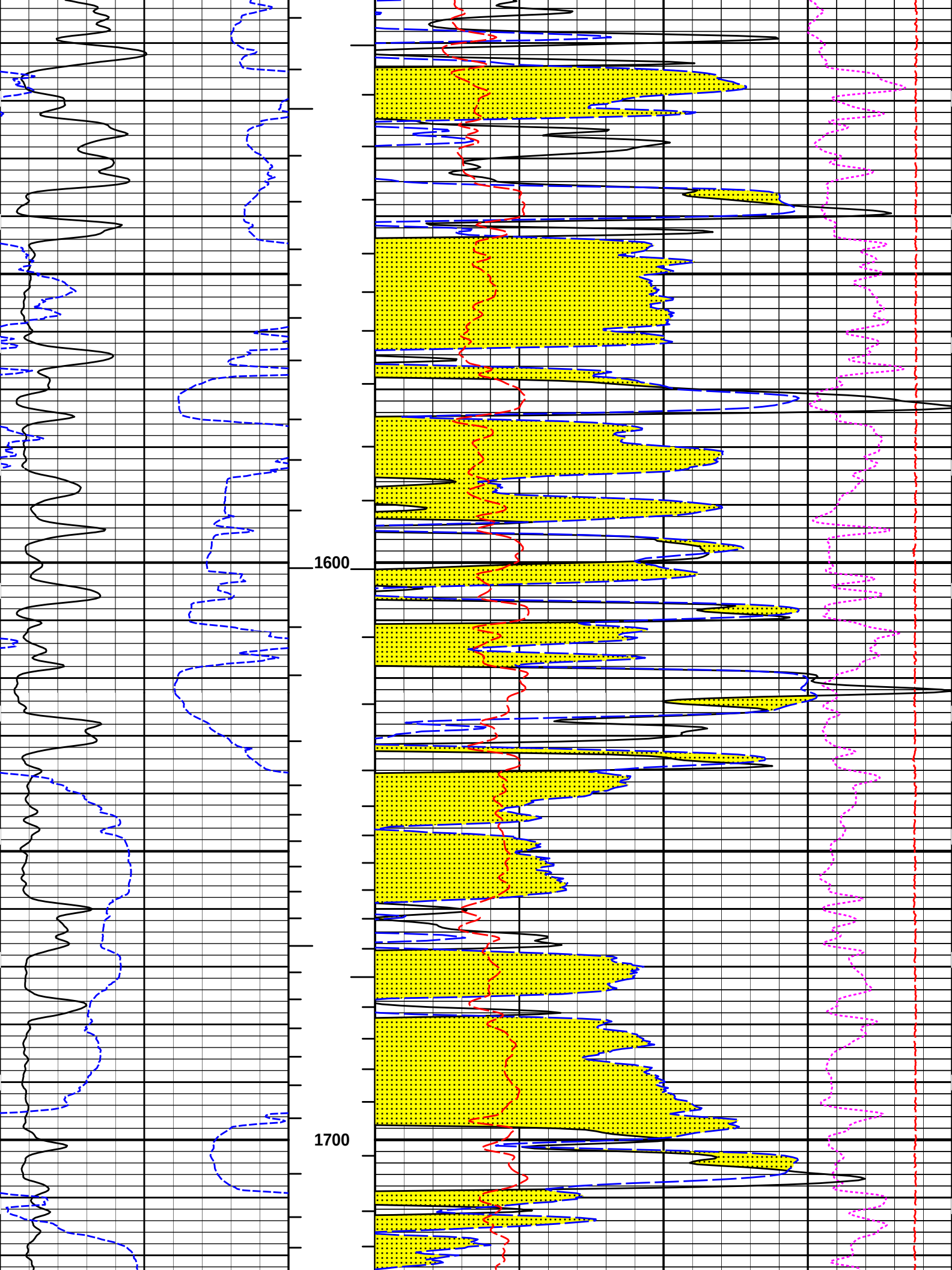
Caliper
DensityPorosity
Pe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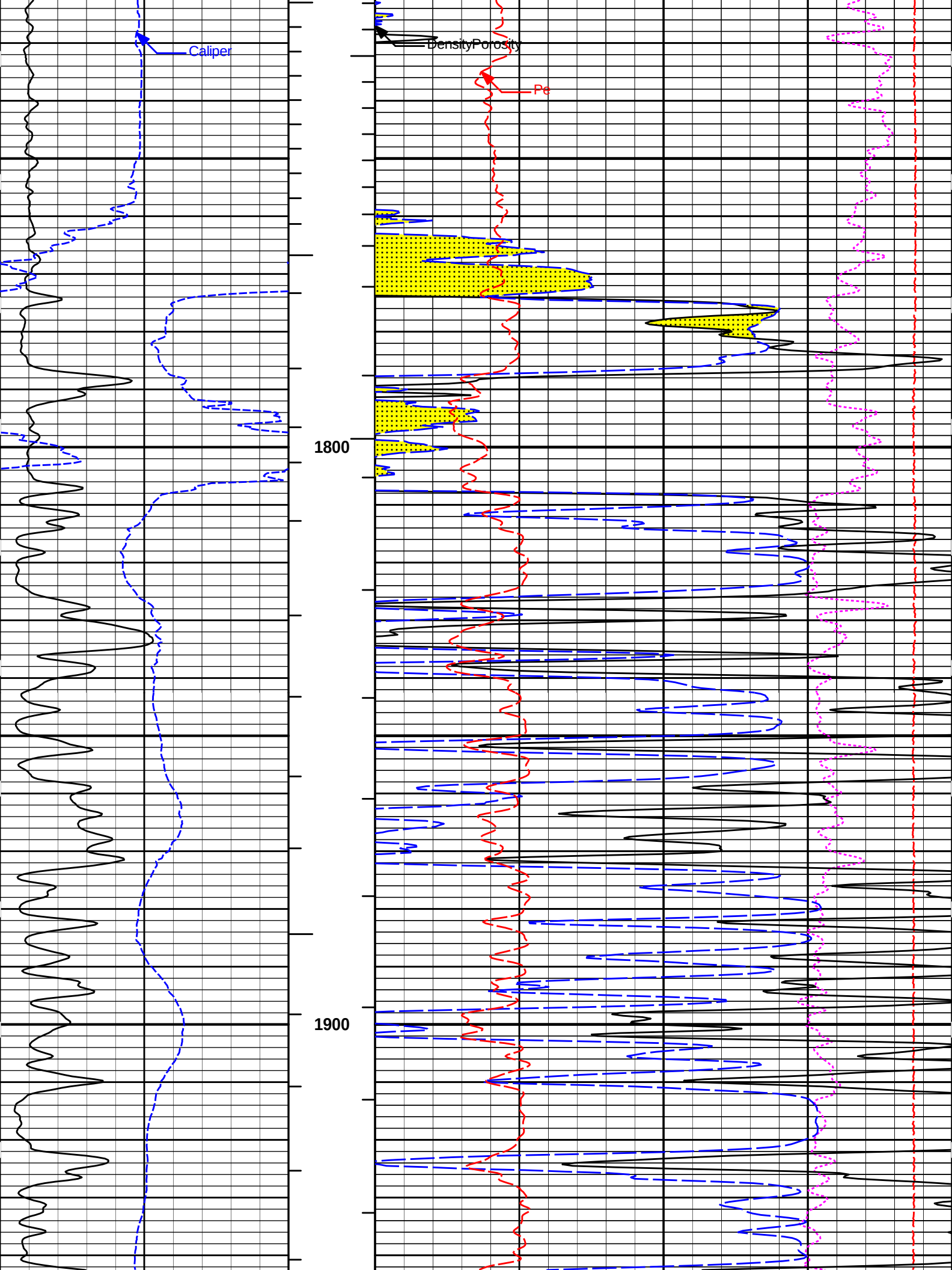
1700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DensityPorosity
Pe
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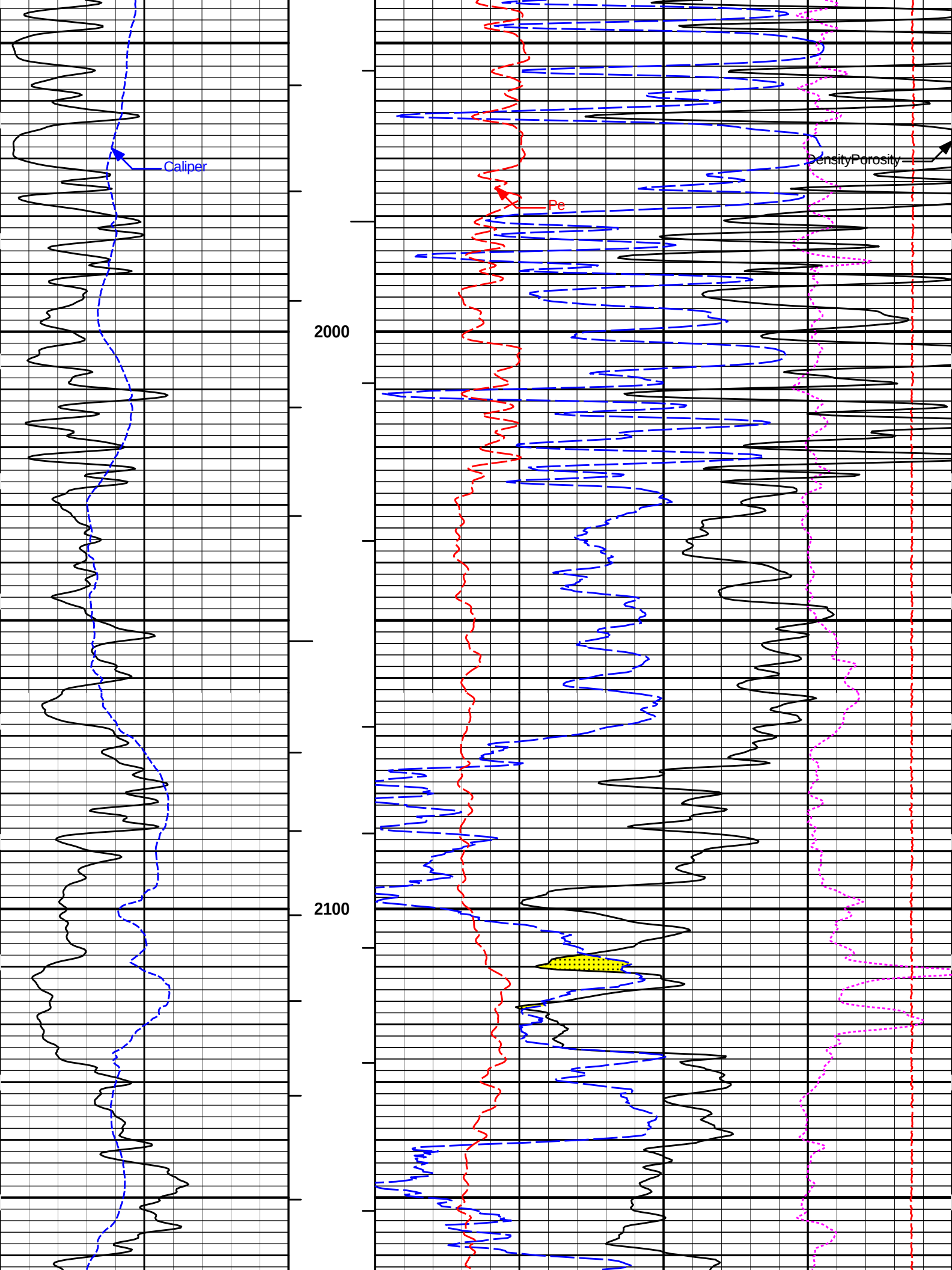
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Pe
DensityPorosity
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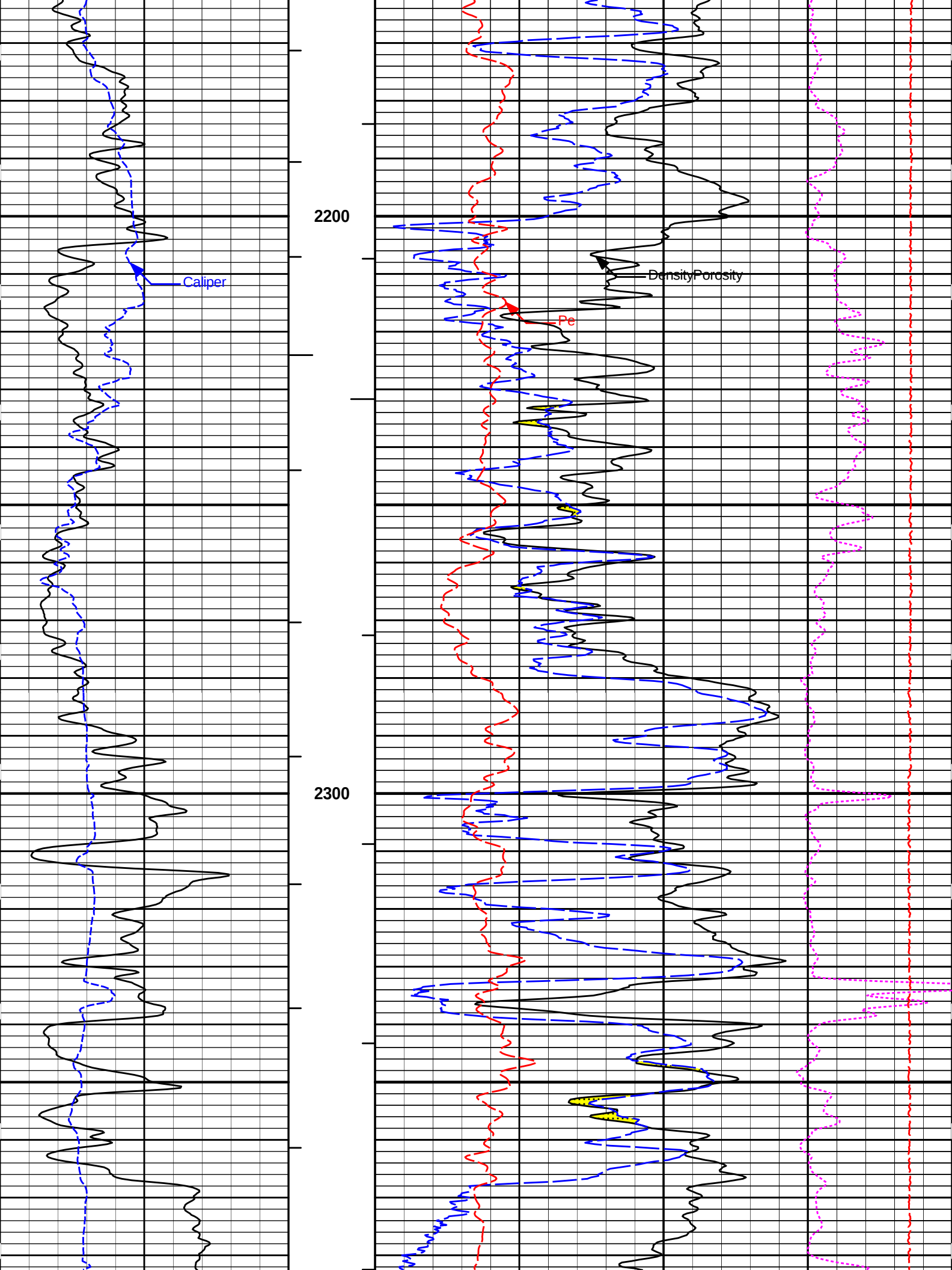
2100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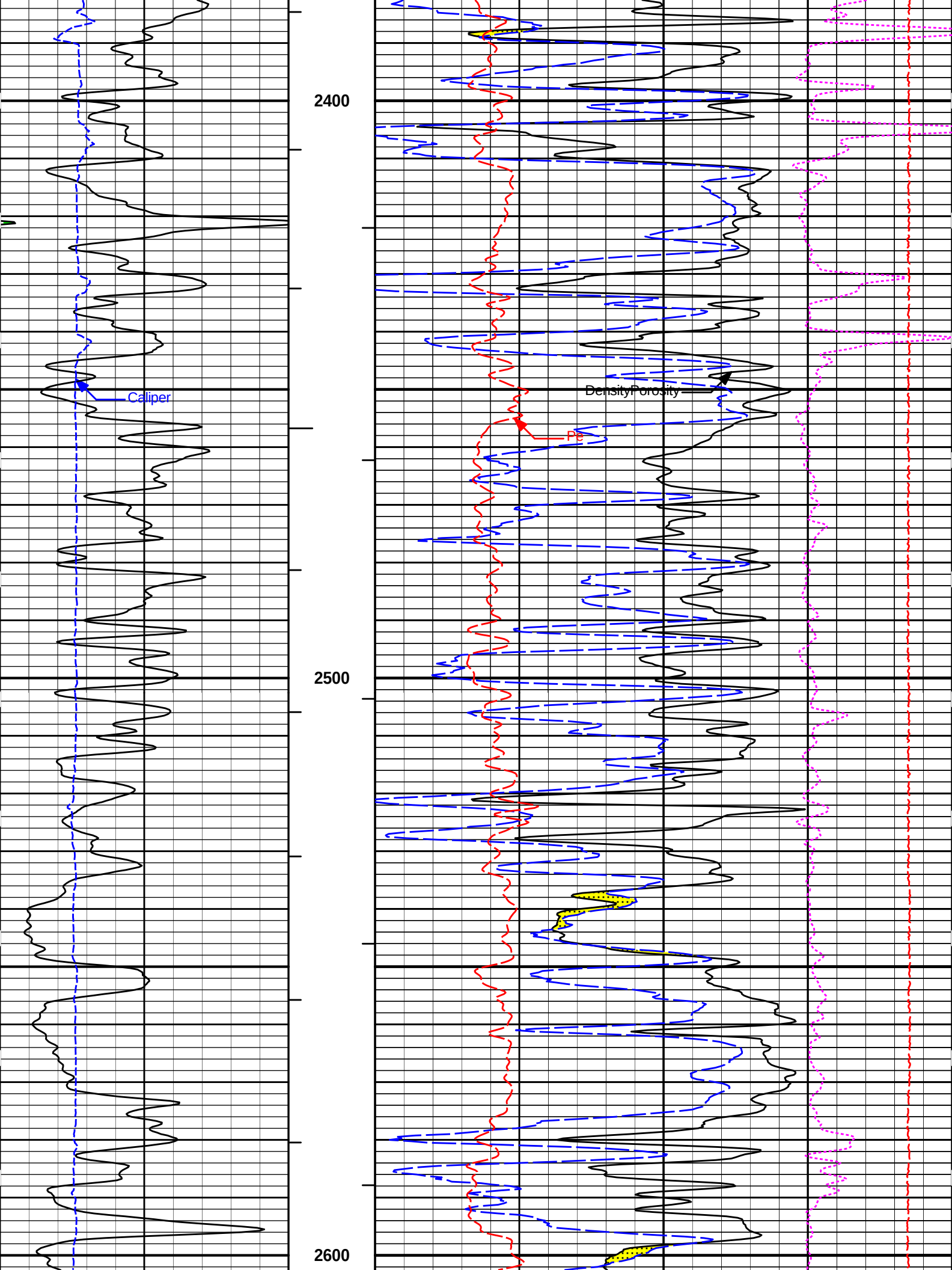
2300
Caliper
DensityPorosity
Pe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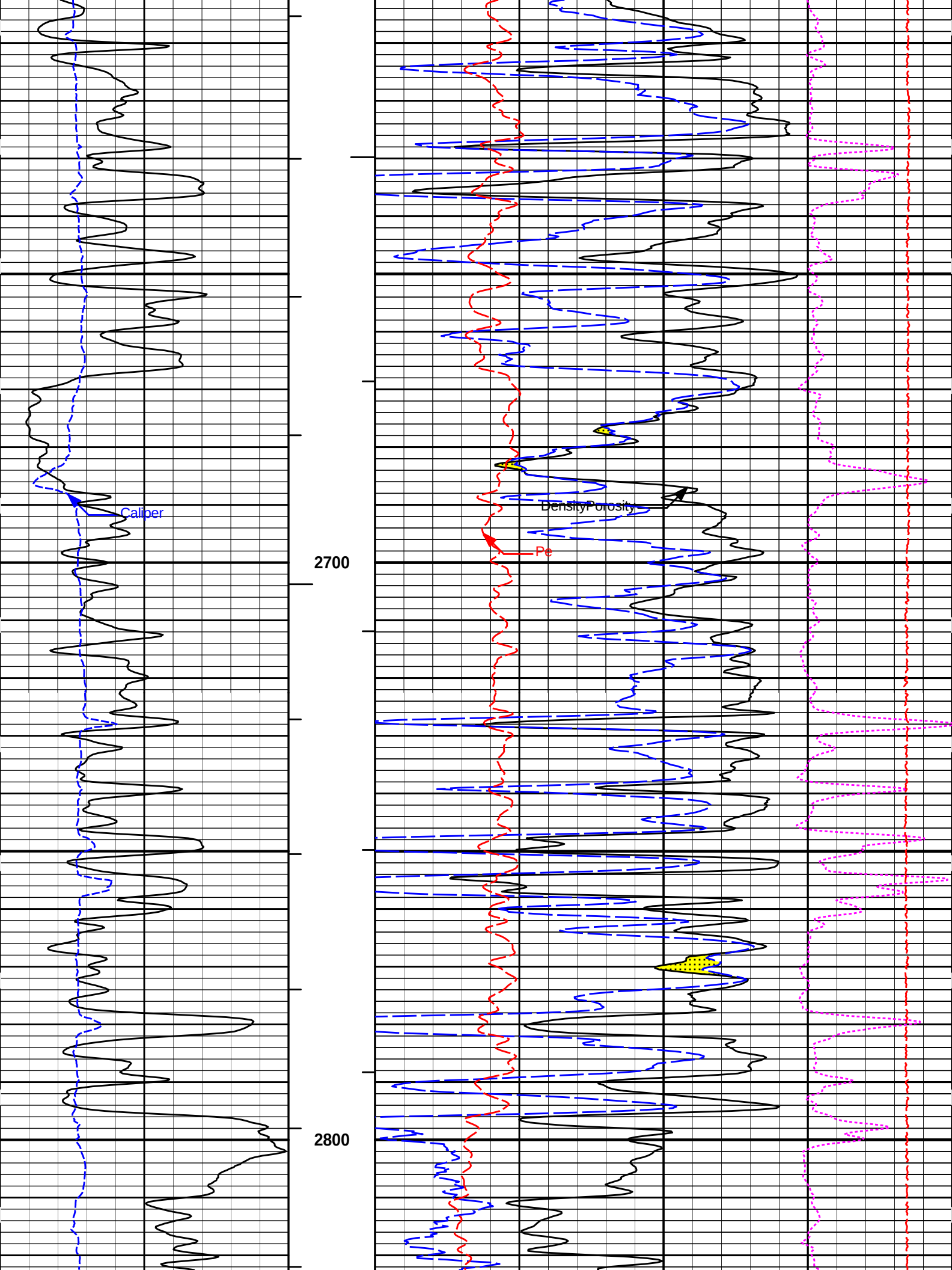
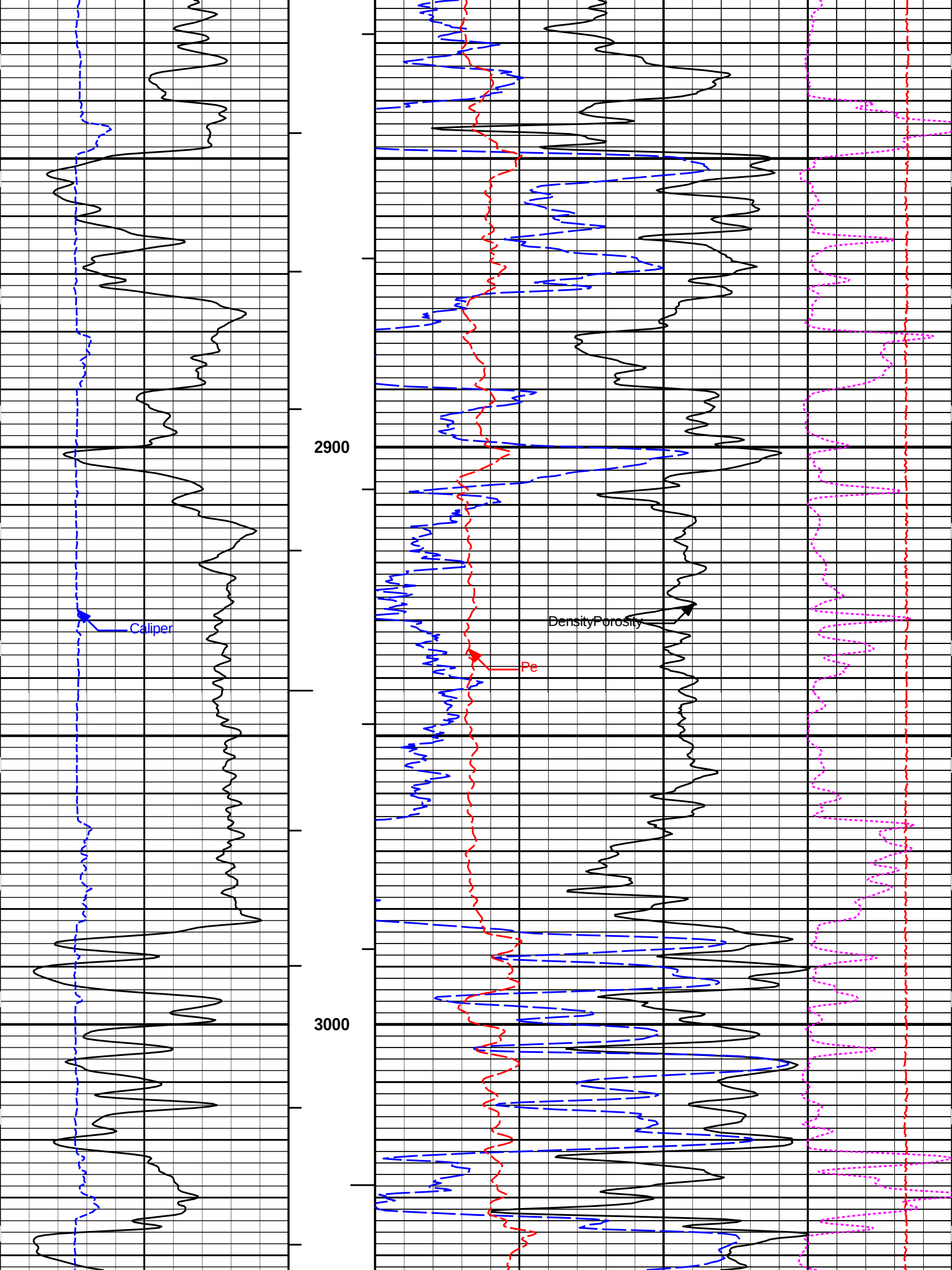
2500
2600
Caliper
DensityPorosity
Pe


Caliper
DensityPorosity
Pe
2700
2800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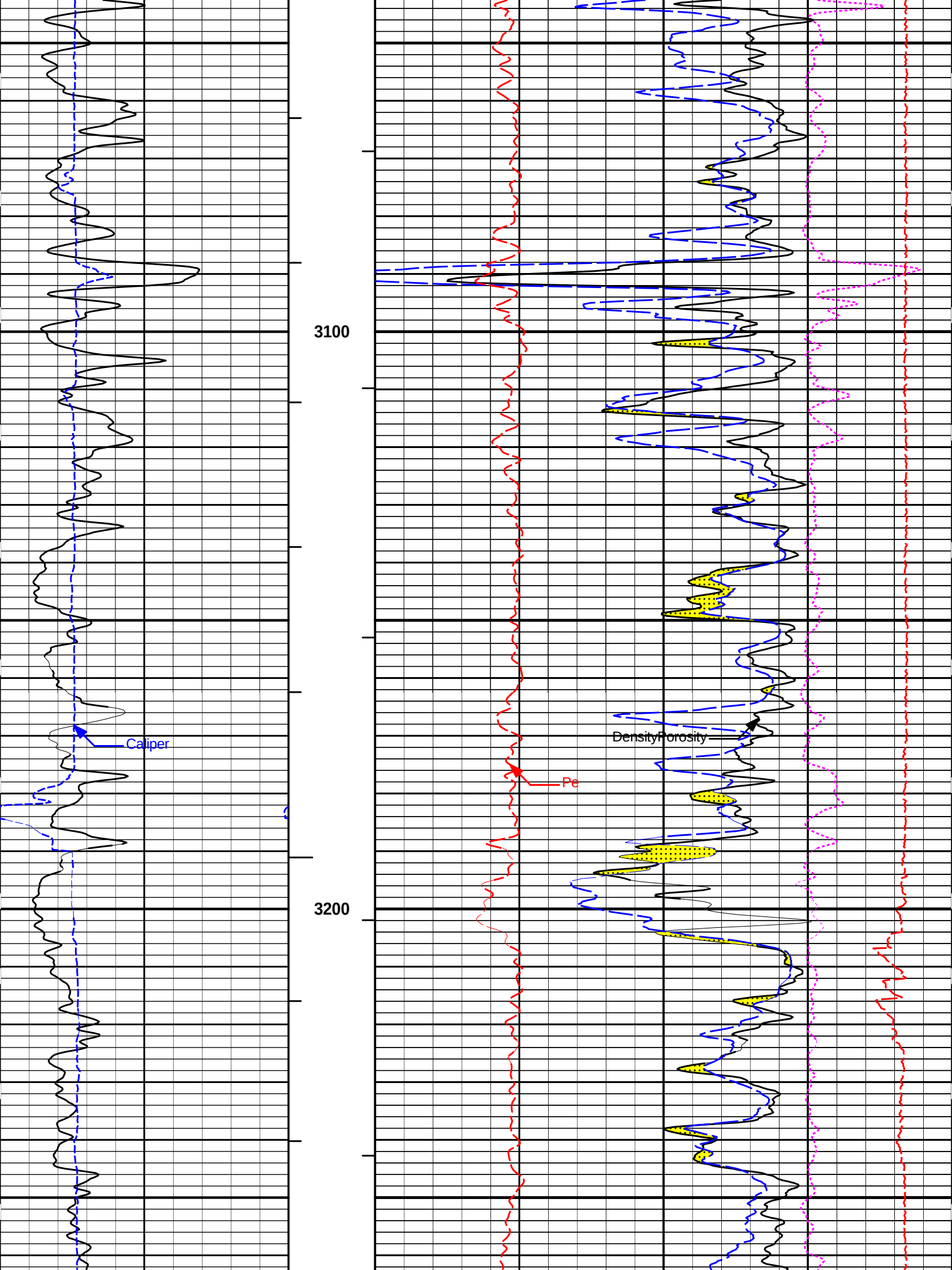
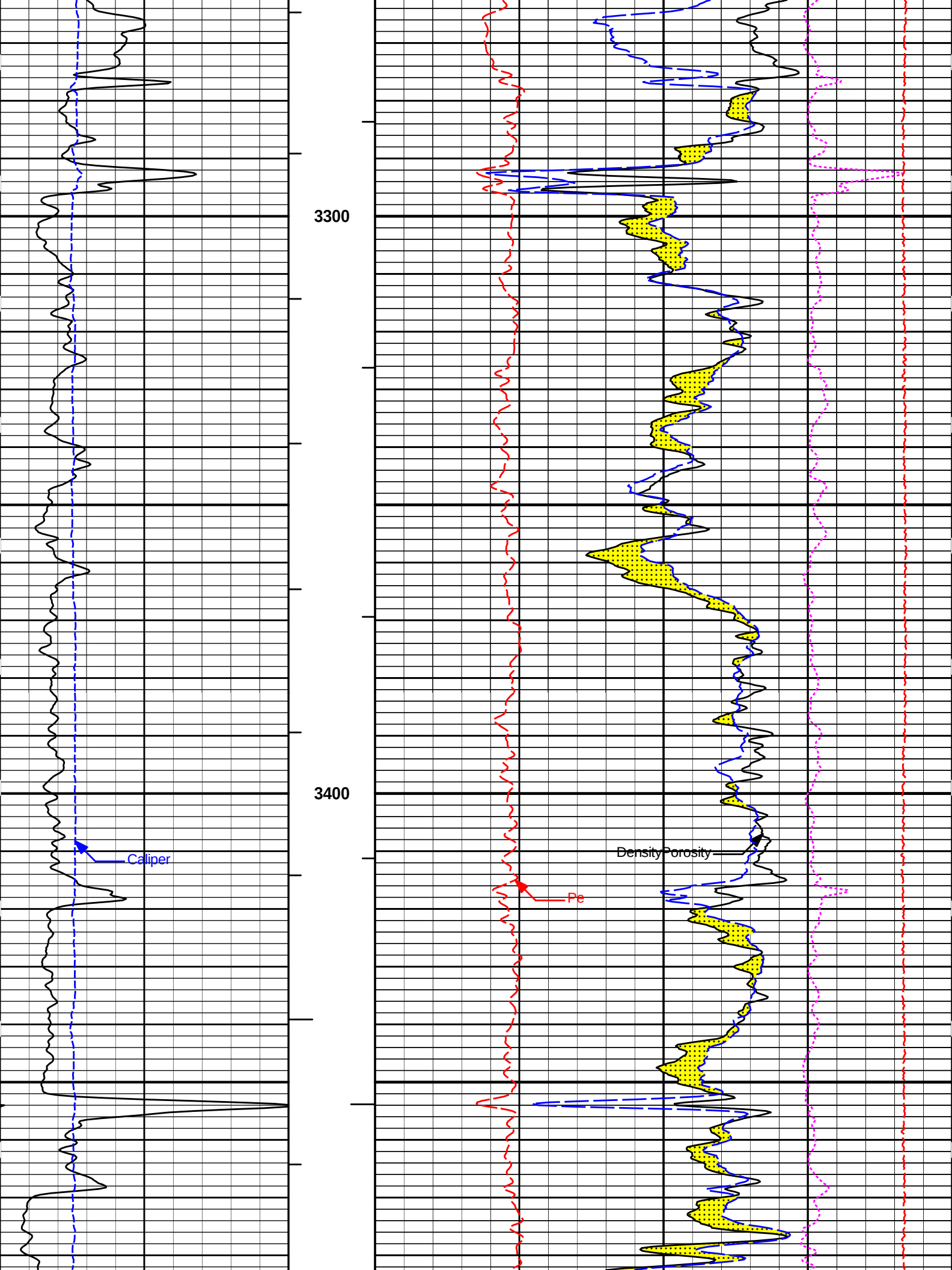
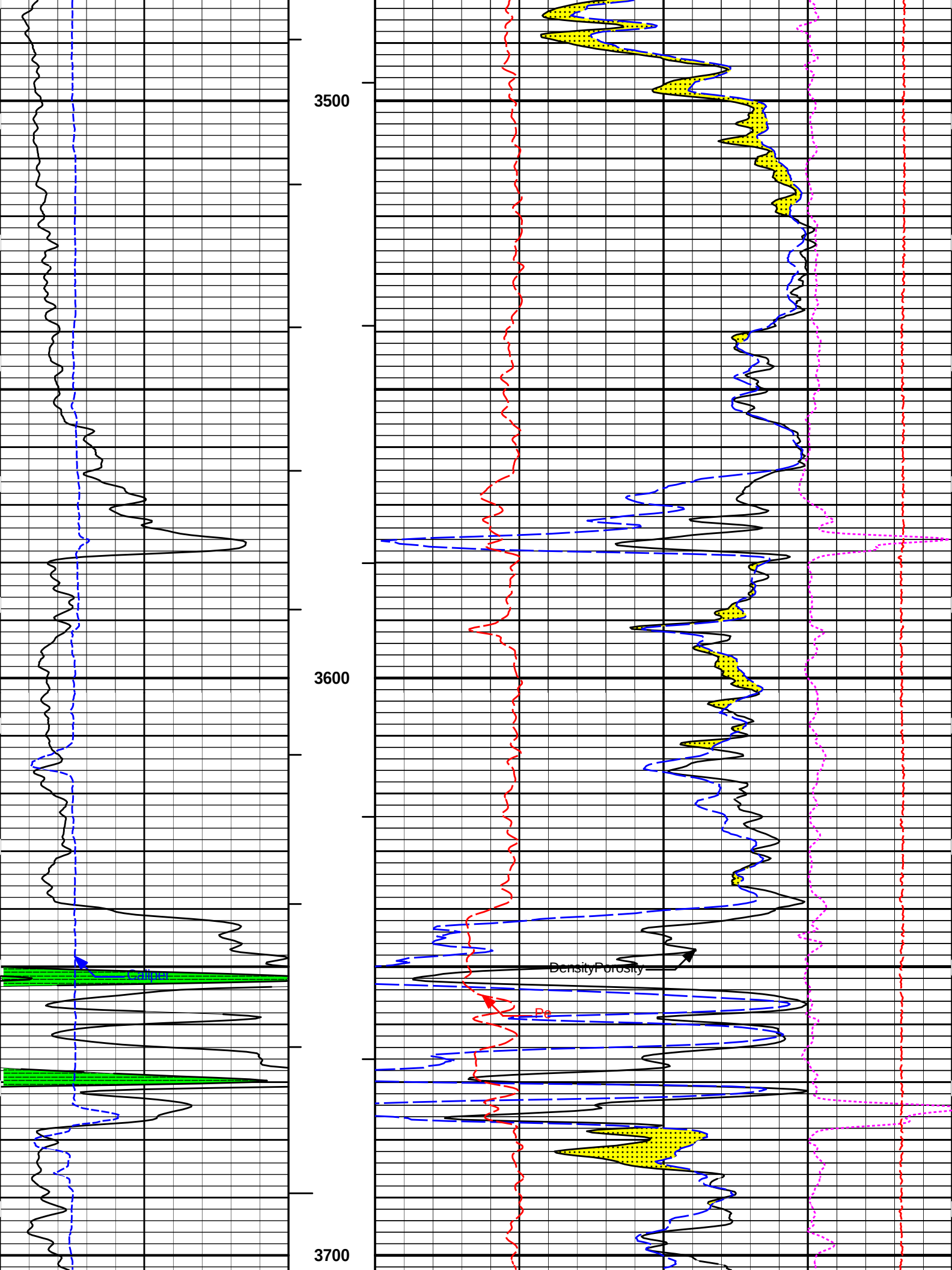
3000
Caliper
DensityPorosity
Pe


3100
3200
Caliper
DensityPorosity
Pe


3300
3400
Caliper
Density Porosity
Pe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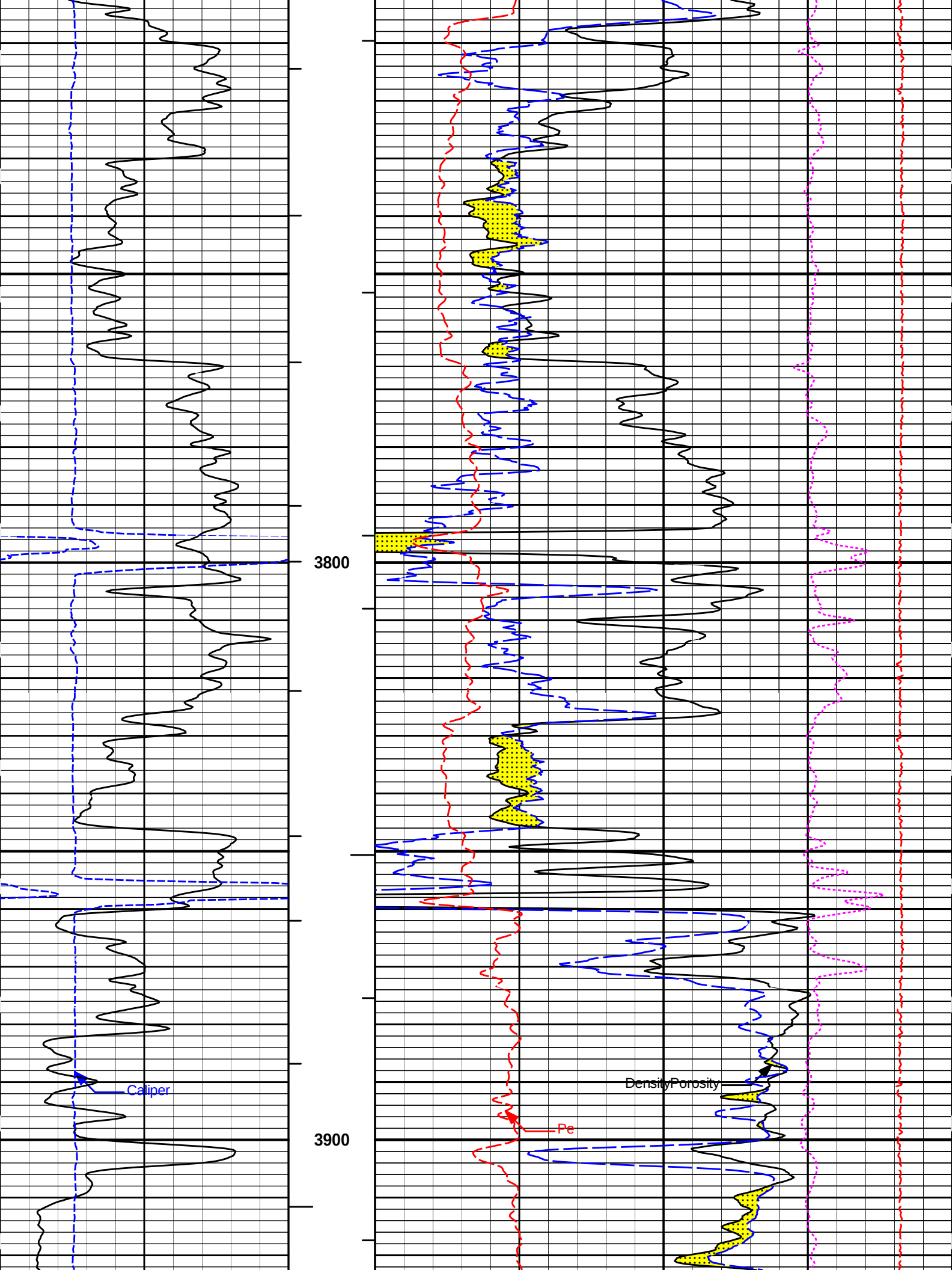
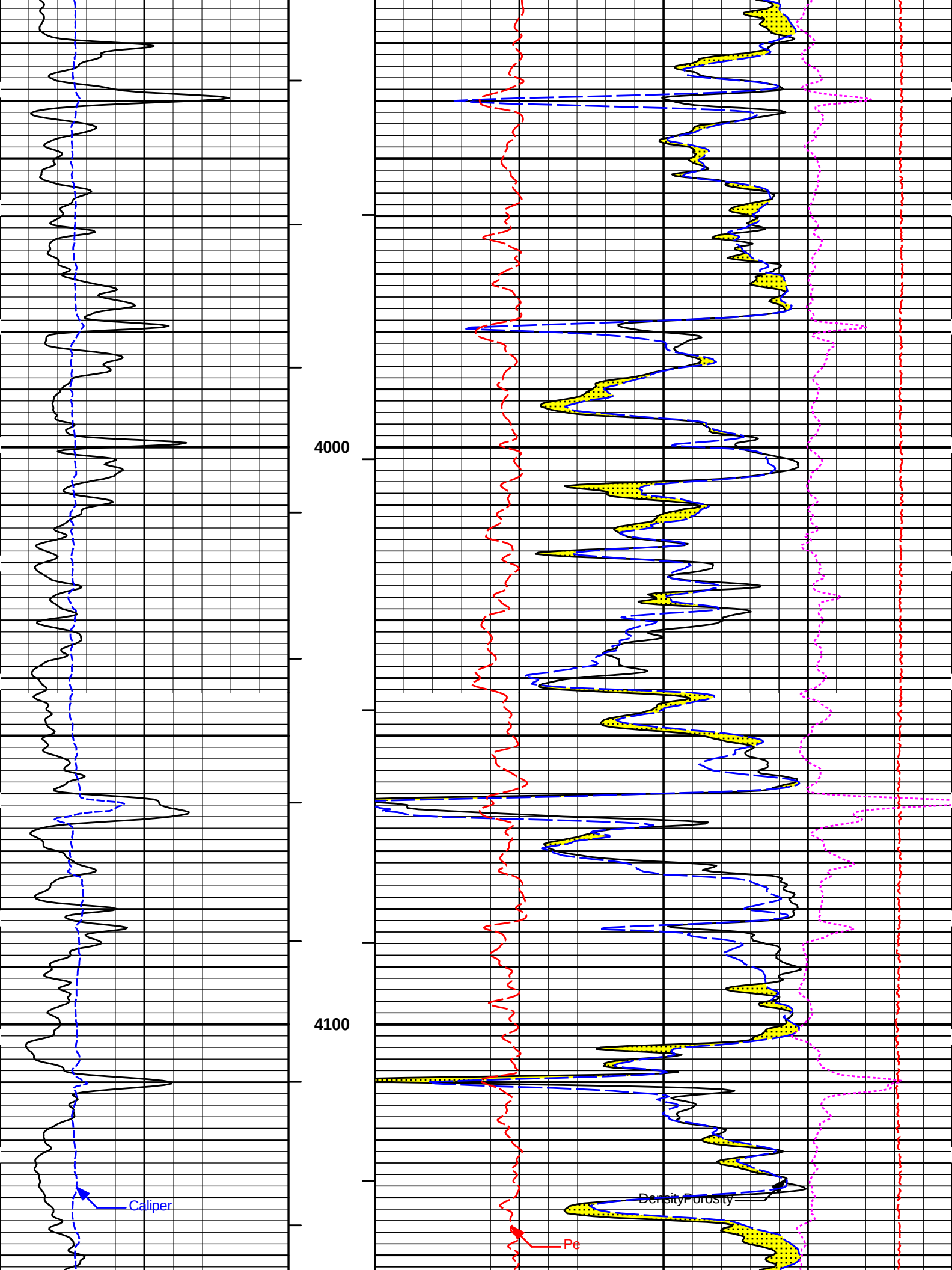
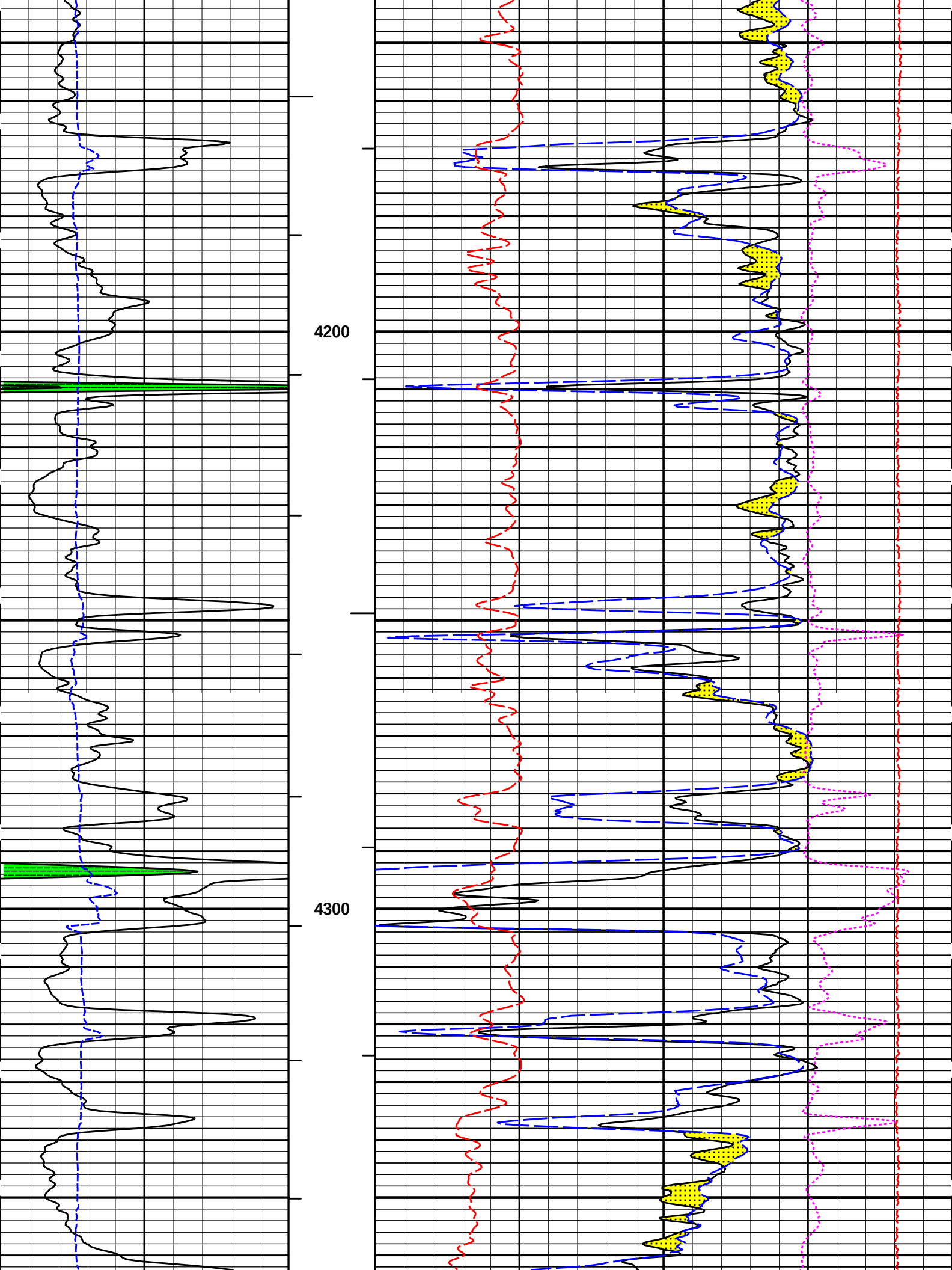
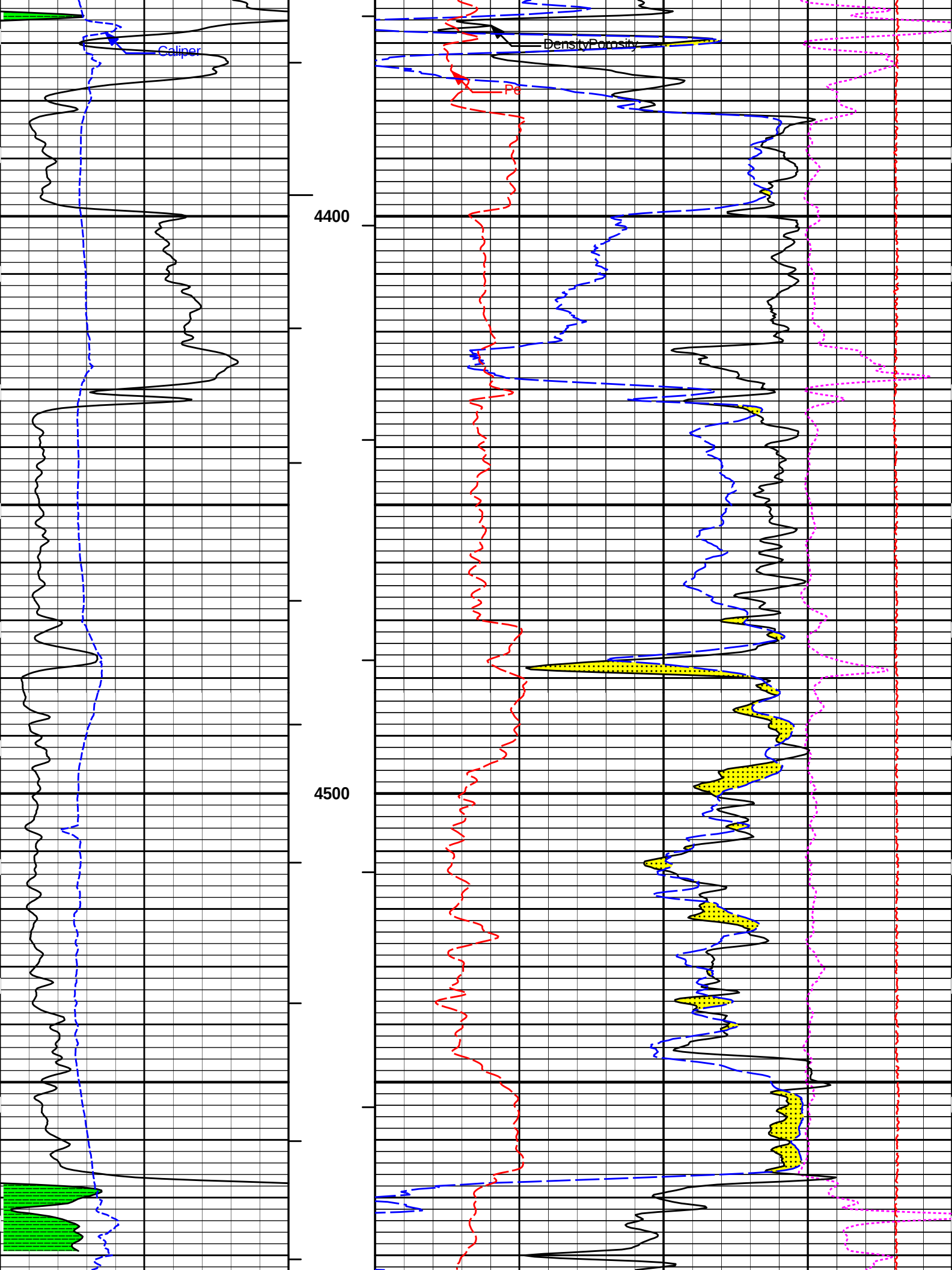
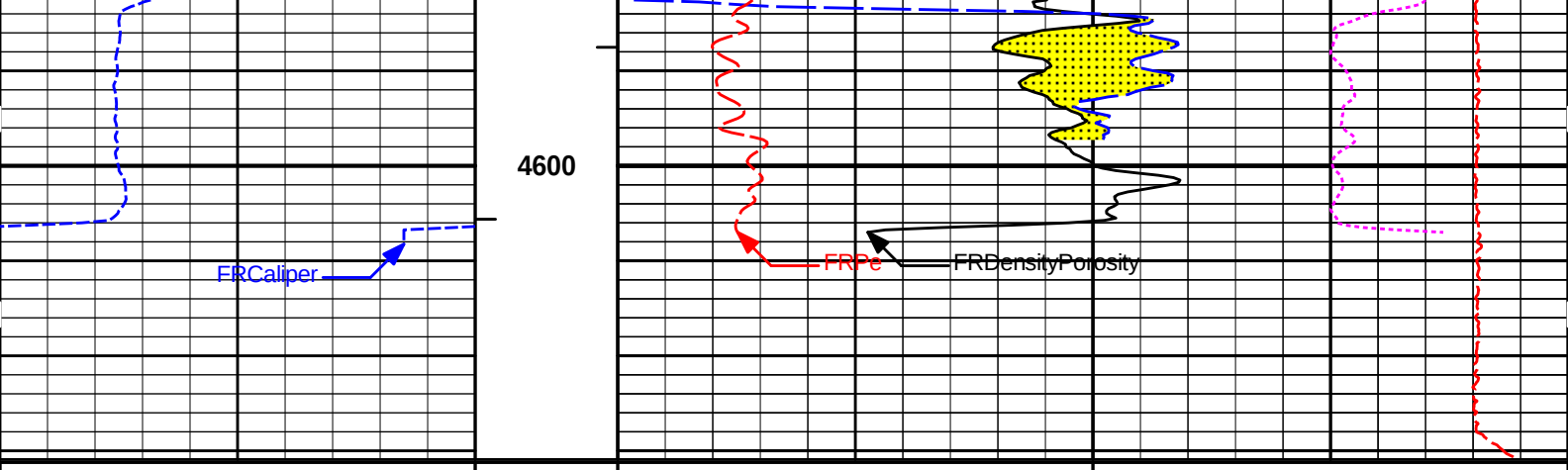
3600
3700
Caliper
DensityPorosity
Pe


3800
3900
Caliper
Pe
DensityPorosity


4000
4100
Caliper
DensityPorosity
Pe


4200
4300


Caliper
DensityPorosity
Pe
4400
4500



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: 19-Jan-14 20:09:00
Plot Range: 1023 ft to 4630.92 ft
Data: LAMBERT 3014\Well Based\DAQ-0001-005\
Plot File: \\PORO\Poro_IQ_5_MAIN_LIB

5 INCH MAIN LOG

HALLIBURTON

Plot Time: 19-Jan-14 20:09:00
Plot Range: 4358 ft to 4630.5 ft
Data: LAMBERT 3014\Well Based\DAQ-0001-003\
Plot File: \\PORO\Poro_IQ_5_REP_LIB

REPEAT SECTION

CROSSOVER

30 Neutron Porosity -10
%

30 DensityPorosity -10
%

SHALE

BHVT

0 Gamma API 150
api

AHVT

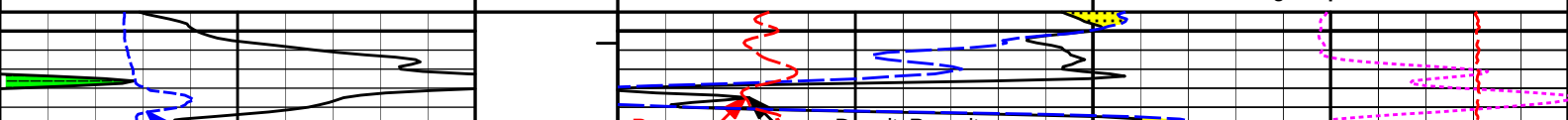
15K Tension 0
pounds

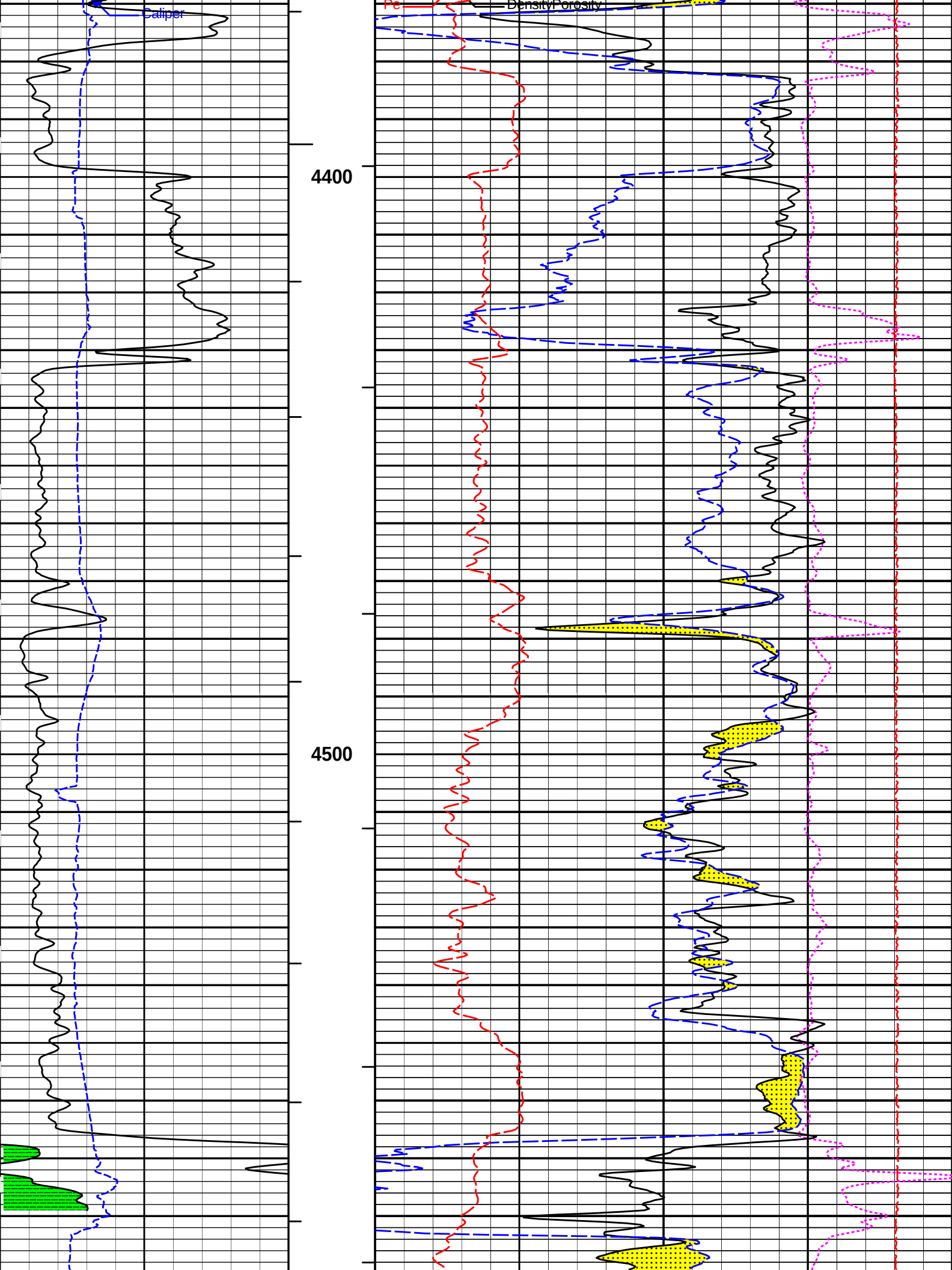
6 Caliper 16
inches

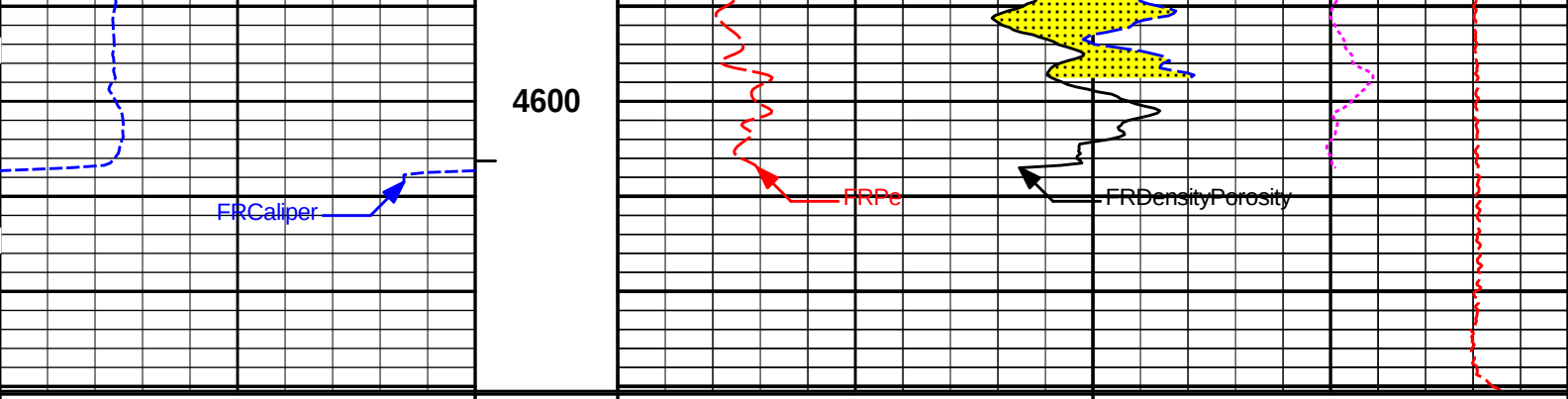
MD
1 : 240
ft

0 Pe 10

-0.25 DensityCorr 0.25
gram per cc




Caliper
Pe
Density/Porosity
4400
4500



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: 19-Jan-14 20:09:02
Plot Range: 4358 ft to 4630.5 ft
Data: LAMBERT 3014\Well Based\DAQ-0001-003\
Plot File: \\PORO\Poro_IQ_5_REP_LIB

REPEAT SECTION

HALLIBURTON

Plot Time: 19-Jan-14 20:09:02
Plot Range: 1023 ft to 4630.92 ft
Data: LAMBERT 3014\Well Based\DAQ-0001-005\
Plot File: \\-LOCAL-\LAMBERT 3014\0001 SP-GTET-CSNG-DSN-SDL-ACRT-CH\PORO\BULKD_5_MAIN_LIB

5 INCH MAIN LOG

SHALE

0 Gamma Ray 150
api

18 FarQuality -2

-18 NearQuality 2

6 Caliper 16
inches

BHV
ft3

AHV
ft3

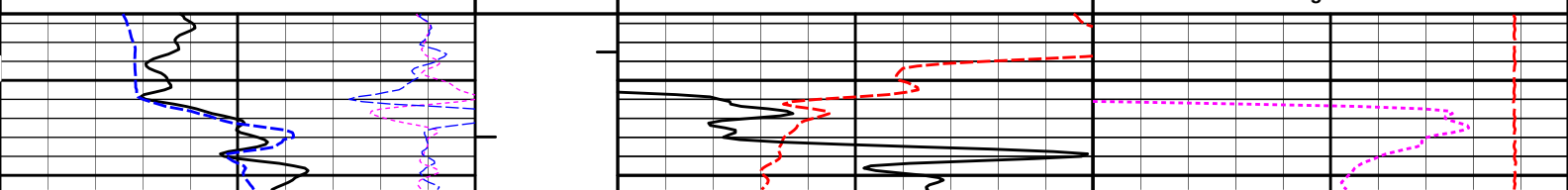
MD
1 : 240
ft

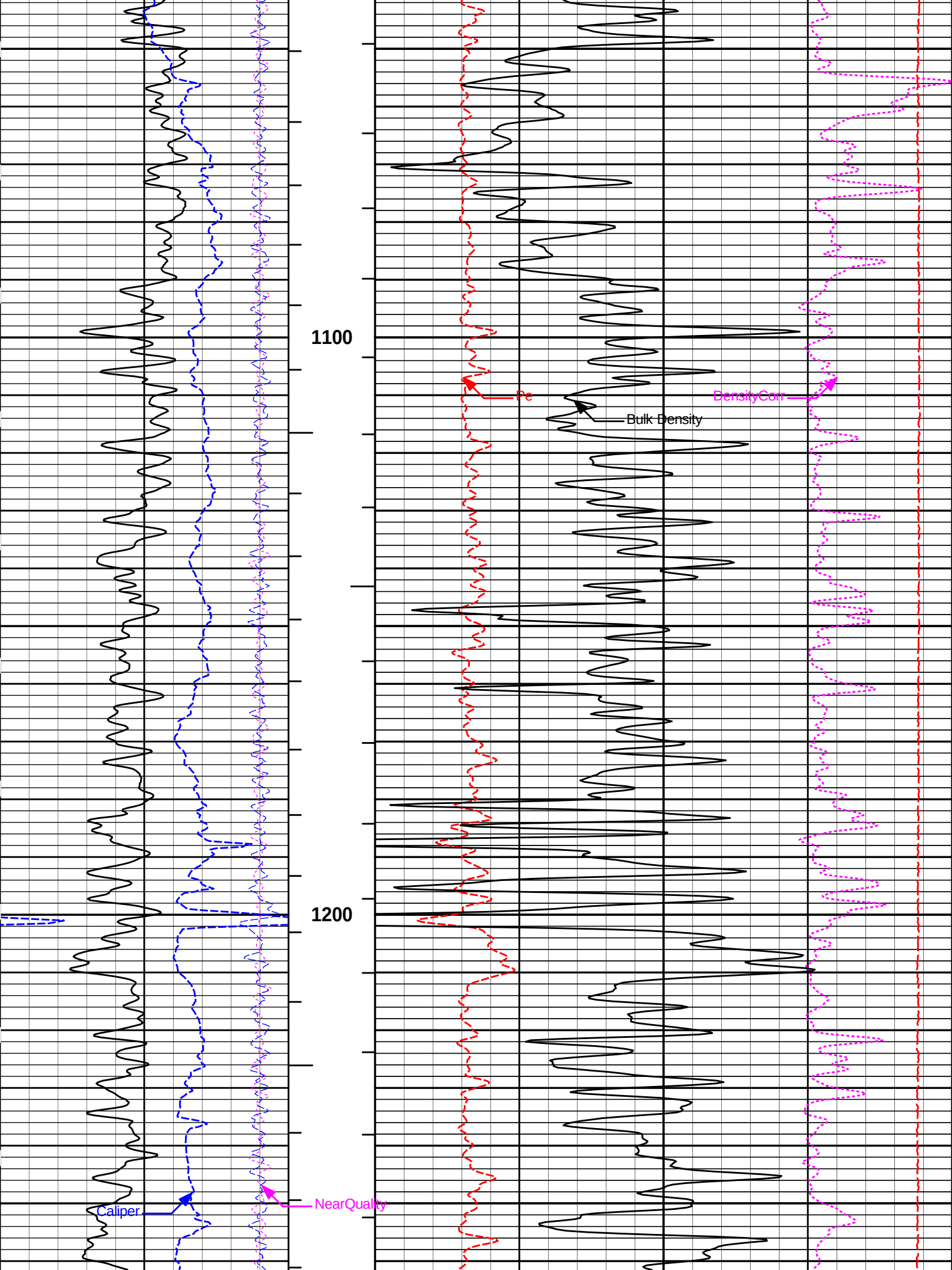
2 Bulk Density 3
g/cc

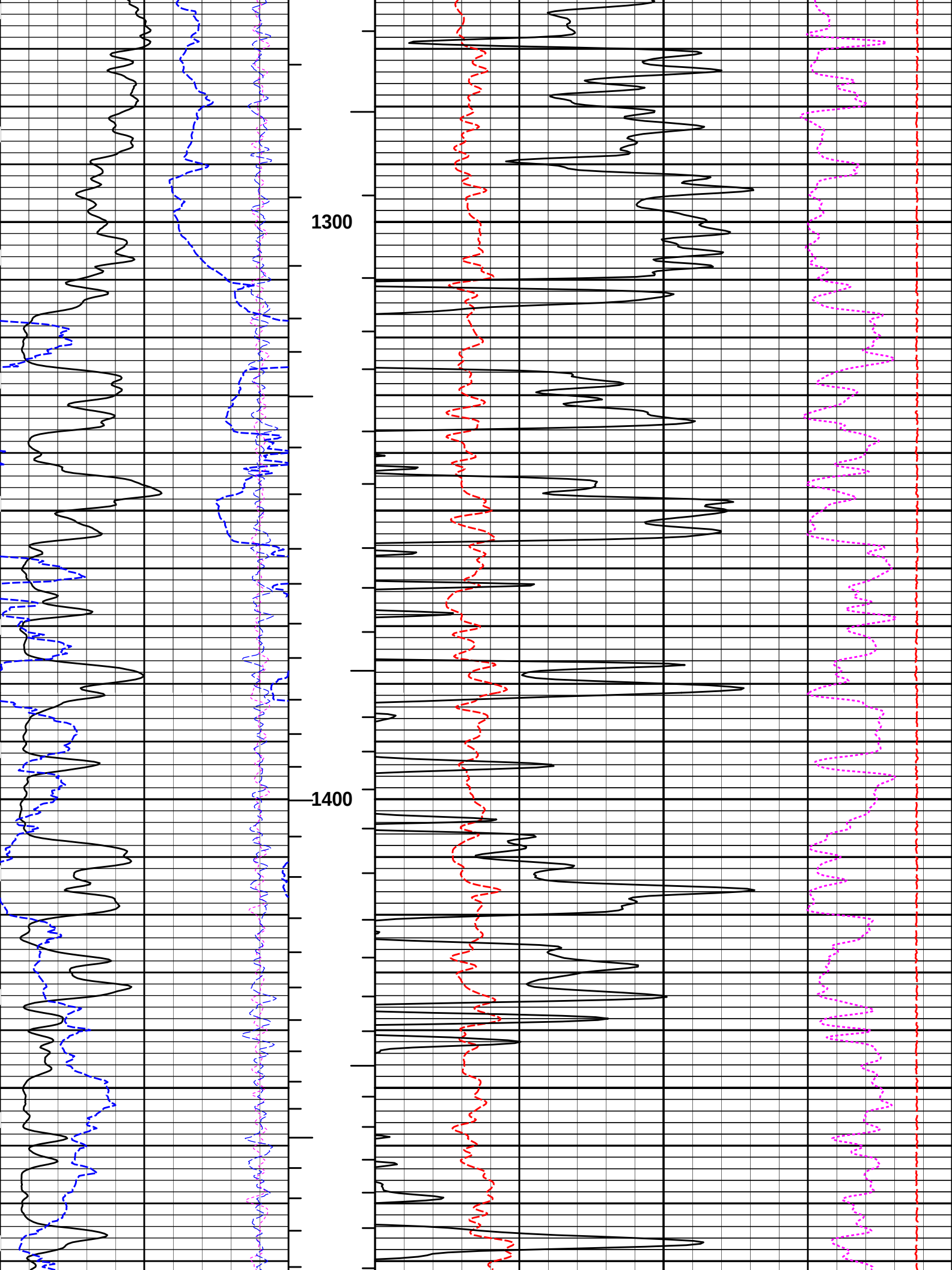
15K Tension 0
pounds

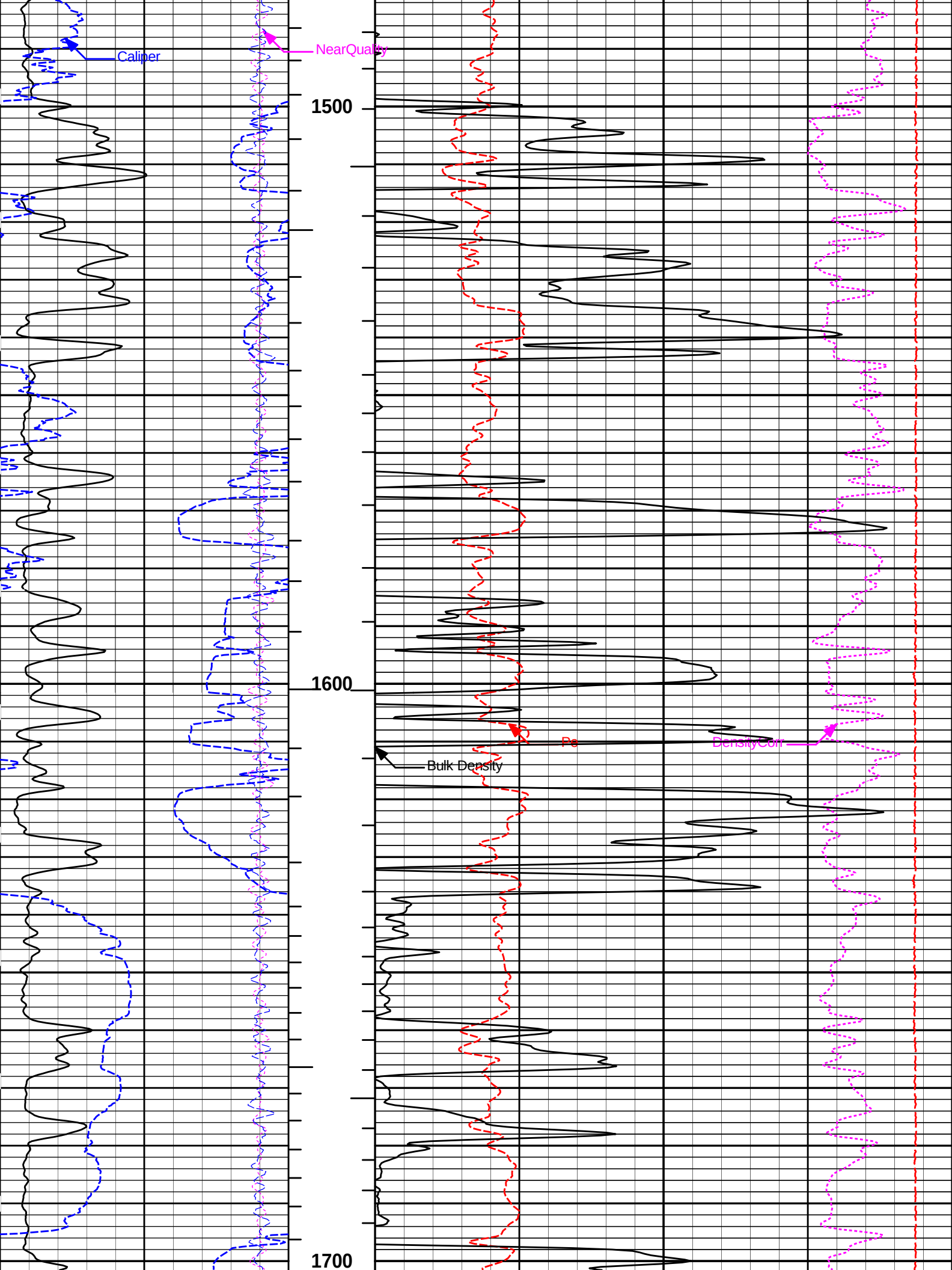
0 Pe 10

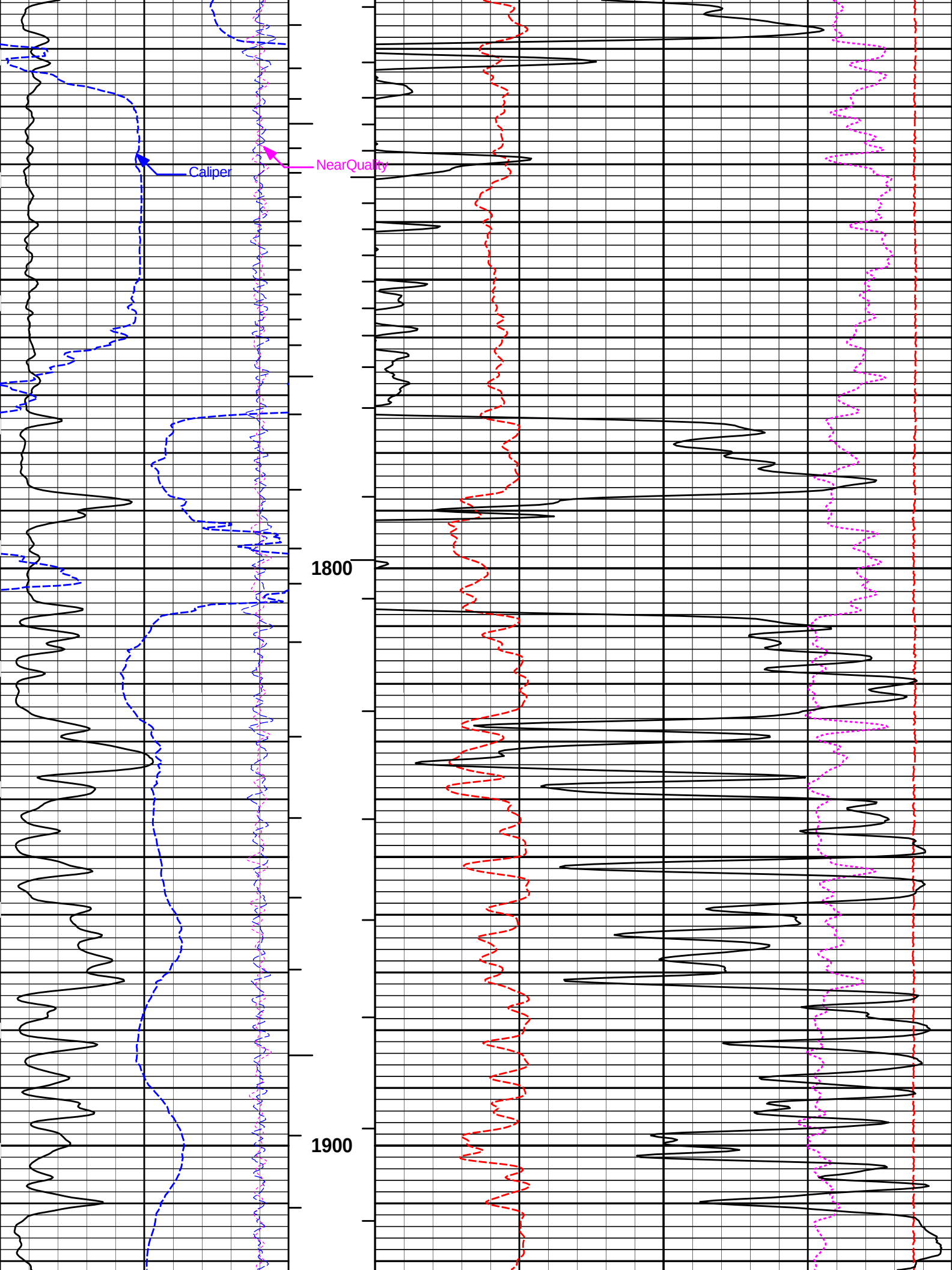
-0.25 DensityCorr 0.25
g/cc

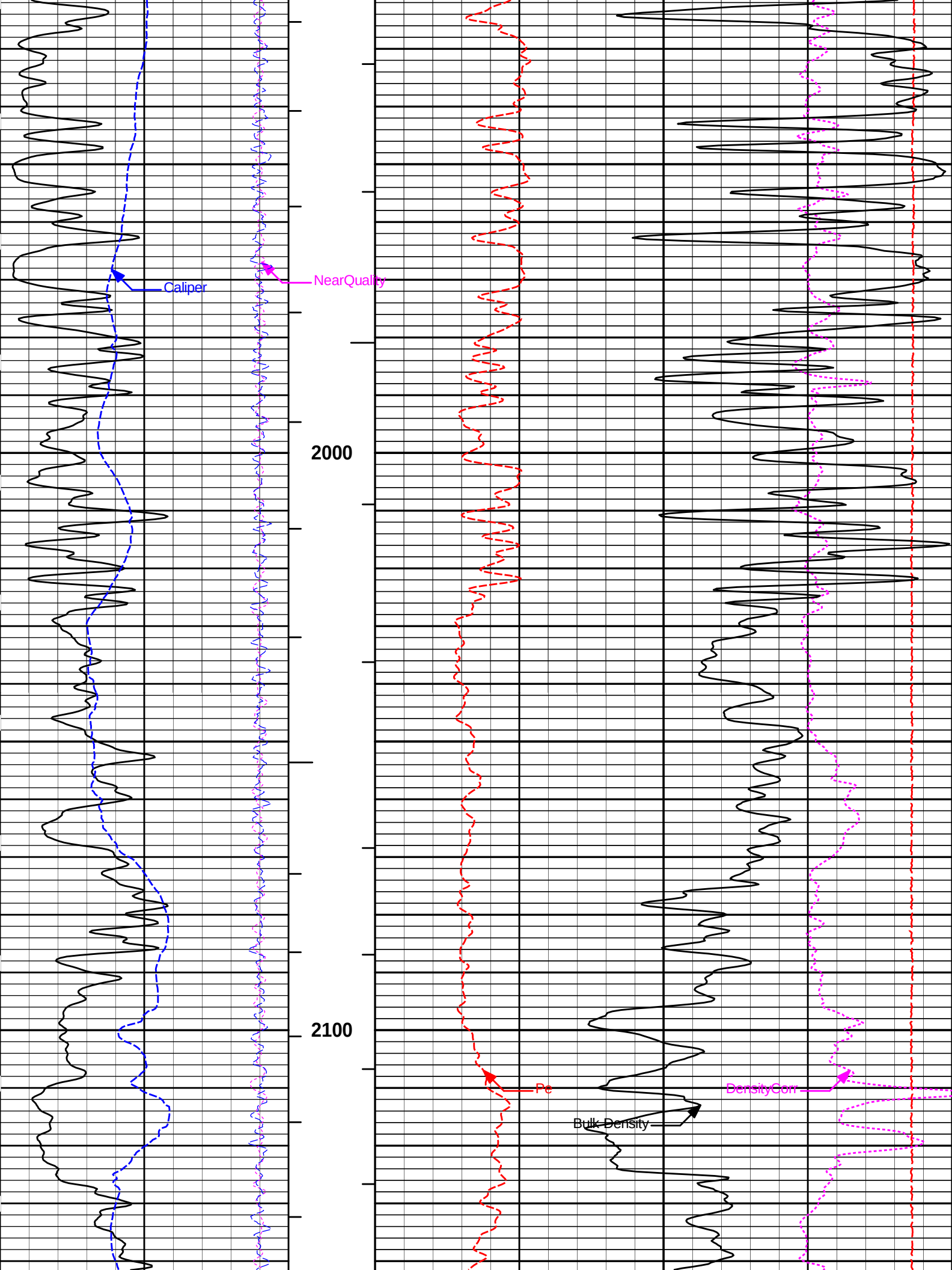


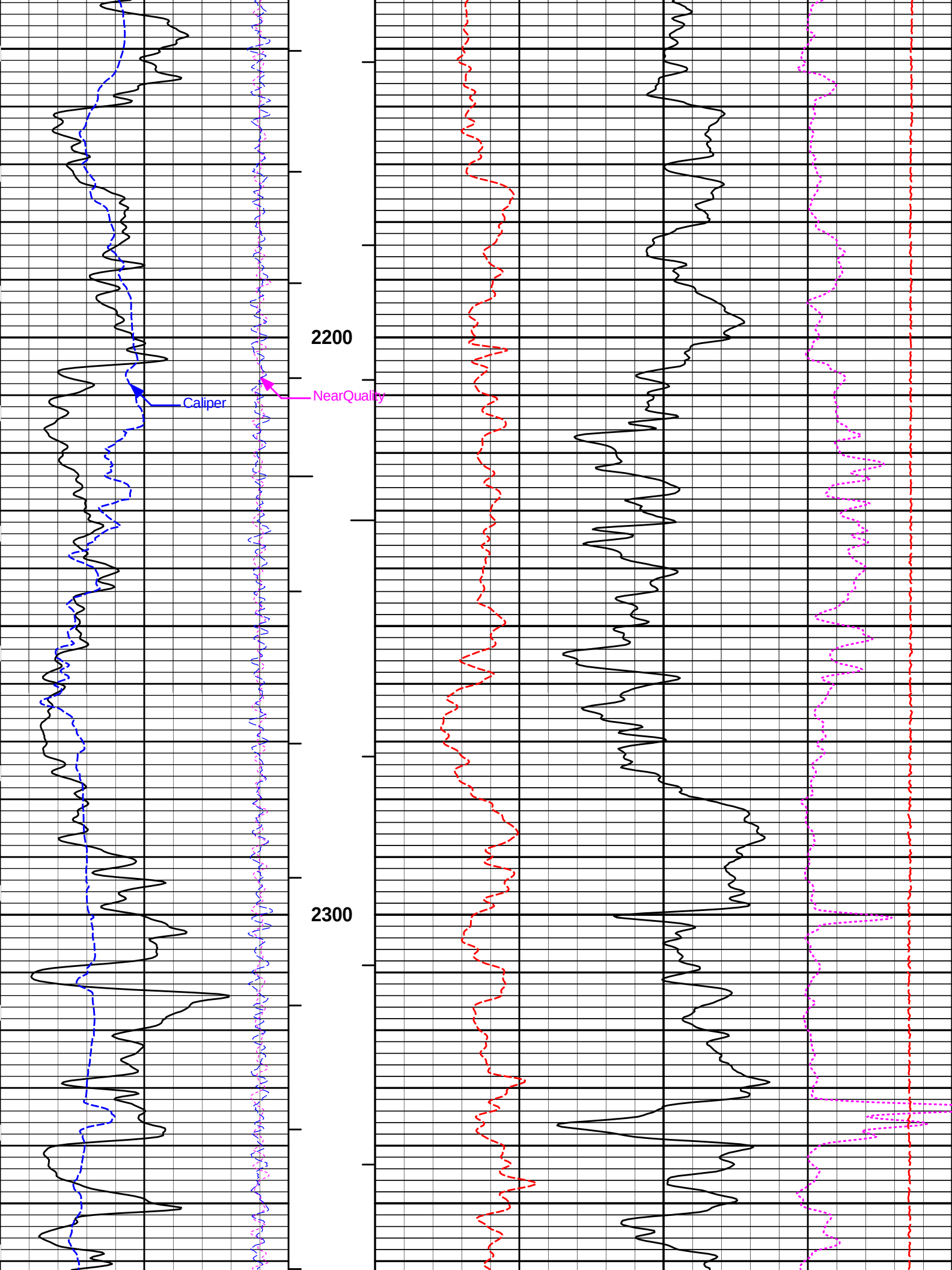

1100
1200
Pe
Bulk Density
DensityCorr
Caliper
NearQuality

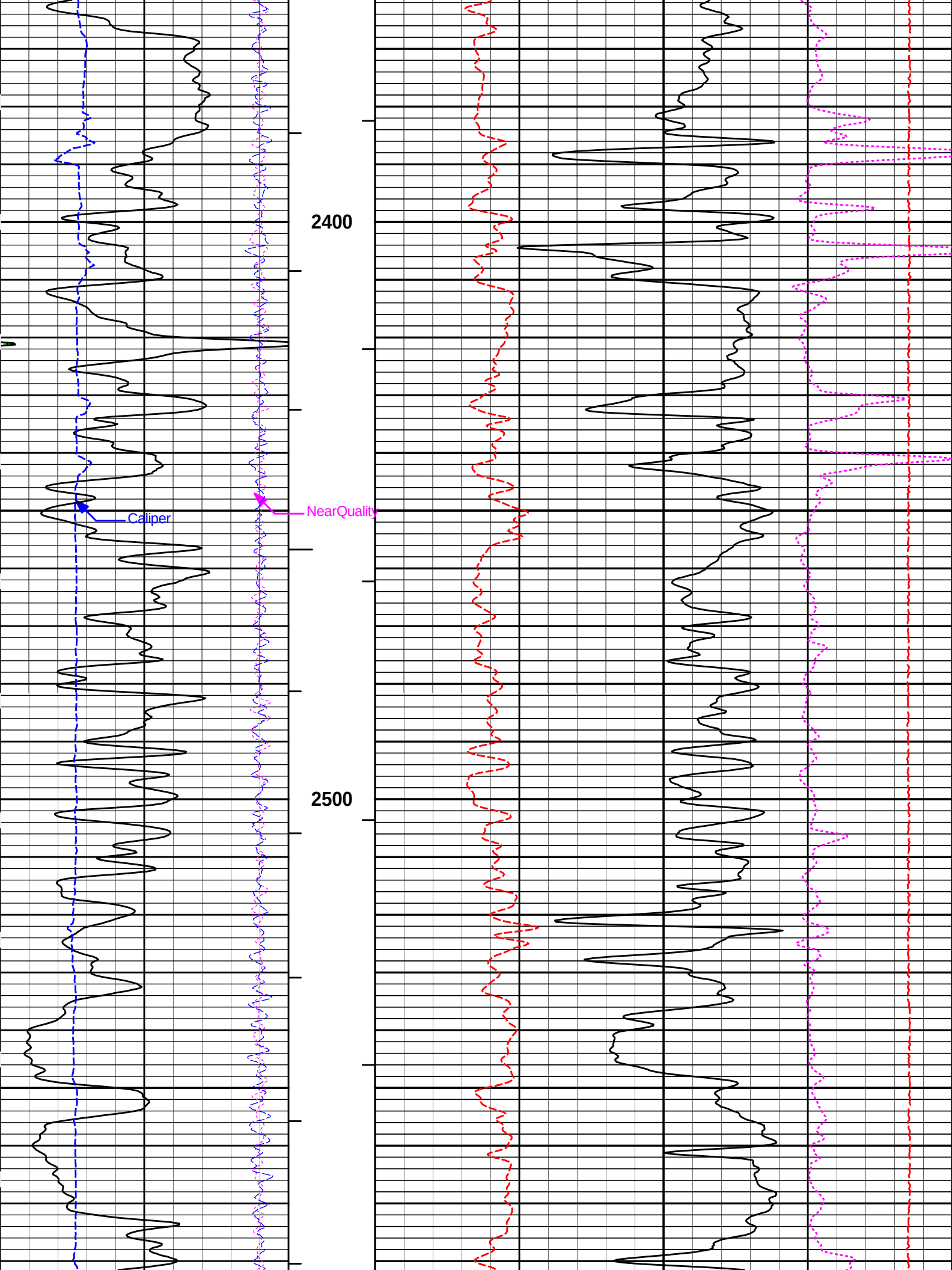

1300
1400

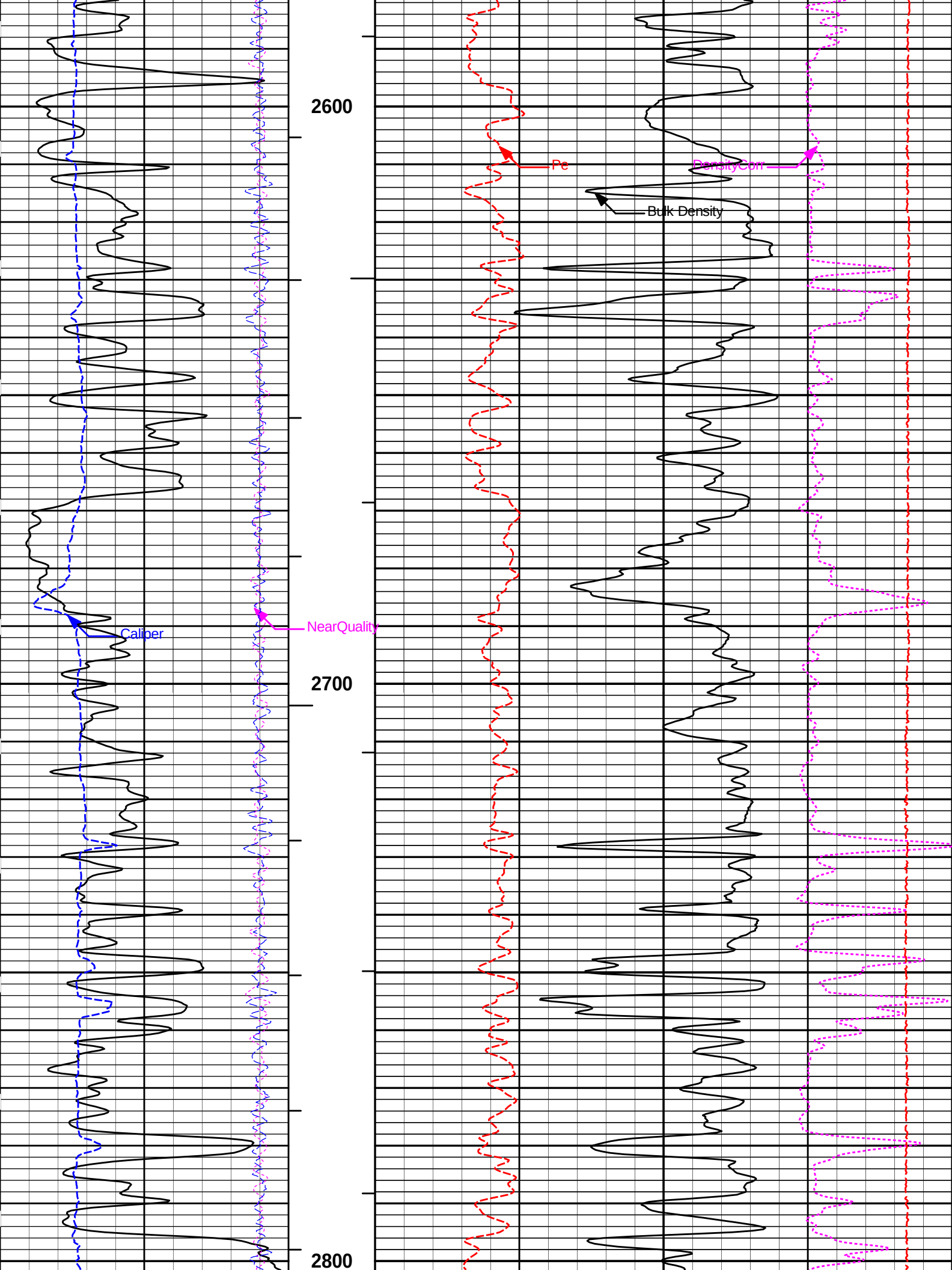

Caliper
NearQuality
1500
1600
Pe
DensityCorr
Bulk Density
1700

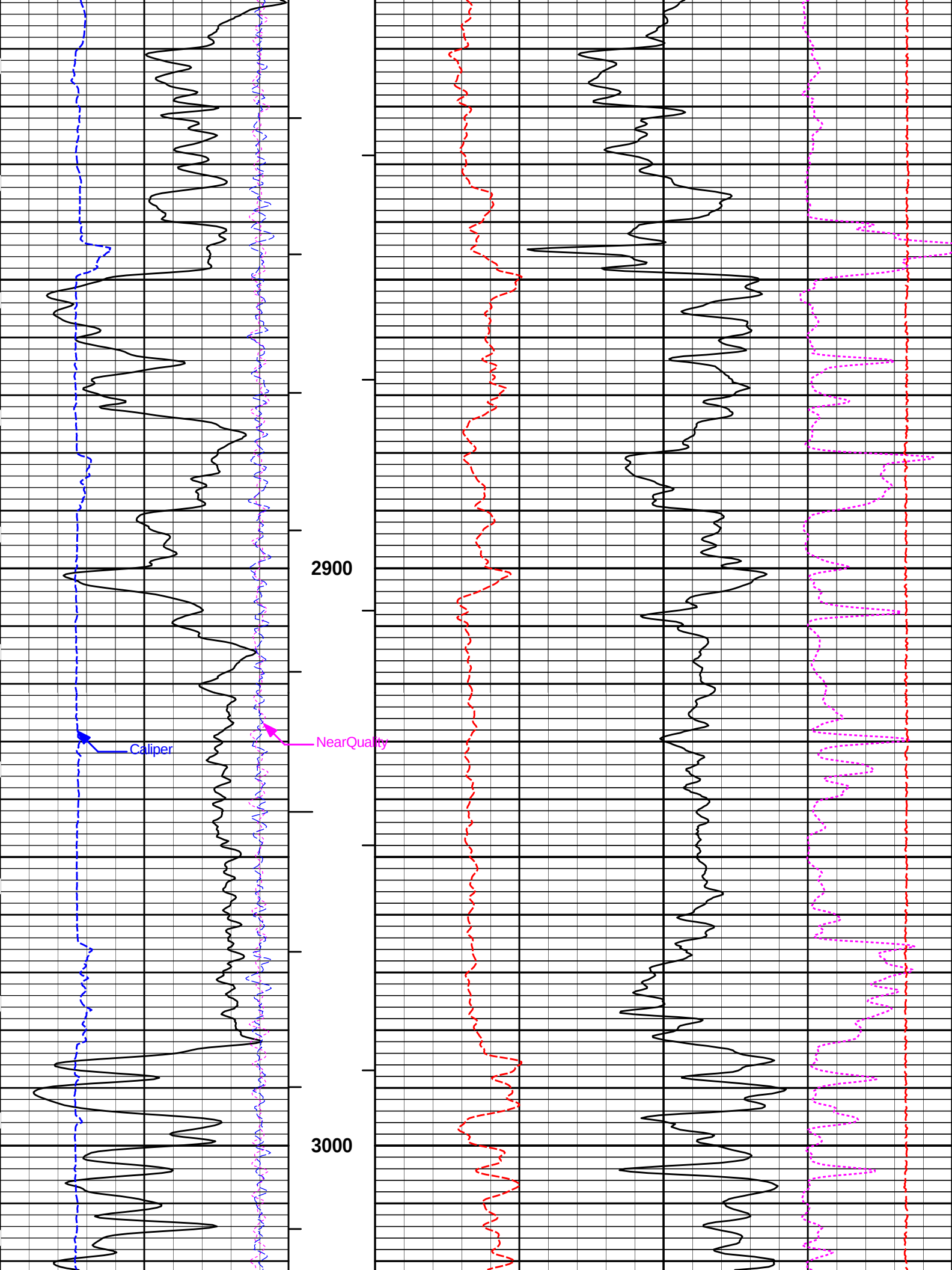

Caliper
NearQuality
1800
1900

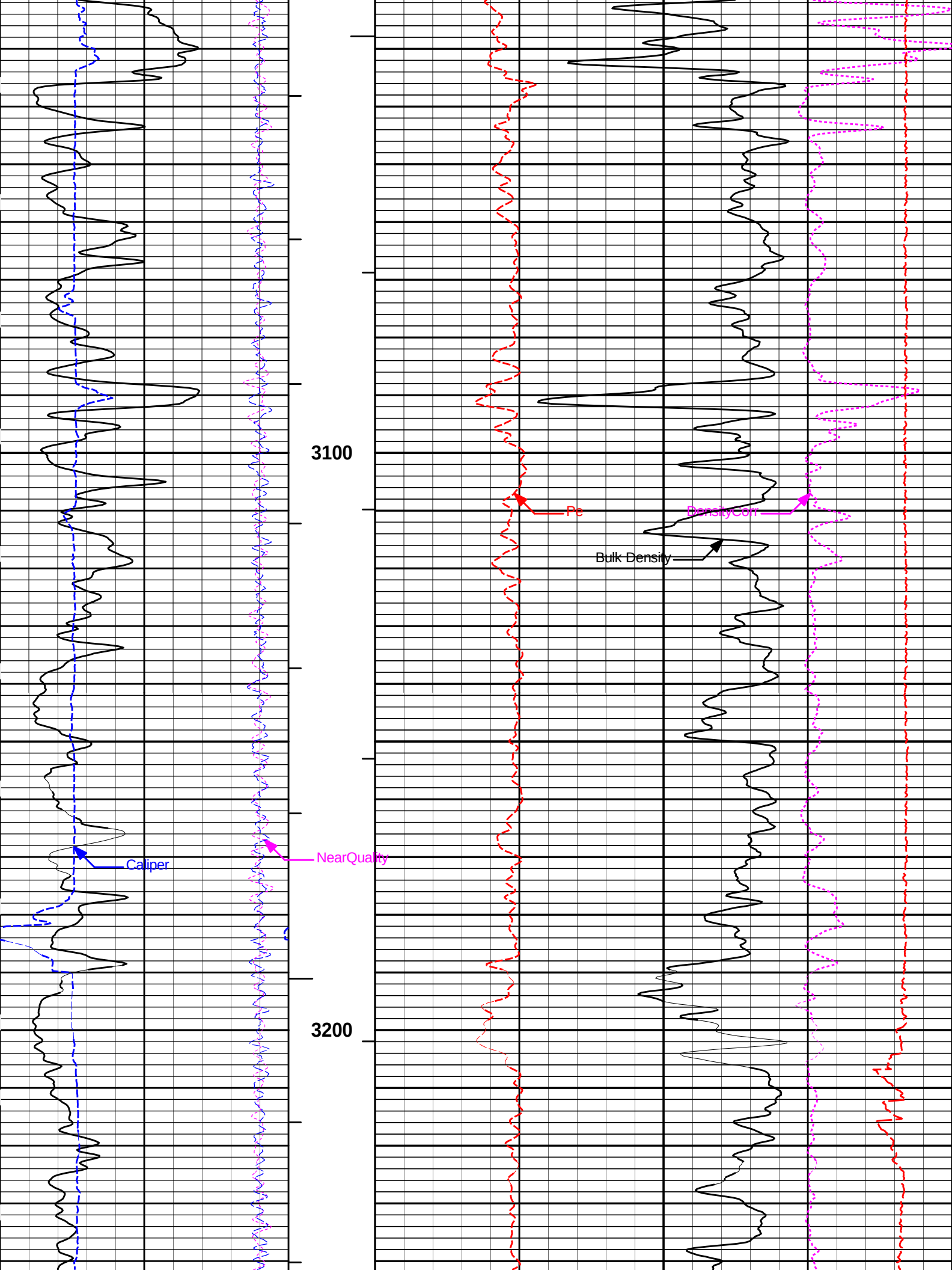

Caliper
NearQuality
2000
2100
Pe
Bulk Density
DensityCorr

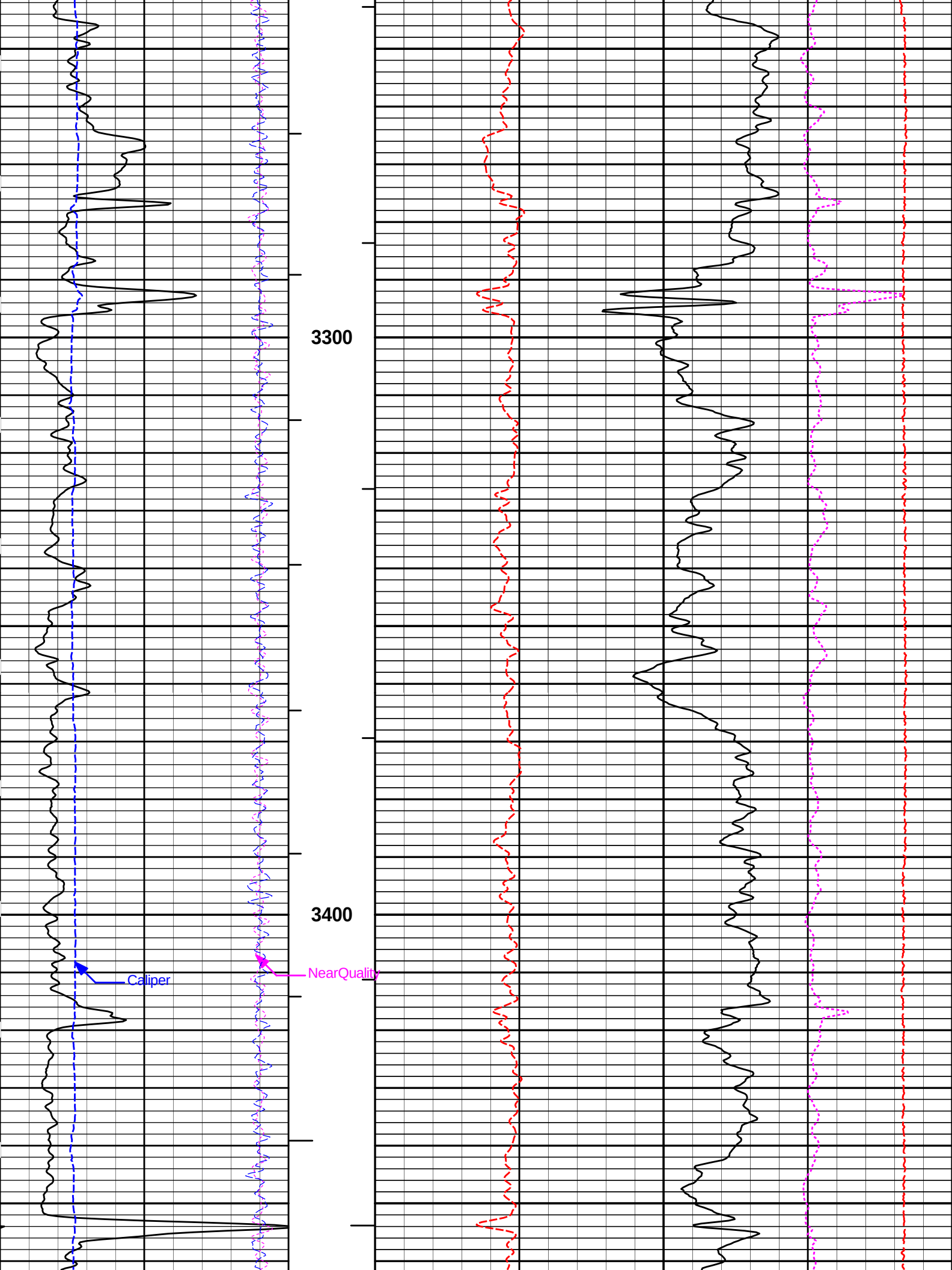

2200
2300
Caliper
NearQuality

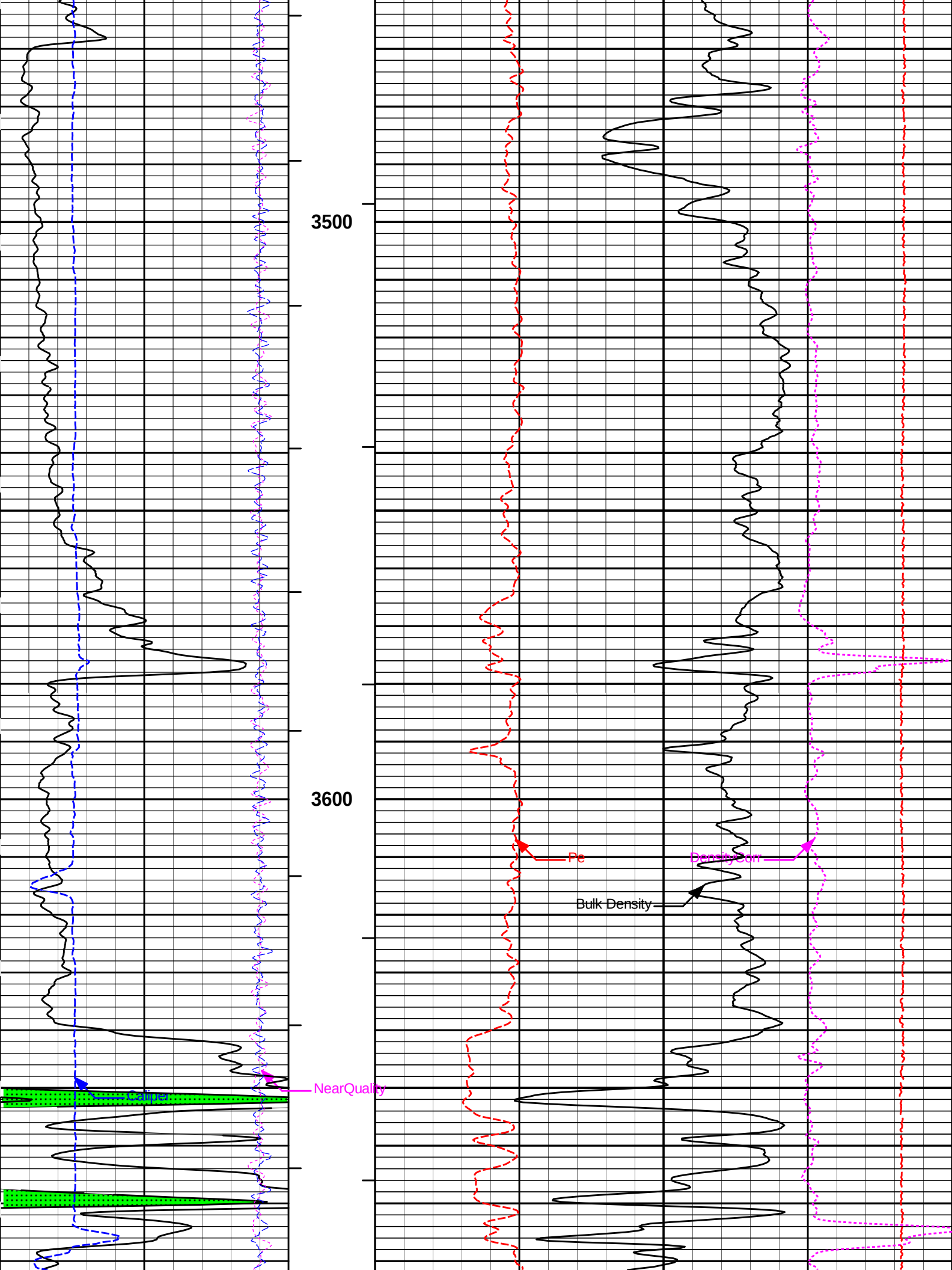

2400
2500
Caliper
NearQuality

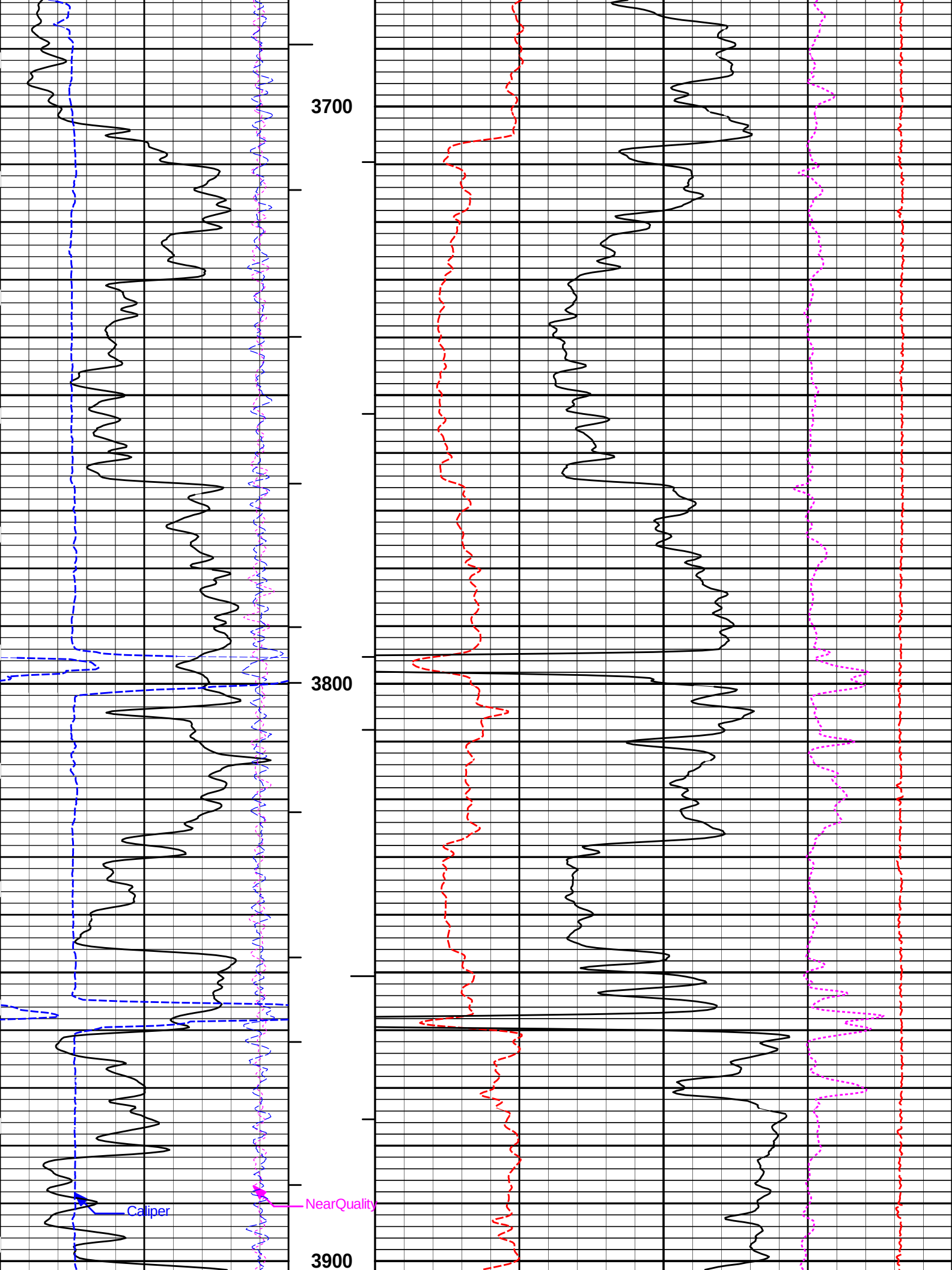

2600
2700
2800
Pe
DensityCorr
Bulk Density
Caliper
NearQuality

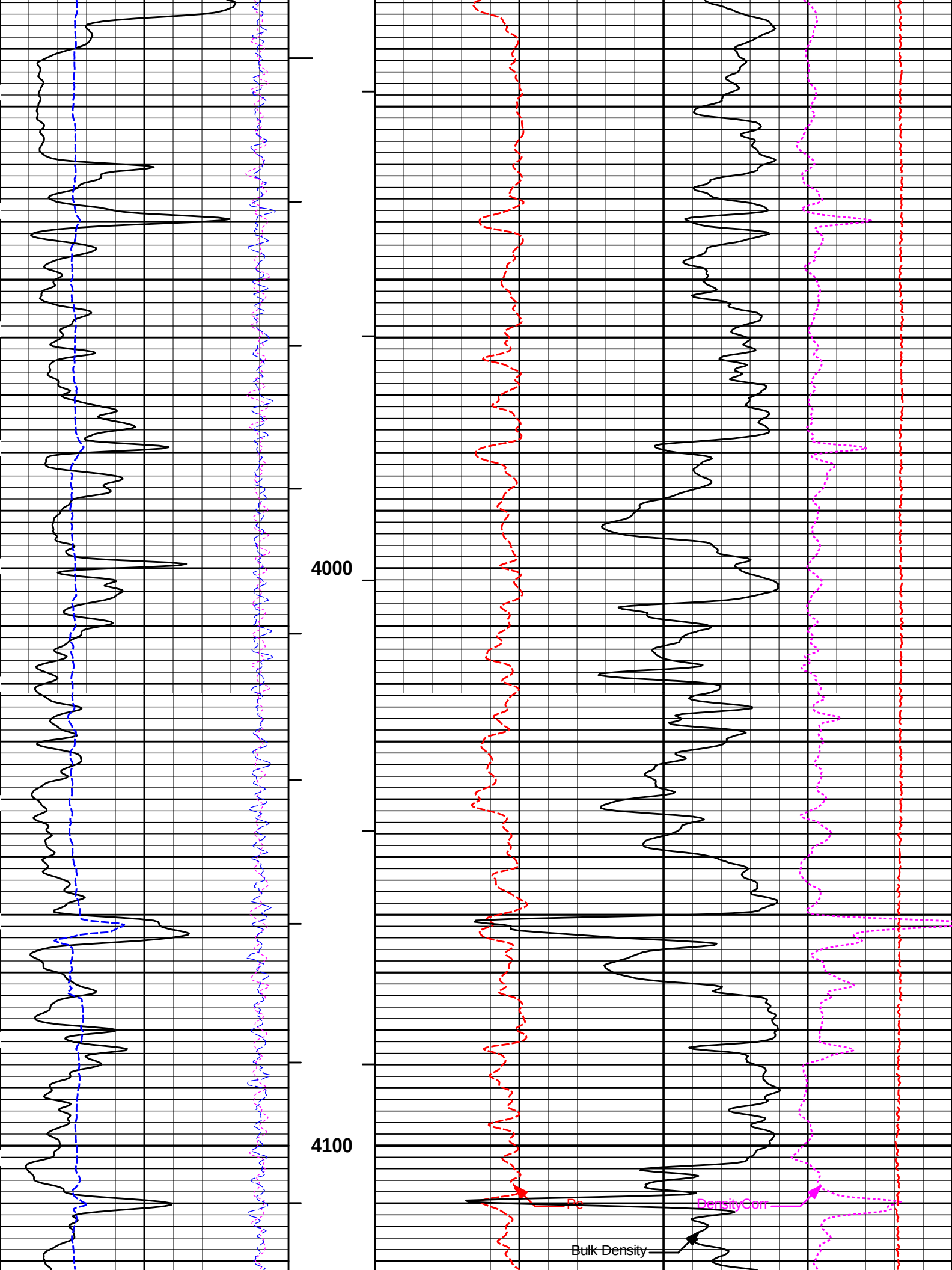

2900
3000
Caliper
NearQuality

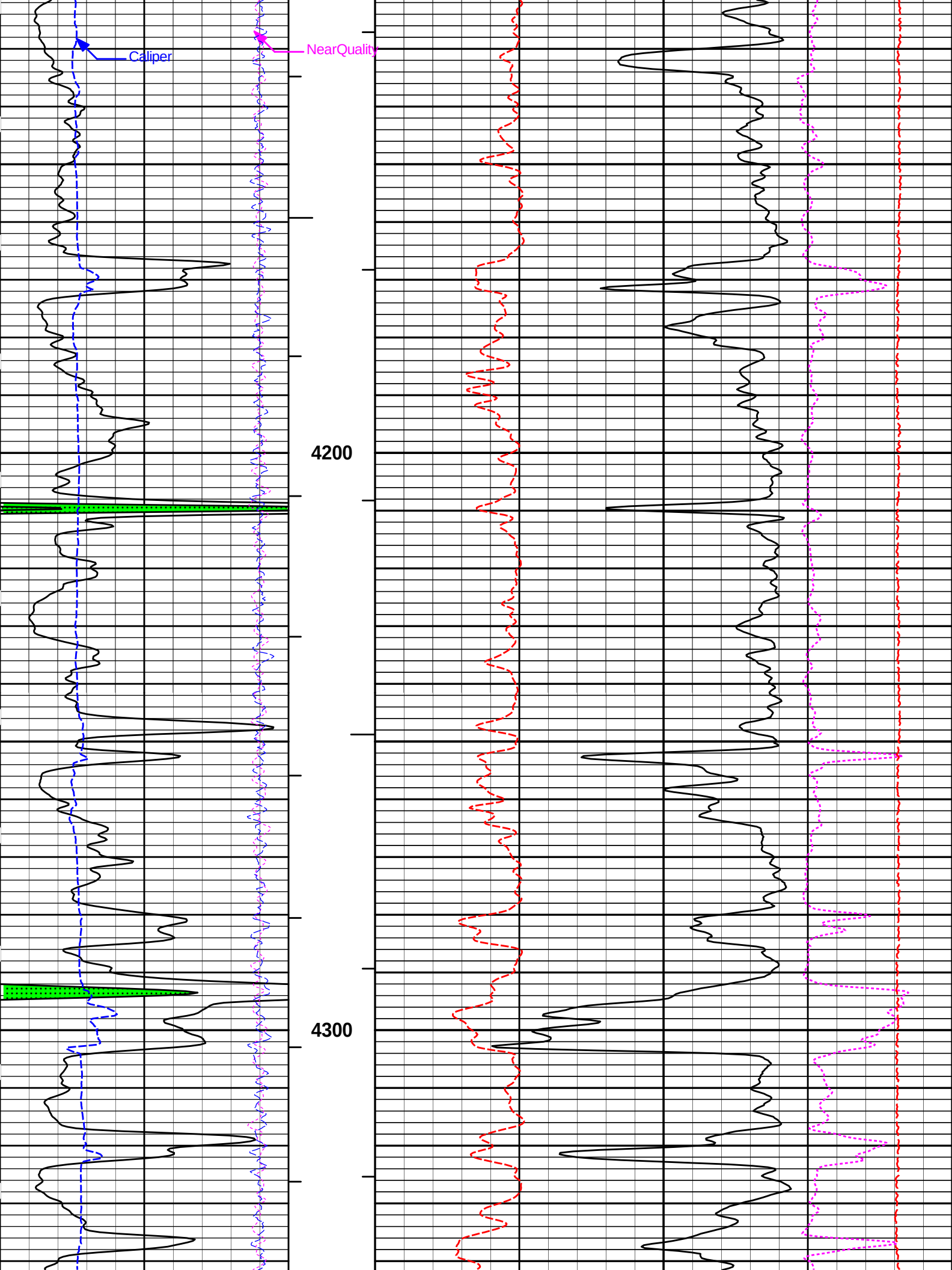

3100
3200
Caliper
NearQuality
Pe
DensityCorr
Bulk Density

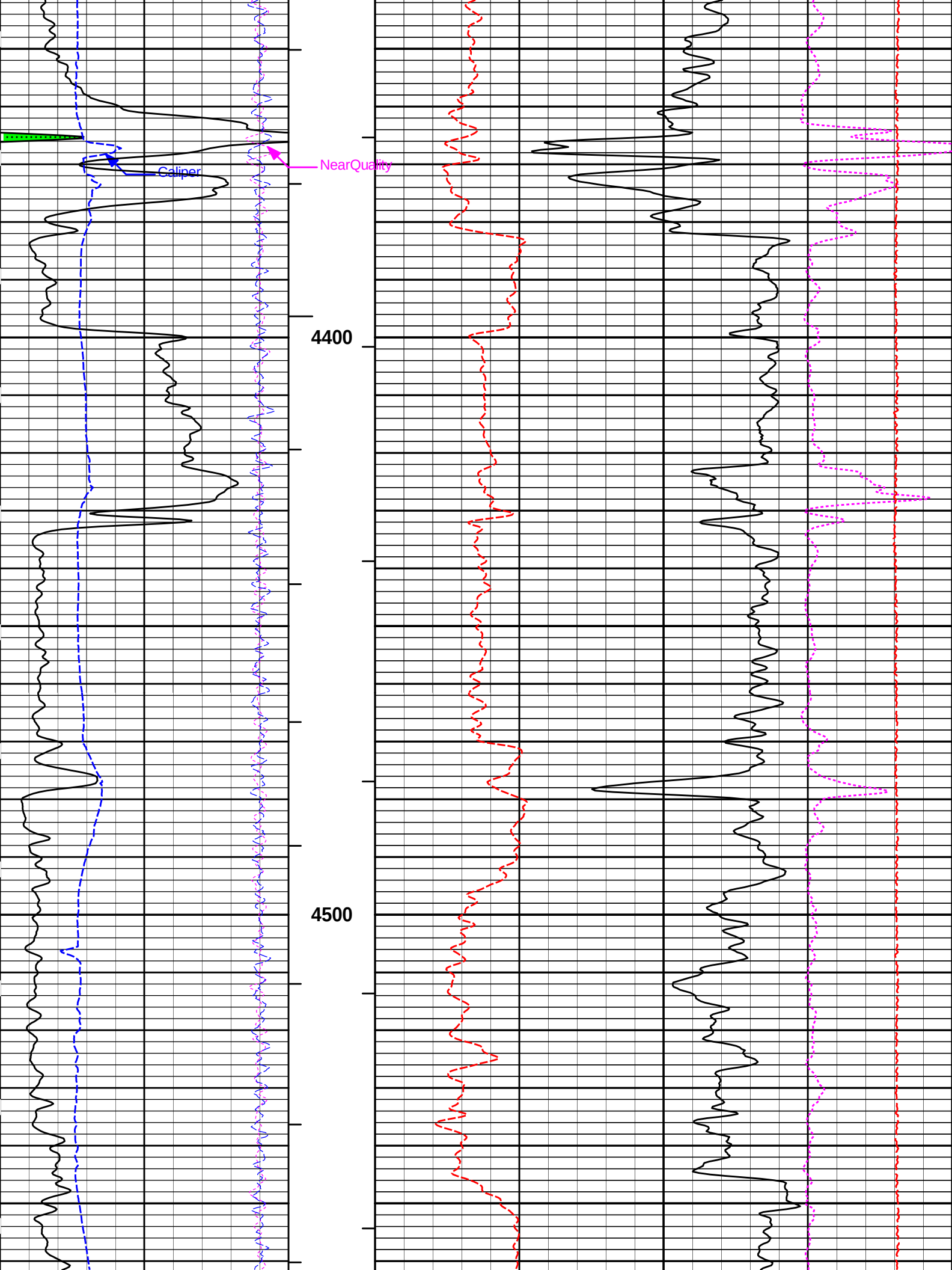

3300
3400
Caliper
NearQuality

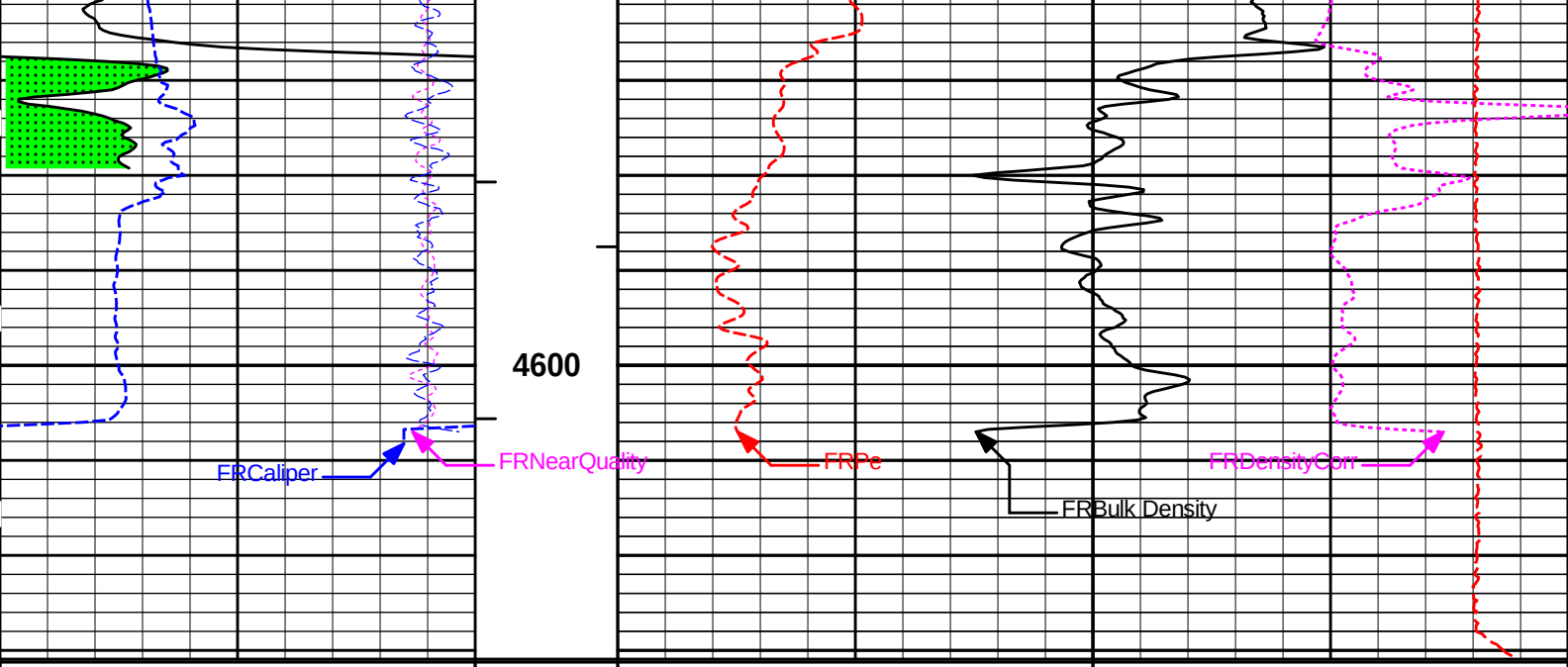

3500
3600
Caliper
NearQuality
Pe
DensityCorr
Bulk Density


3700
3800
3900
Caliper
NearQuality


4000
4100
Pe
DensityCorr
Bulk Density


Caliper
NearQuality
4200
4300


Caliper
NearQuality
4400
4500



6 Caliper 16 inches	MD 1 : 240 ft	0 Pe 10 | -0.25 DensityCorr 0.25 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: 19-Jan-14 20:09:06
Plot Range: 1023 ft to 4630.92 ft
Data: LAMBERT 3014\Well Based\DAQ-0001-005\
Plot File: \\-LOCAL-\LAMBERT 3014\0001 SP-GTET-CSNG-DSN-SDL-ACRT-CH\PORO\BULKD_5_MAIN_LIB

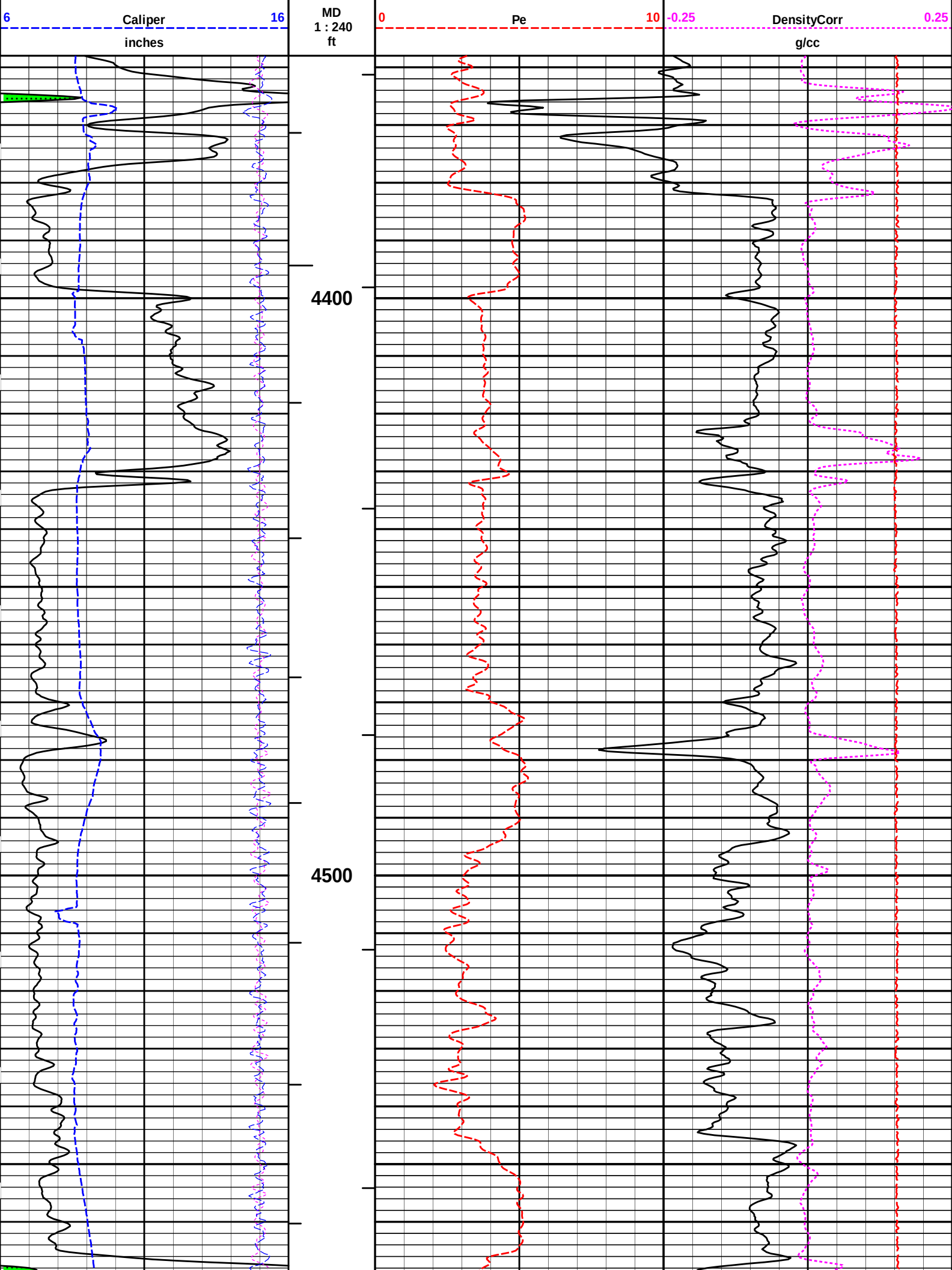
5 INCH MAIN LOG

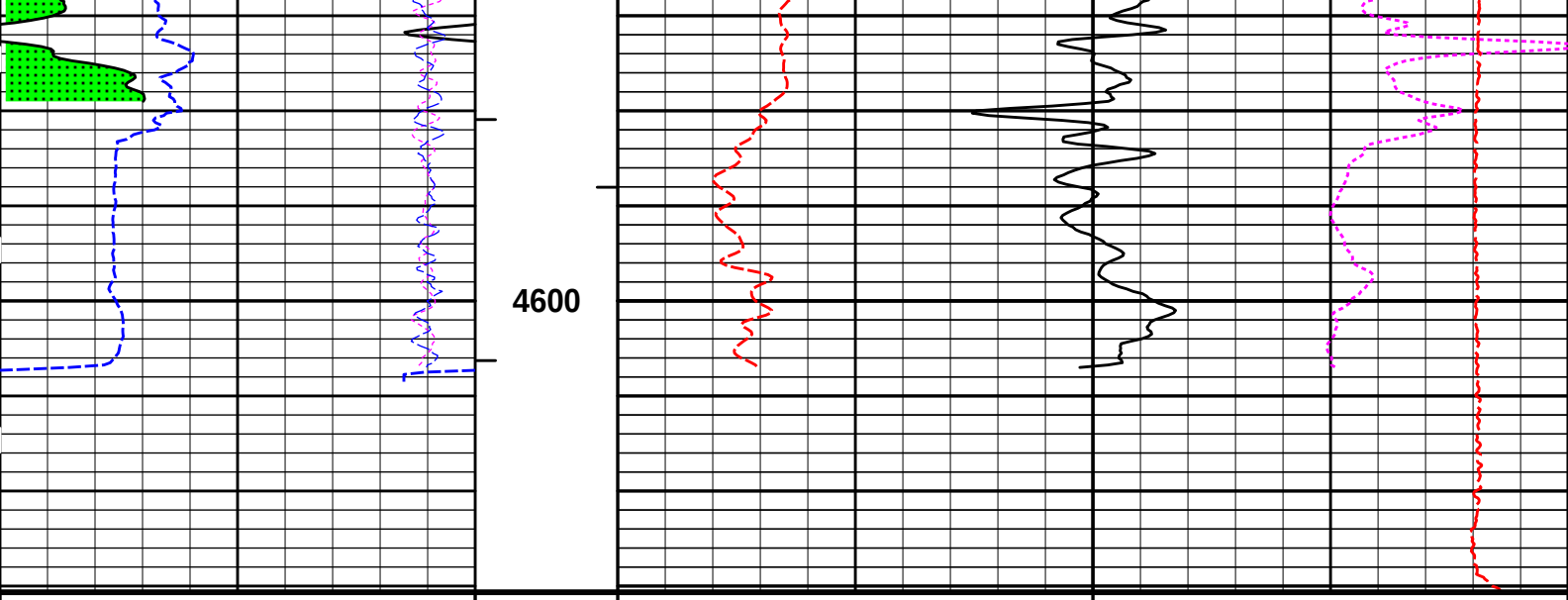
HALLIBURTON

Plot Time: 19-Jan-14 20:09:06
Plot Range: 4358 ft to 4630.5 ft
Data: LAMBERT 3014\Well Based\DAQ-0001-003\
Plot File: \\-LOCAL-\LAMBERT 3014\0001 SP-GTET-CSNG-DSN-SDL-ACRT-CH\PORO\BULKD_5_REP_LIB

REPEAT SECTION

SHALE		
0 Gamma Ray 150 api		
18 FarQuality -2	BHV ft3	2 Bulk Density 3 g/cc
-18 NearQuality 2	AHV ft3	15K Tension 0 pounds


6
Caliper
16
inches
MD
1 : 240
ft
0
Pe
10
-0.25
DensityCorr
0.25
g/cc
4400
4500



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

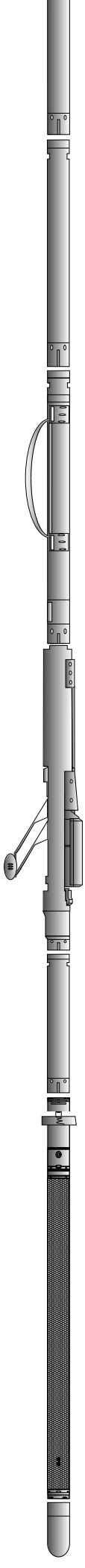
Plot Time: 19-Jan-14 20:09:07
Plot Range: 4358 ft to 4630.5 ft
Data: LAMBERT 3014\Well Based\DAQ-0001-003\
Plot File: \\-LOCAL-\LAMBERT 3014\0001 SP-GTET-CSNG-DSN-SDL-ACRT-CH\PORO\BULKD_5_REP_LIB

REPEAT SECTION

HALLIBURTON

TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
						64.49 ft
CH_HOS-954 37.50 lbs		Ø 2.750 in		Temperature @ 63.46 ft	3.03 ft	
						61.46 ft
XOHD-00000001 20.00 lbs		Ø 2.750 in Ø 3.625 in			0.95 ft	
						60.51 ft
SP Sub-12345678 60.00 lbs		Ø 3.625 in		SP @ 58.73 ft	3.74 ft	
						56.77 ft


GTET-11039640
165.00 lbs
Ø 3.625 in
8.52 ft
GammaRay @ 50.71 ft
48.25 ft
CSNG-11830417
114.00 lbs
Ø 3.625 in
8.17 ft
CSNG @ 42.62 ft
40.08 ft
DSN Decentralizer-10755066
6.60 lbs
Ø 5.000 in*
DSNT-10735145
174.00 lbs
Ø 3.625 in
9.69 ft
DSN Far @ 33.15 ft
DSN Near @ 32.40 ft
30.40 ft
SDLT-10673803
360.00 lbs
Ø 4.500 in
10.81 ft
SDLT Pad-10673790
65.00 lbs
Microlog Pad-10673803
8.00 lbs
Ø 4.750 in*
Ø 4.750 in*
Microlog @ 22.58 ft
SDL Caliper @ 22.40 ft
SDL @ 22.39 ft
19.58 ft
ACRt Instrument-10929776
50.00 lbs
Ø 3.625 in
5.03 ft
14.55 ft
Regal Standoff 6_75-00000001
20.00 lbs
Ø 6.750 in*
Mud Resistivity @ 13.19 ft
ACRt @ 9.21 ft
ACRt Sonde-10929775
200.00 lbs
Ø 3.625 in
14.22 ft
0.33 ft
Bull Nose-00000001
5.00 lbs
Ø 2.750 in
0.33 ft
0.00 ft

Mnemonic	Tool Name	Serial Number	Weight (lbs)	Length (ft)		Accumulated Length (ft)	Max.Log. Speed (fpm)
CH_HOS	Hostile Cable Head with Load Cell	954	37.50	3.03		61.46	300.00
XOHD	Hostile to Dits Cross Over	00000001	20.00	0.95		60.51	300.00
SP	SP Sub	12345678	60.00	3.74		56.77	300.00
GTET	Gamma Telemetry Tool	11039640	165.00	8.52		48.25	60.00
CSNG	Compensated Spectral Natural Gamma	11830417	114.00	8.17		40.08	15.00
DSNT	Dual Spaced Neutron	10735145	174.00	9.69		30.40	60.00
DCNT	DSN Decentralizer	10755066	6.60	5.13	*	33.73	300.00
SDLT	Spectral Density Tool	10673803	360.00	10.81		19.58	60.00
SDLP	Density Insite Pad	10673790	65.00	2.55	*	21.79	60.00
MICP	Microlog Pad	10673803	8.00	1.00	*	22.08	60.00
ACRt	Array Compensated True Resistivity Instrument Section	10929776	50.00	5.03		14.55	300.00
ACRt	Array Compensated True Resistivity Sonde Section	10929775	200.00	14.22		0.33	300.00
RSOF	Regal Standoff 6.75in	00000001	20.00	0.52	*	13.52	300.00
BLNS	Bull Nose	00000001	5.00	0.33		0.00	300.00
Total			**1,285.10**	**64.49**			

* Not included in Total Length and Length Accumulation.

Data: LAMBERT 3014\0001 SP-GTET-CSNG-DSN-SDL-ACRT-CH\IDLE **Date: 19-Jan-14 12:01:45**

HALLIBURTON

CALIBRATION REPORT

NATURAL GAMMA RAY TOOL SHOP CALIBRATION

Tool Name: GTET - 11039640 **Reference Calibration Date:** 31-Dec-13 12:50:41

Engineer: THOMAS HYDE **Calibration Date:** 07-Jan-14 14:53:41

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	44.8	44.4	api
Background + Calibrator	278.7	276.4	api
Calibrator	234.0	232.0	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION

Tool Name: GTET - 11039640 **Reference Calibration Date:** 07-Jan-14 14:53:41

Engineer: THOMAS HYDE **Calibration Date:** 19-Jan-14 12:04:21

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	44.4	45.7	api
Background + Calibrator	276.4	277.6	api
Calibrator	232.0	231.9	api

Shop	Field	Difference	Tolerance
232.0	231.9	0.1	+/- 9.00

DUAL SPACED NEUTRON SHOP CALIBRATION

Tool Name: DSNT - 10735145 **Reference Calibration Date:** 09-Jan-14 12:49:09

Engineer:	**THOMAS HYDE**	**Calibration Date:**	**09-Jan-14 13:02:38**
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: 60 degF
Min. Tool Housing Outside Diameter: 3.620 in

CALIBRATION CONSTANTS

Measurement	Prev. Value	New Value	Control Limit On New Value
Gain:	0.959	0.959	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):	0.2106	0.2106	0.0000	+/- 0.0020
Calibrated Ratio:	9.72	9.72	0.001	+/- 0.050

VERIFIER

Measurement	Value	Control Limit
Snow-Block Porosity (decp):	0.0658	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 - 10735145**	**Reference Calibration Date:**	**09-Jan-14 13:02:38**
Engineer:	**THOMAS HYDE**	**Calibration Date:**	**19-Jan-14 12:17:53**
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):	0.0658	0.0658	0.0000	+/- 0.0150

PASS/FAIL SUMMARY

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

DENSITY CALIPER SHOP CALIBRATION

Tool Name:	**SDLT - 10673803**	**Reference Calibration Date:**	**01-Jan-70 00:00:00**
Engineer:	**THOMAS HYDE**	**Calibration Date:**	**09-Jan-14 09:05:08**
Software Version:	**WL INSITE R3.8.4 (Build 5)**	**Calibration Version:**	**1**
Host Tool Name:	**DSNT - 10735145**		

CALIBRATION COEFFICIENTS

Measurement	Previous Value	New Value	Control Limit On New Value
Pad Offset	-4027.93	-4027.93	-7000.00 - -1000.00
Pad Gain	0.0003815	0.0003815	0.000200 - 0.000600
Arm Offset	-4150.02	-4150.02	-5000.00 - 3000.00
Arm Gain	0.0004265	0.0004265	0.000300 - 0.000700
Arm Power	0.000000860	0.000000860	-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)	6.50	6.50	0.00	+/- 0.20
Medium Ring (in)	8.25	8.25	0.00	+/- 0.20
Large Ring (in)	15.00	15.00	0.00	+/- 0.20

PASS/FAIL SUMMARY	
Calibration-Coefficients Range Check:	Passed
Ring-Measurement Check:	Passed

PASS/FAIL SUMMARY	
Calibration-Coefficients Range Check:	Passed

SDLT CALIPER FIELD CALIBRATION

Tool Name: SDLT - 10673803 **Reference Calibration Date:** 09-Jan-14 09:05:08

Engineer: THOMAS HYDE **Calibration Date:** 19-Jan-14 12:19:06

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	3.75	0.00	+/- 0.10
Ring Diameter	8.25	8.25	-0.00	+/- 0.15

PASS/FAIL SUMMARY	
Pad Extension Check:	Passed
Diameter Check:	Passed

SPECTRAL DENSITY SHOP CALIBRATION

Tool Name: SDLT Pad - 10673790 **Reference Calibration Date:** 09-Jan-14 11:16:09

Engineer: THOMAS HYDE **Calibration Date:** 09-Jan-14 11:34:29

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	1.0151	1.0127	0.90 - 1.10
Near Dens Gain	1.0082	1.0048	0.90 - 1.10
Near Peak Gain	1.0023	1.0081	0.90 - 1.10

Near Lith Gain	0.9707	0.9824	0.90 - 1.10
Far Bar Gain	1.0100	1.0088	0.90 - 1.10
Far Dens Gain	0.9959	0.9953	0.90 - 1.10
Far Peak Gain	0.9883	0.9855	0.90 - 1.10
Far Lith Gain	0.9575	0.9565	0.90 - 1.10
Near Bar Offset	0.1129	0.1333	NONE
Near Dens Offset	0.1711	0.2001	NONE
Near Peak Offset	0.2234	0.1746	NONE
Near Lith Offset	0.4658	0.3697	NONE
Far Bar Offset	0.0878	0.0985	NONE
Far Dens Offset	0.1788	0.1844	NONE
Far Peak Offset	0.1930	0.2172	NONE
Far Lith Offset	0.3456	0.3534	NONE
Near Bar Background	852.85	852.08	700 - 1450
Near Dens Background	277.69	278.65	230 - 480
Near Peak Background	121.60	123.11	100 - 210
Near Lith Background	151.48	150.74	125 - 260
Far Bar Background	573.91	571.65	450 - 900
Far Dens Background	225.08	225.65	175 - 345
Far Peak Background	88.87	89.49	70 - 140
Far Lith Background	92.72	93.78	75 - 145

CALIBRATION BLOCK SUMMARY

Measurement	Current Reading (Previous Coef)	Calibrated (New Coef)	Change	Control Limit On Change
MAGNESIUM				
Density (g/cc)	1.684	1.684	-0.000	+/- 0.015
Pe	2.583	2.561	-0.022	+/- 0.150
ALUMINUM				
Density (g/cc)	2.600	2.598	-0.002	+/- 0.01500
Pe	3.132	3.130	-0.002	+/- 0.150

TOOL SUMMARY

Measurement	Near Detector		Far Detector	
	Value	Control Limits	Value	Control Limits
QUALITY				
Background	-0.0002	+/- 0.0110	-0.0021	+/- 0.0140
Magnesium Block	0.0015	+/- 0.0110	-0.0005	+/- 0.0140
Aluminum Block	-0.0010	+/- 0.0110	0.0004	+/- 0.0140
Resolution	8.57	6.00 - 11.50	8.94	6.00 - 11.50
Internal Verifier(B+D+P+L)	1405	1200 - 2700	981	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:**	**09-Jan-14 11:34:29**
Engineer:	**THOMAS HYDE**	**Calibration Date:**	**19-Jan-14 12:22:36**
Software Version:	**WL INSITE R3.8.4 (Build 5)**	**Calibration Version:**	**1**

Pad Temperature: 71.3 degF

DENSITY FIELD CALIBRATION SUMMARY

Measurement	Shop	Field	Change	Control Limit +/-
Near (B+D+P+L) cps	1404.575	1408.714	4.139	15.134
Far (B+D+P+L) cps	980.571	975.100	-5.471	16.809
Near Resolution	8.57	8.64	0.070	0.50
Far Resolution	8.94	9.04	0.100	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-11039640						
Gamma Ray Calibrator	232.0	231.9	----------	0.1	+/- 9.00	api
DSNT-10735145						
Snow-Block Porosity	0.0658	0.0658	----------	0.0000	+/- 0.0150	decp
SDLT-10673803						
Pad Extension	3.75	3.75	----------	0.00	+/-0.10	in
Ring Diameter	8.25	8.25	----------	0.00	+/-0.15	in
SDLT Pad-10673790						
Near(B+D+P+L)	1404.575	1408.714	----------	-4.139	+/-15.134	cps
Far(B+D+P+L)	980.571	975.100	----------	5.471	+/-16.809	cps

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PARAMETERS REPORT

Depth (ft)	Tool Name	Mnemonic	Description	Value	Units
TOP					
	SHARED	BS	Bit Size	8.750	in
	SHARED	UBS	Use Bit Size instead of Caliper for all applications.	No	
	SHARED	MDBS	Mud Base	Water	
	SHARED	MDWT	Borehole Fluid Weight	9.200	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	4638.00	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	
CSNG	CGOK	Process CSNG Data?	Yes	
CSNG	CENT	Is Tool Centralized?	No	
CSNG	GBOK	Gamma Enviromental Corrections?	Yes	
CSNG	BARF	Barite Correction Factor	1.00	
CSNG	ORDG	Use Fixed Gain	No	
CSNG	ORDO	Use Fixed Offset	No	
CSNG	ORDR	Use Fixed Resolution Degradation Factor	No	
DSNT	DNOK	Process DSN?	Yes	
DSNT	DEOK	Process DSN EVR?	No	
DSNT	NLIT	Neutron Lithology	Limestone	
DSNT	DNSO	DSN Standoff - 0.25 in (6.35 mm) Recommended	0.250	in
DSNT	DNTP	Temperature Correction Type	None	
DSNT	DPRS	DSN Pressure Correction Type	None	
DSNT	SHCO	View More Correction Options	No	
DSNT	UTVD	Use TVD for Gradient Corrections?	No	
DSNT	LHWT	Logging Horizontal Water Tank?	No	
SDLT	CLOK	Process Caliper Outputs?	Yes	
SDLT Pad	DNOK	Process Density?	Yes	
SDLT Pad	DNOK	Process Density EVR?	No	
SDLT Pad	CB	Logging Calibration Blocks?	No	
SDLT Pad	SPVT	SDLT Pad Temperature Valid?	Yes	
SDLT Pad	DTWN	Disable temperature warning	No	
SDLT Pad	DMA	Formation Density Matrix	2.710	g/cc
SDLT Pad	DFL	Formation Density Fluid	1.000	g/cc
Microlog Pad	MLOK	Process MicroLog Outputs?	Yes	
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: LAMBERT 3014\0001 SP-GTET-CSNG-DSN-SDL-ACRT-CH\IDLE **Date: 19-Jan-14 12:19:58**

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INPUTS, DELAYS AND FILTERS TABLE

Mnemonic	Input Description	Delay (ft)	Filter Type	Filter Length (ft)
	Depth Panel			
TENS	Tension	0.00	NO	
	CH_HOS			
DHTN	DownholeTension	0.00	BLK	0.000
	SP Sub			
PLTC	Plot Control Mask	58.73	NO	
SP	Spontaneous Potential	58.73	BLK	1.250
SPR	Raw Spontaneous Potential	58.73	NO	
SPO	Spontaneous Potential Offset	58.73	NO	
	GTET			
TPUL	Tension Pull	50.71	NO	
GR	Natural Gamma Ray API	50.71	TRI	1.750
GRU	Unfiltered Natural Gamma Ray API	50.71	NO	
EGR	Natural Gamma Ray API with Enhanced Vertical Resolution	50.71	W	1.416 , 0.750
ACCZ	Accelerometer Z	0.00	BLK	0.083
DEVI	Inclination	0.00	NO	
	CSNG			
TPUL	Tension Pull	42.62	NO	
STAT	Status	42.62	NO	
FRMC	Tool Frame Count	42.62	BLK	0.250
TFRM	Total Frames	42.62	NO	
LSPD	Line Speed	42.62	BLK	0.250
CTIM	Accumulation time for sample	42.62	BLK	0.250
NOIS	Spectral Noise	42.62	BLK	0.250
STAB	Stabilizer Voltage in mv	42.62	BLK	0.250
STBP	Stabilizer 60 KEV Peak	42.62	BLK	0.250
AMER	Americium	42.62	BLK	0.250
FTMP	Flask PCB Temperature	42.62	BLK	0.250
SPEL	Low Energy Spectrum	42.62	BLK	0.250
SPEH	High Energy Spectrum	42.62	BLK	0.250
SSP	Stabilization Energy Spectrum	42.62	BLK	0.250
CSPC	CSNG Lo Hi Spectrum Data	42.62	NO	
	DSNT			
TPUL	Tension Pull	32.30	NO	
RNDS	Near Detector Telemetry Counts	32.40	BLK	1.417
RFDS	Far Detector Telemetry Counts	33.15	TRI	0.583
DNTT	DSN Tool Temperature	32.40	NO	
DSNS	DSN Tool Status	32.30	NO	
ERND	Near Detector Telemetry Counts EVR	32.40	BLK	0.000
ERFD	Far Detector Telemetry Counts EVR	33.15	BLK	0.000

ENTM	DSN Tool Temperature EVR	32.40	NO	
	SDLT			
TPUL	Tension Pull	22.40	NO	
PCAL	Pad Caliper	22.40	TRI	0.250
ACAL	Arm Caliper	22.40	TRI	0.250
	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 Current Raw 12K X Receiver	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	

SDLT Pad				
TPUL	Tension Pull	22.39	NO	
NAB	Near Above	22.21	BLK	0.920
NHI	Near Cesium High	22.21	BLK	0.920
NLO	Near Cesium Low	22.21	BLK	0.920
NVA	Near Valley	22.21	BLK	0.920
NBA	Near Barite	22.21	BLK	0.920
NDE	Near Density	22.21	BLK	0.920
NPK	Near Peak	22.21	BLK	0.920
NLI	Near Lithology	22.21	BLK	0.920
NBAU	Near Barite Unfiltered	22.21	BLK	0.250
NLIU	Near Lithology Unfiltered	22.21	BLK	0.250
FAB	Far Above	22.56	BLK	0.250
FHI	Far Cesium High	22.56	BLK	0.250
FLO	Far Cesium Low	22.56	BLK	0.250
FVA	Far Valley	22.56	BLK	0.250
FBA	Far Barite	22.56	BLK	0.250
FDE	Far Density	22.56	BLK	0.250
FPK	Far Peak	22.56	BLK	0.250
FLI	Far Lithology	22.56	BLK	0.250
PTMP	Pad Temperature	22.40	BLK	0.920
NHV	Near Detector High Voltage	21.79	NO	
FHV	Far Detector High Voltage	21.79	NO	
ITMP	Instrument Temperature	21.79	NO	
DDHV	Detector High Voltage	21.79	NO	

Microlog Pad				
TPUL	Tension Pull	22.58	NO	
MINV	Microlog Lateral	22.58	BLK	0.750
MNOR	Microlog Normal	22.58	BLK	0.750

Data: LAMBERT 3014\0001 SP-GTET-CSNG-DSN-SDL-ACRT-CH\IDLE **Date: 19-Jan-14 12:20:06**

COMPANY	**SANDRIDGE ENERGY**		
WELL	**LAMBERT 3014 1-34**		
FIELD	**SKINNER**		
COUNTY	**BARBER**	STATE	**KANSAS**

HALLIBURTON

DUAL SPACED NEUTRON SPECTRAL DENSITY LOG