

# HALLIBURTON

## DUAL SPACED NEUTRON SPECTRAL DENSITY LOG

**SANDRIDGE EXPLORATION**  
**RENEE 2230 1-2**  
**STUART**  
**FINNEY**  
**KANSAS**

COMPANY **SANDRIDGE EXPLORATION**  
 WELL **RENEE 2230 1-2**  
 FIELD/BLOCK **STUART**  
 COUNTY **FINNEY**  
 STATE **KANSAS**

API No. 15-055-21774-00-01  
 Location NW SE NE SW  
 1968' FSL1987' FWL  
 Other Services:  
 MICRO  
 ACRT

Permanent Datum GL Elev.: K.B. 2788.0 ft  
 Log measured from KB D.F. 2786.0 ft  
 Drilling measured from KB 10.0 ft above perm. Datum G.L. 2778.0 ft

Date	05-Apr-13	Run No.	ONE
Depth - Driller	5395.00 ft	Depth - Logger	5317.0 ft
Bottom - Logged Interval	5494.0 ft	Top - Logged Interval	418.0 ft
Casing - Driller	8.625 in @ 412.0 ft	Casing - Logger	418.0 ft
Bit Size	7.875 in @	Type Fluid in Hole	WATER BASED MUD
Density	8.5 ppg	Viscosity	49.00 s/qt
PH	10.50 pH	Fluid Loss	3.6 cphm
Source of Sample	FLOWLINE	Rm @ Meas. Temperature	1.300 ohmm @ 75.00 degF
Rmf @ Meas. Temperature	1.08 ohmm @ 75.00 degF	Rmc @ Meas. Temperature	1.520 ohmm @ 75.00 degF
Source Rmf	MEASURED	Rmc	MEASURED
Rm @ BHT	0.93 ohmm @ 107.0 degF	Time Since Circulation	6.0 hr
Time on Bottom	05-Apr-13 04:16	Max. Rec. Temperature	107.0 degF @ 5517.0 ft
Equipment	10546696 LIBERAL	Recorded By	THOMAS HYDE
Witnessed By	R. MADRID		M. RODEN

Fold here

Service Ticket No.: 900328508      API Serial No.: 15-055-21774-00-01      PGM Version: WL INSITE R3.8.0 (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.
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.	11039640	Serial No.		Serial No.	11014296	Serial No.	11055304
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.	5168GW	Serial No.	DSN424
Distance to Source	10'	FWDA [Y/N]		Strength	1.5 Ci	Strength	15 Ci

LOGGING DATA

GENERAL			GAMMA		ACOUSTIC		DENSITY			NEUTRON				
Run No.	Depth		Speed	Scale		Scale		Matrix	Scale		Matrix	Scale		Matrix
	From	To	ft/min	L	R	L	R		L	R		L	R	
ONE	5517	418	REC	0	150				30	-10	2.71	30	-10	LIME

DIRECTIONAL INFORMATION

Maximum Deviation @ KOP @

Remarks: ANNULAR HOLE VOLUME CALCULATED FOR 5.5INCH CASING  
CHLORIDES REPORTED AT 4500 MG/L

TODAY'S CREW M. GRAHAM B. TERRELL

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

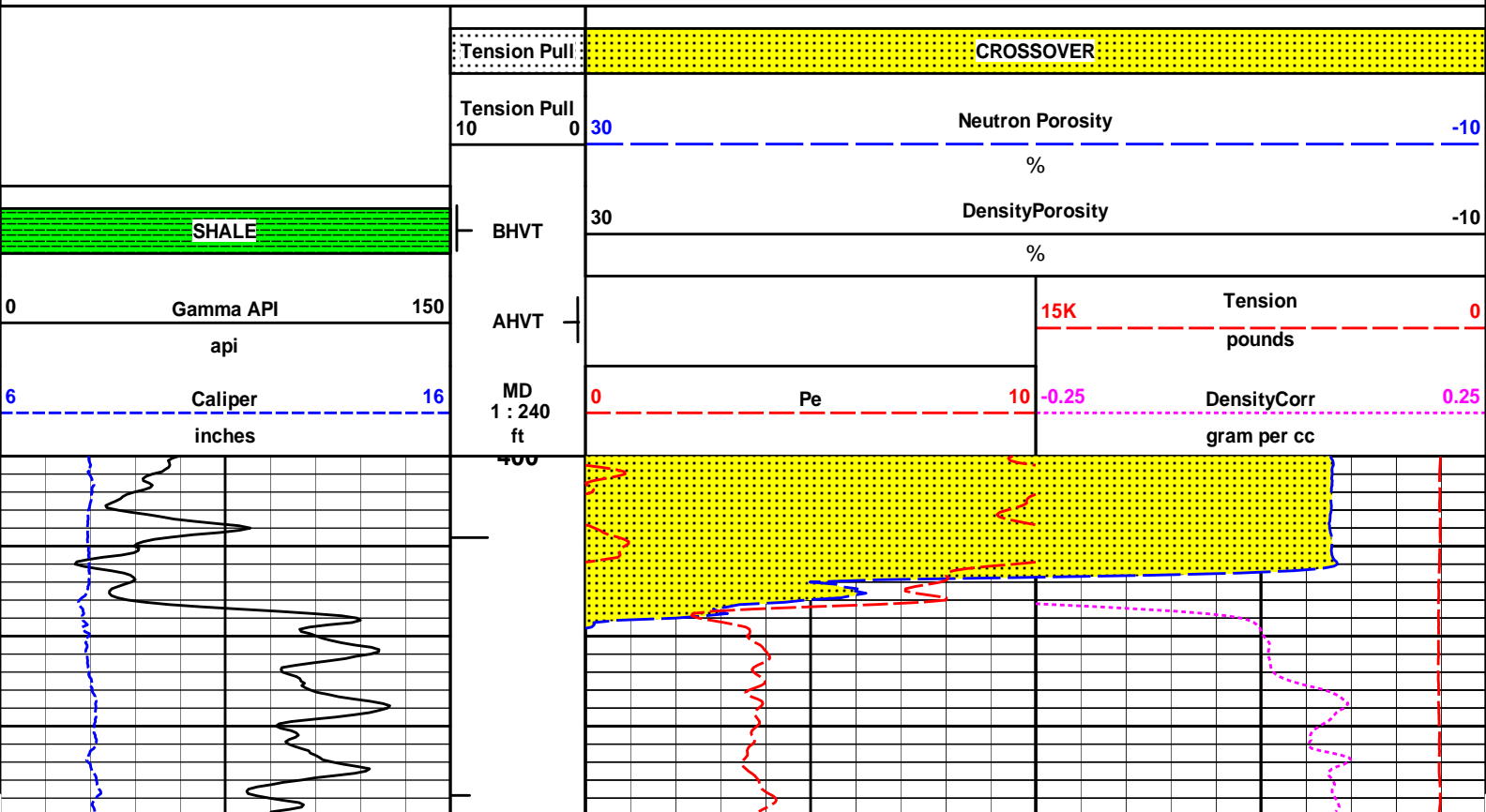
HALLIBURTON DOES NOT GUARANTEE THE ACCURACY OF ANY INTERPRETATION OF THE LOG DATA, CONVERSION OF LOG DATA TO PHYSICAL ROCK PARAMETERS OR RECOMMENDATIONS WHICH MAY BE GIVEN BY HALLIBURTON PERSONNEL OR WHICH APPEAR ON THE LOG OR IN ANY OTHER FORM. ANY USER OF SUCH DATA, INTERPRETATIONS, CONVERSIONS, OR 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.

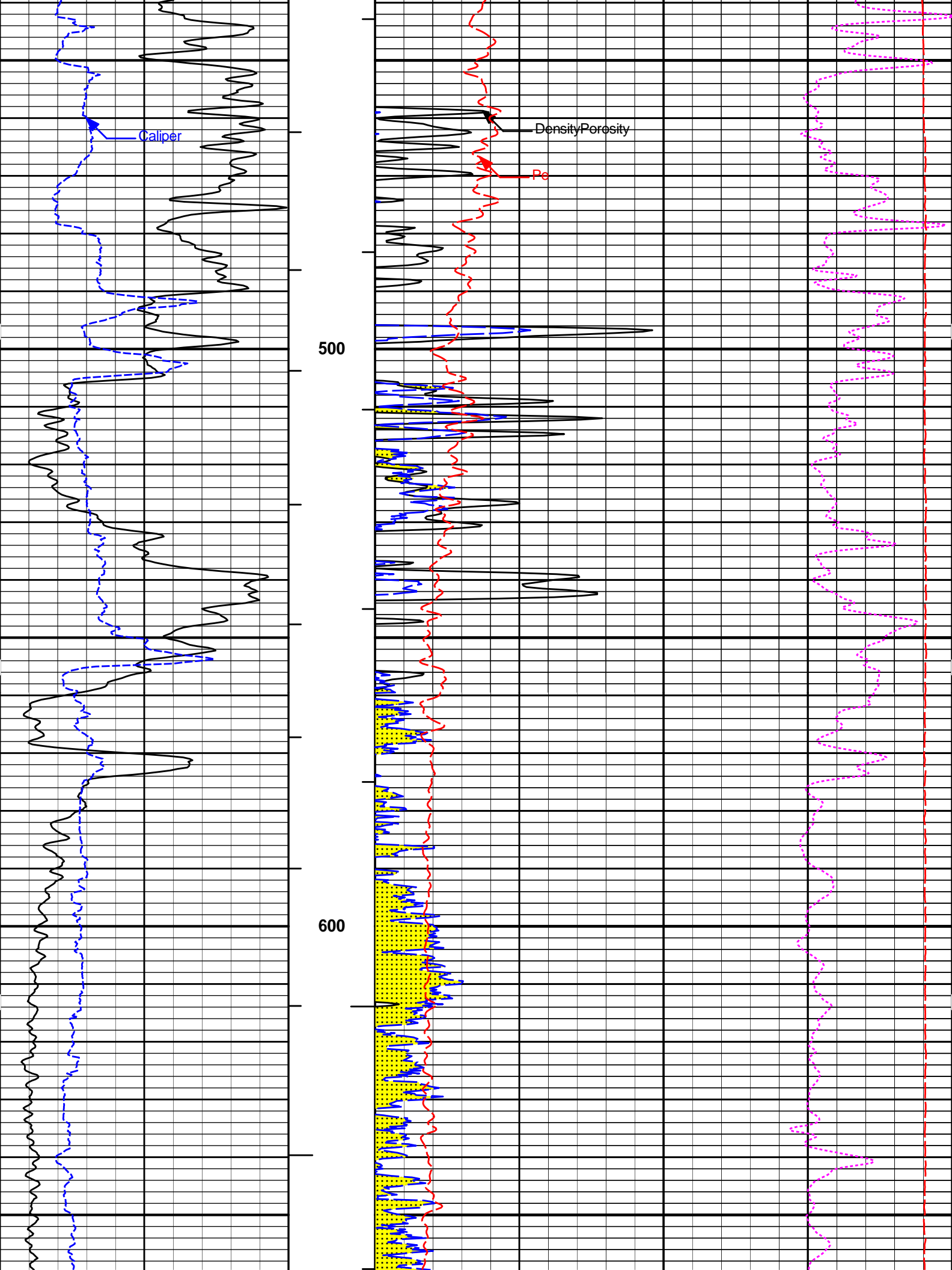
HALLIBURTON

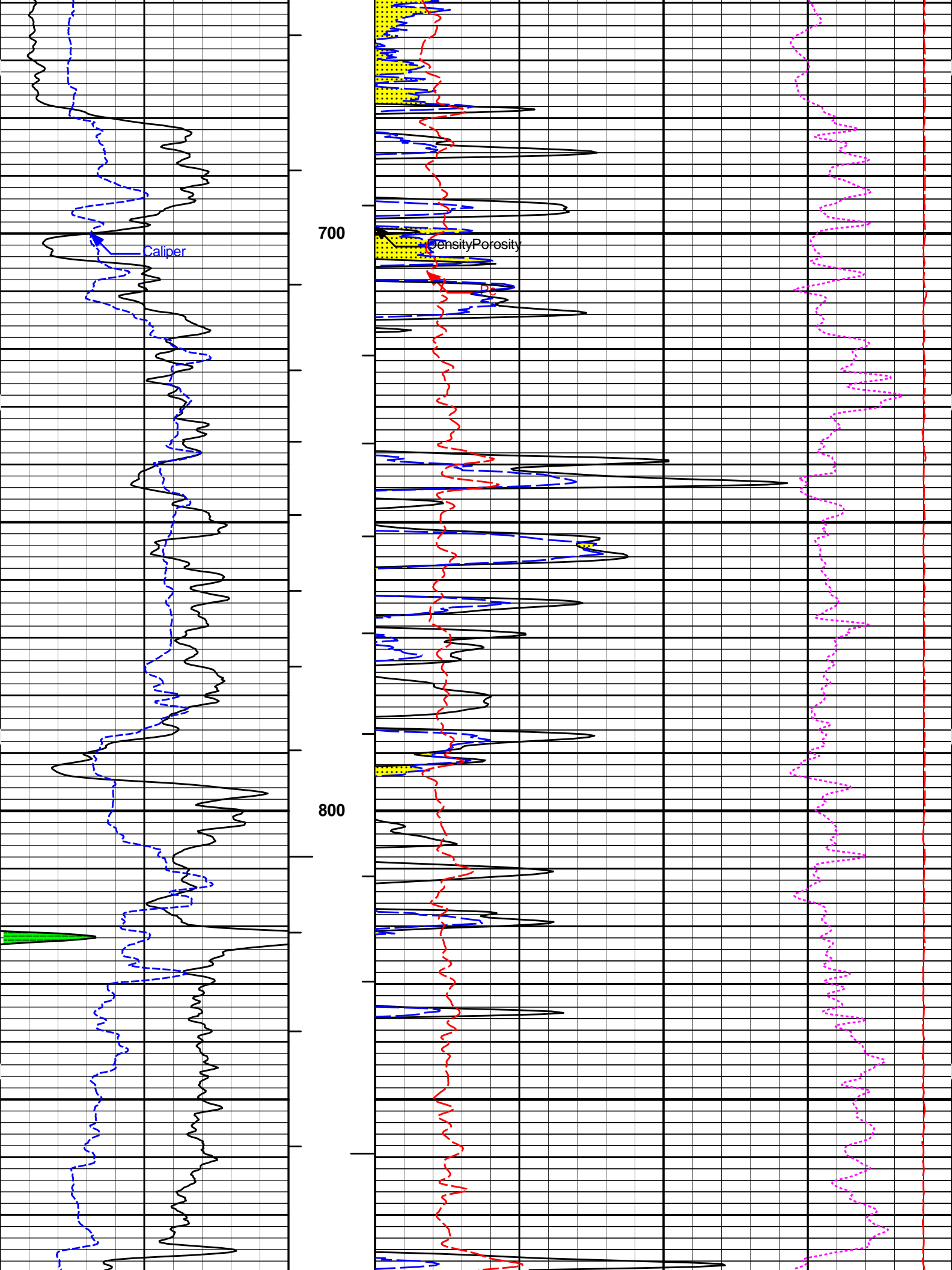


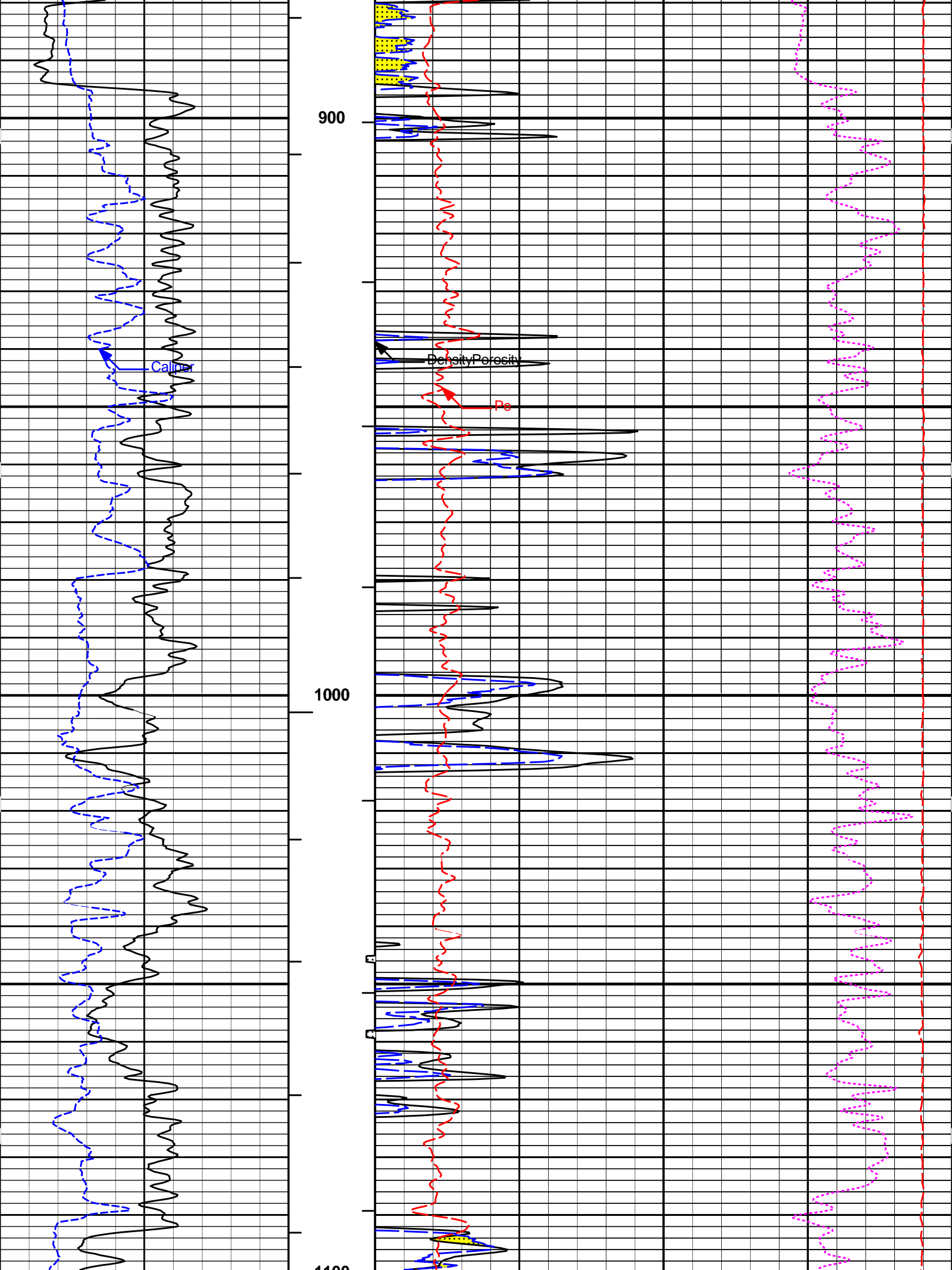
Plot Time: 05-Apr-13 05:52:32  
Plot Range: 400 ft to 5522.25 ft  
Data: RENE\_2230\_1\_2\Well Based\DAQ-0001-005\  
Plot File: \\PORO\Poro\_IQ\_5\_MAIN\_LIB

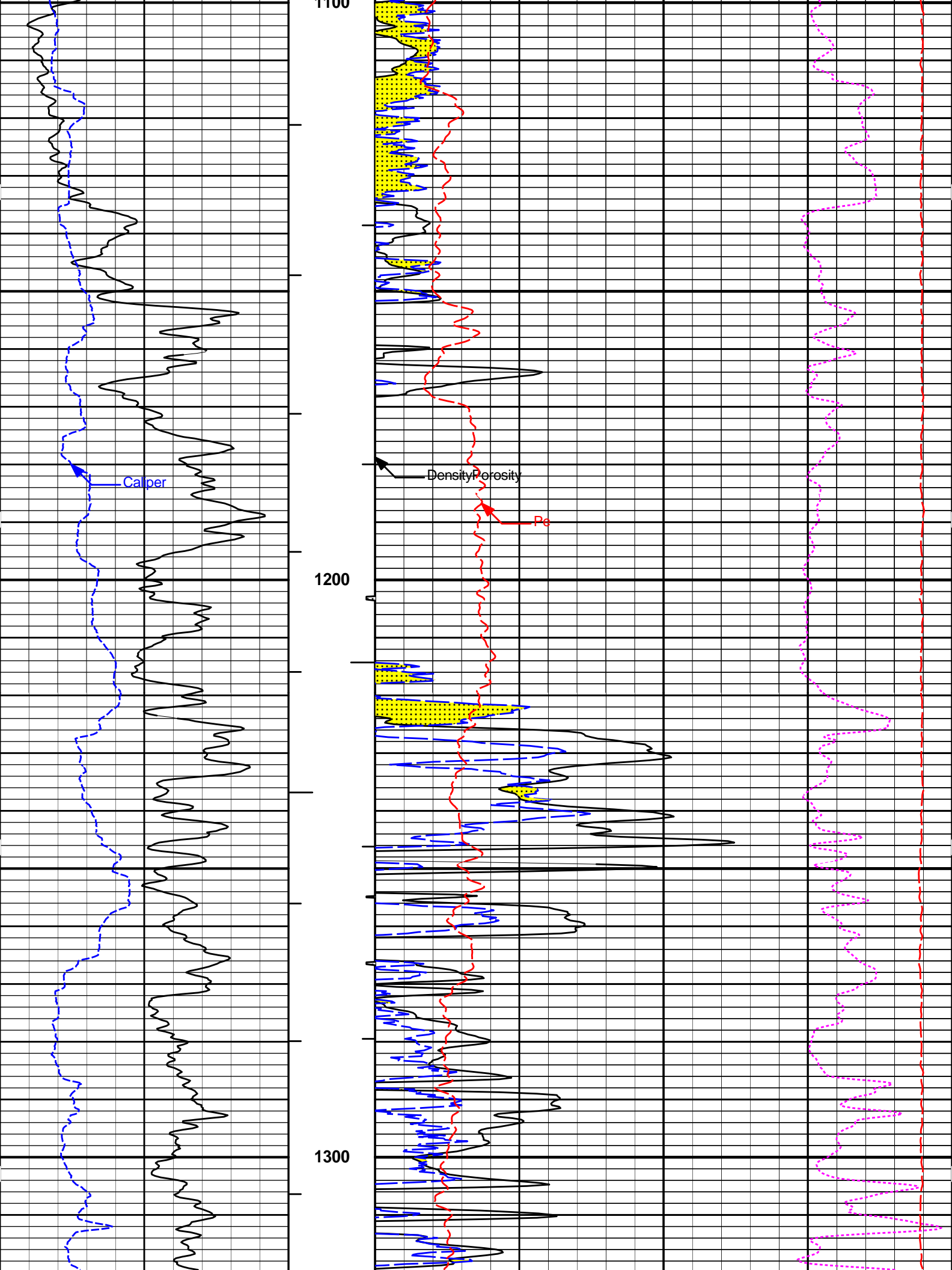
# 5 INCH MAIN LOG

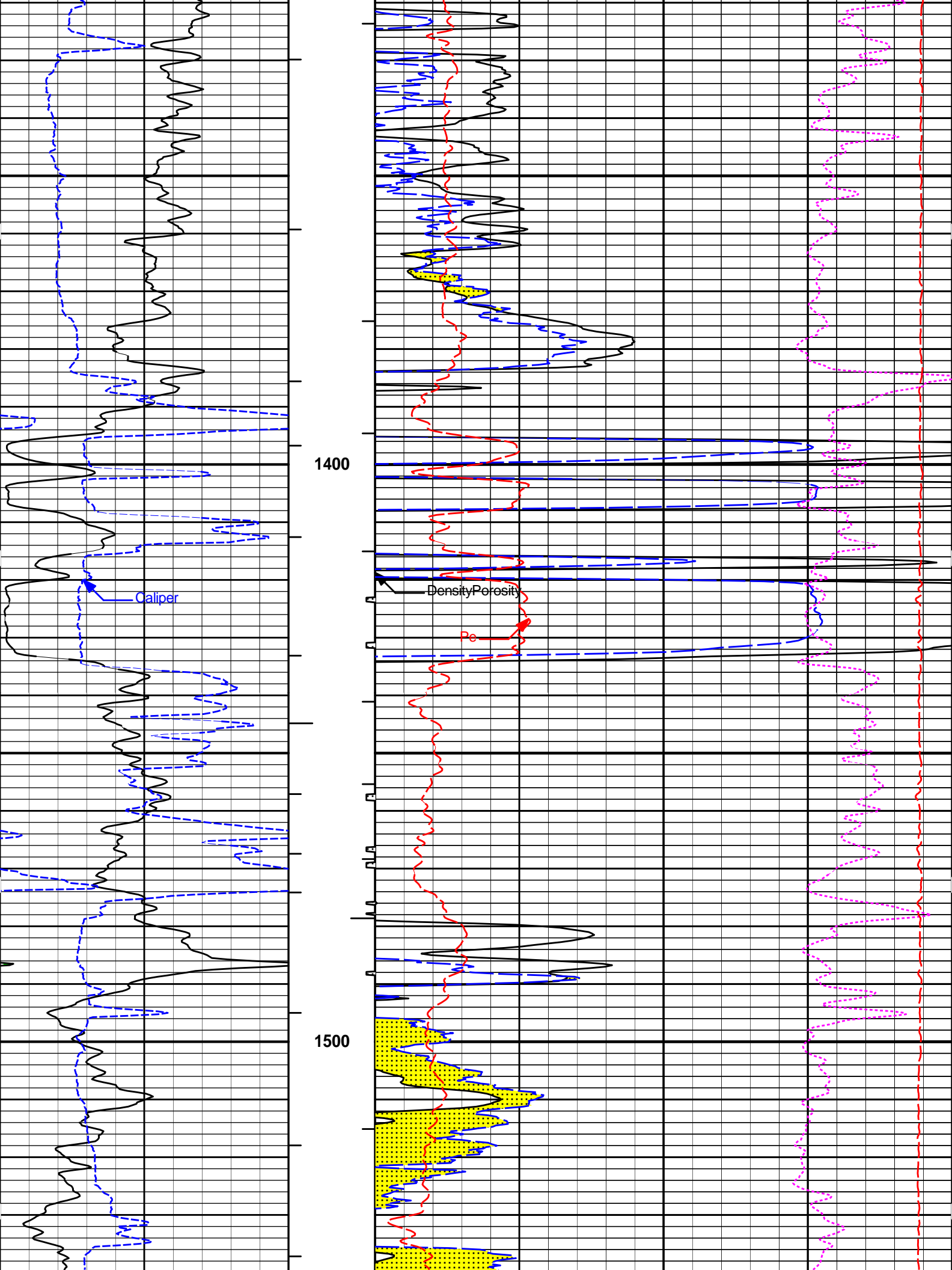


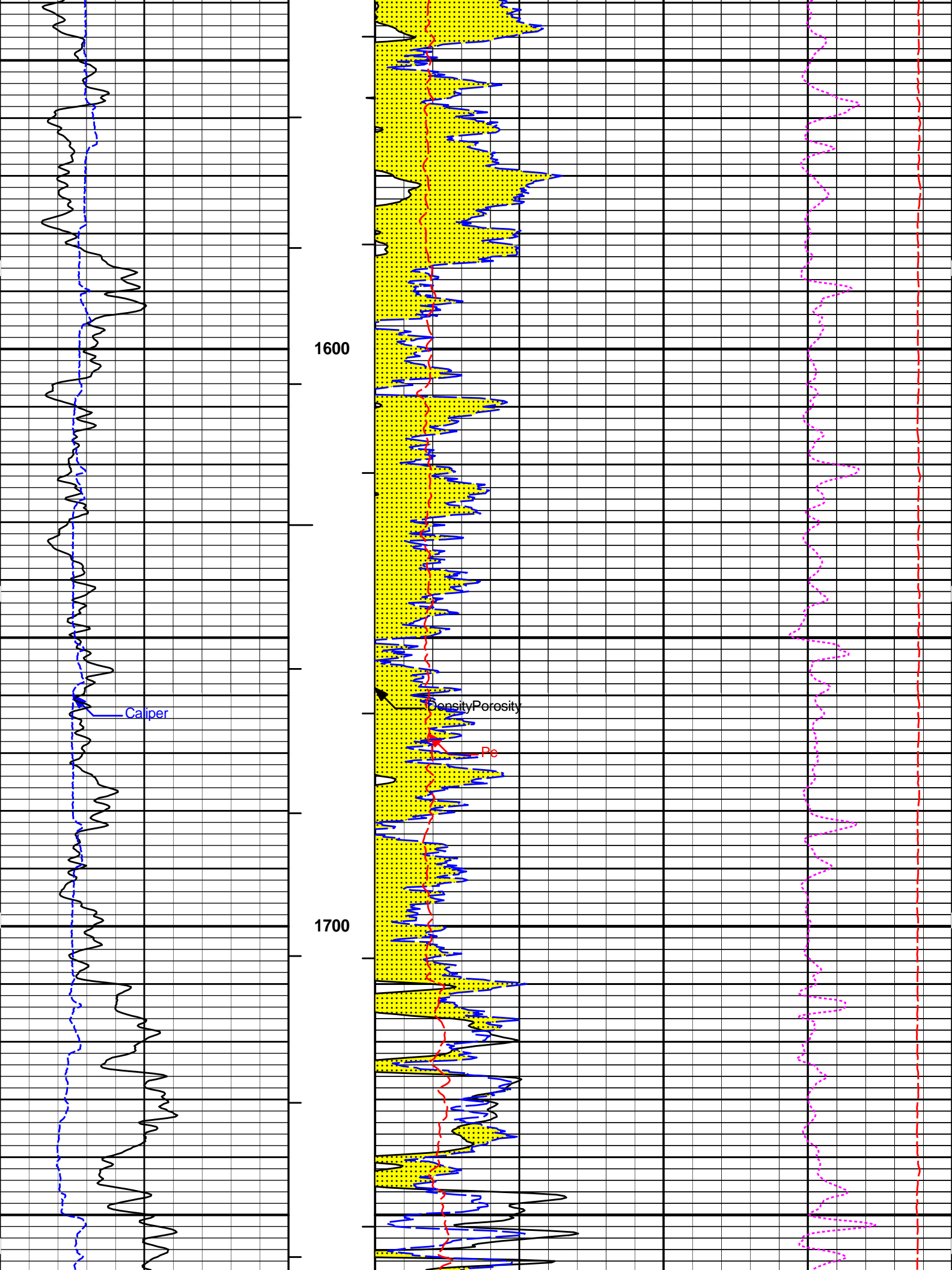




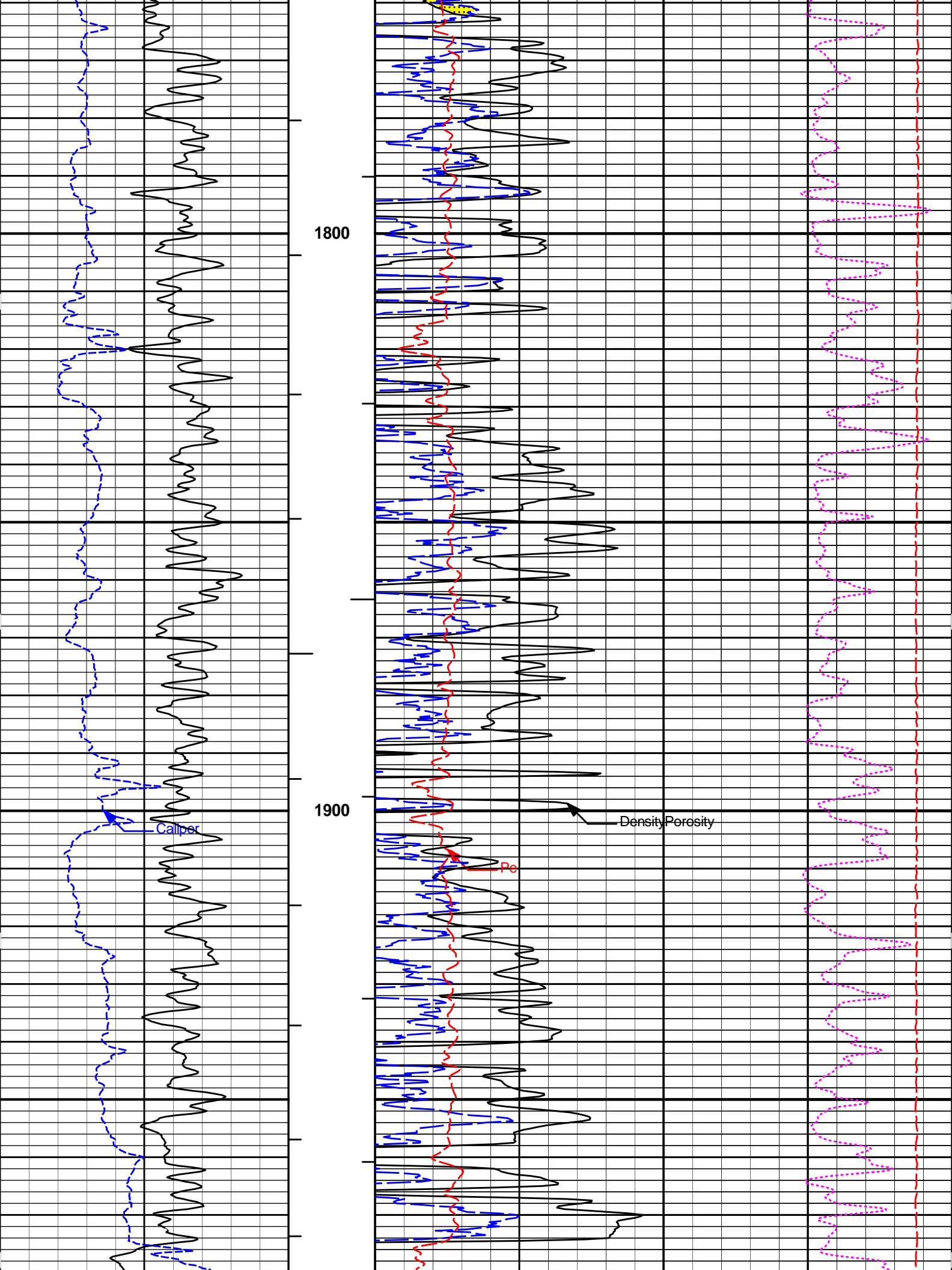


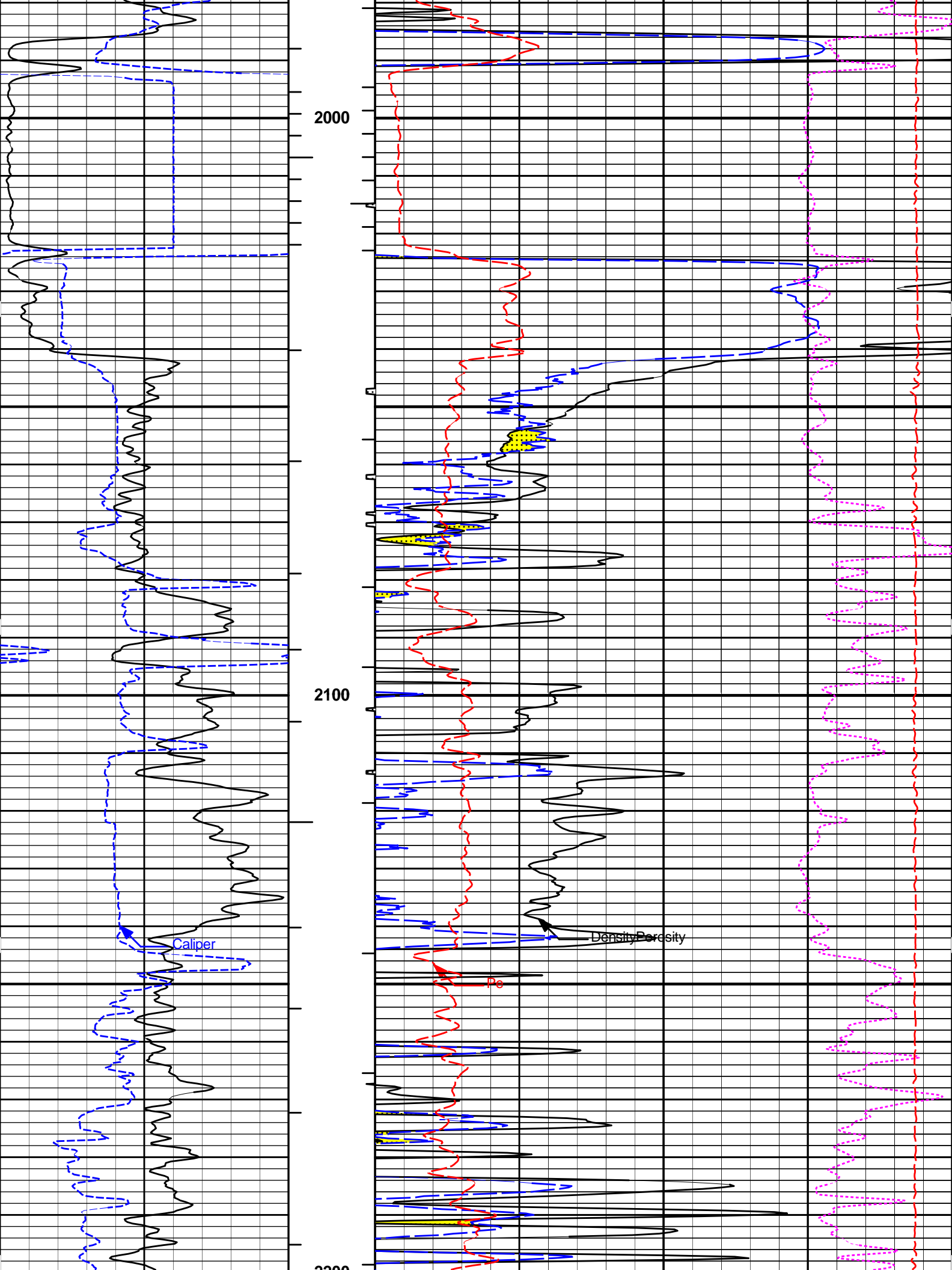


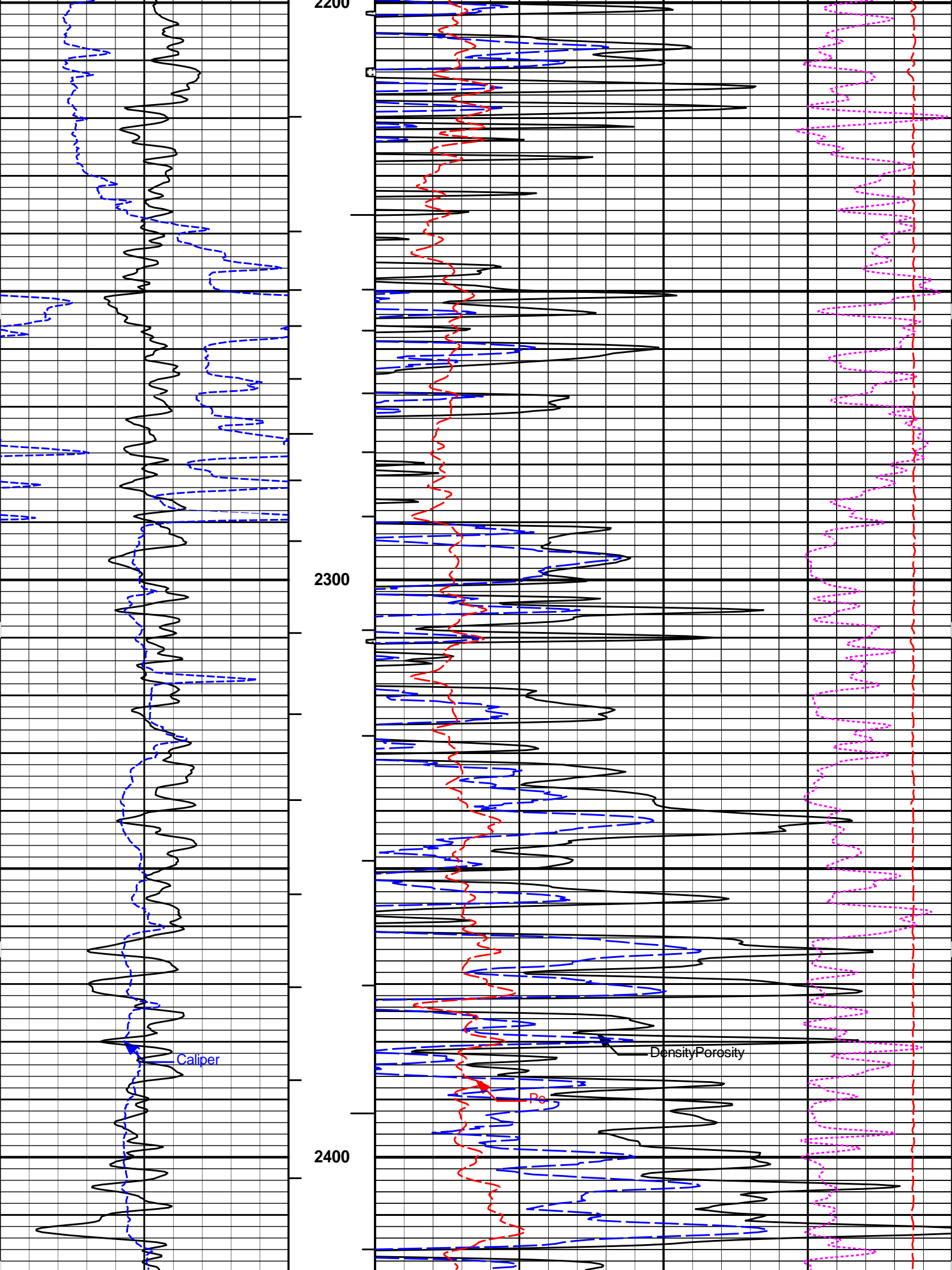


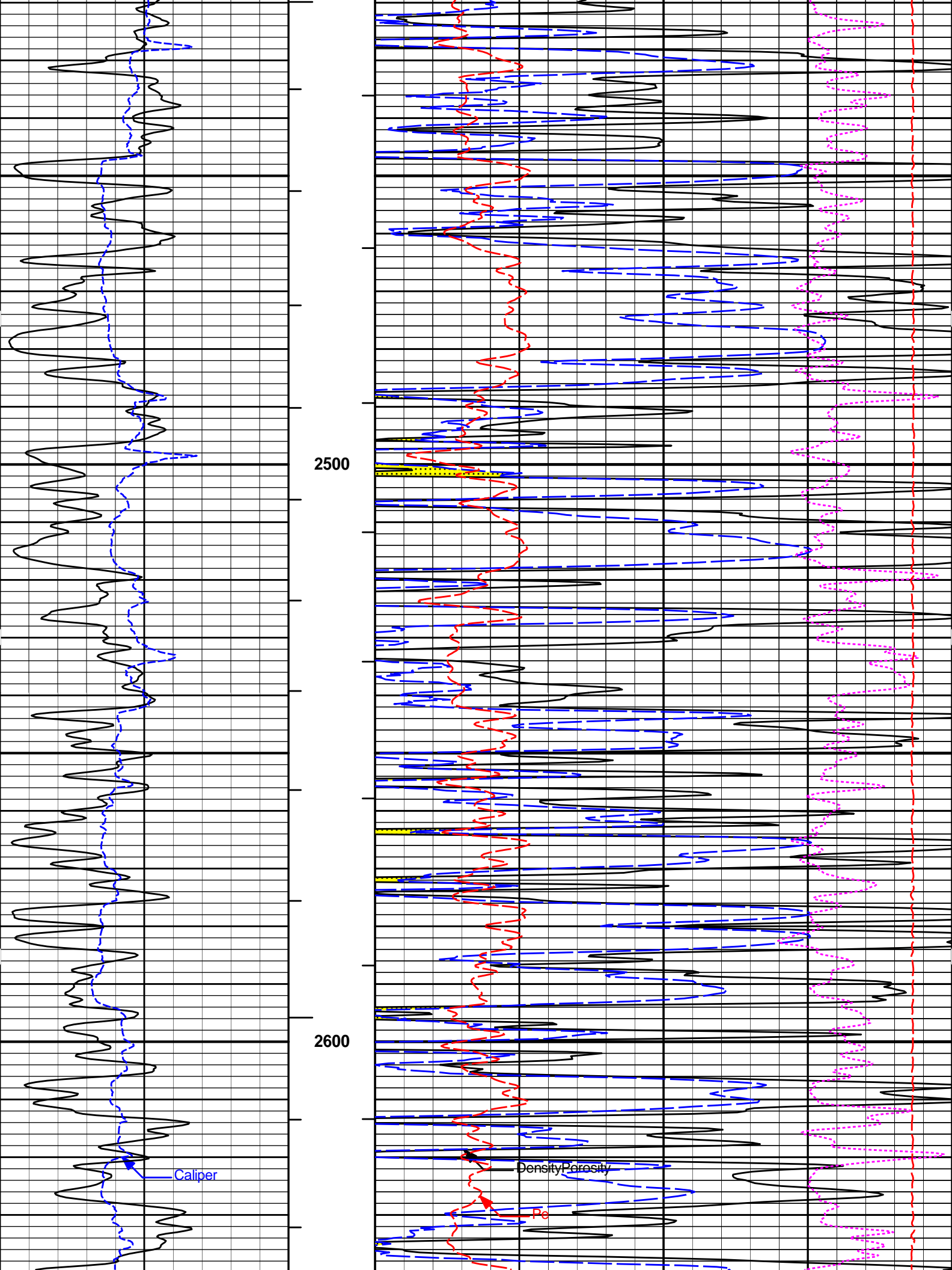


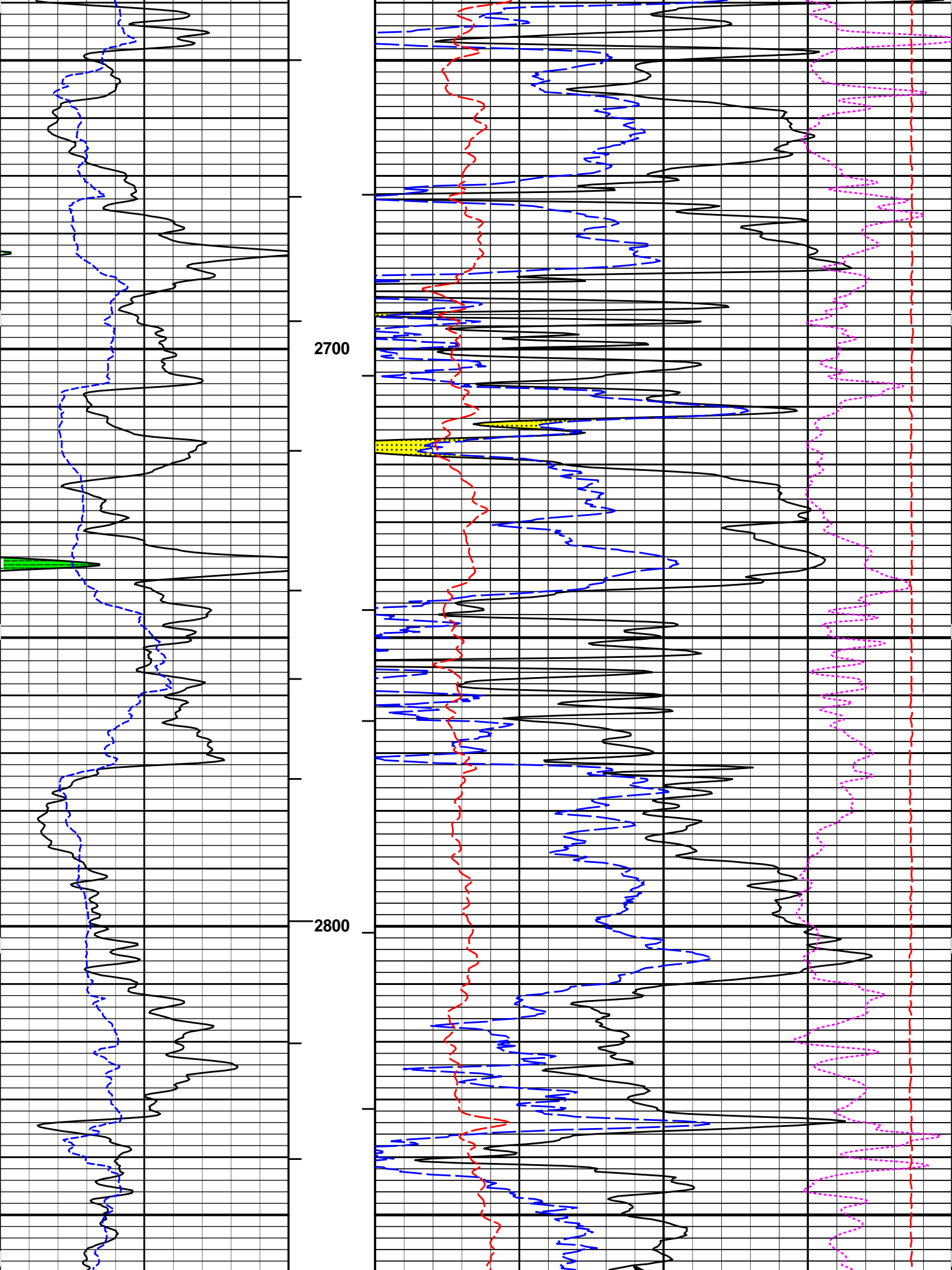


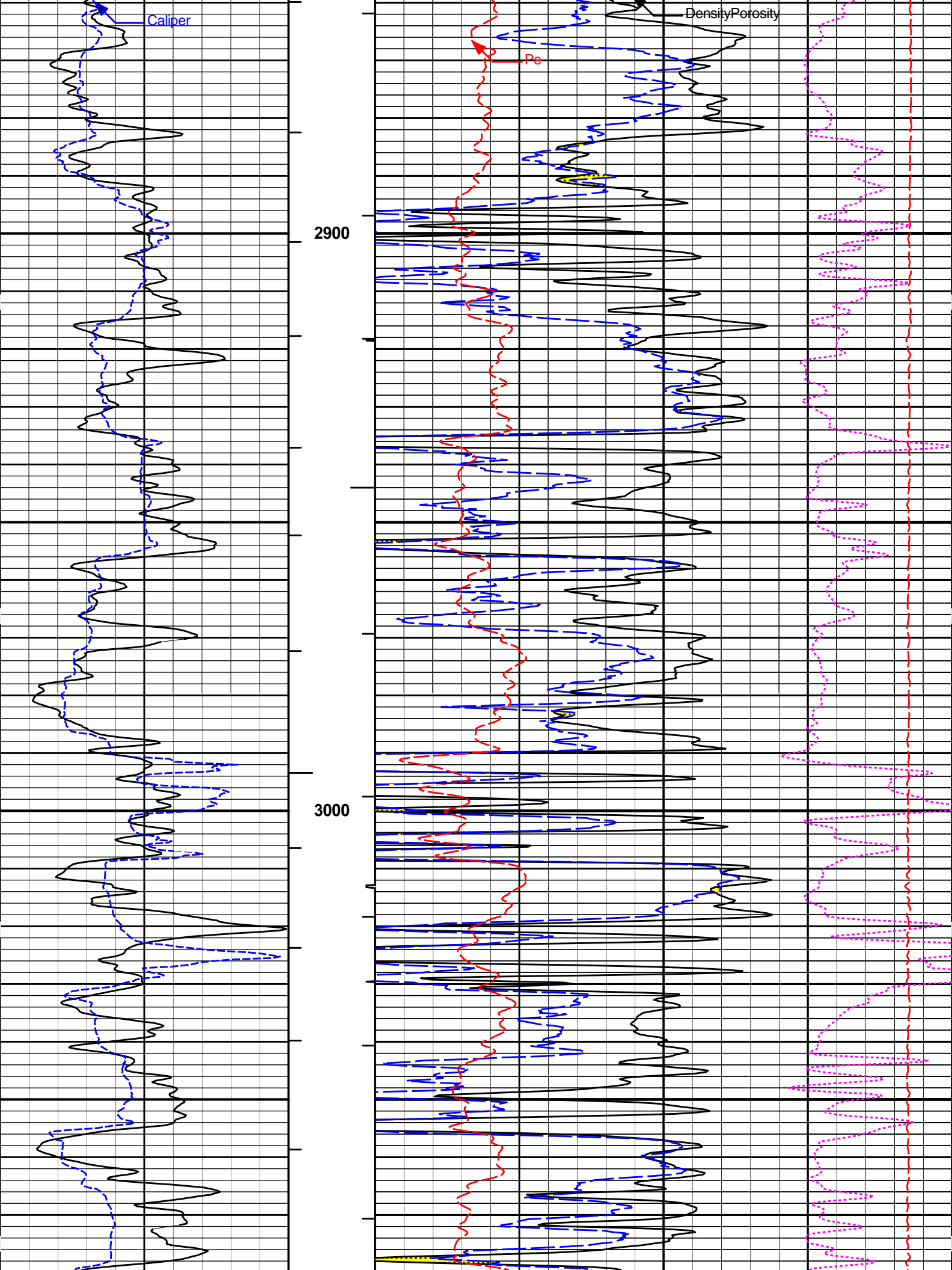


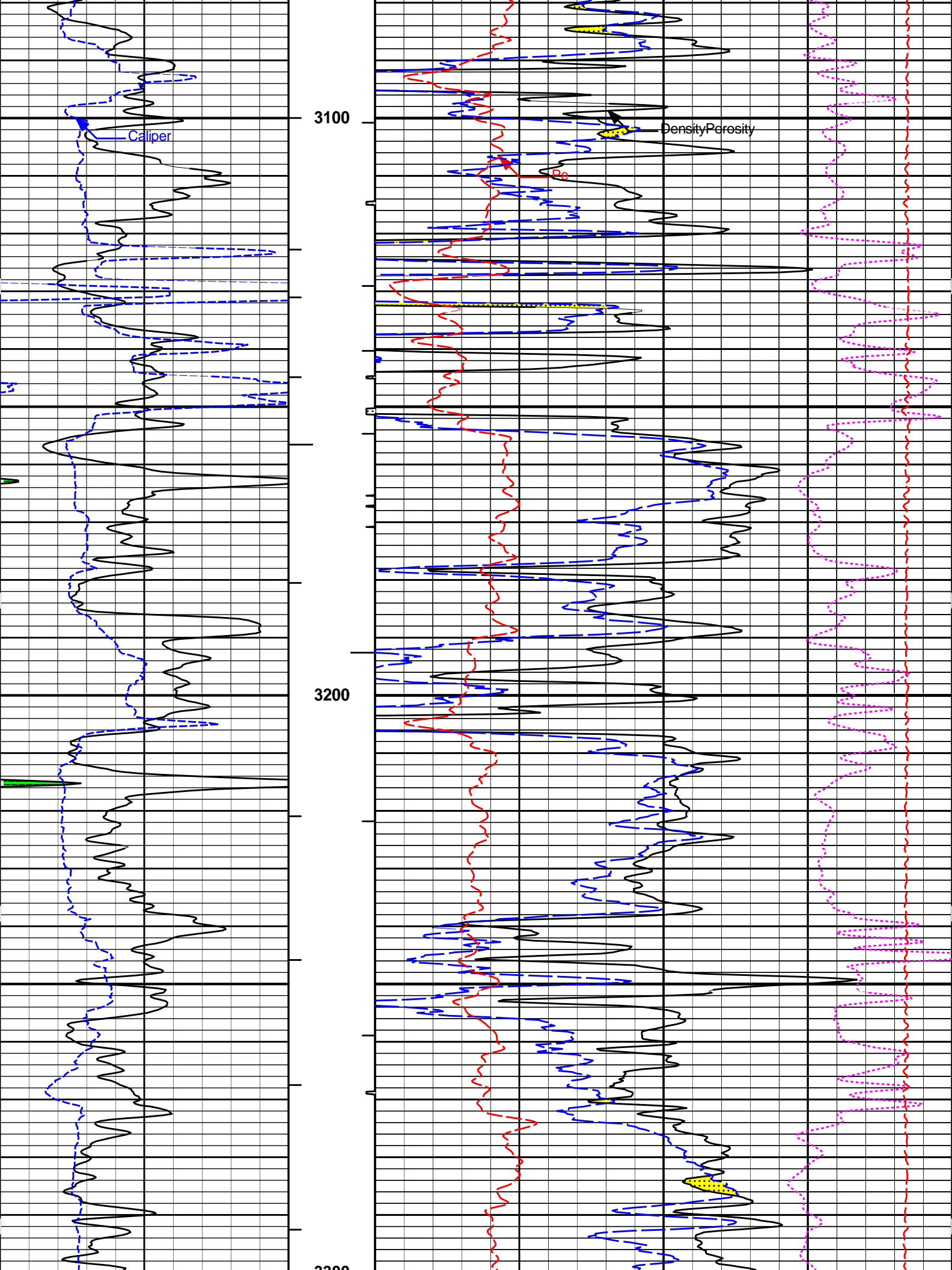


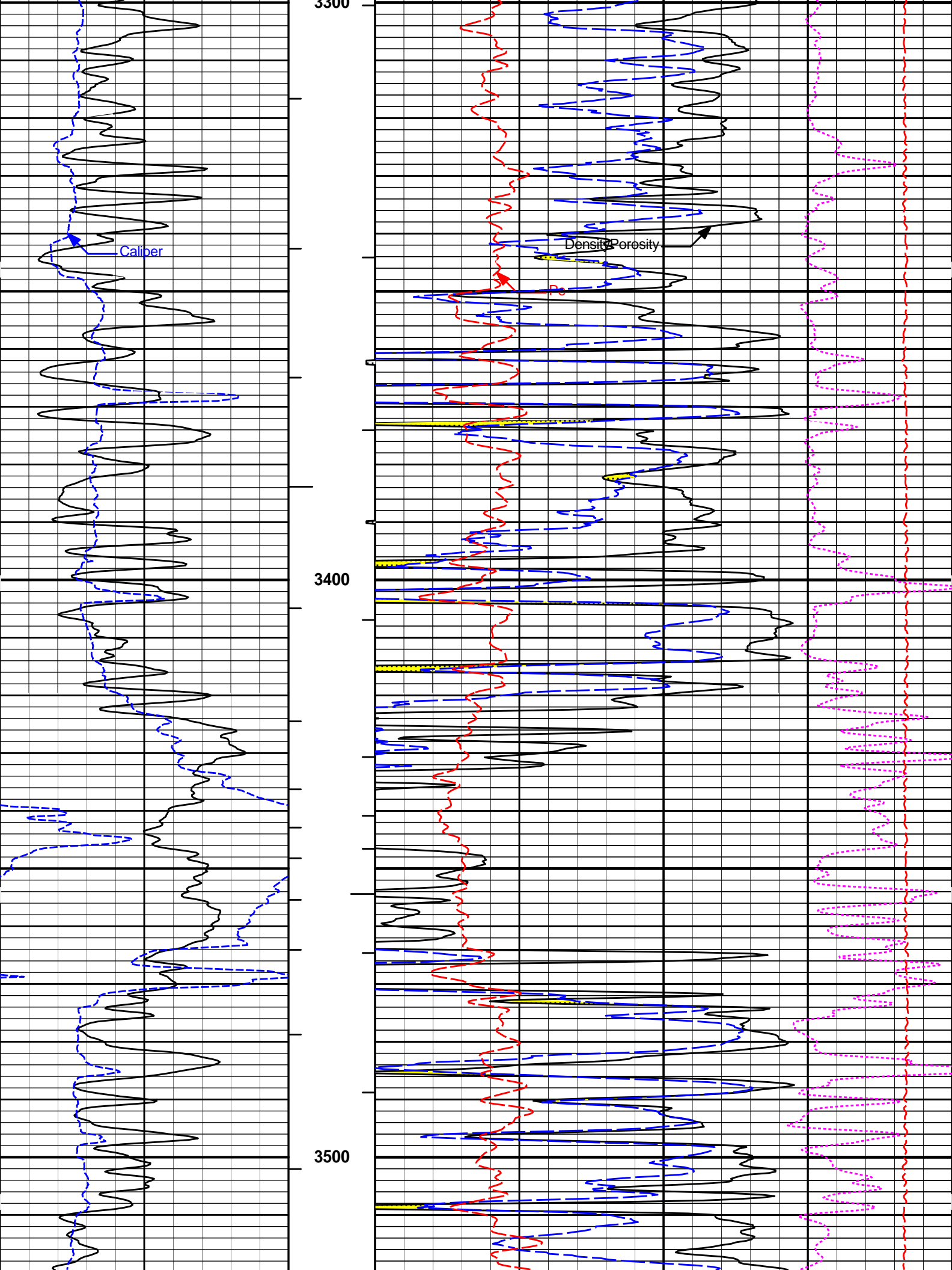




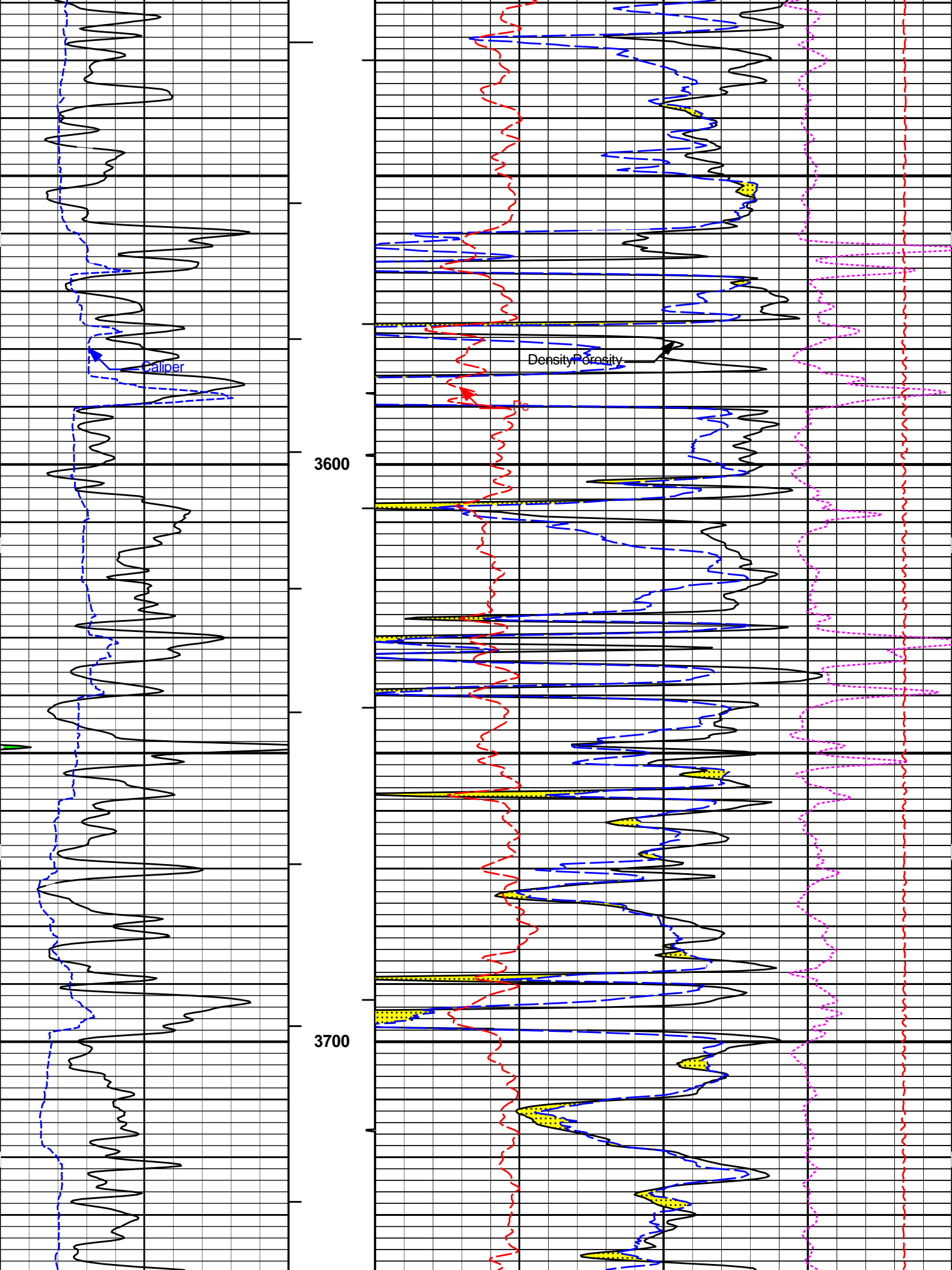


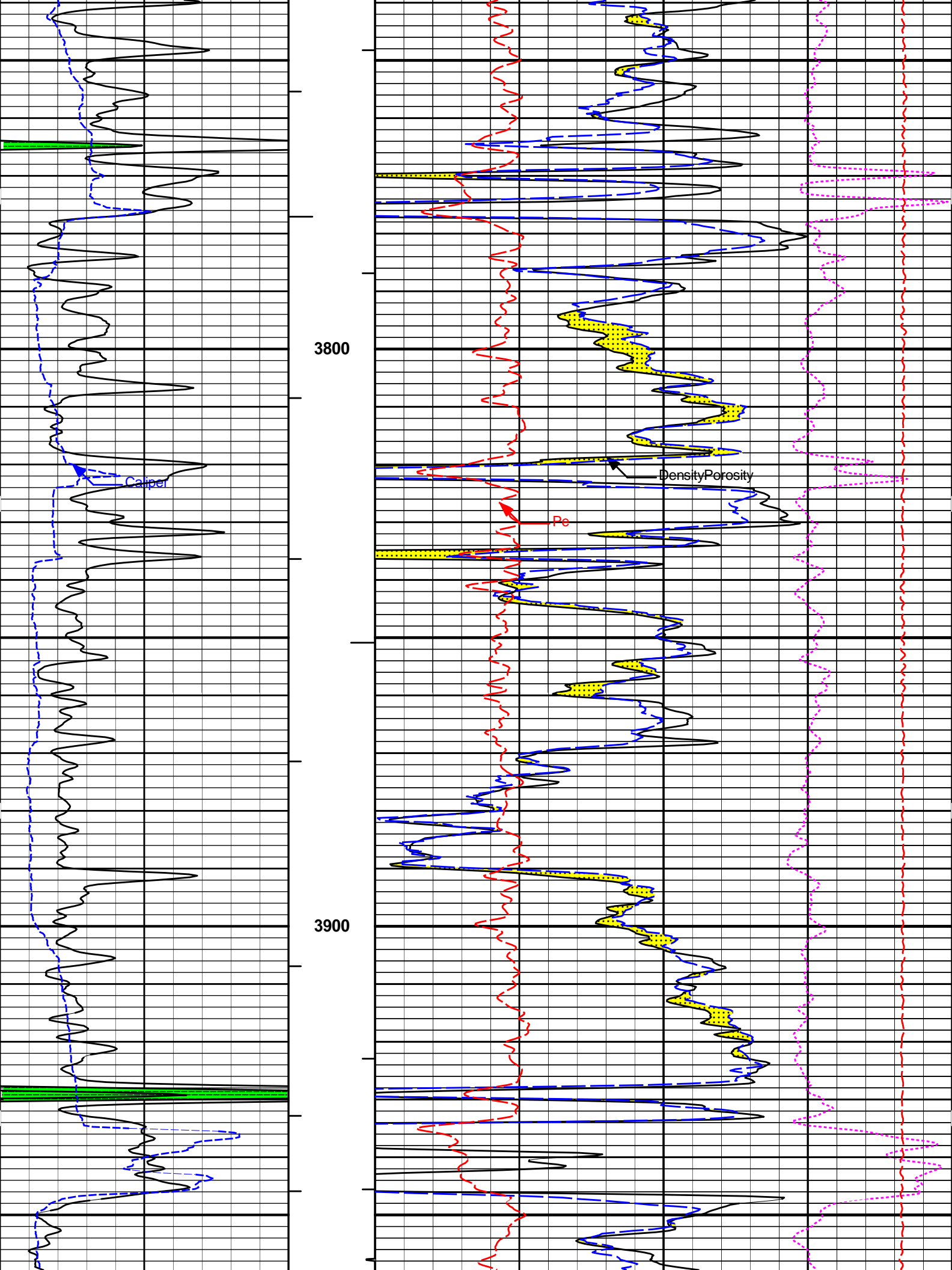


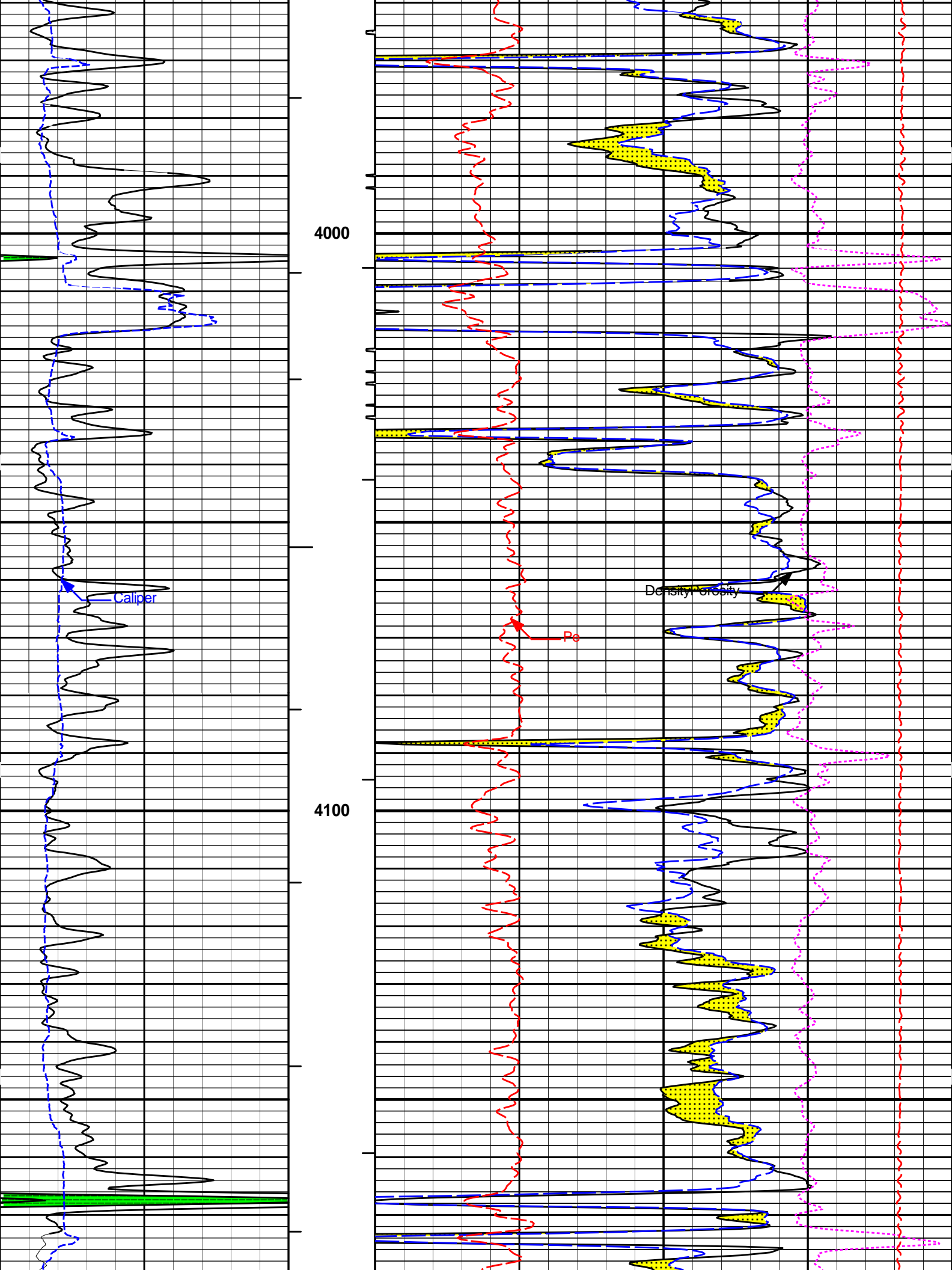


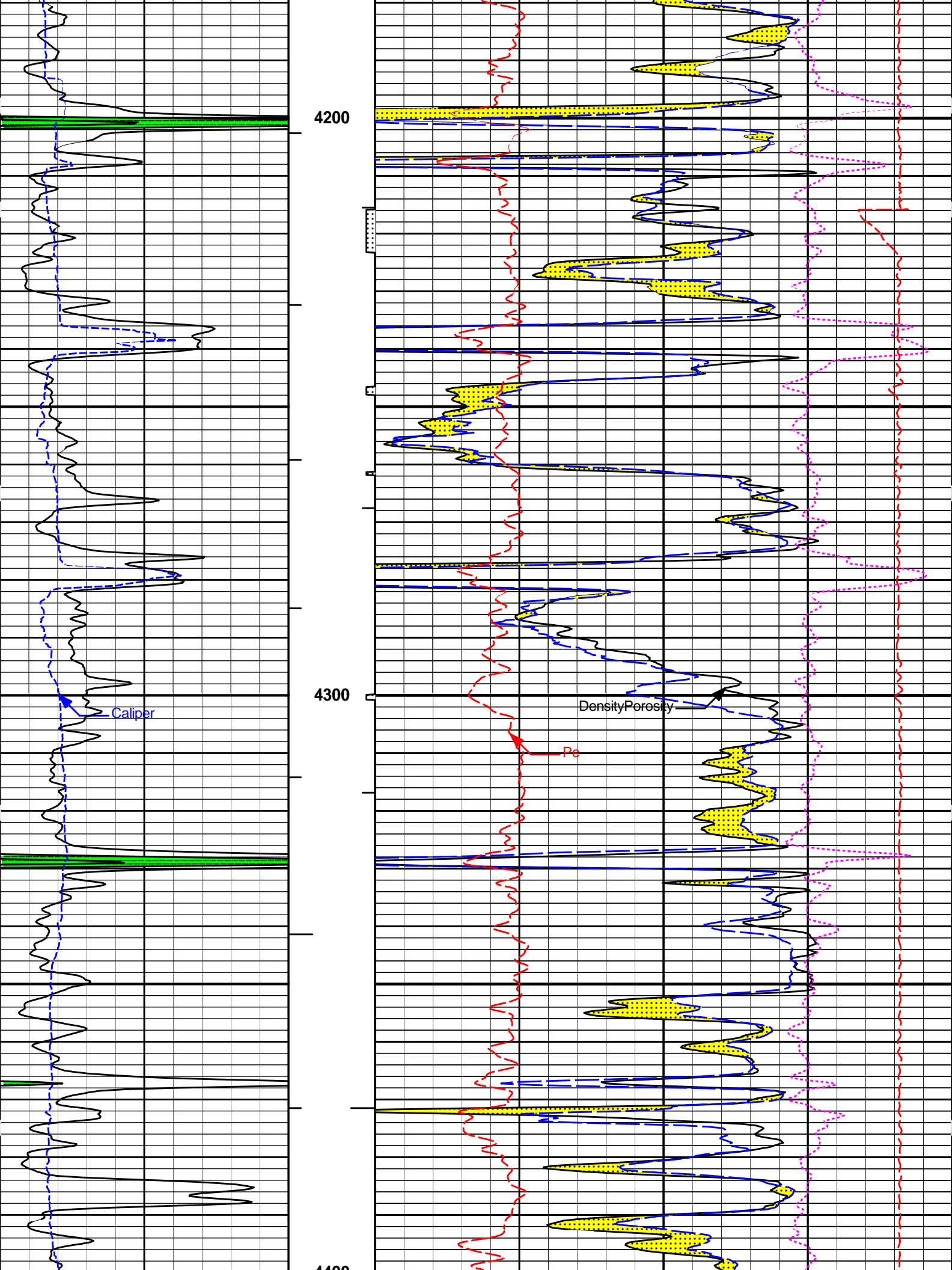


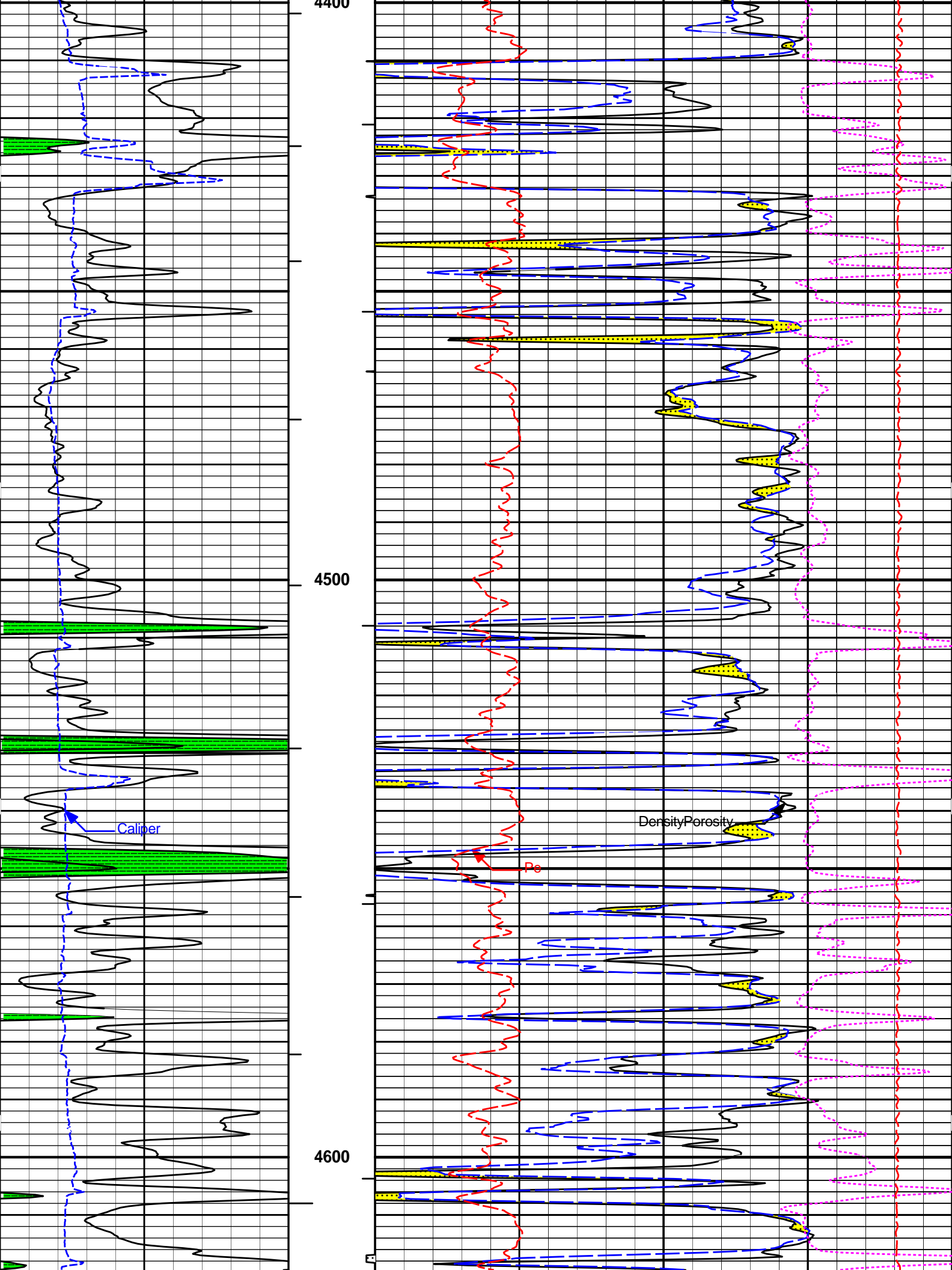


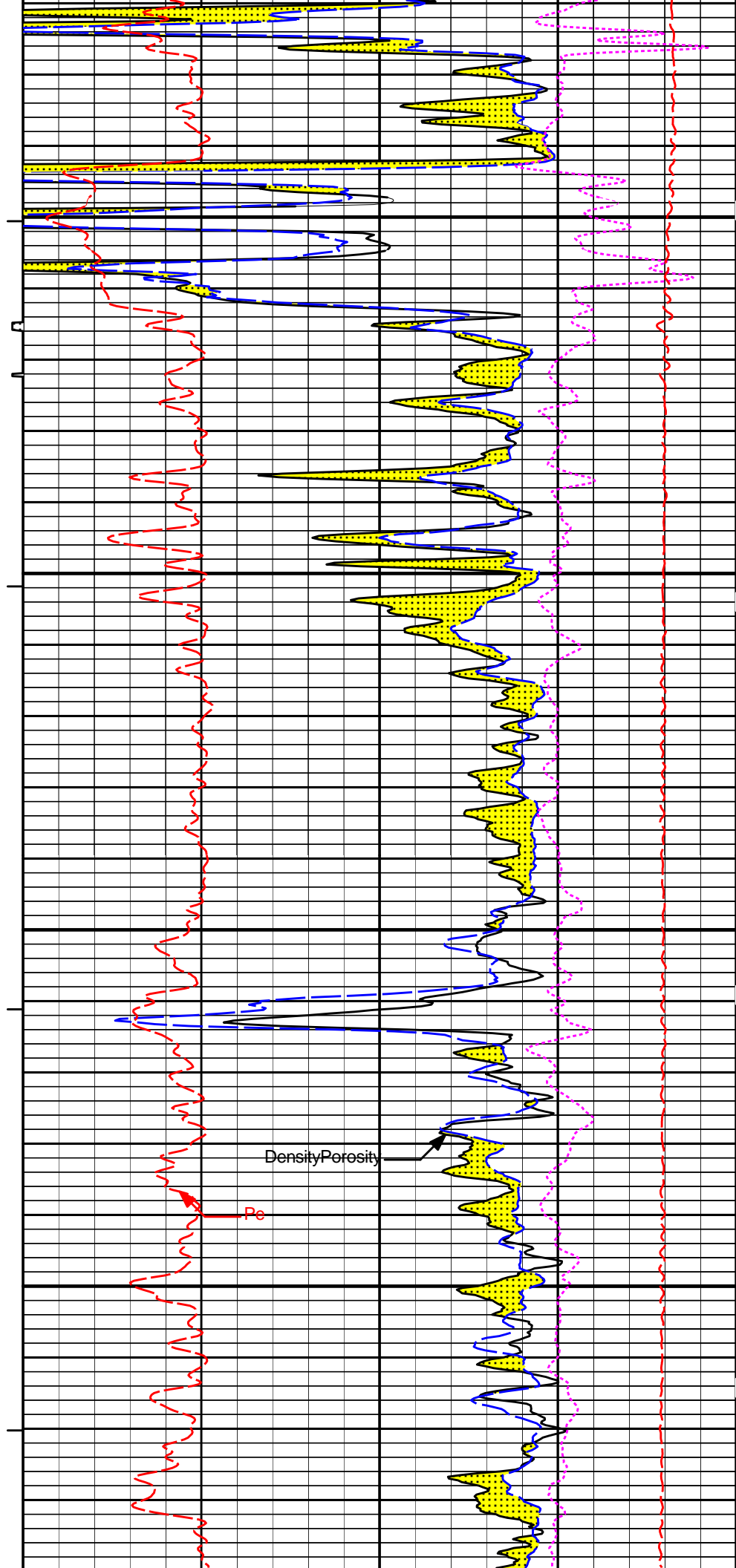
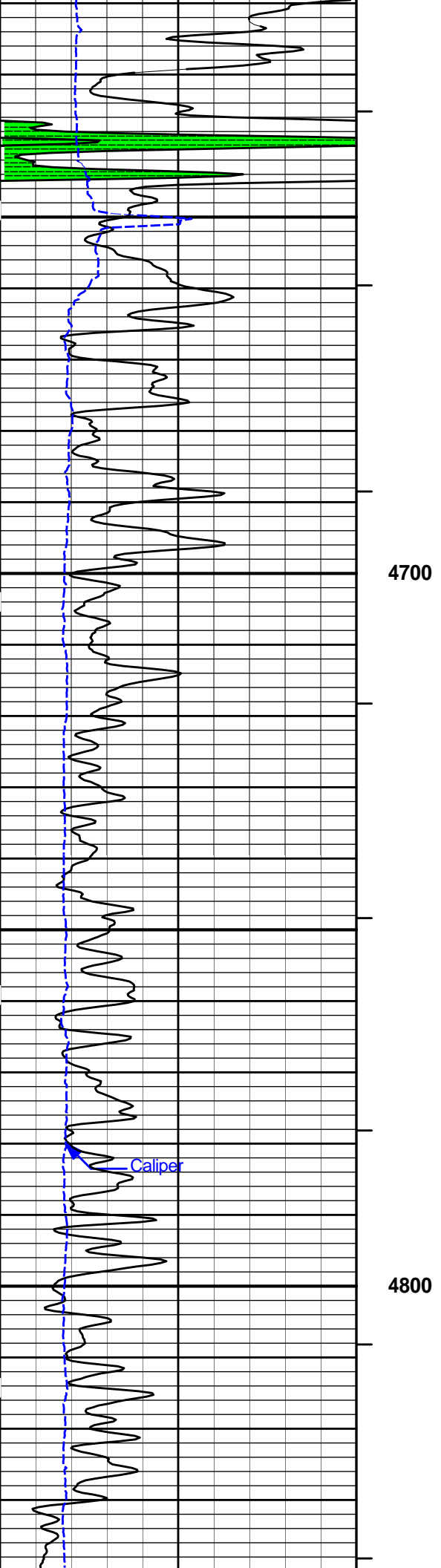


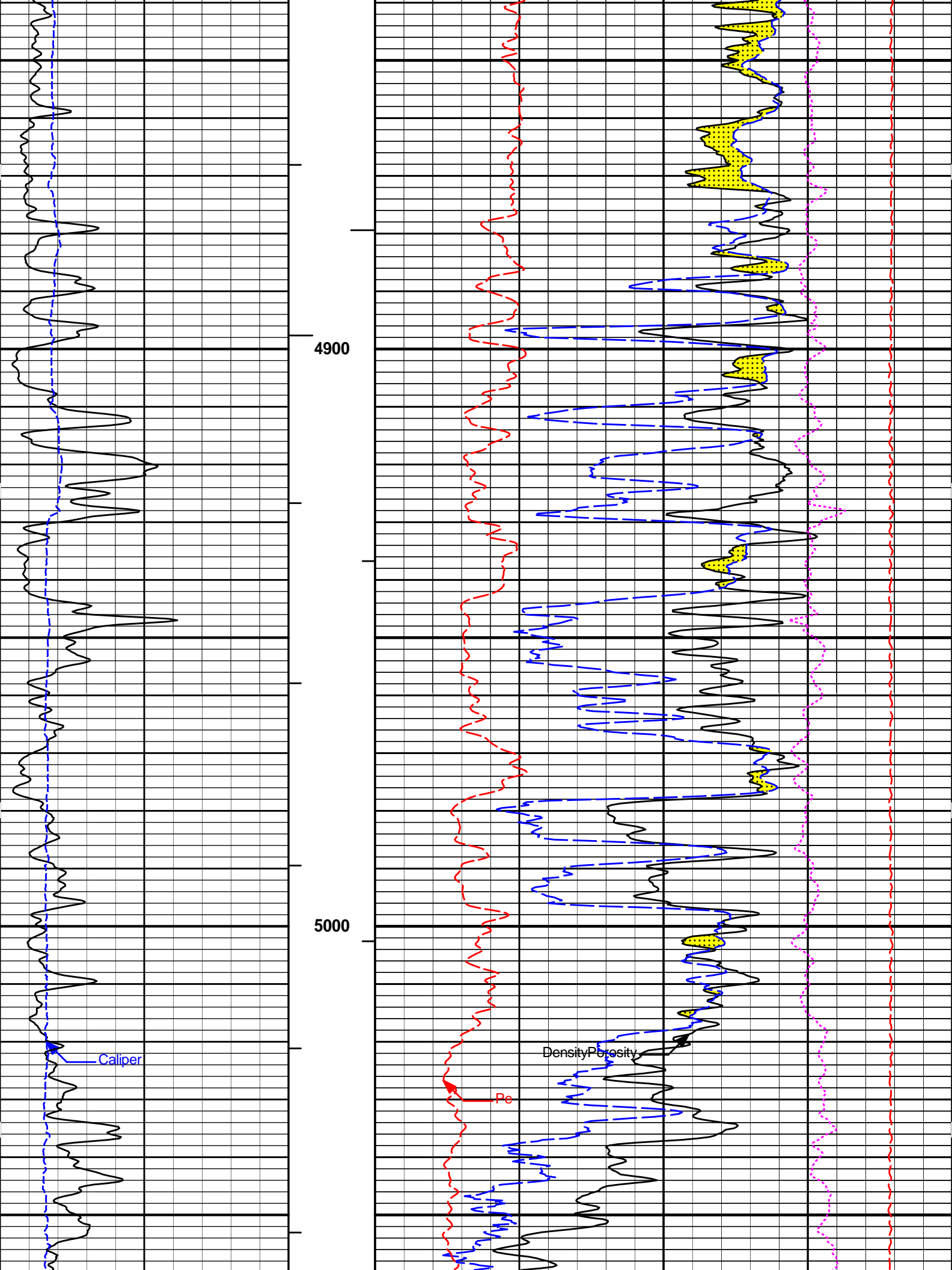


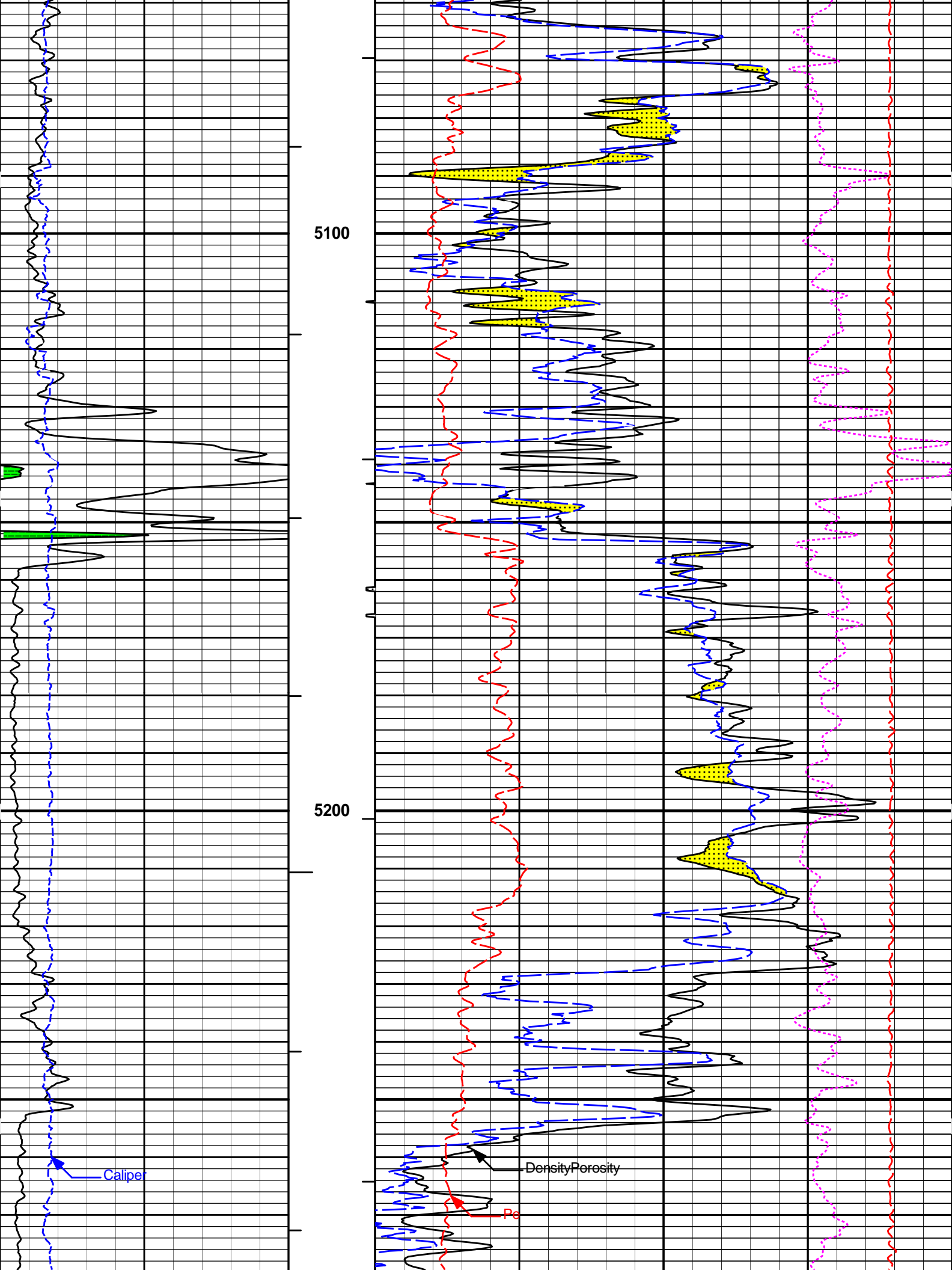




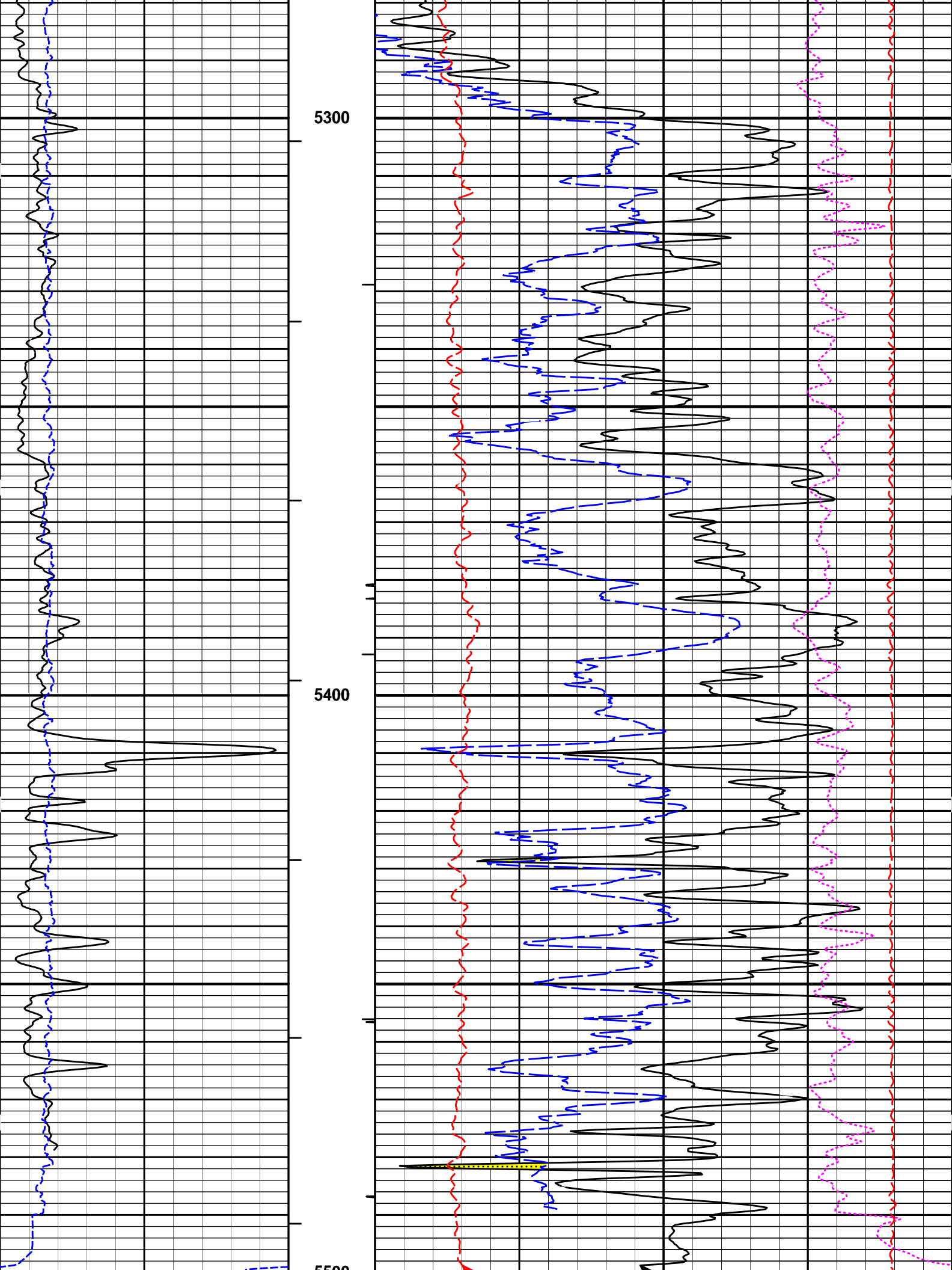


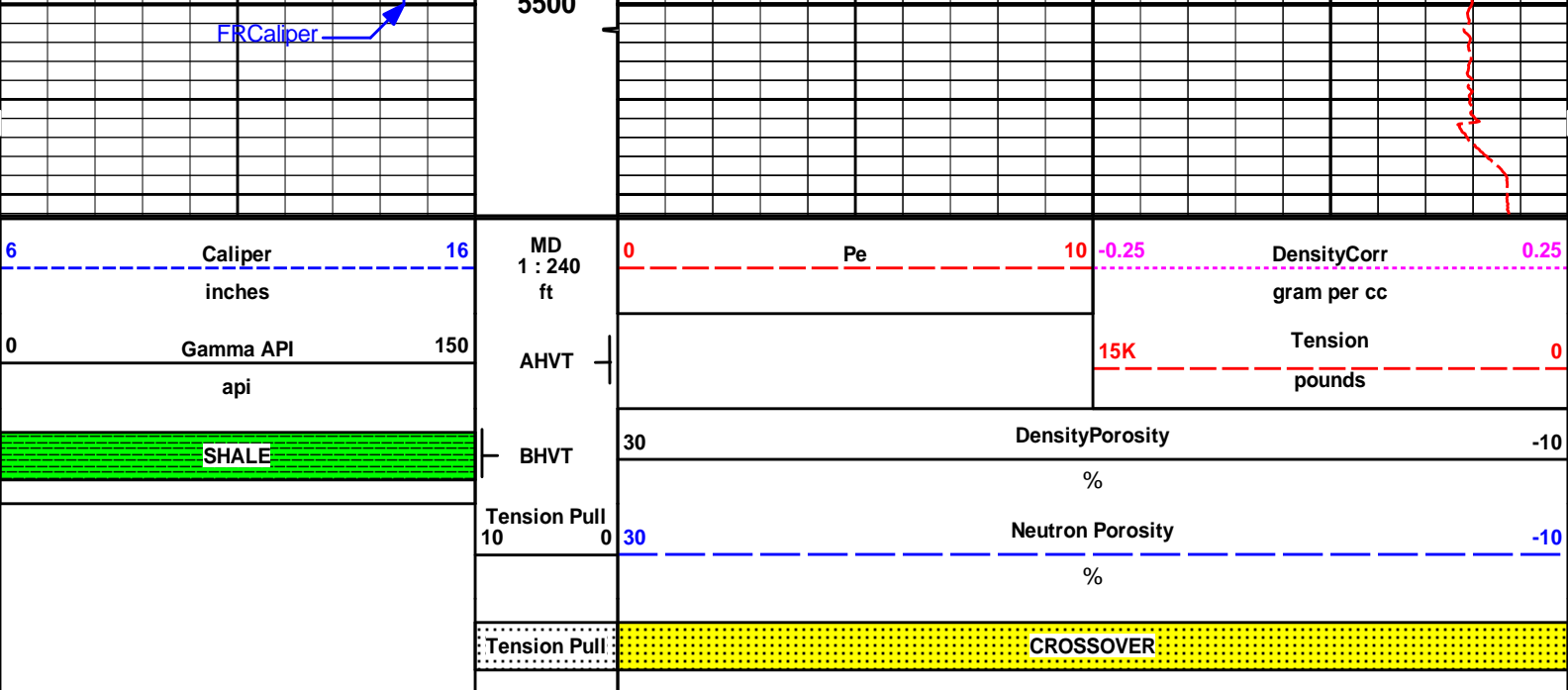












**HALLIBURTON**

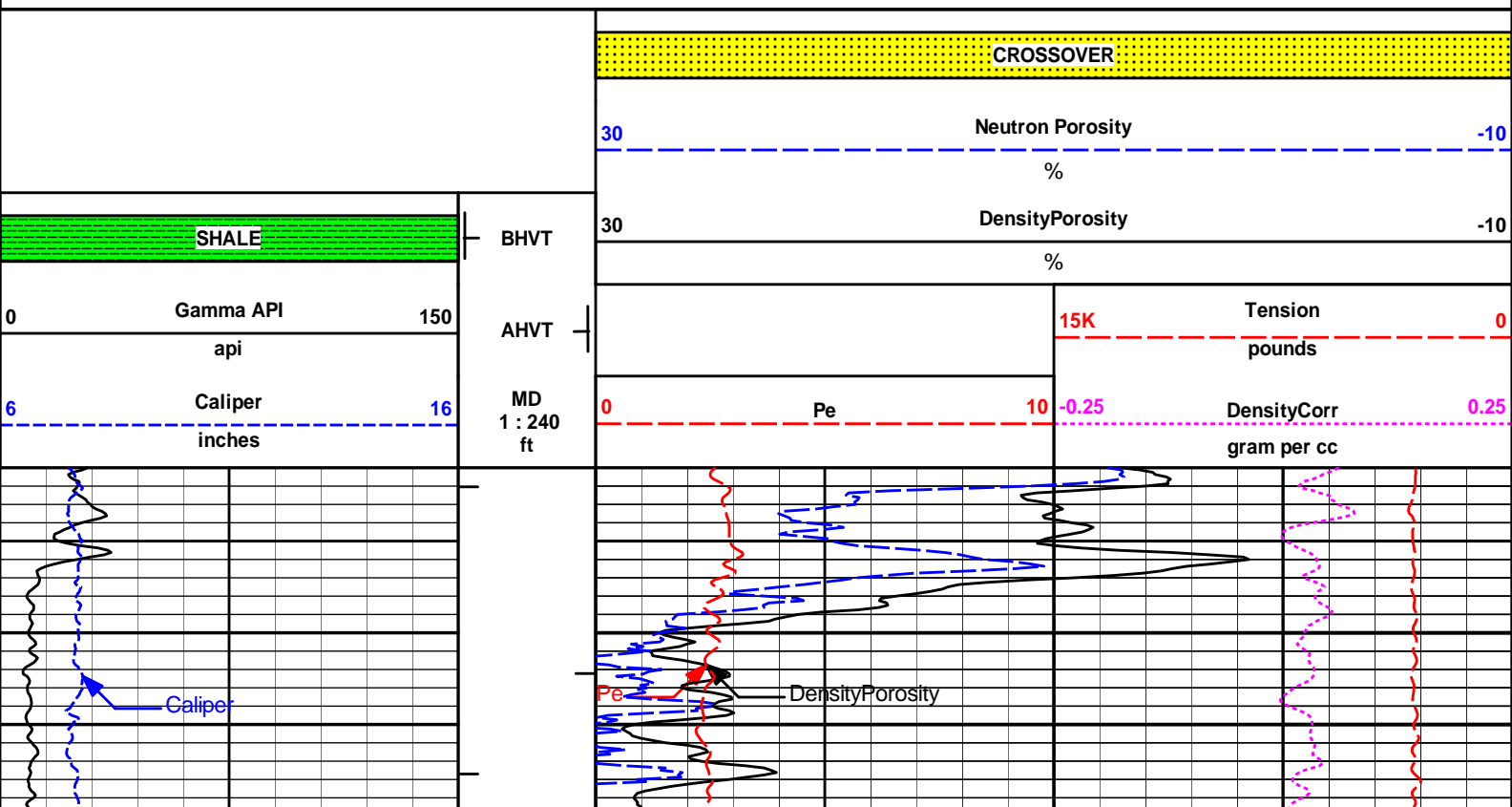
Plot Time: 05-Apr-13 05:52:40  
 Plot Range: 400 ft to 5522.25 ft  
 Data: RENEE\_2230\_1\_2\Well Based\DAQ-0001-005\  
 Plot File: \PORO\Poro\_IQ\_5\_MAIN\_LIB

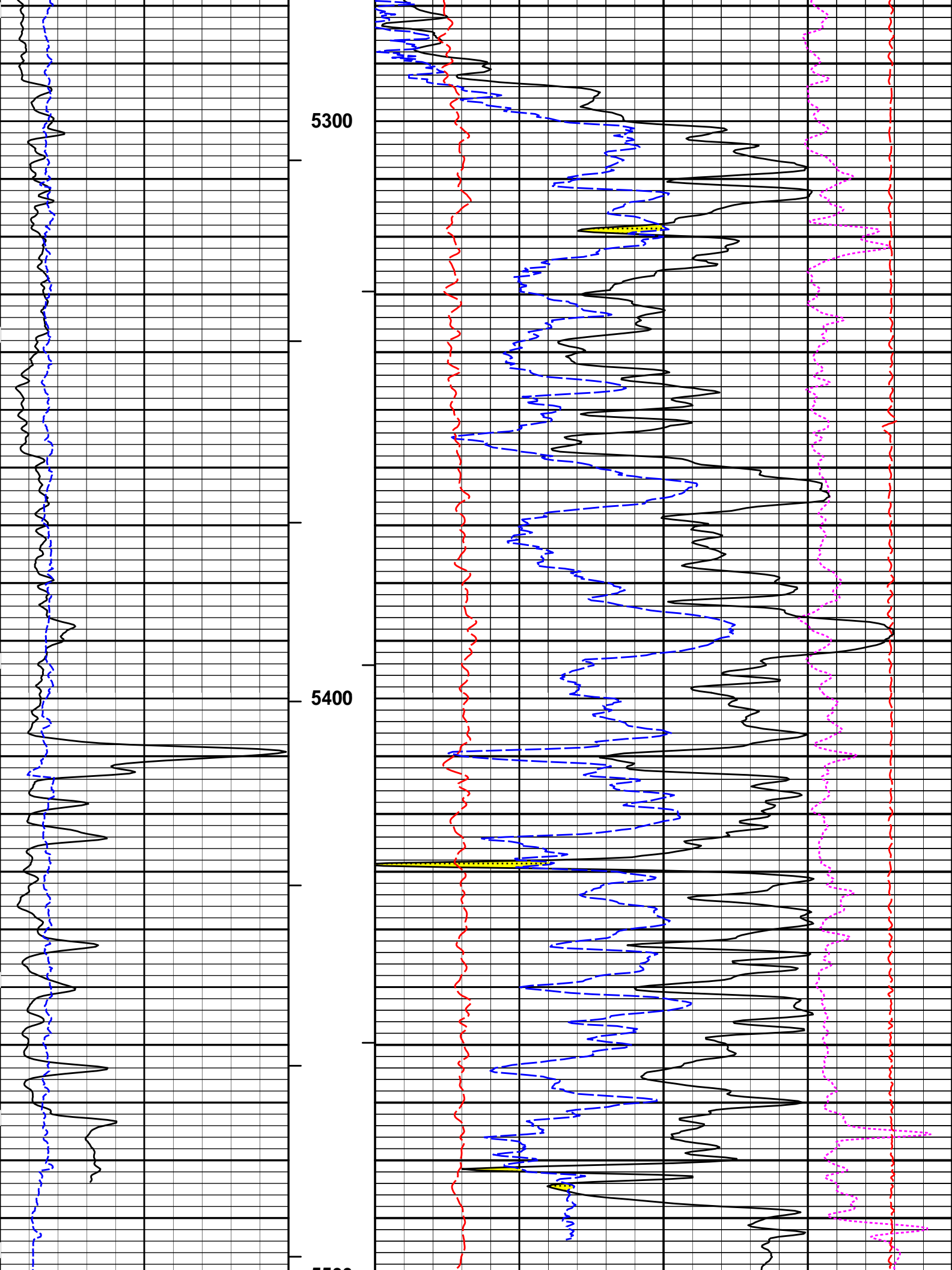
### 5 INCH MAIN LOG

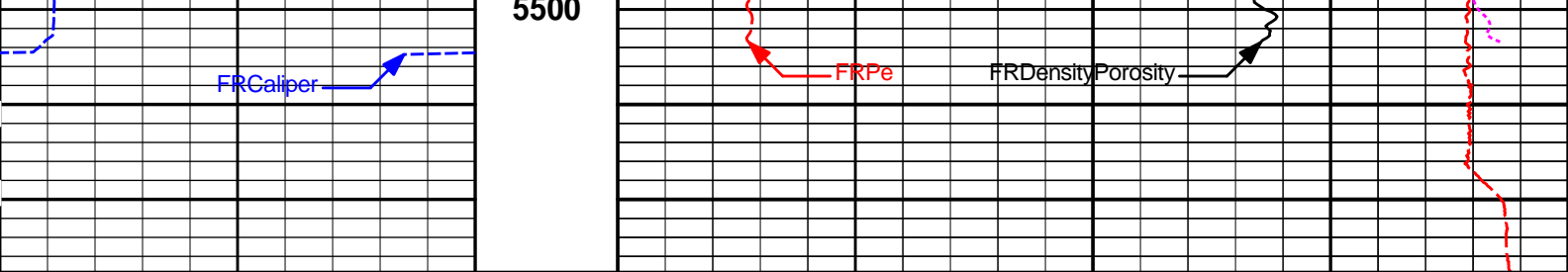
**HALLIBURTON**

Plot Time: 05-Apr-13 05:52:40  
 Plot Range: 5242 ft to 5527.67 ft  
 Data: RENEE\_2230\_1\_2\Well Based\DAQ-0001-004\  
 Plot File: \PORO\Poro\_IQ\_5\_REP\_LIB

### REPEAT SECTION







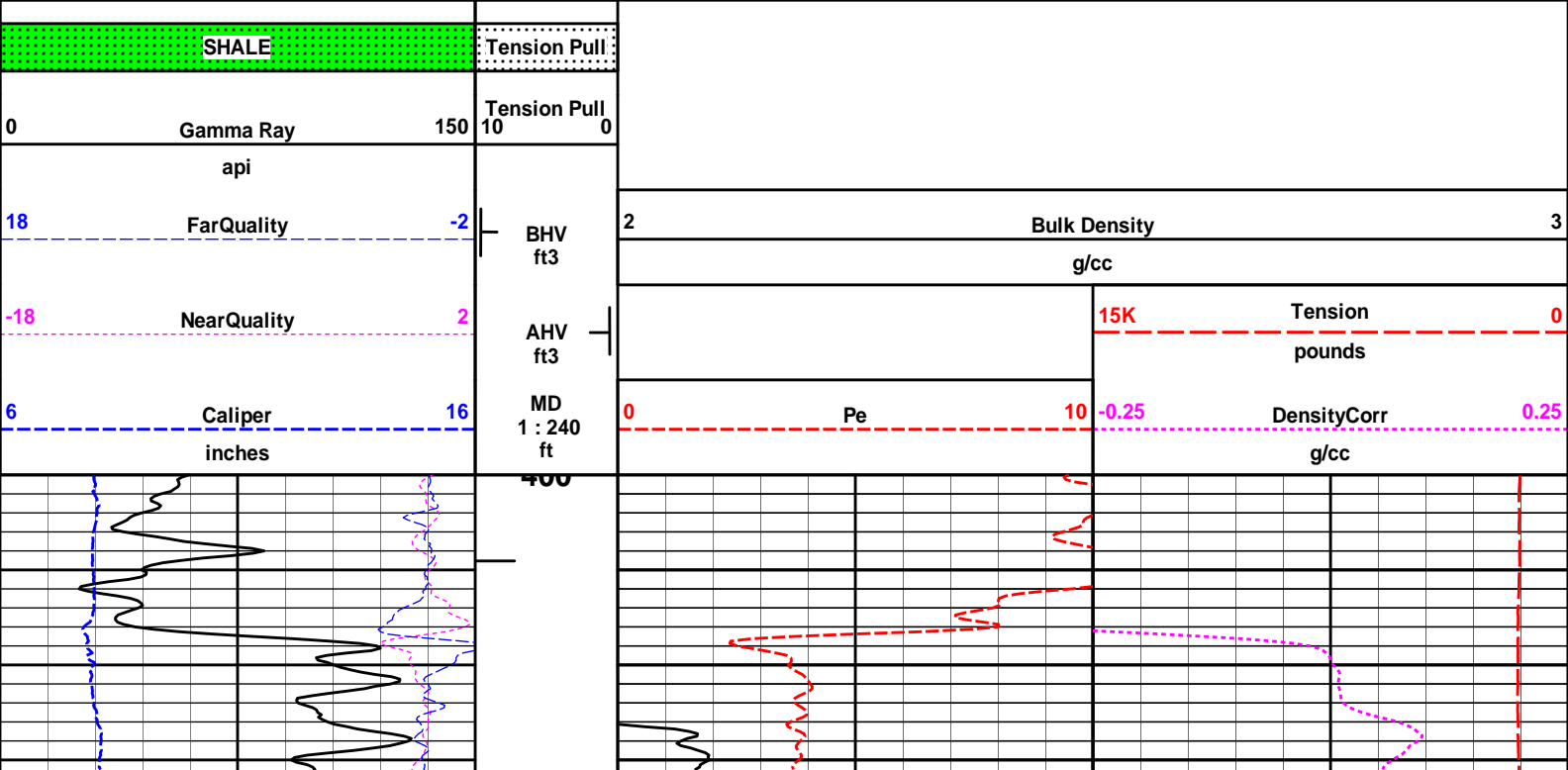
6	Caliper	16	MD	0	Pe	10	-0.25	DensityCorr	0.25
	inches		1 : 240					gram per cc	
0	Gamma API	150	AHVT				15K	Tension	0
	api							pounds	
	SHALE		BHVT	30	DensityPorosity				-10
								%	
				30	Neutron Porosity				-10
								%	
					CROSSOVER				

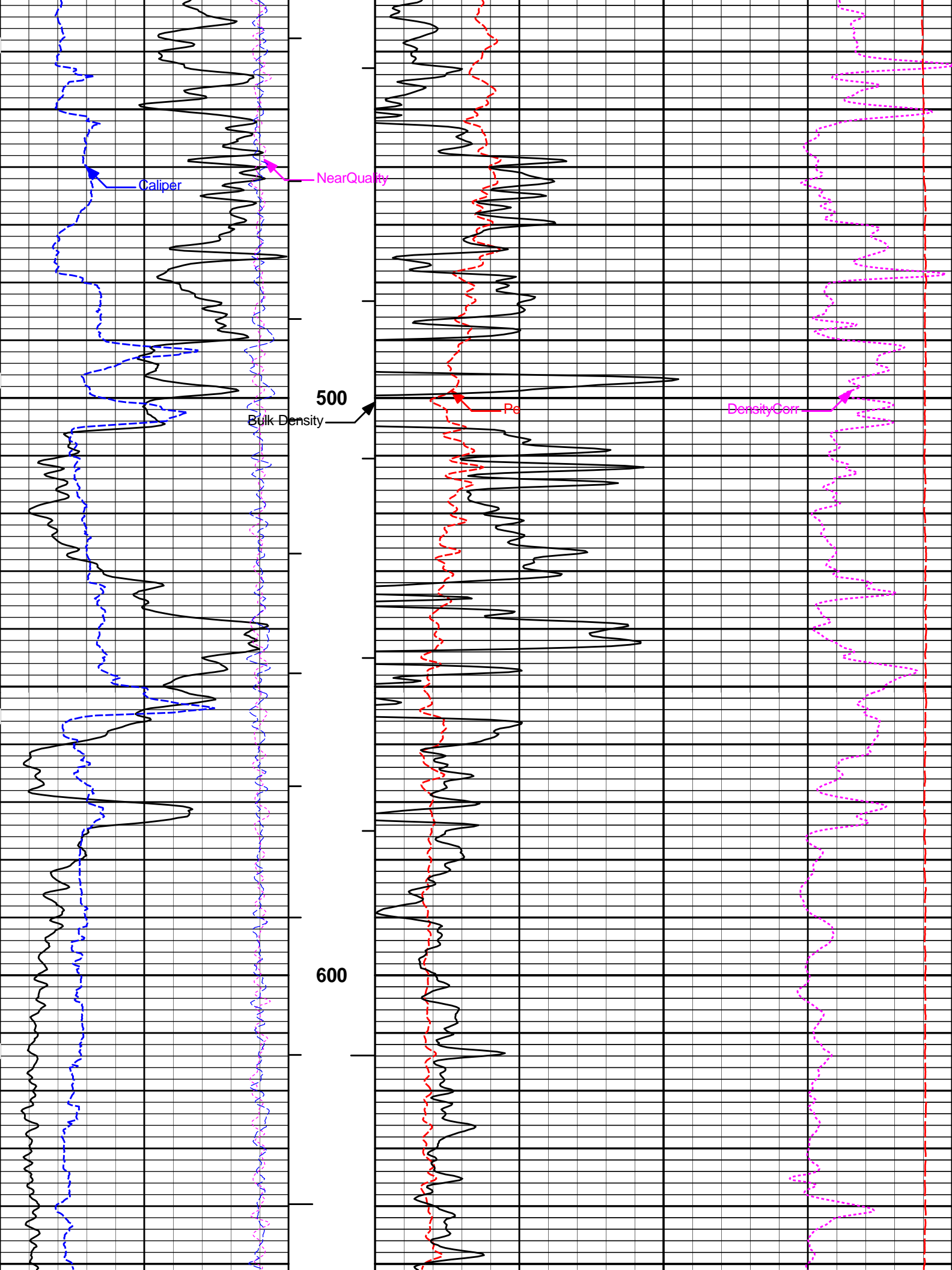
**HALLIBURTON** Plot Time: 05-Apr-13 05:52:42  
 Plot Range: 5242 ft to 5527.67 ft  
 Data: RENEE\_2230\_1\_2\Well Based\DAQ-0001-004\  
 Plot File: \\PORO\Poro\_IQ\_5\_REP\_LIB

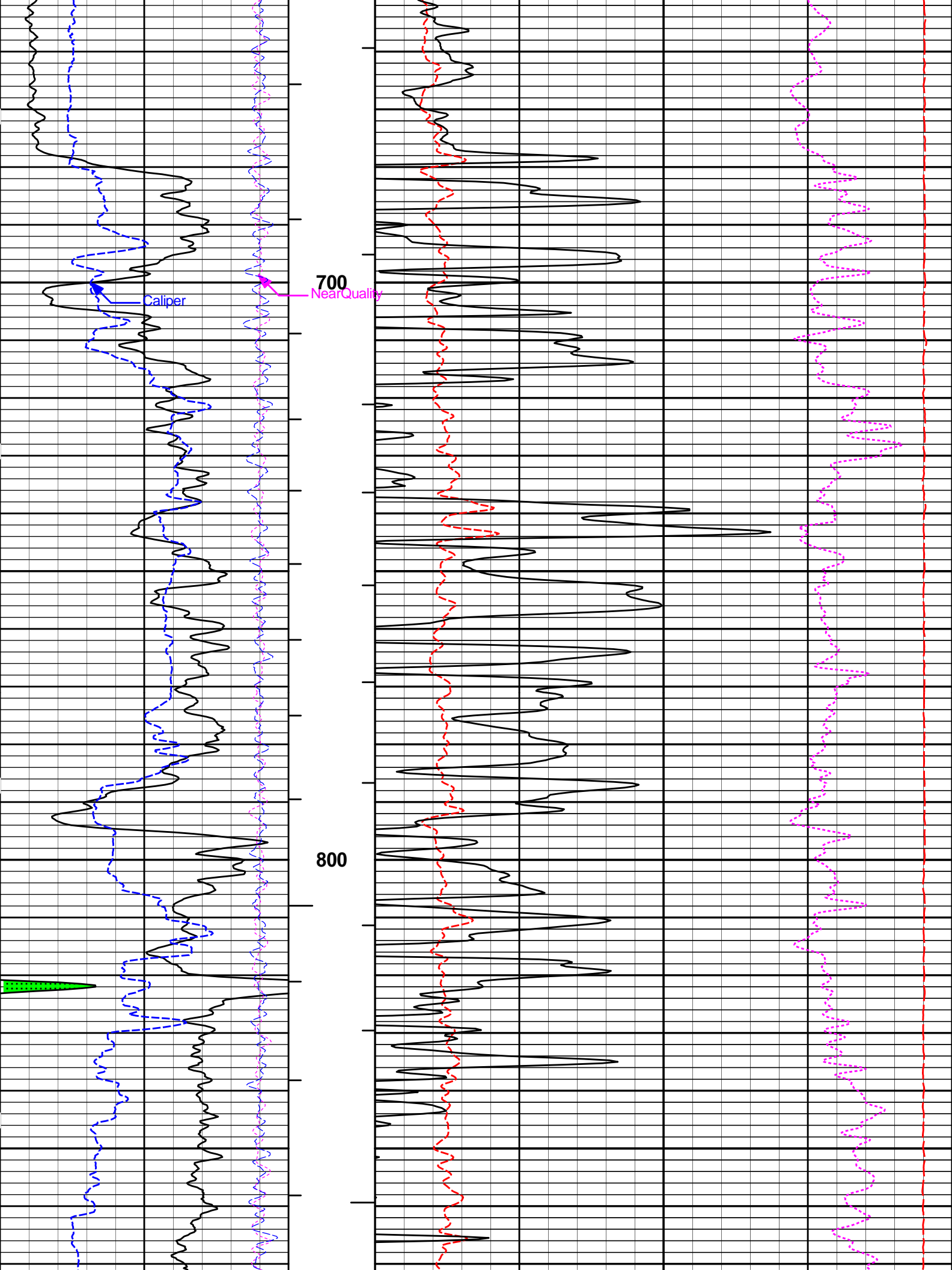
## REPEAT SECTION

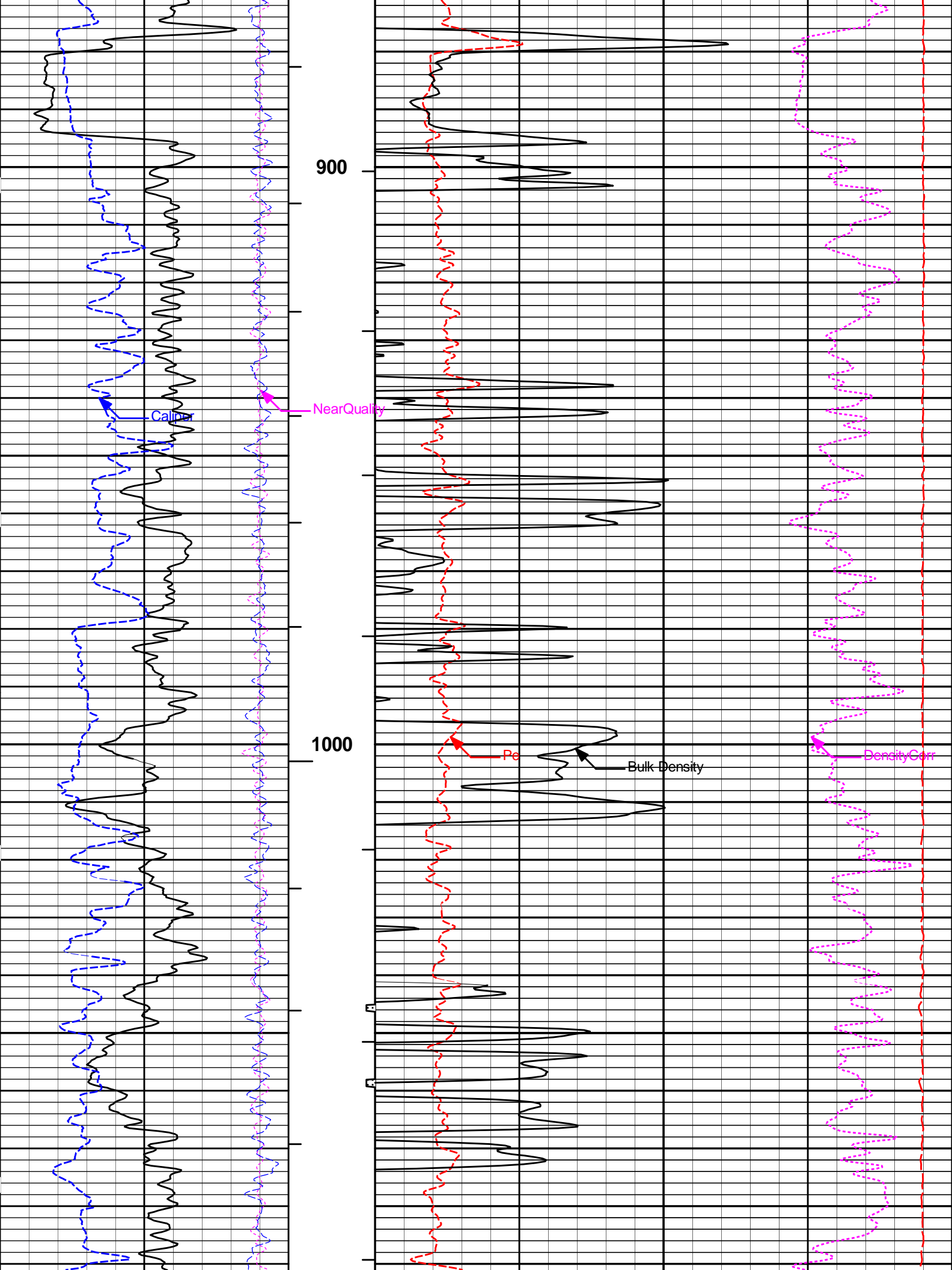
**HALLIBURTON** Plot Time: 05-Apr-13 05:52:43  
 Plot Range: 400 ft to 5522.25 ft  
 Data: RENEE\_2230\_1\_2\Well Based\DAQ-0001-005\  
 Plot File: \\LOCAL-RENEE\_2230\_1\_2\0001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-CH\PORO\BULKD\_5\_MAIN\_LIB

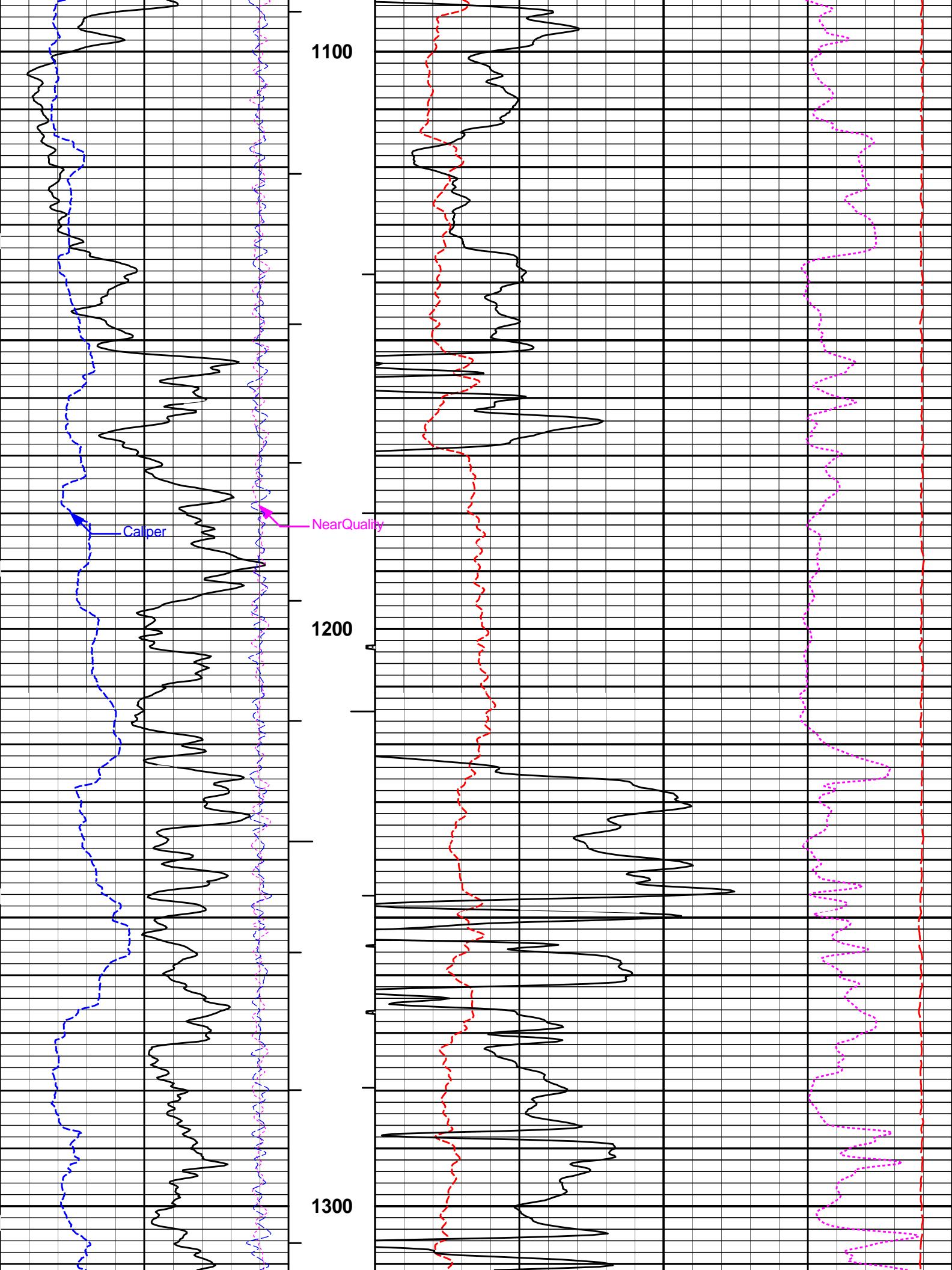
## 5 INCH MAIN LOG



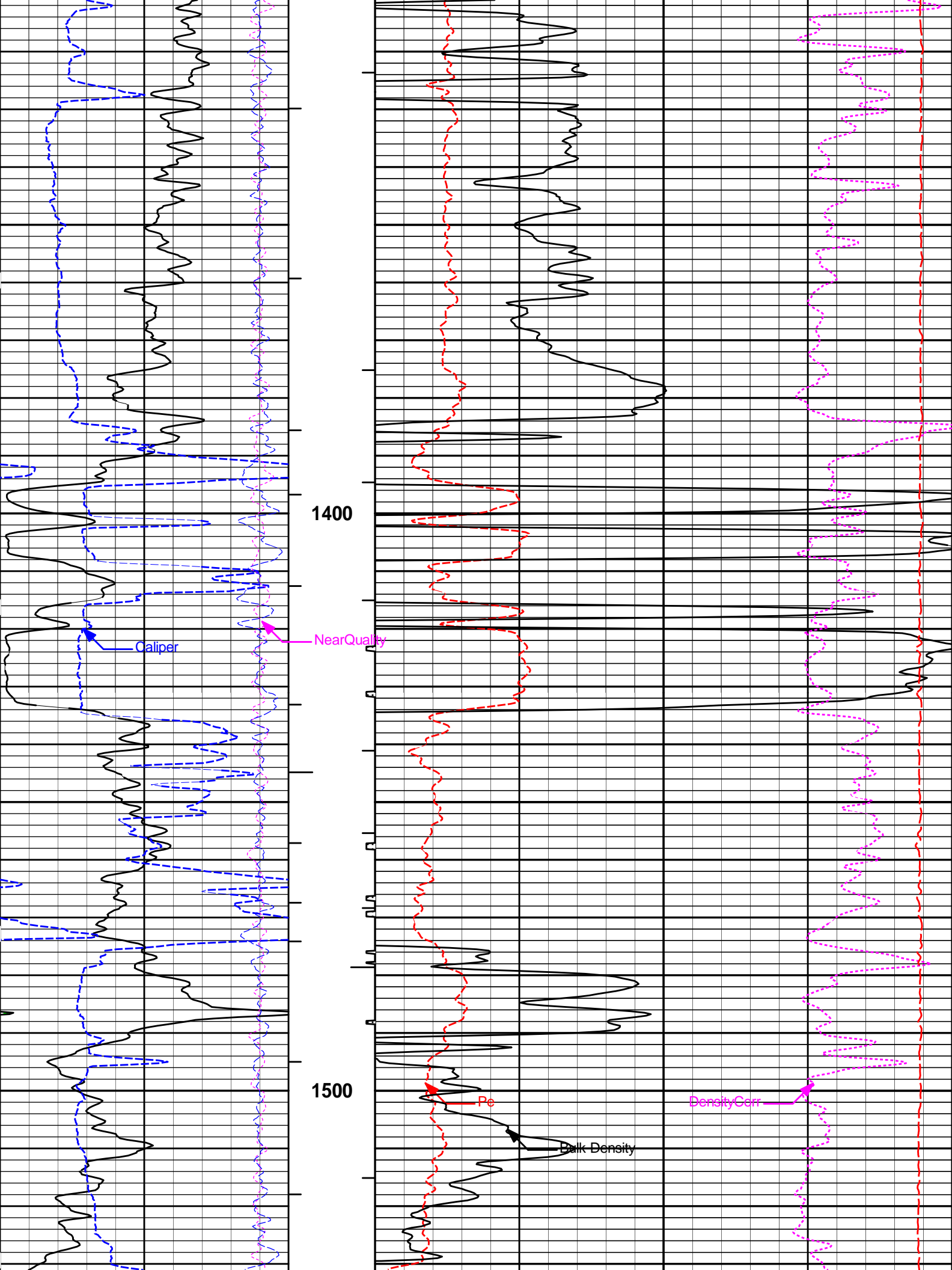


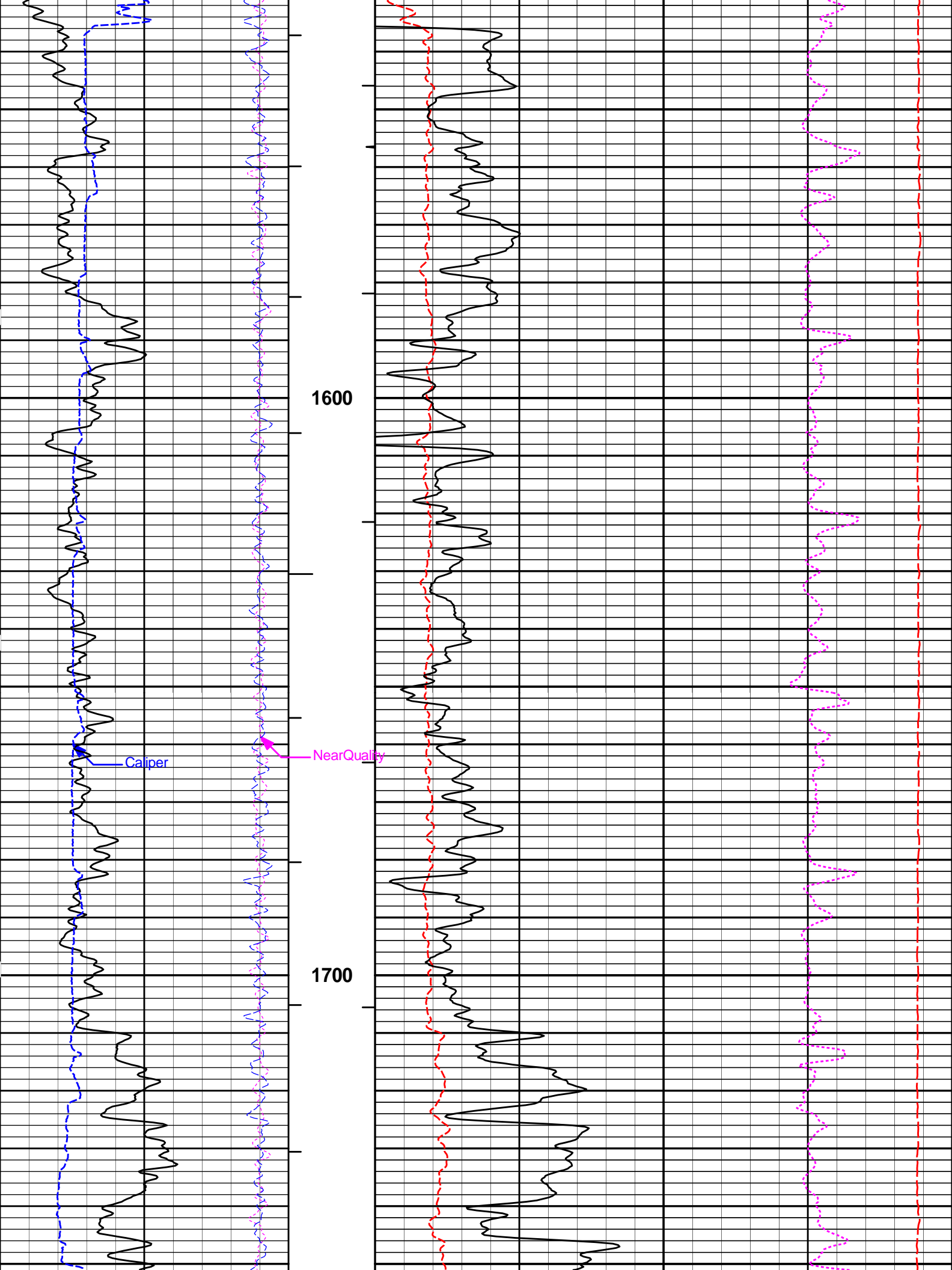


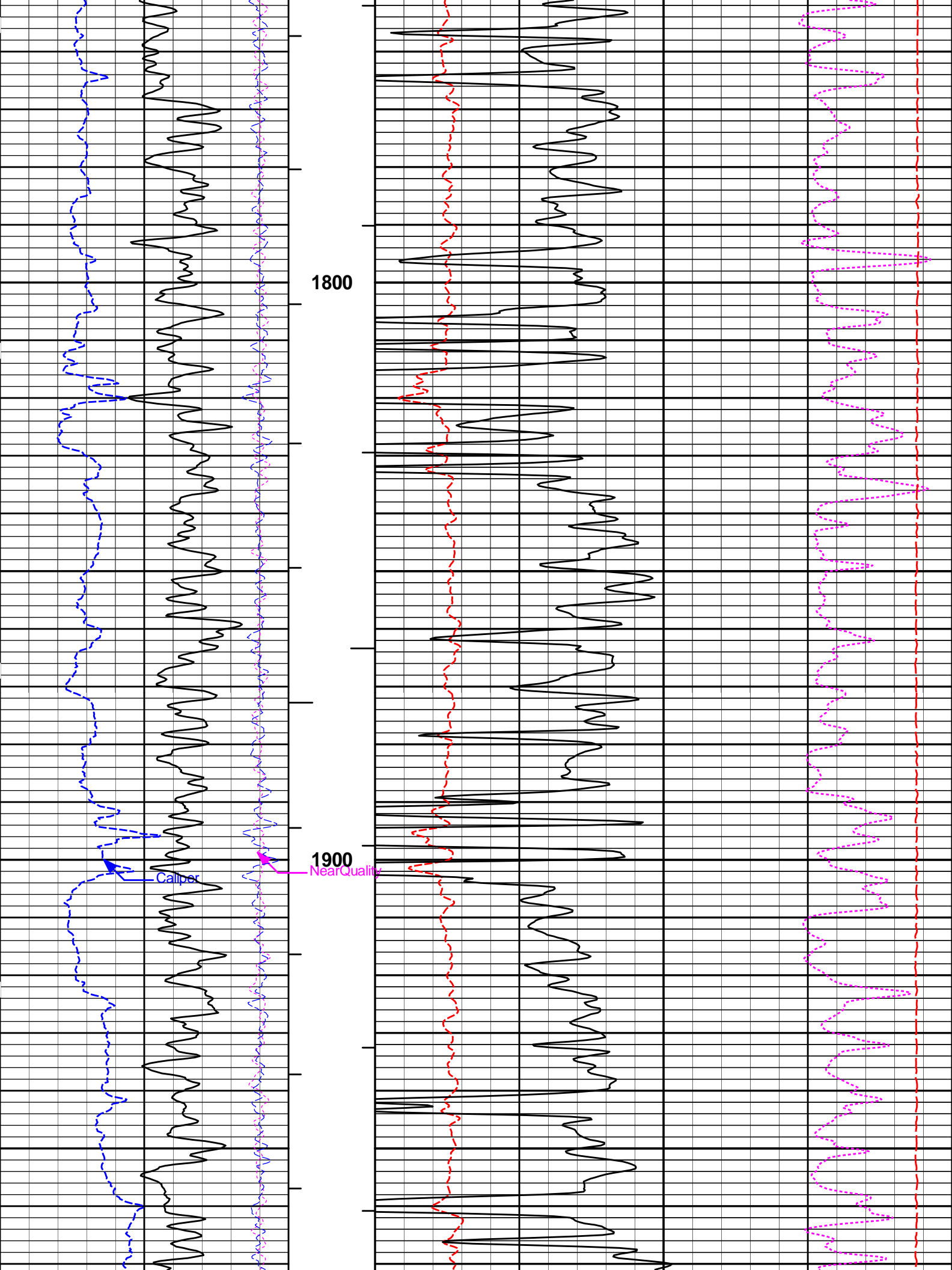


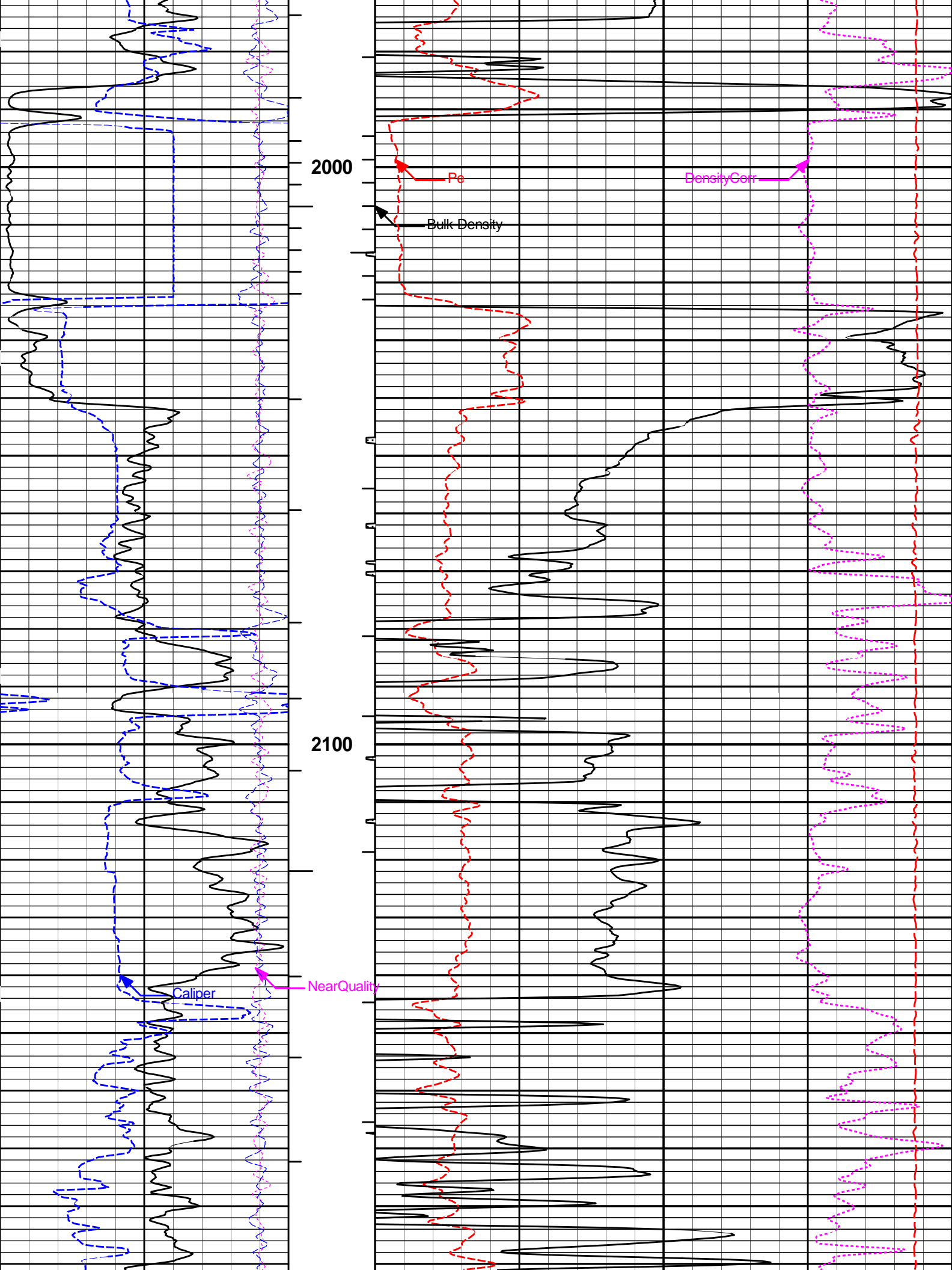


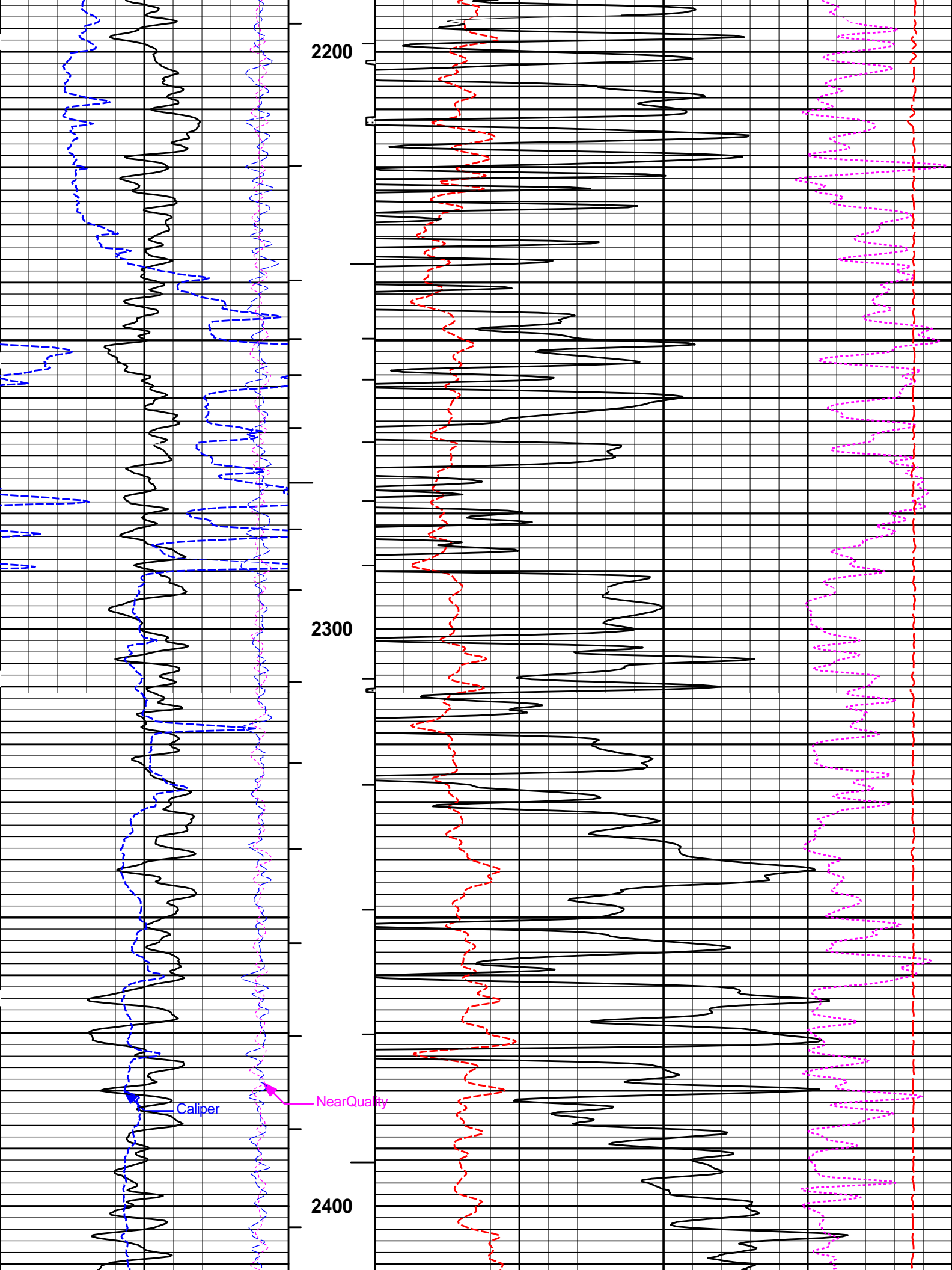


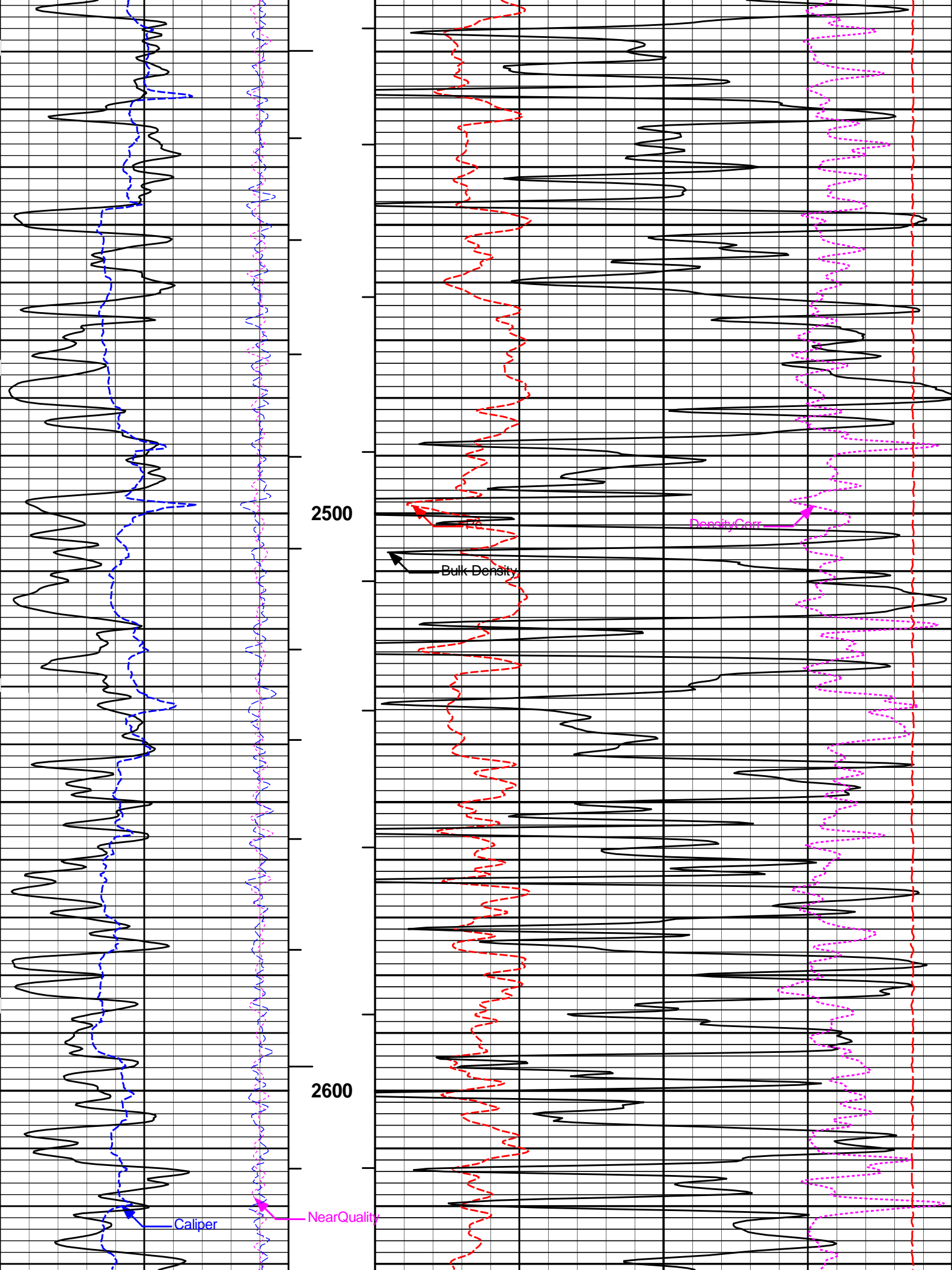


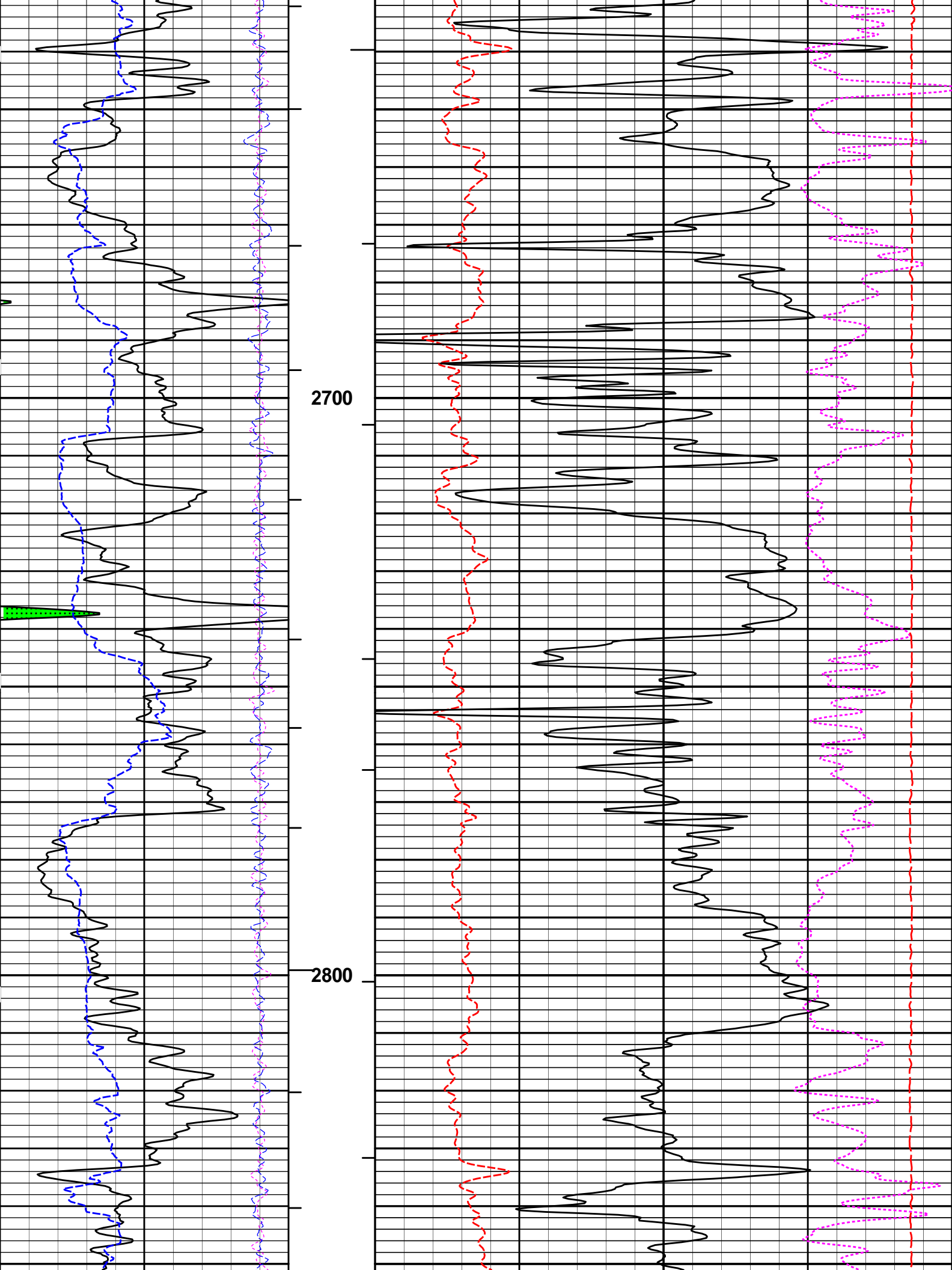


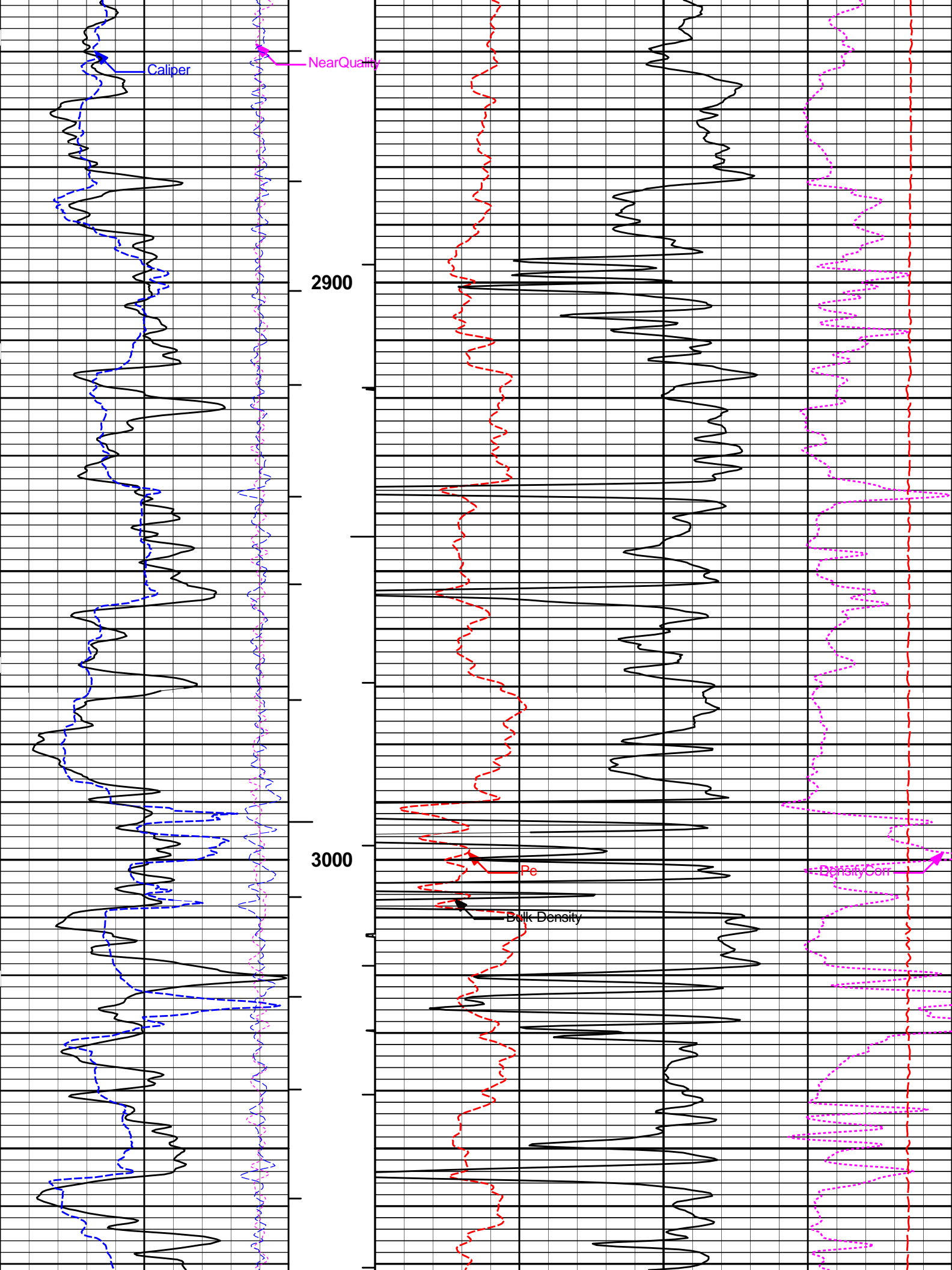




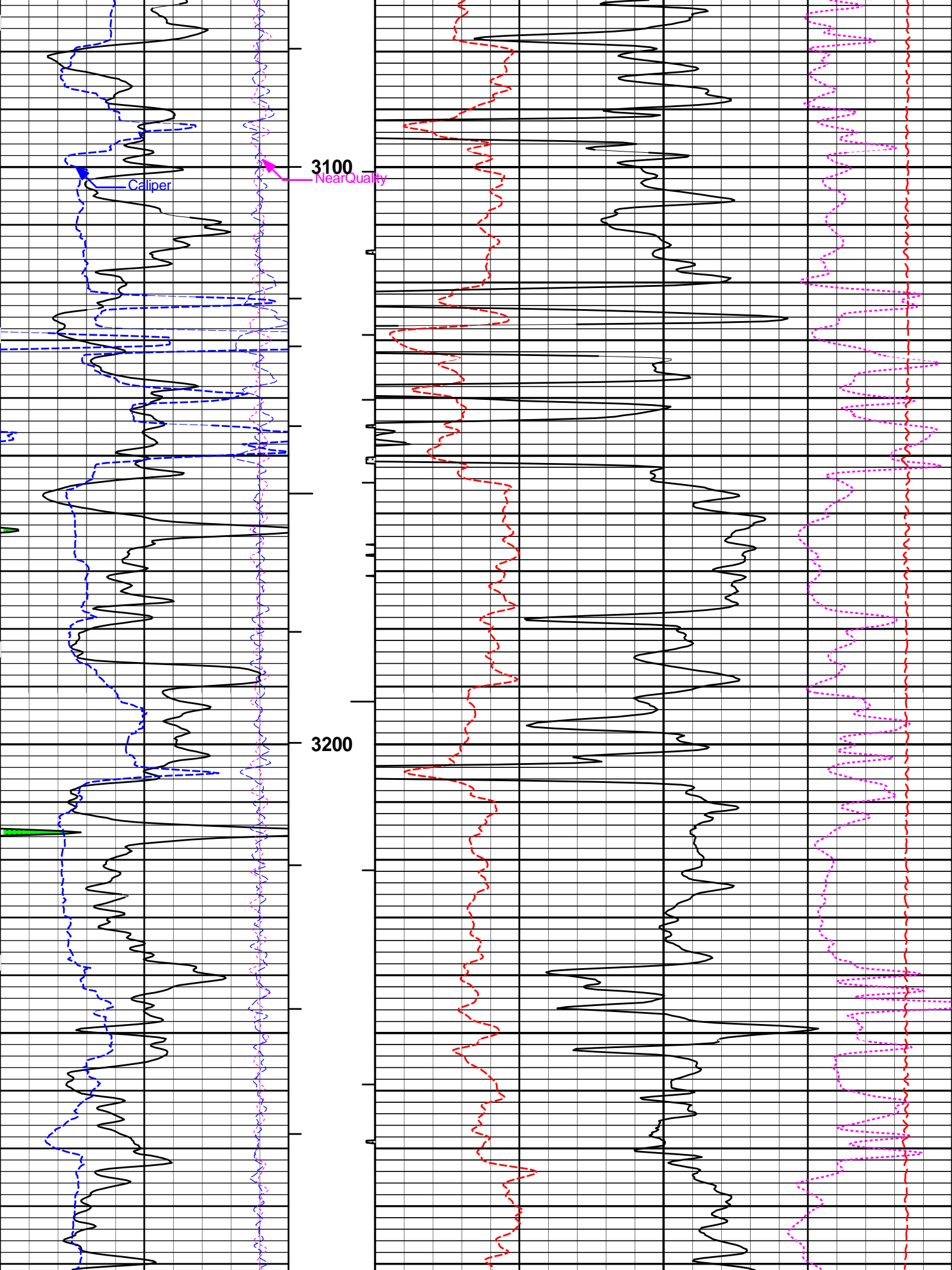


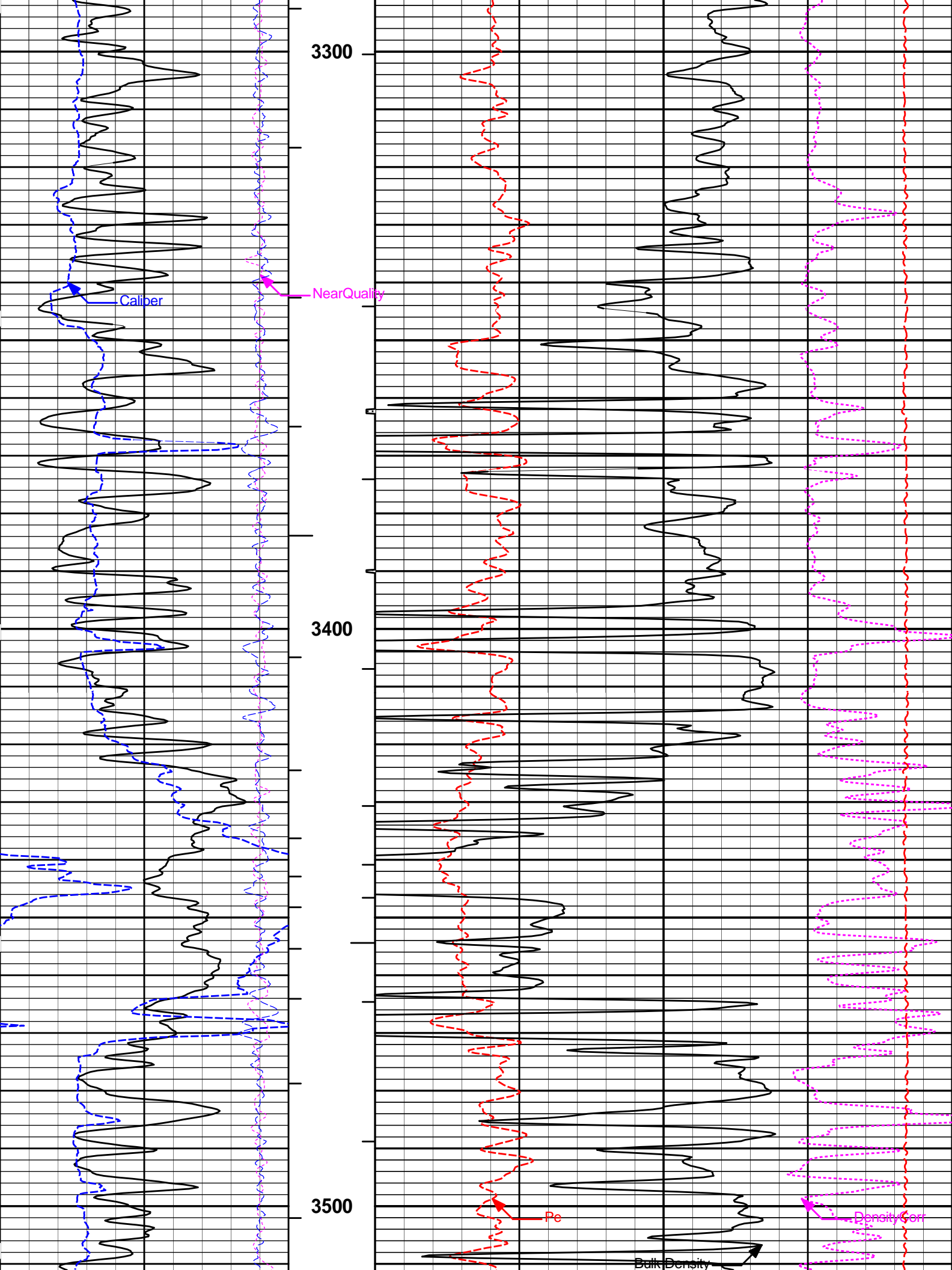


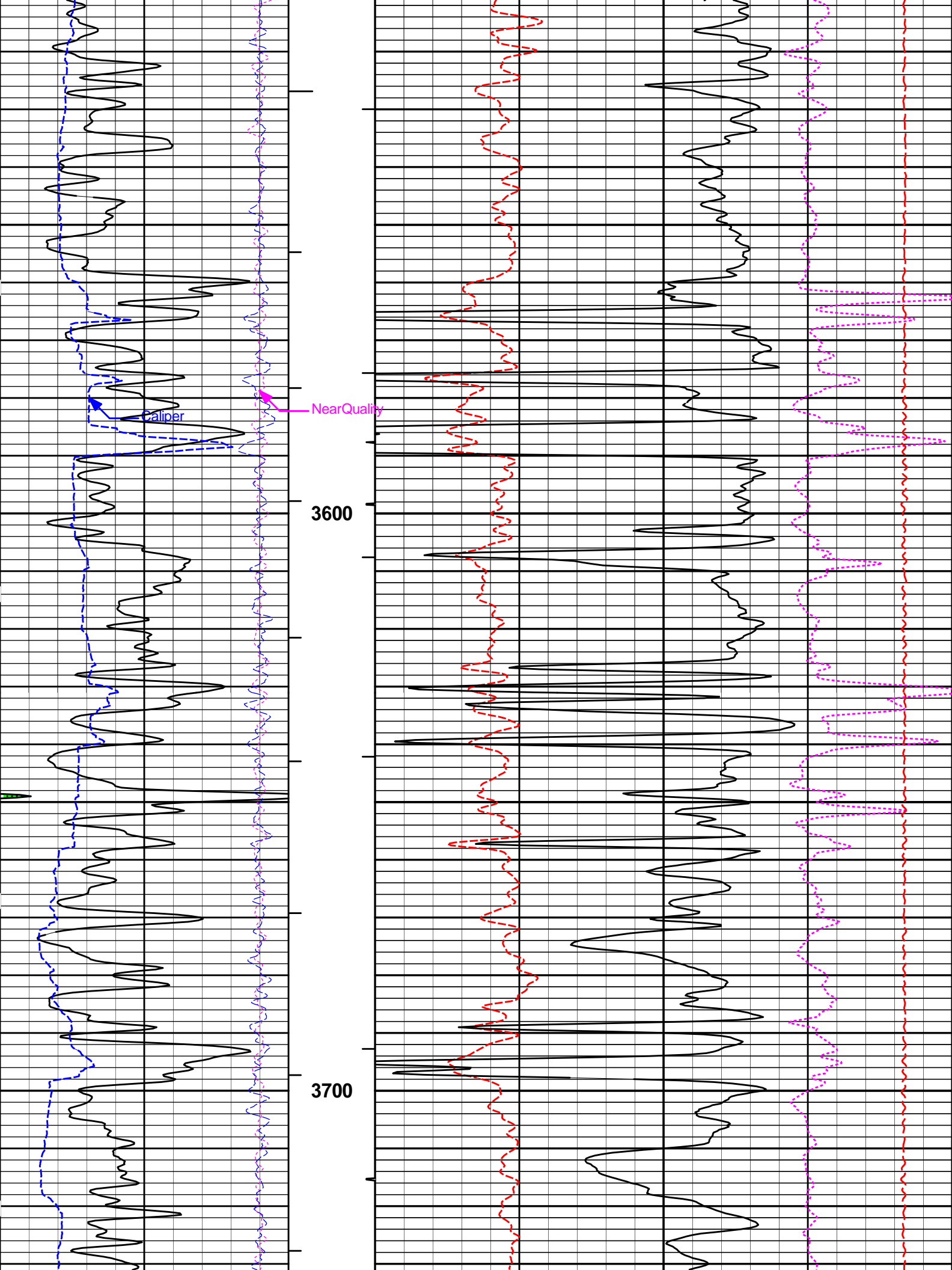


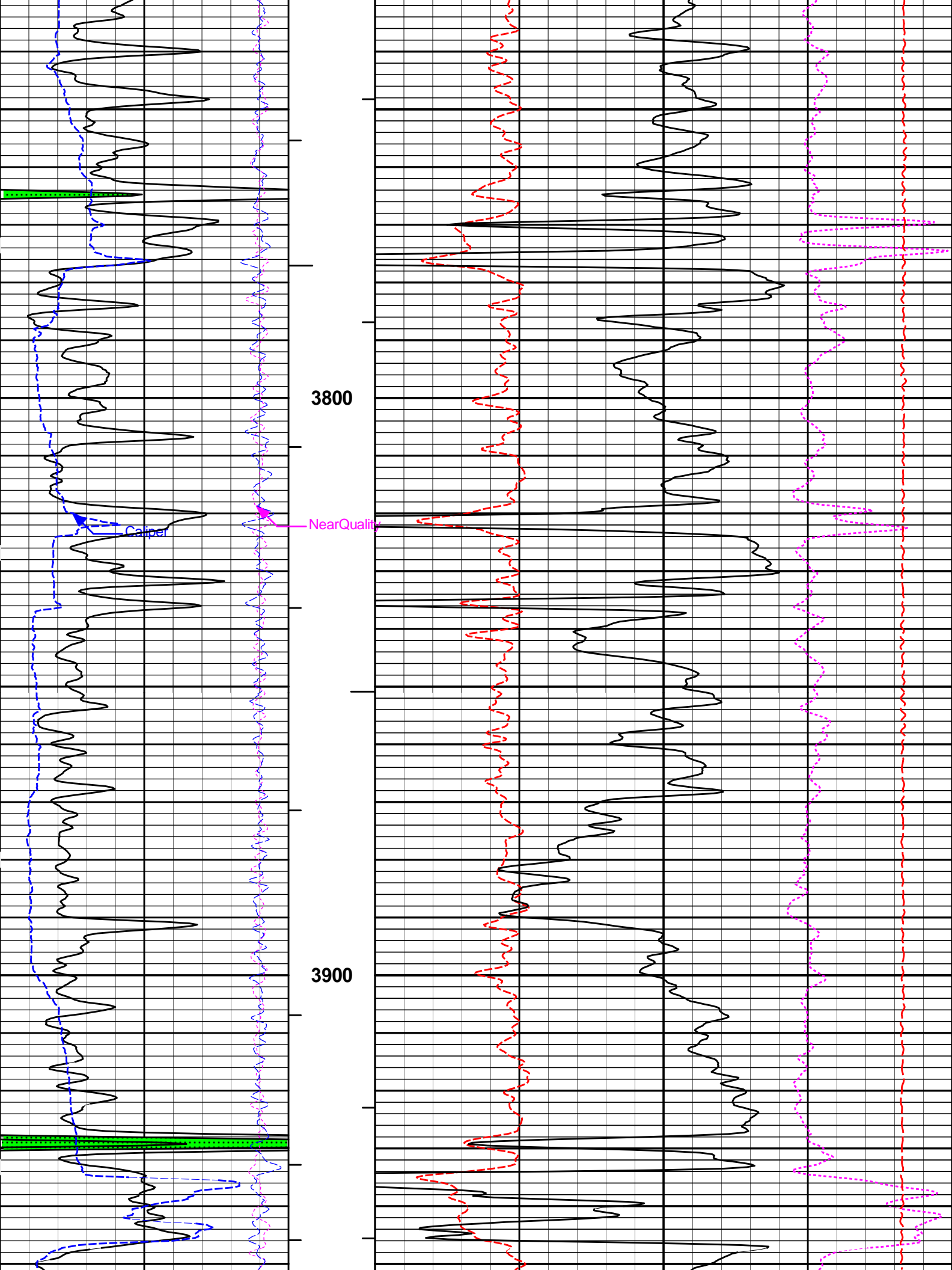


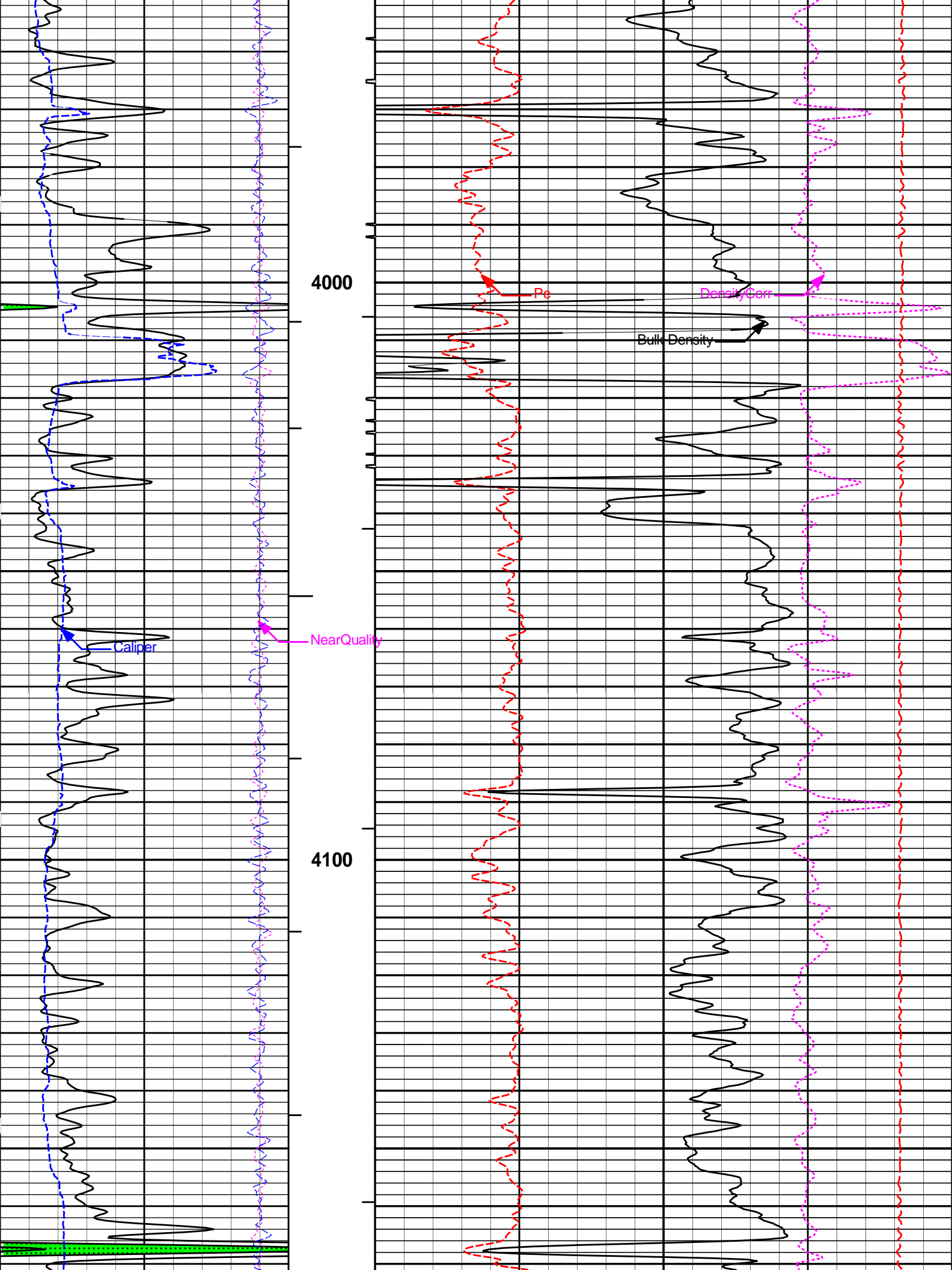


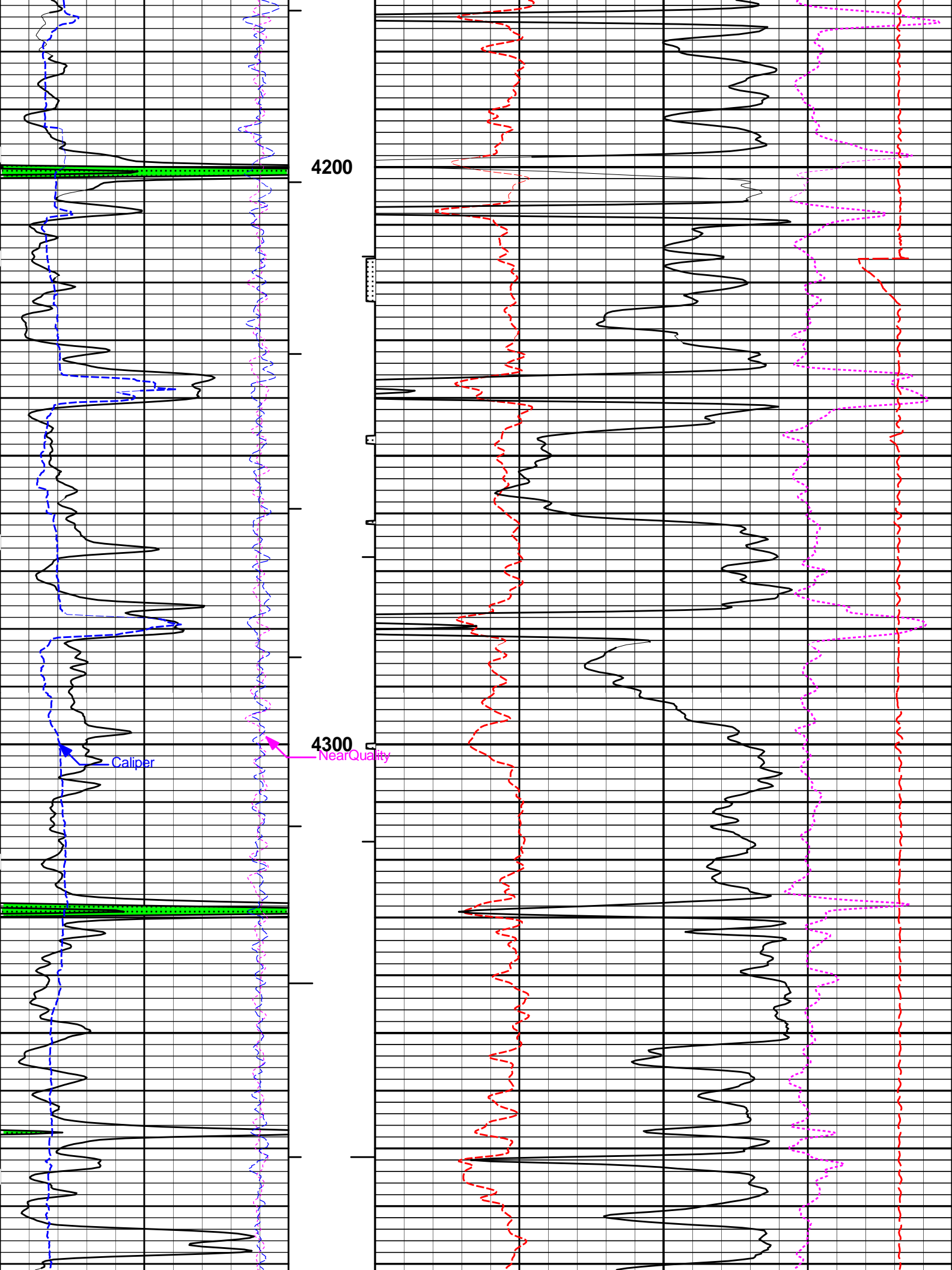


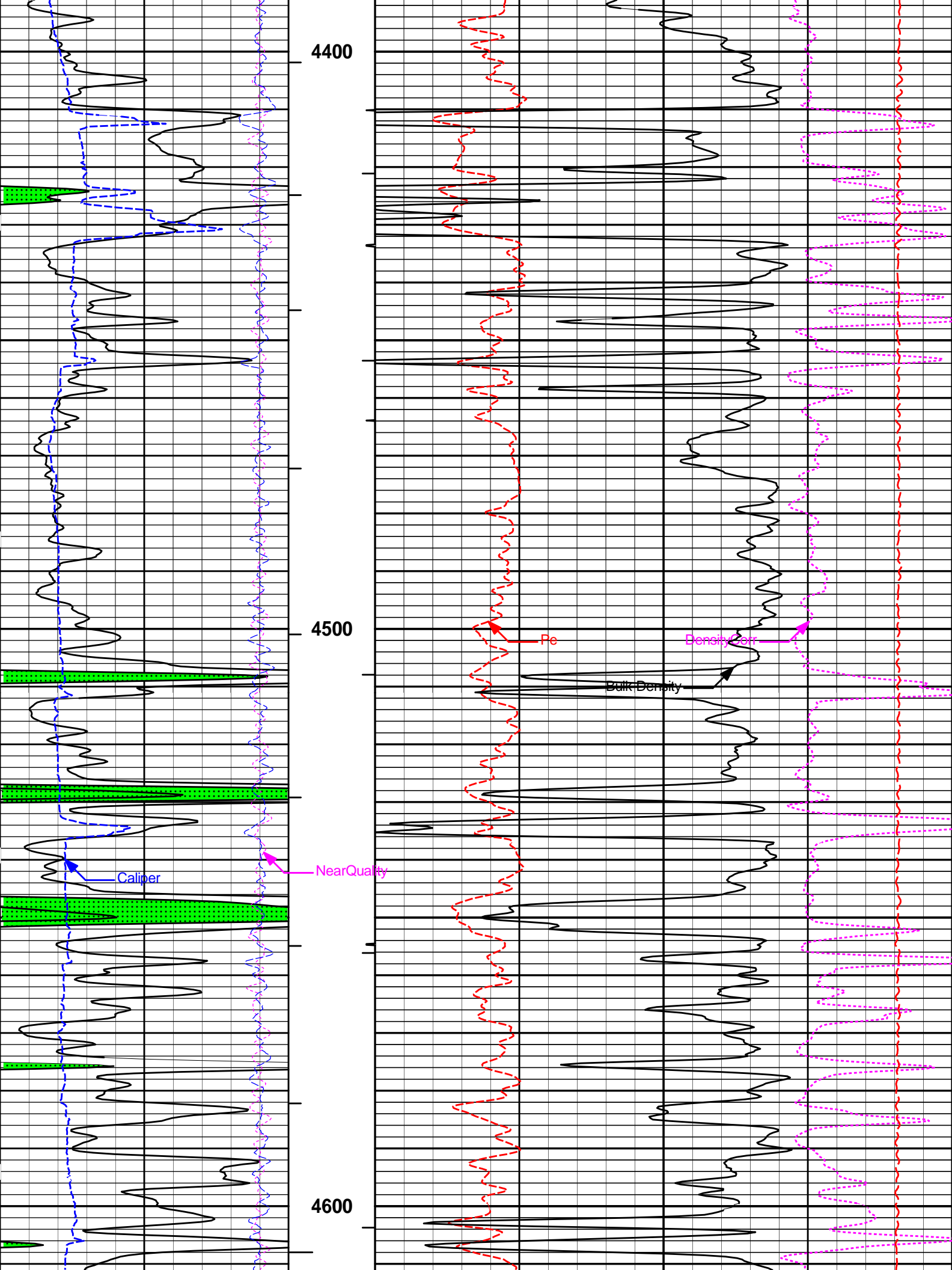


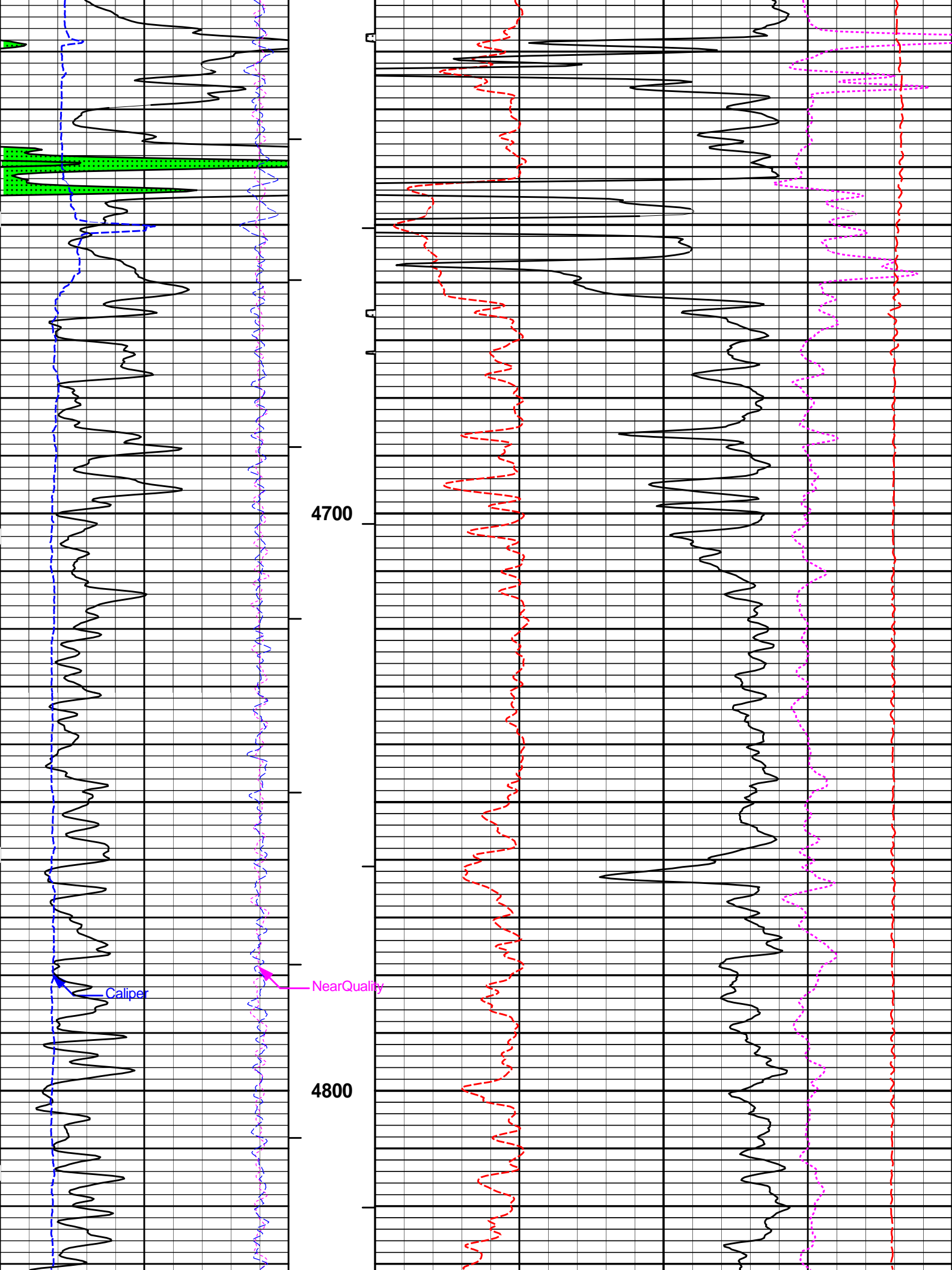




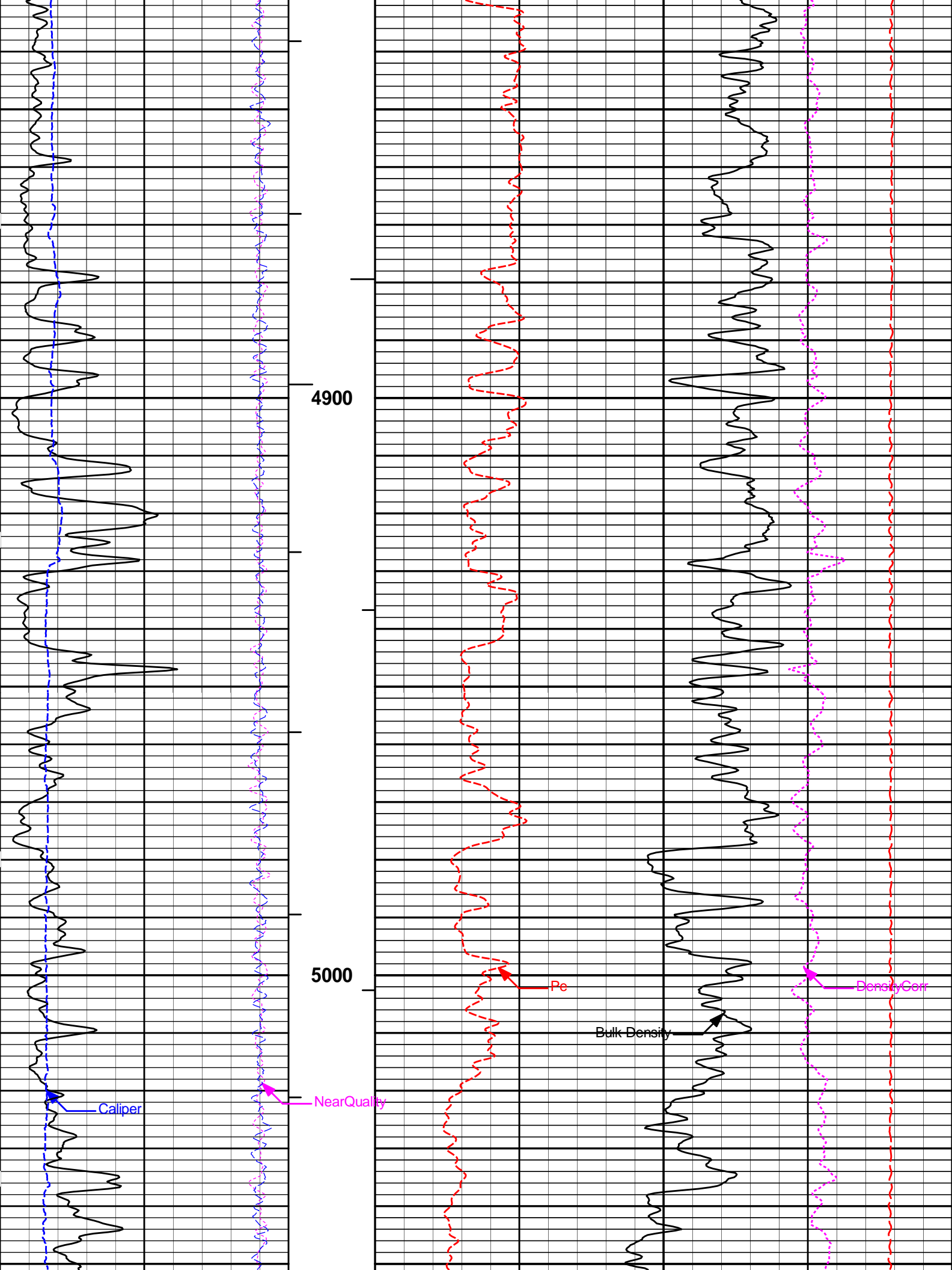


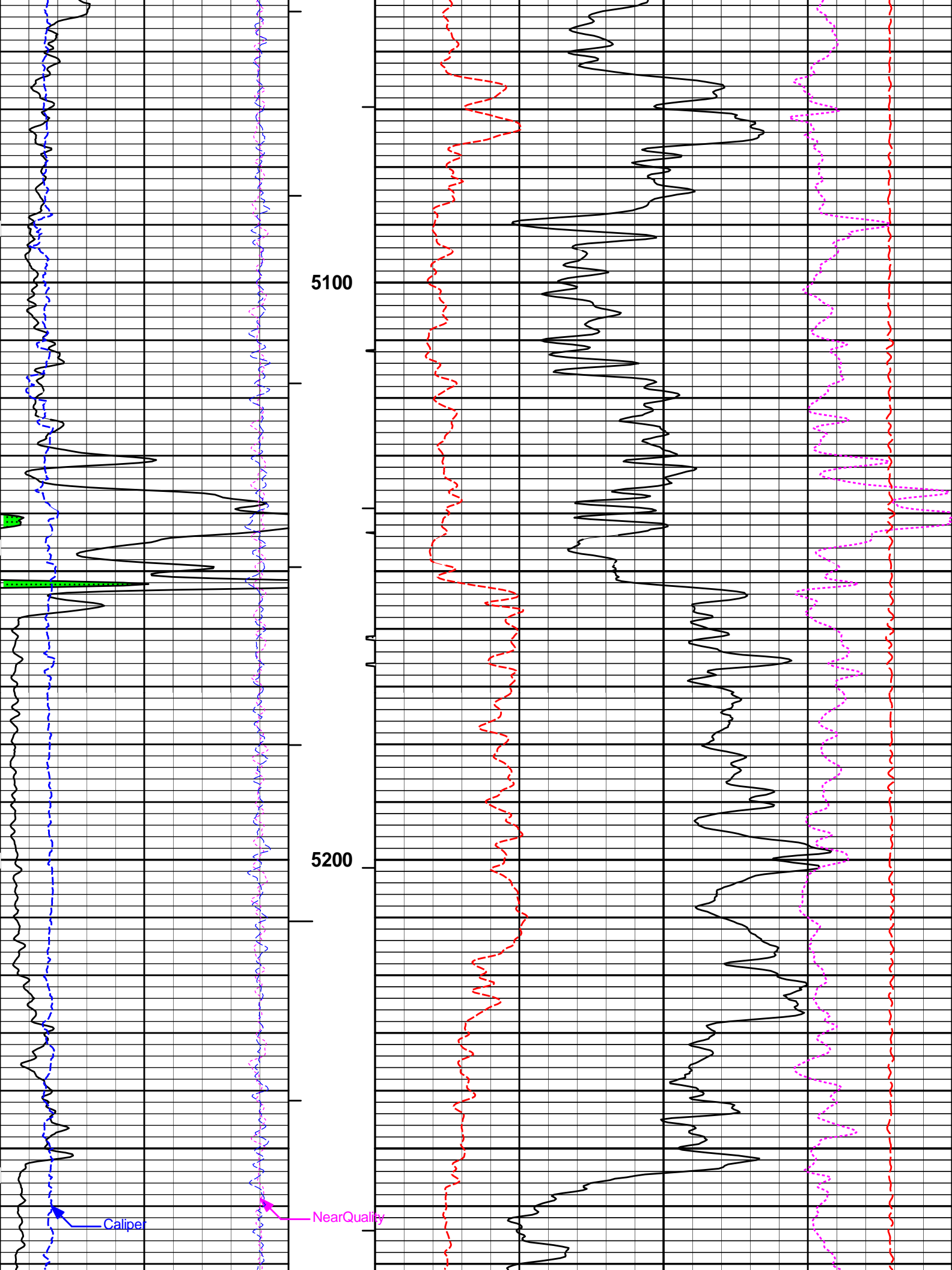


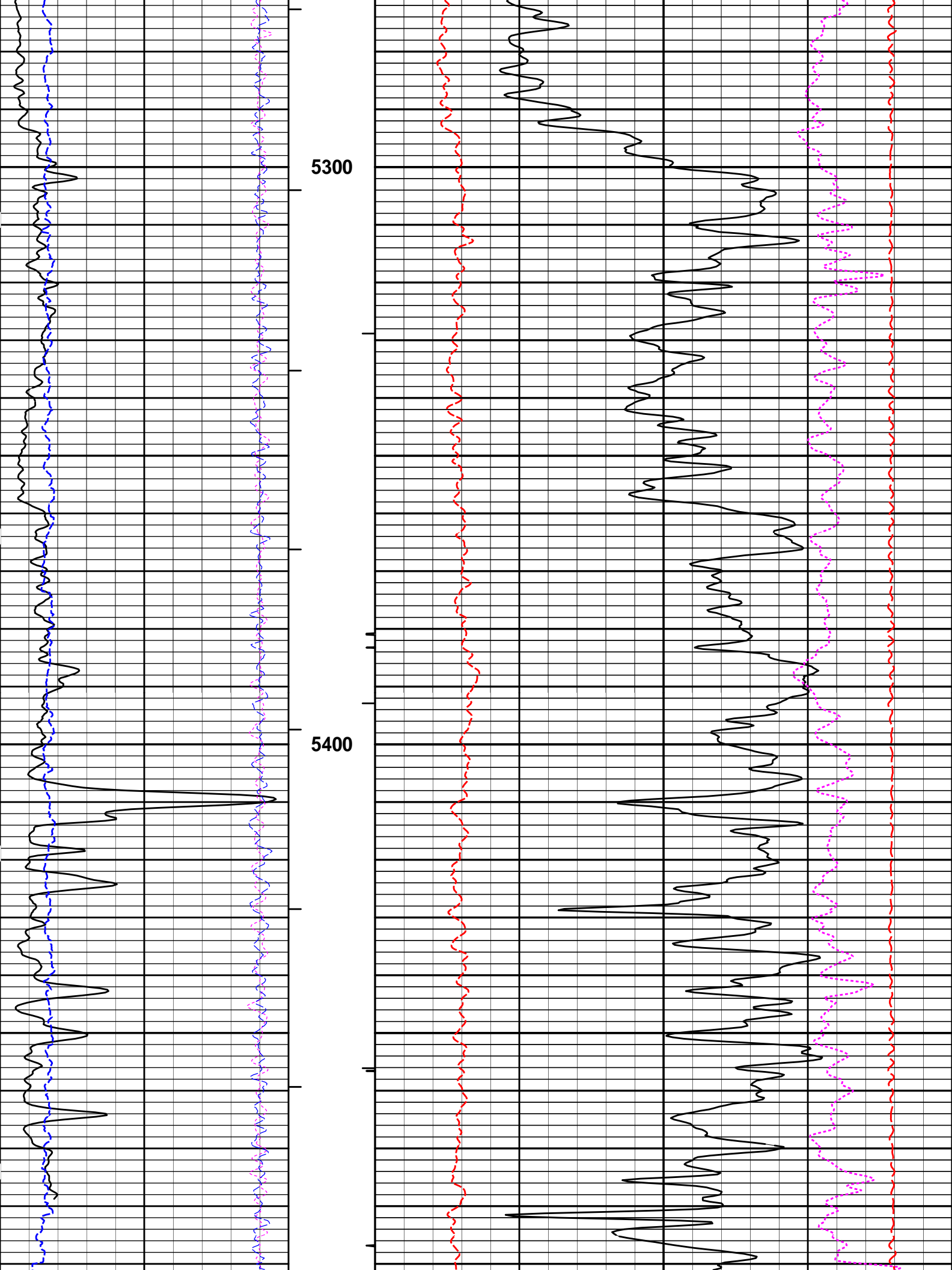


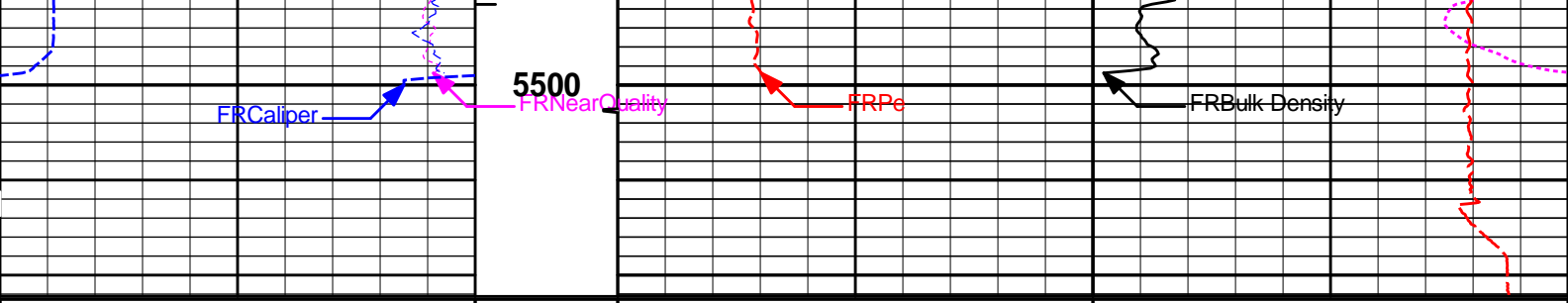












6	Caliper inches	16	MD 1 : 240 ft	0	Pe	10	-0.25	DensityCorr g/cc	0.25
-18	NearQuality	2	AHV ft3				15K	Tension pounds	0
18	FarQuality	-2	BHV ft3	2	Bulk Density				3
					g/cc				
0	Gamma Ray api	150	Tension Pull 10	0					
SHALE			Tension Pull						

**HALLIBURTON**

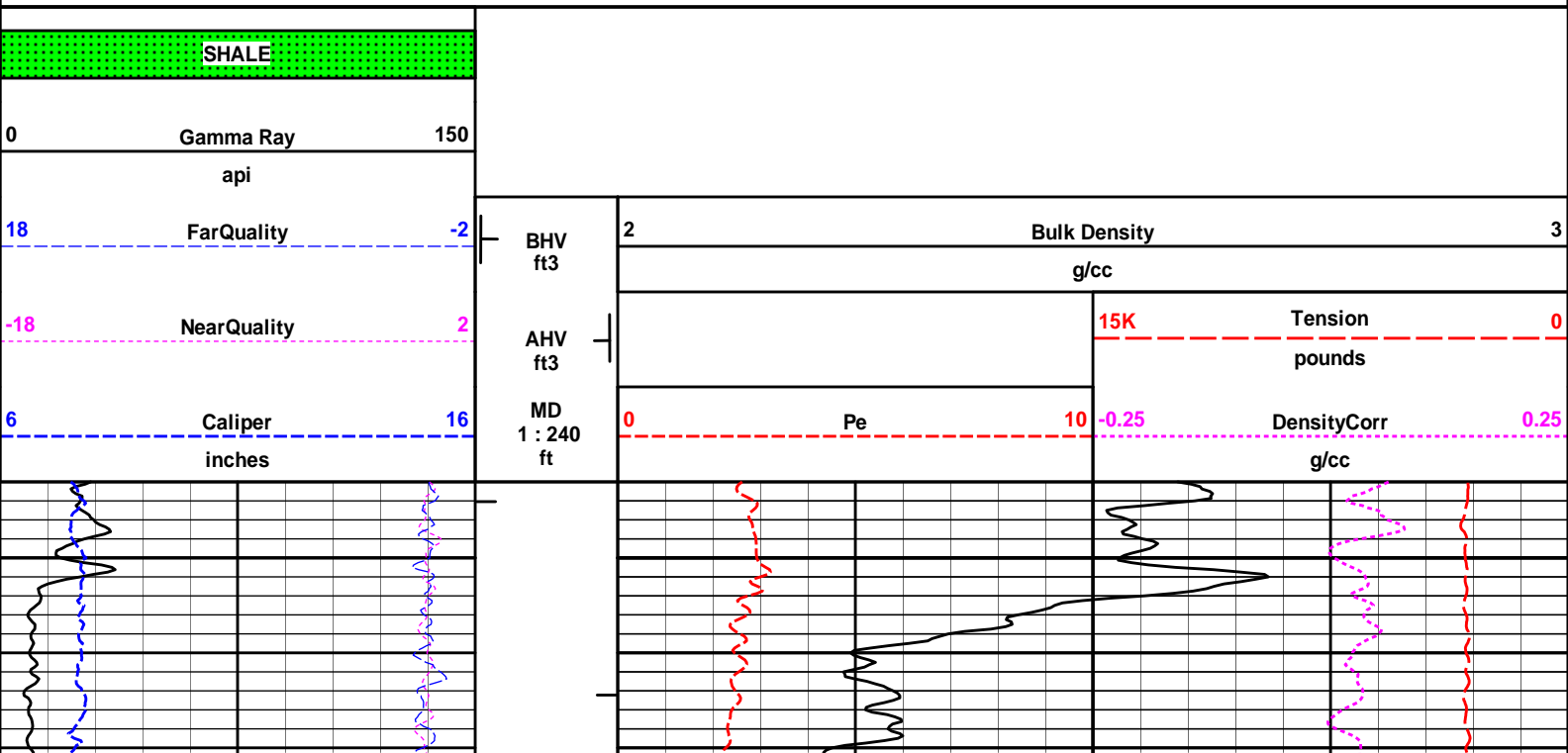
Plot Time: 05-Apr-13 05:52:52  
 Plot Range: 400 ft to 5522.25 ft  
 Data: RENEE\_2230\_1\_2\Well Based\DAQ-0001-005\  
 Plot File: \\LOCAL-IRENEE\_2230\_1\_2\0001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-CH\PORO\BULKD\_5\_MAIN\_LIB

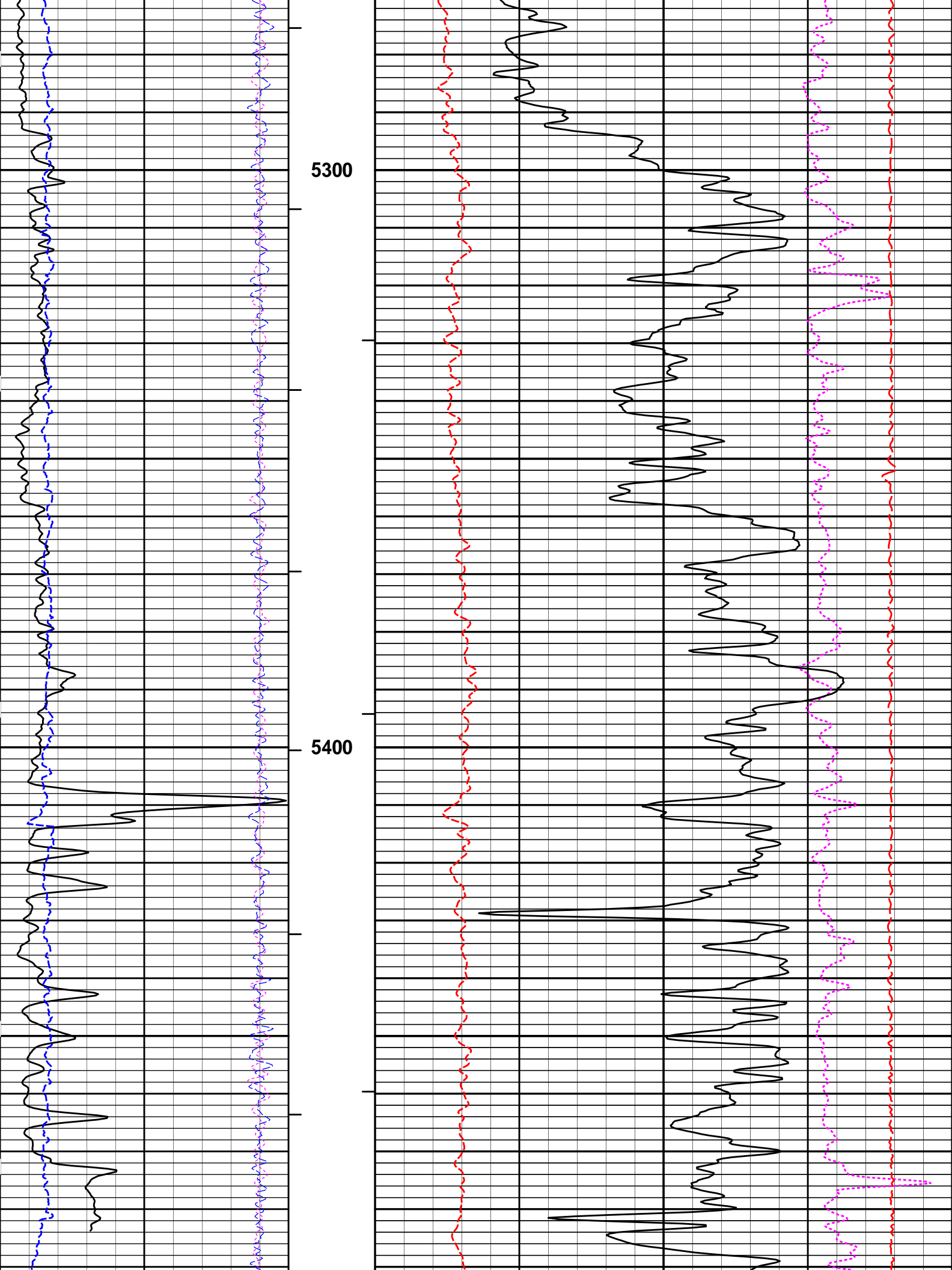
## 5 INCH MAIN LOG

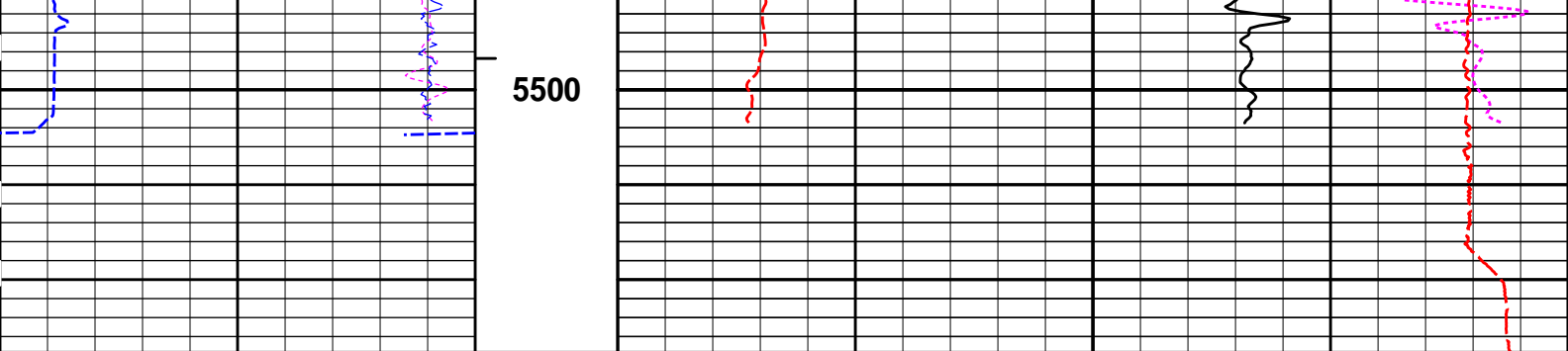
**HALLIBURTON**

Plot Time: 05-Apr-13 05:52:52  
 Plot Range: 5242 ft to 5527.67 ft  
 Data: RENEE\_2230\_1\_2\Well Based\DAQ-0001-004\  
 Plot File: \\LOCAL-IRENEE\_2230\_1\_2\0001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-CH\PORO\BULKD\_5\_REP\_LIB

## REPEAT SECTION







5500

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

**HALLIBURTON**

Plot Time: 05-Apr-13 05:52:54  
 Plot Range: 5242 ft to 5527.67 ft  
 Data: RENEE\_2230\_1\_2\Well Based\DAQ-0001-004\  
 Plot File: \\LOCAL\RENEE\_2230\_1\_2\0001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-CH\PORO\BULKD\_5\_REP\_LIB

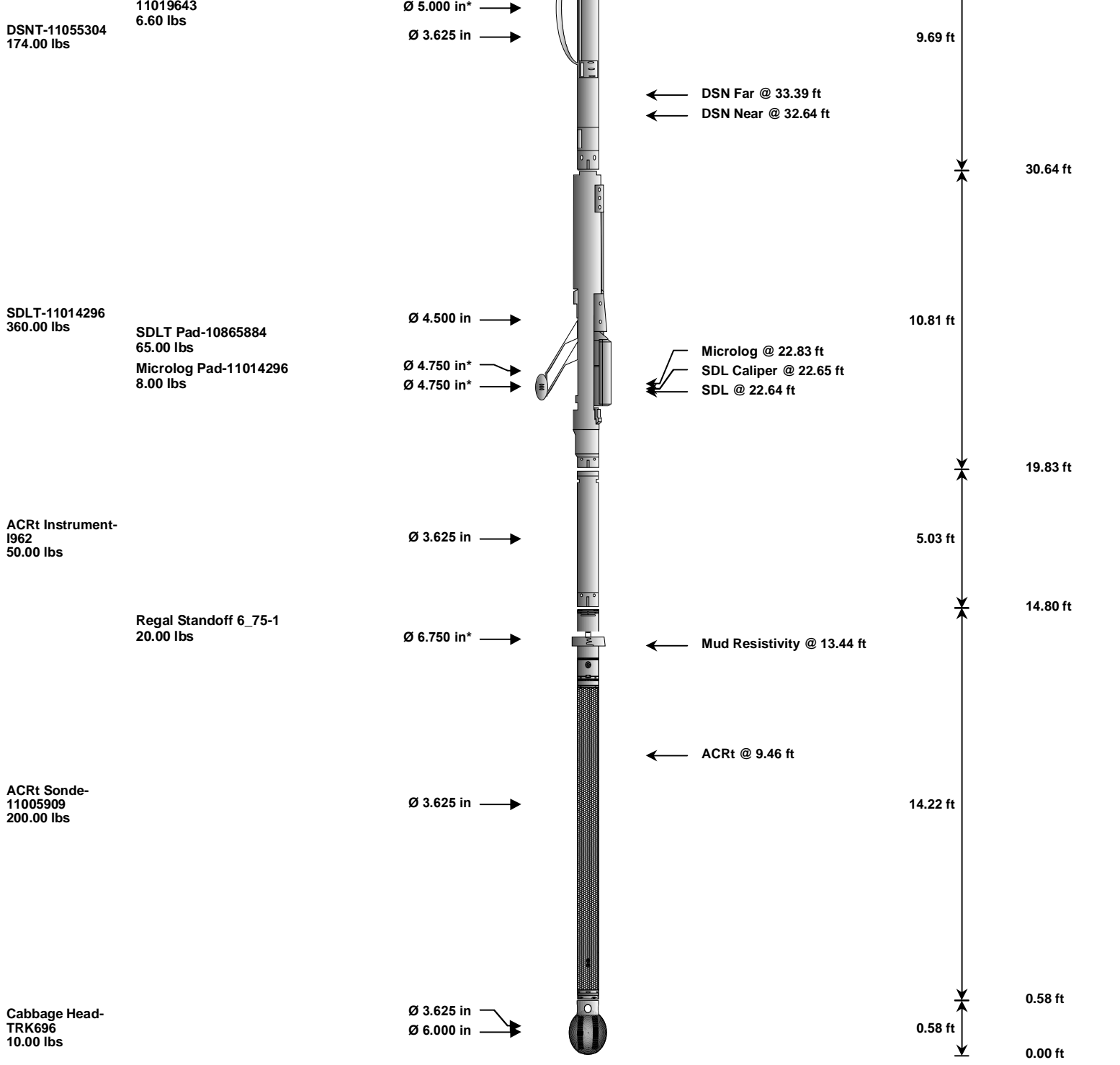
## REPEAT SECTION

**HALLIBURTON**

## TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
CH_HOS-CH_696 37.50 lbs		Ø 2.750 in →		← Temperature @ 54.59 ft	3.03 ft	55.62 ft
SP Sub-11441455 60.00 lbs		Ø 3.625 in →		← SP @ 50.81 ft	3.74 ft	52.59 ft
GTET-11039640 165.00 lbs		Ø 3.625 in →		← GammaRay @ 42.79 ft	8.52 ft	48.85 ft
						40.33 ft

DSN Decentralizer-



Mnemonic	Tool Name	Serial Number	Weight (lbs)	Length (ft)	Accumulated Length (ft)	Max. Log. Speed (fpm)
CH_HOS	Hostile Cable Head with Load Cell	CH_696	37.50	3.03	52.59	300.00
SP	SP Sub	11441455	60.00	3.74	48.85	300.00
GTET	Gamma Telemetry Tool	11039640	165.00	8.52	40.33	60.00
DSNT	Dual Spaced Neutron	11055304	174.00	9.69	30.64	60.00
DCNT	DSN Decentralizer	11019643	6.60	5.13	33.97	300.00
SDLT	Spectral Density Tool	11014296	360.00	10.81	19.83	60.00
SDLP	Density Insite Pad	10865884	65.00	2.55	22.04	60.00
MICP	Microlog Pad	11014296	8.00	1.00	22.33	60.00
ACRt	Array Compensated True Resistivity Instrument Section	I962	50.00	5.03	14.80	300.00
ACRt	Array Compensated True Resistivity Sonde Section	11005909	200.00	14.22	0.58	300.00
RSOF	Regal Standoff 6.75in	1	20.00	0.52	13.42	300.00
CBHD	Cabbage Head	TRK696	10.00	0.58	0.00	300.00

**Total** **1,156.10**    **55.62**

\* Not included in Total Length and Length Accumulation.

**CALIBRATION REPORT****NATURAL GAMMA RAY TOOL SHOP CALIBRATION****Tool Name:** GTET - 11039640**Reference Calibration Date:** 14-Jan-13 11:39:27**Engineer:** J. BOLLLOM**Calibration Date:** 13-Feb-13 13:51:32**Software Version:** WL INSITE R3.8.0 (Build 2)**Calibration Version:** 1

Calibrator Source S/N: TB146

Calibrator API Reference:265.00 api

Equivalent Calibrator API Reference:269.6 api

Measurement	Measured	Calibrated	Units
Background	77.6	79.8	api
Background + Calibrator	339.7	349.5	api
Calibrator	262.1	269.6	api

**NATURAL GAMMA RAY TOOL FIELD CALIBRATION****Tool Name:** GTET - 11039640**Reference Calibration Date:** 13-Feb-13 13:51:32**Engineer:** THOMAS HYDE**Calibration Date:** 04-Apr-13 12:20:16**Software Version:** WL INSITE R3.8.0 (Build 2)**Calibration Version:** 1

Calibrator Source S/N: TB146

Calibrator API Reference:265.00 api

Equivalent Calibrator API Reference:269.6 api

Field Verification	Shop	Field	Units
Background	79.8	54.7	api
Background + Calibrator	349.5	332.0	api
Calibrator	269.6	277.3	api

Shop	Field	Difference	Tolerance
269.6	277.3	-7.7	+/- 9.00

**DUAL SPACED NEUTRON SHOP CALIBRATION****Tool Name:** DSNT - 11055304**Reference Calibration Date:** 19-Dec-12 16:48:47**Engineer:** J. BOLLLOM**Calibration Date:** 13-Feb-13 13:44:56**Software Version:** WL INSITE R3.8.0 (Build 2)**Calibration Version:** 1

Logging Source S/N: 696

Tank Serial Number: LIBERAL\_NEUTRON

Reference value assigned to Tank: 51.680

Snow Block S/N: 696

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:	0.986	0.986	0.900 - 1.100

**WATER TANK SUMMARY (Horizontal Water Tank)**

Measurement	Current Reading (Previous Coef.)	Calibrated (New Coef.)	Change	Control Limit On Change
Density (lb/gal)	8.3400	8.3400	0.0000	+/- 0.0000



Porosity (decp):	0.2106	0.2106	0.0000	+/- 0.0020
Calibrated Ratio:	9.72	9.72	0.000	+/- 0.050

VERIFIER		
Measurement	Value	Control Limit
Snow-Block Porosity (decp):	0.0624	0.02000 - 0.09000

PASS/FAIL SUMMARY	
Background Check:	Passed
Gain-Range Check:	Passed
Snow-Block Check:	Passed

### DUAL SPACED NEUTRON FIELD CALIBRATION

<b>Tool Name:</b> DSNT - 11055304	<b>Reference Calibration Date:</b> 13-Feb-13 13:44:56
<b>Engineer:</b> THOMAS HYDE	<b>Calibration Date:</b> 04-Apr-13 12:34:16
<b>Software Version:</b> WL INSITE R3.8.0 (Build 2)	<b>Calibration Version:</b> 1

Logging Source S/N: 696  
Snow Block S/N: 696

NEUTRON FIELD-CHECK SUMMARY				
	Shop	Field	Difference	Control Limit On Change
Snow-Block Porosity (decp):	0.0624	0.0712	0.0089	+/- 0.0150

PASS/FAIL SUMMARY	
Block Change Check:	Passed
Snow Block Stat Check:	Passed
Temperature Check:	Passed

### DENSITY CALIPER SHOP CALIBRATION

<b>Tool Name:</b> SDLT - 11014296	<b>Reference Calibration Date:</b> 13-Feb-13 09:52:34
<b>Engineer:</b> J. BOLLLOM	<b>Calibration Date:</b> 13-Feb-13 09:56:36
<b>Software Version:</b> WL INSITE R3.8.0 (Build 2)	<b>Calibration Version:</b> 1
<b>Host Tool Name:</b> DSNT - 11055304	

CALIBRATION COEFFICIENTS			
Measurement	Previous Value	New Value	Control Limit On New Value
Pad Offset	-4115.63	-3940.88	-7000.00 - -1000.00
Pad Gain	0.0003908	0.0003812	0.000200 - 0.000600
Arm Offset	-2144.15	-2009.50	-5000.00 - 3000.00
Arm Gain	0.0004162	0.0004246	0.000300 - 0.000700
Arm Power	0.000002688	0.000001261	-0.000010000 - 0.000010000

The ring diameter is computed from:  $\text{DIAMETER} = \text{PAD EXTENSION} + \text{ARM EXTENSION} + \text{TOOL DIAMETER}$   
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)	1.98	2.00	0.02	+/- 0.20
Medium Ring (in)	3.78	3.75	-0.03	+/- 0.20
RING DIAMETER:				
Small Ring (in)	6.35	6.50	0.15	+/- 0.20
Medium Ring (in)	8.10	8.25	0.15	+/- 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

**SPECTRAL DENSITY SHOP CALIBRATION**

**Tool Name:** SDLT Pad - 10865884      **Reference Calibration Date:** 04-Jan-13 10:30:13  
**Engineer:** J. BOLLUM      **Calibration Date:** 13-Feb-13 10:47:49  
**Software Version:** WL INSITE R3.8.0 (Build 2)      **Calibration Version:** 1

Logging Source S/N: 5168GW  
 Aluminum Block S/N: LIBERAL      Density: 2.598g/cc      Pe: 3.170  
 Magnesium Block S/N: LIBERAL      Density: 1.684g/cc      Pe: 2.598

**DENSITY CALIBRATION SUMMARY**

Measurement	Previous Value	New Value	Control Limit
Near Bar Gain	1.0591	1.0409	0.90 - 1.10
Near Dens Gain	1.0204	1.0144	0.90 - 1.10
Near Peak Gain	1.0236	1.0045	0.90 - 1.10
Near Lith Gain	0.9918	0.9897	0.90 - 1.10
Far Bar Gain	1.0142	1.0119	0.90 - 1.10
Far Dens Gain	1.0021	1.0002	0.90 - 1.10
Far Peak Gain	0.9953	0.9961	0.90 - 1.10
Far Lith Gain	0.9734	0.9709	0.90 - 1.10
Near Bar Offset	-0.3434	-0.1754	NONE
Near Dens Offset	-0.0183	0.0332	NONE
Near Peak Offset	-0.0641	0.0950	NONE
Near Lith Offset	0.1634	0.1786	NONE
Far Bar Offset	0.0078	0.0343	NONE
Far Dens Offset	0.0906	0.1130	NONE
Far Peak Offset	0.1244	0.1196	NONE
Far Lith Offset	0.2556	0.2809	NONE
Near Bar Background	831.89	829.24	700 - 1450
Near Dens Background	276.96	275.13	230 - 480
Near Peak Background	118.93	119.99	100 - 210
Near Lith Background	146.93	146.82	125 - 260
Far Bar Background	515.51	513.05	450 - 900
Far Dens Background	202.64	200.66	175 - 345
Far Peak Background	78.62	79.48	70 - 140
Far Lith Background	81.88	82.22	75 - 145

**CALIBRATION BLOCK SUMMARY**

Measurement	Current Reading (Previous Coef)	Calibrated (New Coef)	Change	Control Limit On Change
<b>MAGNESIUM</b>				
Density (g/cc)	1.688	1.684	-0.004	+/- 0.015
Pe	2.534	2.552	0.018	+/- 0.150
<b>ALUMINUM</b>				
Density (g/cc)	2.600	2.598	-0.002	+/- 0.01500
Pe	2.981	2.120	-0.861	+/- 0.150

TOOL SUMMARY				
Measurement	Near Detector		Far Detector	
	Value	Control Limits	Value	Control Limits
QUALITY				
Background	-0.0003	+/- 0.0110	-0.0017	+/- 0.0140
Magnesium Block	-0.0024	+/- 0.0110	-0.0007	+/- 0.0140
Aluminum Block	0.0005	+/- 0.0110	0.0001	+/- 0.0140
Resolution	9.15	6.00 - 11.50	8.96	6.00 - 11.50
Internal Verifier(B+D+P+L)	1371	1200 - 2700	875	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

<b>Tool Name:</b>	<b>SDLT Pad - 10865884</b>	<b>Reference Calibration Date:</b>	<b>13-Feb-13 10:47:49</b>
<b>Engineer:</b>	<b>THOMAS HYDE</b>	<b>Calibration Date:</b>	<b>04-Apr-13 12:20:22</b>
<b>Software Version:</b>	<b>WL INSITE R3.8.0 (Build 2)</b>	<b>Calibration Version:</b>	<b>1</b>

Pad Temperature: 63.2 degF

DENSITY FIELD CALIBRATION SUMMARY				
Measurement	Shop	Field	Change	Control Limit +/-
Near (B+D+P+L) cps	1371.181	1370.149	-1.032	14.965
Far (B+D+P+L) cps	875.410	877.773	2.363	16.158
Near Resolution	9.15	9.20	0.050	0.50
Far Resolution	8.96	9.02	0.060	1.00

PASS/FAIL SUMMARY	
Bkg Quality Check:	Passed
Bkg Resolution Check:	Passed
Bkg Verification Check:	Passed

### SDLT CALIPER FIELD CALIBRATION

<b>Tool Name:</b>	<b>SDLT - 11014296</b>	<b>Reference Calibration Date:</b>	<b>13-Feb-13 09:56:36</b>
<b>Engineer:</b>	<b>THOMAS HYDE</b>	<b>Calibration Date:</b>	<b>04-Apr-13 12:26:39</b>
<b>Software Version:</b>	<b>WL INSITE R3.8.0 (Build 2)</b>	<b>Calibration Version:</b>	<b>1</b>

MEASURED CALIPER VALUES				
Measurement	Shop	Field	Change	Control Limit On New Value
Pad Extension	3.75	3.71	-0.04	+/- 0.10
Ring Diameter	8.25	8.32	0.07	+/- 0.15

PASS/FAIL SUMMARY	
Pad Extension Check:	Passed

### CALIBRATION SUMMARY

Sensor	Shop	Field	Post	Difference	Tolerance	Units
<b>GTET-11039640</b>						
Gamma Ray Calibrator	269.6	277.3	-----	-7.7	+/- 9.00	api
<b>DSNT-11055304</b>						
Snow-Block Porosity	0.0624	0.0712	-----	-0.0088	+/- 0.0150	decp
<b>SDLT-11014296</b>						
Pad Extension	3.75	3.71	-----	0.04	+/-0.10	in
Ring Diameter	8.25	8.32	-----	-0.07	+/-0.15	in
<b>SDLT Pad-10865884</b>						
Near(B+D+P+L)	1371.181	1370.149	-----	1.032	+/-14.965	cps
Far(B+D+P+L)	875.410	877.773	-----	-2.363	+/-16.158	cps

Data: RENE 2230 1 20001 SP-GTET-DSN-SDL-FI EX-BSAT-ACRT-CHUDLE Date: 05-Apr-13 02:21:10

## HALLIBURTON

### PARAMETERS REPORT

Depth (ft)	Tool Name	Mnemonic	Description	Value	Units
TOP					
	SHARED	BS	Bit Size	7.875	in
	SHARED	UBS	Use Bit Size instead of Caliper for all applications.	No	
	SHARED	MDBS	Mud Base	Water	
	SHARED	MDWT	Borehole Fluid Weight	8.500	ppg
	SHARED	WAGT	Weighting Agent	Natural	
	SHARED	BSAL	Borehole salinity	0.00	ppm
	SHARED	FSAL	Formation Salinity NaCl	0.00	ppm
	SHARED	KPCT	Percent K in Mud by Weight?	0.00	%
	SHARED	RMUD	Mud Resistivity	2.000	ohmm
	SHARED	TRM	Temperature of Mud	75.0	degF
	SHARED	CSD	Logging Interval is Cased?	No	
	SHARED	ICOD	AHV Casing OD	5.500	in
	SHARED	ST	Surface Temperature	75.0	degF
	SHARED	TD	Total Well Depth	5595.00	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	CPCK	Process Gamma Ray	Yes	

GTET	GROK	Process Gamma Ray?	Yes	
GTET	GRSO	Gamma Tool Standoff	0.000	in
GTET	GEOK	Process Gamma Ray EVR?	No	
GTET	TPOS	Tool Position for Gamma Ray Tools.	Eccentered	
DSNT	DNOK	Process DSN?	Yes	
DSNT	DEOK	Process DSN EVR?	No	
DSNT	NLIT	Neutron Lithology	Limestone	
DSNT	DNSO	DSN Standoff - 0.25 in (6.35 mm) Recommended	0.250	in
DSNT	DNTP	Temperature Correction Type	None	
DSNT	DPRS	DSN Pressure Correction Type	None	
DSNT	SHCO	View More Correction Options	No	
DSNT	UTVD	Use TVD for Gradient Corrections?	No	
DSNT	LHWT	Logging Horizontal Water Tank?	No	
SDLT	CLOK	Process Caliper Outputs?	Yes	
SDLT Pad	DNOK	Process Density?	Yes	
SDLT Pad	DNOK	Process Density EVR?	No	
SDLT Pad	CB	Logging Calibration Blocks?	No	
SDLT Pad	SPVT	SDLT Pad Temperature Valid?	Yes	
SDLT Pad	DTWN	Disable temperature warning	No	
SDLT Pad	DMA	Formation Density Matrix	2.710	g/cc
SDLT Pad	DFL	Formation Density Fluid	1.000	g/cc
Microlog Pad	MLOK	Process MicroLog Outputs?	No	
ACRt Sonde	RTOK	Process ACRt?	Yes	
ACRt Sonde	MNSO	Minimum Tool Standoff	1.50	in
ACRt Sonde	TCS1	Temperature Correction Source	FP Lwr & FP Up	
ACRt Sonde	TPOS	Tool Position	Free Hanging	
ACRt Sonde	RMOP	Rmud Source	Mud Cell	
ACRt Sonde	RMIN	Minimum Resistivity for MAP	0.20	ohmm
ACRt Sonde	RMIN	Maximum Resistivity for MAP	200.00	ohmm
ACRt Sonde	THQY	Threshold Quality	0.50	
ACRt Sonde	MRFX	Fixed mud resistivity	2000	ohmm

BOTTOM

Data: RENEE\_2230\_1\_210001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-CHNIDLE

Date: 05-Apr-13 02:21:31

**HALLIBURTON**

### INPUTS, DELAYS AND FILTERS TABLE

Mnemonic	Input Description	Delay (ft)	Filter Type	Filter Length (ft)
<b>Depth Panel</b>				
TENS	Tension	0.00	NO	
<b>CH_HOS</b>				
DHTN	Downhole Tension	0.00	BLK	0.000
<b>SP Sub</b>				
PLTC	Plot Control Mask	50.81	NO	
SP	Spontaneous Potential	50.81	BLK	1.250
SPR	Raw Spontaneous Potential	50.81	NO	
SPO	Spontaneous Potential Offset	50.81	NO	
<b>GTET</b>				
TPUL	Tension Pull	42.79	NO	
GR	Natural Gamma Ray API	42.79	TRI	1.750

GRU	Unfiltered Natural Gamma Ray API	42.79	NO	
EGR	Natural Gamma Ray API with Enhanced Vertical Resolution	42.79	W	1.416 , 0.750
ACCZ	Accelerometer Z	0.00	BLK	0.083
DEVI	Inclination	0.00	NO	
<b>DSNT</b>				
TPUL	Tension Pull	32.54	NO	
RNDS	Near Detector Telemetry Counts	32.64	BLK	1.417
RFDS	Far Detector Telemetry Counts	33.39	TRI	0.583
DNTT	DSN Tool Temperature	32.64	NO	
DSNS	DSN Tool Status	32.54	NO	
ERND	Near Detector Telemetry Counts EVR	32.64	BLK	0.000
ERFD	Far Detector Telemetry Counts EVR	33.39	BLK	0.000
ENTM	DSN Tool Temperature EVR	32.64	NO	
<b>SDLT</b>				
TPUL	Tension Pull	22.65	NO	
PCAL	Pad Caliper	22.65	TRI	0.250
ACAL	Arm Caliper	22.65	TRI	0.250
<b>ACRt Sonde</b>				
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

F3X3	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	22.64	NO	
NAB	Near Above	22.46	BLK	0.920
NHI	Near Cesium High	22.46	BLK	0.920
NLO	Near Cesium Low	22.46	BLK	0.920
NVA	Near Valley	22.46	BLK	0.920
NBA	Near Barite	22.46	BLK	0.920
NDE	Near Density	22.46	BLK	0.920
NPK	Near Peak	22.46	BLK	0.920
NLI	Near Lithology	22.46	BLK	0.920
NBAU	Near Barite Unfiltered	22.46	BLK	0.250
NLIU	Near Lithology Unfiltered	22.46	BLK	0.250
FAB	Far Above	22.81	BLK	0.250
FHI	Far Cesium High	22.81	BLK	0.250
FLO	Far Cesium Low	22.81	BLK	0.250
FVA	Far Valley	22.81	BLK	0.250
FBA	Far Barite	22.81	BLK	0.250
FDE	Far Density	22.81	BLK	0.250
FPK	Far Peak	22.81	BLK	0.250
FLI	Far Lithology	22.81	BLK	0.250
PTMP	Pad Temperature	22.65	BLK	0.920
NHV	Near Detector High Voltage	22.04	NO	
FHV	Far Detector High Voltage	22.04	NO	
ITMP	Instrument Temperature	22.04	NO	
DDHV	Detector High Voltage	22.04	NO	

### Microlog Pad

TPUL	Tension Pull	22.83	NO	
MINV	Microlog Lateral	22.83	BLK	0.750
MNOR	Microlog Normal	22.83	BLK	0.750

Data: RENEE\_2230\_1\_2\0001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-CH\IDLE

Date: 05-Apr-13 02:21:42

**HALLIBURTON**

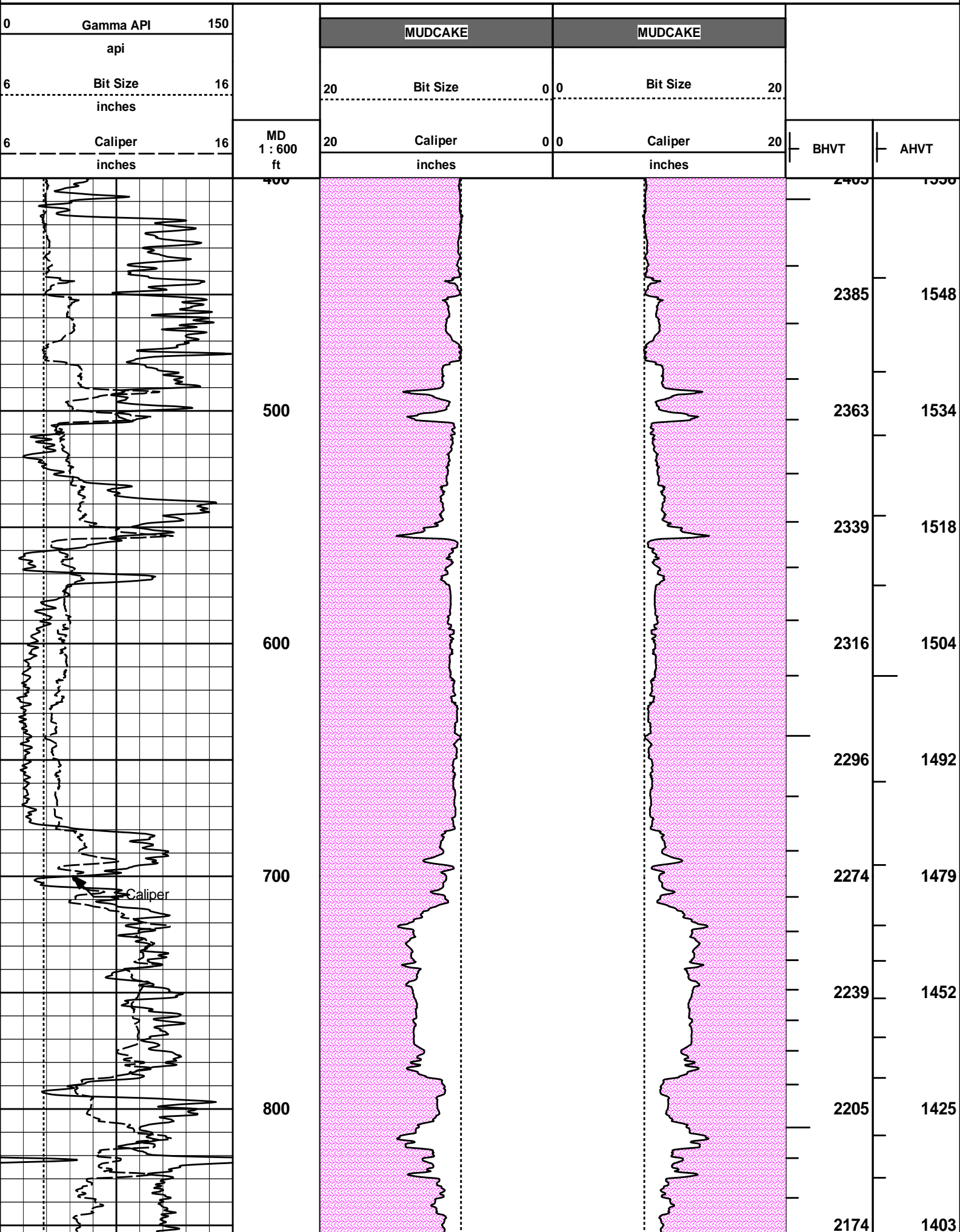
Plot Time: 05-Apr-13 05:52:54

Plot Range: 400 ft to 5522.25 ft

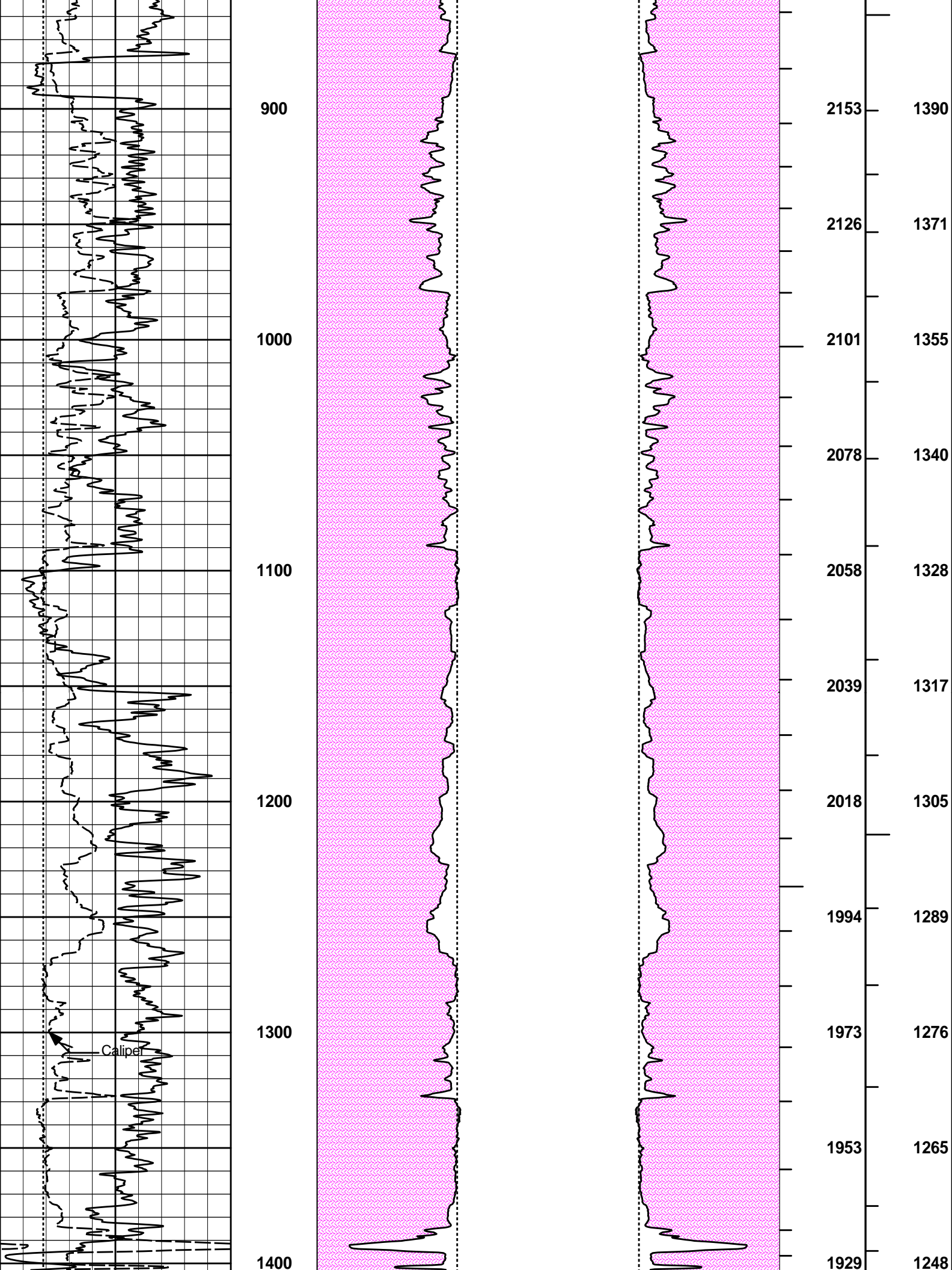
Data: RENEE\_2230\_1\_2\Well Based\DAQ-0001-005\

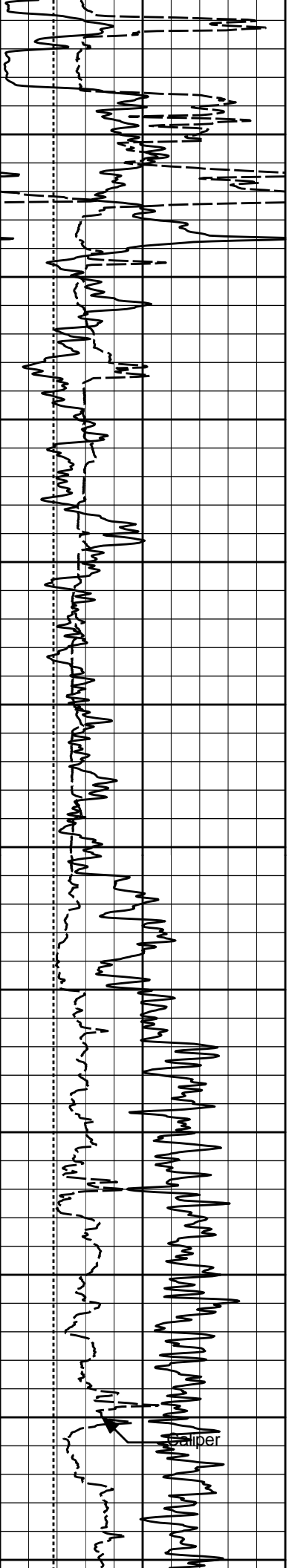
Plot File: \\-LOCAL-\\RENEE\_2230\_1\_2\0001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-CHIPORVAHV\_2\_IQ\_LIB

# ANNULAR HOLE VOLUME PLOT









1500

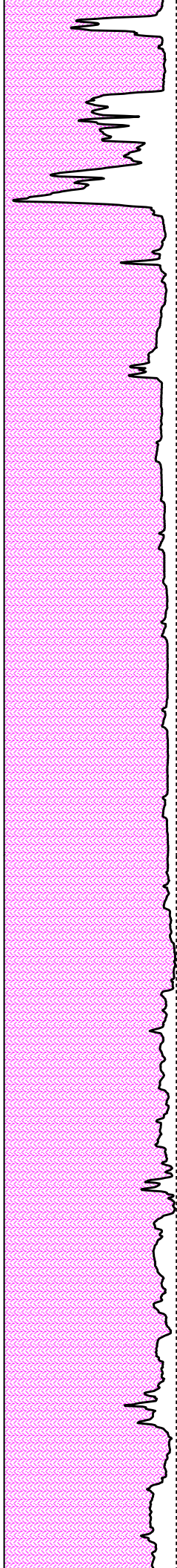
1600

1700

1800

1900

sliper



1895

1858

1834

1813

1792

1772

1753

1732

1710

1687

1664

1223

1194

1179

1165

1153

1141

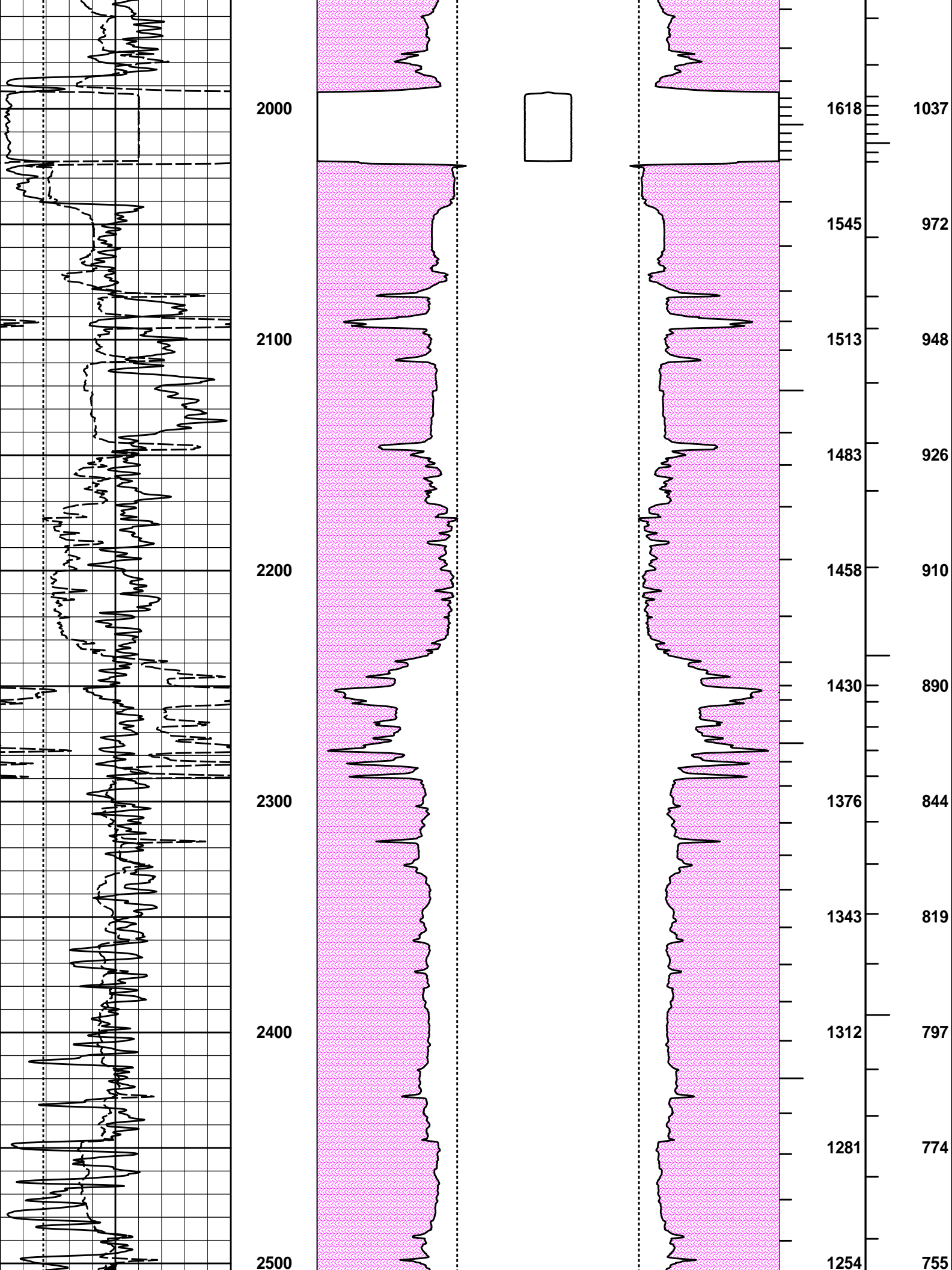
1131

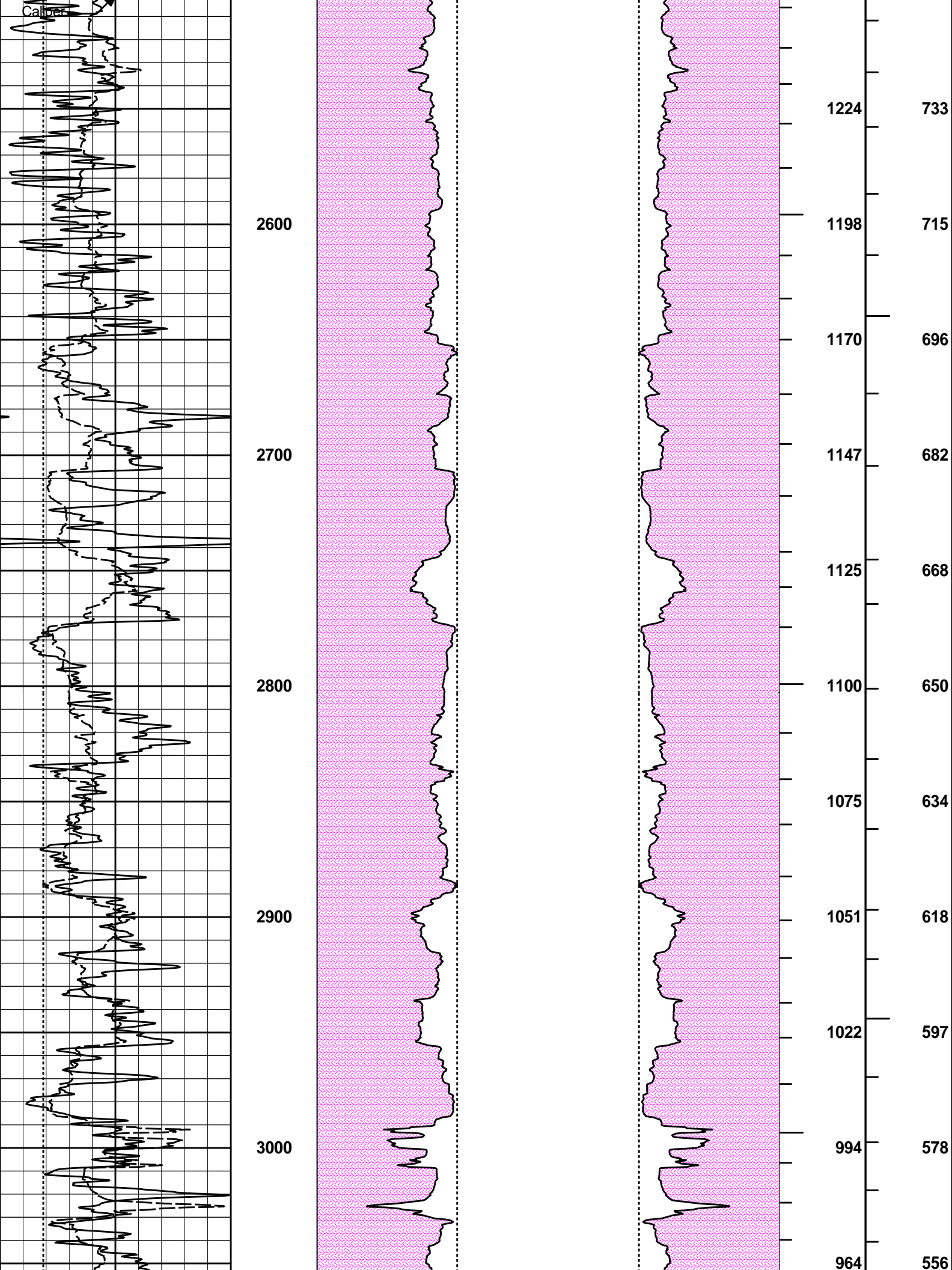
1117

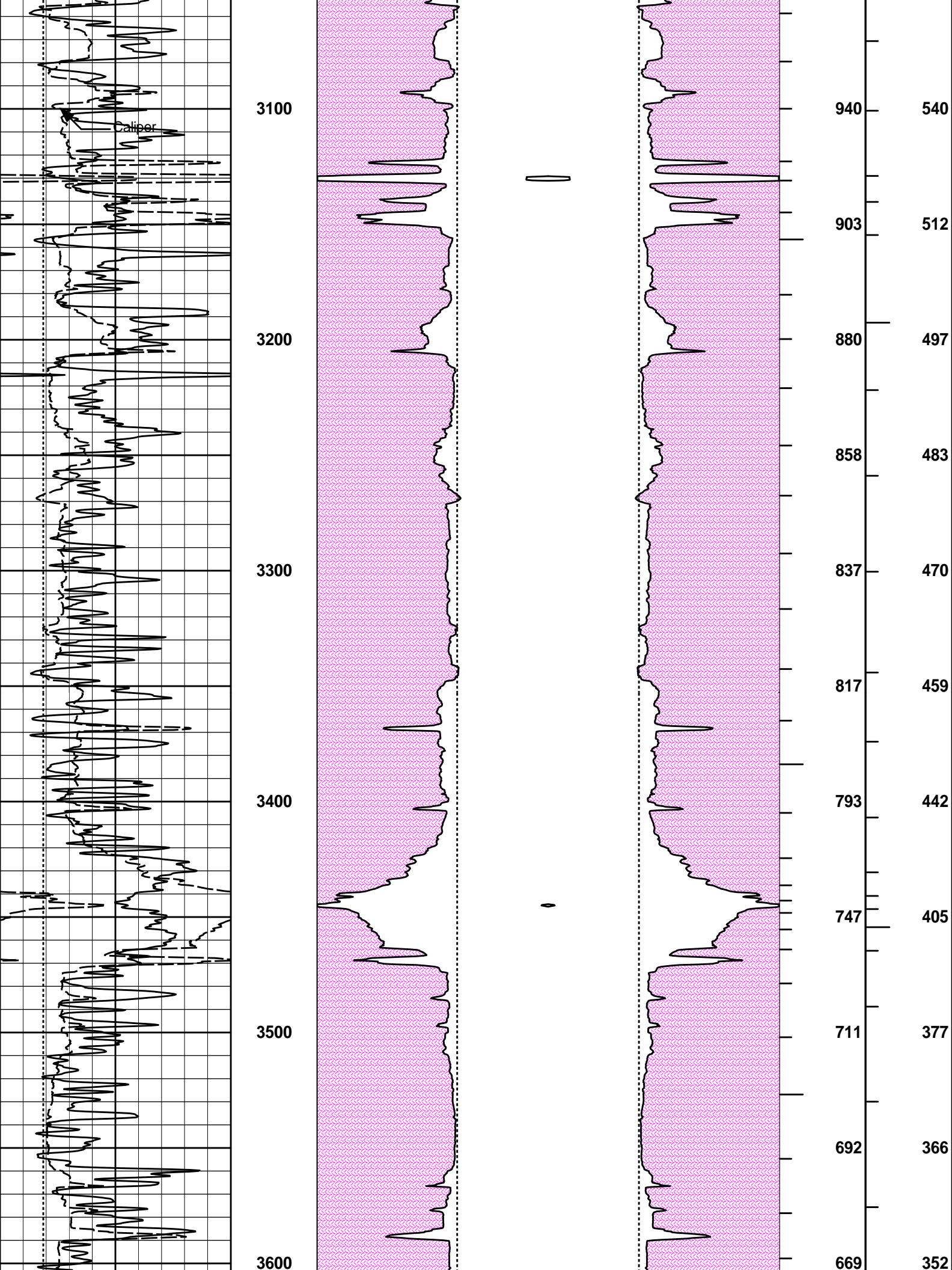
1104

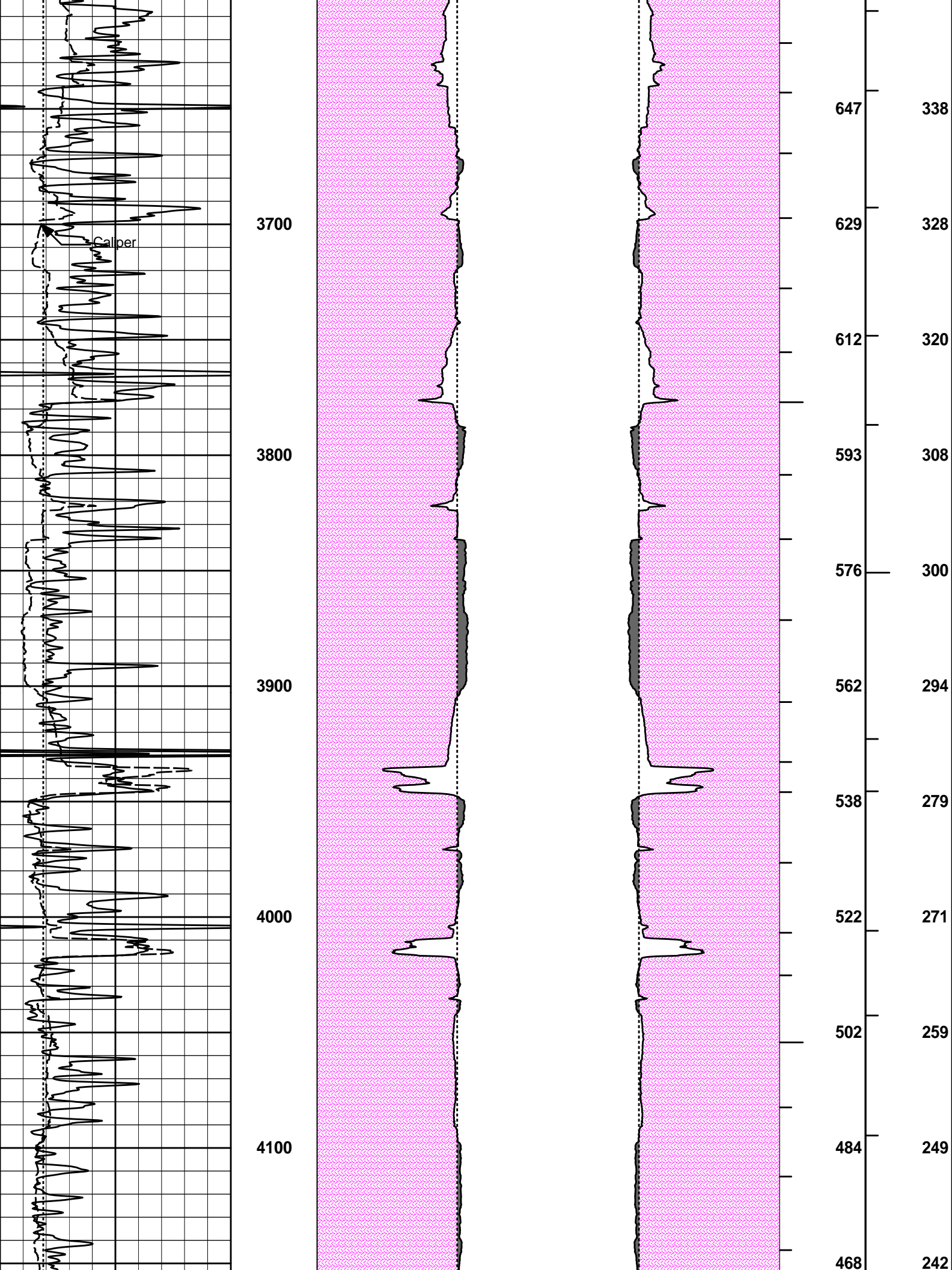
1089

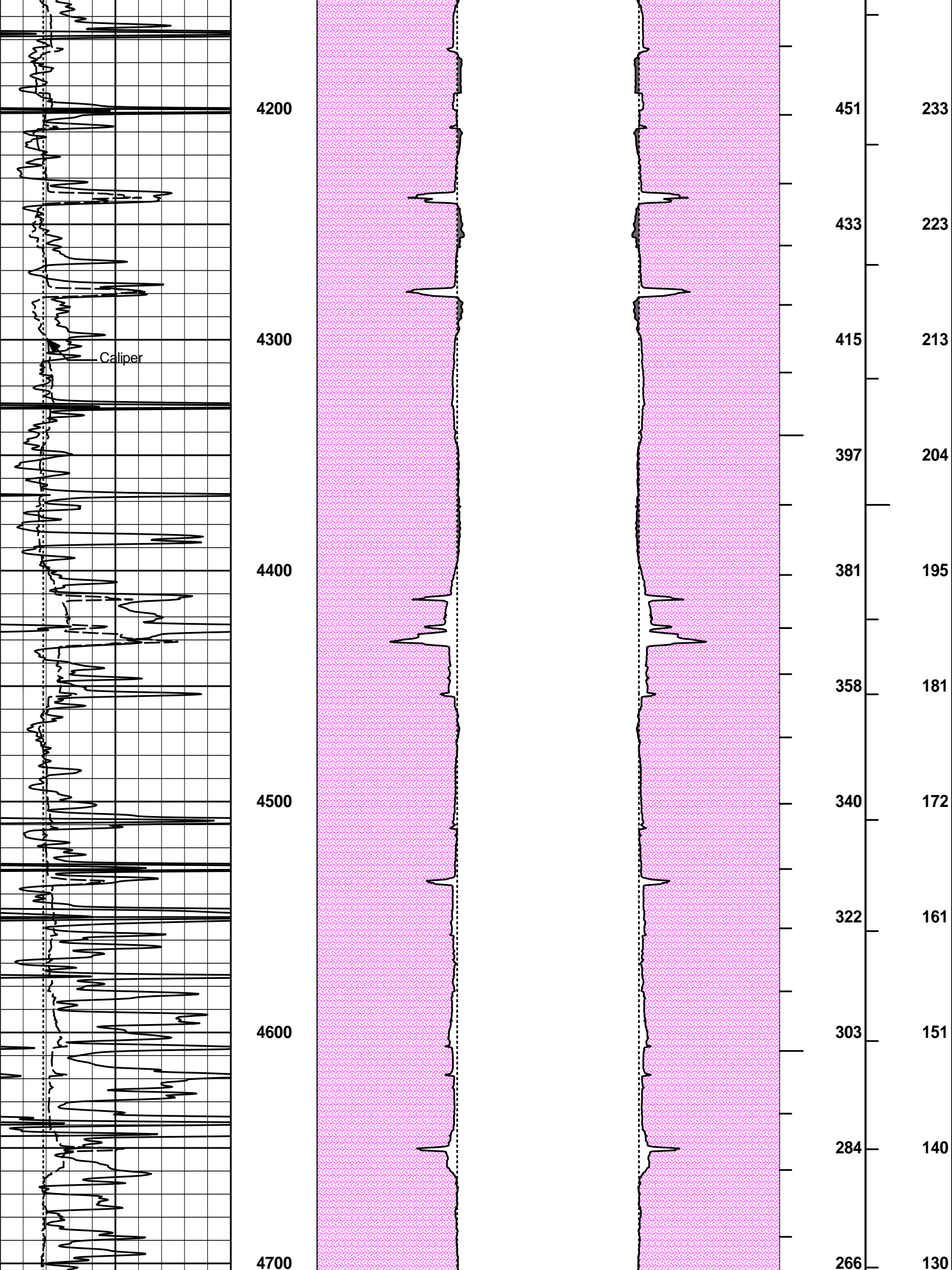
1074

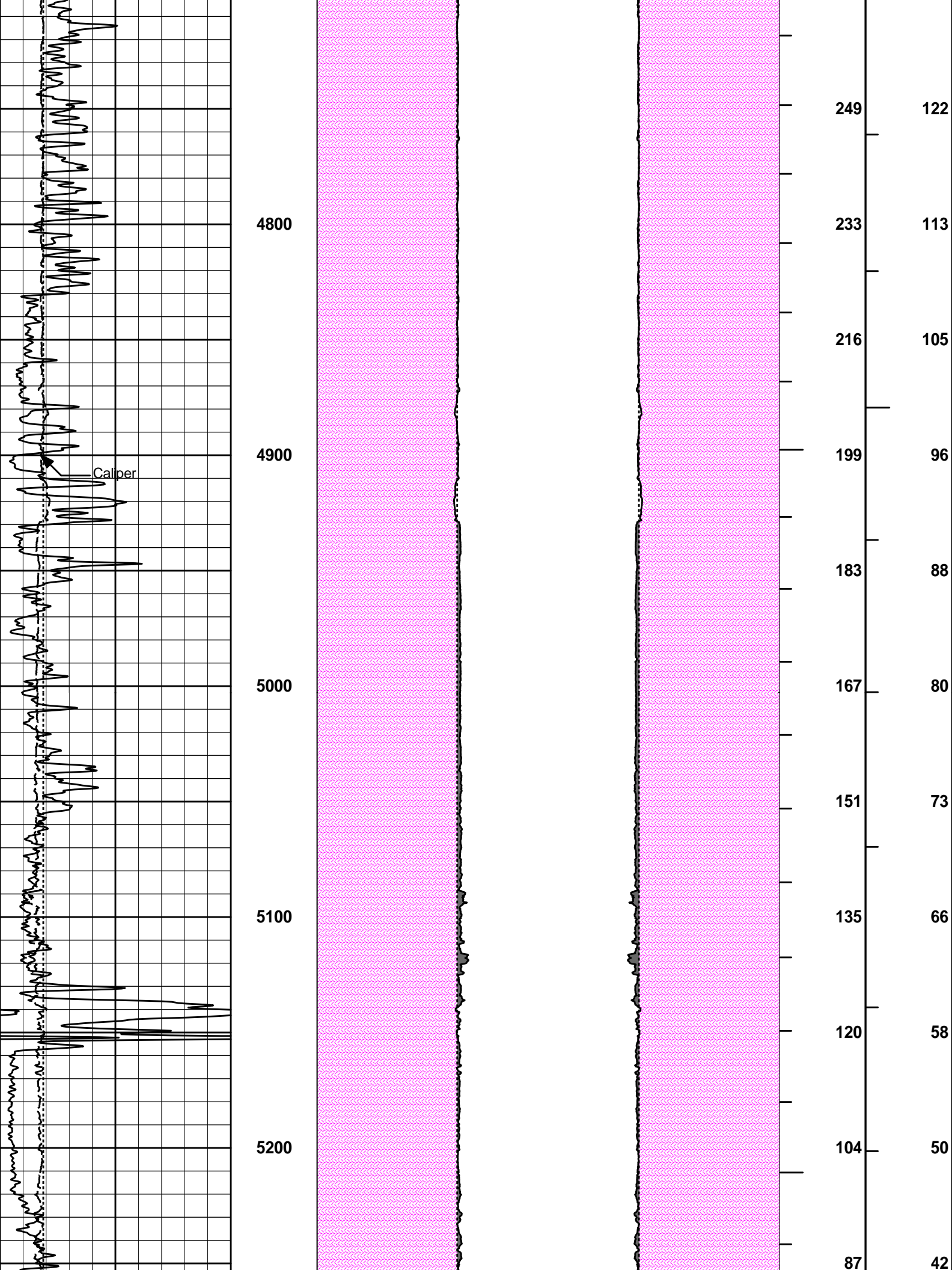




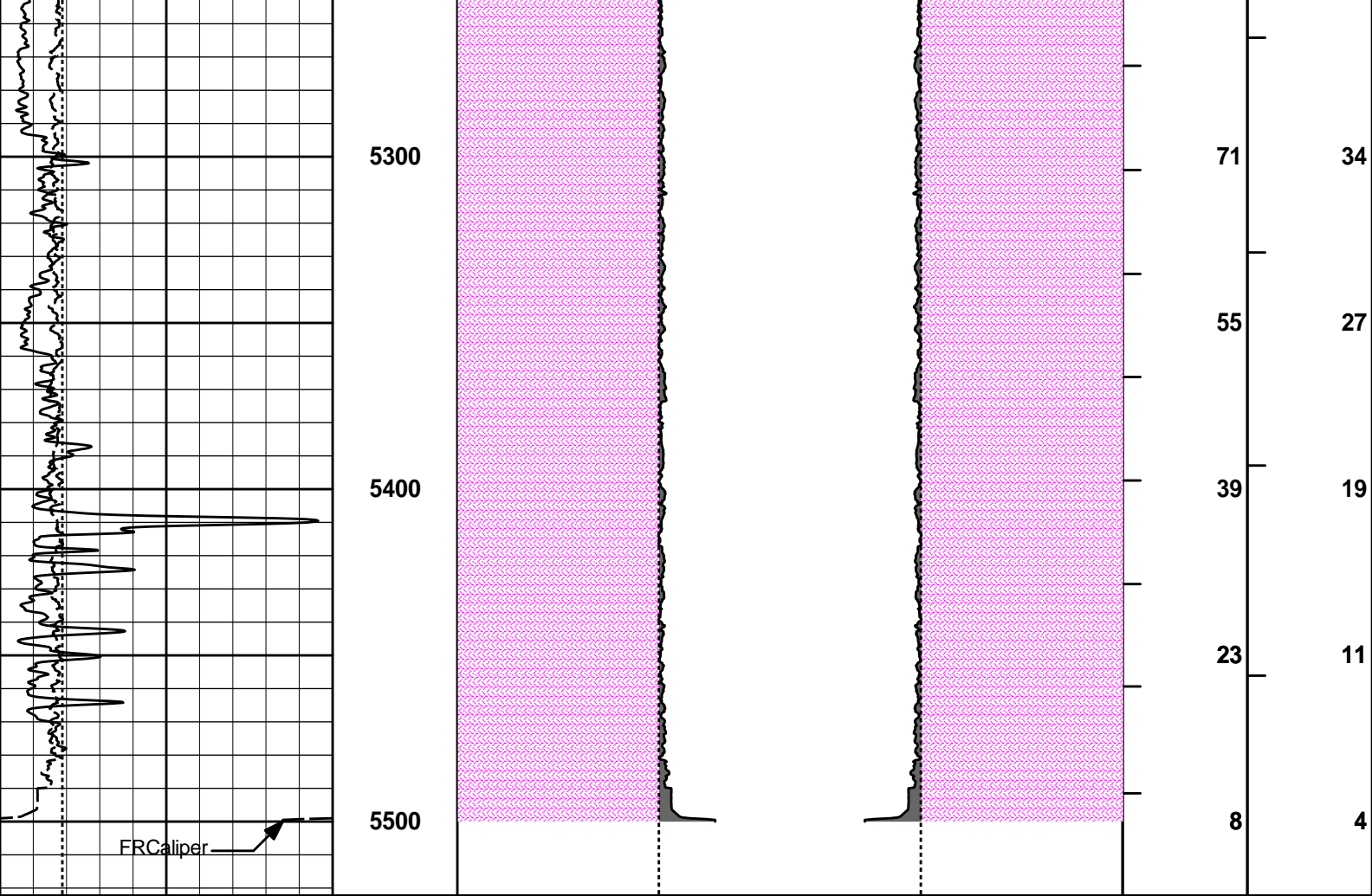












6	Caliper	16	MD 1 : 600 ft	20	Caliper	0 0	20	Caliper	20	BHVT	AHVT
	inches					inches			inches		
6	Bit Size	16			20	Bit Size	0 0	20	Bit Size	20	
	inches										
0	Gamma API	150									
	api										
					MUDCAKE			MUDCAKE			

**HALLIBURTON**

Plot Time: 05-Apr-13 05:53:00  
 Plot Range: 400 ft to 5522.25 ft  
 Data: RENEE\_2230\_1\_2\Well Based\DAQ-0001-005\  
 Plot File: \\-LOCAL-RENEE\_2230\_1\_2\0001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-CHIPOROAHV\_2\_IQ\_LIB

## ANNULAR HOLE VOLUME PLOT

COMPANY	SANDRIDGE EXPLORATION		
WELL	RENEE 2230 1-2		
FIELD	STUART		
COUNTY	FINNEY	STATE	KANSAS

**HALLIBURTON**

DUAL SPACED NEUTRON  
SPECTRAL DENSITY  
LOG