

# HALLIBURTON

## TRIPLE COMBE LOG

COMPANY	<b>SHELL E &amp; P</b>
WELL	<b>MORROW LAND 3007 28-1</b>
FIELD	<b>WILDCAT</b>
COUNTY	<b>KINGMAN</b>
STATE	<b>KANSAS</b>
COMPANY	<b>SHELL E &amp; P</b>
WELL	<b>MORROW LAND 3007 28-1</b>
FIELD	<b>WILDCAT</b>
COUNTY	<b>KINGMAN</b>
STATE	<b>KANSAS</b>
API No.	15-095-22237-00-00
Location	310' FSL - 1782' FEL LATITUDE: 37.412° N LONGITUDE: 98.089° W
Other Services:	WSTT MRIL
Secl.	28
Twp.	30S
Rge.	7W
Elev. 1628.0 ft	Elev.: K.B. 1650.9 ft
22.9 ft above perm. Datum	D.F. 1650.9 ft
	G.L. 1628.0 ft

Date	01-Dec-12
Run No.	ONE
Depth - Driller	4925.00 ft
Depth - Logger	4861.0 ft
Bottom - Logged Interval	4800.0 ft
Top - Logged Interval	455.0 ft
Casing - Driller	9.625 in @ 457.0 ft
Casing - Logger	455.0 ft @
Bit Size	8.750 in @
Type Fluid in Hole	WATER BASED MUD @
Density	9.1 ppg 51.00 s/qt
PH	10.00 pH 5.2 cp/m
Source of Sample	MUD PIT
Rm @ Meas. Temperature	0.700 ohmm @ 72.00 degF @
Rmf @ Meas. Temperature	0.55 ohmm @ 72.00 degF @
Rmc @ Meas. Temperature	1.000 ohmm @ 72.00 degF @
Source Rmf	MEASURED MEASURED
Rm @ BHT	0.37 ohmm @ 141.0 degF @
Time Since Circulation	18.0 hr
Time on Bottom	01-Dec-12 21:20
Max. Rec. Temperature	141.0 degF @ 4861.0 ft @
Equipment	1054696 LIBERAL
Recorded By	T. HYDE
Witnessed By	S. COTHREN
	R. SCOTT

Fold here

Service Ticket No.: 900019153      API Serial No.: 15-095-22237-00-00      PGM Version: WL INSITE R3.6.0 (Build 3)

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.		@	@	ONE	ACRT	N/A	1.5" S.O	N/A
Rmc @ Meas. Temp.		@	@		I962			
Source Rmf	Rmc				S5059			
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.	5168 GW	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 No.	Depth		Speed ft/min	Scale		Scale		Matrix	Scale		Matrix	Scale		Matrix
	From	To		L	R	L	R		L	R		L	R	
ONE	4800	455	REC	0	150				30	-10	2.71	30	-10	LIME

**DIRECTIONAL INFORMATION**

Maximum Deviation @ KOP @

Remarks: ANNULAR HOLE VOLUME CALCULATED FOR 7 INCH CASING  
 CHLORIDES REPORTED AT 8000, LCM REPORTED AT 11 PPB  
 TOOL RUN AS PER TOOL SKETCH. 1.5" STANDOFF ON ACRT. 2 CENTRALIZERS ON WSTT  
 DECENTRALIZER ON THE DSNT. FLEX USED TO ENSURE DECOUPLING  
 LATITUDE: 37.41° N LONGITUDE: 98.09° W  
 DIPOLE USED TO AQUIRE SHEAR AND COMPRESSIONAL DATA. SONIC CURVES CHECKED INSIDE CASING READING 56 US/FT, EXPECTED 57 US/FT  
 CALIPER CHECKED IN CASING, VALUE OF 9.0" RECORDED, EXPECTED 8.9", -0.1" CORRECTION APPLIED  
 ALL RUNS CORRELATED WITH FIRST MRIL RUN  
 ALL LOGS ZEROED AT RIG FLOOR, TOP DRIVE RIG  
 INDUCTION LOG USES THE COMPUTE STANDOFF MODEL. THE 2 FOOT RESOLUTION DATA FOR INDUCTION IS PRESENTED  
 THANK YOU FOR CHOOSING HALLIBURTON ENERGY SERVICES LIBERAL, KANSAS 620-624-8123 TODAY'S CREW V. JAIME M. GRAHAM

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.

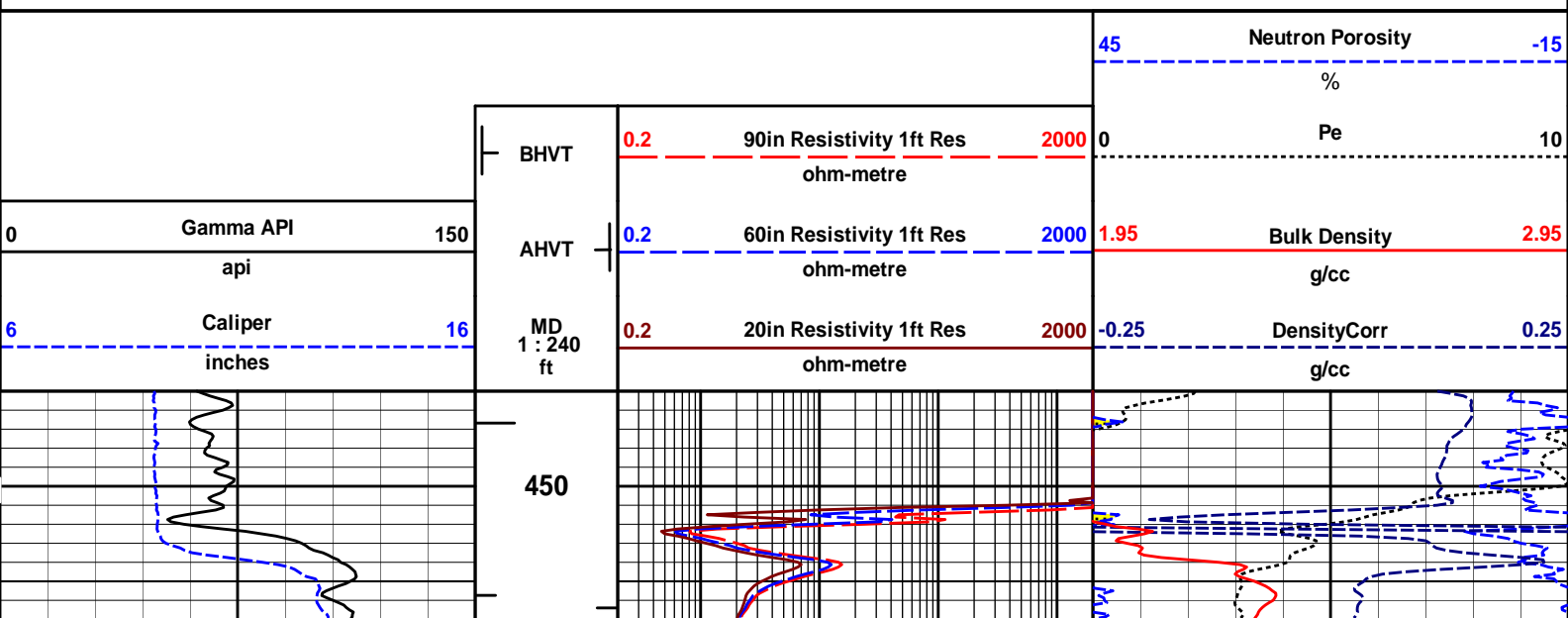
HALLIBURTON

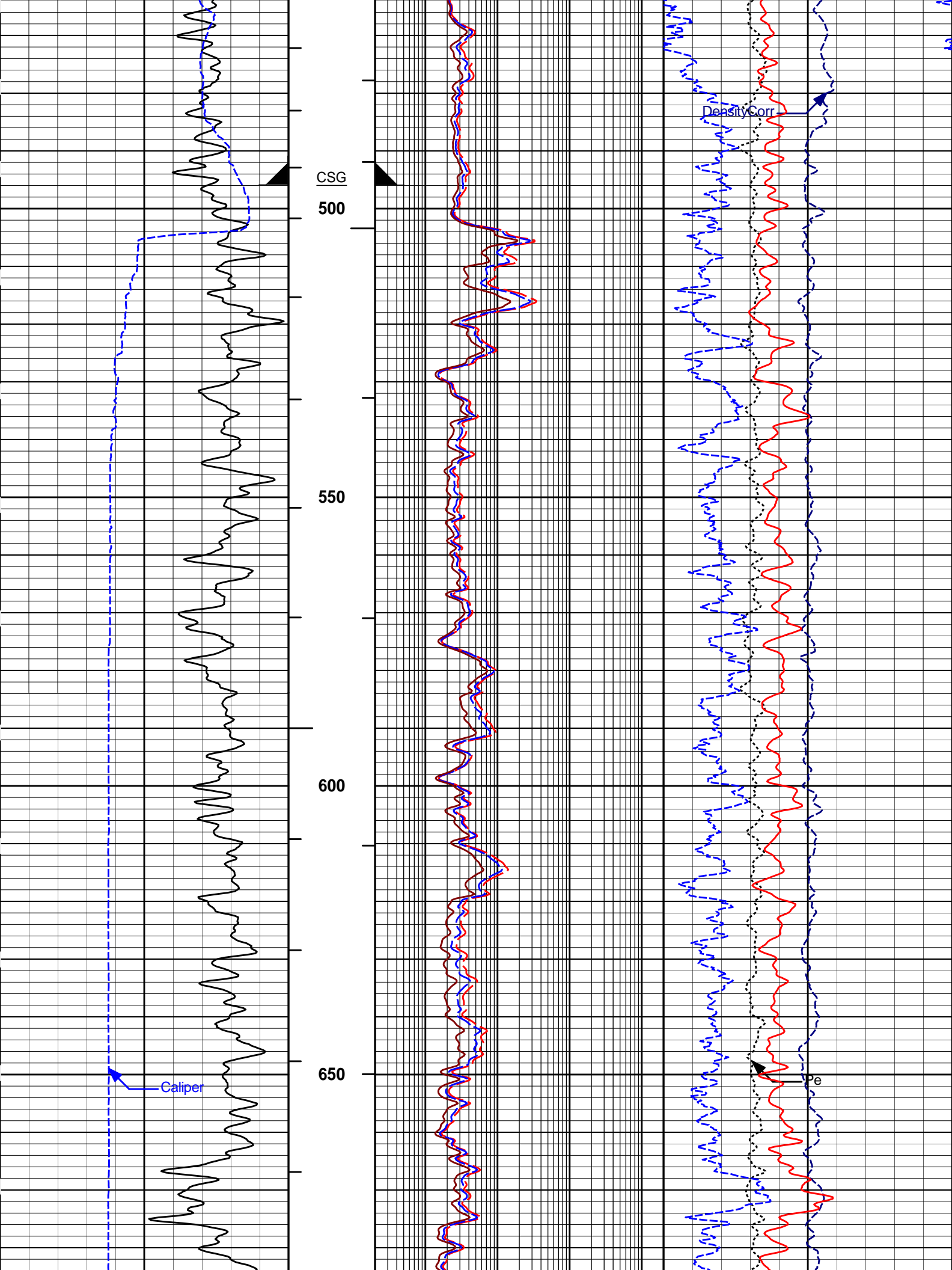
HALLIBURTON

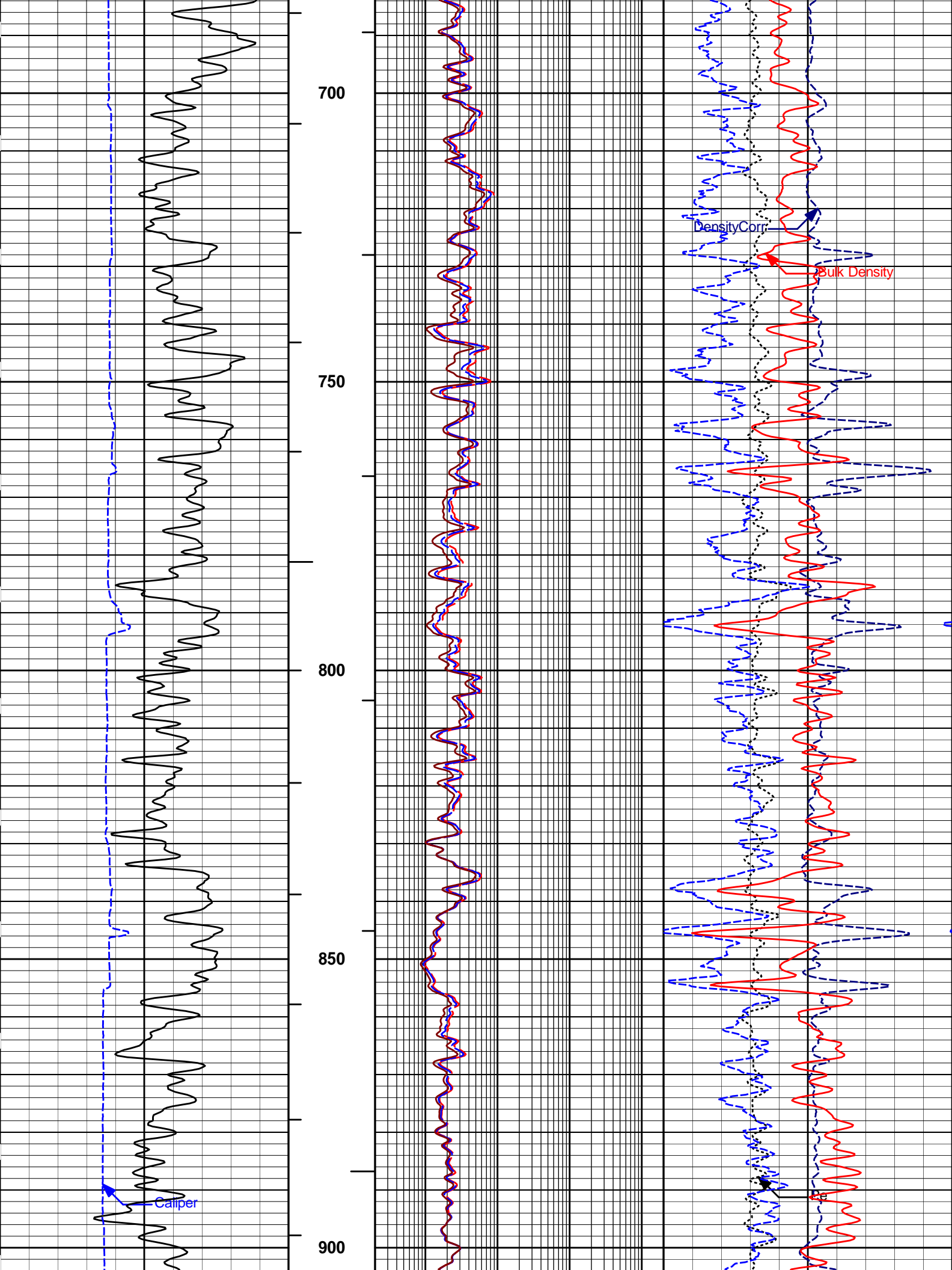
**Plot Time: 02-Dec-12 02:57:19**  
**Plot Range: 440 ft to 4799.75 ft**  
**Data: MORROW\_LAND3007Well Based\DAQ-0002-006\**  
**Plot File: \\TC\TC\_5\_NO\_ML\_MAIN\_SHELL**

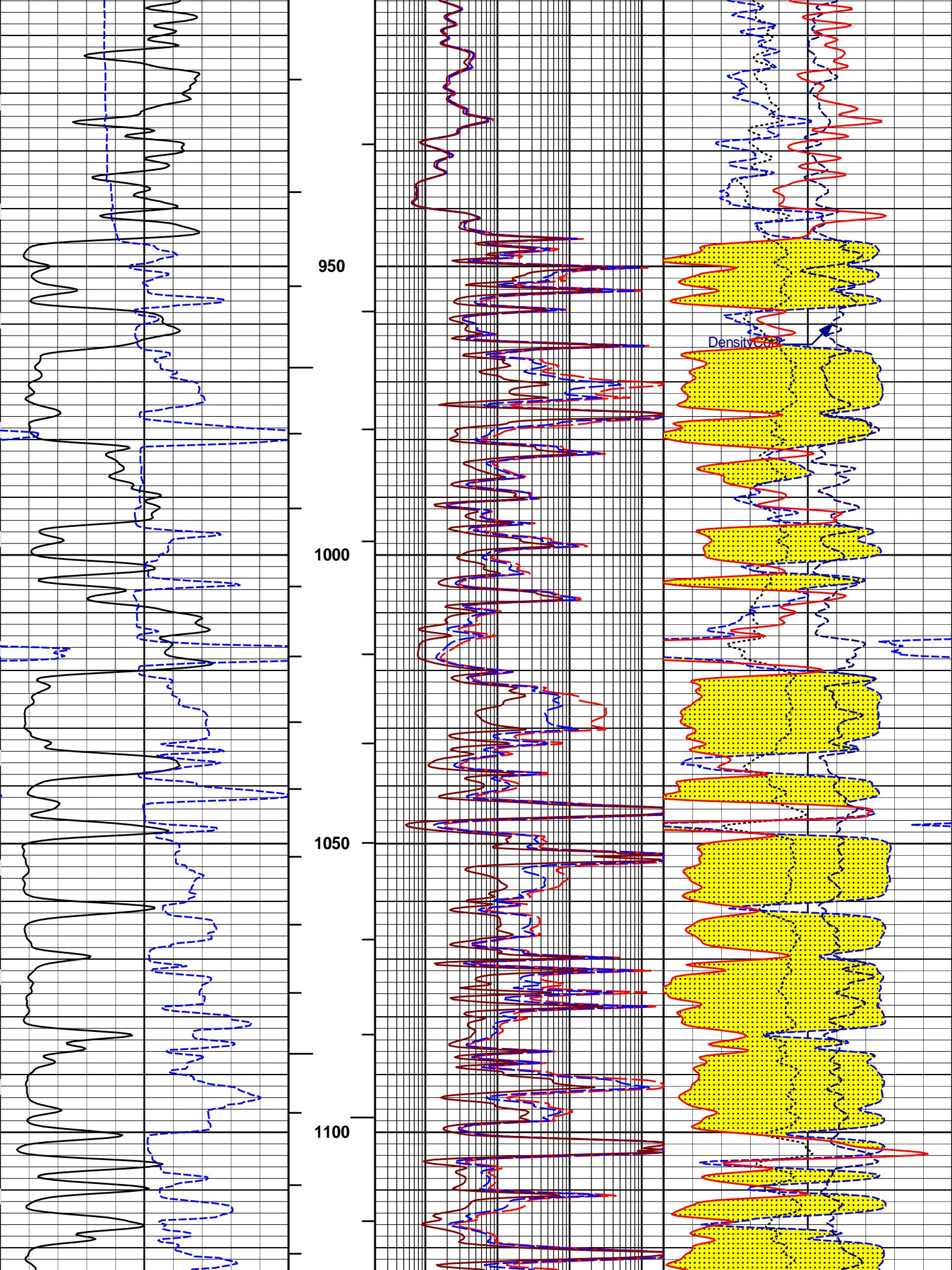
## 5 INCH MAIN LOG MD

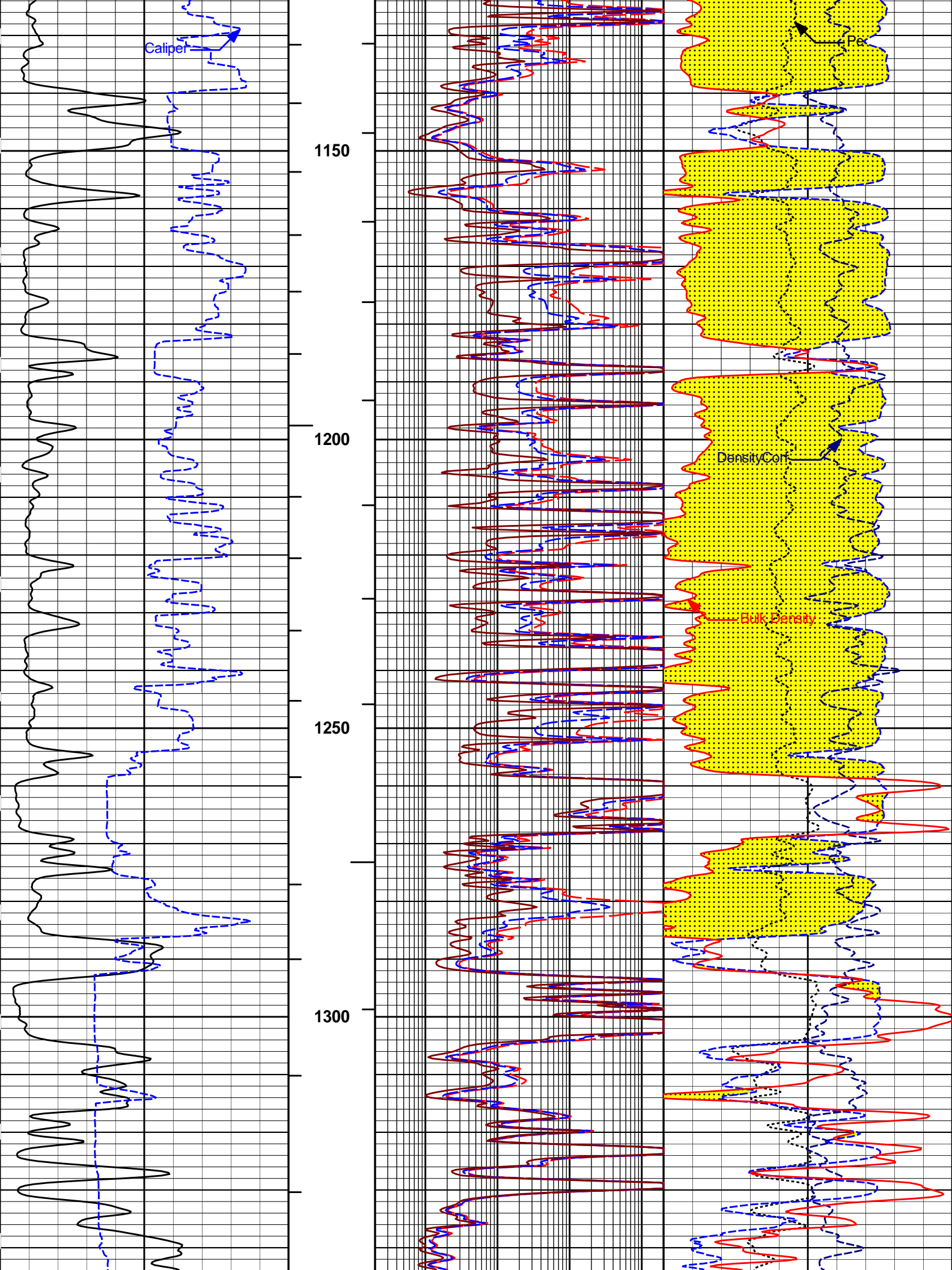
MAIN 1:240 MD

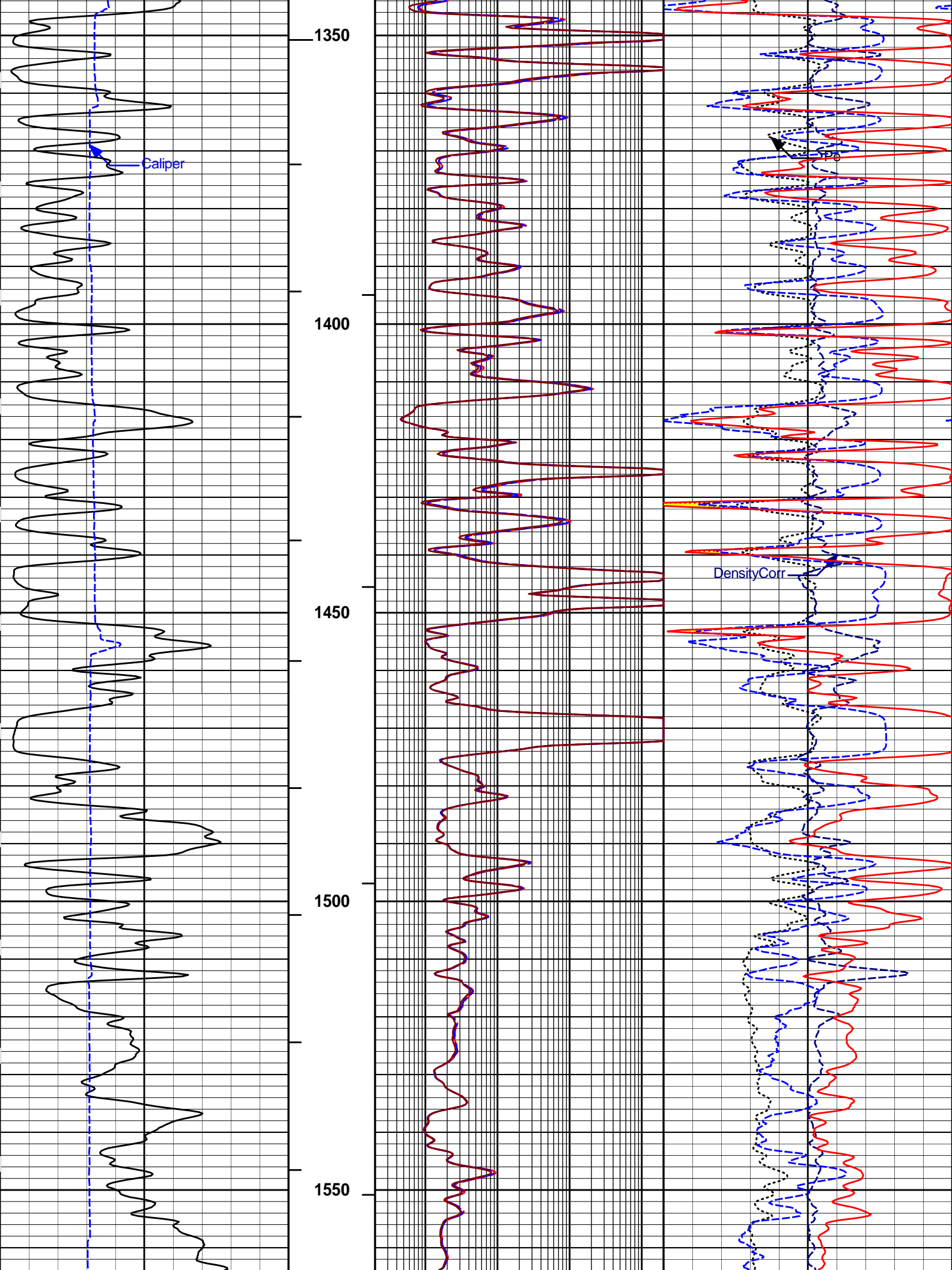


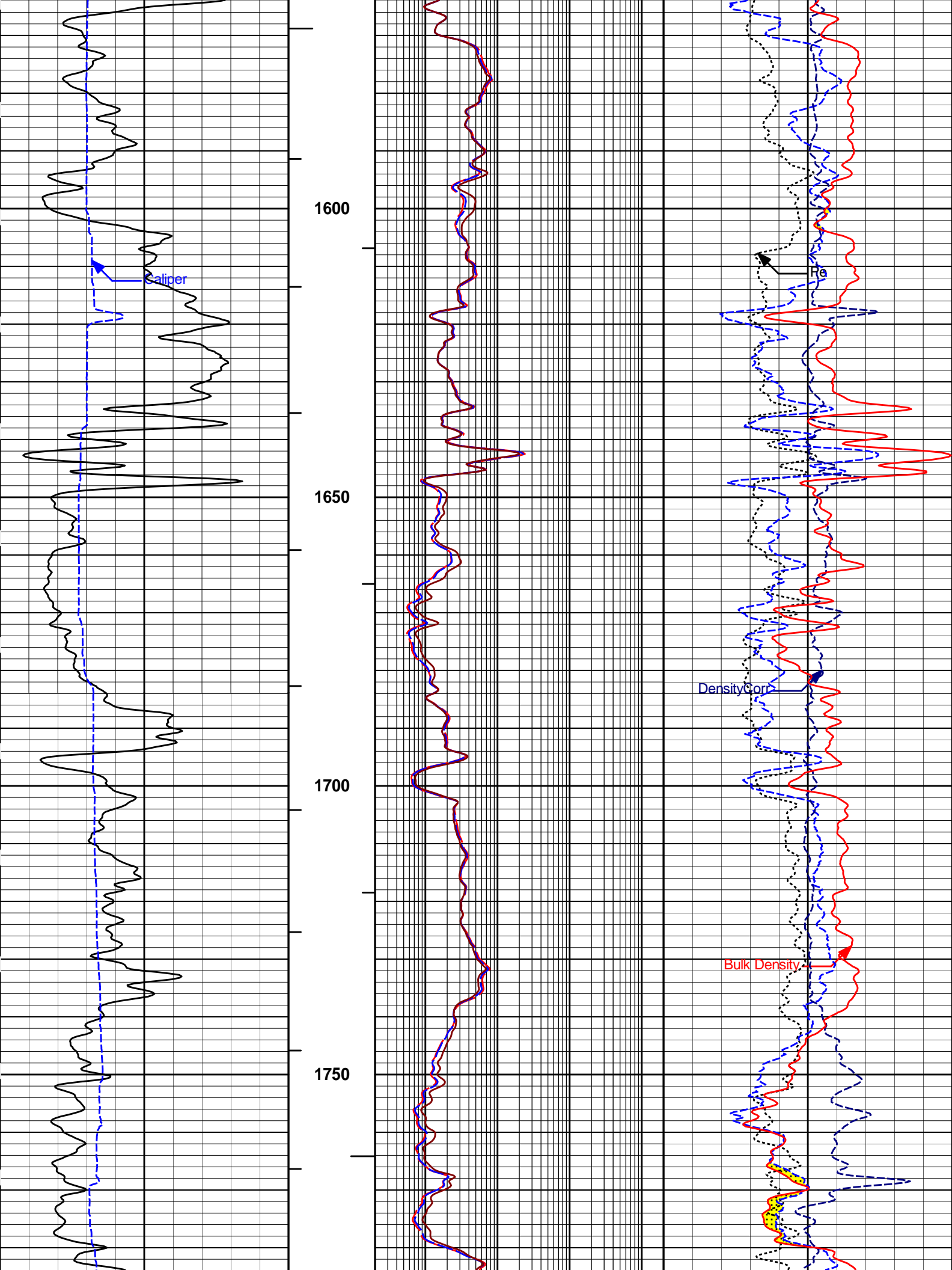


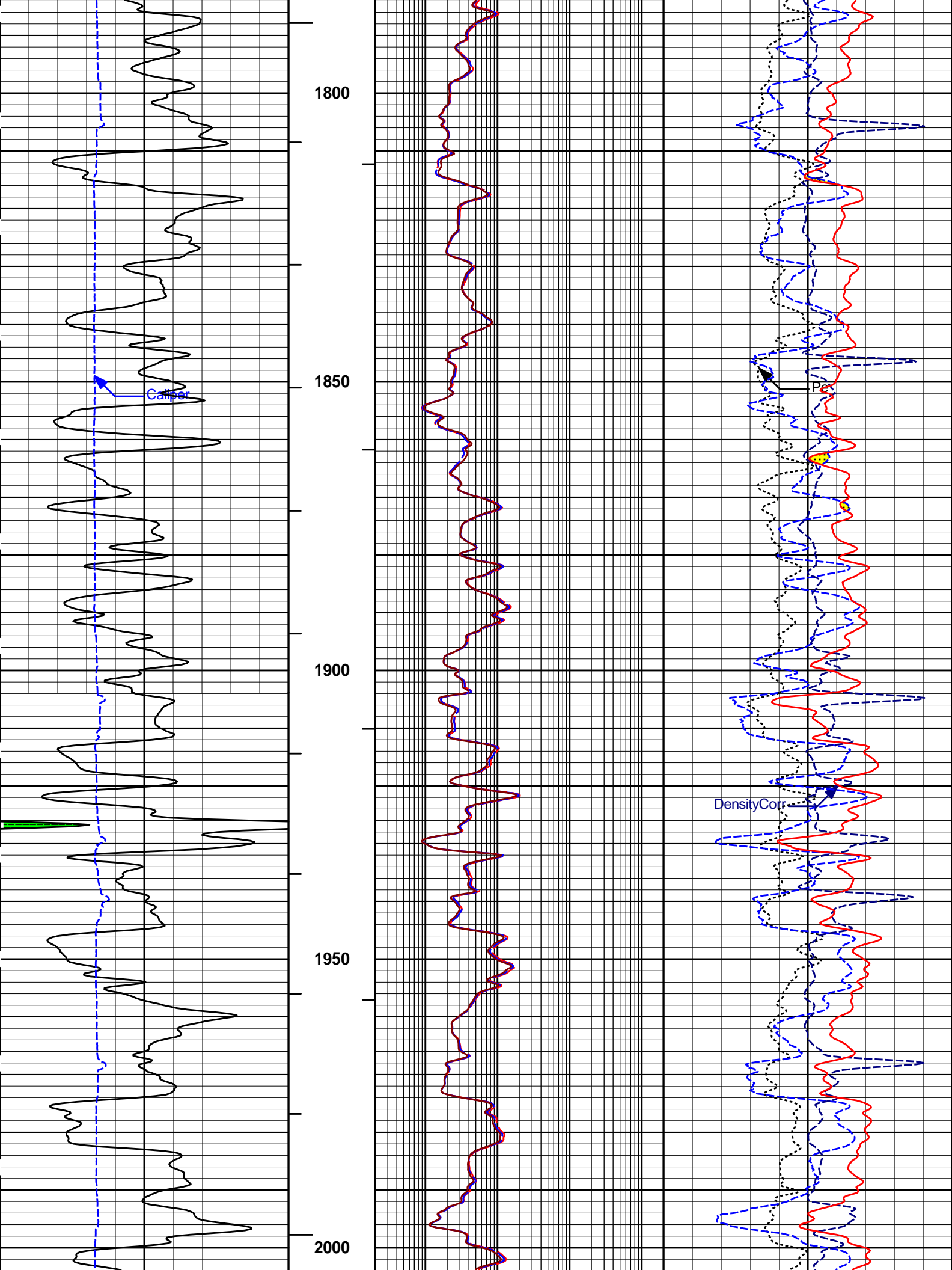


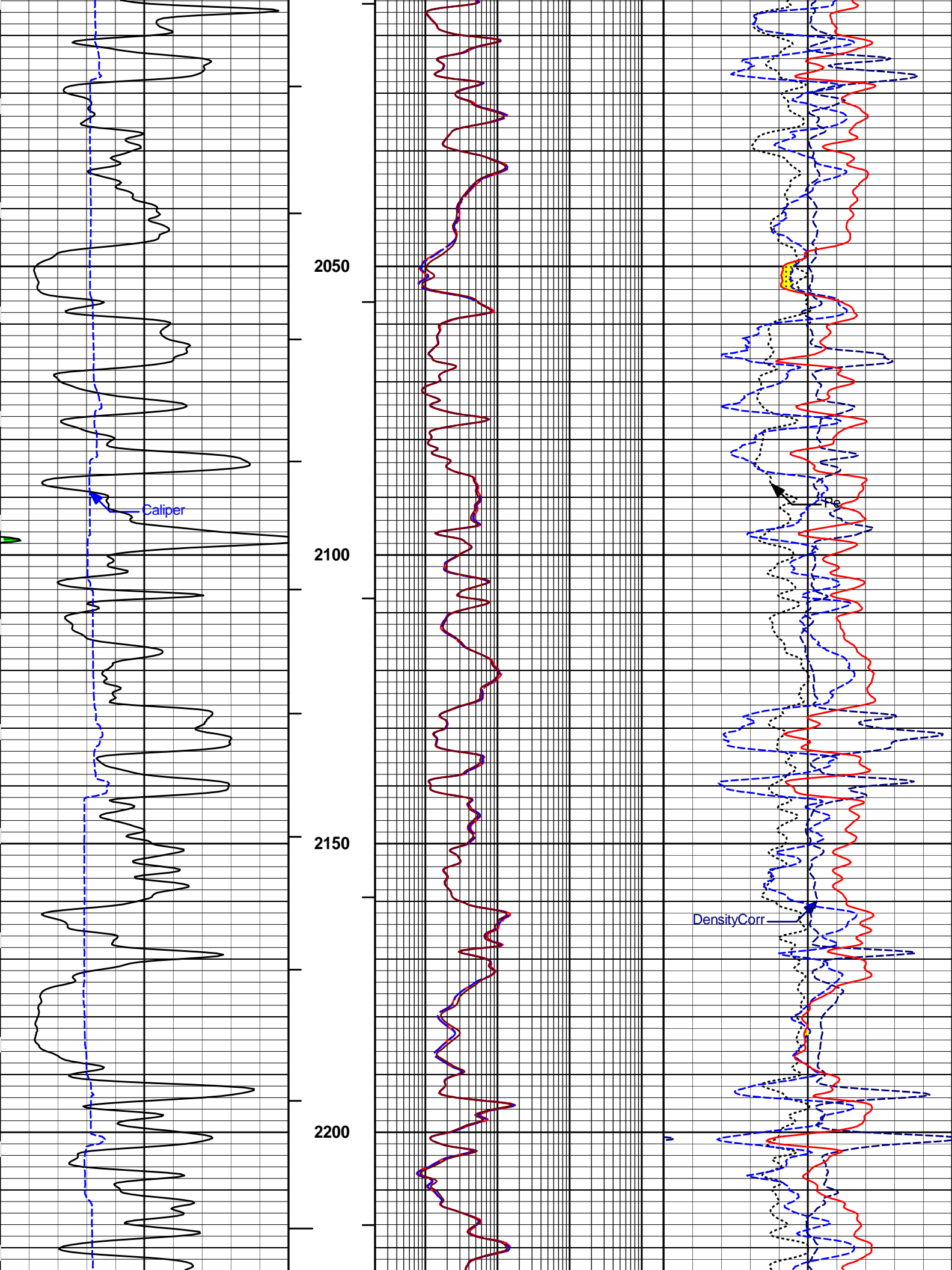


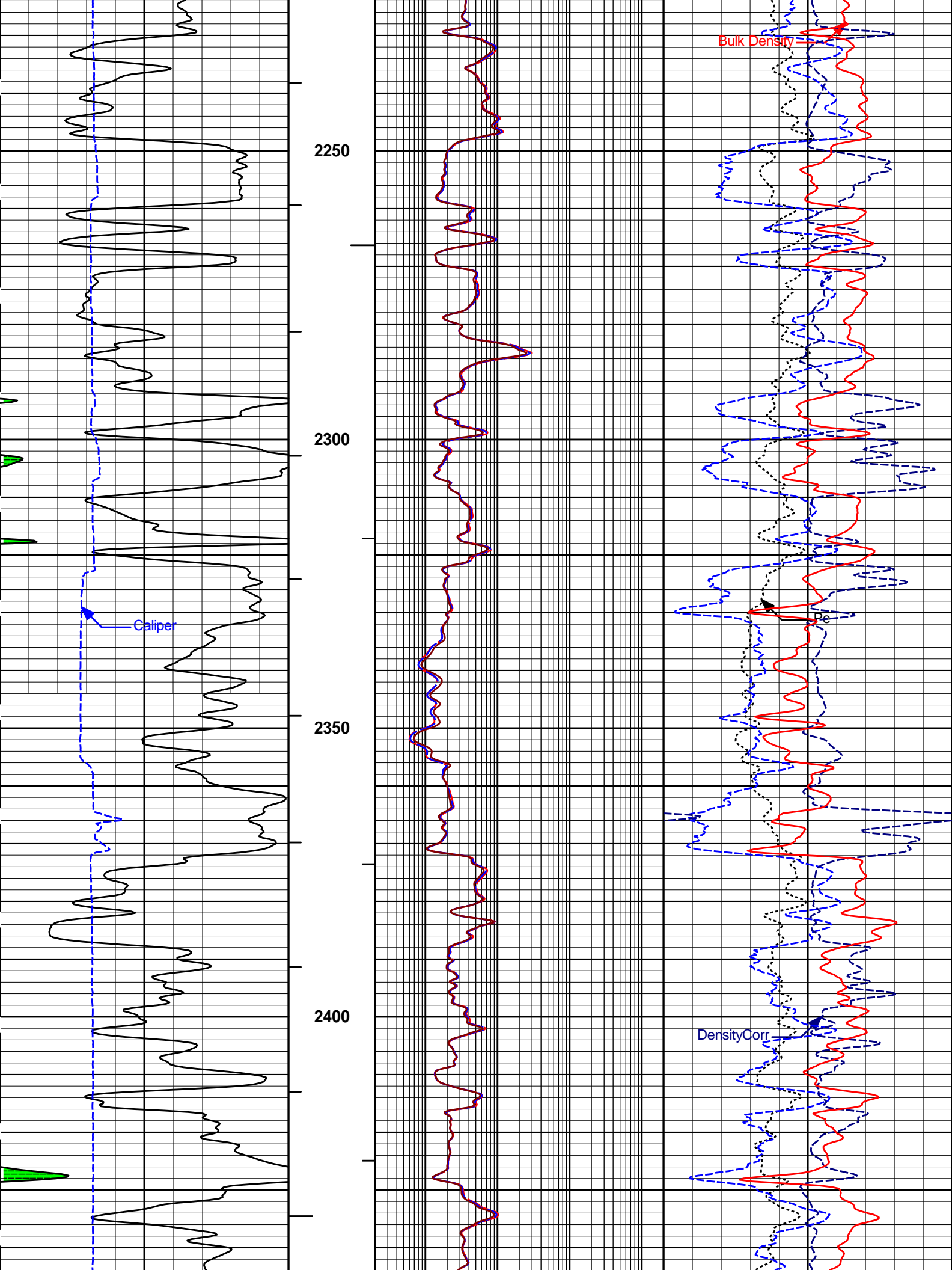


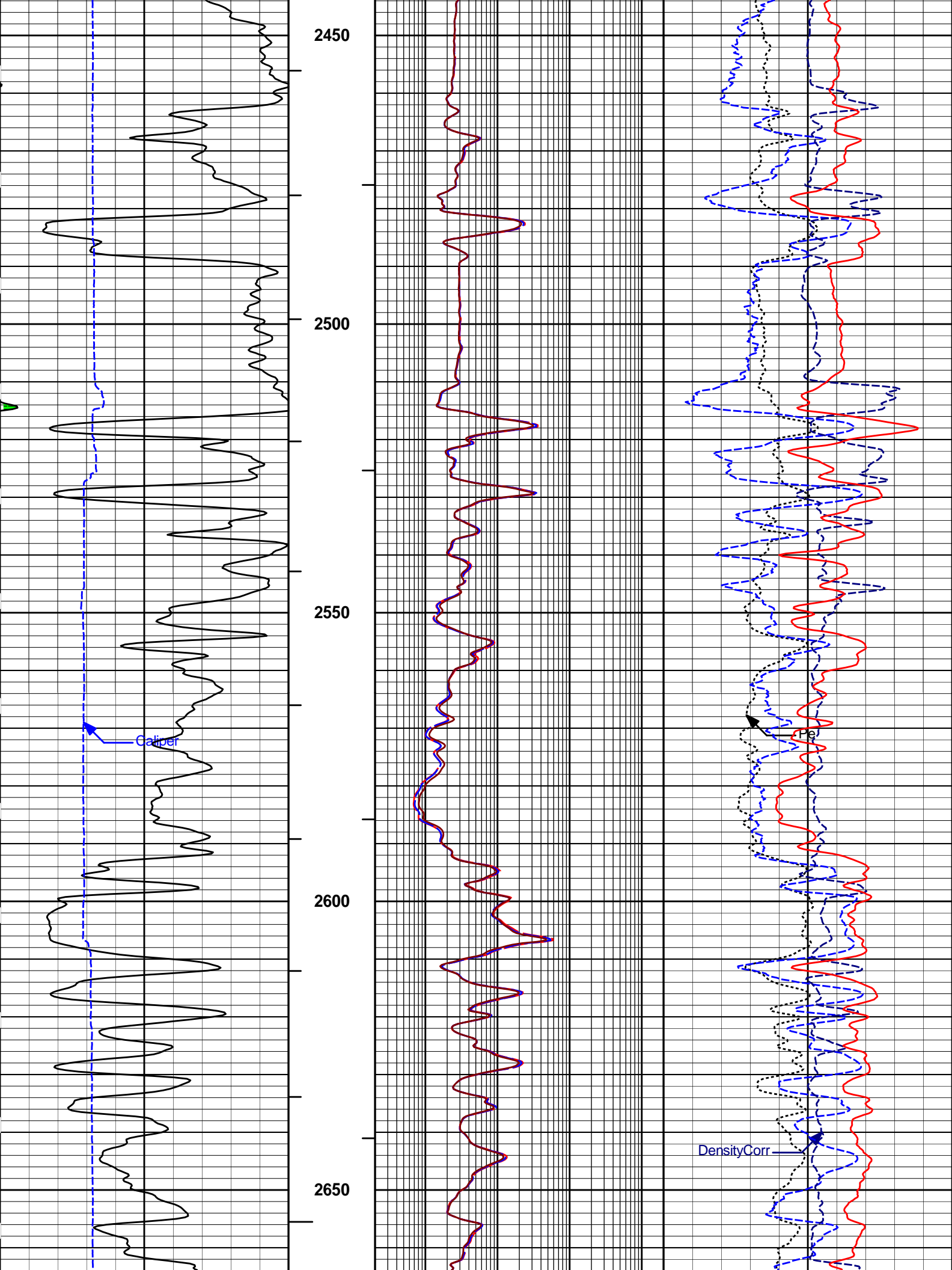


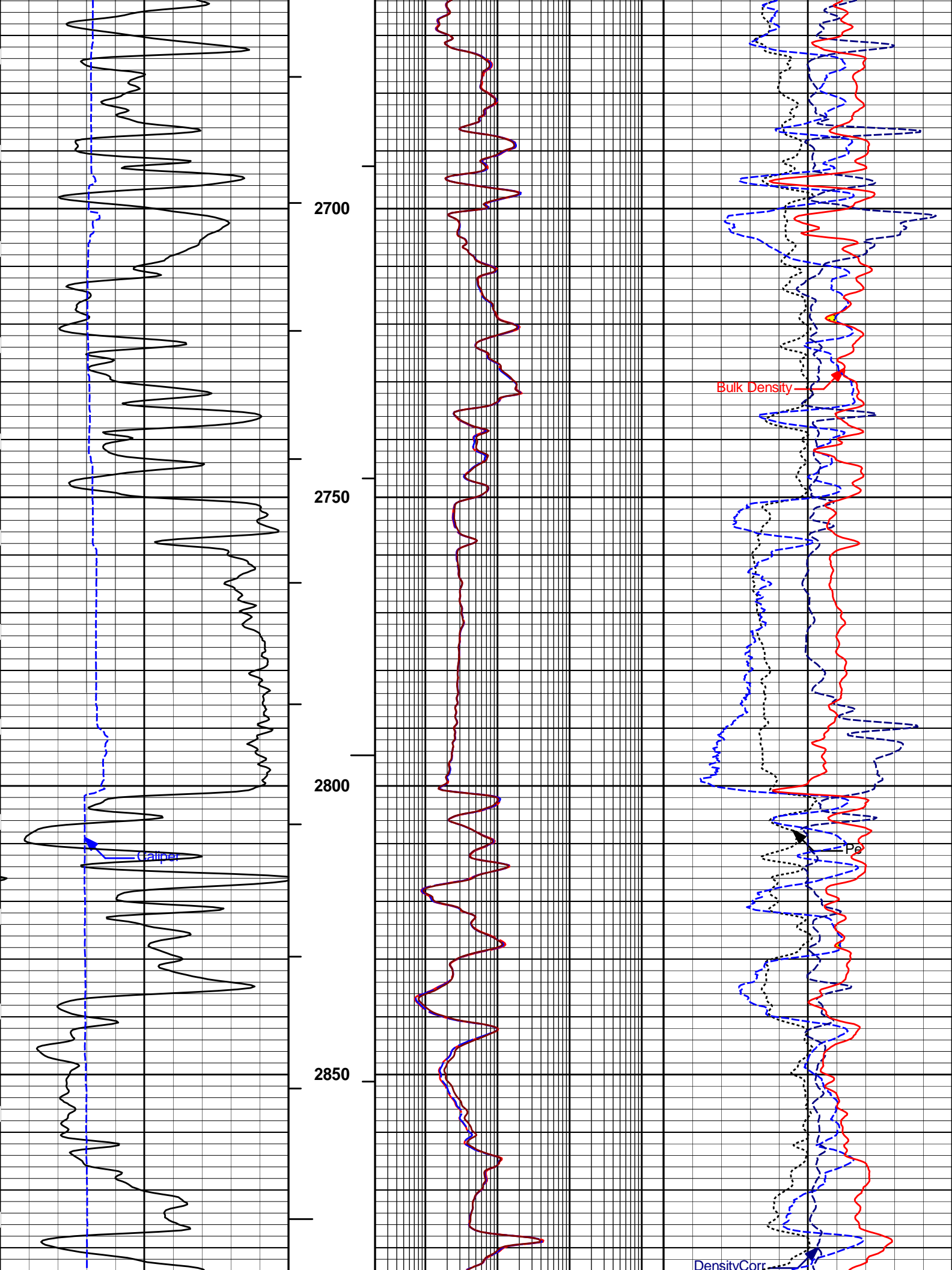


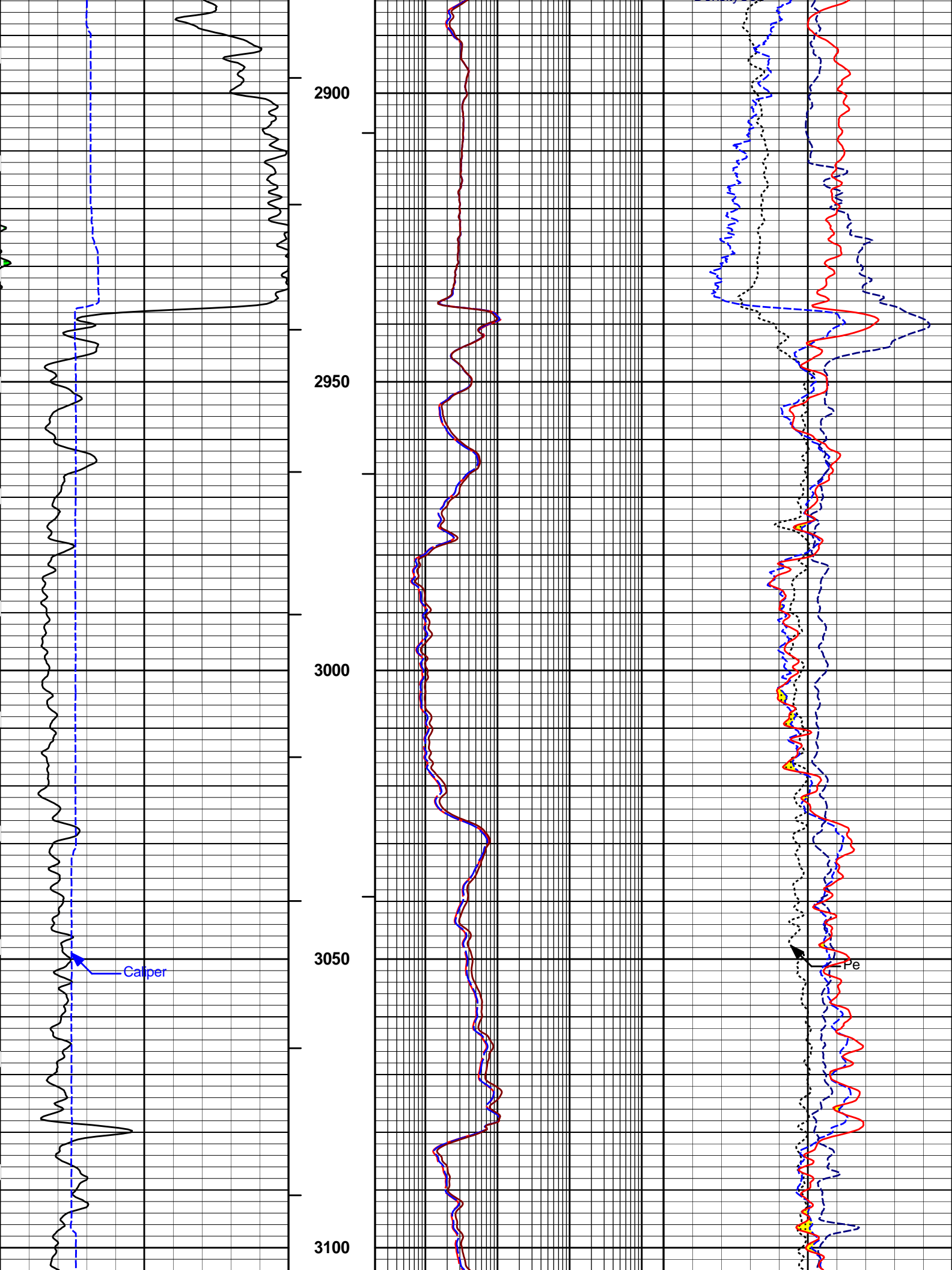


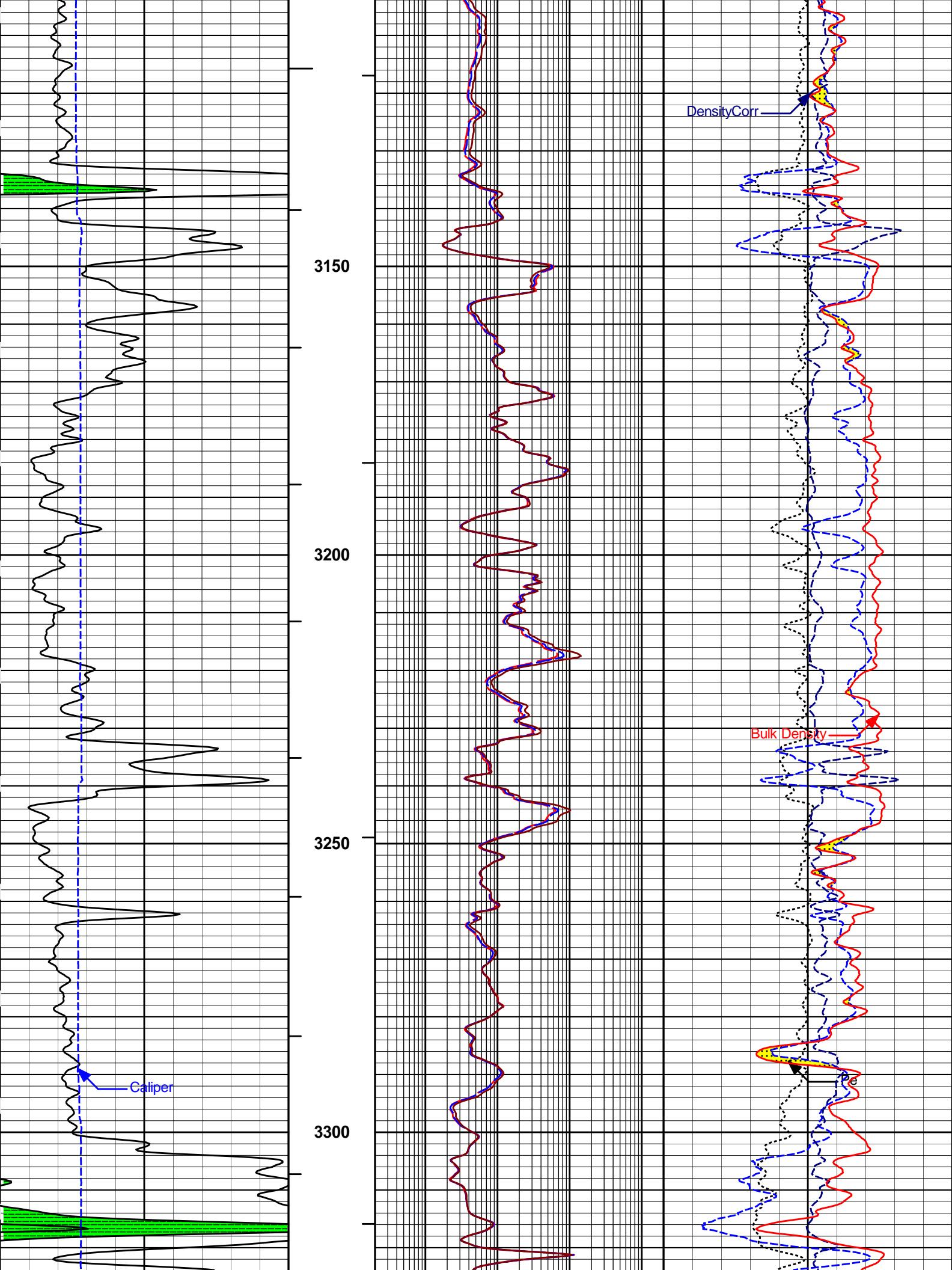


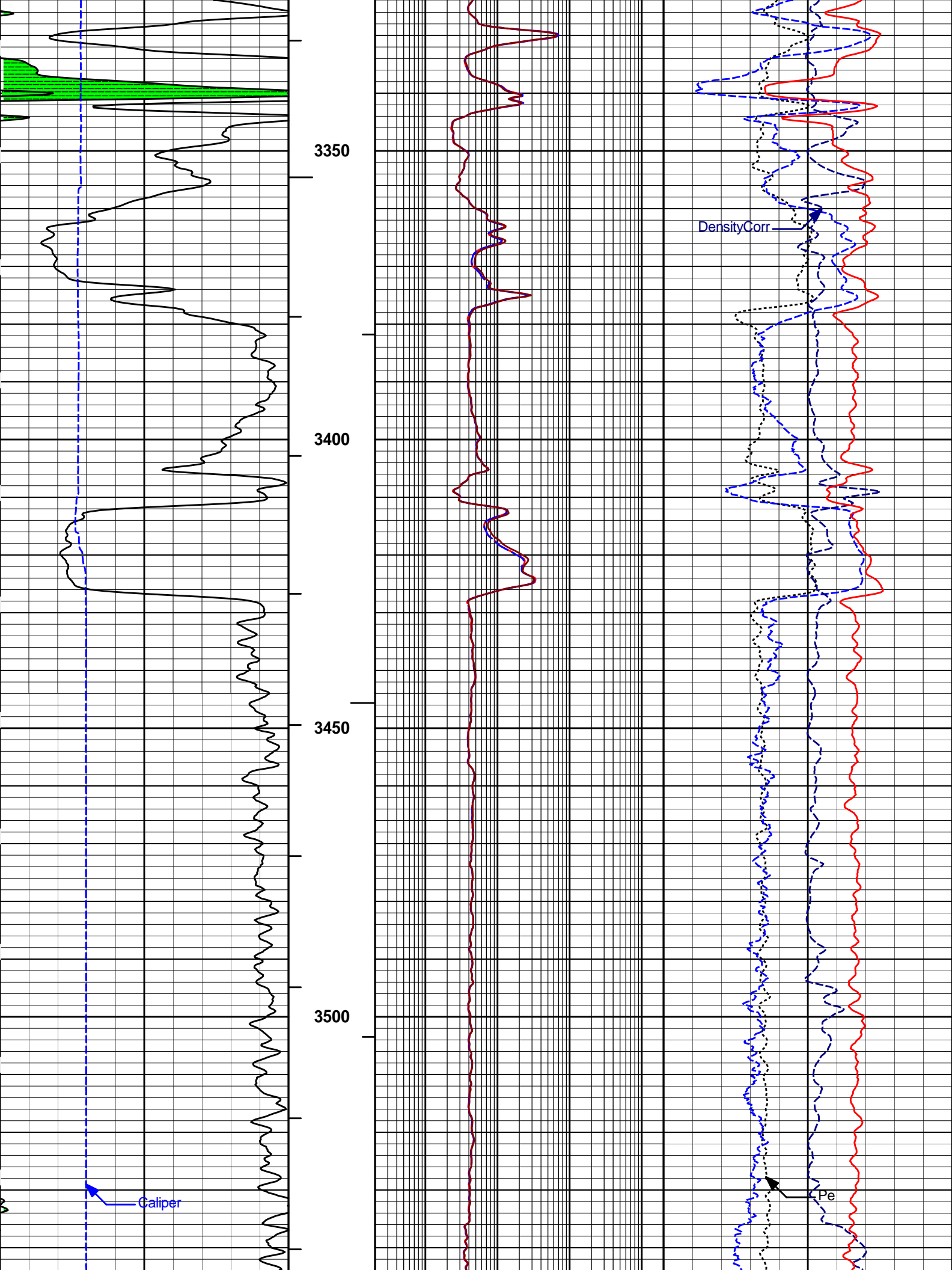


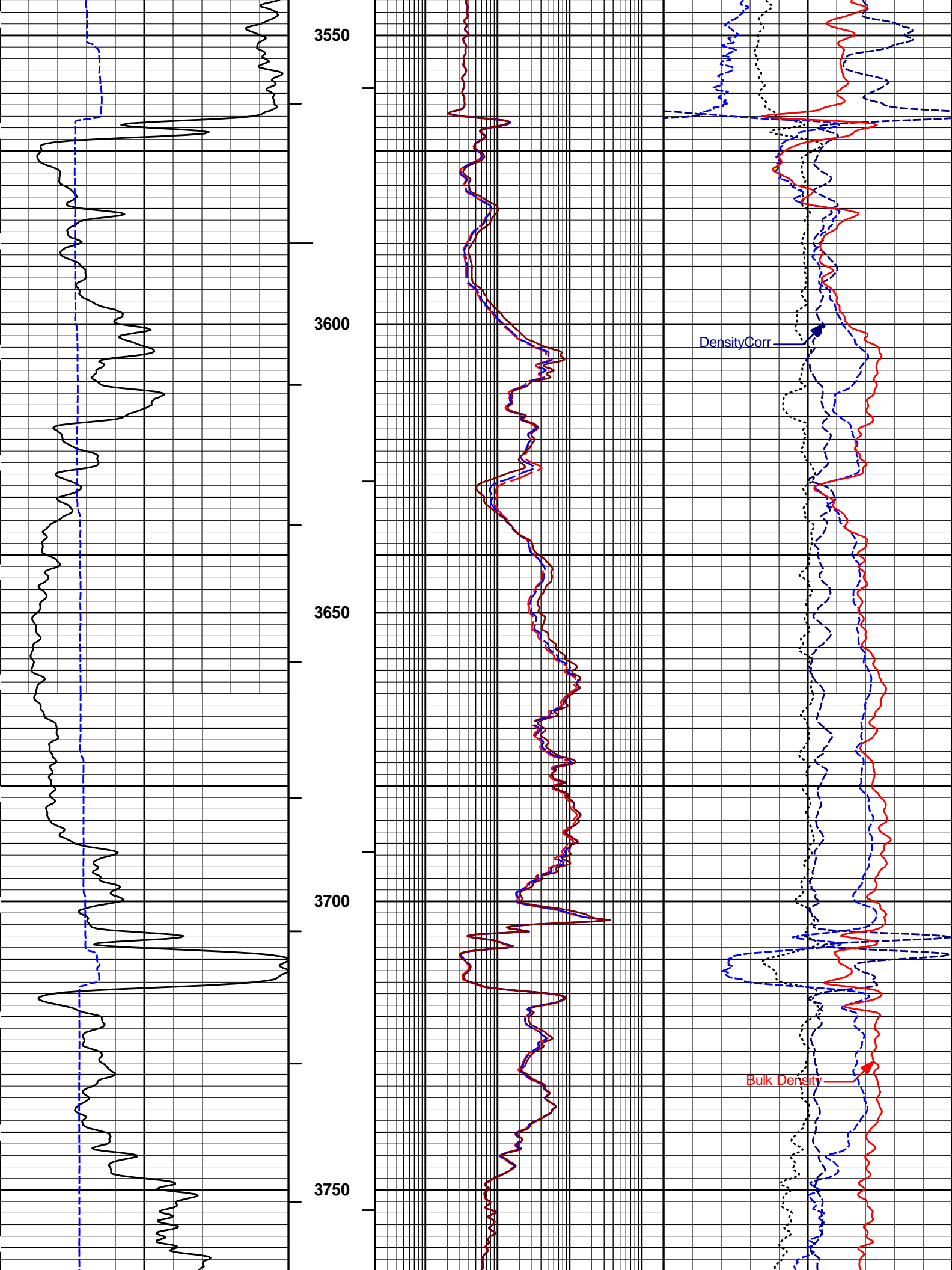


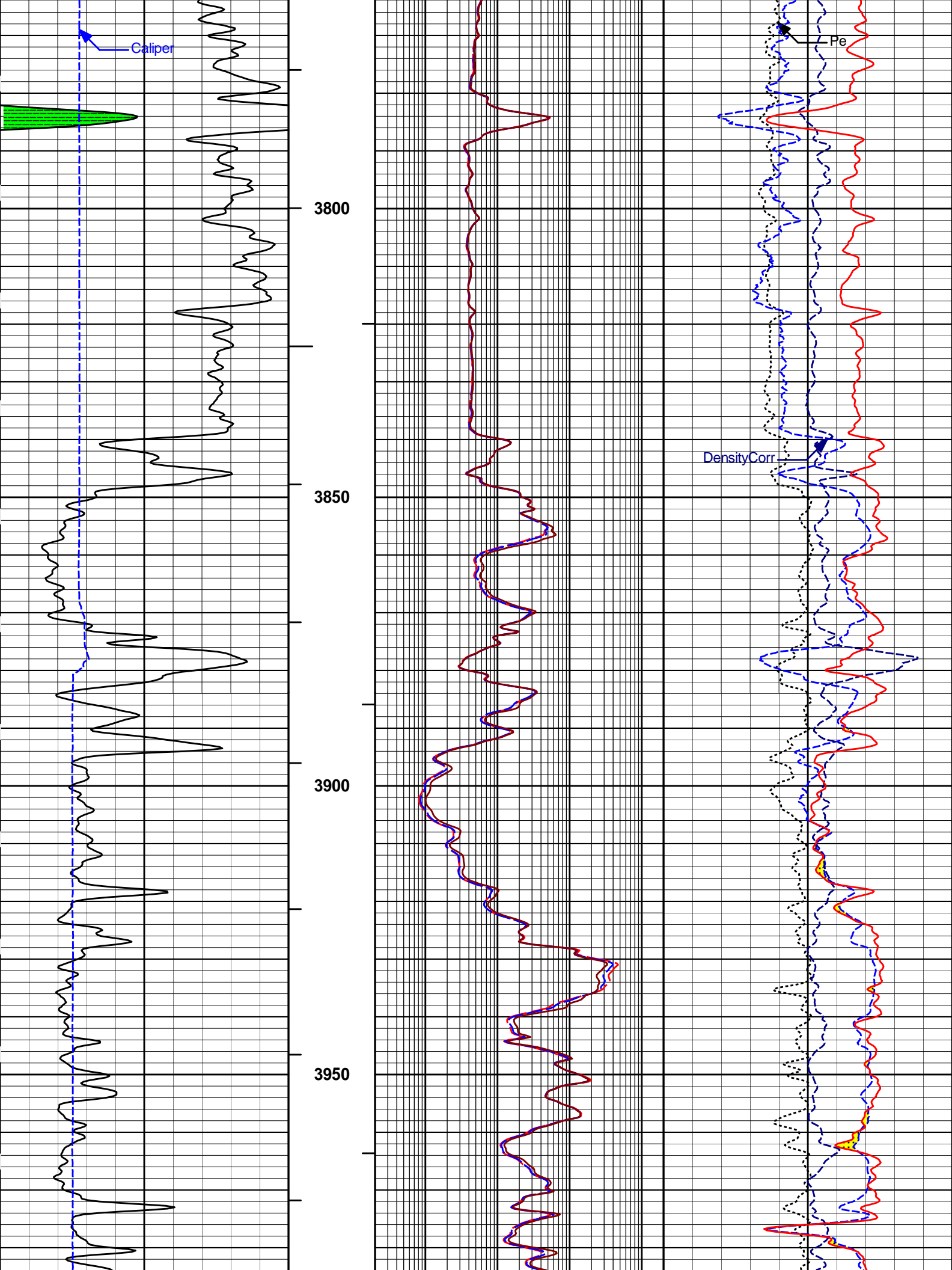


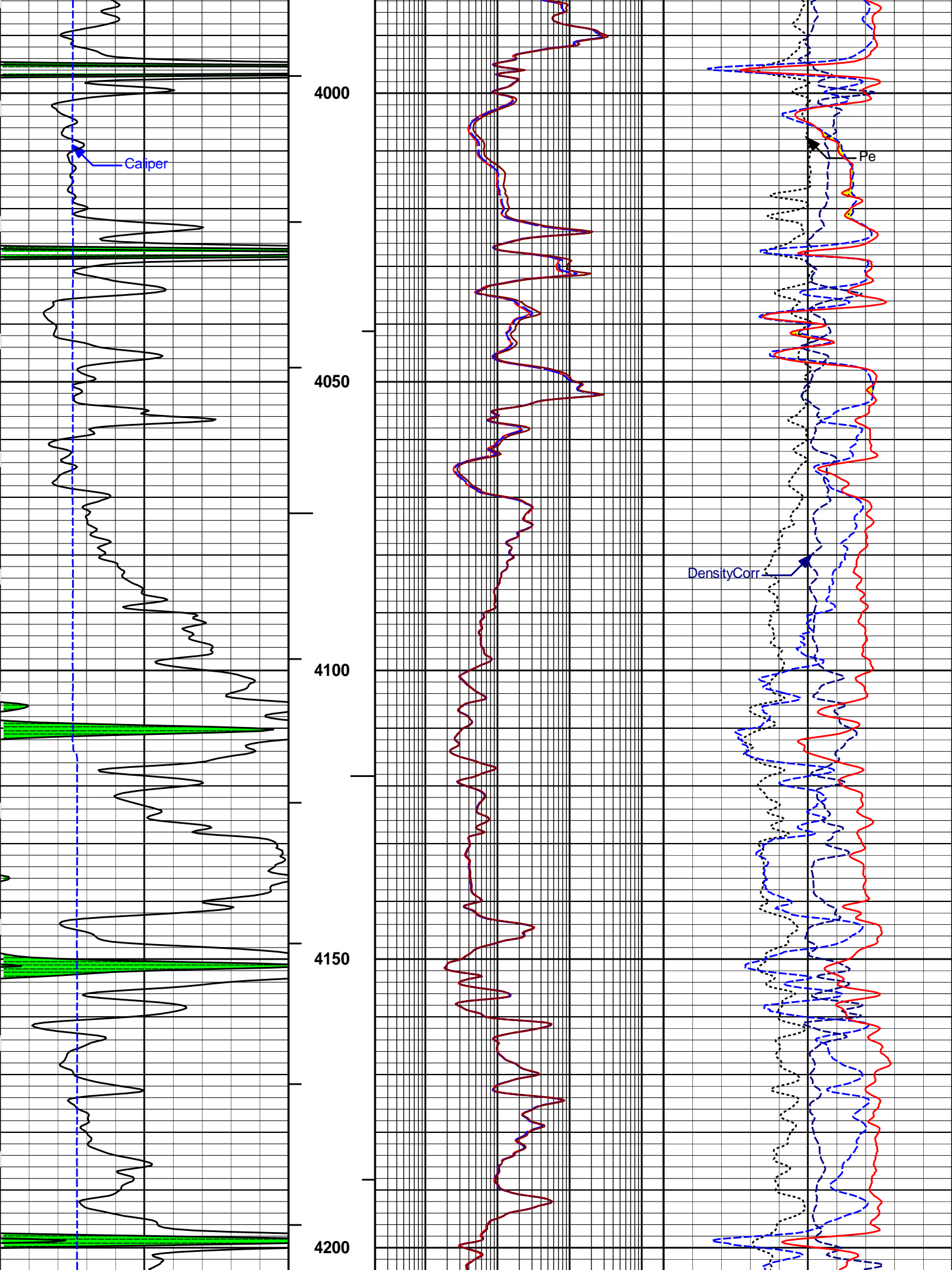


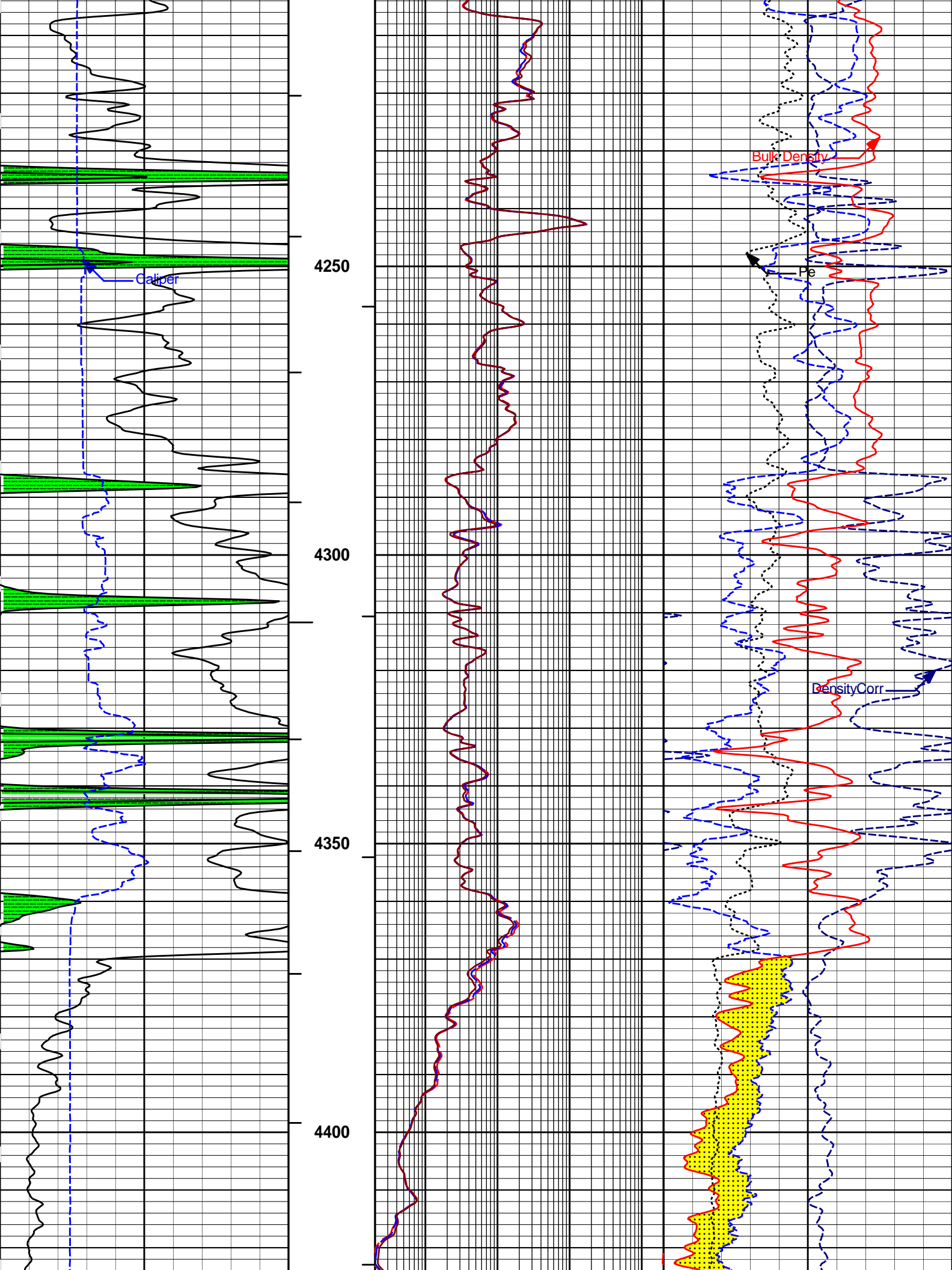


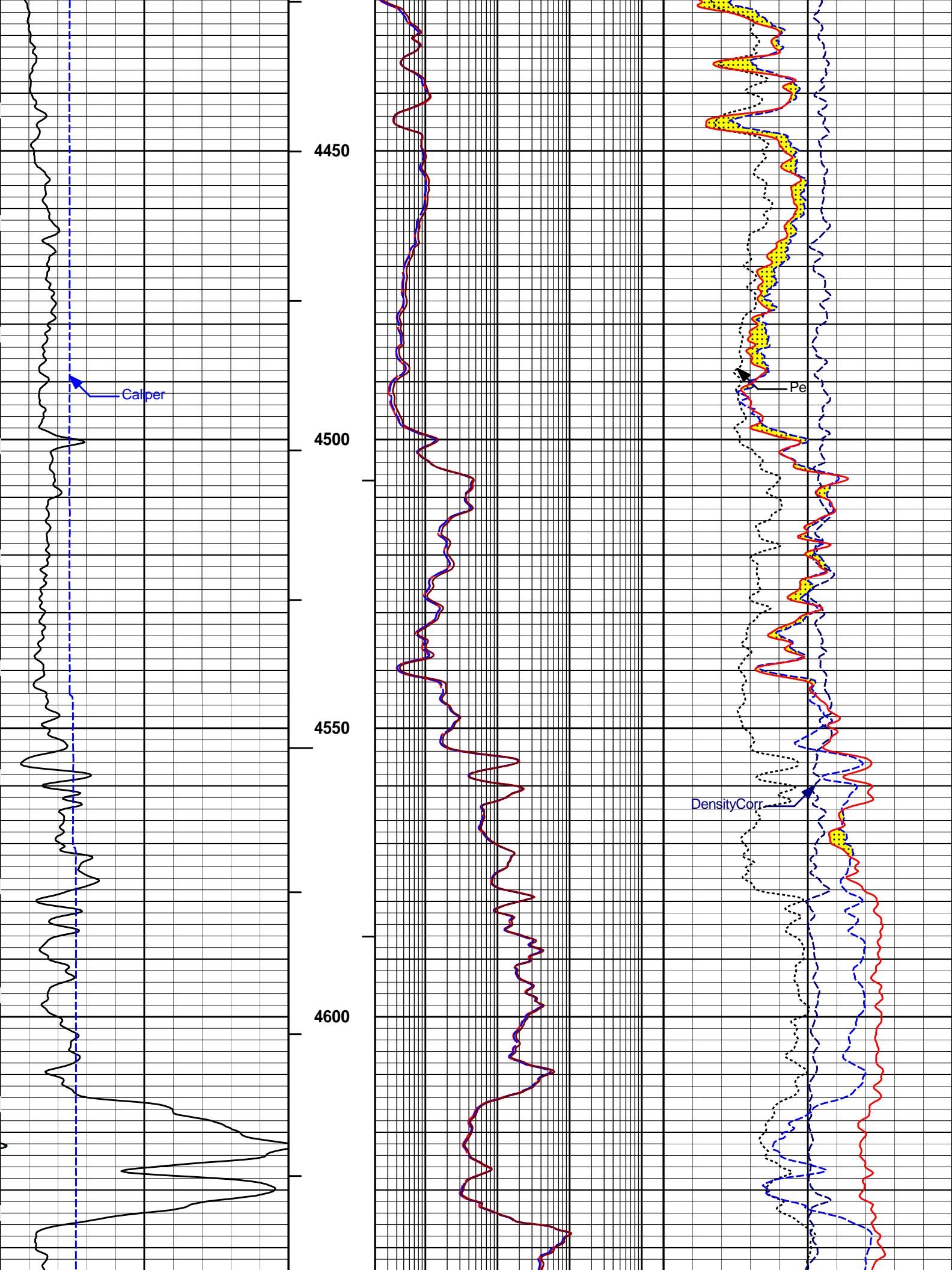


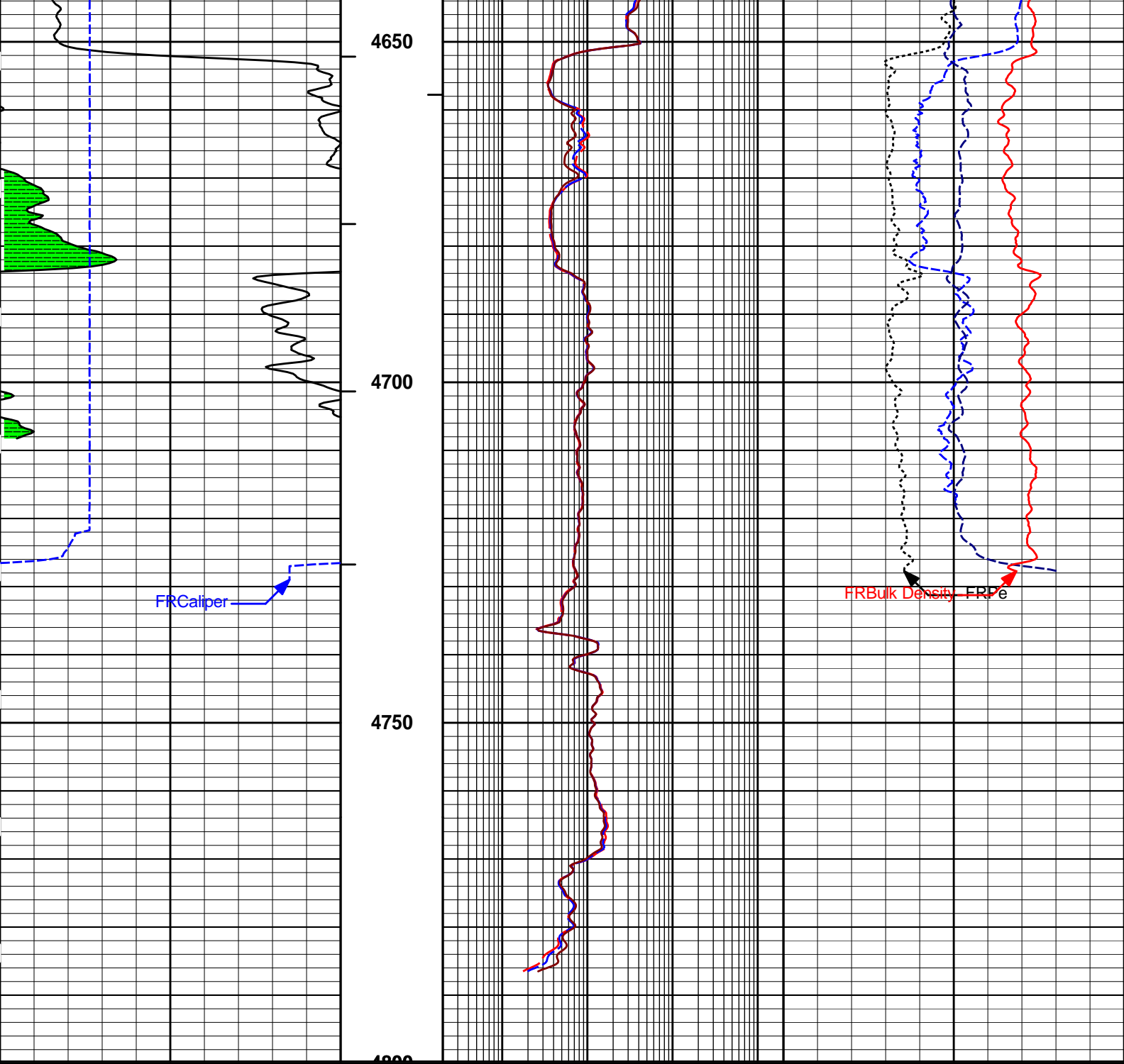












6	Caliper	16	MD	0.2	20in Resistivity 1ft Res	2000	-0.25	DensityCorr	0.25
	inches		1 : 240		ohm-metre			g/cc	
0	Gamma API	150	AHVT	0.2	60in Resistivity 1ft Res	2000	1.95	Bulk Density	2.95
	api				ohm-metre			g/cc	
			BHVT	0.2	90in Resistivity 1ft Res	2000	0	Pe	10
					ohm-metre				
							45	Neutron Porosity	-15
								%	

**HALLIBURTON**

Plot Time: 02-Dec-12 02:58:21  
 Plot Range: 440 ft to 4799.75 ft  
 Data: MORROW\_LAND3007Well Based\DAQ-0002-006\  
 Plot File: \\TC\TC\_5\_NO\_ML\_MAIN\_SHELL

**5 INCH MAIN LOG MD**

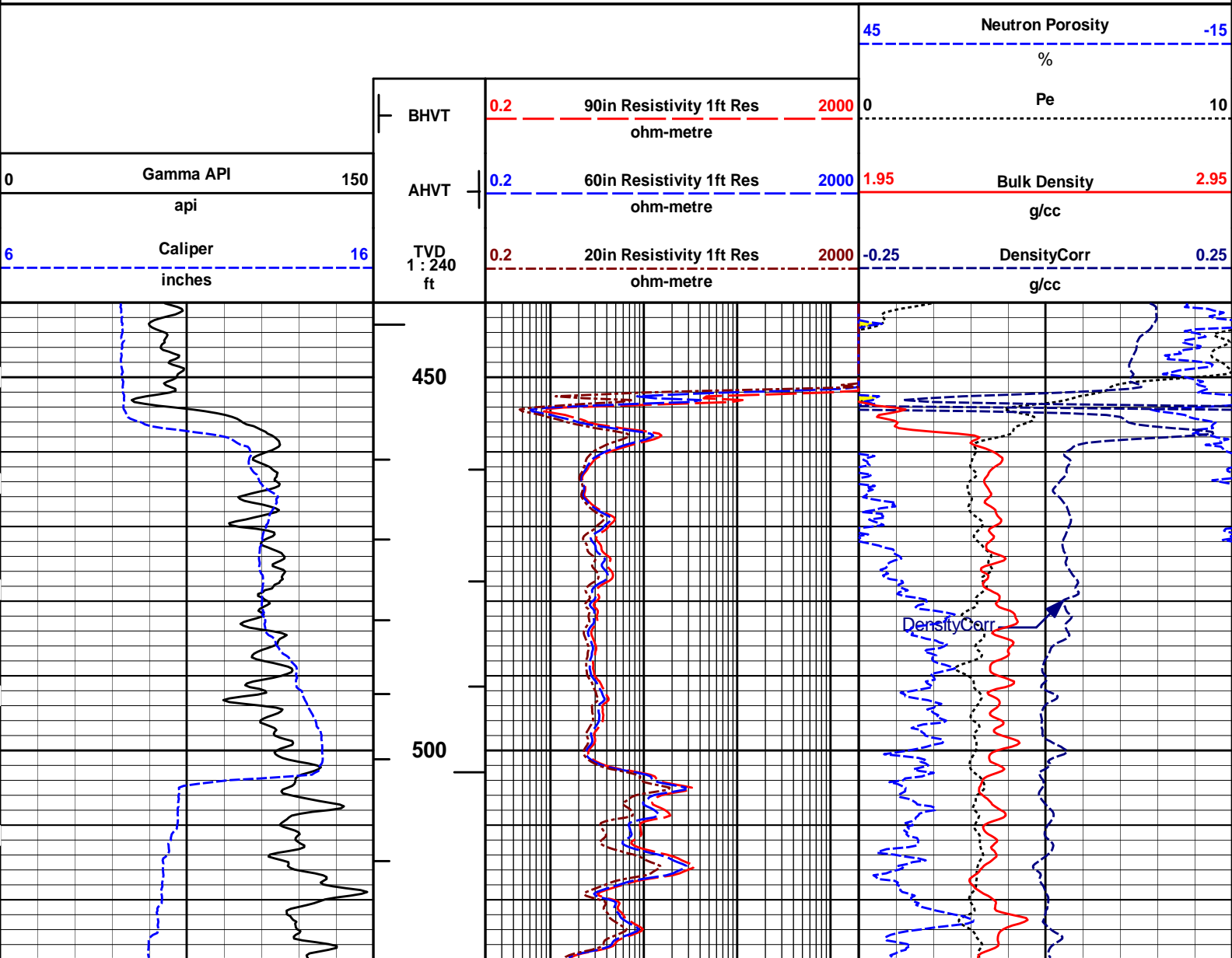
MAIN 1:240 MD

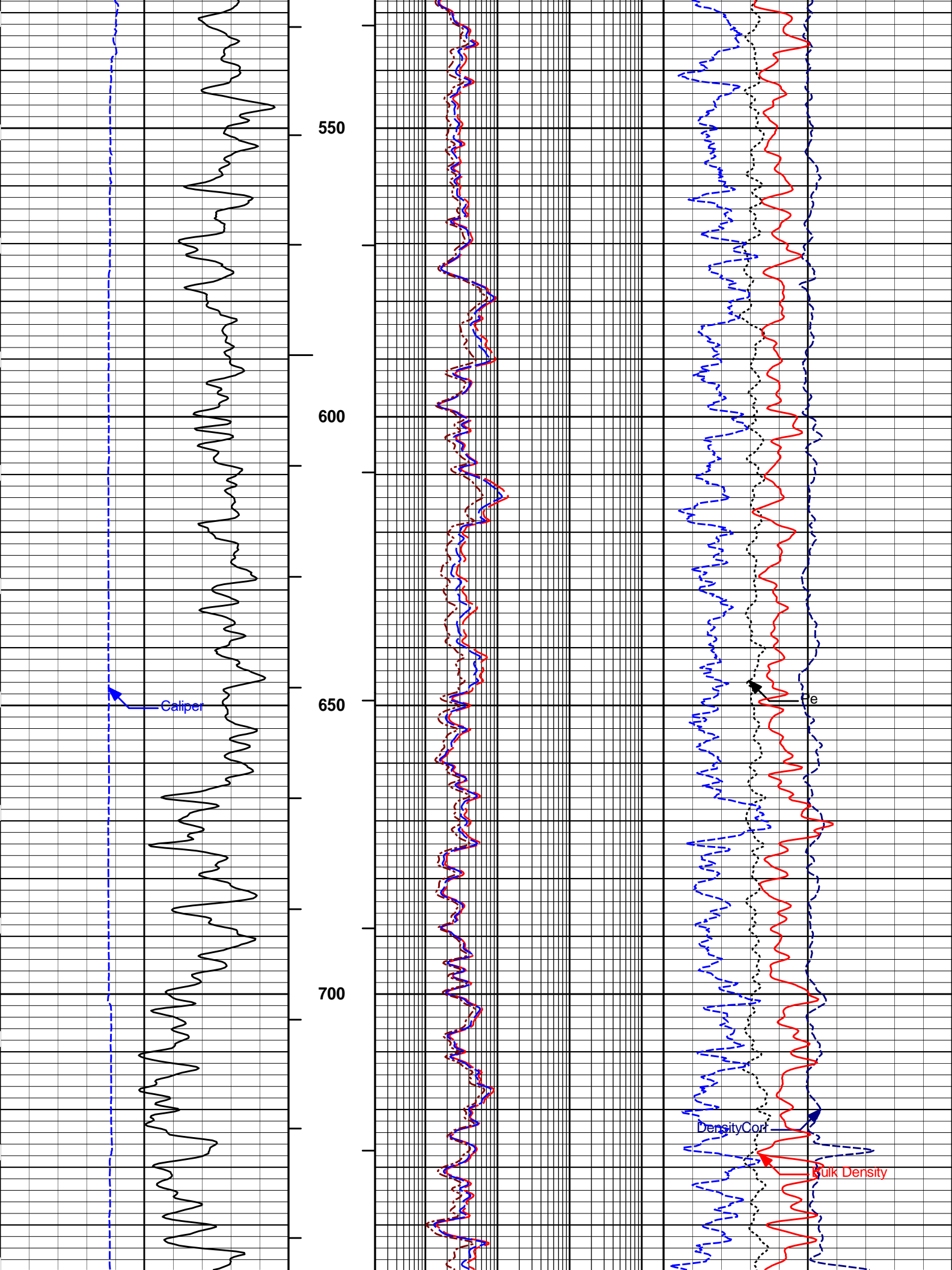
**HALLIBURTON**

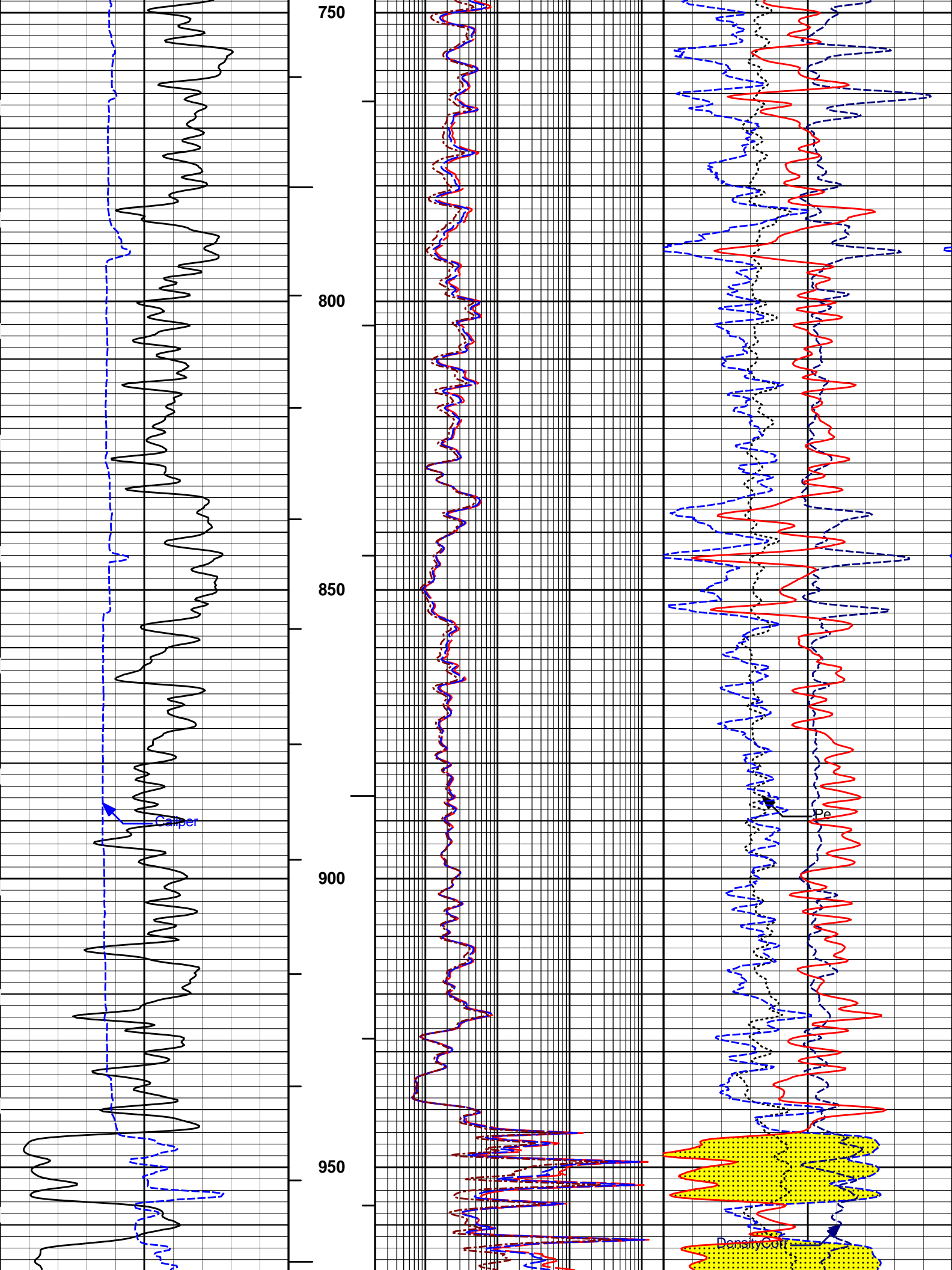
Plot Time: 02-Dec-12 02:58:21  
Plot Range: 440 ft to 4797.71 ft  
Data: MORROW\_LAND3007\Well Based\DAQ-0002-006\  
Plot File: \\TC\TC\_5\_NO\_ML\_MAIN\_SHELL

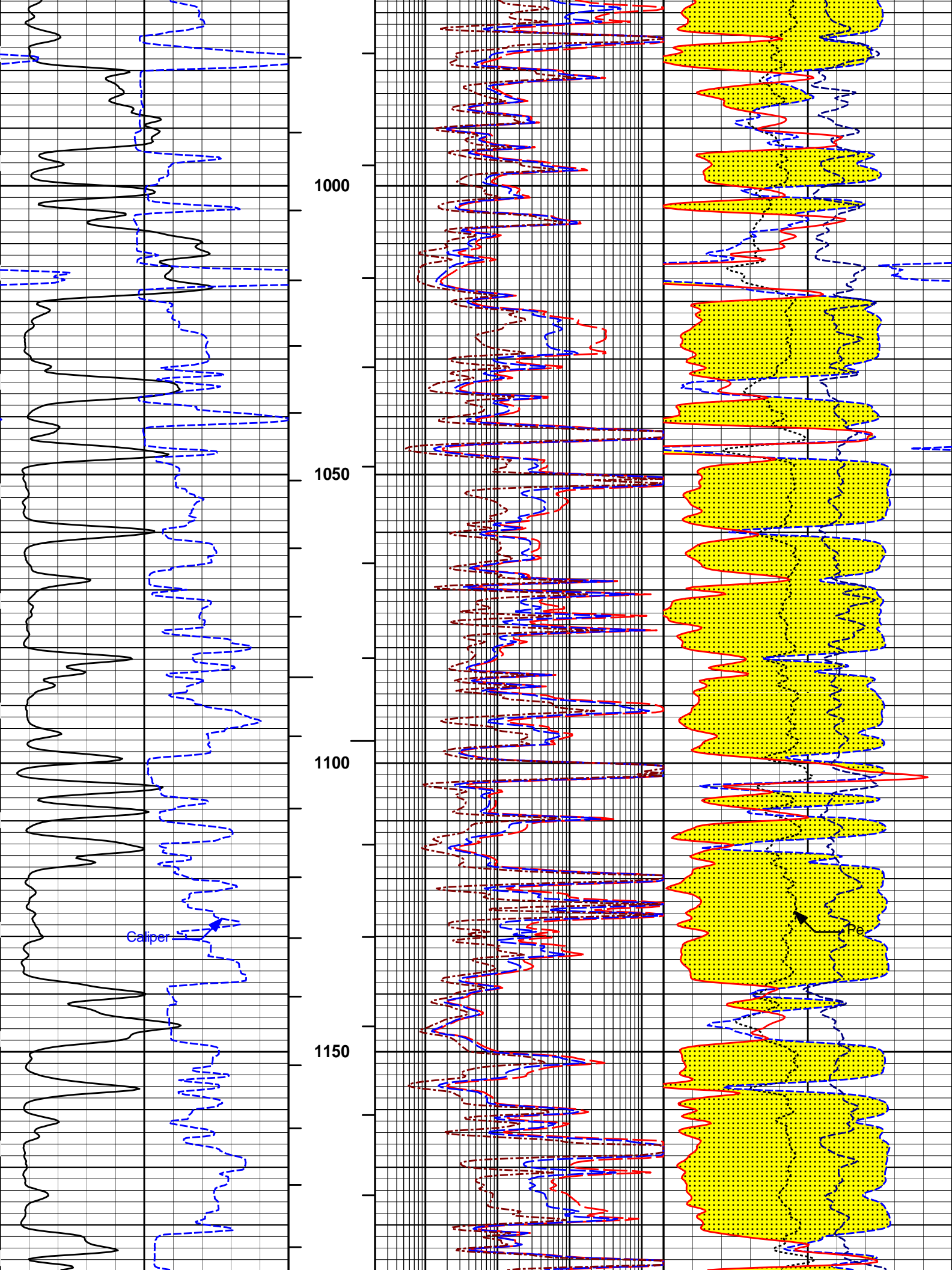
### 5 INCH MAIN LOG TVD

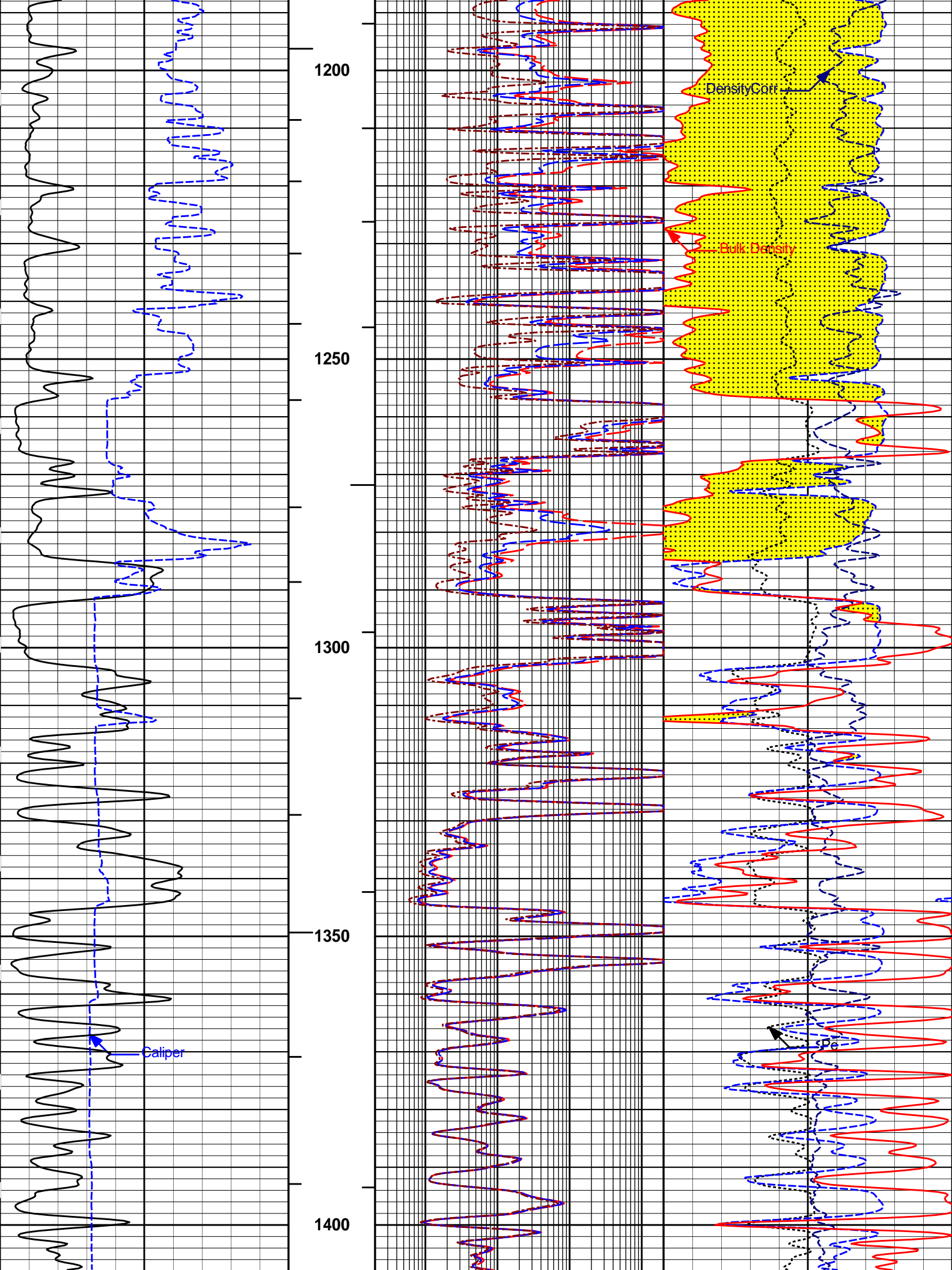
MAIN 1:240 TVD

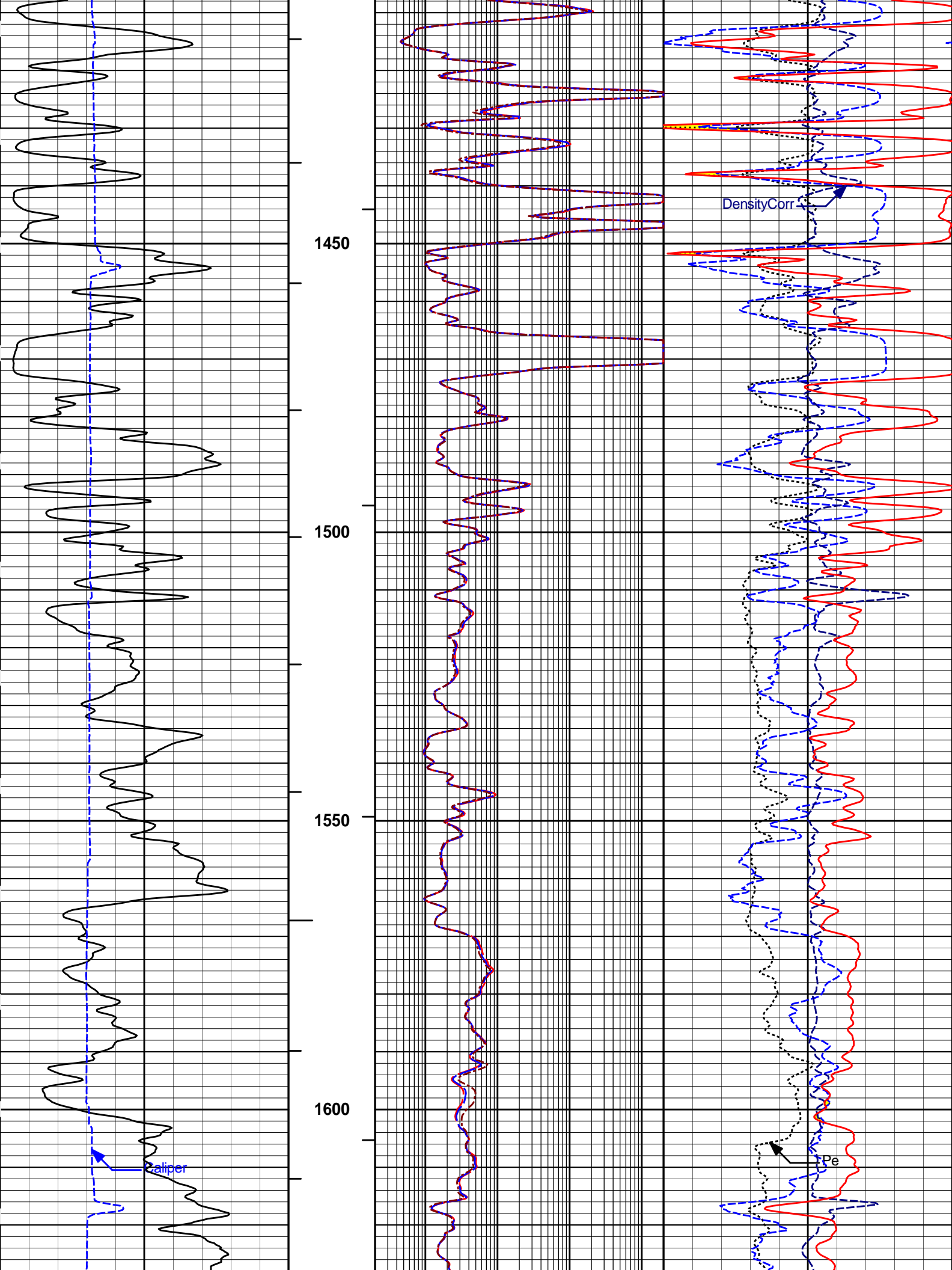


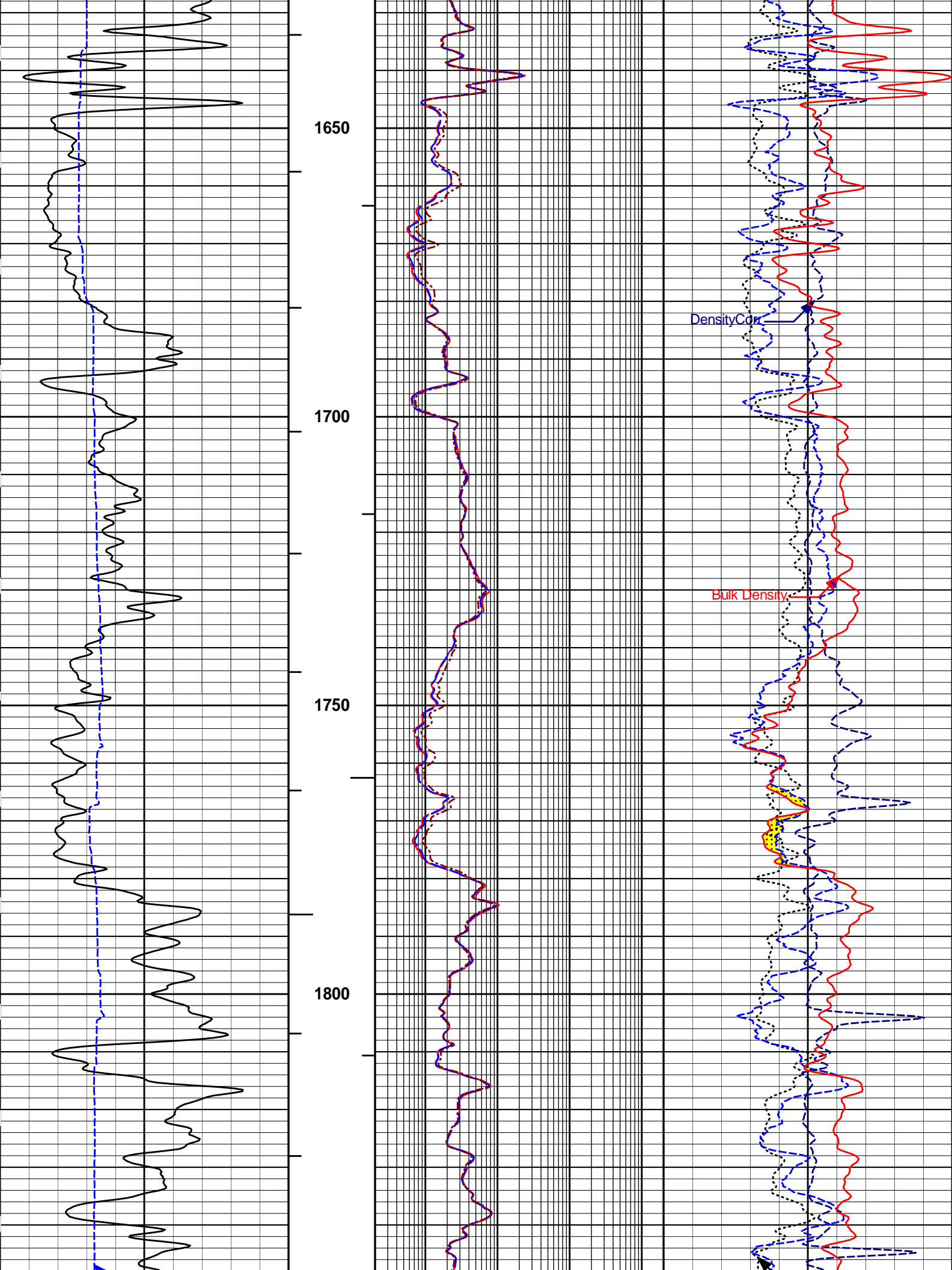


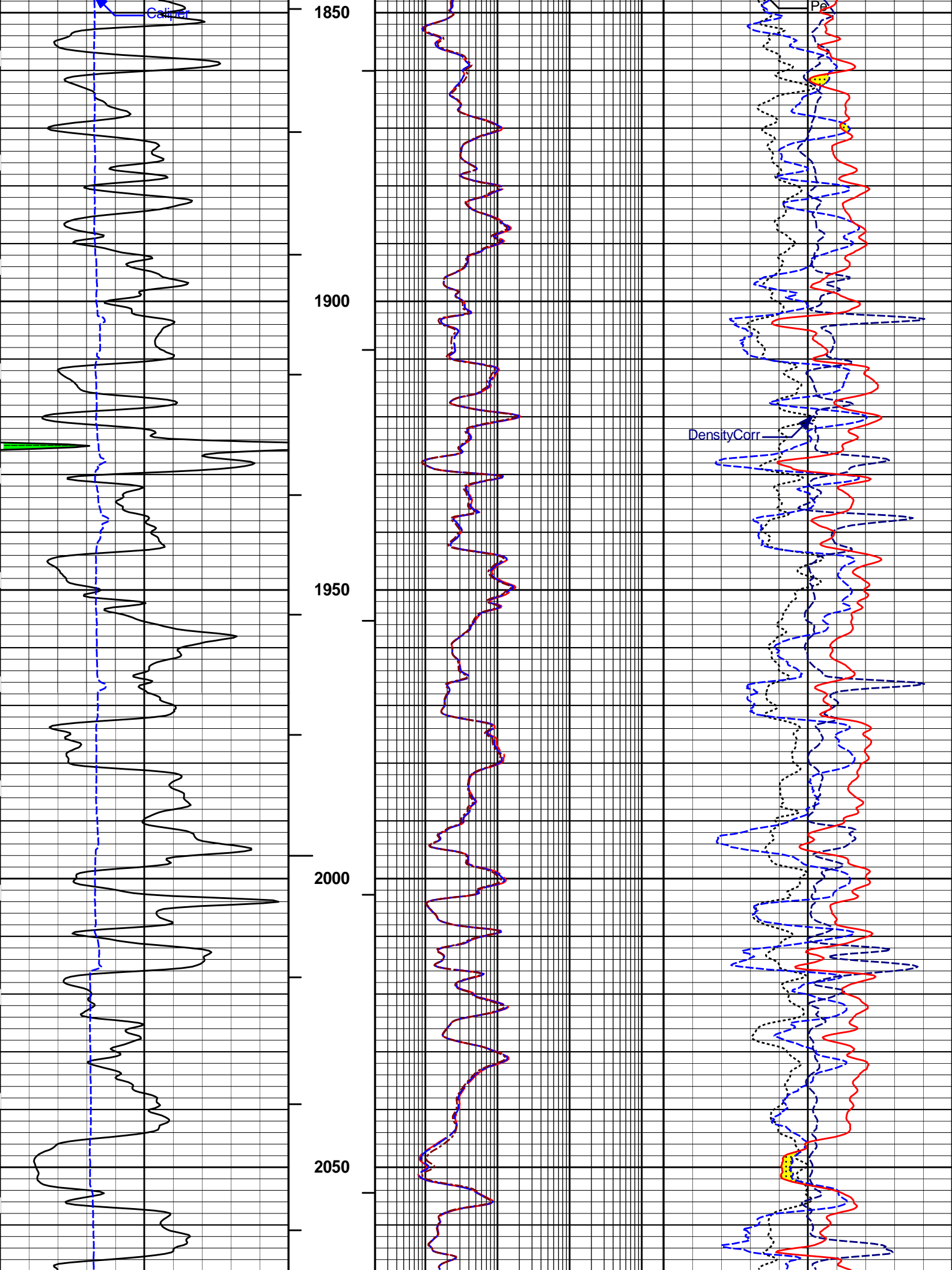


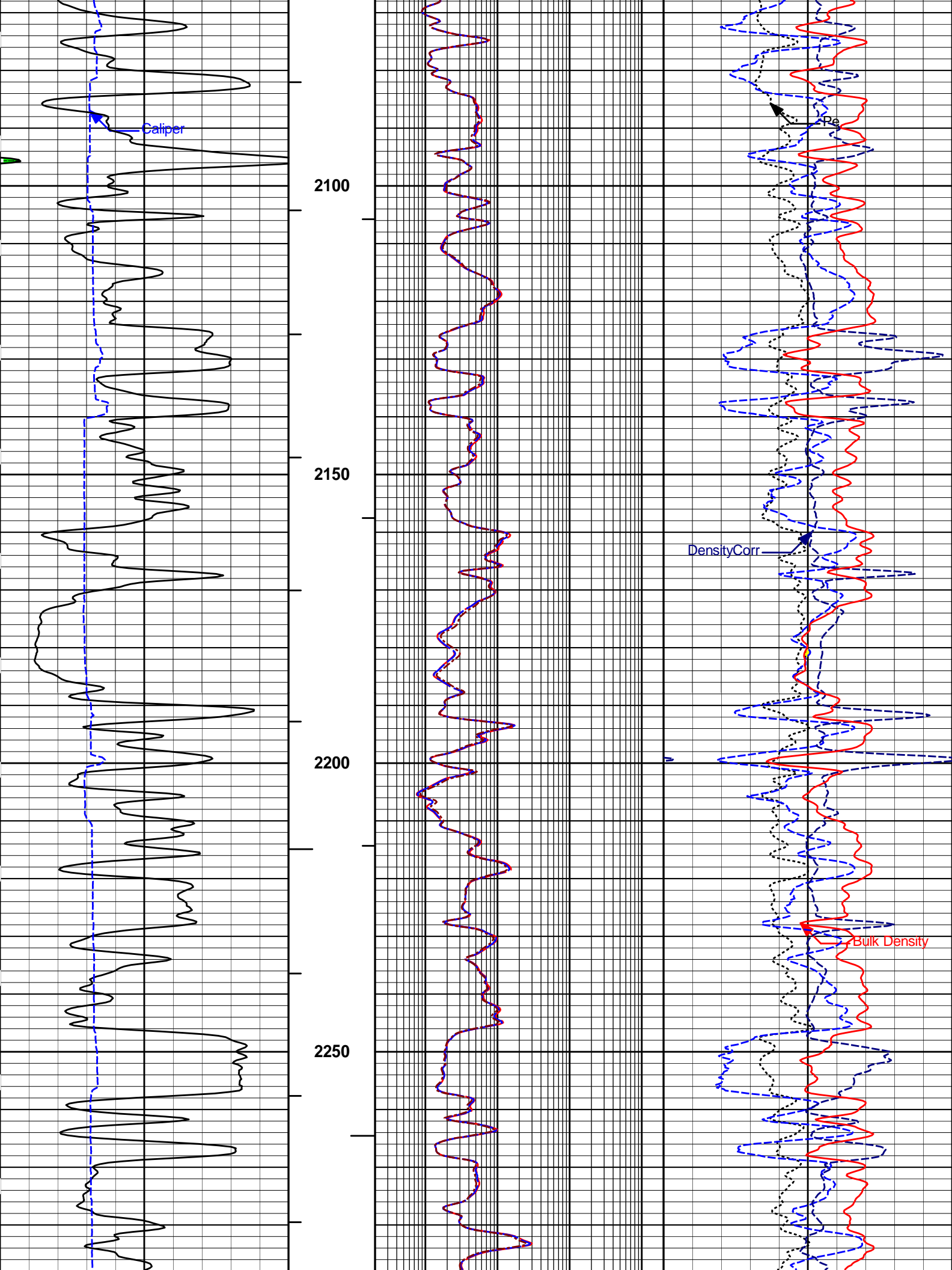


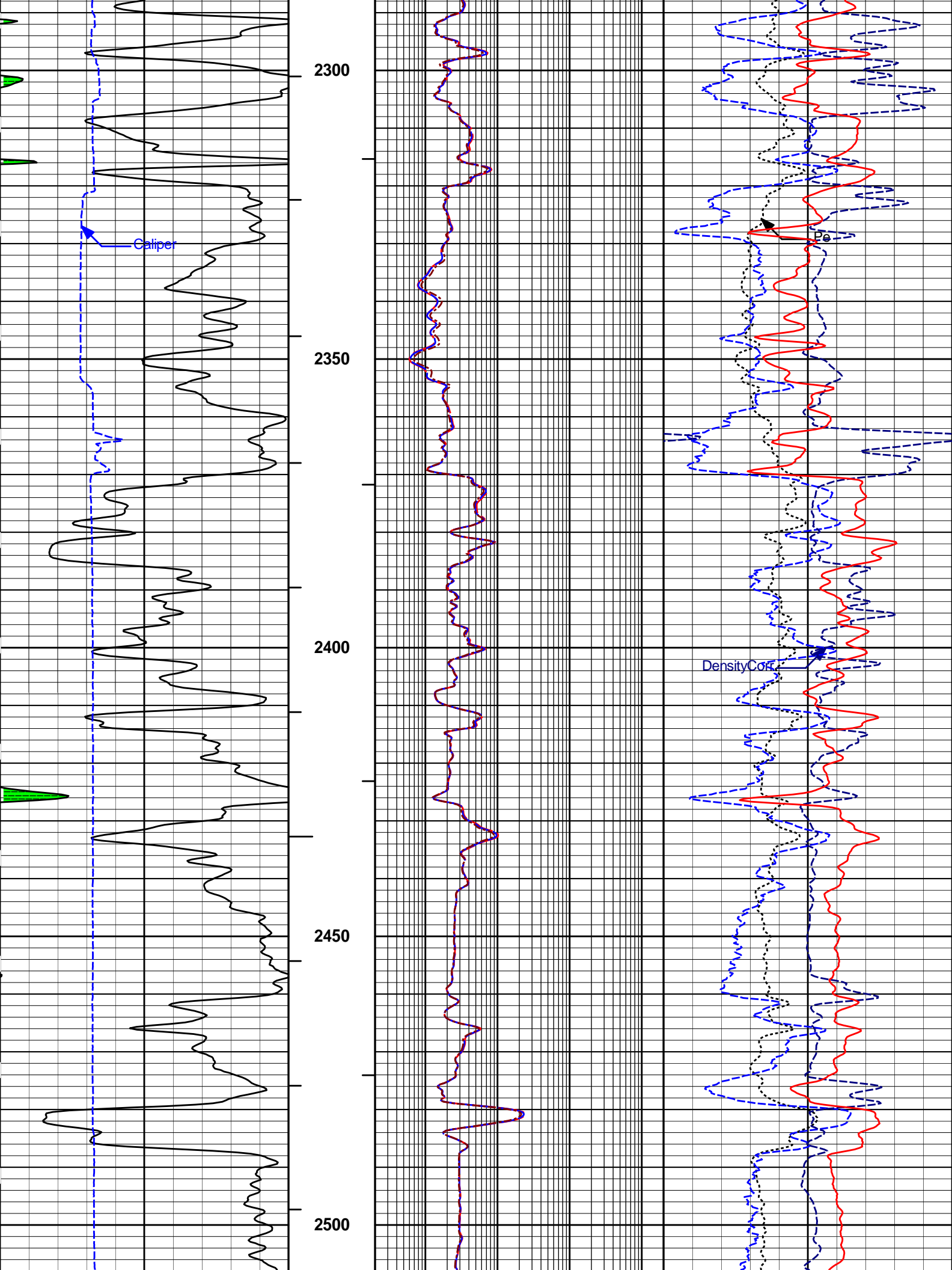


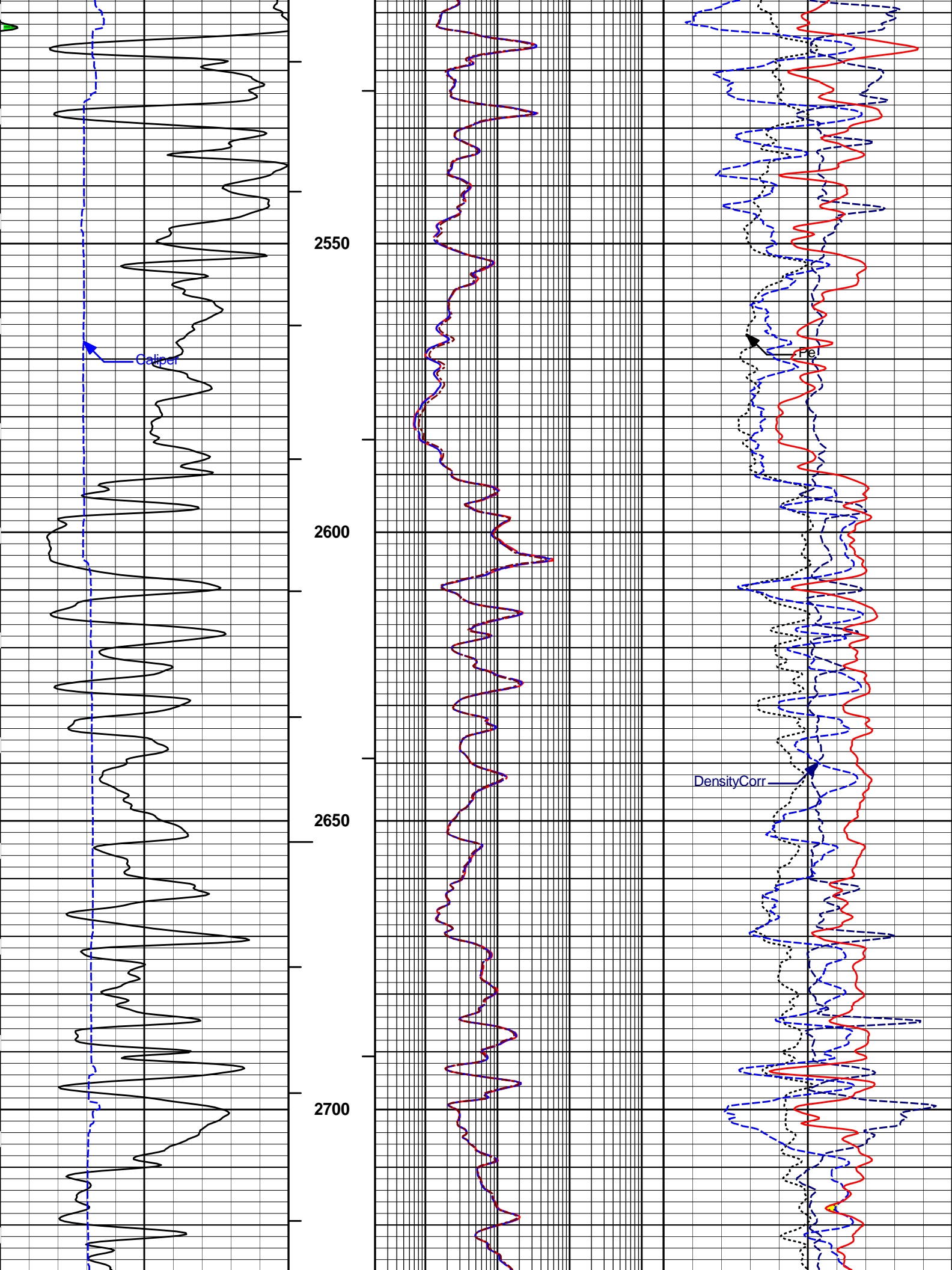


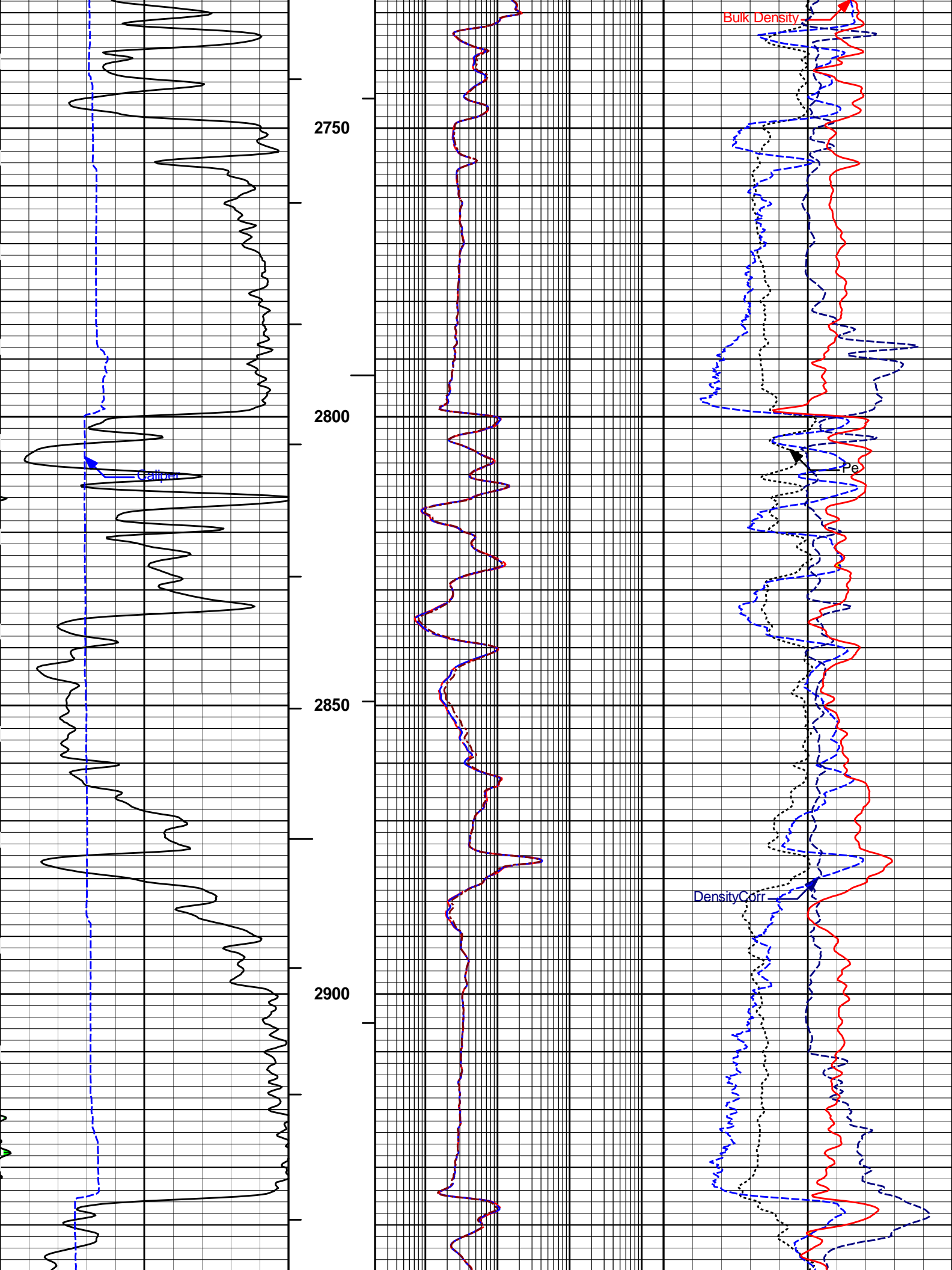


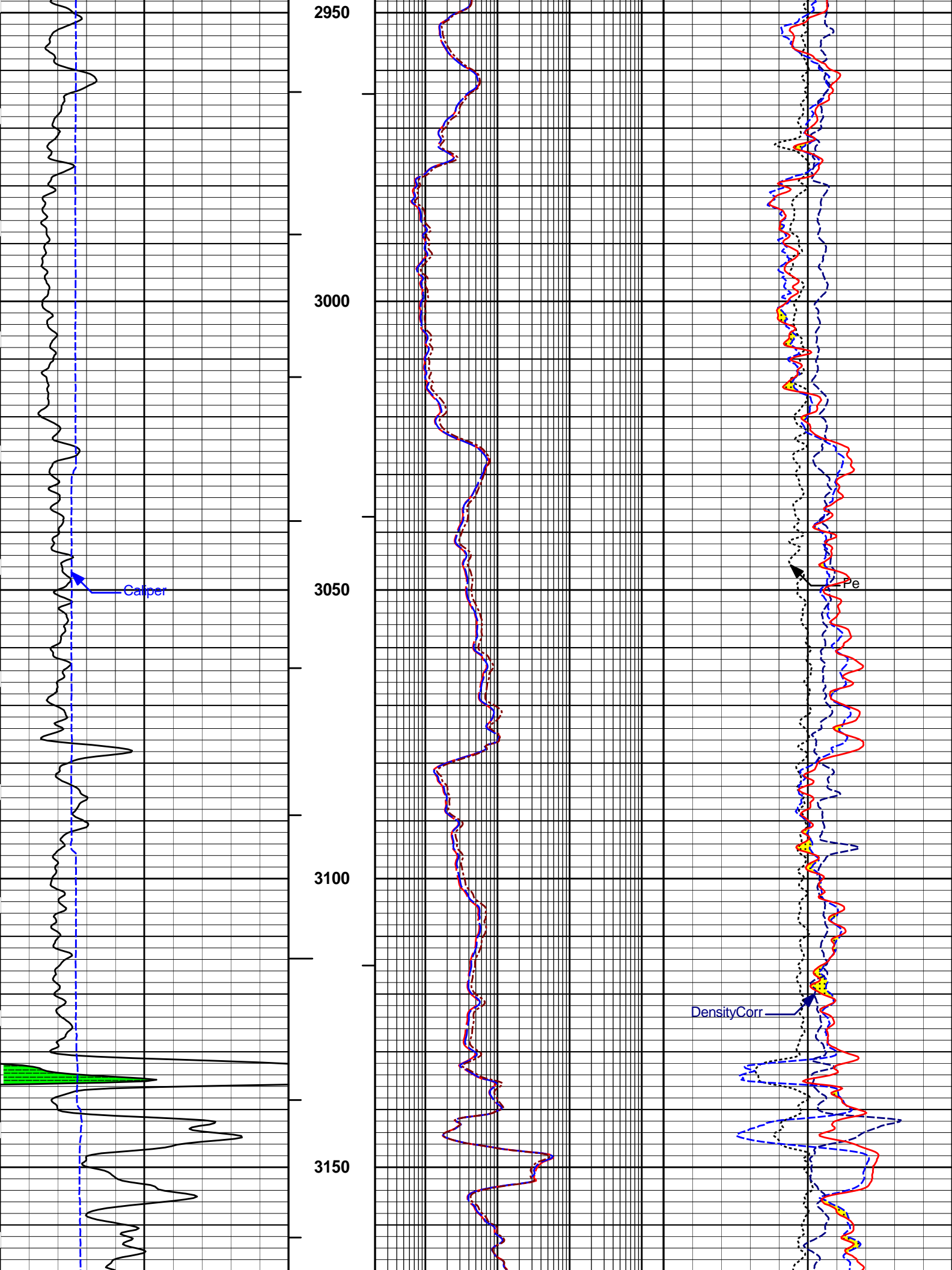


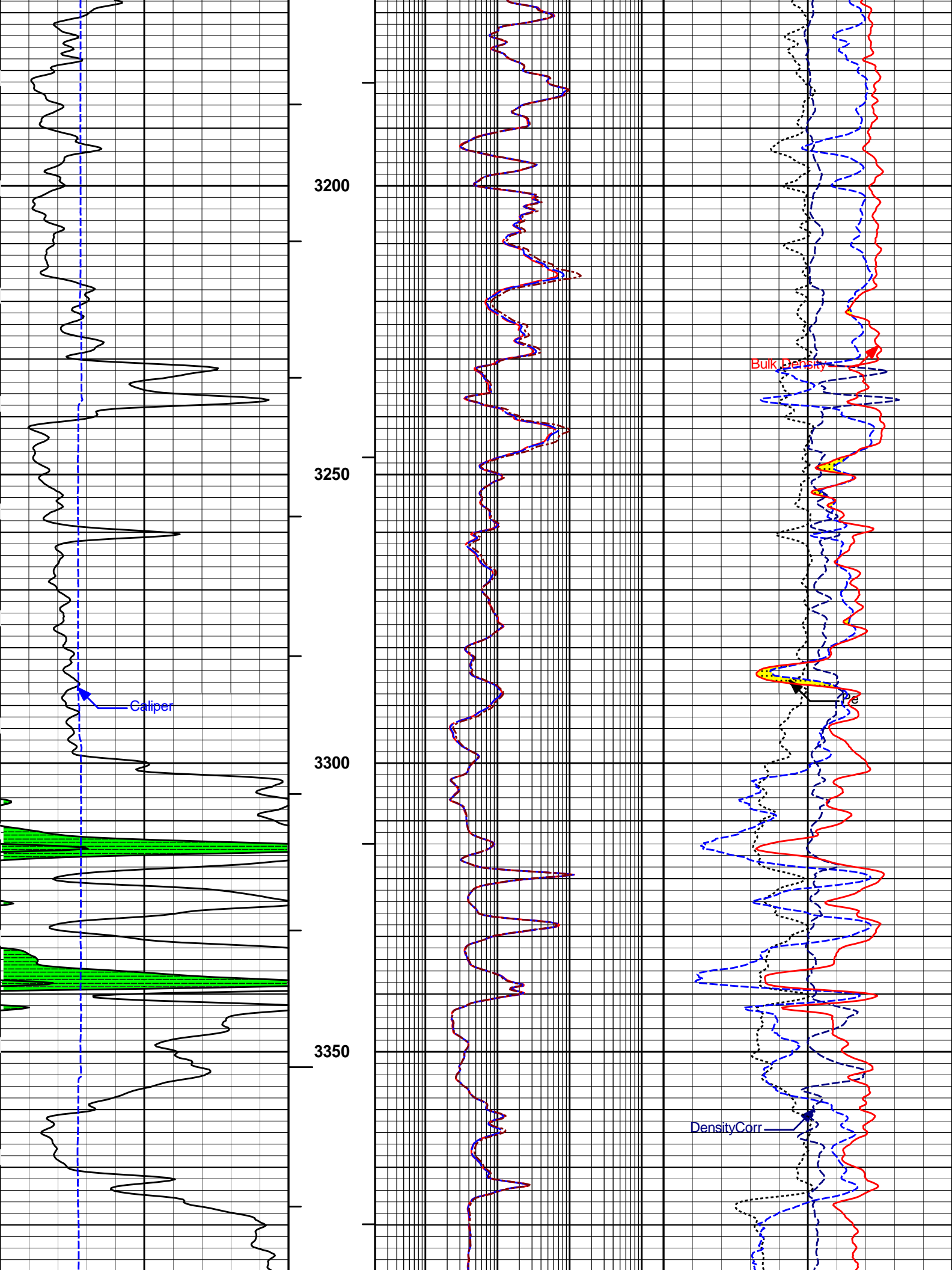


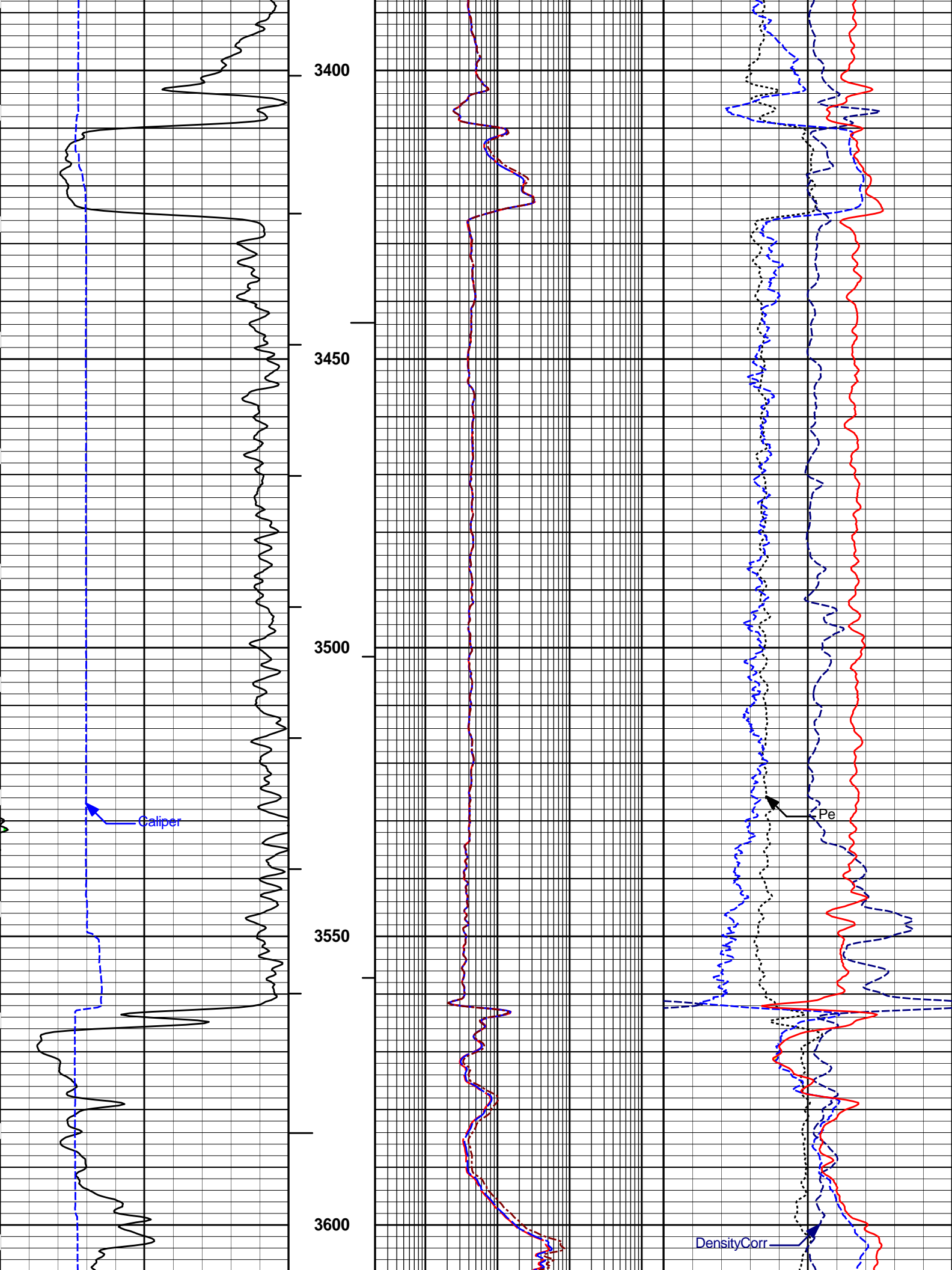


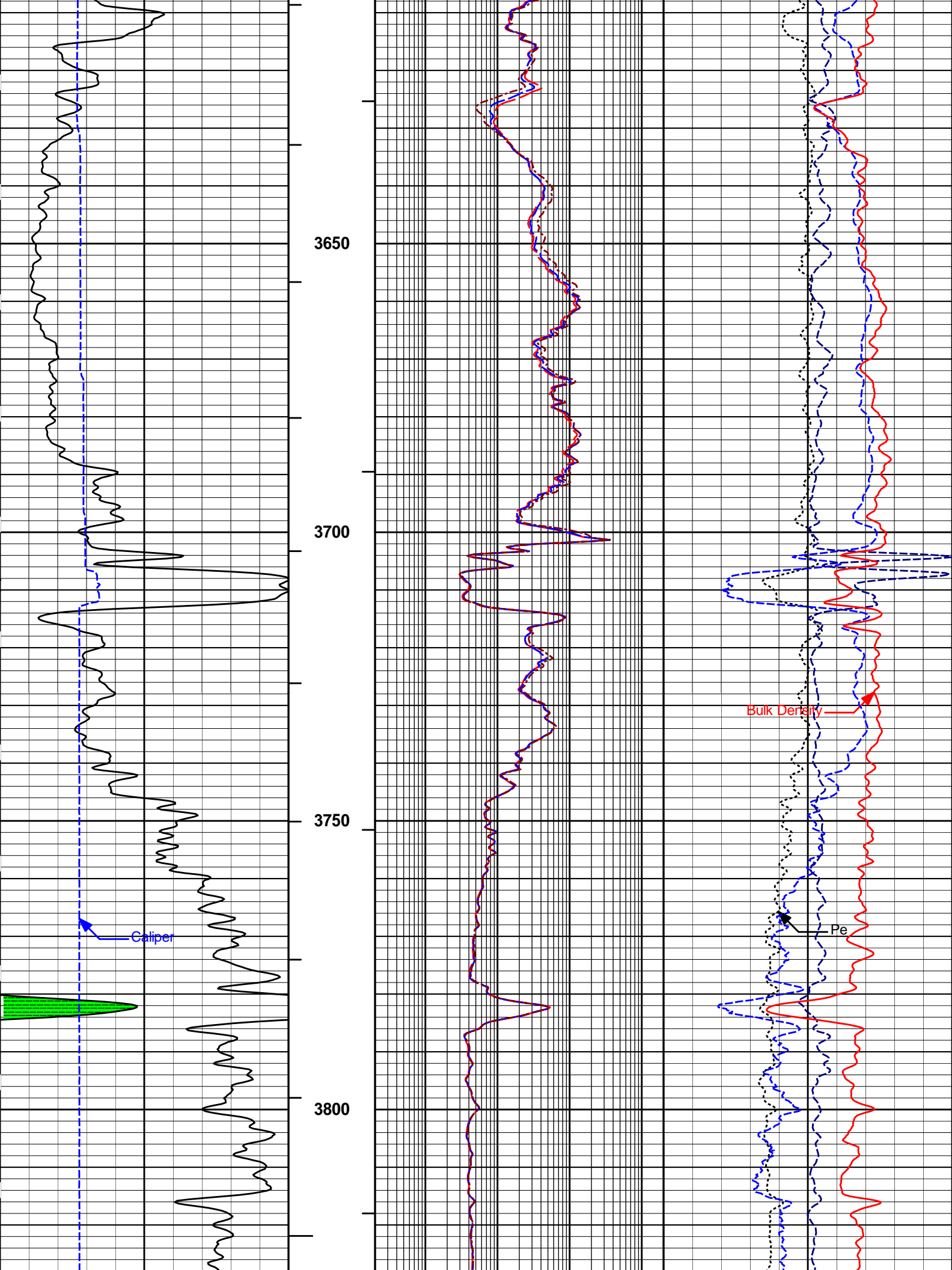


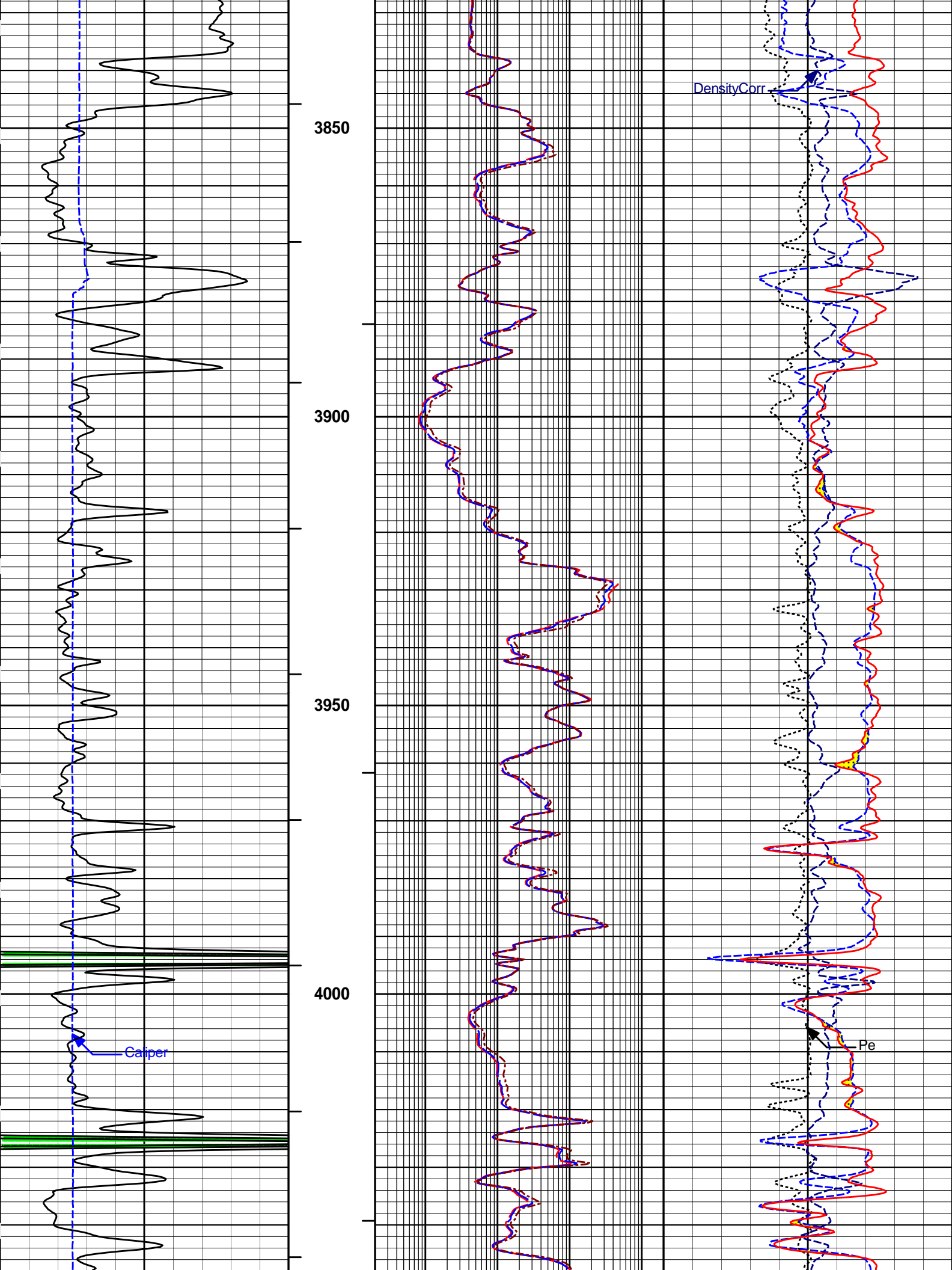


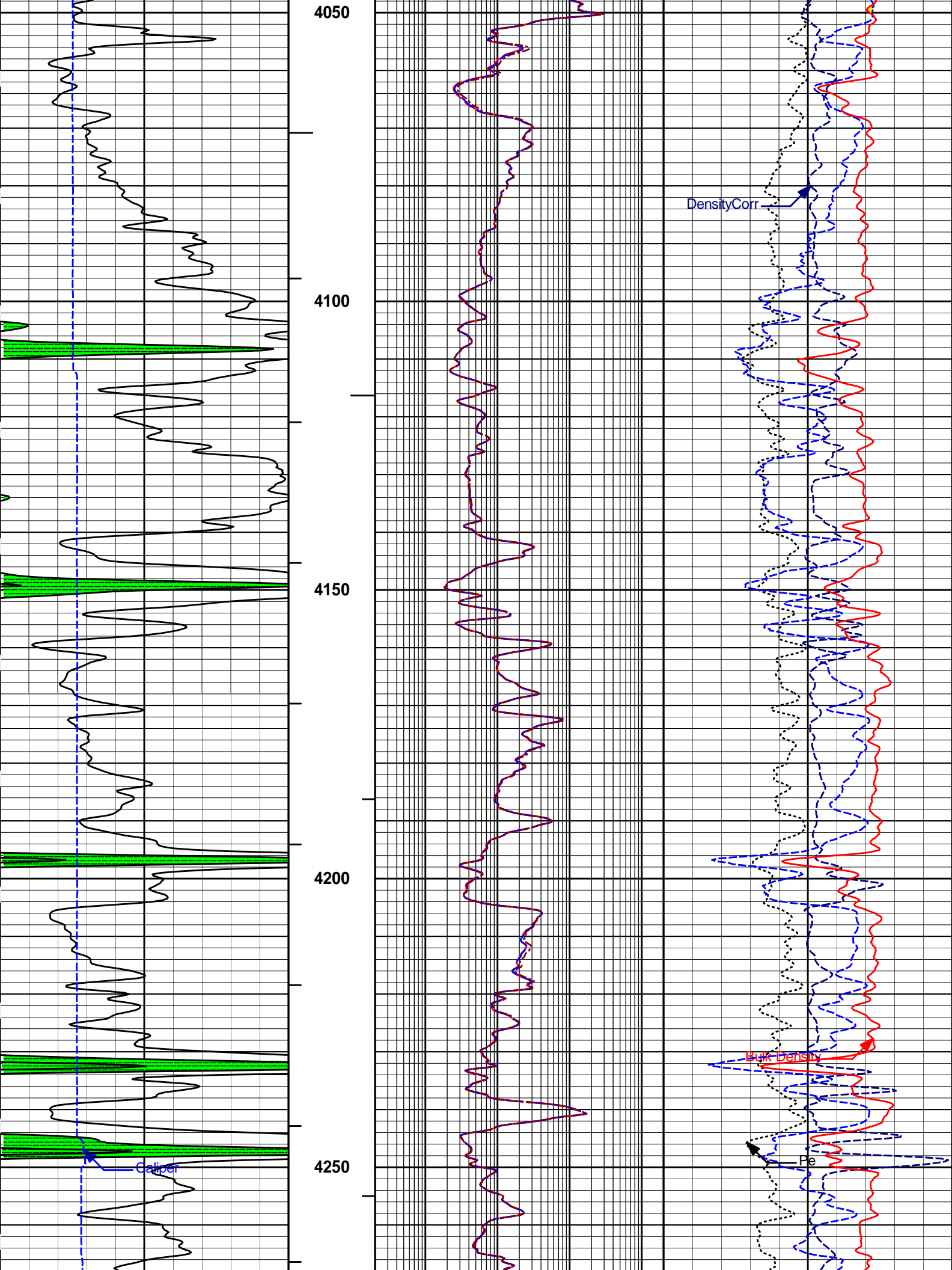


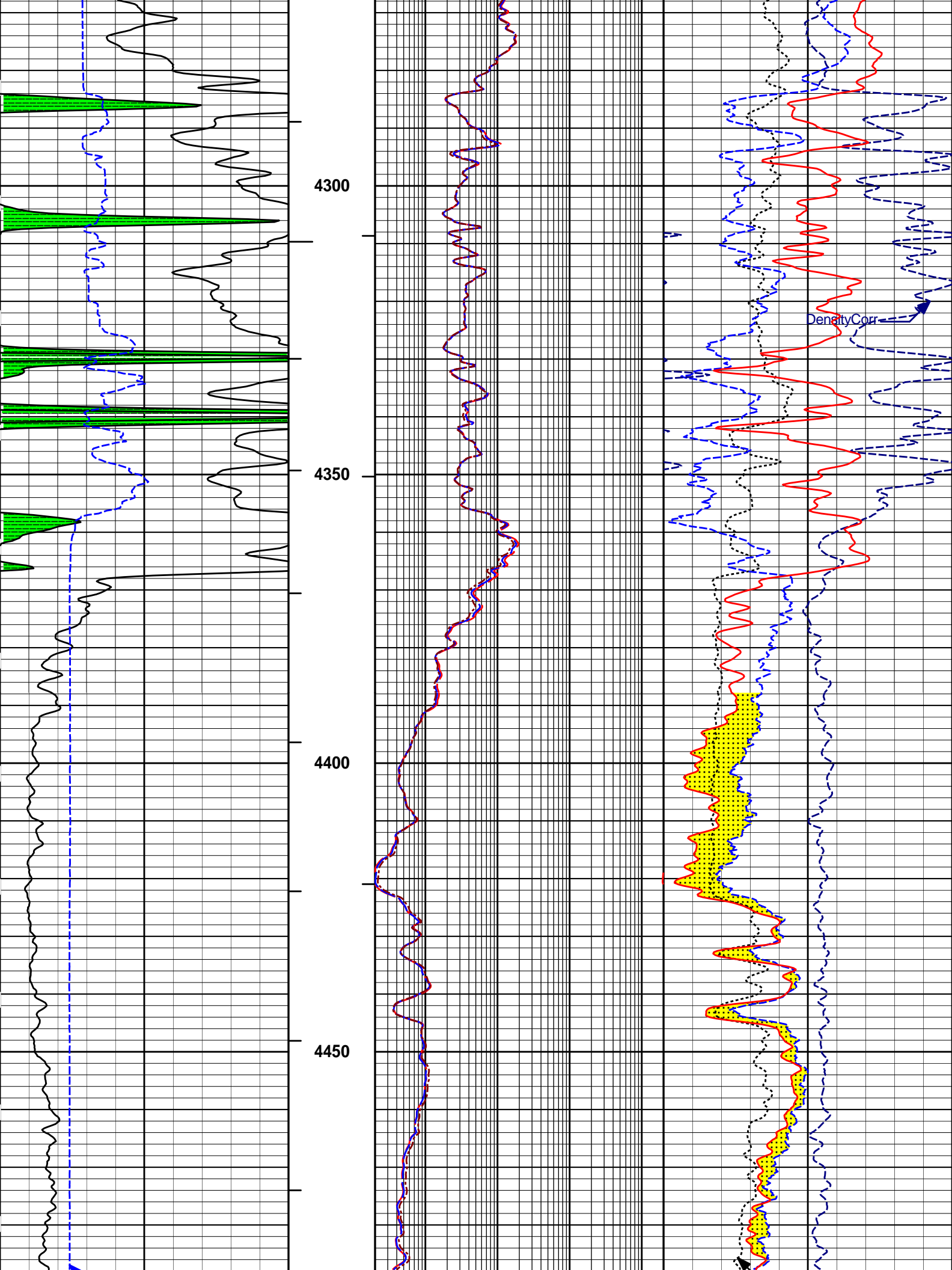


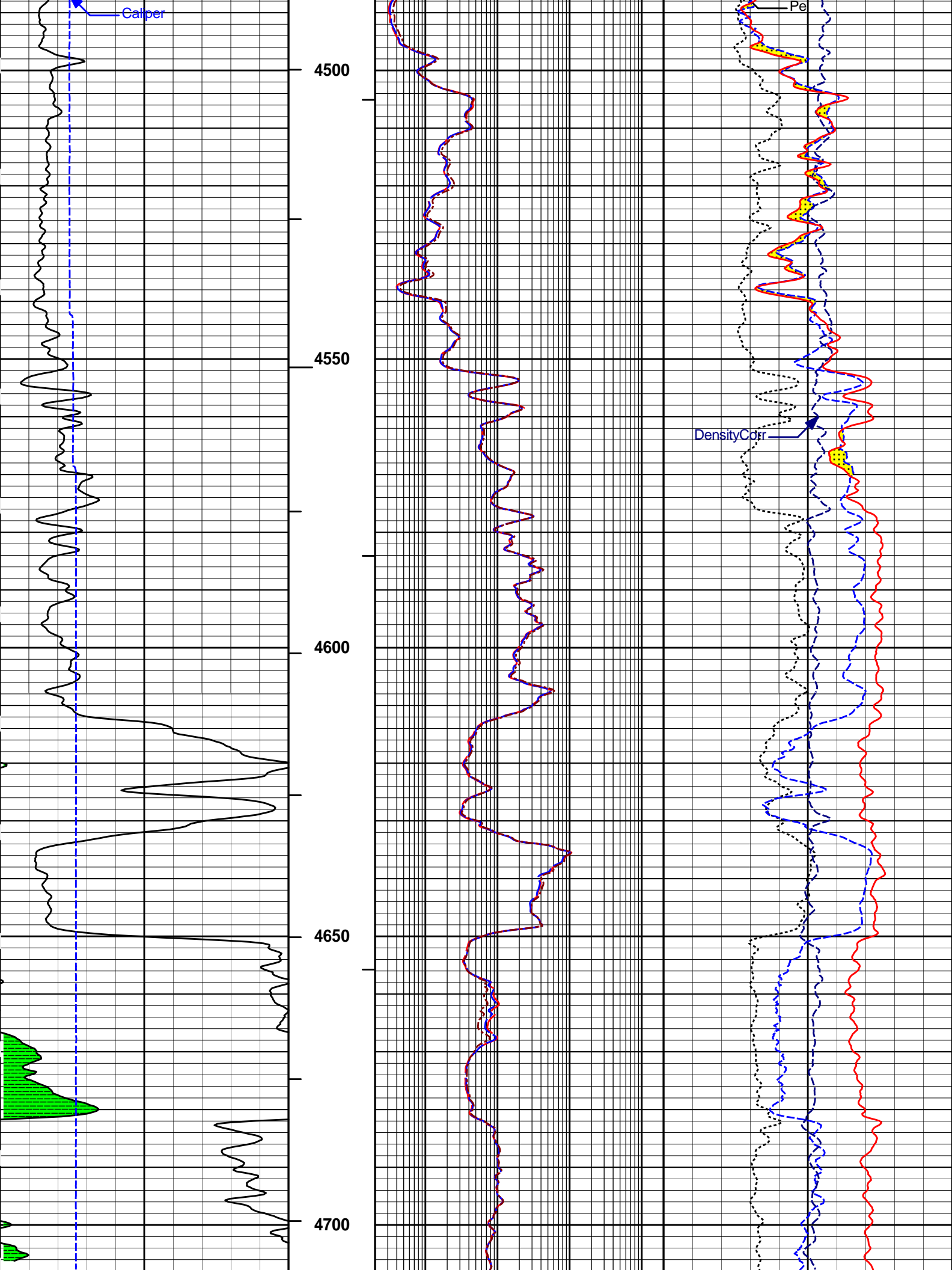


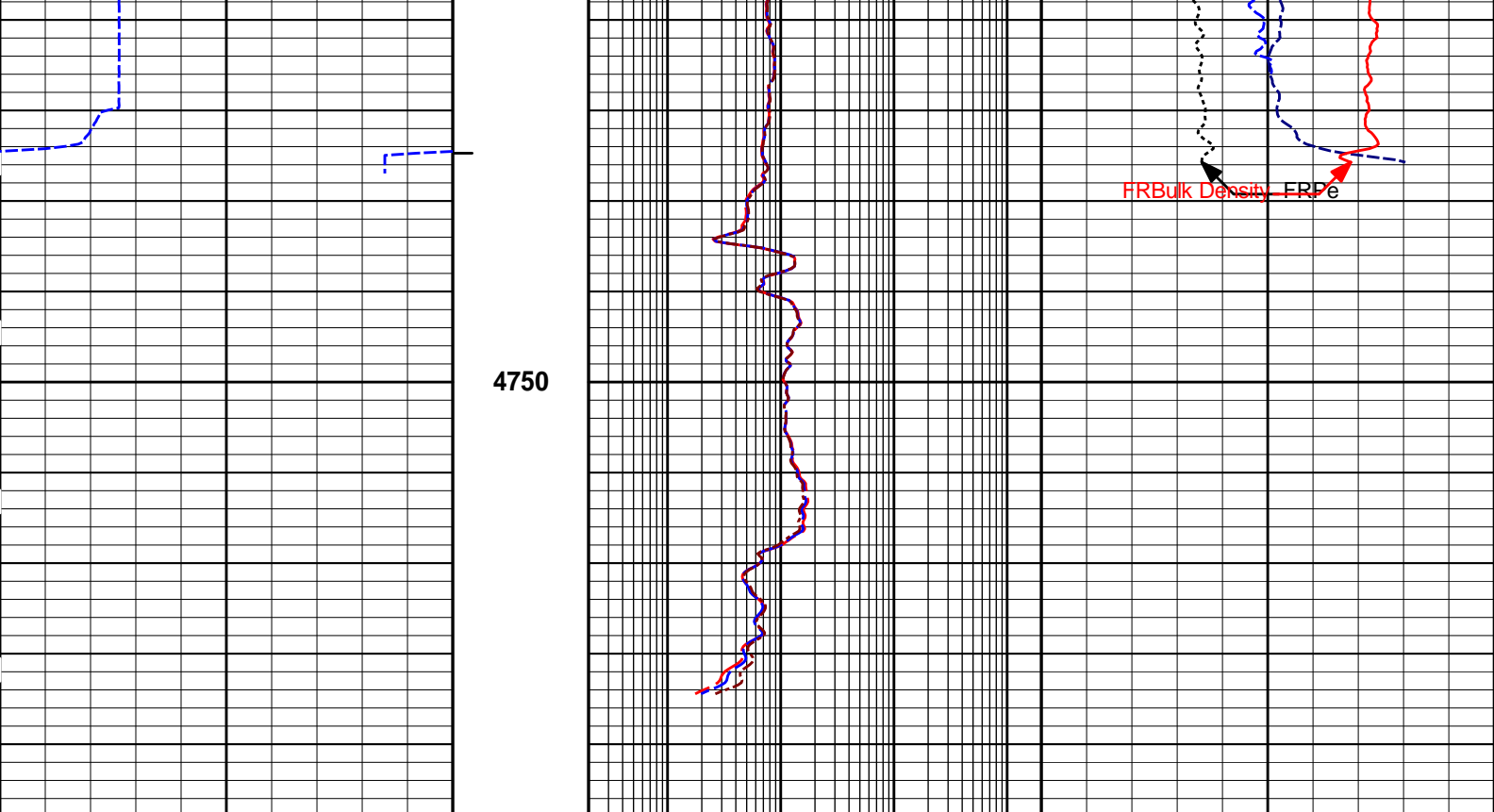












6	Caliper	16	TVD	0.2	20in Resistivity 1ft Res	2000	-0.25	DensityCorr	0.25
	inches		1 : 240		ohm-metre			g/cc	
0	Gamma API	150	AHVT	0.2	60in Resistivity 1ft Res	2000	1.95	Bulk Density	2.95
	api				ohm-metre			g/cc	
			BHVT	0.2	90in Resistivity 1ft Res	2000	0	Pe	10
					ohm-metre			%	
							45	Neutron Porosity	-15

**HALLIBURTON**

Plot Time: 02-Dec-12 02:58:46  
 Plot Range: 440 ft to 4797.71 ft  
 Data: MORROW\_LAND3007\Well Based\DAQ-0002-006\  
 Plot File: \\TC\TC\_5\_NO\_ML\_MAIN\_SHELL

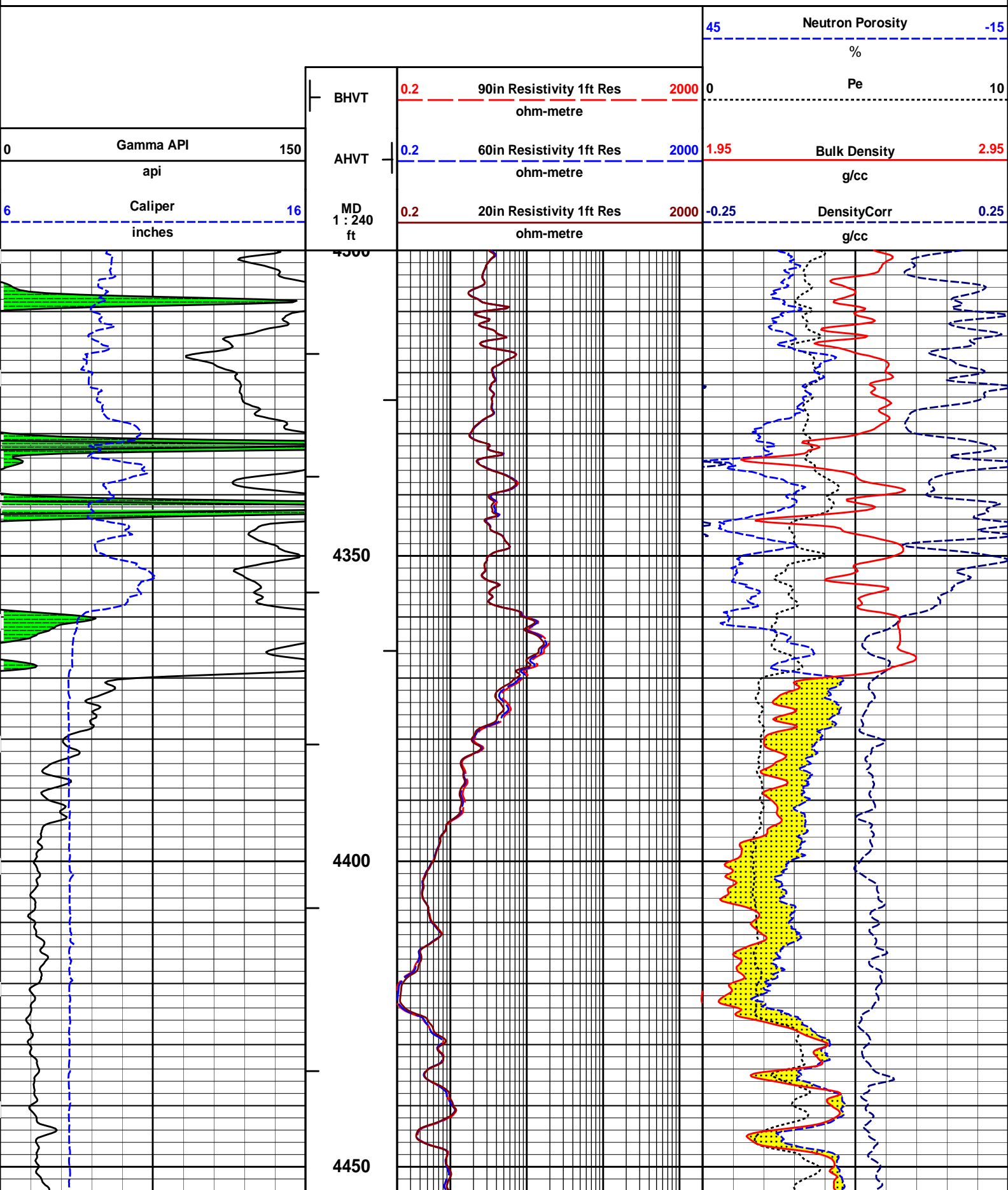
### 5 INCH MAIN LOG TVD

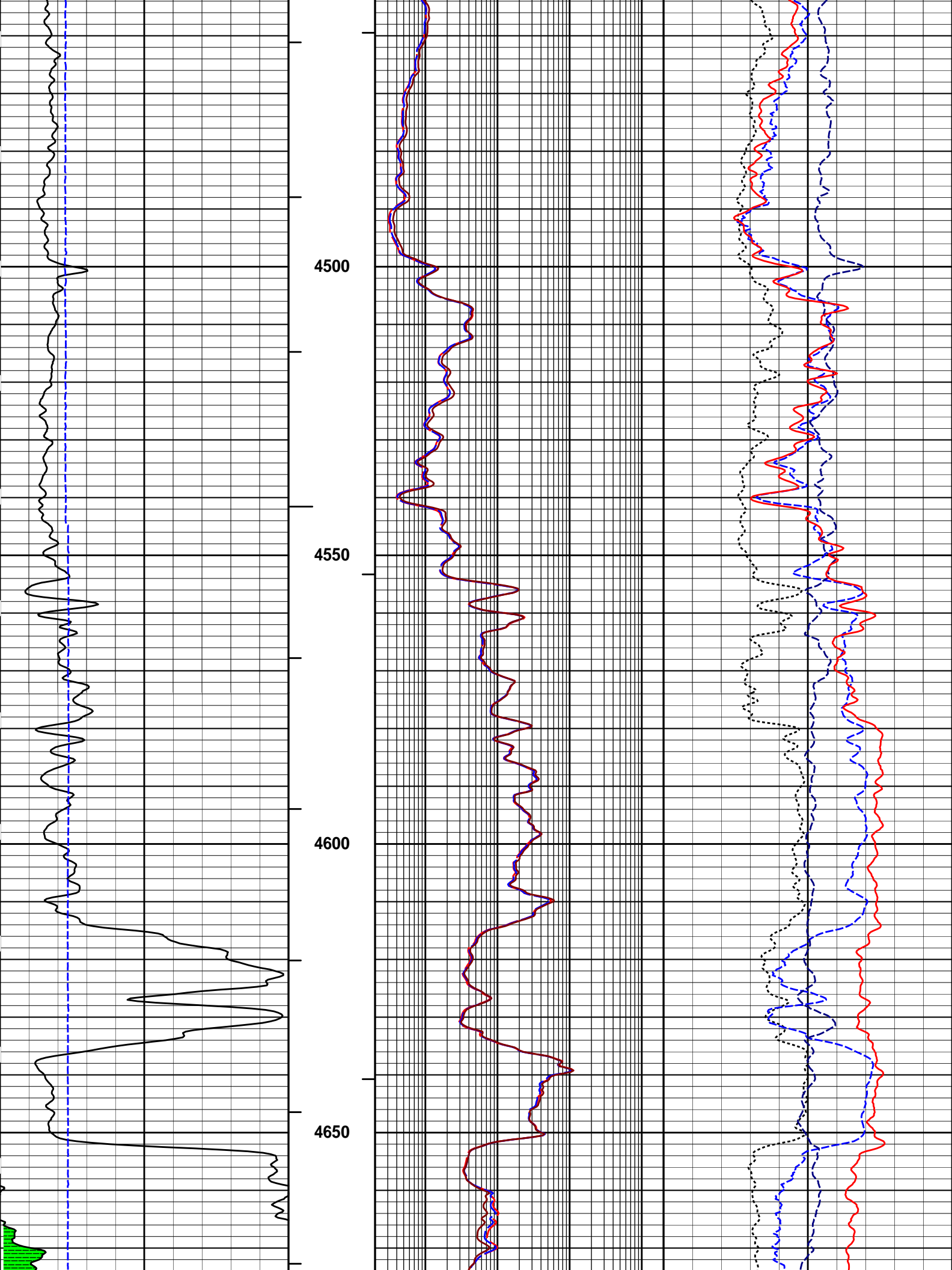
MAIN 1:240 TVD

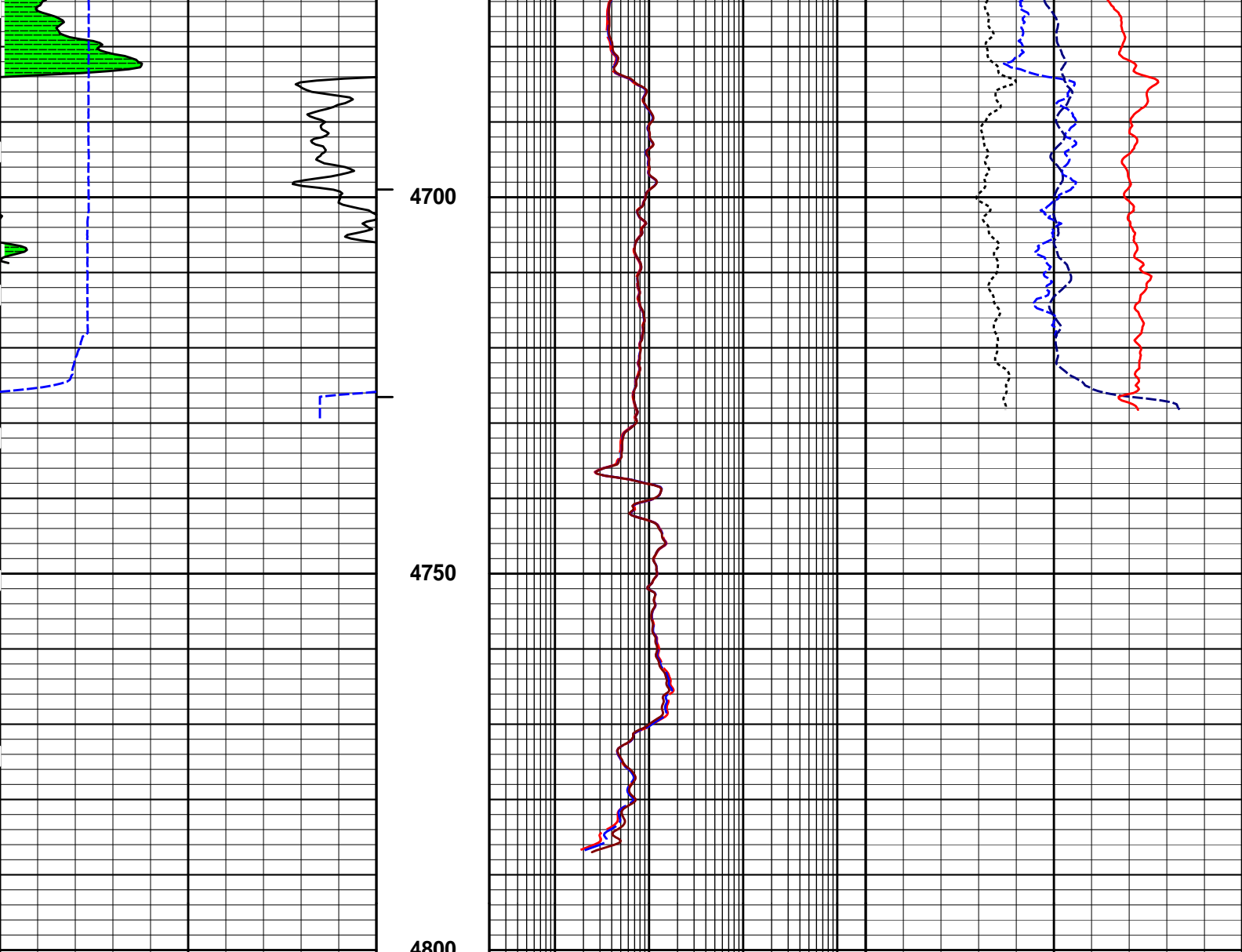
**HALLIBURTON**

Plot Time: 02-Dec-12 02:58:47  
 Plot Range: 4300 ft to 4800.5 ft  
 Data: MORROW\_LAND3007\Well Based\DAQ-0002-005\  
 Plot File: \\TC\TC\_5\_NO\_ML\_RPT\_SHELL

### 5 INCH REPEAT LOG MD







6	Caliper	16	MD	0.2	20in Resistivity 1ft Res	2000	-0.25	DensityCorr	0.25
	inches		1 : 240		ohm-metre			g/cc	
0	Gamma API	150	AHVT	0.2	60in Resistivity 1ft Res	2000	1.95	Bulk Density	2.95
	api				ohm-metre			g/cc	
			BHVT	0.2	90in Resistivity 1ft Res	2000	0	Pe	10
					ohm-metre				
							45	Neutron Porosity	-15
								%	

**HALLIBURTON**

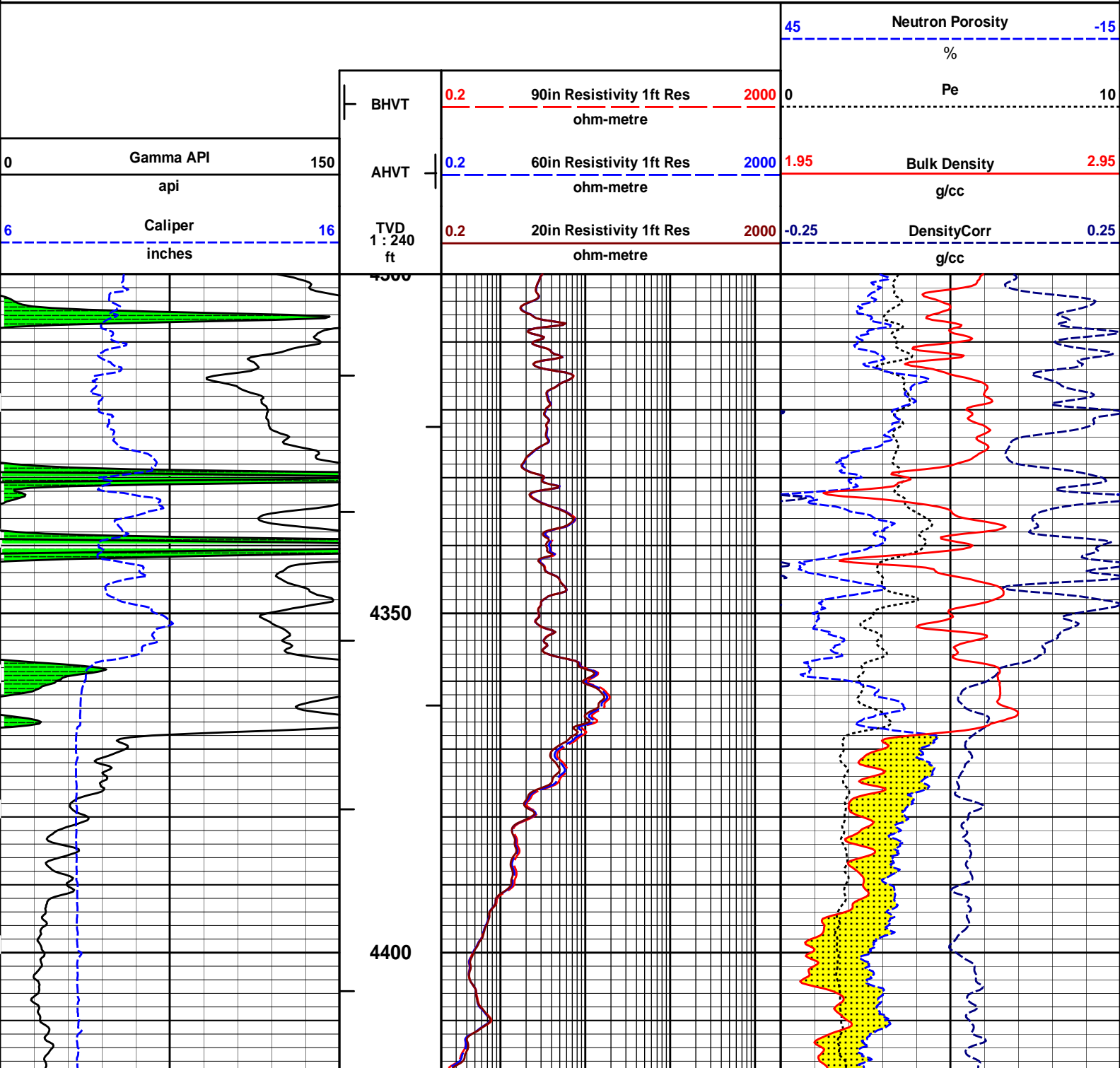
Plot Time: 02-Dec-12 02:58:56  
 Plot Range: 4300 ft to 4800.5 ft  
 Data: MORROW\_LAND3007\Well Based\DAQ-0002-005\  
 Plot File: \\TC\TC\_5\_NO\_ML\_RPT\_SHELL

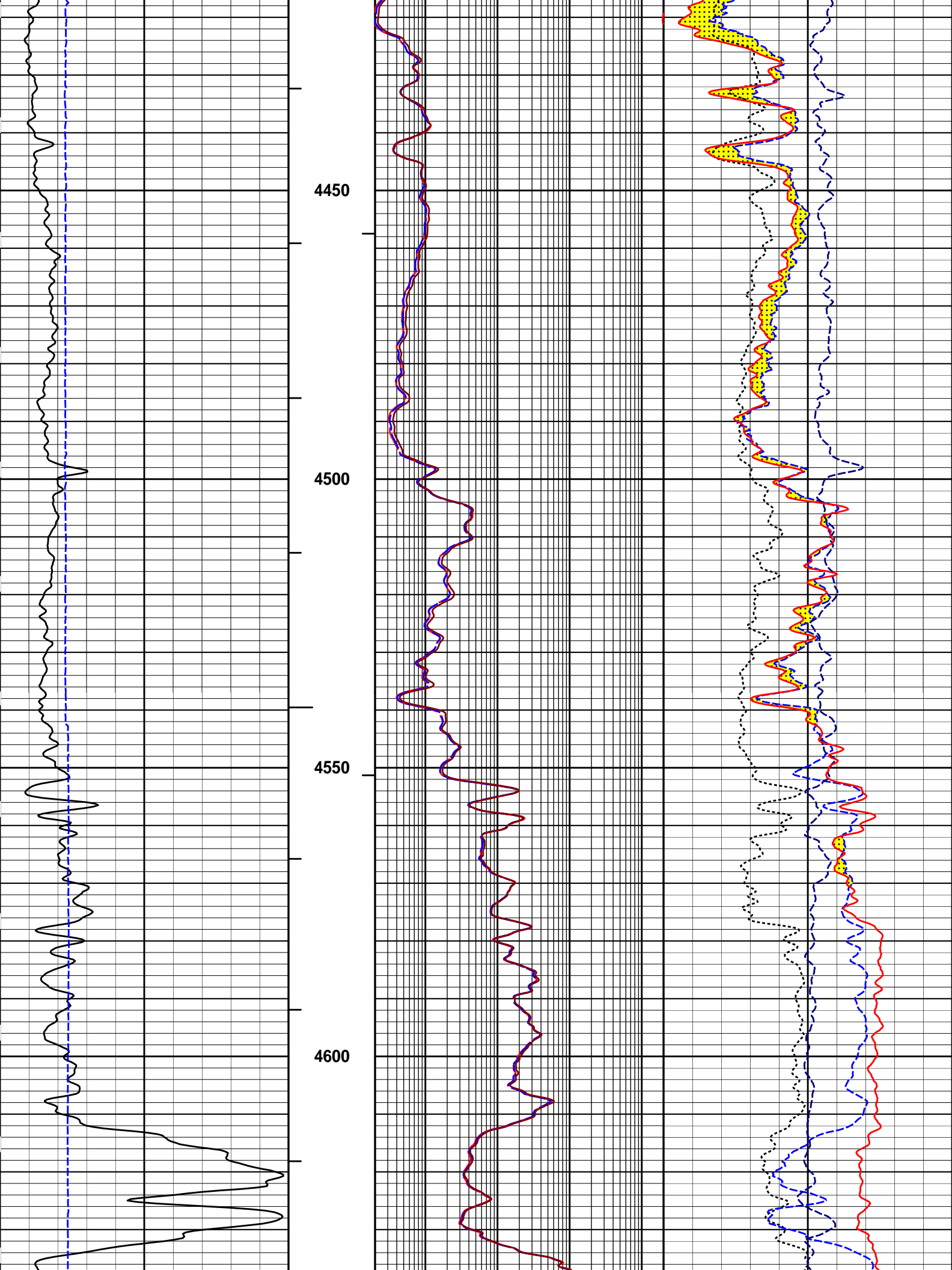
## 5 INCH REPEAT LOG MD

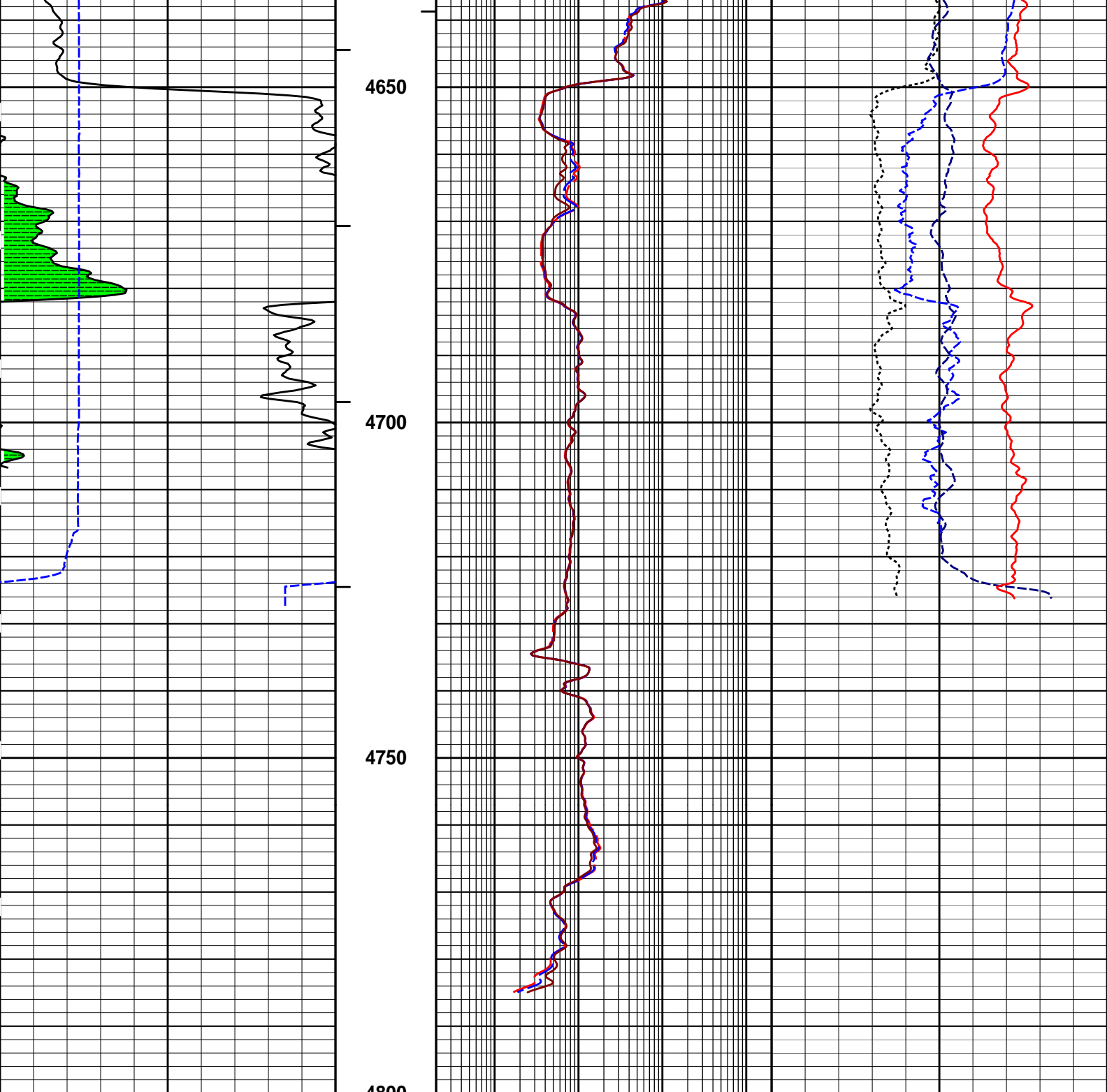
REPEAT 1:240 MD

# 5 INCH REPEAT LOG TVD

REPEAT 1:240 TVD







6	Caliper	16	TVD	0.2	20in Resistivity 1ft Res	2000	-0.25	DensityCorr	0.25
	inches		1 : 240		ohm-metre			g/cc	
0	Gamma API	150	AHVT	0.2	60in Resistivity 1ft Res	2000	1.95	Bulk Density	2.95
	api				ohm-metre			g/cc	
			BHVT	0.2	90in Resistivity 1ft Res	2000	0	Pe	10
					ohm-metre				
							45	Neutron Porosity	-15
								%	

**HALLIBURTON**

Plot Time: 02-Dec-12 02:59:02  
 Plot Range: 4300 ft to 4800.41 ft  
 Data: MORROW\_LAND3007\Well Based\DAQ-0002-005\  
 Plot File: \\TC\TC\_5\_NO\_ML\_RPT\_SHELL



**IQ Flex-696**  
140.00 lbs

Ø 3.625 in →

5.67 ft

62.20 ft

**IDT-10967514**  
150.00 lbs

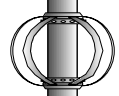
Ø 3.625 in →

7.58 ft

54.61 ft

**Centralizer 25-002**  
8.00 lbs

Ø 4.000 in\* →



**Wavesonic-I-10855601**  
520.00 lbs

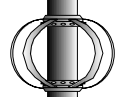
Ø 3.625 in →

34.07 ft

← Wavesonic Delay @ 32.04 ft

**Centralizer 25-001**  
8.00 lbs

Ø 4.000 in\* →



20.54 ft

**ACRt Instrument-1962**  
50.00 lbs

**Regal Standoff 6\_75-1**  
2.00 lbs

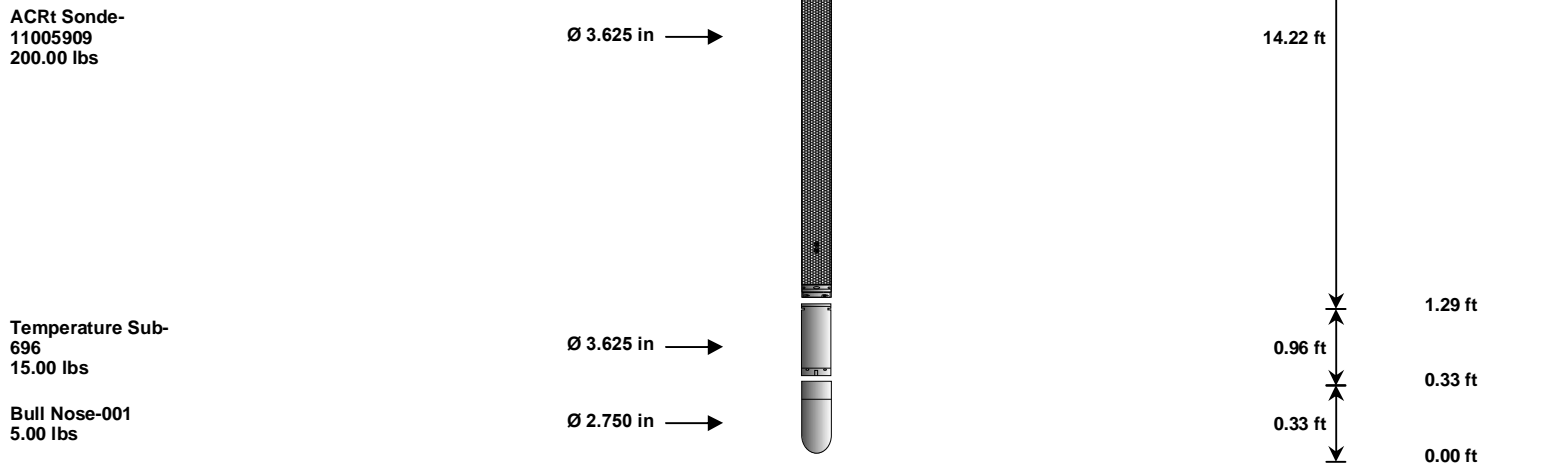
Ø 5.625 in\* →  
Ø 3.625 in →

5.03 ft

15.51 ft

← Mud Resistivity @ 14.15 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	CH_696	37.50	3.03	100.63	300.00
SP	SP Sub	001	60.00	3.74	96.89	300.00
GTET	Gamma Telemetry Tool	11039640	165.00	8.52	88.37	60.00
DSNT	Dual Spaced Neutron	11055304	174.00	9.69	78.68	60.00
DCNT	DSN Decentralizer	11019643	6.60	5.13	82.01	300.00
SDLT	Spectral Density Tool	11014296	360.00	10.81	67.87	60.00
SDLP	Density Insite Pad	10865884	65.00	2.55	70.08	60.00
MICP	Microlog Pad	11014296	8.00	1.00	70.37	60.00
IQF	IQ Flex tool	696	140.00	5.67	62.20	300.00
IDT	Insite Directional Tool	10967514	150.00	7.58	54.61	30.00
WSTT	WaveSonic Insite	10855601	520.00	34.07	20.54	30.00
OBCEN	Centralizer - 25 in. Overbody	001	8.00	2.08	23.52	300.00
OBCEN	Centralizer - 25 in. Overbody	002	8.00	2.08	50.88	300.00
ACRt	Array Compensated True Resistivity Instrument Section	1962	50.00	5.03	15.51	300.00
RSOF	Regal Standoff 6.75in	1	2.00	0.52	18.26	300.00
ACRt	Array Compensated True Resistivity Sonde Section	11005909	200.00	14.22	1.29	300.00
TMAX	Temperature Sub - 3_625 OD	696	15.00	0.96	0.33	300.00
BLNS	Bull Nose	001	5.00	0.33	0.00	300.00

**Total** **1,974.10** **103.65**

\* Not included in Total Length and Length Accumulation.

Data: MORROW\_LAND3007\0002 SP-GTET-DSN-SDL-FLEX-ICT-IDT-WSTT-ACRT-TEMP-DD\IDLE Date: 01-Dec-12 17:34:05

# HALLIBURTON

## CALIBRATION REPORT

### NATURAL GAMMA RAY TOOL SHOP CALIBRATION

<b>Tool Name:</b> GTET - 11039640	<b>Reference Calibration Date:</b> 25-Sep-12 15:48:12
<b>Engineer:</b> T. HYDE	<b>Calibration Date:</b> 02-Nov-12 10:48:45
<b>Software Version:</b> WL INSITE R3.6.0 (Build 3)	<b>Calibration Version:</b> 1

Calibrator Source S/N: TB146  
 Calibrator API Reference: 265.00 api  
 Equivalent Calibrator API Reference: 269.6 api

Measurement	Measured	Calibrated	Units
Background	63.1	62.7	api
Background + Calibrator	334.4	332.3	api
Calibrator	271.3	269.6	api

### NATURAL GAMMA RAY TOOL FIELD CALIBRATION

Tool Name: GTET - 11039640

Reference Calibration Date: 02-Nov-12 10:48:45

Engineer: T. HYDE

Calibration Date: 01-Dec-12 18:44:09

Software Version: WL INSITE R3.6.0 (Build 3)

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	62.7	75.9	api
Background + Calibrator	332.3	339.1	api
Calibrator	269.6	263.2	api

Shop	Field	Difference	Tolerance
269.6	263.2	6.4	+/- 9.00

### NATURAL GAMMA RAY TOOL POST CALIBRATION

Tool Name: GTET - 11039640

Reference Calibration Date: 01-Dec-12 18:44:09

Engineer: T. HYDE

Calibration Date: 02-Dec-12 02:46:11

Software Version: WL INSITE R3.6.0 (Build 3)

Calibration Version: 1

Calibrator Source S/N: TB146

Calibrator API Reference:265.00 api

Calibrator API Reference:269.6 api

Post Verification	Field	Post	Units
Background	75.9	40.9	api
Background + Calibrator	339.1	305.5	api
Calibrator	263.2	264.6	api

Shop	Field	Post	Difference	Tolerance
269.6	263.2	264.6	-1.4	+/- 9.00

### DUAL SPACED NEUTRON SHOP CALIBRATION

Tool Name: DSNT - 11055304

Reference Calibration Date: 03-Oct-12 09:49:05

Engineer: T. HYDE

Calibration Date: 02-Nov-12 10:41:48

Software Version: WL INSITE R3.6.0 (Build 3)

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: 68 degF

Min. Tool Housing Outside Diameter: 3.620 in

CALIBRATION CONSTANTS			
Measurement	Prev. Value	New Value	Control Limit On New Value
Gain:	0.992	0.989	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):	0.2116	0.2107	0.0009	+/- 0.0020
Calibrated Ratio:	9.75	9.72	0.032	+/- 0.050

VERIFIER

Measurement	Value	Control Limit
Snow-Block Porosity (decp):	0.0701	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>	<b>DSNT - 11055304</b>	<b>Reference Calibration Date:</b>	<b>02-Nov-12 10:41:48</b>
<b>Engineer:</b>	<b>T. HYDE</b>	<b>Calibration Date:</b>	<b>01-Dec-12 18:47:18</b>
<b>Software Version:</b>	<b>WL INSITE R3.6.0 (Build 3)</b>	<b>Calibration Version:</b>	<b>1</b>

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):	0.0701	0.0772	0.0071	+/- 0.0150

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

DUAL SPACED NEUTRON POST CALIBRATION			
<b>Tool Name:</b>	<b>DSNT - 11055304</b>	<b>Reference Calibration Date:</b>	<b>01-Dec-12 18:47:18</b>
<b>Engineer:</b>	<b>T. HYDE</b>	<b>Calibration Date:</b>	<b>02-Dec-12 02:48:50</b>
<b>Software Version:</b>	<b>WL INSITE R3.6.0 (Build 3)</b>	<b>Calibration Version:</b>	<b>1</b>

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

NEUTRON POST-CHECK SUMMARY				
	Field Value	Post Value	Difference	Control Limit On Change
Snow-Block Porosity (decp):	0.0772	0.0750	-0.0022	+/- 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>	<b>SDLT - 11014296</b>	<b>Reference Calibration Date:</b>	<b>03-Oct-12 13:32:52</b>
<b>Engineer:</b>	<b>T. HYDE</b>	<b>Calibration Date:</b>	<b>02-Nov-12 10:17:50</b>
<b>Software Version:</b>	<b>WL INSITE R3.6.0 (Build 3)</b>	<b>Calibration Version:</b>	<b>1</b>
<b>Host Tool Name:</b>	<b>DSNT - 11055304</b>		

CALIBRATION COEFFICIENTS			
Measurement	Previous Value	New Value	Control Limit On New Value
Pad Offset	-4436.57	-3840.06	-7000.00 - -1000.00
Pad Gain	0.0004115	0.0003836	0.000200 - 0.000600
Arm Offset	-2657.94	-2907.65	-5000.00 - 3000.00
Arm Gain	0.0005195	0.0004674	0.000300 - 0.000700

Arm Power -0.000004820 -0.000000836 -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)	1.90	2.00	0.10	+/- 0.20
Medium Ring (in)	3.78	3.75	-0.03	+/- 0.20
RING DIAMETER:				
Small Ring (in)	6.56	6.50	-0.06	+/- 0.20
Medium Ring (in)	8.41	8.25	-0.16	+/- 0.20
Large Ring (in)	14.95	15.00	0.05	+/- 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			
<b>Tool Name:</b>	<b>SDLT Pad - 10865884</b>	<b>Reference Calibration Date:</b>	<b>03-Oct-12 11:22:25</b>
<b>Engineer:</b>	<b>T. HYDE</b>	<b>Calibration Date:</b>	<b>02-Nov-12 09:31:35</b>
<b>Software Version:</b>	<b>WL INSITE R3.6.0 (Build 3)</b>	<b>Calibration Version:</b>	<b>1</b>

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	1.0410	1.0382	0.90 - 1.10
Near Dens Gain	1.0113	1.0184	0.90 - 1.10
Near Peak Gain	1.0095	1.0140	0.90 - 1.10
Near Lith Gain	0.9932	0.9939	0.90 - 1.10
Far Bar Gain	1.0156	1.0143	0.90 - 1.10
Far Dens Gain	1.0021	1.0013	0.90 - 1.10
Far Peak Gain	0.9957	0.9932	0.90 - 1.10
Far Lith Gain	0.9726	0.9741	0.90 - 1.10
<hr/>			
Near Bar Offset	-0.1824	-0.1554	NONE
Near Dens Offset	0.0560	-0.0056	NONE
Near Peak Offset	0.0479	0.0100	NONE
Near Lith Offset	0.1420	0.1364	NONE
Far Bar Offset	-0.0028	0.0088	NONE
Far Dens Offset	0.0935	0.0972	NONE
Far Peak Offset	0.1237	0.1436	NONE
Far Lith Offset	0.2707	0.2546	NONE
<hr/>			
Near Bar Background	839.77	840.78	700 - 1450
Near Dens Background	277.12	276.69	230 - 480
Near Peak Background	121.11	121.05	100 - 210
Near Lith Background	148.58	148.21	125 - 260
Far Bar Background	519.76	518.34	450 - 900
Far Dens Background	203.54	202.25	175 - 345

Far Peak Background	79.88	79.38	70 - 140
Far Lith Background	82.71	83.90	75 - 145

CALIBRATION BLOCK SUMMARY				
Measurement	Current Reading (Previous Coef)	Calibrated (New Coef)	Change	Control Limit On Change
MAGNESIUM				
Density (g/cc)	1.682	1.684	0.002	+/- 0.015
Pe	2.555	2.555	0.000	+/- 0.150
ALUMINUM				
Density (g/cc)	2.598	2.598	-0.000	+/- 0.01500
Pe	3.113	3.124	0.011	+/- 0.150

TOOL SUMMARY				
Measurement	Near Detector		Far Detector	
	Value	Control Limits	Value	Control Limits
QUALITY				
Background	-0.0004	+/- 0.0110	0.0007	+/- 0.0140
Magnesium Block	0.0009	+/- 0.0110	0.0007	+/- 0.0140
Aluminum Block	-0.0003	+/- 0.0110	-0.0009	+/- 0.0140
Resolution	9.17	6.00 - 11.50	8.94	6.00 - 11.50
Internal Verifier(B+D+P+L)	1387	1200 - 2700	884	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> SDLT Pad - 10865884	<b>Reference Calibration Date:</b> 02-Nov-12 09:31:35
<b>Engineer:</b> T. HYDE	<b>Calibration Date:</b> 01-Dec-12 18:43:06
<b>Software Version:</b> WL INSITE R3.6.0 (Build 3)	<b>Calibration Version:</b> 1

Pad Temperature: 61.1 degF

DENSITY FIELD CALIBRATION SUMMARY				
Measurement	Shop	Field	Change	Control Limit +/-
Near (B+D+P+L) cps	1386.731	1384.462	-2.269	15.044
Far (B+D+P+L) cps	883.870	888.259	4.389	16.212
Near Resolution	9.17	9.44	0.270	0.50
Far Resolution	8.94	9.80	0.860	1.00

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

**SPECTRAL DENSITY POST CHECK**

Tool Name: SDLT Pad - 10865884

Reference Calibration Date: 01-Dec-12 18:43:06

Engineer: T. HYDE

Calibration Date: 02-Dec-12 02:45:47

Software Version: WL INSITE R3.6.0 (Build 3)

Calibration Version: 1

Pad Temperature: 50.5 degF

**DENSITY POST CALIBRATION SUMMARY**

Measurement	Field	Post	Change	Control Limit +/-
Near (B+D+P+L) cps	1384.462	1380.954	-3.508	15.044
Far (B+D+P+L) cps	888.259	883.562	-4.697	16.212
Near Resolution	9.44	9.33	-0.110	0.50
Far Resolution	9.80	9.27	-0.530	1.00

**PASS/FAIL SUMMARY**

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

**SDLT CALIPER FIELD CALIBRATION**

Tool Name: SDLT - 11014296

Reference Calibration Date: 02-Nov-12 10:17:50

Engineer: T. HYDE

Calibration Date: 01-Dec-12 18:50:47

Software Version: WL INSITE R3.6.0 (Build 3)

Calibration Version: 1

**MEASURED CALIPER VALUES**

Measurement	Shop	Field	Change	Control Limit On New Value
Pad Extension	3.75	3.84	0.09	+/- 0.10
Ring Diameter	8.25	8.35	0.10	+/- 0.15

**PASS/FAIL SUMMARY**

Pad Extension Check:	Passed
Diameter Check:	Passed

**SDLT CALIPER POST CALIBRATION**

Tool Name: SDLT - 11014296

Reference Calibration Date: 01-Dec-12 18:50:47

Engineer: T. HYDE

Calibration Date: 02-Dec-12 02:52:03

Software Version: WL INSITE R3.6.0 (Build 3)

Calibration Version: 1

**MEASURED CALIPER VALUES**

Measurement	Field	Post	Change	Control Limit On New Value
Pad Extension	3.84	3.85	0.01	+/- 0.10
Ring Diameter	8.35	8.32	-0.02	+/- 0.15

**PASS/FAIL SUMMARY**

Pad Extension Check:	Passed
Diameter Check:	Passed

**ARRAY COMPENSATED TRUE RESISTIVITY SHOP CALIBRATION**

Tool Name: ACRt Sonde - 11005909

Reference Calibration Date: 15-Oct-12 16:05:46

Engineer: T. HYDE

Calibration Date: 21-Nov-12 11:44:43

Software Version: WL INSITE R3.6.0 (Build 3)

Calibration Version: 1

Host Tool Name: ACRt Instrument - I962

**TYPICAL GAIN RANGE**

Subarray	R12KH-	R26KH-	R72KH-

Subarray	R12KHZ			R36KHZ			R72KHZ		
	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper
A1 (80")	0.95	1.01	1.05	0.95	1.02	1.05	0.95	1.01	1.05
A2 (50")	0.95	1.01	1.05	0.95	1.02	1.05	0.95	1.01	1.05
A3 (29")	0.95	1.00	1.05	0.95	1.01	1.05	0.95	1.00	1.05
A4 (17")	0.95	1.01	1.05	0.95	1.01	1.05	0.95	1.01	1.05
A5 (10")	N/A	N/A	N/A	0.95	1.00	1.05	0.95	0.99	1.05
A6 (6")	N/A	N/A	N/A	0.95	0.98	1.05	0.95	0.98	1.05

**TYPICAL SONDE OFFSET RANGE**

Subarray	R12KHz			R36KHz			R72KHz		
	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper
A1 (80")	-5	-0.62	2	-6	-3.45	-2	-8	-5.08	-2
A2 (50")	-7	-2.12	0	-7	-3.55	0	-7	-4.51	0
A3 (29")	-27	-14.89	-9	-9	-4.72	-3	-7	-2.70	-1
A4 (17")	-180	-101.63	-60	-45	-31.15	-15	-39	-26.11	-13
A5 (10")	N/A	N/A	N/A	-150	-98.74	-50	-80	-44.76	-10
A6 (6")	N/A	N/A	N/A	175	285.15	525	90	150.68	270

**TRANSMITTER CURRENT GAIN**

Signal	Lower	R	Upper
12K	0.6	0.90	1.3
36K	1.0	1.35	2.0
72K	1.0	1.58	2.0

**R-MUD VERIFICATION**

Signal	Lower (ohm-m)	Measured (ohm-m)	Upper (ohm-m)
Mud Cell	0.95	1.00	1.05

**PASS/FAIL SUMMARY**

GAIN RANGE CHK	PASS
SONDE OFFSET RANGE CHK	PASS
Tx CURRENT GAIN	PASS
Rmud VERIFICATION	PASS

TOOL OK TO LOG

**CALIBRATION SUMMARY**

Sensor	Shop	Field	Post	Difference	Tolerance	Units
<b>GTET-11039640</b>						
Gamma Ray Calibrator	269.6	263.2	264.6	-1.4	+/- 9.00	api
<b>DSNT-11055304</b>						
Snow-Block Porosity	0.0701	0.0772	0.0750	0.0022	+/- 0.0150	decp
<b>SDLT-11014296</b>						
Pad Extension	3.75	3.84	3.85	-0.01	+/-0.10	in
Ring Diameter	8.25	8.35	8.32	0.03	+/-0.15	in
<b>SDLT Pad-10865884</b>						
Near(B+D+P+L)	1386.731	1384.462	1380.954	3.508	+/-15.044	cps
Far(B+D+P+L)	883.870	888.259	883.562	4.697	+/-16.212	cps
<b>ACRt Sonde-11005909</b>						
Mud Cell	1.00	-----	-----	0.00	-----	ohm-m

Data: MORROW\_LAND3007\0002 SP-GTET-DSN-SDL-FLEX-ICT-IDT-WSTT-ACRT-TEMP-DD\IDLE

Date: 02-Dec-12 02:53:12

# 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	9.100	ppg
	SHARED	WAGT	Weighting Agent	Natural	
	SHARED	BSAL	Borehole salinity	0.00	ppm
	SHARED	FSAL	Formation Salinity NaCl	0.00	ppm
	SHARED	KPCT	Percent K in Mud by Weight?	0.00	%
	SHARED	RMUD	Mud Resistivity	0.700	ohmm
	SHARED	TRM	Temperature of Mud	75.0	degF
	SHARED	CSD	Logging Interval is Cased?	No	
	SHARED	ICOD	AHV Casing OD	7.000	in
	SHARED	ST	Surface Temperature	75.0	degF
	SHARED	TD	Total Well Depth	4800.00	ft
	SHARED	BHT	Bottom Hole Temperature	200.0	degF
	SHARED	SVTM	Navigation and Survey Master Tool	IDT	
	SHARED	AZTM	High Res Z Accelerometer Master Tool	IDT	
	SHARED	TEMM	Temperature Master Tool	NONE	
	SHARED	BHSM	Borehole Size Master Tool	NONE	
	Rwa / CrossPlot	XPOK	Process Crossplot?	Yes	
	Rwa / CrossPlot	FCHO	Select Source of F	Automatic	
	Rwa / CrossPlot	AFAC	Archie A factor	0.6200	
	Rwa / CrossPlot	MFAC	Archie M factor	2.1500	
	Rwa / CrossPlot	RMFR	Rmf Reference	0.10	ohmm
	Rwa / CrossPlot	TMFR	Rmf Ref Temp	75.00	degF
	Rwa / CrossPlot	RWA	Resistivity of Formation Water	0.05	ohmm
	Rwa / CrossPlot	ADP	Use Air Porosity to calculate CrossplotPhi	No	
	GTET	GROK	Process Gamma Ray?	Yes	
	GTET	GRSO	Gamma Tool Standoff	0.000	in
	GTET	GEOK	Process Gamma Ray EVR?	No	
	GTET	TPOS	Tool Position for Gamma Ray Tools.	Eccentered	
	DSNT	DNOK	Process DSN?	Yes	
	DSNT	DEOK	Process DSN EVR?	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	
	Microlog Pad	MLOK	Process MicroLog 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	
	SDI T 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
IDT	WRTI	Survey Writing Interval	30	ft
IDT	SOPT	Smoothing Option	None	
Wavesonic-I	WSOK	Process WSTT?	Yes	
Wavesonic-I	AFIL	Adaptive Filtering?	No	
Wavesonic-I	PINT	Process 1 Sample and Skip	0	
Wavesonic-I	PROM	Process Mode: M=1,MX=2,MY=3,MXY=4	4	
Wavesonic-I	DTSH	Delta -T Shale	100.00	uspf
Wavesonic-I	DTMT	Delta -T Matrix Type	User define	
Wavesonic-I	DTMA	Delta -T Matrix	47.60	uspf
Wavesonic-I	DTFL	Delta -T Fluid	189.00	uspf
Wavesonic-I	RHOM	Matrix Density	2.7100	g/cc
Wavesonic-I	RHOF	Fluid Density	1.0000	g/cc
Wavesonic-I	SMTH	Semblance Threshold	0.25	
Wavesonic-I	VPVS	VPVS Ratio for Porosity	1.40	
Wavesonic-I	APEQ	Acoustic Porosity Equation	Wylie	
Wavesonic-I	NAVS	Navigation Source Tool	IDT	
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: MORROW\_LAND3007\0002 SP-GTET-DSN-SDL-FLEX-ICT-IDT-WSTT-ACRT-TEMP-DD\IDLE

Date: 01-Dec-12 19:28:40

**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	98.85	NO	
SP	Spontaneous Potential	98.85	BLK	1.250
SPR	Raw Spontaneous Potential	98.85	NO	
SPO	Spontaneous Potential Offset	98.85	NO	
<b>GTET</b>				
TPUL	Tension Pull	90.82	NO	
GR	Natural Gamma Ray API	90.82	TRI	1.750
GRU	Unfiltered Natural Gamma Ray API	90.82	NO	
EGR	Natural Gamma Ray API with Enhanced Vertical Resolution	90.82	W	1.416 , 0.750
ACCZ	Accelerometer Z	0.00	BLK	0.083

DEVI	Inclination	0.00	NO	
<b>DSNT</b>				
TPUL	Tension Pull	80.58	NO	
RNDS	Near Detector Telemetry Counts	80.68	BLK	1.417
RFDS	Far Detector Telemetry Counts	81.43	TRI	0.583
DNTT	DSN Tool Temperature	80.68	NO	
DSNS	DSN Tool Status	80.58	NO	
ERND	Near Detector Telemetry Counts EVR	80.68	BLK	0.000
ERFD	Far Detector Telemetry Counts EVR	81.43	BLK	0.000
ENTM	DSN Tool Temperature EVR	80.68	NO	
<b>SDLT</b>				
TPUL	Tension Pull	70.68	NO	
PCAL	Pad Caliper	70.68	TRI	0.250
ACAL	Arm Caliper	70.68	TRI	0.250
<b>IDT</b>				
TPUL	Tension Pull	55.61	NO	
ACCX	Accelerometer X	55.61	NO	
ACCY	Accelerometer Y	55.61	NO	
ACCZ	Accelerometer Z	55.61	NO	
MAGX	magnetometer x with unit	55.61	NO	
MAGY	Magnetometer Y with unit	55.61	NO	
MAGZ	magnetometer z with unit	55.61	NO	
IAMP	Accelerometer Temperature	55.61	NO	
MTMP	Magnetometer Temperature	55.61	NO	
<b>Wavesonic-I</b>				
TPUL	Tension Pull	32.04	NO	
DPSX	Dipole Source X StructureI	20.54	NO	
DPSY	Dipole Source Y StructureI	20.54	NO	
DPSM	Monopole Source Structure	20.54	NO	
WVST	Wavesonic Compressed Data	32.04	NO	
TPUL	Tension Pull	32.04	NO	
XMS1	Wave Sonic Status Word 1	20.54	NO	
XMS2	Wave Sonic Status Word 2	20.54	NO	
XMS1	Wave Sonic XMITStatus Word 1	20.54	NO	
XMS1	Wave Sonic XMITStatus Word 2	20.54	NO	
F1HA	Dipole 1 HV After	20.54	NO	
F1HB	Dipole 1 HV Before	20.54	NO	
F2HA	Dipole 2 HV After	20.54	NO	
F2HB	Dipole 2 HV Before	20.54	NO	
F3HA	Monopole HV After	20.54	NO	
F3HB	Monopole HV Before	20.54	NO	
INVT	Input Voltage	20.54	NO	
5VOL	5 Volts	20.54	NO	
MI5A	Minus 5 Volts Analog	20.54	NO	
ITMP	Instrument Temperature	20.54	NO	
PL5A	Plus 5 Volts Analog	20.54	NO	
5VD	Plus 5 Volts Digital	20.54	NO	
TCUR	Tool Current	20.54	NO	
SUPV	Supply Voltage	20.54	NO	
PRVT	Preregulated voltage	20.54	NO	
PRVT	Pre-regulated voltage Xmter	20.54	NO	
TEMP	Temperature	20.54	NO	
ACCX	Accelerometer X	20.54	NO	
ACCY	Accelerometer Y	20.54	NO	
ACCZ	Accelerometer Z	20.54	NO	
MAGX	magnetometer x with unit	20.54	NO	
MAGY	Magnetometer Y with unit	20.54	NO	
MAGZ	magnetometer z with unit	20.54	NO	
IAMP	Accelerometer Temperature	20.54	NO	
MTMP	Magnetometer Temperature	20.54	NO	

ACQN	Acquisition Number	20.54	NO
XDP	Delay Reference	32.04	NO
MITM	MIT Mode	32.04	NO
VERS	Version	20.54	NO
D1CT	Dipole 1 Compressed Word Count	32.04	NO
D2CT	Dipole 2 Compressed Word Count	32.04	NO
MCNT	Monopole Compressed Word Count	32.04	NO
SEQN	Sequence Number	20.54	NO
FREV	Firmware Revision	20.54	NO
MSMP	Monopole Sample Rate	20.54	NO
MSMP	Dipole Sample Rate	20.54	NO
MFWF	Monopole Firing Waveform	20.54	NO
MFRQ	Monopole Frequency	20.54	NO
MDLY	Monopole Delay	20.54	NO
DXWF	Dipole X Firing Waveform	20.54	NO
XFRQ	Dipole X Frequency	20.54	NO
XDLY	Dipole X Delay	20.54	NO
DYWF	Dipole Y Firing Waveform	20.54	NO
YFRQ	Dipole Y Frequency	20.54	NO
YDLY	Dipole Y Delay	20.54	NO
DPSX	Dipole Source X Structurel	20.54	NO
DPSY	Dipole Source Y Structurel	20.54	NO
DPSM	Monopole Source Structure	20.54	NO
WVST	Wavesonic Compressed Data	32.04	NO
AUTM	Auto Mode	20.54	NO
SONM	tool mode for sonic - 0 for normal or 3 for calibration	20.54	NO
MSL	Monopole Lower Travel Time	32.04	NO
MSH	Monopole Upper Travel Time	32.04	NO
MLFC	Monopole-1 Lower Filter Bandpass Frequency Cut-off	20.54	NO
MUFC	Monopole-1 Upper Filter Bandpass Frequency Cut-off	20.54	NO
DLTT	Dipole Lower Travel Time	20.54	NO
DUTT	Dipole Upper Travel Time	20.54	NO
DLFC	Dipole Lower Filter Bandpass Frequency Cut-off	20.54	NO
DUFC	Dipole Upper Filter Bandpass Frequency Cut-off	20.54	NO
MUTE	WaveSonic Mute/Enable Channels and Sides map	20.54	NO
MUTS	Mute/Enable Sides	20.54	NO
WSRB	Relative Bearing	32.04	NO
WSAZ	WSX Azimuth Pad 1	32.04	NO
TPUL	Tension Pull	32.04	NO
WMP	Summed array of Monopole for SIDES - A,B,C,D	32.04	NO
WXX	Dipole X for SIDES - A-C	32.04	NO
WYY	Dipole Y for SIDES - B-D	32.04	NO
WXY	Dipole X for SIDES - B-D	32.04	NO
WYX	Dipole Y for SIDES - A-C	32.04	NO
TPUL	Tension Pull	32.04	NO
WMA	Monopole Waveform Side A - Channel 1 to Channel 8 Receivers	32.04	NO
WMB	Monopole Waveform Side B - Channel 1 to Channel 8 Receivers	32.04	NO
WMC	Monopole Waveform Side C - Channel 1 to Channel 8 Receivers	32.04	NO
WMD	Monopole Waveform Side D - Channel 1 to Channel 8 Receivers	32.04	NO
WXA	Dipole X Waveform Side A - Channel 1 to Channel 8 Receivers	32.04	NO
WXB	Dipole X Waveform Side B - Channel 1 to Channel 8 Receivers	32.04	NO
WXC	Dipole X Waveform Side C - Channel 1 to Channel 8 Receivers	32.04	NO
	Dipole X Waveform Side D - Channel 1 to Channel 8 Receivers		

WXD	Dipole X Waveform Side D - Channel 1 to Channel 8 Receivers	32.04	NO	
WYA	Dipole Y Waveform Side A - Channel 1 to Channel 8 Receivers	32.04	NO	
WYB	Dipole Y Waveform Side B - Channel 1 to Channel 8 Receivers	32.04	NO	
WYC	Dipole Y Waveform Side C - Channel 1 to Channel 8 Receivers	32.04	NO	
WYD	Dipole Y Waveform Side D - Channel 1 to Channel 8 Receivers	32.04	NO	
GAR1	Gain Side A Receiver 1	20.54	NO	
GAR2	Gain Side A Receiver 2	20.54	NO	
GAR3	Gain Side A Receiver 3	20.54	NO	
GAR4	Gain Side A Receiver 4	20.54	NO	
GAR5	Gain Side A Receiver 5	20.54	NO	
GAR6	Gain Side A Receiver 6	20.54	NO	
GAR7	Gain Side A Receiver 7	20.54	NO	
GAR8	Gain Side A Receiver 8	20.54	NO	
GBR1	Gain Side B Receiver 1	20.54	NO	
GBR2	Gain Side B Receiver 2	20.54	NO	
GBR3	Gain Side B Receiver 3	20.54	NO	
GBR4	Gain Side B Receiver 4	20.54	NO	
GBR5	Gain Side B Receiver 5	20.54	NO	
GBR6	Gain Side B Receiver 6	20.54	NO	
GBR7	Gain Side B Receiver 7	20.54	NO	
GBR8	Gain Side B Receiver 8	20.54	NO	
GCR1	Gain Side C Receiver 1	20.54	NO	
GCR2	Gain Side C Receiver 2	20.54	NO	
GCR3	Gain Side C Receiver 3	20.54	NO	
GCR4	Gain Side C Receiver 4	20.54	NO	
GCR5	Gain Side C Receiver 5	20.54	NO	
GCR6	Gain Side C Receiver 6	20.54	NO	
GCR7	Gain Side C Receiver 7	20.54	NO	
GCR8	Gain Side C Receiver 8	20.54	NO	
GDR1	Gain Side D Receiver 1	20.54	NO	
GDR2	Gain Side D Receiver 2	20.54	NO	
GDR3	Gain Side D Receiver 3	20.54	NO	
GDR4	Gain Side D Receiver 4	20.54	NO	
GDR5	Gain Side D Receiver 5	20.54	NO	
GDR6	Gain Side D Receiver 6	20.54	NO	
GDR7	Gain Side D Receiver 7	20.54	NO	
GDR8	Gain Side D Receiver 8	20.54	NO	
<b>ACRt Sonde</b>				
TPUL	Tension Pull	3.69	NO	
F1R1	ACRT 12KHz - 80in R value	9.94	BLK	0.000
F1X1	ACRT 12KHz - 80in X value	9.94	BLK	0.000
F1R2	ACRT 12KHz - 50in R value	7.44	BLK	0.000
F1X2	ACRT 12KHz - 50in X value	7.44	BLK	0.000
F1R3	ACRT 12KHz - 29in R value	5.94	BLK	0.000
F1X3	ACRT 12KHz - 29in X value	5.94	BLK	0.000
F1R4	ACRT 12KHz - 17in R value	4.94	BLK	0.000
F1X4	ACRT 12KHz - 17in X value	4.94	BLK	0.000
F1R5	ACRT 12KHz - 10in R value	4.44	BLK	0.000
F1X5	ACRT 12KHz - 10in X value	4.44	BLK	0.000
F1R6	ACRT 12KHz - 6in R value	4.19	BLK	0.000
F1X6	ACRT 12KHz - 6in X value	4.19	BLK	0.000
F2R1	ACRT 36KHz - 80in R value	9.94	BLK	0.000
F2X1	ACRT 36KHz - 80in X value	9.94	BLK	0.000

F2X1	ACRT 36KHz - 80in X value	9.94	BLK	0.000
F2R2	ACRT 36KHz - 50in R value	7.44	BLK	0.000
F2X2	ACRT 36KHz - 50in X value	7.44	BLK	0.000
F2R3	ACRT 36KHz - 29in R value	5.94	BLK	0.000
F2X3	ACRT 36KHz - 29in X value	5.94	BLK	0.000
F2R4	ACRT 36KHz - 17in R value	4.94	BLK	0.000
F2X4	ACRT 36KHz - 17in X value	4.94	BLK	0.000
F2R5	ACRT 36KHz - 10in R value	4.44	BLK	0.000
F2X5	ACRT 36KHz - 10in X value	4.44	BLK	0.000
F2R6	ACRT 36KHz - 6in R value	4.19	BLK	0.000
F2X6	ACRT 36KHz - 6in X value	4.19	BLK	0.000
F3R1	ACRT 72KHz - 80in R value	9.94	BLK	0.000
F3X1	ACRT 72KHz - 80in X value	9.94	BLK	0.000
F3R2	ACRT 72KHz - 50in R value	7.44	BLK	0.000
F3X2	ACRT 72KHz - 50in X value	7.44	BLK	0.000
F3R3	ACRT 72KHz - 29in R value	5.94	BLK	0.000
F3X3	ACRT 72KHz - 29in X value	5.94	BLK	0.000
F3R4	ACRT 72KHz - 17in R value	4.94	BLK	0.000
F3X4	ACRT 72KHz - 17in X value	4.94	BLK	0.000
F3R5	ACRT 72KHz - 10in R value	4.44	BLK	0.000
F3X5	ACRT 72KHz - 10in X value	4.44	BLK	0.000
F3R6	ACRT 72KHz - 6in R value	4.19	BLK	0.000
F3X6	ACRT 72KHz - 6in X value	4.19	BLK	0.000
RMUD	Mud Resistivity	13.48	BLK	0.000
F1RT	Transmitter Reference 12 KHz Real Signal	3.69	BLK	0.000
F1XT	Transmitter Reference 12 KHz Imaginary Signal	3.69	BLK	0.000
F2RT	Transmitter Reference 36 KHz Real Signal	3.69	BLK	0.000
F2XT	Transmitter Reference 36 KHz Imaginary Signal	3.69	BLK	0.000
F3RT	Transmitter Reference 72 KHz Real Signal	3.69	BLK	0.000
F3XT	Transmitter Reference 72 KHz Imaginary Signal	3.69	BLK	0.000
TFPU	Upper Feedpipe Temperature Calculated	3.69	BLK	0.000
TFPL	Lower Feedpipe Temperature Calculated	3.69	BLK	0.000
ITMP	Instrument Temperature	3.69	BLK	0.000
TCVA	Temperature Correction Values Loop Off	3.69	NO	
TIDV	Instrument Temperature Derivative	3.69	NO	
TUDV	Upper Temperature Derivative	3.69	NO	
TLDV	Lower Temperature Derivative	3.69	NO	
TRBD	Receiver Board Temperature	3.69	NO	
<b>Microlog Pad</b>				
TPUL	Tension Pull	70.87	NO	
MINV	Microlog Lateral	70.87	BLK	0.750
MNOR	Microlog Normal	70.87	BLK	0.750
<b>SDLT Pad</b>				
TPUL	Tension Pull	70.67	NO	
NAB	Near Above	70.50	BLK	0.920
NHI	Near Cesium High	70.50	BLK	0.920
NLO	Near Cesium Low	70.50	BLK	0.920
NVA	Near Valley	70.50	BLK	0.920
NBA	Near Barite	70.50	BLK	0.920
NDE	Near Density	70.50	BLK	0.920
NPK	Near Peak	70.50	BLK	0.920
NLI	Near Lithology	70.50	BLK	0.920
NBAU	Near Barite Unfiltered	70.50	BLK	0.250
NLIU	Near Lithology Unfiltered	70.50	BLK	0.250
NAB	Near Above	70.87	BLK	0.950

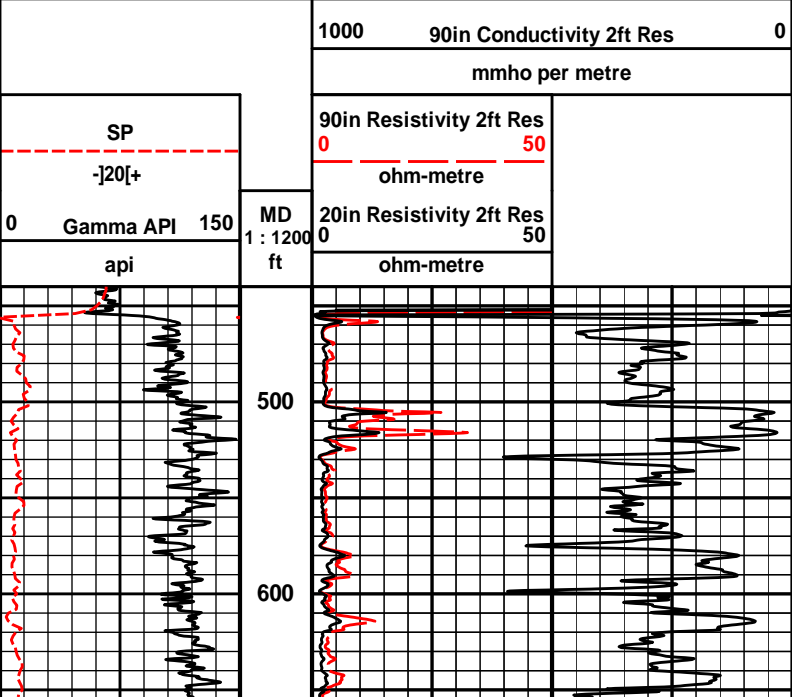
FAB	Far Above	70.85	BLK	0.250
FHI	Far Cesium High	70.85	BLK	0.250
FLO	Far Cesium Low	70.85	BLK	0.250
FVA	Far Valley	70.85	BLK	0.250
FBA	Far Barite	70.85	BLK	0.250
FDE	Far Density	70.85	BLK	0.250
FPK	Far Peak	70.85	BLK	0.250
FLI	Far Lithology	70.85	BLK	0.250
PTMP	Pad Temperature	70.68	BLK	0.920
NHV	Near Detector High Voltage	70.08	NO	
FHV	Far Detector High Voltage	70.08	NO	
ITMP	Instrument Temperature	70.08	NO	
DDHV	Detector High Voltage	70.08	NO	

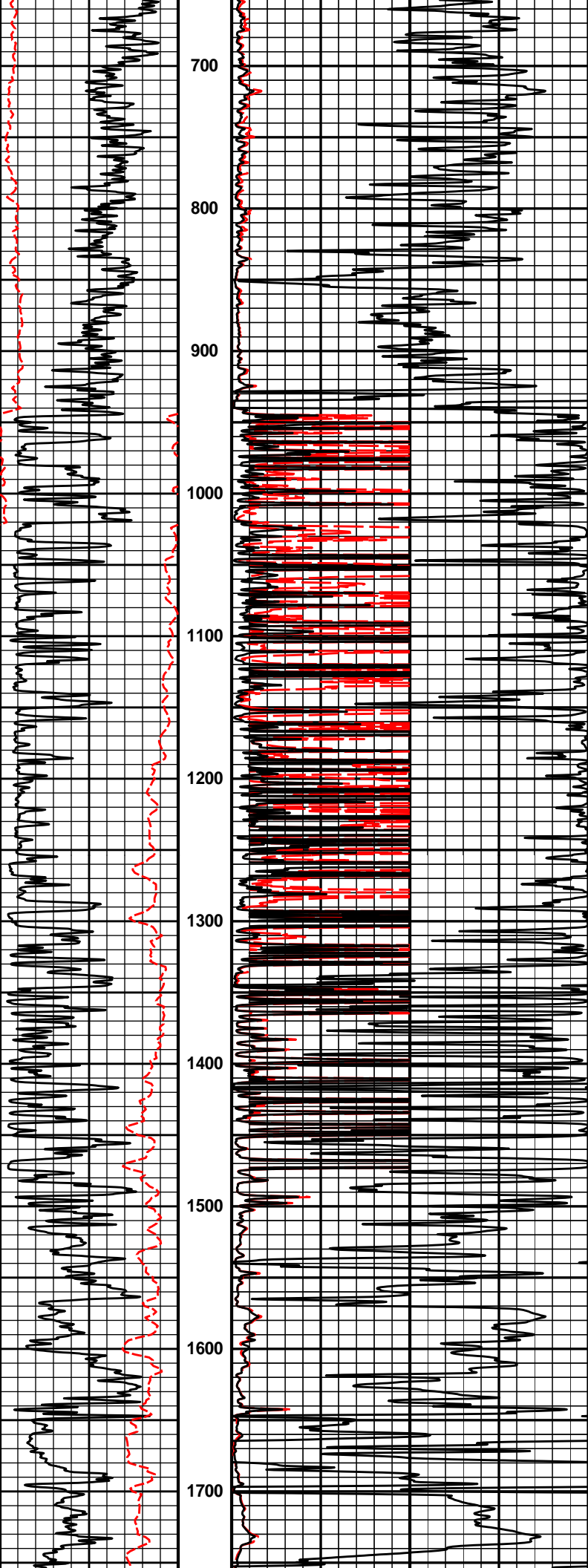
Data: MORROW\_LAND3007\0002 SP-GTET-DSN-SDL-FLEX-ICT-IDT-WSTT-ACRT-TEMP-DD\DLLE Date: 01-Dec-12 19:28:51

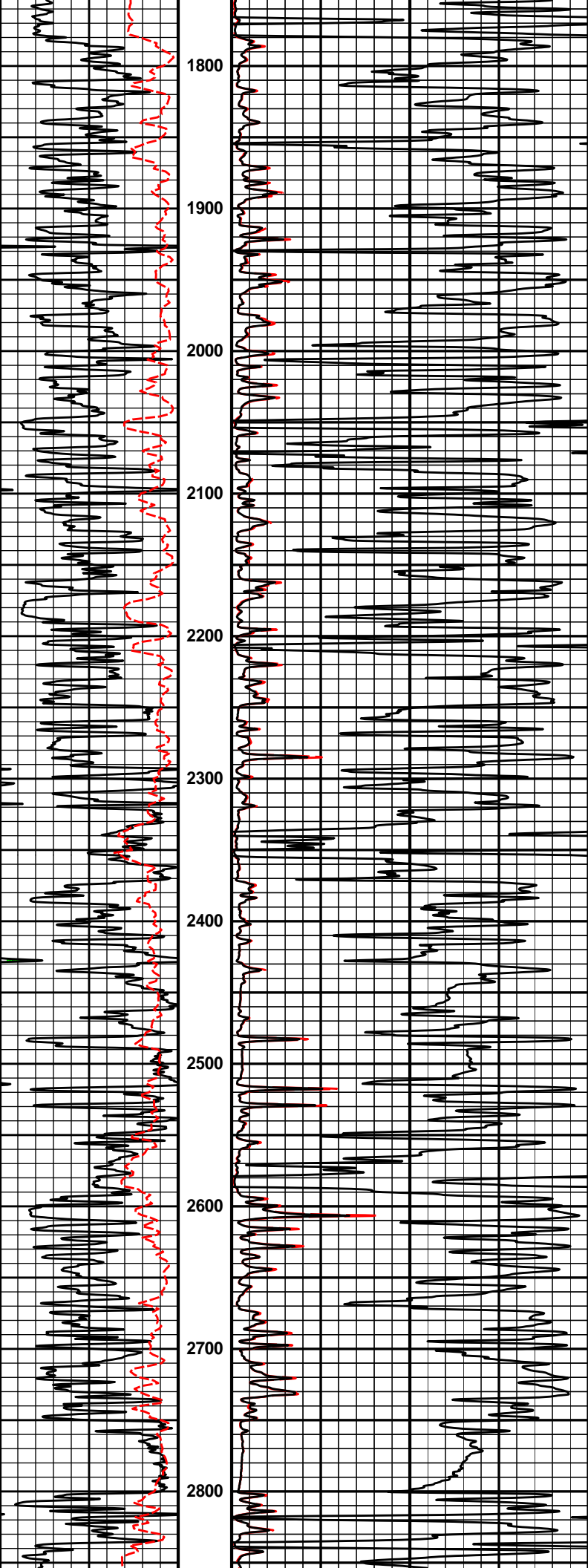
COMPANY	SHELL E & P		
WELL	MORROW LAND 3007 28-1		
FIELD	WILDCAT		
COUNTY	KINGMAN	STATE	KANSAS
<b>HALLIBURTON</b>		TRIPLE COMBE LOG	

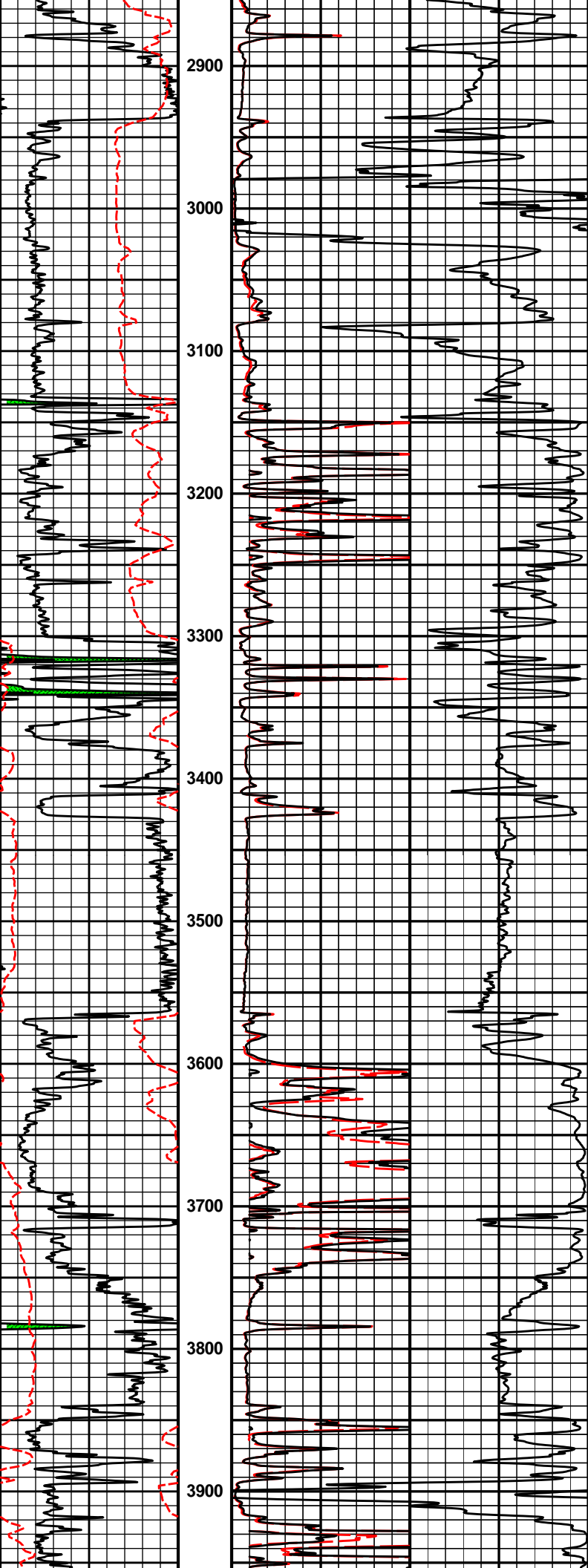
**HALLIBURTON**  
 Plot Time: 02-Dec-12 02:59:03  
 Plot Range: 440 ft to 4786.5 ft  
 Data: MORROW\_LAND3007Well Based\DAQ-0002-006\  
 Plot File: \\-LOCAL-MORROW\_LAND3007...\ACRT\_1\_lib

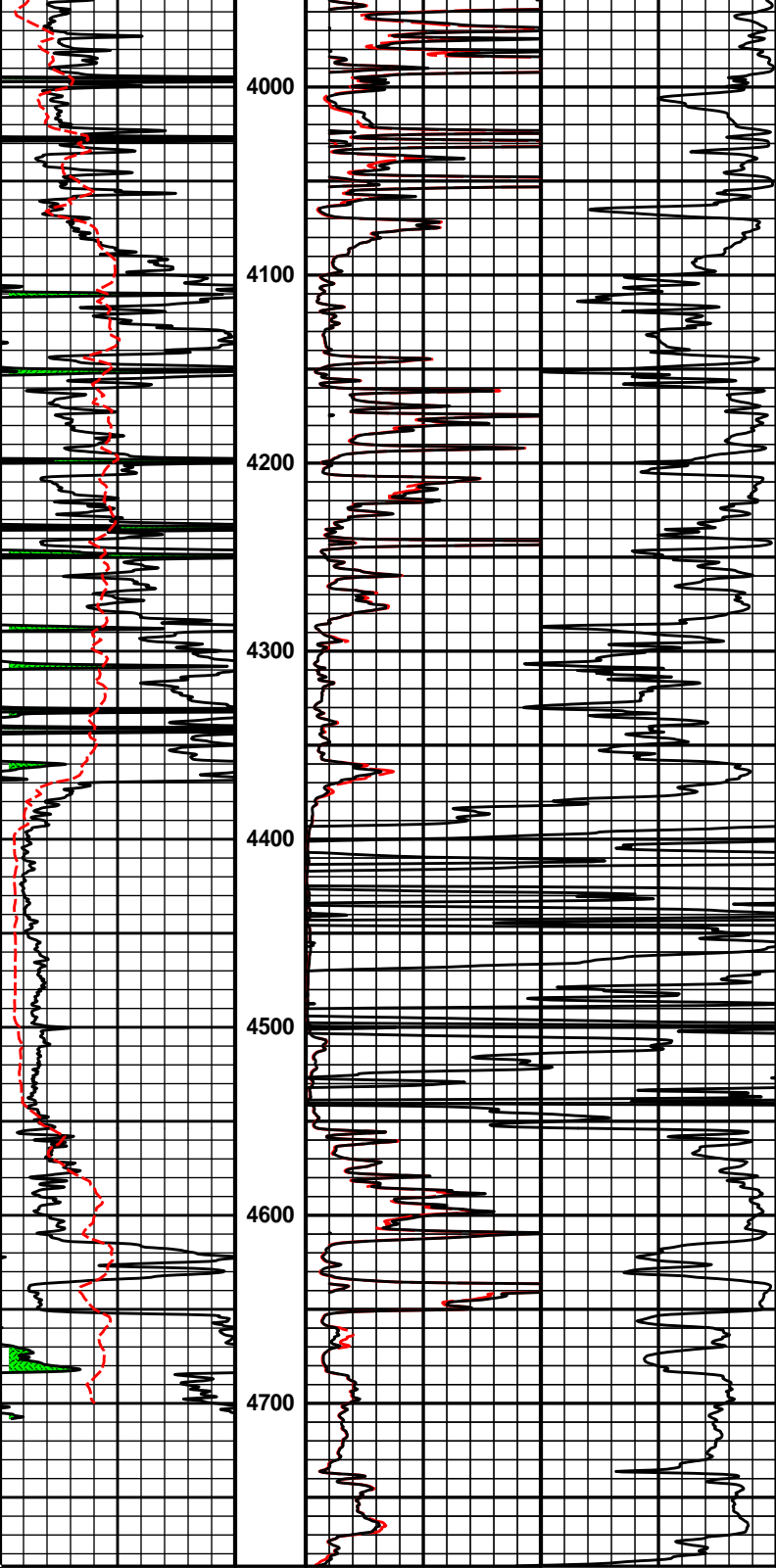
## 1 INCH MAIN LOG











0	Gamma API	150	MD	20in Resistivity 2ft Res	
	api		1 : 1200	0	50
			ft	ohm-metre	
	SP			90in Resistivity 2ft Res	
	-]20[+			0	50
				ohm-metre	
				1000	90in Conductivity 2ft Res
					0
					mmho per metre

**HALLIBURTON**

Plot Time: 02-Dec-12 02:59:14  
 Plot Range: 440 ft to 4786.5 ft  
 Data: MORROW\_LAND3007Well Based\DAQ-0002-006\  
 Plot File: \\-LOCAL-MORROW\_LAND3007...ACRT\_1\_lib

**1 INCH MAIN LOG**

