HALLIBURTON

DUAL SPACED NEUTRON SPECTRAL DENSITY LOG

COMPANY OXY USA
WELL GRIFFIN D-1
FIELD/BLOCK HUGOTON GAS AREA
COUNTY HASKELL
STATE KANSAS

COMPANY **OXY USA**
WELL **GRIFFIN D-1**
FIELD/BLOCK **HUGOTON GAS AREA**
COUNTY **HASKELL** STATE **KANSAS**

API No. 15081220210000
Location NE-NW-SW-NW
1465' FNL 338' FWL
LATITUDE: 37.630904° N LONGITUDE: 100.905798° W
Sect. 11 Twp. 28S Rge. 33W

Other Services:
ACRT
BSAT
MICRO

Permanent Datum	GL	Elev. 2981.8 ft	Elev.: K.B. 2995.8 ft
Log measured from	KB	, 14.0 ft above perm. Datum	D.F. 2995.8 ft
Drilling measured from	KB		G.L. 2981.8 ft

Date		11-Jun-13					
Run No.		ONE					
Depth - Driller		5825.00 ft					
Depth - Logger		5829.0 ft					
Bottom - Logged Interval		5785.0 ft					
Top - Logged Interval		4100.0 ft					
Casing - Driller		8.625 in	@ 1811.0 ft	@		@	
Casing - Logger		1810.0 ft					
Bit Size		7.875 in		@		@	
Type Fluid in Hole		WATER BASED MUD					
Density	Viscosity	9.2 ppg	44.00 s/qt				
PH	Fluid Loss	9.60 pH	7.6 cptm				
Source of Sample		FLOWLINE					
Rm @ Meas. Temperature		1.050 ohmm	@ 75.00 degF	@		@	
Rmf @ Meas. Temperature		0.88 ohmm	@ 75.00 degF	@		@	
Rmc @ Meas. Temperature		1.250 ohmm	@ 75.00 degF	@		@	
Source Rmf	Rmc	MEASURED	MEASURED				
Rm @ BHT		0.61 ohmm	@ 135.0 degF	@		@	
Time Since Circulation		8.0 hr					
Time on Bottom		11-Jun-13 22:11					
Max. Rec. Temperature		135.0 degF	@ 5829.0 ft	@		@	
Equipment	Location	10546696	LIBERAL				
Recorded By		THOMAS HYDE					
Witnessed By		A. HOWSON					

Fold here

Service Ticket No.: 900495198 API Serial No.: 15081220210000 PGM Version: WL INSITE R3.8.4 (Build 5)

CHANGE IN MUD TYPE OR ADDITIONAL SAMPLE

	Sample No.				
Date					
Depth-Driller					
Type Fluid in Hole					
Density	Viscosity				
Ph	Fluid Loss				
Source of Sample					
Rm @ Meas. Temp		@	@	@	@
Rmf @ Meas. Temp.		@	@	@	@
Rmc @ Meas. Temp.		@	@	@	@
Source Rmf	Rmc				
Rm @ BHT		@	@	@	@
Rmf @ BHT		@	@	@	@
Rmc @ BHT		@	@	@	@

RESISTIVITY 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.	11048627	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	Depth		Speed	Scale		Scale		Matrix	Scale		Matrix	Scale		Matrix
No.	From	To	ft/min	L	R	L	R		L	R		L	R	
ONE	5829	4100	REC	0	150				30	-10	2.71	30	-10	LIME

DIRECTIONAL INFORMATION

Maximum Deviation @	KOP @

Remarks: ANNULAR HOLE VOLUME CALCULATED FOR 5.5 INCH CASING

CHLORIDES REPORTED AT 4000 MG/L

LCM REPORTED AT 2PPB

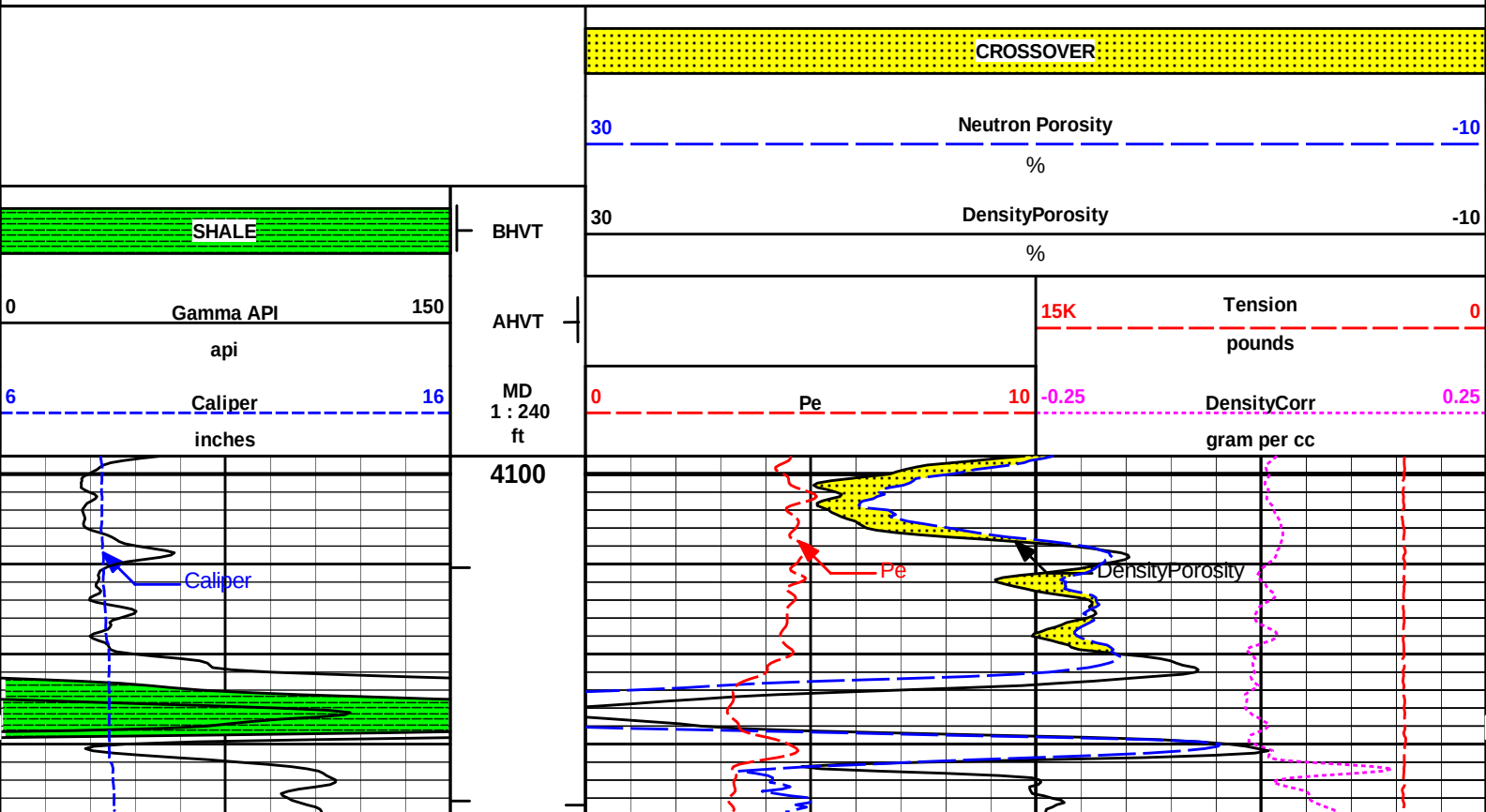
TODAY'S CREW V. JAIME F. VILLA

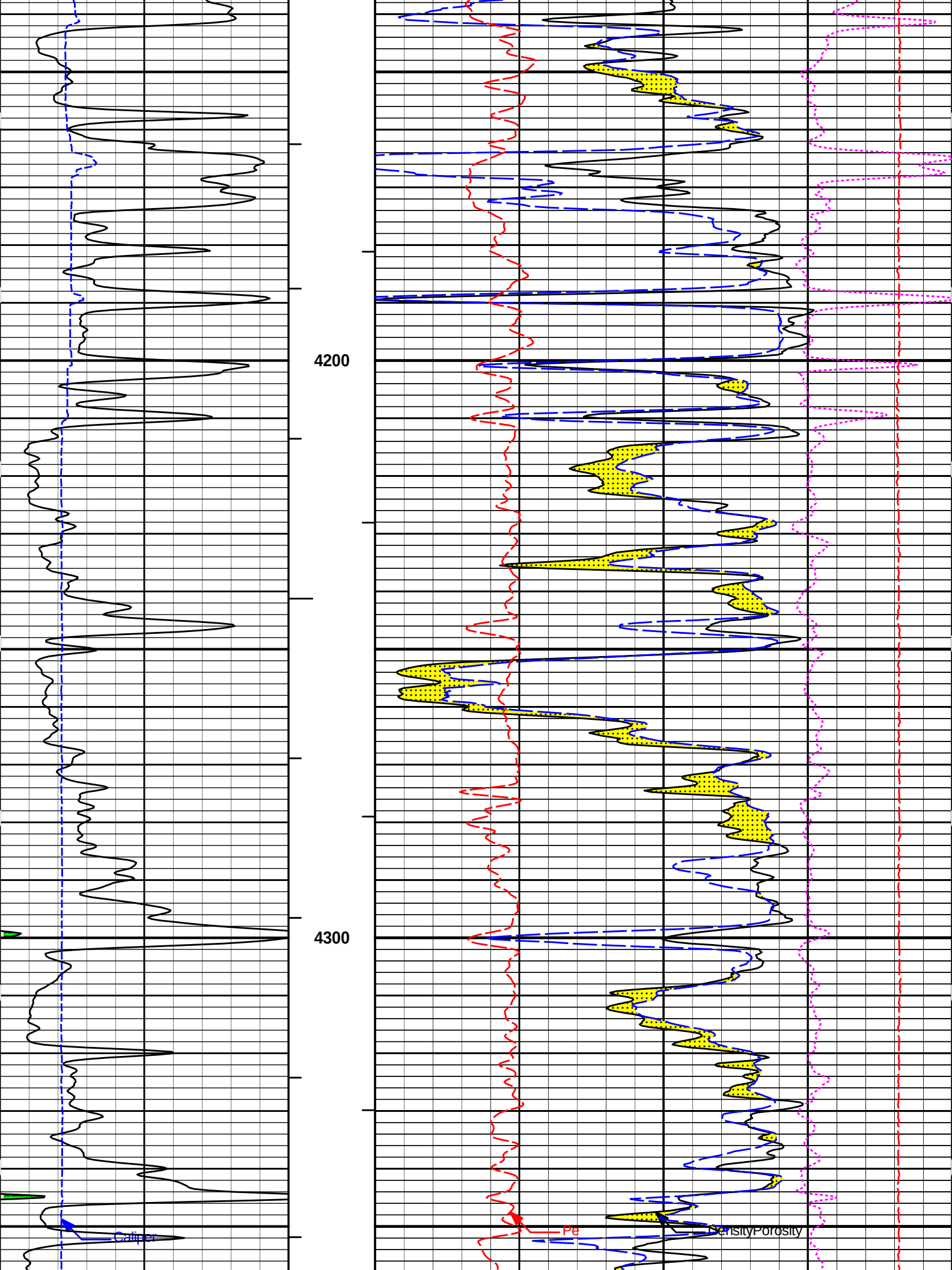
THANK YOU FOR CHOOSING HALLIBURTON ENERGY SERVICES LIBERAL, KANSAS 620-624-8123

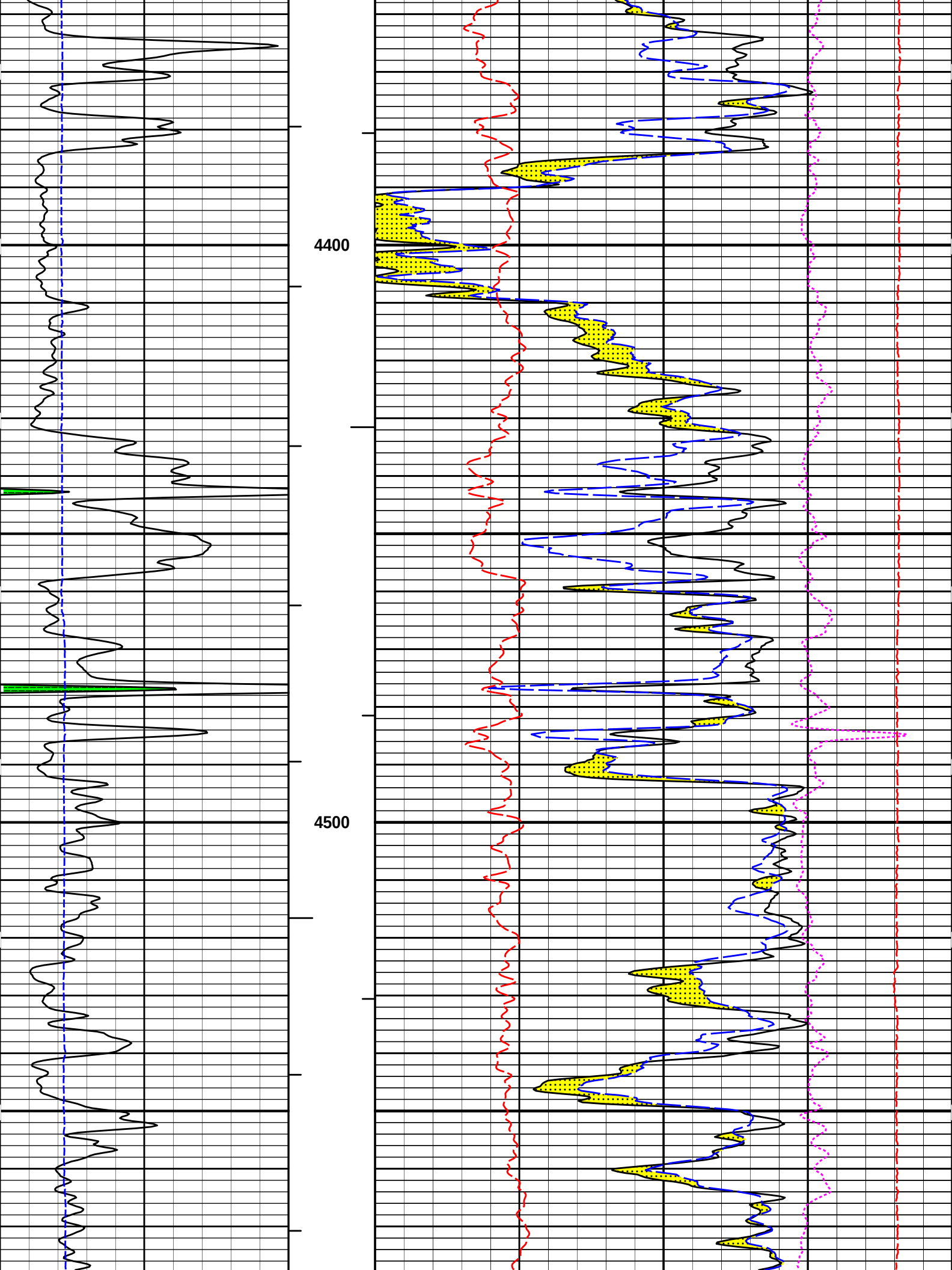
HALLIBURTON

Plot Time: 11-Jun-13 23:51:51
Plot Range: 4098 ft to 5832.92 ft
Data: GRIFFIN_D-1\Well Based\DAQ-0001-003
Plot File: \\PORO\Poro_IQ_5_MAIN_LIB

5 INCH MAIN LOG




4200
4300
Caliper
Pe
DensityPorosity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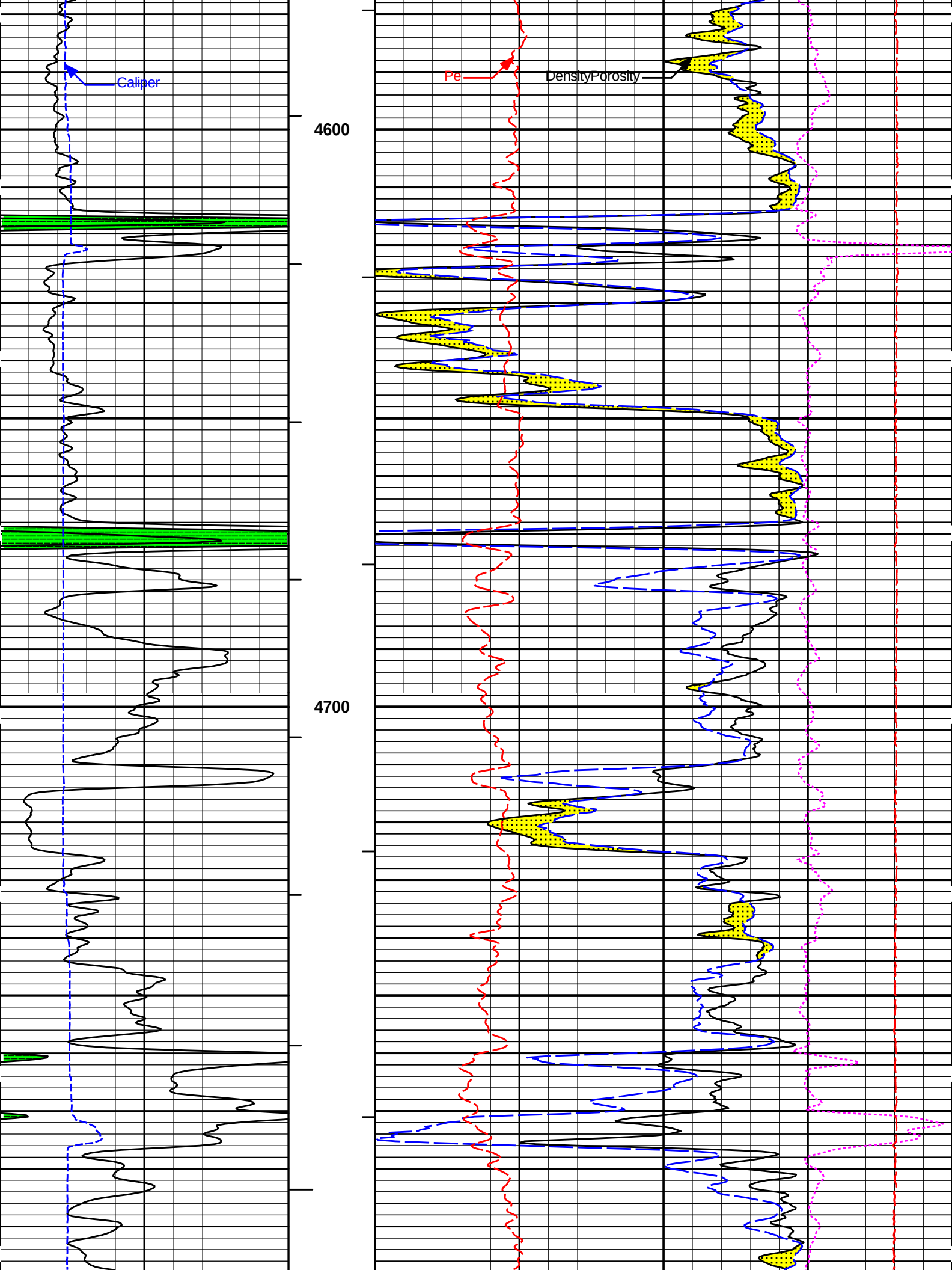
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Pe
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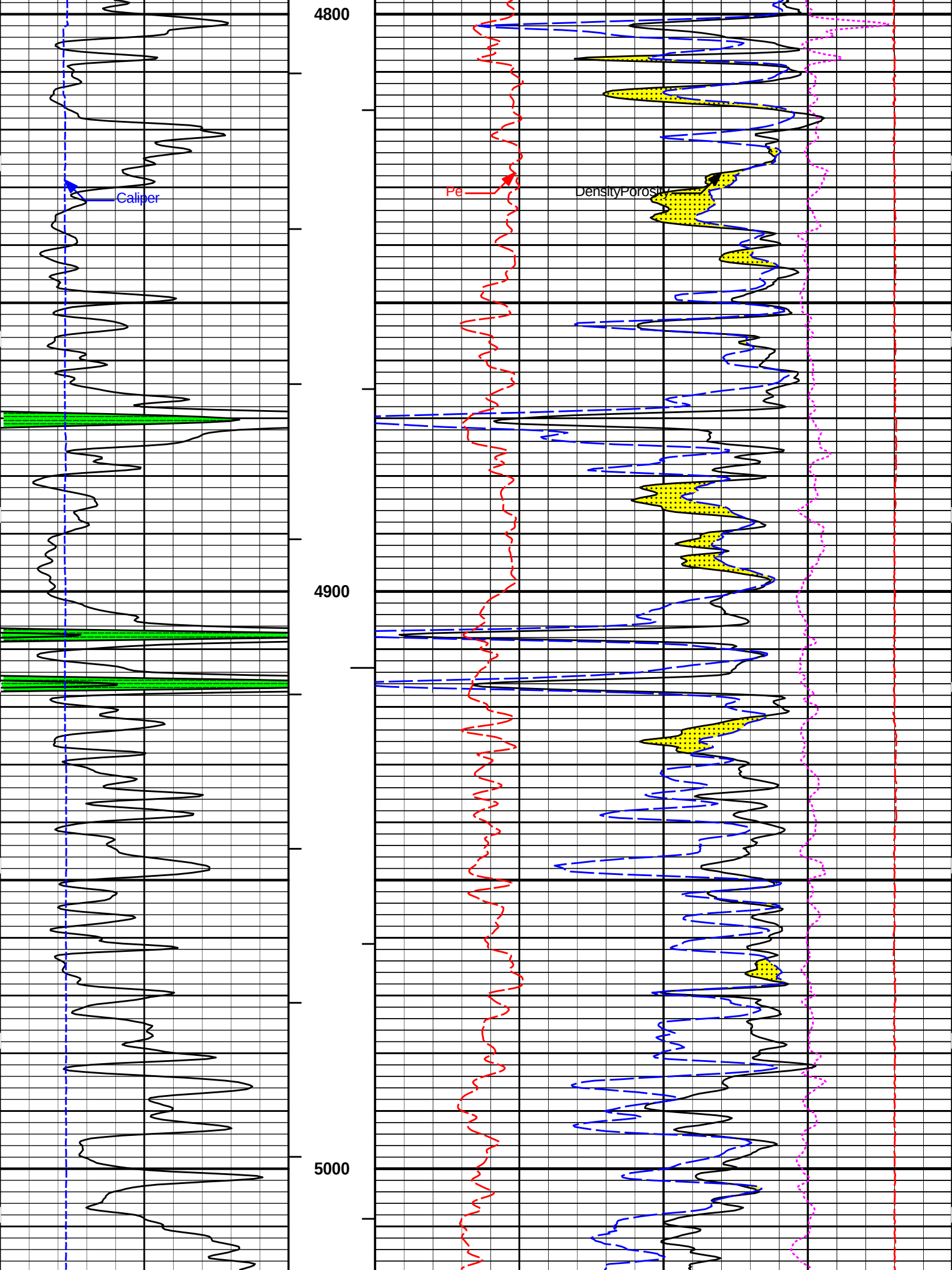
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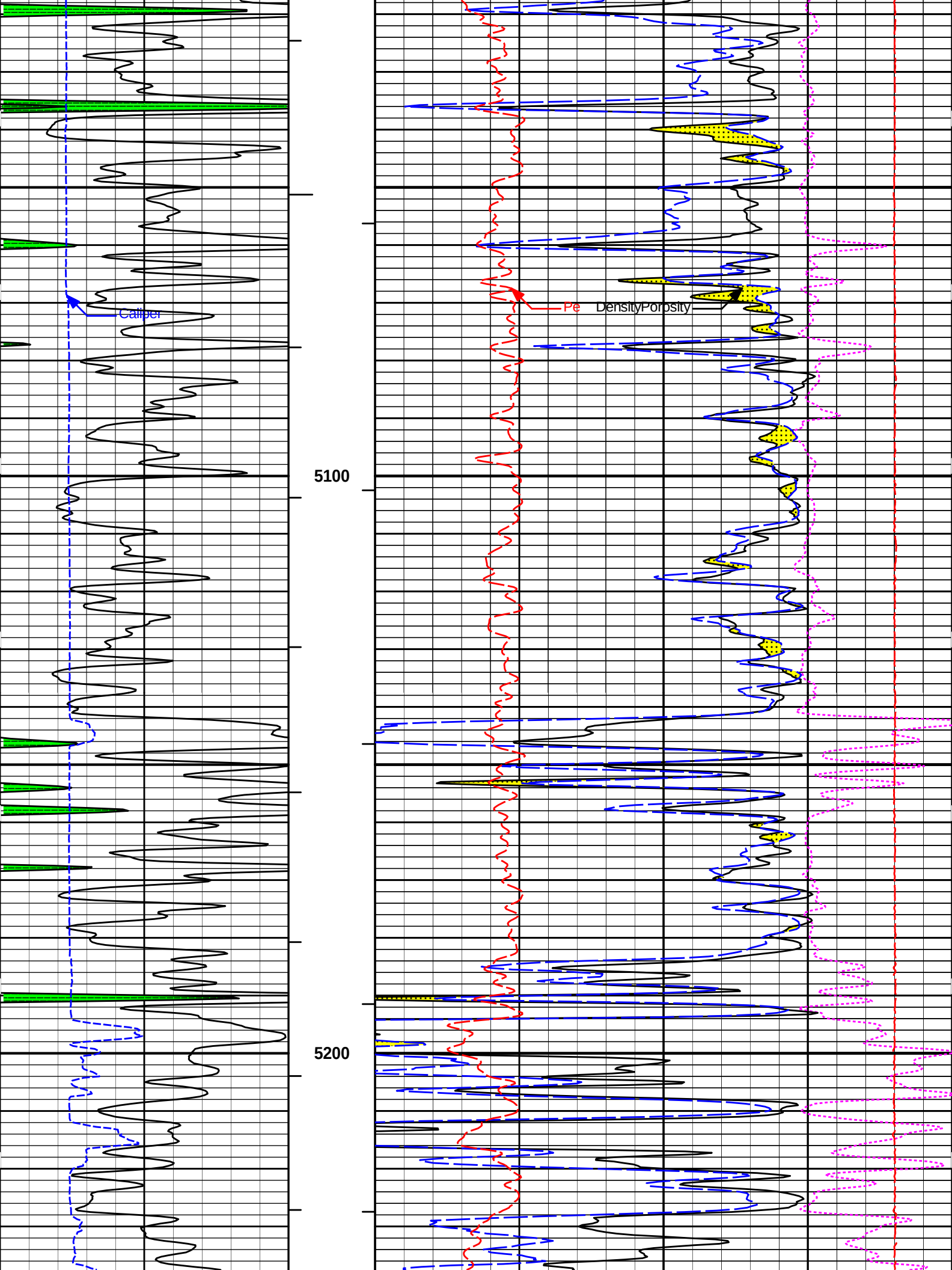
Pe
DensityPorosity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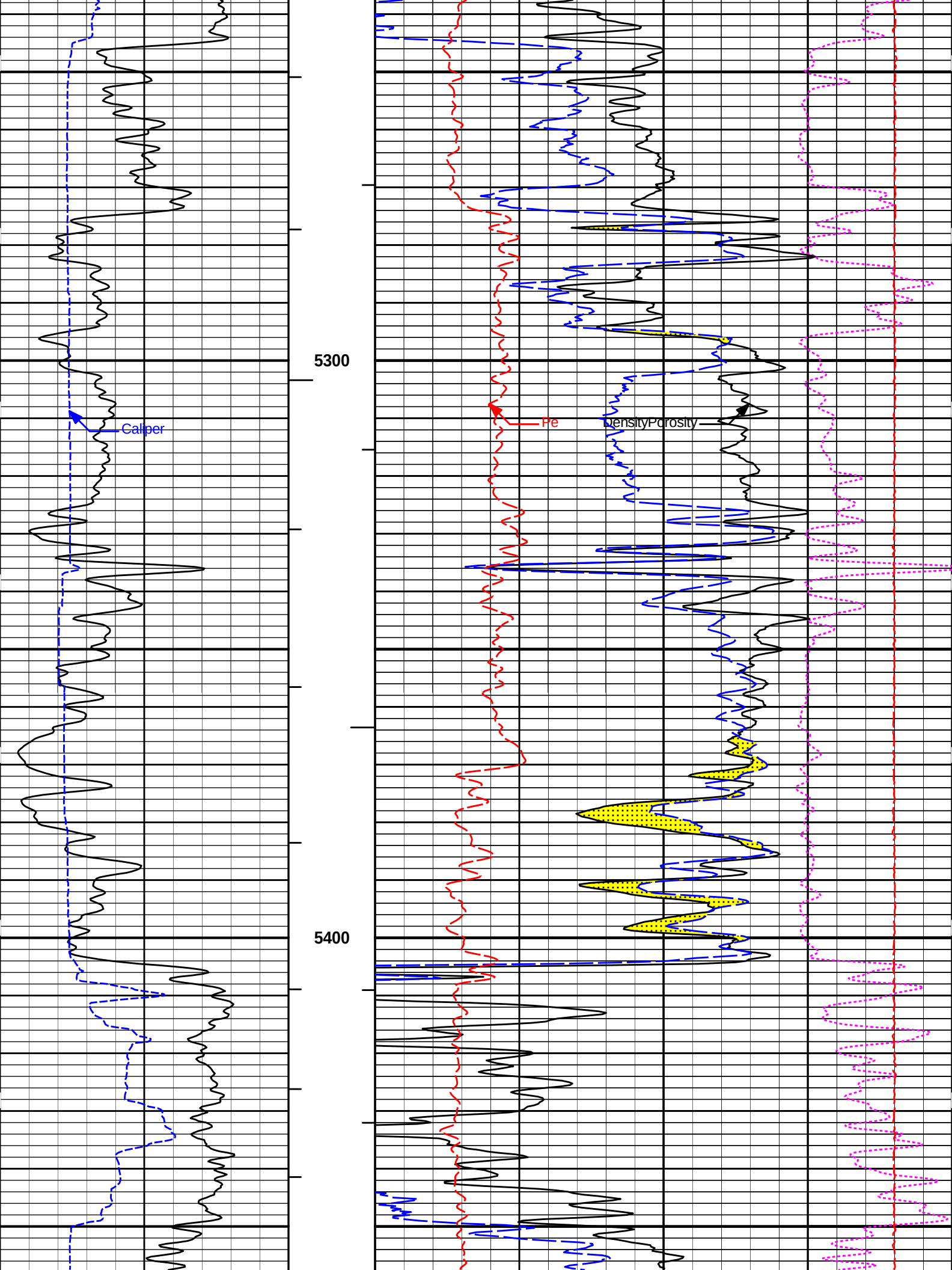
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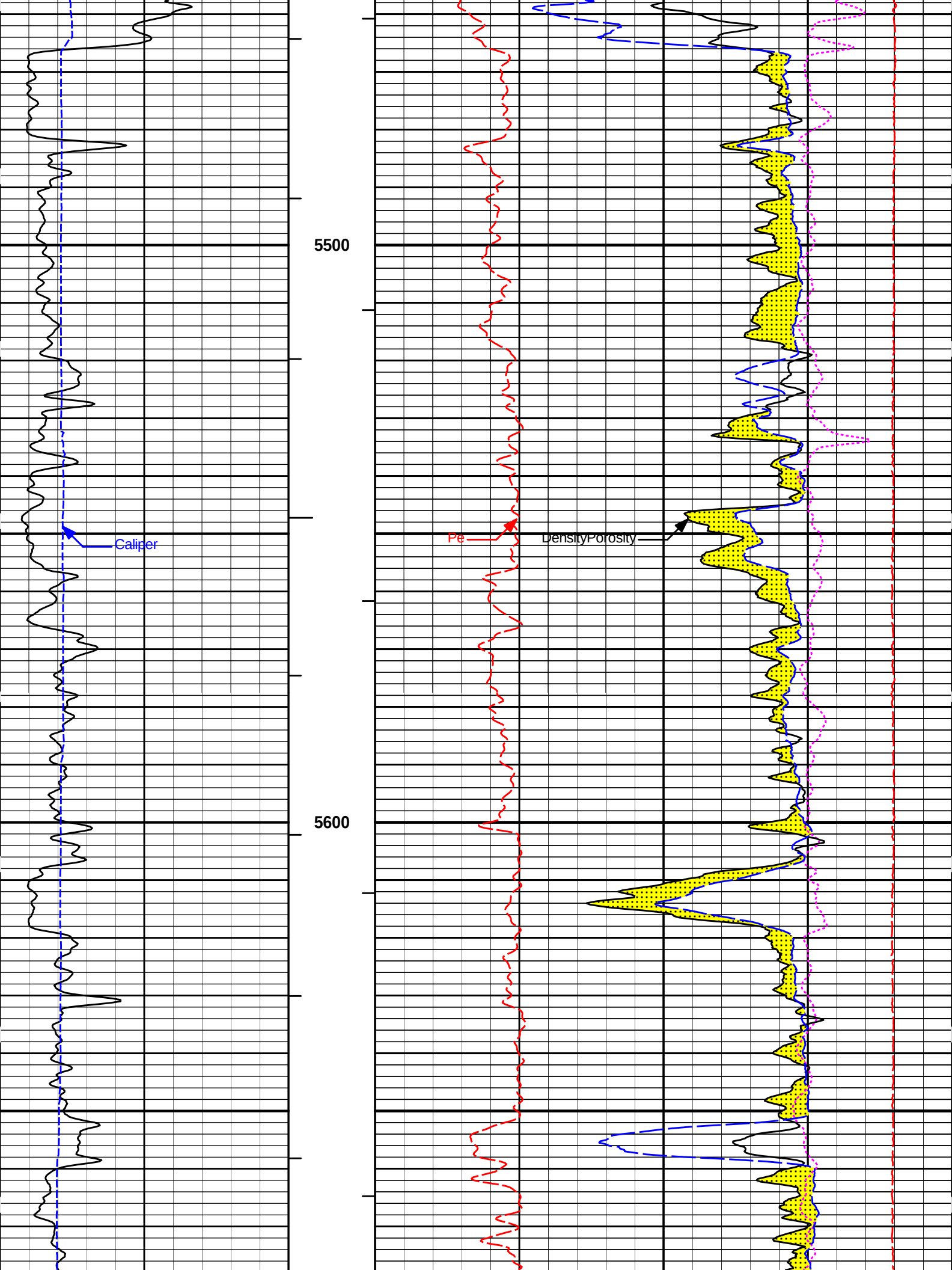
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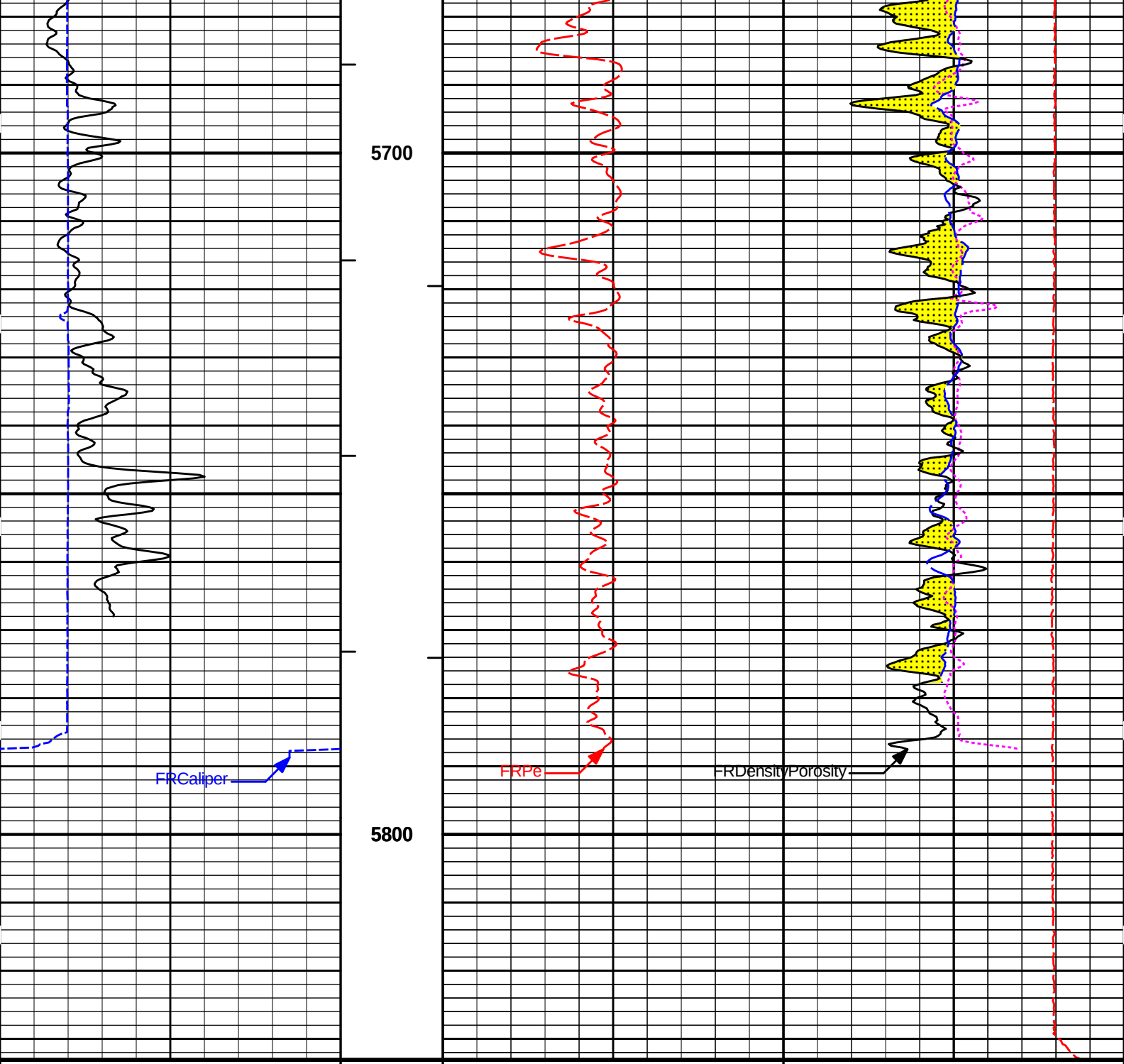
Caliper
Pe
DensityPorosity



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

-0.25 DensityCorr 0.25 gram per cc	
15K Tension 0 pounds	
30 DensityPorosity -10 %	
30 Neutron Porosity -10 %	
CROSSOVER	

HALLIBURTON

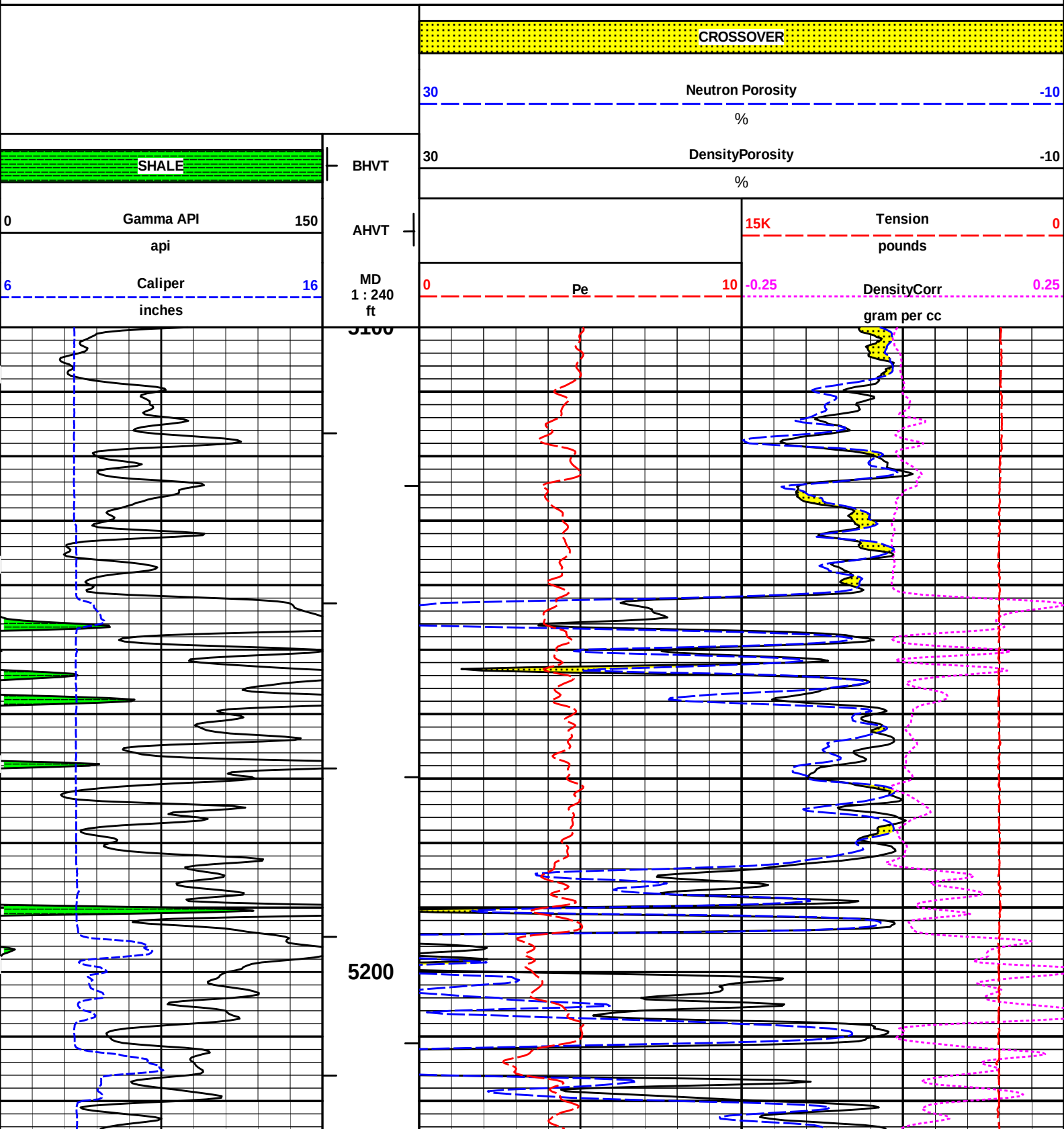
Plot Time: 11-Jun-13 23:51:57
Plot Range: 4098 ft to 5832.92 ft
Data: GRIFFIN_D-1\Well Based\DAQ-0001-003\
Plot File: \\PORO\Poro_IQ_5_MAIN_LIB

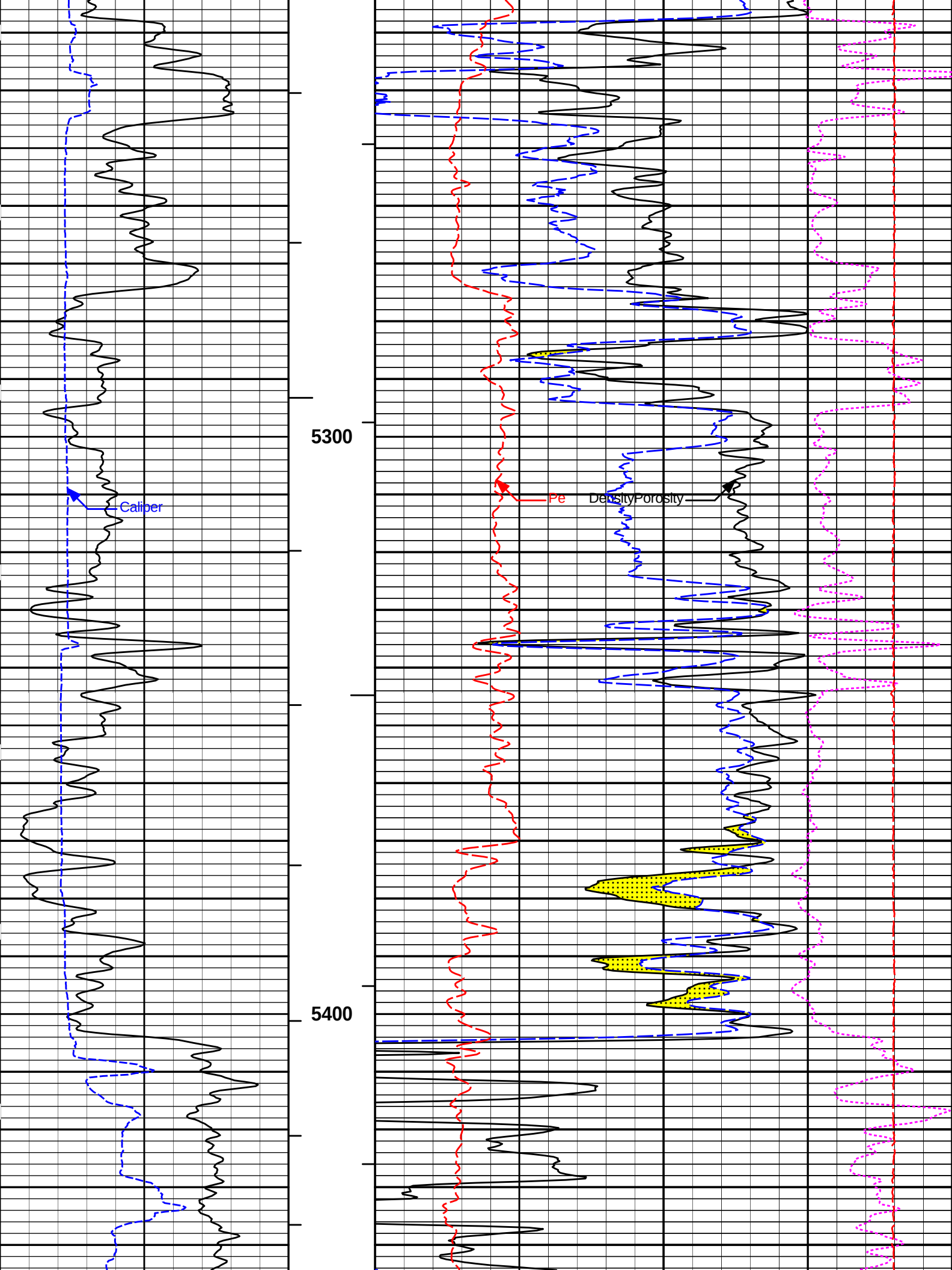
5 INCH MAIN LOG

HALLIBURTON

Plot Time: 11-Jun-13 23:51:57
Plot Range: 5100 ft to 5833.08 ft
Data: GRIFFIN_D-1\Well Based\DAQ-0001-002\
Plot File: \\PORO\Poro_IQ_5_REP_LIB

REPEAT SECTION

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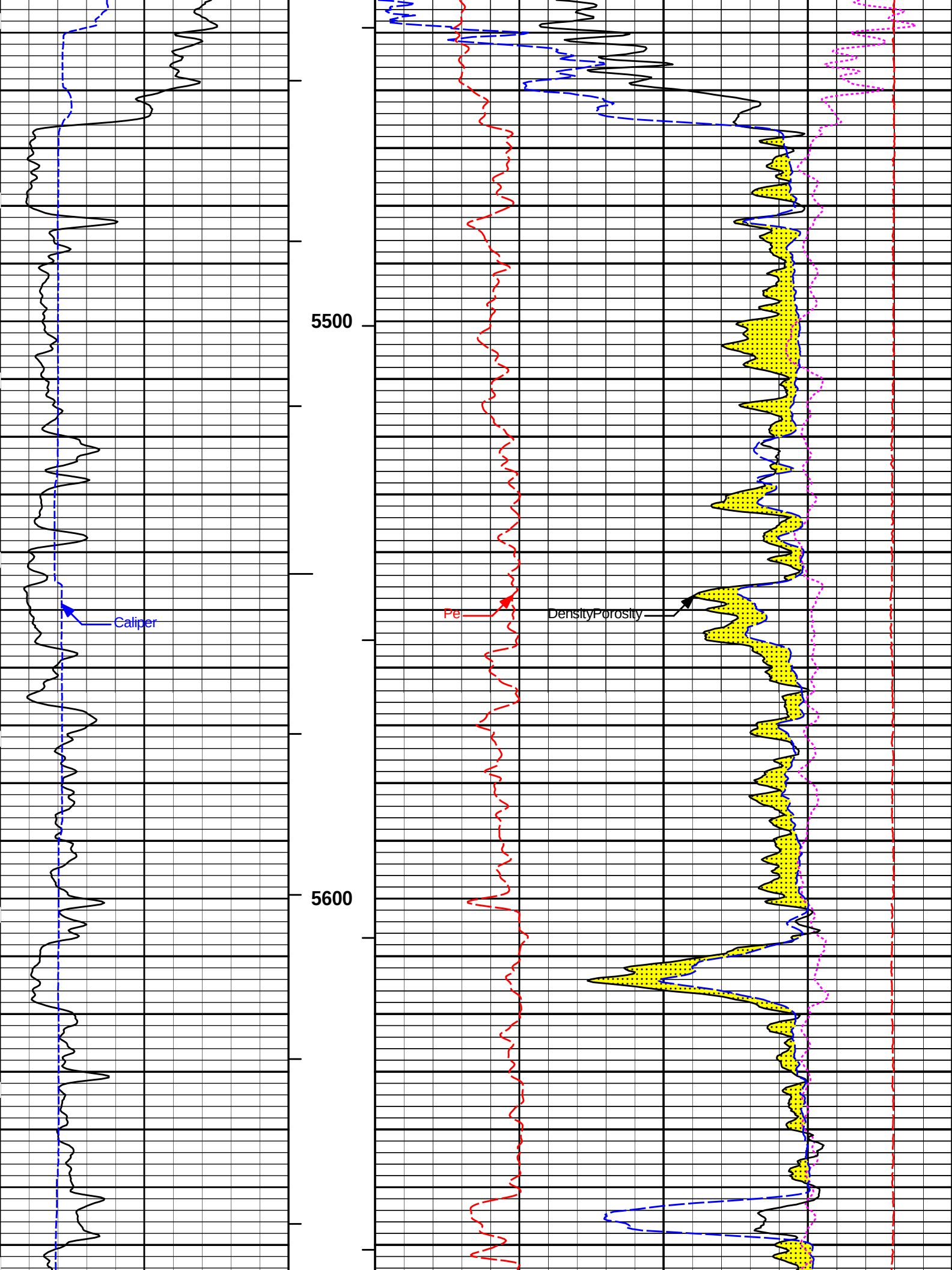
5400
Caliper
Pe
DensityPorosity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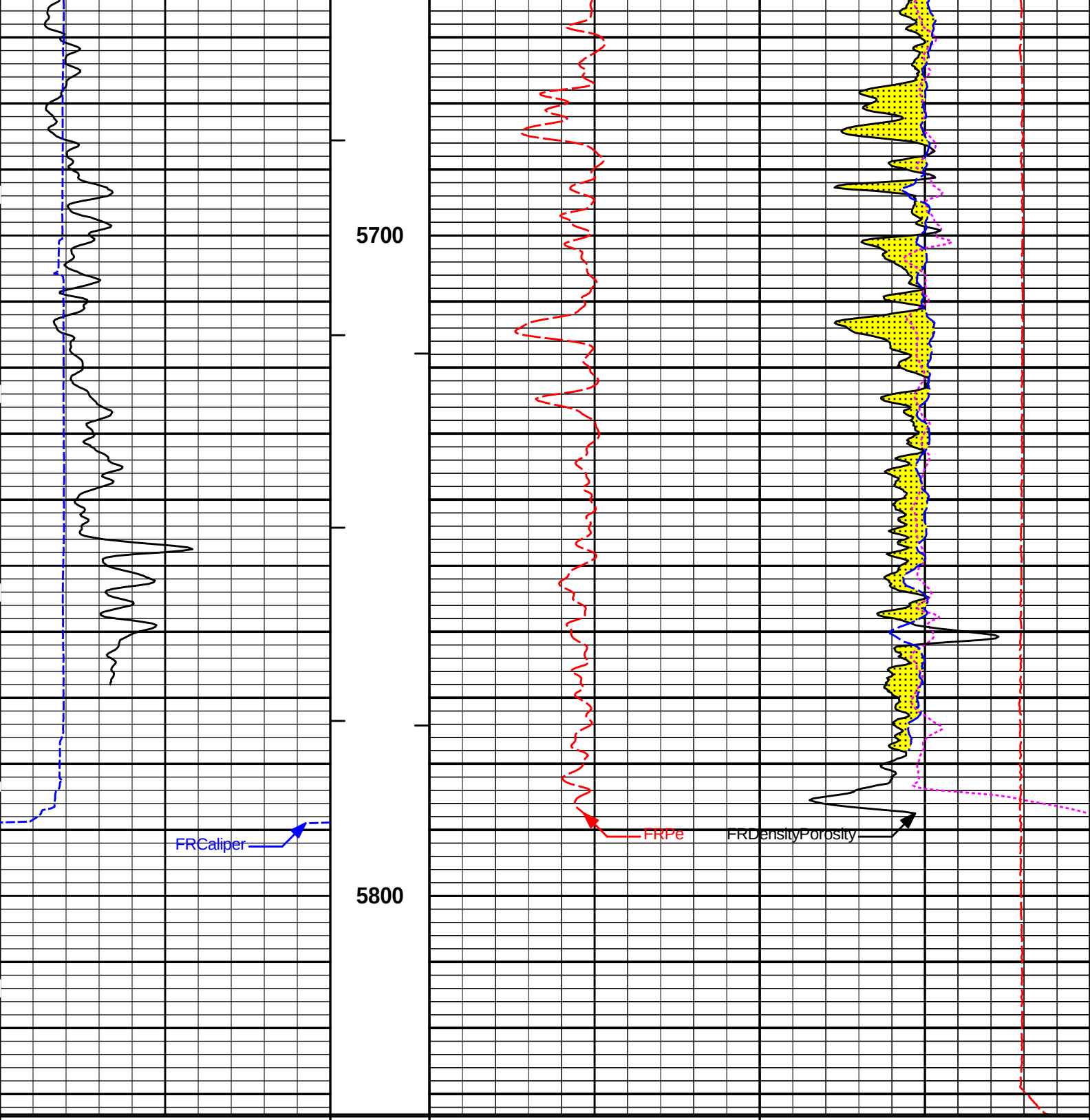
Caliper
Pe
DensityPorosity



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

HALLIBURTON

Plot Time: 11-Jun-13 23:52:00
Plot Range: 5100 ft to 5833.08 ft
Data: GRIFFIN_D-1\Well Based\DAQ-0001-002\
Plot File: \\PORO\Poro_IQ_5_REP_LIB

REPEAT SECTION

HALLIBURTON

Plot Time: 11-Jun-13 23:52:00
Plot Range: 4098 ft to 5832.92 ft
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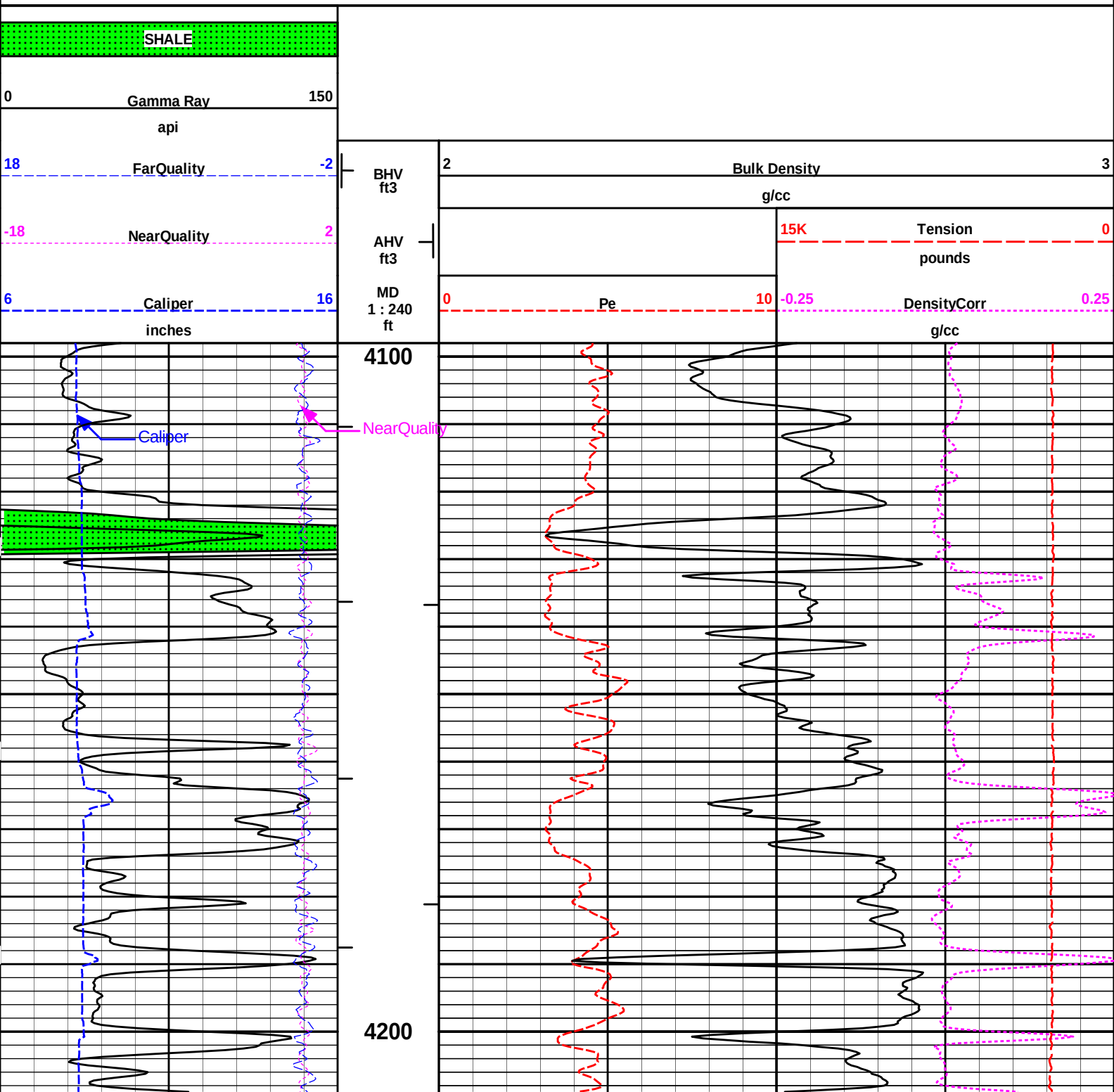
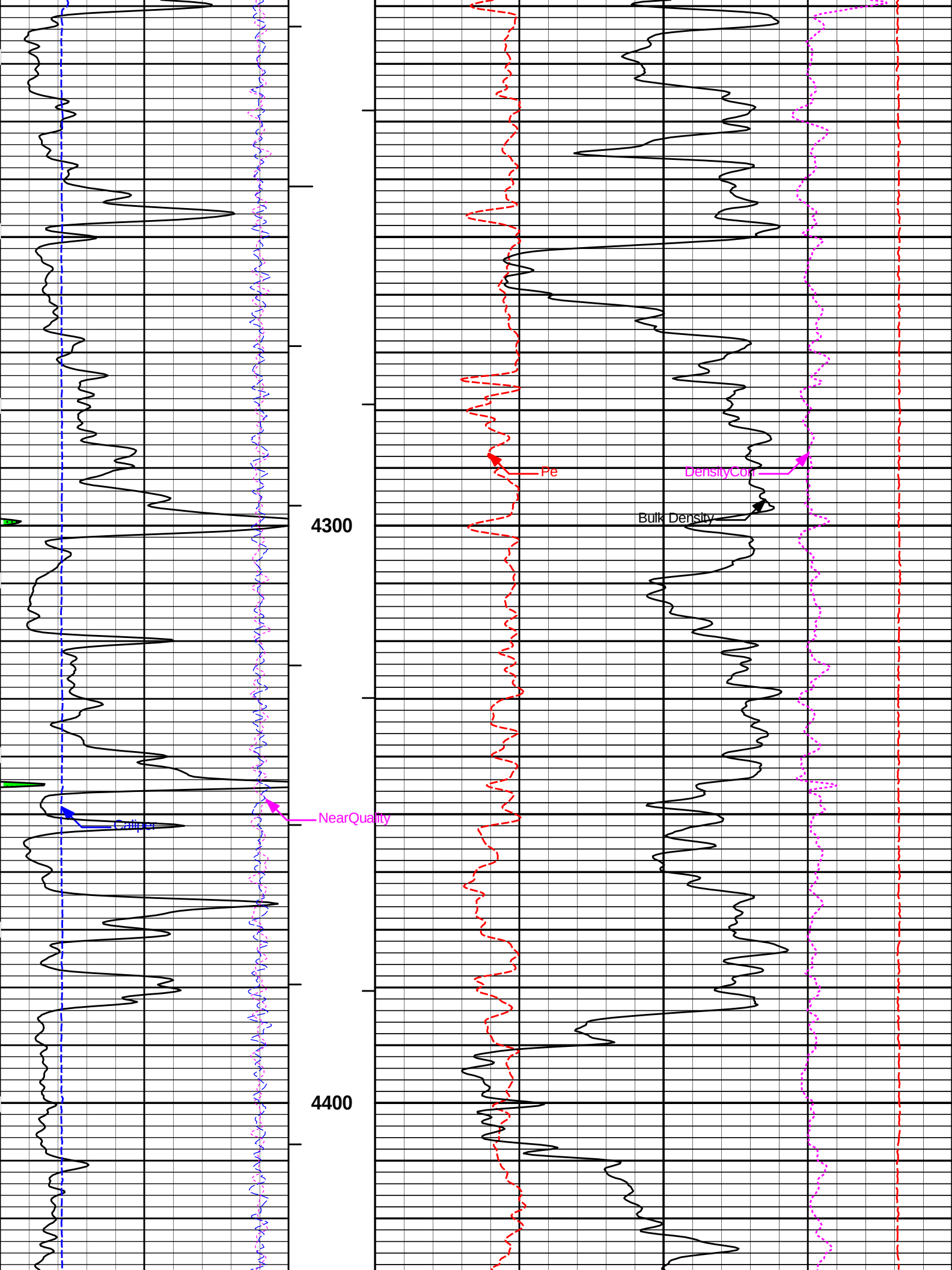
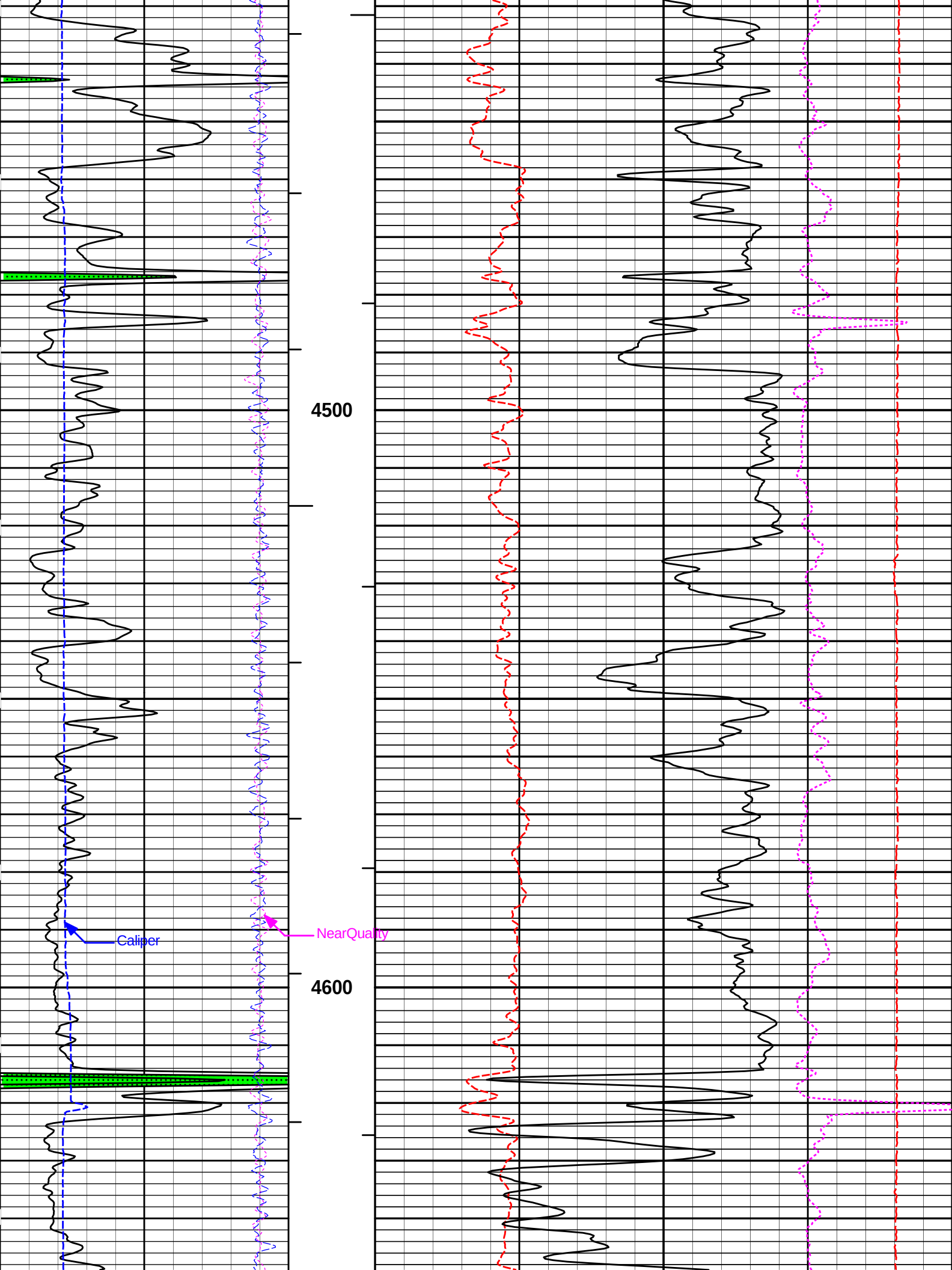
5 INCH MAIN LOG




Pe
DensityCor
Bulk Density
4300
Caliper
NearQuality
4400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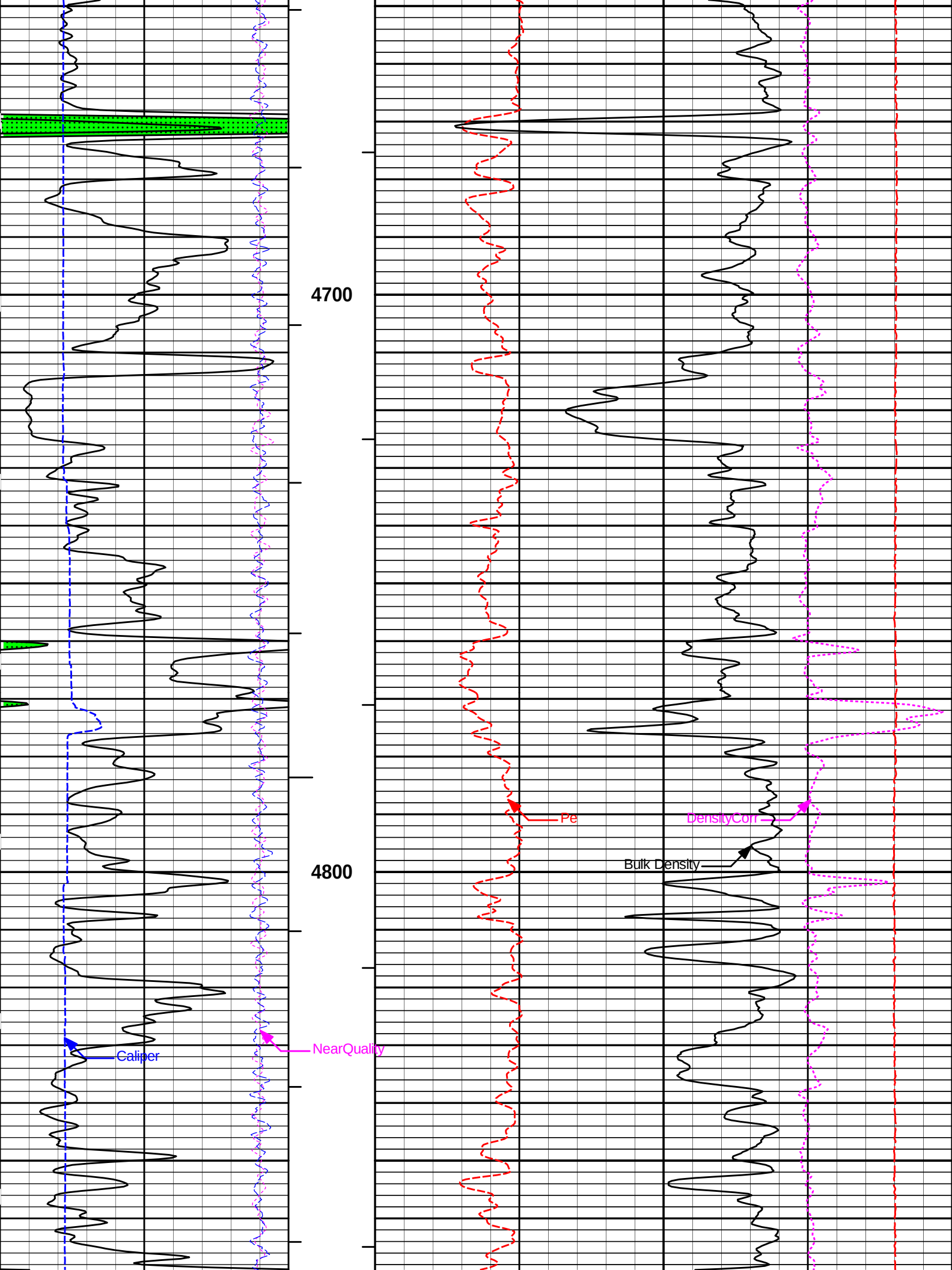
4600
Caliper
NearQuality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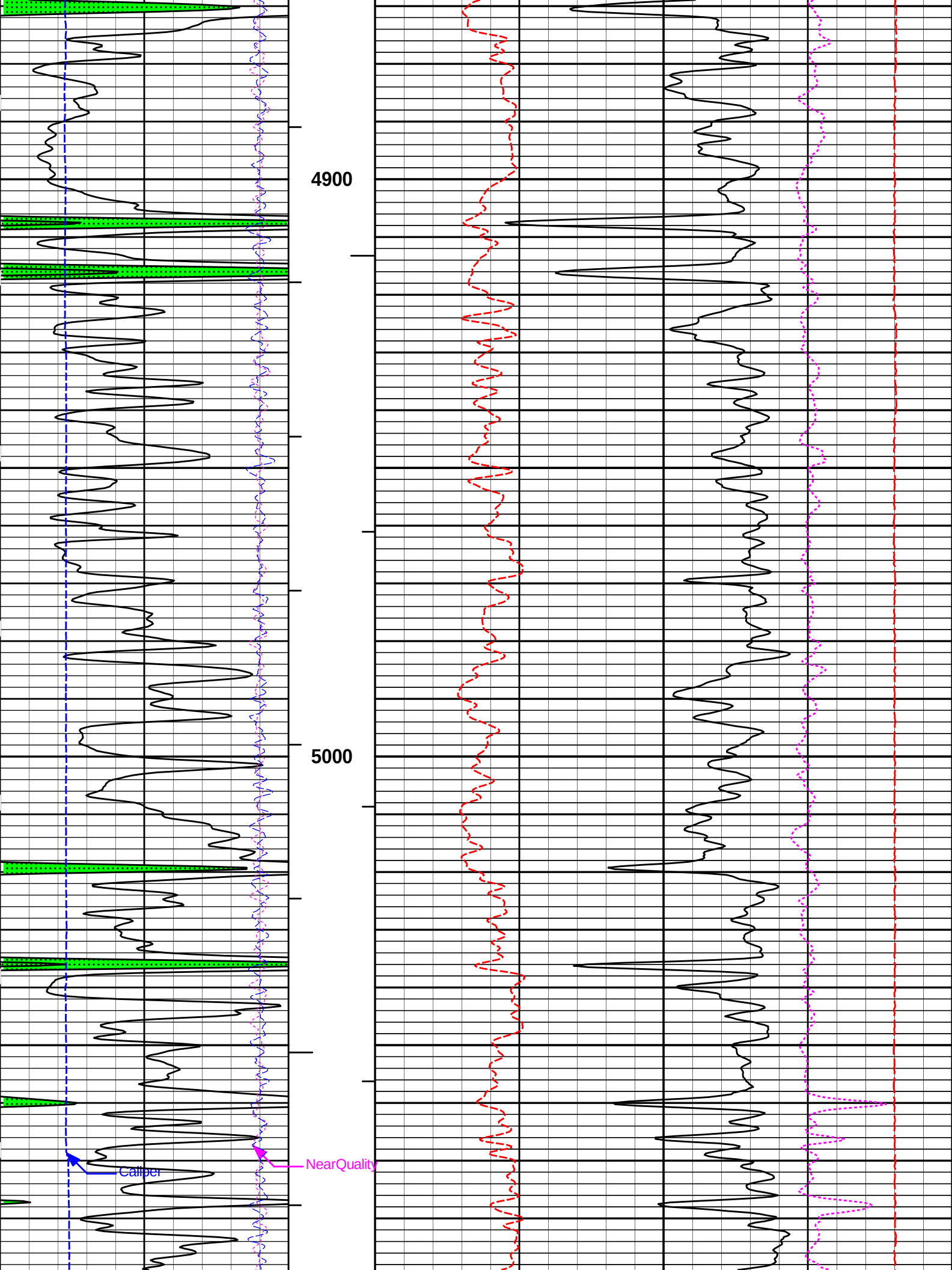
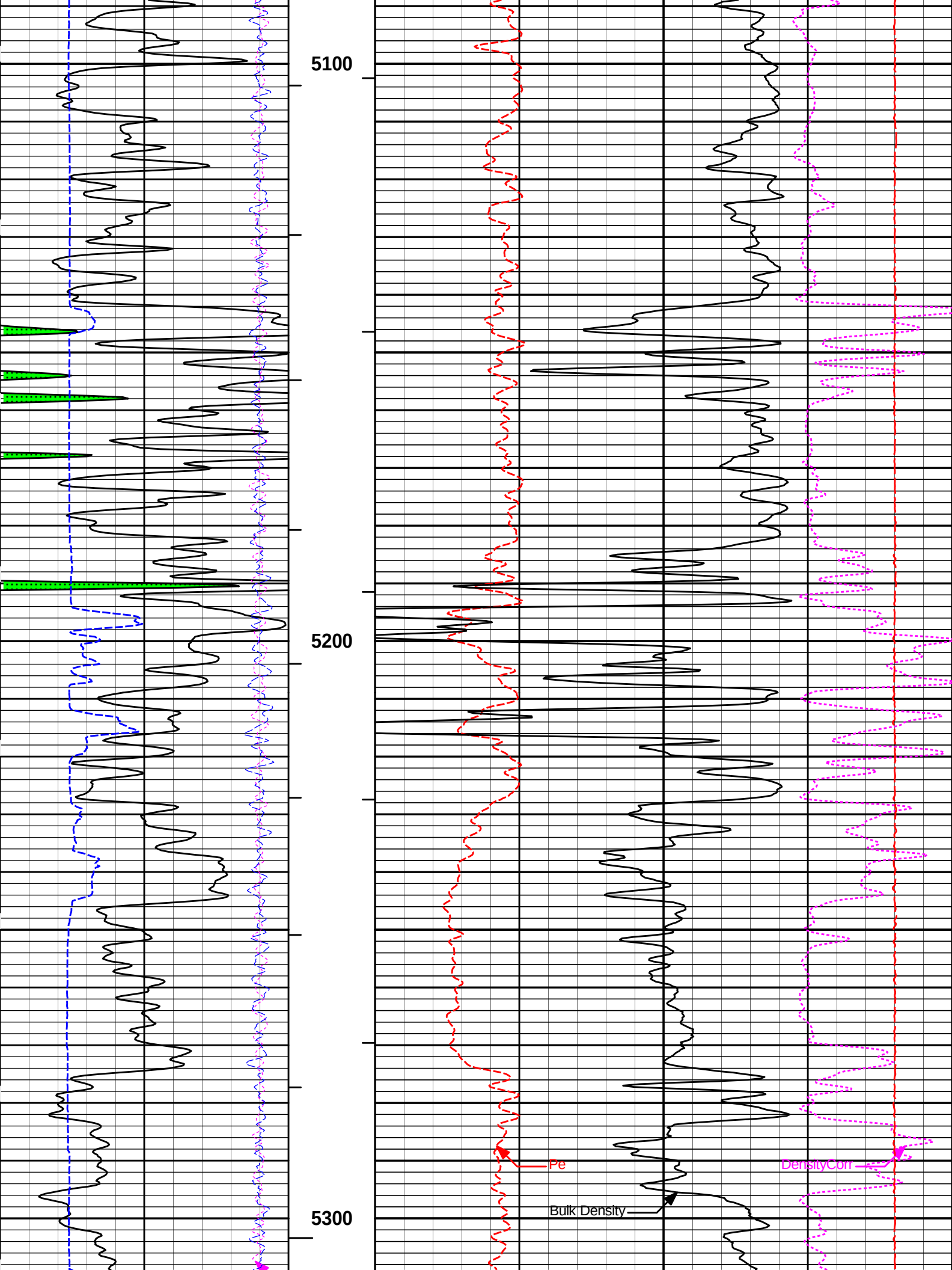
4800
Caliper
NearQuality
Pe
DensityCorr
Bulk Density


4900
5000
Caliper
NearQuality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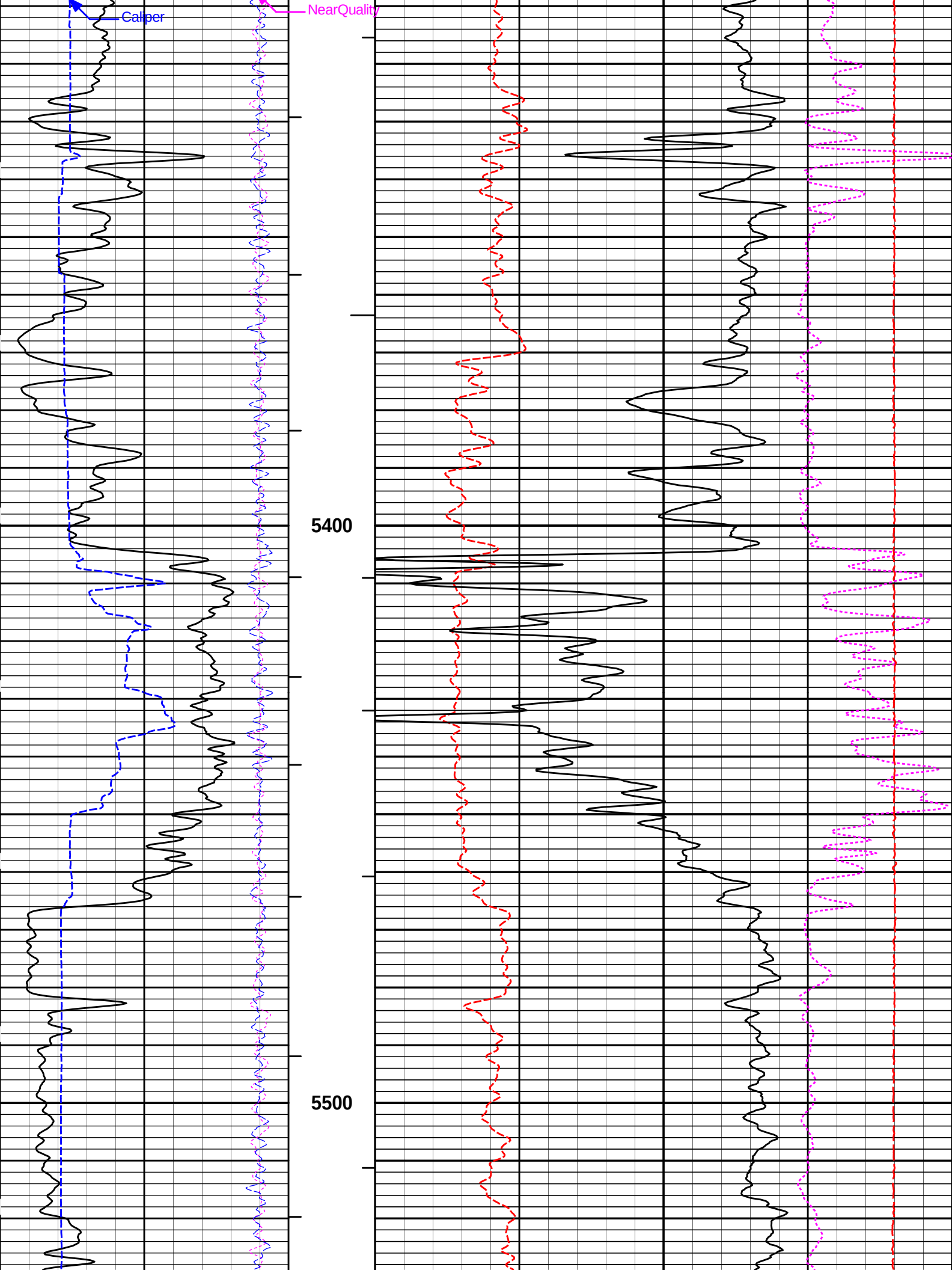
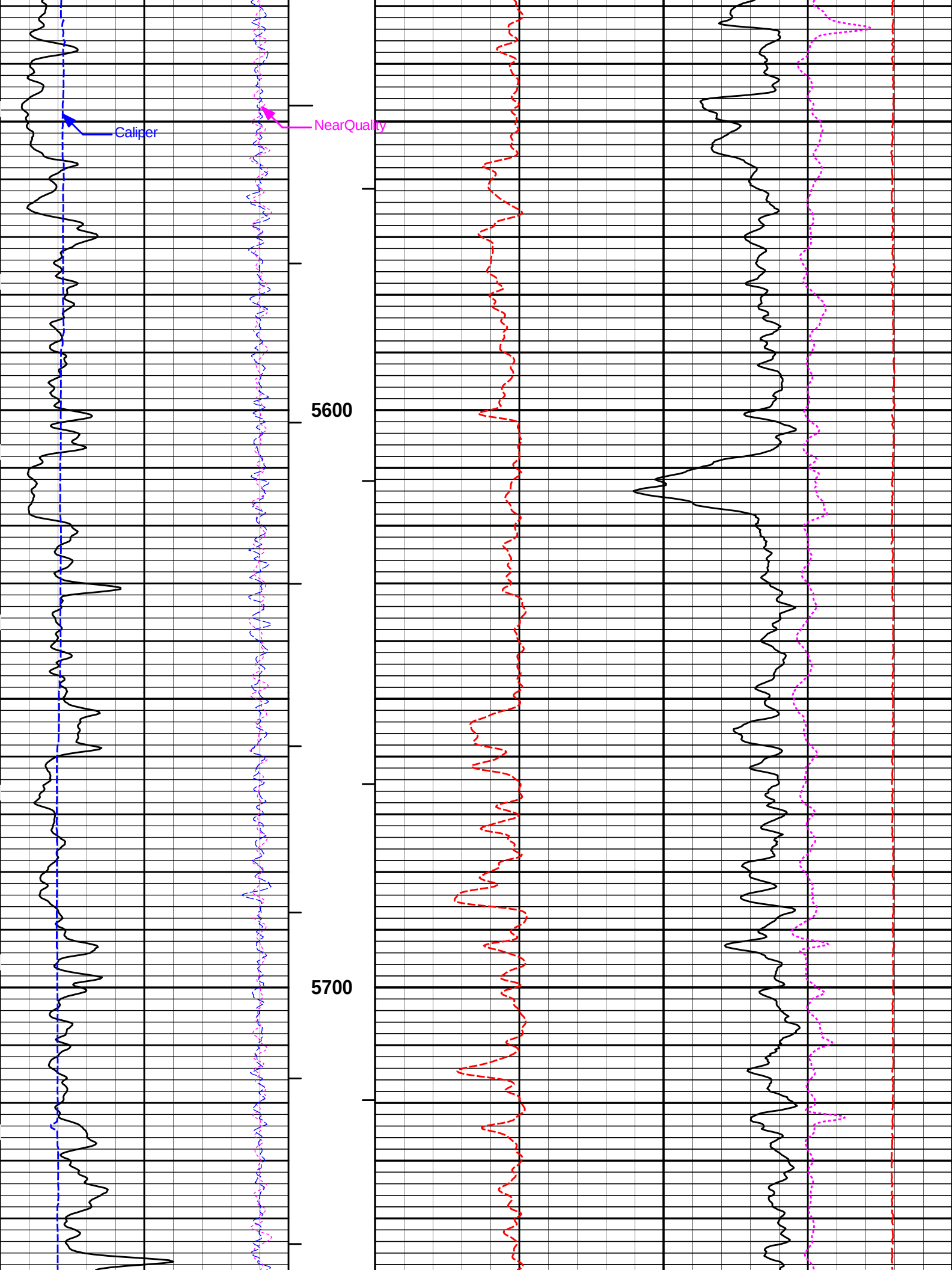
5200
5300
Pe
Bulk Density
DensityCorr


Caliper
NearQuality
5400
5500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NearQuality
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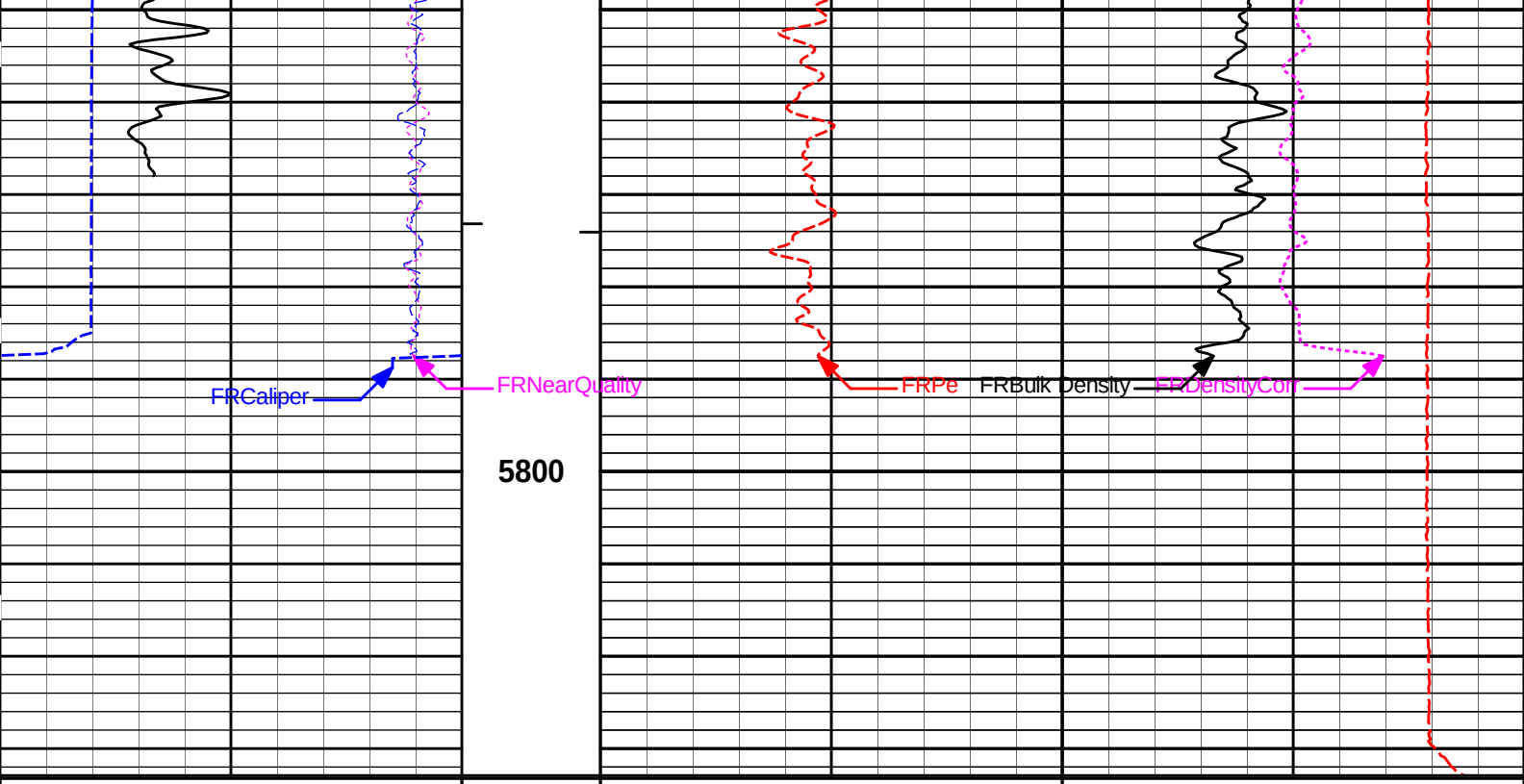


6 Caliper 16 inches	MD 1 : 240 ft	0 Pe 10 | -0.25 DensityCorr 0.25 g/cc
-18 NearQuality 2	AHV ft3	15K Tension 0 pounds
18 FarQuality -2	BHV ft3	2 Bulk Density 3 g/cc
0 Gamma Ray 150 api		
SHALE		

HALLIBURTON

Plot Time: 11-Jun-13 23:52:02
Plot Range: 4098 ft to 5832.92 ft
Data: GRIFFIN_D-1\Well Based\DAQ-0001-003\
Plot File: \\-LOCAL-\GRIFFIN_D-1\0001 SP-GTET-DSN-SDL-ACRT-BN\PORO\BULKD_5_MAIN_LIB

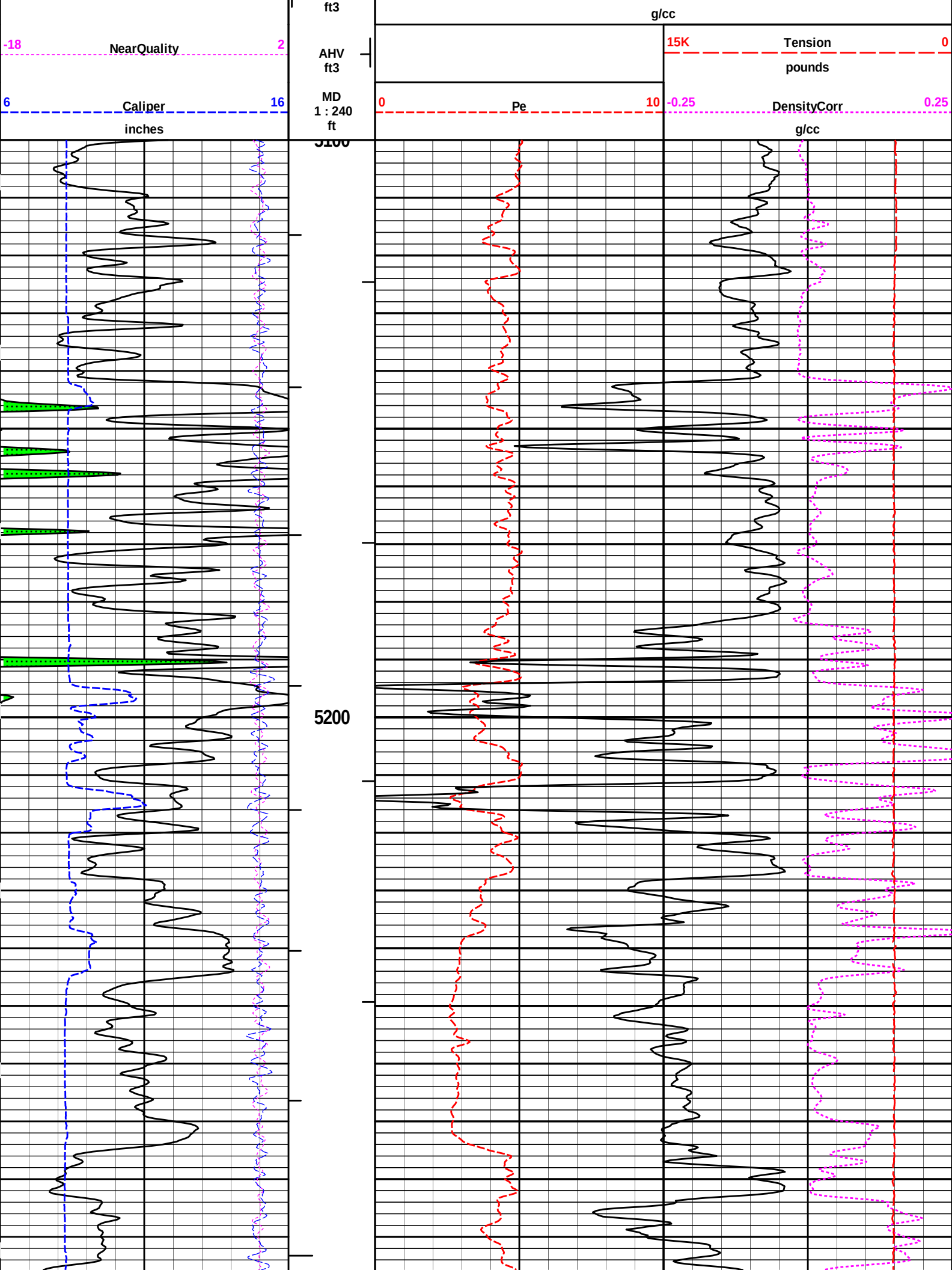
5 INCH MAIN LOG

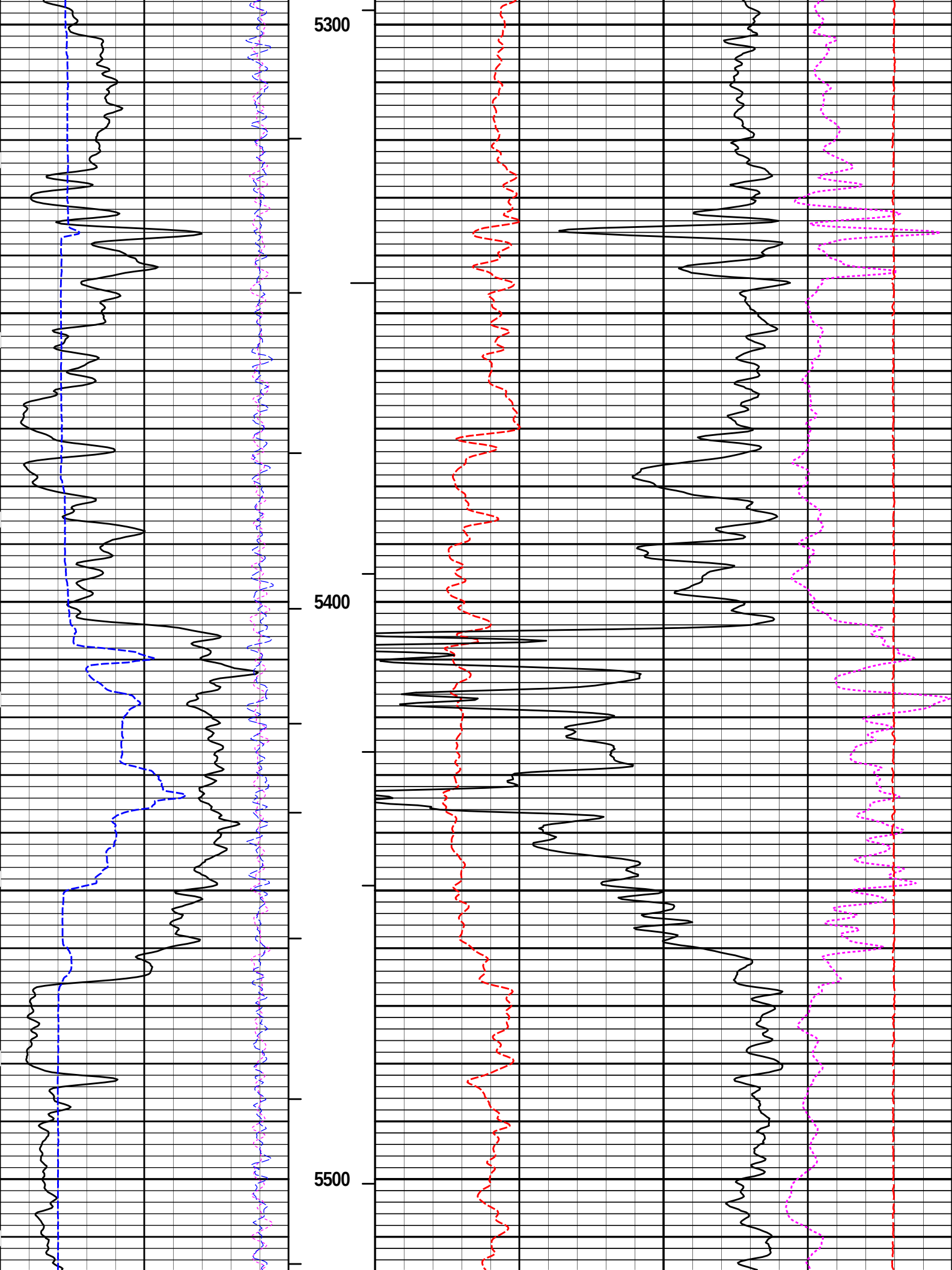
HALLIBURTON

Plot Time: 11-Jun-13 23:52:03
Plot Range: 5100 ft to 5833.08 ft
Data: GRIFFIN_D-1\Well Based\DAQ-0001-002\
Plot File: \\-LOCAL-\GRIFFIN_D-1\0001 SP-GTET-DSN-SDL-ACRT-BN\PORO\BULKD_5_REP_LIB

REPEAT SECTION

SHALE		
0 Gamma Ray 150 api		
18 FarQuality -2	BHV	2 Bulk Density 3


ft3
g/cc
-18
NearQuality
2
AHV
ft3
15K
Tension
0
pounds
6
Caliper
16
MD
1 : 240
ft
0
Pe
10
-0.25
DensityCorr
0.25
inches
g/cc
5100
5200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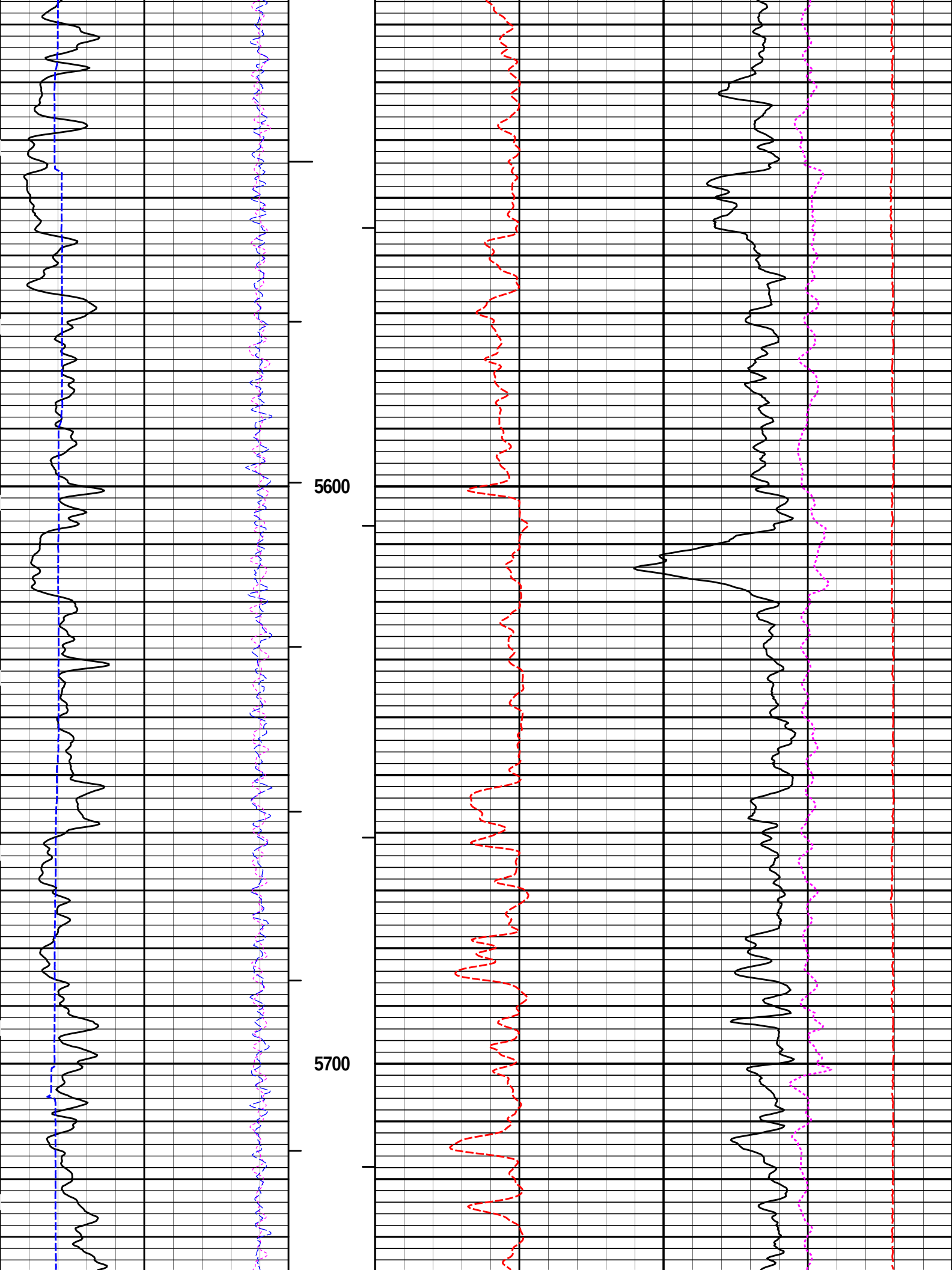
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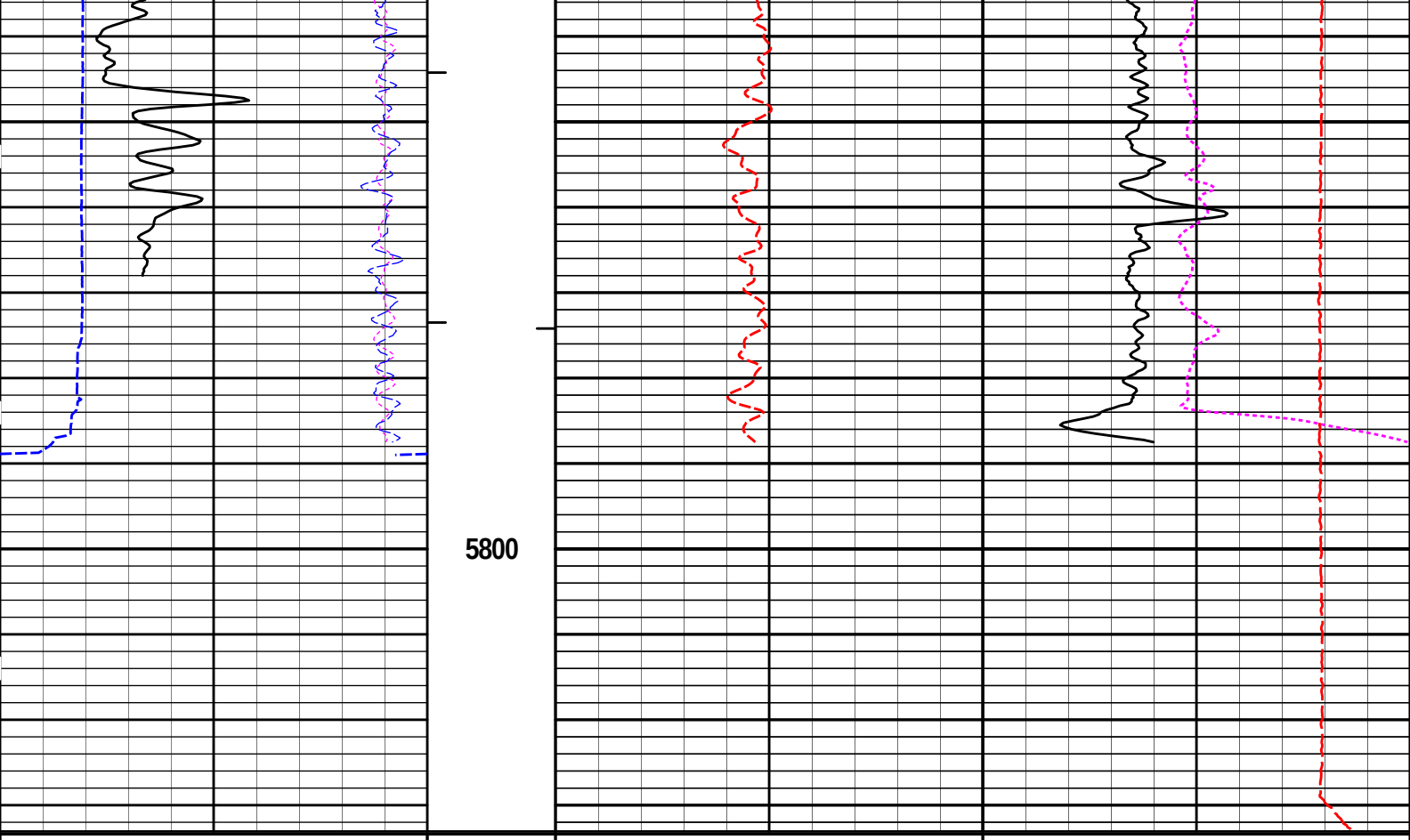


6 Caliper 16	MD 1 : 240 ft	0 Pe 10	-0.25 DensityCorr 0.25	
inches			g/cc	
-18 NearQuality 2	AHV ft3		15K Tension 0	
			pounds	
18 FarQuality -2	BHV ft3	2 Bulk Density 3		
		g/cc		
0 Gamma Ray 150				
api				
SHALE				

HALLIBURTON

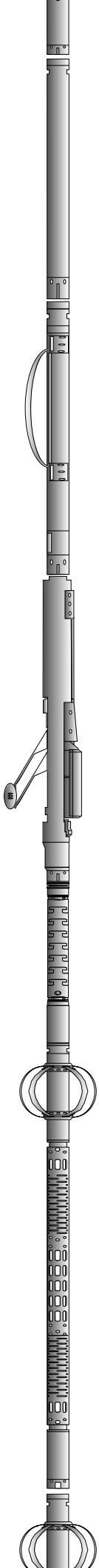
Plot Time: 11-Jun-13 23:52:04
Plot Range: 5100 ft to 5833.08 ft
Data: GRIFFIN_D-1\Well Based\DAQ-0001-002\
Plot File: \\-LOCAL-\GRIFFIN_D-1\0001 SP-GTET-DSN-SDL-ACRT-BN\PORO\BULKD_5_REP_LIB

REPEAT SECTION

HALLIBURTON

TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
Cable Head Tension-00046696 30.00 lbs		Ø 3.625 in →		← Load Cell @ 74.79 ft	2.00 ft	75.79 ft
SP Sub-11441455				← SP @ 73.91 ft		73.79 ft



60.00 lbs

Ø 3.625 in

SP @ 72.01 ft

3.74 ft

70.05 ft

GTET-11048627
165.00 lbs

Ø 3.625 in

8.52 ft

GammaRay @ 63.99 ft

61.53 ft

DSN Decentralizer-11005605
6.60 lbs

Ø 5.000 in*

DSNT-11055304
174.00 lbs

Ø 3.625 in

9.69 ft

DSN Far @ 54.59 ft

DSN Near @ 53.84 ft

51.84 ft

SDLT-11014296
360.00 lbs

Ø 4.500 in

10.81 ft

SDLT Pad-10865884
65.00 lbs

Microlog Pad-11014296
8.00 lbs

Ø 4.750 in*

Ø 4.750 in*

Microlog @ 44.03 ft

SDL Caliper @ 43.84 ft

SDL @ 43.83 ft

41.03 ft

IQ Flex-696
140.00 lbs

Ø 3.625 in

5.67 ft

35.36 ft

Centralizer 25-002
8.00 lbs

Ø 4.000 in*

BSAT-10747683
300.00 lbs

Ø 3.625 in

15.77 ft

Sonic Receivers @ 26.84 ft

19.58 ft

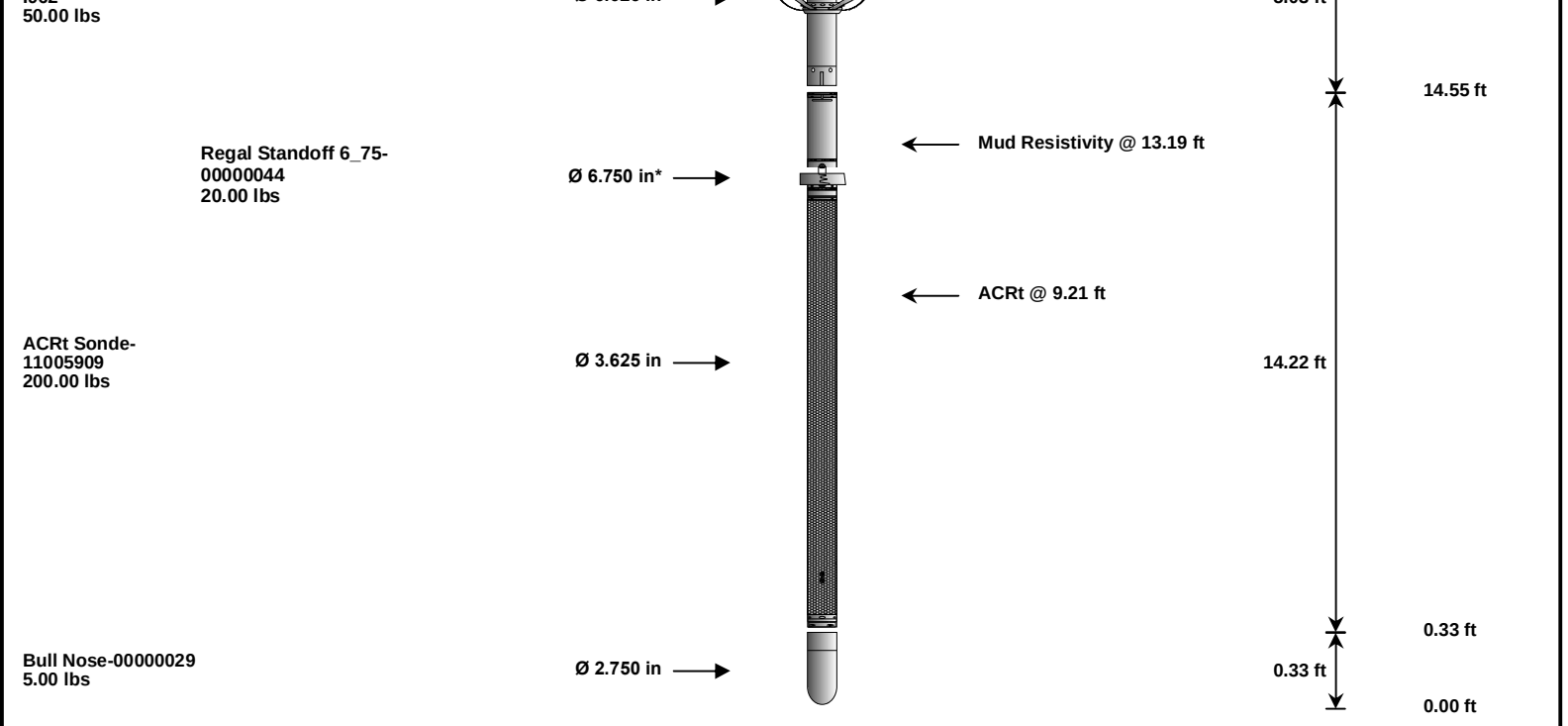
ACRt Instrument-I962

Centralizer 25-001
8.00 lbs

Ø 4.000 in*

Ø 3.625 in

5.03 ft



Mnemonic	Tool Name	Serial Number	Weight (lbs)	Length (ft)		Accumulated Length (ft)	Max.Log. Speed (fpm)
CHT	Cable Head with Load Cell	00046696	30.00	2.00		73.79	300.00
SP	SP Sub	11441455	60.00	3.74		70.05	300.00
GTET	Gamma Telemetry Tool	11048627	165.00	8.52		61.53	60.00
DSNT	Dual Spaced Neutron	11055304	174.00	9.69		51.84	60.00
DCNT	DSN Decentralizer	11005605	6.60	5.13	*	55.17	300.00
SDLT	Spectral Density Tool	11014296	360.00	10.81		41.03	60.00
SDLP	Density Insite Pad	10865884	65.00	2.55	*	43.24	60.00
MICP	Microlog Pad	11014296	8.00	1.00	*	43.53	60.00
IQF	IQ Flex tool	696	140.00	5.67		35.36	300.00
BSAT	Borehole Sonic Array Tool	10747683	300.00	15.77		19.58	60.00
OBCEN	Centralizer - 25 in. Overbody	002	8.00	2.08	*	32.64	300.00
ACRt	Array Compensated True Resistivity Instrument Section	I962	50.00	5.03		14.55	300.00
OBCEN	Centralizer - 25 in. Overbody	001	8.00	2.08	*	16.47	300.00
ACRt	Array Compensated True Resistivity Sonde Section	11005909	200.00	14.22		0.33	300.00
RSOF	Regal Standoff 6.75in	00000044	20.00	0.52	*	12.05	300.00
BLNS	Bull Nose	00000029	5.00	0.33		0.00	300.00
Total			**1,599.60**	**75.79**			

* Not included in Total Length and Length Accumulation.

Data: GRIFFIN_D-1\0001 SP-GTET-DSN-SDL-ACRT-BN\IDLE **Date: 11-Jun-13 20:21:03**

HALLIBURTON

CALIBRATION REPORT

NATURAL GAMMA RAY TOOL SHOP CALIBRATION

Tool Name:	**GTET - 11048627**	**Reference Calibration Date:**	**16-May-13 10:59:59**
Engineer:	**THOMAS HYDE**	**Calibration Date:**	**06-Jun-13 12:46:30**
Software Version:	**WL INSITE R3.8.4 (Build 5)**	**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	20.2	21.0	api

Background + Calibrator	275.3	286.0	api
Calibrator	265.8	265.0	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION

Tool Name: GTET - 11048627 **Reference Calibration Date:** 06-Jun-13 12:46:30

Engineer: THOMAS HYDE **Calibration Date:** 11-Jun-13 16:07:41

Software Version: WL INSITE R3.8.4 (Build 5) **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	21.0	54.9	api
Background + Calibrator	286.0	321.8	api
Calibrator	265.0	266.9	api

Shop	Field	Difference	Tolerance
265.0	266.9	-1.9	+/- 9.00

DUAL SPACED NEUTRON SHOP CALIBRATION

Tool Name: DSNT - 11055304 **Reference Calibration Date:** 20-May-13 09:50:12

Engineer: THOMAS HYDE **Calibration Date:** 20-May-13 10:05:01

Software Version: WL INSITE R3.8.4 (Build 5) **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: 72 degF

Min. Tool Housing Outside Diameter: 3.620 in

CALIBRATION CONSTANTS			
Measurement	Prev. Value	New Value	Control Limit On New Value
Gain:	0.971	0.975	0.900 - 1.100

WATER TANK SUMMARY (Horizontal Water Tank)				
Measurement	Current Reading (Previous Coef.)	Calibrated (New Coef.)	Change	Control Limit On Change
Porosity (decp):	0.2097	0.2107	0.0009	+/- 0.0020
Calibrated Ratio:	9.69	9.72	0.031	+/- 0.050

VERIFIER		
Measurement	Value	Control Limit
Snow-Block Porosity (decp):	0.0635	0.02000 - 0.09000

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

DUAL SPACED NEUTRON FIELD CALIBRATION

Tool Name: DSNT - 11055304 **Reference Calibration Date:** 20-May-13 10:05:01

Engineer: THOMAS HYDE **Calibration Date:** 11-Jun-13 16:21:11

Software Version:	**WL INSITE R3.8.4 (Build 5)**	**Calibration Version:**	**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):	0.0635	0.0772	0.0137	+/- 0.0150

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

DENSITY CALIPER SHOP CALIBRATION

Tool Name:	**SDLT - 11014296**	**Reference Calibration Date:**	**16-Apr-13 08:29:16**
Engineer:	**THOMAS HYDE**	**Calibration Date:**	**30-May-13 08:27:38**
Software Version:	**WL INSITE R3.8.4 (Build 5)**	**Calibration Version:**	**1**
Host Tool Name:	**DSNT - 11055304**		

CALIBRATION COEFFICIENTS			
Measurement	**Previous Value**	**New Value**	**Control Limit On New Value**
Pad Offset	-4390.41	-4151.69	-7000.00 - -1000.00
Pad Gain	0.0003927	0.0004028	0.000200 - 0.000600
Arm Offset	-2117.94	-2550.43	-5000.00 - 3000.00
Arm Gain	0.0004920	0.0005352	0.000300 - 0.000700
Arm Power	-0.000003440	-0.000007104	-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)	1.86	2.00	0.14	+/- 0.20
Medium Ring (in)	3.56	3.75	0.19	+/- 0.20
RING DIAMETER:				
Small Ring (in)	6.47	6.50	0.03	+/- 0.20
Medium Ring (in)	8.15	8.25	0.10	+/- 0.20
Large Ring (in)	15.19	15.00	-0.19	+/- 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 - 11014296**	**Reference Calibration Date:**	**30-May-13 08:27:38**
Engineer:	**THOMAS HYDE**	**Calibration Date:**	**11-Jun-13 16:28:36**
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	3.80	0.05	+/- 0.10

Ring Diameter	8.25	8.28	0.03	+/- 0.15

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

SPECTRAL DENSITY SHOP CALIBRATION

Tool Name:	**SDLT Pad - 10865884**	**Reference Calibration Date:**	**09-Apr-13 11:34:03**
Engineer:	**THOMAS HYDE**	**Calibration Date:**	**30-May-13 07:48:06**
Software Version:	**WL INSITE R3.8.4 (Build 5)**	**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	1.0458	1.0217	0.90 - 1.10
Near Dens Gain	1.0099	1.0088	0.90 - 1.10
Near Peak Gain	1.0073	0.9995	0.90 - 1.10
Near Lith Gain	0.9733	0.9661	0.90 - 1.10
Far Bar Gain	1.0117	1.0092	0.90 - 1.10
Far Dens Gain	1.0020	1.0004	0.90 - 1.10
Far Peak Gain	0.9931	0.9944	0.90 - 1.10
Far Lith Gain	0.9700	0.9674	0.90 - 1.10
Near Bar Offset	-0.2172	0.0023	NONE
Near Dens Offset	0.0802	0.0870	NONE
Near Peak Offset	0.0793	0.1396	NONE
Near Lith Offset	0.3210	0.3762	NONE
Far Bar Offset	0.0401	0.0594	NONE
Far Dens Offset	0.0981	0.1059	NONE
Far Peak Offset	0.1441	0.1250	NONE
Far Lith Offset	0.2803	0.2869	NONE
Near Bar Background	829.86	824.65	700 - 1450
Near Dens Background	274.06	273.73	230 - 480
Near Peak Background	120.83	119.39	100 - 210
Near Lith Background	147.93	146.80	125 - 260
Far Bar Background	510.54	511.66	450 - 900
Far Dens Background	200.45	199.80	175 - 345
Far Peak Background	78.57	79.58	70 - 140
Far Lith Background	81.79	82.15	75 - 145

CALIBRATION BLOCK SUMMARY

Measurement	Current Reading (Previous Coef)	Calibrated (New Coef)	Change	Control Limit On Change
MAGNESIUM				
Density (g/cc)	1.683	1.684	0.001	+/- 0.015
Pe	2.539	2.561	0.022	+/- 0.150
ALUMINUM				
Density (g/cc)	2.594	2.598	0.004	+/- 0.01500
Pe	3.088	3.129	0.041	+/- 0.150

TOOL SUMMARY				
Measurement	Near Detector		Far Detector	
	Value	Control Limits	Value	Control Limits
QUALITY				
Background	-0.0011	+/- 0.0110	-0.0018	+/- 0.0140
Magnesium Block	-0.0008	+/- 0.0110	0.0005	+/- 0.0140
Aluminum Block	0.0008	+/- 0.0110	0.0003	+/- 0.0140
Resolution	9.15	6.00 - 11.50	8.87	6.00 - 11.50
Internal Verifier(B+D+P+L)	1365	1200 - 2700	873	800 - 1700

PASS/FAIL SUMMARY	
Background Quality Check:	Passed
Background Range Check:	Passed
Background Resolution Check:	Passed
Background Verification Check:	Passed
Magnesium Quality Check:	Passed
Aluminum Quality Check:	Passed
Gains Check:	Passed
Changes in Calibration Blocks:	Passed

SPECTRAL DENSITY FIELD CHECK

Tool Name: SDLT Pad - 10865884 **Reference Calibration Date:** 30-May-13 07:48:06

Engineer: THOMAS HYDE **Calibration Date:** 11-Jun-13 16:07:39

Software Version: WL INSITE R3.8.4 (Build 5) **Calibration Version:** 1

Pad Temperature: 92.9 degF

DENSITY FIELD CALIBRATION SUMMARY				
Measurement	Shop	Field	Change	Control Limit +/-
Near (B+D+P+L) cps	1364.575	1368.221	3.646	14.931
Far (B+D+P+L) cps	873.199	872.210	-0.989	16.144
Near Resolution	9.15	9.15	0.000	0.50
Far Resolution	8.87	9.00	0.130	1.00

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

CALIBRATION SUMMARY

Sensor	Shop	Field	Post	Difference	Tolerance	Units
GTET-11048627						
Gamma Ray Calibrator	265.0	266.9	----------	-1.9	+/- 9.00	api
DSNT-11055304						
Snow-Block Porosity	0.0635	0.0772	----------	-0.0137	+/- 0.0150	decp
SDLT-11014296						
Pad Extension	3.75	3.80	----------	-0.05	+/-0.10	in
Ring Diameter	8.25	8.28	----------	-0.03	+/-0.15	in
SDLT Pad-10865884						
Near(B+D+P+L)	1364.575	1368.221	----------	-3.646	+/-14.931	cps
Far(B+D+P+L)	873.199	872.210	----------	0.989	+/-16.144	cps

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PARAMETERS REPORT

Depth (ft)	Tool Name	Mnemonic	Description	Value	Units
TOP					
	SHARED	BS	Bit Size	7.875	in
	SHARED	UBS	Use Bit Size instead of Caliper for all applications.	No	
	SHARED	MDBS	Mud Base	Water	
	SHARED	MDWT	Borehole Fluid Weight	9.200	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	1.050	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	5825.00	ft
	SHARED	BHT	Bottom Hole Temperature	200.0	degF
	SHARED	SVTM	Navigation and Survey Master Tool	NONE	
	SHARED	AZTM	High Res Z Accelerometer Master Tool	GTET	
	SHARED	TEMM	Temperature Master Tool	NONE	
	SHARED	BHSM	Borehole Size Master Tool	NONE	
	Rwa / CrossPlot	XPOK	Process Crossplot?	Yes	
	Rwa / CrossPlot	FCHO	Select Source of F	Automatic	
	Rwa / CrossPlot	AFAC	Archie A factor	0.6200	
	Rwa / CrossPlot	MFAC	Archie M factor	2.1500	
	Rwa / CrossPlot	RMFR	Rmf Reference	0.10	ohmm
	Rwa / CrossPlot	TMFR	Rmf Ref Temp	75.00	degF
	Rwa / CrossPlot	RWA	Resistivity of Formation Water	0.05	ohmm
	Rwa / CrossPlot	ADP	Use Air Porosity to calculate CrossplotPhi	No	
	GTET	GROK	Process Gamma Ray?	Yes	
	GTET	GRSO	Gamma Tool Standoff	0.000	in
	GTET	GEOK	Process Gamma Ray EVR?	No	
	GTET	TPOS	Tool Position for Gamma Ray Tools.	Eccentered	
	DSNT	DNOK	Process DSN?	Yes	
	DSNT	DEOK	Process DSN EVR?	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	
	Micrologd 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	
	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
	BSAT	MBOK	Compute BCAS Results?	Yes	
	BSAT	FLLO	Frequency Filter Low Pass Value?	5000	Hz
	BSAT	FLHI	Frequency Filter High Pass Value?	27000	Hz
	BSAT	DTFL	Delta -T Fluid	189.00	uspf
	BSAT	DTMT	Delta -T Matrix Type	User define	
	BSAT	DTMA	Delta -T Matrix	47.60	uspf
	BSAT	DTSH	Delta -T Shale	100.00	uspf
	BSAT	SPEQ	Acoustic Porosity Equation	Wylie	
	ACRt Sonde	RTOK	Process ACRt?	Yes	
	ACRt Sonde	MNSO	Minimum Tool Standoff	1.50	in
	ACRt Sonde	TCS1	Temperature Correction Source	FP Lwr & FP Upr	
	ACRt Sonde	TPOS	Tool Position	Free Hanging	
	ACRt Sonde	RMOP	Rmud Source	Mud Cell	
	ACRt Sonde	RMIN	Minimum Resistivity for MAP	0.20	ohmm
	ACRt Sonde	RMIN	Maximum Resistivity for MAP	200.00	ohmm
	ACRt Sonde	THQY	Threshold Quality	0.50	
	ACRt Sonde	MRFX	Fixed mud resistivity	2000	ohmm

BOTTOM

Data: GRIFFIN_D-1\0001 SP-GTET-DSN-SDL-ACRT-BN\IDLE **Date: 11-Jun-13 21:17:43**

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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	
	Cable Head Tension			
DHTN	DownholeTension	0.00	BLK	0.000
	SP Sub			
PLTC	Plot Control Mask	72.01	NO	
SP	Spontaneous Potential	72.01	BLK	1.250
SPR	Raw Spontaneous Potential	72.01	NO	
SPO	Spontaneous Potential Offset	72.01	NO	
	GTET			
TPUL	Tension Pull	63.99	NO	
GR	Natural Gamma Ray API	63.99	TRI	1.750
GRU	Unfiltered Natural Gamma Ray API	63.99	NO	
EGR	Natural Gamma Ray API with Enhanced Vertical Resolution	63.99	W	1.416 , 0.750
ACCZ	Accelerometer Z	0.00	BLK	0.083
DEVI	Inclination	0.00	NO	
	DSNT			
TPUL	Tension Pull	53.74	NO	
RNDS	Near Detector Telemetry Counts	53.84	BLK	1.417

RFDS	Far Detector Telemetry Counts	54.59	TRI	0.583
DNTT	DSN Tool Temperature	53.84	NO	
DSNS	DSN Tool Status	53.74	NO	
ERND	Near Detector Telemetry Counts EVR	53.84	BLK	0.000
ERFD	Far Detector Telemetry Counts EVR	54.59	BLK	0.000
ENTM	DSN Tool Temperature EVR	53.84	NO	
	SDLT			
TPUL	Tension Pull	43.84	NO	
PCAL	Pad Caliper	43.84	TRI	0.250
ACAL	Arm Caliper	43.84	TRI	0.250
	BSAT			
TPUL	Tension Pull	26.84	NO	
STAT	Status	26.84	NO	
DLYT	Delay Time	26.84	NO	
SI	Sample Interval	26.84	NO	
TXRX	Raw Telemetry 10 Receivers	26.84	NO	
FRMC	Tool Frame Count	26.84	NO	
GMOD	Gain processing mode	19.58	NO	
	ACRt Sonde			
TPUL	Tension Pull	2.73	NO	
F1R1	ACRT 12KHz - 80in R value	8.98	BLK	0.000
F1X1	ACRT 12KHz - 80in X value	8.98	BLK	0.000
F1R2	ACRT 12KHz - 50in R value	6.48	BLK	0.000
F1X2	ACRT 12KHz - 50in X value	6.48	BLK	0.000
F1R3	ACRT 12KHz - 29in R value	4.98	BLK	0.000
F1X3	ACRT 12KHz - 29in X value	4.98	BLK	0.000
F1R4	ACRT 12KHz - 17in R value	3.98	BLK	0.000
F1X4	ACRT 12KHz - 17in X value	3.98	BLK	0.000
F1R5	ACRT 12KHz - 10in R value	3.48	BLK	0.000
F1X5	ACRT 12KHz - 10in X value	3.48	BLK	0.000
F1R6	ACRT 12KHz - 6in R value	3.23	BLK	0.000
F1X6	ACRT 12KHz - 6in X value	3.23	BLK	0.000
F2R1	ACRT 36KHz - 80in R value	8.98	BLK	0.000
F2X1	ACRT 36KHz - 80in X value	8.98	BLK	0.000
F2R2	ACRT 36KHz - 50in R value	6.48	BLK	0.000
F2X2	ACRT 36KHz - 50in X value	6.48	BLK	0.000
F2R3	ACRT 36KHz - 29in R value	4.98	BLK	0.000
F2X3	ACRT 36KHz - 29in X value	4.98	BLK	0.000
F2R4	ACRT 36KHz - 17in R value	3.98	BLK	0.000
F2X4	ACRT 36KHz - 17in X value	3.98	BLK	0.000
F2R5	ACRT 36KHz - 10in R value	3.48	BLK	0.000
F2X5	ACRT 36KHz - 10in X value	3.48	BLK	0.000
F2R6	ACRT 36KHz - 6in R value	3.23	BLK	0.000
F2X6	ACRT 36KHz - 6in X value	3.23	BLK	0.000
F3R1	ACRT 72KHz - 80in R value	8.98	BLK	0.000
F3X1	ACRT 72KHz - 80in X value	8.98	BLK	0.000
F3R2	ACRT 72KHz - 50in R value	6.48	BLK	0.000
F3X2	ACRT 72KHz - 50in X value	6.48	BLK	0.000
F3R3	ACRT 72KHz - 29in R value	4.98	BLK	0.000
F3X3	ACRT 72KHz - 29in X value	4.98	BLK	0.000
F3R4	ACRT 72KHz - 17in R value	3.98	BLK	0.000
F3X4	ACRT 72KHz - 17in X value	3.98	BLK	0.000
F3R5	ACRT 72KHz - 10in R value	3.48	BLK	0.000

F3X5	ACRT 72KHz - 10in X value	3.48	BLK	0.000
F3R6	ACRT 72KHz - 6in R value	3.23	BLK	0.000
F3X6	ACRT 72KHz - 6in X value	3.23	BLK	0.000
RMUD	Mud Resistivity	12.52	BLK	0.000
F1RT	Transmitter 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	

Microlog Pad

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

SDLT Pad

TPUL	Tension Pull	43.83	NO	
NAB	Near Above	43.66	BLK	0.920
NHI	Near Cesium High	43.66	BLK	0.920
NLO	Near Cesium Low	43.66	BLK	0.920
NVA	Near Valley	43.66	BLK	0.920
NBA	Near Barite	43.66	BLK	0.920
NDE	Near Density	43.66	BLK	0.920
NPK	Near Peak	43.66	BLK	0.920
NLI	Near Lithology	43.66	BLK	0.920
NBAU	Near Barite Unfiltered	43.66	BLK	0.250
NLIU	Near Lithology Unfiltered	43.66	BLK	0.250
FAB	Far Above	44.01	BLK	0.250
FHI	Far Cesium High	44.01	BLK	0.250
FLO	Far Cesium Low	44.01	BLK	0.250
FVA	Far Valley	44.01	BLK	0.250
FBA	Far Barite	44.01	BLK	0.250
FDE	Far Density	44.01	BLK	0.250
FPK	Far Peak	44.01	BLK	0.250
FLI	Far Lithology	44.01	BLK	0.250
PTMP	Pad Temperature	43.84	BLK	0.920
NHV	Near Detector High Voltage	43.24	NO	
FHV	Far Detector High Voltage	43.24	NO	
ITMP	Instrument Temperature	43.24	NO	
DDHV	Detector High Voltage	43.24	NO	

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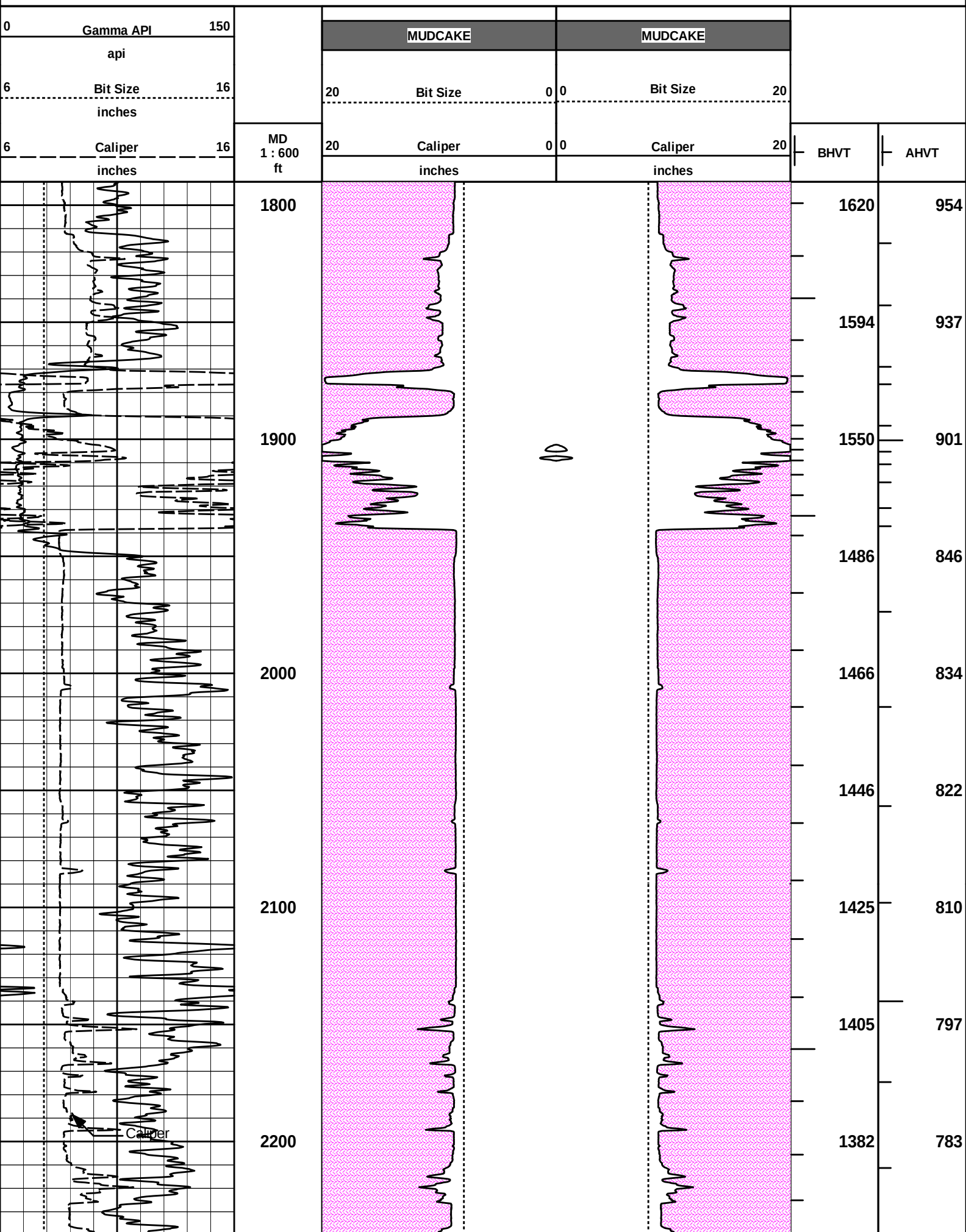
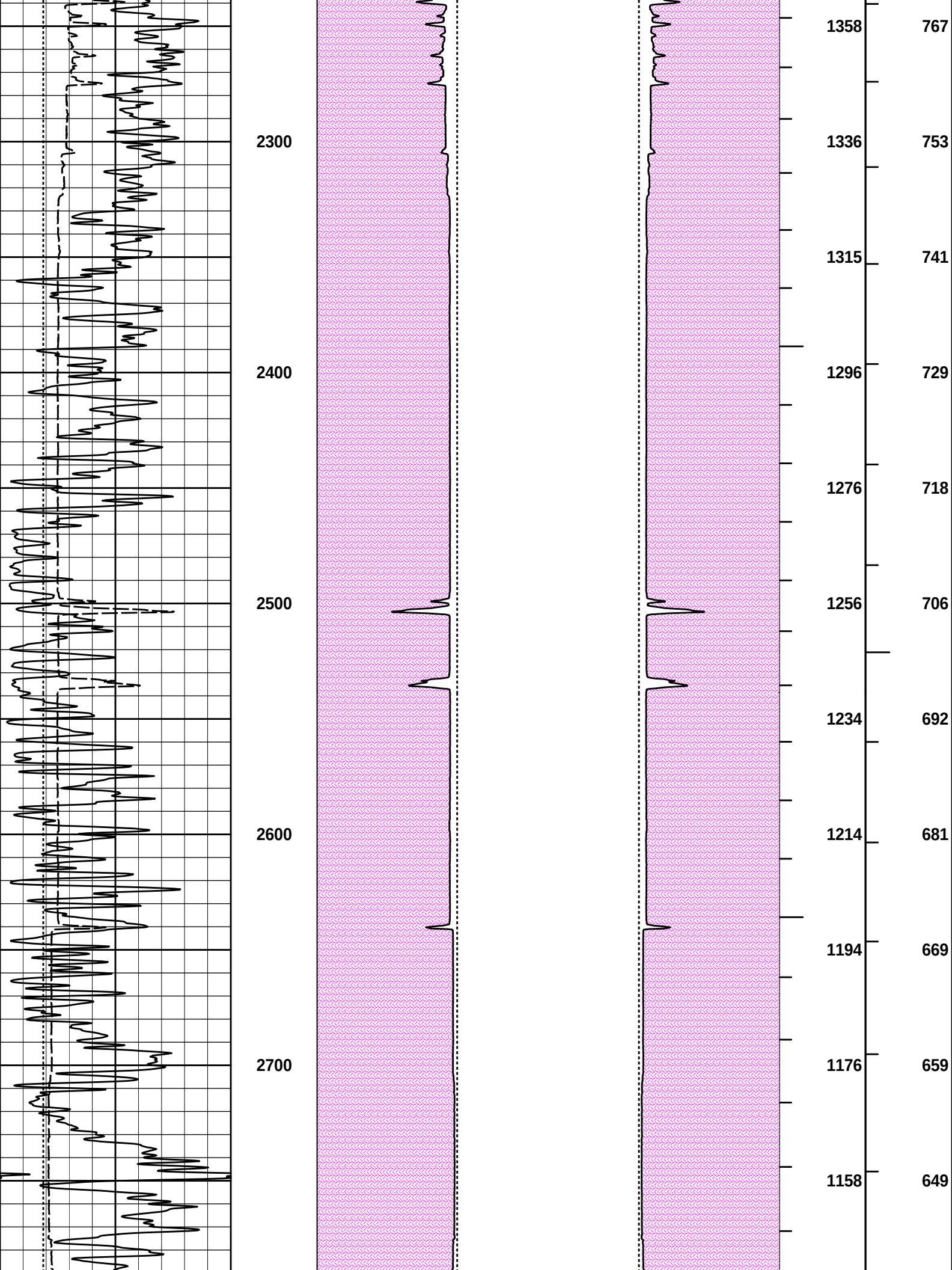
Plot Time: 11-Jun-13 23:52:05
Plot Range: 1790 ft to 5832.92 ft
Data: GRIFFIN_D-1\Well Based\DAQ-0001-003
Plot File: \\-LOCAL-\GRIFFIN_D-1\0001 SP-GTET-DSN-SDL-ACRT-BN\PORO\AHV_2_IQ_LIB

ANNULAR HOLE VOLUME PLOT

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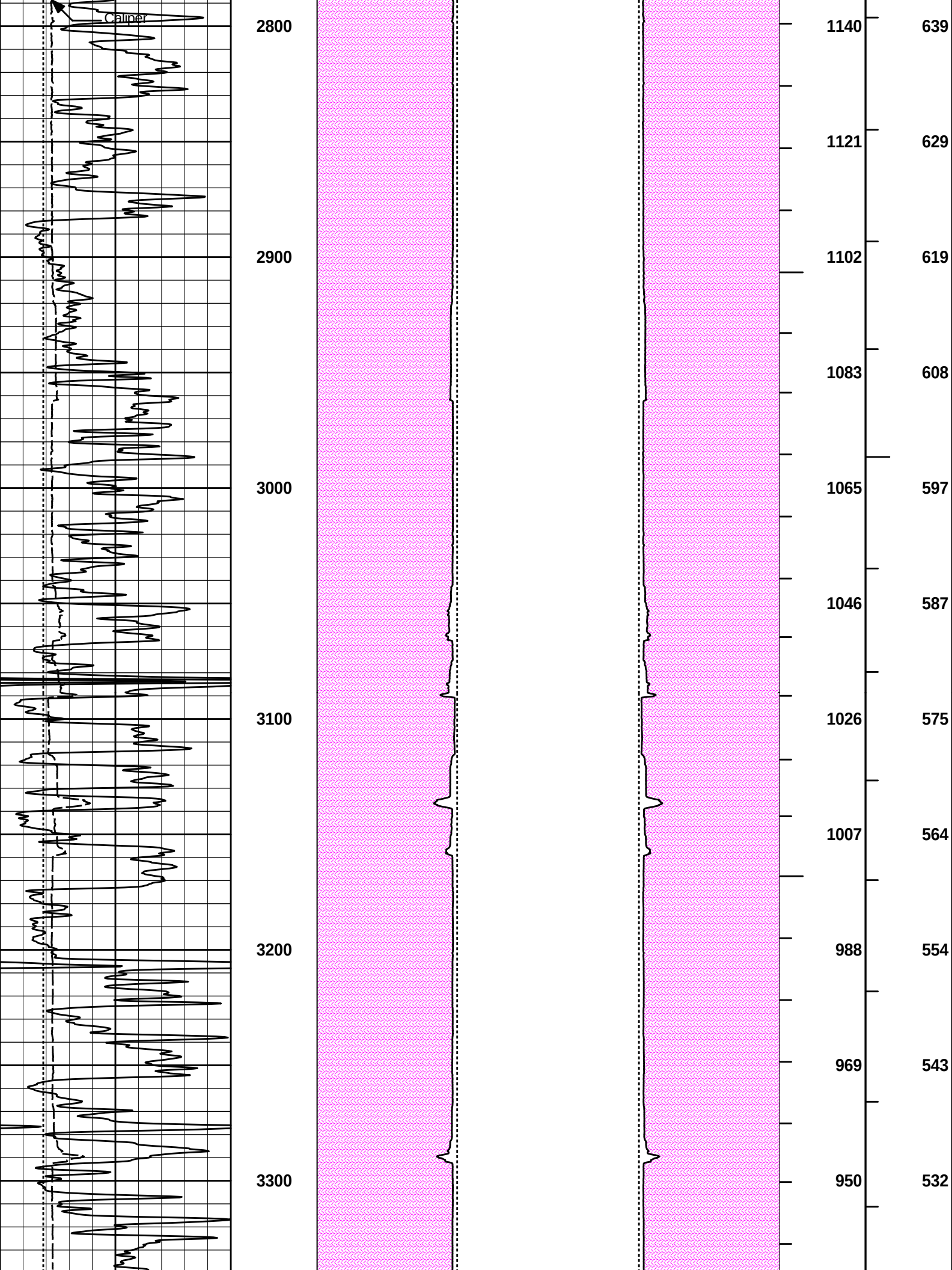
729
718
706
692
681
669
659
649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3000
3100
3200
3300
1140
1121
1102
1083
1065
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1007
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619
608
597
587
575
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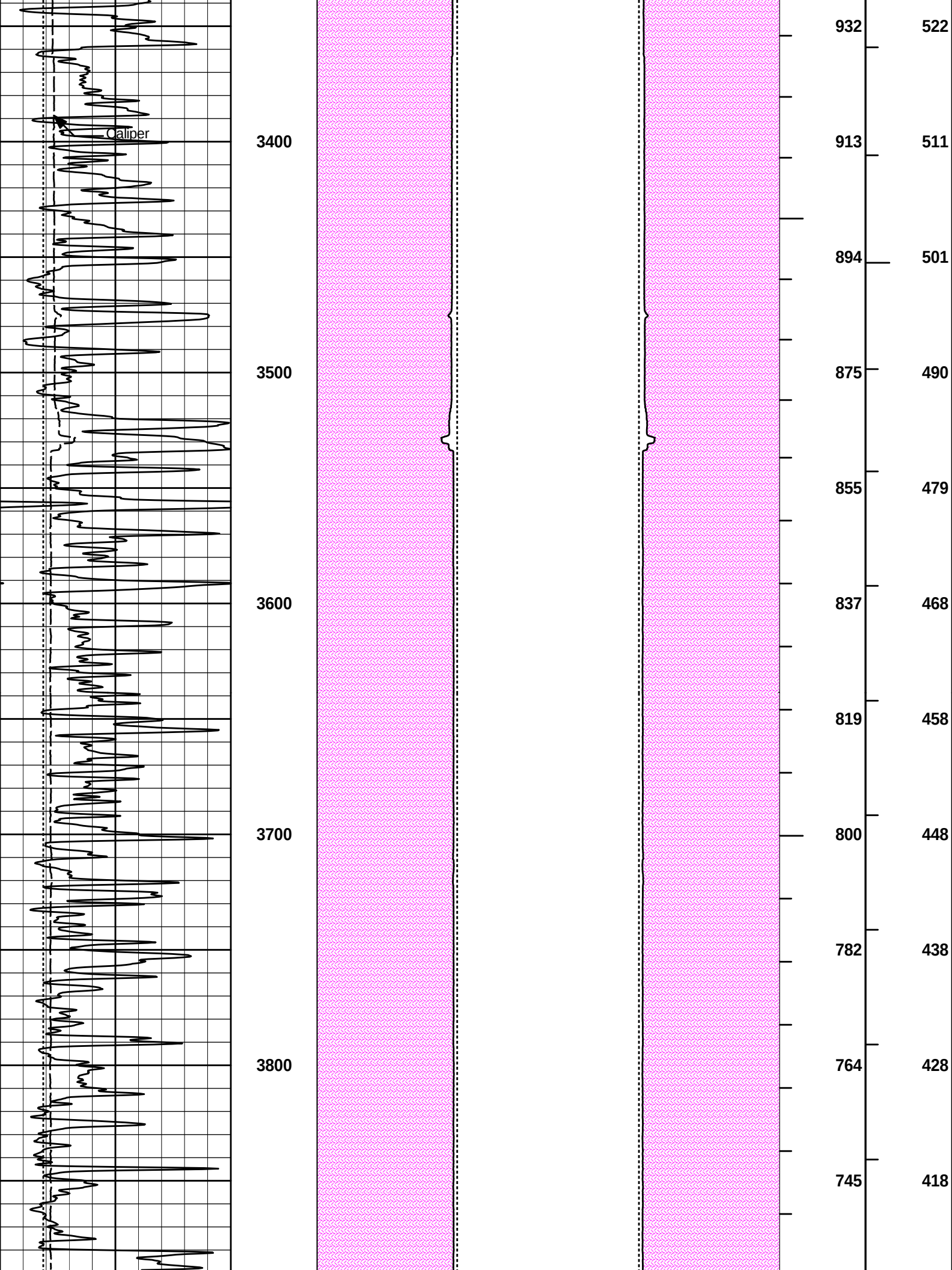
554
543
532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3600
3700
3800
932
913
894
875
855
837
819
800
782
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490
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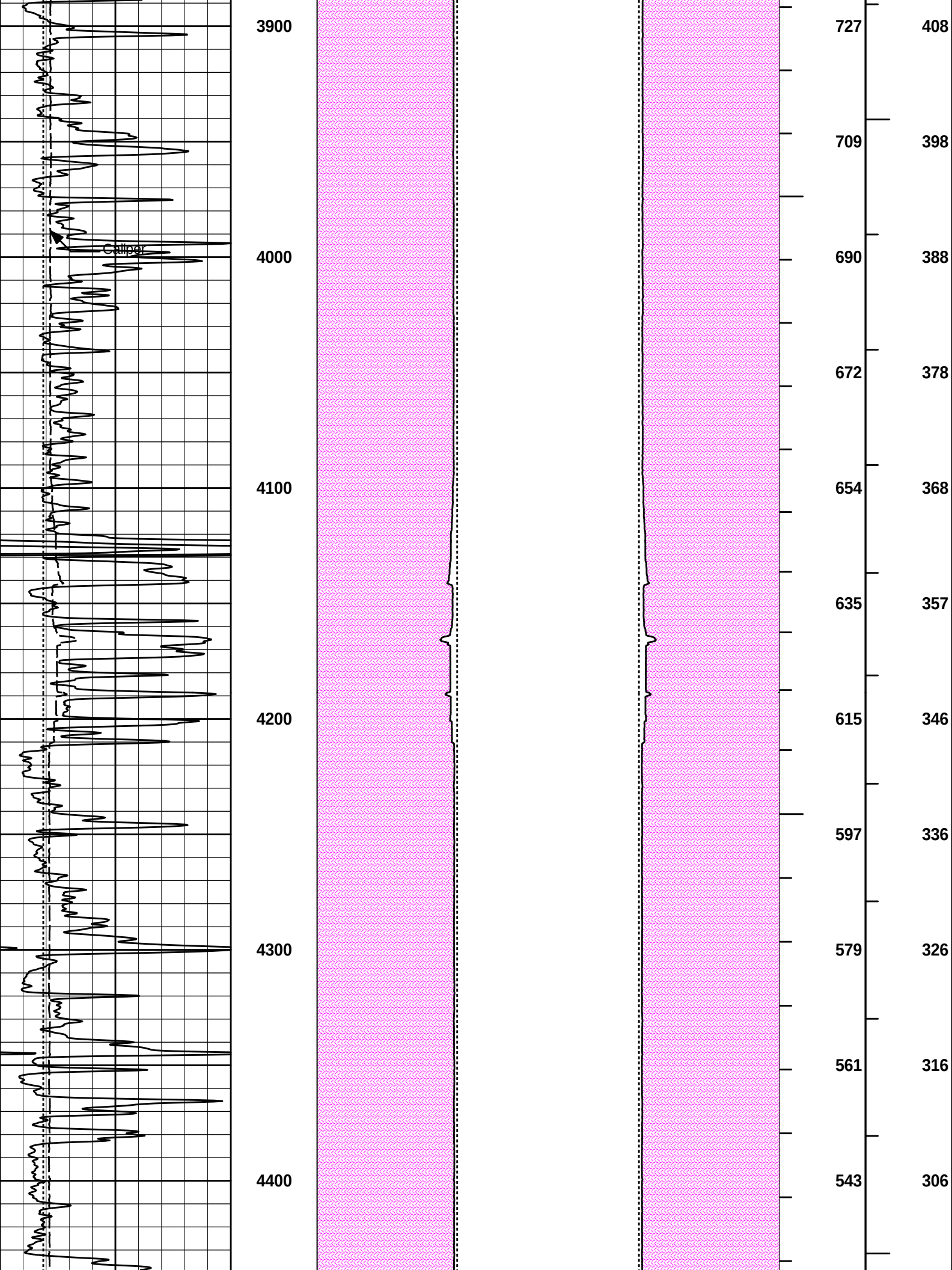
468
458
448
438
428
418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3900
4000
4100
4200
4300
4400
727
709
690
672
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543
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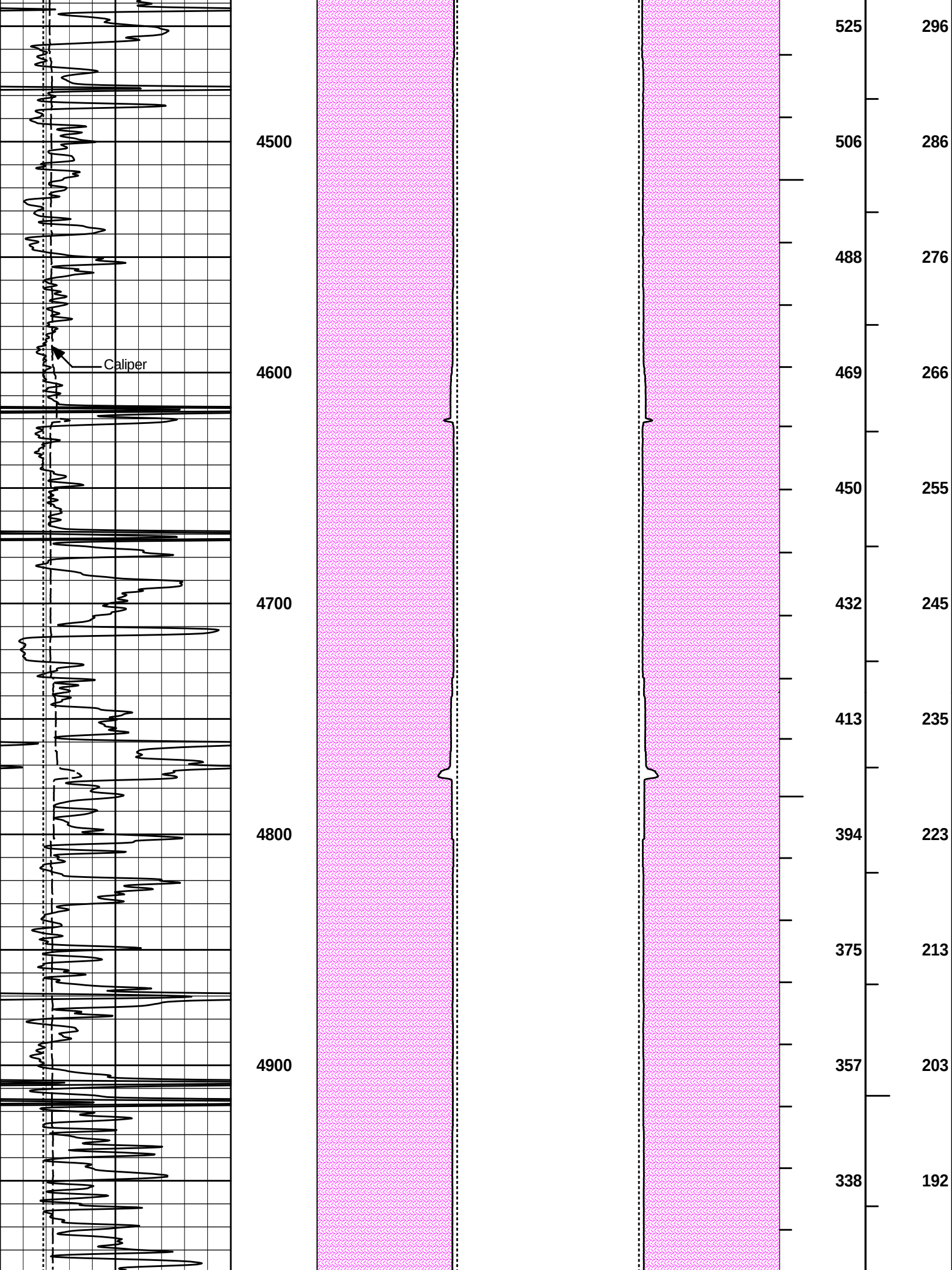
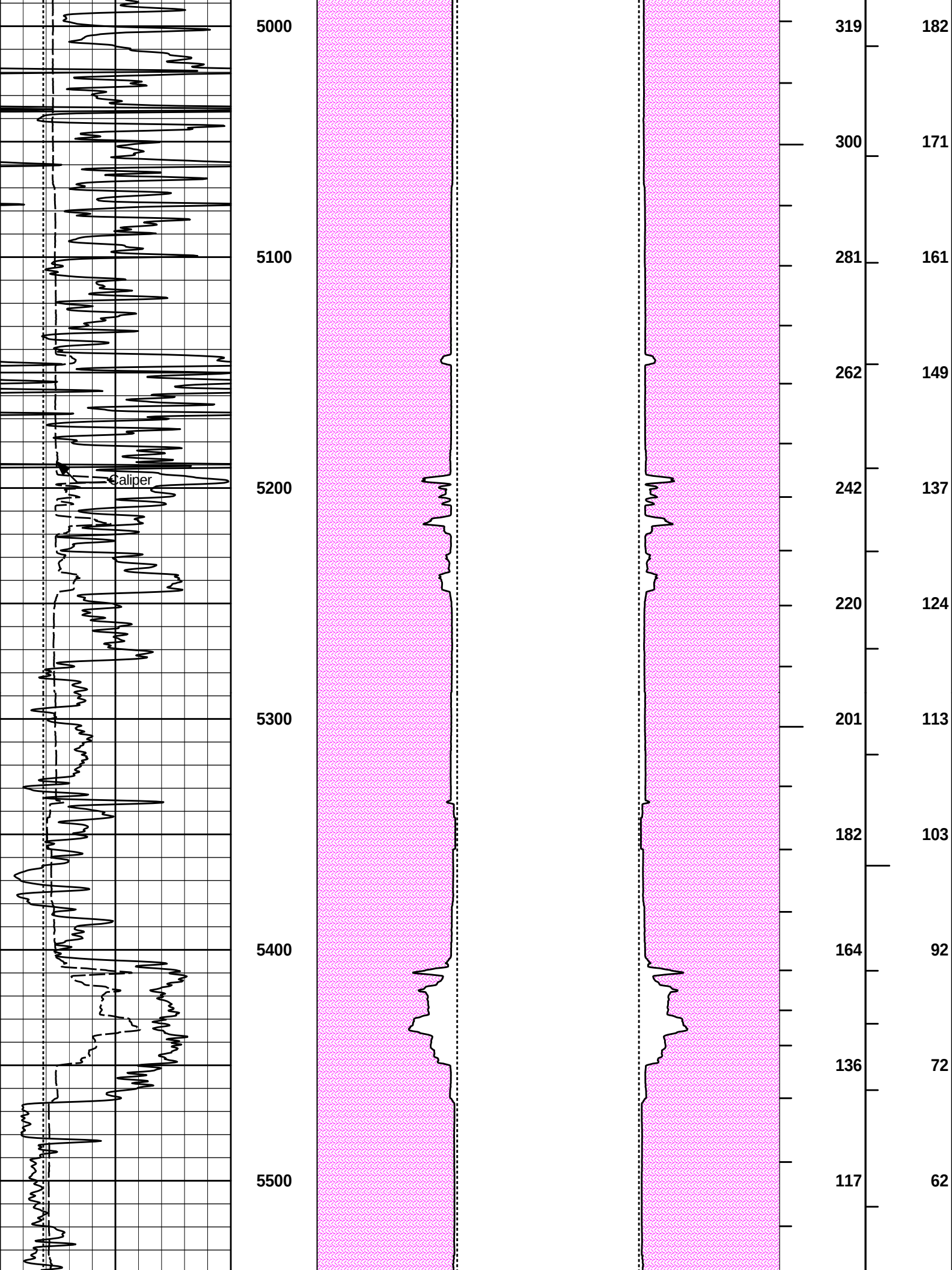
316
306


Caliper
4500
4600
4700
4800
4900
525
506
488
469
450
432
413
394
375
357
338
296
286
276
266
255
245
235
223
213
203
192


Caliper
5000
5100
5200
5300
5400
5500
319
300
281
262
242
220
201
182
164
136
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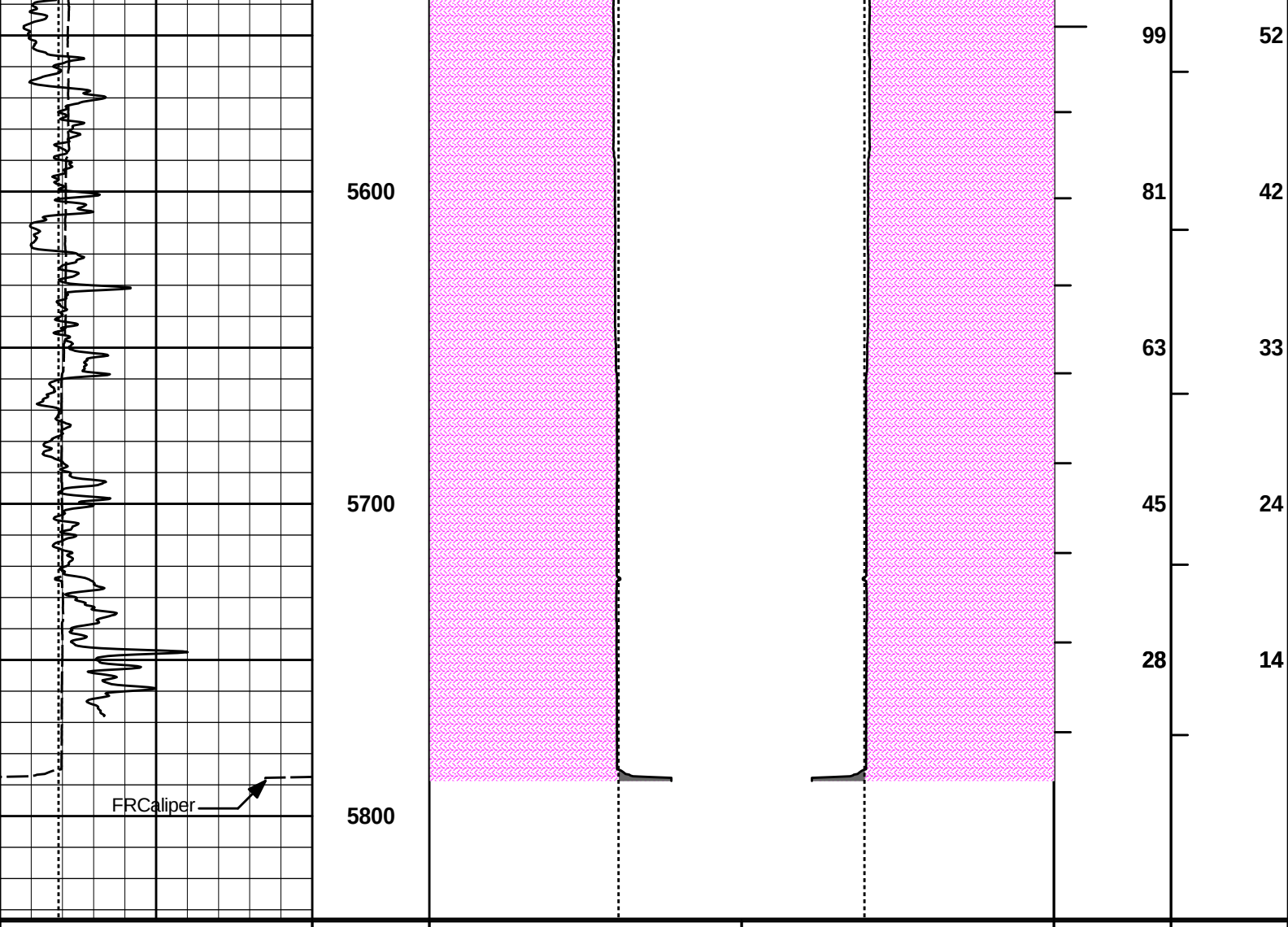
171
161
149
137
124
113
103
92
72
62



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

HALLIBURTON

Plot Time: 11-Jun-13 23:52:11
Plot Range: 1790 ft to 5832.92 ft
Data: GRIFFIN_D-1\Well Based\DAQ-0001-003\
Plot File: \\-LOCAL-\GRIFFIN_D-1\0001 SP-GTET-DSN-SDL-ACRT-BN\PORO\AHV_2_IQ_LIB

ANNULAR HOLE VOLUME PLOT

COMPANY	**OXY USA**		
WELL	**GRIFFIN D-1**		
FIELD	**HUGOTON GAS AREA**		
COUNTY	**HASKELL**	STATE	**KANSAS**

HALLIBURTON

DUAL SPACED NEUTRON SPECTRAL DENSITY

	LOG