

HALLBURTON

DUAL SPACED NEUTRON
SPECTRAL DENSITY
LOG

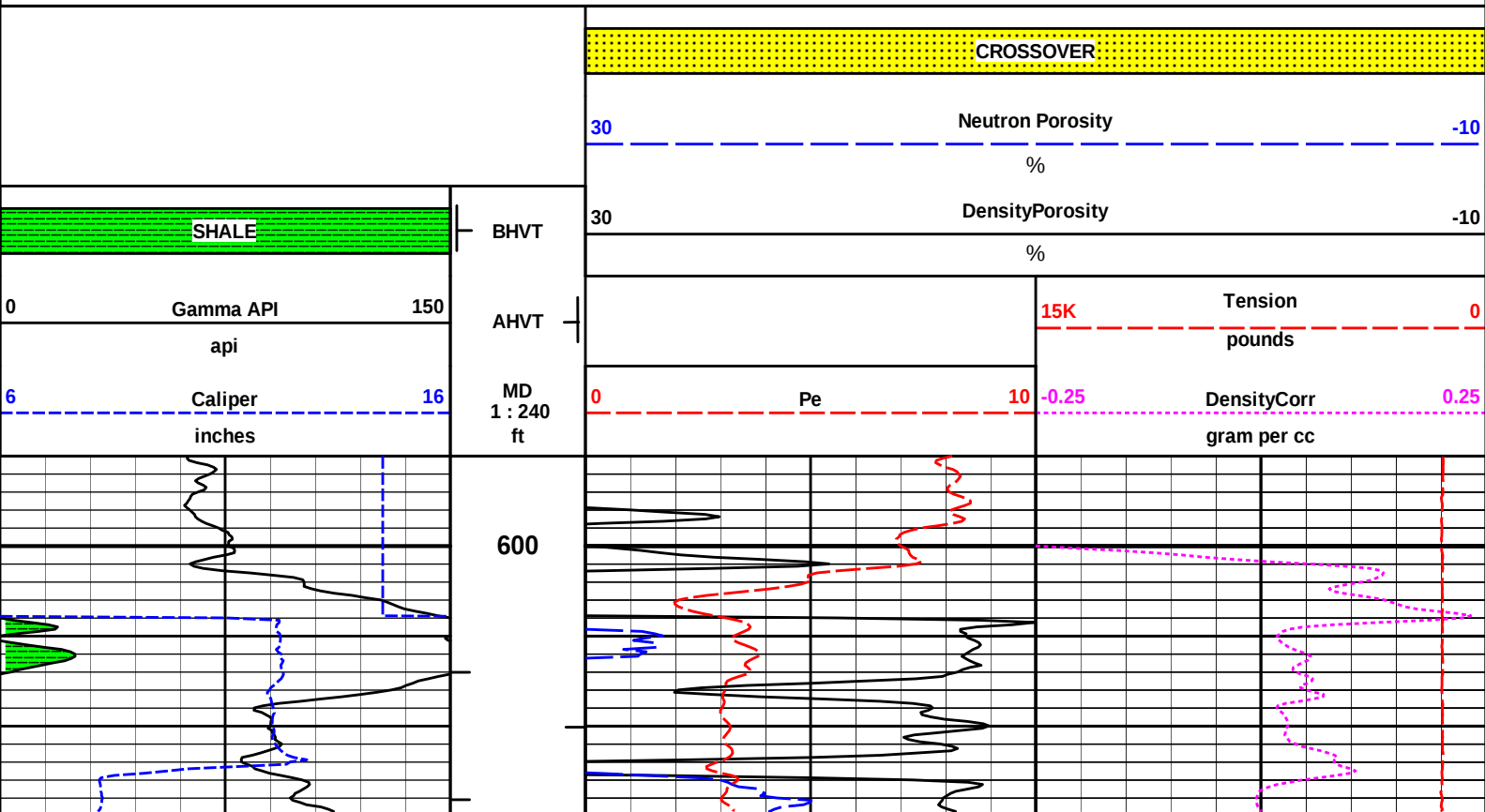
COMPANY		PIONEER NATURAL RESOURCES USA, INC.	
WELL		ROUSE et al ATU1	
FIELD/BLOCK		HUGOTON PONOMA	
COUNTY		STEVENS	
STATE		KANSAS	
Permanent Datum		GL	
Log measured from		KB	
Drilling measured from		KB	
Date		06-Aug-13	
Run No.		ONE	
Depth - Driller		3126.00 ft	
Depth - Logger		3134.0 ft	
Bottom - Logged Interval		3112	
Top - Logged Interval		603	
Casing - Driller		8.625 in @ 606.8 ft	
Casing - Logger		603.0 ft @	
Bit Size		7.875 in @	
Type Fluid in Hole		WATER BASED MUD	
Density		9.1 ppg 53.00 s/qt	
PH		11.30 pH 11.6 cp/m	
Source of Sample		MUD PIT	
Rm @ Meas. Temperature		1.000 ohmm @ 85.00 degF @	
Rmf @ Meas. Temperature		0.85 ohmm @ 75.00 degF @	
Rmc @ Meas. Temperature		1.150 ohmm @ 75.00 degF @	
Source Rmf		CALCULATED	
Rm @ BHT		0.80 ohmm @ 108.0 degF @	
Time Since Circulation		5.5 hr	
Time on Bottom		06-Aug-13 12:57	
Max. Rec. Temperature		108.0 degF @ 3134.0 ft @	
Equipment		11230668 LIBERAL	
Recorded By		S. INGERSOLL	
Witnessed By		K. SWAFFORD	

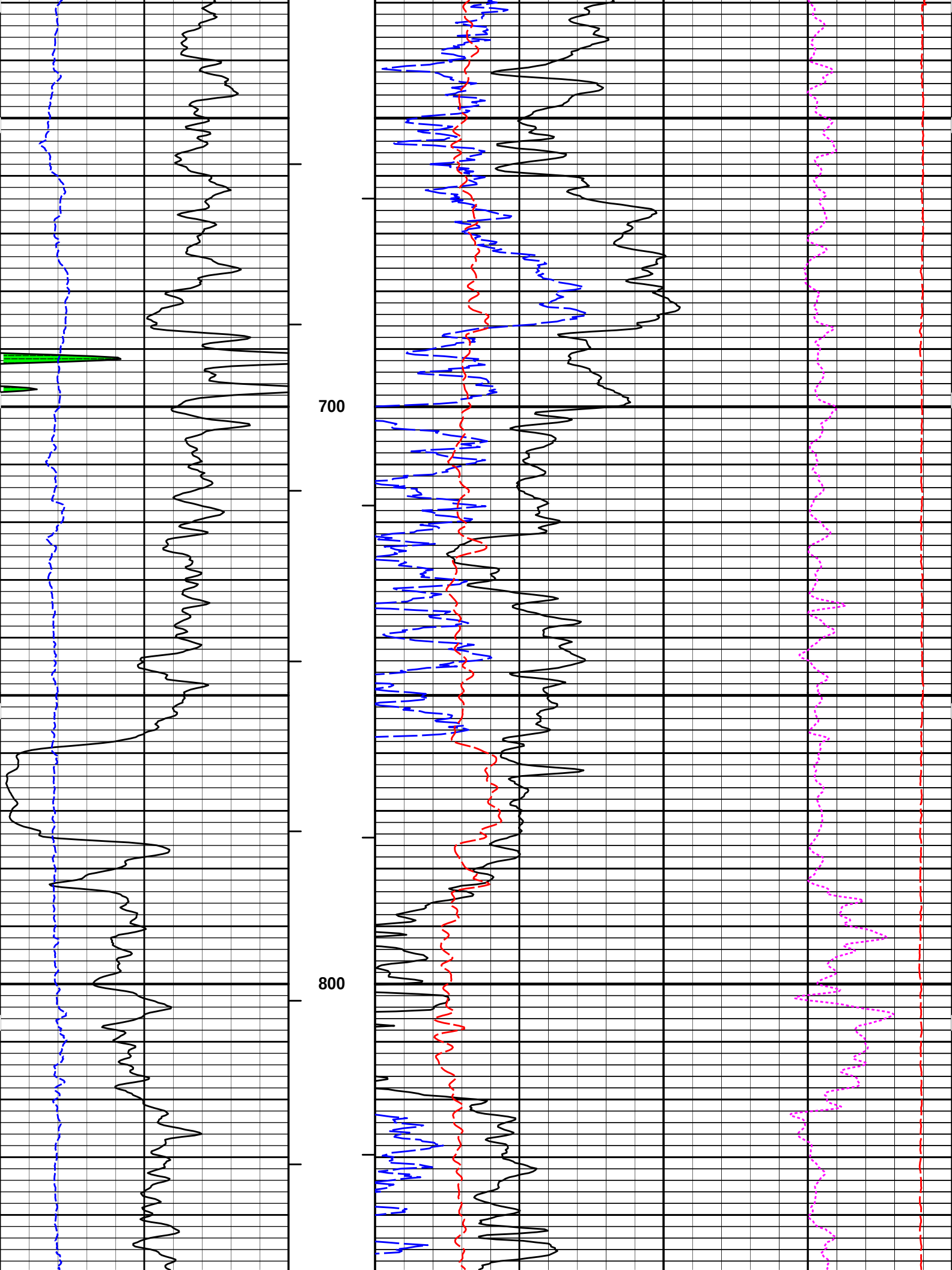
COMPANY	PIONEER NATURAL RESOURCES USA, INC.
WELL	ROUSE et al ATU1
FIELD/BLOCK	HUGOTON PONOMA
COUNTY	STEVENS
STATE	KANSAS
API No.	15-189-22803
Location	(SHL) 212' FSL & 234' FWL SW-SW-SW-SW
Other Services:	DSN / SDL CSNG ACRT

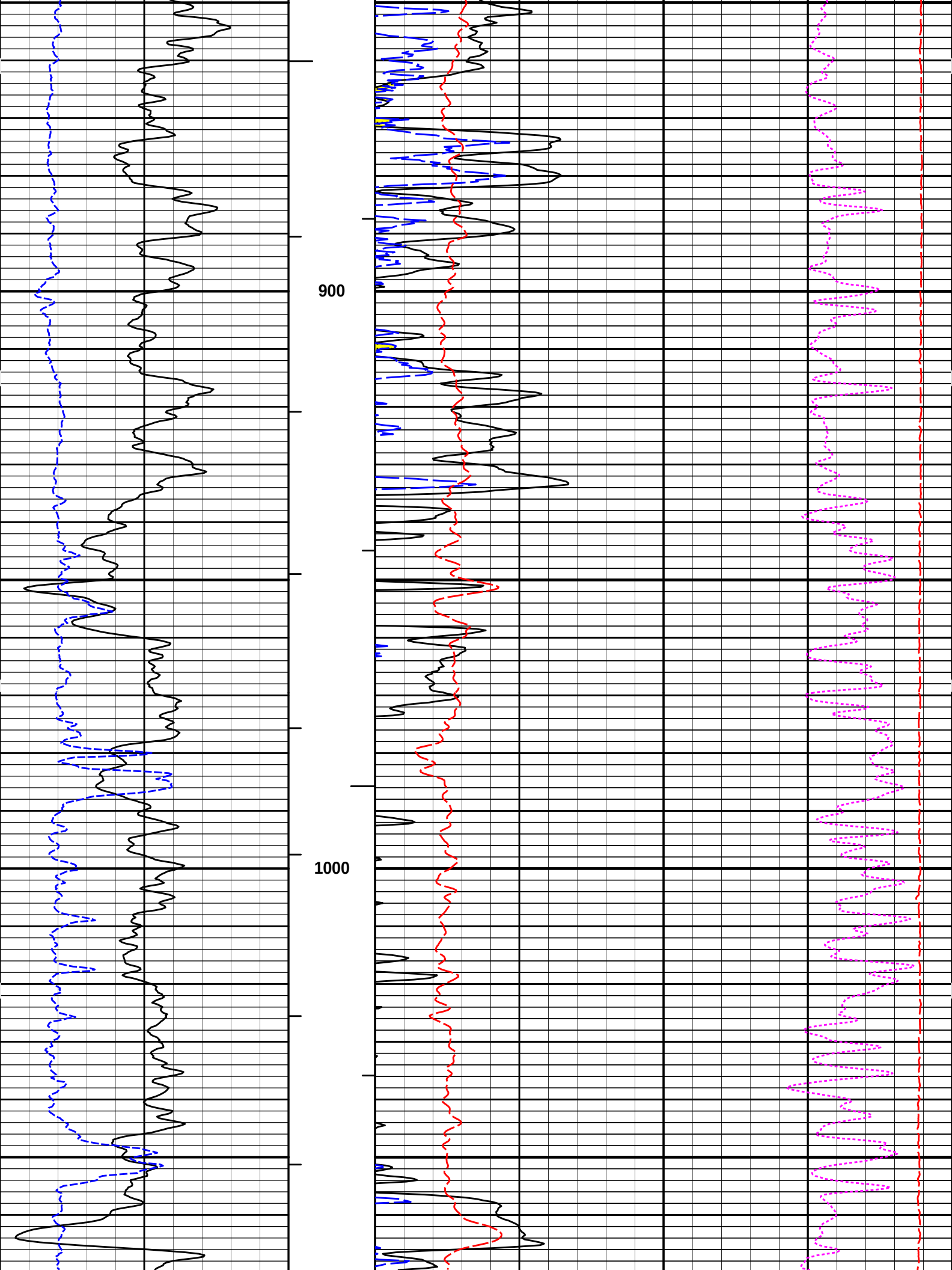
Sect. 14	Twp. 31S	Rge. 37W
Elev. 3091.0 ft	Elev. K.B. 3103.0 ft	D.F. 3103.0 ft
12.0 ft above perm. Datum	G.L. 3091.0 ft	

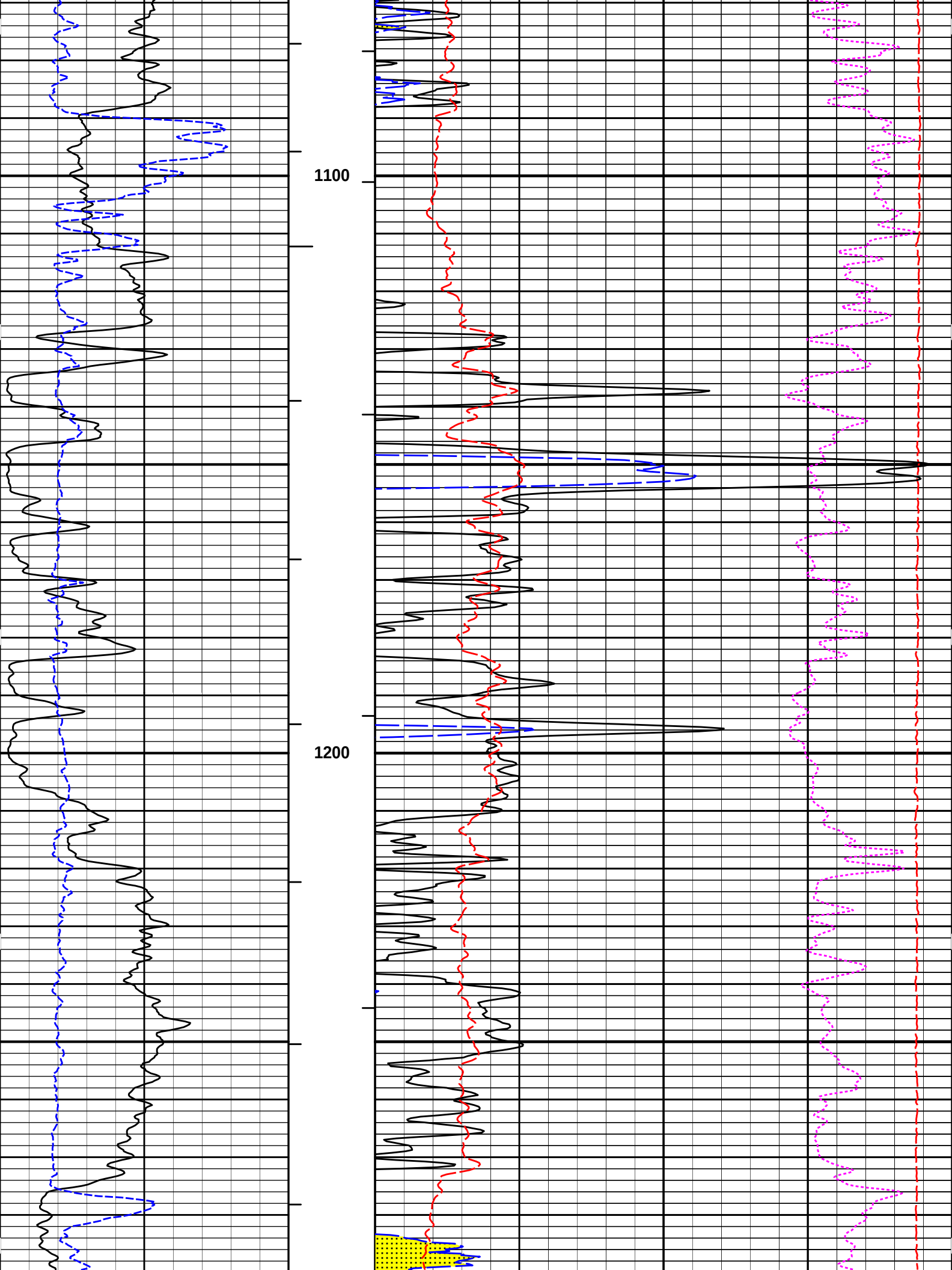
Fold here

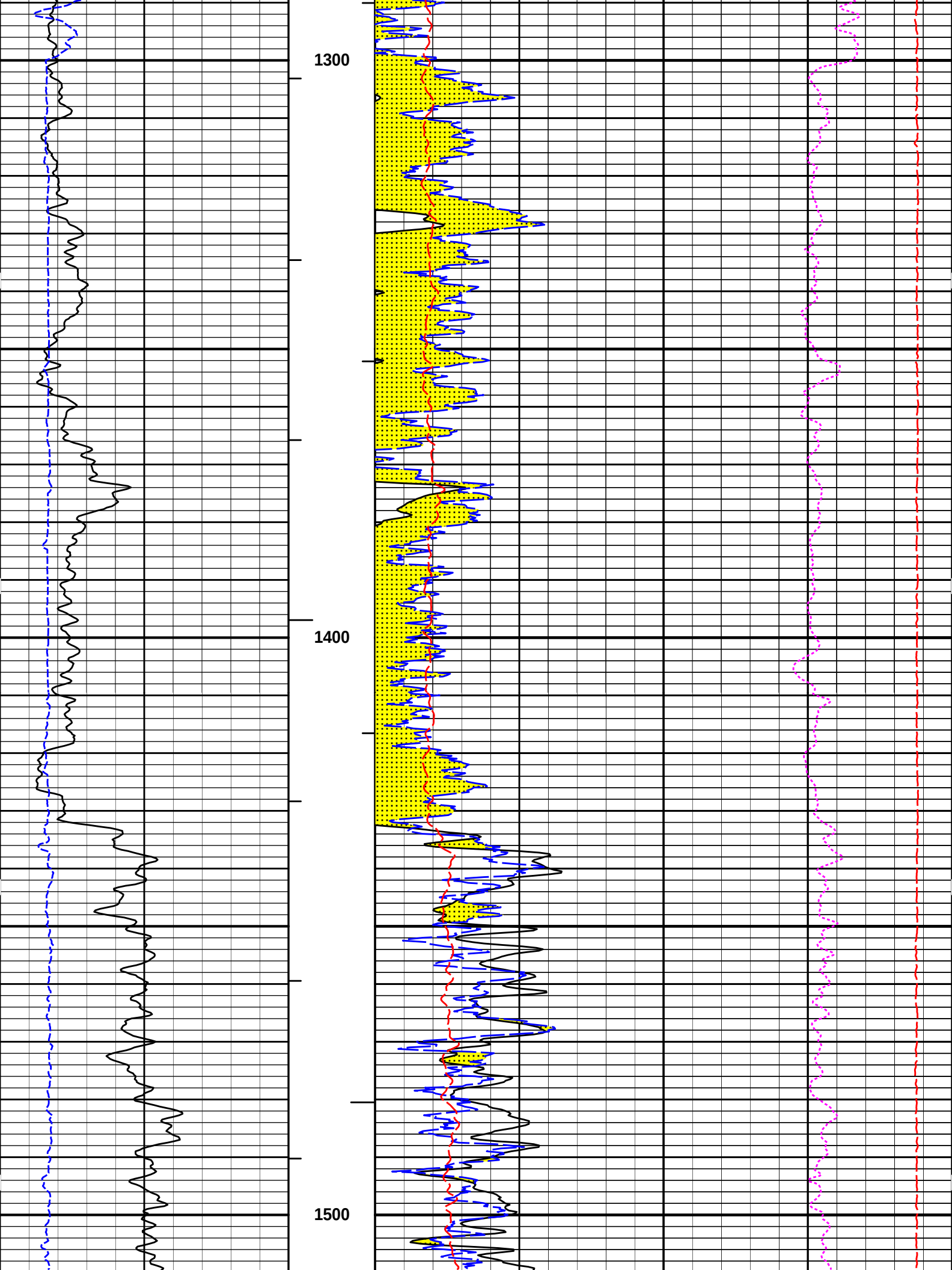
Service Ticket No.: 900593096				API Serial No.: 15-189-22803				PGM Version: WL INSITE R3.8.4 (Build 5)							
CHANGE IN MUD TYPE OR ADDITIONAL SAMPLE						RESISTIVITY SCALE CHANGES									
Date		Sample No.				Type Log		Depth		Scale Up Hole		Scale Down Hole			
Depth-Driller															
Type Fluid 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.			
Rmc @ Meas. Temp.		@		@				10929776							
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.		10748374		Serial No.				Serial No.		10673790		Serial No.		10755066	
Model No.		GTET		Model No.				Model No.		SDLT		Model No.		DSNT	
Diameter		3.625"		No. of Cent.				Diameter		5.3"		Diameter		3.625"	
Detector Model No.		T-102		Spacing				Log Type		GAM-GAM		Log Type		NEU-NEU	
Type		SCINT						Source Type		CS-137		Source Type		AM-241BE	
Length		8"		LSA [Y/N]				Serial No.		5073GW		Serial No.		DSN-436	
Distance to Source		N/A		FWDA [Y/N]				Strength		1.5 CI		Strength		15 CI	
LOGGING DATA															

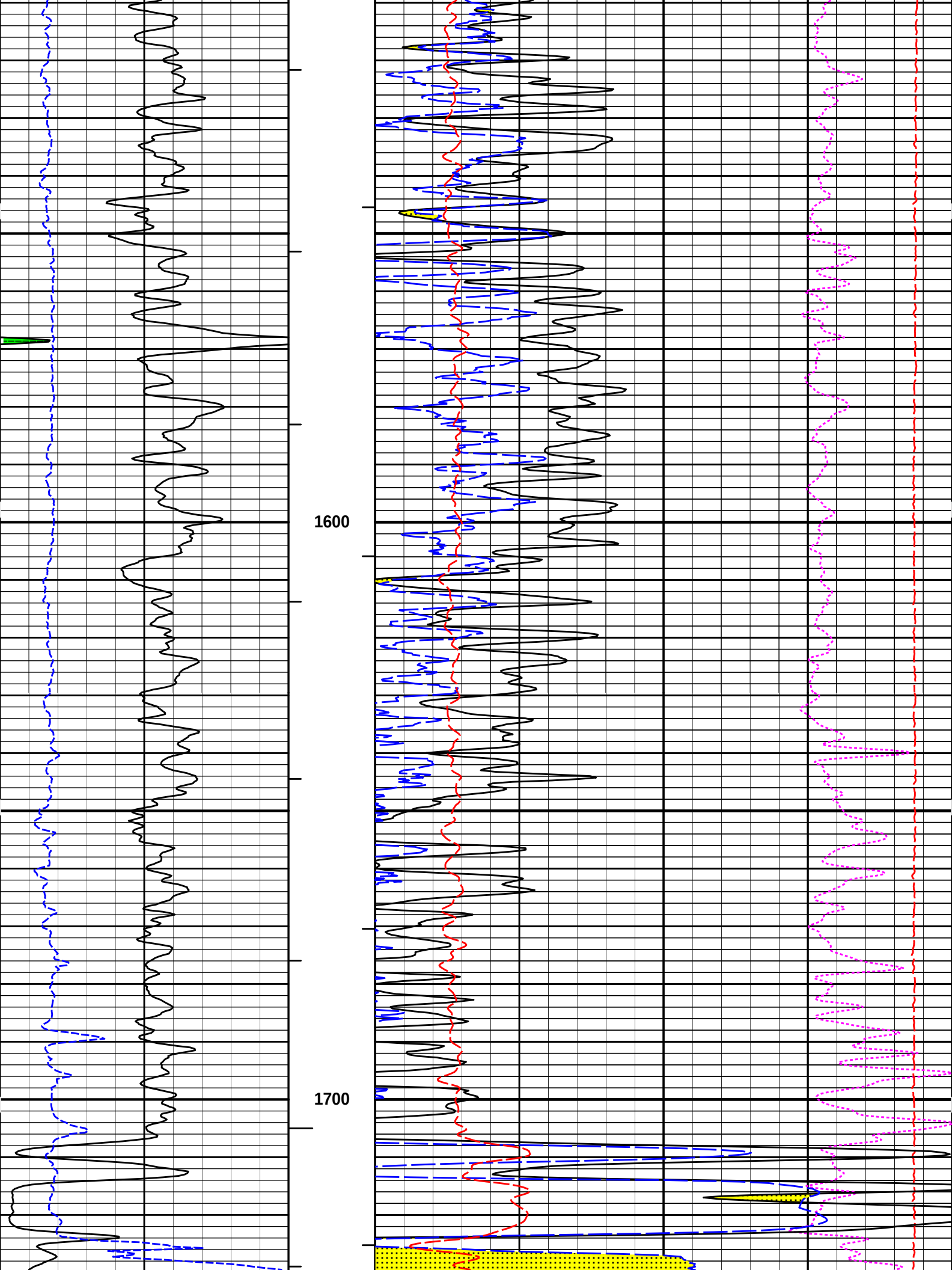
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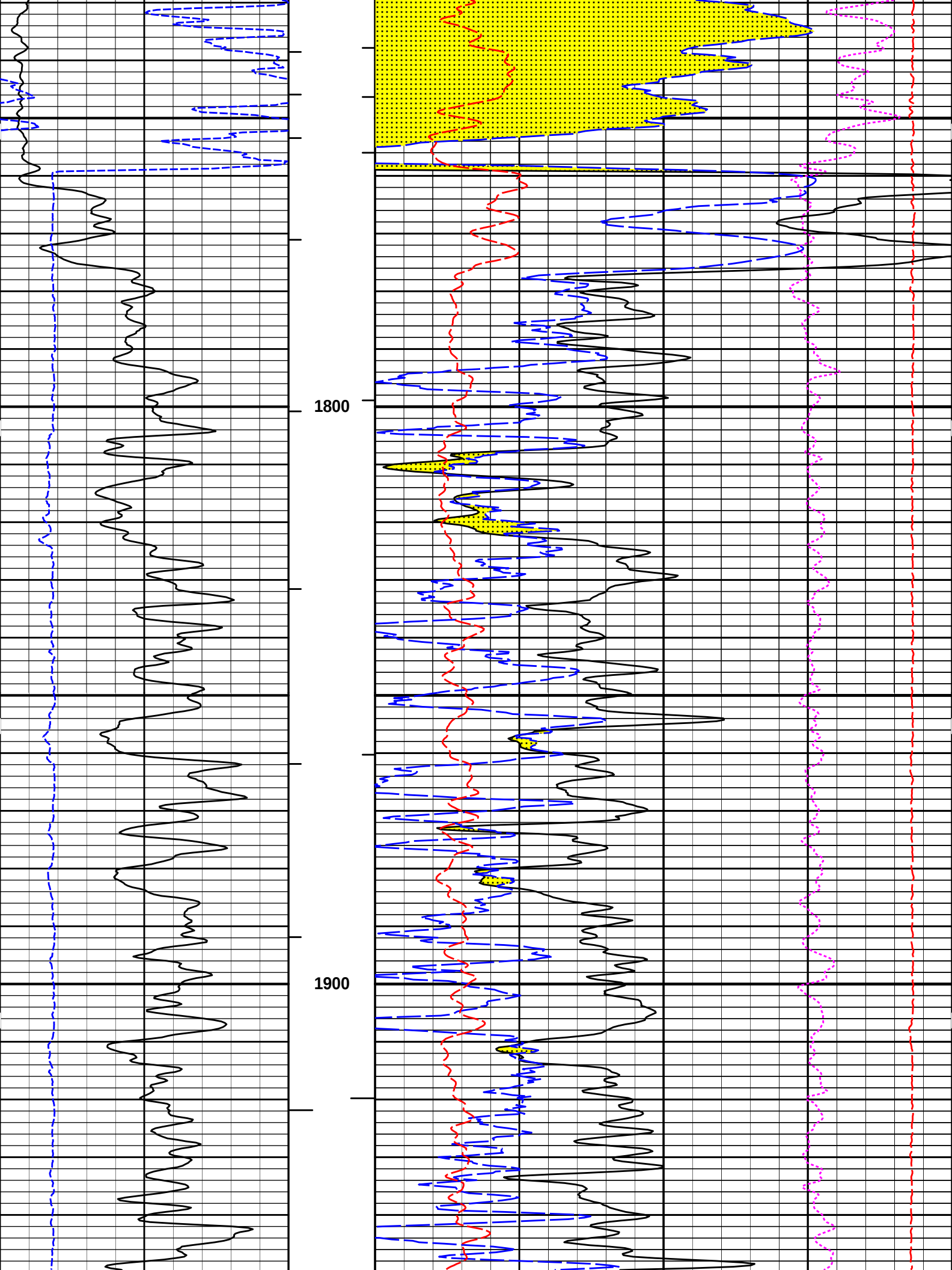


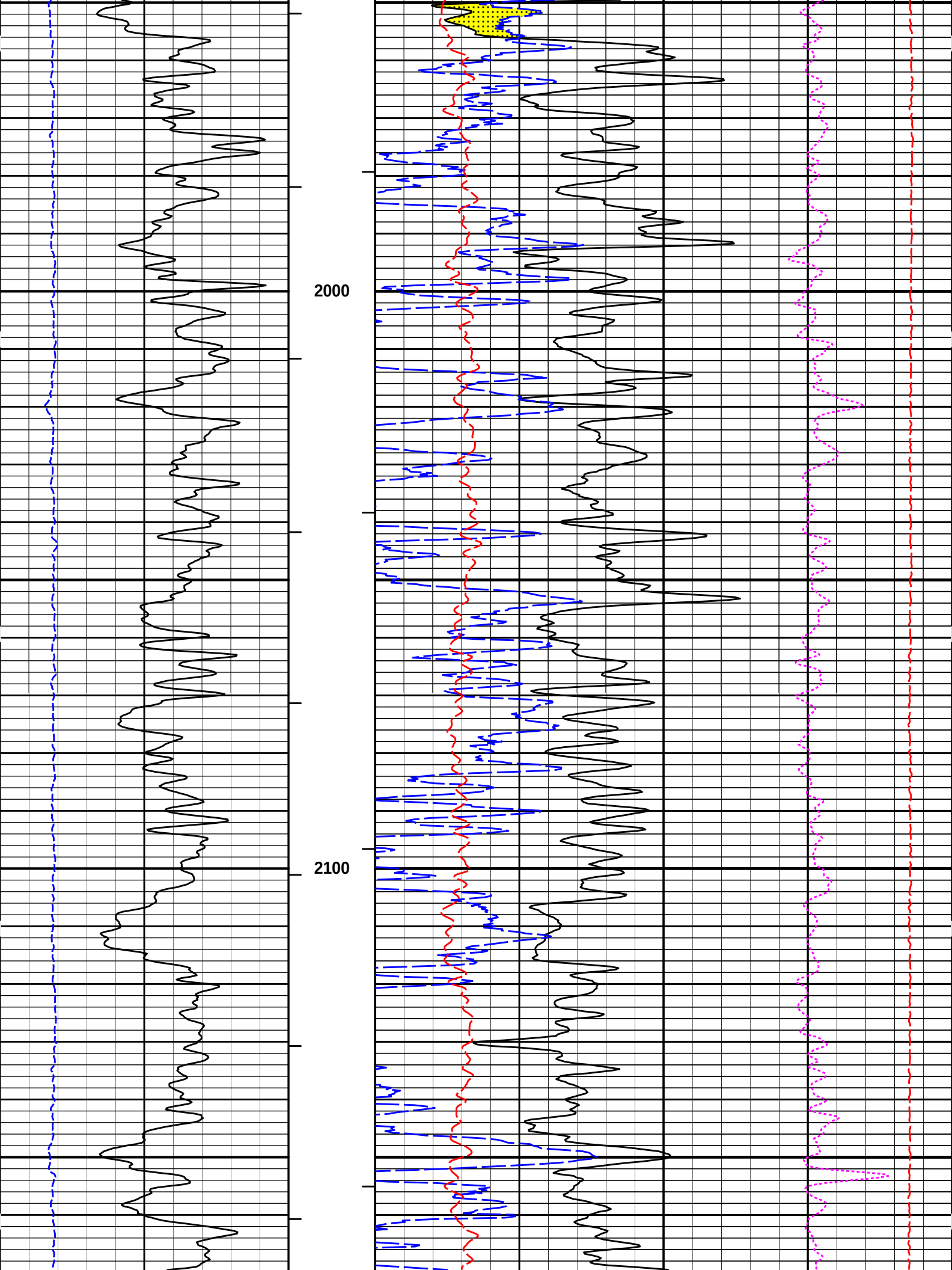


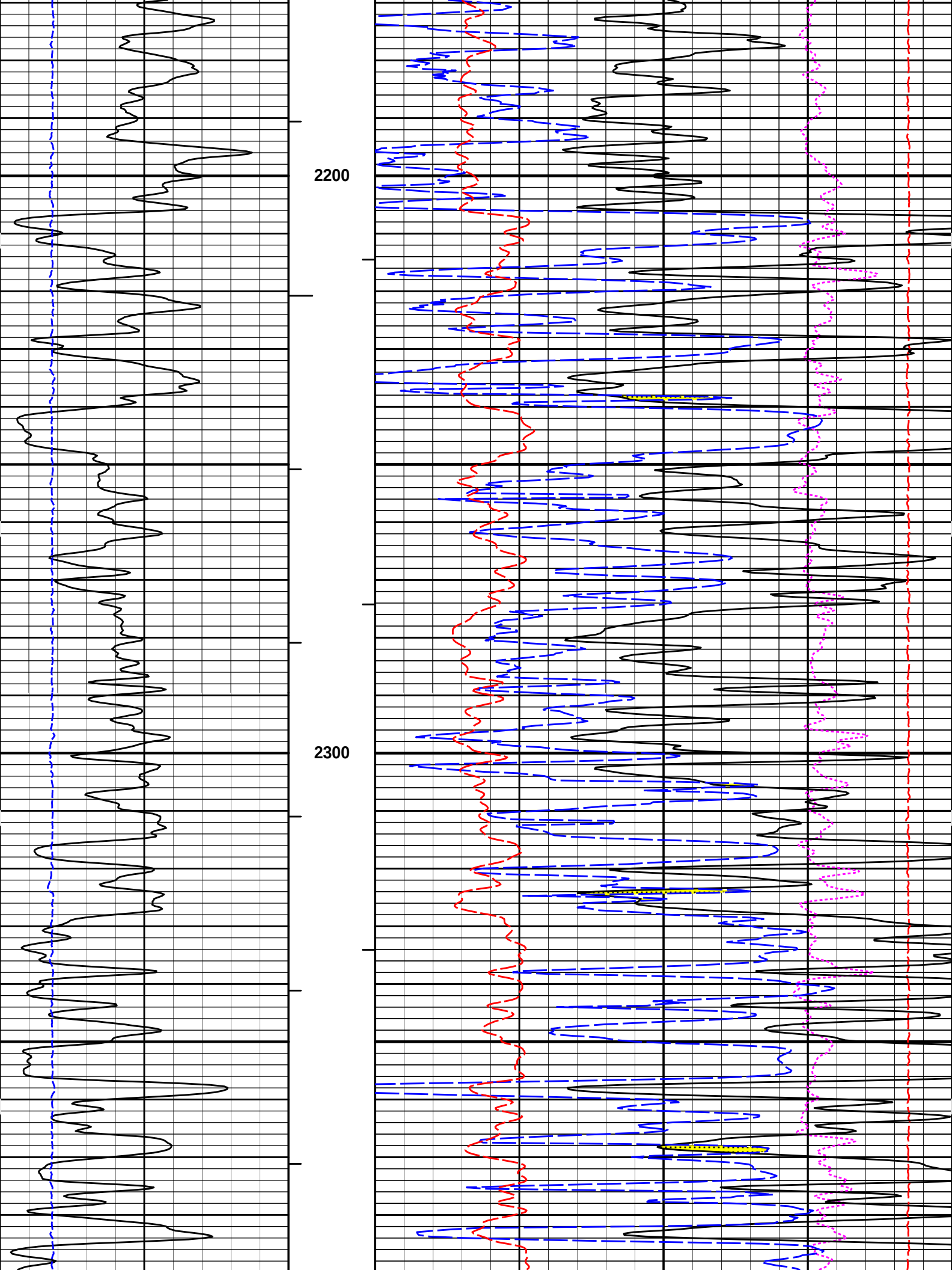


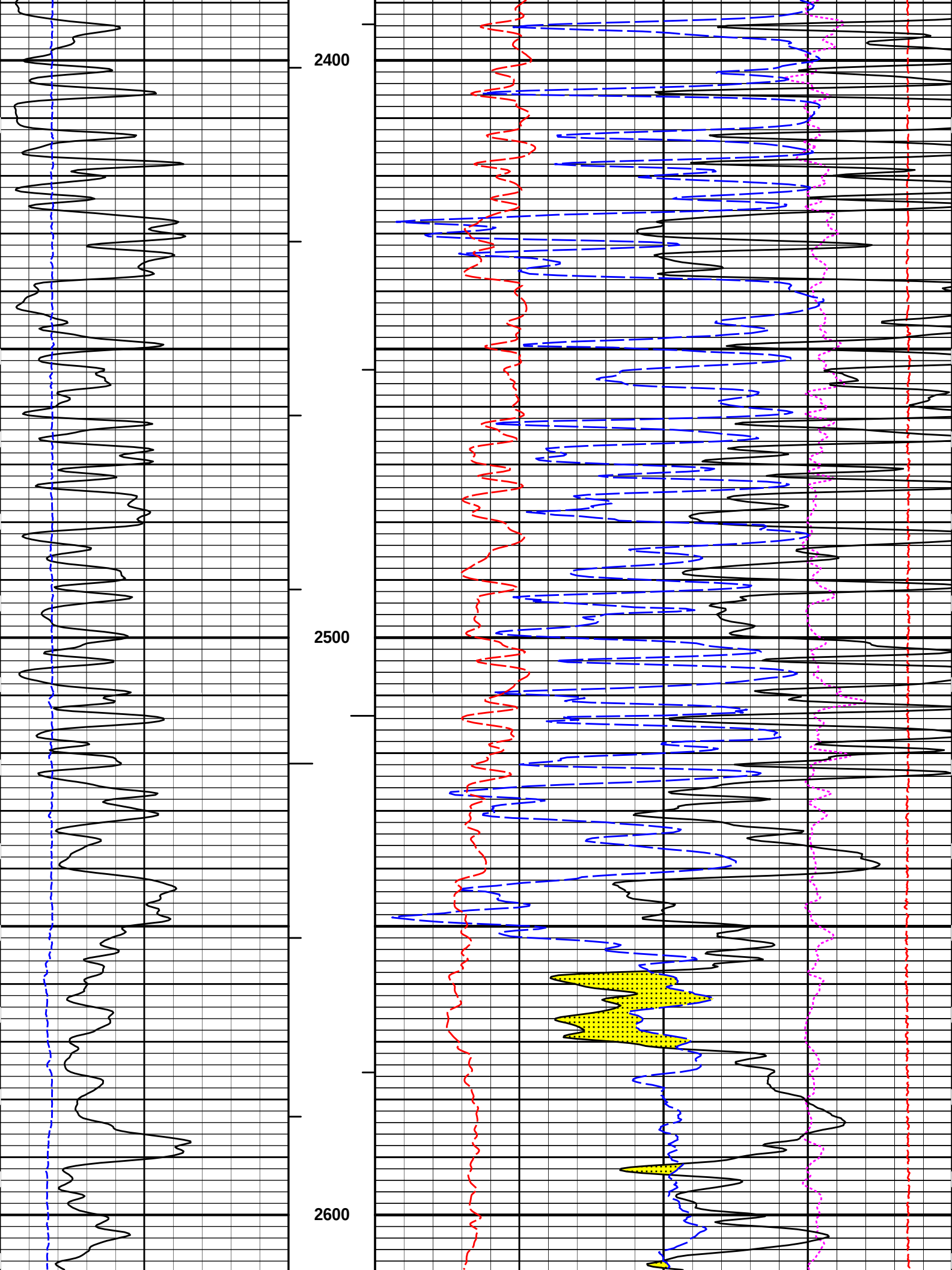


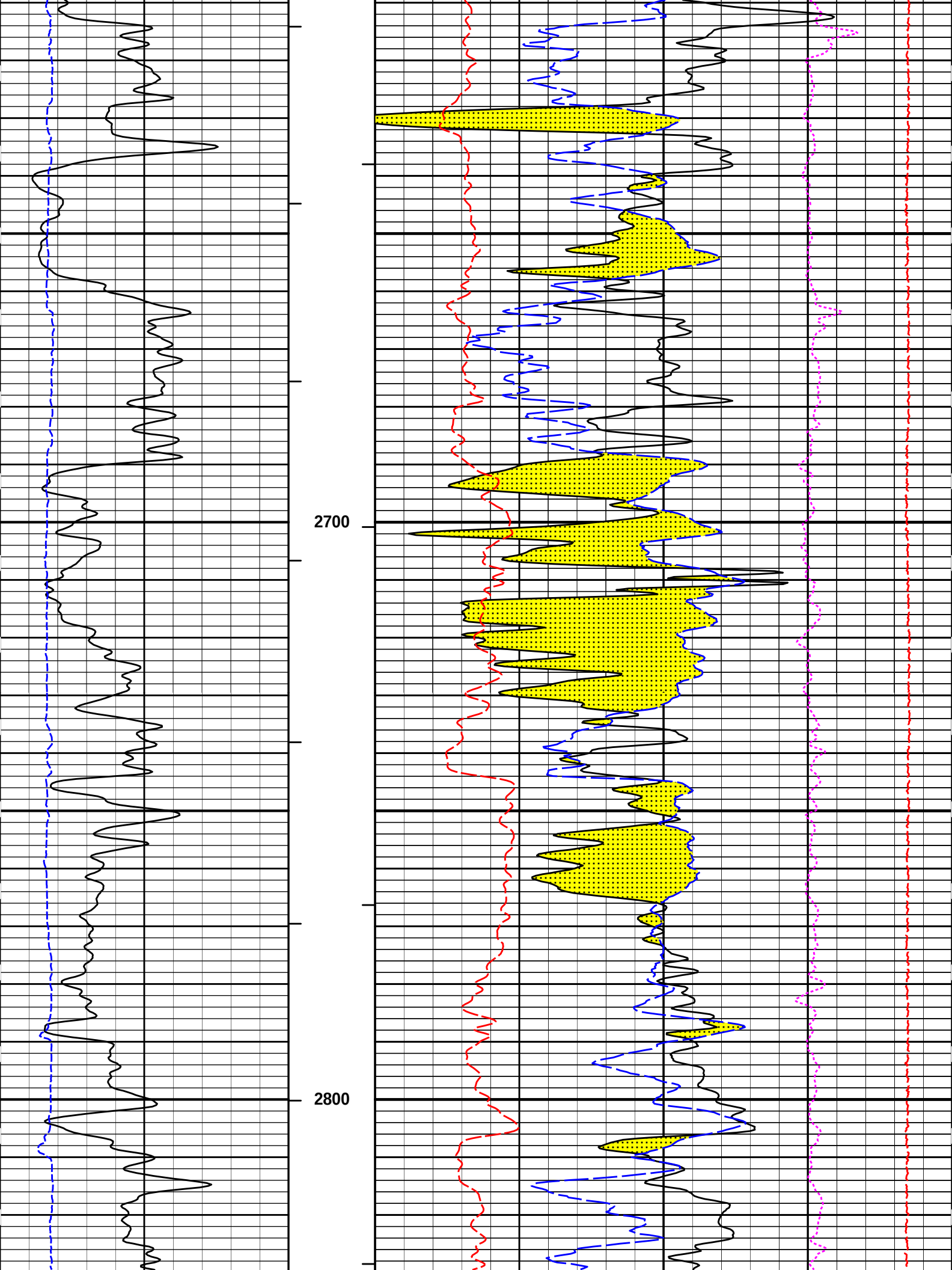


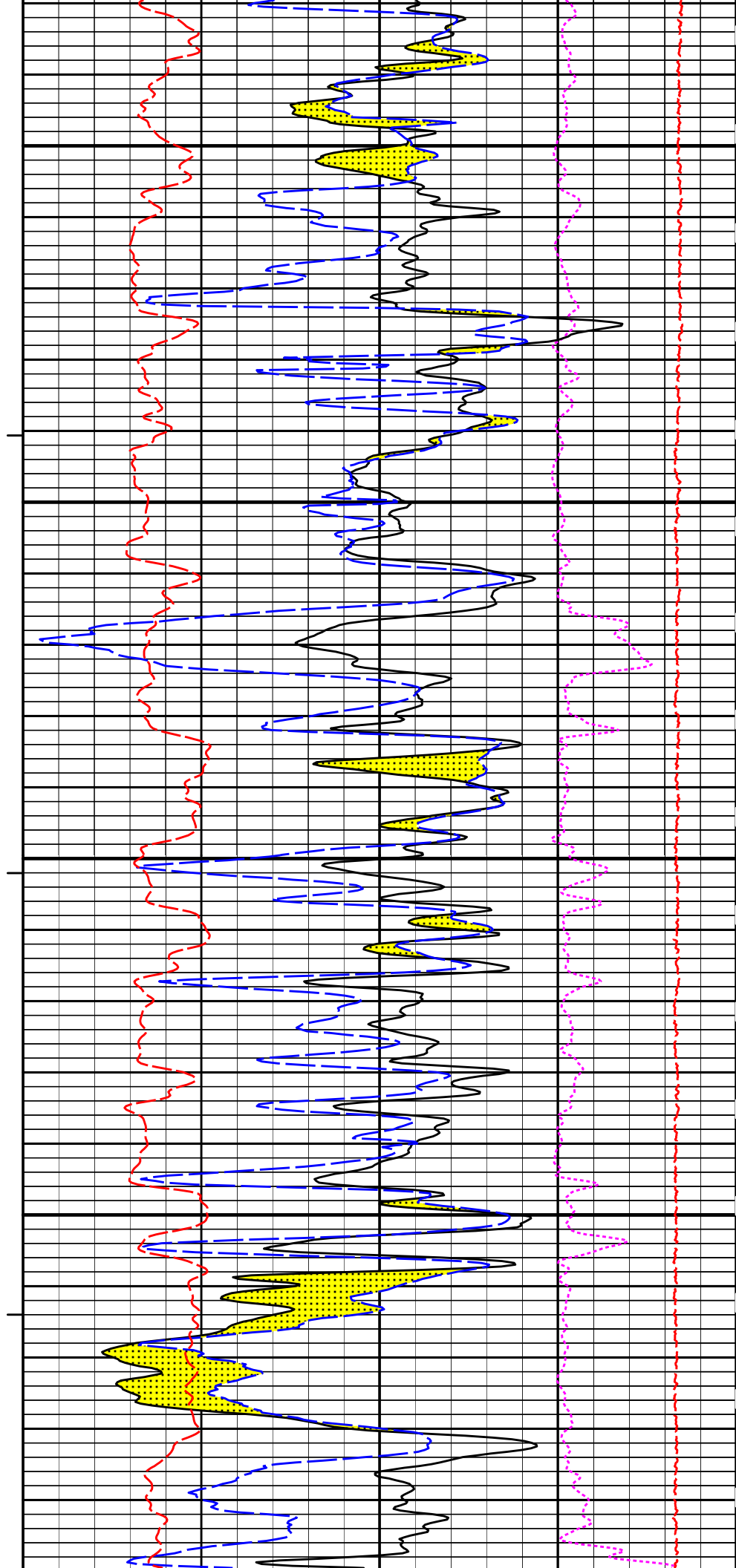
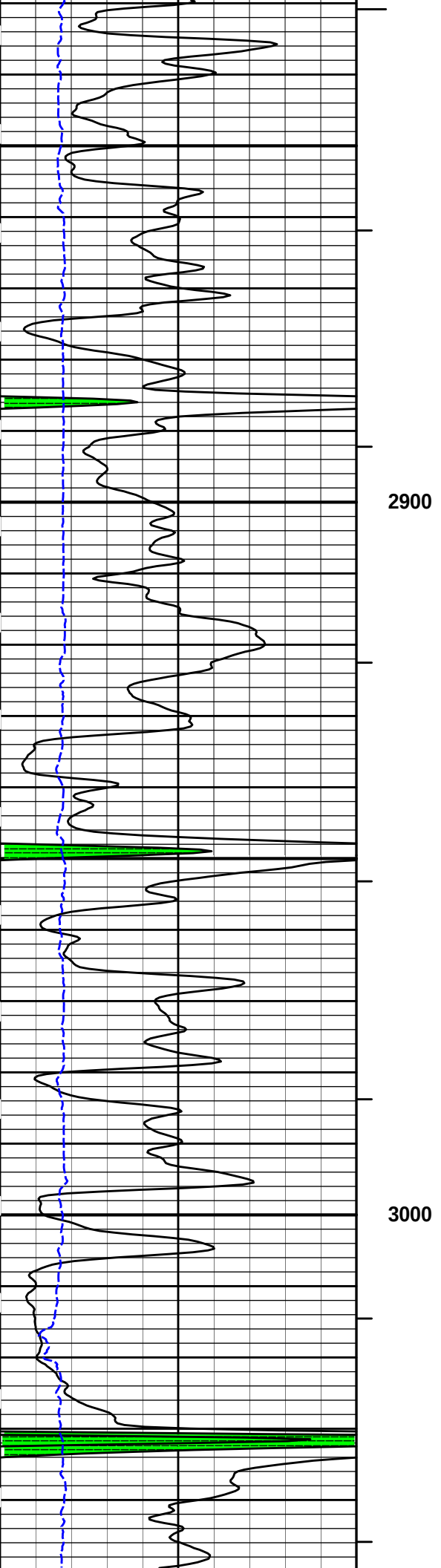


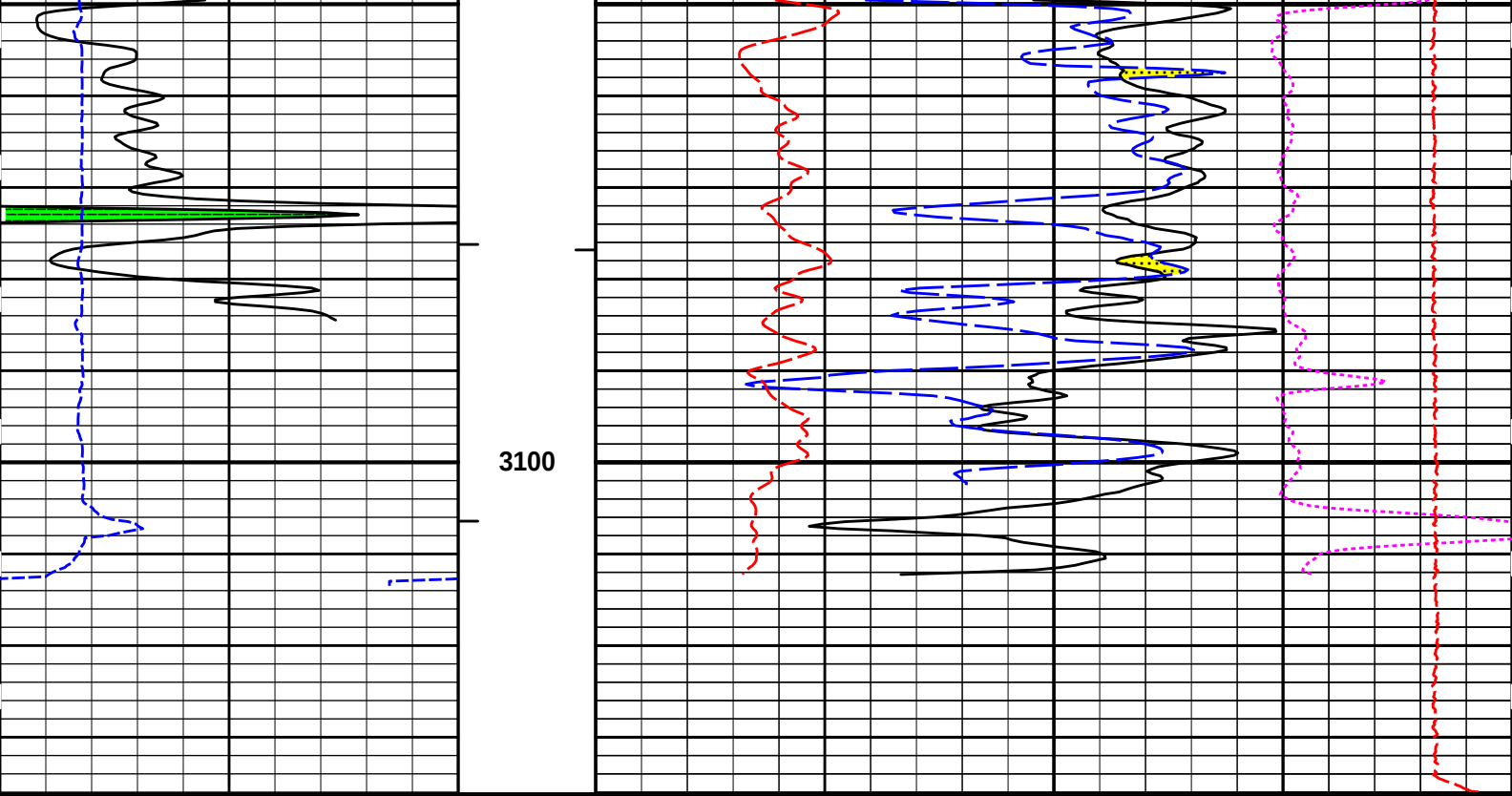












6		Caliper	16	MD 1 : 240 ft	0		Pe	10	-0.25	DensityCorr	0.25
		inches							gram per cc		
0		Gamma API	150						Tension		
		api		AHVT					15K		0
		SHALE		BHVT	30		DensityPorosity				-10
							%				
					30		Neutron Porosity				-10
							%				
							CROSSOVER				

HALLIBURTON

Plot Time: 06-Aug-13 15:02:21
Plot Range: 590 ft to 3136.17 ft
Data: ROUSEetalATU1\Well Based\IR1 CASING\
Plot File: \\POROSITY\Porosity_IQ_5_MAIN_LIB

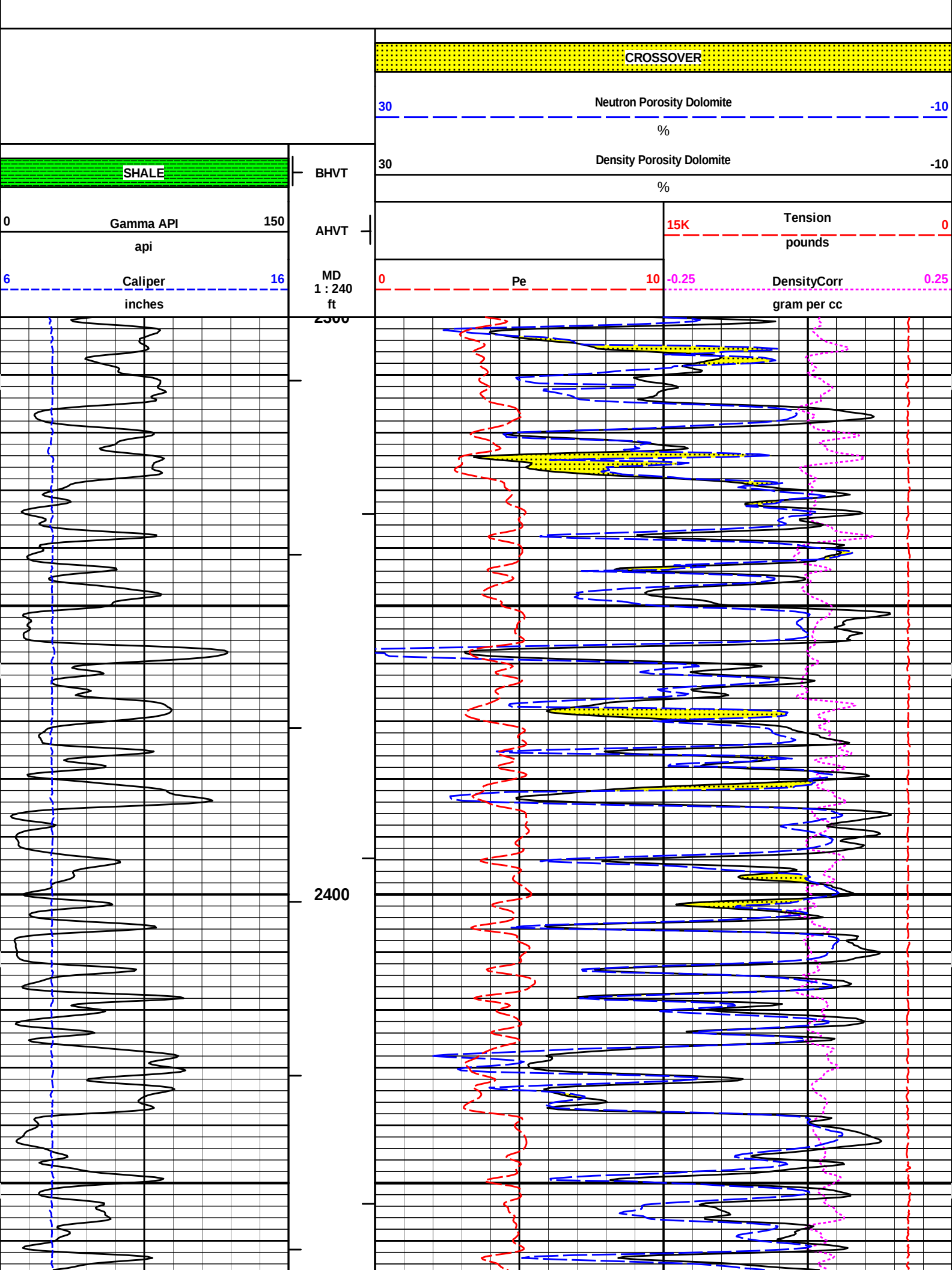
5 INCH MAIN LOG

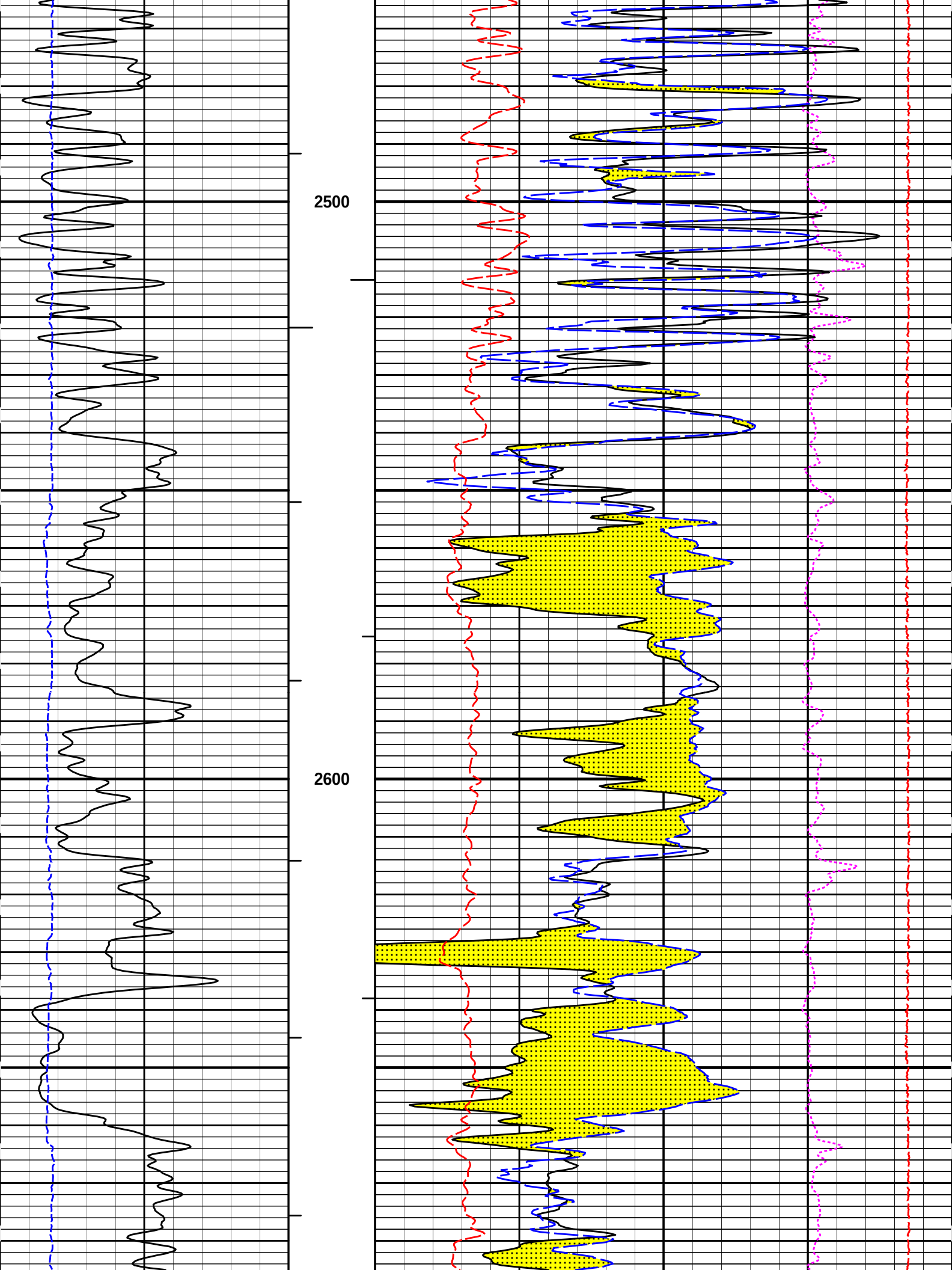
HALLIBURTON

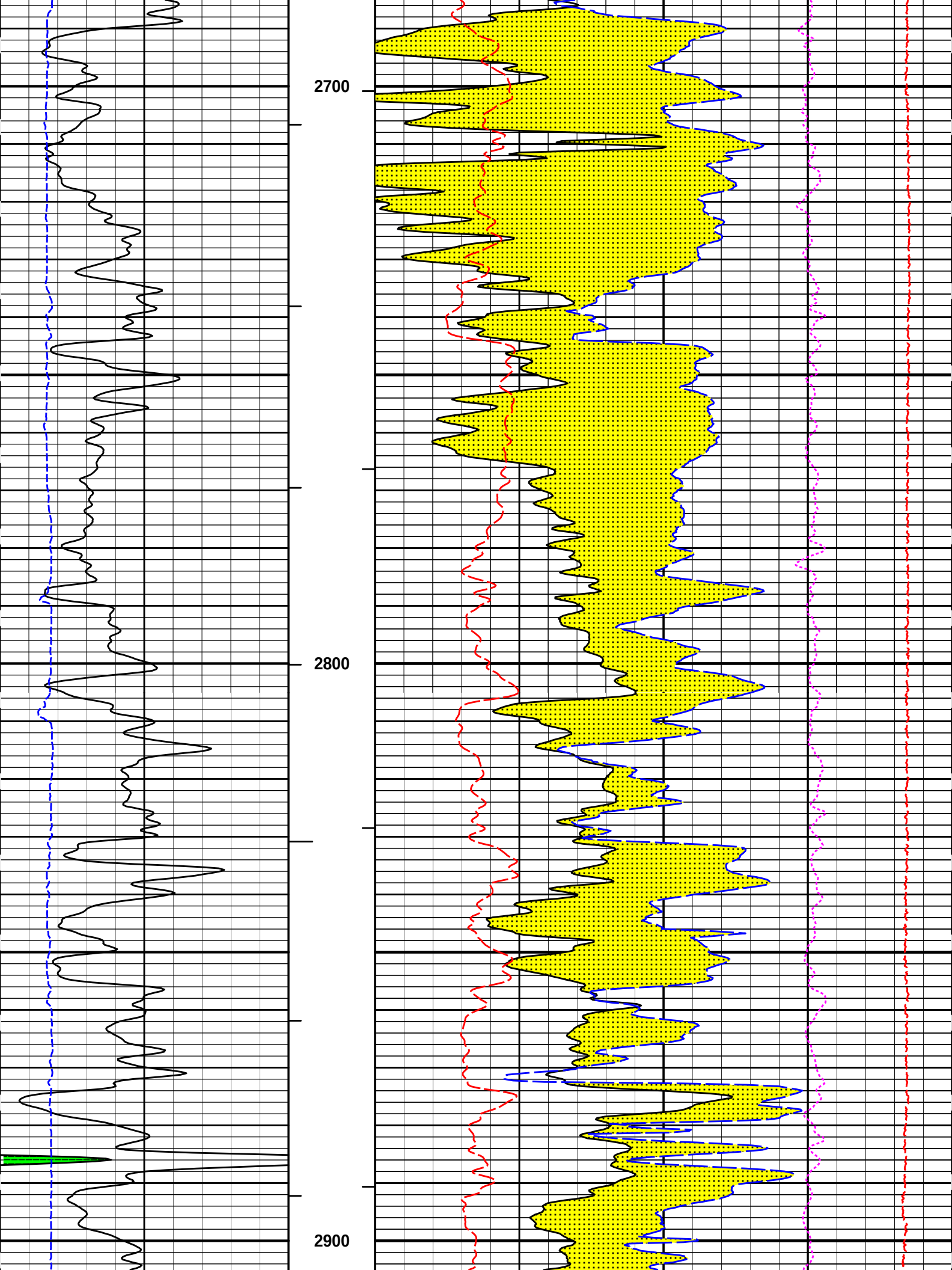
Plot Time: 06-Aug-13 15:02:21
Plot Range: 2300 ft to 3136.17 ft
Data: ROUSEetalATU1\Well Based\IR1 DOLOI\
Plot File: \\POROSITY\Porosity_IQ_5_MAIN_LIB

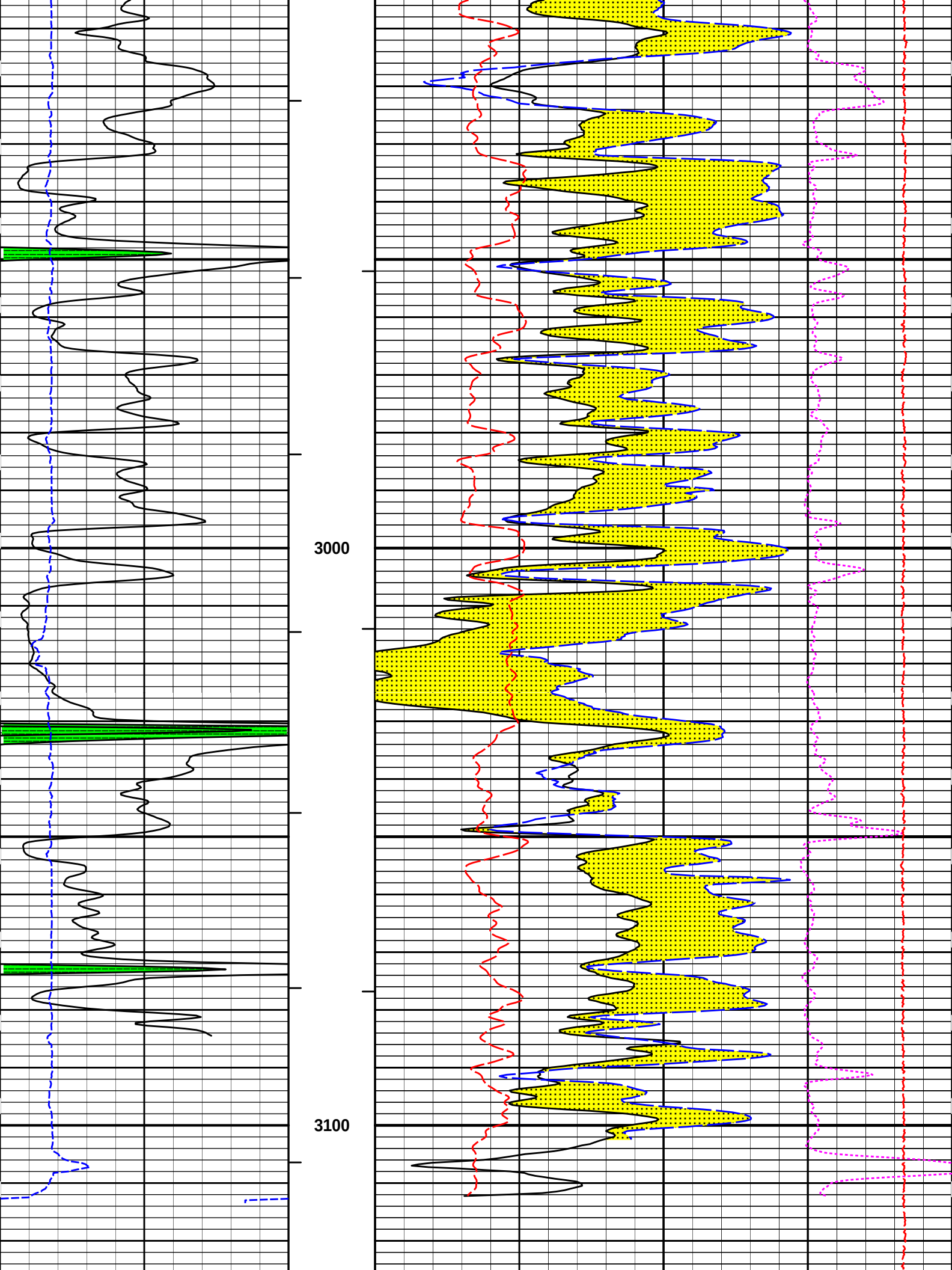
5 INCH MAIN LOG

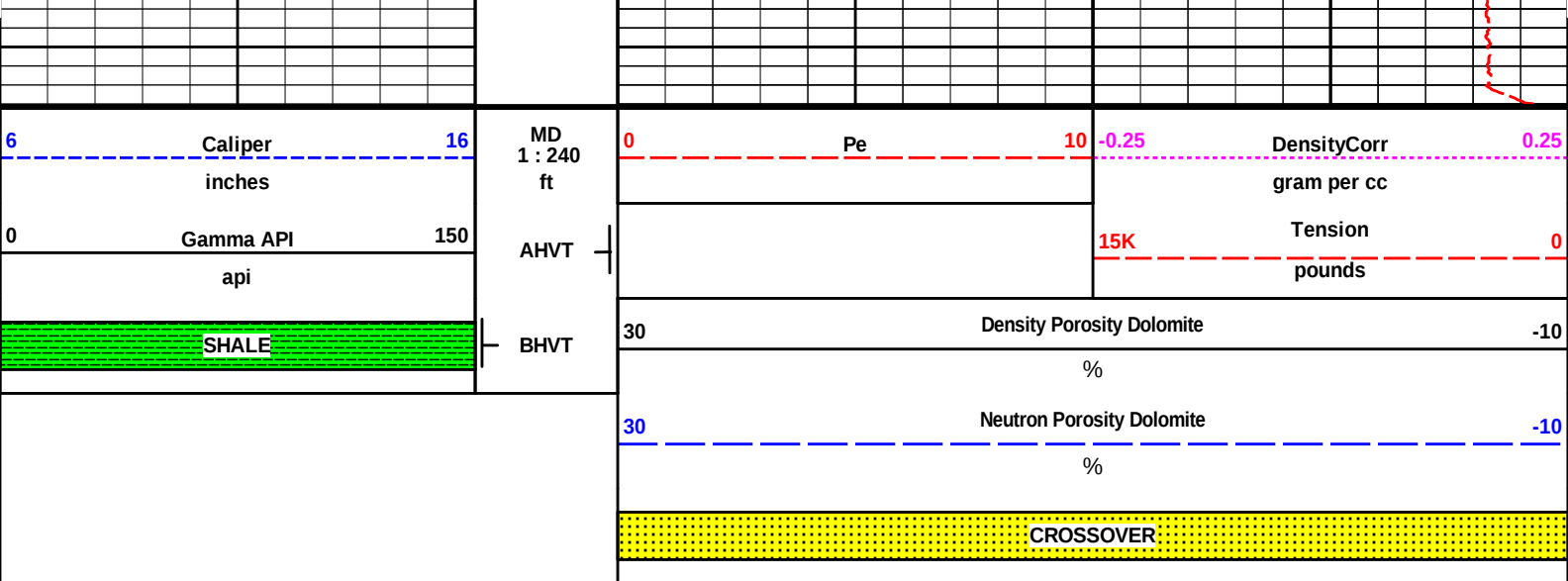
DOLOMITE SECTION 5" PER 100'











HALLIBURTON

Plot Time: 06-Aug-13 15:02:28
Plot Range: 2300 ft to 3136.17 ft
Data: ROUSEetalATU1\Well Based\R1 DOLOI
Plot File: \\POROSITY\Porosity_Q_5_MAIN_LIB

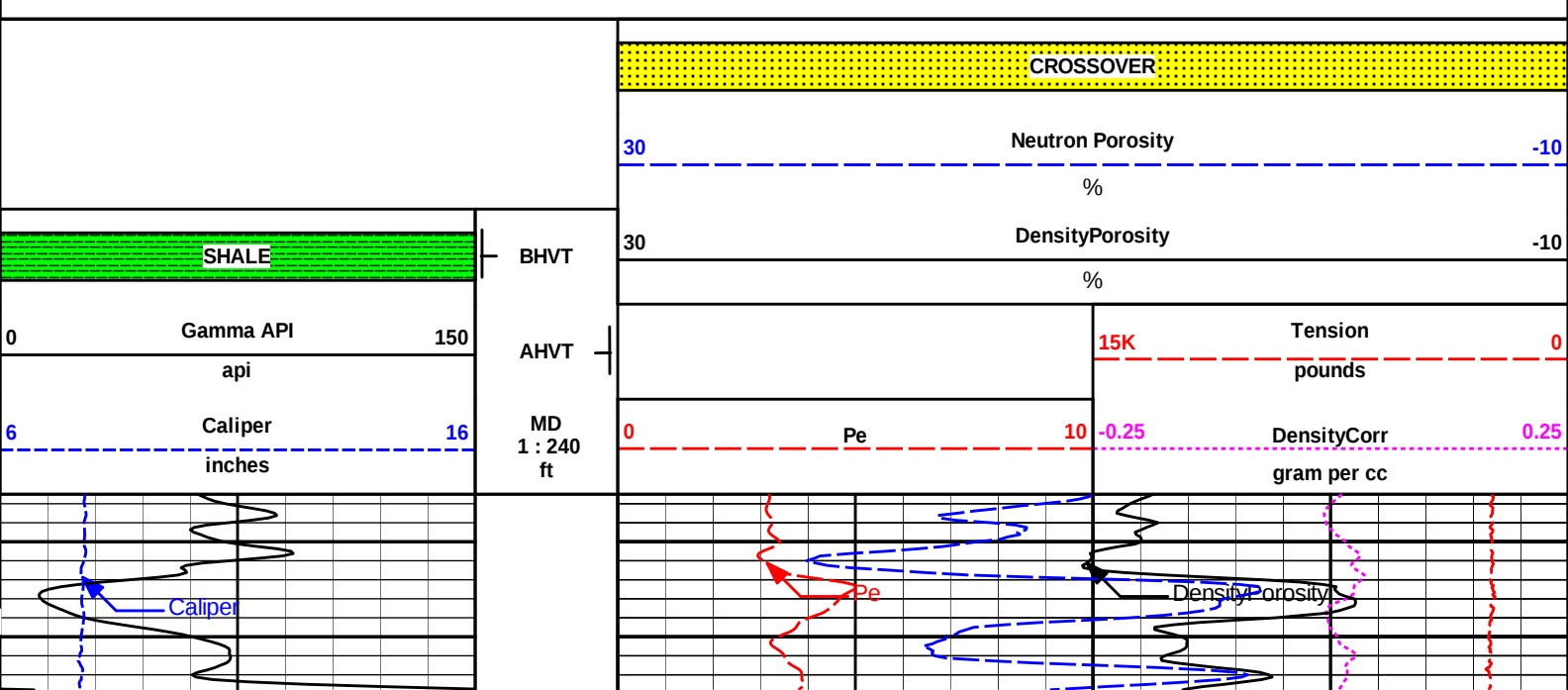
5 INCH MAIN LOG

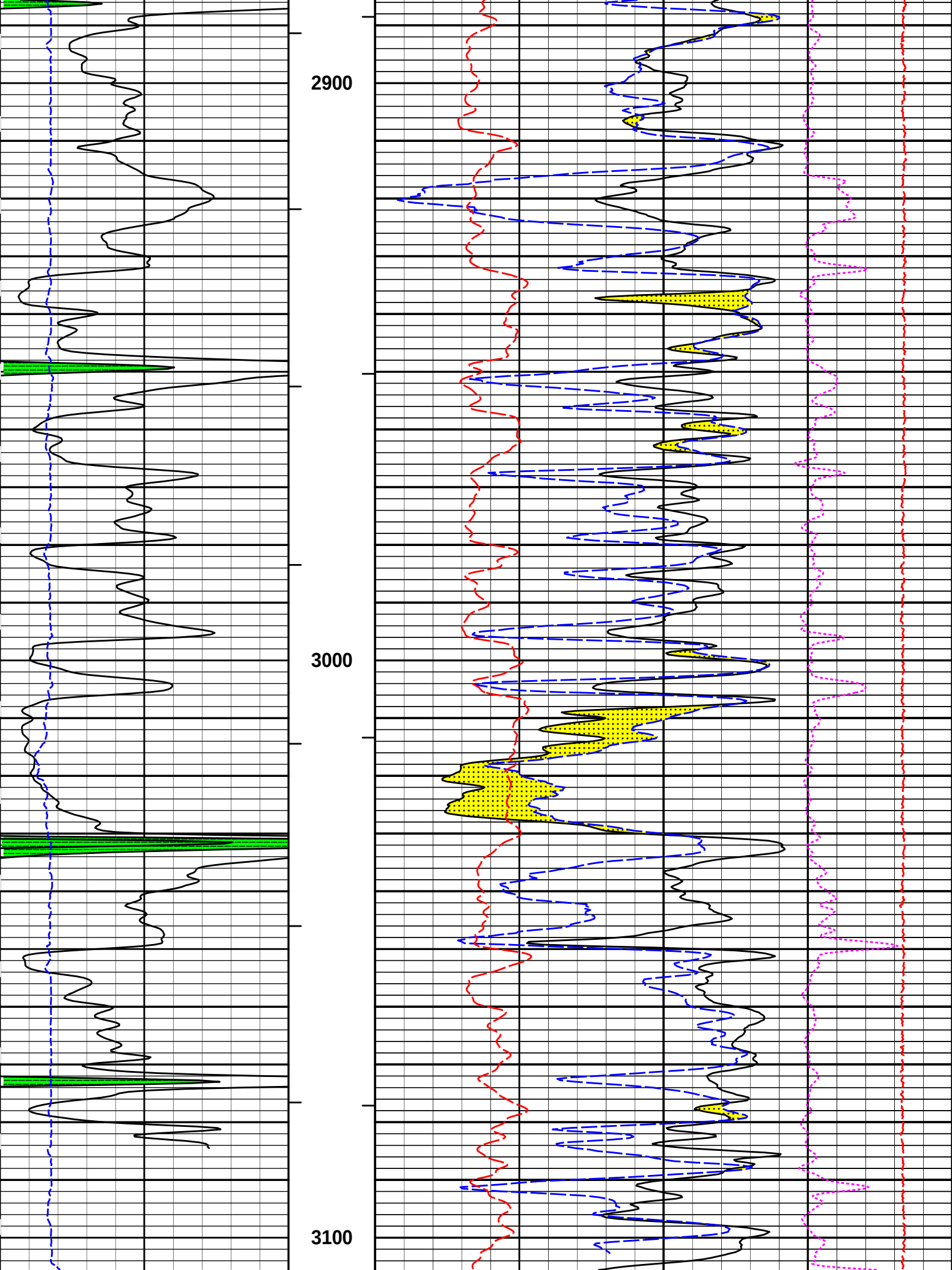
DOLOMITE SECTION 5" PER 100'

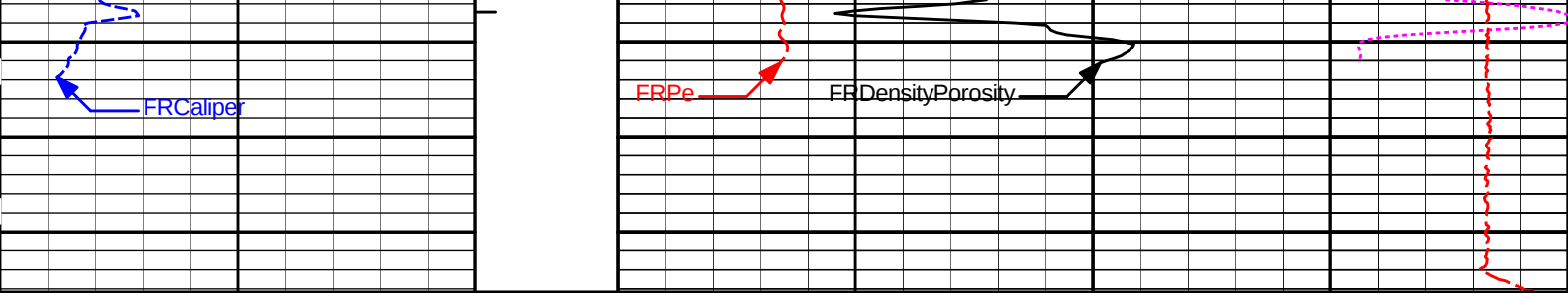
HALLIBURTON

Plot Time: 06-Aug-13 15:02:28
Plot Range: 2865 ft to 3136.33 ft
Data: ROUSEetalATU1\Well Based\R1 REPEAT
Plot File: \\POROSITY\Porosity_Q_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

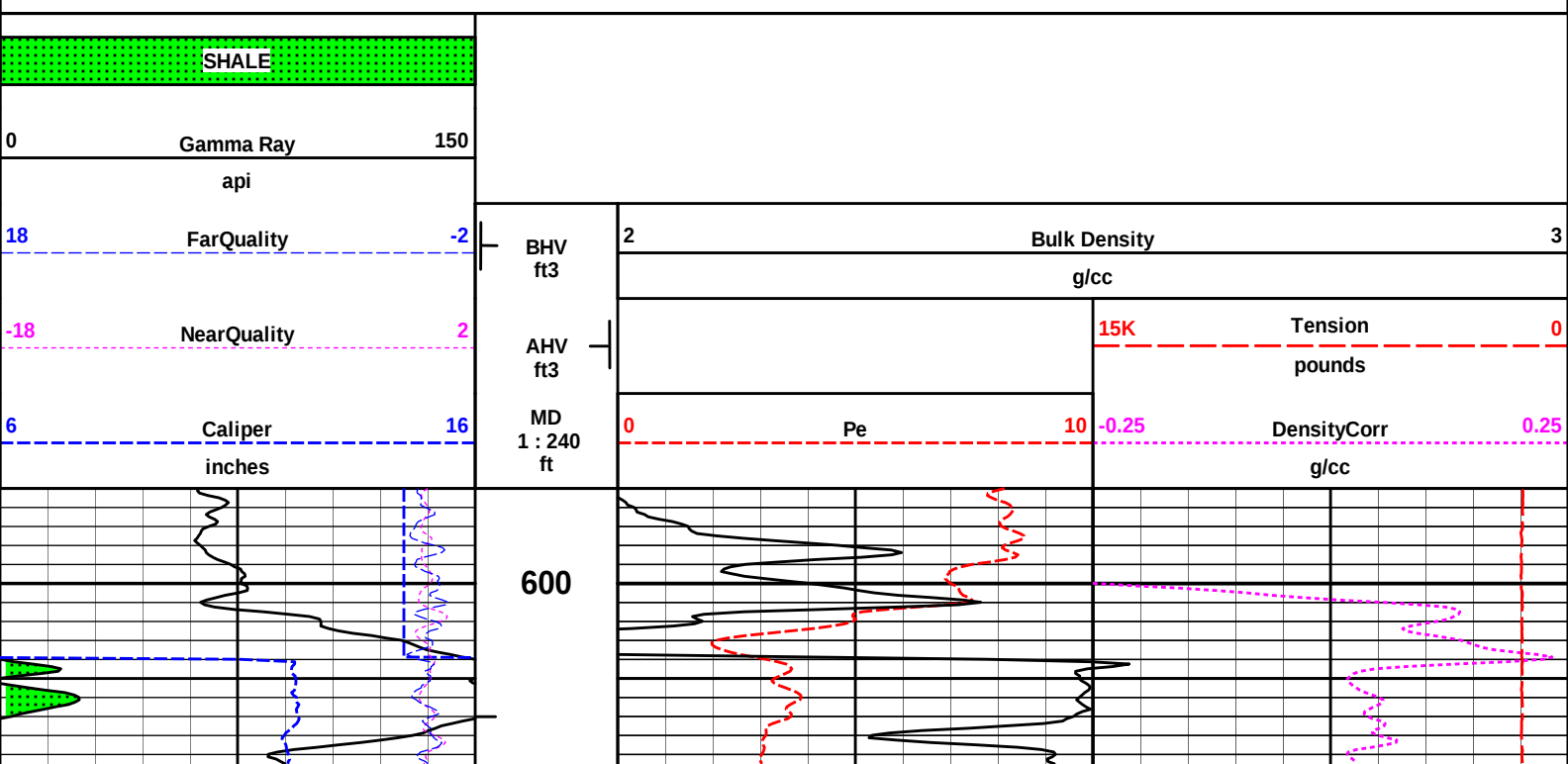
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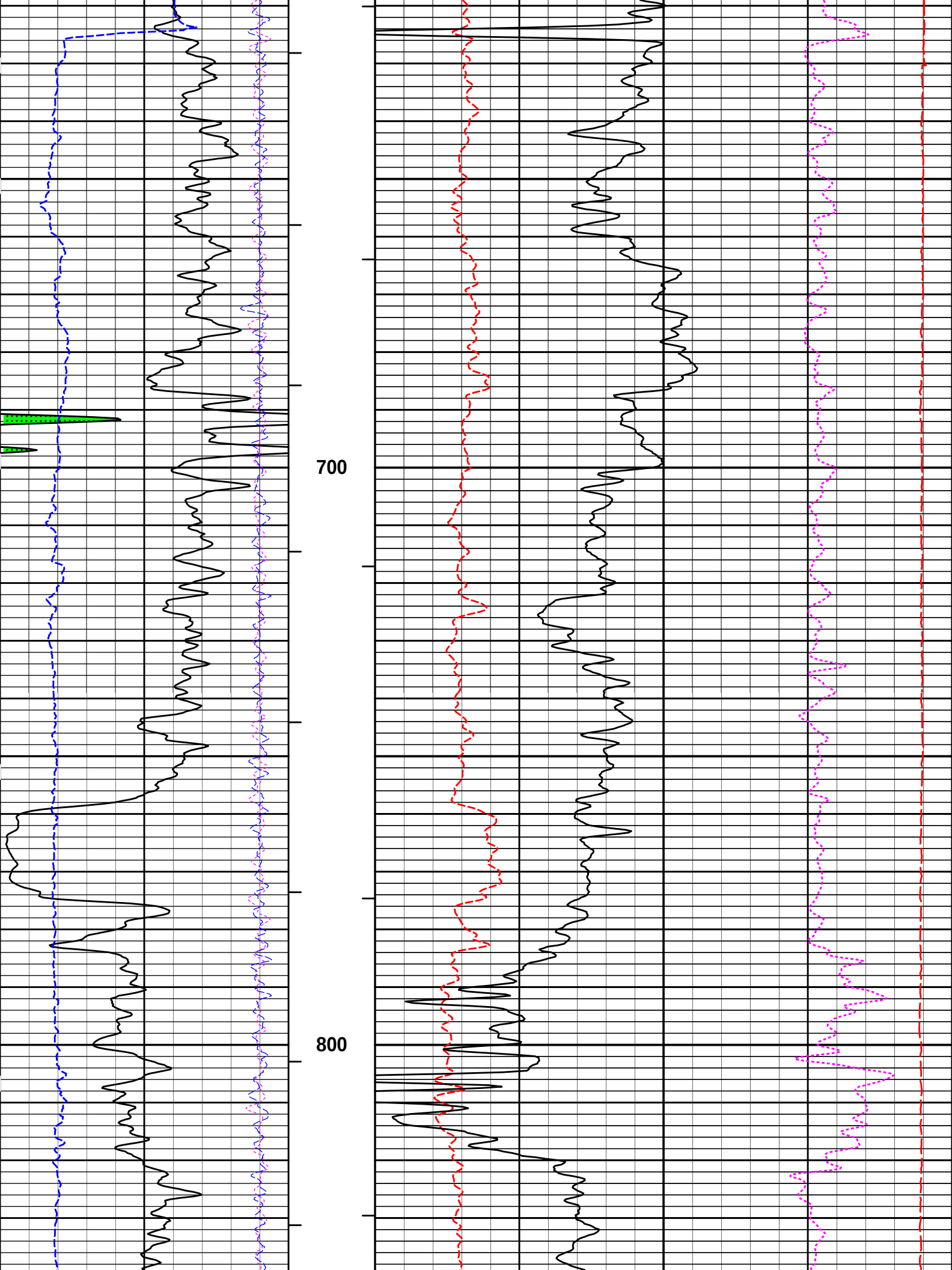
REPEAT SECTION

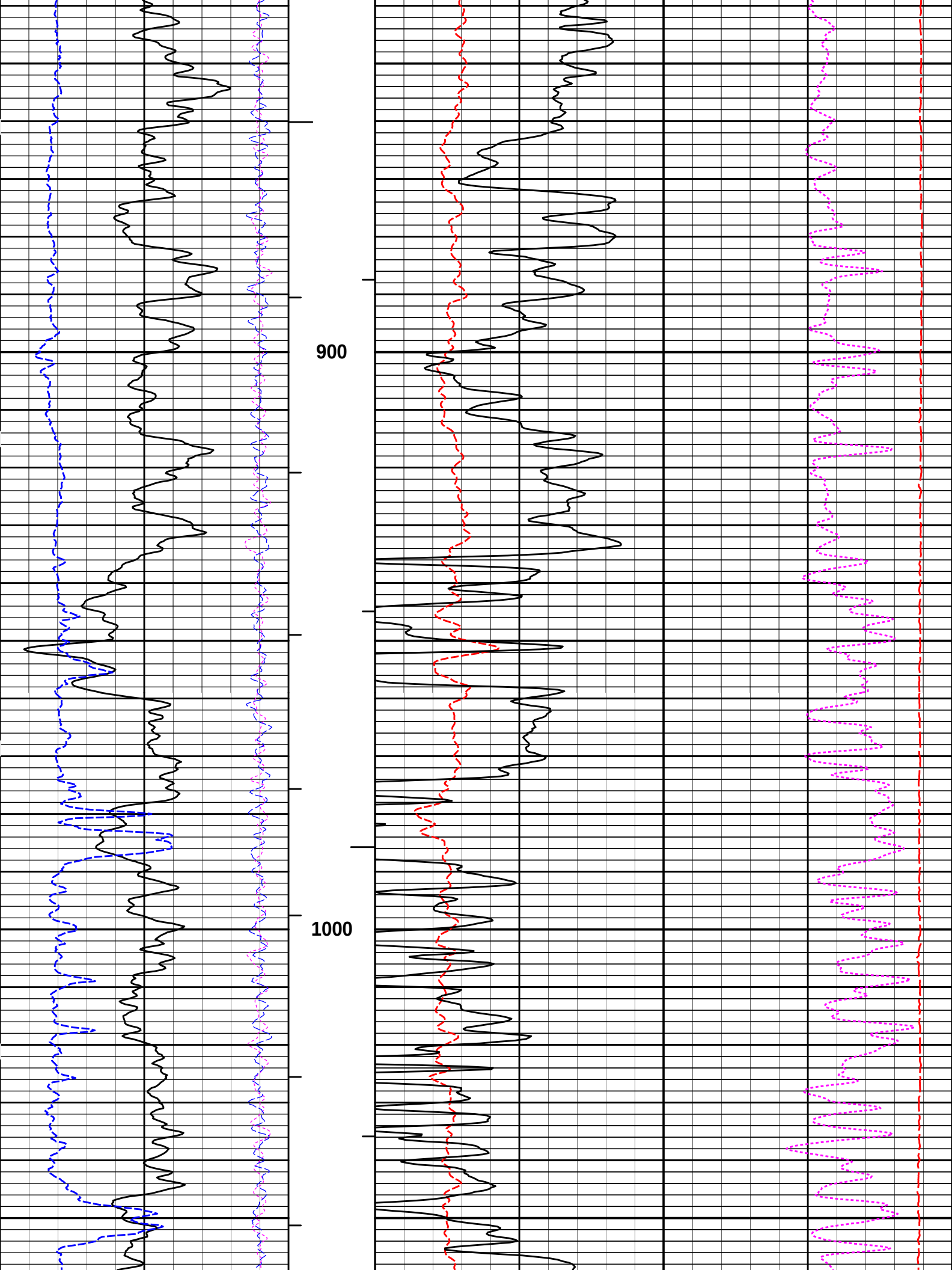
HALLIBURTON

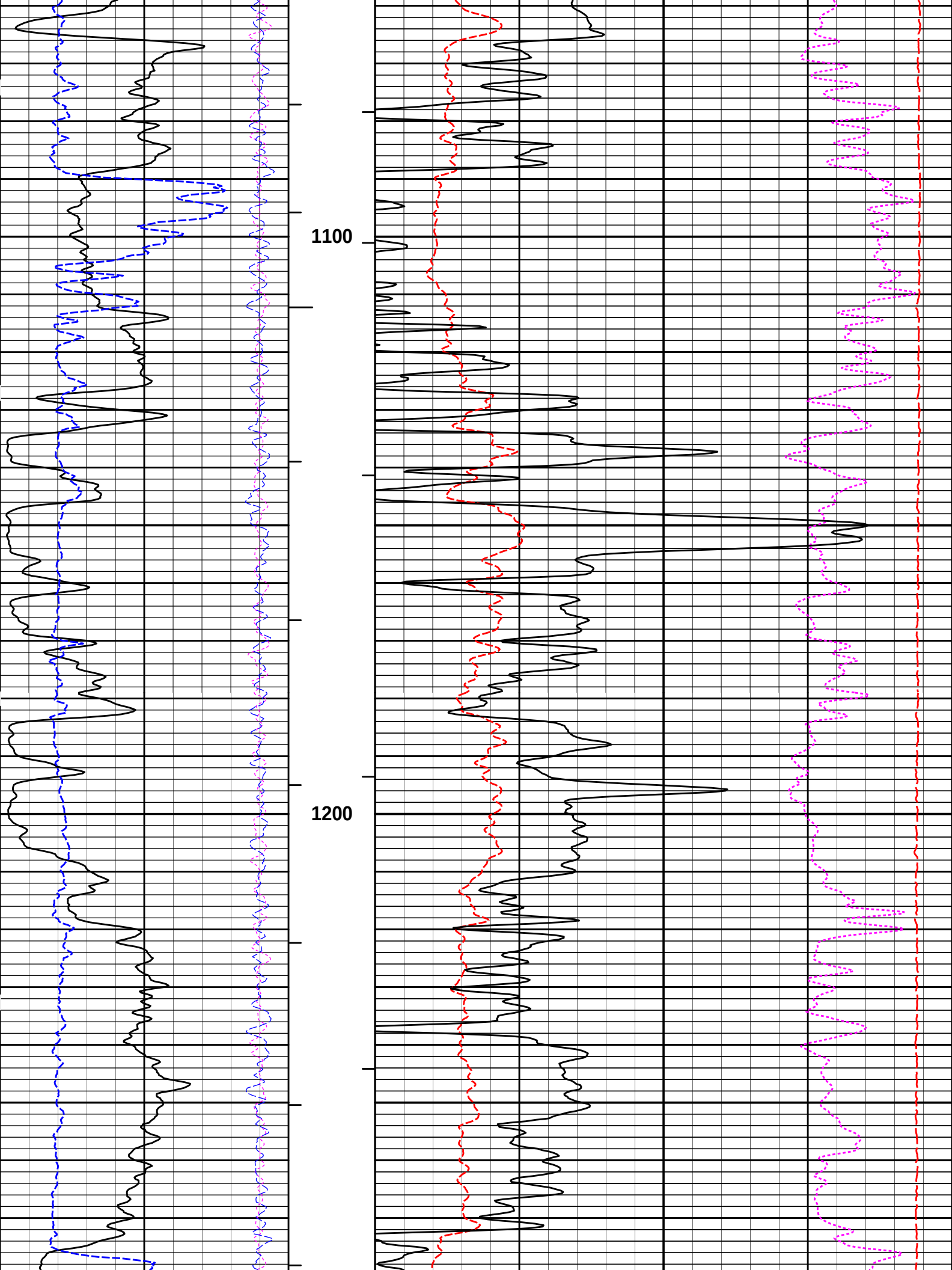
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Plot Range: 590 ft to 3136.17 ft
Data: ROUSEetalATU1\Well Based\R1 CASING\
Plot File: \\-LOCAL-ROUSEetalATU1\Well Based\POROSITY\BULKD_5_MAIN_LIB

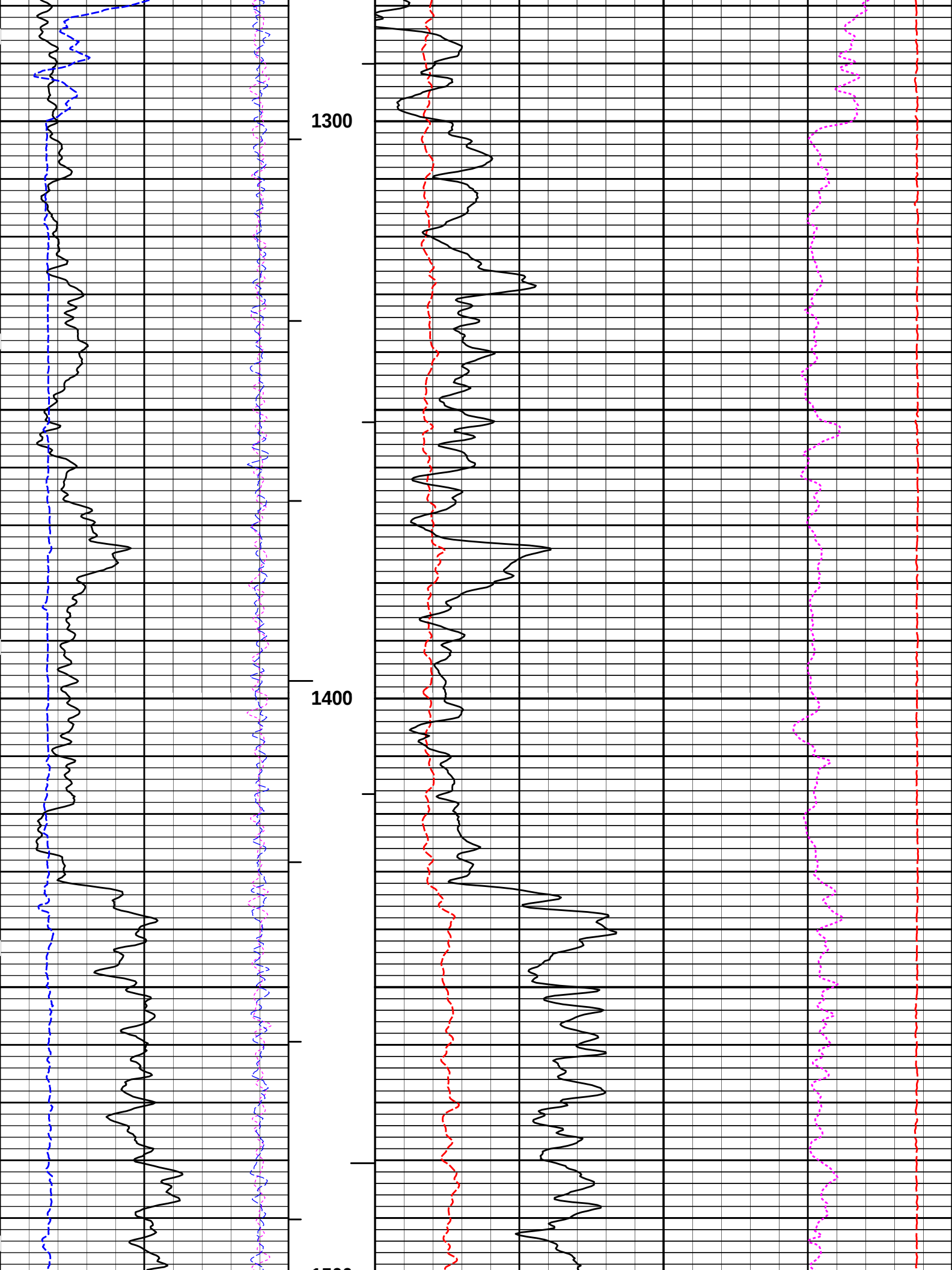
5 INCH MAIN LOG

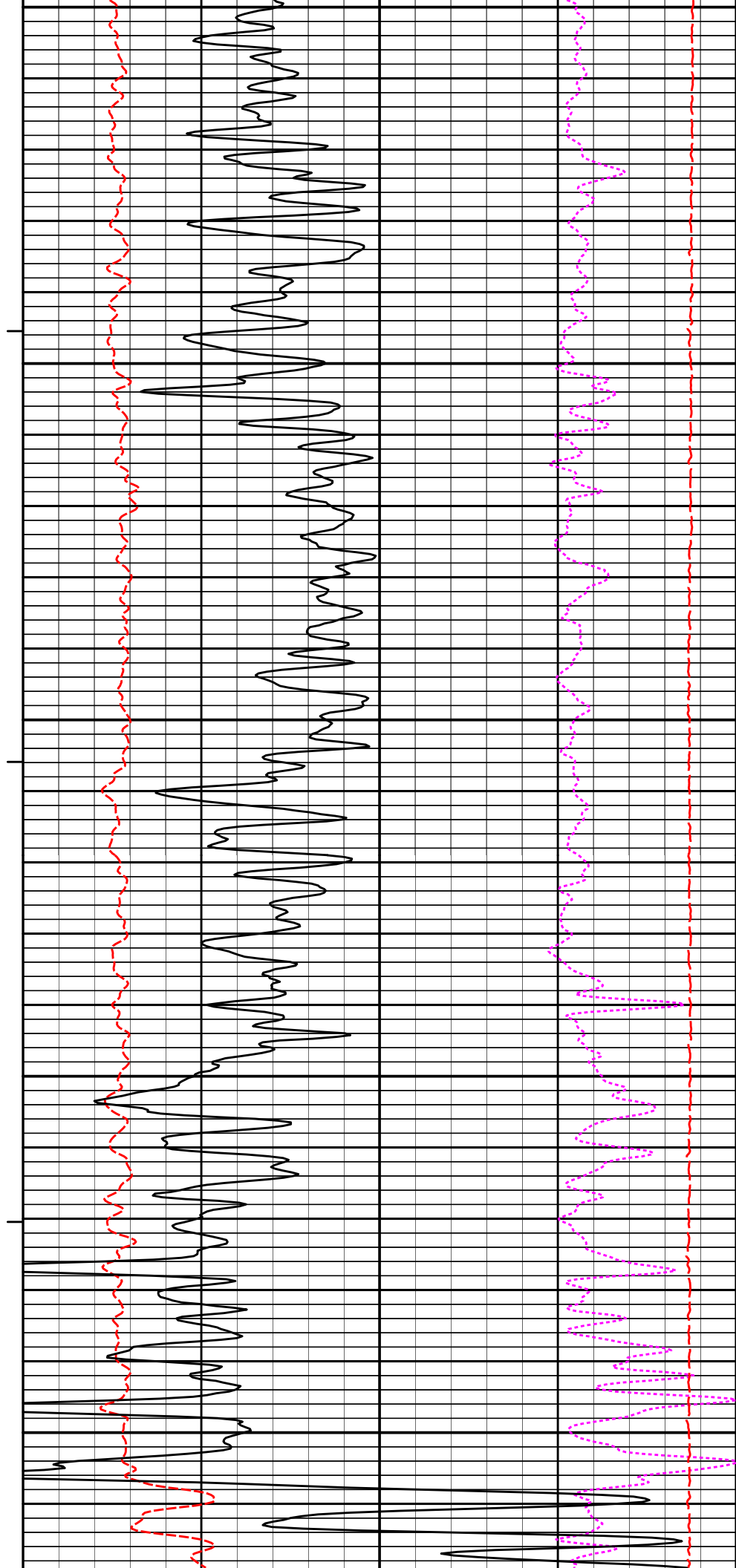
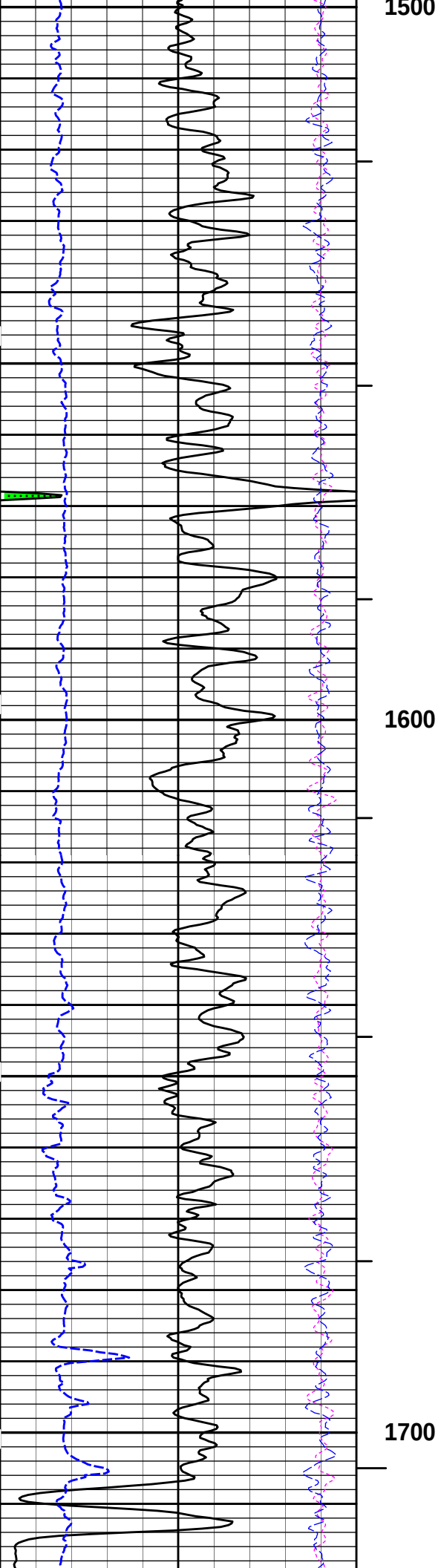


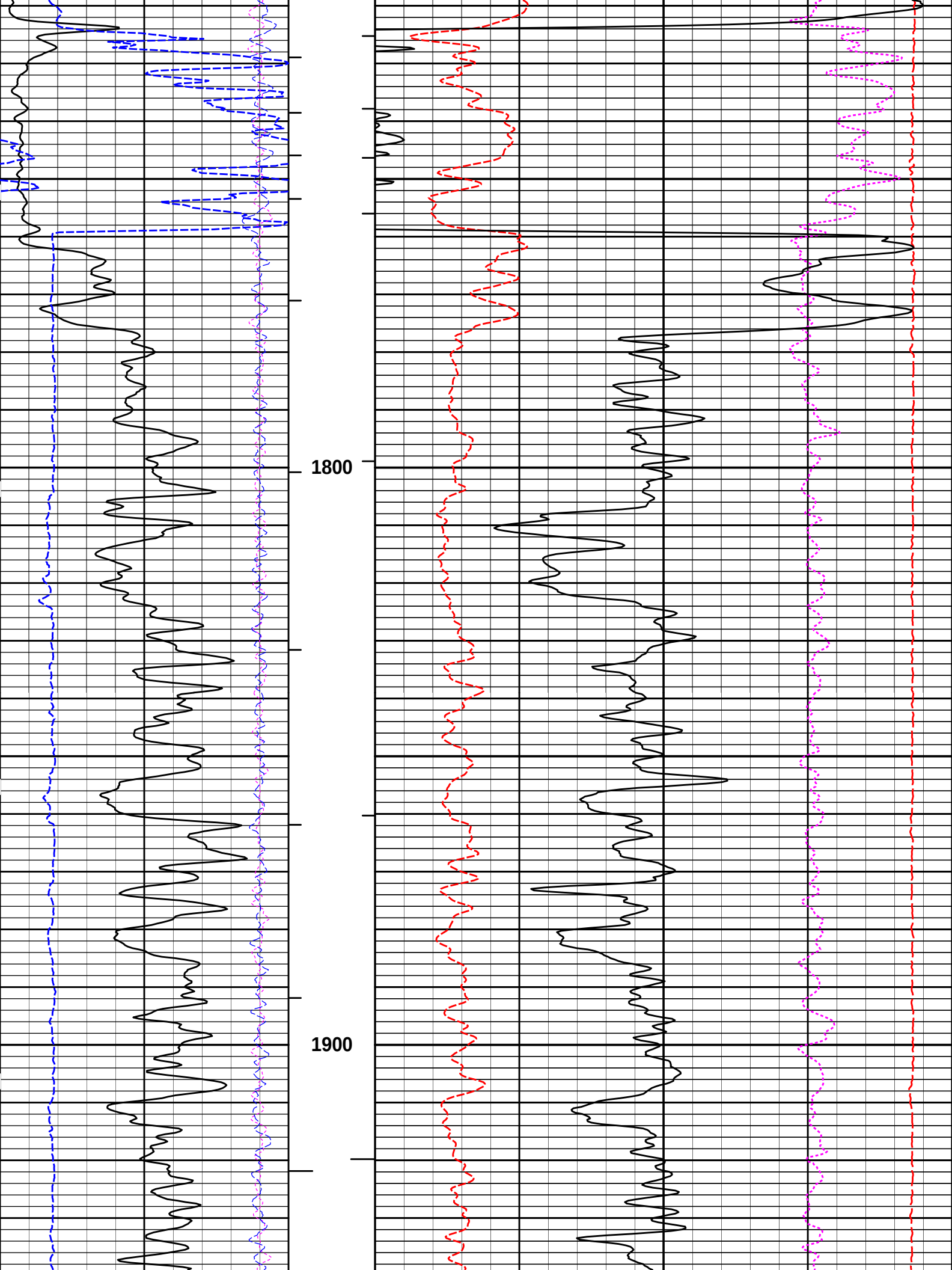


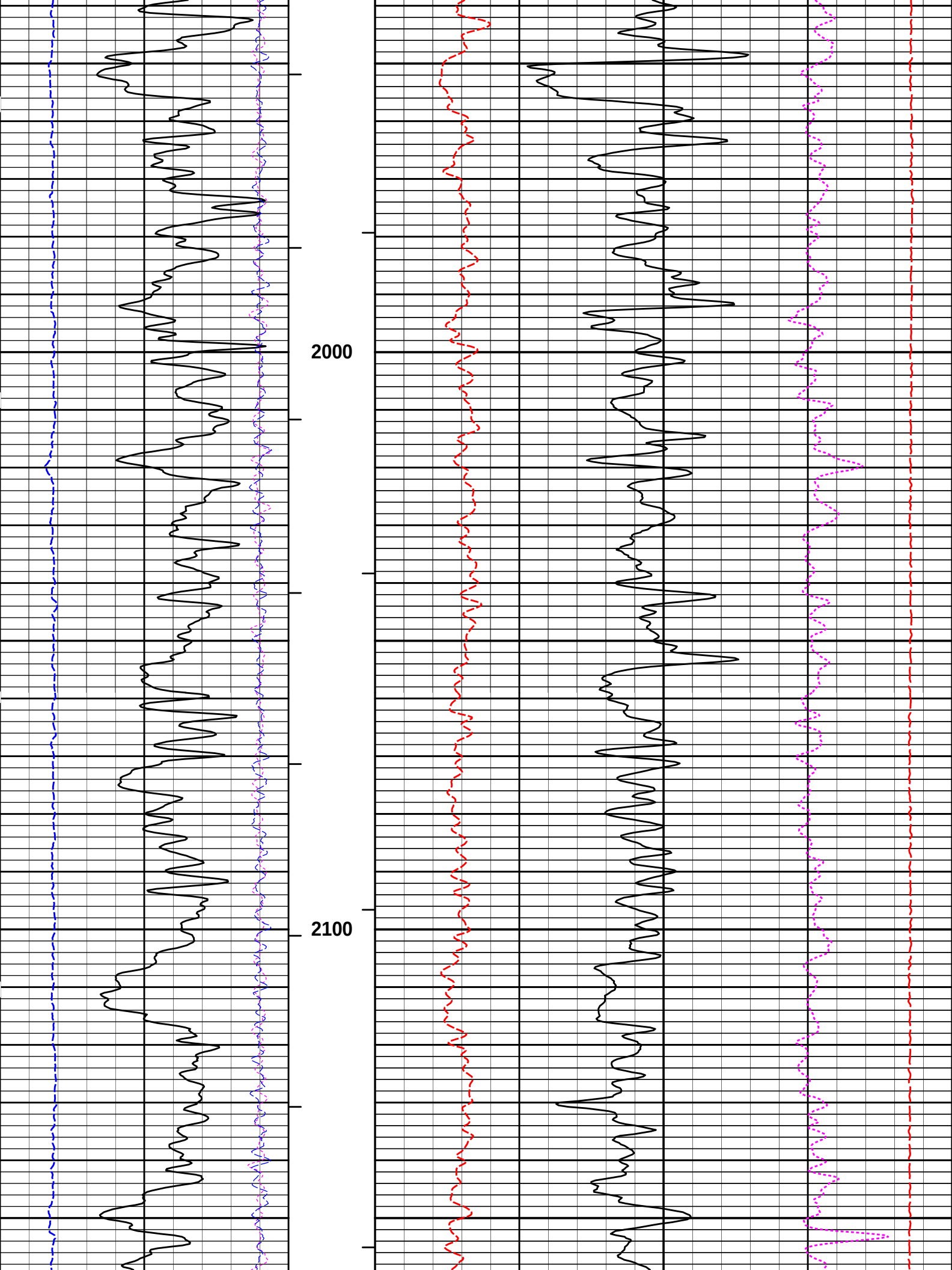


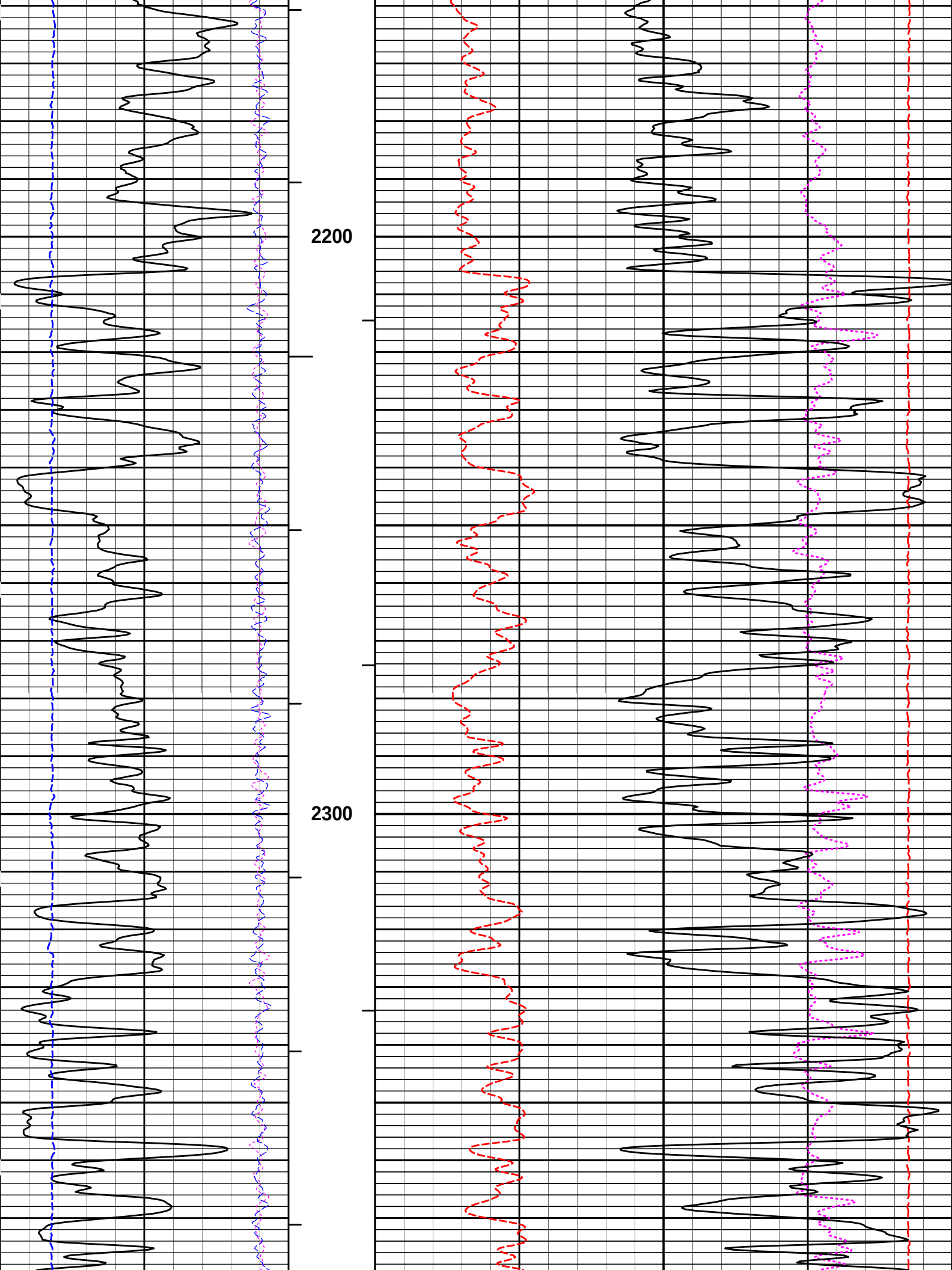


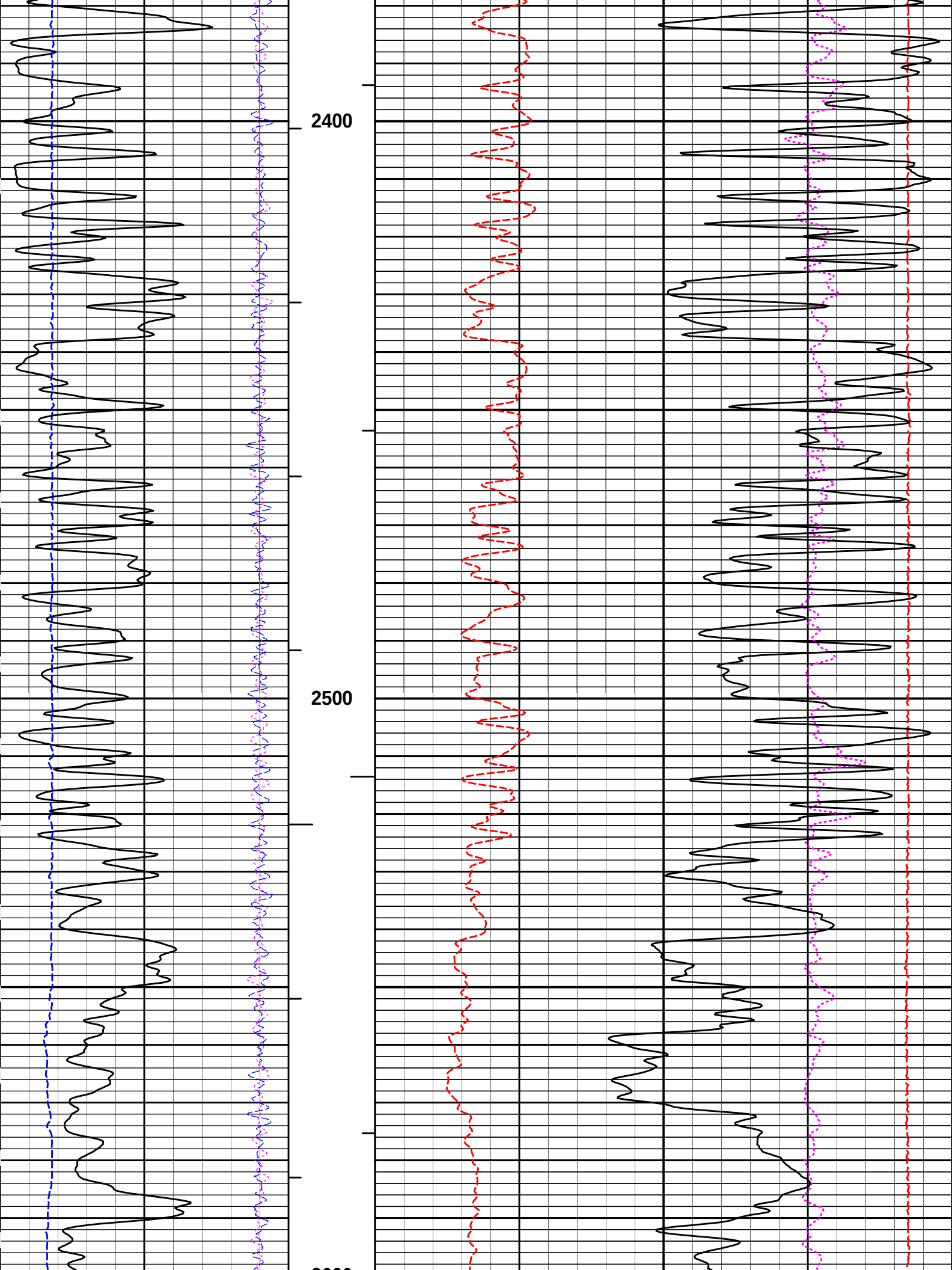


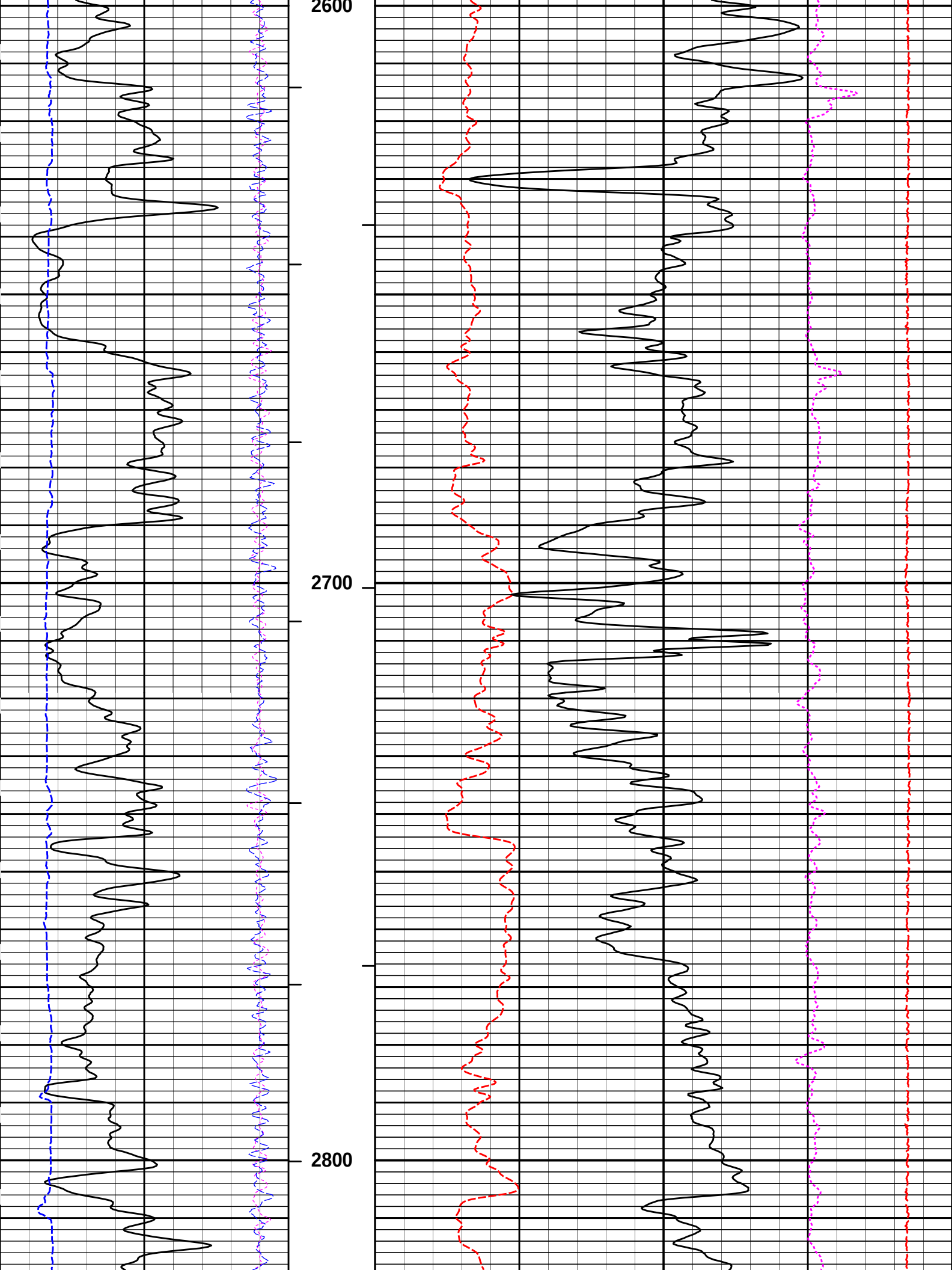


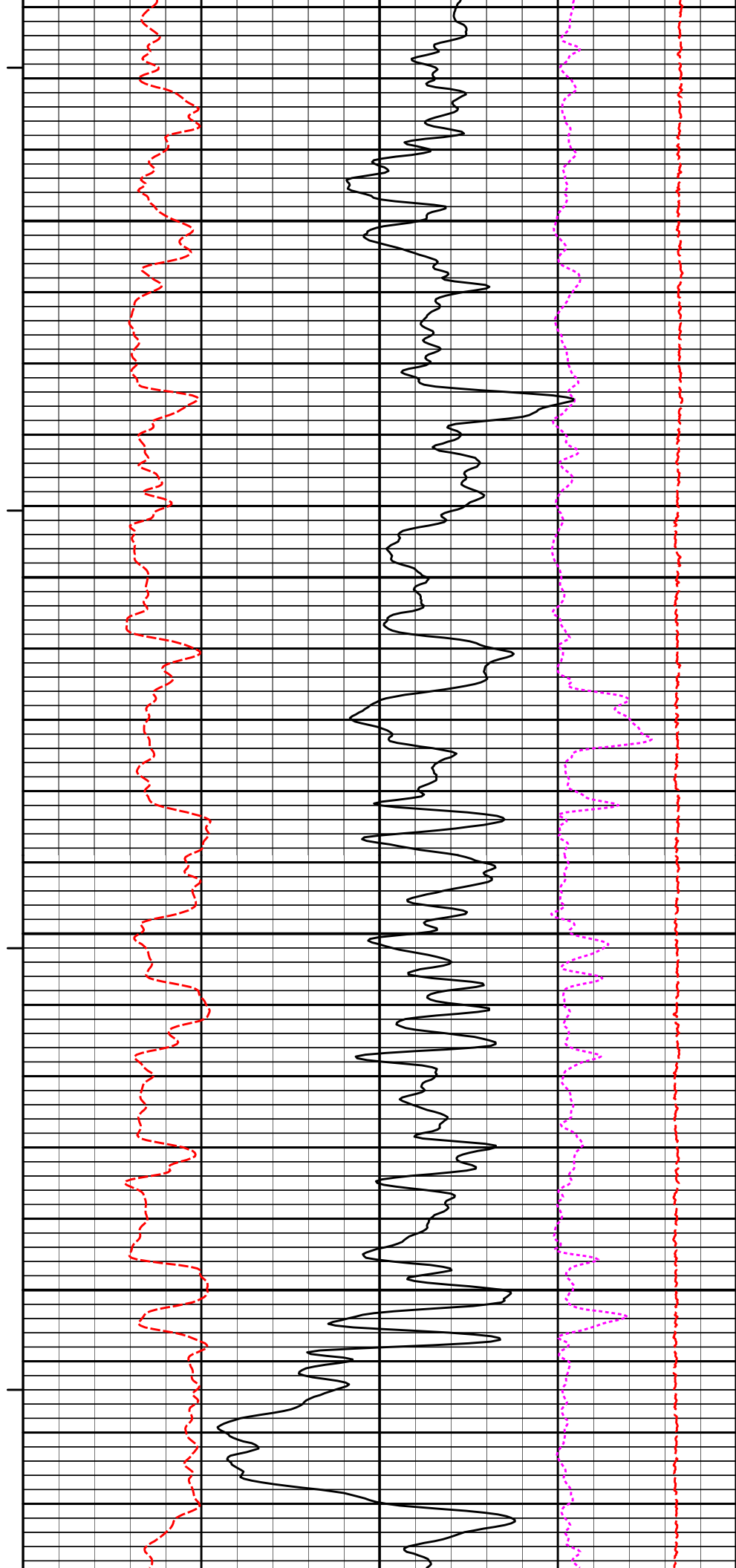
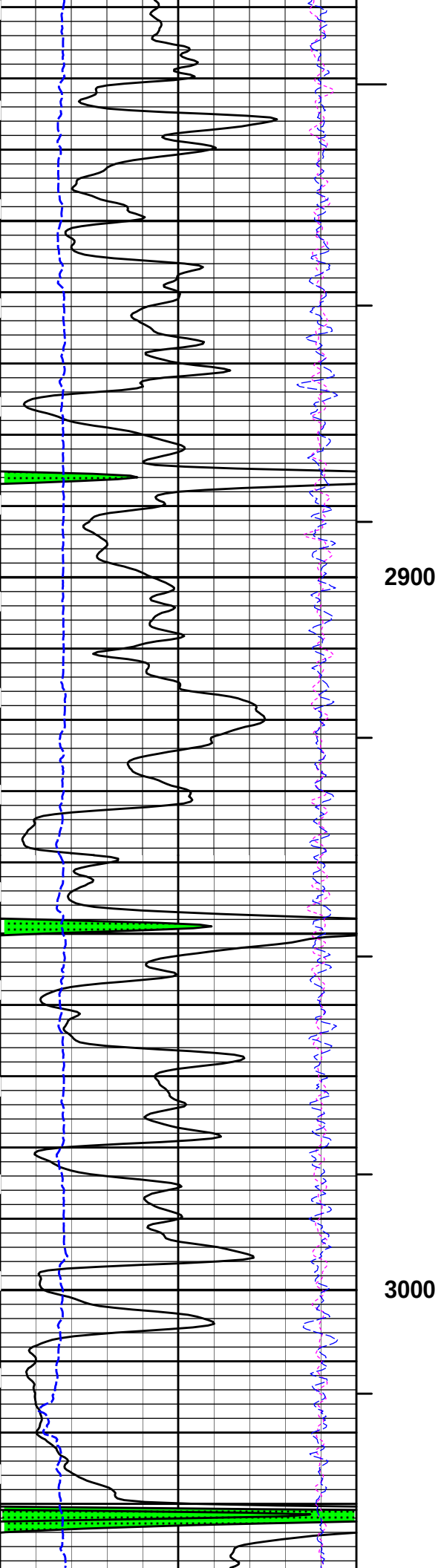


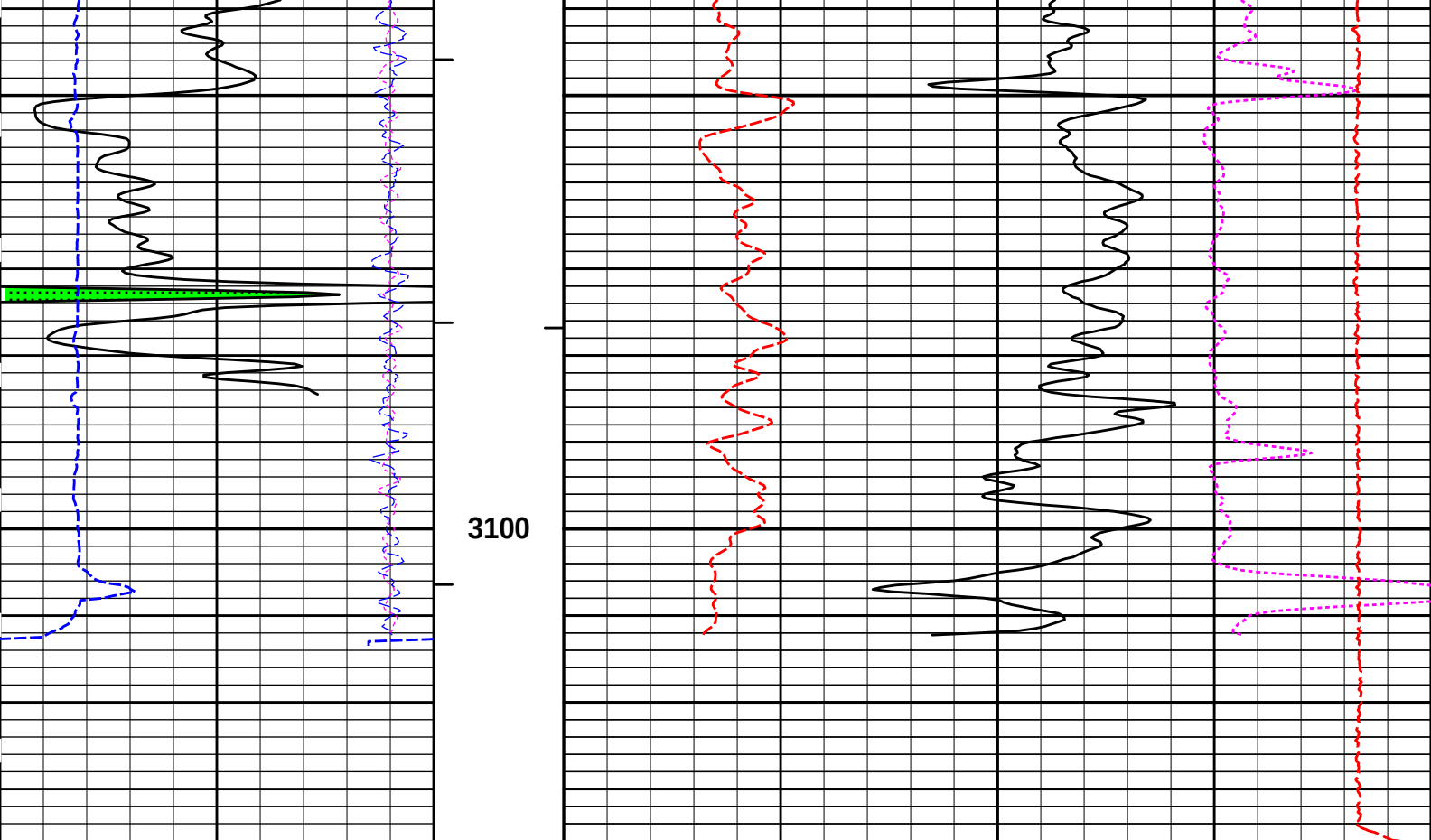












6	Caliper inches	16	MD 1 : 240 ft	AHV ft3		0	Pe	10	-0.25	DensityCorr	0.25	
										g/cc		
						-18	NearQuality	2	15K	Tension	0	
										pounds		
18	FarQuality	-2		BHv ft3	2	Bulk Density					3	
							g/cc					
0	Gamma Ray	150										
	api											
SHALE												

HALLIBURTON

Plot Time: 06-Aug-13 15:02:46
Plot Range: 590 ft to 3136.17 ft
Data: ROUSEetalATU1\Well Based\IR1 CASING\
Plot File: \\-LOCAL-\\ROUSEetalATU1\Well Based\POROSITY\BULKD_5_MAIN_LIB

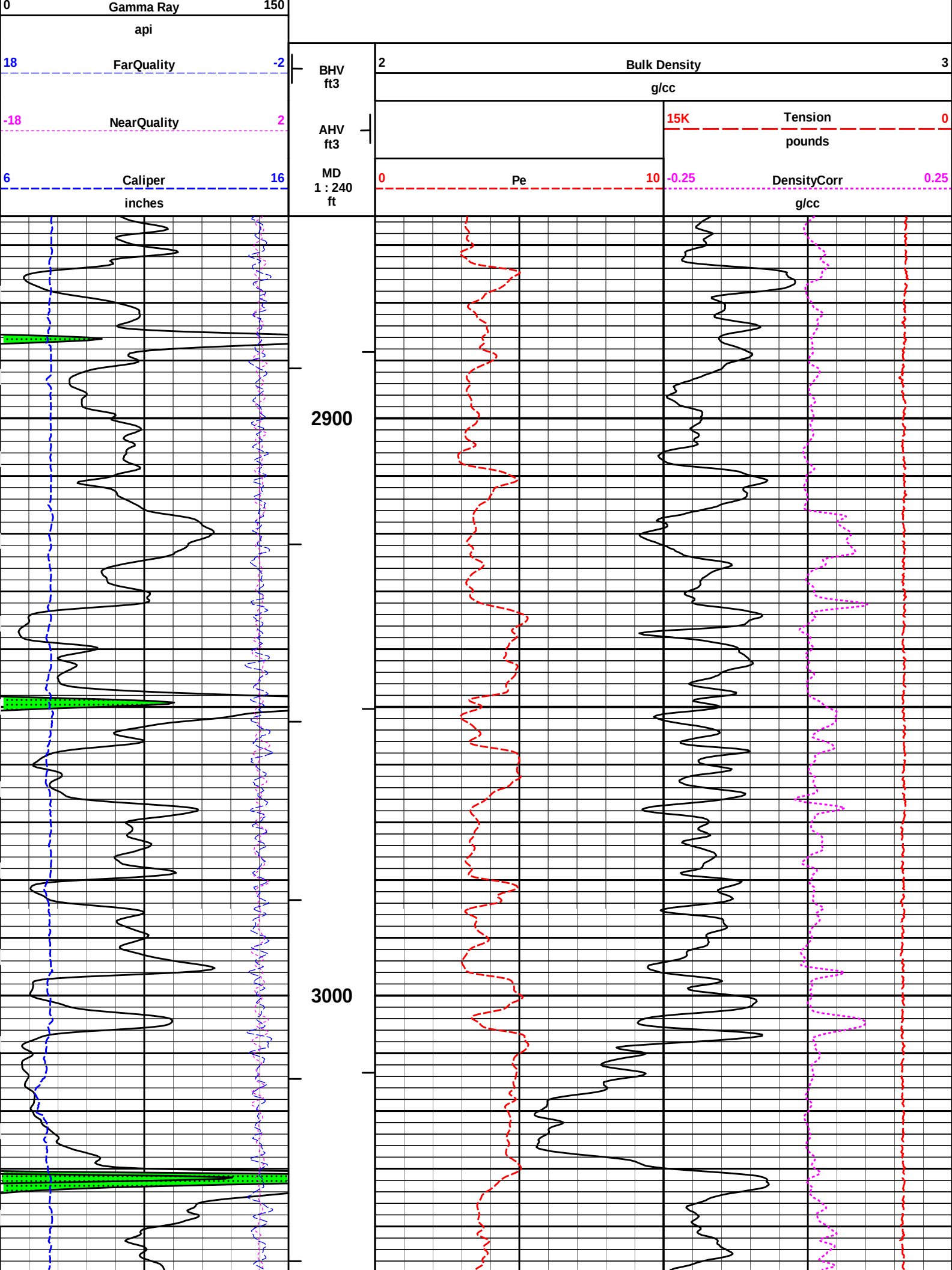
5 INCH MAIN LOG

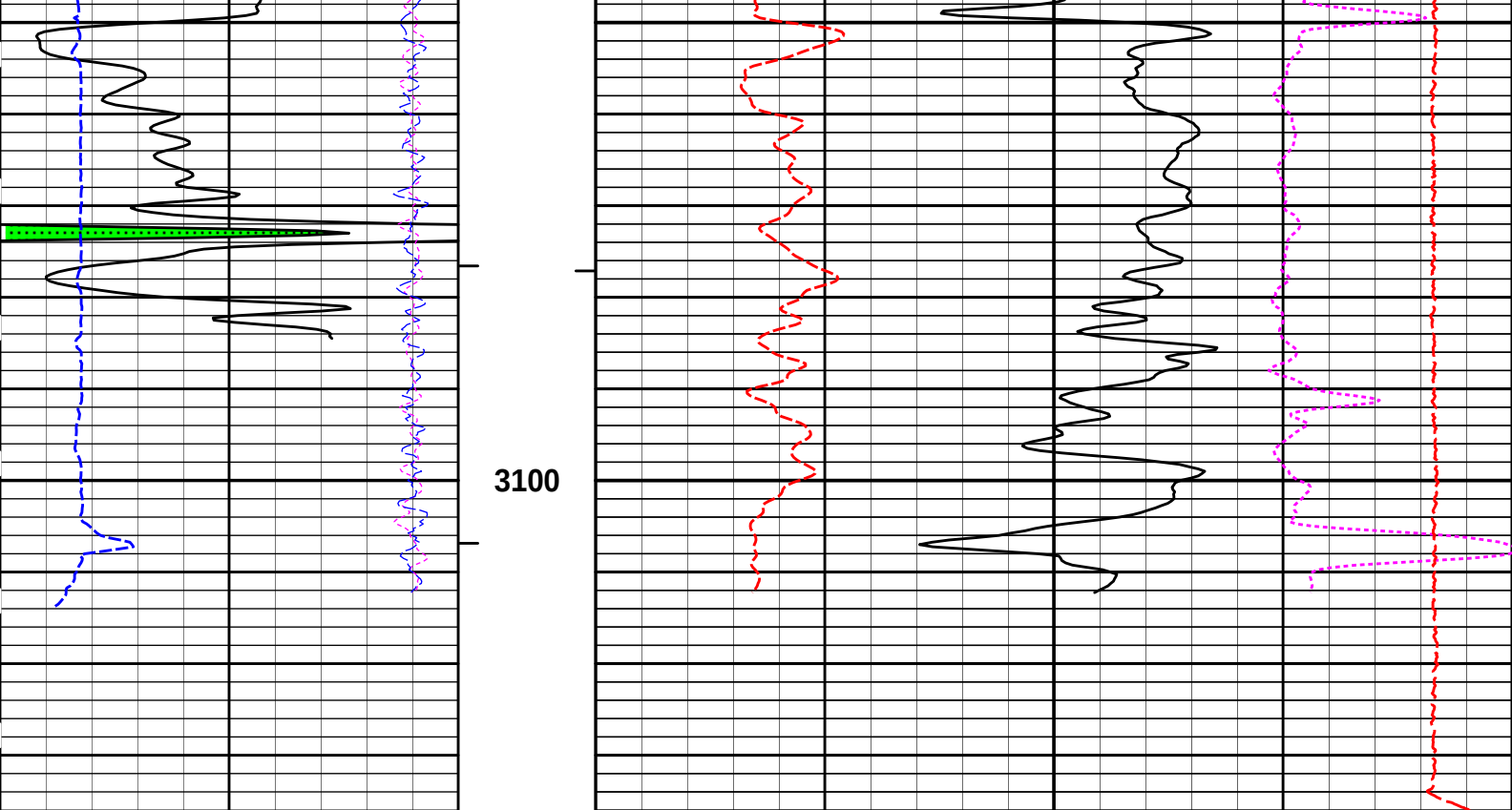
HALLIBURTON

Plot Time: 06-Aug-13 15:02:46
Plot Range: 2865 ft to 3136.33 ft
Data: ROUSEetalATU1\Well Based\IR1 REPEAT\
Plot File: \\-LOCAL-\\ROUSEetalATU1\Well Based\POROSITY\BULKD_5_REP_LIB

REPEAT SECTION

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

HALLIBURTON

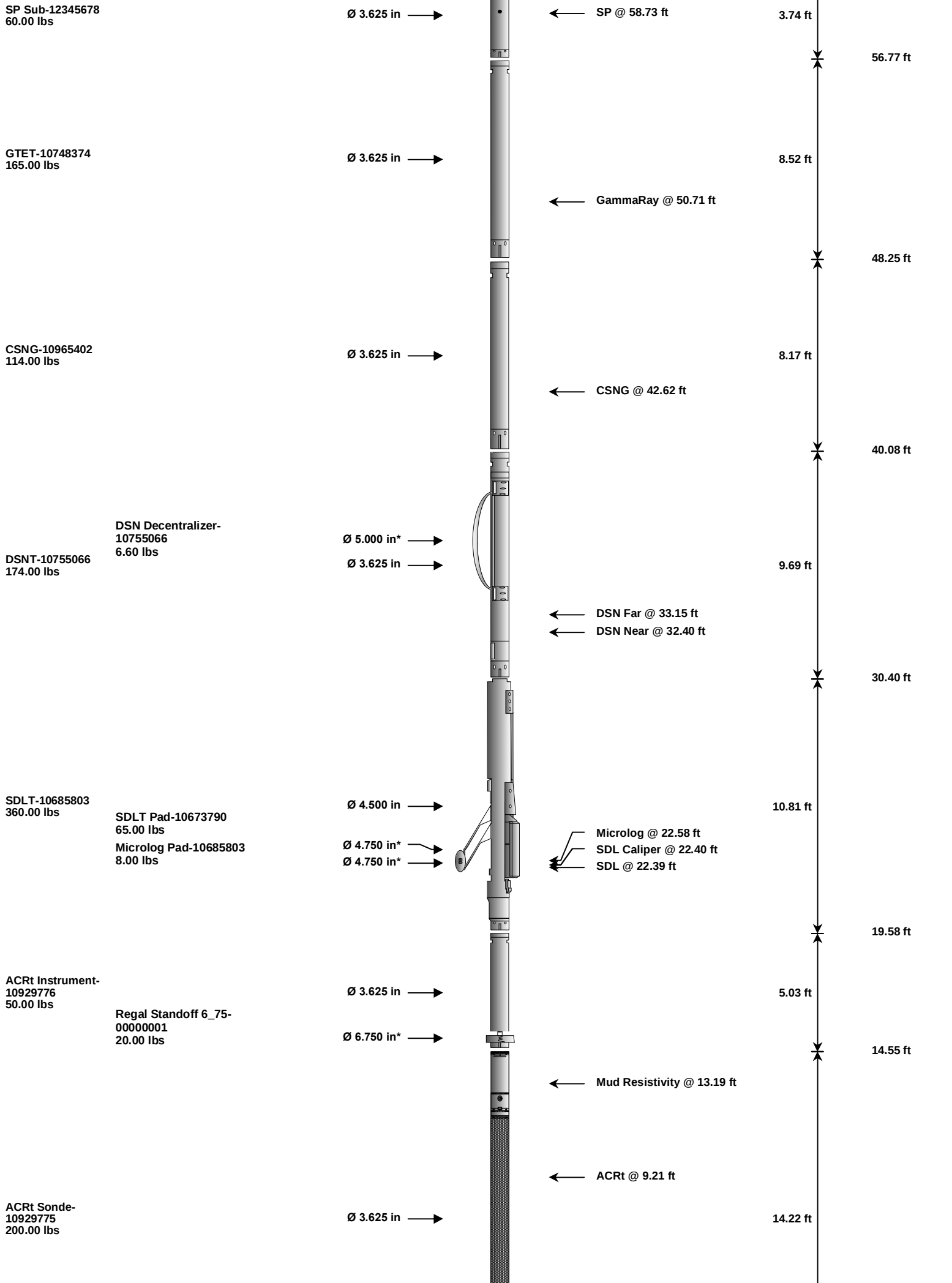
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Data: ROUSEetalATU1\Well Based\IR1 REPEAT\
Plot File: \\-LOCAL-\\ROUSEetalATU1\Well Based\POROSITY\BULKD_5_REP_LIB

REPEAT SECTION

HALLIBURTON

TOOL STRING DIAGRAM REPORT

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



CrossPlot	FCNC	Select Source on F	Automatic		
Rwa / CrossPlot	AFAC	Archie A factor	0.6200		
Rwa / CrossPlot	MFAC	Archie M factor	2.1500		
Rwa / CrossPlot	RMFR	Rmf Reference	0.10	ohmm	
Rwa / CrossPlot	TMFR	Rmf Ref Temp	75.00	degF	
Rwa / CrossPlot	RWA	Resistivity of Formation Water	0.05	ohmm	
Rwa / CrossPlot	ADP	Use Air Porosity to calculate CrossplotPhi	No		
GTET	GROK	Process Gamma Ray?	Yes		
GTET	GRSO	Gamma Tool Standoff	0.000	in	
GTET	GEOK	Process Gamma Ray EVR?	No		
GTET	TPOS	Tool Position for Gamma Ray Tools.	Eccentered		
CSNG	CGOK	Process CSNG Data?	Yes		
CSNG	CENT	Is Tool Centralized?	No		
CSNG	GBOK	Gamma Enviromental Corrections?	Yes		
CSNG	BARF	Barite Correction Factor	1.00		
CSNG	ORDG	Use Fixed Gain	No		
CSNG	ORDO	Use Fixed Offset	No		
CSNG	ORDR	Use Fixed Resolution Degradation Factor	No		
DSNT	DNOK	Process DSN?	Yes		
DSNT	DEOK	Process DSN EVR?	No		
DSNT	NLIT	Neutron Lithology	Limestone		
DSNT	DNSO	DSN Standoff - 0.25 in (6.35 mm) Recommended	0.250	in	
DSNT	DNTP	Temperature Correction Type	None		
DSNT	DPRS	DSN Pressure Correction Type	None		
DSNT	SHCO	View More Correction Options	No		
DSNT	UTVD	Use TVD for Gradient Corrections?	No		
DSNT	LHWT	Logging Horizontal Water Tank?	No		
SDLT	CLOK	Process Caliper Outputs?	Yes		
SDLT Pad	DNOK	Process Density?	Yes		
SDLT Pad	DNOK	Process Density EVR?	No		
SDLT Pad	CB	Logging Calibration Blocks?	No		
SDLT Pad	SPVT	SDLT Pad Temperature Valid?	Yes		
SDLT Pad	DTWN	Disable temperature warning	No		
SDLT Pad	DMA	Formation Density Matrix	2.710	g/cc	
SDLT Pad	DFL	Formation Density Fluid	1.000	g/cc	
Microlog Pad	MLOK	Process MicroLog Outputs?	Yes		
ACRt Sonde	RTOK	Process ACRt?	Yes		
ACRt Sonde	MNSO	Minimum Tool Standoff	1.50	in	
ACRt Sonde	TCS1	Temperature Correction Source	FP Lwr & FP 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

CALIBRATION REPORT

NATURAL GAMMA RAY TOOL SHOP CALIBRATION

Tool Name:

GTET - 10748374

Reference Calibration Date:

25-Jul-13 22:09:38

Engineer:

THOMAS HYDE

Calibration Date:

02-Aug-13 14:20:06

Software Version:

WL INSITE R3.8.4 (Build 5)

Calibration Version:

1

Calibrator Source S/N: TB-185
Calibrator API Reference:228.00 api
Equivalent Calibrator API Reference:232.0 api

Measurement	Measured	Calibrated	Units
Background	41.8	41.9	api
Background + Calibrator	273.2	273.9	api
Calibrator	231.4	232.0	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION

Tool Name:

GTET - 10748374

Reference Calibration Date:

02-Aug-13 14:20:06

Engineer:

THOMAS HYDE

Calibration Date:

06-Aug-13 09:17:13

Software Version:

WL INSITE R3.8.4 (Build 5)

Calibration Version:

1

Calibrator Source S/N: TB-185
Calibrator API Reference:228.00 api
Equivalent Calibrator API Reference:232.0 api

Field Verification	Shop	Field	Units
Background	41.9	41.4	api
Background + Calibrator	273.9	273.8	api
Calibrator	232.0	232.5	api

Shop	Field	Difference	Tolerance
232.0	232.5	-0.5	+/- 9.00

DUAL SPACED NEUTRON SHOP CALIBRATION

Tool Name:

DSNT - 10755066

Reference Calibration Date:

19-May-13 13:08:19

Engineer:

S. INGERSOLL

Calibration Date:

01-Jul-13 16:27:31

Software Version:

WL INSITE R3.8.4 (Build 5)

Calibration Version:

1

Logging Source S/N: DSN-436
Tank Serial Number: 105060
Reference value assigned to Tank: 51.680
Snow Block S/N: 08910
Calibration Tank Water Temperature: 62 degF
Min. Tool Housing Outside Diameter: 3.620 in

CALIBRATION CONSTANTS			
Measurement	Prev. Value	New Value	Control Limit On New Value
Gain:	0.953	0.952	0.900 - 1.100

WATER TANK SUMMARY (Horizontal Water Tank)				
Measurement	Current Reading (Previous Coef.)	Calibrated (New Coef.)	Change	Control Limit On Change
Porosity (decp):	0.2110	0.2106	0.0003	+/- 0.0020
Calibrated Ratio:	9.73	9.72	0.011	+/- 0.050

VERIFIER		
Measurement	Value	Control Limit

	Measurement	Value	Control Limit
	Snow-Block Porosity (decp):	0.0662	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 - 10755066	Reference Calibration Date:	01-Jul-13 16:27:31
Engineer:	THOMAS HYDE	Calibration Date:	06-Aug-13 09:23:05
Software Version:	WL INSITE R3.8.4 (Build 5)	Calibration Version:	1

Logging Source S/N: DSN-436
Snow Block S/N: 08910

NEUTRON FIELD-CHECK SUMMARY				
	Shop	Field	Difference	Control Limit On Change
Snow-Block Porosity (decp):	0.0662	0.0648	-0.0014	+/- 0.0150

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

DENSITY CALIPER SHOP CALIBRATION			
Tool Name:	SDLT - 10685803	Reference Calibration Date:	20-Jun-13 16:09:36
Engineer:	S. INGERSOLL	Calibration Date:	01-Jul-13 15:30:20
Software Version:	WL INSITE R3.8.4 (Build 5)	Calibration Version:	1
Host Tool Name:	DSNT - 10755066		

CALIBRATION COEFFICIENTS			
Measurement	Previous Value	New Value	Control Limit On New Value
Pad Offset	-4578.27	-4092.36	-7000.00 - -1000.00
Pad Gain	0.0003895	0.0003815	0.000200 - 0.000600
Arm Offset	-2279.74	-2703.47	-5000.00 - 3000.00
Arm Gain	0.0004915	0.0005069	0.000300 - 0.000700
Arm Power	-0.000003324	-0.000004137	-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)	1.85	2.00	0.15	+/- 0.20
Medium Ring (in)	3.64	3.75	0.11	+/- 0.20
RING DIAMETER:				
Small Ring (in)	6.47	6.50	0.03	+/- 0.20
Medium Ring (in)	8.18	8.25	0.07	+/- 0.20
Large Ring (in)	14.88	15.00	0.12	+/- 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 - 10685803		Reference Calibration Date:	01-Jul-13 15:30:20
Engineer:	THOMAS HYDE		Calibration Date:	06-Aug-13 09:18:18
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	3.73	-0.02 +/- 0.10
	Ring Diameter	8.25	8.32	0.07 +/- 0.15
PASS/FAIL SUMMARY				
Pad Extension Check:			Passed	
Diameter Check:			Passed	
SPECTRAL DENSITY SHOP CALIBRATION				
Tool Name:	SDLT Pad - 10673790		Reference Calibration Date:	18-May-13 21:41:33
Engineer:	S. INGERSOLL		Calibration Date:	01-Jul-13 12:50:36
Software Version:	WL INSITE R3.8.4 (Build 5)		Calibration Version:	1
Logging Source S/N: 5073GW				
Aluminum Block S/N: LIBERAL ALUMINUM		Density: 2.598g/cc		Pe: 3.170
Magnesium Block S/N: LIBERAL MAG BLOCK		Density: 1.684g/cc		Pe: 2.598
	DENSITY CALIBRATION SUMMARY			
	Measurement	Previous Value	New Value	Control Limit
	Near Bar Gain	1.0467	1.0402	0.90 - 1.10
	Near Dens Gain	1.0386	1.0308	0.90 - 1.10
	Near Peak Gain	1.0598	1.0600	0.90 - 1.10
	Near Lith Gain	1.0491	1.0179	0.90 - 1.10
	Far Bar Gain	1.0107	1.0098	0.90 - 1.10
	Far Dens Gain	0.9993	0.9981	0.90 - 1.10
	Far Peak Gain	0.9920	0.9920	0.90 - 1.10
	Far Lith Gain	0.9604	0.9603	0.90 - 1.10
	Near Bar Offset	-0.1729	-0.1107	NONE
	Near Dens Offset	-0.0887	-0.0193	NONE
	Near Peak Offset	-0.2382	-0.2385	NONE
	Near Lith Offset	-0.1653	0.0962	NONE
	Far Bar Offset	0.0790	0.0820	NONE
	Far Dens Offset	0.1500	0.1581	NONE
	Far Peak Offset	0.1726	0.1658	NONE
	Far Lith Offset	0.3450	0.3403	NONE
	Near Bar Background	864.83	861.54	700 - 1450
	Near Dens Background	283.75	282.76	230 - 480
	Near Peak Background	124.36	123.64	100 - 210
	Near Lith Background	152.79	154.08	125 - 260
	Far Bar Background	576.79	576.20	450 - 900
	Far Dens Background	226.46	226.25	175 - 345
	Far Peak Background	90.61	89.12	70 - 140
	Far Lith Background	93.93	93.55	75 - 145

CALIBRATION BLOCK SUMMARY				
Measurement	Current Reading (Previous Coef)	Calibrated (New Coef)	Change	Control Limit On Change
MAGNESIUM				
Density (g/cc)	1.679	1.684	0.005	+/- 0.015
Pe	2.554	2.562	0.008	+/- 0.150
ALUMINUM				
Density (g/cc)	2.591	2.598	0.007	+/- 0.01500
Pe	3.154	3.131	-0.023	+/- 0.150

TOOL SUMMARY				
Measurement	Near Detector		Far Detector	
	Value	Control Limits	Value	Control Limits
QUALITY				
Background	0.0002	+/- 0.0110	-0.0002	+/- 0.0140
Magnesium Block	-0.0001	+/- 0.0110	0.0009	+/- 0.0140
Aluminum Block	0.0002	+/- 0.0110	0.0013	+/- 0.0140
Resolution	8.58	6.00 - 11.50	8.79	6.00 - 11.50
Internal Verifier(B+D+P+L)	1422	1200 - 2700	985	800 - 1700

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

SPECTRAL DENSITY FIELD CHECK

Tool Name:	SDLT Pad - 10673790	Reference Calibration Date:	01-Jul-13 12:50:36
Engineer:	THOMAS HYDE	Calibration Date:	06-Aug-13 09:13:26
Software Version:	WL INSITE R3.8.4 (Build 5)	Calibration Version:	1

Pad Temperature: 89.3 degF

DENSITY FIELD CALIBRATION SUMMARY				
Measurement	Shop	Field	Change	Control Limit +/-
Near (B+D+P+L) cps	1422.026	1419.541	-2.485	15.221
Far (B+D+P+L) cps	985.123	988.005	2.882	16.837
Near Resolution	8.58	8.60	0.020	0.50
Far Resolution	8.79	9.00	0.210	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
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TPUL	Tension Pull	32.30	NO	
RNDS	Near Detector Telemetry Counts	32.40	BLK	1.417
RFDS	Far Detector Telemetry Counts	33.15	TRI	0.583
DNTT	DSN Tool Temperature	32.40	NO	
DSNS	DSN Tool Status	32.30	NO	
ERND	Near Detector Telemetry Counts EVR	32.40	BLK	0.000
ERFD	Far Detector Telemetry Counts EVR	33.15	BLK	0.000
ENTM	DSN Tool Temperature EVR	32.40	NO	
SDLT				
TPUL	Tension Pull	22.40	NO	
PCAL	Pad Caliper	22.40	TRI	0.250
ACAL	Arm Caliper	22.40	TRI	0.250
ACRt Sonde				
TPUL	Tension Pull	2.73	NO	
F1R1	ACRT 12KHz - 80in R value	8.98	BLK	0.000
F1X1	ACRT 12KHz - 80in X value	8.98	BLK	0.000
F1R2	ACRT 12KHz - 50in R value	6.48	BLK	0.000
F1X2	ACRT 12KHz - 50in X value	6.48	BLK	0.000
F1R3	ACRT 12KHz - 29in R value	4.98	BLK	0.000
F1X3	ACRT 12KHz - 29in X value	4.98	BLK	0.000
F1R4	ACRT 12KHz - 17in R value	3.98	BLK	0.000
F1X4	ACRT 12KHz - 17in X value	3.98	BLK	0.000
F1R5	ACRT 12KHz - 10in R value	3.48	BLK	0.000
F1X5	ACRT 12KHz - 10in X value	3.48	BLK	0.000
F1R6	ACRT 12KHz - 6in R value	3.23	BLK	0.000
F1X6	ACRT 12KHz - 6in X value	3.23	BLK	0.000
F2R1	ACRT 36KHz - 80in R value	8.98	BLK	0.000
F2X1	ACRT 36KHz - 80in X value	8.98	BLK	0.000
F2R2	ACRT 36KHz - 50in R value	6.48	BLK	0.000
F2X2	ACRT 36KHz - 50in X value	6.48	BLK	0.000
F2R3	ACRT 36KHz - 29in R value	4.98	BLK	0.000
F2X3	ACRT 36KHz - 29in X value	4.98	BLK	0.000
F2R4	ACRT 36KHz - 17in R value	3.98	BLK	0.000
F2X4	ACRT 36KHz - 17in X value	3.98	BLK	0.000
F2R5	ACRT 36KHz - 10in R value	3.48	BLK	0.000
F2X5	ACRT 36KHz - 10in X value	3.48	BLK	0.000
F2R6	ACRT 36KHz - 6in R value	3.23	BLK	0.000
F2X6	ACRT 36KHz - 6in X value	3.23	BLK	0.000
F3R1	ACRT 72KHz - 80in R value	8.98	BLK	0.000
F3X1	ACRT 72KHz - 80in X value	8.98	BLK	0.000
F3R2	ACRT 72KHz - 50in R value	6.48	BLK	0.000
F3X2	ACRT 72KHz - 50in X value	6.48	BLK	0.000
F3R3	ACRT 72KHz - 29in R value	4.98	BLK	0.000
F3X3	ACRT 72KHz - 29in X value	4.98	BLK	0.000
F3R4	ACRT 72KHz - 17in R value	3.98	BLK	0.000
F3X4	ACRT 72KHz - 17in X value	3.98	BLK	0.000
F3R5	ACRT 72KHz - 10in R value	3.48	BLK	0.000
F3X5	ACRT 72KHz - 10in X value	3.48	BLK	0.000
F3R6	ACRT 72KHz - 6in R value	3.23	BLK	0.000
F3X6	ACRT 72KHz - 6in X value	3.23	BLK	0.000
RMUD	Mud Resistivity	12.52	BLK	0.000
F1RT	Transmitter Current Raw 12K X Receiver	2.73	BLK	0.000
F1XT	Transmitter Reference 12 KHz Imaginary Signal	2.73	BLK	0.000
F2RT	Transmitter Reference 36 KHz Real Signal	2.73	BLK	0.000

F2XT	Transmitter Reference 36 KHz Imaginary Signal	2.73	BLK	0.000
F3RT	Transmitter Reference 72 KHz Real Signal	2.73	BLK	0.000
F3XT	Transmitter Reference 72 KHz Imaginary Signal	2.73	BLK	0.000
TFPU	Upper Feedpipe Temperature Calculated	2.73	BLK	0.000
TFPL	Lower Feedpipe Temperature Calculated	2.73	BLK	0.000
ITMP	Instrument Temperature	2.73	BLK	0.000
TCVA	Temperature Correction Values Loop Off	2.73	NO	
TIDV	Instrument Temperature Derivative	2.73	NO	
TUDV	Upper Temperature Derivative	2.73	NO	
TLDV	Lower Temperature Derivative	2.73	NO	
TRBD	Receiver Board Temperature	2.73	NO	

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

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

Data: ROUSEetalATU1\0001 SP-GTET-CSNG-DSN-SDL-ACRT-BN\004 06-Aug-13 12:56 Up @3136.3f Date: 06-Aug-13 13:38:45

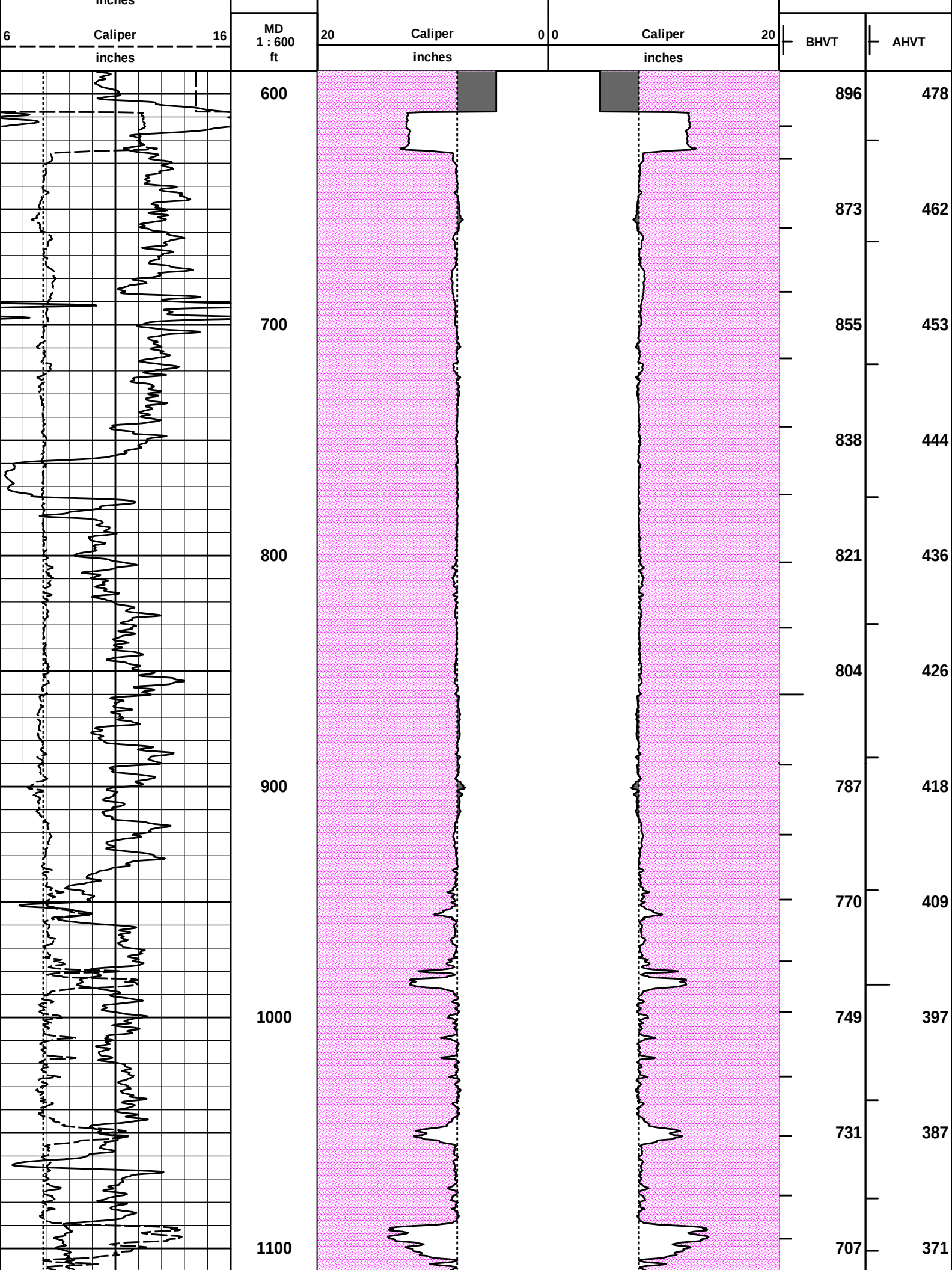


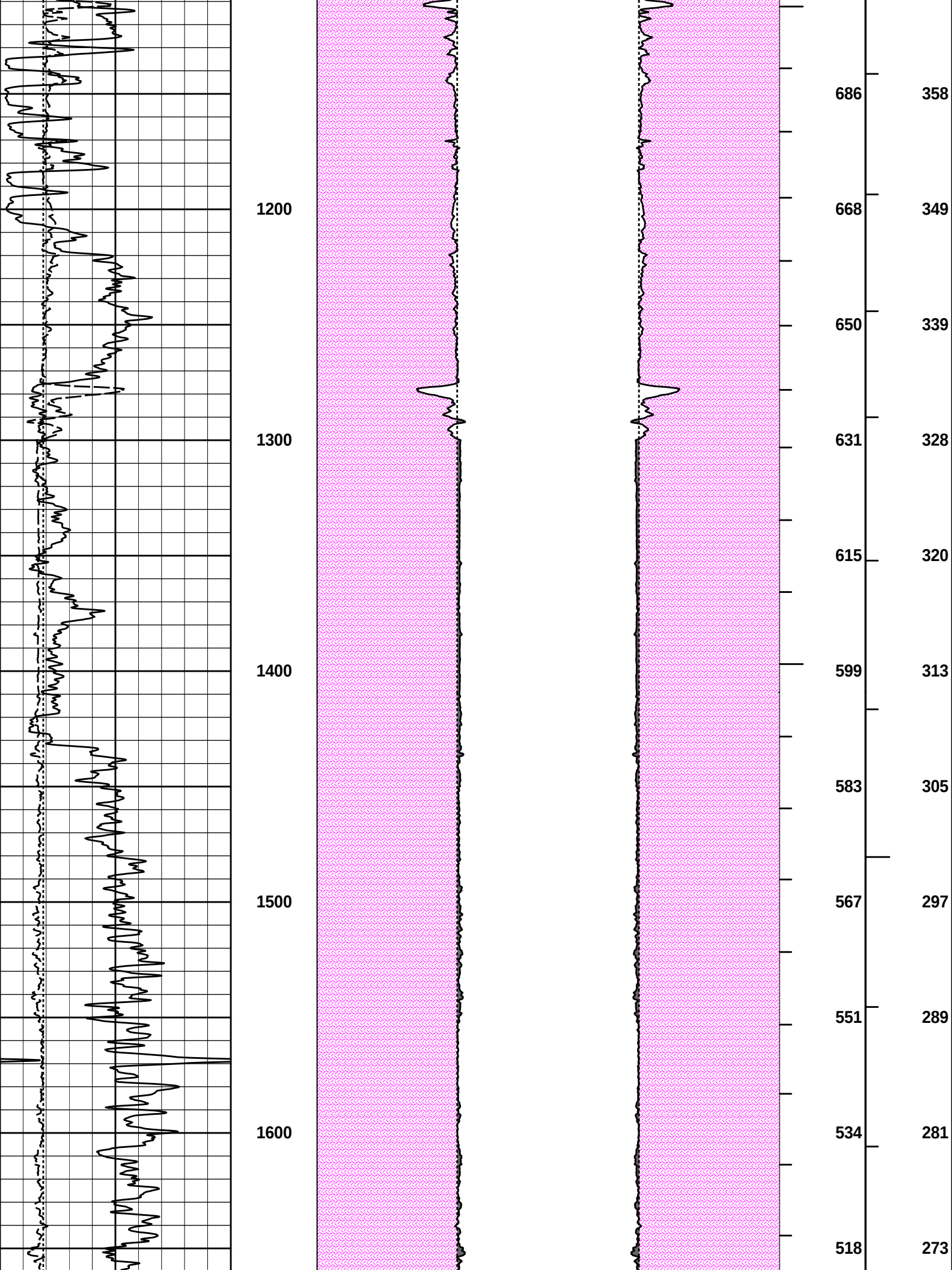
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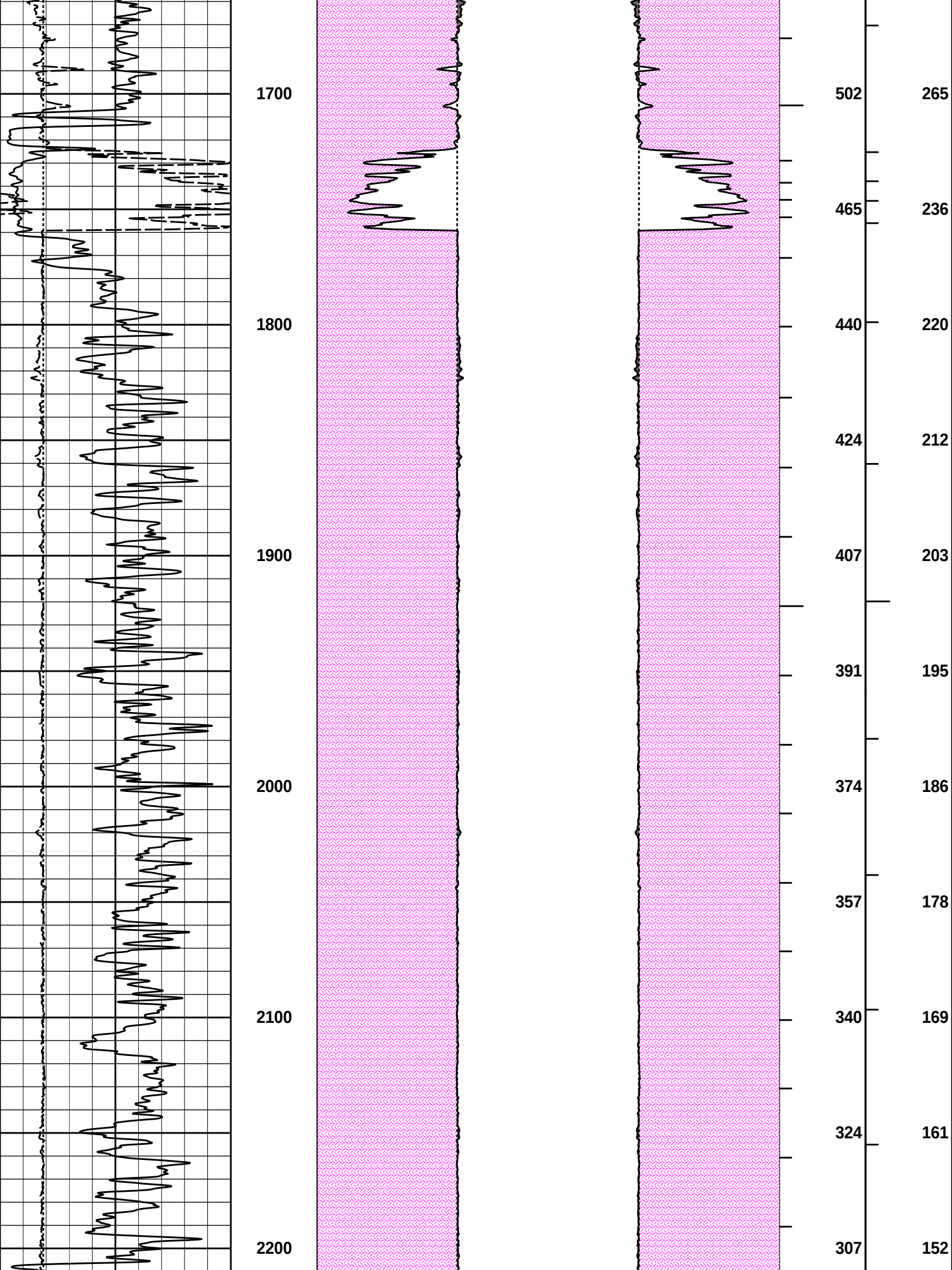
ANNULAR HOLE VOLUME PLOT

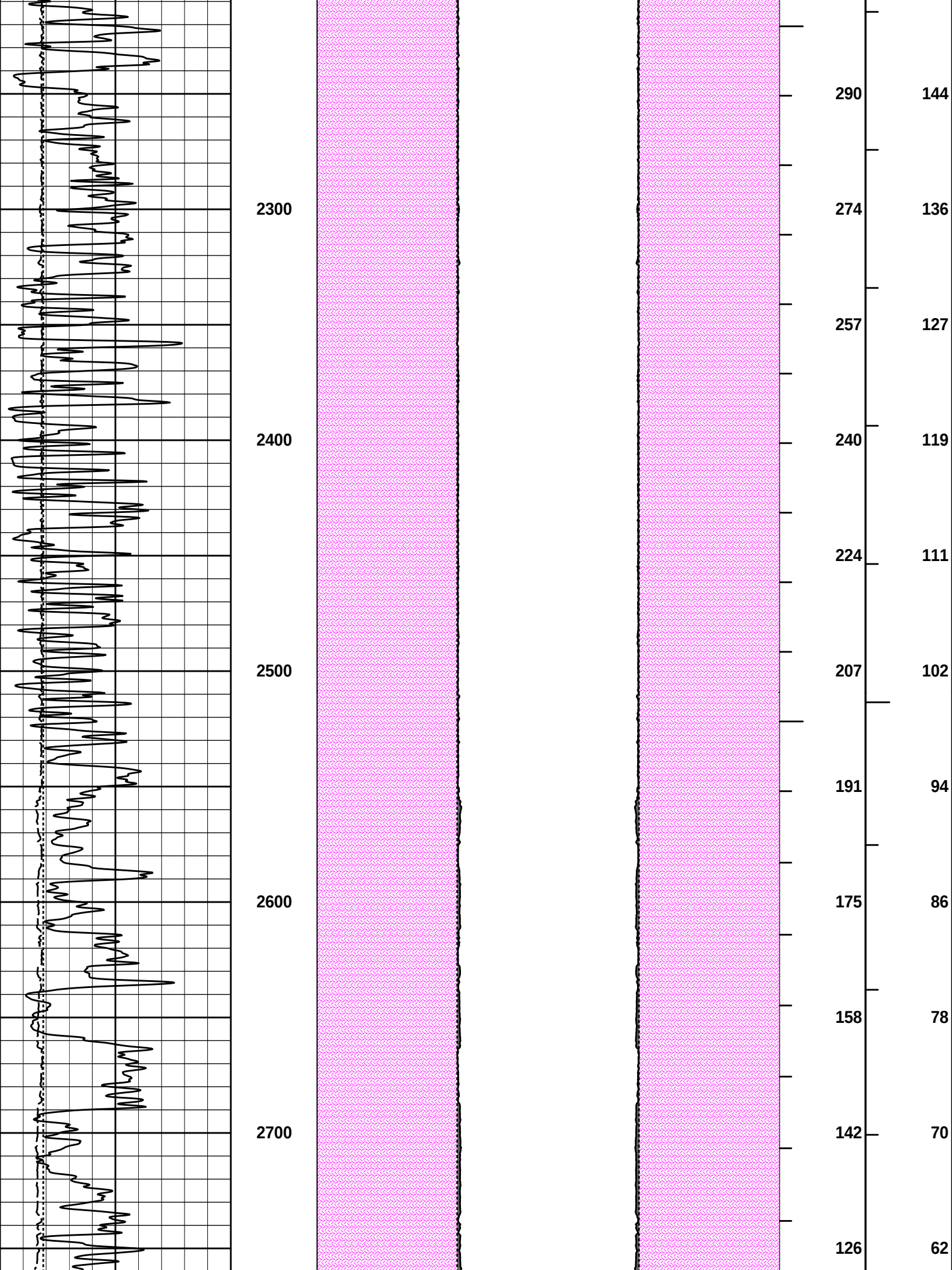
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	inches						

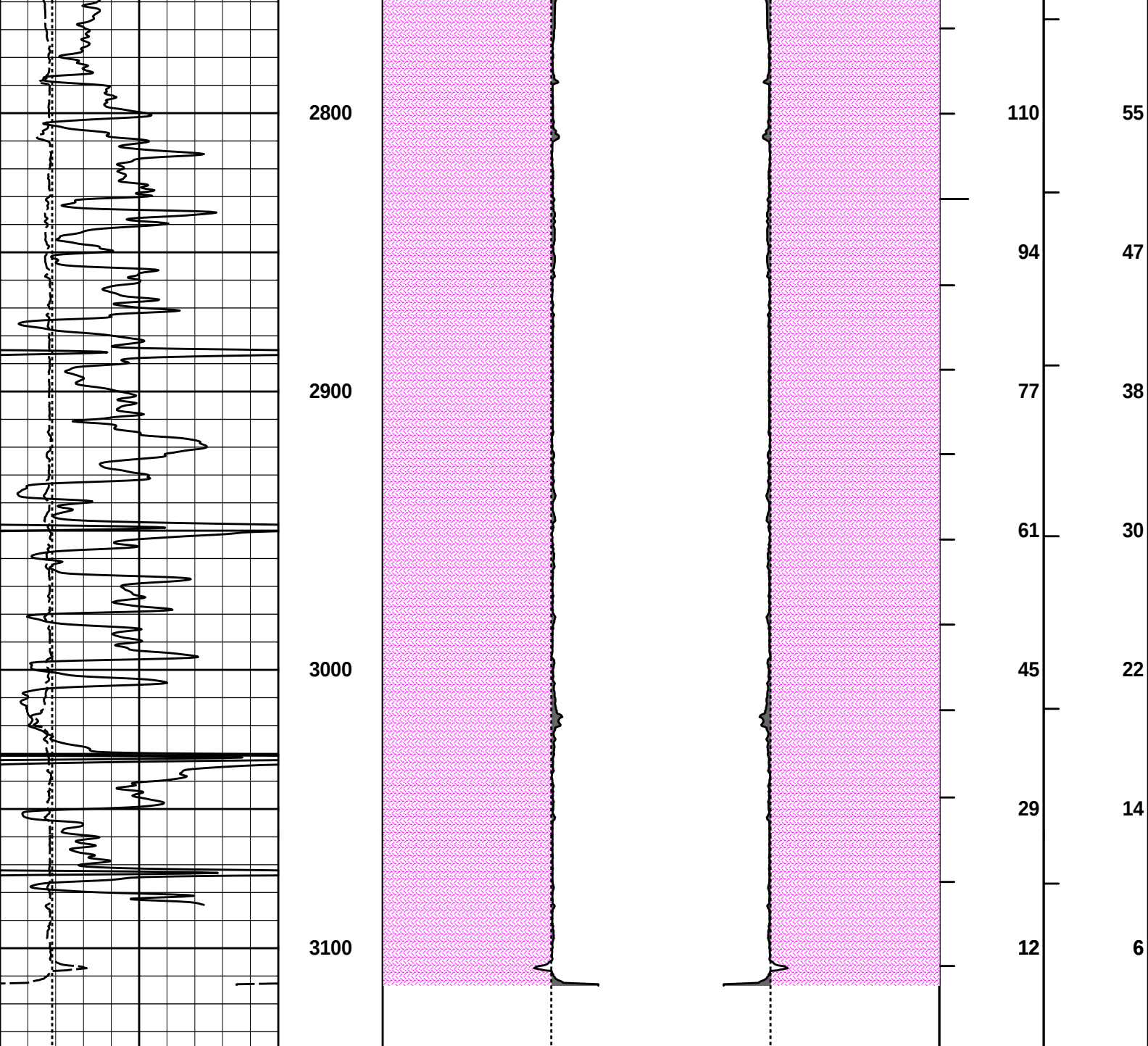
MUDCAKE		MUDCAKE	
20	Bit Size	0	Bit Size











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

HALLIBURTON

Plot Time: 06-Aug-13 15:02:57
 Plot Range: 590 ft to 3136.17 ft
 Data: ROUSEeta\ATU1\Well Based\IR1 CASING\
 Plot File: \\-LOCAL-ROUSEeta\ATU1\Well Based\POROSITY\AHV_2_IQ_LIB

ANNULAR HOLE VOLUME PLOT

WELL	ROUSE et al ATU1		
FIELD	HUGOTON PONOMA		
COUNTY	STEVENS	STATE	KANSAS
HALLIBURTON		DUAL SPACED NEUTRON SPECTRAL DENSITY LOG	