

HALLIBURTON

DUAL SPACED NEUTRON SPECTRAL DENSITY LOG

COMPANY	SANDRIDGE ENERGY		
WELL	SHAYNE SWD 3508 1-4		
FIELD/BLOCK	WALDRON WEST		
COUNTY	HARPER		
STATE	KANSAS		
COMPANY	SANDRIDGE ENERGY	WELL	SHAYNE SWD 3508 1-4
FIELD/BLOCK	WALDRON WEST	COUNTY	HARPER
COUNTY	HARPER	STATE	KANSAS
API No.	15-077-22015-00-00		
Location	(SHL) 200 FSL & 1490' FEL SE-SE-SW-SE		
Sect.	4	Twp.	36S
Rge.	8W		
Other Services:	DSN/SDL MICROLOG CSNG IDT/ICT WSTT ACRT MRIL		
Permanent Datum	GL	Elev.	1274.0 ft
Log measured from	KB	D.F.	1285.0 ft
Drilling measured from	KB	G.L.	1274.0 ft

Date	06-May-14		
Run No.	ONE		
Depth - Driller	5703.00 ft		
Depth - Logger	5692.0 ft		
Bottom - Logged Interval	5609		
Top - Logged Interval	3000		
Casing - Driller	8.625 in @ 747.0 ft		
Casing - Logger	744.0 ft @		
Bit Size	7.875 in @		
Type Fluid in Hole	Water Based Mud @		
Density	9.2 ppg	42.00 s/qt	
PH	9.50 pH	4.8 cp/m	
Source of Sample	MUD PIT		
Rm @ Meas. Temperature	1.120 ohmm	@ 105.00 degF	@
Rmf @ Meas. Temperature	0.95 ohmm	@ 105.00 degF	@
Rmc @ Meas. Temperature	1.280 ohmm	@ 105.00 degF	@
Source Rmf	Rmc	CALCULATED	CALCULATED
Rm @ BHT	0.82 ohmm	@ 145.0 degF	@
Time Since Circulation	10.0000 hr		
Time on Bottom	06-May-14 22:56		
Max. Rec. Temperature	145.0 degF	@ 5692.0 ft	@
Equipment	11230668	LIBERAL	
Recorded By	SHELDON INGERSOLL		
Witnessed By	S. MORRISON		

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Service Ticket No.: 901316076 API Serial No.: 15-077-22015-00-00 PGM Version: WL INSITE R4.2.0 (Build 2)

CHANGE IN MUD TYPE OR ADDITIONAL SAMPLE				RESISTIVITY SCALE CHANGES			
Date	Sample No.			Type Log	Depth	Scale Up Hole	Scale Down Hole
Depth-Driller							
Type Fluid in Hole							
Density	Viscosity						
Ph	Fluid Loss						
Source of Sample				RESISTIVITY EQUIPMENT DATA			
Rm @ Meas. Temp	@		@	Run No.	Tool Type & No.	Pad Type	Tool Pos.
Rmf @ Meas. Temp.	@		@	ONE	ACRT	N/A	CENT
Rmc @ Meas. Temp.	@		@		10800784		
Source Rmf	Rmc						
Rm @ BHT	@		@				
Rmf @ BHT	@		@				
Rmc @ BHT	@		@				

EQUIPMENT DATA

GAMMA		ACOUSTIC		DENSITY		NEUTRON	
Run No.	ONE	Run No.	ONE	Run No.	ONE	Run No.	ONE
Serial No.	10811258	Serial No.	10753396	Serial No.	10714945	Serial No.	10735145
Model No.	GTET	Model No.	WSTT	Model No.	SDLT	Model No.	DSNT
Diameter	3.625"	No. of Cent.	2	Diameter	5.3"	Diameter	3.625"
Detector Model No.	T-102	Spacing	.5'	Log Type	GAM-GAM	Log Type	NEU-NEU
Type	SCINT			Source Type	CS-137	Source Type	AM-241BE
Length	8"	LSA [Y/N]	YES	Serial No.	5073GW	Serial No.	DSN-436
Distance to Source	N/A	FWDA [Y/N]	YES	Strength	1.5 CI	Strength	15 CI

LOGGING DATA

GENERAL			GAMMA		ACOUSTIC		DENSITY			NEUTRON				
Run No.	Depth		Speed	Scale		Scale		Matrix	Scale		Matrix	Scale		Matrix
	From	To	ft/min	L	R	L	R		L	R		L	R	
ONE	5692	3000	REC	0	150	30	-10	47.6 us/ft	30	-10	2.71 gm/cc	30	-10	LIME

DIRECTIONAL INFORMATION

Maximum Deviation @ KOP @

Remarks: ANNULAR HOLE VOLUME CALCULATED FOR 5.5 INCH CASING.
 CHLORIDES REPORTED AT 6000 mg/L.

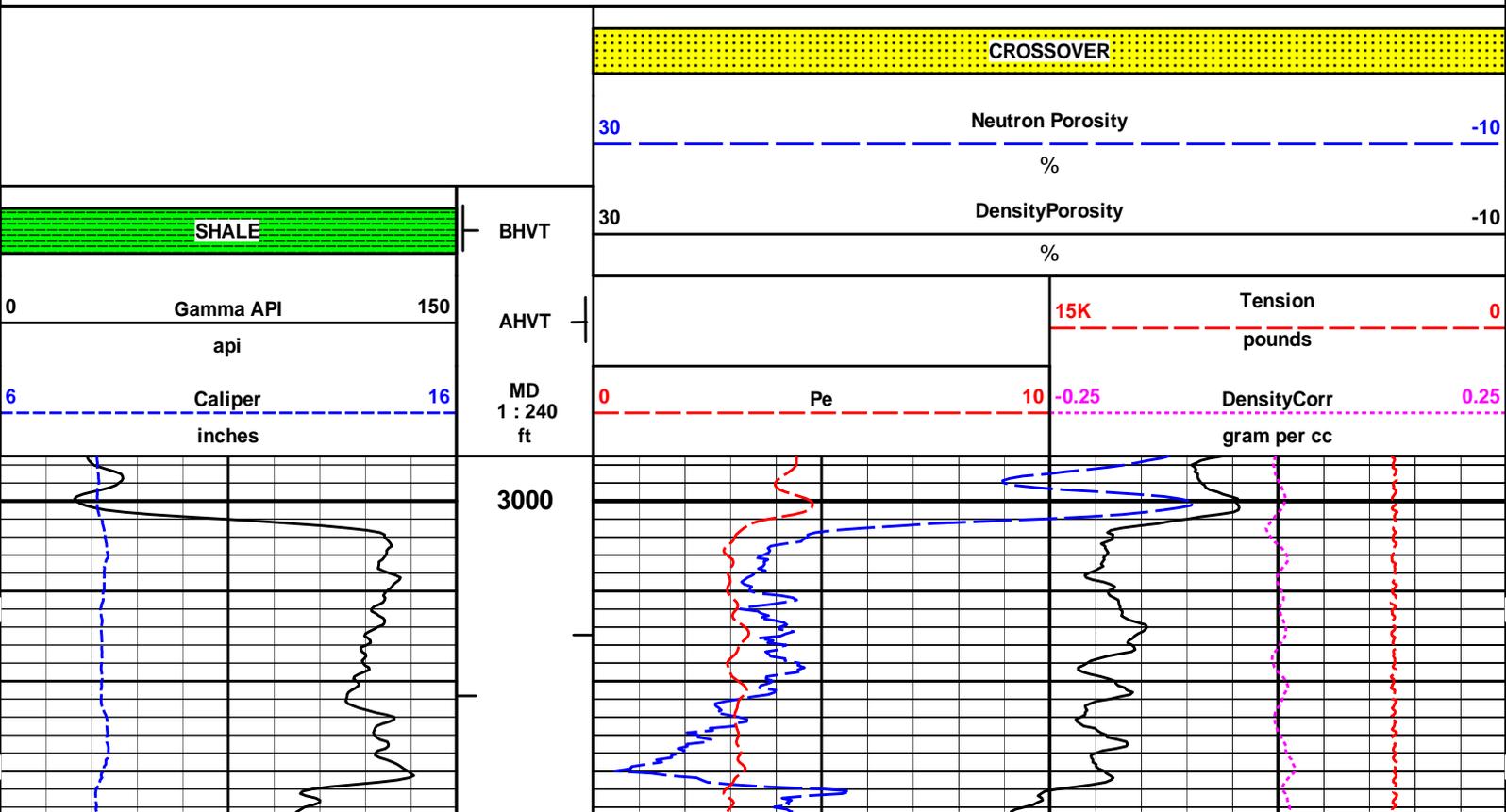
HALLIBURTON DOES NOT GUARANTEE THE ACCURACY OF ANY INTERPRETATION OF THE LOG DATA, CONVERSION OF LOG DATA TO PHYSICAL ROCK PARAMETERS OR RECOMMENDATIONS WHICH MAY BE GIVEN BY HALLIBURTON PERSONNEL OR WHICH APPEAR ON THE LOG OR IN ANY OTHER FORM. ANY USER OF SUCH DATA, INTERPRETATIONS, CONVERSIONS, OR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

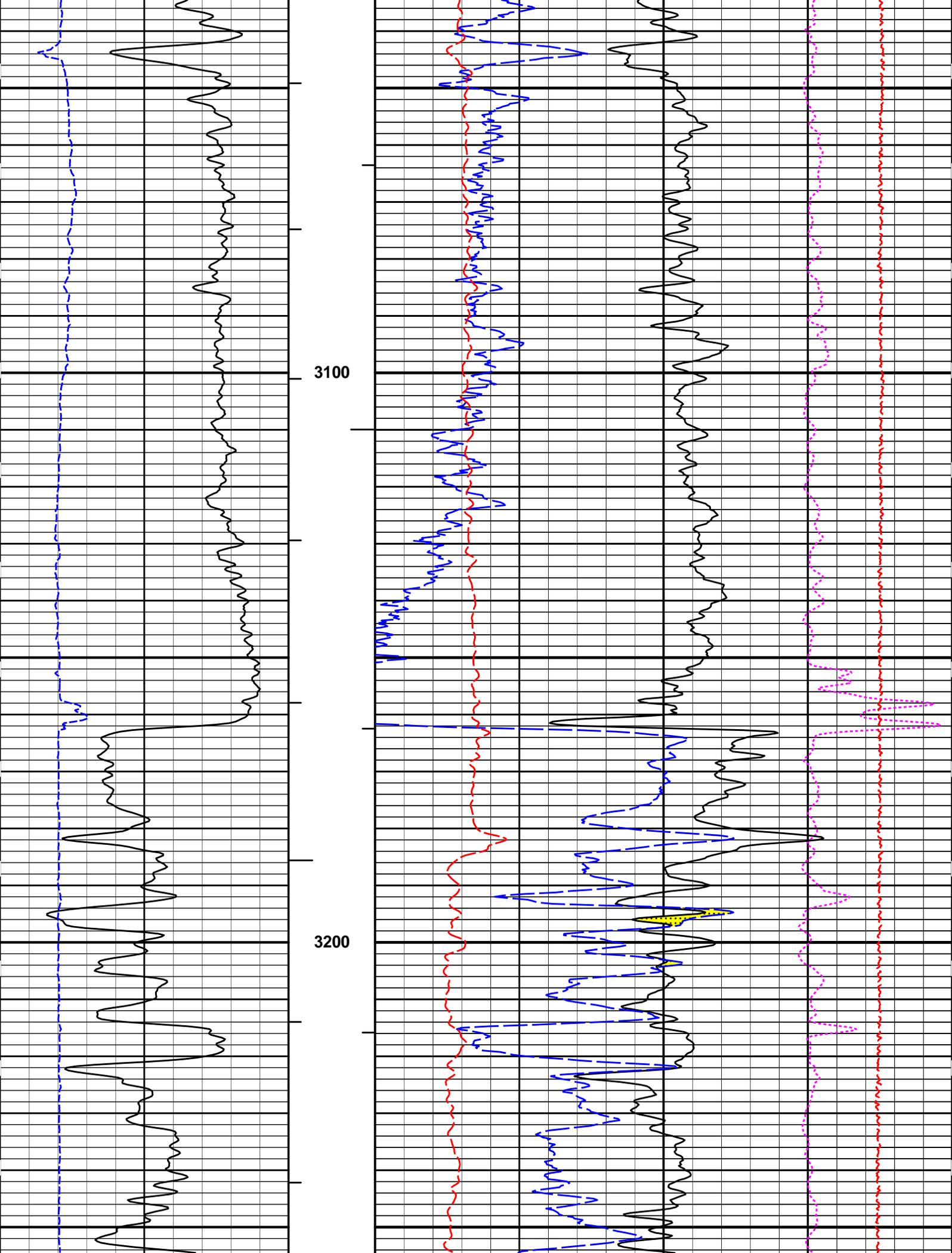
HALLIBURTON

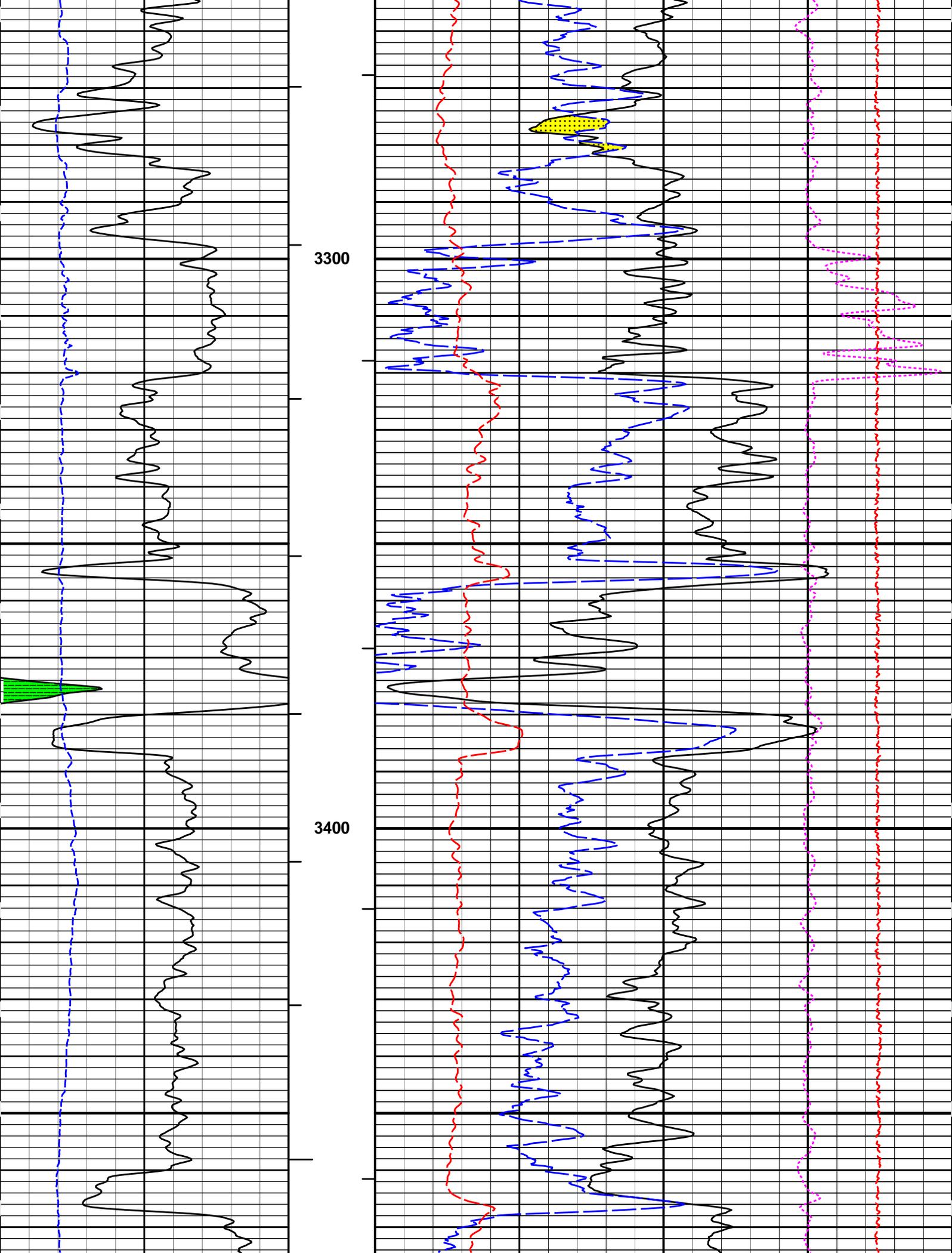


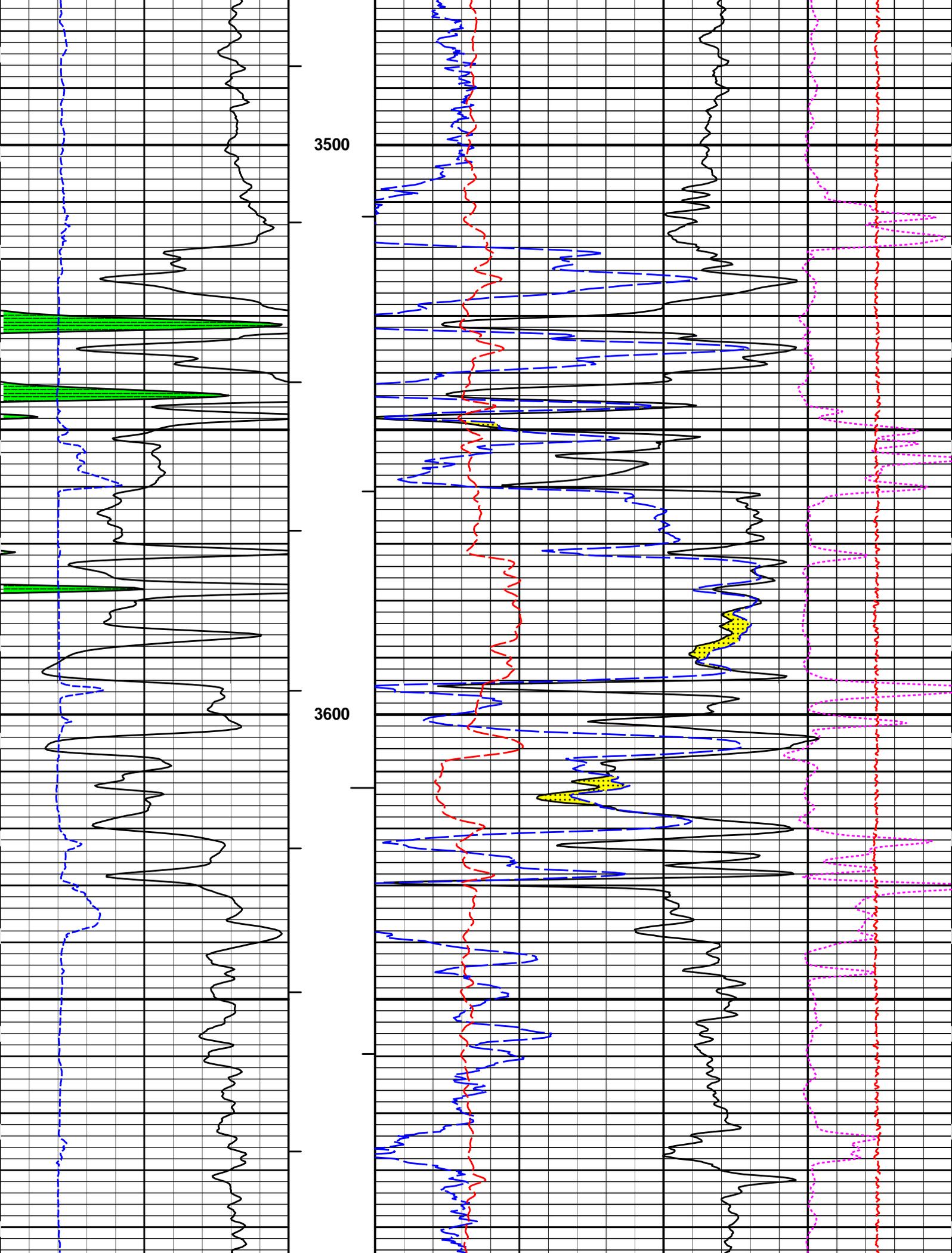
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 Data: SHAYNE_SWD_3508\Well Based\R1 DETAIL\
 Plot File: \\POROSITY\Porosity_IQ_5_MAIN_LIB

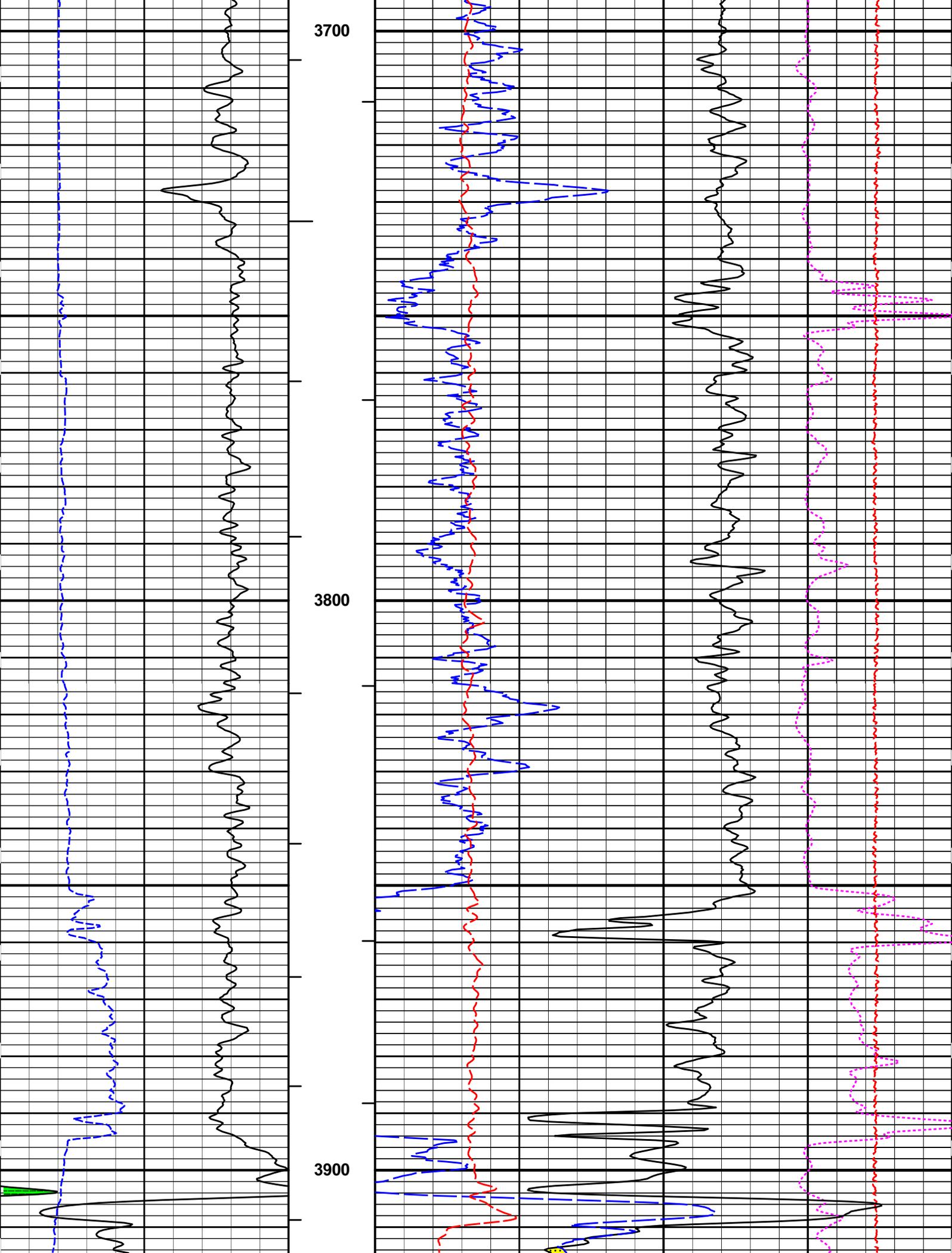
5 INCH MAIN LOG

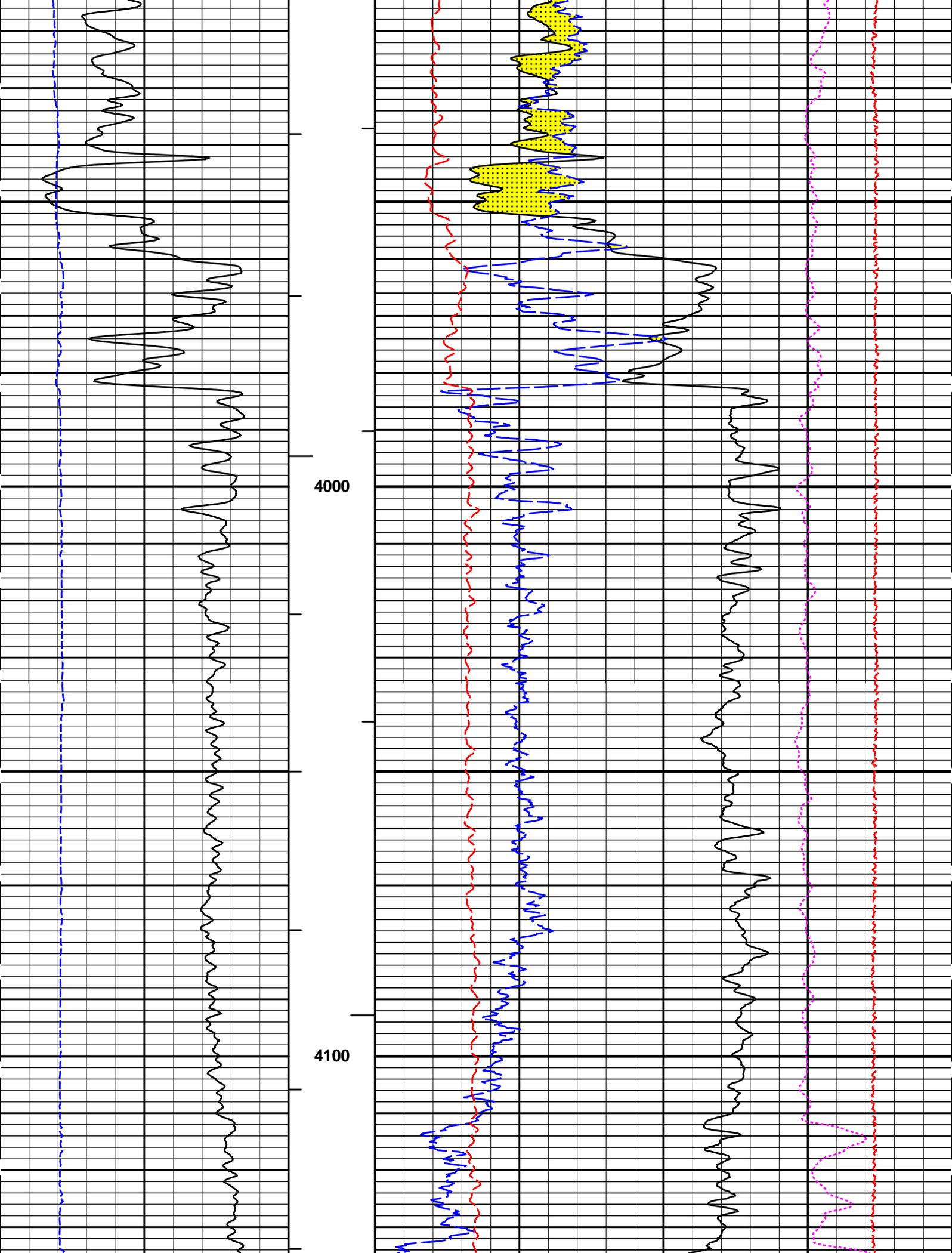


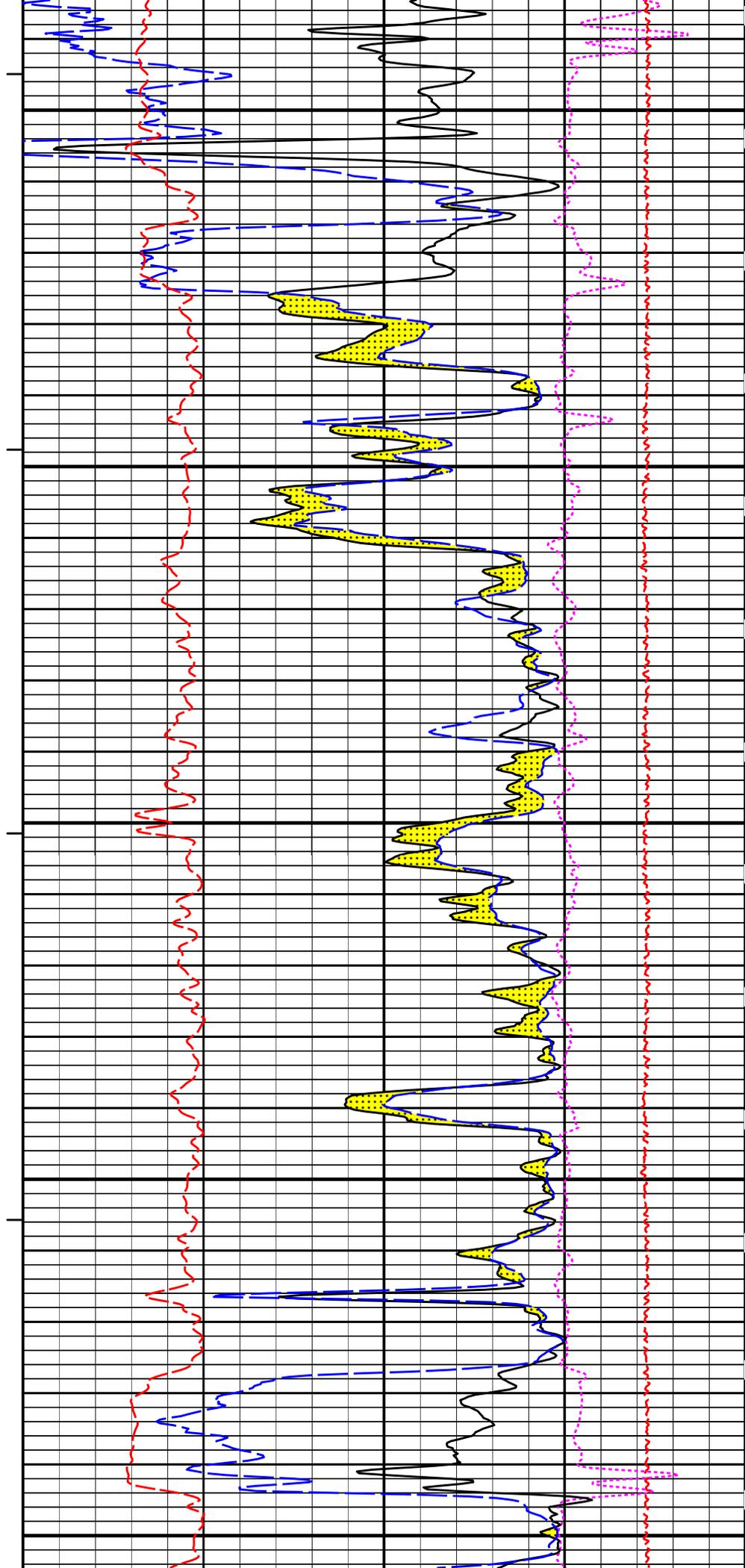
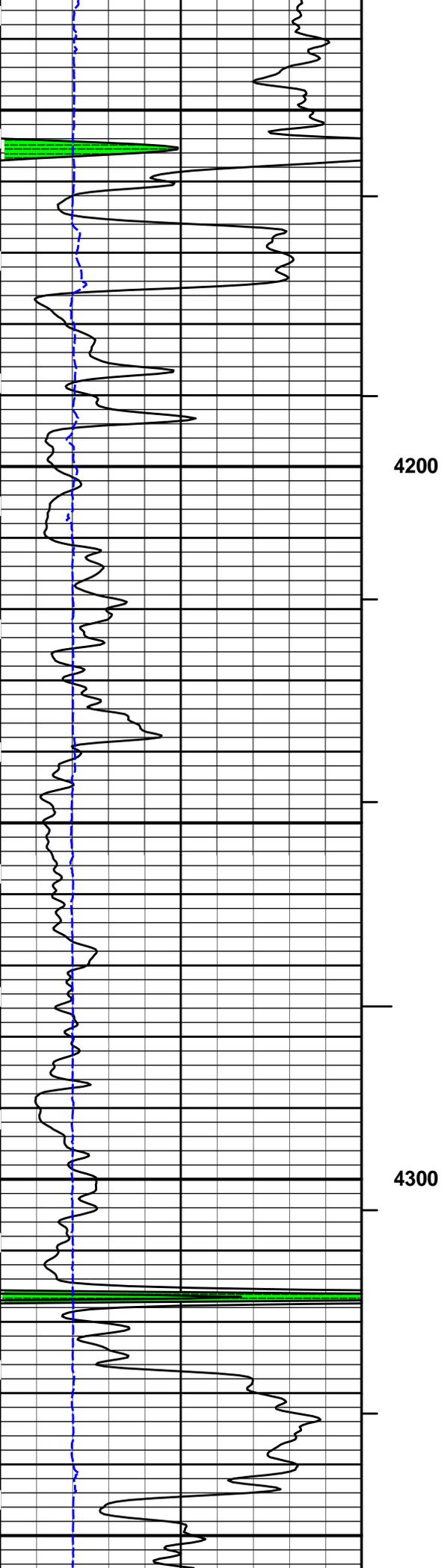


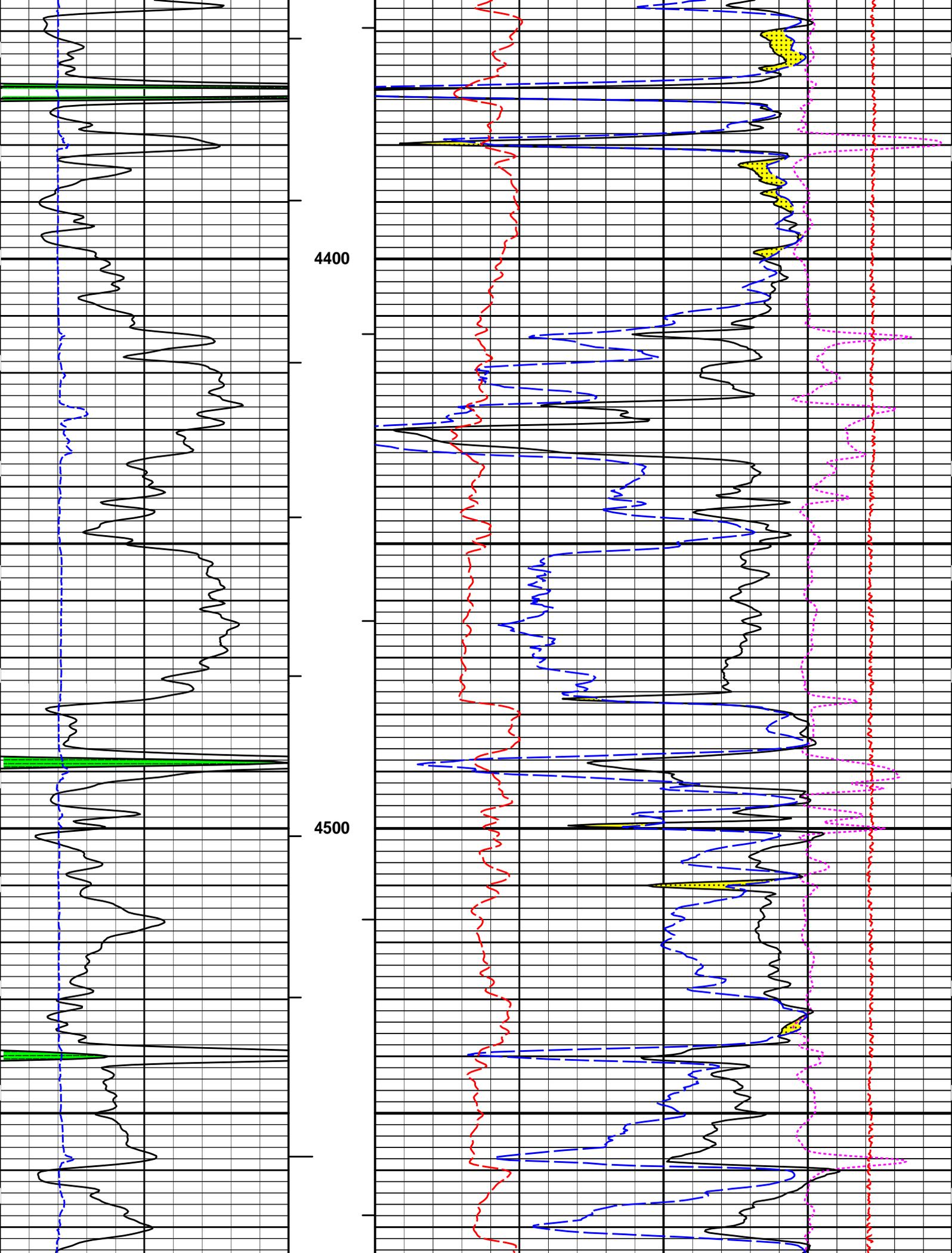


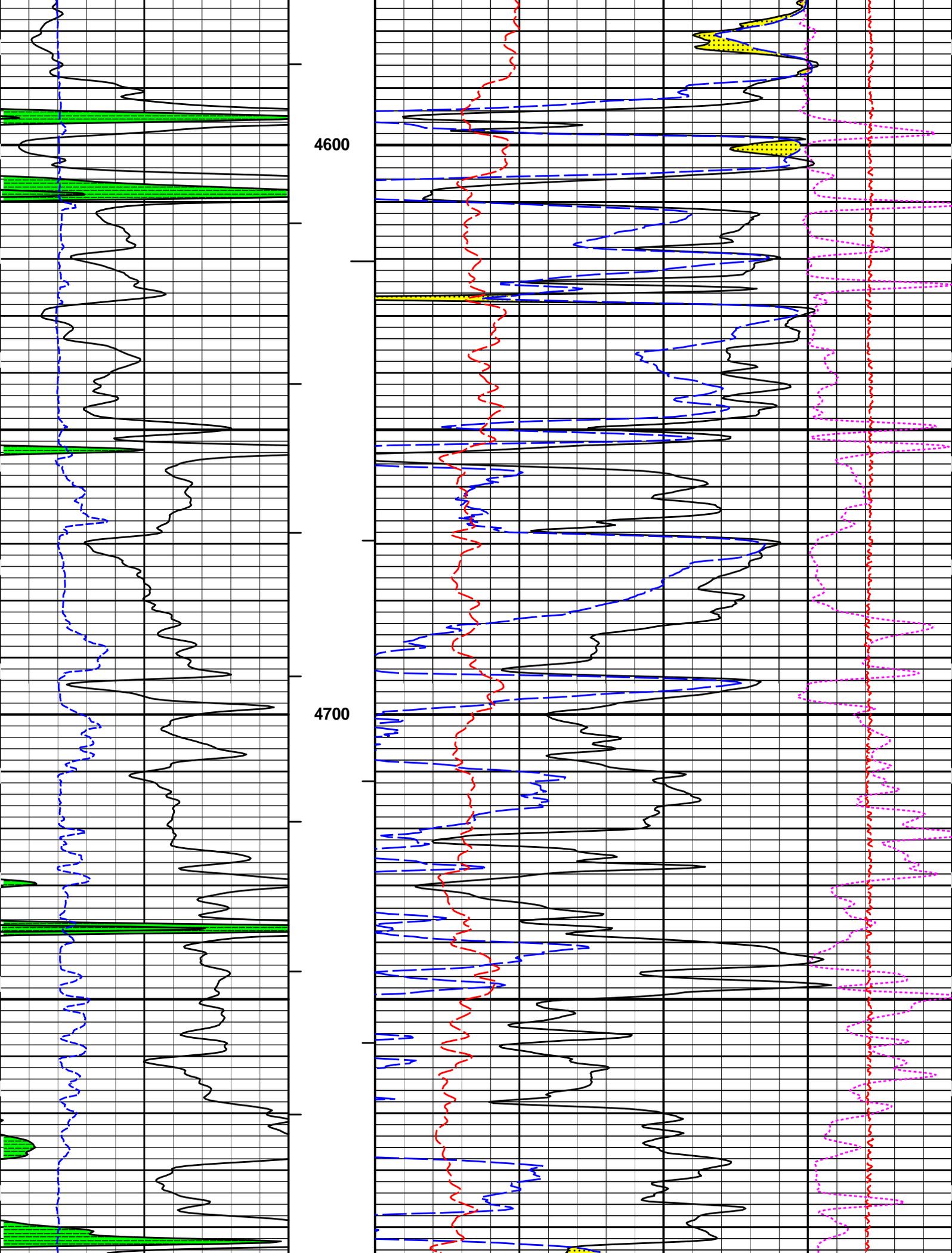


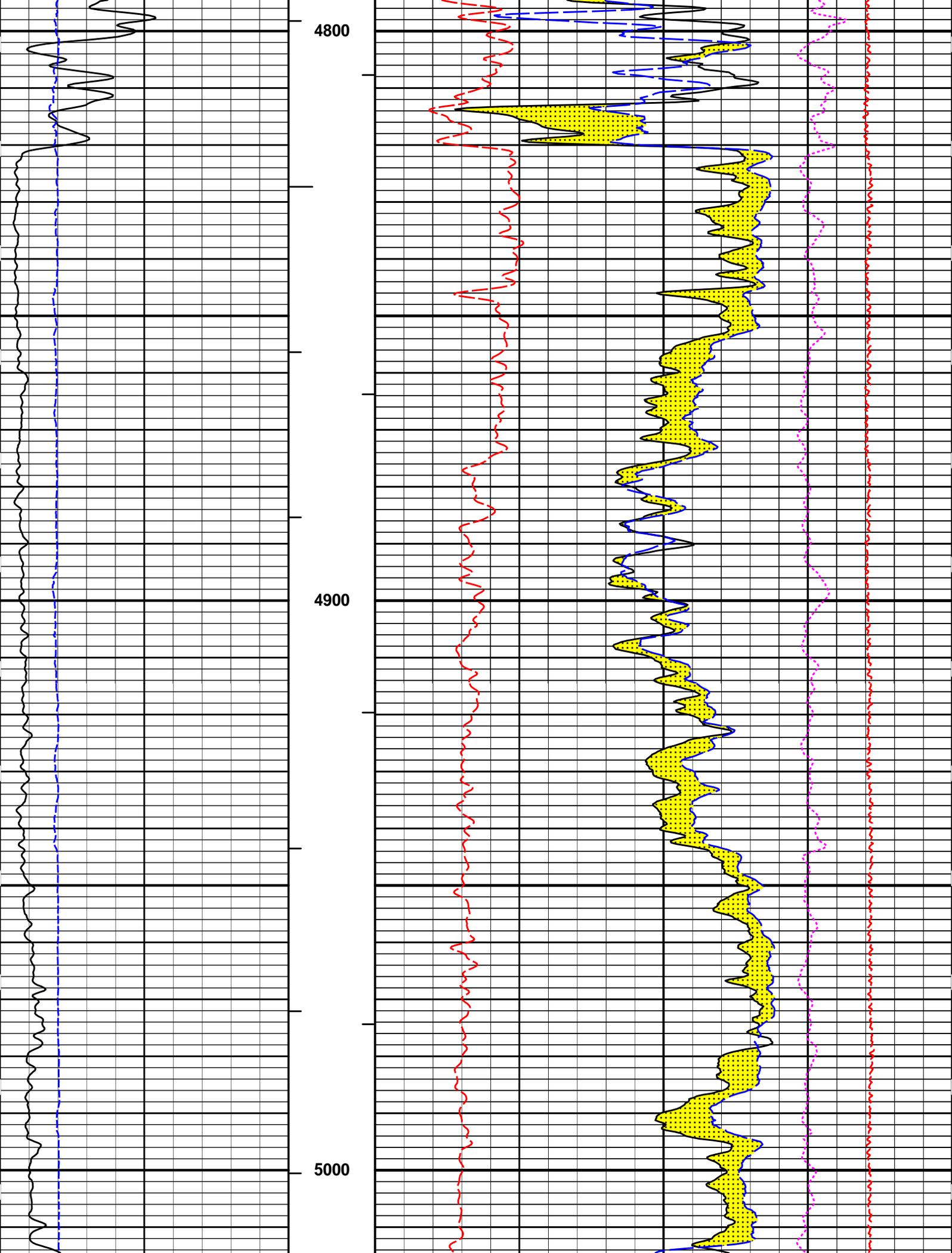


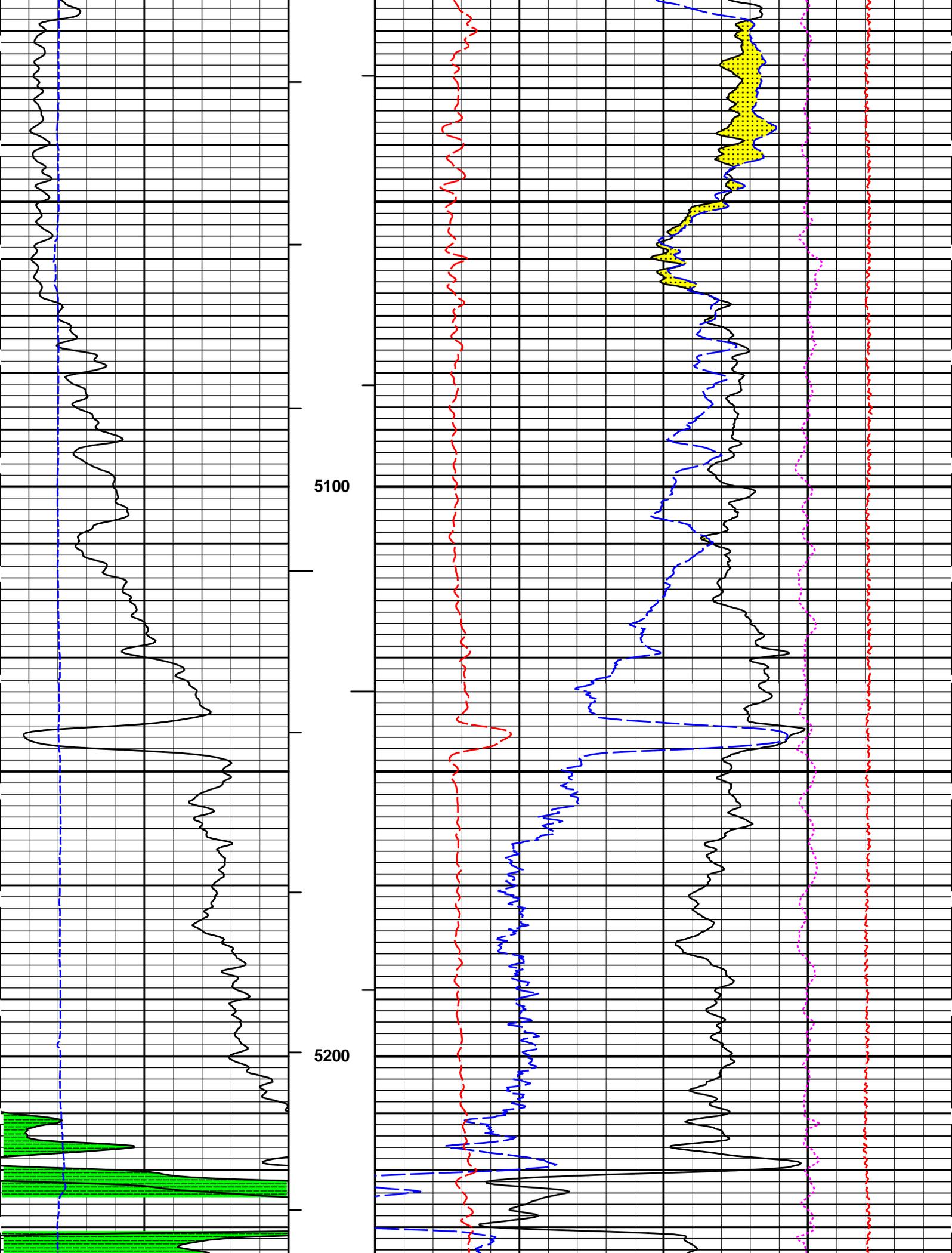


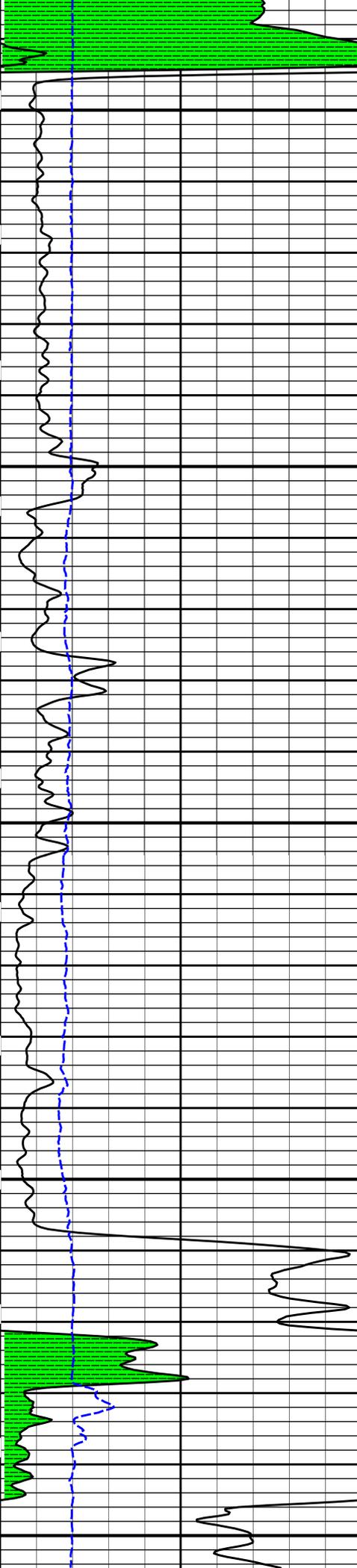






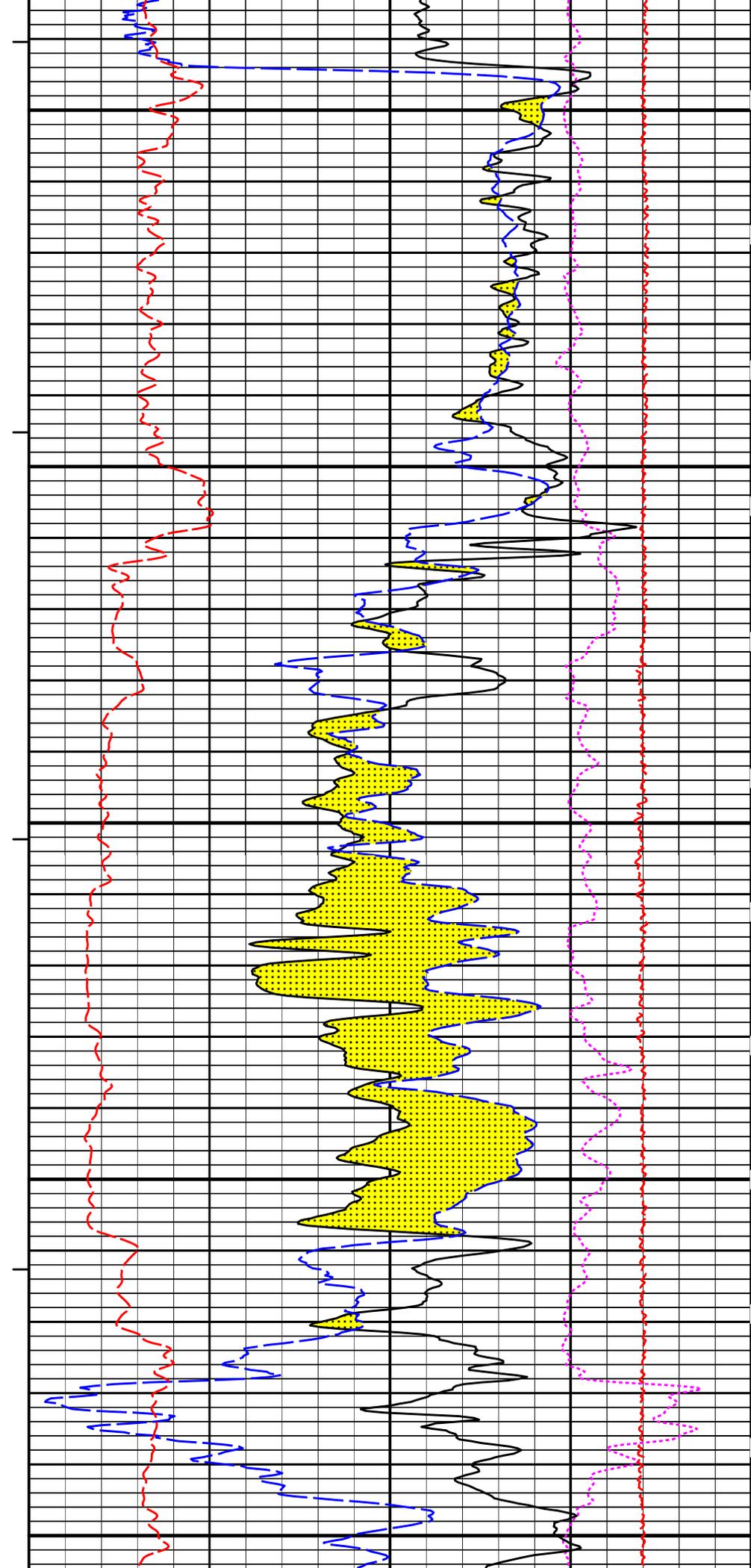


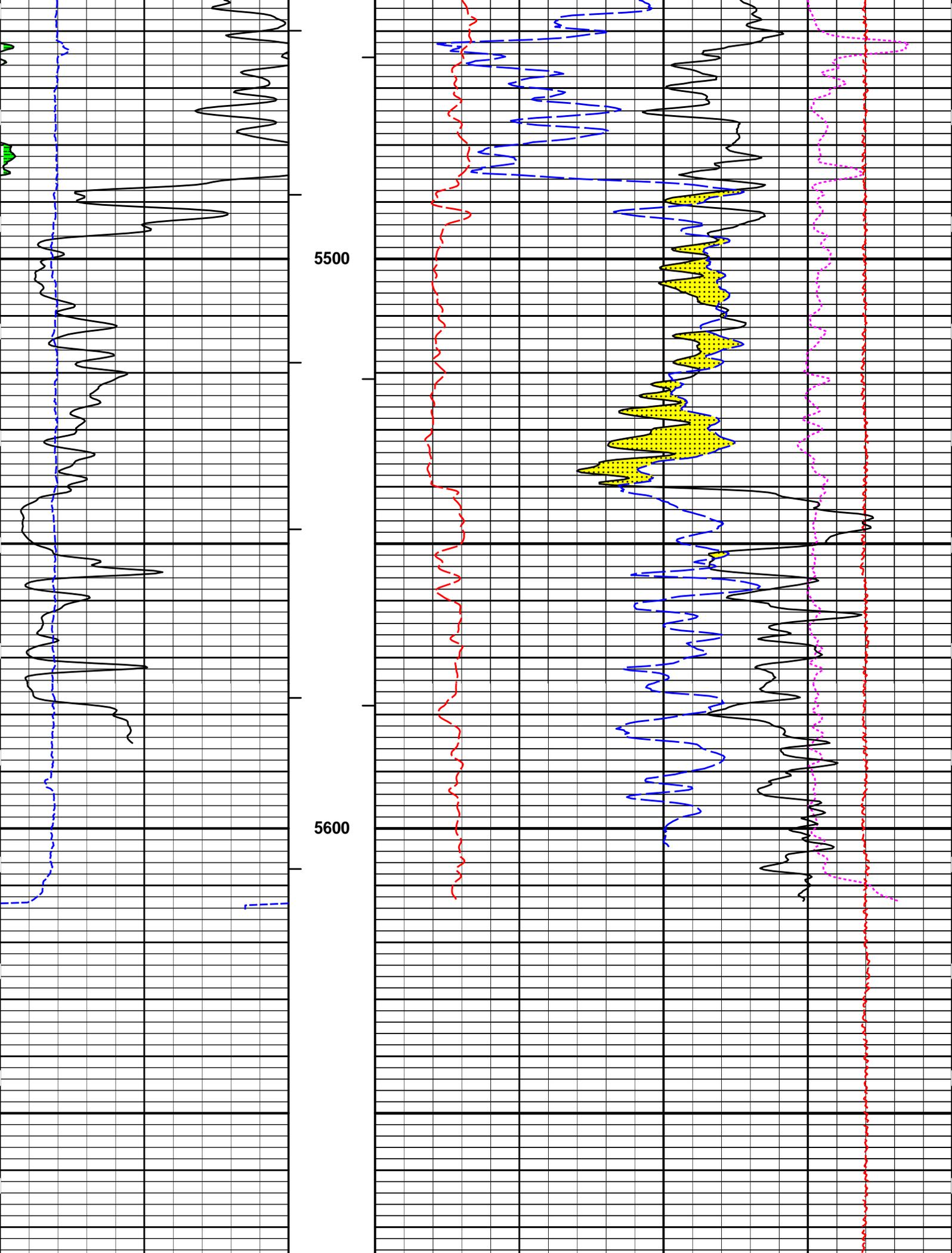


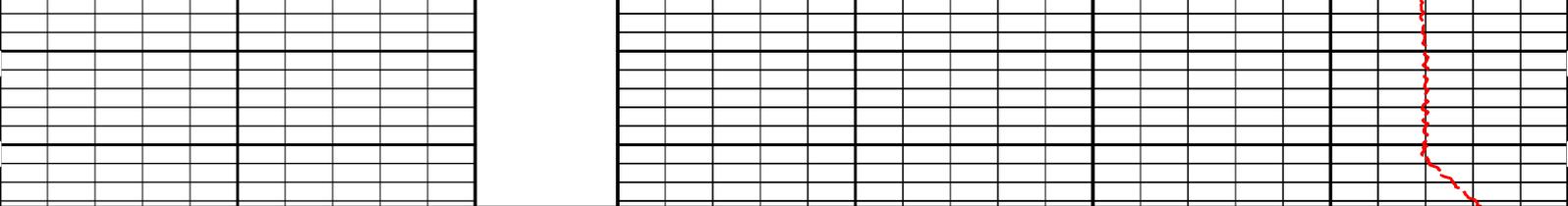


5300

5400







6	Caliper	16
	inches	
0	Gamma API	150
	api	
SHALE		

MD	1 : 240	ft
AHVT		
BHVT		

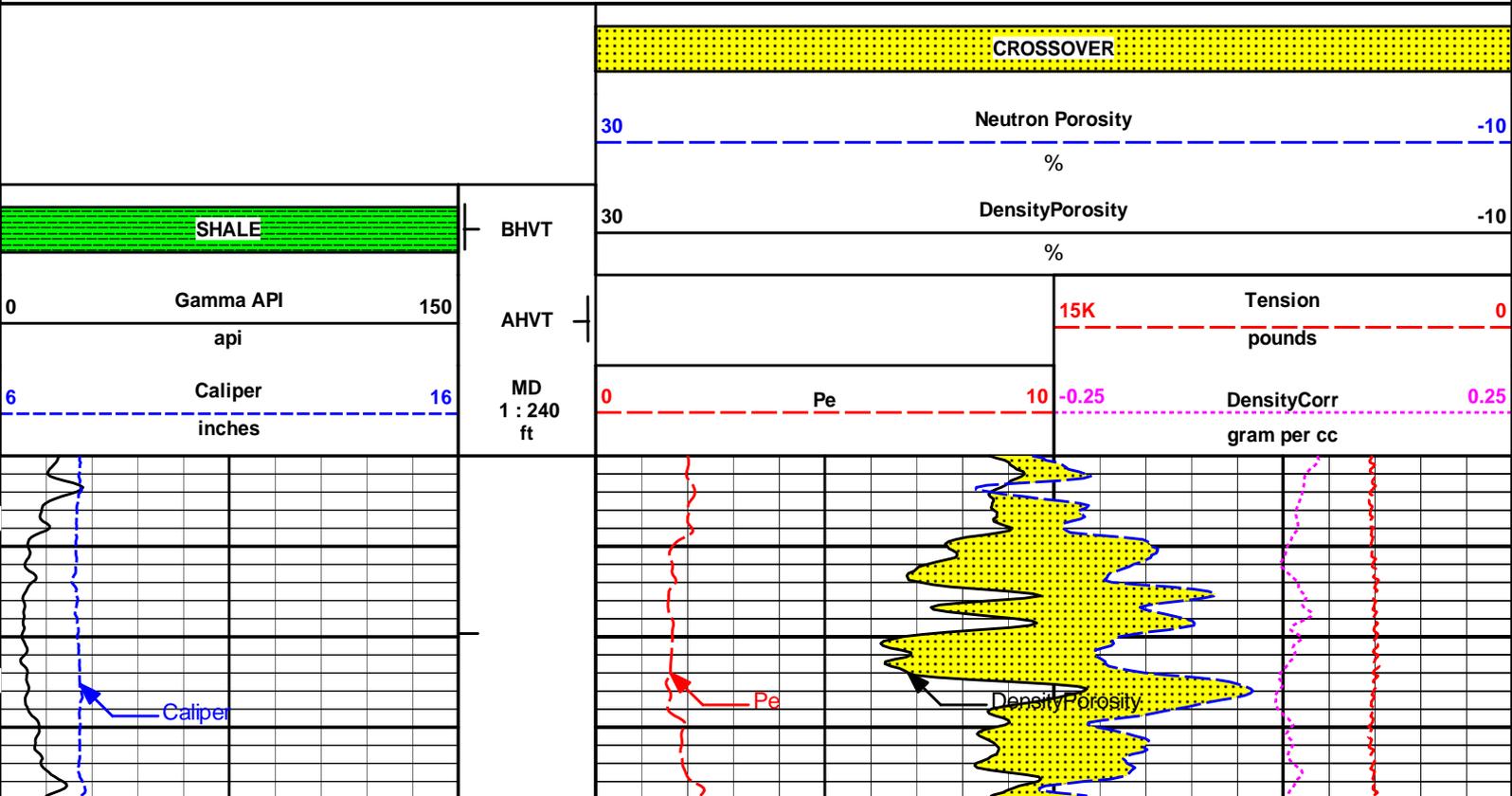
0	Pe	10	-0.25	DensityCorr	0.25
				gram per cc	
			15K	Tension	0
				pounds	
30	DensityPorosity			-10	
				%	
30	Neutron Porosity			-10	
				%	
CROSSOVER					

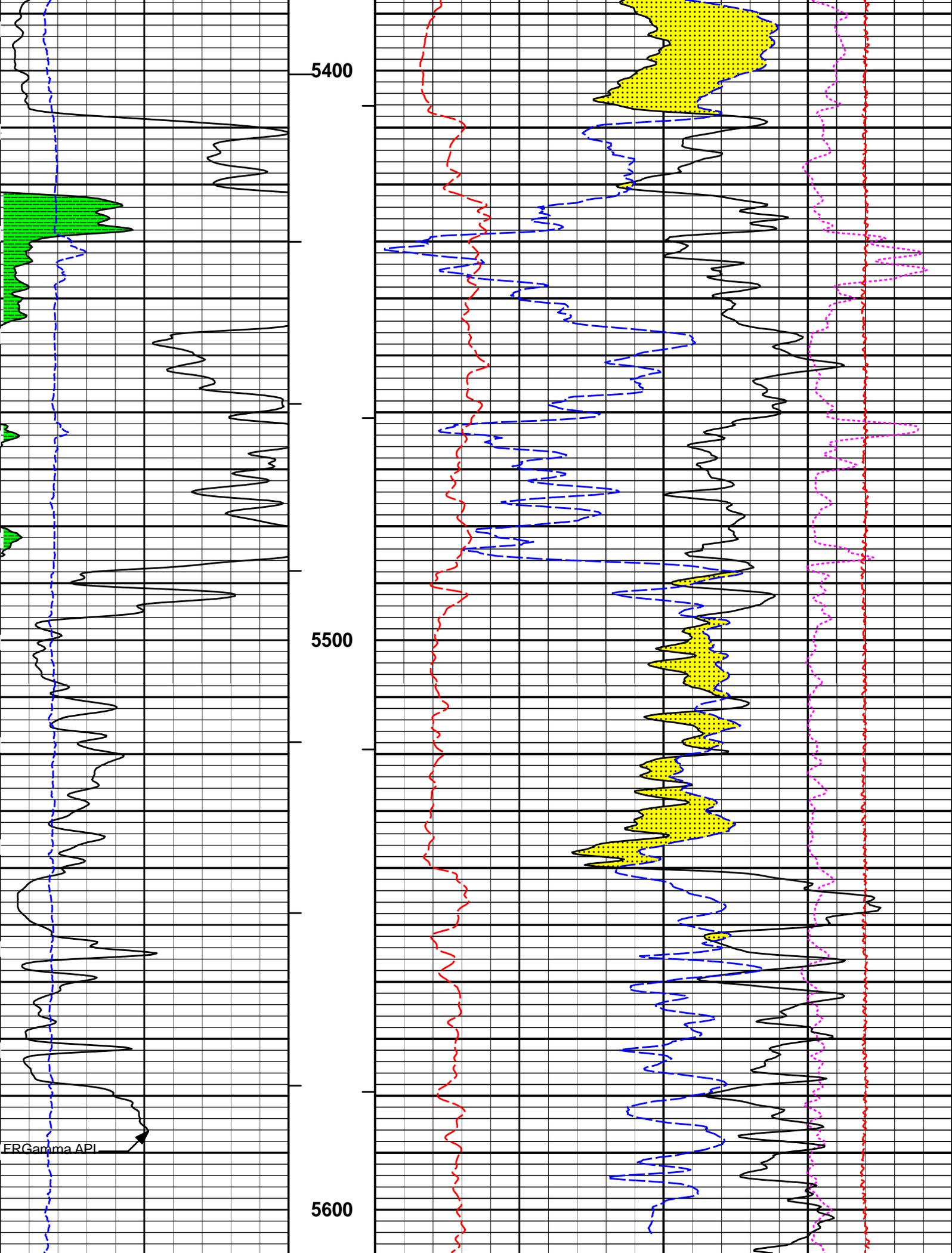
HALLIBURTON Plot Time: 07-May-14 04:06:36
 Plot Range: 2995 ft to 5696.67 ft
 Data: SHAYNE_SW_D_3508\Well Based\R1 DETAIL\
 Plot File: \\POROSITY\Porosity_IQ_5_MAIN_LIB

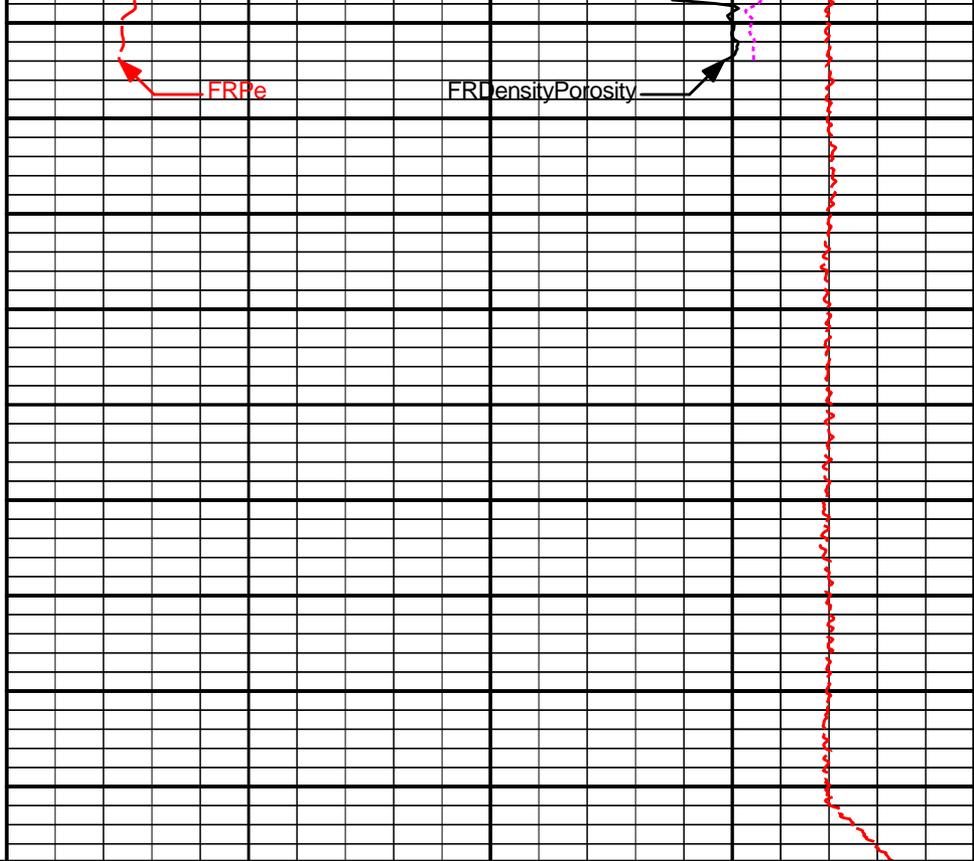
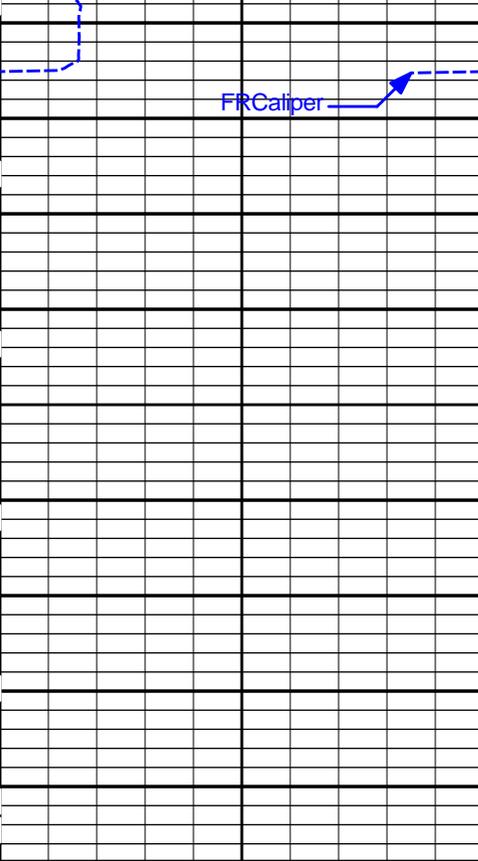
5 INCH MAIN LOG

HALLIBURTON Plot Time: 07-May-14 04:06:36
 Plot Range: 5350 ft to 5697.83 ft
 Data: SHAYNE_SW_D_3508\Well Based\R1 REPEAT\
 Plot File: \\POROSITY\Porosity_IQ_5_REP_LIB

REPEAT SECTION







6	Caliper	16
	inches	
0	Gamma API	150
	api	
SHALE		

MD	1 : 240
ft	
AHVT	
BHVT	

0	Pe	10

-0.25	DensityCorr	0.25
	gram per cc	
15K	Tension	0
	pounds	

30	DensityPorosity	-10
	%	

30	Neutron Porosity	-10
	%	

CROSSOVER		
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HALLIBURTON

Plot Time: 07-May-14 04:06:37
 Plot Range: 5350 ft to 5697.83 ft
 Data: SHAYNE_SWD_3508\Well Based\R1 REPEAT\
 Plot File: \\POROSITY\Poro_IQ_5_REP_LIB

REPEAT SECTION

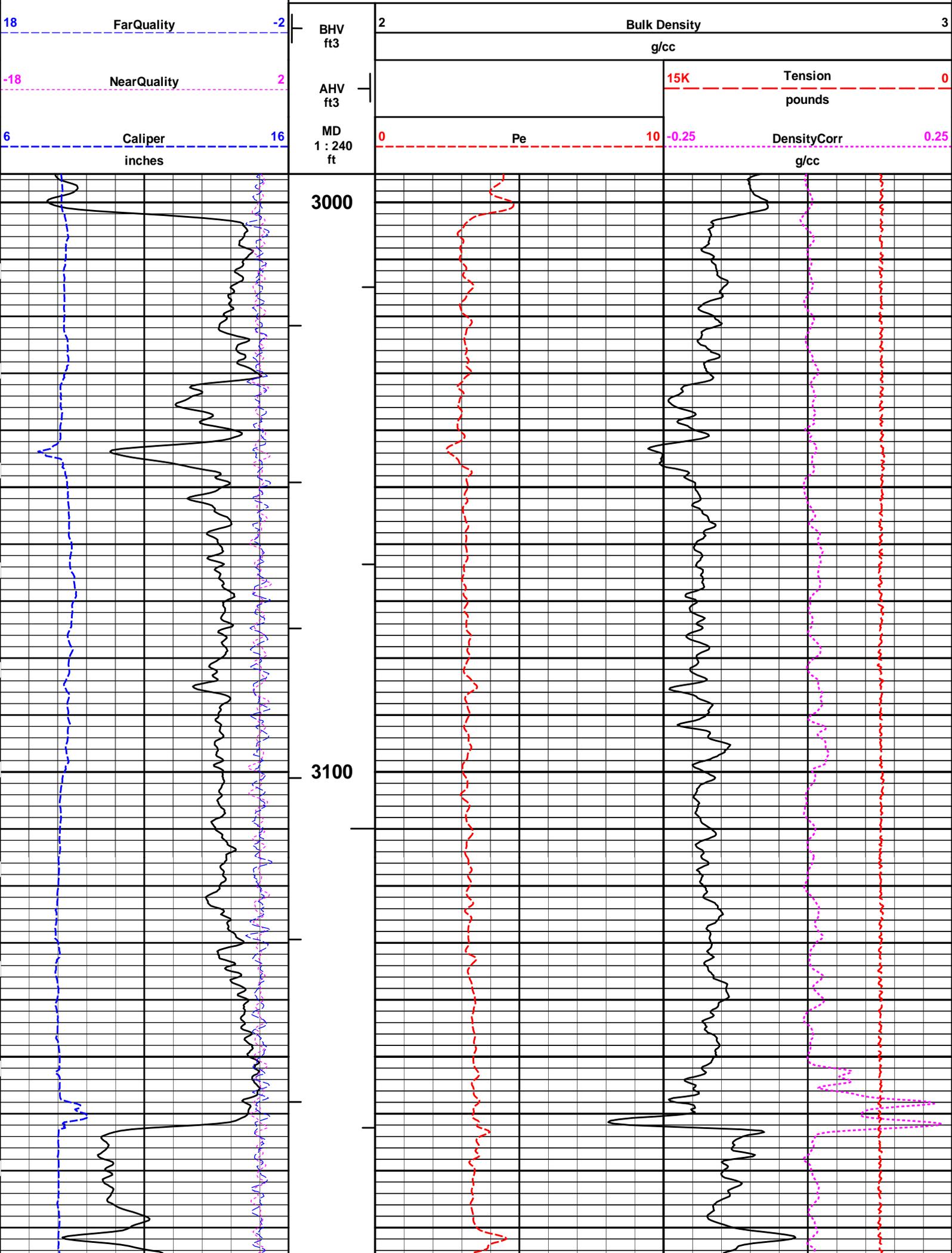
HALLIBURTON

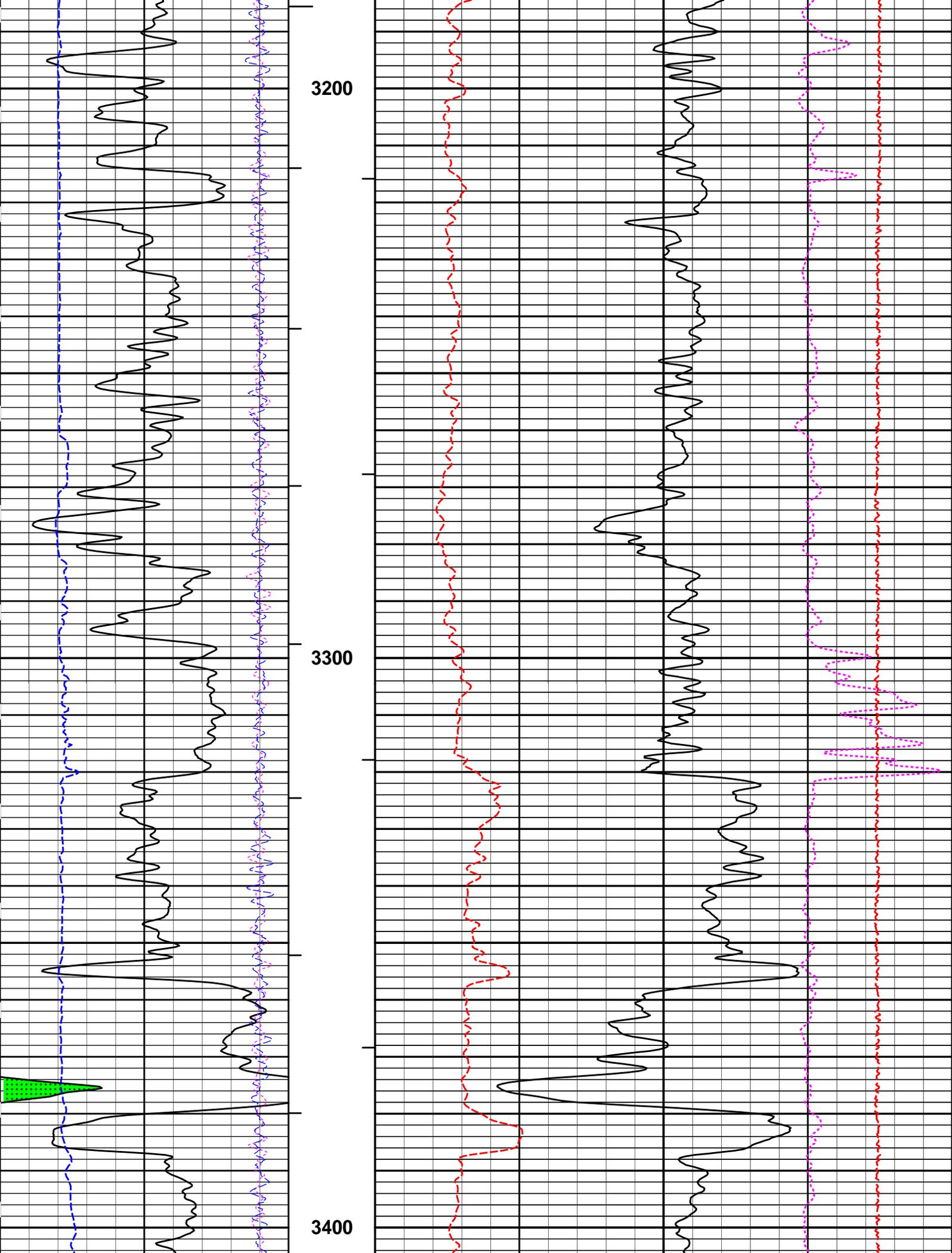
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 Plot Range: 2995 ft to 5696.67 ft
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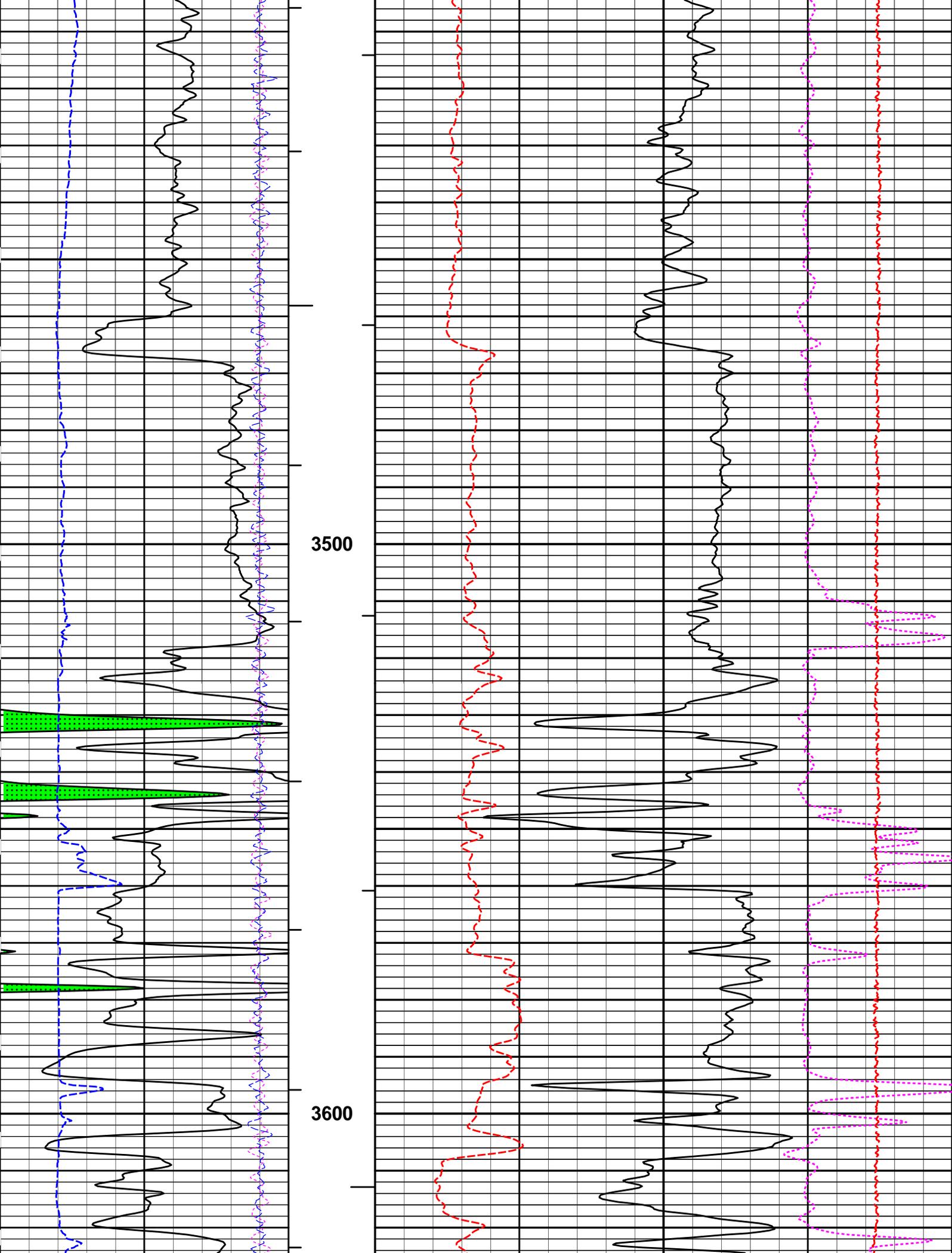
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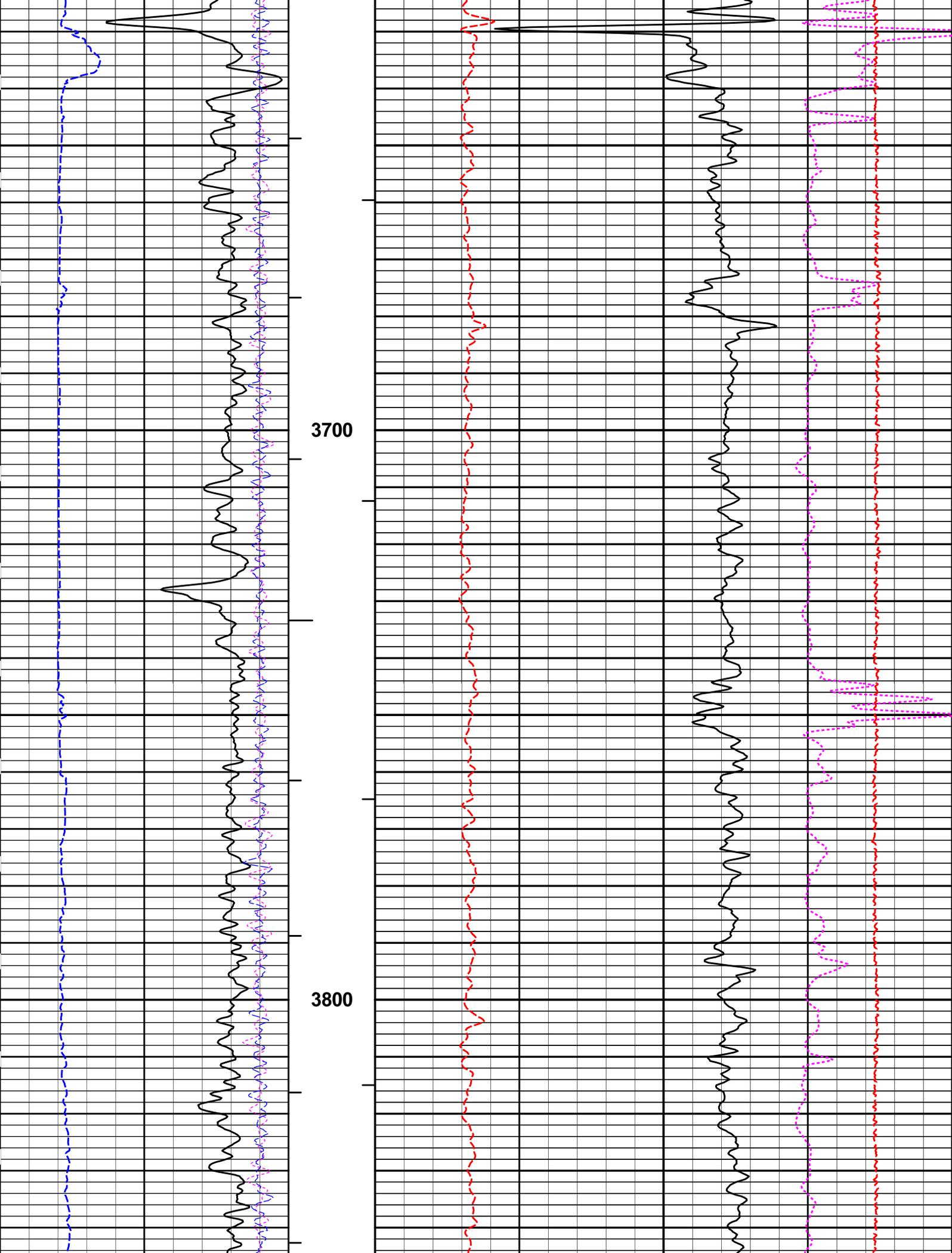
SHALE		
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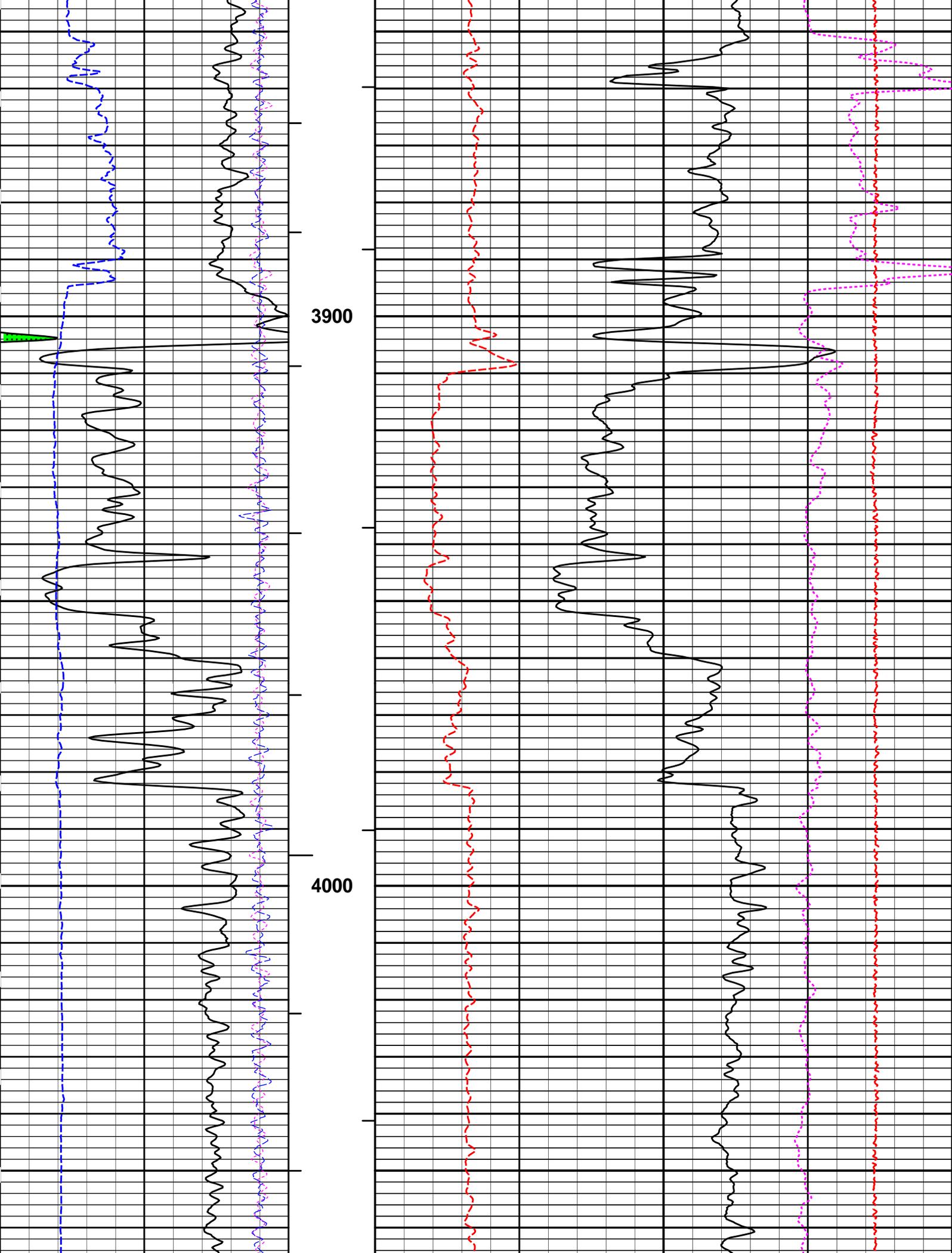
0	Gamma Ray	150
	api	

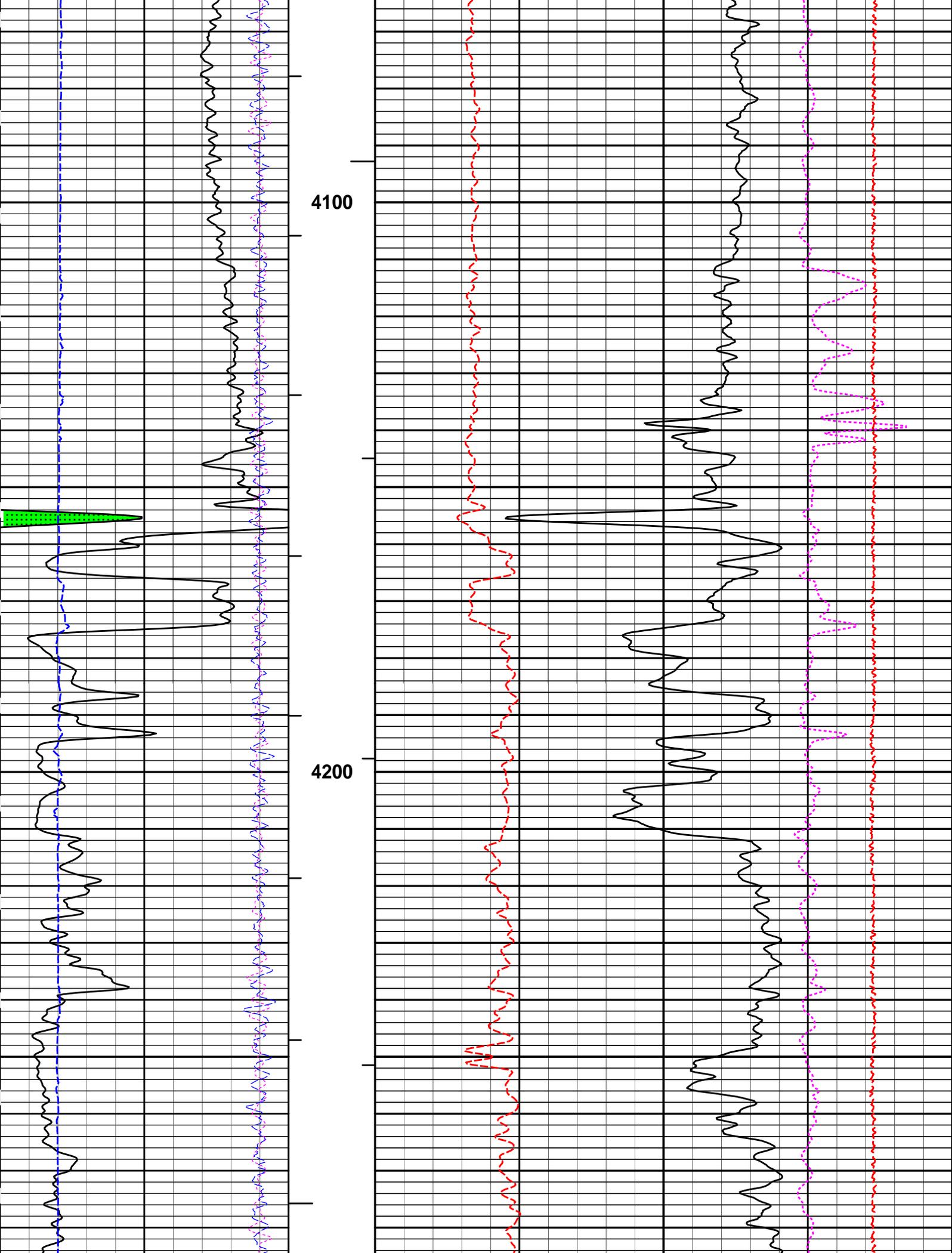


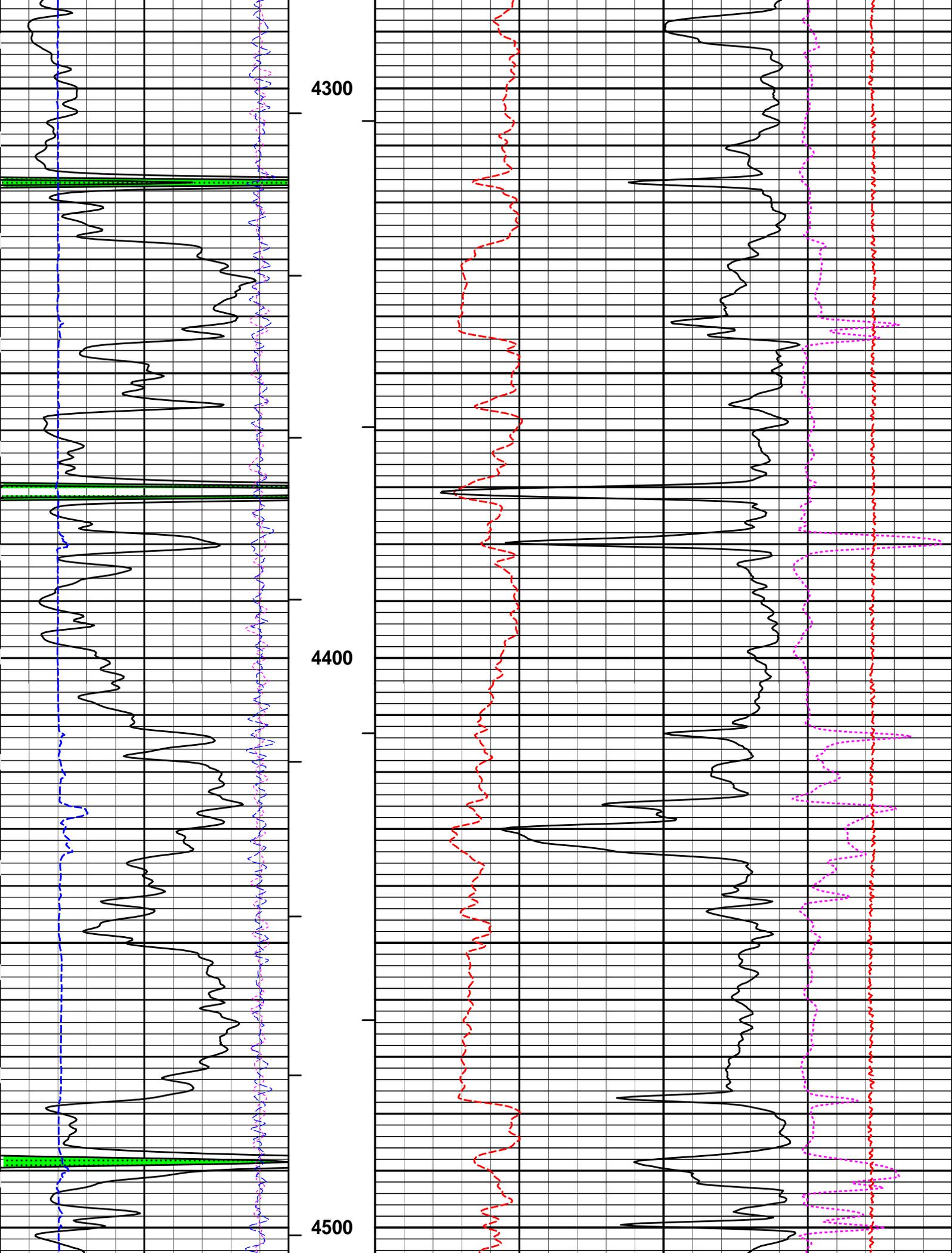


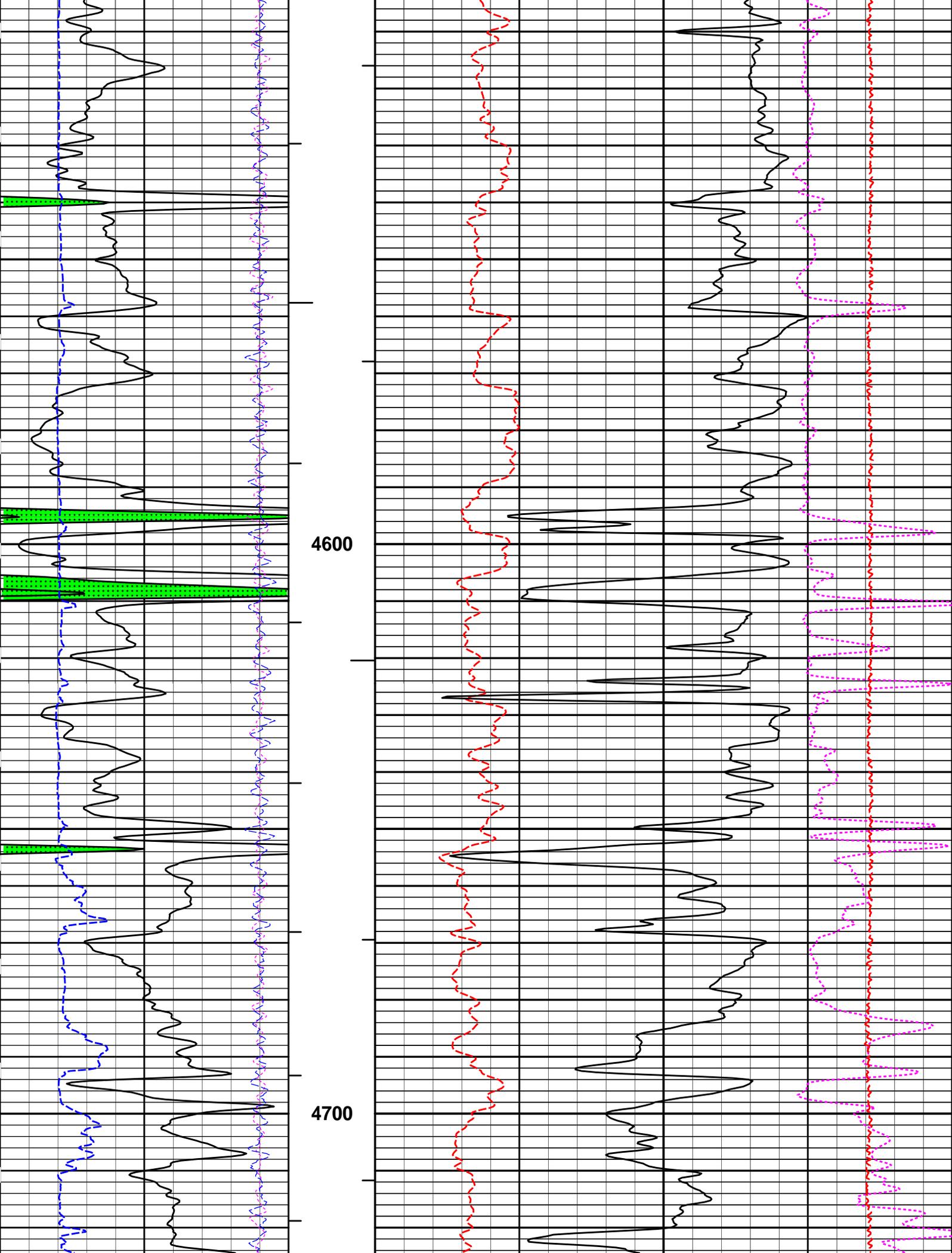


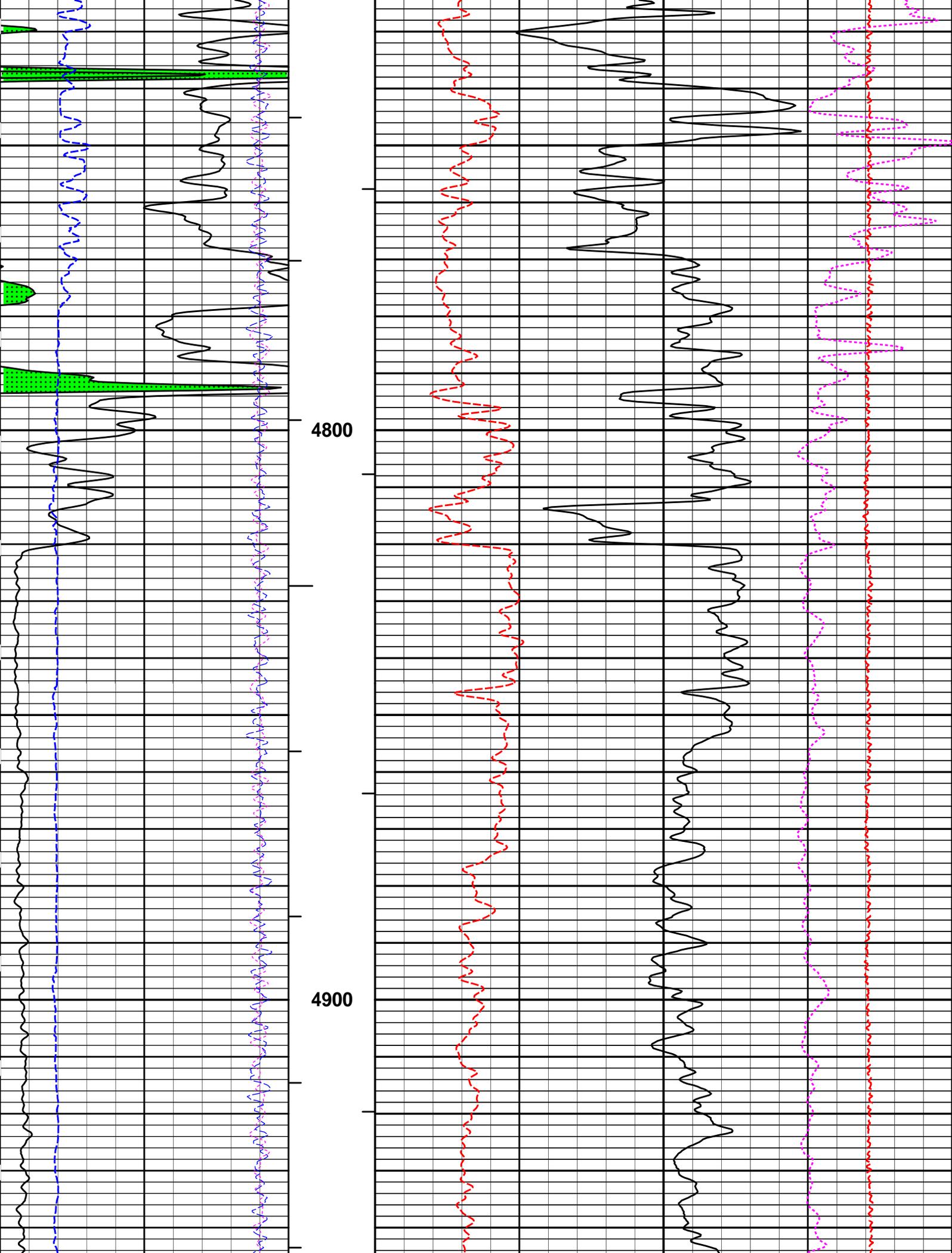


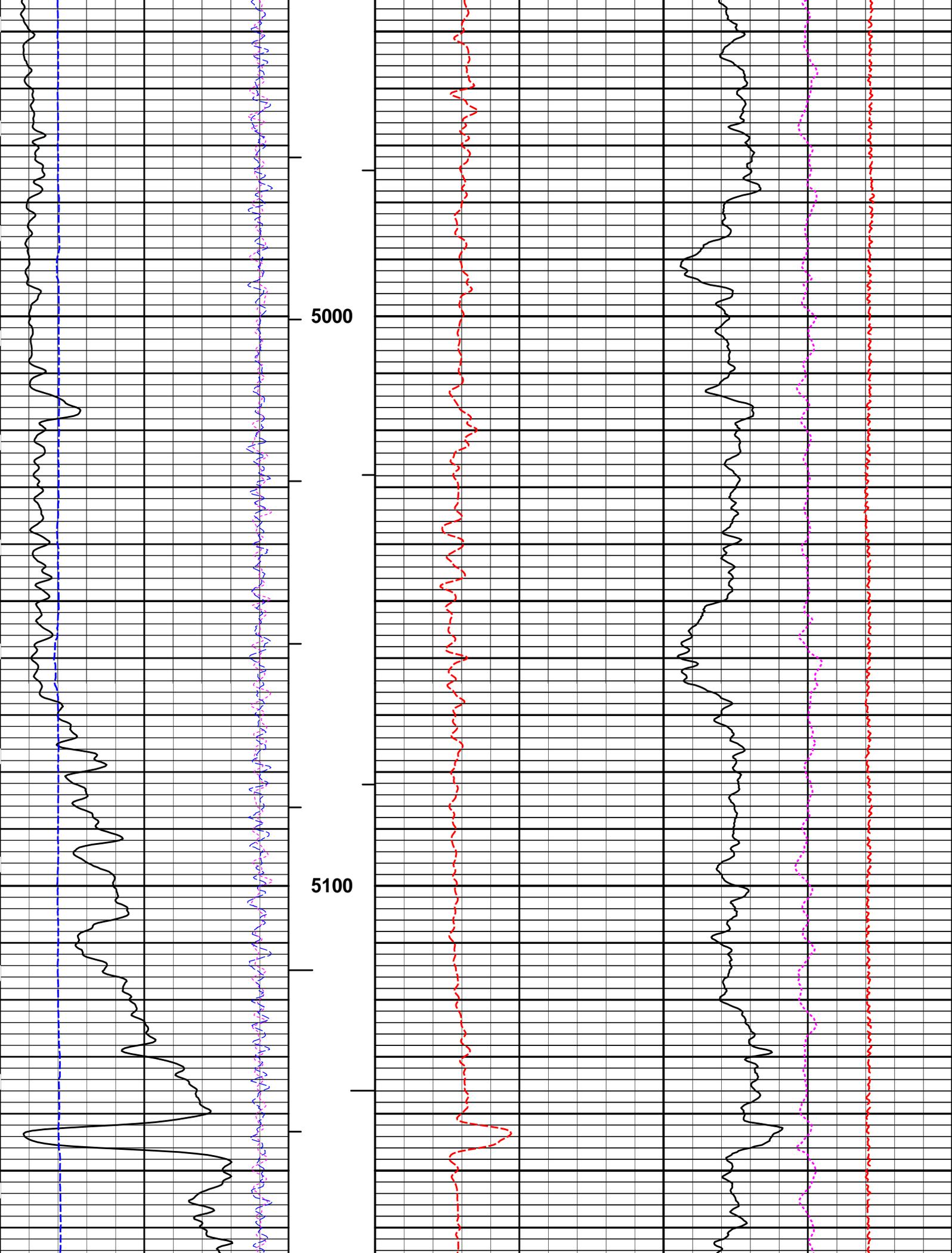


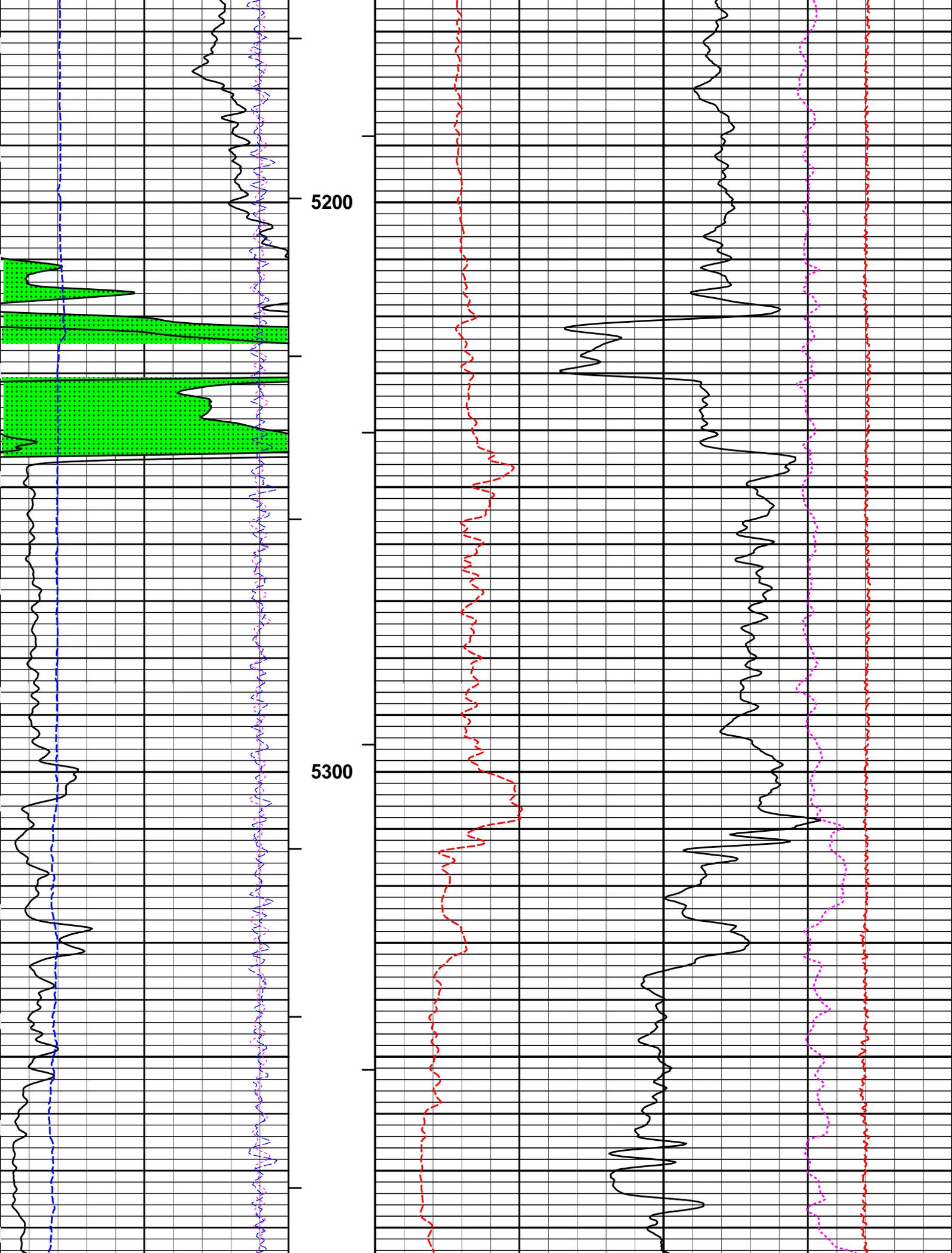


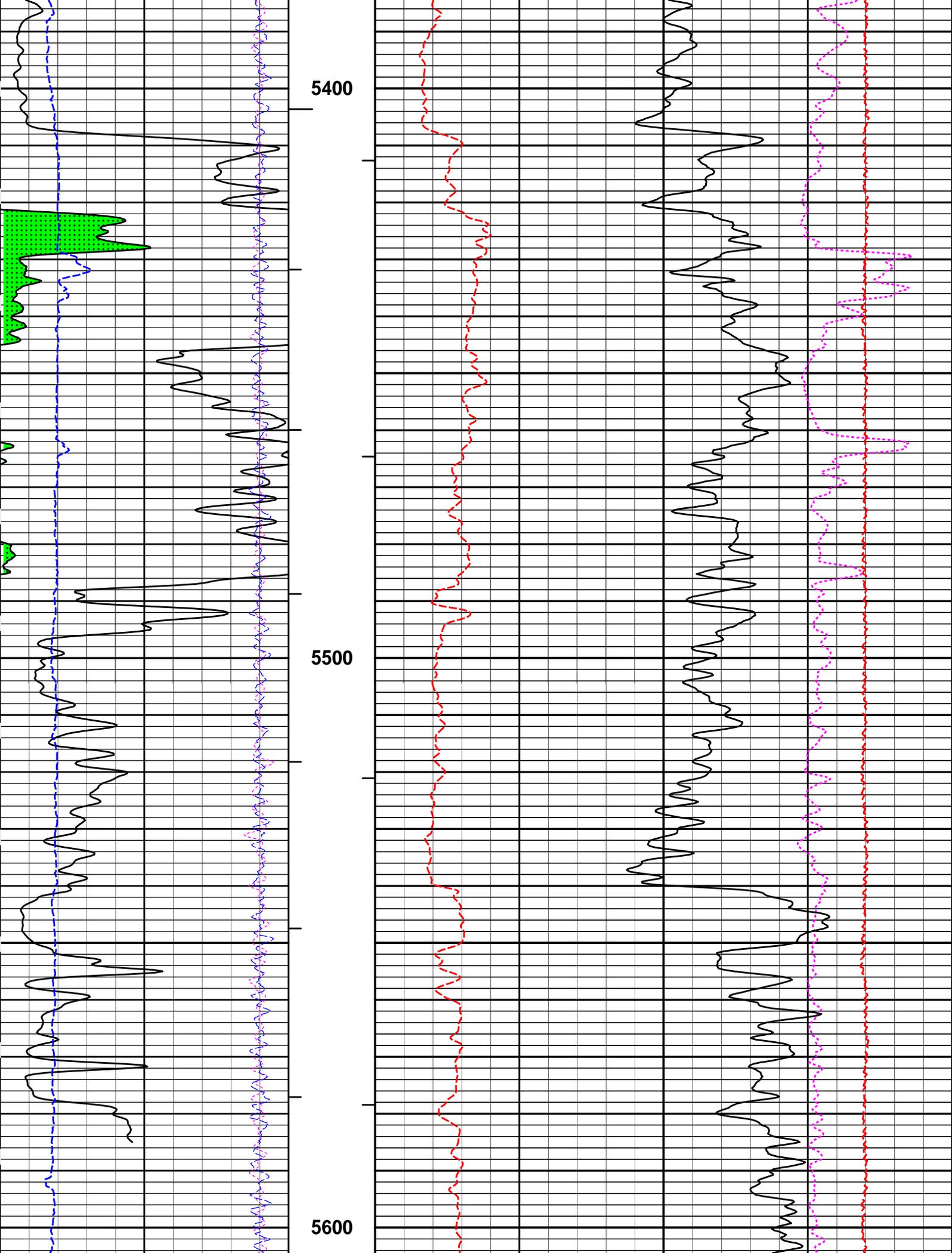


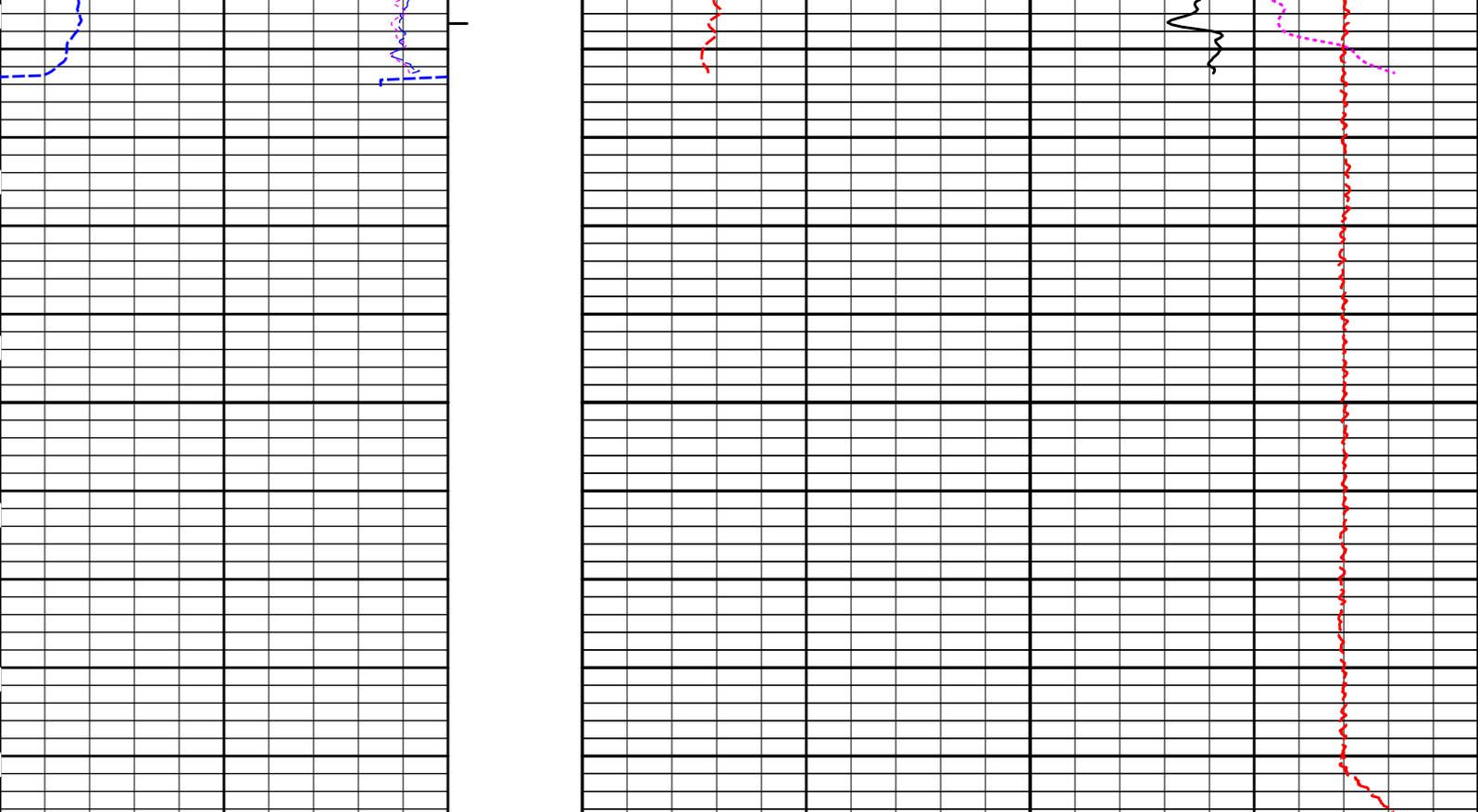












6	Caliper	16	MD	0	10	-0.25	DensityCorr	0.25
	inches		1 : 240				g/cc	
			ft					
-18	NearQuality	2	AHV			15K	Tension	0
			ft3				pounds	
18	FarQuality	-2	BHV	2			Bulk Density	3
			ft3				g/cc	
0	Gamma Ray	150						
	api							
SHALE								

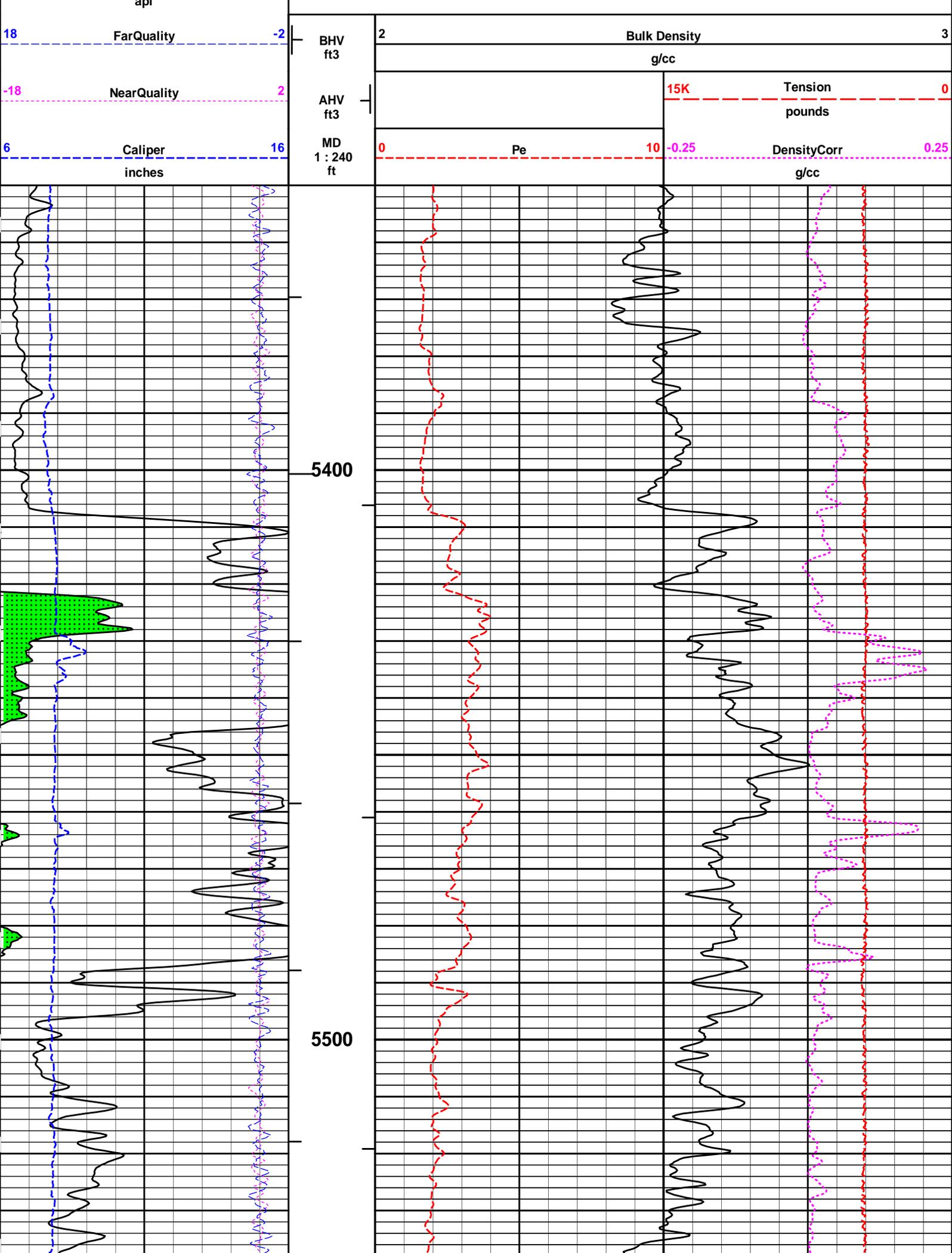
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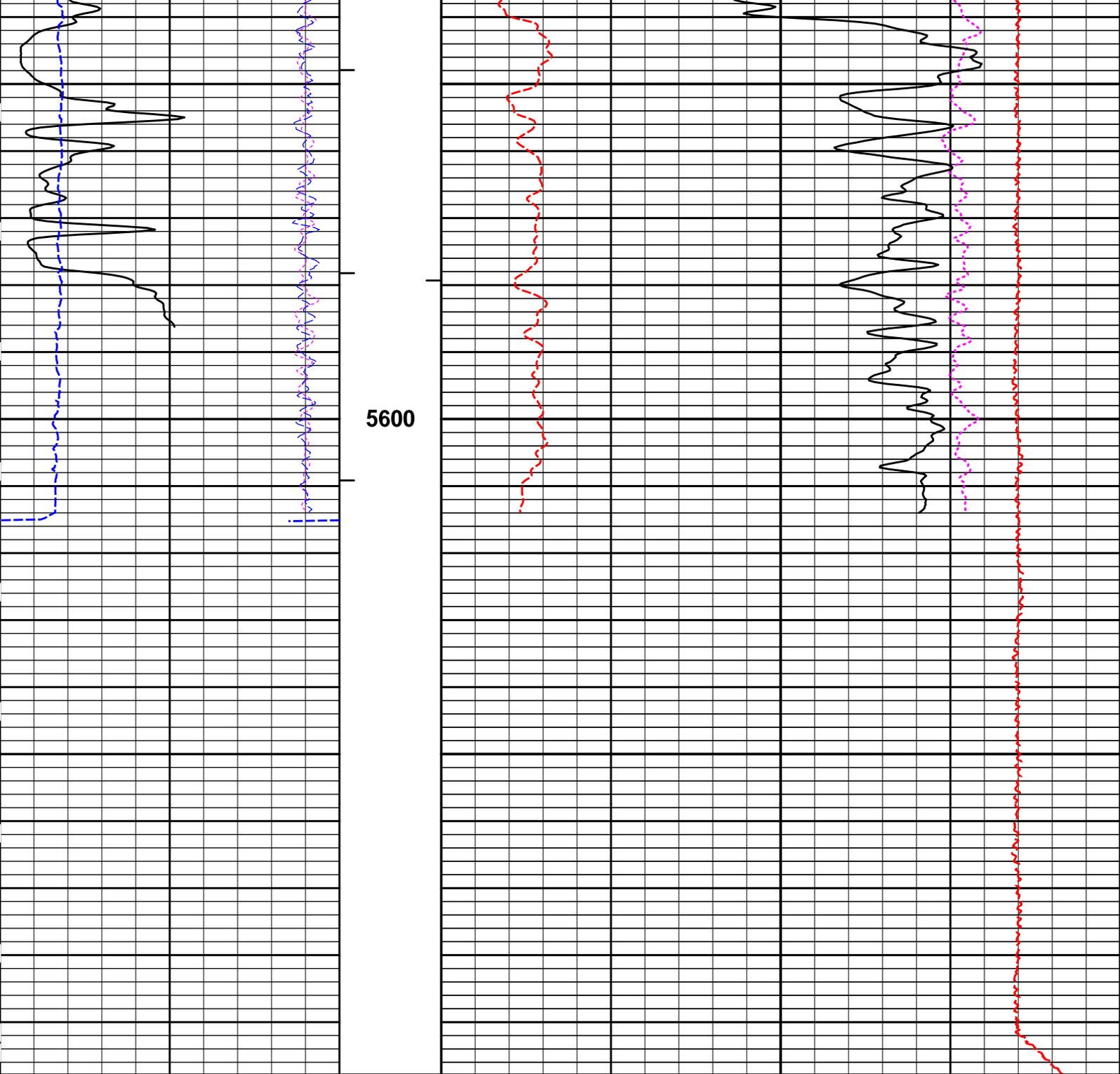
5 INCH MAIN LOG

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 Data: SHAYNE_SWD_3508\Well Based\R1 REPEAT\
 Plot File: \\-LOCAL-ISHAYNE_SWD_3508\Well Based\POROSITY\BULKD_5_REP_LIB

REPEAT SECTION

SHALE		
0	Gamma Ray	150
	api	





6	Caliper	16	MD	1 : 240	0	Pe	10	-0.25	DensityCorr	0.25
	inches		ft						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									

IQ Flex-0000668
140.00 lbs

Ø 3.625 in →

5.67 ft

Centralizer 25-0000003
8.00 lbs

Ø 4.000 in* →

74.07 ft

ICT-10880633
330.00 lbs

Ø 3.625 in →

12.83 ft

← **ICT Caliper @ 64.03 ft**

61.24 ft

IDT-1094
150.00 lbs

Ø 3.625 in →

7.58 ft

53.65 ft

WSTT-I Upper Electronics-10753397
115.00 lbs

Centralizer 25-0000001
8.00 lbs

Ø 4.000 in* →
Ø 3.625 in →

8.31 ft

45.34 ft

WSTT-I Trans-Isolator - Std-12345678
185.00 lbs

Ø 3.625 in →

10.86 ft

34.48 ft

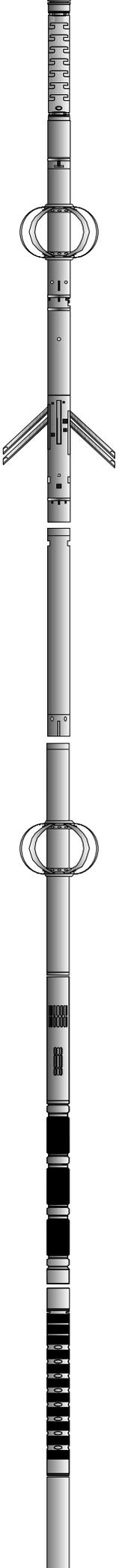
WSTT-I Receivers-10753396
100.00 lbs

Ø 3.625 in →

← **Wavesonic Delay @ 31.08 ft**

6.65 ft

27.83 ft



151.74 ft

WSTT-I Lower
Electronics-
10753398
120.00 lbs

Ø 3.625 in →

8.25 ft

ACRt Instrument-
10811256
50.00 lbs

Centralizer 25-00000002
8.00 lbs

Ø 4.000 in*
Ø 3.625 in →

5.03 ft

19.58 ft

Regal Standoff 6_75-
00000001
20.00 lbs

Ø 6.750 in* →

14.55 ft

14.55 ft

← Mud Resistivity @ 13.19 ft

← ACRt @ 9.21 ft

ACRt Sonde-
10800784
200.00 lbs

Ø 3.625 in →

14.22 ft

Bull Nose-00000668
5.00 lbs

Ø 2.750 in →

0.33 ft

0.33 ft

0.33 ft

0.00 ft



Mnemonic	Tool Name	Serial Number	Weight (lbs)	Length (ft)	Accumulated Length (ft)	Max.Log. Speed (fpm)
CH	Standard OH Cable Head	12345678	30.00	1.92	120.66	300.00
SP	SP Sub	12345678	60.00	3.74	116.92	300.00
GTET	Gamma Telemetry Tool	10811258	165.00	8.52	108.40	60.00
CSNG	Compensated Spectral Natural Gamma	11830417	114.00	8.17	100.24	15.00
DSNT	Dual Spaced Neutron	10755066	174.00	9.69	90.55	60.00
DCNT	DSN Decentralizer	10735145	6.60	5.13	* 93.88	300.00
SDLT	Spectral Density Tool	10685803	360.00	10.81	79.74	60.00
SDLP	Density Insite Pad	10714945	65.00	2.55	* 81.95	60.00
MICP	Microlog Pad	10685803	8.00	1.00	* 82.24	60.00
IQF	IQ Flex tool	00000668	140.00	5.67	74.07	300.00
ICT	Six Independent Arm Caliper	10880633	330.00	12.83	61.24	60.00
OBCEN	Centralizer - 25 in. Overbody	00000003	8.00	2.08	* 70.39	300.00
IDT	Insite Directional Tool	1094	150.00	7.58	53.65	30.00
WSTT	WaveSonic Insite - Upper Electronics	10753397	115.00	8.31	45.34	100.00
OBCEN	Centralizer - 25 in. Overbody	00000001	8.00	2.08	* 48.77	300.00
WSTT	WaveSonic Insite - Trans-Isolator - Std	12345678	185.00	10.86	34.48	100.00
WSTT	WaveSonic Insite - Receivers	10753396	100.00	6.65	27.83	30.00
WSTT	WaveSonic Insite - Lower Electronics	10753398	120.00	8.25	19.58	100.00
ACRt	Array Compensated True Resistivity Instrument Section	10811256	50.00	5.03	14.55	120.00
RSOF	Regal Standoff 6.75in	00000001	20.00	0.52	* 14.71	300.00
OBCEN	Centralizer - 25 in. Overbody	00000002	8.00	2.08	* 16.19	300.00
ACRt	Array Compensated True Resistivity Sonde Section	10800784	200.00	14.22	0.33	120.00
BLNS	Bull Nose	00000668	5.00	0.33	0.00	300.00
Total			2,421.60	122.58		

* Not included in Total Length and Length Accumulation.

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	1.000	ohmm
	SHARED	TRM	Temperature of Mud	75.0	degF
	SHARED	CSD	Logging Interval is Cased?	No	
	SHARED	ICOD	AHV Casing OD	5.500	in
	SHARED	ST	Surface Temperature	75.0	degF
	SHARED	TD	Total Well Depth	5703.00	ft
	SHARED	BHT	Bottom Hole Temperature	135.0	degF
	SHARED	SVTM	Navigation and Survey Master Tool	IDT	
	SHARED	AZTM	High Res Z Accelerometer Master Tool	IDT	
	SHARED	TEMM	Temperature Master Tool	NONE	
	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	
	Rwa / CrossPlot	BHSM	Borehole Size Source Tool	ICT	
	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	
	GTET	BHSM	Borehole Size Source Tool	ICT	
	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	
	CSNG	BHSM	Borehole Size Source Tool	ICT	
	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	
DSNT	BHSM	Borehole Size Source Tool	ICT	
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
SDLT Pad	BHSM	Borehole Size Source Tool	SDLT	
Microlog Pad	MLOK	Process MicroLog Outputs?	Yes	
ICT	CLOK	Process Caliper Outputs?	Yes	
ICT	DARM	Disable Caliper Arm	No	
ICT	ATDS	Arm To Disable	0	
ICT	REPM	Method to replace arm?	Caliper Average	
ICT	ARMV	Diameter to use for disabled arm	0.00	in
ICT	DARM	Disable Second Caliper Arm	No	
ICT	ATDS	Second Arm To Disable	0	
ICT	REPM	Method to replace second arm?	Caliper Average	
ICT	ARMV	Diameter to use for second disabled arm	0.00	in
ICT	NAVS	Navigation Source Tool	IDT	
ICT	CL1O	Radius 1 Offset	0.0	in
ICT	CL2O	Radius 2 Offset	0.0	in
ICT	CL3O	Radius 3 Offset	0.0	in
ICT	CL4O	Radius 4 Offset	0.0	in
ICT	CL5O	Radius 5 Offset	0.0	in
ICT	CL6O	Radius 6 Offset	0.0	in
ICT	BHVC	Radius type for borehole volume calcuations	Elliptical	
IDT	WRTI	Survey Writing Interval	30	ft
IDT	SOPT	Smoothing Option	None	
WSTT-I Receivers	WSOK	Process WSTT?	Yes	
WSTT-I Receivers	AFIL	Adaptive Filtering?	No	
WSTT-I Receivers	PINT	Process 1 Sample and Skip	0	
WSTT-I Receivers	PROM	Process Mode: M=1,MX=2,MY=3,MXY=4	4	
WSTT-I Receivers	DTSH	Delta -T Shale	100.00	uspf
WSTT-I Receivers	DTMT	Delta -T Matrix Type	Limestone 47.5	
WSTT-I Receivers	DTMA	Delta -T Matrix	47.60	uspf
WSTT-I Receivers	DTFL	Delta -T Fluid	189.00	uspf
WSTT-I Receivers	RHOM	Matrix Density	2.7100	g/cc
WSTT-I Receivers	RHOF	Fluid Density	1.0000	g/cc
WSTT-I Receivers	SMTH	Semblance Threshold	0.25	
WSTT-I Receivers	VPVS	VPVS Ratio for Porosity	1.40	
WSTT-I Receivers	APEQ	Acoustic Porosity Equation	Wylie	
WSTT-I	NAVS	Navigation Source Tool	IDT	

Receivers	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 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
ACRt Sonde	BHSM	Borehole Size Source Tool	ICT

BOTTOM

Data: SHAYNE_SWD_3508\0001 SP-GTET-CSNG-DSNT-SDLT-FLEX-ICT-IDT-WAVE-ACRT-BN004 06-May-14 22:56 Up @5697.0f Date: 07-May-14 01:30:40

HALLIBURTON

CALIBRATION REPORT

NATURAL GAMMA RAY TOOL SHOP CALIBRATION

Tool Name: GTET - 10811258

Reference Calibration Date: 25-Apr-14 08:20:22

Engineer: THOMAS K HYDE

Calibration Date: 25-Apr-14 08:23:37

Software Version: WL INSITE R4.2.0 (Build 2)

Calibration Version: 1

Calibrator Source S/N: TB-185

Calibrator API Reference:228.00 api

Equivalent Calibrator API Reference:232.0 api

Measurement	Measured	Calibrated	Units
Background	44.8	44.7	api
Background + Calibrator	277.2	276.7	api
Calibrator	232.4	232.0	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION

Tool Name: GTET - 10811258

Reference Calibration Date: 25-Apr-14 08:23:37

Engineer: THOMAS K HYDE

Calibration Date: 05-May-14 19:26:40

Software Version: WL INSITE R4.2.0 (Build 2)

Calibration Version: 1

Calibrator Source S/N: TB-185

Calibrator API Reference:228.00 api

Equivalent Calibrator API Reference:232.0 api

Field Verification	Shop	Field	Units
Background	44.7	44.1	api
Background + Calibrator	276.7	279.3	api
Calibrator	232.0	235.2	api

Shop	Field	Difference	Tolerance
232.0	235.2	-3.2	+/- 9.00

DUAL SPACED NEUTRON SHOP CALIBRATION

Tool Name: DSNT - 10755066

Reference Calibration Date: 14-Apr-14 14:08:27

Engineer: THOMAS K HYDE

Calibration Date: 05-May-14 09:55:54

Software Version: WL INSITE R4.2.0 (Build 2)

Calibration Version: 1

Logging Source S/N: DSN-436

Tank Serial Number: LIBERAL

Reference value assigned to Tank: 51.680

Snow Block S/N: 668

Calibration Tank Water Temperature: 70 degF

Min. Tool Housing Outside Diameter: 3.620 in

CALIBRATION CONSTANTS			
Measurement	Prev. Value	New Value	Control Limit On New Value

Gain:	0.948	0.945	0.900 - 1.100
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WATER TANK SUMMARY (Horizontal Water Tank)				
Measurement	Current Reading (Previous Coef.)	Calibrated (New Coef.)	Change	Control Limit On Change

Porosity (decp):	0.2114	0.2107	0.0007	+/- 0.0020
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Calibrated Ratio:	9.74	9.72	0.025	+/- 0.050
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VERIFIER		
Measurement	Value	Control Limit

Snow-Block Porosity (decp):	0.0575	0.02000 - 0.09000
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PASS/FAIL SUMMARY	
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Background Check:	Passed
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Gain-Range Check:	Passed
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Snow-Block Check:	Passed
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DUAL SPACED NEUTRON FIELD CALIBRATION

Tool Name: DSNT - 10755066

Reference Calibration Date: 05-May-14 09:55:54

Engineer: THOMAS K HYDE

Calibration Date: 05-May-14 19:28:50

Software Version: WL INSITE R4.2.0 (Build 2)

Calibration Version: 1

Logging Source S/N: DSN-436

Snow Block S/N: 668

NEUTRON FIELD-CHECK SUMMARY				
	Shop	Field	Difference	Control Limit On Change

Snow-Block Porosity (decp):	0.0575	0.0574	-0.0001	+/- 0.0150
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PASS/FAIL SUMMARY	
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Block Change Check:	Passed
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Snow Block Stat Check:	Passed
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Temperature Check:	Passed
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DENSITY CALIPER SHOP CALIBRATION

Tool Name: SDLT - 10685803

Reference Calibration Date: 14-Apr-14 11:26:43

Engineer: J. BOLLLOM

Calibration Date: 14-Apr-14 11:31:00

Software Version: WL INSITE R4.2.0 (Build 2)

Calibration Version: 1

Host Tool Name: DSNT - 10755066

CALIBRATION COEFFICIENTS			
Measurement	Previous Value	New Value	Control Limit On New Value

Pad Offset	-4362.95	-4420.65	-7000.00 - -1000.00
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Pad Gain	0.0003849	0.0003863	0.000200 - 0.000600
Arm Offset	-3135.46	-3304.43	-5000.00 - 3000.00
Arm Gain	0.0005085	0.0005300	0.000300 - 0.000700
Arm Power	-0.000004496	-0.000005774	-0.000010000 - 0.000010000

The ring diameter is computed from: $\text{DIAMETER} = \text{PAD EXTENSION} + \text{ARM EXTENSION} + \text{TOOL DIAMETER}$

Tool Diameter: 4.50 in

CALIBRATION RINGS				
Measurement	Current Reading (Previous Coeff.)	Calibrated (New Coeff.)	Change	Control Limit On New Value
PAD EXTENSION:				
Small Ring (in)	2.01	2.00	-0.01	+/- 0.20
Medium Ring (in)	3.76	3.75	-0.01	+/- 0.20
RING DIAMETER:				
Small Ring (in)	6.53	6.50	-0.03	+/- 0.20
Medium Ring (in)	8.24	8.25	0.01	+/- 0.20
Large Ring (in)	15.00	15.00	0.00	+/- 0.20

PASS/FAIL SUMMARY

Calibration-Coefficients Range Check: Passed
 Ring-Measurement Check: Passed

PASS/FAIL SUMMARY

Calibration-Coefficients Range Check: Passed

SDLT CALIPER FIELD CALIBRATION

Tool Name: SDLT - 10685803	Reference Calibration Date: 14-Apr-14 11:31:00
Engineer: THOMAS K HYDE	Calibration Date: 05-May-14 19:29:53
Software Version: WL INSITE R4.2.0 (Build 2)	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	8.36	0.11	+/- 0.15

PASS/FAIL SUMMARY

Pad Extension Check: Passed
 Diameter Check: Passed

SPECTRAL DENSITY SHOP CALIBRATION

Tool Name: SDLT Pad - 10714945	Reference Calibration Date: 28-Apr-14 09:49:03
Engineer: THOMAS K HYDE	Calibration Date: 28-Apr-14 10:11:22
Software Version: WL INSITE R4.2.0 (Build 2)	Calibration Version: 1

Logging Source S/N: 5073 GW
 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	1.0263	1.0429	0.90 - 1.10
Near Dens Gain	1.0042	1.0358	0.90 - 1.10
Near Peak Gain	0.9945	1.0562	0.90 - 1.10
Near Lith Gain	0.9704	1.0108	0.90 - 1.10
Far Bar Gain	1.0072	1.0071	0.90 - 1.10
Far Dens Gain	1.0006	0.9998	0.90 - 1.10

Far Dens Gain	1.0006	0.9998	0.90 - 1.10
Far Peak Gain	0.9955	0.9930	0.90 - 1.10
Far Lith Gain	0.9708	0.9648	0.90 - 1.10
<hr/>			
Near Bar Offset	0.0618	-0.0842	NONE
Near Dens Offset	0.2364	-0.0368	NONE
Near Peak Offset	0.2893	-0.2159	NONE
Near Lith Offset	0.4680	0.1368	NONE
Far Bar Offset	0.1401	0.1411	NONE
Far Dens Offset	0.1788	0.1856	NONE
Far Peak Offset	0.2120	0.2306	NONE
Far Lith Offset	0.3689	0.4131	NONE
<hr/>			
Near Bar Background	949.73	950.42	700 - 1450
Near Dens Background	314.80	315.54	230 - 480
Near Peak Background	138.78	138.82	100 - 210
Near Lith Background	164.21	163.53	125 - 260
Far Bar Background	489.05	487.23	450 - 900
Far Dens Background	188.74	188.06	175 - 345
Far Peak Background	74.60	73.87	70 - 140
Far Lith Background	76.88	76.48	75 - 145

CALIBRATION BLOCK SUMMARY

Measurement	Current Reading (Previous Coef)	Calibrated (New Coef)	Change	Control Limit On Change
MAGNESIUM				
Density (g/cc)	1.675	1.684	0.009	+/- 0.015
Pe	2.582	2.557	-0.025	+/- 0.150
ALUMINUM				
Density (g/cc)	2.599	2.598	-0.001	+/- 0.01500
Pe	3.104	3.126	0.022	+/- 0.150

TOOL SUMMARY

Measurement	Near Detector		Far Detector	
	Value	Control Limits	Value	Control Limits
QUALITY				
Background	0.0010	+/- 0.0110	0.0008	+/- 0.0140
Magnesium Block	-0.0007	+/- 0.0110	-0.0022	+/- 0.0140
Aluminum Block	-0.0006	+/- 0.0110	0.0008	+/- 0.0140
Resolution	9.94	6.00 - 11.50	9.20	6.00 - 11.50
Internal Verifier(B+D+P+L)	1568	1200 - 2700	826	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

Tool Name: SDLT Pad - 10714945

Reference Calibration Date: 28-Apr-14 10:11:22

Engineer: THOMAS K HYDE

Calibration Date: 05-May-14 19:24:18

Software Version: WL INSITE R4.2.0 (Build 2)

Calibration Version: 1

Pad Temperature: 71.7 degF

DENSITY FIELD CALIBRATION SUMMARY

Measurement	Shop	Field	Change	Control Limit +/-
Near (B+D+P+L) cps	1568.312	1566.661	-1.651	15.935
Far (B+D+P+L) cps	825.641	825.555	-0.086	15.836
Near Resolution	9.94	9.81	-0.130	0.50
Far Resolution	9.20	9.19	-0.010	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-10811258						
Gamma Ray Calibrator	232.0	235.2	-----	-3.2	+/- 9.00	api
DSNT-10755066						
Snow-Block Porosity	0.0575	0.0574	-----	0.0001	+/- 0.0150	decp
SDLT-10685803						
Pad Extension	3.75	3.73	-----	0.02	+/-0.10	in
Ring Diameter	8.25	8.36	-----	-0.11	+/-0.15	in
SDLT Pad-10714945						
Near(B+D+P+L)	1568.312	1566.661	-----	1.651	+/-15.935	cps
Far(B+D+P+L)	825.641	825.555	-----	0.086	+/-15.836	cps

Data: SHAYNE SWD 3508\0001.SP-GTET-CSNG-DSNT-SDLT-FLEX-ICT-IDT-WAVE-ACRT-BN004 06-May-14 22:56 Up @5697.0f Date: 07-May-14 01:31:27

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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	
Rwa / CrossPlot				
TPUL	Tension Pull	122.58	NO	
BS	Bit Size	122.58	NO	
HDIA	Measured Hole Diameter	0.00	NO	
SP Sub				
PLTC	Plot Control Mask	118.88	NO	
SP	Spontaneous Potential	118.88	BLK	1.250
SPR	Raw Spontaneous Potential	118.88	NO	
SPO	Spontaneous Potential Offset	118.88	NO	
GTET				
TPUL	Tension Pull	110.86	NO	
GR	Natural Gamma Ray API	110.86	TRI	1.750
GRU	Unfiltered Natural Gamma Ray API	110.86	NO	

NRG	Smoked Natural Gamma Ray API	110.86	NO	
EGR	Natural Gamma Ray API with Enhanced Vertical Resolution	110.86	W	1.416 , 0.750
HDIA	Measured Hole Diameter	0.00	NO	
ACCZ	Accelerometer Z	0.00	BLK	0.083
DEVI	Inclination	0.00	NO	
CSNG				
TPUL	Tension Pull	102.78	NO	
STAT	Status	102.78	NO	
FRMC	Tool Frame Count	102.78	BLK	0.250
TFRM	Total Frames	102.78	NO	
LSPD	Line Speed	102.78	BLK	0.250
CTIM	Accumulation time for sample	102.78	BLK	0.250
NOIS	Spectral Noise	102.78	BLK	0.250
STAB	Stabilizer Voltage in mv	102.78	BLK	0.250
STBP	Stabilizer 60 KEV Peak	102.78	BLK	0.250
AMER	Americium	102.78	BLK	0.250
FTMP	Flask PCB Temperature	102.78	BLK	0.250
SPEL	Low Energy Spectrum	102.78	BLK	0.250
SPEH	High Energy Spectrum	102.78	BLK	0.250
SSP	Stabilization Energy Spectrum	102.78	BLK	0.250
HDIA	Measured Hole Diameter	0.00	NO	
CSPC	CSNG Lo Hi Spectrum Data	102.78	NO	
DSNT				
TPUL	Tension Pull	92.45	NO	
RNDS	Near Detector Telemetry Counts	92.55	BLK	1.417
RFDS	Far Detector Telemetry Counts	93.30	TRI	0.583
DNTT	DSN Tool Temperature	92.55	NO	
DSNS	DSN Tool Status	92.45	NO	
ERND	Near Detector Telemetry Counts EVR	92.55	BLK	0.000
ERFD	Far Detector Telemetry Counts EVR	93.30	BLK	0.000
ENTM	DSN Tool Temperature EVR	92.55	NO	
HDIA	Measured Hole Diameter	0.00	NO	
SDLT				
TPUL	Tension Pull	82.55	NO	
PCAL	Pad Caliper	82.55	TRI	0.250
ACAL	Arm Caliper	82.55	TRI	0.250
ICT				
TPUL	Tension Pull	64.03	NO	
	Arm Potentiometer excitation V	61.24	NO	
	Caliper 1 measurement	64.03	BLK	1.250
	Caliper 2 measurement	64.03	BLK	1.250
	Caliper 3 measurement	64.03	BLK	1.250
	Caliper 4 measurement	64.03	BLK	1.250
	Caliper 5 measurement	64.03	BLK	1.250
	Caliper 6 measurement	64.03	BLK	1.250
	Caliper Global measurement	64.03	BLK	1.250
MOTI	Motor Current	61.24	NO	
MOT1	Motor Voltage Monitor 1	61.24	NO	
STA1	Status word #1	61.24	NO	
STA2	Status word #2	61.24	NO	
PRES	Caliper percentage of total compression of the spring	61.24	NO	
HAZI	Hole Azimuth	64.03	NO	
RR	Relative Rotation	64.03	NO	

RB	Relative Bearing	64.03	NO
AZI1	PAD1 Azimuth	64.03	NO
DEVI	Inclination	64.03	NO
IDT			
TPUL	Tension Pull	54.65	NO
ACCX	Accelerometer X	54.65	NO
ACCY	Accelerometer Y	54.65	NO
ACCZ	Accelerometer Z	54.65	NO
MAGX	magnetometer x with unit	54.65	NO
MAGY	Magnetometer Y with unit	54.65	NO
MAGZ	magnetometer z with unit	54.65	NO
IAMP	Accelerometer Temperature	54.65	NO
MTMP	Magnetometer Temperature	54.65	NO
WSTT-I Receivers			
TPUL	Tension Pull	31.08	NO
DPSX	Dipole Source X Structurel	27.83	NO
DPSY	Dipole Source Y Structurel	27.83	NO
DPSM	Monopole Source Structure	27.83	NO
WVST	Wavesonic Compressed Data	31.08	NO
TPUL	Tension Pull	31.08	NO
XMS1	Wave Sonic Status Word 1	27.83	NO
XMS2	Wave Sonic Status Word 2	27.83	NO
XMS1	Wave Sonic XMITStatus Word 1	27.83	NO
XMS1	Wave Sonic XMITStatus Word 2	27.83	NO
F1HA	Dipole 1 HV After	27.83	NO
F1HB	Dipole 1 HV Before	27.83	NO
F2HA	Dipole 2 HV After	27.83	NO
F2HB	Dipole 2 HV Before	27.83	NO
F3HA	Monopole HV After	27.83	NO
F3HB	Monopole HV Before	27.83	NO
INVT	Input Voltage	27.83	NO
5VOL	5 Volts	27.83	NO
MI5A	Minus 5 Volts Analog	27.83	NO
ITMP	Instrument Temperature	27.83	NO
PL5A	Plus 5 Volts Analog	27.83	NO
5VD	Plus 5 Volts Digital	27.83	NO
TCUR	Tool Current	27.83	NO
SUPV	Supply Voltage	27.83	NO
PRVT	Preregulated voltage	27.83	NO
PRVT	Pre-regulated voltage Xmter	27.83	NO
TEMP	Temperature	27.83	NO
ACQN	Acquisition Number	27.83	NO
XDP	Delay Reference	31.08	NO
MITM	MIT Mode	31.08	NO
VERS	Version	27.83	NO
D1CT	Dipole 1 Compressed Word Count	31.08	NO
D2CT	Dipole 2 Compressed Word Count	31.08	NO
MCNT	Monopole Compressed Word Count	31.08	NO
SEQN	Sequence Number	27.83	NO
FREV	Firmware Revision	27.83	NO
MSMP	Monopole Sample Rate	27.83	NO
MSMP	Dipole Sample Rate	27.83	NO
MFWF	Monopole Firing Waveform	27.83	NO
MFRQ	Monopole Frequency	27.83	NO

MDLY	Monopole Delay	27.83	NO
DXWF	Dipole X Firing Waveform	27.83	NO
XFRQ	Dipole X Frequency	27.83	NO
XDLY	Dipole X Delay	27.83	NO
DYWF	Dipole Y Firing Waveform	27.83	NO
YFRQ	Dipole Y Frequency	27.83	NO
YDLY	Dipole Y Delay	27.83	NO
DPSX	Dipole Source X Structurel	27.83	NO
DPSY	Dipole Source Y Structurel	27.83	NO
DPSM	Monopole Source Structure	27.83	NO
WVST	Wavesonic Compressed Data	31.08	NO
AUTM	Auto Mode	27.83	NO
SONM	tool mode for sonic - 0 for normal or 3 for calibration	27.83	NO
MSL	Monopole Lower Travel Time	31.08	NO
MSH	Monopole Upper Travel Time	31.08	NO
MLFC	Monopole-1 Lower Filter Bandpass Frequency Cut-off	27.83	NO
MUFC	Monopole-1 Upper Filter Bandpass Frequency Cut-off	27.83	NO
DLTT	Dipole Lower Travel Time	27.83	NO
DUTT	Dipole Upper Travel Time	27.83	NO
DLFC	Dipole Lower Filter Bandpass Frequency Cut-off	27.83	NO
DUFC	Dipole Upper Filter Bandpass Frequency Cut-off	27.83	NO
MUTE	WaveSonic Mute/Enable Channels and Sides map	27.83	NO
MUTS	Mute/Enable Sides	27.83	NO
WSRB	Relative Bearing	31.08	NO
WSAZ	WSX Azimuth Pad 1	31.08	NO
TPUL	Tension Pull	31.08	NO
WMP	Summed array of Monopole for SIDES - A,B,C,D	31.08	NO
WXX	Dipole X for SIDES - A-C	31.08	NO
WYY	Dipole Y for SIDES - B-D	31.08	NO
WXY	Dipole X for SIDES - B-D	31.08	NO
WYX	Dipole Y for SIDES - A-C	31.08	NO
TPUL	Tension Pull	31.08	NO
WMA	Monopole Waveform Side A - Channel 1 to Channel 8 Receivers	31.08	NO
WMB	Monopole Waveform Side B - Channel 1 to Channel 8 Receivers	31.08	NO
WMC	Monopole Waveform Side C - Channel 1 to Channel 8 Receivers	31.08	NO
WMD	Monopole Waveform Side D - Channel 1 to Channel 8 Receivers	31.08	NO
WXA	Dipole X Waveform Side A - Channel 1 to Channel 8 Receivers	31.08	NO
WXB	Dipole X Waveform Side B - Channel 1 to Channel 8 Receivers	31.08	NO
WXC	Dipole X Waveform Side C - Channel 1 to Channel 8 Receivers	31.08	NO
WXD	Dipole X Waveform Side D - Channel 1 to Channel 8 Receivers	31.08	NO
WYA	Dipole Y Waveform Side A - Channel 1 to Channel 8 Receivers	31.08	NO
WYB	Dipole Y Waveform Side B - Channel 1 to Channel 8 Receivers	31.08	NO
WYC	Dipole Y Waveform Side C - Channel 1 to Channel 8 Receivers	31.08	NO
WYD	Dipole Y Waveform Side D - Channel 1 to Channel 8 Receivers	31.08	NO
GAR1	Gain Side A Receiver 1	27.83	NO
GAR2	Gain Side A Receiver 2	27.83	NO
GAR3	Gain Side A Receiver 3	27.83	NO
GAR4	Gain Side A Receiver 4	27.83	NO
GAR5	Gain Side A Receiver 5	27.83	NO

GAR6	Gain Side A Receiver 6	27.83	NO	
GAR7	Gain Side A Receiver 7	27.83	NO	
GAR8	Gain Side A Receiver 8	27.83	NO	
GBR1	Gain Side B Receiver 1	27.83	NO	
GBR2	Gain Side B Receiver 2	27.83	NO	
GBR3	Gain Side B Receiver 3	27.83	NO	
GBR4	Gain Side B Receiver 4	27.83	NO	
GBR5	Gain Side B Receiver 5	27.83	NO	
GBR6	Gain Side B Receiver 6	27.83	NO	
GBR7	Gain Side B Receiver 7	27.83	NO	
GBR8	Gain Side B Receiver 8	27.83	NO	
GCR1	Gain Side C Receiver 1	27.83	NO	
GCR2	Gain Side C Receiver 2	27.83	NO	
GCR3	Gain Side C Receiver 3	27.83	NO	
GCR4	Gain Side C Receiver 4	27.83	NO	
GCR5	Gain Side C Receiver 5	27.83	NO	
GCR6	Gain Side C Receiver 6	27.83	NO	
GCR7	Gain Side C Receiver 7	27.83	NO	
GCR8	Gain Side C Receiver 8	27.83	NO	
GDR1	Gain Side D Receiver 1	27.83	NO	
GDR2	Gain Side D Receiver 2	27.83	NO	
GDR3	Gain Side D Receiver 3	27.83	NO	
GDR4	Gain Side D Receiver 4	27.83	NO	
GDR5	Gain Side D Receiver 5	27.83	NO	
GDR6	Gain Side D Receiver 6	27.83	NO	
GDR7	Gain Side D Receiver 7	27.83	NO	
GDR8	Gain Side D Receiver 8	27.83	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 Reference 12 KHz Real Signal	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	
HDIA	Measured Hole Diameter	0.00	NO	
SDLT Pad				
TPUL	Tension Pull	82.54	NO	
NAB	Near Above	82.37	BLK	0.920
NHI	Near Cesium High	82.37	BLK	0.920
NLO	Near Cesium Low	82.37	BLK	0.920
NVA	Near Valley	82.37	BLK	0.920
NBA	Near Barite	82.37	BLK	0.920
NDE	Near Density	82.37	BLK	0.920
NPK	Near Peak	82.37	BLK	0.920
NLI	Near Lithology	82.37	BLK	0.920
NBAU	Near Barite Unfiltered	82.37	BLK	0.250
NLIU	Near Lithology Unfiltered	82.37	BLK	0.250
FAB	Far Above	82.72	BLK	0.250
FHI	Far Cesium High	82.72	BLK	0.250
FLO	Far Cesium Low	82.72	BLK	0.250
FVA	Far Valley	82.72	BLK	0.250
FBA	Far Barite	82.72	BLK	0.250
FDE	Far Density	82.72	BLK	0.250
FPK	Far Peak	82.72	BLK	0.250
FLI	Far Lithology	82.72	BLK	0.250
PTMP	Pad Temperature	82.55	BLK	0.920
NHV	Near Detector High Voltage	81.95	NO	
FHV	Far Detector High Voltage	81.95	NO	
ITMP	Instrument Temperature	81.95	NO	
DDHV	Detector High Voltage	81.95	NO	
HDIA	Measured Hole Diameter	0.00	NO	
Microlog Pad				

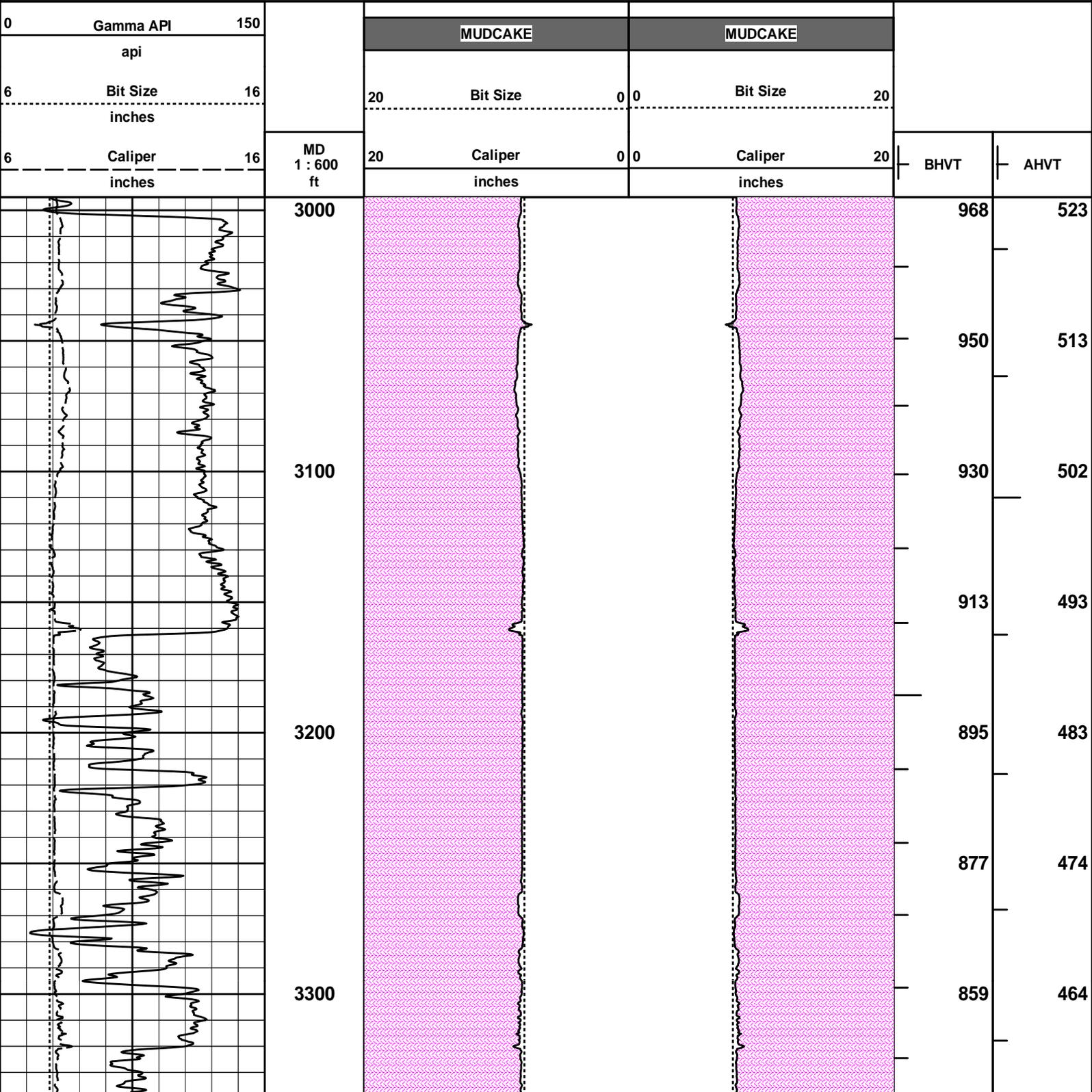
TPUL	Tension Pull	82.74	NO	
MINV	Microlog Lateral	82.74	BLK	0.750
MNOR	Microlog Normal	82.74	BLK	0.750

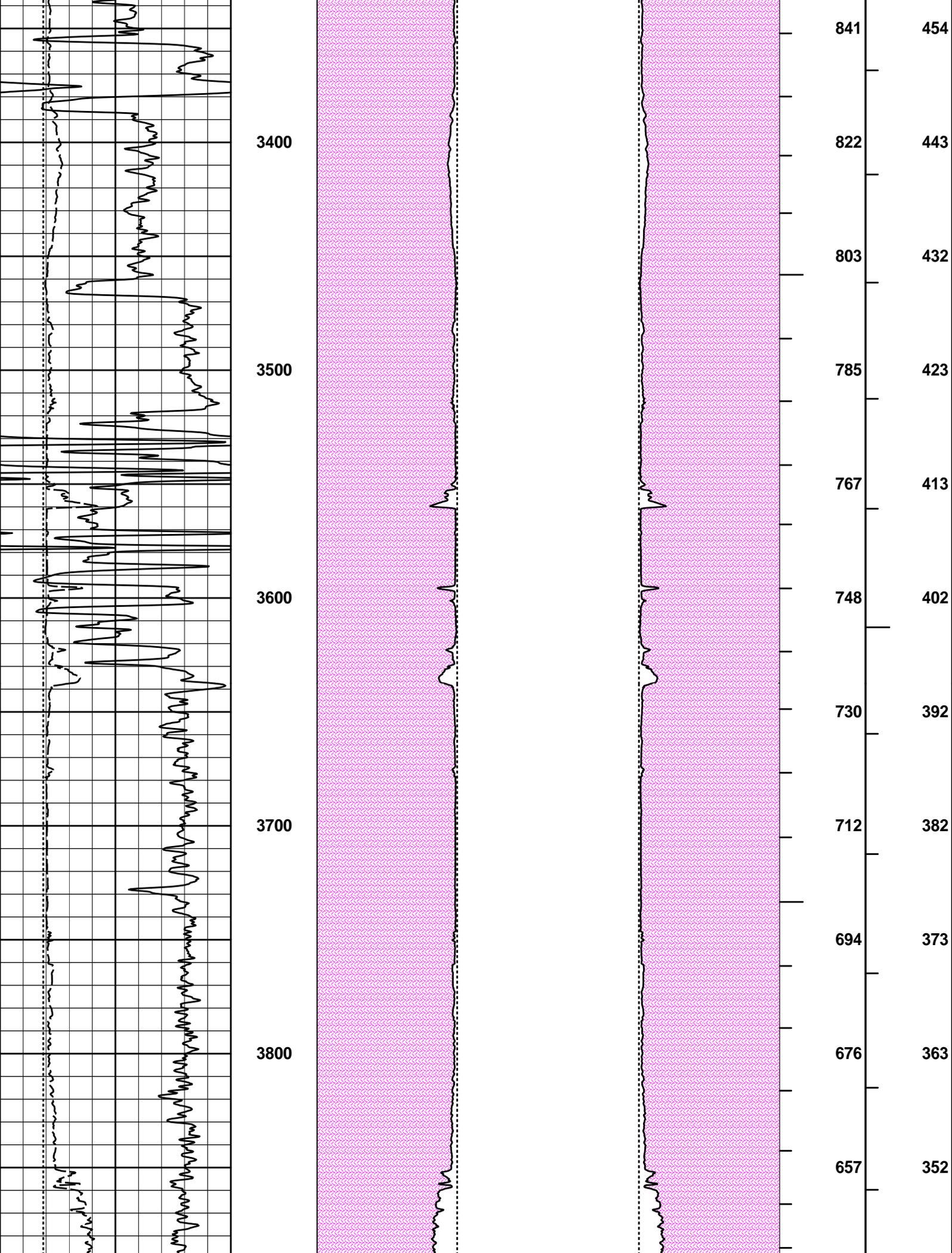
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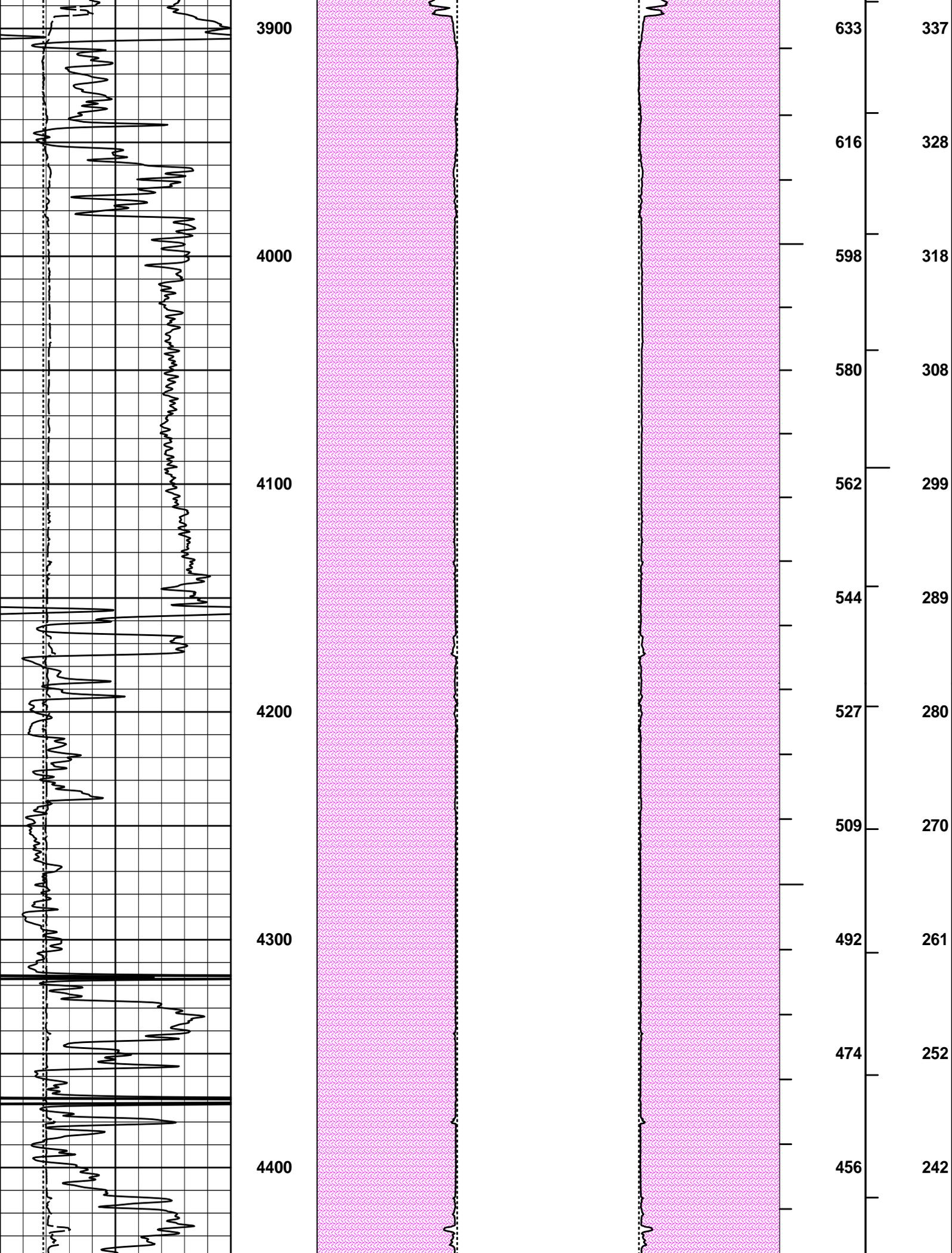


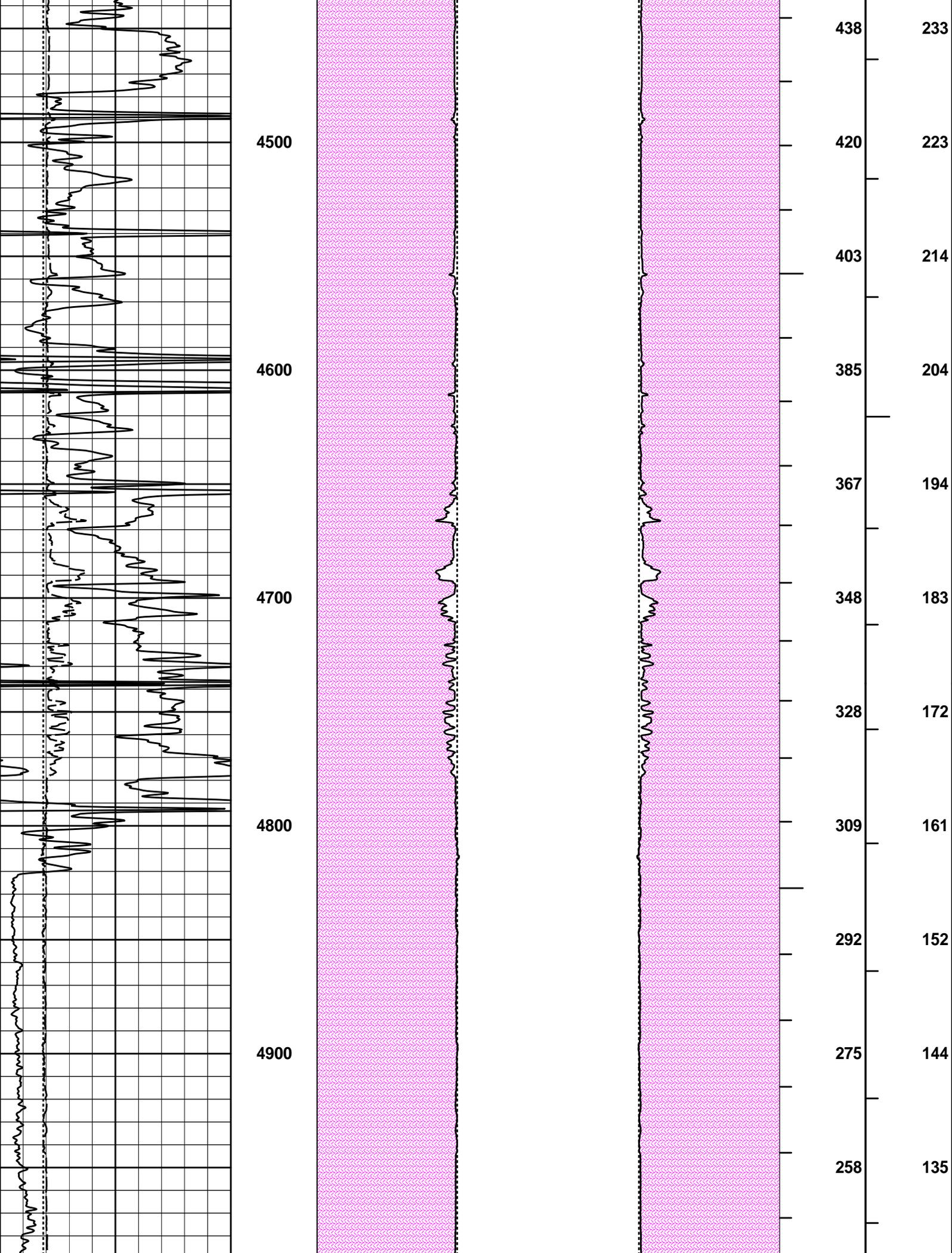
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 Plot File: \\-LOCAL-\SHAYNE_SWD_3508\Well Based\POROSITY\AHV_2_IQ_LIB

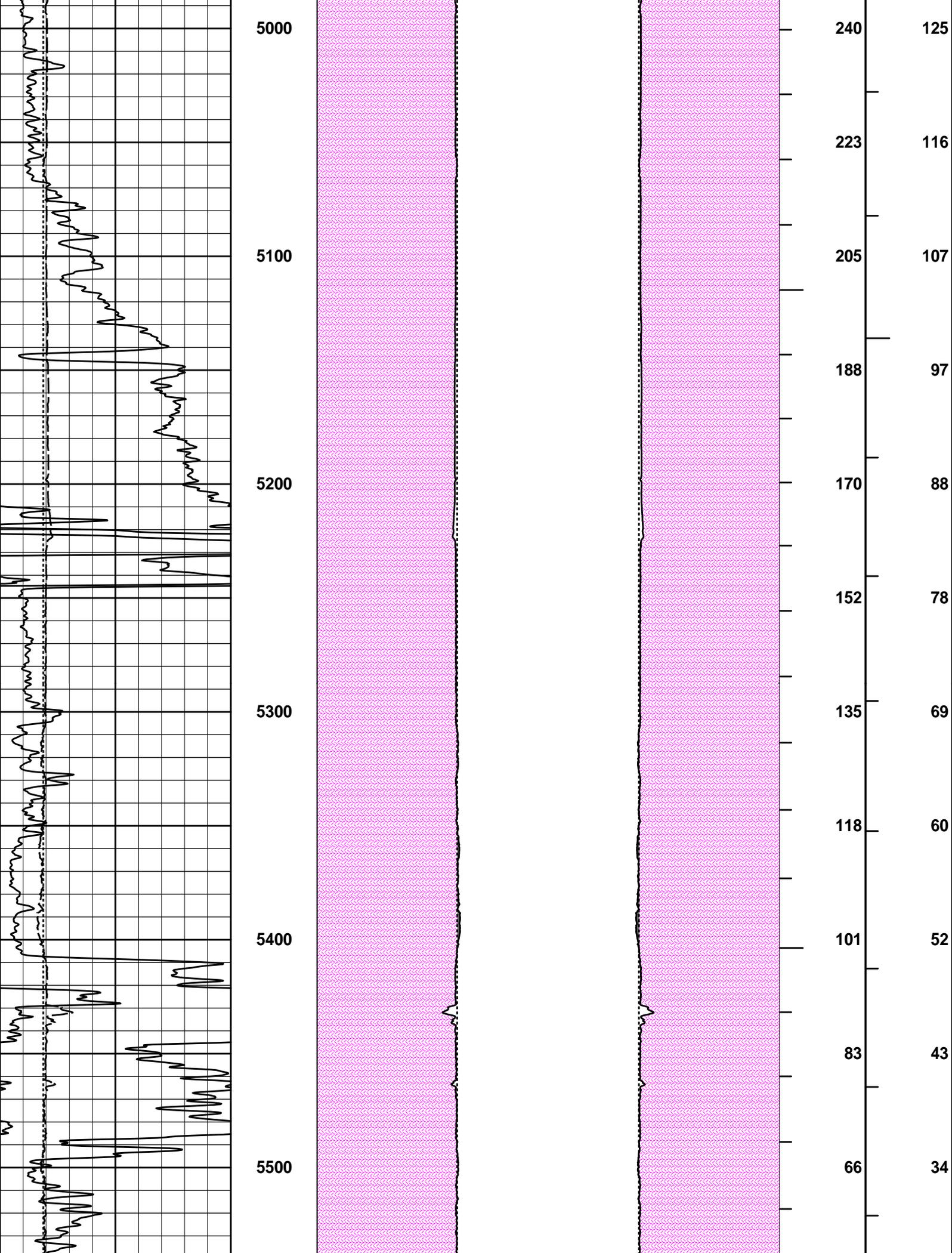
ANNULAR HOLE VOLUME PLOT

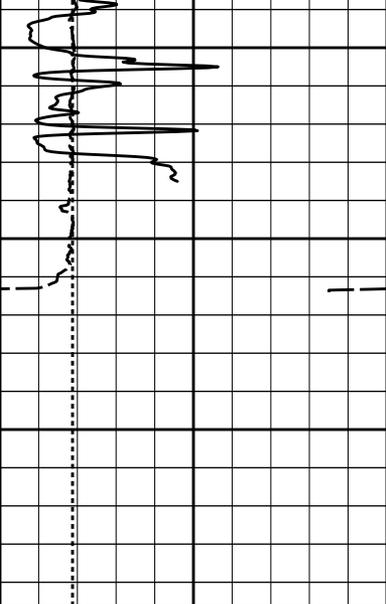




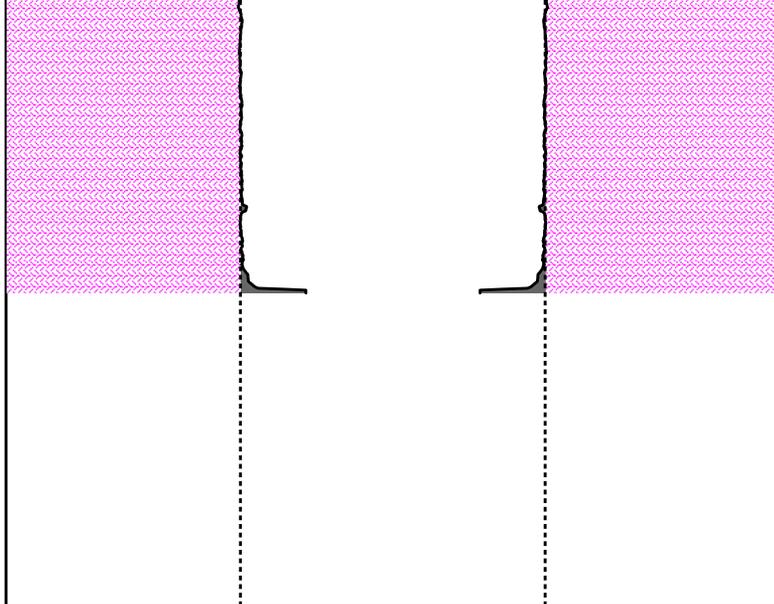








5600



49

25

32

16

6	Caliper	16
	inches	
6	Bit Size	16
	inches	
0	Gamma API	150
	api	

MD	1 : 600
ft	

20	Caliper	0	0
	inches		
20	Bit Size	0	0
MUDCAKE			

20	Caliper	20
	inches	
20	Bit Size	20
MUDCAKE		

BHVT	AHVT
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HALLIBURTON

Plot Time: 07-May-14 04:06:43
 Plot Range: 2995 ft to 5696.67 ft
 Data: SHAYNE_SWD_3508\Well Based\R1 DETAIL\
 Plot File: \\-LOCAL-\SHAYNE_SWD_3508\Well Based\POROSITY\AHV_2_IQ_LIB

ANNULAR HOLE VOLUME PLOT

COMPANY	SANDRIDGE ENERGY		
WELL	SHAYNE SWD 3508 1-4		
FIELD	WALDRON WEST		
COUNTY	HARPER	STATE	KANSAS

HALLIBURTON

DUAL SPACED NEUTRON
SPECTRAL DENSITY
LOG