

HALLIBURTON

RESERVOIR  
MONITORING TOOL  
ELITE

CompanyURSA OPERATING COMPANY LLC

WellMONUMENT RIDGE B 21A-17-7-95

FieldPARACHUTE

CountyGARFIELDStateCO

CompanyURSA OPERATING COMPANY LLC

WellMONUMENT RIDGE B 21A-17-7-95

FieldPARACHUTE

CountyGARFIELDStateCO

API No.:05045228930000

Serv #:903682891

Other Services

Location:SHL: 939' FSL & 144' FEL

BHL: 132' FNL & 1975' FWL

Sec: 8Twp: 7SRge: 95W

CBL-M

Permanent DatumGROUND LEVEL Elevation5702'

Log Measured FromKB, 17' Ft. above perm. datum

ElevationK.B. 5719'  
D.F. 5719'  
G.L. 5702'

Drilling Measured FromKB

Date @ Time Logged30 NOV 2016 @ 04:30

Type Fluid in Hole

FRESH WATER

Run No. ONE

Density of Fluid

8.4 PPG

Depth - Driller8191'

Fluid Level

SURFACE

Depth - Logger8013'

Cement Top Est. Logged

2050'

Bottom - Logged Interval8006'

Equipment / Location

11808537 / RS, WY

Top - Log Interval4053'

Recorded by

B. RIDDEL

Max. Recorded Temp.228 degF

Witnessed by

R. TOLLE

CEMENTING DATA

Surface

Protection

R. TOLLE

String

String

Liner

Date / Time Cemented

String

N/A

Primary / Squeeze

N/A

N/A

Expected Compressive Strength

N/A

psi@ N/A hrs

N/A

psi@ N/A hrs

N/A

psi@ N/A hrs

Cement Volume

N/A

N/A

N/A

N/A

N/A

N/A

Cement Type / Weight

N/A

/ N/A

N/A

/ N/A

N/A

/ N/A

Formulation

N/A

N/A

N/A

N/A

N/A

N/A

Mud Type / Mud Wgt.

N/A

/ N/A

N/A

/ N/A

N/A

/ N/A

Borehole Record

Casing & Tubing Record

Run Number

Bit

From

To

Size

Weight

From

To

ONE

24"

SURFACE

60'

16"

75.5 #

SURFACE

60'

TWO

12.25"

60'

1912'

8.625"

32.0 #

SURFACE

1912'

THREE

7.875"

1912'

8191'

4.5"

11.6 #

SURFACE

8163'

&lt;&lt;&lt; Fold Here &gt;&gt;&gt;

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.

Comments

ESTIMATED TOP OF CEMENT : 2050'  
GAMMA BLANKET : 408 GAPI  
FREE PIPE CALIBRATION DEPTH : 250'  
  
TENSION PULLED: 4486', 4470', 2112' & 1832'  
  
THANK YOU FOR CHOOSING HALLIBURTON ENERGY SVCS.  
YOUR CREW TODAY: B. RIDDEL, D. FLINDERS, B. BURDERER

Service Ticket No.	903682891	API No.	05045228930000	PGM Ver	15.10.29001		
The Well Name, Location, Borehole Description, and / or Cementing Data Furnished by Client							
EQUIPMENT DATA							
XHU		GAMMA		RMTI		CBL	
Run No.	ONE	Run No.	ONE	Run No.	ONE	Run No.	ONE
Serial No.	12146425	Serial No.	11224503	Serial No.	12095949	Serial No.	12091451
Model No.	XHU-3	Model No.	TTTC-U2	Model No.	RMTI	Model No.	CBLM
Diameter	1 11/16"	Diameter	1 11/16"	Diameter	2.25"	Diameter	2.75"
LOGGING DATA							
General Data							
Pass	Depths		Well Head	Speed	Logging Run Comments		
No	From	To	Pressure	Ft/Min			

ONE	4380'	4130'	0 PSI	20	REPEAT			
TWO	8013'	4053'	0 PSI	20	MAIN			
	GAMMA		SIGMA		AMPLITUDE			
Pass	Scale		Scale		Scale		Scale	
No.	L	R	L	R	L	R	L	L
ONE	0	200	60	0	0	100		
TWO	0	200	60	0	0	100		
DIRECTIONAL INFORMATION								
Maximum Deviation			deg. @		KOP			

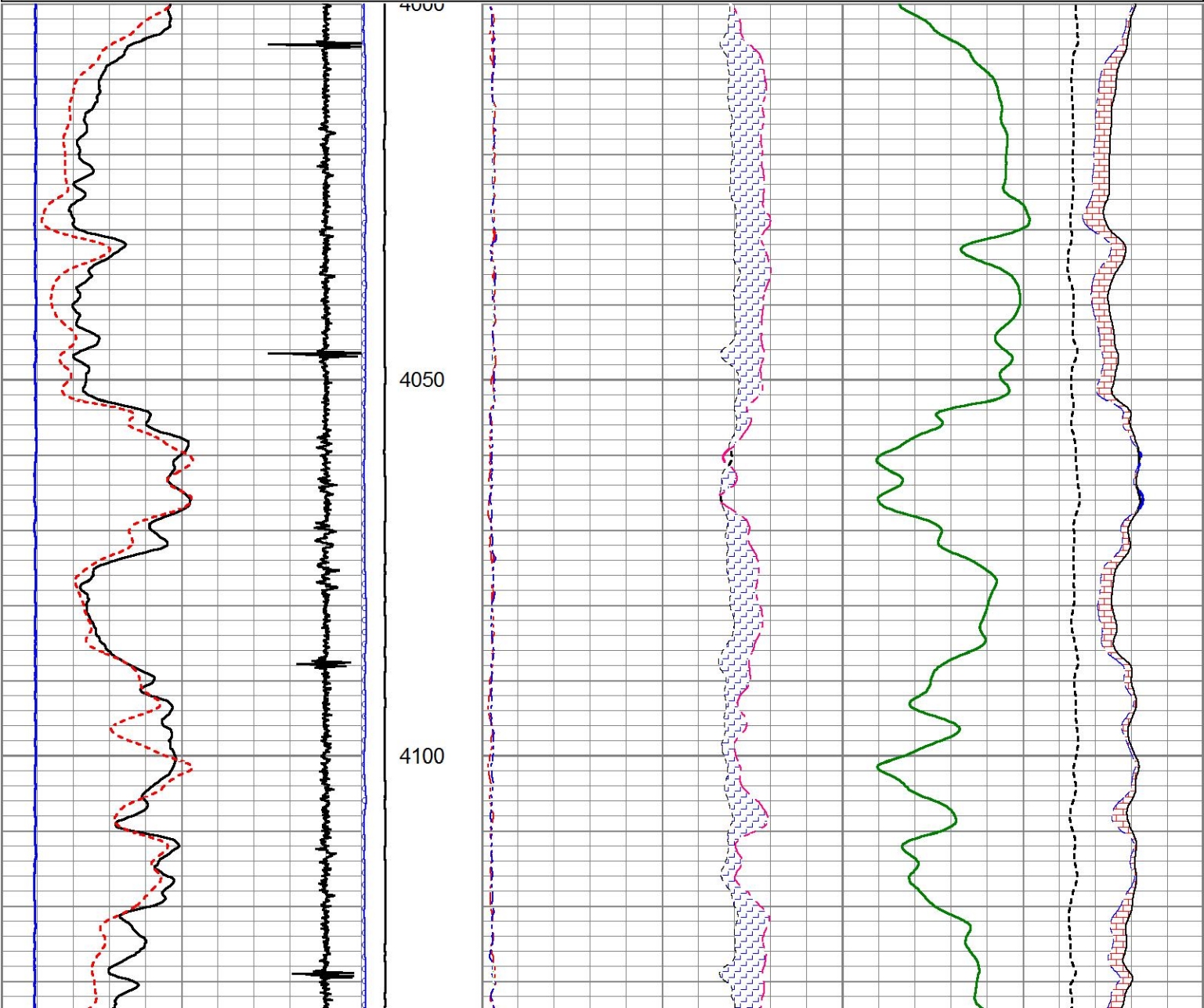
MAIN PASS

HALLIBURTON

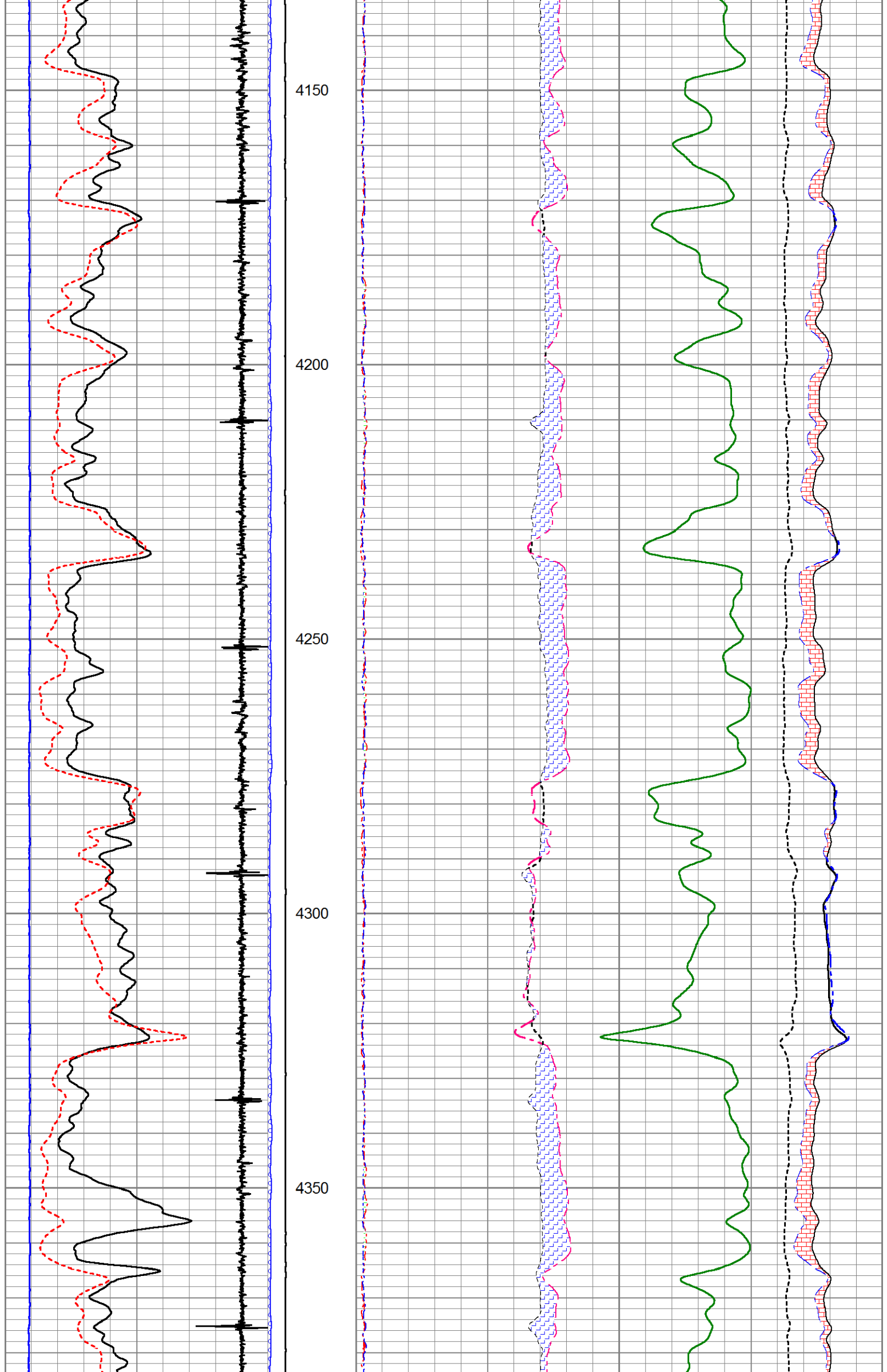
5" = 100'

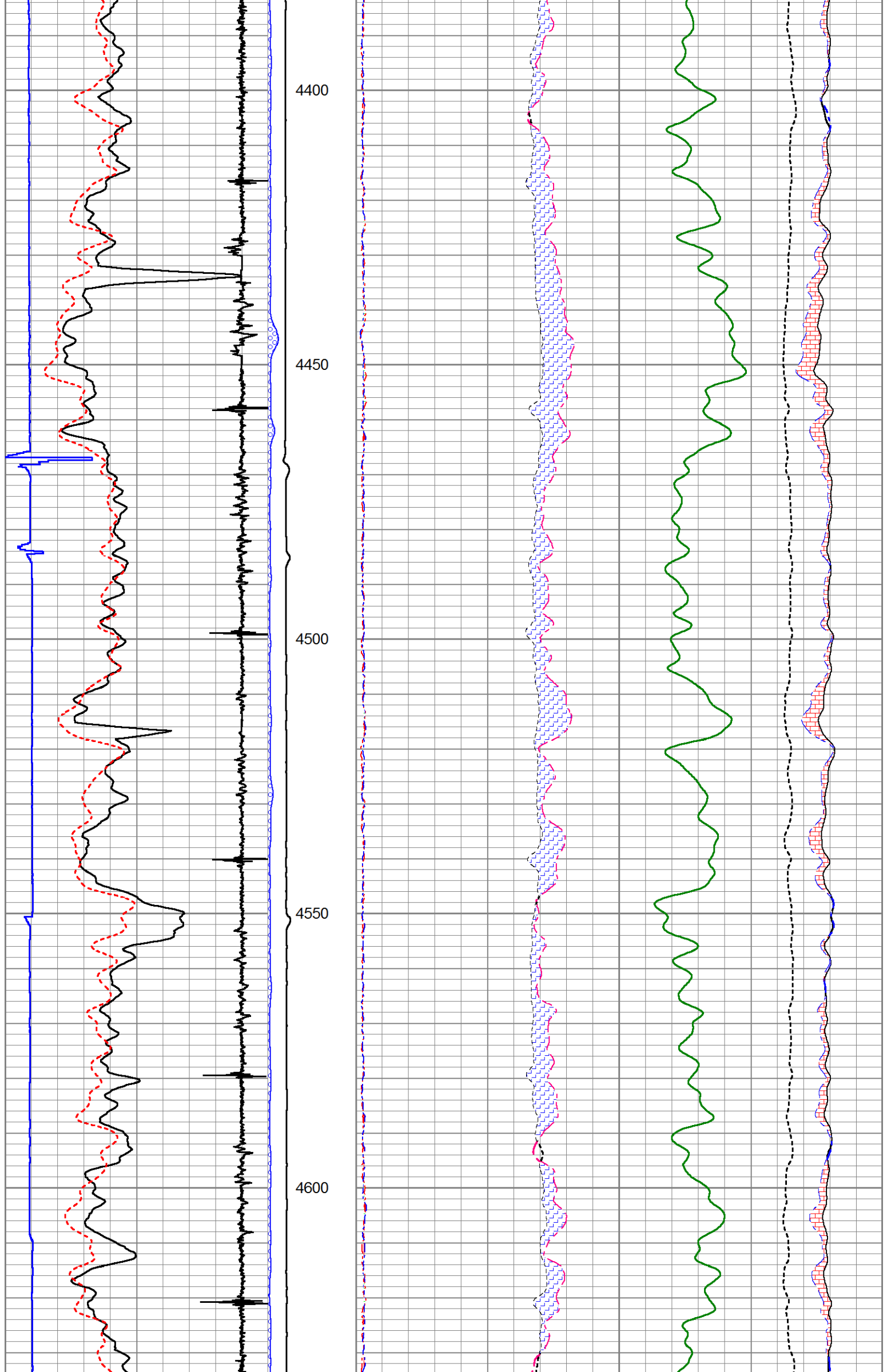
Database File mr\_b\_21a\_17\_7\_95.db  
Dataset Pathname main.1  
Presentation Format !1!!RM~1  
Dataset Creation Wed Nov 30 13:52:46 2016  
Charted by Depth in Feet scaled 1:240

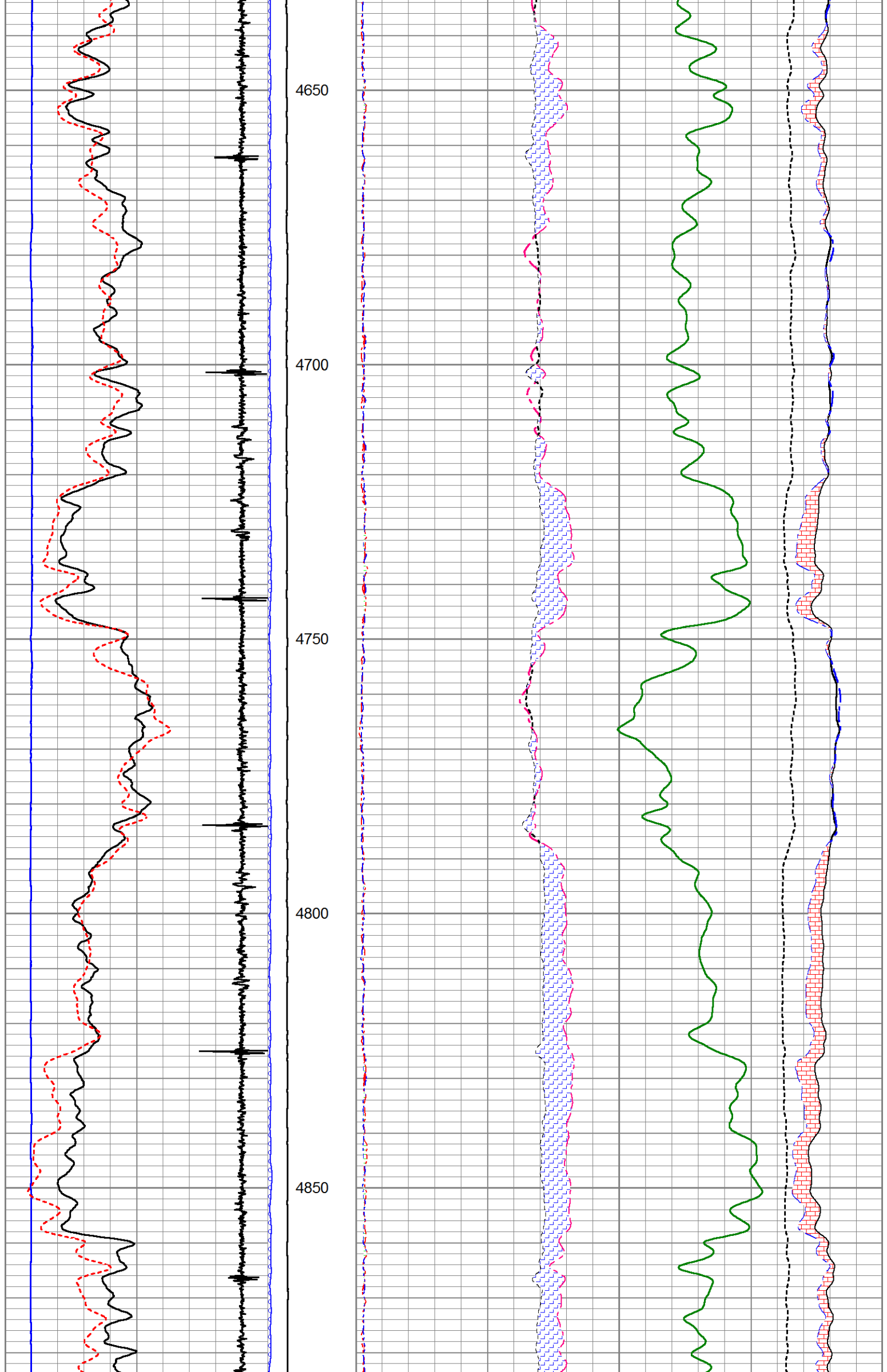
0	GR	200	LTEN	60	SGFF					0
2700	CCL	-300		0	(lb5000	2	RNF (Ratio Near/Far)	0.5	100000	FSIN
0	LSPD (ft/min)	200	0	OAI1100	1.65	RIN (Ratio Near/Far Incl)	0.65	60000	NCAP	0
10	SGINear	40			0	NFTR (Near Fit Error)	100	60000	FCAP	0
					0	FFTR (Far Fit Error)	100			

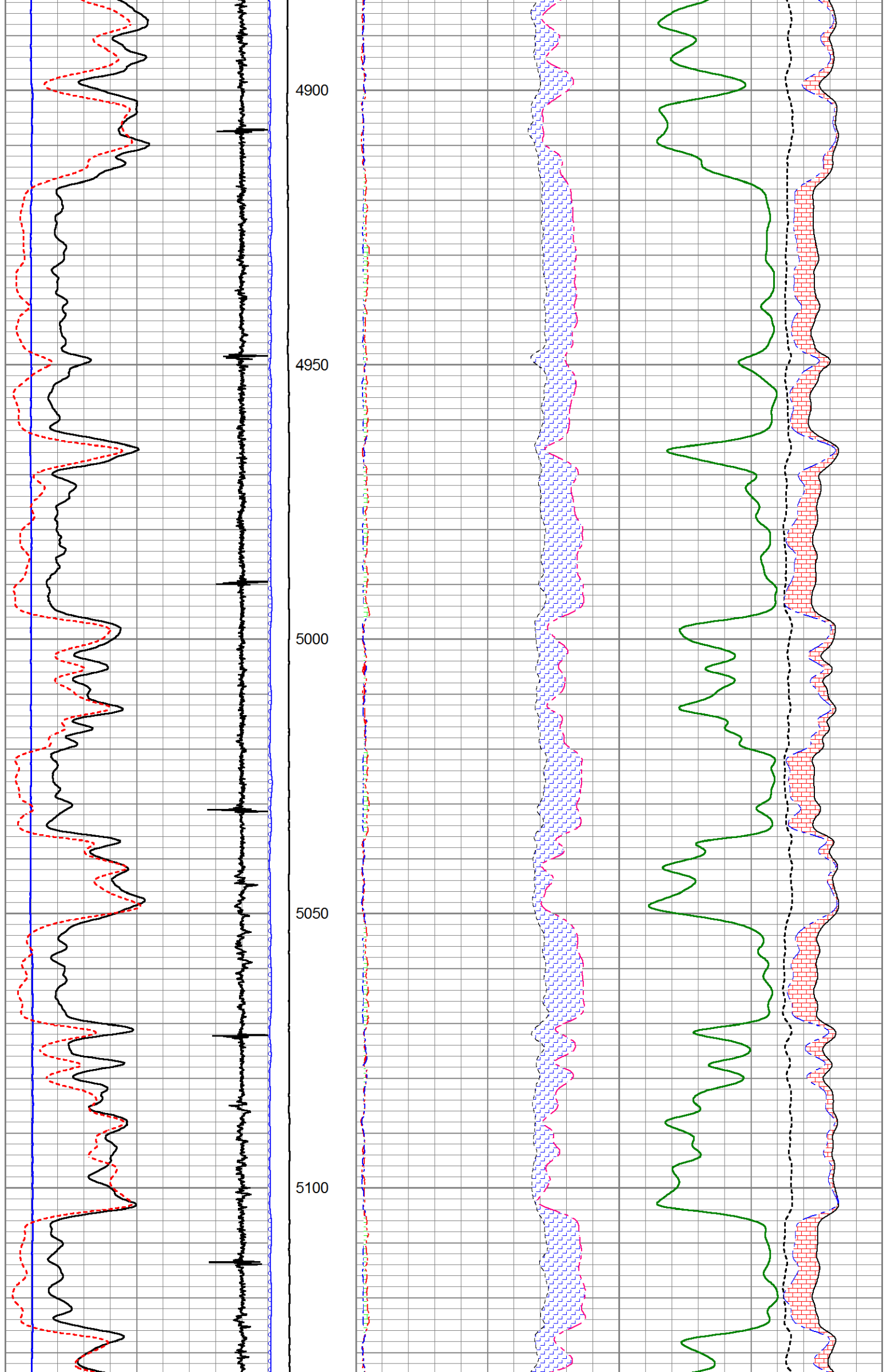


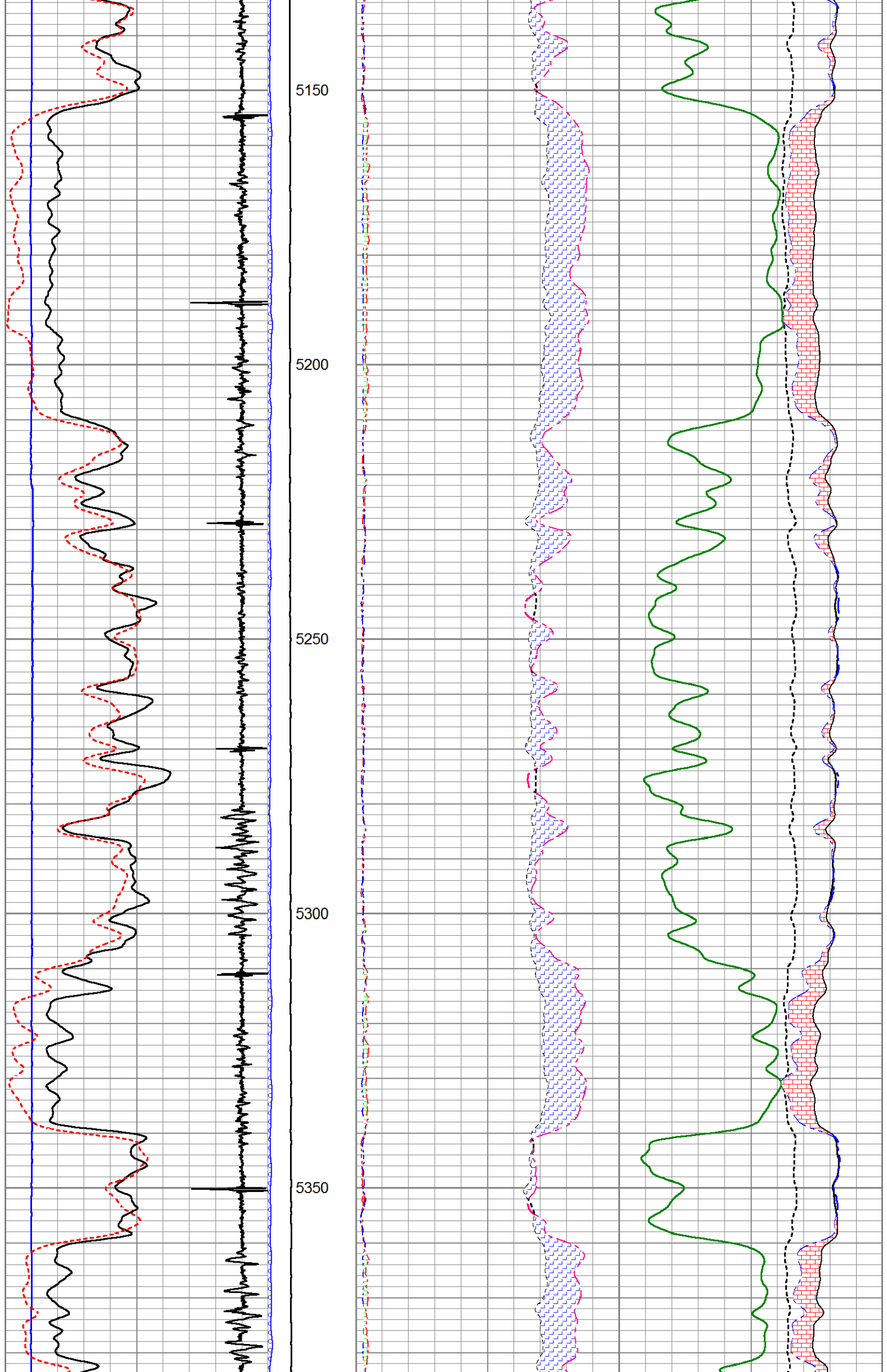


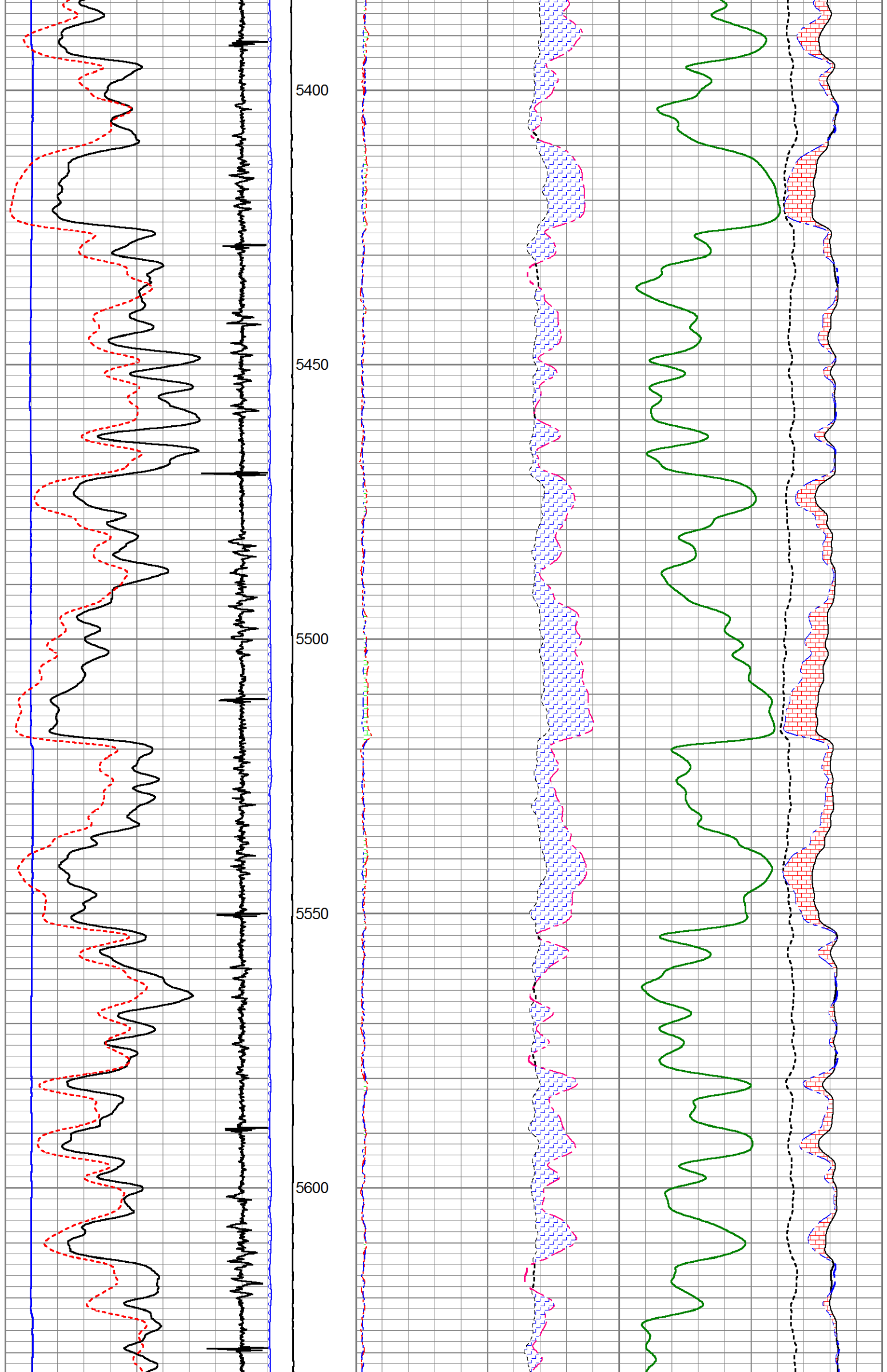




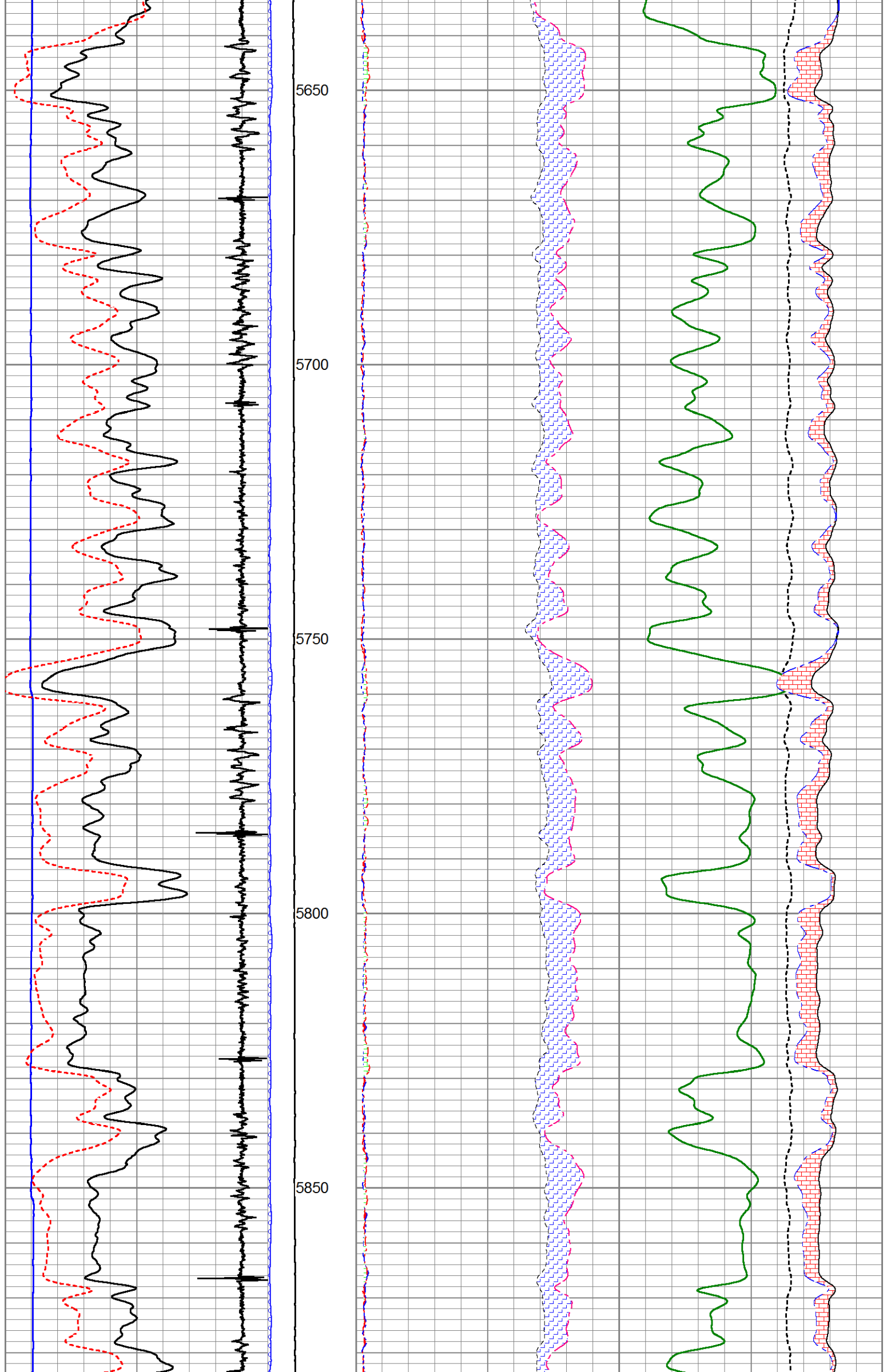


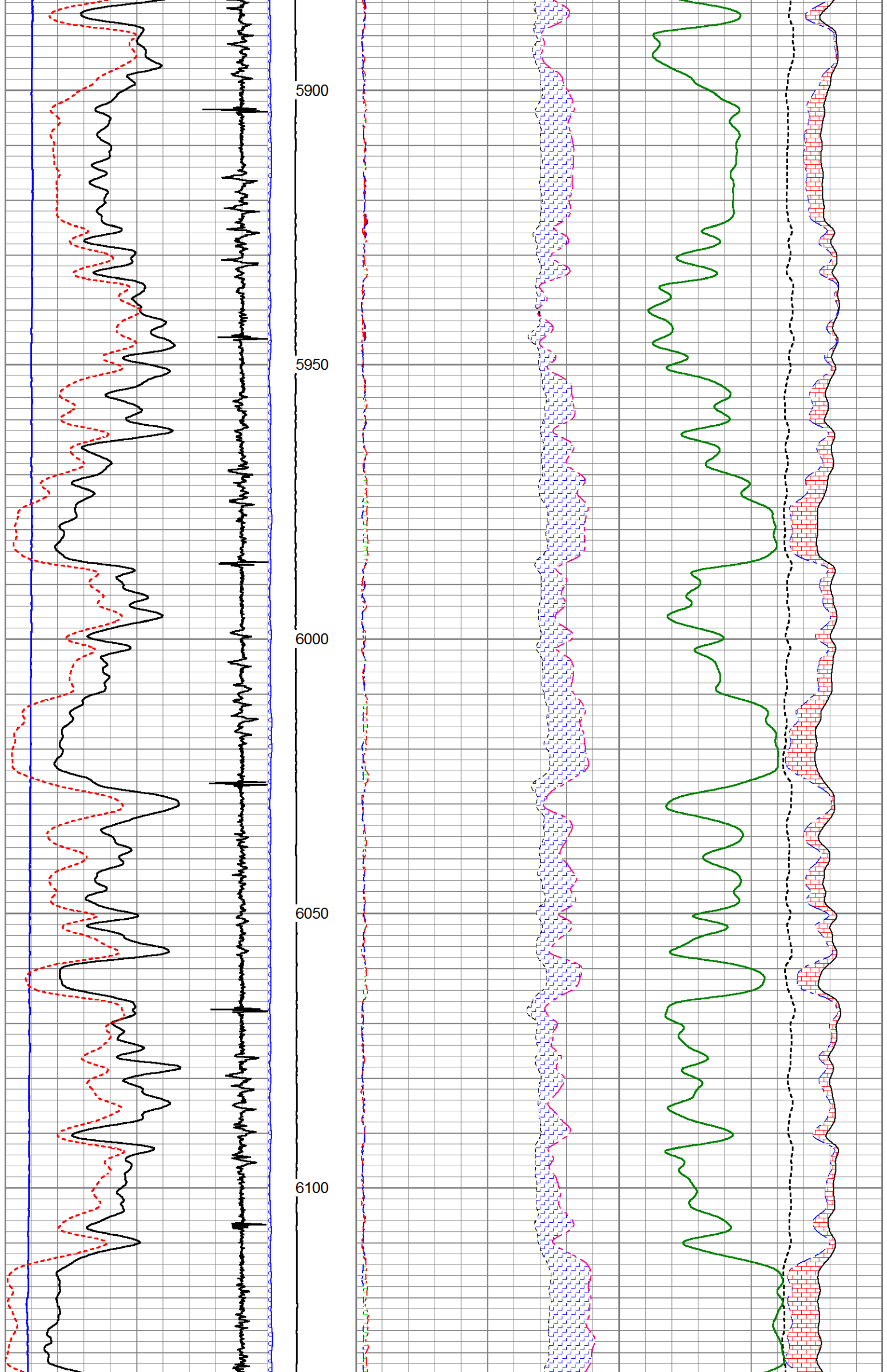


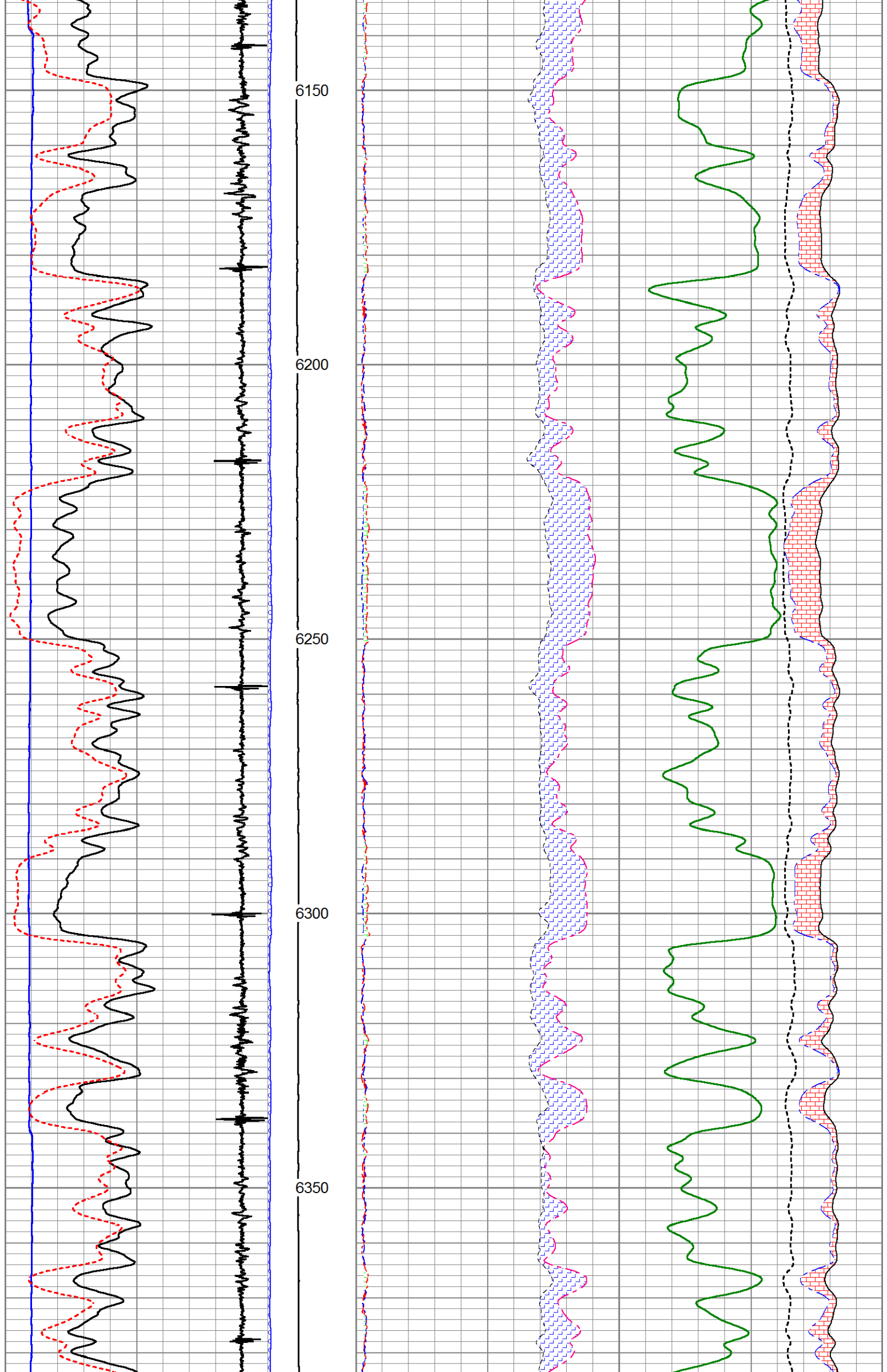


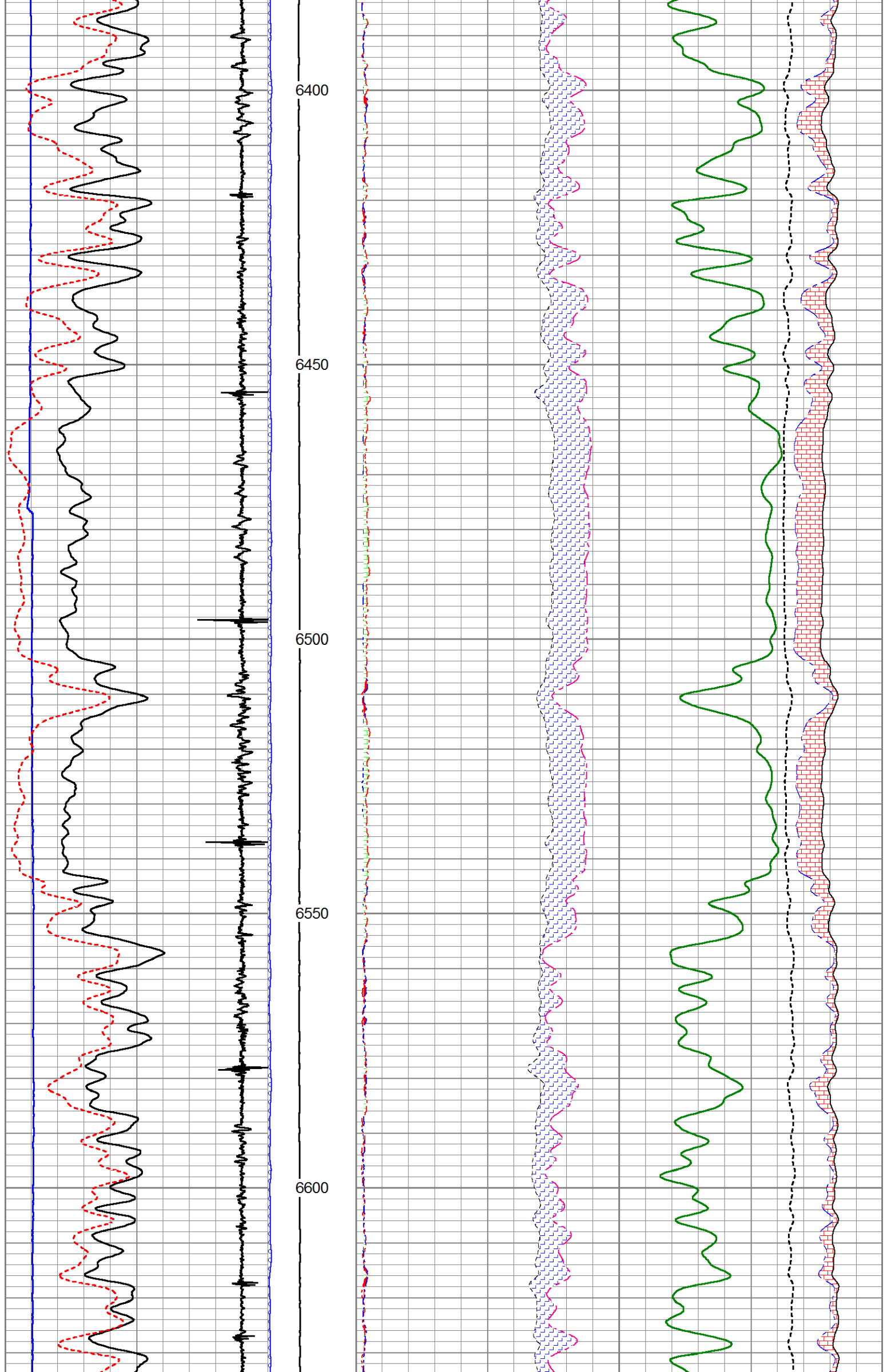




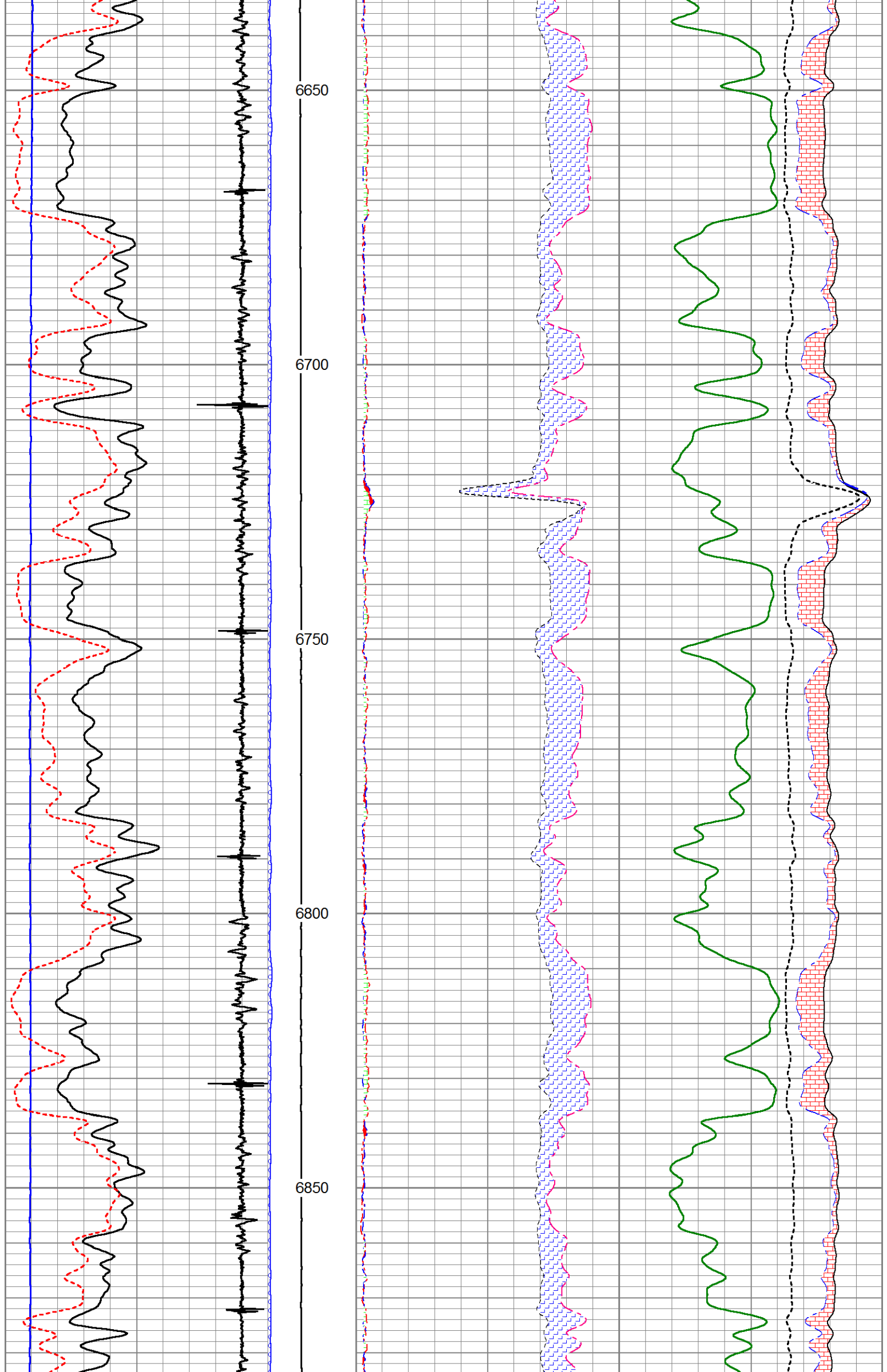


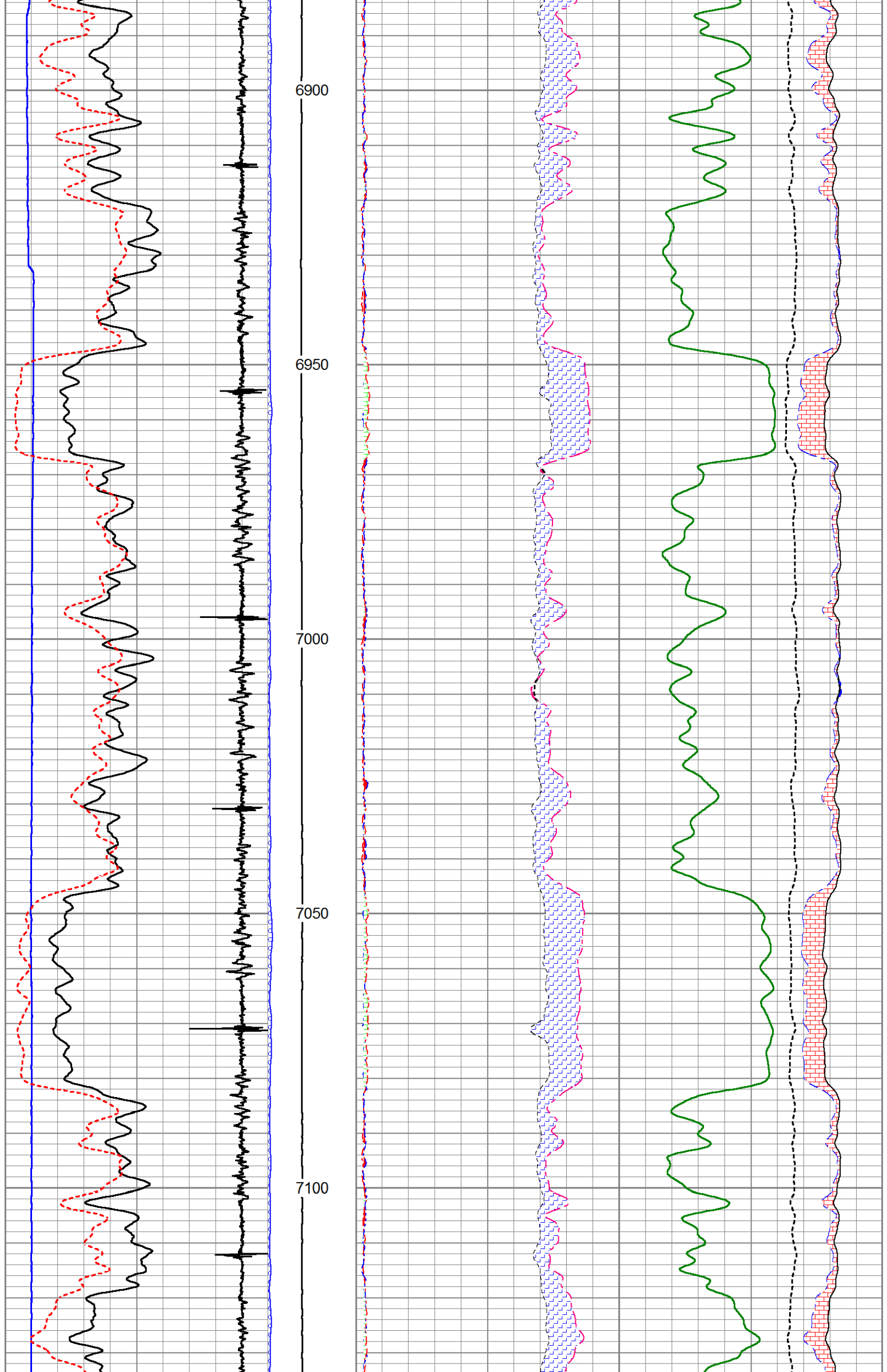


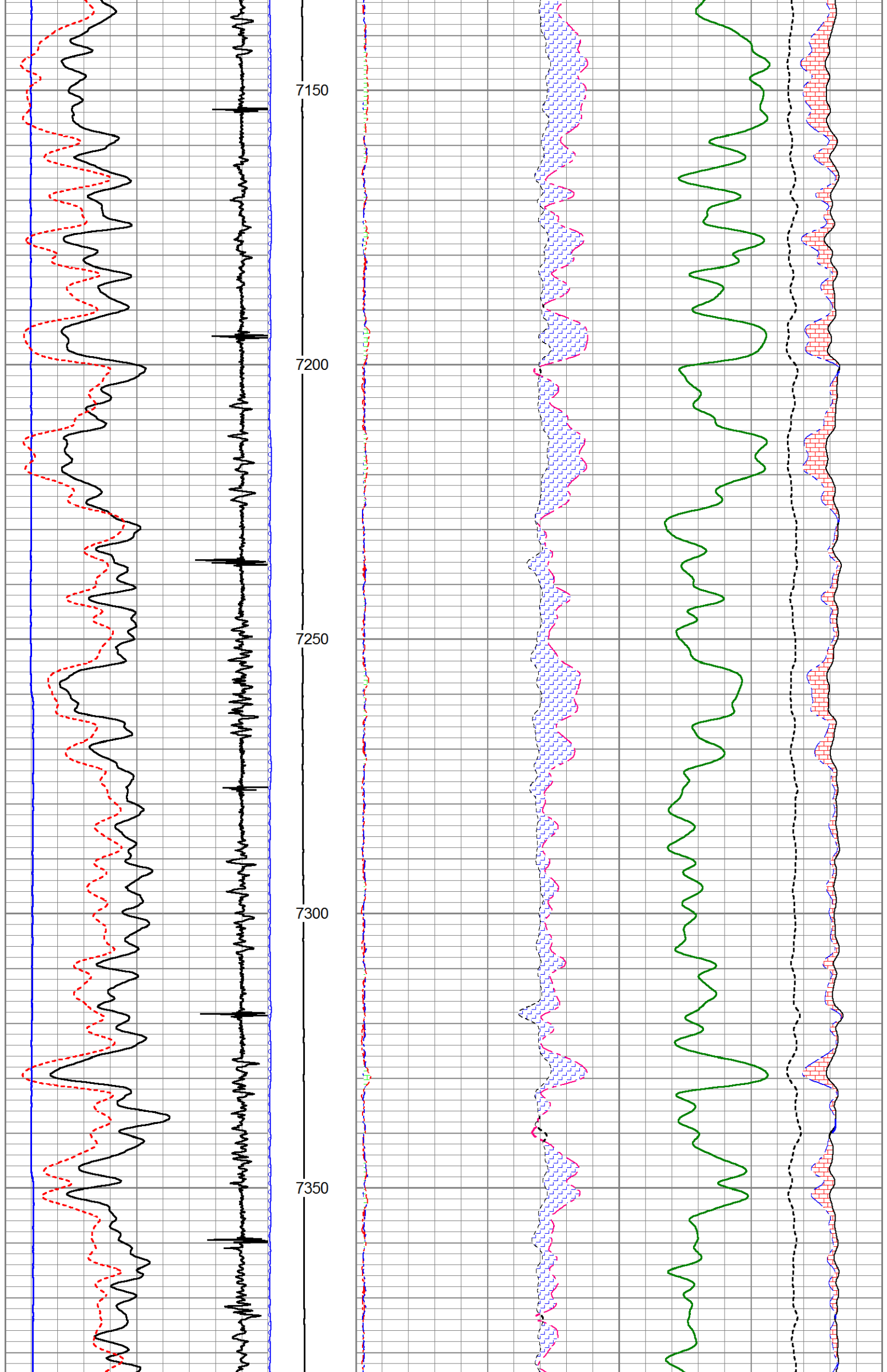


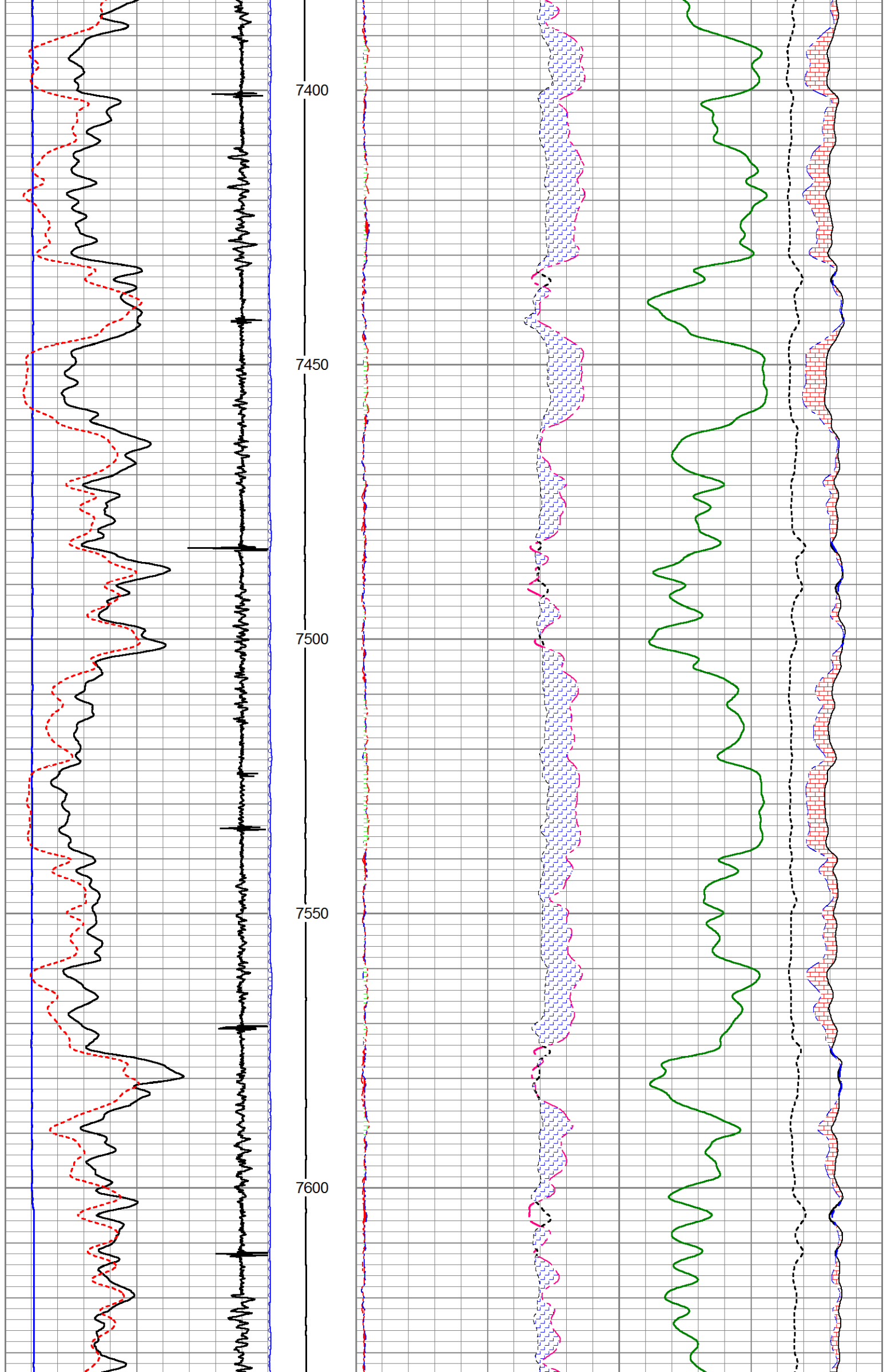




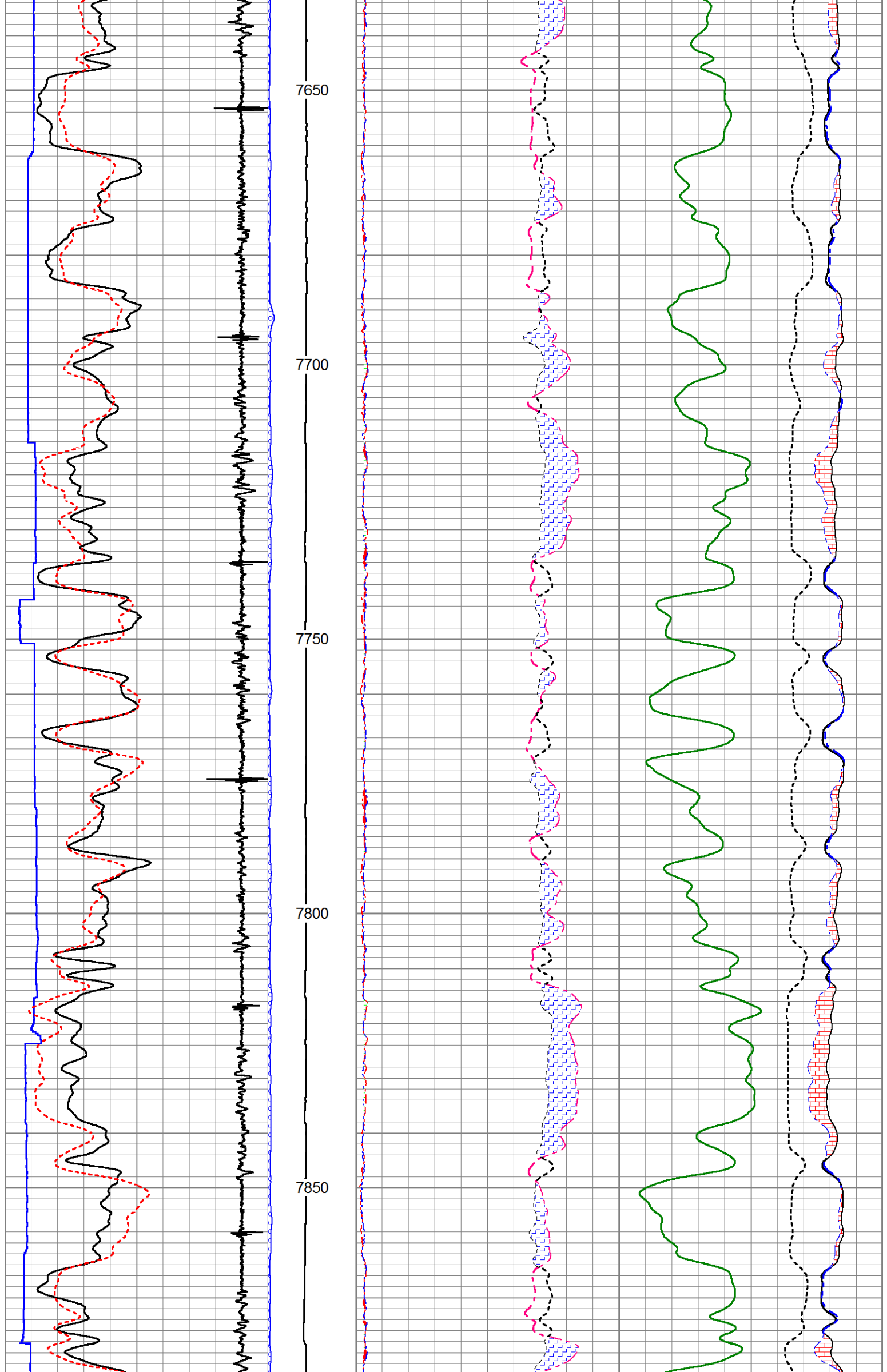


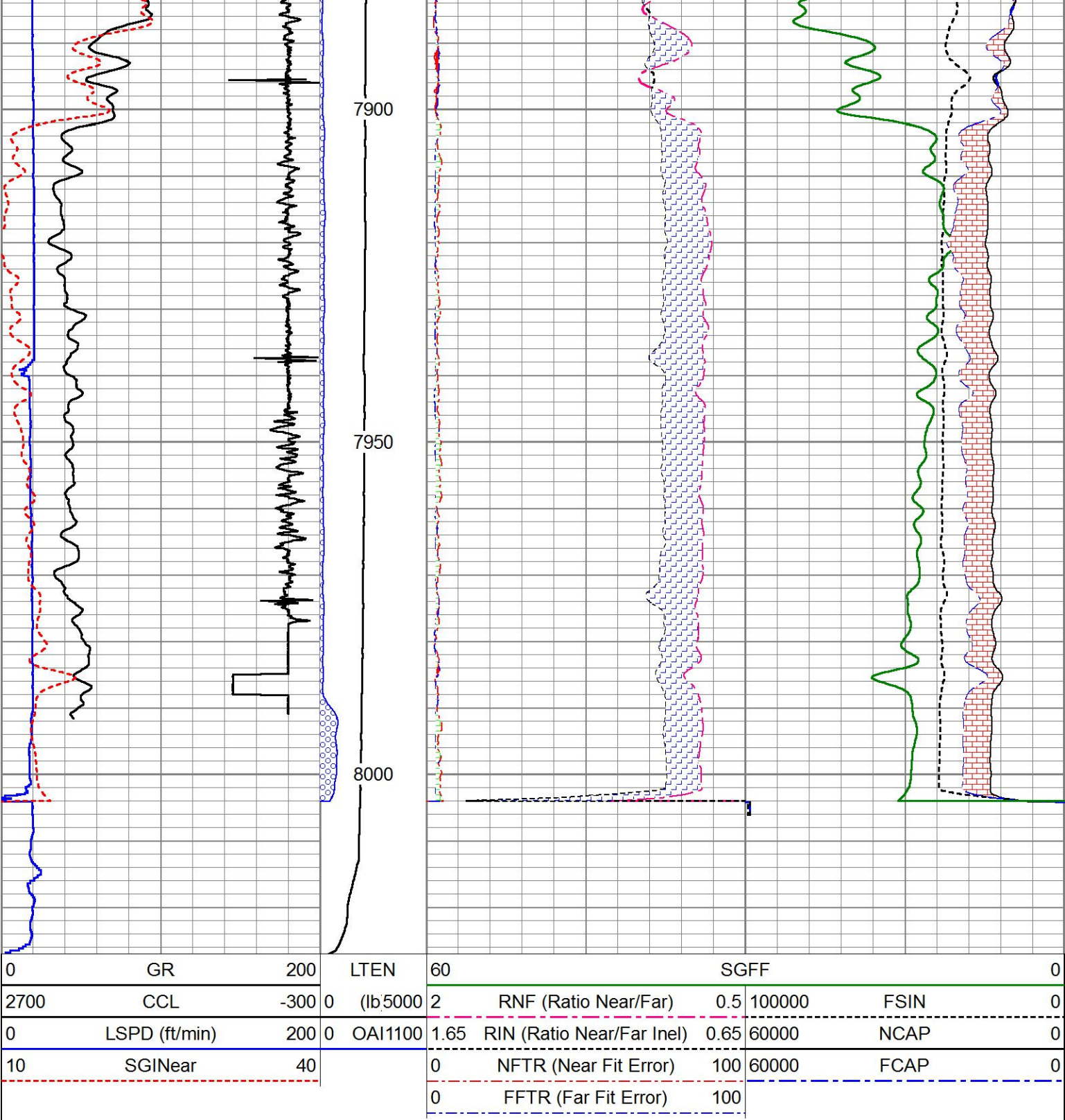












MAIN PASS

HALLIBURTON

5" = 100'

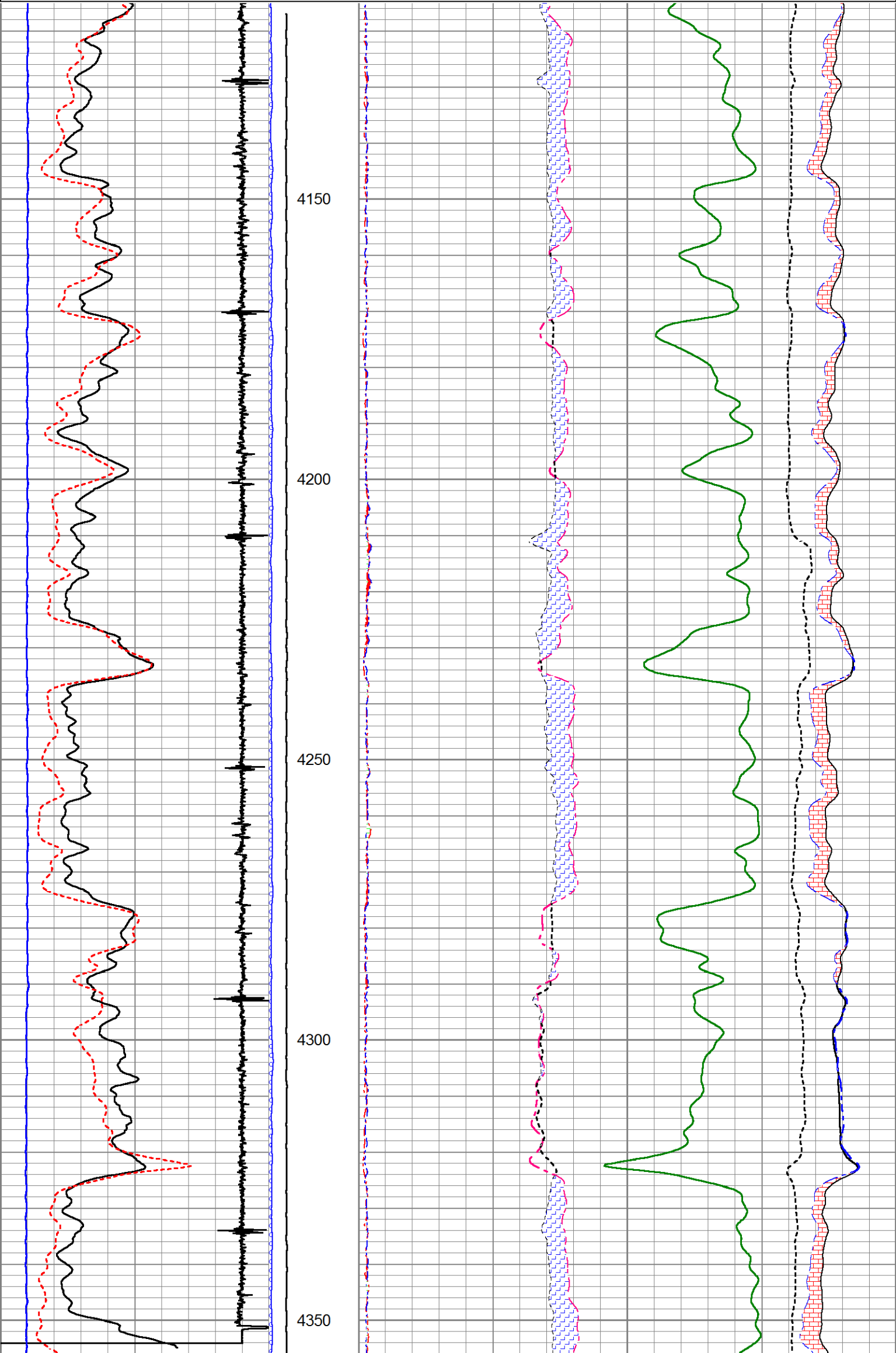
REPEAT PASS

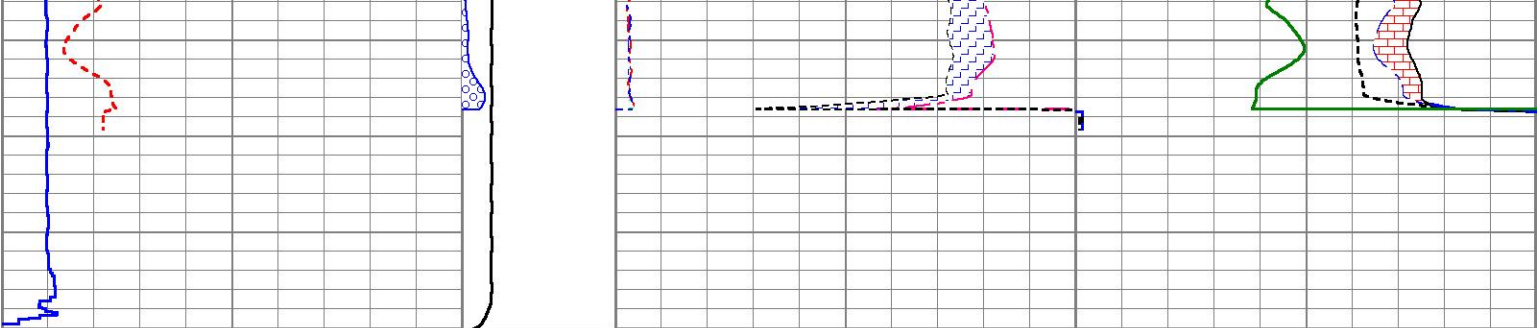
HALLIBURTON

5" = 100'

Database File	mr_b_21a_17_7_95.db						
Dataset Pathname	REPEAT						
Presentation Format	I1!!RM~1						
Dataset Creation	Wed Nov 30 03:42:20 2016						
Charted by	Depth in Feet scaled 1:240						
0	GR	200	LTEN	60	SGFF		0
2700	CCL	-300	0 (lb5000	2	RNF (Ratio Near/Far)	0.5	100000 FSIN 0
0	LSPD (ft/min)	200	0 OAI1100	1.65	RIN (Ratio Near/Far Incl)	0.65	60000 NCAP 0
10	SGINear	40		0	NFTR (Near Fit Error)	100	60000 FCAP 0
				0	FFTR (Far Fit Error)	100	

10	SGInear	40	0	FFTR (Near Fit Error)	100	60000	FCAP	0
0			0	FFTR (Far Fit Error)	100			





0	GR	200	LTEN (lb/5000)	60	SGFF					0
2700	CCL	-300		2	RNF (Ratio Near/Far)		0.5	100000	FSIN	0
0	LSPD (ft/min)	200		1.65	RIN (Ratio Near/Far Inel)		0.65	60000	NCAP	0
10	SGINear	40		0	NFTR (Near Fit Error)		100	60000	FCAP	0
				0	FFTR (Far Fit Error)		100			

REPEAT PASS

HALLIBURTON

5" = 100'

Log Variables

DatabaseC:\ProgramData\Warrior\Data\mr\_b\_21a\_17\_7\_95.db  
Dataset field/well/run1/main/\_vars\_

Top - Bottom

BHSAL1	BHSAL2	BHTEMP_Src	BITSIZE in	BORSAL kppm	BOTTEMP degF	CASED?	CASEOD in
1	0	TEMP	7.875	150	220	Yes	4.5
CASETHCK in	CASEWGHT lb/ft	LTH	MSGGN	MudWgt lb/gal	PERFS	POROS1	POROS2
0.25	11.6	Sandstone	1	8.4	0	1	0
RHO�CF	SO in	SRFTEMP degF	TDEPTH ft	UHSGC	USERFTT usec/ft	ZREF MRayl	
0.25	0	30	8020	NONE	0	1.7	

Calibration Report

Database File mr\_b\_21a\_17\_7\_95.db  
Dataset Pathname main  
Dataset Creation Wed Nov 30 04:37:22 2016

Cement Bond Log Shop Calibration Report

Serial-Model: 12091451-A  
Calibration Performed: Wed Nov 30 03:10:58 2016

Free Pipe Calibration

TT	Measured	Units
Amplitude	245.1	usec
Log Base Line	763.3	mV
	8.6	mV

Calibration References and Gain

Name	Value	Units
Pipe O.D.	4.500	in
Pipe Weight	11.6	lb/ft
Pipe Ref. Amp.	81.2	mV
Amp. Gain	0.108	

Reservoir Monitor Tool I Calibration Report

Serial-Model: 12095949-A



Carbon/Oxygen Mode

Stabilization

Result	Logged	Expected Value	Diff.	Tol.	Units
GENV	90.00	80.00	10.00	+/-15.00	V
ITCR2	3153	3250	-97	+/-250	cps

Near Detector

	Channel	Expected Value	Amplitude	FWHM	Tol.
H	60	60 +/-2	0.0259	5.51	<6.00
Fe	206	206 +/-2	0.0966	-----	-----
NGAIN = 0.996		NZOFF = 0.5			

Far Detector

	Channel	Expected Value	Amplitude	FWHM	Tol.
H	60	60 +/-2	0.0356	5.76	<6.50
Fe	210	208 +/-2	0.0903	-----	-----
FGAIN = 0.990		FZOFF = 0.5			

Flask Temperature 50.0 degF

Result	Logged	Expected Value	Diff.	Tol.	Units
COIR2	0.45	0.45	-0.00	+/-0.02	
LIRI2	1.36	1.36	0.00	+/-0.05	
TCCR2	5059	5000	59	+/-1000	cps
ITCR2	3123	3200	-77	+/-250	cps

Sigma Mode

Stabilization

Result	Logged	Expected Value	Diff.	Tol.	Units
GENV	90.00	80.00	10.00	+/-15.00	V
FCAP	9856	10000	-144	+/-500	cps

Horizontal Water Tank

Result	Logged	Expected Value	Diff.	Tol.	Units
N/F Normalizer	0.96	0.95	0.01		
N/F Inel Norm	0.62	0.61	0.01		
RNF	1.04	1.07	-0.03	+/-0.12	
RINC	1.61	1.64	-0.03	+/-0.18	
SGFN	24.07	24.00	0.07	+/-0.50	cu
SGFF	22.92	22.85	0.07	+/-0.50	cu
FSIN	23621	24000	-379	+/-2000	cps
FCAP	9956	10000	-44	+/-1000	cps
NFTR	0.82			<5.00	
FFTR	0.92			<5.00	
NBKG	190			<500	cps
FBKG	97			<500	cps
RTN	0.40	0.40	-0.00	+/-0.10	usec
RTF	0.42	0.40	0.02	+/-0.10	usec




Calibration Software Modules


HRMTI Module	2015.5.4.0
RMTI Module	2015.10.16.1

Log Data Acquisition Software Modules

HRMTI Module	2015.5.4.0
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RMTI Module		2015.10.16.1			
Gamma Ray Calibration Report					
Type / Serial:		002 / 11214503			
SHOP CALIBRATION		Wed Nov 09 16:25:32 2016			
	Counts/Sec.	Gain	Offset	Jig	Units
Background	34.1				cps
Calibrator	297.9				cps
		1.3950			GAPI/cps
PRIMARY VERIFICATION					
Background	42.3				cps
Calibrator	413.8				cps
Difference				371.5	GAPI
BEFORE SURVEY VERIFICATION					
Background	0.0				cps
Calibrator	0.0				cps
Difference				0.0	GAPI
AFTER SURVEY VERIFICATION					
Background	0.0				cps
Calibrator	0.0				cps
Difference				0.0	GAPI

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
CCL	35.82		STNDCH-STND_CH 1.4375 IN CABLE HEAD	1.50	1.44	1.00
GR	33.56		TTTCU-002 (11214503) Through Tubing Telemetry Cartridge - Ultrawire	7.65	1.69	100.00
RmtTFGT RmtTNGT	22.91		XHU-003 (000001) Crossover Halliburton 1553 to Ultrawire	1.58	1.69	7.00
	22.41					
			RMTI-A (12095949) Halliburton RMTI Tool	14.00	2.13	77.00

RmtFP5V	14.66		X-OVER-GoxSondex Go Box x Sondex Pin CrossOver	0.27	1.69	1.00
RmtNFwvMcsPI	14.66		CENT-CASTM-CENT CAST M INLINE CENTRALIZER	2.16	3.13	25.00
RmtCommFWa	14.66					
Temp	9.57					
TT3FT	7.32		HCBLM-A (12091451) Halliburton HCBLM Tool	9.38	2.75	116.00
AMP3FT	7.32					
WVF5FT	6.36					
WVF3FT	2.84		CENT-CASTM-CENT CAST M INLINE CENTRALIZER	2.16	3.13	25.00
LLMTEN	0.00		AUH-001 (11072111) Adaptor Ultrawire/Halliburton	0.38	1.69	3.00
			BUL-001 (000001) Bullnose	0.30	1.69	1.50
Dataset: mr_b_21a_17_7_95.db: field/well/run1/main Total length: 39.39 ft Total weight: 356.50 lb O.D.: 3.13 in						

Company	URSA OPERATING COMPANY LLC				
Well	MONUMENT RIDGE B 21A-17-7-95				
Field	PARACHUTE				
County	GARFIELD		State	CO	
HALLIBURTON	RESERVOIR MONITORING TOOL ELITE				