

HALLIBURTON

RESERVOIR
MONITORING TOOL
ELITE

Company

URSA OPERATING COMPANY LLC

Well

TOMPKINS 42C-08-07-95

Field

PARACHUTE

County

GARFIELD

State

CO

Company

URSA OPERATING COMPANY LLC

Well

TOMPKINS 42C-08-07-95

Field

PARACHUTE

County

GARFIELD

State

CO

API No.: 05045224740000

Serv #: 903518402

Other Services

Location: SHL: 200' FSL & 535' FEL
BHL: 2090' FNL & 660' FEL

Sec: 11

Twp: 6S

Rge: 92W

CBL-M

Permanent Datum

GROUND LEVEL

Elevation

5532'

Elevation

Log Measured From

KB

17' Ft. above perm. datum

K.B. 5549'
D.F. 5549'
G.L. 5532'

Drilling Measured From

KB

Date @ Time Logged

07 SEPT 2016 @ 00:00

Type Fluid in Hole

FRESH WATER

Run No.

ONE

Density of Fluid

8.4 PPG

Depth - Driller

7599'

Fluid Level

SURFACE

Depth - Logger

7350'

Cement Top Est. Logged

1500'

Bottom - Logged Interval

7350'

Equipment / Location

11808537 / RS. WY

Top - Log Interval

3639'

Recorded by

S. BURGIE

Max. Recorded Temp.

198 degF

Witnessed by

N/A

CEMENTING DATA

Surface

Protection

Liner

String

String

Date / Time Cemented

N/A

N/A

N/A

Primary / Squeeze

N/A

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

Run Number

Bit

From

To

Size

Weight

From

To

ONE

24"

SURFACE

60"

16"

75.5 #

SURFACE

60"

TWO

12.25"

60"

1847'

8.625"

32.0 #

SURFACE

1847'

THREE

7.875"

1847'

7599'

4.5"

11.6 #

SURFACE

7599'

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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 : 1500'
GAMMA BLANKET : 223 GAPI
FREE PIPE CALIBRATION DEPTH : 500'

MAIN PASS SPLICED AT 6812'

GAMMA RAY HIGH FROM 6760' - 6810' DUE TO NUETRON ACTIVATION

THANK YOU FOR CHOOSING HALLIBURTON ENERGY SVCS.
YOUR CREW TODAY : SONNY BURGIE, BLAKE RIDDEL, DANIEL FLINDERS, CHUCK SIMONS, BRAD BRUDERER

Service Ticket No.		903518402		API No.		05045224740000		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.	00000001		Serial No.	12105780		Serial No.	11680597		Serial No.	00000001	
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	7350'	7100'	0 PSI	20	REPEAT			
TWO	7350'	3639'	0 PSI	20	MAIN			
	GAMMA RAY		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			

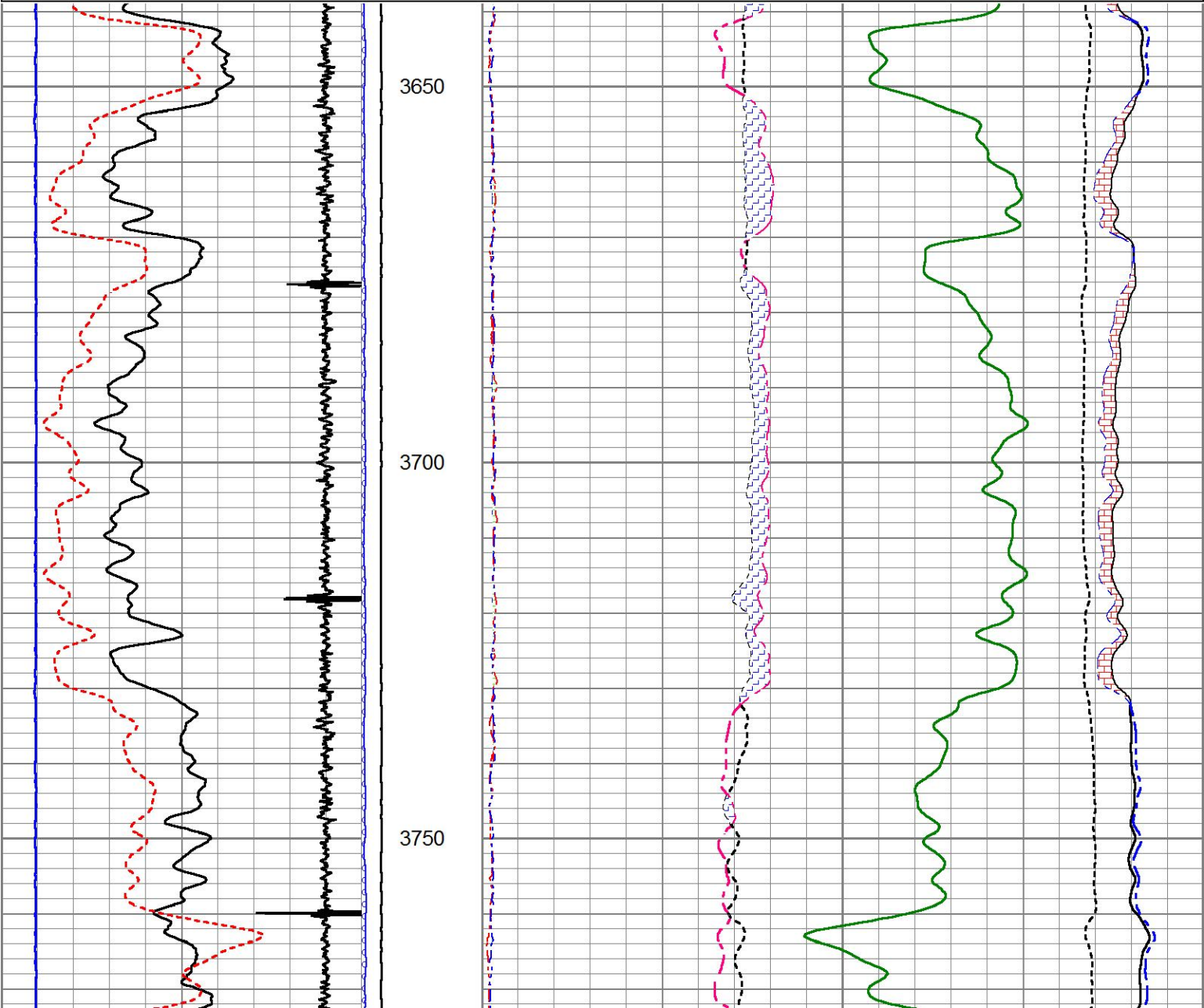
MAIN PASS

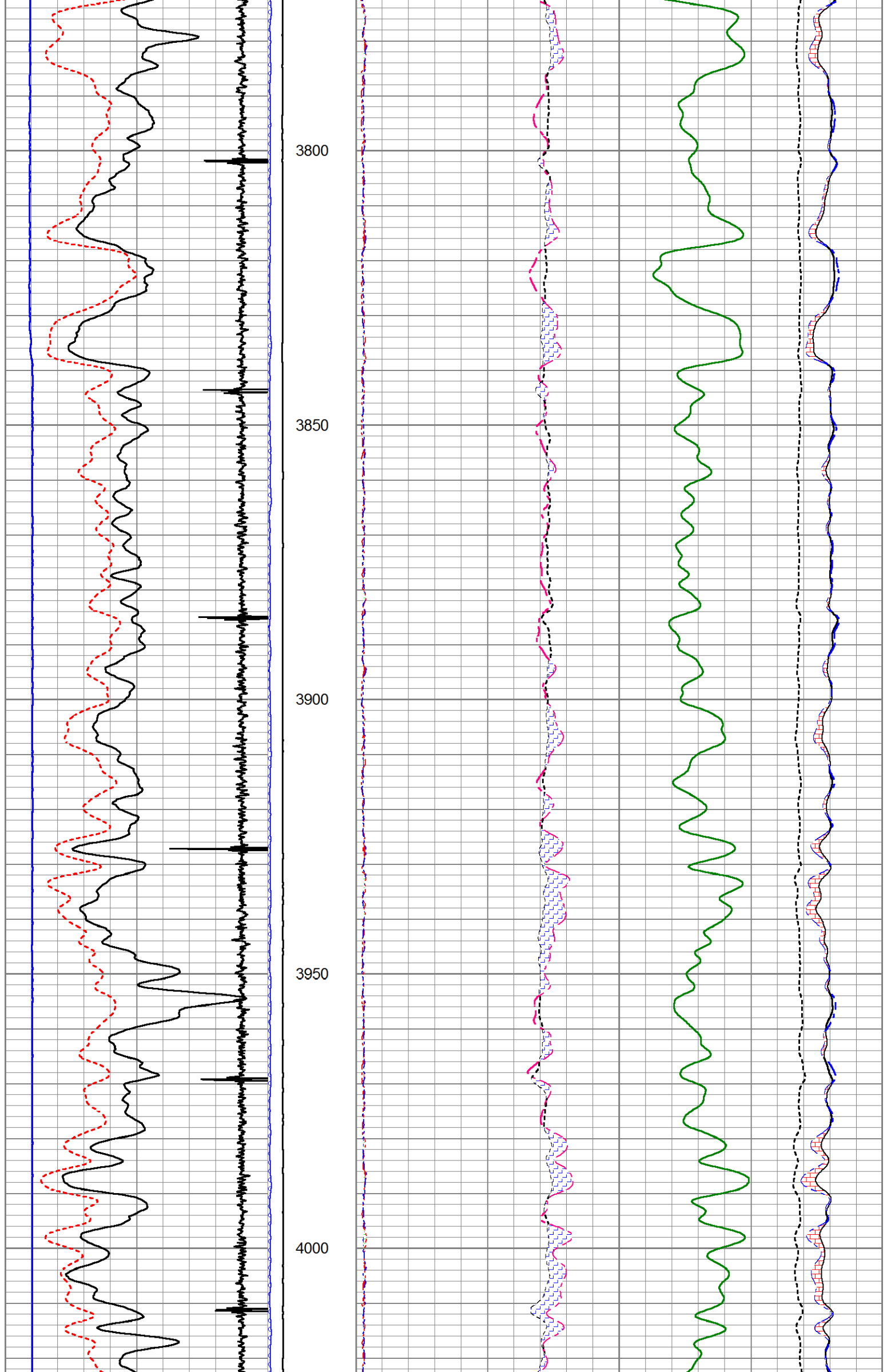
HALLIBURTON

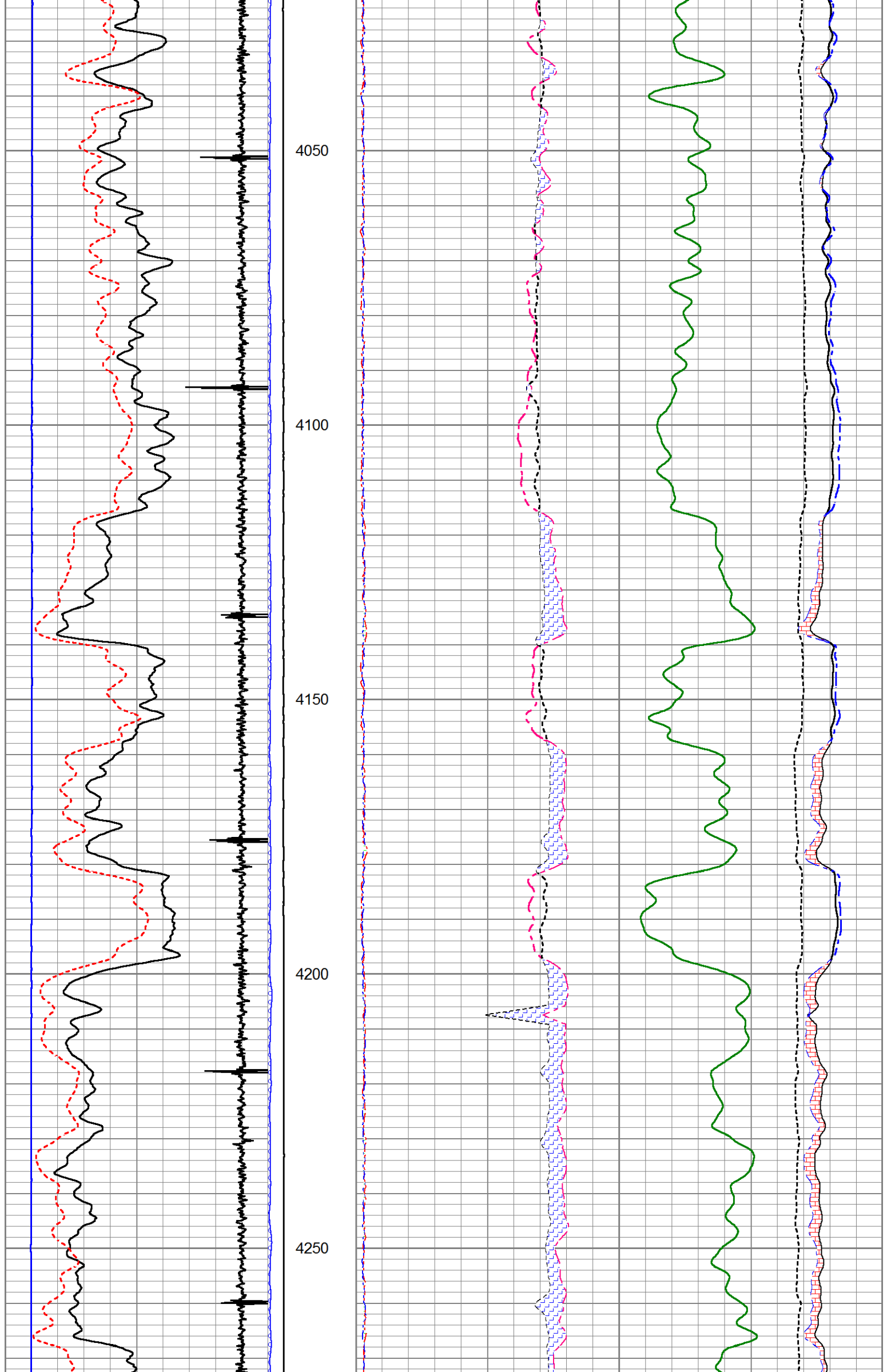
5" = 100'

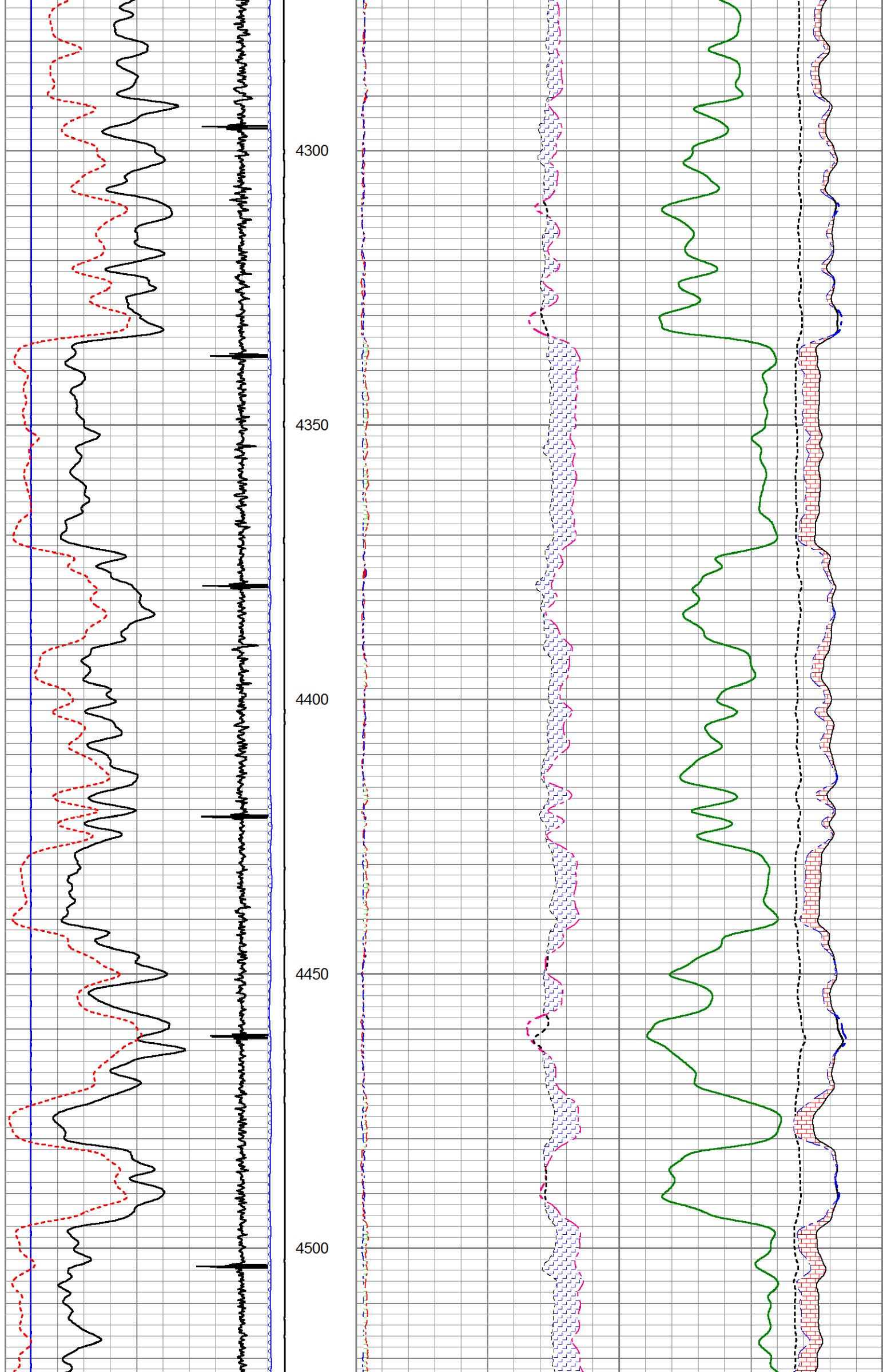
Database File thompkins_42c_08_07_95.db
Dataset Pathname rmti1/merge3
Presentation Format !1!!rmt_rmti
Dataset Creation Wed Sep 07 02:59:29 2016
Charted by Depth in Feet scaled 1:240

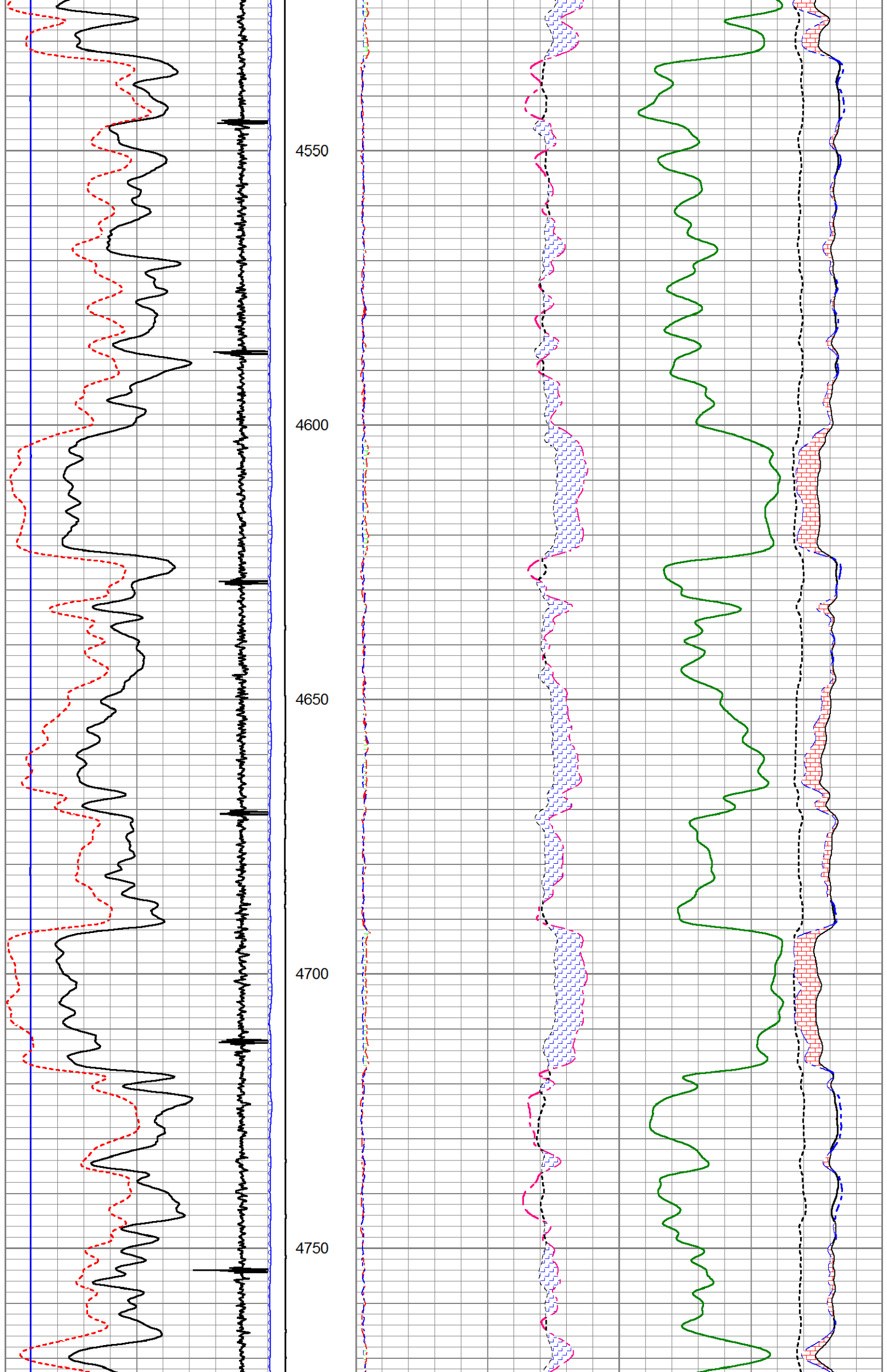
0	GR	200	LTEN	60	SGFF				0
2700	CCL	-300	0 (lb5000	2	RNF (Ratio Near/Far)	0.5	100000	FSIN	0
0	LSPD (ft/min)	200	0 OAI1100	1.65	RIN (Ratio Near/Far Incl)	0.65	60000	NCAP	0
10	SGINear	40		0	NFTR (Near Fit Error)	100	60000	FCAP	0
				0	FFTR (Far Fit Error)	100			

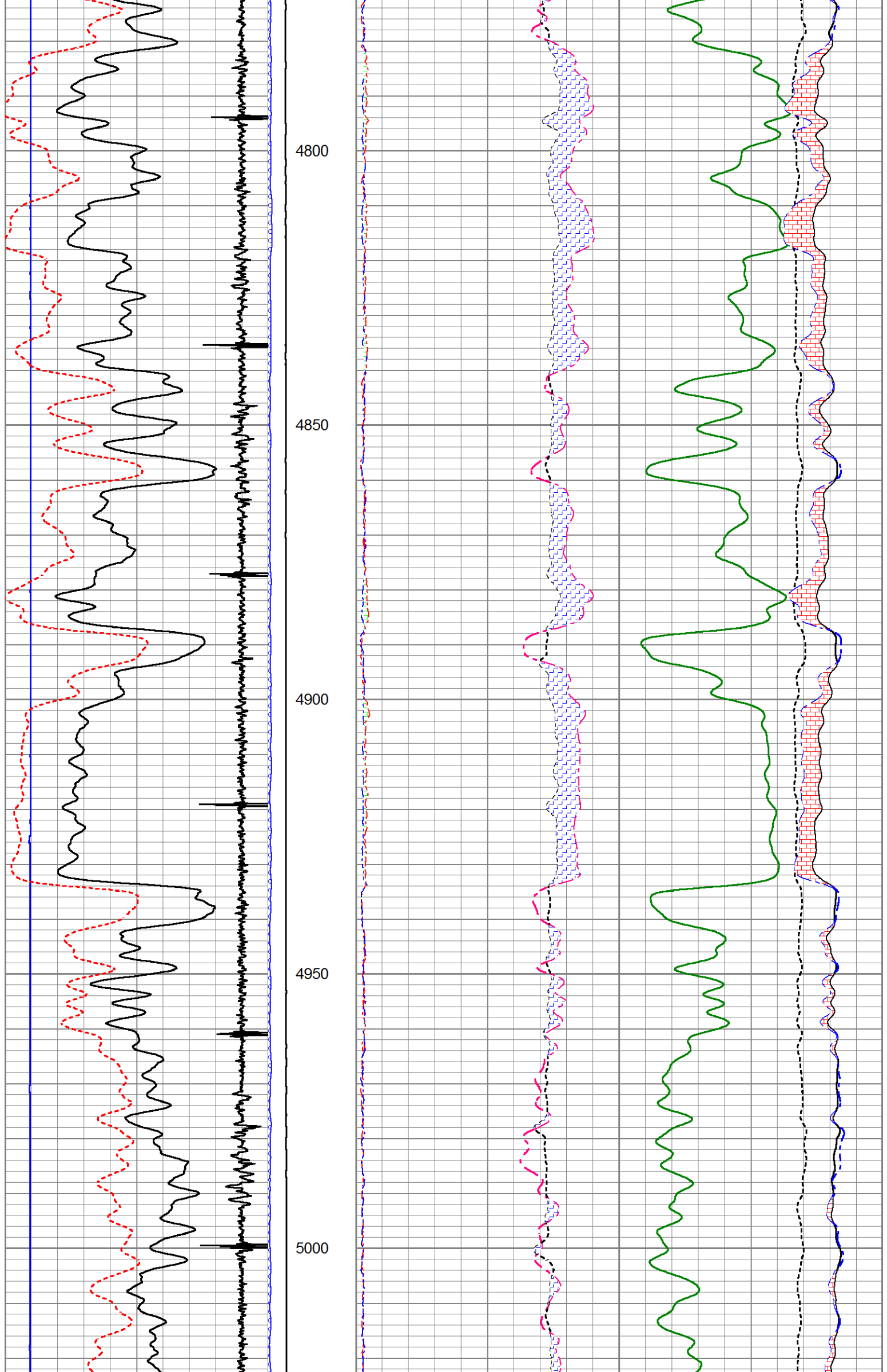


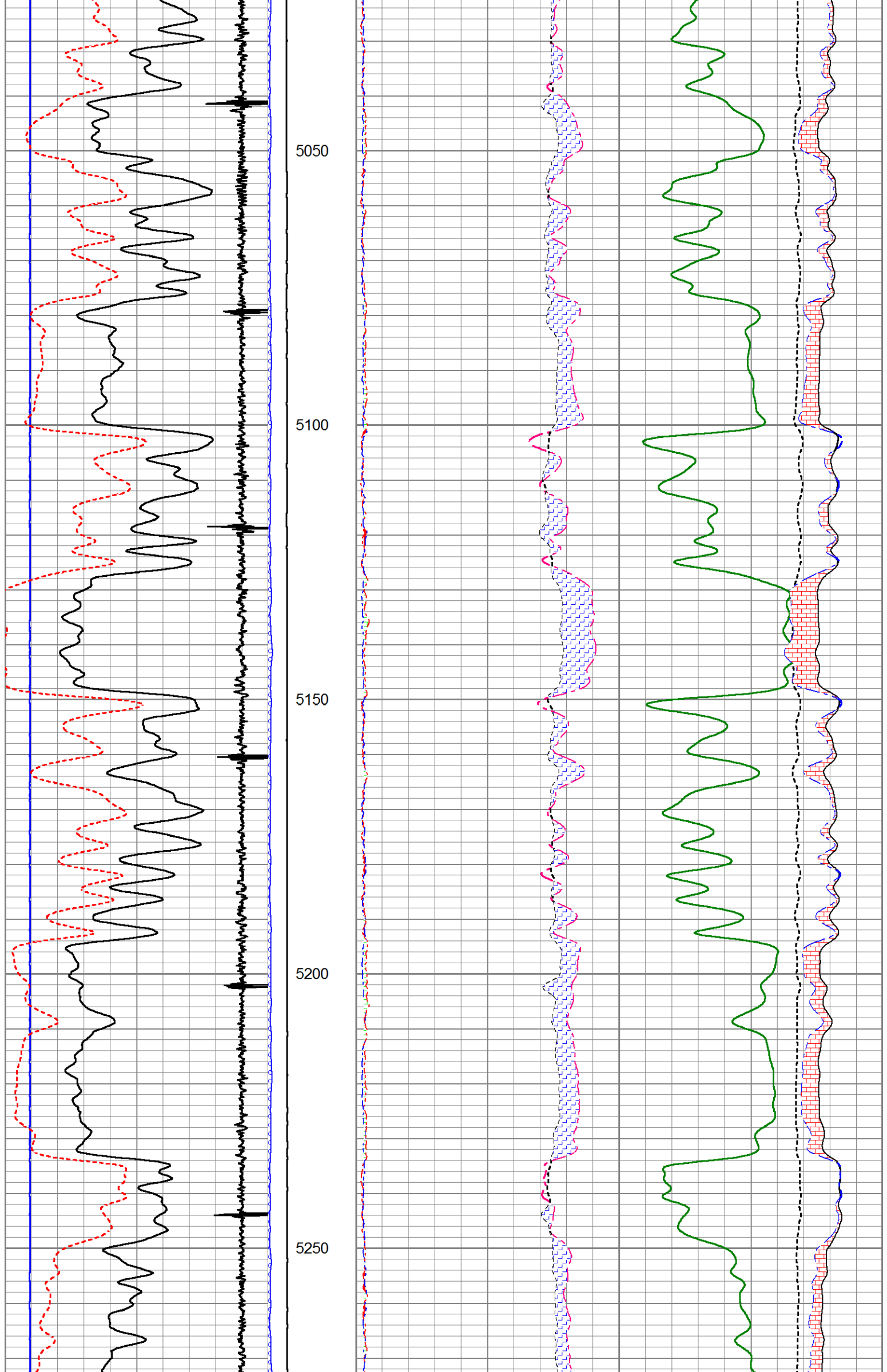


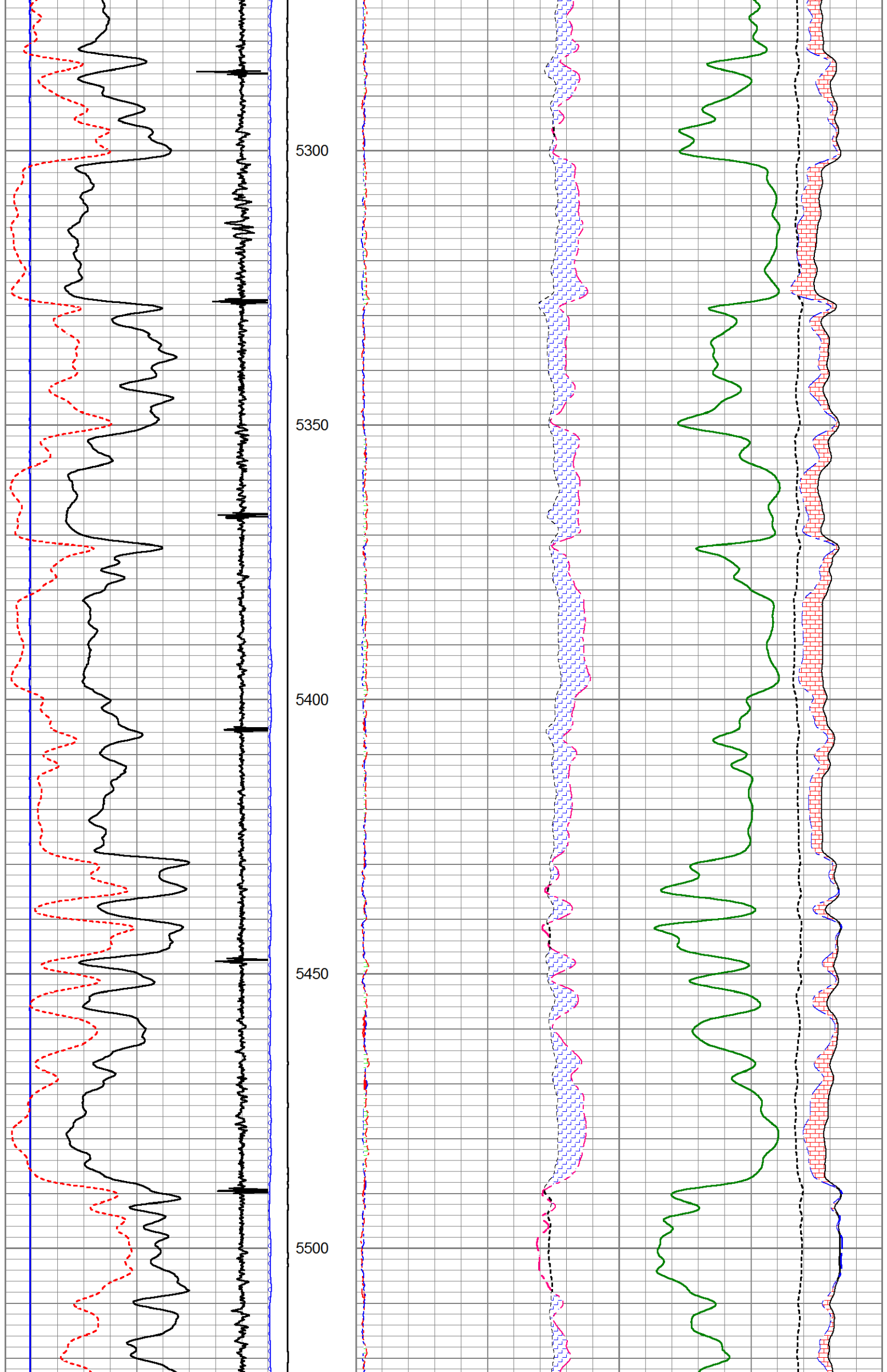


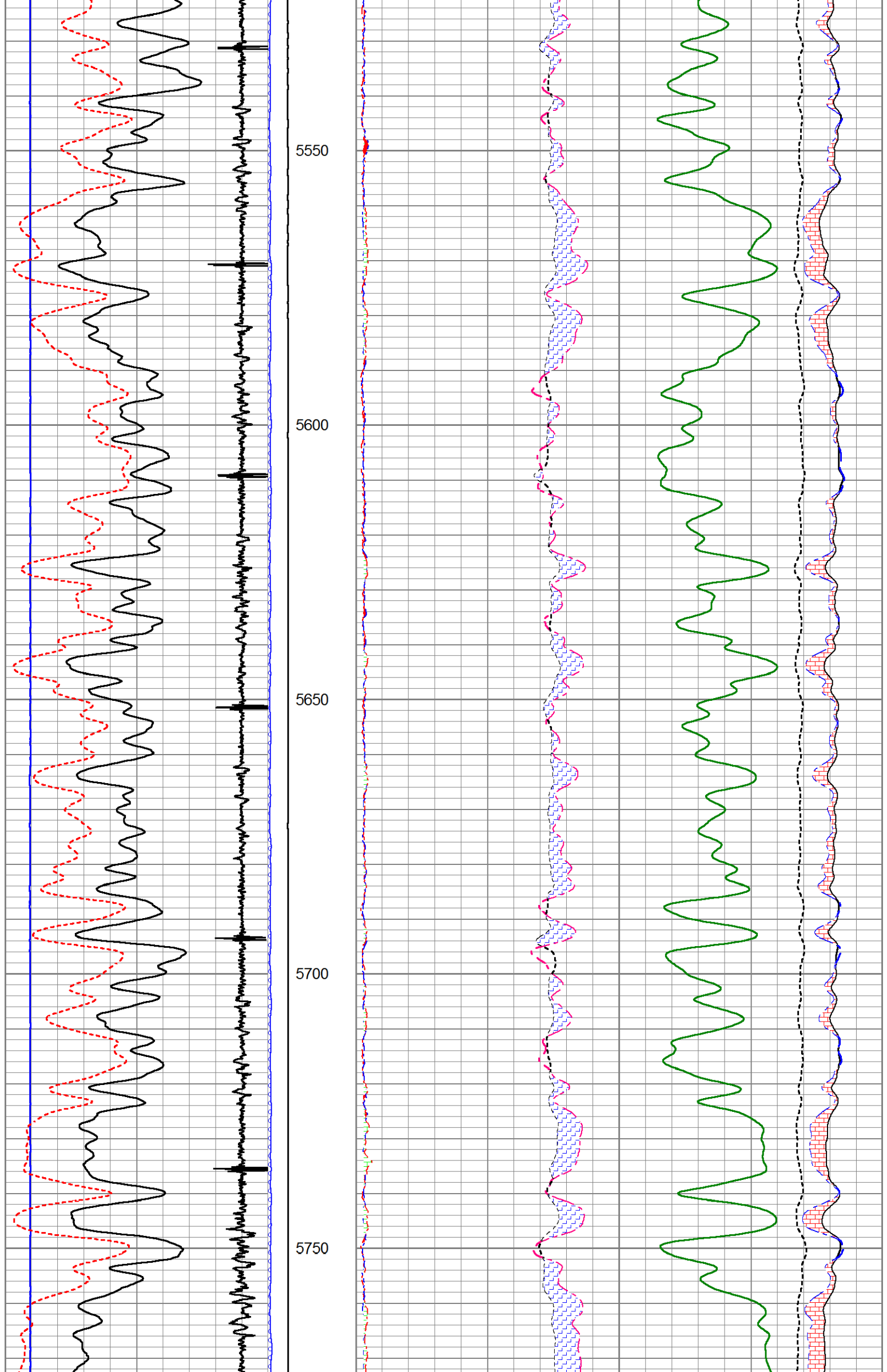


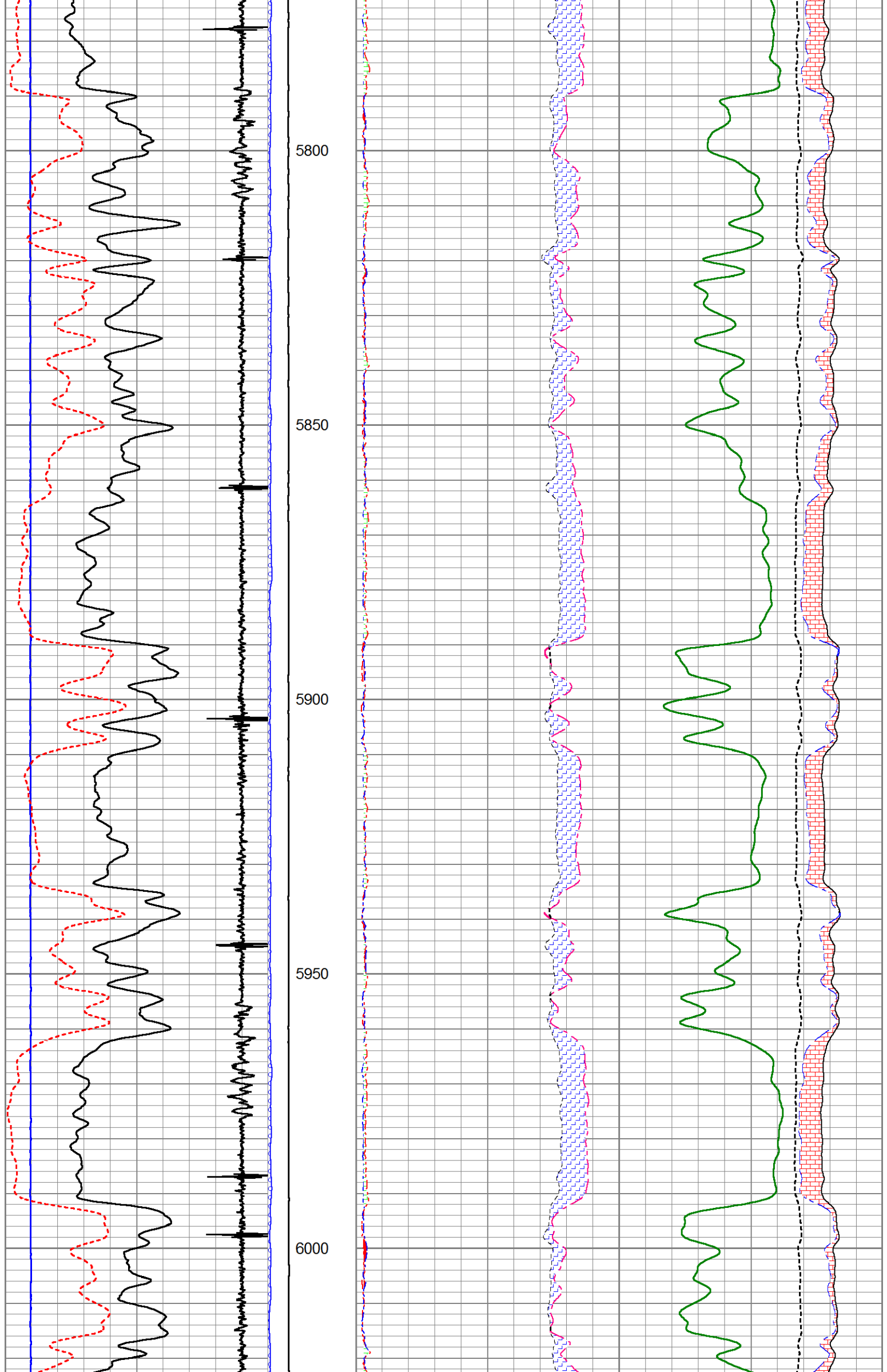


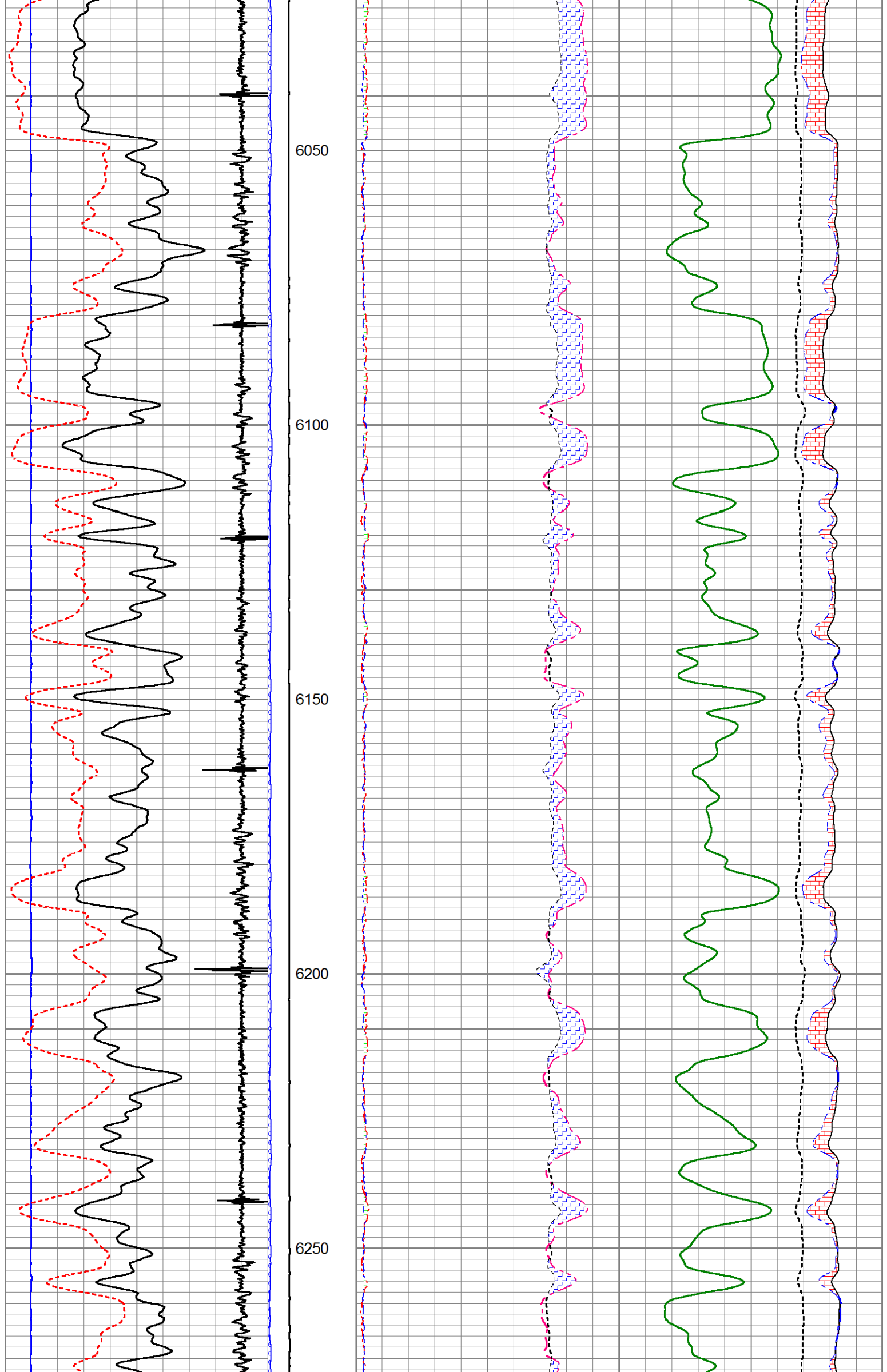


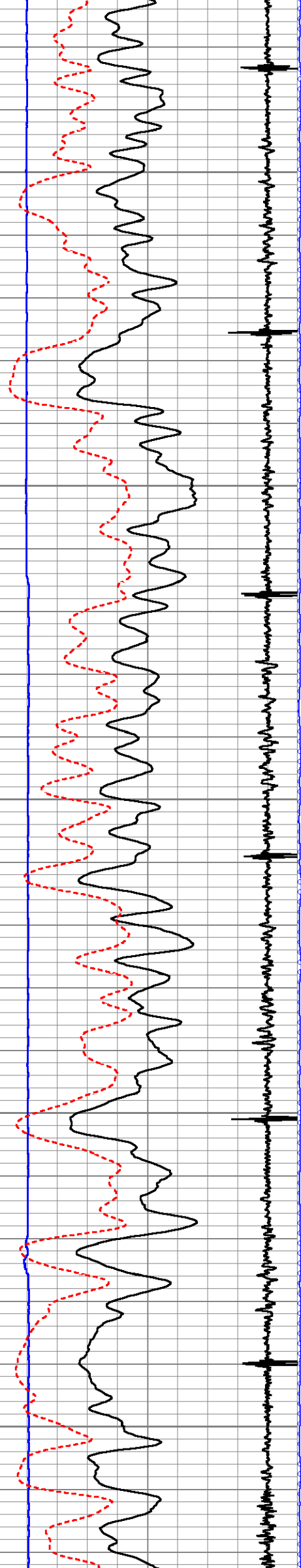












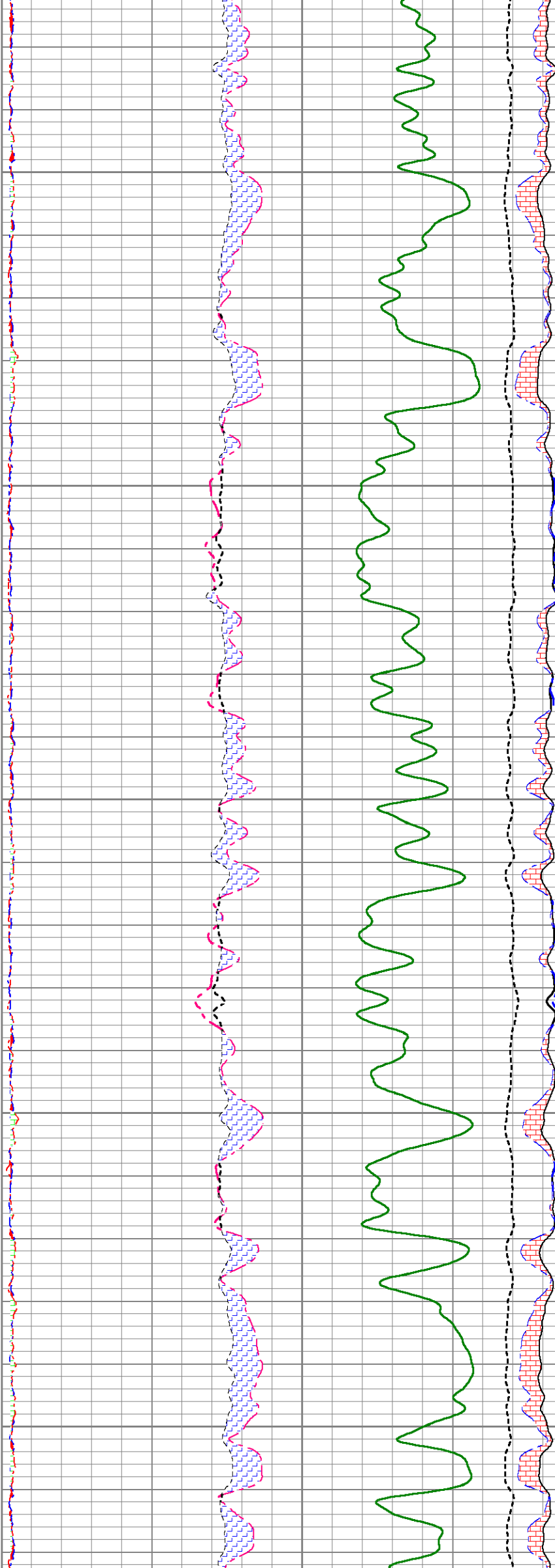
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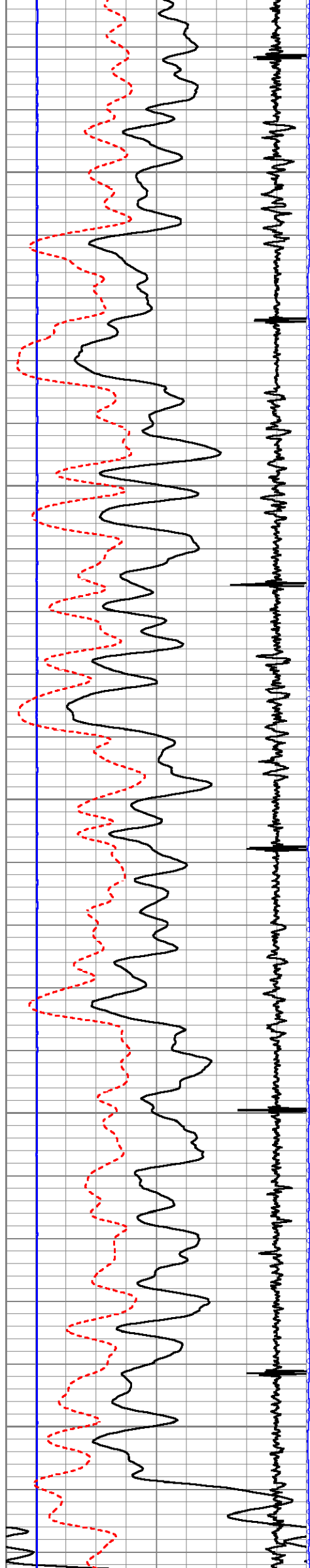
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6400

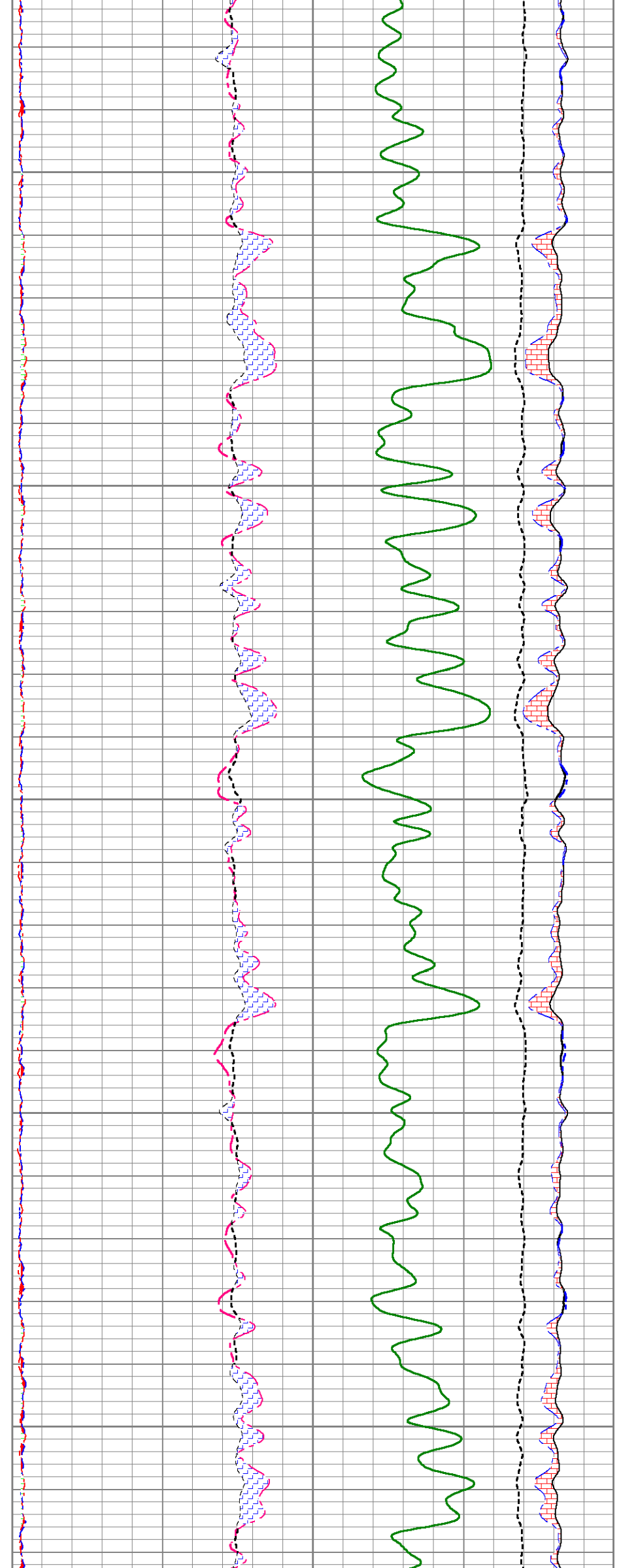
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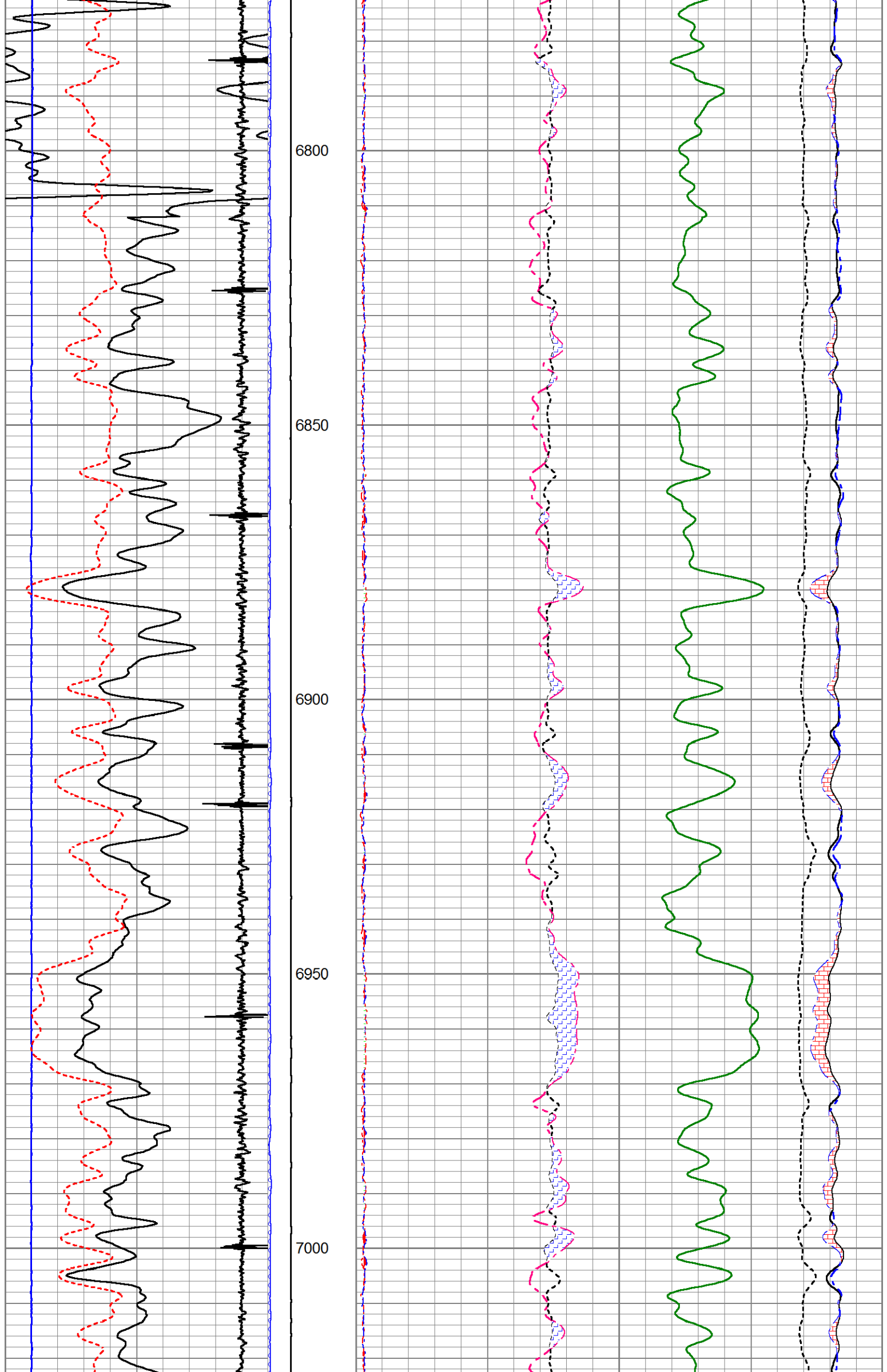
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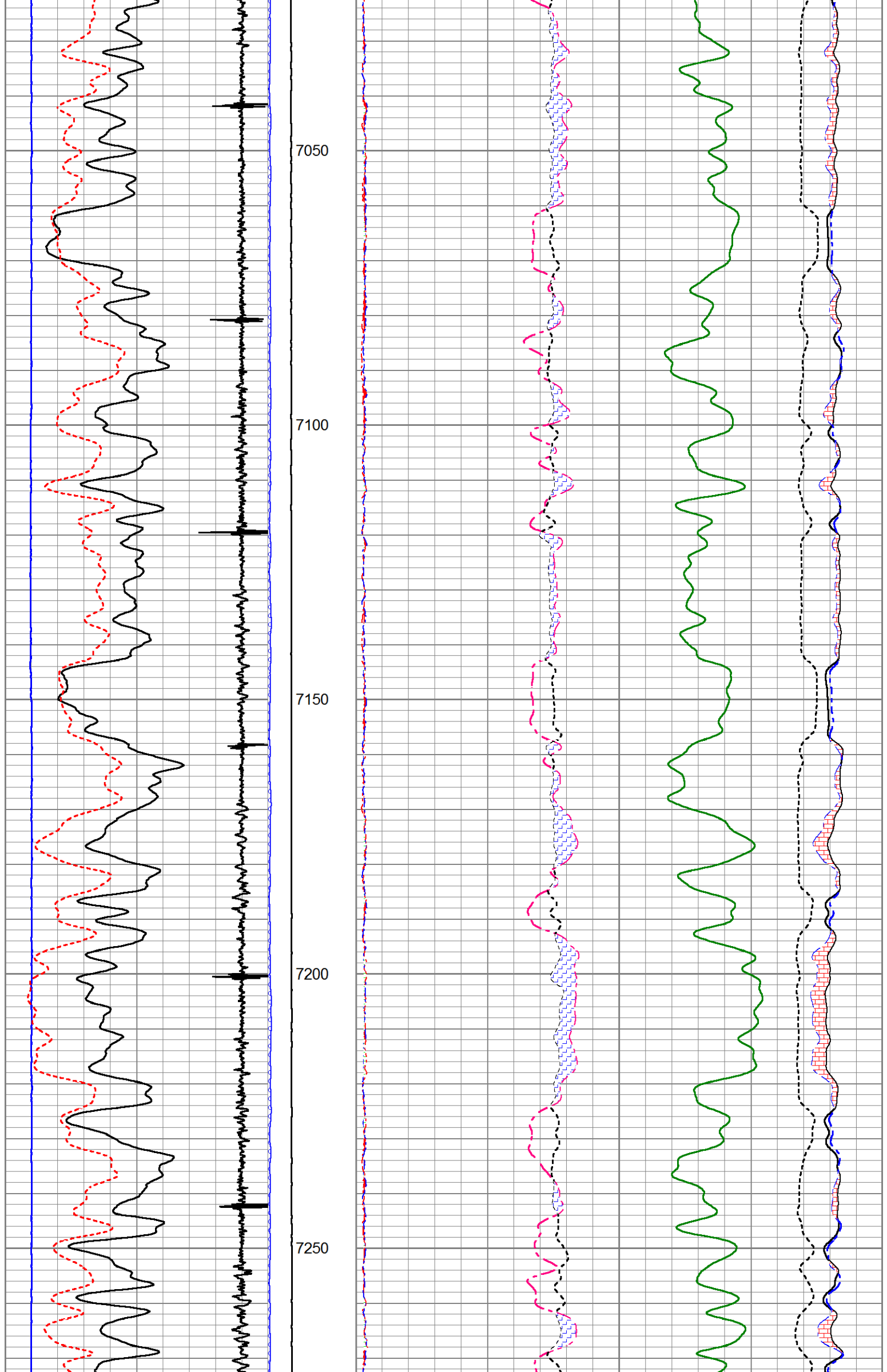


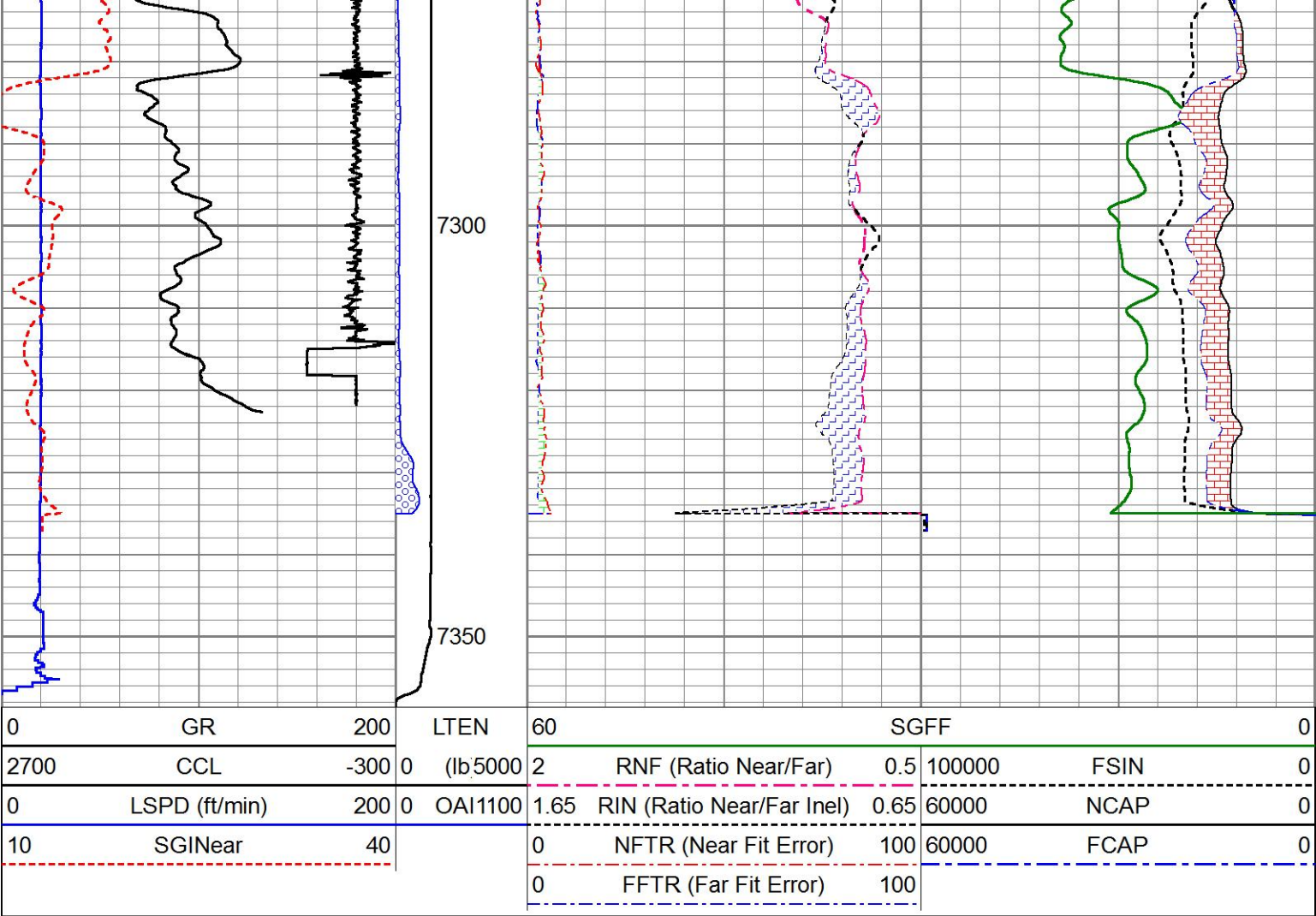


6550
6600
6650
6700
6750





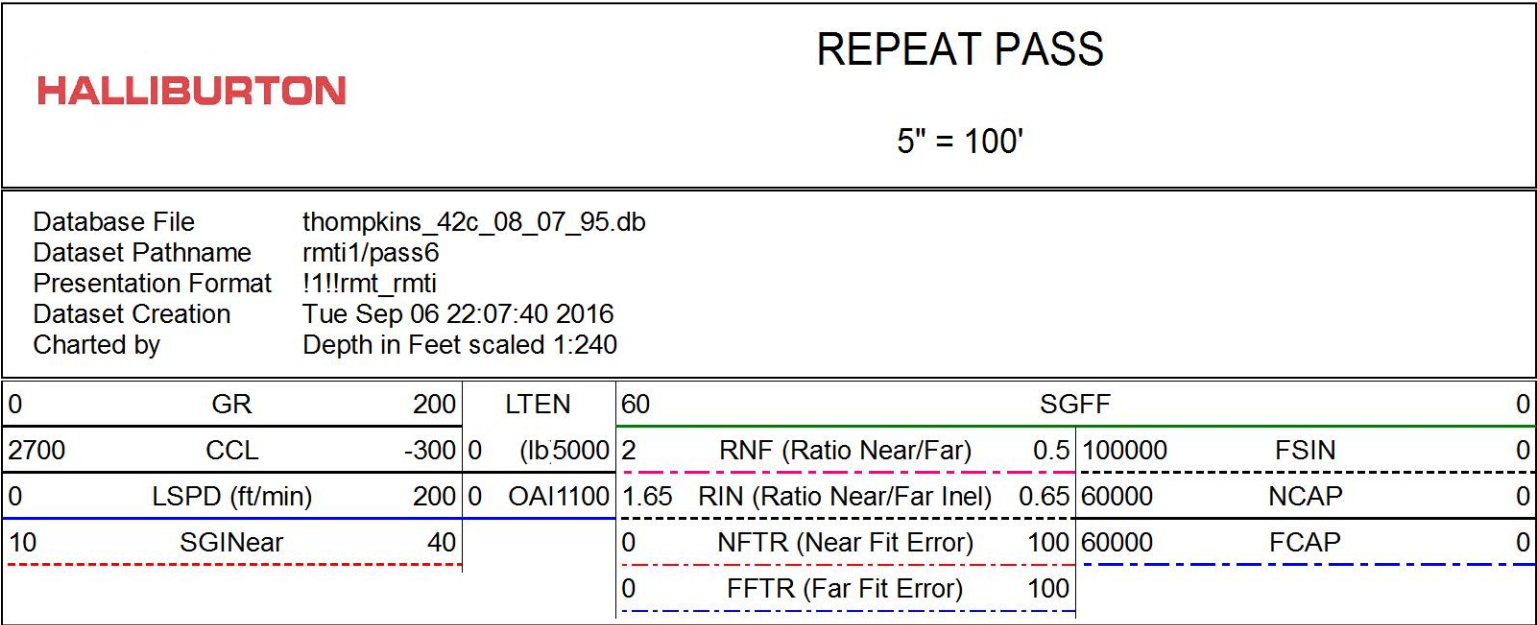




MAIN PASS

HALLIBURTON

5" = 100'

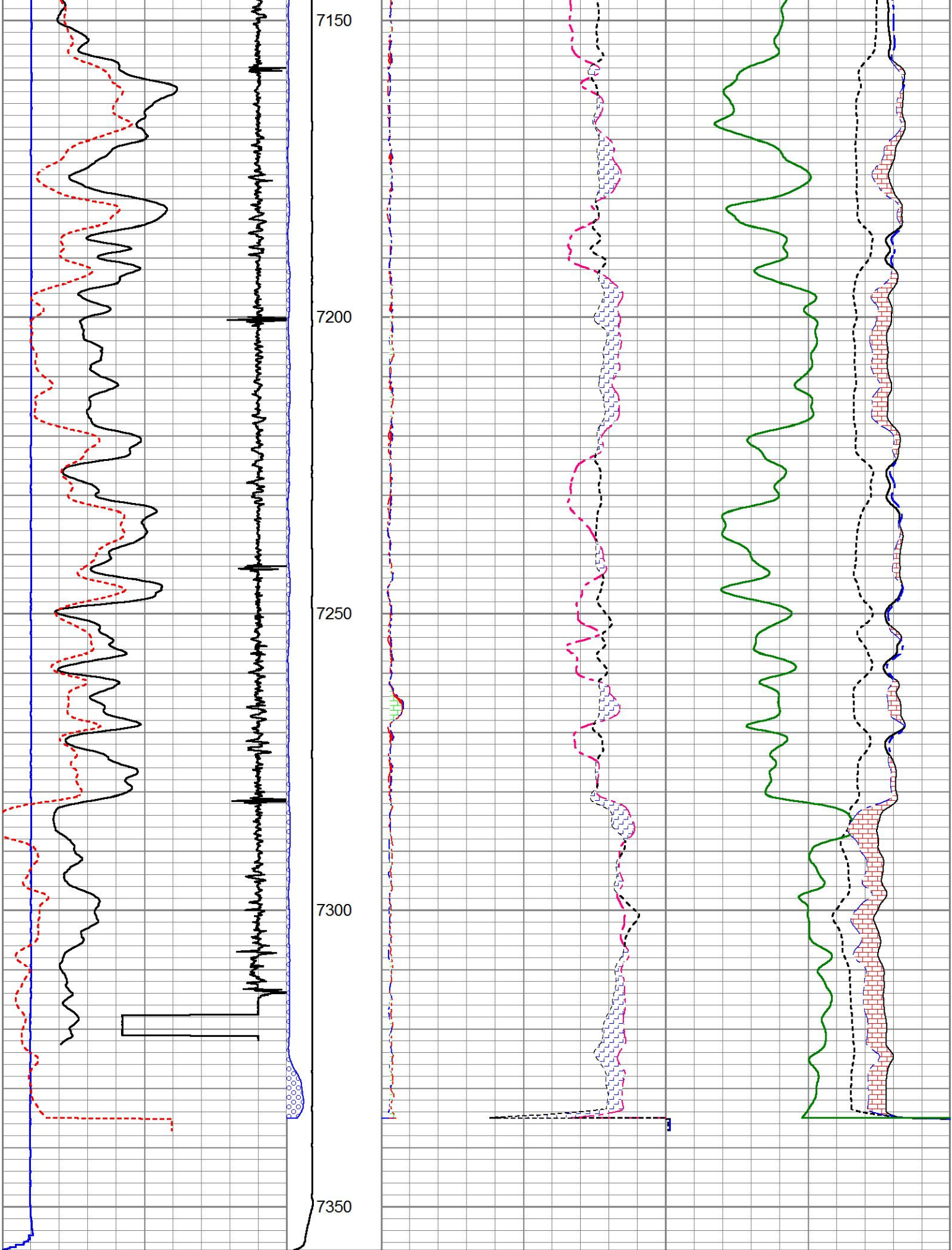


REPEAT PASS

HALLIBURTON

5" = 100'

Database File thompkins_42c_08_07_95.db
Dataset Pathname rmti1/pass6
Presentation Format !1!!rmt_rmti
Dataset Creation Tue Sep 06 22:07:40 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
10	SGINear	40		0	NFTR (Near Fit Error)	100 60000 FCAP
				0	FFTR (Far Fit Error)	100

REPEAT PASS

Log Variables

DatabaseC:\ProgramData\Warrior\Data\thompkins_42c_08_07_95.db
Dataset field/well/rmti1/pass9/_vars_

Top - Bottom

BHSAL1	BHSAL2	BHTEMP_Src	BITSIZE in	BORSAL kppm	BOTTEMP degF	CASED?	CASEOD in
1	0	TEMP	7.875	150	100	Yes	4.5
CASETHCK in	CASEWGHT lb/ft	LTH	MSGGN	MudWgt lb/gal	PERFS	POROS1	POROS2
0	11.6	Sandstone	1	8.4	0	1	0
RHOCF	SO in	SRFTEMP degF	TDEPTH ft	UHSGC	USERFTT usec/ft	ZREF MRayl	
0.25	0	0	7590	NONE	0	1.7	

Calibration Report

Database File thompkins_42c_08_07_95.db
Dataset Pathname rmti1/pass9
Dataset Creation Tue Sep 06 22:56:03 2016

Cement Bond Log Shop Calibration Report

Serial-Model: 1-A
Calibration Performed: Tue Sep 06 21:29:22 2016

Free Pipe Calibration

	Measured	Units
TT	245.0	usec
Amplitude	739.0	mV
Log Base Line	8.0	mV

Calibration References and Gain

Name	Value	Units
Pipe O.D.	4.500	in
Pipe Weight	11.6	lb/ft
Pipe Ref. Amp.	80.0	mV
Amp. Gain	0.109	

Reservoir Monitor Tool I Calibration Report

Serial-Model: 11680597-A
Shop Calibration Performed: Sat Aug 27 18:21:57 2016

Carbon/Oxygen Mode

Stabilization

Result	Logged	Expected Value	Diff.	Tol.	Units
GENV	84.00	80.00	4.00	+/-15.00	V
ITCR2	3130	3250	-120	+/-250	cps

Near Detector

	Channel	Expected Value	Amplitude	FWHM	Tol.
H	60	60 +/-2	0.0278	5.69	<6.00
Fe	207	206 +/-2	0.0967	-----	-----
NGAIN = 0.992	NZOFF = 0.8				

Far Detector

H	Channel	Expected Value	Amplitude	FWHM	Tol.
Fe	60	60 +/-2	0.0382	5.90	<6.50
FGAIN = 0.992	209	208 +/-2	0.0926	-----	-----
	FZOFF = 0.8				
Flask Temperature	57.6 degF				
Result	Logged	Expected Value	Diff.	Tol.	Units
COIR2	0.44	0.45	-0.01	+/-0.02	
LIRI2	1.37	1.36	0.01	+/-0.05	
TCCR2	3766	4000	-234	+/-1000	cps
ITCR2	3102	3200	-98	+/-250	cps

Sigma Mode					
Stabilization					
Result	Logged	Expected Value	Diff.	Tol.	Units
GENV	84.00	80.00	4.00	+/-15.00	V
FCAP	9744	10000	-256	+/-500	cps
Horizontal Water Tank					
Result	Logged	Expected Value	Diff.	Tol.	Units
N/F Normalizer	0.92	0.95	-0.03		
N/F Inel Norm	0.60	0.61	-0.01		
RNF	1.09	1.07	0.02	+/-0.12	
RINC	1.68	1.64	0.04	+/-0.18	
SGFN	24.13	24.00	0.13	+/-0.50	cu
SGFF	22.93	22.85	0.08	+/-0.50	cu
FSIN	23037	24000	-963	+/-2000	cps
FCAP	9704	10000	-296	+/-1000	cps
NFTR	0.80			<5.00	
FFTR	0.91			<5.00	
NBKG	216			<500	cps
FBKG	105			<500	cps
RTN	0.37	0.40	-0.03	+/-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
RMTI Module	2015.10.16.1

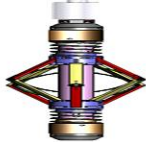
Gamma Ray Calibration Report

Type / Serial:	002 / 12105780
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SHOP CALIBRATION		Mon Sep 05 10:59:30 2016			
	Counts/Sec.	Gain	Offset	Jig	Units
Background	28.5				cps
Calibrator	160.5				cps
		1.6899			GAPI/cps
PRIMARY VERIFICATION					
Background	46.0				cps
Calibrator	265.1				cps
Difference				219.0	GAPI
BEFORE SURVEY VERIFICATION					
Background	0.0				cps

Background	0.0		
Calibrator		0.0	cps
Difference			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	35.14		STNDCH-STND_CH 1.4375 IN CABLE HEAD	1.50	1.44	1.00
GR	32.88		TTTCU-002 (12105780) Through Tubing Telemetry Cartridge - Ultrawire	7.65	1.69	100.00
RmtTFGT	22.23		XHU-003 (000001) Crossover Halliburton 1553 to Ultrawire	1.58	1.69	7.00
RmtTNGT	21.73		RMTI-A (11680597) Halliburton RMTI Tool	14.00	2.13	77.00
RmtFP5V	13.98		X-OVER-GoxSondex Go Box x Sondex Pin CrossOver	0.27	1.69	1.00
			CENT-CASTM-CENT CAST M INLINE CENTRALIZER	2.16	3.13	25.00
Temp	8.89		HCBLM-A (1) Halliburton HCBLM Tool	9.38	2.75	116.00
TT3FT	6.64					
AMP3FT	6.64					
WVF5FT	5.68					

WVF3FT	2.16		CENT-CASTM-CENT CAST M INLINE CENTRALIZER	2.16	3.13	25.00
LLMTEN	0.00					
Dataset: thompkins_42c_08_07_95.db: field/well/rmti1/pass6 Total length: 38.71 ft Total weight: 352.00 lb O.D.: 3.13 in						

Company	URSA OPERATING COMPANY LLC				
Well	TOMPKINS 42C-08-07-95				
Field	PARACHUTE				
County	GARFIELD		State	CO	
HALLIBURTON	GAMMAY RAY COLLAR RESERVOIR MONITOR LOG CEMENT BOND LOG				