

HALLIBURTON

GAMMA RAY COLLAR
RESERVOIR MONITOR
LOG
(GR-RMTI)

Company URSA OPERATING CO., LLC.
Well TOMPKINS 21B-08-07-95
Field PARACHUTE
County GARFIELD State CO

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API No.: 05045228210000 Serv #: 903507548
Location: N/A GR-CBL

Permanent Datum G.L. Elevation 5532.0'
Log Measured From K.B. , 17.0 Ft. above perm. datum K.B. 5549.0'
Drilling Measured From K.B. G.L. 5532.0'

Date @ Time Logged 8/30/2016 Type Fluid in Hole WATER
Run No. ONE Density of Fluid 8.45#
Depth - Driller 7628' Fluid Level SURFACE
Depth - Logger 7535' Cement Top Est. Logged N/A
Bottom - Logged Interval 7533' Equipment / Location 11591000 / BKSFD
Top - Log Interval 3600' Recorded by BRIAN PEDERSEN
Max. Recorded Temp. N/A Witnessed by MR. O. MOLINAR

CEMENTING DATA
Surface Protection Production Liner
String String String

Date / Time Cemented
Primary / Squeeze
Expected
Compressive Strength
Cement Volume
Cement Type / Weight
Formulation
Mud Type / Mud Wgt.

Borehole Record
Run Number Bit From To Size Weight From To
ONE 24.0" SURF 77' 16.0" 75.5# SURF. 77'
TWO 12.25" 77' 1855' 8.625" 32.0# SURF. 1855'
THREE 7.875" 1855' 7628' 4.5" 11.6# SURF. 7628'

Casing & Tubing Record
FLOAT COLLAR

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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
NO OPEN HOLE LOGS RUN ON THIS WELL USED 17' K.B. FOR DEPTH CONTROL
RMTI LOGGED TD TO 500' ABOVE WILLAMS FORK AS PER CUSTOMERS REQUEST
CBL LOGGED TO BOTTOM OF SURFACE CASING PER CUSTOMERS REQUEST

" THANK YOU FOR USING HALLIBURTON ENERGY SERVICES "
YOUR CREW FOR TODAY: F. ALIAS; F. NAVARRO
MBU. #BK0606
RIG: HES CRANE

Service Ticket No.	903507548	API No.	045-22821	PGM Ver	15.10.29001
The Well Name, Location, Borehole Description, and / or Cementing Data Furnished by Client					
EQUIPMENT DATA					
XHU		GAMMA		RMTI	
Run No.	ONE	Run No.	ONE	Run No.	ONE
Serial No.	12029128	Serial No.	12157979	Serial No.	11680597
Model No.	XHU-3	Model No.	TTTC-U2	Model No.	RMTI
Diameter	1 11/16"	Diameter	1 11/16"	Diameter	2.25"
LOGGING DATA					
General Data					
Pass	Depths		Well Head	Speed	Logging Run Comments
No	From	To	Pressure	Ft/Min	

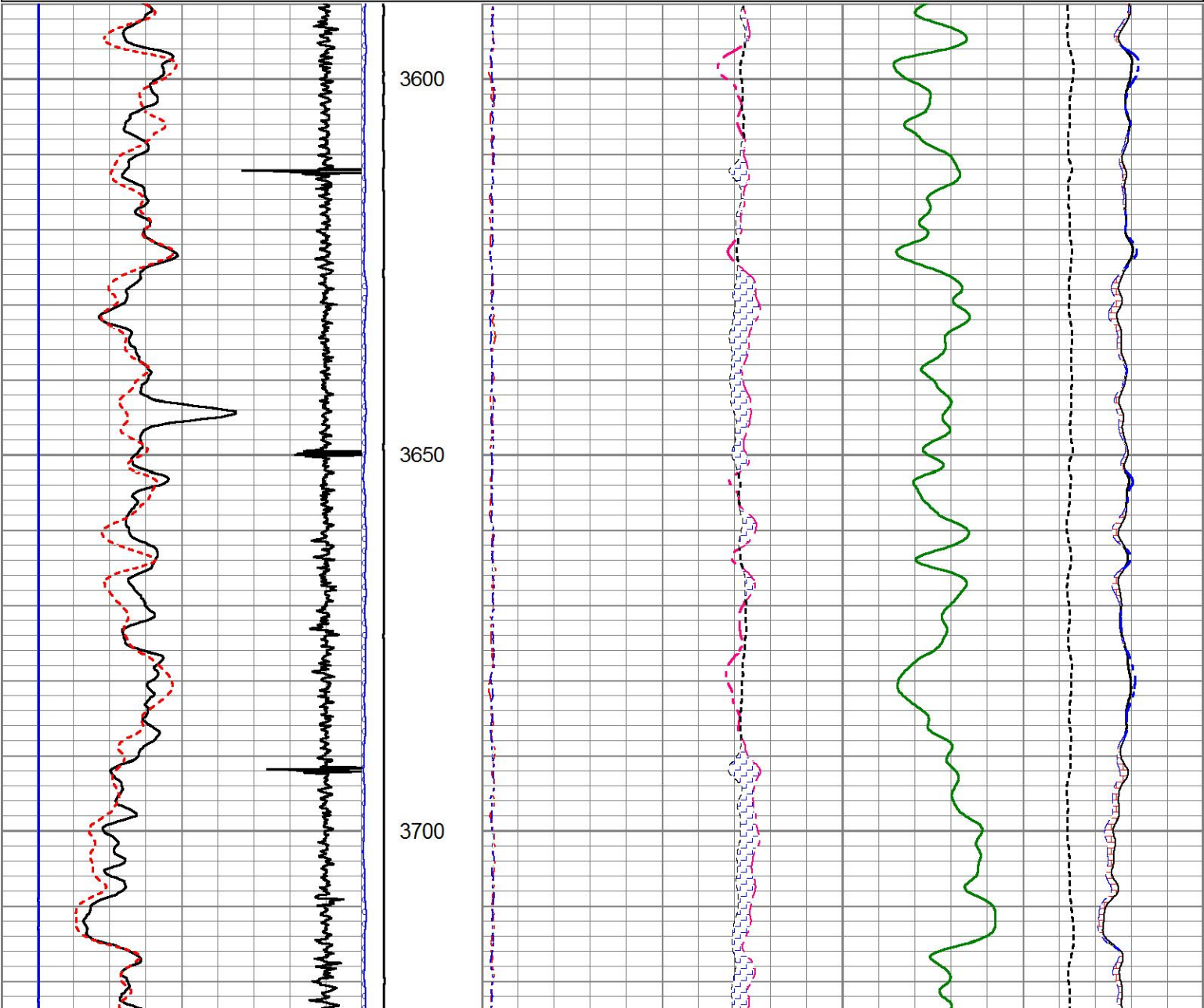
ONE	7490'	7320'	0 PSI	20'	REPEAT			
TWO	7555'	3600'	0 PSI	20'	MAIN			
	GAMMA		MSG					
Pass	Scale		Scale		Scale		Scale	
No.	L	R	L	R	L	R	L	L
ONE	0	200	200	1200				
TWO	0	200	200	1200				
DIRECTIONAL INFORMATION								
Maximum Deviation			deg. @		KOP			

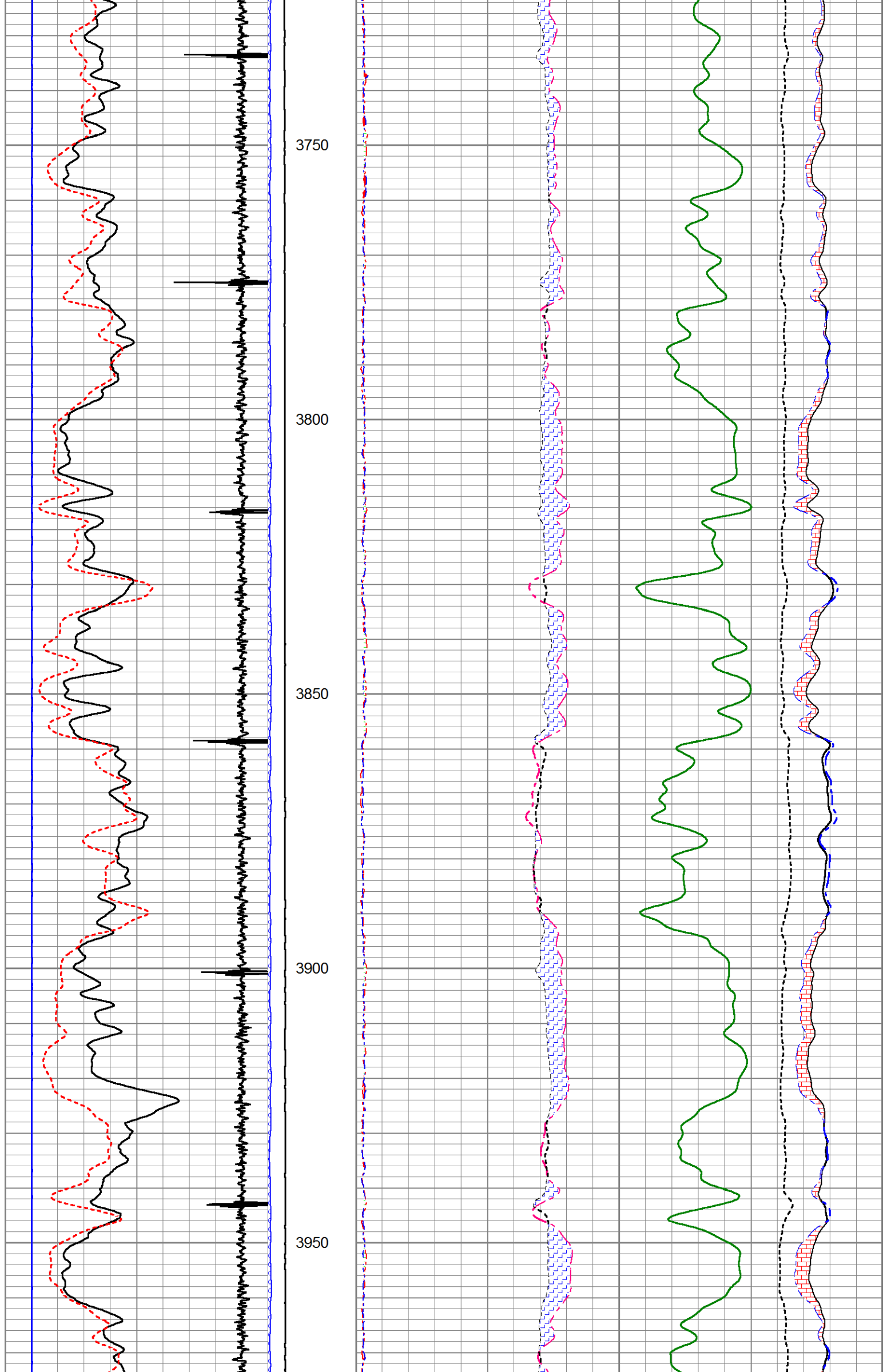
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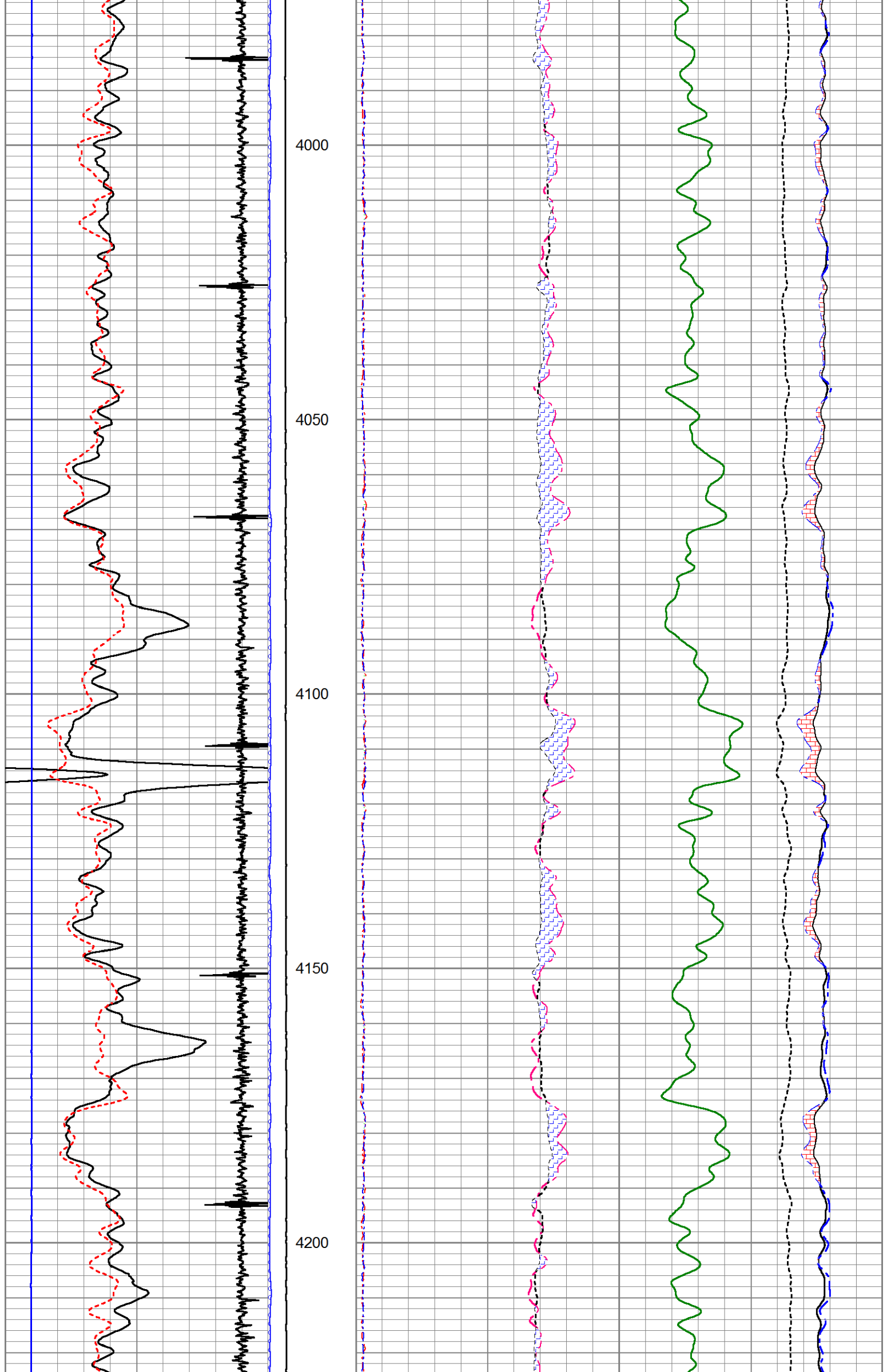
MAIN PASS

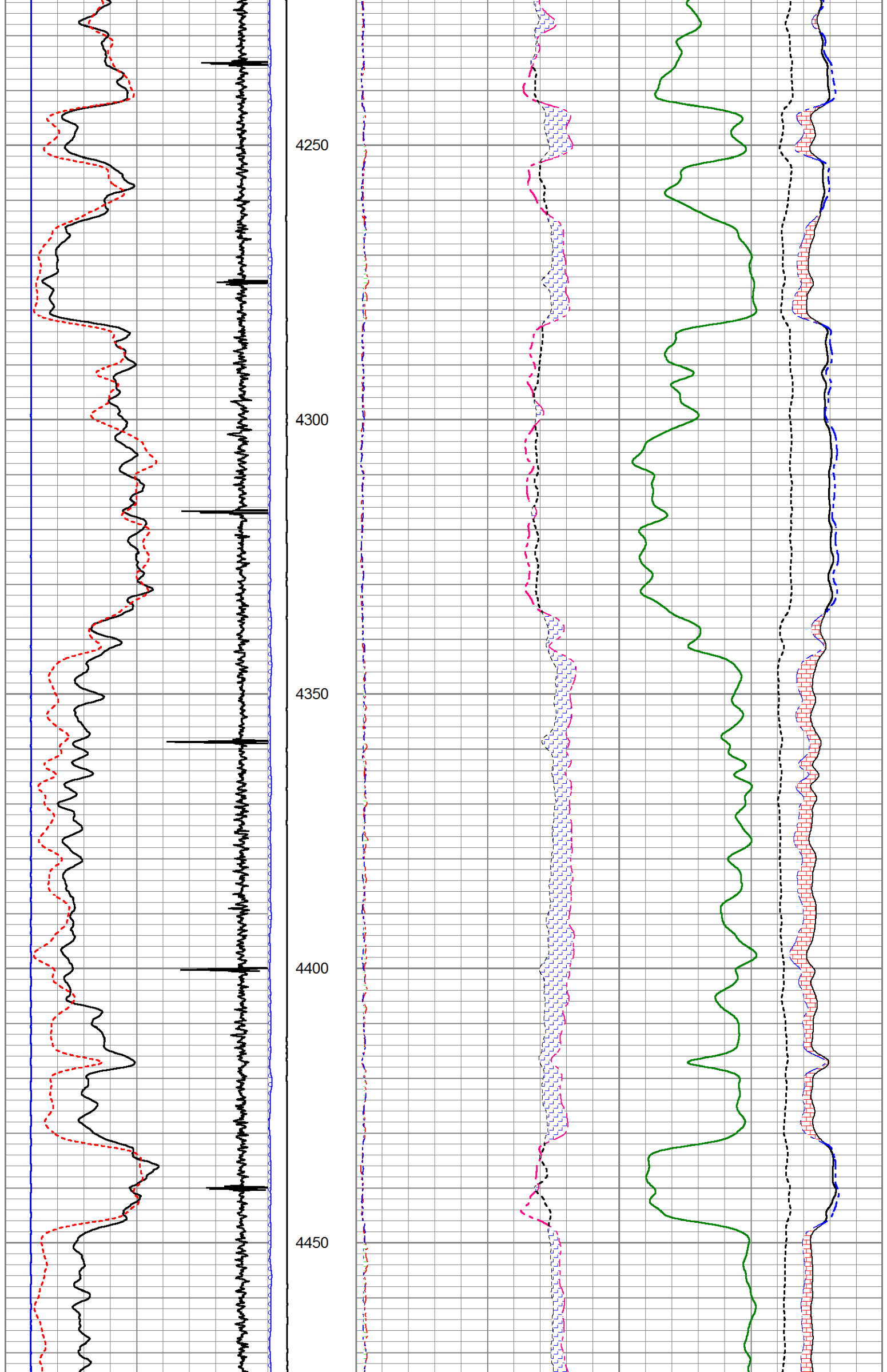
Database File	ursa-tom-21b.db
Dataset Pathname	pass4
Presentation Format	!1!!rmt_rmti
Dataset Creation	Tue Aug 30 22:05:26 2016
Charted by	Depth in Feet scaled 1:240

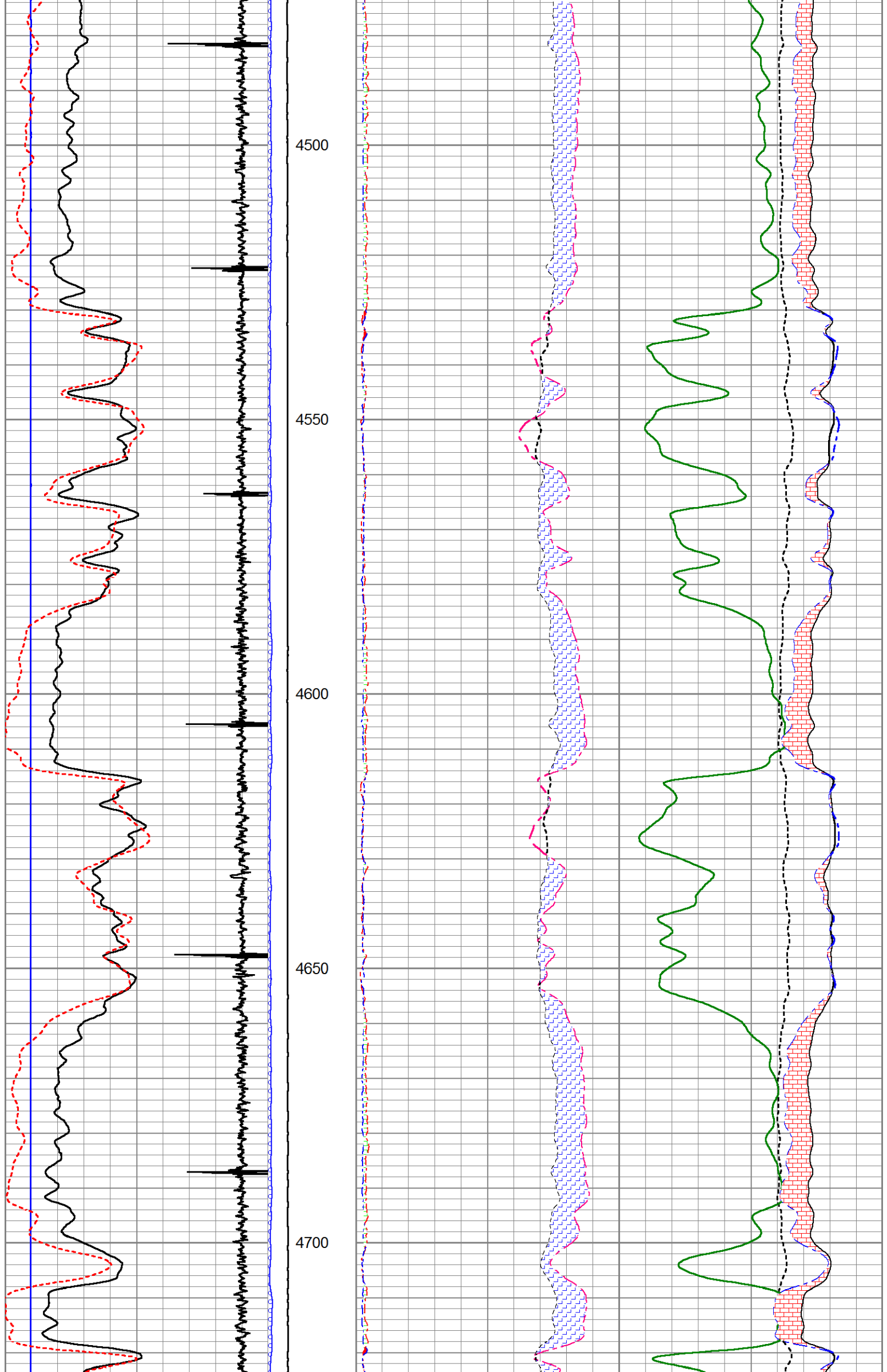
0	GR	200	LTEN (lb5000 OAI1100)	60	SGFF					0
2700	CCL	-300		2	RNF (Ratio Near/Far)		0.5	100000	FSIN	0
0	LSPD (ft/min)	200		1.65	RIN (Ratio Near/Far Incl)		0.65	60000	NCAP	0
10	SGINear	40		0	NFTR (Near Fit Error)		100	60000	FCAP	0
				0	FFTR (Far Fit Error)		100			

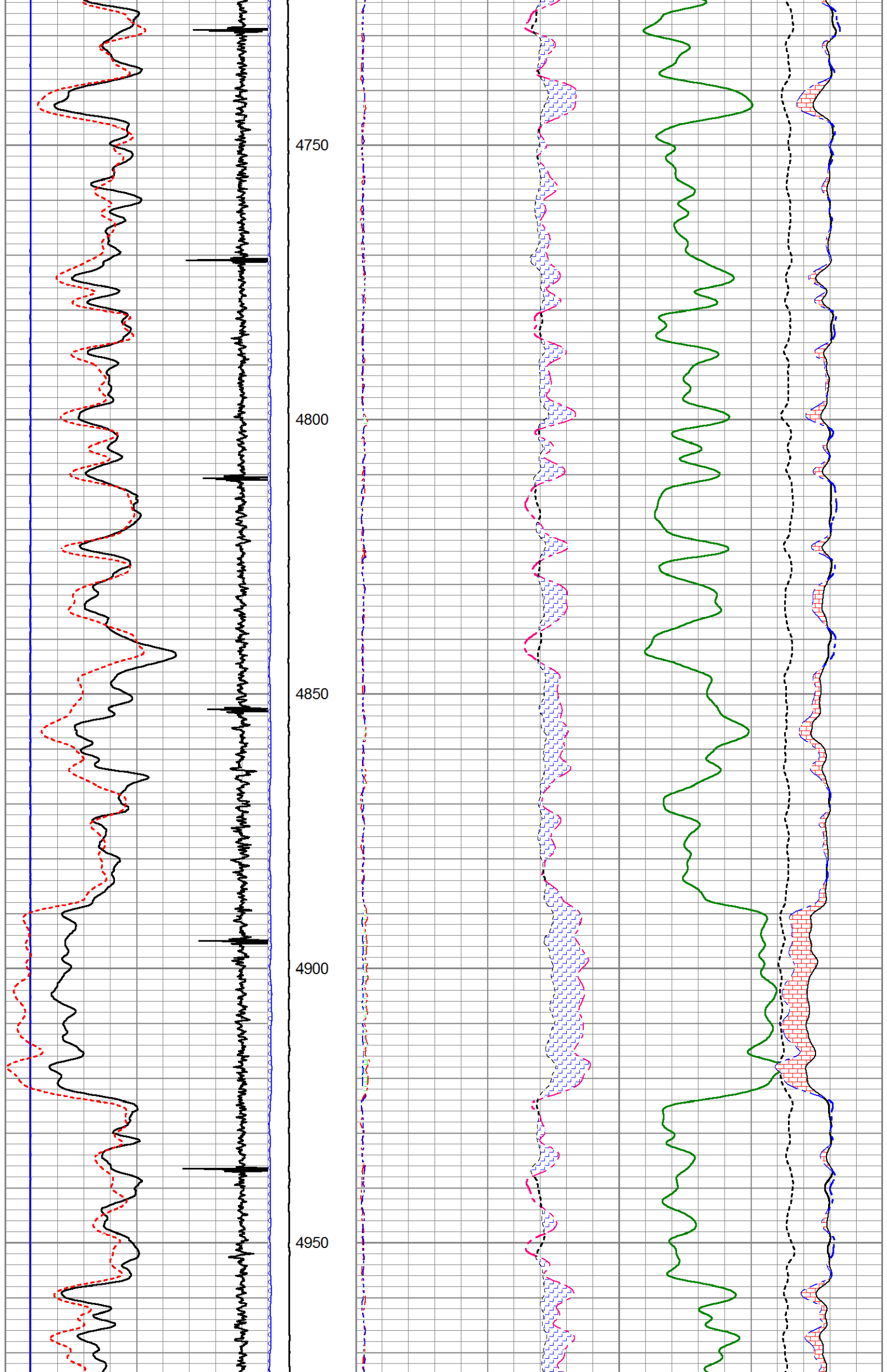


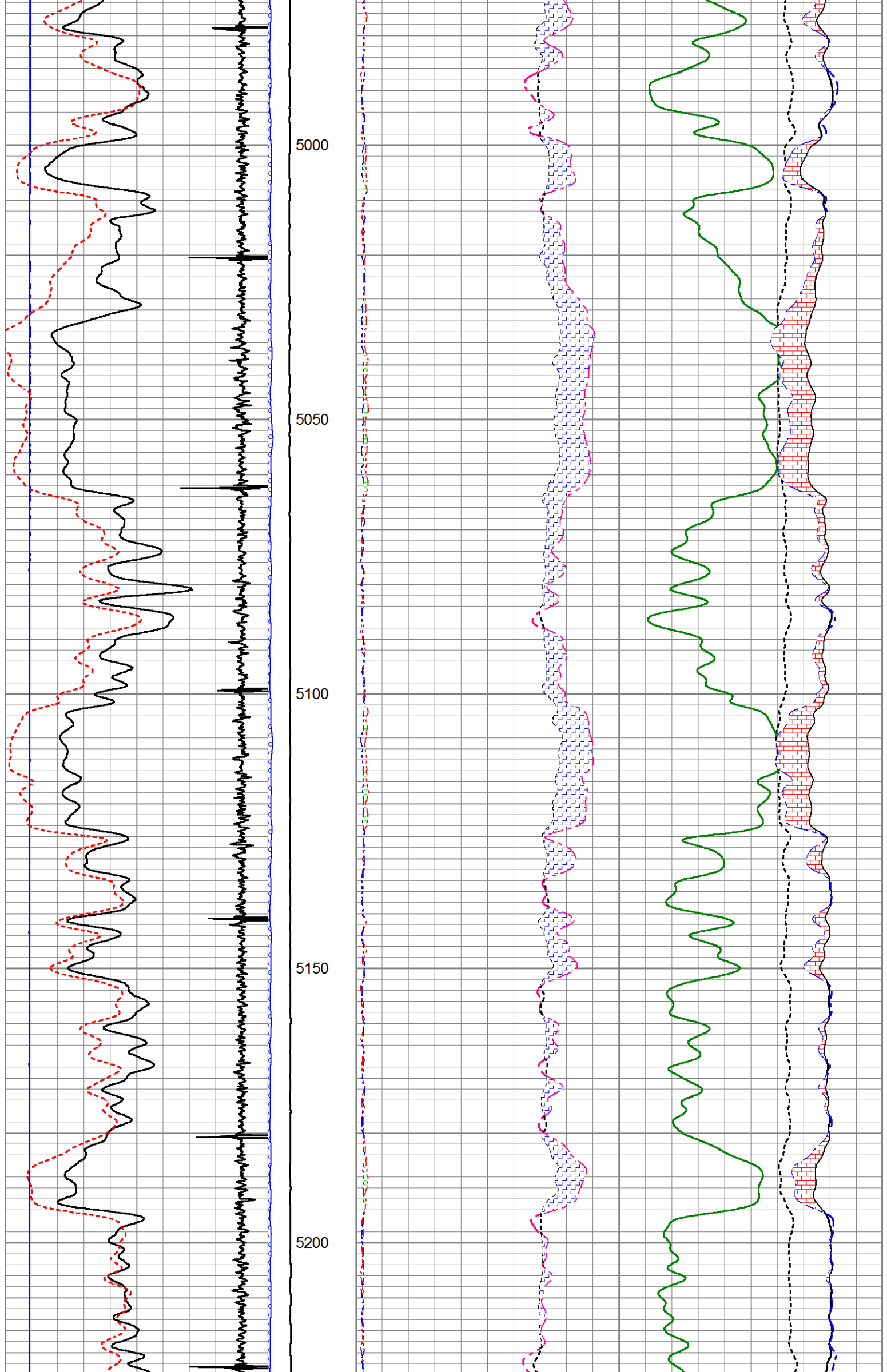


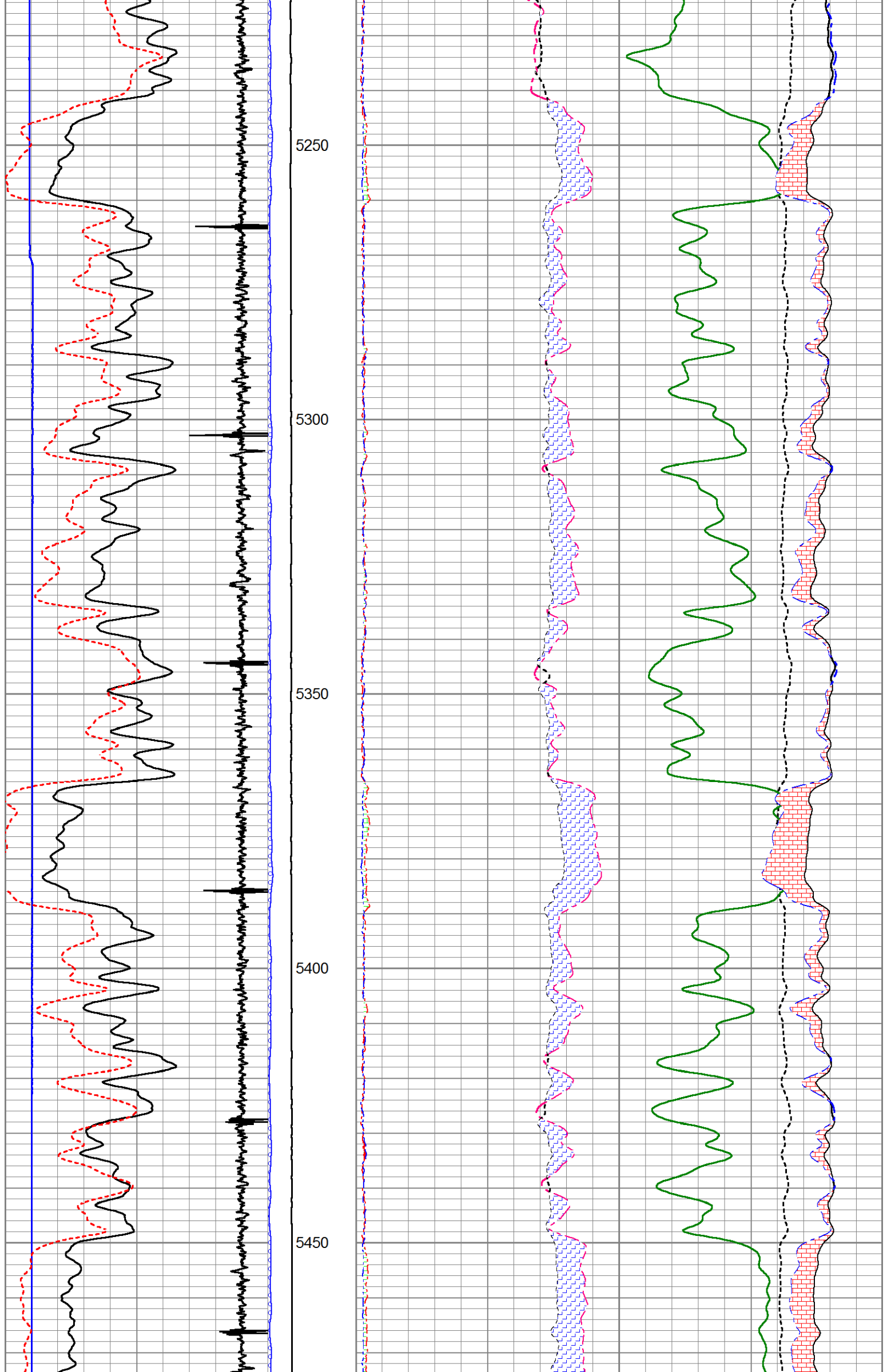


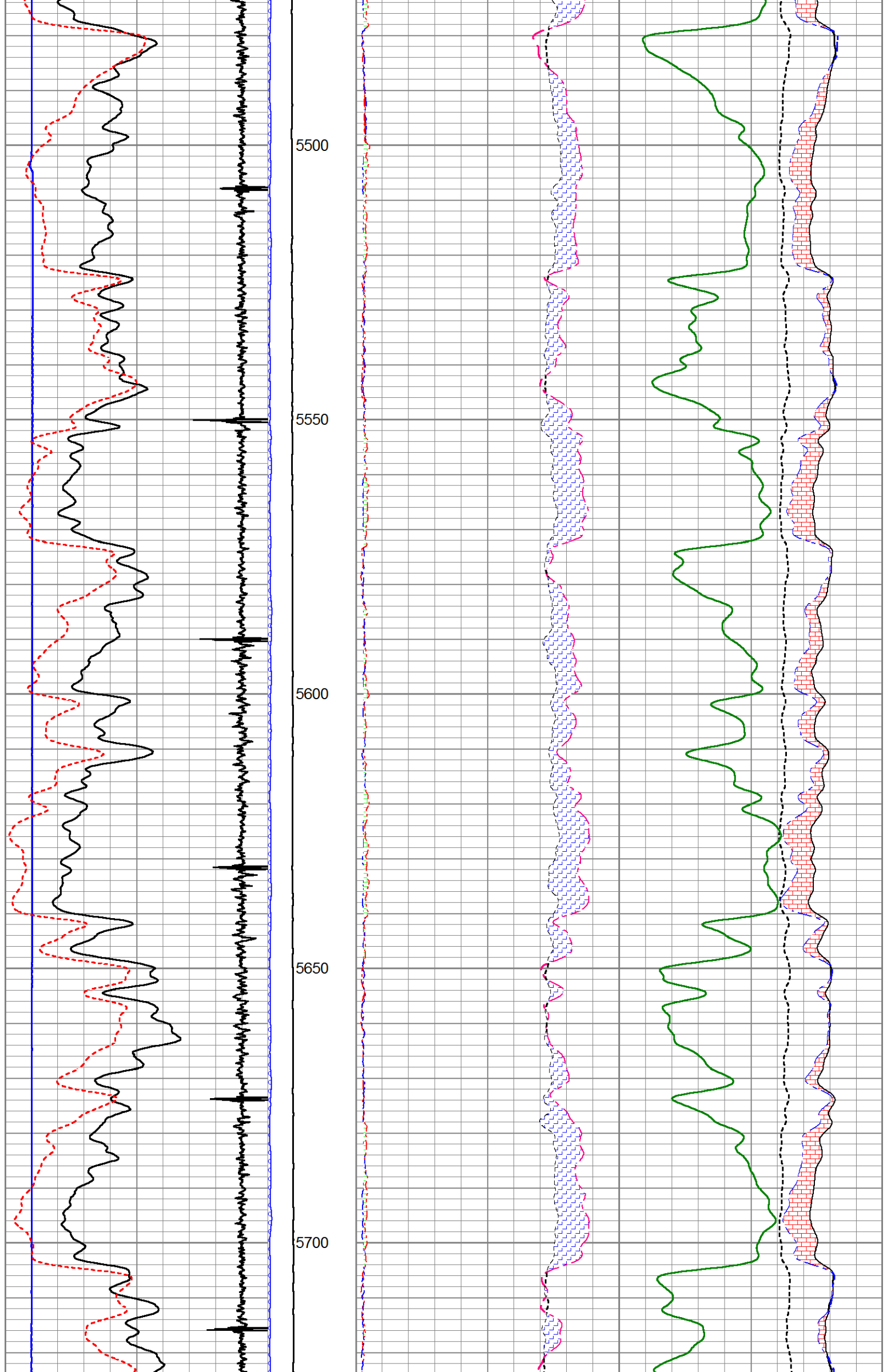


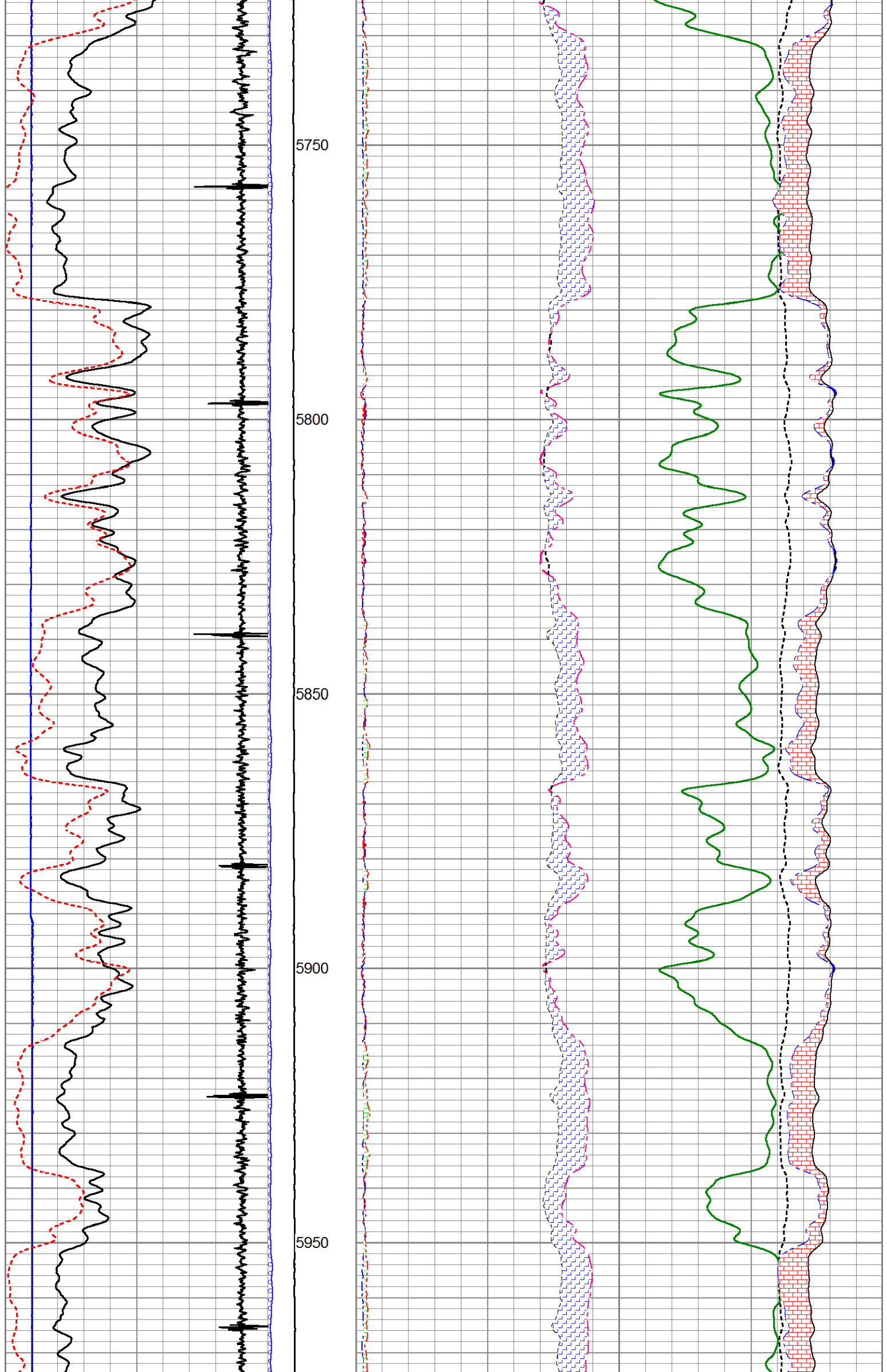


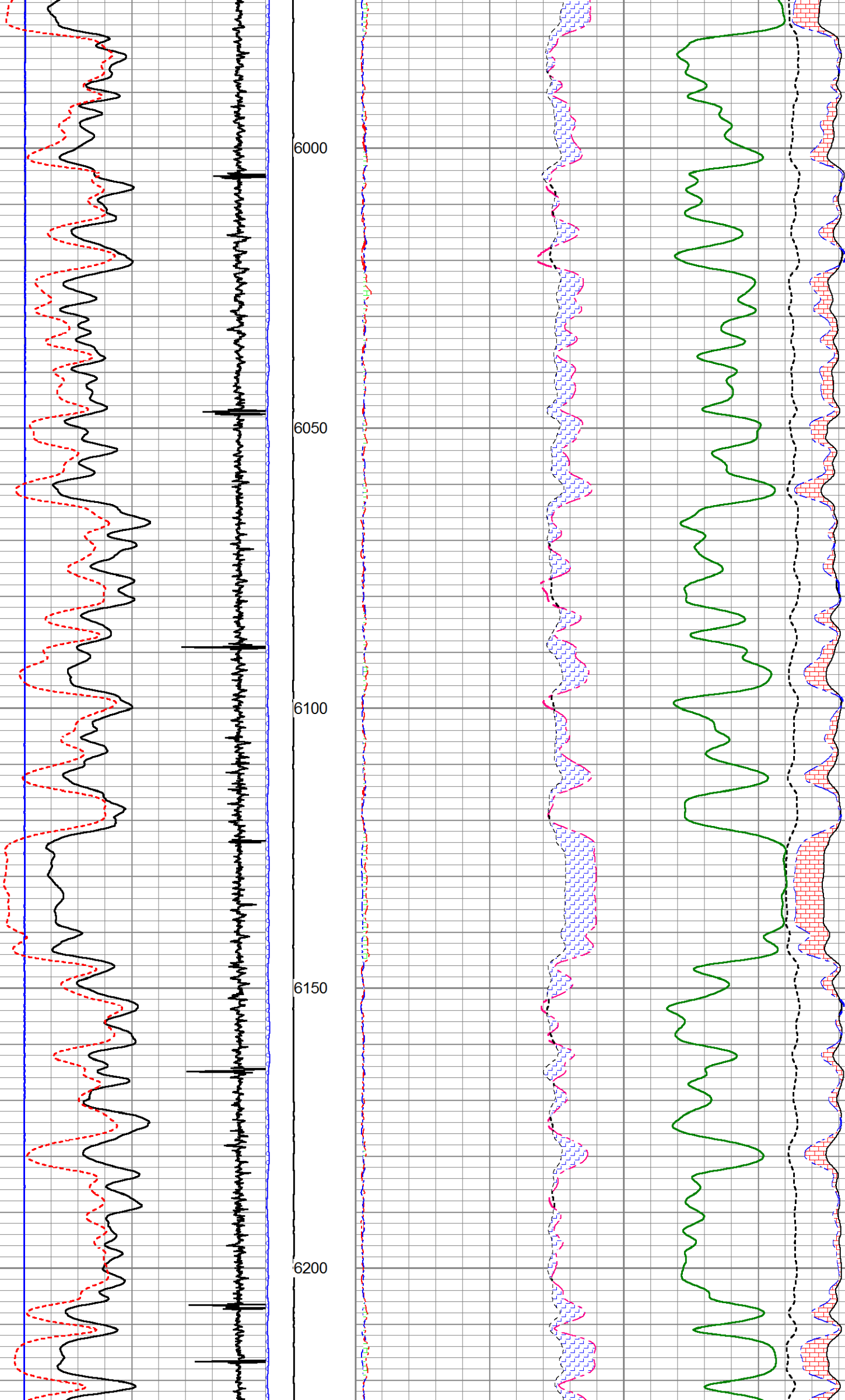


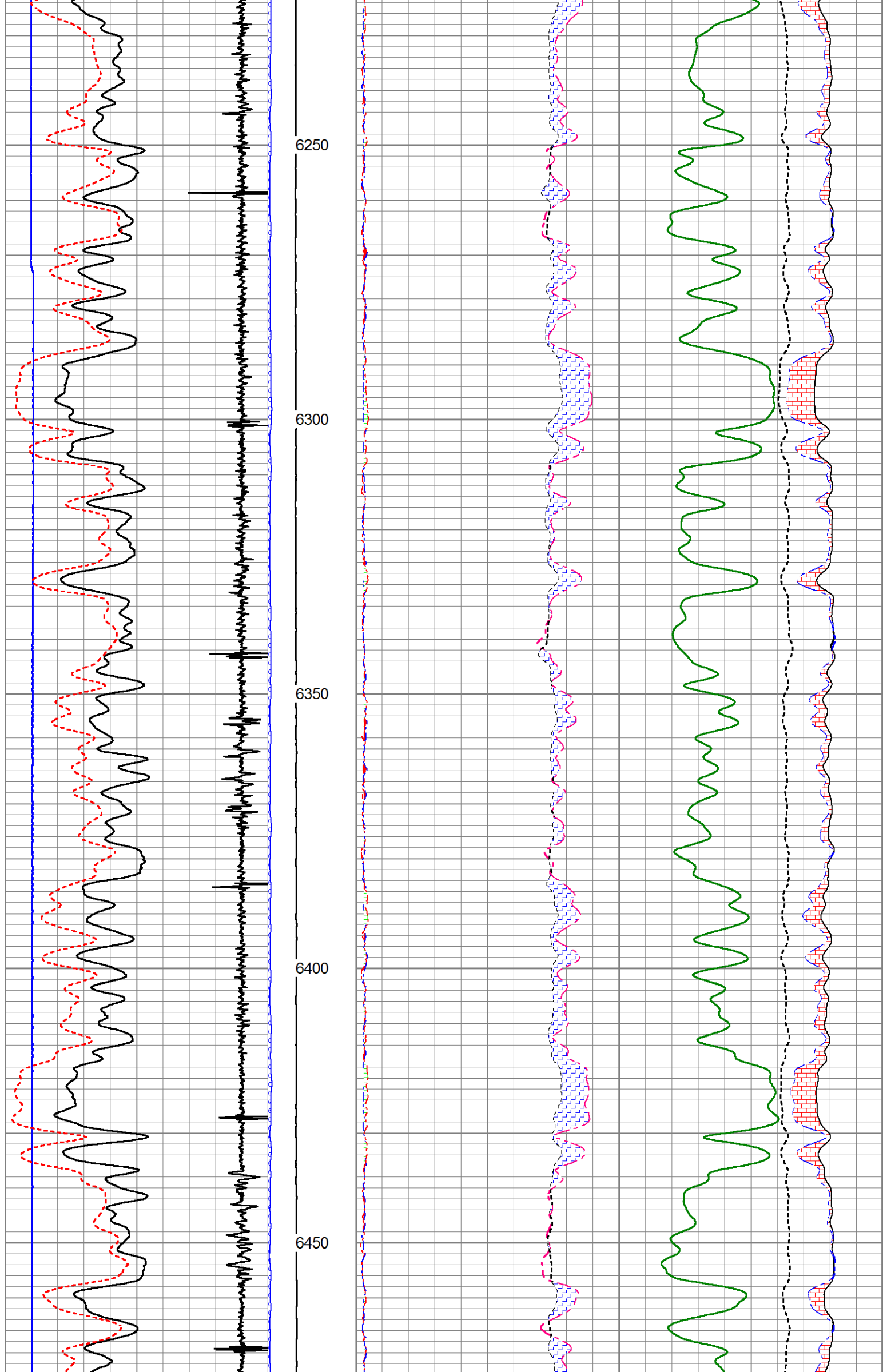


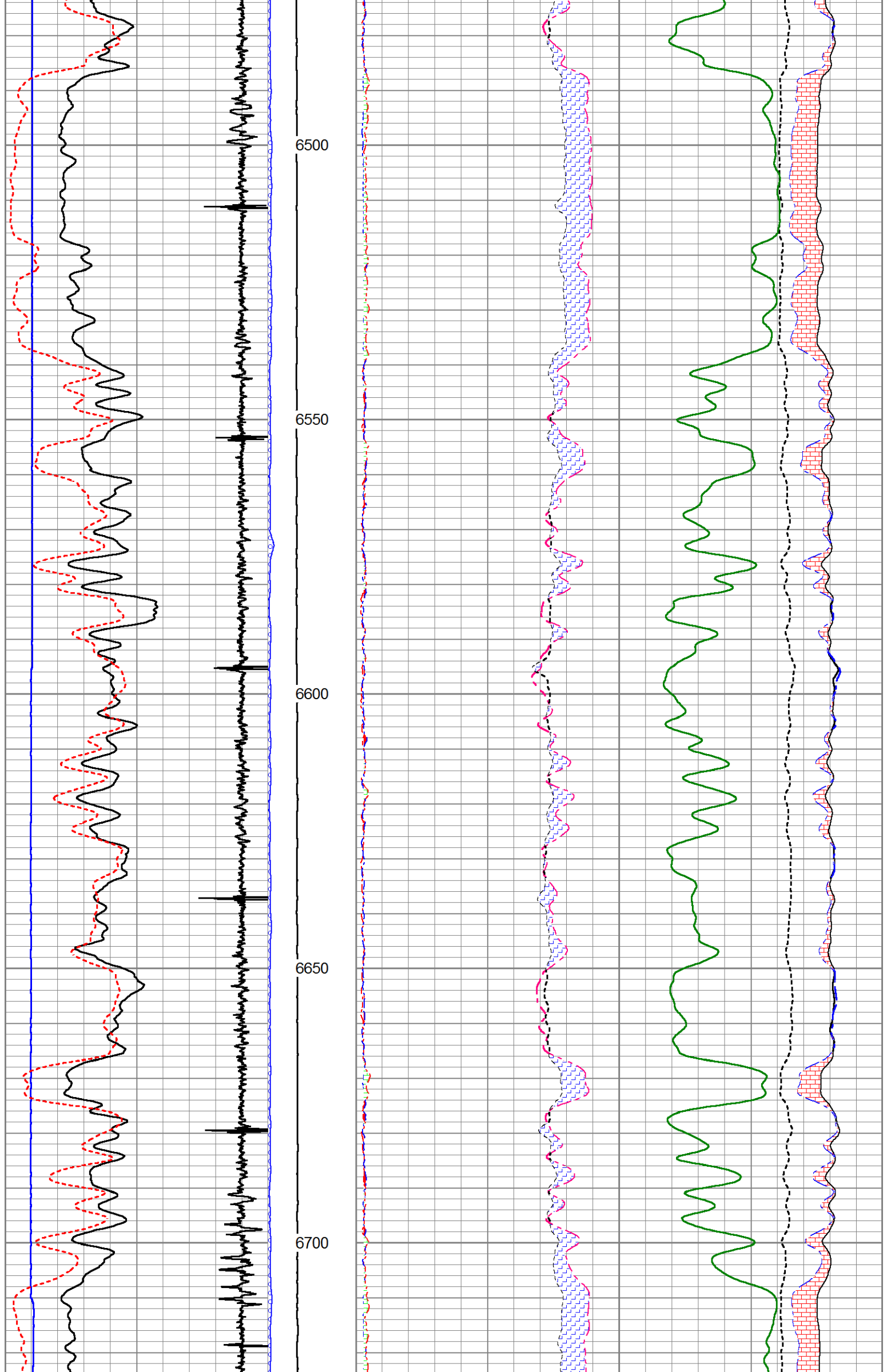


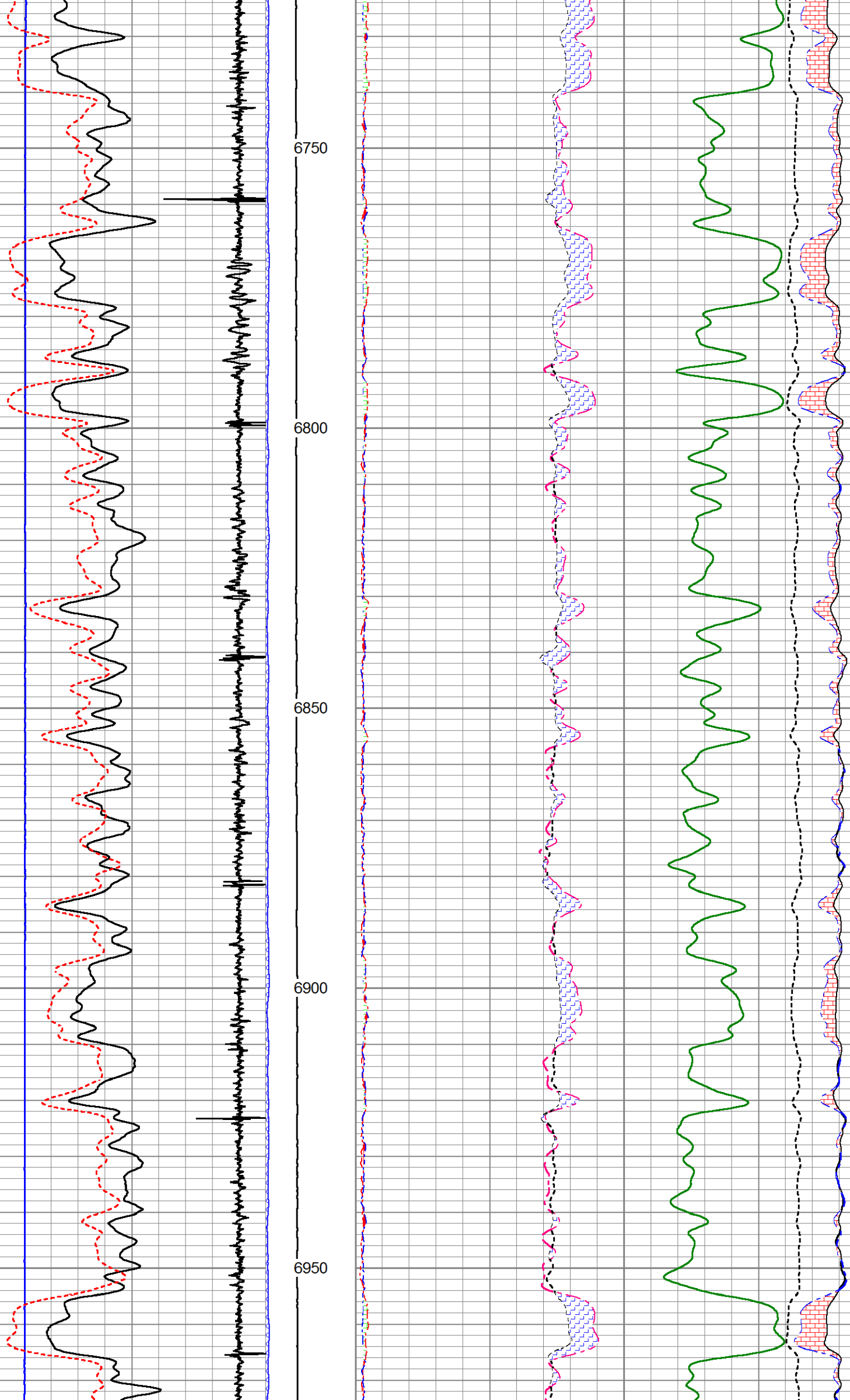


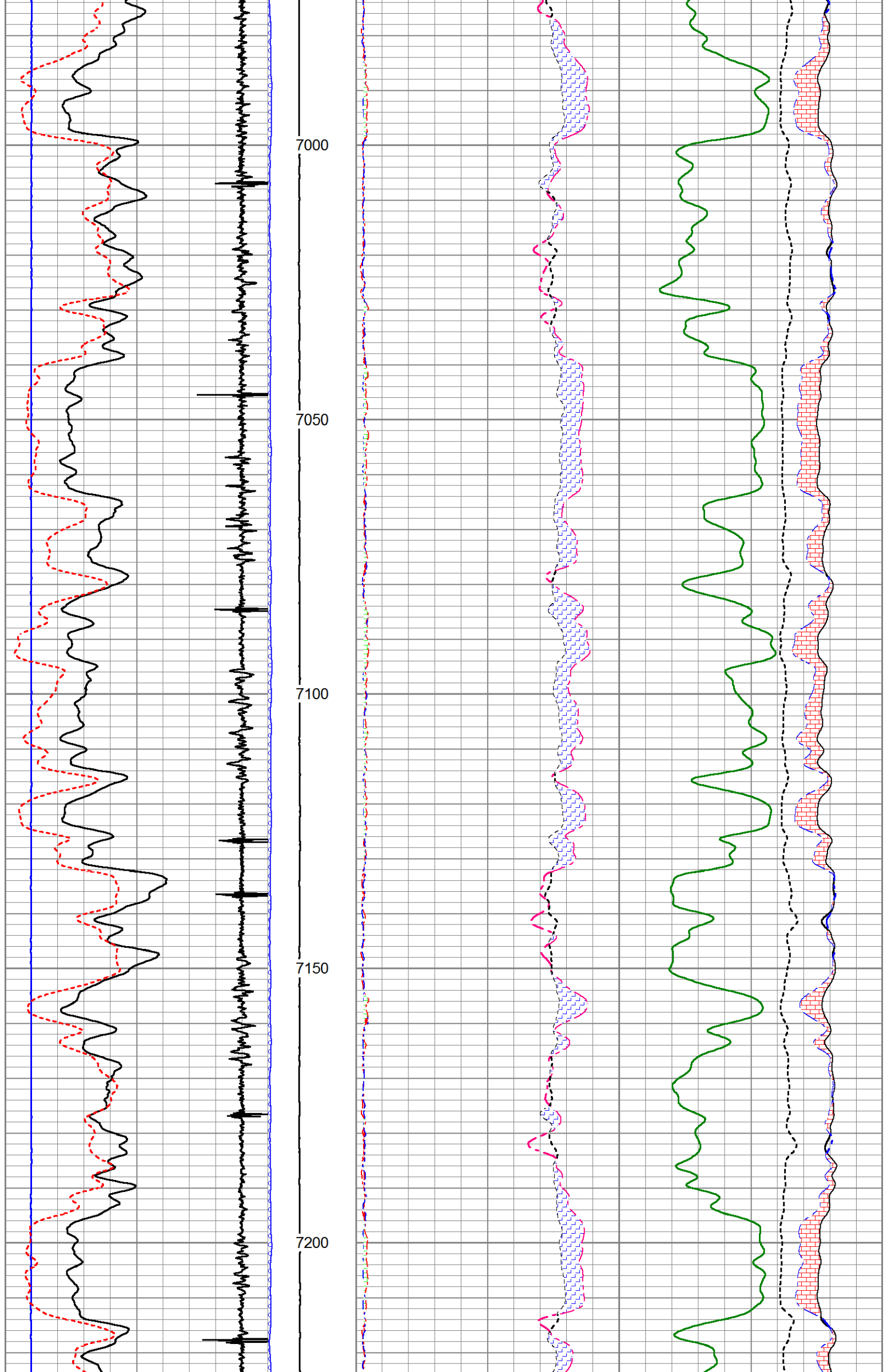


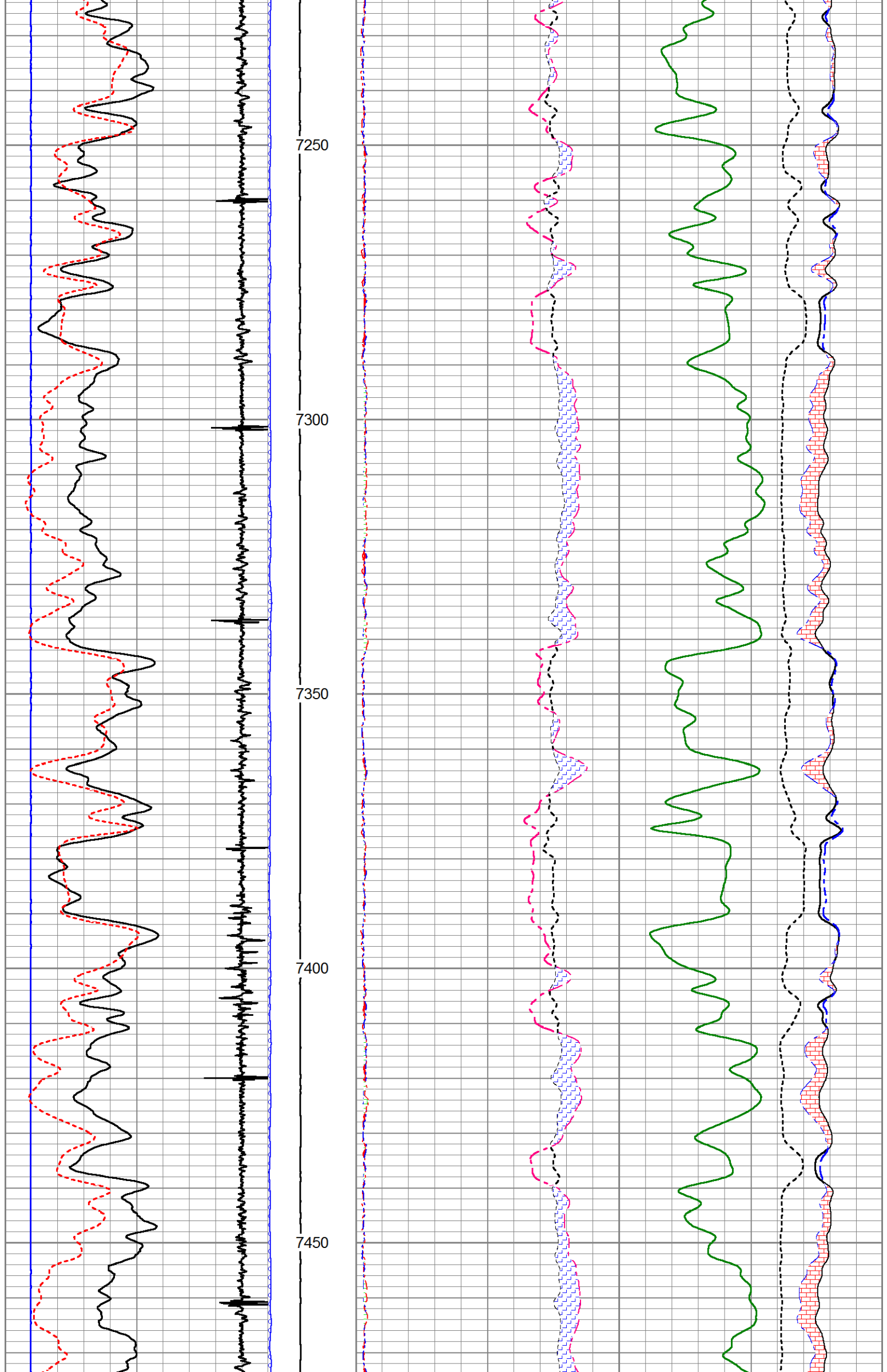


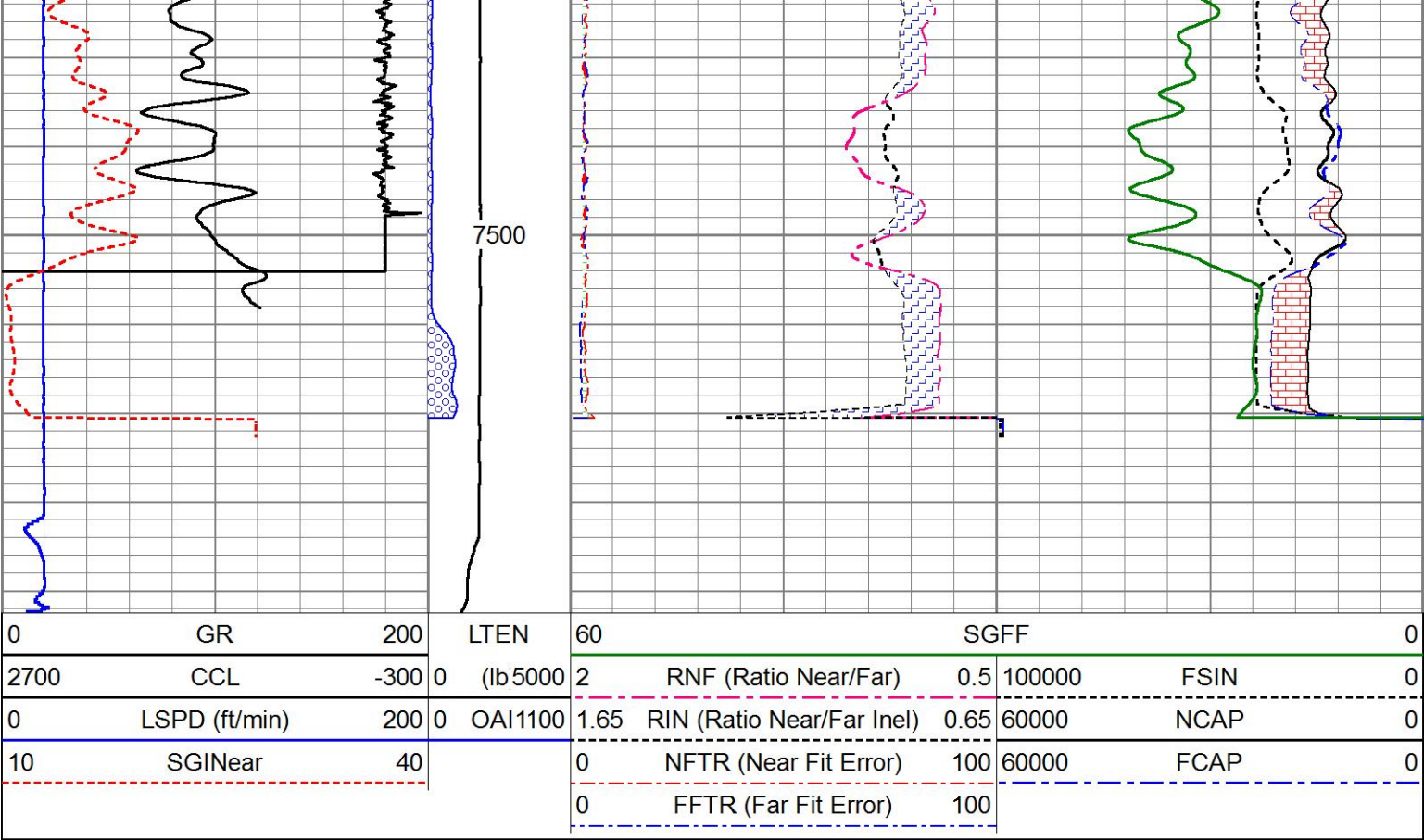












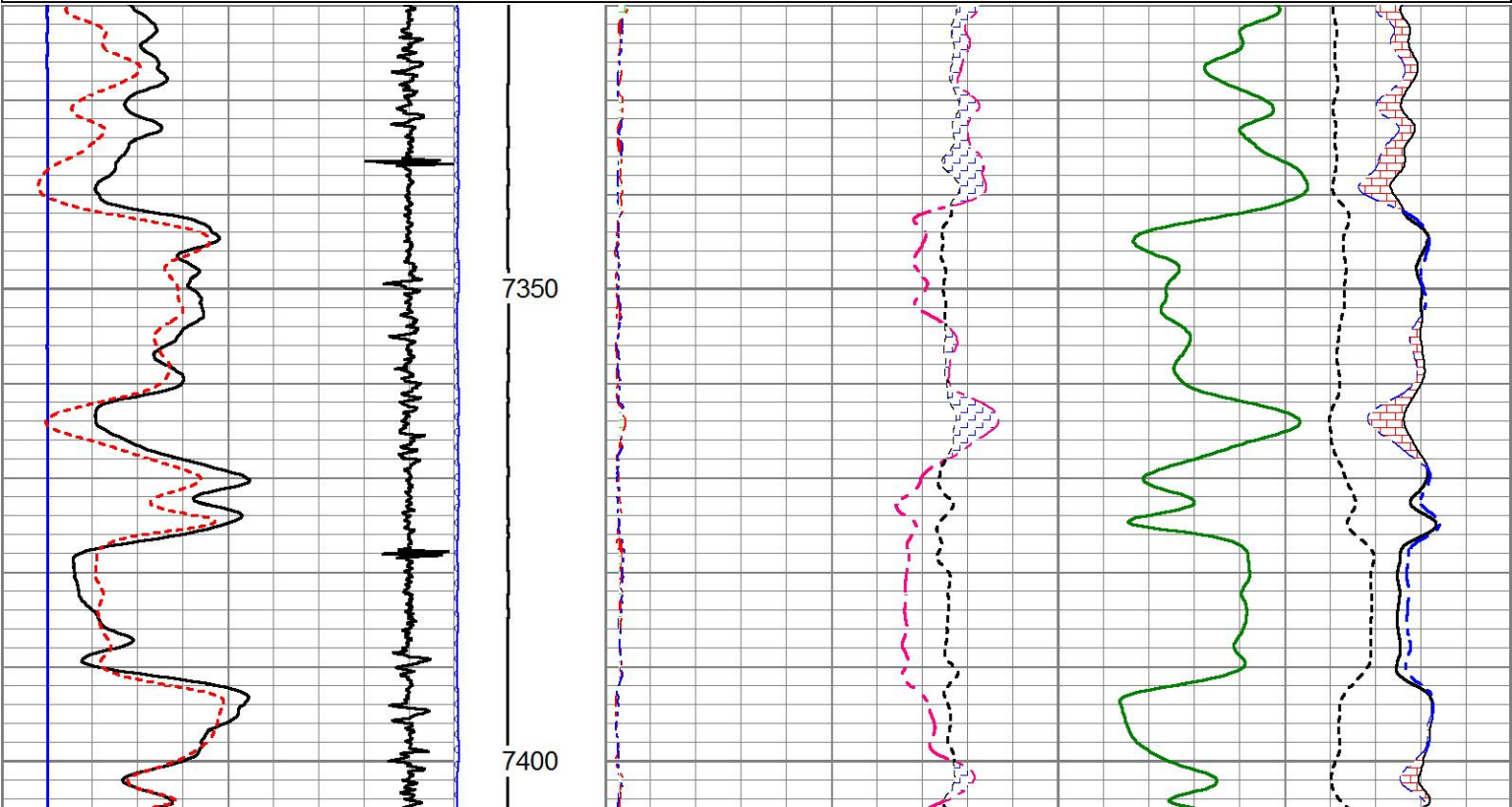
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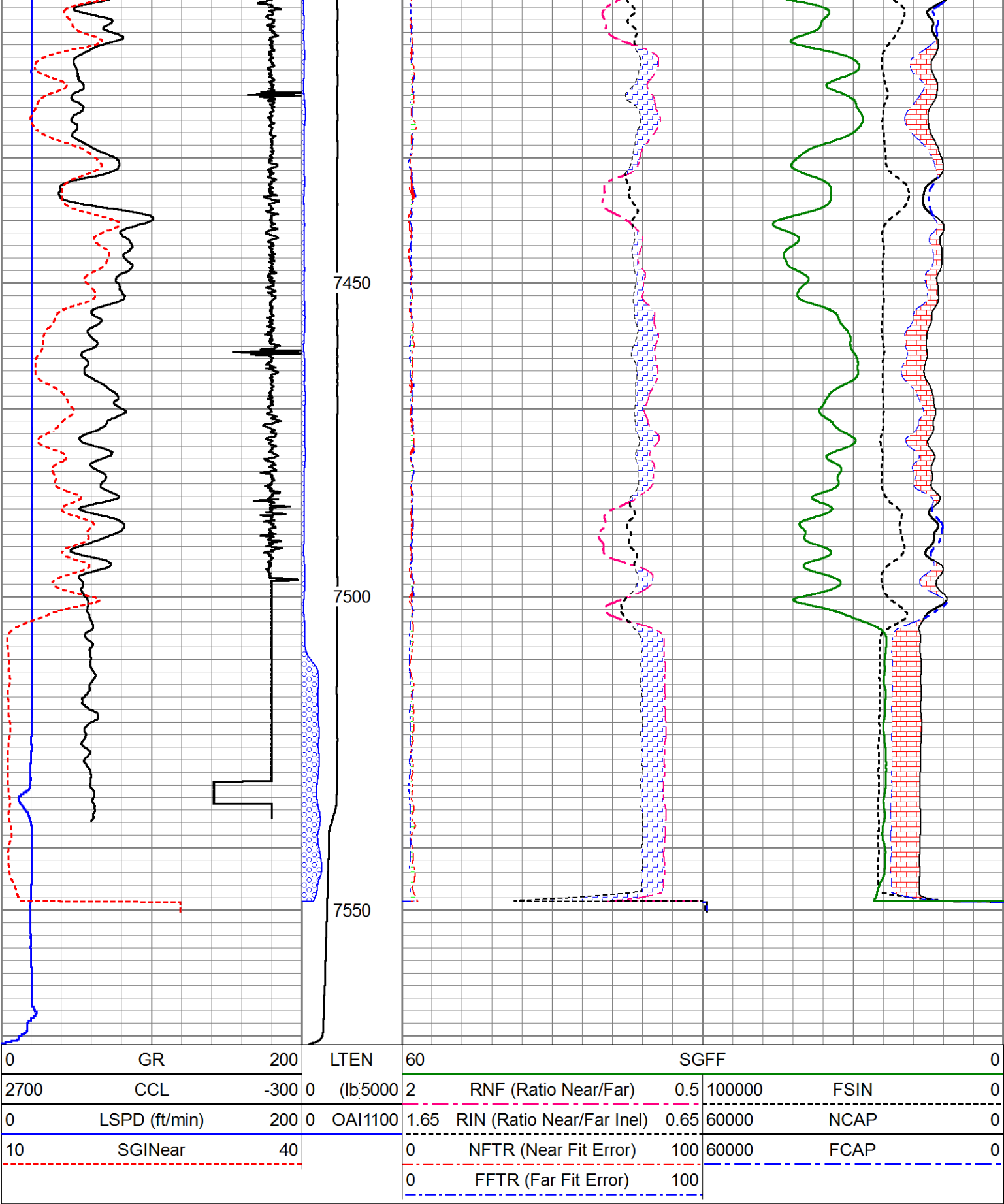
REPEAT PASS

Database File
Dataset Pathname
Presentation Format
Dataset Creation
Charted by

ursa-tom-21b.db
pass2
!1!!rmt_rmti
Tue Aug 30 21:23:22 2016
Depth in Feet scaled 1:240

0	GR	200	LTEN	60	SGFF	0	
2700	CCL	-300	0 (lb/5000)	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	





Log Variables

DatabaseD:\Warrior_data\ursa-tom-21b.db
Dataset field/well/run1/pass1/_vars_

Top - Bottom

BHSAL1	BHSAL2	BHTEMP_Src	BITSIZE	BORSAL	BOTTEMP	CASED?	CASEOD
1	0	TEMP	in 7.875	kppm 150	degF 120	Yes	in 4.5
CASETHCK	CASEWGHT	LTH	MSGGN	MudWgt	PERFS	POROS1	POROS2
in 0.5	lb/ft 11.6	Sandstone	1	lb/gal 8.34	0	1	0
RHO�F	SO	SRFTEMP	TDEPTH	UHSGC	USERFTT	ZREF	
degF	in	degF	ft		usec/ft	MRayl	

0.25	0	0	0	NONE	0	1.7
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Calibration Report	
Database File	ursa-tom-21b.db
Dataset Pathname	pass1
Dataset Creation	Tue Aug 30 20:44:45 2016

Cement Bond Log Shop Calibration Report

Serial-Model:	12091451-A
Calibration Performed:	Tue Aug 30 10:10:25 2016

Free Pipe Calibration		
TT	Measured	Units
Amplitude	245.6	usec
Log Base Line	573.8	mV
	7.6	mV
Calibration References and Gain		
Name	Value	Units
Pipe O.D.	4.500	in
Pipe Weight	11.6	lb/ft
Pipe Ref. Amp.	79.0	mV
Amp. Gain	0.120	

Reservoir Monitor Tool I Calibration Report


Serial-Model:	11680597-A
Shop Calibration Performed:	Sat Aug 27 17:21:57 2016

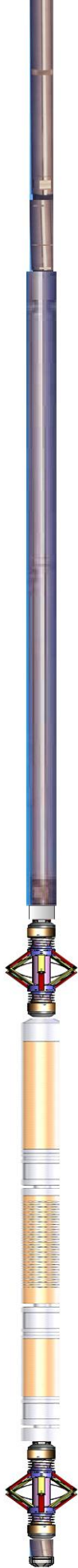
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Carbon/Oxygen Mode					
Stabilization					
Result	Logged	Expected Value	Diff.	Tol.	Units
GENV	84.00	80.00	4.00	+/-15.00	V
ITCR2	3130	3250	-120	+/-250	cps
Near Detector					
H	Channel	Expected Value	Amplitude	FWHM	Tol.
Fe	60	60 +/-2	0.0278	5.69	<6.00
NGAIN = 0.992	207	206 +/-2	0.0967	-----	-----
	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			
SHOP CALIBRATION		Wed Aug 17 17:47:54 2016			
	Counts/Sec.	Gain	Offset	Jig	Units
Background	27.8				cps
Calibrator	295.2				cps
		1.3760			GAPI/cps
PRIMARY VERIFICATION					
Background	39.3				cps
Calibrator	407.7				cps
Difference				368.5	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	35.78		STNDCH-STND_CH 1.4375 IN CABLE HEAD	1.50	1.44	1.00

GR	33.52		TTTCU-002 (12105780) Through Tubing Telemetry Cartridge - Ultrawire	7.65	1.69	100.00
			XHU-003 (000001) Crossover Halliburton 1553 to Ultrawire	1.58	1.69	7.00
RmtTFGT RmtTNGT	22.87 22.37		RMTI-A (11680597) Halliburton RMTI Tool	14.00	2.13	77.00
RmtFP5V RmtNFwvMcsP RmtCommFWa	14.62 14.62 14.62		X-OVER-SondexxGo Sondex Box x Go Pin Cross Over	0.31	1.69	1.00
			CENT-CASTM-CENT CAST M INLINE CENTRALIZER	2.16	3.13	25.00
Temp	9.49		HCBLM-A (12091451) Halliburton HCBLM Tool	9.38	2.75	116.00
TT3FT AMP3FT WVF5FT	7.24 7.24 6.28		CENT-CASTM-CENT CAST M INLINE CENTRALIZER	2.16	3.13	25.00
WVF3FT	2.76		AUH-001 (000001) Adaptor Ultrawire/Halliburton	0.38	1.69	3.00
LLMTEN	0.00		BUL-006 (000002) Bullnose Terminator	0.22	1.69	1.20
Dataset: Total length: Total weight: O.D.:			ursa-tom-21b.db: field/well/run1/pass1 39.35 ft 356.20 lb 3.13 in			

Company	URSA OPERATING CO., LLC.				
Well	TOMPKINS 21B-08-07-95				
Field	PARACHUTE				
County	GARFIELD	State	CO		

