

HALLIBURTON

RESERVOIR MONITOR
TOOL - ELITE

Company		URSA OPERATING COMPANY	
Well		YATER 43A-17-07-95	
Field		PARACHUTE	
County		GARFIELD	State CO
Company		URSA OPERATING COMPANY	
Well		YATER 43A-17-07-95	
Field		PARACHUTE	
County		GARFIELD	State CO
API No.: 05-045-22763-0000		Serv #: 902306489	
Location: SURFACE HOLE LOCATION: 1717' FSL & 1107' FWL		Other Services	
BOTTOM HOLE LOCATION: 2439' FSL & 0660' FEL		CBL GAUGE RING	
Sec: 17 Twp: 07S Rge: 95W			
Permanent Datum		GROUND LEVEL Elevation 5519'	
Log Measured From		KB, 17 Ft. above perm. datum	
Drilling Measured From		KB	
Date @ Time Logged		12 APR 2015	
Run No.		ONE	
Depth - Driller		7005'	
Depth - Logger		6924'	
Bottom - Logged Interval		6924'	
Top - Log Interval		3616'	
Max. Recorded Temp.		232 DEG F	
CEMENTING DATA		Surface String	
Date / Time Cemented		N/A	
Primary / Squeeze		N/A	
Expected Compressive Strength		psi@ hrs	
Cement Volume		/	
Cement Type / Weight		/	
Formulation		/	
Mud Type / Mud Wgt.		/	
Run Number		Borehole Record	
ONE		12.25" SURFACE 1830' 8.625" 32.0# 1830'	
TWO		7.875" 1830' 7005' 4.5" 11.6# SURFACE 7005'	

<<< Fold Here >>>

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

HES CBL LOG DATED 12 APR 2015 IS THE PRIMARY DEPTH REFERENCE FOR THIS WELL.

GR-CBL-RMT RAN IN COMBINATION.

LOG INTERVALS PER CUSTOMER REQUEST.

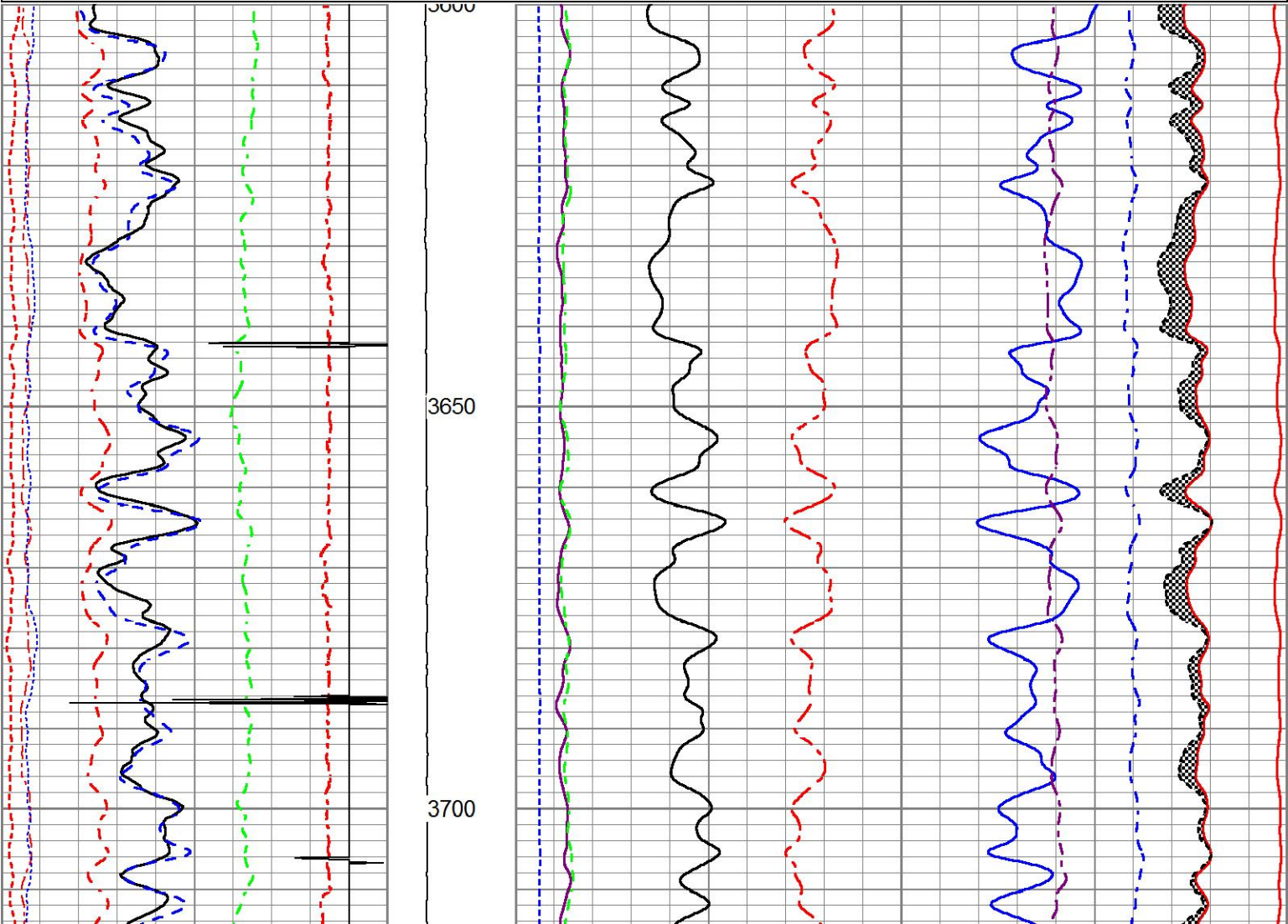
SHORT JOINTS @: 4351' - 4361', 5381' - 5391', AND 6451' - 6461'.

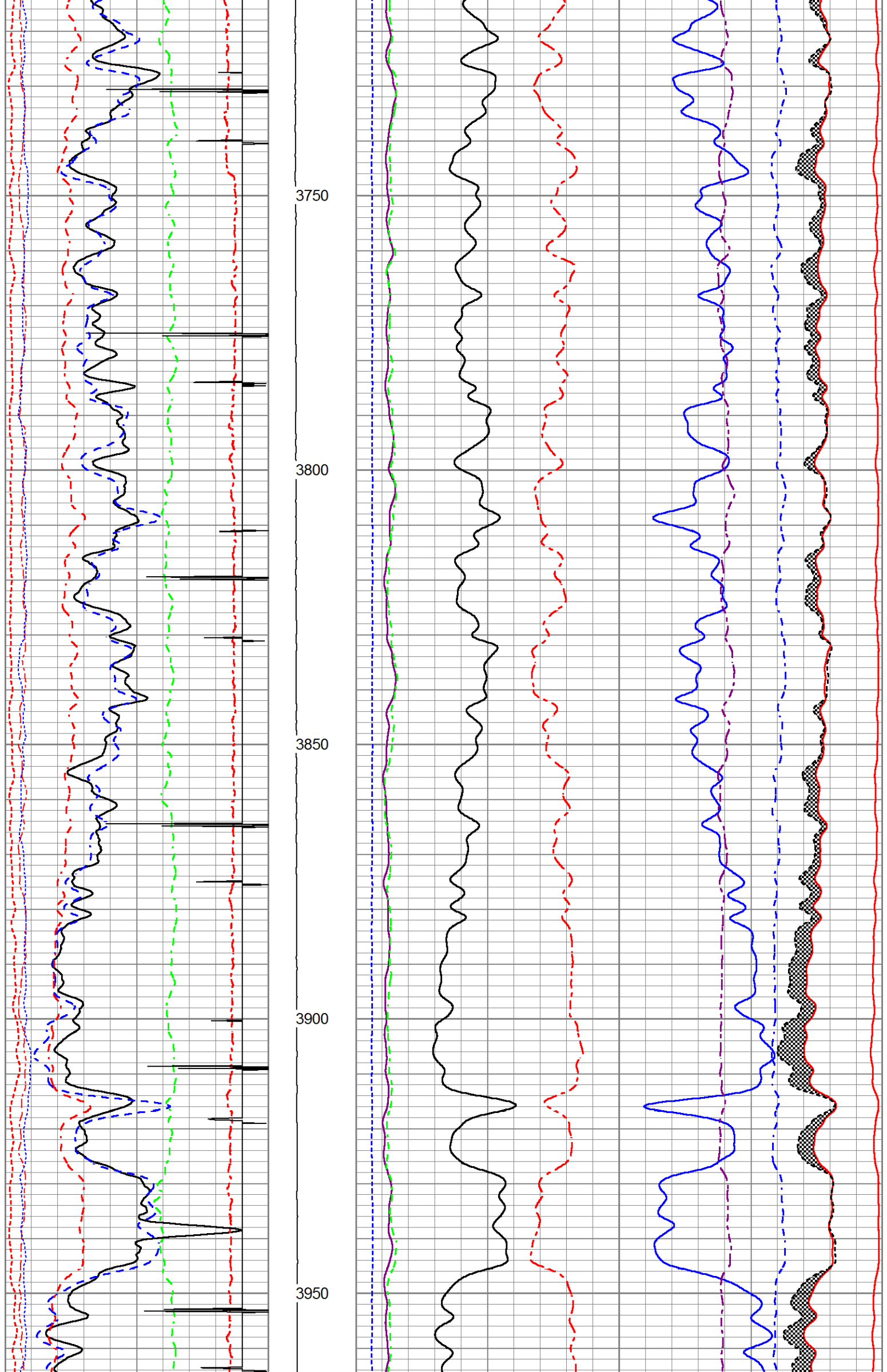
THANK YOU FOR CHOOSING HALLIBURTON ENERGY SERVICES.

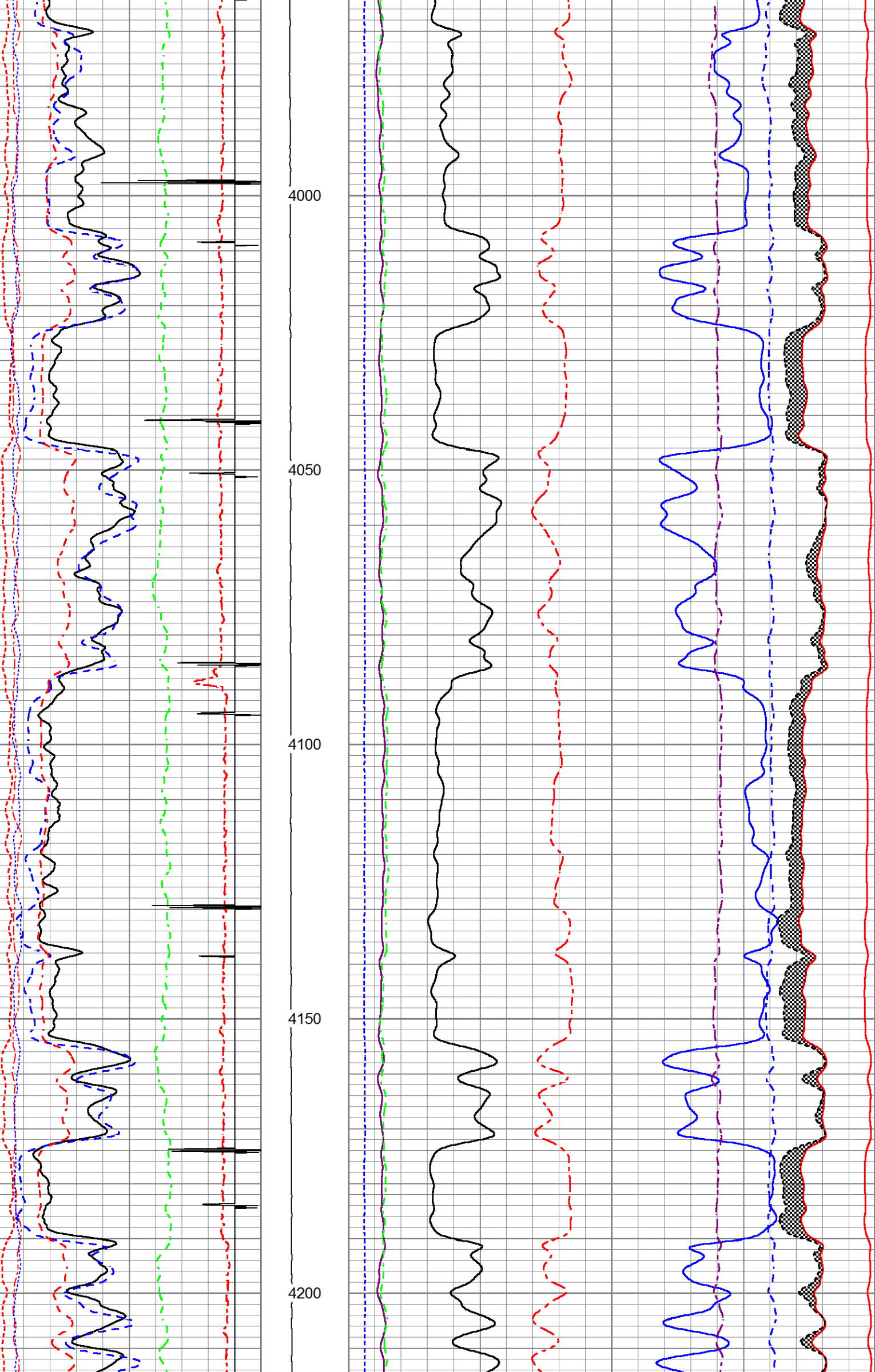
Service Ticket No.	902306489	API No.	05-045-22763-0000	PGM Ver	14.11.12001
The Well Name, Location, Borehole Description, and / or Cementing Data Furnished by Client					
EQUIPMENT DATA					
TELEMETRY		CEMENT BOND LOG		RESERVOIR MONITOR TOOL	
Run No.	ONE	Run No.	ONE	Run No.	ONE
Serial No.	12159411	Serial No.	11794522	Serial No.	12270722
Model No.	TTTC-U-002	Model No.	CBL-M	Model No.	RMT3D-A
Diameter	1.688"	Diameter	2.75"	Diameter	2.125"
LOGGING DATA					
General Data					
Pass	Depths		Well Head	Speed	Logging Run Comments
No	From	To	Pressure	Ft/Min	

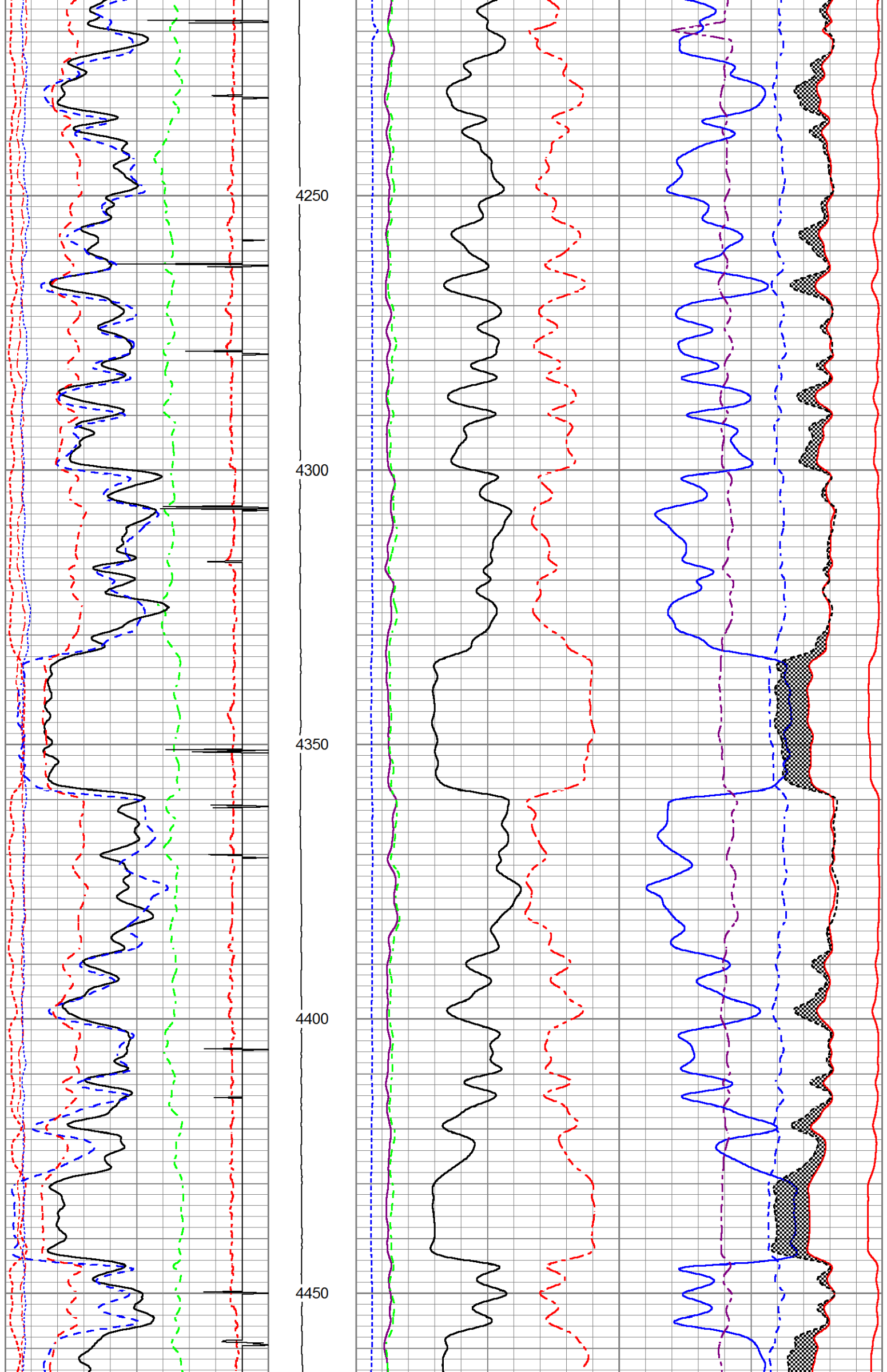
No.	FROM	TO	Pressure	TEMP				
ONE	6924'	3616'	0	15	MAIN LOG SECTION			
	GAMMA RAY		RM3SGBN		RM3RNF		RM3SGIN	
Pass	Scale		Scale		Scale		Scale	
No.	L	R	L	R	L	R	L	L
ONE	0	200	200	0	2	0.5	60	0
DIRECTIONAL INFORMATION								
Maximum Deviation		N/A	deg. @	N/A	KOP	328'		

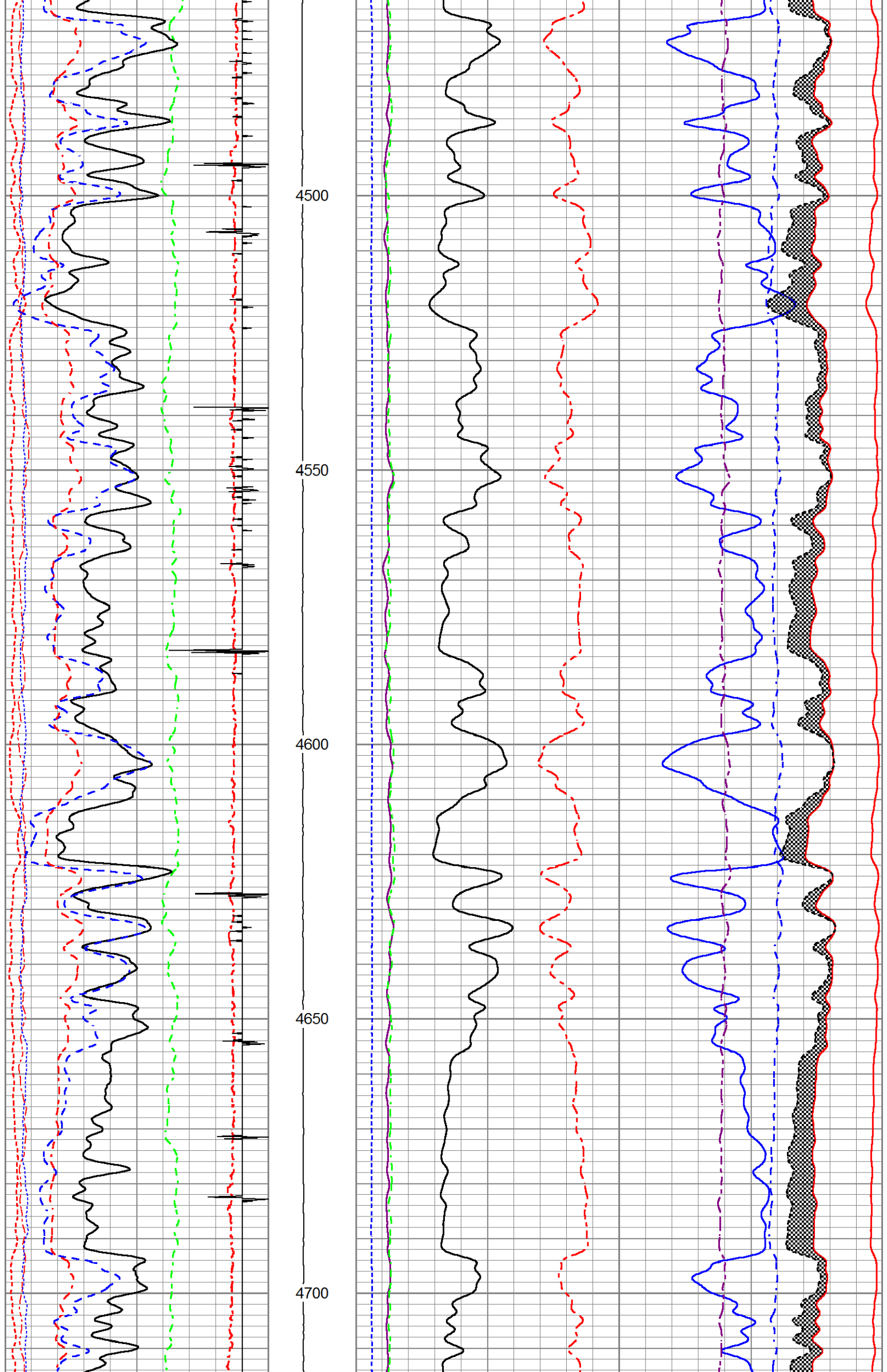
MAIN LOG SECTION									
HALLIBURTON									
5" = 100'									
Database File		yater_43a_3dcombo.db							
Dataset Pathname		MAIN1							
Presentation Format		RMT3D_~4							
Dataset Creation		Sun Apr 12 08:20:02 2015							
Charted by		Depth in Feet scaled 1:240							
200	Rm3SGBN	0	TENSION	60	Rm3SGIN				0
0	Rm3OAI2	100		2	Rm3RNF	0.5	60000	Rm3NCAP	0
0	GR (GAPI)	200		0	Rm3RIN	15	60000	Rm3FCAP	0
-20	LSPD (ft/min)	20		0	Rm3RICF	6	100000	Rm3FSIN	0
-540	CCL	60		0	Rm3YH1	1	60000	Rm3LCAP	0
10	Rm3SGFF	40		0	Rm3YH2	1	100000	Rm3NSIN	0
0	Rm3SGFN	100							
0	Rm3CFTR1	1							
0	Rm3CFTR2	1							

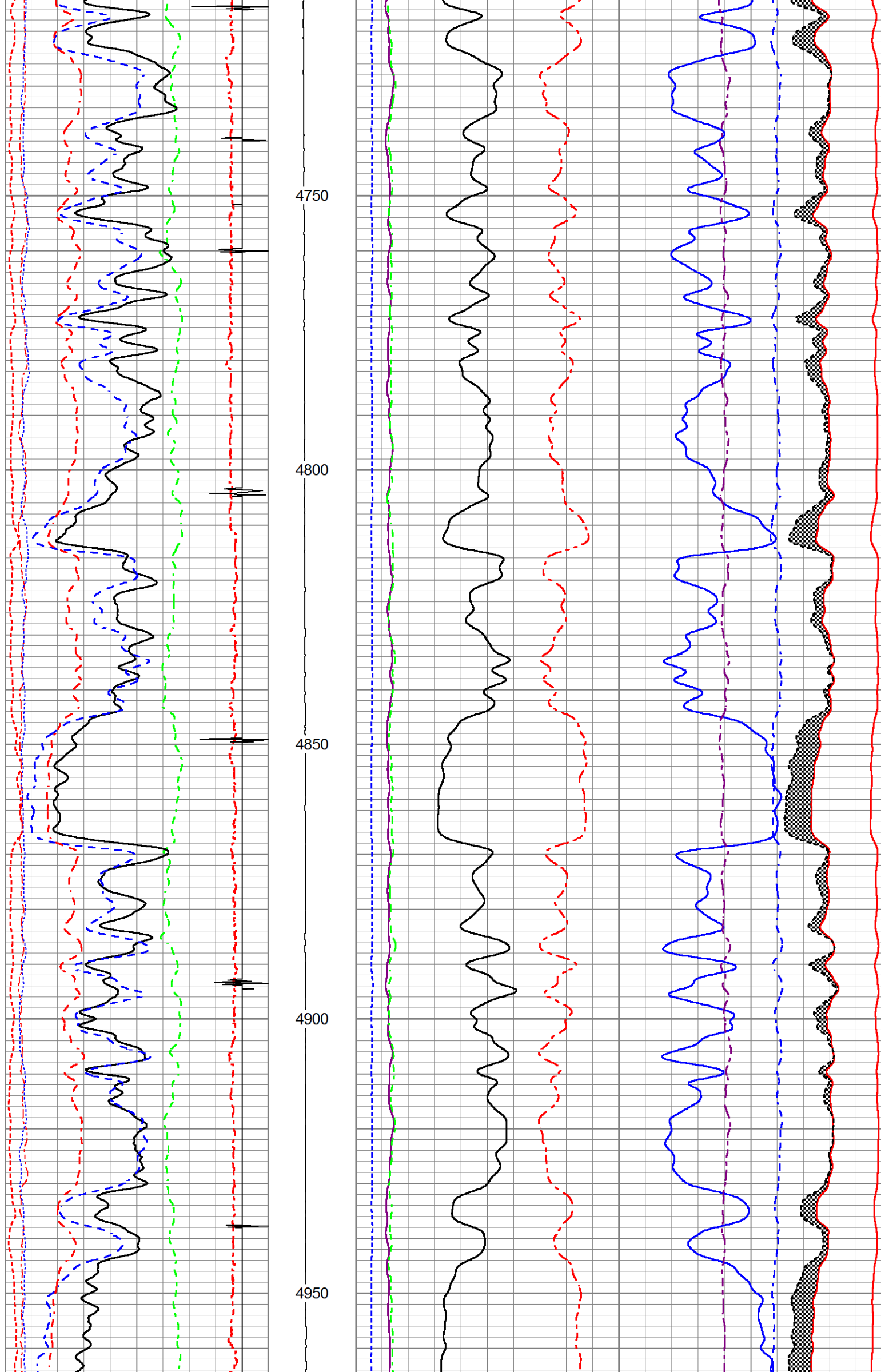


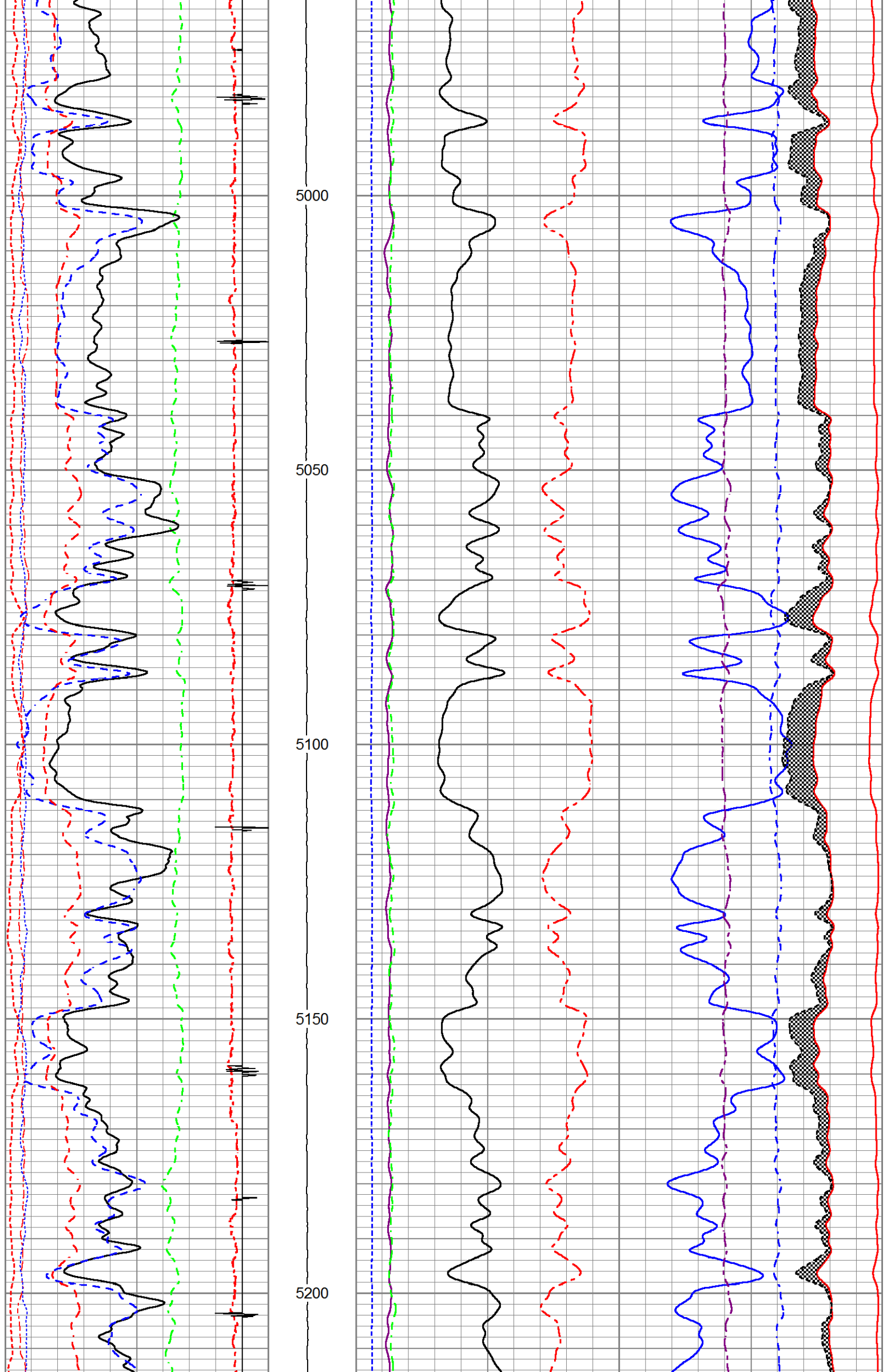


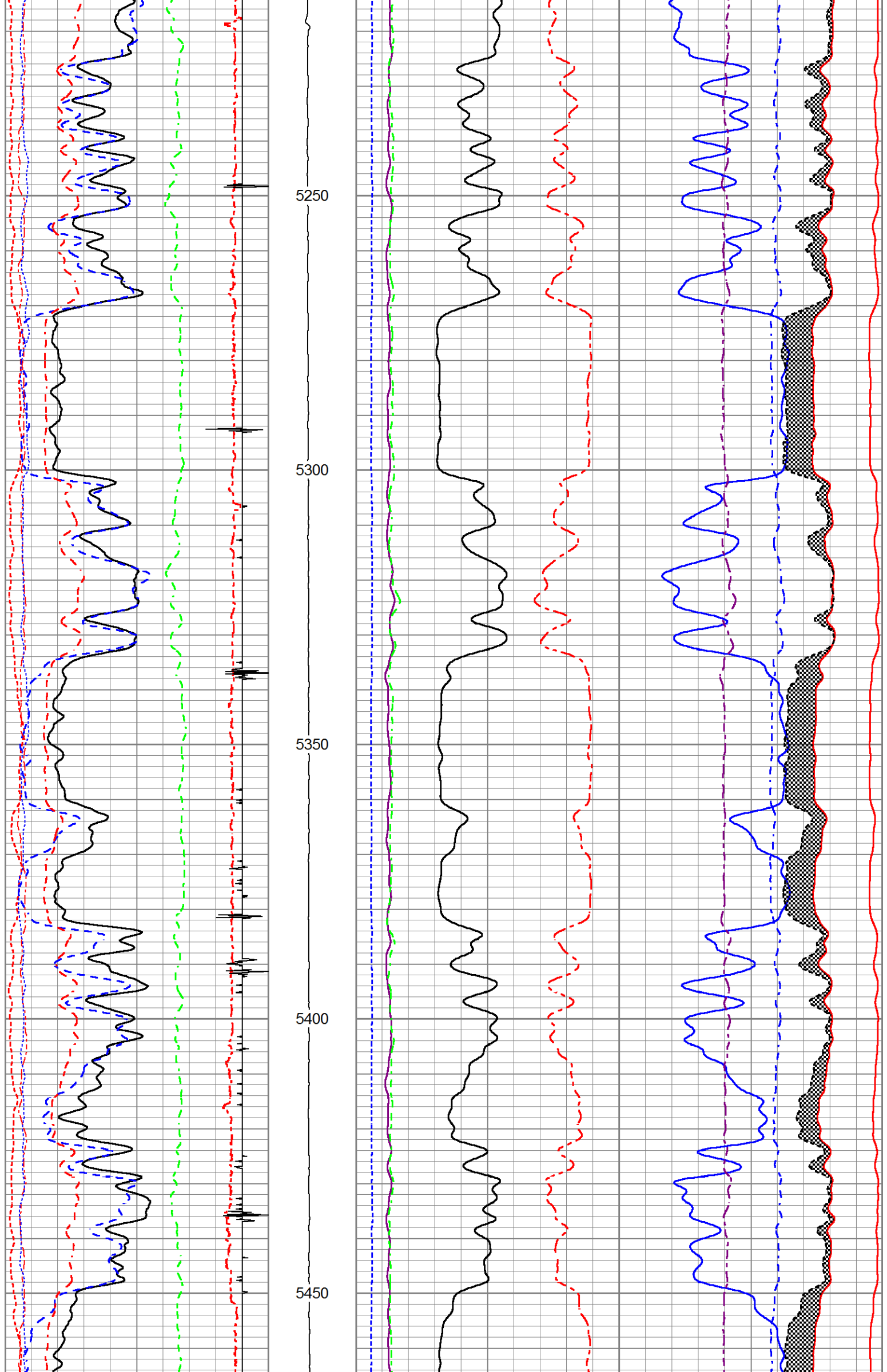


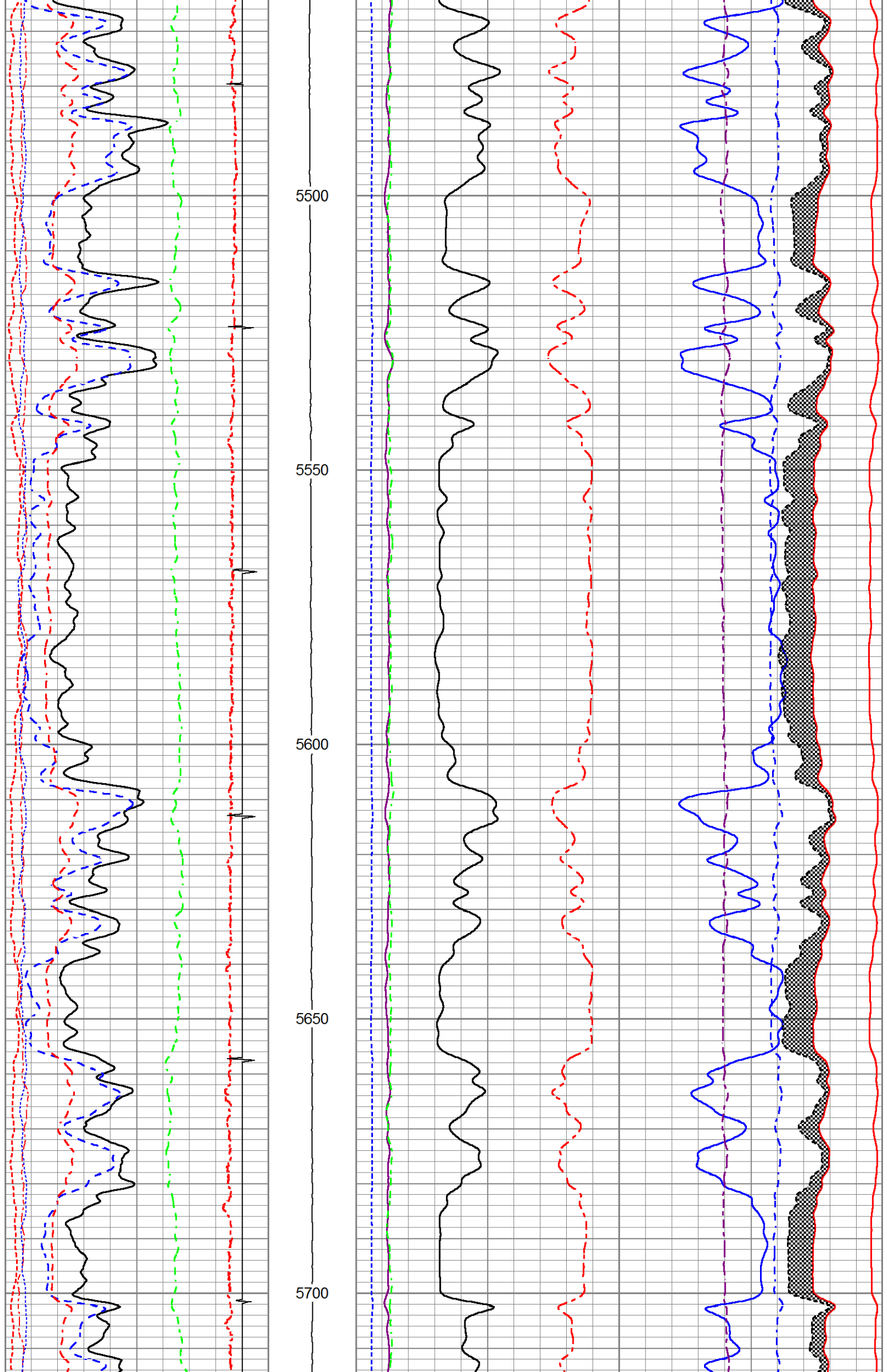


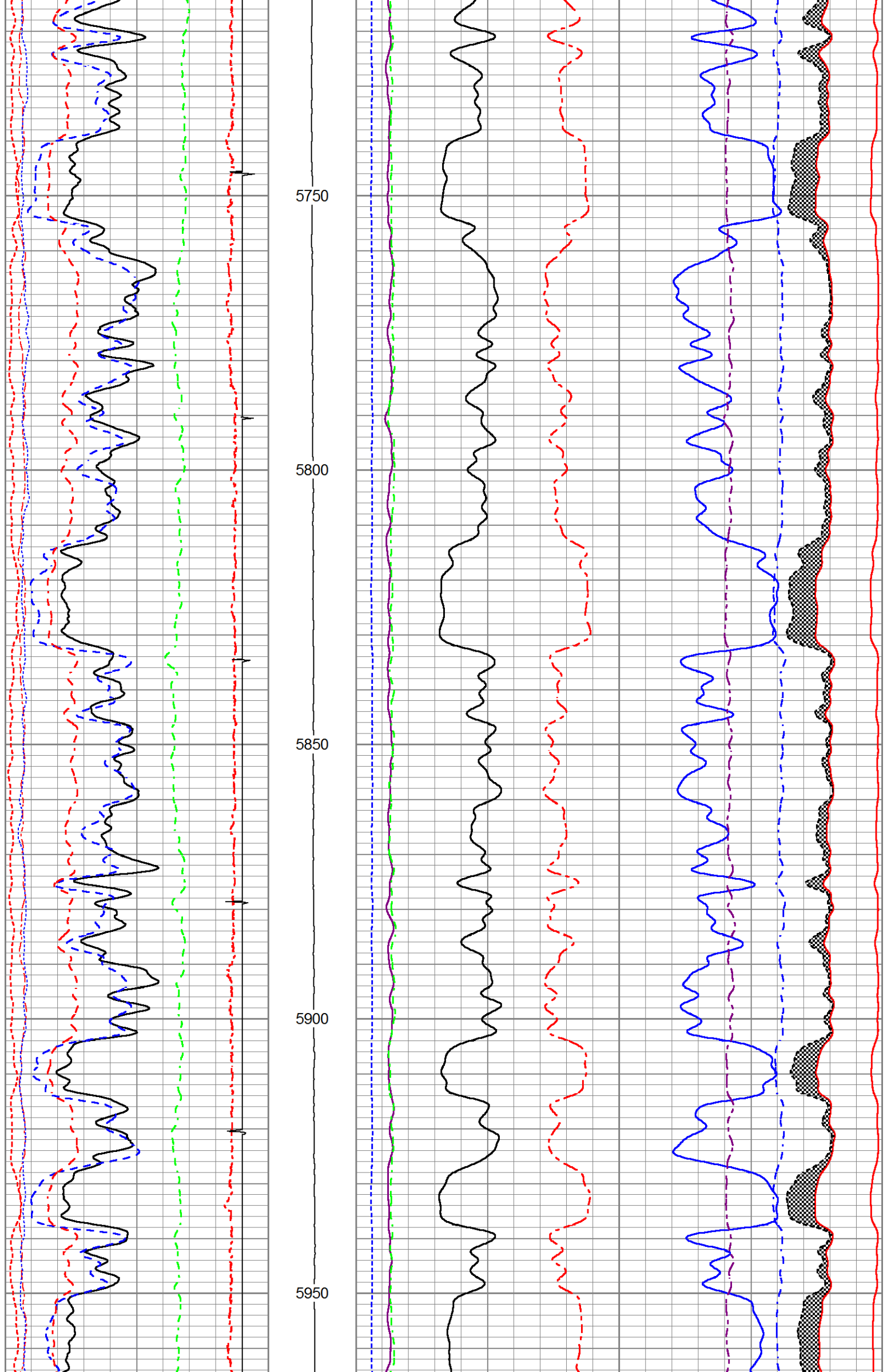


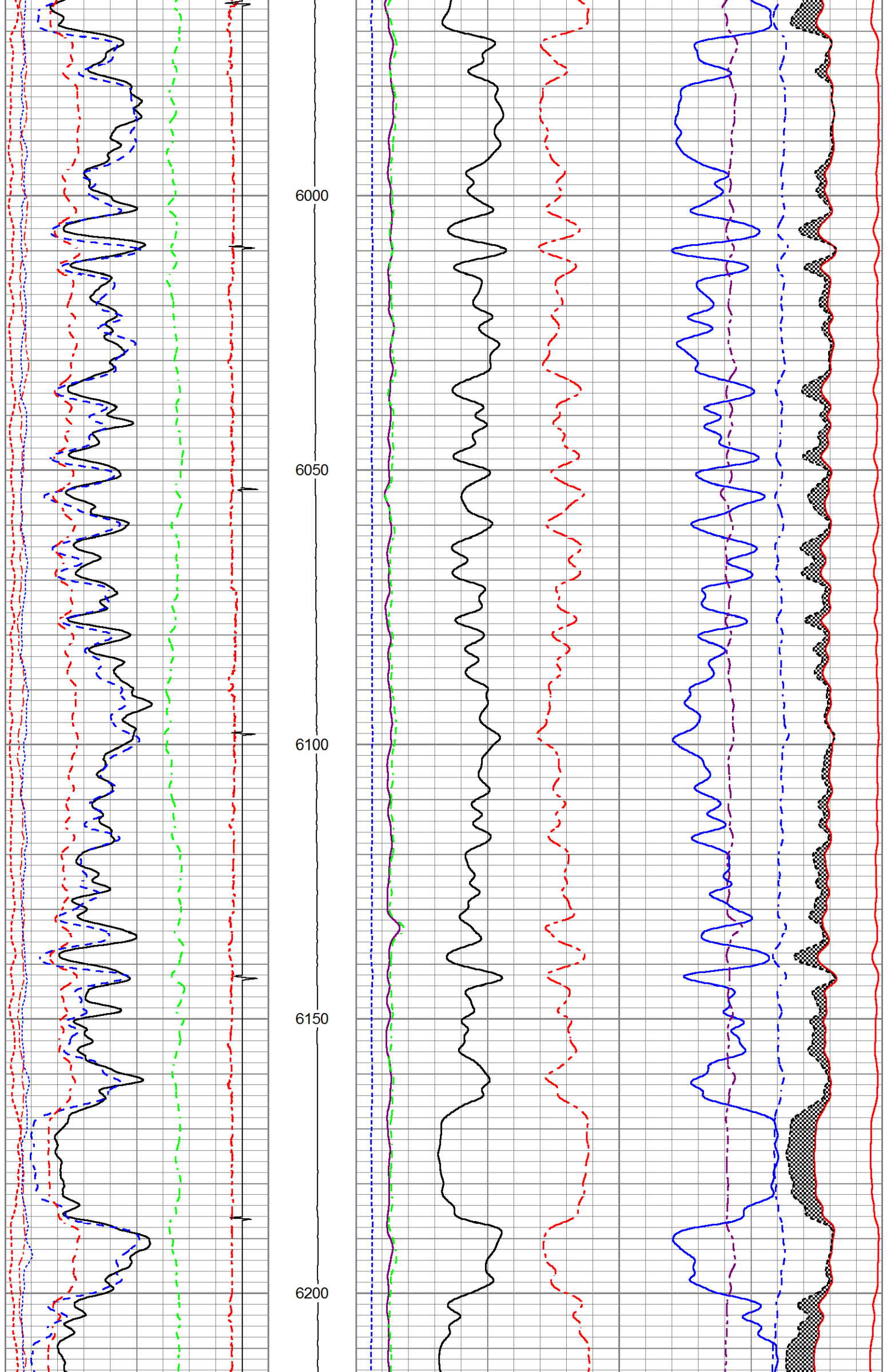


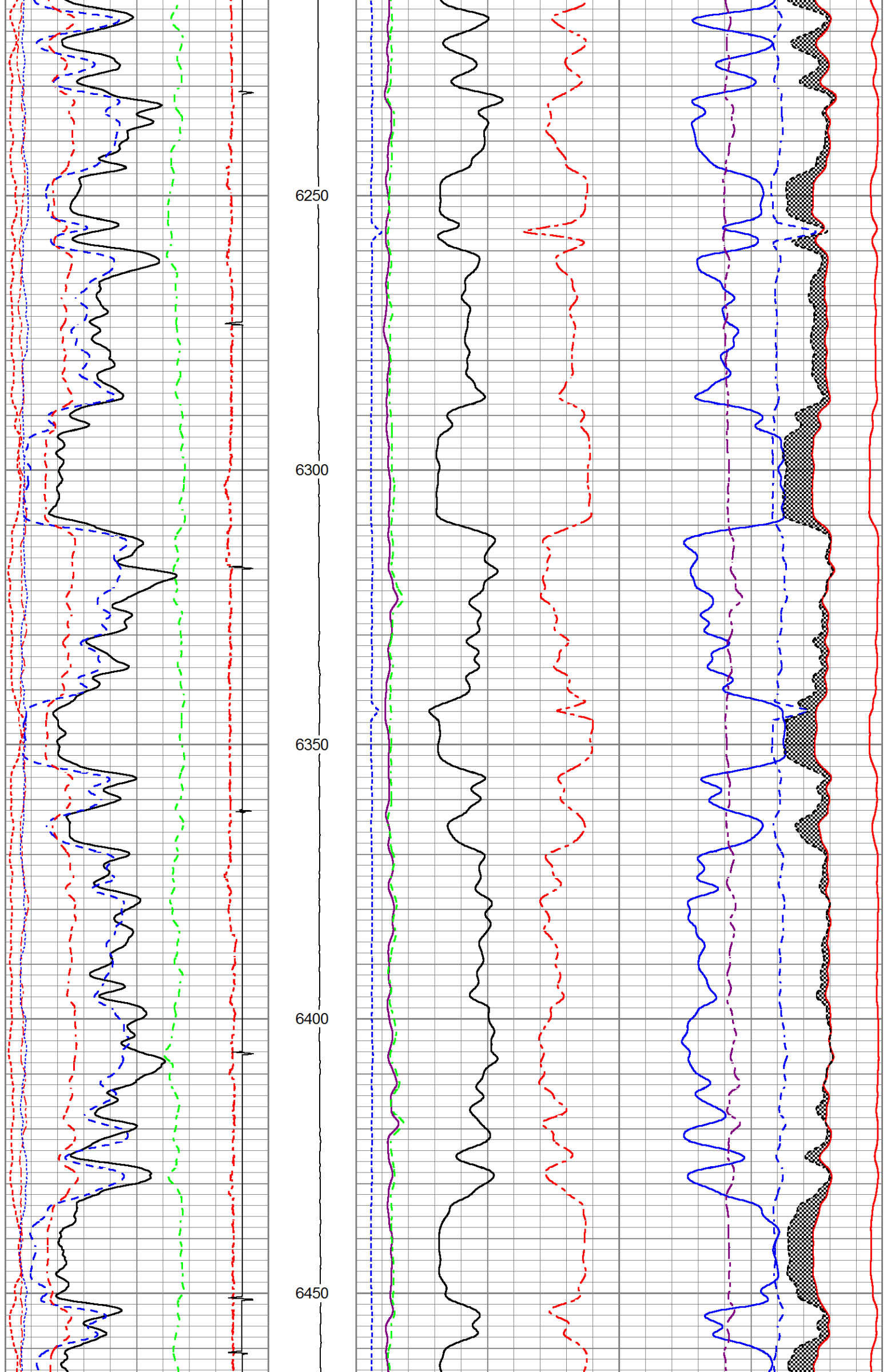


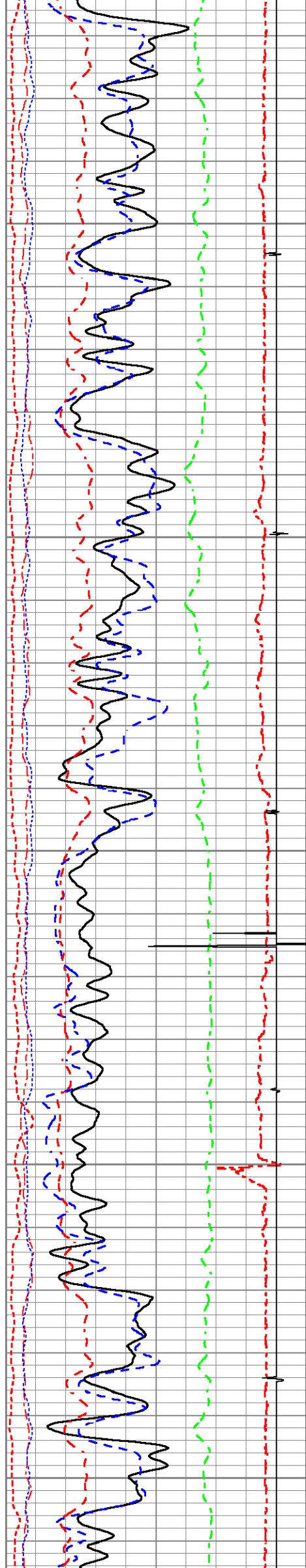












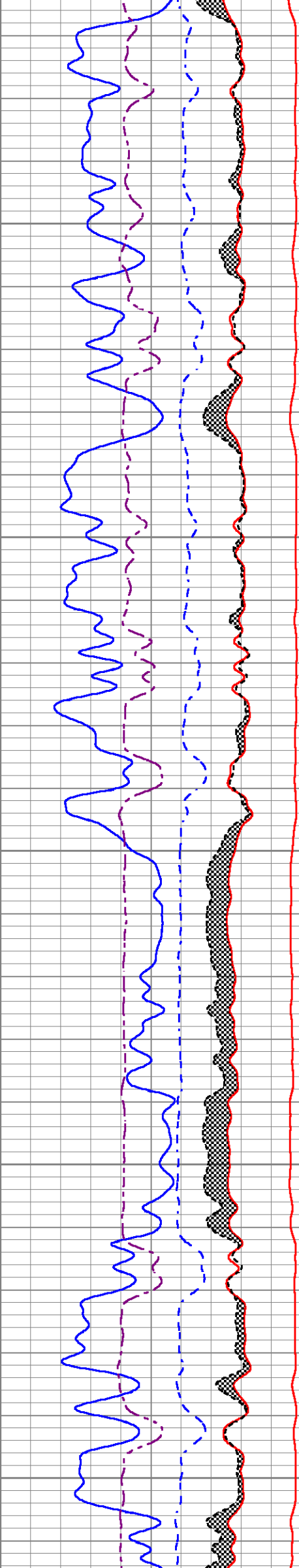
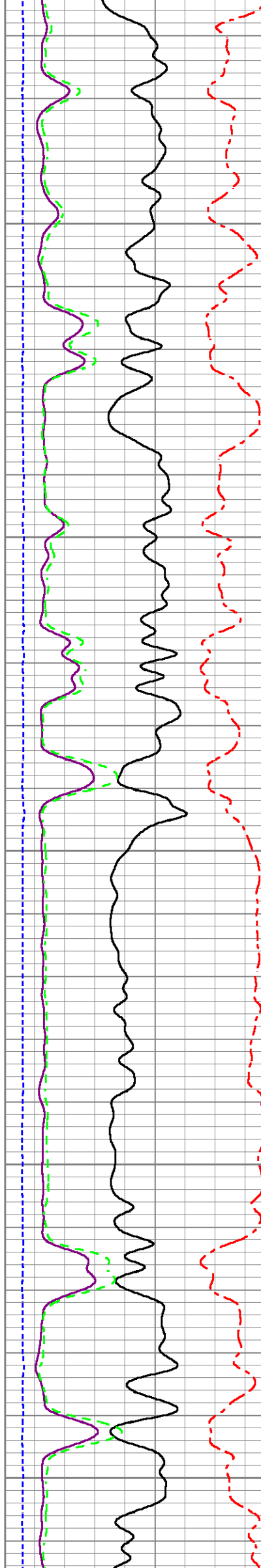
6500

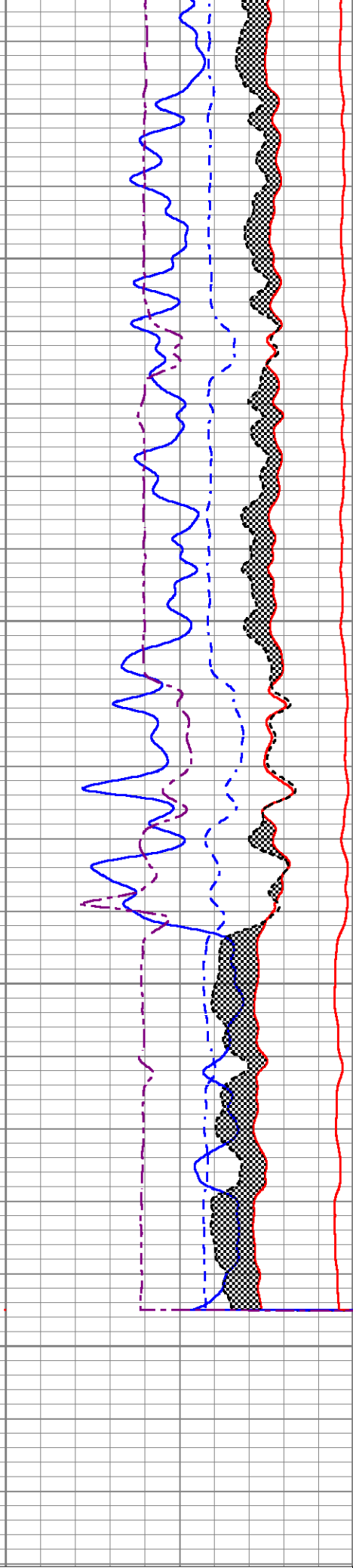
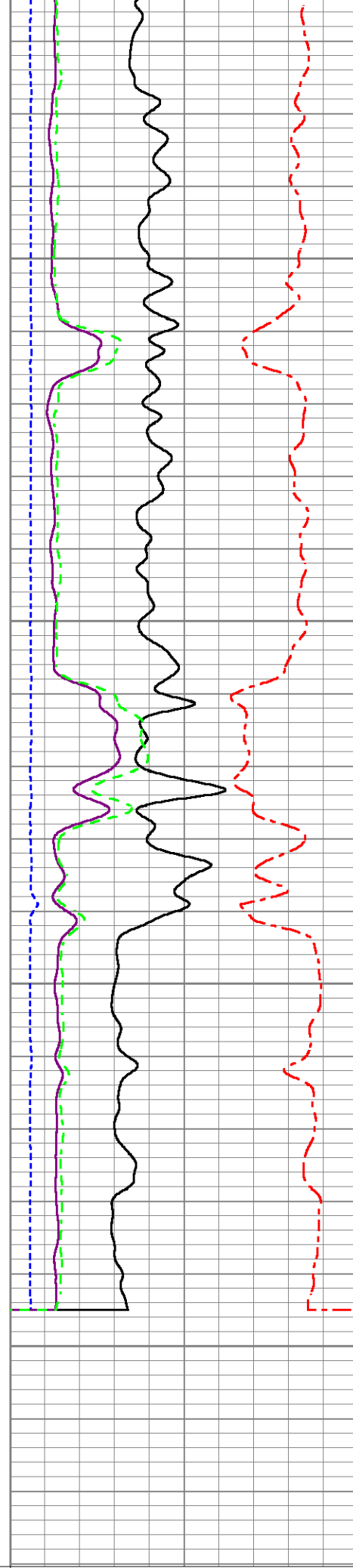
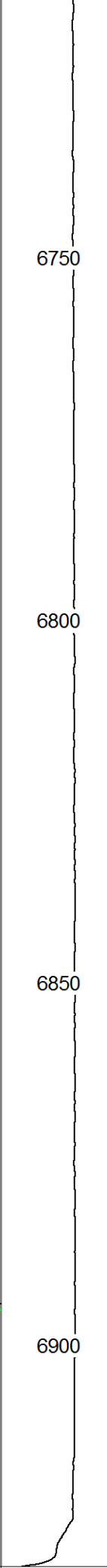
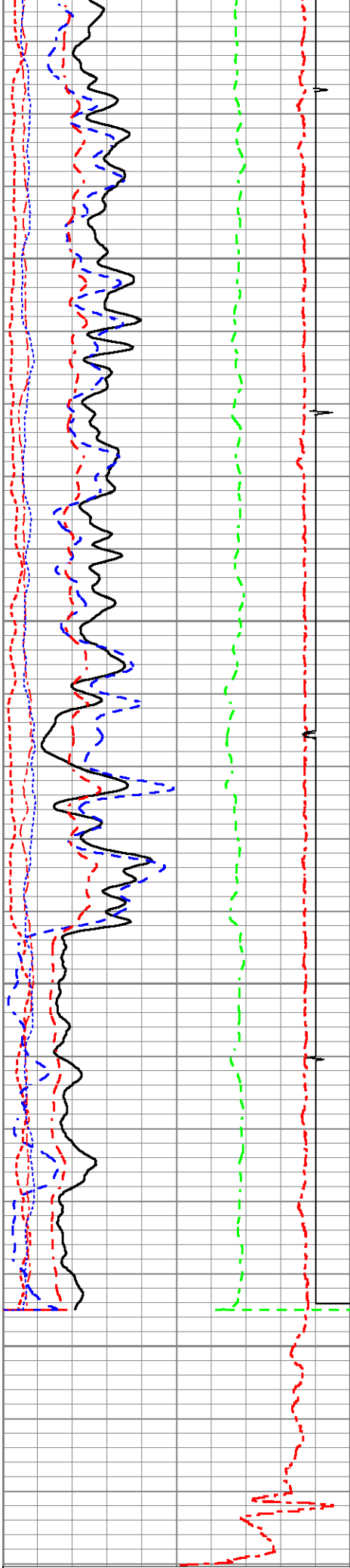
6550

6600

6650

6700





200	Rm3SGBN	0
0	Rm3OAI2	100
0	GR (GAPI)	200
-20	LSPD (ft/min)	20
-540	CCL	60
10	Rm3SGFF	40
0	Rm3SGFN	100

TENSION

60	Rm3SGIN	0
2	Rm3RNF	0.5
0	Rm3RIN	15
0	Rm3RICF	6
0	Rm3YH1	1
0	Rm3YH2	1

60000	Rm3NCAP	0
60000	Rm3FCAP	0
100000	Rm3FSIN	0
60000	Rm3LCAP	0
100000	Rm3NSIN	0

0	Rm3CFTR1	1
0	Rm3CFTR2	1

MAIN LOG SECTION

HALLIBURTON

5" = 100'

REPEAT LOG SECTION

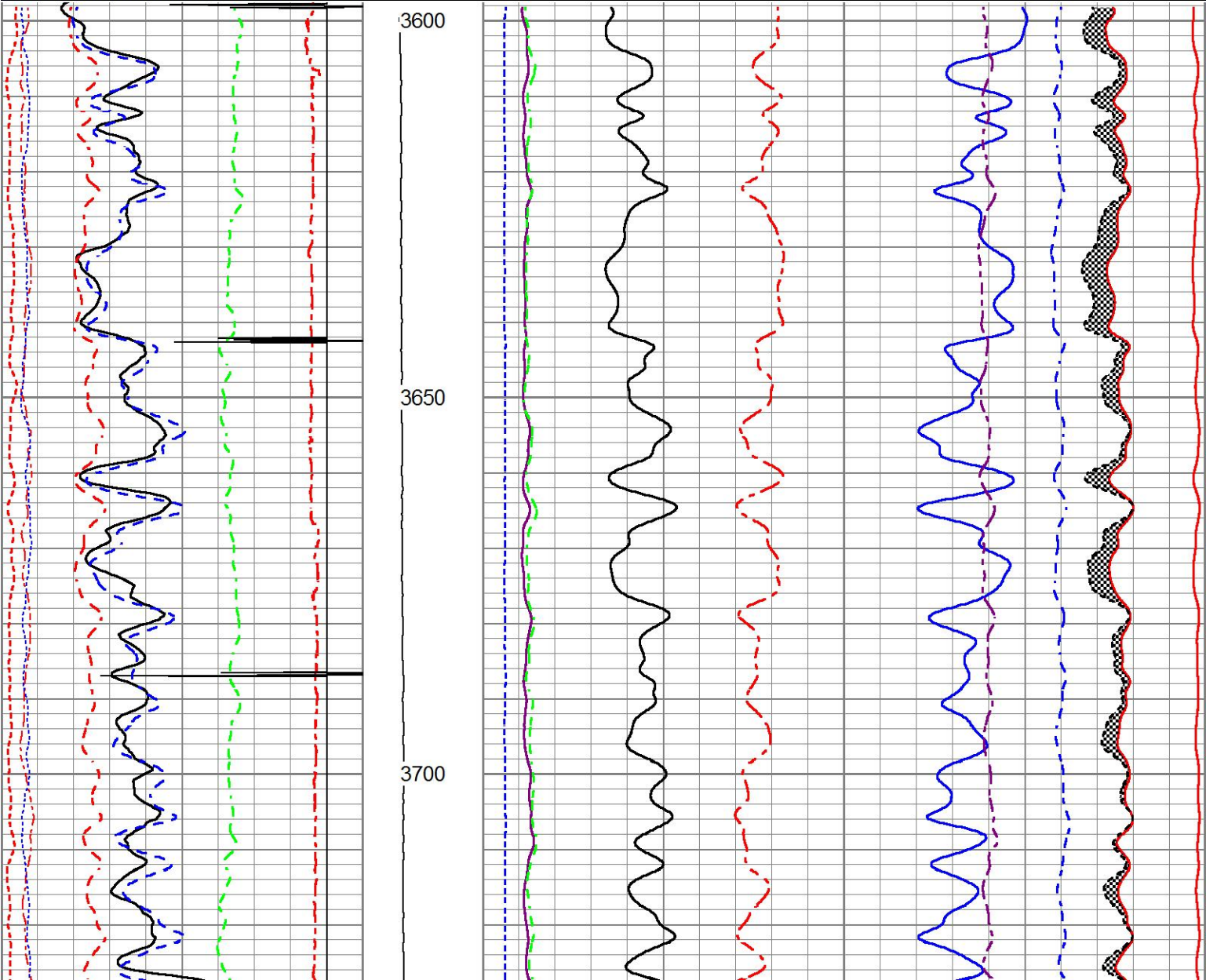
HALLIBURTON

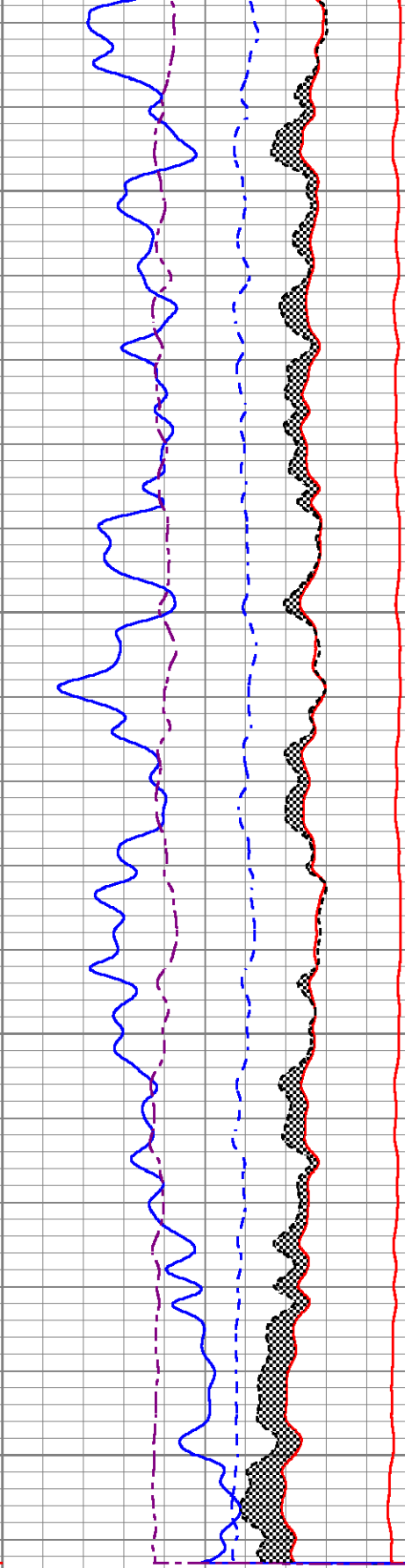
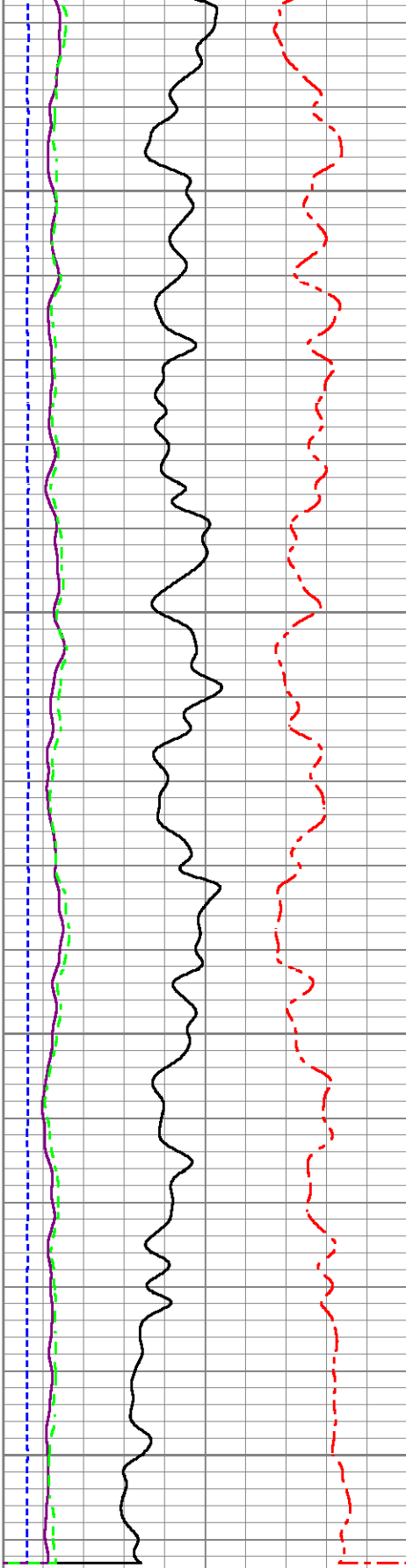
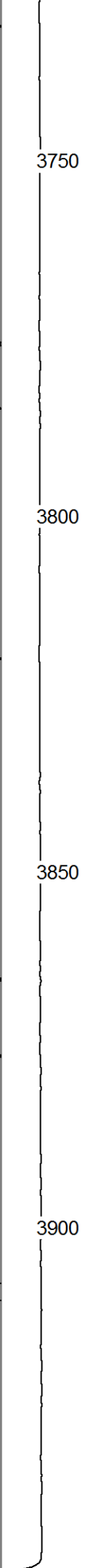
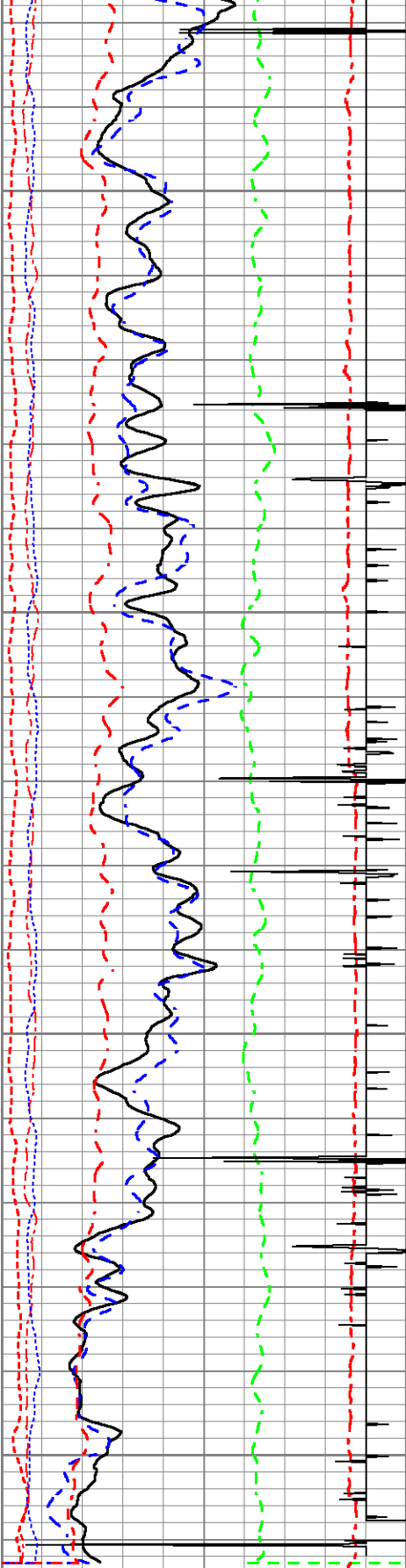
5" = 100'

Database File
Dataset Pathname
Presentation Format
Dataset Creation
Charted by

yater_43a_3dcombo.db
RMTRPT1
RMT3D_~4
Sun Apr 12 07:27:44 2015
Depth in Feet scaled 1:240

200	Rm3SGBN	0	TENSION	60	Rm3SGIN				0
0	Rm3OAI2	100		2	Rm3RNF	0.5	60000	Rm3NCAP	0
0	GR (GAPI)	200		0	Rm3RIN	15	60000	Rm3FCAP	0
-20	LSPD (ft/min)	20		0	Rm3RICF	6	100000	Rm3FSIN	0
-540	CCL	60		0	Rm3YH1	1	60000	Rm3LCAP	0
10	Rm3SGFF	40		0	Rm3YH2	1	100000	Rm3NSIN	0
0	Rm3SGFN	100							
0	Rm3CFTR1	1							
0	Rm3CFTR2	1							





200	Rm3SGBN	0
0	Rm3OAI2	100
0	GR (GAPI)	200
-20	LSPD (ft/min)	20
-540	CCL	60
10	Rm3SGFF	40

TENSION

60	Rm3SGIN	0
2	Rm3RNF	0.5
0	Rm3RIN	15
0	Rm3RICF	6
0	Rm3YH1	1
0	Rm3YH2	1

60000	Rm3NCAP	0
60000	Rm3FCAP	0
100000	Rm3FSIN	0
60000	Rm3LCAP	0
100000	Rm3NSIN	0

0	Rm3SGFN	100
0	Rm3CFTR1	1
0	Rm3CFTR2	1

REPEAT LOG SECTION

HALLIBURTON

5" = 100'

Log Variables

DatabaseC:\ProgramData\Warrior\Data\yater_43a_3dcombo.db
Dataset field/well/run1/MAIN1/_vars_

Top - 17.00 ft

BHTEMP_Src	BHSAL2	BHSAL1	RUN3D?	POROSL2	POROSL1	POROS2	POROS1
TEMP	0	1	No	0	1	0	1
LTH	UHSGC	RHOCFL	RHO�F	SO in	BORSAL kppm	CASED?	MSGGN
Sandstone	NONE	0.15	0.25	0	150	Yes	1
USERFTT usec/ft	ZREF MRayl	CASEWGHT lb/ft	SRFTEMP degF	MudWgt lb/gal	CASETHCK in	CASEOD in	PERFS
0	1.7	11.6	0	8.4	0.25	4.5	0
TDEPTH ft	BOTTEMP degF	BITSIZE in					
0	100	10					

17.00 ft - Bottom

BHTEMP_Src	BHSAL2	BHSAL1	RUN3D?	POROSL2	POROSL1	POROS2	POROS1
TEMP	0	1	Yes	0	1	0	1
LTH	UHSGC	RHOCFL	RHO�F	SO in	BORSAL kppm	CASED?	MSGGN
Sandstone	NONE	0.15	0.25	0	150	Yes	1
USERFTT usec/ft	ZREF MRayl	CASEWGHT lb/ft	SRFTEMP degF	MudWgt lb/gal	CASETHCK in	CASEOD in	PERFS
0	1.7	11.6	0	8.4	0.25	4.5	0
TDEPTH ft	BOTTEMP degF	BITSIZE in					
0	100	10					

Calibration Report

Database File yater_43a_3dcombo.db
Dataset Pathname MAIN1
Dataset Creation Sun Apr 12 08:20:02 2015

Reservoir Monitor Tool I (3 Detector) Calibration Report

Serial-Model: 12270722-A
Shop Calibration Performed: Thu Apr 09 15:04:28 2015

Carbon/Oxygen Mode

Stabilization

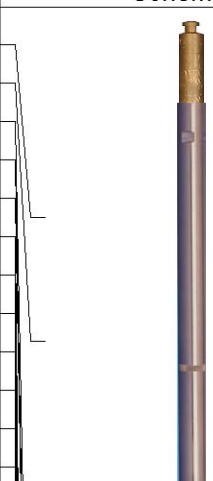
Result Logged Expected Value Diff. Tol. Units

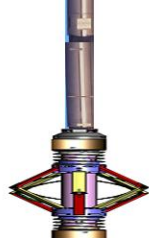


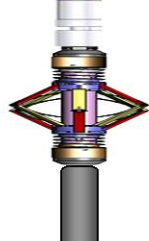
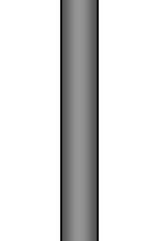
GENV ITCR2	87.00 3296	80.00 3250	7.00 46	+/-15.00 +/-250	V cps
Near Detector					
H	Channel 60	Expected Value 60 +/-2	Amplitude 0.0275	FWHM 5.26	Tol. <6.00
Fe	206	206 +/-2	0.0969	-----	-----
NGAIN = 0.996	NZOFF = 0.5				
Far Detector					
H	Channel 60	Expected Value 60 +/-2	Amplitude 0.0396	FWHM 5.02	Tol. <6.50
Fe	209	208 +/-2	0.0913	-----	-----
FGAIN = 0.993	FZOFF = 0.0				
Flask Temperature	64.9 degF				
Result	Logged	Expected Value	Diff.	Tol.	Units
NFER	2.14	2.10	0.04	+/-0.10	
FFER	1.81	1.80	0.01	+/-0.30	
LFER	1.13	1.60	-0.47	+/-0.60	
COIR2	0.45	0.45	-0.00	+/-0.02	
LIRI2	1.64	1.64	0.00	+/-0.05	
TCCR2	5198	5000	198	+/-1000	cps
ITCR2	3265	3200	65	+/-250	cps

Sigma Mode					
Stabilization					
Result	Logged	Expected Value	Diff.	Tol.	Units
GENV	86.00	80.00	6.00	+/-15.00	V
FCAP	9873	10000	-127	+/-500	cps
Horizontal Water Tank					
Result	Logged	Expected Value	Diff.	Tol.	Units
NFER	2.15	2.10	0.05	+/-0.10	
FFER	1.92	1.80	0.12	+/-0.30	
LFER	2.38	1.60	0.78	+/-0.60	
N/F Normalizer	0.946	0.935	0.011		
N/L Normalizer	0.106	0.111	-0.005		
N/F Inel Norm	0.610	0.610	-0.000		
N/L Inel Norm	0.056	0.055	0.001		
RNF	1.057	1.070	-0.013	+/-0.120	
RNL	9.420	9.000	0.420	+/-1.000	
RINC	1.640	1.640	-0.000	+/-0.180	
RINCL	18.001	18.000	0.001	+/-2.000	
SGFN	24.10	24.00	0.10	+/-0.50	cu
SGFF	22.94	22.85	0.09	+/-0.50	cu
SGFL	22.01	22.00	0.01	+/-1.00	cu
FSIN	23703	24000	-297	+/-2000	cps
LSIN	2207	2400	-193	+/-500	cps
FCAP	9992	10000	-8	+/-1000	cps
LCAP	1122	1200	-78	+/-200	cps
NFTR	0.83			<5.00	
FFTR	0.87			<5.00	
LFTR	1.18			<5.00	
NBKG	186			<500	cps
FBKG	99			<500	cps
LBKG	13			<500	cps
RTN	0.419	0.400	0.019	+/-0.100	usec
RTF	0.442	0.400	0.042	+/-0.100	usec

Calibration Software Modules					
HRMT3D Module	2015 3 19 0				

HRMT3D Module	2015.3.19.0	Log Data Acquisition Software Modules			
RMT3D Module	2015.3.19.1				
Cement Bond Log Shop Calibration Report					
Serial-Model:		11794522-A			
Calibration Performed:		Sat Apr 11 18:23:08 2015			
Free Pipe Calibration					
TT	Measured	Units			
Amplitude	245.7	usec			
Log Base Line	609.7	mV			
	8.4	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	0.135				
Gamma Ray Calibration Report					
Type / Serial:		002 / 12159411			
SHOP CALIBRATION		Sat Apr 11 11:13:47 2015			
	Counts/Sec.	Gain	Offset	Jig	Units
Background	39.6				cps
Calibrator	328.2				cps
		1.4140			GAPI/cps
PRIMARY VERIFICATION		Sat Apr 11 11:15:49 2015			
Background	55.1				cps
Calibrator	468.8				cps
Difference				413.6	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	36.04		STNDCH-STND_CH 1.4375 IN CABLE HEAD	1.50	1.44	1.00
GR	33.78					
Temp	24.06					
TT3FT	21.81					
AMP3FT	21.81					
Rm3TLGT	8.75					
Rm3LBACK	8.75					
Rm3LCAPT	8.75		TTTCU-002 (12159411) Through Tubing Telemetry Cartridge - Ultrawire	7.65	1.69	100.00
Rm3LINEL	8.75					
Rm3TFGT	8.25					
Rm3FBACK	8.25					
Rm3FCAPT	8.25					

Rm3FINEL	8.25		XHU-003 (11899561) Crossover Halliburton 1553 to Ultrawire	1.58	1.69	7.00
Rm3TNGT	7.75					
Rm3NBACK	7.75					
Rm3NCAPT	7.75					
Rm3NINEL	7.75					
Rm3ImpBTEST	0.00					
Rm3ImpBCYC	0.00					
Rm3ImpBRGW	0.00					
Rm3ImpBRGO	0.00					
Rm3ImpState	0.00					
Rm3ImpPhase	0.00		CENT-CASTM-CENT CAST M INLINE CENTRALIZER	2.16	3.13	25.00
Rm3ImpCyc	0.00					
Rm3GenClampV	0.00					
Rm3LTemp	0.00					
Rm3LPMHV	0.00					
Rm3LPMI	0.00					
Rm3LPrgSt1	0.00					
Rm3LDetStat	0.00					
Rm3FTemp	0.00					
Rm3FPMHV	0.00					
Rm3FPMI	0.00		CENT-CASTM-CENT CAST M INLINE CENTRALIZER	2.16	3.13	25.00
Rm3FPrgSt1	0.00					
Rm3FDetStat	0.00					
Rm3NTemp	0.00					
Rm3NPMHV	0.00					
Rm3NPMI	0.00					
Rm3NPrgSt1	0.00					
Rm3NDetStat	0.00					
Rm3Genlonl	0.00					
Rm3Gen15BusV	0.00					
Rm3GenLvdsV	0.00		RMT3D-A (12270722) RMT3D - 3 Detector RMT-I	15.17	2.13	86.00
Rm3GenSyncV	0.00					
Rm3GenClampV	0.00					
Rm3GenP5V	0.00					
Rm3GenP33V	0.00					
Rm3Gen200V	0.00					
Rm3GenP15VI	0.00					
Rm3GenTemp	0.00					
Rm3GenP5VI	0.00					
Rm3GenI	0.00					
Rm3GenPv	0.00					
Rm3GenCmd	0.00					
Rm3GenIspl	0.00					
Rm3GenIsppv	0.00					
Rm3GenIsppcmc	0.00					
Rm3GenRepPv	0.00					
Rm3GenRepV	0.00					
Rm3GenRepSv	0.00					
Rm3GenContSt	0.00					
Rm3GenContSt	0.00					
<div>Dataset: yater_43a_3dcombo.db: field/well/run1/MAIN1</div> <div>Total length: 39.61 ft</div> <div>Total weight: 360.00 lb</div> <div>O.D.: 3.13 in</div>						

Company	URSA OPERATING COMPANY				
Well	YATER 43A-17-07-95				
Field	PARACHUTE				
County	GARFIELD		State	CO	
HALLIBURTON	RESERVOIR MONITOR TOOL - ELITE				