

# HALLIBURTON

## RESERVOIR MONITOR TOOL - ELITE

Company URSA OPERATING COMPANY  
Well YATER 42D-17-07-95  
Field PARACHUTE  
County GARFIELD State CO

Company URSA OPERATING COMPANY  
Well YATER 42D-17-07-95  
Field PARACHUTE  
County GARFIELD State CO

Sec: 17 Twp: 07S Rge: 95W  
GROUND LEVEL Elevation 5519'  
KB , 17 Ft. above perm. datum  
KB  
Elevation  
K.B. 5536'  
D.F. 5535'  
G.L. 5519'

Other Services  
CBL  
GAUGE RING

API No.: 05-045-22757-0000 Serv. #: 902310059  
Location: SURFACE HOLE LOCATION:  
1729' FSL & 1107' FWL  
BOTTOM HOLE LOCATION:  
2516' FNL & 0660' FEL

Permanent Datum	GROUND LEVEL		Elevation	5519'	WATER		Elevation	
Log Measured From	KB		17 Ft. above perm. datum		KB		5536'	
Drilling Measured From	KB				G.L.		5535'	
Date @ Time Logged	12 APR 2015		Type Fluid in Hole		WATER			
Run No.	ONE		Density of Fluid		8.4#			
Depth - Driller	7098'		Fluid Level		62'			
Depth - Logger	7012'		Cement Top Est. Logged		2080'			
Bottom - Logged Interval	7012'		Equipment / Location		1097/1668			G.J.
Top - Log Interval	3713'		Recorded by		D. SOLIS			
Max. Recorded Temp.	233 DEG F		Witnessed by		R. TOLLE			
CEMENTING DATA	Surface	String	Protection	String	Production	String	Liner	
Date / Time Cemented	N/A		String	N/A	String	N/A	N/A	
Primary / Squeeze	N/A		String	N/A	String	N/A	N/A	
Expected Compressive Strength	psi@		hrs	psi@	hrs	psi@	hrs	psi@
Cement Volume	/		hrs	psi@	hrs	psi@	hrs	psi@
Cement Type / Weight	/		hrs	psi@	hrs	psi@	hrs	psi@
Formulation	/		hrs	psi@	hrs	psi@	hrs	psi@
Mud Type / Mud Wgt.	/		hrs	psi@	hrs	psi@	hrs	psi@
Borehole Record				Casing & Tubing Record				
Run Number	Bit	From	To	Size	Weight	From	To	
ONE	12.25"	SURFACE	1854'	8.625"	32.0#	SURFACE	1854'	
TWO	7.875"	1854'	7098'	4.5"	11.6#	SURFACE	7098'	

<<< 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 @: 4490' - 4500', 5520' - 5530', AND 6551' - 6561'.

\*\*\*THANK YOU FOR CHOOSING HALLIBURTON ENERGY SERVICES.\*\*\*

Service Ticket No. 902310059      API No. 05-045-22757-0000      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	

ONE	7012'	3713'	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	302'			

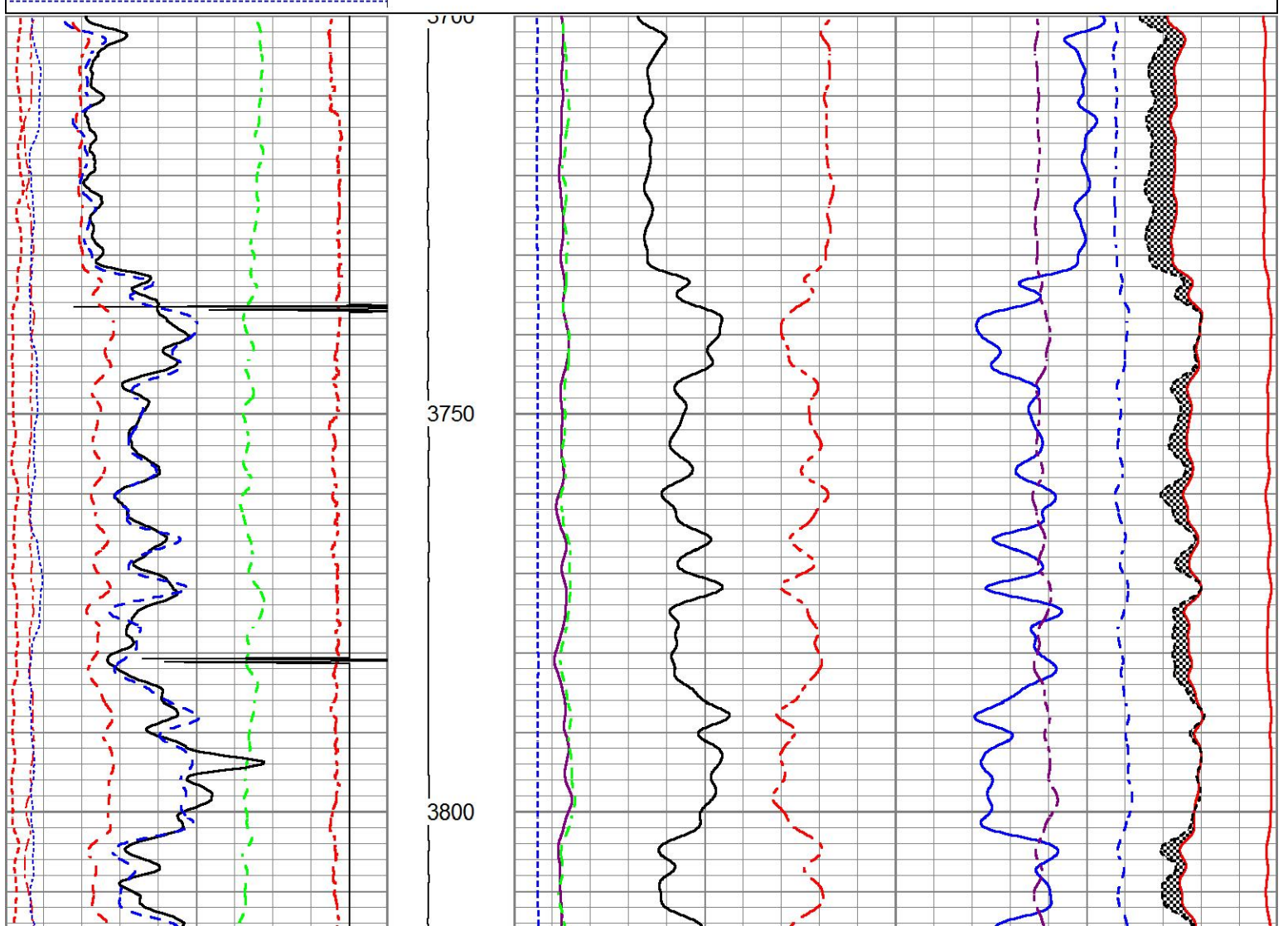
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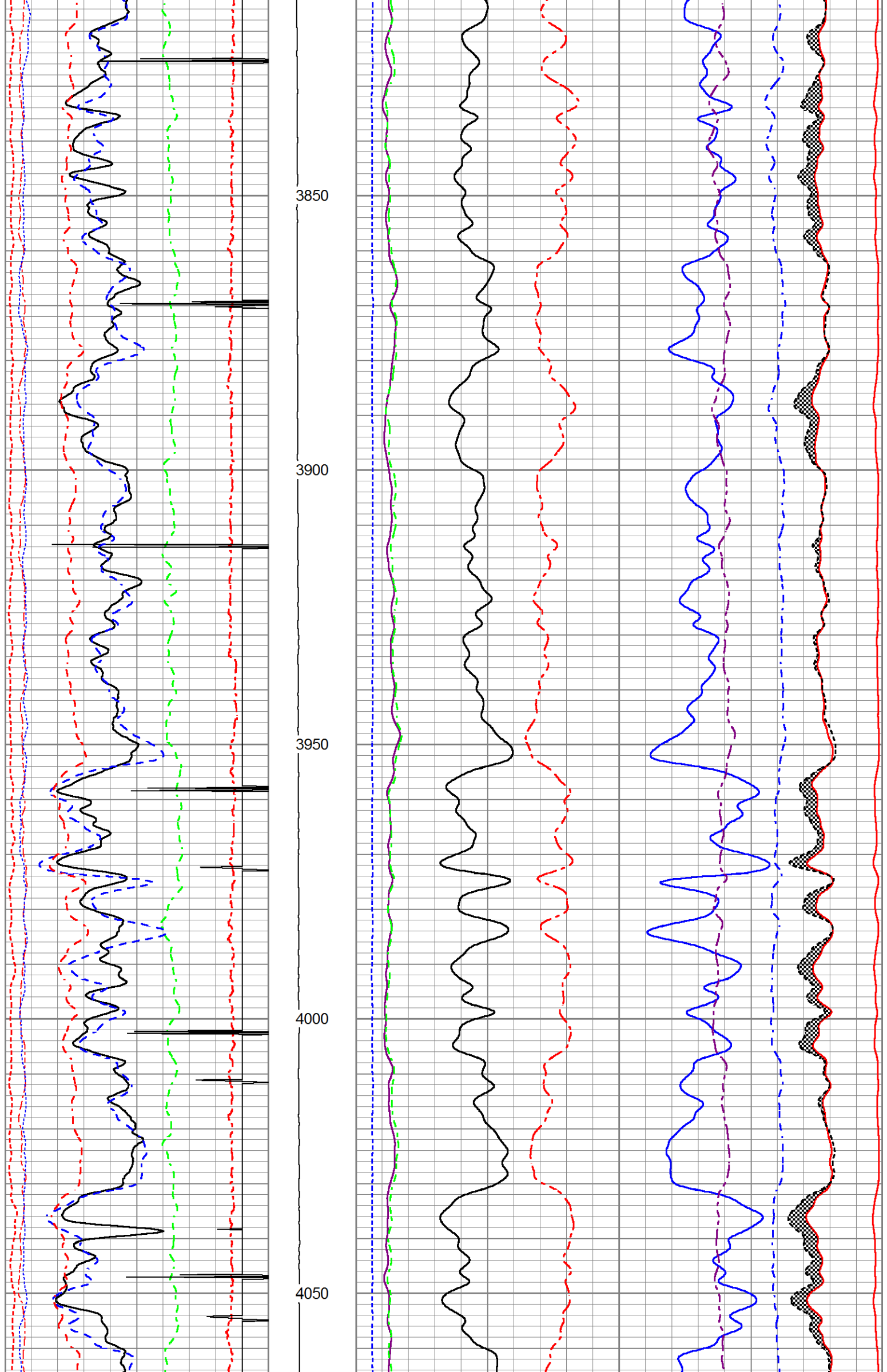
**HALLIBURTON**

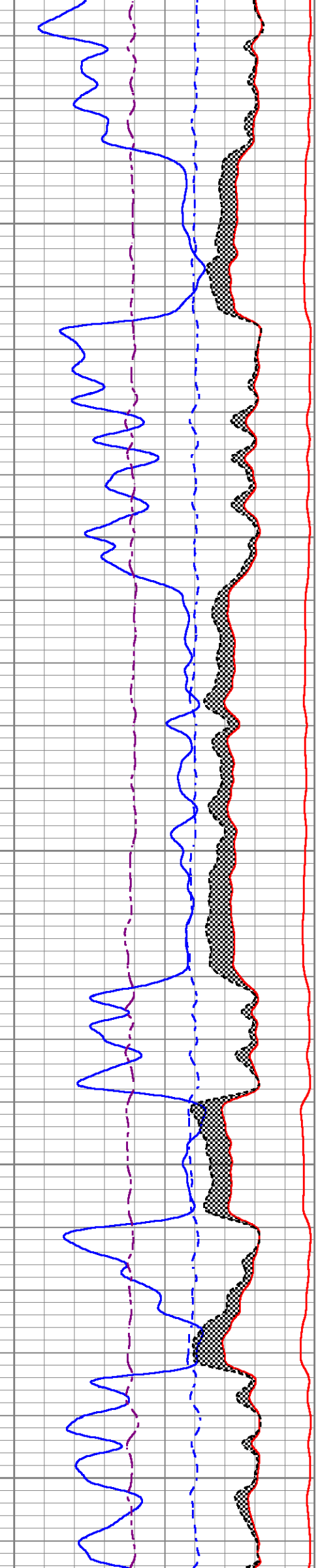
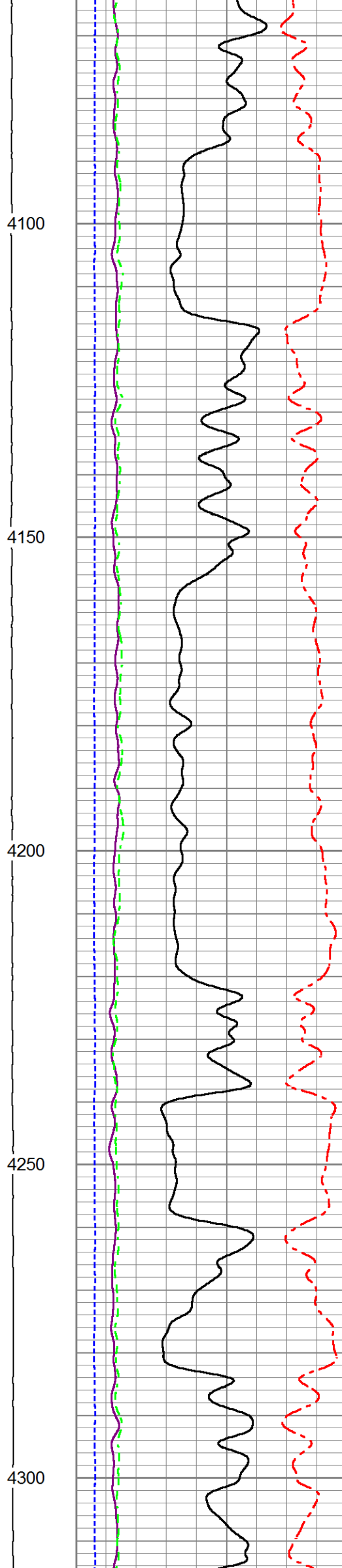
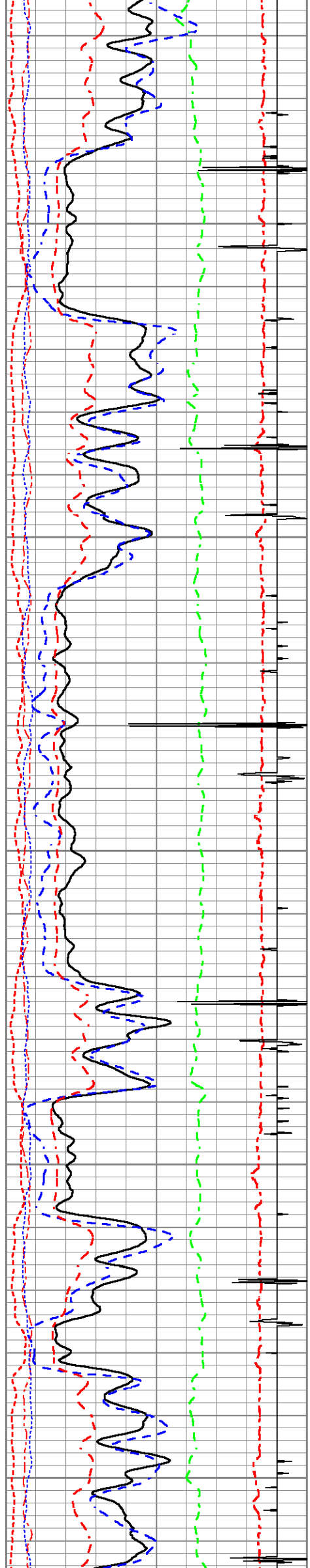
5" = 100'

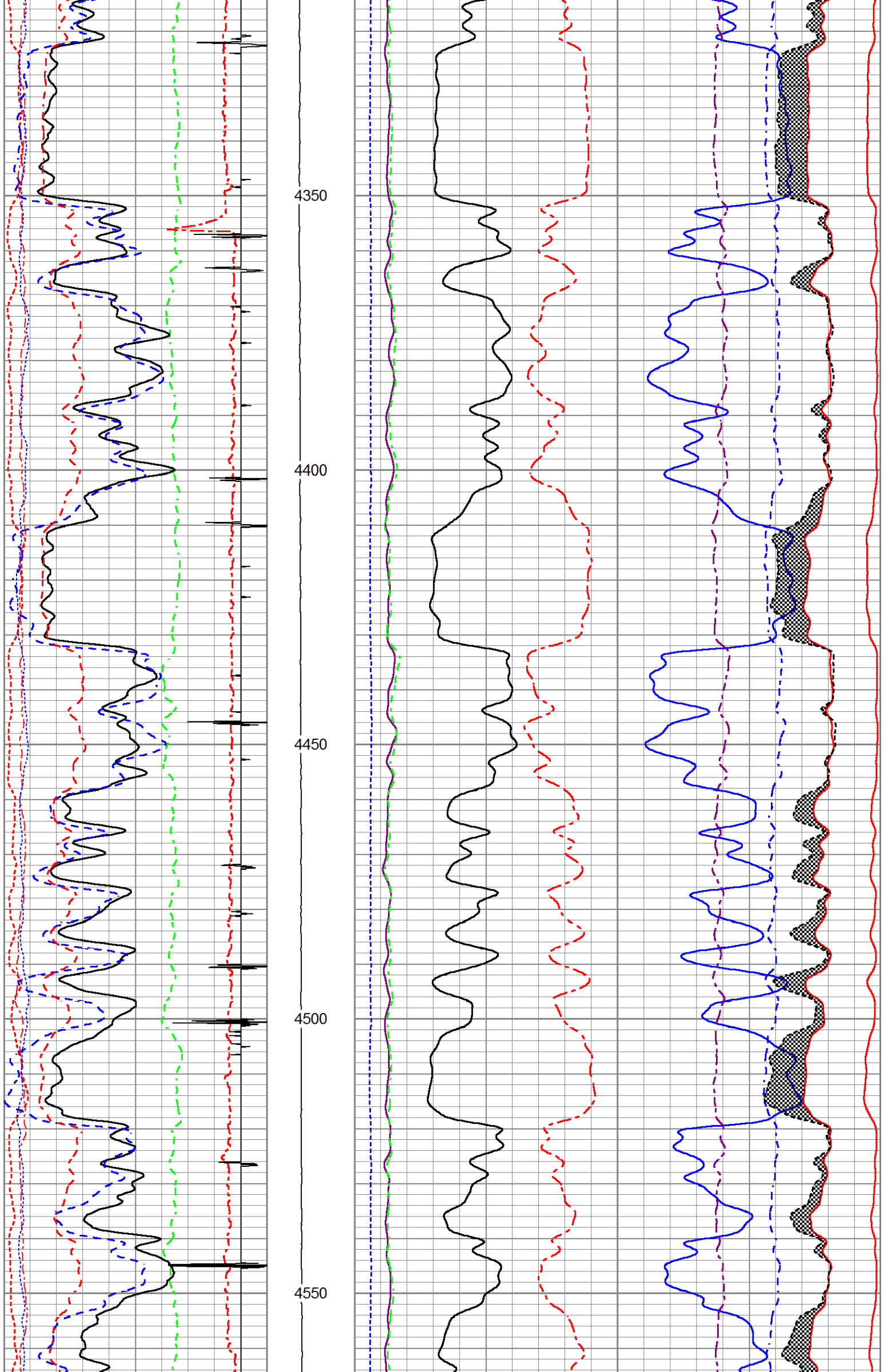
Database File      yater\_42d\_3dcombo.db  
Dataset Pathname    MAIN1  
Presentation Format   RMT3D\_~4  
Dataset Creation     Sun Apr 12 15:02:31 2015  
Charted by            Depth in Feet scaled 1:240

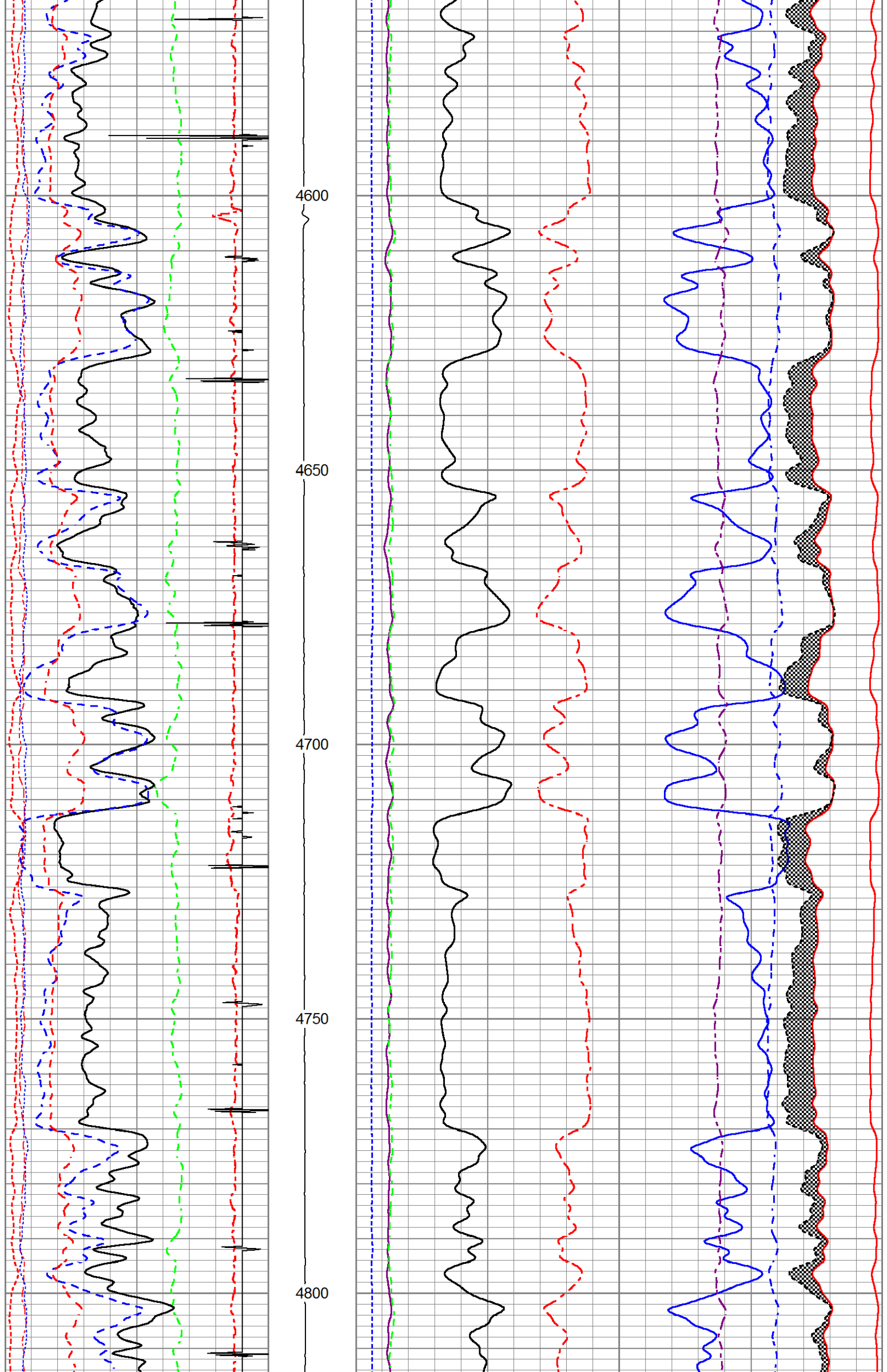
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0	Rm3OAI2	100		2	Rm3RNF	0.5	60000	Rm3NCAP	0
0	GR (GAPI)	200		0	Rm3RIN	15	60000	Rm3FCAP	0
-20	LSPD (ft/min)	20		0	Rm3RICF	6	100000	Rm3FSIN	0
-540	CCL	60		0	Rm3YH1	1	60000	Rm3LCAP	0
10	Rm3SGFF	40		0	Rm3YH2	1	100000	Rm3NSIN	0
0	Rm3SGFN	100							
0	Rm3CFTR1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

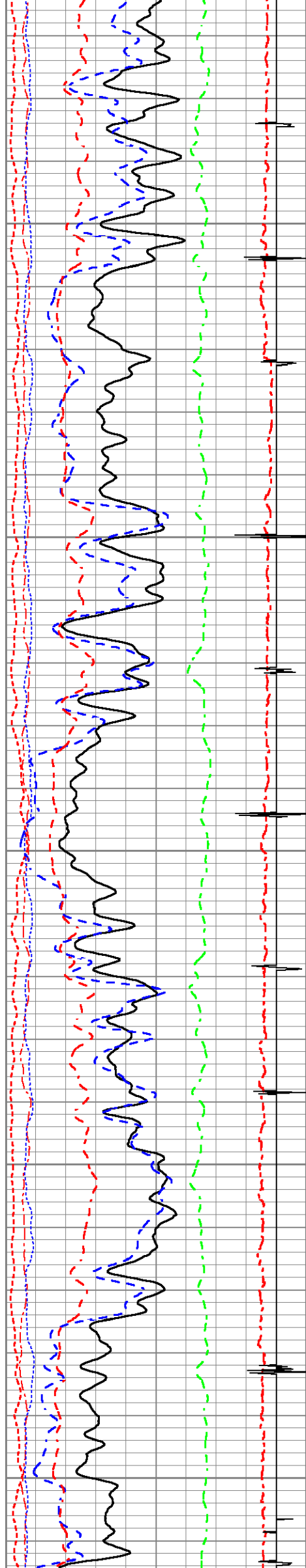












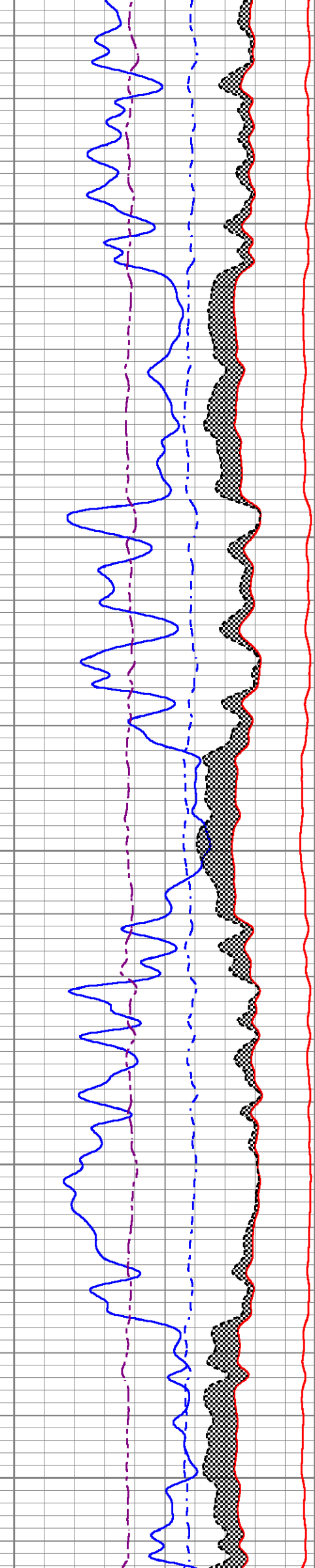
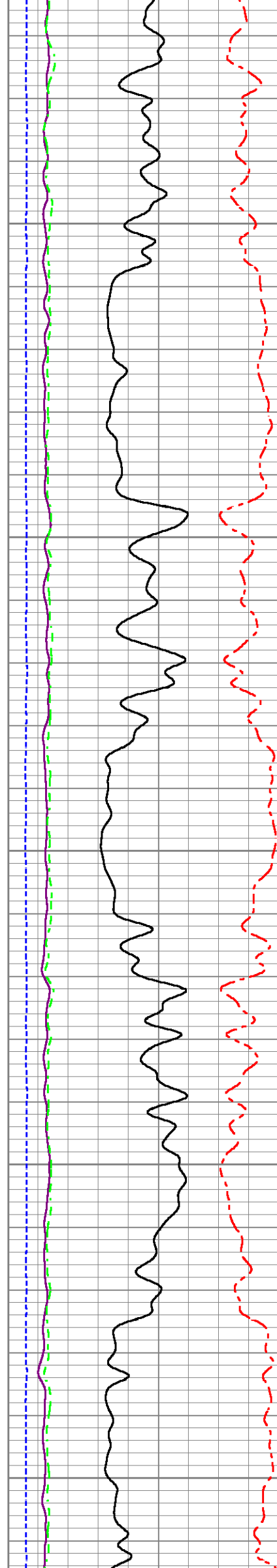
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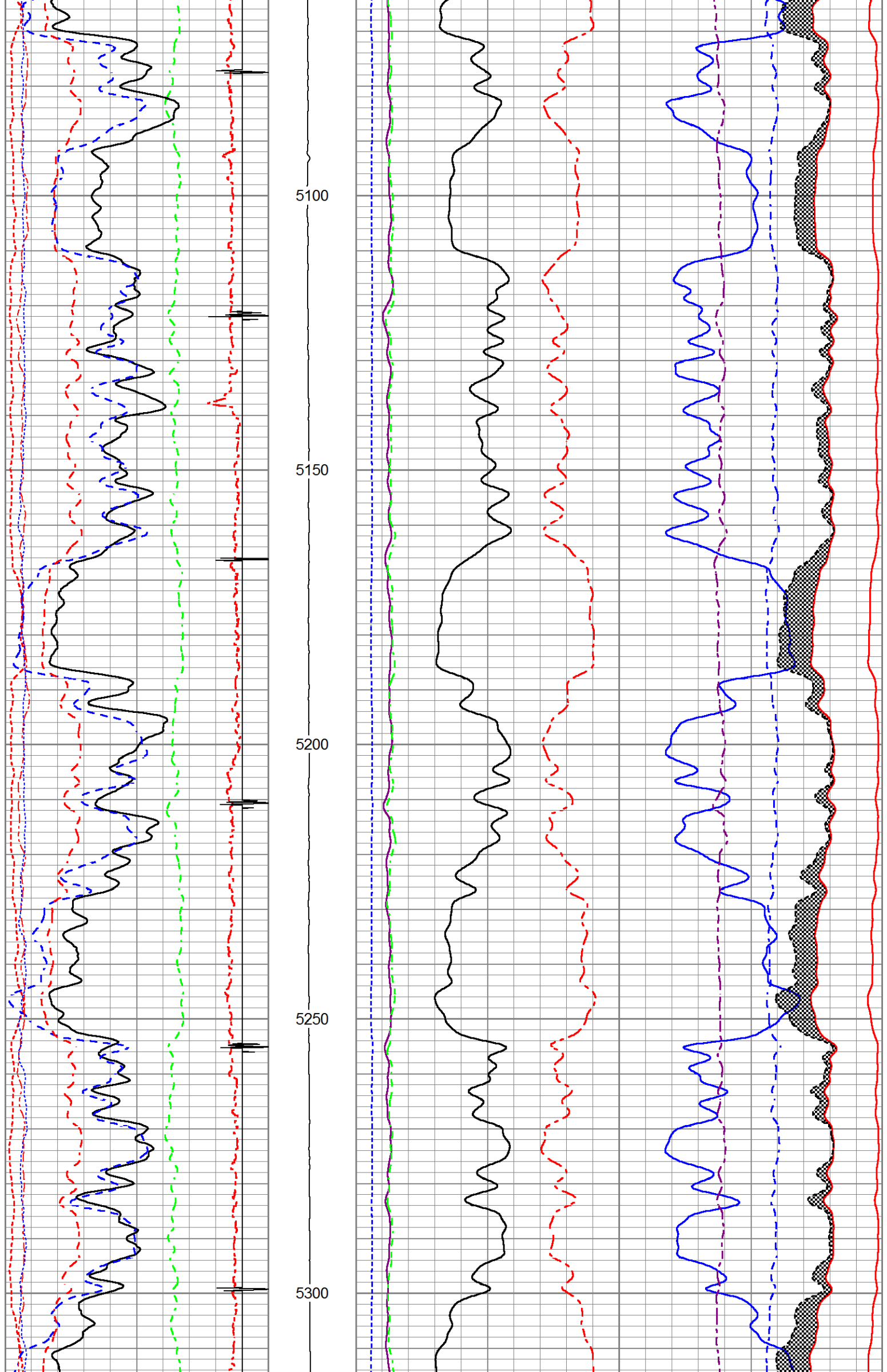
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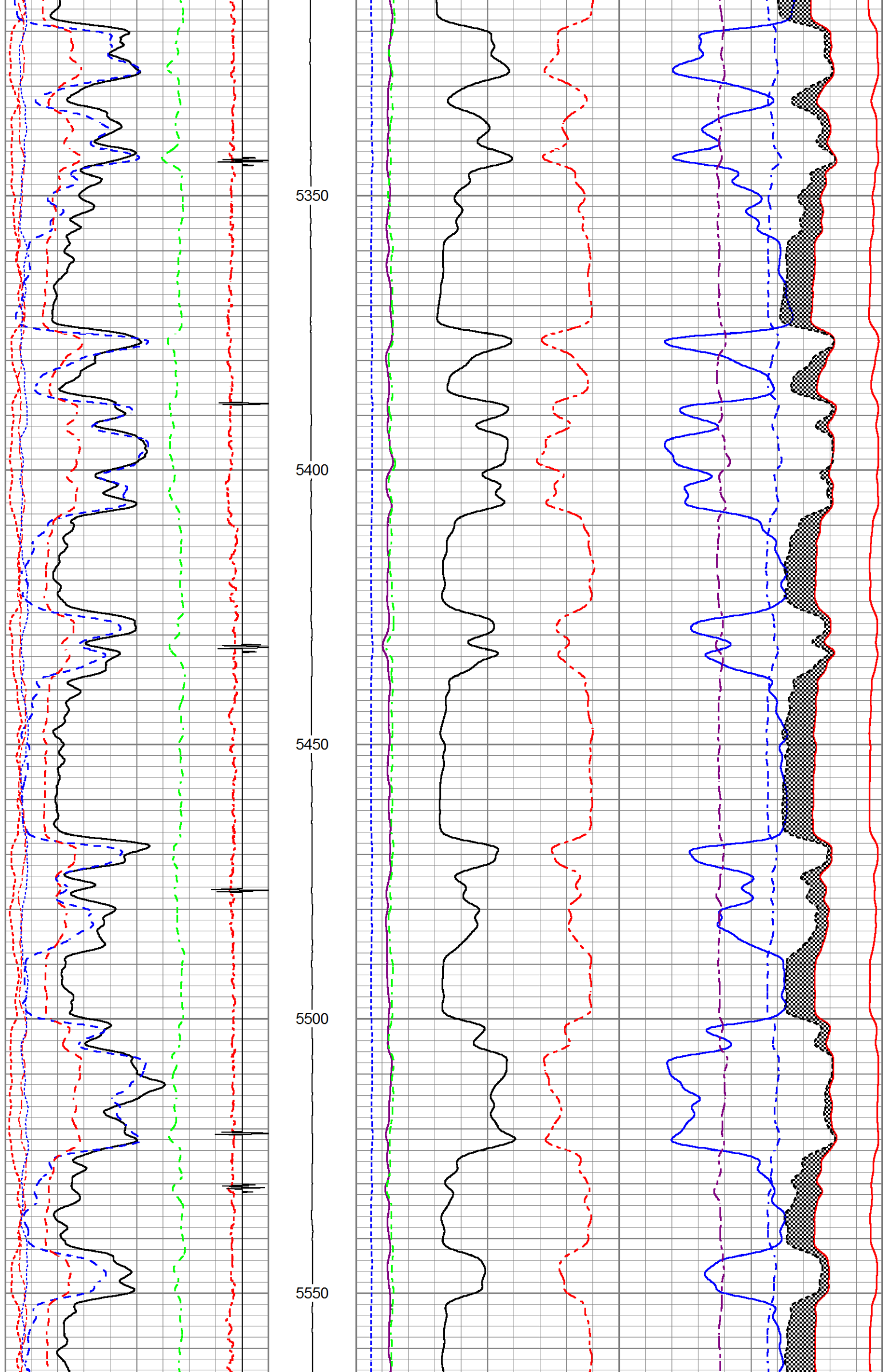
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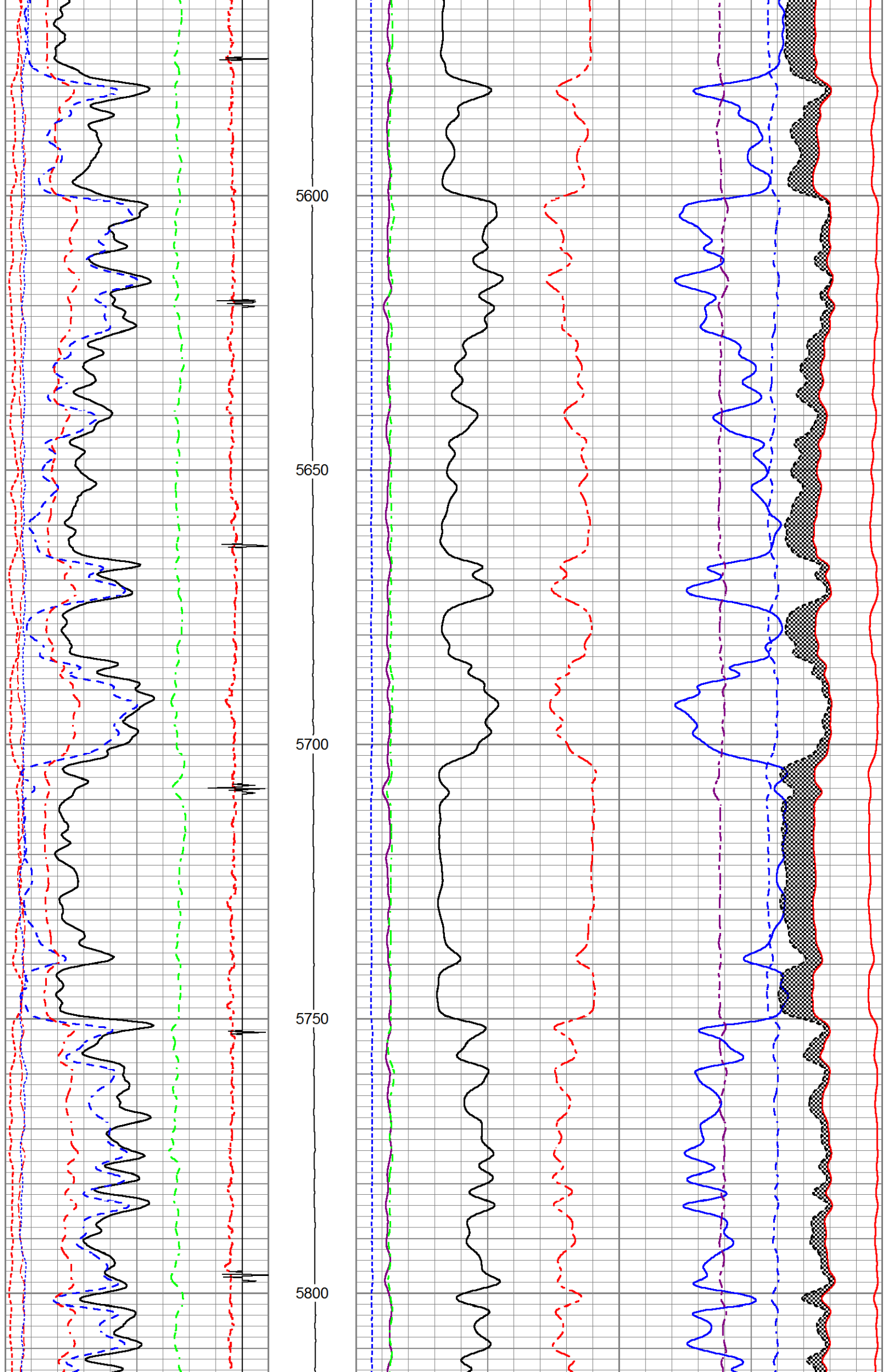
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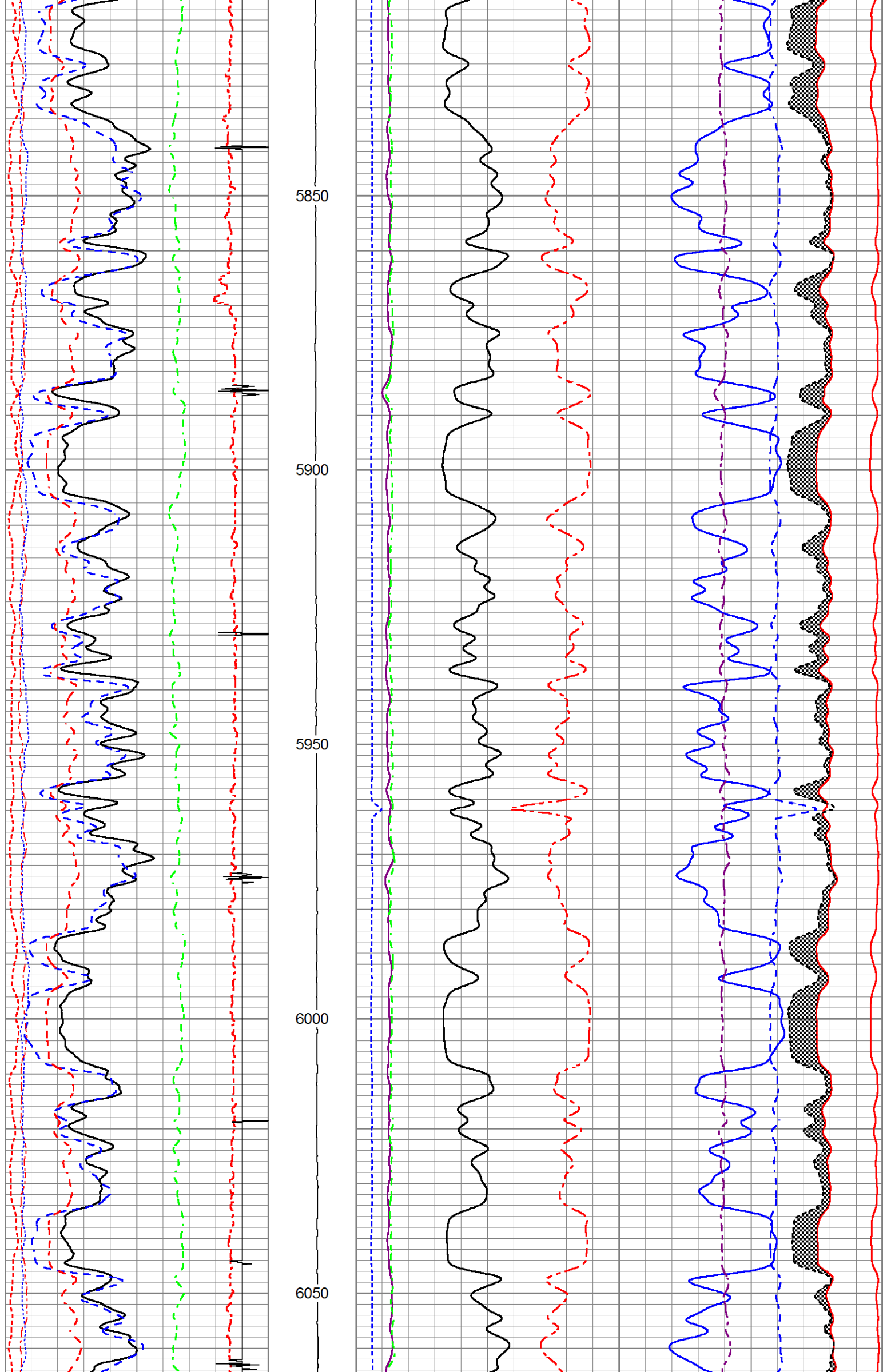
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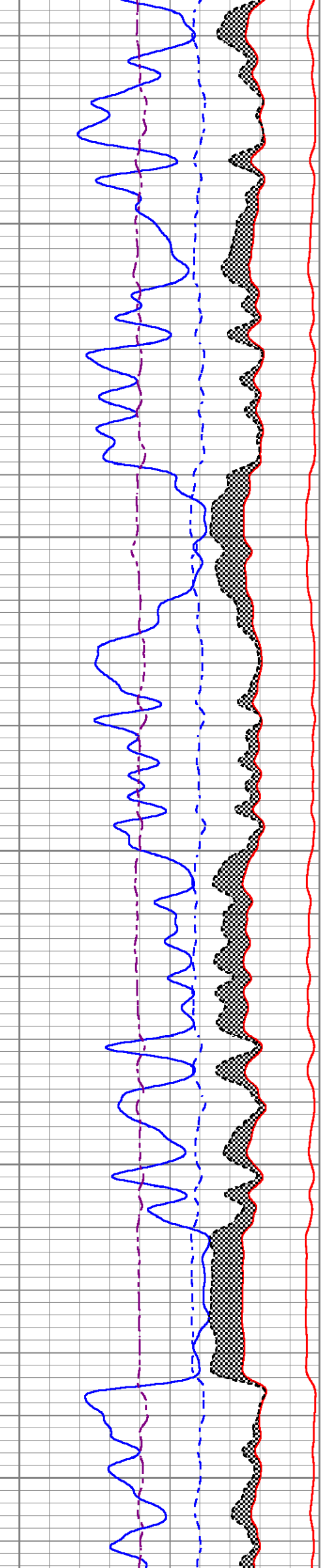
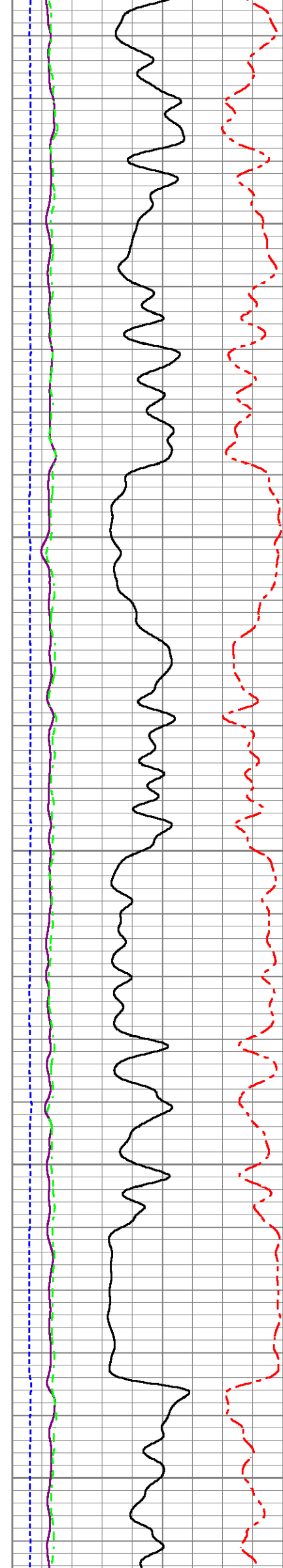
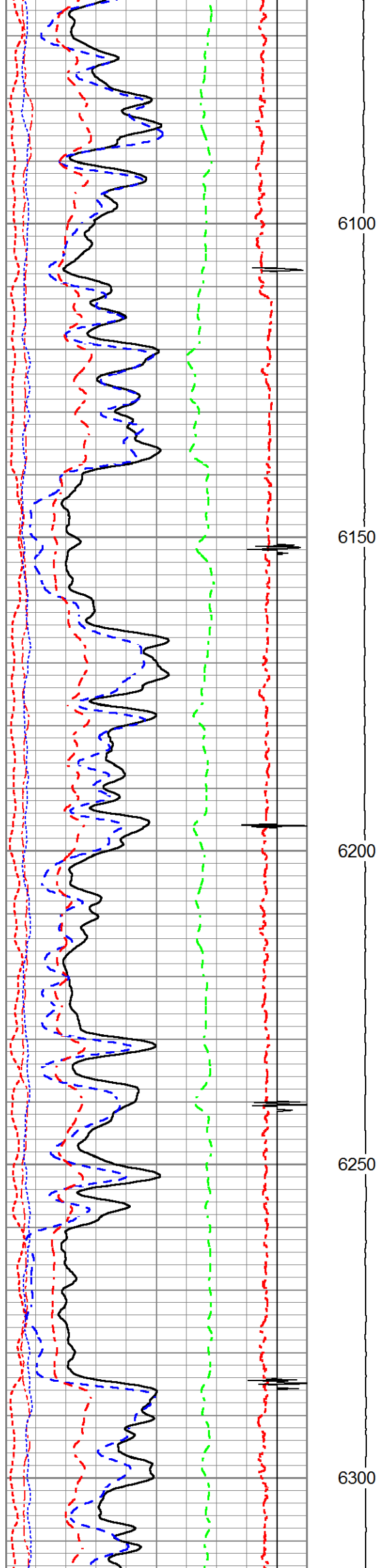


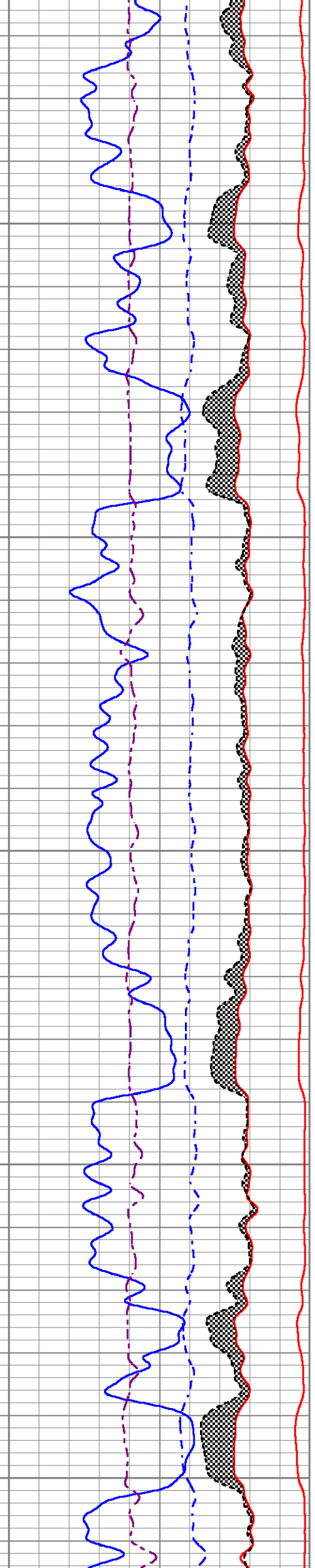
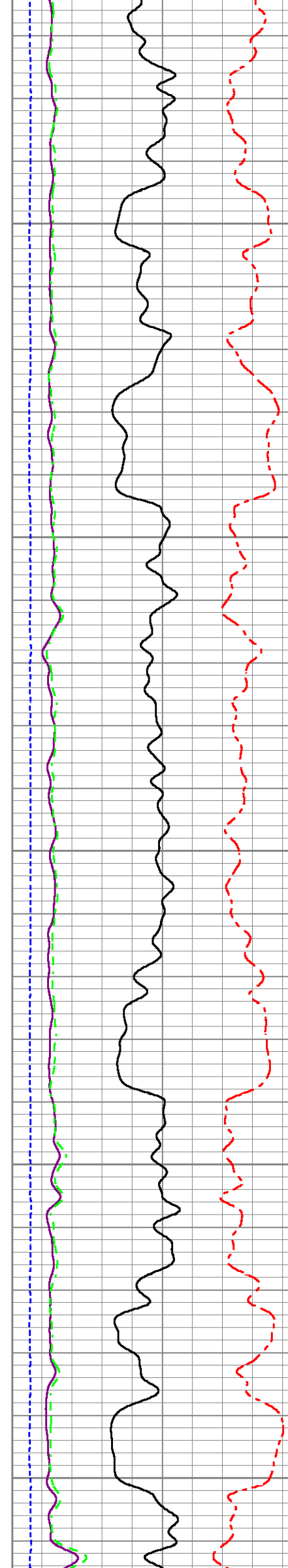
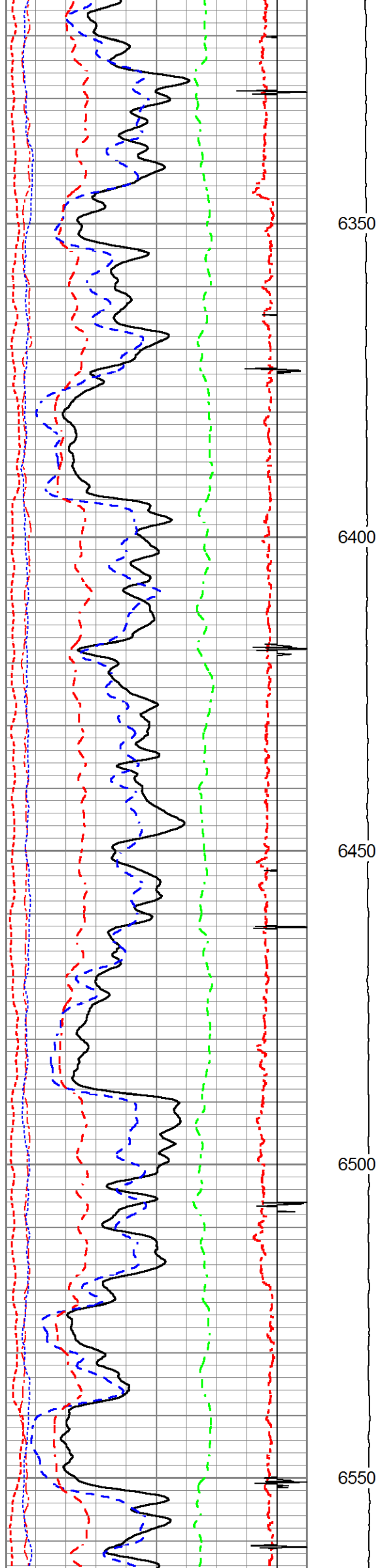


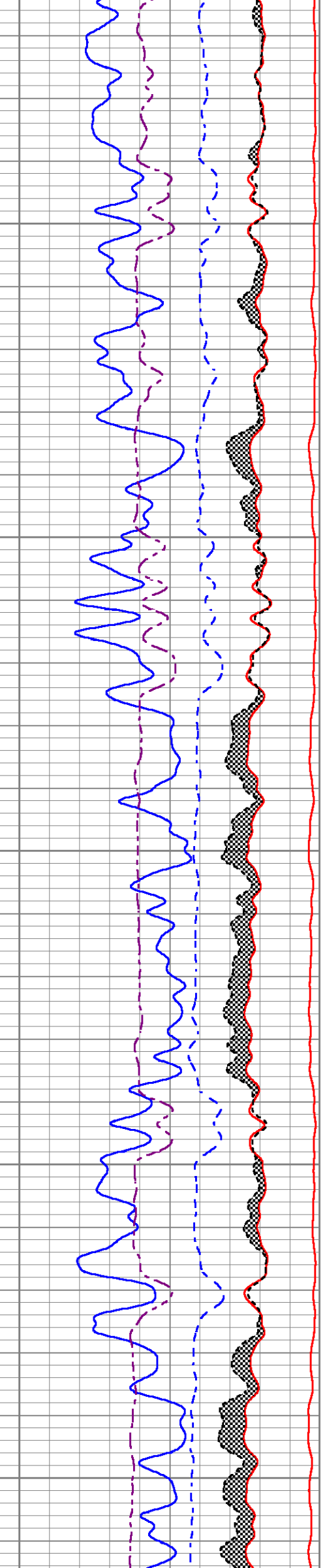
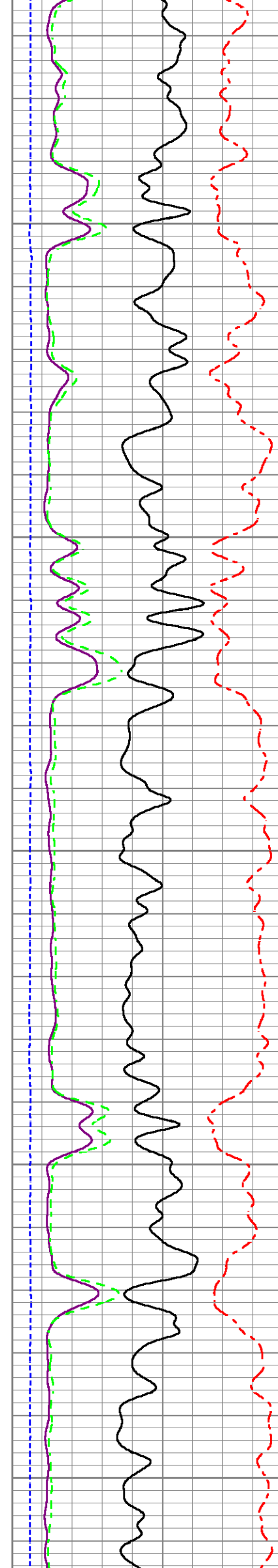
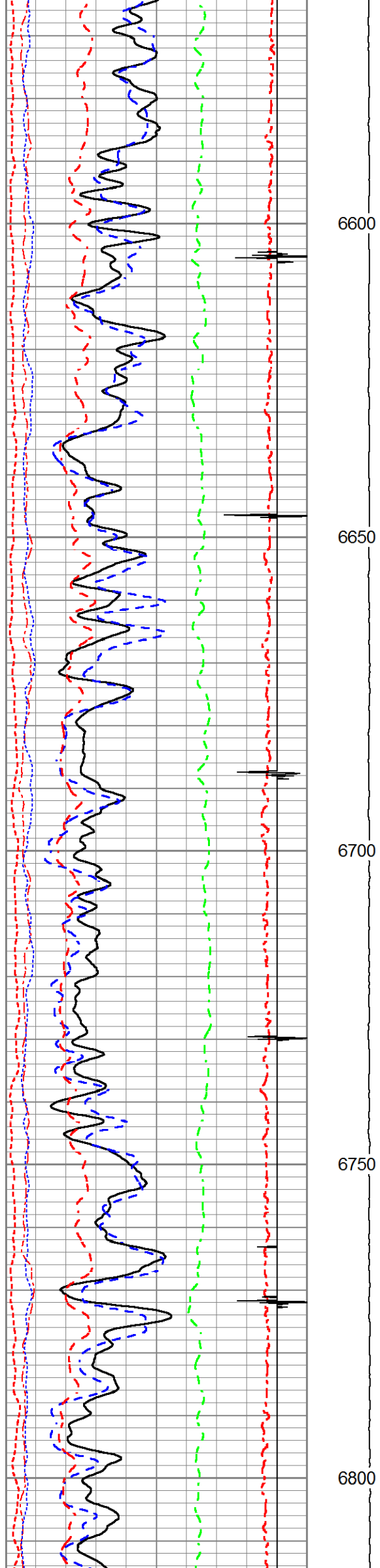


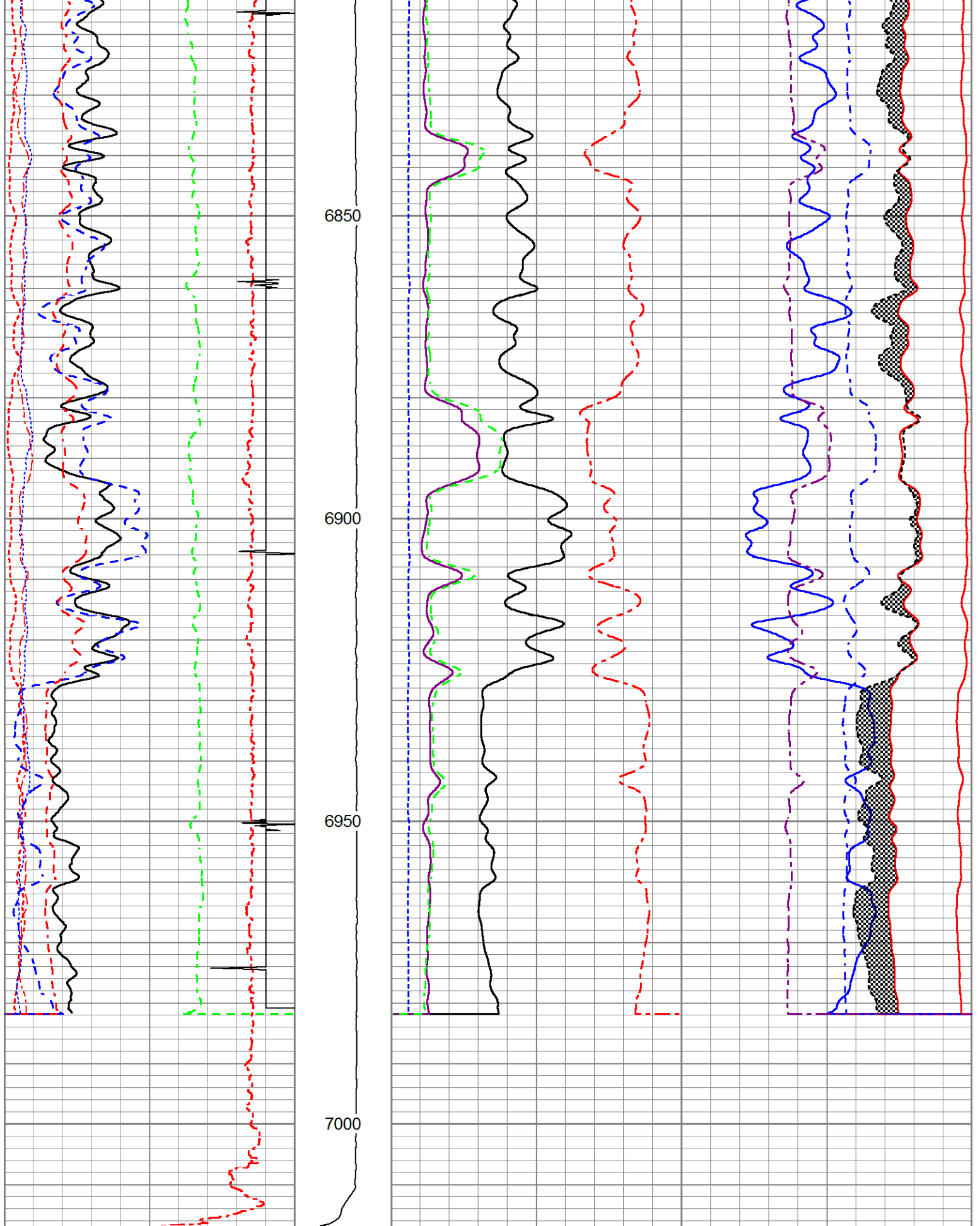












200	Rm3SGBN	0	TENSION	60		Rm3SGIN		0	
0	Rm3OAI2	100		2	Rm3RNF	0.5	60000	Rm3NCAP	0
0	GR (GAPI)	200		0	Rm3RIN	15	60000	Rm3FCAP	0
-20	LSPD (ft/min)	20		0	Rm3RICF	6	100000	Rm3FSIN	0
-540	CCL	60		0	Rm3YH1	1	60000	Rm3LCAP	0
10	Rm3SGFF	40		0	Rm3YH2	1	100000	Rm3NSIN	0
0	Rm3SGFN	100							
0	Rm3CFTR1	1						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

# MAIN LOG SECTION

**HALLIBURTON**

5" = 100'

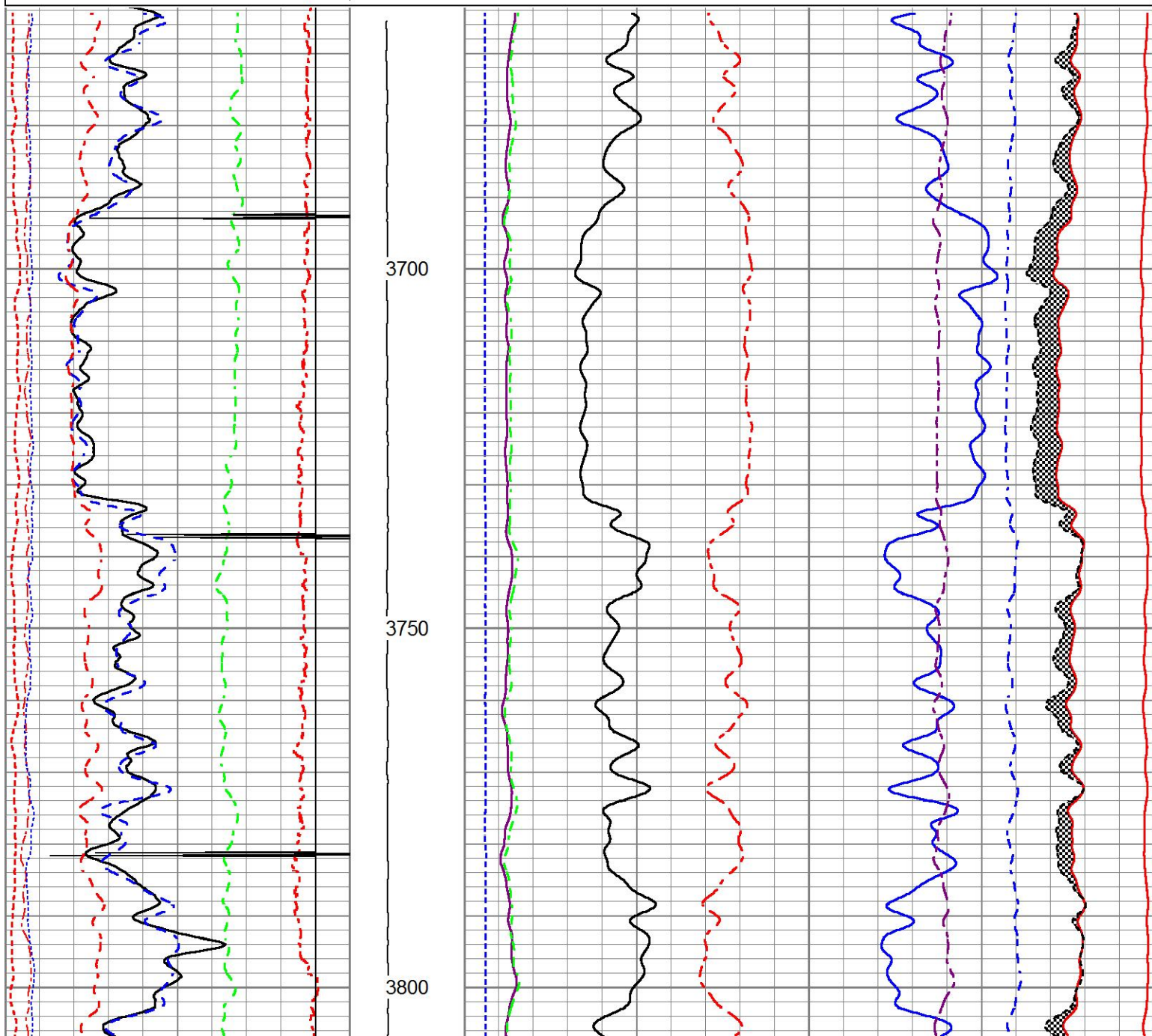
# REPEAT LOG SECTION

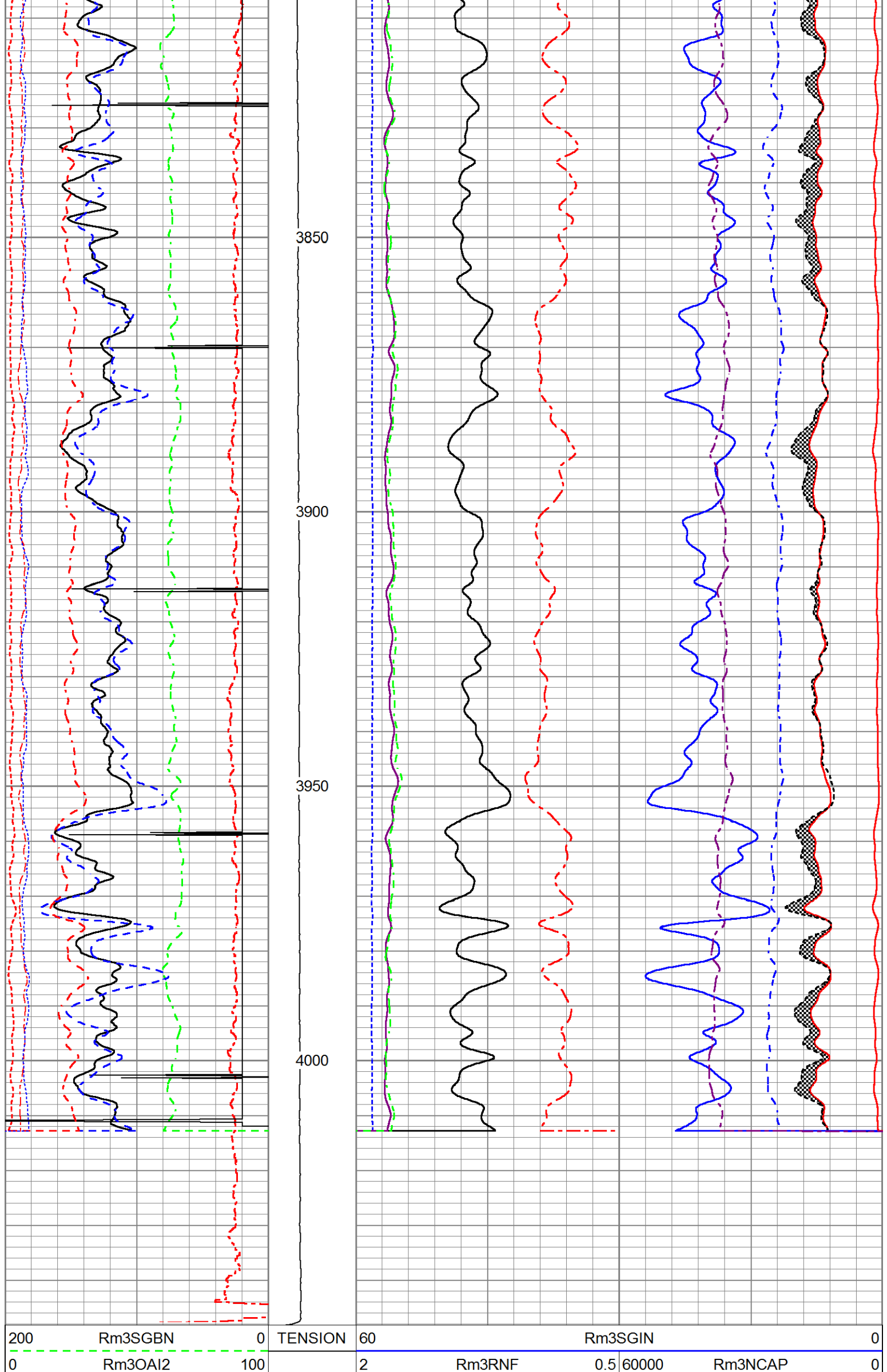
**HALLIBURTON**

5" = 100'

Database File yater\_42d\_3dcombo.db  
 Dataset Pathname RMTRPT1  
 Presentation Format RMT3D\_~4  
 Dataset Creation Sun Apr 12 14:04:32 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							





0	GR (GAPI)	200
-20	LSPD (ft/min)	20
-540	CCL	60
10	Rm3SGFF	40
0	Rm3SGFN	100
0	Rm3CFTR1	1
0	Rm3CFTR2	1

0	Rm3RIN	15	60000	Rm3FCAP	0
0	Rm3RICF	6	100000	Rm3FSIN	0
0	Rm3YH1	1	60000	Rm3LCAP	0
0	Rm3YH2	1	100000	Rm3NSIN	0

## REPEAT LOG SECTION

**HALLIBURTON**

5" = 100'

### Log Variables

DatabaseC:\ProgramData\Warrior\Data\yater\_42d\_3dcombo.db  
Dataset field/well/run1/RMTRPT1/\_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 CF	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	<b>RUN3D?</b>	POROSL2	POROSL1	POROS2	POROS1	
TEMP	0	1	<b>Yes</b>	0	1	0	1	
LTH	UHSGC	RHOCFL	RHO CF	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\_42d\_3dcombo.db  
Dataset Pathname MAIN1  
Dataset Creation Sun Apr 12 15:02:31 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	87.00	80.00	7.00	+/-15.00	V
ITCR2	3296	3250	46	+/-250	cps

## Near Detector

	Channel	Expected Value	Amplitude	FWHM	Tol.
H	60	60 +/-2	0.0275	5.26	<6.00
Fe	206	206 +/-2	0.0969	-----	-----
NGAIN = 0.996		NZOFF = 0.5			

## Far Detector

	Channel	Expected Value	Amplitude	FWHM	Tol.
H	60	60 +/-2	0.0396	5.02	<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



Rm3LCAPT	8.75		7.65	1.69	100.00	
Rm3LINEL	8.75					
Rm3TFGT	8.25					
Rm3FBACK	8.25					
Rm3FCAPT	8.25					
Rm3FINEL	8.25					
Rm3TNGT	7.75					
Rm3NBACK	7.75		XHU-003 (11899561) Crossover Halliburton 1553 to Ultrawire	1.58	1.69	7.00
Rm3NCAPT	7.75					
Rm3NINEL	7.75					
Rm3ImpBTEST	0.00		CENT-CASTM-CENT CAST M INLINE CENTRALIZER	2.16	3.13	25.00
Rm3ImpBCYC	0.00					
Rm3ImpBRGW	0.00					
Rm3ImpBRGO	0.00					
Rm3ImpState	0.00					
Rm3ImpPhase	0.00					
Rm3ImpCyc	0.00					
Rm3GenClampV	0.00					
Rm3LTemp	0.00		HCBLM-A (11794522) Halliburton HCBLM Tool	9.38	2.75	116.00
Rm3LPMHV	0.00					
Rm3LPMI	0.00					
Rm3LPrgSt1	0.00					
Rm3LDetStat	0.00					
Rm3FTemp	0.00					
Rm3FPMHV	0.00					
Rm3FPMI	0.00					
Rm3FPrgSt1	0.00		CENT-CASTM-CENT CAST M INLINE CENTRALIZER	2.16	3.13	25.00
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					
Rm3GenSyncV	0.00					
Rm3GenClampV	0.00					
Rm3GenP5V	0.00					
Rm3GenP33V	0.00	RMT3D-A (12270722) RMT3D - 3 Detector RMT-1	15.17	2.13	86.00	
Rm3Gen200V	0.00					
Rm3GenP15VI	0.00					
Rm3GenTemp	0.00					
Rm3GenP5VI	0.00					
Rm3GenI	0.00					
Rm3GenPv	0.00					
Rm3GenCmd	0.00					
Rm3GenSpl	0.00					
Rm3GenIspPv	0.00					
Rm3GenIspCmc	0.00					
Rm3GenRepPv	0.00					
Rm3GenRepV	0.00	Dataset: yater_42d_3dcombo.db: field/well/run1/MAIN1				
Rm3GenRepSv	0.00	Total length: 39.61 ft				
Rm3GenContSt	0.00	Total weight: 360.00 lb				
		O.D.: 3.13 in				

Company URSA OPERATING COMPANY

Well YATER 42D-17-07-95

Field PARACHUTE

County GARFIELD

State CO

RESERVOIR MONITOR

