

HALLIBURTON

RADIAL CEMENT  
BOND LOG

FIELD COPY

Company

COACHMAN ENERGY

Well

FEDERAL 14-15-7-21

Field

KOKOPELLI

County

GARFIELD

State

CO

Company

COACHMAN ENERGY OPERATING, LLC

Well

FEDERAL 14-15-7-21

Field

KOKOPELLI

County

GARFIELD

State

CO

API No.: 050452246000

Serv #: 902145013

Other Services

Location: SURFACE HOLE LOCATION:  
2345' FNL & 713' FEL, SE/NE

Location: BOTTOM HOLE LOCATION:  
1969' FNL & 670' FEL, SE/NE

RMT-I

Sec: 21

Twp: 6S

Rge: 91W

Permanent Datum

GROUND LEVEL

Elevation

6932

Elevation

Log Measured From

KB

23

Ft. above perm. datum

K.B. 6955  
D.F. 6955  
G.L. 6932

Drilling Measured From

KB

G.L. 6932

Date @ Time Logged

23 FEB 2015@10:30

Type Fluid in Hole

FRESH WATER

Run No.

ONE

Density of Fluid

8.33

Depth - Driller

13674

Fluid Level

1700

Depth - Logger

13555

Cement Top Est. Logged

9050

Bottom - Logged Interval

13547

Equipment / Location

10971668 / GU

Top - Log Interval

7800

Recorded by

NATHANIEL MILES

Max. Recorded Temp.

340

Witnessed by

J. SHEPARD

CEMENTING DATA

Surface String

Protection String

Production String

Liner

Date / Time Cemented

PRIMARY

PRIMARY

Primary / Squeeze

PRIMARY

PRIMARY

Expected Compressive Strength

psi@

hrs

psi@

hrs

psi@

hrs

Cement Volume

410 SACKS

560 SACKS

Cement Type / Weight

/

/

Formulation

Mud Type / Mud Wgt.

/

/

Borehole Record

Run Number

Bit

From

To

Size

Weight

From

To

SURFACE

13.5

23

1500

9.675

36

23

1500

INTERMEDIATE

8.75

23

8966

7

26

23

8966

PRODUCTION

6

23

13550

4.5

13.5

23

13550

&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

LOG CORRELATED TO HALLIBURTON WAVE SONIC LOG DATED 22FEB15  
RBT AND RMT RAN IN COMBO

CREW: N.MILES, J. POOLE, T. THOMPSON, A. SALIDO, A. BUMANN

\*\*THANK YOU FOR USING HALLIBURTON ENERGY SERVICES GRAND JUNCTION, CO\*\*

Service Ticket No.

9021450136

API No.

050452246000

PGM Ver

WARRIOR 8.0

The Well Name, Location, Borehole Description, and / or Cementing Data Furnished by Client

EQUIPMENT DATA

TELEMETRY

RESERVOIR MONITOR TOOL

RADIAL BOND TOOL

Run No.

ONE

Run No.

ONE

Run No.

ONE

Run No.

Serial No.

12159411

Serial No.

11680605

Serial No.

11333931

Serial No.

Model No.

TTTCU-002

Model No.

RMT-I

Model No.

RBT-004

Model No.

Diameter

1 11/16"

Diameter

2 1/8"

Diameter

3 1/8"

Diameter

LOGGING DATA

General Data

Pass

Depths

Well Head

Speed

Logging Run Comments

No

From

To

Pressure

Ft/Min

NO.	FROM	TO	Pressure	Gamma				
ONE	13547'	7800'	NONE	25				
	GAMMA RAY		TRAVEL TIME		AMPLITUDE		MSG	
Pass	Scale		Scale		Scale		Scale	
No.	L	R	L	R	L	R	L	L
ONE	0	150	370	170	0	100	200	1200
DIRECTIONAL INFORMATION								
Maximum Deviation			deg. @		KOP			

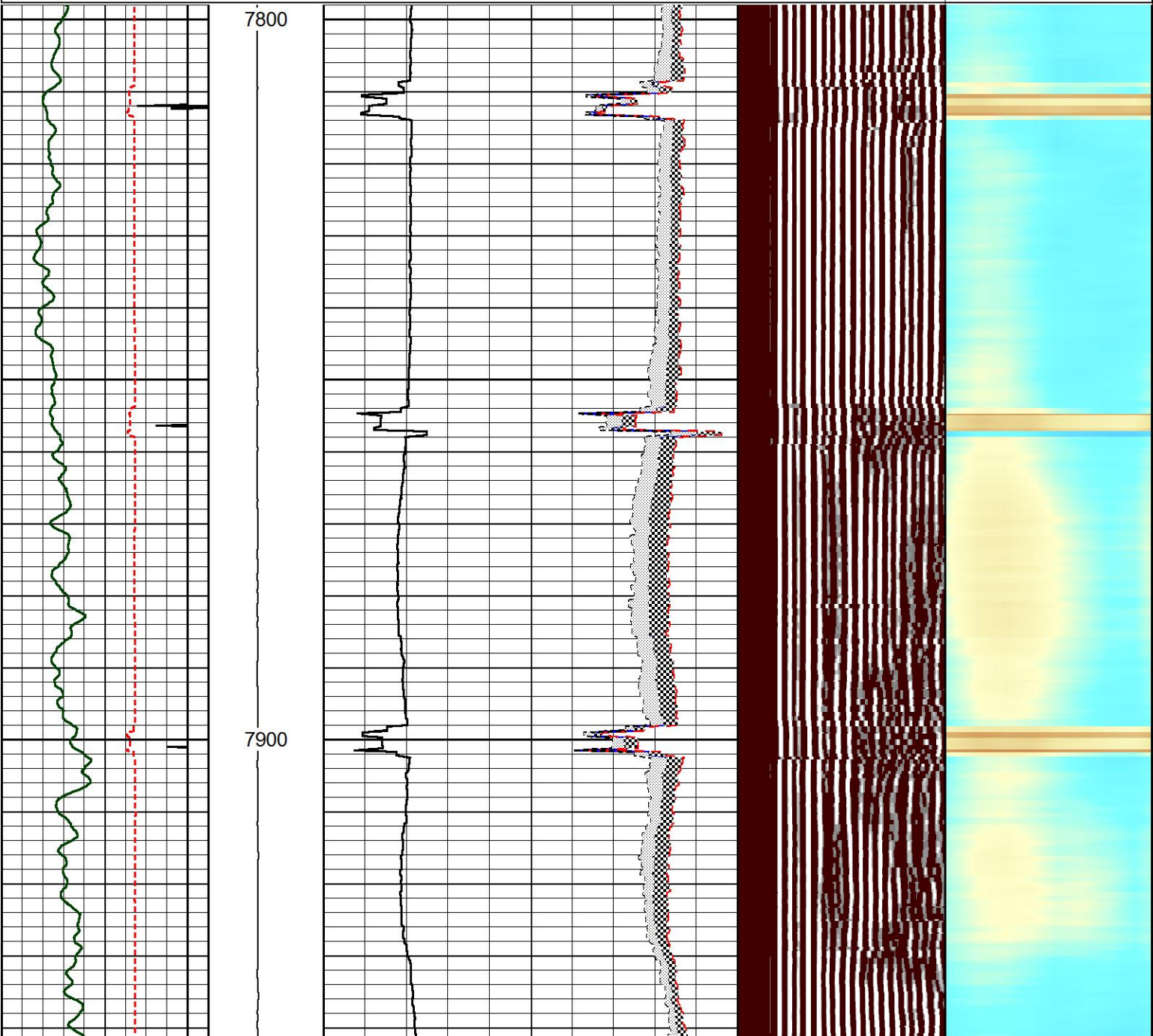
HALLIBURTON

MAIN LOG SECTION

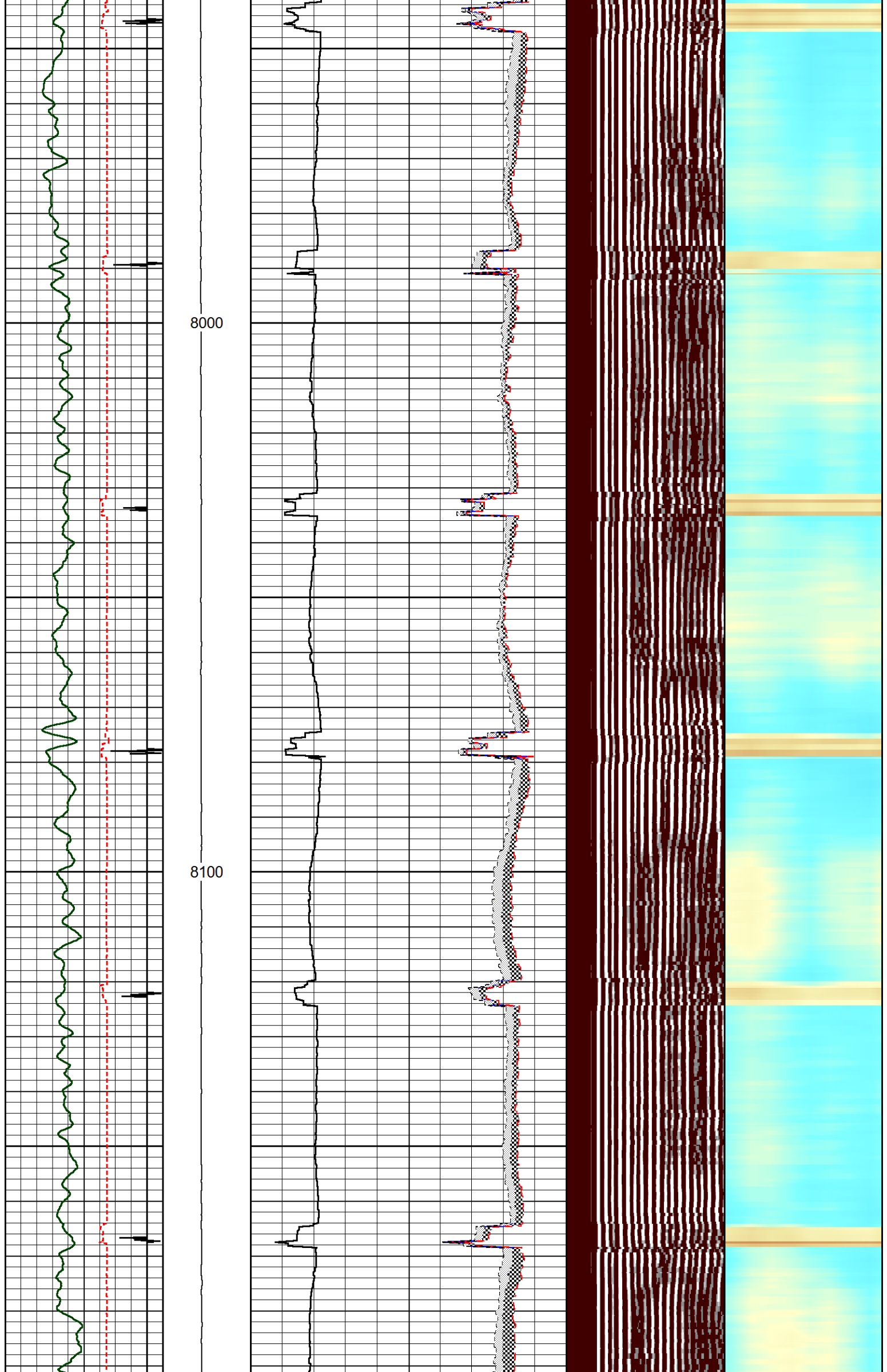
SCALE 5"=100'

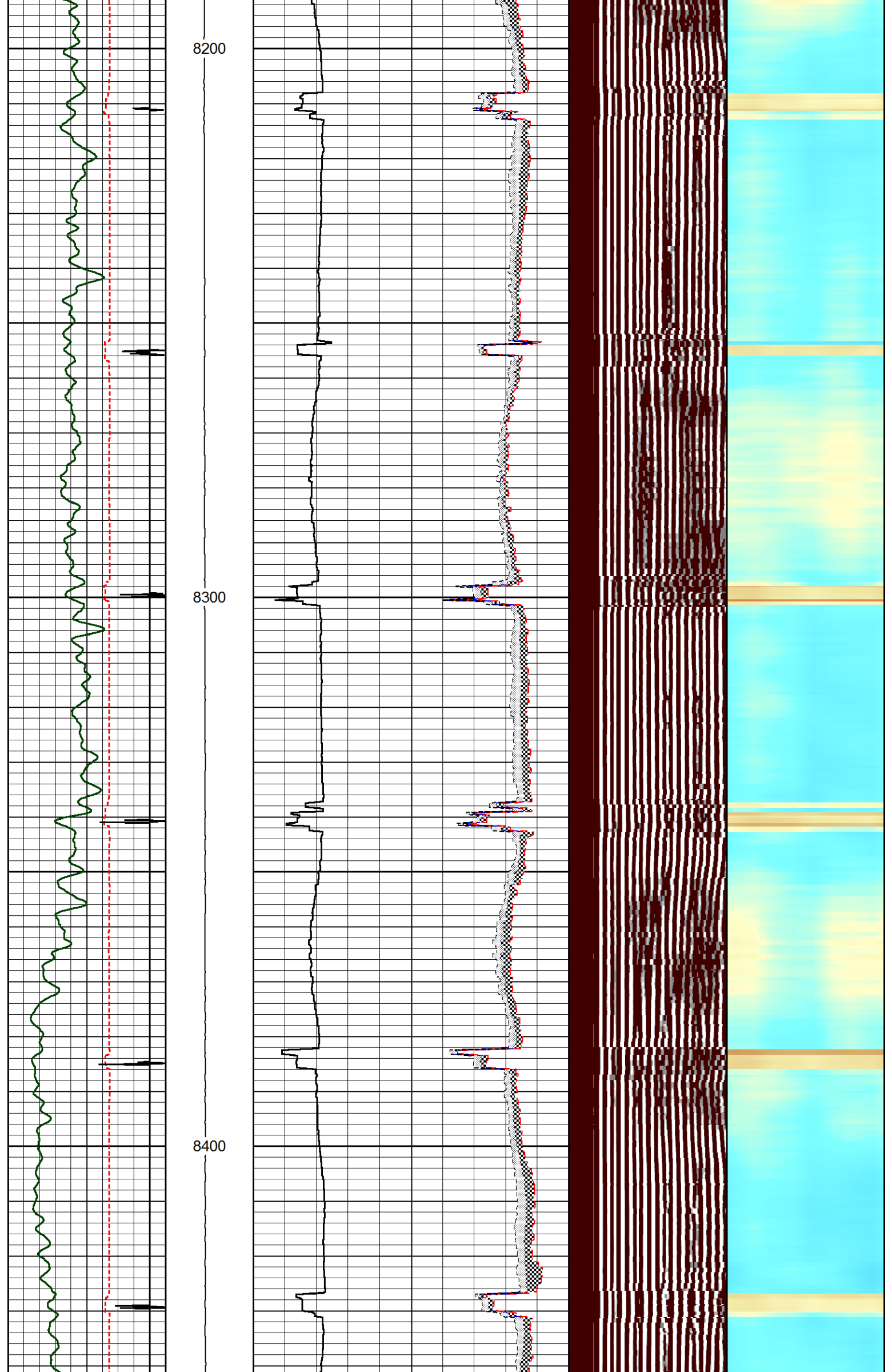
Database File	c:\users\hb69970\desktop\cynosure fed 14-15-7-21\fed_14_15_7_21.db
Dataset Pathname	02-23-15/RMT/MAIN2.3
Presentation Format	radial
Dataset Creation	Mon Feb 23 18:28:57 2015
Charted by	Depth in Feet scaled 1:240

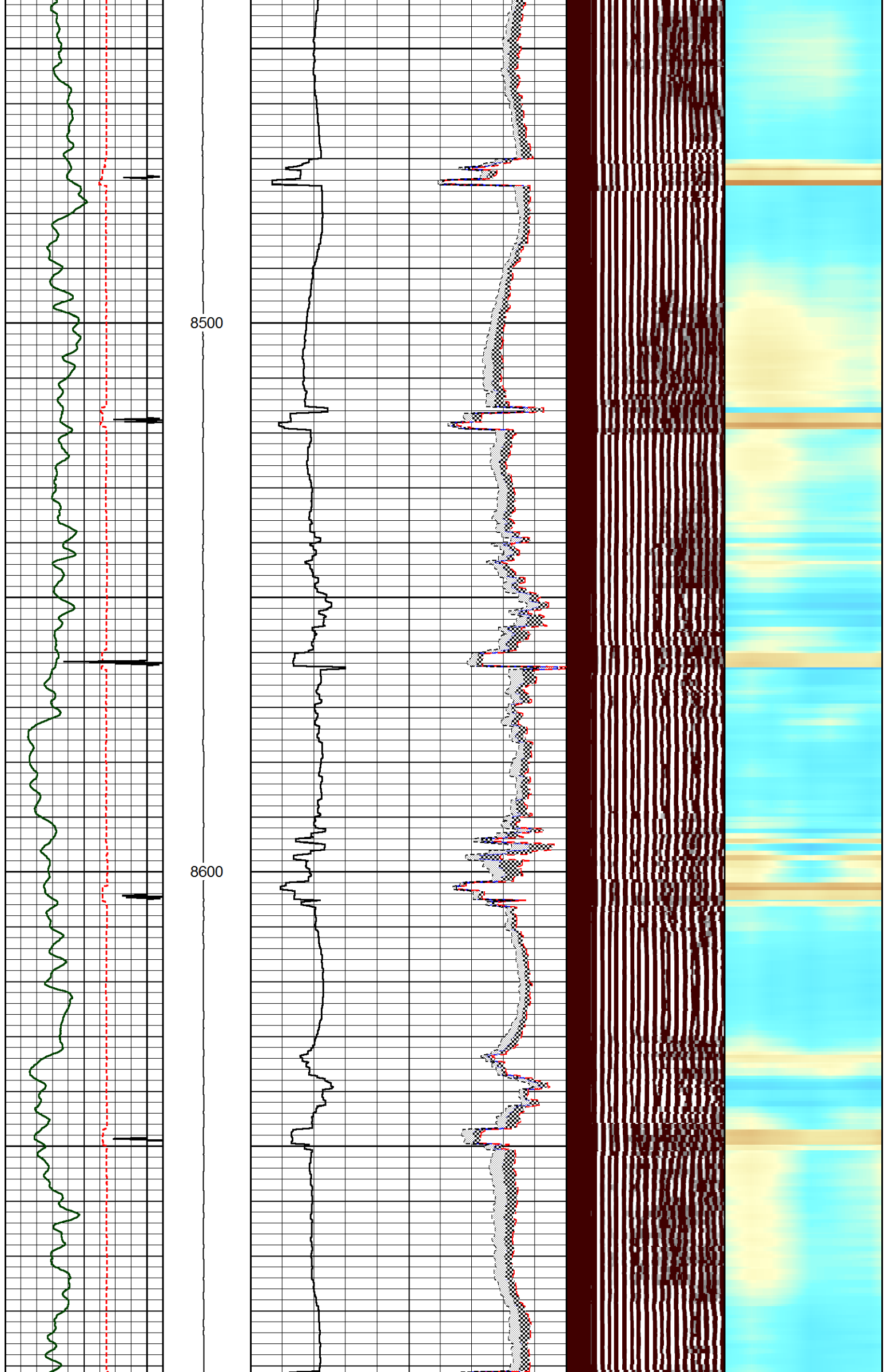
370	TT (usec)	170	TENSION	0	AMP (mV)	100	0	AMPAVG	100	200	MSG	1200	1	SECTORS	8
-2700	CCL	300	0 (lb/4000)	0	AMPx10 (mV)	10	0	AMPMAX	100				1		100
0	GR (GAPI)	150					0	AMPMIN	100						

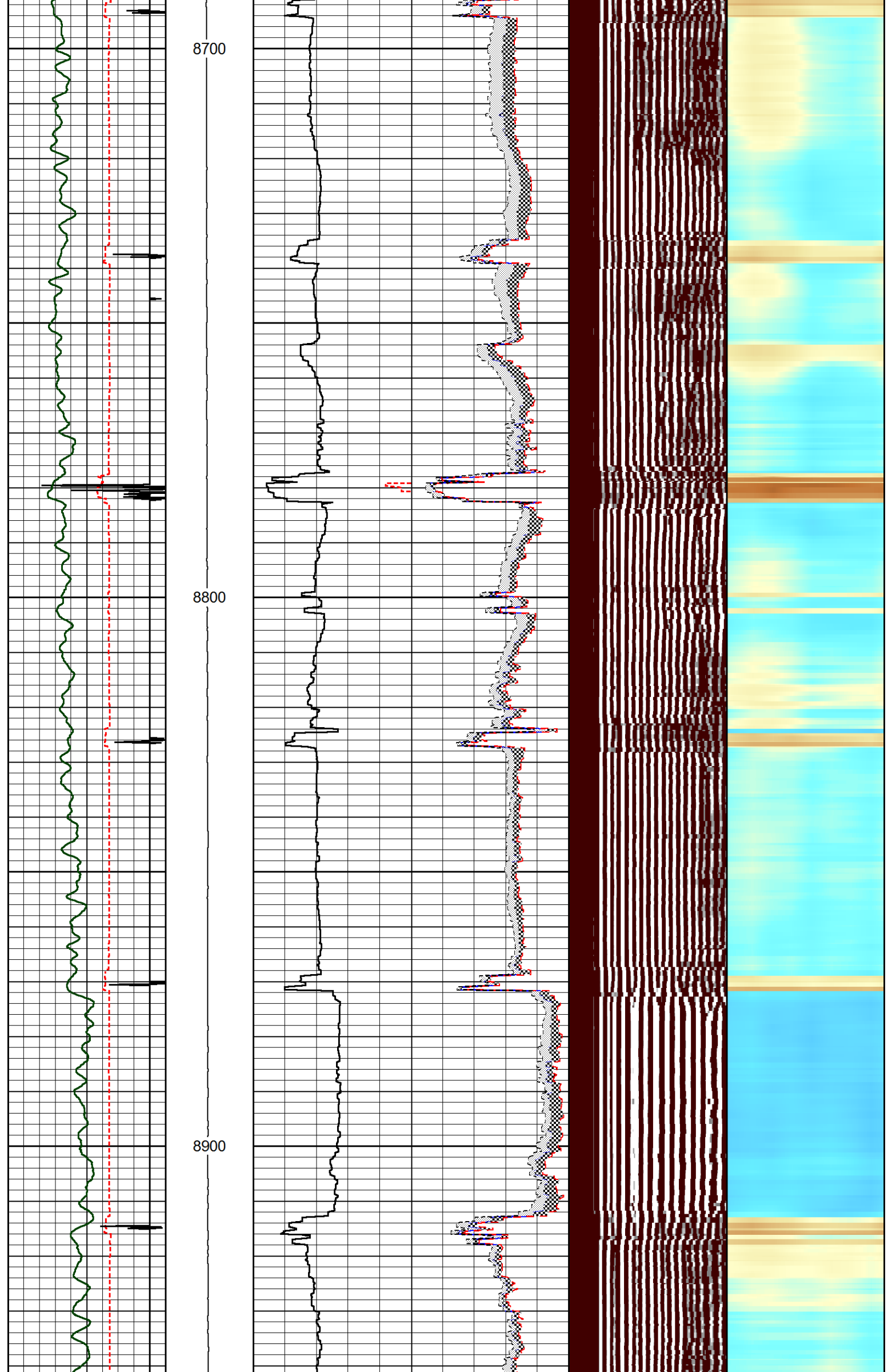


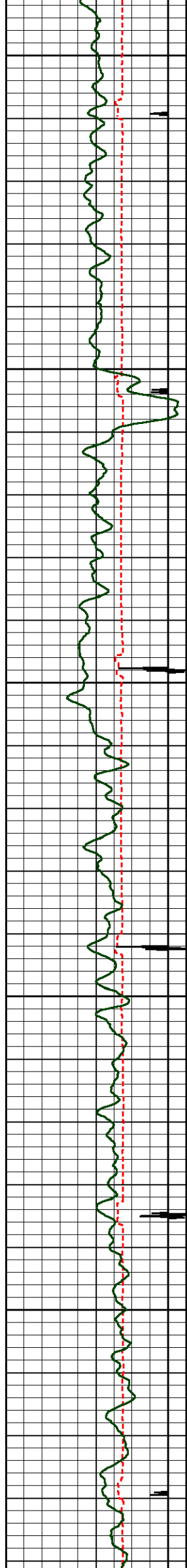






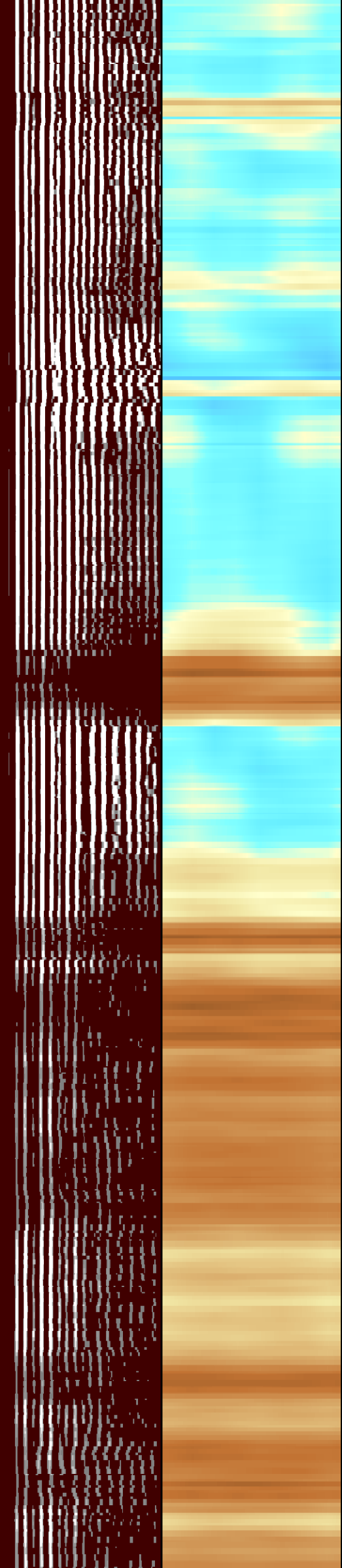
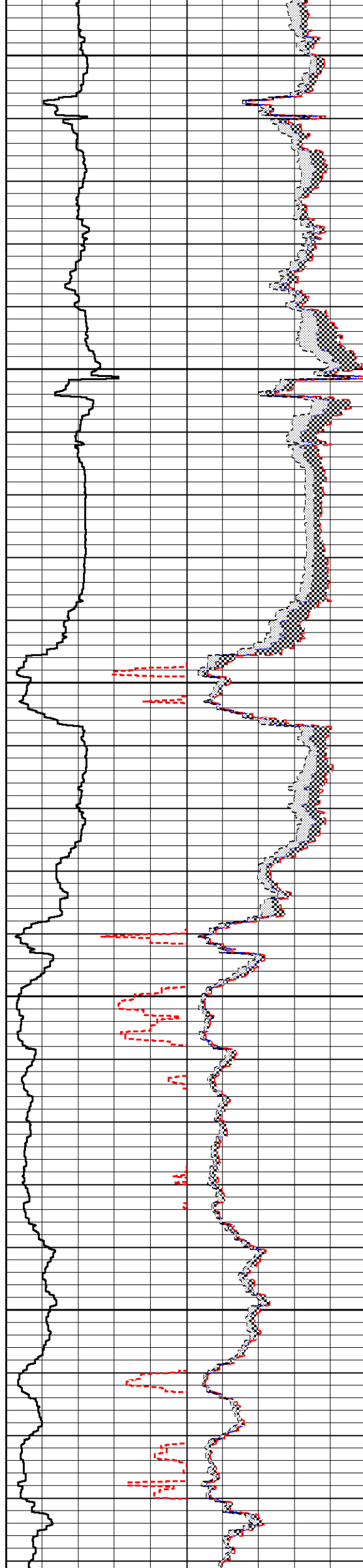


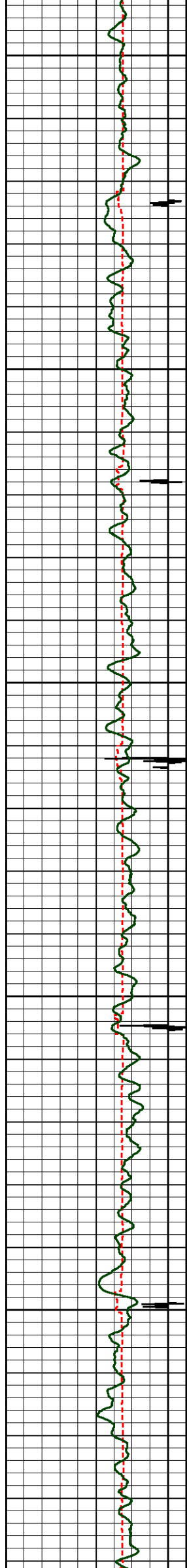




9000

9100

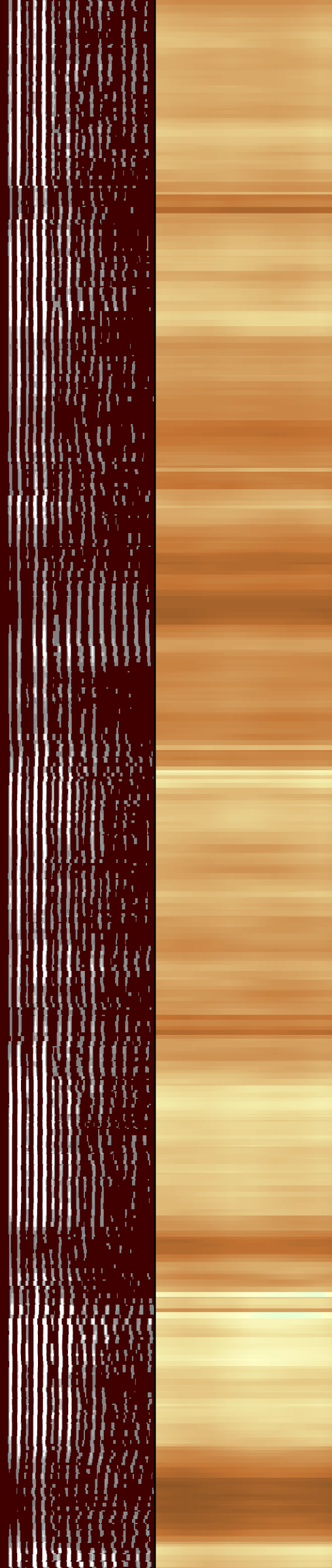
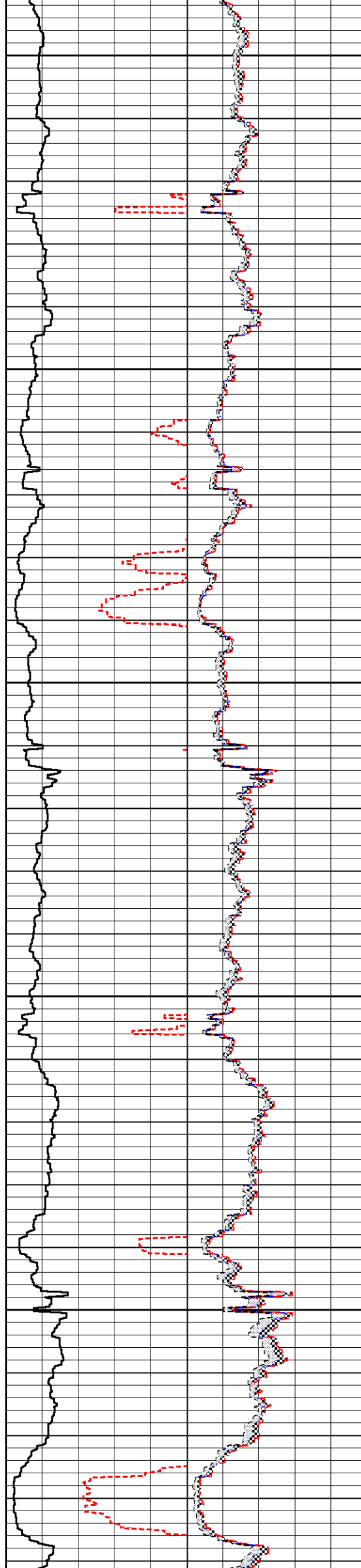




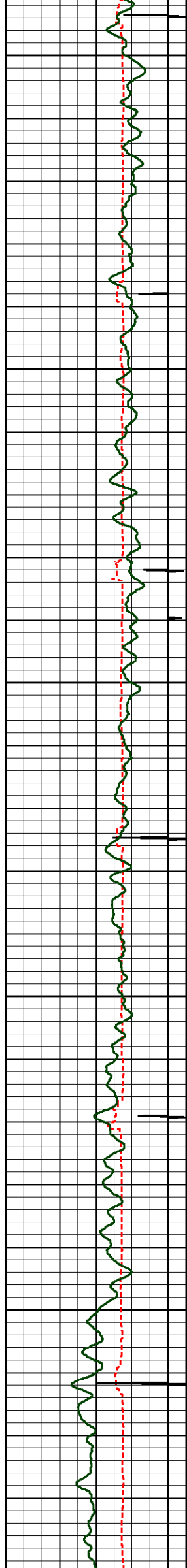
9200

9300

9400

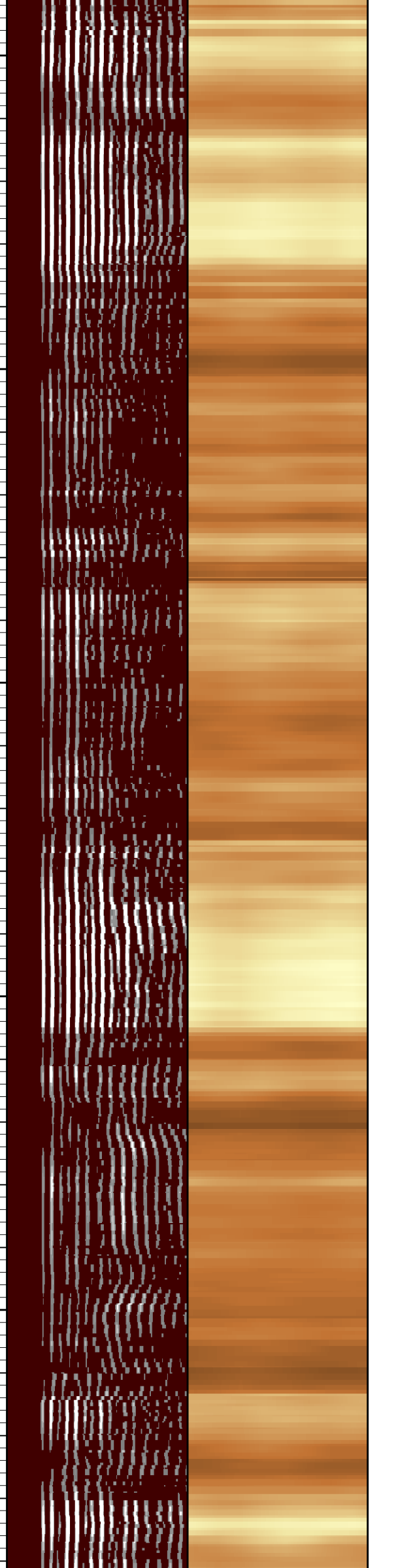
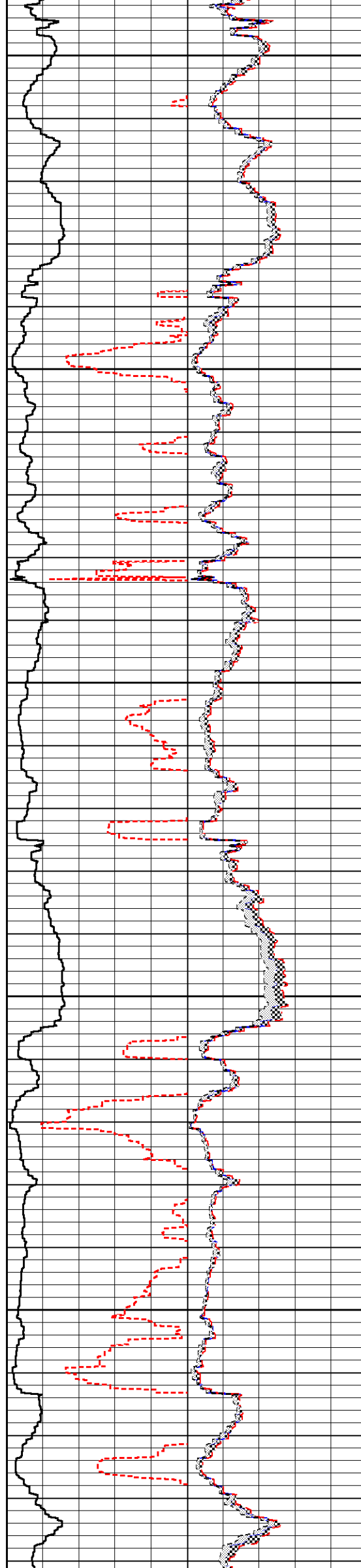


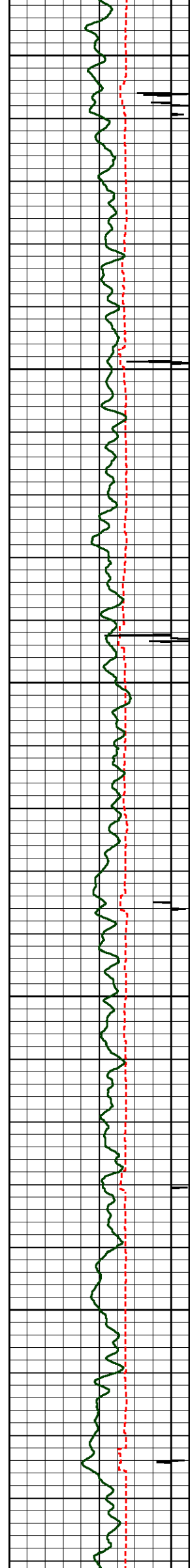




9500

9600

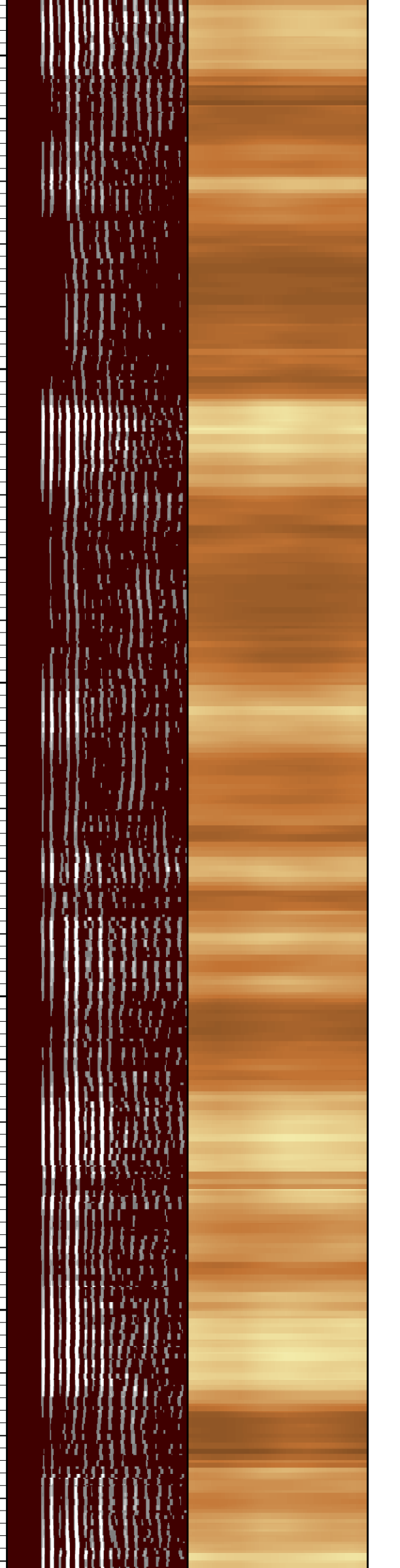
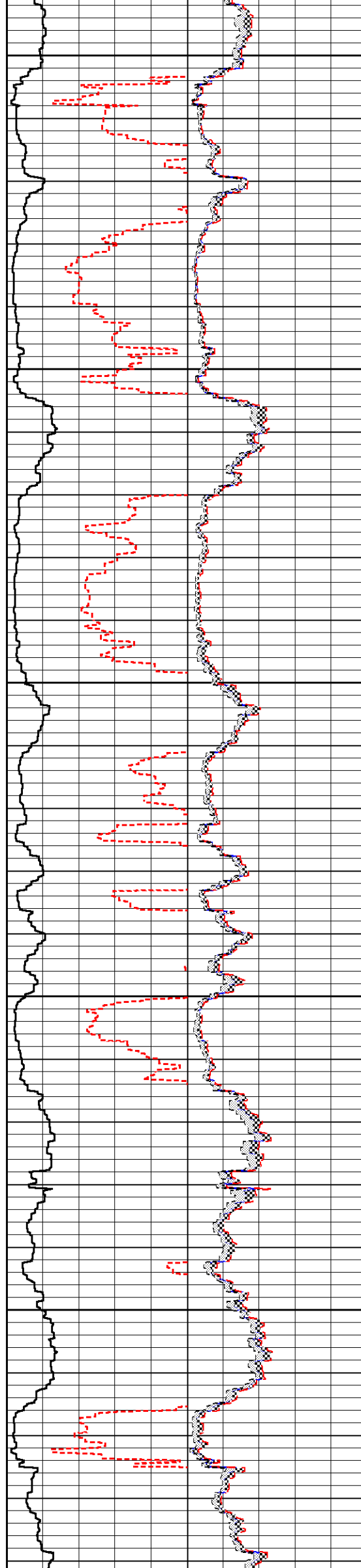


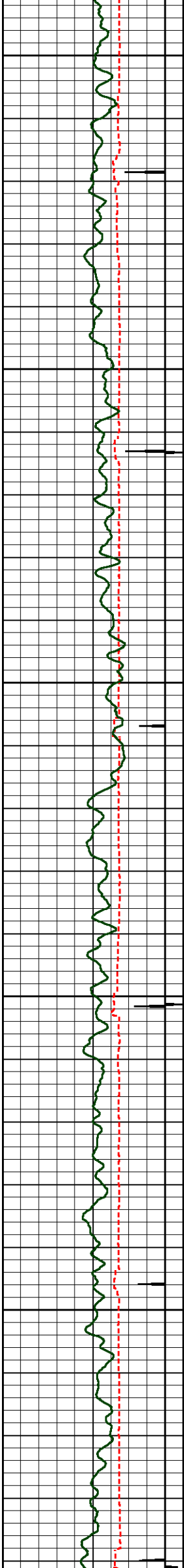


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9800

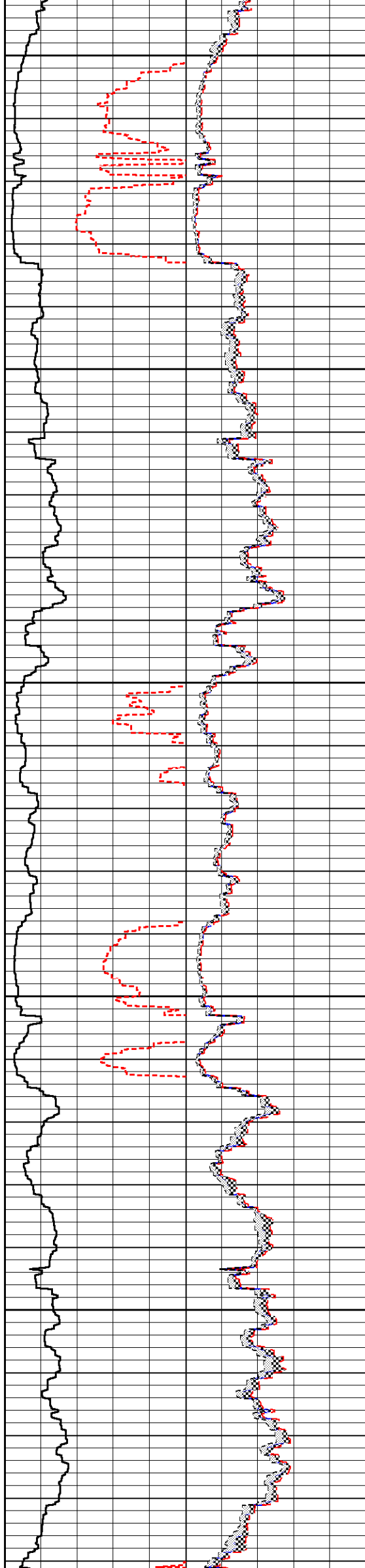
9900

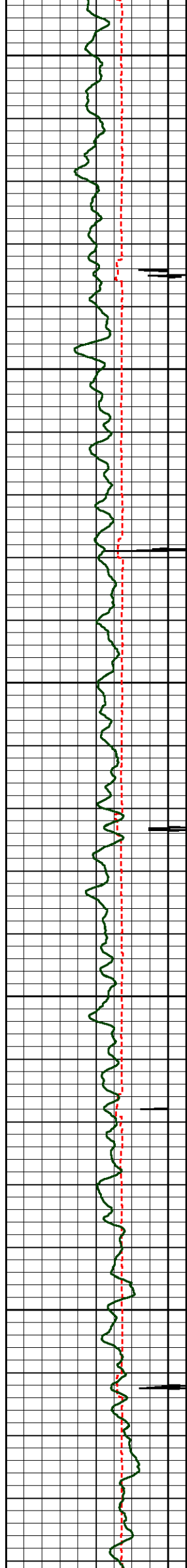




10000

10100

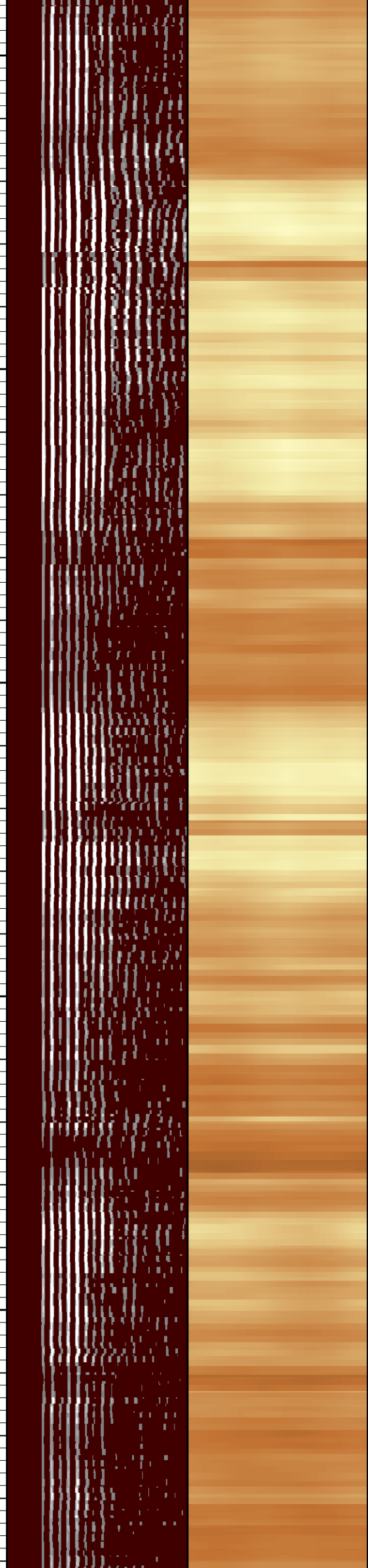
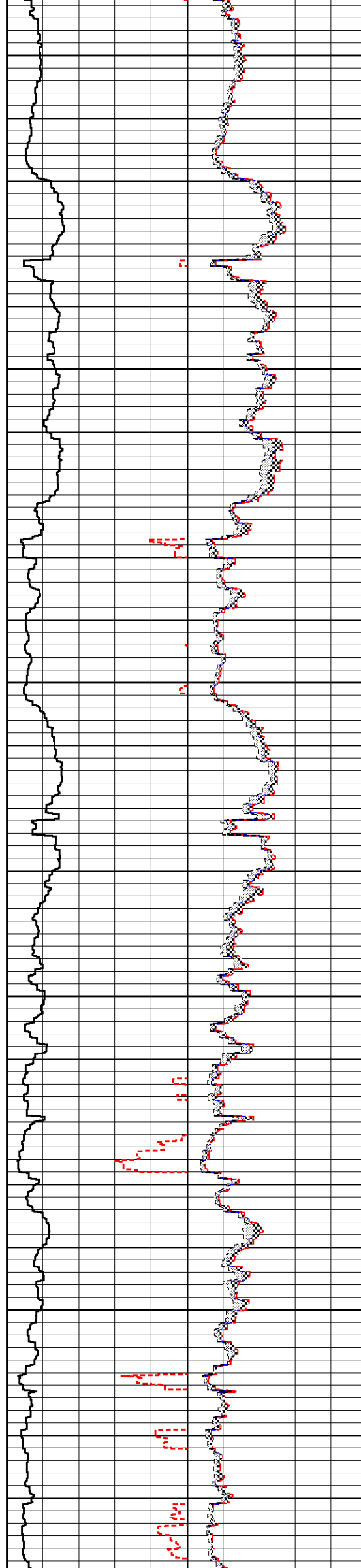




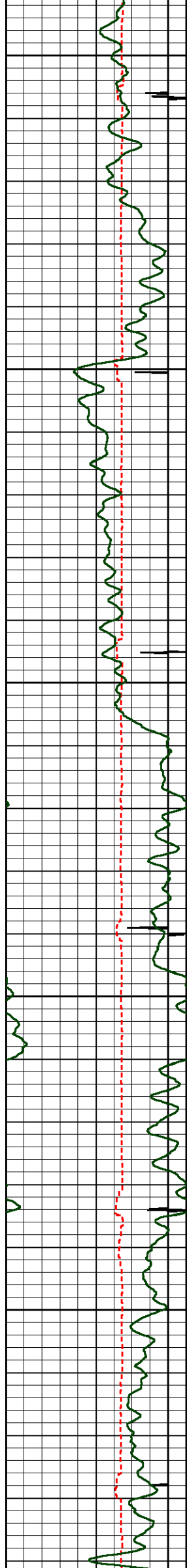
10200

10300

10400

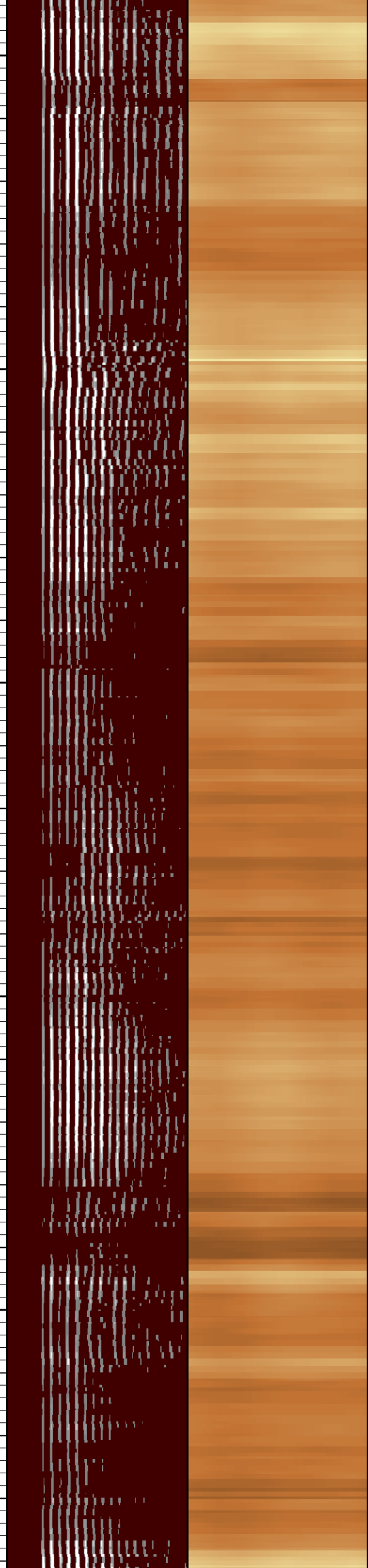
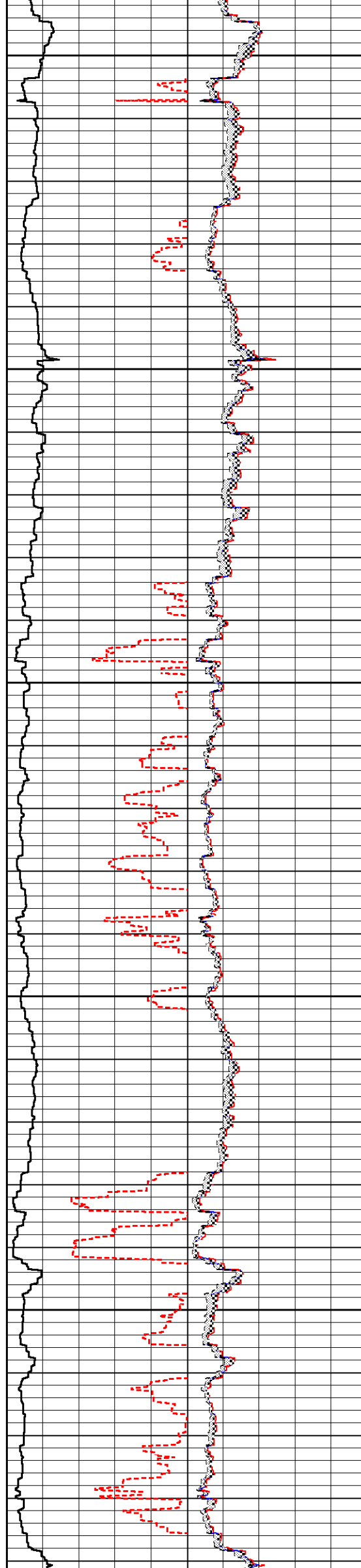


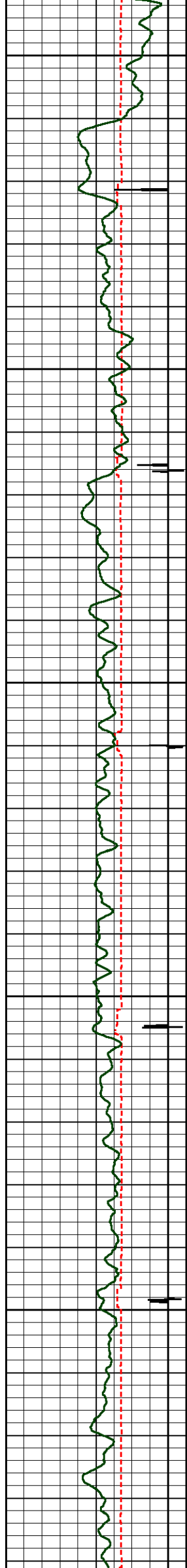




10500

10600

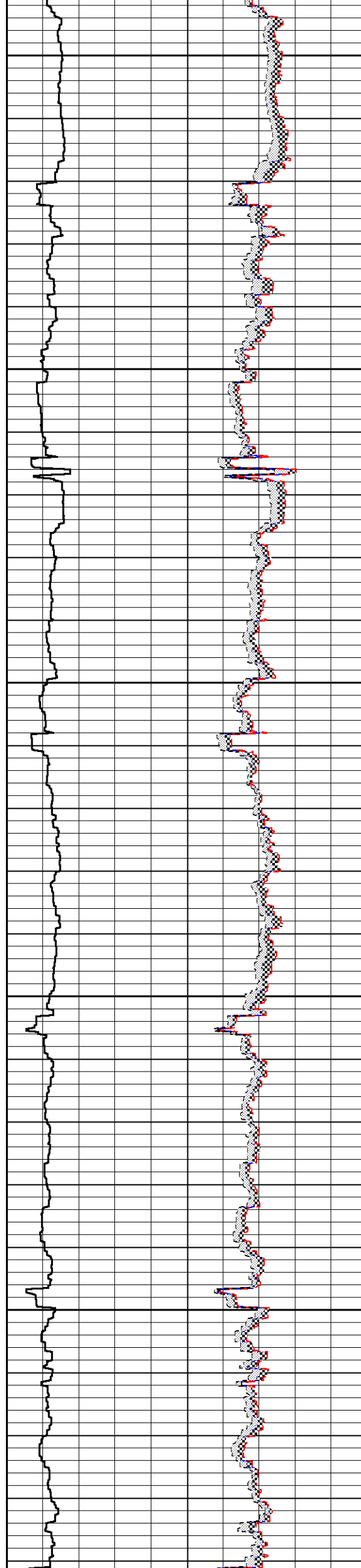


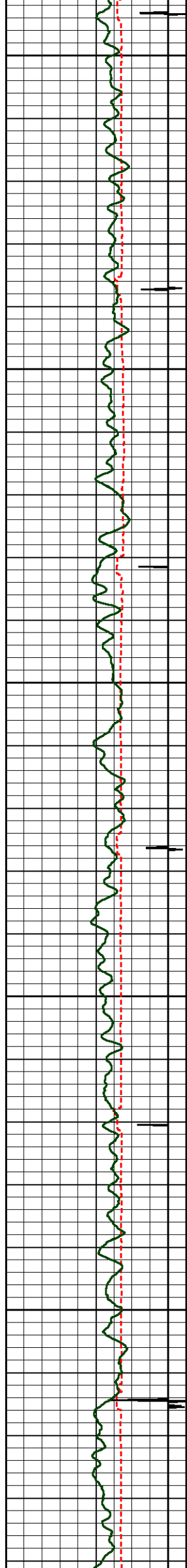


10700

10800

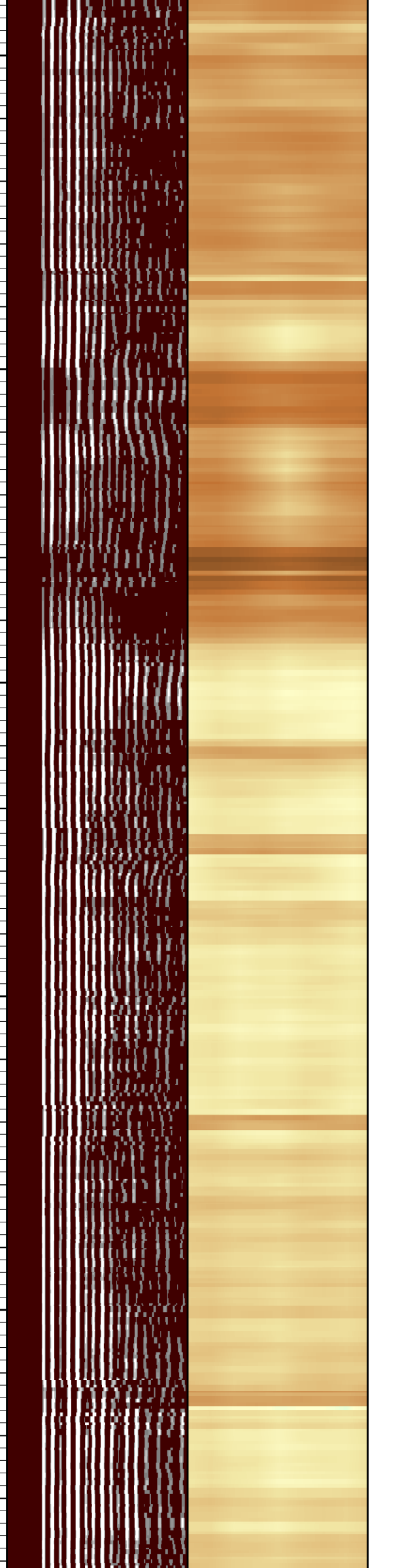
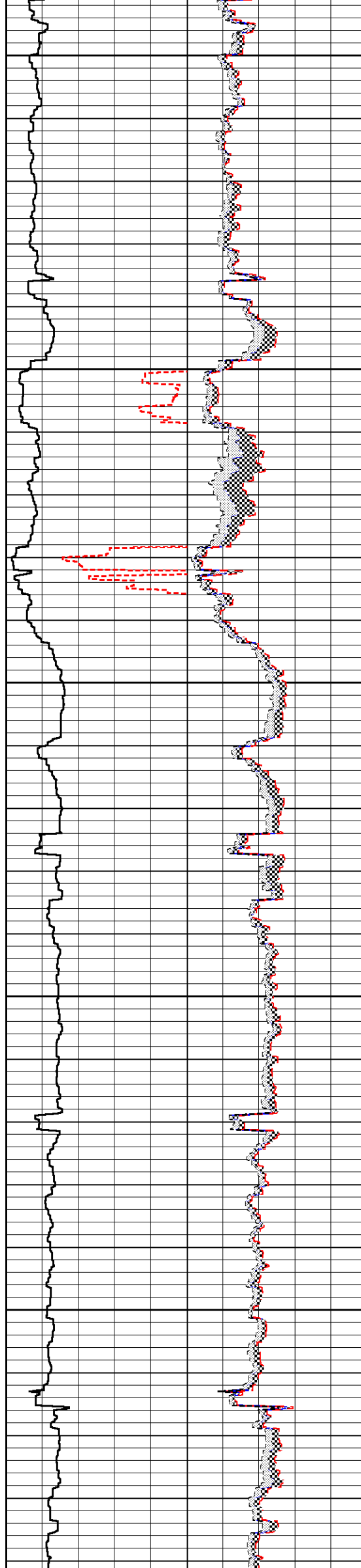
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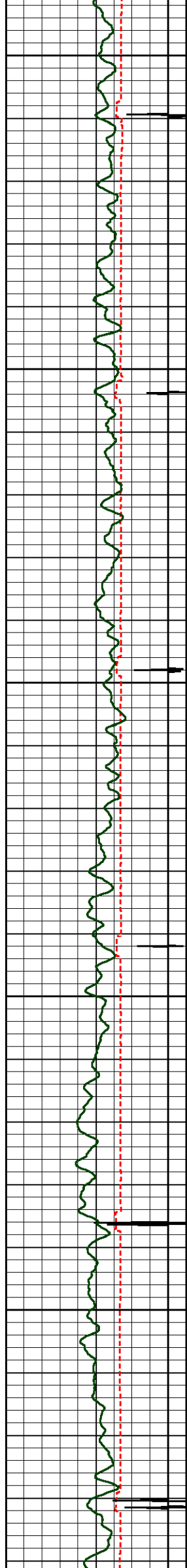




11000

11100

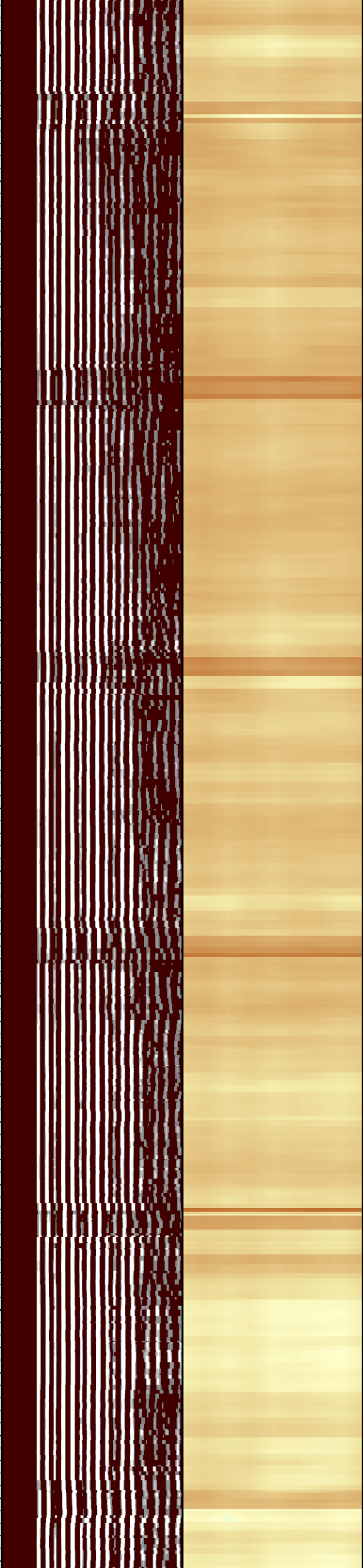
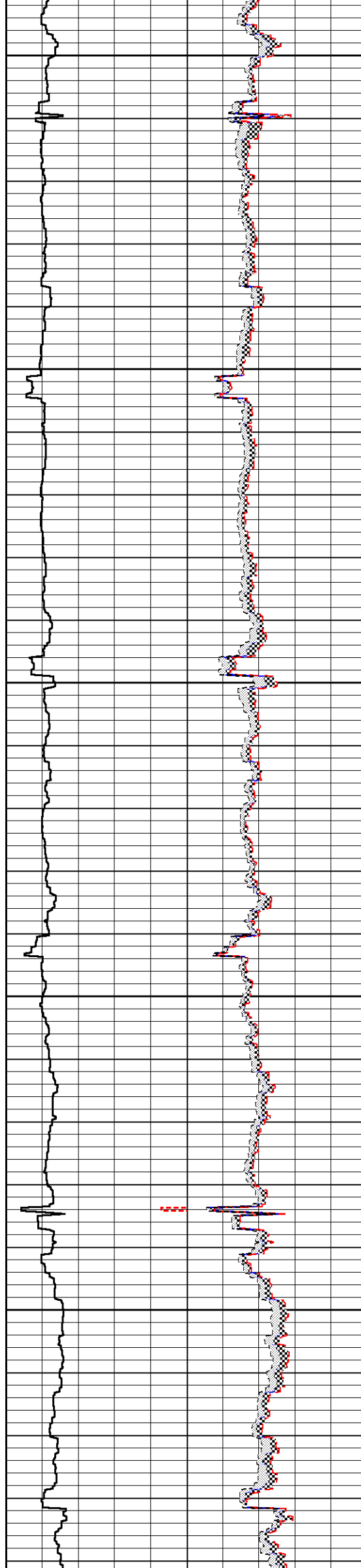




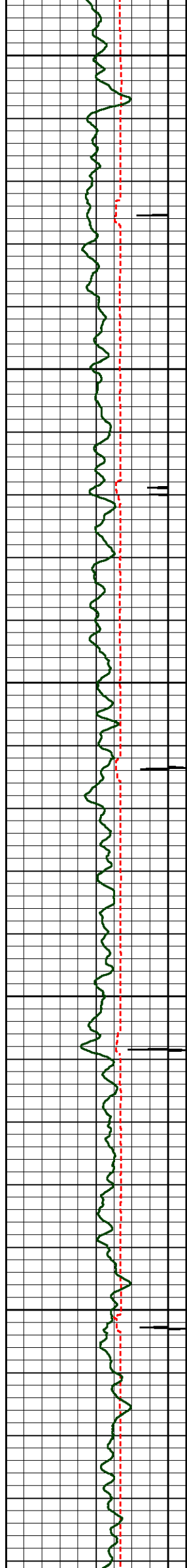
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11400

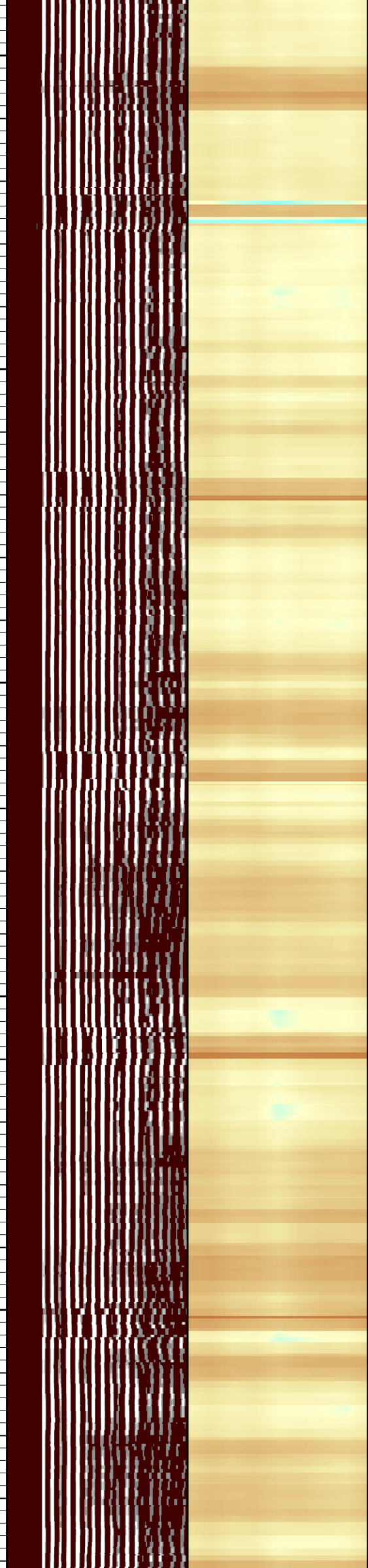
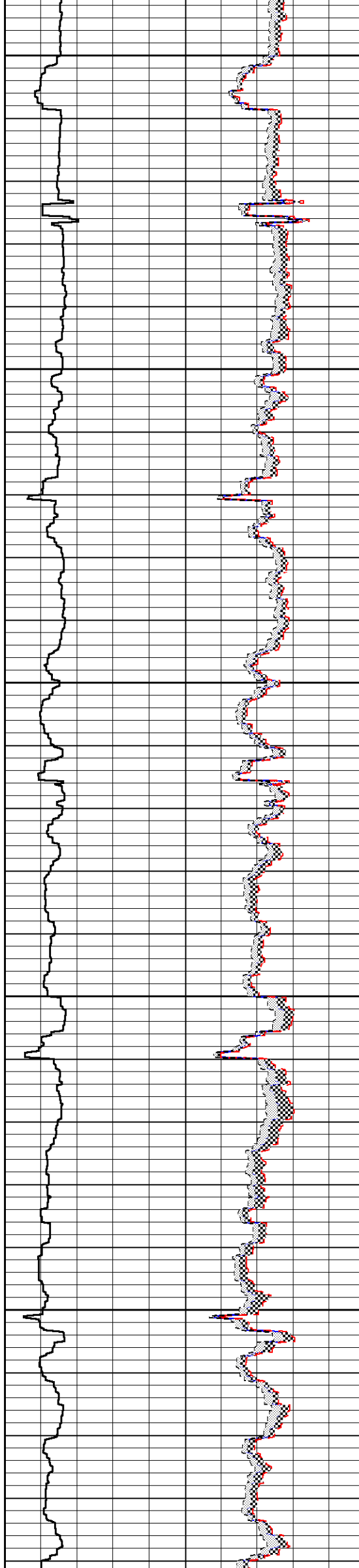


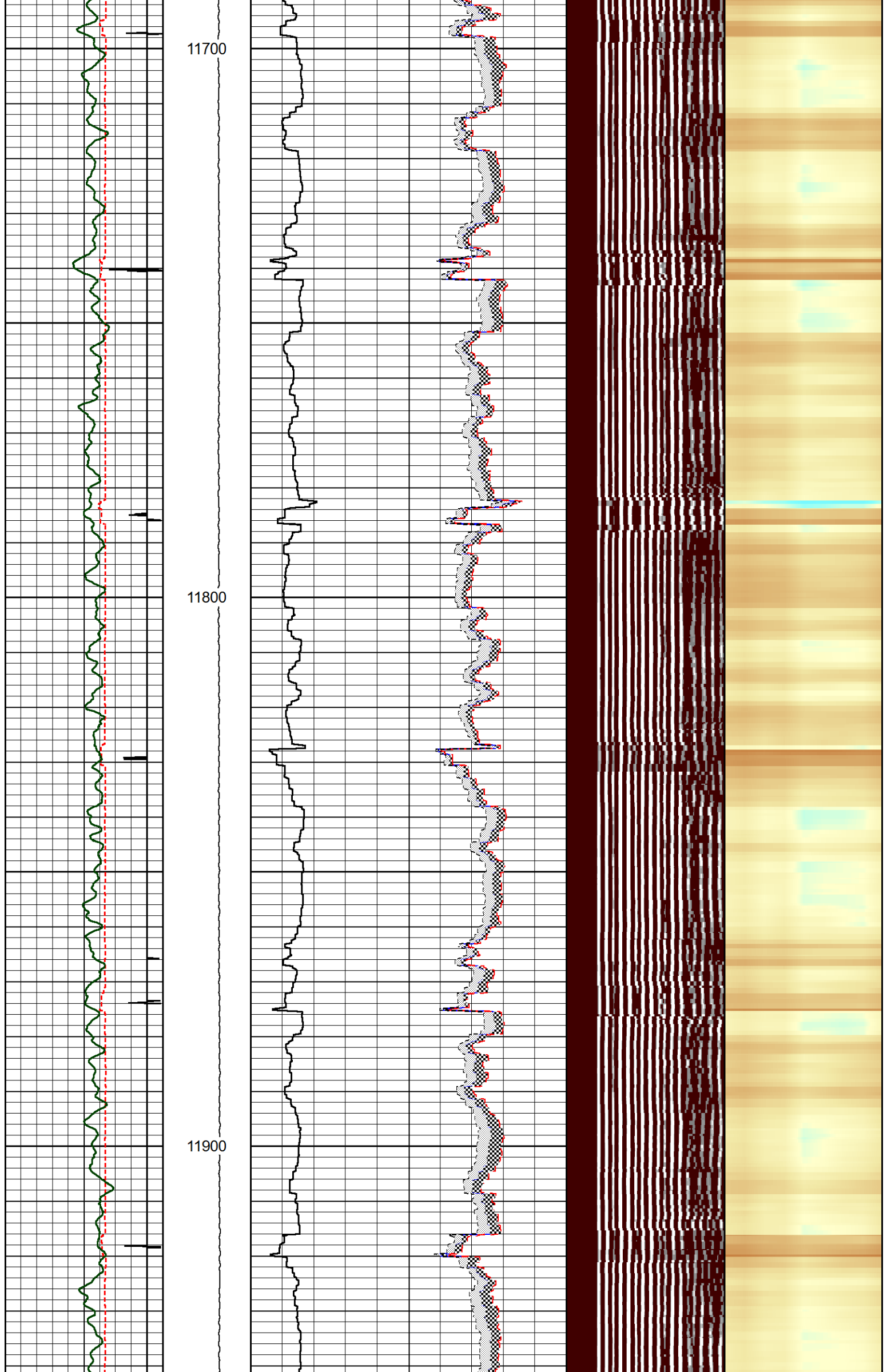


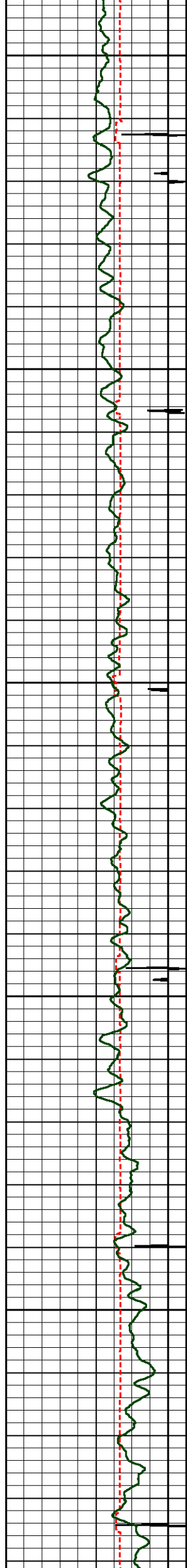


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11600

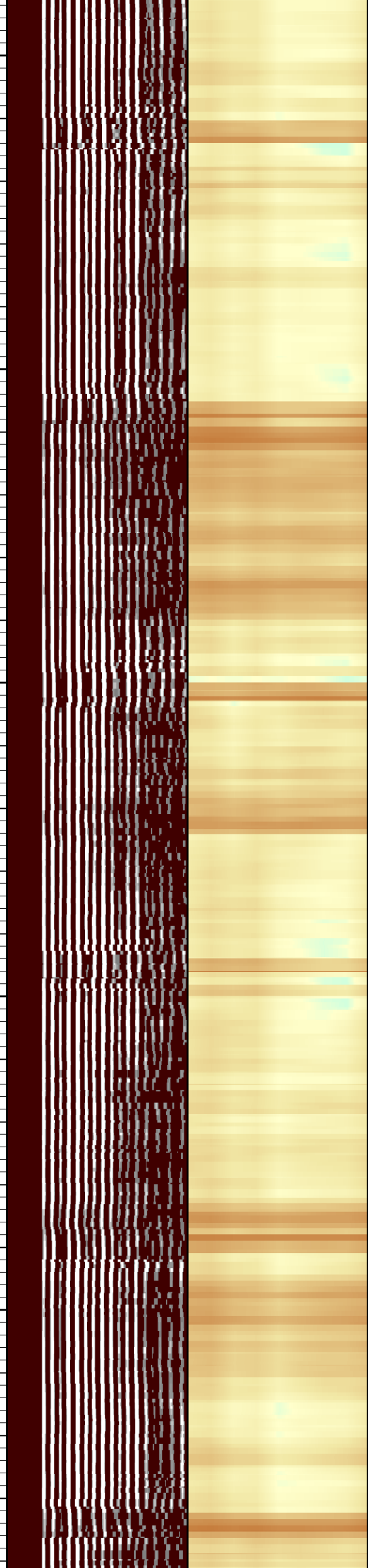
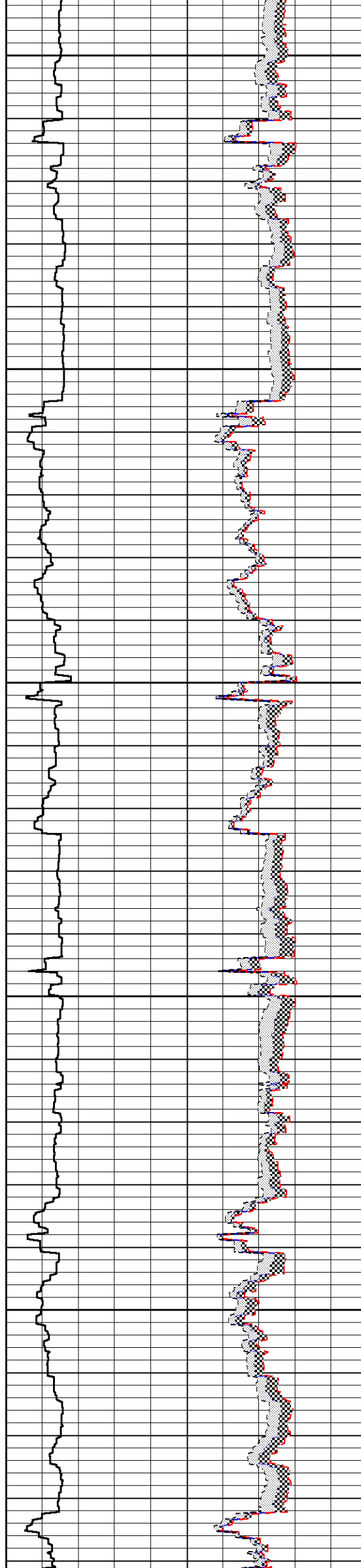


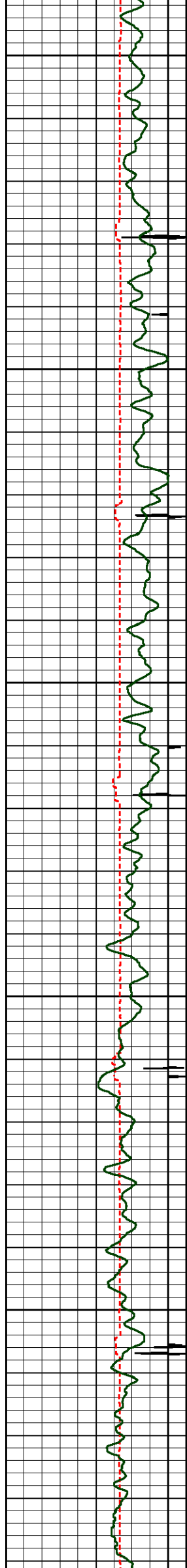




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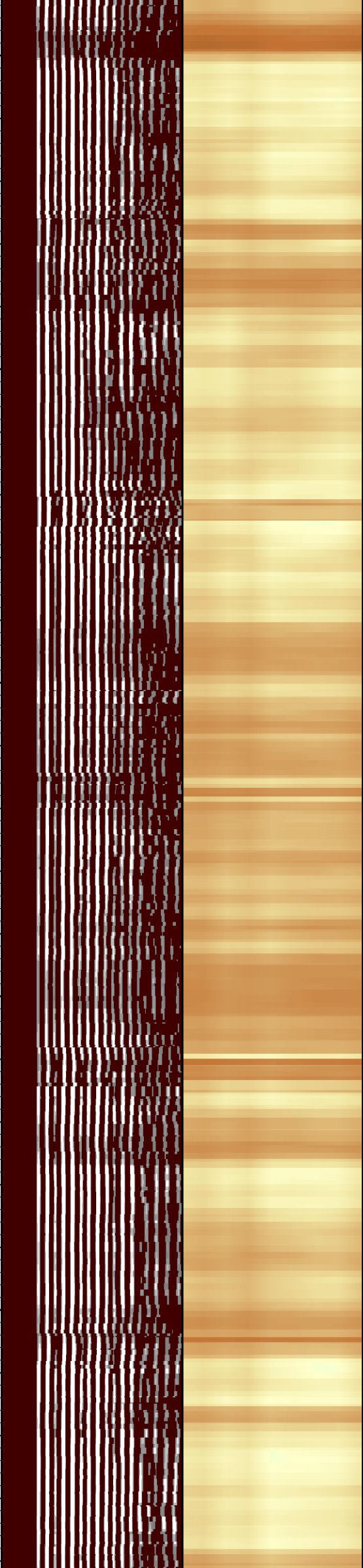
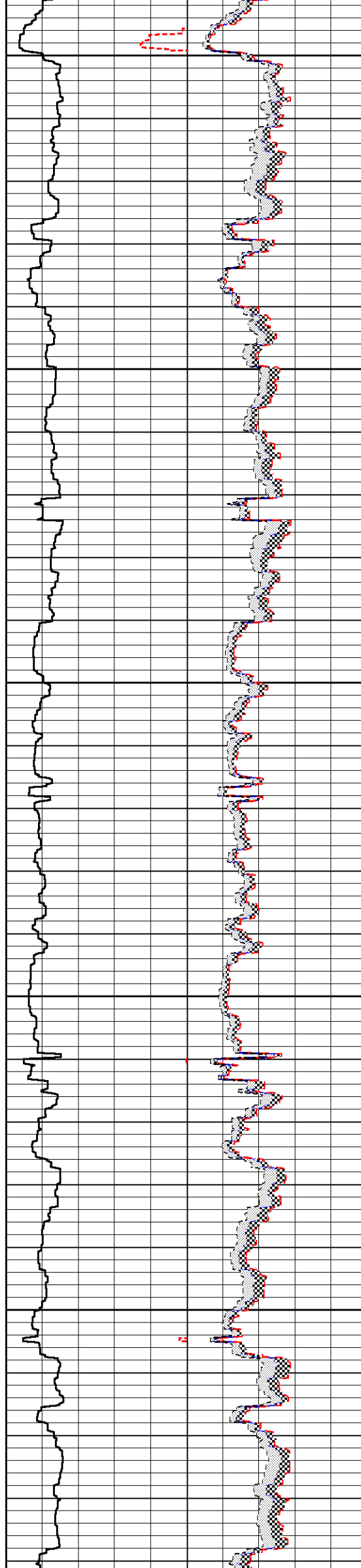




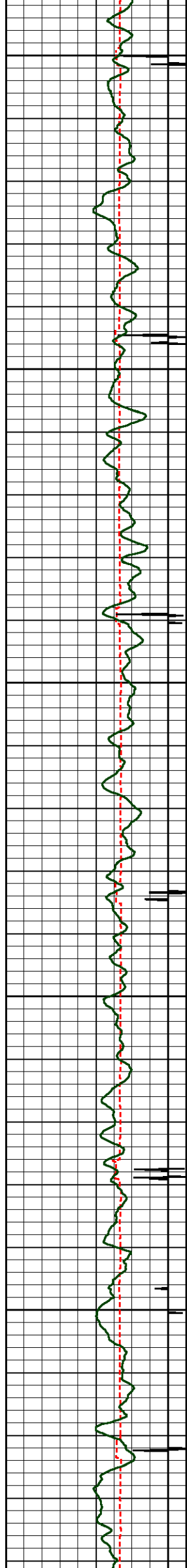
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12300

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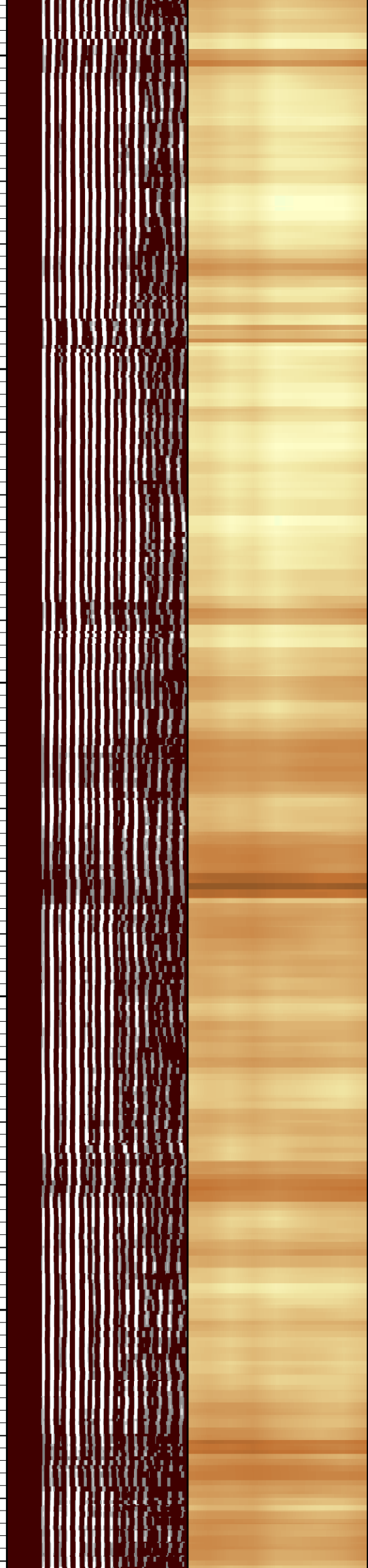
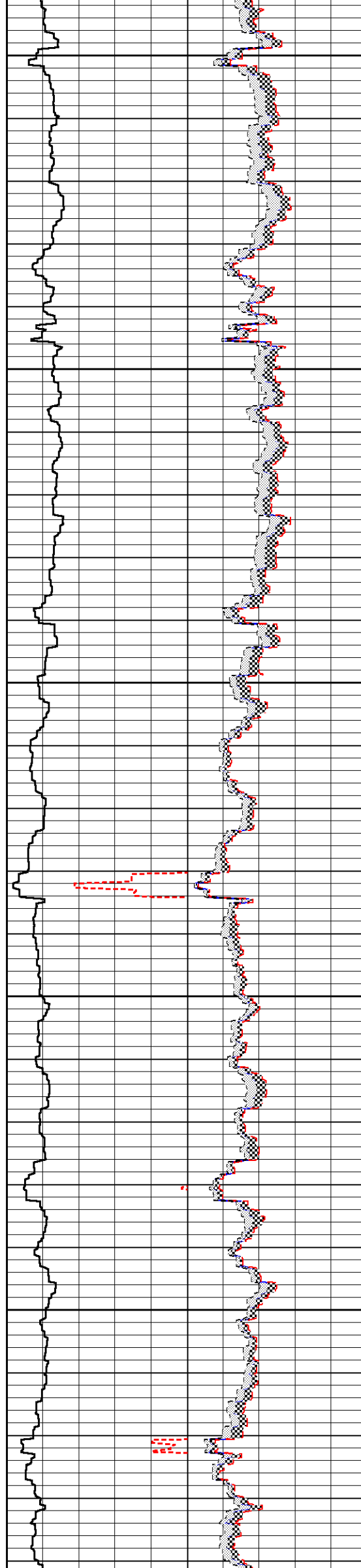


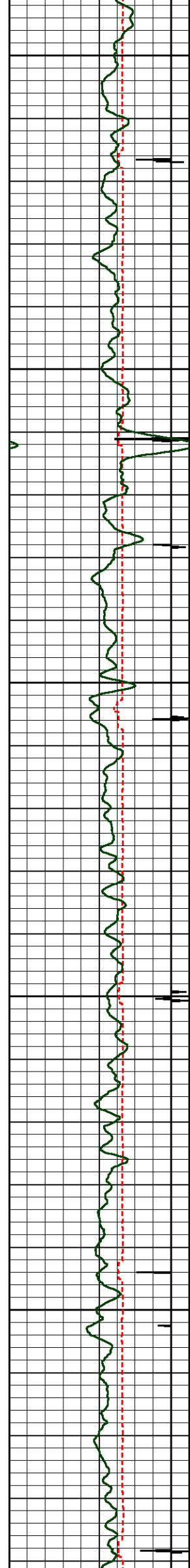




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12600

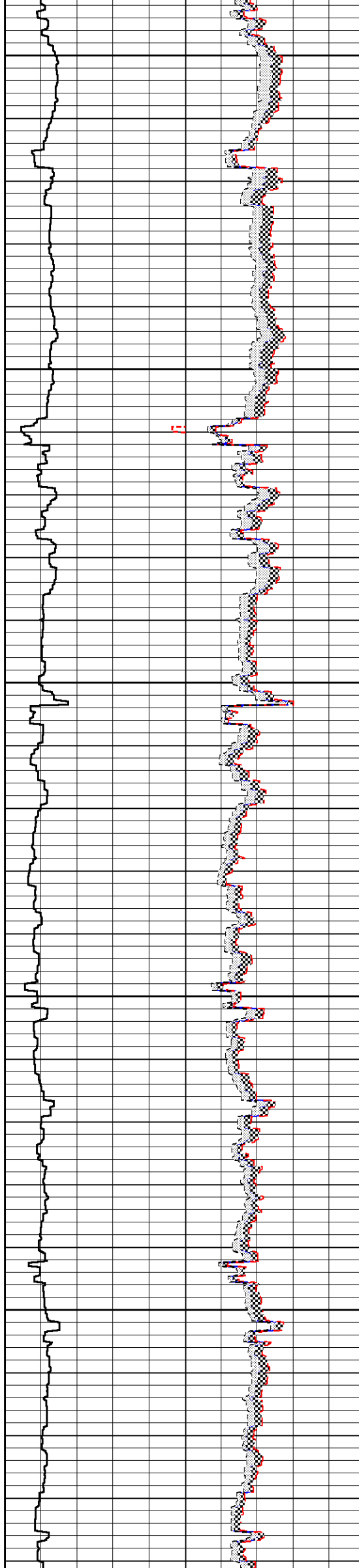


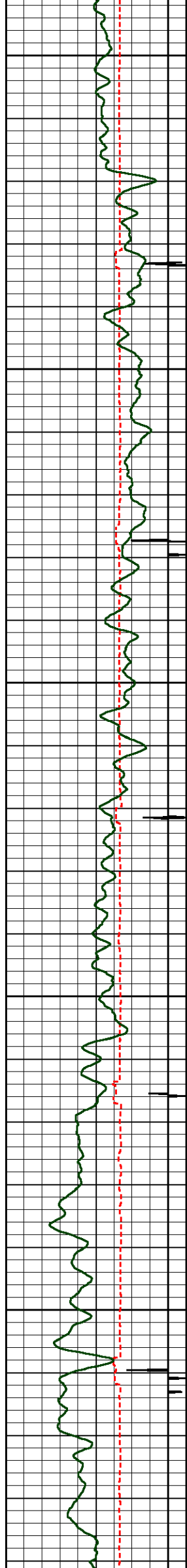


12700

12800

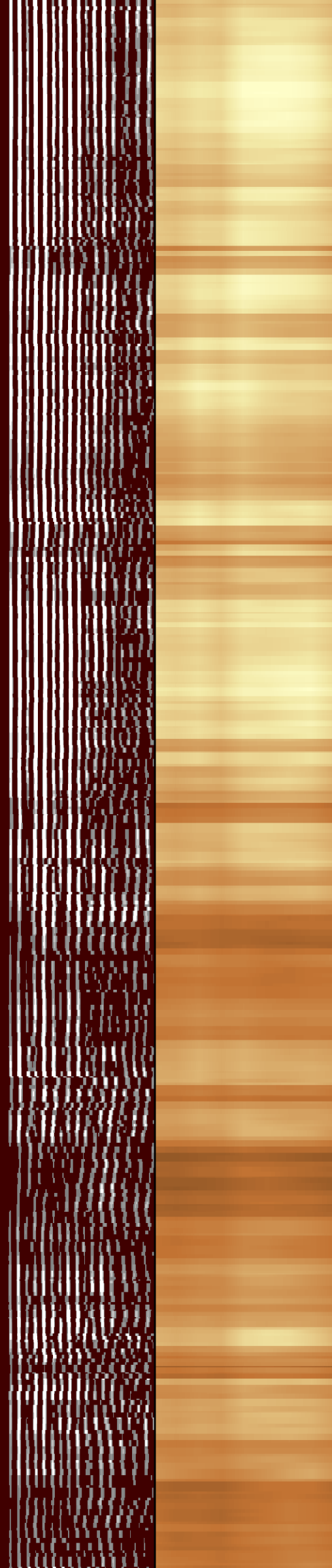
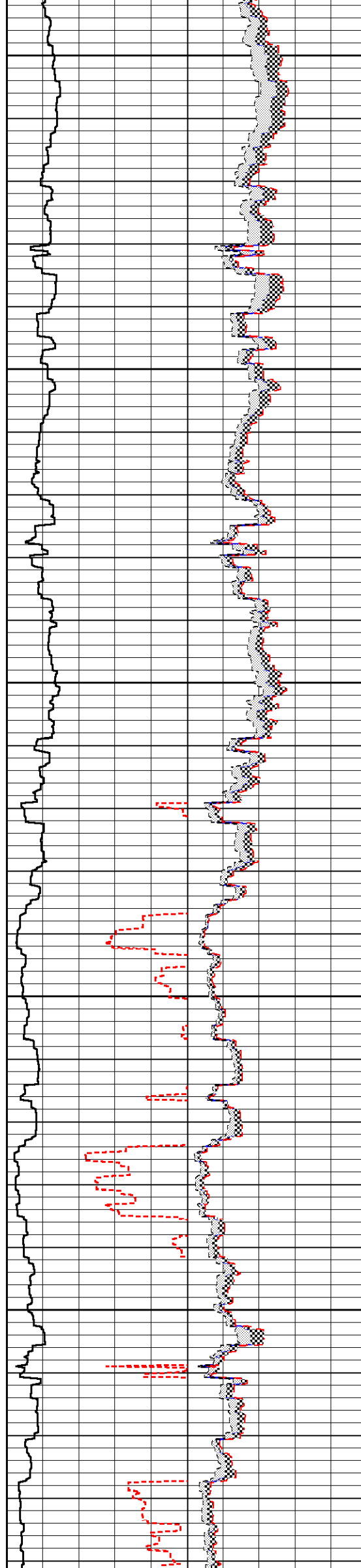
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13000

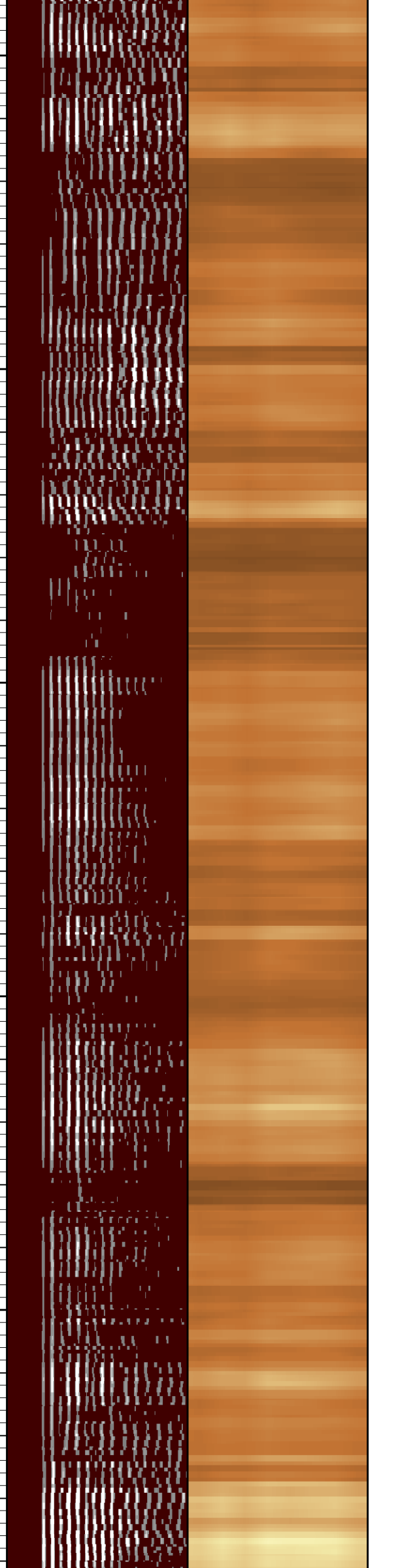
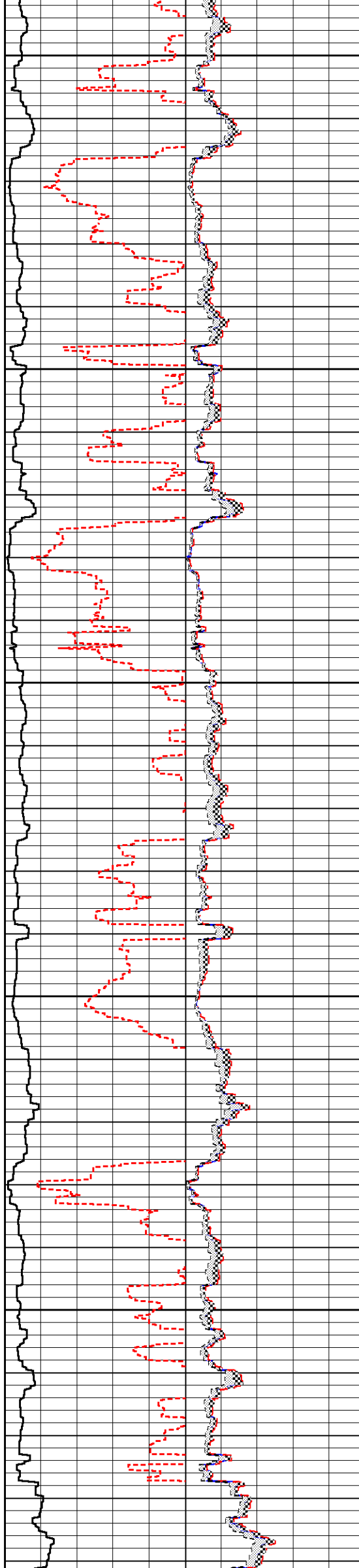
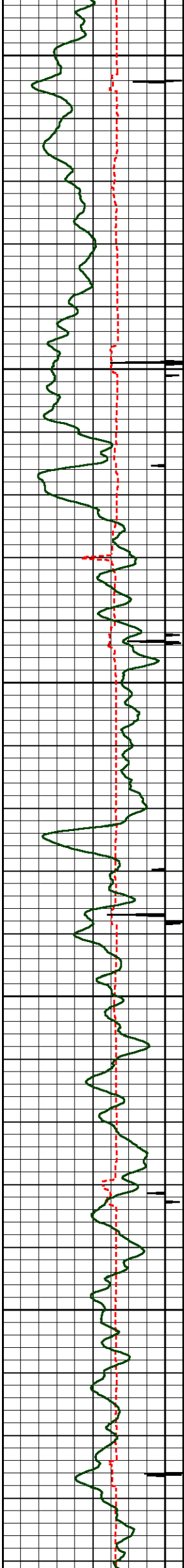
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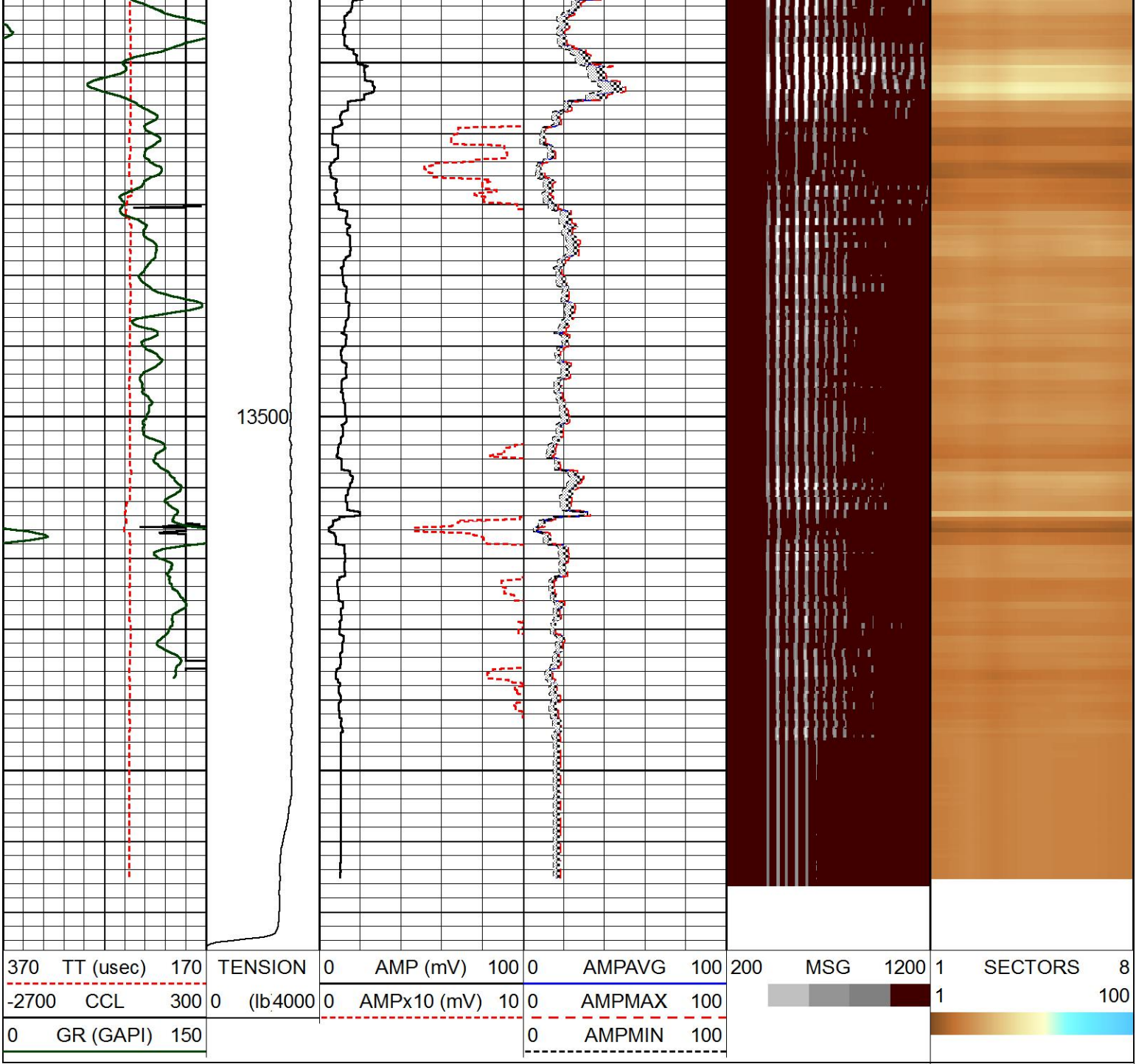
13200

13300

13400







MAIN LOG SECTION

HALLIBURTON

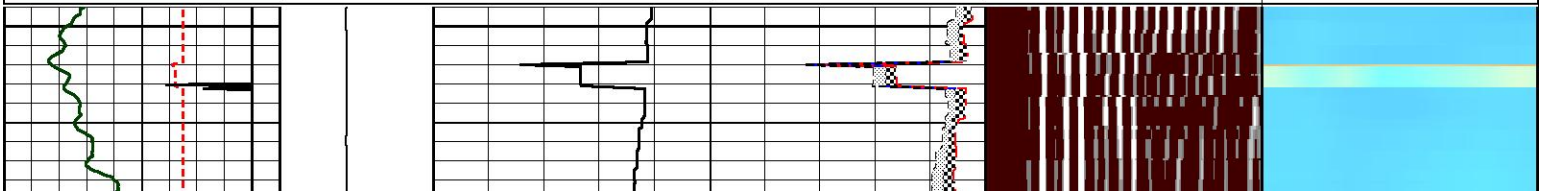
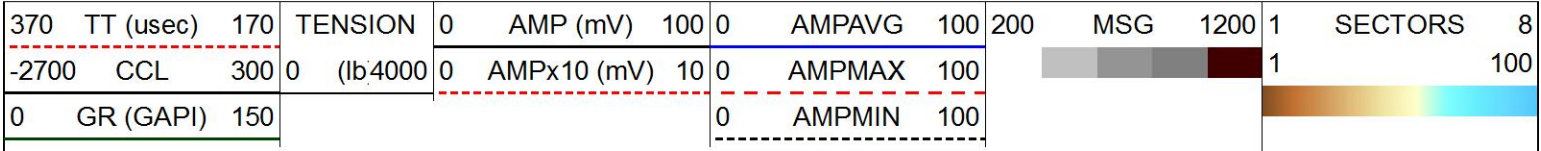
SCALE 5"=100'

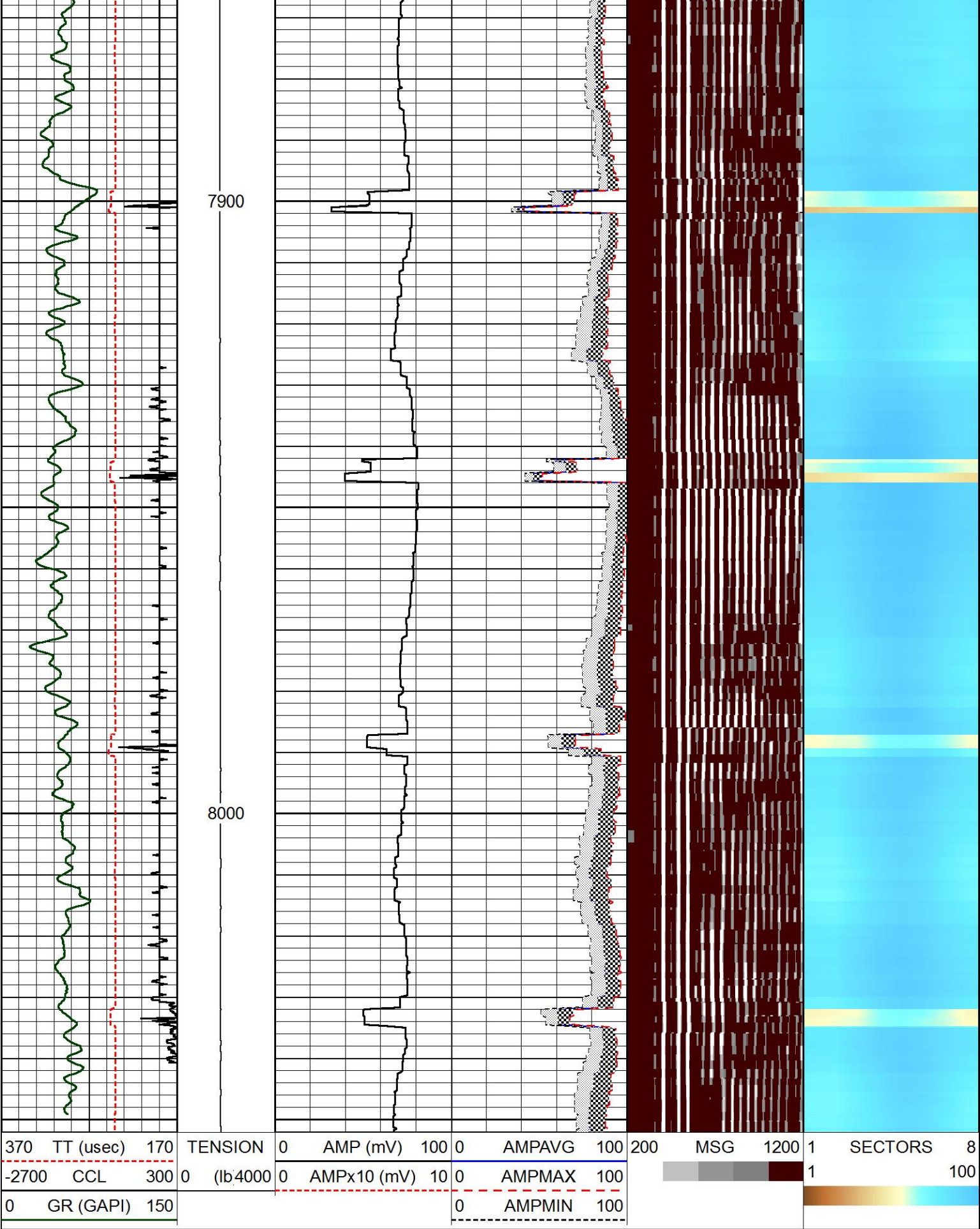
REPEAT LOG SECTION

HALLIBURTON

SCALE 5"=100'

Database File	c:\users\hnb69970\desktop\cynosure fed 14-15-7-21\fed_14_15_7_21main.db
Dataset Pathname	02-23-15/RBT/REPEAT2
Presentation Format	radial
Dataset Creation	Mon Feb 23 09:39:28 2015
Charted by	Depth in Feet scaled 1:240





REPEAT LOG SECTION

HALLIBURTON

SCALE 5"=100'

Log Variables Database:\users\hb69970\desktop\cynosure fed 14-15-7-21\fed\_14\_15\_7\_21.db  
Dataset field\02-23-15\RMT\MAIN2.3\\_vars\_

Top - Bottom

BHTEMP_Src	BHSAL2	BHSAL1	POROS2	POROS1	LTH	UHSGC	RHO�F
ITEMPY	0	1	0	1	Sandstone	NONE	0.25

TEMPA	0	1	0	1	Sandstone	NONE	0.25
SO in 0	BORSAL kppm 150	CASED?  Yes	PPT usec 0	CASEWGHT lb/ft 13.5	MAXAMPL mV 62	MINAMPL mV 1	MINATTN db/ft 0.8
SRFTEMP degF 30	MudWgt lb/gal 8.33	CASETHCK in 0.5	CASEOD in 4.5	PERFS  0	TDEPTH ft 13680	BOTTEMP degF 340	BITSIZE in 10

Calibration Report

Database File
Dataset Pathname
Dataset Creation

c:\users\hb69970\desktop\cynosure fed 14-15-7-21\fed\_14\_15\_7\_21.db
02-23-15/RMT/MAIN2.3
Mon Feb 23 18:28:57 2015

Segmented Cement Bond Log Calibration Report

Serial Number:

Tool Model:

11333931

004

Calibration Casing Diameter:

Calibration Depth:

7.000

-3355.930

in

ft

Master Calibration, performed (Derived):

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3FT	0.276	1.448	1.500	62.165	51.768	-12.782
5FT	0.239	0.851	1.500	62.165	99.195	-22.233
S1	0.258	1.086	0.000	100.000	120.766	-31.138
S2	0.254	1.191	0.000	100.000	106.679	-27.099
S3	0.256	1.064	0.000	100.000	123.841	-31.737
S4	0.256	1.087	0.000	100.000	120.359	-30.798
S5	0.260	1.067	0.000	100.000	123.841	-32.197
S6	0.261	1.057	0.000	100.000	125.585	-32.768
S7	0.258	1.197	0.000	100.000	106.467	-27.429
S8	0.254	1.131	0.000	100.000	114.072	-29.012

Calibration Report

Serial Number:

Tool Model:

Performed:

11333931

004

Low:

High:

Reference (degF)

0.000

1.000

Gain = 1.000

Reading ( )

0.000

1.000

Offset = 0.000

Reservoir Monitor Tool I Calibration Report

Serial-Model:

Shop Calibration Performed:

11680605-A

Sat Feb 21 11:55:26 2015

Carbon/Oxygen Mode

Stabilization

Result	Logged	Expected Value	Diff.	Tol.	Units
GENV	92.00	80.00	12.00	+/-15.00	V
ITCR2	3215	3250	-35	+/-250	cps



Near Detector					
H	Channel	Expected Value	Amplitude	FWHM	Tol.
Fe	60	60 +/-2	0.0249	5.56	<6.00
NGAIN = 0.994	207	206 +/-2	0.0937	-----	-----
NZOFF = 0.7					
Far Detector					
H	Channel	Expected Value	Amplitude	FWHM	Tol.
Fe	60	60 +/-2	0.0383	5.21	<6.50
FGAIN = 0.993	209	208 +/-2	0.0913	-----	-----
FZOFF = 0.5					
Flask Temperature	63.6 degF				
Result	Logged	Expected Value	Diff.	Tol.	Units
COIR2	0.44	0.45	-0.01	+/-0.02	
LIRI2	1.64	1.64	0.00	+/-0.05	
TCCR2	5127	5000	127	+/-1000	cps
ITCR2	3112	3200	-88	+/-250	cps

Sigma Mode					
Stabilization					
Result	Logged	Expected Value	Diff.	Tol.	Units
GENV	92.00	80.00	12.00	+/-15.00	V
FCAP	10333	10000	333	+/-500	cps
Horizontal Water Tank					
Result	Logged	Expected Value	Diff.	Tol.	Units
N/F Normalizer	0.95	0.95	-0.00		
N/F Inel Norm	0.62	0.61	0.01		
RNF	1.06	1.07	-0.01	+/-0.12	
RINC	1.62	1.64	-0.02	+/-0.18	
SGFN	24.13	24.00	0.13	+/-0.50	cu
SGFF	22.94	22.85	0.09	+/-0.50	cu
FSIN	24718	24000	718	+/-2000	cps
FCAP	10450	10000	450	+/-1000	cps
NFTR	0.80			<5.00	
FFTR	0.89			<5.00	
NBKG	131			<500	cps
FBKG	102			<500	cps
RTN	0.43	0.40	0.03	+/-0.10	usec
RTF	0.45	0.40	0.05	+/-0.10	usec

Calibration Software Modules	
HRMTI Module	2013.11.14.0
RMTI Module	2014.5.9.1
Log Data Acquisition Software Modules	
HRMTI Module	2013.11.14.0
RMTI Module	2014.8.28.1


Gamma Ray Calibration Report

Serial Number:	12159411				
Tool Model:	002				
Performed:	Sat Feb 21 10:27:04 2015				
Calibrator Value:	408.0	GAPI			
Background Reading:	33.6	cps			
Calibrator Reading:	286.4	cps			

Sensitivity:

1.6139

GAPI/cps

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)	
CCL	37.63		STNDCH-STND_CH 1.4375 IN CABLE HEAD	1.50	1.44	1.00	
			TTTCU-002 (12159411) Through Tubing Telemetry Cartridge - Ultrawire	7.65	1.69	100.00	
GR	35.37		XHU-003 (000001) Crossover Halliburton 1553 to Ultrawire	1.58	1.69	7.00	
			X-OVER-SondexxGo Sondex Box x Go Pin Cross Over	0.31	1.69	1.00	
RmtTFGT RmtTNGT	24.41		RMTI-A (11680605) Halliburton RMTI Tool	14.00	2.13	77.00	
	23.91						
RmtFP5V RmtCommFWa	16.16		AUH-001 (000001) Adaptor Ultrawire/Halliburton	0.38	1.69	3.00	
CBLTEMP	8.44		CENT-CSSMID169Roller CSS 1 11/16" MIDDLE ROLLER CENTRALIZER	3.00	1.69	4.41	
			RBT-004 (11333931) Radial Bond Tool (UW 3 1/8)	9.48	3.13	140.00	
LLMTEN	0.00		CENT-CSSMID169Roller CSS 1 11/16" MIDDLE ROLLER CENTRALIZER	3.00	1.69	4.41	
			BUL-001 (000001) Bullnose	0.30	1.69	1.50	



	Total length:	41.20 ft
	Total weight:	339.32 lb
	O.D.:	3.13 in

Company	COACHMAN ENERGY OPERATING, LLC.		
Well	FEDERAL 14-15-7-21		
Field	KOKOPELLI		
County	GARFIELD	State	CO
HALLIBURTON	RADIAL CEMENT		
	BOND LOG		
	FIELD COPY		