



MULTIPOLE ARRAY ACOUSTILOGSM COMPRESSIONAL & SHEAR SLOWNESS

COMPANY CHESAPEAKE APPALACHIA LLC

WELL JAMES MESSENGER WIZ 3H U

FIELD WEITZEL

COUNTY WEITZEL STATE WEST VIRGINIA

LOCATION: STATE TOWNSHIP PROCTOR QUAD WILEVILLE

LAT N39.673693 LONG W80.690861

ELEVATIONS: KB 1517 FT DF 1517 FT GL 1495 FT

DATE 15-MAY-2014 ECC 15147-01/NOGS-490.00

IN MAKING INTERPRETATIONS OF LOGS OUR EMPLOYEES WILL GIVE CUSTOMER THE BENEFIT OF THEIR BEST JUDGEMENT. BUT SINCE ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS, WE CANNOT, AND WE DO NOT GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATION. WE SHALL NOT BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COST, DAMAGES, OR EXPENSES WHATSOEVER INCURRED OR SUSTAINED BY THE CUSTOMER RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR EMPLOYEES.

REMARKS

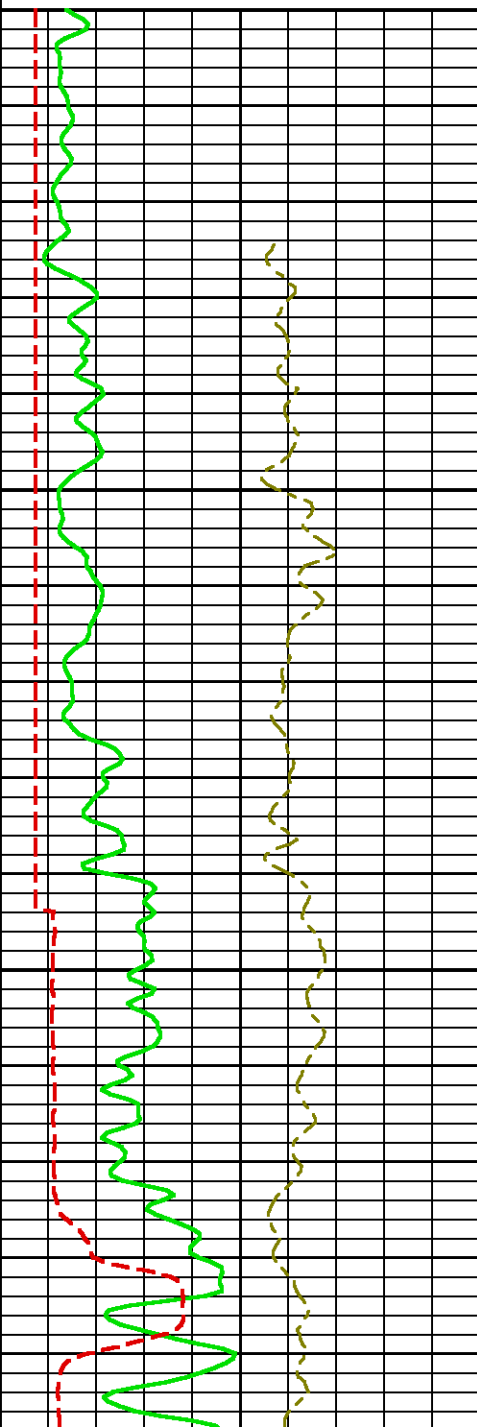
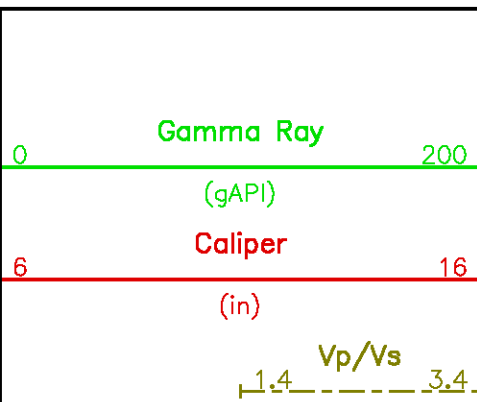
DATA MAY BE UNRELIABLE IN AREAS OF TENSION PULLS & WASHOUTS

GEOSCIENTIST: S.THIEL

COMPRESSIONAL AND SHEAR WAVE SLOWNESS

Presentation : usageos07:/export/home/thiested/projects/0490/dr.pat [5"/100" Scale]
Plot Interval : 8800 - 12647 Feet

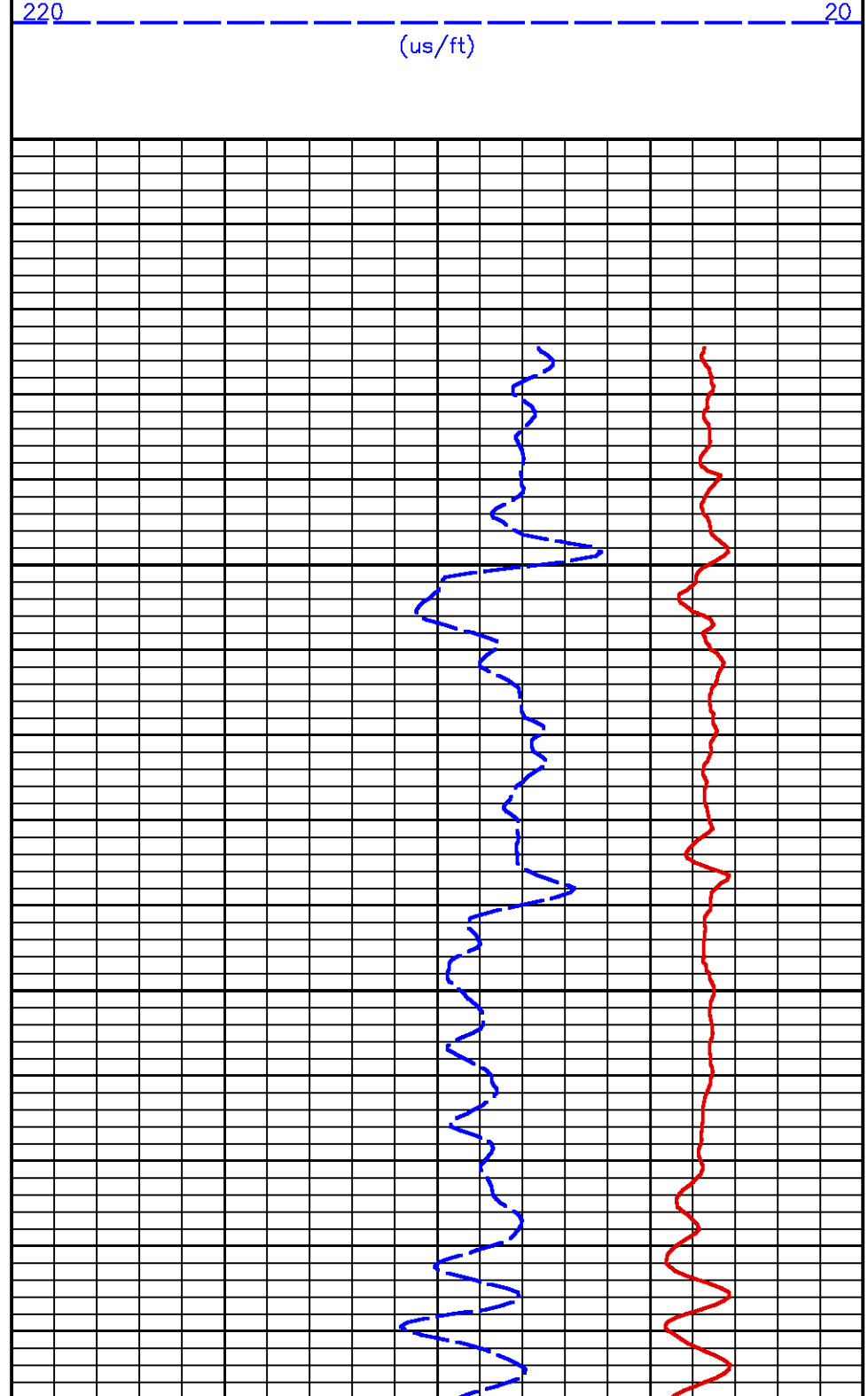
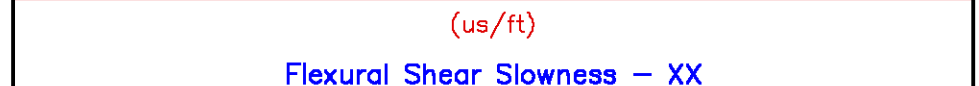
Data File 1 : F1 : usageos07:/export/home/thiested/projects/0490/open.xtf
Created On : May 15 08:33:25 2014
Company : Chesapeake Appalachia LLC
Well : James Messenger WTZ 3H U
Field : Wetzel
File Interval : 8740.5 - 12647 Feet
Oct : GSLAM

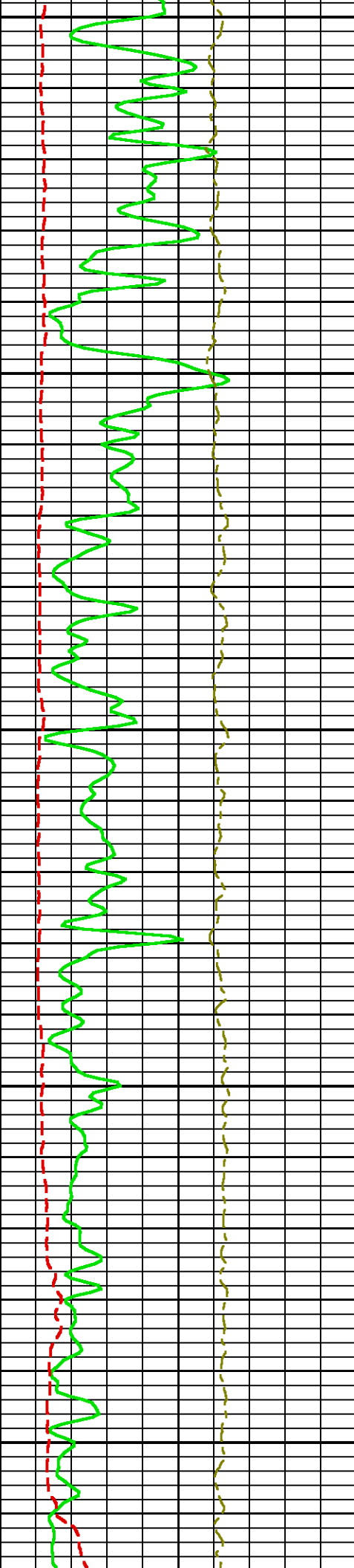


FEET

8800

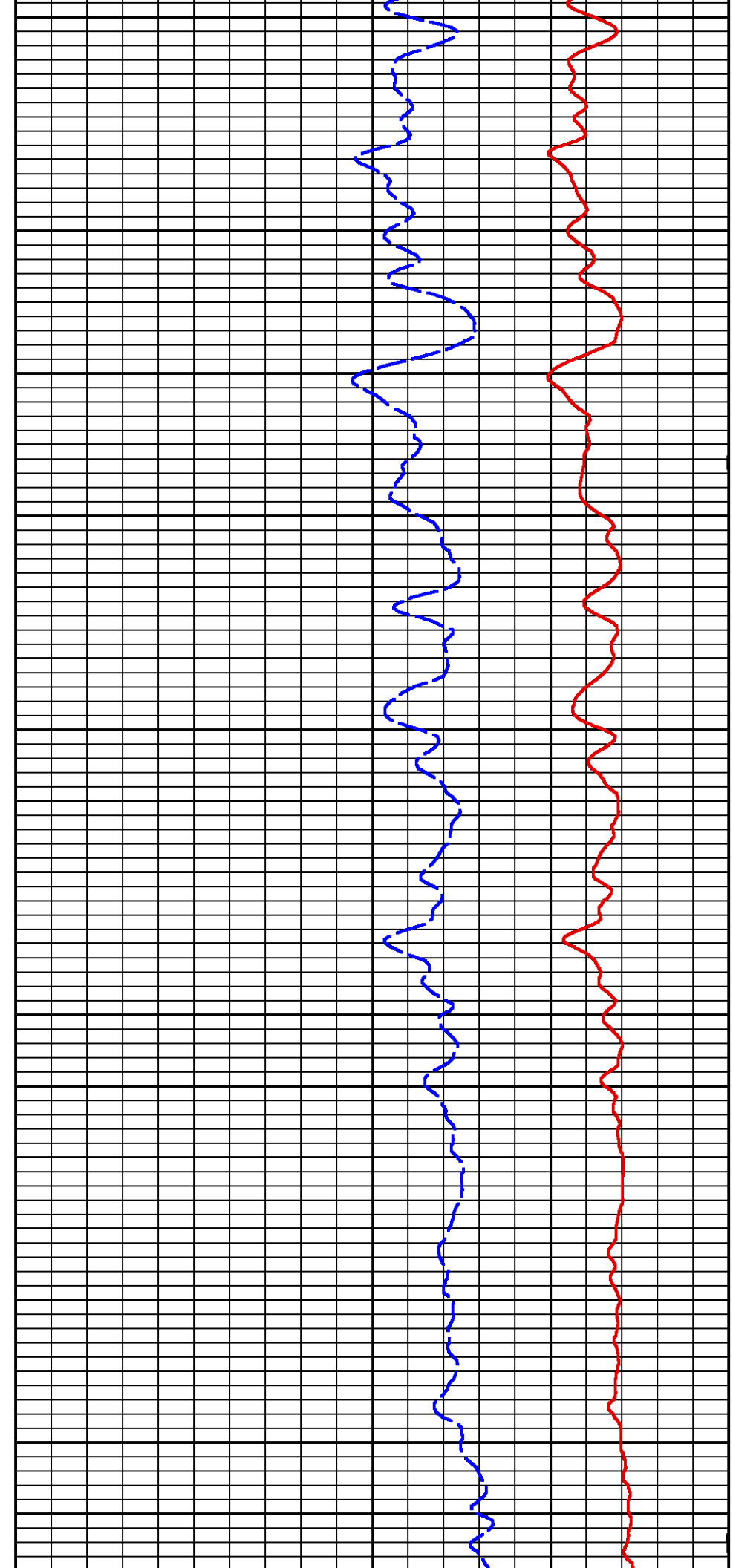
8900

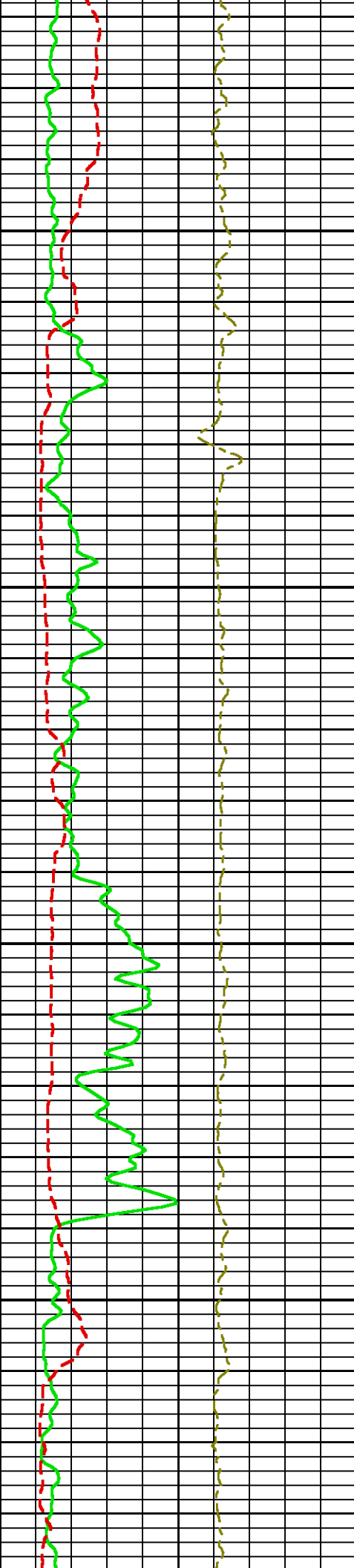




9000

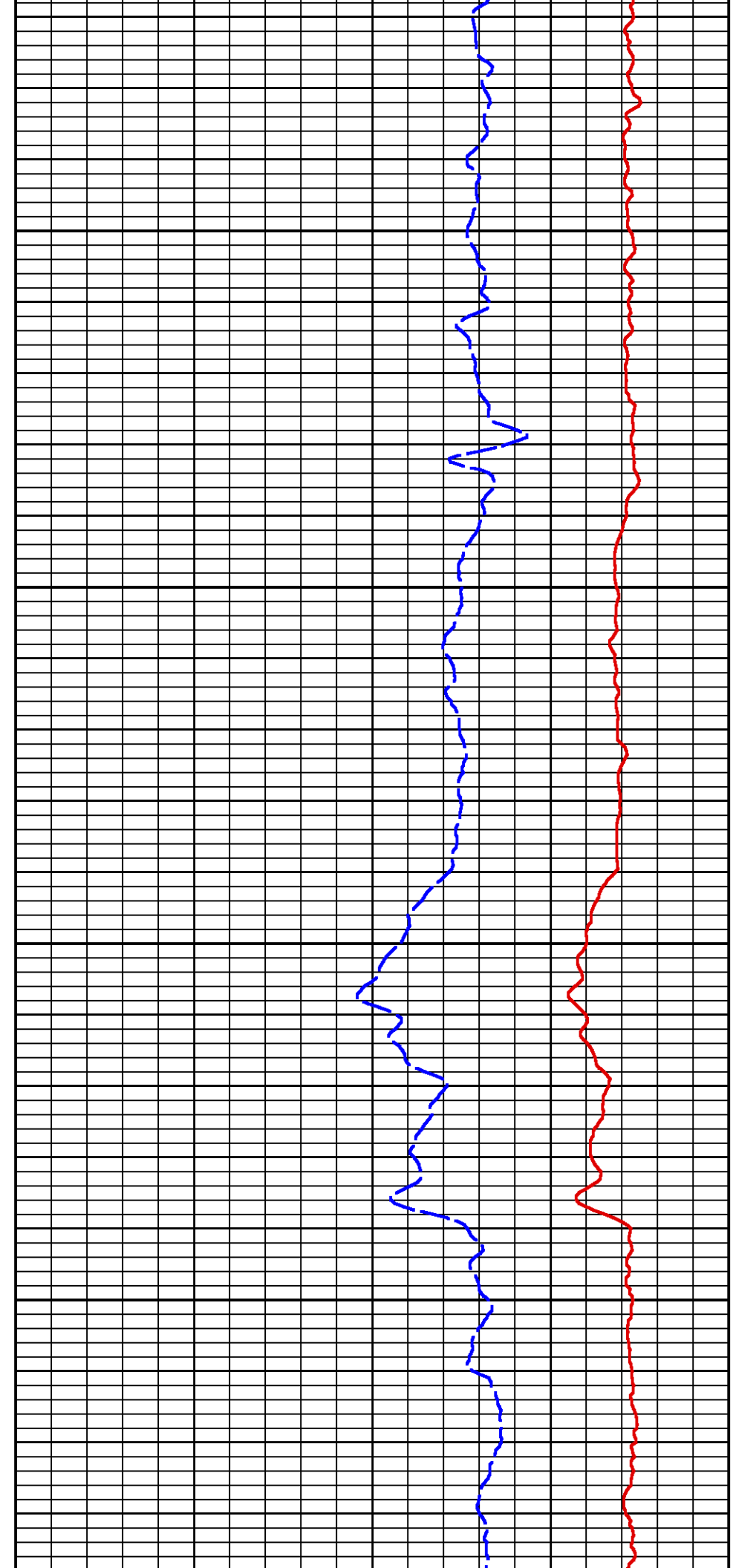
9100

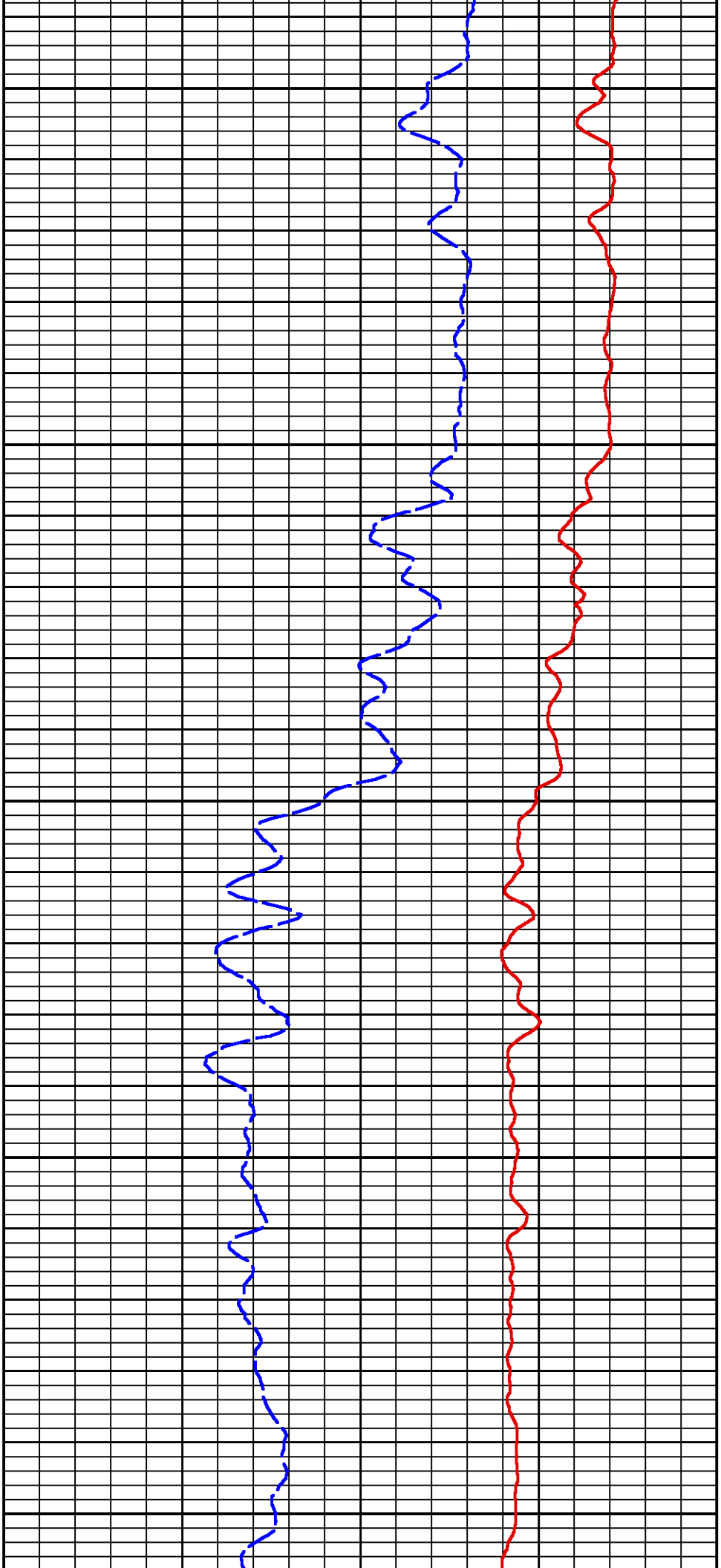




9200

9300

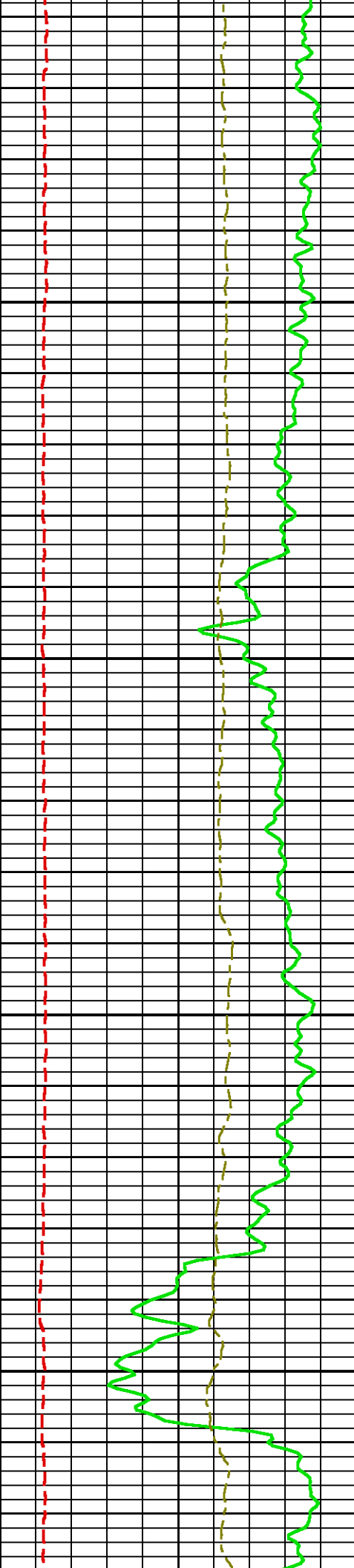




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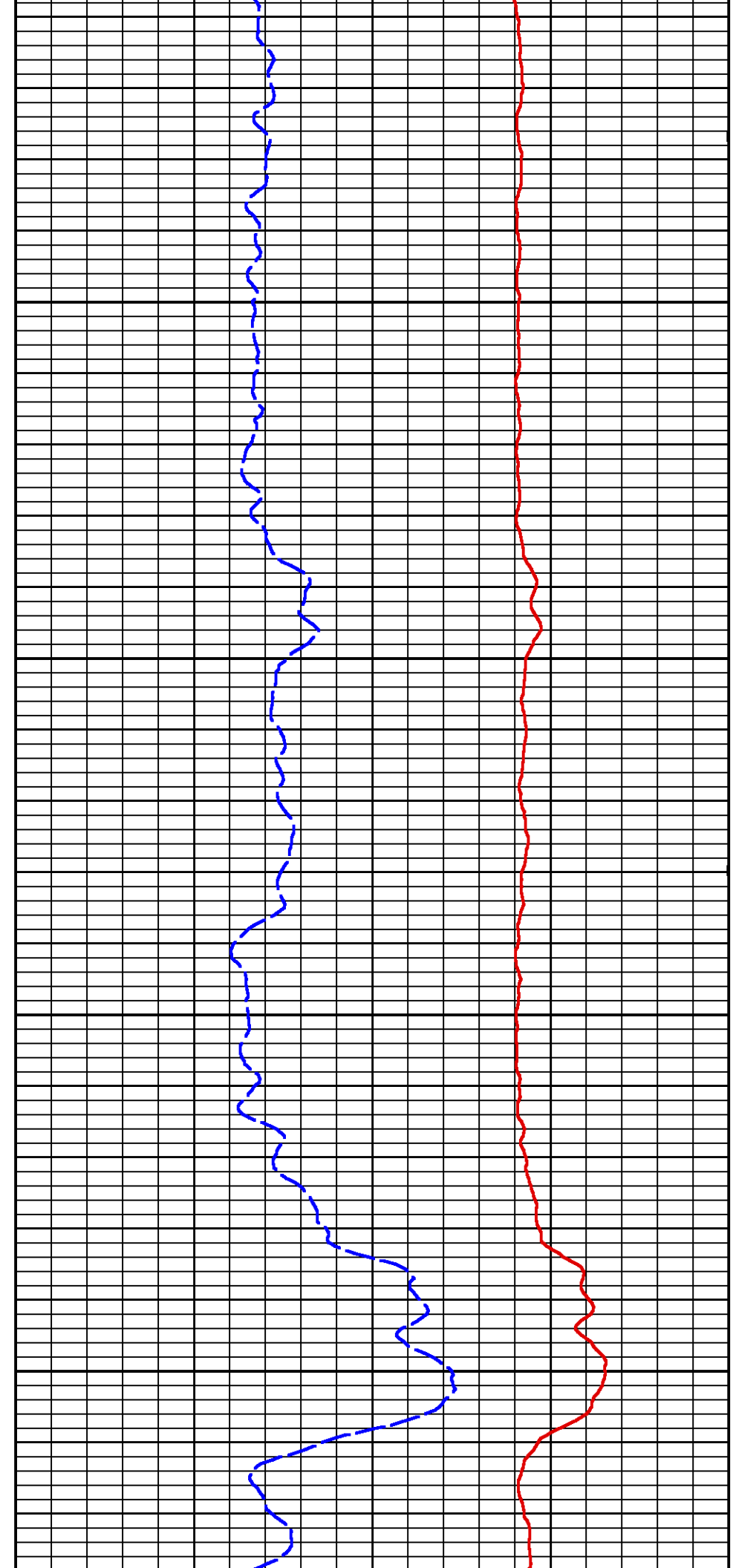
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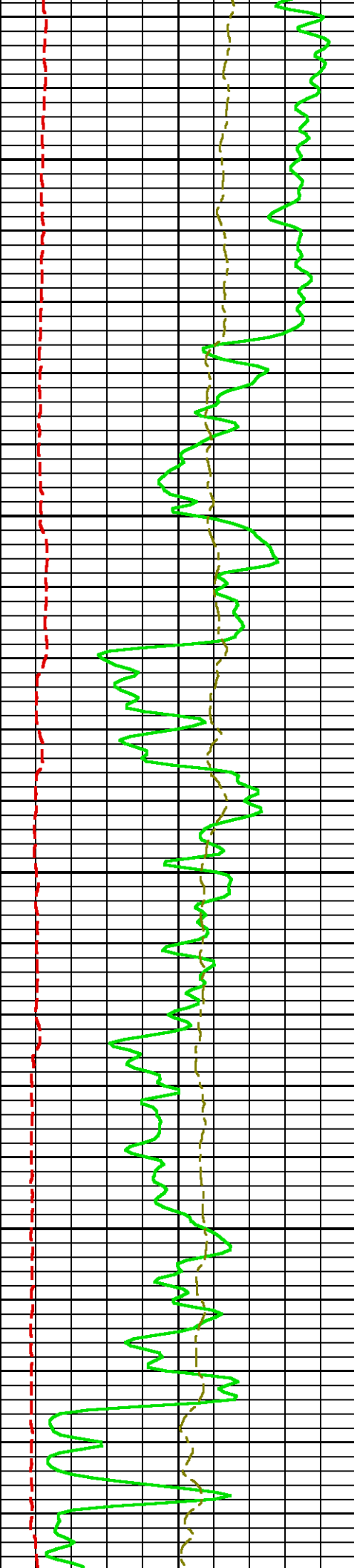
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9800

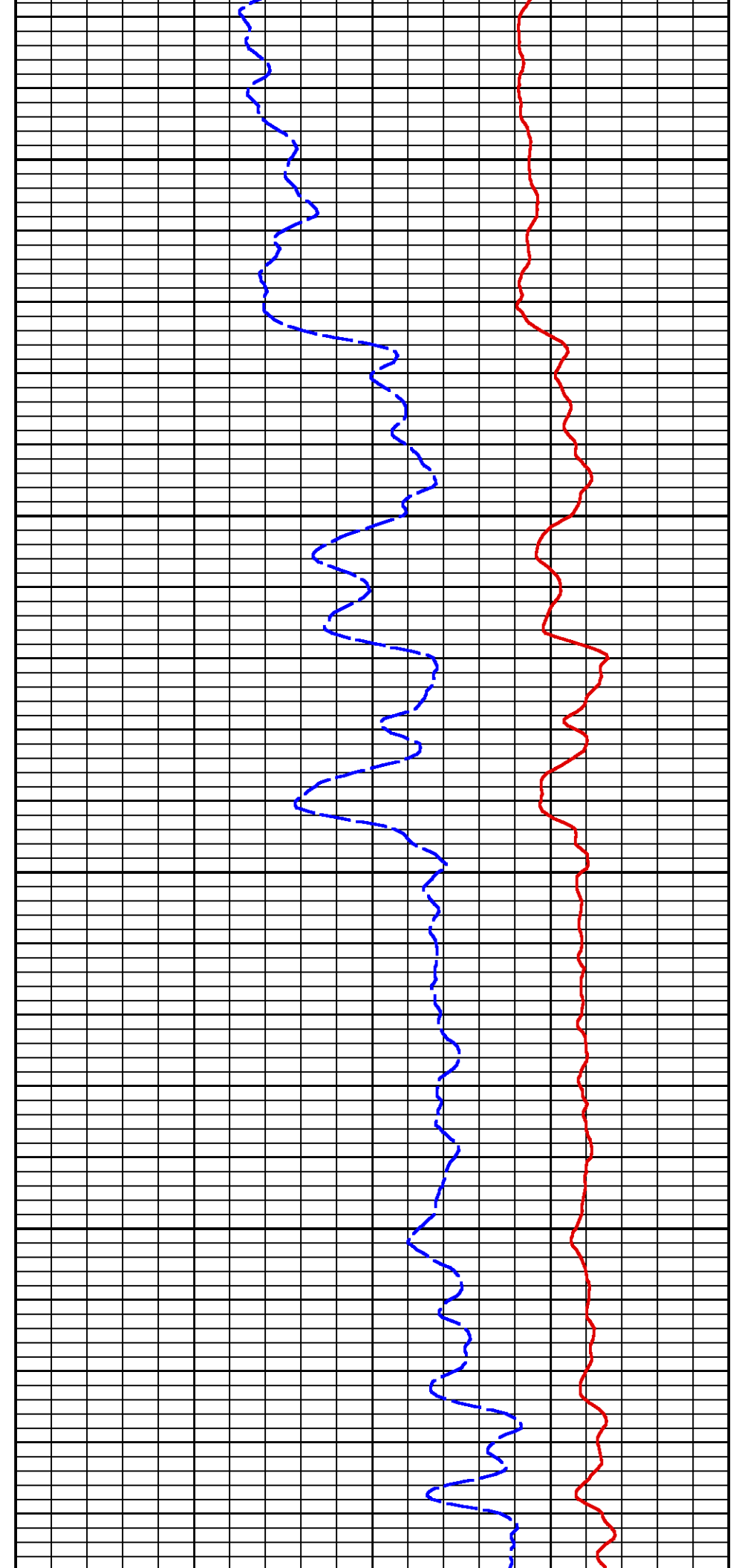
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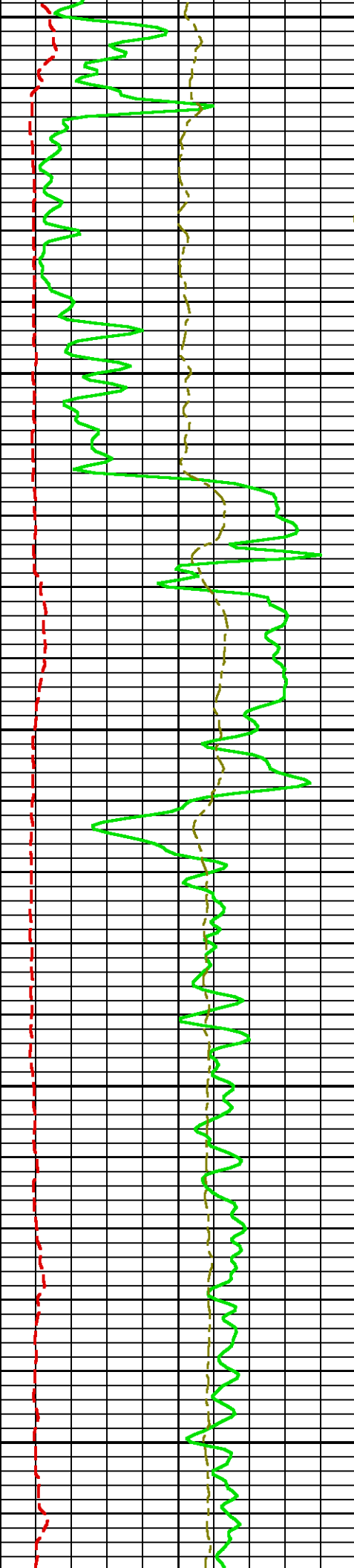




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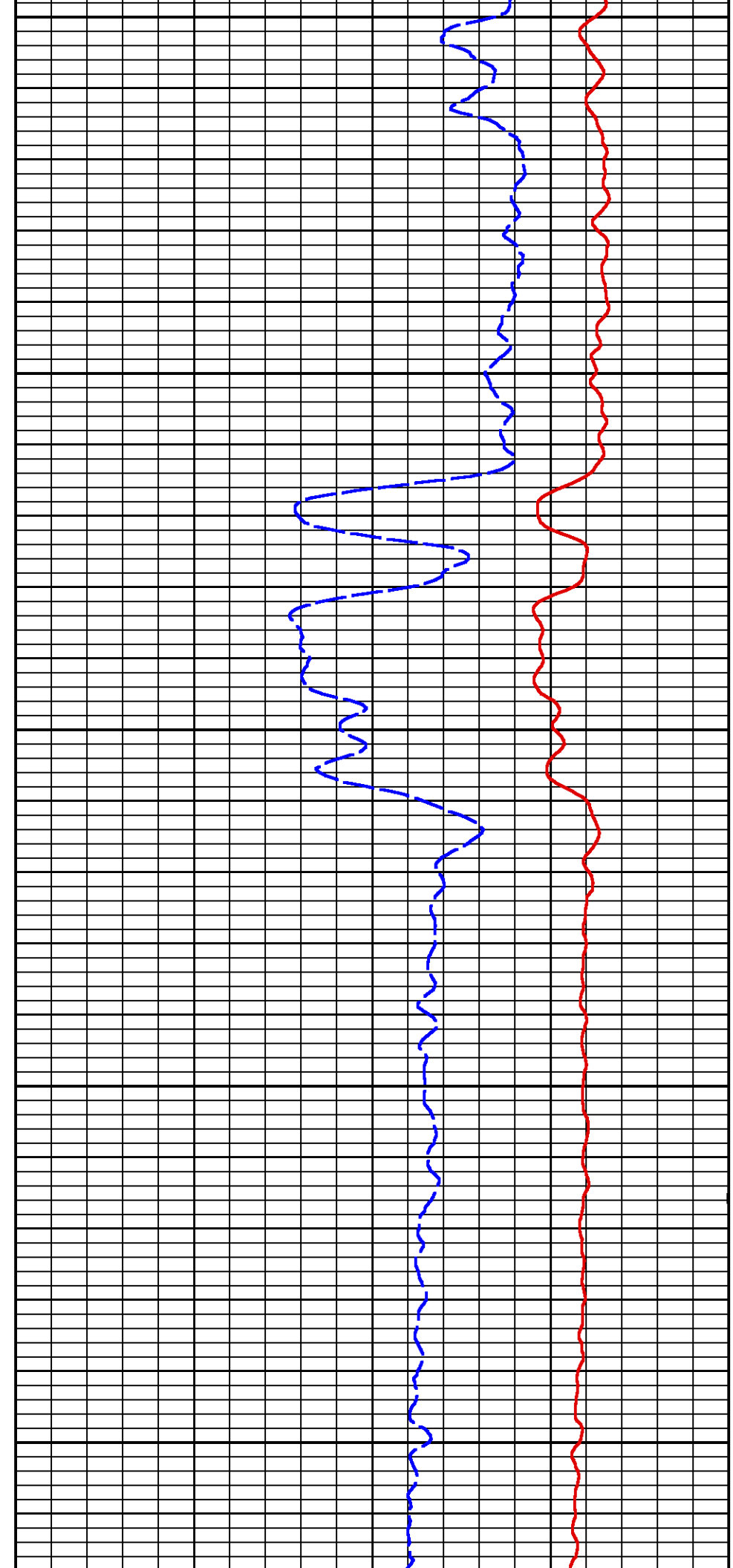
10000

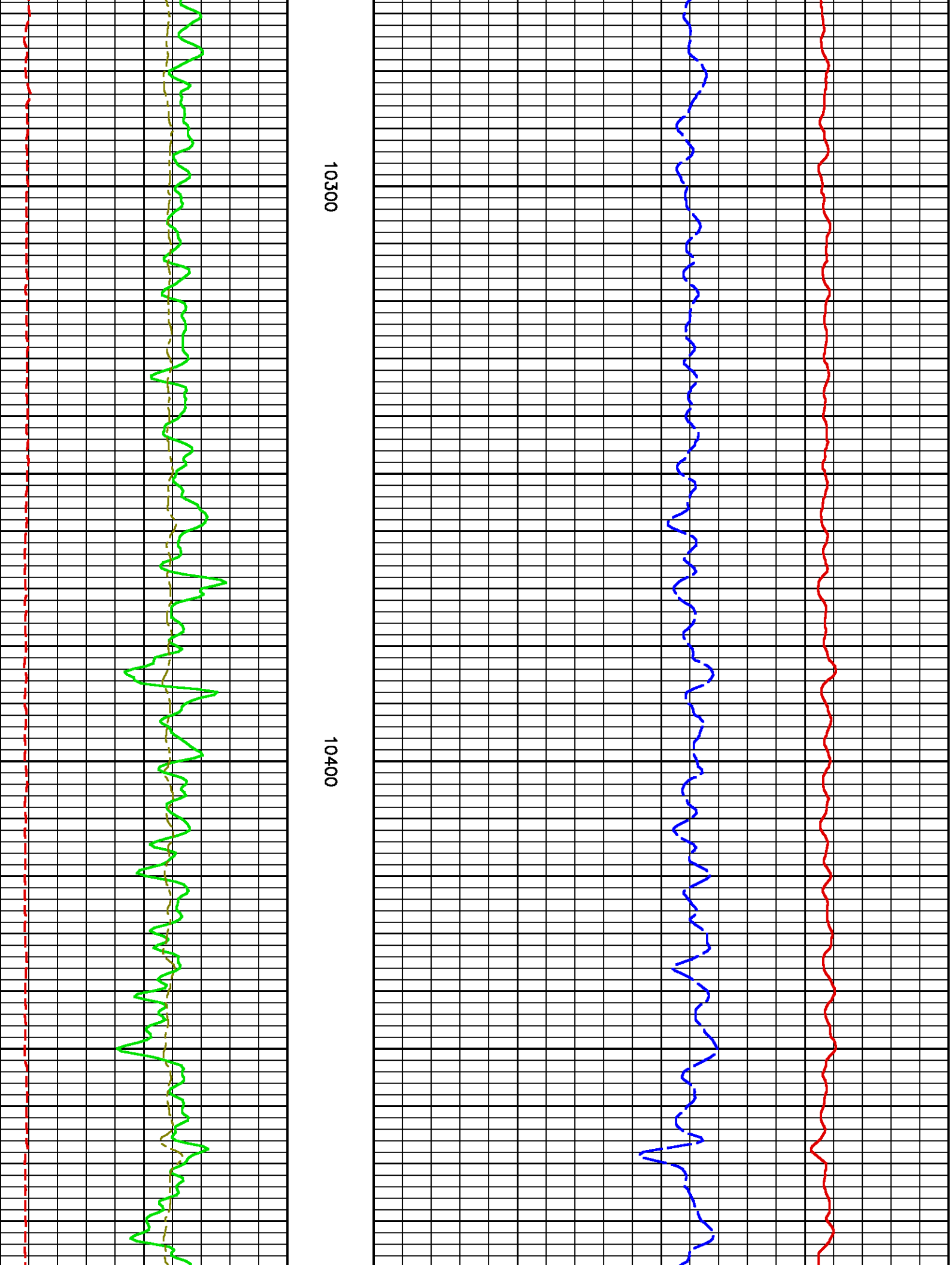




10100

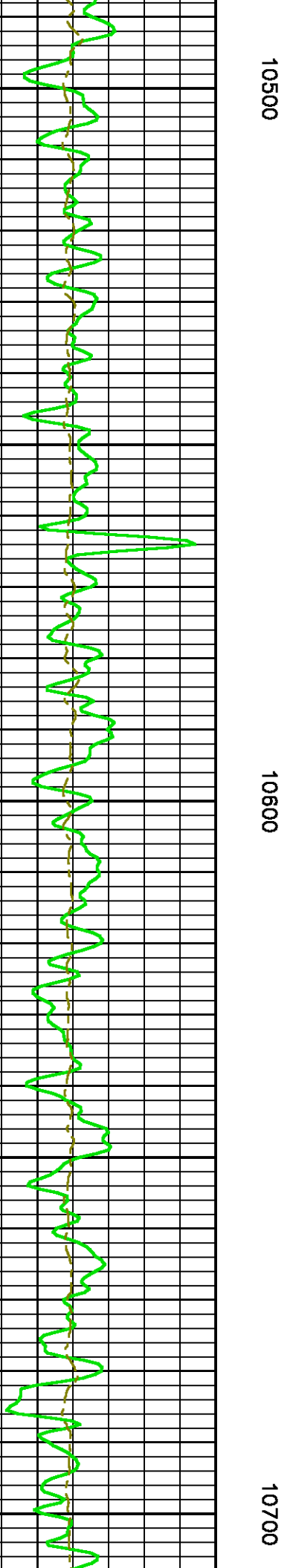
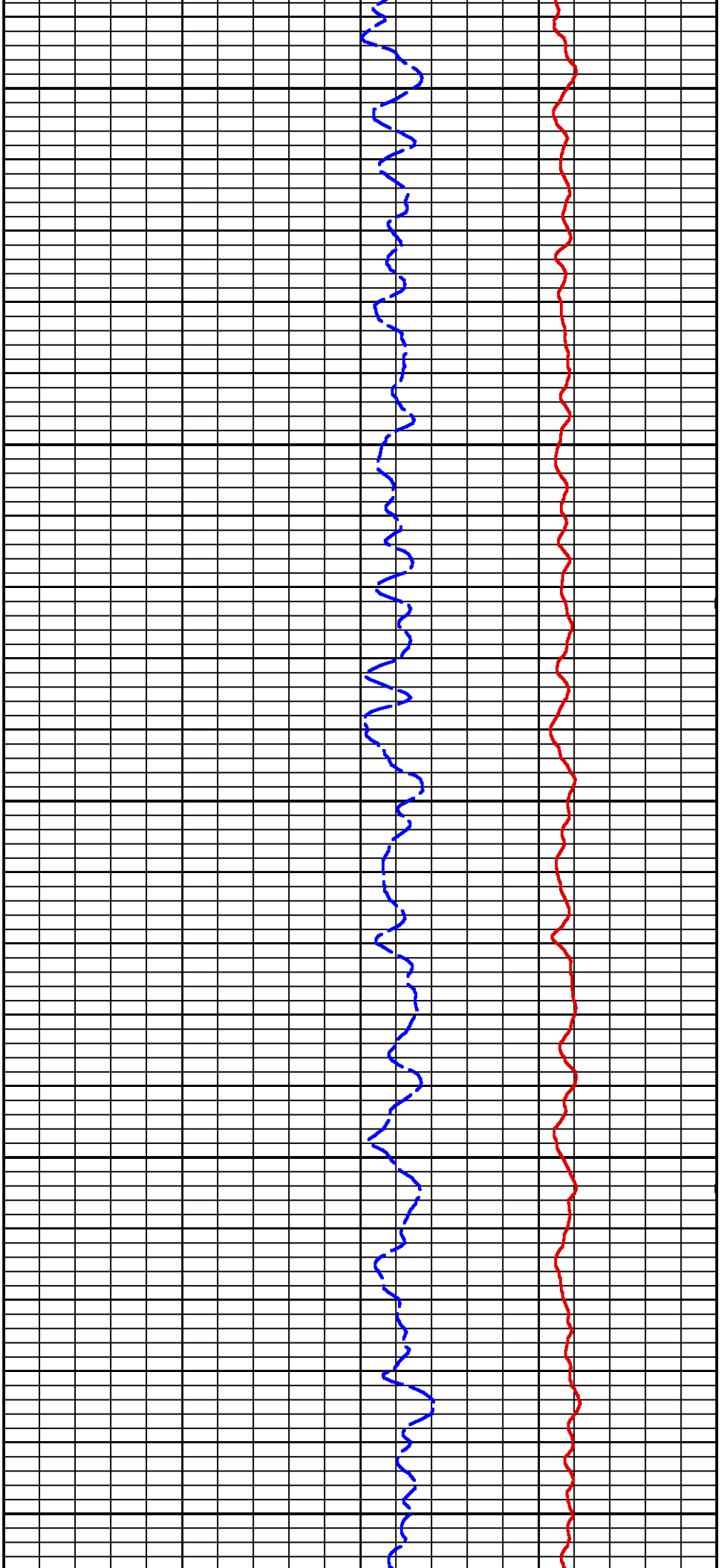
10200

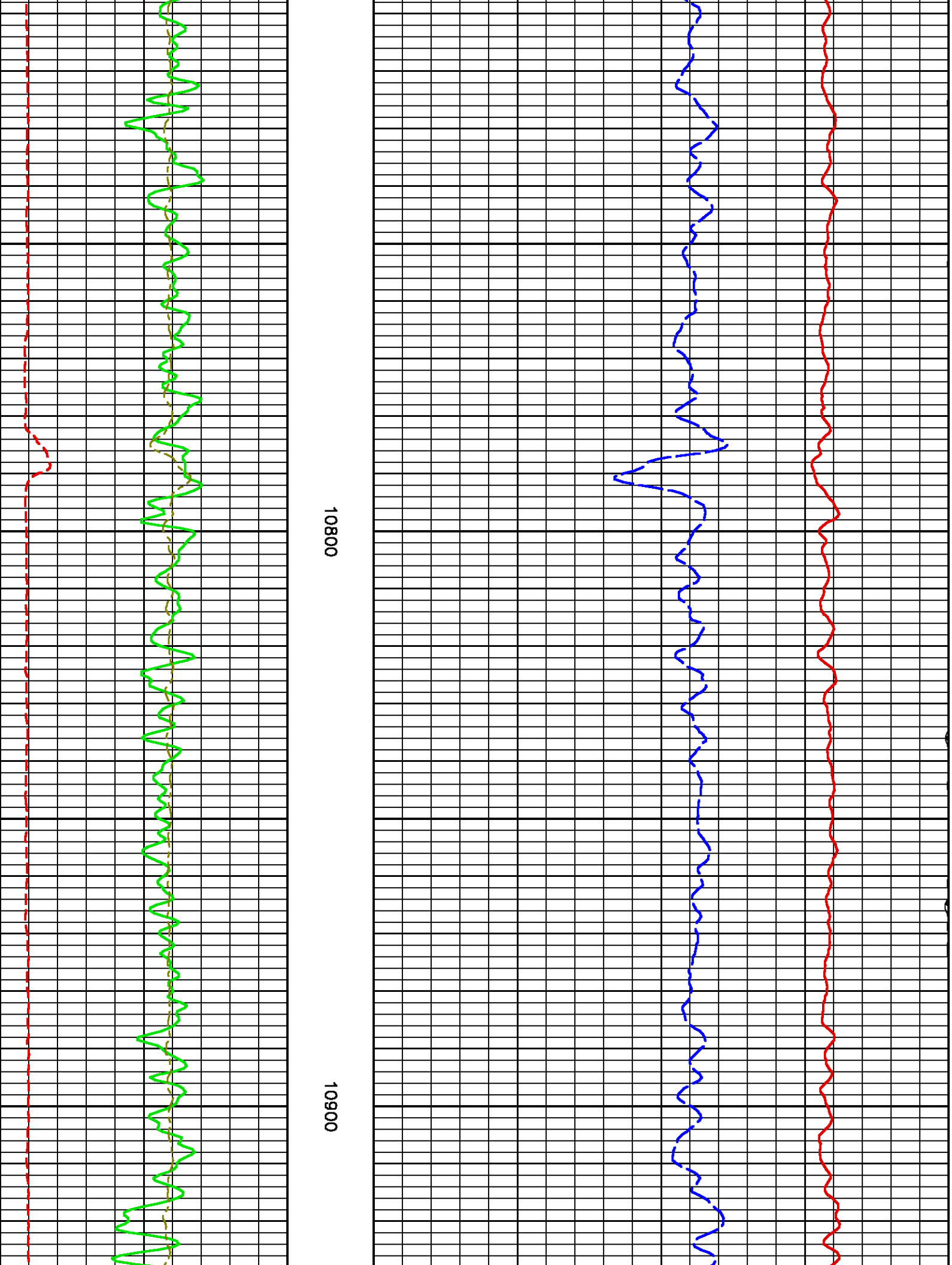


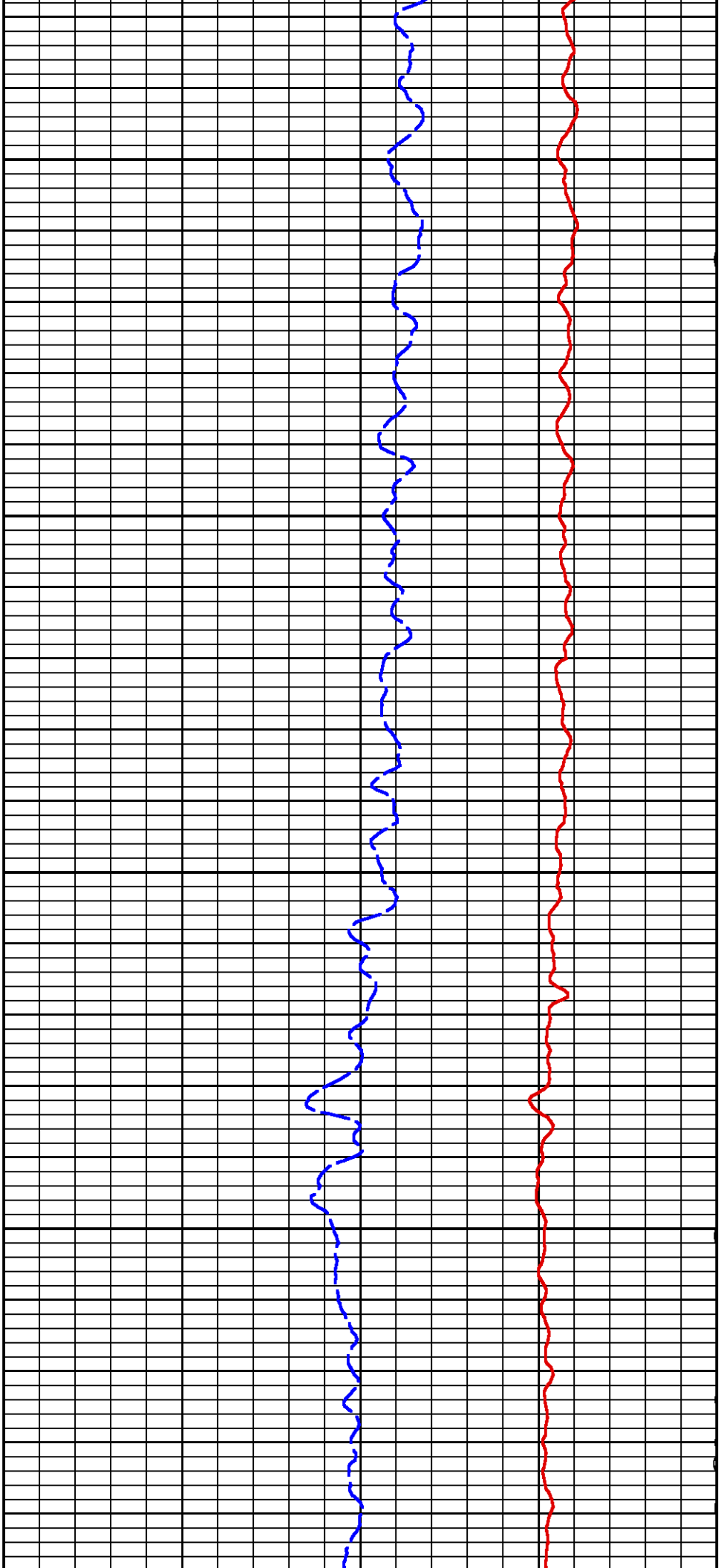


10300

10400

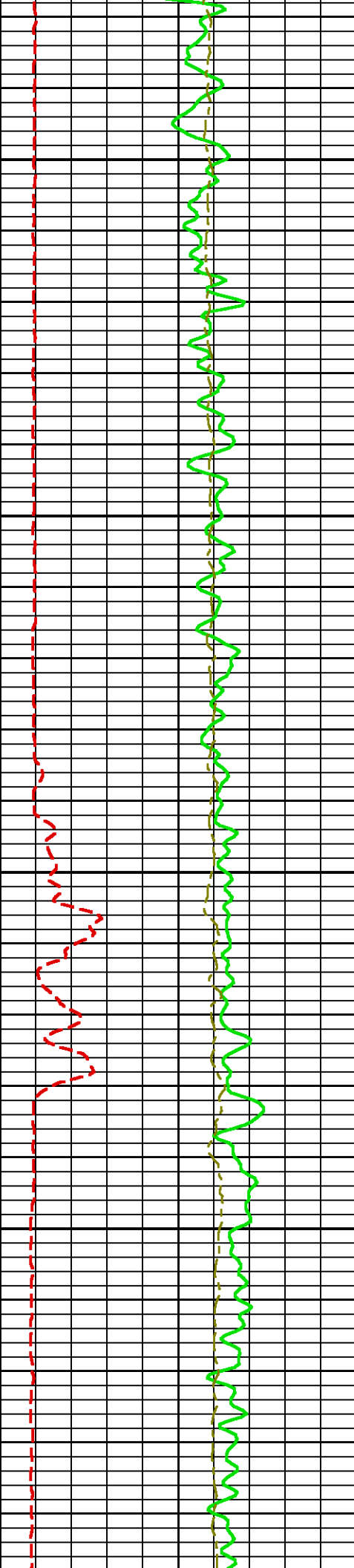


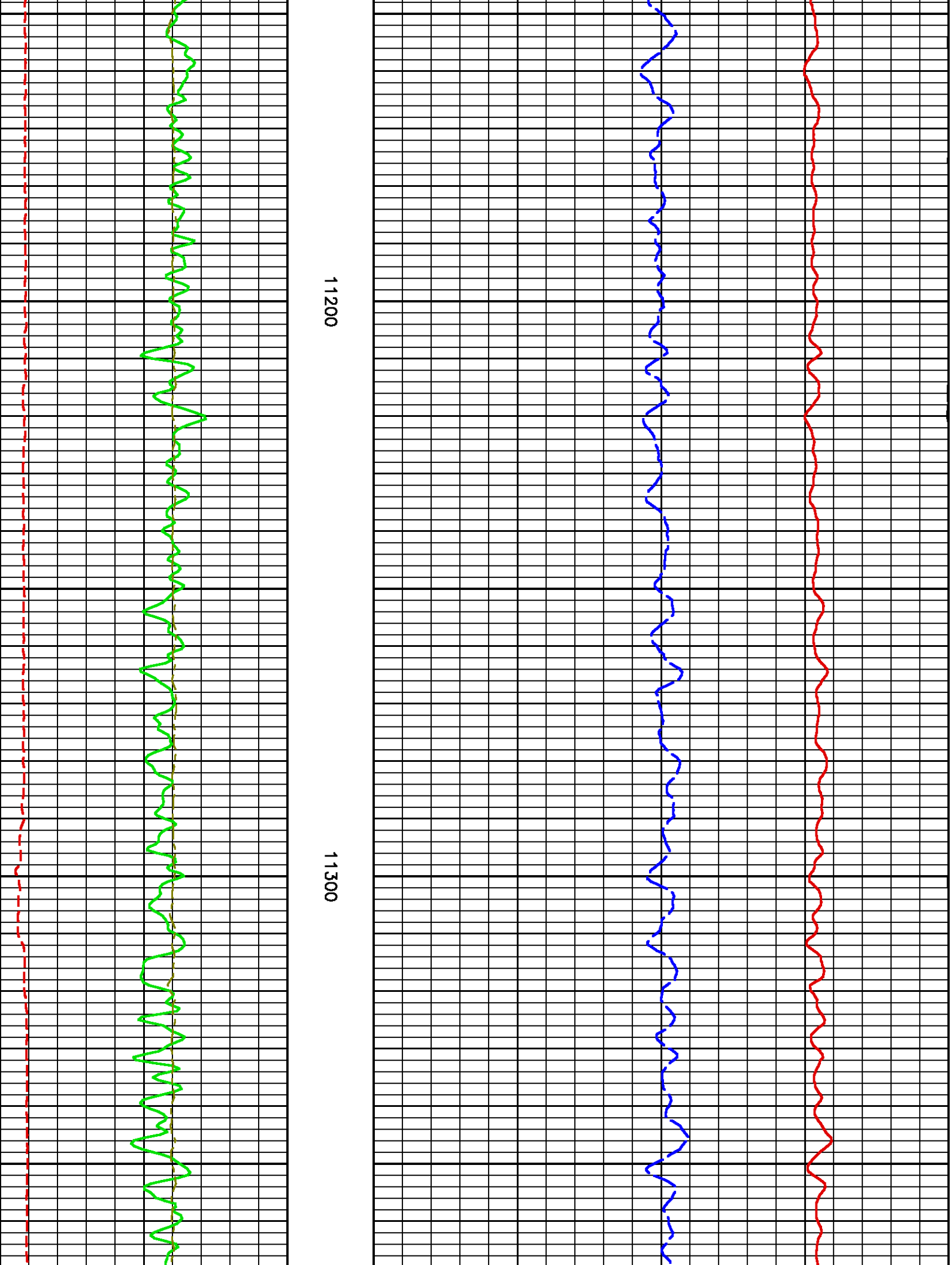




11000

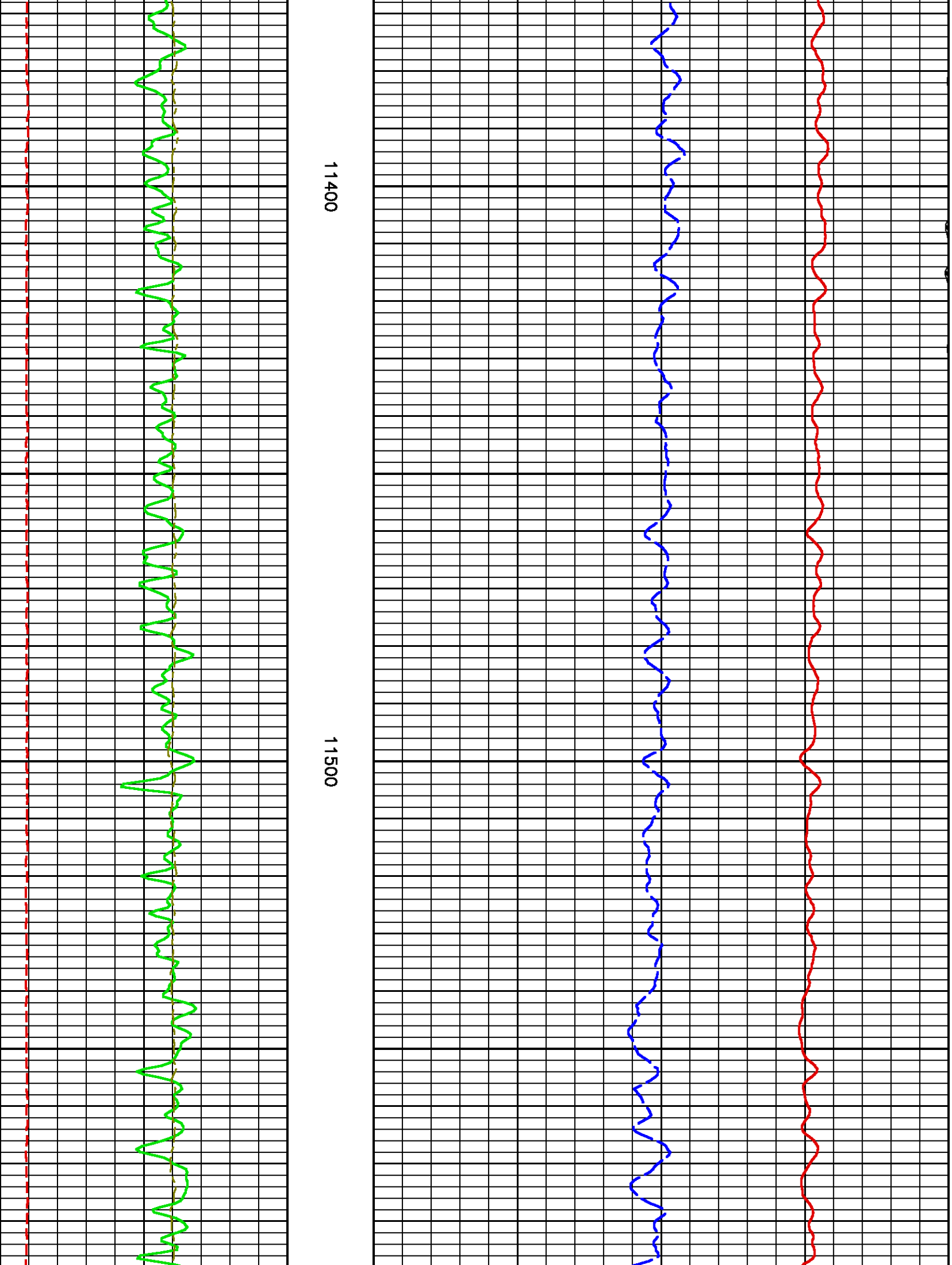
11100





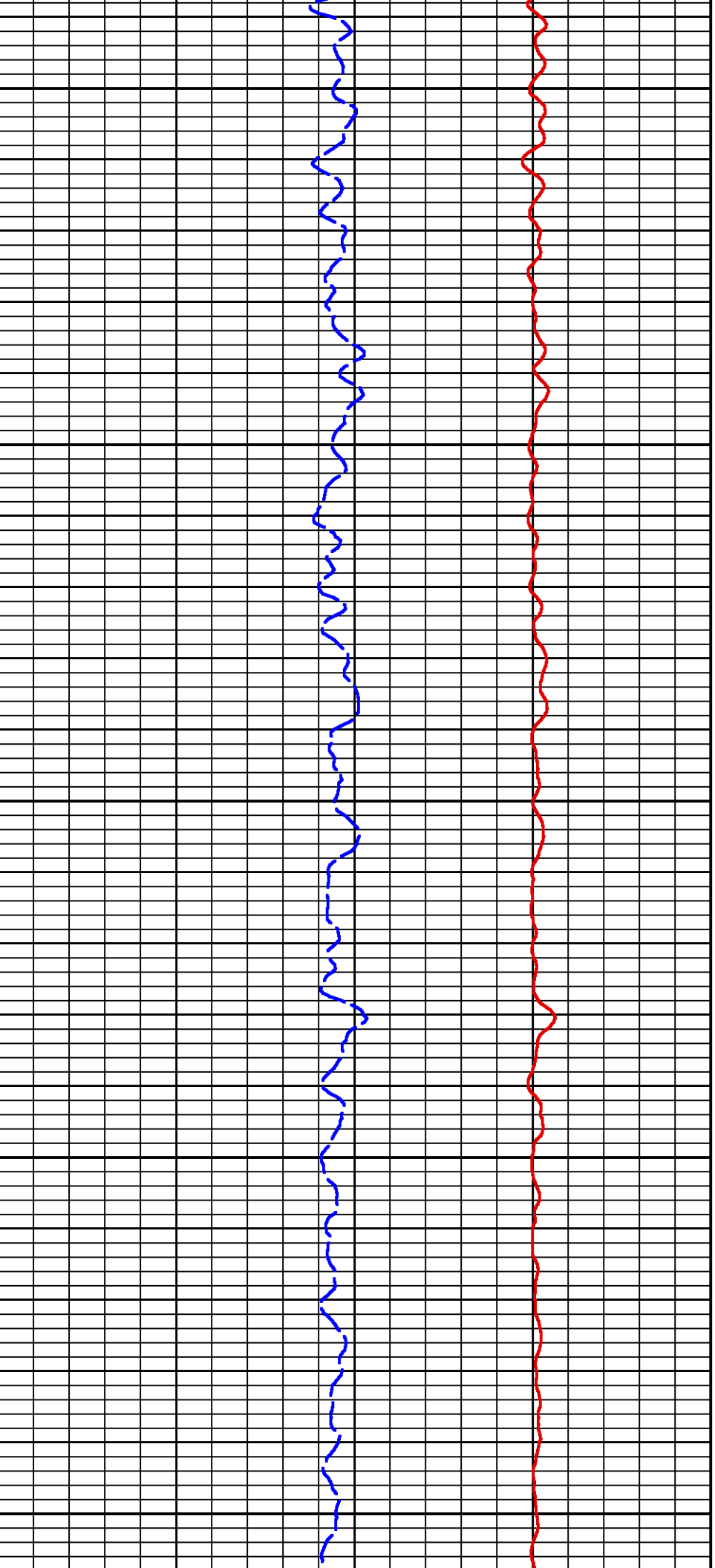
11200

11300



11400

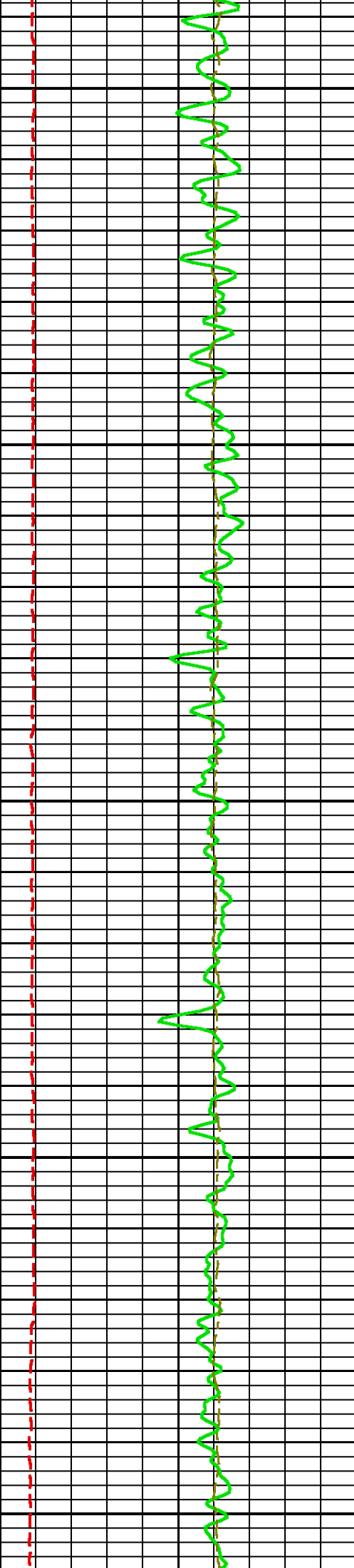
11500

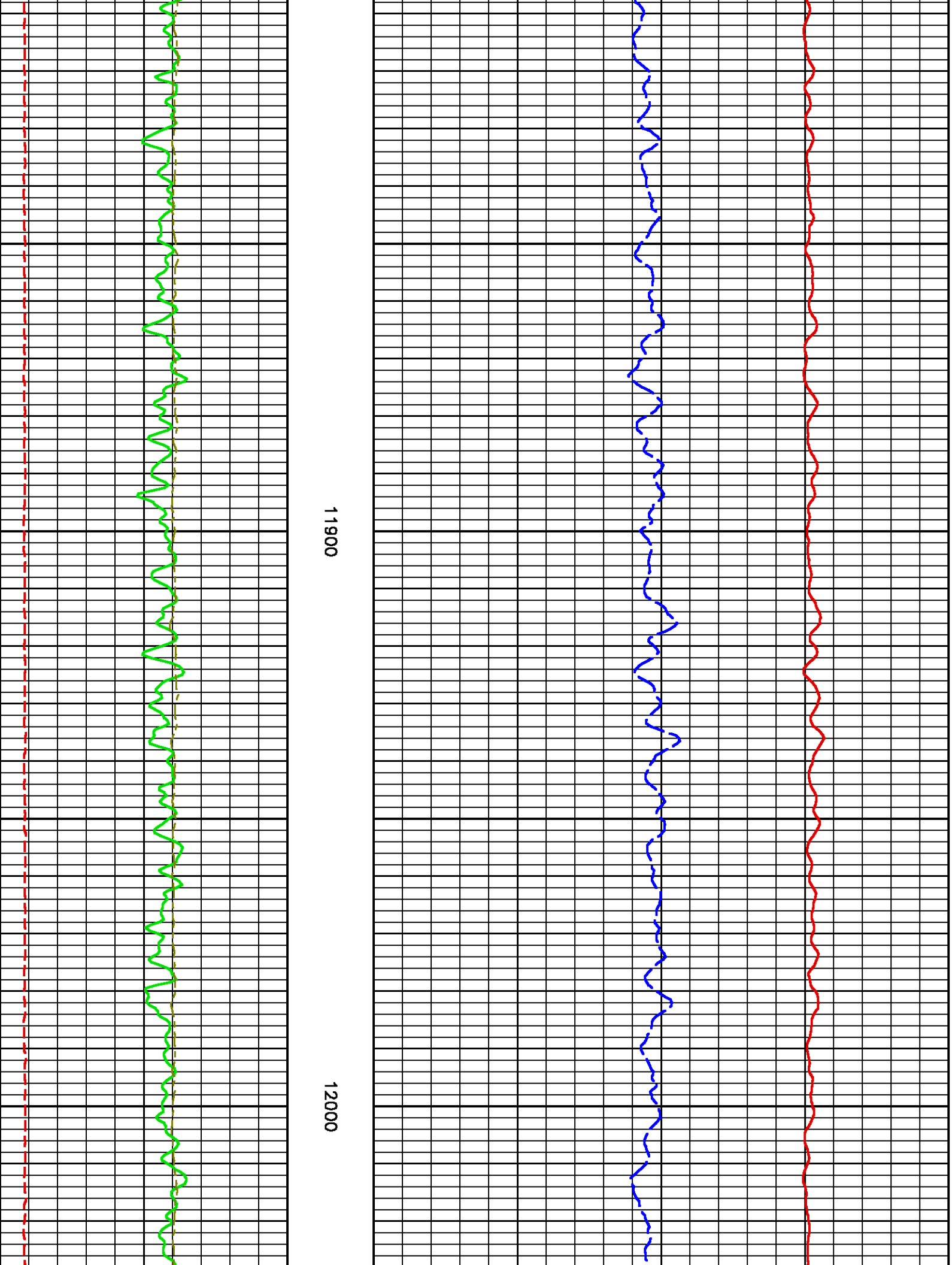


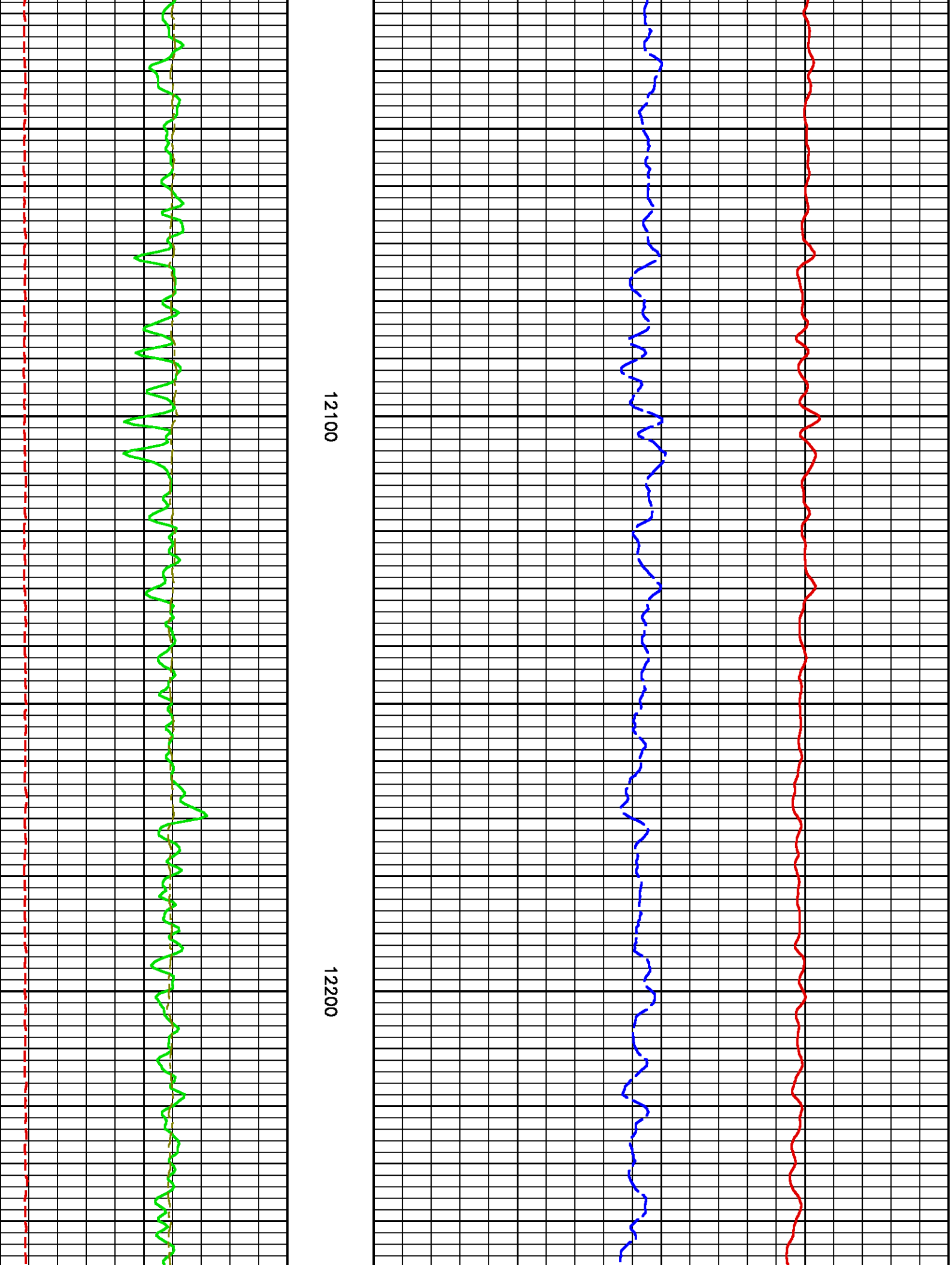
11600

11700

11800

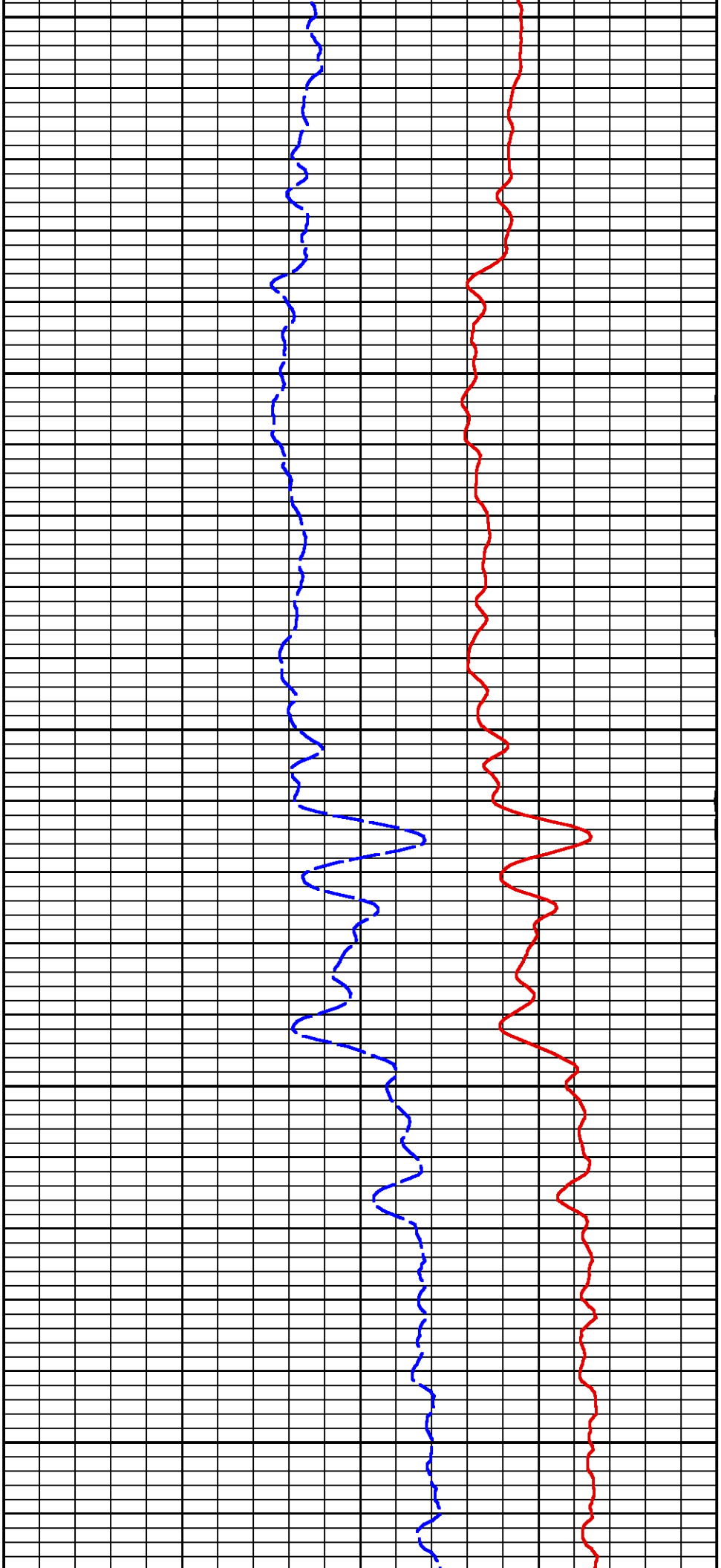






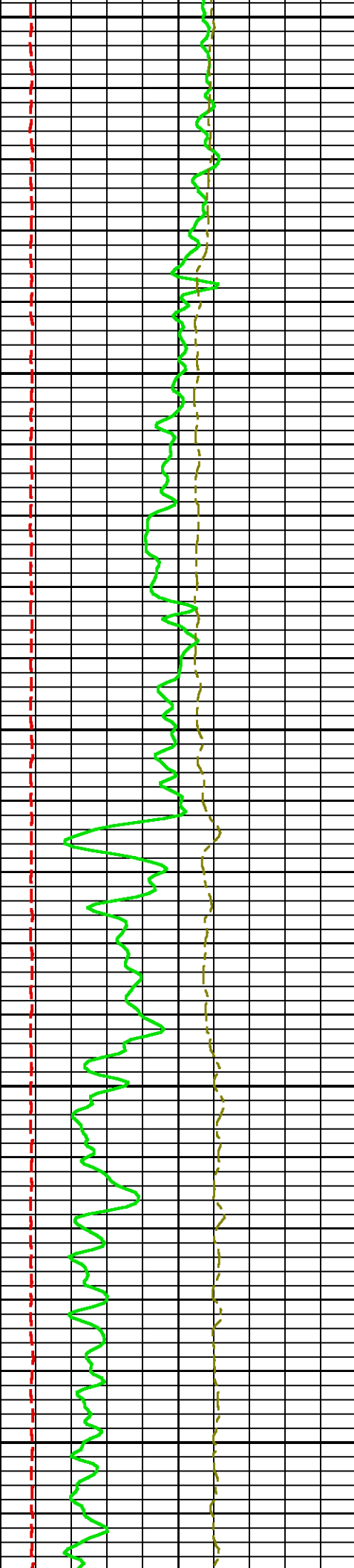
12100

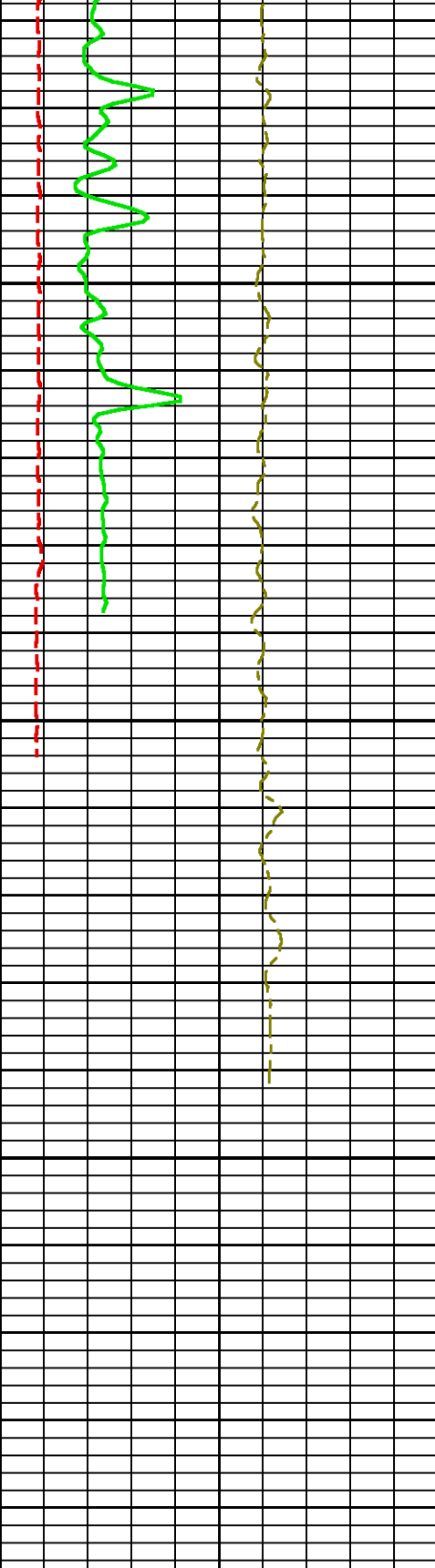
12200



12300

12400



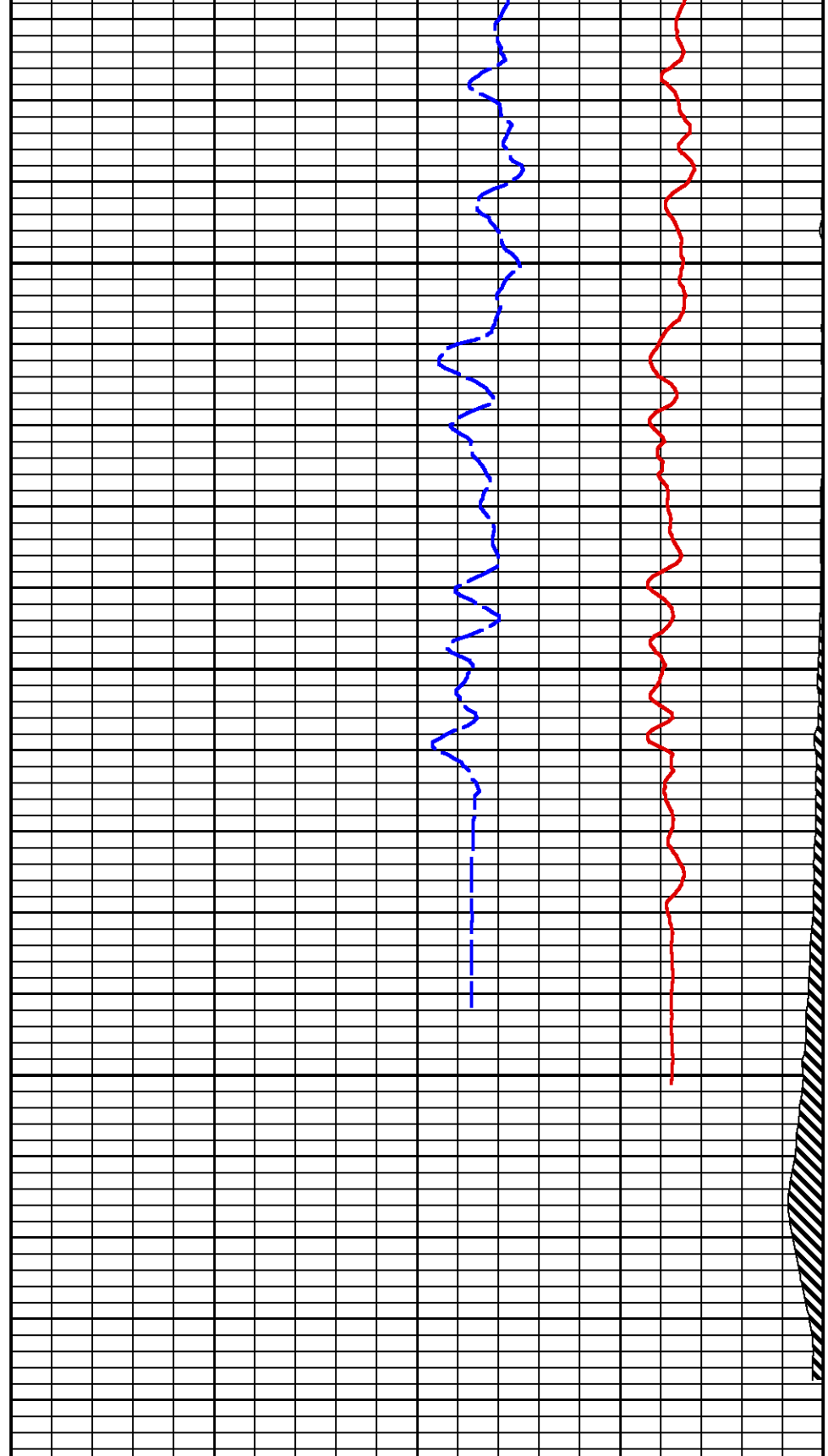


12500

12600

0	Gamma Ray	200
	(gAPI)	
6	Caliper	16
	(in)	
	Vp/Vs	3.4
	1.4	

FEET

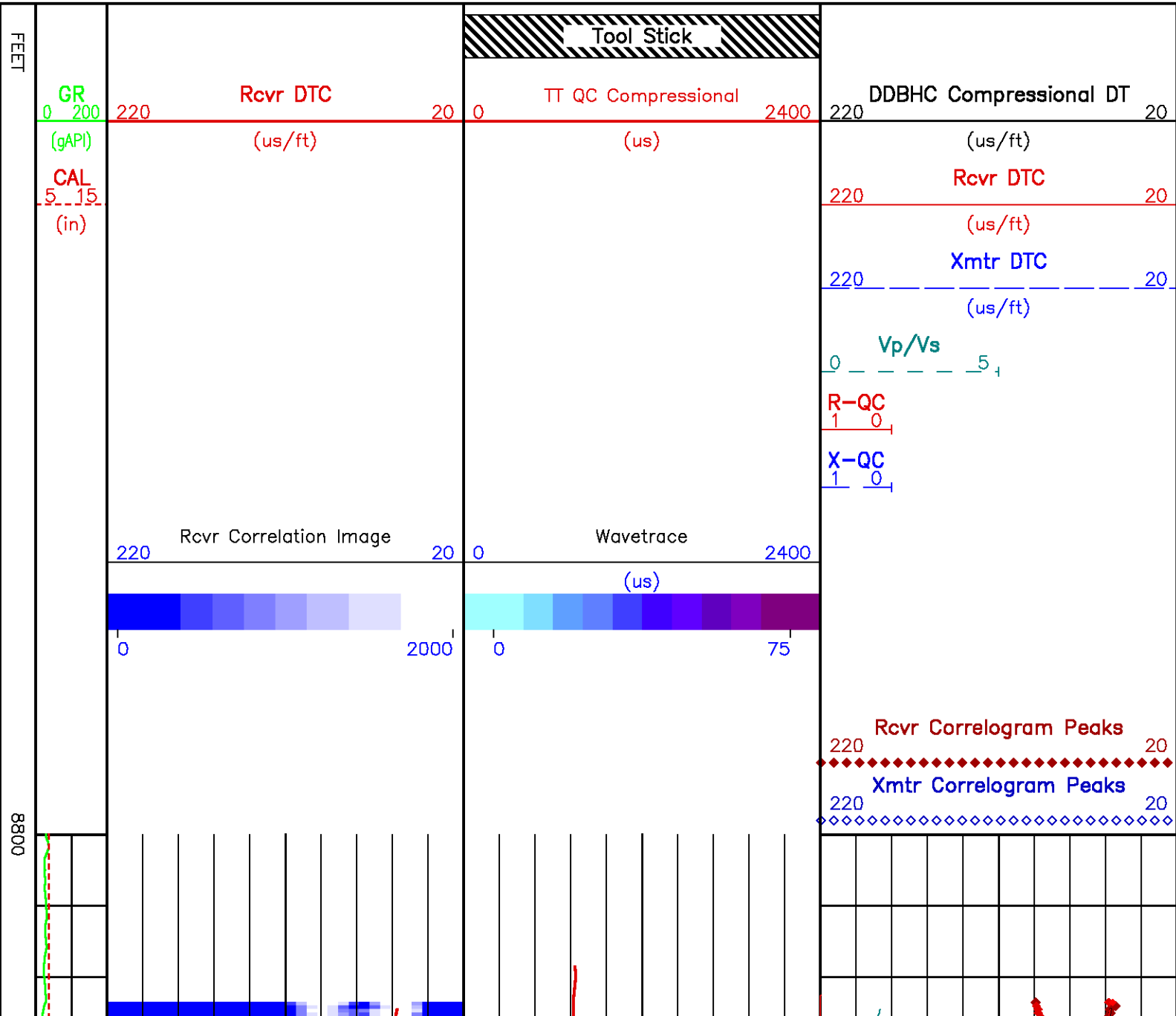


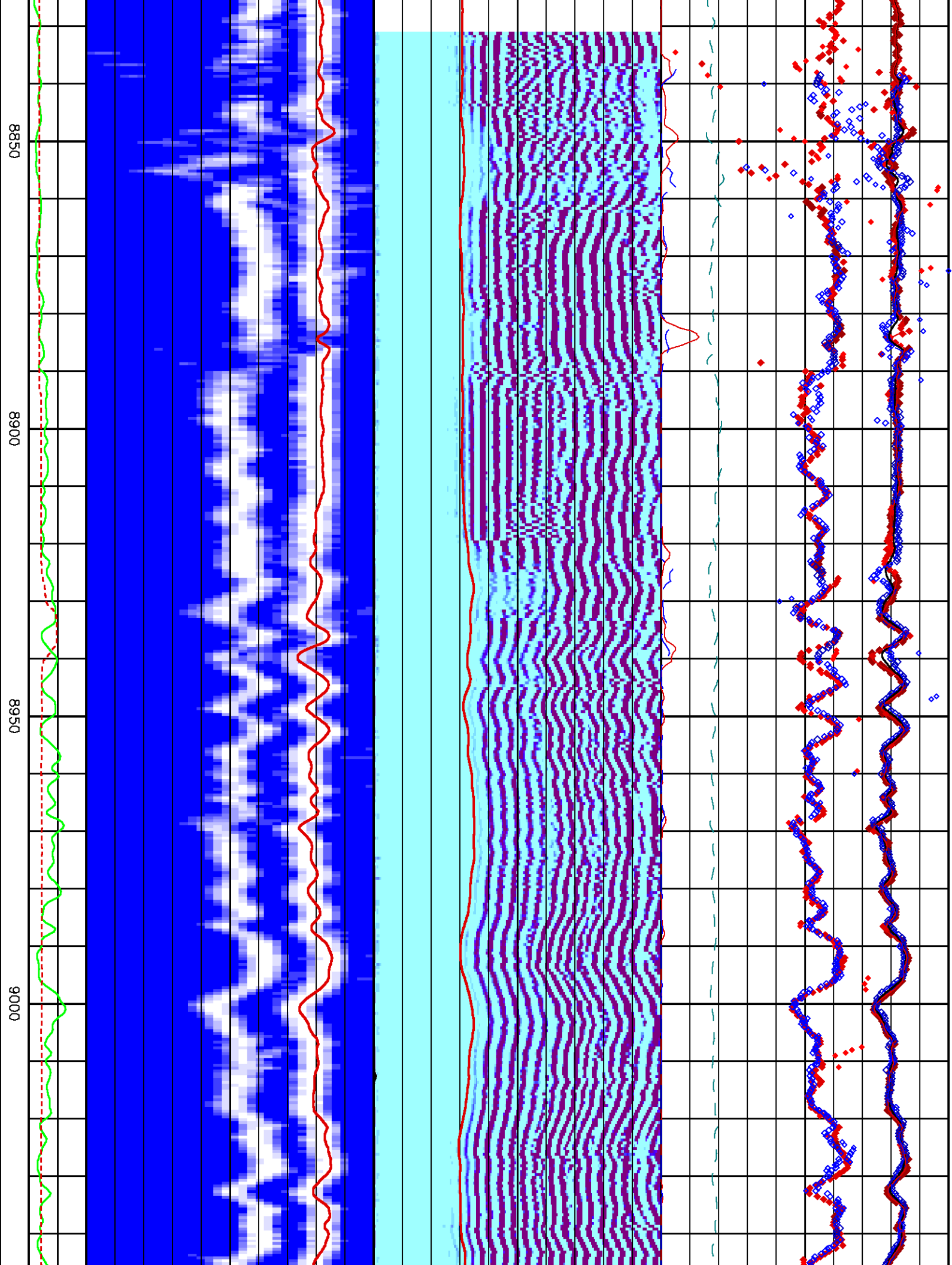
	Tool Stick	
220	DDBHC Compressional Slowness	20
	(us/ft)	
220	Flexural Shear Slowness - XX	20
	(us/ft)	

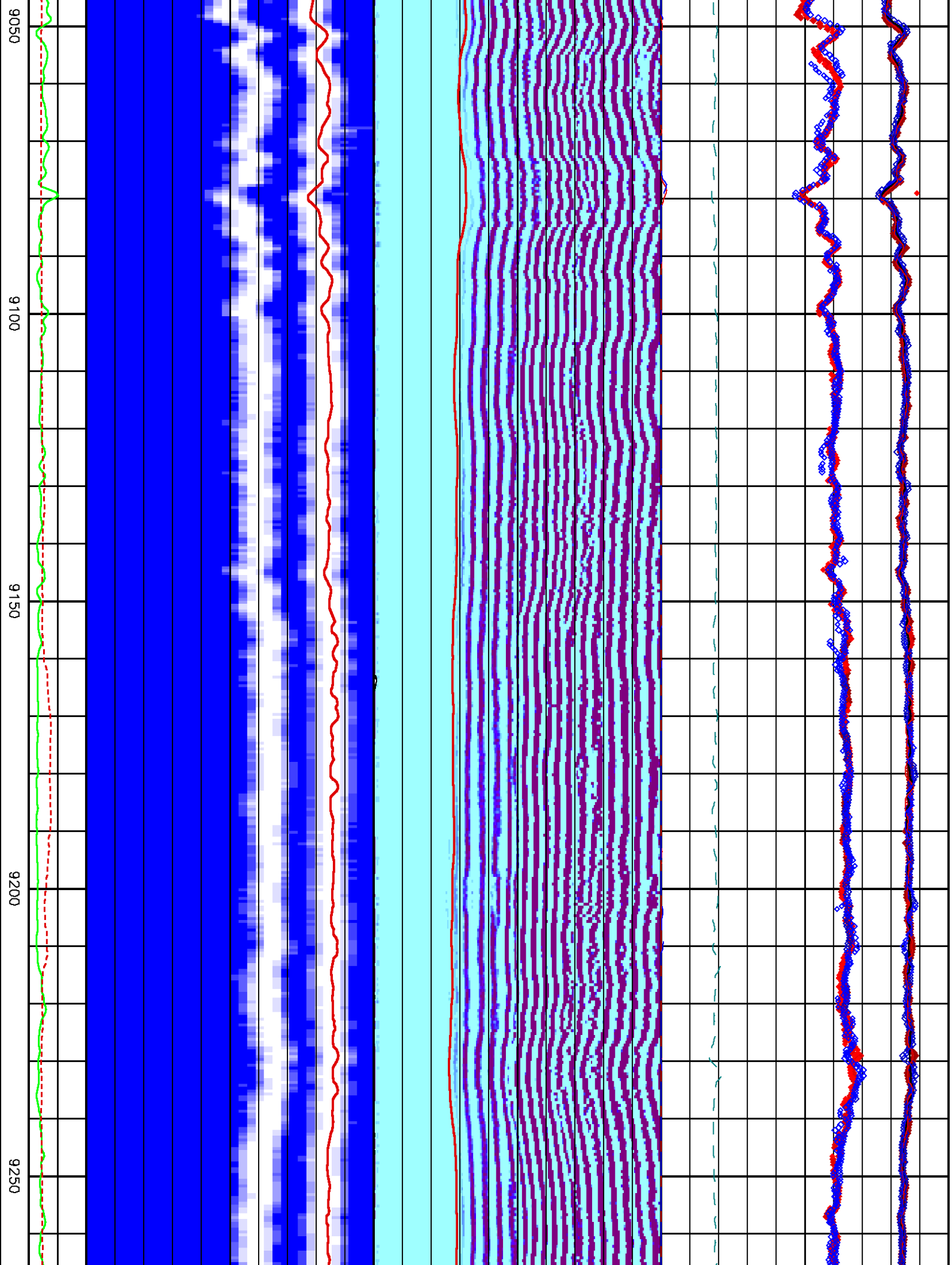
MONOPOLE QC PLOT

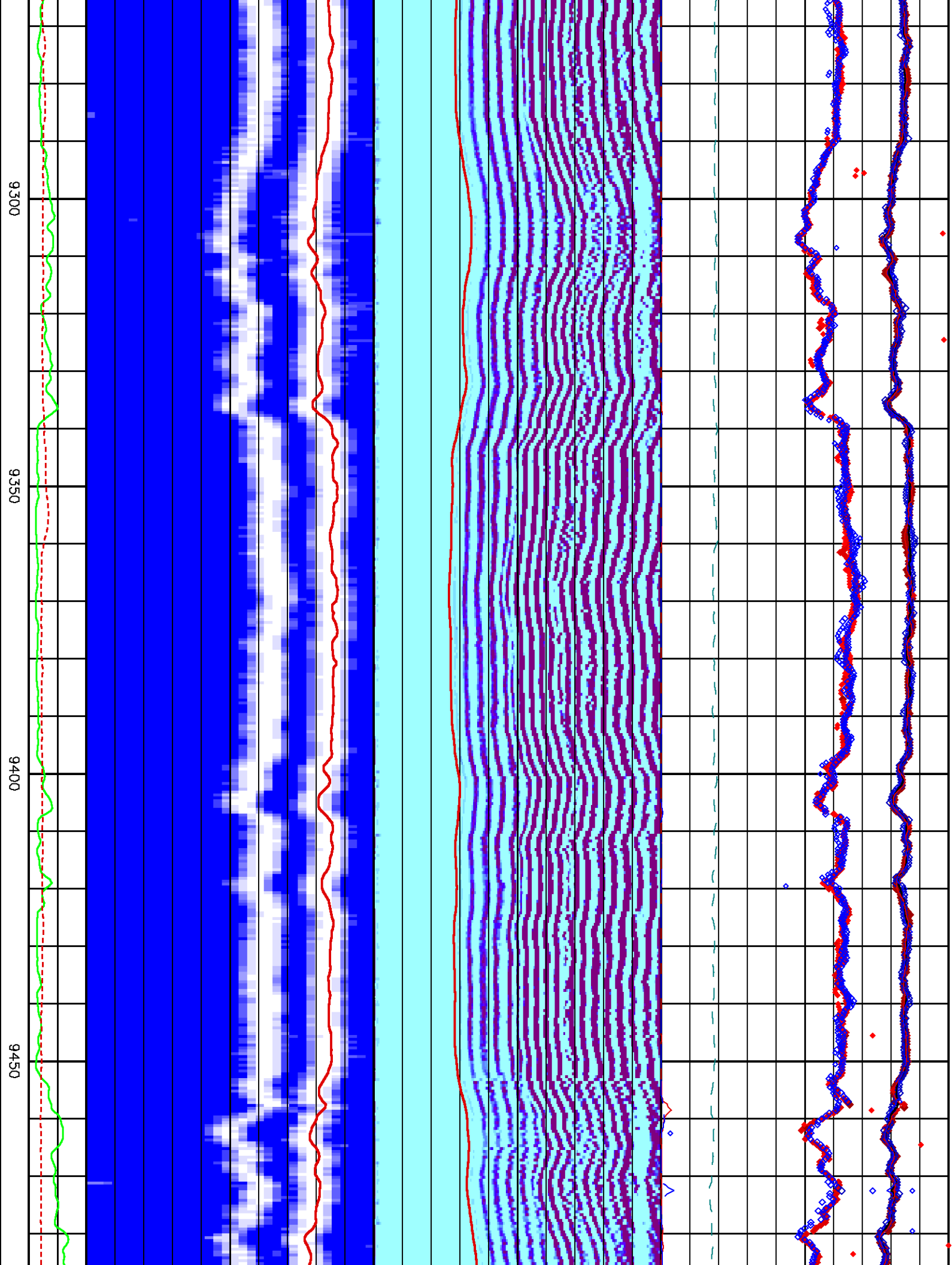
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User : thiested
Presentation : usageos07:/export/home/thiested/projects/0490/monoi.pdf [5"/100' Scale]
Plot Interval : 8800 - 12647 Feet

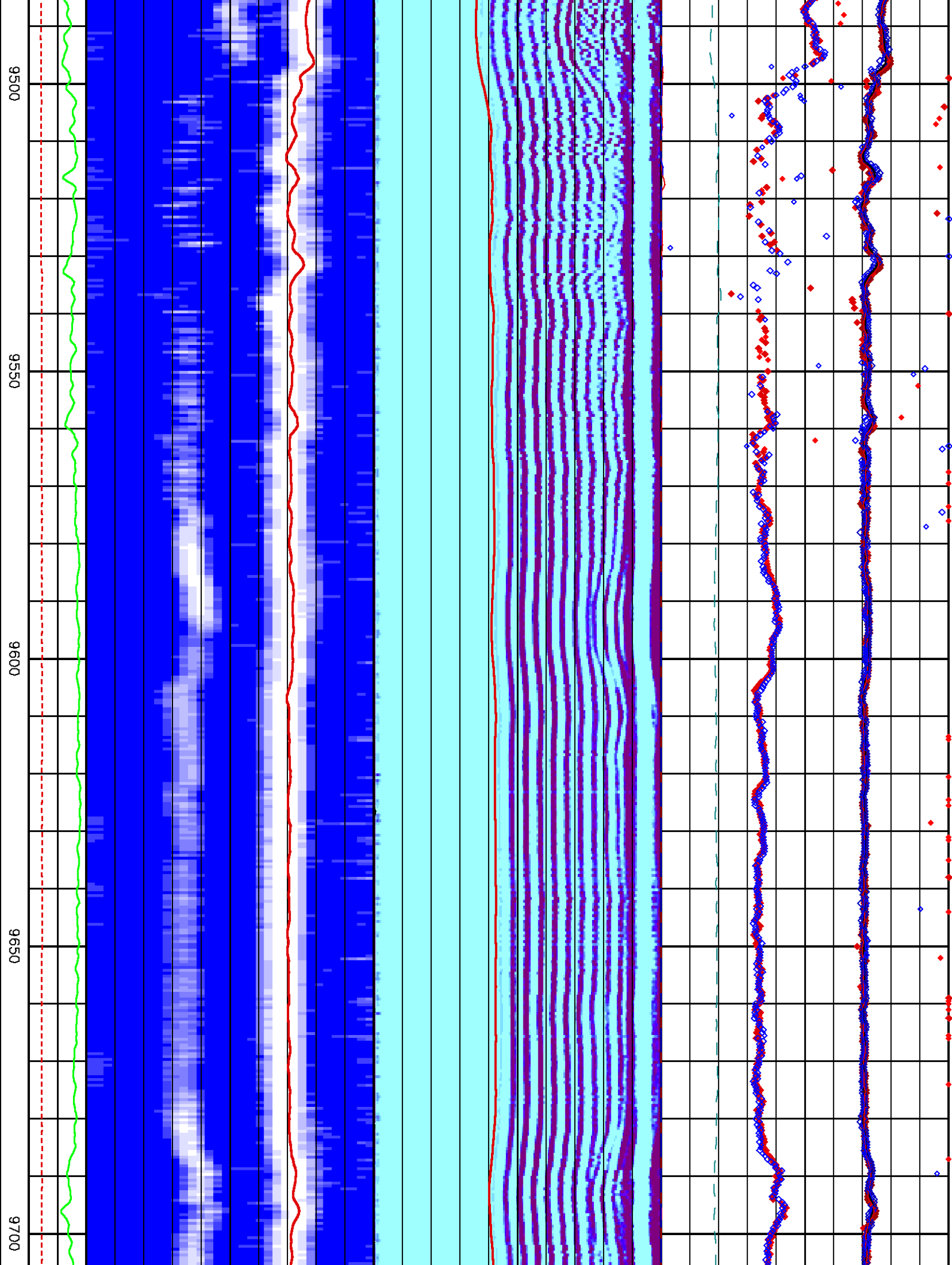
Data File 1 : F1 : usageos07:/export/home/thiested/projects/0490/open.xtf
Created On : May 15 08:33:25 2014
Company : Chesapeake Appalachia LLC
Well : James Messenger WTZ 3H U
Field : Wetzel
File Interval : 8740.5 - 12647 Feet
Oct : GSLAM

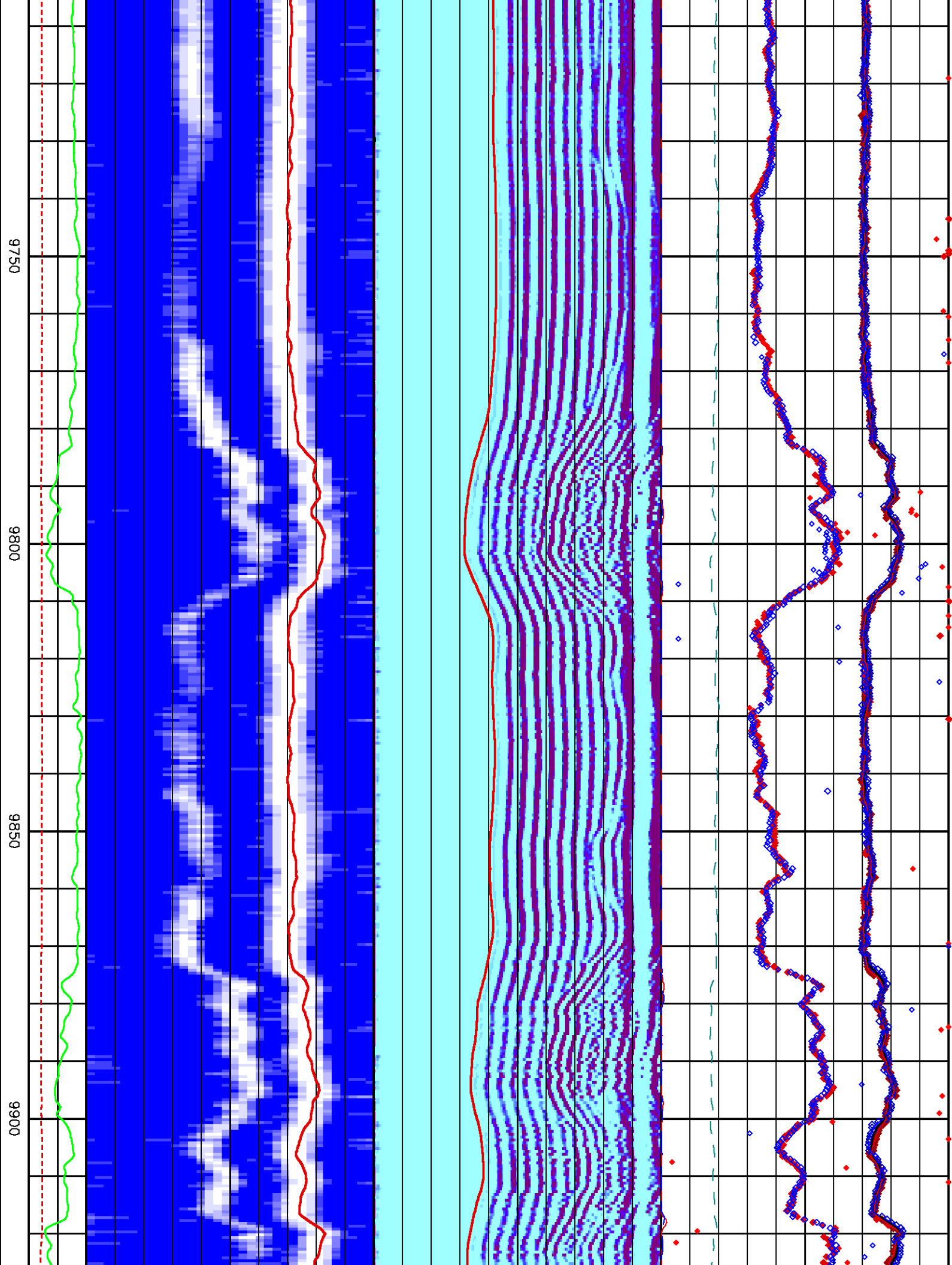


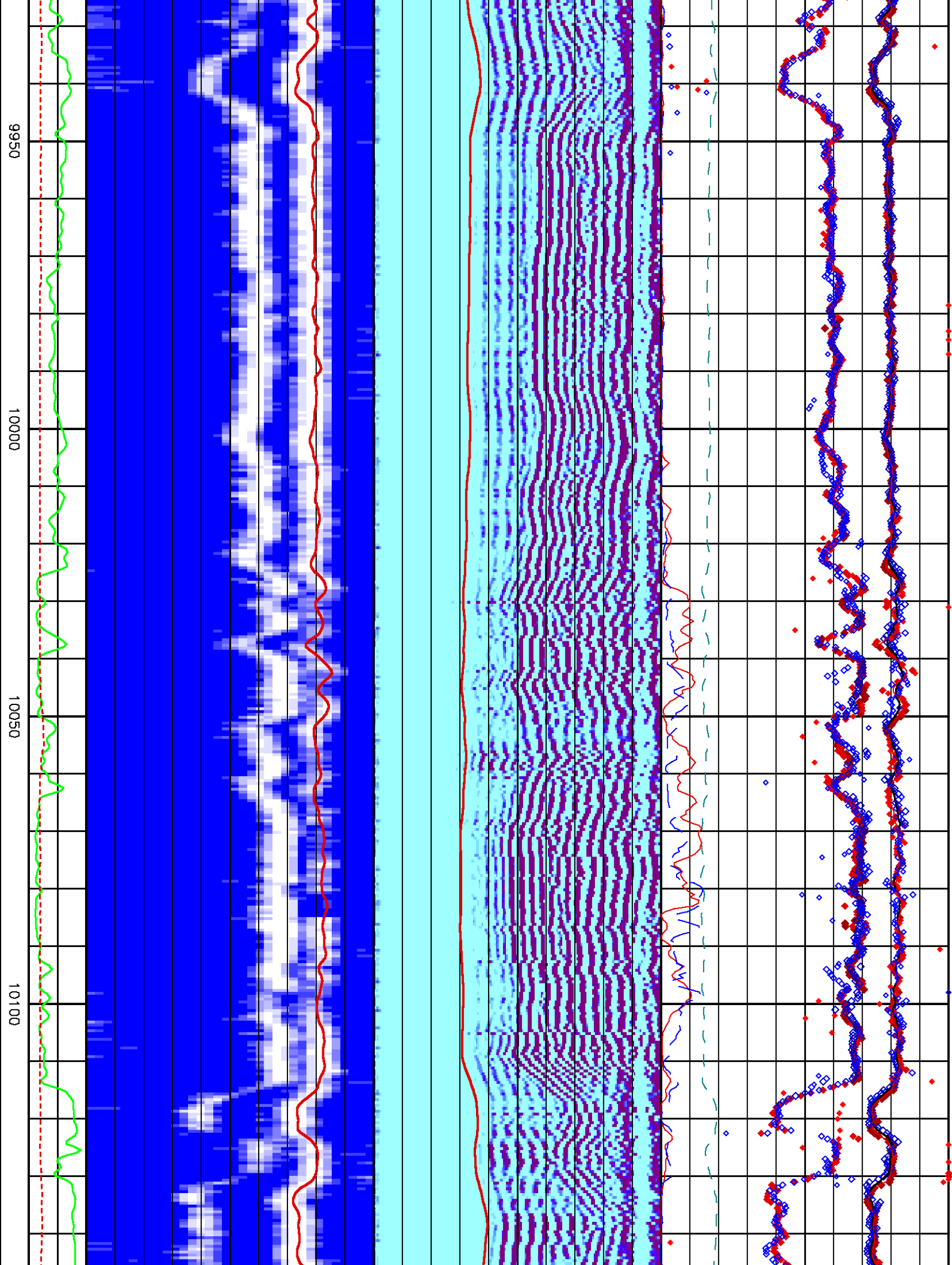


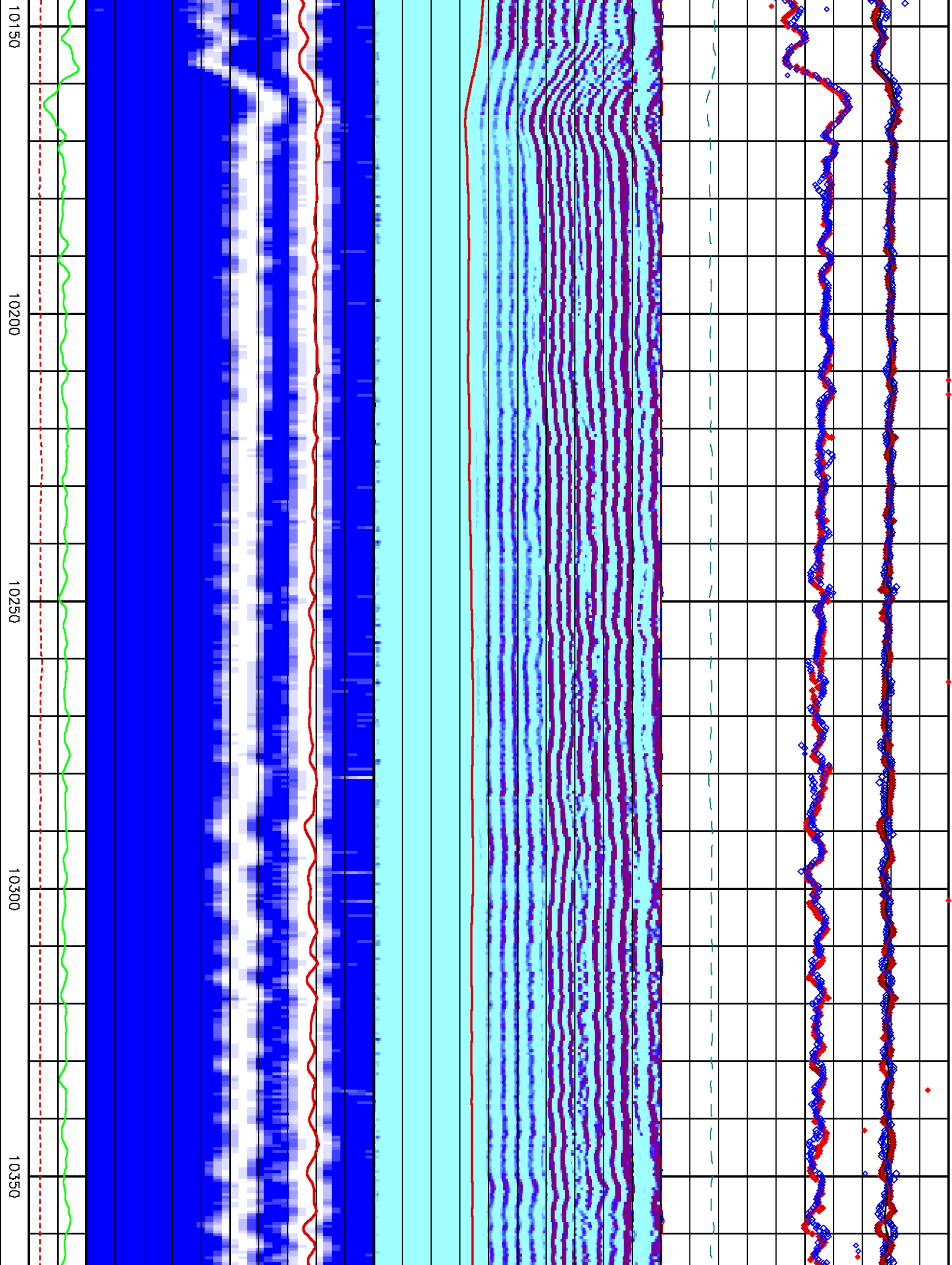


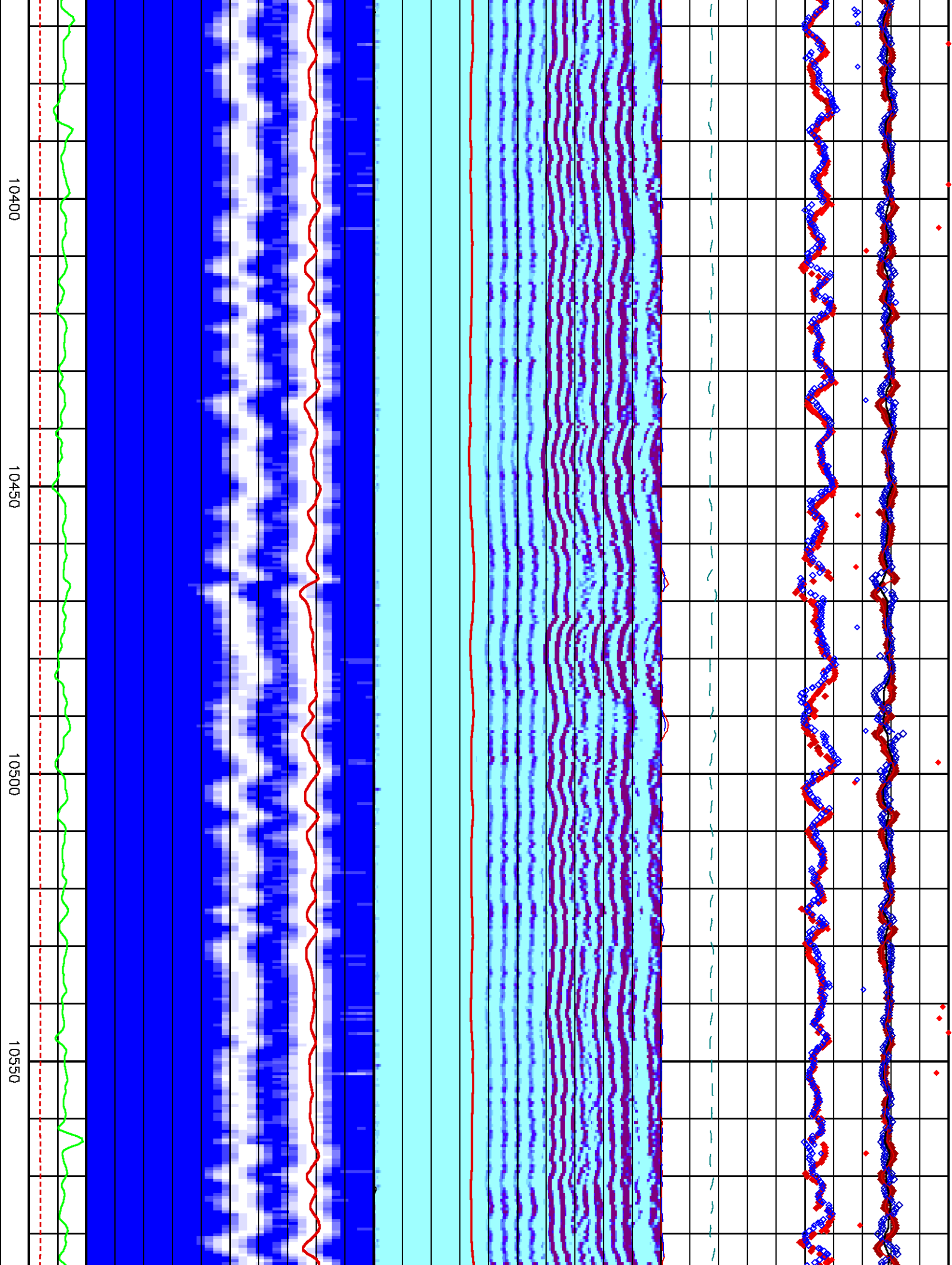


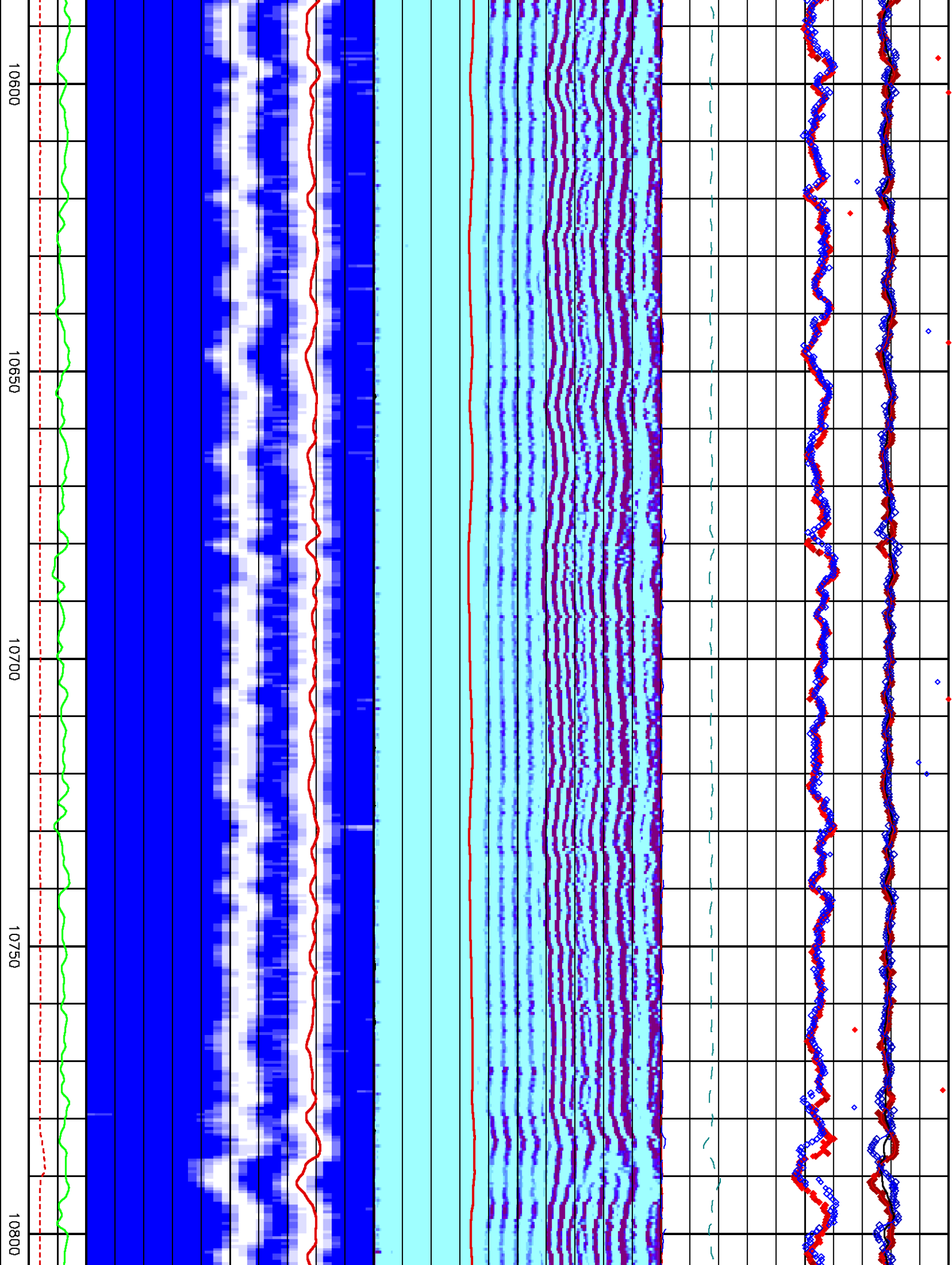


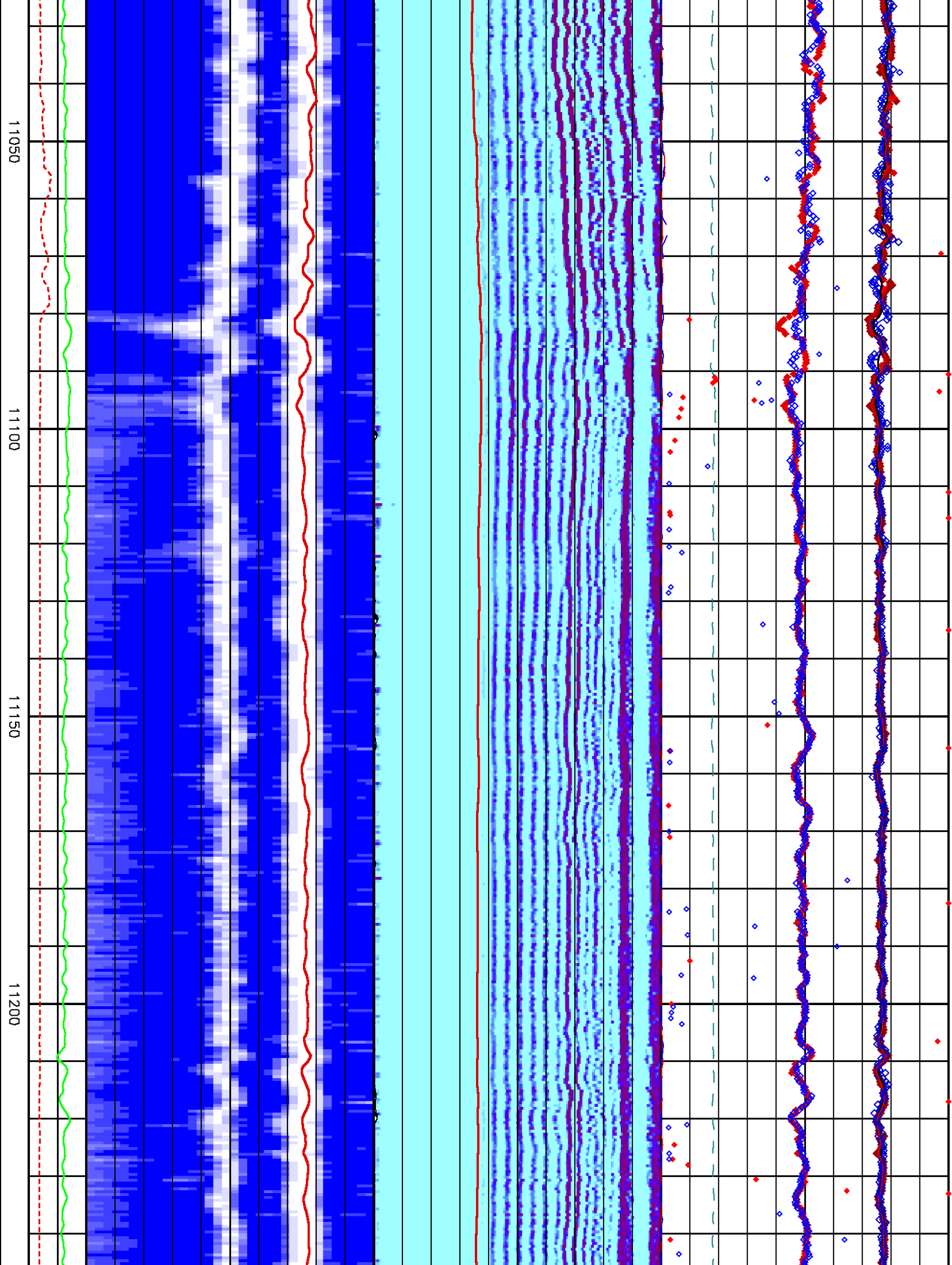


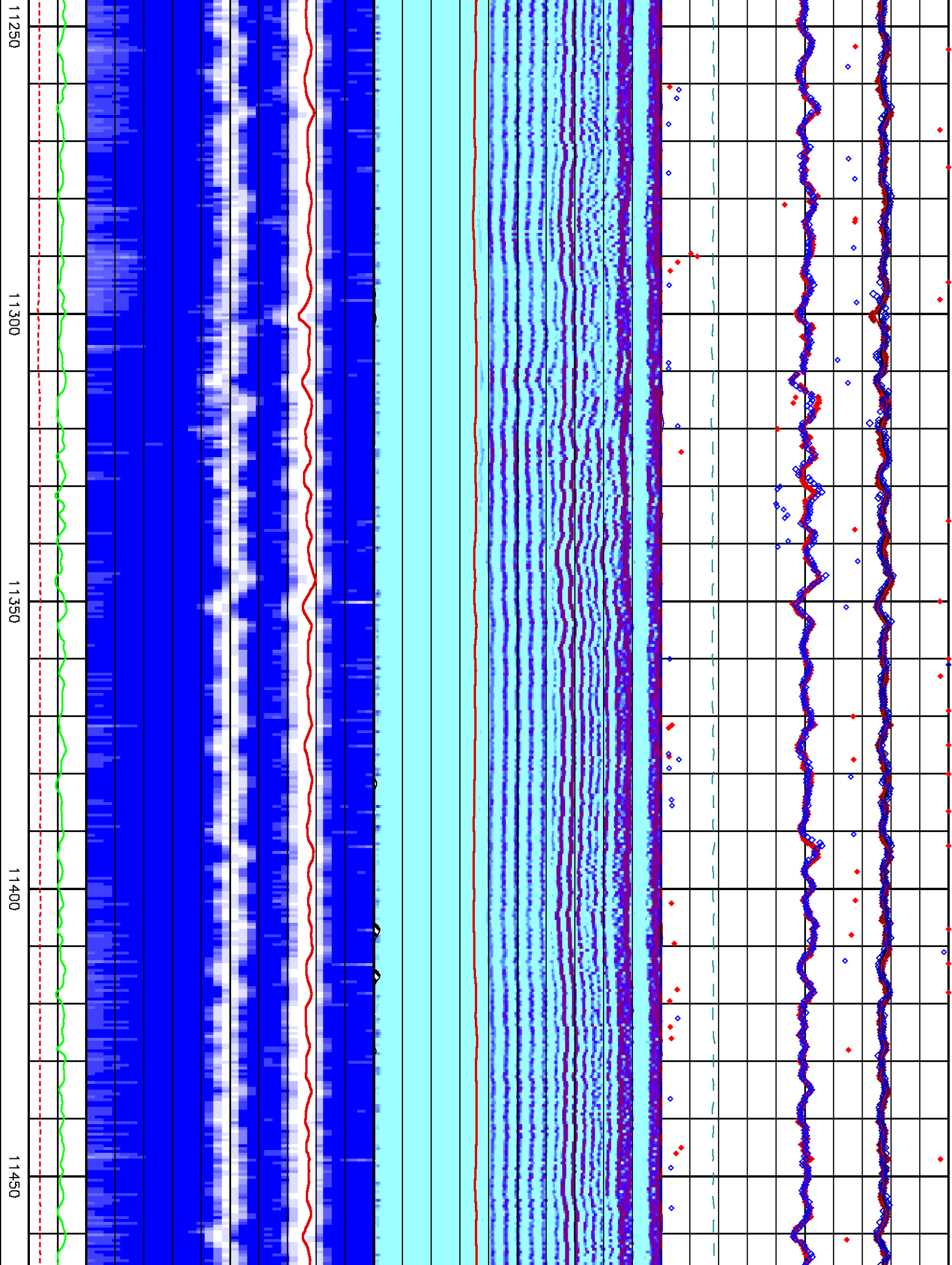


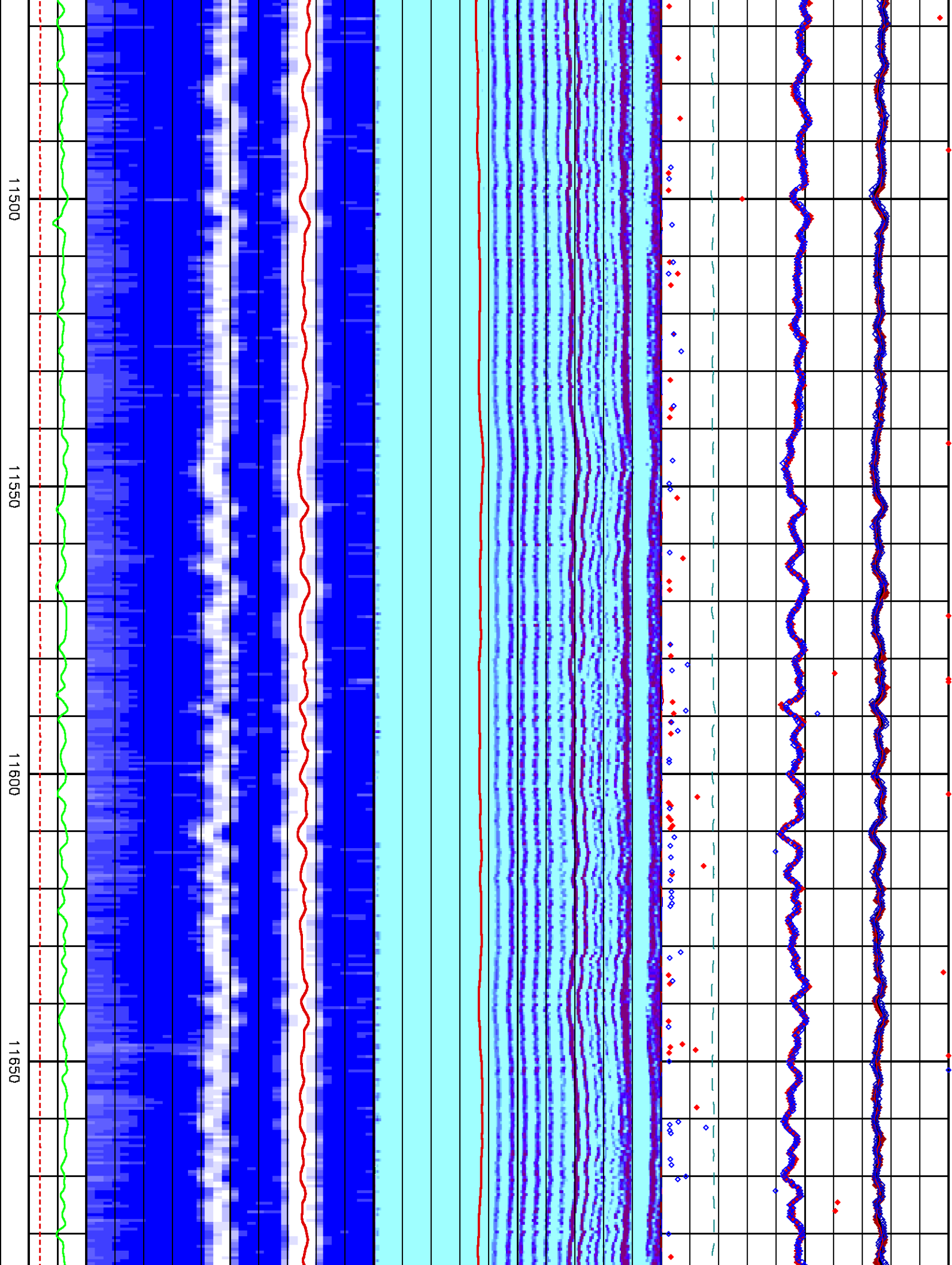


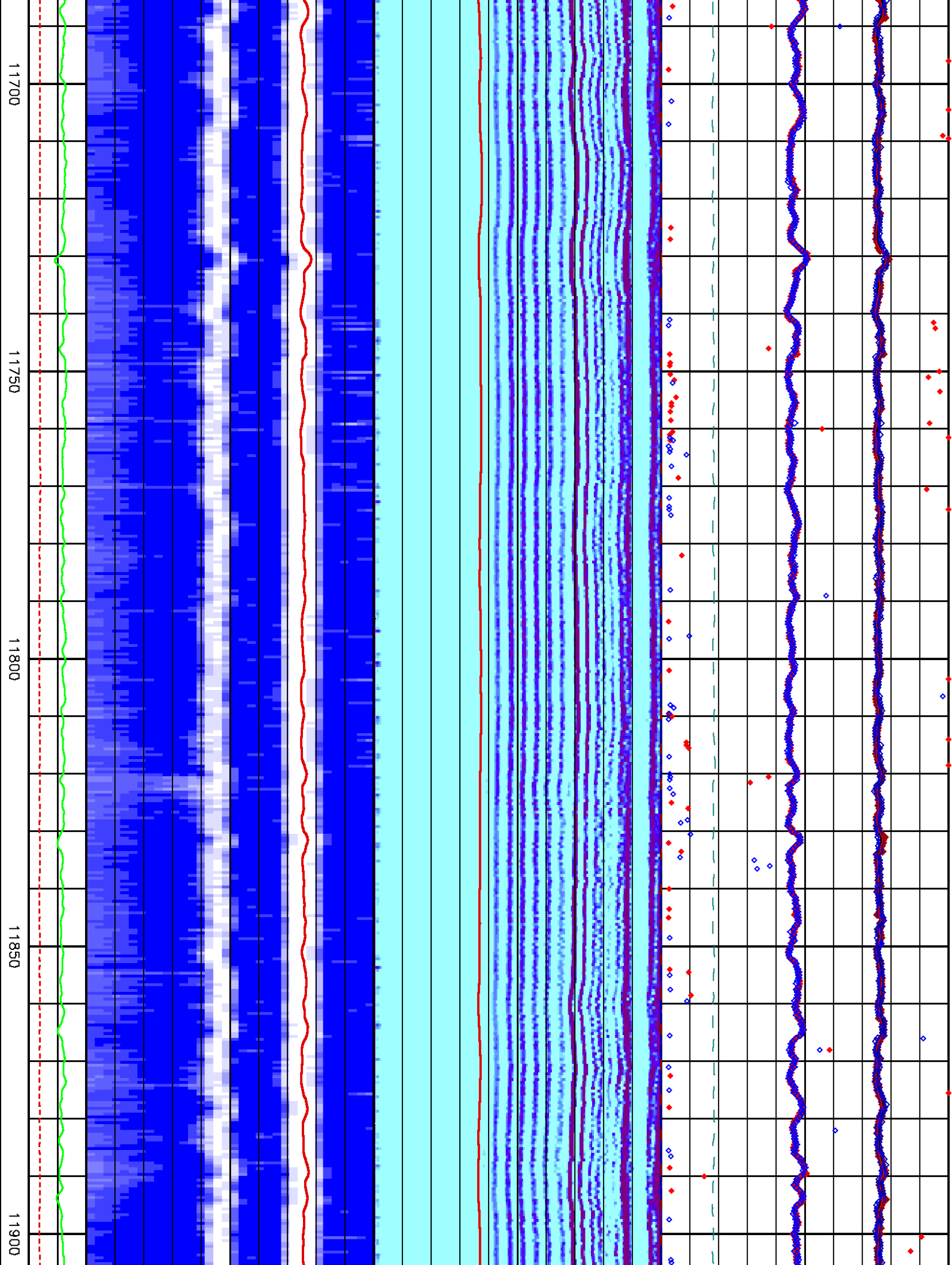


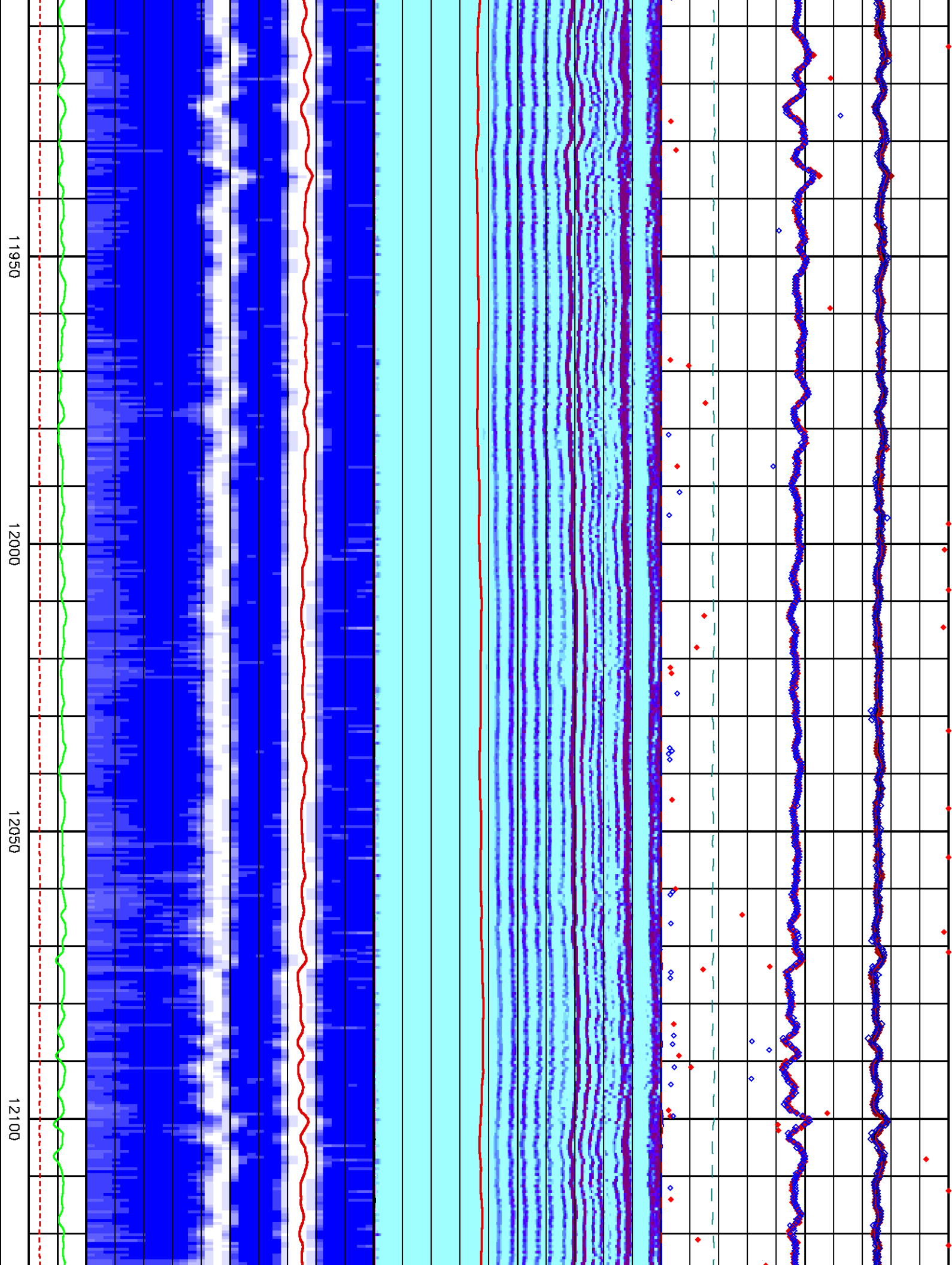


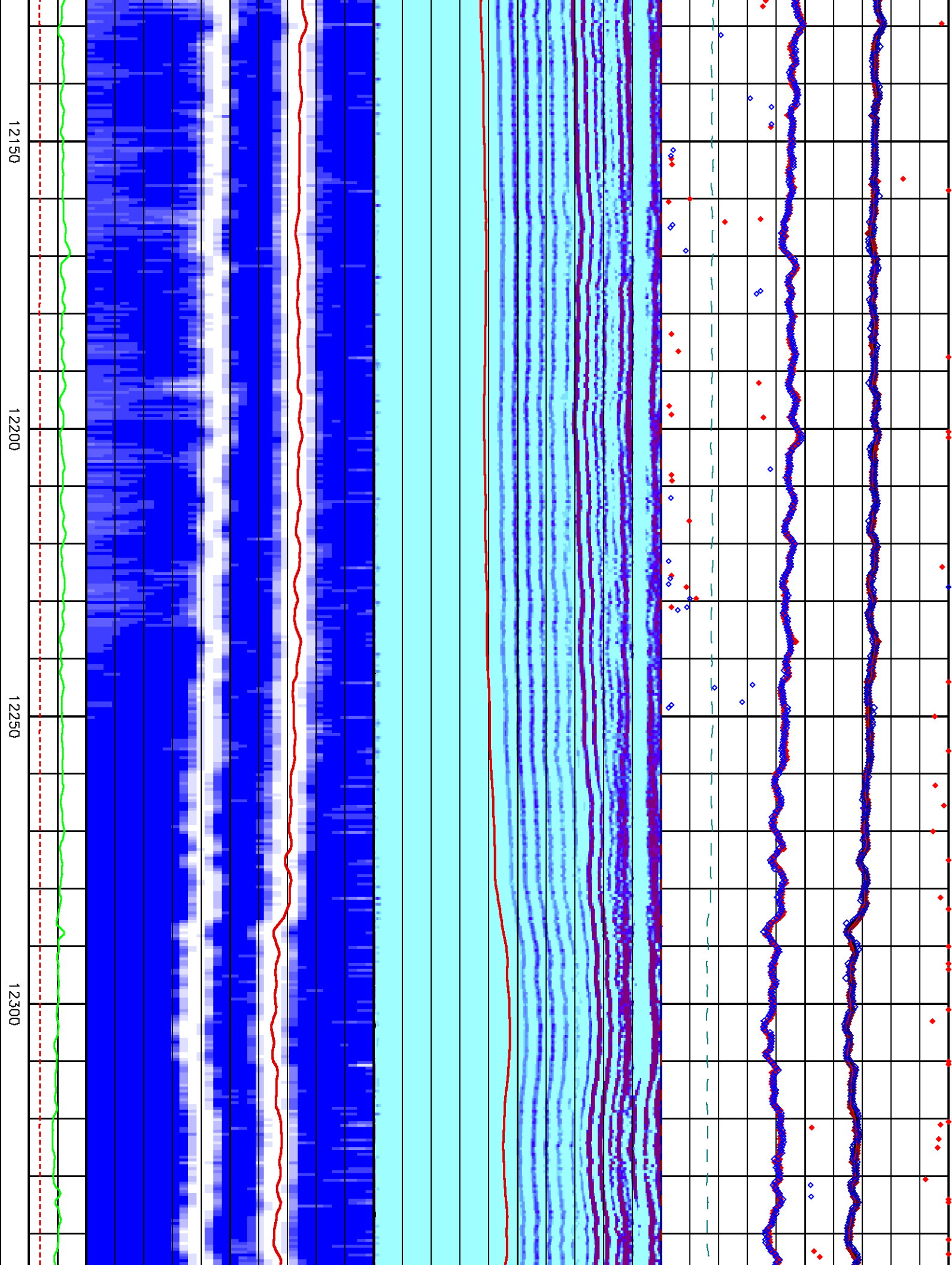


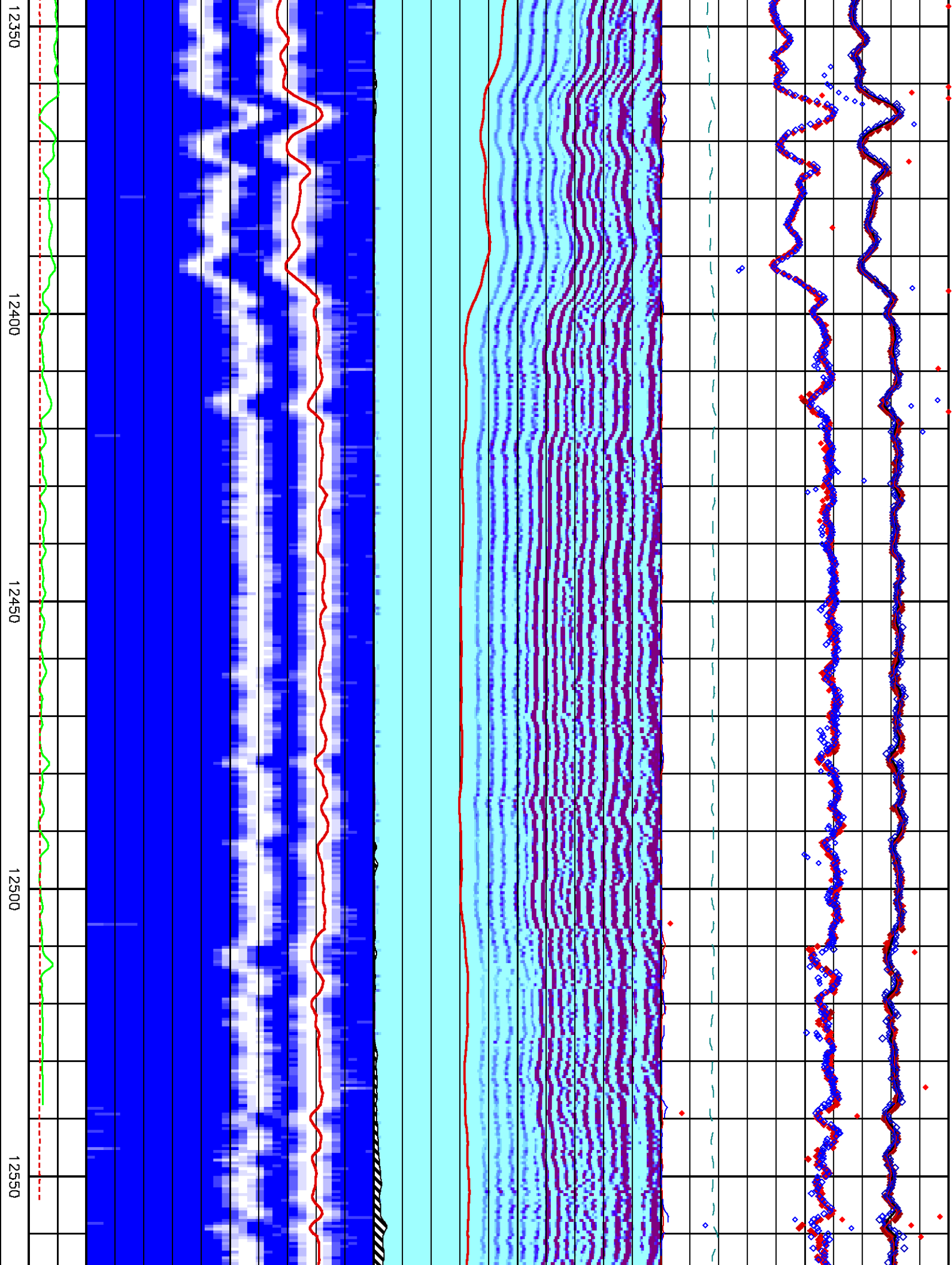








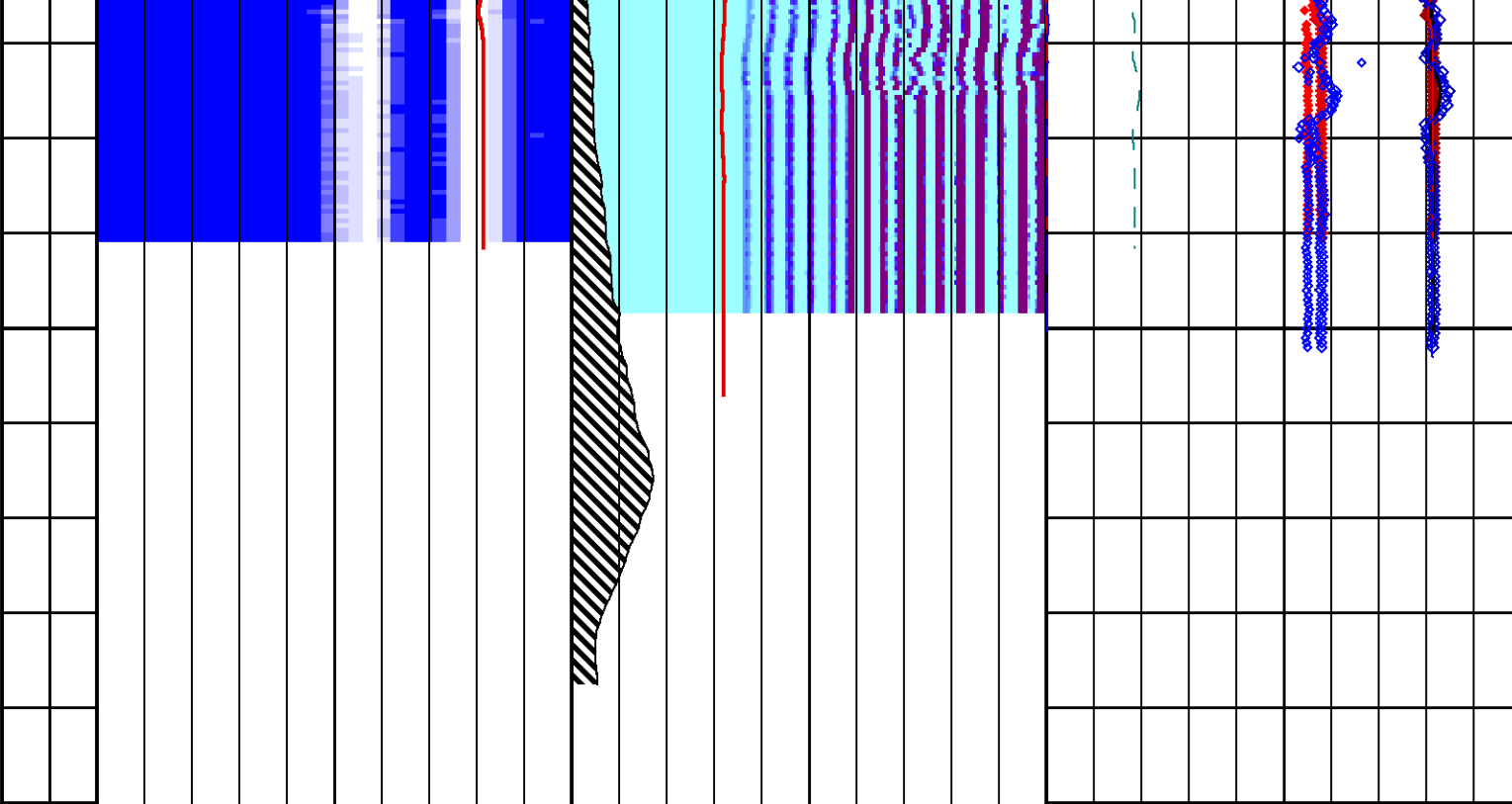




12600

12650

FEET



Tool Stick

GR 0 200
 (gAPI)

CAL 5 15
 (in)

Rcvr DTC

220 20 0

(us/ft)

TT QC Compressional

0 2400

(us)

DDBHC Compressional DT

220 20

(us/ft)

Rcvr DTC

220 20

(us/ft)

Xmtr DTC

220 20

(us/ft)

Vp/Vs

0 5

R-QC
 1 0

X-QC
 1 0

Rcvr Correlation Image

220 20 0

Wavetrace

0 2400

(us)



Rcvr Correlogram Peaks



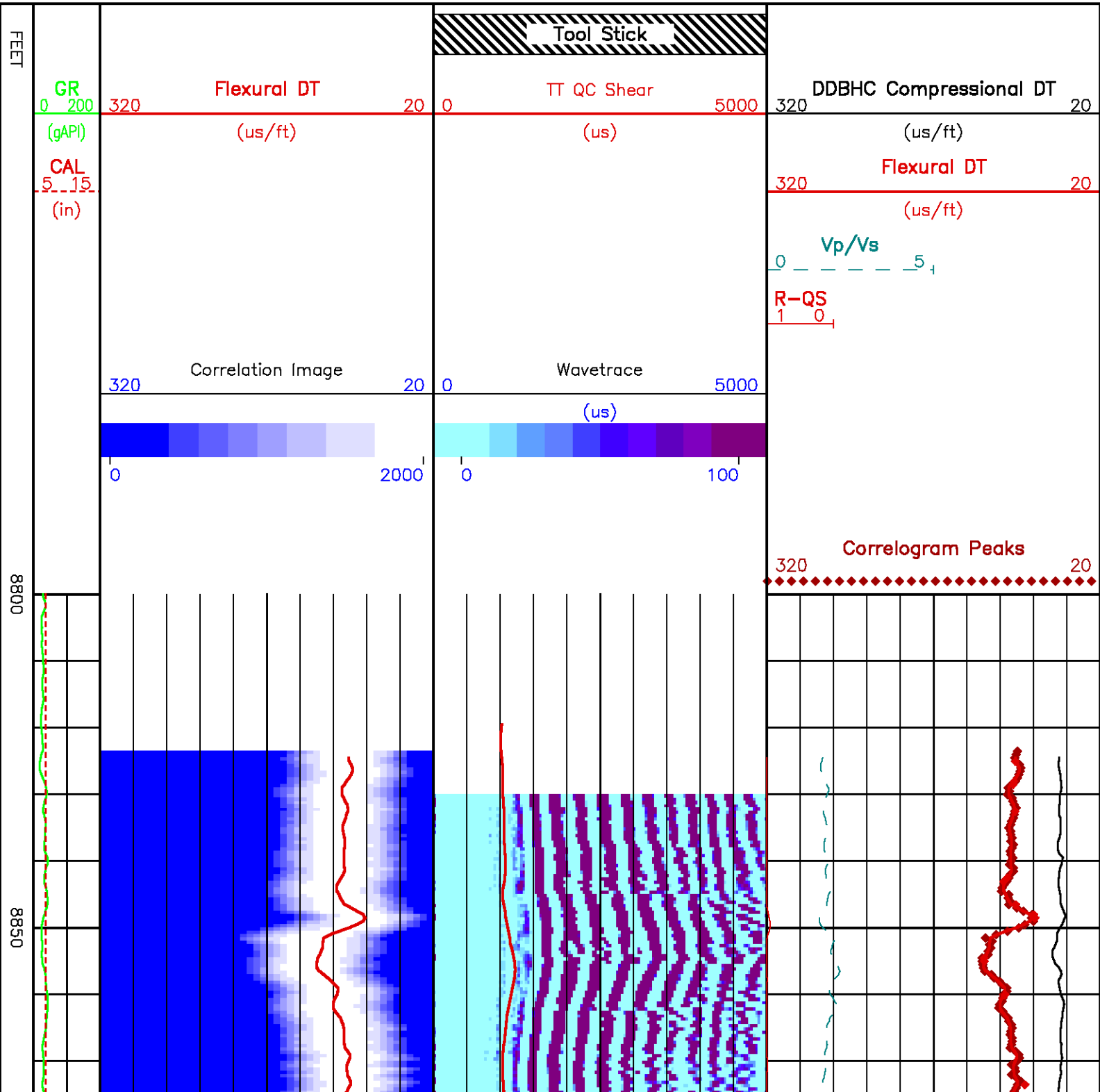
Xmtr Correlogram Peaks

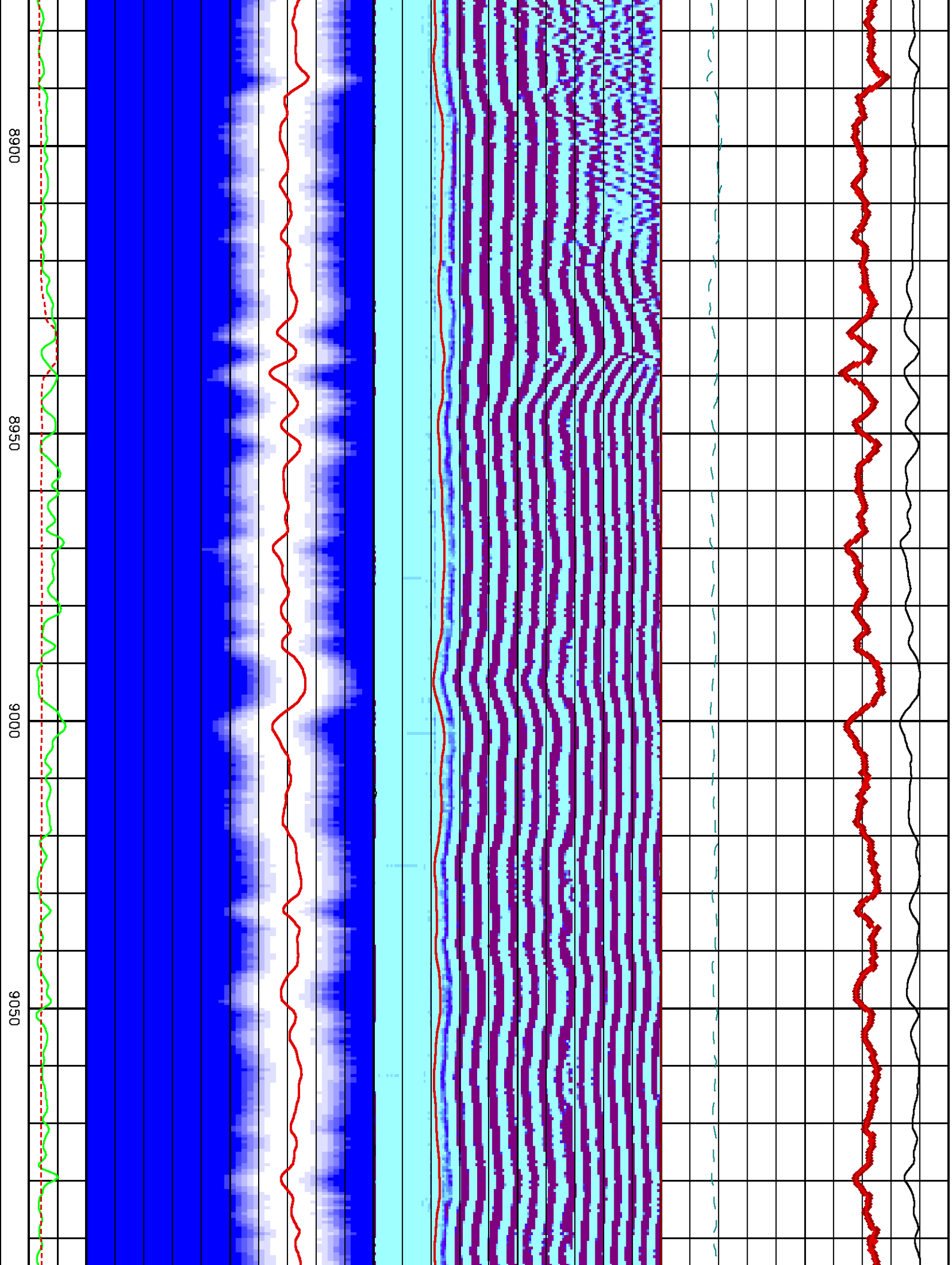


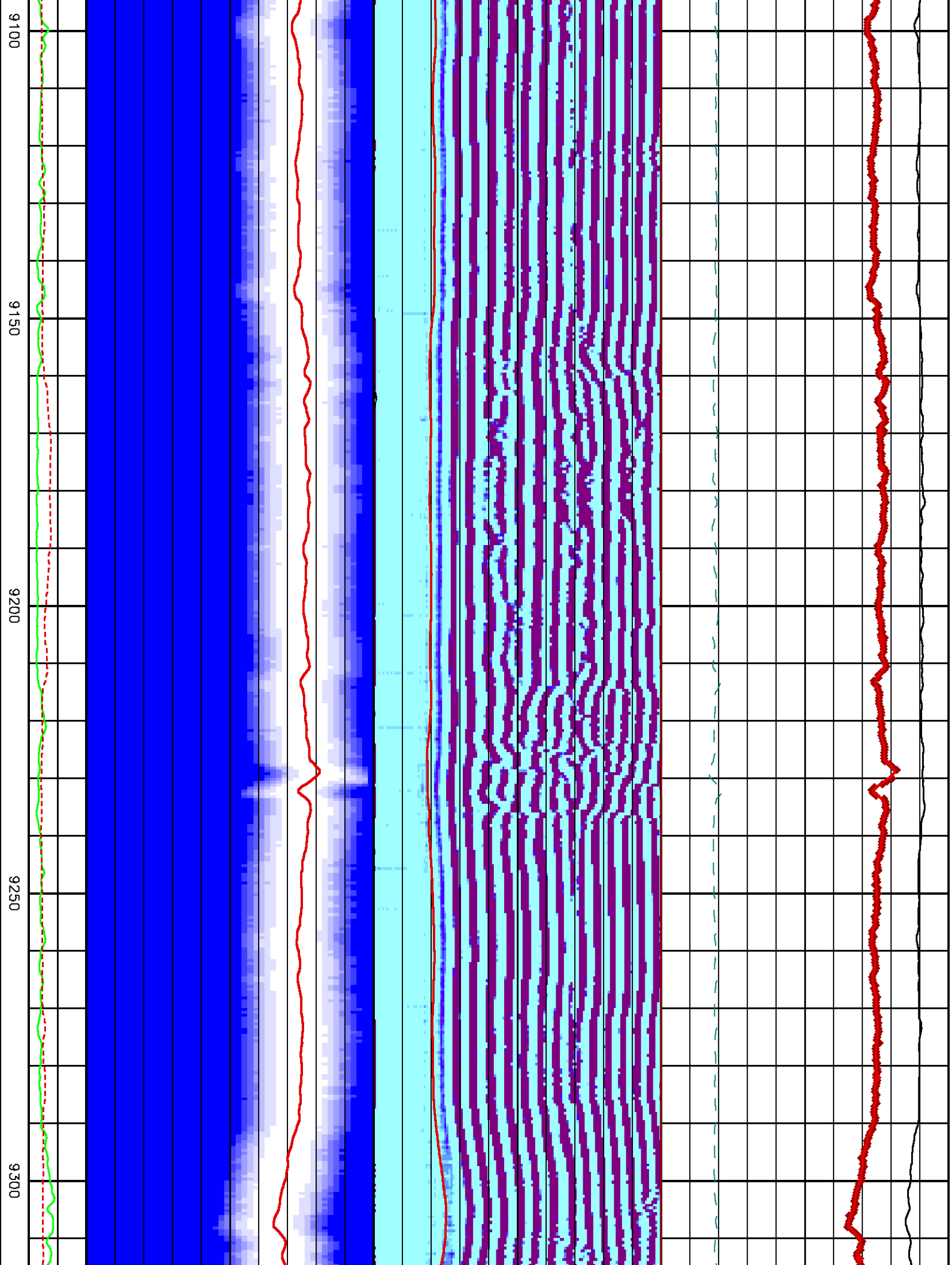
DIPOLE QC PLOT

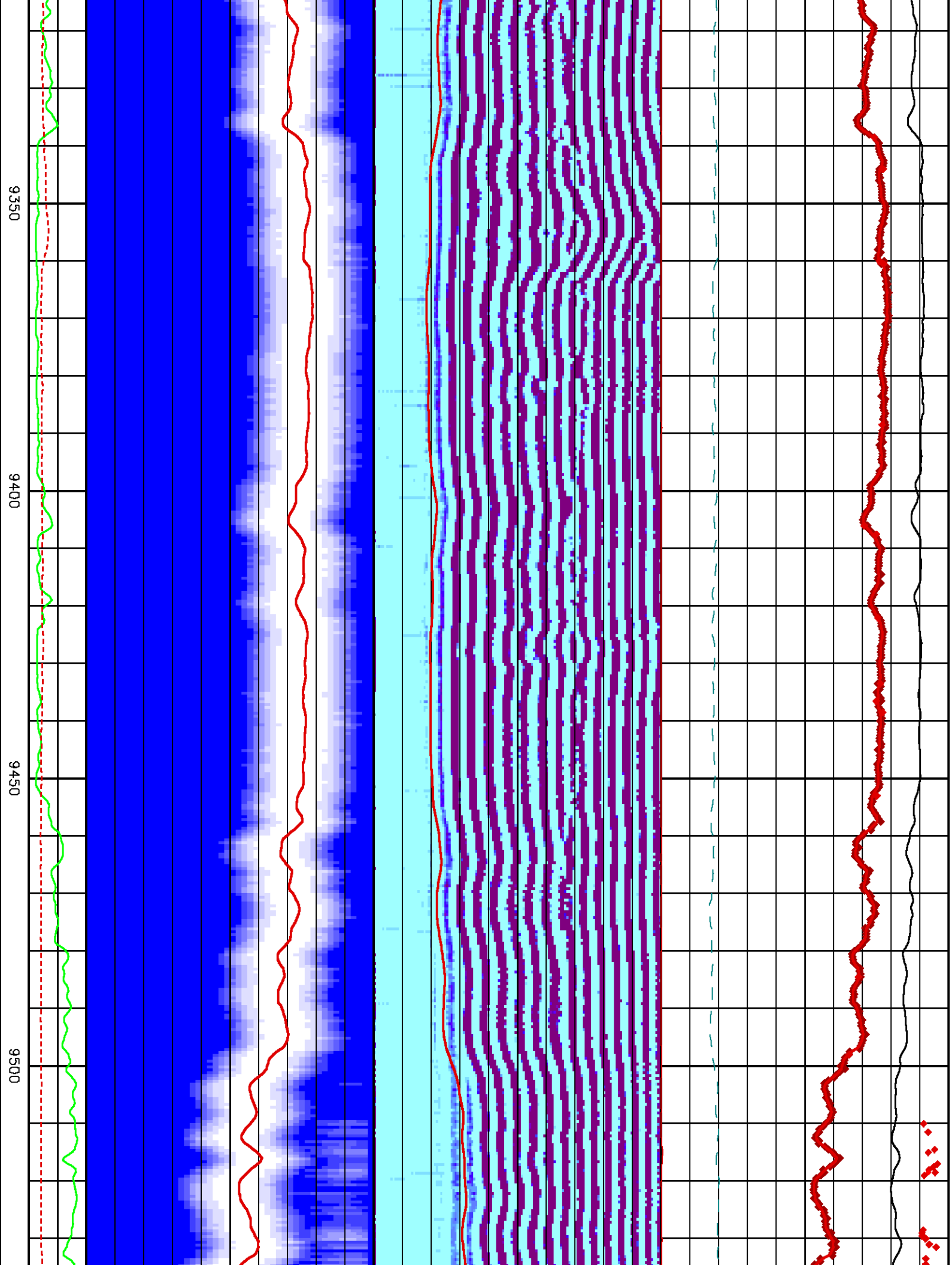
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User : thlested
Presentation : usageos07:/export/home/thlested/projects/0490/dipoll.pdf [5"/100' Scale]
Plot Interval : 8800 - 12647 Feet

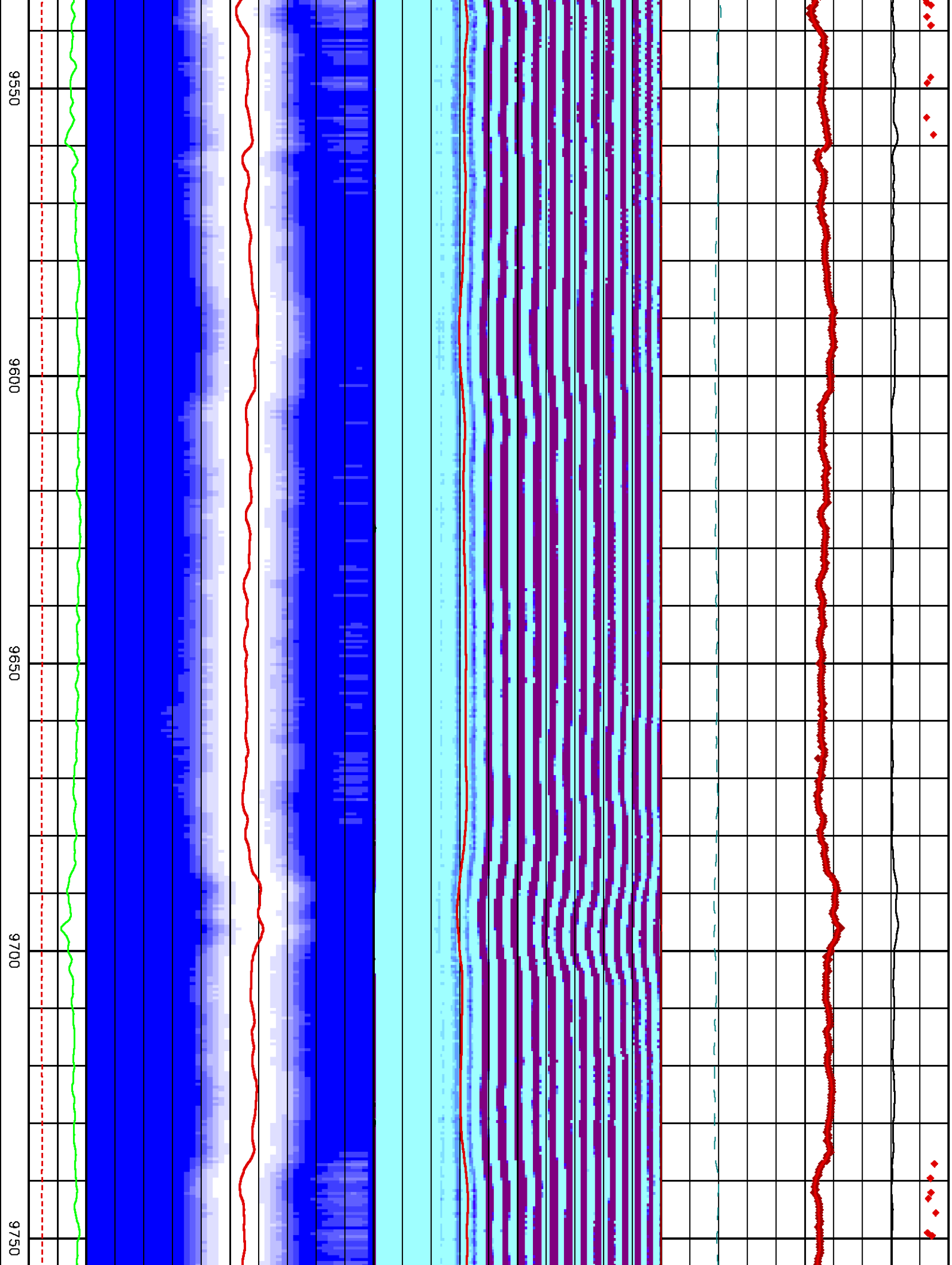
Data File 1 : F1 : usageos07:/export/home/thlested/projects/0490/open.xtf
Created On : May 15 08:33:25 2014
Company : Chesapeake Appalachia LLC
Well : James Messenger WTZ 3H U
Field : Wetzel
File Interval : 8740.5 - 12647 Feet
Oct : GSLAM

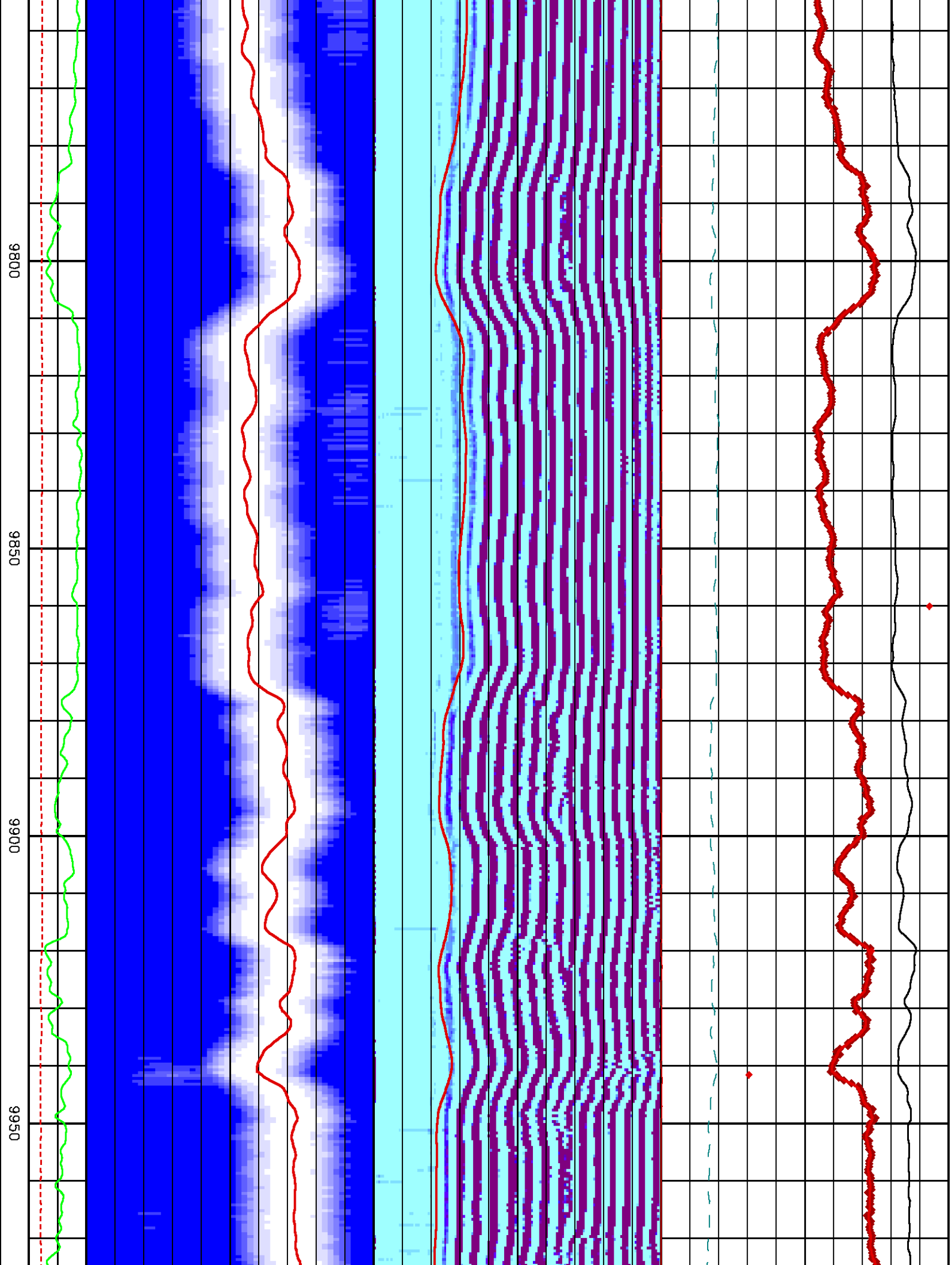


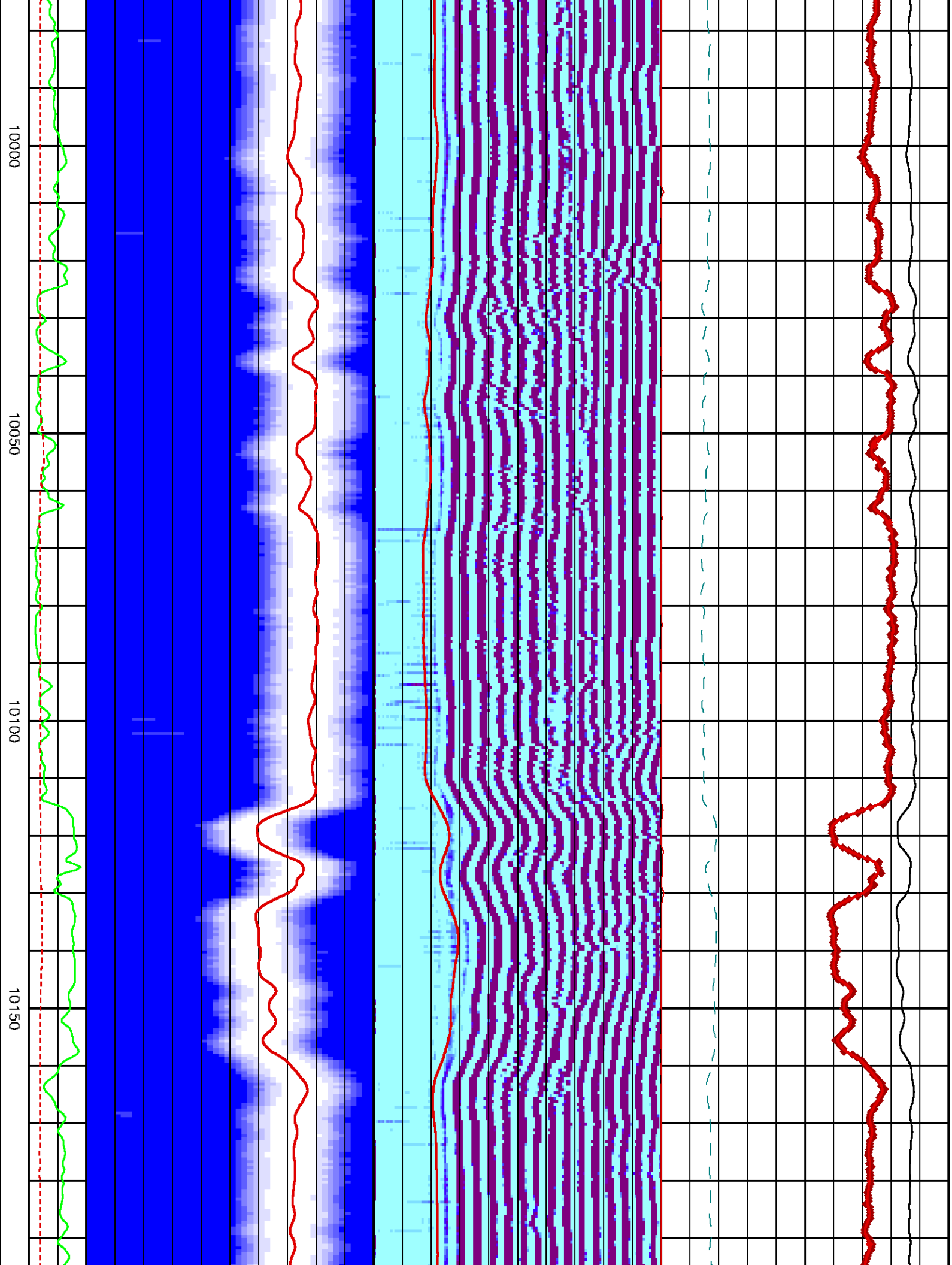


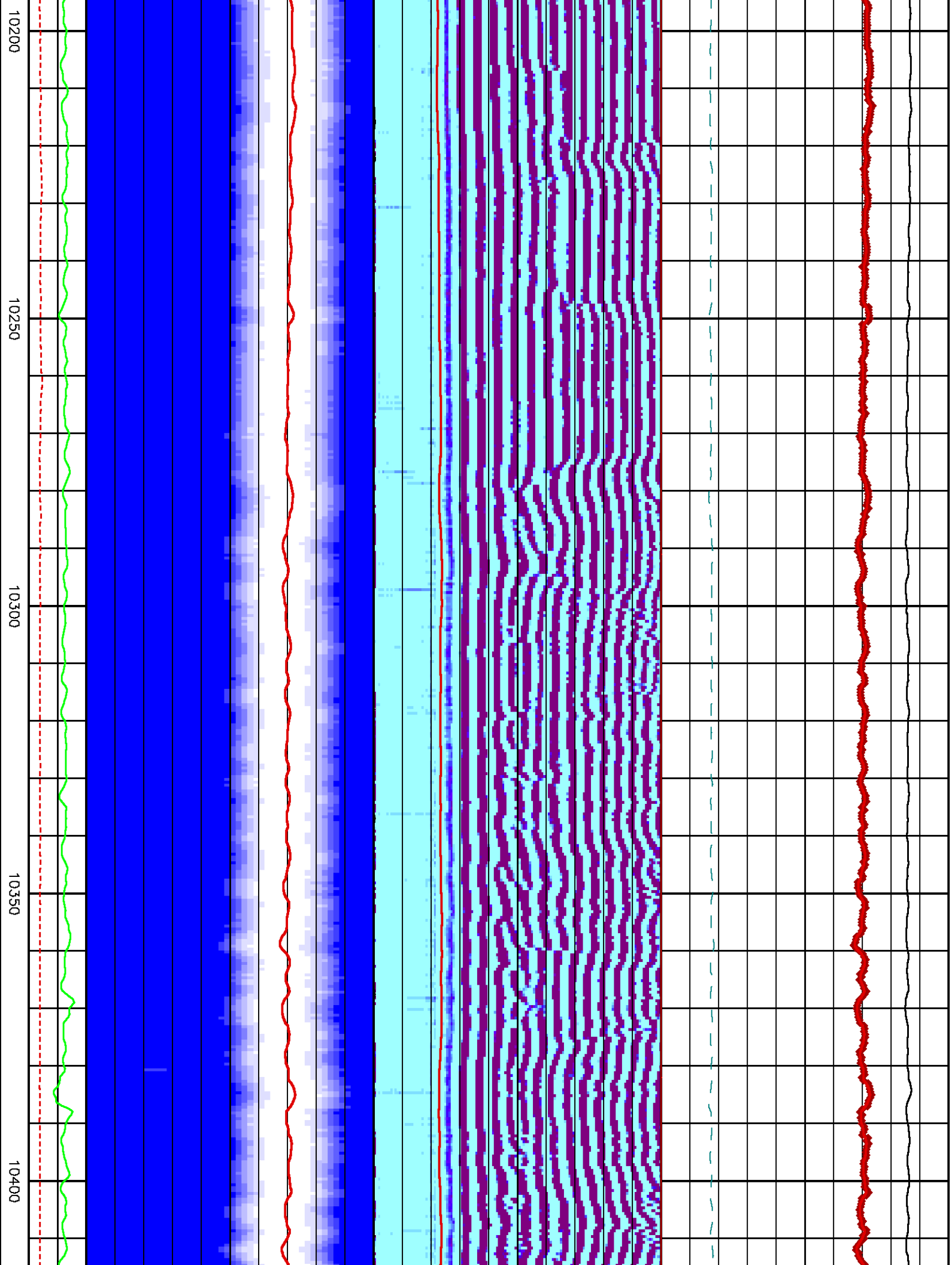


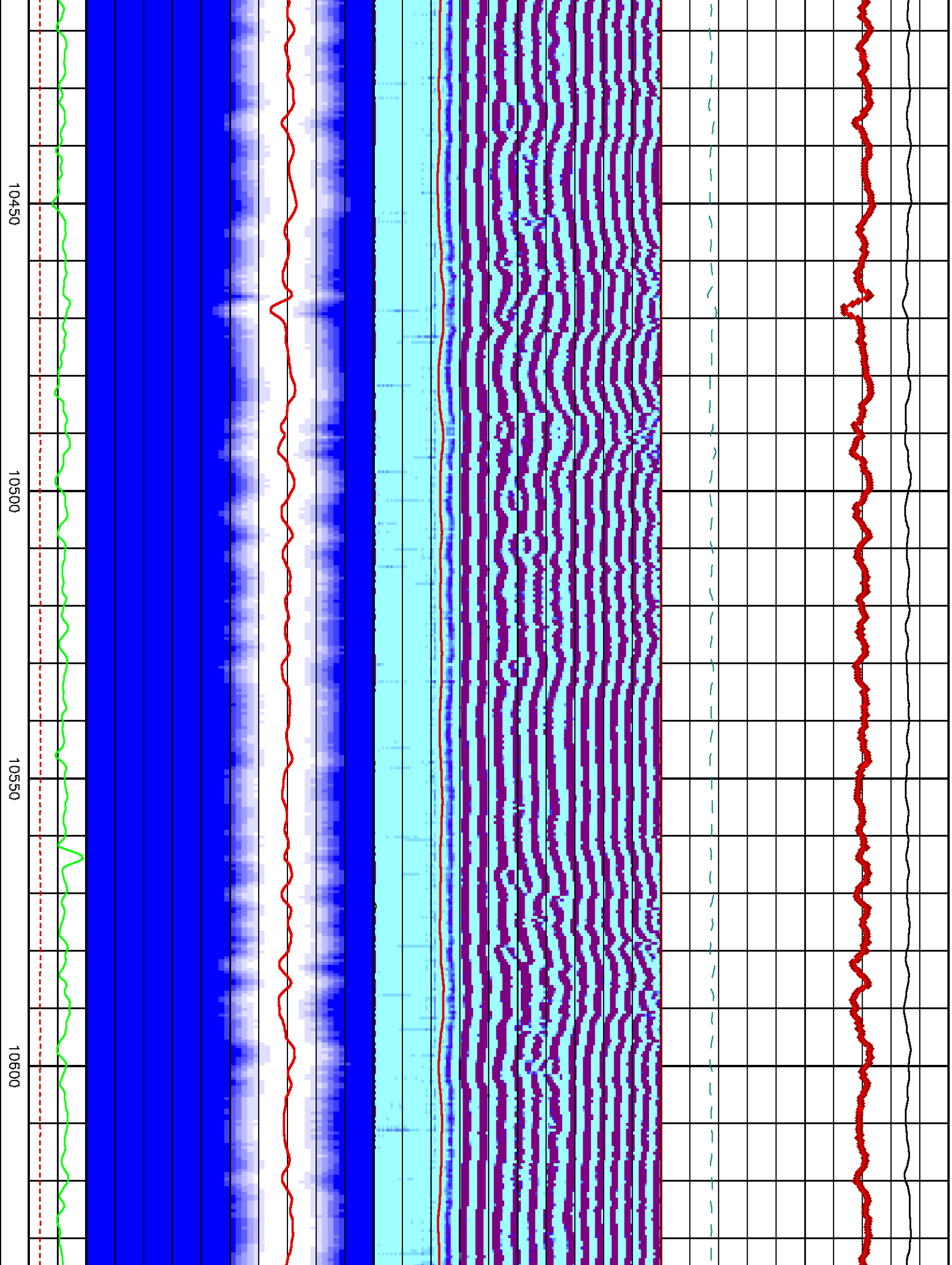


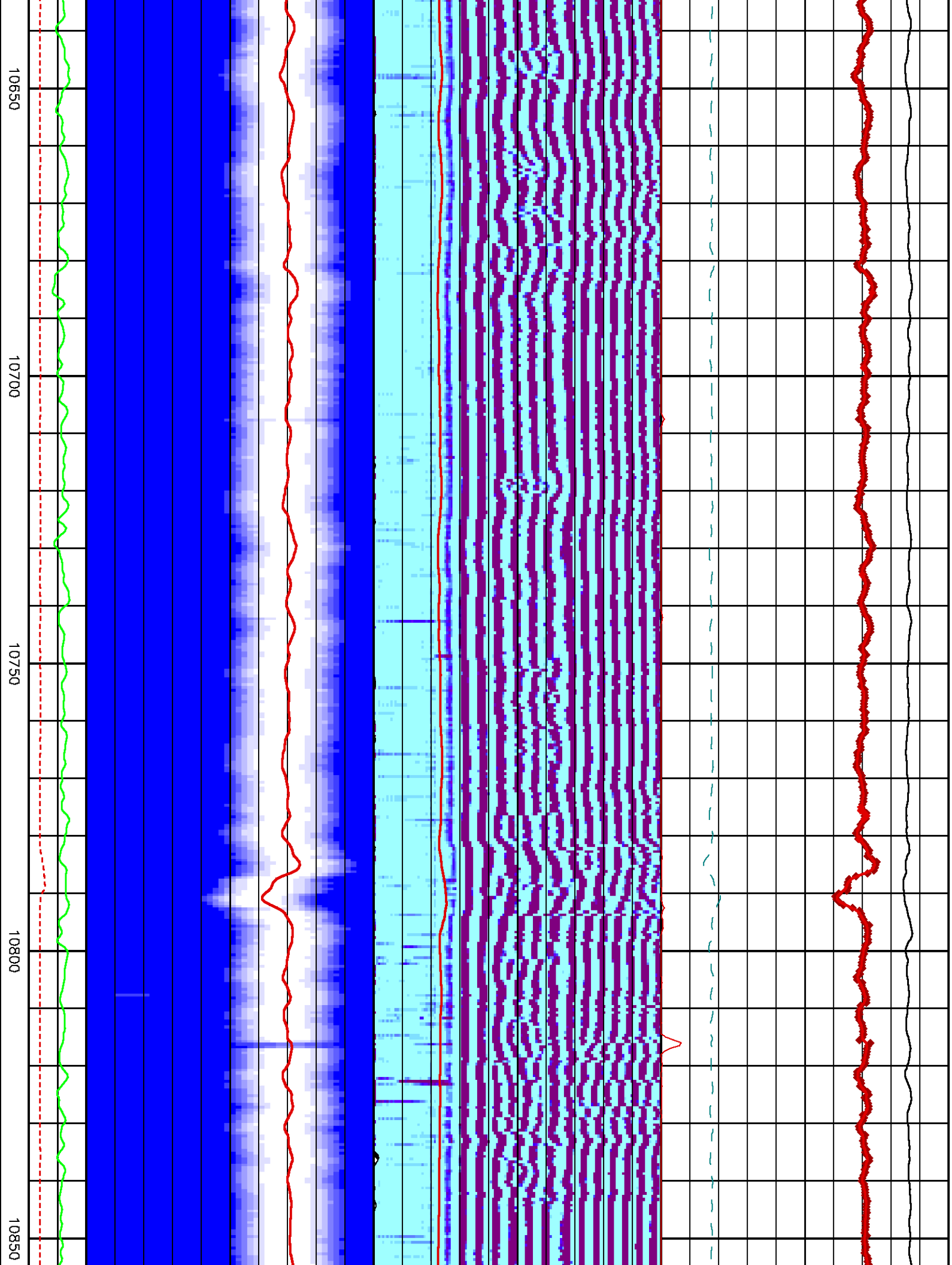


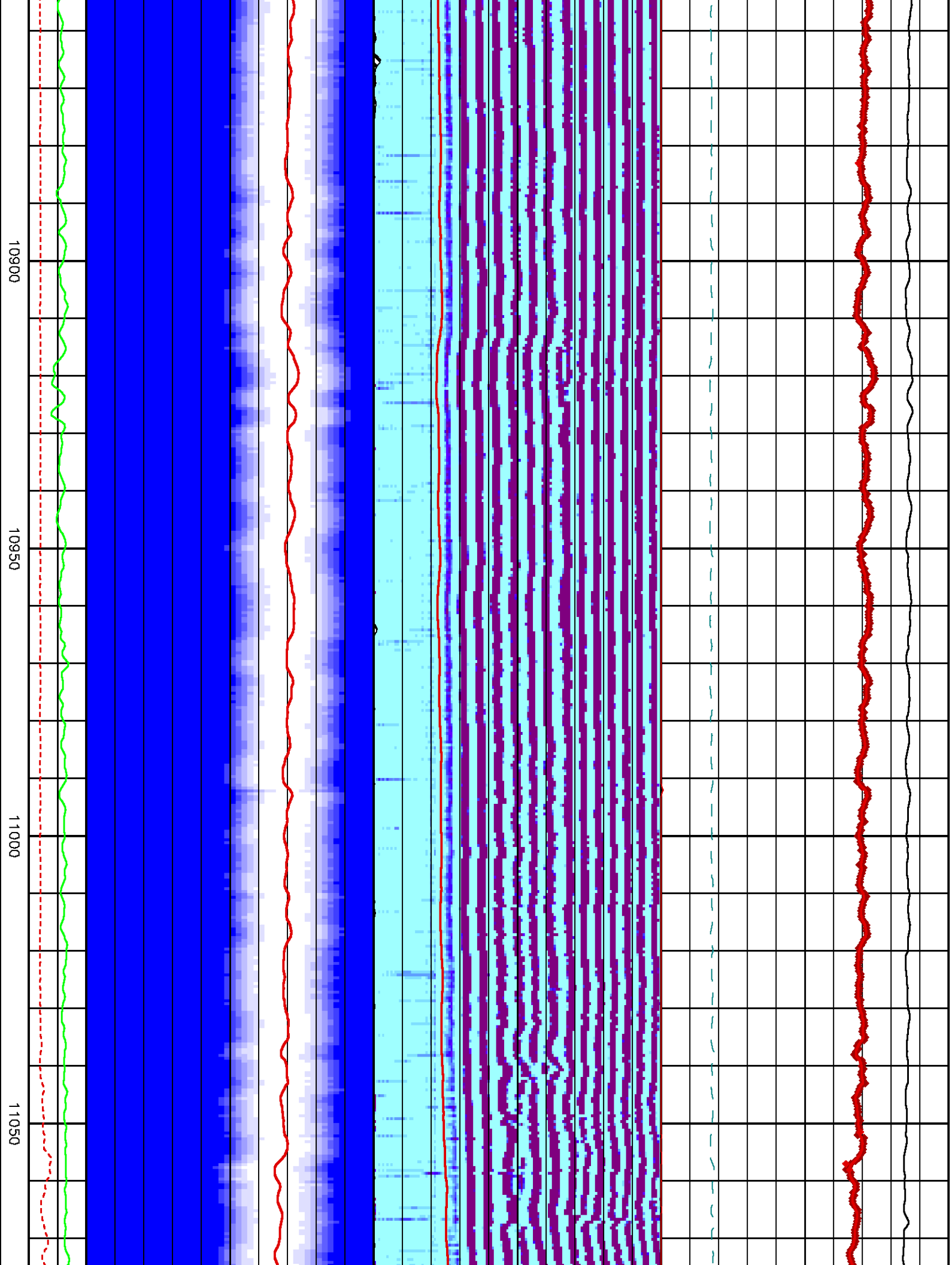


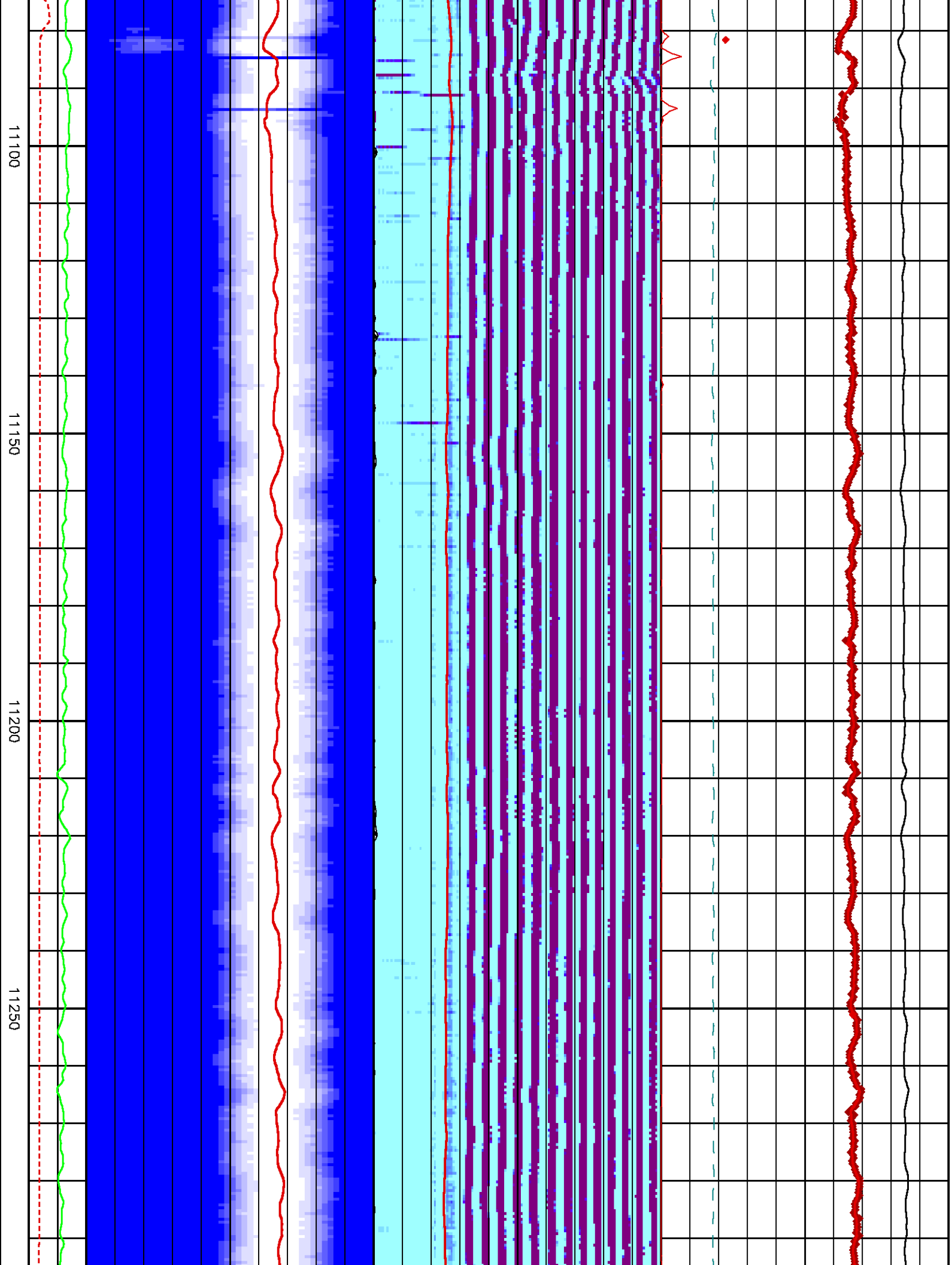


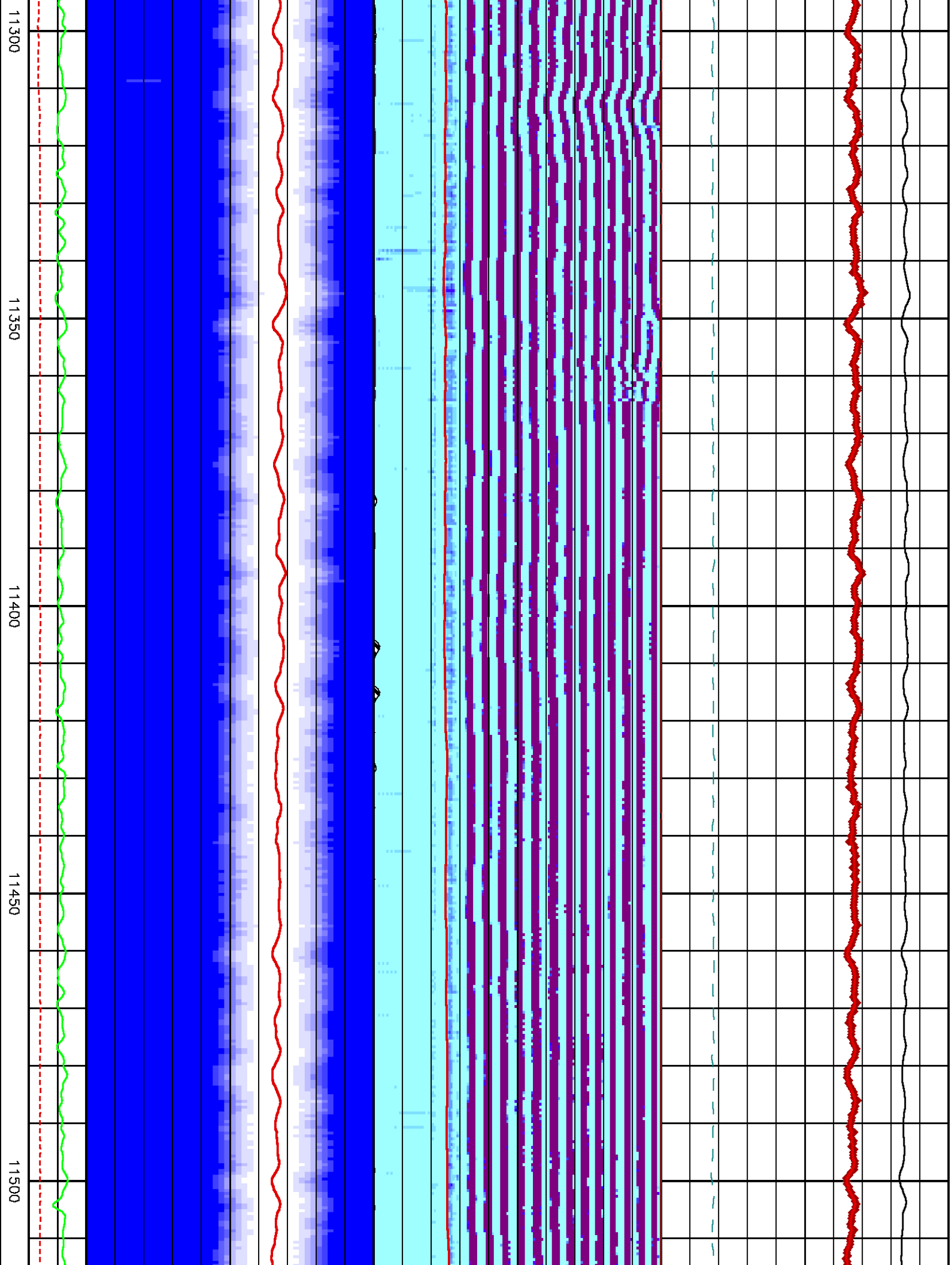


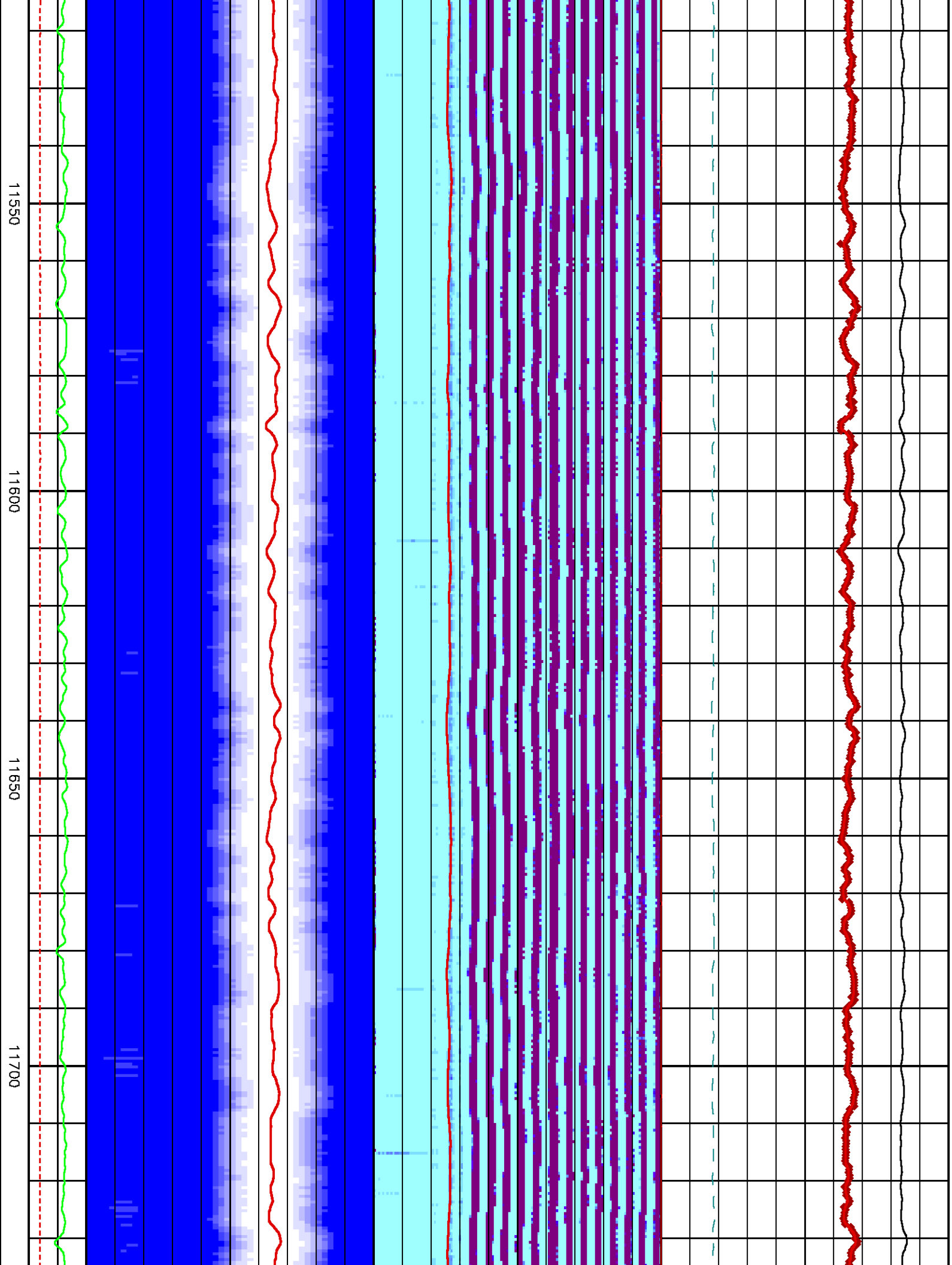


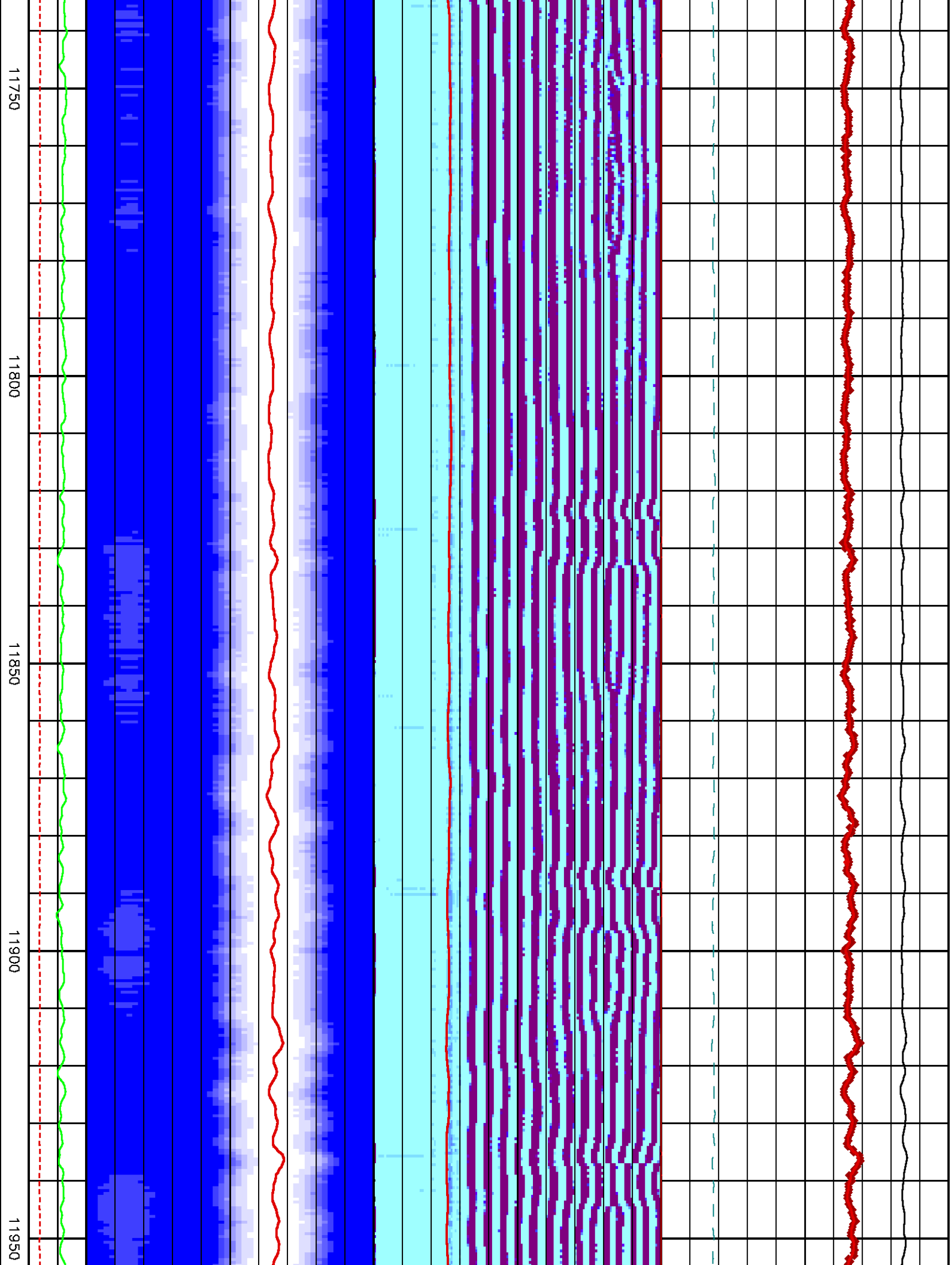


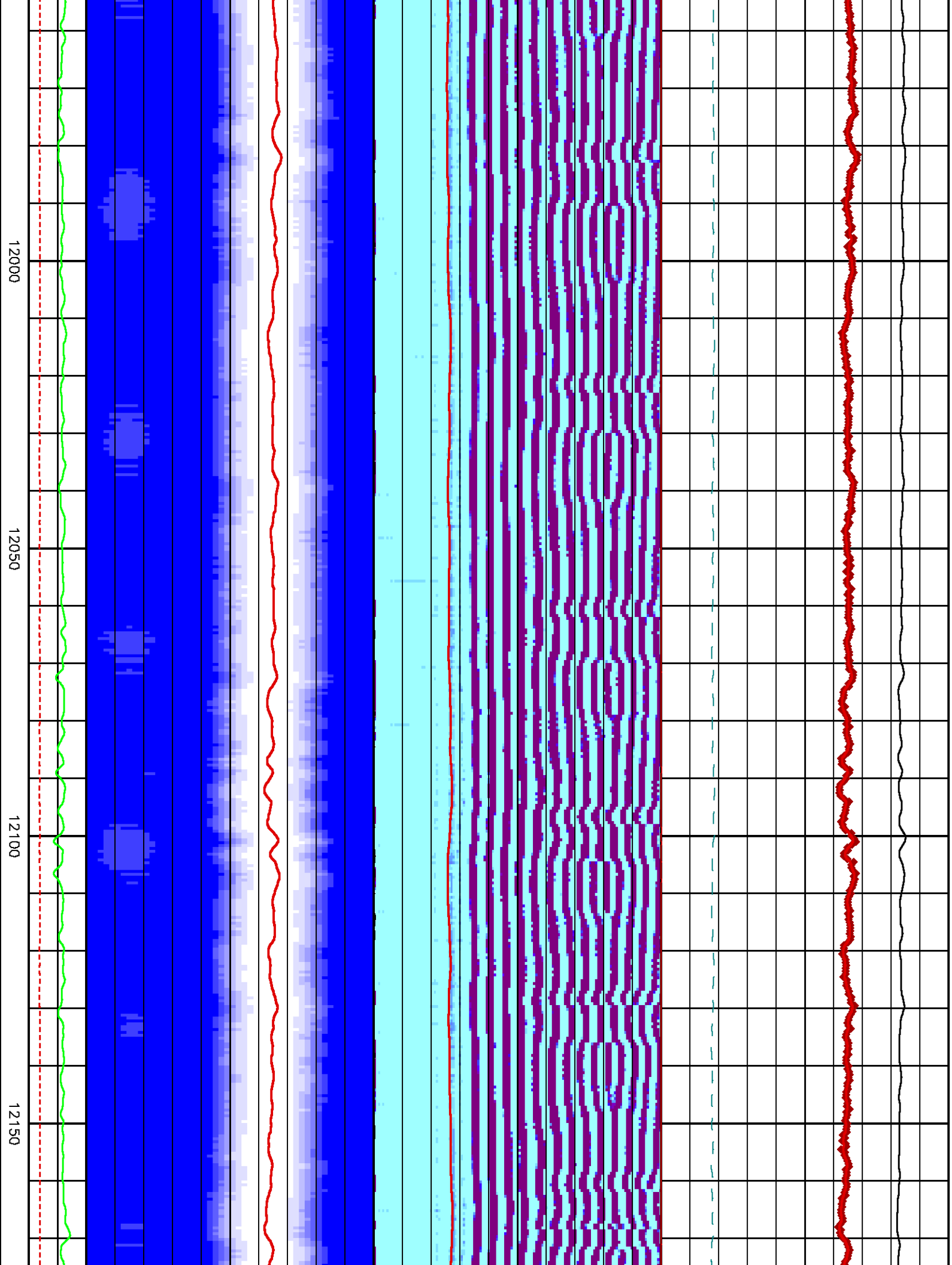


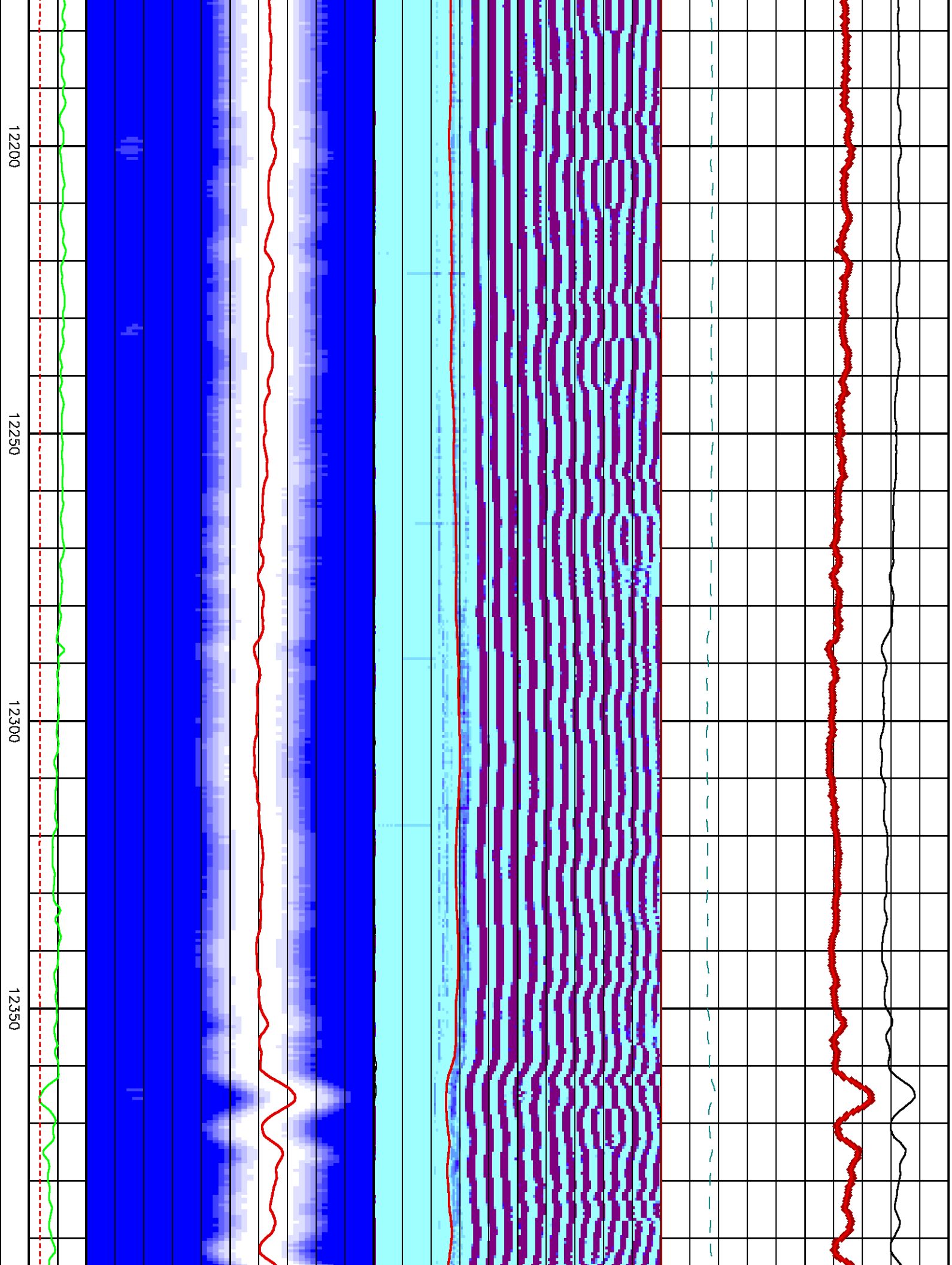


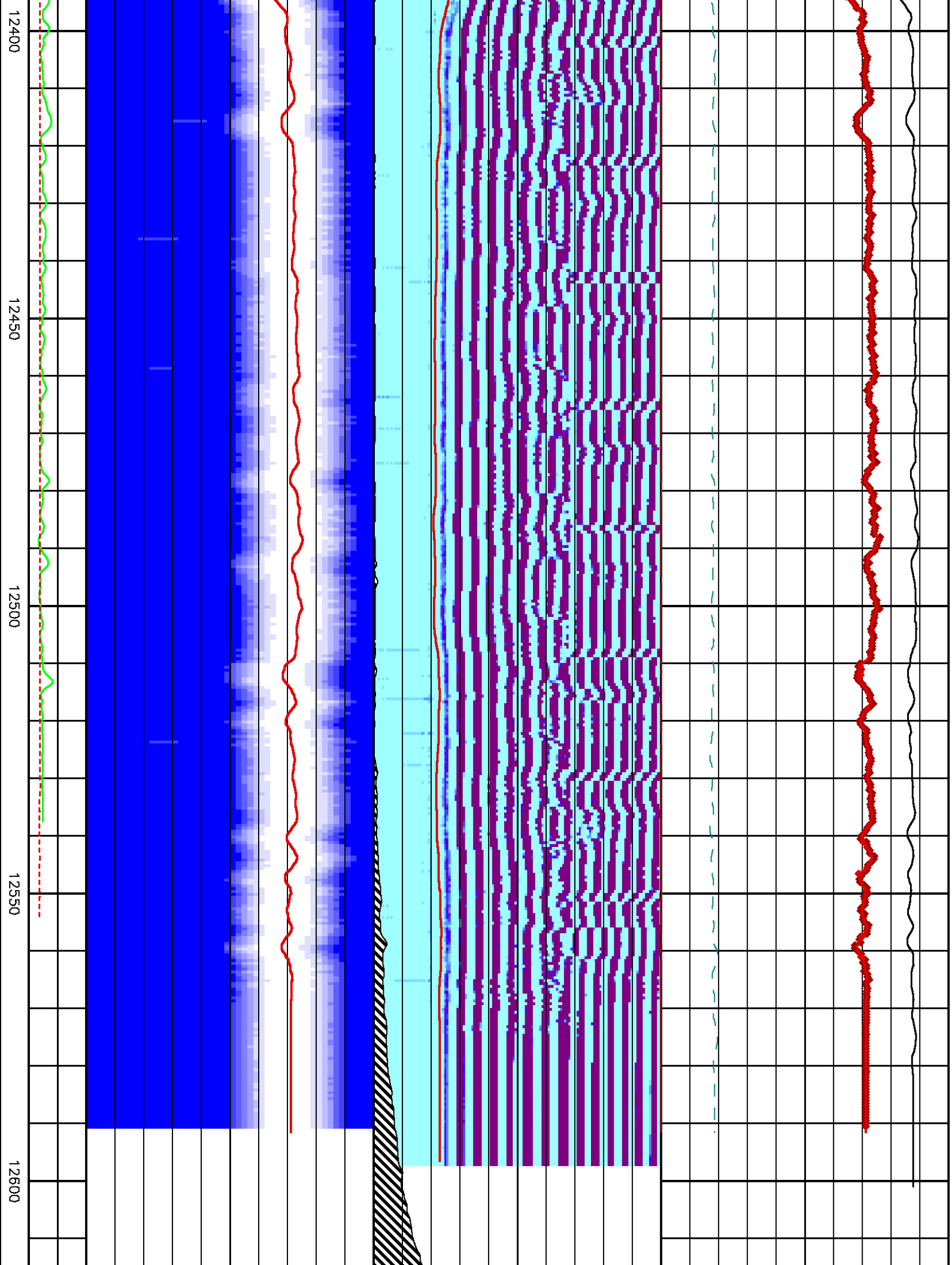












12650 FEET



Tool Stick

GR
0 200
(gAPI)
CAL
5.15
(in)

Flexural DT

TT QC Shear

DDBHC Compressional DT

320 20

0 5000

320 20

(us/ft)

(us)

(us/ft)

Flexural DT

320 20

(us/ft)

Vp/Vs

0 5

R-QS
1 0

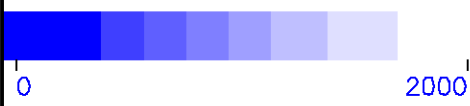
Correlation Image

Wavetrace

320 20

0 5000

(us)



Correlogram Peaks

320 20

PARAMETER SUMMARY

```
! time: Mon May 19 11:30:29 2014
! Input/Output curves
FILE = 'open.xtf',
FILEOUT = 'open.xtf',
! OWRITE=1: Overwrite, OWRITE=2: Recreate
OWRITE = 2,
TRWAV < TFWV01,
TRSTRT < TFST01,
TRGAIN < TFGN01,
CORCMB > CORCMBR,
TTOUT > TTR,
DTOUT > DTCCR,
SQINT > QCR,
CORPKS > CORPKSR,
TRWAVF > TFWV01F,
```

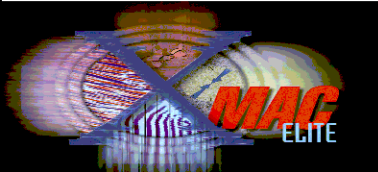
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! Tool information( TRSP, TRID, RRSF unit: FEET; DEPREF unit: depth unit; RxDia, TxDia unit: INCHES
!
TOOLNAME = 'XMAC-ELITE-Monopole',
SERIES = '1678',
NUMRCVRS = 8,
TRSP = -12,
TRID = 1,
RRSP = 0.5,
DEPREF = 6,
RxDia = 2.66,
TxDia = 2.75,
!
! zone #1
!
8748,12639,
!
! WHATFILT=0:FFT, WHATFILT=1:FIR, WHATFILT=2:NONE
!
WHATFILT = 1,
!
! FREQUENCY RANGE
!
LOWF = 3000,
HIGHF = 15000,
!
! COARRAY = 0: Receiver array, COARRAY = 1: Transmitter array
!
COARRAY =0,
!
! CMETHOD = 0: Nroot, CMETHOD = 1: Semb
!
CMETHOD = 0,
!
NTH = 4,
CWBEGIN = 400,
CWEND = 2400,
CWLENGTH = 400,
CWSTEP = 200,
T4FLR = 0,
BTLCUT = 0,
DTMIN = 20,
DTMAX = 220,
DTSTEP = 6,
!
! DTUNIT = 0: us/ft, DTUNIT = 1: us/m
!
DTUNIT = 0,
!
RCVRS = /1,2,3,4,5,6,7,8,/
TAPER = /23,37,76,93,/
PSRATIO = /1.6,1.8,/
EOZ
END
```

```
! time: Tue May 20 05:26:42 2014
!
! Input/Output curves
!
FILE = 'open.xtf',
FILEOUT = 'open.xtf',
!
! OWRITE=1: Overwrite, OWRITE=2: Recreate
!
OWRITE = 2,
!
TRWAV < TXXWV01,
TRSTRT < TXXST01,
TRGAIN < TXXGN01,
CORCMB > CORCMB,
TTOUT > TTS,
DTOUT > DTS,
SQINT > QS,
CORPKS > CORPKS,
TRWAVF > TXXWV01F,
!
! Tool information( TRSP, TRID, RRSF unit: FEET; DEPREF unit: depth unit; RxDia, TxDia unit: INCHES
!
```

```

TOOLNAME = 'XMAC-ELITE-X_Dipole',
SERIES = '1678',
NUMRCVRS = 8,
TRSP = -10.25,
TRID = 3,
RRSP = 0.5,
DEPREF = 5.125,
RxDia = 2.66,
TxDia = 2.45,
!
! zone #1
!
8748,12639,
!
! WHATFILT=0:FFT, WHATFILT=1:FIR, WHATFILT=2:NONE
!
WHATFILT = 1,
!
! FREQUENCY RANGE
!
LOWF = 500,
HIGHF = 2500,
!
! COARRAY = 0: Receiver array, COARRAY = 1: Transmitter array
!
COARRAY =0,
!
! CMETHOD = 0: Nroot, CMETHOD = 1: Semb
!
CMETHOD = 0,
!
NTH = 4,
CWBEGIN = 400,
CWEND = 4000,
CWLENGTH = 1000,
CWSTEP = 500,
T4FLR = 0,
BTLCUT = 0,
DTMIN = 20,
DTMAX = 320,
DTSTEP = 6,
!
! DTUNIT = 0: us/ft, DTUNIT = 1: us/m
!
DTUNIT = 0,
!
RCVRS = /1,2,3,4,5,6,7,8,/,
TAPER = /72,111,208,249,/,
PSRATIO = /1.4,2.8,/,
EOZ
END

```



COMPANY <u>CHESAPEAKE APPALACHIA LLC</u> WELL <u>JAMES MESSENGER WTZ 3H U</u> FIELD <u>WETZEL</u> COUNTY <u>WETZEL</u> STATE <u>WEST VIRGINIA</u>	FILE NO: <u>15147-01/NOGS-0490</u>
	API NO: <u>47-103-02973</u>
LOCATION: <u>STATE TOWNSHIP PROCTOR QUAD WILEVILLE</u>	ELEVATIONS: KB <u>1517 FT</u> DF <u>1517 FT</u> GL <u>1495 FT</u>
LAT <u>N39.673693</u> LONG <u>W80.690861</u>	DATE <u>15-MAY-2014</u>