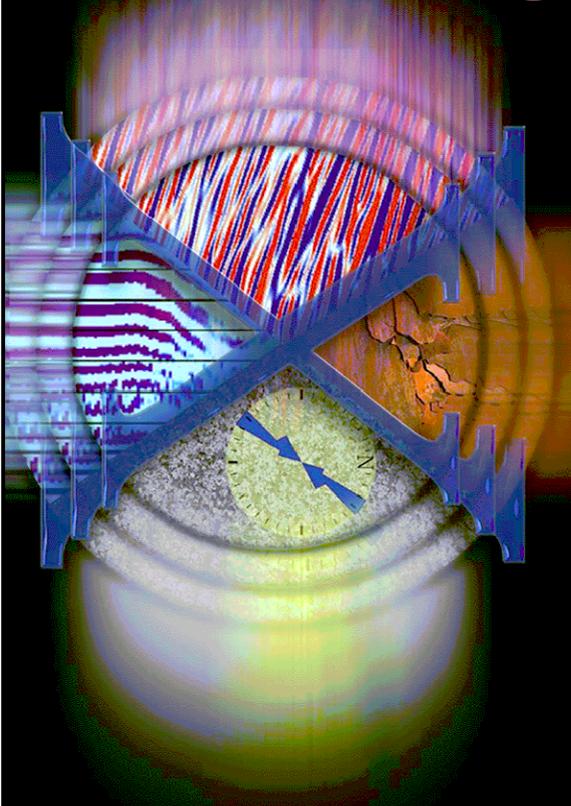


# Acoustic Waveform Processing



## MULTIPOLE ARRAY ACOUSTILLOG <sup>SM</sup>

COMPANY SIERRA GEOTHERMAL POWER, INC.

WELL ALUM 25-29

FIELD ALUM

COUNTY ESMERALDA STATE NEVADA

LOCATION: 2235.18' FSL & 938.11' FWL

SEC 29 TWP 1N RGE 38.5E

ELEVATIONS:

KB 4919.57 FT DF N/A GL 4903.57 FT

DATE 23-NOV2009 ECC \_\_\_\_\_

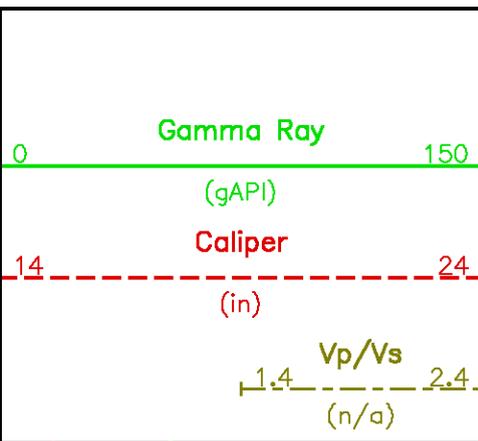
IN MAKING INTERPRETATIONS OF LOGS OUR EMPLOYEES WILL GIVE CUSTOMER THE BENEFIT OF THEIR BEST JUDGEMENT. BUT SINCE ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS, WE CANNOT, AND WE DO NOT GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATION. WE SHALL 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

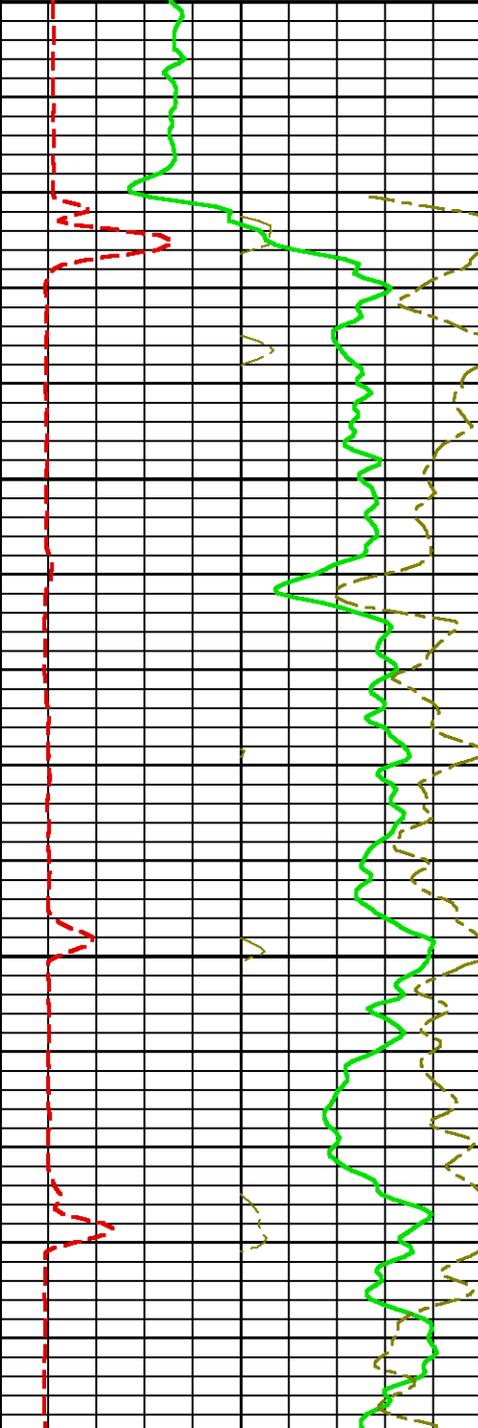
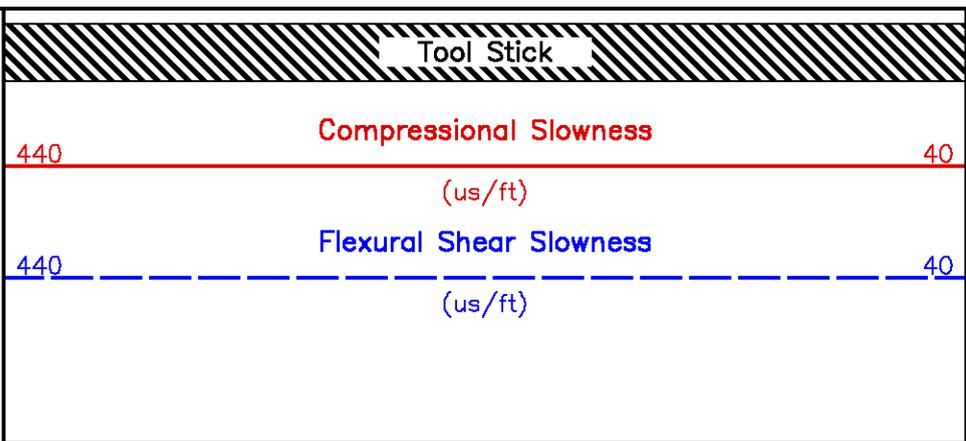
DATA MAY BE UNRELIABLE IN AREAS OF TENSION PULLS & WASHOUT  
ANALYST: J. ADREON

### COMPRESSIONAL AND SHEAR WAVE SLOWNESS

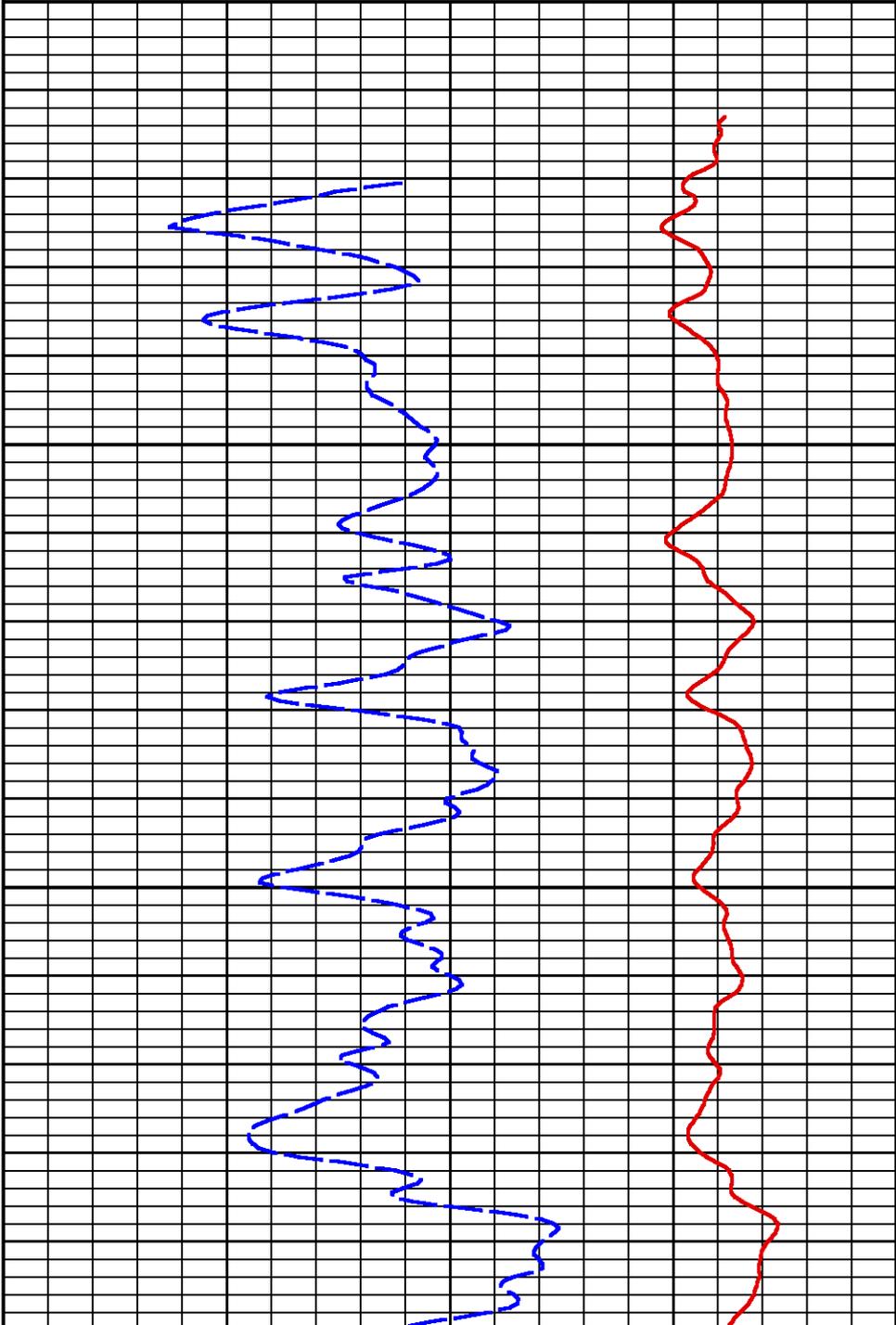
Data File 1 : F1 : sunserv24:/geos/lac/adrejosl/sierra\_xmac/xmac.xtf  
 Created On : Nov 15 12:51:25 2009  
 Company : SIERRA GEOTHERMAL POWER, INC.  
 Well : ALUM 25-29  
 Field : ALUM  
 File Interval : 472.5 - 2316 Feet  
 Oct : k7711



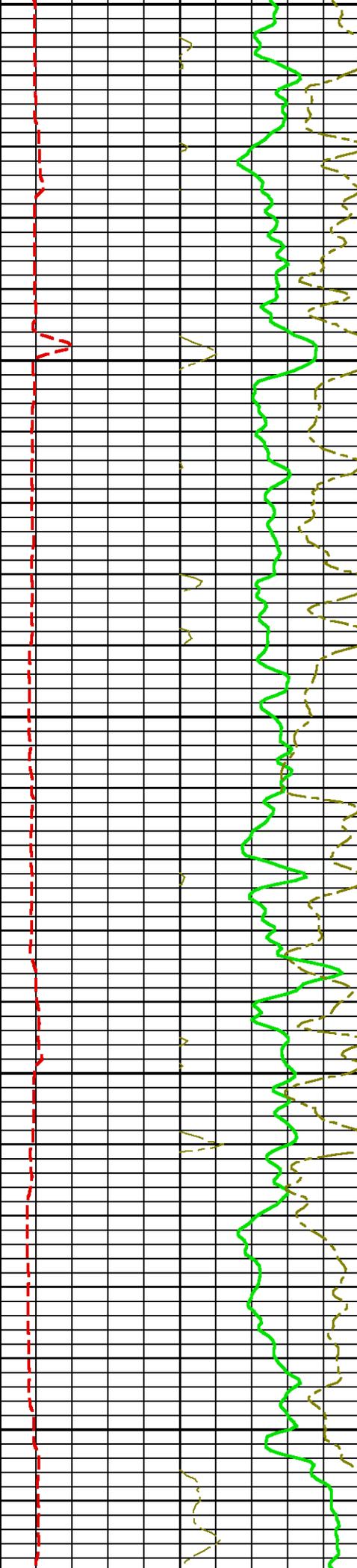
FEET



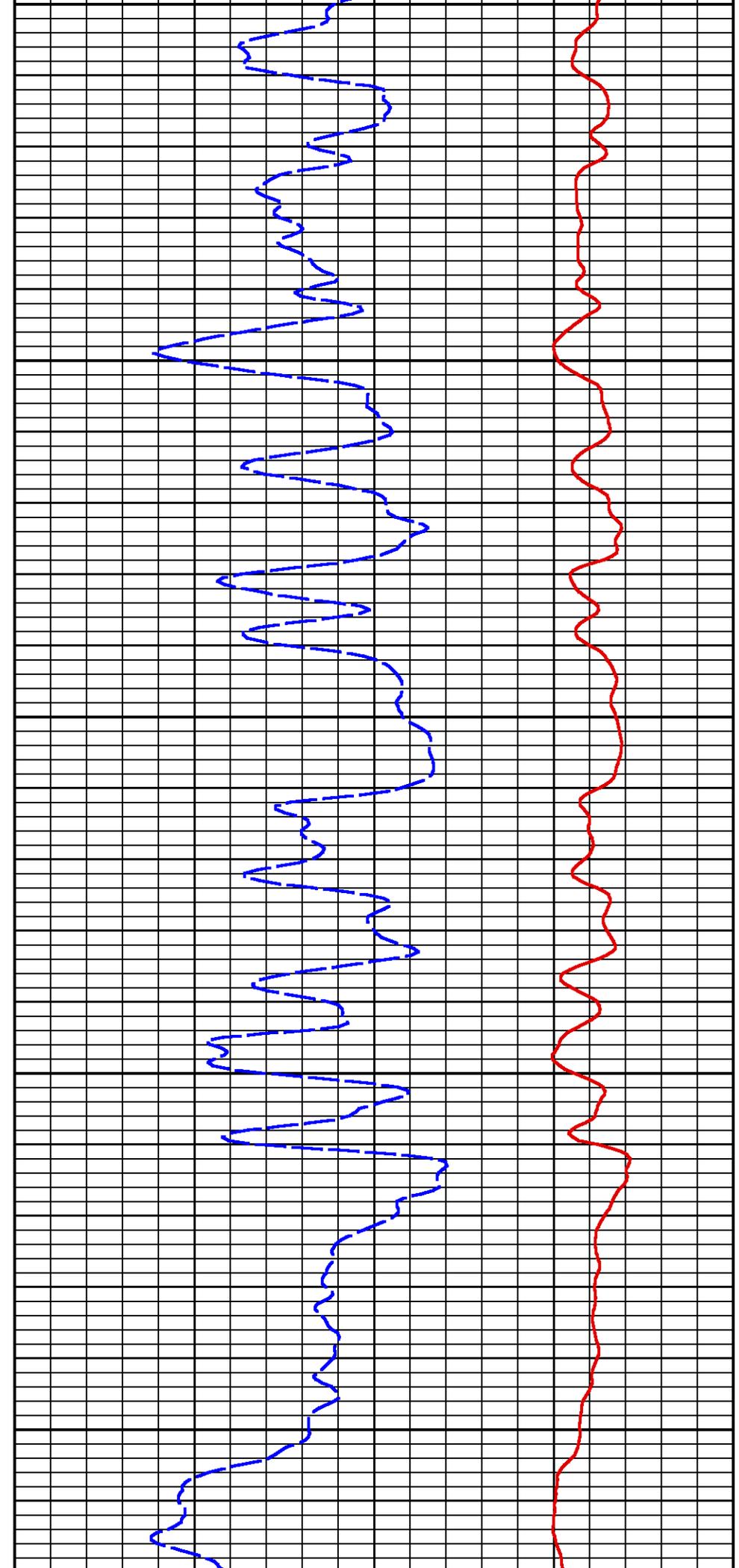
600

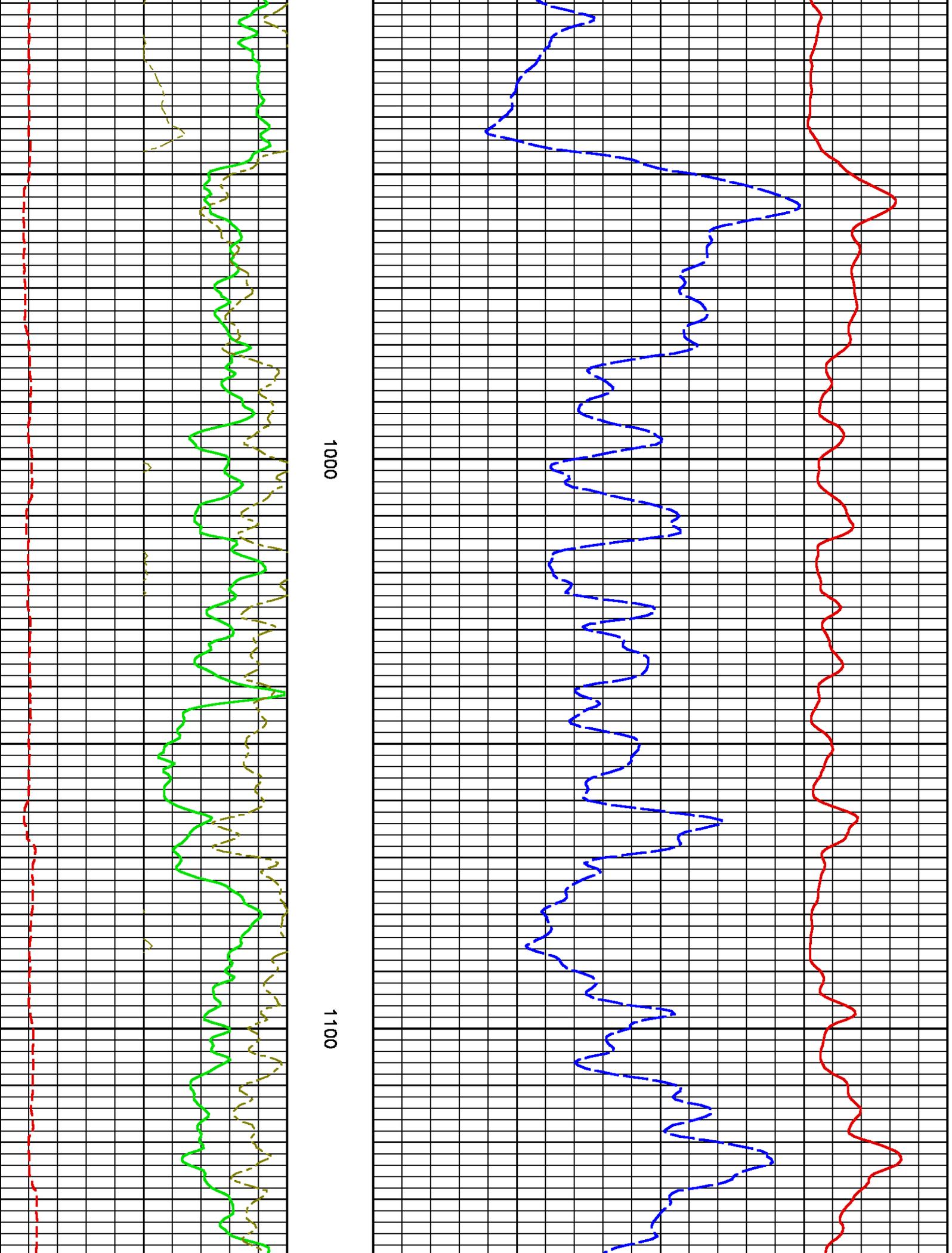


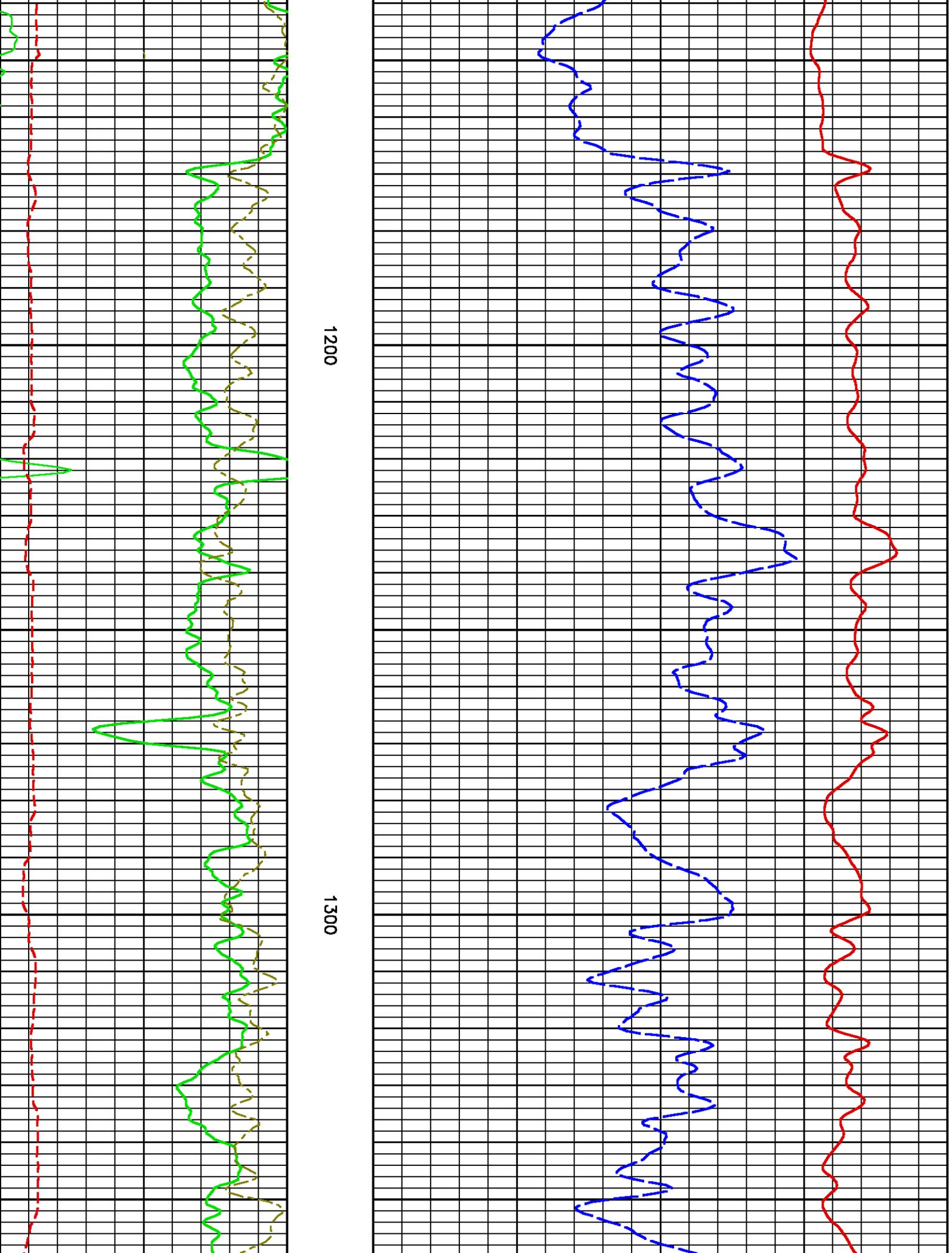
7



006 000

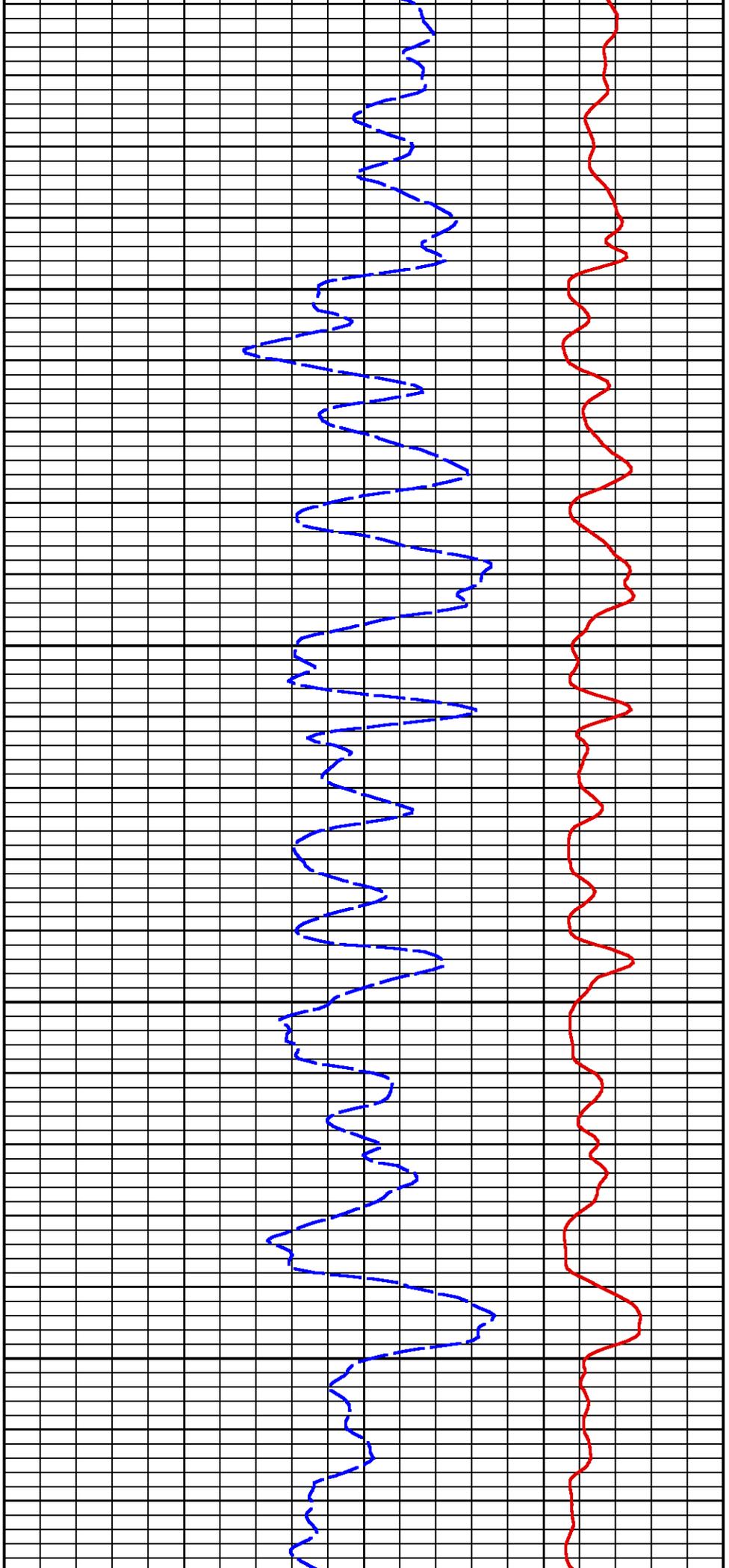






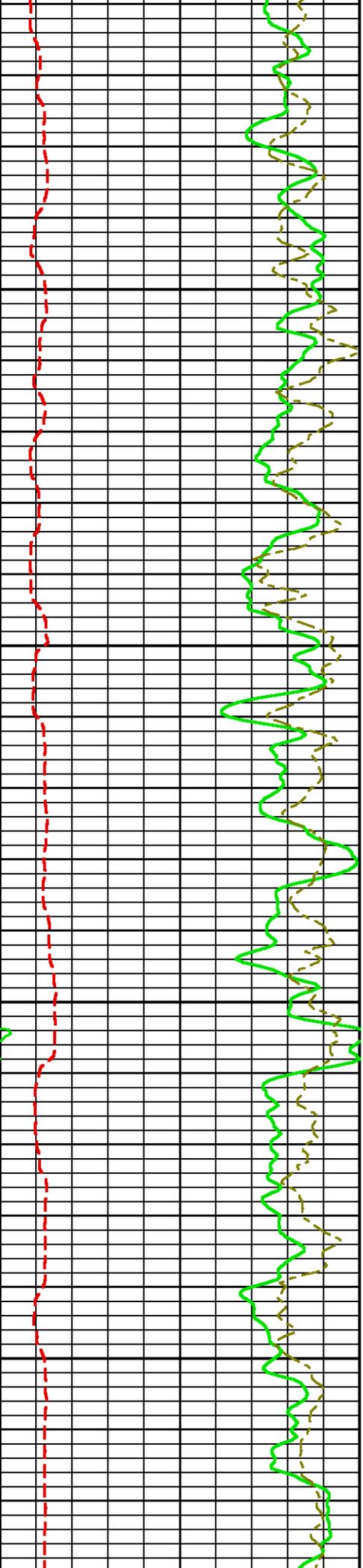
1200

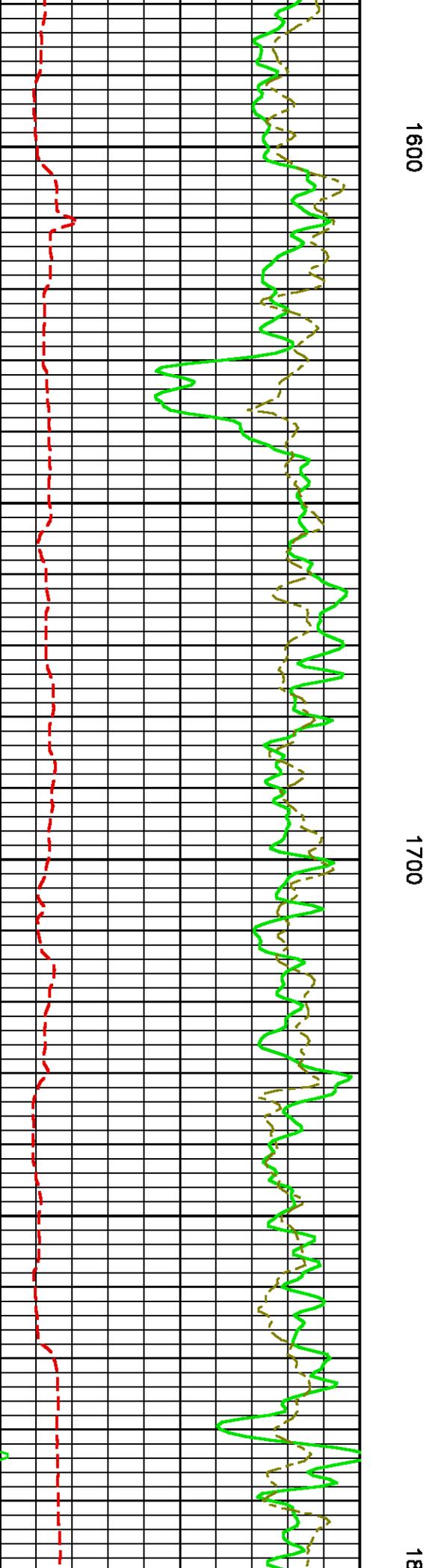
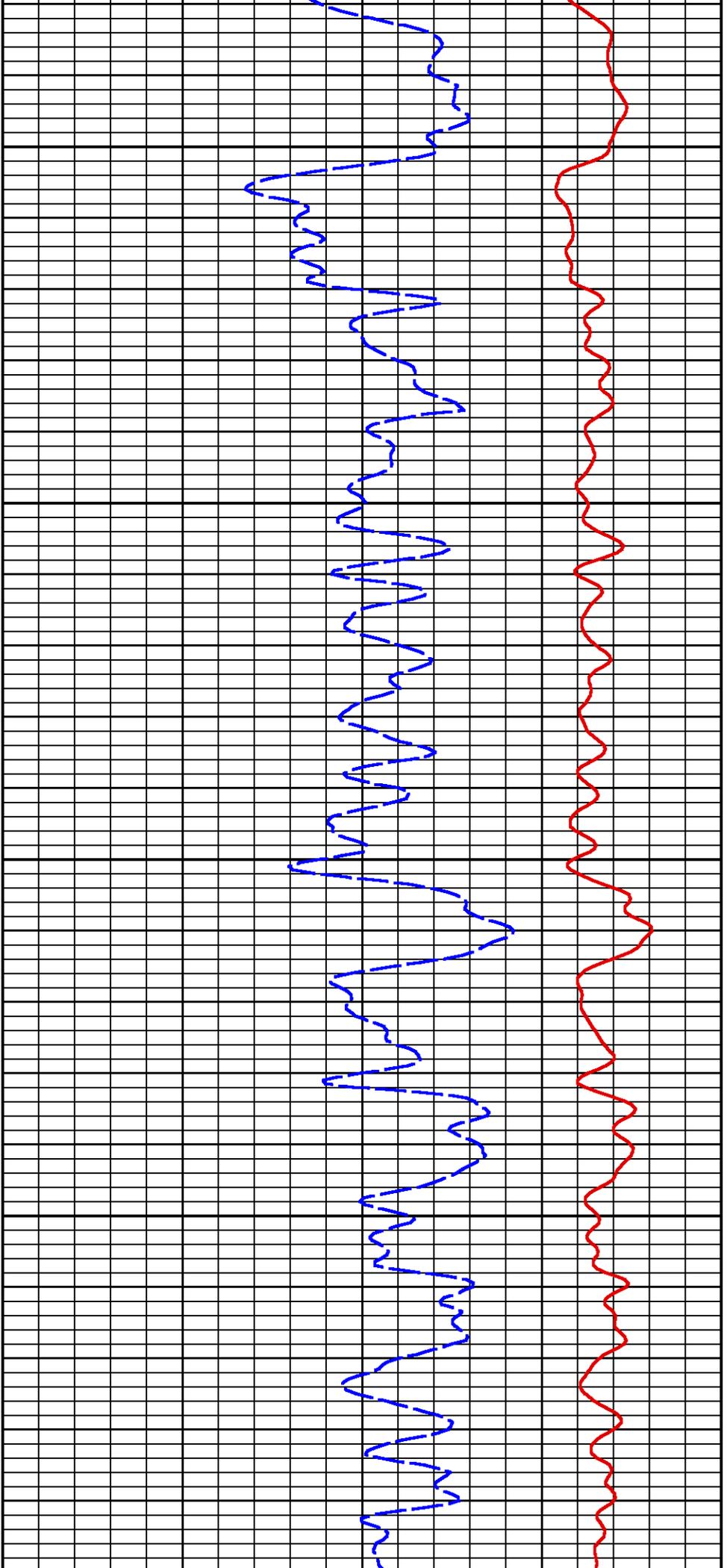
1300

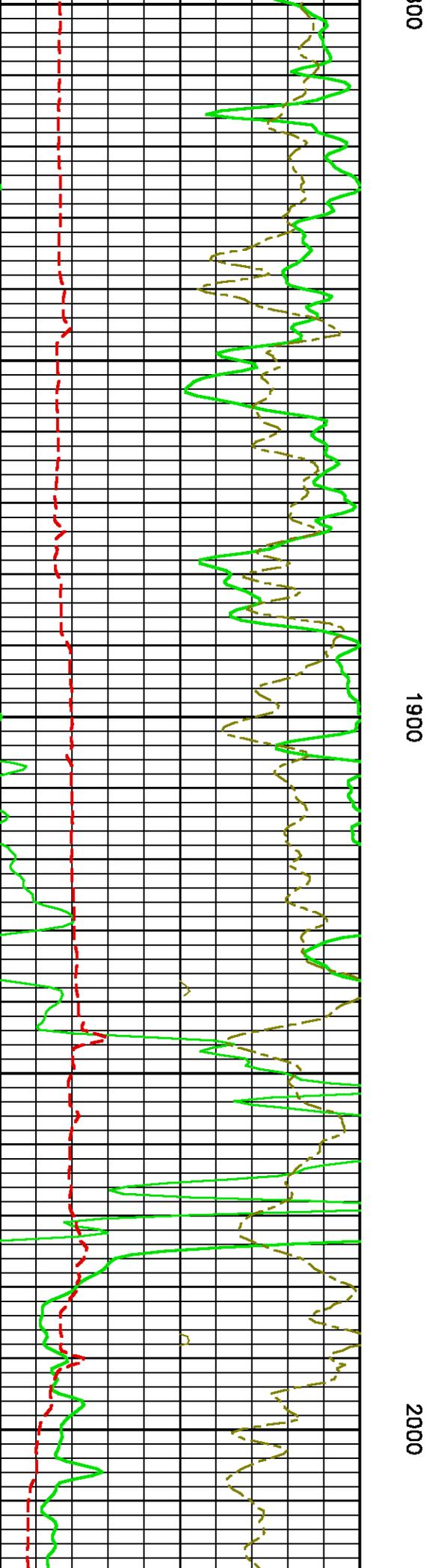
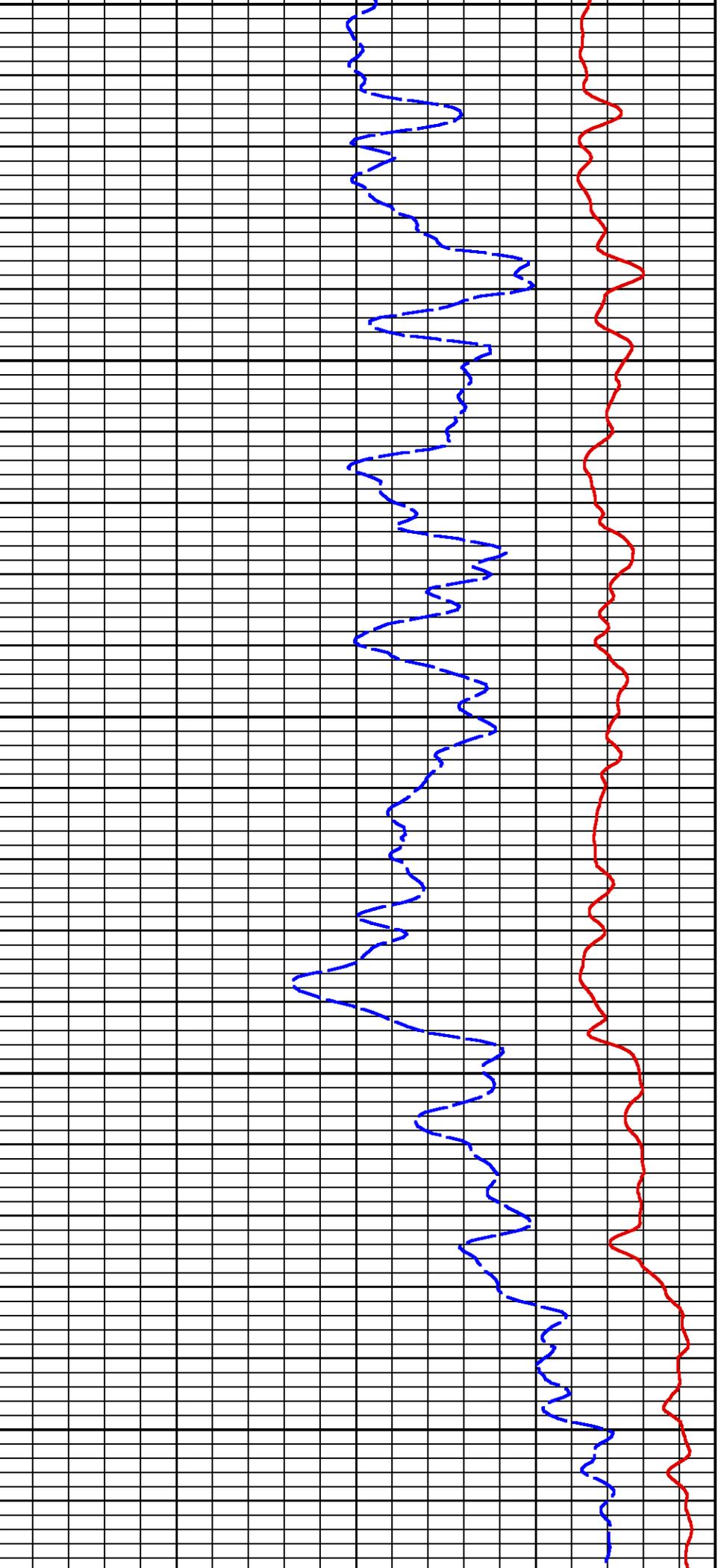


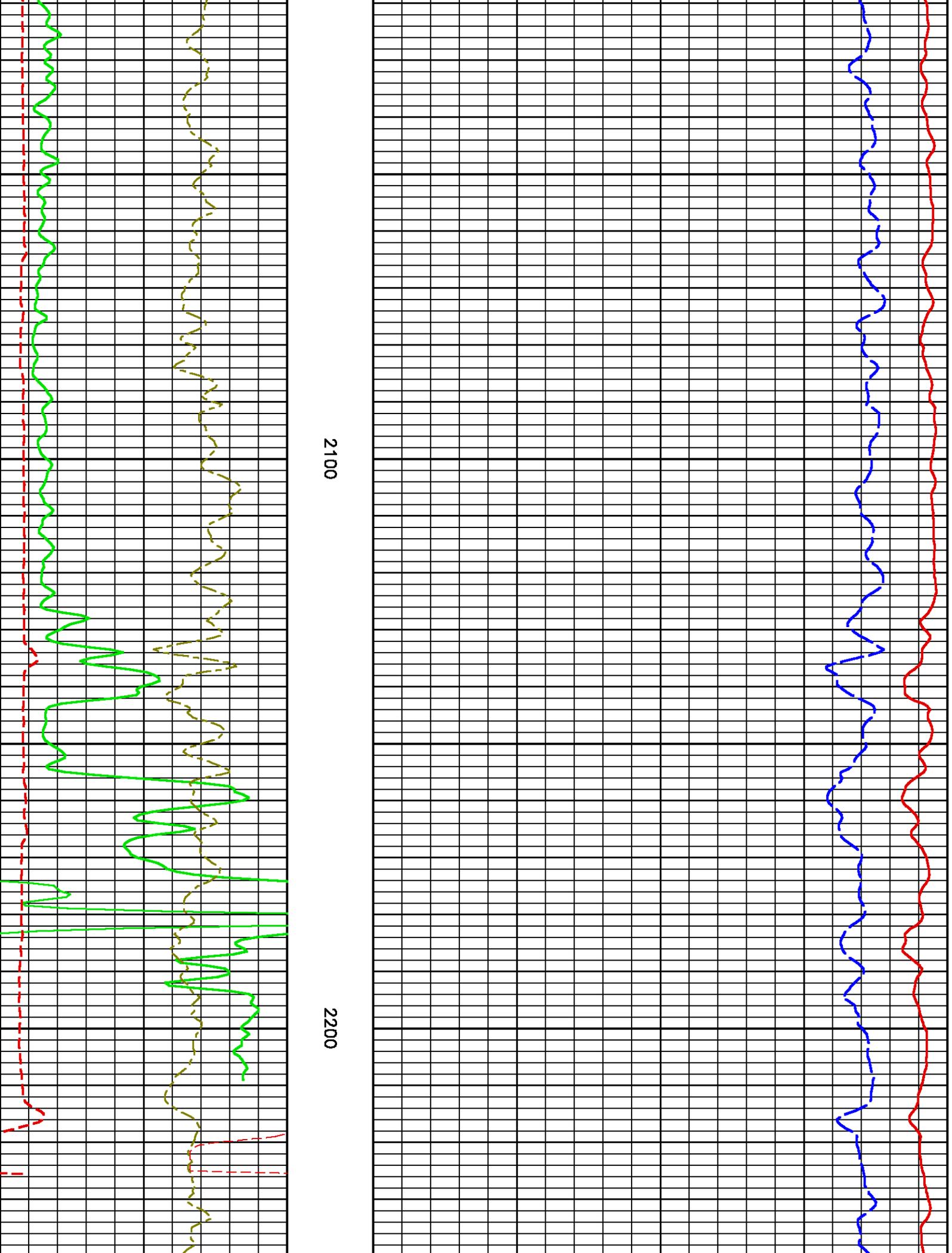
1400

1500



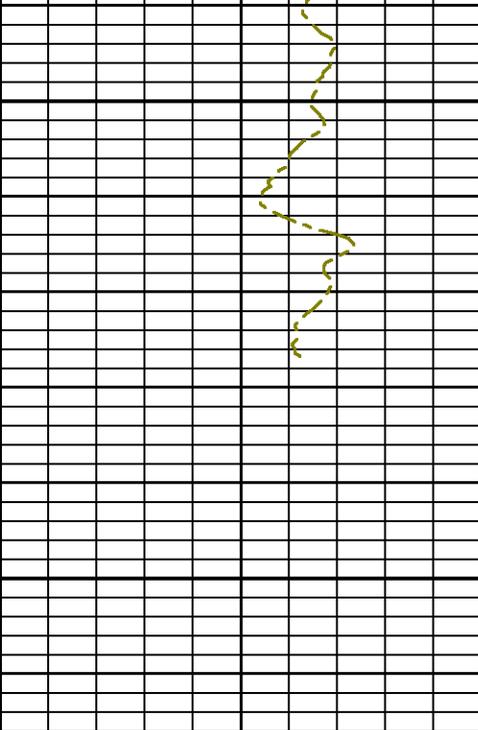






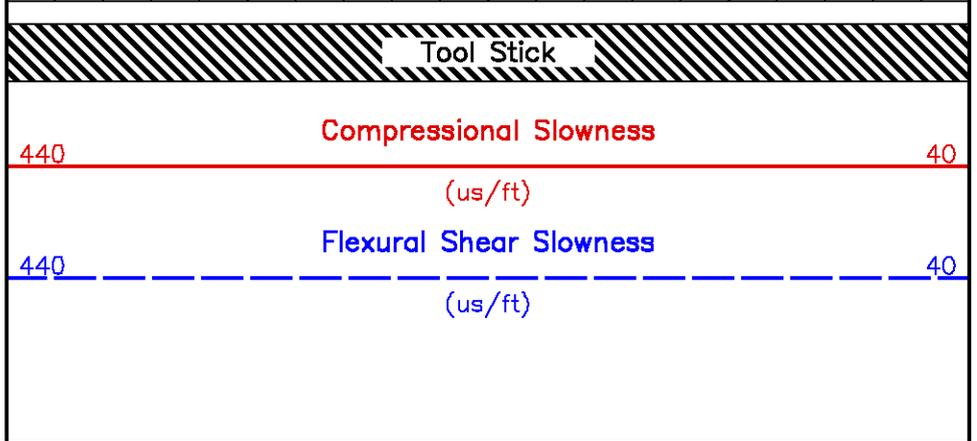
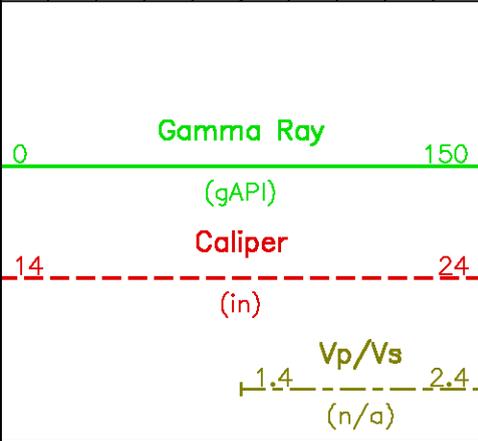
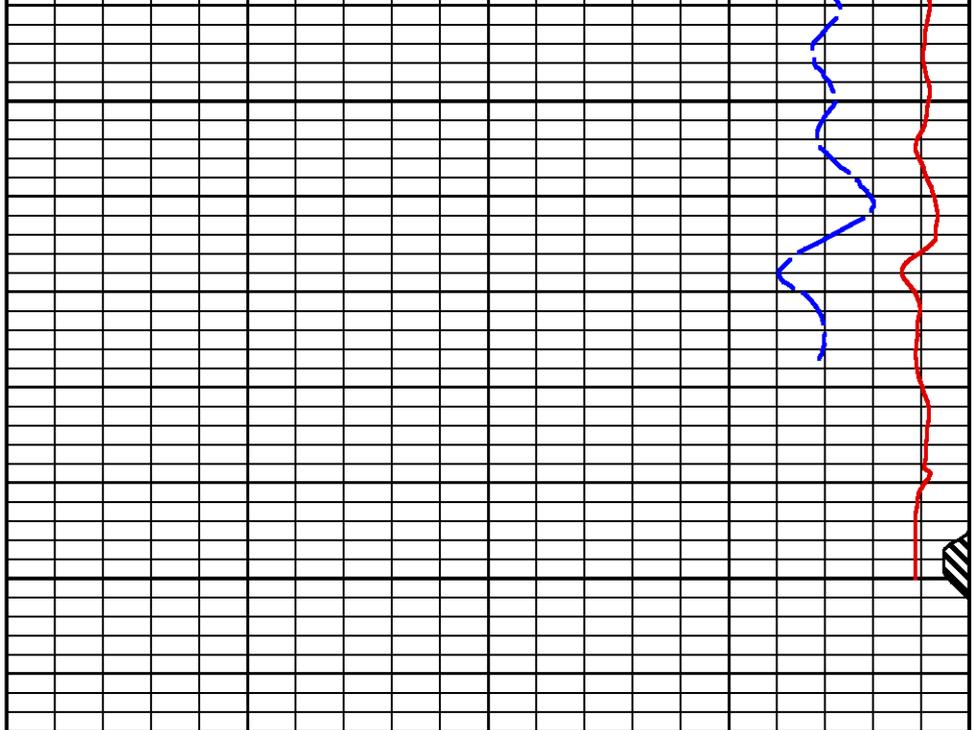
2100

2200



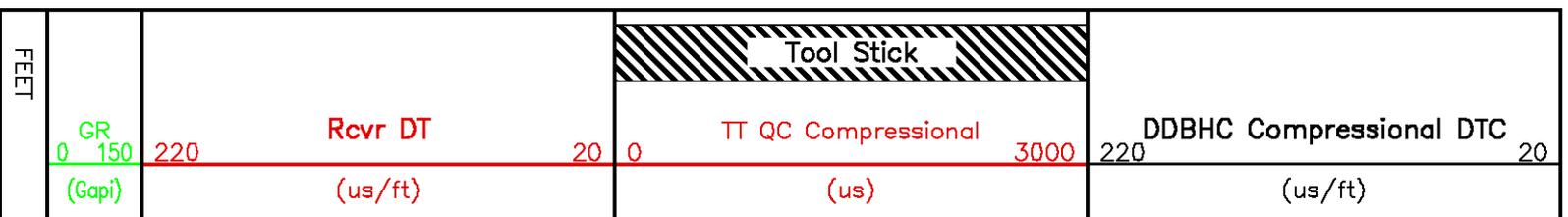
2300

FEET



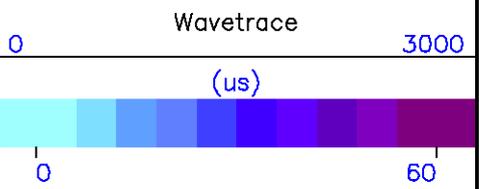
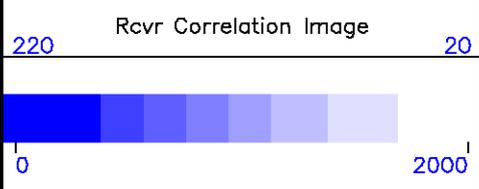
# MONOPOLE QC PLOT

**Project** : /geos/lac/adrejosl/sierra\_xmac  
**User** : adrejosl  
**Presentation** : sunserv24:/geos/lac/adrejosl/sierra\_xmac/monopi.pdf [5"/100' Scale]  
**Plot Interval** : 550 - 2316 Feet  
  
**Data File 1** : F1 : sunserv24:/geos/lac/adrejosl/sierra\_xmac/xmac.xtf  
**Created On** : Nov 15 12:51:25 2009  
**Company** : SIERRA GEOTHERMAL POWER, INC.  
**Well** : ALUM 25-29  
**Field** : ALUM  
**File Interval** : 472.5 - 2316 Feet  
**Oct** : k7711

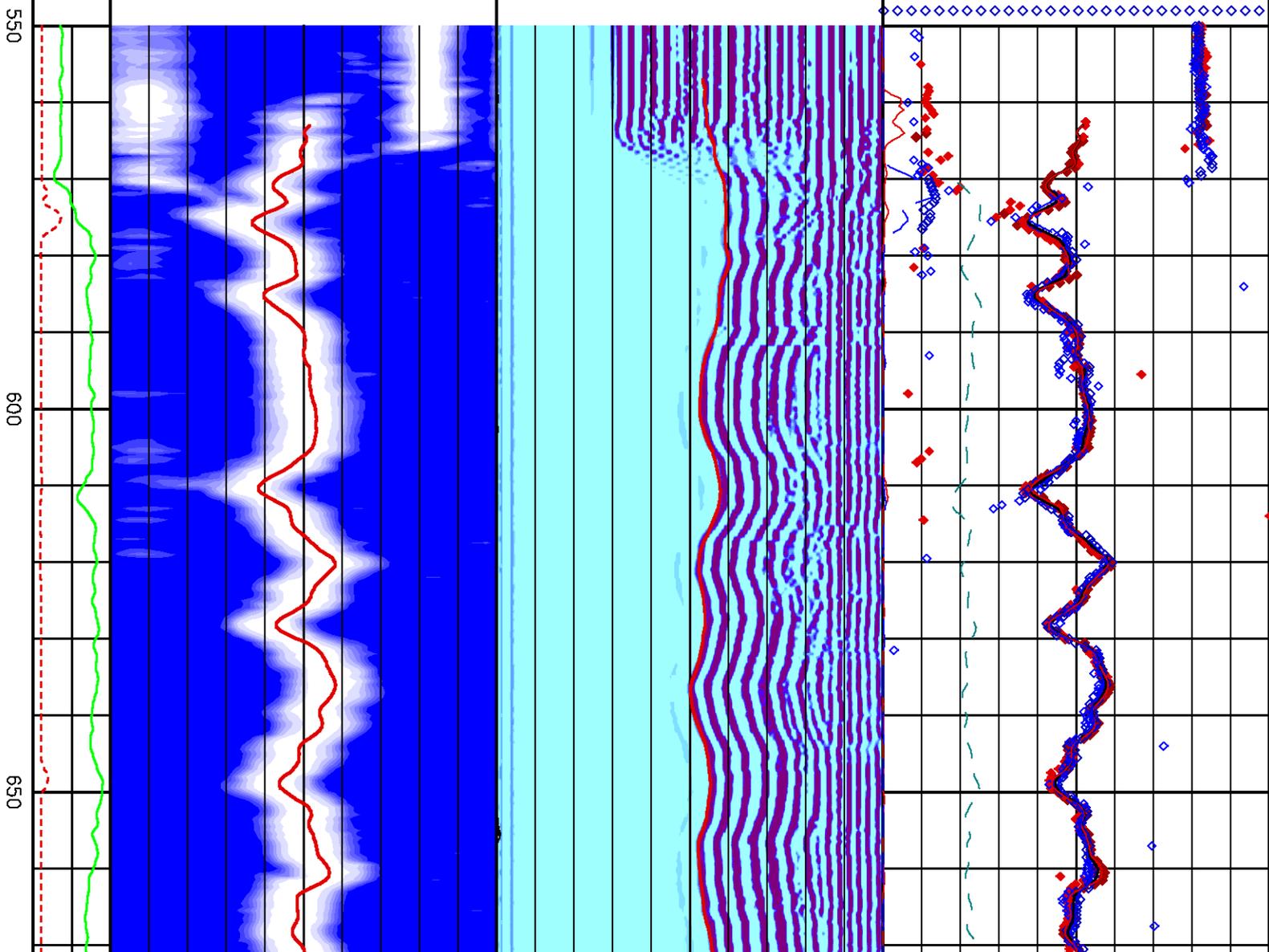


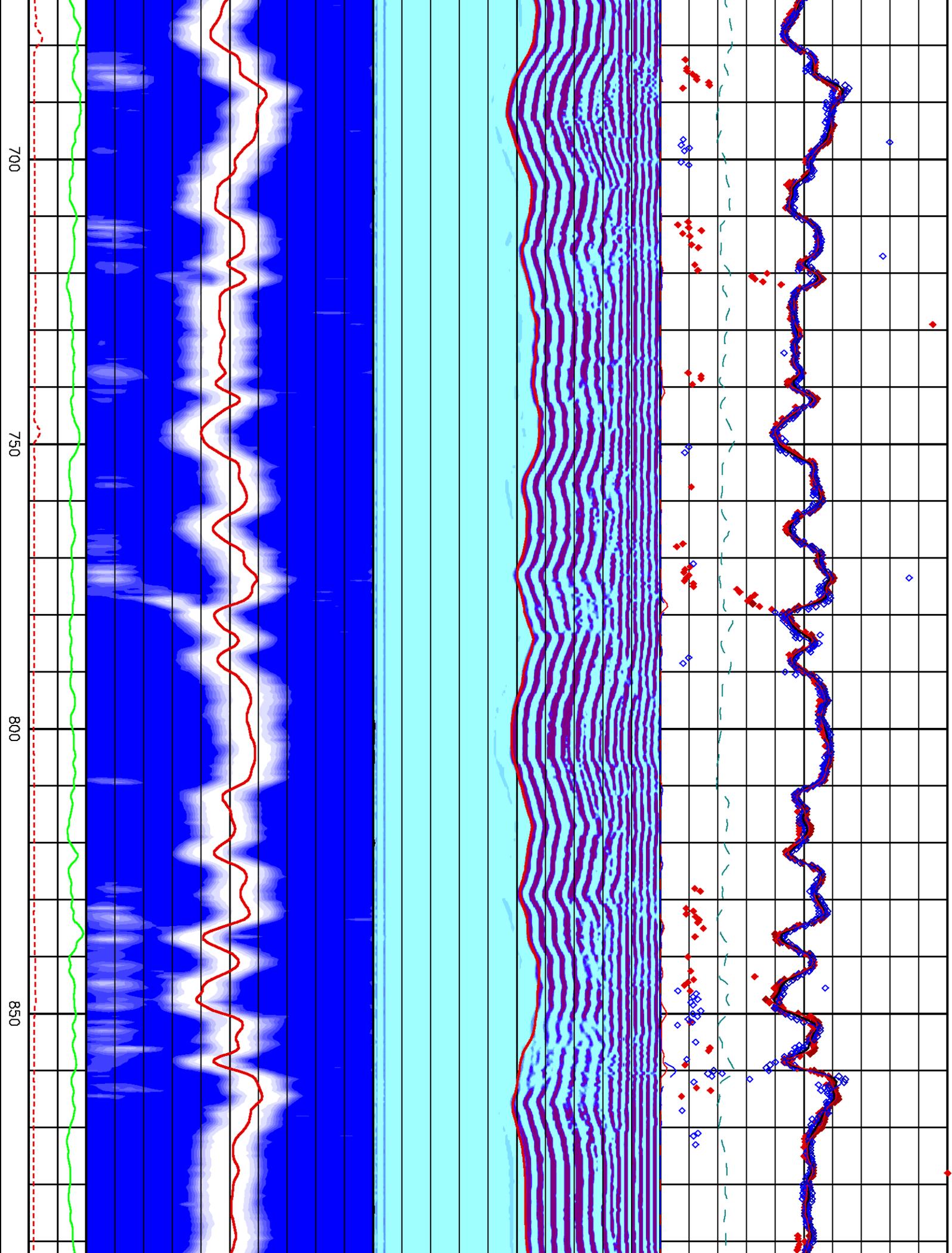
CAL  
14 24  
(in)

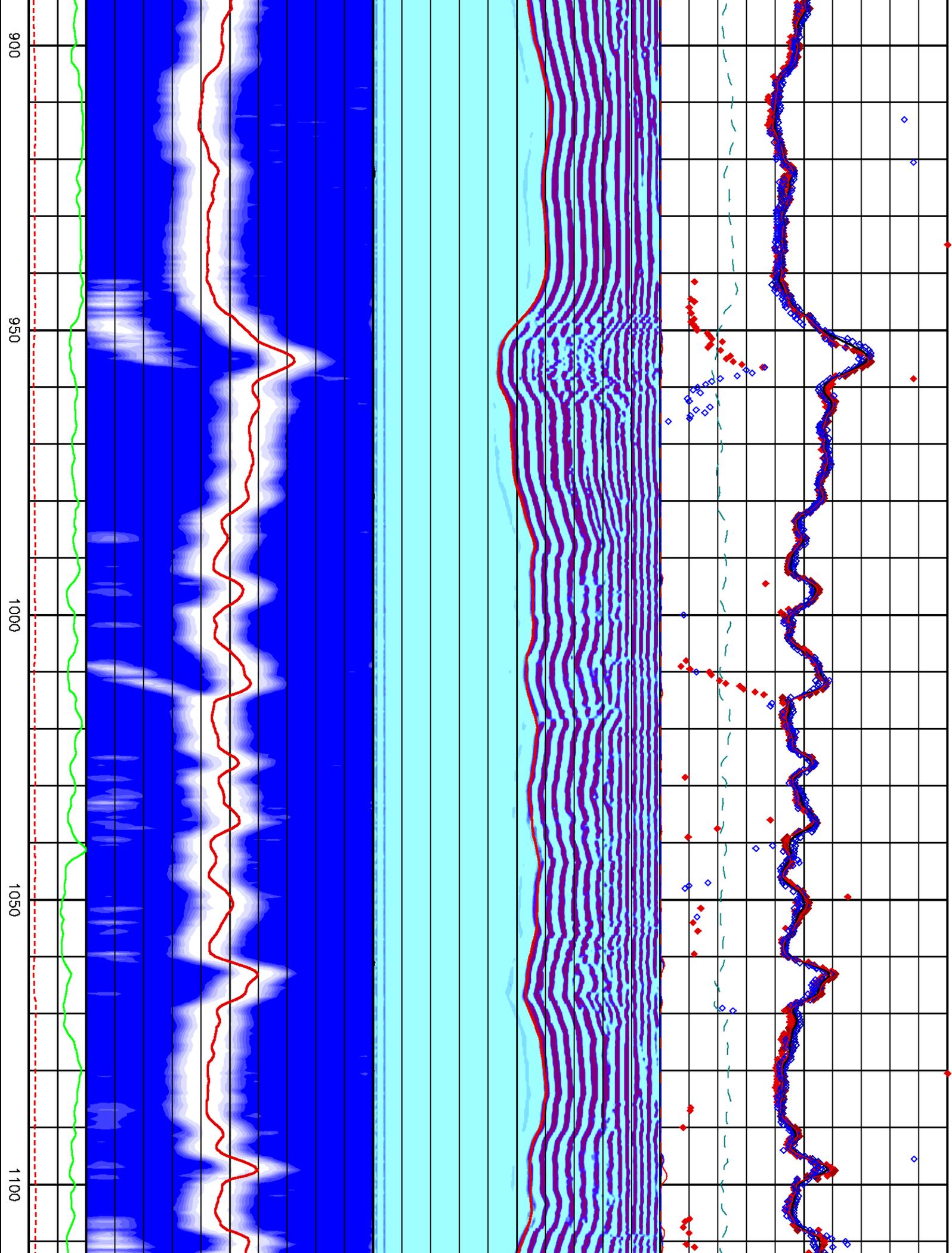
220 Rcvr DTC 20  
(us/ft)  
220 Xmtr DTC 20  
(us/ft)  
0  $\frac{Vp/Vs}{(n/a)}$  5  
R-Qu  
1 0  
X-Qu  
1 0

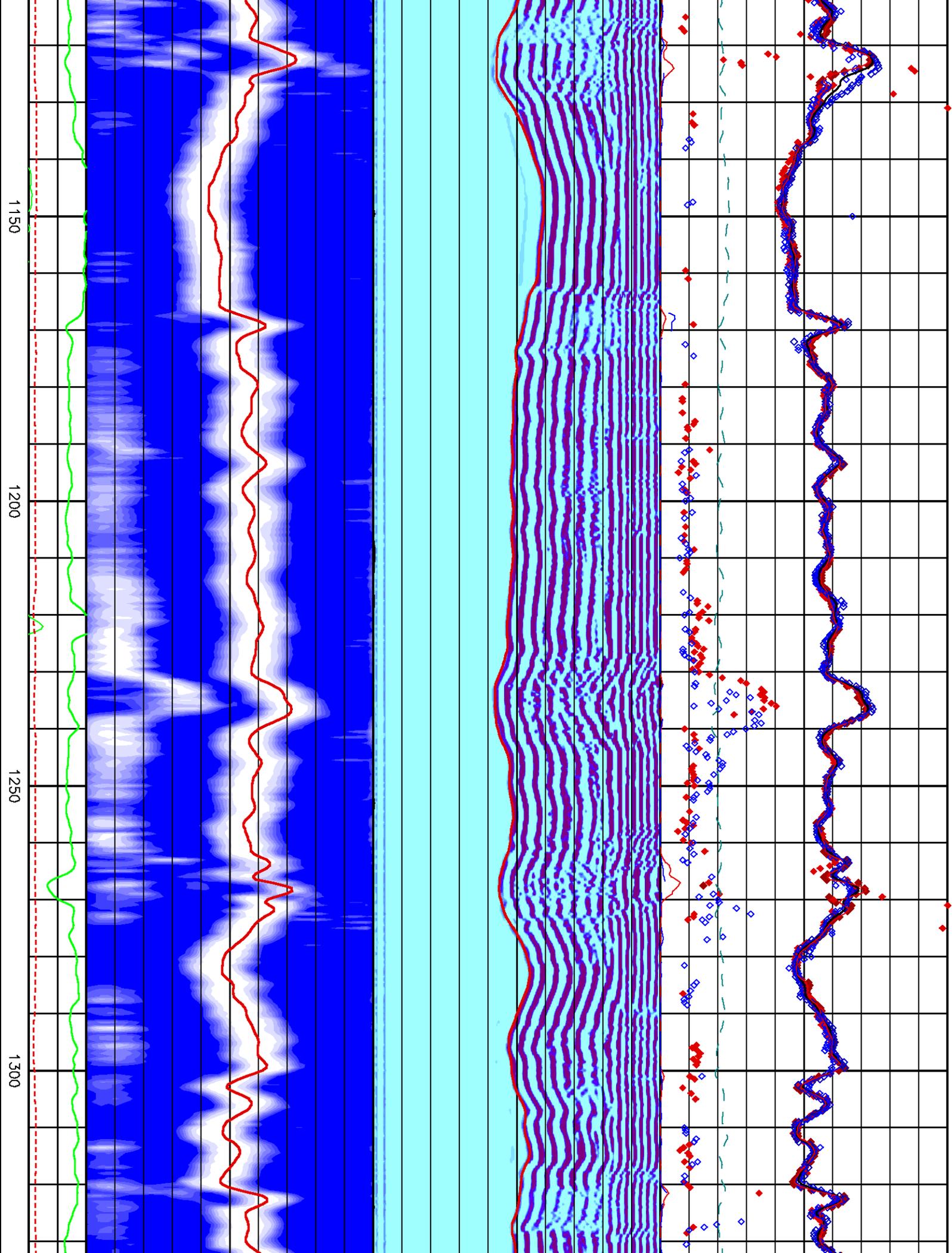


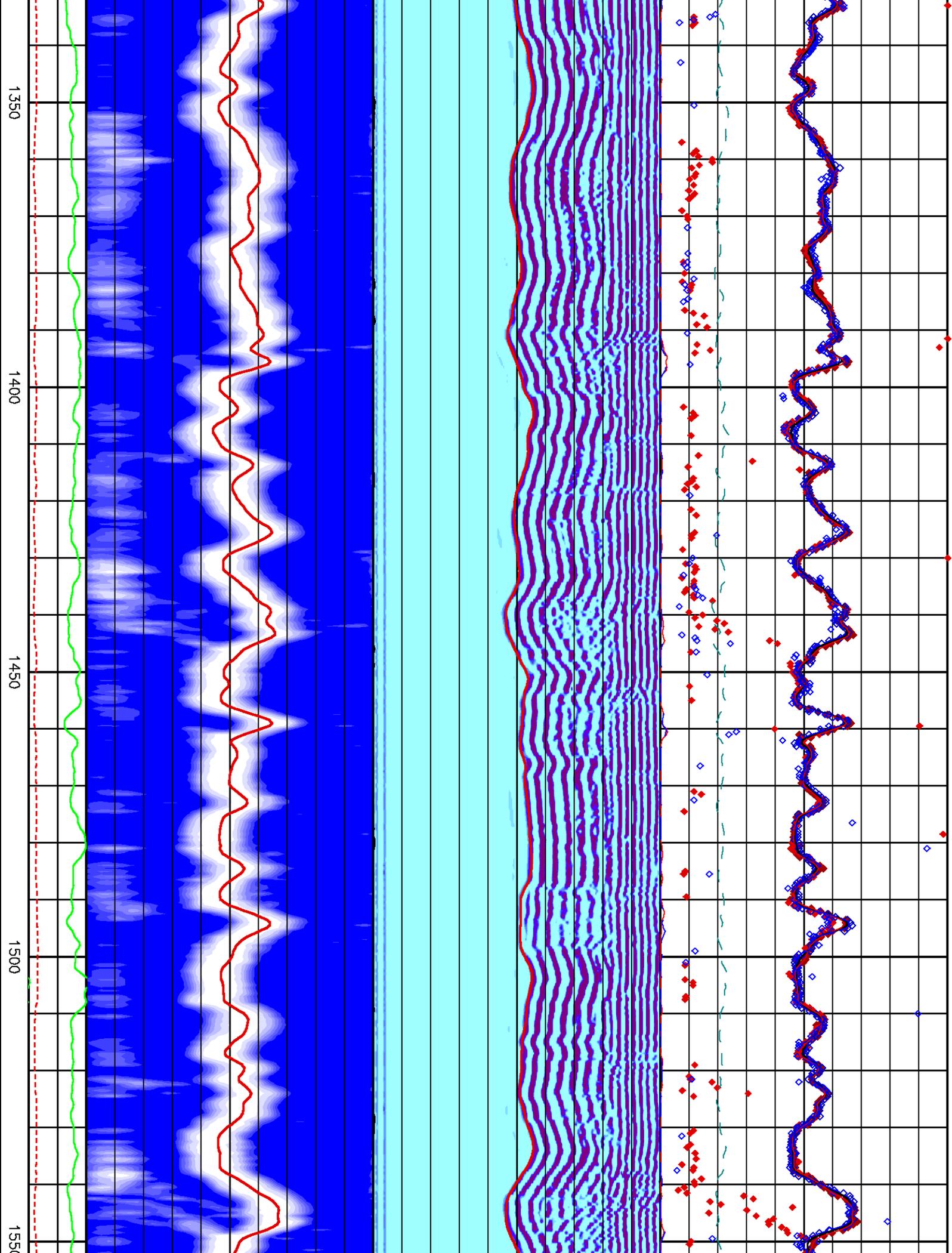
220 Rcvr Correlogram Peaks 20  
220 Xmtr Correlogram Peaks 20

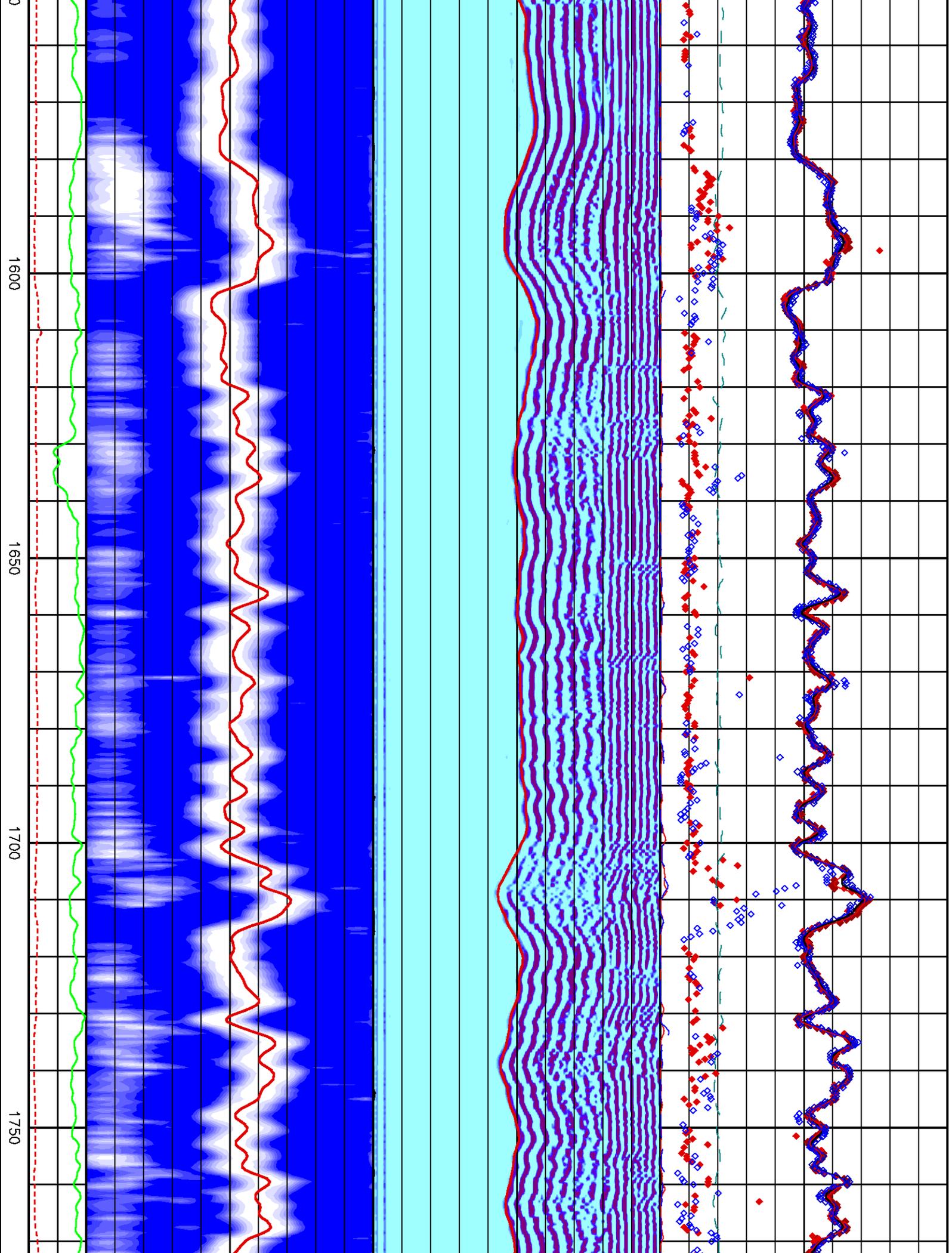


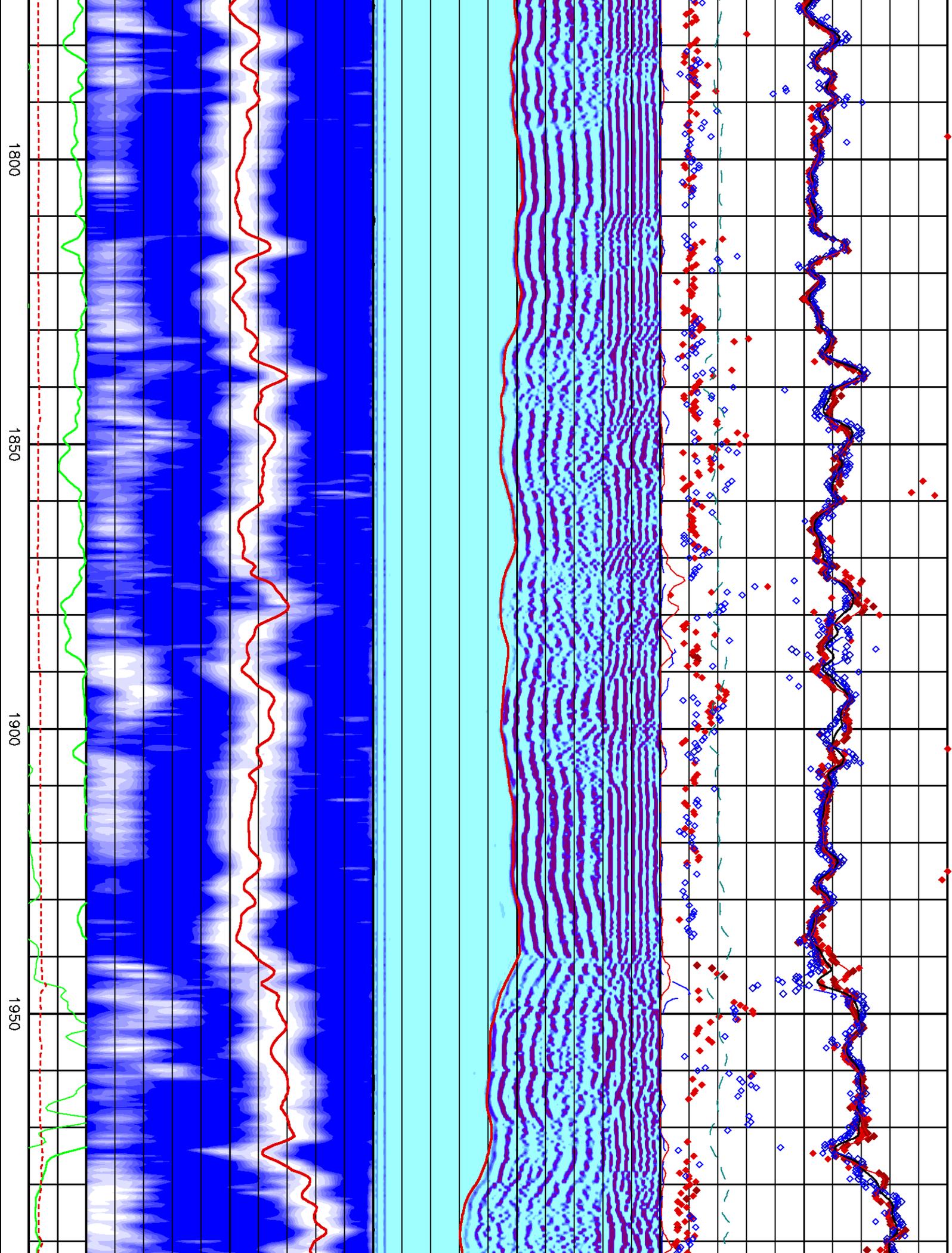


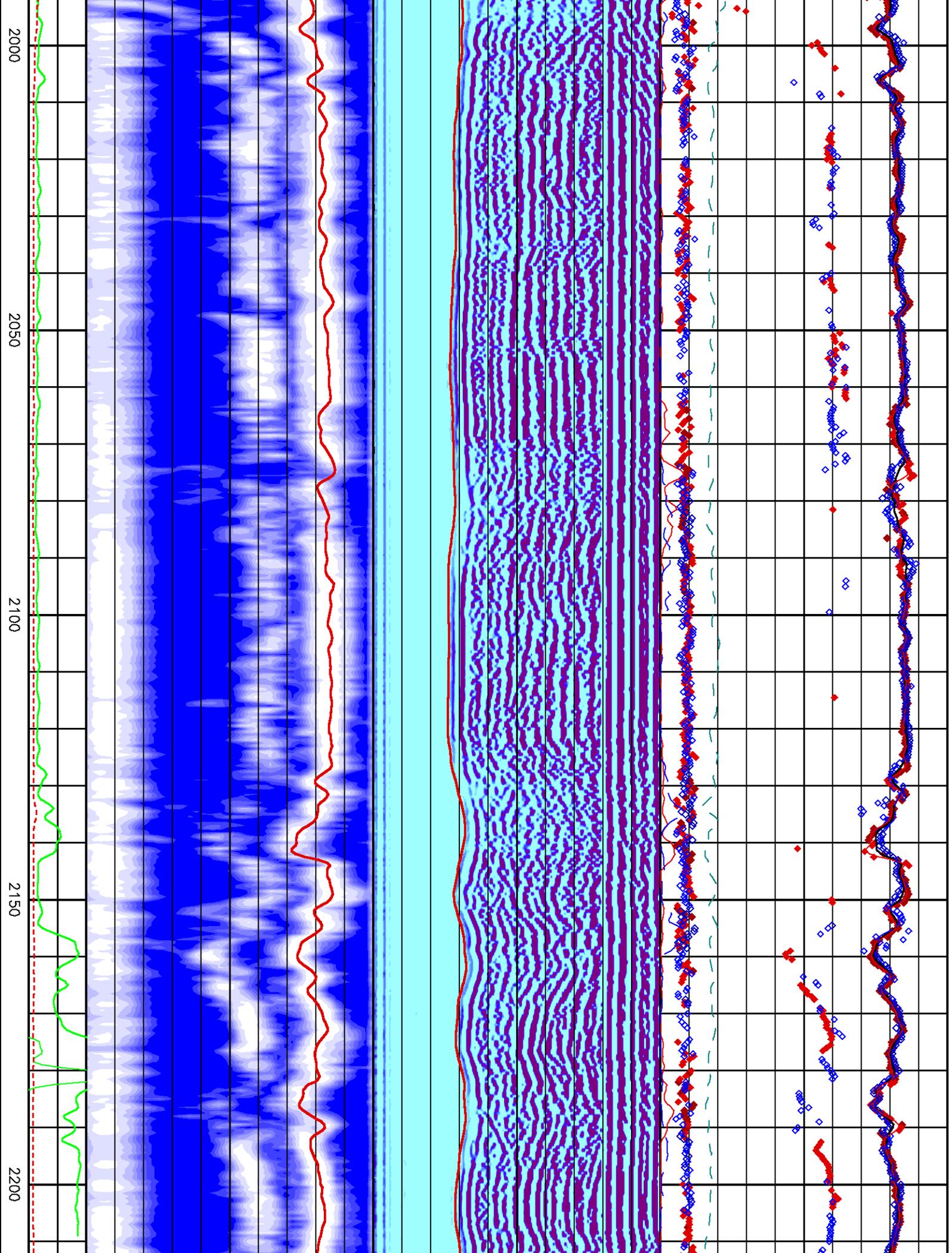


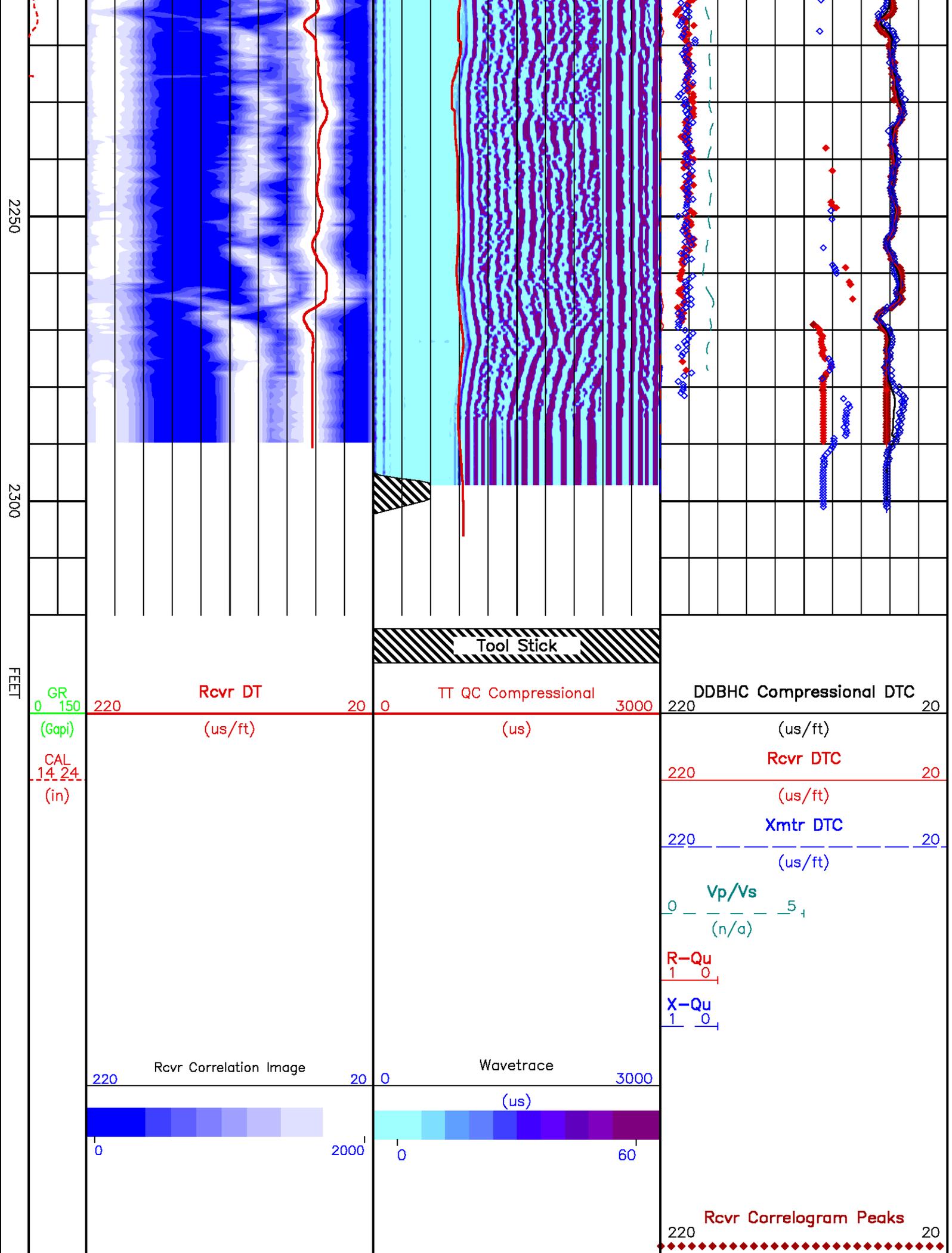






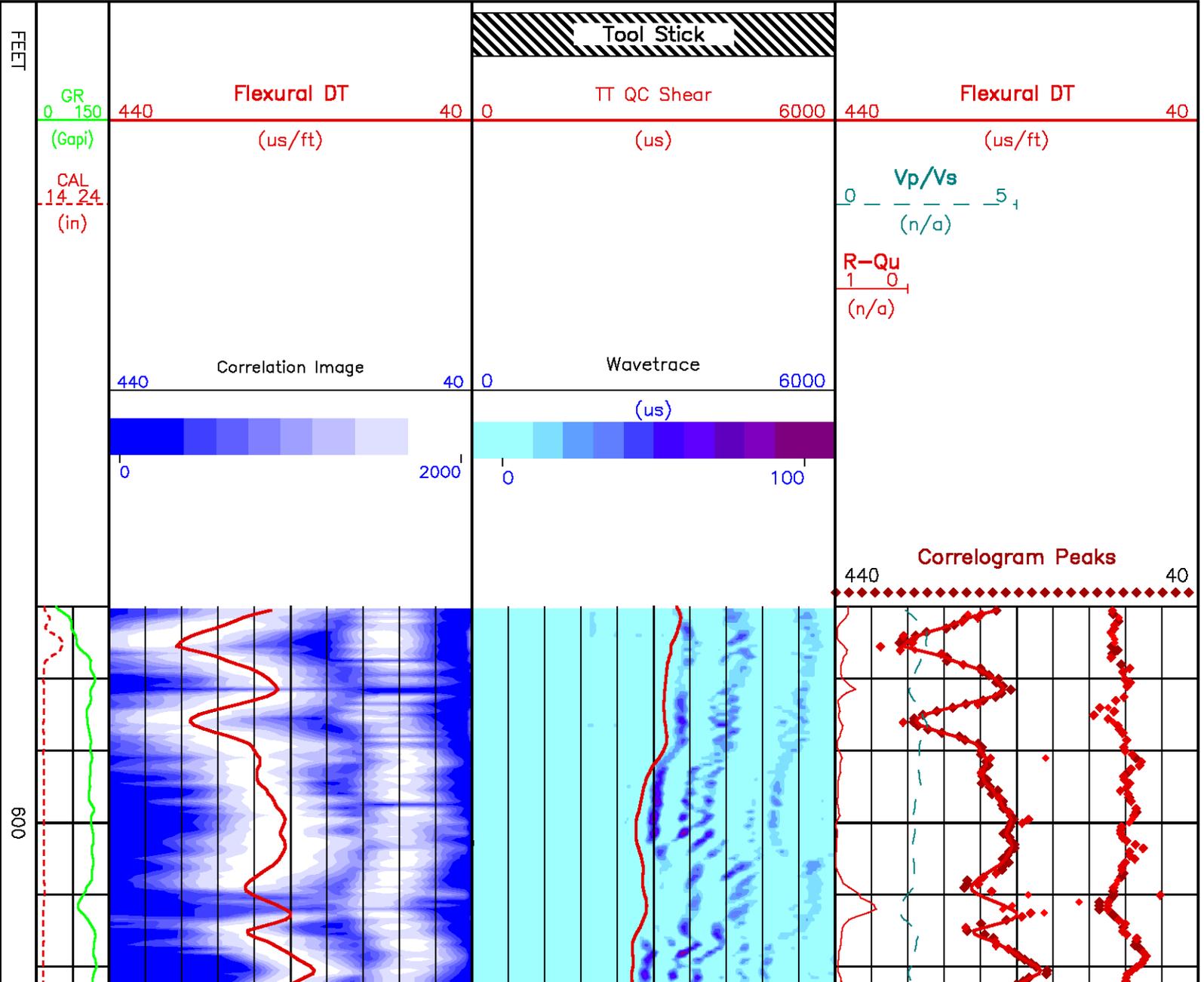


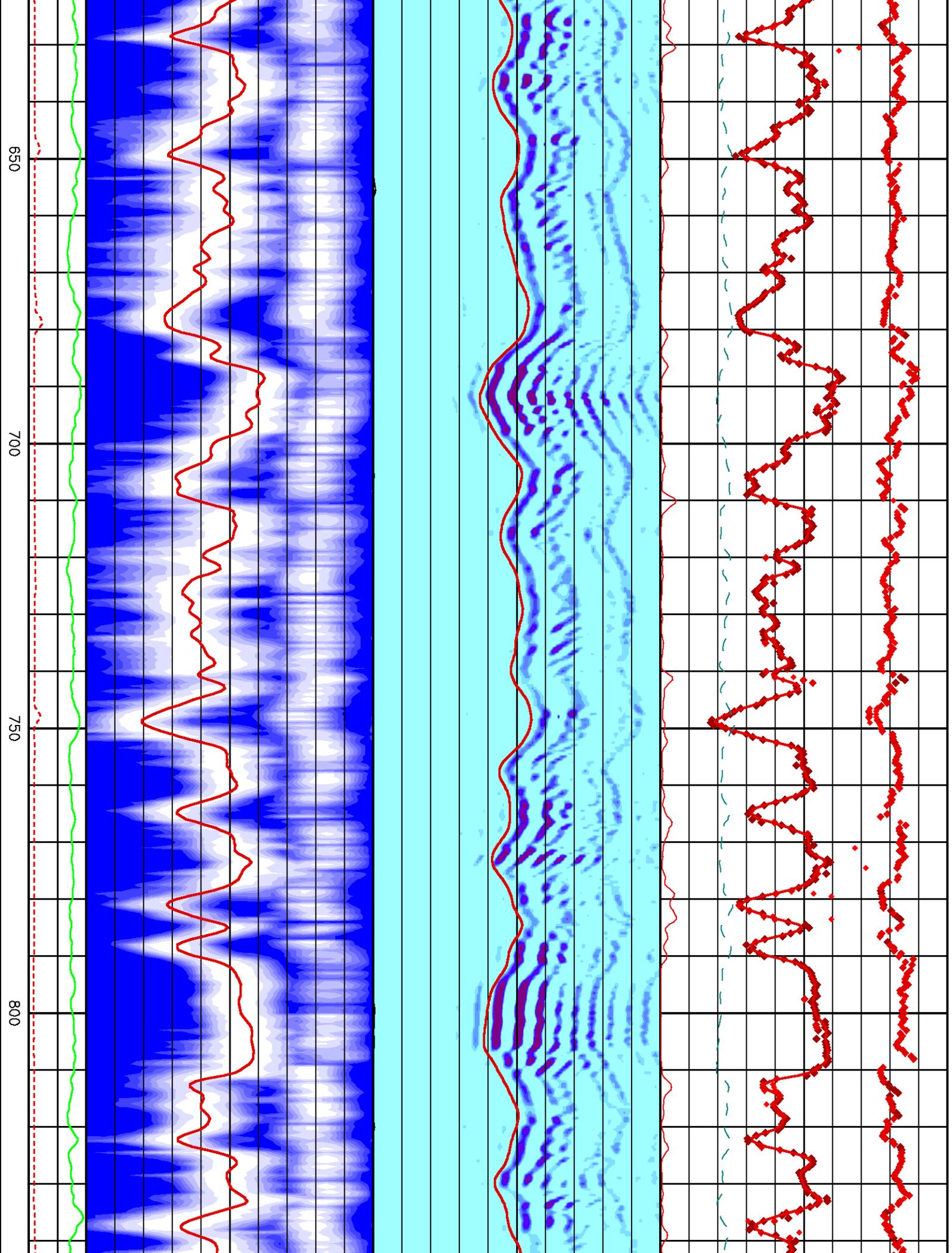


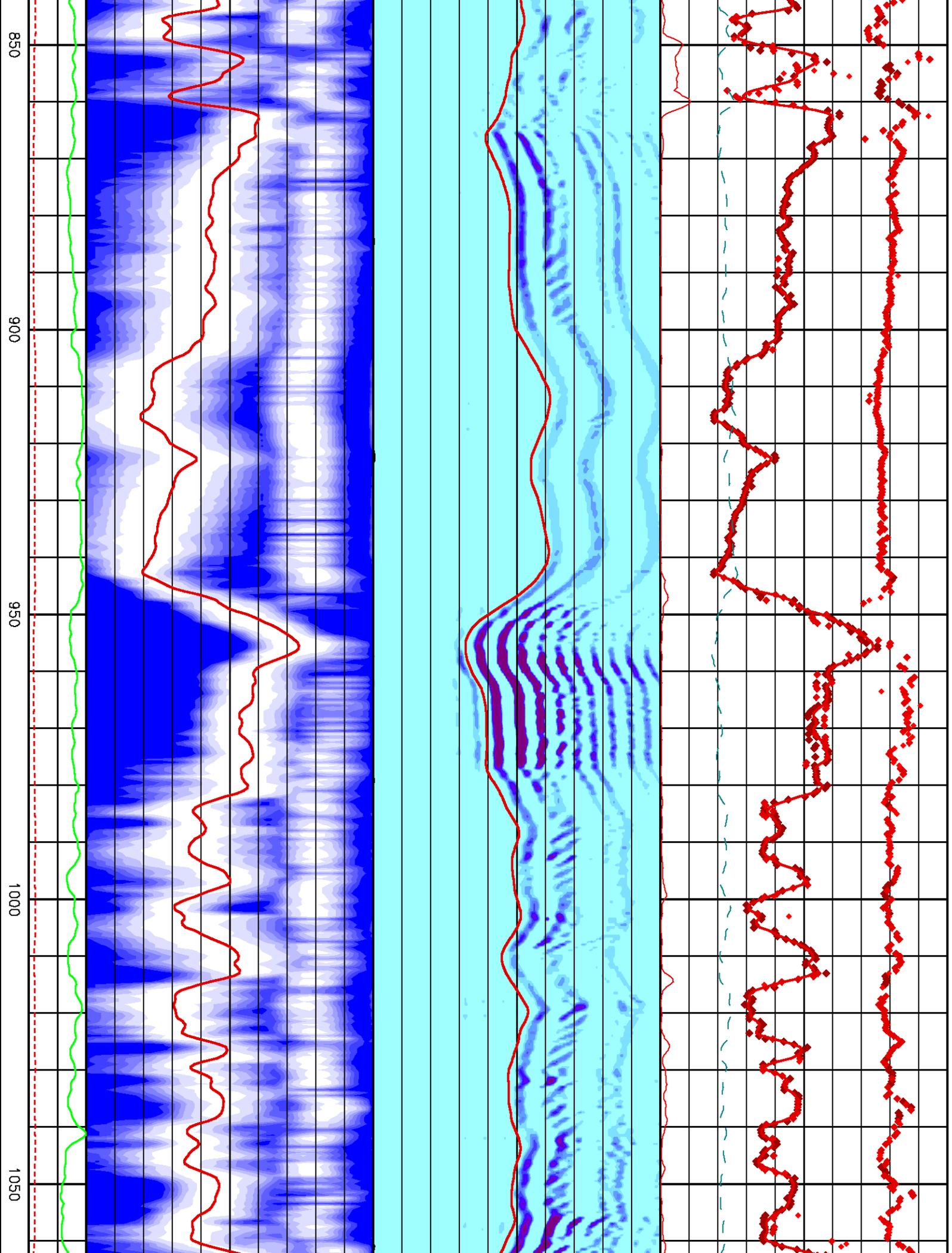


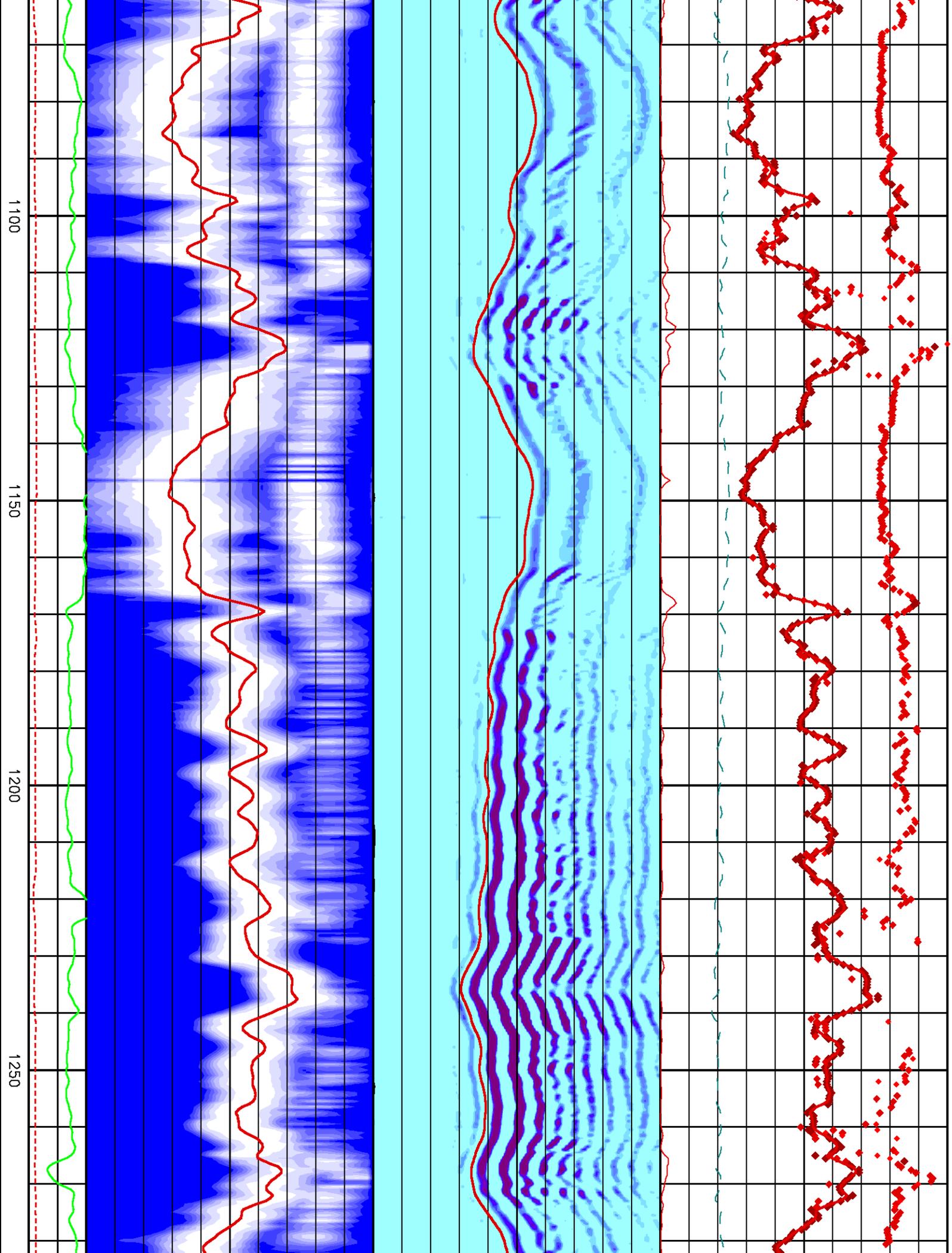
# DIPOLE QC PLOT

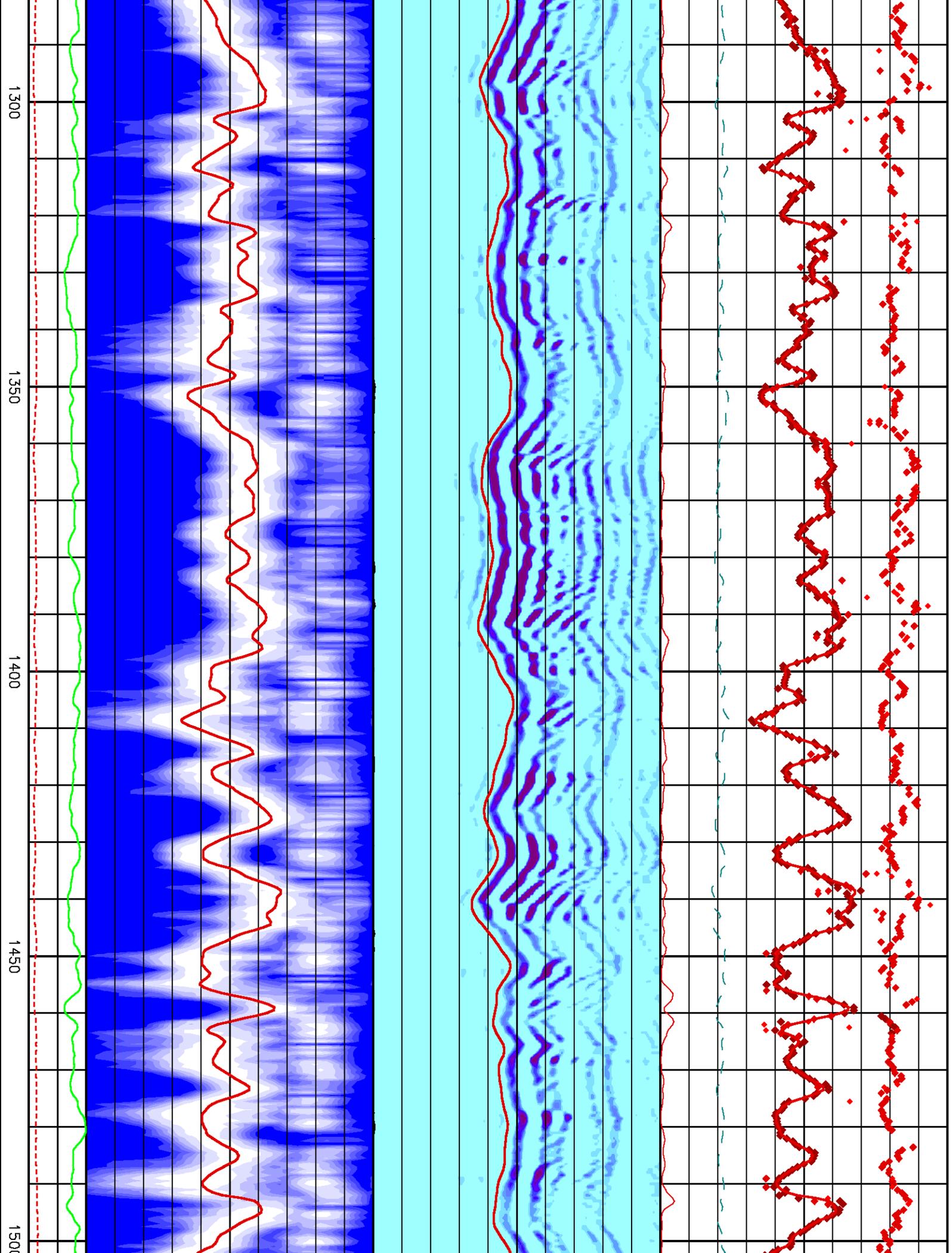
**Project** : /geos/lac/adrejosl/sierra\_xmac  
**User** : adrejosl  
**Presentation** : sunserv24:/geos/lac/adrejosl/sierra\_xmac/dipoll.pdf [5"/100' Scale]  
**Plot Interval** : 570 - 2316 Feet  
  
**Data File 1** : F1 : sunserv24:/geos/lac/adrejosl/sierra\_xmac/xmac.xtf  
**Created On** : Nov 15 12:51:25 2009  
**Company** : SIERRA GEOTHERMAL POWER, INC.  
**Well** : ALUM 25-29  
**Field** : ALUM  
**File Interval** : 472.5 - 2316 Feet  
**Oct** : k7711

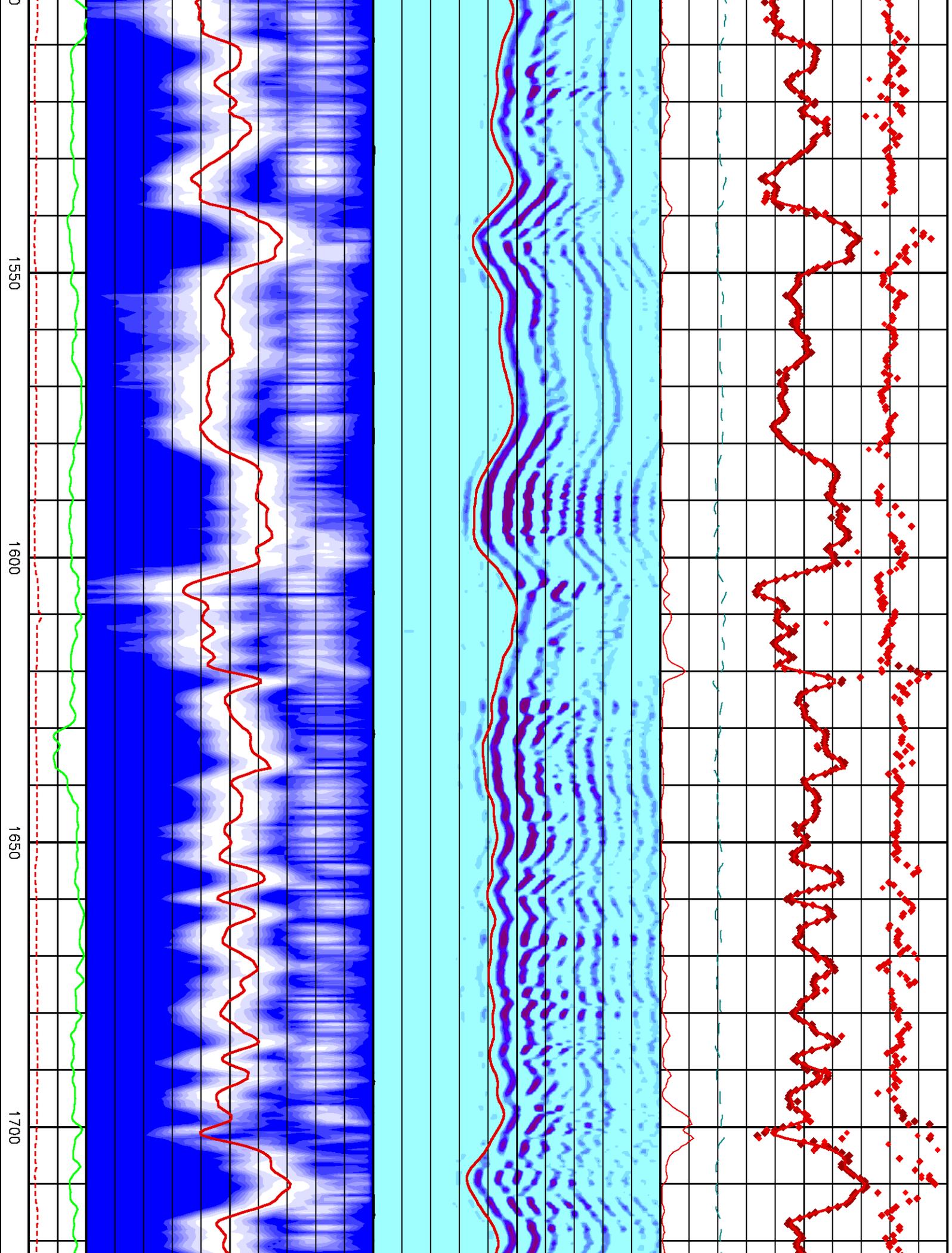


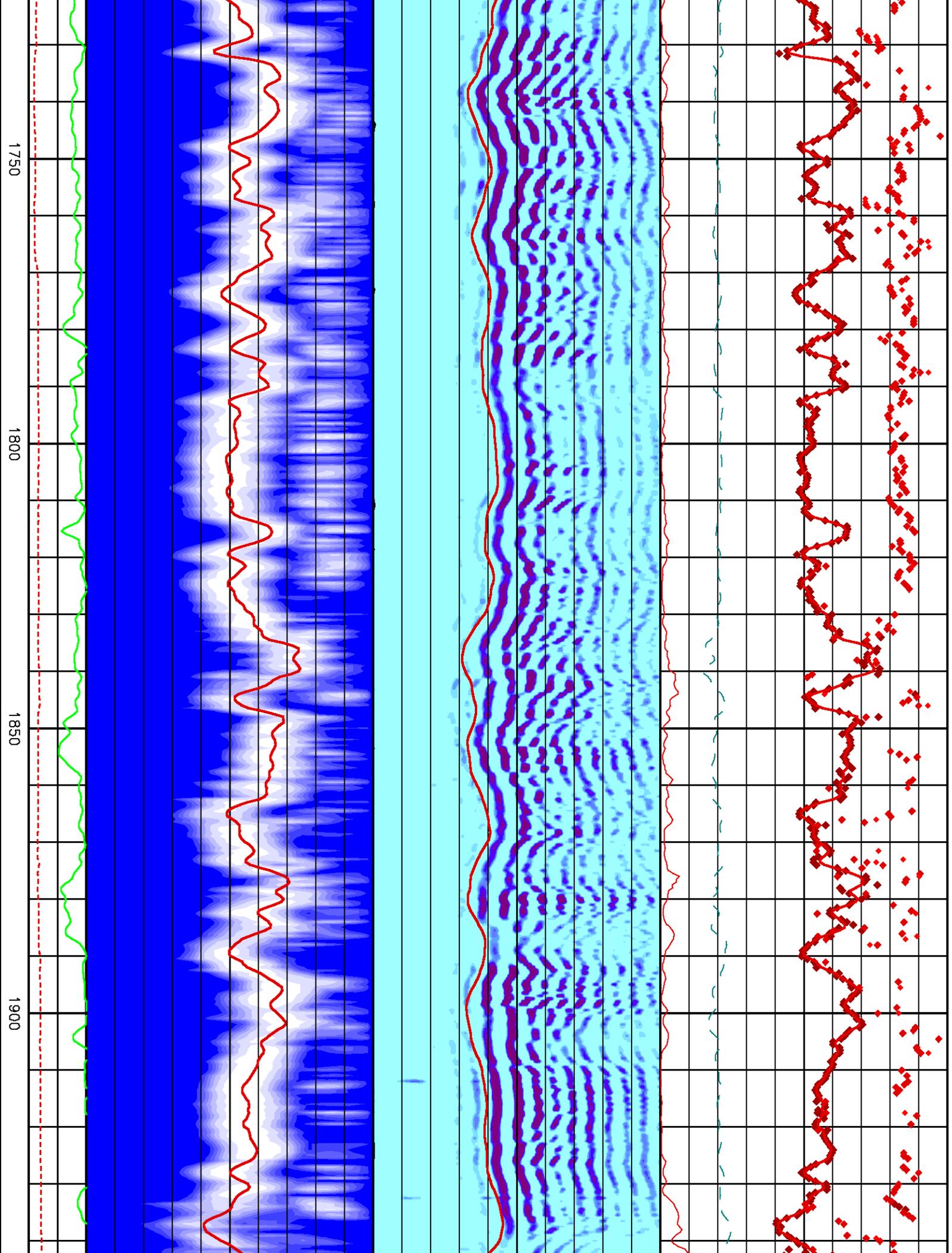


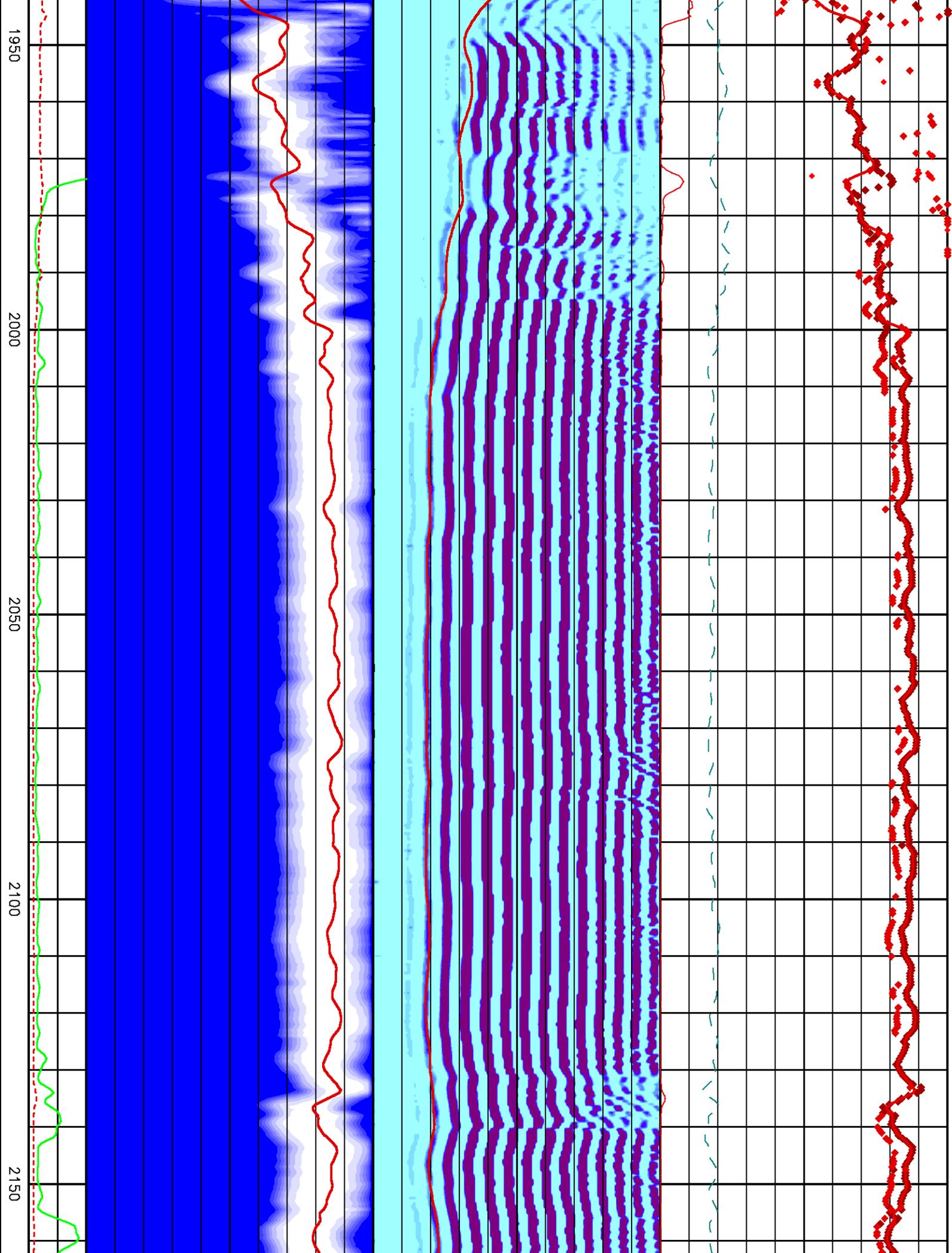


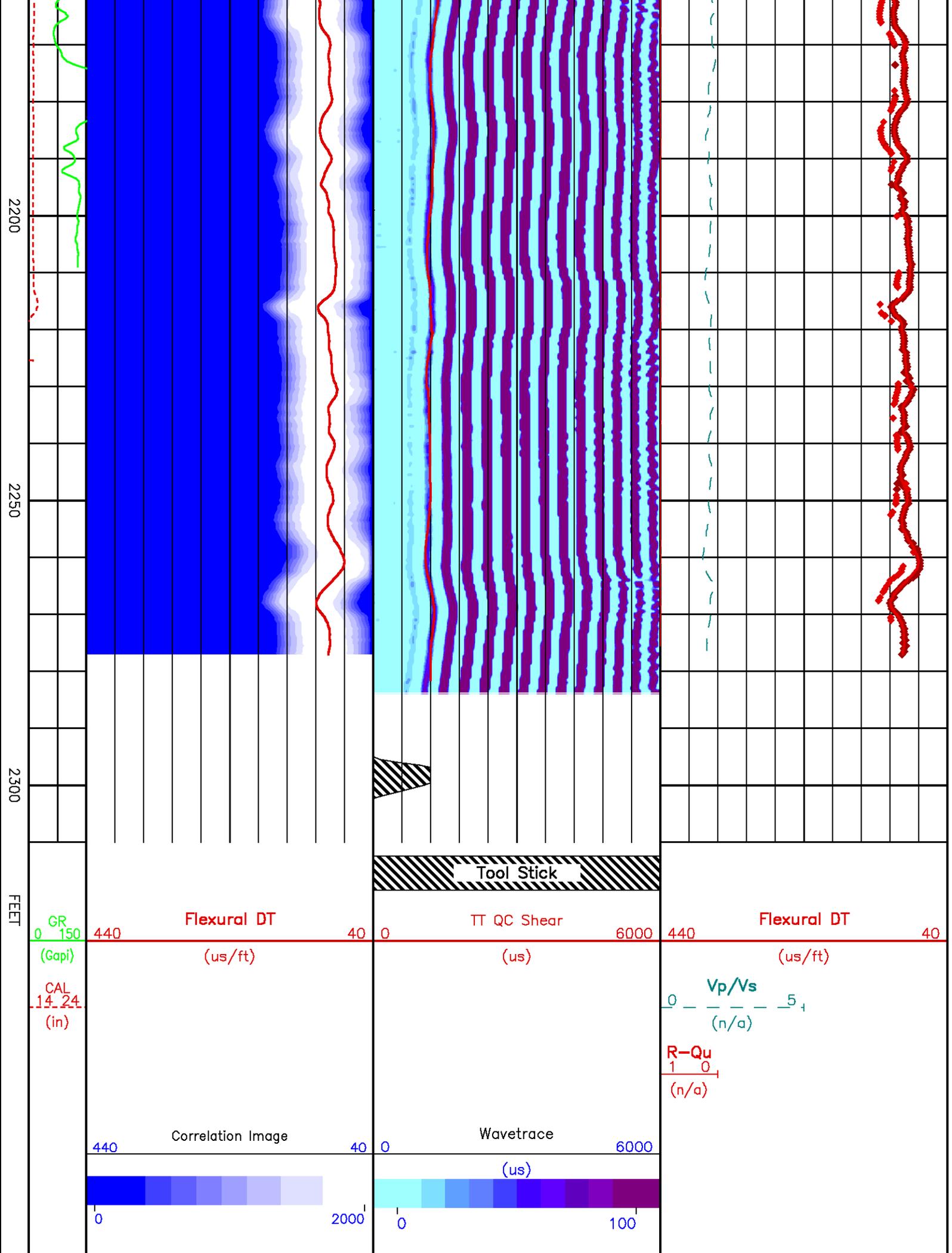












# PARAMETER SECTION

Source File: /geos/lac/adrejosl/sierra\_xmac/waveavan.monor.lnp

```

! time: Mon Nov 23 12:42:32 2009
!
! Input/Output curves
!
FILE = '/geos/lac/adrejosl/sierra_xmac/xmac.xtf',
FILEOUT = '/geos/lac/adrejosl/sierra_xmac/xmac.xtf',
!
! OWRITE=1: Overwrite, OWRITE=2: Recreate
!
OWRITE = 2,
!
TRWAV < TFWV01 ,
TRSTRT < TFST01 ,
TRGAIN < TFGN01 ,
CORCMB > Corcubr,
TTOUT > TTCR,
DTOUT > DTCR,
SQINT > QCR,
CORPKS > Corpksr,
TRWAVF > Tfwv01f,
!
! Tool information( TRSP, TRID, RRSP 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
!
480,2308,
!
! WHATFILT=0:FFT, WHATFILT=1:FIR, WHATFILT=2:NONE
!
WHATFILT = 1,
!
! FREQUENCY RANGE
!
LOWF = 5186,
HIGHF = 19552,
!
! COARRAY = 0: Receiver array, COARRAY = 1: Transmitter array
!
COARRAY =0,
!
! CMETHOD = 0: Nroot, CMETHOD = 1: Semb
!
CMETHOD = 0,
!
NTH = 4,
CWBEGIN = 400,
CWEND = 2800,
CWLENGTH = 400,
CWSTEP = 200.

```

```
T4FLR = 0,  
BTLCUT = 0,  
DTMIN = 20,  
DTMAX = 220,  
DTSTEP = 5,  
!  
! DTUNIT = 0: us/ft, DTUNIT = 1: us/m  
!  
DTUNIT = 0,  
  
RCVRS = /1,2,3,4,5,6,7,8,/,  
TAPER = /16,35,155,235,/,  
PSRATIO = /1.6,1.8,/,  
EOZ  
END
```

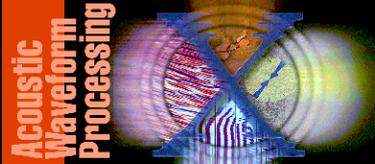
Source File: /geos/lac/adrejosl/sierra\_xmac/waveavan.dipo.inp

```
! time: Mon Nov 23 15:15:24 2009  
!  
! Input/Output curves  
!  
FILE = '/geos/lac/adrejosl/sierra_xmac/xmac.xtf',  
FILEOUT = '/geos/lac/adrejosl/sierra_xmac/xmac.xtf',  
!  
! OWRITE=1: Overwrite, OWRITE=2: Recreate  
!  
OWRITE = 2,  
!  
TRWAV < TXXWV01 ,  
TRSTRT < TXXST01 ,  
TRGAIN < TXXGN01 ,  
CORCMB > Corcmb,  
TTOUT > TTsr,  
DTOUT > DTs,  
SQINT > Qs,  
CORPKS > Corpks,  
TRWAVF > Txxwv01f,  
!  
! Tool information( TRSP, TRID, RRSP 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  
!  
570,1643,  
!  
! WHATFILT=0:FFT, WHATFILT=1:FIR, WHATFILT=2:NONE  
!  
WHATFILT = 1,  
!  
! FREQUENCY RANGE  
!  
LOWF = 500,  
HIGHF = 2600,  
!  
! COARRAY = 0: Receiver array, COARRAY = 1: Transmitter array  
!  
COARRAY = 0,  
!  
! CMETHOD = 0: Nroot, CMETHOD = 1: Semb  
!  
CMETHOD = 0,  
!  
NTH = 4,  
CWBEGIN = 200,  
CWEND = 5800,  
CWLENGTH = 1400,  
CWSTEP = 200
```

```

TWSTEP = 700,
T4FLR = 0,
BTLCUT = 0,
DTMIN = 40,
DTMAX = 440,
DTSTEP = 8,
|
| DTUNIT = 0: us/ft, DTUNIT = 1: us/m
|
DTUNIT = 0,
RCVRS = /1,2,3,4,5,6,7,8,/,
TAPER = /33,154,345,441,/,
PSRATIO = /1.6,1.8,/,
EOZ
|
| zone #2
|
1643,2284,
HIGHF = 2700,
CWEND = 4400,
TAPER = /33,71,240,428,/,
EOZ
END

```

|  |   |  |
|--|---|--|
| <br><b>BAKER HUGHES</b> | <b>COMPANY</b> <u>SIERRA GEOTHERMAL POWER, INC.</u>               | <b>FILE NO:</b> _____  |
|  | <b>WELL</b> <u>ALUM 25-29</u>                                     | <b>API NO:</b> _____   |
| <b>FIELD</b> <u>ALUM</u>   | <b>COUNTY</b> <u>ESMERALDA</u> <b>STATE</b> <u>NEVADA</u>         | <u>27-009-90074</u>  |
| <b>Baker Atlas</b>   | <b>LOCATION:</b><br><u>2235.18' FSL &amp; 938.11' FWL</u>         | <b>ELEVATIONS:</b><br><b>KB</b> <u>4919.57 FT</u><br><b>DF</b> <u>N/A</u><br><b>GL</b> <u>4903.57 FT</u> |
|                          | <b>SEC</b> <u>29</u> <b>TWP</b> <u>1N</u> <b>RGE</b> <u>38.5E</u> | <b>DATE</b> <u>23-NOV2009</u>  |