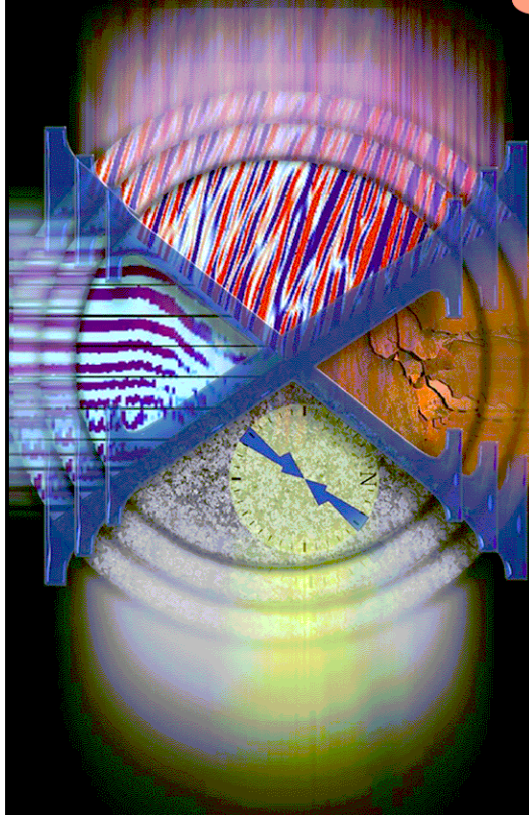


Acoustic Waveform Processing



MULTIPOLE ARRAY ACOUSTILOGSM AZIMUTHAL ANISOTROPY ANALYSIS

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
MAGNETIC DECLINATION: 14.4 DEG
FAST & SLOW WAVE DIRECTIONS MAY BE UNRELIABLE WHERE ANI<3%
ANALYSIS: J. ADREON

AZIMUTHAL ANISOTROPY MAP

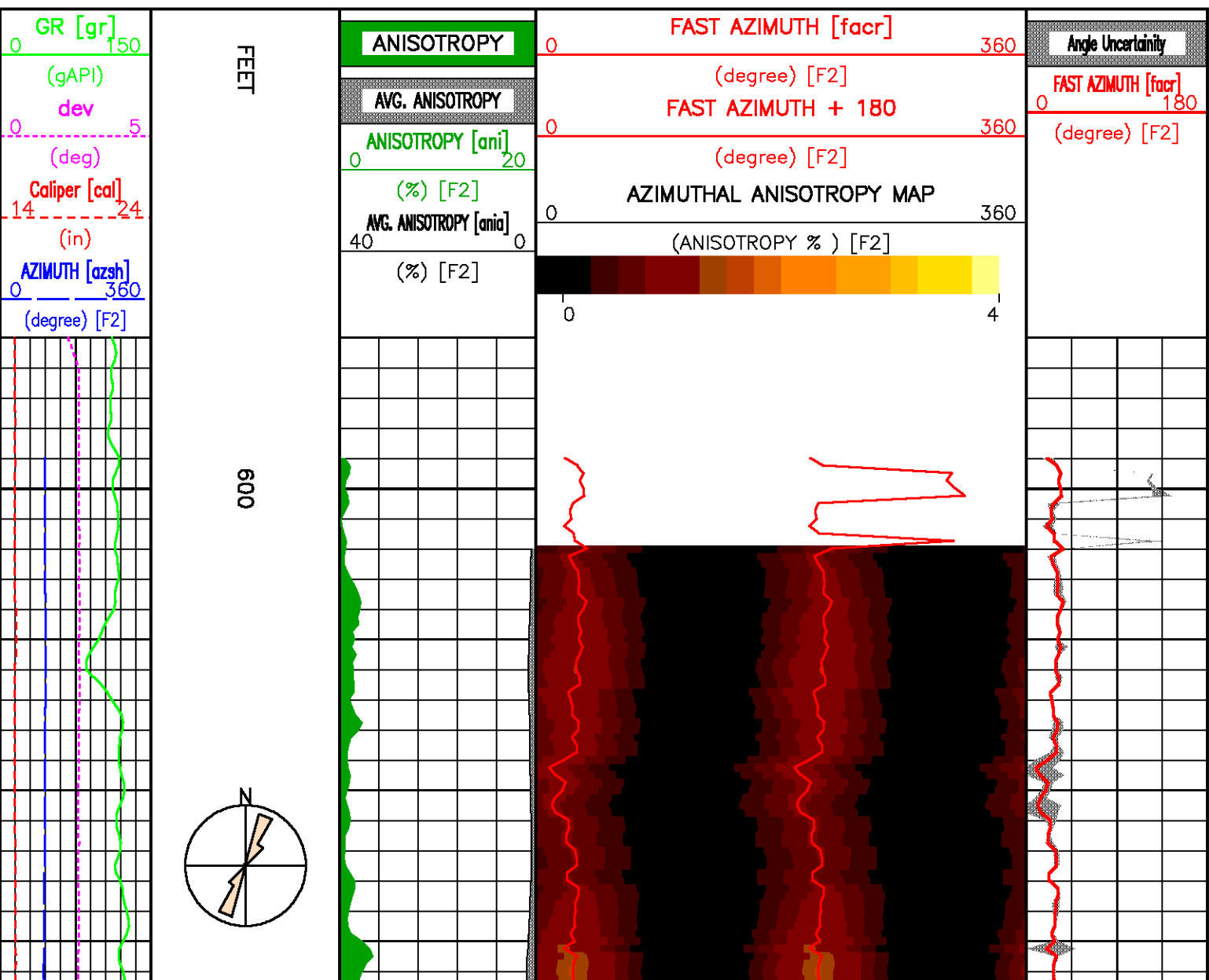
CURVE MEASURE POINT OFFSET

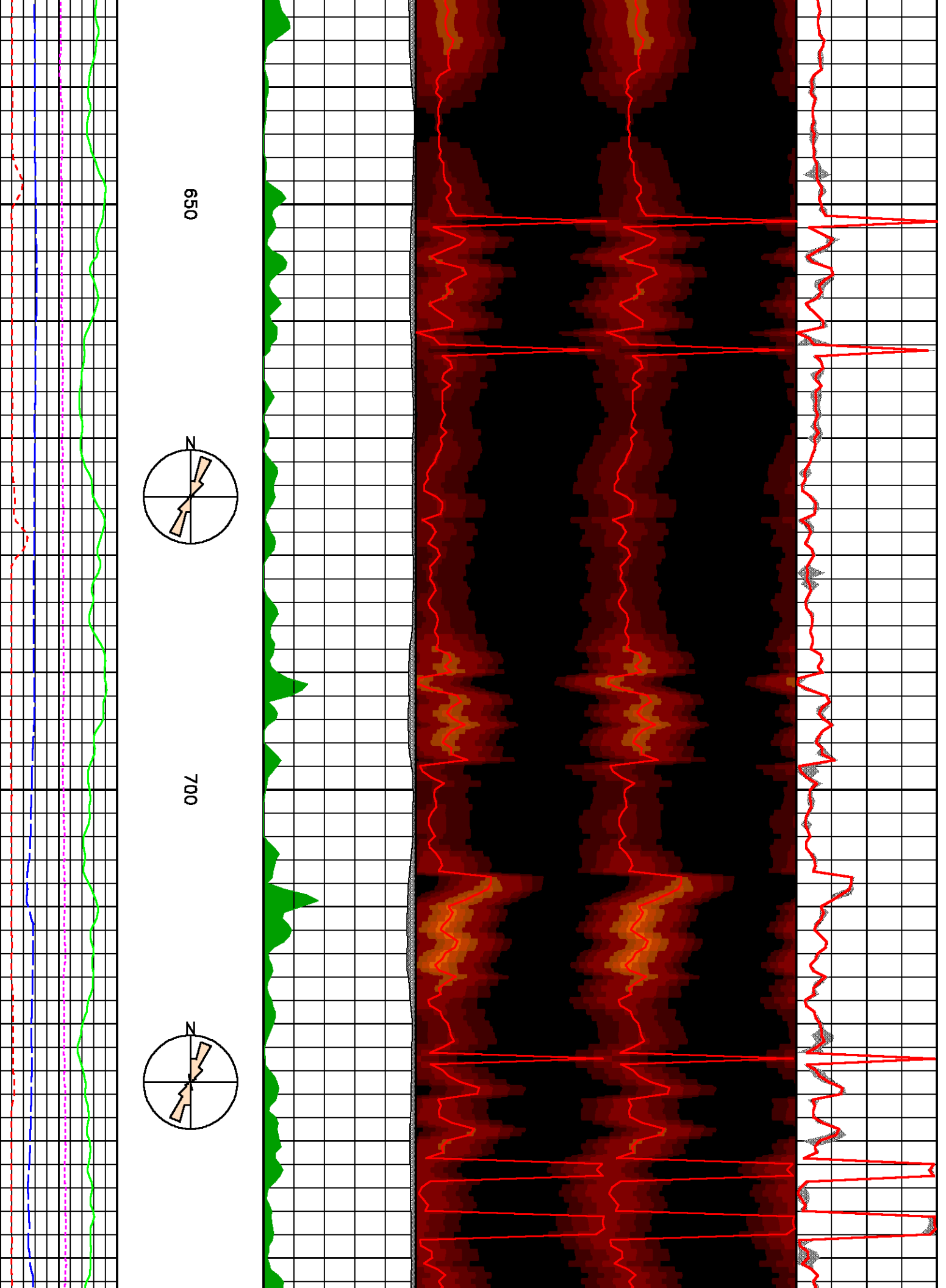
CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)
ANI	20.75	CAL	81.50	FAPI	20.75	GR	99.00
ANIA	14.75	DEVXEQI	14.00	FNEG	20.75		
AZSH	14.00	FACR	20.75	FPOS	20.75		

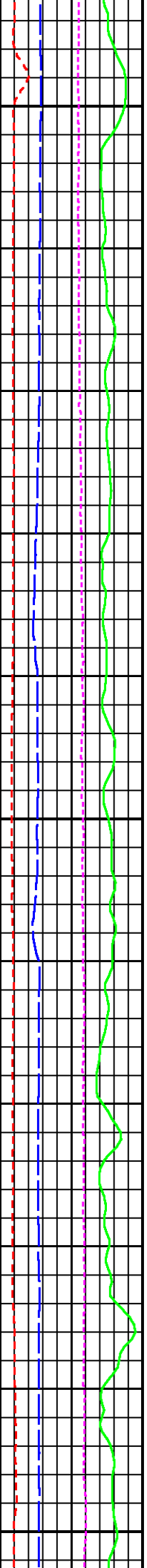
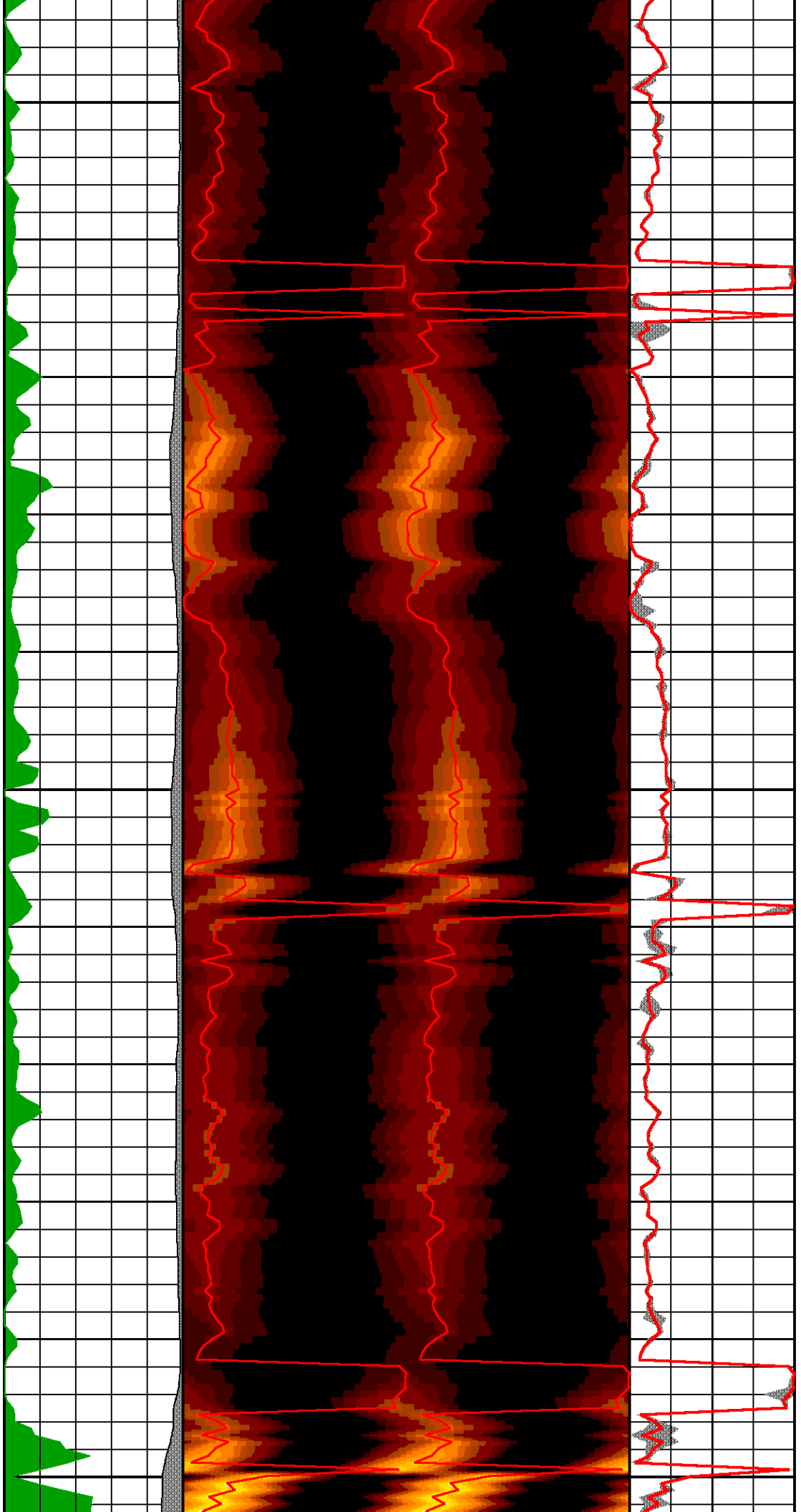
Project : /geos/lac/adrejosl/sierra_xmac
 User : adrejosl
 Presentation : sunserv24:/geos/lac/adrejosl/sierra_xmac/map.pdf [10"/100' Scale]
 Plot Interval : 590 - 2280 Feet

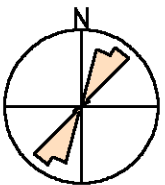
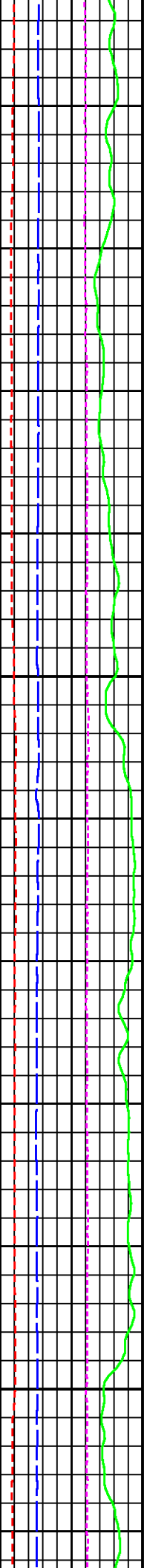
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 Created On : Nov 15 12:51:25 2009
 Company : SIERRA GEOTHERMAL POWER, INC.
 Well : ALUM 25-29
 Field : ALUM
 File Interval : 472.5 - 2316 Feet
 Oct : k7711

Data File 2 : F2 : sunserv24:/geos/lac/adrejosl/sierra_xmac/ani.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

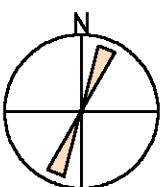




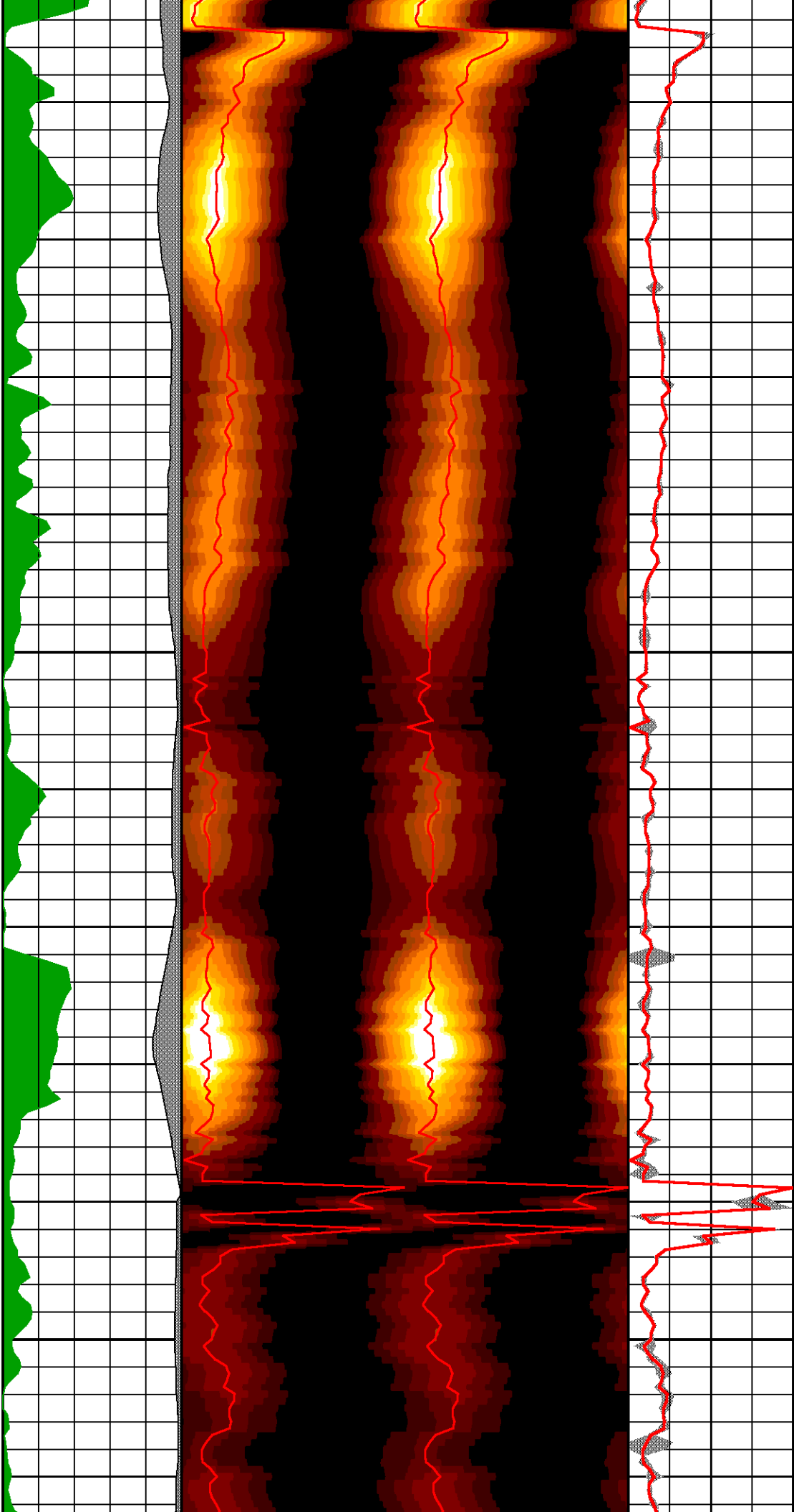


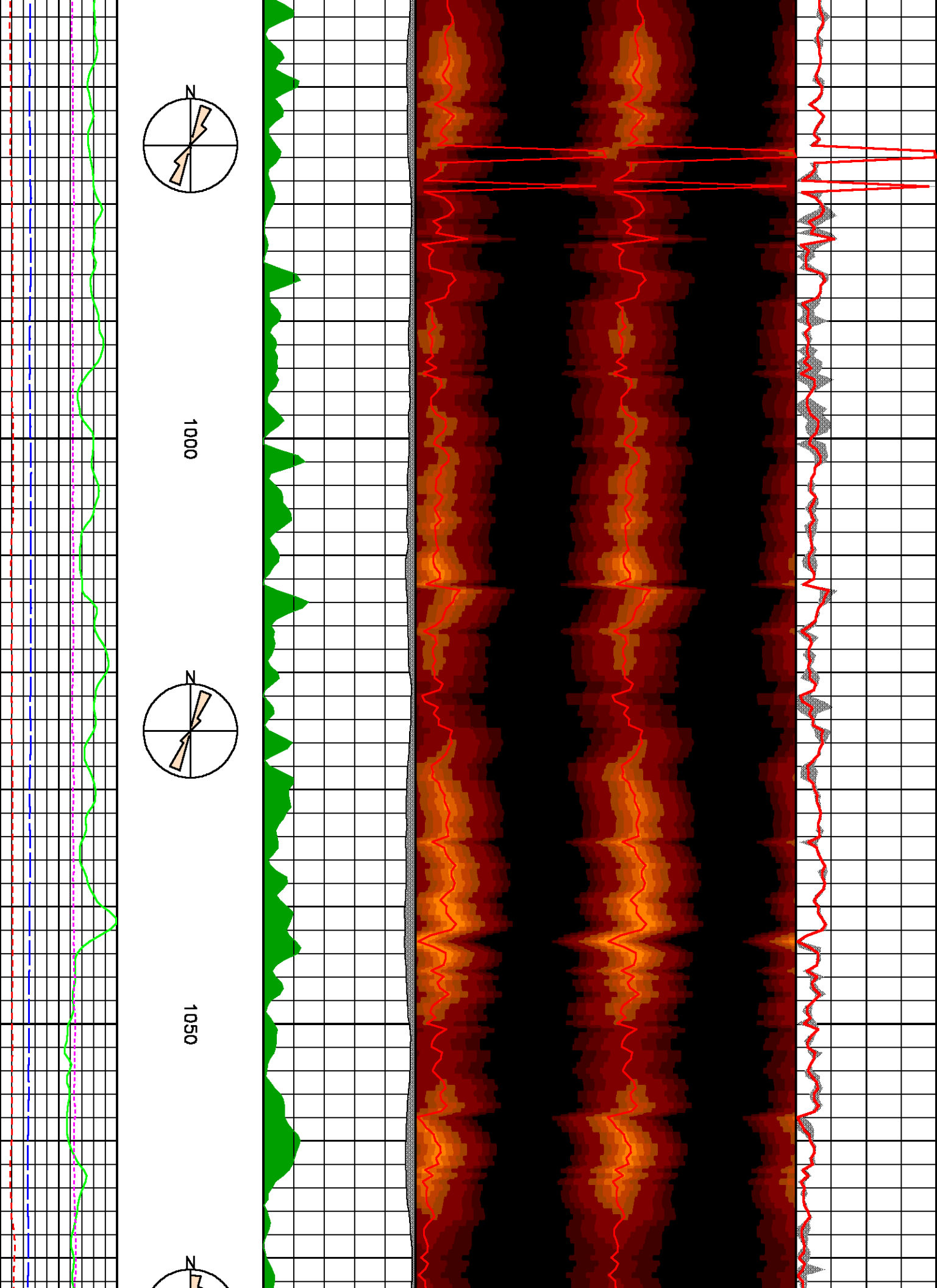


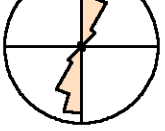
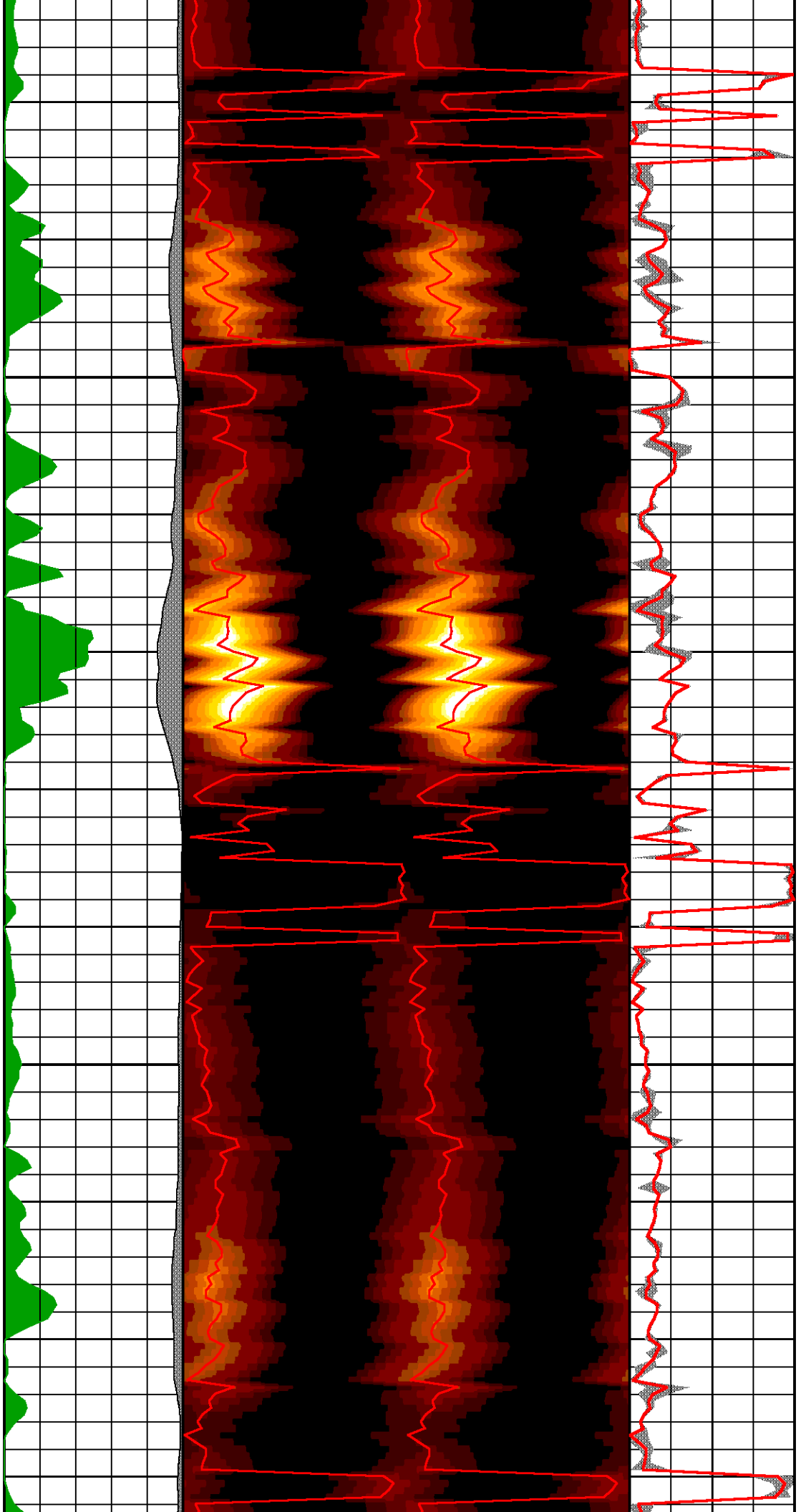
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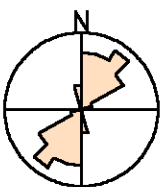
950



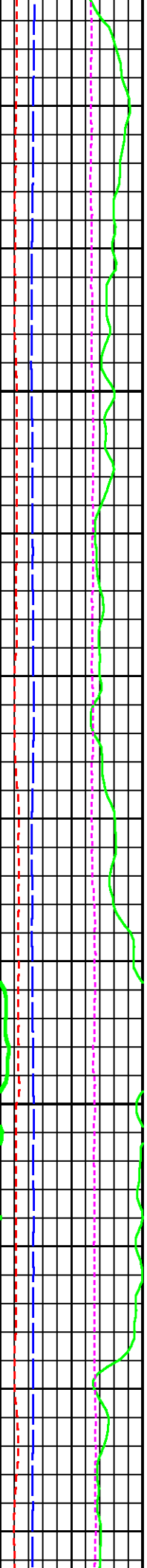
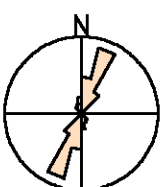


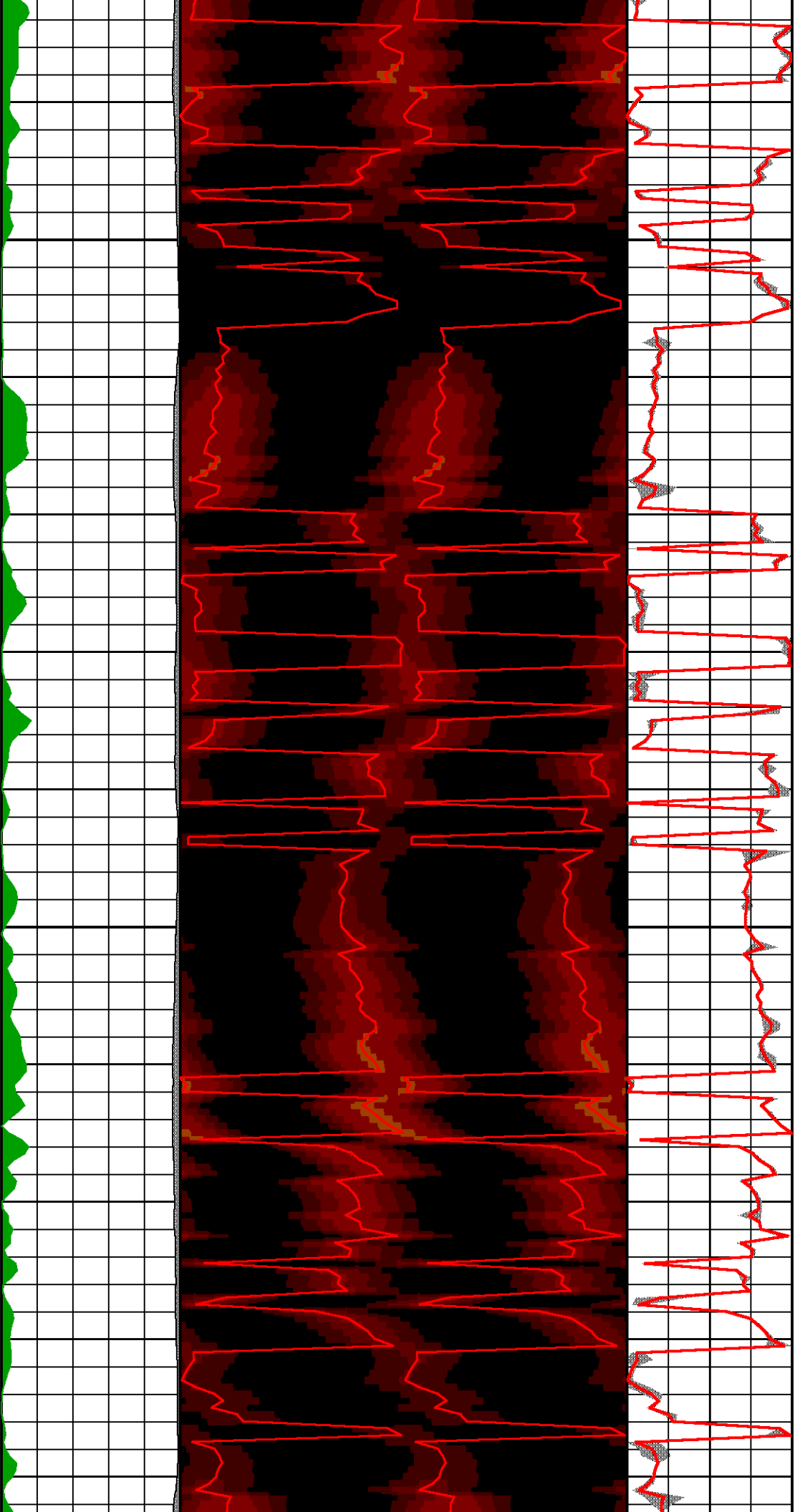


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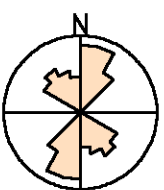


1150

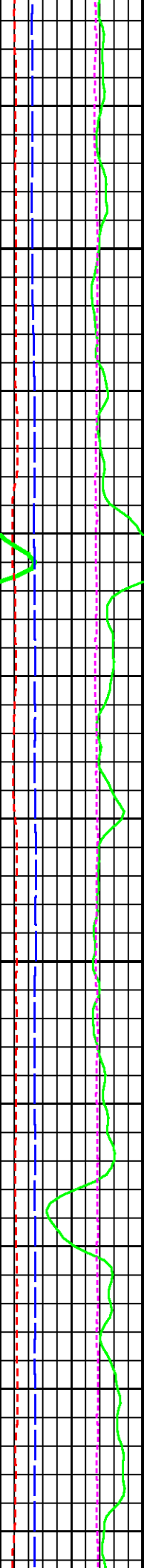
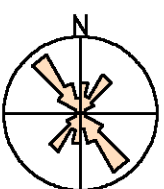


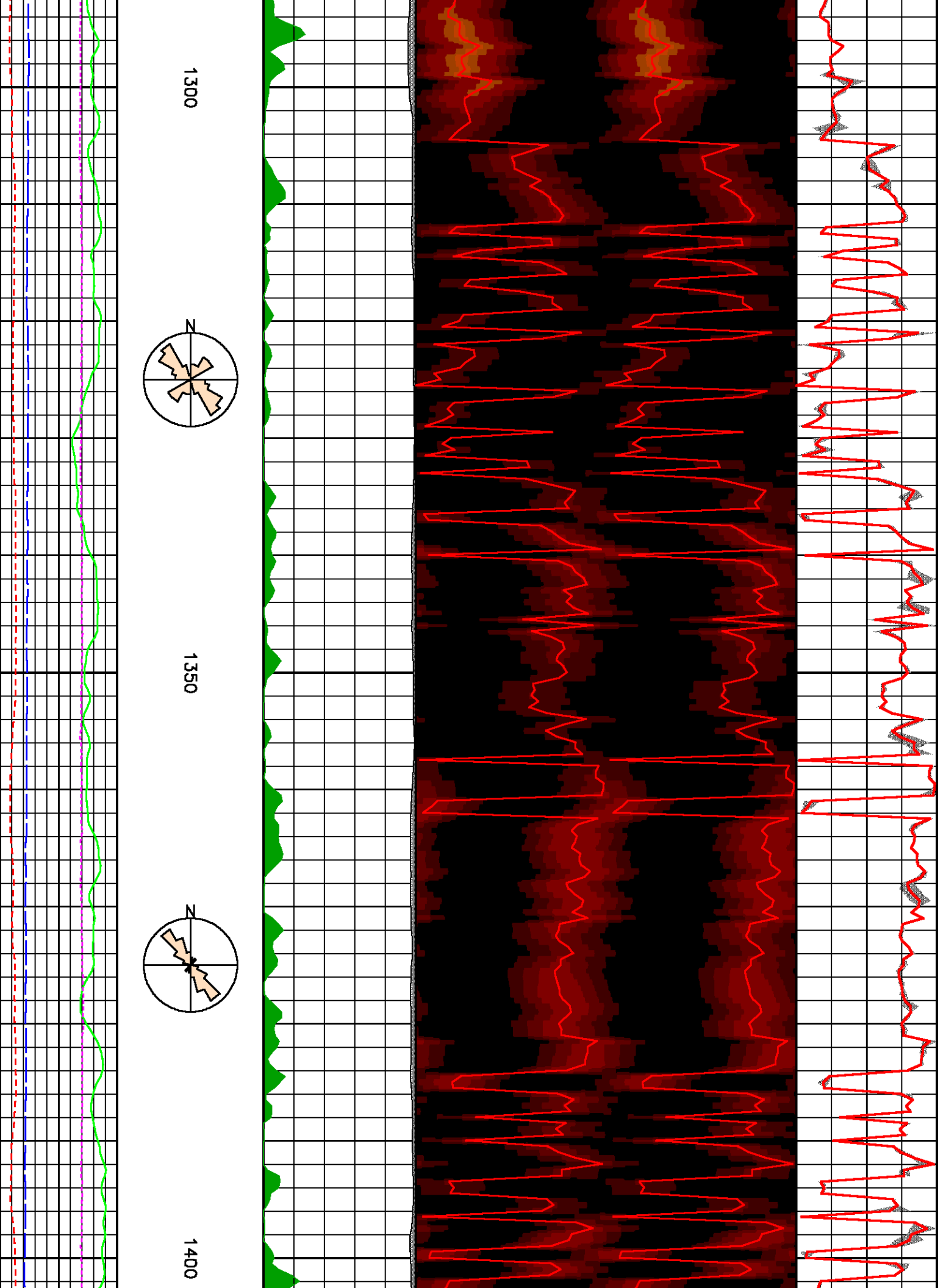


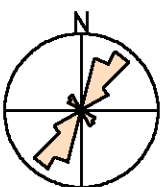
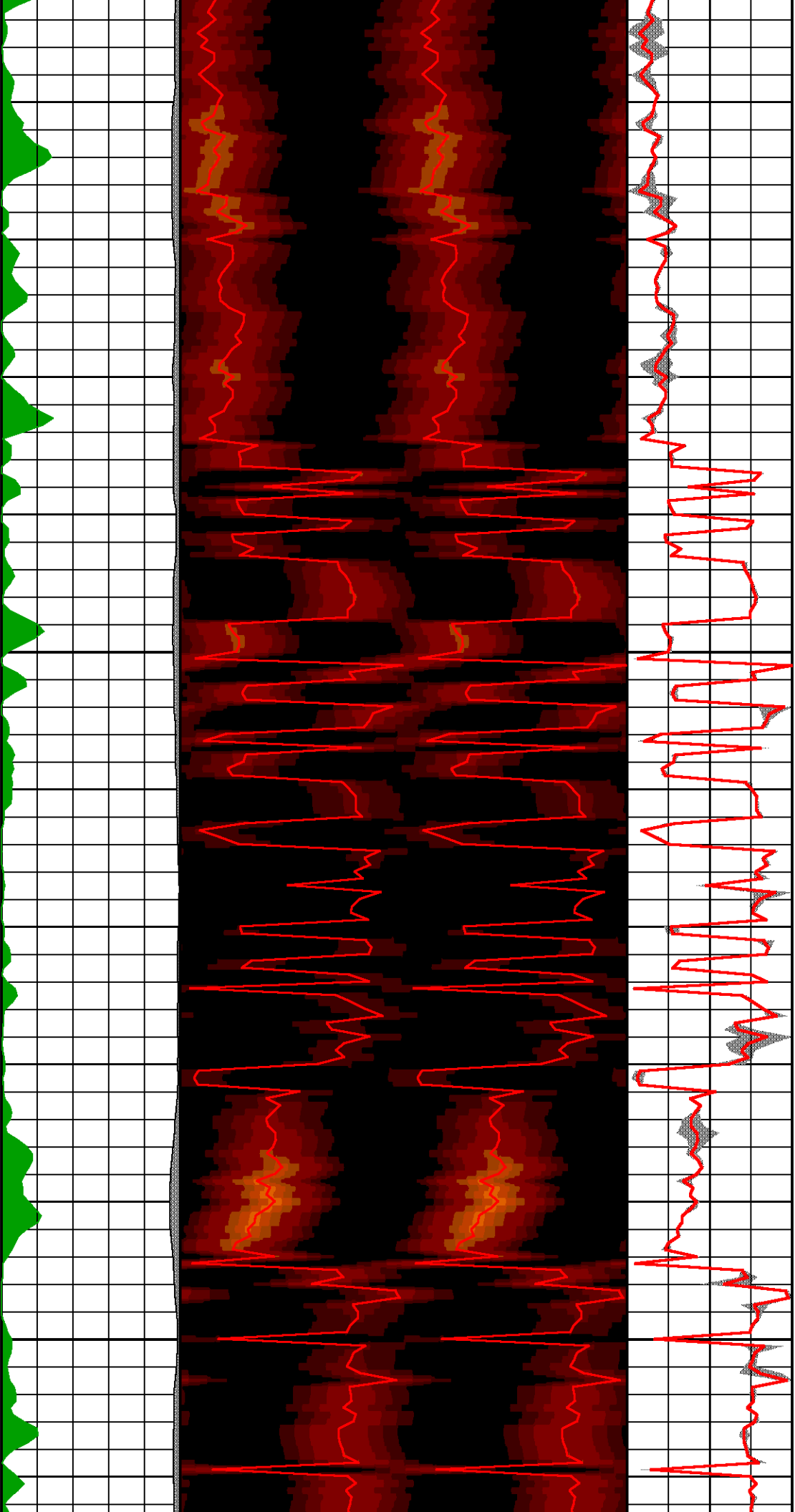
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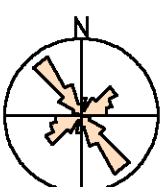
1250



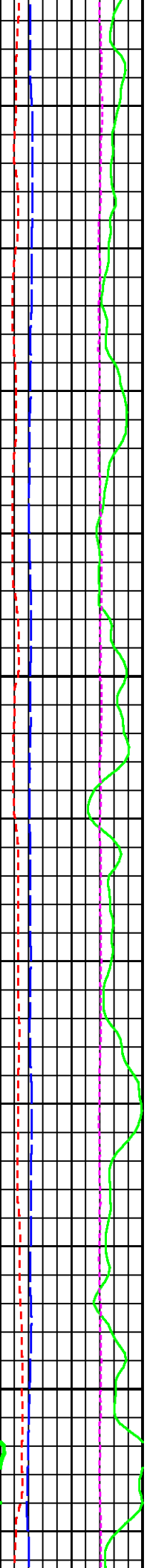


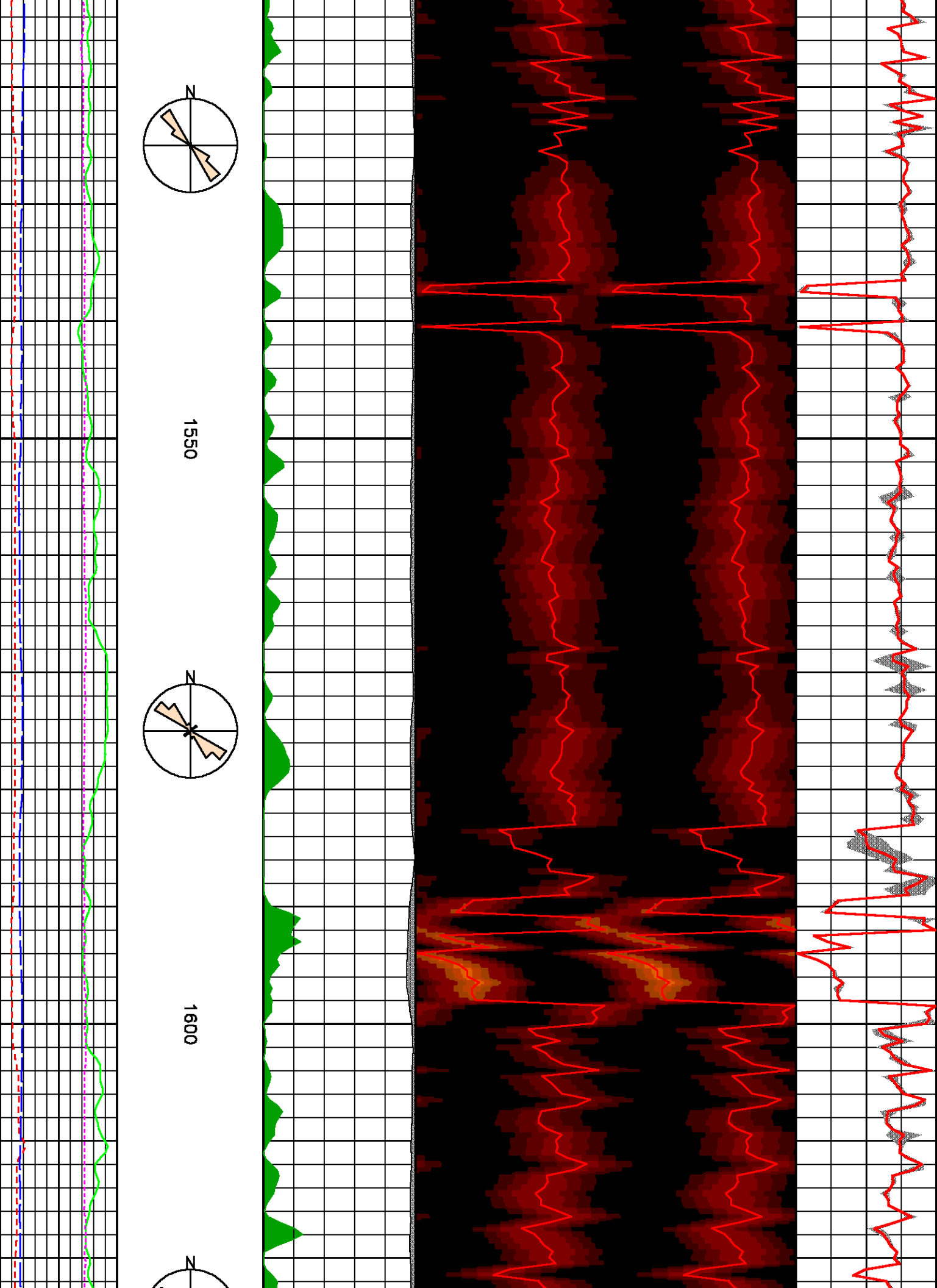


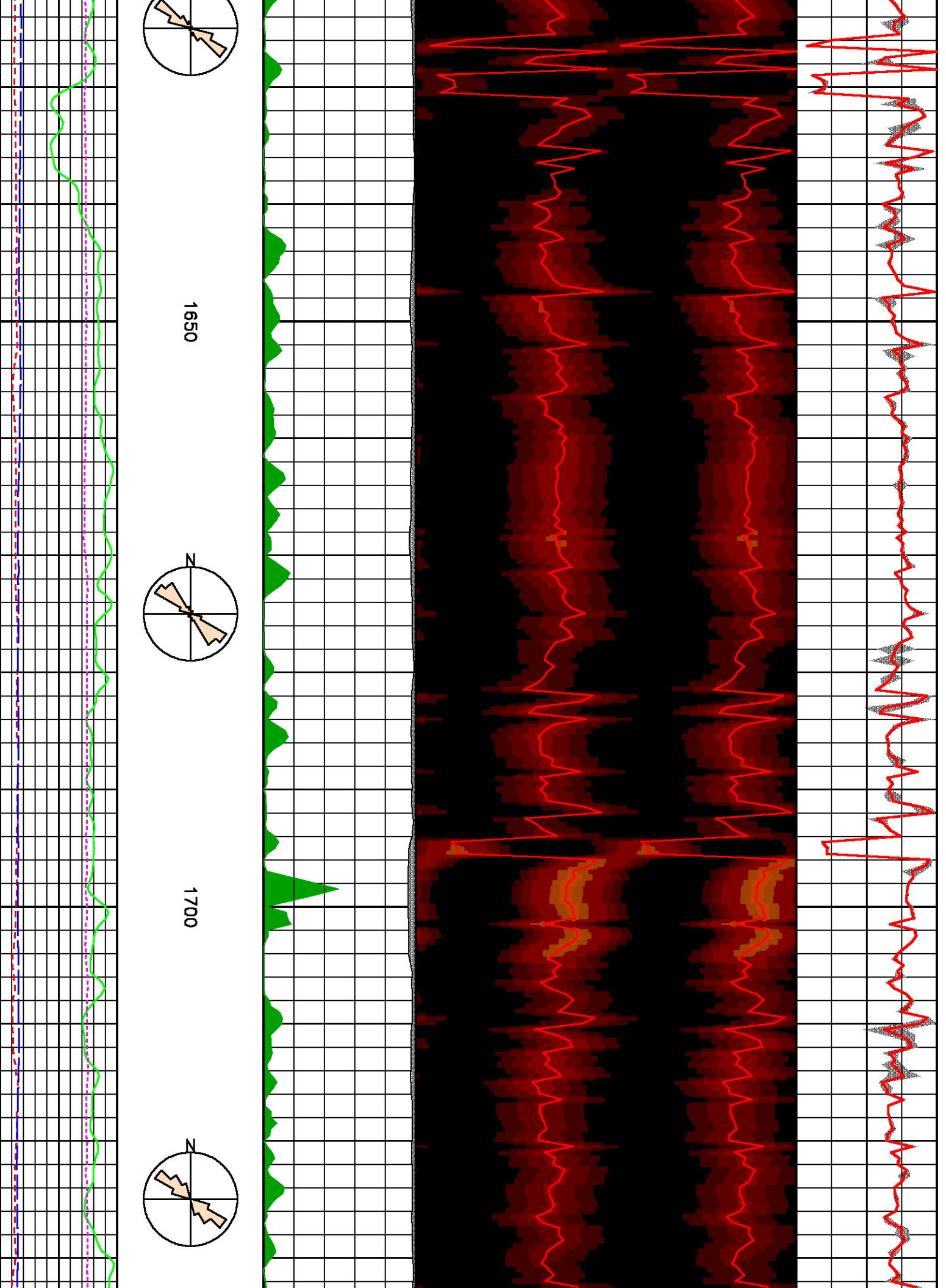
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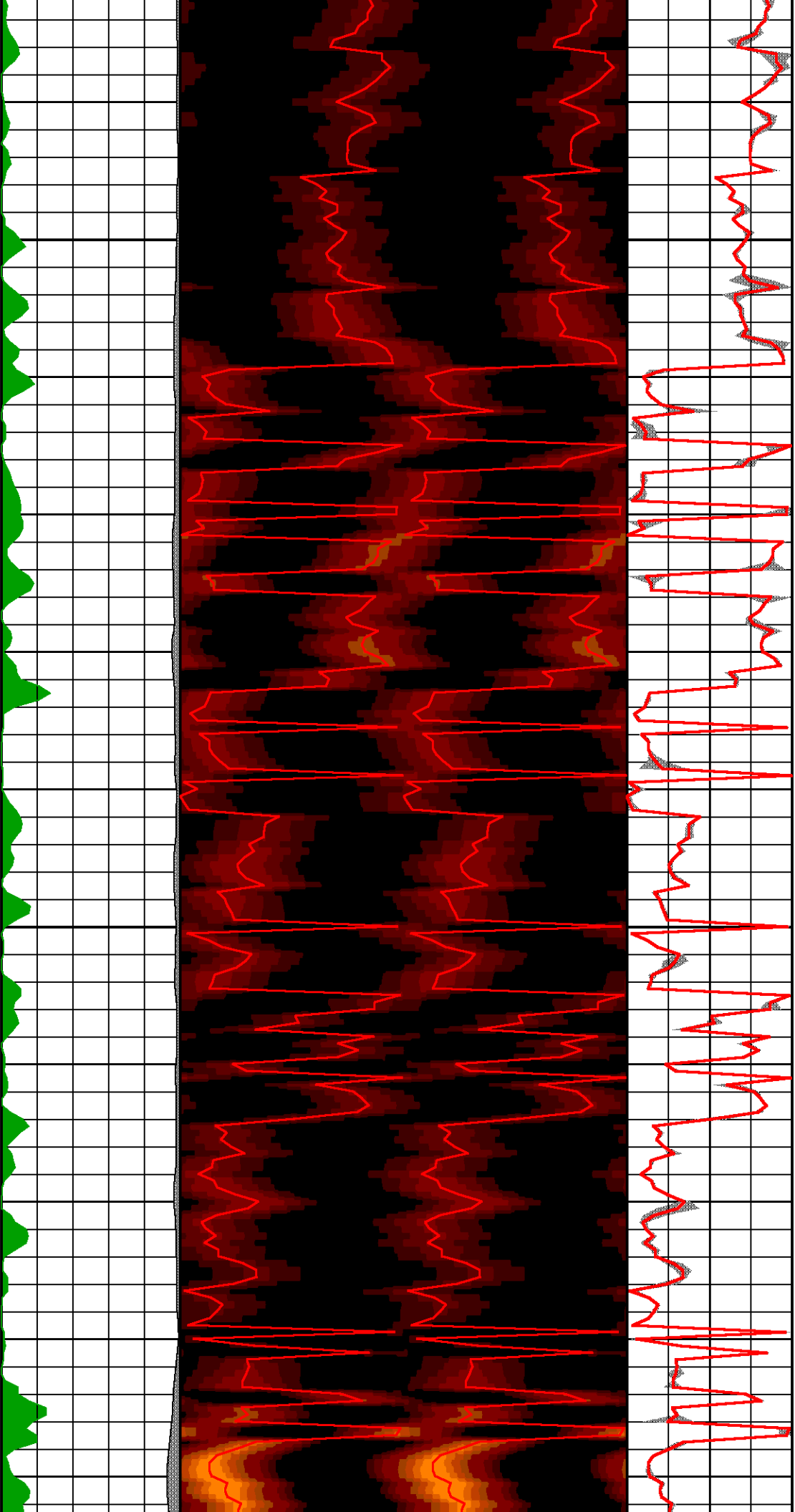


1500

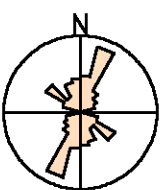




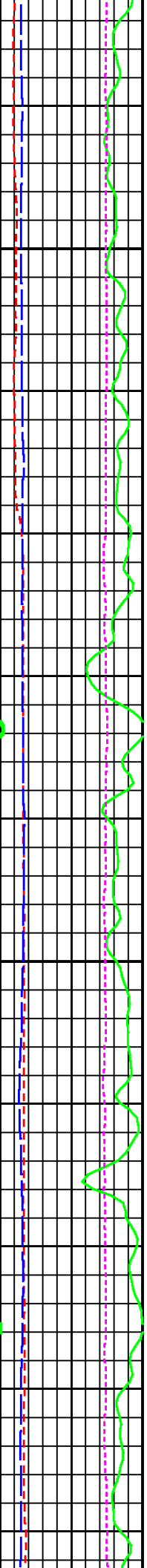
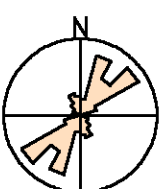


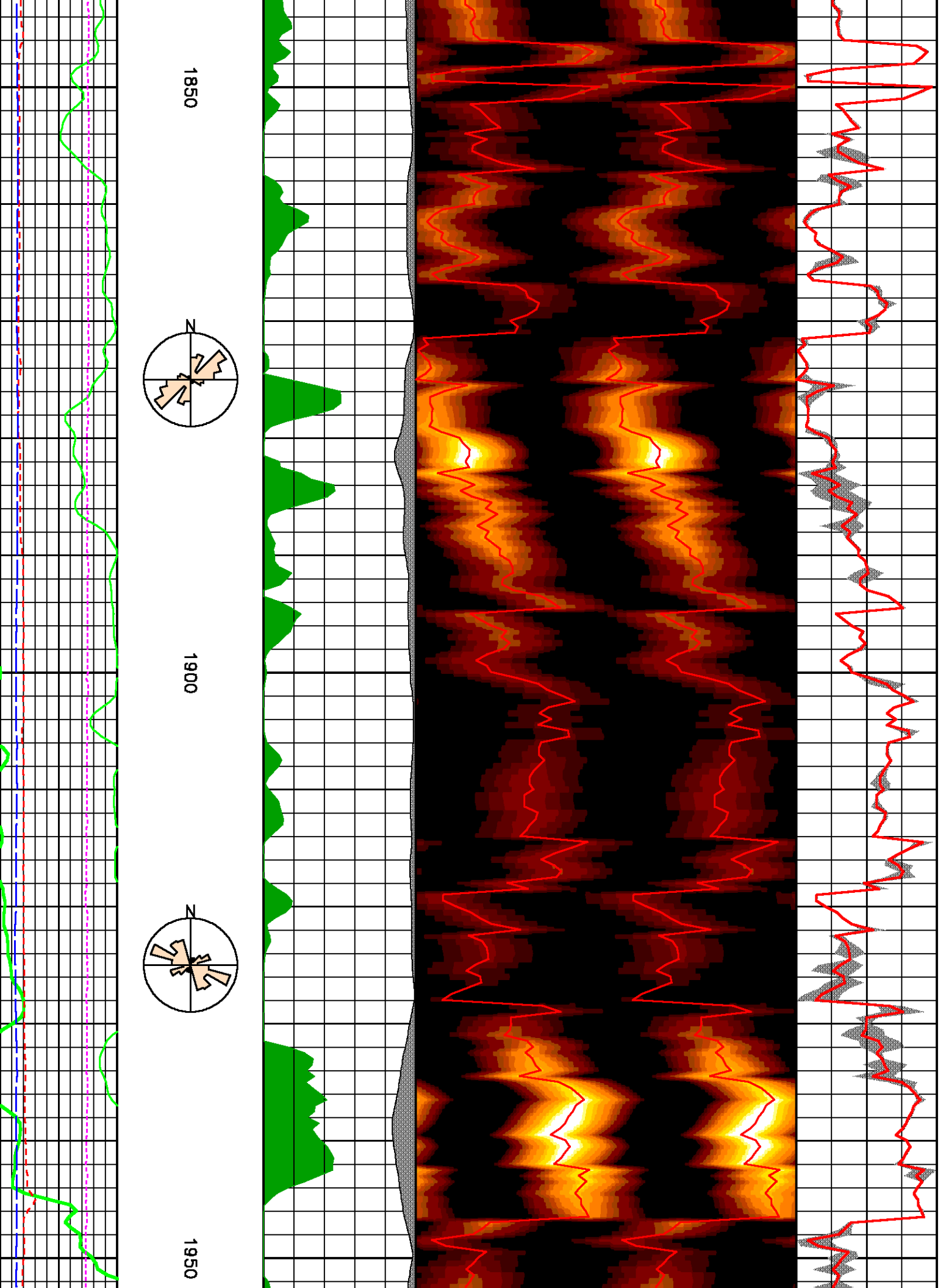


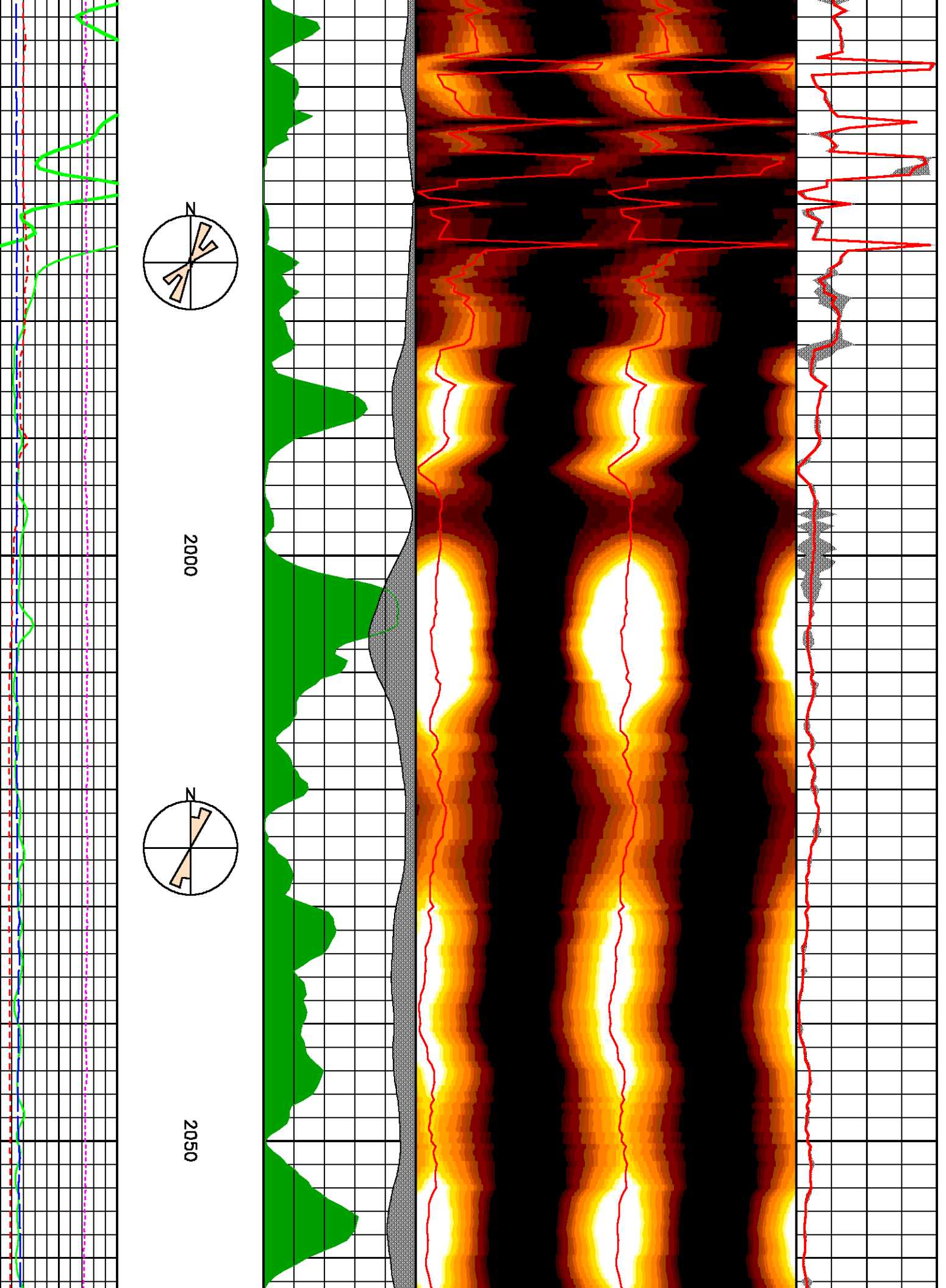
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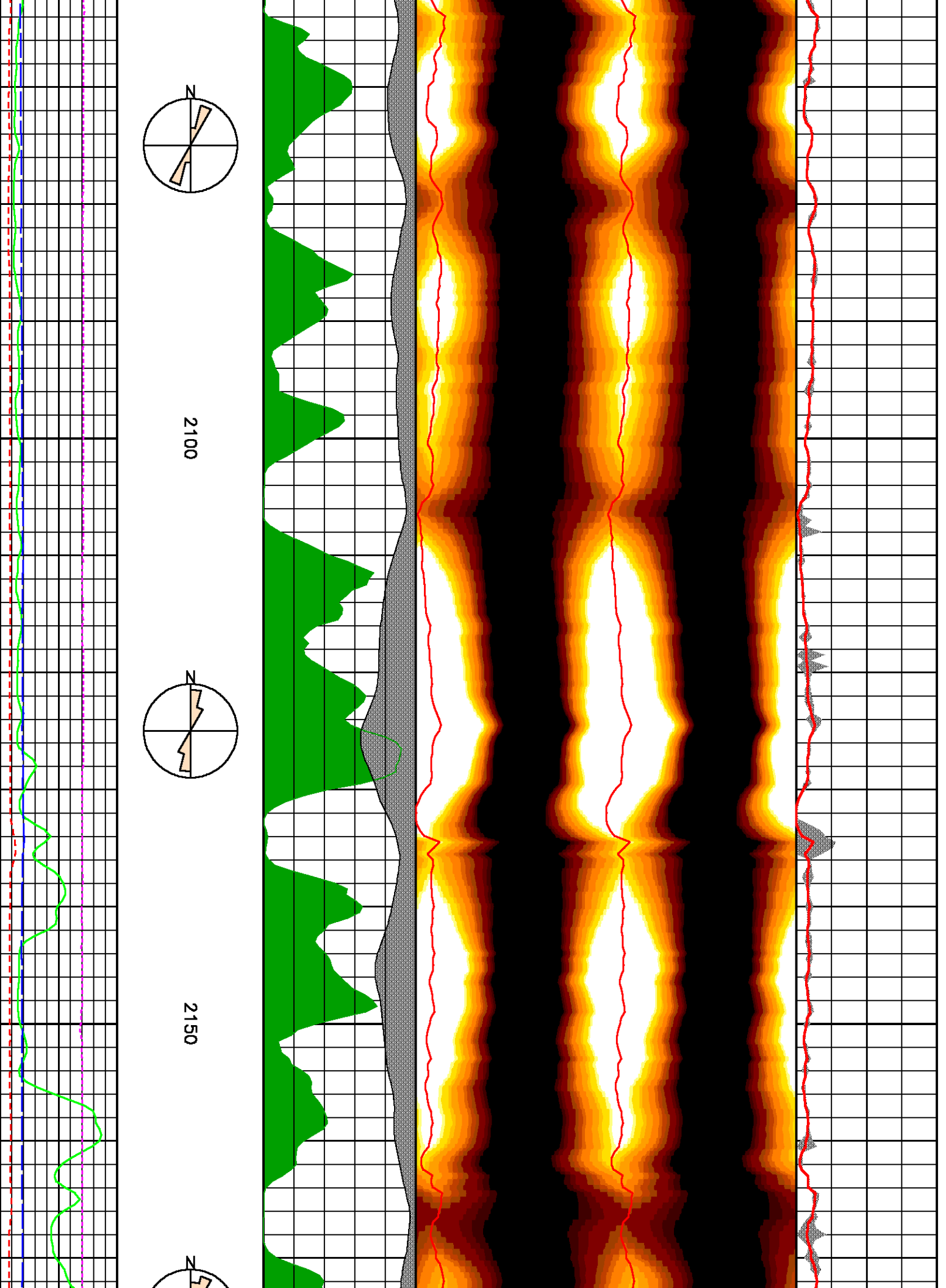


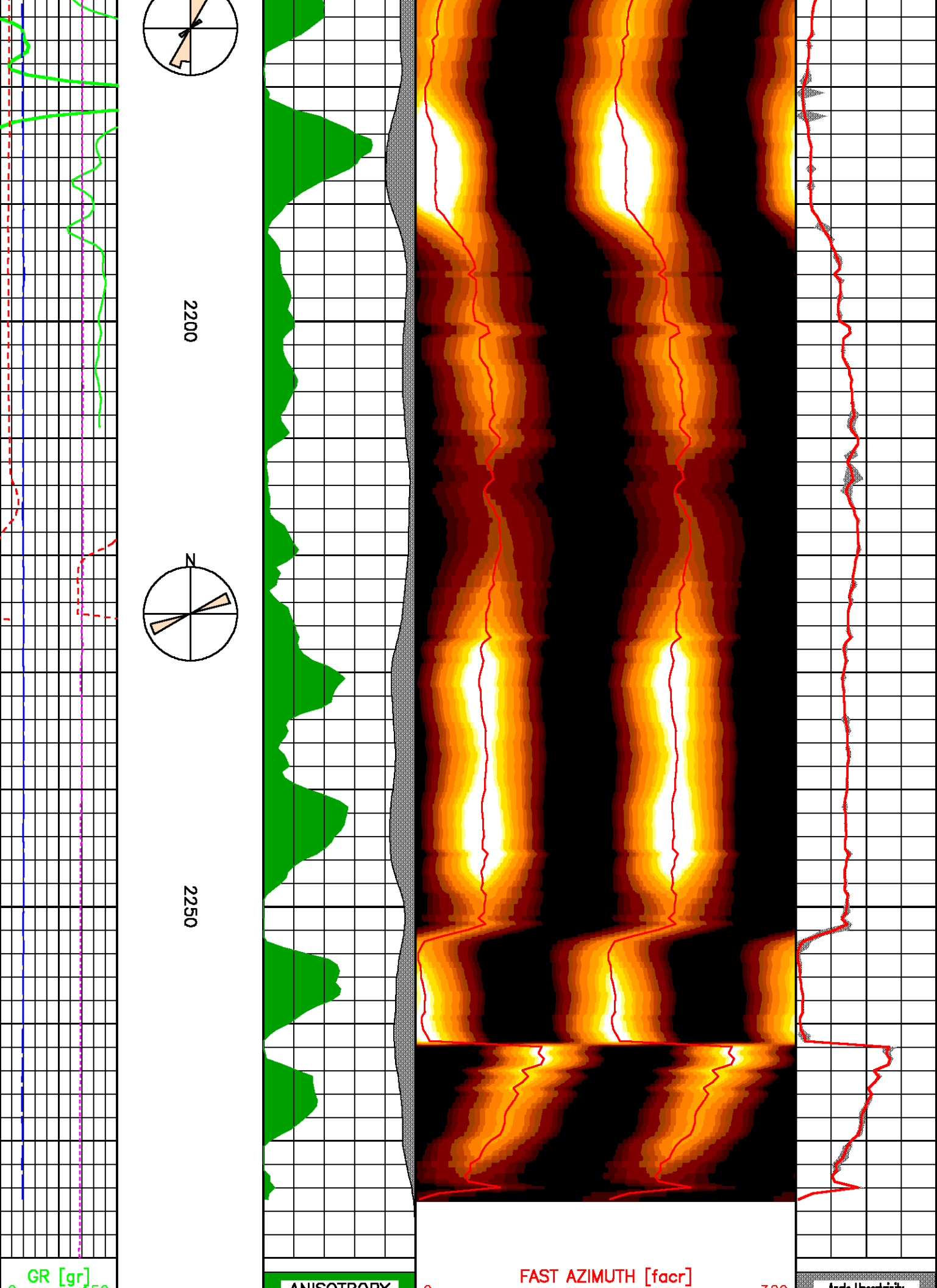
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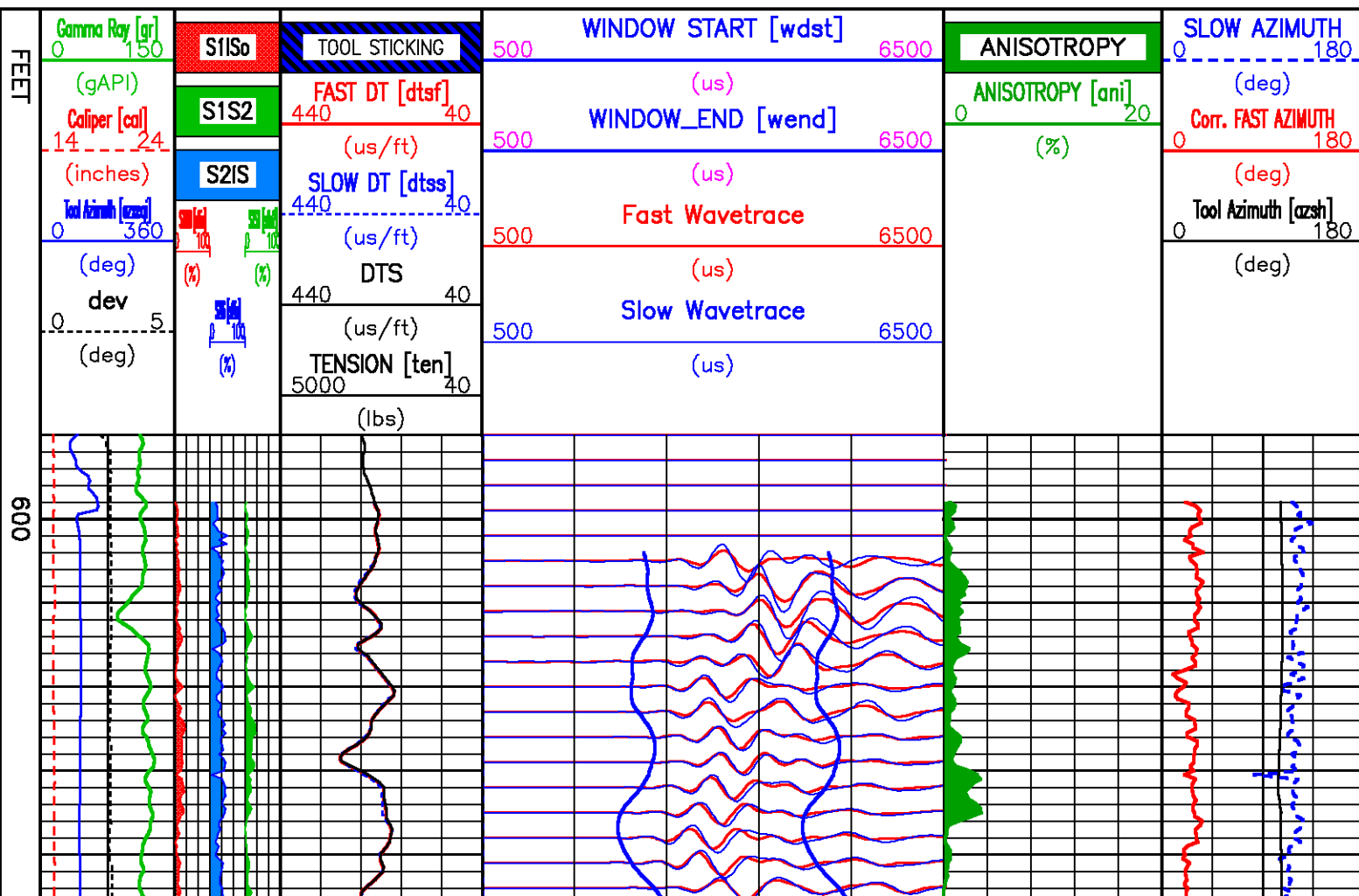


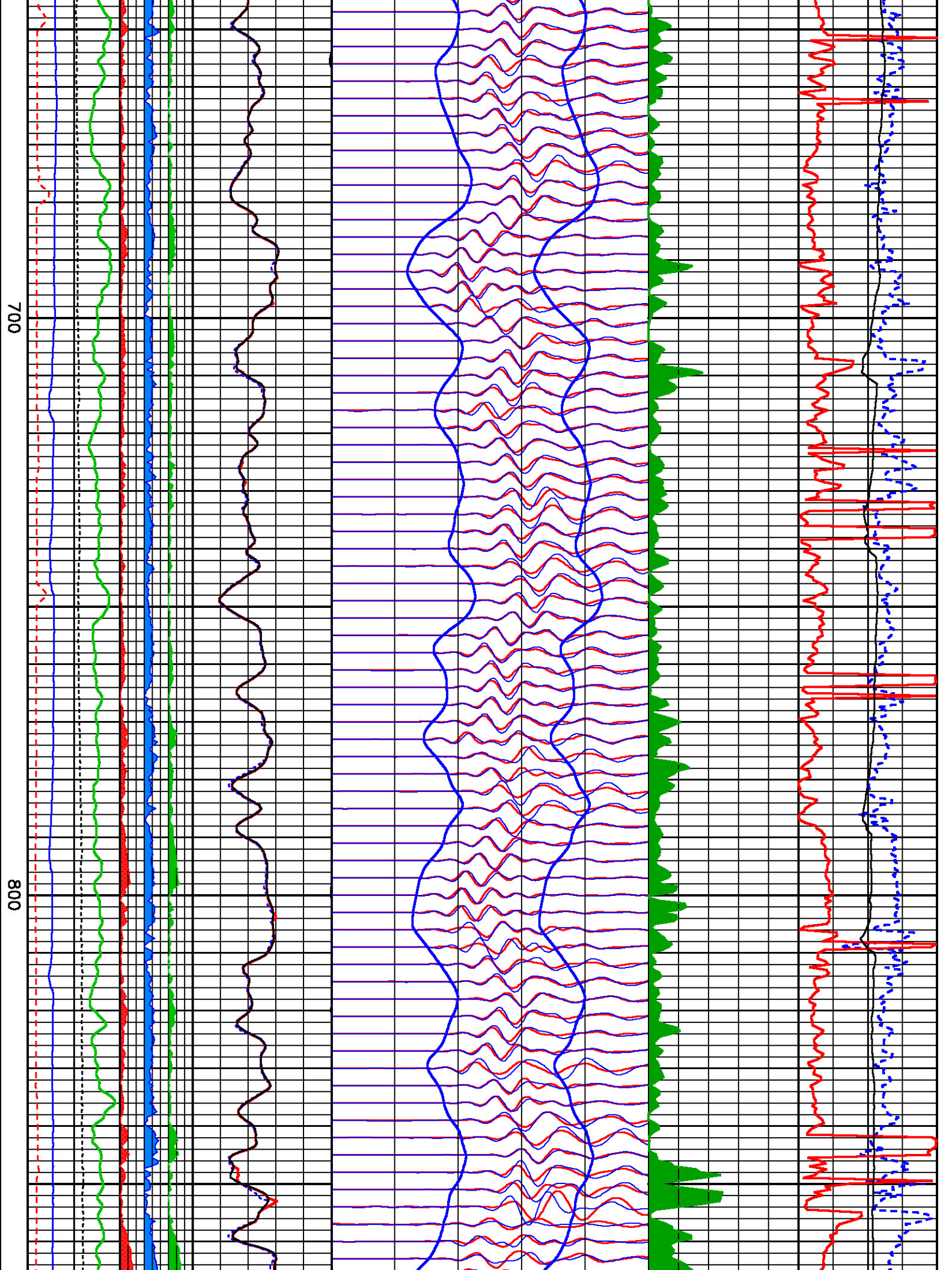


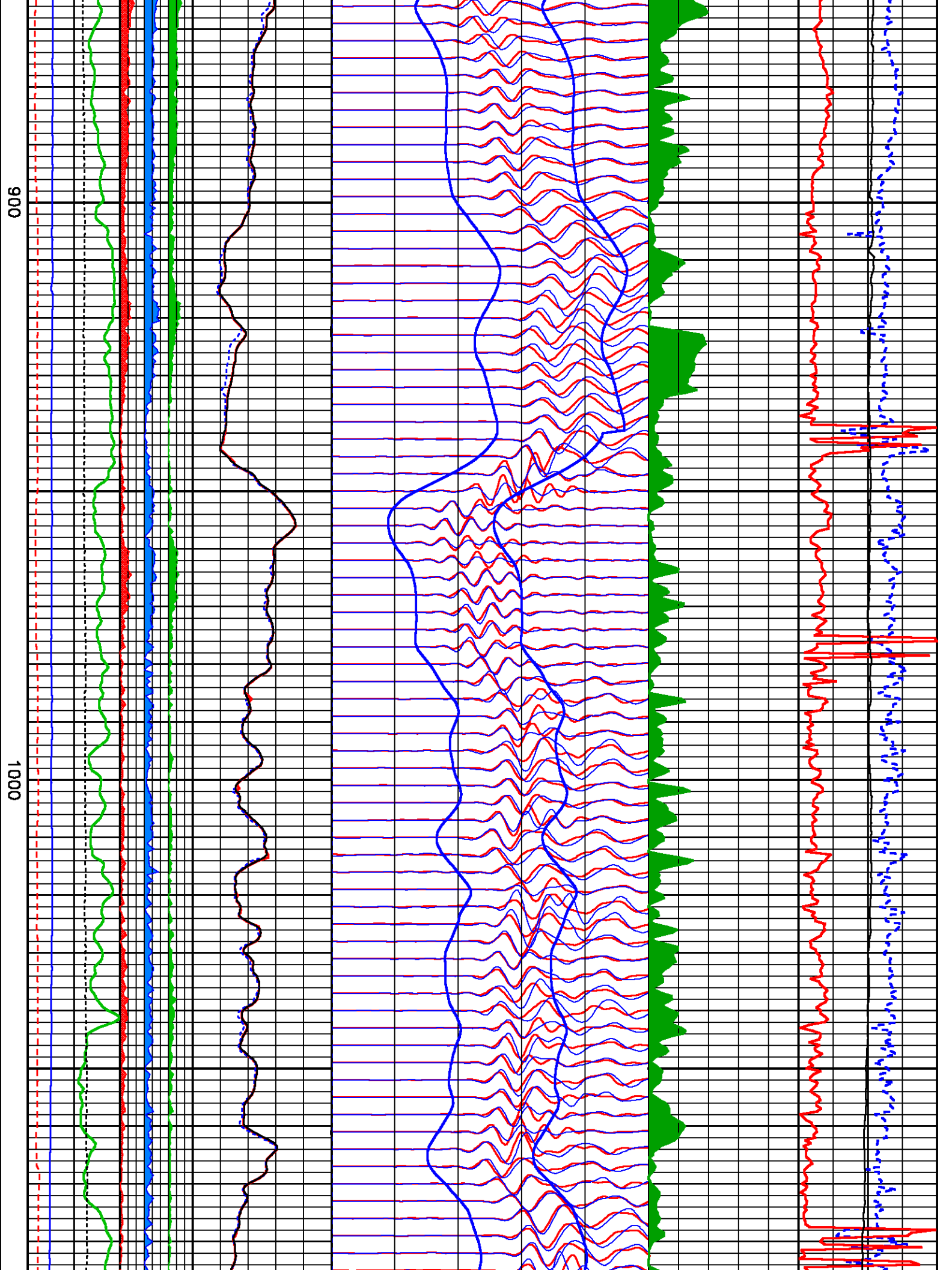


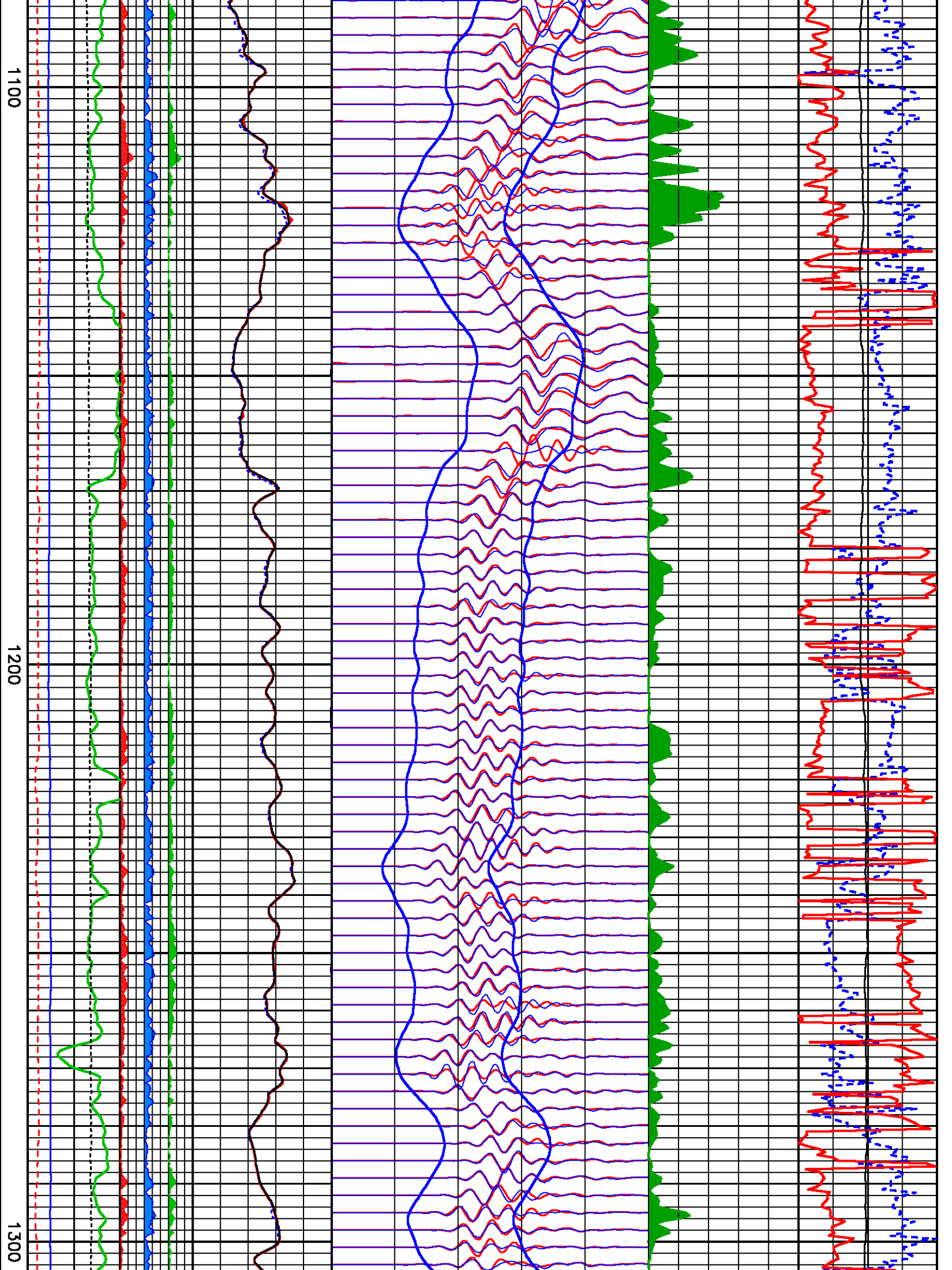


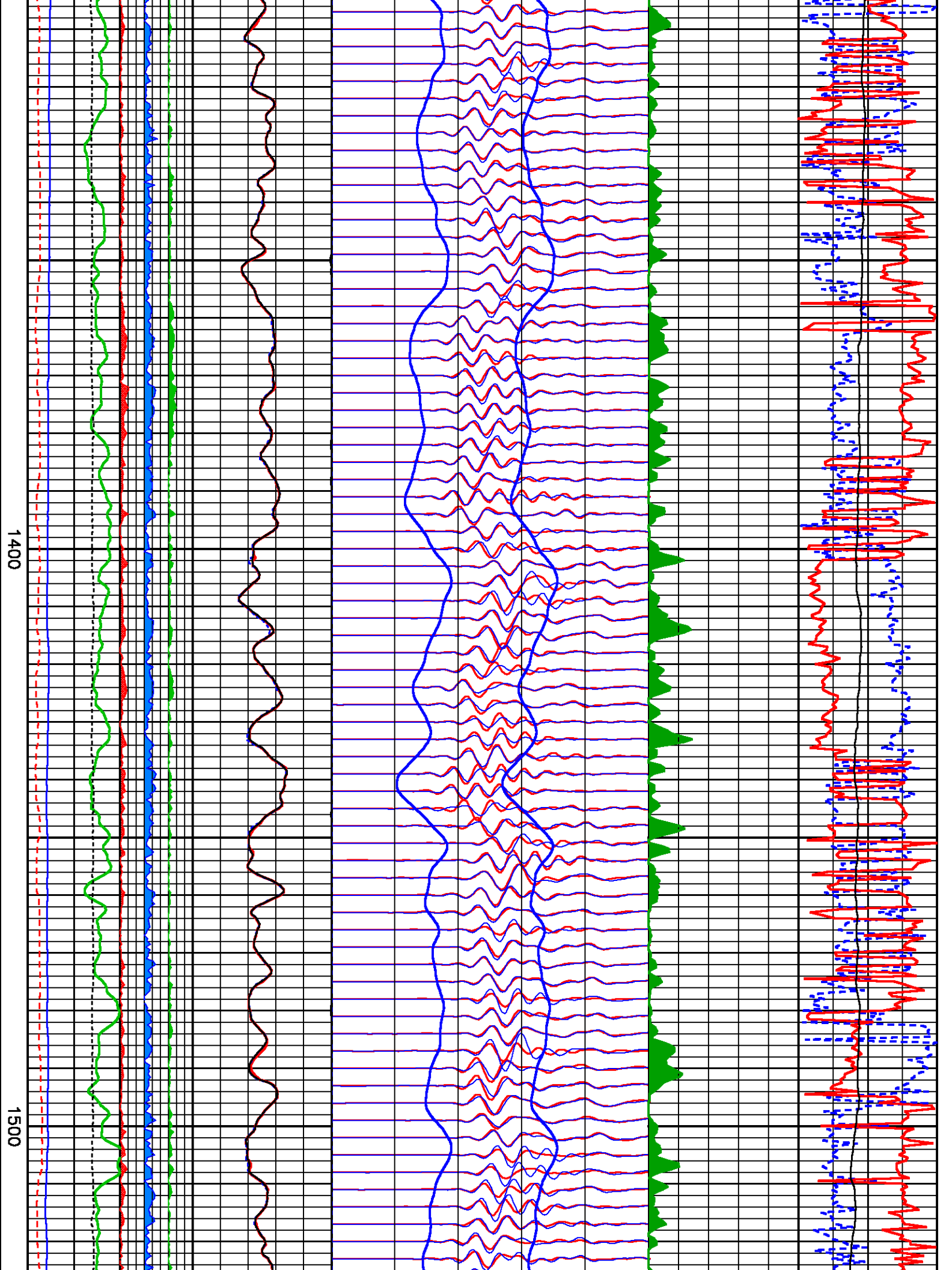
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Created On : Nov 15 12:51:25 2009
Company : SIERRA GEOTHERMAL POWER, INC.
Well : ALUM 25-29
Field : ALUM
File Interval : 472.5 - 2316 Feet
Oct : k771|

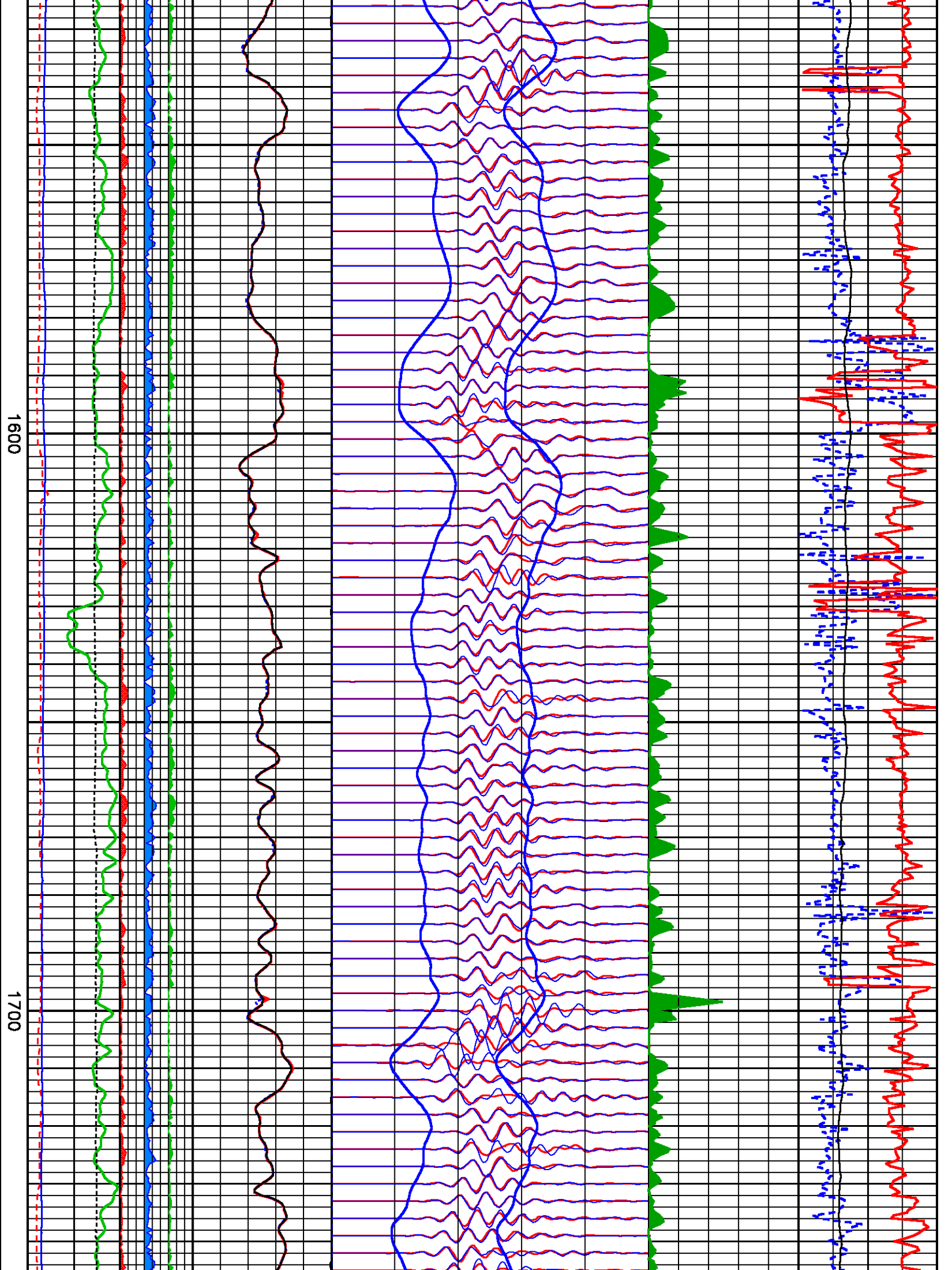


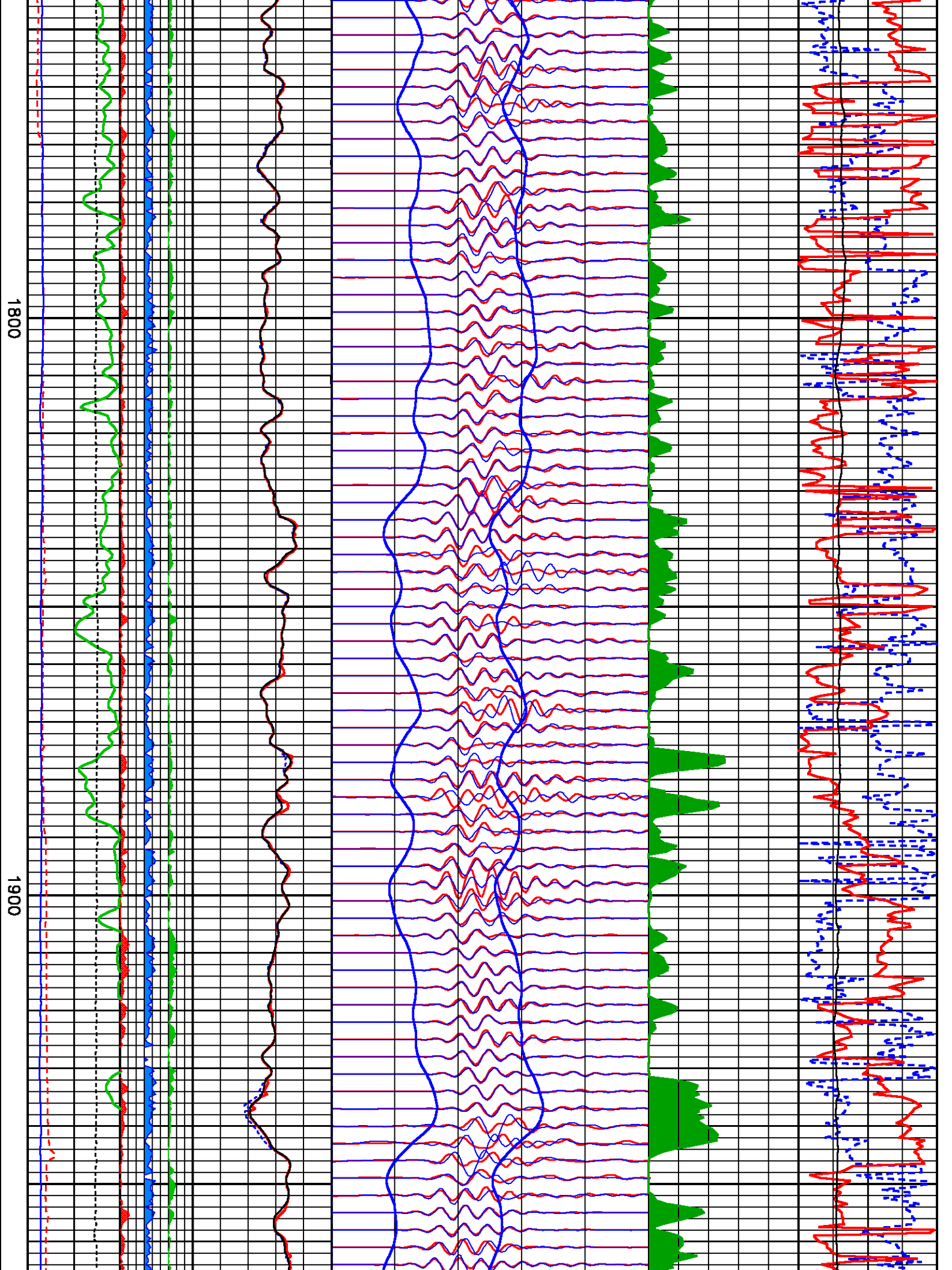


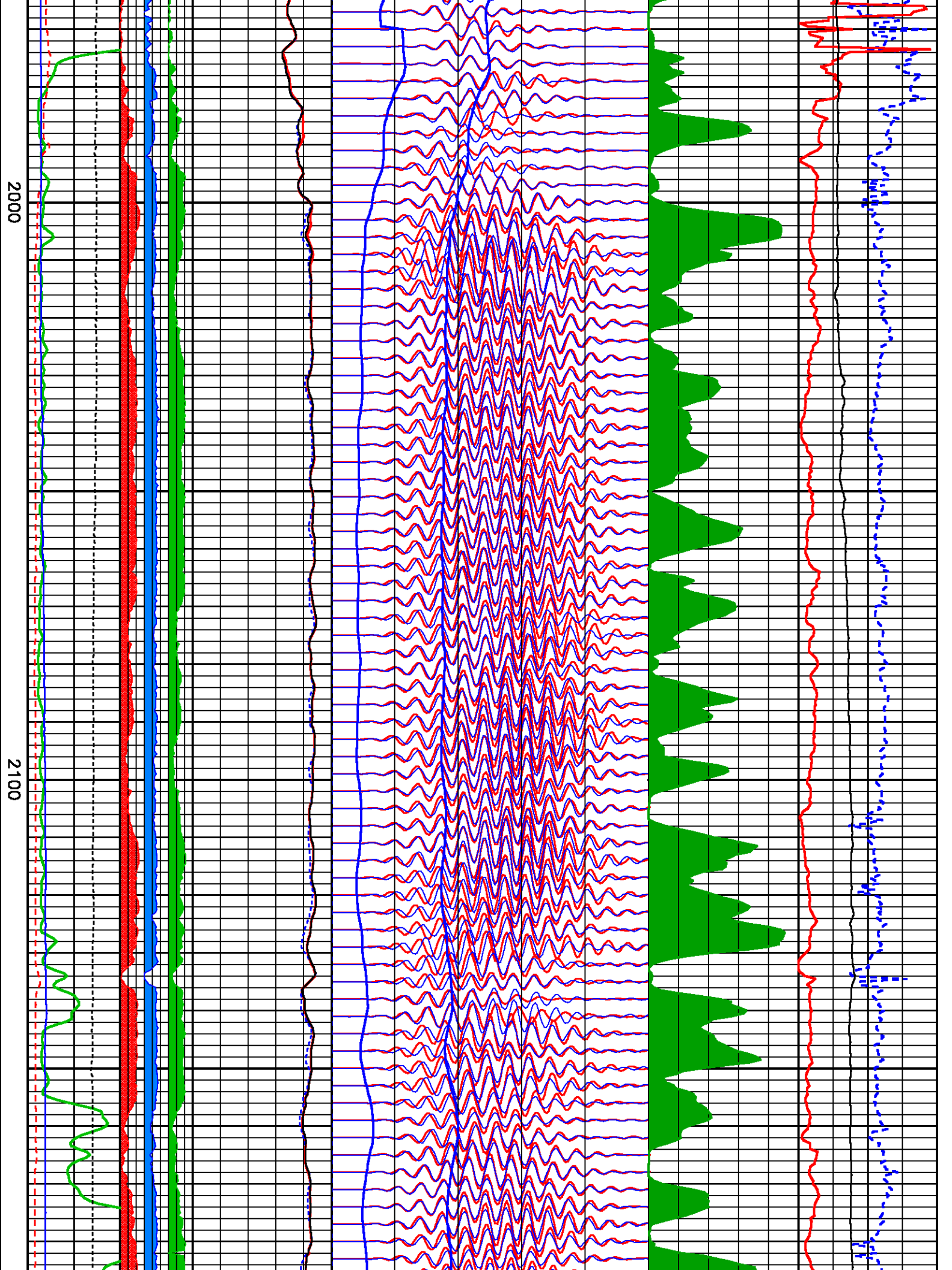


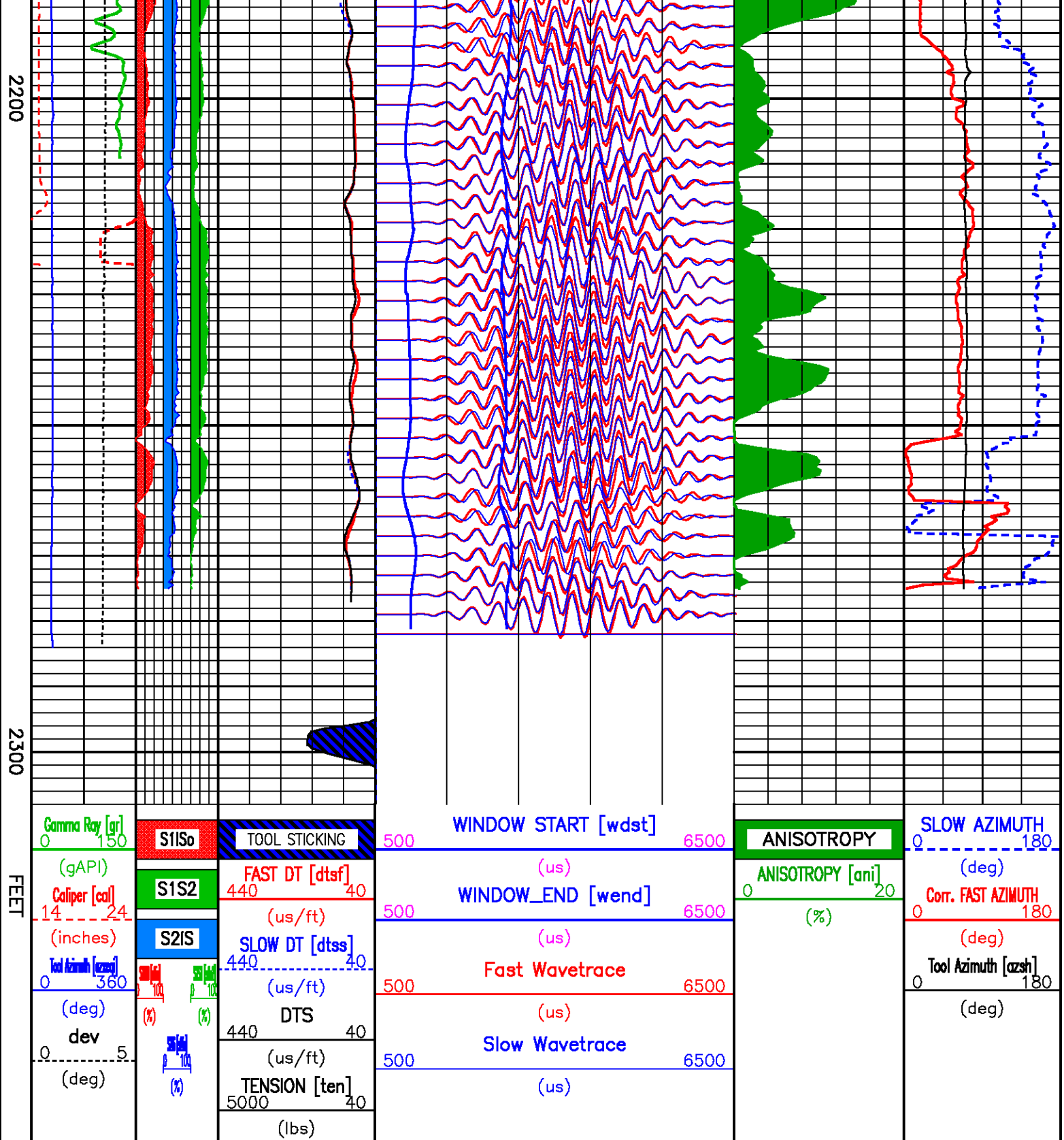












PARAMETER SECTION

```




!
!Input XTF File
!
FILE=/geos/lac/adrejosl/sierra_xmac/xmac.xtf    ! Input XTF file
!
!Output XTF File
!
FILEOUT='/geos/lac/adrejosl/sierra_xmac/ani.xtf'    ! Output XTF file
!
!
!Input Curves
!
TRXXWV<TXXWV01    ! XX wave trace
TRXXGN<TXXGN01    ! XX gain
TRXXST<TXXST01    ! XX start time
TRXYWV<TRXYWV01    ! XY wave trace
TRXYGN<TRXYGN01    ! XY gain
TRXYST<TRXYST01    ! XY start time
TRYXWV<TRYXWV01    ! YX wave trace
TRYXGN<TRYXGN01    ! YX gain
TRYXST<TRYXST01    ! YX start time
TRYYWV<TRYYWV01    ! YY wave trace
TRYYGW<TRYYGW01    ! YY gain
TRYYST<TRYYST01    ! YY start time
AZRB<AZXEQI    ! Raw Tool Azimuth or RB
WINST<TTS1    ! Window Start Time
DTS<DTS    ! Shear Slowness
CAL<CAL    ! Caliper
GR<GR    ! Gamma Ray
DEV<DEVXEQI    ! Well Deviation
!
!Output Curves
!
TRROTFWV>FWV    ! Fast Wave Trace
TRROTSWV>SWV    ! Slow Wave Trace
AZSHFT>AZSH    ! Shift Tool Azimuth
FANGRAW>FARW    ! Raw Fast Angle
SANGRAW>SARW    ! Raw Slow Angle
FANGCRI>FAIC    ! Corrected Init Fast Angle
SANGCRI>SAIC    ! Corrected Init Slow Angle
DFSANG>DANG    ! Difference between Fast and Slow Angle
DTSF>DTSF    ! Fast Shear Slowness
DTSS>DTSS    ! Slow Shear Slowness
S1ISO>S1IS    ! S1ISO Error
S2ISO>S2IS    ! S2ISO Error
S1S2>S1S2    ! S1S2 Error
ANIAR>ANI    ! Shear Anisotropy
ANITR>ANIA    ! Shear Anisotropy Average
WSTART>WDST    ! Modeling Window Start
WEND>WEND    ! Modeling Window End
FANGCR>FACR    ! Corrected Fast Angle After Swapping
SANGCR>SACR    ! Corrected Slow Angle After Swapping
AMAP>AMAP    ! Anisotropy Map
FANGPI>FAPI    ! FANGCR + 180 degrees
FANGPOS>FPOS    ! FANGCR + DFSANG
FANGNEG>FNEG    ! FANGCR - DFSANG
!
!Generic Parameters Applied to All Zone
!
UNIT=0    ! Unit System
OWRITE=2    ! XTF Output options
WDSTFLAG=0    ! depth acquired point for WINST curve
FILTER=2    ! filtering method
MAGDEC=14.4000    ! Difference Between True and Magnetic North
TOOLSNUM='1678-BA'    ! Tool Serial No
TOOLNAME='XMAC Elite'    ! Tool Name
SWAPXY=0    ! swap X & Y component
!
! Zone Parameters
!
2284.00, 604.00, !Starting And Ending Depth
TRCWT=/1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.0
WINDWLN=1500.0000    ! window time length
LOWFREQ=500.0000    ! low freq. cutoff
HIGHFREQ=2500.0000    ! high freq. cutoff
ANIMAX=15.0000    ! anisotropy slowness max
EOZ    ! End of Zone
!
! Zone Parameters

```

```

!
! Zone Parameters
!
2284.00, 1970.00, !Starting And Ending Depth
TRCWT=/1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00
WINDWLN=1600.0000 ! window time length
LOWFREQ=500.0000 ! low freq. cutoff
HIGHFREQ=2500.0000 ! high freq. cutoff
ANIMAX=18.0000 ! anisotropy slowness max
EQZ ! End of Zone

```

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