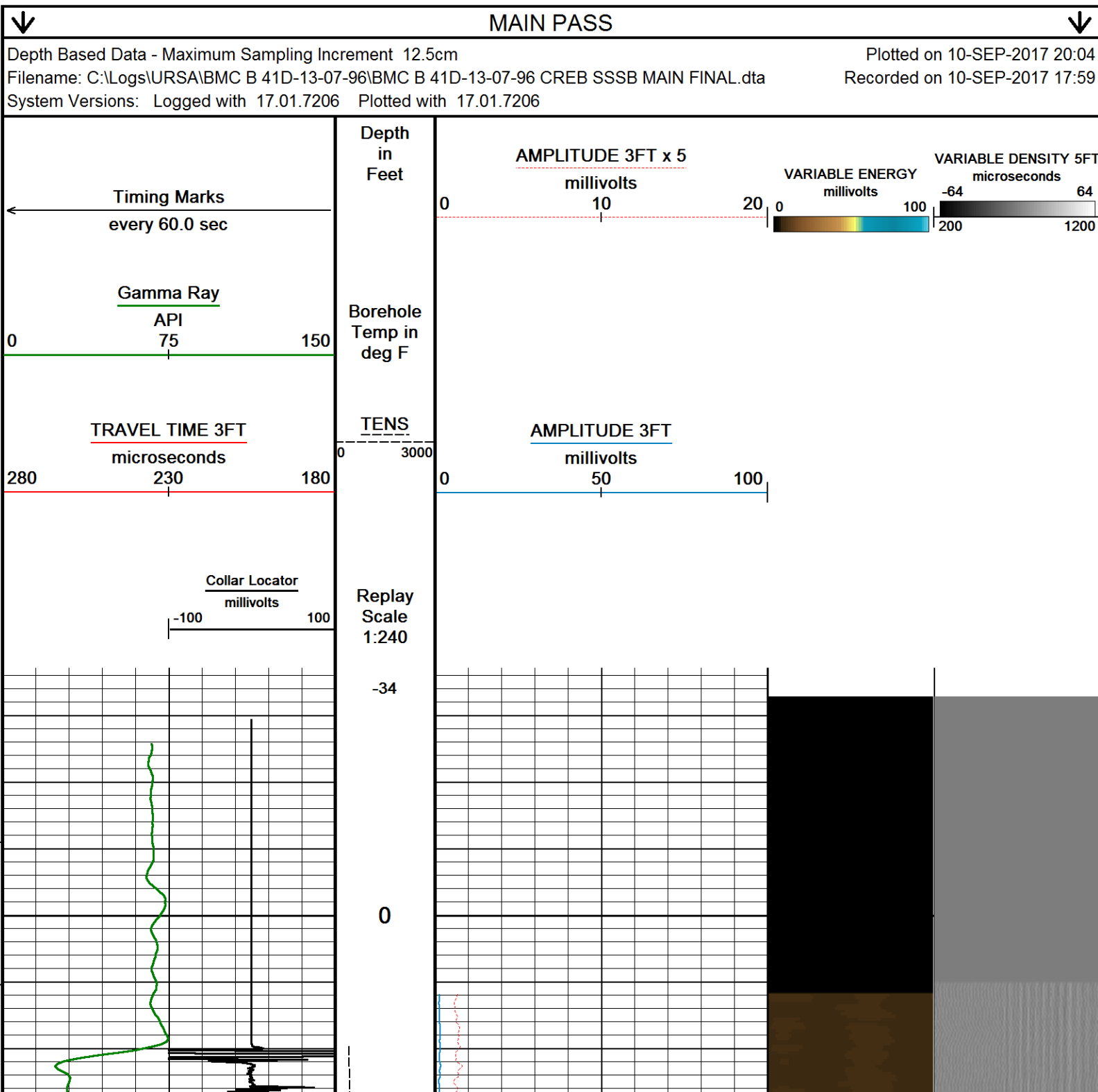
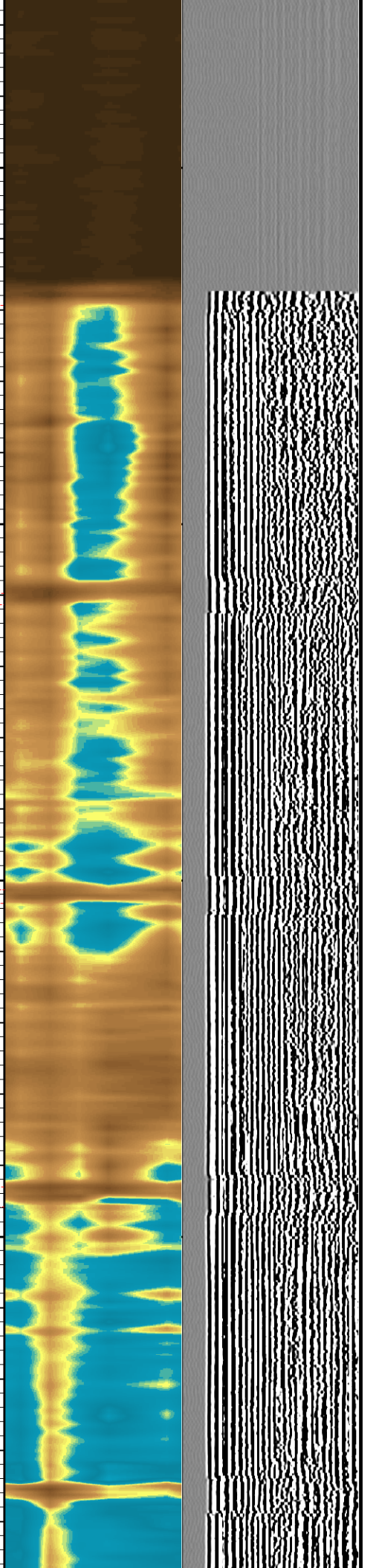
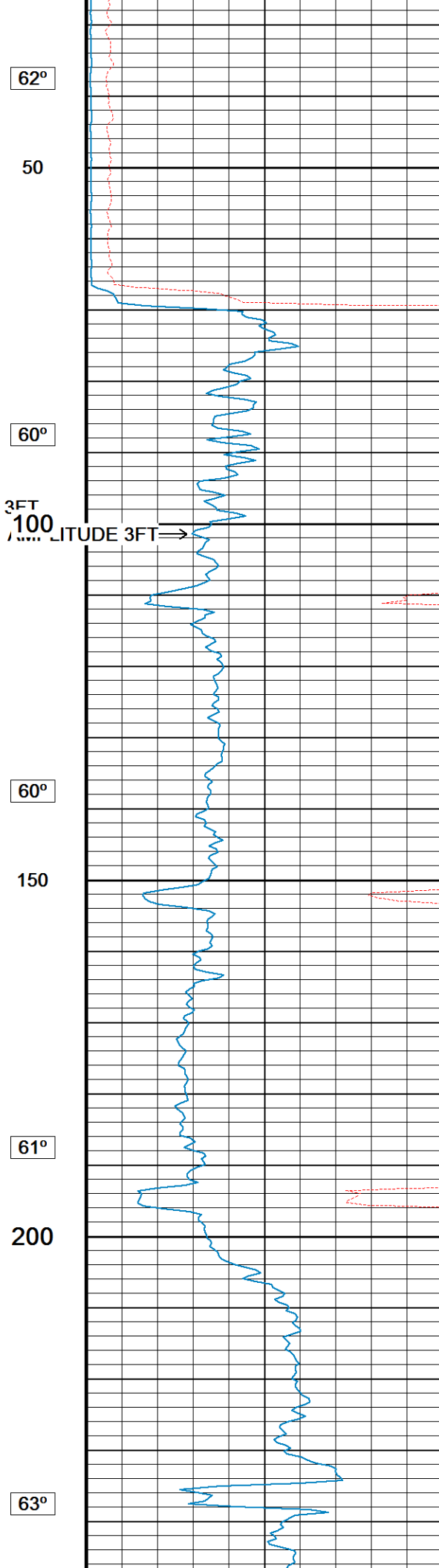
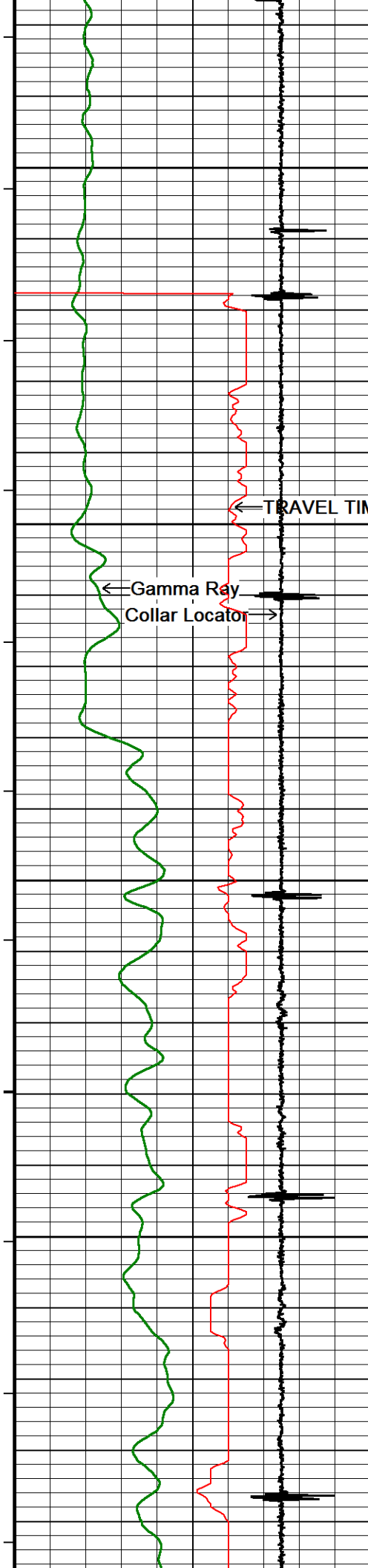
										SLIM SECTOR BOND LOG									
COMPANY										URSA OPERATING COMPANY									
WELL										BMC B 41D-13-07-96									
FIELD										WILDCAT									
PROVINCE/COUNTY										GARFIELD									
COUNTRY/STATE										USA / COLORADO									
LOCATION										2236' FNL & 0667' FWL									
SEC 18		TWP 7S		RGE 95W		Other Services CREB													
Latitude		Longitude																	
API Number		05-045-23489																	
Permanent Datum GROUND LEVEL, Elevation 5100 feet																			
Log Measured From KB, 17.00 feet above Permanent Datum																			
Drilling Measured From KB																			
Date		10-SEP-2017				PERFORATION RECORD													
Run Number		ONE				Shot		Number		Depth From		Depth To							
Service Order						Density		of Shots		feet		feet							
Type Log		SSSB																	
Depth Driller		6823.00		feet															
Depth Logger		6414.00		feet															
Top Log Interval		0.00		feet															
Bottom Log Interval		6823.00		feet															
Hole Fluid Type		WATER																	
Hole Fluid Level		0.00		feet															
Restriction ID		3.875		inches		Gun Type													
Max Recorded Temp		197.00		deg F		Gun Size													
Well Head Pressure		0.00		psi		CASING / TUBING RECORD													
Well Head Equipment		N/A				Size		Weight		Depth From		Depth To							
Time Well Ready		ROA				inches		pounds/ft		feet		feet							
Time Logger Bottom		SEE LOG				8.625		32.00		0.00		1700.00							
Unit		14115				4.500		11.60		0.00		6823.00							
Equipment Name		WSS-E																	
Base		CASPER																	
Recorded By		P. MAZUR																	
Witnessed By		NOT WITNESSED																	

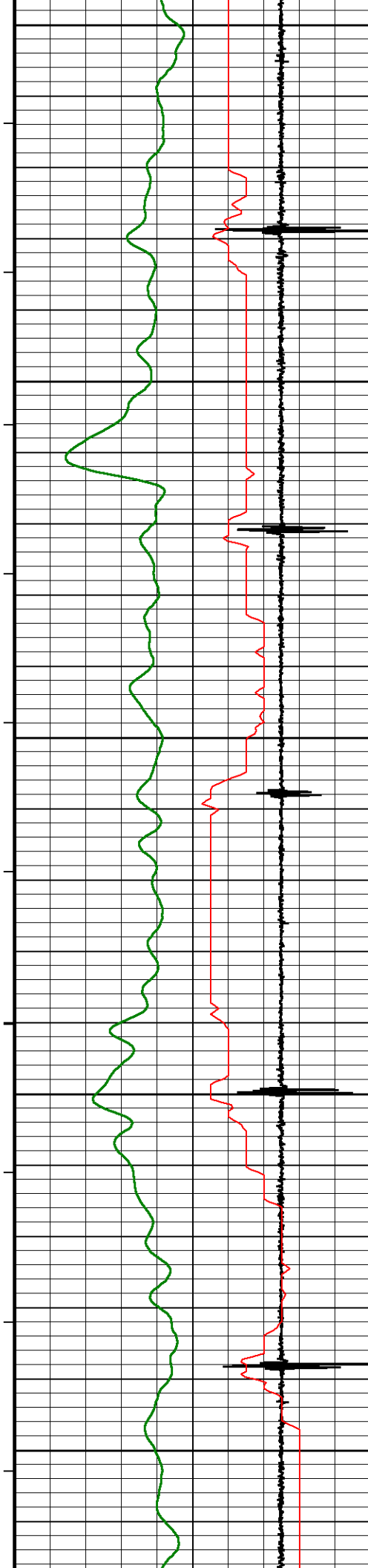
CASING / TUBING RECORD						
Type	Grade	TypeJoint	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE			8.625	0.00	1700.00	32.00
PRODUCTION			4.500	0.00	6823.00	11.60

REMARKS
SOFTWARE VERSION 17.01.7206 - COMMERCIAL VERSION
ALL DEPTH CONTROL PROCEDURES FOR SUBSEQUENT RUN IN HOLE WERE FOLLOWED. LOG RUN FROM 17' K.B.
SURFACE SYSTEM USED: WCM-D 160
TOOLS RUN: WCCC, UGRK, QPGE, CR3B, TMPN, CRPB, CRMB, CR3B, UGRK, SUEC, SSSB, STEB, CENA WERE RAN IN COMBINATION
GAMMA RAY COUNTS ON SUBSEQUENT PASSES ARE AFFECTED BY RESIDUAL NEUTRON ACTIVATION CAUSED BY THE PREVIOUS PASS
PREDICTED 3' AMPLITUDE FOR 4.5" WITH 11.6 LB/FT CASING: 81 mv
FREE PIPE CALIBRATION DONE AT 370 FT
UNKNOWNEN CEMENT CLASS DUE MISSING DATA FROM CLIENT
UNKNOWNEN CEMENT JOB ENDED TIME DUE TO MISSING DATA FROM CLIENT
BOTTOM HOLE TEMPERATURE WAS DEG. 197F

In interpreting, communicating or providing information and/or making recommendations, either written or oral, as to logs or test or other data, type or amount of material, or Work or other service to be furnished, or manner of performance, or in predicting results to be obtained, the Contractor will give the Company the benefit of the Contractor's best judgment based on its experience and will perform all such Work in a good and workmanlike manner. Any interpretation of test or other data, and any recommendation or reservoir description based upon such interpretations, are opinions based upon inferences from measurements and empirical relationships and assumptions, which inferences and assumptions are not infallible, and with respect to which professional engineers and analysts may differ. ACCORDINGLY ANY INTERPRETATION OR RECOMMENDATION RESULTING FROM THE SERVICES WILL BE AT THE SOLE RISK OF THE COMPANY, AND THE CONTRACTOR CANNOT AND DOES NOT WARRANT THE ACCURACY, CORRECTNESS OR COMPLETENESS OF ANY SUCH INTERPRETATION OR RECOMMENDATION, WHICH INTERPRETATIONS AND RECOMMENDATIONS SHOULD NOT, THEREFORE, UNDER ANY CIRCUMSTANCES BE RELIED UPON AS THE SOLE OR MAIN BASIS FOR ANY DRILLING, COMPLETION, WELL TREATMENT, PRODUCTION OR FINANCIAL DECISION, OR ANY PROCEDURE INVOLVING ANY RISK TO THE SAFETY OF ANY DRILLING ACTIVITY, DRILLING RIG OR ITS CREW OR ANY OTHER INDIVIDUAL. THE COMPANY HAS FULL RESPONSIBILITY FOR ALL DECISIONS CONCERNING THE SERVICES.







250

64°

300

65°

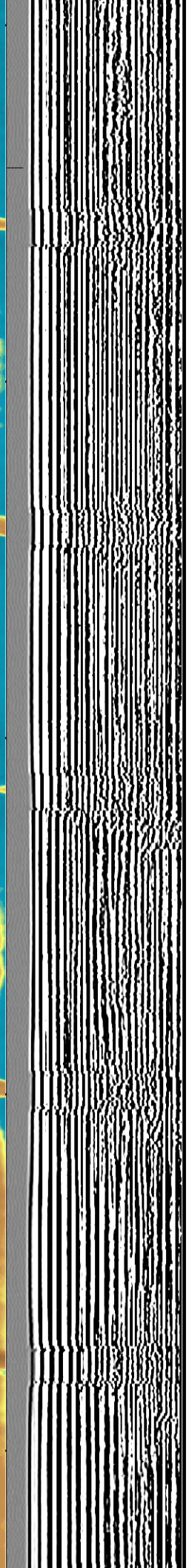
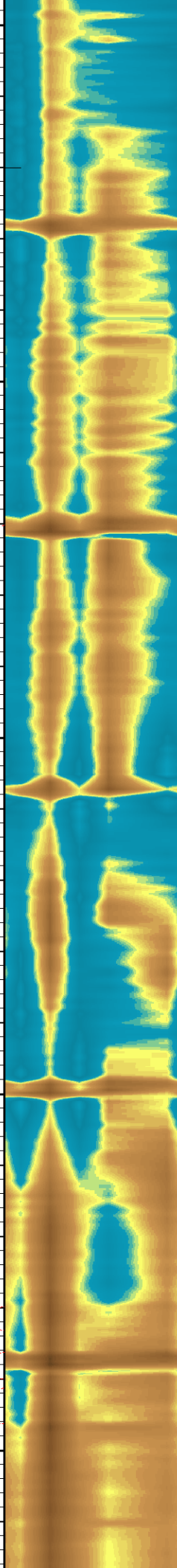
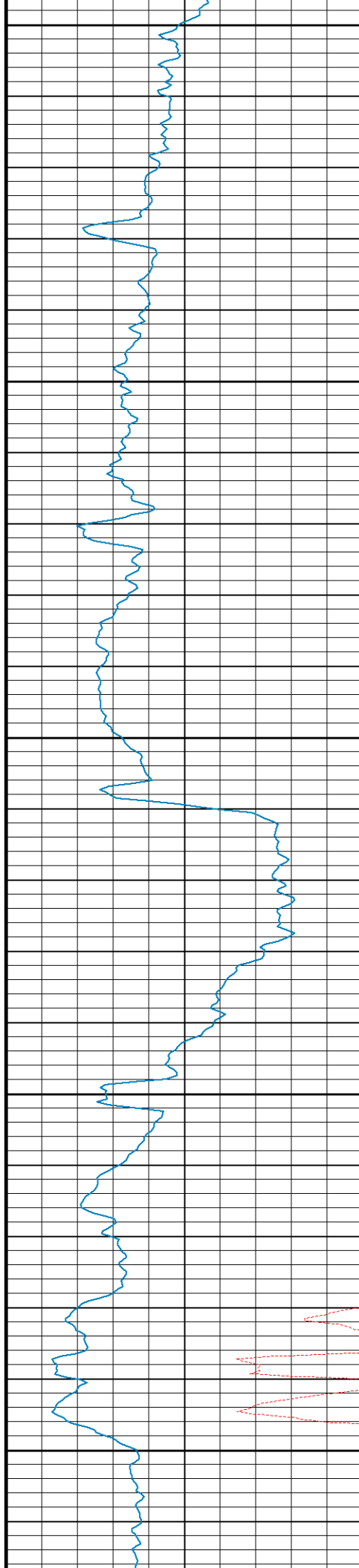
350

66°

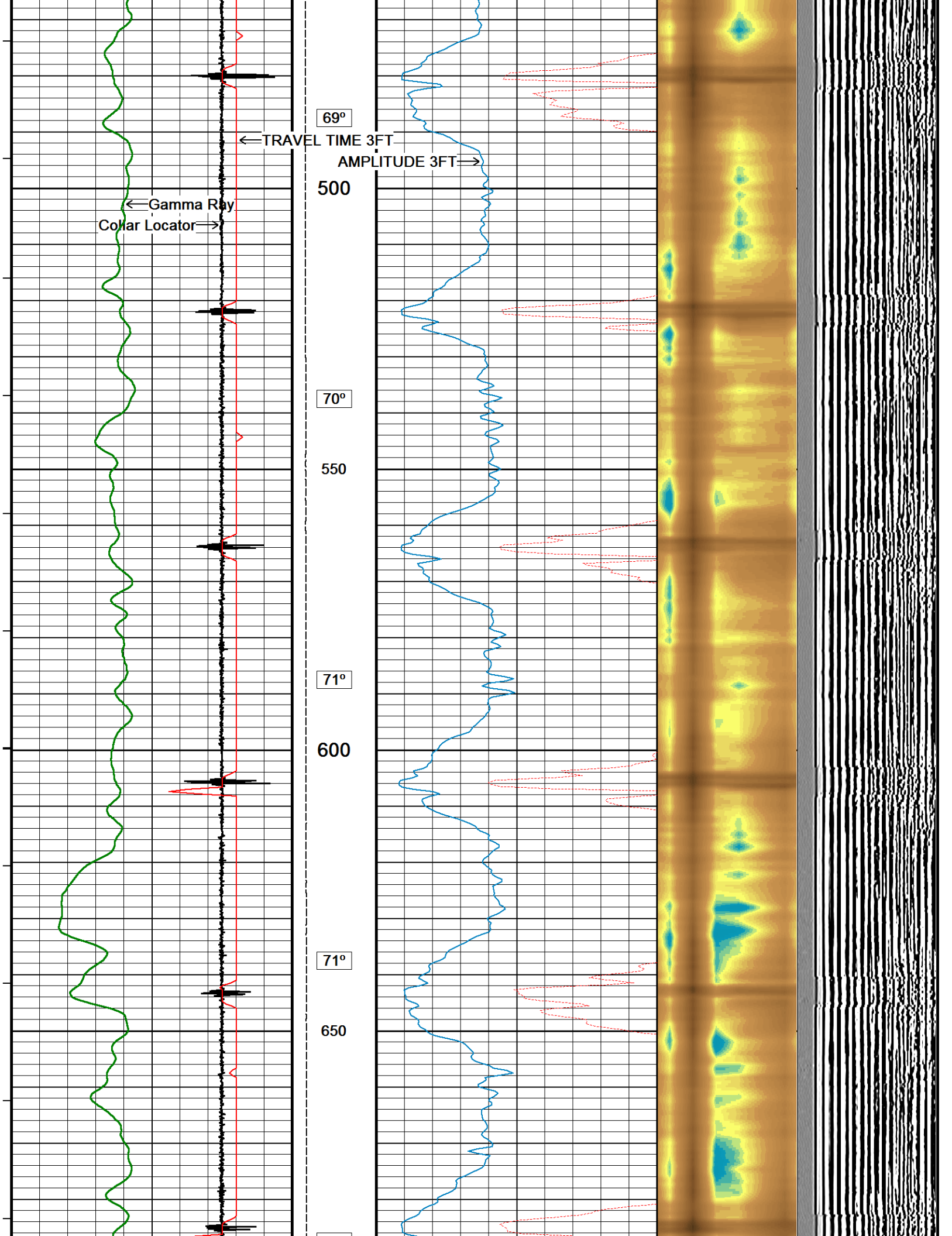
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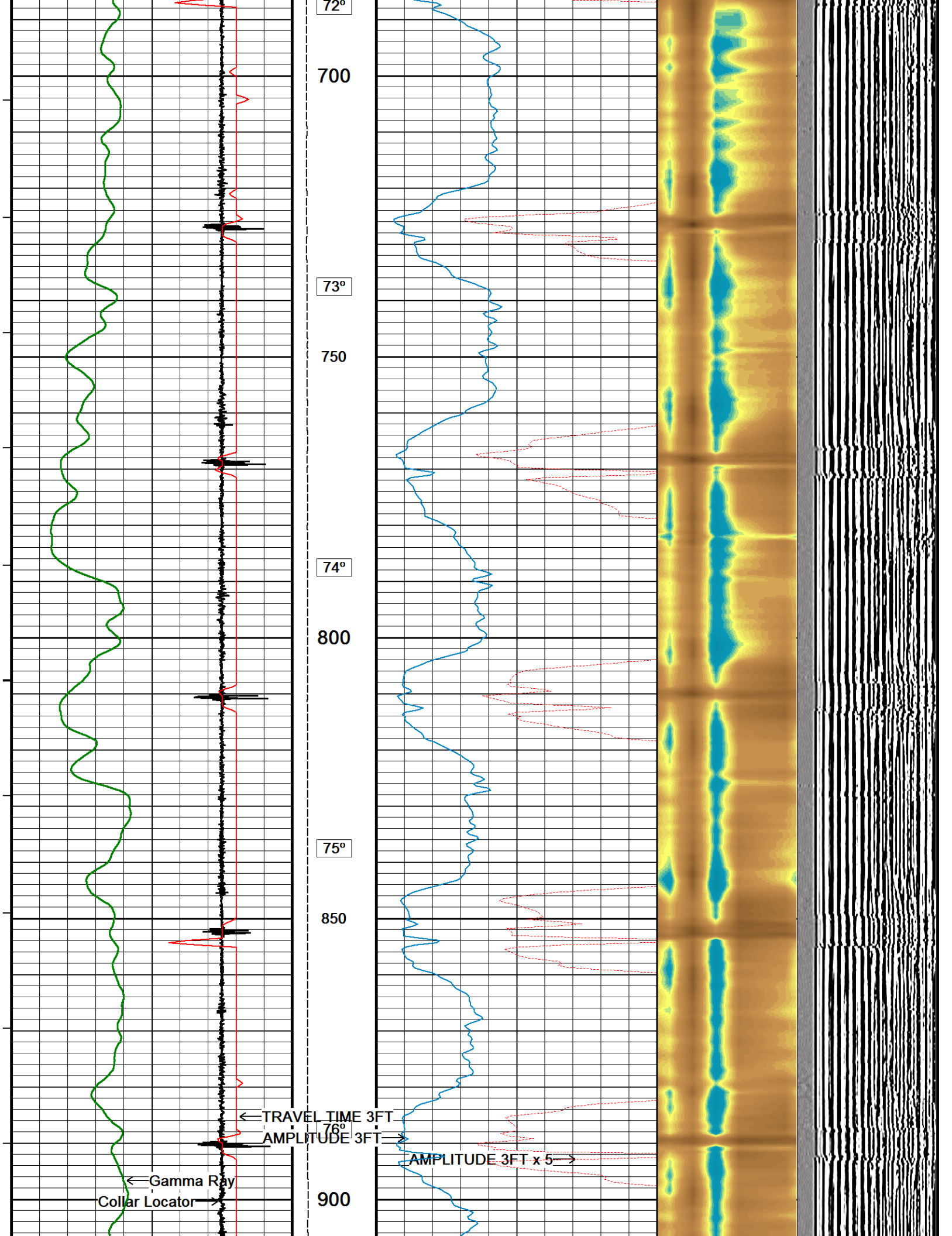
67°

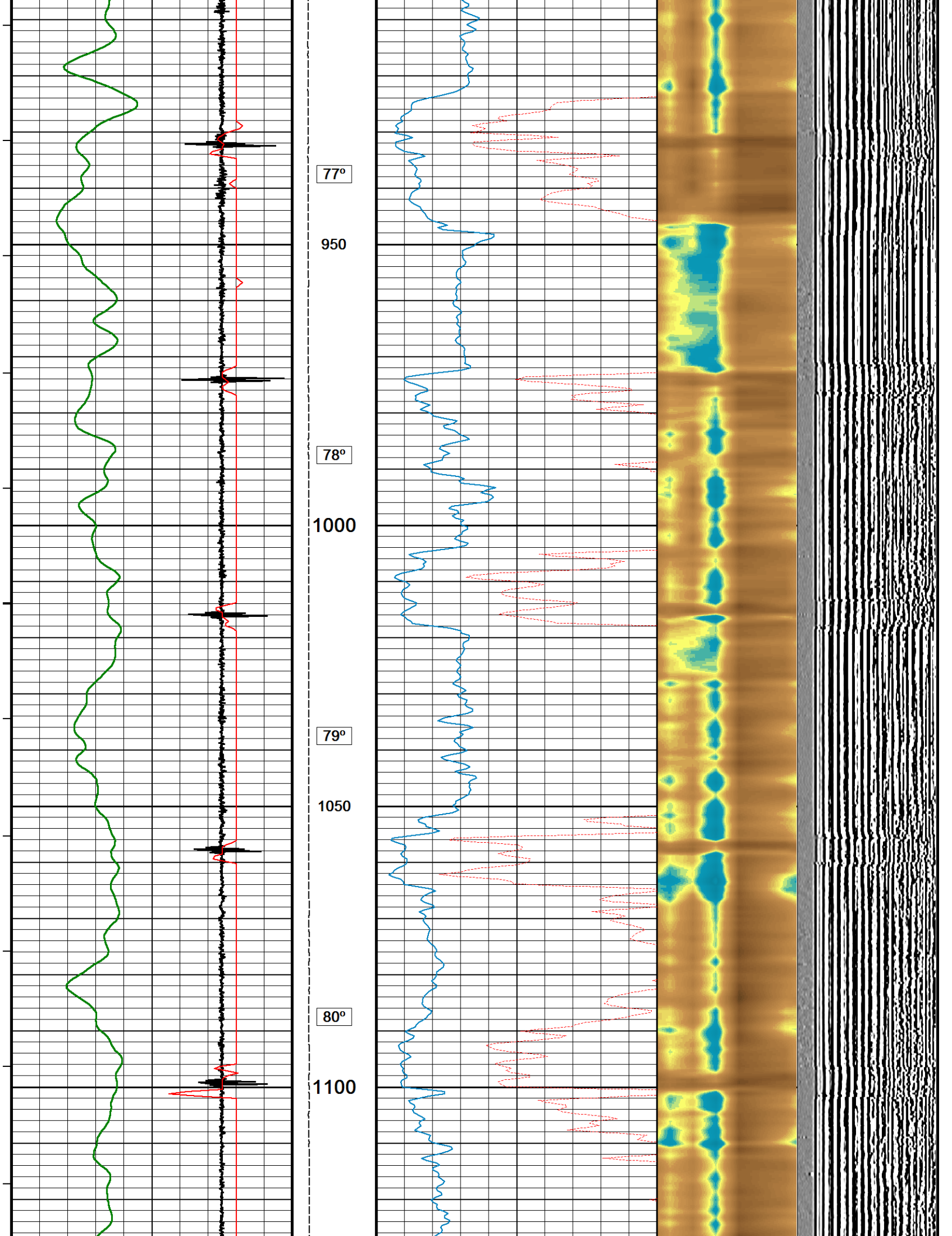
450



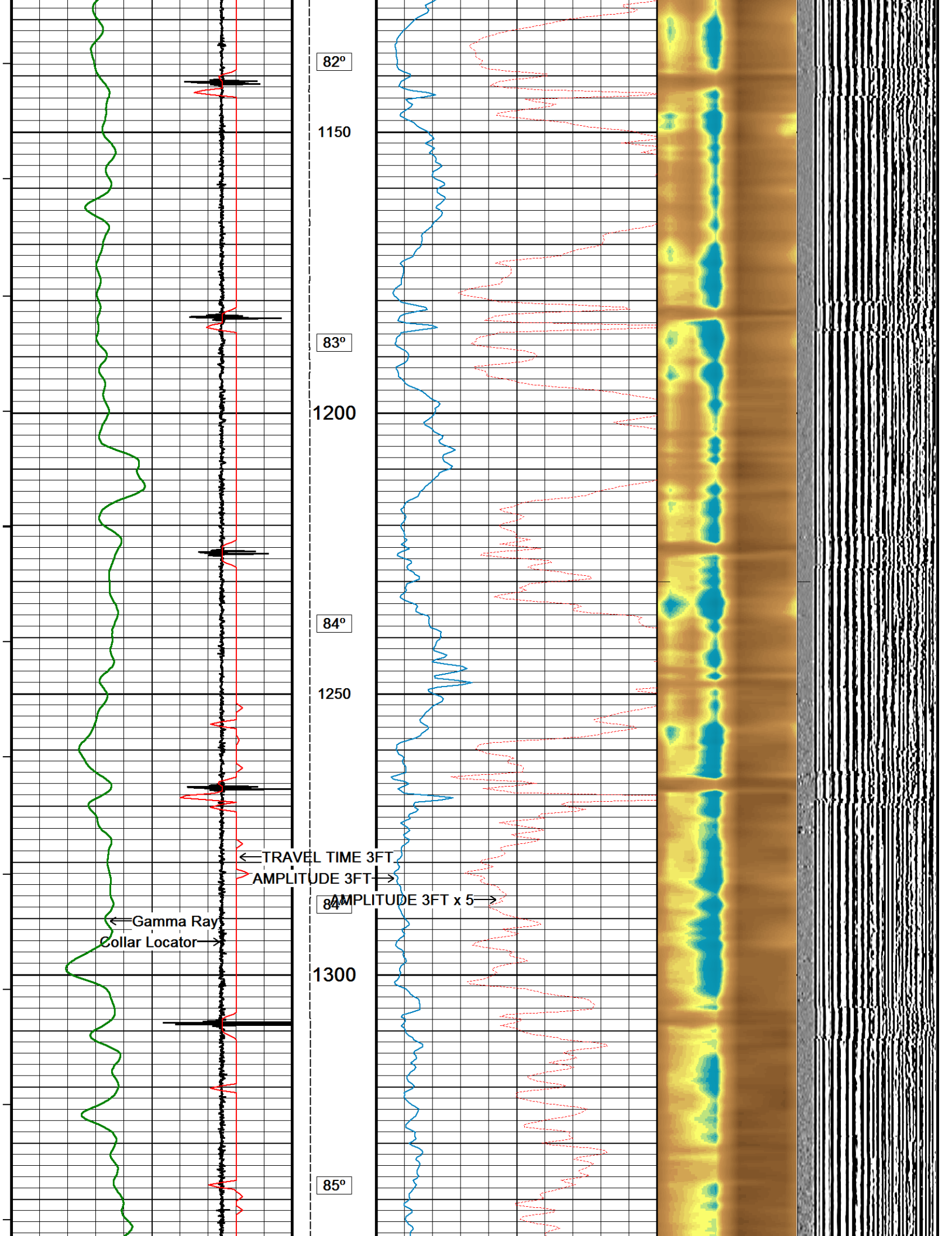




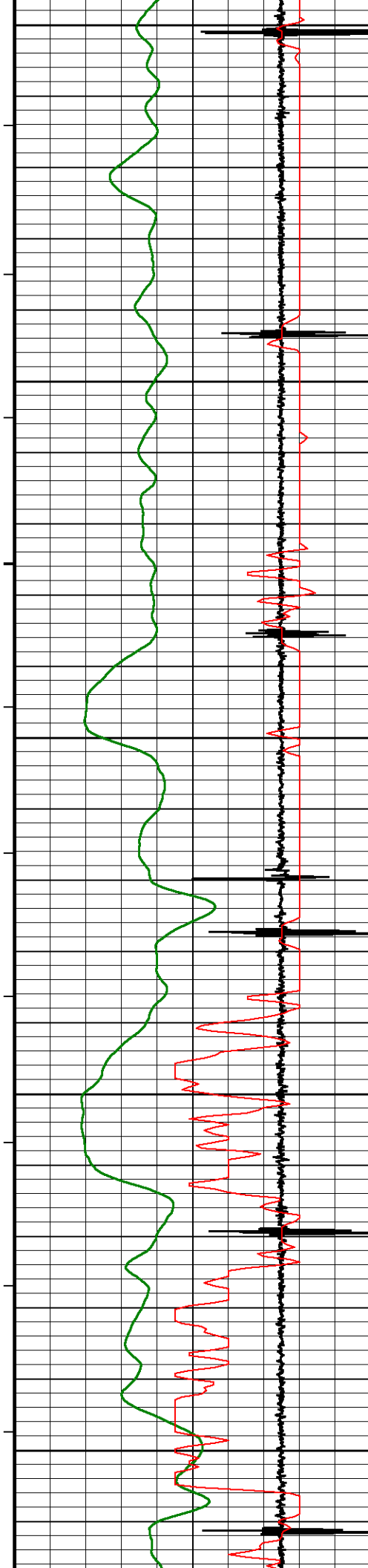












1350

86°

1400

87°

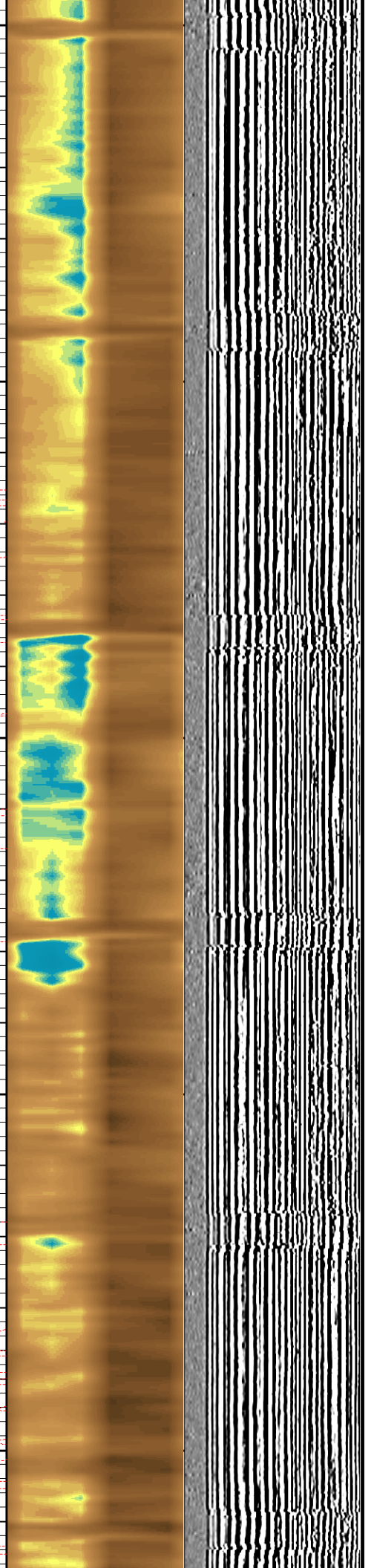
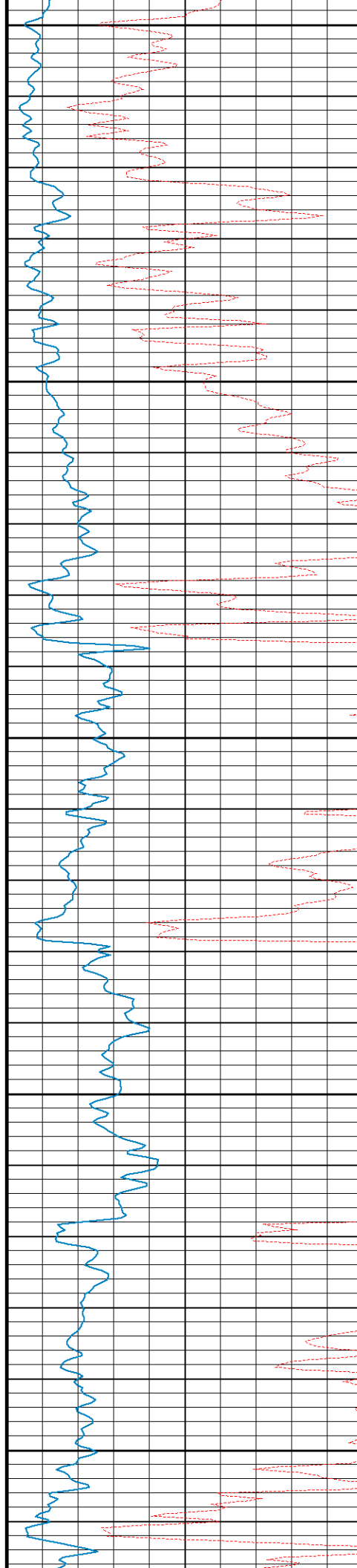
1450

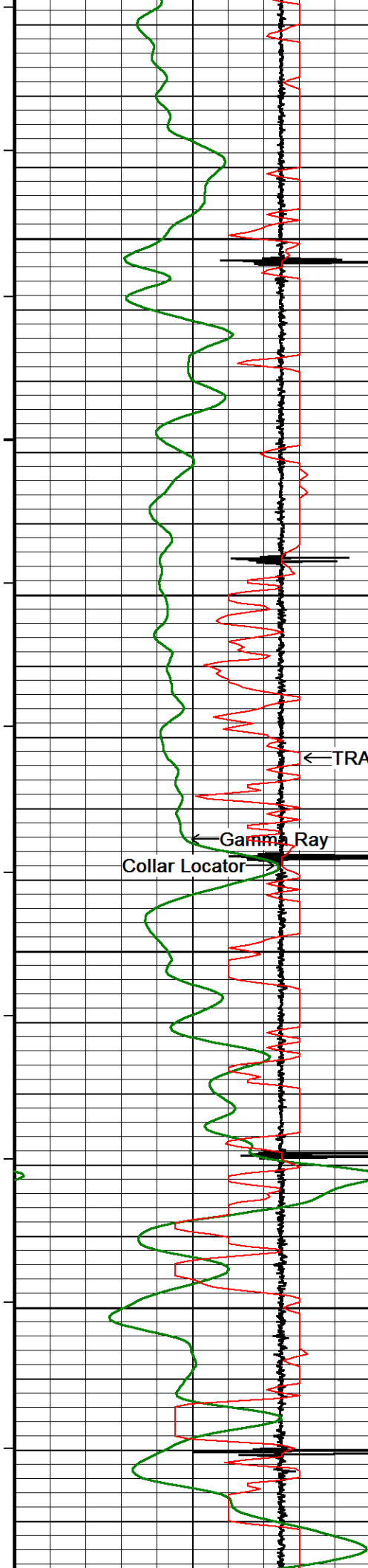
88°

1500

89°

1550





90°

1600

91°

1650

← TRAVEL TIME 3FT

AMPLITUDE 3FT →

← Gamma Ray

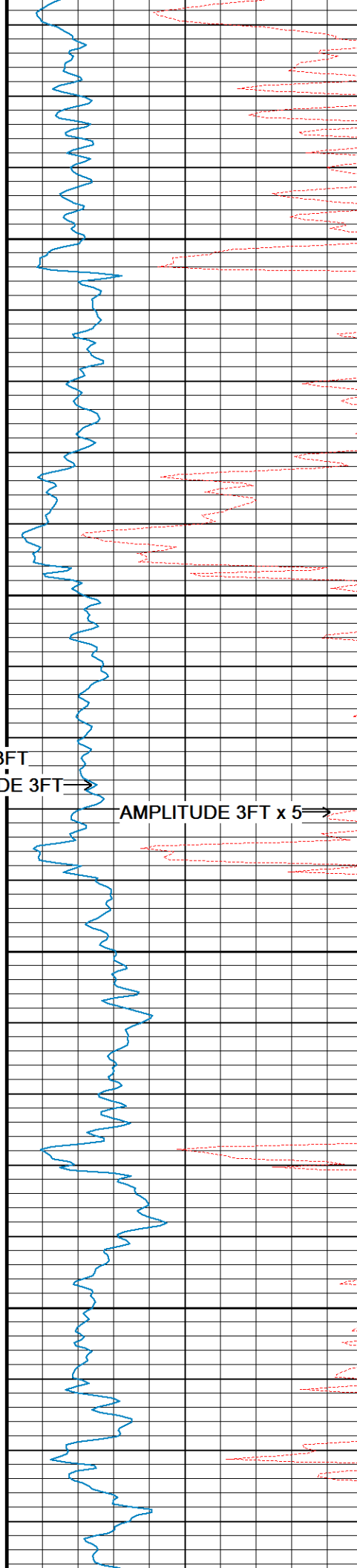
Collar Locator

92°

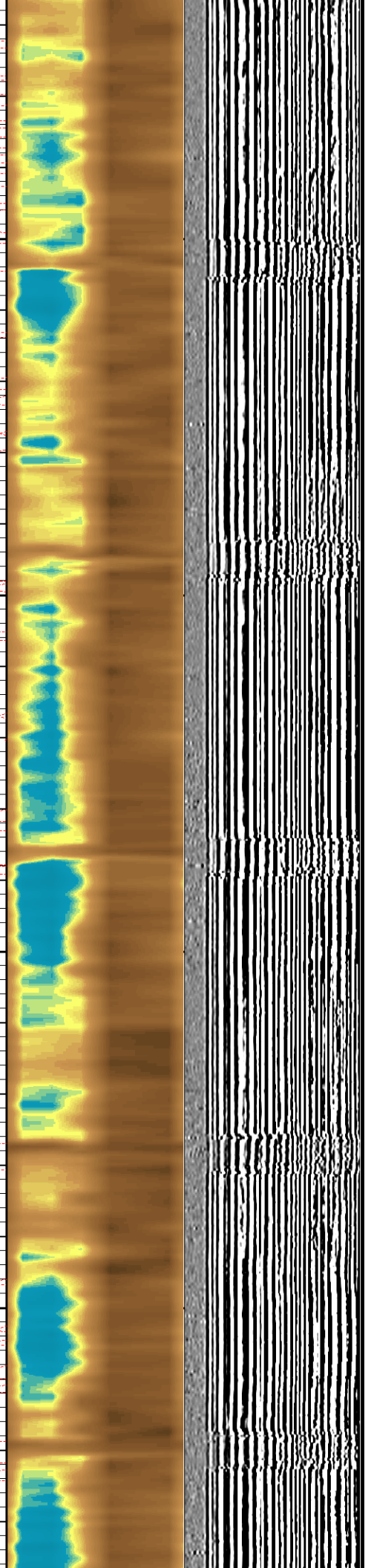
1700

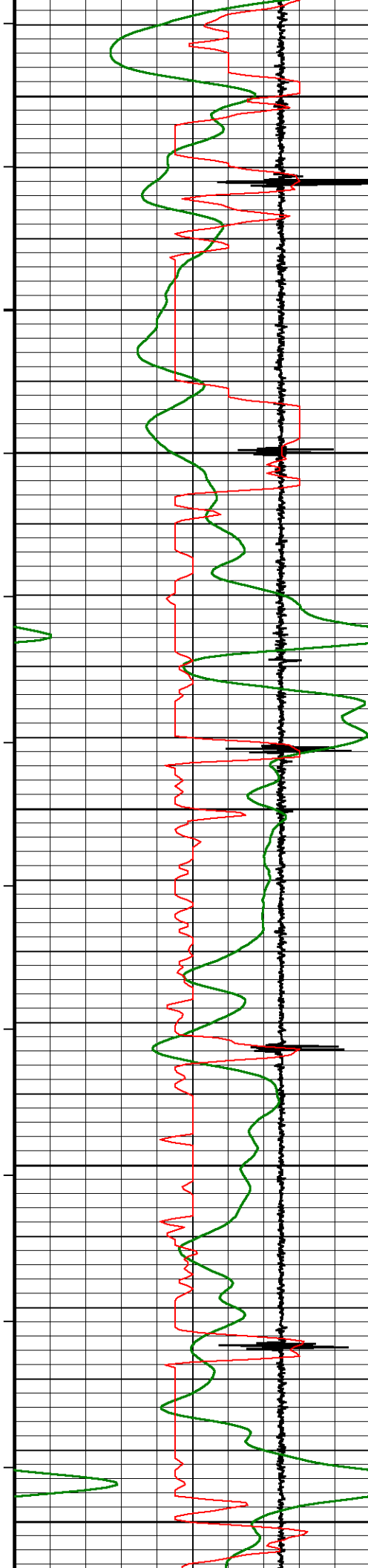
94°

1750

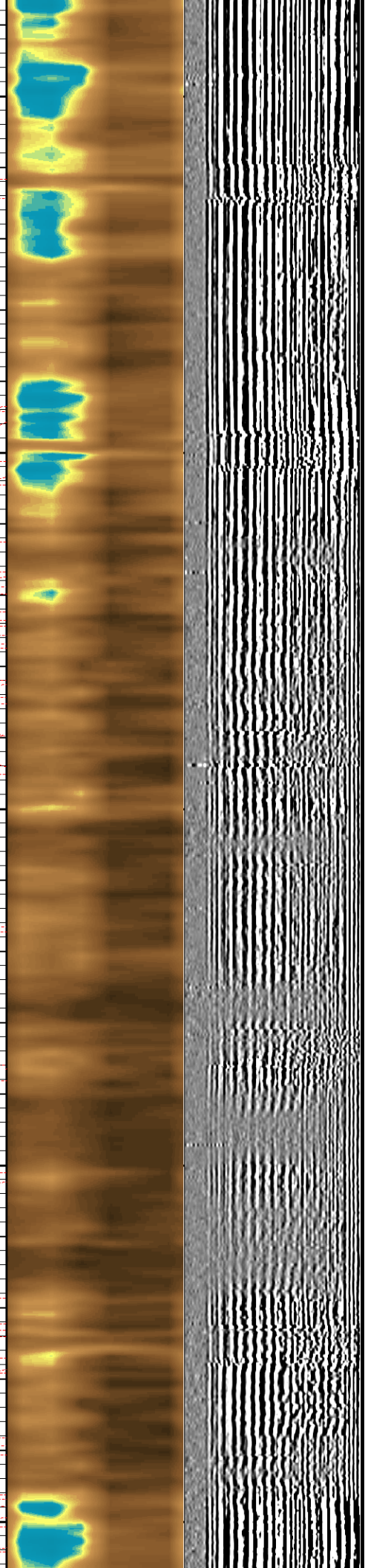
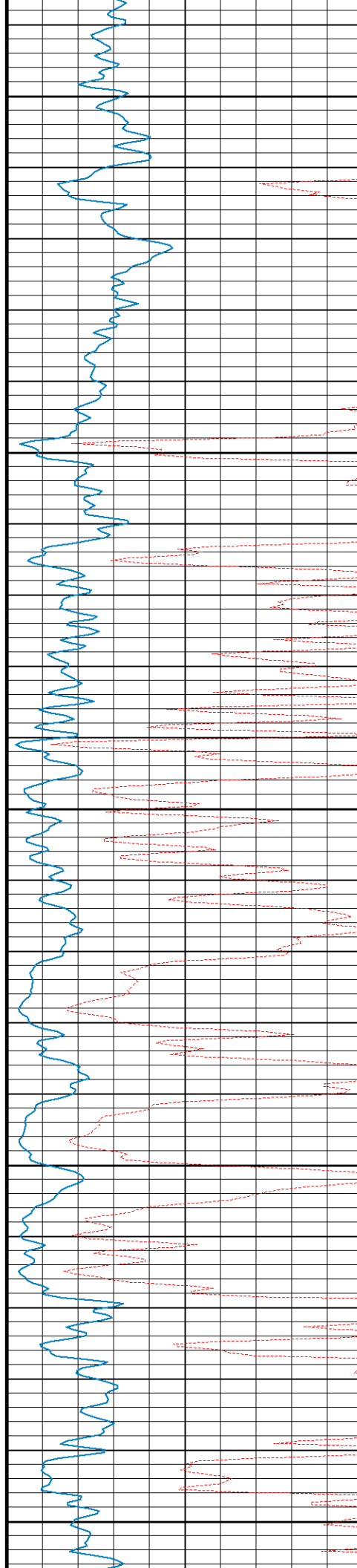


AMPLITUDE 3FT x 5 →

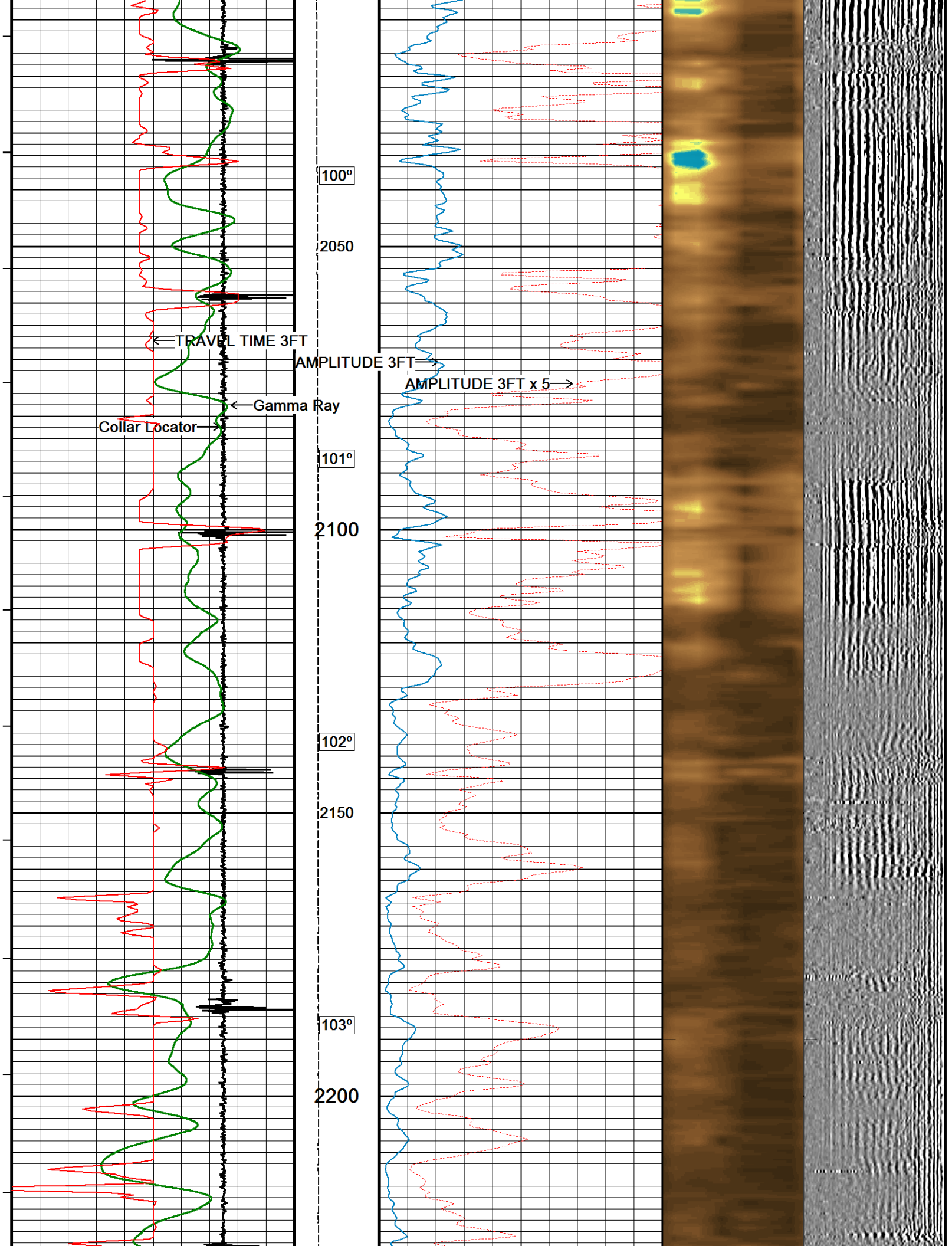




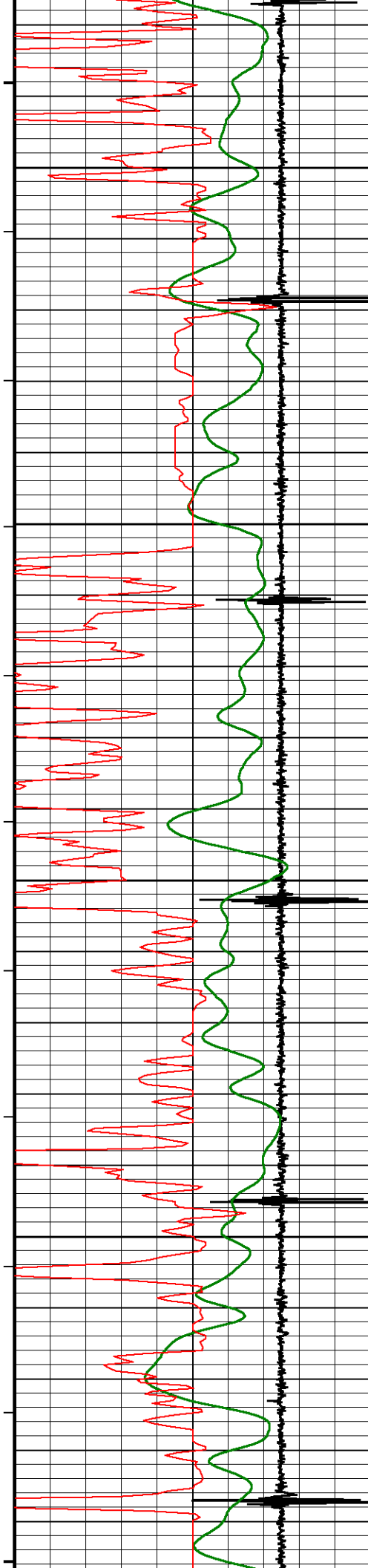
95°  
1800  
96°  
1850  
97°  
1900  
98°  
1950  
99°  
2000











103°

2250

104°

2300

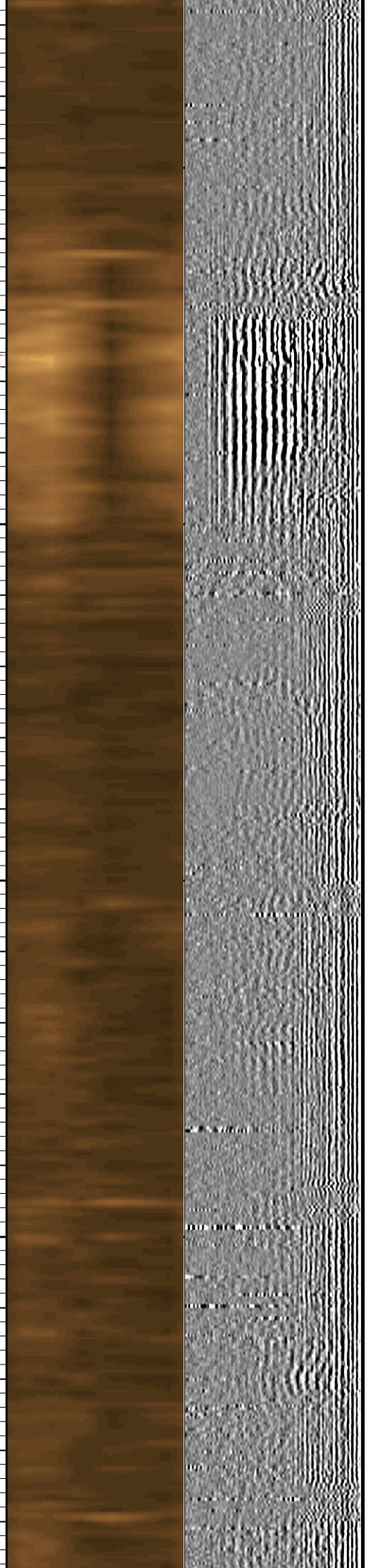
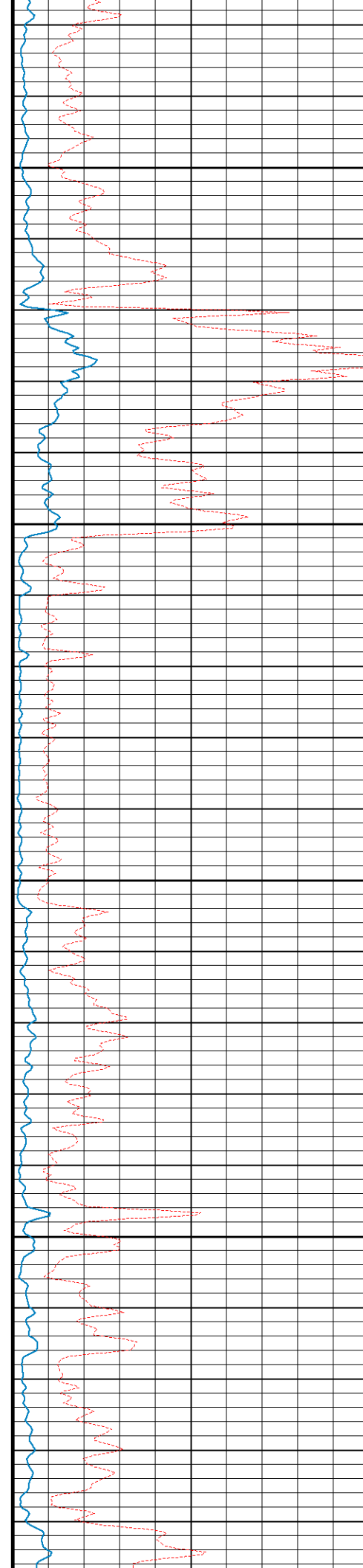
105°

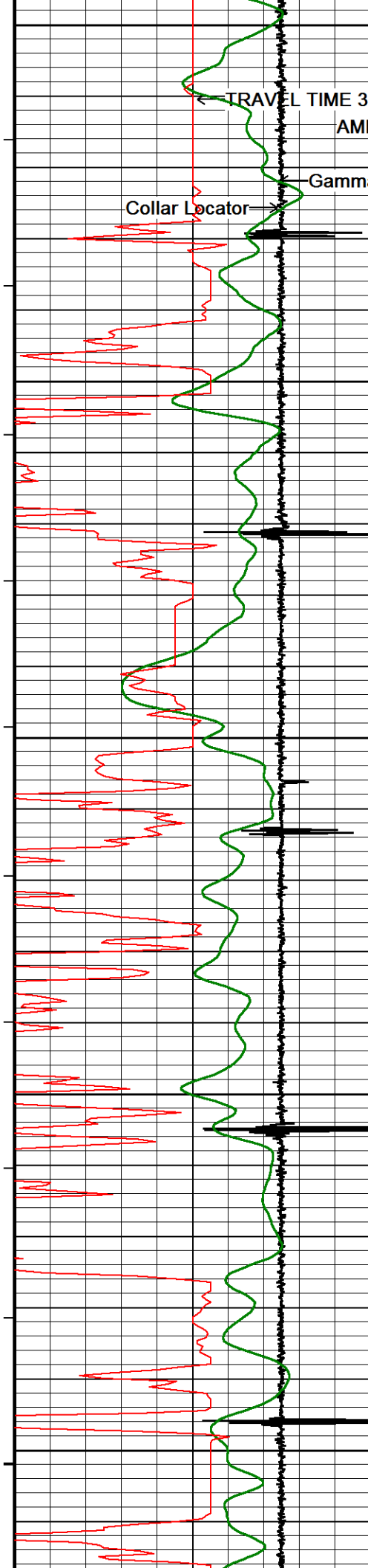
2350

106°

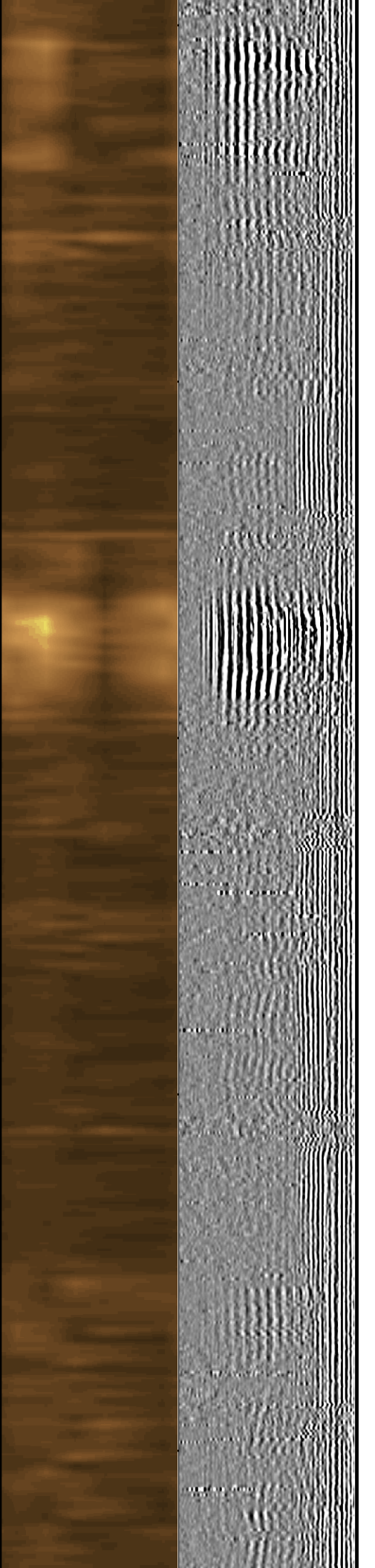
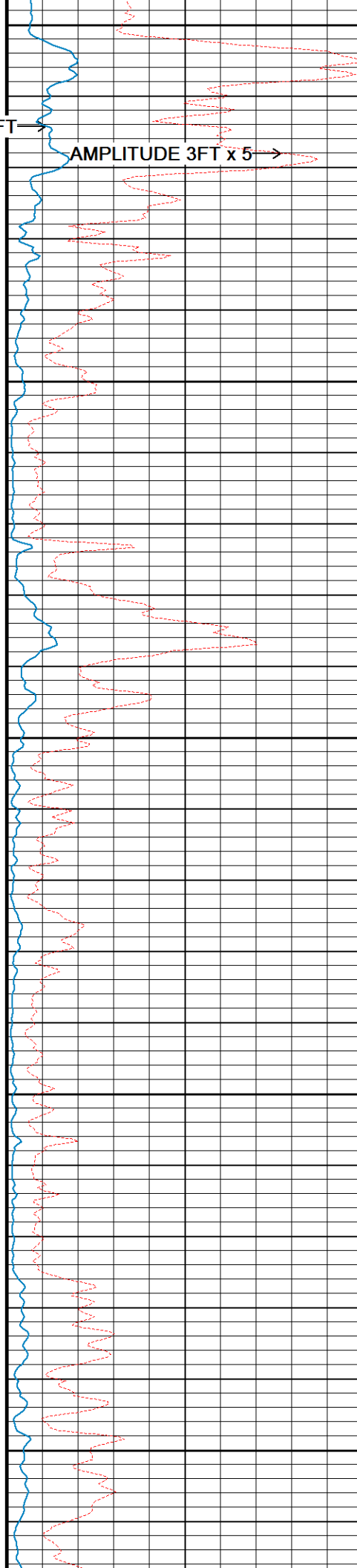
2400

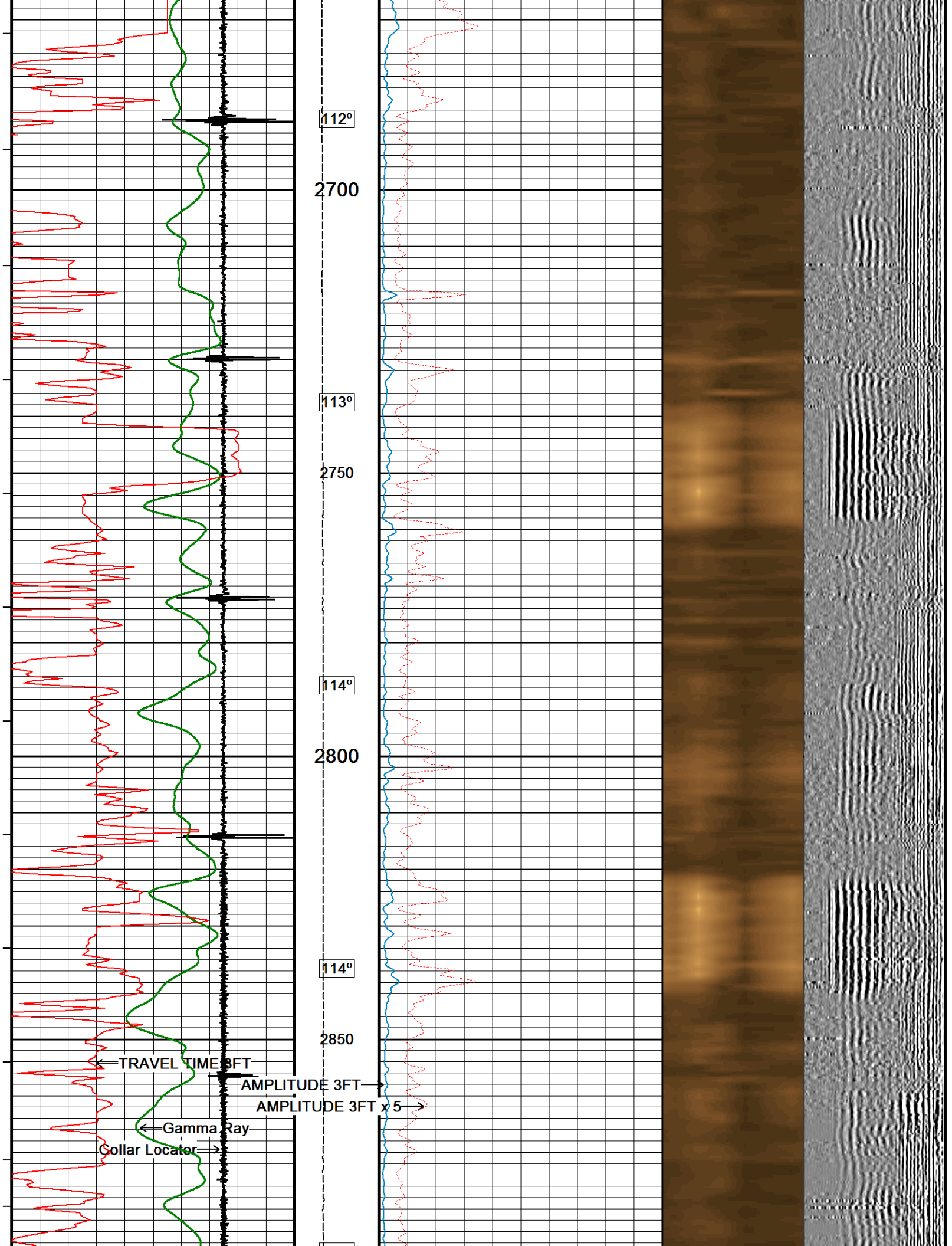
107°



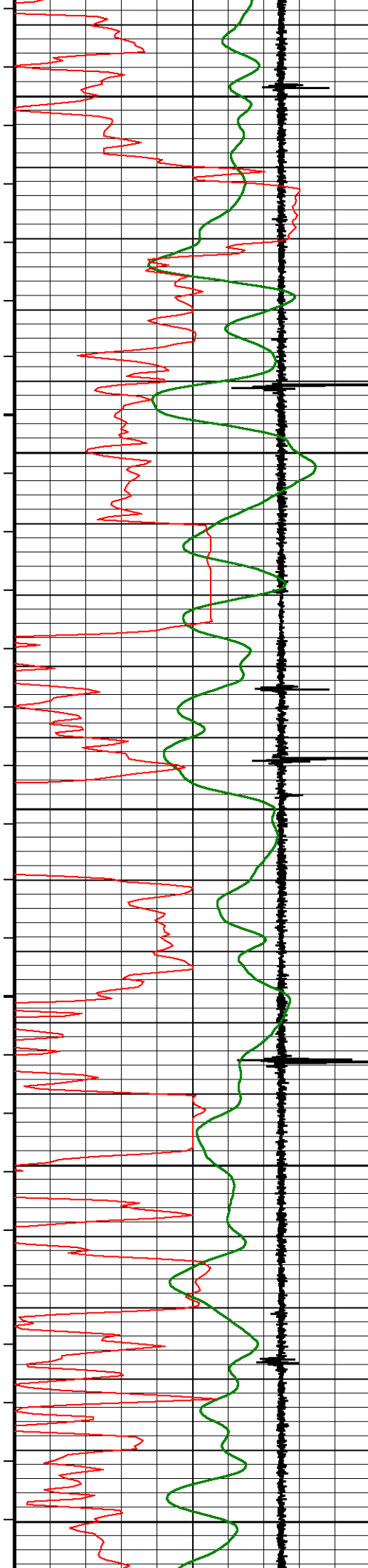


2450  
108°  
2500  
109°  
2550  
110°  
2600  
111°  
2650









115°

2900

116°

2950

117°

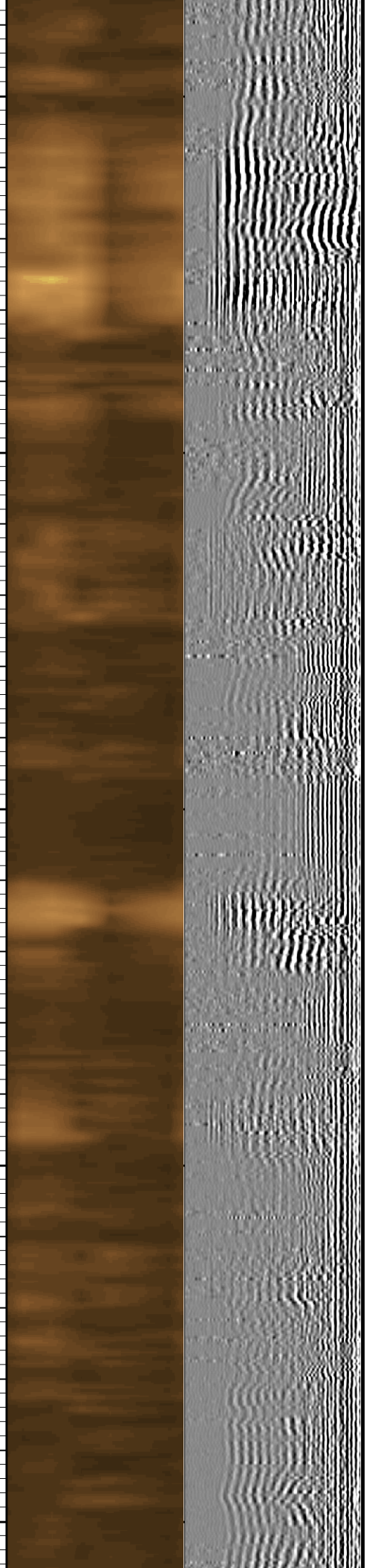
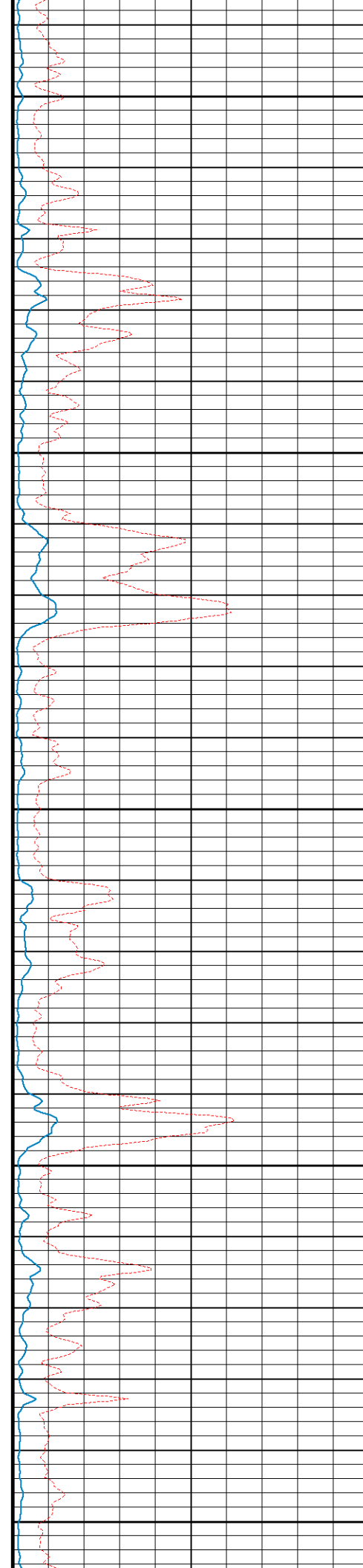
3000

118°

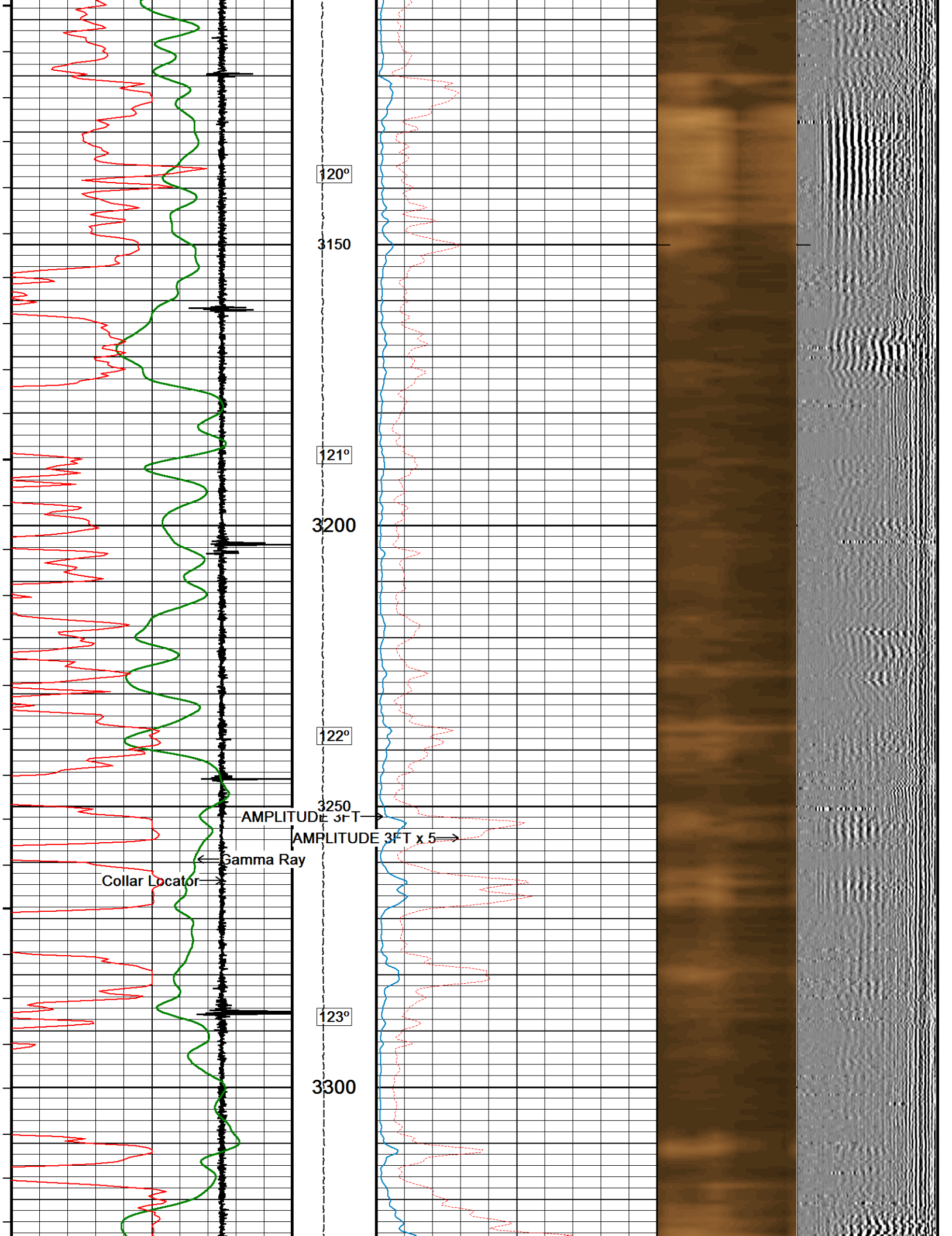
3050

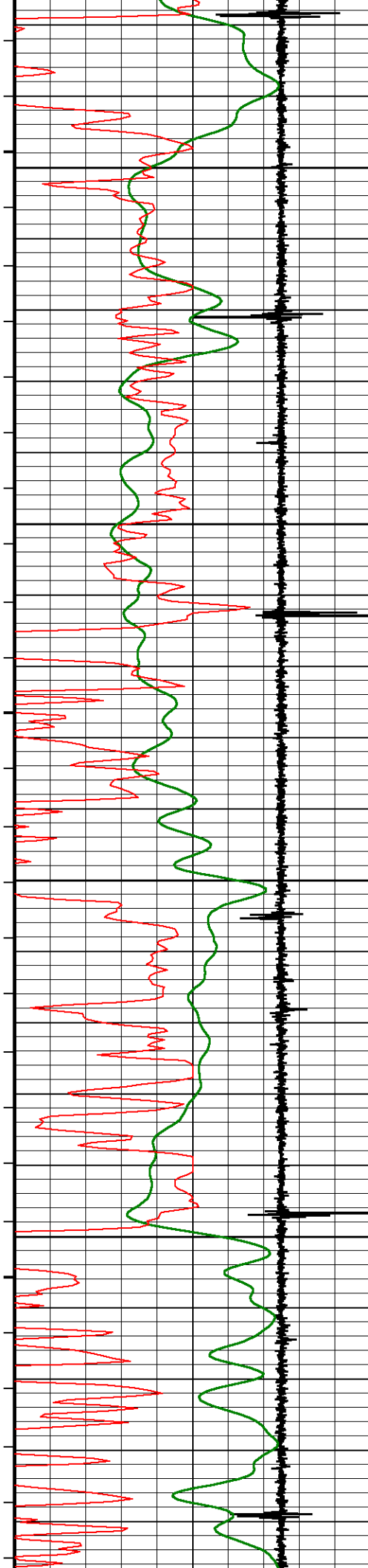
119°

3100









124°

3350

125°

3400

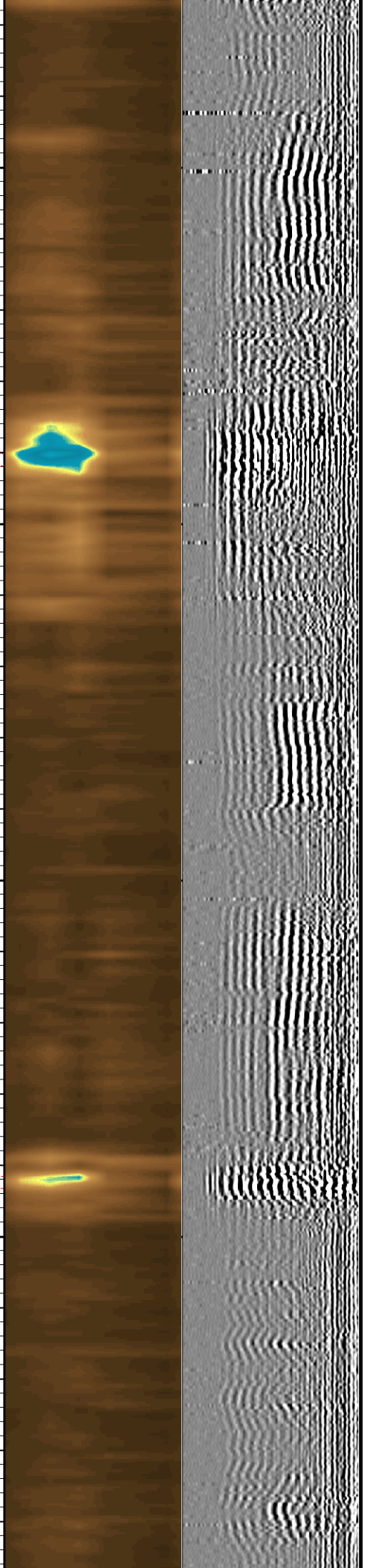
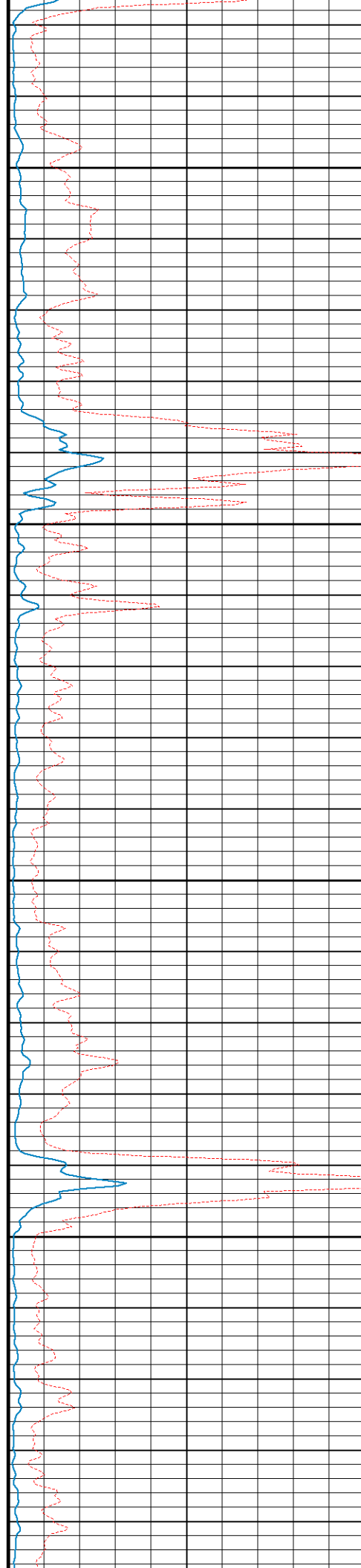
125°

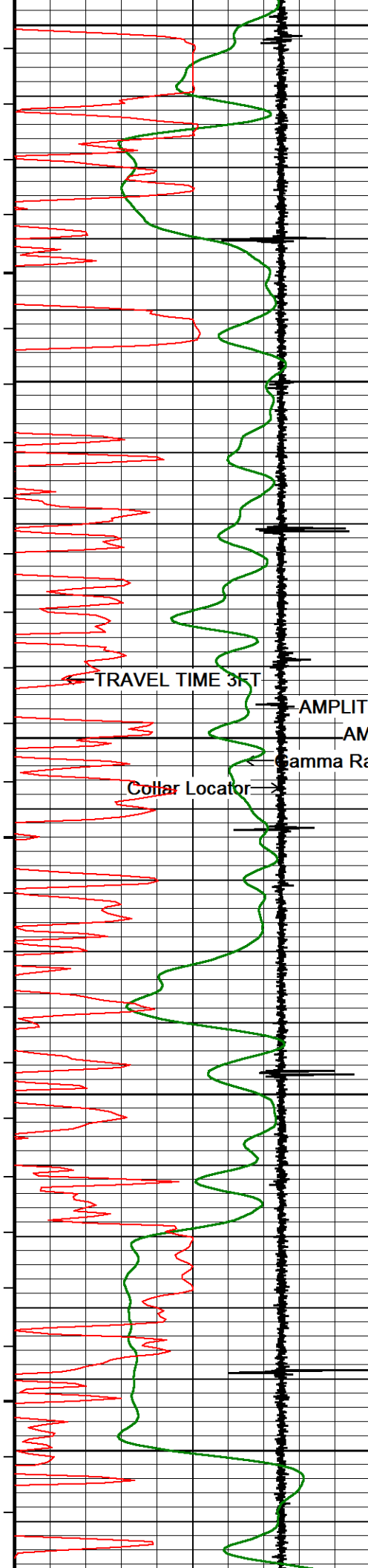
3450

126°

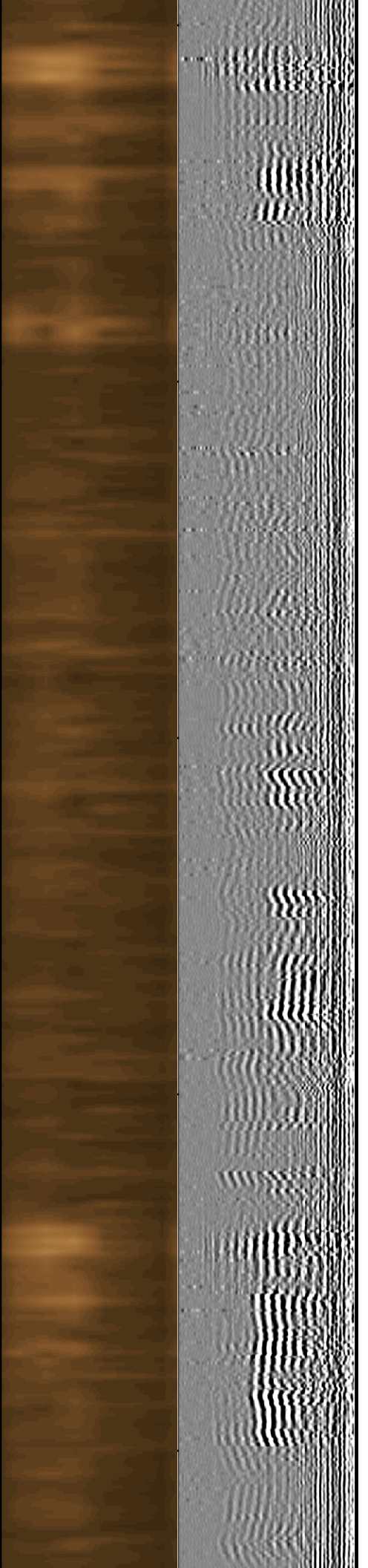
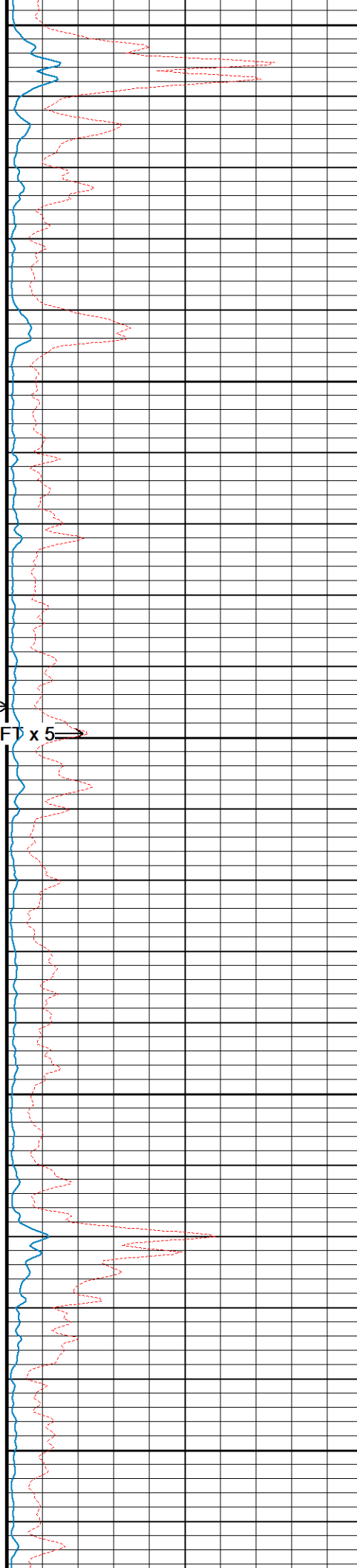
3500

127°





3550  
128°  
3600  
129°  
3650  
129°  
3700  
130°  
3750



TRAVEL TIME 3FT

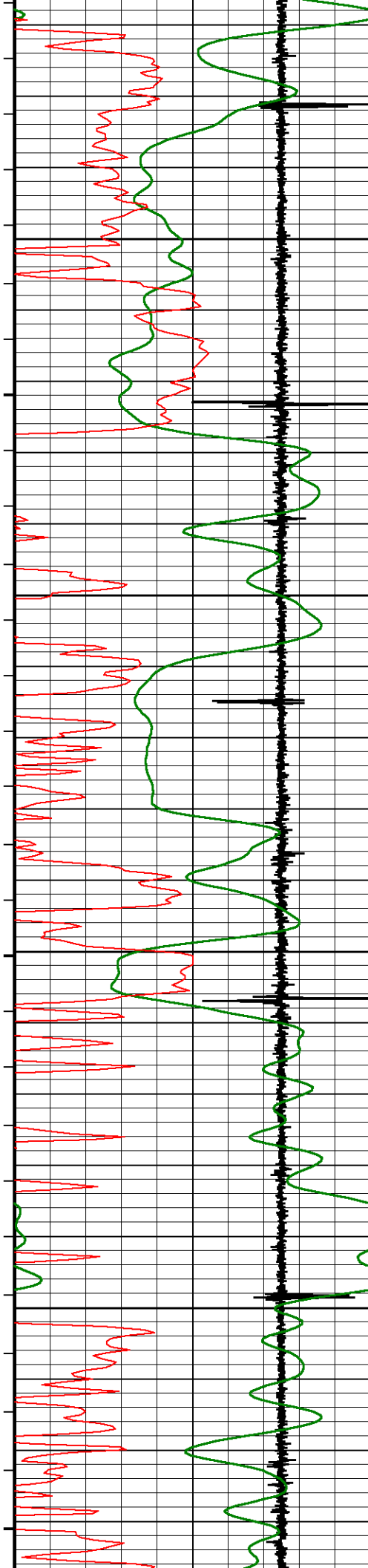
AMPLITUDE 3FT

AMPLITUDE 3FT x 5

Gamma Ray

Collar Locator





181°

3800

182°

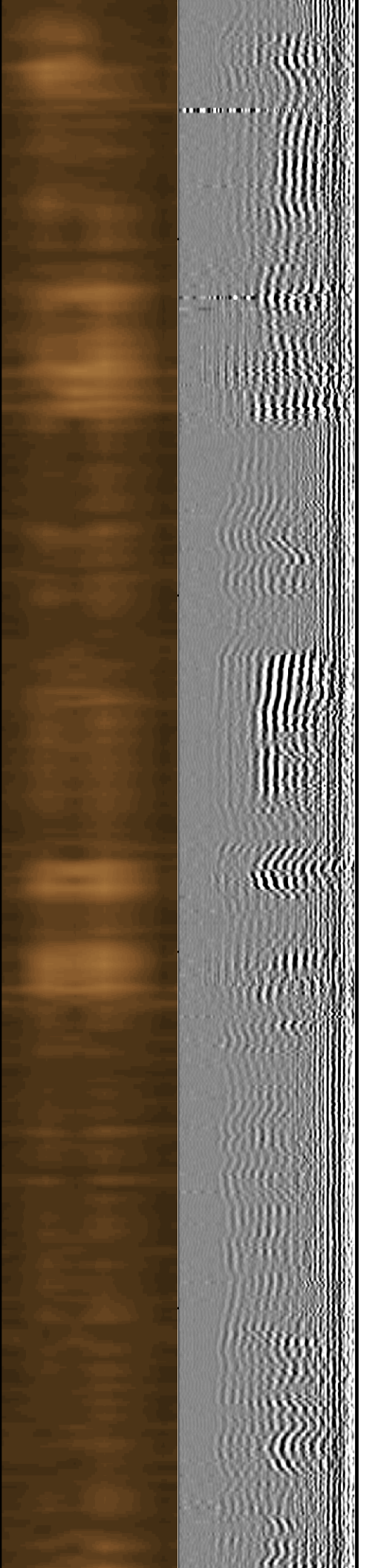
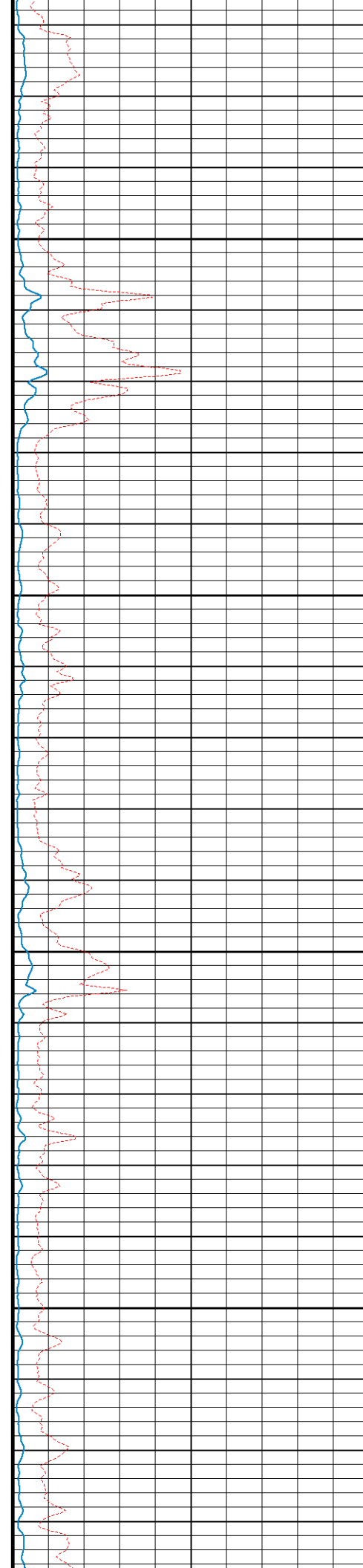
3850

183°

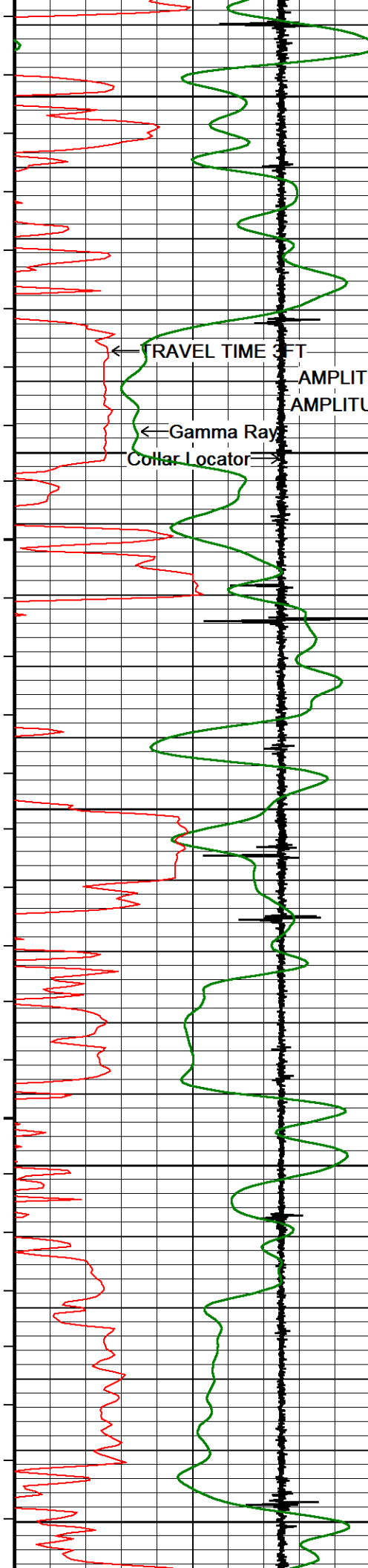
3900

184°

3950







135°

4000

136°

4050

137°

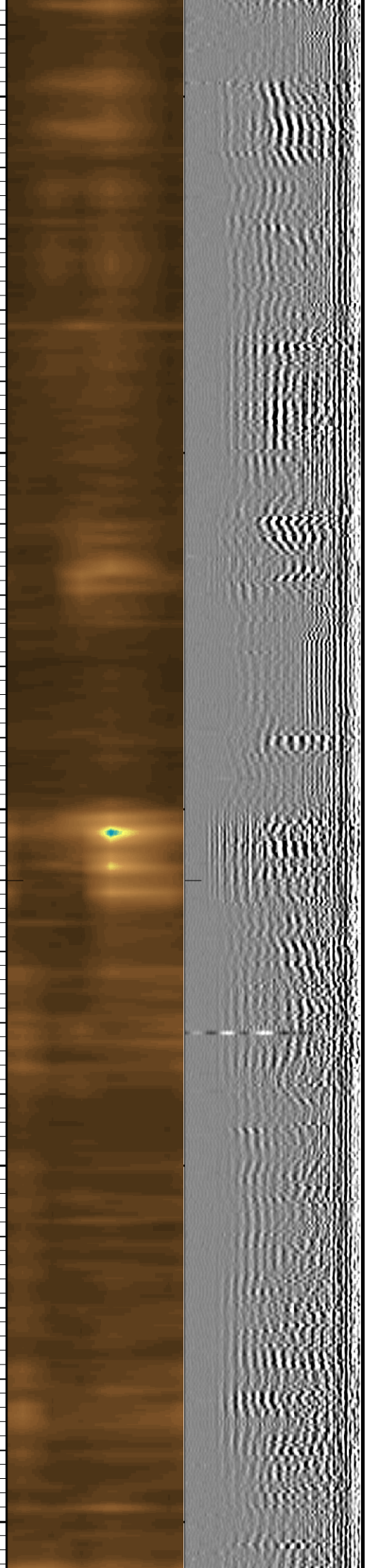
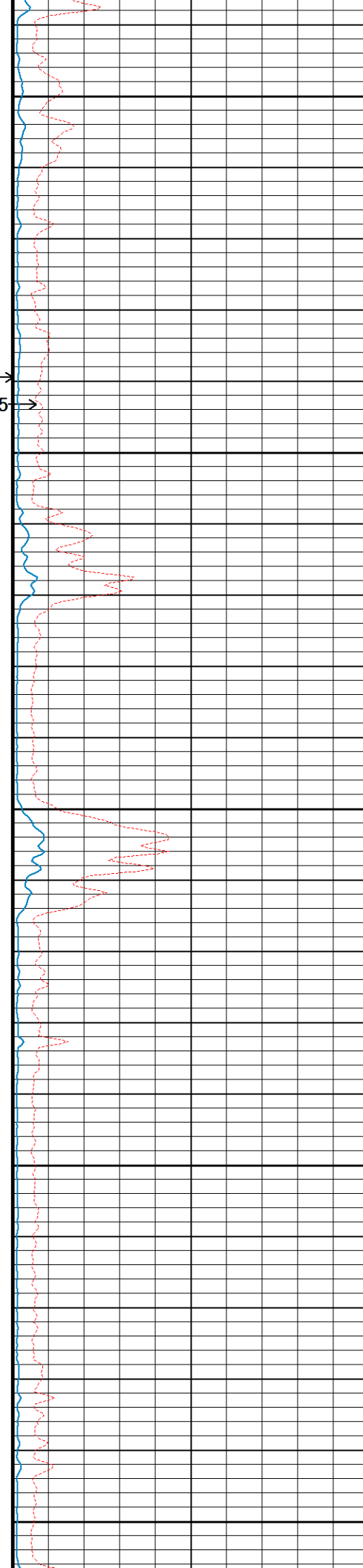
4100

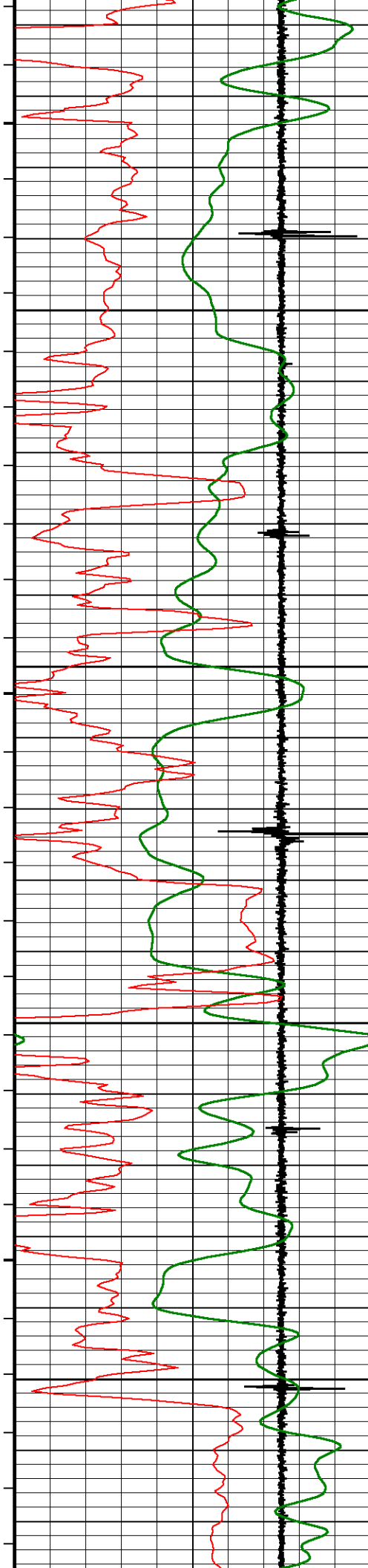
138°

4150

139°

4200





140°

4250

141°

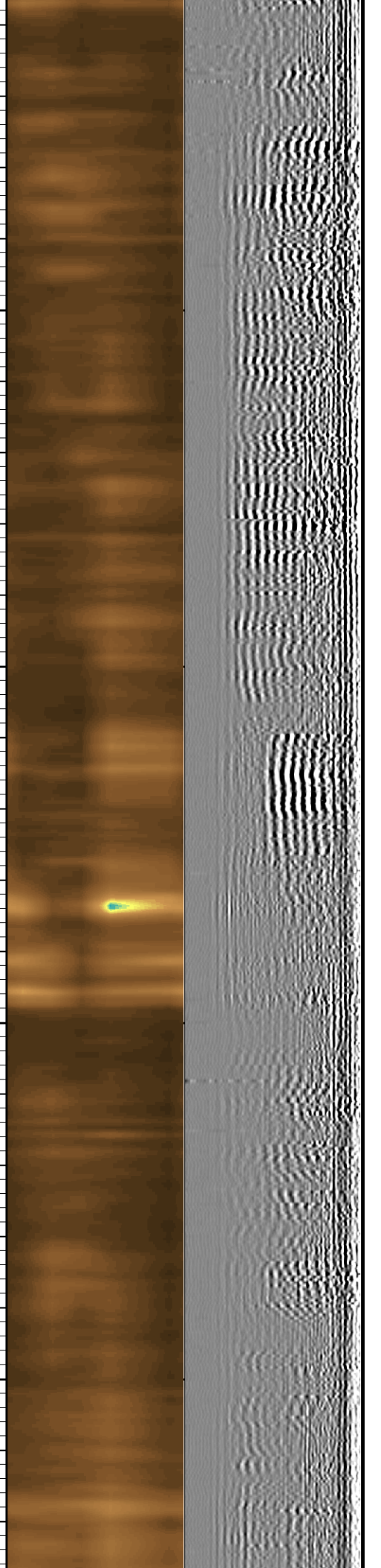
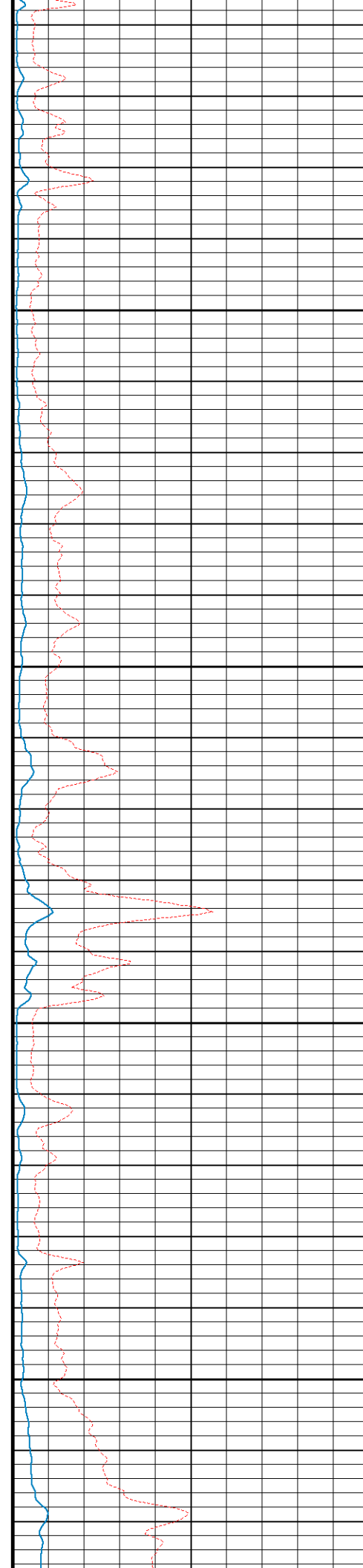
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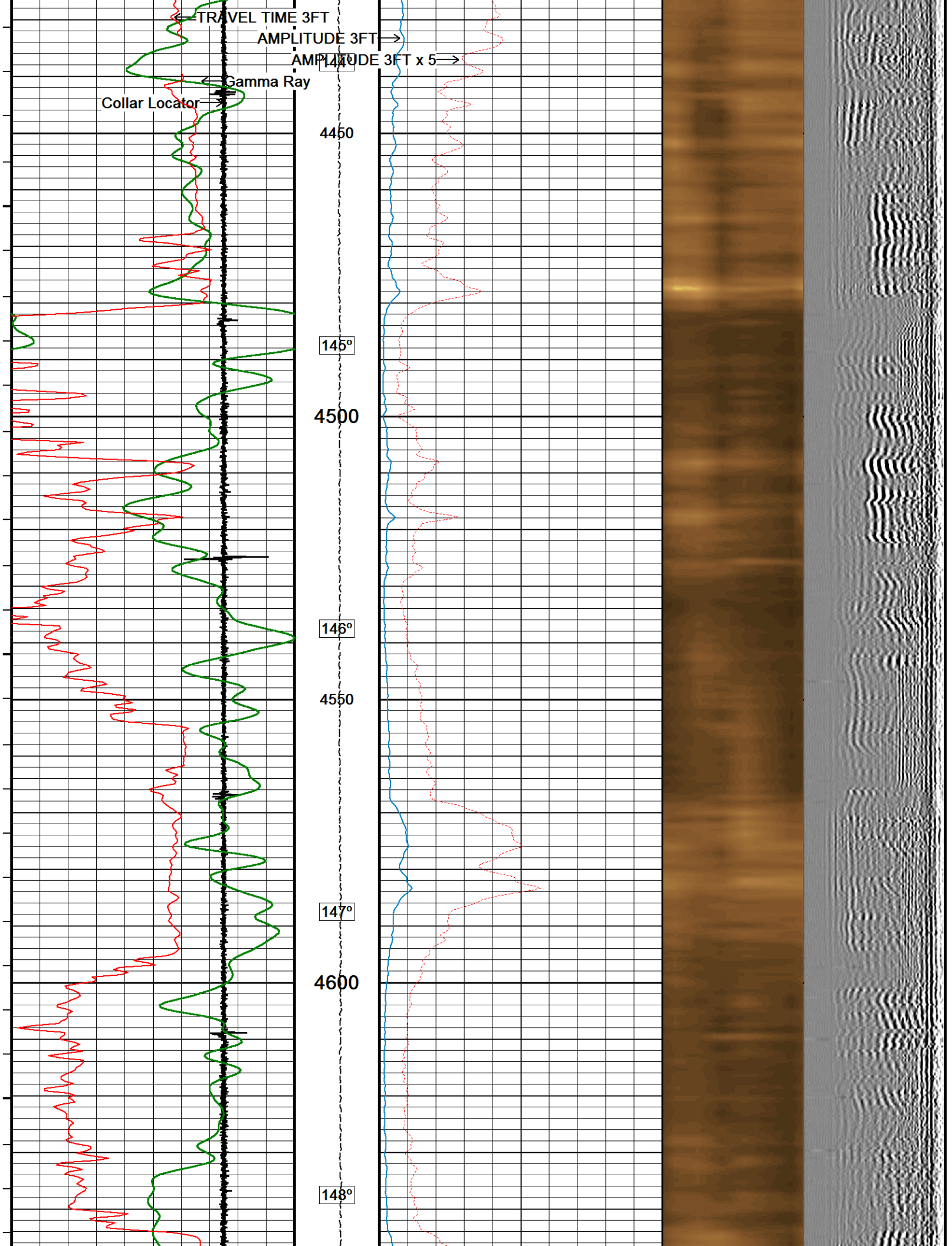
142°

4350

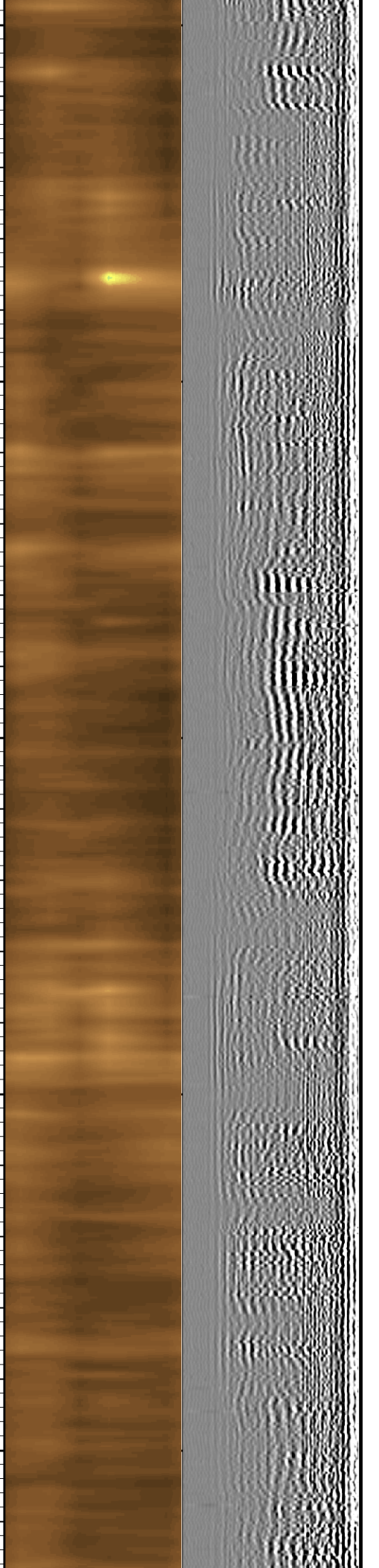
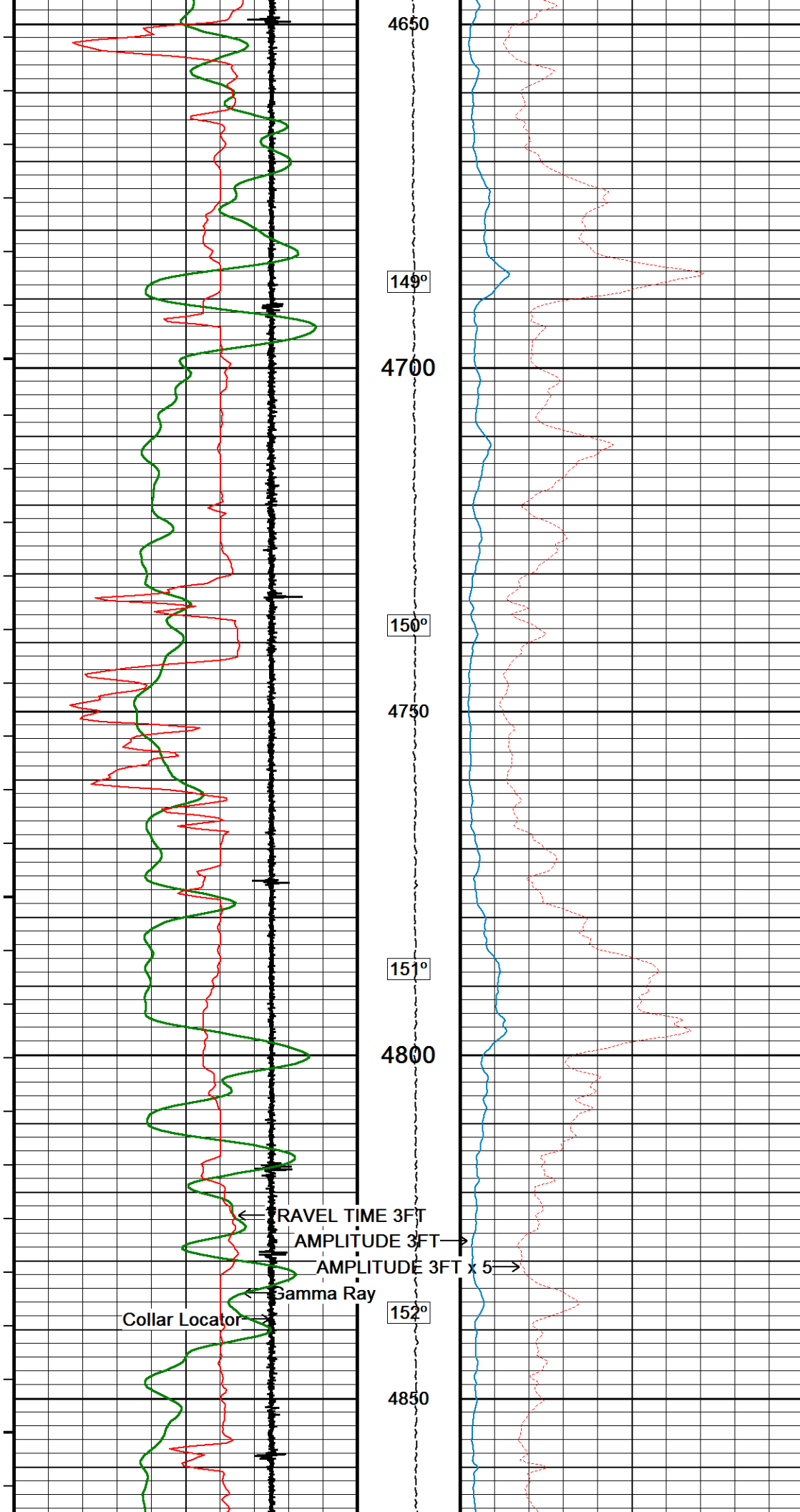
143°

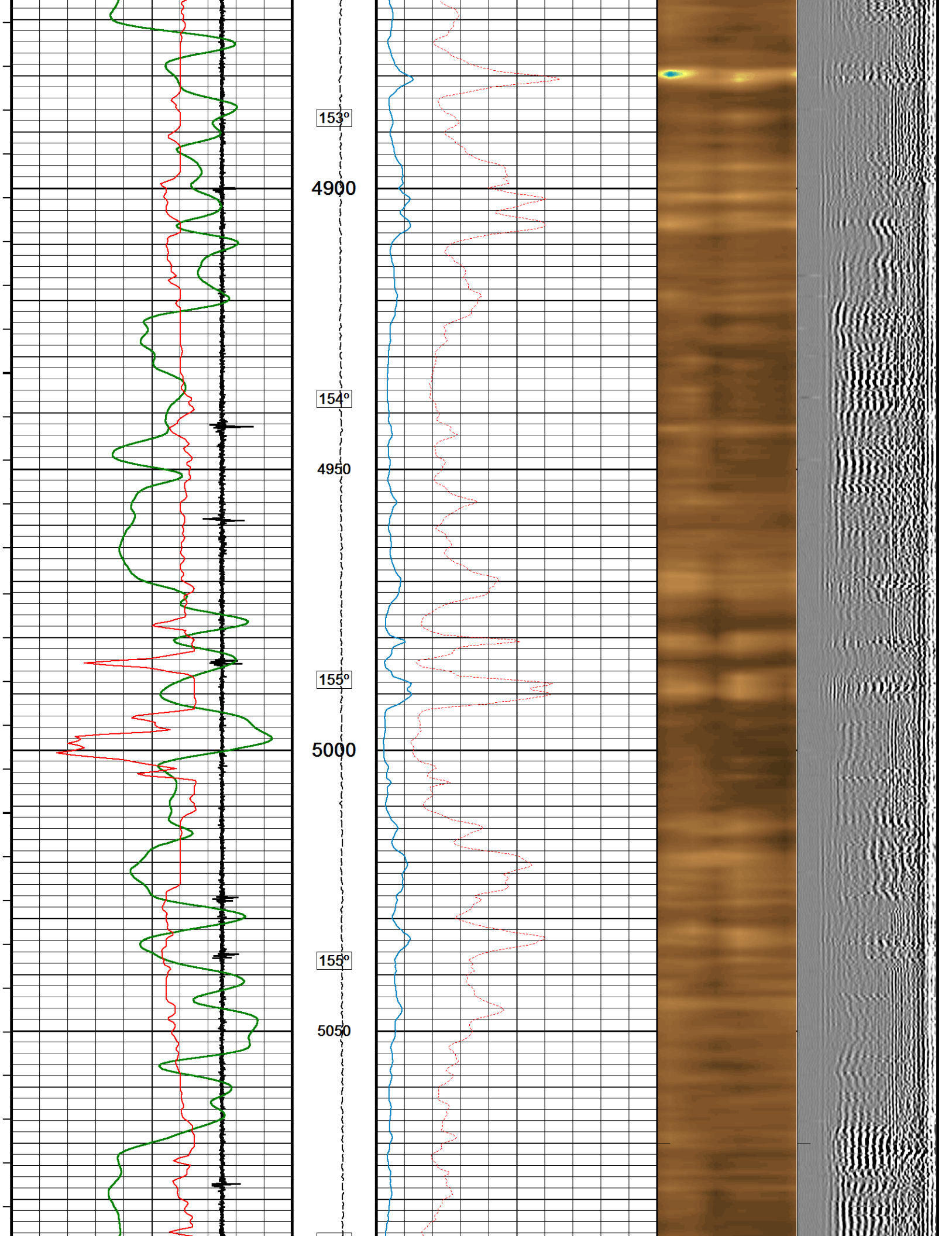
4400

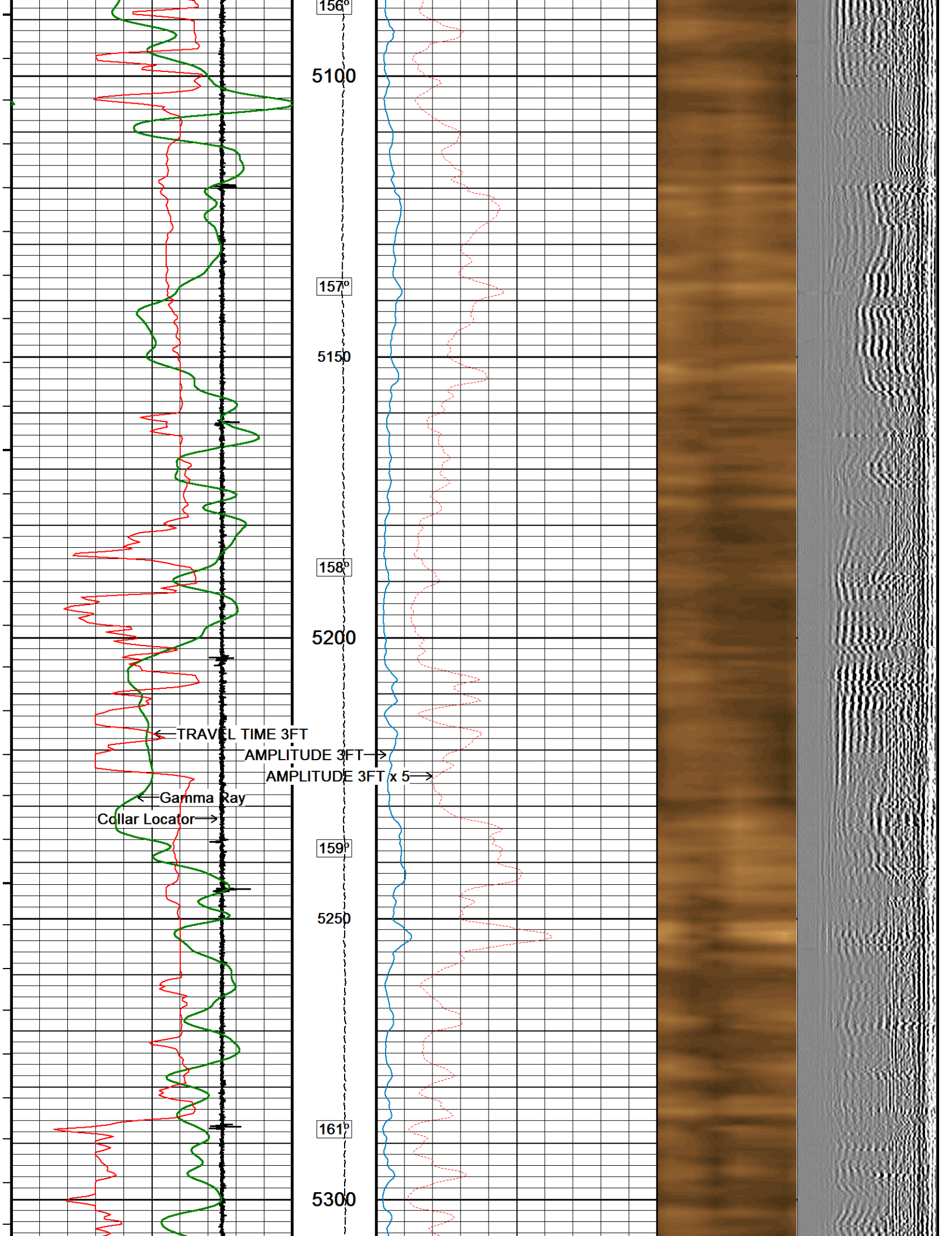




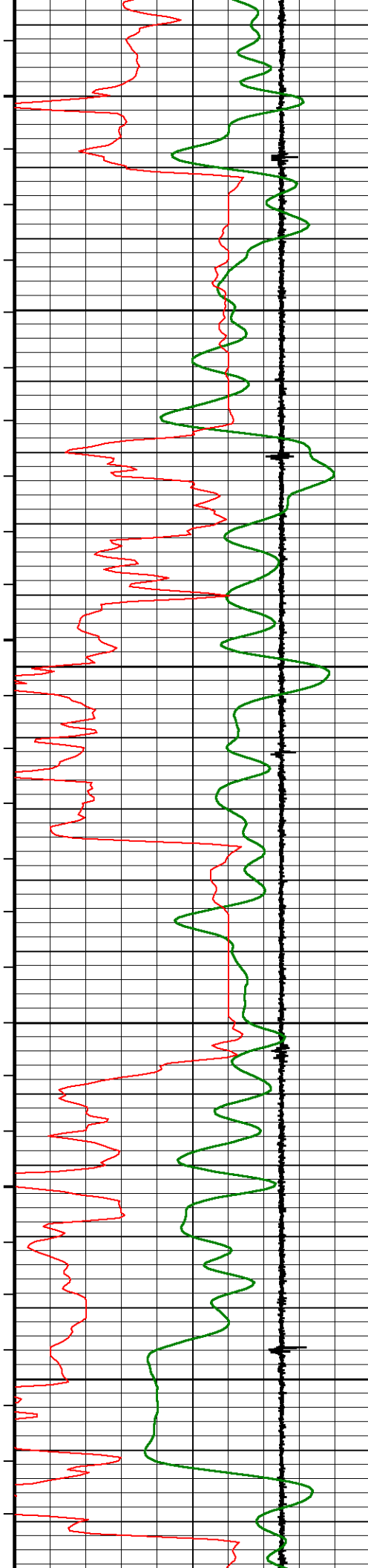












162°

5350

163°

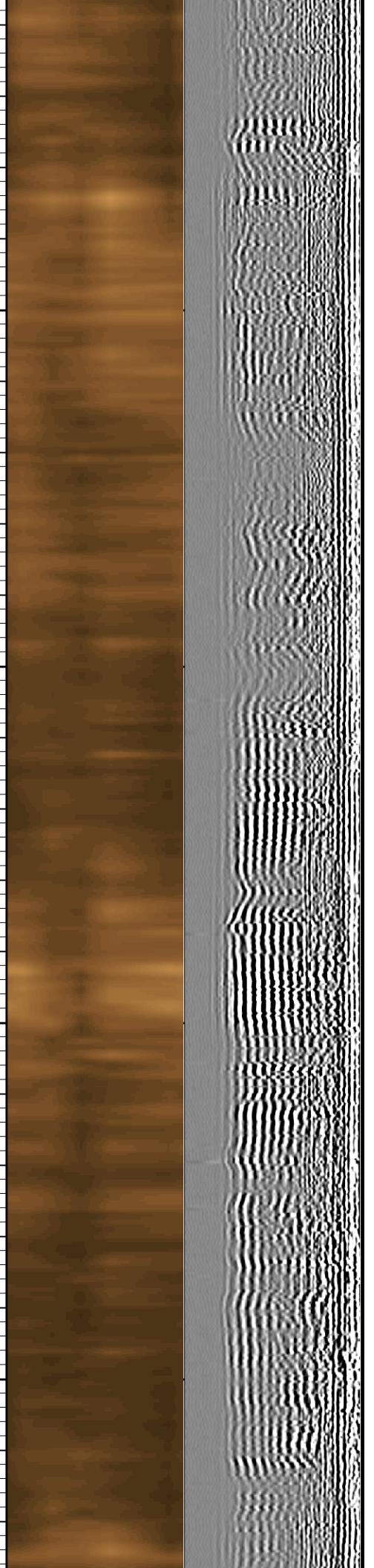
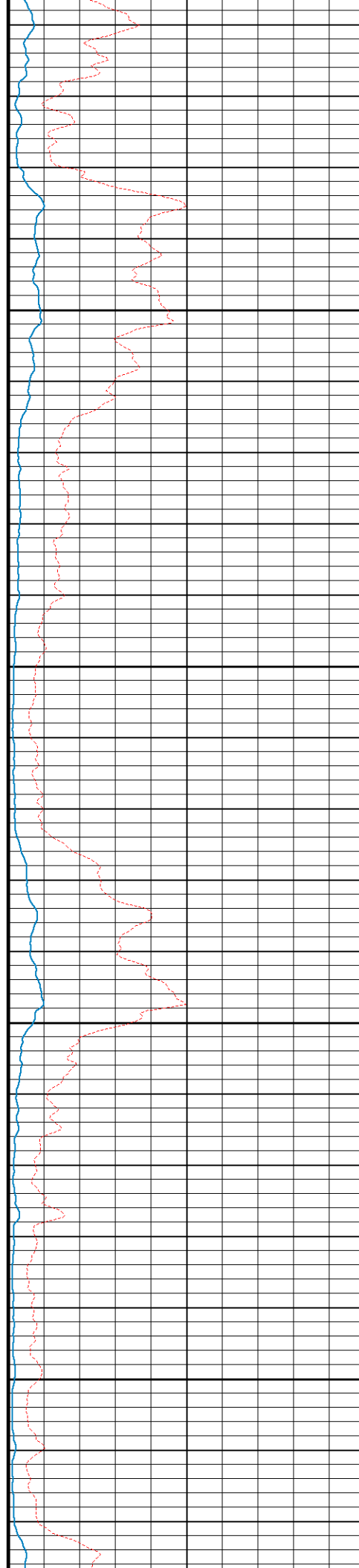
5400

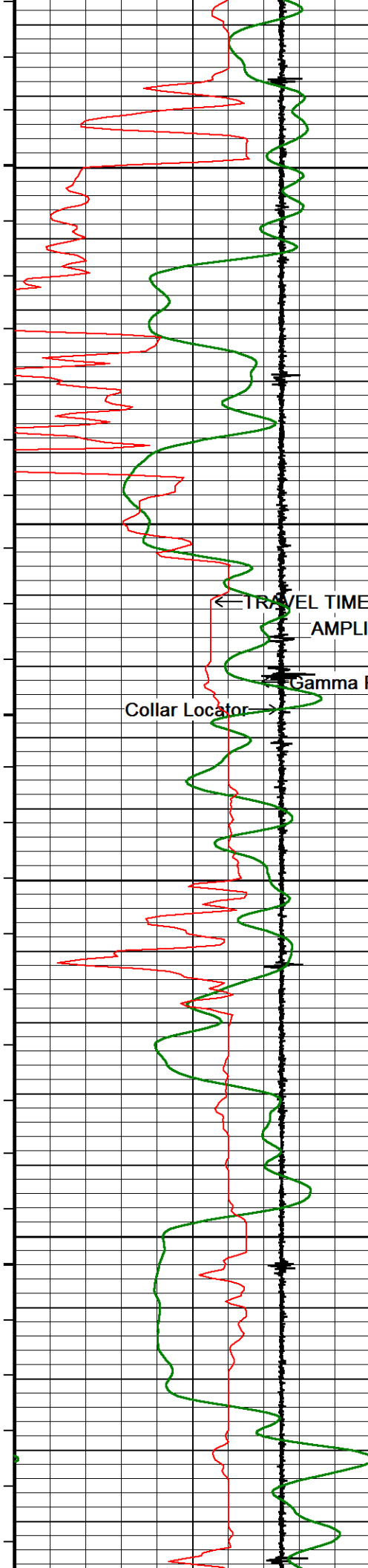
164°

5450

165°

5500





166°

5550

167°

5600

← TRAVEL TIME 3FT  
AMPLITUDE 3FT →  
← Gamma Ray  
Collar Locator →

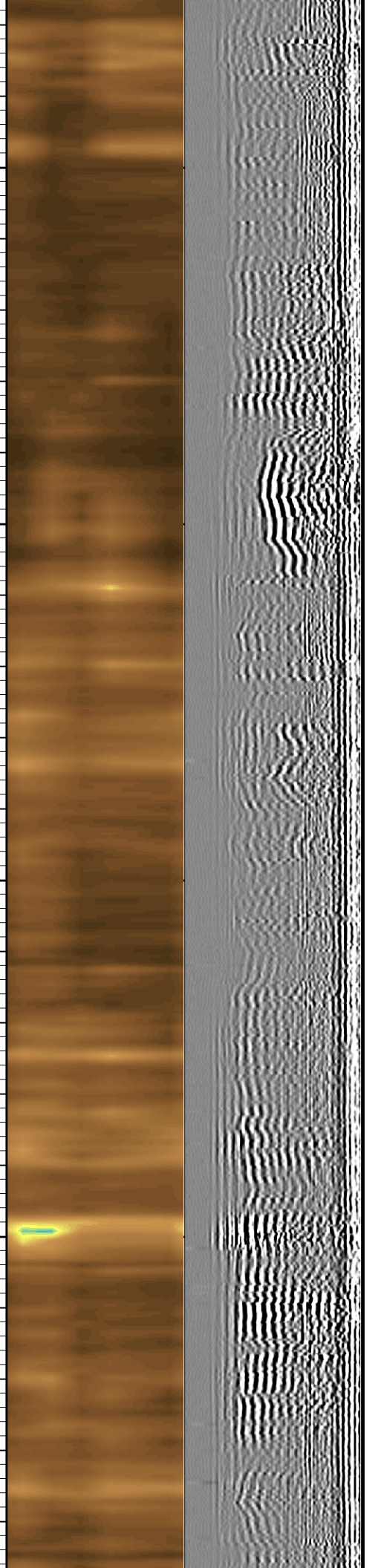
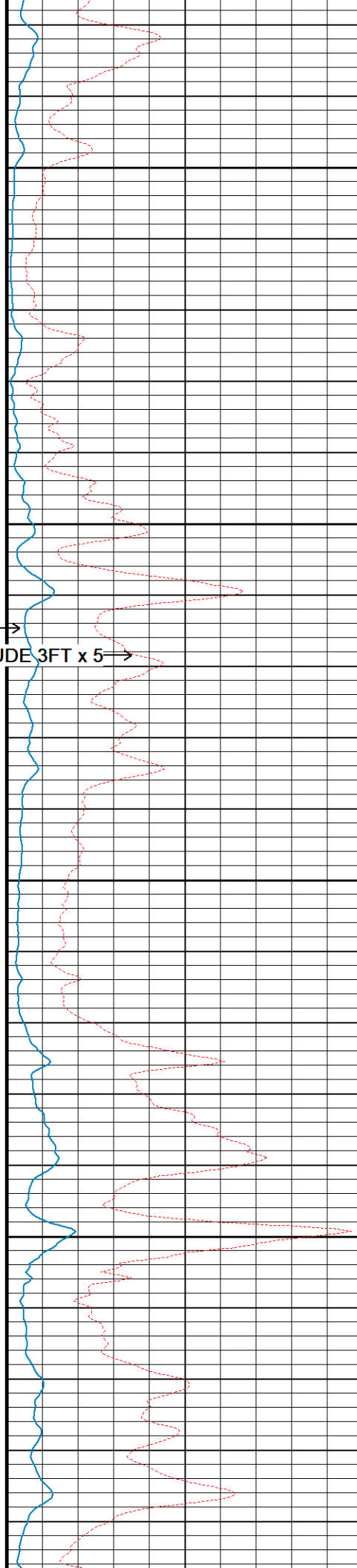
169°

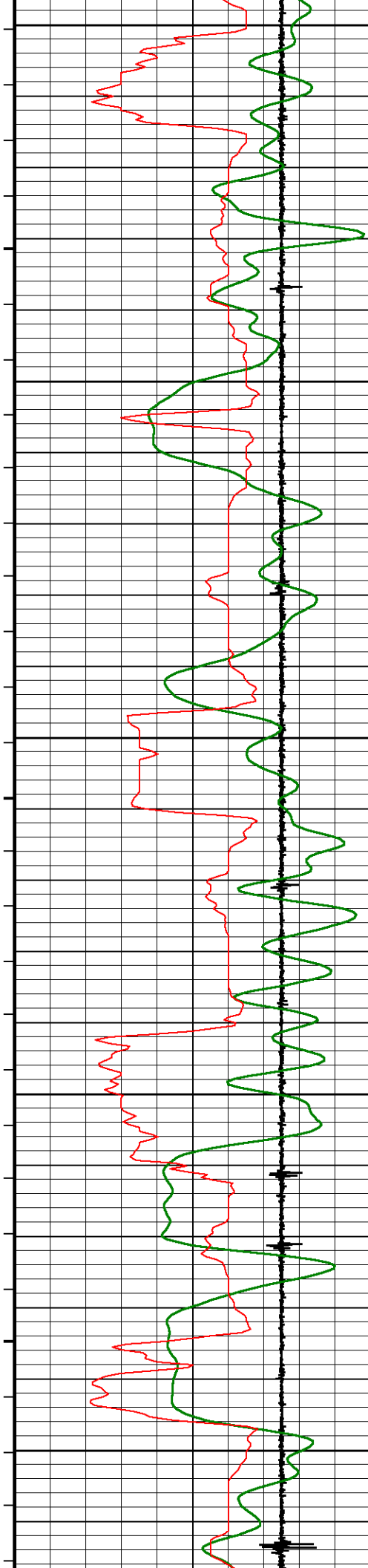
5650

170°

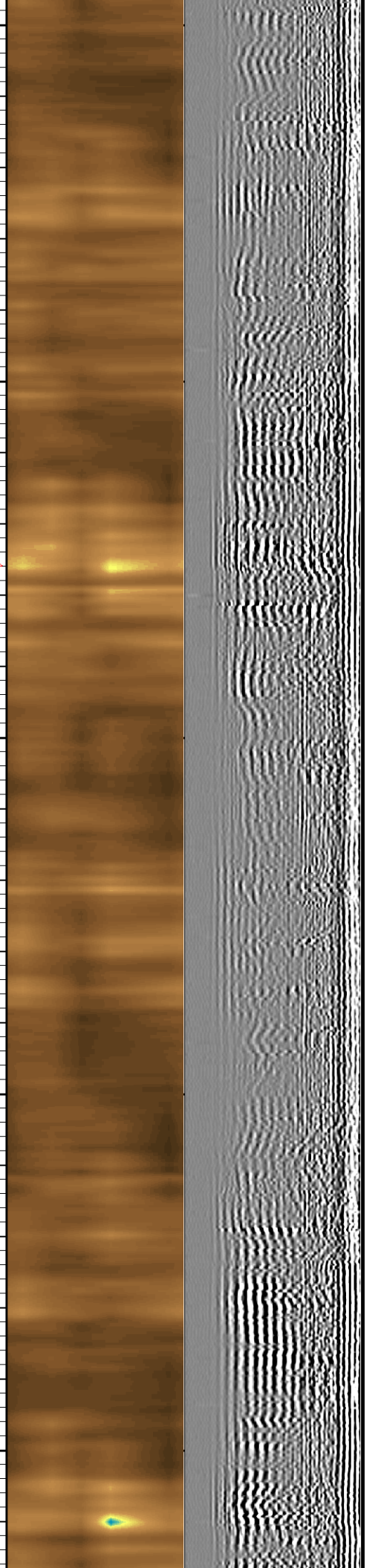
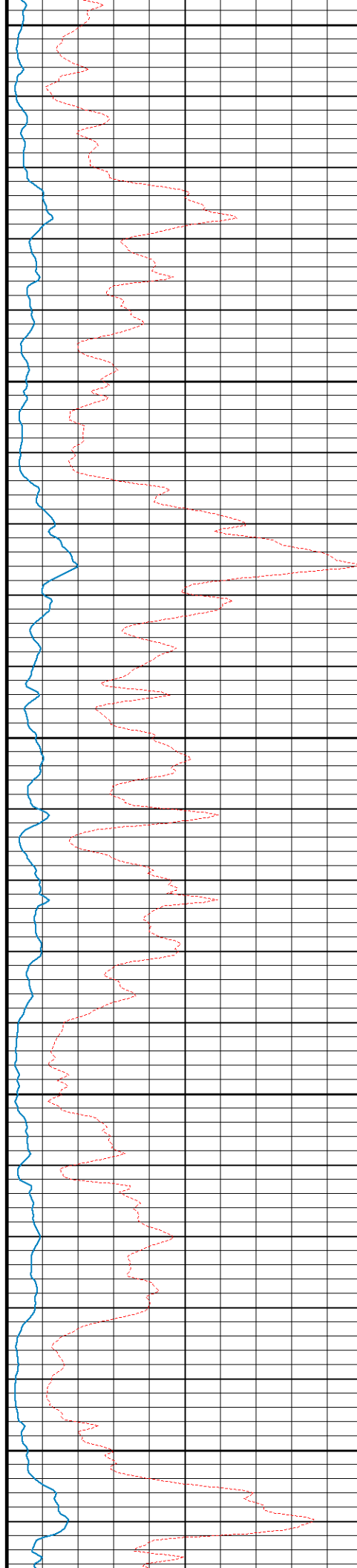
5700

171°

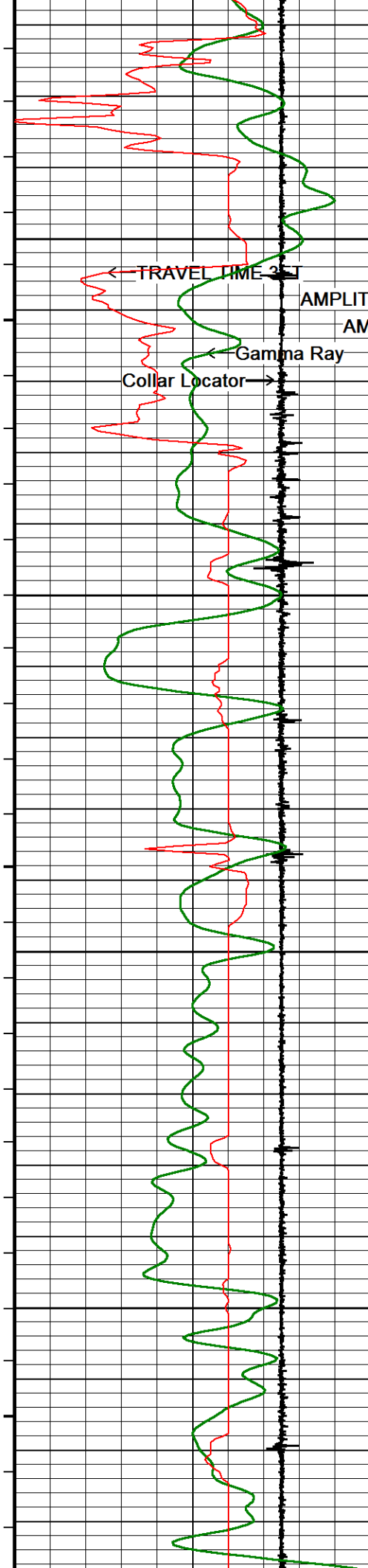




5750  
172°  
5800  
174°  
5850  
175°  
5900  
177°  
5950







179°

6000

AMPLITUDE 3FT

AMPLITUDE 3FT x 5

181°

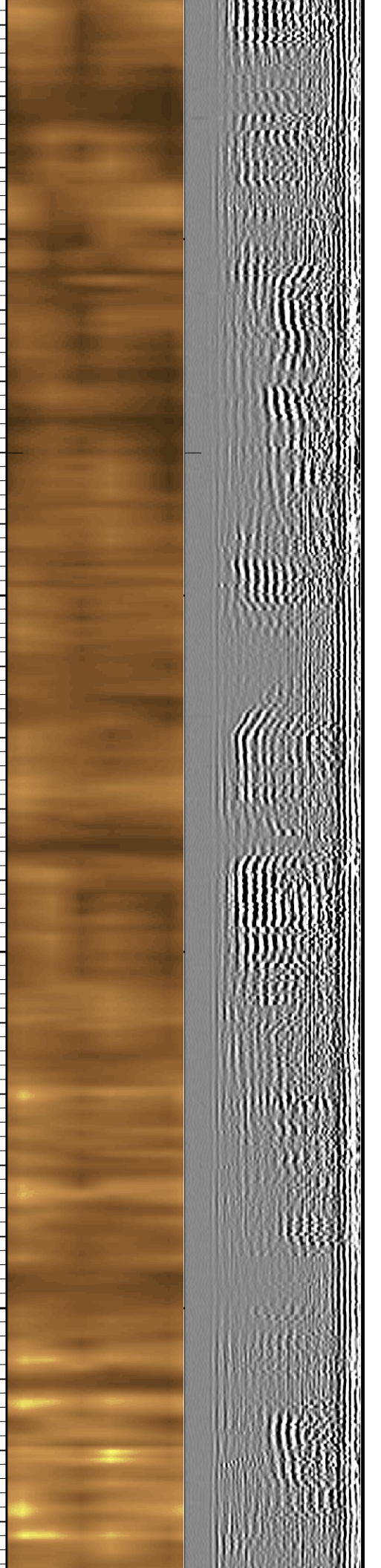
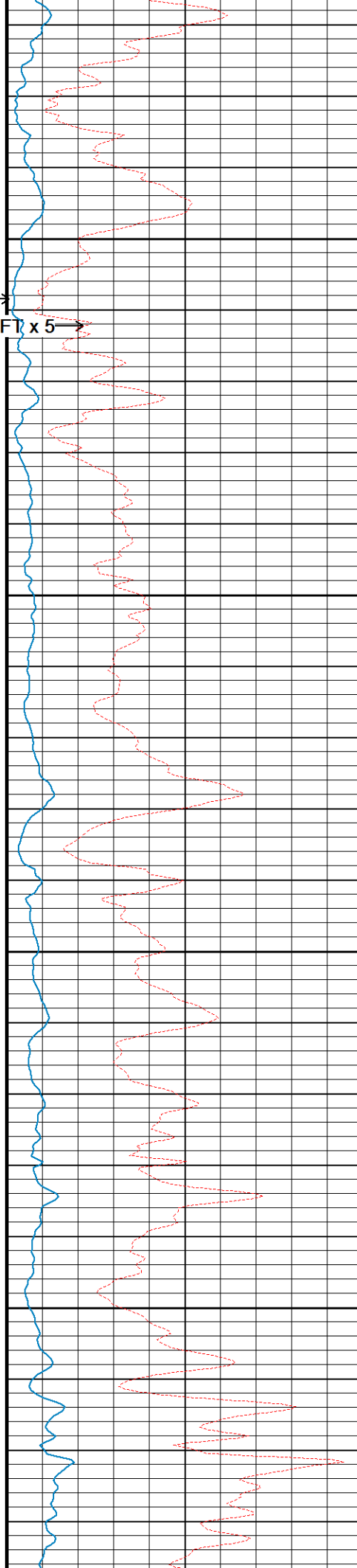
6050

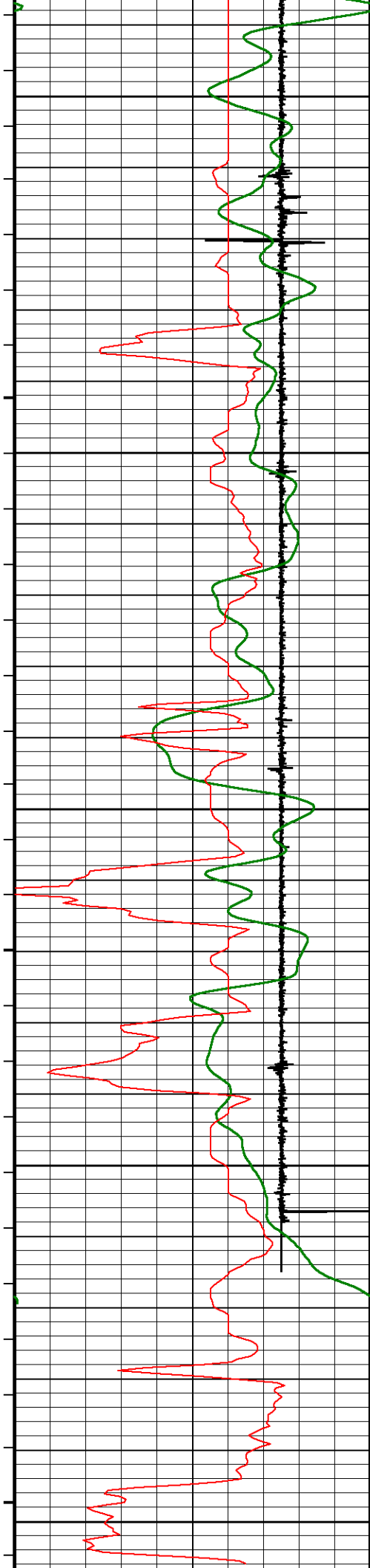
184°

6100

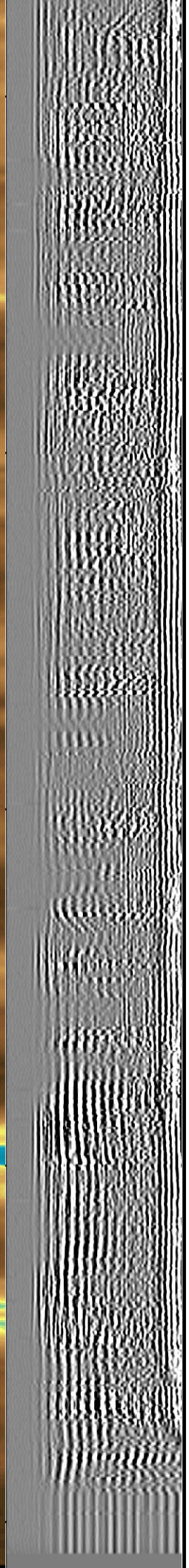
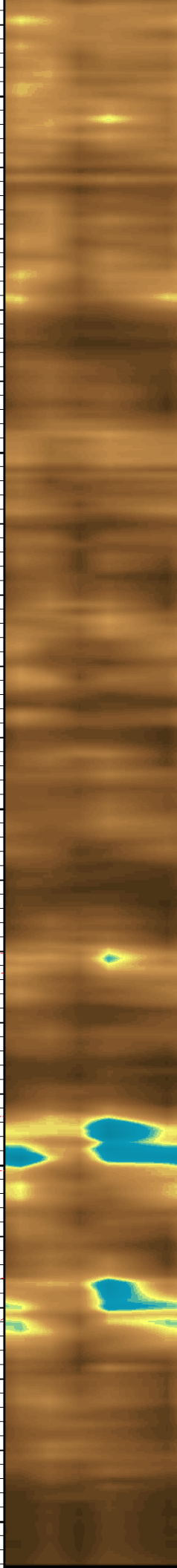
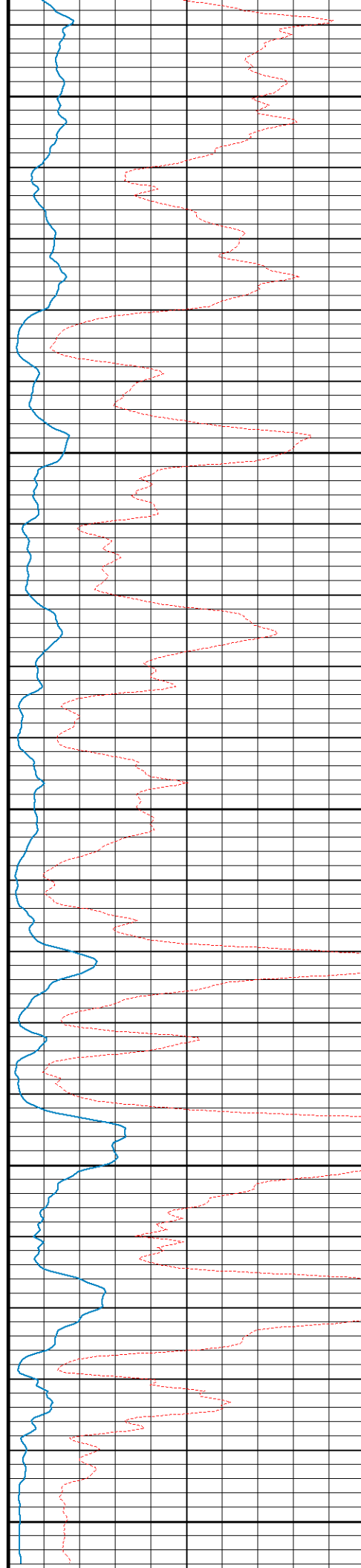
185°

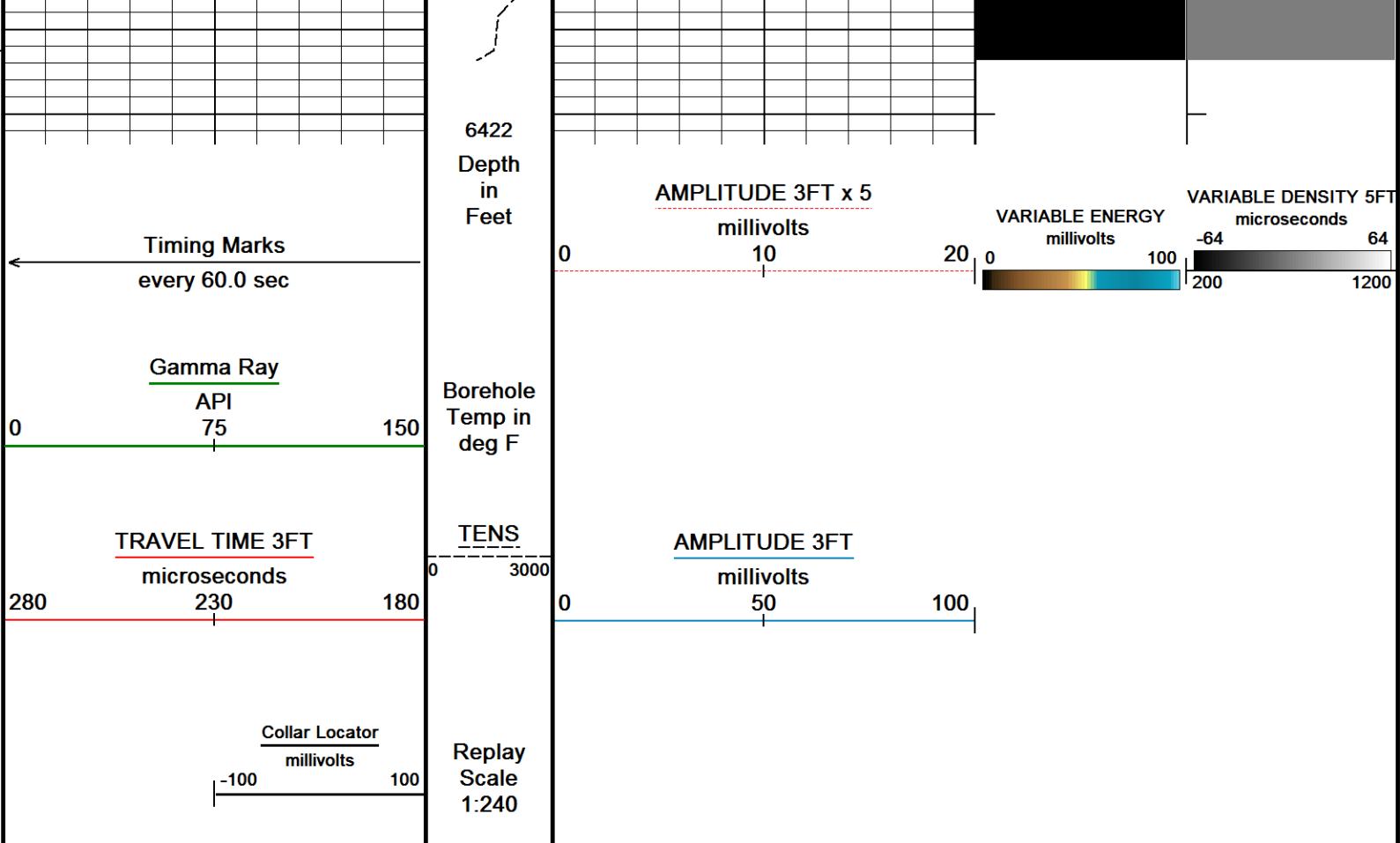
6150





188°  
6200  
191°  
6250  
193°  
6300  
197°  
6350  
6400





Depth Based Data - Maximum Sampling Increment 12.5cm  
Filename: C:\Logs\URSA\BMC B 41D-13-07-96\BMC B 41D-13-07-96 CREB SSSB MAIN FINAL.dta  
System Versions: Logged with 17.01.7206 Plotted with 17.01.7206

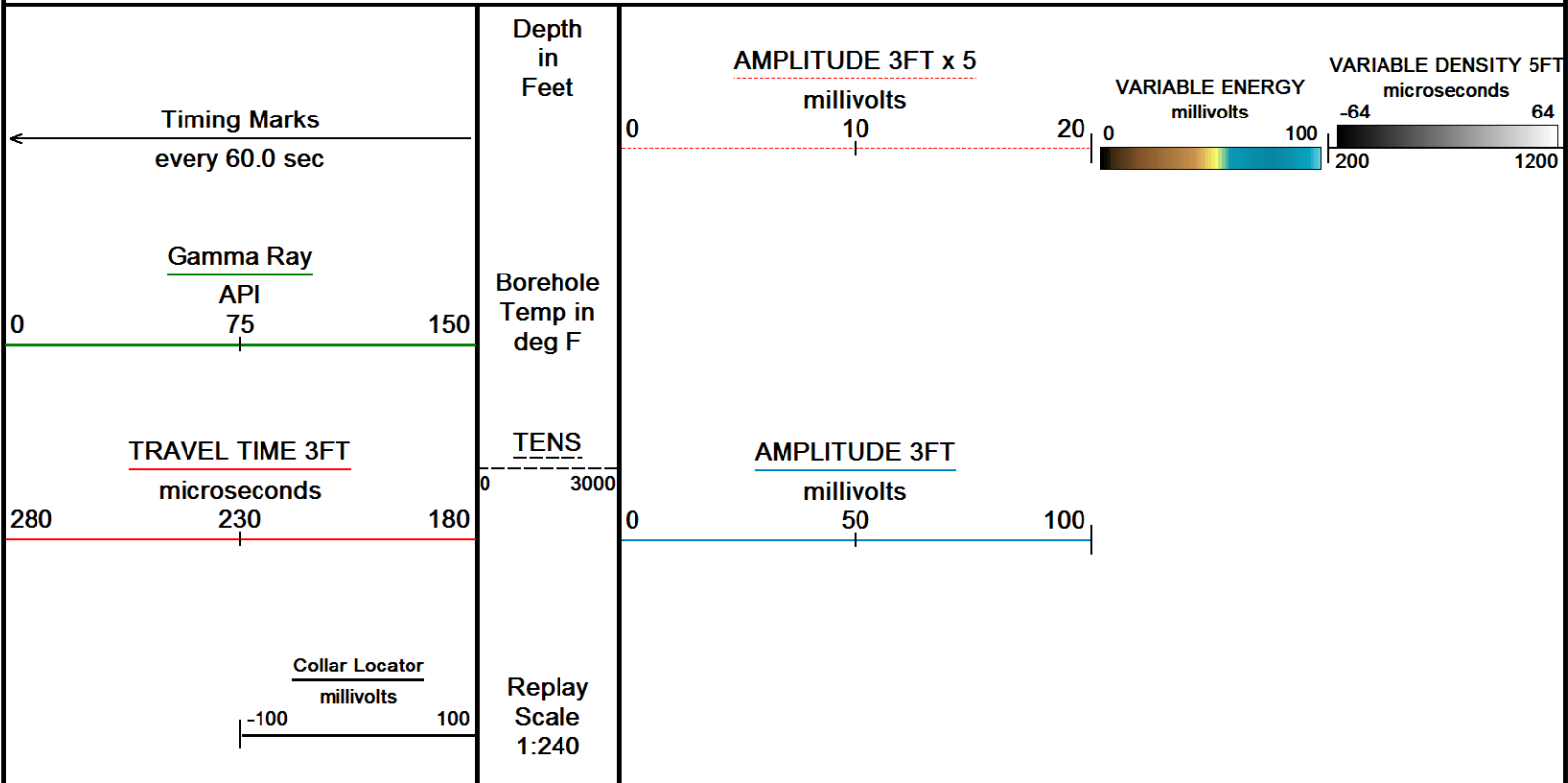
Plotted on 10-SEP-2017 20:04  
Recorded on 10-SEP-2017 17:59

↑ MAIN PASS ↑

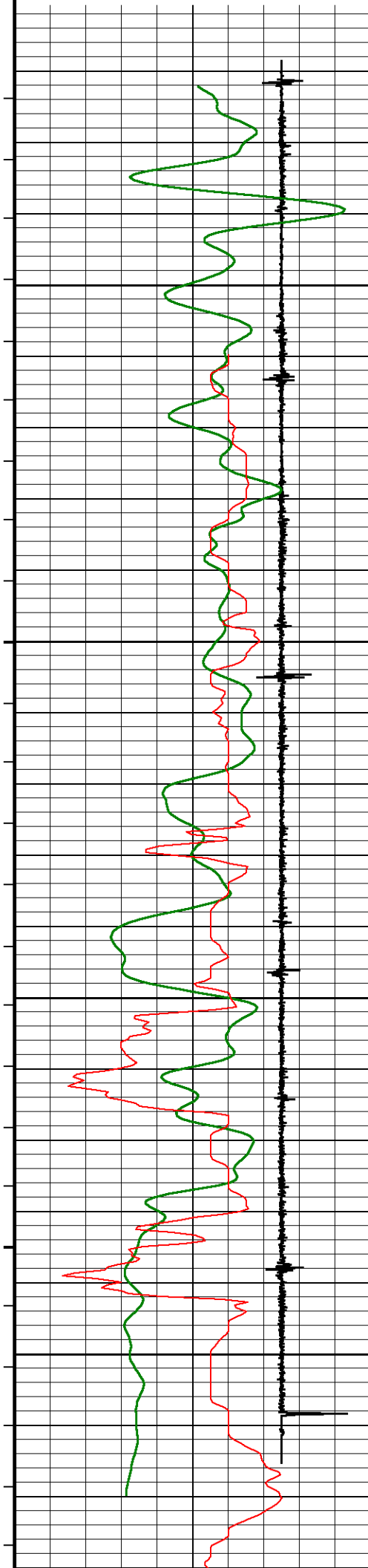
↓ REPEAT PASS ↓

Depth Based Data - Maximum Sampling Increment 12.5cm  
Filename: C:\Logs\URSA\BMC B 41D-13-07-96\BMC B 41D-13-07-96 CREB SSSB REPEAT FINAL.dta  
System Versions: Logged with 17.01.7206 Plotted with 17.01.7206

Plotted on 10-SEP-2017 20:04  
Recorded on 10-SEP-2017 18:50







6164

6200

191°

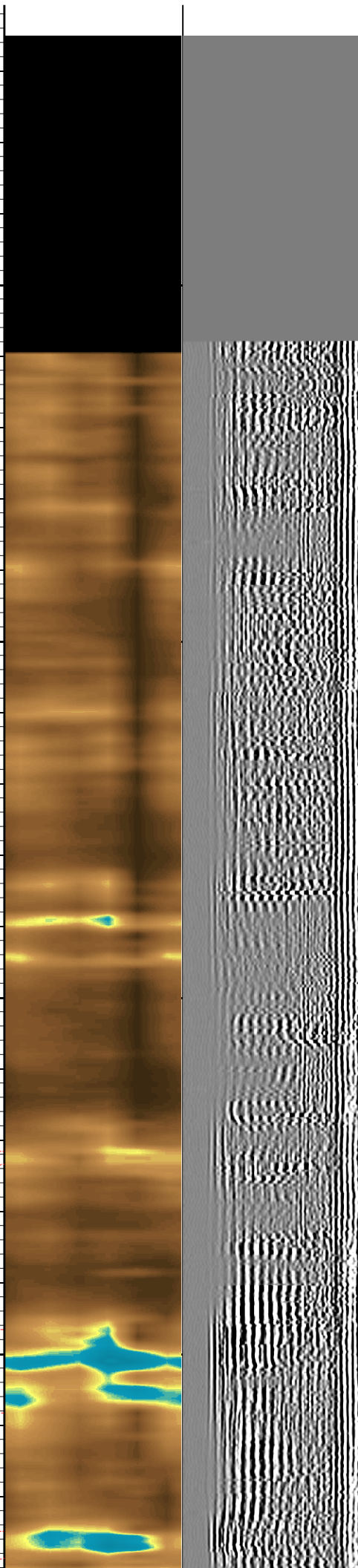
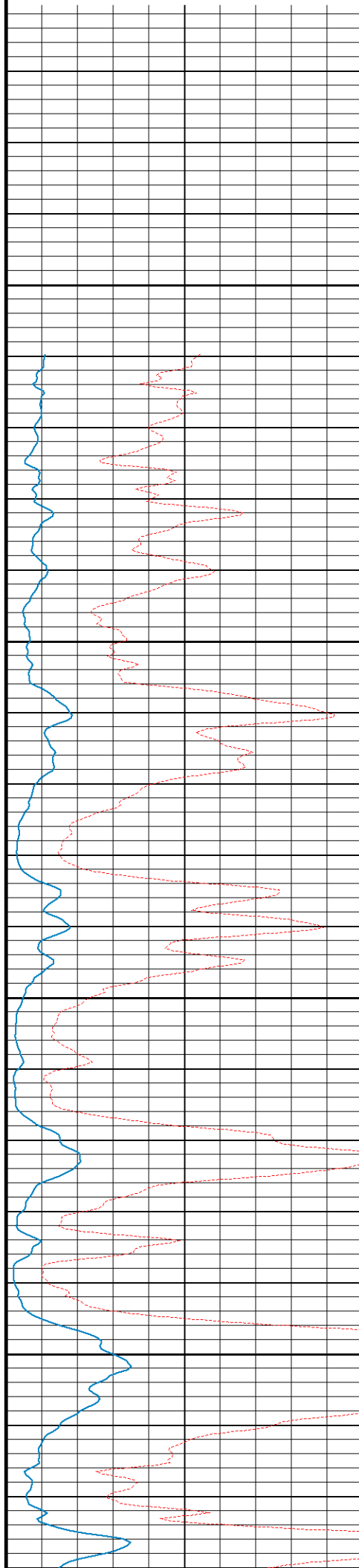
6250

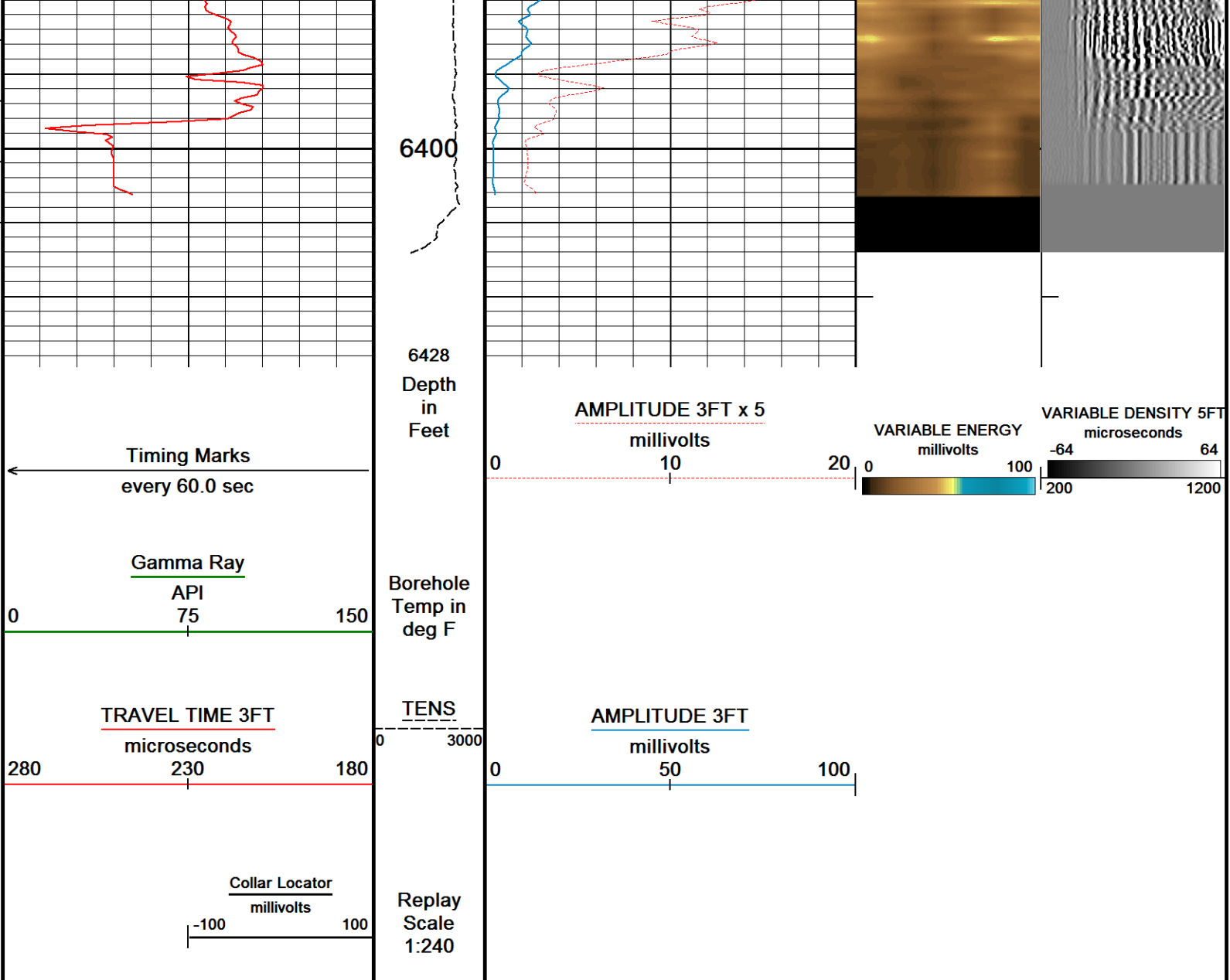
193°

6300

197°

6350





Depth Based Data - Maximum Sampling Increment 12.5cm Plotted on 10-SEP-2017 20:04  
Filename: C:\Logs\URSA\BMC B 41D-13-07-96\BMC B 41D-13-07-96 CREB SSSB REPEAT FINAL.dta Recorded on 10-SEP-2017 18:50  
System Versions: Logged with 17.01.7206 Plotted with 17.01.7206

↑ REPEAT PASS ↑

### DOWNHOLE EQUIPMENT

C:\Logs\URSA\BMC B 41D-13-07-96\BMC B 41D-13-07-96 CREB SSSB MAIN FINAL.dta

Mono-Cablehead  
MCH-AA 0 LG: 1.03 ft WT: 2.2 lb OD: 1.457 in

Comm Sub  
WCC-CB 107 LG: 5.97 ft WT: 24.3 lb OD: 1.693 in



48.83 ft CCL - Collar Locator

Gamma Ray K  
UGR-KA 108 LG: 2.34 ft WT: 17.6 lb OD: 1.693 in

Quartz Press, Dual ITB, 43mm  
QPG-EA 106 LG: 2.23 ft WT: 8.8 lb OD: 1.693 in

Centroller, 43mm, ITB, 3-arm Bi-Direct  
CR3-BA 138 LG: 2.51 ft WT: 8.8 lb OD: 1.693 in

Tool Temperature, 43mm, 177C, 10-pin ITB  
TMP-NA 138 LG: 1.93 ft WT: 8.8 lb OD: 1.693 in

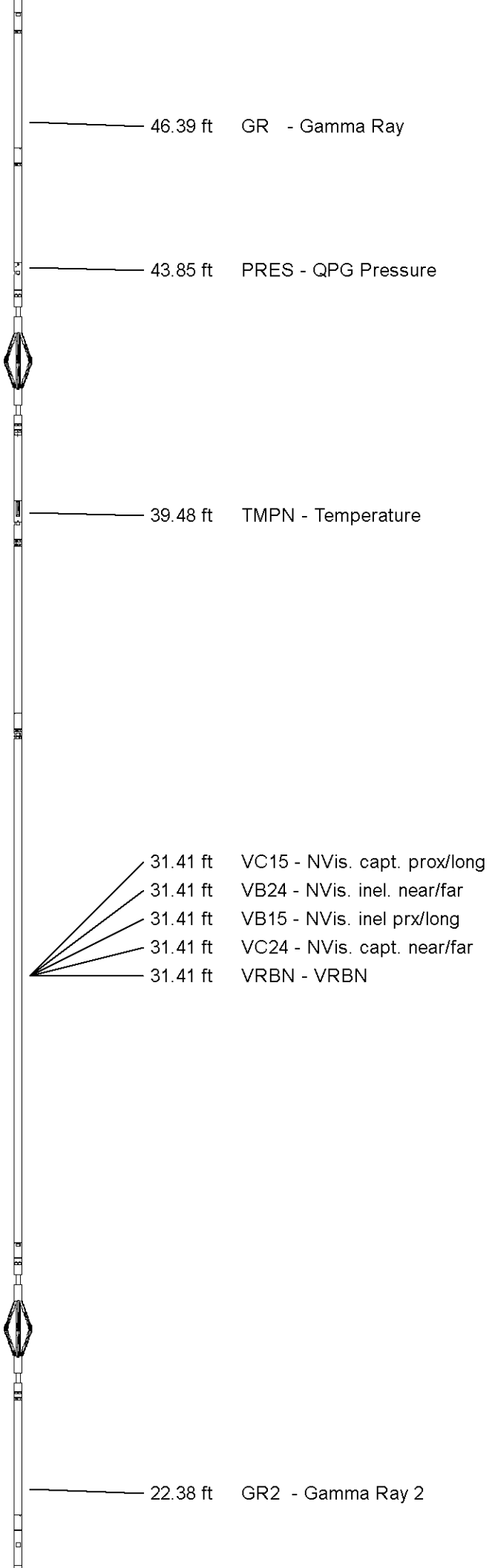
CRE series II processor section  
CRP-BA 129 LG: 3.31 ft WT: 15.4 lb OD: 1.654 in

Casing Reservoir Evaluation Tool Sonde  
CRM-BA 129 LG: 9.19 ft WT: 46.3 lb OD: 1.693 in

Centroller, 43mm, ITB, 3-arm Bi-Direct  
CR3-BA 105 LG: 2.51 ft WT: 8.8 lb OD: 1.693 in

Gamma Ray K  
UGR-KA 132 LG: 2.34 ft WT: 17.6 lb OD: 1.693 in

SSB Upper Electronics, ITB  
SUJE-CA 137 LG: 7.64 ft WT: 26.5 lb OD: 1.654 in





SSB SA 107 LG: 7.51 ft WT: 20.9 lb OD: 1.651 in

SSB Receiver Sonde  
SSS-BA 117 LG: 8.76 ft WT: 30.9 lb OD: 1.693 in

SSB Transmitter Section  
STE-BA 129 LG: 2.64 ft WT: 17.6 lb OD: 1.654 in

Centralizer, 35mm, ITB, uni-directional  
CEN-LA 370 LG: 2.60 ft WT: 8.8 lb OD: 1.380 in

Total Length: 54.99 ft Weight: 242.5 lb



Tool Zero (0.00ft from bottom)

All measurements relative to tool zero.

## SHOP AND FIELD CALIBRATIONS

C:\Logs\URSA\BMC B 41D-13-07-96\BMC B 41D-13-07-96 CREB SSSB MAIN FINAL.dta

WCC Shop calibration WCC-CB 107

calibration on 00-JAN-1988 00:00

Tension Compression Shop calibration

Tool Type: WCC-CB

Serial No: 107

	Standard	+1G Measured	Standard	-1G Measured
X Acc	1.000 G	3675.0 mv	-1.000 G	1288.0 mv
Y Acc	1.000 G	3700.0 mv	-1.000 G	1286.0 mv
Z Acc	1.000 G	3721.0 mv	-1.000 G	1313.0 mv
UGK Before Survey Cal UGR-KA 108				
Field Calibration on 15-AUG-2017 11:53				
Gamma Ray Before Survey Calibration				
Tool Type: UGR-KA			Serial No: 108	
Calibrator No: 101				
	Background	calibrator	Standard	Units
	46.3	786.0	470.2	API
Delta Counts Per Sec: 739.7		CPS/API = 1.573		
QPG Master Calibration QPG-EA 106				
Gauge				
Serial Number	220928		Calibration Date	15 Sep 2012
Gauge Type	QHB108-16-177		Base Check Date	
Max Pressure	16000 PSI		Max Temperature	177 Deg C
Min Pressure	13 PSI		Min Temperature	25 Deg C
Pressure				
Pressure polynomial order 3			Temperature polynomial order 3	
	T0	T1	T2	T3
P0	13.6402	-0.585455	-0.0197893	9.3116e-006
P1	9.3116e-006	42.1819	-0.0208838	2.62627e-005
P2	2.62627e-005	-5.38063e-008	-0.00199429	8.64228e-006
P3	8.64228e-006	-3.99023e-008	3.69856e-011	6.96299e-007
P4				
Temperature				
Temperature polynomial order 3				
	T0	T1	T2	T3
	25.2302	-0.731527	-0.000858522	-6.86634e-007
Temperature Tool Shop Survey Calibration TMP-NA-128				

Temperature Tool Shop Survey Calibration  
Tool Type: TMP-NA                      Serial No: 138

Calibration		
Standard		Measured
32	DEGF	36714 Hz
212	DEGF	50849 Hz

UGK Before Survey Cal    UGR-KA 132	
Field Calibration on 15-AUG-2017 12:40	
Gamma Ray Before Survey Calibration	
Tool Type: UGR-KA	Serial No: 132
Calibrator No: 101	

Background	Calibrator	Standard	Units
42.6	812.4	470.2	API
Delta Counts Per Sec: 769.8		CPS/API = 1.637	

SSBC Field Calibration    SSS-BA 117			
Field Calibration on 08-SEP-2017 15:24			
Slim Sector Bond Field Calibration			
Tool Type	SSS-BA	Serial No	117
Sensor AMP 3FT	Description	Standard	Measured
	100% Bond	1.00	2.90
	Free Pipe	81.00	1841.20
AMP 5FT	100% Bond	0.40	0.90
	Free Pipe	54.00	1616.20
1 SECTOR AMP	100% Bond	5.00	4.20
	Free Pipe	95.00	519.00
2 SECTOR AMP	100% Bond	5.00	6.70
	Free Pipe	95.00	582.00
3 SECTOR AMP	100% Bond	5.00	0.30
	Free Pipe	95.00	456.30
4 SECTOR AMP	100% Bond	5.00	1.70
	Free Pipe	95.00	334.20
5 SECTOR AMP	100% Bond	5.00	0.00
	Free Pipe	95.00	309.80
6 SECTOR AMP	100% Bond	5.00	0.30
	Free Pipe	95.00	424.00



Free Pipe

95.00

434.00

SSBC Constants SSS-BA 117

Last Edited on 00-JAN-1988 00:00

Min Ampl 100% Bond	3.63 MV
Max Ampl 0% Bond	81.03 MV
Casing Size	4.50 IN
Casing Weight	11.6 LB/F
3' TT Correction	0.0 US
DT Fluid	200.0 US/F
Fast Formation TT	38.5 US/F
Cement Cmpr Strength	580 PSI
Casing Velocity	57.00 US/F
Maximum Attenuation	12.00 DB/F

SMS Constants SMS-A 0

Last Edited on 00-JAN-1988 00:00

Cement Weight	0.00 LB/G
Cement Weight	0.00 LB/G

COMPANY	URSA OPERATING COMPANY
WELL	BMC B 41D-13-07-96
FIELD	WILDCAT
PROVINCE/COUNTY	GARFIELD
COUNTRY/STATE	USA / COLORADO

Elevation Kelly Bushing	5117	feet	Bottom Log Interval	6823.00	feet
Elevation Drill Floor	5117	feet	Depth Driller	6823.00	feet
Elevation Ground Level	5100	feet	Depth Logger	6414.00	feet

**Weatherford®**

SLIM SECTOR BOND LOG