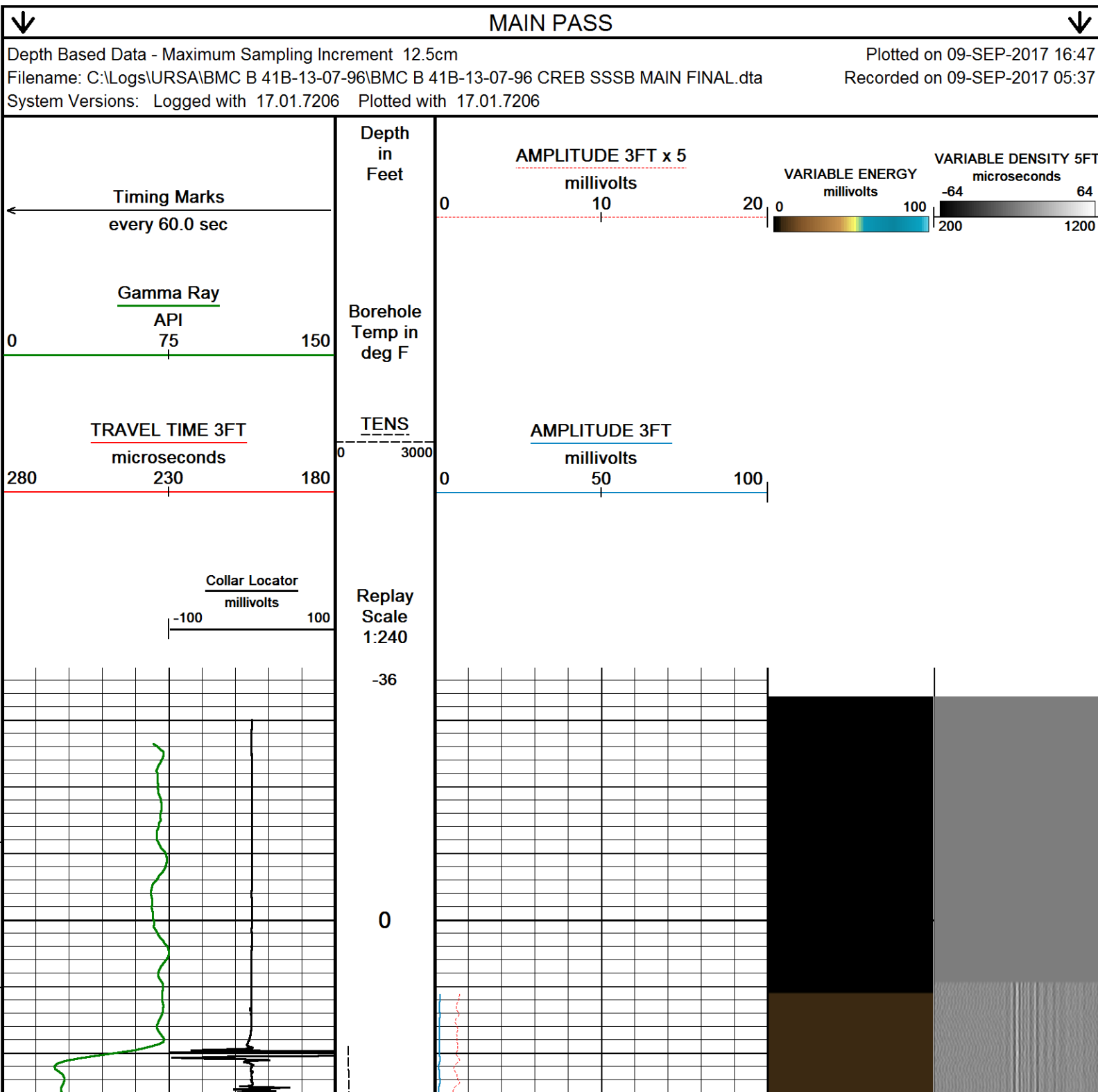
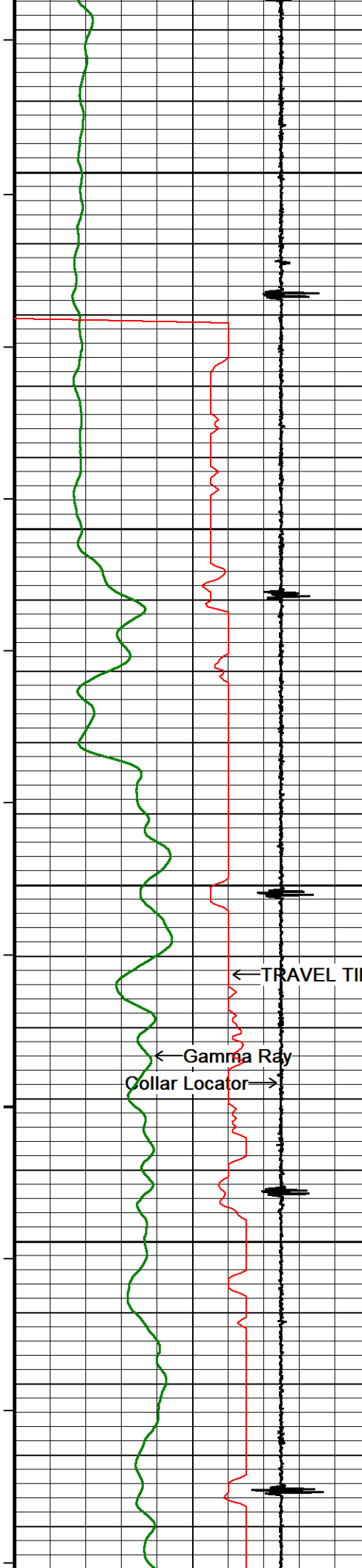
				SLIM SECTOR BOND LOG			
Weatherford®							
COMPANY				URSA OPERATING COMPANY			
WELL				BMC B 41B-13-07-96			
FIELD				WILDCAT			
PROVINCE/COUNTY				GARFIELD			
COUNTRY/STATE				USA / COLORADO			
LOCATION				2236' FNL & 0687' FWL			
SEC 18	TWP 7S	RGE 95W	Other Services CREB				
Latitude		Longitude					
API Number		05-045-23488		Permanent Datum GROUND LEVEL, Elevation 5100 feet Log Measured From KB, 17.00 feet above Permanent Datum Drilling Measured From KB			
Permanent Datum GROUND LEVEL, Elevation 5100 feet							
Log Measured From KB, 17.00 feet above Permanent Datum							
Drilling Measured From KB							
API Number 05-045-23488							
Date		09-SEP-2017		PERFORATION RECORD			
Run Number	ONE		Shot	Number	Depth From	Depth To	
Service Order	192186338		Density	of Shots	feet	feet	
Type Log	SSSB						
Depth Driller	7009.00						
Depth Logger	6485.00						
Top Log Interval	0.00						
Bottom Log Interval	6485.00						
Hole Fluid Type	WATER						
Hole Fluid Level	0.00						
Restriction ID	3.875		Gun Type				
Max Recorded Temp	190.00		Gun Size				
Well Head Pressure	0.00						
Well Head Equipment	N/A		CASING / TUBING RECORD				
Time Well Ready	ROA		Size	Weight	Depth From	Depth To	
Time Logger Bottom	SEE LOG		inches	pounds/ft	feet	feet	
Unit	14115		8.625	32.00	0.00	1700.00	
Equipment Name	WSS-E		4.500	11.60	0.00	6393.00	
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	6393.00	11.60

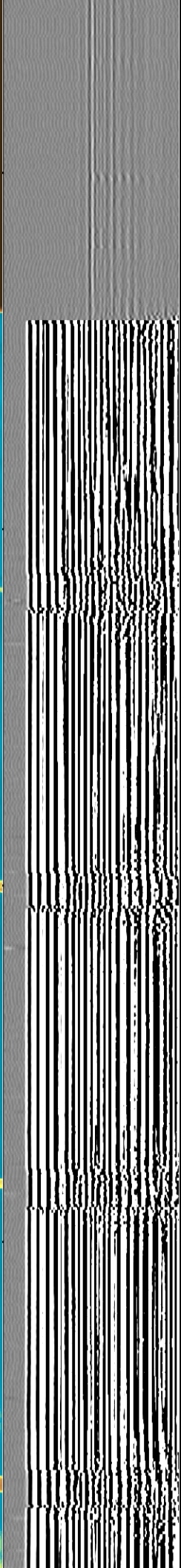
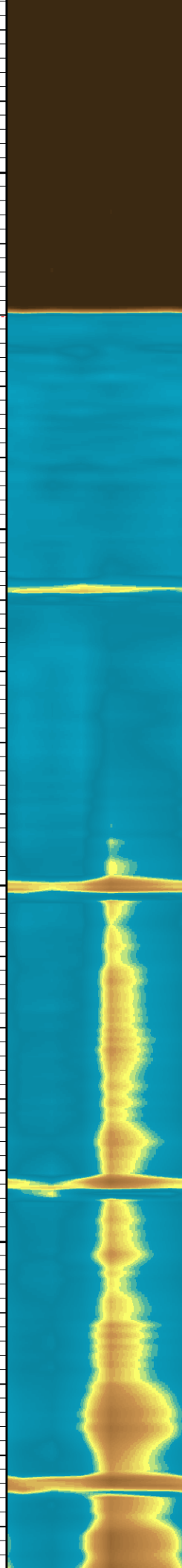
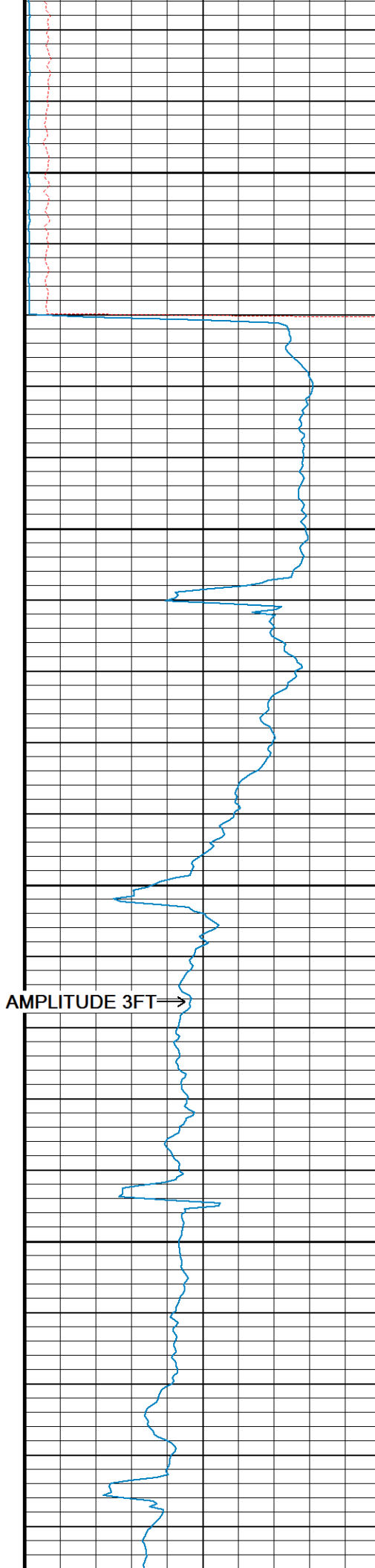
REMARKS
SOFTWARE VERSION 17.01.7206 - COMMERCIAL VERSION
ALL DEPTH CONTROL PROCEDURES FOR SUBSEQUENT RUN IN HOLE WERE FOLLOWED. LOG RUN FROM 17' K.B.
SURFACE SYSTEM USED: WCM-D 160
TOOLS RUN: WCCC, UGRK, QPGE, CR3B, TMPN, CRPB, CRMB, CR3B, UGRK, SUEC, SSSB, STEB, CENA WERE RAN IN COMBINATION
GAMMA RAY 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 100 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. 190F

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.



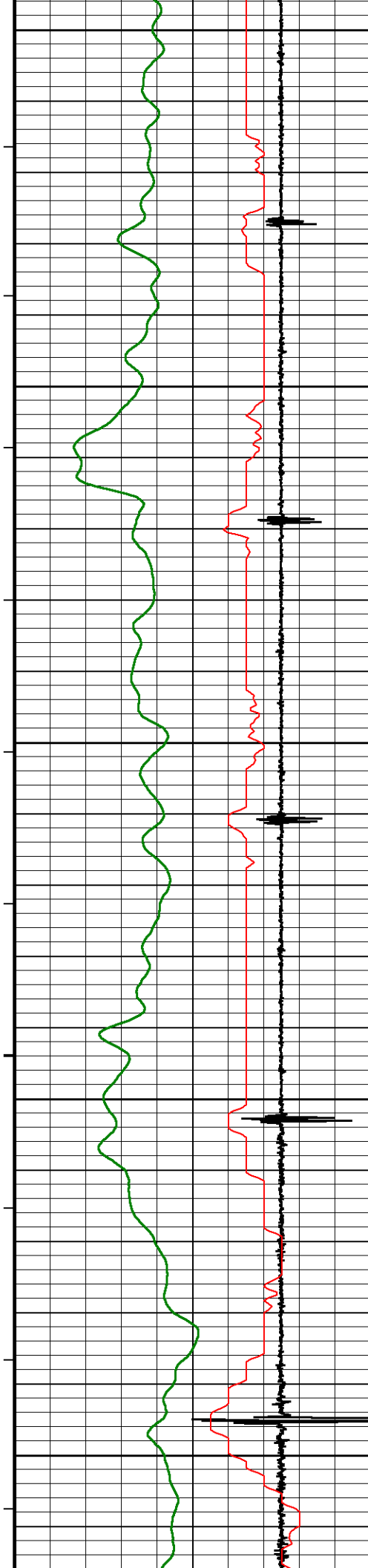


65°
50
63°
100
63°
150
64°
200
66°



← TRAVEL TIME 3FT
← Gamma Ray
Collar Locator →

AMPLITUDE 3FT →



250

67°

300

69°

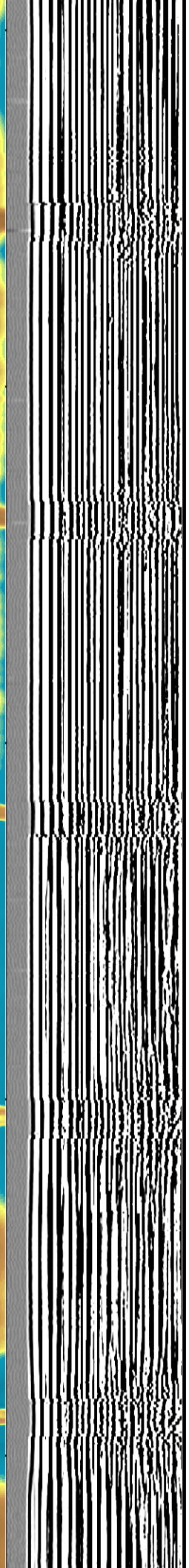
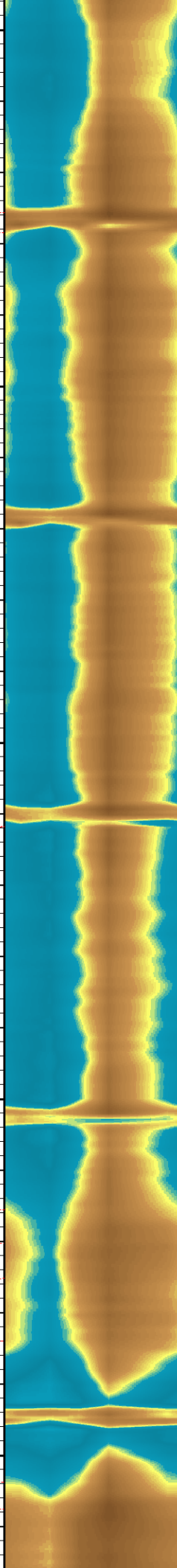
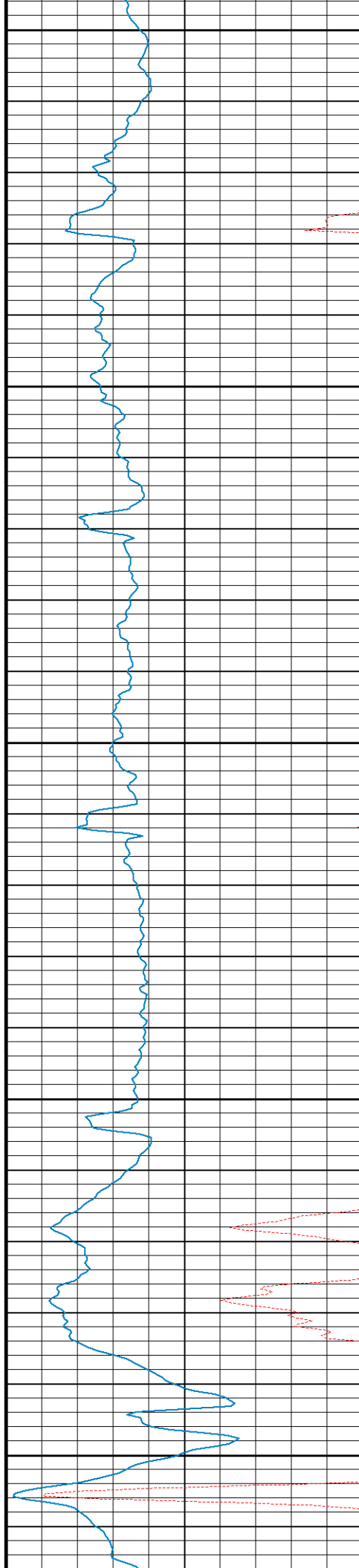
350

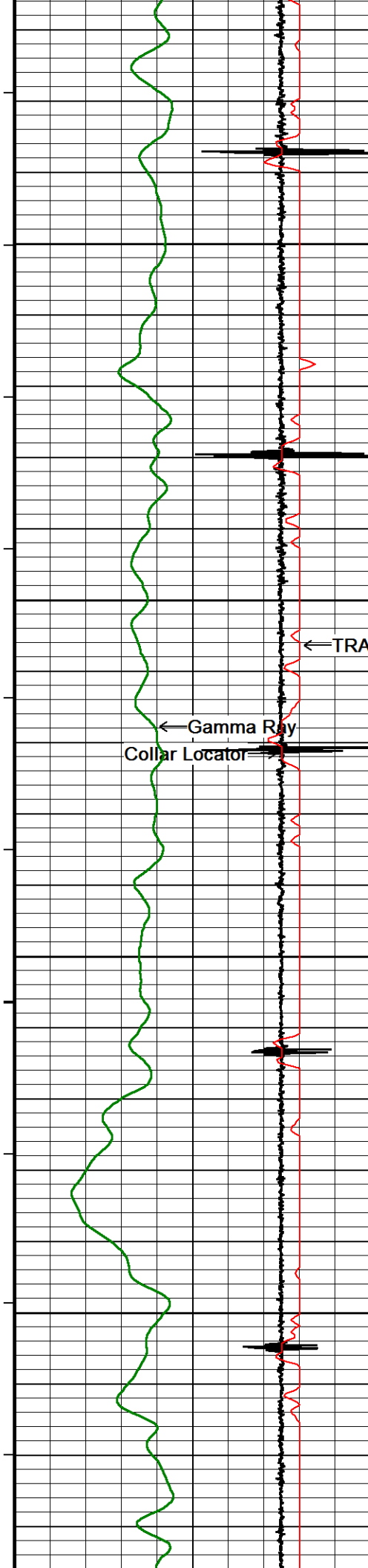
70°

400

71°

450





72°

500

73°

550

← TRAVEL TIME 3FT

AMPLITUDE 3FT →

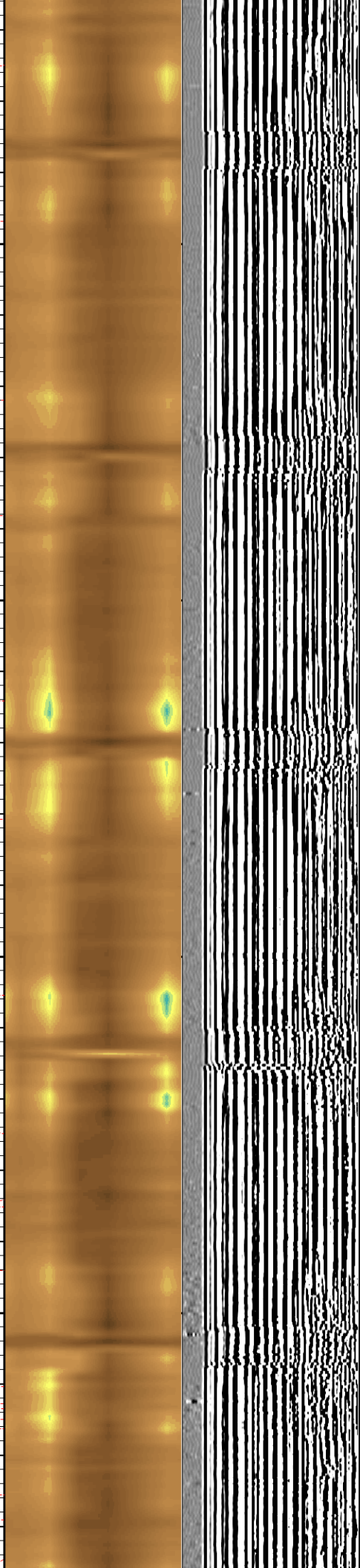
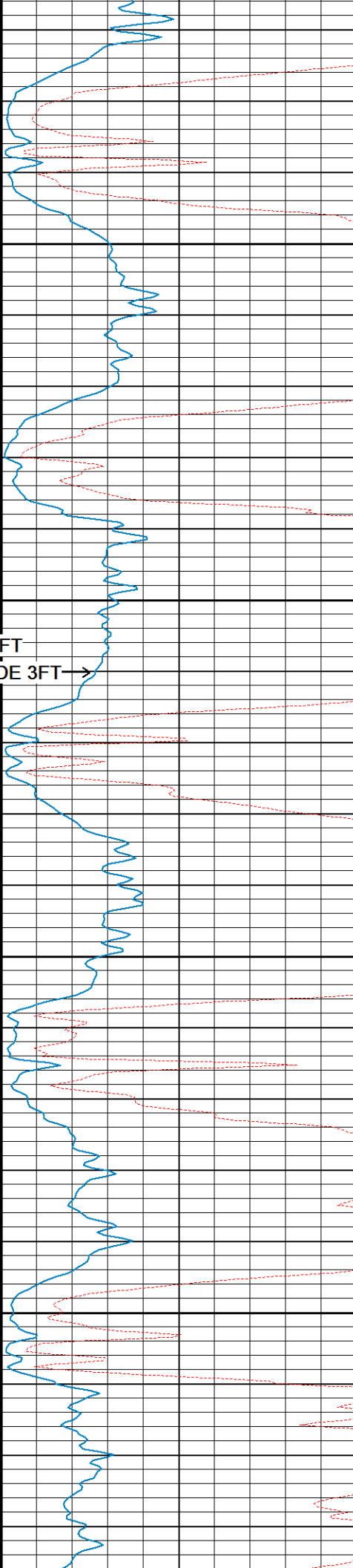
← Gamma Ray
Collar Locator →

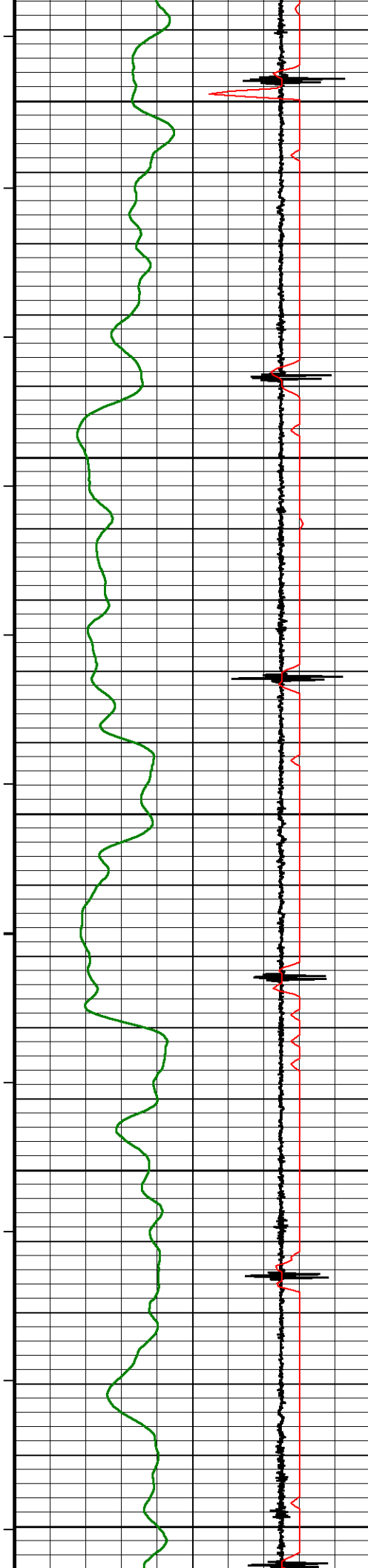
75°

600

75°

650





77°

700

77°

750

77°

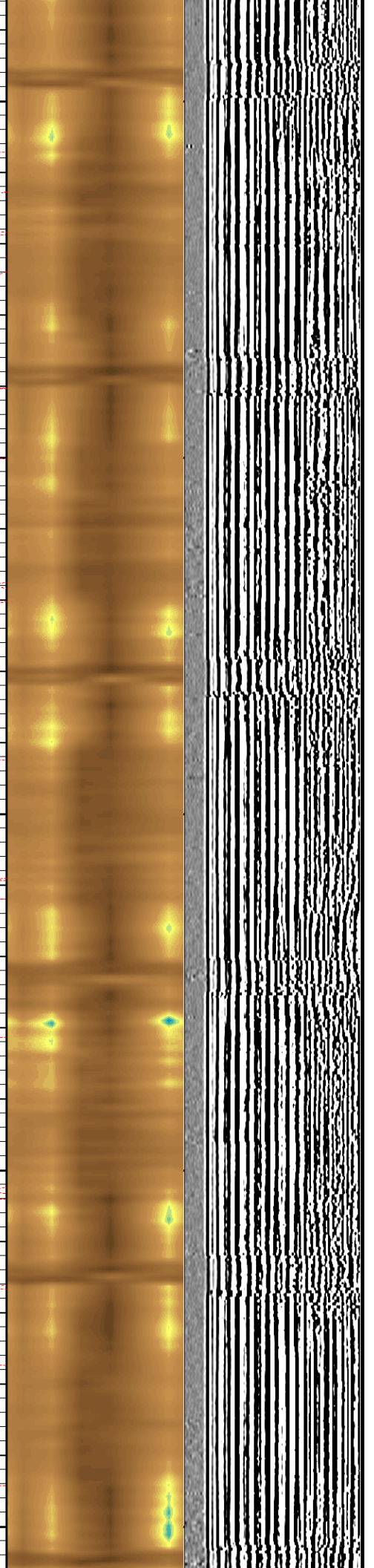
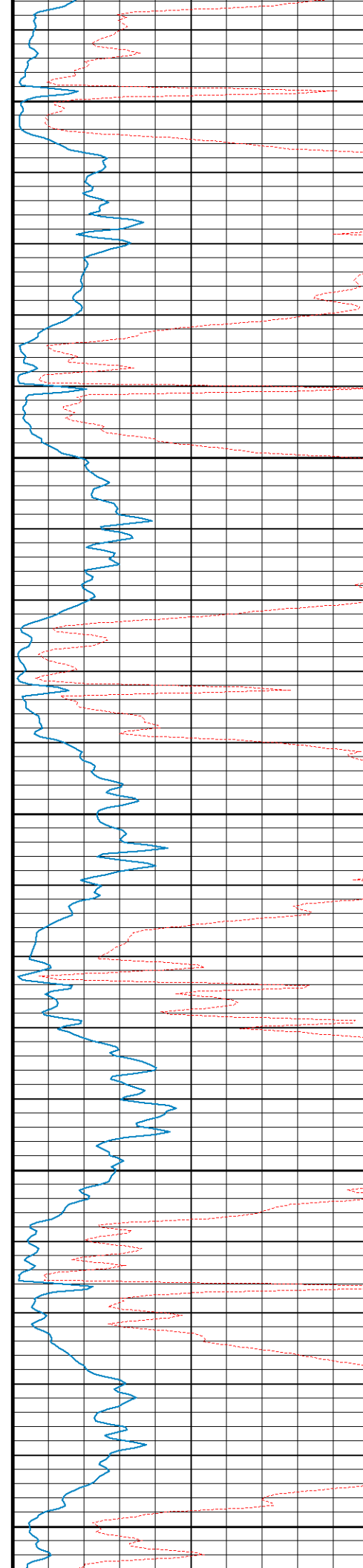
800

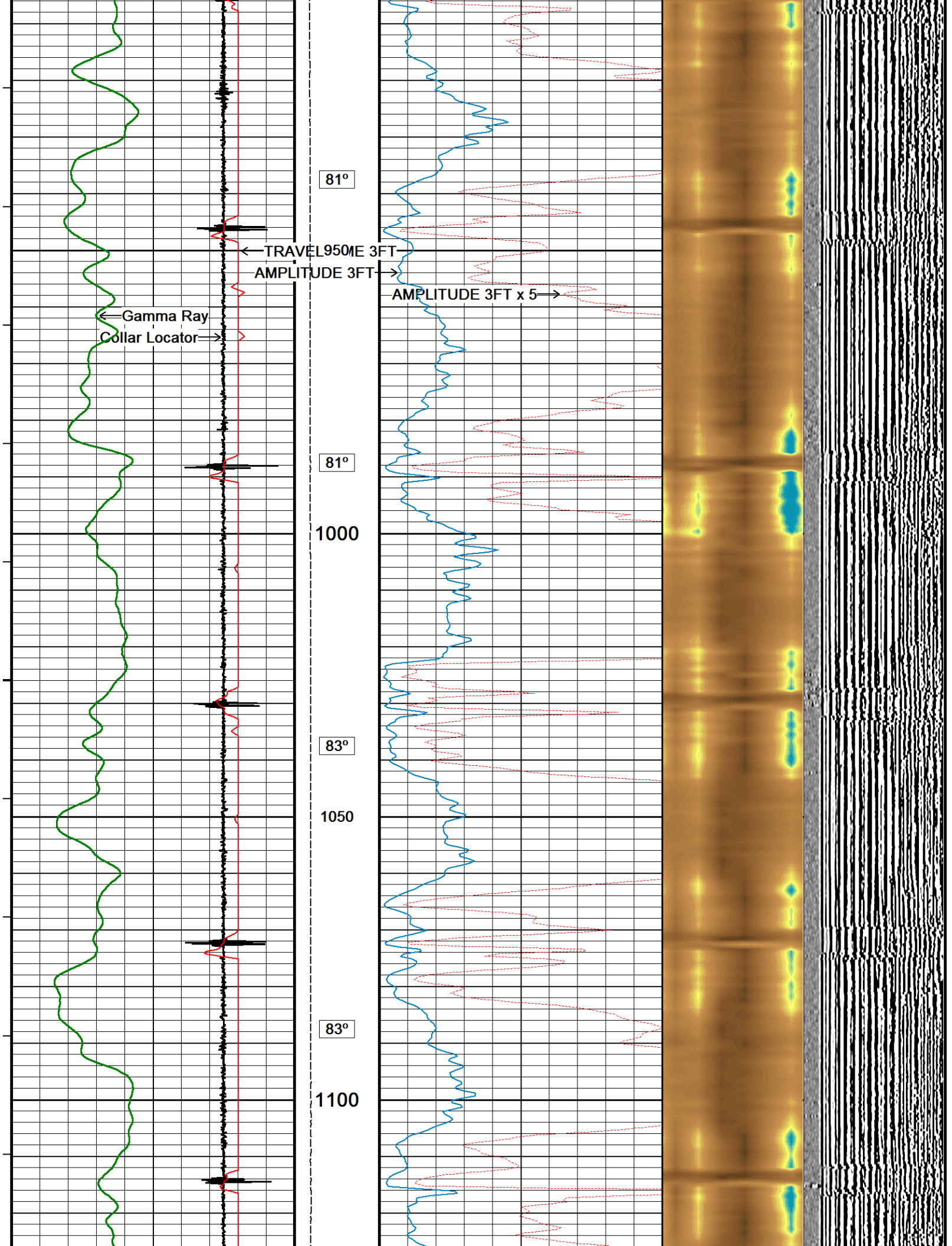
79°

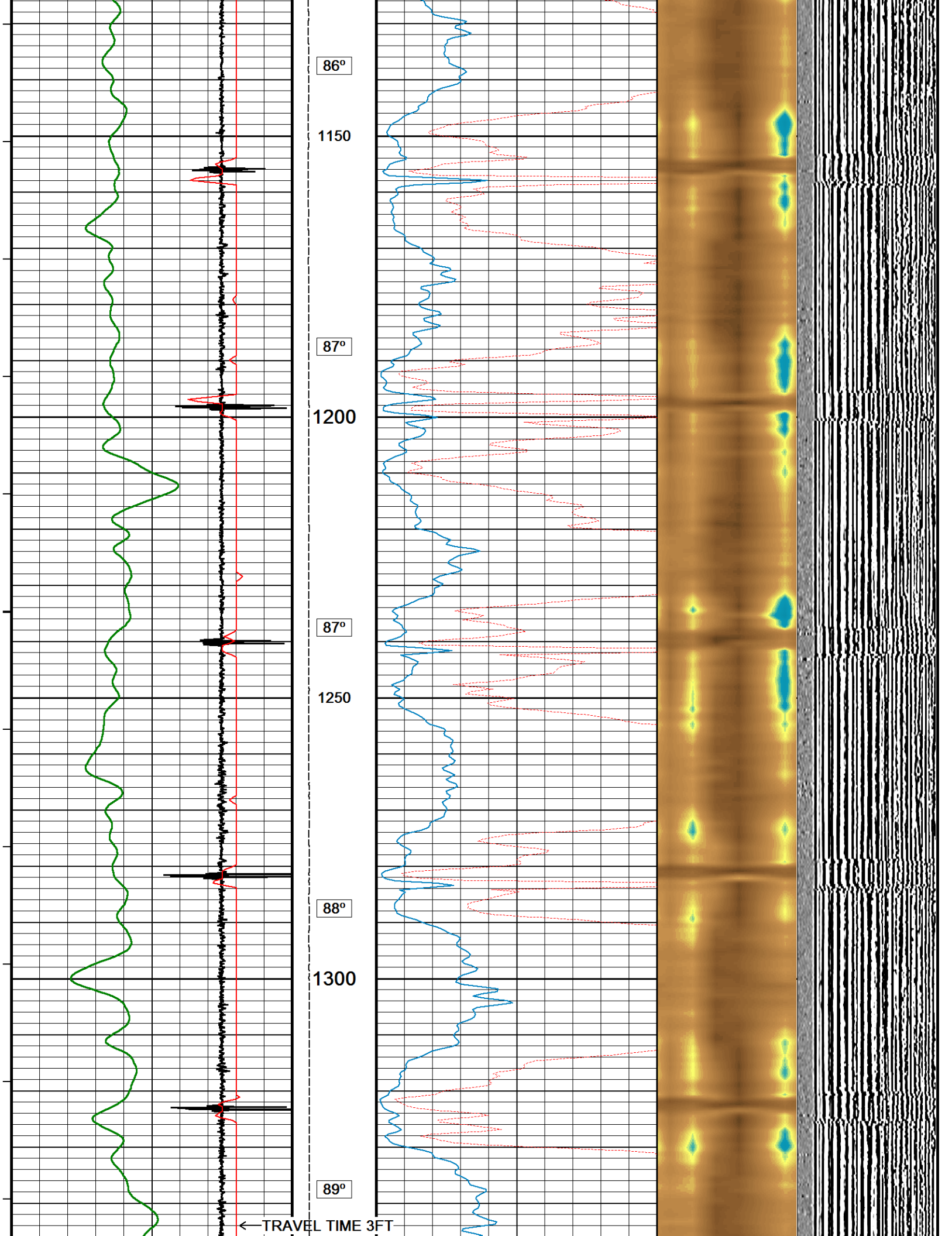
850

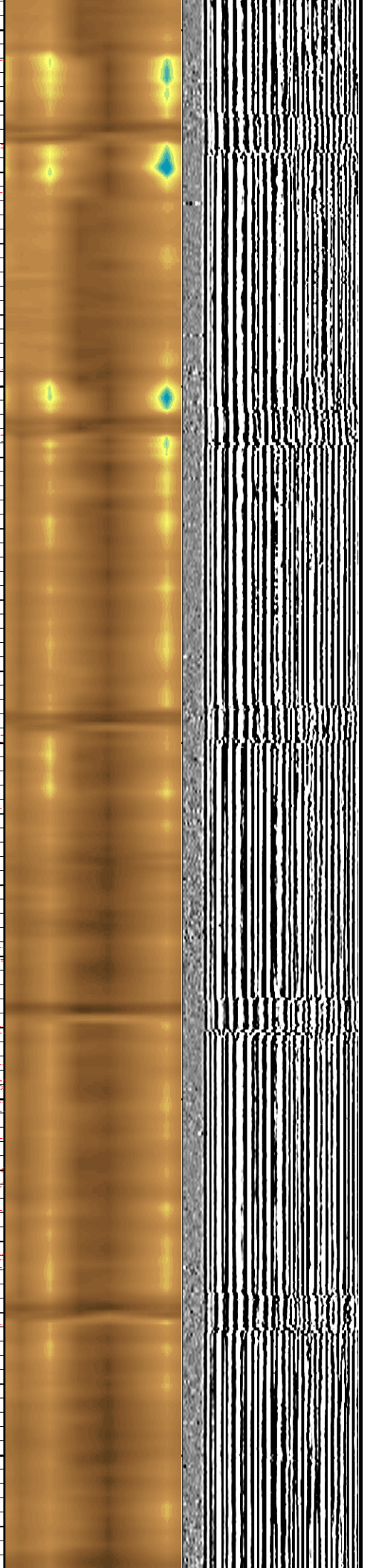
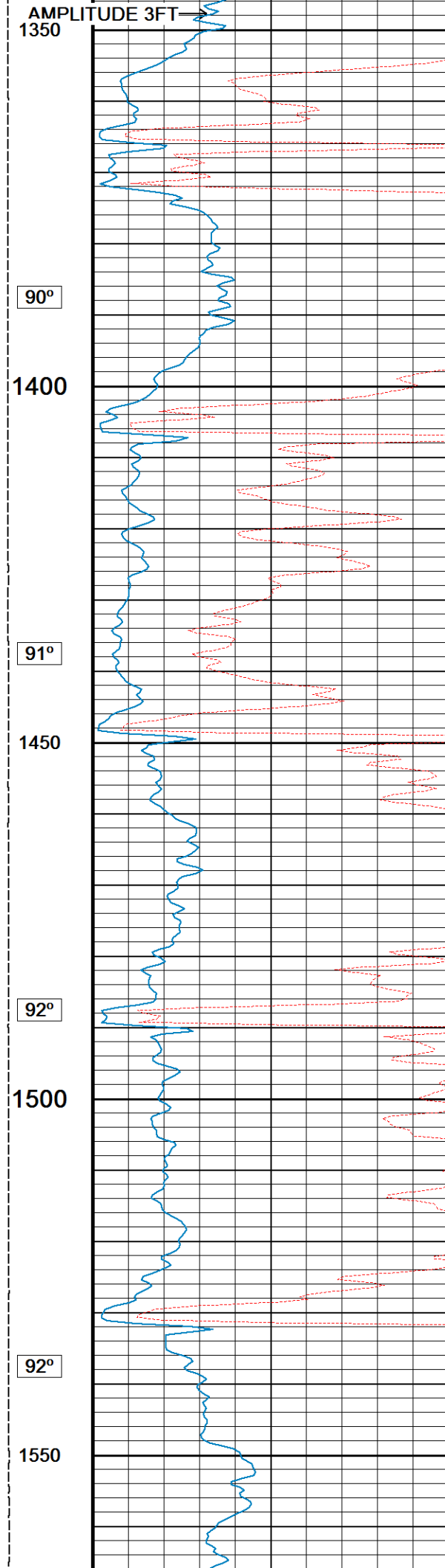
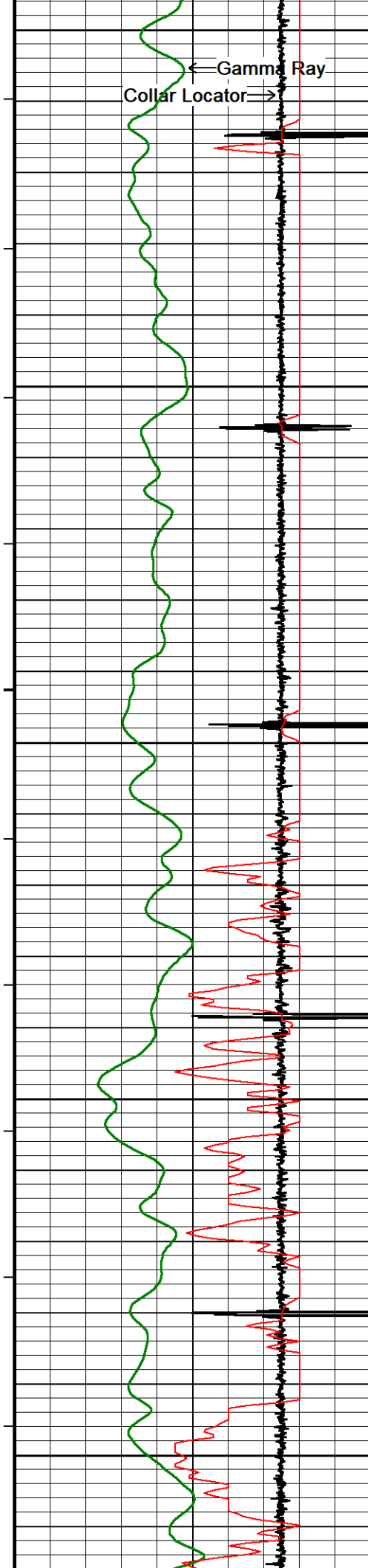
81°

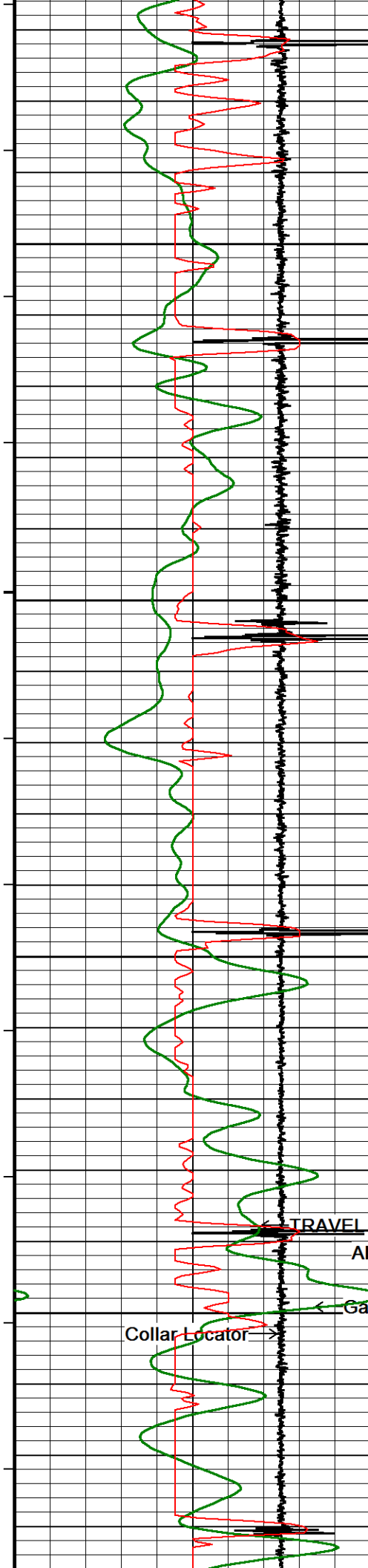
900











93°

1600

95°

1650

96°

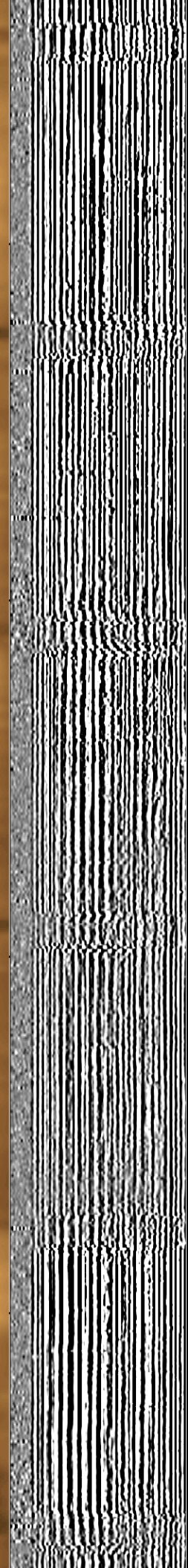
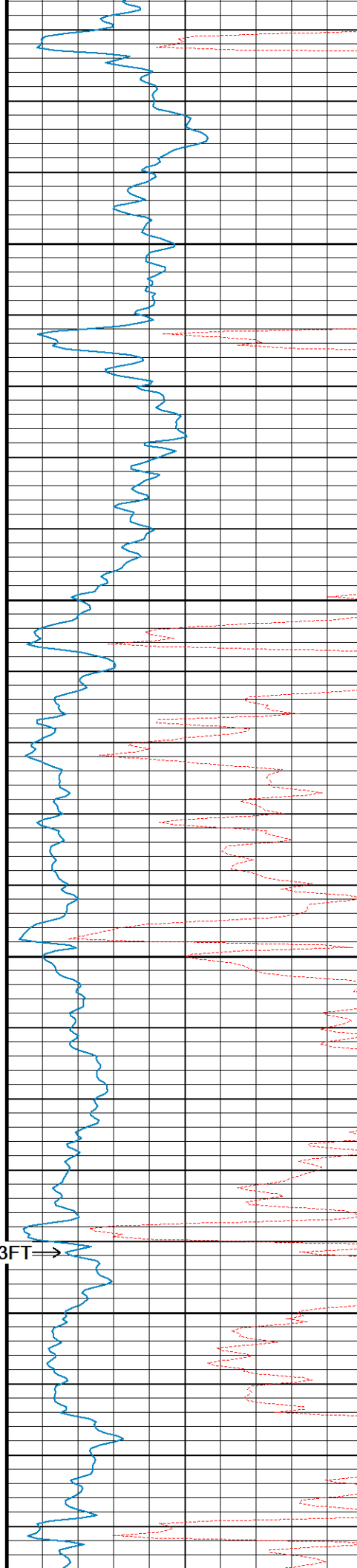
1700

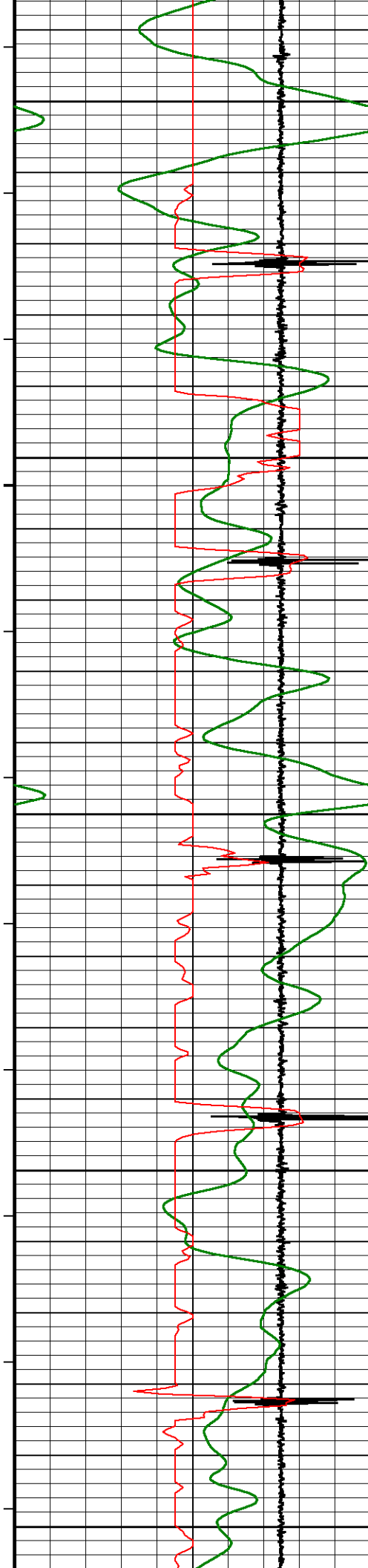
TRAVEL TIME 98FT

AMPLITUDE 3FT →

Gamm 1750'

Collar Locator →





98°

1800

101°

1850

101°

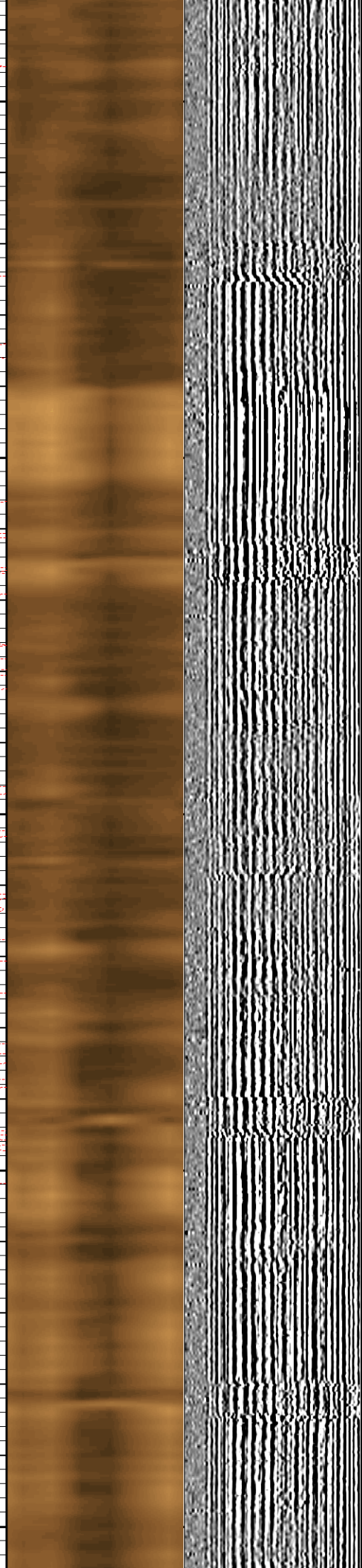
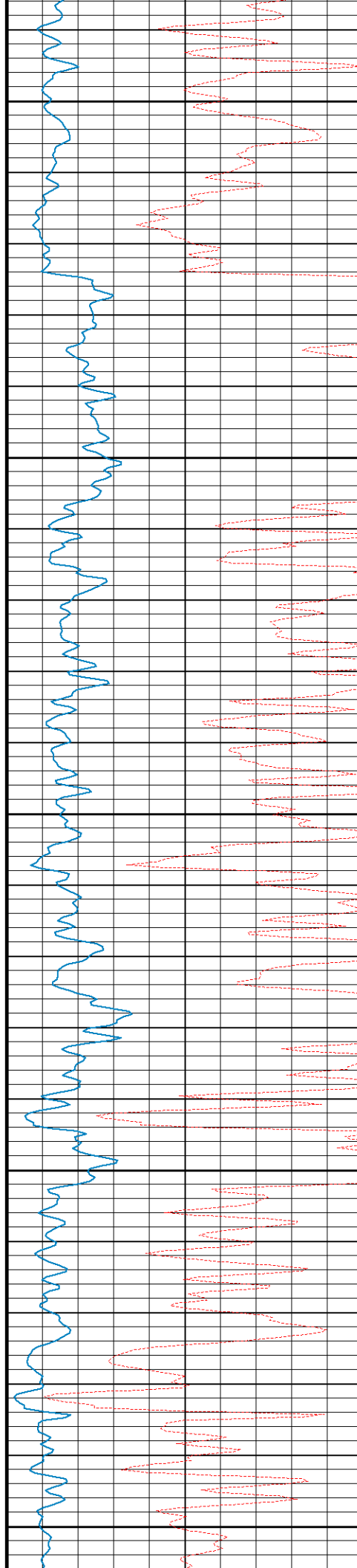
1900

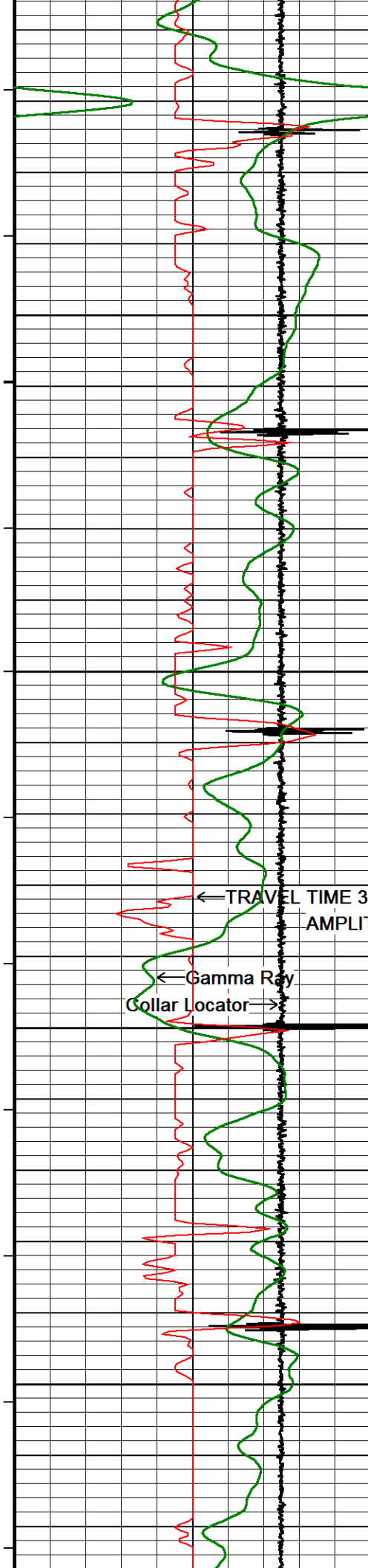
101°

1950

102°

2000





103°

2050

104°

2100

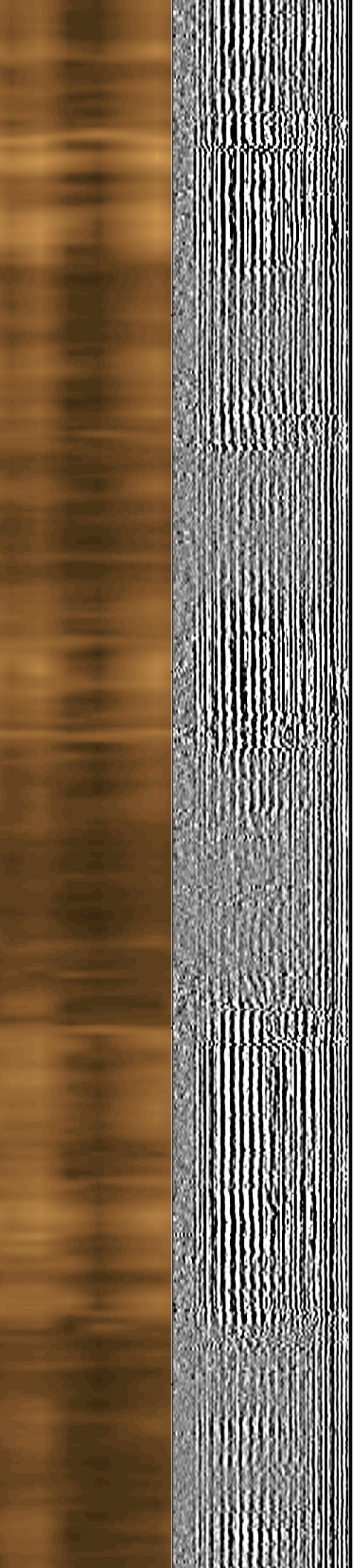
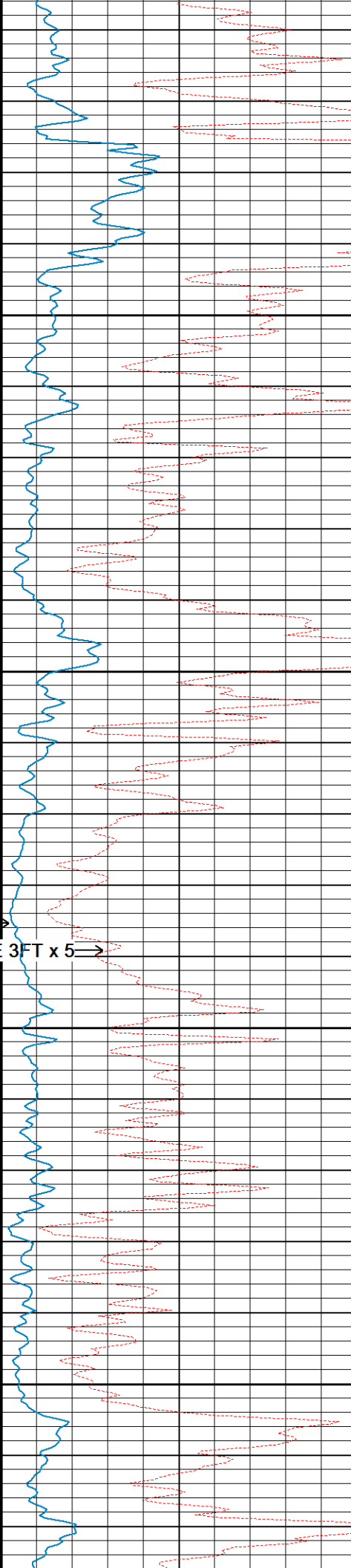
105°

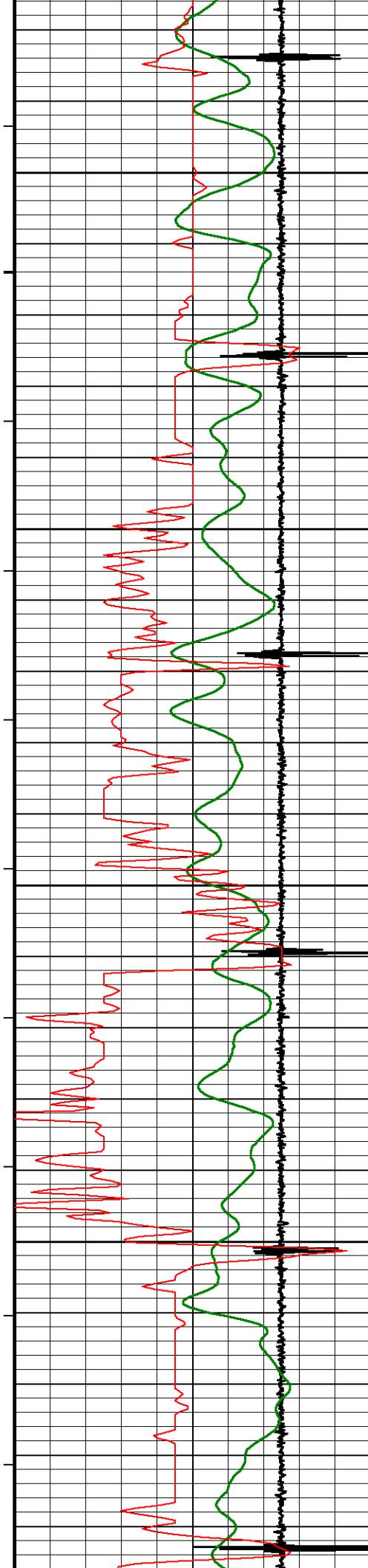
2150

106°

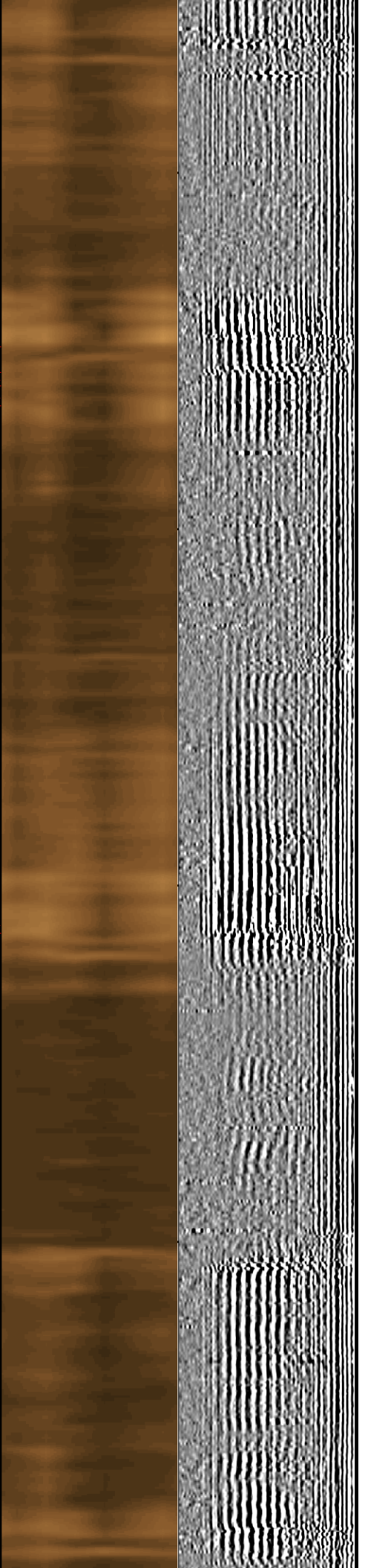
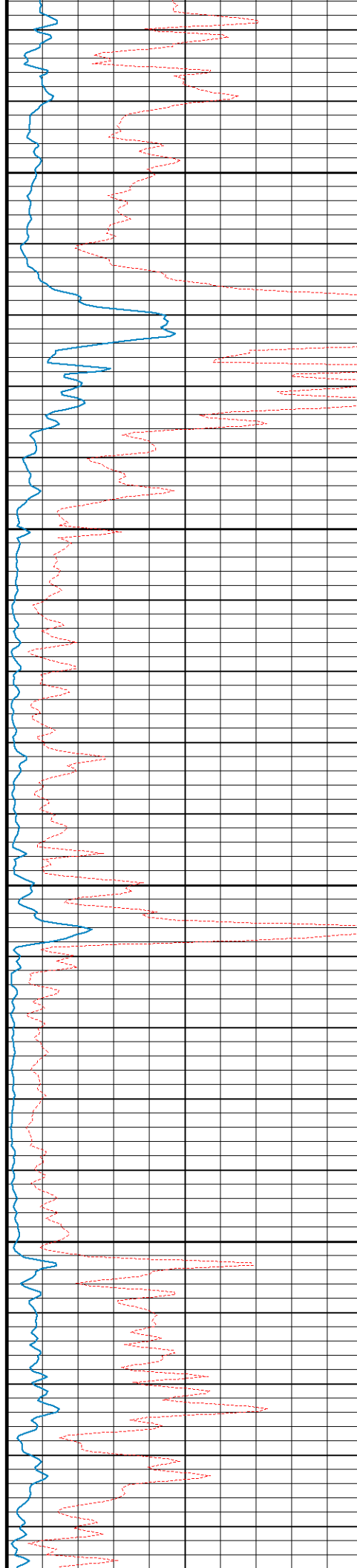
2200

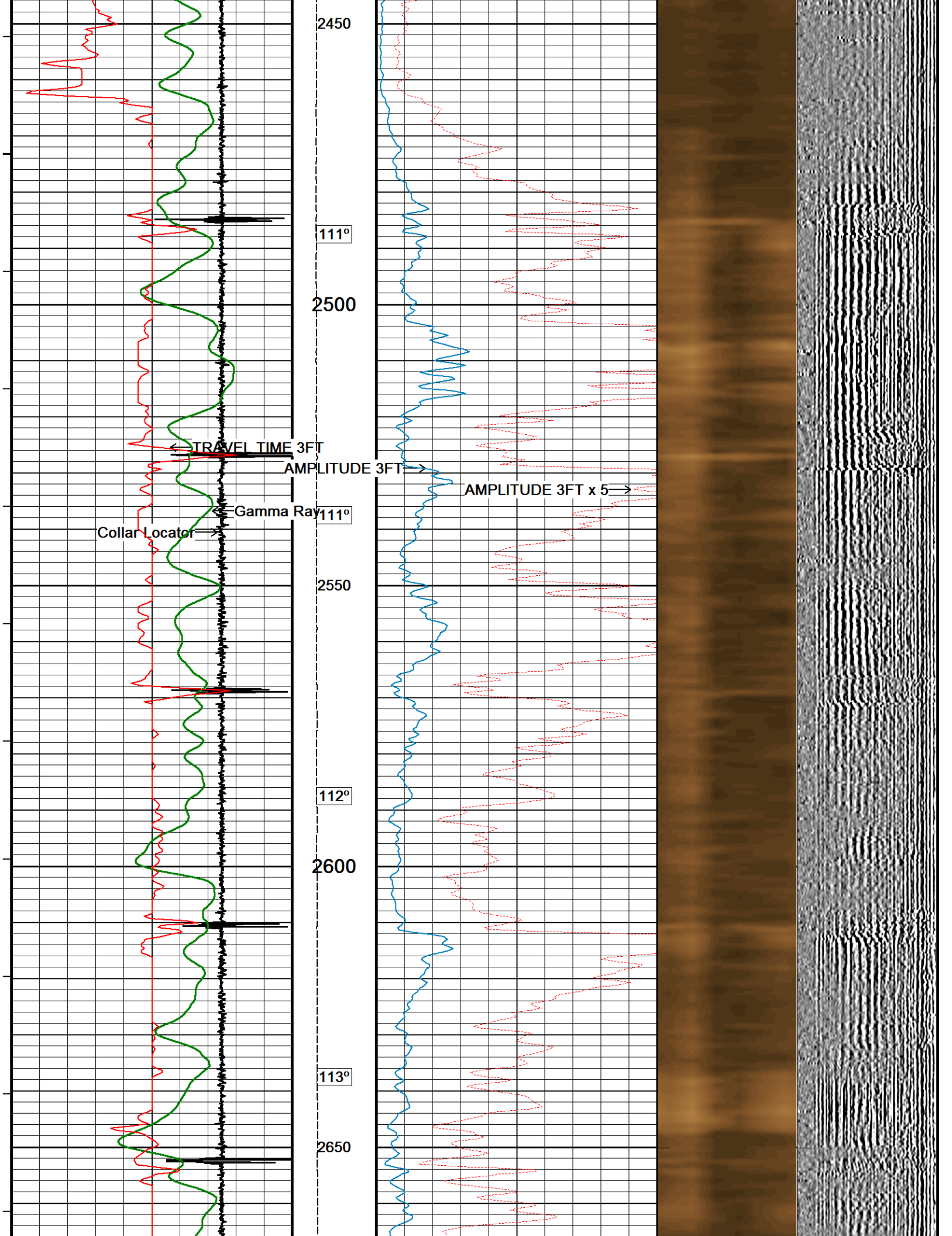
← TRAVEL TIME 3FT
← Gamma Ray
Collar Locator →
AMPLITUDE 3FT →
AMPLITUDE 3FT x 5 →

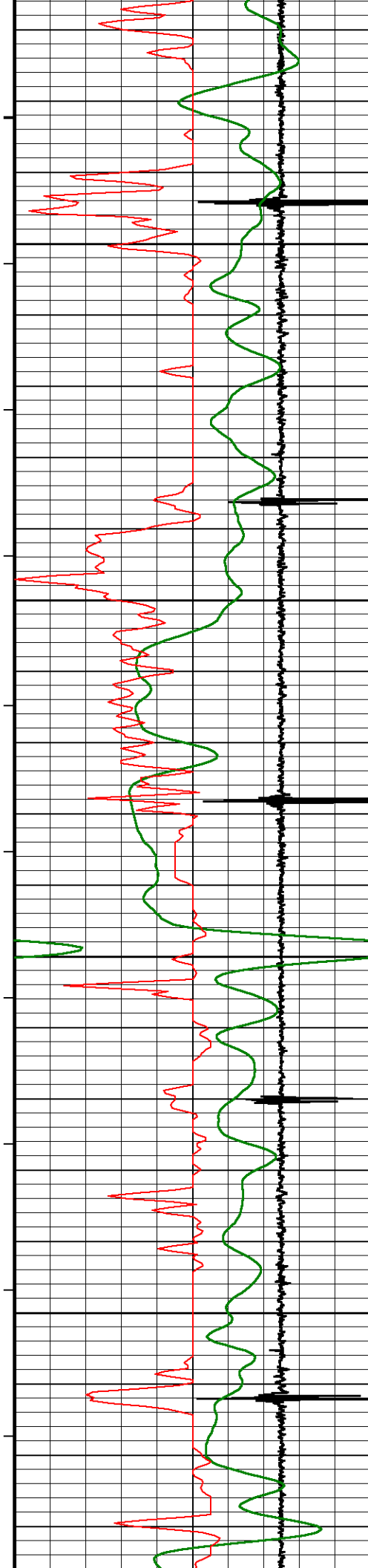




106°
2250
107°
2300
108°
2350
109°
2400
110°







114°

2700

115°

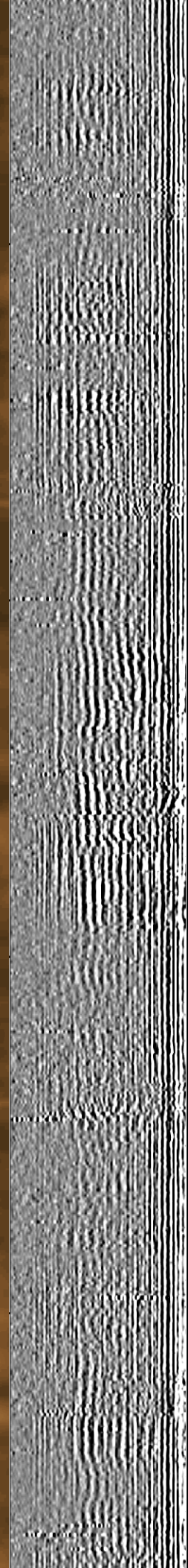
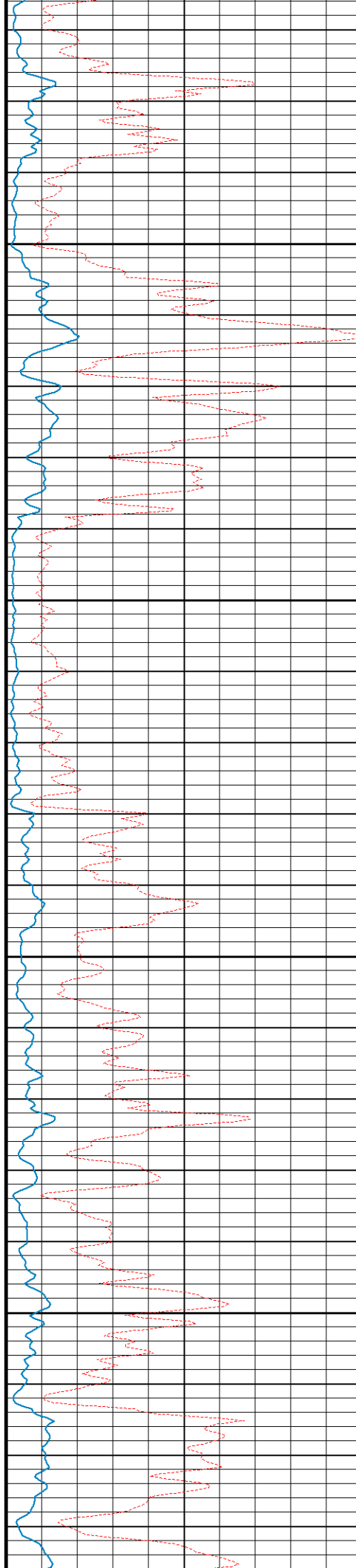
2750

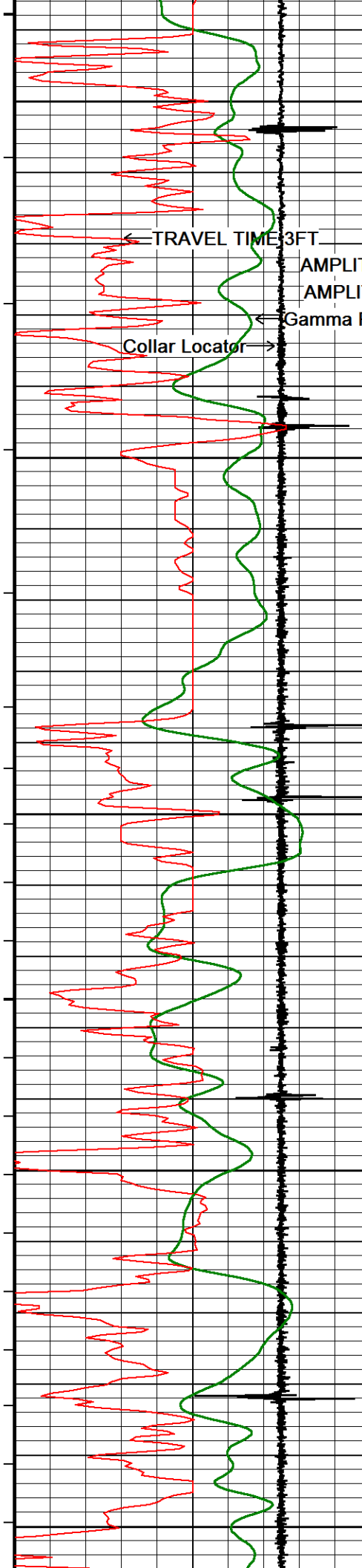
115°

2800

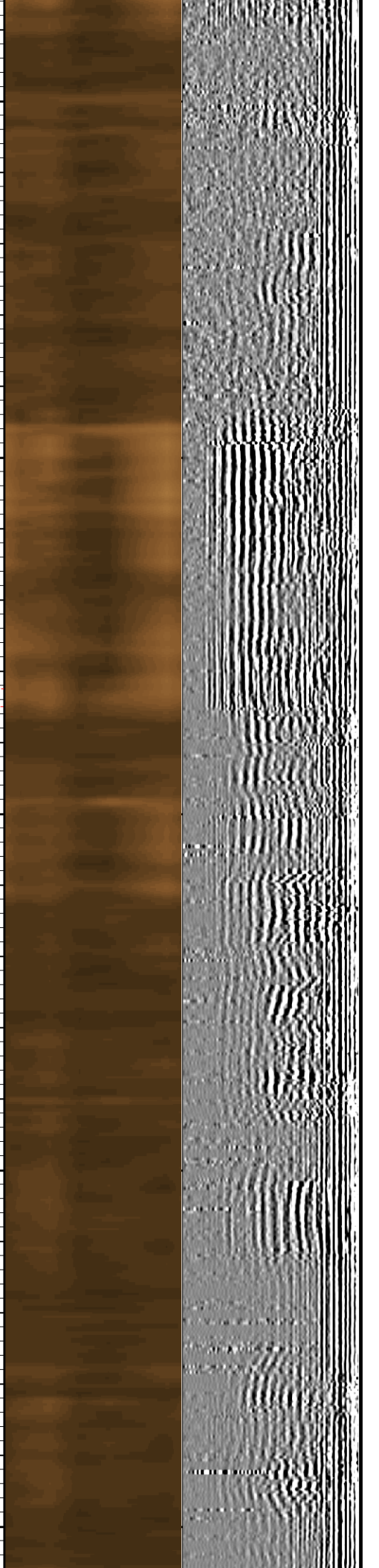
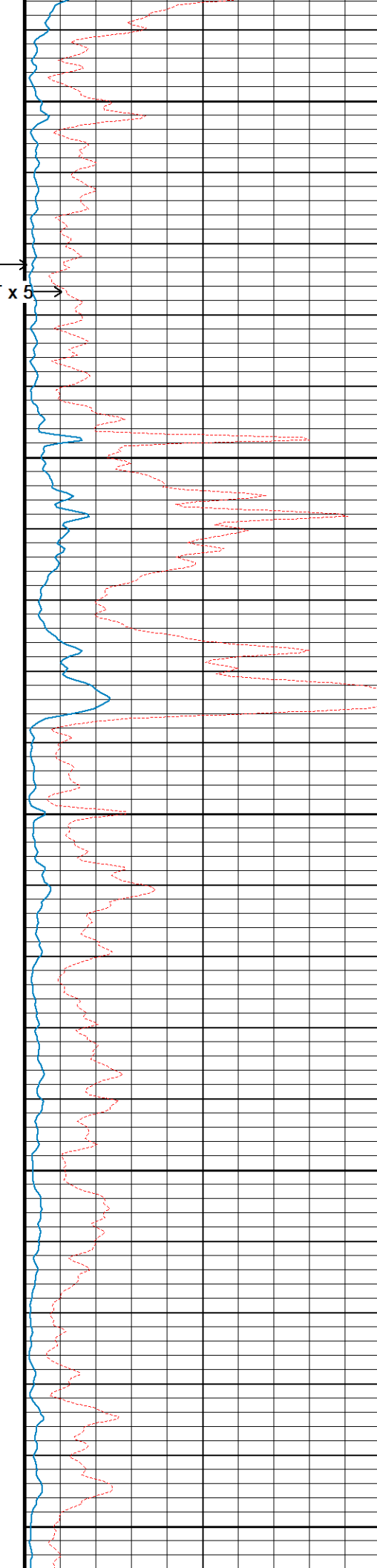
116°

2850





117°
2900
118°
2950
119°
3000
119°
3050
120°
3100



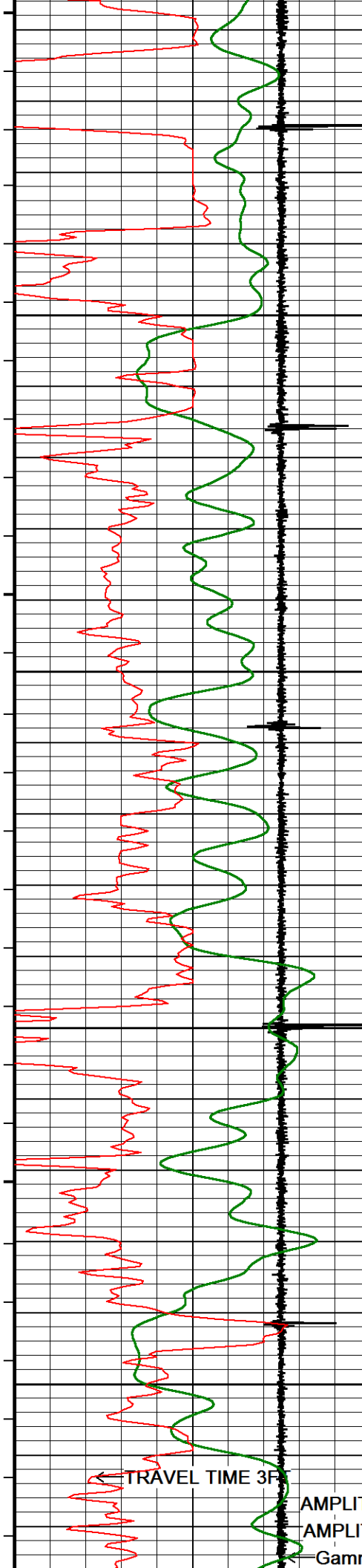
← TRAVEL TIME 3FT

AMPLITUDE 3FT →

AMPLITUDE 3FT x 5 →

← Gamma Ray

Collar Locator →



121°

3150

122°

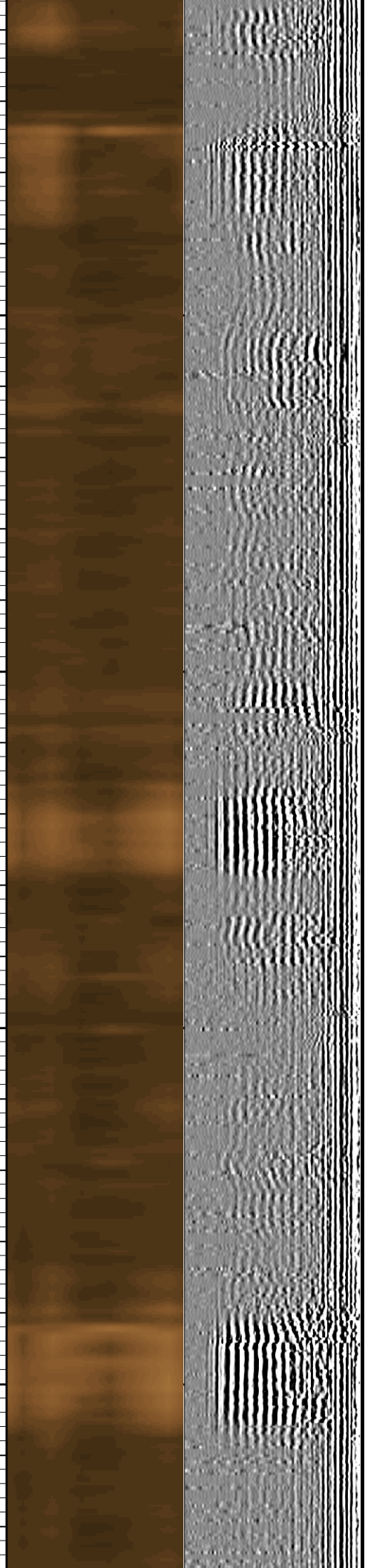
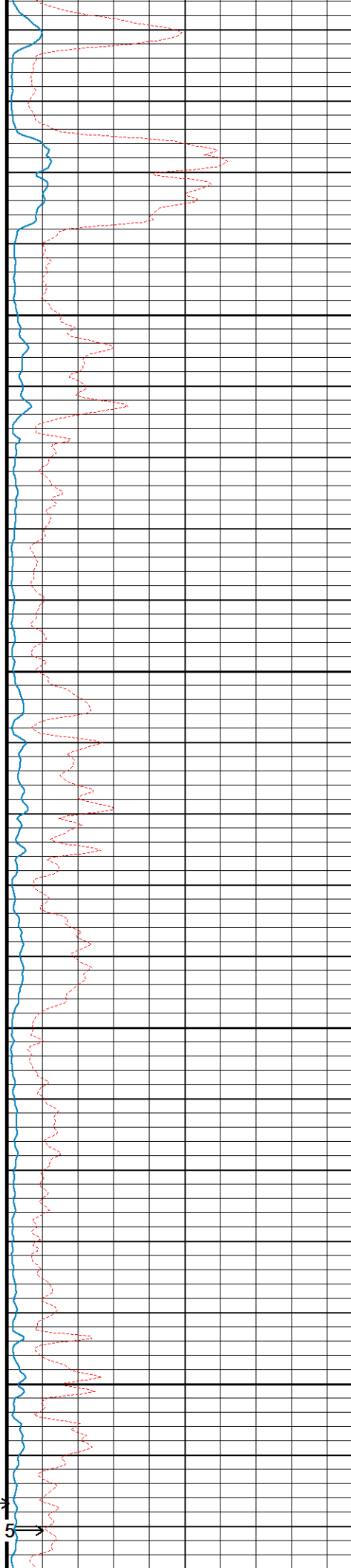
3200

123°

3250

124°

3300

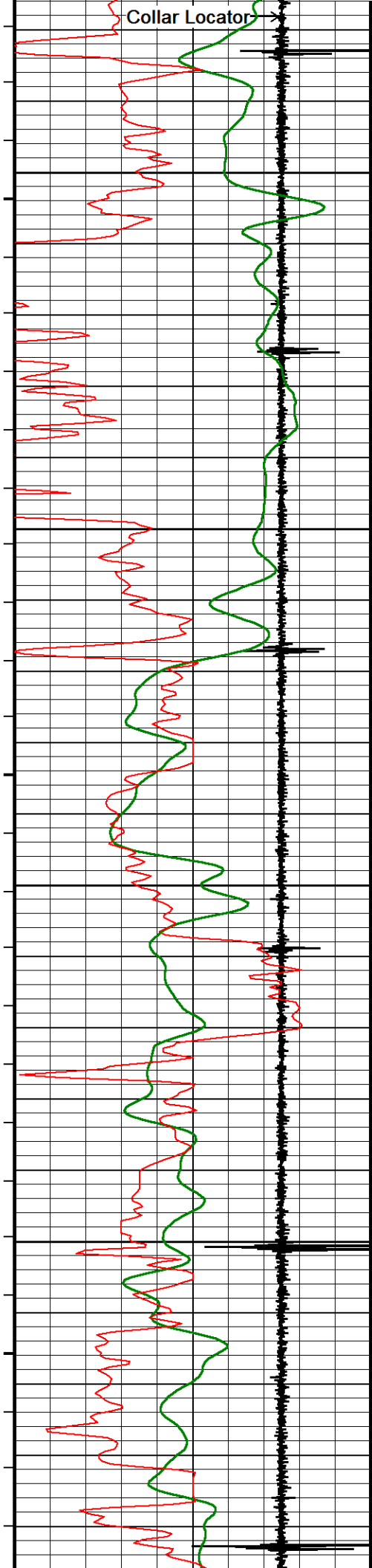


← TRAVEL TIME 3FT →

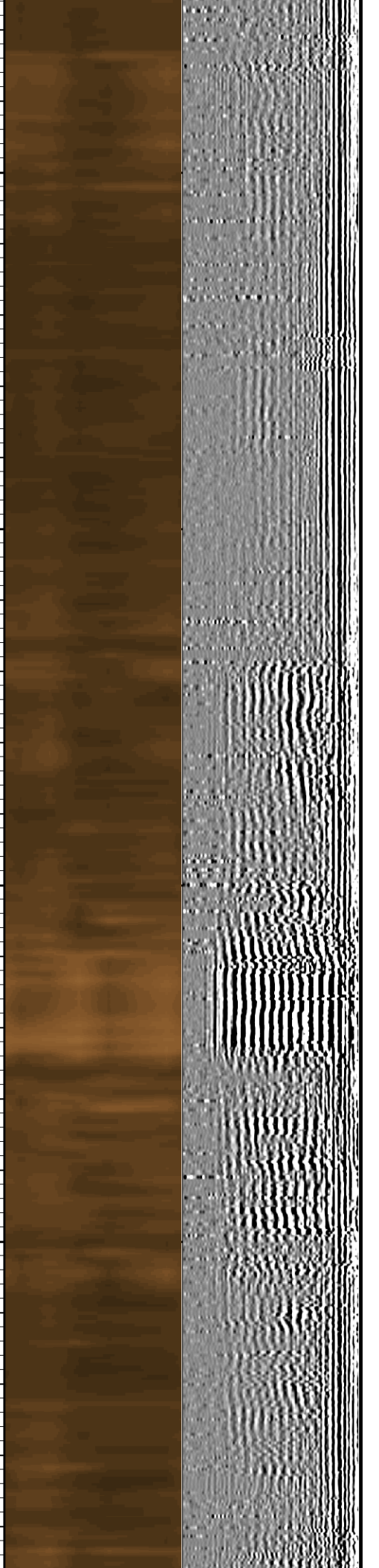
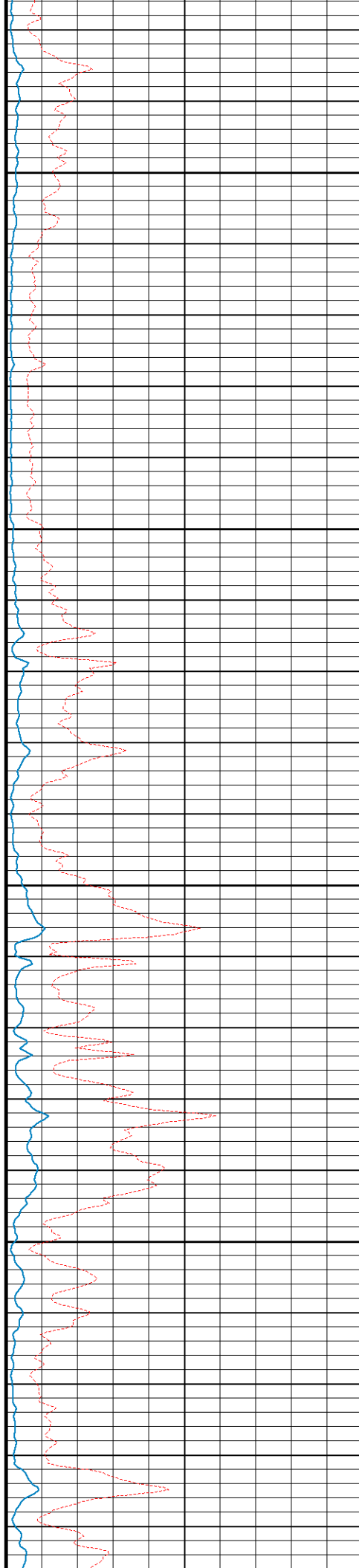
AMPLITUDE 3FT →

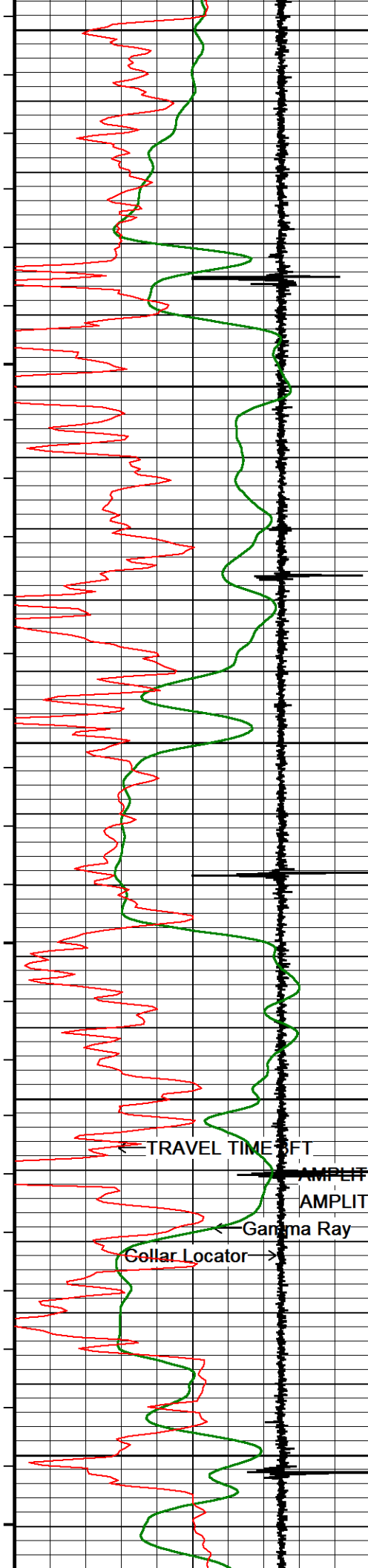
AMPLITUDE 3FT x 5 →

← Gamma Ray

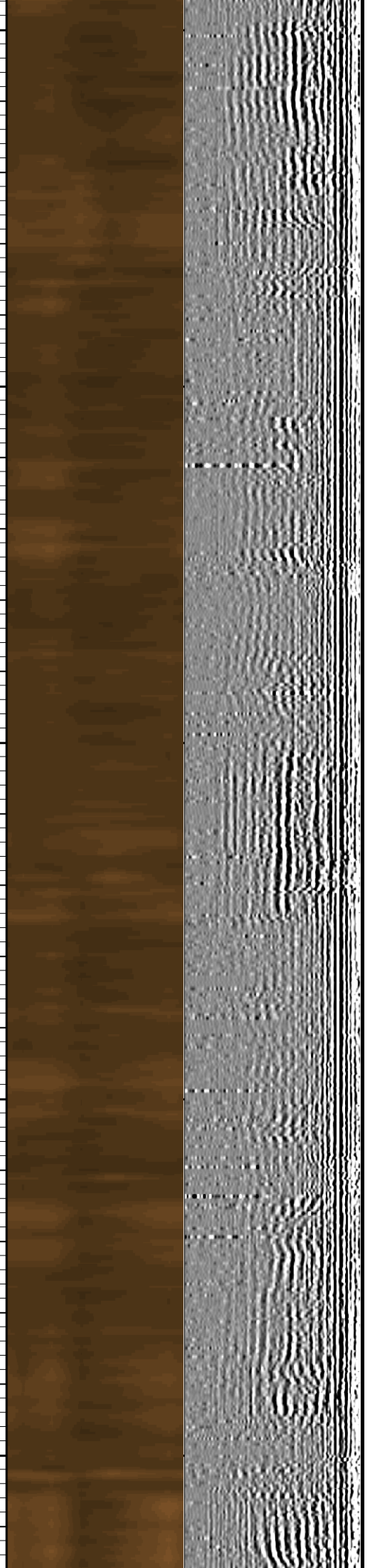
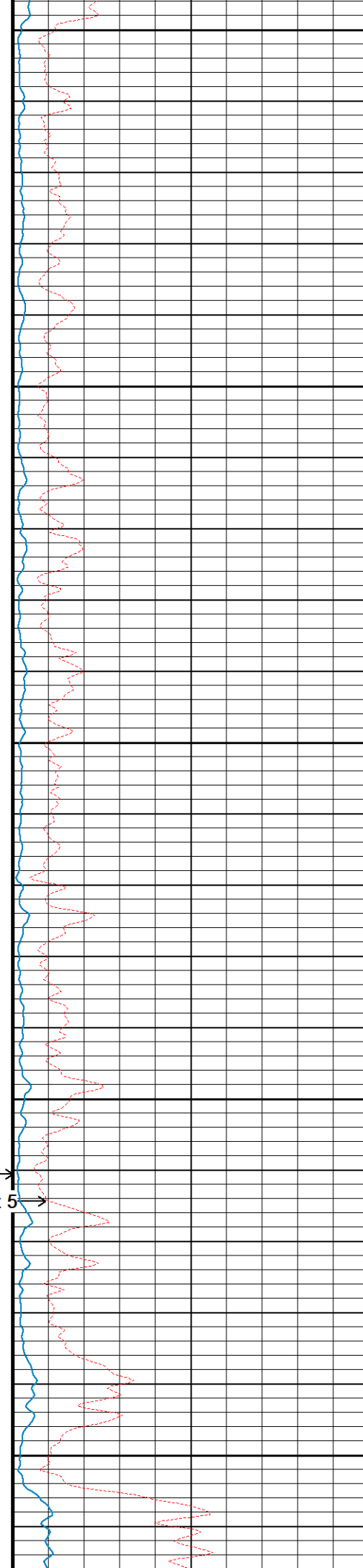


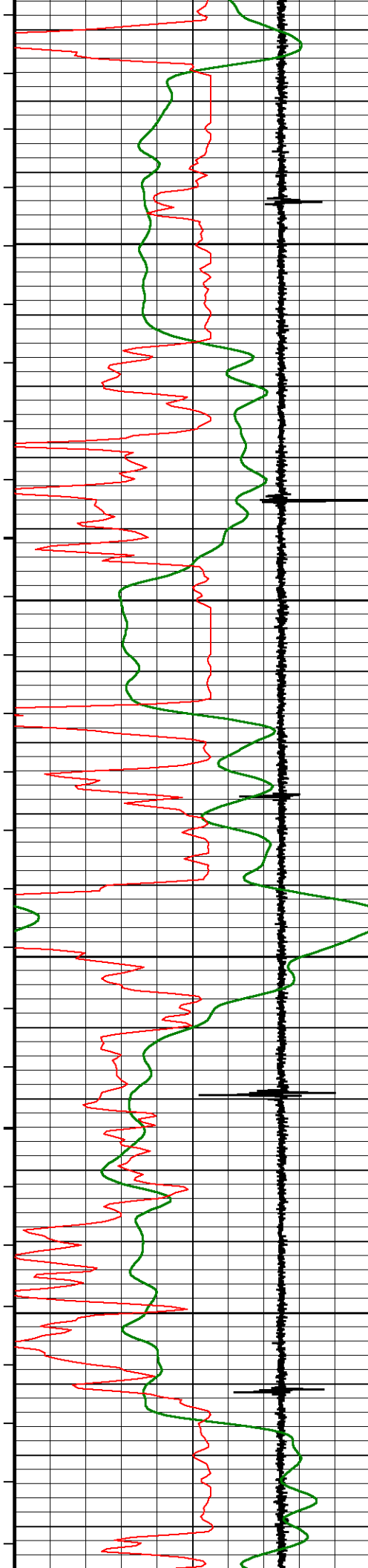
125°
3350
126°
3400
126°
3450
127°
3500
127°





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





131°

3800

132°

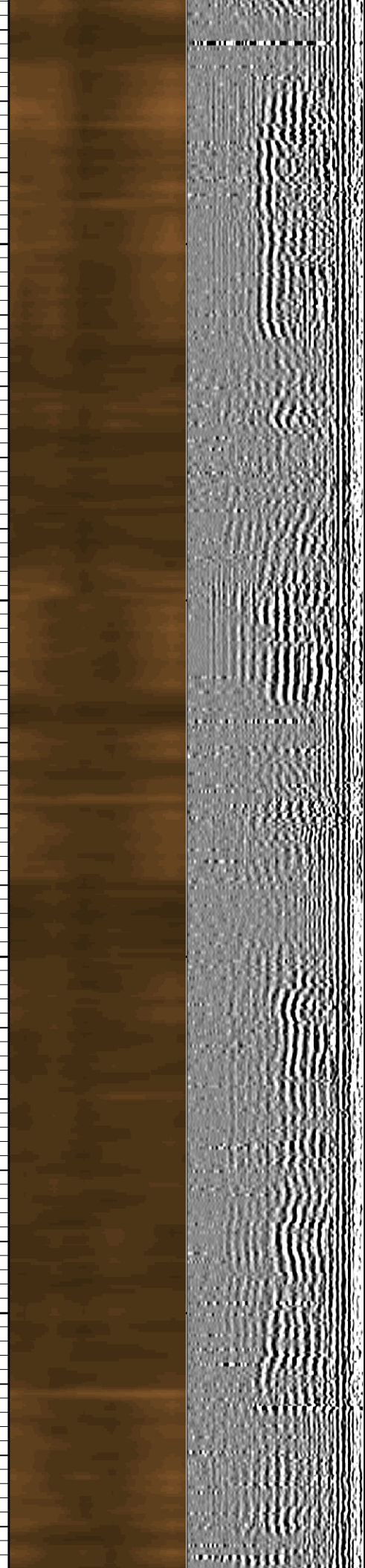
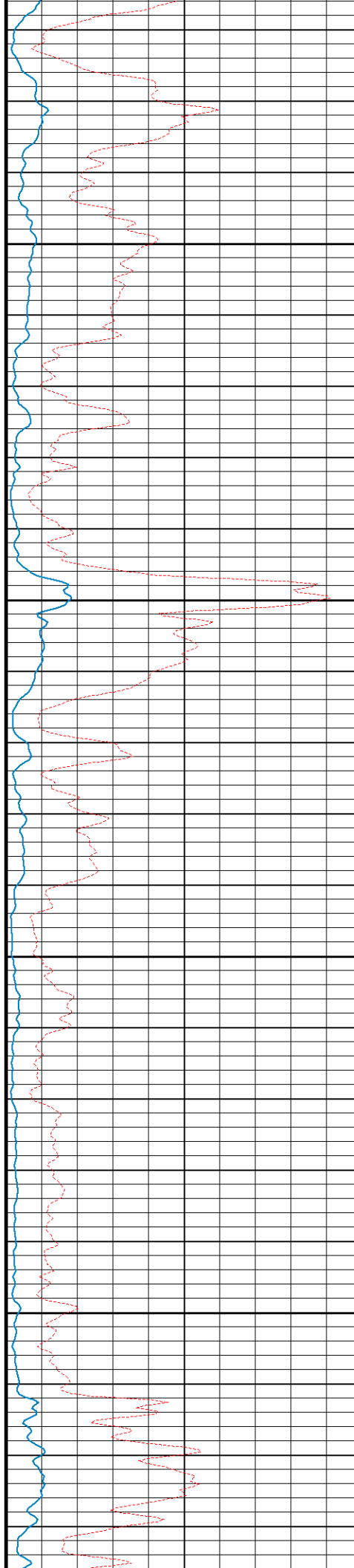
3850

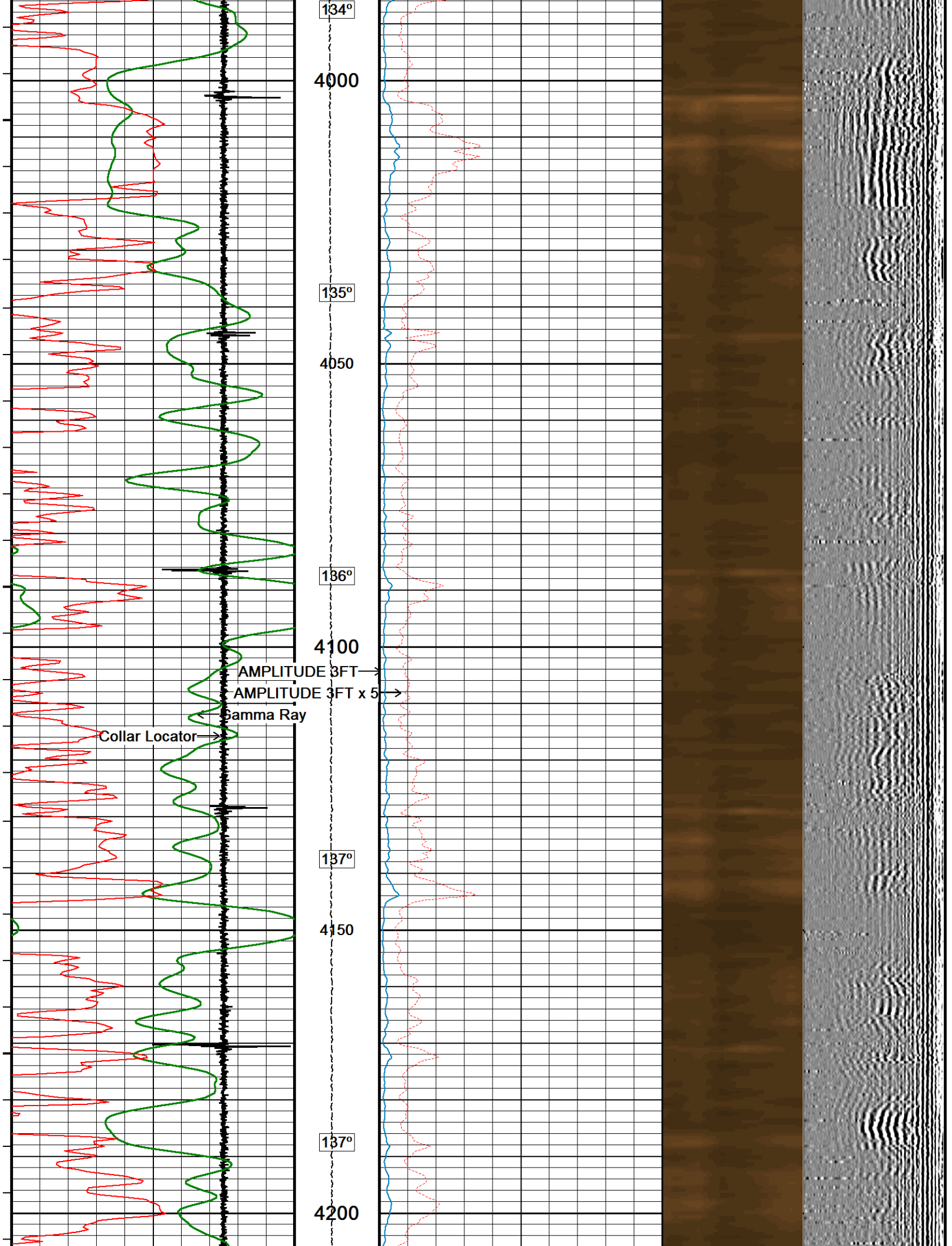
132°

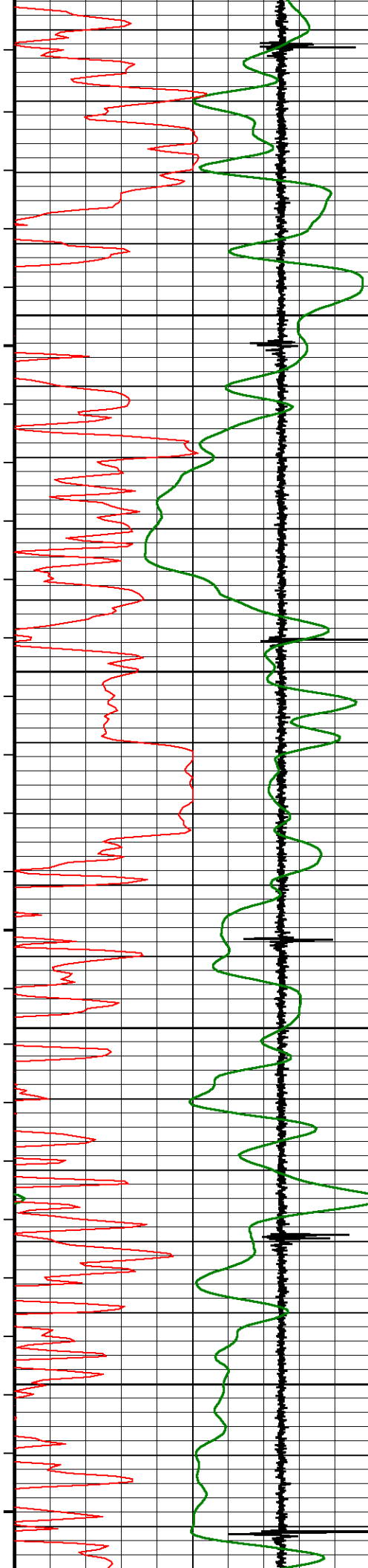
3900

133°

3950







139°

4250

139°

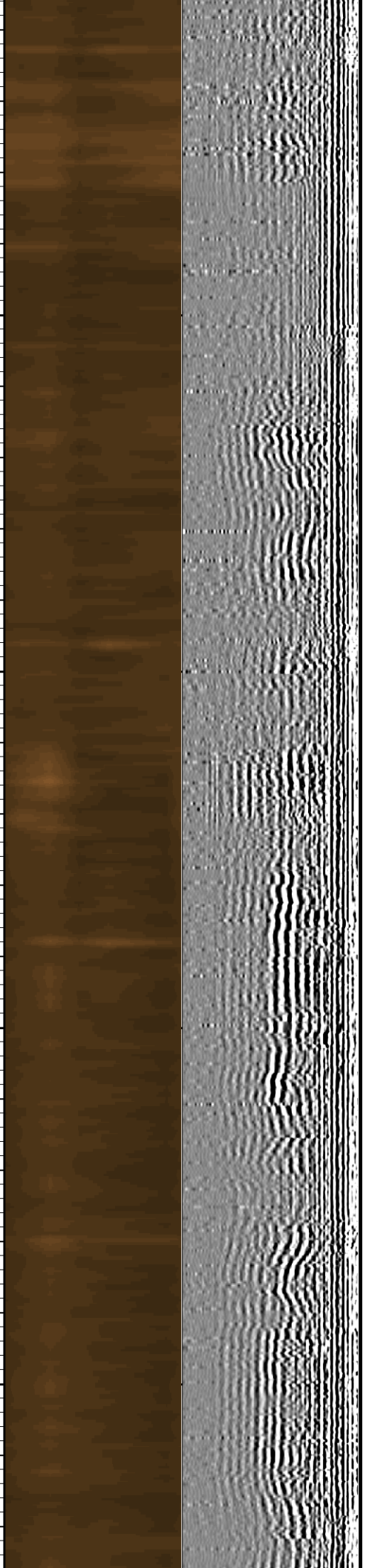
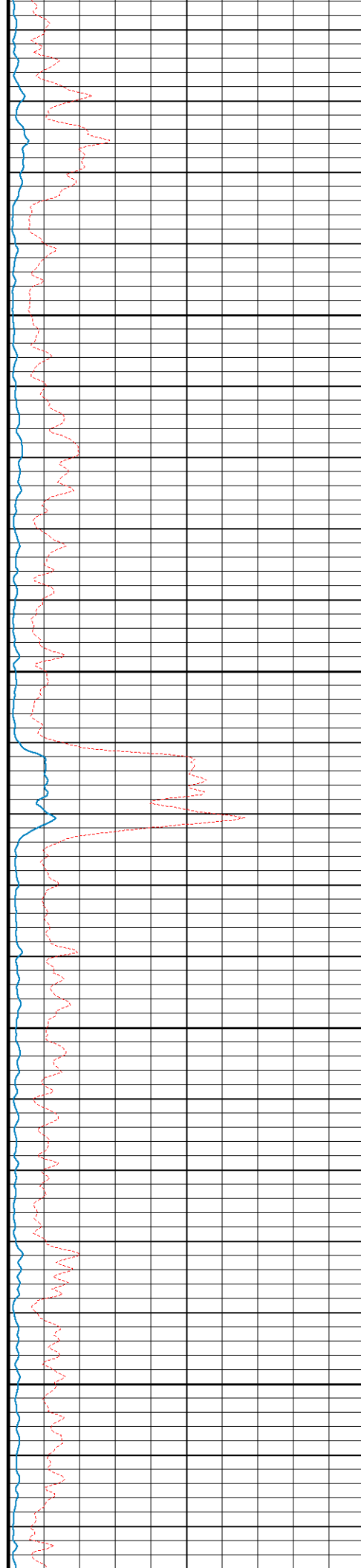
4300

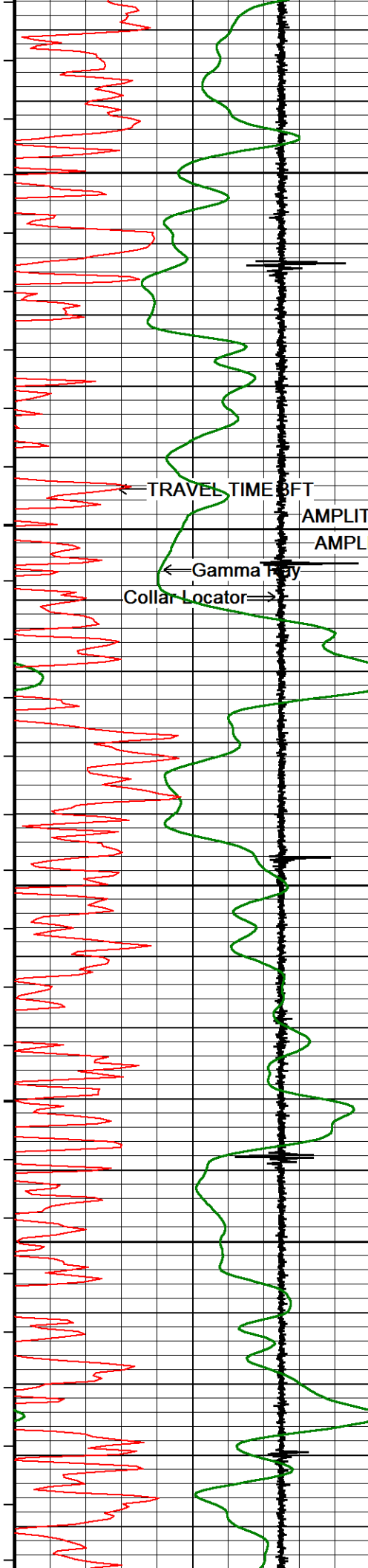
140°

4350

141°

4400





142°

4450

143°

4500

143°

4550

145°

4600

145°

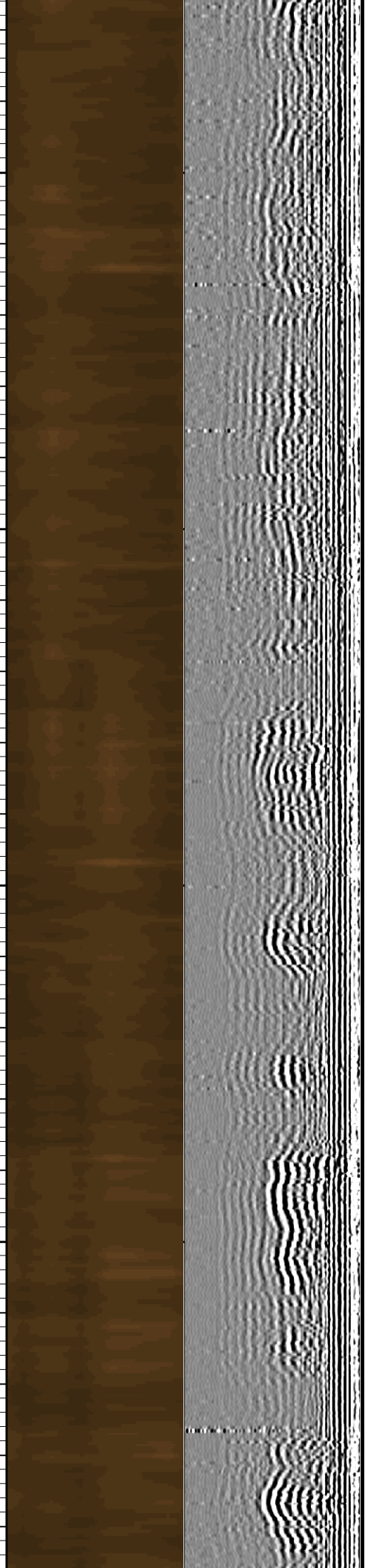
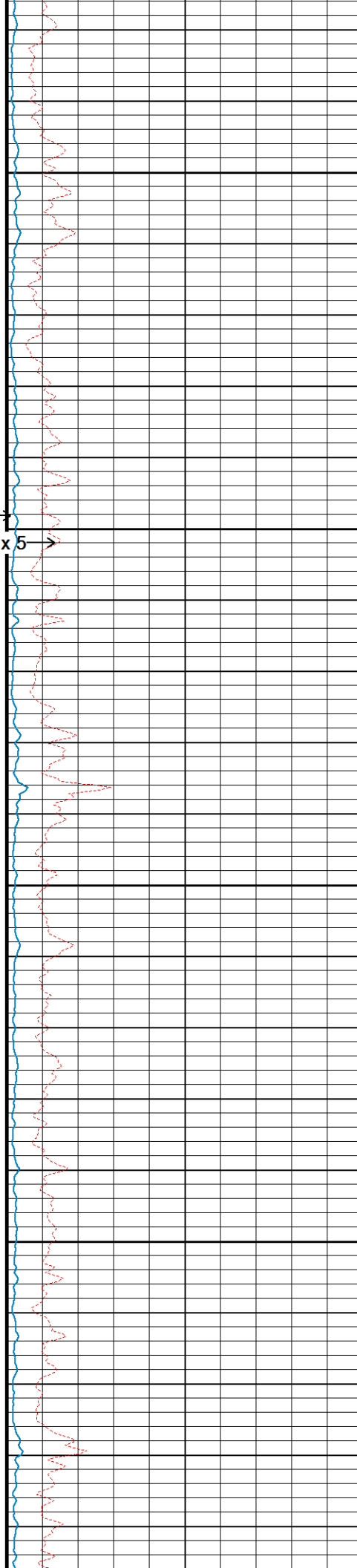
← TRAVEL TIME SFT

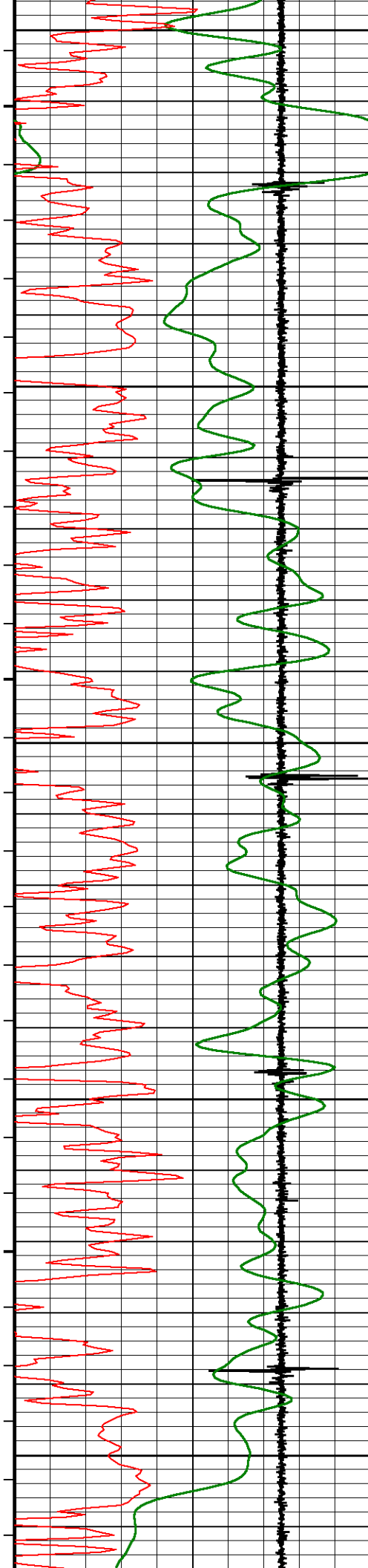
AMPLITUDE SFT

AMPLITUDE SFT x 5 →

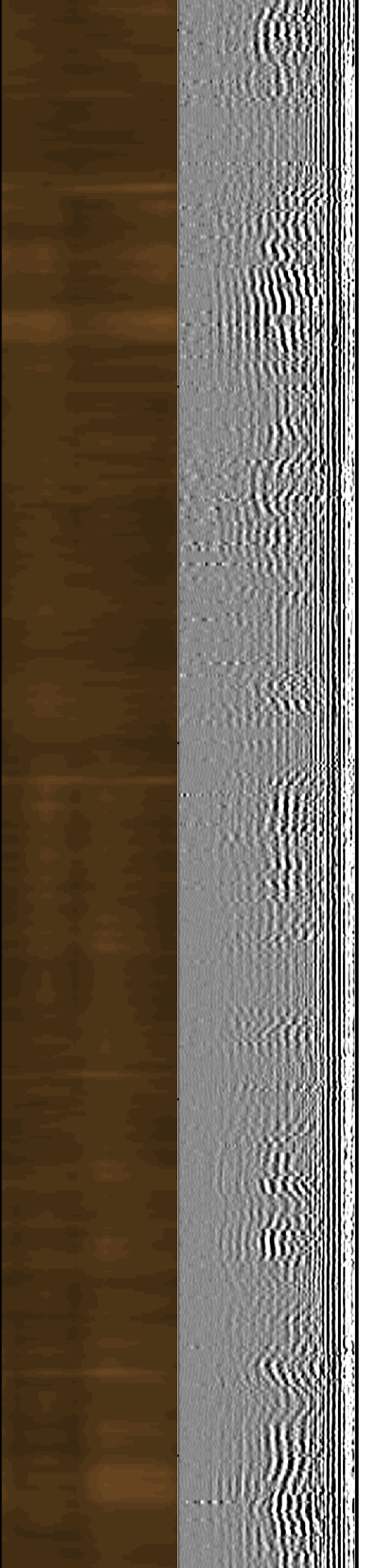
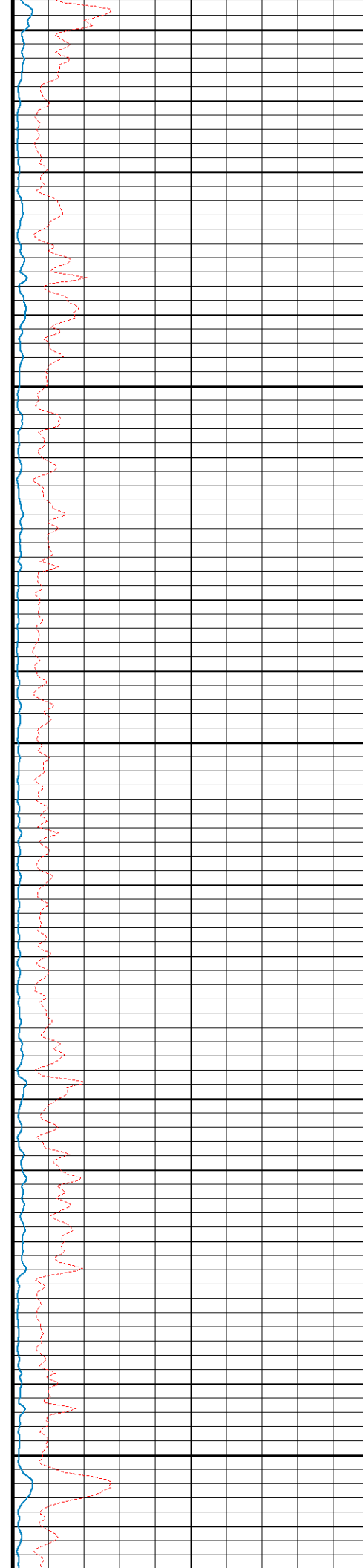
← Gamma Ray

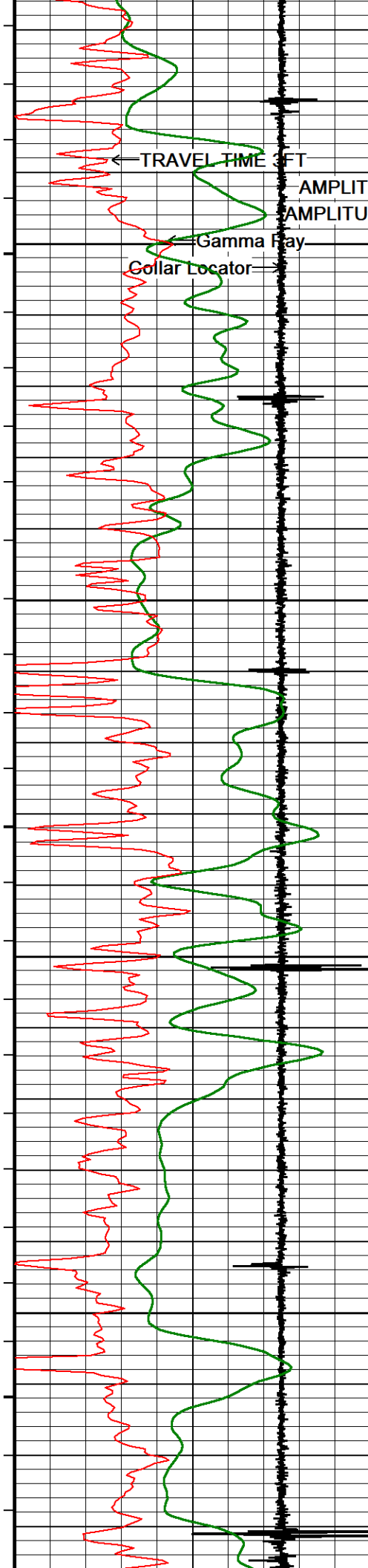
Collar Locator →





4650
146°
4700
147°
4750
148°
4800
149°
4850





150°

AMPLITUDE 3FT

AMPLITUDE 3FT x 5

4900

151°

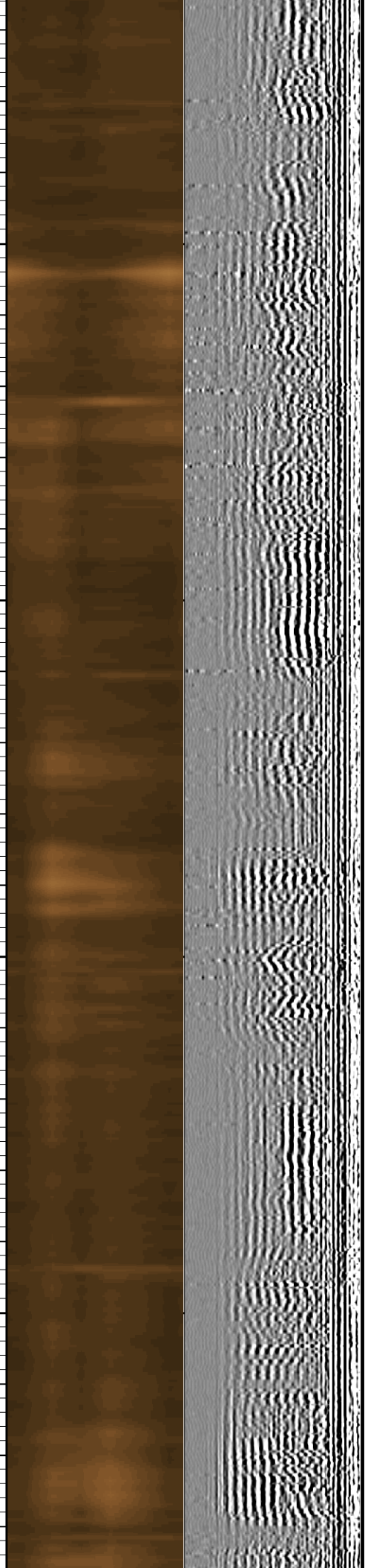
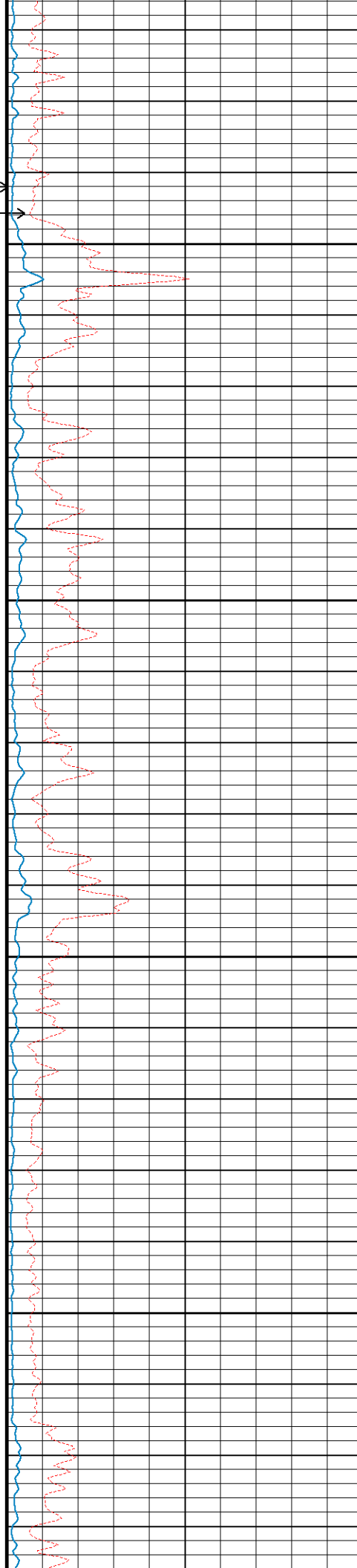
4950

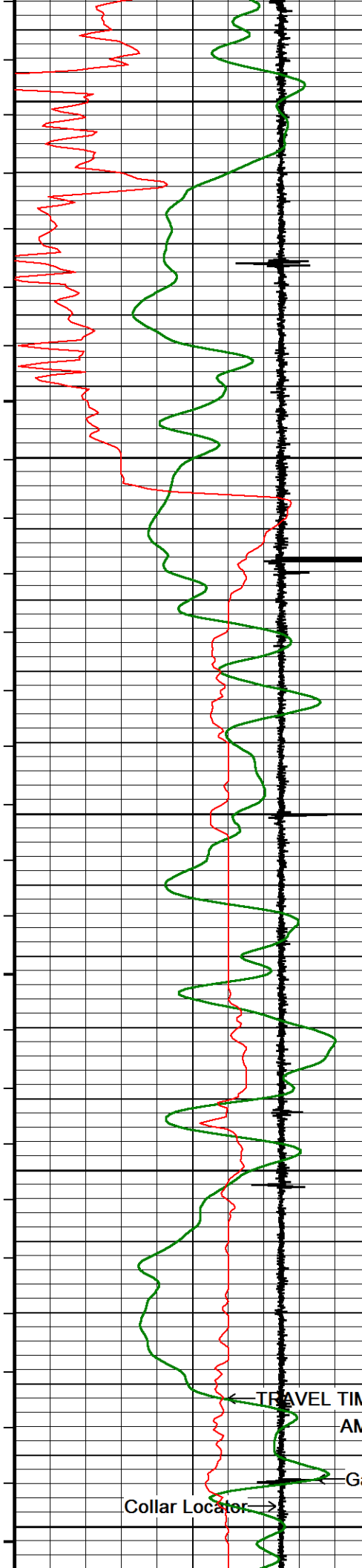
152°

5000

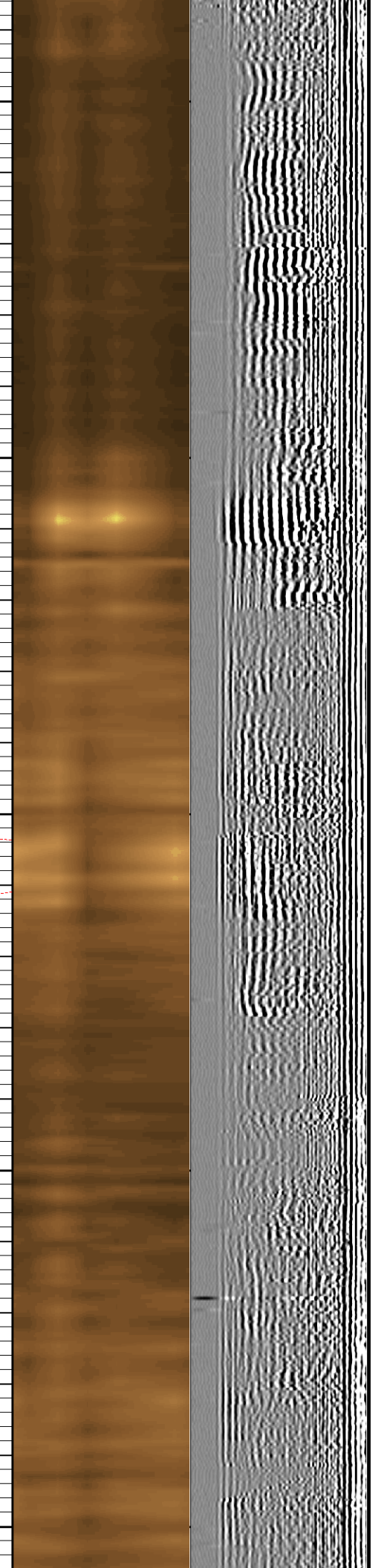
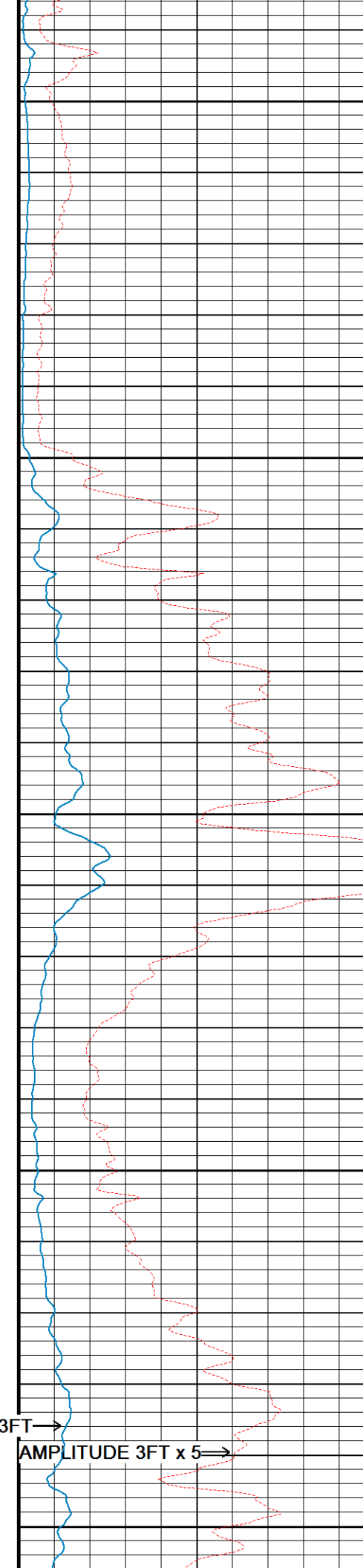
153°

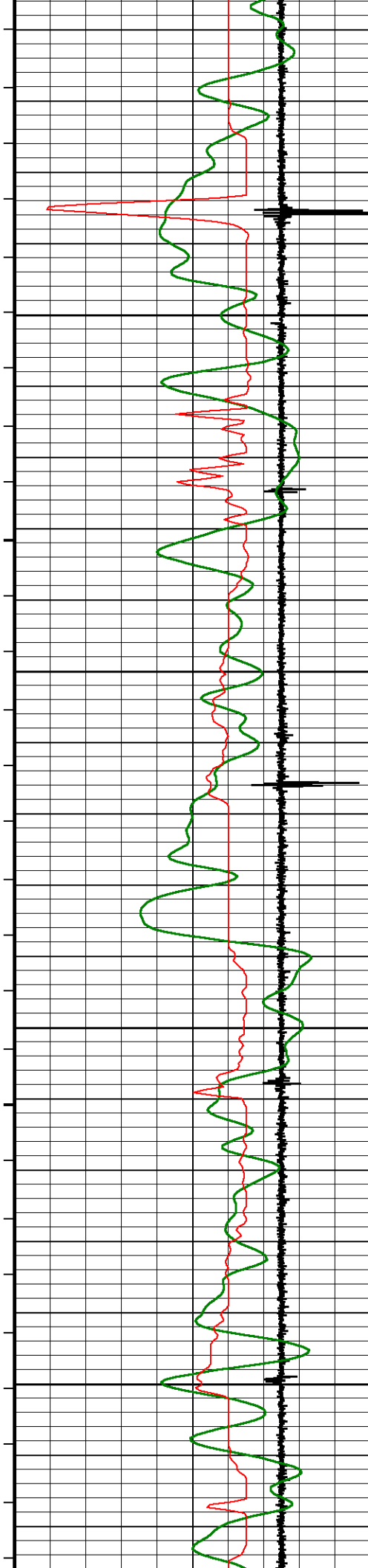
5050





154°
5100
154°
5150
155°
5200
156°
5250
157°
5300





158°

5350

159°

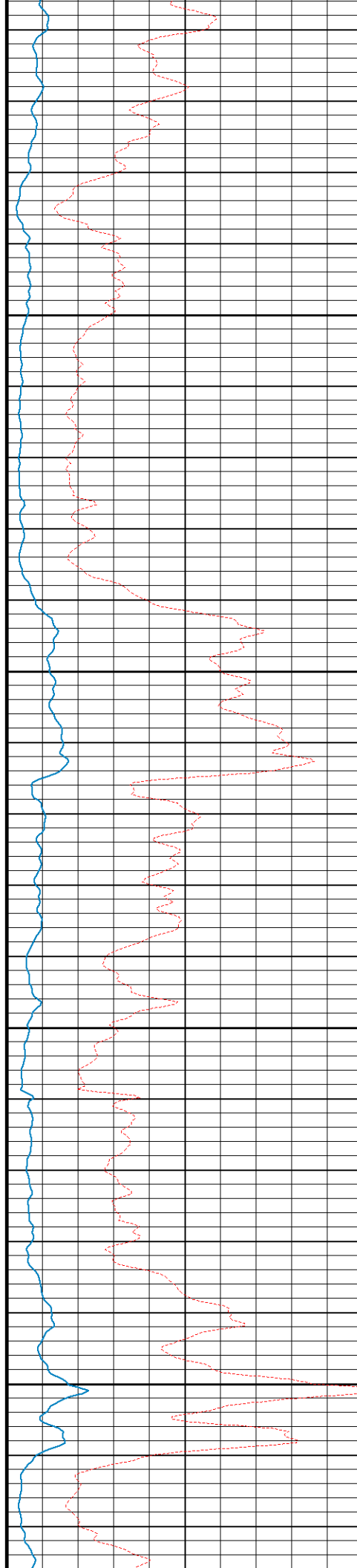
5400

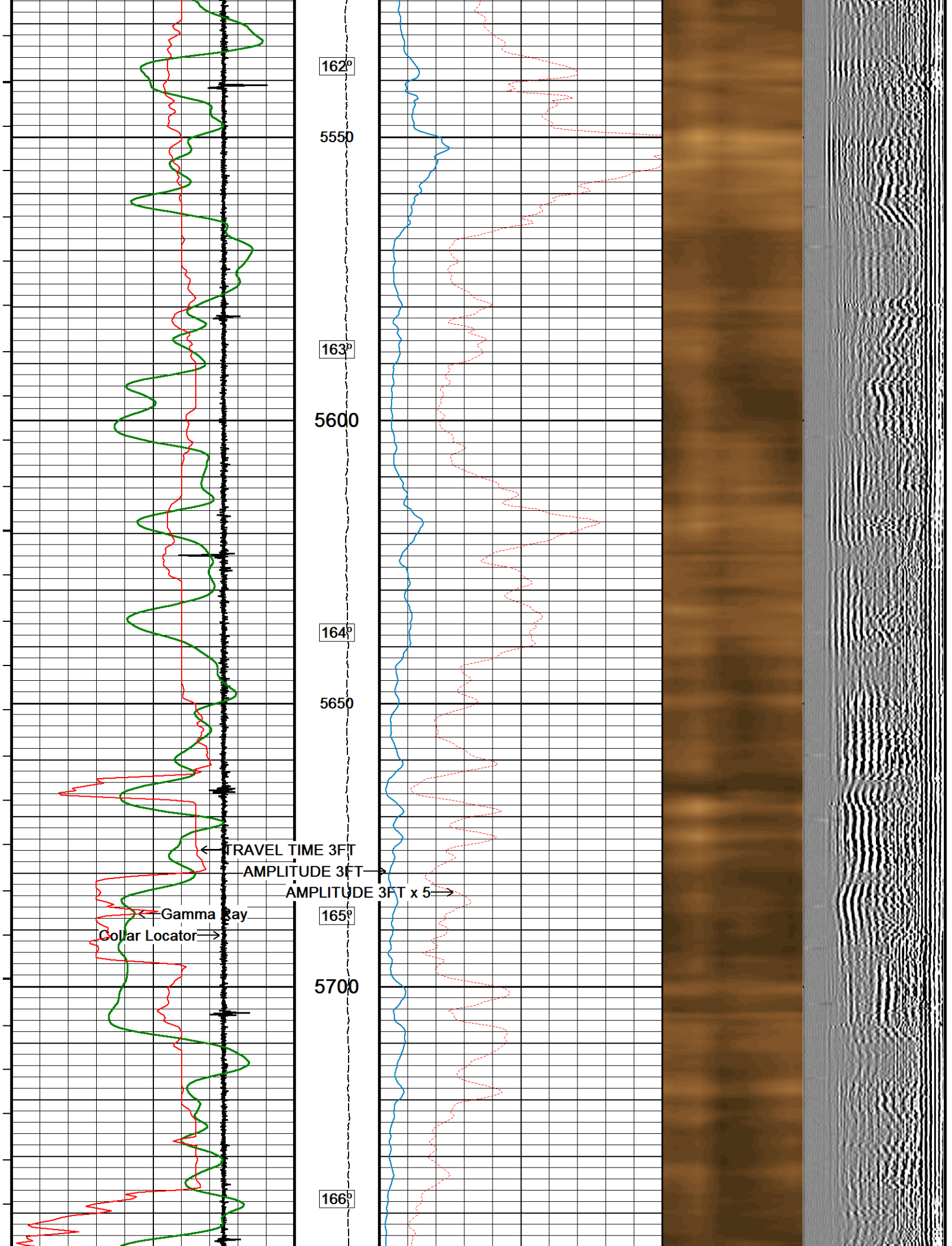
160°

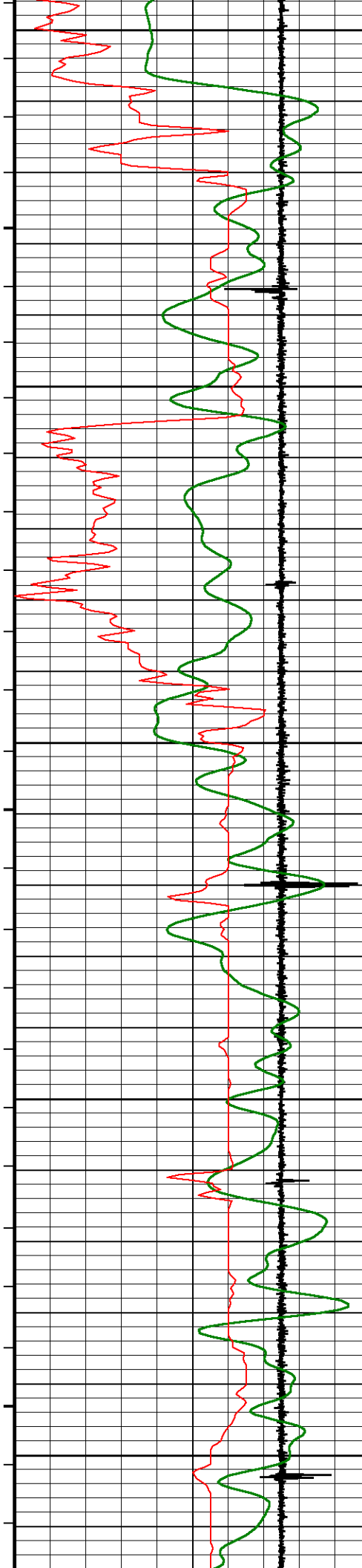
5450

161°

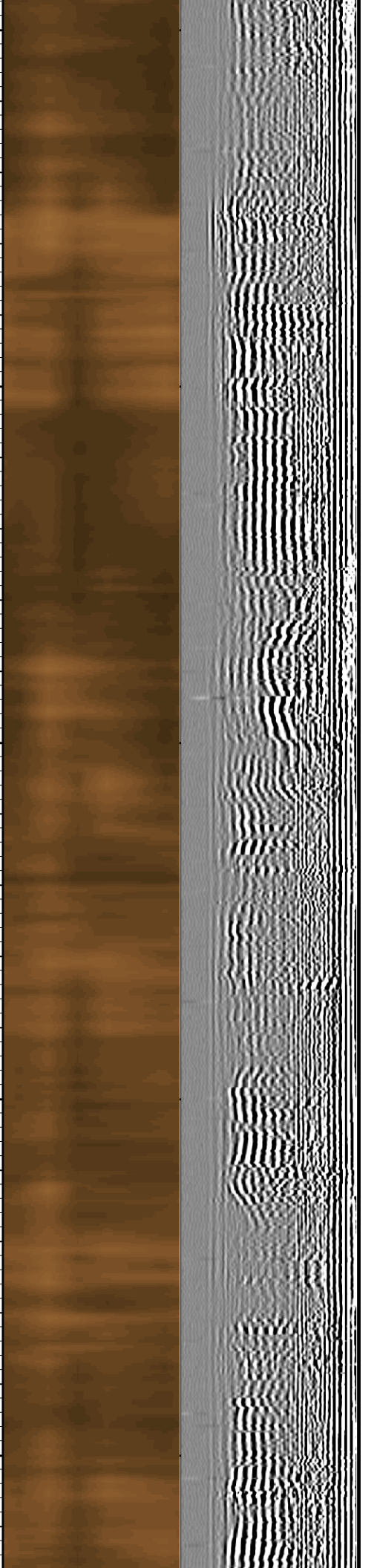
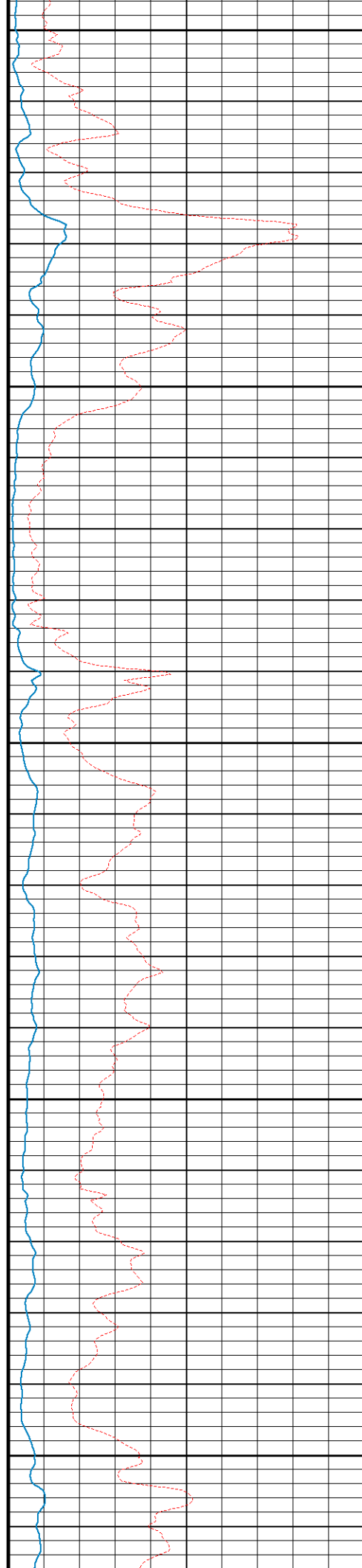
5500

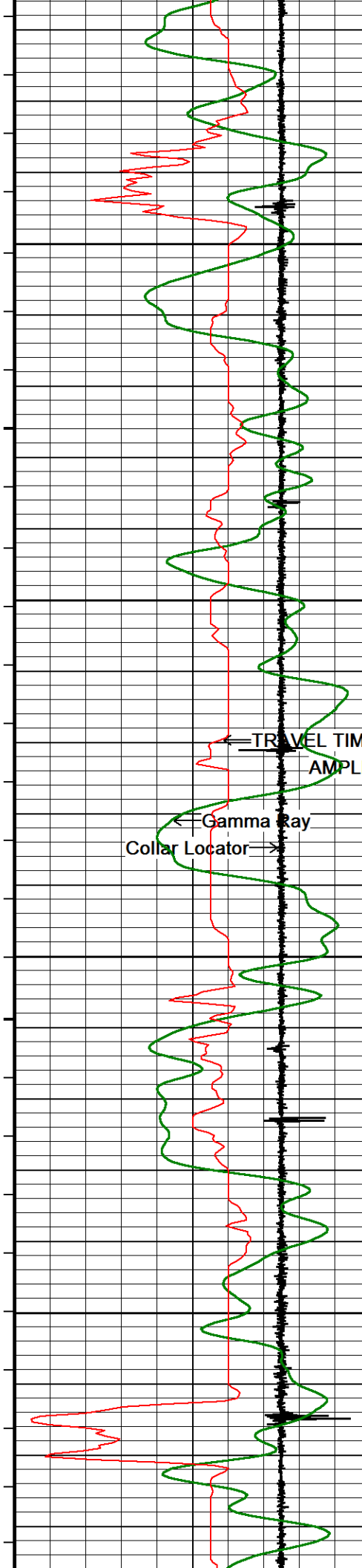






5750
167°
5800
168°
5850
169°
5900
171°
5950





172°

6000

173°

6050

← TRAVEL TIME 3FT

AMPLITUDE 3FT →

AMPLITUDE 3FT x 5 →

← Gamma Ray

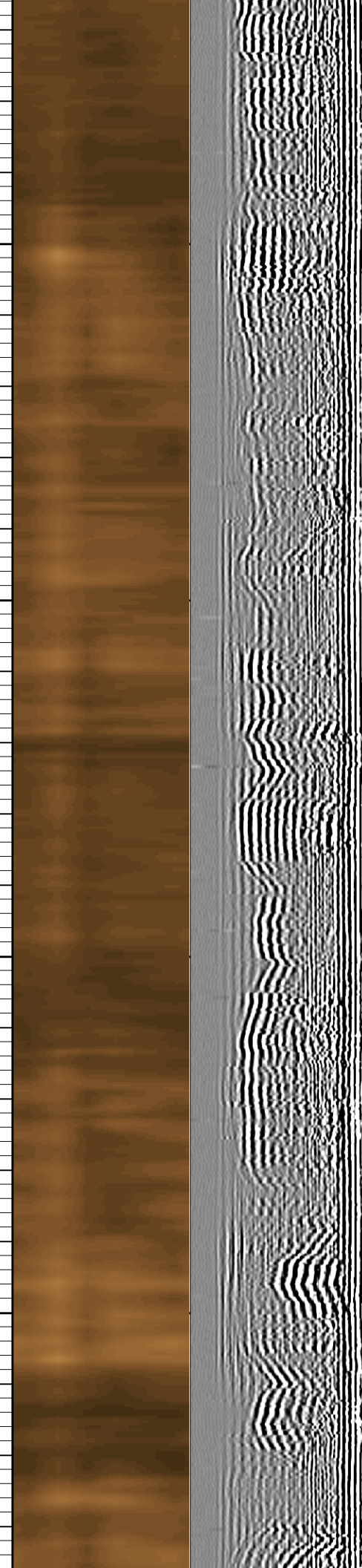
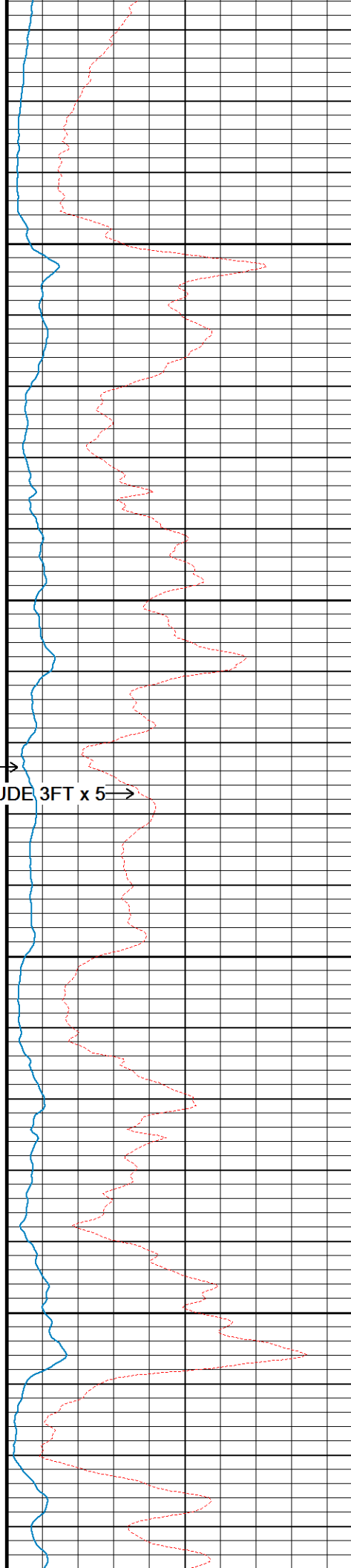
Collar Locator →

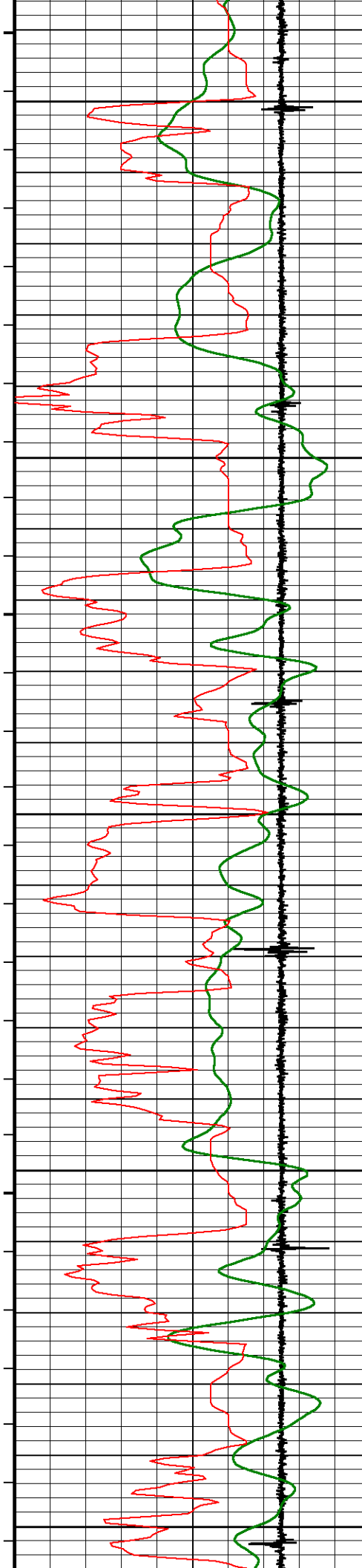
175°

6100

176°

6150





178°

6200

180°

6250

183°

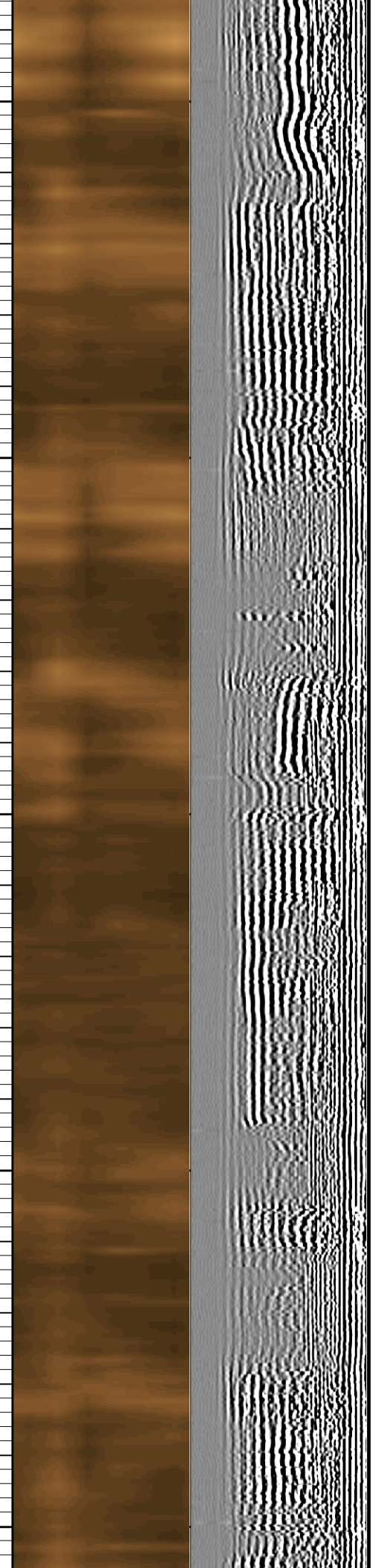
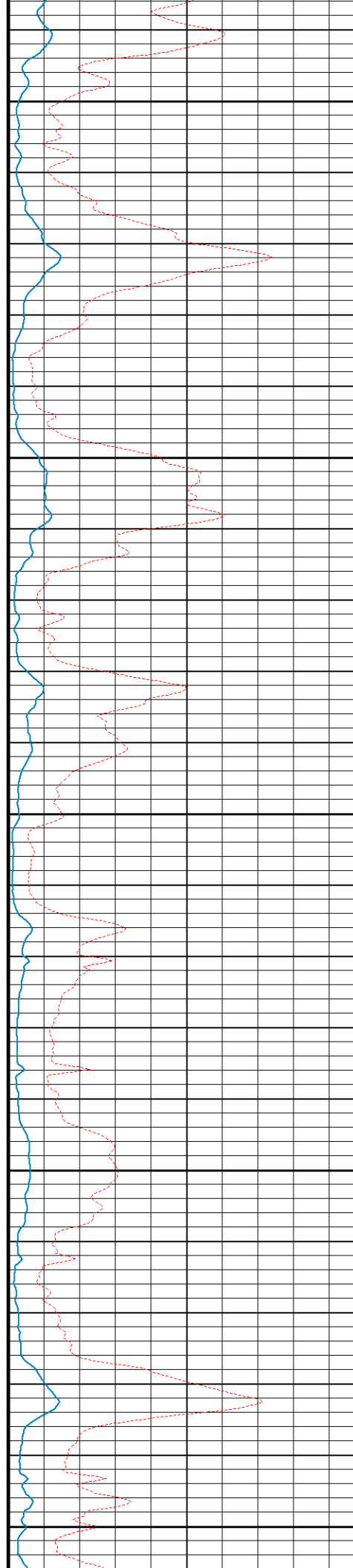
6300

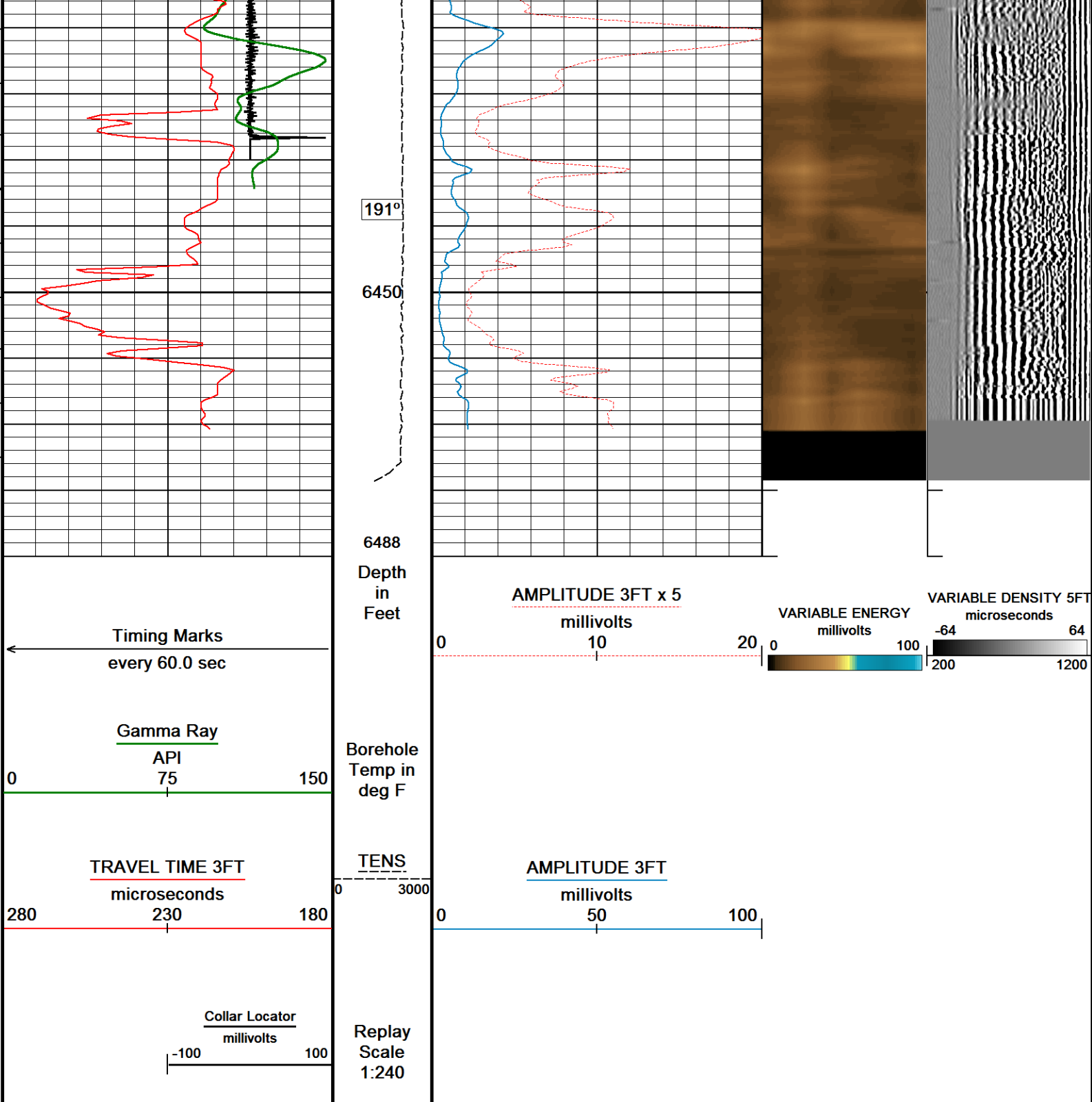
184°

6350

188°

6400



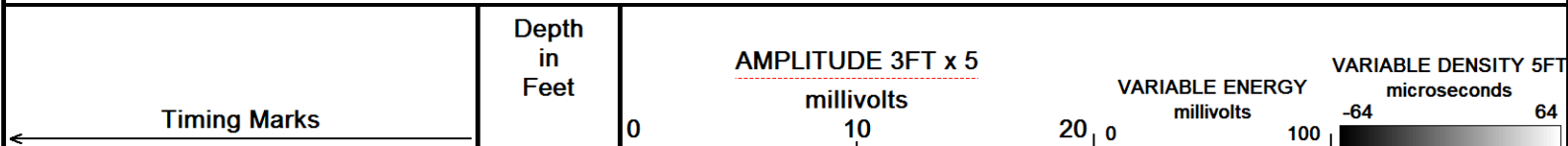


Depth Based Data - Maximum Sampling Increment 12.5cm
Filename: C:\Logs\URSA\BMC B 41B-13-07-96\BMC B 41B-13-07-96 CREB SSSB MAIN FINAL.dta
System Versions: Logged with 17.01.7206 Plotted with 17.01.7206
Plotted on 09-SEP-2017 16:47
Recorded on 09-SEP-2017 05:37

↑ MAIN PASS ↑

↓ REPEAT PASS ↓

Depth Based Data - Maximum Sampling Increment 12.5cm
Filename: C:\Logs\URSA\BMC B 41B-13-07-96\BMC B 41B-13-07-96 CREB SSSB REPEAT FINAL.dta
System Versions: Logged with 17.01.7206 Plotted with 17.01.7206
Plotted on 09-SEP-2017 16:47
Recorded on 09-SEP-2017 06:18



every 60.0 sec

Gamma Ray

API

75

0

150

Borehole
Temp in
deg F

TRAVEL TIME 3FT

microseconds

280

230

180

TENS

0 3000

AMPLITUDE 3FT

millivolts

0

50

100

Collar Locator

millivolts

-100

100

Replay
Scale
1:240

6222

6250

6300

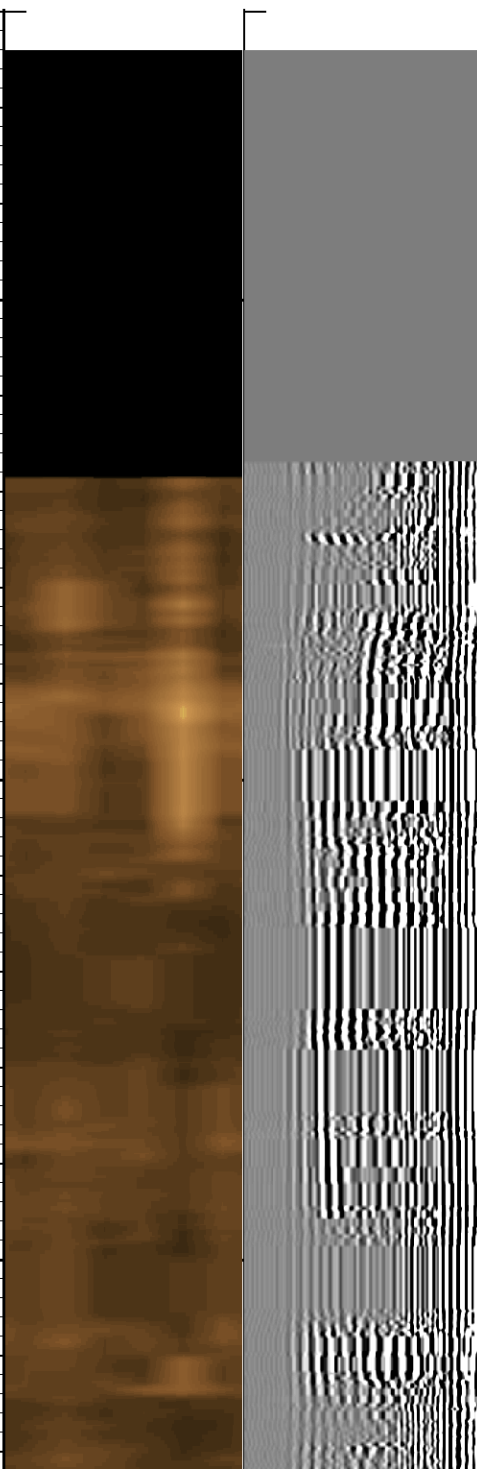
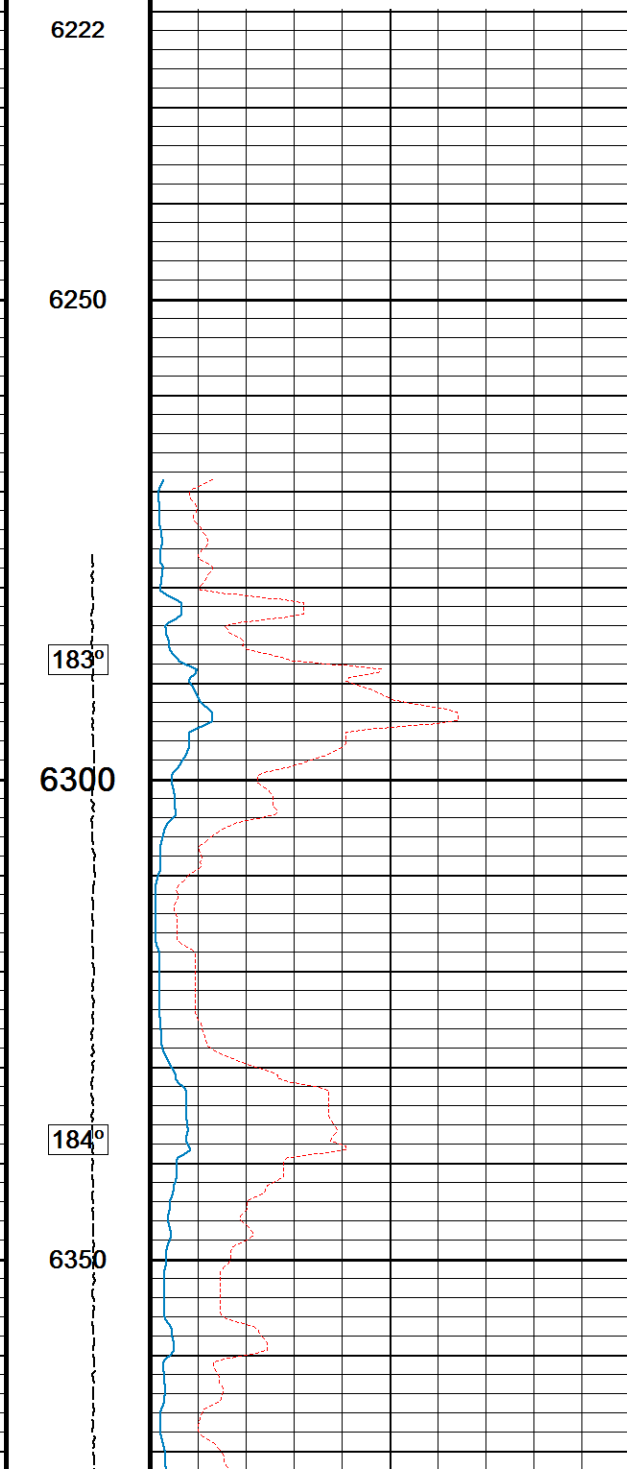
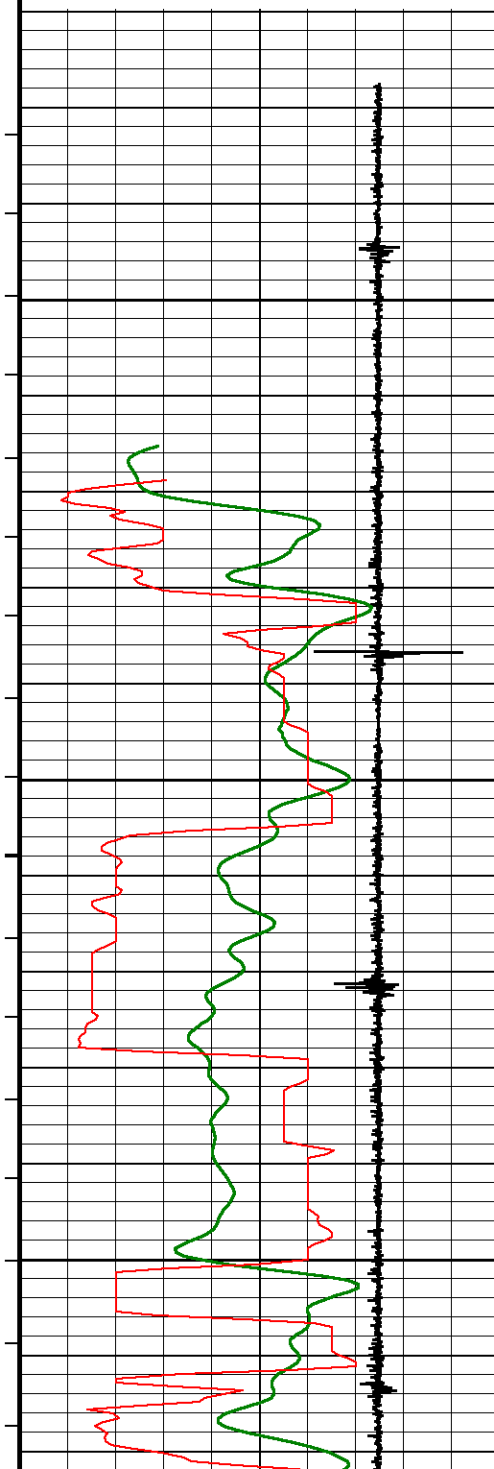
6350

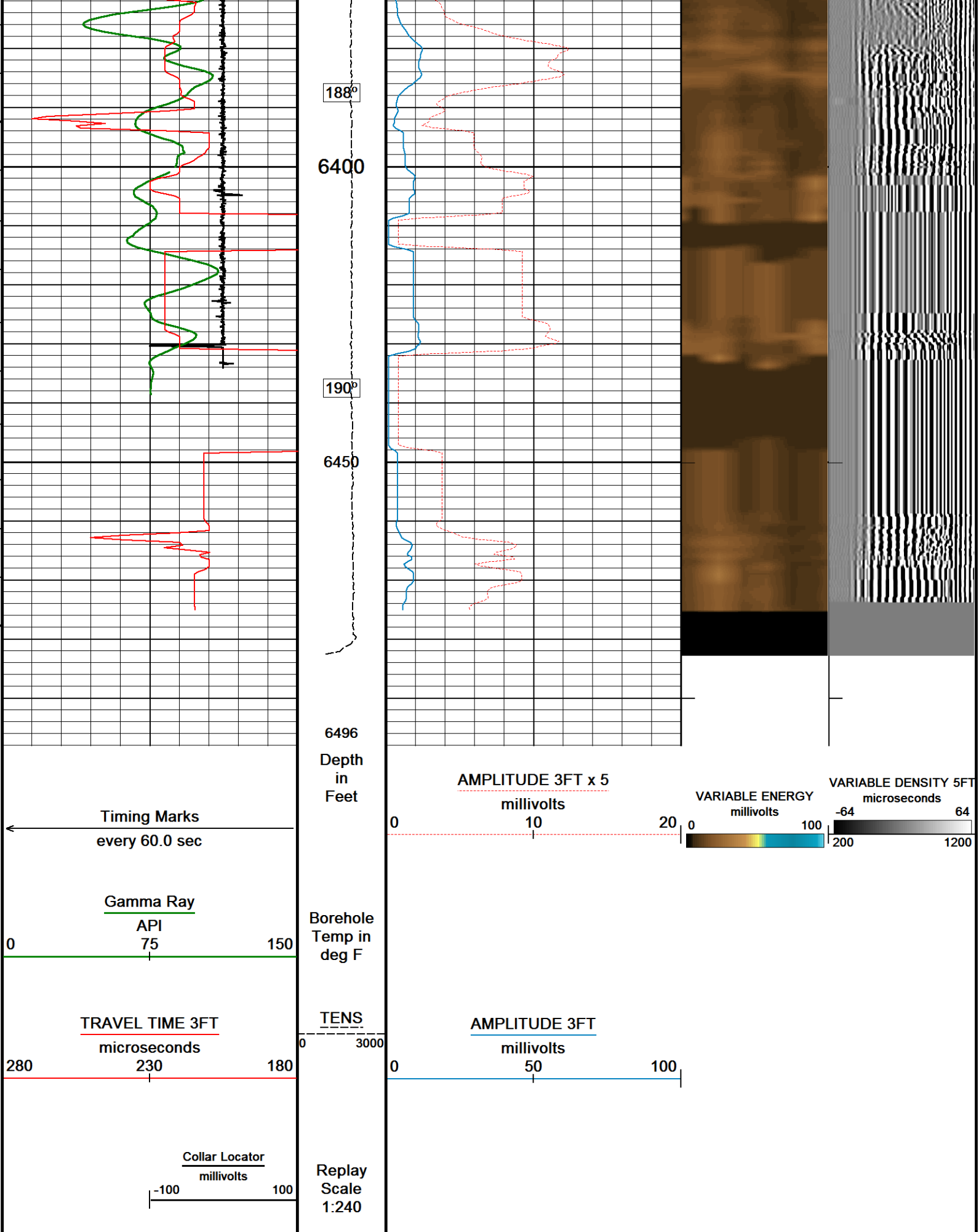
183°

184°

200

1200





DOWNHOLE EQUIPMENT

C:\Logs\URSA\BMC B 41B-13-07-96\BMC B 41B-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

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

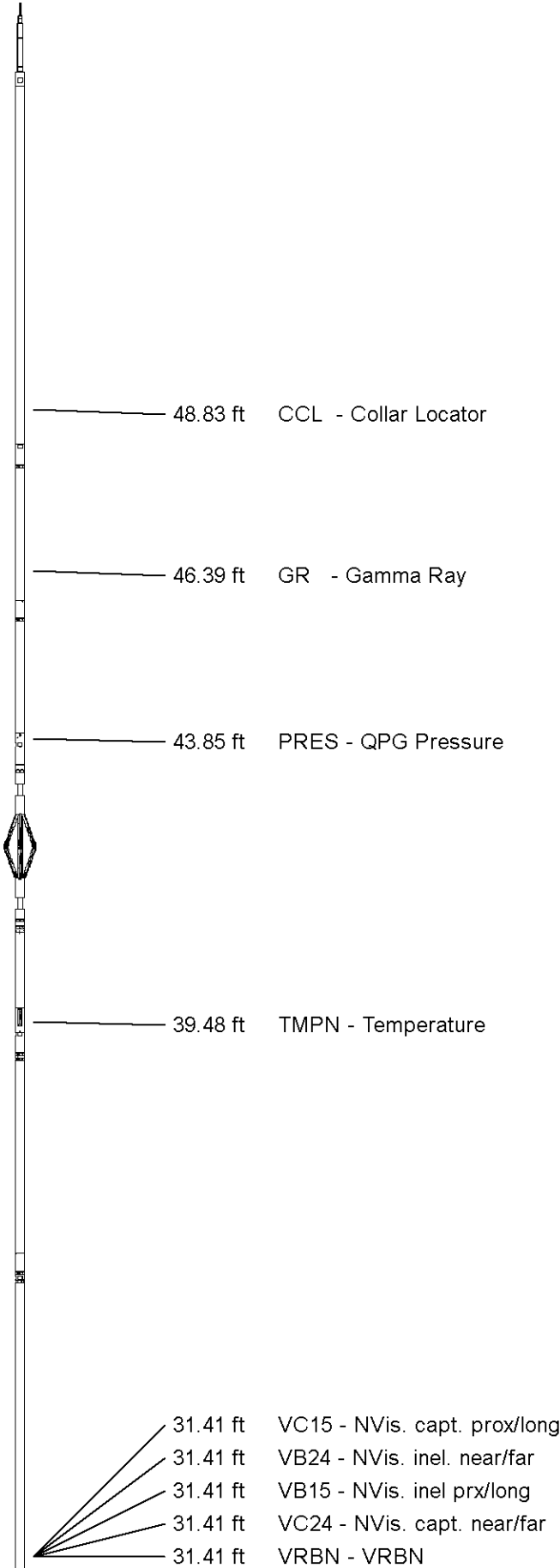
TMP-NA 138 LG: 1.93 ft WT: 8.8 lb OD: 1.693 in

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
SUE-CA 137 LG: 7.64 ft WT: 26.5 lb OD: 1.654 in

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

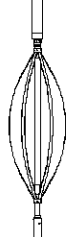
SSB Transmitter Section
STE-BA 129 LG: 2.64 ft WT: 17.6 lb OD: 1.654 in



22.38 ft GR2 - Gamma Ray 2

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 41B-13-07-96\BMC B 41B-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	250000.0 mv	-1.000 G	0.0 mv
Y Acc	1.000 G	250000.0 mv	-1.000 G	0.0 mv
Z Acc	1.000 G	250000.0 mv	-1.000 G	0.0 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
Calibrator No: 101

Serial No: 108

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	T4
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	T4
	25.2302	-0.731527	-0.000858522	-6.86634e-007	

Temperature Tool Shop Survey Calibration			TMP-NA 138		
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	Description	Standard	Measured
AMP 3FT	100% Bond	1.00	1.90
	Free Pipe	81.00	1806.90
AMP 5FT	100% Bond	0.40	0.70
	Free Pipe	54.00	1056.10
1 SECTOR AMP	100% Bond	5.00	5.30
	Free Pipe	95.00	976.90
2 SECTOR AMP	100% Bond	5.00	6.40
	Free Pipe	95.00	743.80
3 SECTOR AMP	100% Bond	5.00	0.10
	Free Pipe	95.00	730.60
4 SECTOR AMP	100% Bond	5.00	2.00
	Free Pipe	95.00	564.00
5 SECTOR AMP	100% Bond	5.00	0.00
	Free Pipe	95.00	442.10
6 SECTOR AMP	100% Bond	5.00	0.70
	Free Pipe	95.00	616.10

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 41B-13-07-96			
FIELD		WILDCAT			
PROVINCE/COUNTY		GARFIELD			
COUNTRY/STATE		USA / COLORADO			
Elevation Kelly Bushing	5117	feet	Bottom Log Interval	6485.00	feet
Elevation Drill Floor	5117	feet	Depth Driller	7009.00	feet
Elevation Ground Level	5100	feet	Depth Logger	6485.00	feet



Weatherford®

SLIM SECTOR BOND LOG