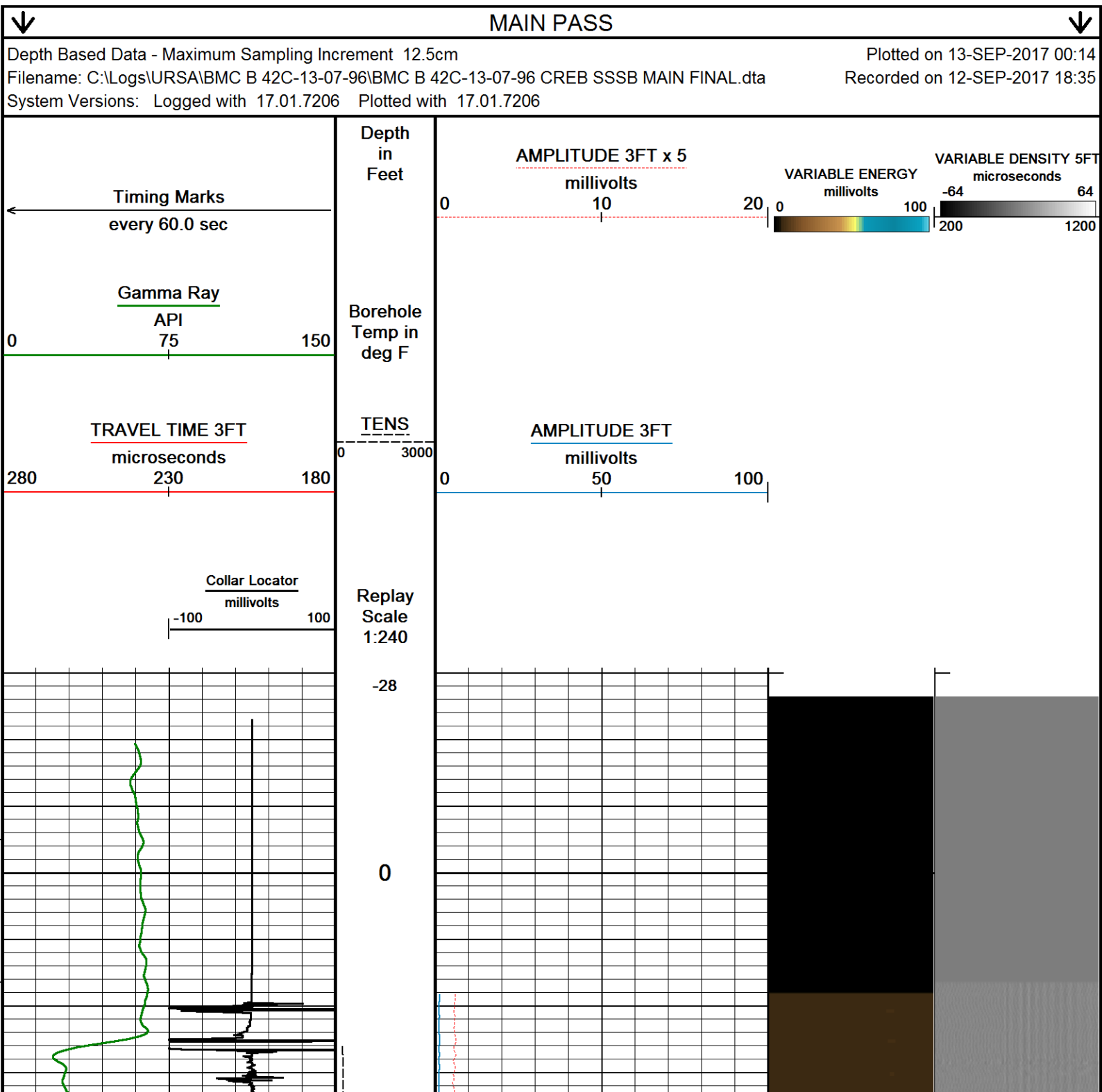
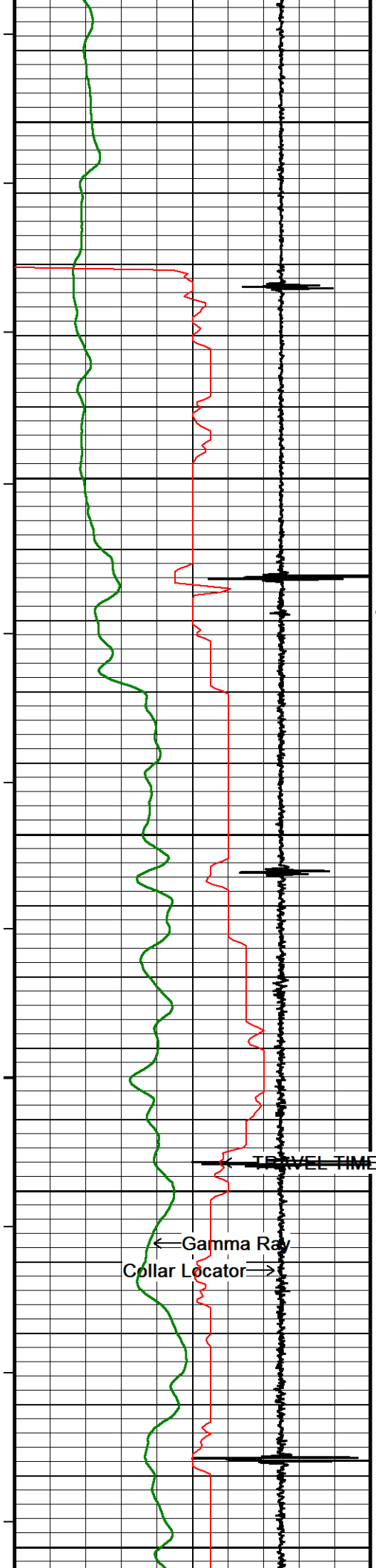
				SLIM SECTOR BOND LOG			
COMPANY WELL FIELD PROVINCE/COUNTY COUNTRY/STATE LOCATION				URSA OPERATING COMPANY BMC B 42C-13-07-96 WILDCAT GARFIELD USA / COLORADO 2238' FNL & 0617' FWL			
SEC 18	TWP 7S	RGE 95W	Other Services CREB				
Latitude		05-045-23480			Elevations: KB 5117.00 DF 5117.00 GL 5100.00		
Longitude							
API Number							
Permanent Datum GROUND LEVEL, Elevation 5100 feet Log Measured From KB, 17.00 feet above Permanent Datum Drilling Measured From KB							
Date	12-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	6604.00	feet					
Depth Logger	6120.00	feet					
Top Log Interval	0.00	feet					
Bottom Log Interval	6120.00	feet					
Hole Fluid Type	WATER						
Hole Fluid Level	0.00	feet					
Restriction ID	3.875	inches	Gun Type				
Max Recorded Temp	191.00	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	6604.00		
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	6604.00	11.60

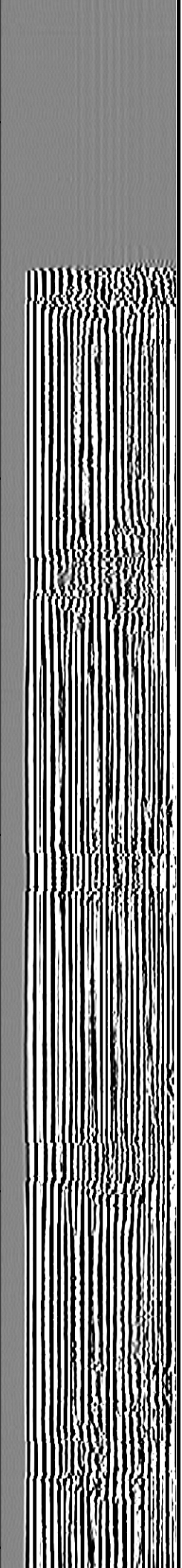
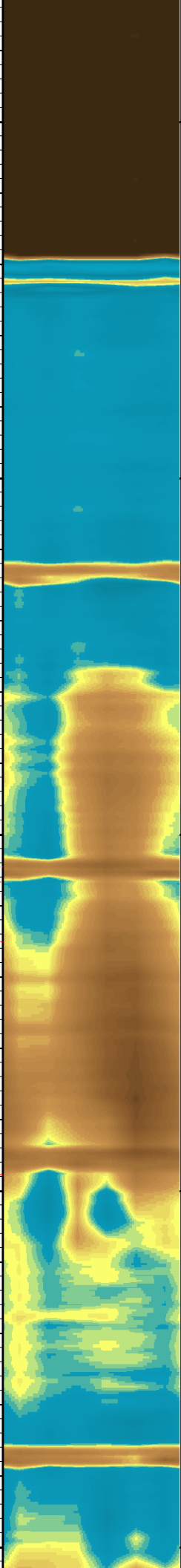
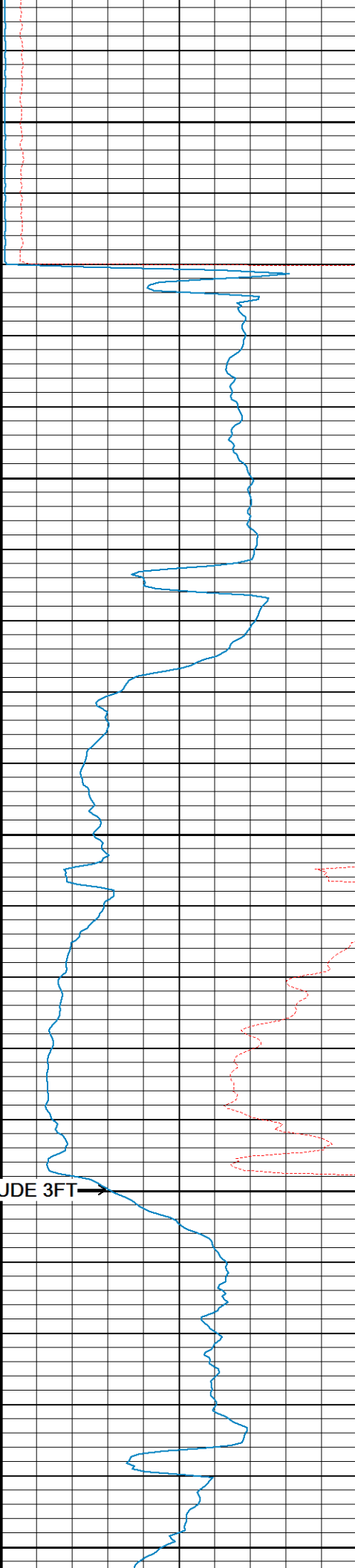
REMARKS
SOFTWARE VERSION 17.01.7206 - COMMERCIAL VERSION
ALL DEPTH CONTROL PROCEDURES FOR SUBSEQUENT RUN IN HOLE WERE FOLLOWED. LOG RUN FROM 17' K.B.
SURFACE SYSTEM USED: WCM-D 160
TOOLS RUN: WCCC, UGRK, QPGE, CR3B, TMPN, CRPB, CRMB, CR3B, UGRK, SUEC, SSSB, STEB, CENA WERE RAN IN COMBINATION
GAMMA RAY 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 220 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. 191F

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.

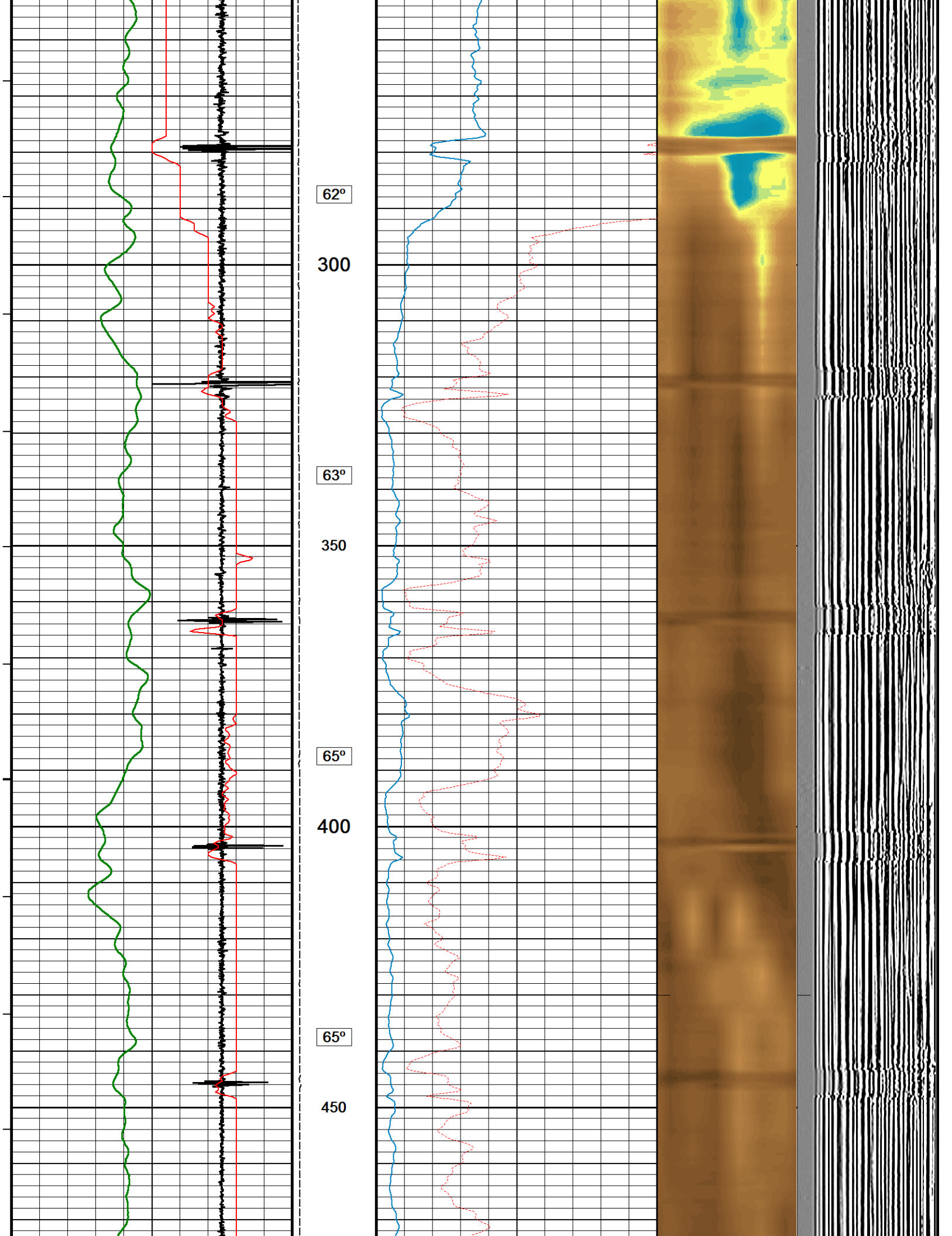




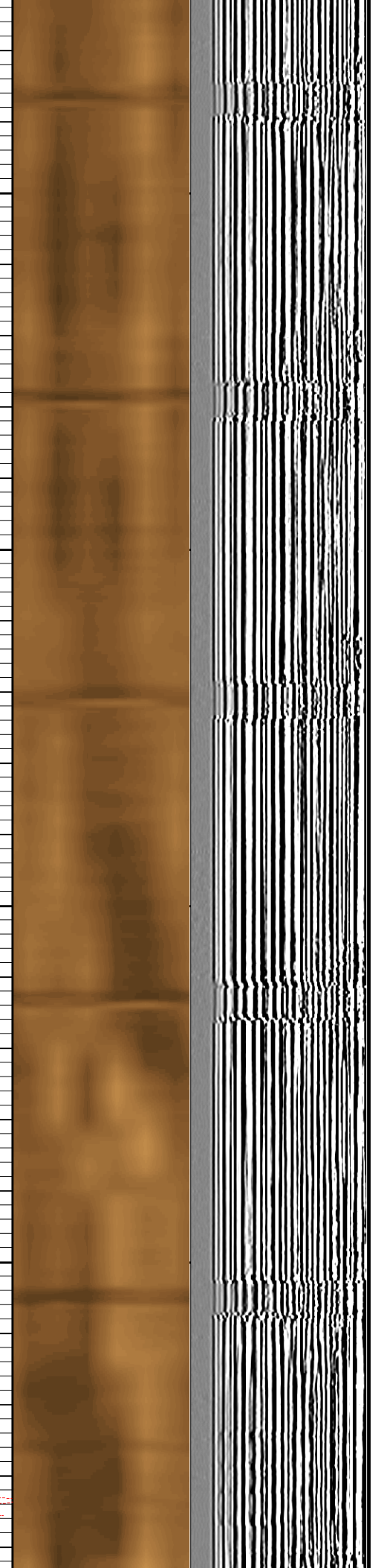
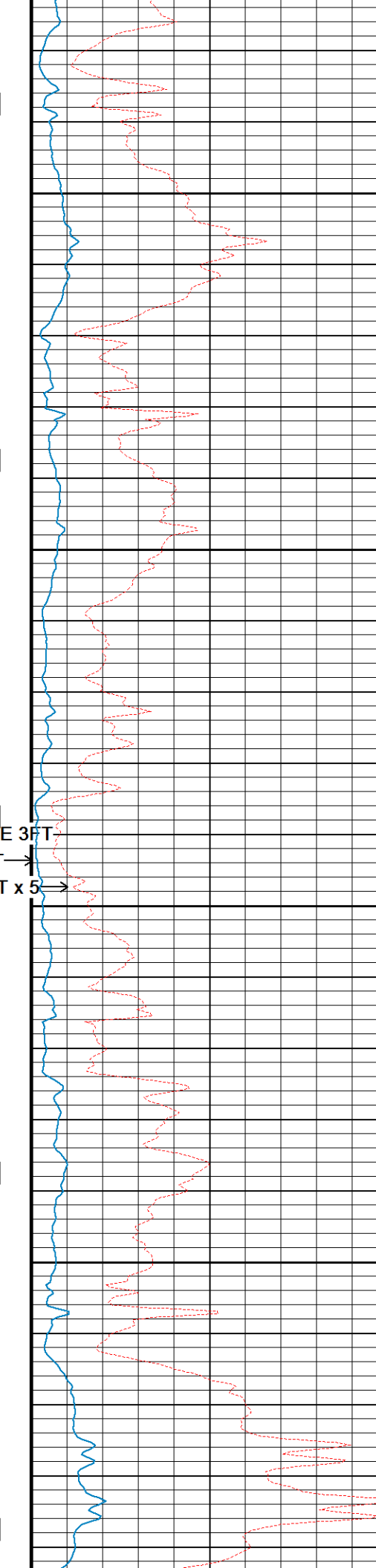
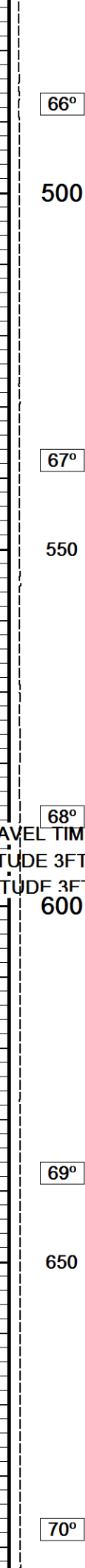
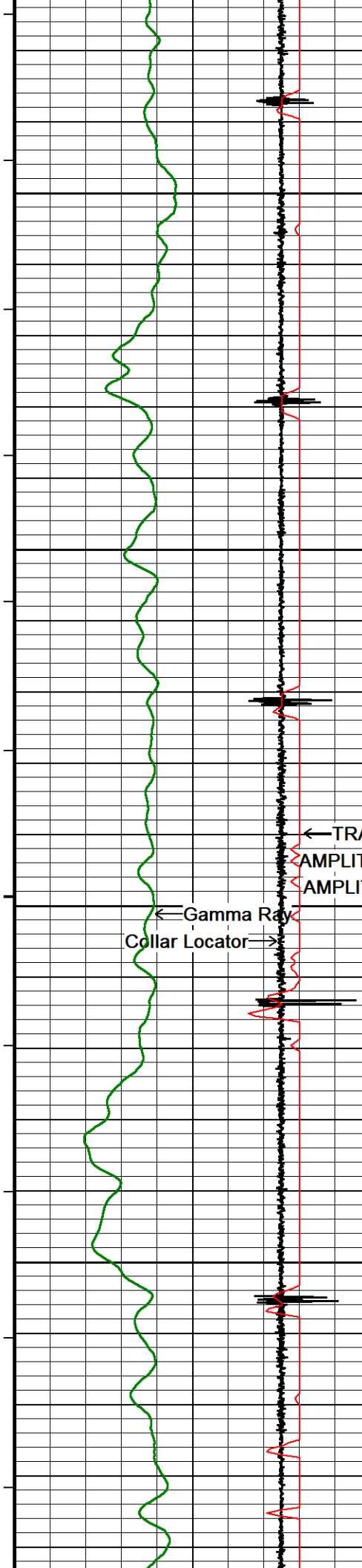
61°  
50  
59°  
100  
59°  
150  
60°  
200  
61°  
250



← TRAVEL TIME 3FT  
← Gamma Ray  
Collar Locator →  
200 LITUDE 3FT →







66°

500

67°

550

68°

600

69°

650

70°

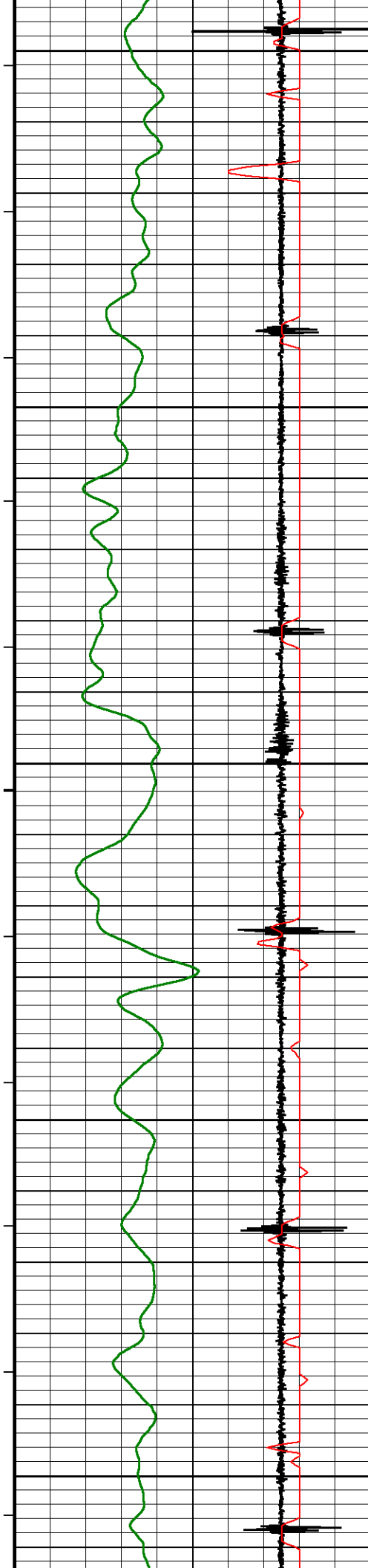
← TRAVEL TIME 3FT

AMPLITUDE 3FT →

AMPLITUDE 3FT x 5 →

← Gamma Ray

Collar Locator →



700

71°

750

72°

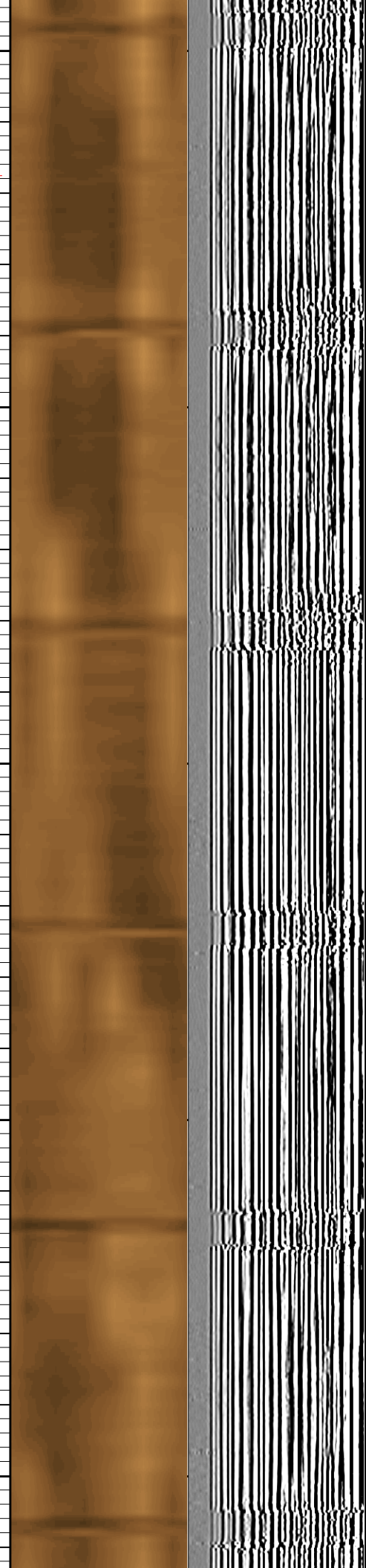
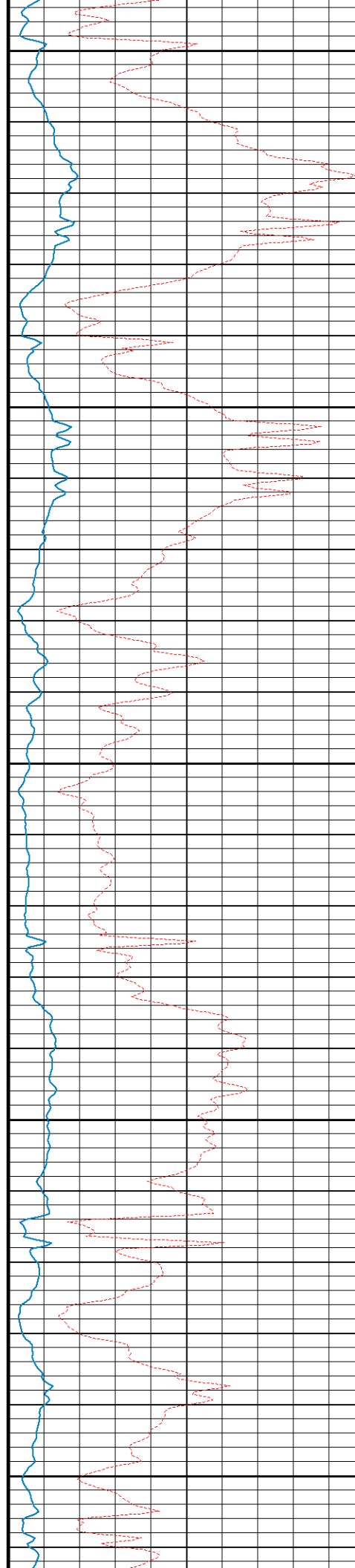
800

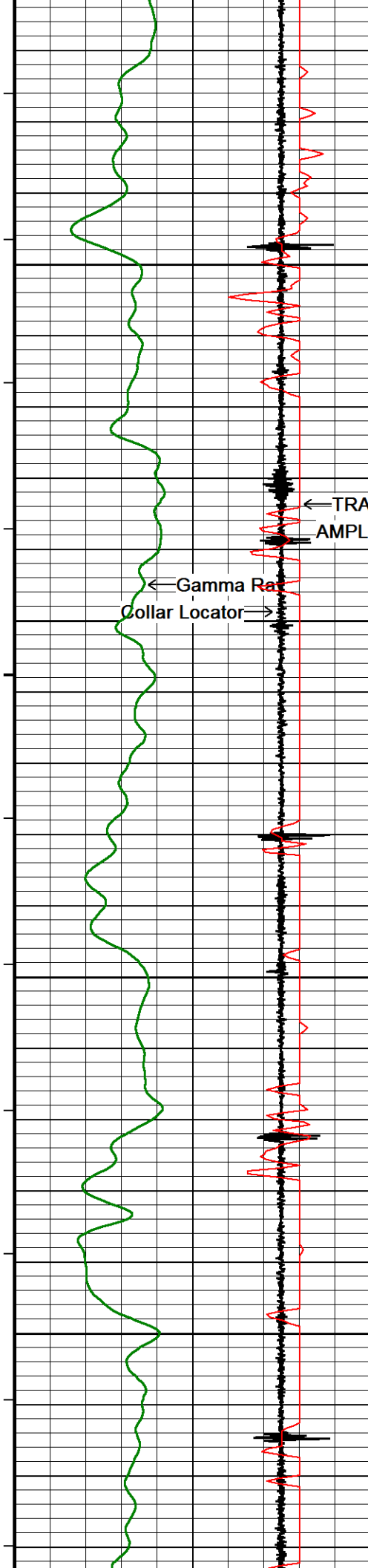
73°

850

75°

900





76°

950

← TRAVEL TIME 3FT  
AMPLITUDE 3FT →

← Gamma Ray  
Collar Locator →

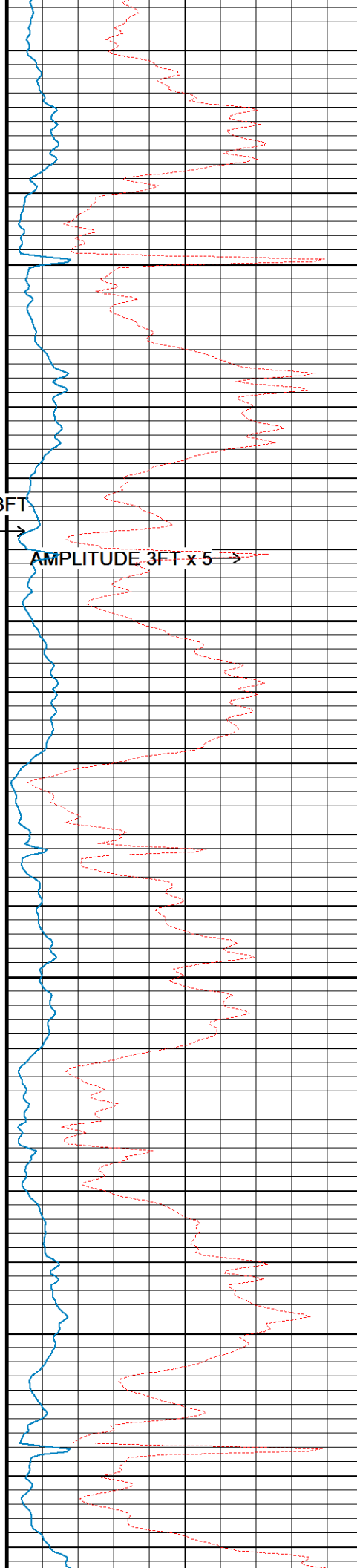
1000

78°

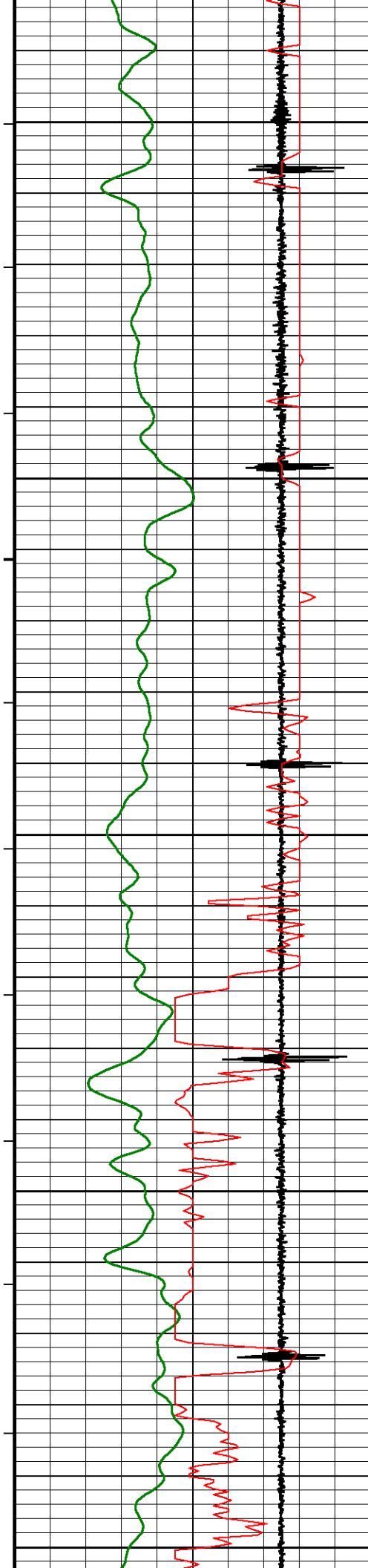
1050

79°

1100



AMPLITUDE 3FT x 5 →



80°

1150

81°

1200

82°

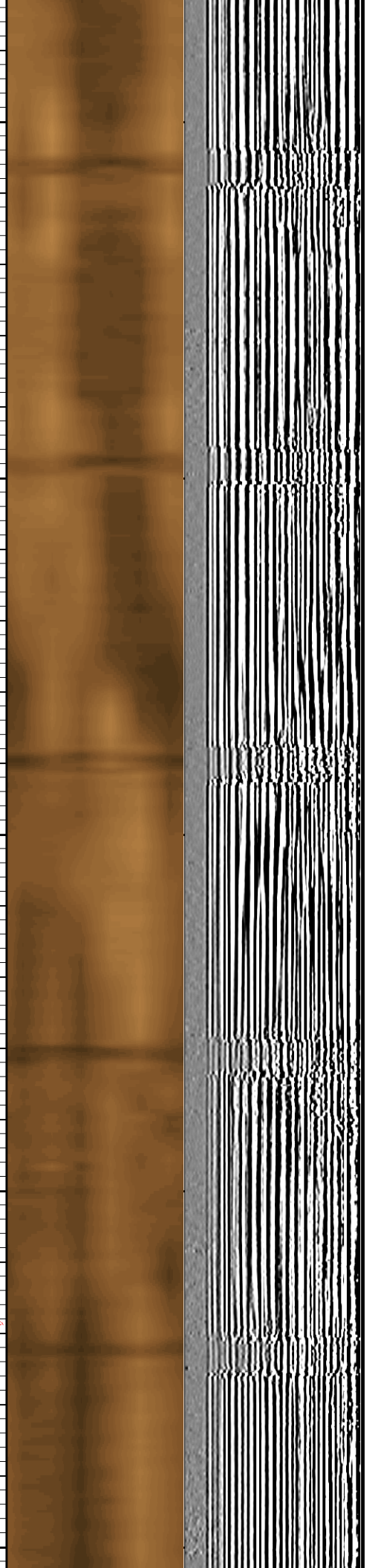
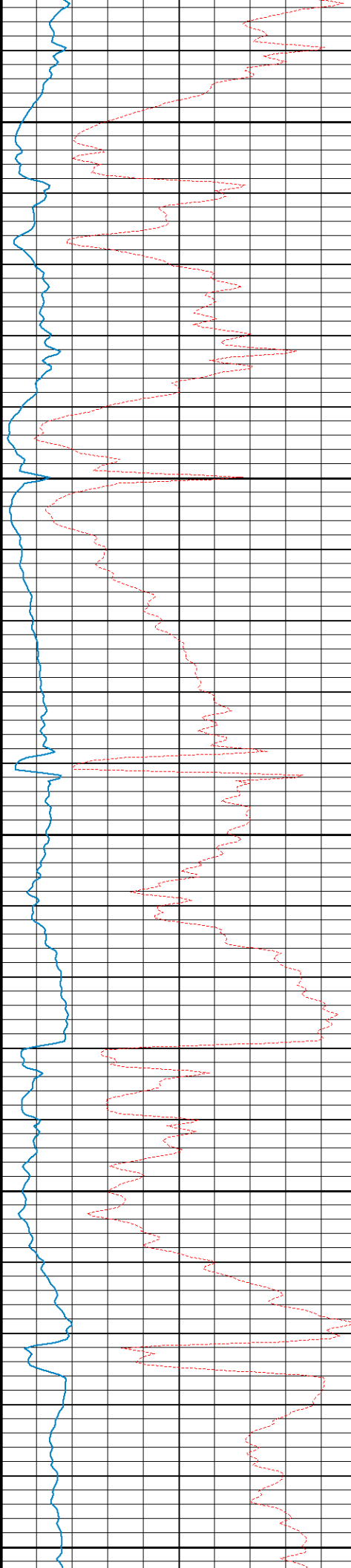
1250

83°

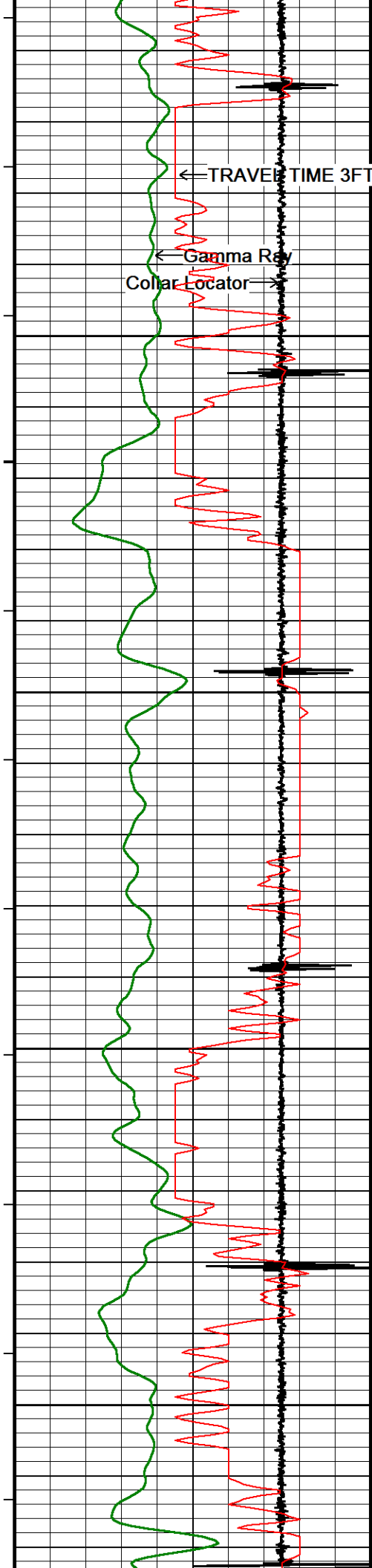
1300

84°

1350







← TRAVEL TIME 3FT  
AMPLITUDE 3FT →

85°

1400

86°

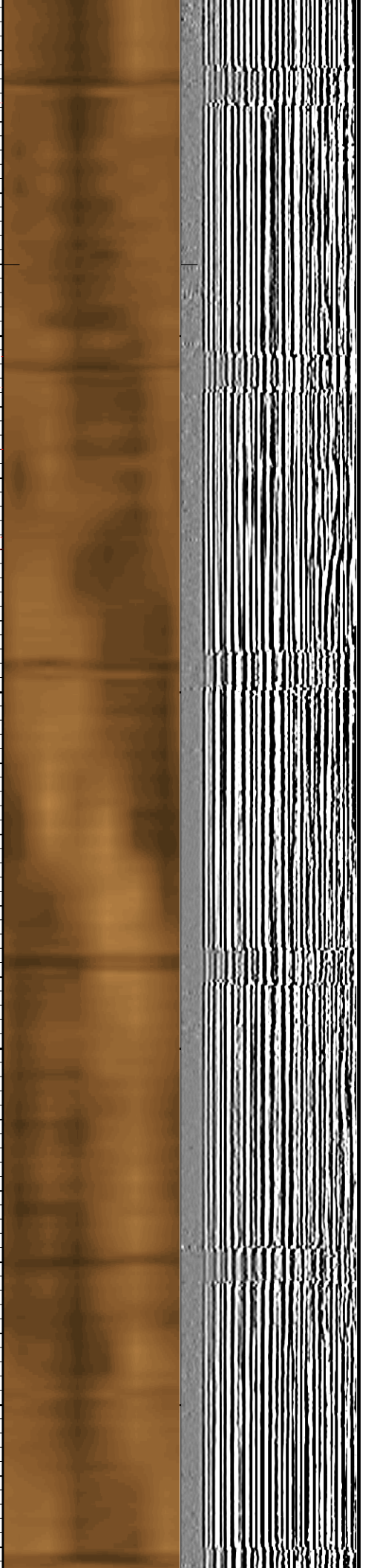
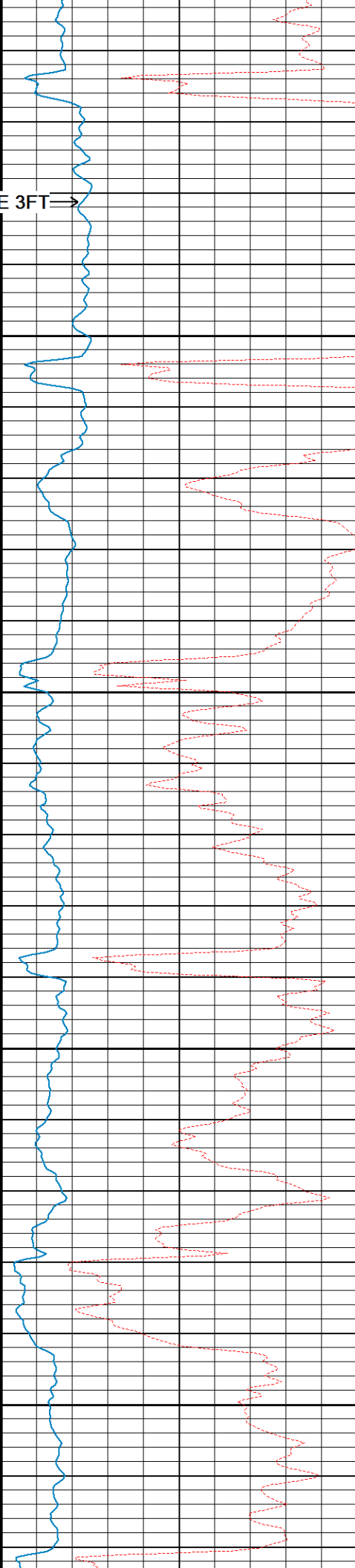
1450

87°

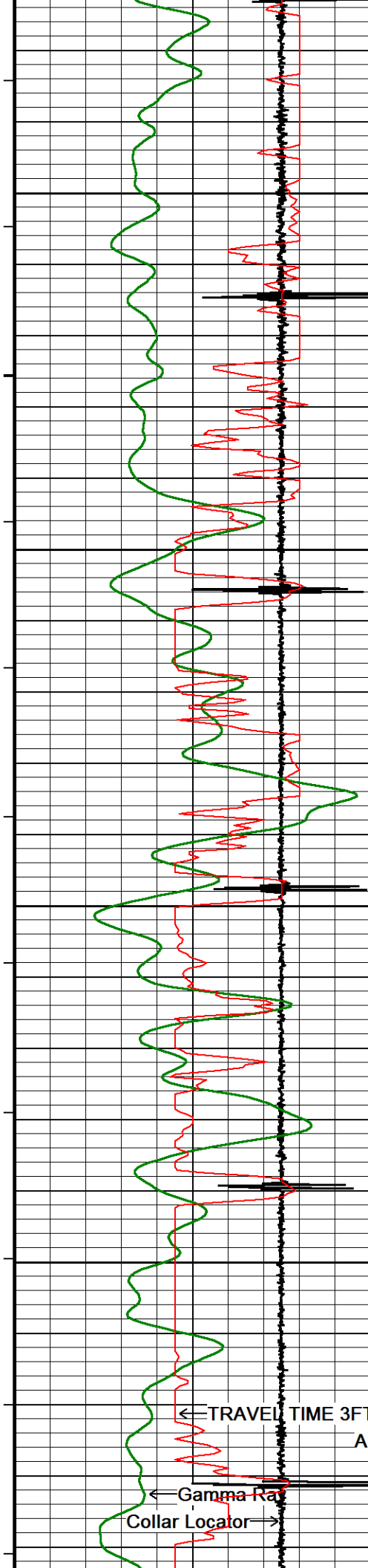
1500

88°

1550







89°

1600

90°

1650

92°

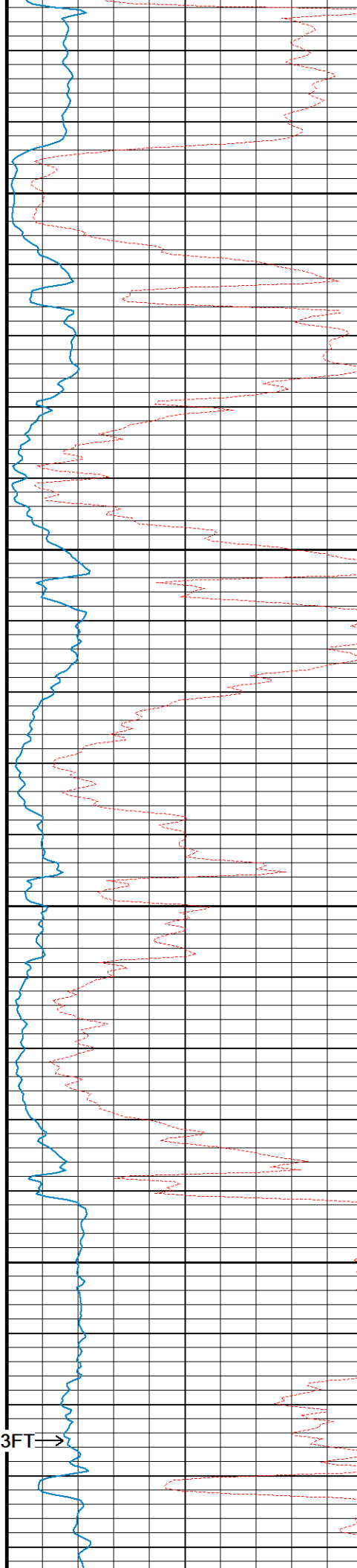
1700

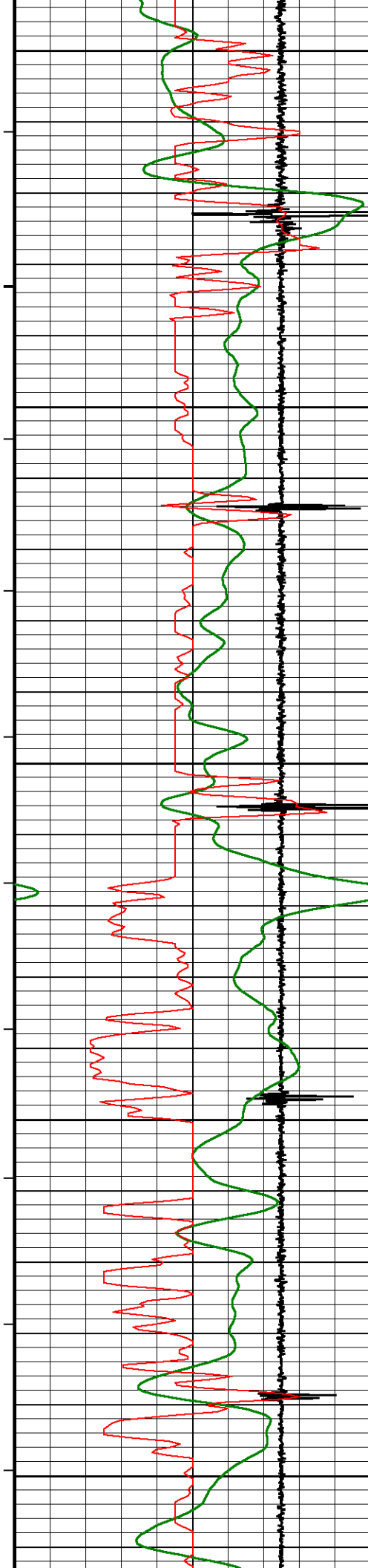
93°

1750

95°

AMPLITUDE 3FT→





1800

96°

1850

97°

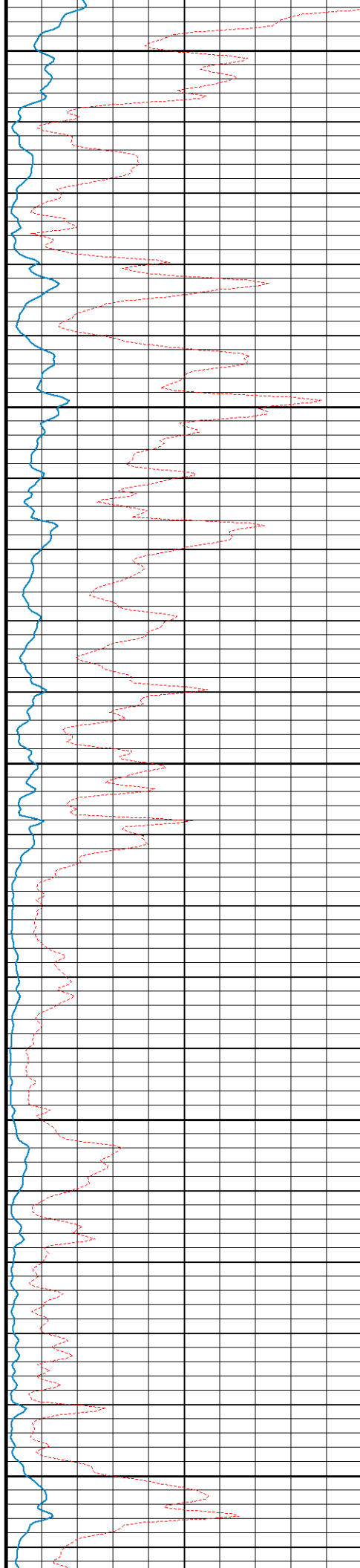
1900

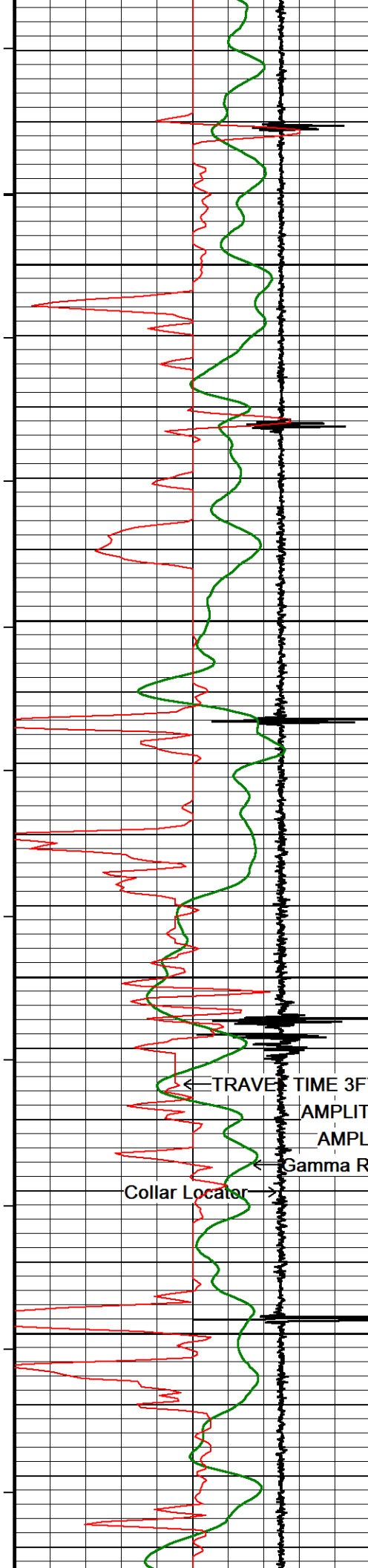
98°

1950

99°

2000





100°

2050

101°

2100

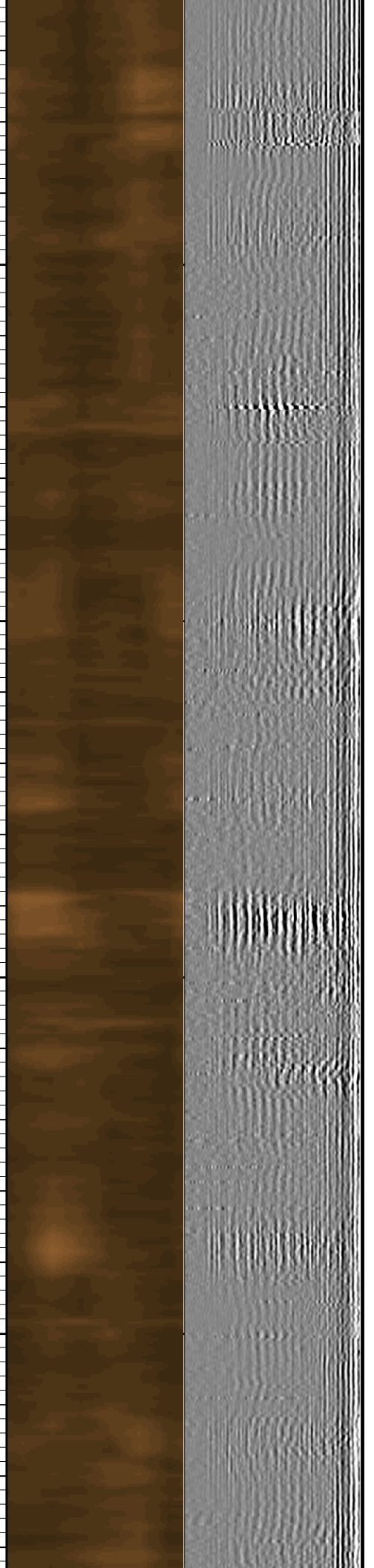
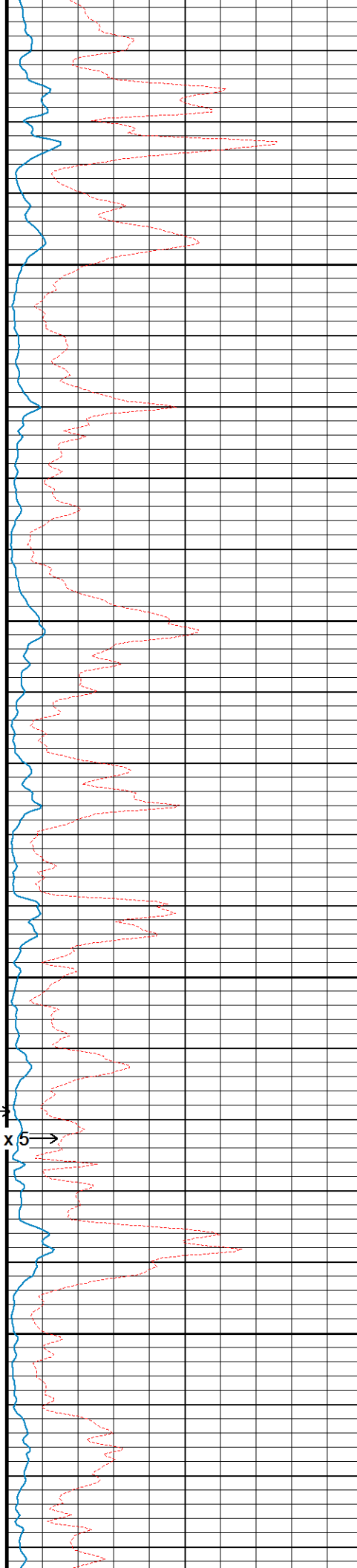
102°

2150

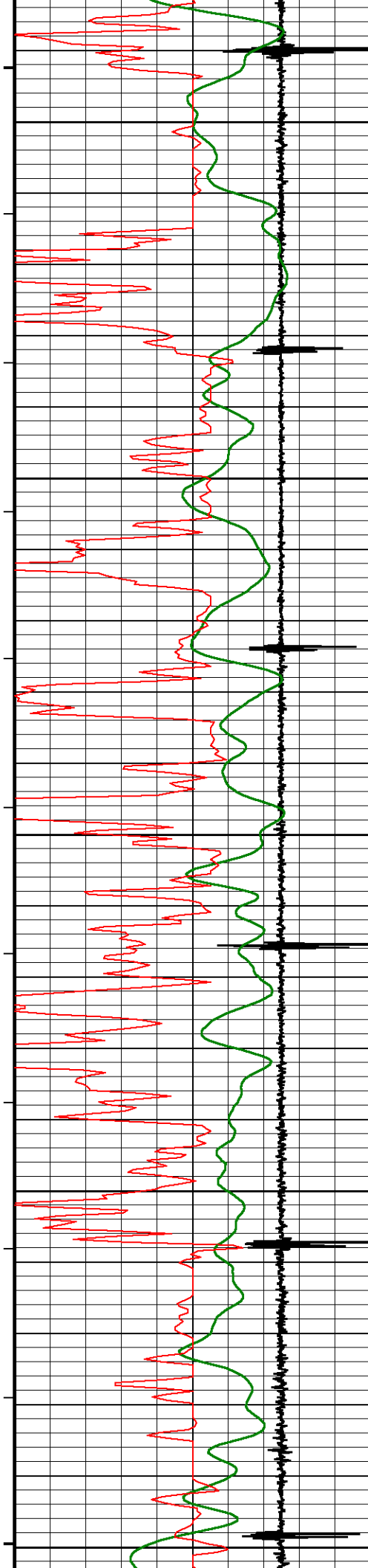
103°

2200

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







104°

2250

105°

2300

106°

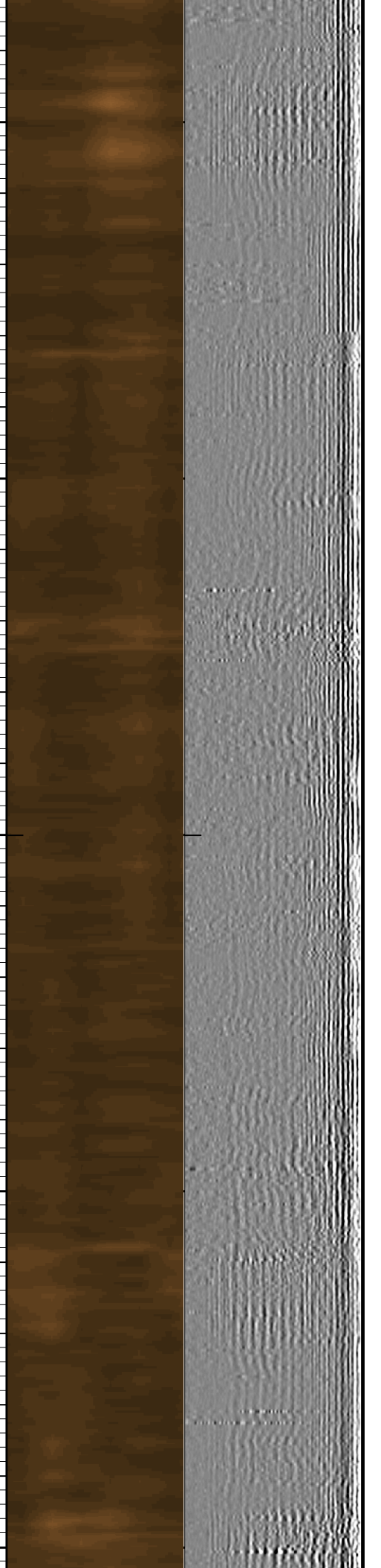
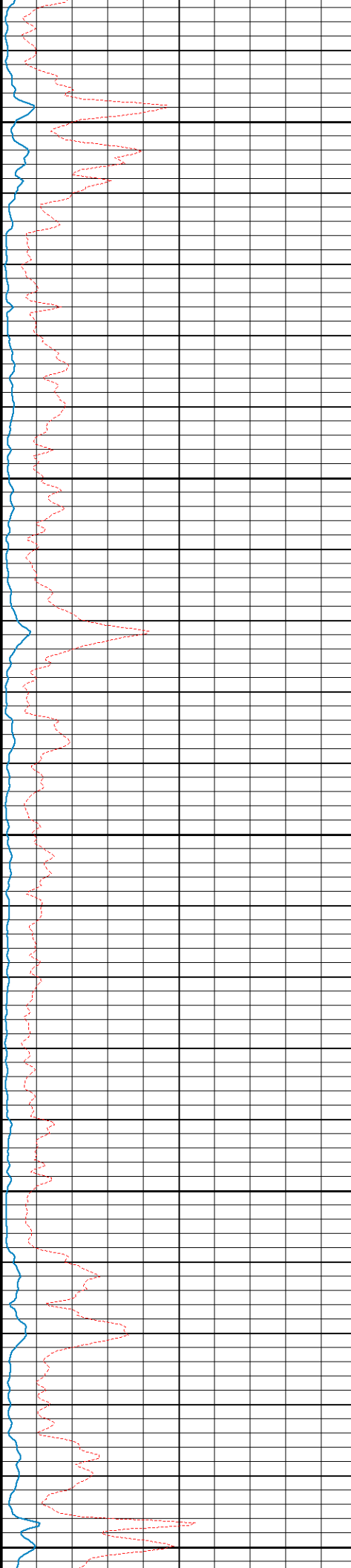
2350

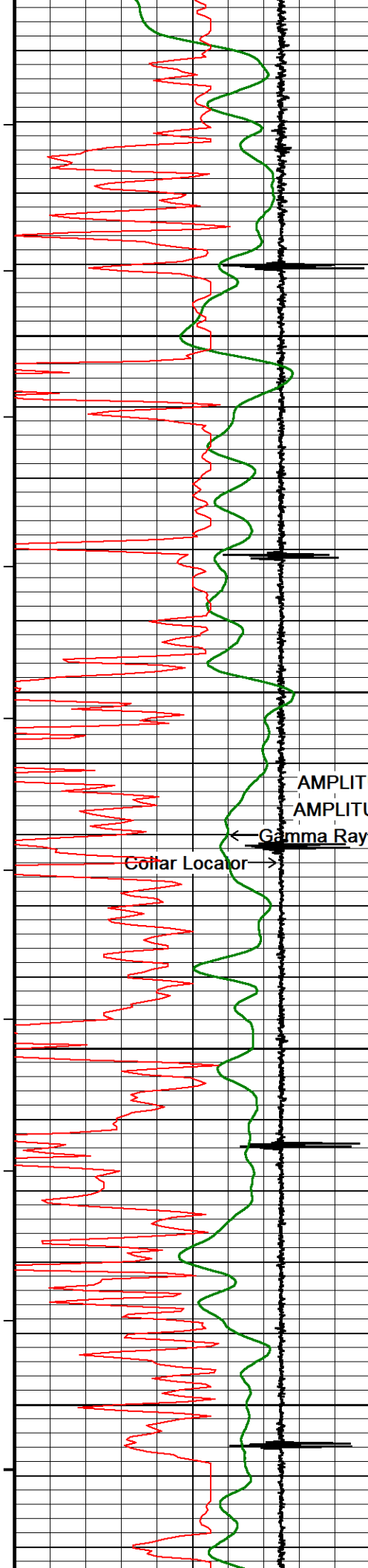
107°

2400

108°

2450





109°

2500

110°

2550

AMPLITUDE 3FT →

AMPLITUDE 3FT x 5 →

← Gamma Ray

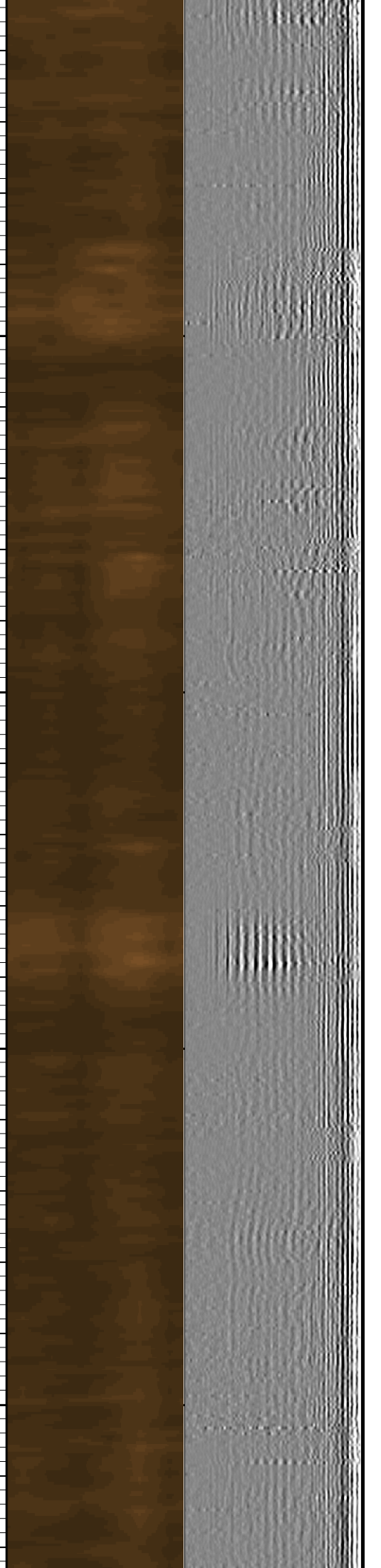
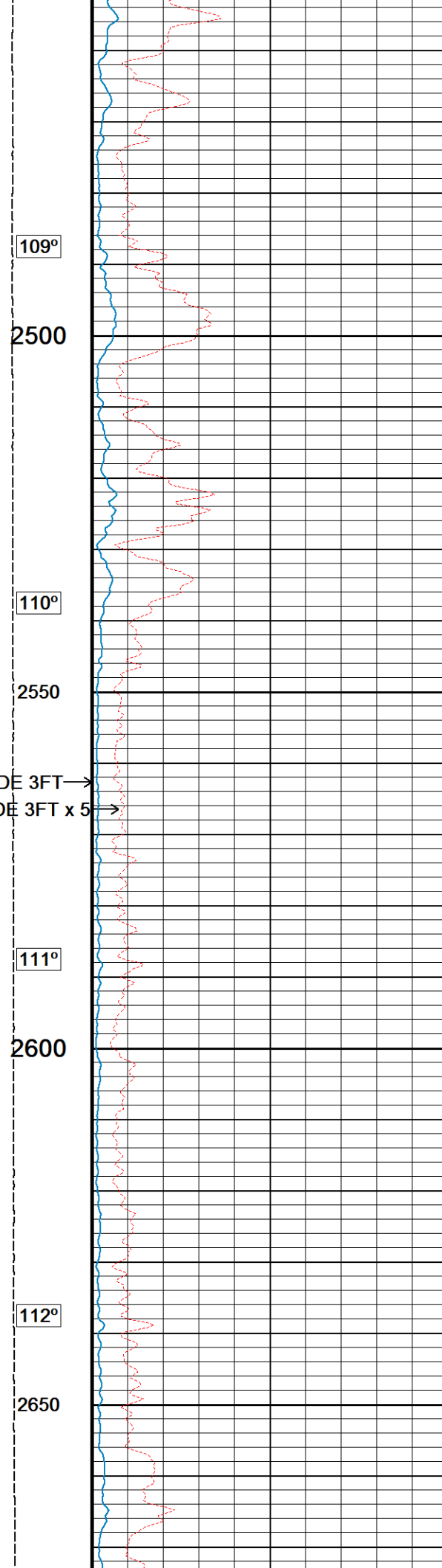
Collar Locator →

111°

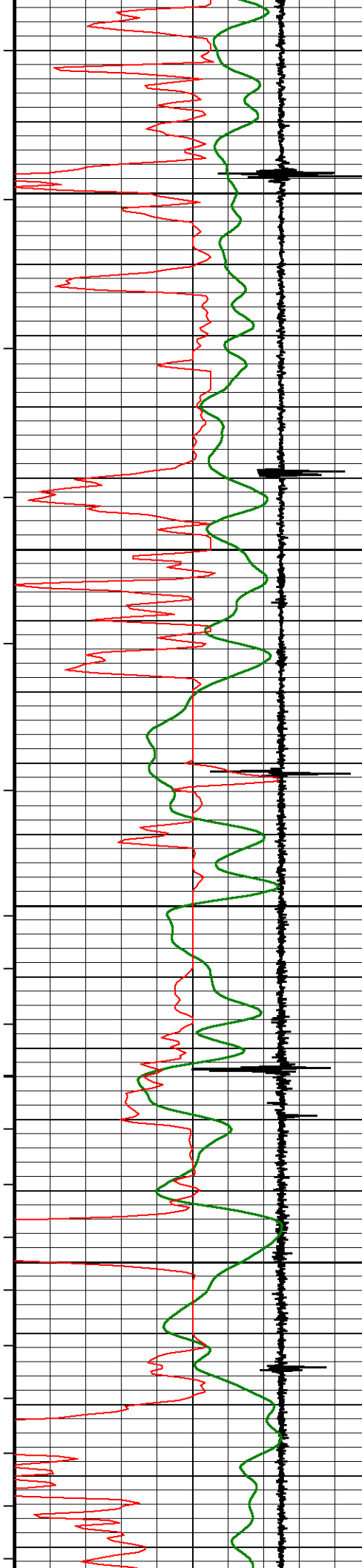
2600

112°

2650







113°

2700

114°

2750

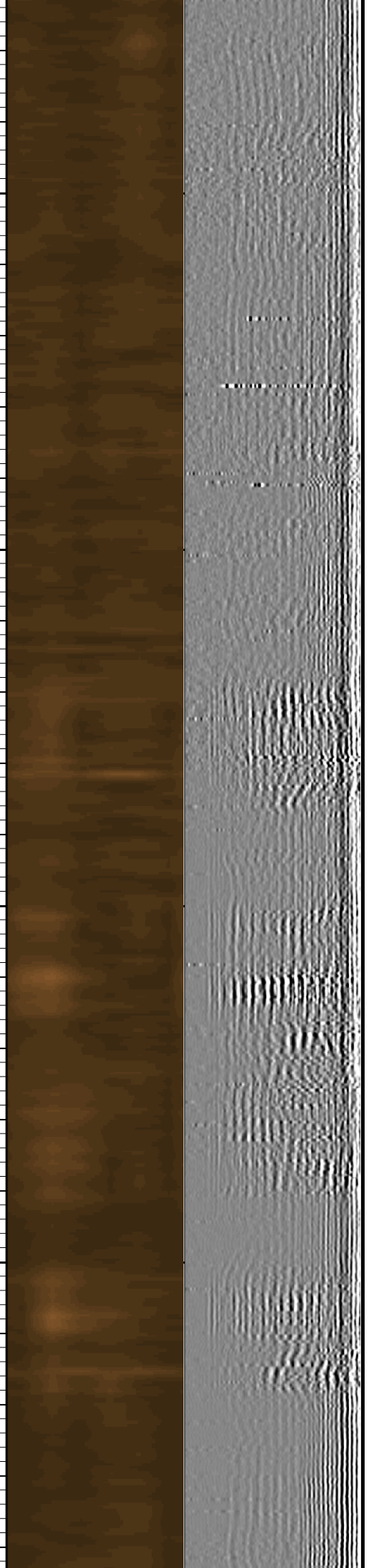
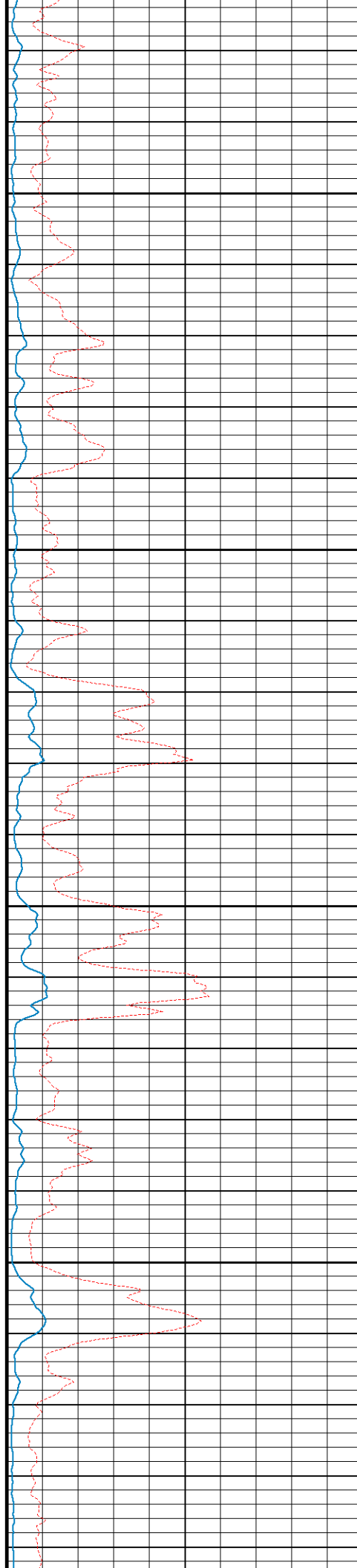
115°

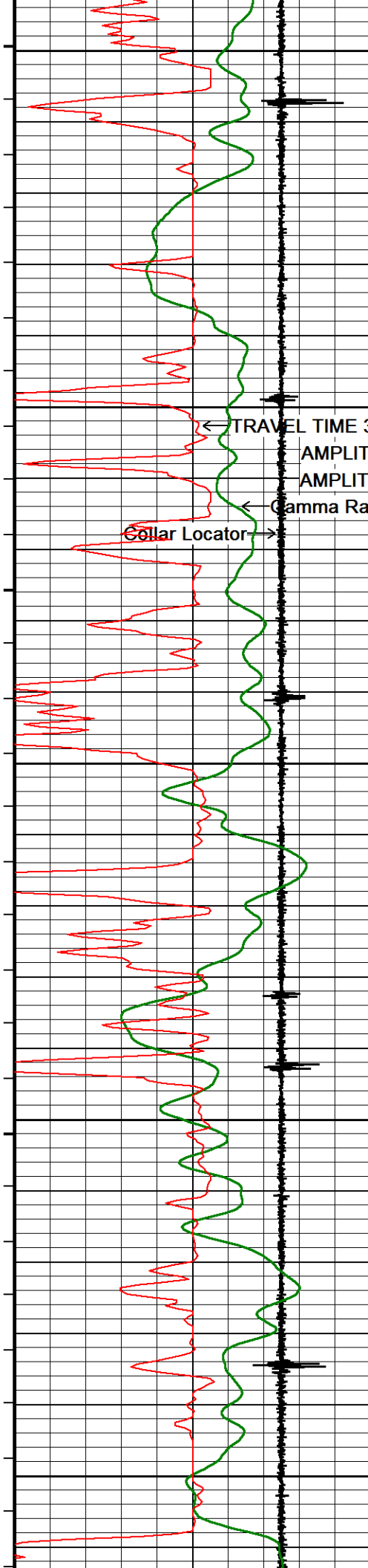
2800

116°

2850

117°





2900

118°

2950

← TRAVEL TIME 3FT

AMPLITUDE 3FT →

AMPLITUDE 3FT x 5 →

← Gamma Ray

Collar Locator →

119°

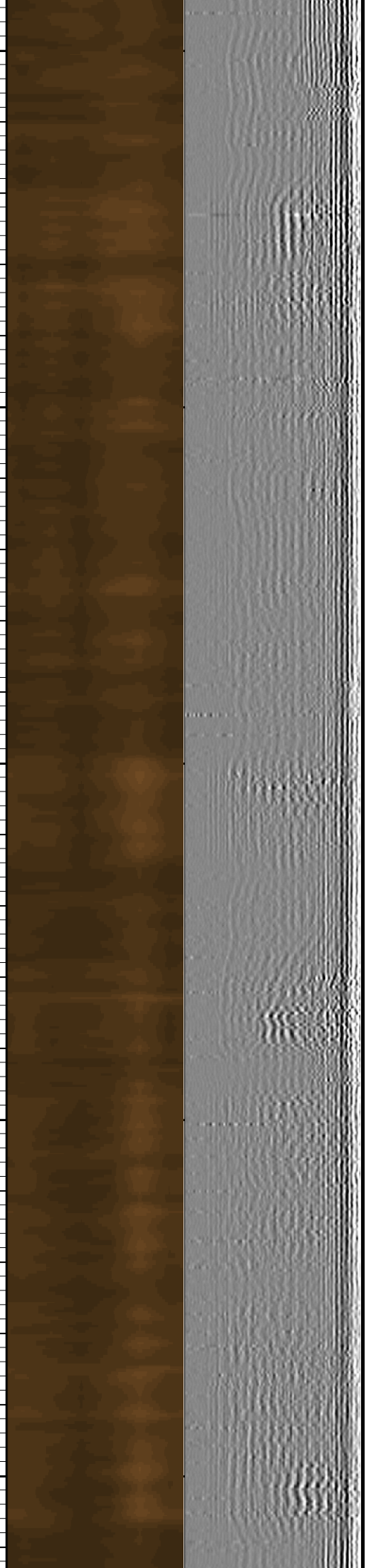
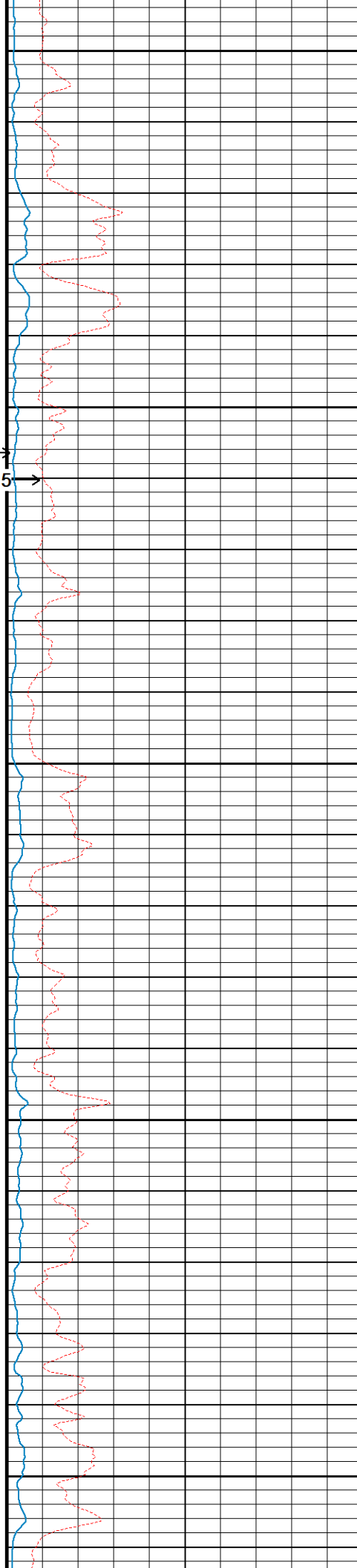
3000

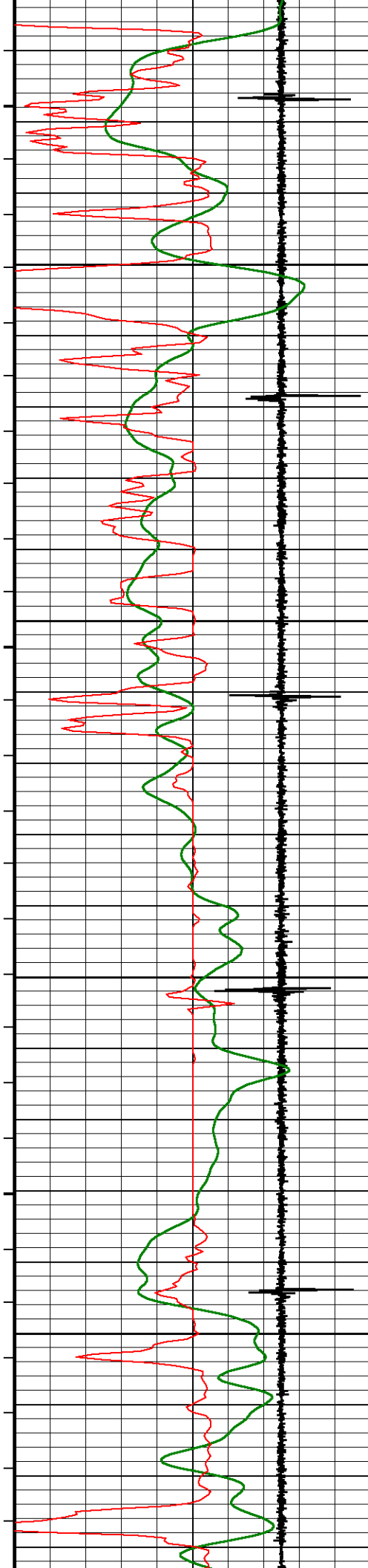
120°

3050

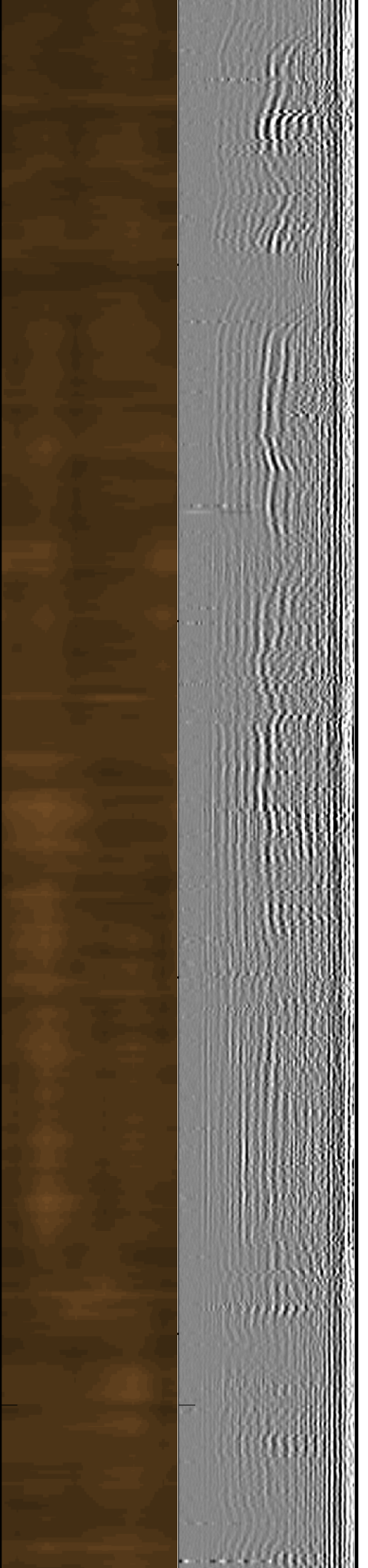
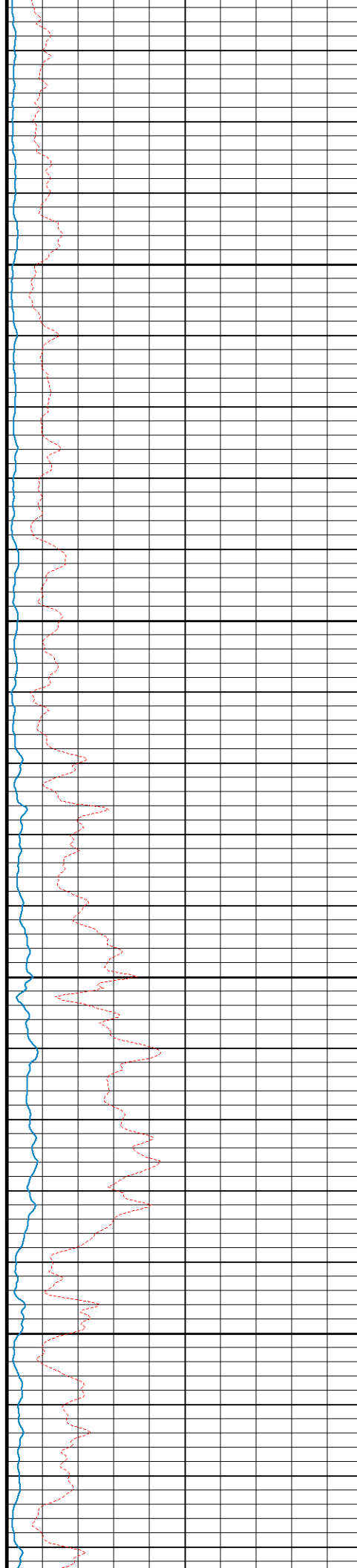
121°

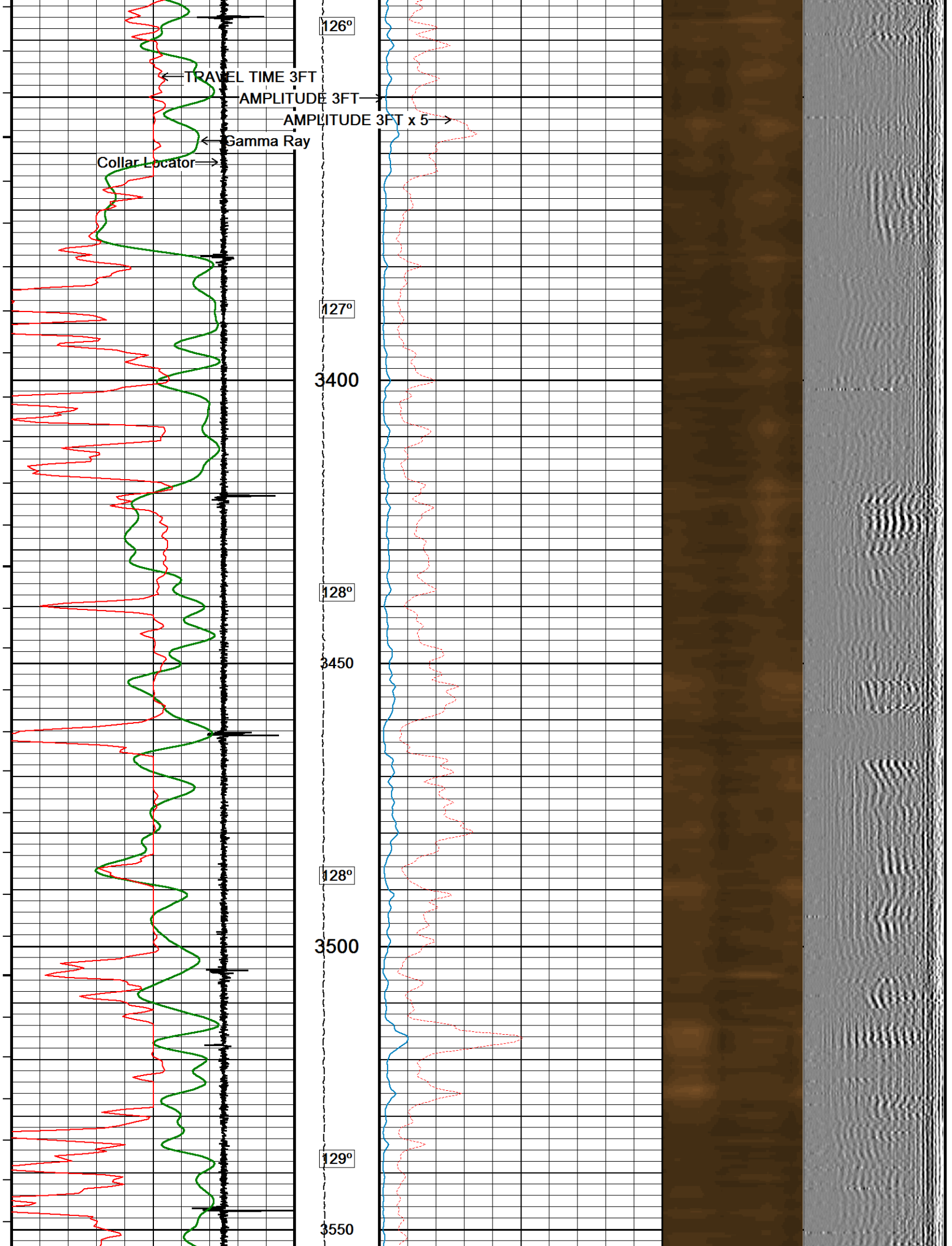
3100



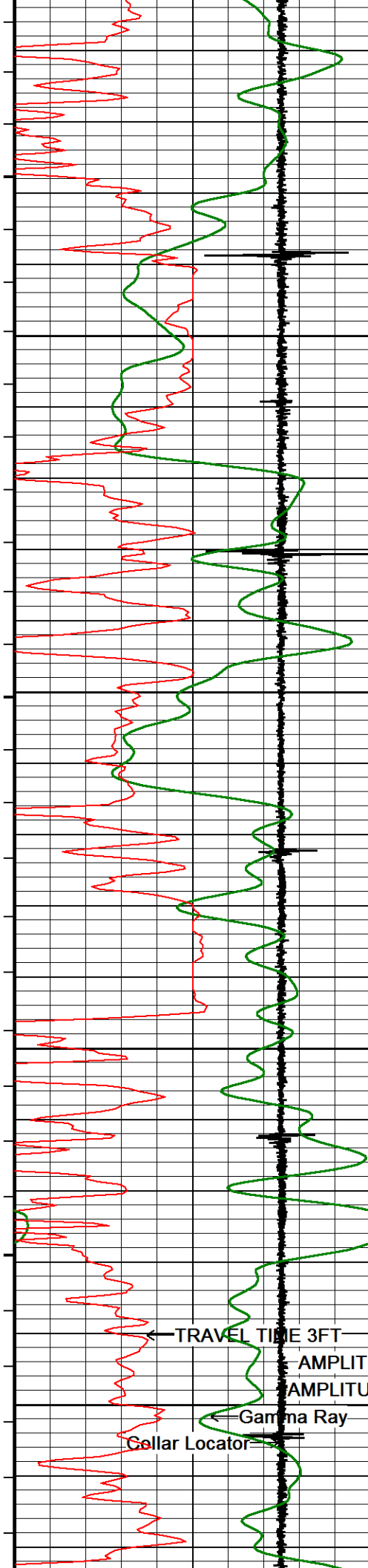


122°  
3150  
123°  
3200  
124°  
3250  
125°  
3300









130°

3600

131°

3650

132°

3700

133°

AMPLITUDE 3FT →

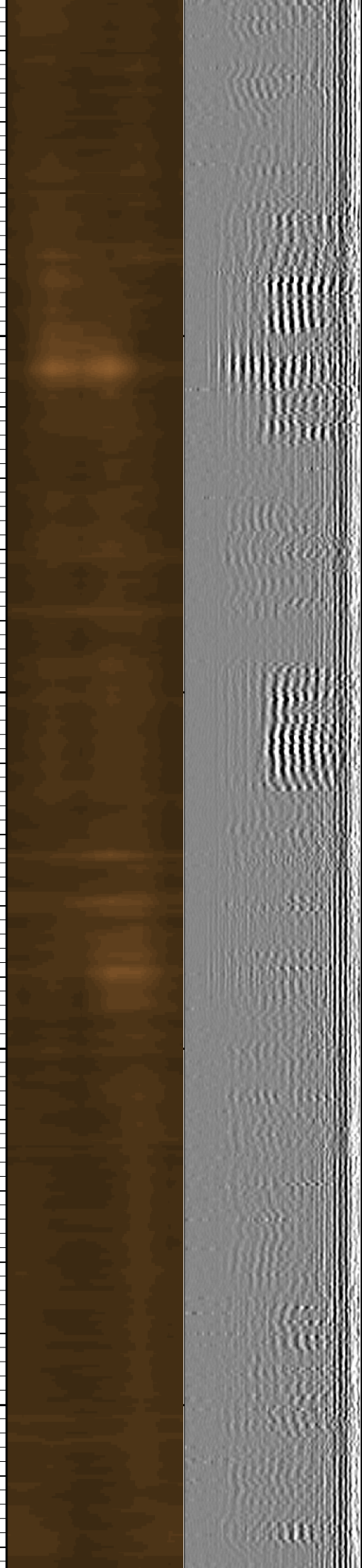
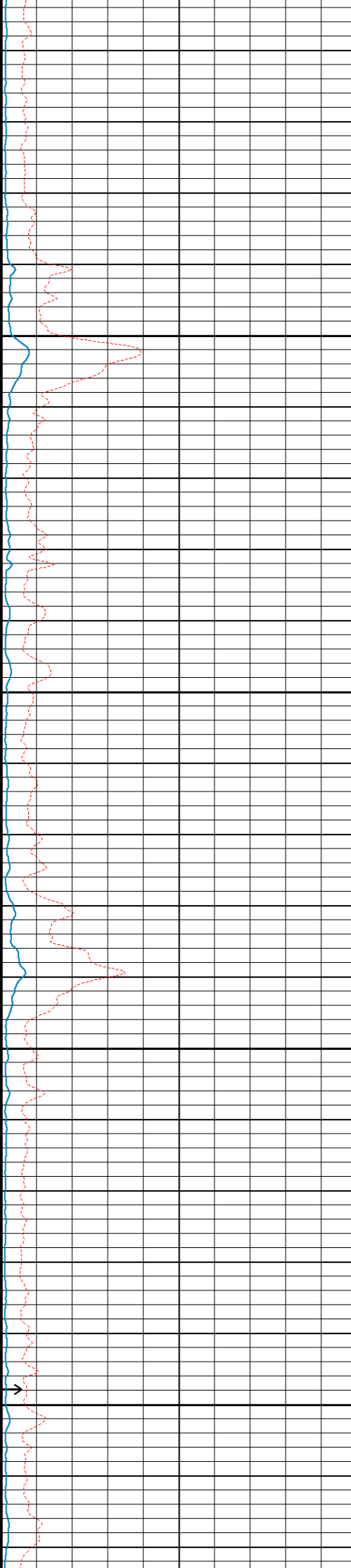
AMPLITUDE 3FT x 5 →

3750

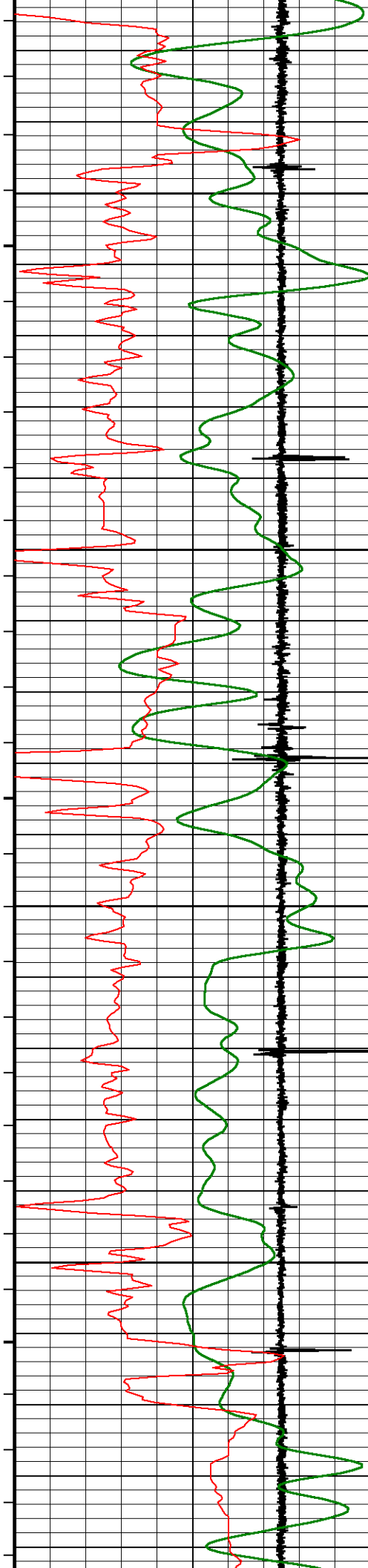
← TRAVEL TIME 3FT

← Gamma Ray

Collar Locator







134°

3800

136°

3850

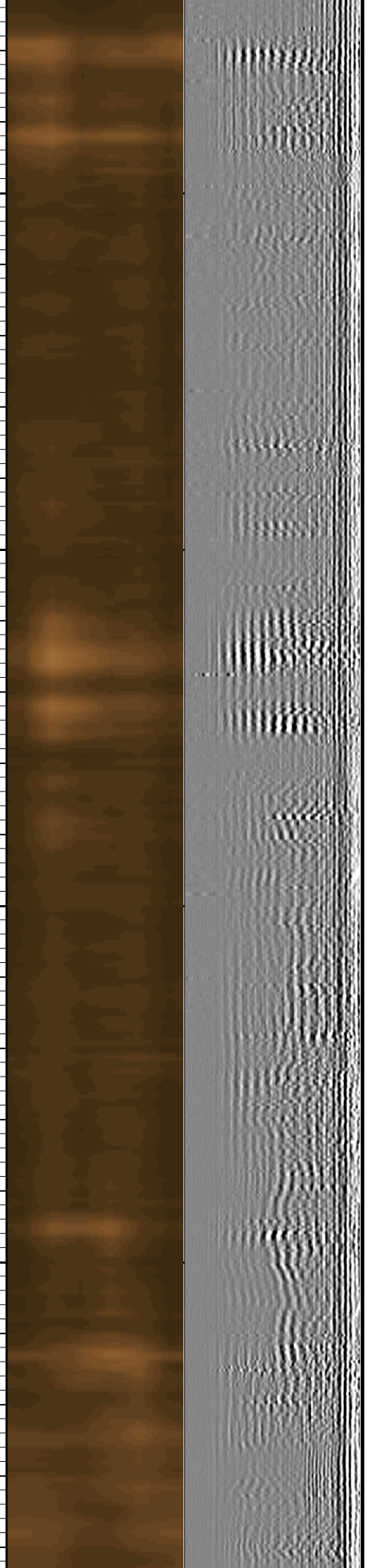
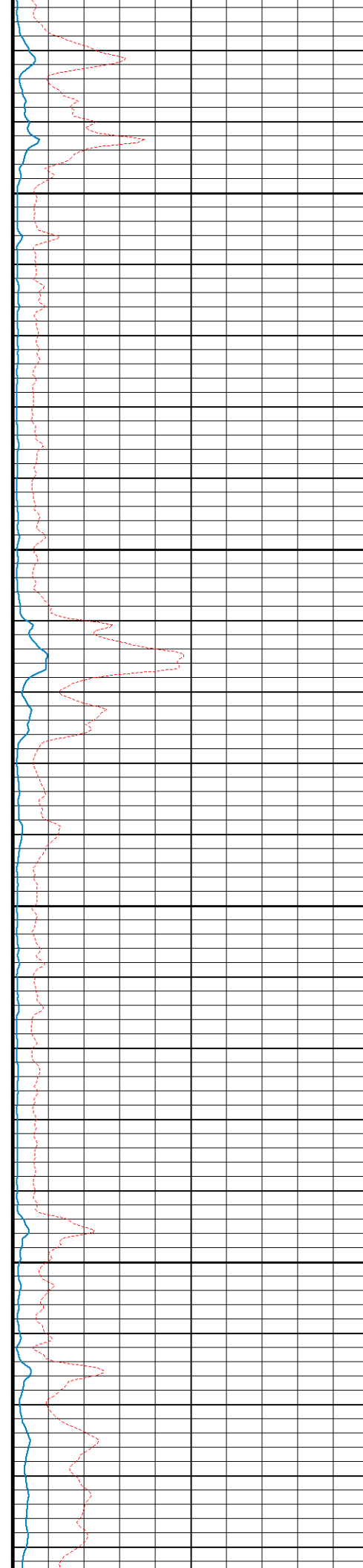
137°

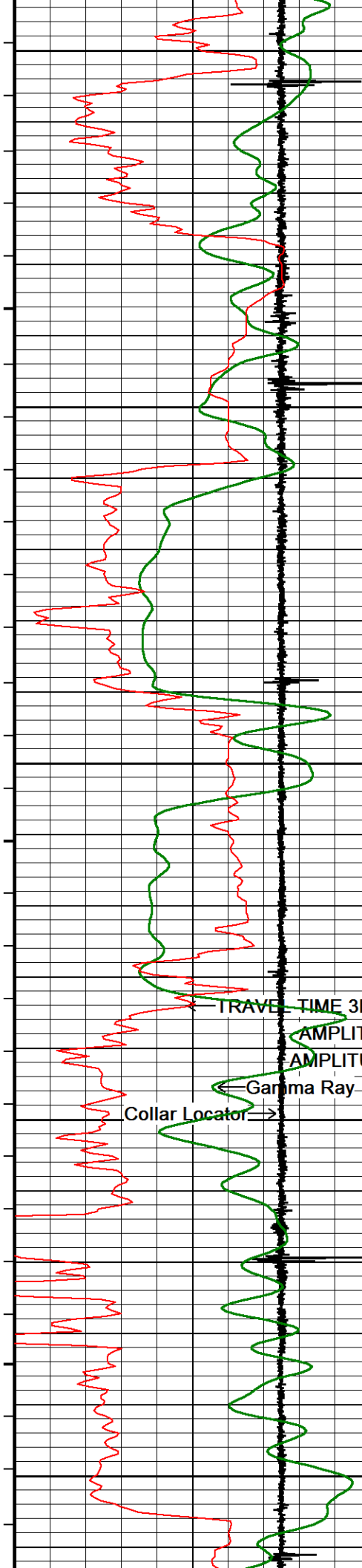
3900

137°

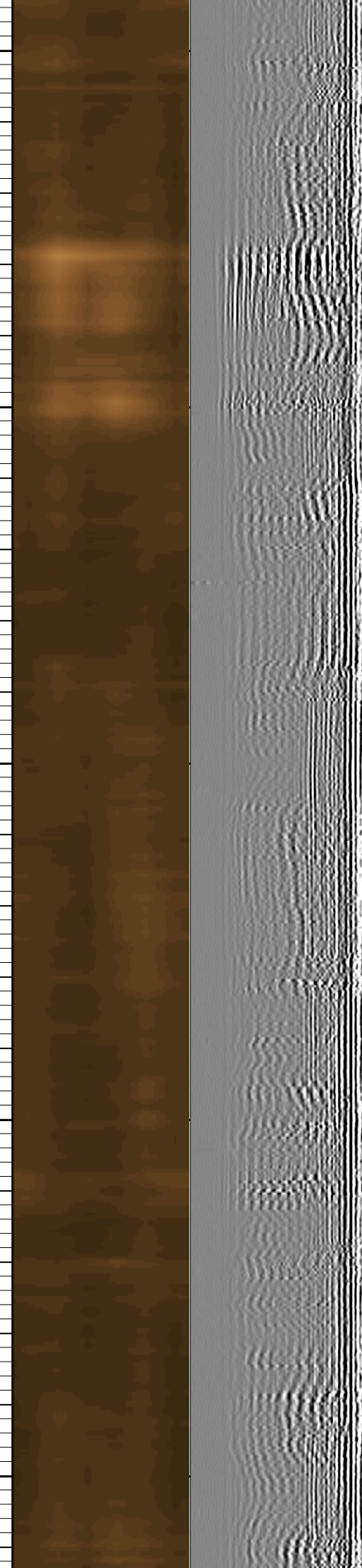
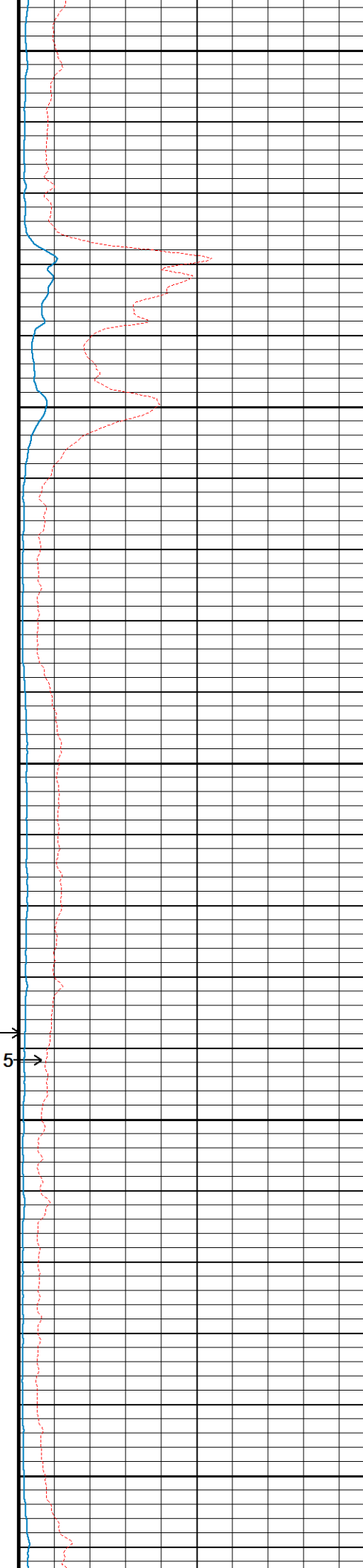
3950

138°

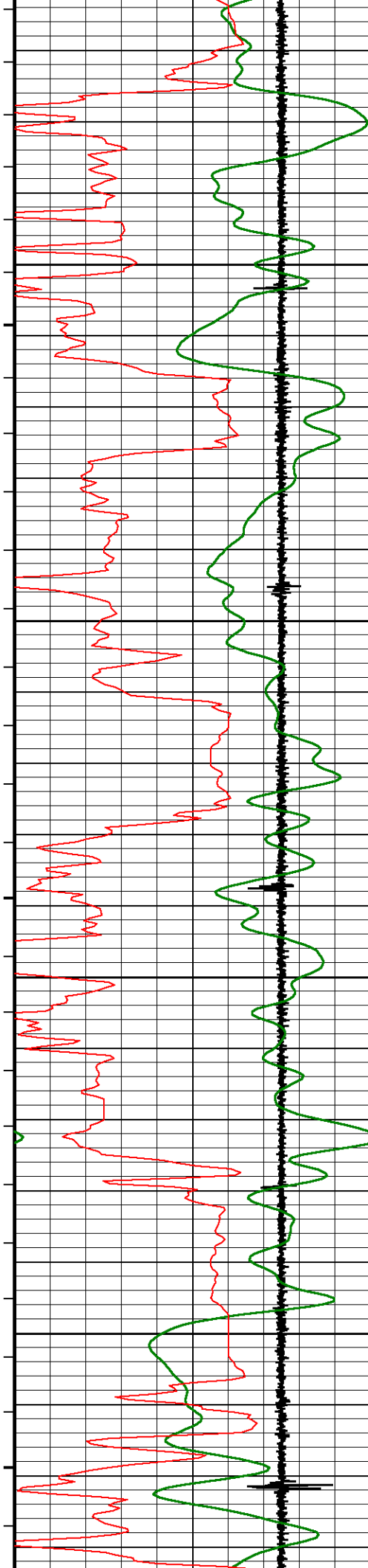




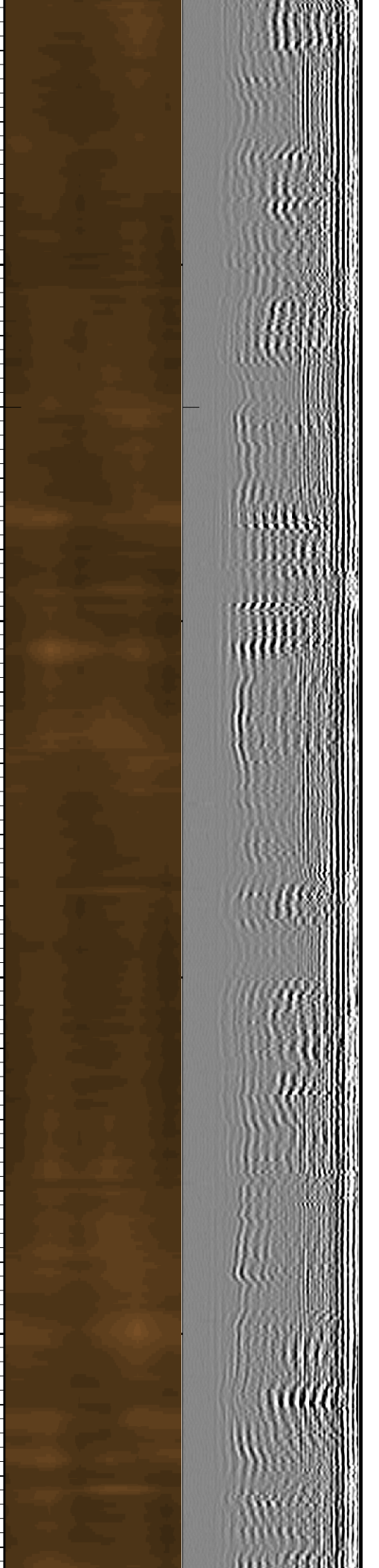
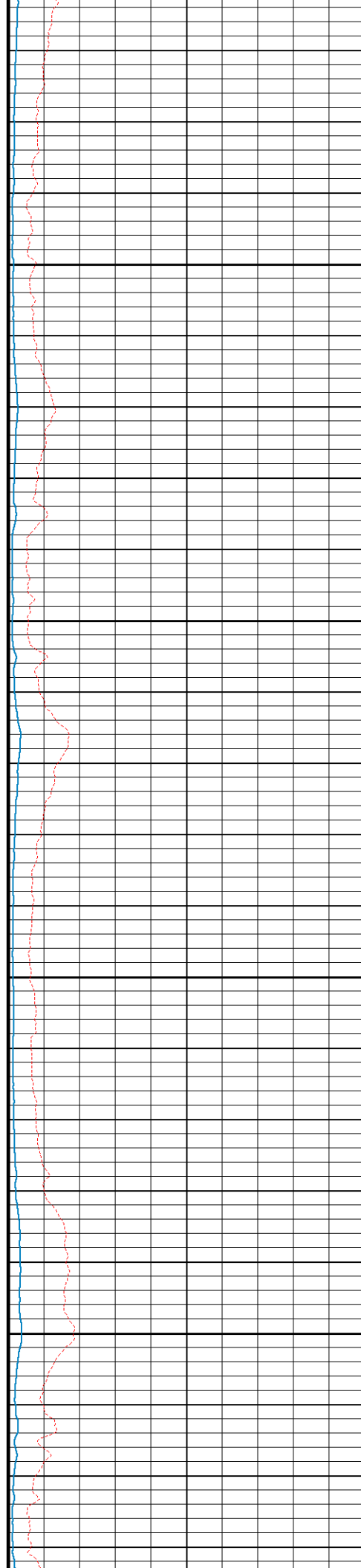
4000  
139°  
4050  
140°  
4100  
4150  
4200

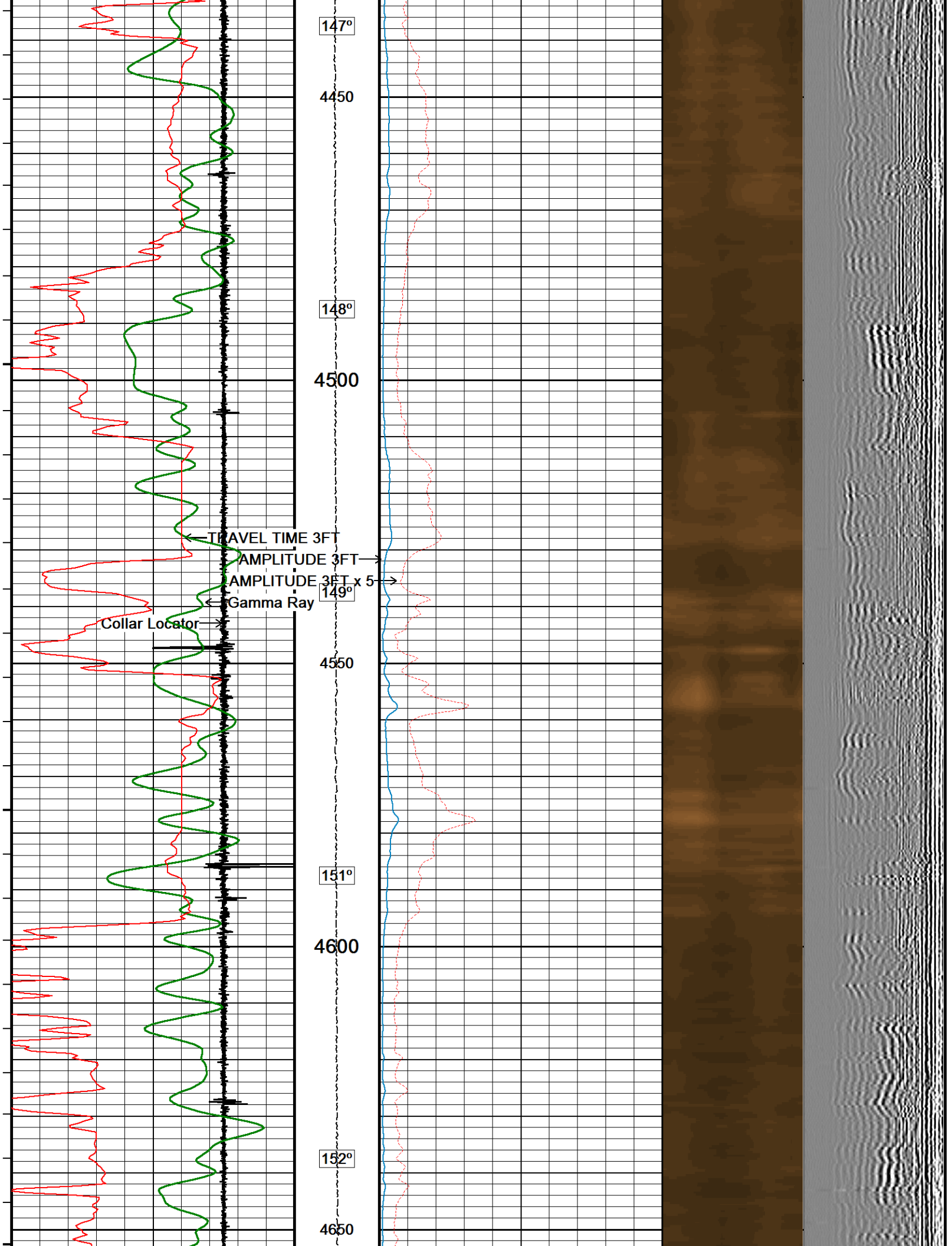


TRAVEL TIME 3FT  
AMPLITUDE 3FT  
AMPLITUDE 3FT x 5  
Gamma Ray  
Collar Locator

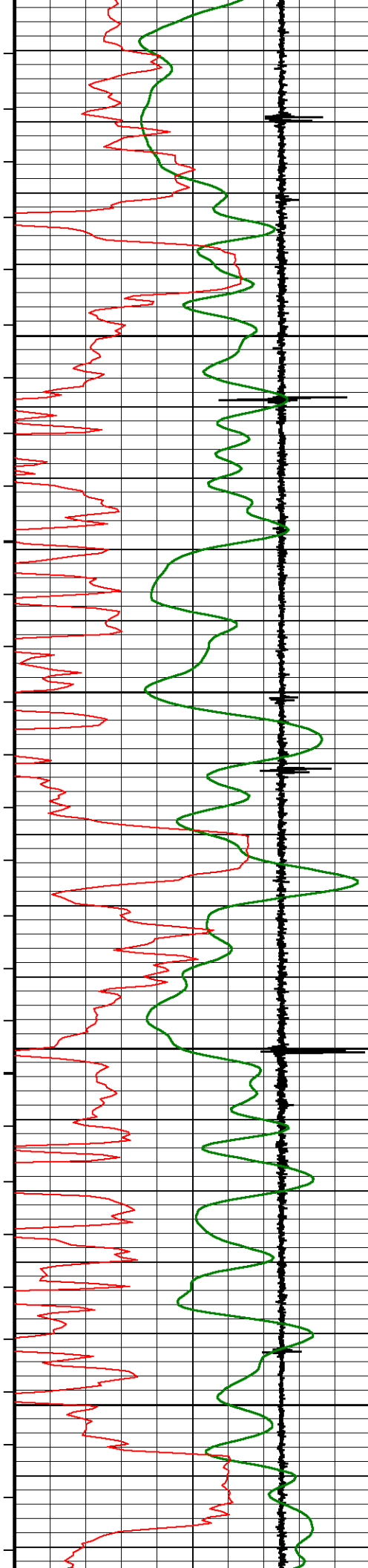


143°  
4250  
144°  
4300  
145°  
4350  
147°  
4400









152°

4700

153°

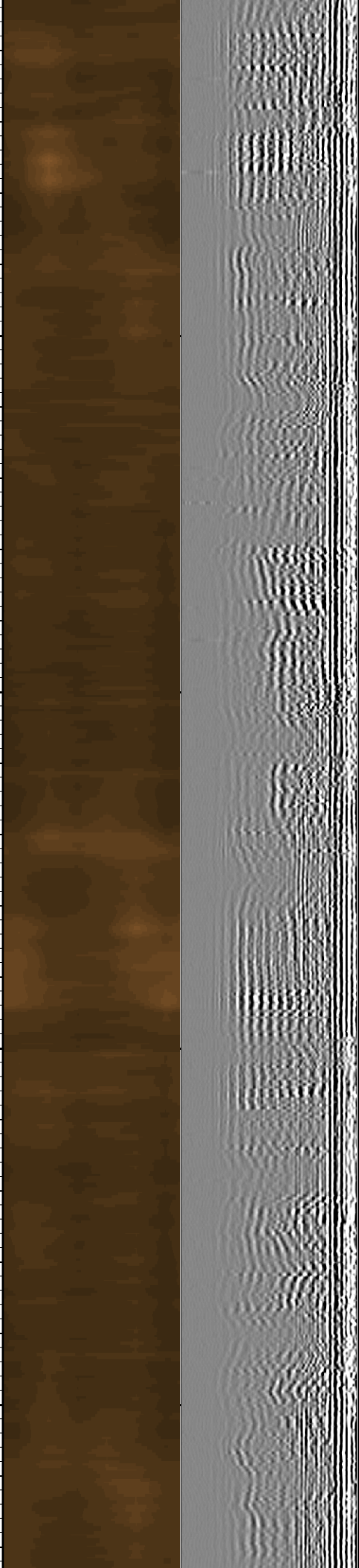
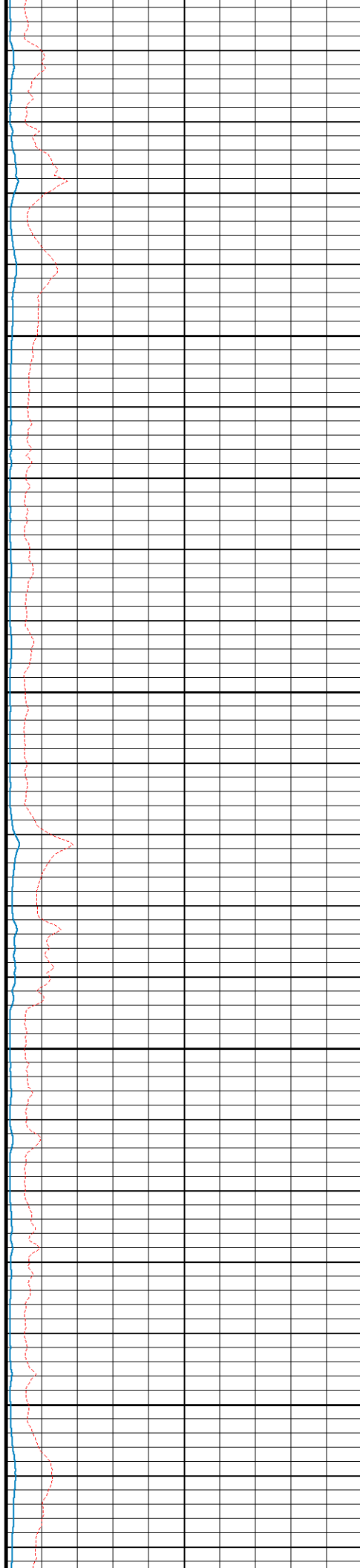
4750

154°

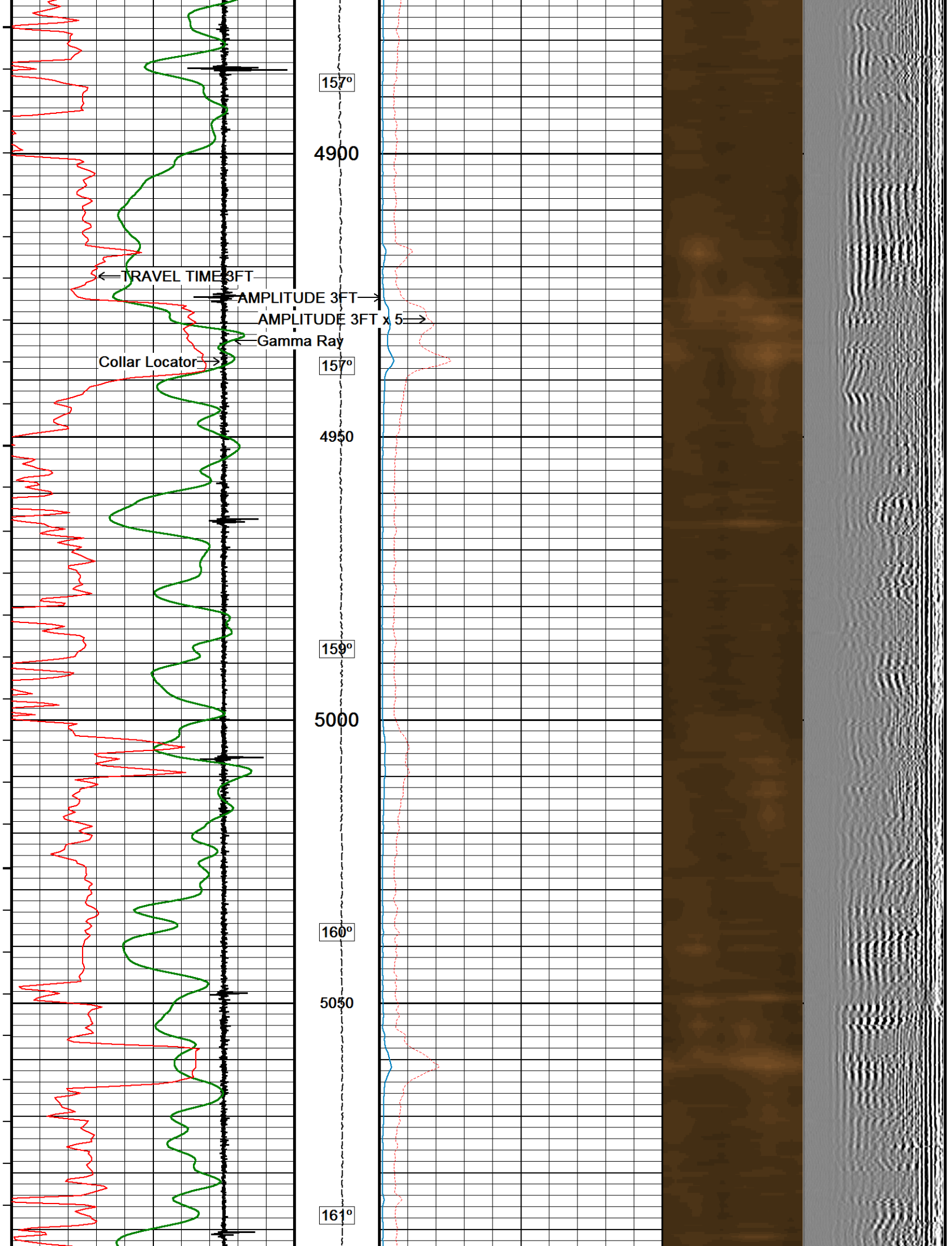
4800

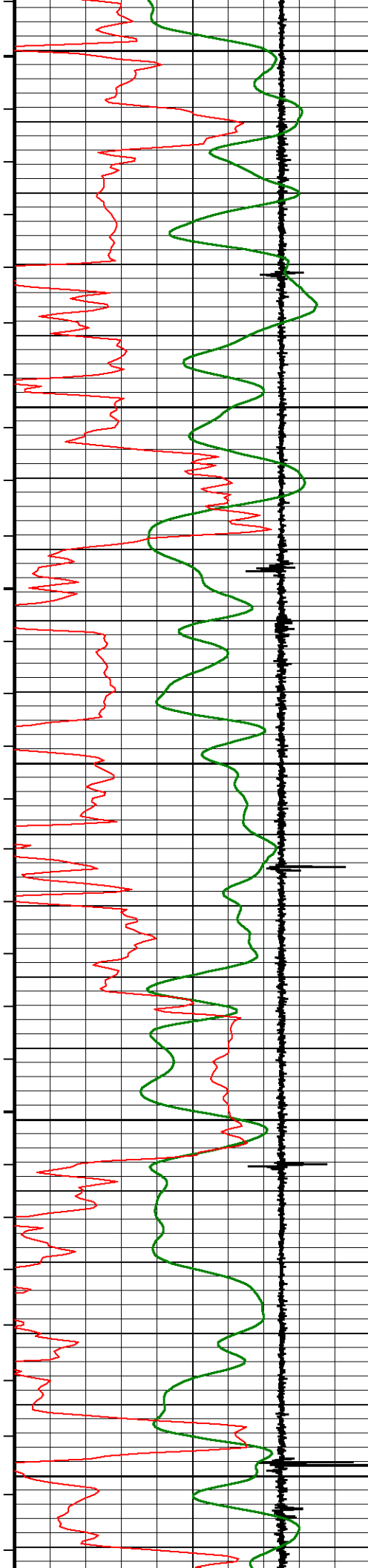
155°

4850









5100

162°

5150

163°

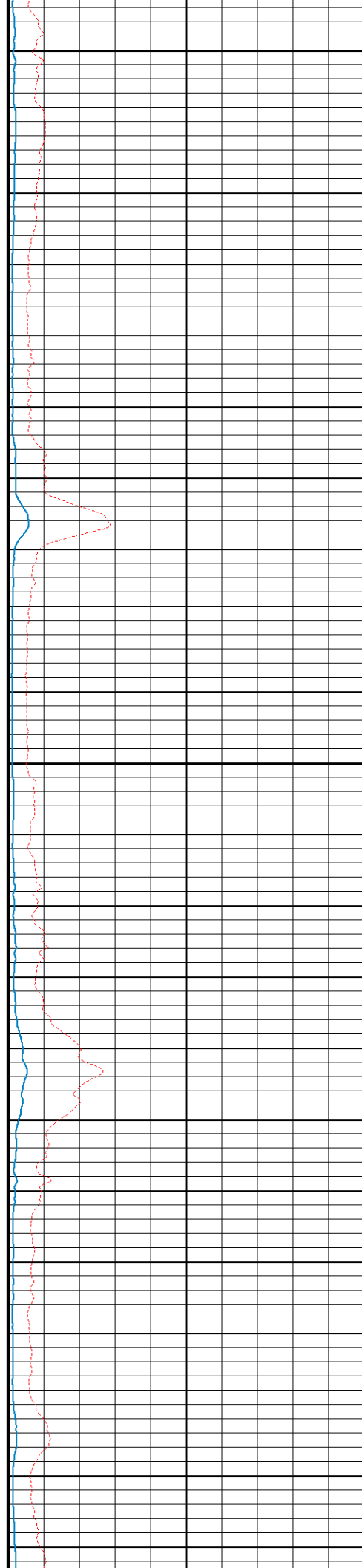
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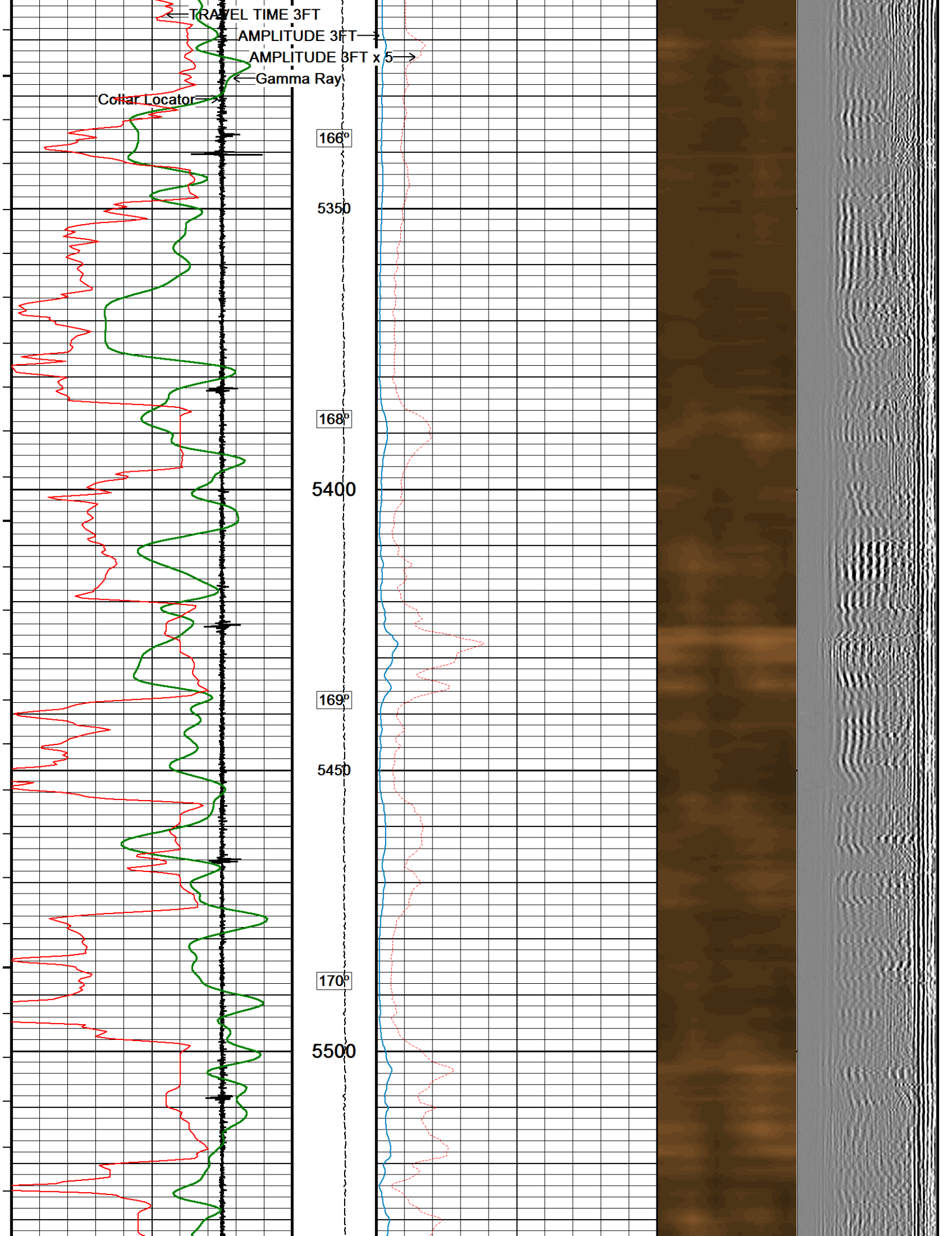
164°

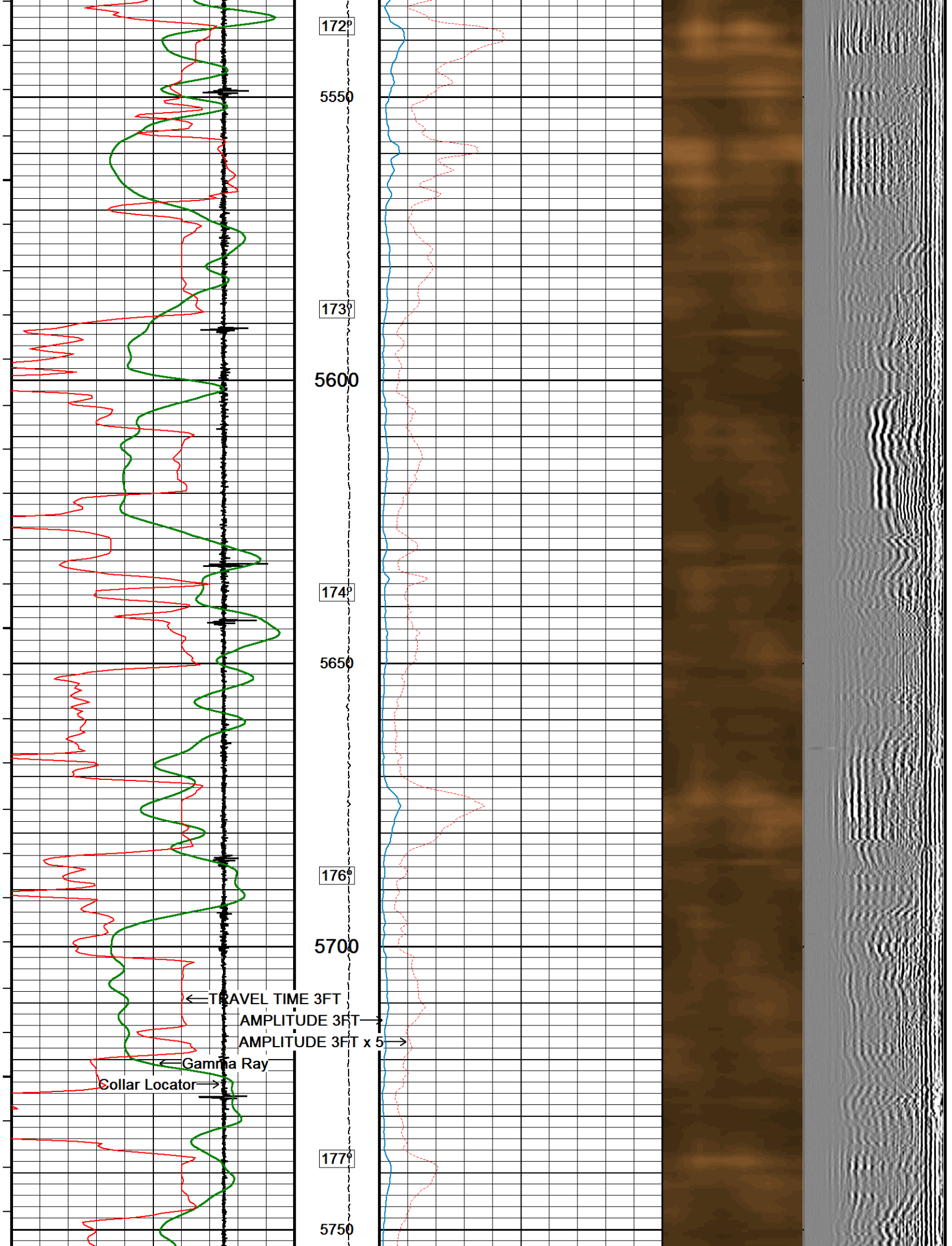
5250

165°

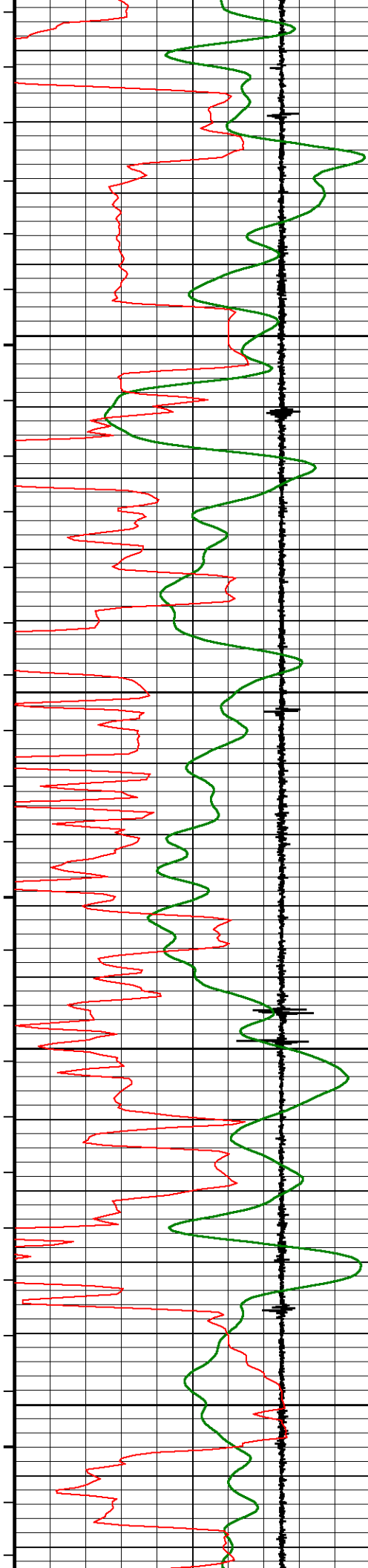
5300











180°

5800

183°

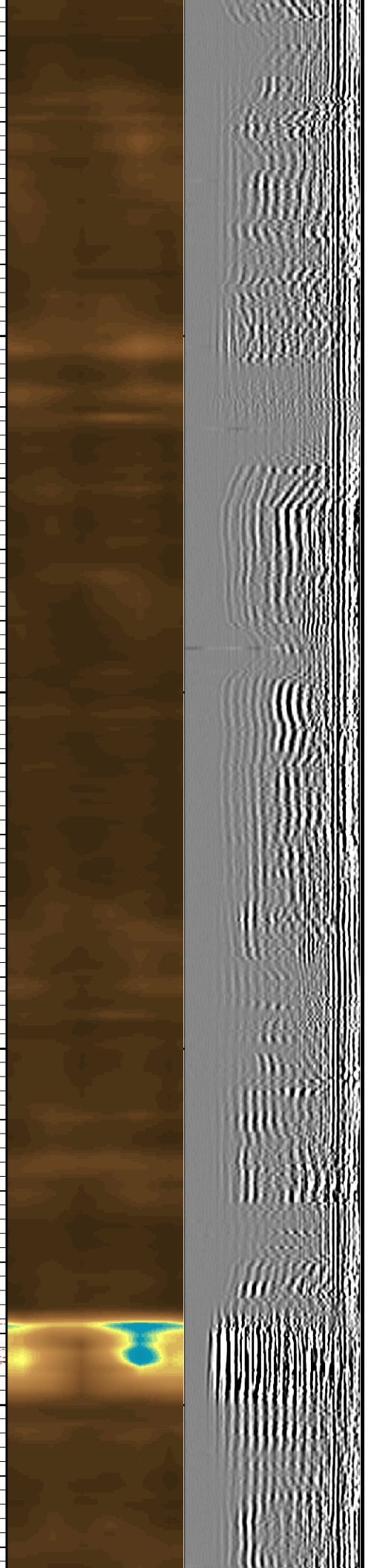
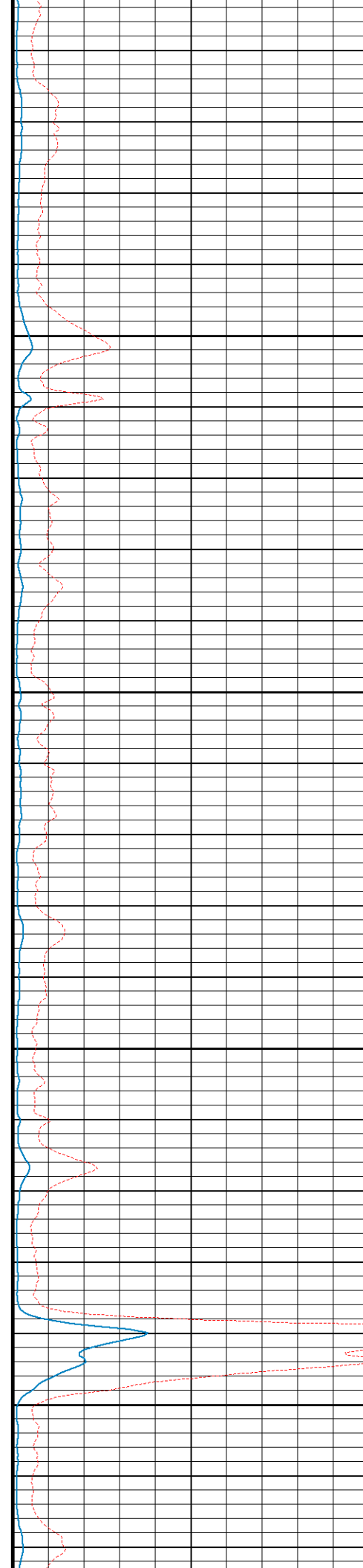
5850

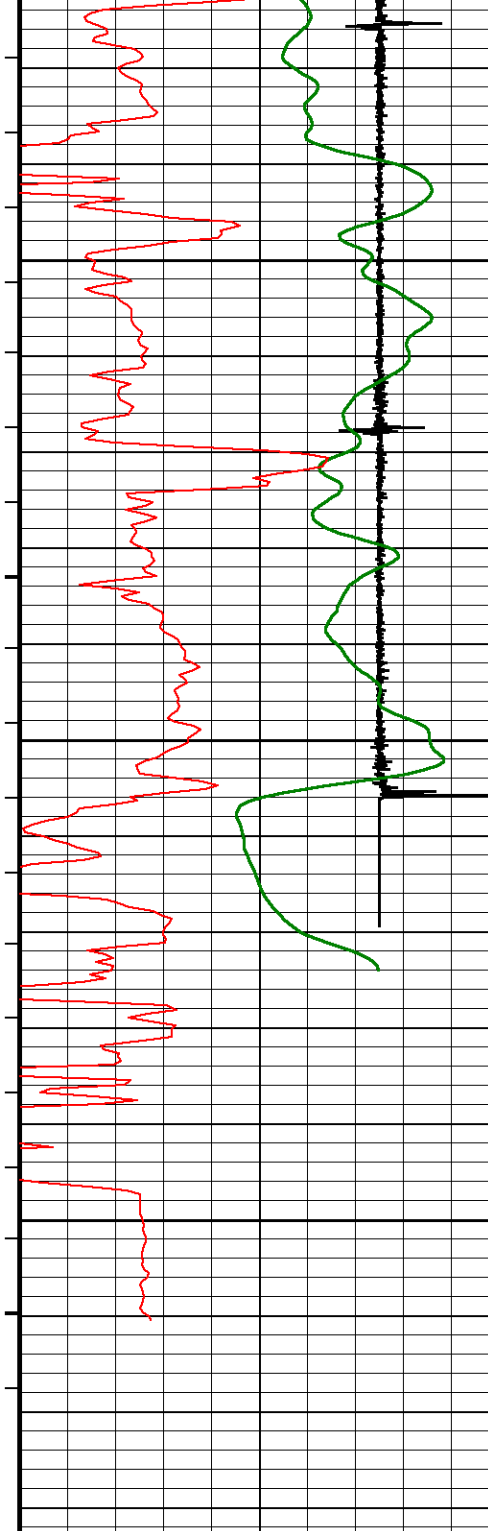
185°

5900

188°

5950





189°

6000

191°

6050

6100

6130

Depth in Feet

Timing Marks  
every 60.0 sec

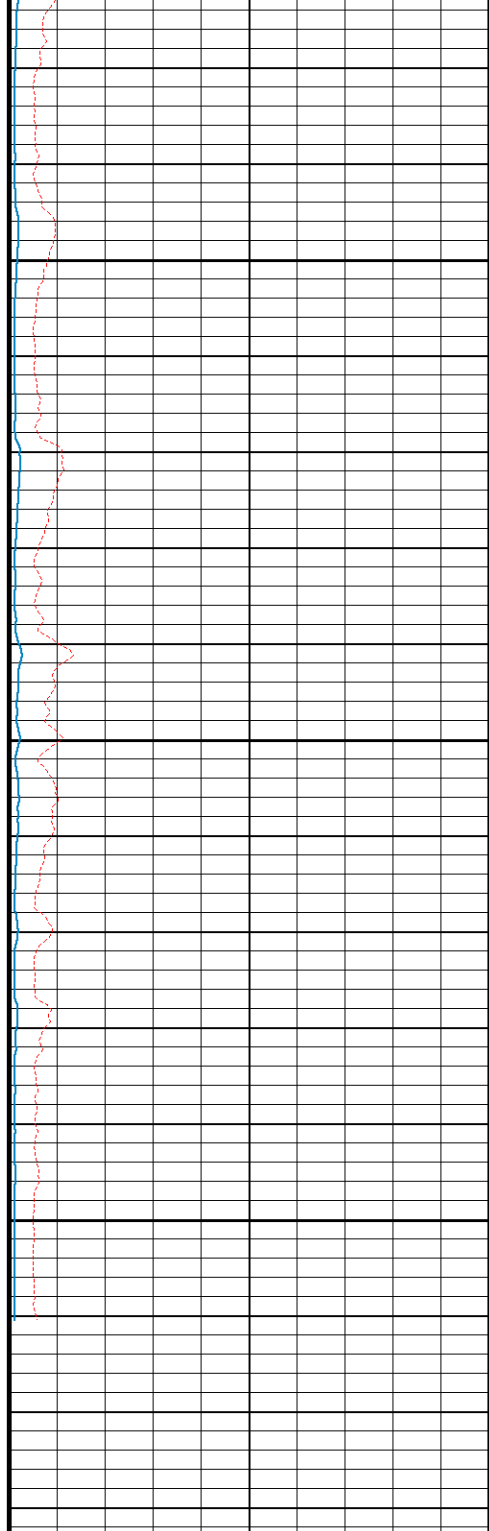
Gamma Ray  
API  
0 75 150

TRAVEL TIME 3FT  
microseconds  
280 230 180

Borehole  
Temp in  
deg F

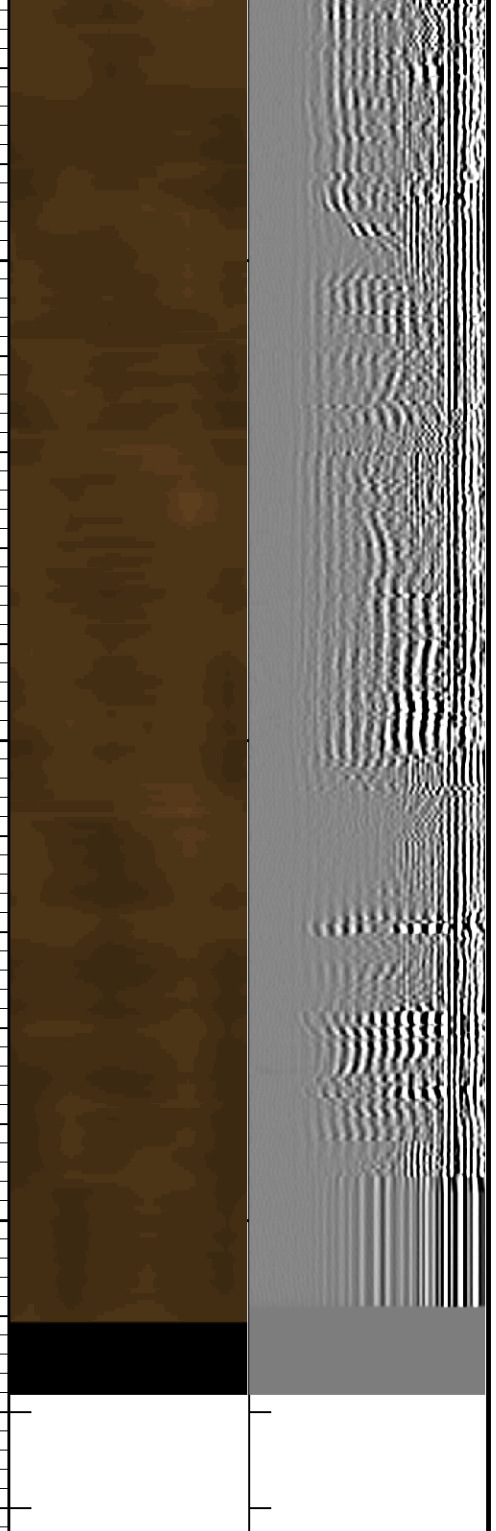
TENS

0 3000



AMPLITUDE 3FT x 5  
millivolts

0 10 20



VARIABLE ENERGY  
millivolts  
0 100

VARIABLE DENSITY 5FT  
microseconds  
-64 64  
200 1200

AMPLITUDE 3FT  
millivolts  
0 50 100

Collar Locator

millivolts

-100100

Replay

Scale

1:240

Depth Based Data - Maximum Sampling Increment 12.5cm

Plotted on 13-SEP-2017 00:14

Filename: C:\Logs\URSA\BMC B 42C-13-07-96\BMC B 42C-13-07-96 CREB SSSB MAIN FINAL.dta

Recorded on 12-SEP-2017 18:35

System Versions: Logged with 17.01.7206

Plotted with 17.01.7206

↑

MAIN PASS

↑

↓

REPEAT PASS

↓

Depth Based Data - Maximum Sampling Increment 12.5cm

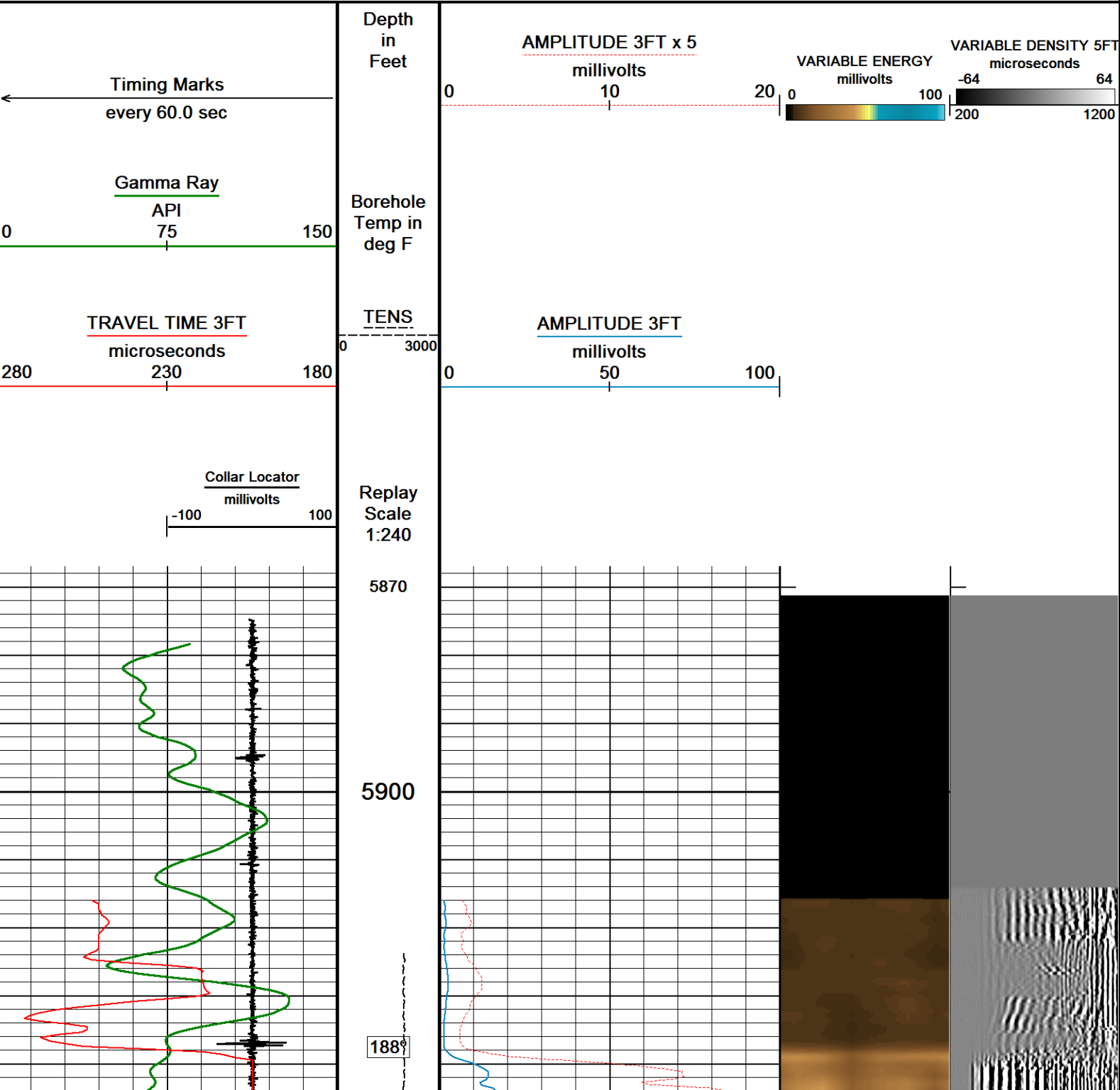
Plotted on 13-SEP-2017 00:14

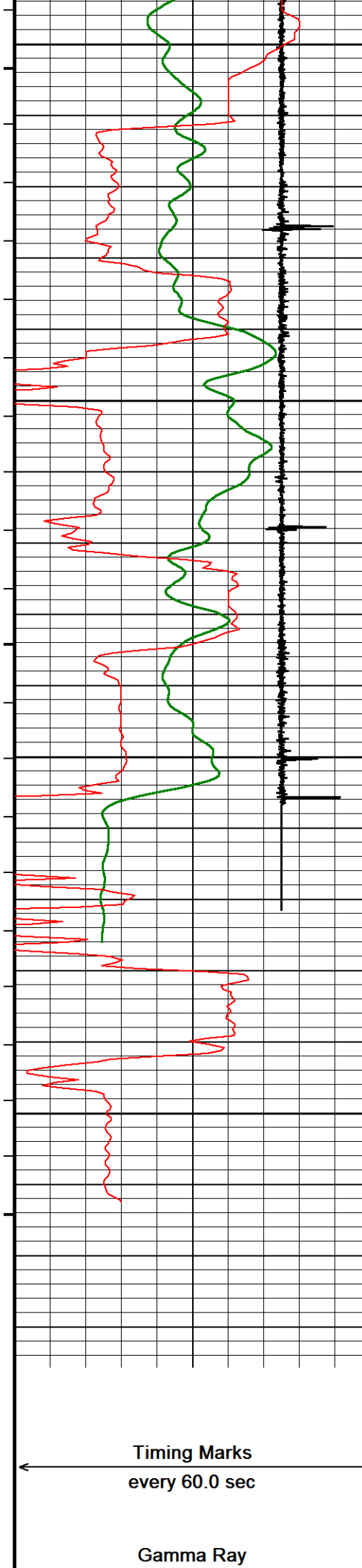
Filename: C:\Logs\URSA\BMC B 42C-13-07-96\BMC B 42C-13-07-96 CREB SSSB REPEAT FINAL.dta

Recorded on 12-SEP-2017 18:52

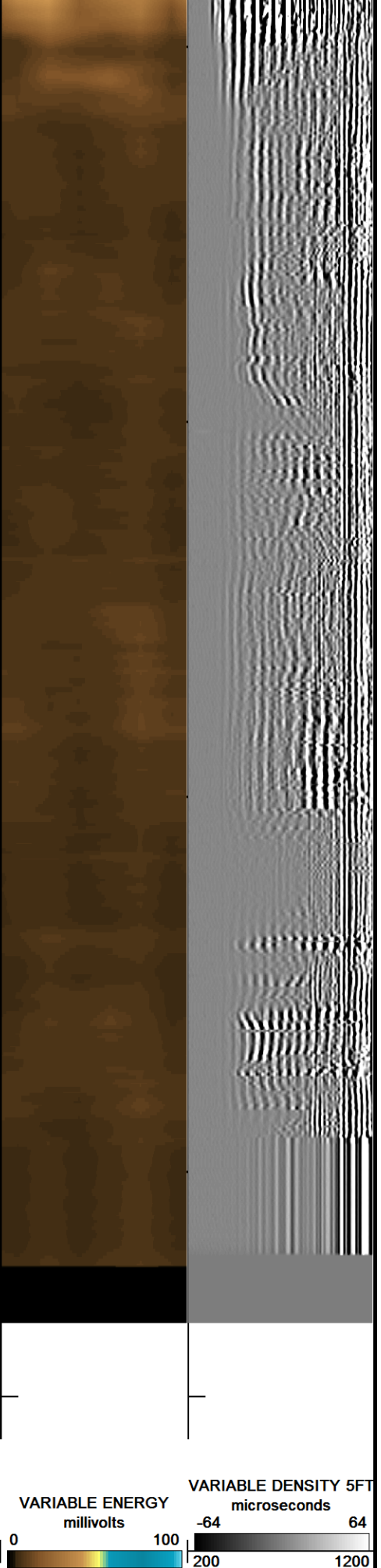
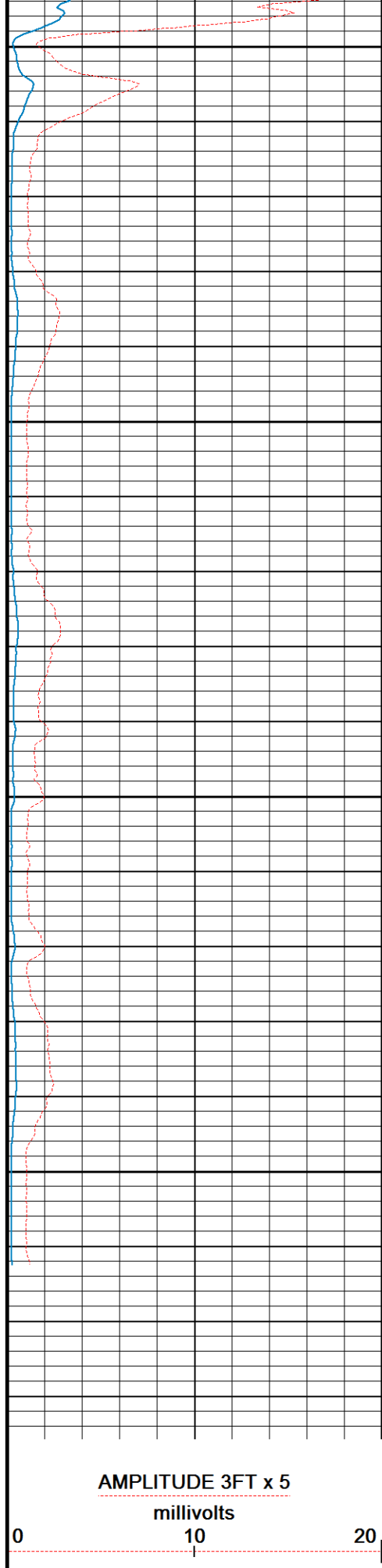
System Versions: Logged with 17.01.7206

Plotted with 17.01.7206

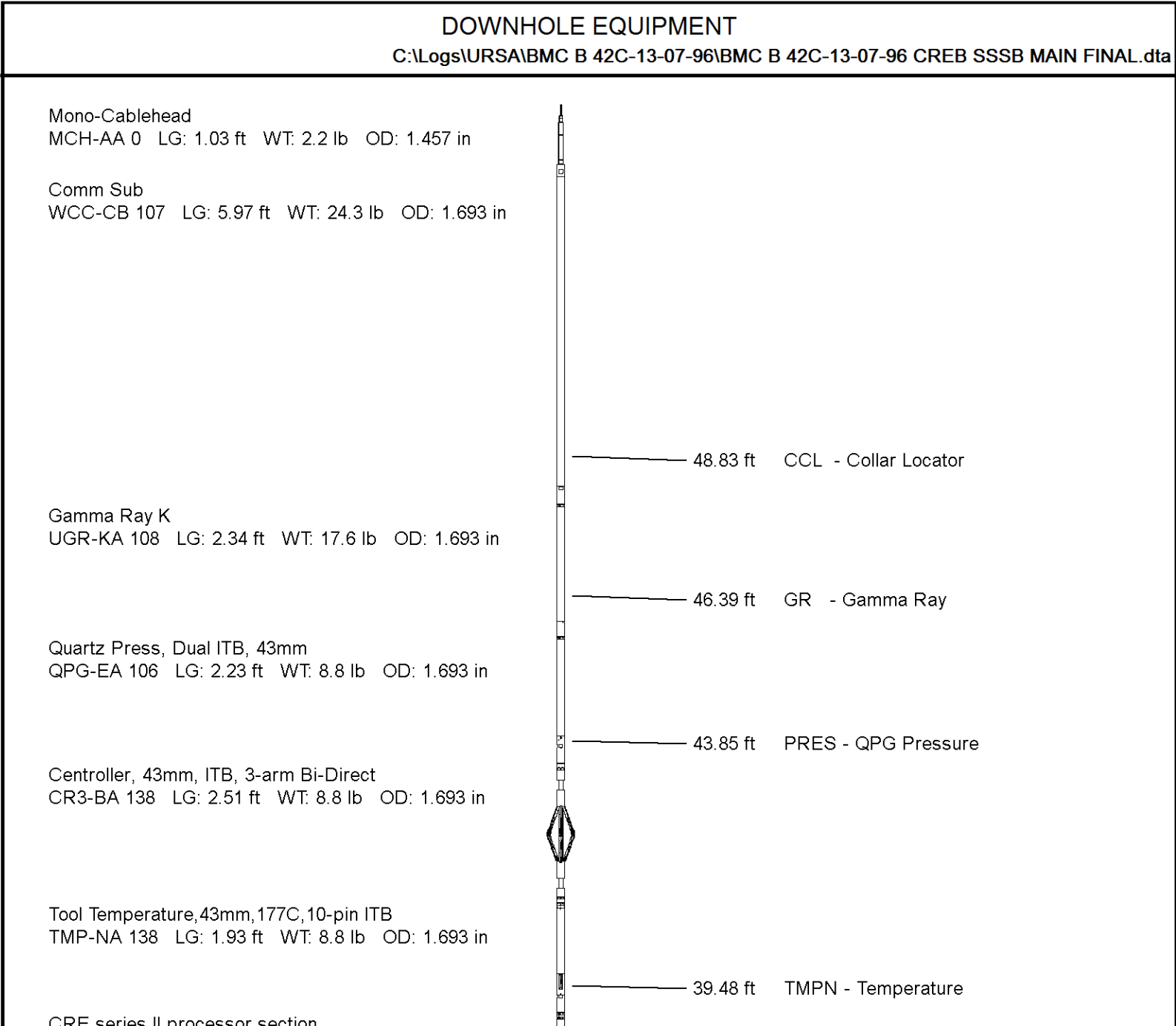
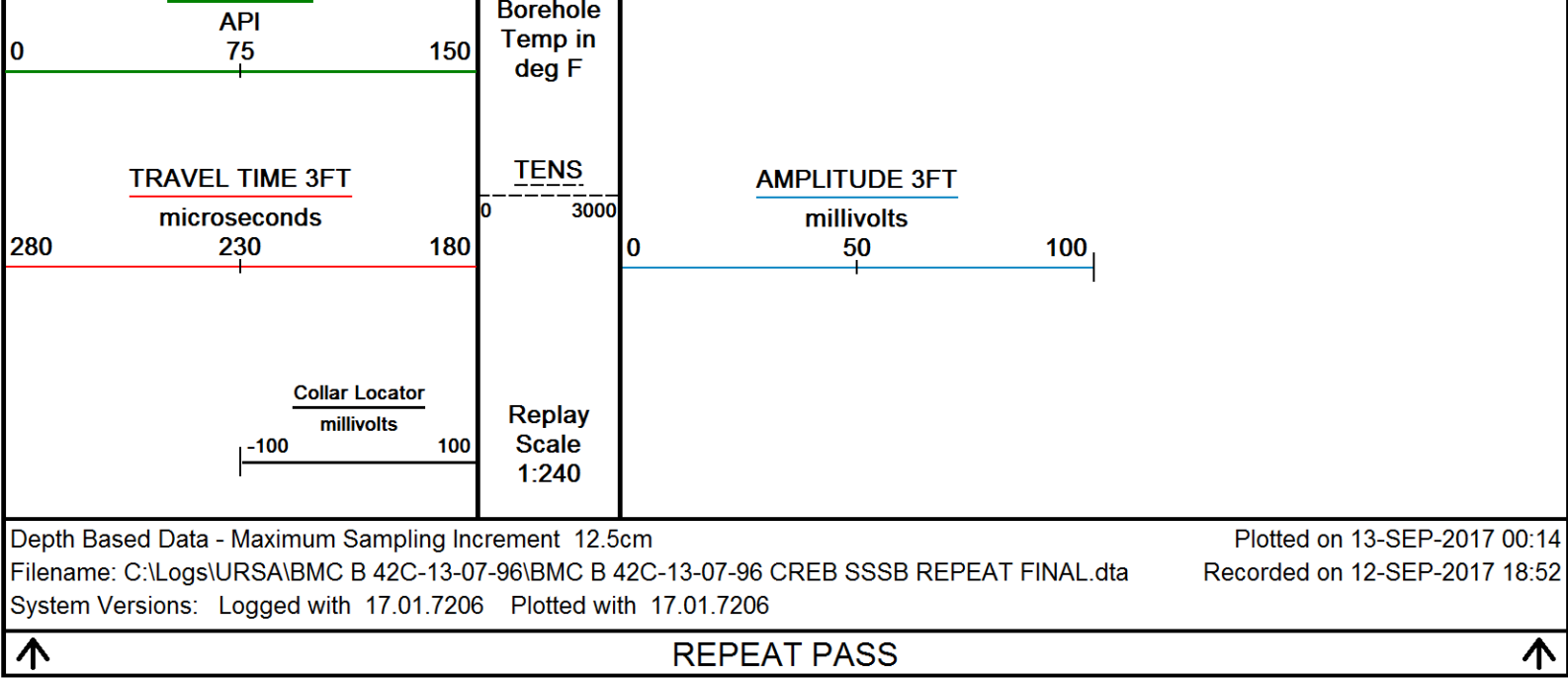




5950  
189°  
6000  
191°  
6050  
6100  
6134  
Depth  
in  
Feet







ORE 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

31.41 ft VC15 - NVis. capt. prox/long  
31.41 ft VB24 - NVis. incl. near/far  
31.41 ft VB15 - NVis. incl prx/long  
31.41 ft VC24 - NVis. capt. near/far  
31.41 ft VRBN - VRBN

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

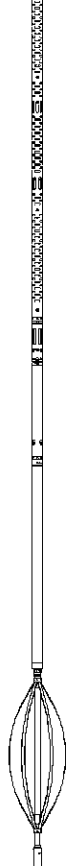
SSB Receiver Sonde  
SSS-BA 117 LG: 8.76 ft WT: 30.9 lb OD: 1.693 in



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

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 42C-13-07-96\BMC B 42C-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  
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
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## 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
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Tool Type: CCK KA  
Calibrator No: 101

Serial No: 152

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	2.10
	Free Pipe	81.00	3972.30
AMP 5FT	100% Bond	0.40	1.10
	Free Pipe	54.00	2846.30
1 SECTOR AMP	100% Bond	5.00	4.60
	Free Pipe	95.00	1444.10
2 SECTOR AMP	100% Bond	5.00	5.10
	Free Pipe	95.00	1252.40
3 SECTOR AMP	100% Bond	5.00	0.10
	Free Pipe	95.00	1271.20
4 SECTOR AMP	100% Bond	5.00	1.50
	Free Pipe	95.00	939.30
5 SECTOR AMP	100% Bond	5.00	1.30
	Free Pipe	95.00	926.50
6 SECTOR AMP	100% Bond	5.00	0.80
	Free Pipe	95.00	1295.00

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  
Cement Weight

0.00 LB/G  
0.00 LB/G

COMPANY	URSA OPERATING COMPANY
WELL	BMC B 42C-13-07-96
FIELD	WILDCAT
PROVINCE/COUNTY	GARFIELD
COUNTRY/STATE	USA / COLORADO

Elevation Kelly Bushing	5117	feet	Bottom Log Interval	6120.00	feet
Elevation Drill Floor	5117	feet	Depth Driller	6604.00	feet
Elevation Ground Level	5100	feet	Depth Logger	6120.00	feet



SLIM SECTOR BOND LOG

**Weatherford®**