
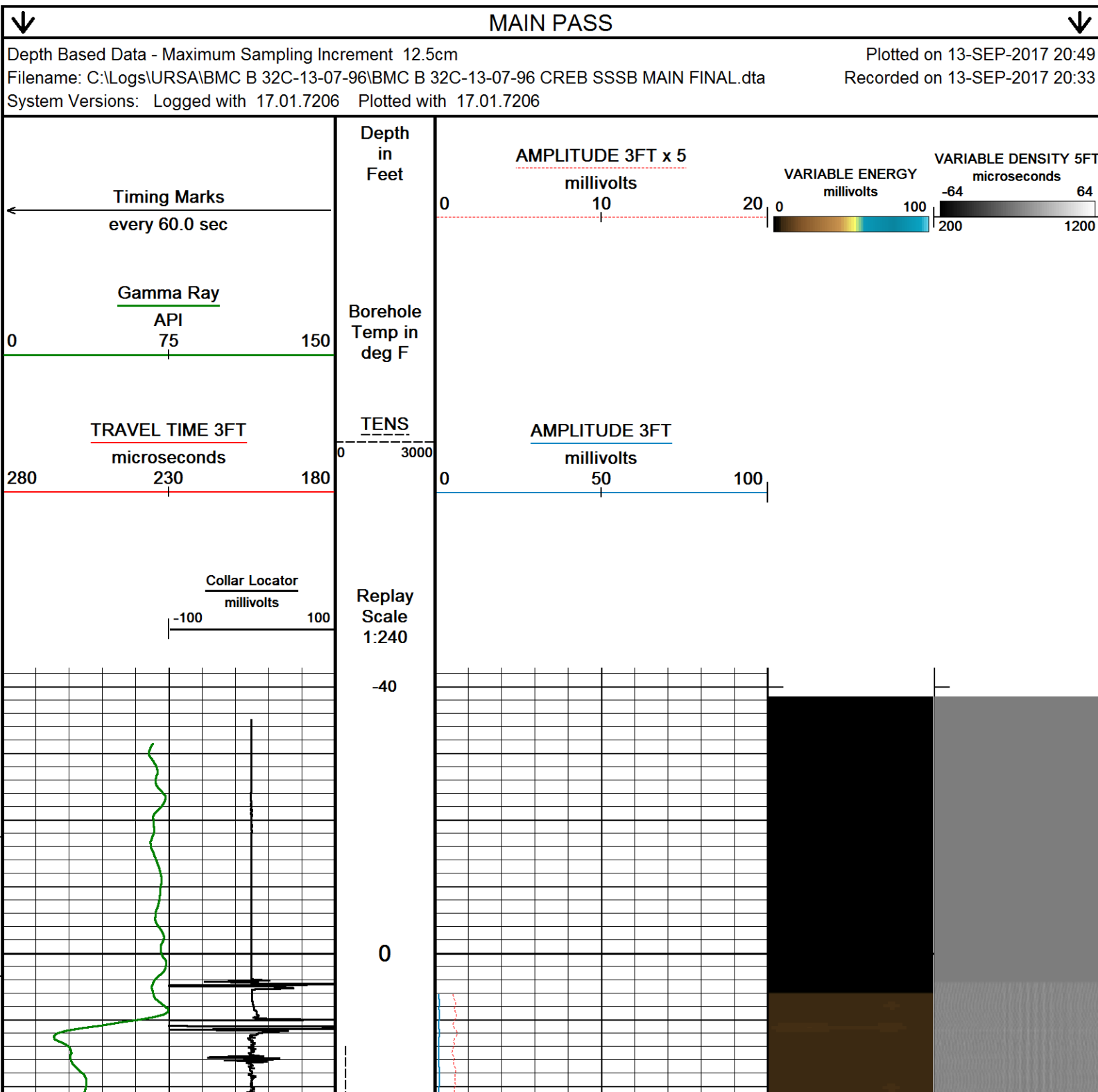


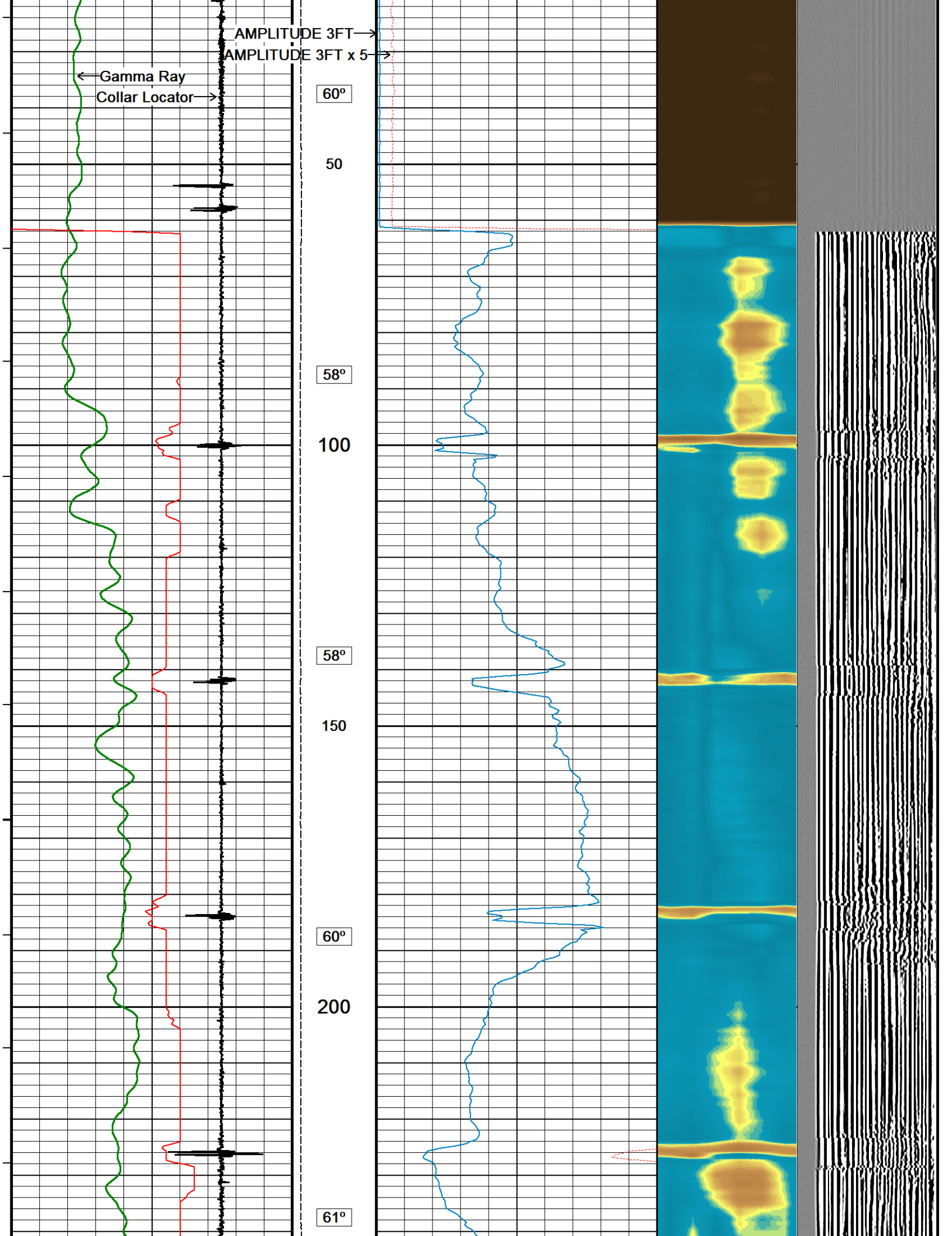
| | | | | | | | |
|--|---------------|--------------|----------------|------------------------|-----------|------------|----------|
|  | | | | SLIM SECTOR BOND LOG | | | |
| COMPANY | | | | URSA OPERATING COMPANY | | | |
| WELL | | | | BMC B 32C-13-07-96 | | | |
| FIELD | | | | WILDCAT | | | |
| PROVINCE/COUNTY | | | | GARFIELD | | | |
| COUNTRY/STATE | | | | USA / COLORADO | | | |
| LOCATION | | | | 2238' FNL & 0607' FWL | | | |
| SEC 18 | TWP 7S | RGE 95W | Other Services | | | | |
| Latitude | | CREB | | | | | |
| Longitude | | | | | | | |
| API Number | | 05-045-23485 | | | | | |
| Permanent Datum GROUND LEVEL, Elevation 5100 feet | | | | Elevations: | | | |
| Log Measured From KB, 17.00 feet above Permanent Datum | | | | KB 5117.00 | | | |
| Drilling Measured From KB | | | | DF 5117.00 | | | |
| | | | | GL 5100.00 | | | |
| Date | 13-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 | 7243.00 | | | | | | |
| Depth Logger | 6734.00 | | | | | | |
| Top Log Interval | 0.00 | | | | | | |
| Bottom Log Interval | 6734.00 | | | | | | |
| Hole Fluid Type | WATER | | | | | | |
| Hole Fluid Level | 0.00 | | | | | | |
| Restriction ID | 3.875 | | | Gun Type | | | |
| Max Recorded Temp | 191.00 | | | Gun Size | | | |
| Well Head Pressure | 0.00 | | | 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 | 7243.00 |
| Equipment Name | WSS-E | | | | | | |
| Base | CASPER | | | | | | |
| Recorded By | P. MAZUR | | | | | | |
| Witnessed By | NOT WITNESSED | | | | | | |

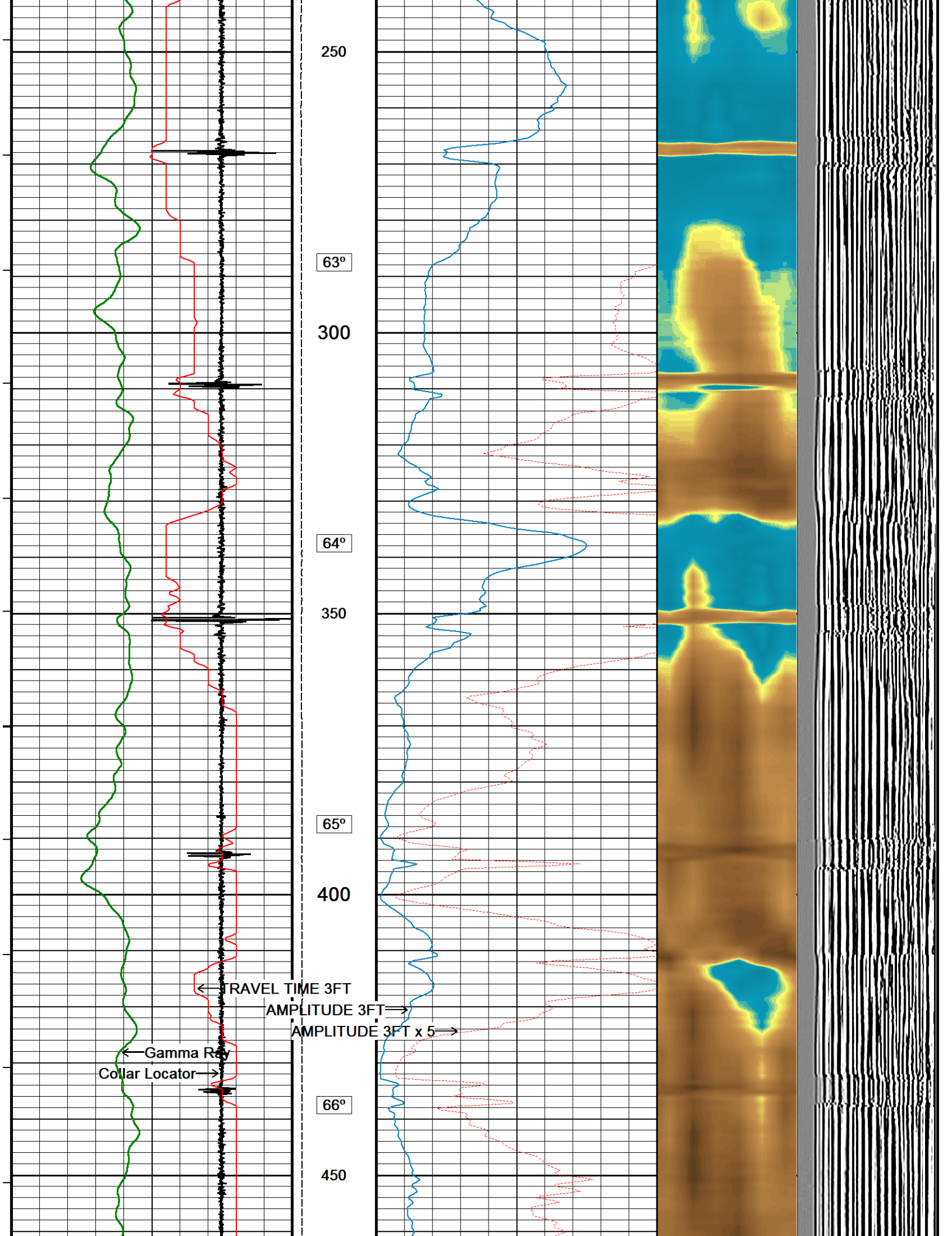
| CASING / TUBING RECORD | | | | | | |
|------------------------|-------|-----------|----------------|--------------------|--------------------|---------------------|
| Type | Grade | TypeJoint | Size inches | Depth From feet | Shoe Depth feet | Weight pounds/ft |
| SURFACE | | | 8.625 | 0.00 | 1700.00 | 32.00 |
| PRODUCTION | | | 4.500 | 0.00 | 7243.00 | 11.60 |

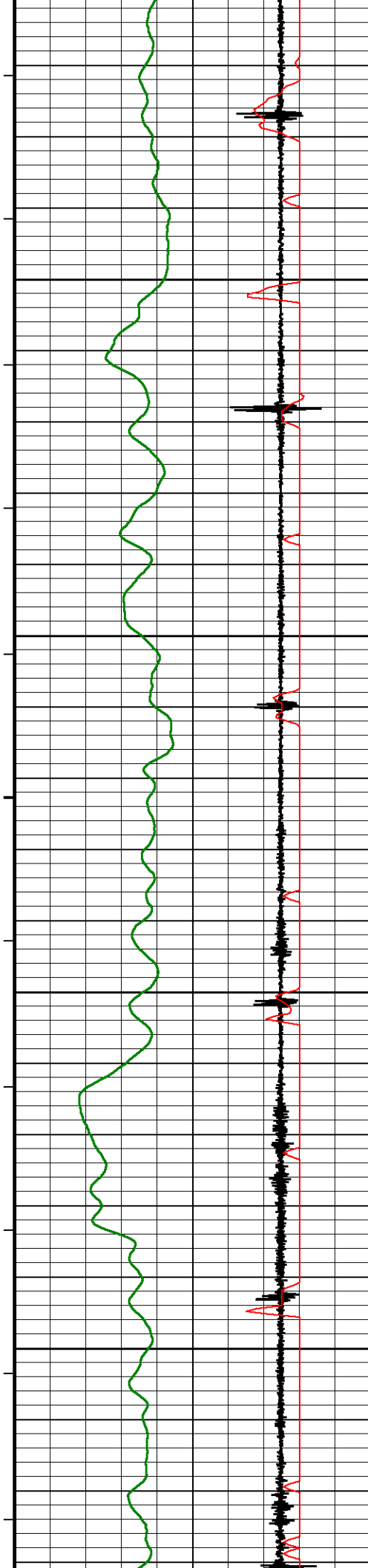
| REMARKS |
|---|
| SOFTWARE VERSION 17.01.7206 - COMMERCIAL VERSION |
| ALL DEPTH CONTROL PROCEDURES FOR SUBSEQUENT RUN IN HOLE WERE FOLLOWED. LOG RUN FROM 17' K.B. |
| SURFACE SYSTEM USED: WCM-D 160 |
| TOOLS RUN: WCCC, UGRK, QPGE, CR3B, TMPN, CRPB, CRMB, CR3B, UGRK, SUEC, SSSB, STEB, CENA WERE RAN 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 175 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. 194F |

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.









67°

500

68°

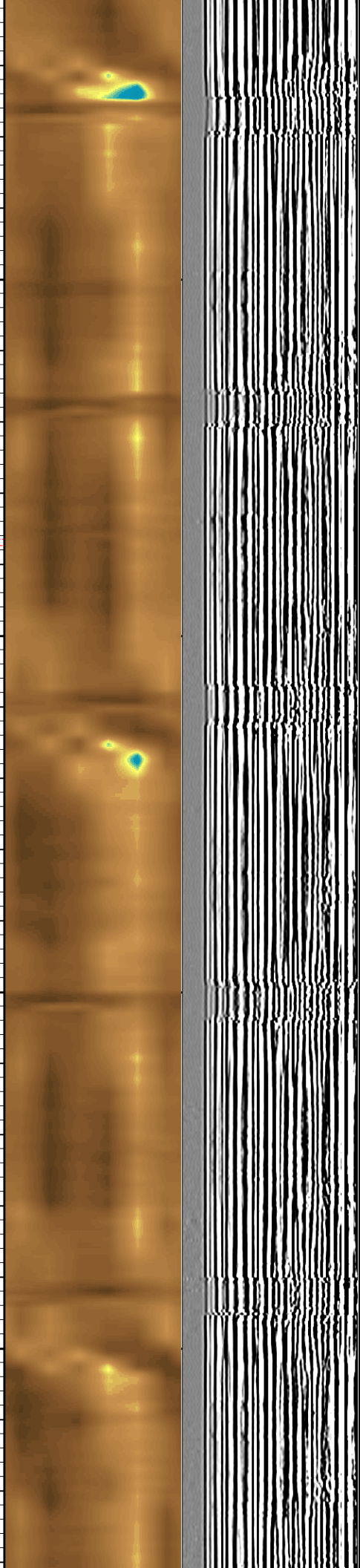
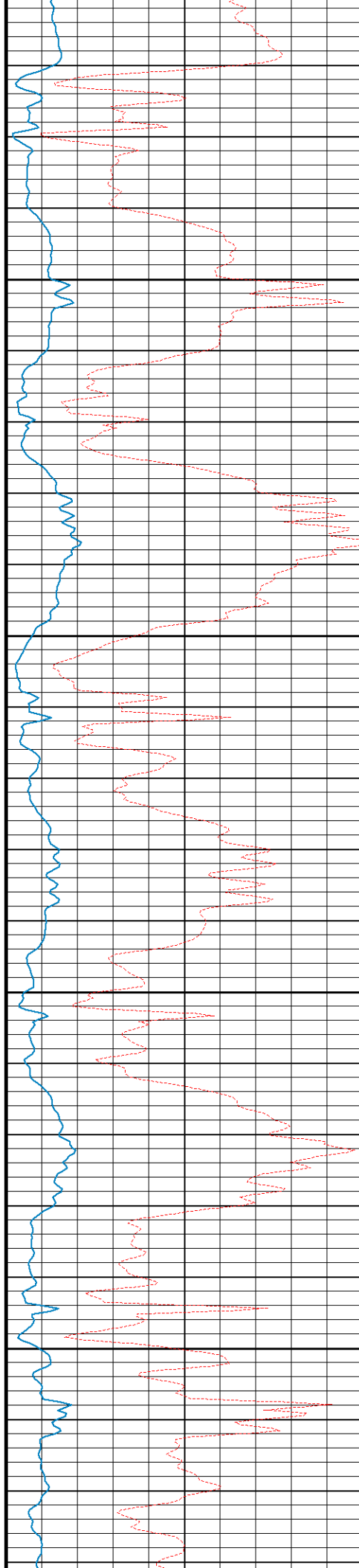
550

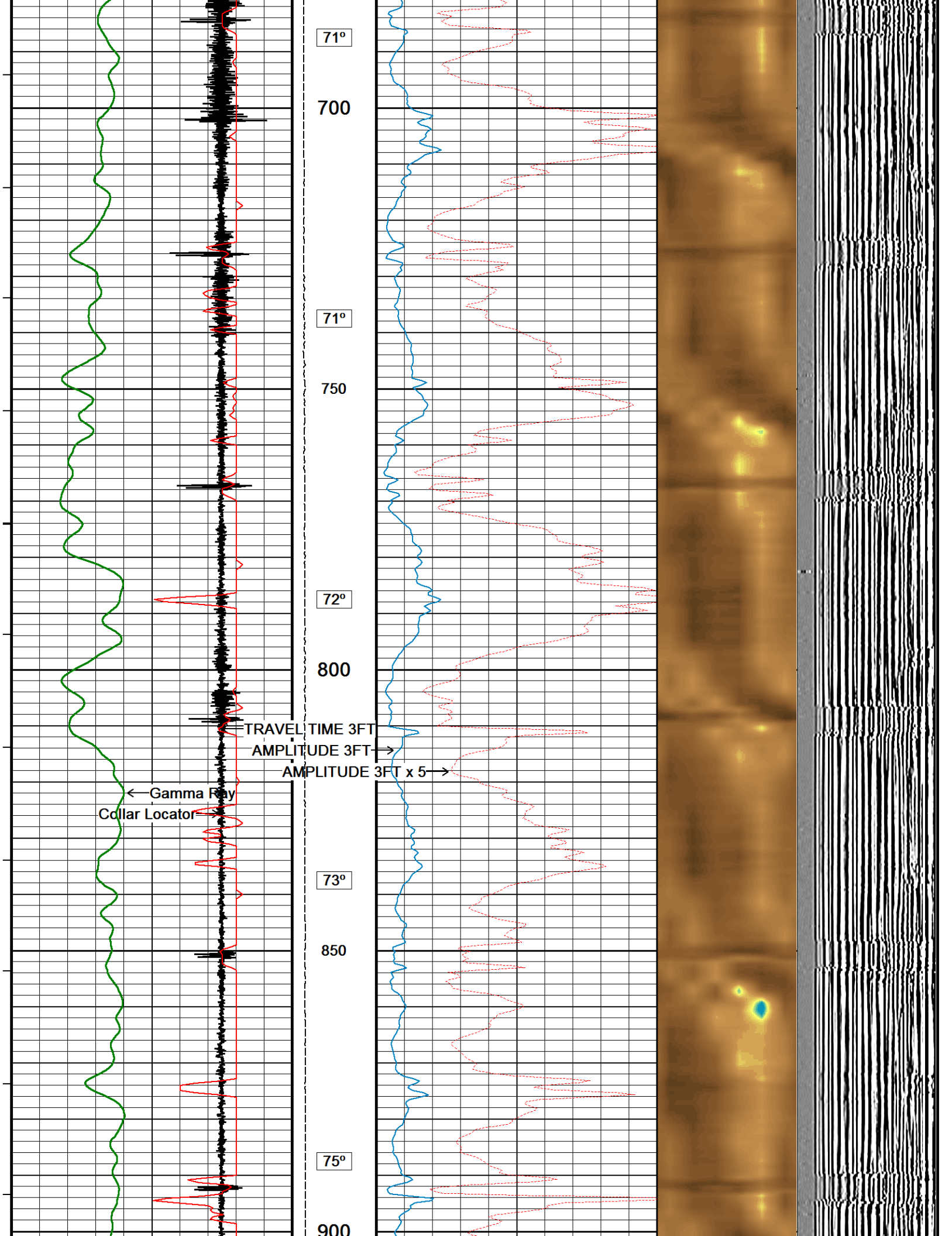
69°

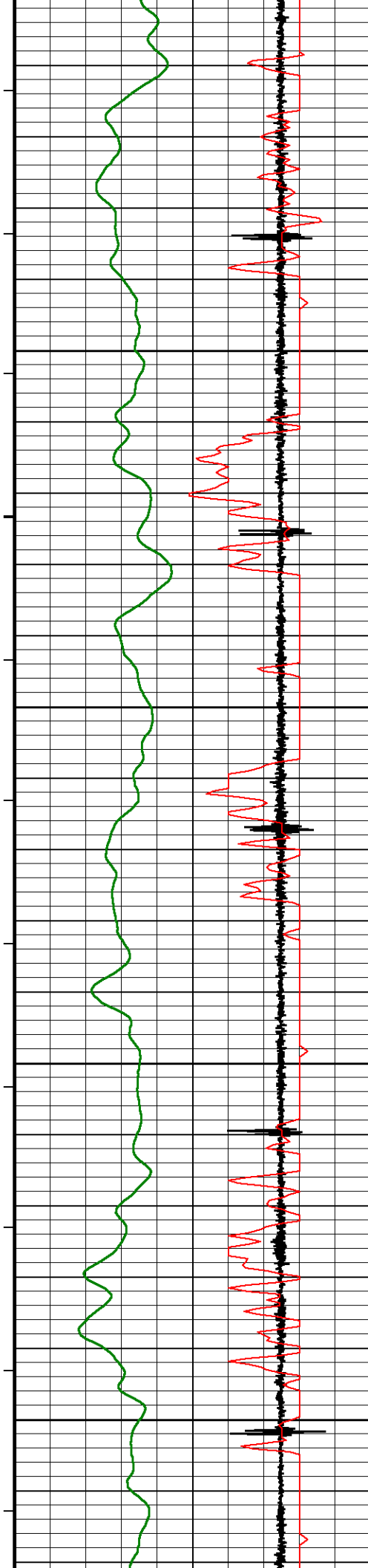
600

70°

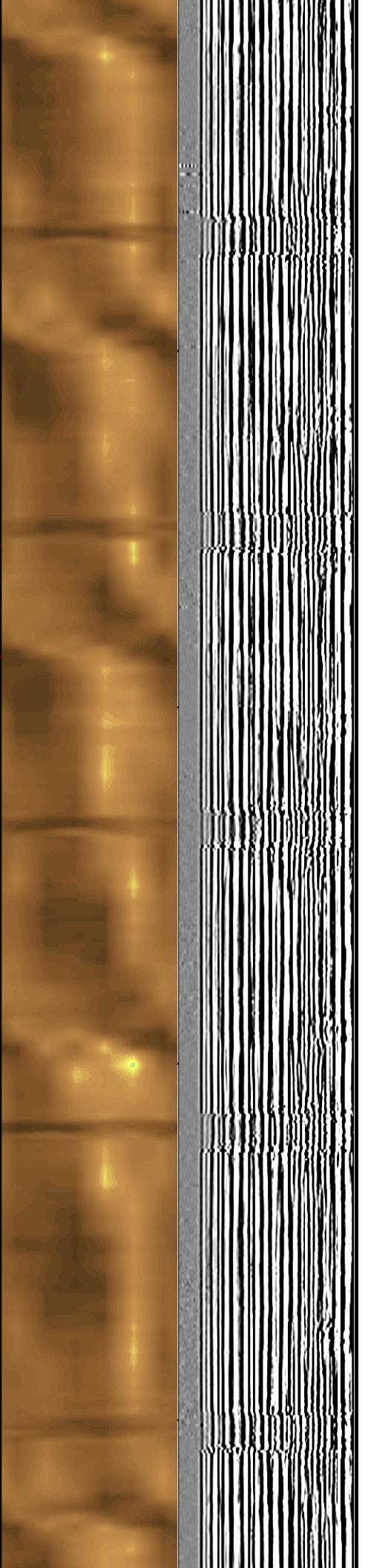
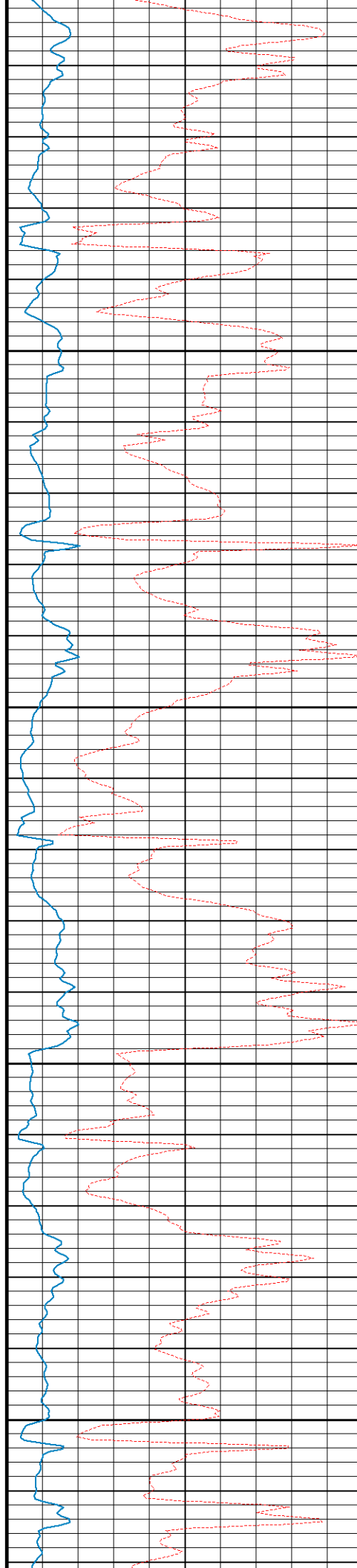
650

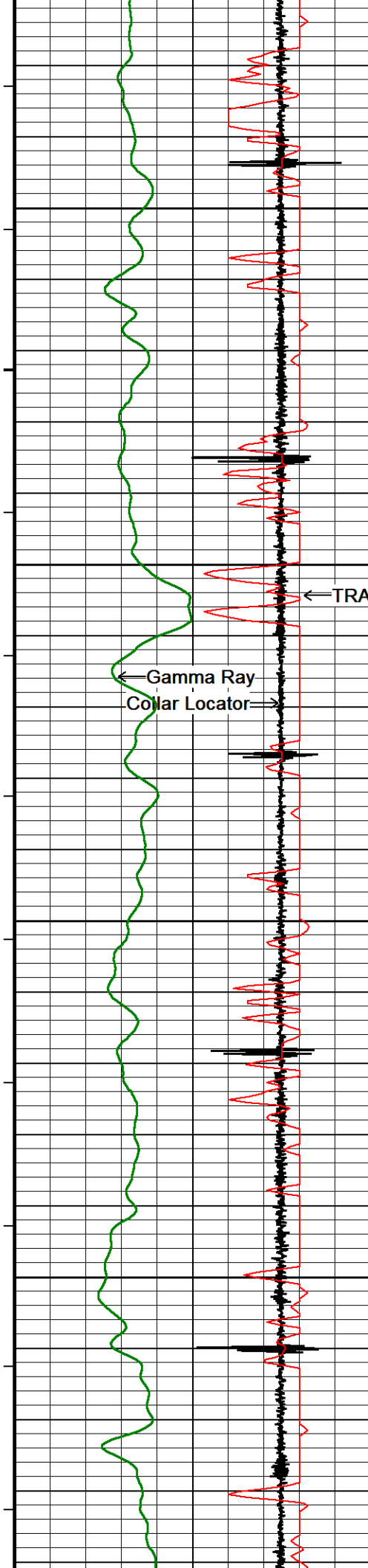






800
76°
950
77°
1000
78°
1050
79°
1100





80°

1150

81°

1200

← TRAVEL TIME 3FT
AMPLITUDE 3FT →

← Gamma Ray
Collar Locator →

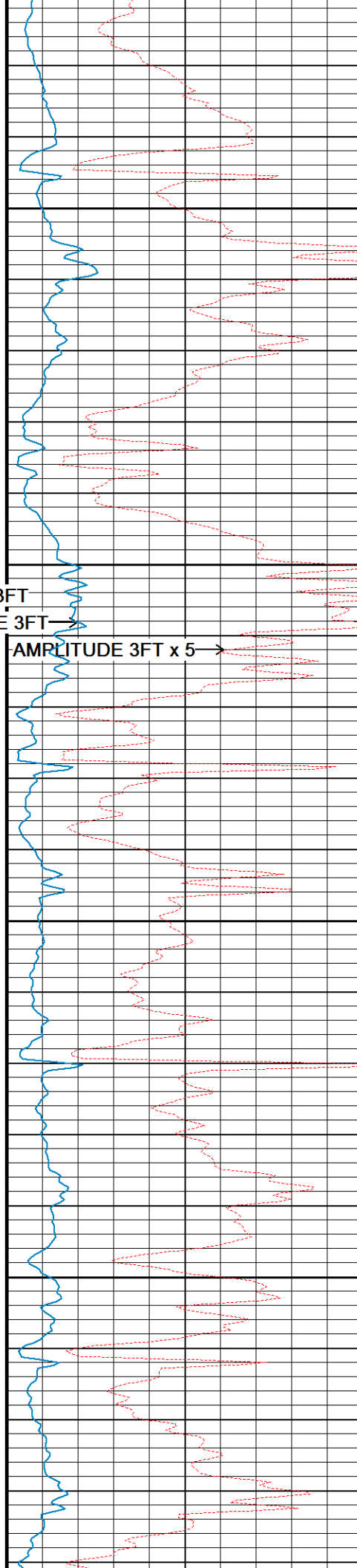
82°

1250

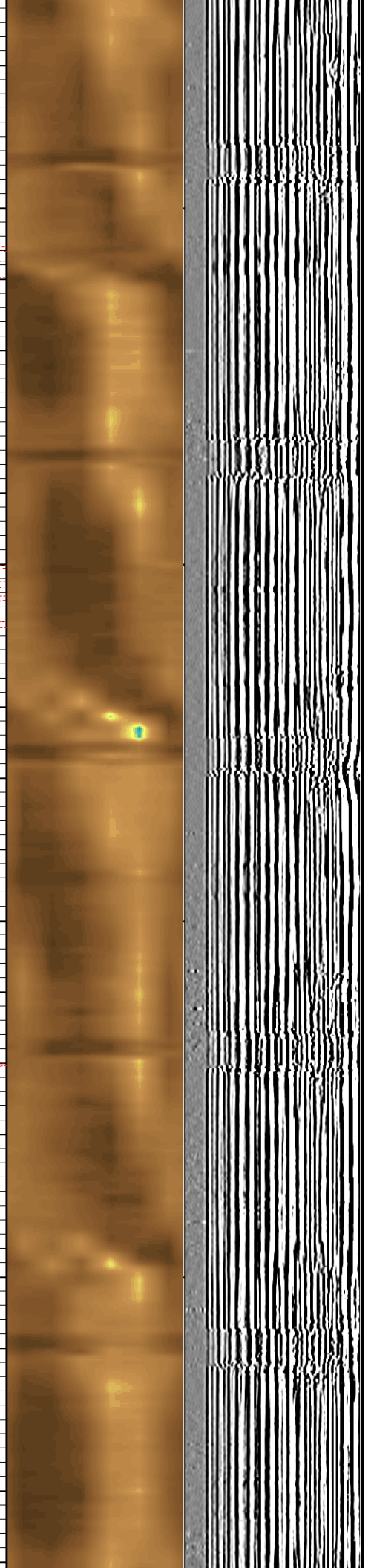
83°

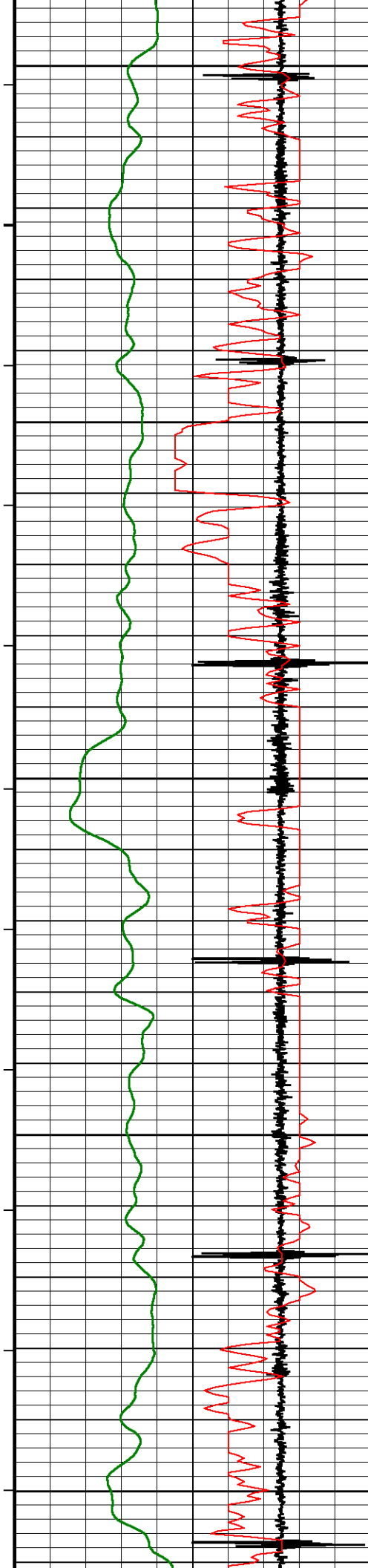
1300

84°



AMPLITUDE 3FT x 5 →





1350

85°

1400

86°

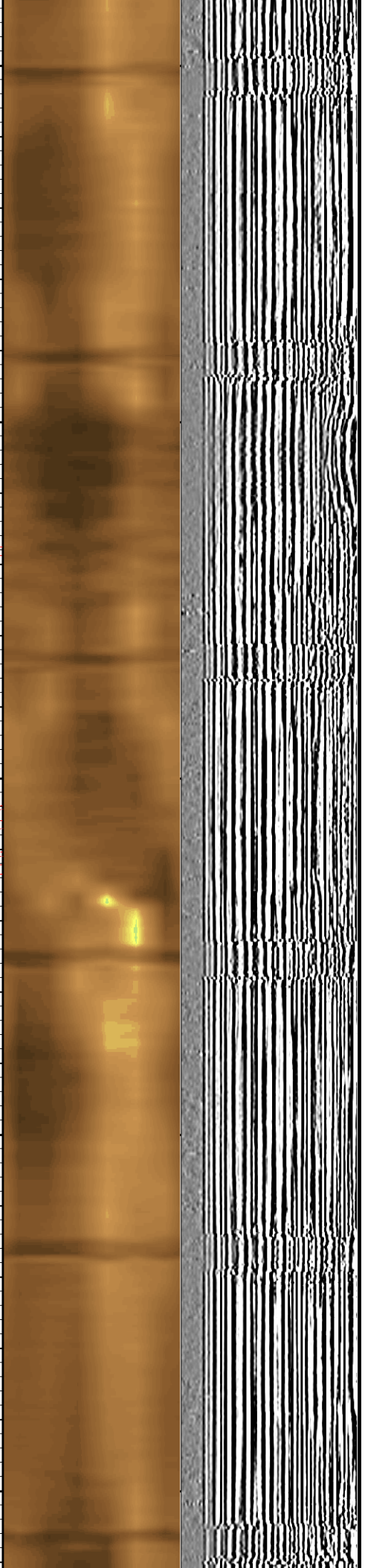
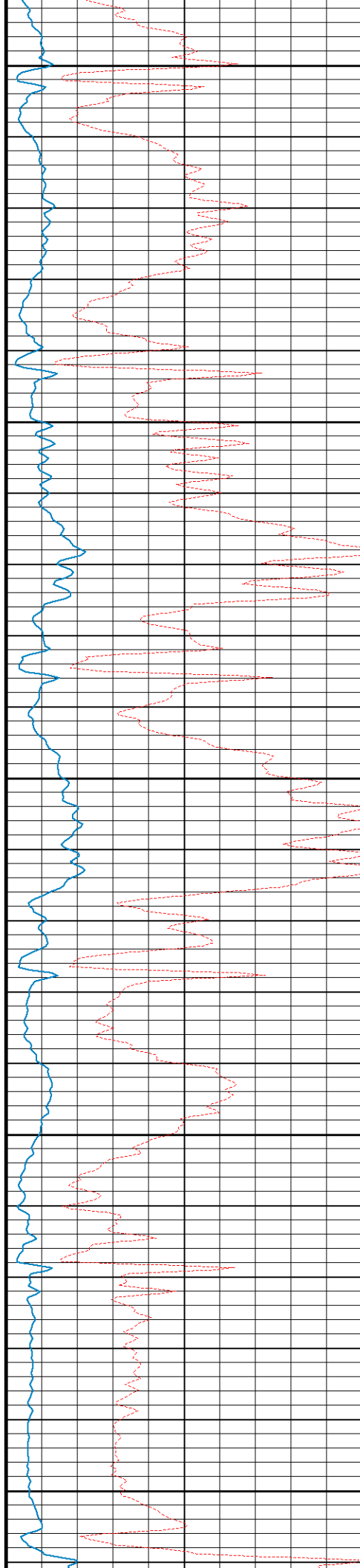
1450

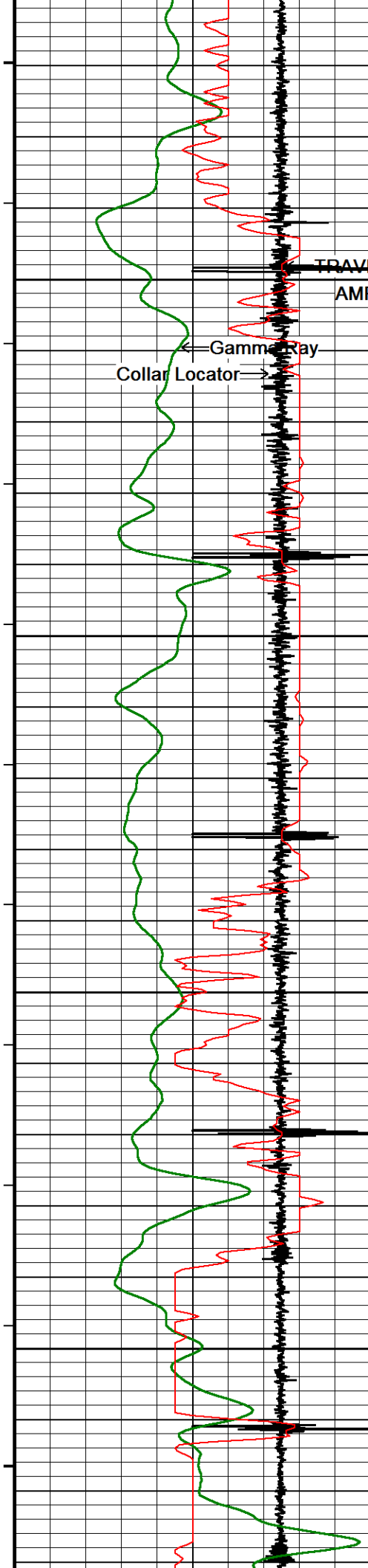
86°

1500

87°

1550





88°

TRAVEL TIME 3FT

AMPLITUDE 3FT

← Gamma Ray
Collar Locator →

89°

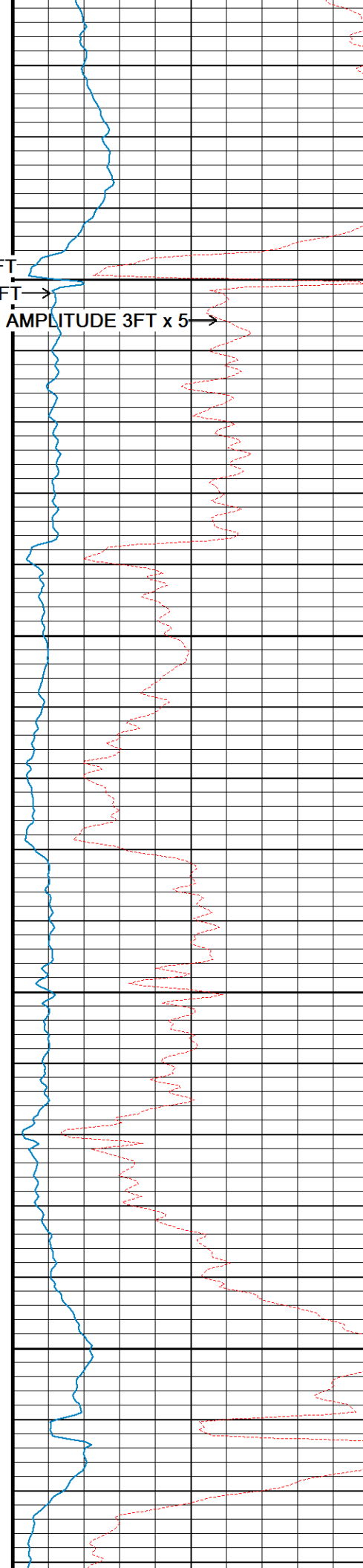
1650

90°

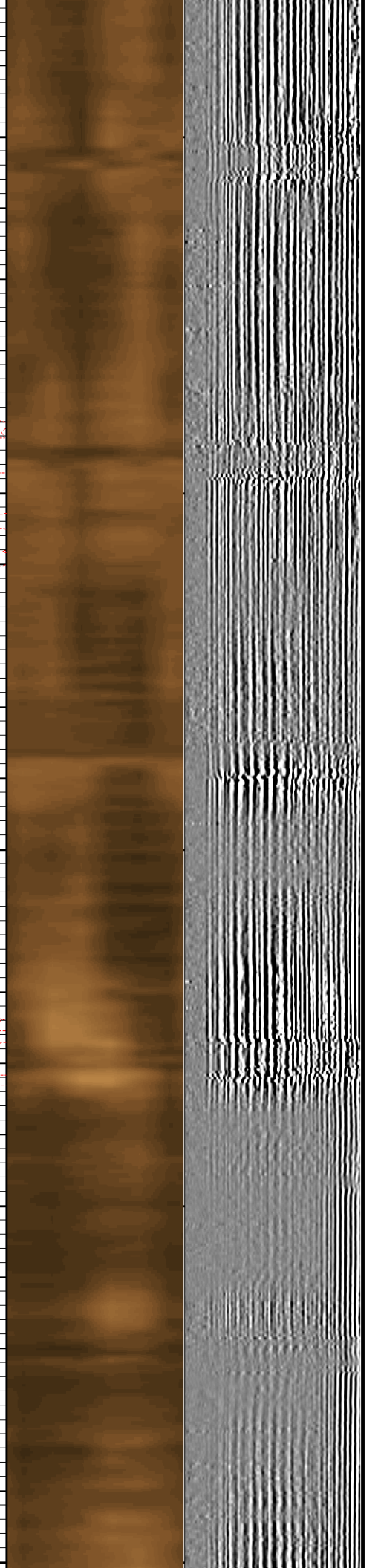
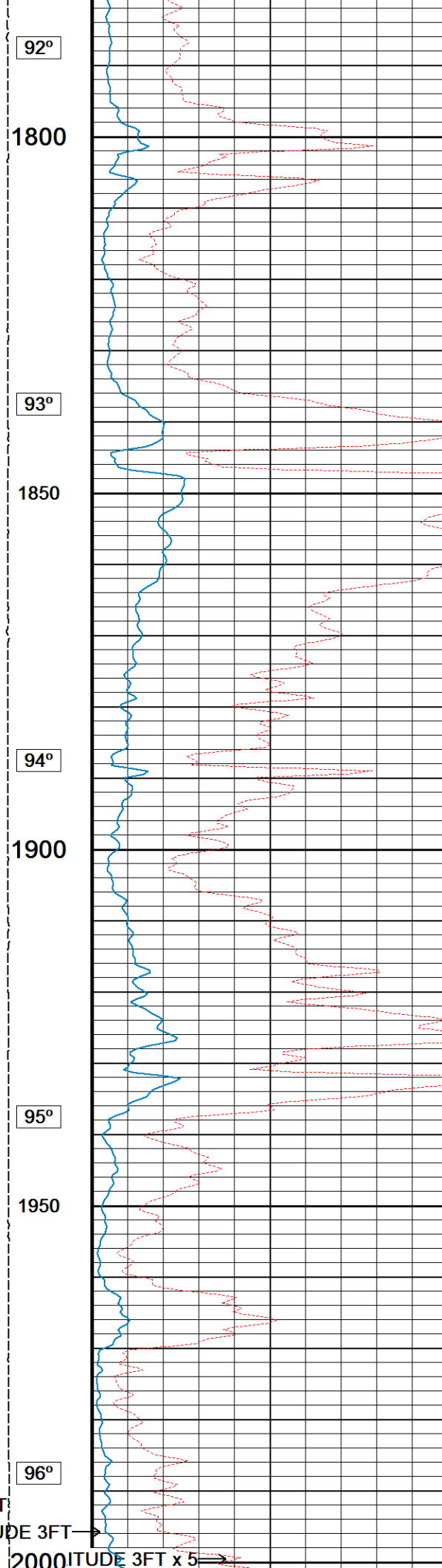
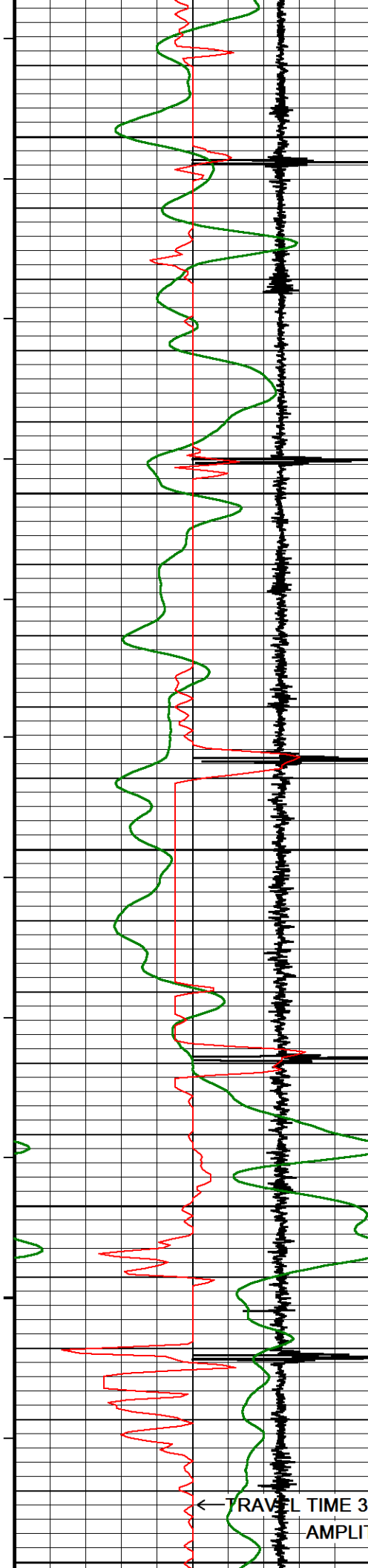
1700

91°

1750



AMPLITUDE 3FT x 5



92°

1800

93°

1850

94°

1900

95°

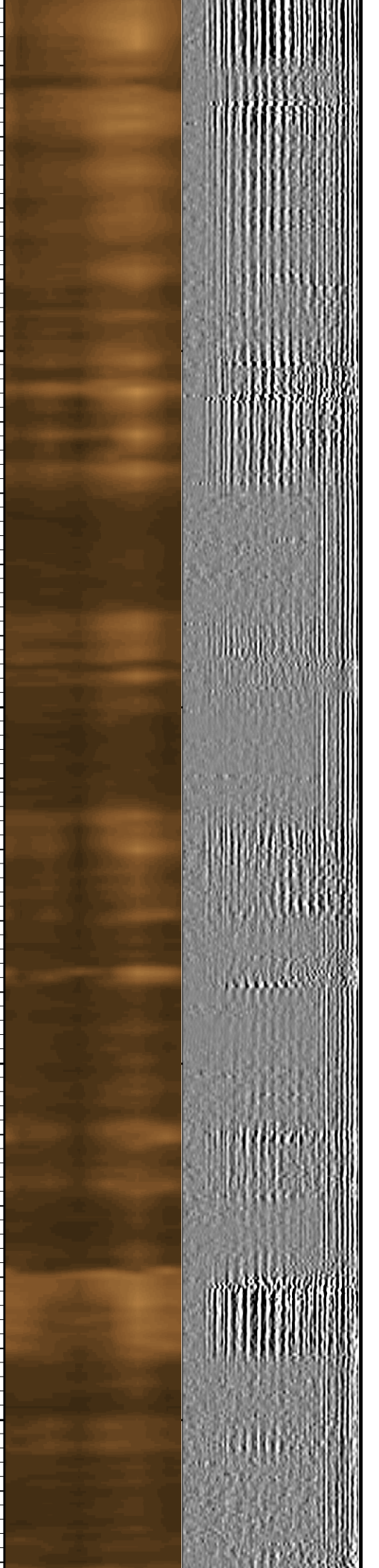
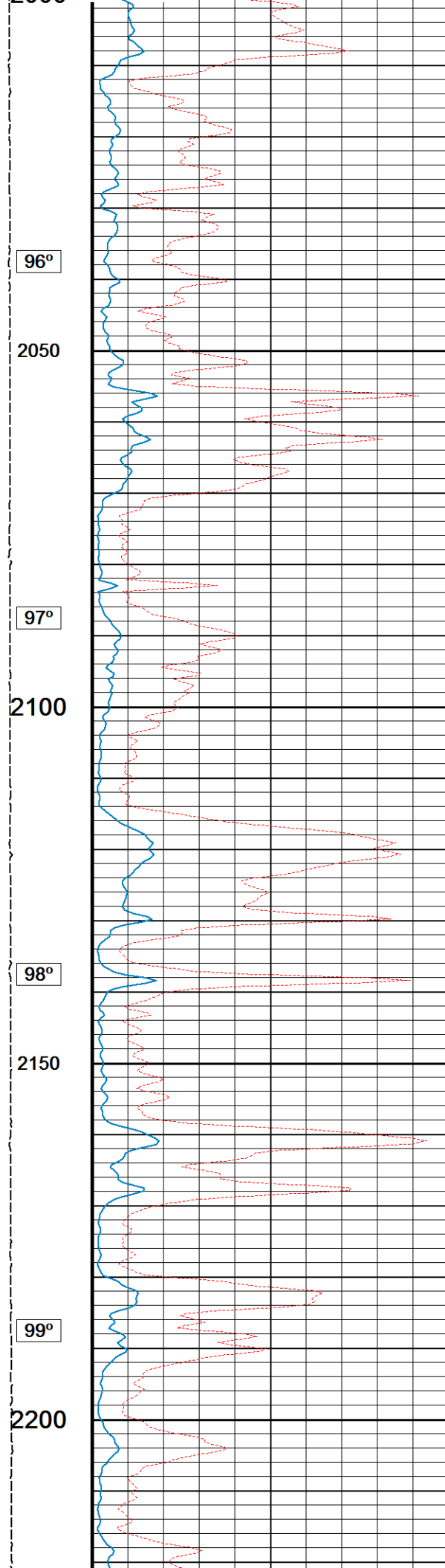
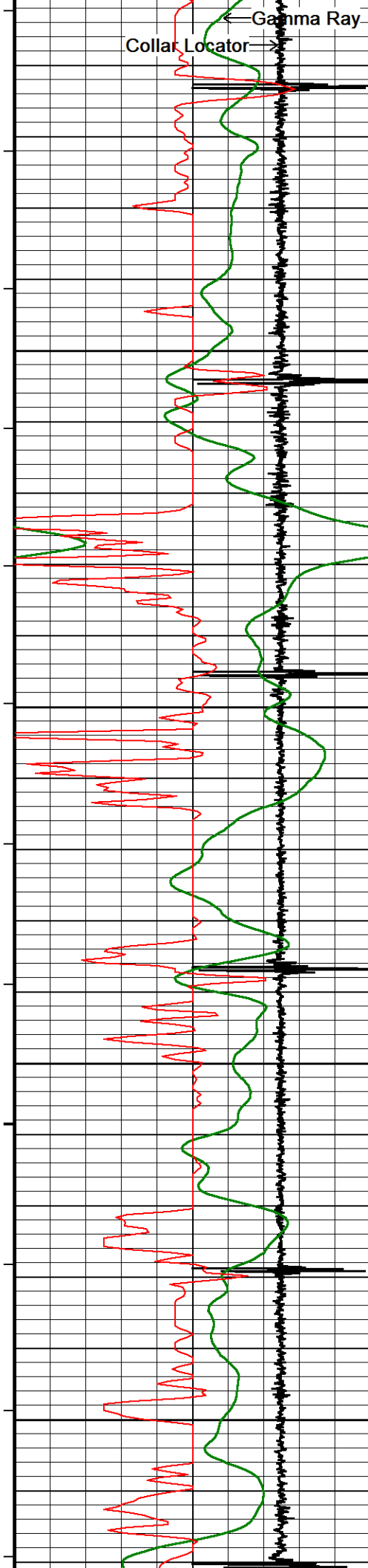
1950

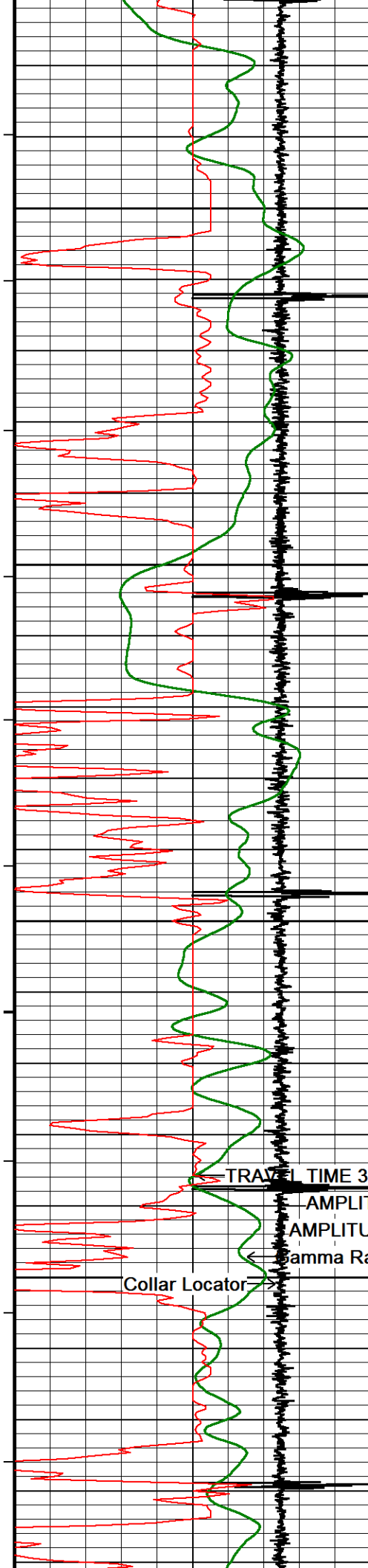
96°

← TRAVEL TIME 3FT

AMPLITUDE 3FT →

2000ITUDE 3FT x 5 →





100°

2250

100°

2300

101°

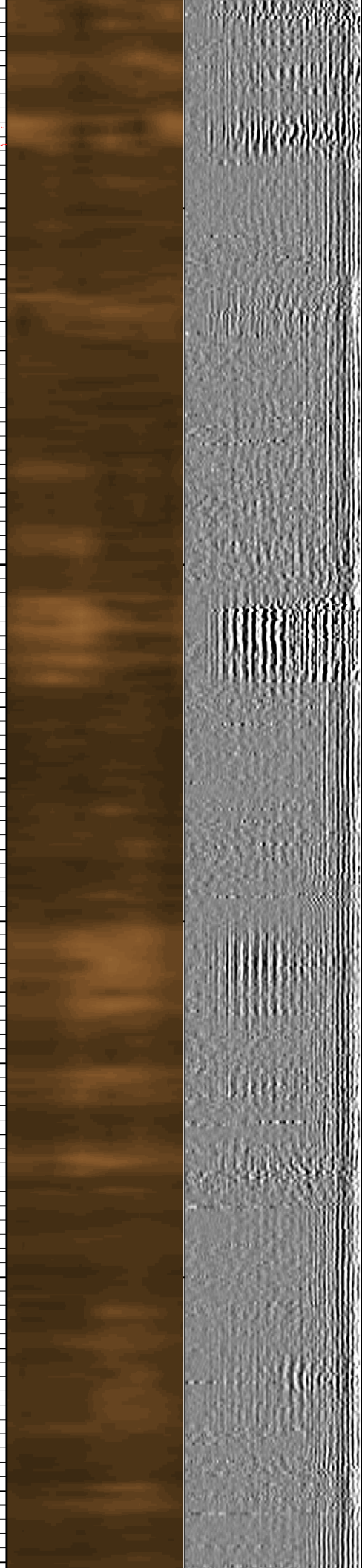
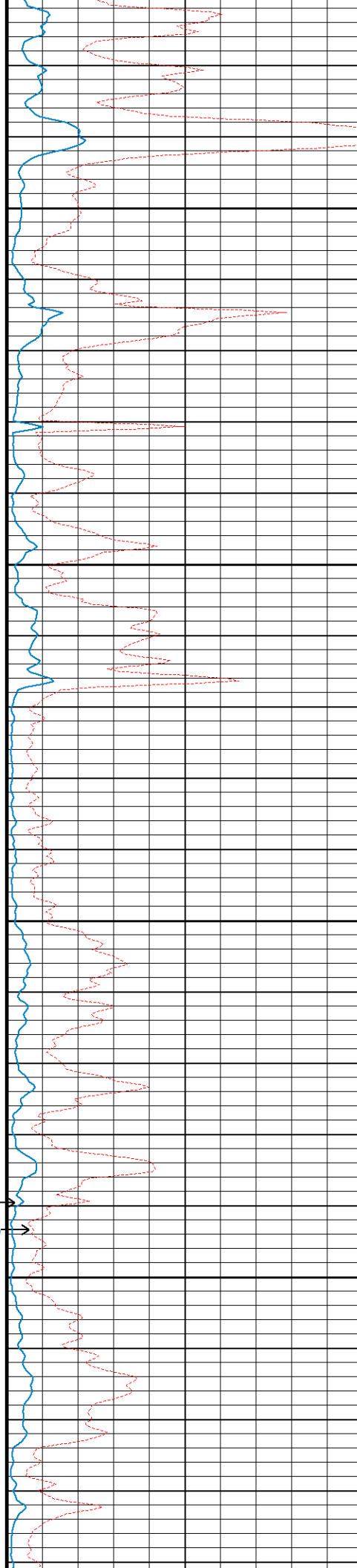
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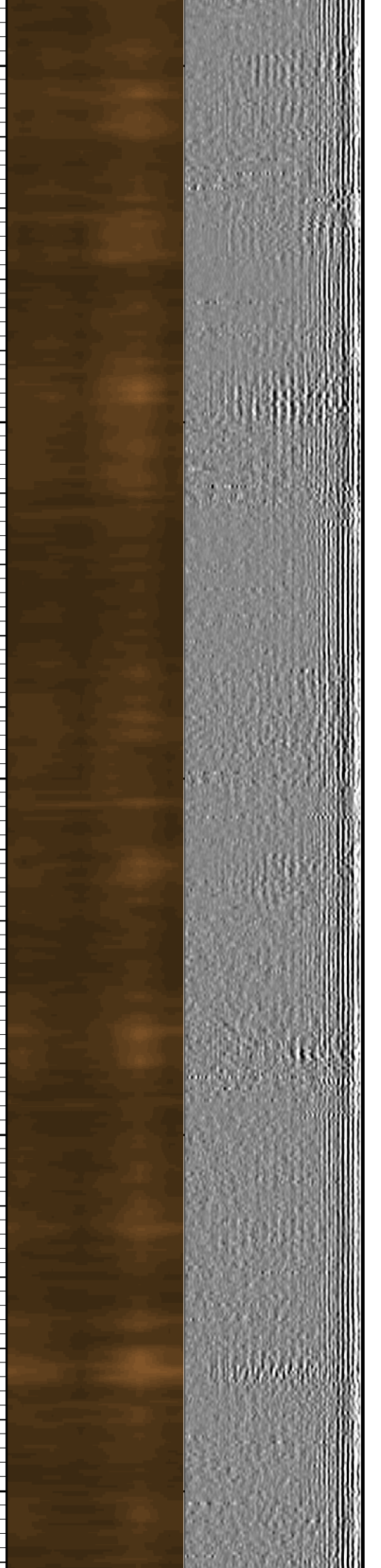
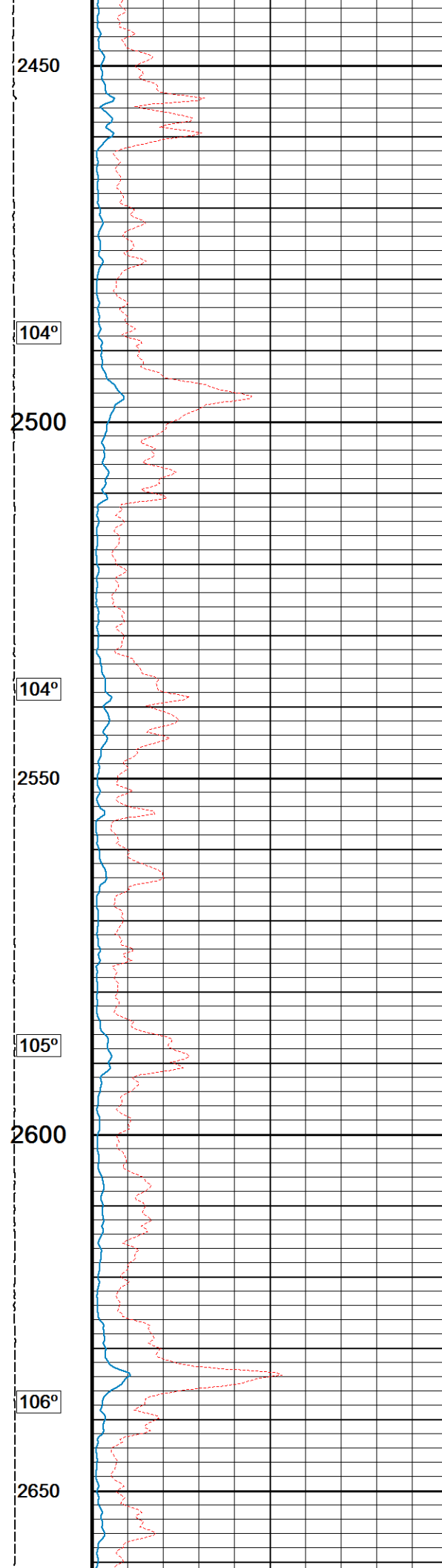
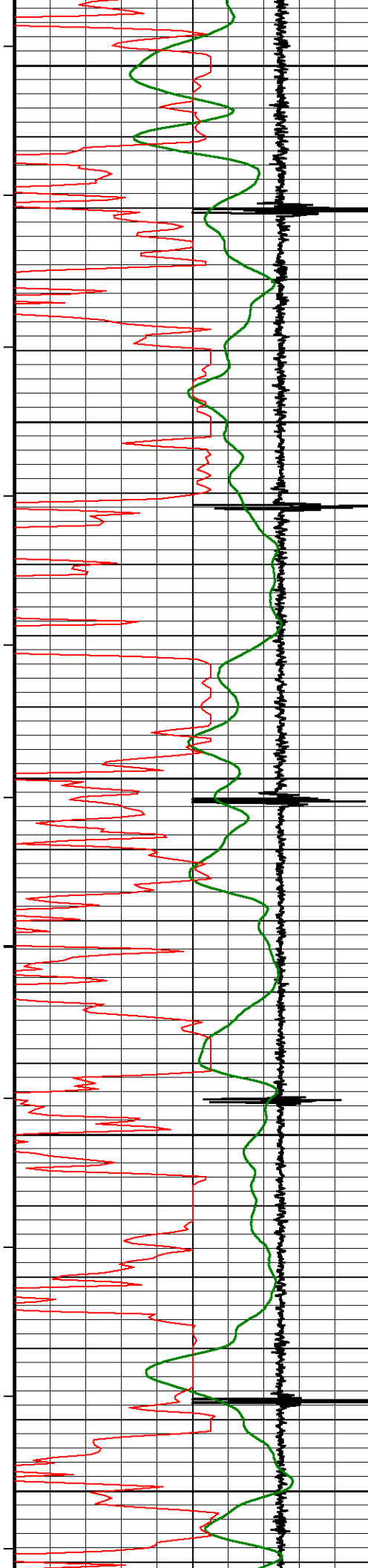
102°

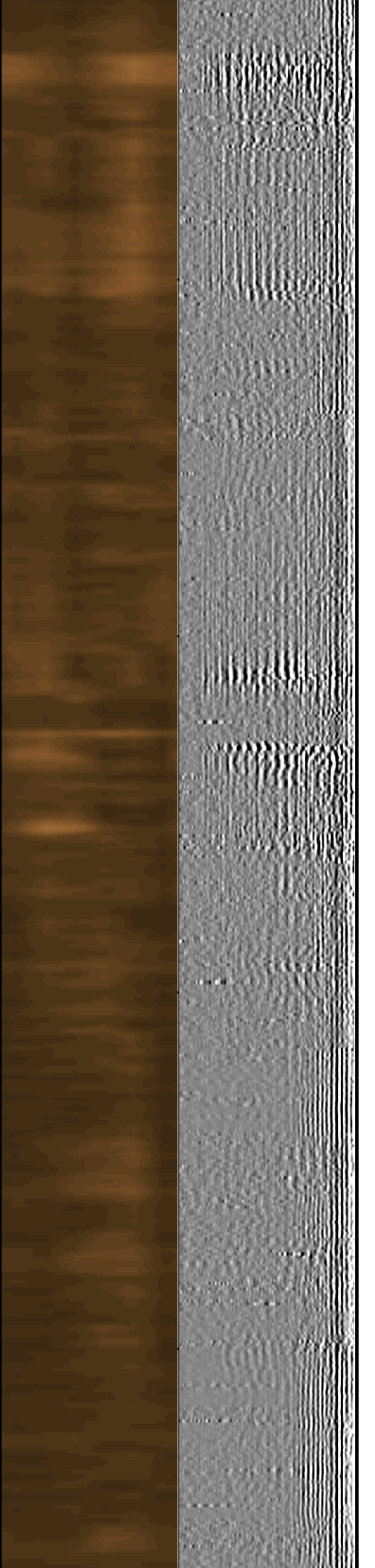
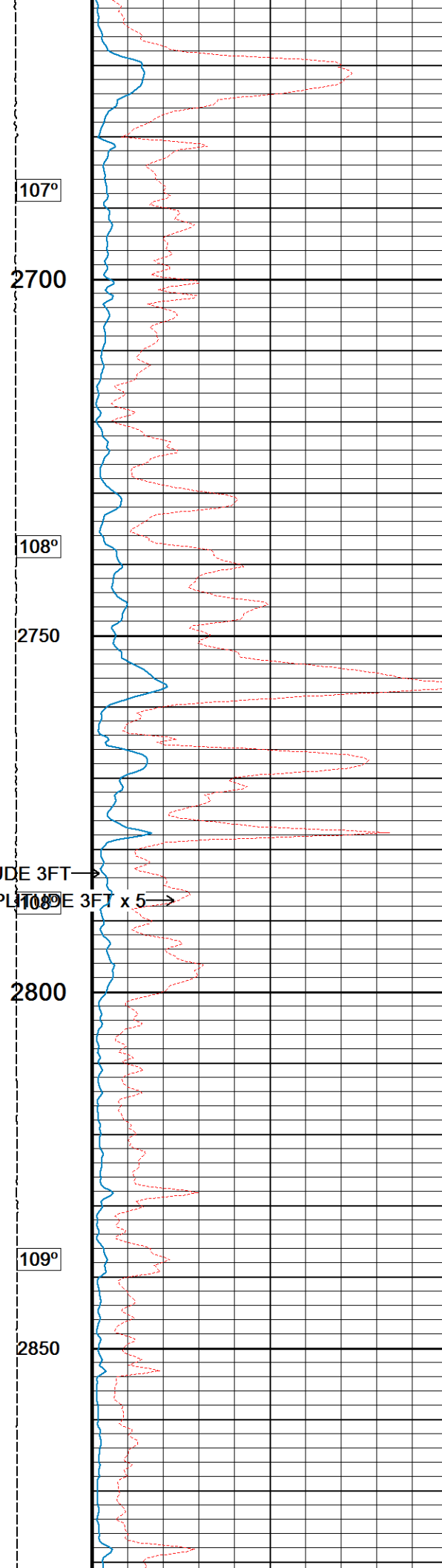
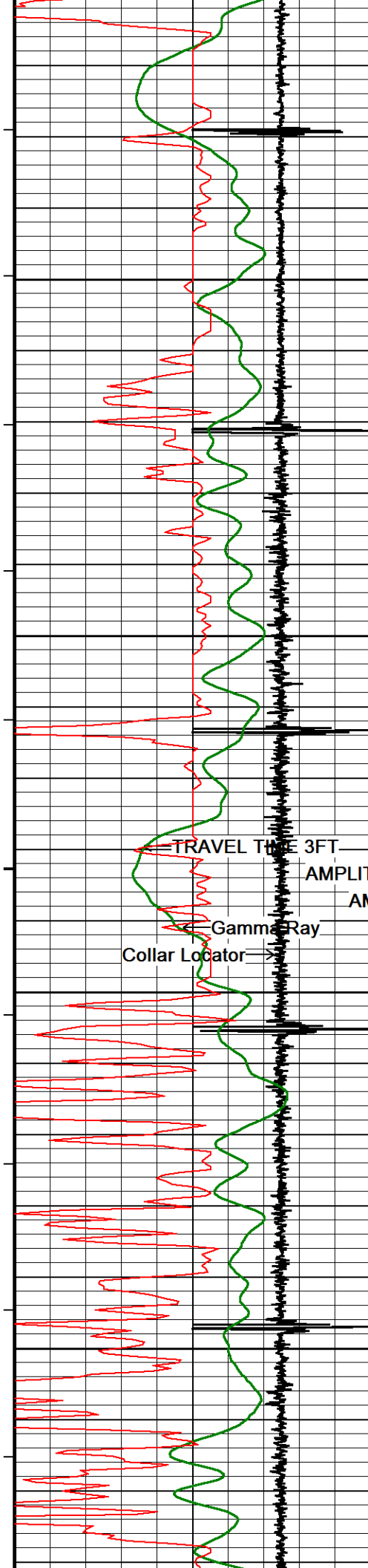
2400

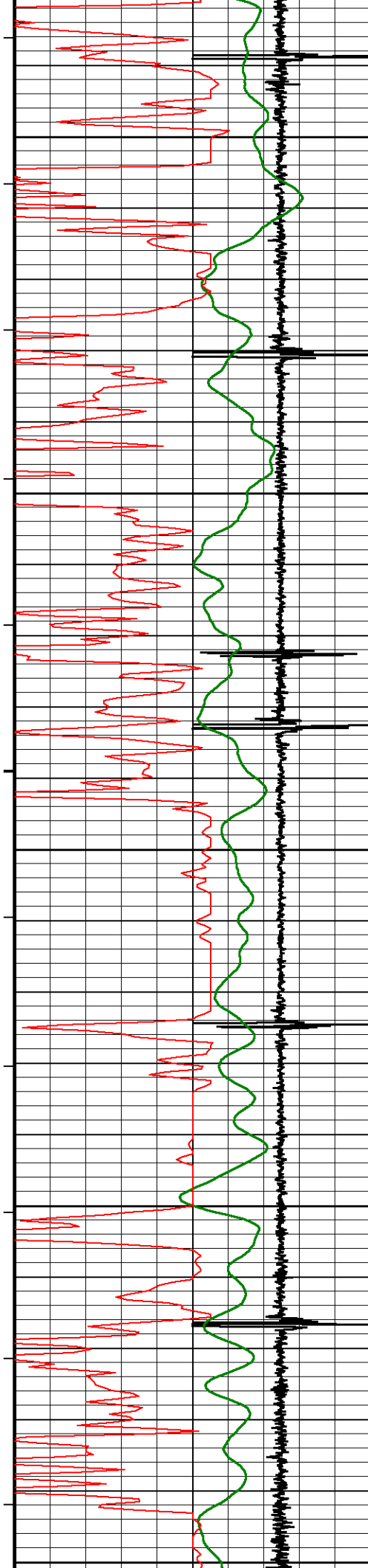
103°

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









110°

2900

111°

2950

112°

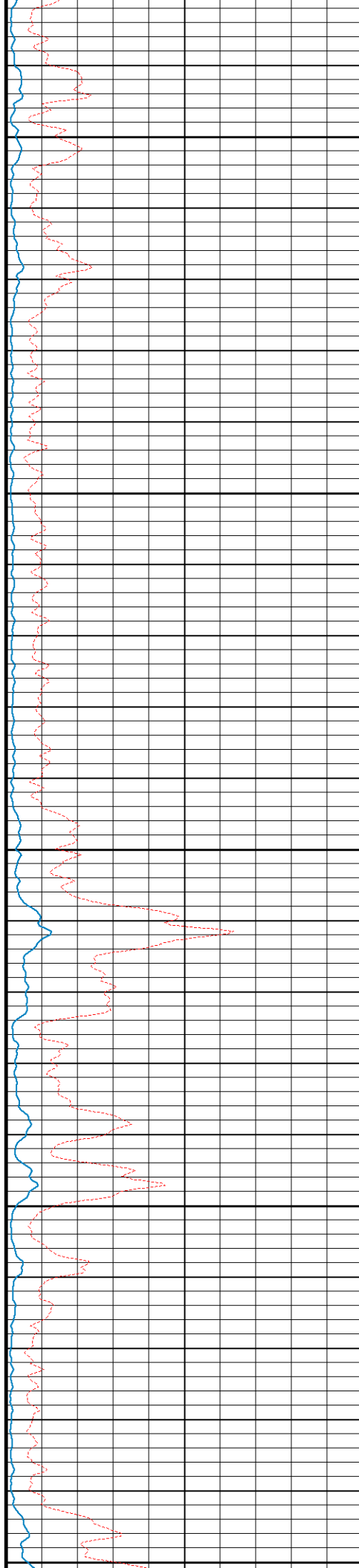
3000

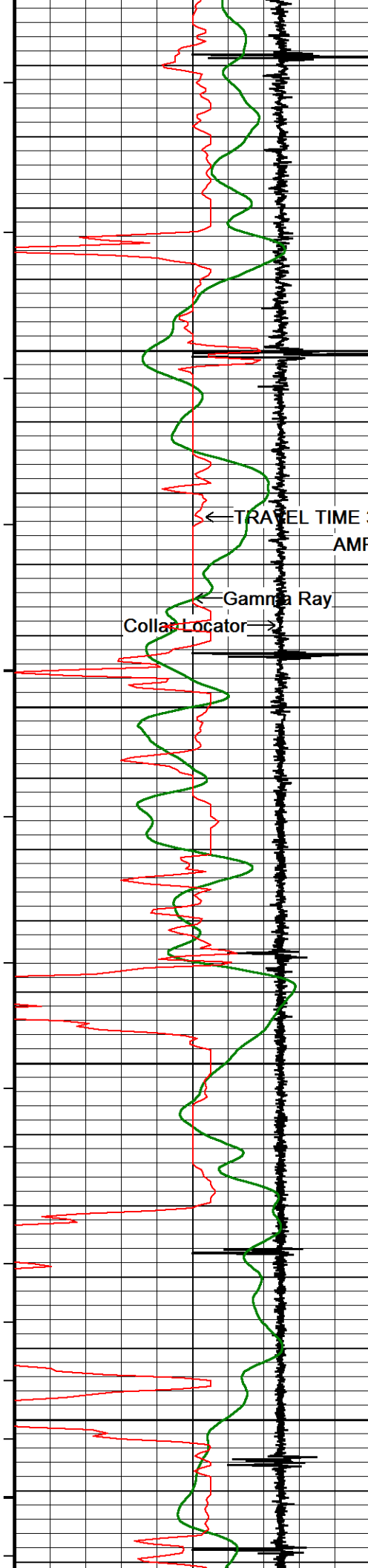
112°

3050

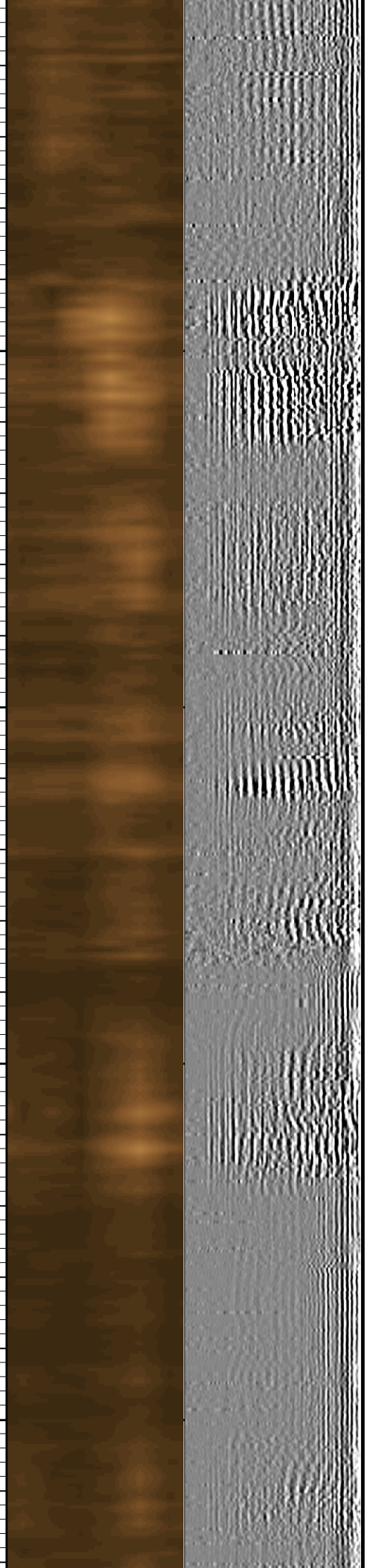
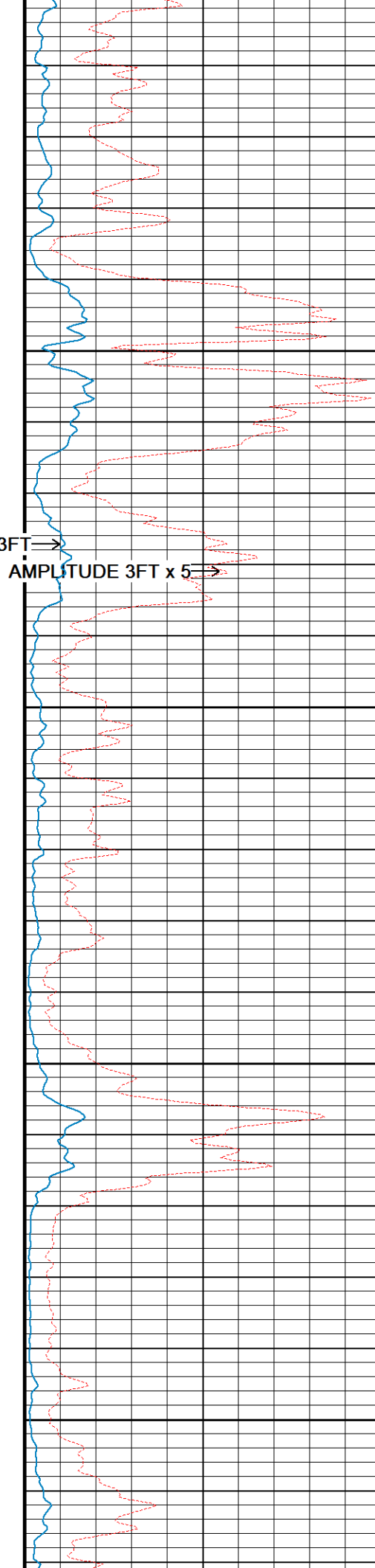
113°

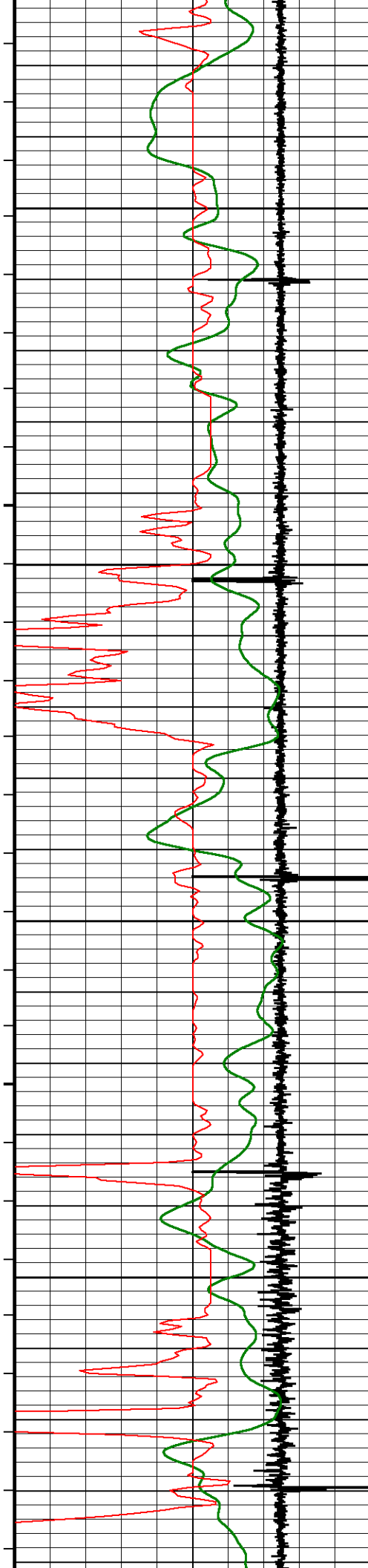
3100





114°
3150
115°
3200
115°
3250
116°
3300





117°

3350

118°

3400

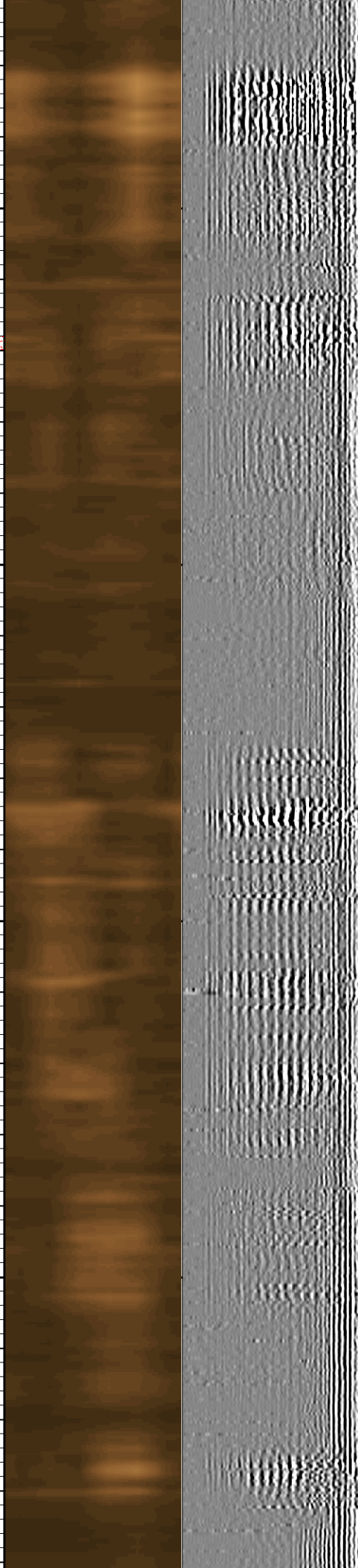
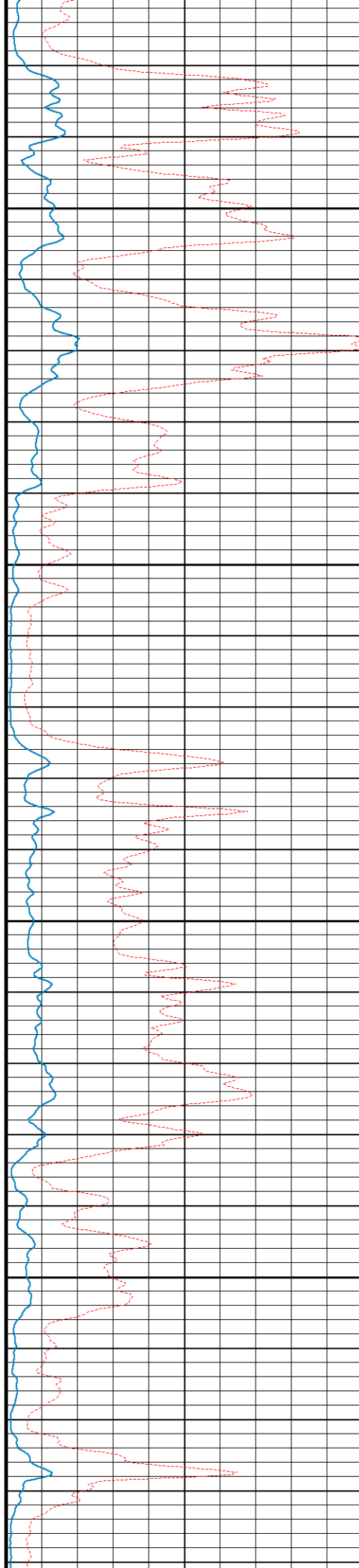
119°

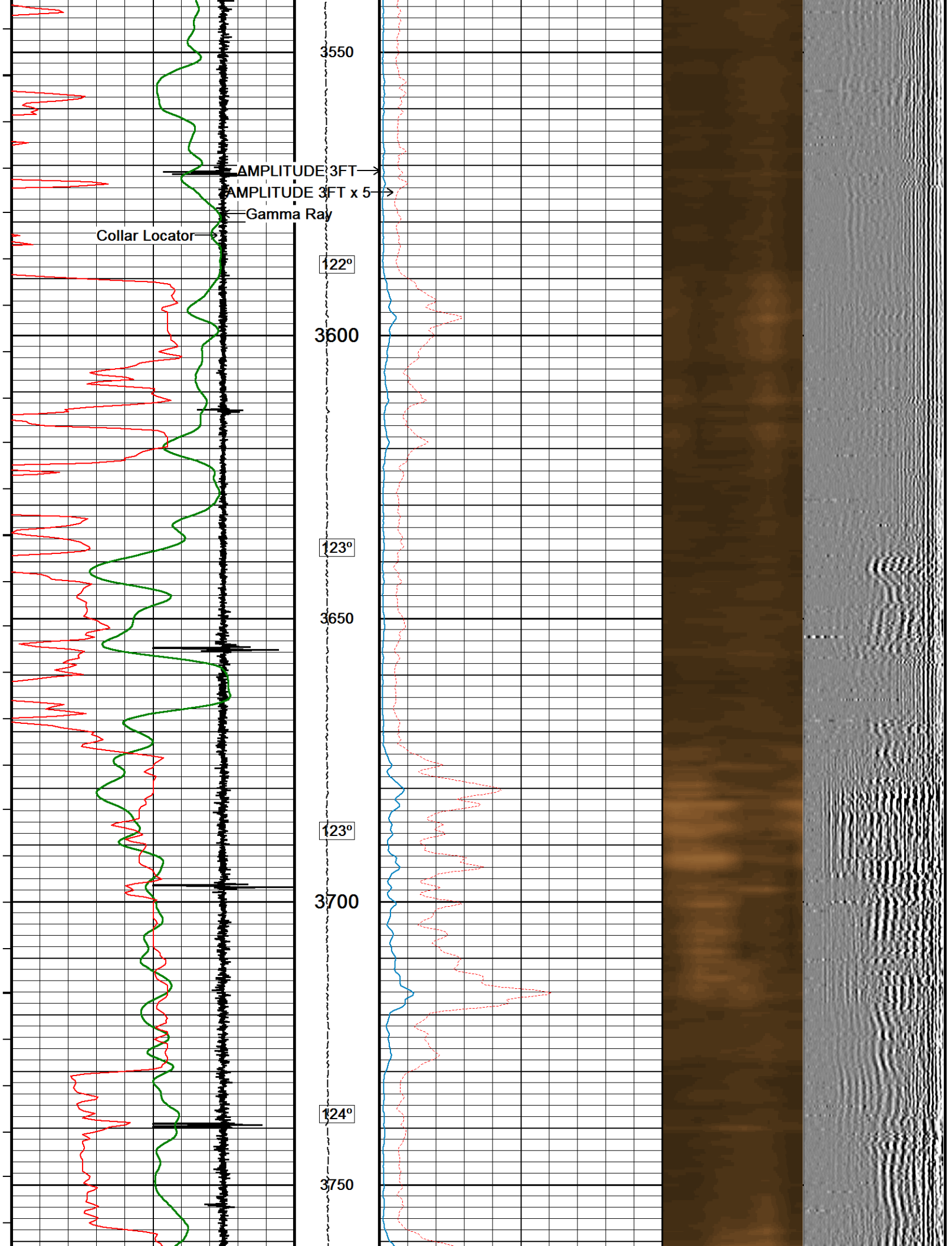
3450

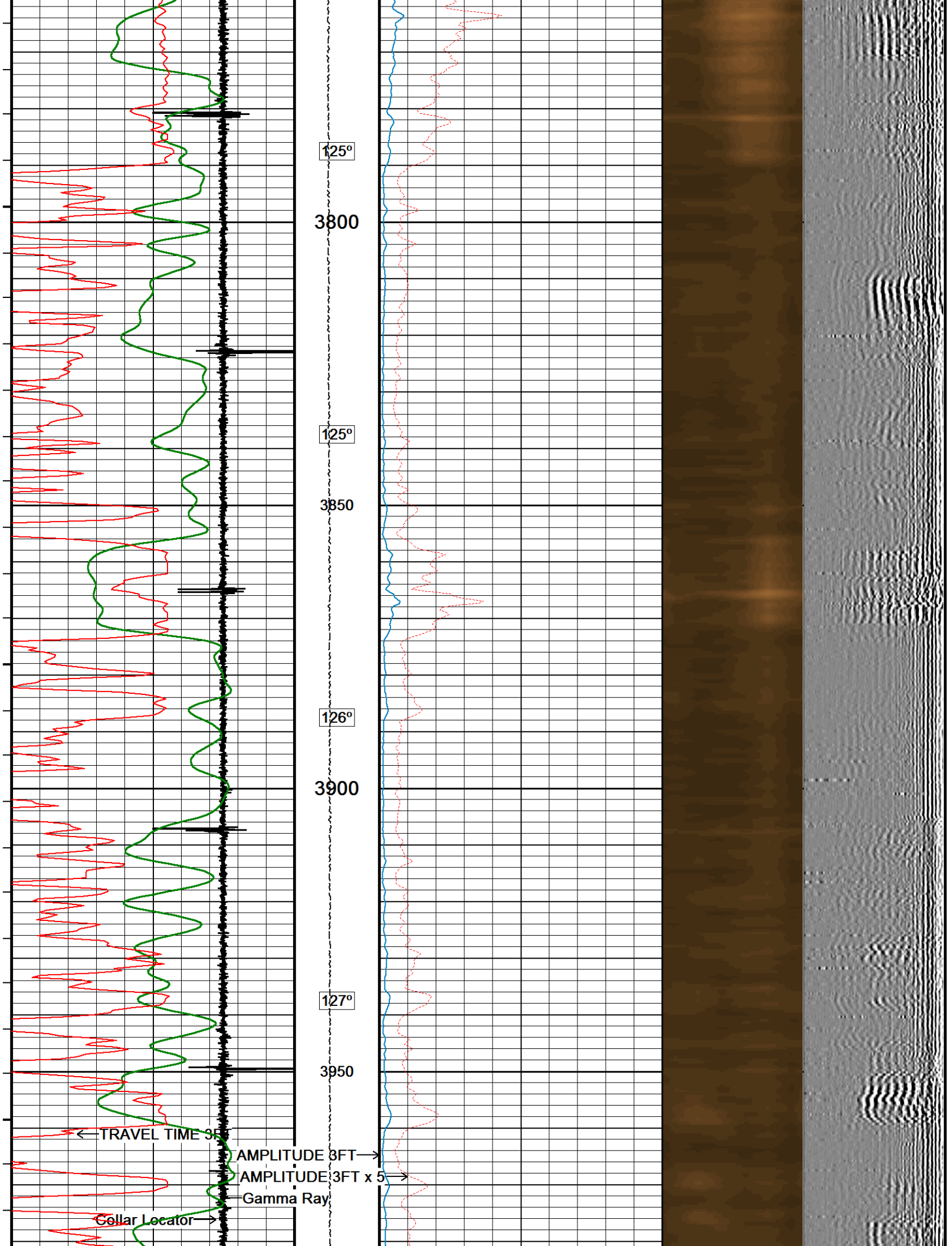
120°

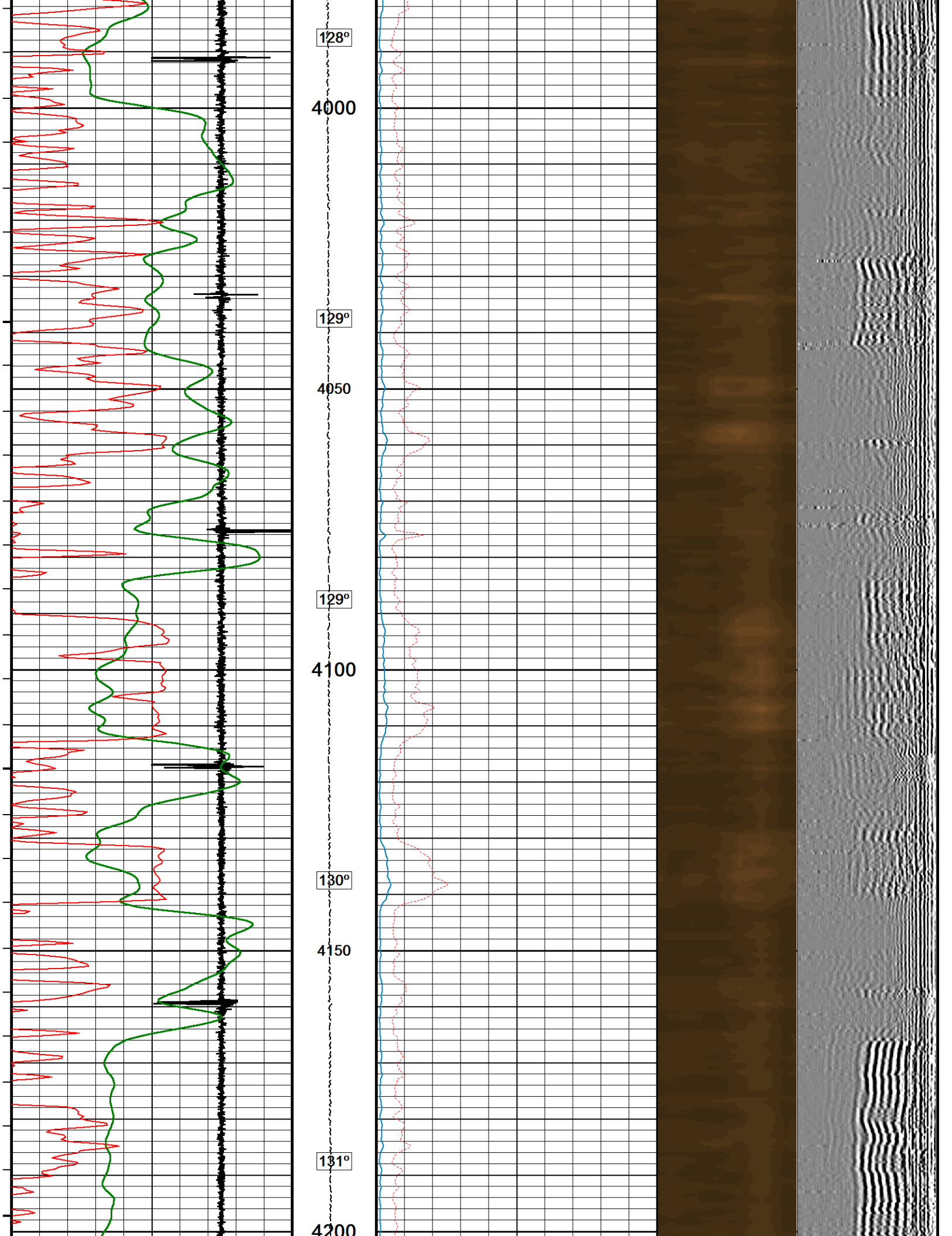
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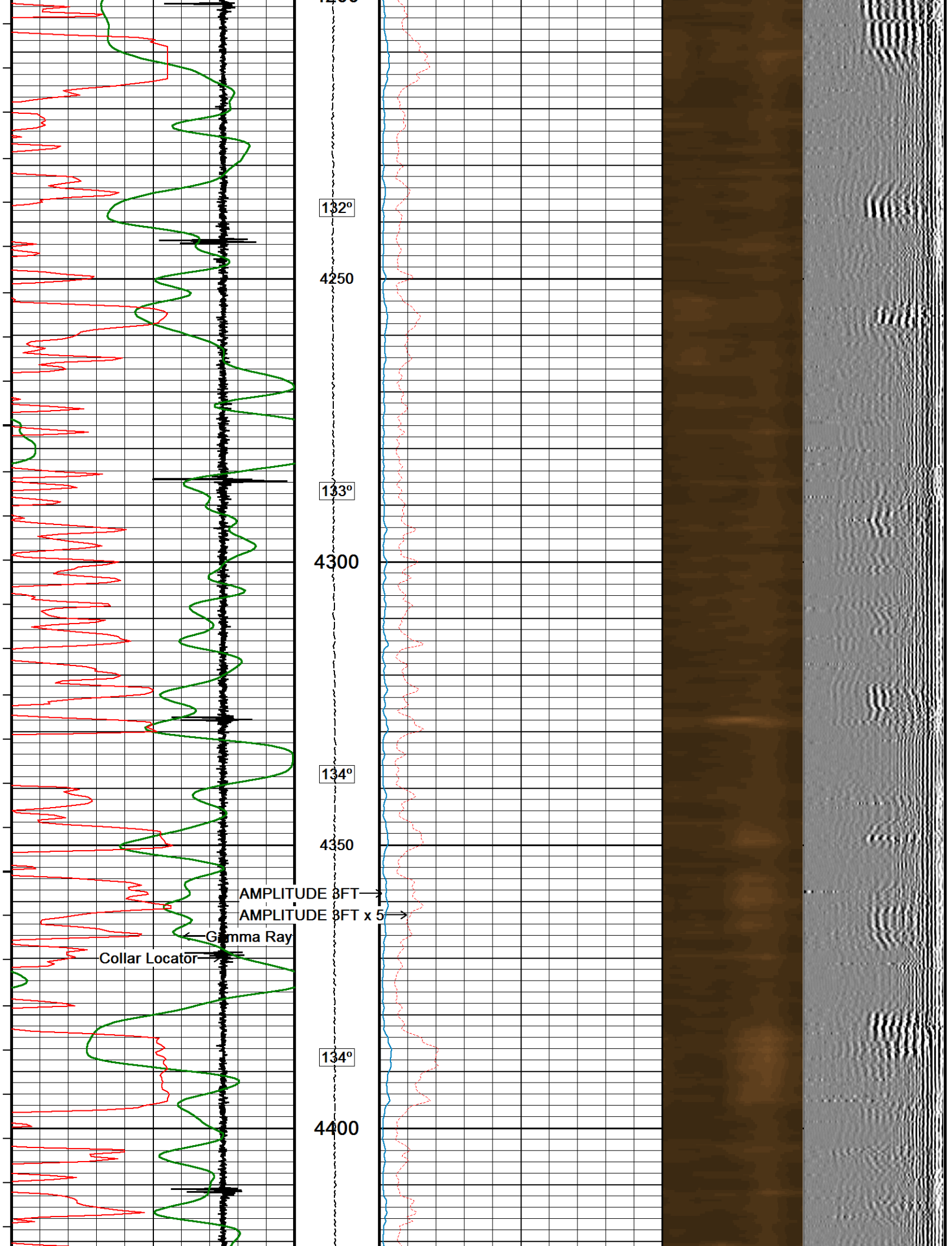
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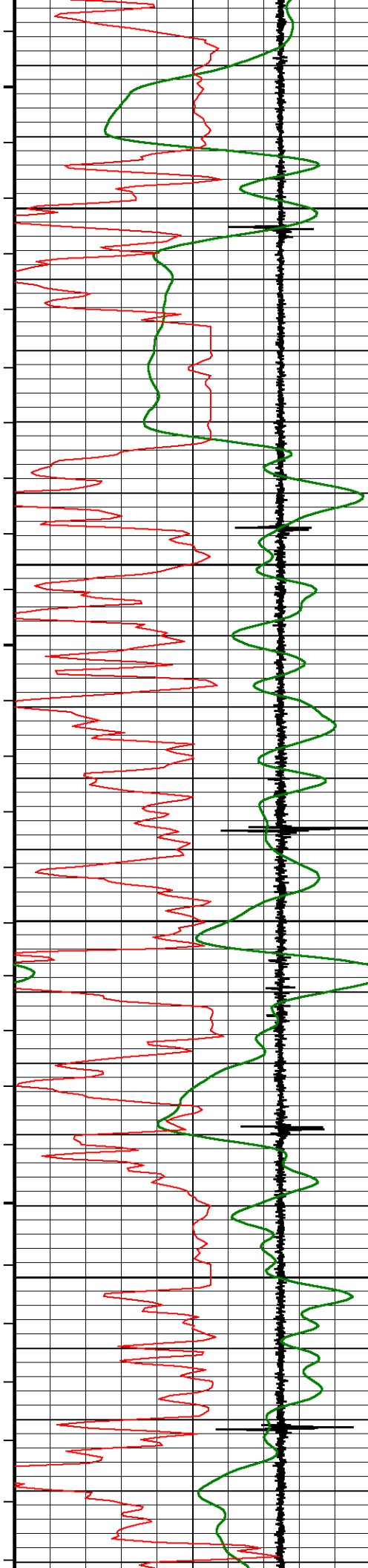












135°

4450

136°

4500

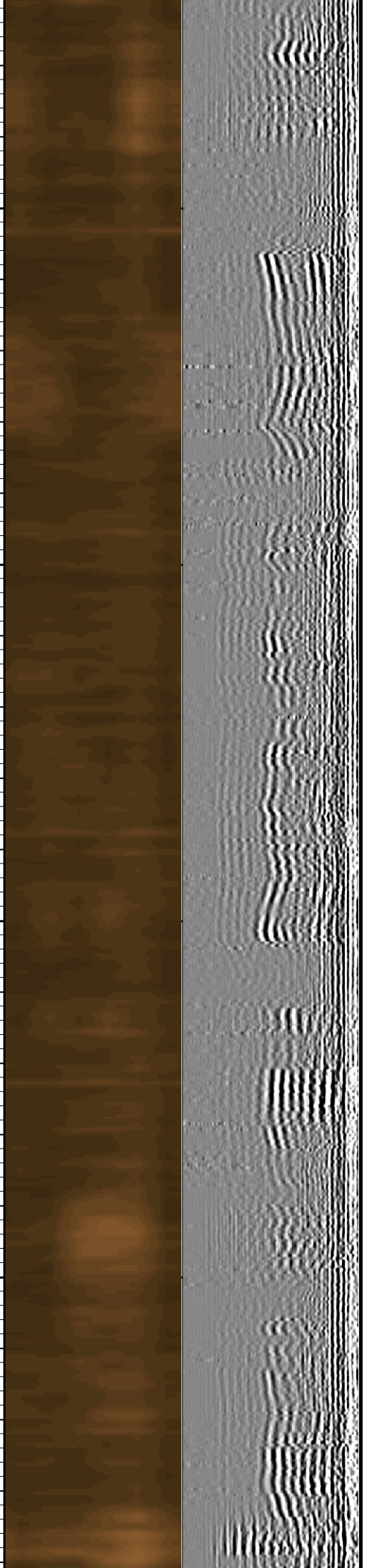
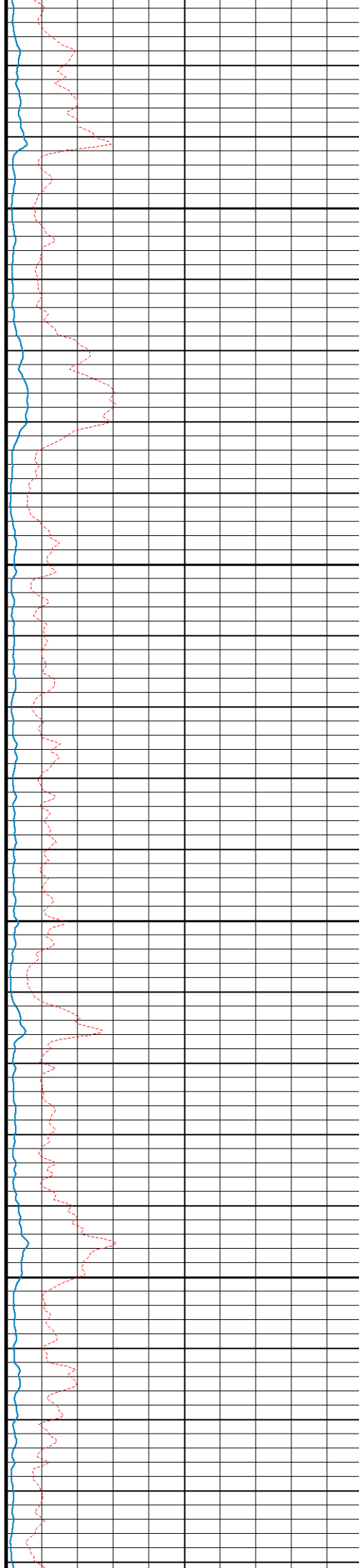
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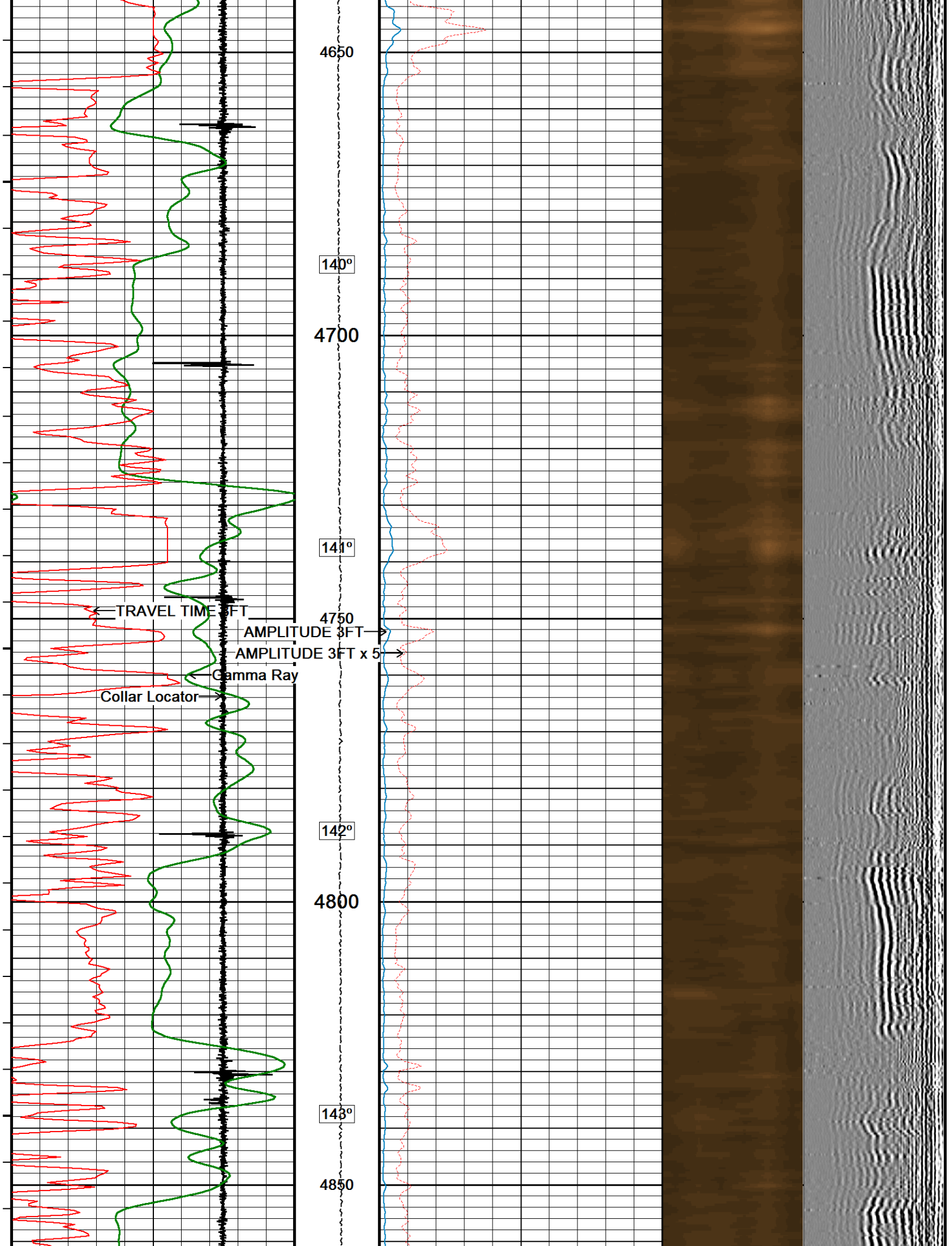
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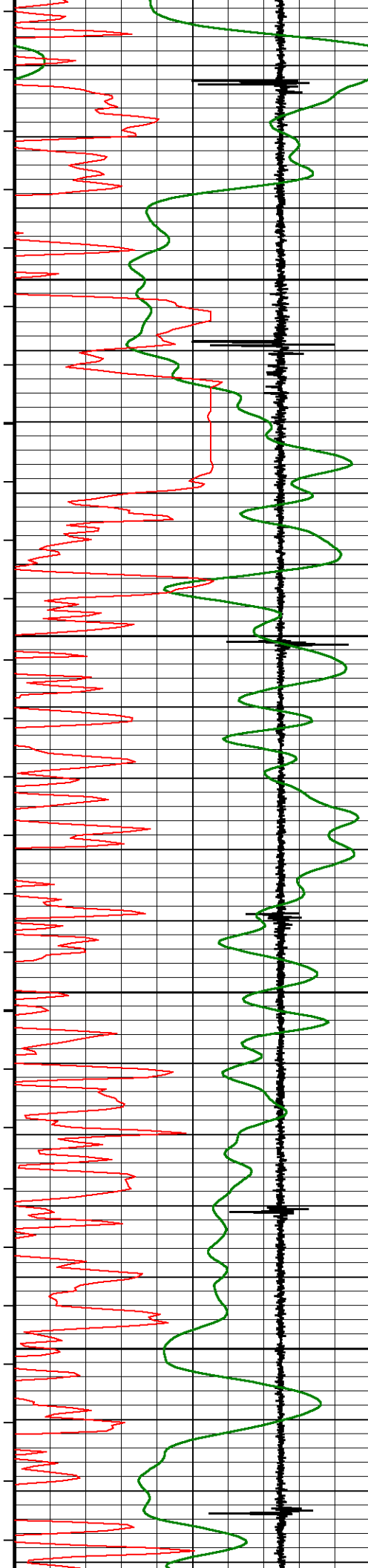
138°

4600

139°







144°

4900

145°

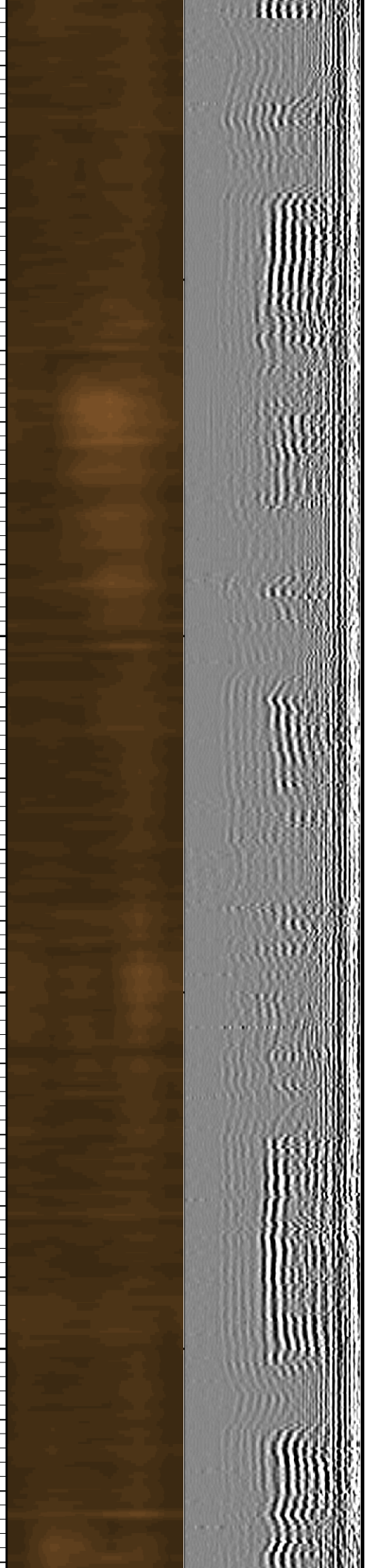
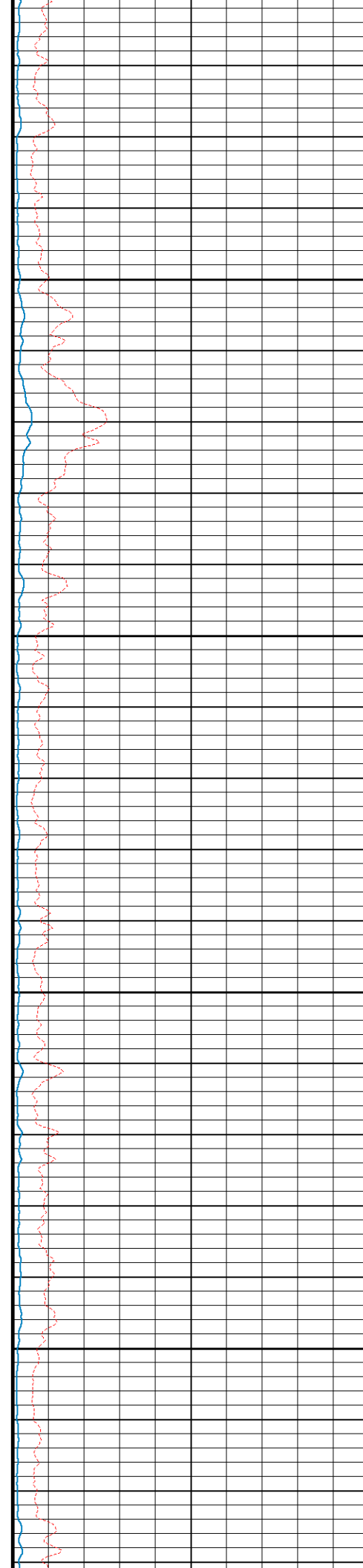
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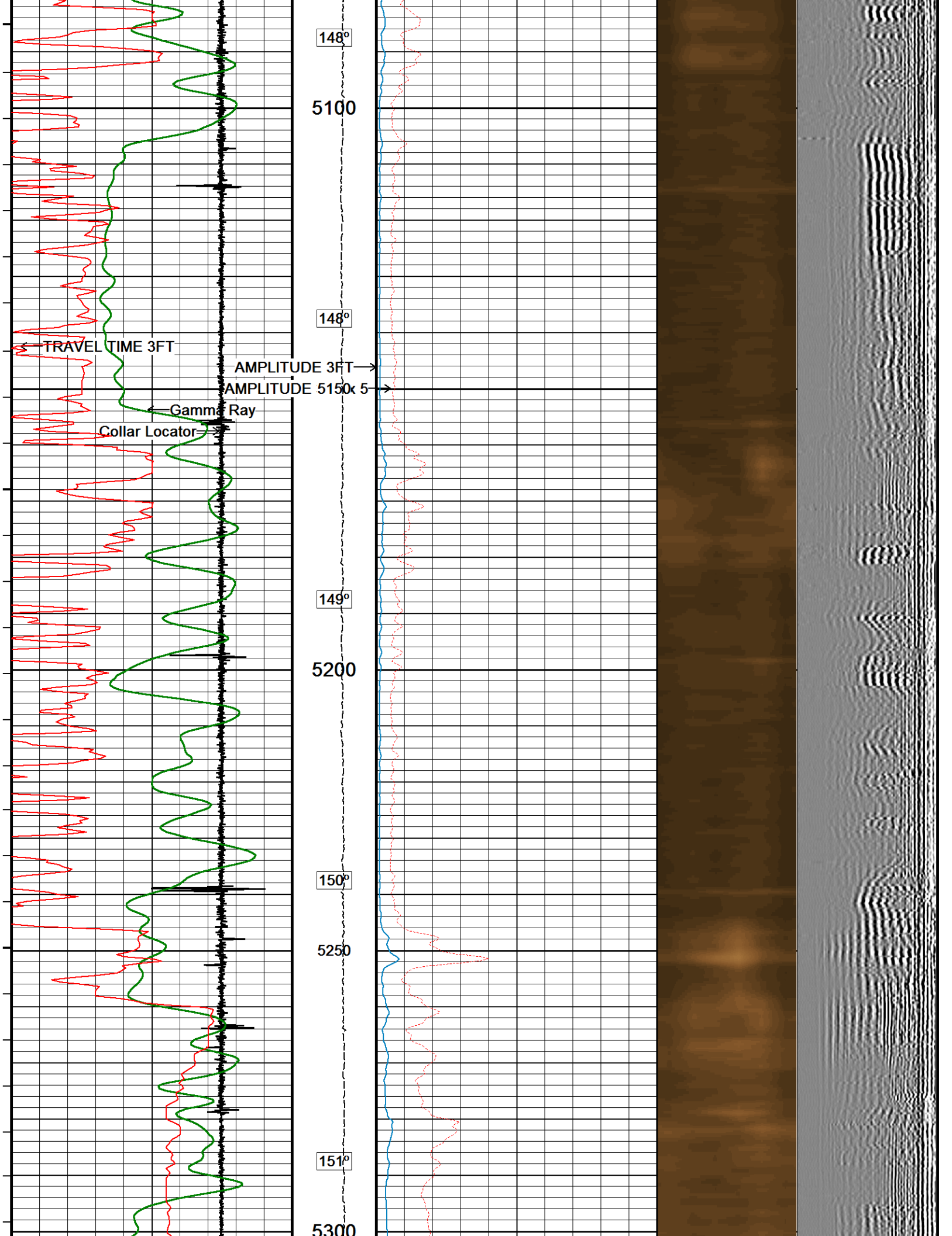
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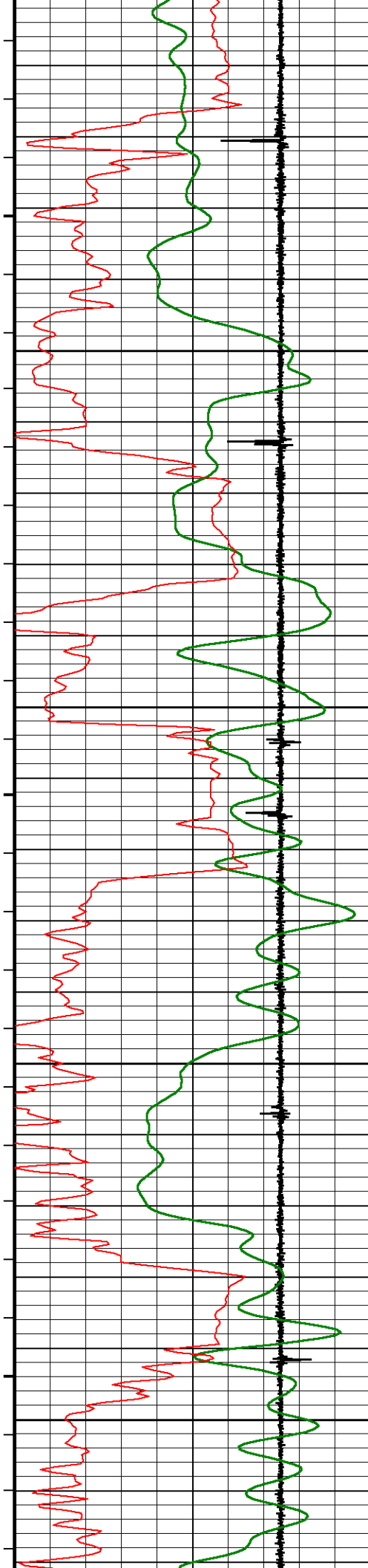
5000

147°

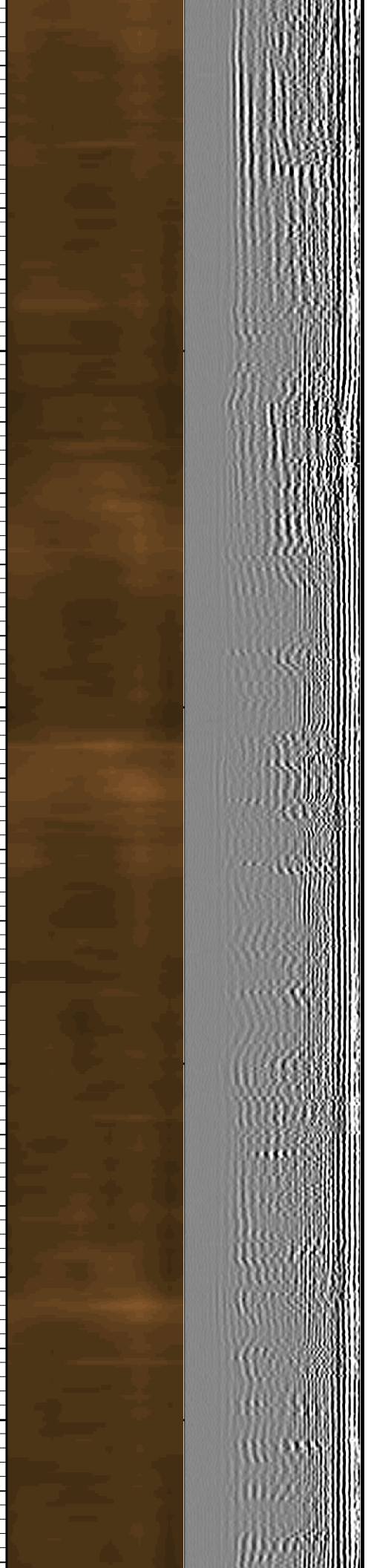
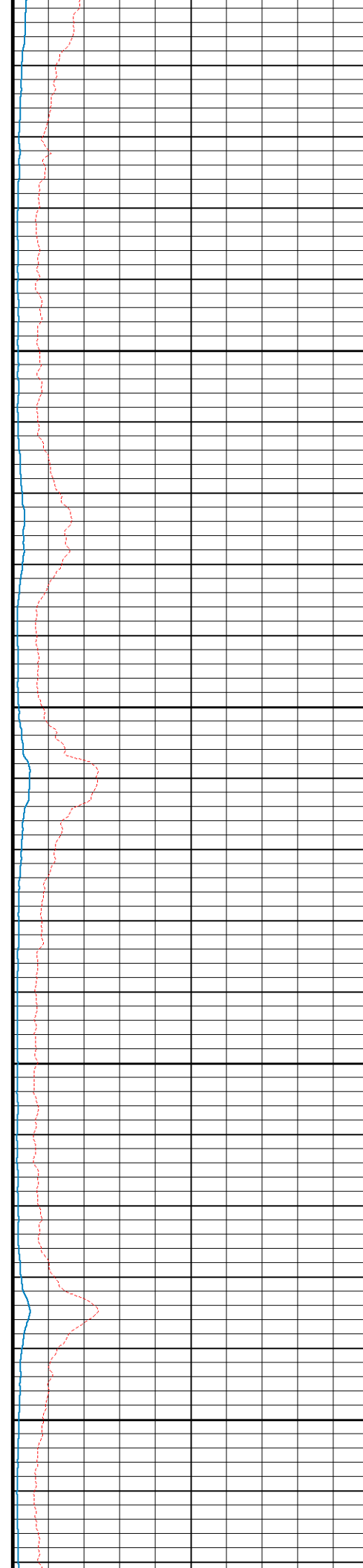
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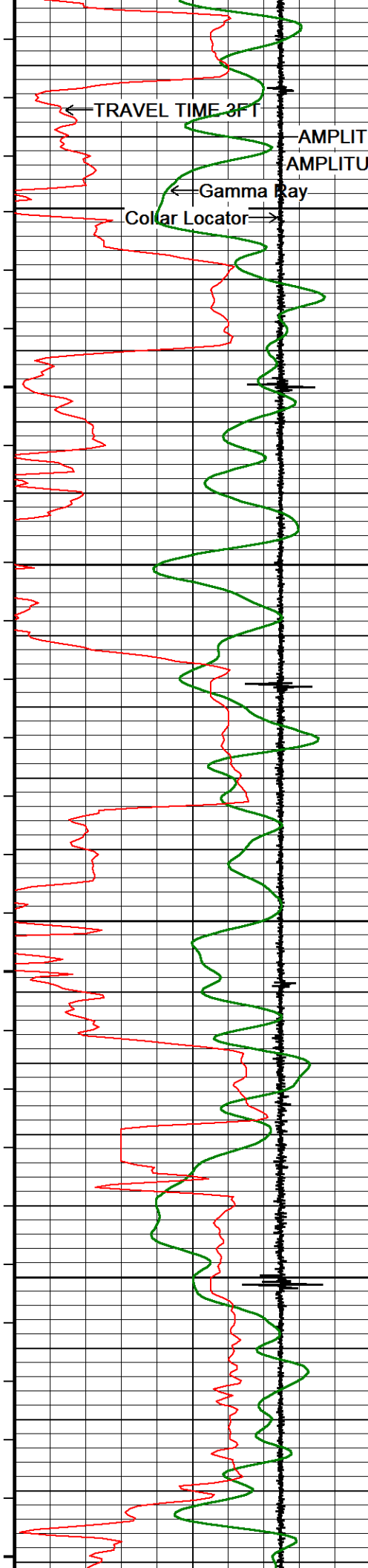






5340
152⁰
5350
153⁰
5400
154⁰
5450
155⁰
5500





157°

AMPLITUDE 3FT →

AMPLITUDE 3FT x 5 →

5550

158°

5600

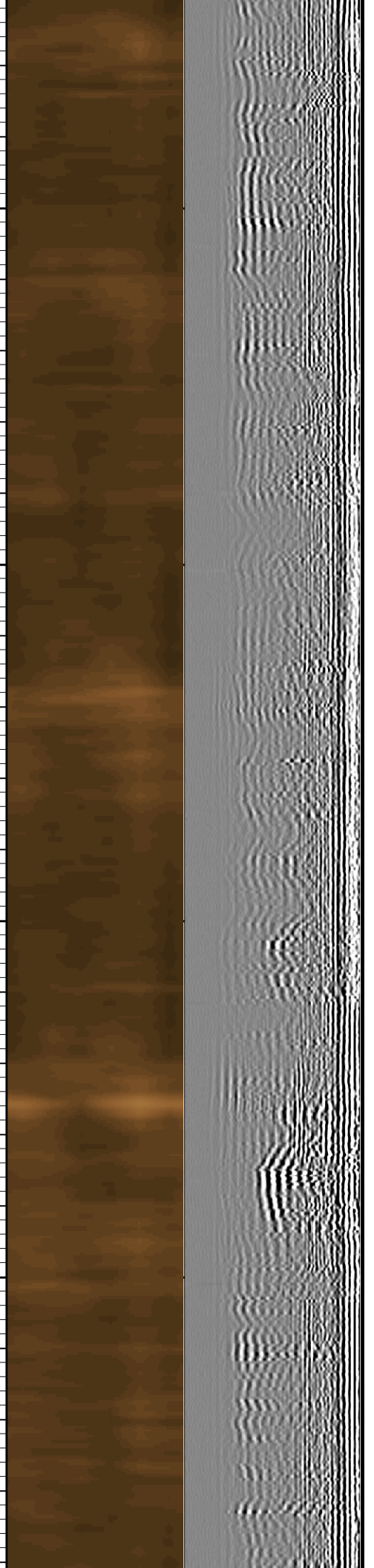
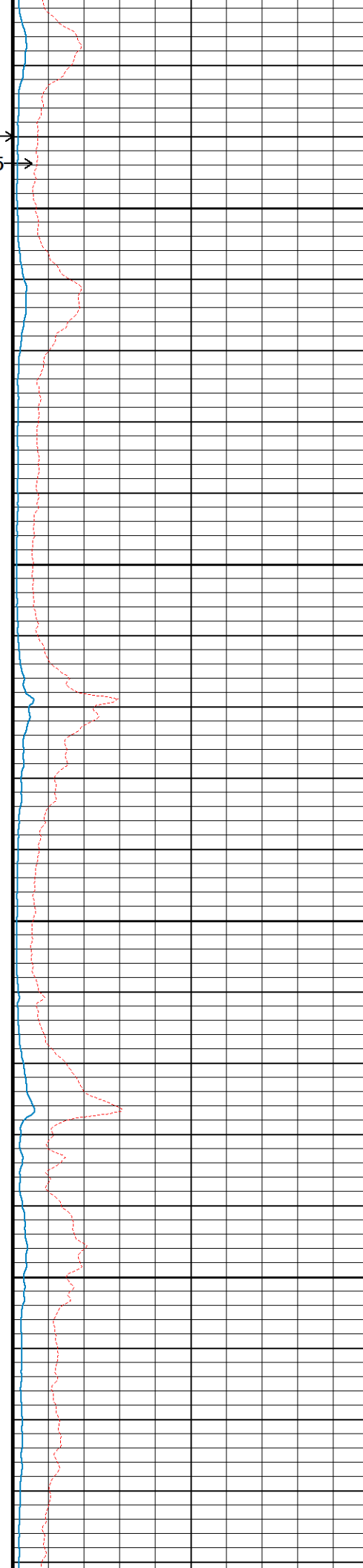
159°

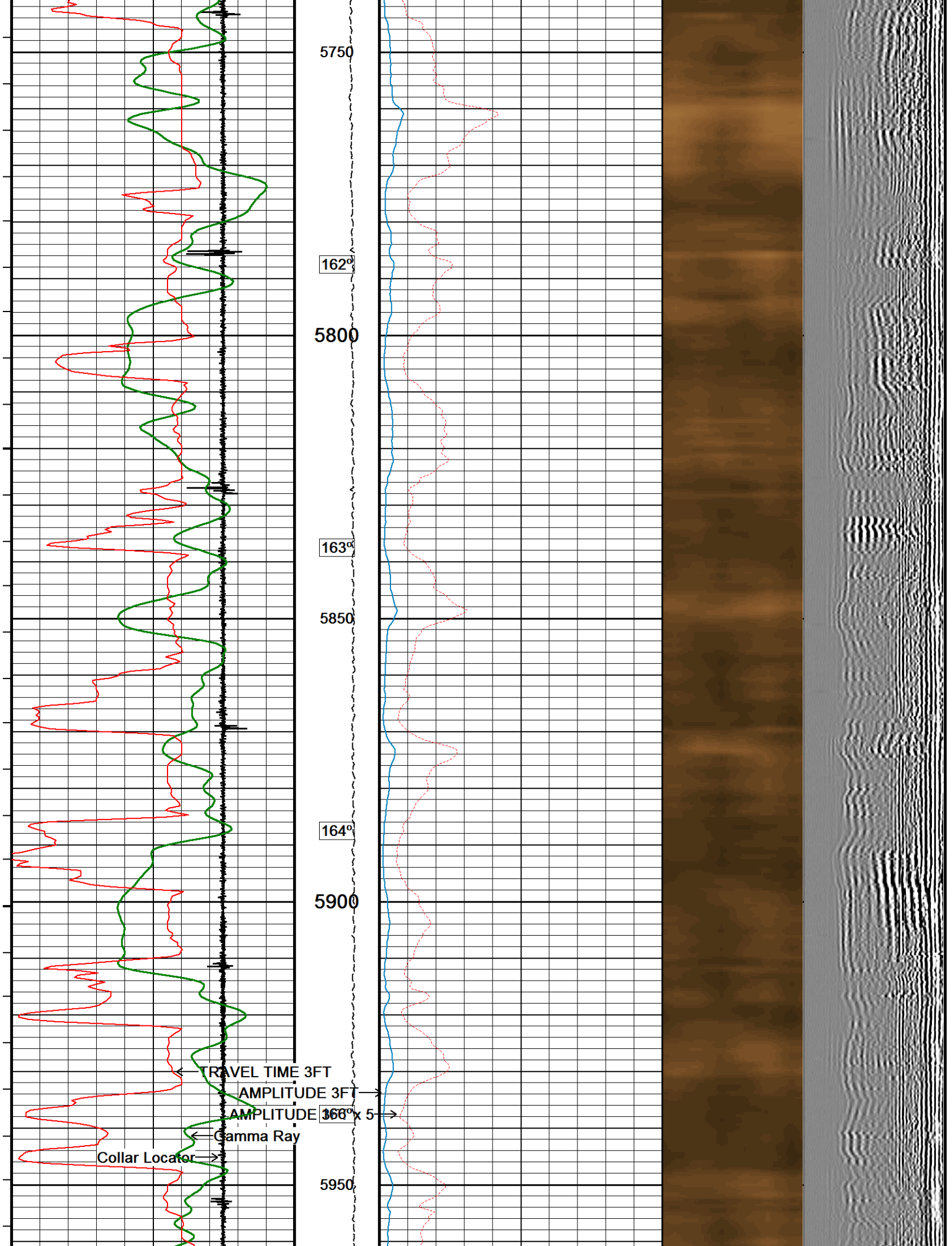
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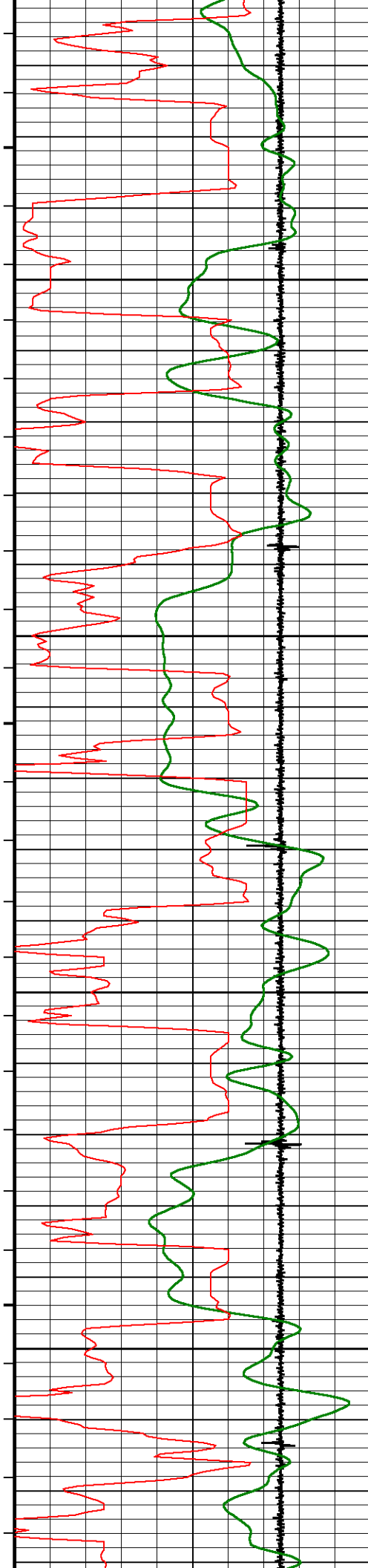
160°

5700

161°







167°

6000

168°

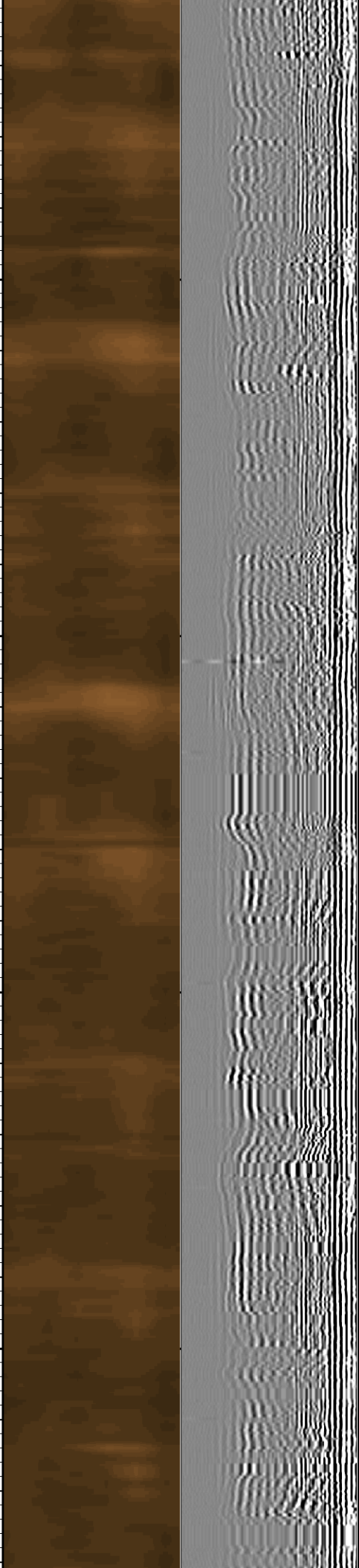
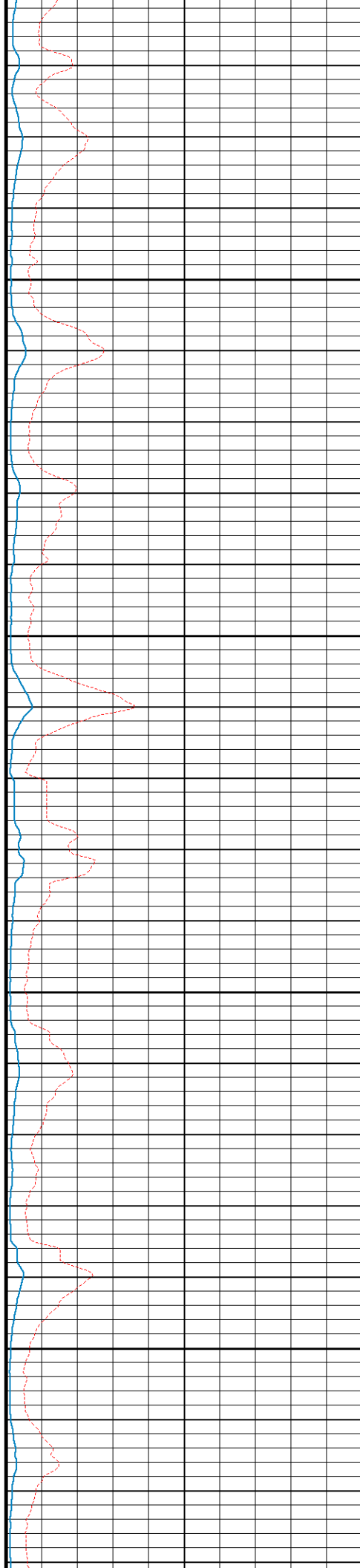
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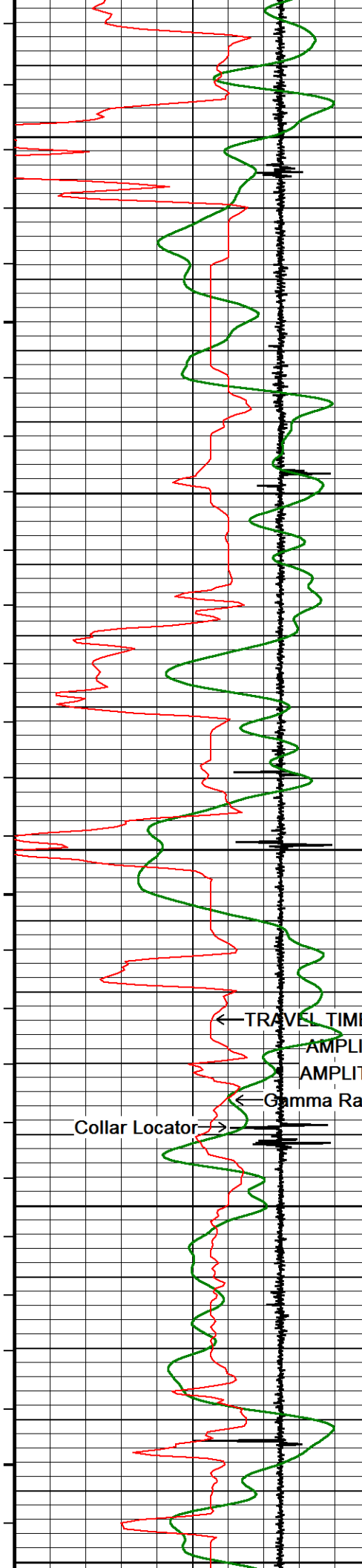
169°

6100

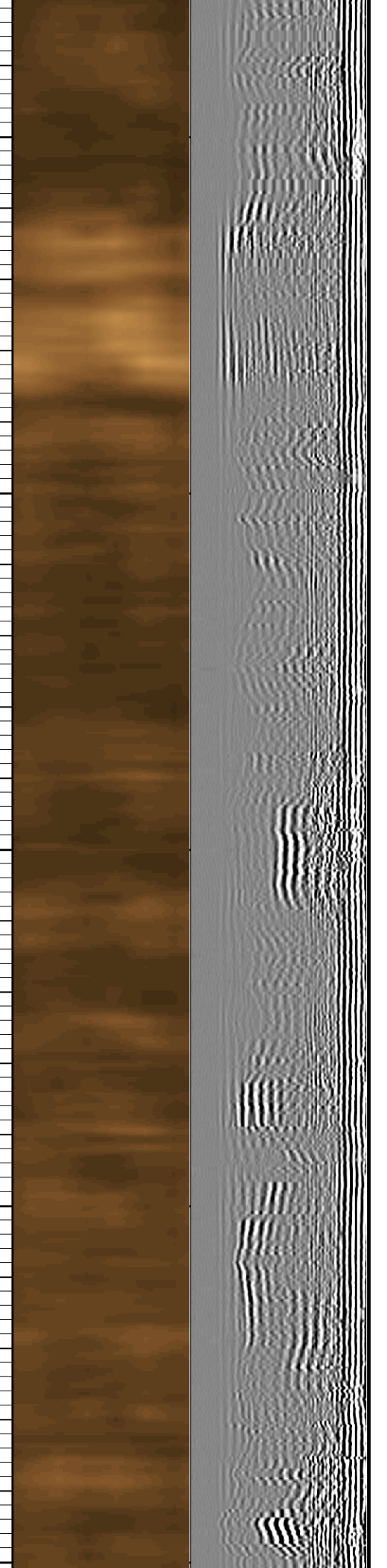
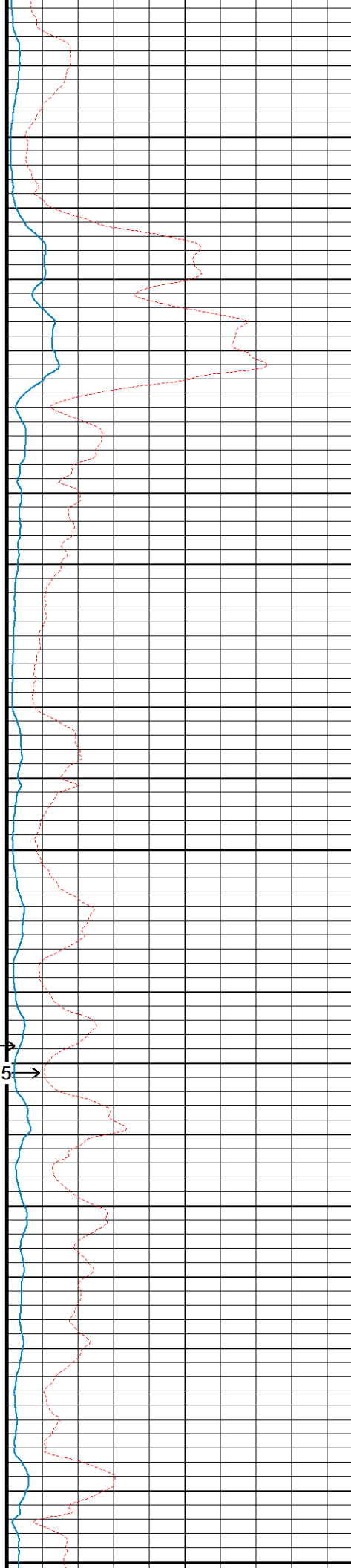
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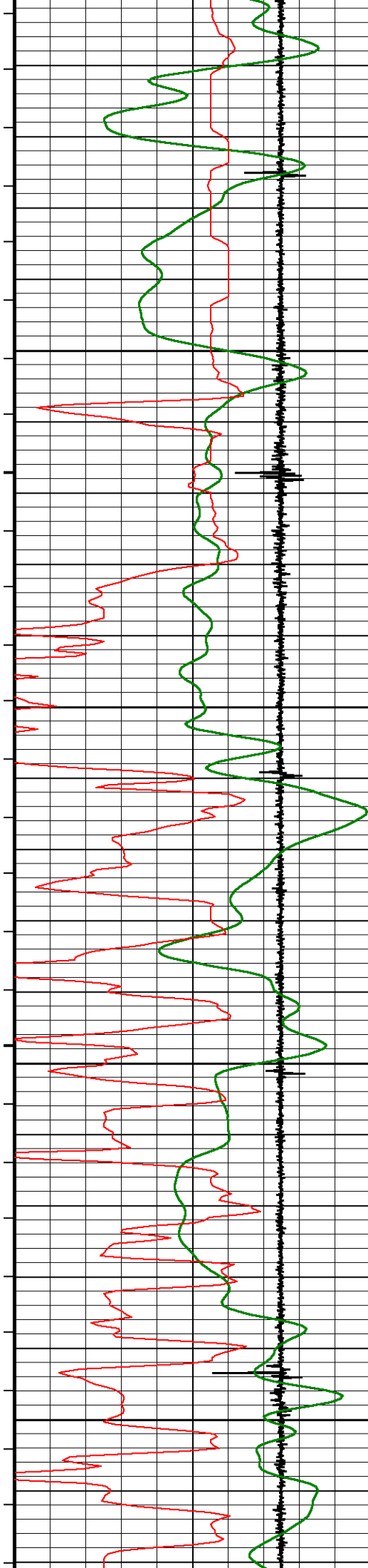
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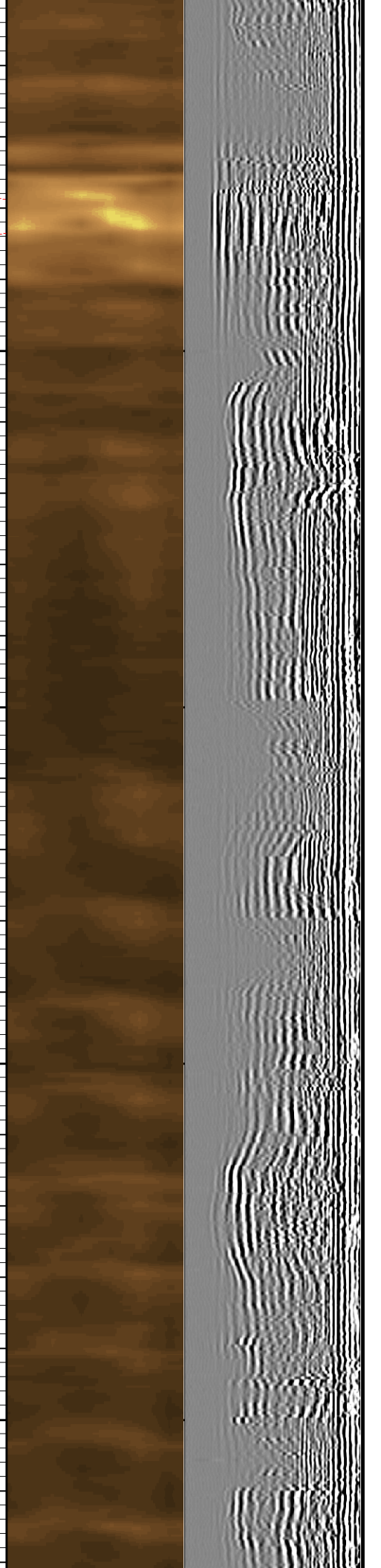
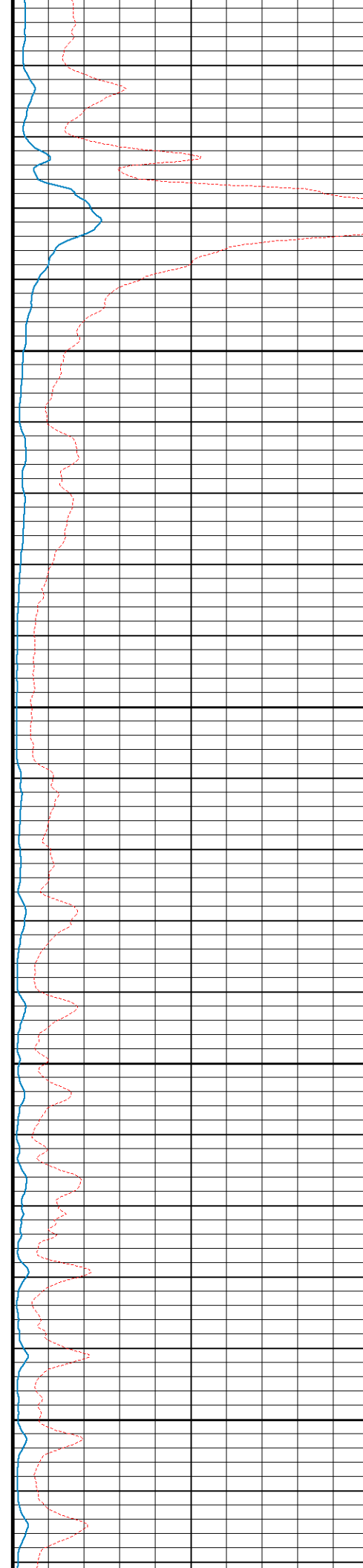


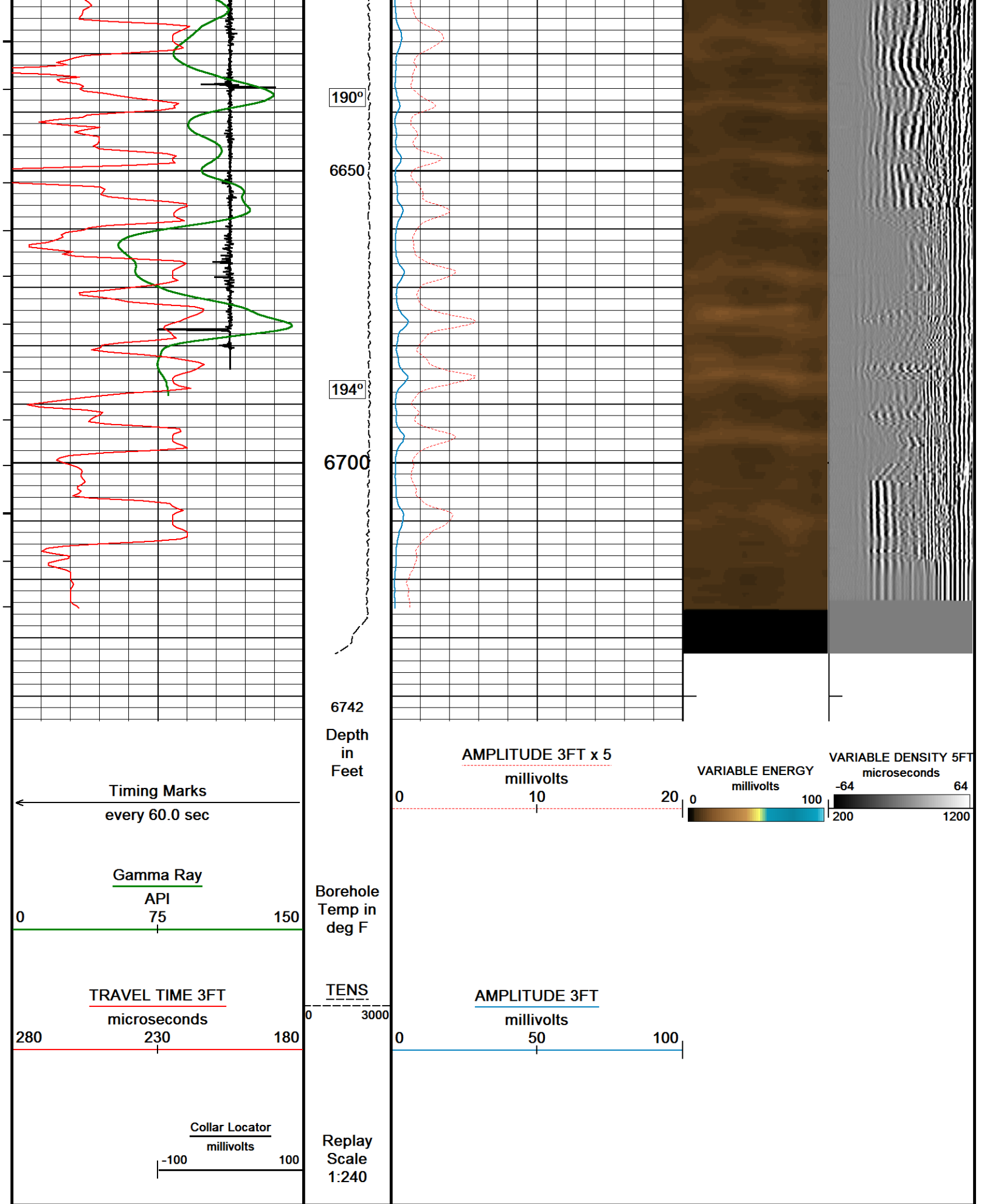
172°
6200
173°
6250
175°
6300
177°
6350
178°
6400





6450
181°
6450
184°
6500
187°
6550
188°
6600





Depth Based Data - Maximum Sampling Increment 12.5cm

Filename: C:\Logs\URSA\BMC B 32C-13-07-96\BMC B 32C-13-07-96 CREB SSSB MAIN FINAL.dta

System Versions: Logged with 17.01.7206 Plotted with 17.01.7206

Plotted on 13-SEP-2017 20:49

Recorded on 13-SEP-2017 20:33

↓

REPEAT PASS

↓

Depth Based Data - Maximum Sampling Increment 12.5cm

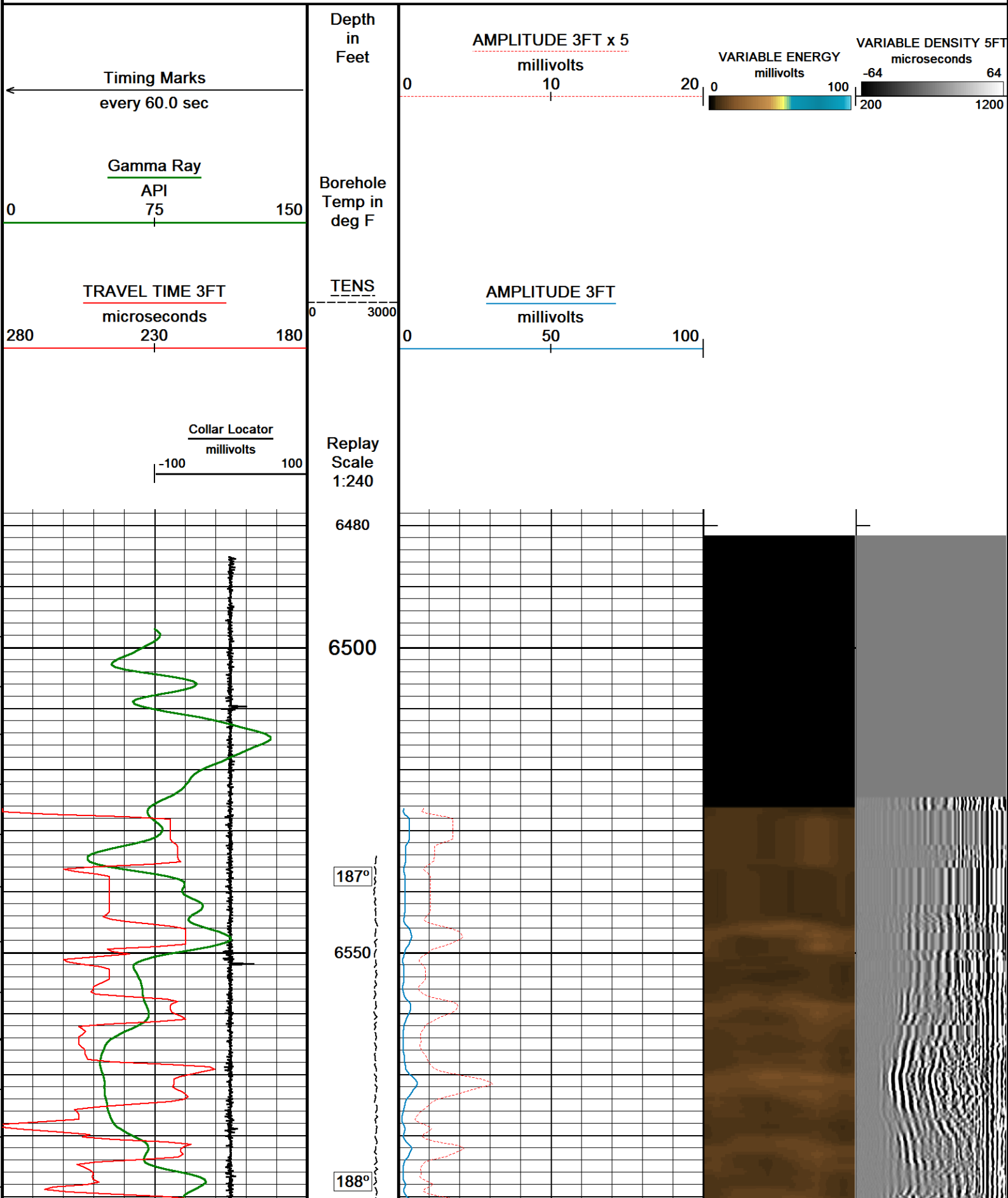
Plotted on 13-SEP-2017 20:49

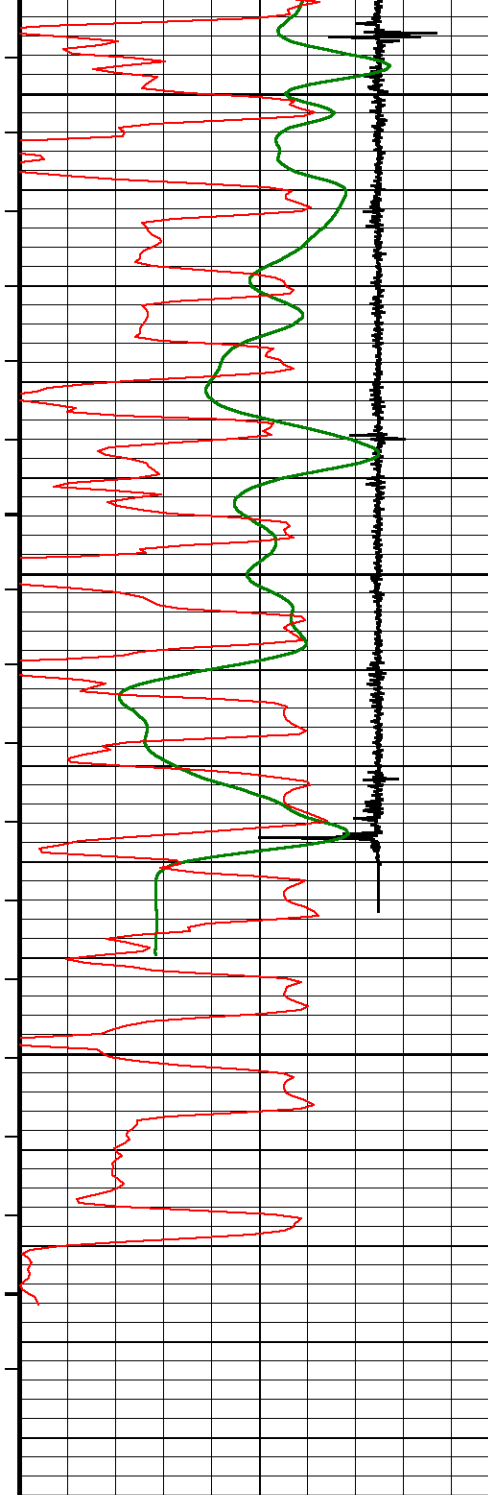
Filename: C:\Logs\URSA\BMC B 32C-13-07-96\BMC B 32C-13-07-96 CREB SSSB REPEAT FINAL.dta

Recorded on 13-SEP-2017 20:42

System Versions: Logged with 17.01.7206

Plotted with 17.01.7206





6600

190°

6650

195°

6700

6744

Depth in Feet

Timing Marks
every 60.0 sec

Gamma Ray

API

75

0 150

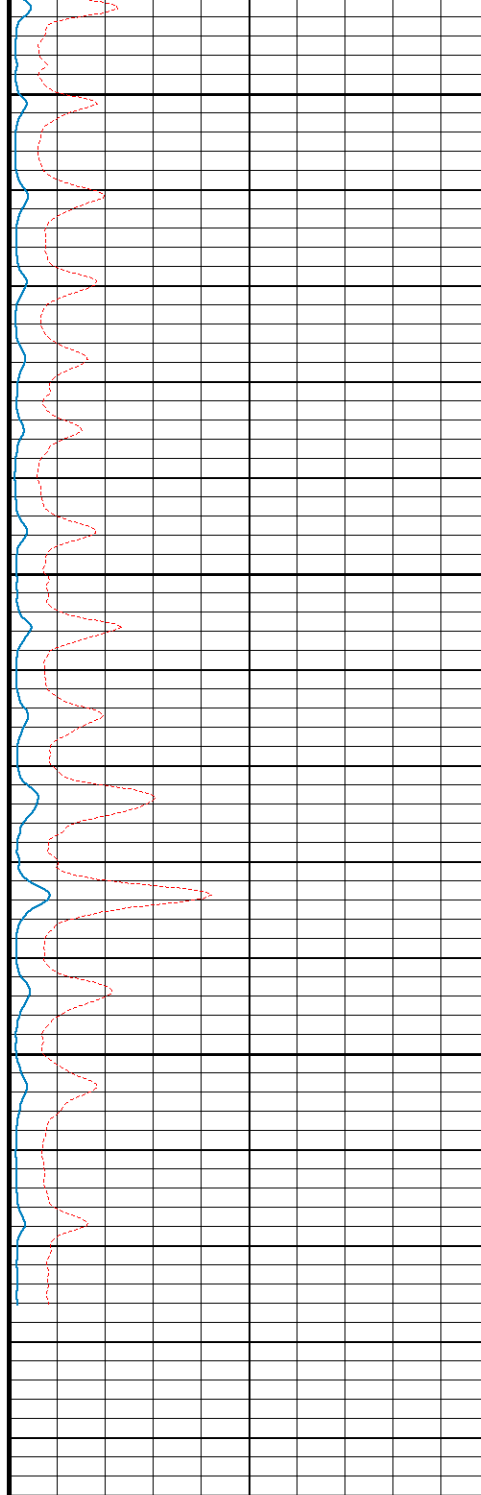
Borehole
Temp in
deg F

TRAVEL TIME 3FT
microseconds

280 230 180

TENS

0 3000



AMPLITUDE 3FT x 5

millivolts

0 10 20

VARIABLE ENERGY
millivolts

0 100

VARIABLE DENSITY 5FT
microseconds

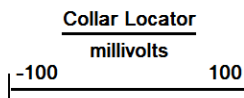
-64 64

200 1200

AMPLITUDE 3FT

millivolts

0 50 100



Replay
Scale
1:240

Depth Based Data - Maximum Sampling Increment 12.5cm

Plotted on 13-SEP-2017 20:49

Filename: C:\Logs\URSA\BMC B 32C-13-07-96\BMC B 32C-13-07-96 CREB SSSB REPEAT FINAL.dta

Recorded on 13-SEP-2017 20:42

System Versions: Logged with 17.01.7206 Plotted with 17.01.7206



REPEAT PASS



DOWNHOLE EQUIPMENT

C:\Logs\URSA\BMC B 32C-13-07-96\BMC B 32C-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

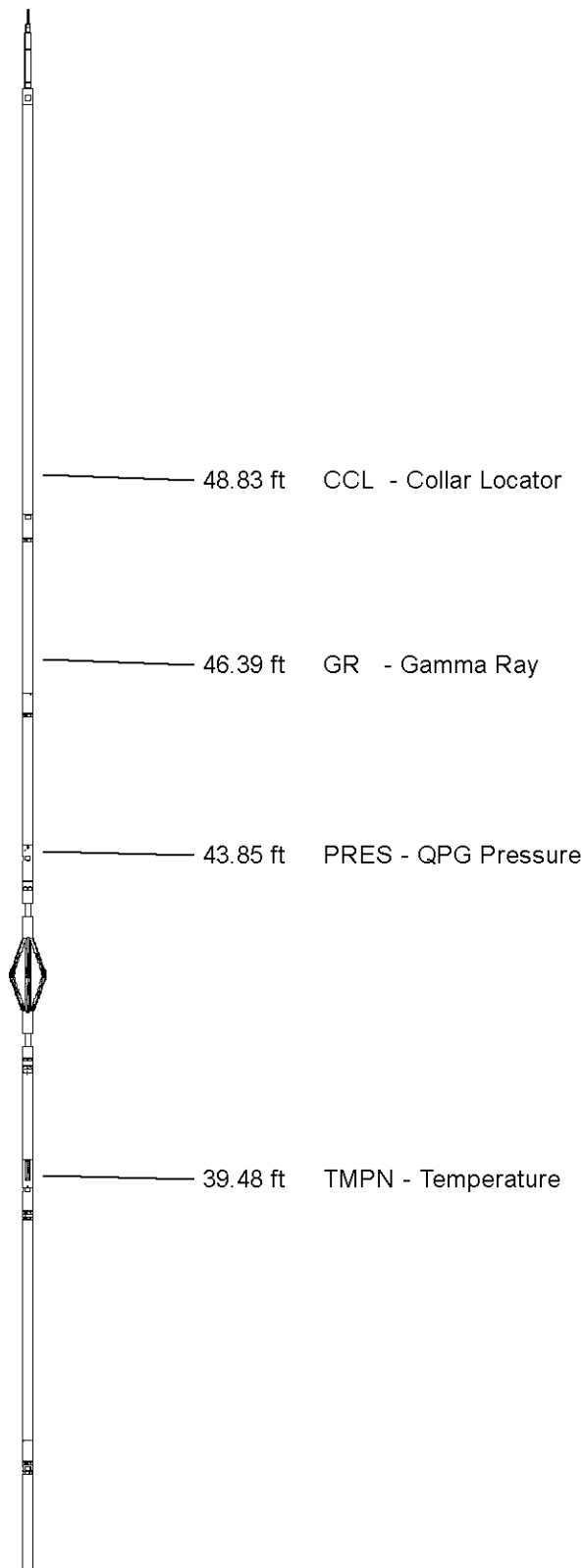
TMP-NA 138 LG: 1.93 ft WT: 8.8 lb OD: 1.693 in

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



- 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

22.38 ft GR2 - Gamma Ray 2

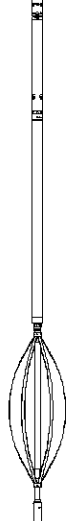
SSB Upper Electronics, ITB
SUE-CA 137 LG: 7.64 ft WT: 26.5 lb OD: 1.654 in

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 32C-13-07-96\BMC B 32C-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 Pressure16000 PSI

Min Pressure13 PSI

Max Temperature177 Deg C

Min Temperature25 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 | |

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 | 3.60 |
| | Free Pipe | 81.00 | 3441.40 |
| AMP 5FT | 100% Bond | 0.40 | 0.20 |
| | Free Pipe | 54.00 | 2457.10 |
| 1 SECTOR AMP | 100% Bond | 5.00 | 5.90 |
| | Free Pipe | 95.00 | 1172.00 |
| 2 SECTOR AMP | 100% Bond | 5.00 | 7.30 |
| | Free Pipe | 95.00 | 1175.50 |
| 3 SECTOR AMP | 100% Bond | 5.00 | 0.30 |
| | Free Pipe | 95.00 | 854.90 |
| 4 SECTOR AMP | 100% Bond | 5.00 | 3.70 |
| | Free Pipe | 95.00 | 656.40 |
| 5 SECTOR AMP | 100% Bond | 5.00 | 2.40 |
| | Free Pipe | 95.00 | 654.20 |
| 6 SECTOR AMP | 100% Bond | 5.00 | 0.60 |
| | Free Pipe | 95.00 | 1046.30 |

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 32C-13-07-96

| | |
|-----------------|-------------------|
| WELL | BMC 0020 10 07 00 |
| FIELD | WILDCAT |
| PROVINCE/COUNTY | GARFIELD |
| COUNTRY/STATE | USA / COLORADO |

| | | | | | |
|-------------------------|------|------|---------------------|---------|------|
| Elevation Kelly Bushing | 5117 | feet | Bottom Log Interval | 6734.00 | feet |
| Elevation Drill Floor | 5117 | feet | Depth Driller | 7243.00 | feet |
| Elevation Ground Level | 5100 | feet | Depth Logger | 6734.00 | feet |



Weatherford®

SLIM SECTOR BOND LOG