



**PIONEER**

Pioneer Energy Services

## RADIAL BOND LOG WITH GAMMA RAY

Company **VERDAD RESOURCES**

Well **Sonic Star 1101-13H**

Field **Wattenberg**

County **Weld** State **Colorado**

Location: API #: 05-123-48990

SE SE

SEC 11 TWP 8N RGE 60W

NONE

Other Services

Permanent Datum GL Elevation 4880  
Log Measured From KB Above Perm. Datum  
Drilling Measured From KB

Elevation  
K.B. 4897  
D.F. ---  
G.L. 4880

Comp. VERDAD RESOURCES  
Well Sonic Star 1101-13H  
Field Wattenberg  
Co. Weld  
State Colorado

Date of Service 08-OCTOBER-2021

Run Number ONE

Depth Driller or PBTD 16070

Depth Logger 7704

Bottom Log Interval 7700

Top Log Interval Surface

Open Hole Size 7 7/8

Type Fluid WATER

Fluid Level Full

Fluid Density 8.33 PPG

Max. Recorded Temperature 244

Max. Wellhead Pressure 0

Wellhead Connection ---

Estimated Cement Top 304'

Unit Number 133

Wireline Size 9/32

Location FT MORGAN

Recorded By HAYES

Witnessed By BRIAN STANLEY

Size

Wt/Ft

Top

Bottom

9 5/8

5.5

36

20

Surface

Surface

1926

16055

<<< Fold Here >>>

All interpretations are opinions based on inferences from electrical or other measurements and Pioneer Wireline Services, LLC cannot and does not guarantee the accuracy or correctness of any interpretation, and Pioneer Wireline Services, LLC will not be liable or responsible for any loss, costs, damages, or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees.

### Comments

N/A DENOTES NOT AVAILABLE OR NON-APPLICABLE.

Bond Tool Calibrated @ 341

Logged With 0 PSI Surface Induced Pressure

Correlated To Marker Joint @ 7011'

THANK YOU FOR USING PIONEER ENERGY SERVICES!

Your Pioneer Energy Services Crew

Tool Data - Services

Serial Number

Engineer: HAYES  
Operator: PARRISH  
Operator: UNDERWOOD  
Operator:

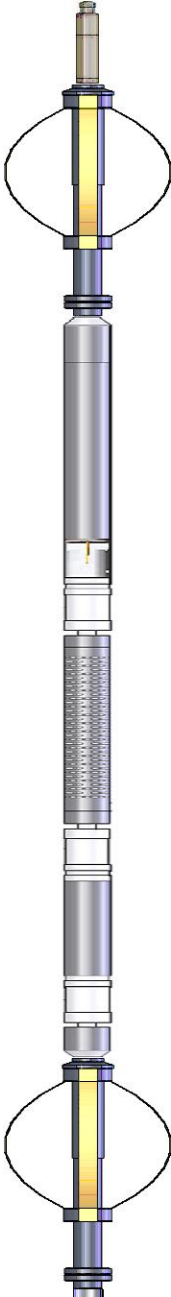
Top - Bottom

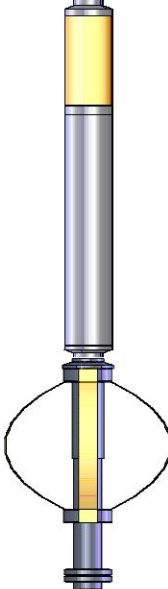
|               |             |             |           |             |             |            |         |
|---------------|-------------|-------------|-----------|-------------|-------------|------------|---------|
| BHTEMP_Src    | BOREID      | BOTTEMP     | CASEOD    | CASETHCK    | CASEWGHT    | MAXAMPL    | MINAMPL |
| TEMP          | in<br>7.875 | degF<br>100 | in<br>5.5 | in<br>0.361 | lb/ft<br>20 | mV<br>71.9 | mV<br>1 |
| MINATTN       | PERFS       | PPT         | SRFTEMP   | TDEPTH      |             |            |         |
| db/ft<br>0.08 | No          | usec<br>261 | degF<br>0 | ft<br>0     |             |            |         |



Variable Description

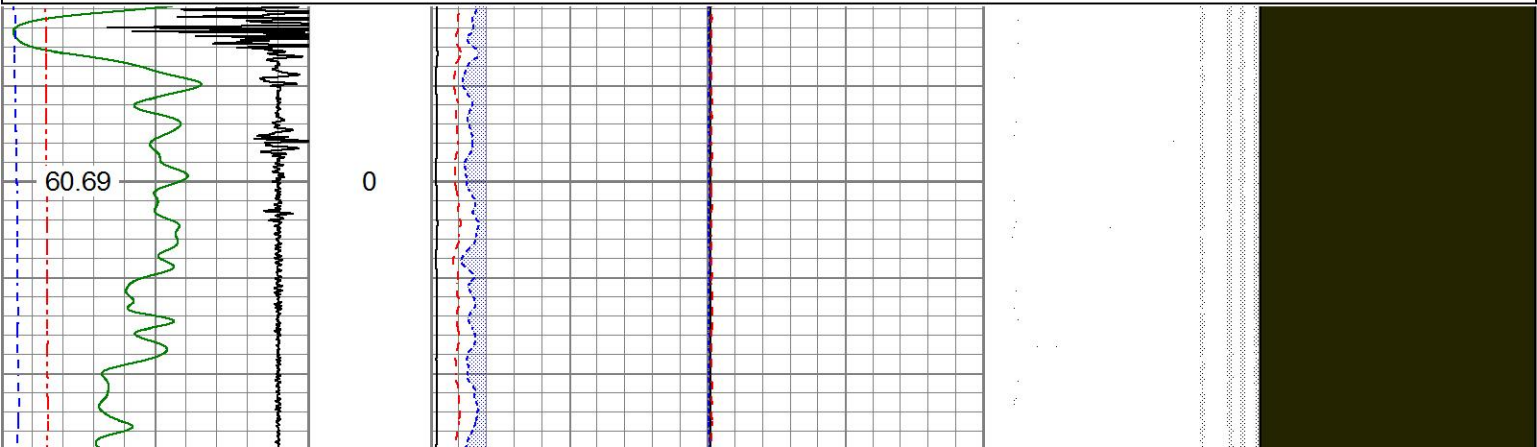
BHTEMP\_Src : BHTEMP Input Source Selector  
BOREID : Borehole I.D.  
BOTTEMP : Bottom Hole Temperature  
CASEOD : Casing O.D.  
CASETHCK : Casing Thickness  
CASEWGHT : Casing Weight  
MAXAMPL : Maximum Amplitude

MINAMPL : Minimum Amplitude  
MINATTN : Minimum Attenuation  
PERFS : Perforation Flag  
PPT : Predicted Pipe Time  
SRFTEMP : Surface Temperature  
TDEPTH : Total Depth

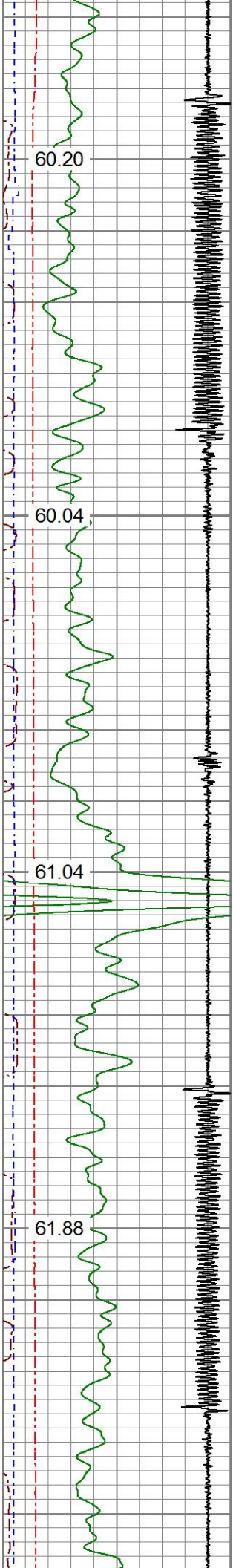
| Sensor | Offset (ft) | Schematic  | Description  | Length (ft) | O.D. (in) | Weight (lb) |
|--------|-------------|--|--|-------------|-----------|-------------|
| TEMP   | 16.78       |  | Cable Head-Titan_144<br>1 7/16" Titan Cable Head   | 1.03        | 1.44      | 2.00        |
|        |             |  | Centralizer-275 Probe<br>2 3/4" Probe Adjustable Spring Centralizer                          | 2.88        | 2.75      | 15.00       |
|        |             |  | PROBE-RBT-DIGITAL-RBL-DCT (FW1411-68)<br>Probe 2 3/4" Radii Bond with Temp-Corrosion Package | 9.21        | 2.75      | 105.00      |
|        |             |  |  |             |           |             |
|        |             |  |  |             |           |             |
|        |             |  |  |             |           |             |
|        |             |  |  |             |           |             |
|        |             |  |  |             |           |             |
|        |             |  |  |             |           |             |
|        |             |  |  |             |           |             |
|        |             |  |  |             |           |             |
|        |             |  | Centralizer-275 Probe<br>2 3/4" Probe Adjustable Spring Centralizer                          | 2.88        | 2.75      | 15.00       |

|   |      |   |   |      |      |       |
|---|------|---|---|------|------|-------|
| CCL   | 6.51 |  | PROBE-GR/CCL-ANALOG-GR/CCL-A (120672)<br>2 3/4" Gamma with CCL-Analog | 4.54 | 2.75 | 60.00 |
| GR  | 3.78 |   | Centralizer-275 Probe<br>2 3/4" Probe Adjustable Spring Centralizer   | 2.88 | 2.75 | 15.00 |
| Dataset: verdad_sonic star1101-13h-05-123-48990_2021-08-october.db: field/well/run1/pass7.1<br>Total length: 23.42 ft<br>Total weight: 212.00 lb<br>O.D.: 2.75 in |      |   |   |      |      |       |

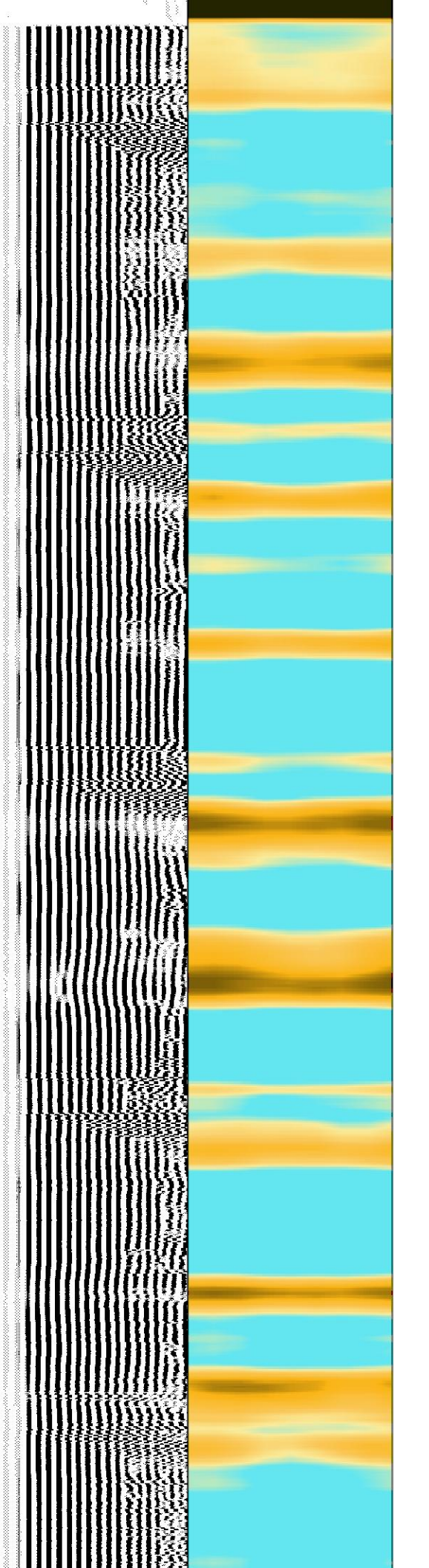
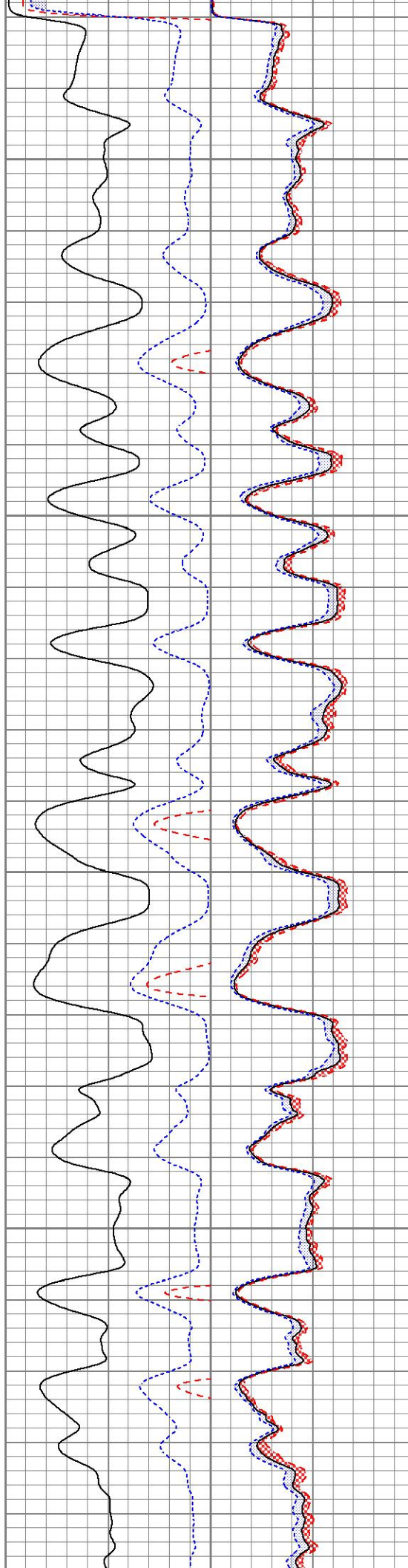
|   |                            |                          |   |            |      |   |
|---|----------------------------|--------------------------|---|------------|------|---|
|   |                            | MAIN LOG                 |   |            |      |   |
| Database File: verdad_sonic star1101-13h-05-123-48990_2021-08-october.db<br>Dataset Pathname: pass7.1<br>Presentation Format: pinr_scbl<br>Dataset Creation: Fri Oct 08 12:22:27 2021<br>Charted by: Depth in Feet scaled 1:240 |                            |                          |   |            |      |   |
| 3Ft Travel Time   | 3' Amplitude               | Sector                   | 200   | VDL (usec) | 1200 | 1 |
| 270 (usec) 170  | 0 (mV) 100                 | Amplitude Average        |   |            |      | 8 |
| -9 Collar Locator 1   | 3' Amplified Amplitude X 5 | 0 150                    |  |            |      |   |
| Gamma Ray   | 0 (mV) 20                  | Sector Amplitude Maximum |   |            |      |   |
| 0 (GAPI) 150  | 1 Bond Index 0             | 0 150                    |   |            |      |   |
| 0 LineTension (lb)2000  |                            | Sector Amplitude Minimum |   |            |      |   |
| Line Speed  |                            | 0 150                    |   |            |      |   |
| -100 (ft/min) 100   |                            |                          |   |            |      |   |
| TEMP (degF)   |                            |                          |   |            |      |   |



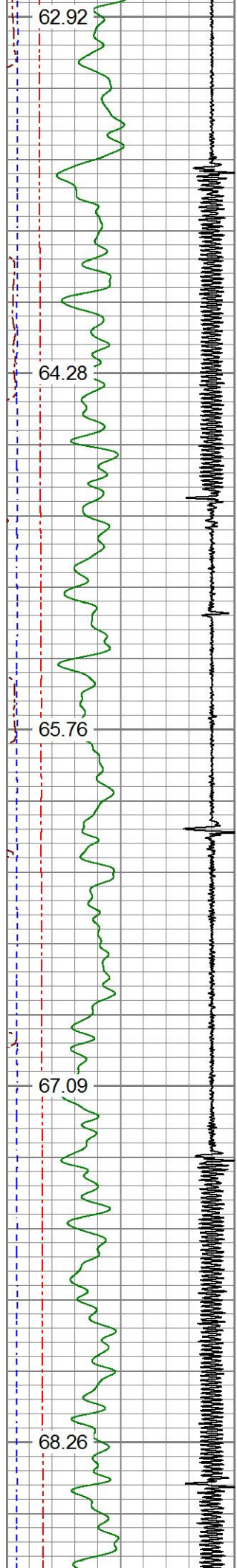




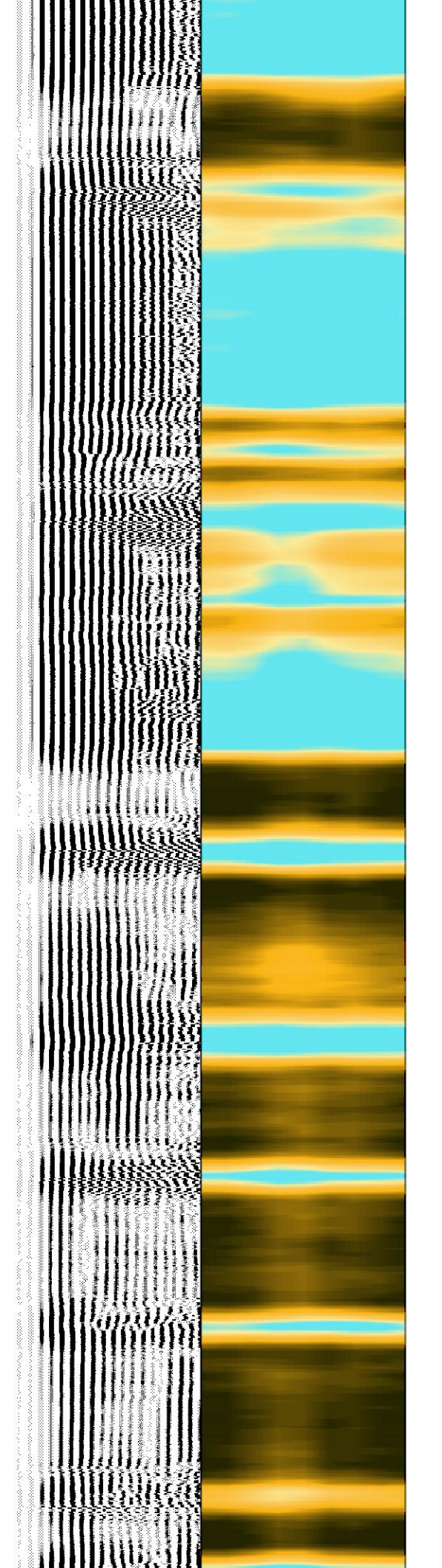
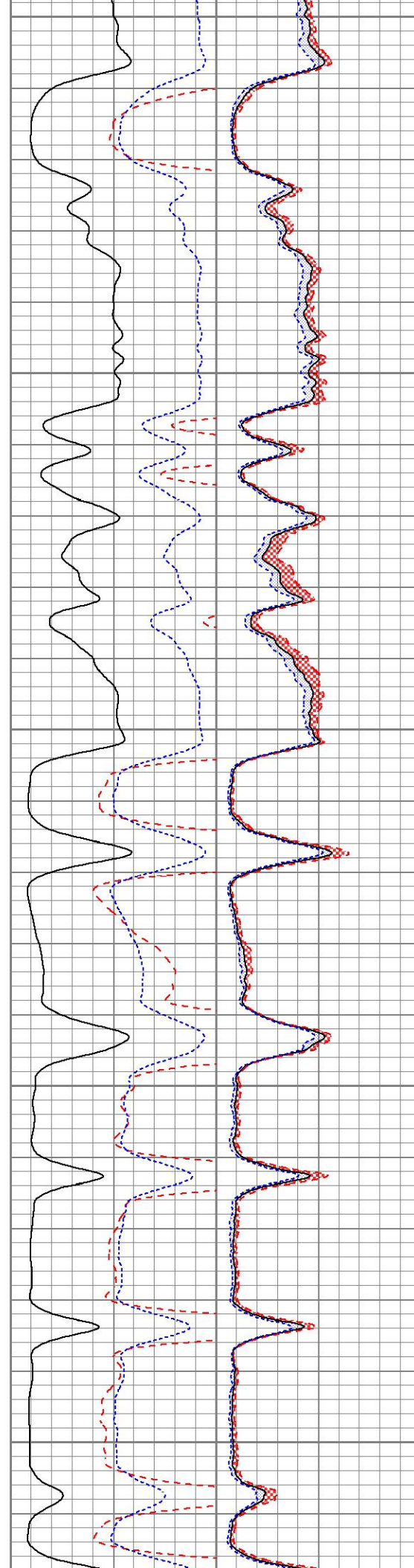
50  
100  
150  
200



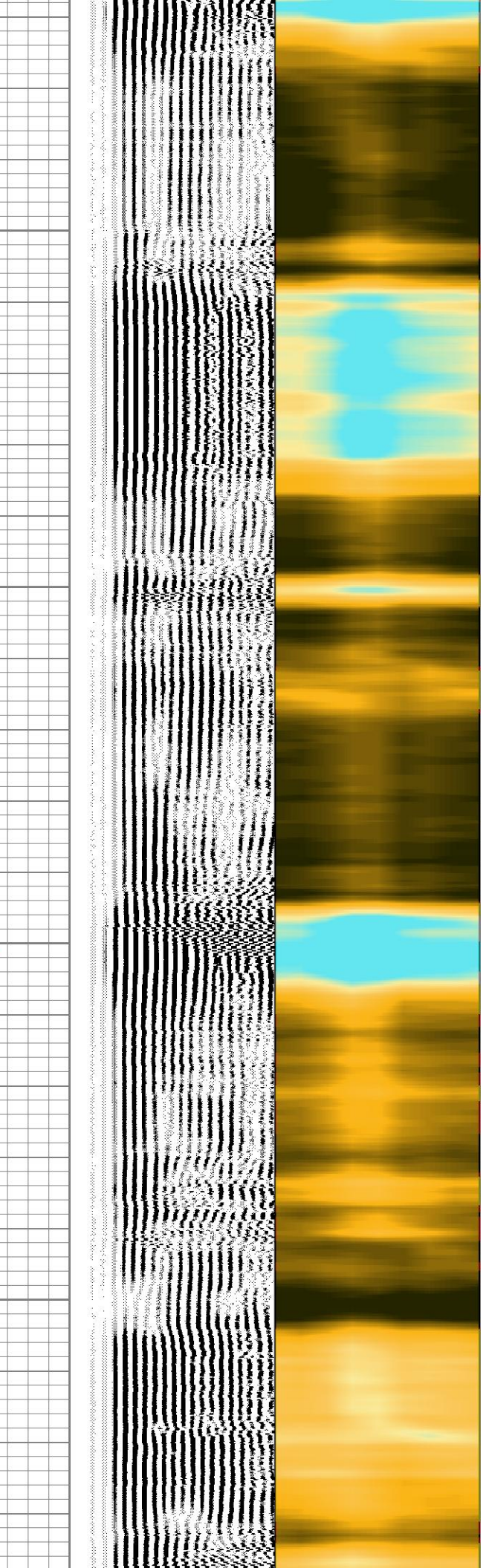
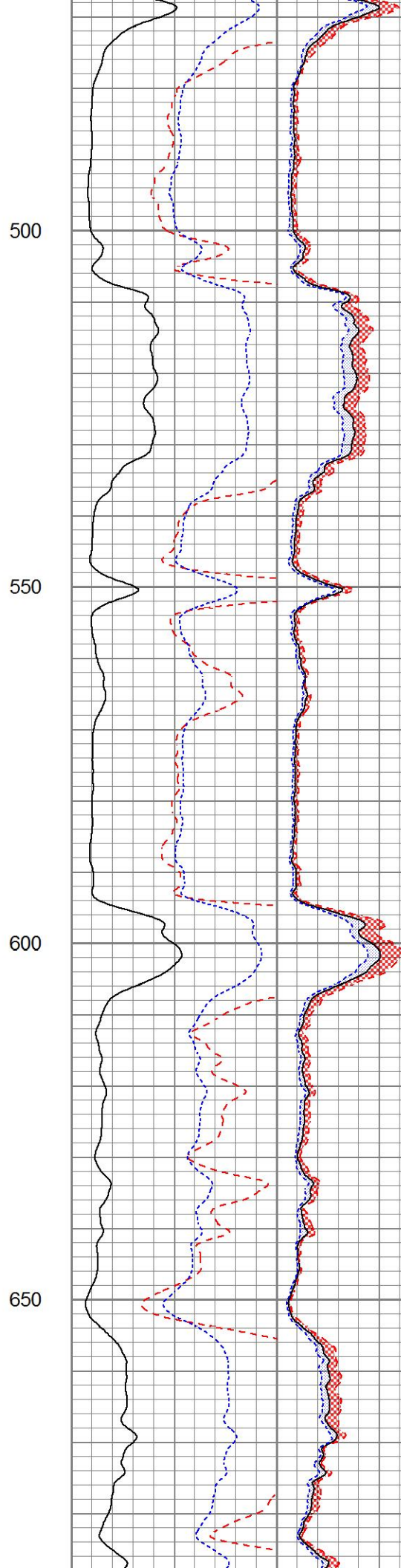
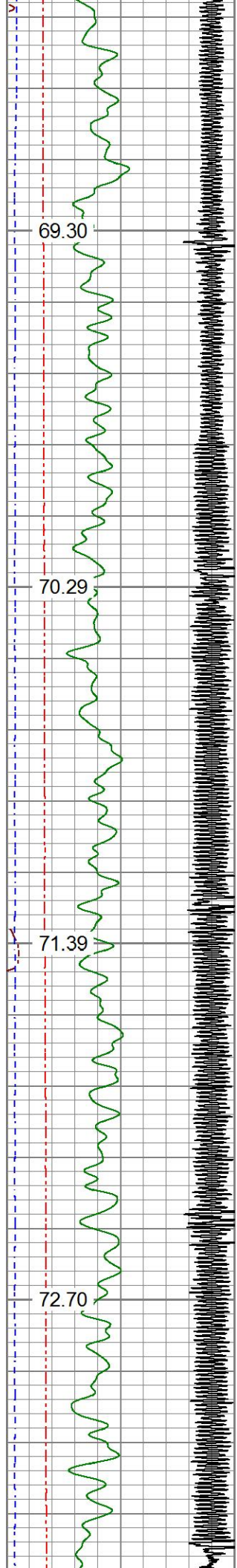




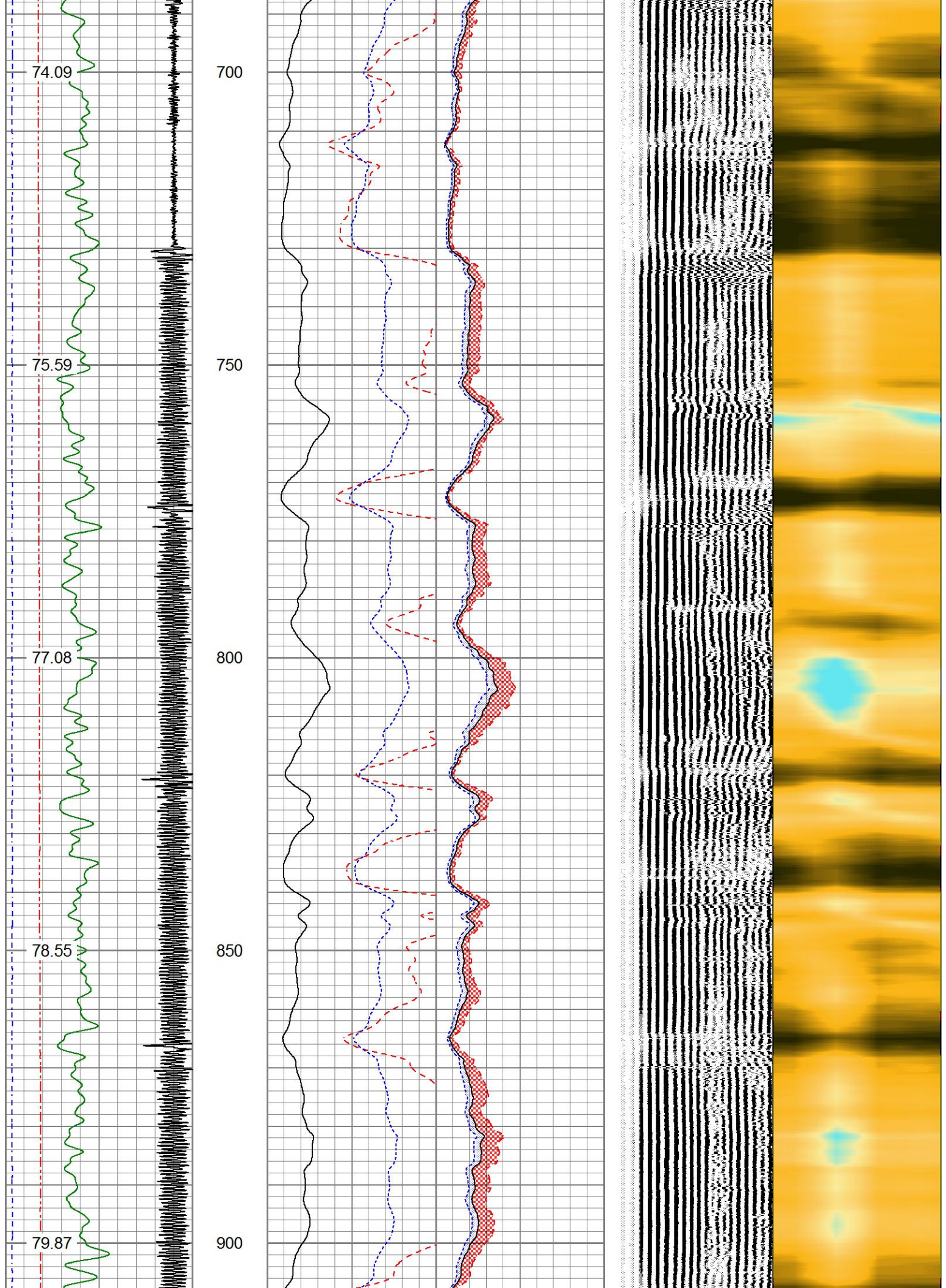
250  
300  
350  
400  
450



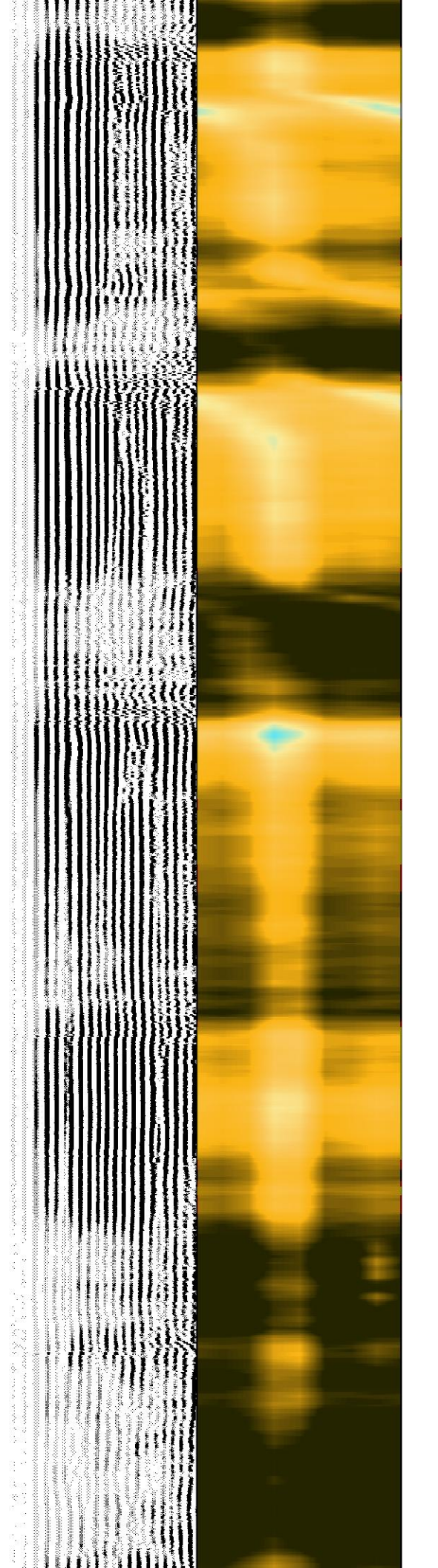
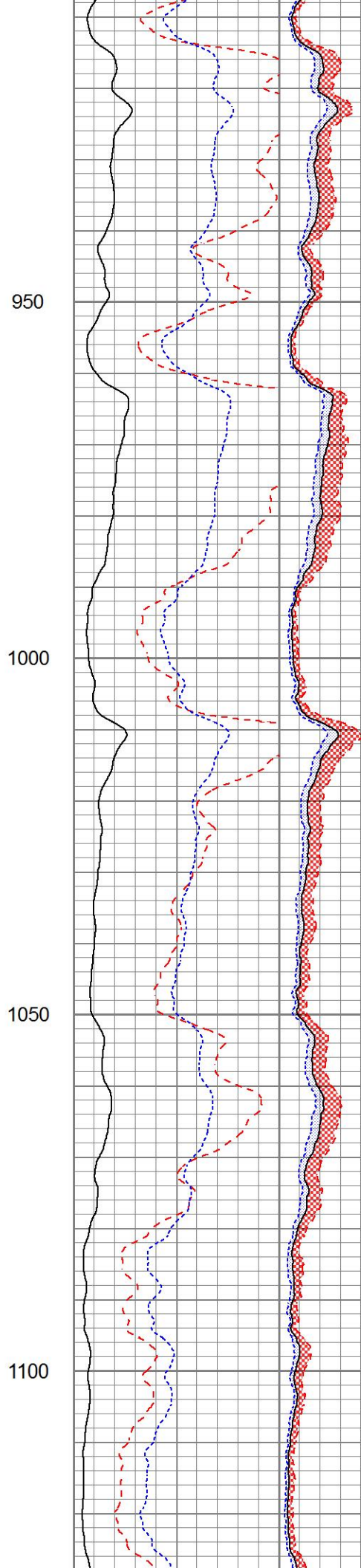
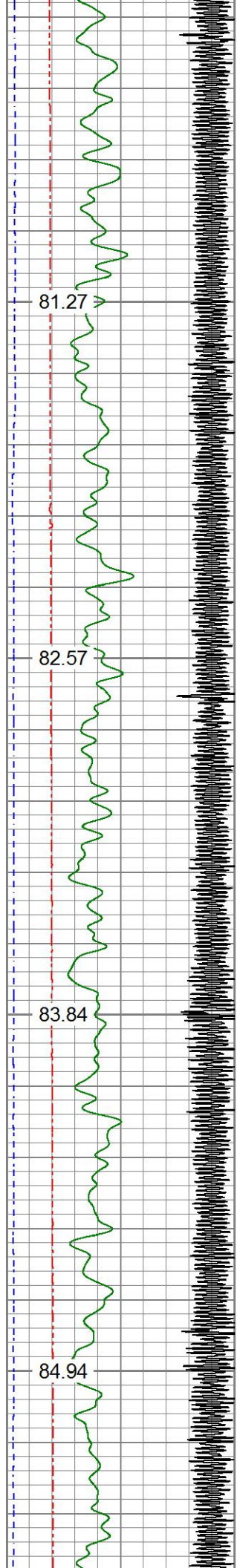




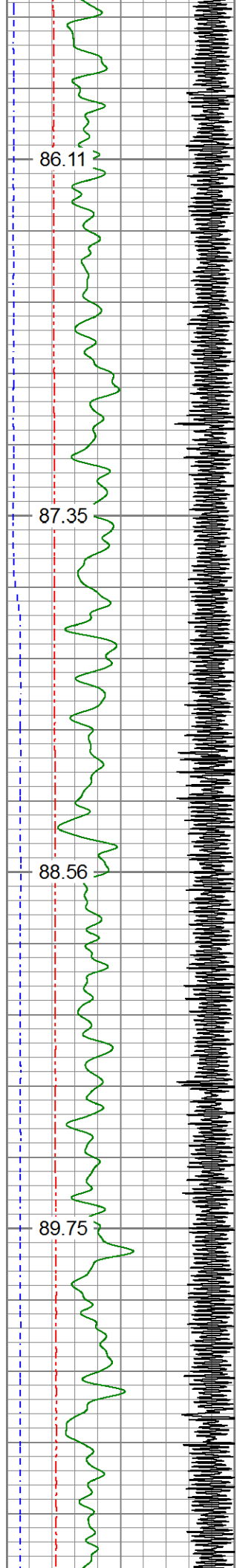










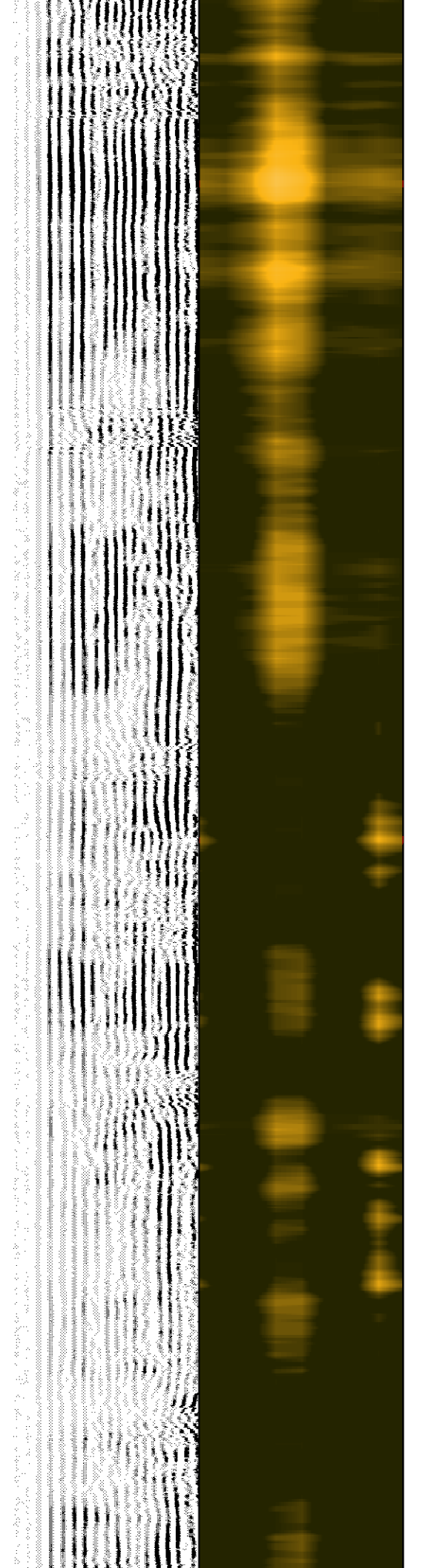
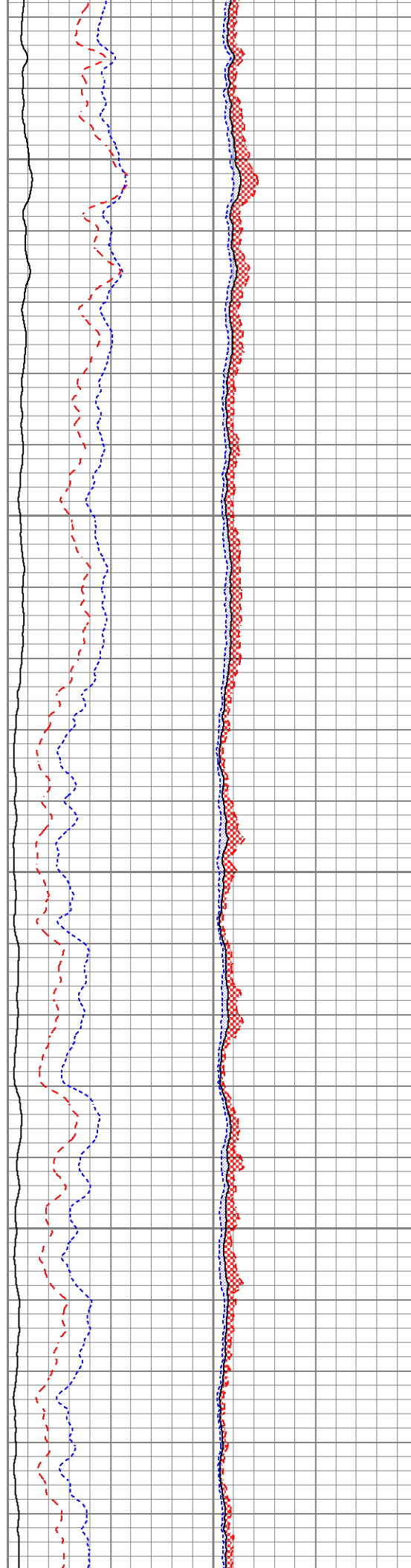


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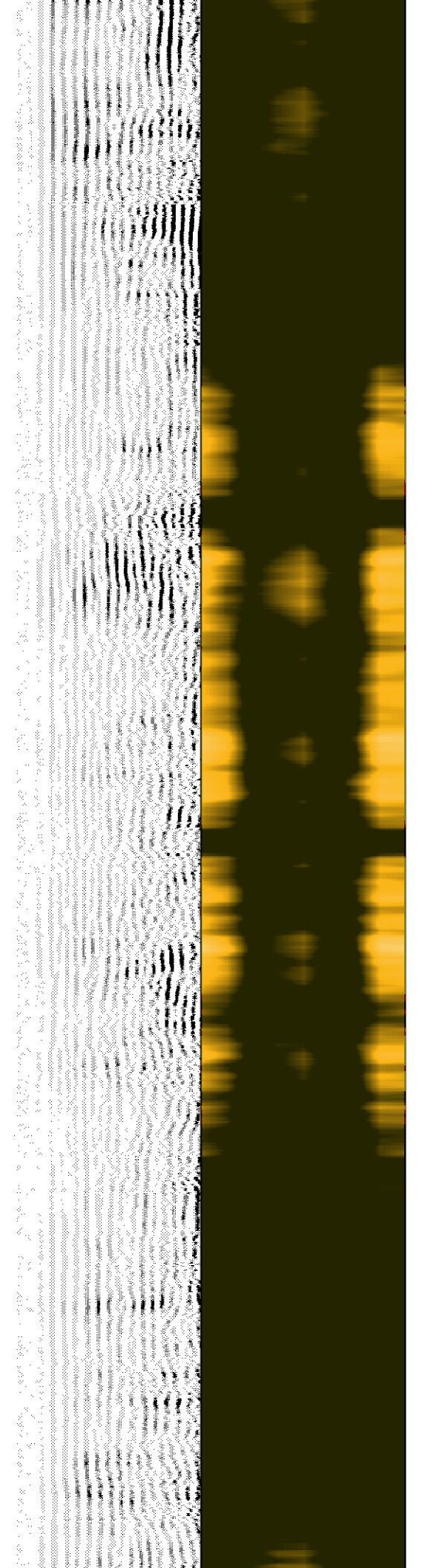
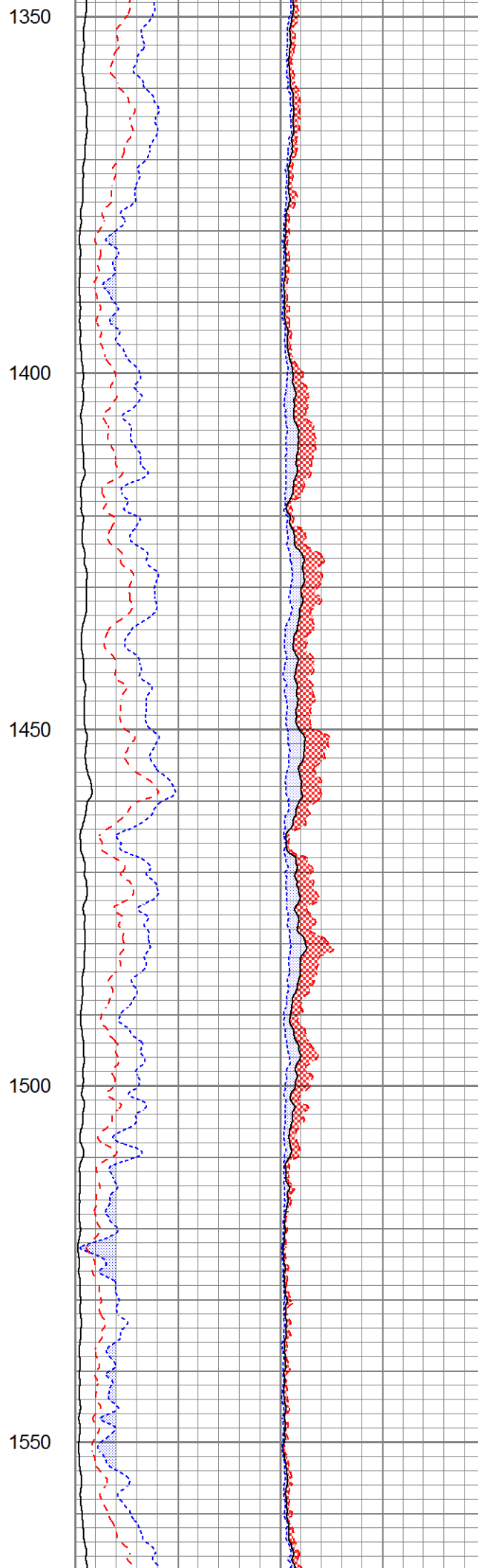
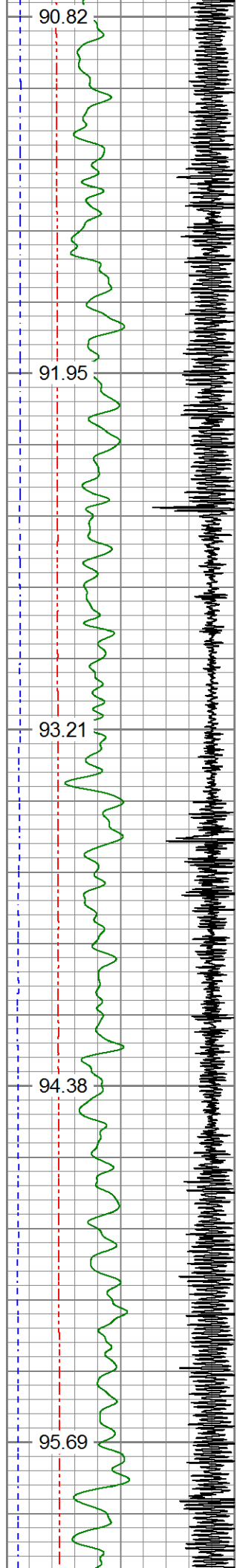
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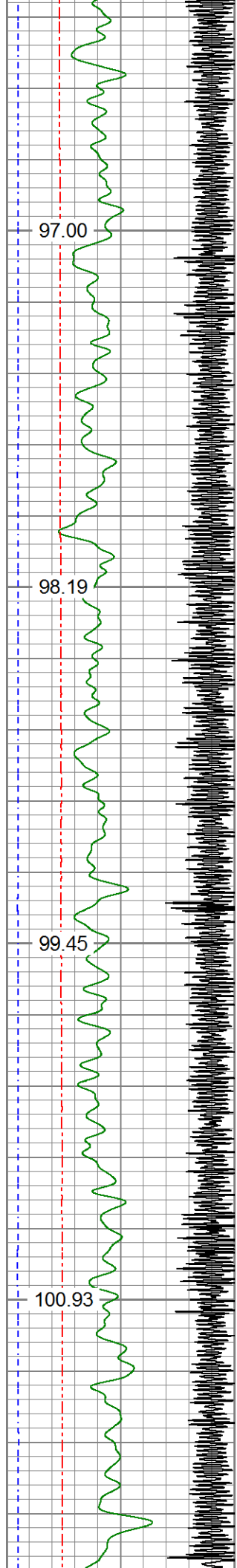
1300











97.00

98.19

99.45

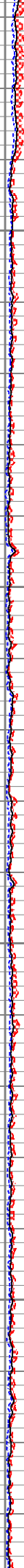
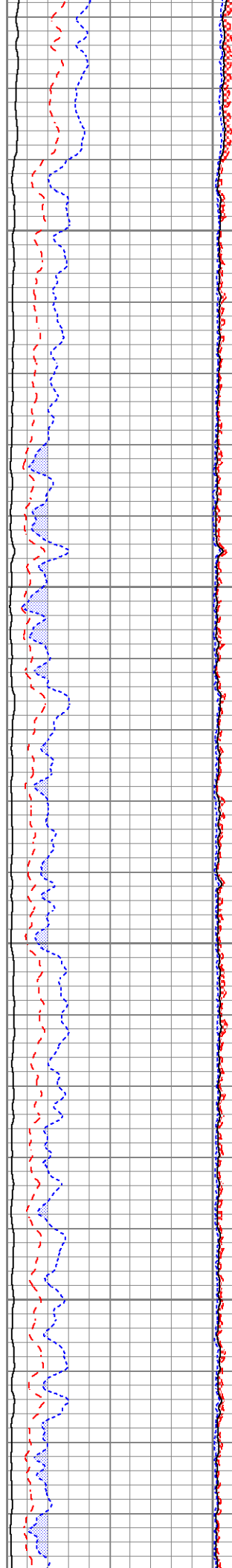
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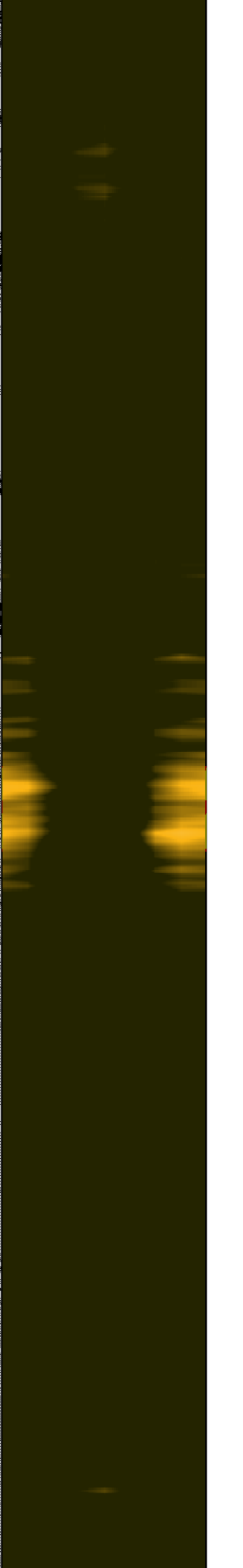
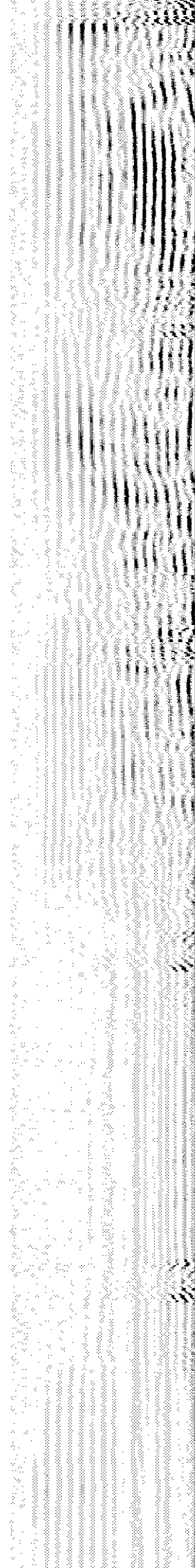
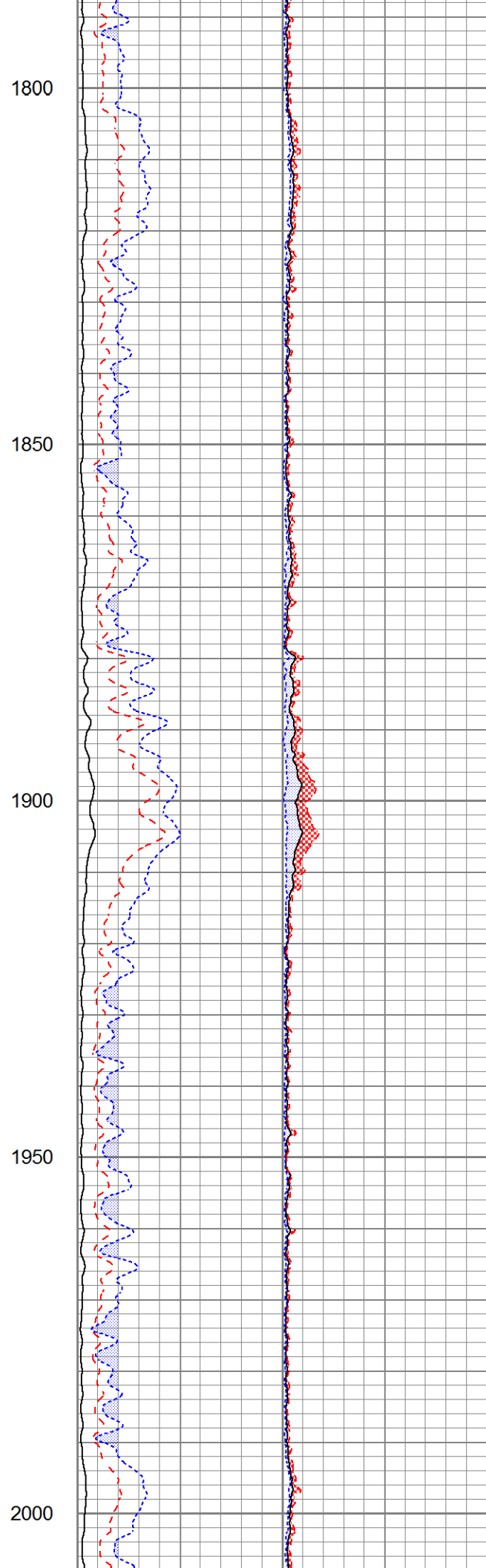
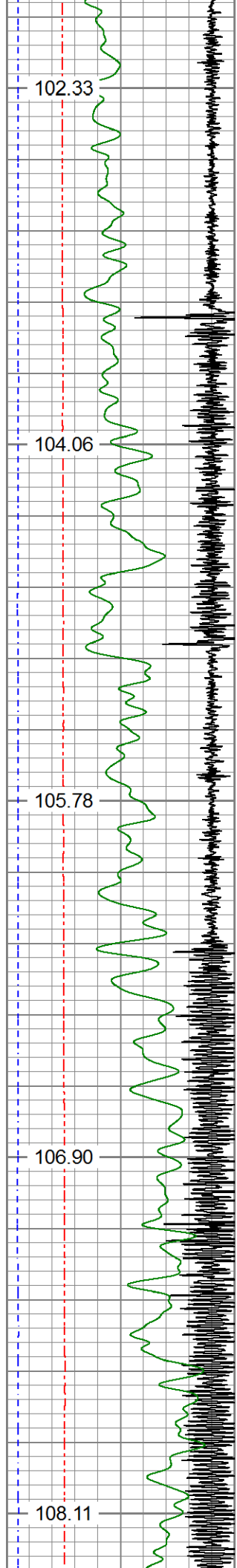
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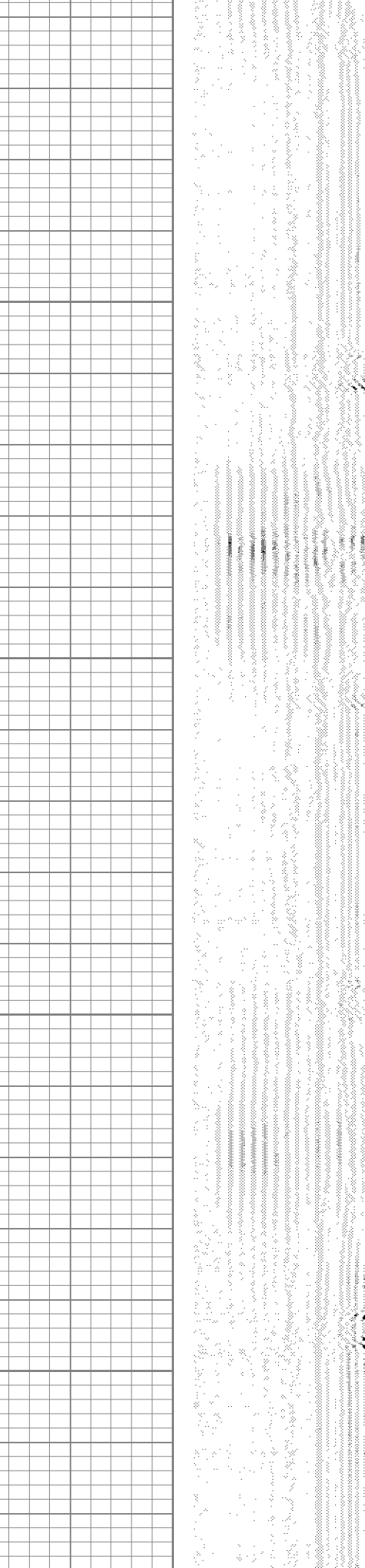
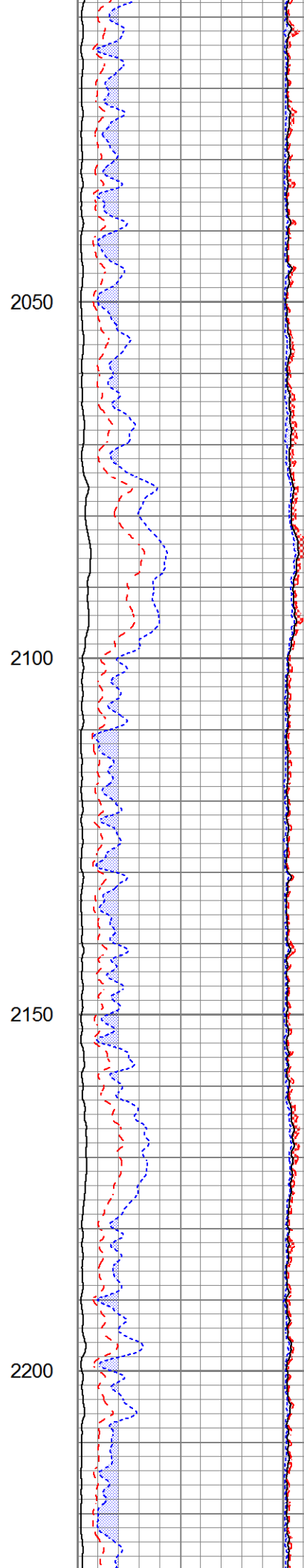
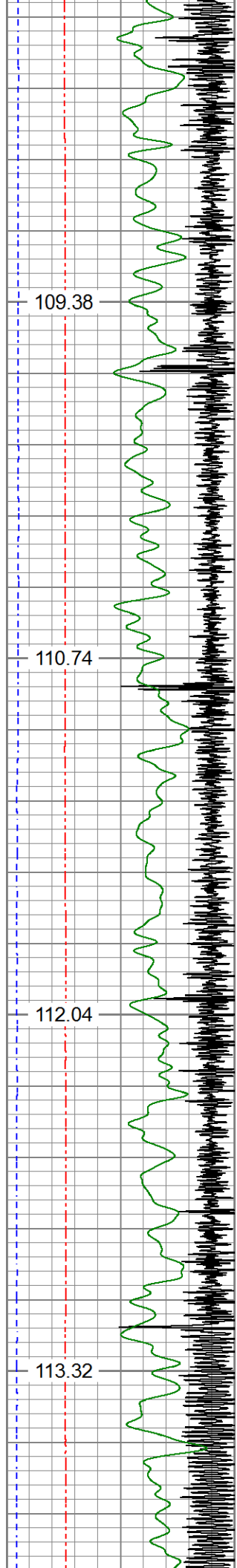
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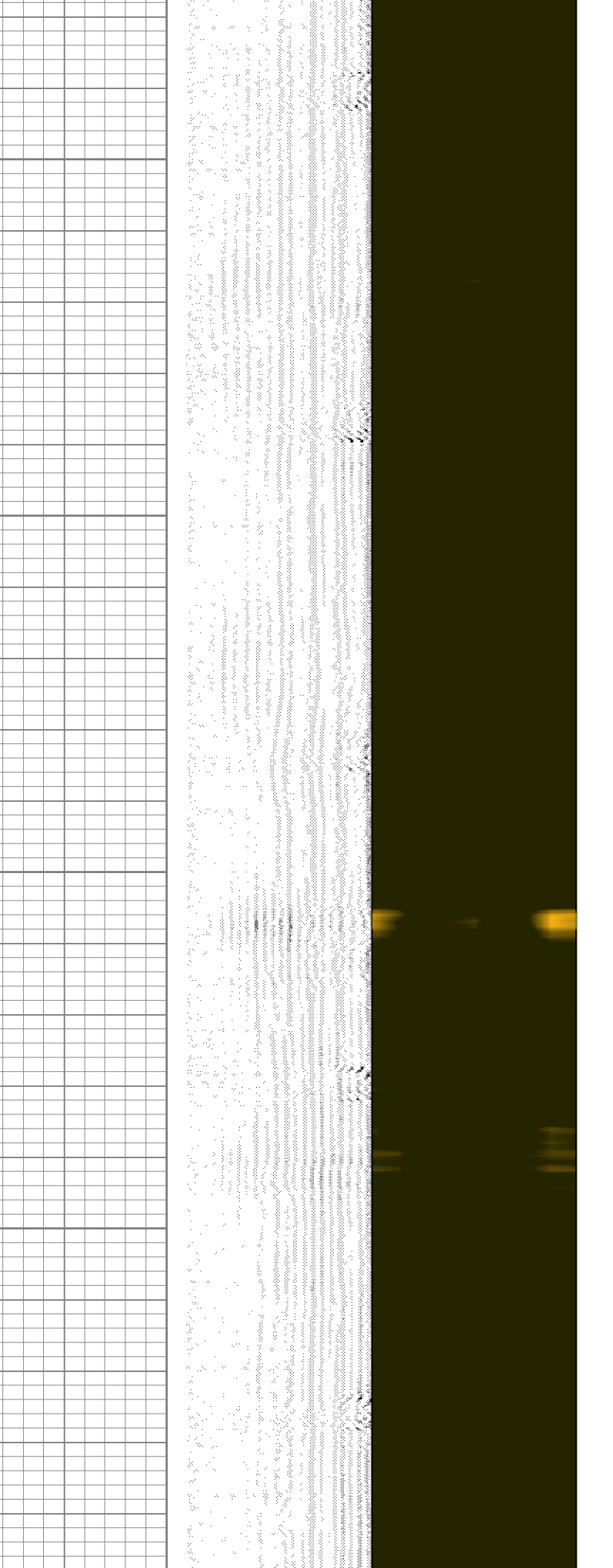
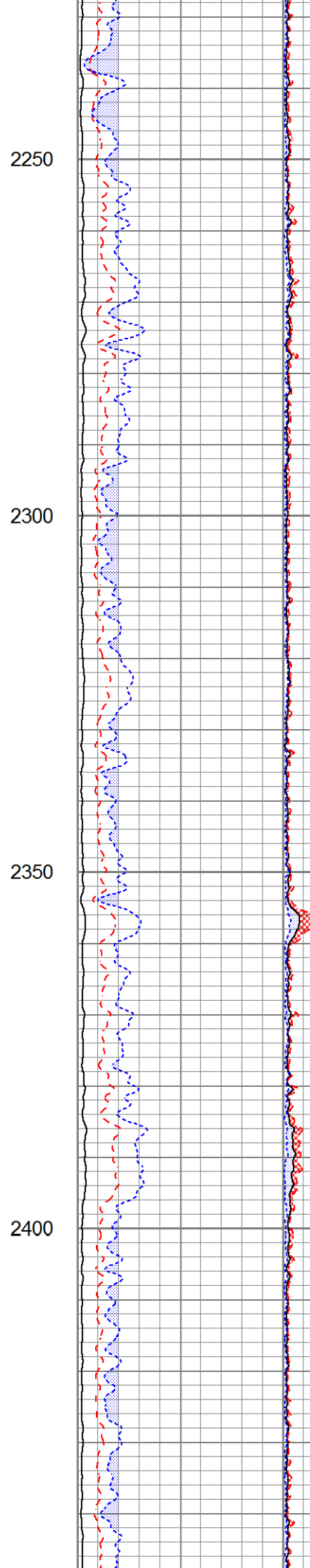
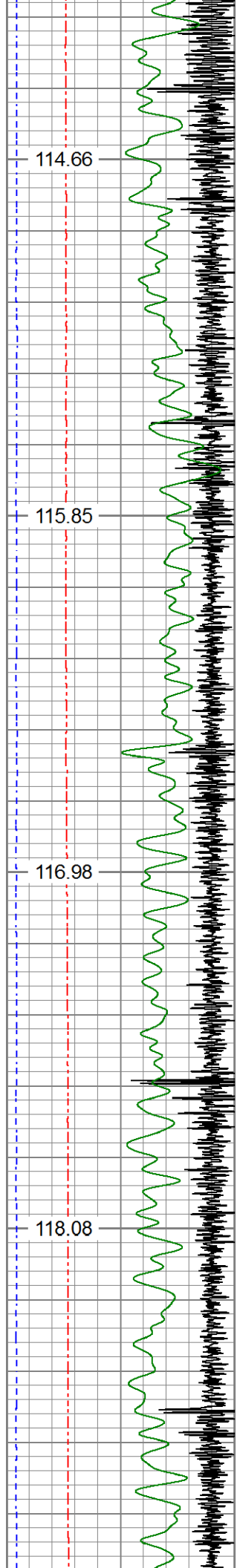


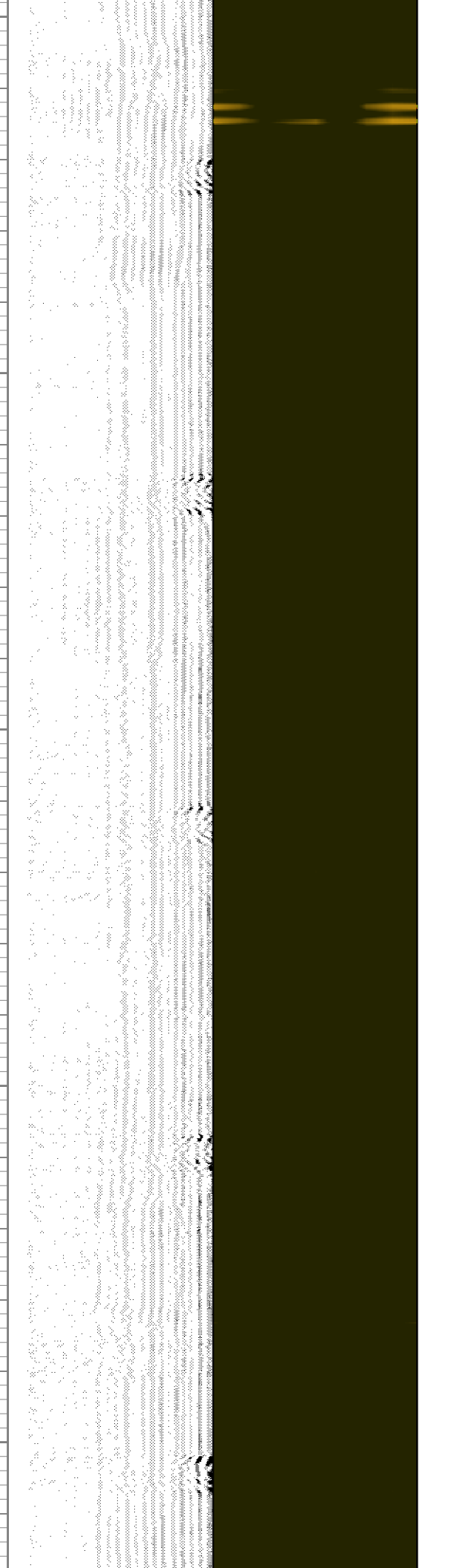
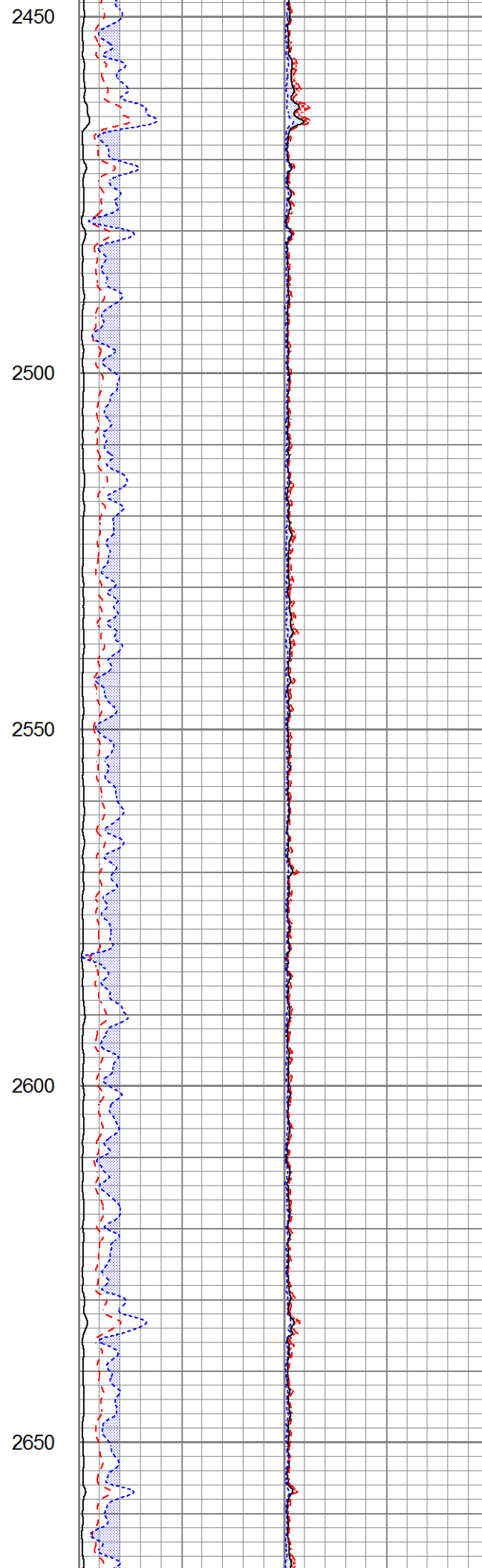
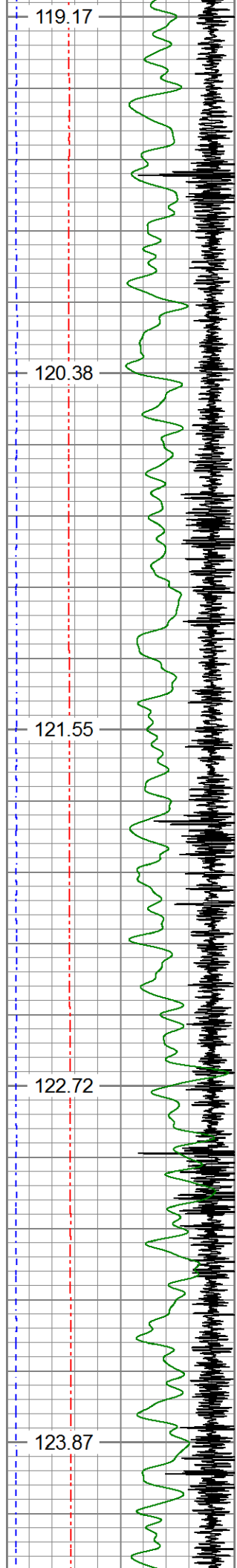




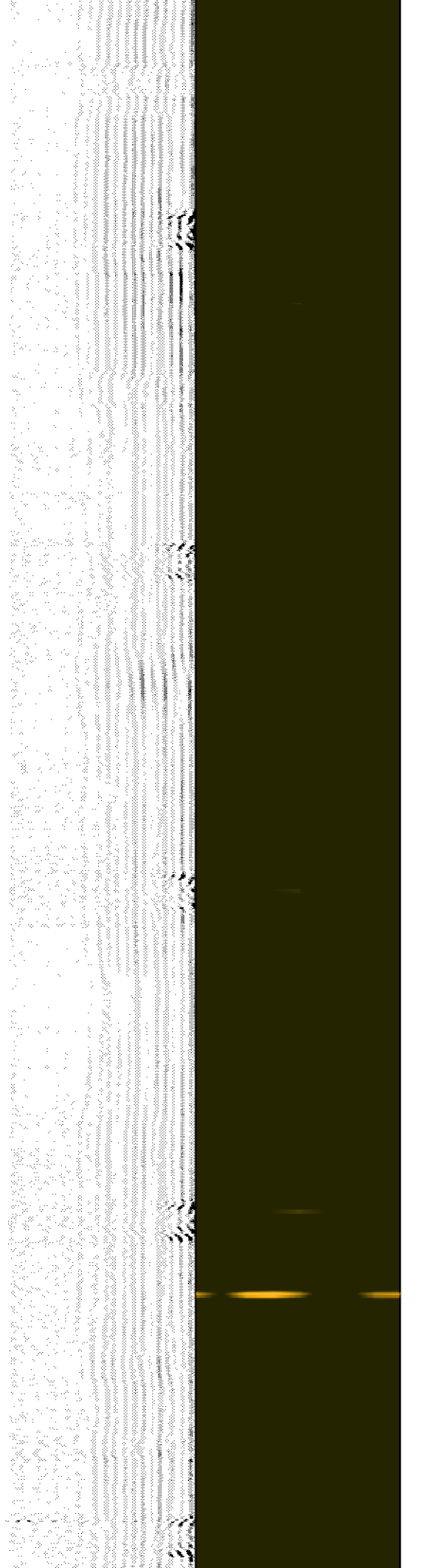
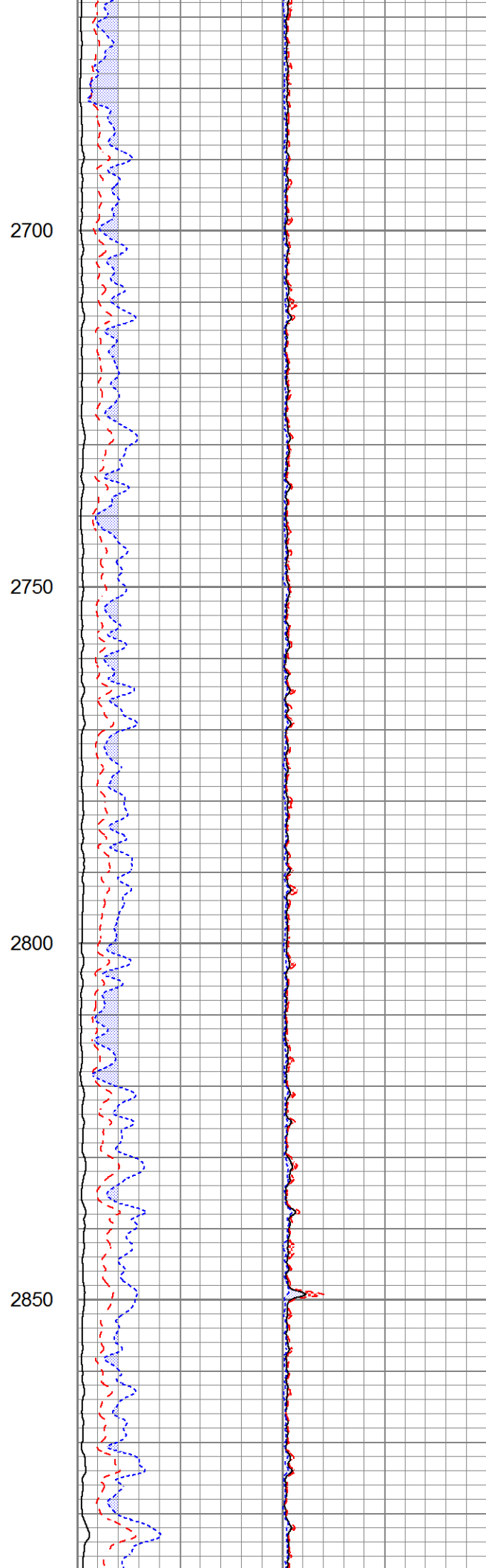
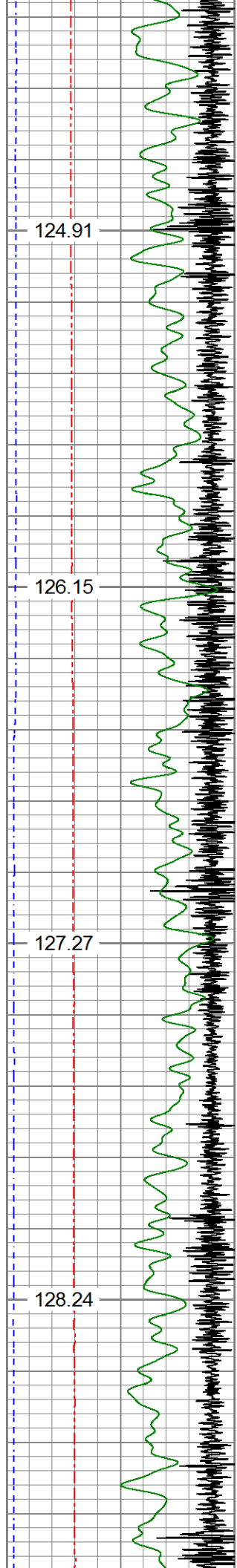


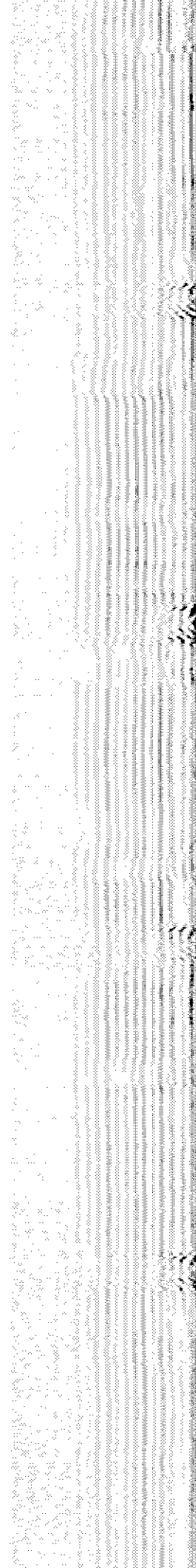
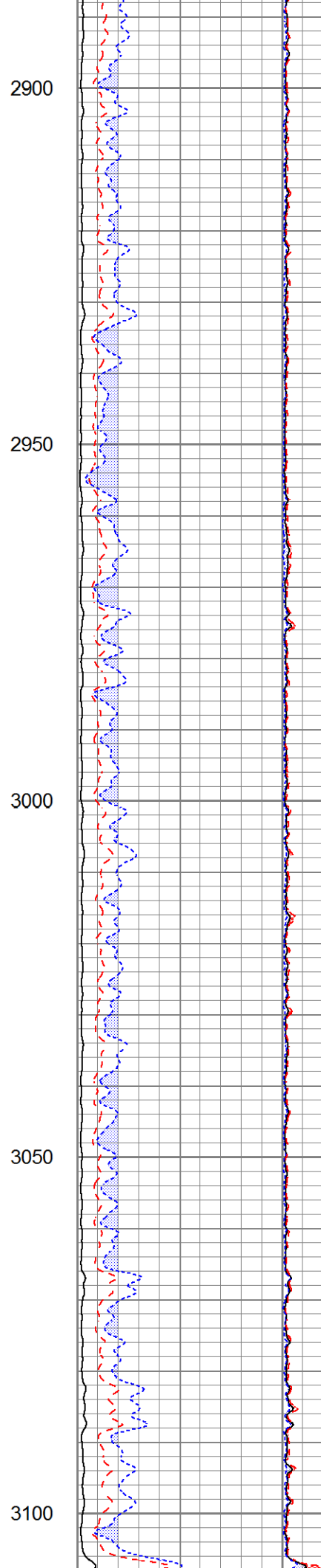
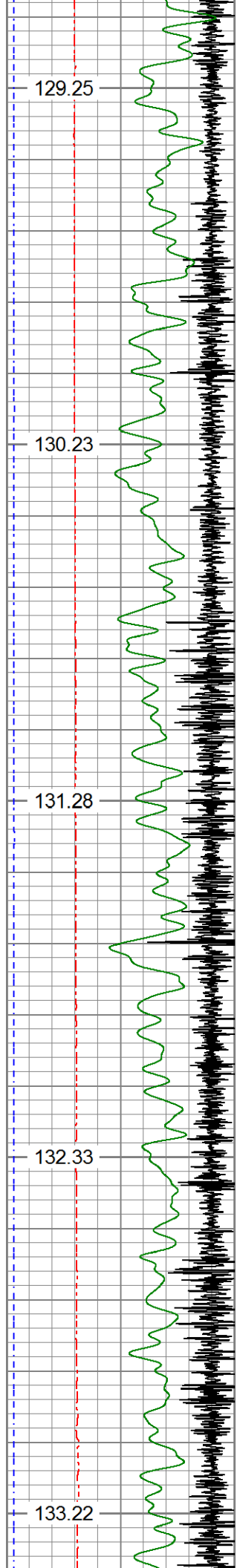




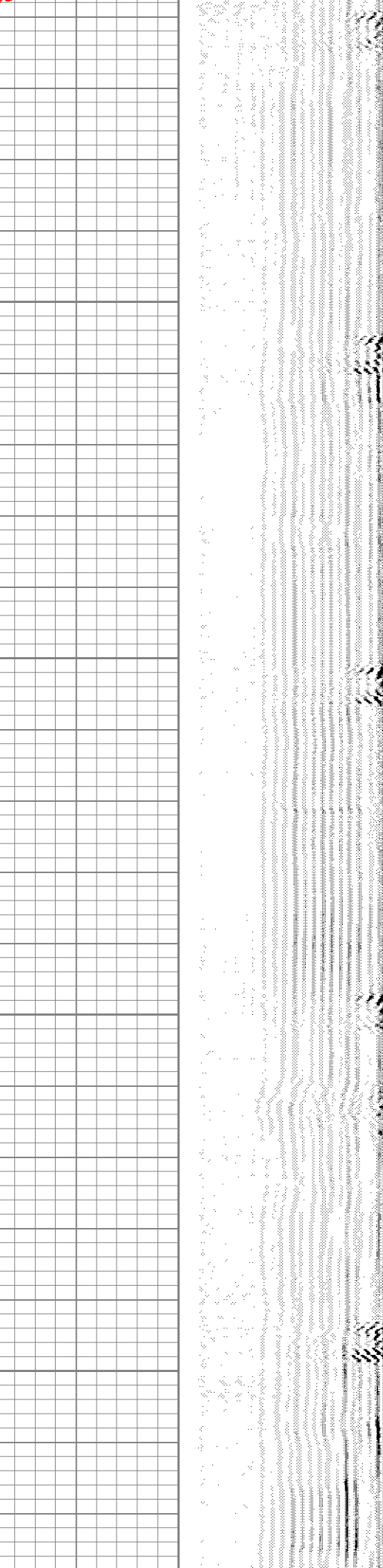
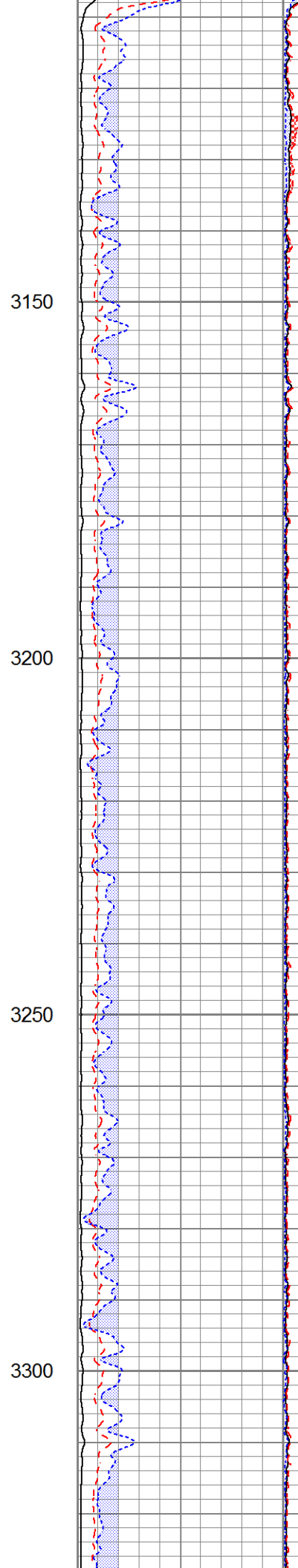
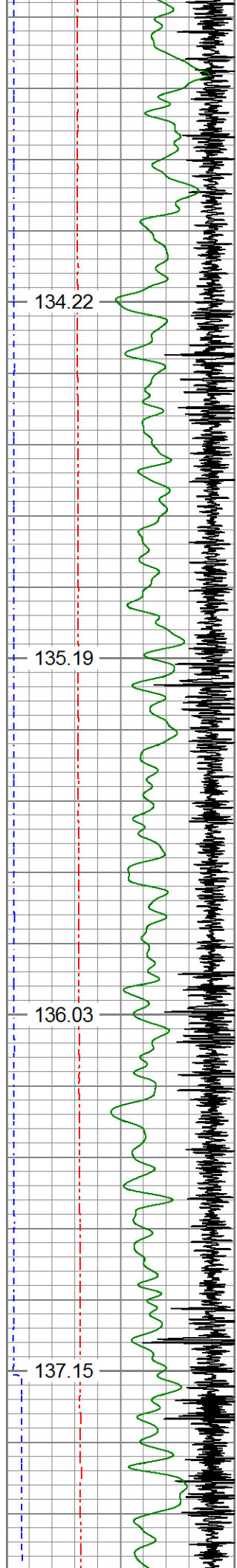


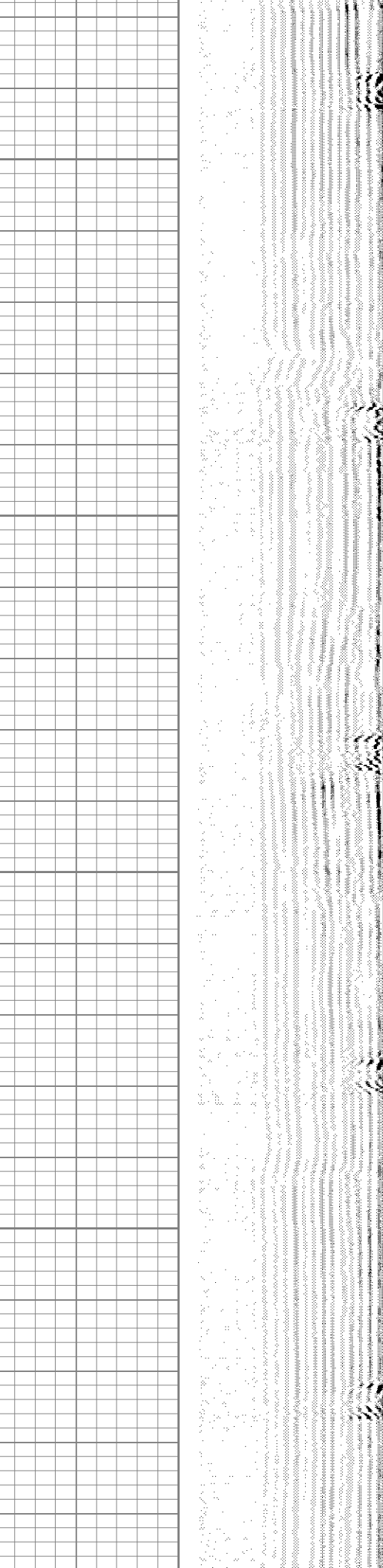
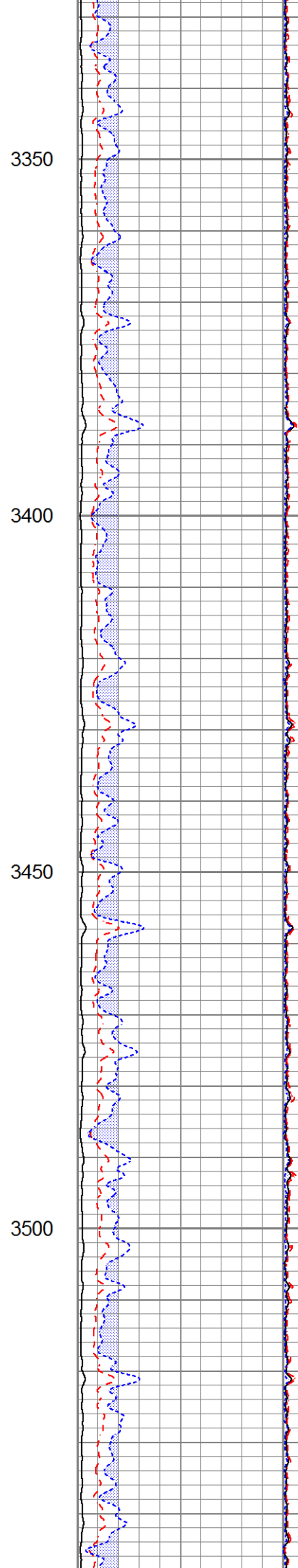
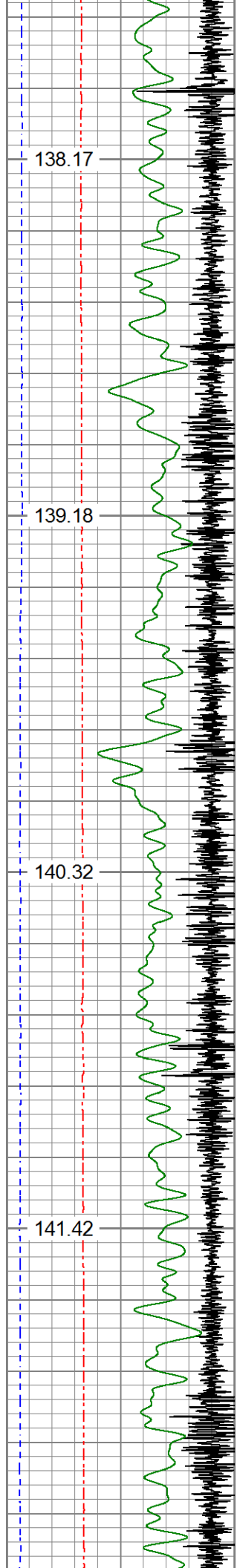




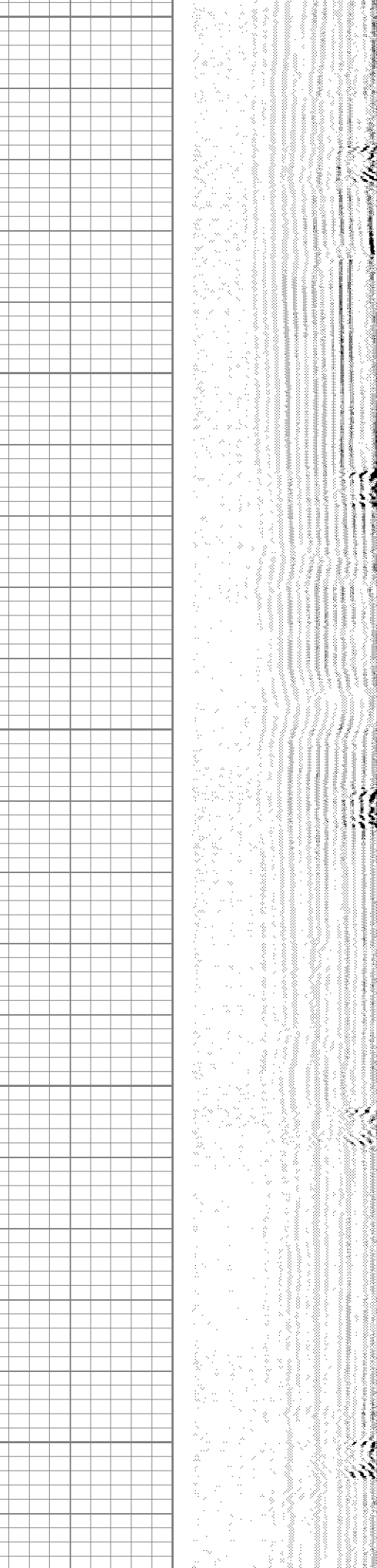
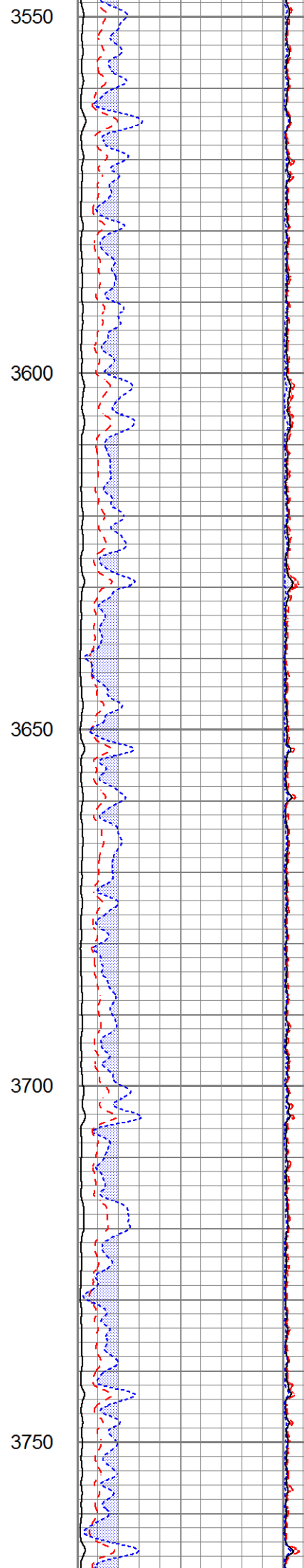
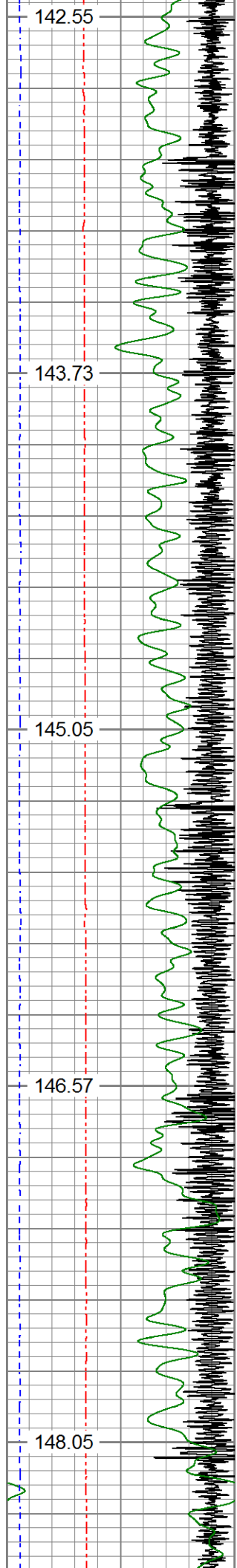


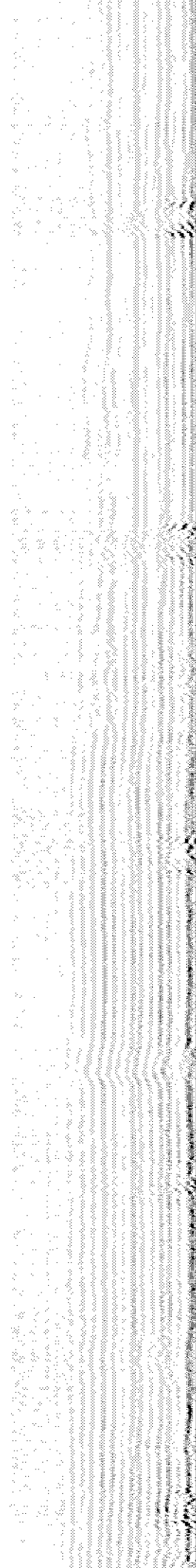
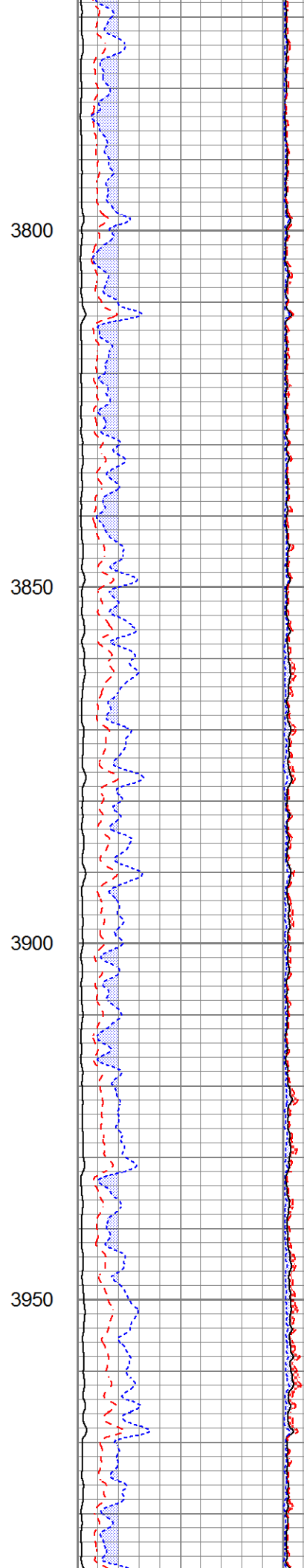
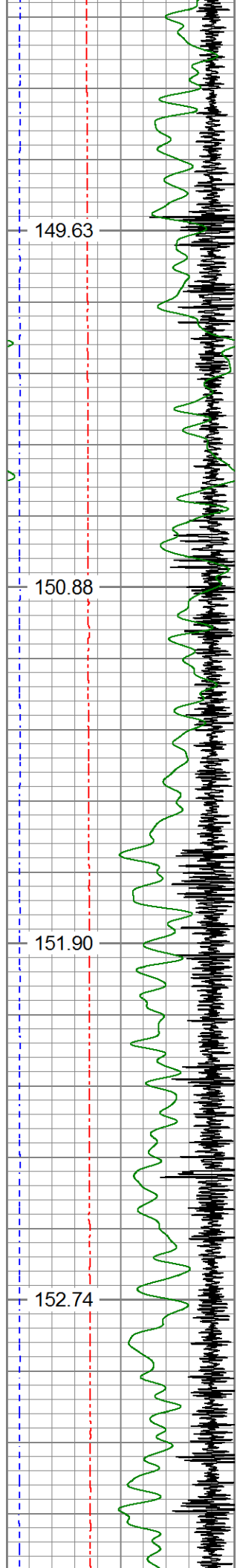




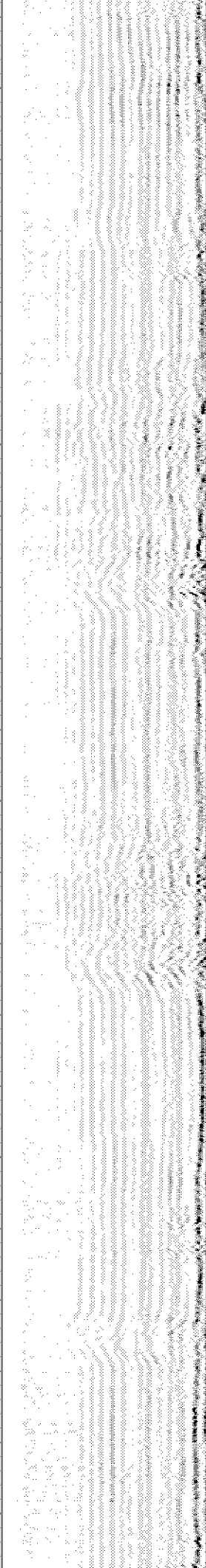
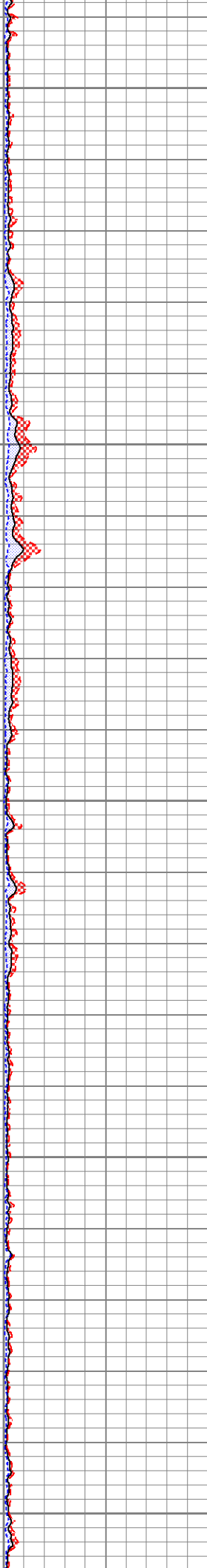
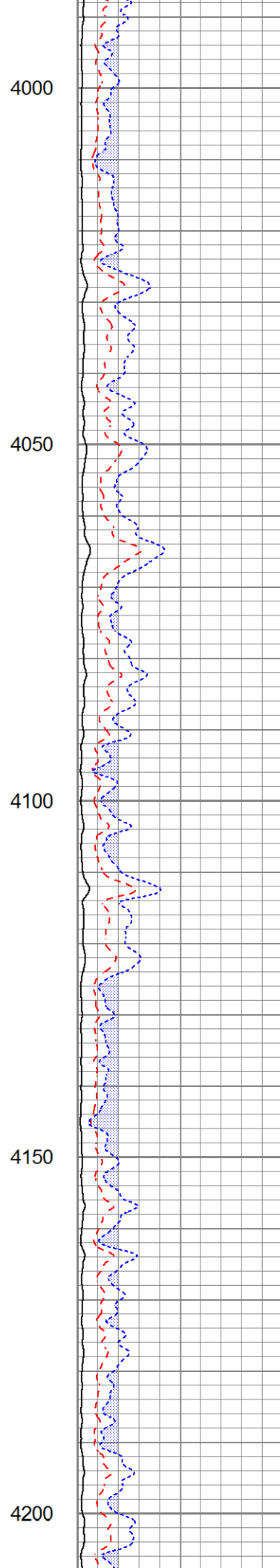
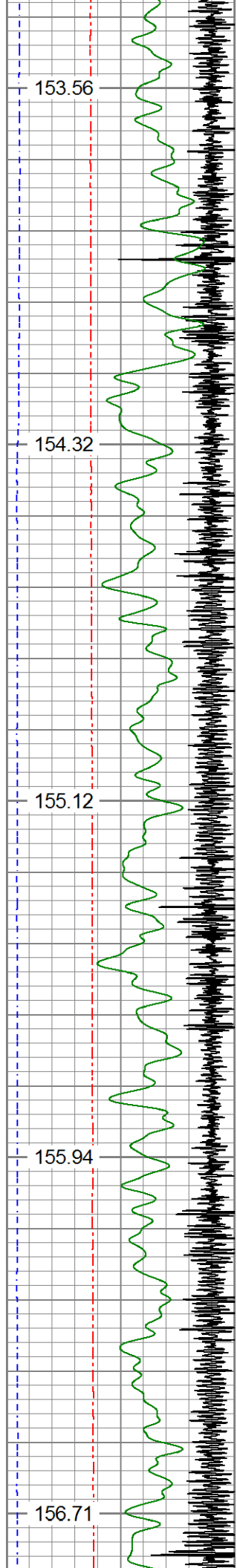


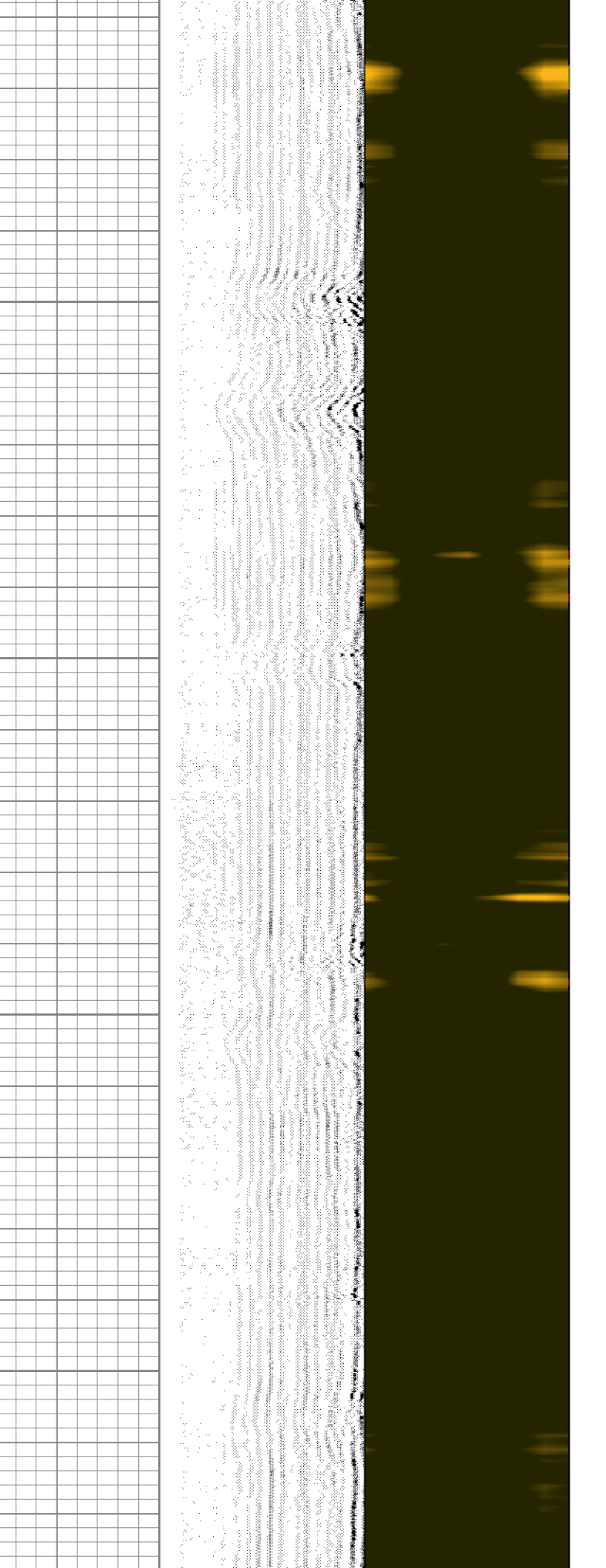
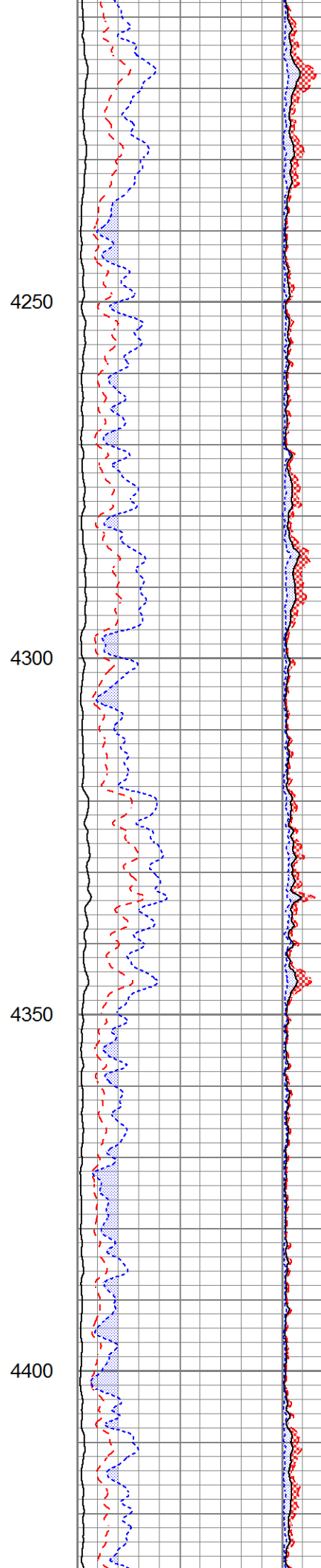
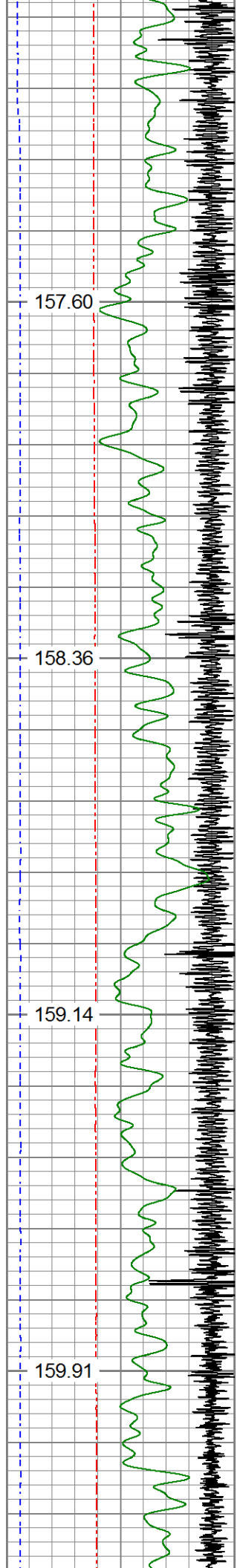




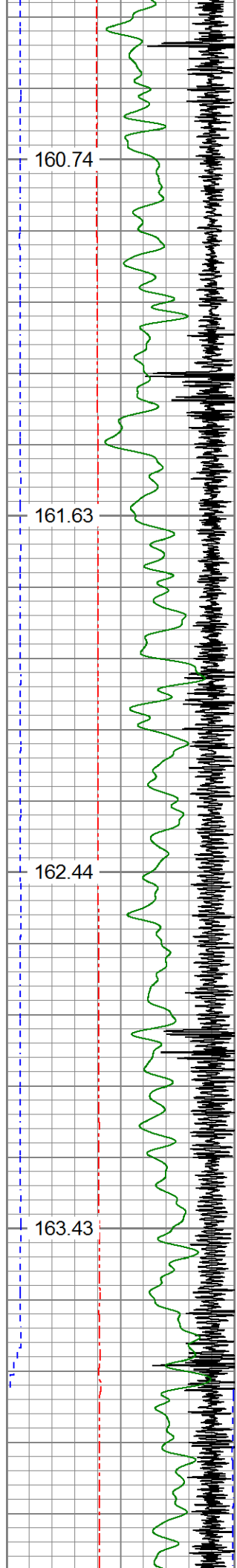










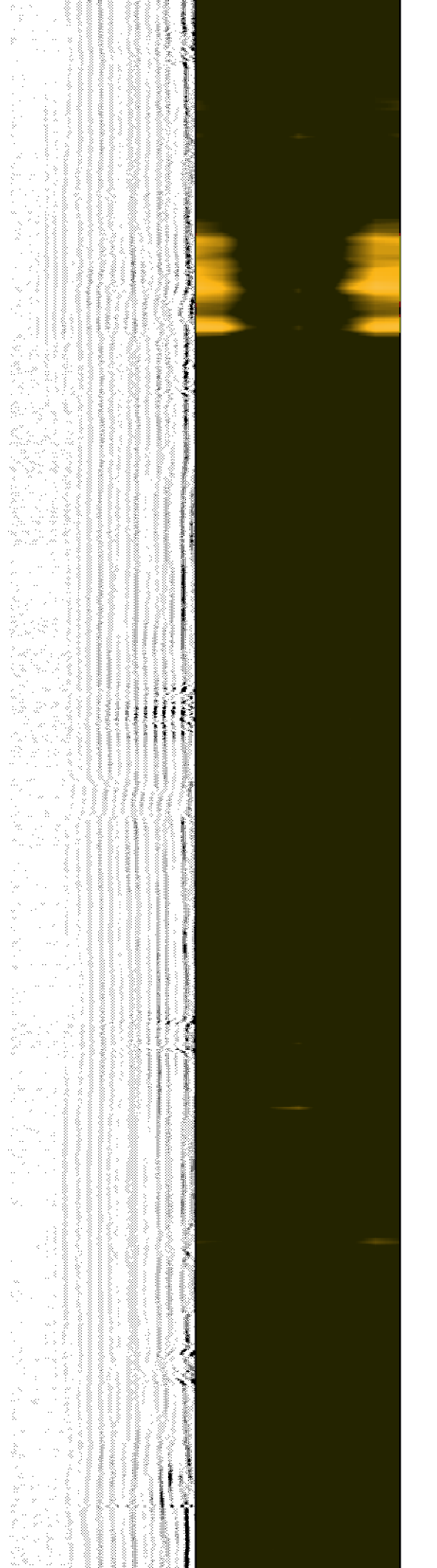
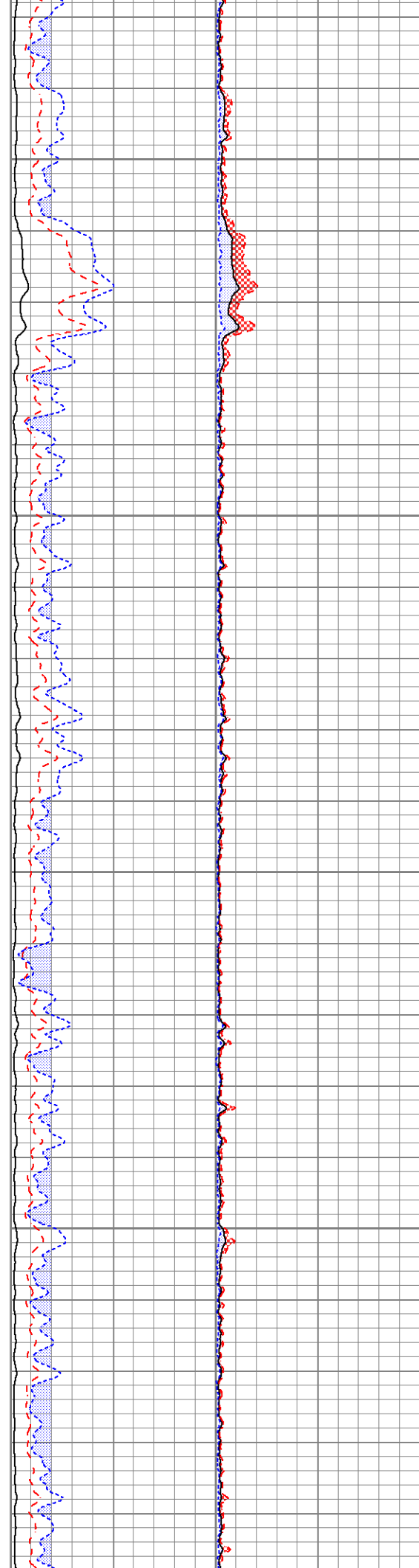


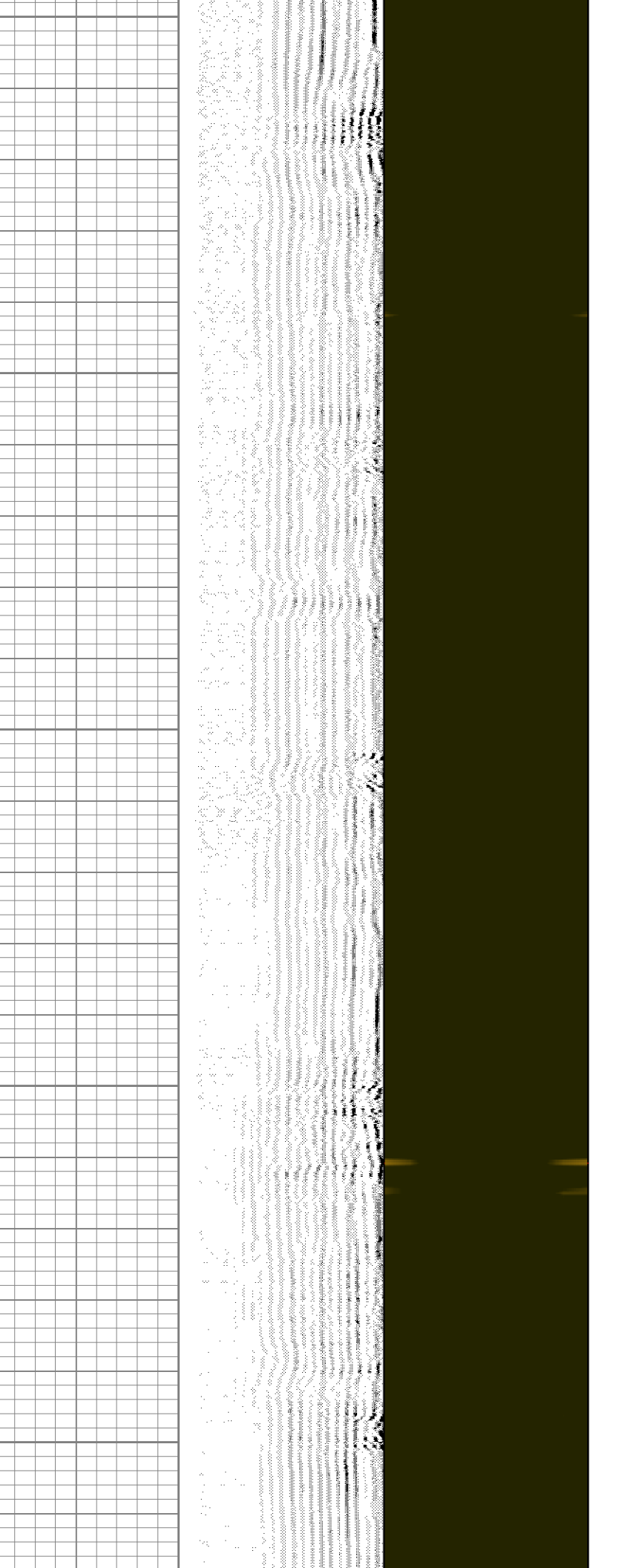
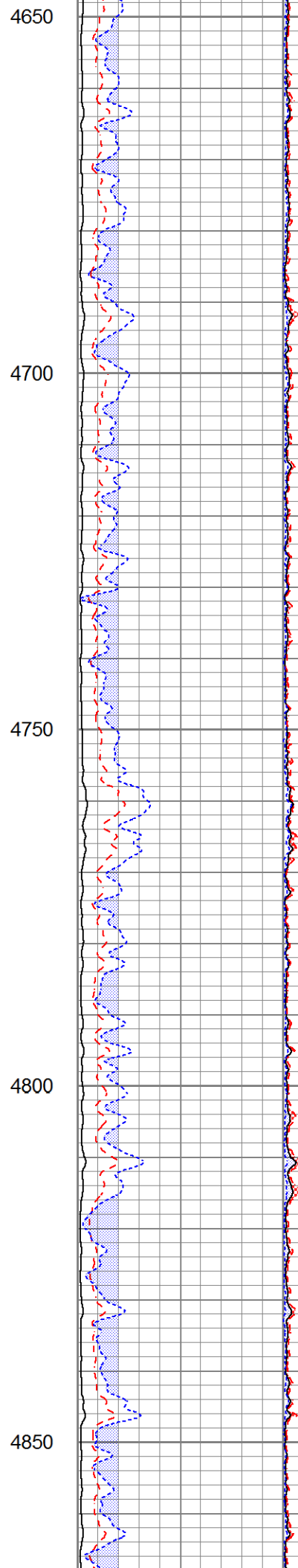
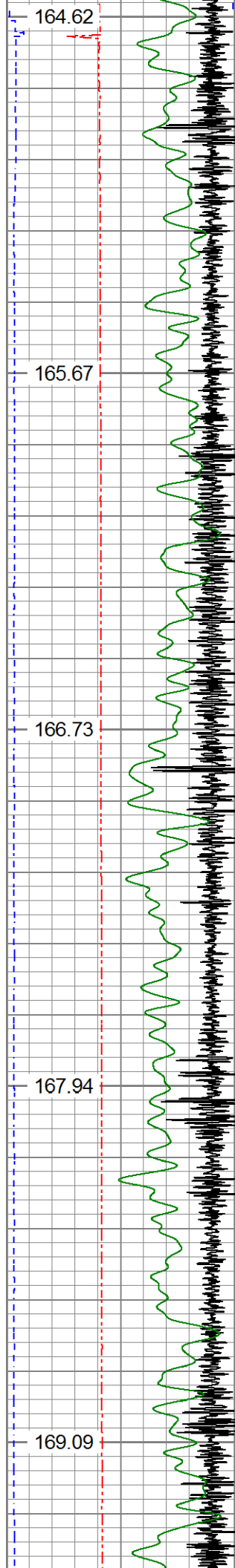
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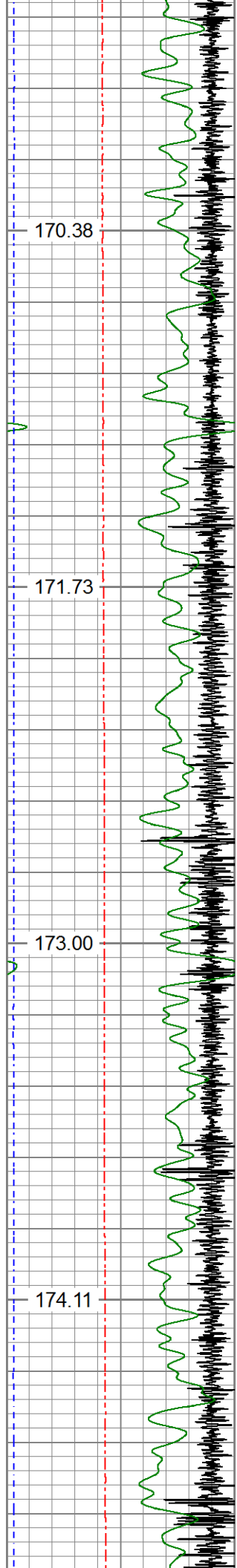
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4600







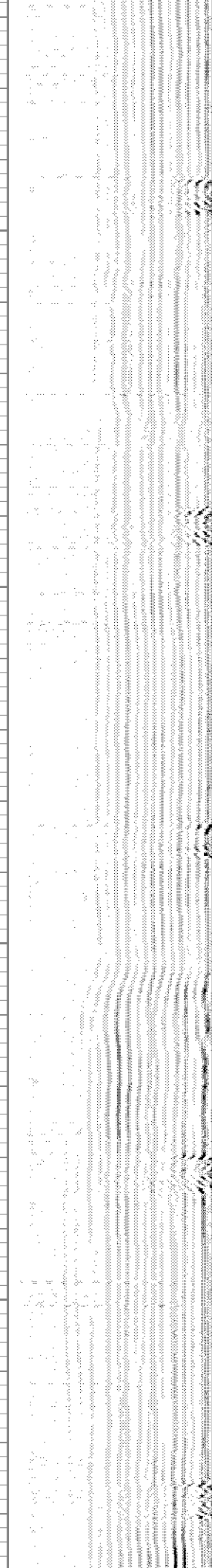
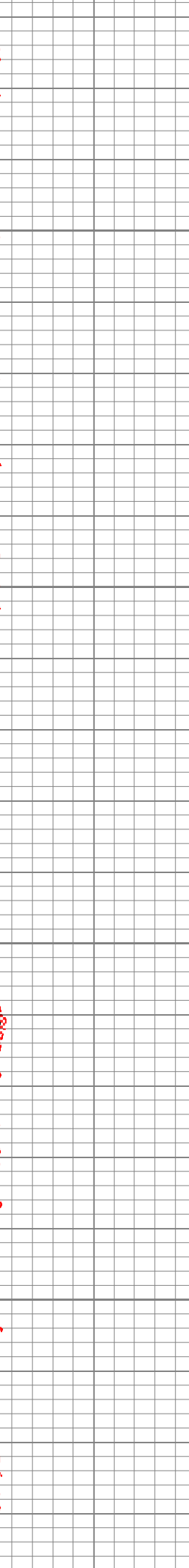
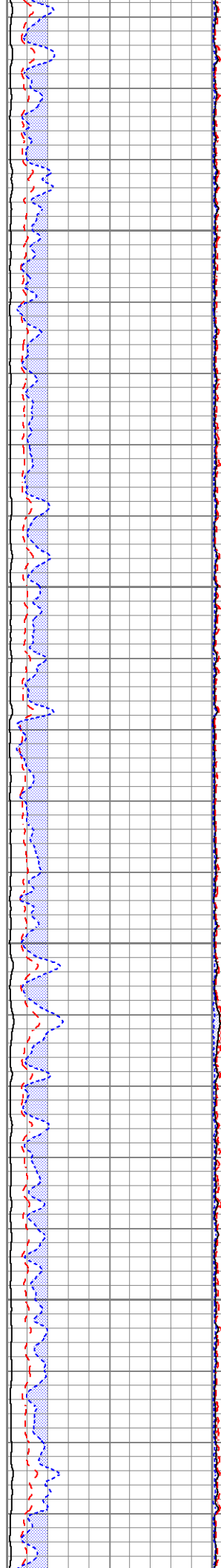


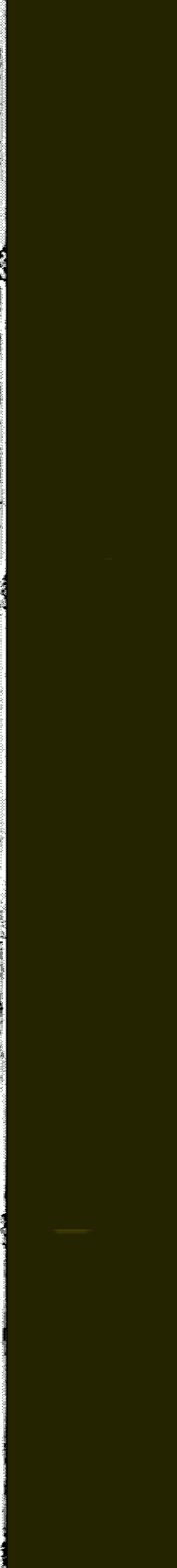
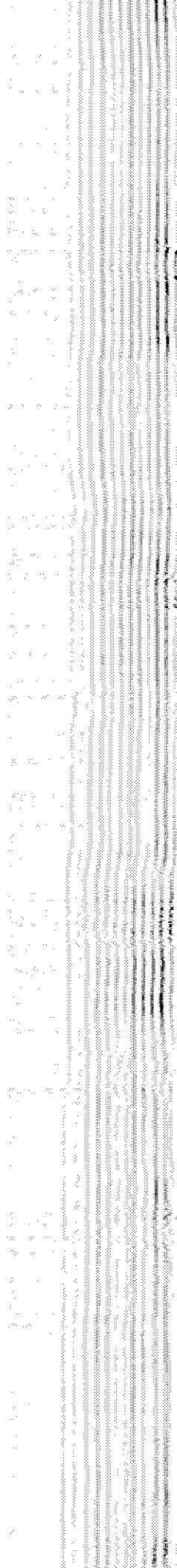
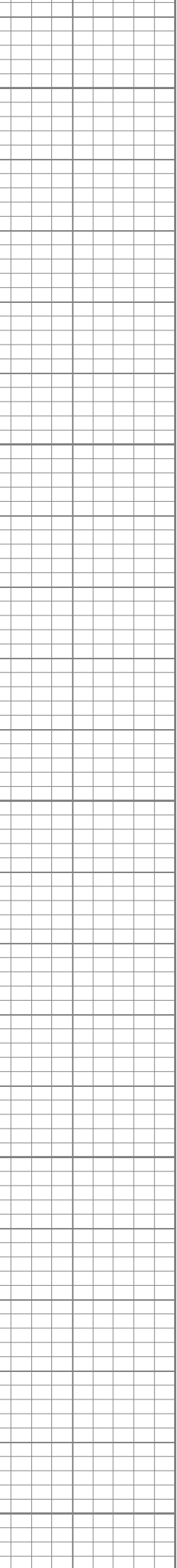
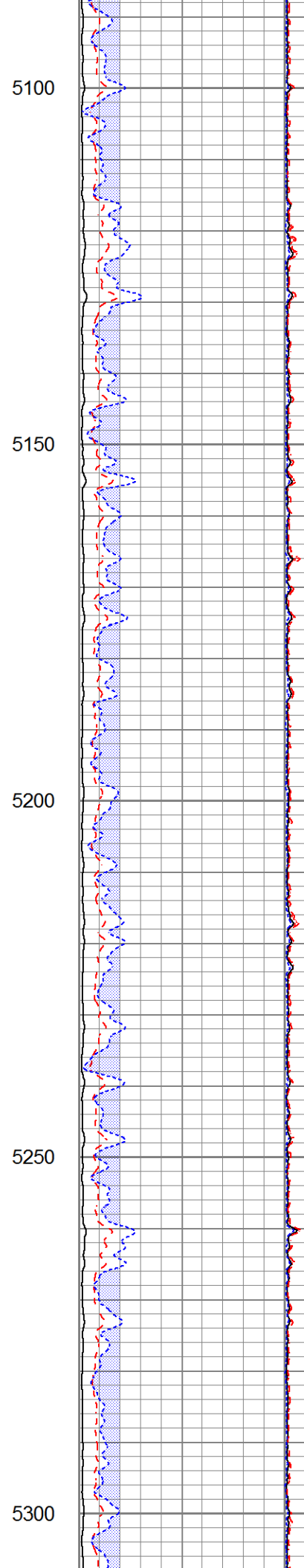
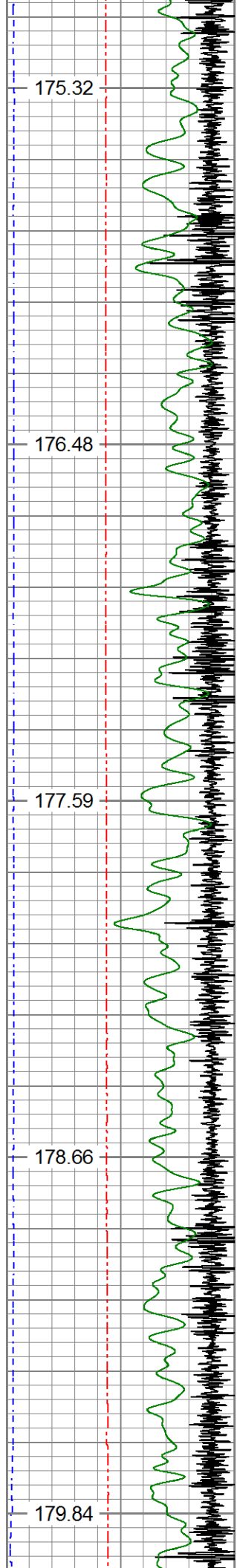
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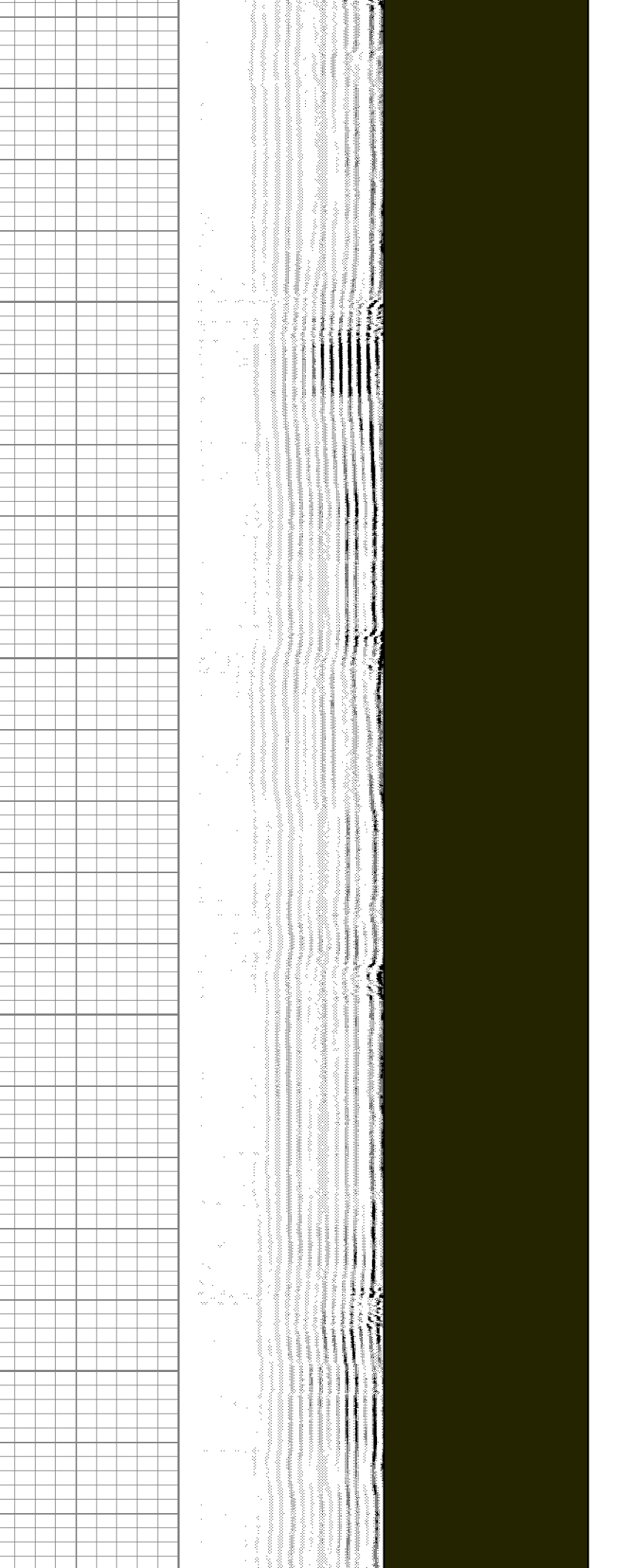
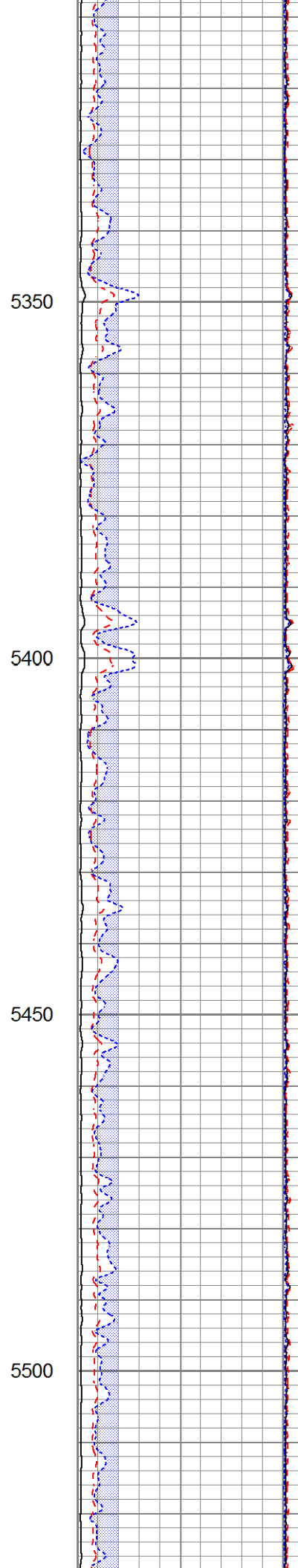
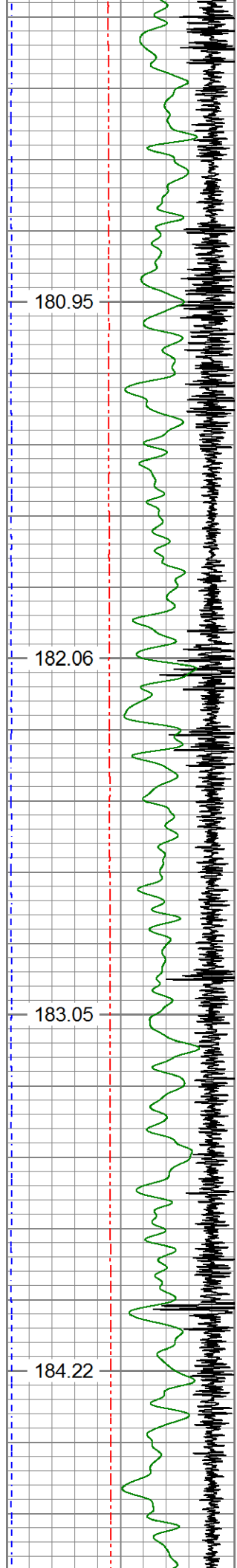
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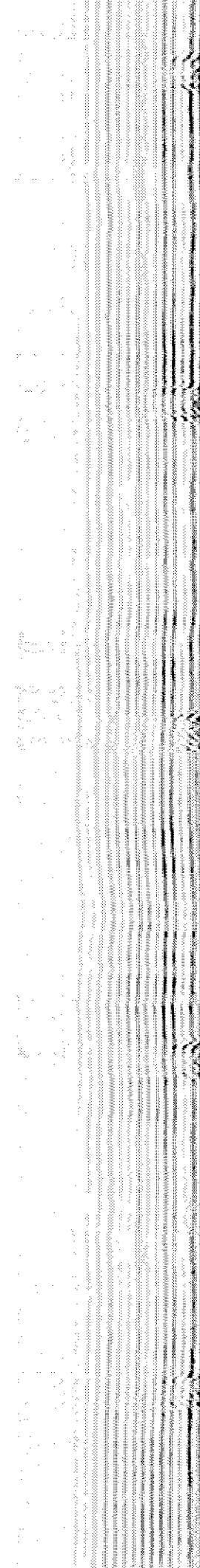
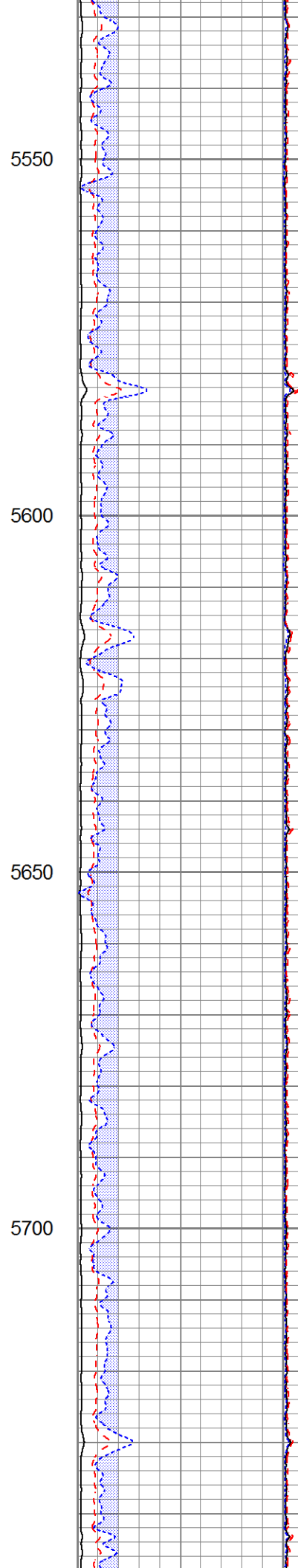
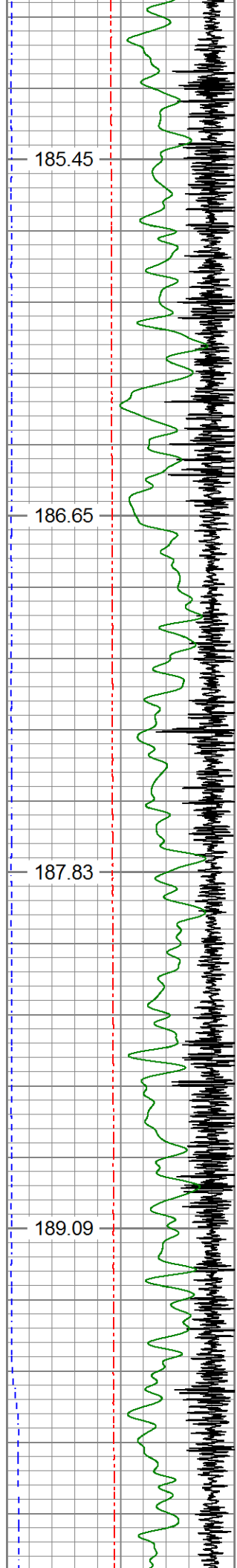
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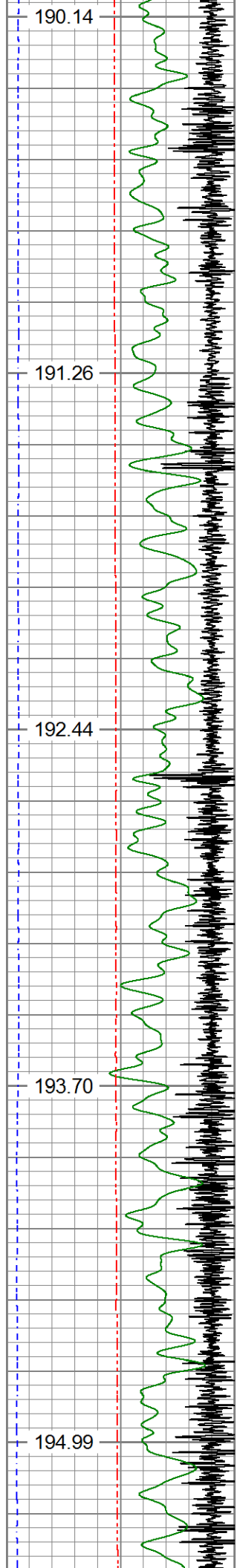




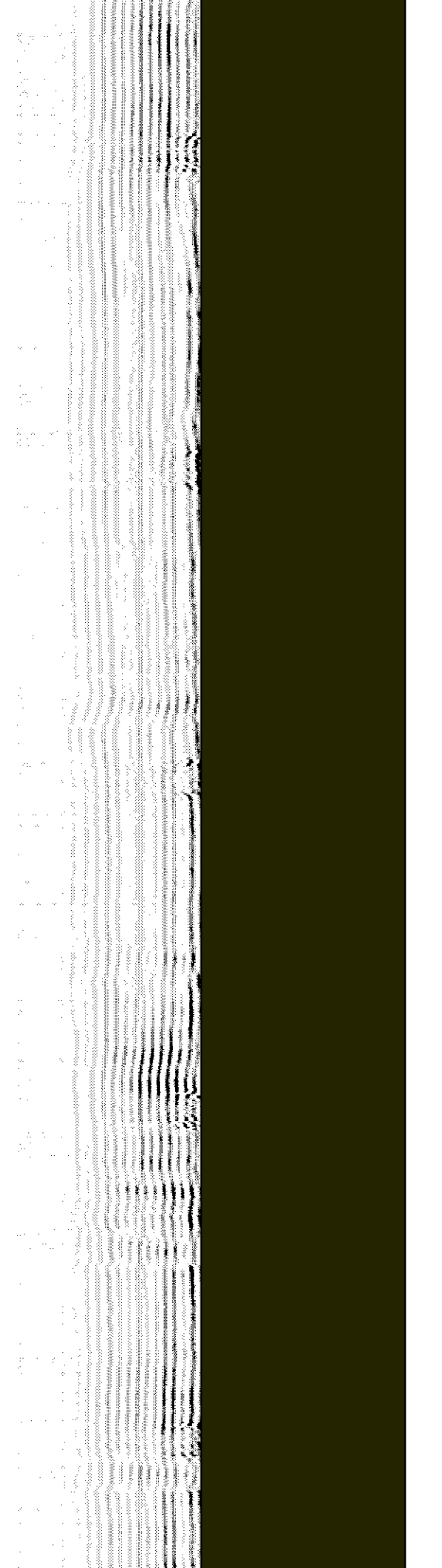
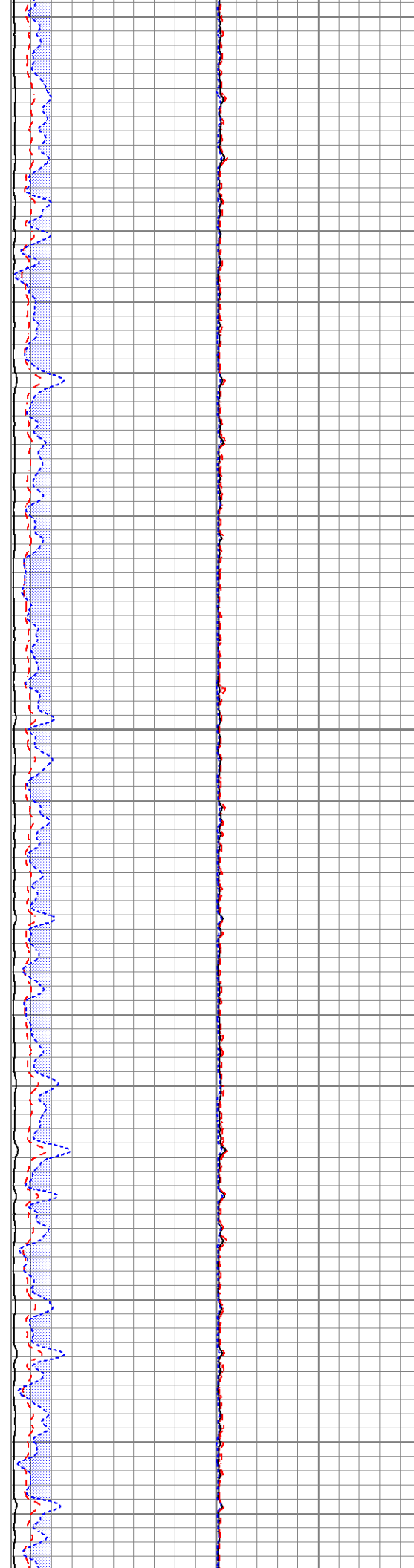




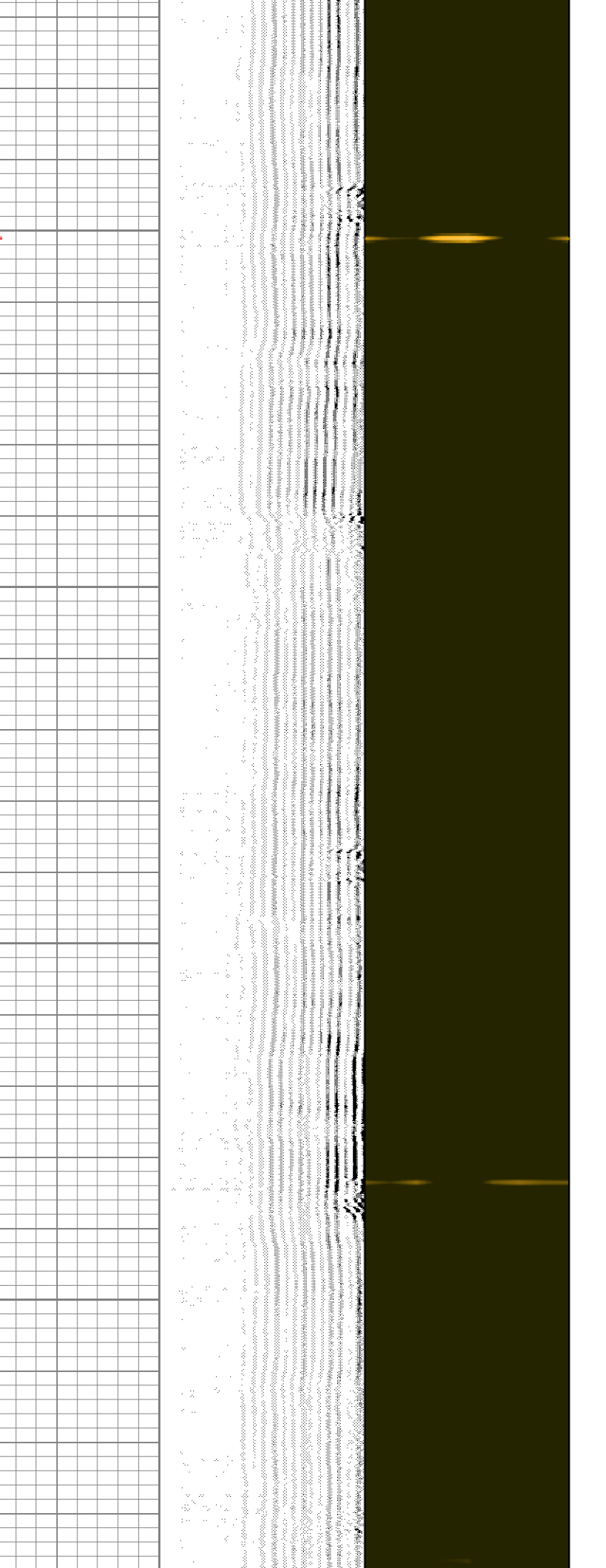
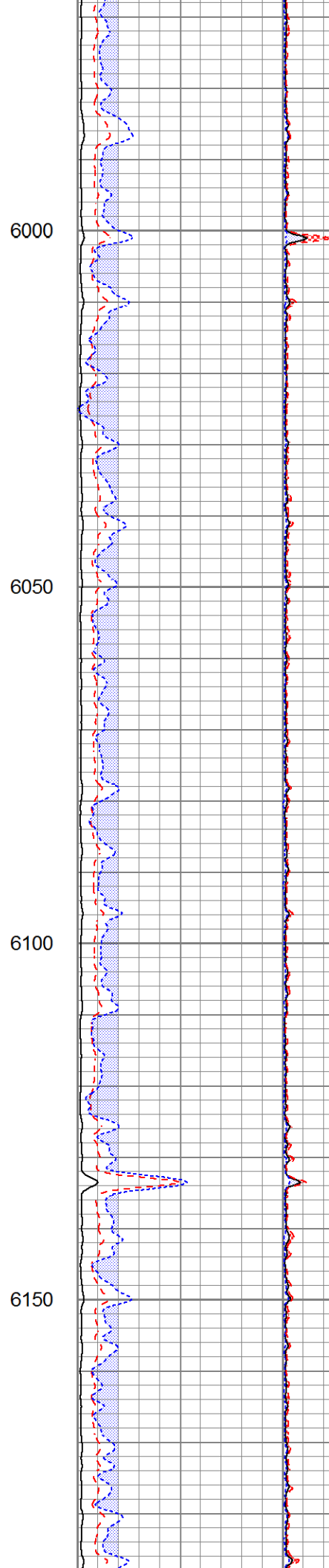
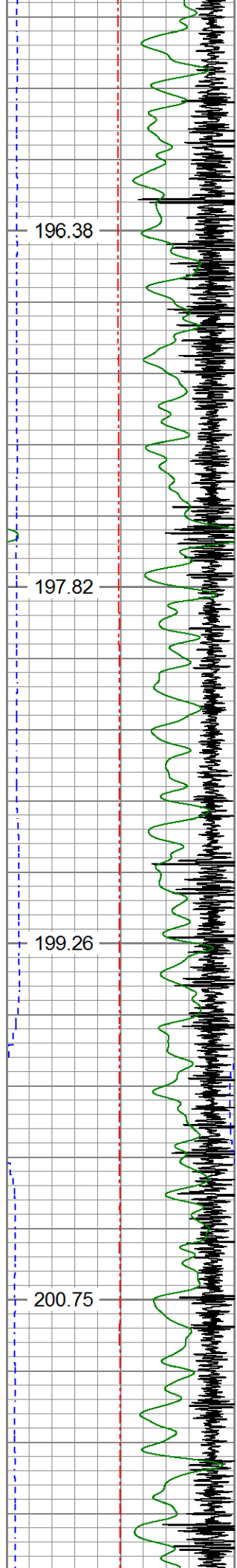


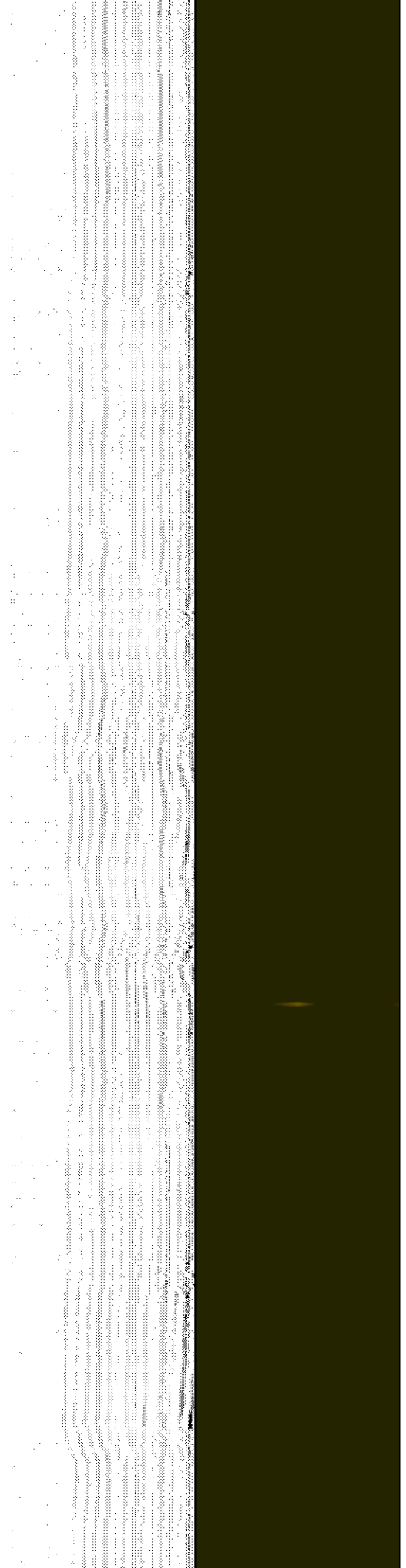
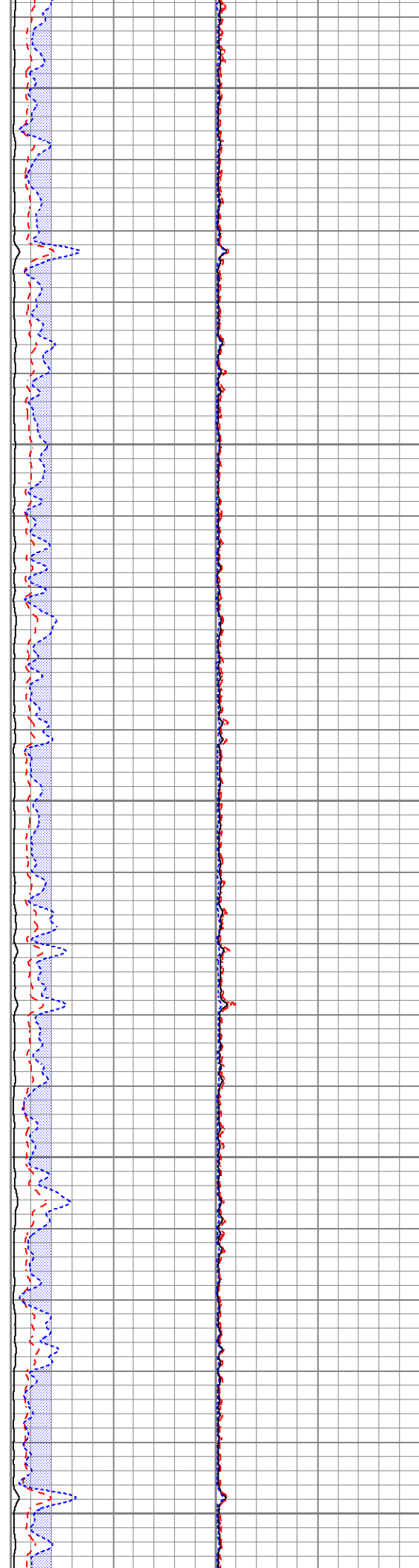
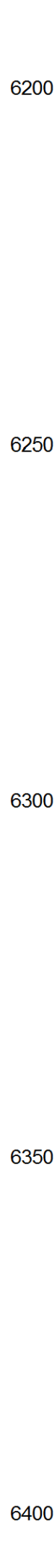
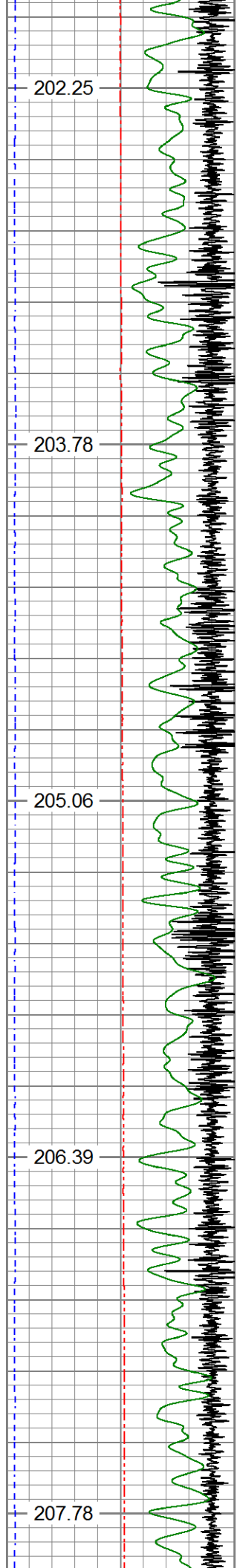


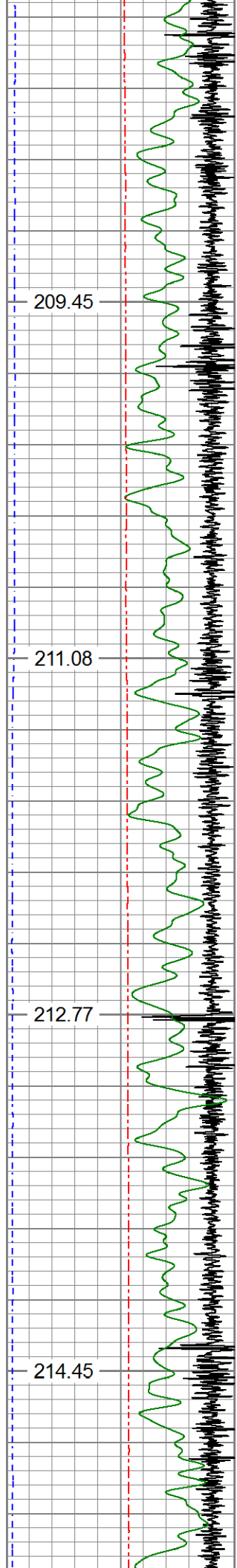
5750  
5800  
5850  
5900  
5950









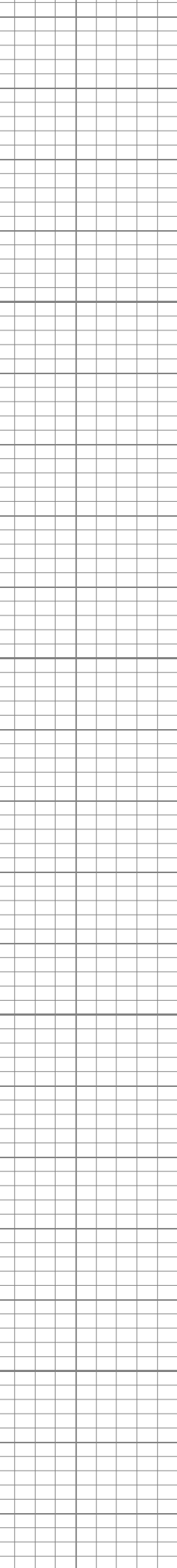
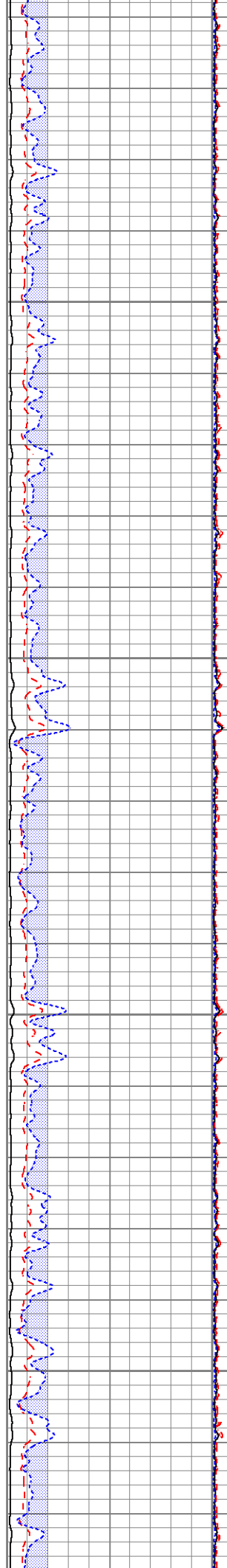


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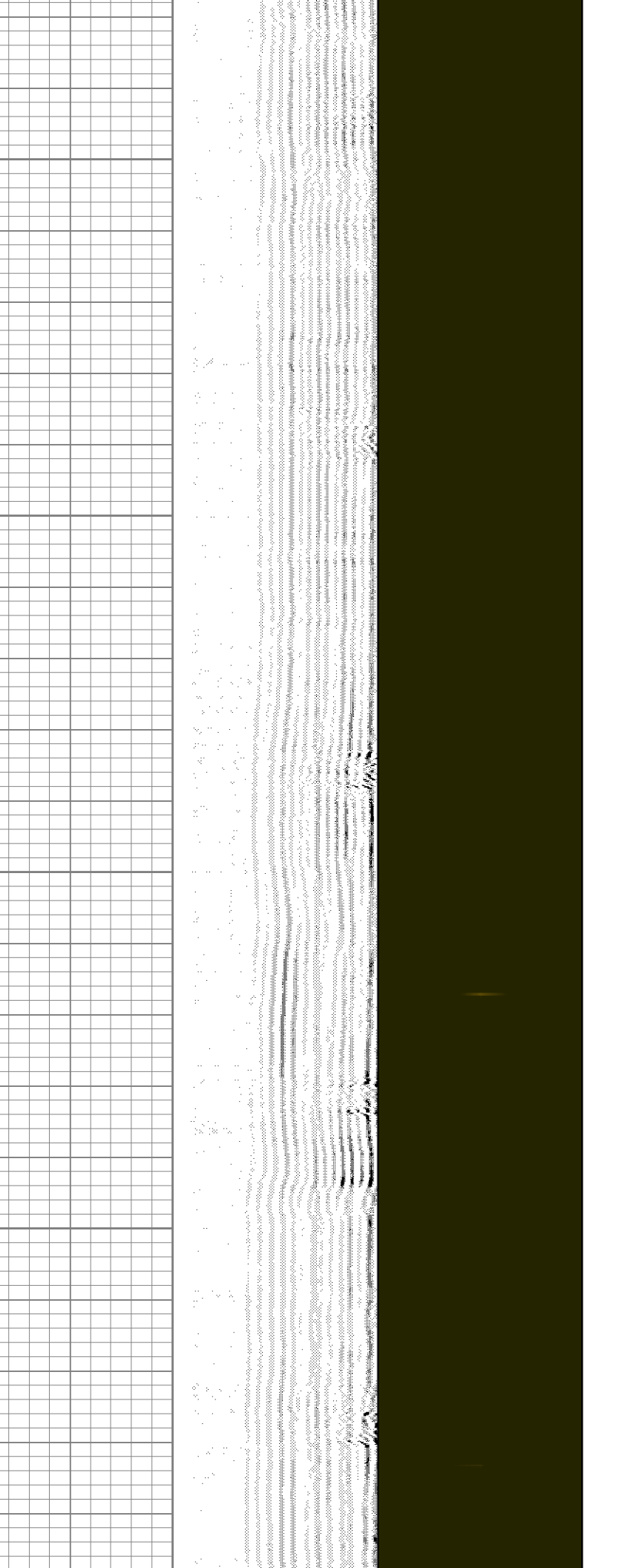
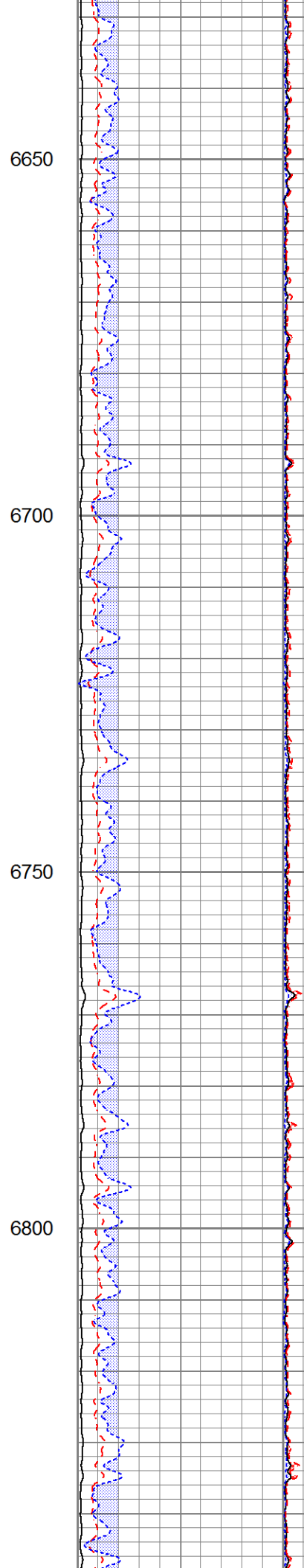
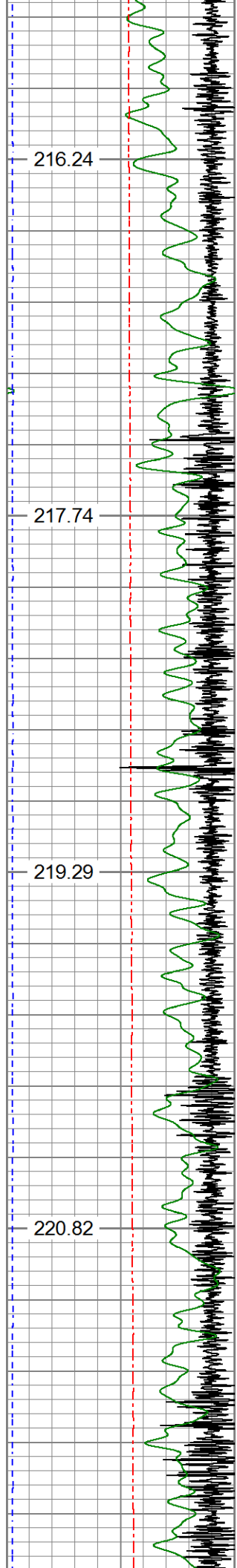
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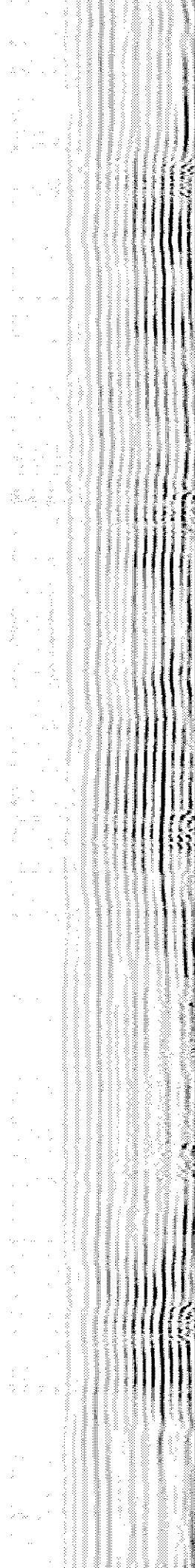
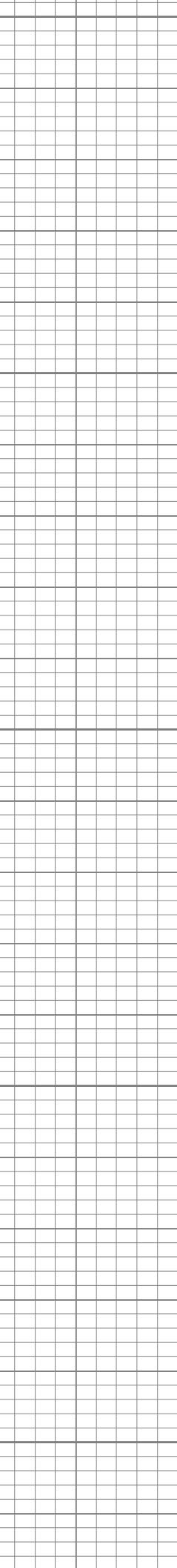
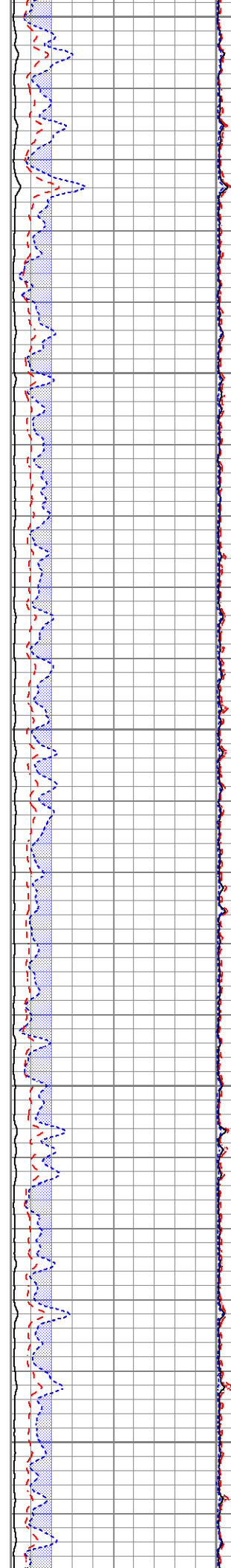
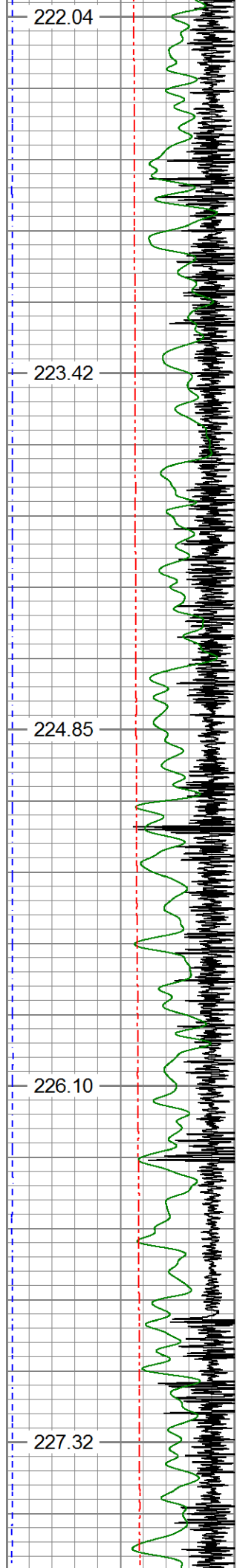
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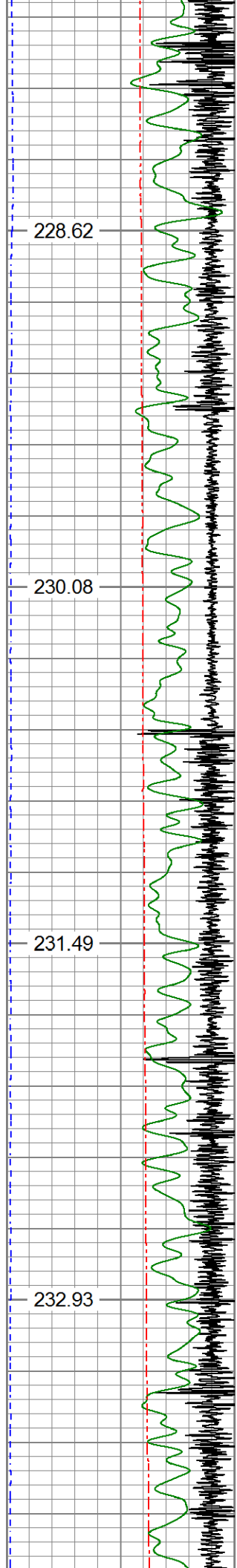
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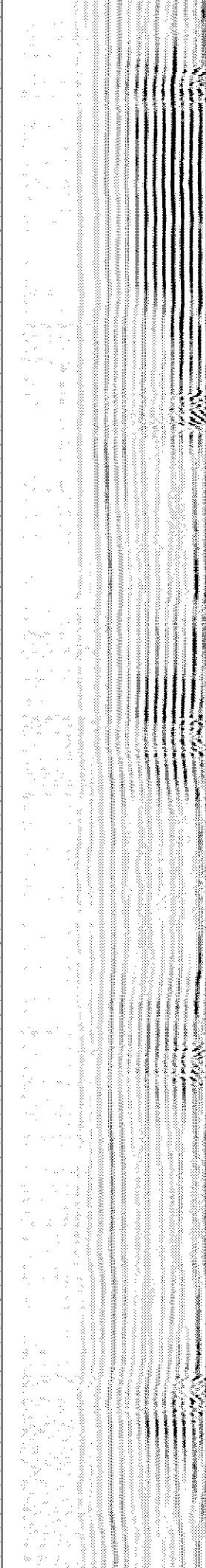
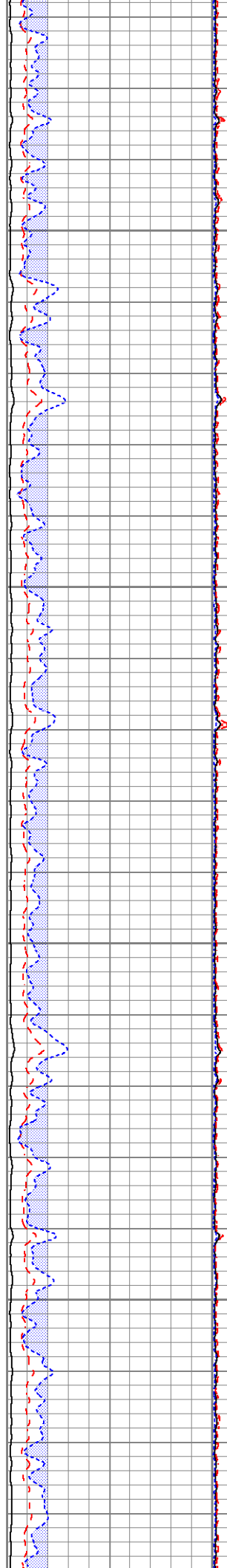


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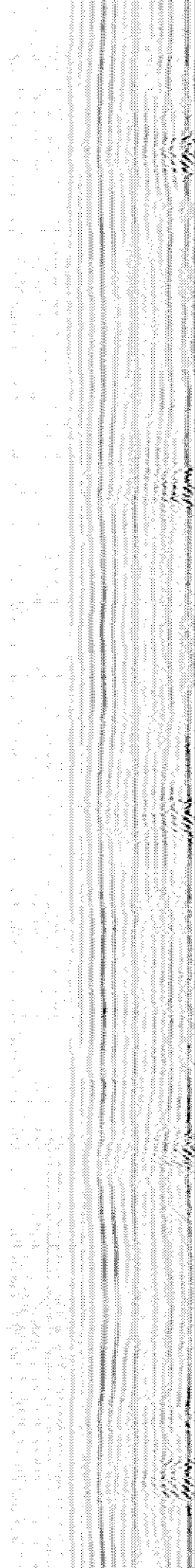
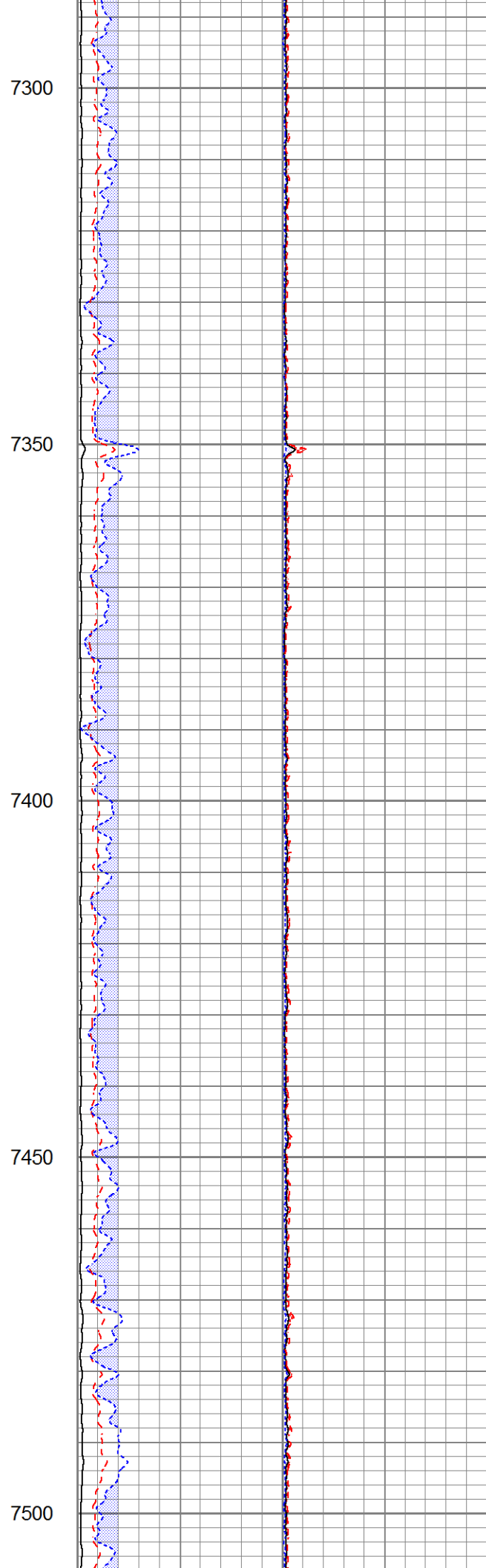
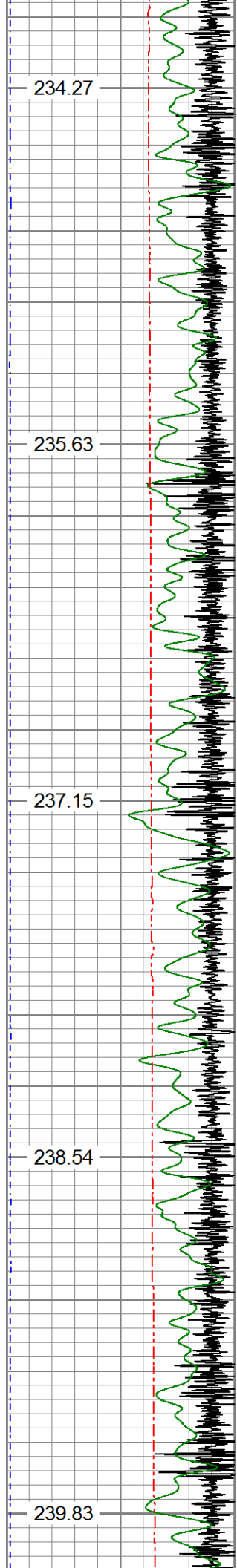
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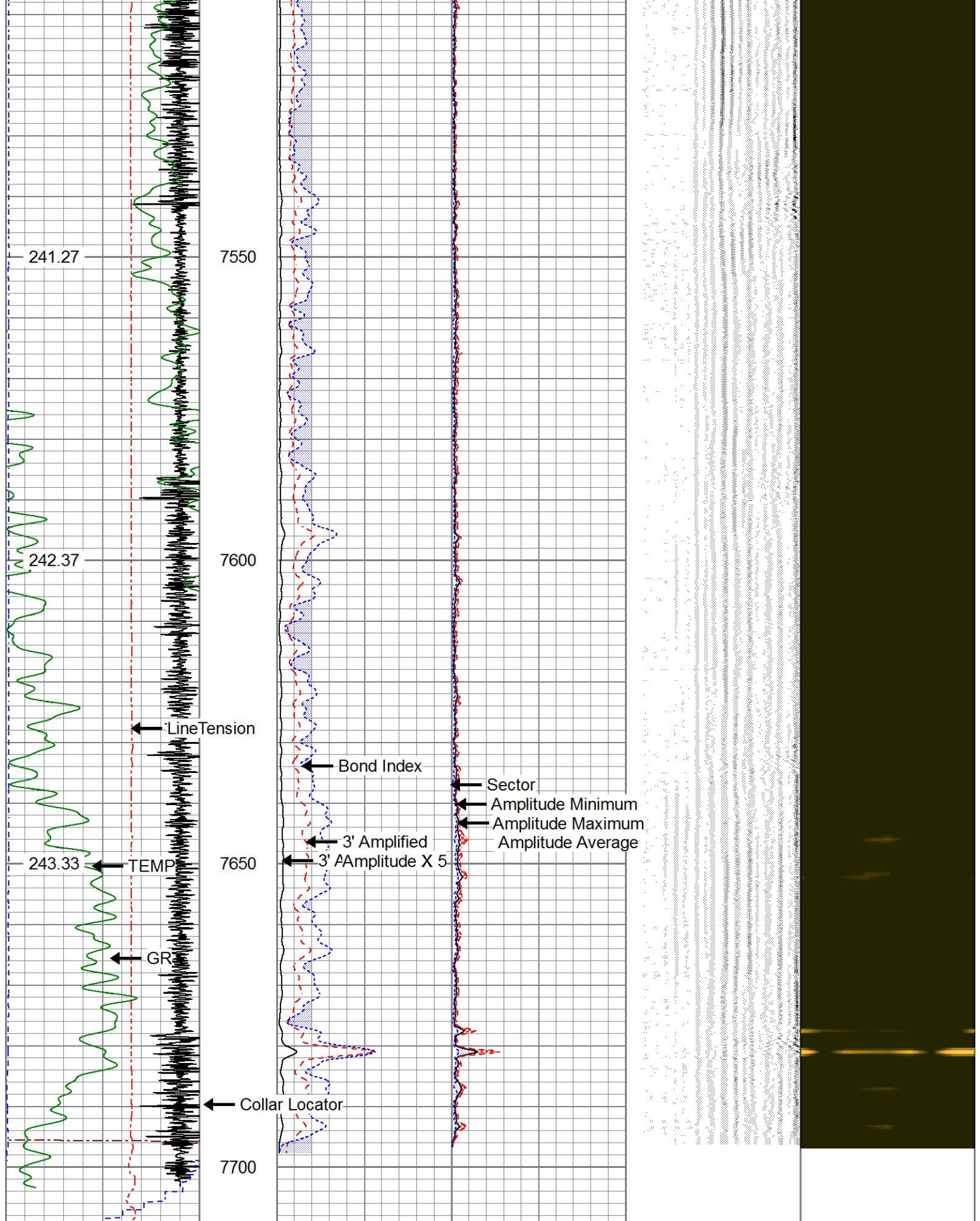
7200

7250









|                   |     |                            |                   |     |            |      |   |            |   |
|-------------------|-----|----------------------------|-------------------|-----|------------|------|---|------------|---|
| 3Ft Travel Time   |     | 3' Amplitude               | Sector            | 200 | VDL (usec) | 1200 | 1 | Sector Map | 8 |
| 270 (usec)        | 170 | (mV)                       | Amplitude Average |     |            |      |   |            |   |
| -9 Collar Locator | 1   | 0 100                      | 0 150             |     |            |      |   |            |   |
| Gamma Ray         |     | 3' Amplified Amplitude X 5 | Sector            |     |            |      |   |            |   |



|            |                      |     |
|------------|----------------------|-----|
| 0          | (GAPI)               | 150 |
| 0          | LineTension (lb)2000 |     |
| Line Speed |                      |     |
| -100       | (ft/min)             | 100 |
| TEMP       |                      |     |
| (degF)     |                      |     |

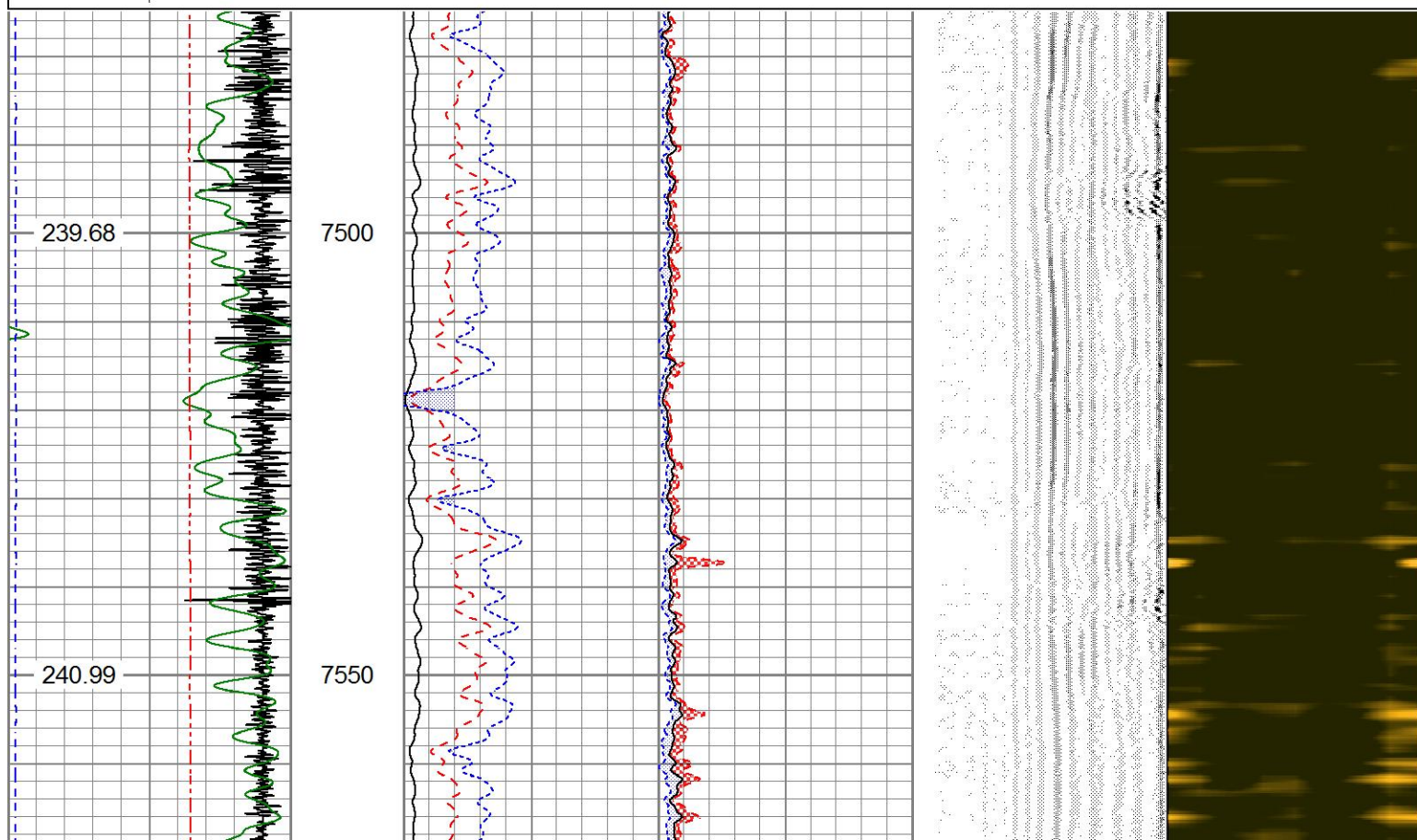
|                   |            |    |        |                   |
|-------------------|------------|----|--------|-------------------|
| 0                 | (mV)       | 20 | Sector | Amplitude Maximum |
| 1                 | Bond Index | 0  | 0      | 150               |
| Sector            |            |    |        |                   |
| Amplitude Minimum |            |    |        |                   |
| 0                 | 150        |    |        |                   |



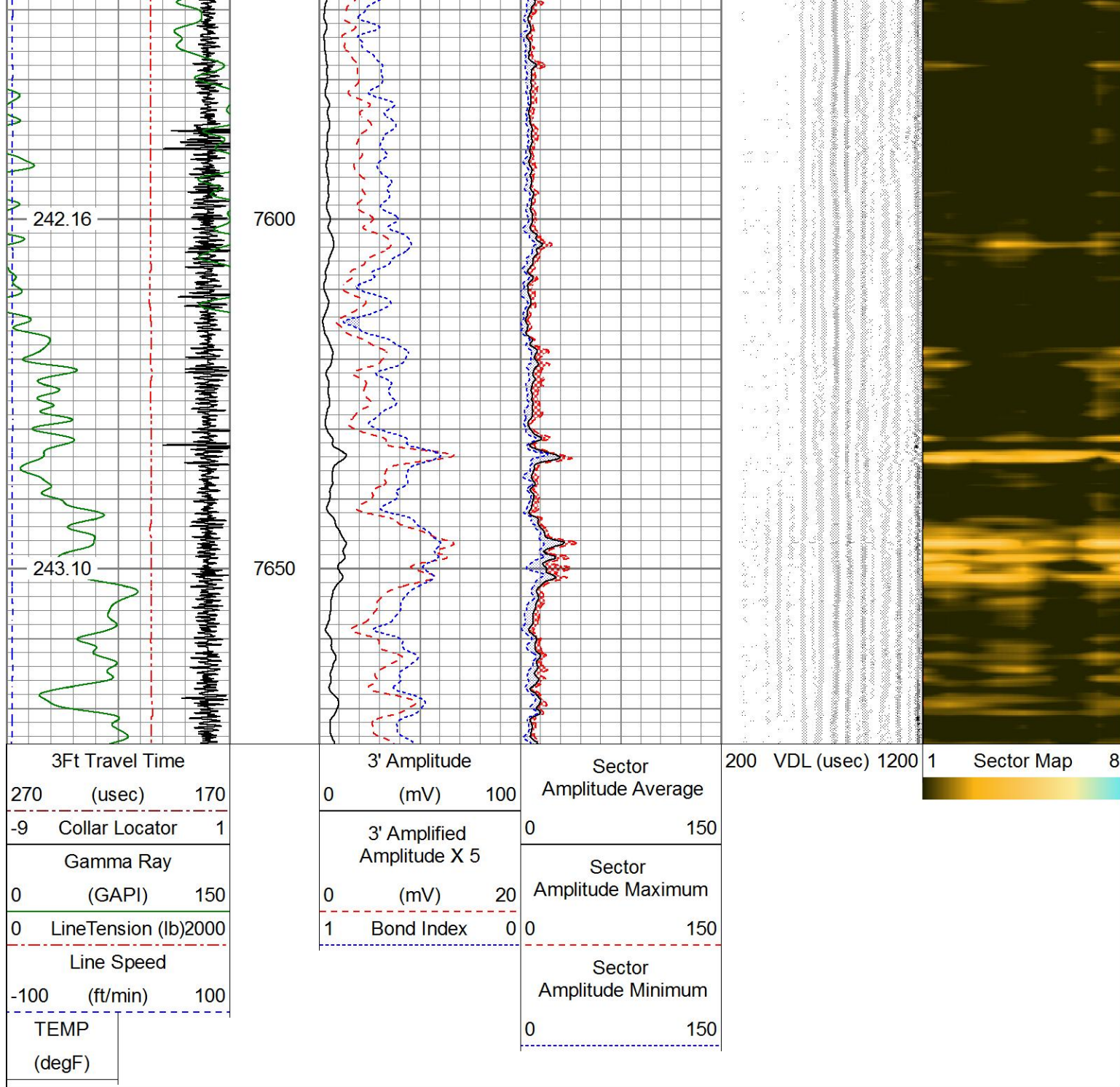
# REPEAT SECTION

Database File: verdad\_sonic star1101-13h-05-123-48990\_2021-08-october.db  
Dataset Pathname: pass5  
Presentation Format: pinr\_scbl  
Dataset Creation: Fri Oct 08 11:01:40 2021  
Charted by: Depth in Feet scaled 1:240

|                        |                            |                          |     |            |      |   |            |   |
|------------------------|----------------------------|--------------------------|-----|------------|------|---|------------|---|
| 3Ft Travel Time        | 3' Amplitude               | Sector                   | 200 | VDL (usec) | 1200 | 1 | Sector Map | 8 |
| 270 (usec) 170         | 0 (mV) 100                 | Amplitude Average        |     |            |      |   |            |   |
| -9 Collar Locator 1    | 3' Amplified Amplitude X 5 | 0 150                    |     |            |      |   |            |   |
| Gamma Ray              | 0 (mV) 20                  | Sector Amplitude Maximum |     |            |      |   |            |   |
| 0 (GAPI) 150           | 1 Bond Index 0             | 0 150                    |     |            |      |   |            |   |
| 0 LineTension (lb)2000 | Sector Amplitude Minimum   |                          |     |            |      |   |            |   |
| Line Speed             | 0 150                      |                          |     |            |      |   |            |   |
| -100 (ft/min) 100      |                            |                          |     |            |      |   |            |   |
| TEMP                   |                            |                          |     |            |      |   |            |   |
| (degF)                 |                            |                          |     |            |      |   |            |   |







| Calibration Report           |   |          |
|------------------------------|---|----------|
| Database File                | verdad_sonic star1101-13h-05-123-48990_2021-08-october.db |          |
| Dataset Pathname             | pass7.1   |          |
| Dataset Creation             | Fri Oct 08 12:22:27 2021                                  |          |
| Gamma Ray Calibration Report |   |          |
| Serial Number:               | 120672  |          |
| Tool Model:                  | GR/CCL-A  |          |
| Performed:                   | Fri Jul 23 09:22:20 2021                                  |          |
| Calibrator Value:            | 1.0   | GAPI     |
| Background Reading:          | 0.0   | cps      |
| Calibrator Reading:          | 1.0   | cps      |
| Sensitivity:                 | 1.0000  | GAPI/cps |

## Segmented Cement Bond Log Calibration Report

Serial Number: FW1411-68  
 Tool Model: RBL-DCT

Calibration Casing Diameter: 5.500 in  
 Calibration Depth: 341.675 ft

Master Calibration, performed (Derived):

|     | Raw (v) |       | Calibrated (mv) |         | Results |        |
|-----|---------|-------|-----------------|---------|---------|--------|
|     | Zero    | Cal   | Zero            | Cal     | Gain    | Offset |
| 3'  | -0.001  | 1.068 | 1.000           | 71.921  | 66.359  | 1.072  |
| CAL | -0.001  | 1.498 |                 |         |         |        |
| 5'  | 0.000   | 0.964 | 1.000           | 71.921  | 73.586  | 1.000  |
| SUM |         |       |                 |         |         |        |
| S1  | -0.006  | 1.081 | 0.000           | 100.000 | 91.929  | 0.584  |
| S2  | -0.002  | 1.085 | 0.000           | 100.000 | 92.048  | 0.154  |
| S3  | -0.008  | 1.092 | 0.000           | 100.000 | 90.880  | 0.728  |
| S4  | -0.008  | 1.078 | 0.000           | 100.000 | 92.107  | 0.702  |
| S5  | -0.011  | 1.161 | 0.000           | 100.000 | 85.317  | 0.978  |
| S6  | -0.004  | 1.215 | 0.000           | 100.000 | 82.036  | 0.303  |
| S7  | -0.013  | 1.152 | 0.000           | 100.000 | 85.860  | 1.118  |
| S8  | 0.000   | 1.088 | 0.000           | 100.000 | 91.889  | -0.000 |

Air Zero Calibration, performed Fri Oct 08 08:02:11 2021:

|     | Raw (v) |  | Calibrated (v) |  | Results |  |
|-----|---------|--|----------------|--|---------|--|
|     | Zero    |  | Zero           |  | Offset  |  |
| 3'  | 0.000   |  | 0.000          |  | 0.000   |  |
| 5'  | 0.000   |  | 0.000          |  | 0.000   |  |
| SUM |         |  |                |  |         |  |
| S1  | 0.000   |  | 0.000          |  | 0.000   |  |
| S2  | 0.000   |  | 0.000          |  | 0.000   |  |
| S3  | 0.000   |  | 0.000          |  | 0.000   |  |
| S4  | 0.000   |  | 0.000          |  | 0.000   |  |
| S5  | 0.000   |  | 0.000          |  | 0.000   |  |
| S6  | 0.000   |  | 0.000          |  | 0.000   |  |
| S7  | 0.000   |  | 0.000          |  | 0.000   |  |
| S8  | 0.000   |  | 0.000          |  | 0.000   |  |

## Temperature Calibration Report

Serial Number: FW1411-68  
 Tool Model: RBL-DCT  
 Performed: (Not Performed)

|                 |           |           |
|-----------------|-----------|-----------|
|                 | Reference | Reading   |
| Low Reference:  | 0.00 degF | 0.00 degF |
| High Reference: | 1.00 degF | 1.00 degF |
| Gain:           | 1.00      |           |
| Offset:         | 0.00      |           |
| Delta Spacing   | 1         |           |



Company VERDADERO RESOURCES  
 Well Sonic Star 1101-13H  
 Field Wattenberg

***PIONEER***

Pioneer Energy Services

County

Weld

State

Colorado