



**Segmented Radial Cement Bond
W/Gamma Ray, CCL
Log**

| | |
|--|--|
| Company ANTERO RESOURCES CORPORATION Well GUILD UNIT 1H Field MARCELLUS County Tyler State WV | Country US Company ANTERO RESOURCES CORPORATION Well GUILD UNIT 1H Field MARCELLUS County Tyler State WV Country US |
|--|--|

| | |
|--|--|
| Location: SEC N/A TWP N/A RGE N/A GROUND LEVEL Elevation Log Measured From R.K.B. 25' Drilling Measured From R.K.B. G.L. | API # : 47095025730000 Other Services NONE Elevation |
|--|--|

| | | |
|-------------------------------|---------------|--|
| Date | 27-OCT-2019 | |
| Run Number | ONE | |
| Depth Driller | 13690' | |
| Depth Logger | 6485' | |
| Bottom Logged Interval | SURFACE | |
| Open Hole Size | 8.25" | |
| Type Fluid | F/W | |
| Density / Viscosity | 8.6 | |
| Max. Recorded Temp. | 136 degF | |
| Estimated Cement Top | 2790' | |
| Time Well Ready | 07:00 | |
| Time Logger on Bottom | 07:30 | |
| Equipment Number | 214181 | |
| Location | BRIDGEPORT WV | |
| Recorded By | S.BUTLER | |
| Witnessed By | JAYSON LUKES | |

| | Borehole Record | | Tubing Record | |
|----------------------|-----------------|--------------|---------------|---------------|
| | Bit | From | To | To |
| Run Number | 24" | SURFACE | 110' | |
| ONE | 17.5" | 110' | 396' | |
| TWO | 12.25" | 369' | 2668' | |
| THREE | 8.25" | 2668' | 13960' | |
| FOUR | | | | |
| Casing Record | Size | Wd/Ft | Top | Bottom |
| Surface String | 13.375" | 54.5 | SURFACE | 396' |
| Prot. String | 9.625" | 40 | SURFACE | 2668' |
| Production String | 5.5 | 20 | SURFACE | 13960' |
| Liner | | | | |

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All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on our part, 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. These interpretations are also subject to our general terms and conditions set out in our current Price Schedule.

Comments

ZERO @ R.K.B. 25'
 MARKER JOINT: 5806' - 5816'
 LOG TD:6485'
 LOG RAN UNDER 1500 PSI

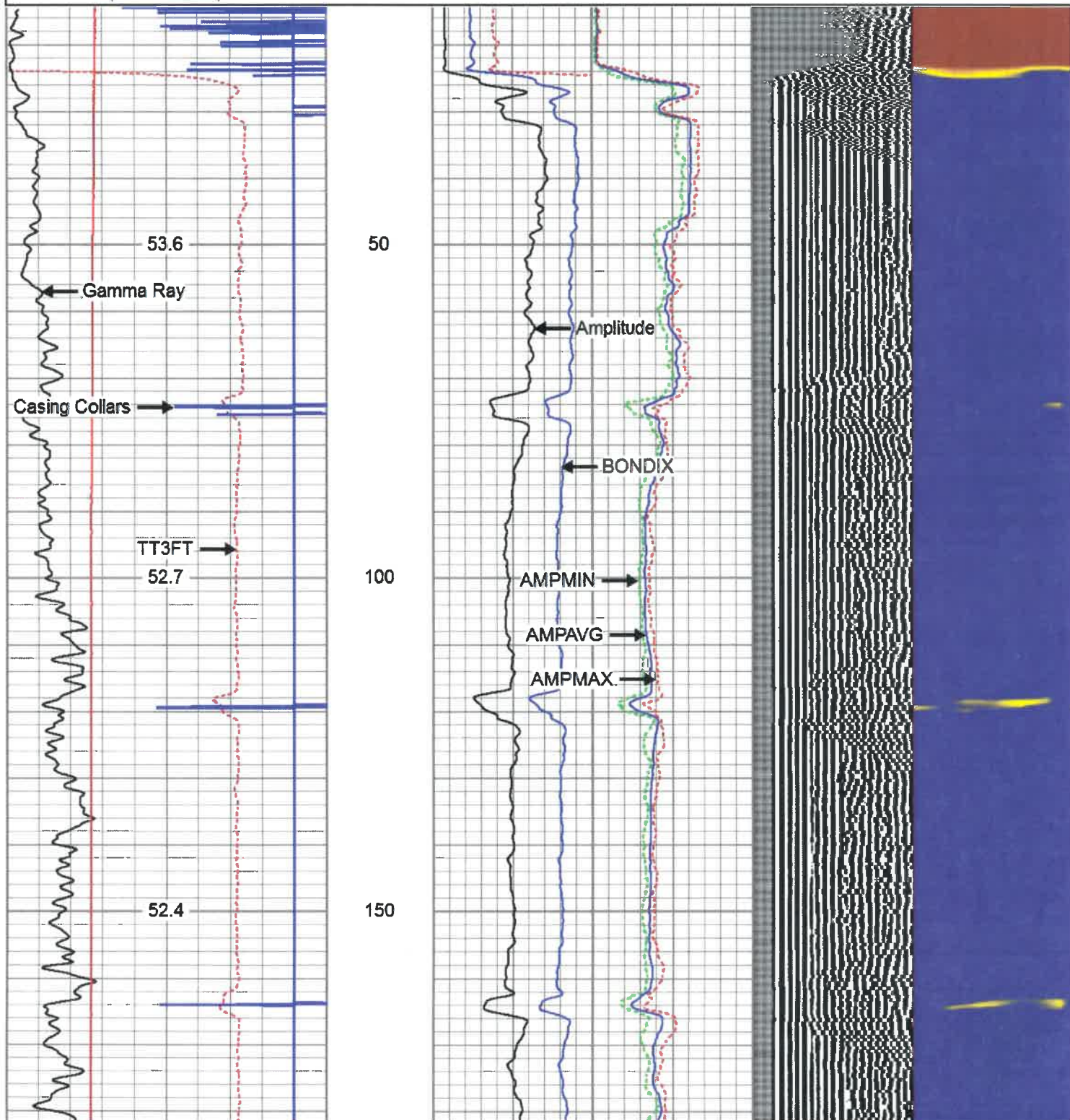
RECEIVED
 Office of Environmental Protection
 SEP 24 2010
 WV Dept. of Environmental Protection

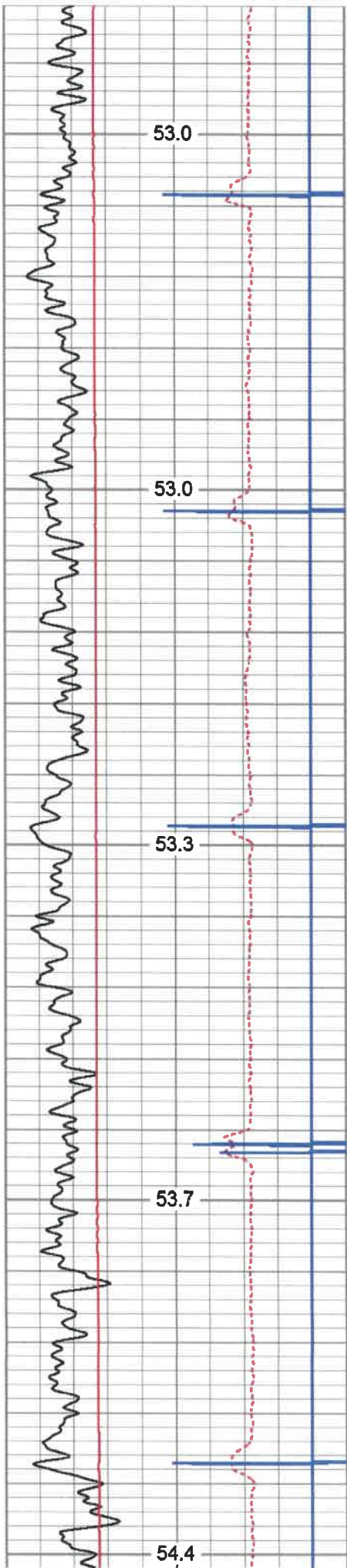


Main Pass

Database File antero_guild_unit_1h.db
 Dataset Pathname pass9.1
 Presentation Format antero1
 Dataset Creation Tue Oct 29 15:04:30 2019
 Charted by Depth in Feet scaled 1:240

| | | | | | | | | |
|-------------|--------------------|-----|------------|----------------|-----------------|---|------------|----|
| 280 | Travel Time (usec) | 180 | Amplitude | Sector Amp AVG | VDL | 1 | Sector Map | 12 |
| 9 | Casing Collar | -1 | 0 (mV) 100 | Sector Amp MAX | 200 (usec) 1200 | | | |
| 0 | Gamma Ray (GAPI) | 180 | Amp X5 | Sector Amp MIN | | | | |
| 0 | TEMP (degF) | 200 | 0 (mV) 20 | | | | | |
| 180 | GR (GAPI) | 360 | 1 BONDIX | 0 | | | | |
| TEMP (degF) | | | | | | | | |





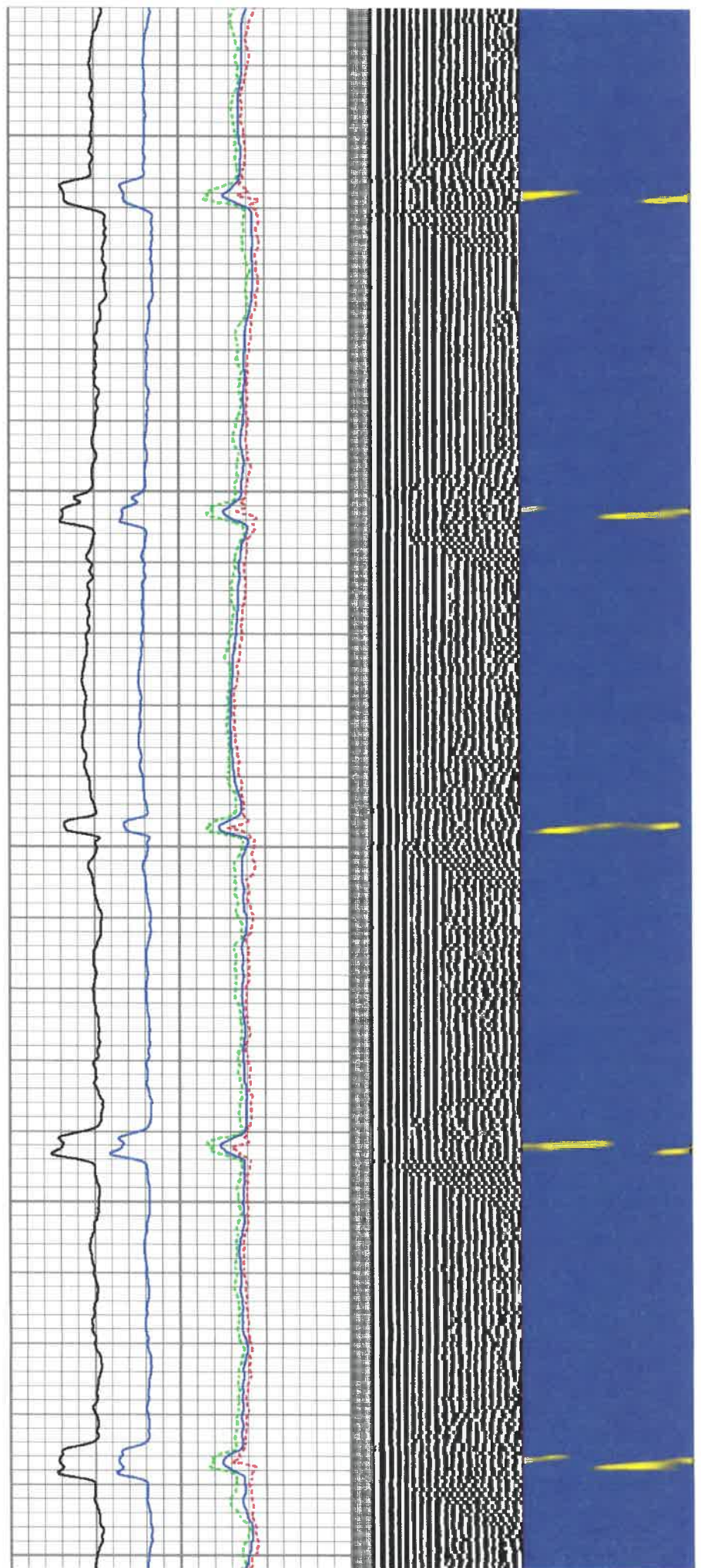
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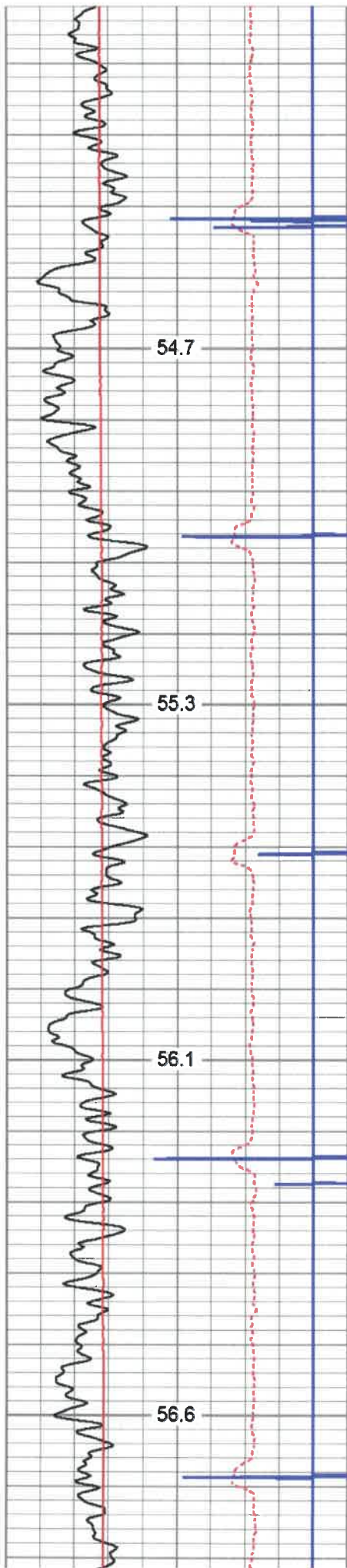
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300

350

400



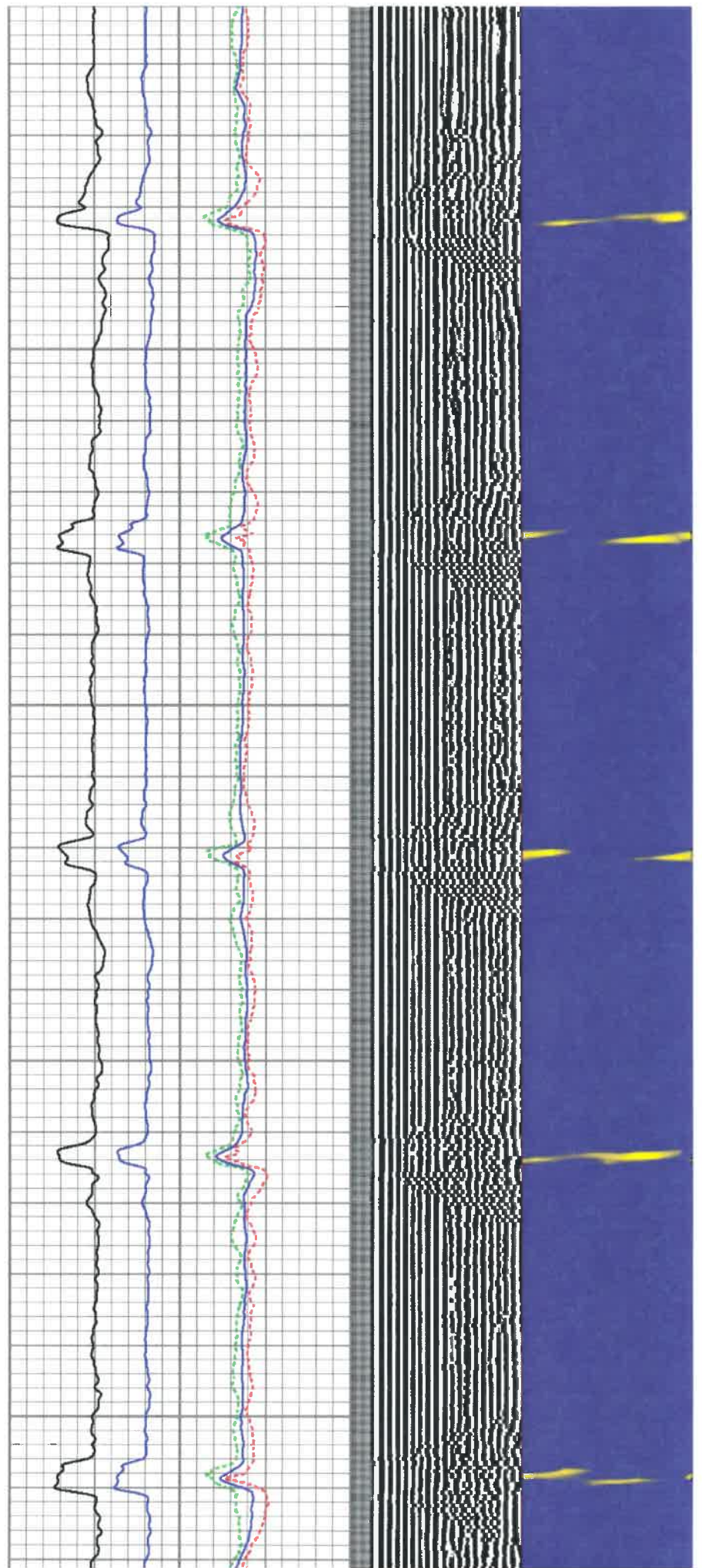


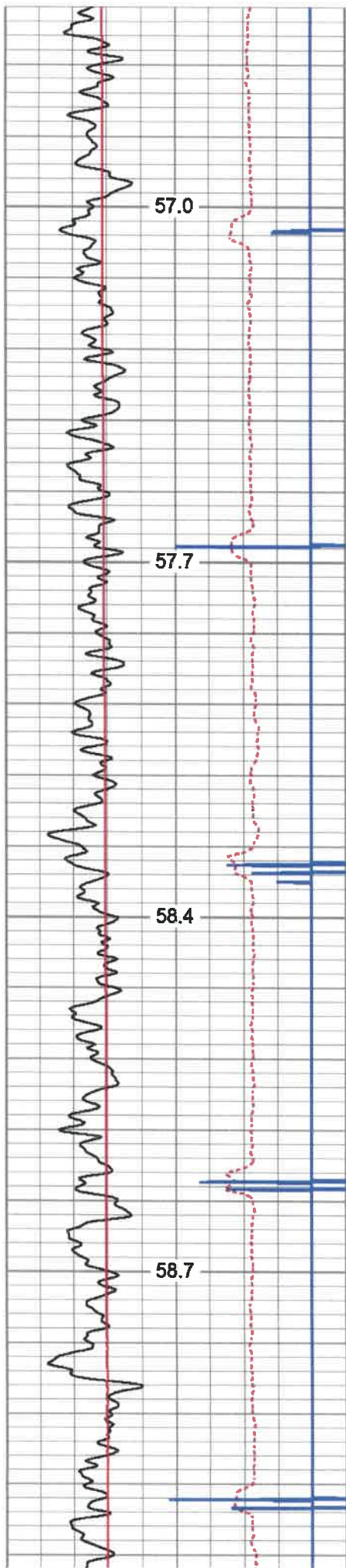
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500

550

600



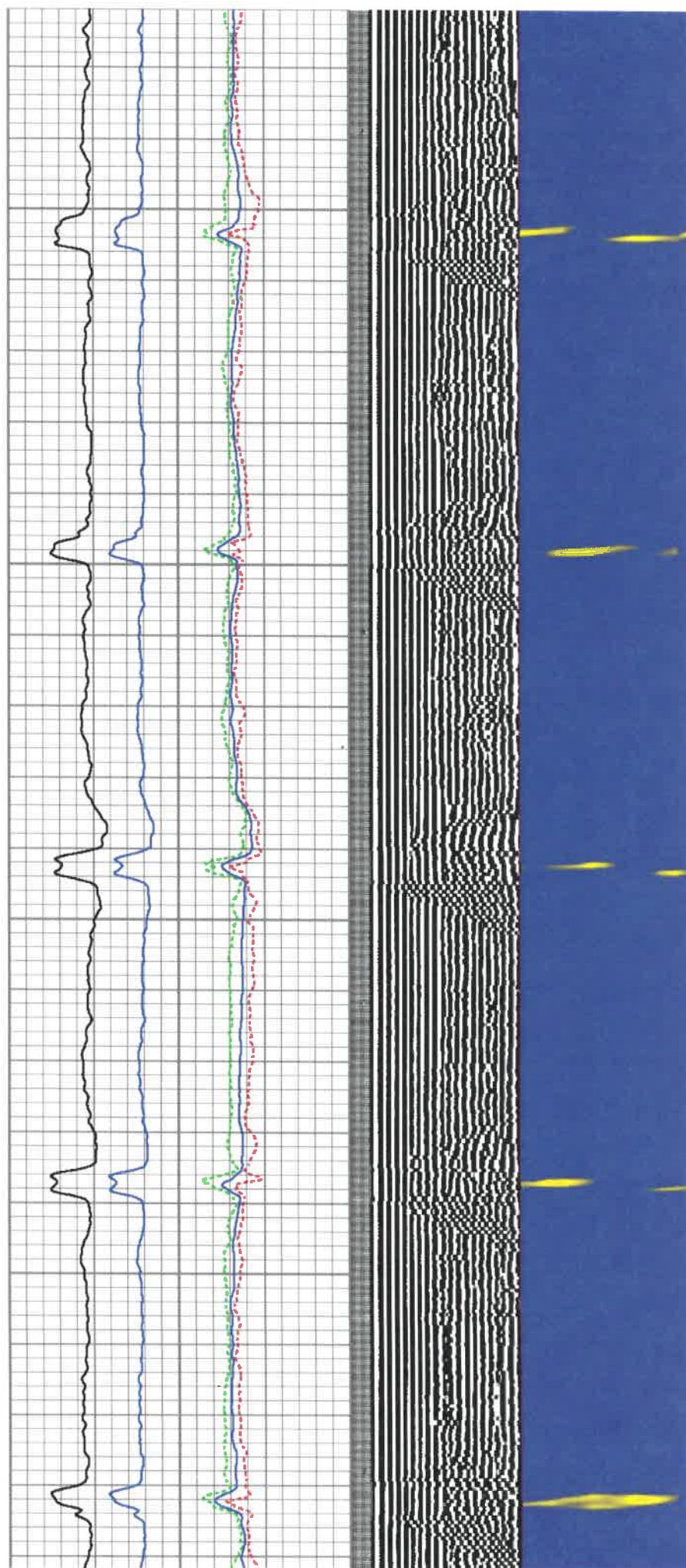


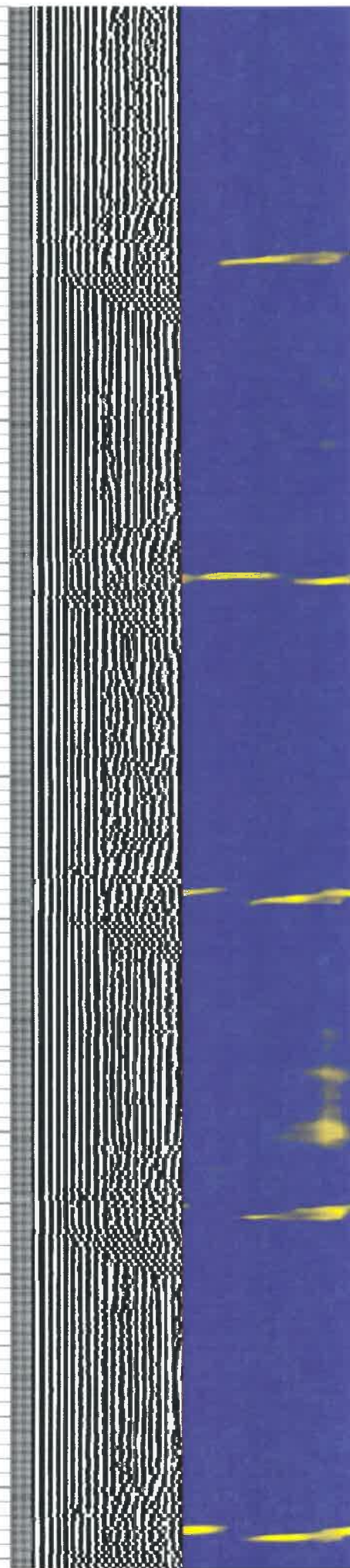
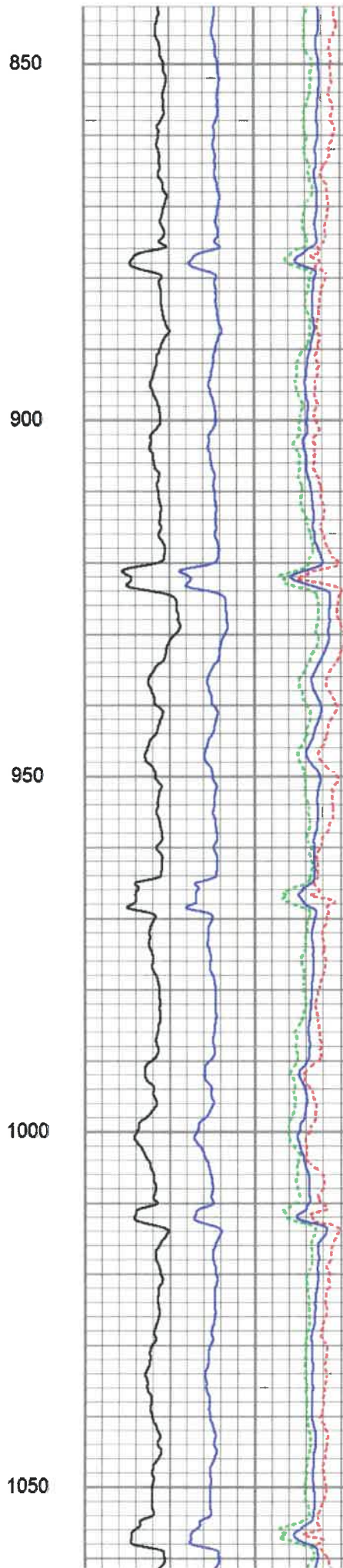
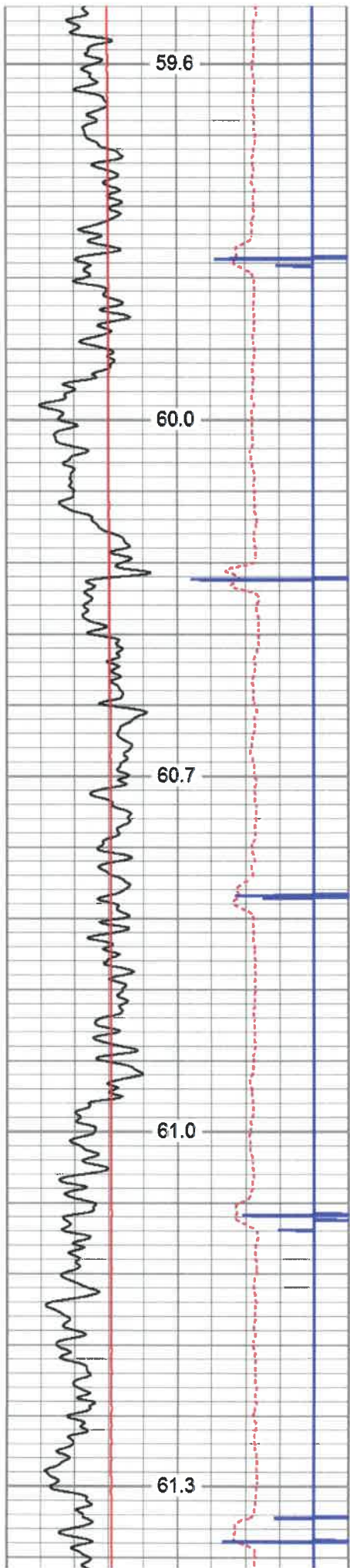
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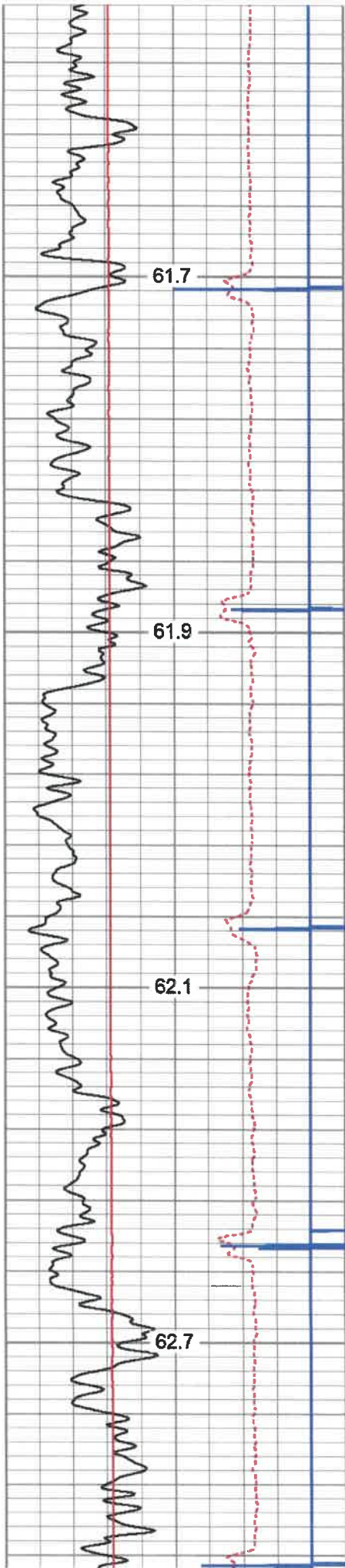
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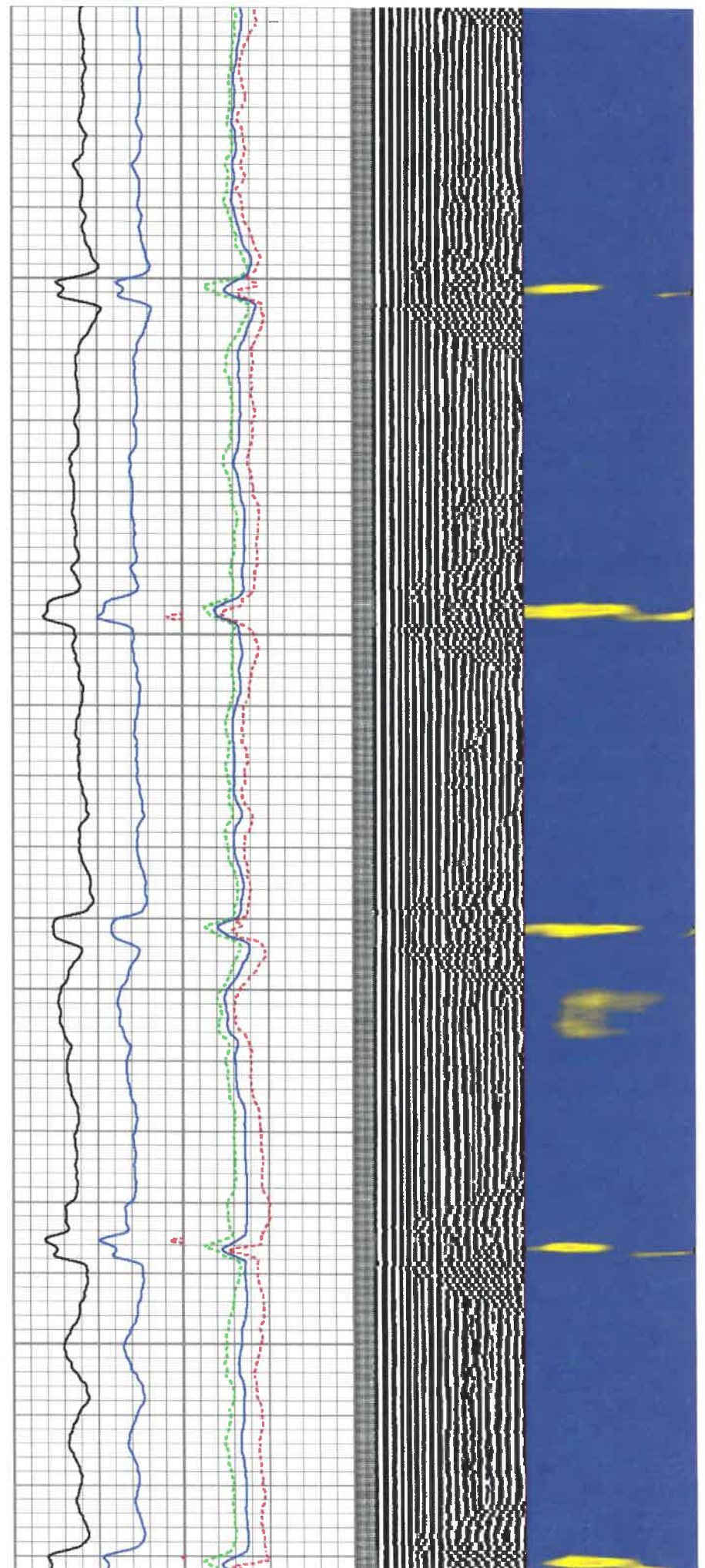
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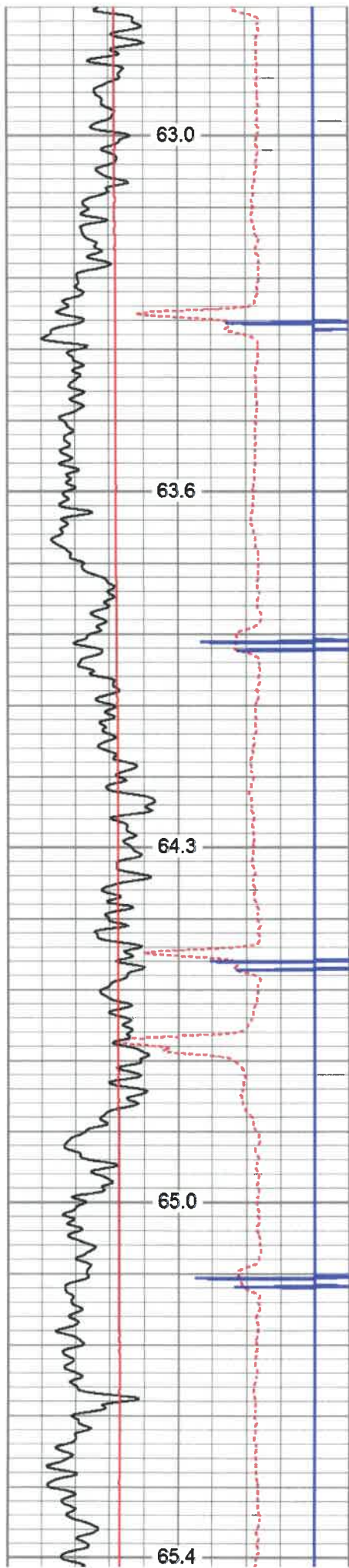




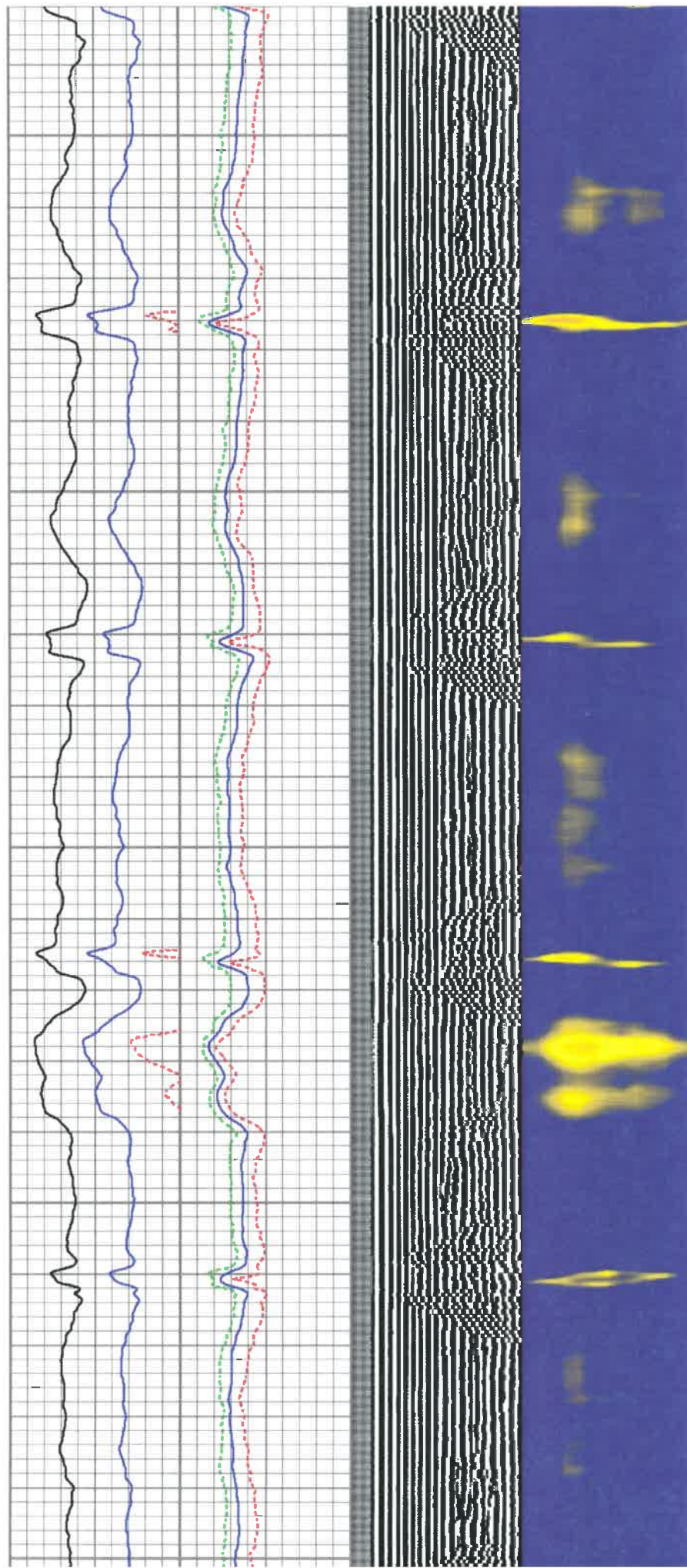


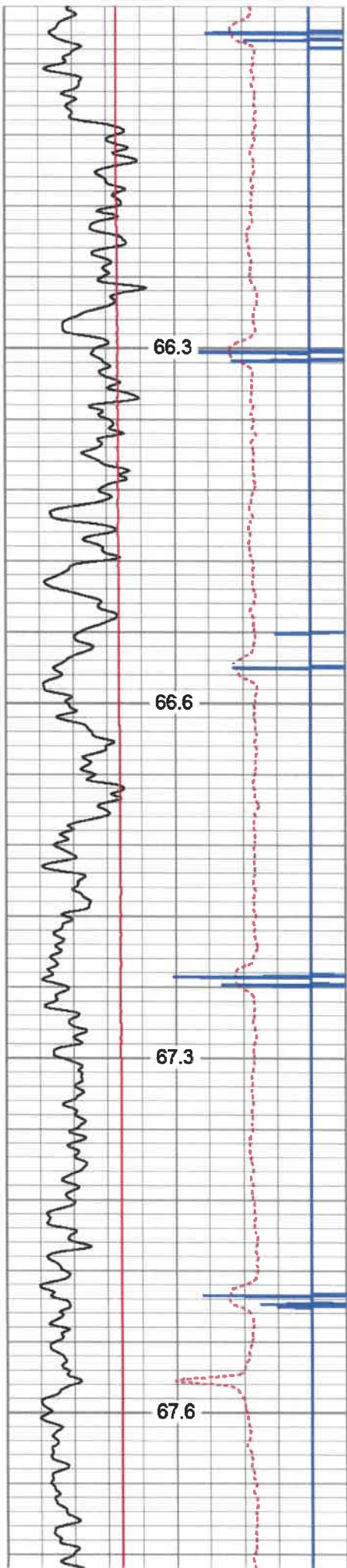
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1150
1200
1250





1300
1350
1400
1450
1500



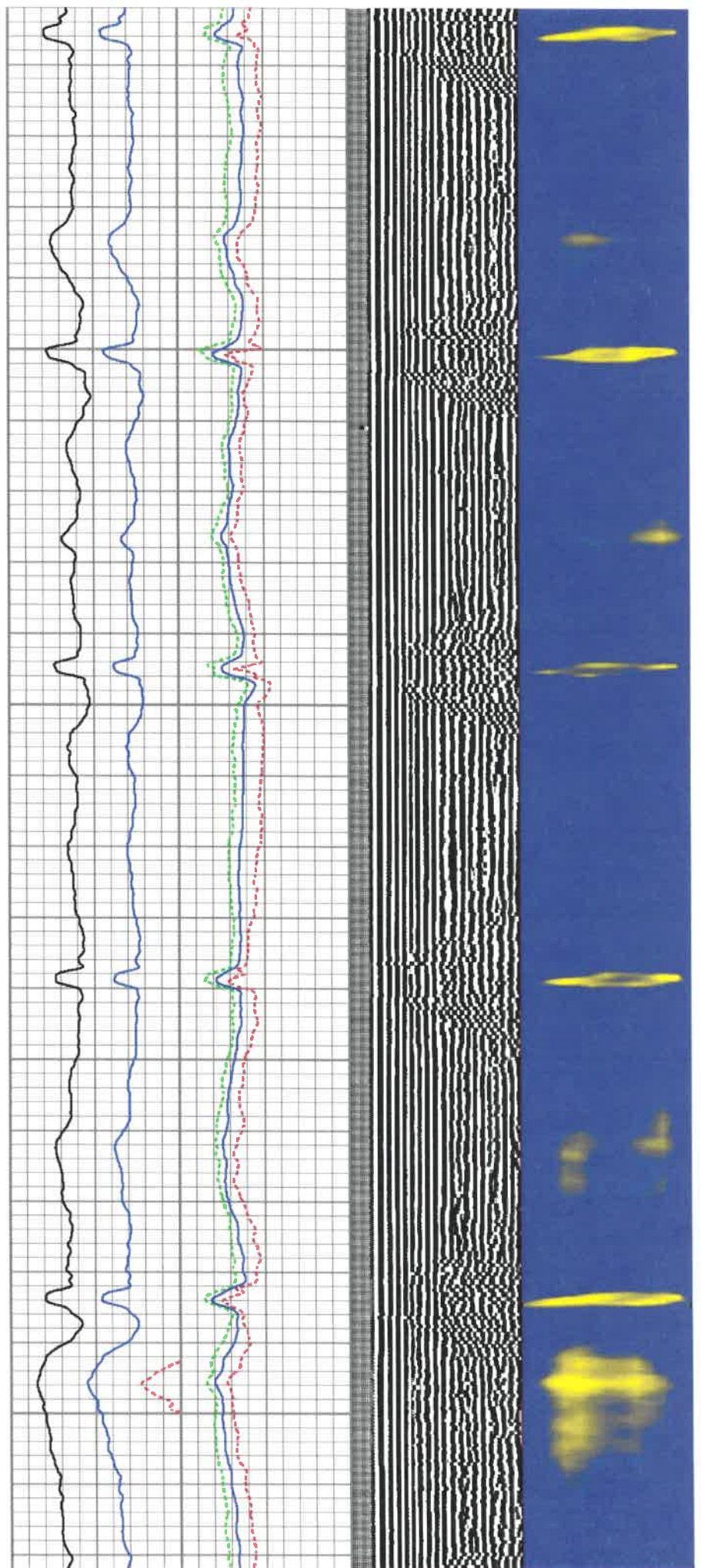


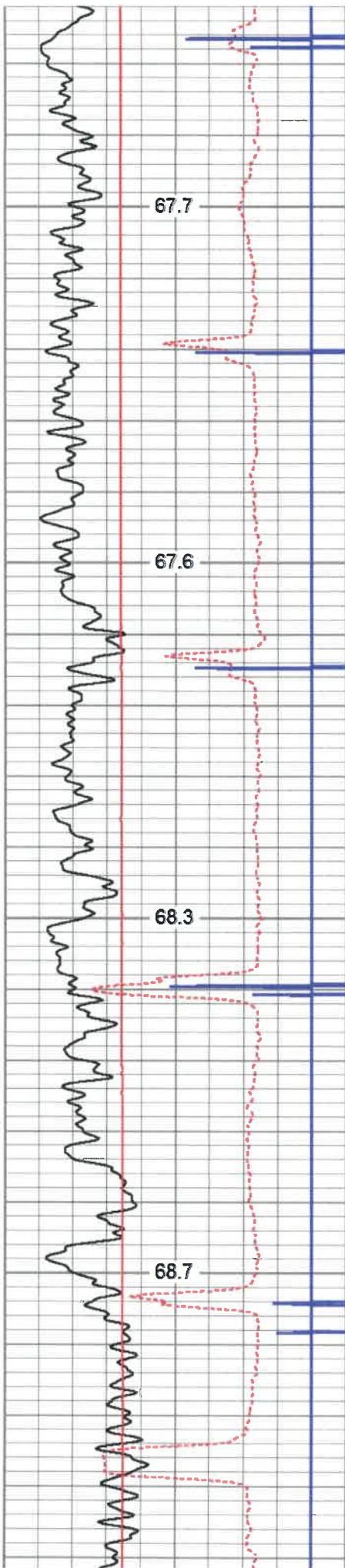
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1700



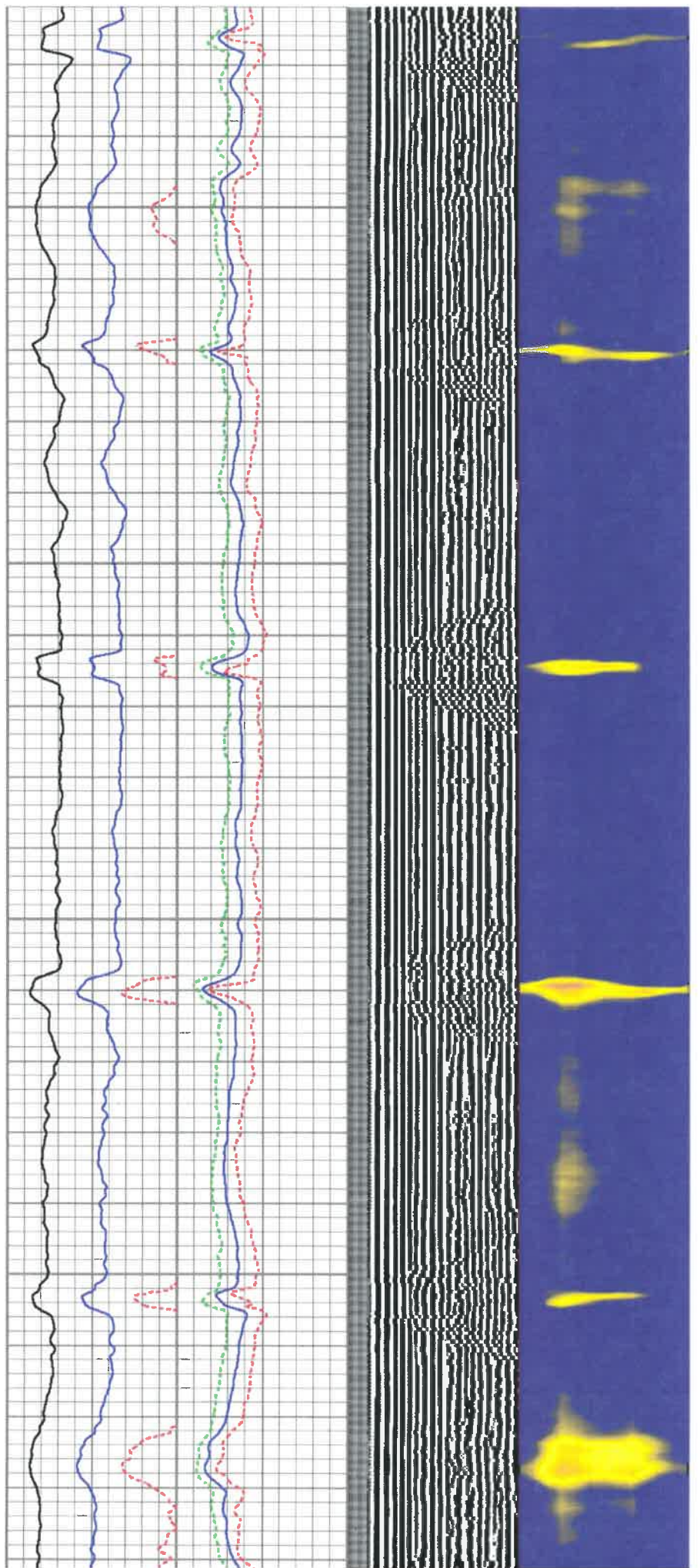


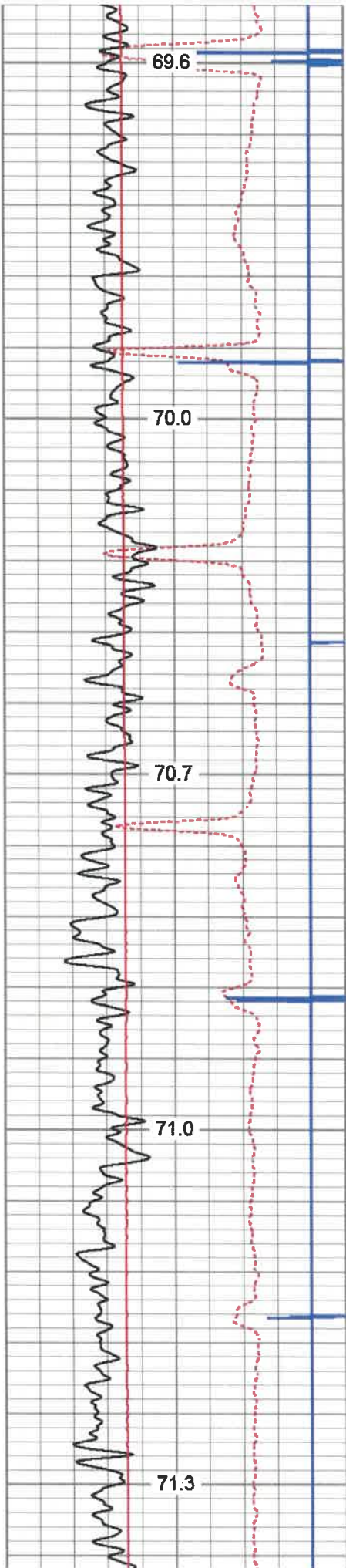
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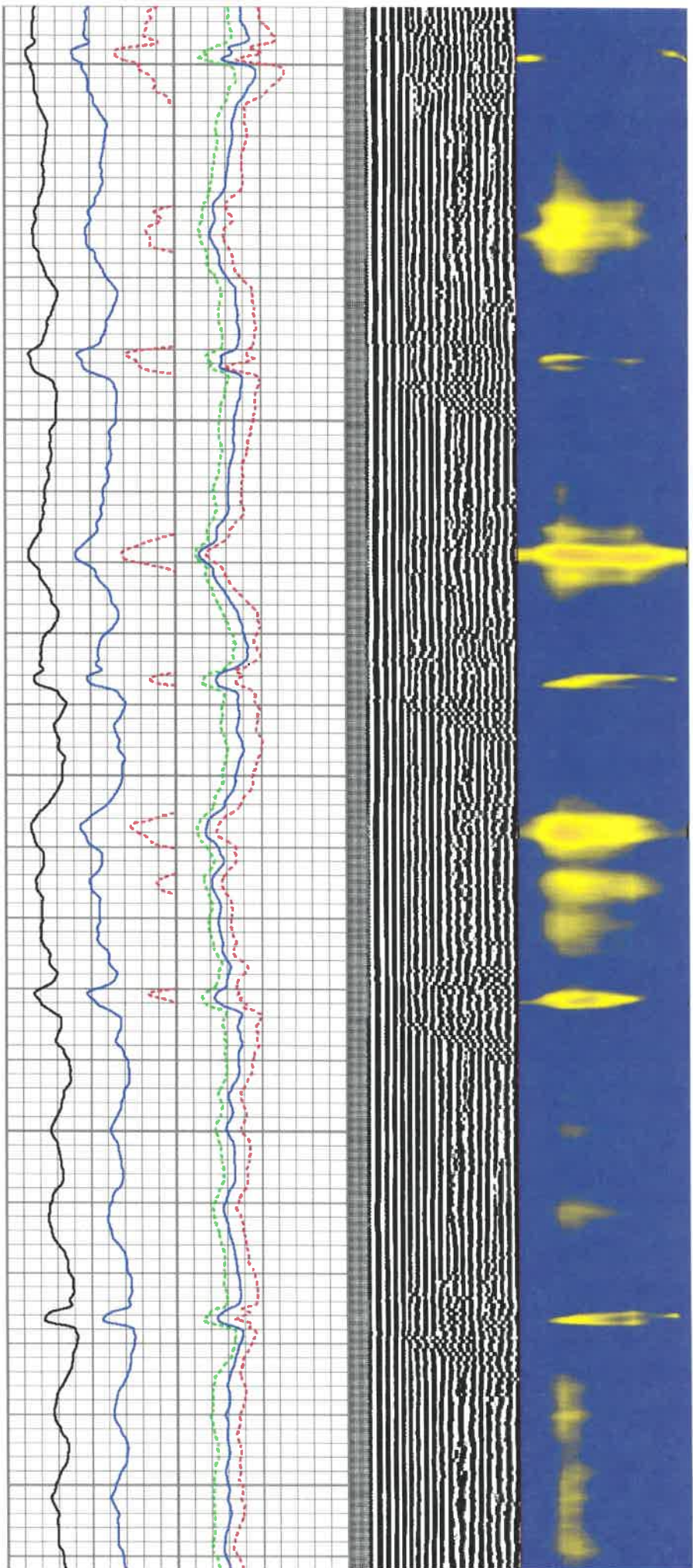
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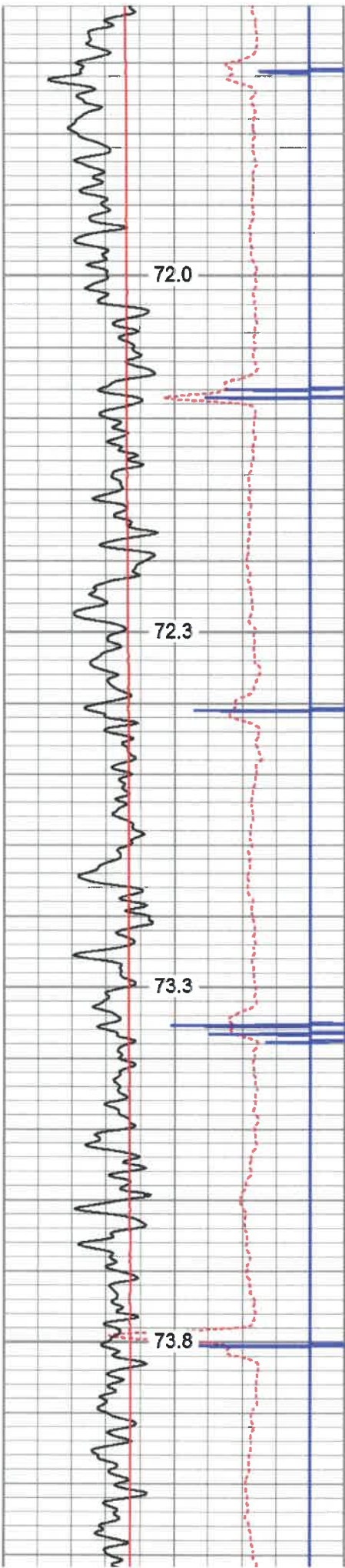
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1950
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2100
2150



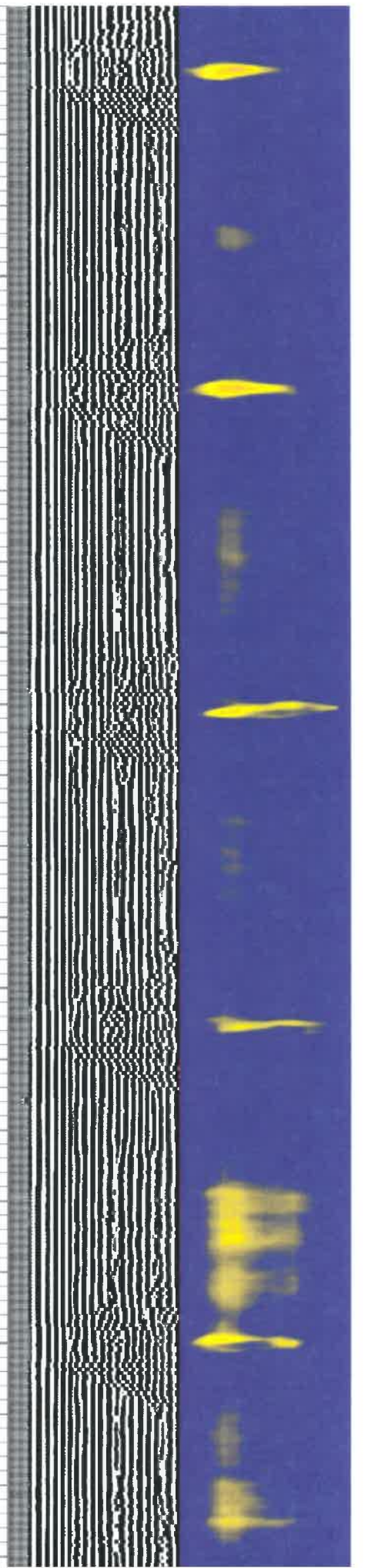
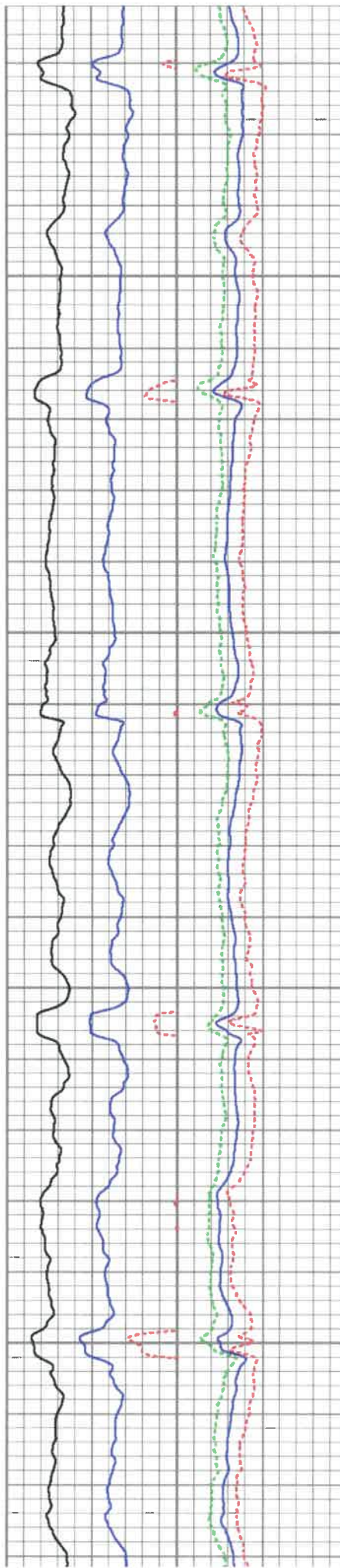


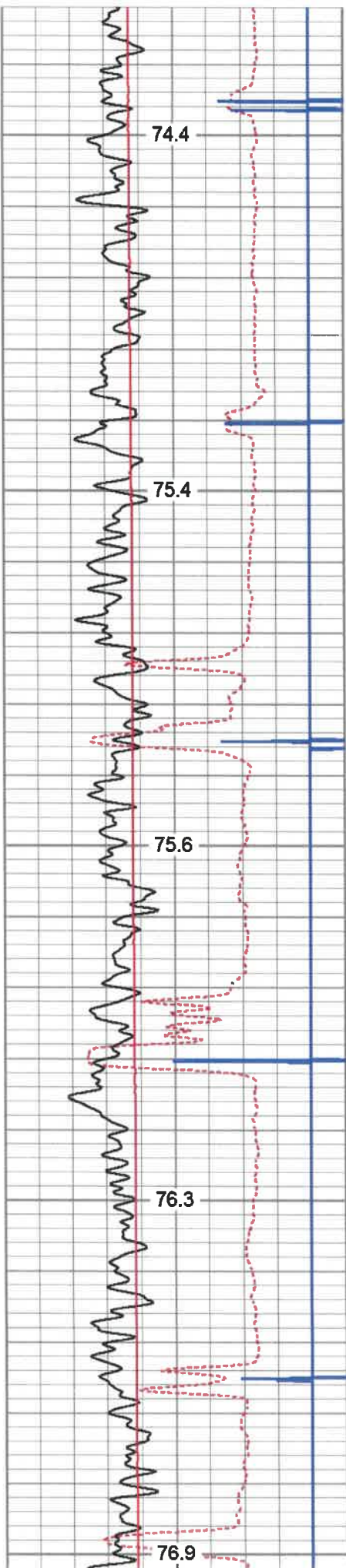
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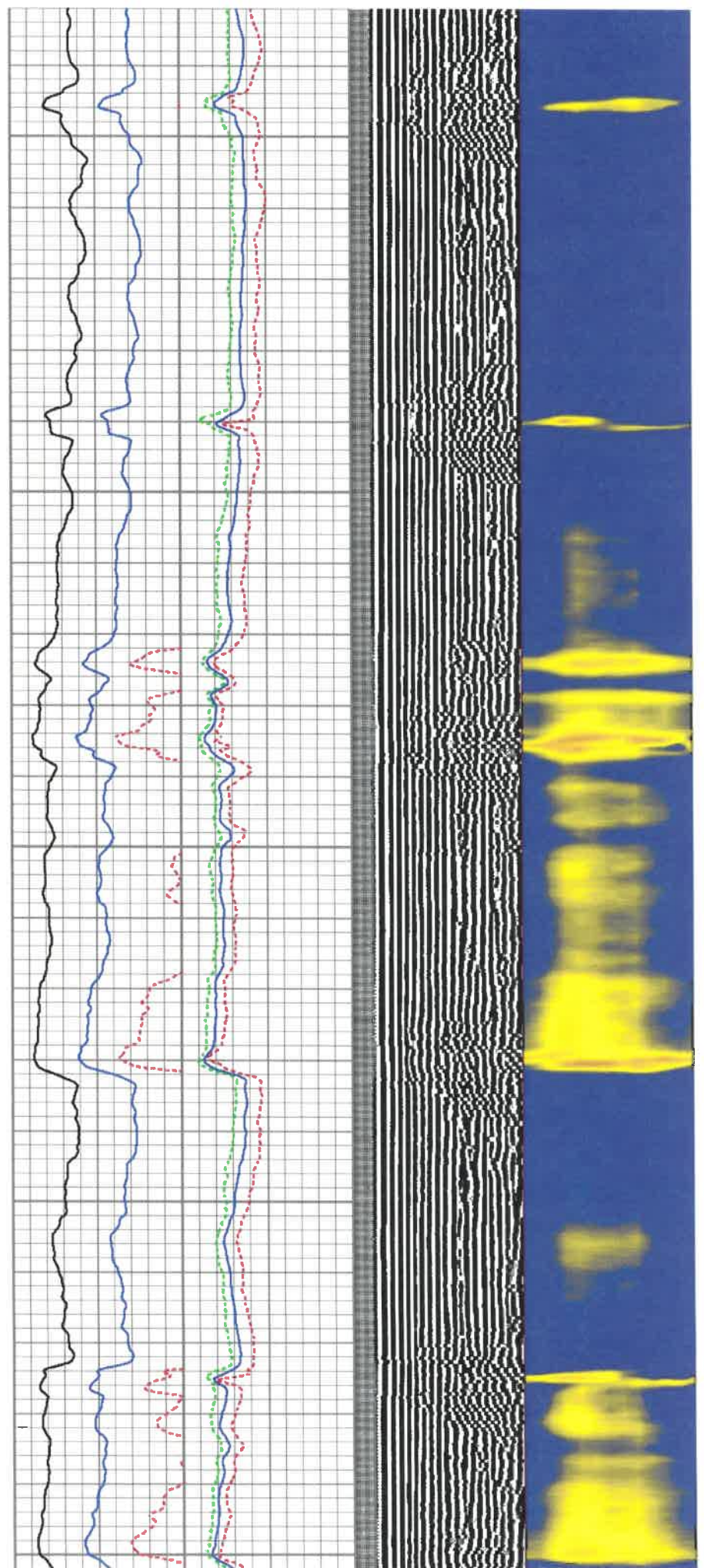
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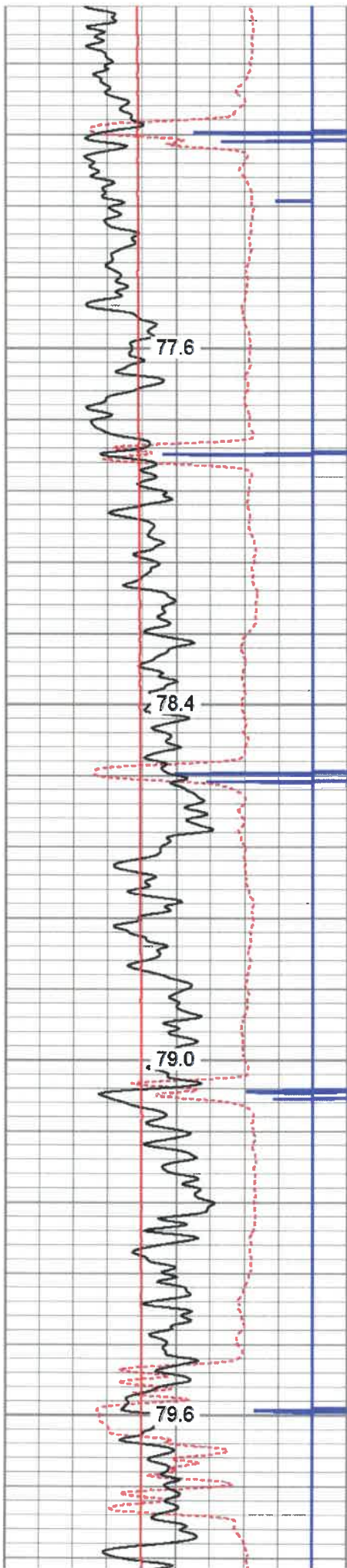
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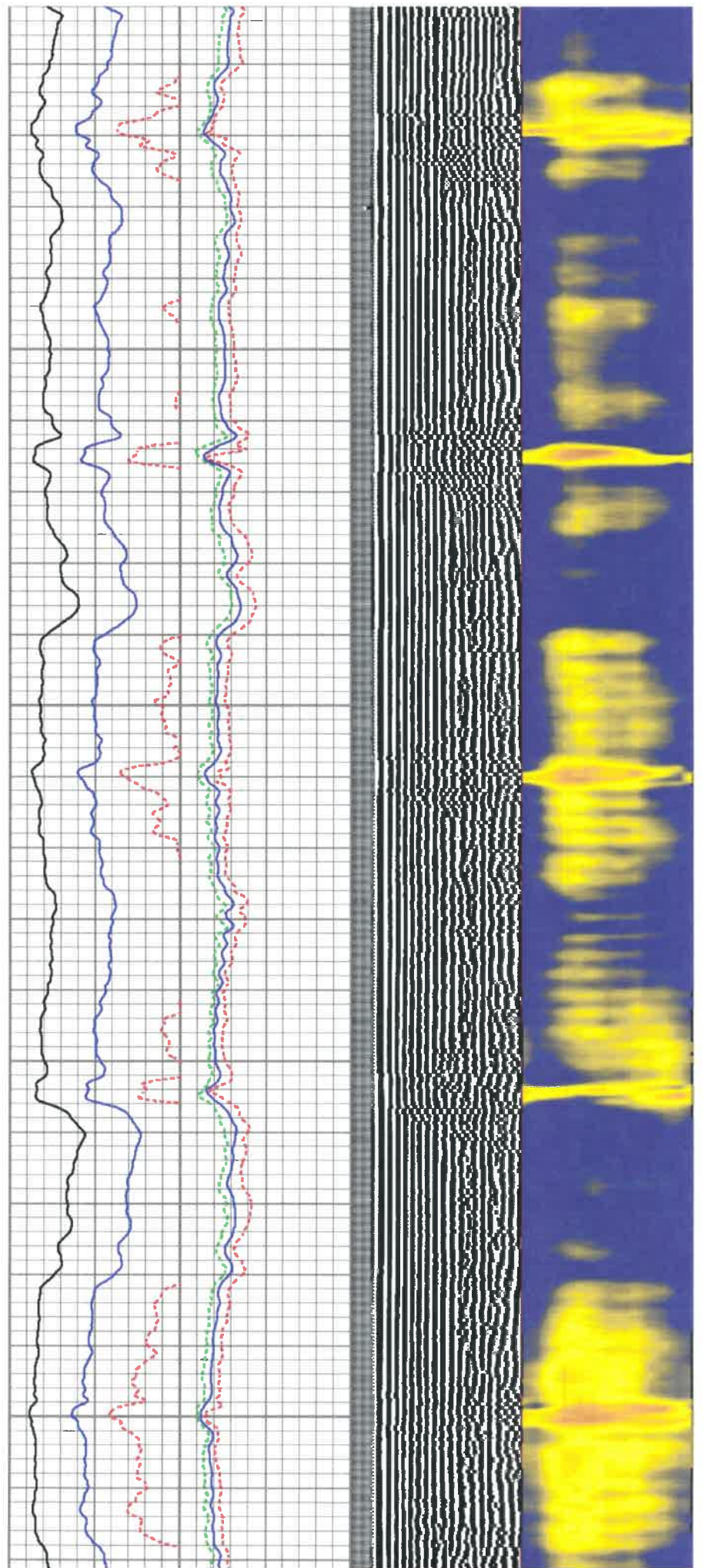


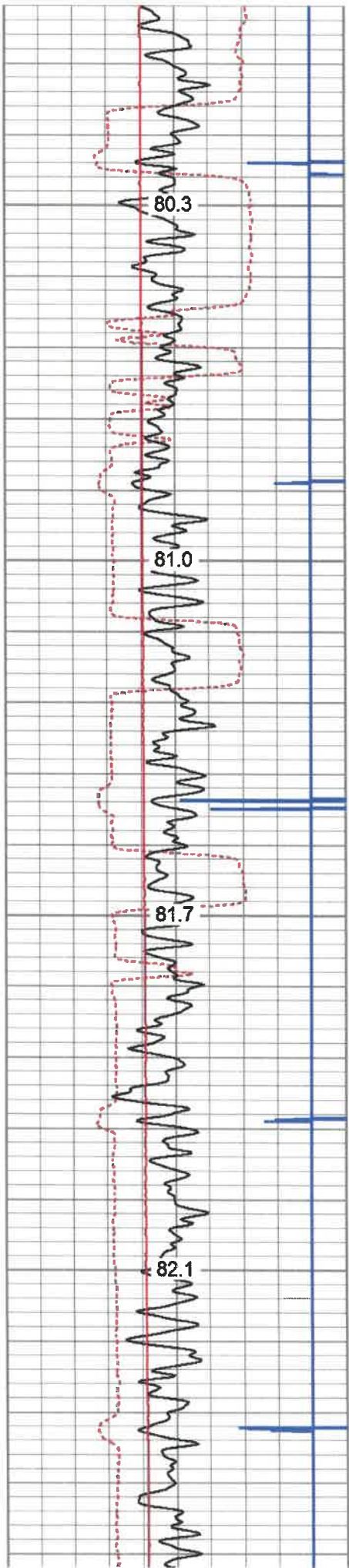
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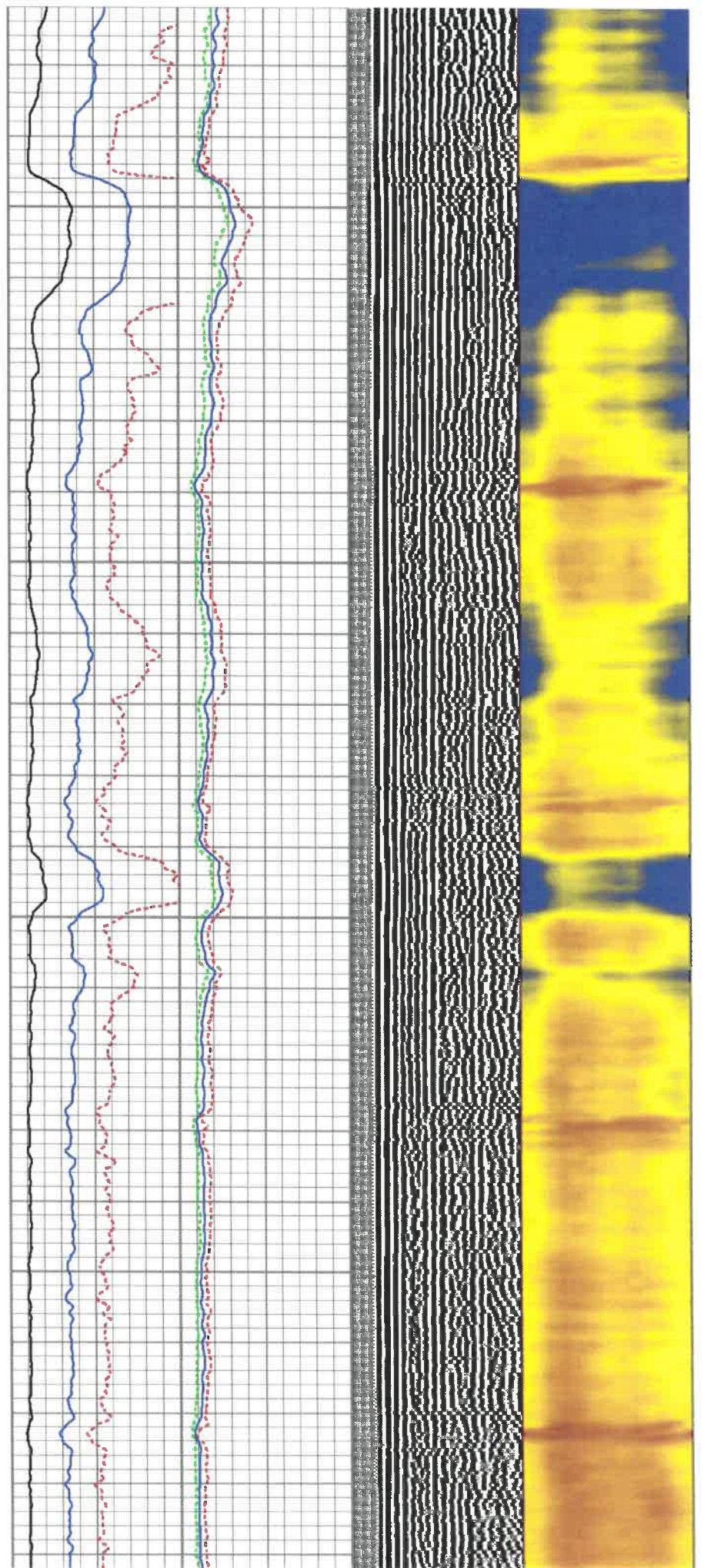


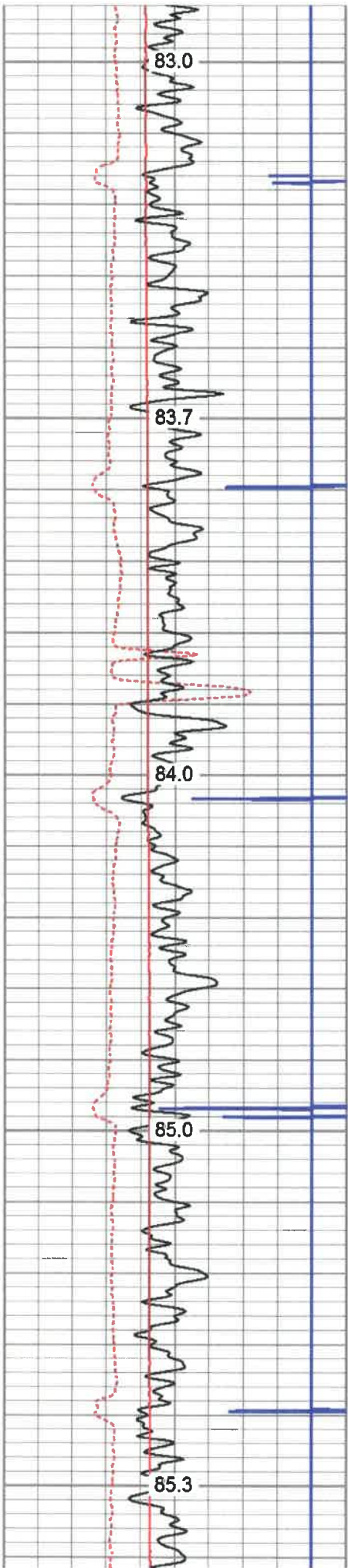
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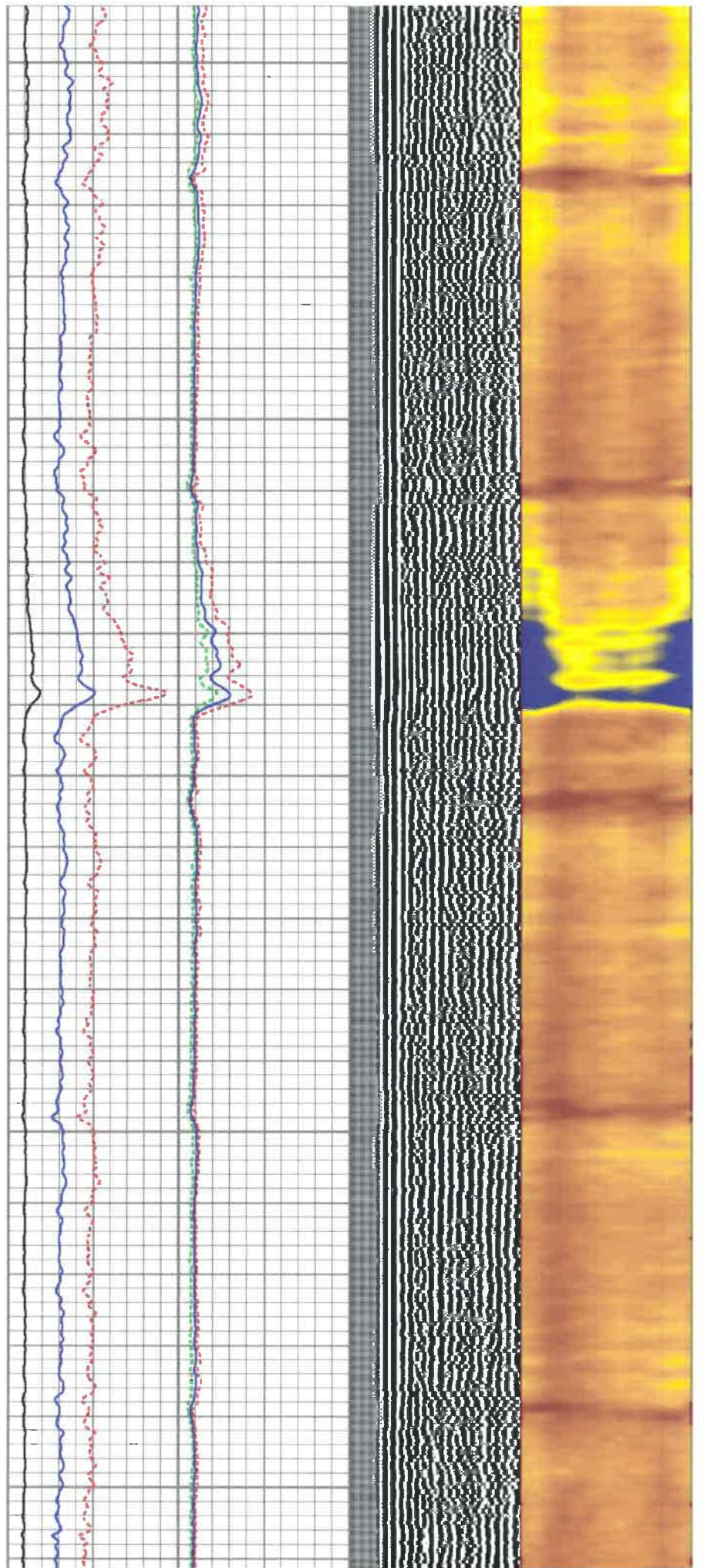
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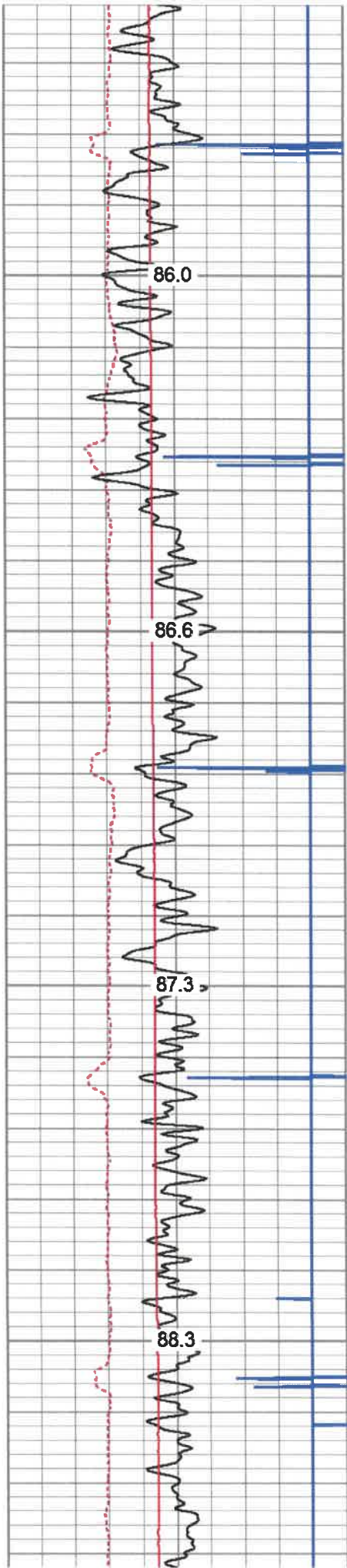
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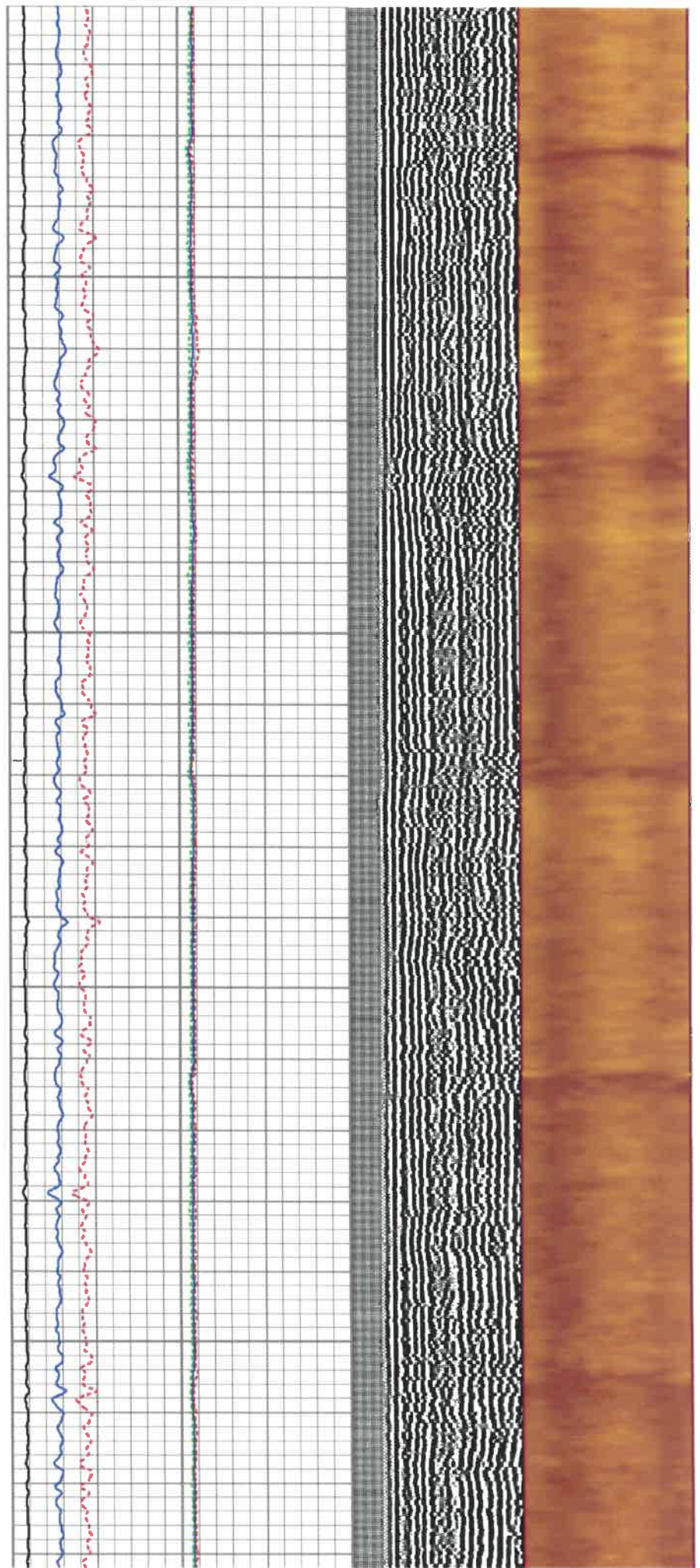


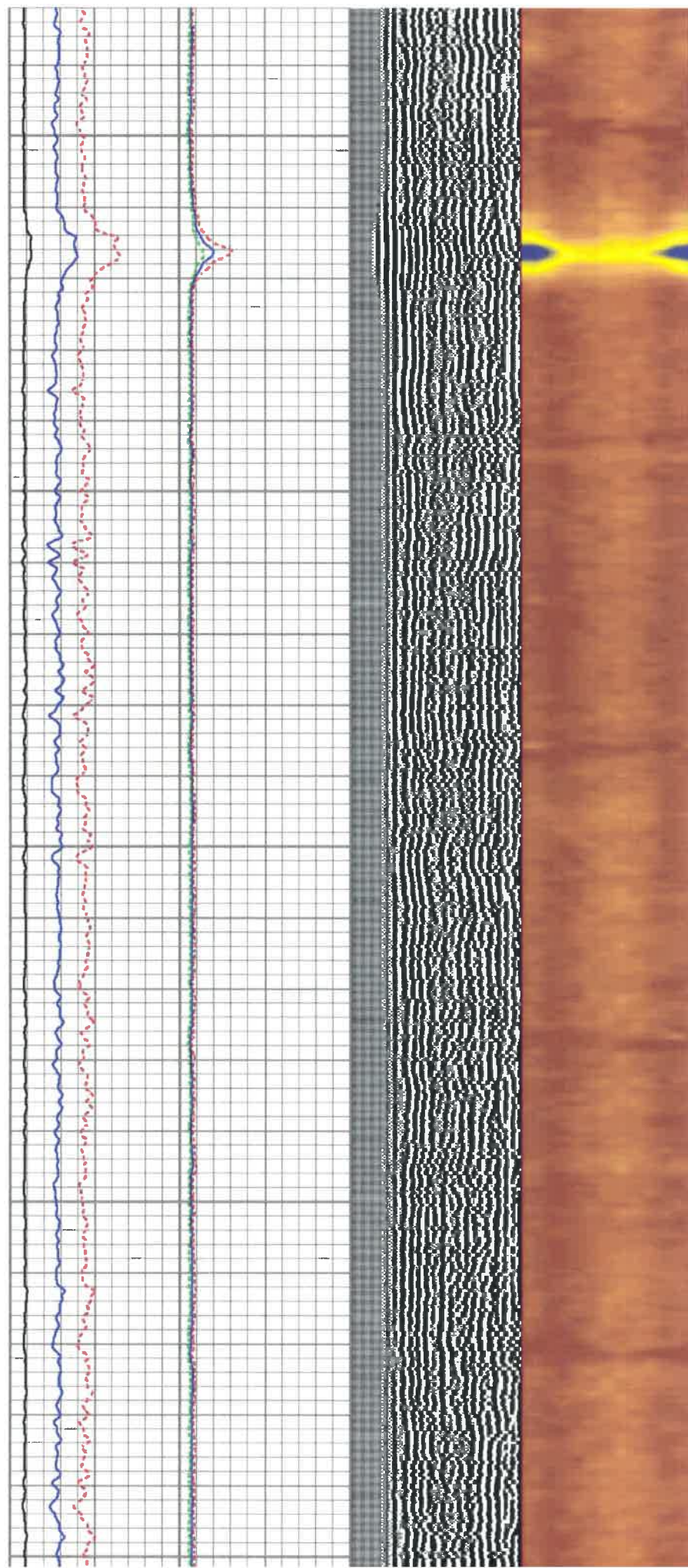
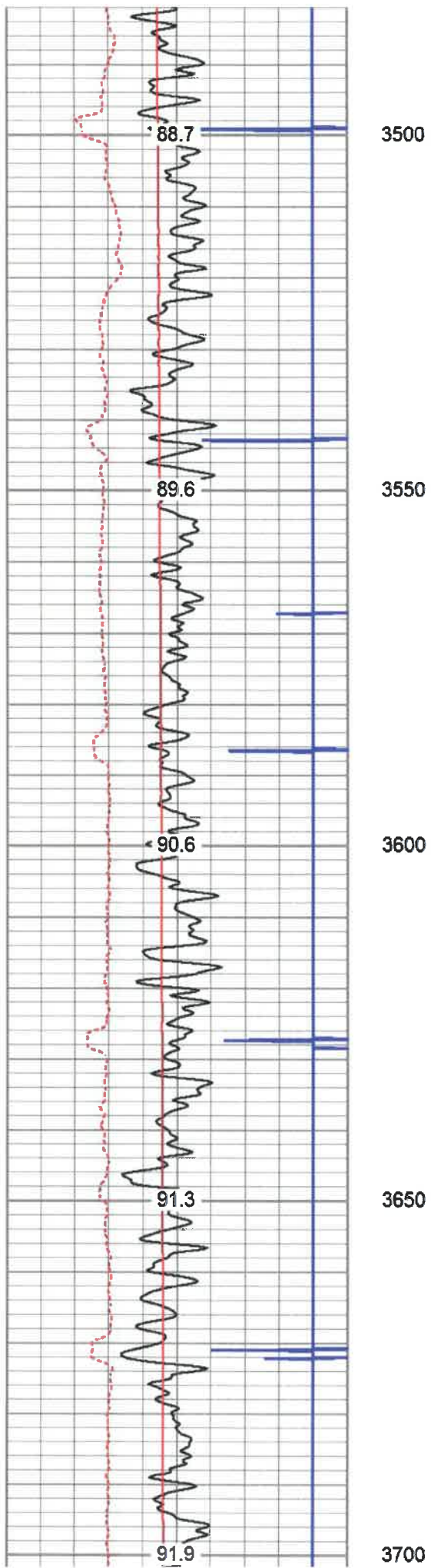
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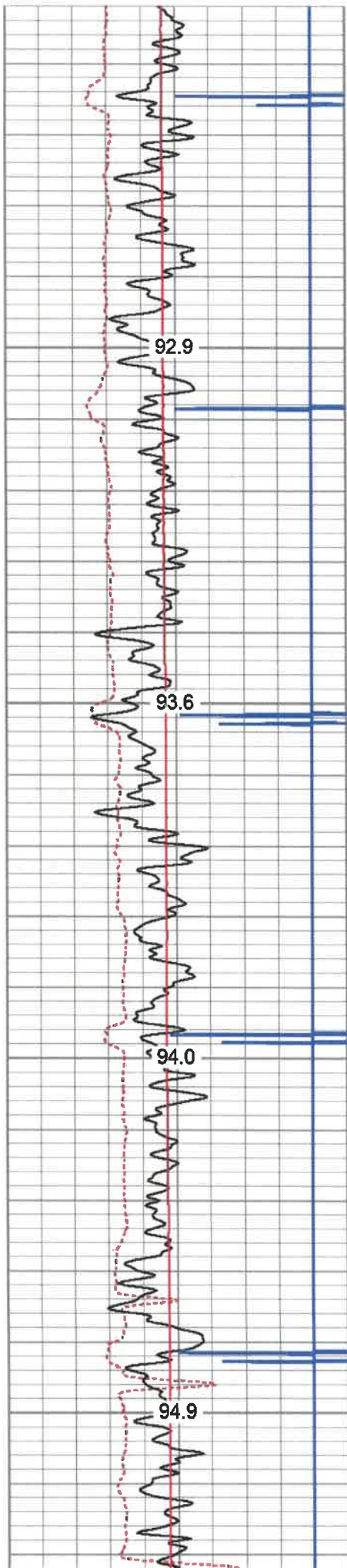
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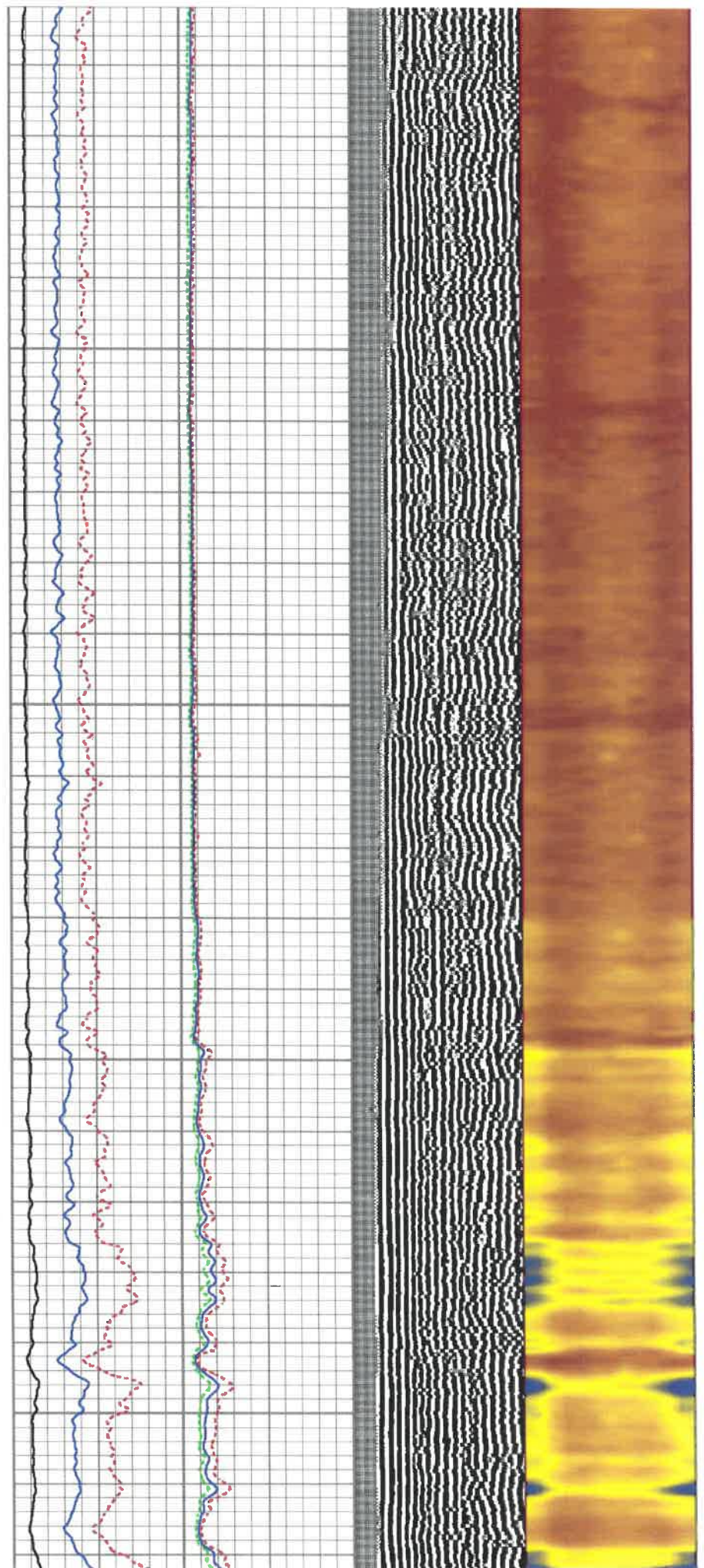


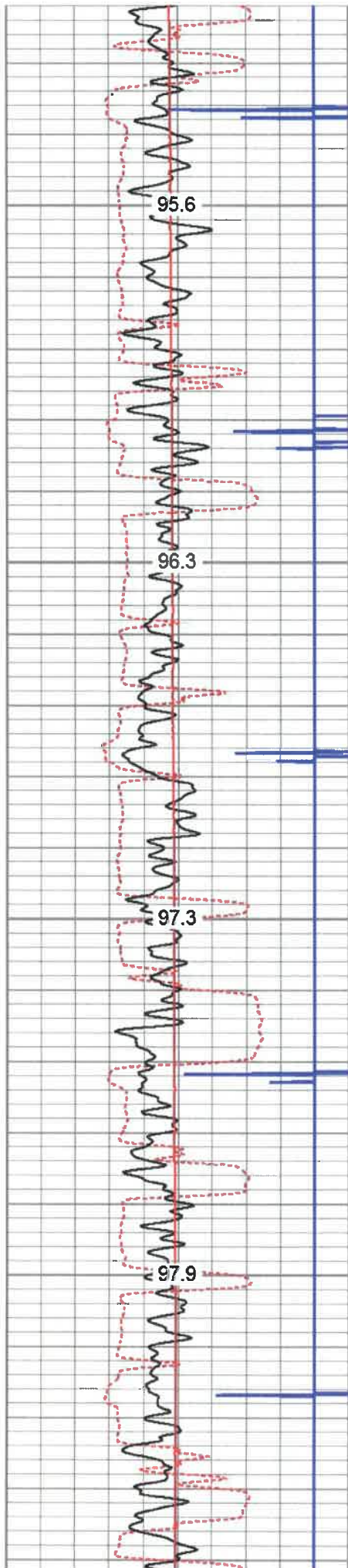
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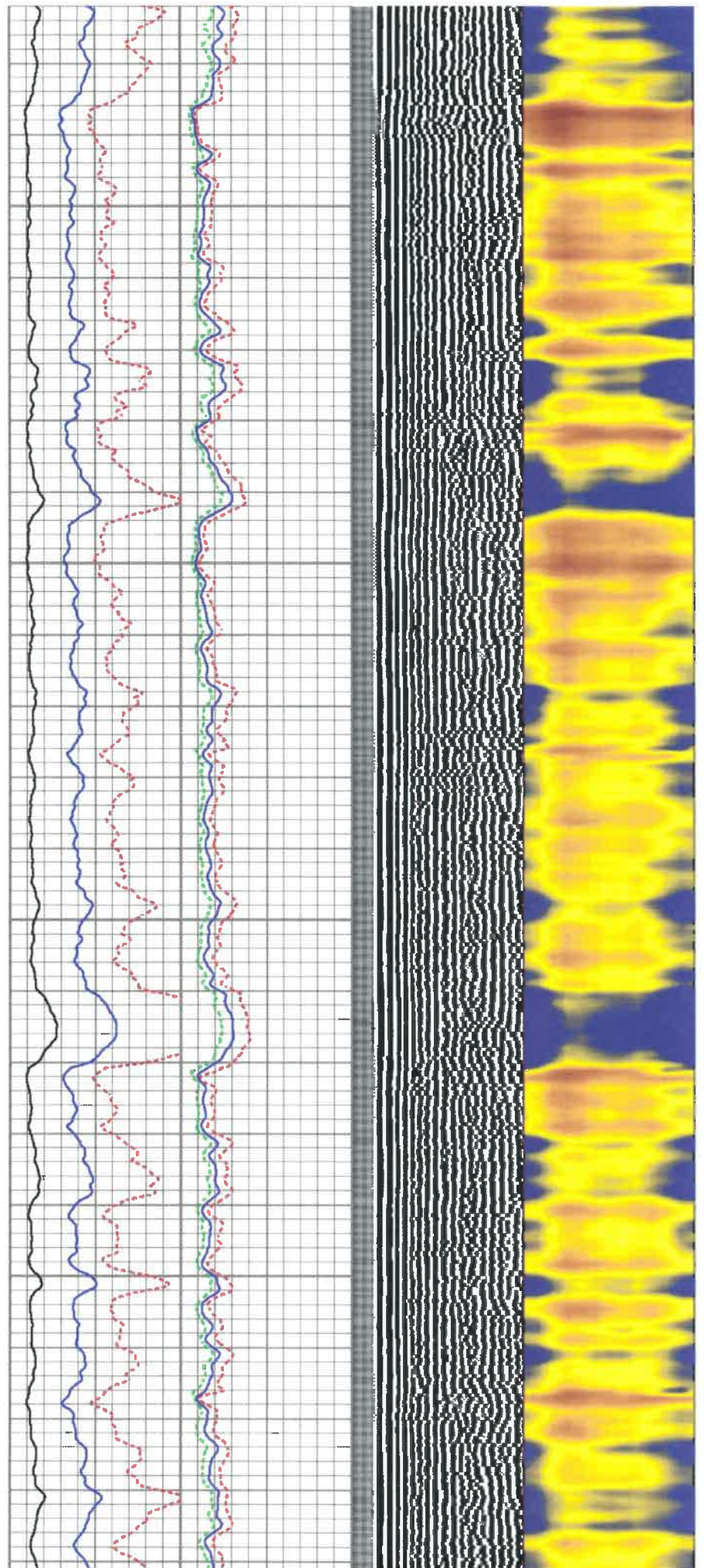


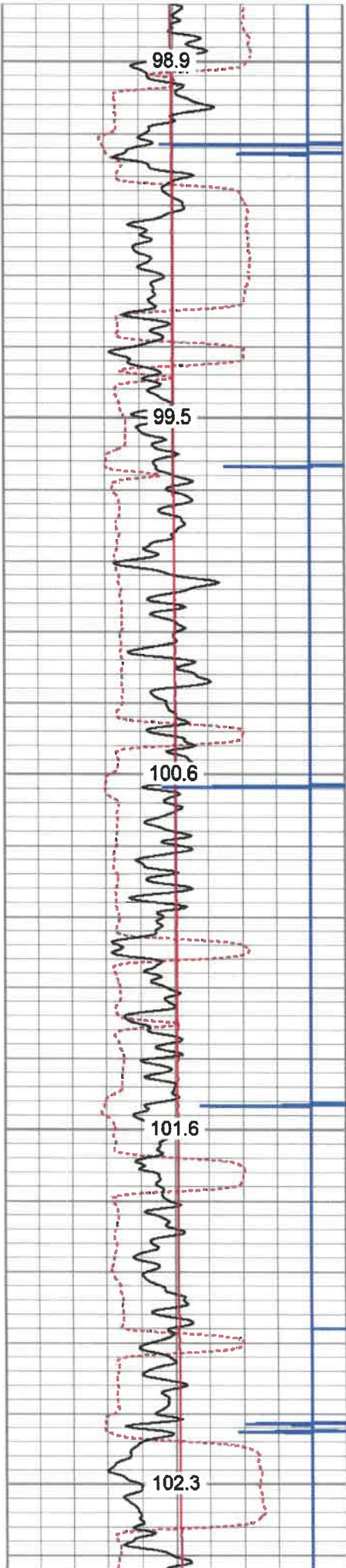
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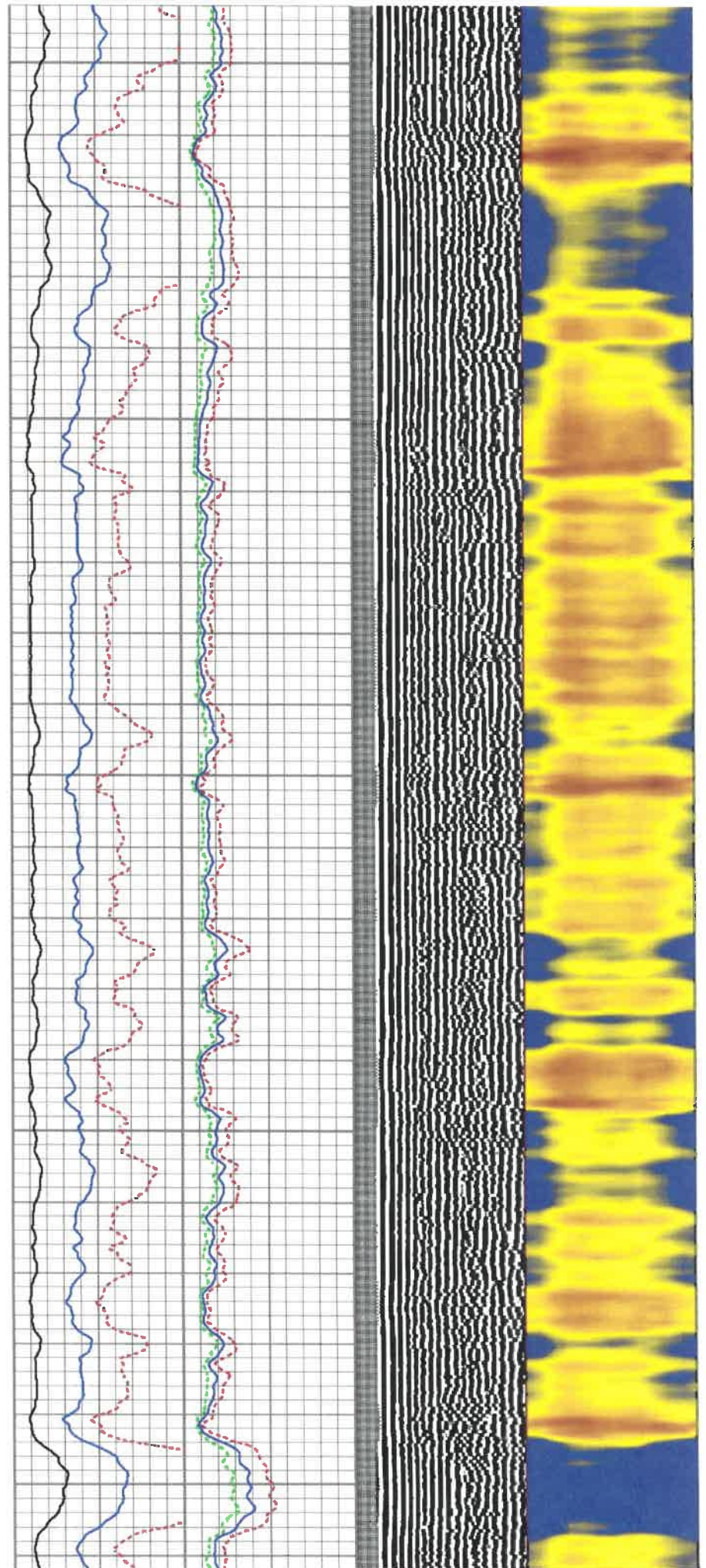
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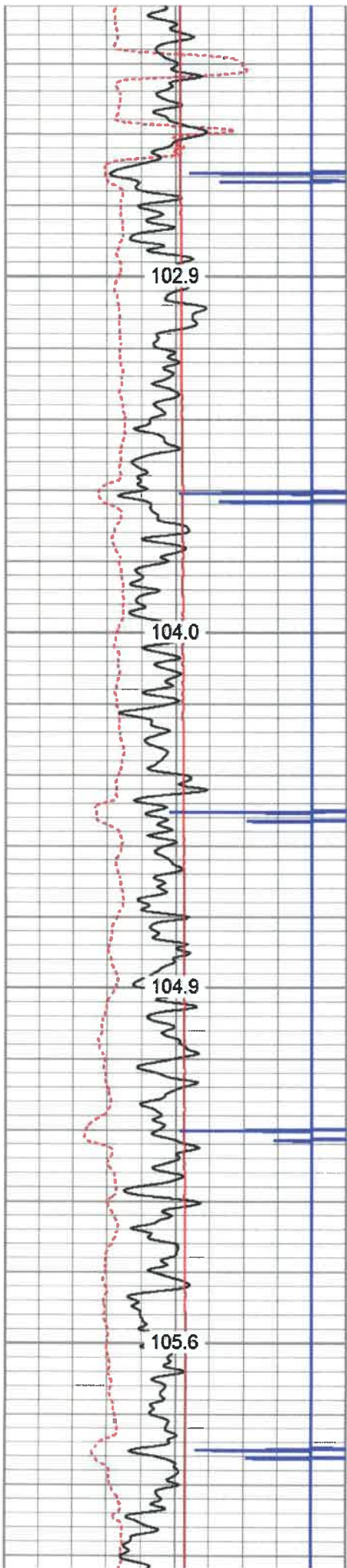
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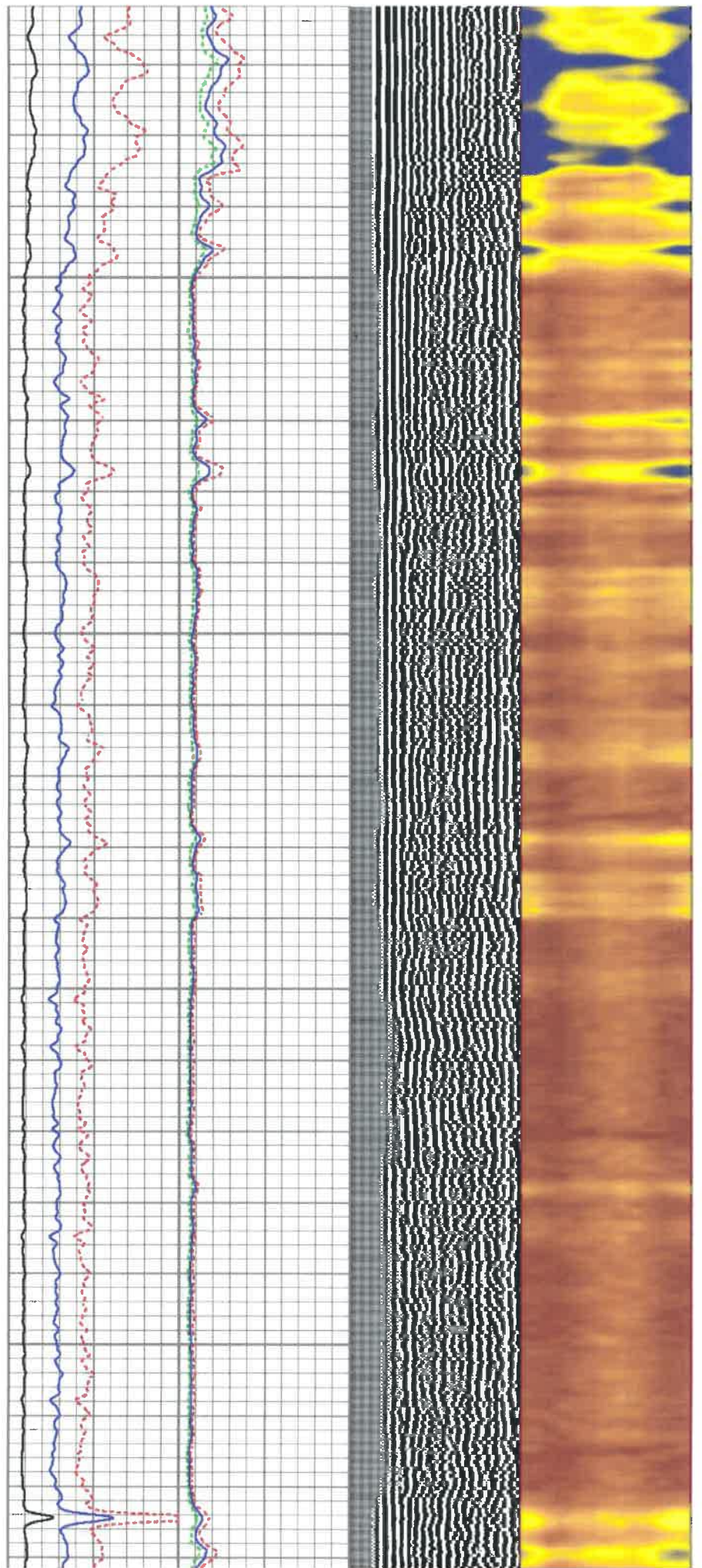


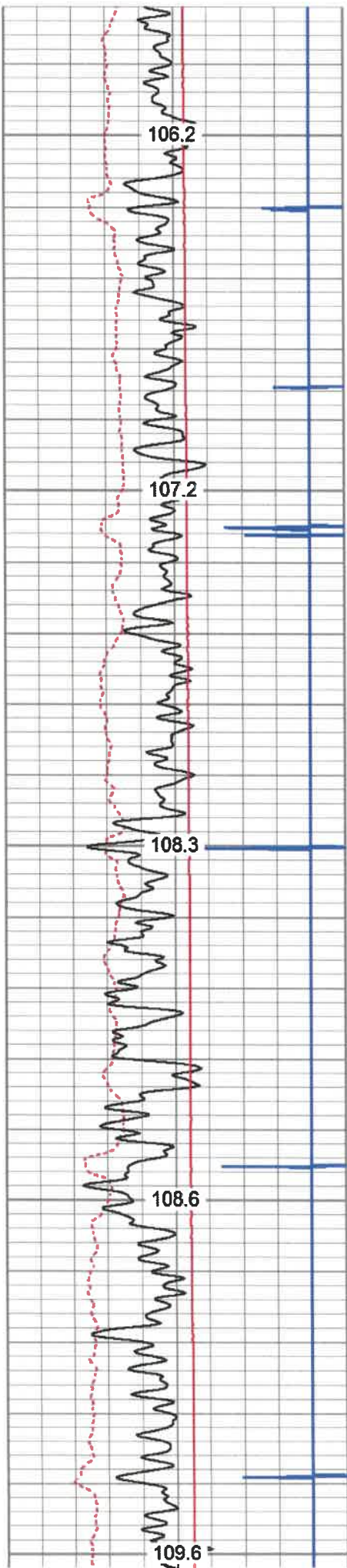
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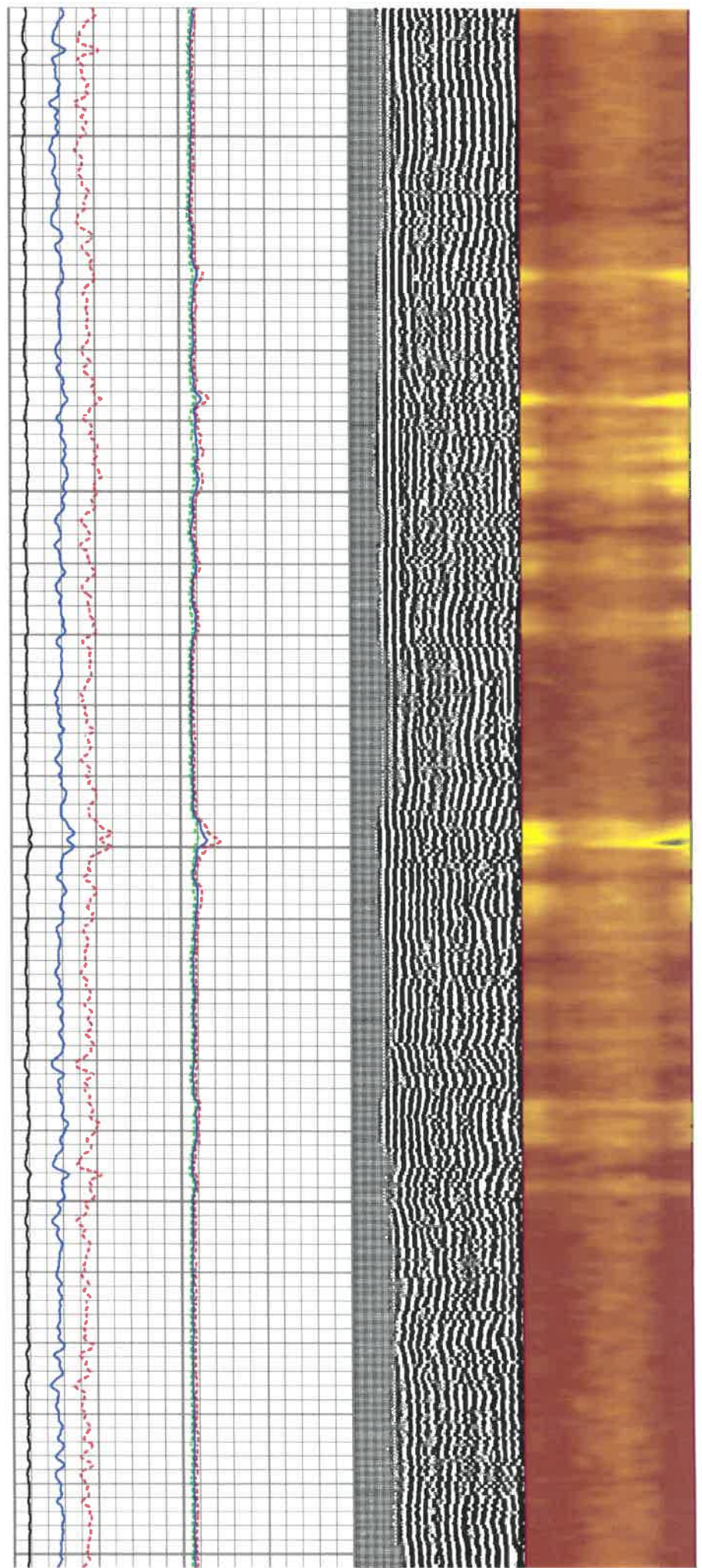
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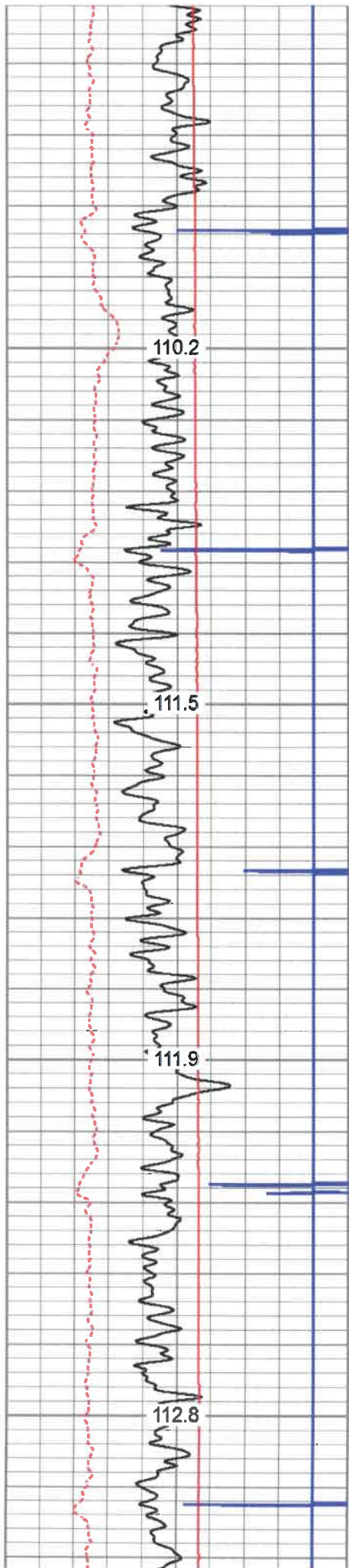
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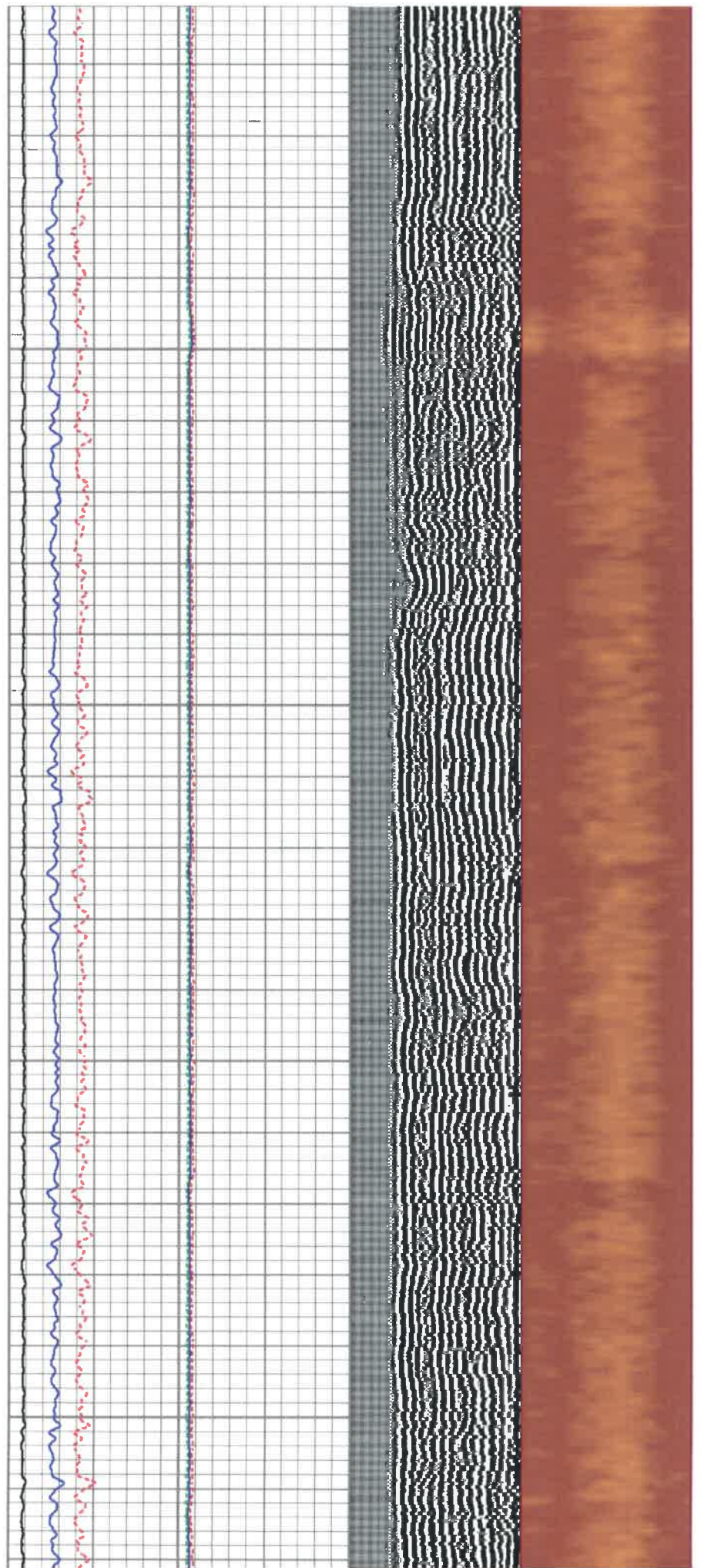


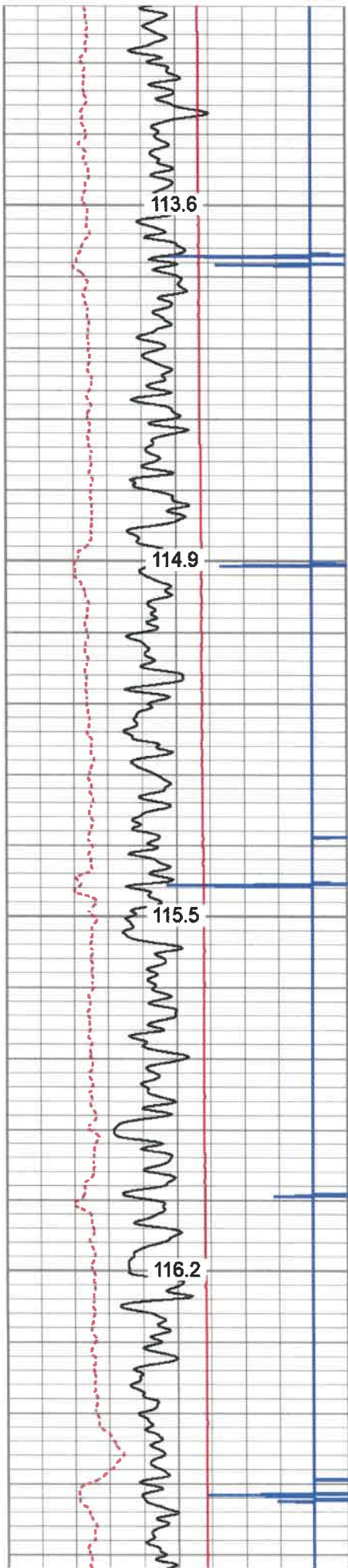
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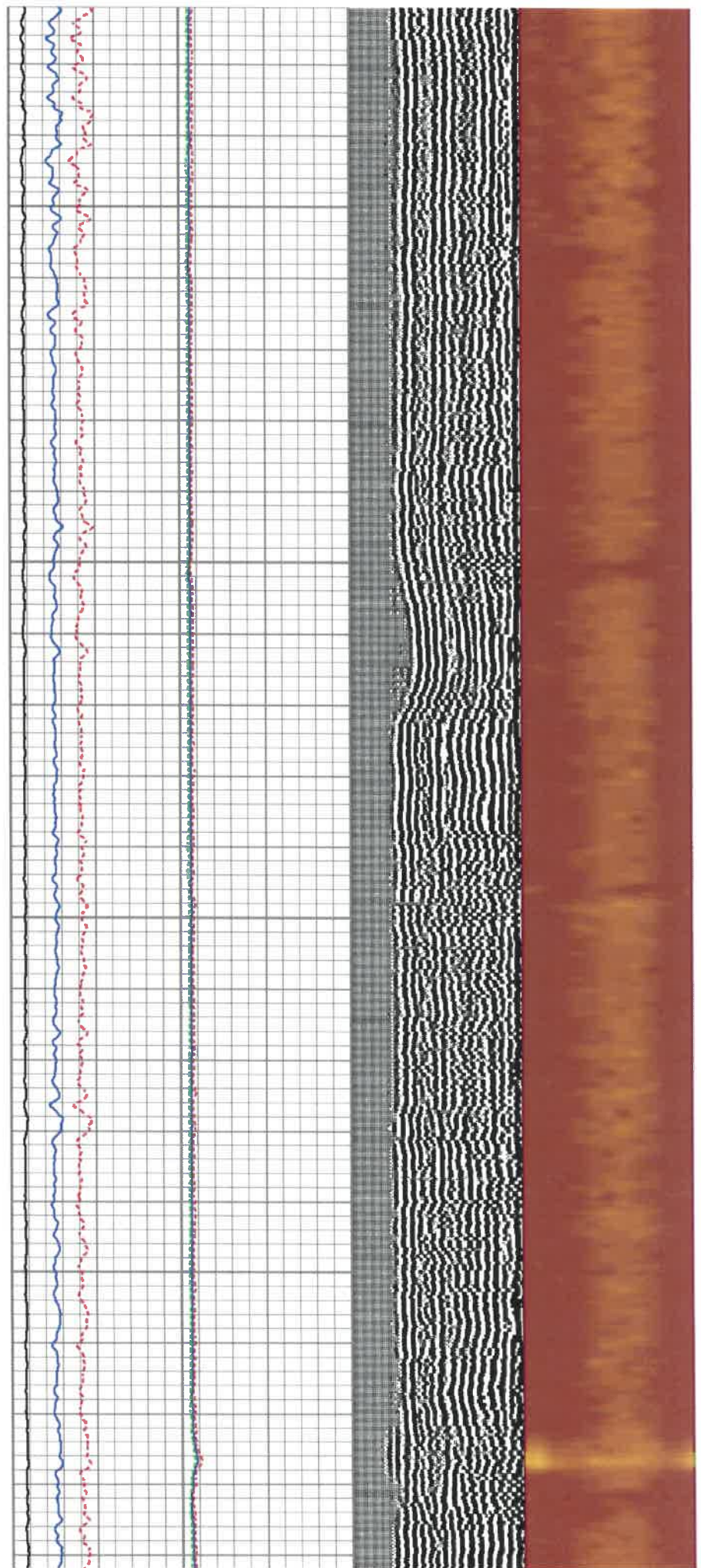


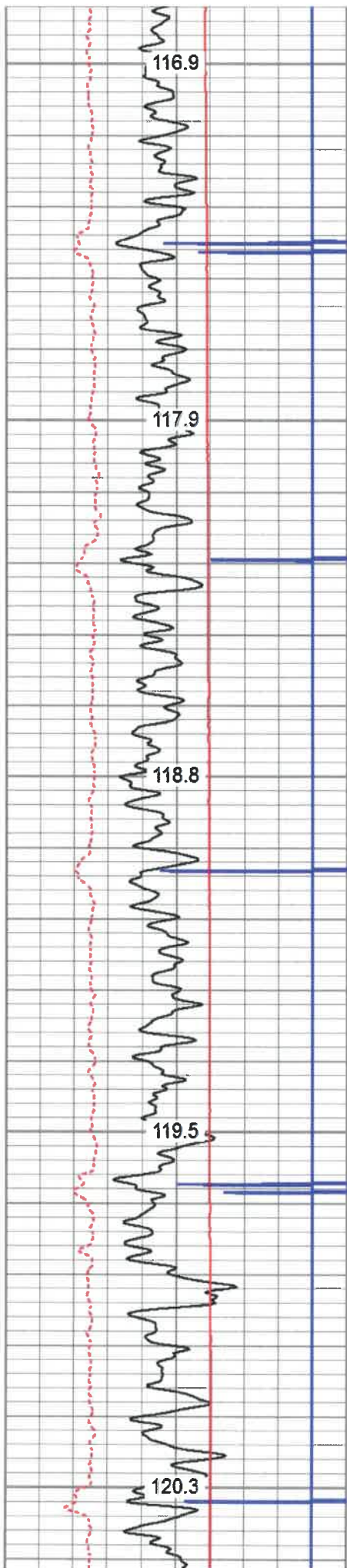
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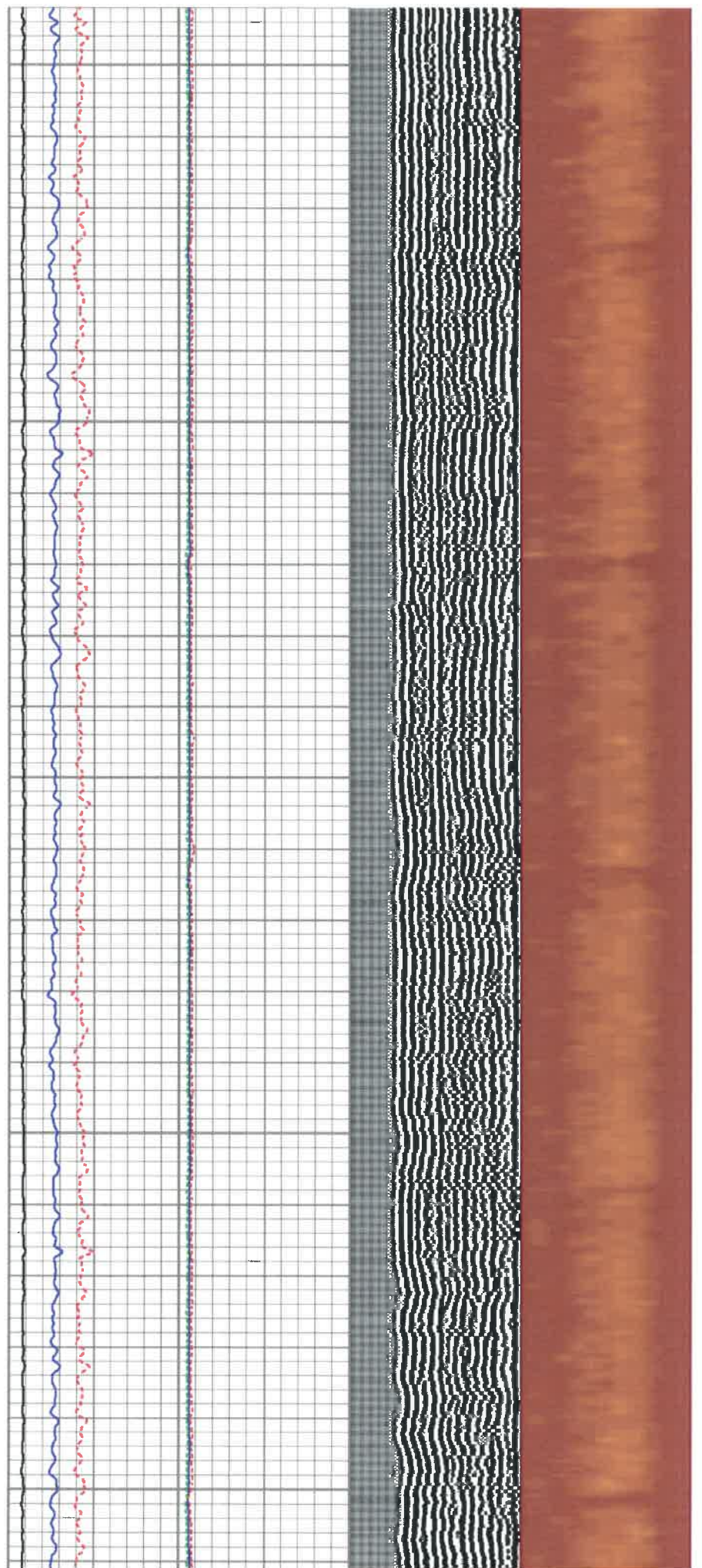
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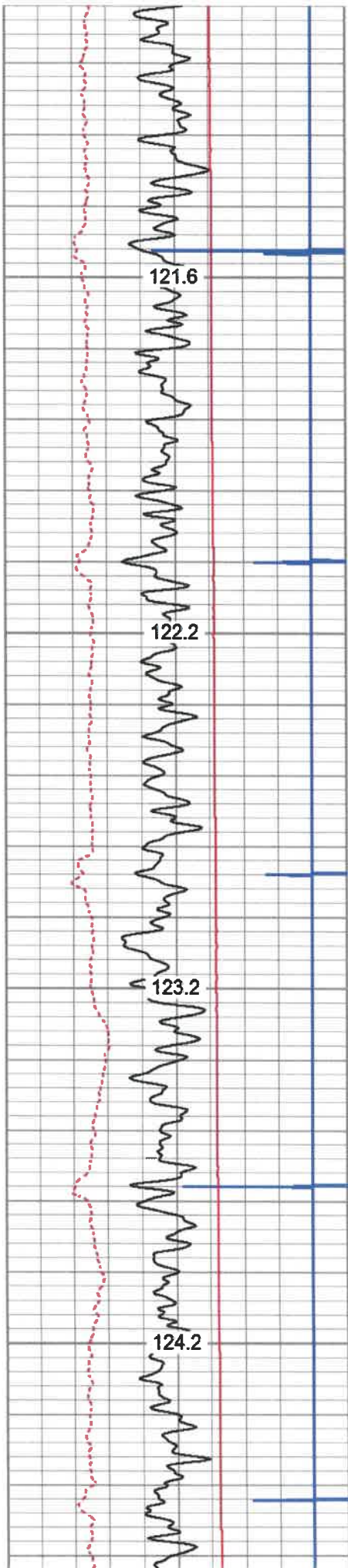
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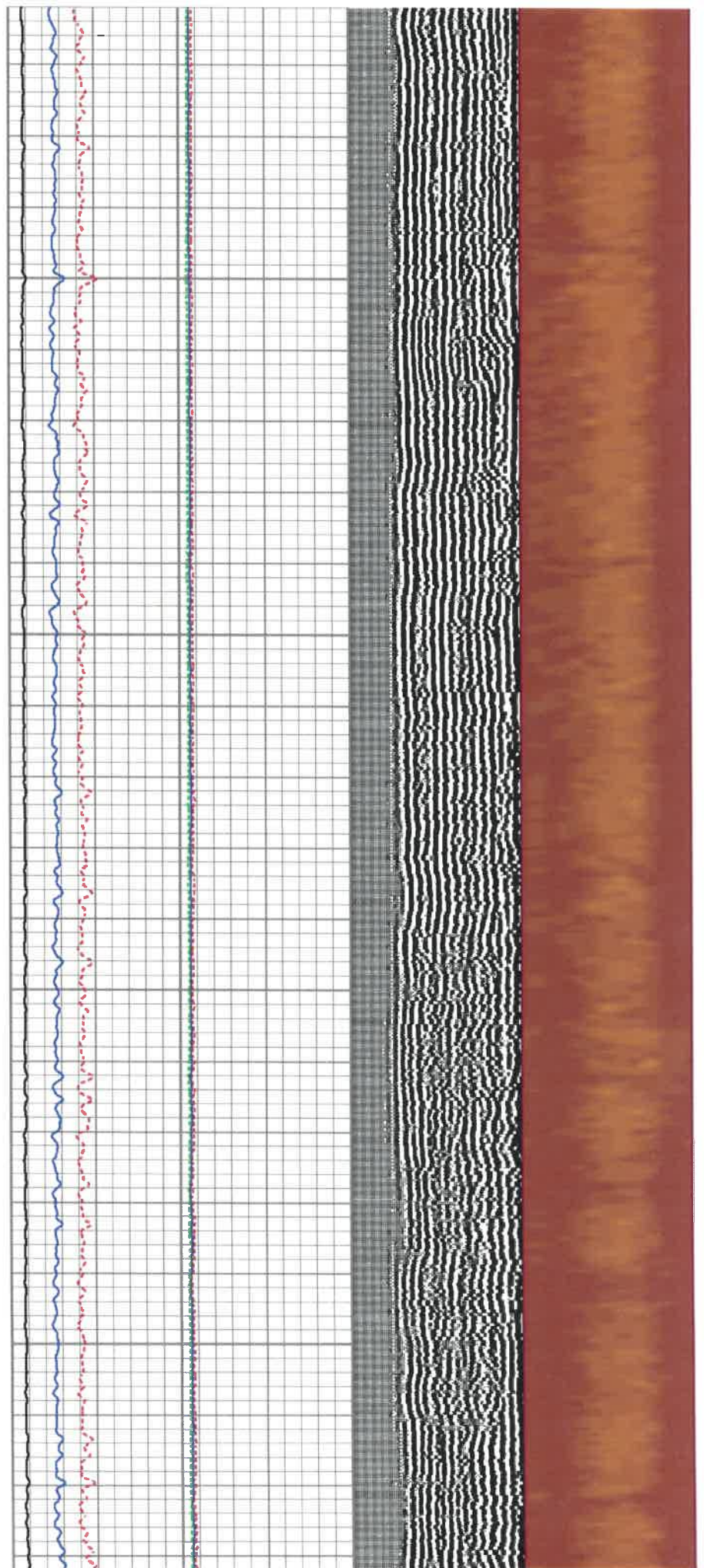


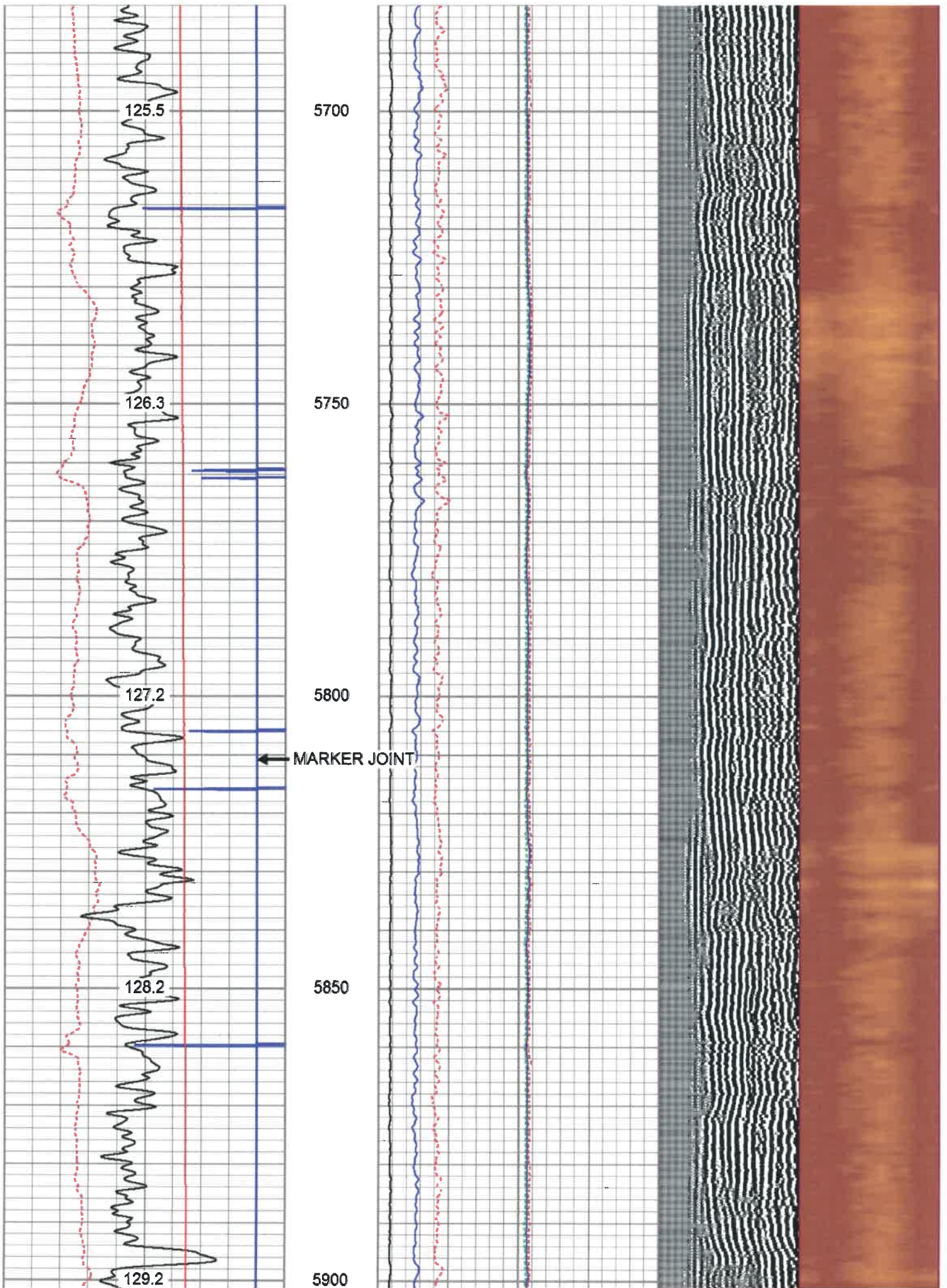
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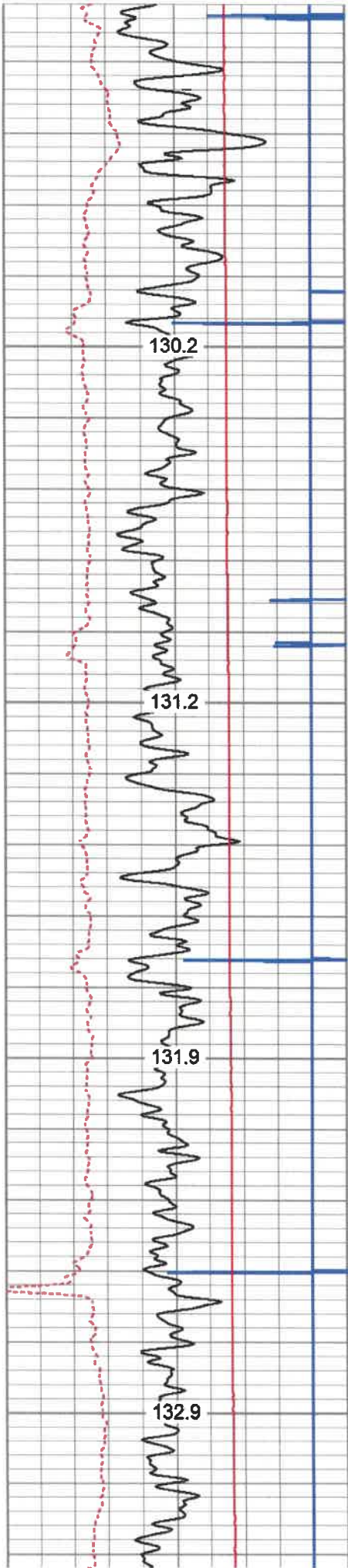
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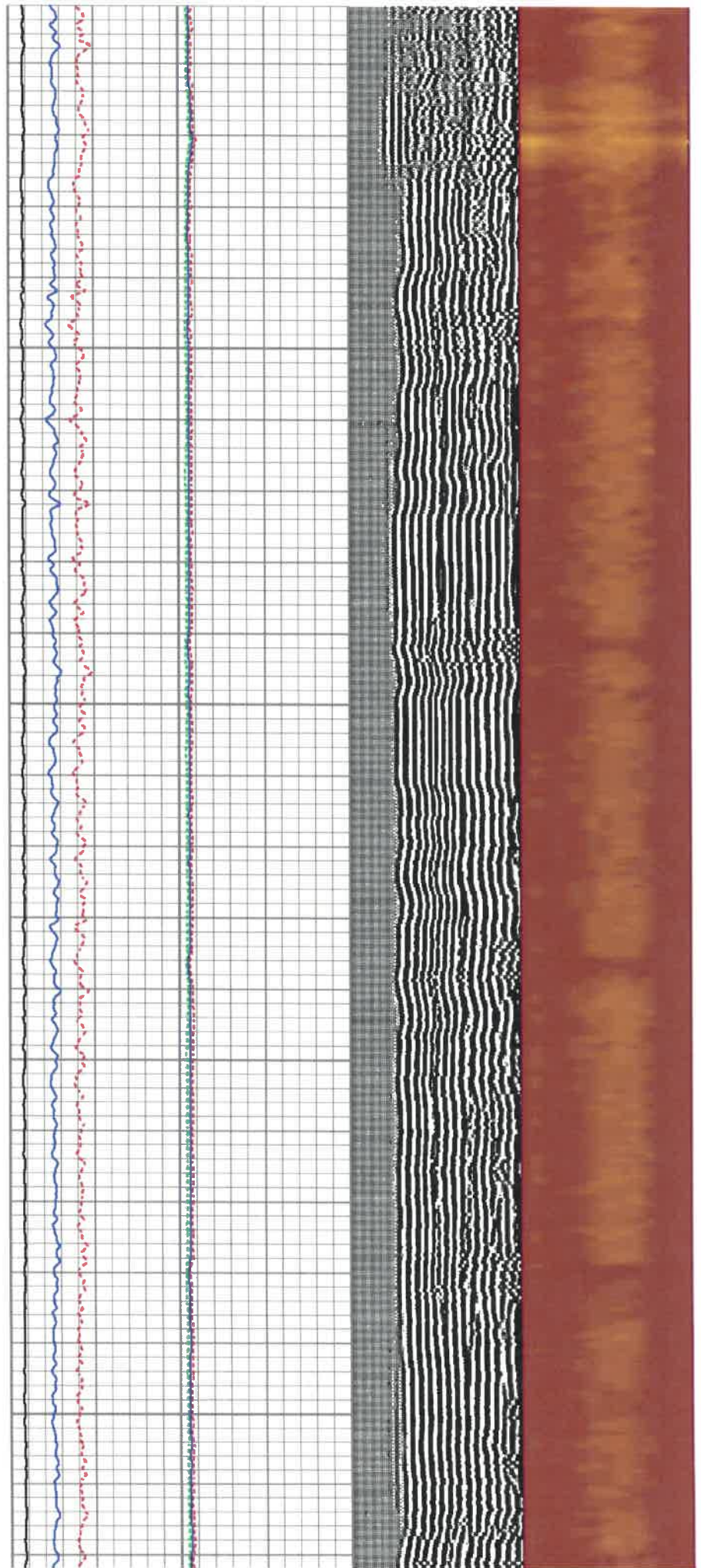


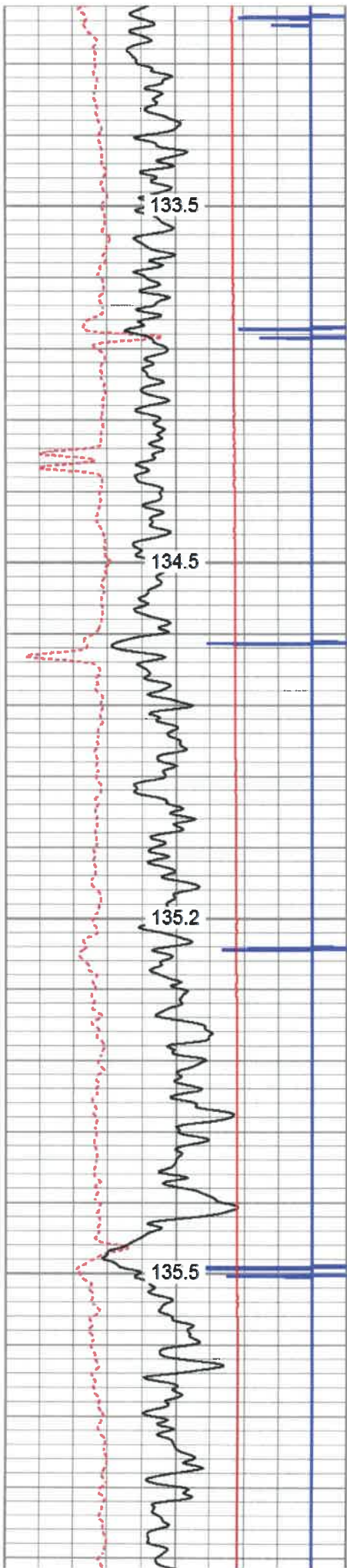
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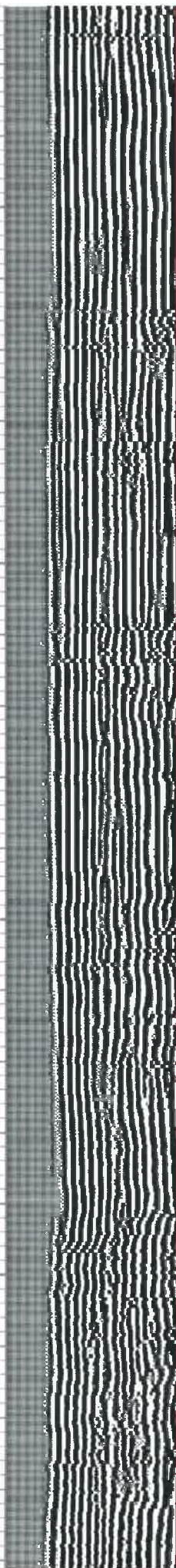
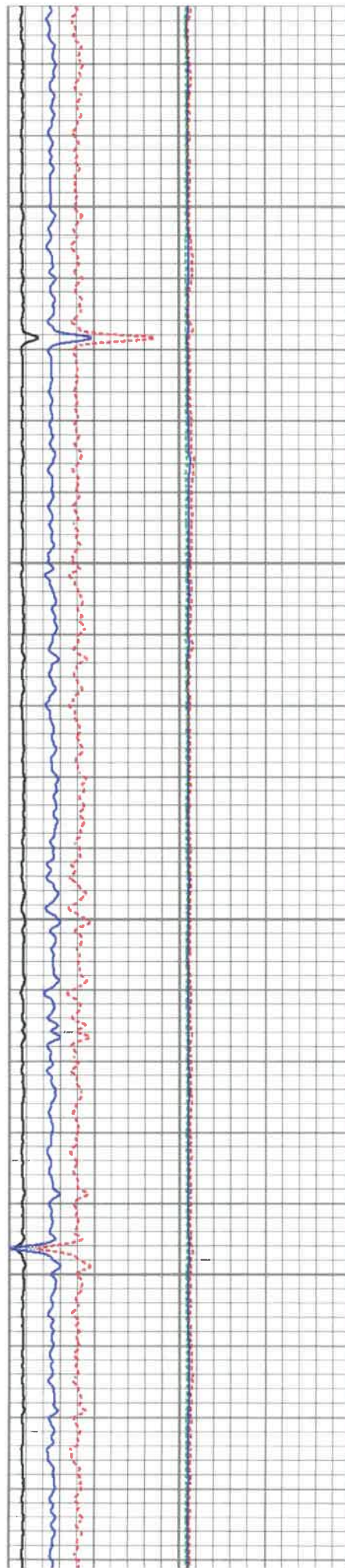


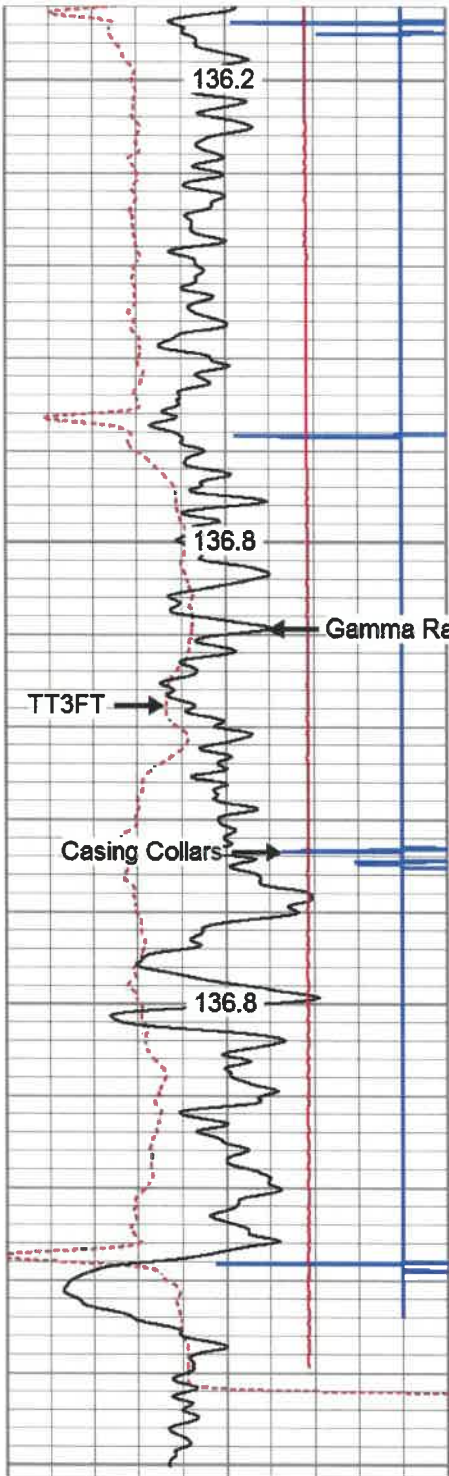
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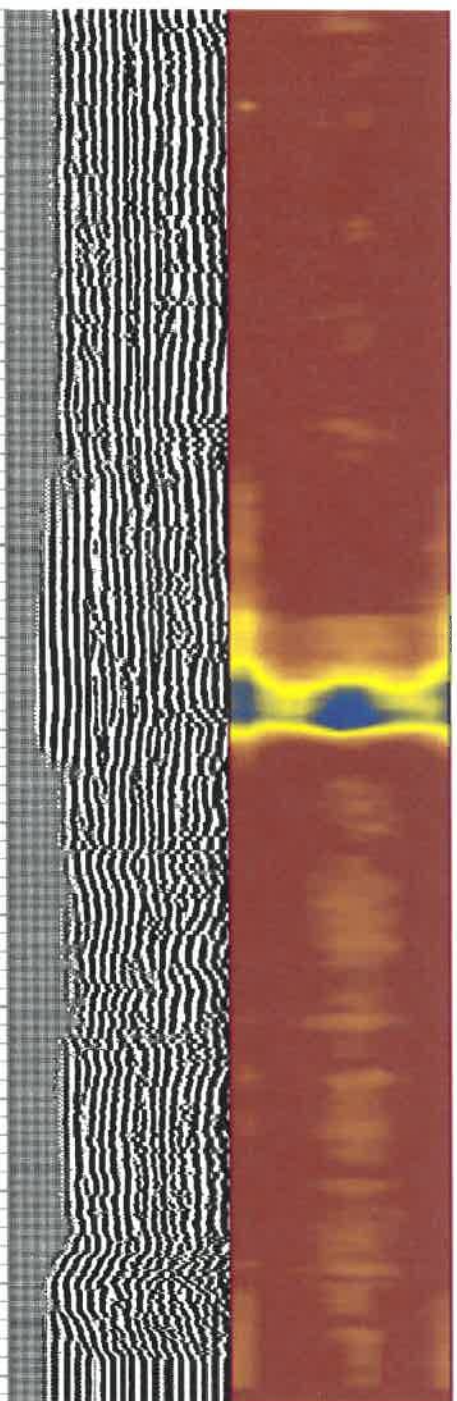
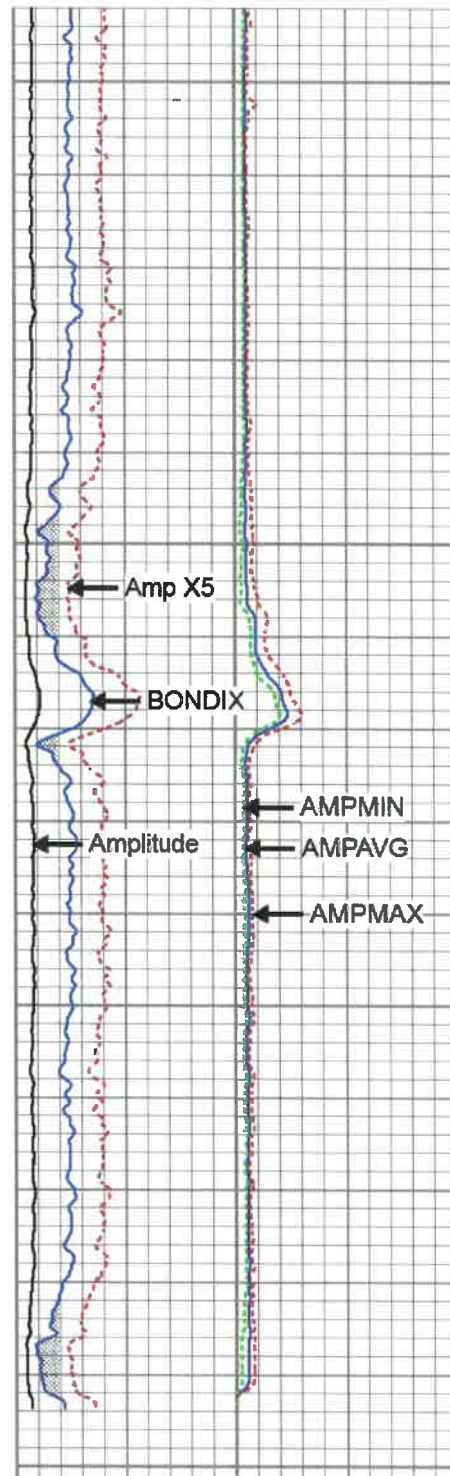
6250

6300





6350
6400
6450
6500



| | | |
|-----|--------------------|-----|
| 280 | Travel Time (usec) | 180 |
| 9 | Casing Collar | -1 |
| 0 | Gamma Ray (GAPI) | 180 |
| 0 | TEMP (degF) | 200 |
| 180 | GR (GAPI) | 360 |

| | | | |
|---|----------------|-----|----------------|
| 0 | Amplitude (mV) | 100 | Sector Amp AVG |
| 0 | Amp X5 (mV) | 20 | Sector Amp MAX |
| 1 | BONDIX | 0 | Sector Amp MIN |

| | | | | |
|-----|------------|------|---|---------------|
| 200 | VDL (usec) | 1200 | 1 | Sector Map 12 |
|-----|------------|------|---|---------------|

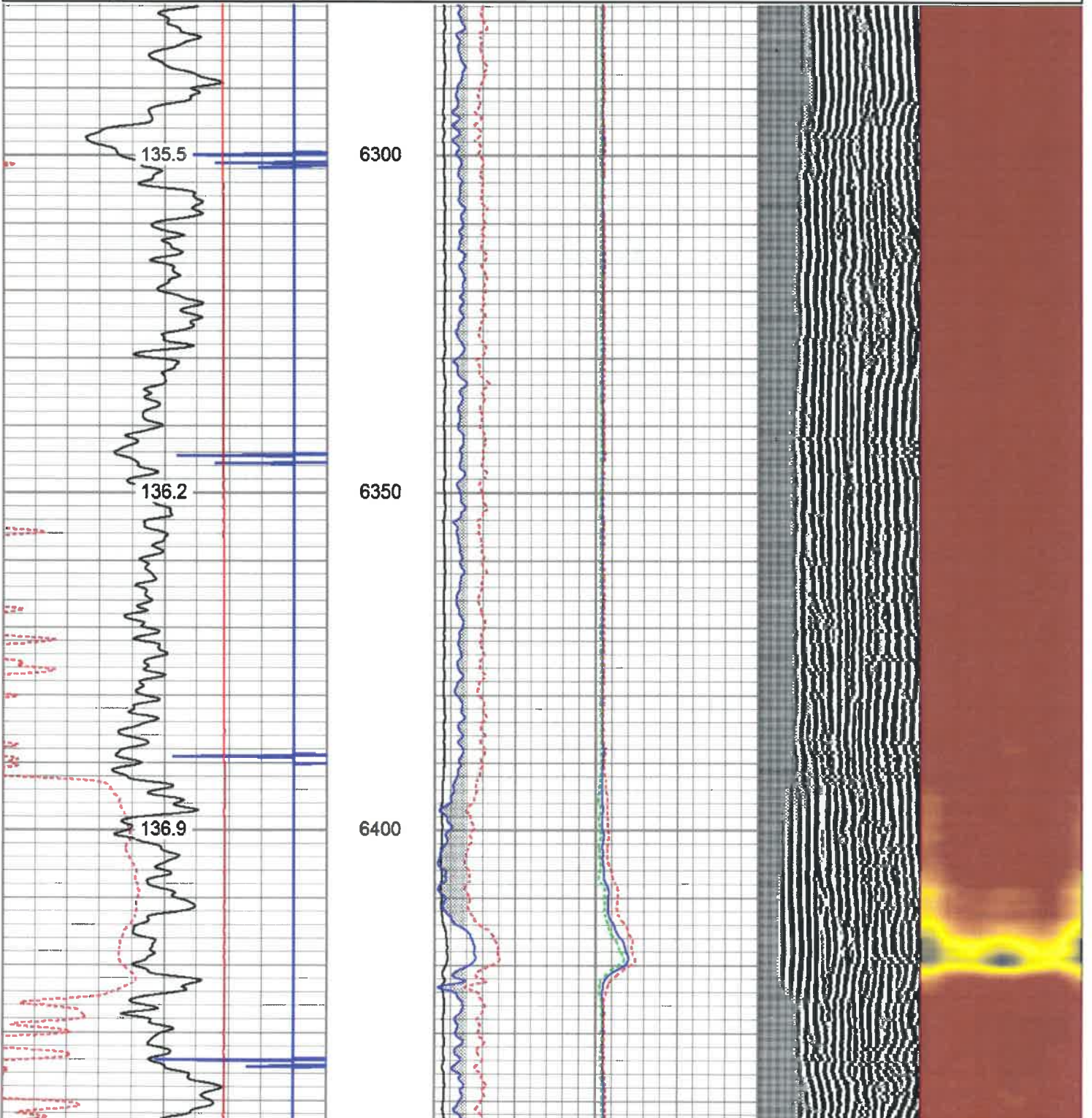
TEMP
(degF)

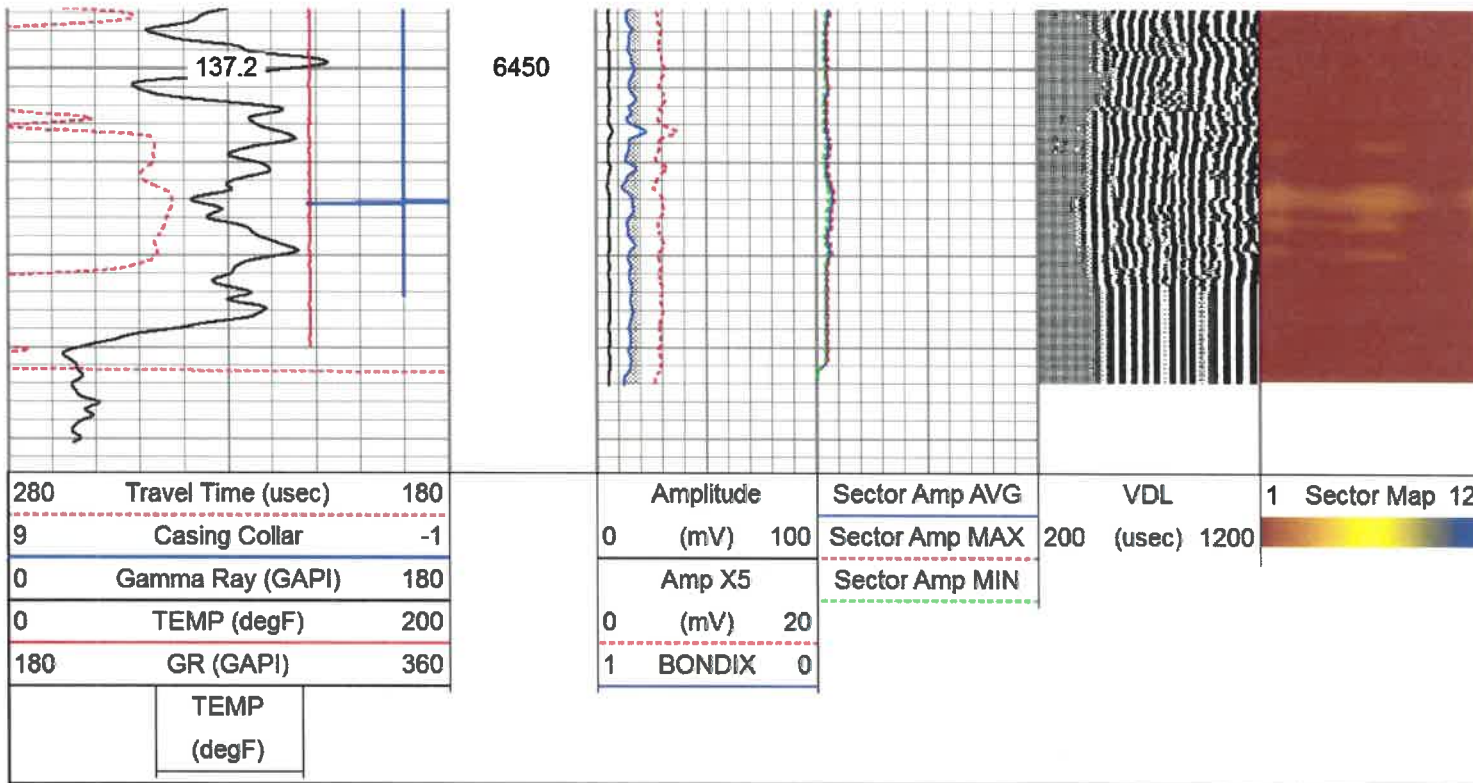


Repeat Pass

Database File antero_guild_unit_1h.db
 Dataset Pathname pass7
 Presentation Format antero1
 Dataset Creation Sun Oct 27 08:08:42 2019
 Charted by Depth in Feet scaled 1:240

| | | | | | | | | |
|-------------|--------------------|-----|------------|----------------|-----------------|---|------------|----|
| 280 | Travel Time (usec) | 180 | Amplitude | Sector Amp AVG | VDL | 1 | Sector Map | 12 |
| 9 | Casing Collar | -1 | 0 (mV) 100 | Sector Amp MAX | 200 (usec) 1200 | | | |
| 0 | Gamma Ray (GAPI) | 180 | Amp X5 | Sector Amp MIN | | | | |
| 0 | TEMP (degF) | 200 | 0 (mV) 20 | | | | | |
| 180 | GR (GAPI) | 360 | 1 BONDIX | 0 | | | | |
| TEMP (degF) | | | | | | | | |





Log Variables

Database: C:\ProgramData\Warrior\Data\antero_guild_unit_1h.db
 Dataset: field/well/run1/pass9/_vars_

Top - Bottom

| | | | | | | |
|------------|--------------|-------------|-------------|-----------|-------------|------------|
| BHTEMP_Src | BOREID | BOTTEMP | CASEOD | CASETHCK | CASEWGHT | MAXAMPL |
| TEMP | in 8.25 | degF 100 | in 5.5 | in 0 | lb/ft 20 | mV 71.9 |
| MINAMPL | MINATTN | PERFS | PPT | SRFTEMP | TDEPTH | |
| mV 3.5 | db/ft 0.8 | No | usec 219 | degF 0 | ft 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

Calibration Report

Database File antero_guild_unit_1h.db
 Dataset Pathname pass9
 Dataset Creation Sun Oct 27 08:27:01 2019

RECEIVED
Office of Oil and Gas

Gamma Ray Calibration Report

SEP 24 2020

Serial Number: 0111
 Tool Model: Tek-Co 2 3/4
 Performed: Thu Oct 24 08:41:06 2019

WV Department of
Environmental Protection

Calibrator Value: 1.0 GAPI

Background Reading: 0.0 cps
 Calibrator Reading: 1.0 cps

Sensitivity: 0.5000 GAPI/cps

Segmented Cement Bond Log Calibration Report

Serial Number: T12_01
 Tool Model: Tek12
 Calibration Casing Diameter: 5.500 in
 Calibration Depth: 57.275 ft


Master Calibration, performed Thu Oct 24 13:31:44 2019:

| | Raw (v) | | Calibrated (mv) | | Results | |
|-----|---------|-------|-----------------|---------|---------|--------|
| | Zero | Cal | Zero | Cal | Gain | Offset |
| 3' | -0.006 | 0.919 | 3.500 | 71.921 | 50.880 | 5.245 |
| CAL | 0.630 | 0.627 | | | | |
| 5' | -0.001 | 1.035 | 3.500 | 71.921 | 40.761 | 4.381 |
| SUM | | | | | | |
| S1 | 0.000 | 1.103 | 0.000 | 100.000 | 56.543 | -0.001 |
| S2 | 0.000 | 1.088 | 0.000 | 100.000 | 61.007 | -0.001 |
| S3 | 0.000 | 1.122 | 0.000 | 100.000 | 64.737 | -0.001 |
| S4 | 0.000 | 1.089 | 0.000 | 100.000 | 72.448 | -0.001 |
| S5 | 0.000 | 1.045 | 0.000 | 100.000 | 71.838 | -0.001 |
| S6 | 0.000 | 0.965 | 0.000 | 100.000 | 74.574 | -0.001 |
| S7 | 0.000 | 0.897 | 0.000 | 100.000 | 76.604 | -0.001 |
| S8 | 0.000 | 0.821 | 0.000 | 100.000 | 77.230 | -0.001 |
| S9 | 0.000 | 0.802 | 0.000 | 100.000 | 76.037 | -0.001 |
| S10 | 0.000 | 0.932 | 0.000 | 100.000 | 63.640 | -0.001 |
| S11 | 0.000 | 1.003 | 0.000 | 100.000 | 56.910 | -0.001 |
| S12 | 0.000 | 1.091 | 0.000 | 100.000 | 55.333 | -0.001 |

Temperature Calibration Report

Serial Number: T12_01
 Tool Model: Tek12
 Performed: Fri Oct 22 17:21:06 2010

| | Reference | Reading |
|-----------------|-----------|-----------|
| Low Reference: | 0.00 degF | 0.00 usec |
| High Reference: | 1.00 degF | 1.00 usec |
| Gain: | 0.33 | |
| Offset: | 0.00 | |
| Delta Spacing | 2 | |

| Sensor | Offset (ft) | Schematic | Description | Length (ft) | O.D. (in) | Weight (lb) |
|--------|-------------|---|--|-------------|-----------|-------------|
| CCL | 19.20 |  | Titan-1.4375 1 7/16 Titan Type II Cable Head | 1.03 | 1.44 | 5.00 |
| | | | CCL-312tekco (3.12TEKCO) Tekco 3 1/8" 450 Deg. "F" SmCo Logging CCL | 1.82 | 3.12 | 25.00 |
| | | | Tek-2.75 2 3/4" Tekco Adjustable Centralizer | 2.73 | 2.75 | 25.00 |

| | | | | | | | |
|---------|-------|--|--|---|------|------|--------|
| TEMP | 13.04 | | | | | | |
| WVFSYNC | 13.04 | | | | | | |
| WVFCAL | 13.04 | | | | | | |
| WVFS12 | 11.75 | | | | | | |
| WVFS11 | 11.75 | | | | | | |
| WVFS10 | 11.75 | | | SCBL-Tek12 (T12_01) Tekco 400 Deg F 12 Sector RIB with Temp | 9.13 | 3.25 | 135.00 |
| WVFS9 | 11.75 | | | | | | |
| WVFS8 | 11.75 | | | | | | |
| WVFS7 | 11.75 | | | | | | |
| WVFS6 | 11.75 | | | | | | |
| WVFS5 | 11.75 | | | | | | |
| WVFS4 | 11.75 | | | | | | |
| WVFS3 | 11.75 | | | | | | |
| WVFS2 | 11.75 | | | | | | |
| WVFS1 | 11.75 | | | | | | |
| WVF3FT | 11.00 | | | | | | |
| WVF5FT | 10.00 | | | | | | |
| WVFTEMP | 6.67 | | | | | | |
| | | | | Tek-2.75 2 3/4" Tekco Adjustable Centralizer | 2.73 | 2.75 | 25.00 |
| | | | | | | | |
| | | | | GR-Tek-Co 2 3/4 (0111) Tekco 2 3/4" 400 Deg. F Logging Gamma Ray | 3.67 | 2.75 | 40.00 |
| GR | 1.31 | | | | | | |
| | | | | Titan-1.4375_Cap Titan 1 7/16" Cap | 0.27 | 1.44 | 1.00 |

Dataset: antero_guild_unit_1h.db: field/well/run1/pass9
 Total length: 21.37 ft
 Total weight: 256.00 lb
 O.D.: 3.25 in



Company ANTERO RESOURCES
 Well GULID UNIT 1H
 Field RABBIT EARS
 County Tyler
 State WV

RECEIVED
 Office of Oil and Gas
 SEP 24 2020
 West Virginia Department of Environmental Protection
 Country US

