



**RADIAL CEMENT BOND LOG
GAMMA RAY CCLVLDL**

Company ANTERO RESOURCES CORPORATION
Well SCHRADER UNIT 1H
Field MARCELLUS
County DODDRIDGE
State W.VA. Country USA

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Location: API #: ~~47-017060450000~~ 4701706877
AFE#A08790-D

Other Services

Permanent Datum SEC TWP RGE Elevation
Log Measured From
Drilling Measured From

Elevation
K.B.
D.F.
G.L.

Date 10/24/2019

Run Number ONE

Depth Driller 17466

Depth Logger 7556

Bottom Logged Interval 7556

Top Log Interval SURFACE

Open Hole Size N/A

Type Fluid WATER

Density / Viscosity N/A

Max. Recorded Temp. 142

Estimated Cement Top 2560

Time Well Ready N/A

Time Logger on Bottom N/A

Equipment Number 214181

Location BRIDGEPORT WV

Recorded By T.MILLER

Witnessed By JAYSON LUKES S.MAXWELL

Run Number

Bit

From

To

Size

Weight

From

To

Size

Weight

From

To

Surface String 13.375 54.5 SURFACE SURFACE 391

Prot. String 9.625 36 SURFACE SURFACE 2626

Production String 5.50 20 SURFACE SURFACE 17466

Liner

Top

Bottom

Size

Weight

From

To

Size

Weight

From

To

Size

Weight

From

To

Size

Weight

From

To

Size

Weight

From

To

Size

Weight

From

To

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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

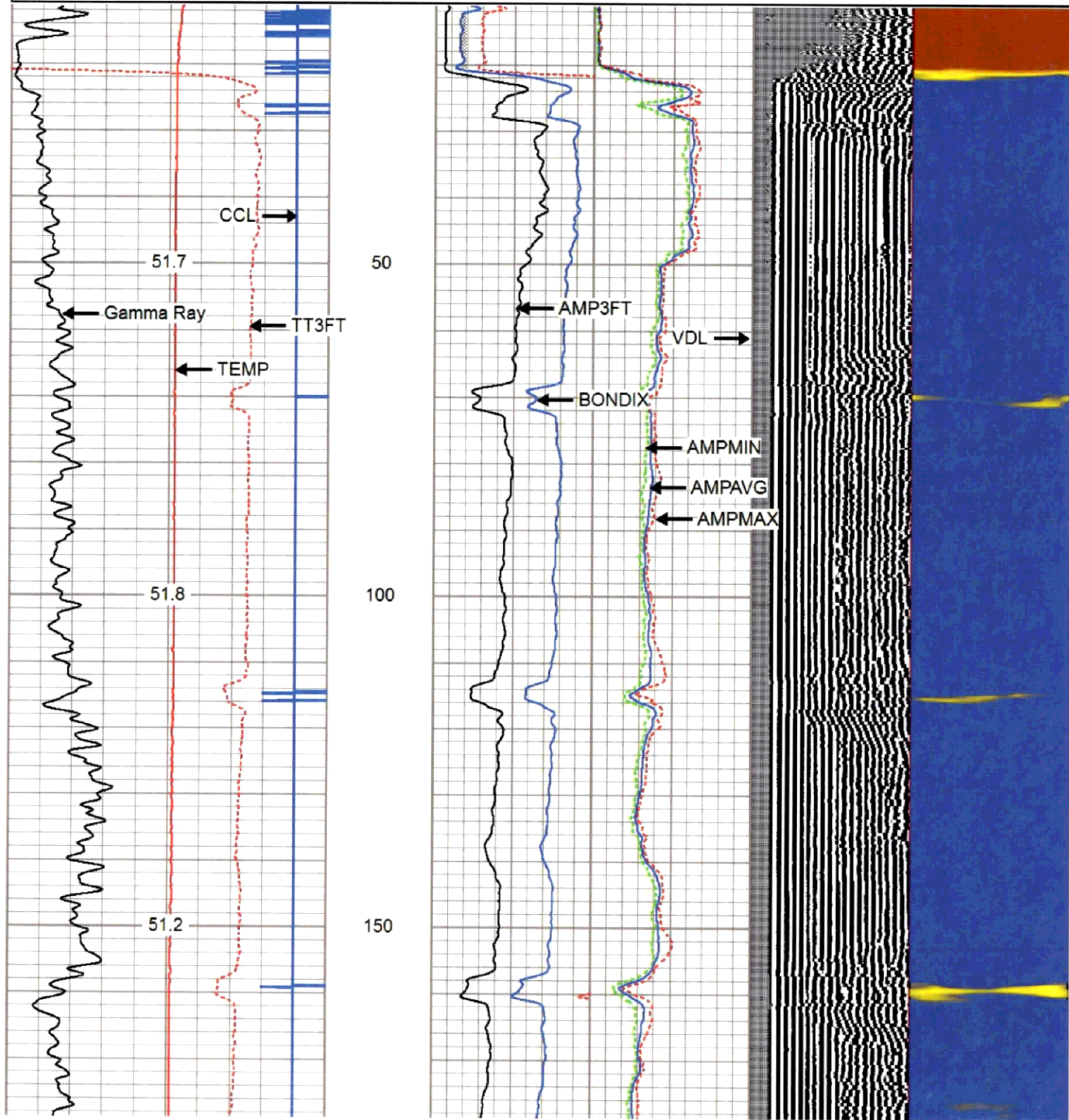
MARKER JOINT@ 6042-6054
LOG T.D. @7556
LOG RAN UNDER 1500 PSI
THANK YOU FOR CHOOSING KLX ENERGY SERVICES

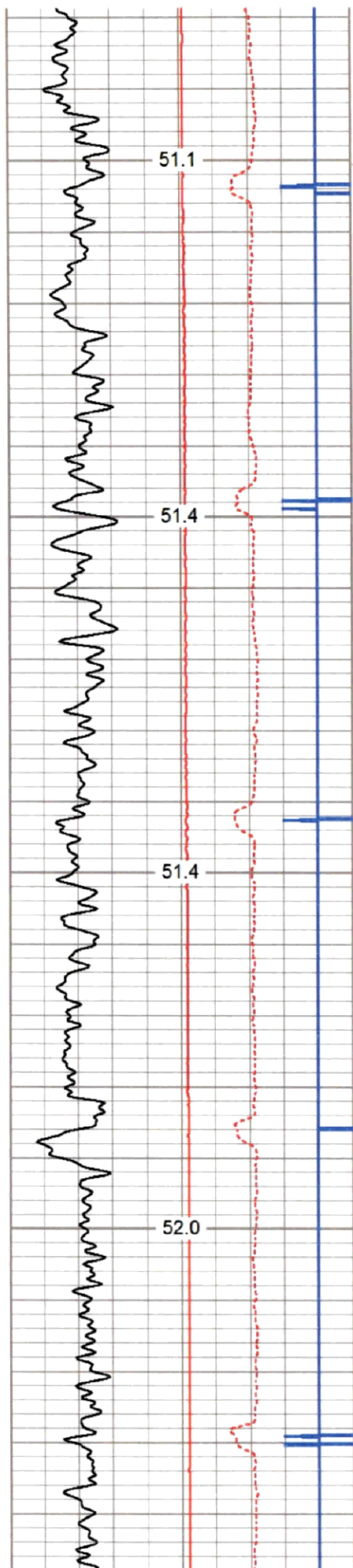


MAIN LOG

Database File e:\antero 10-23-19\schrader1h.db
 Dataset Pathname pass4.3
 Presentation Format antero1
 Dataset Creation Fri Oct 25 17:25:57 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) | 100 | 0 (mV) | 20 | | | | |
| 180 | GR (GAPI) | 360 | 1 BONDIX | 0 | | | | |



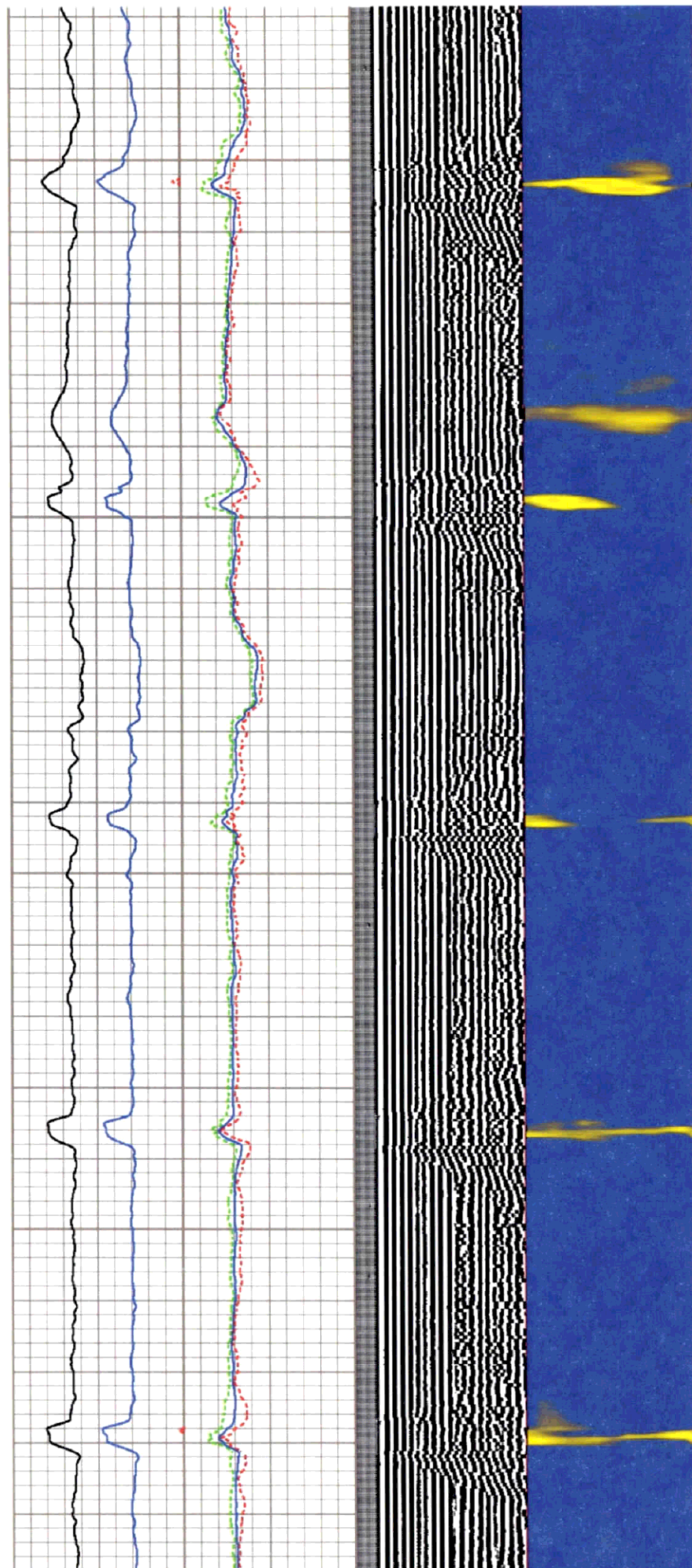


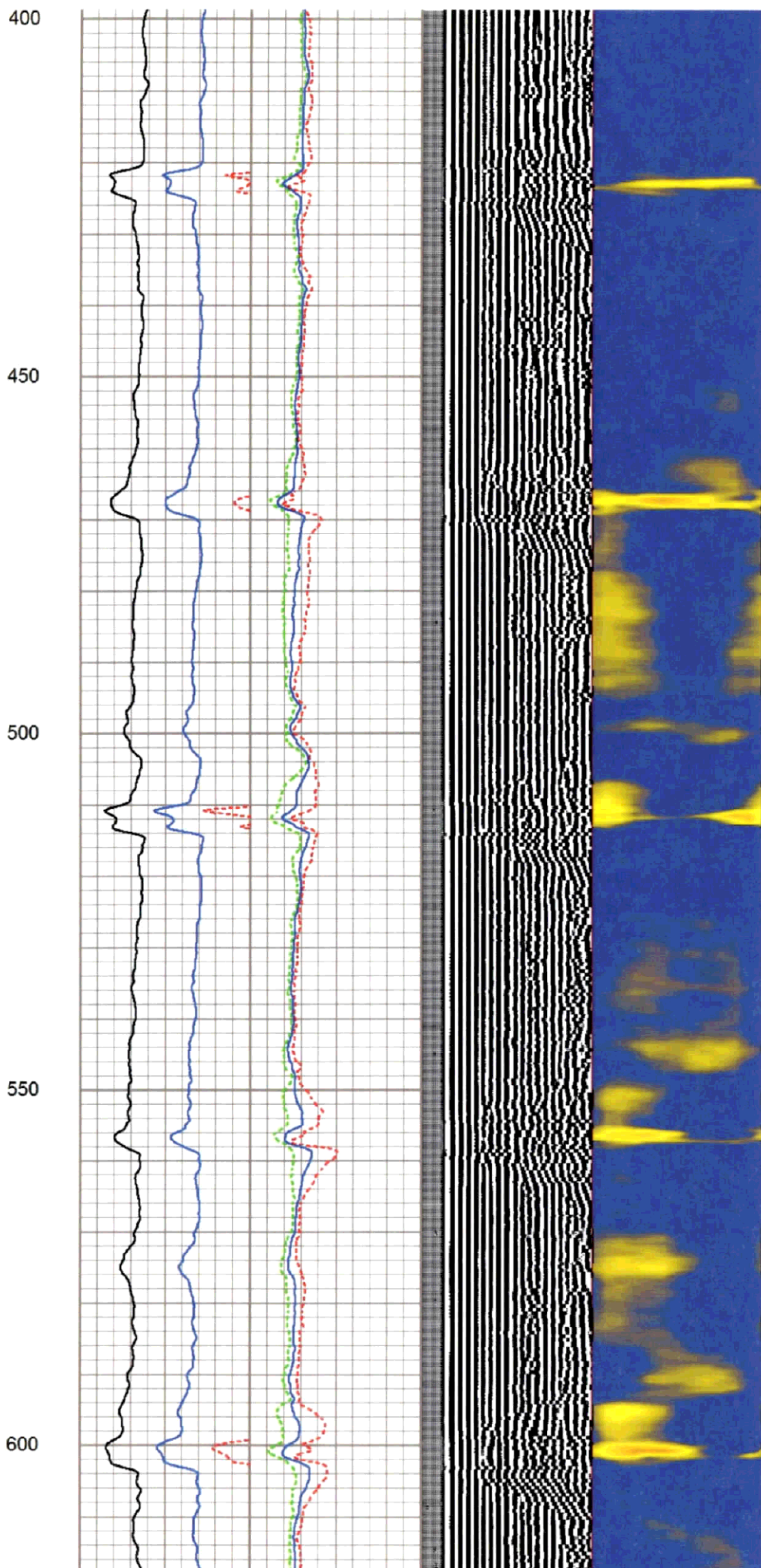
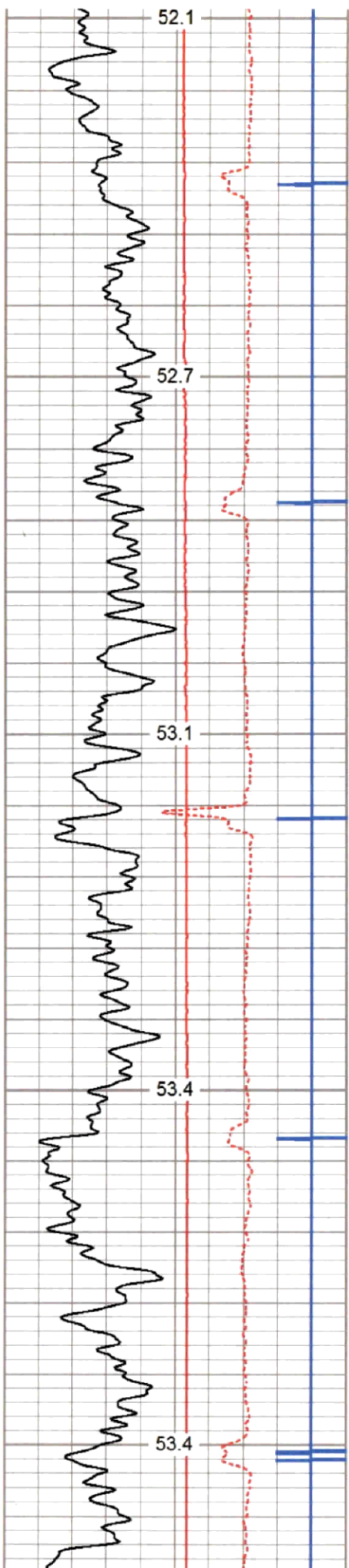
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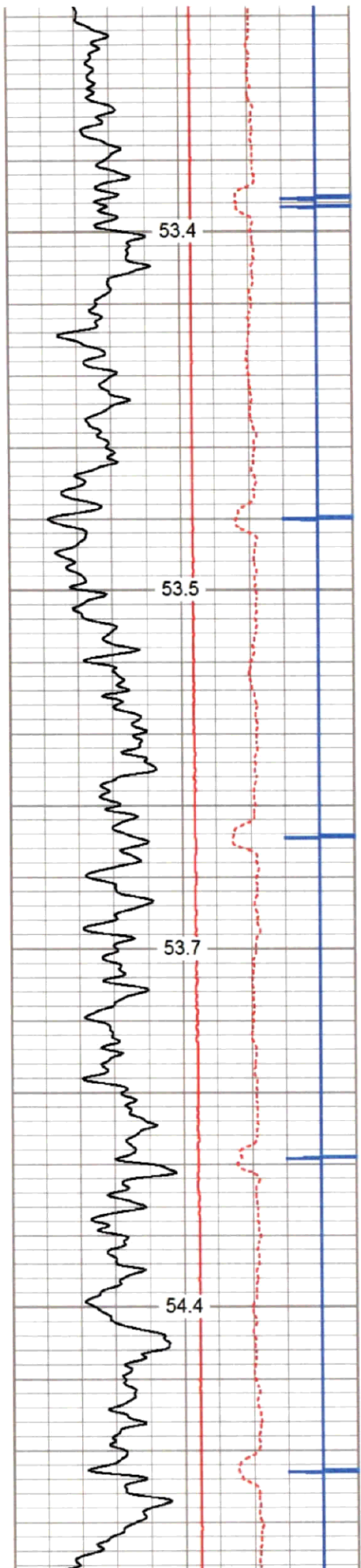
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300

350





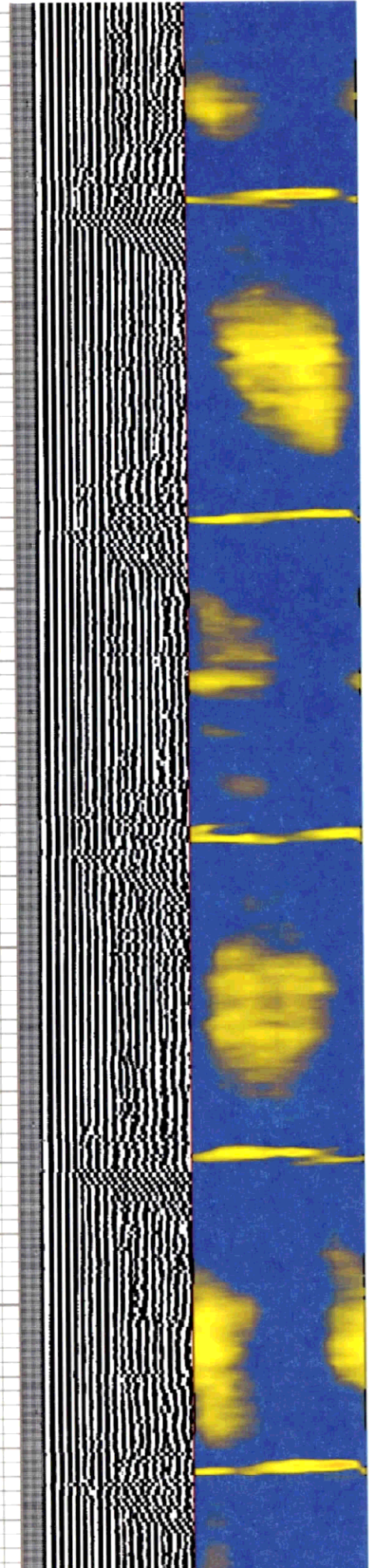
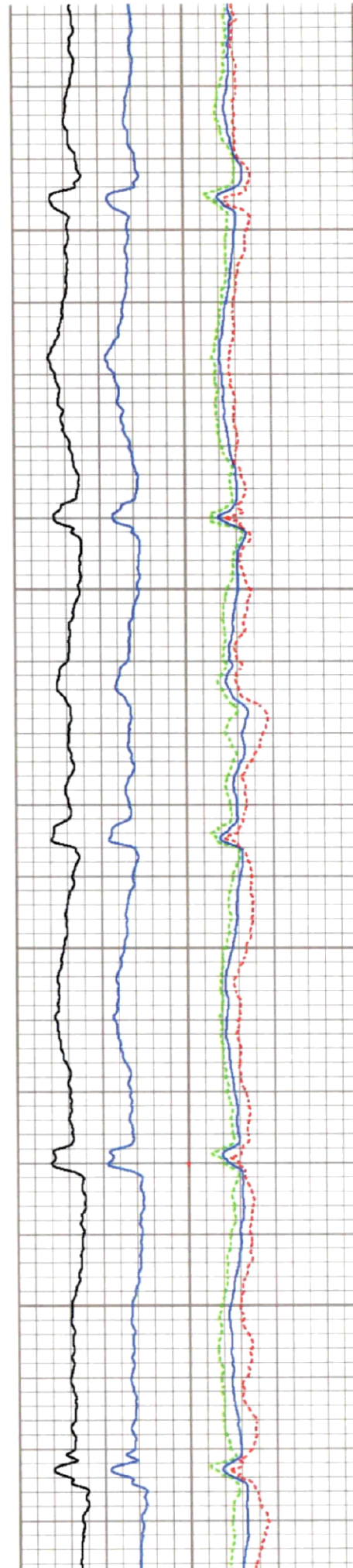


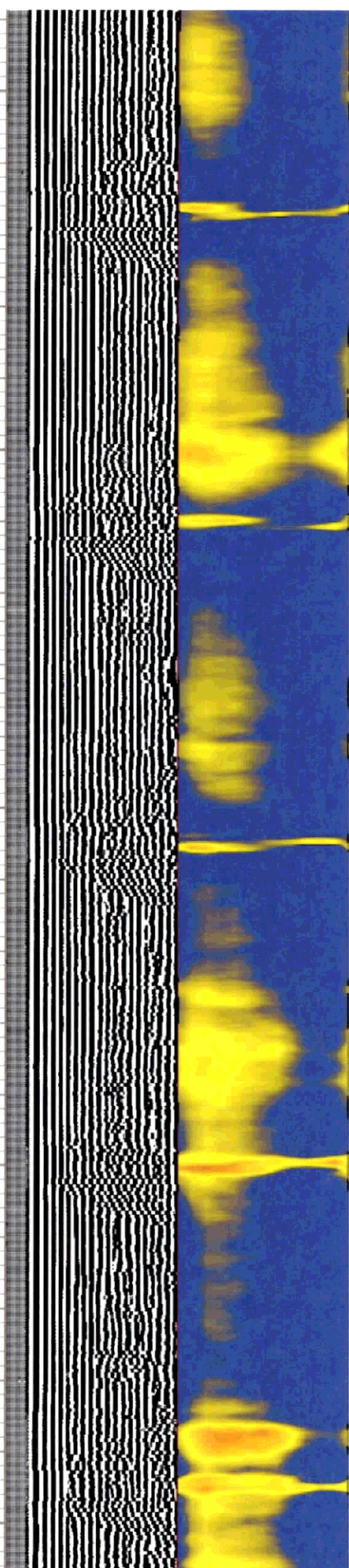
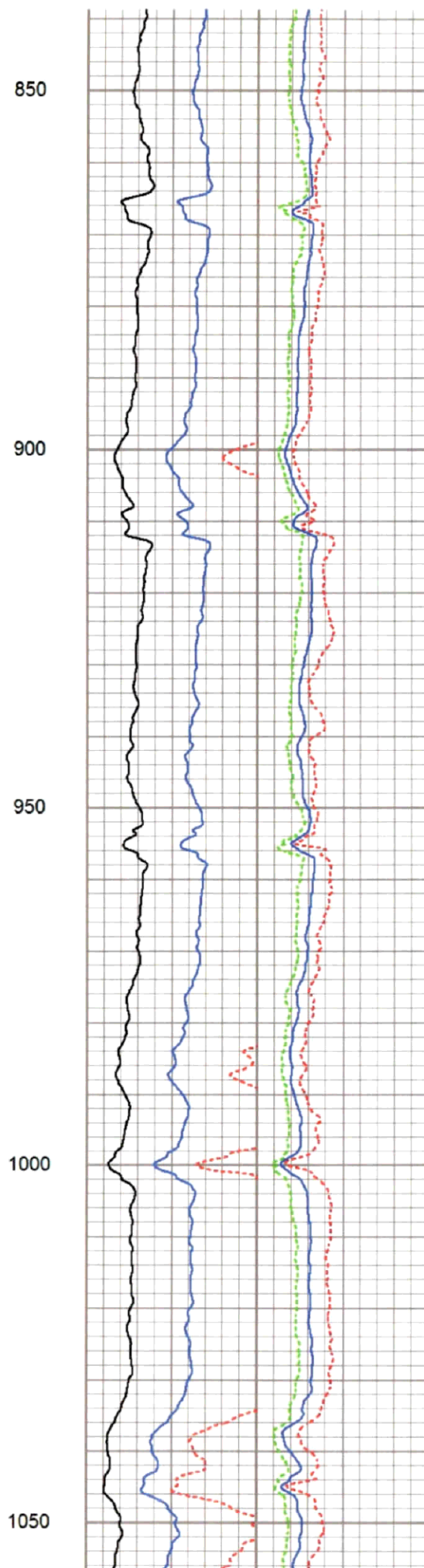
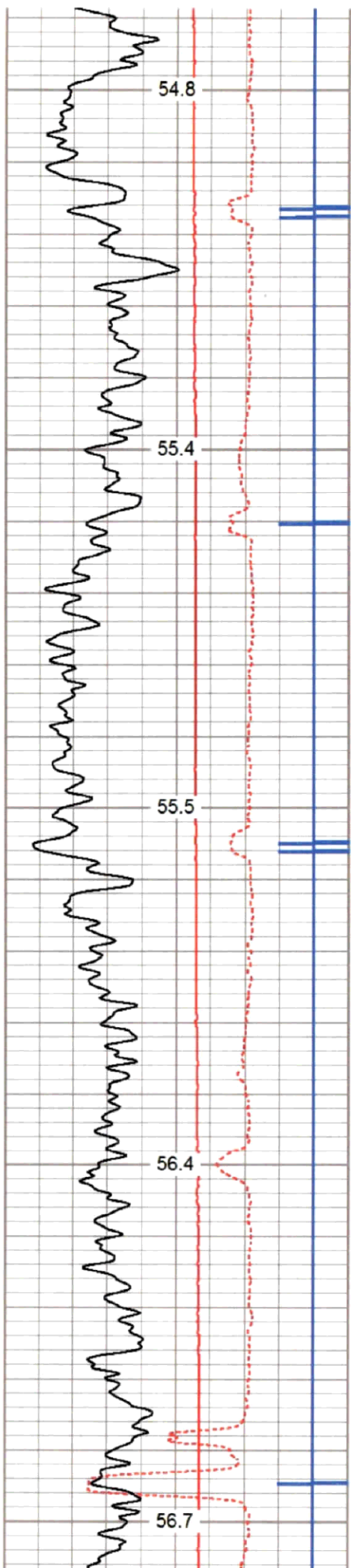
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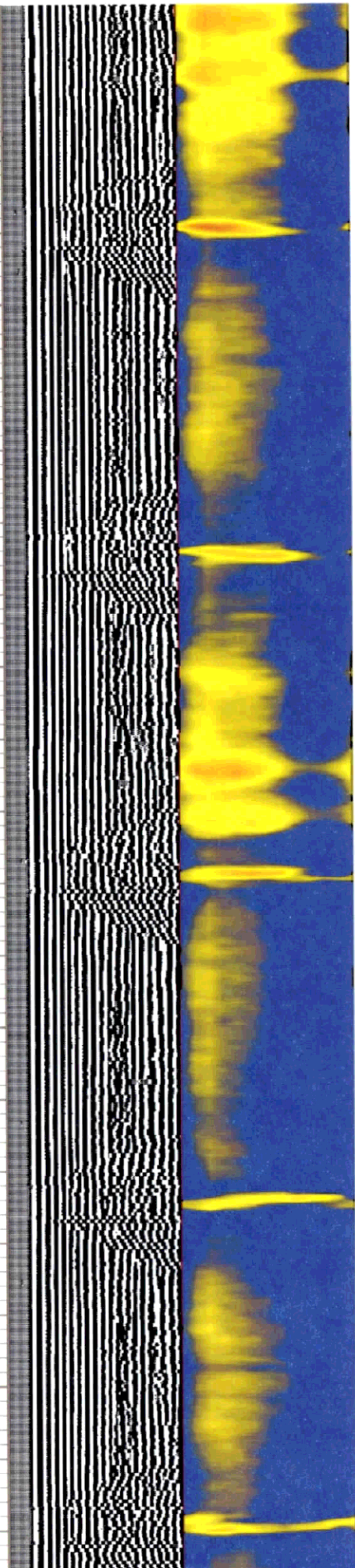
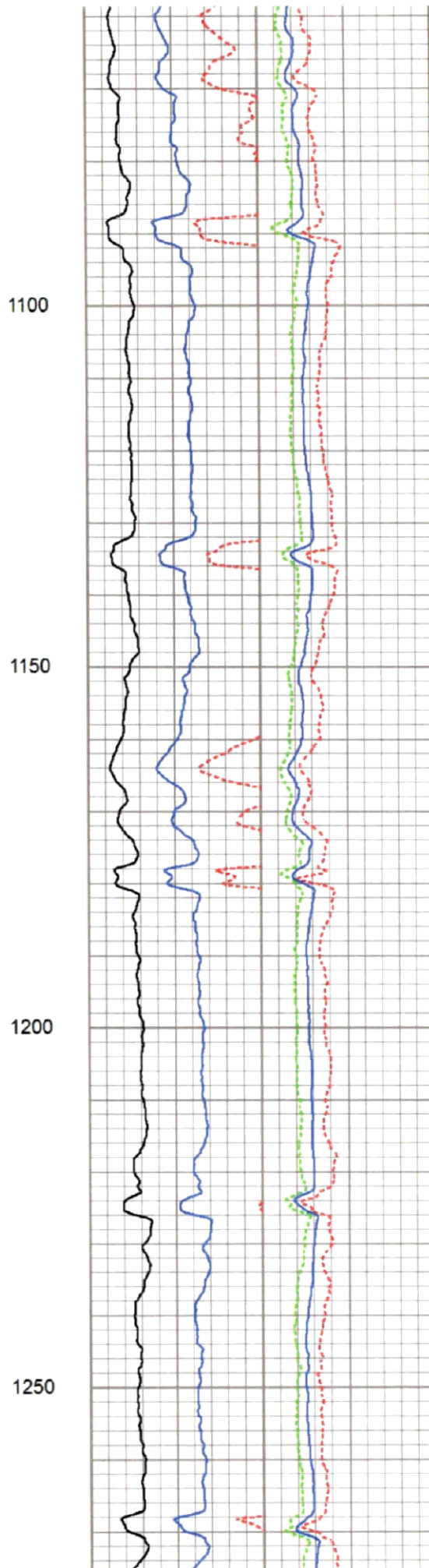
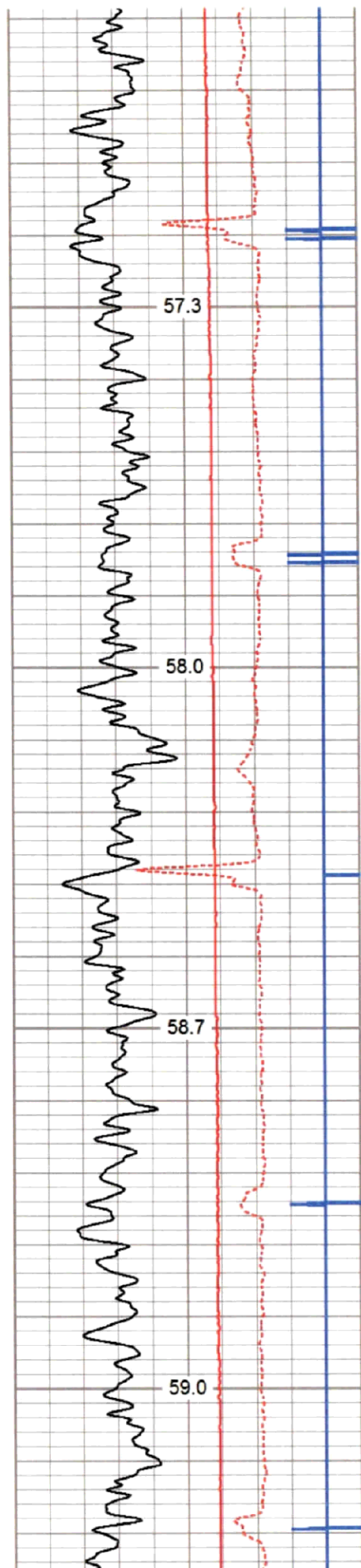
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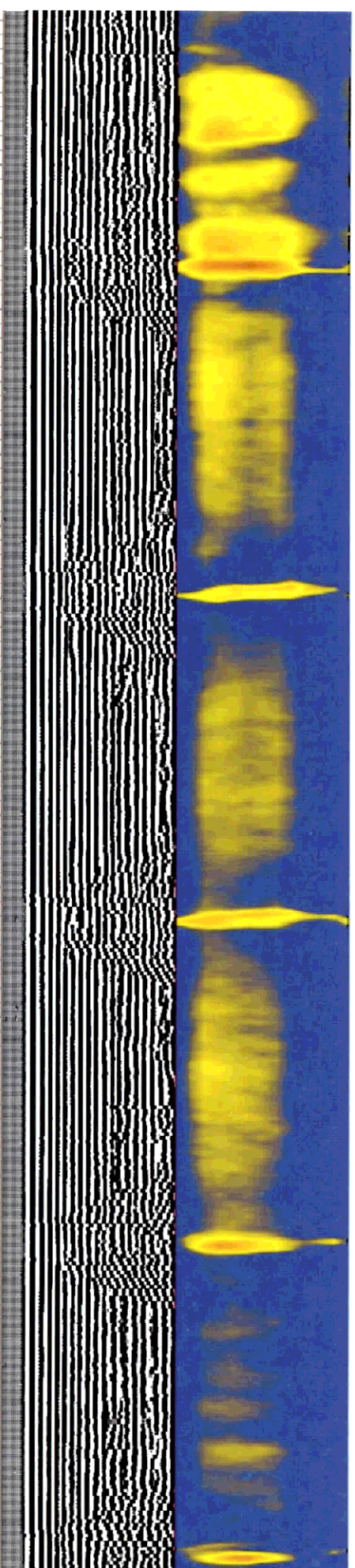
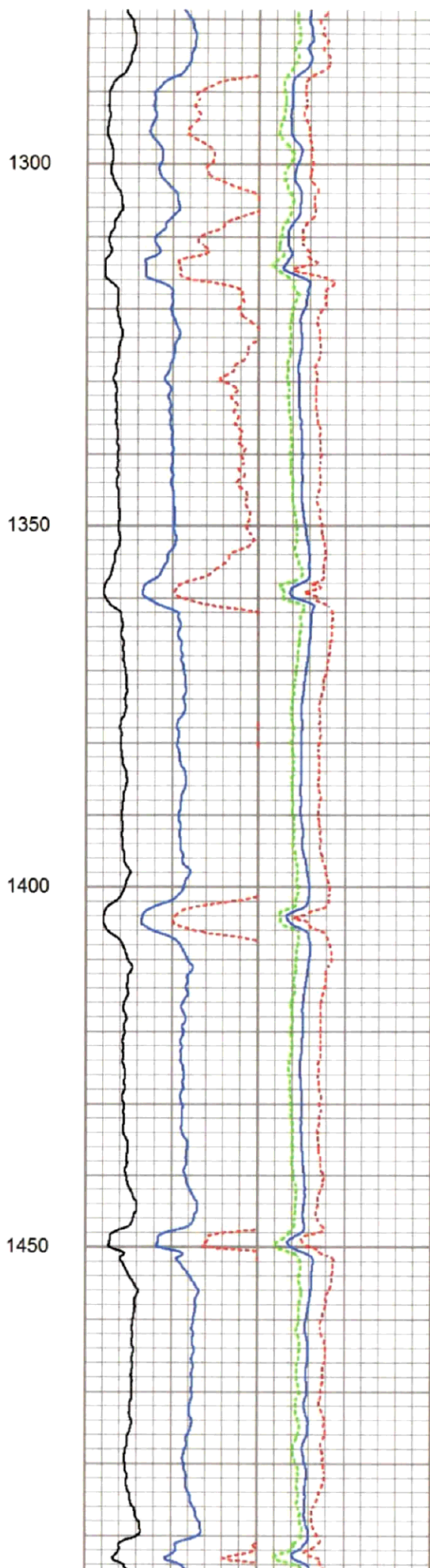
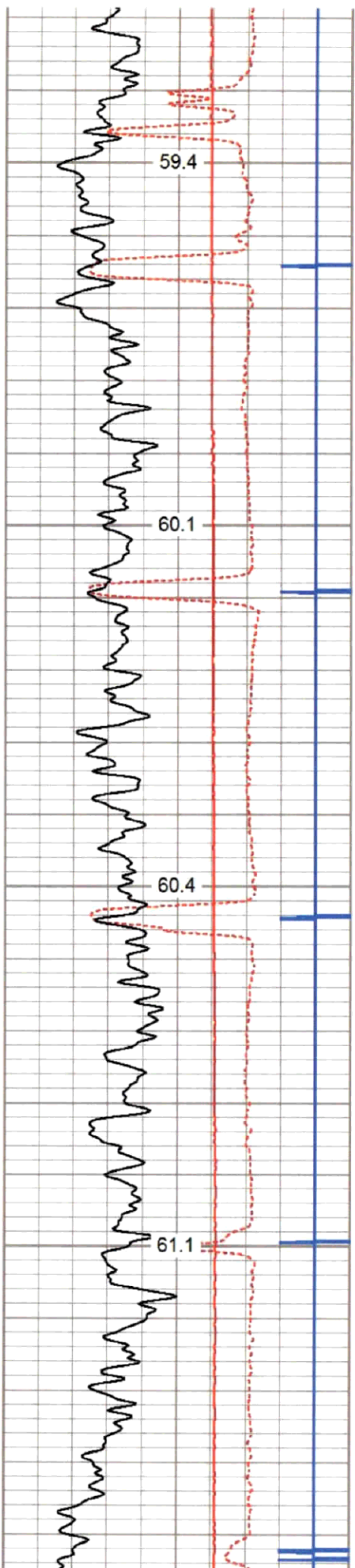
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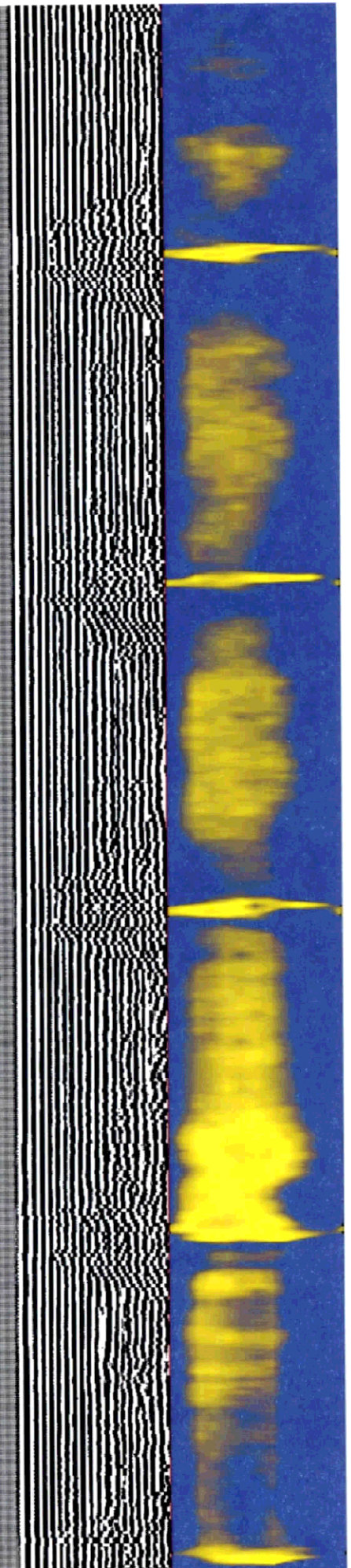
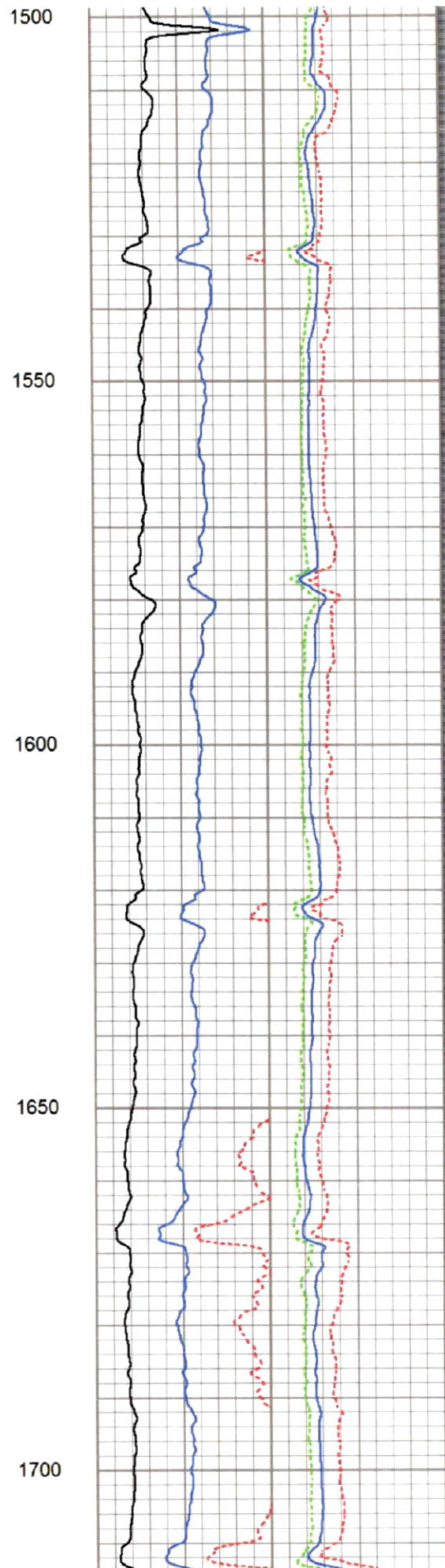
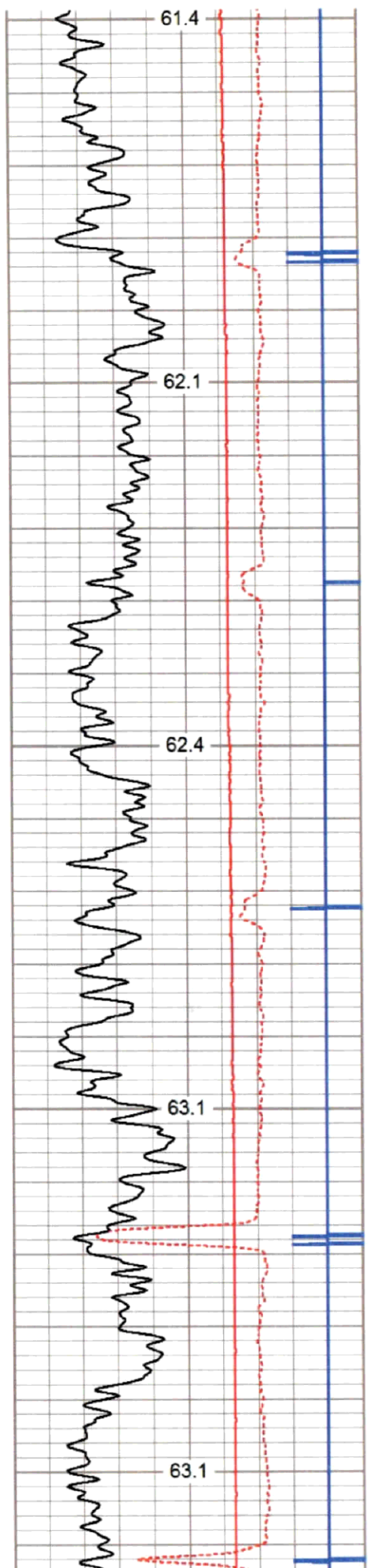
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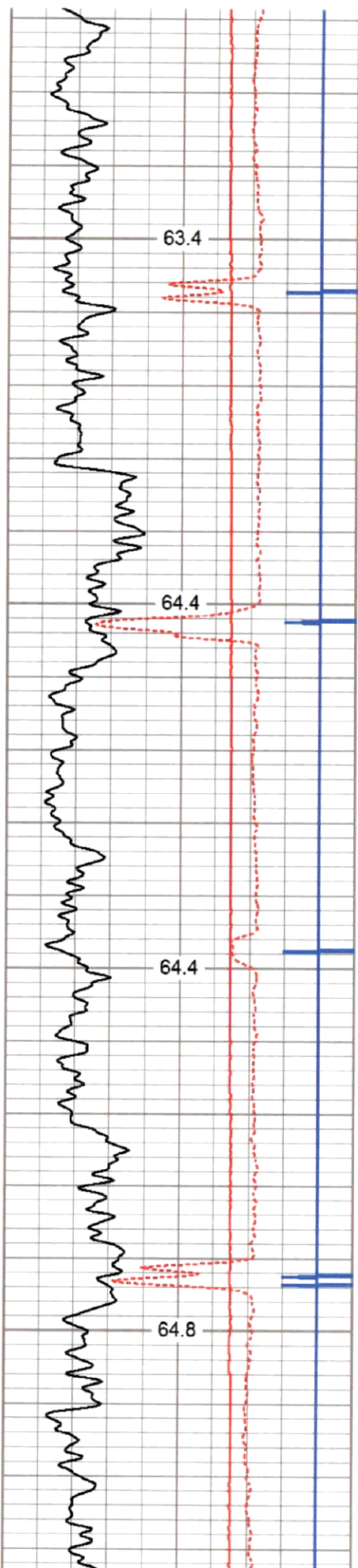










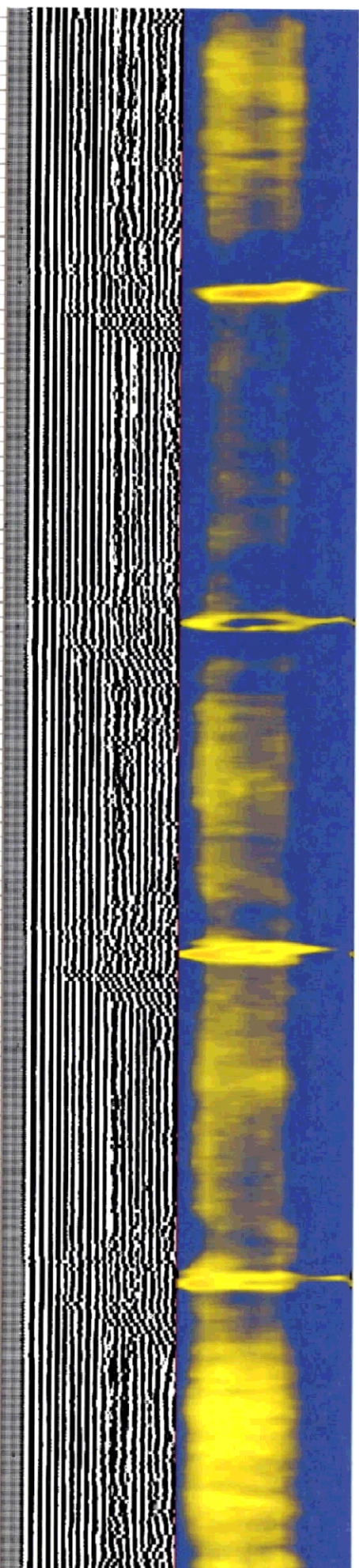


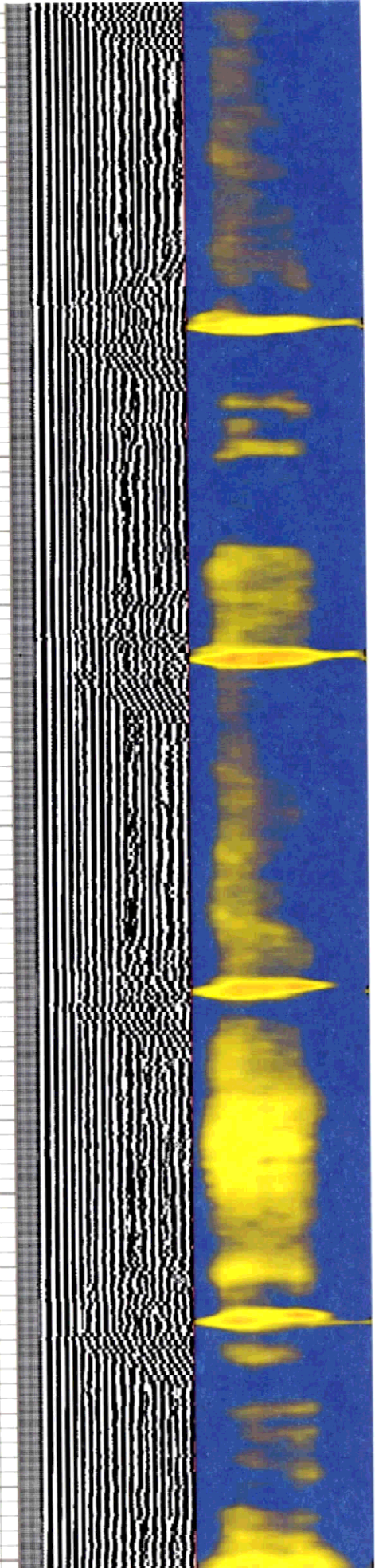
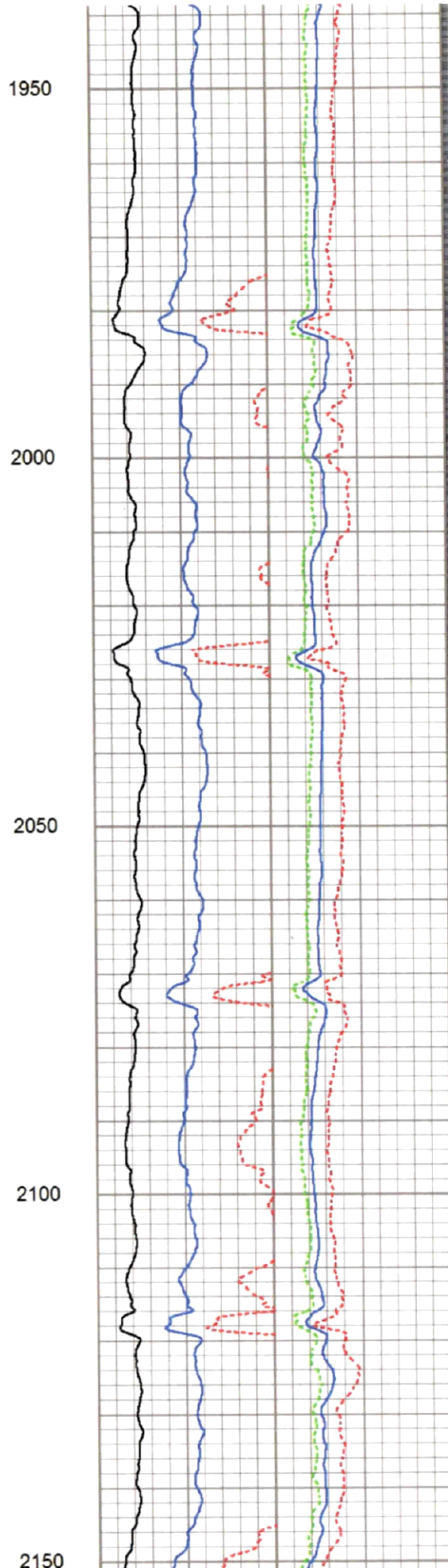
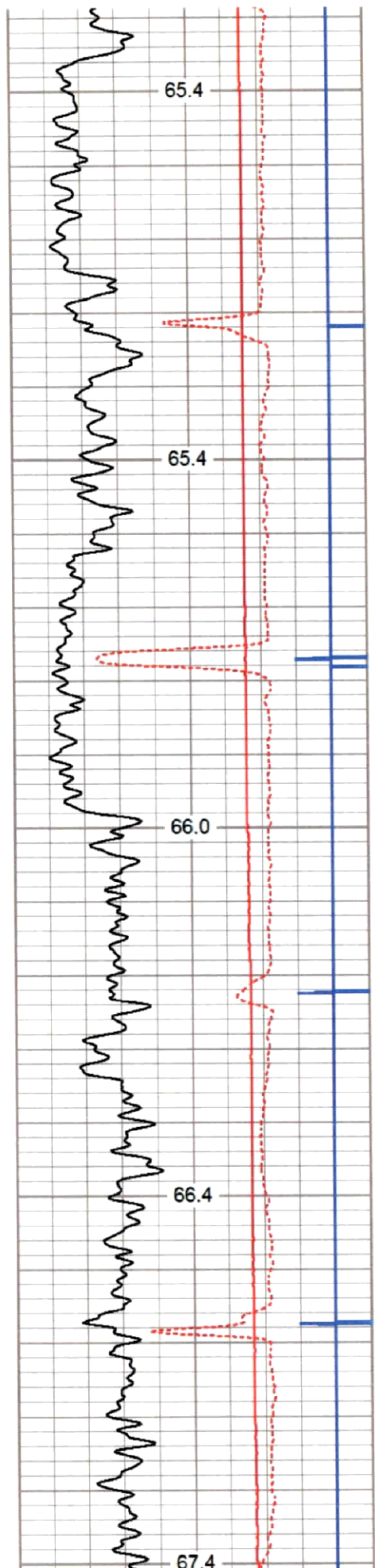
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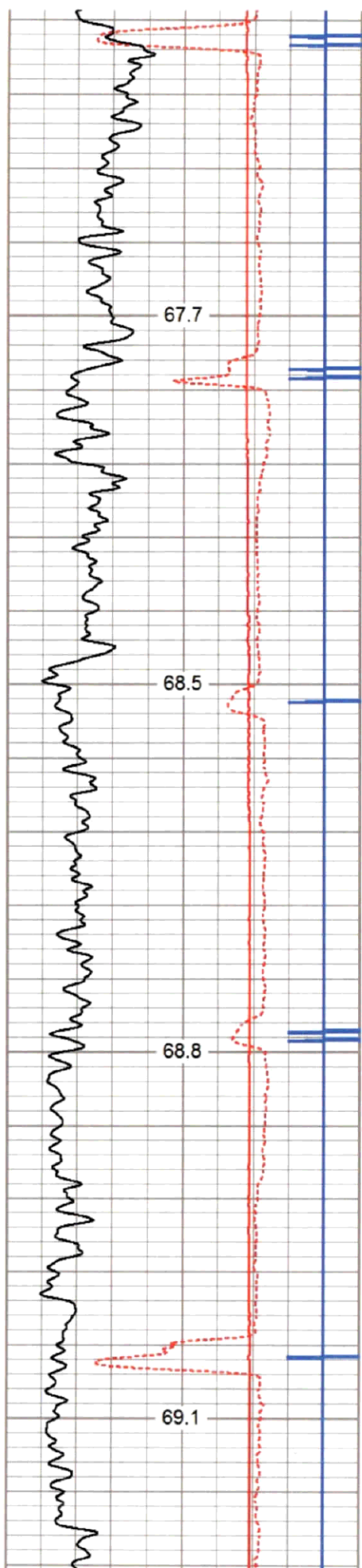
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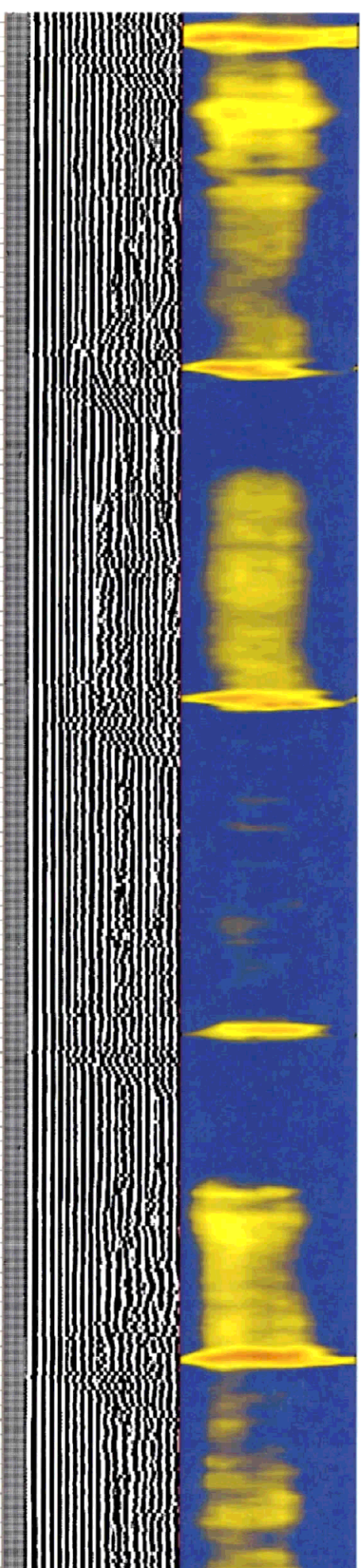
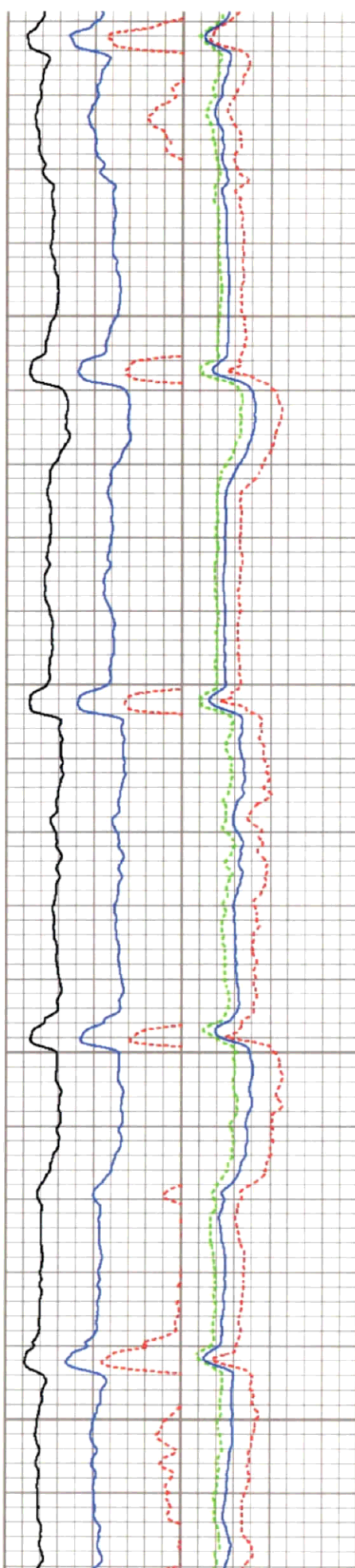


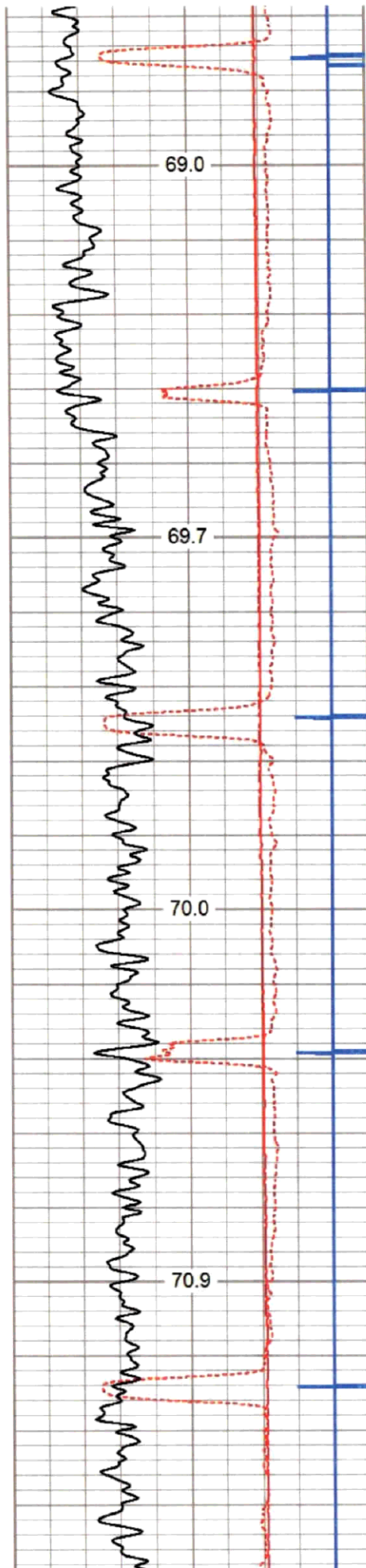
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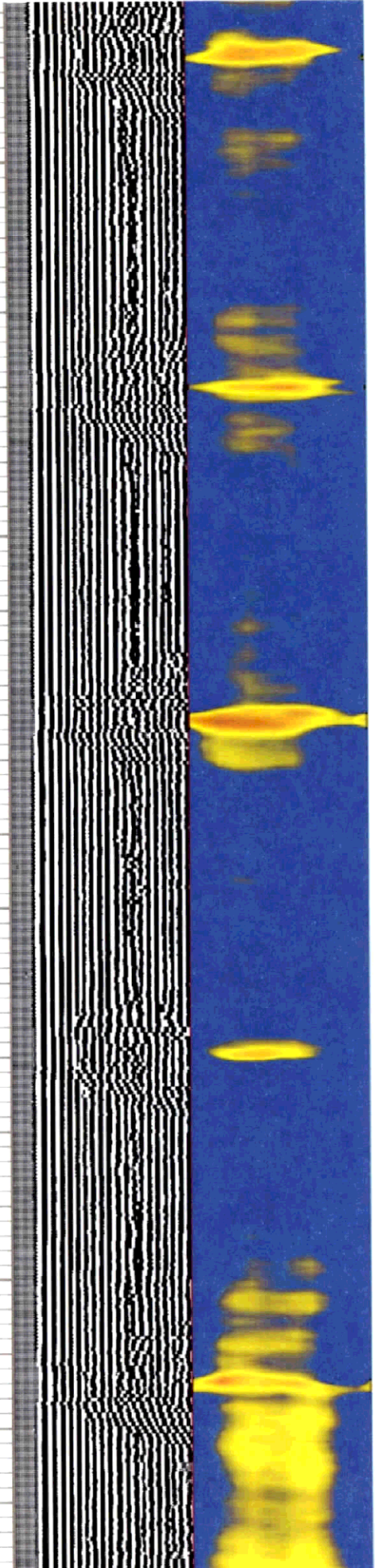
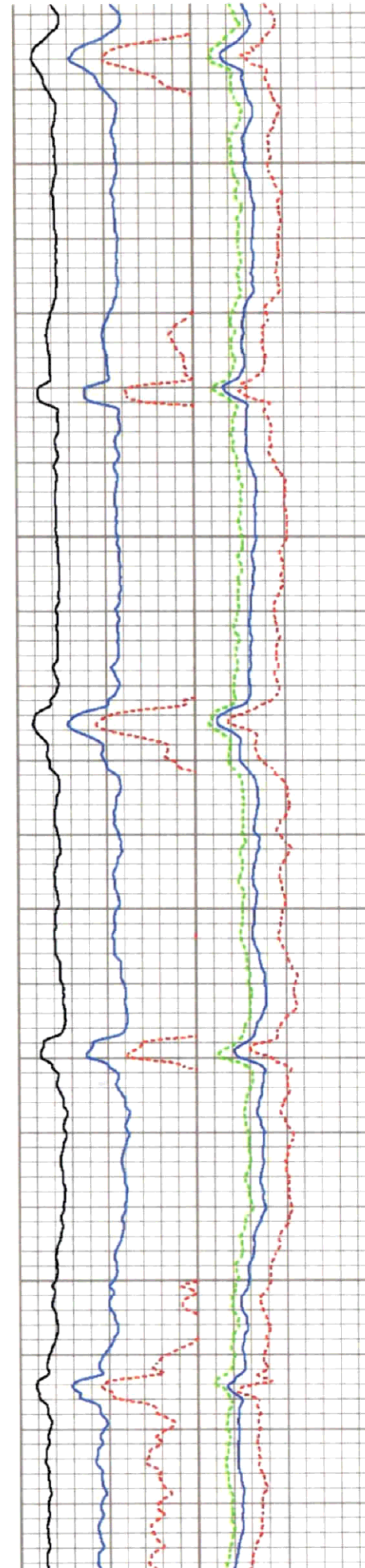


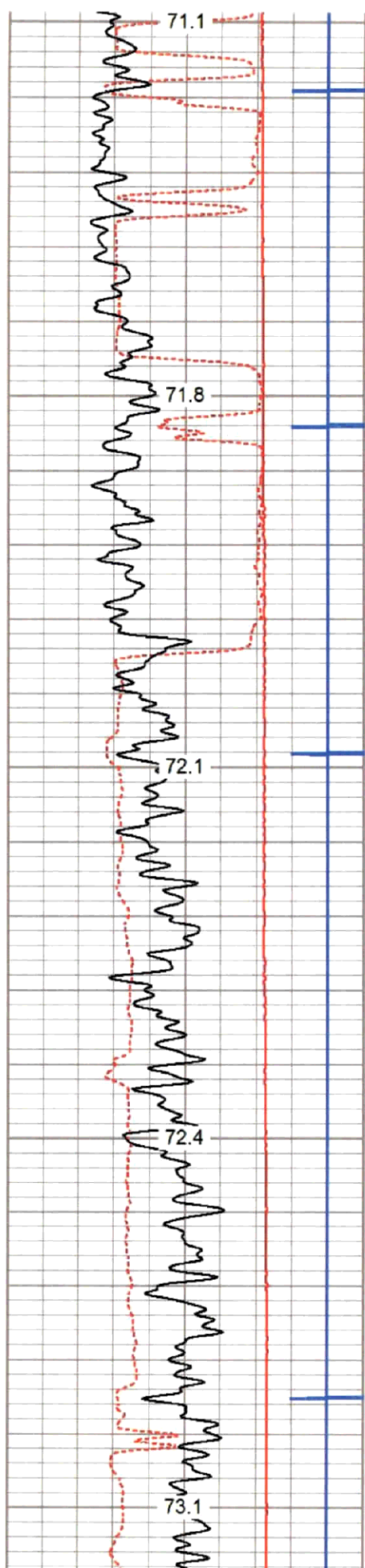
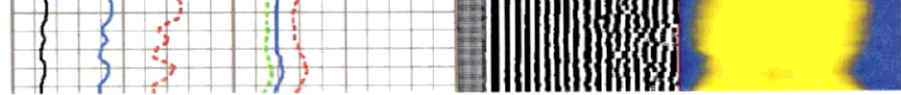
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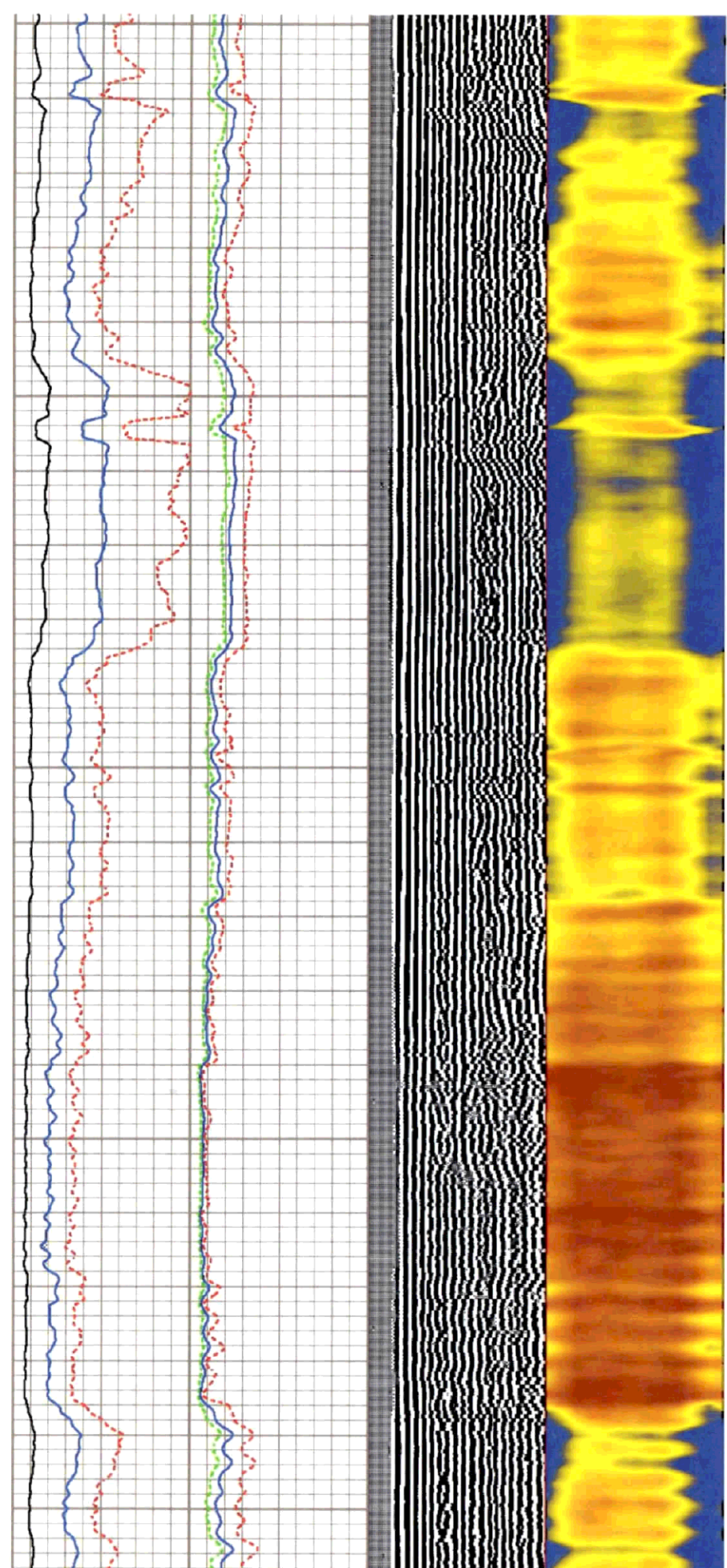
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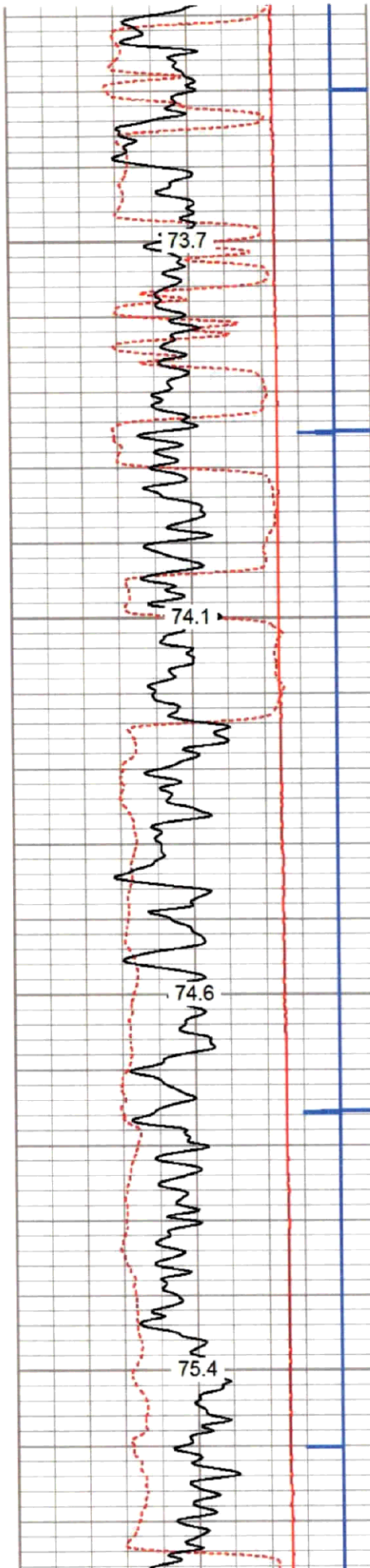
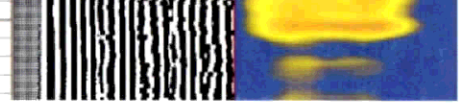
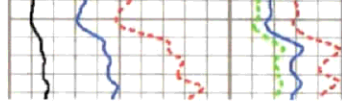
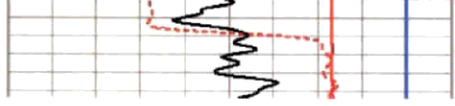
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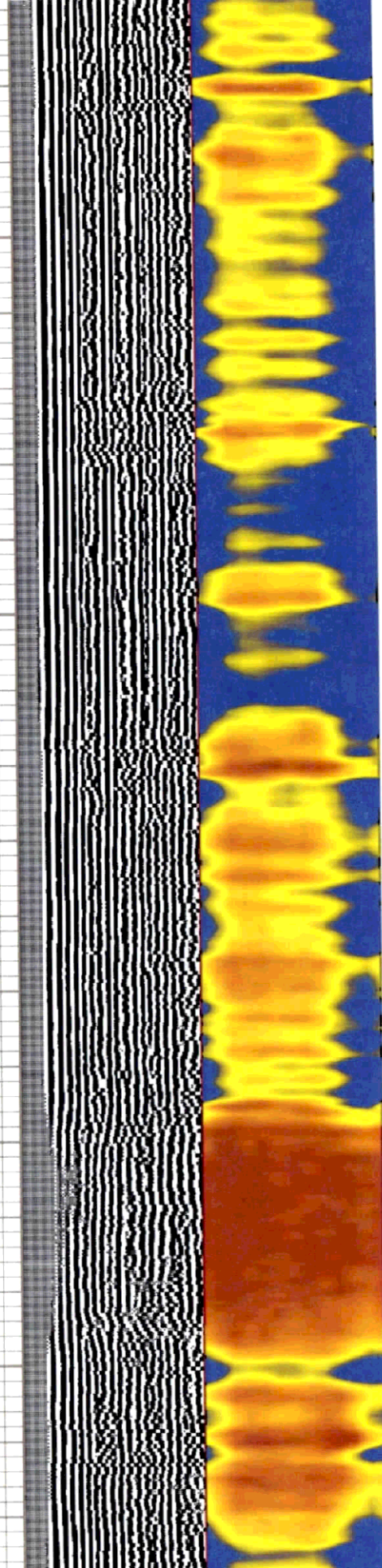
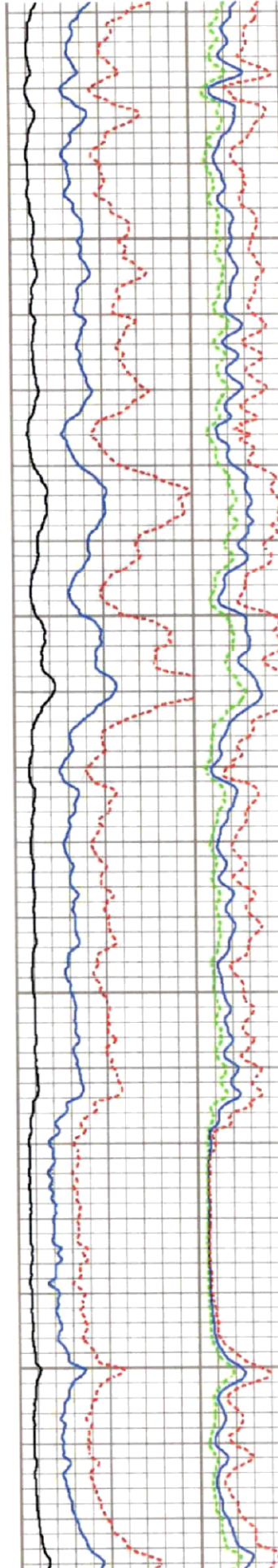


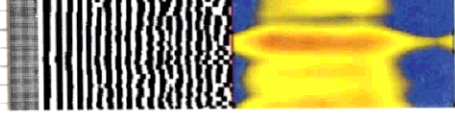
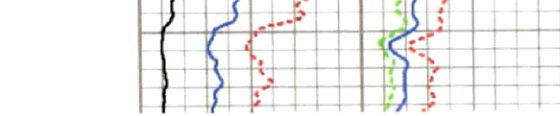
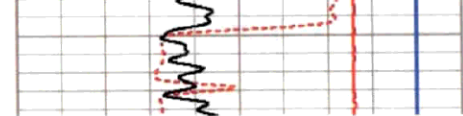
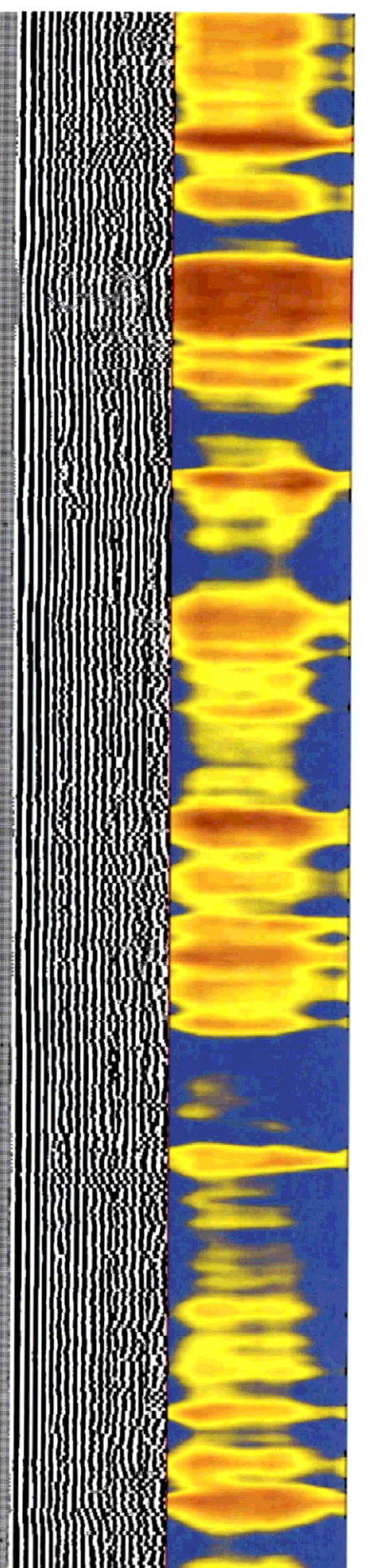
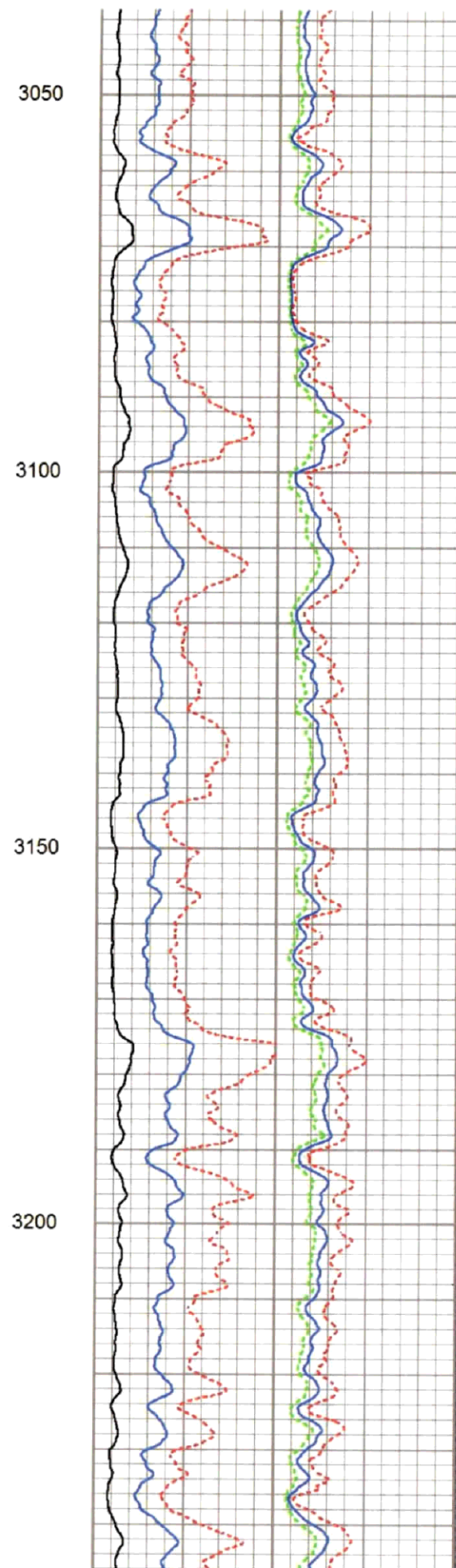
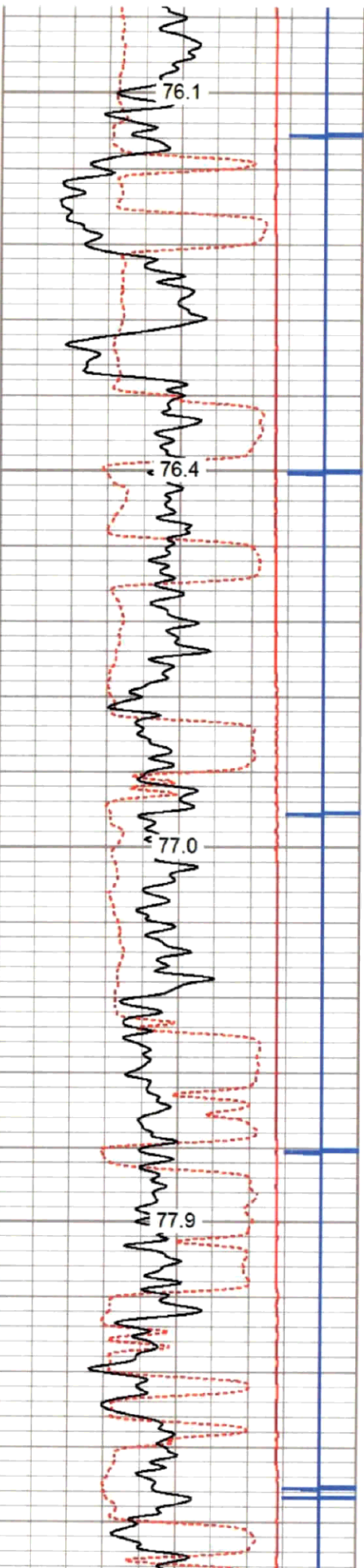
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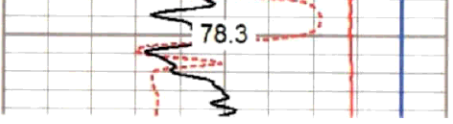
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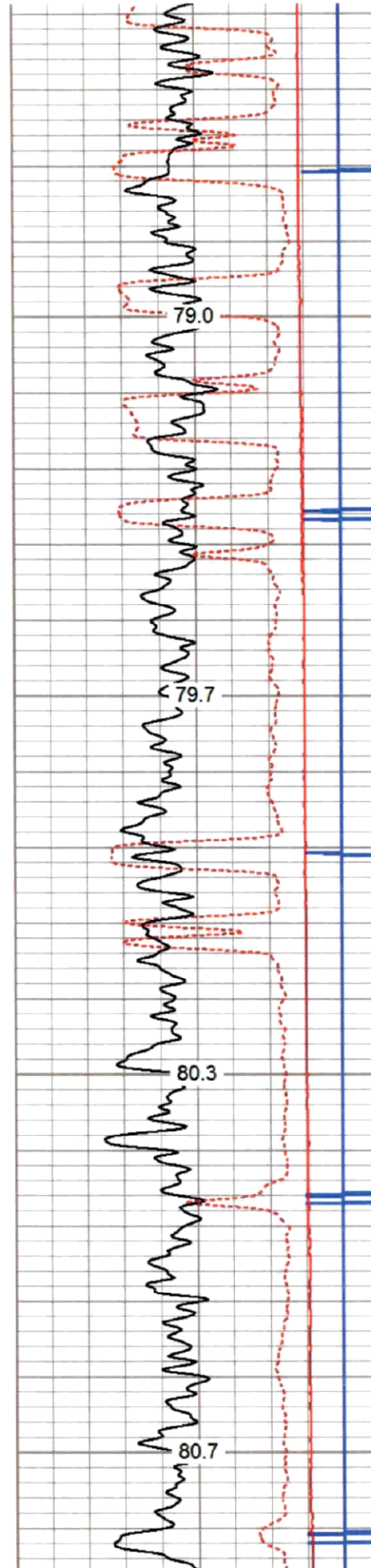
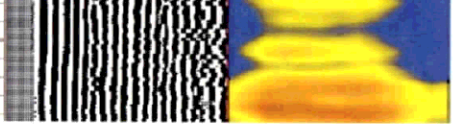
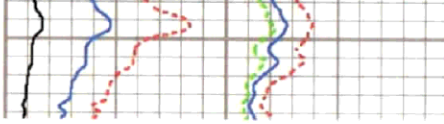
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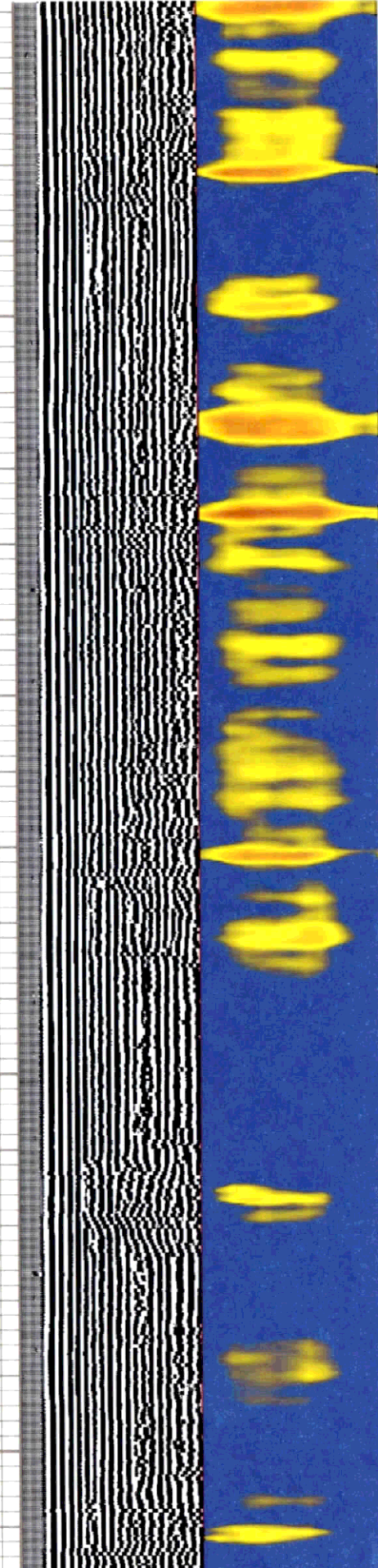
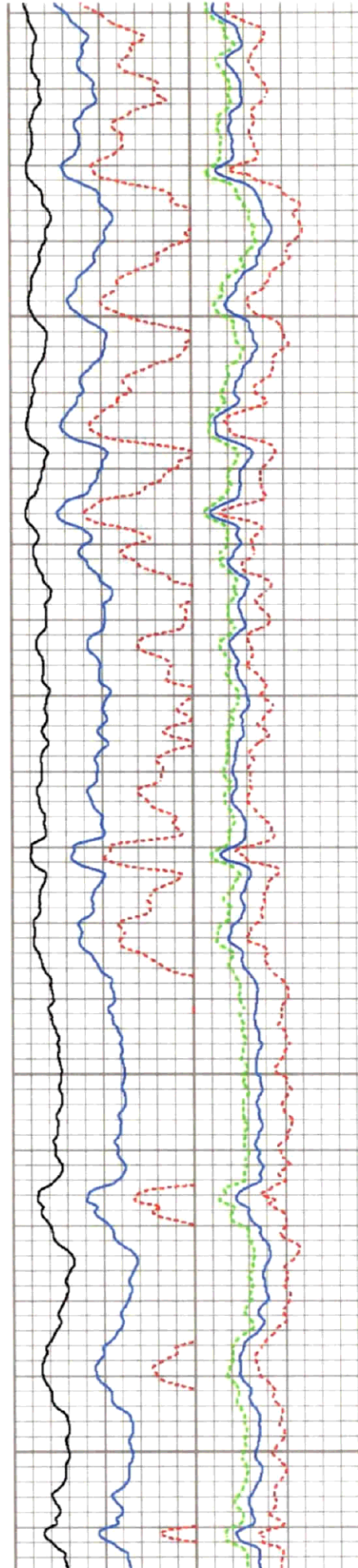


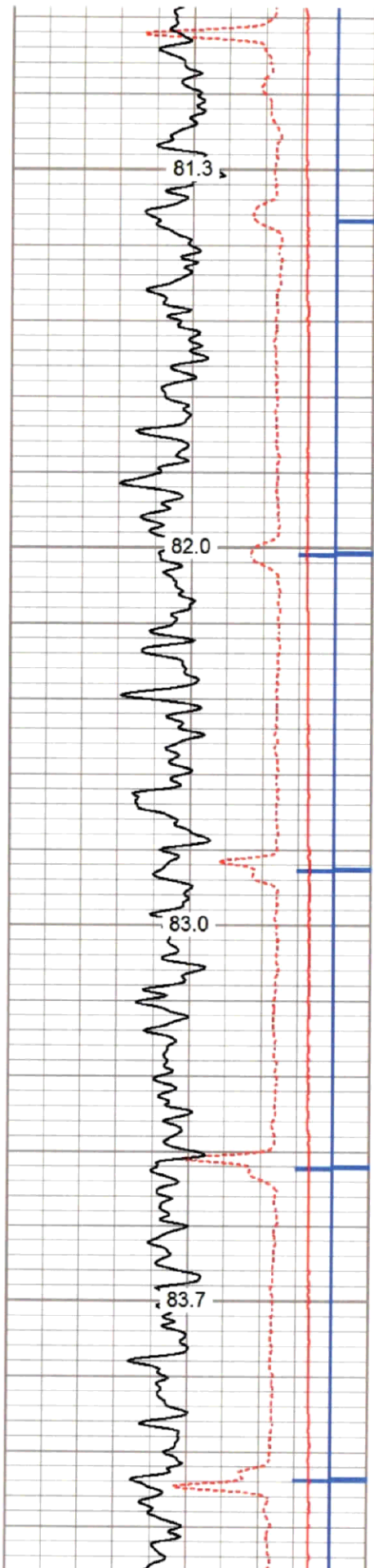
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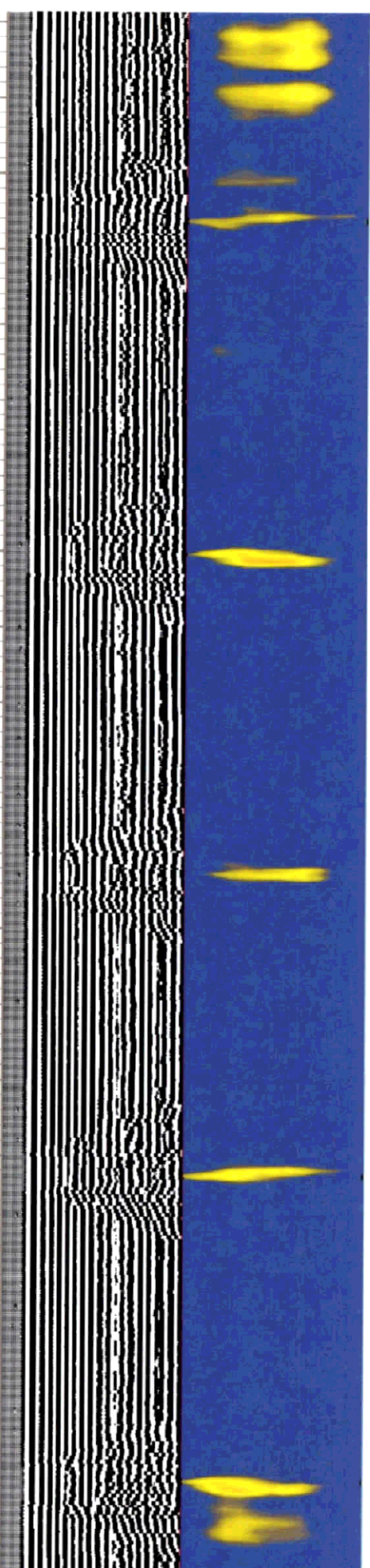
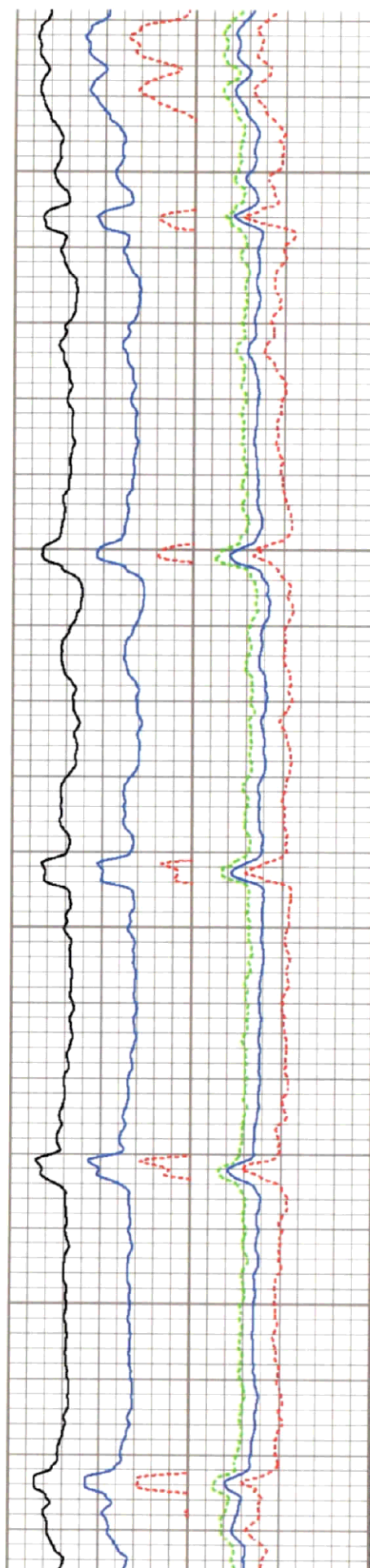
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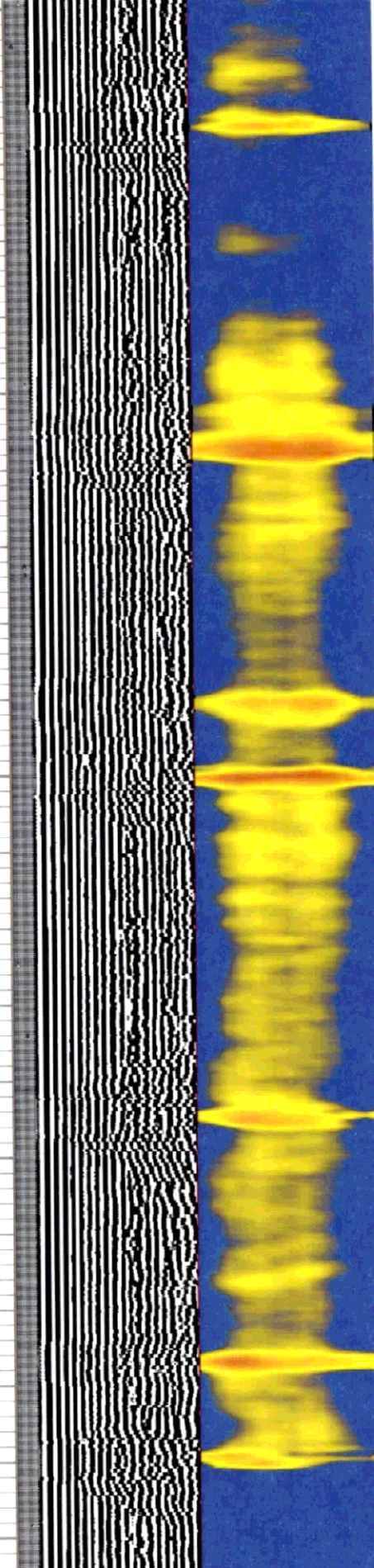
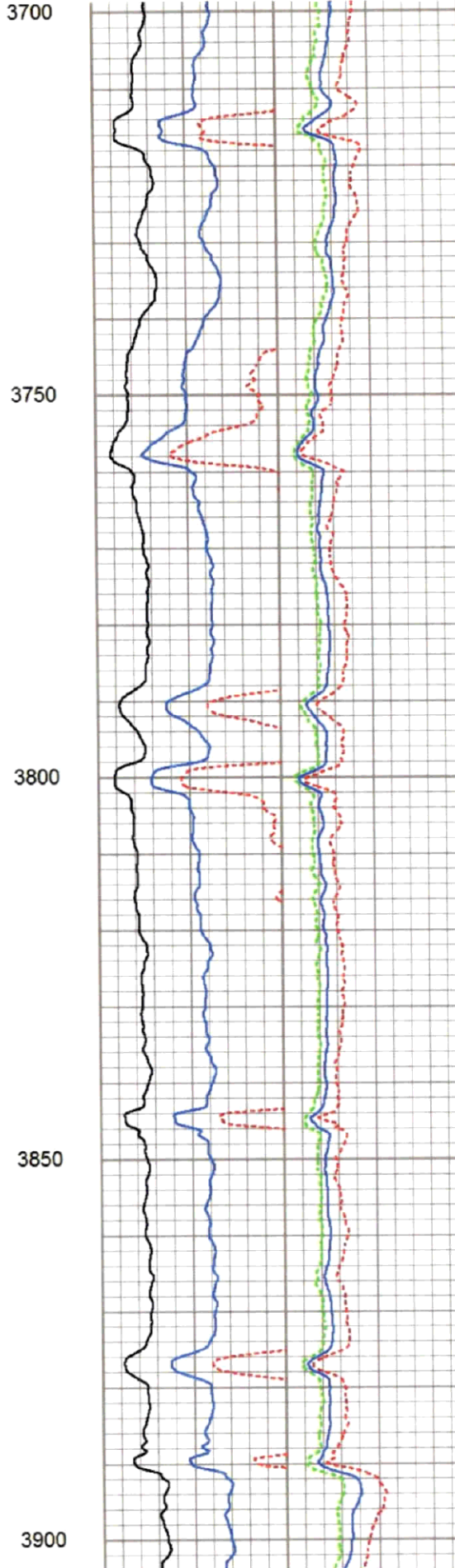
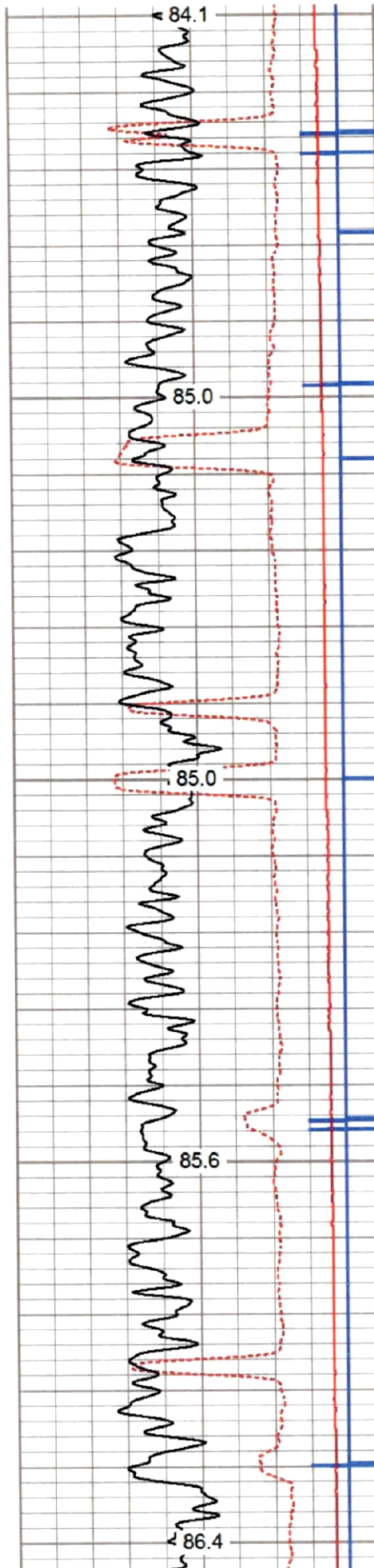
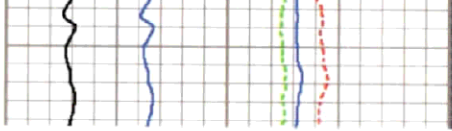
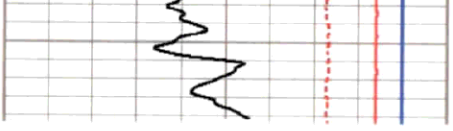
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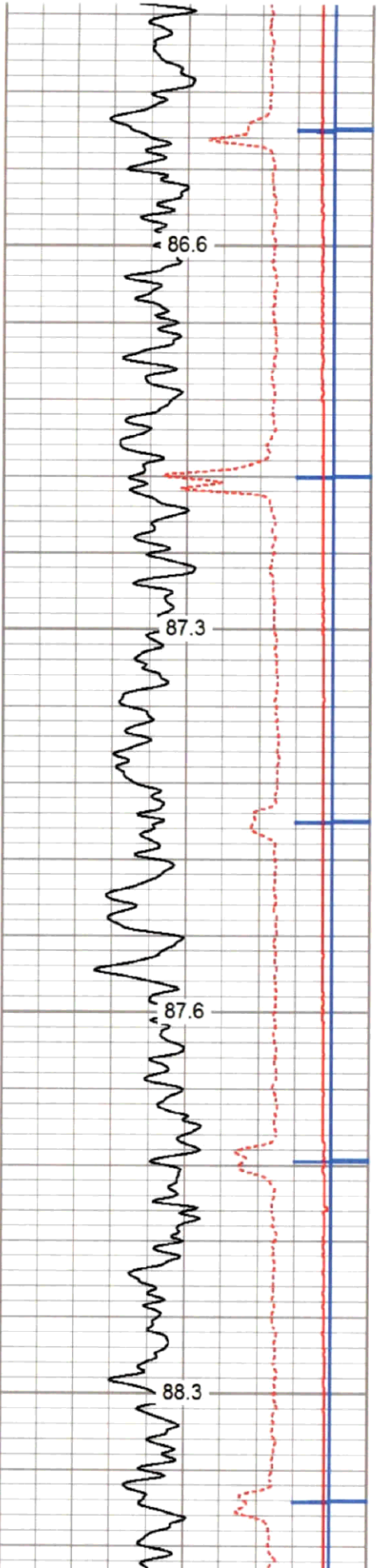
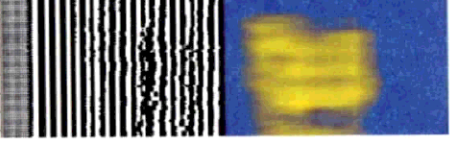
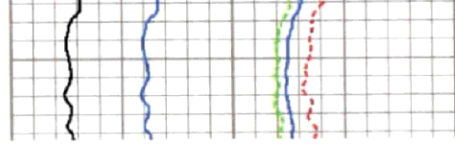
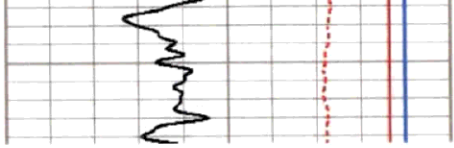




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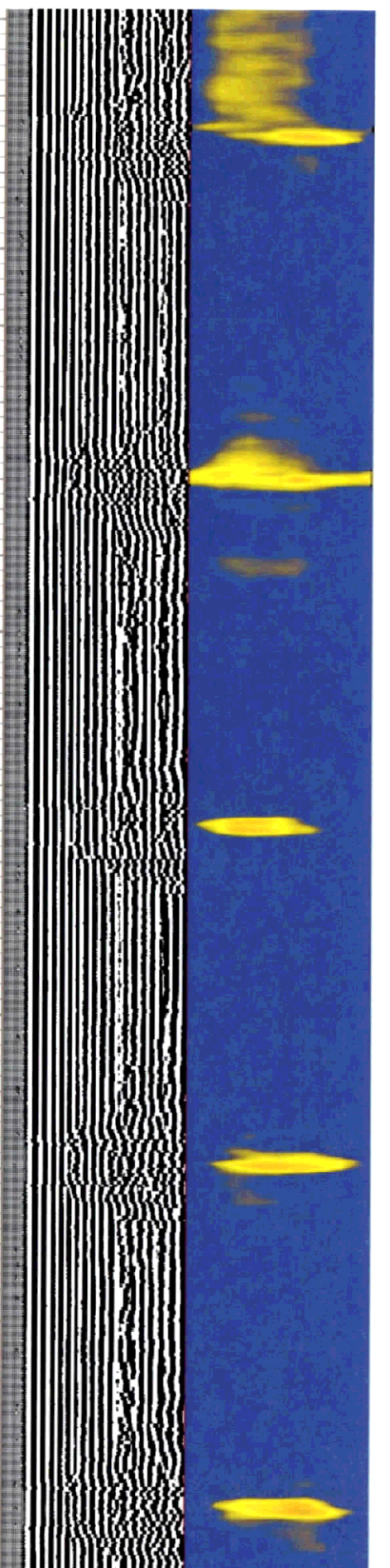
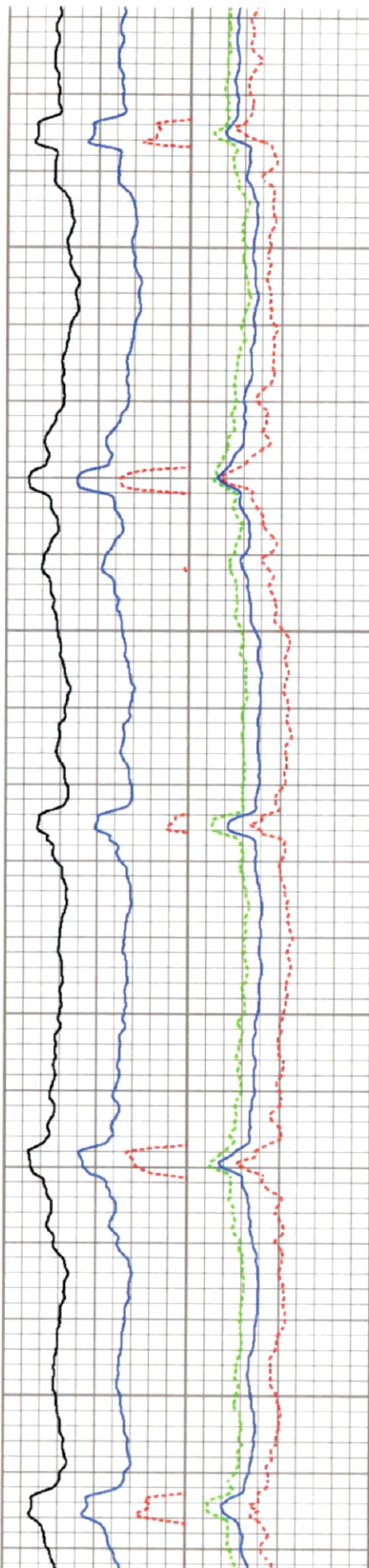


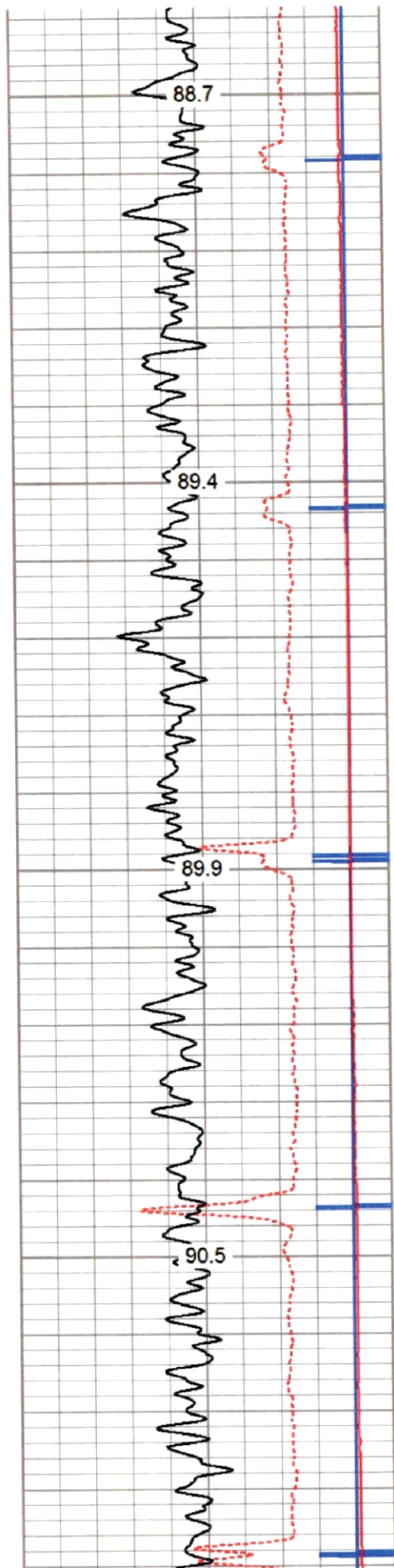
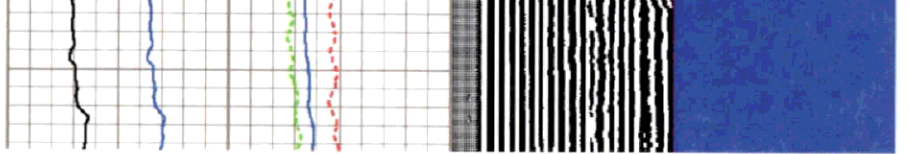
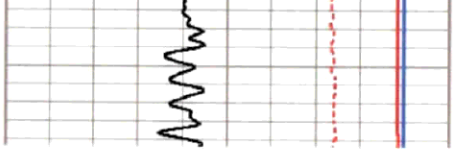
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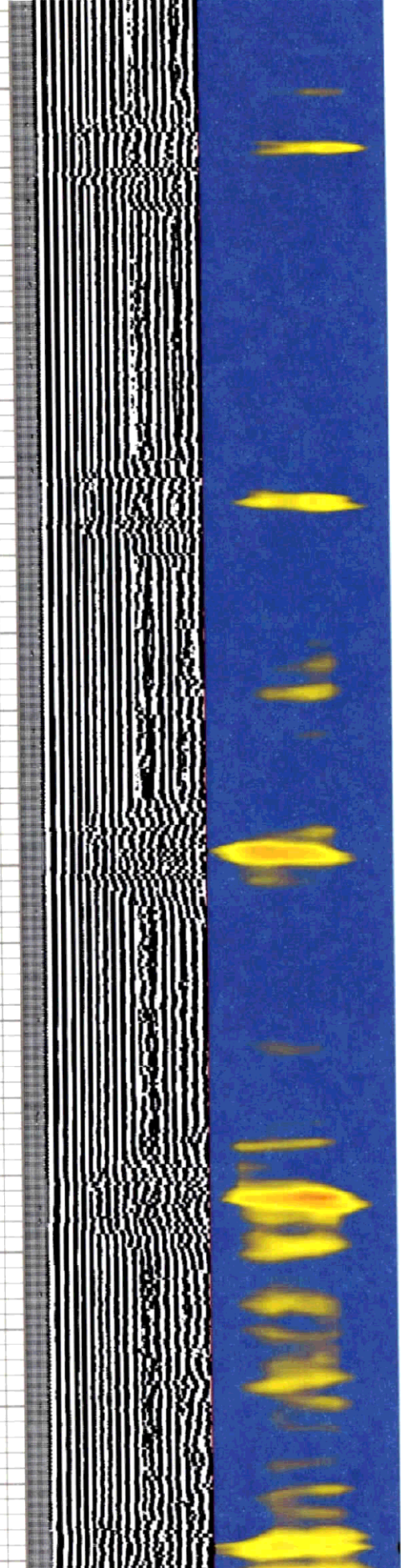
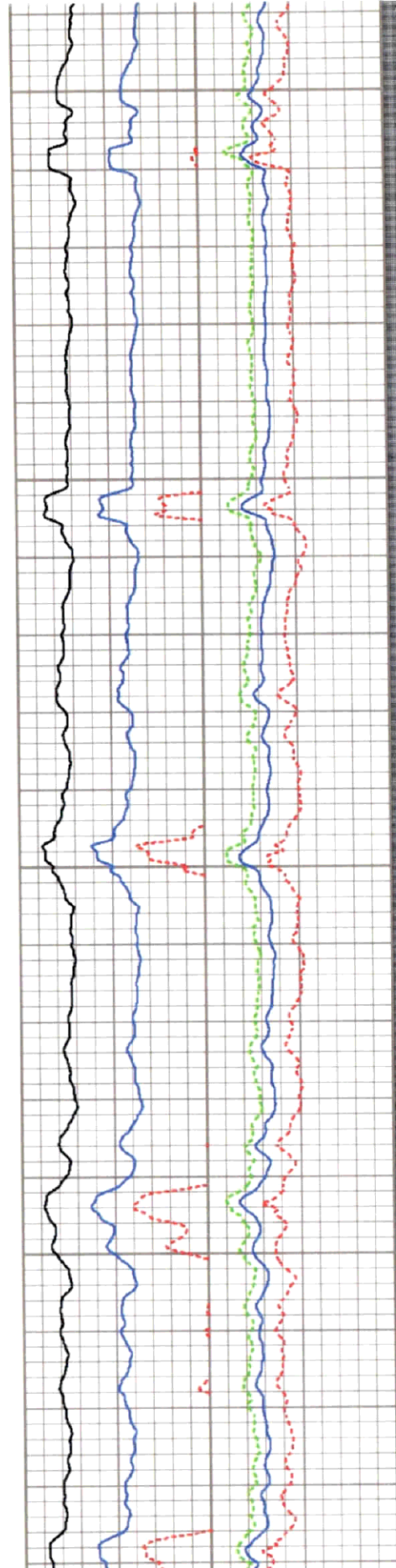


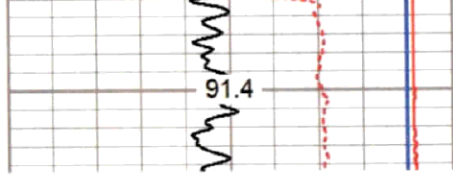
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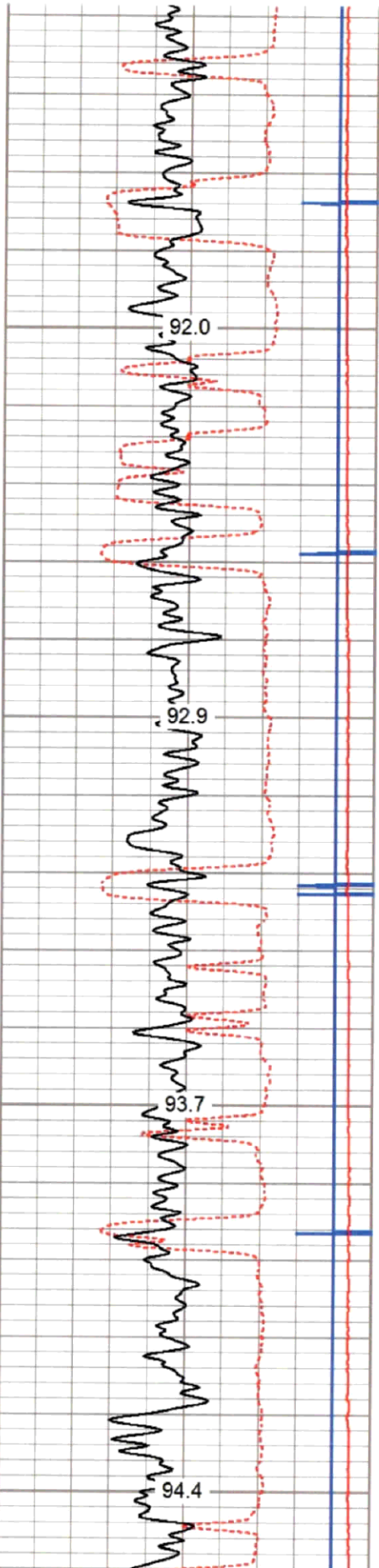
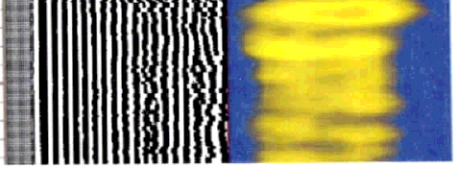
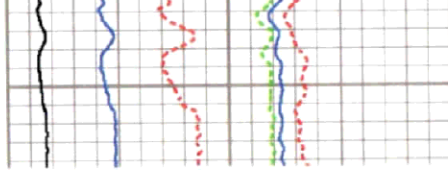
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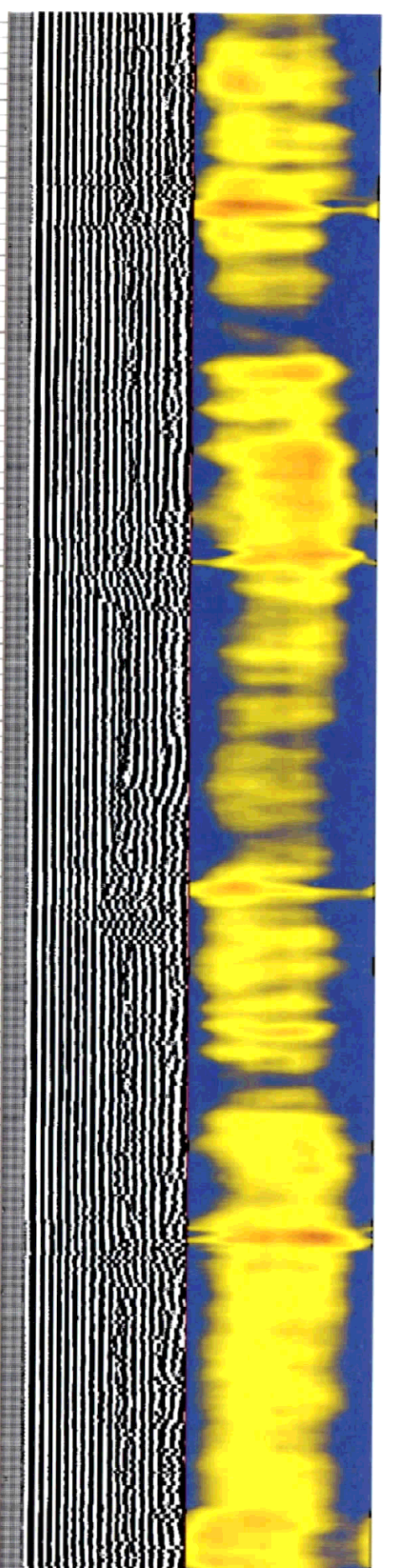
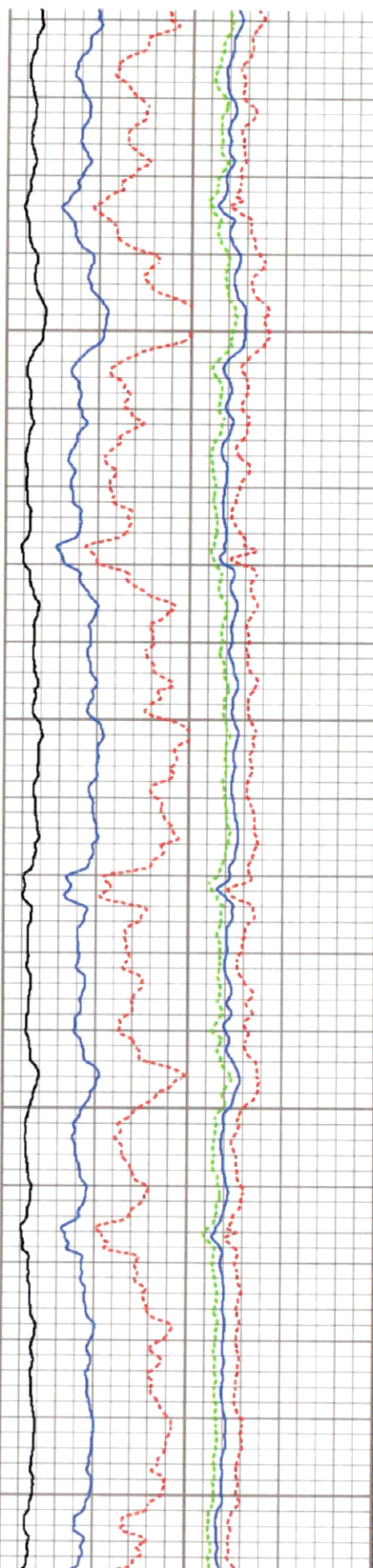


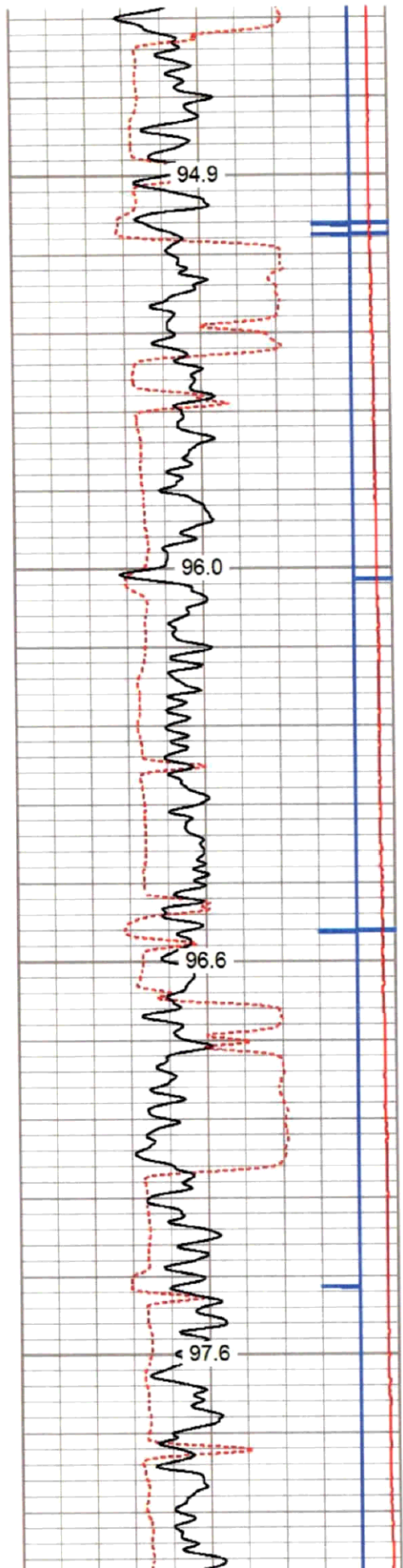
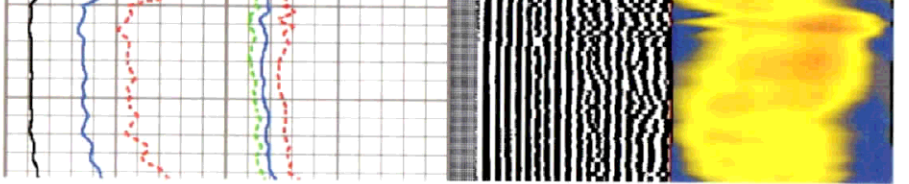
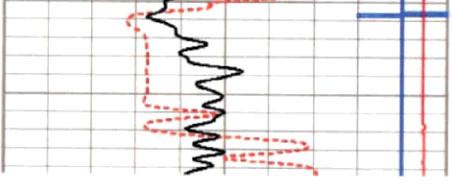
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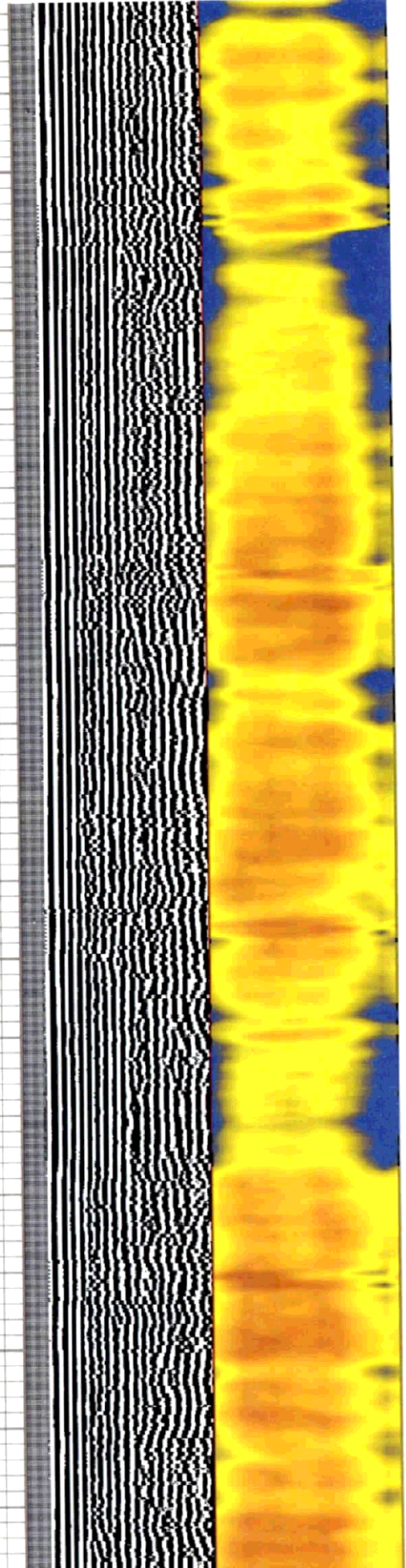
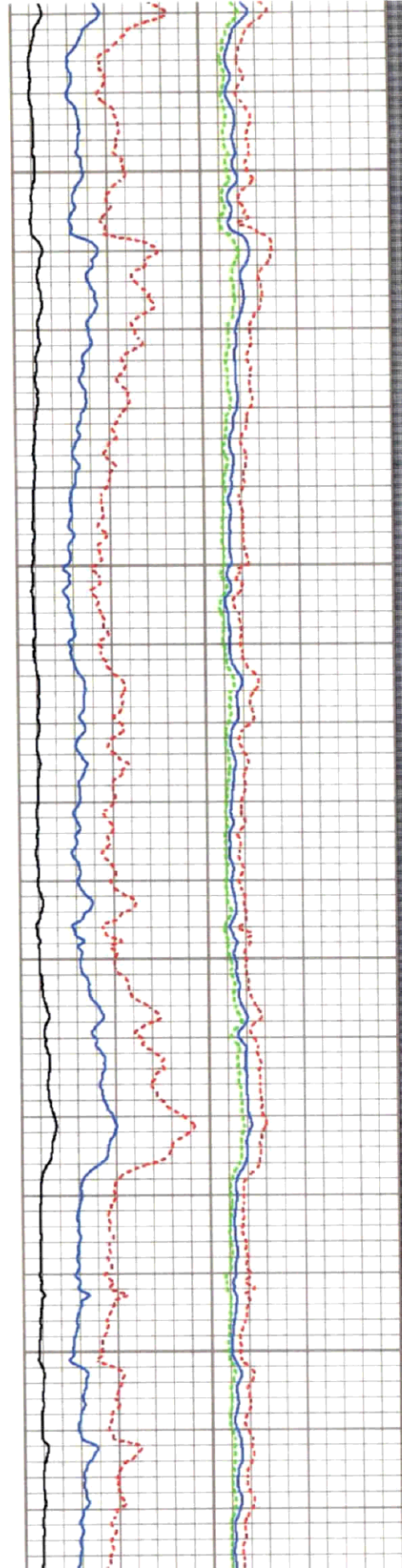


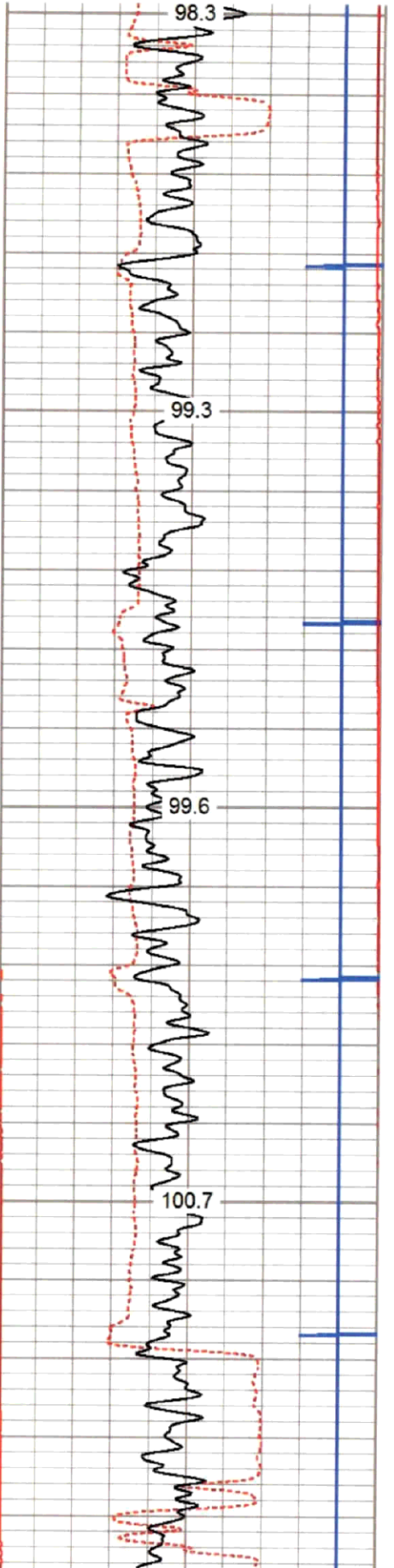
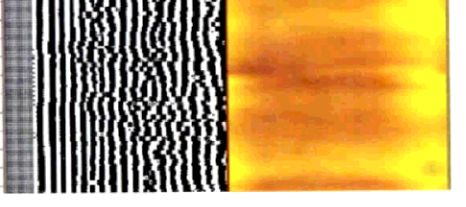
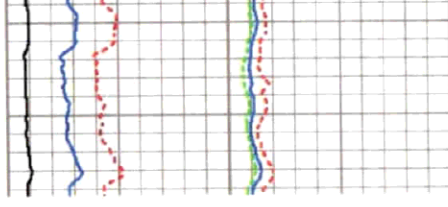
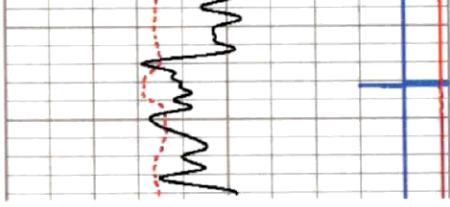
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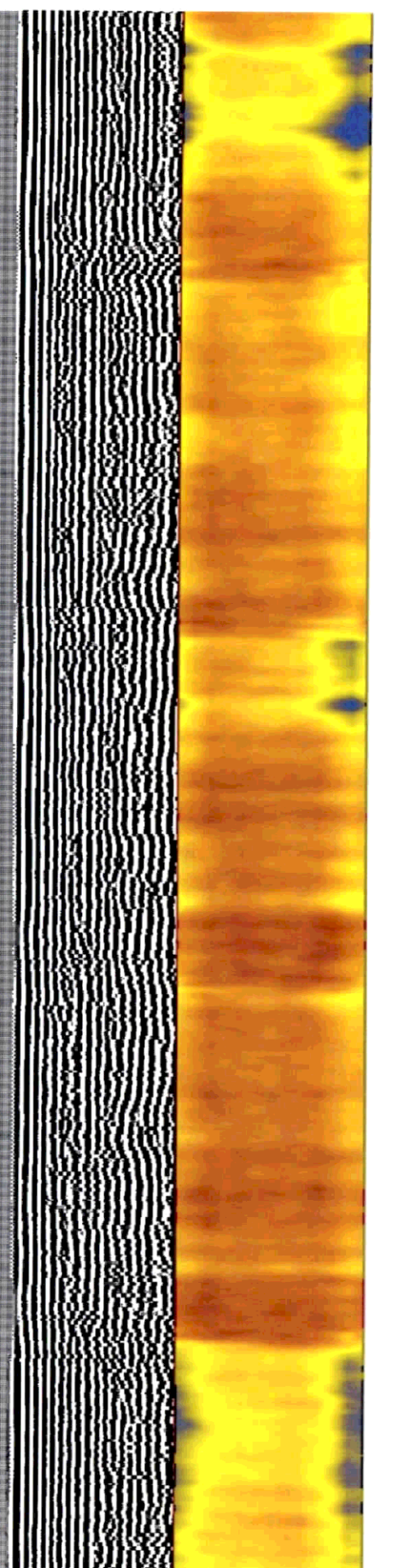
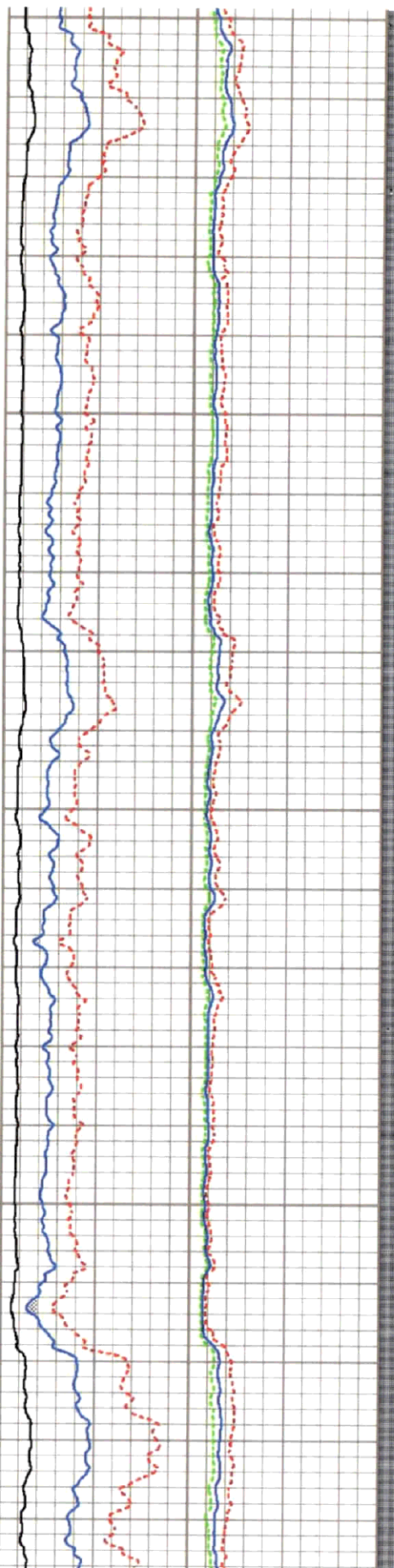


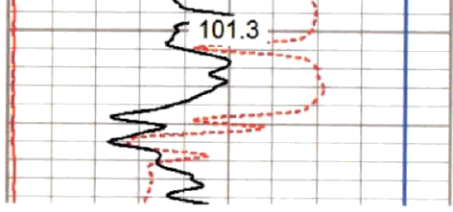
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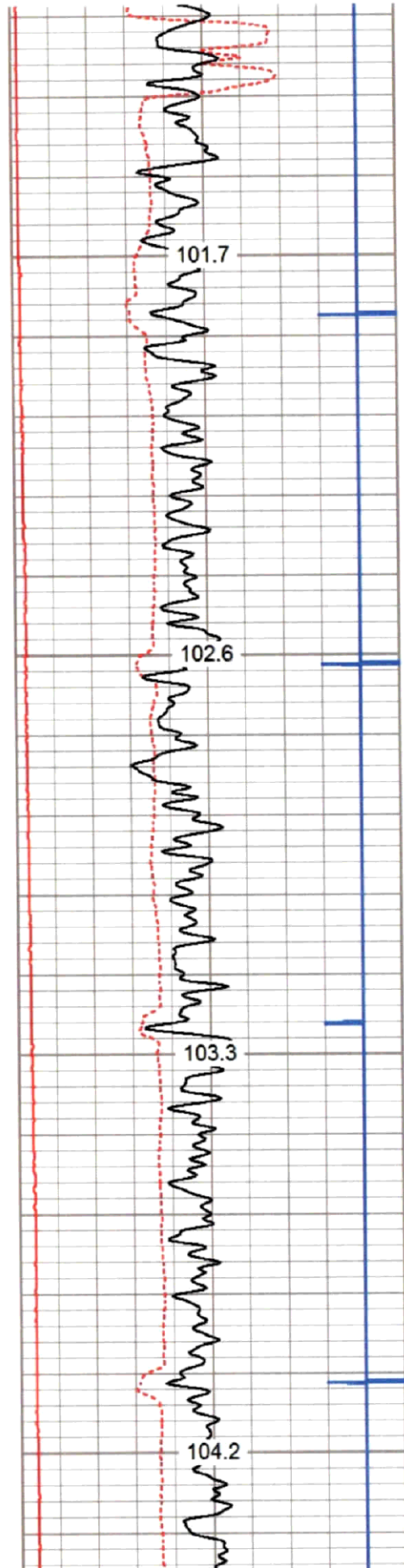
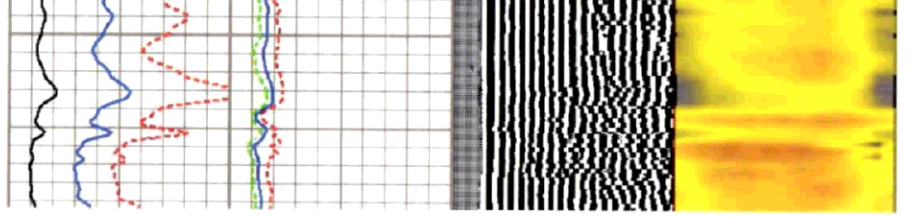
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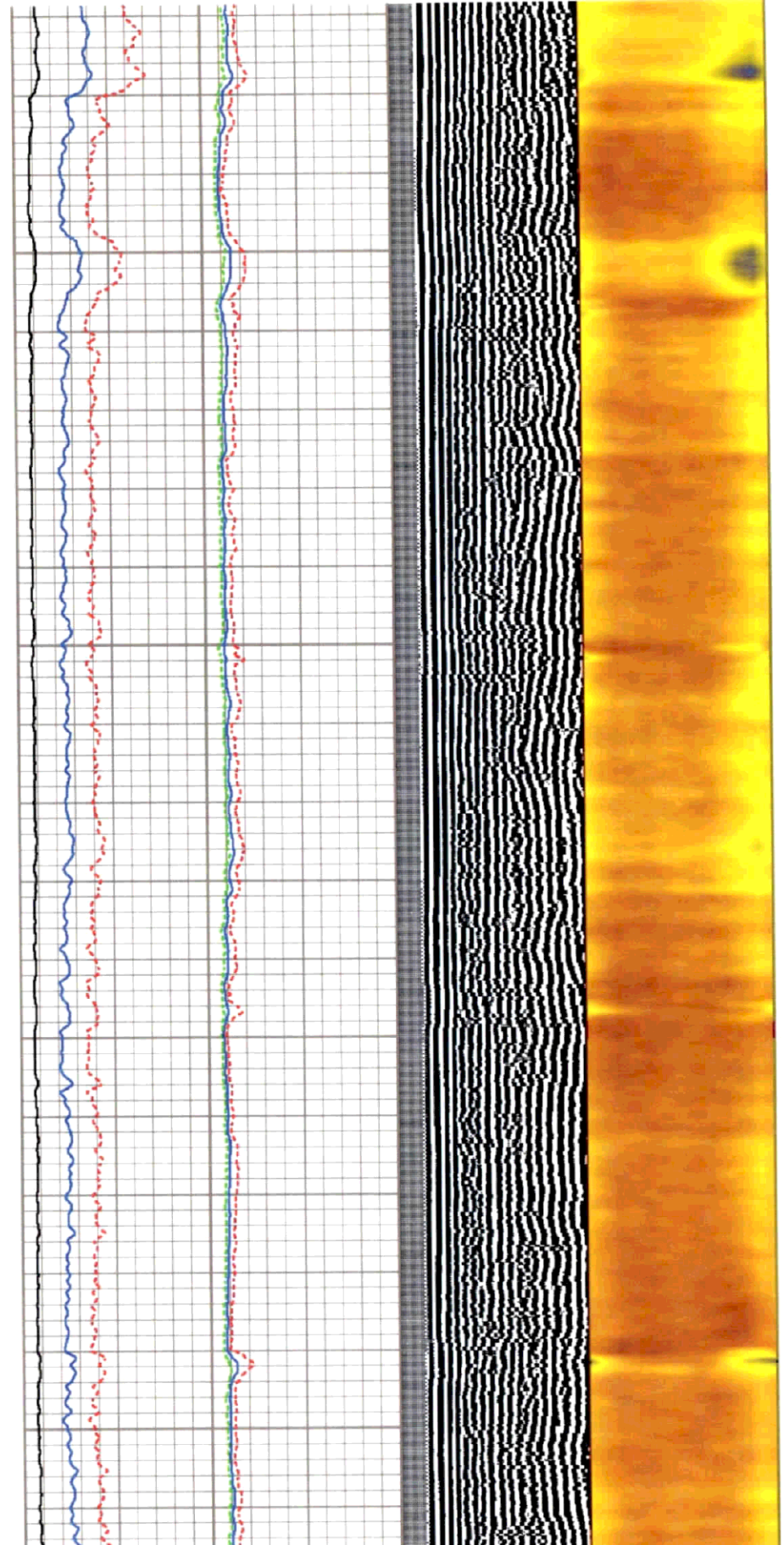


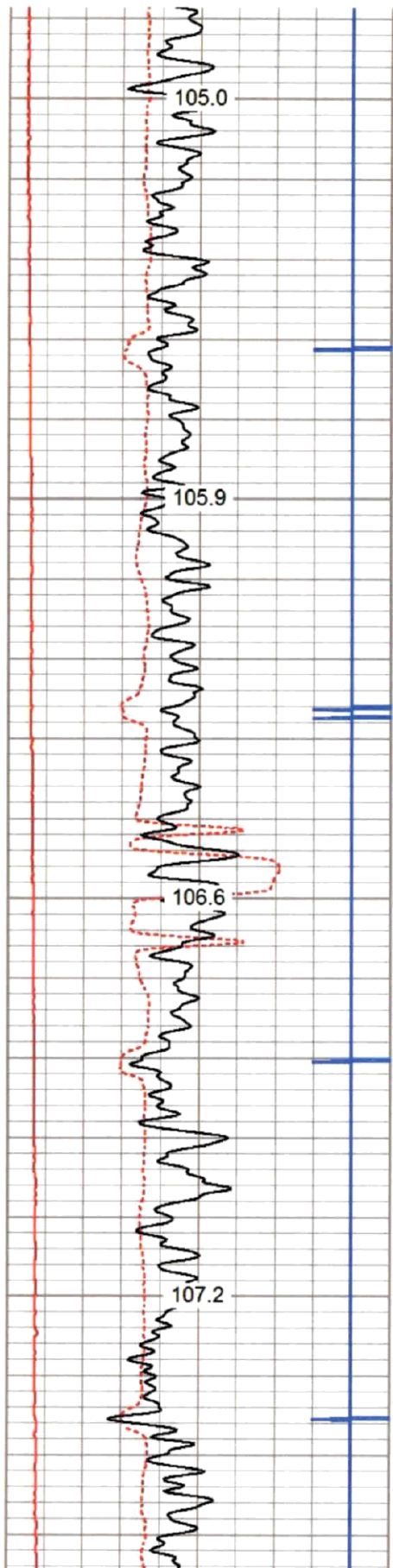
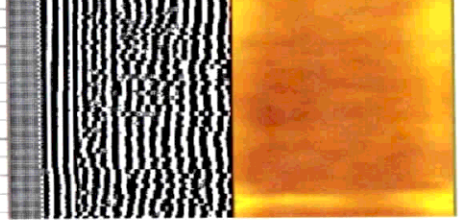
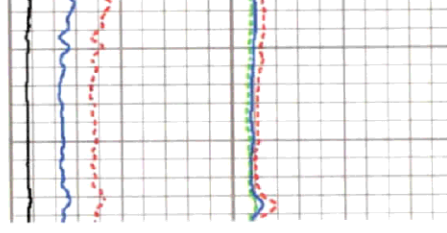
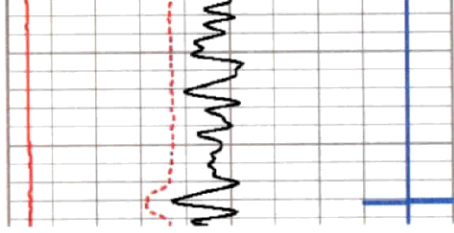
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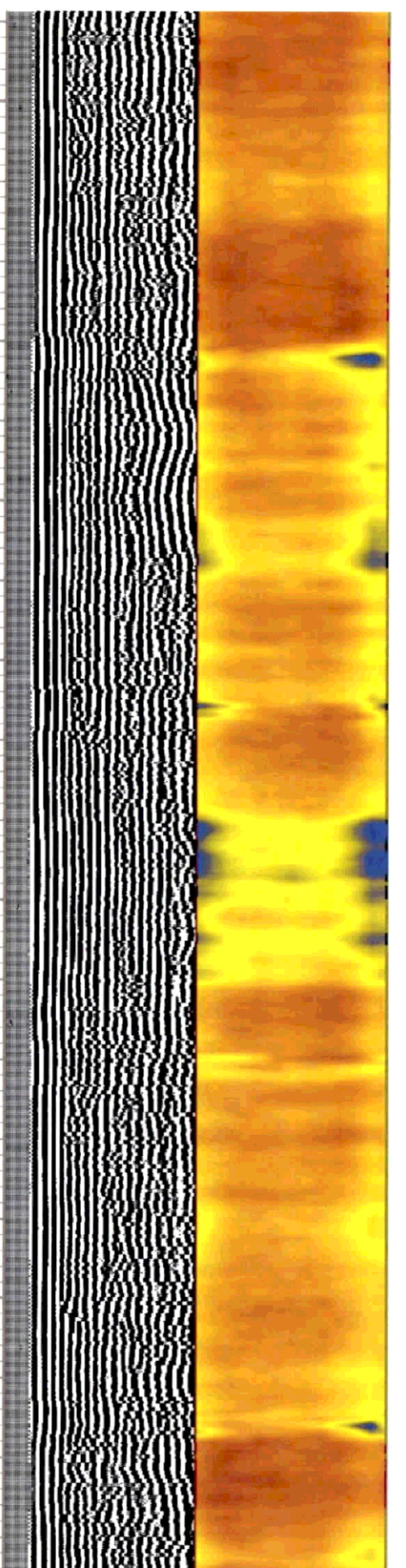
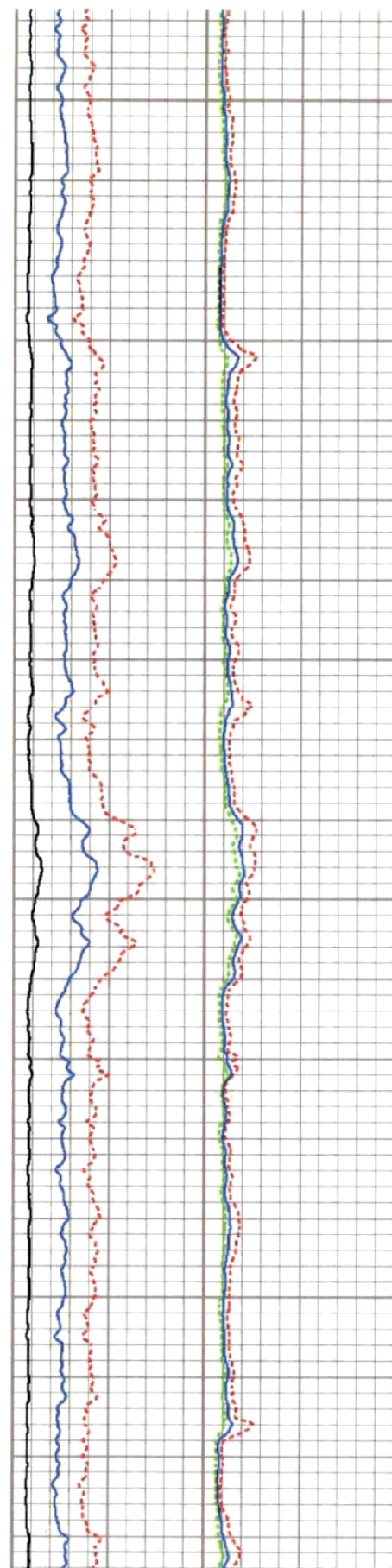


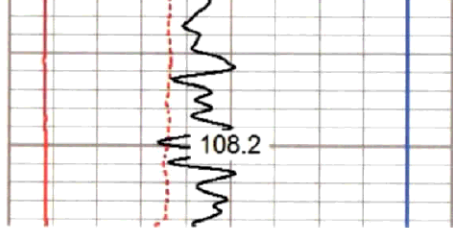
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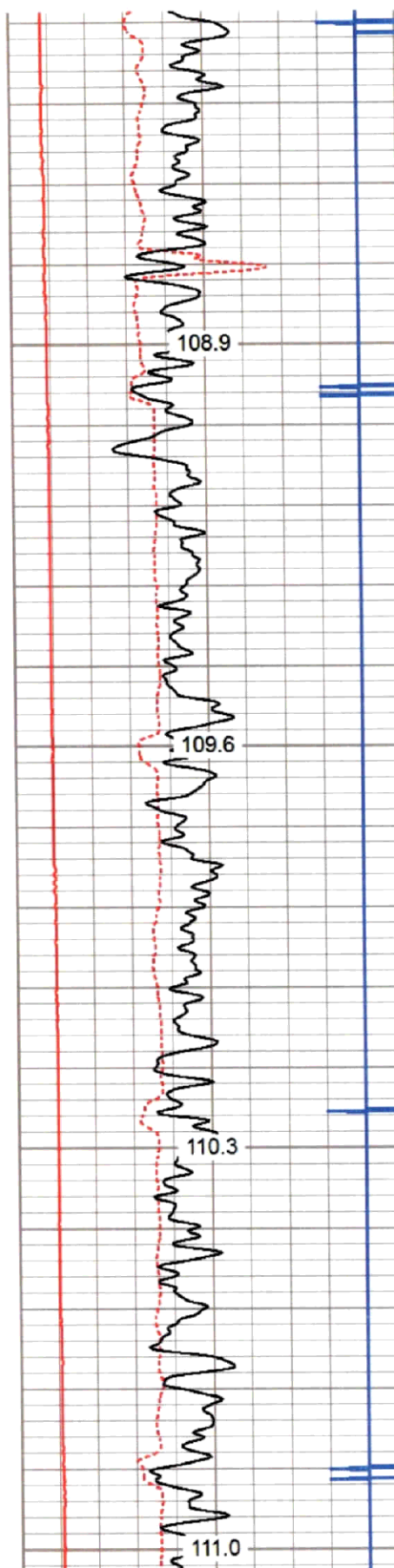
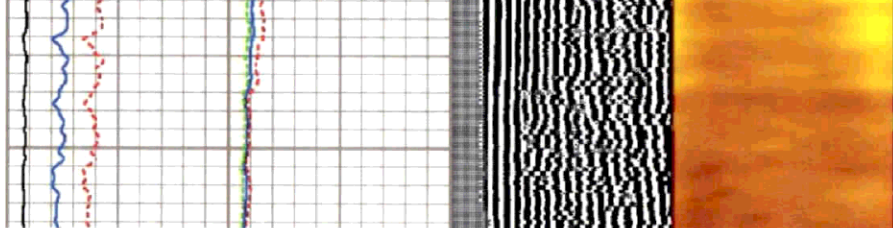
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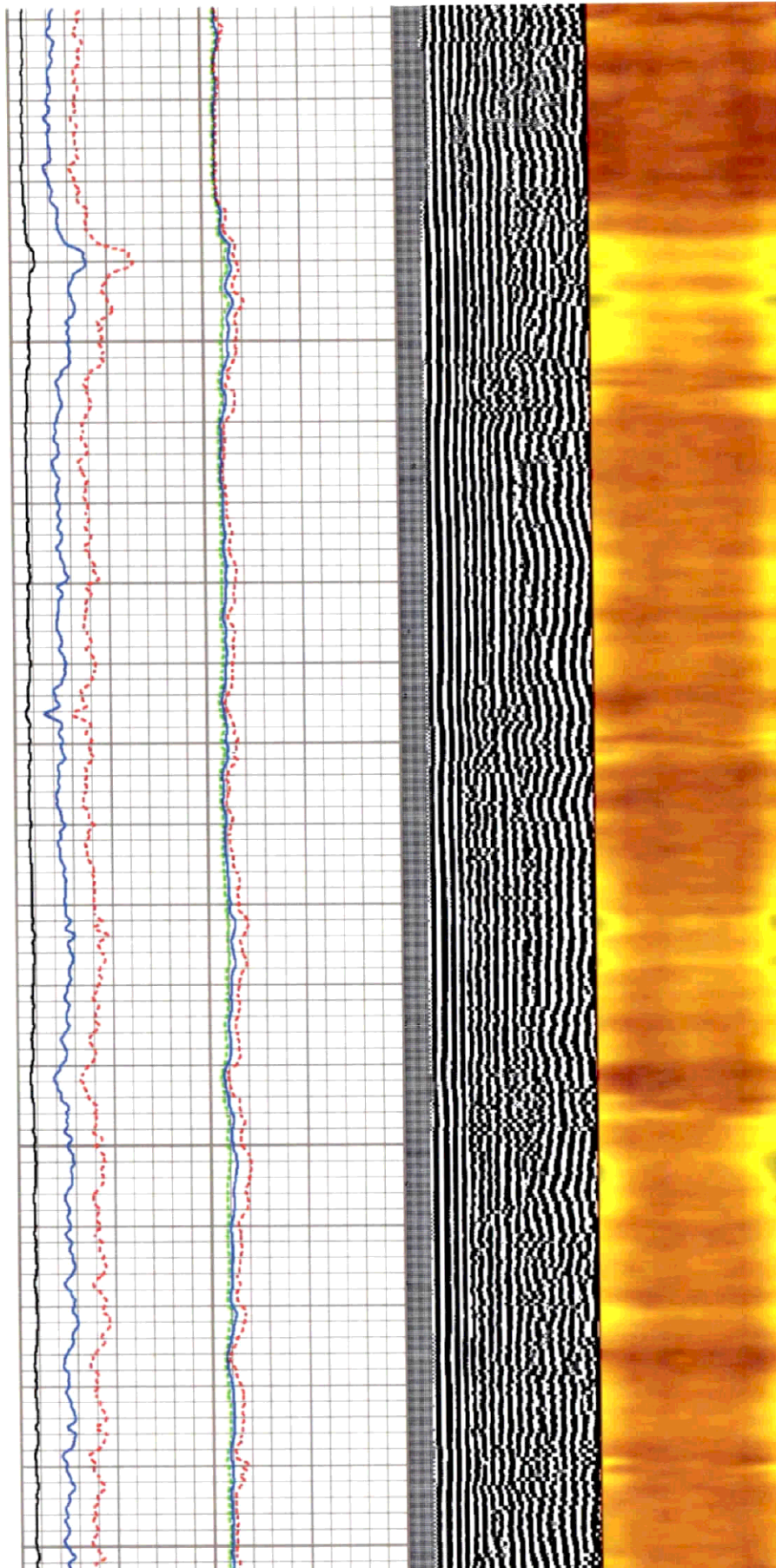


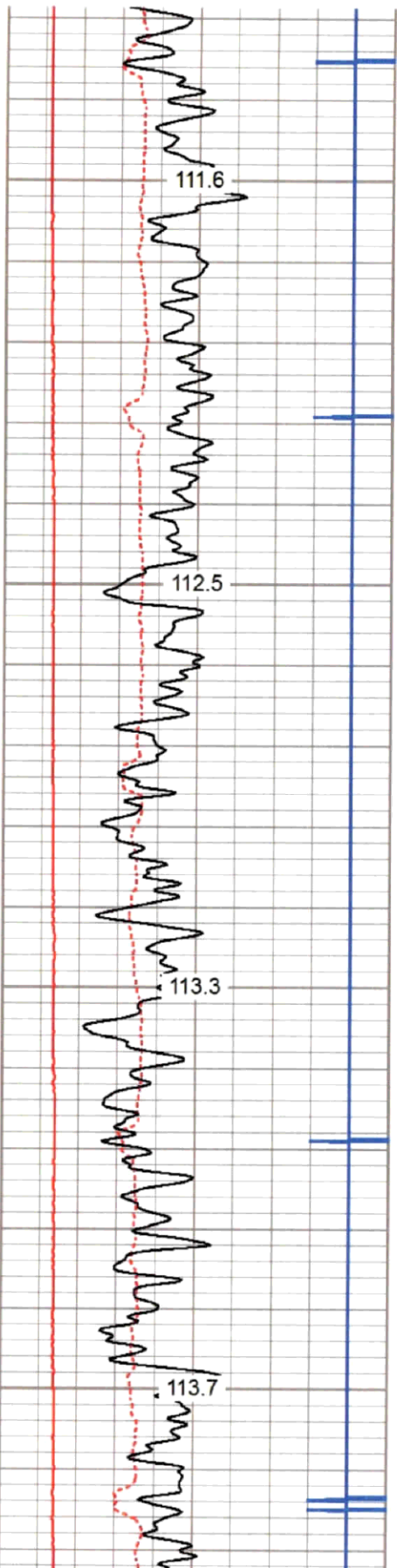
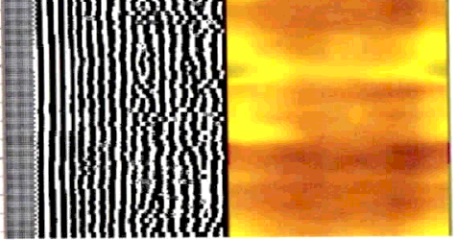
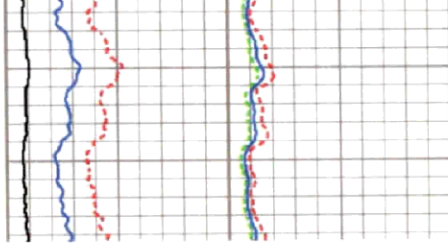
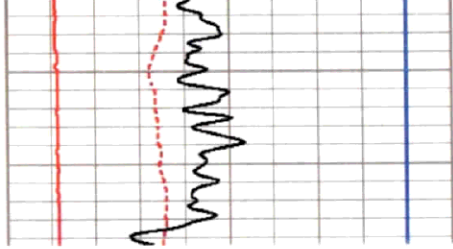
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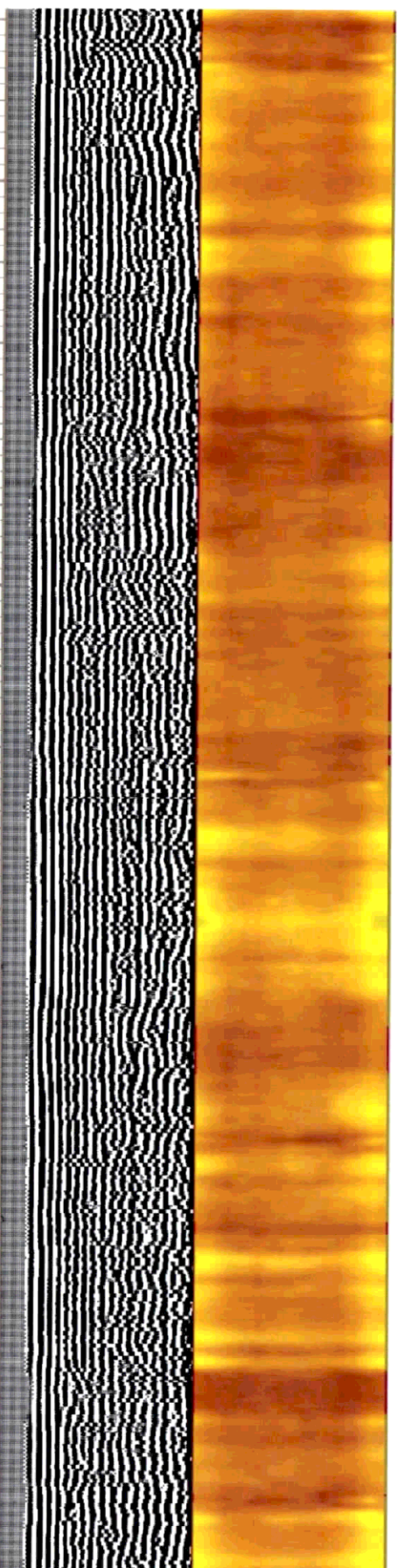
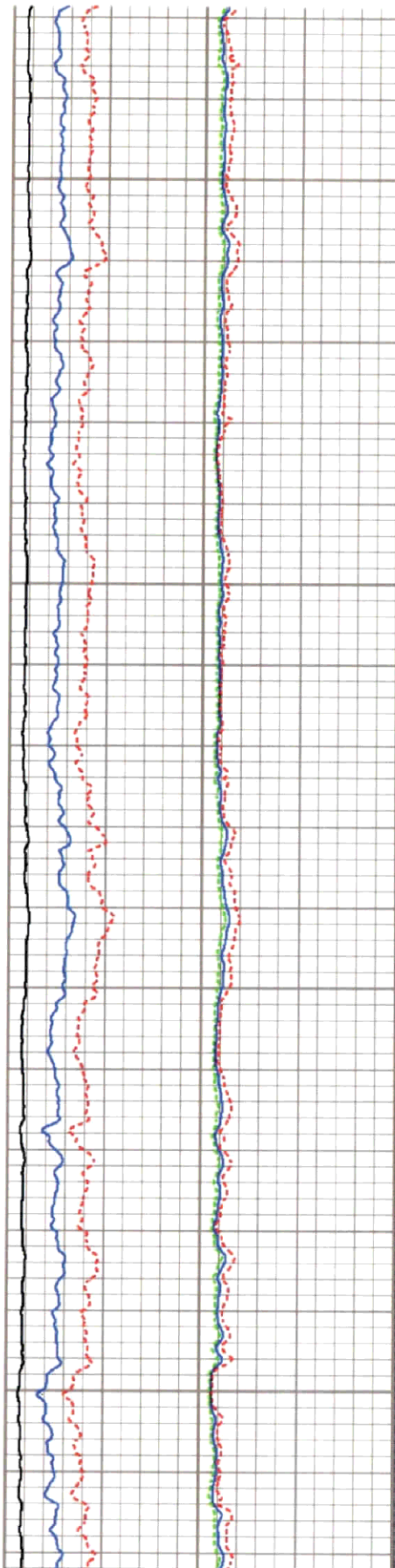


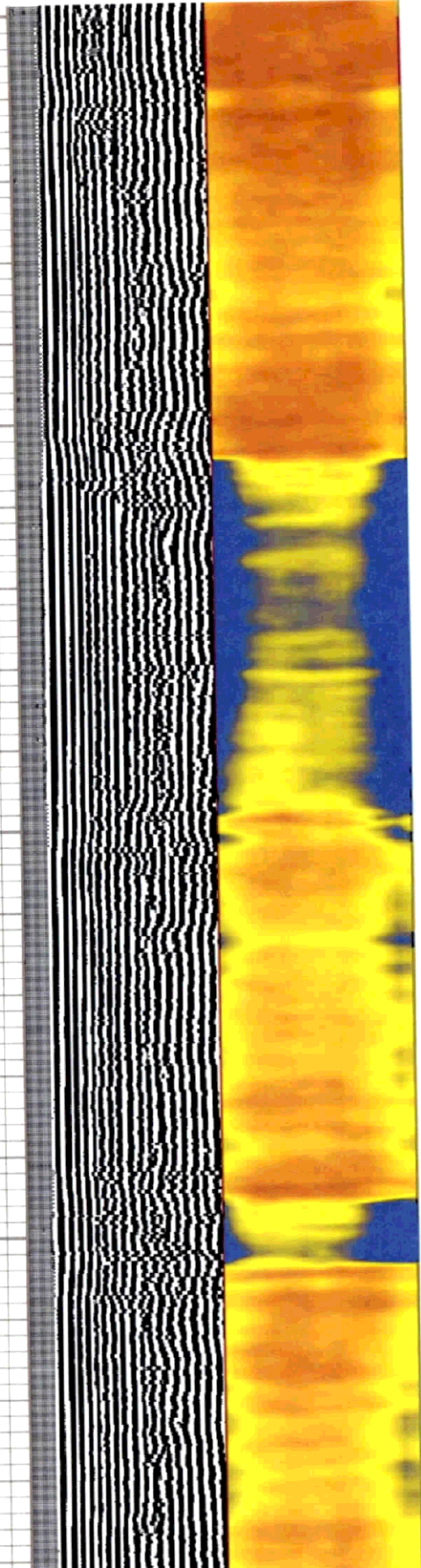
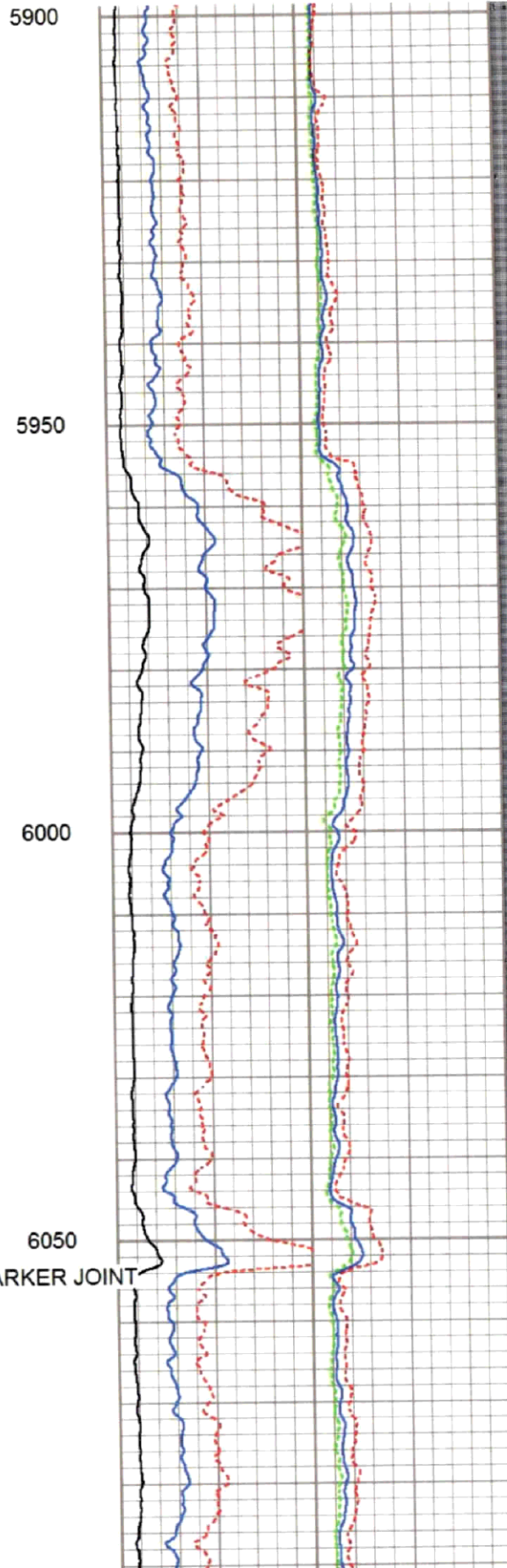
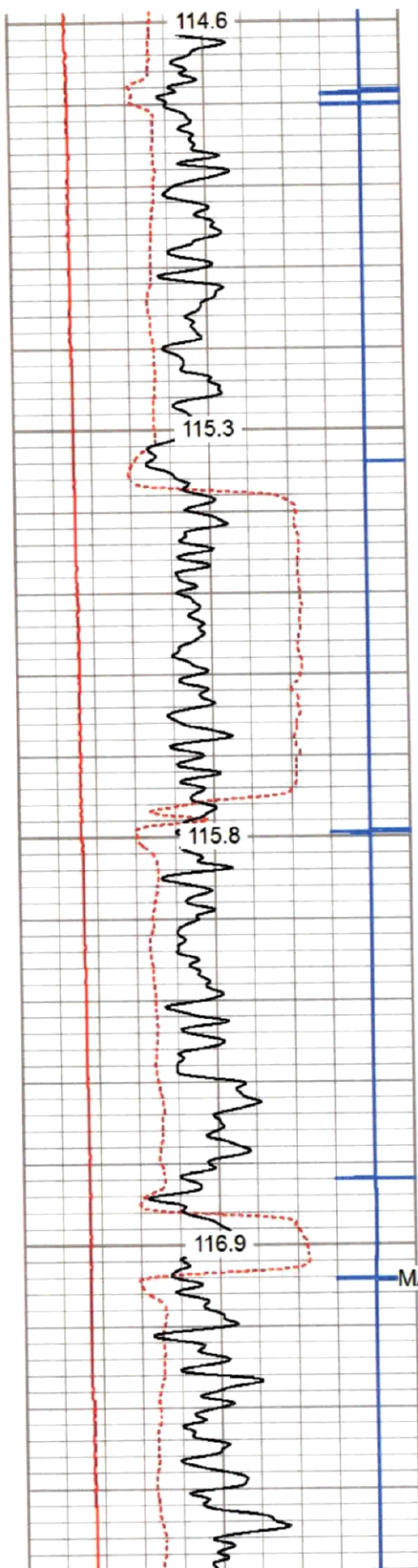
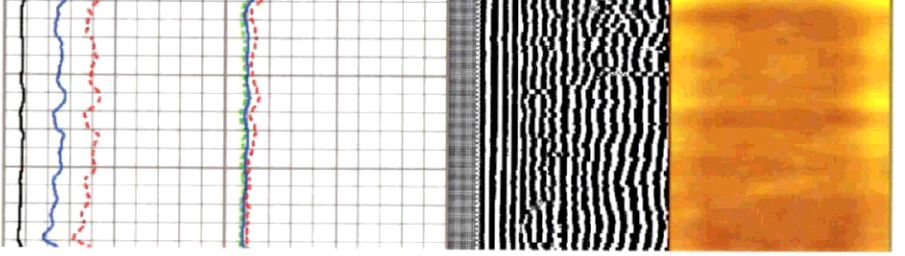
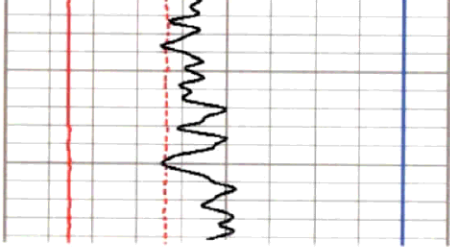
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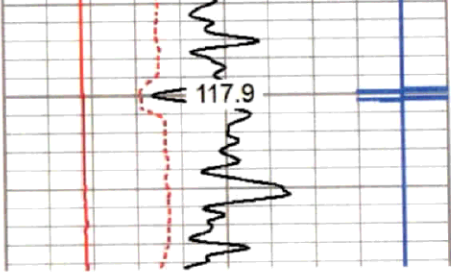
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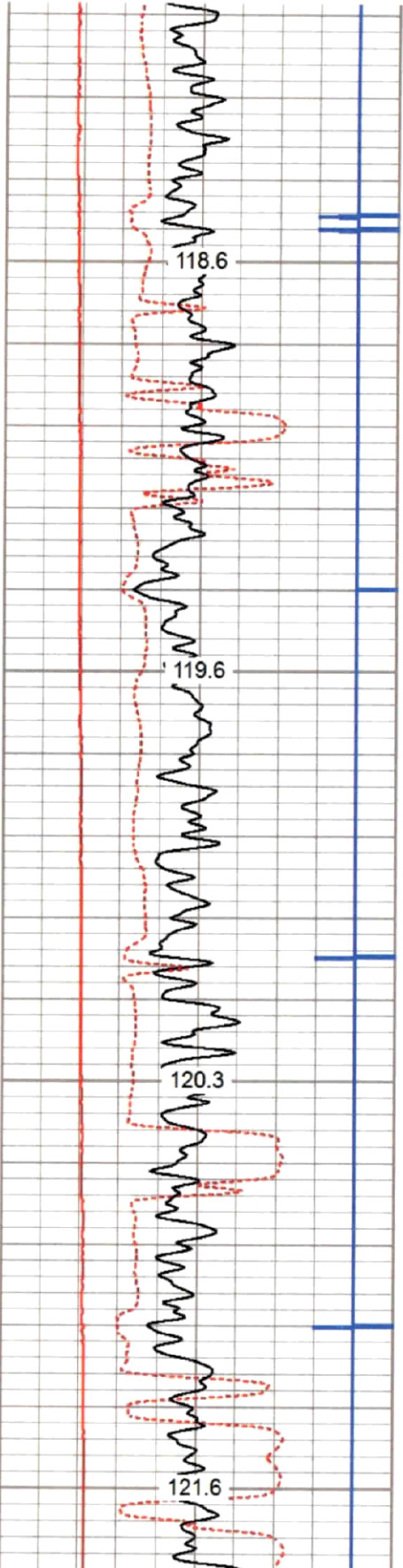
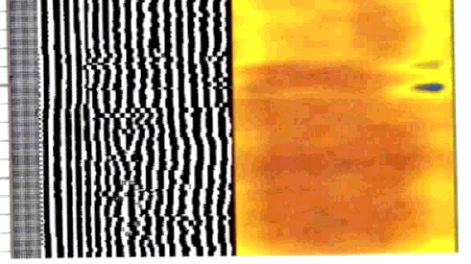
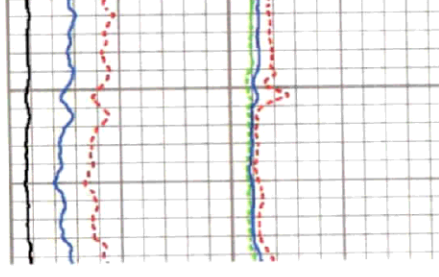
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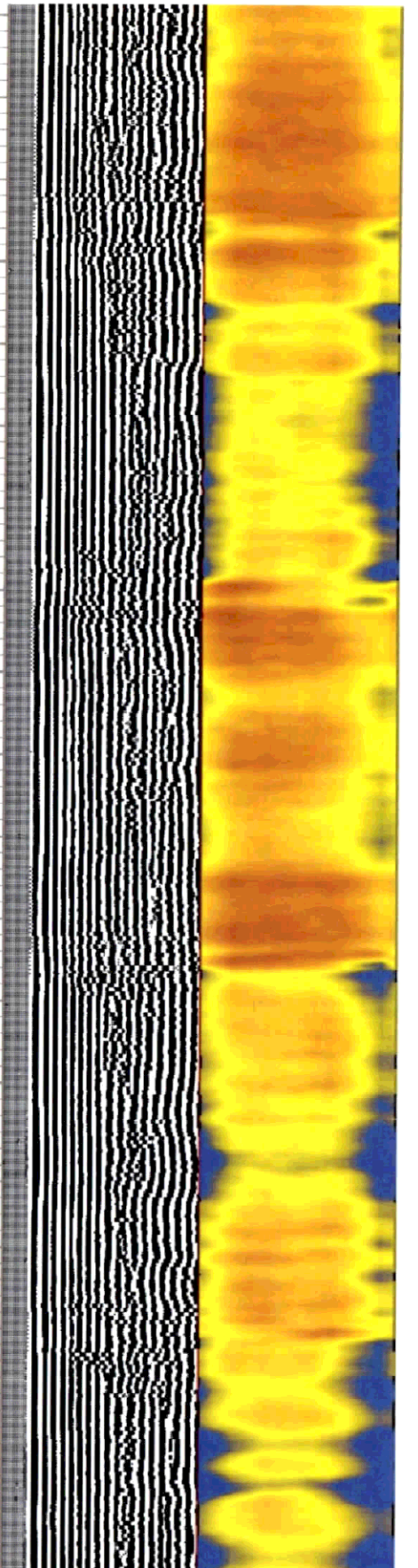
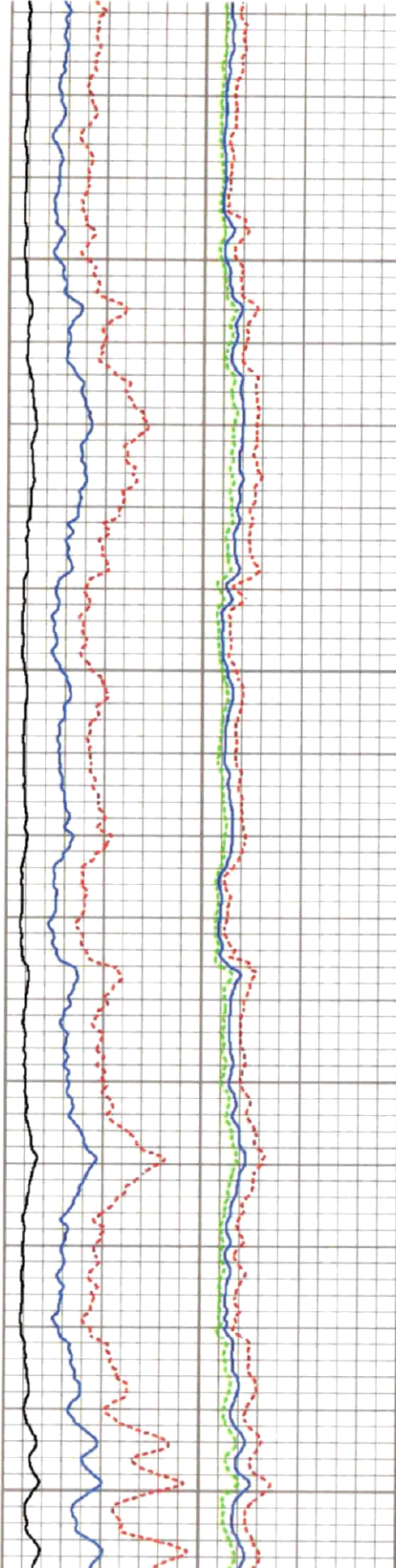


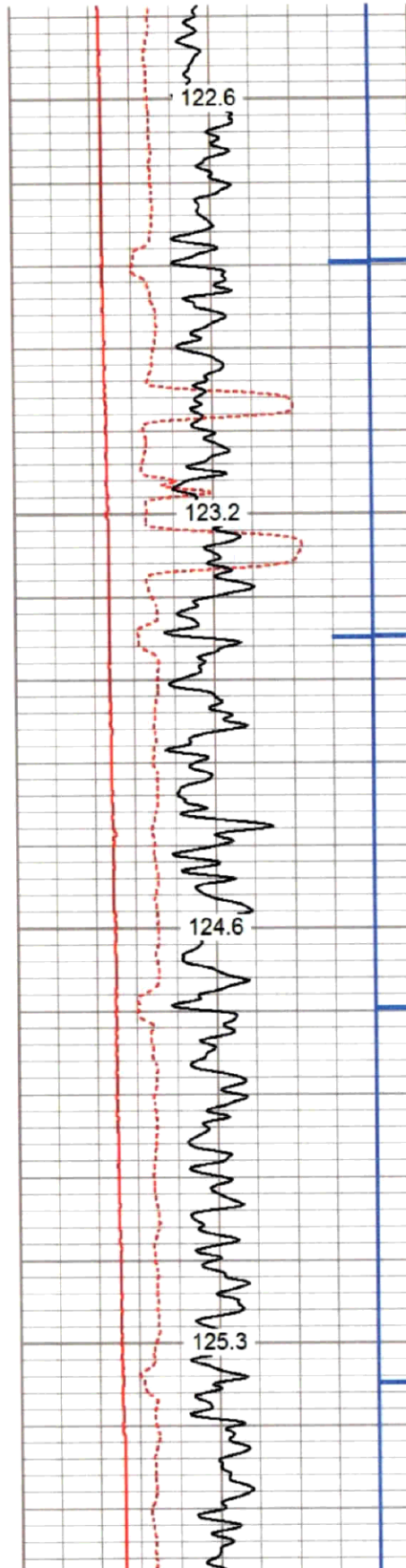
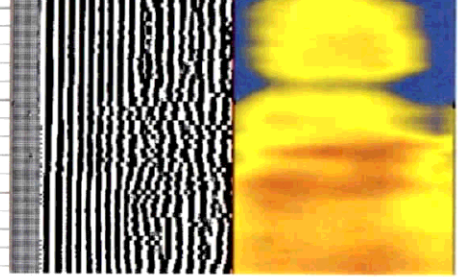
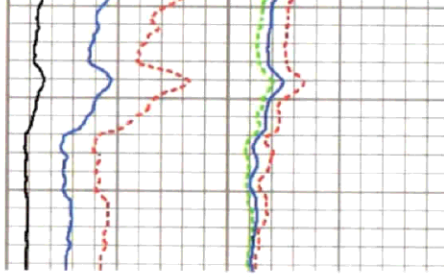
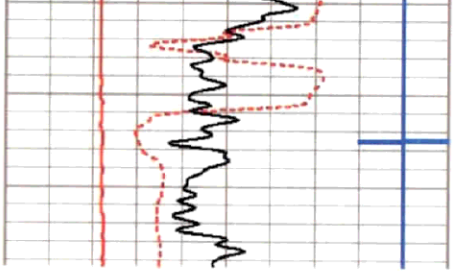
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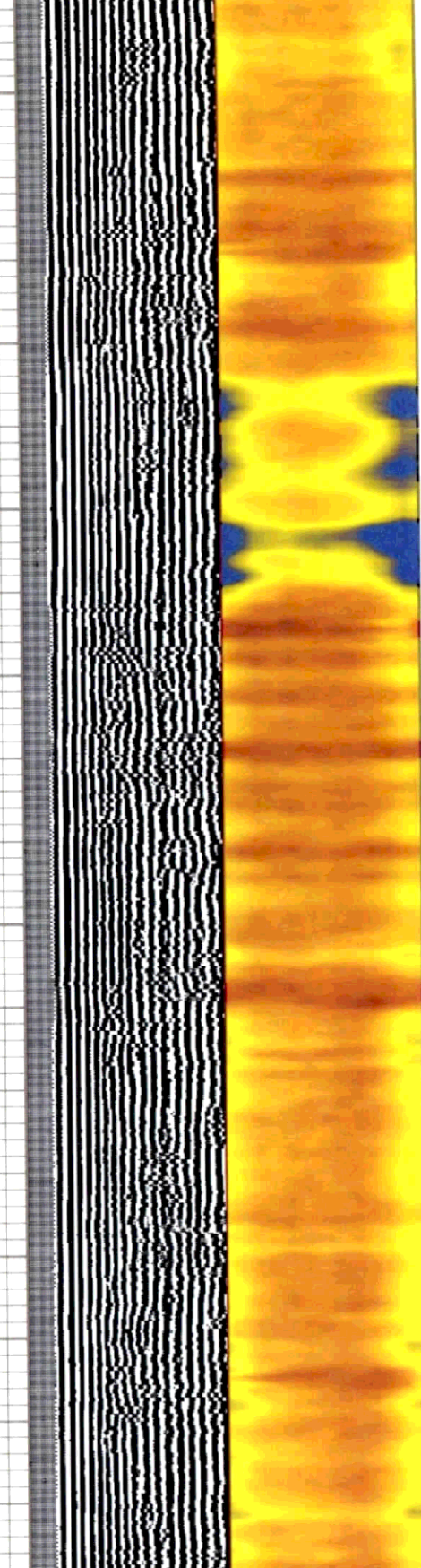
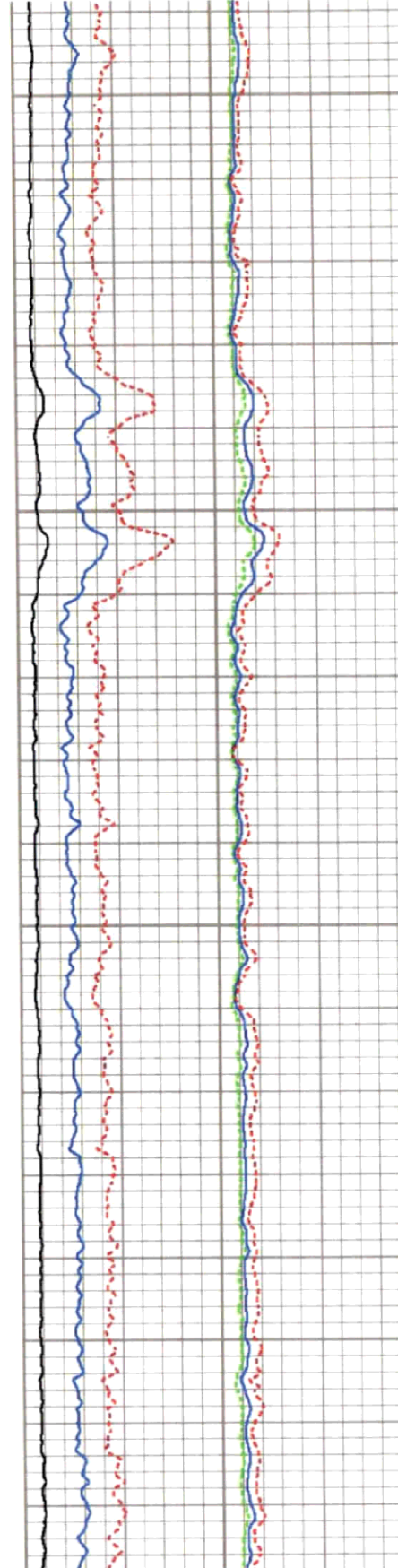


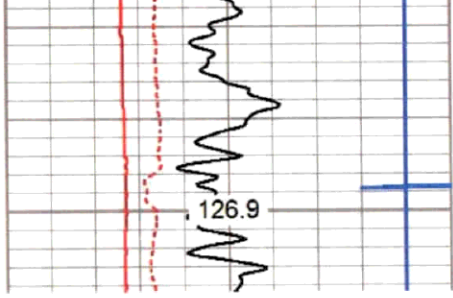
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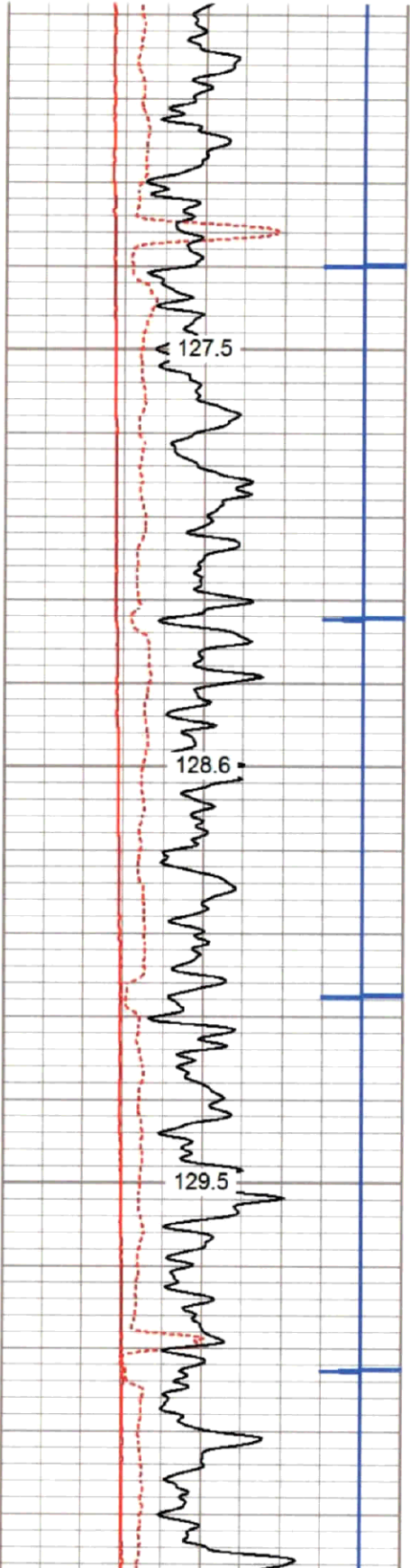
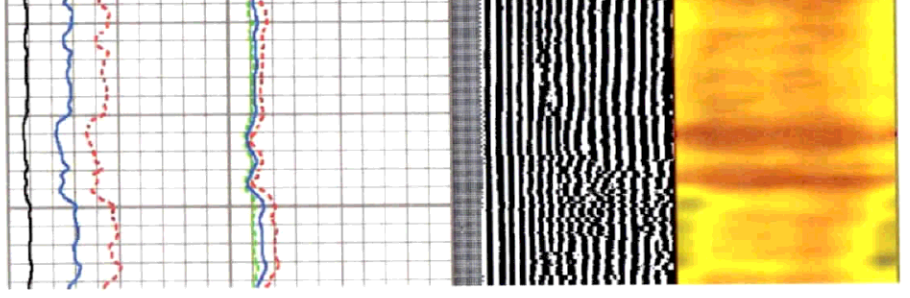
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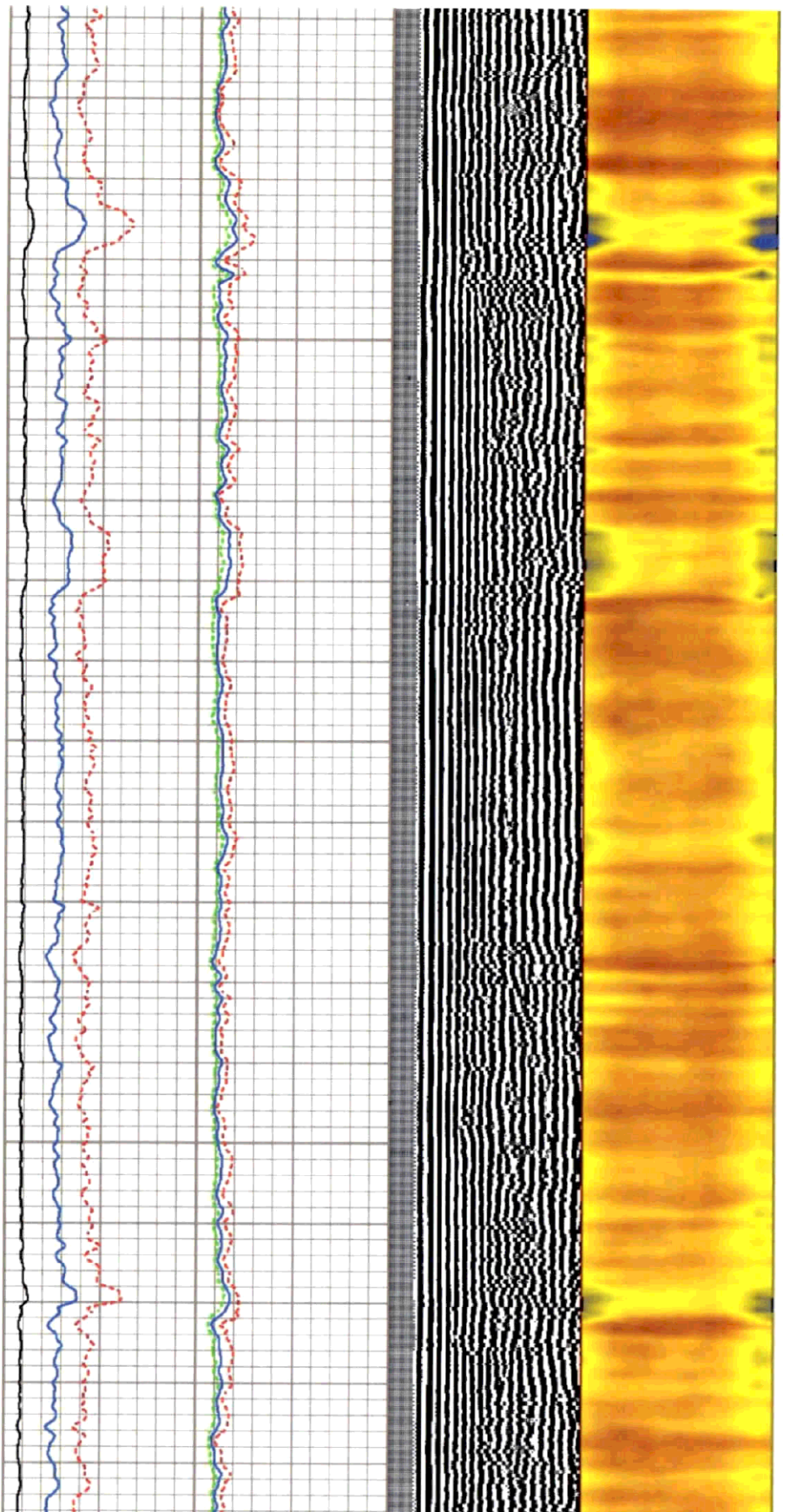
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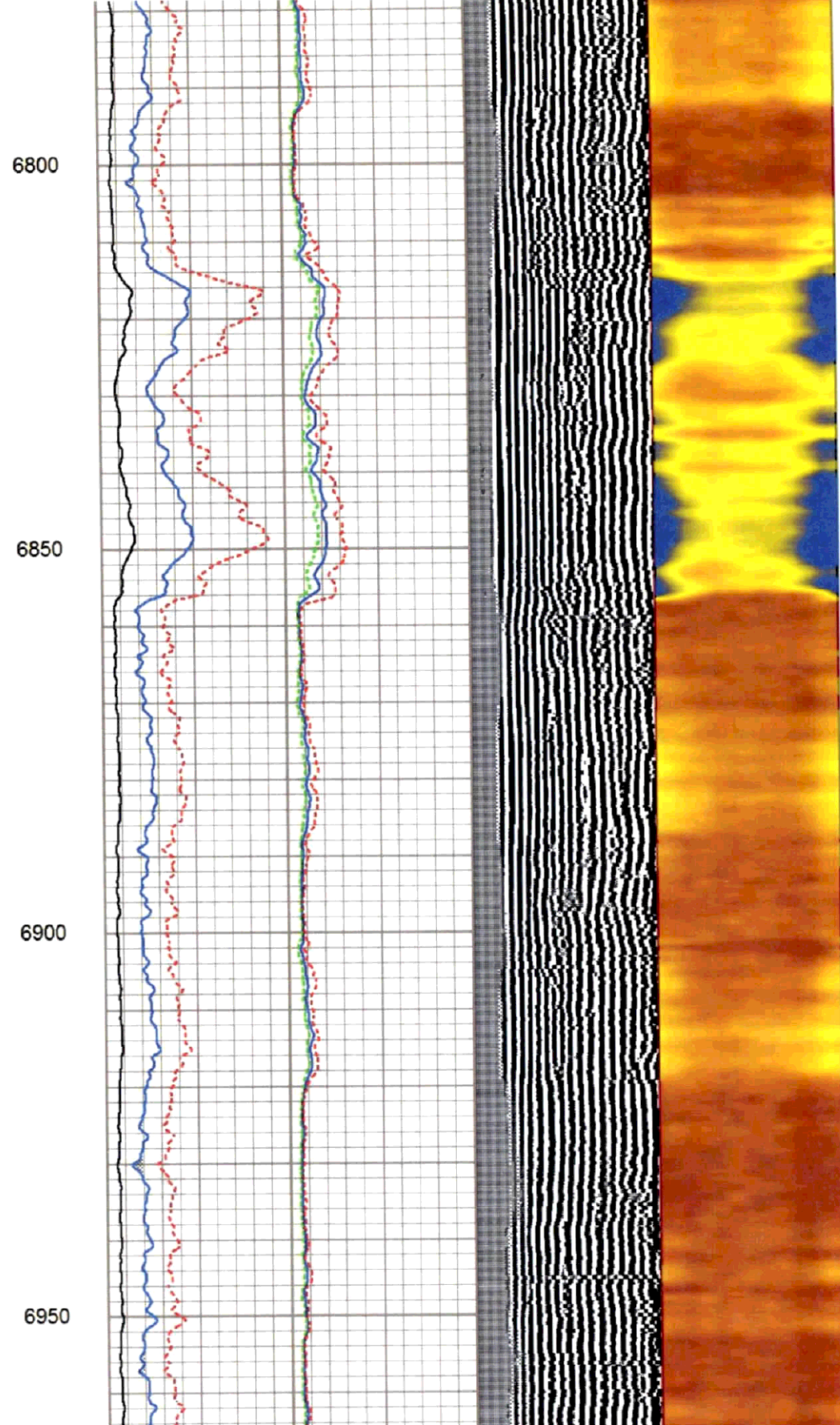
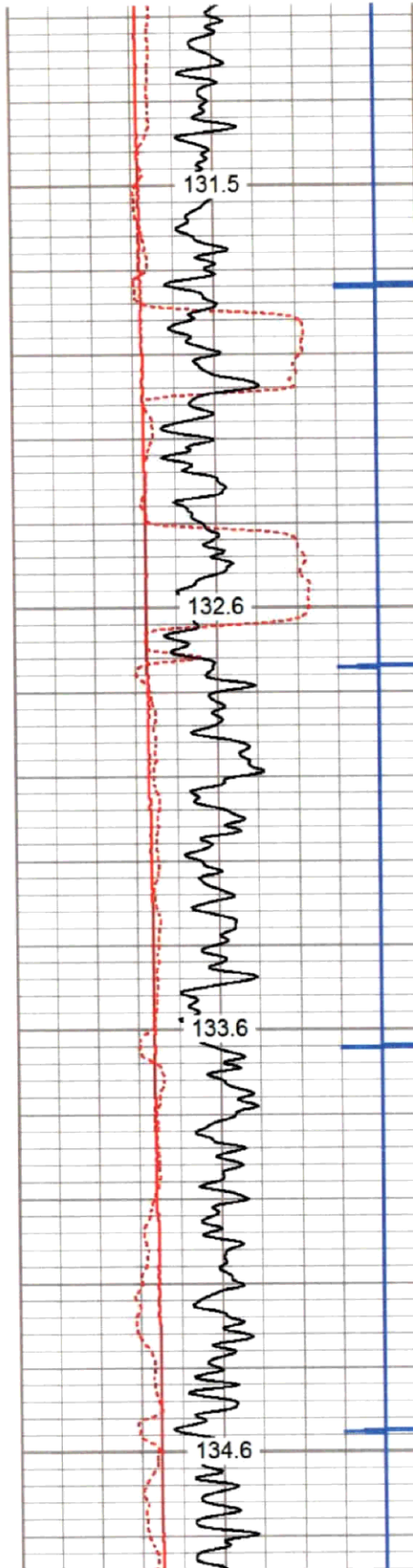
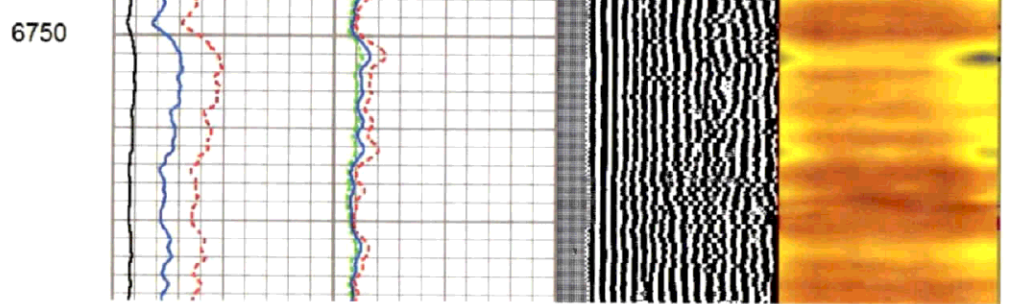
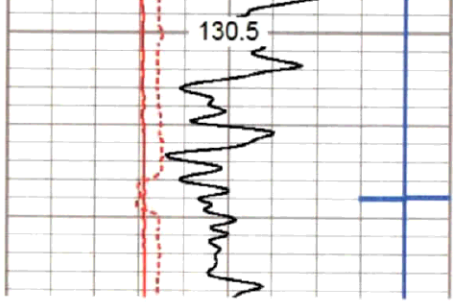


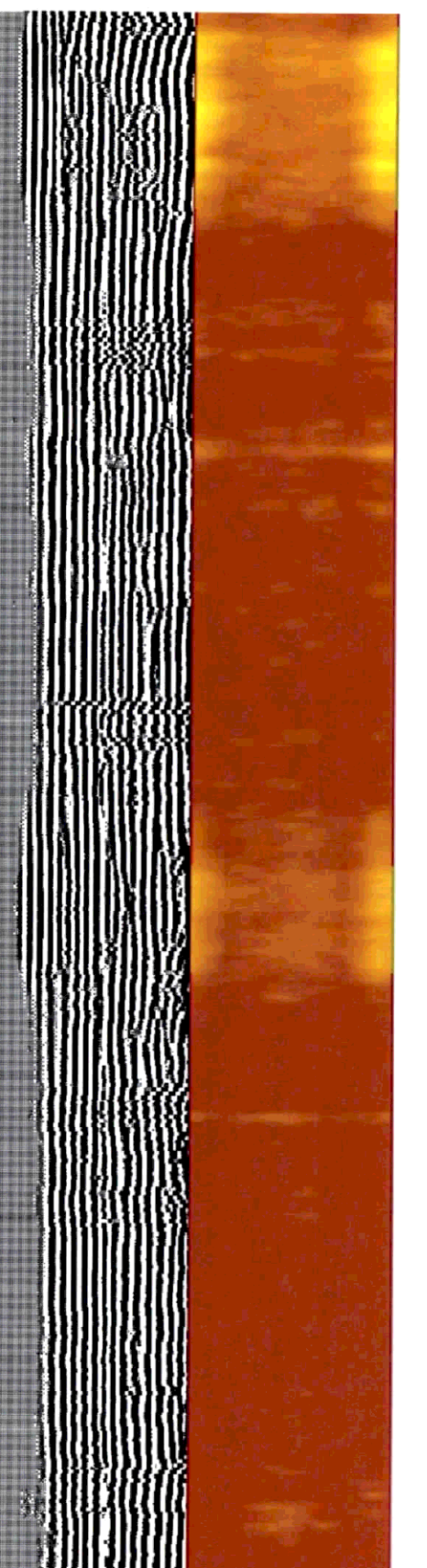
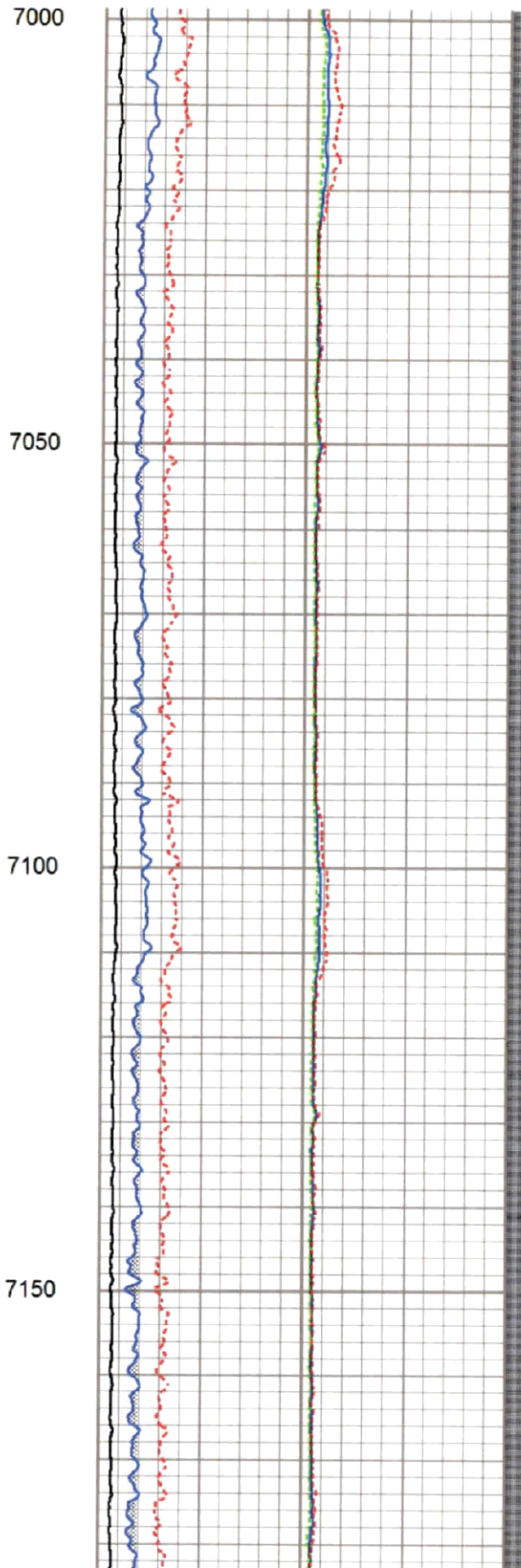
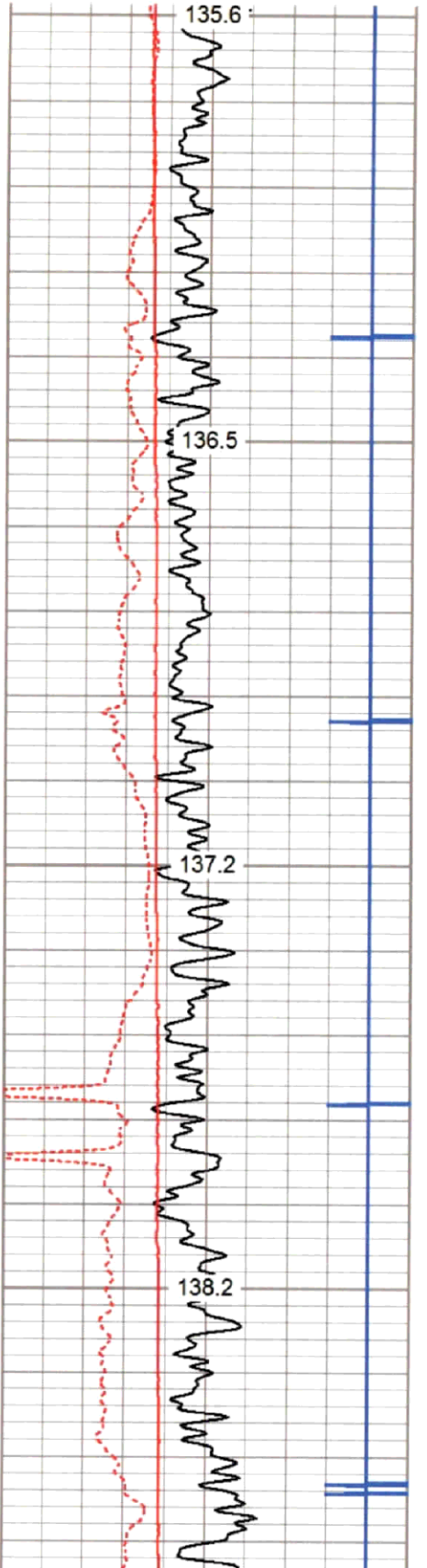
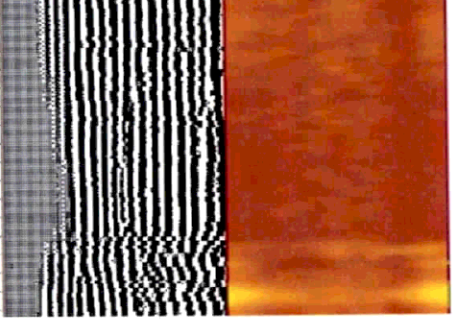
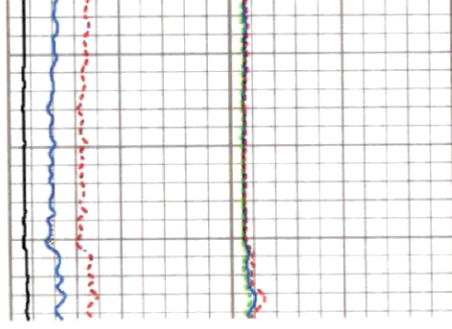
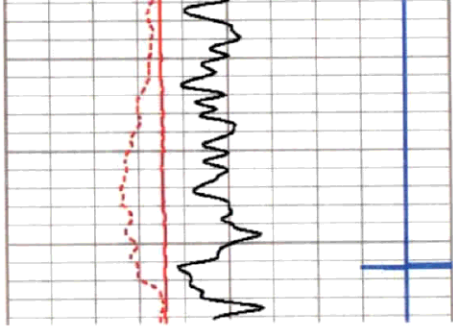
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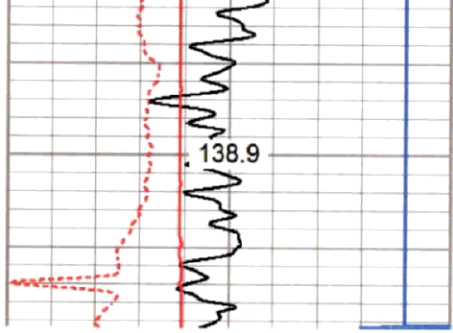
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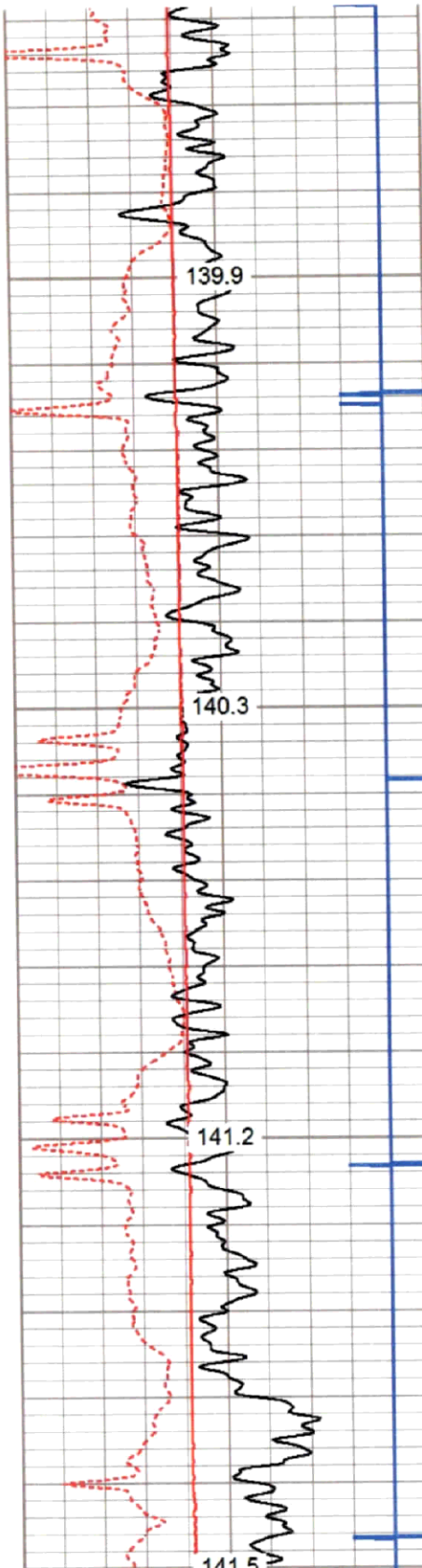
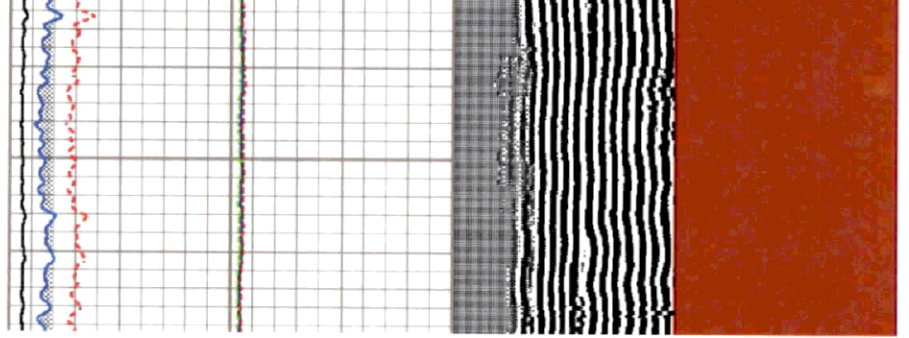








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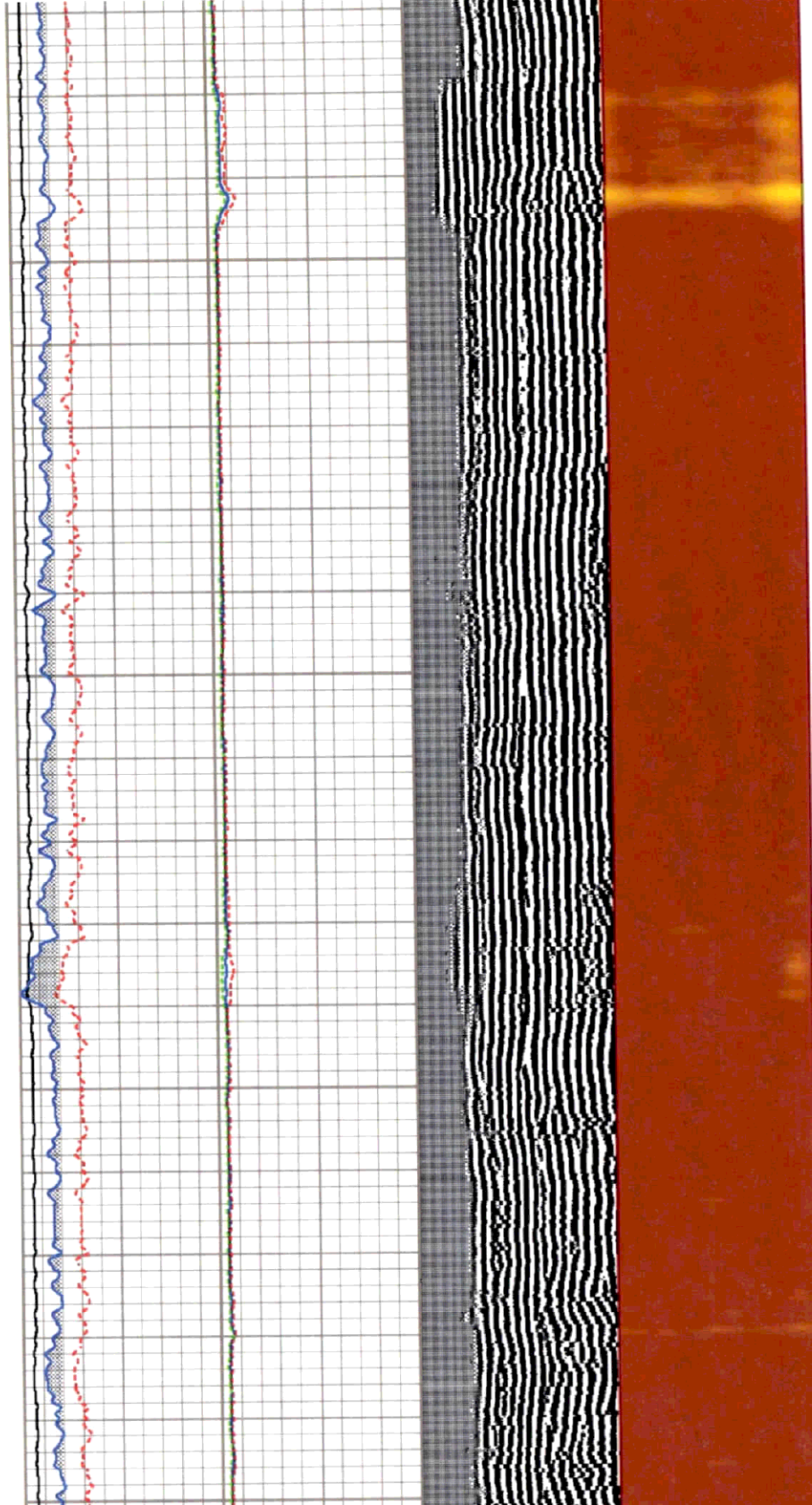


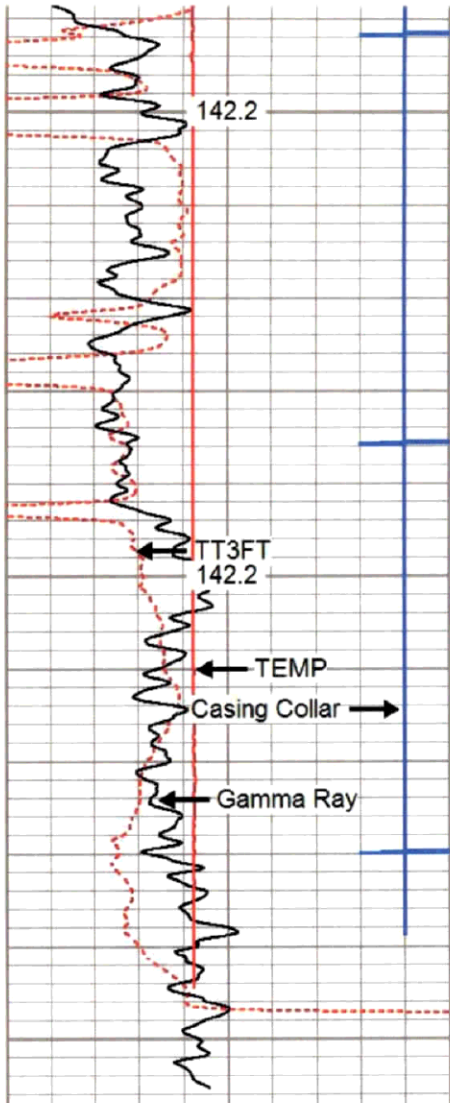
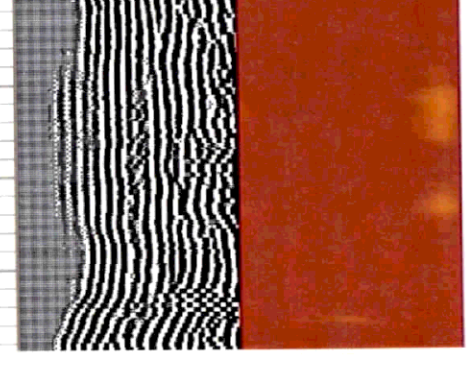
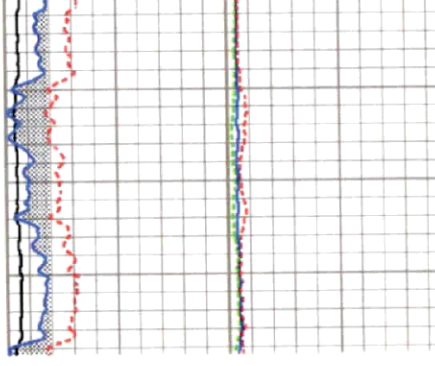
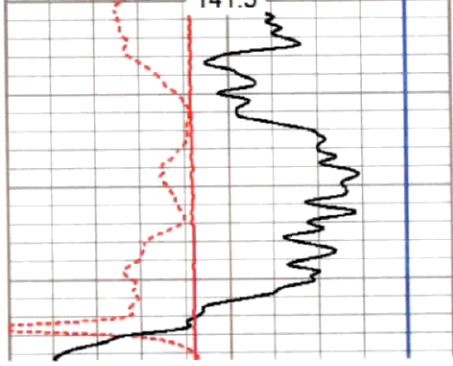
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7300

7350

7400

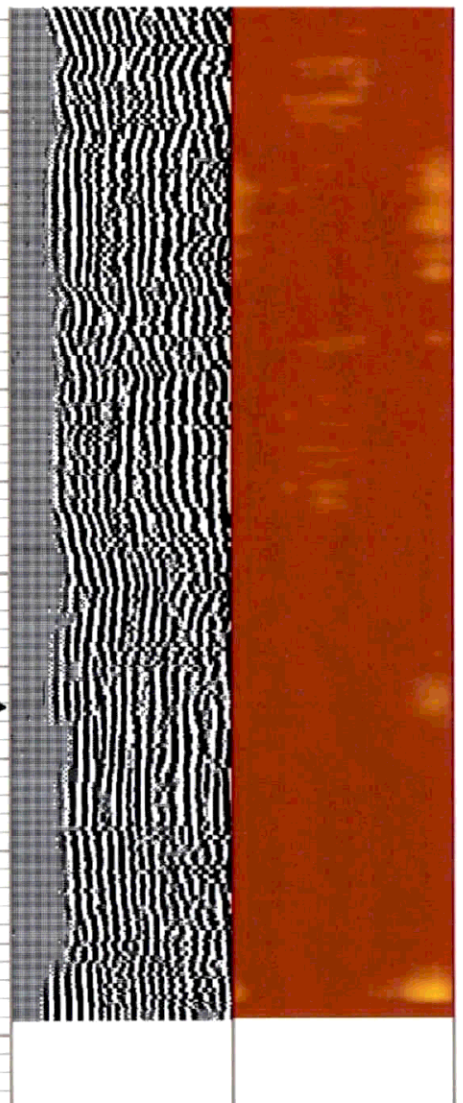
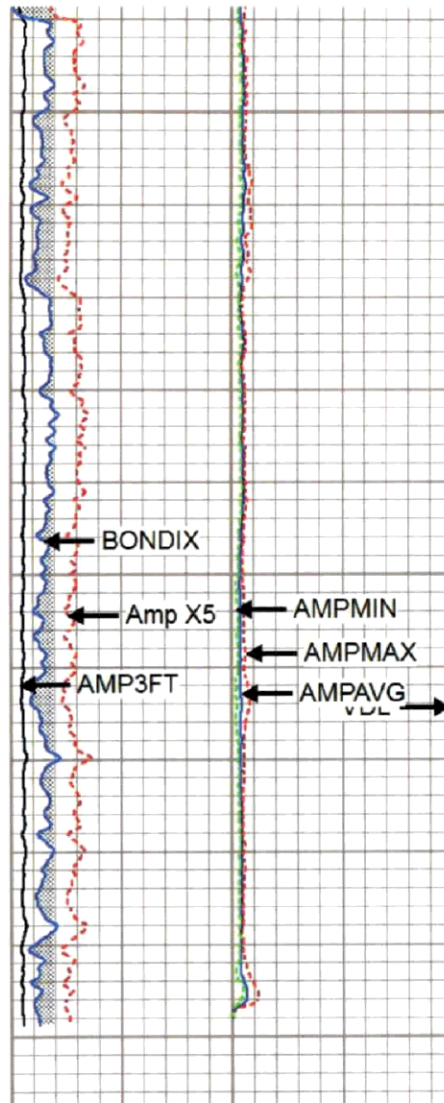




7450

7500

7550

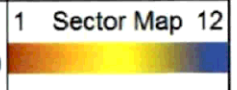


| | | |
|-----|--------------------|-----|
| 280 | Travel Time (usec) | 180 |
| 9 | Casing Collar | -1 |
| 0 | Gamma Ray (GAPI) | 180 |
| 0 | TEMP (degF) | 100 |
| 180 | GR (GAPI) | 360 |

TEMP
(degF)

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

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



Database File e:\antero 10-23-19\schrader1h.db
 Dataset Pathname pass3.2
 Presentation Format antero1
 Dataset Creation Fri Oct 25 17:45:25 2019
 Charted by Depth in Feet scaled 1:240

| | | |
|-----|--------------------|-----|
| 280 | Travel Time (usec) | 180 |
|-----|--------------------|-----|

| | |
|-----------|----------------|
| Amplitude | Sector Amp AVG |
|-----------|----------------|

| | |
|-----|-----------------|
| VDL | 1 Sector Map 12 |
|-----|-----------------|

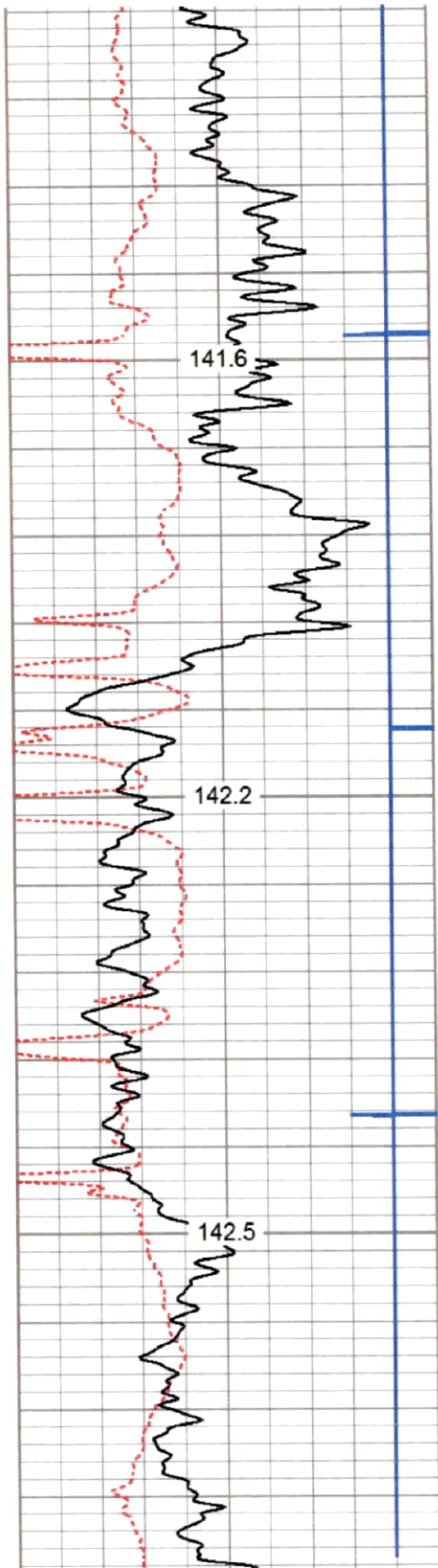
| | | |
|-----|--------------------|-----|
| 280 | Travel Time (usec) | 180 |
| 9 | Casing Collar | -1 |
| 0 | Gamma Ray (GAPI) | 180 |
| 0 | TEMP (degF) | 100 |
| 180 | GR (GAPI) | 360 |

| | | |
|---|-----------|-----|
| 0 | Amplitude | 100 |
| 0 | (mV) | 20 |
| 1 | BONDIX | 0 |

| | |
|----------------|-----------------|
| Sector Amp AVG | VDL |
| Sector Amp MAX | 200 (usec) 1200 |
| Sector Amp MIN | |

Sector map 12

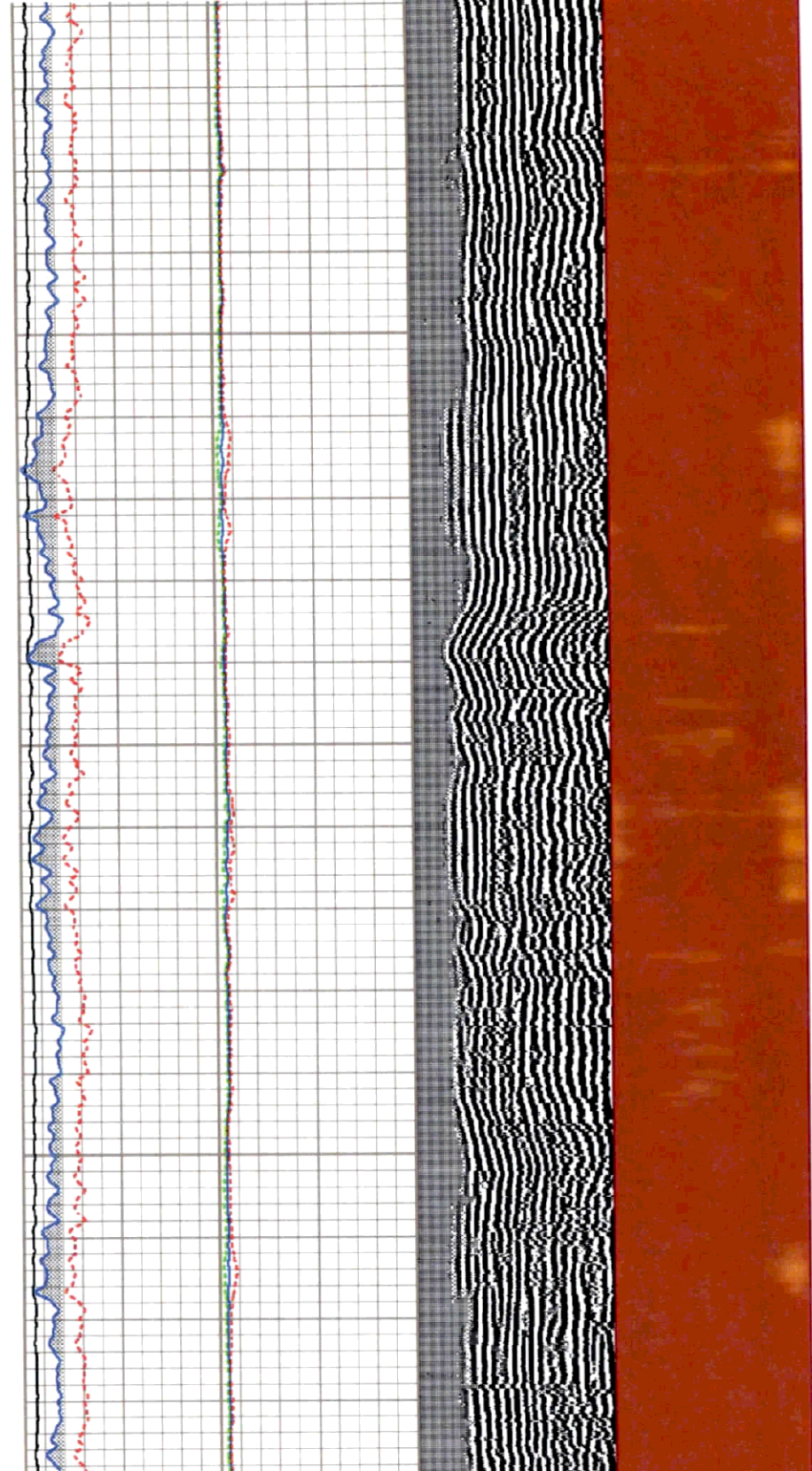
TEMP
(degF)

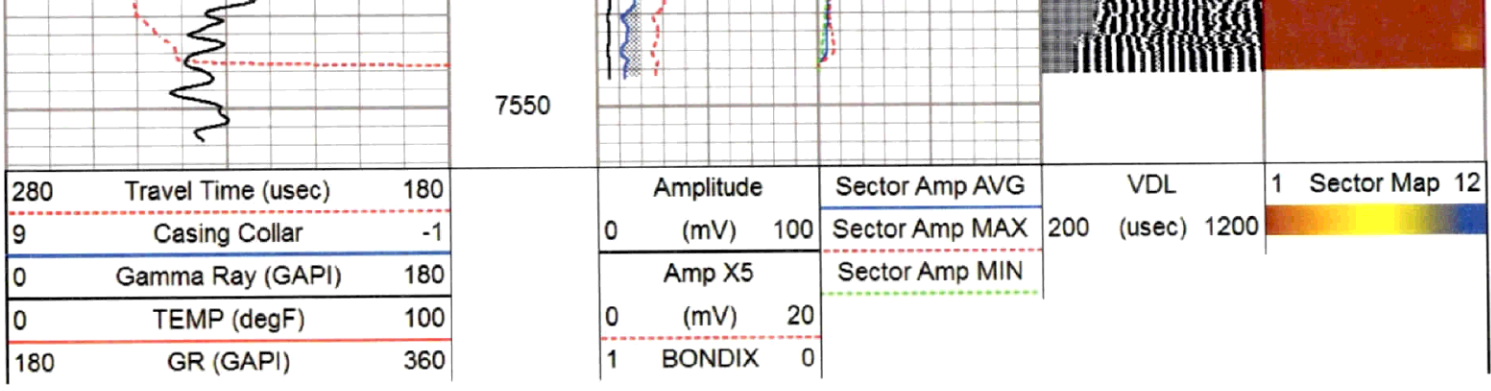


7400

7450

7500





| |
|-------------|
| TEMP (degF) |
|-------------|

Log Variables

Database: E:\ANTERO 10-23-19\schrader1h.db
 Dataset: field/well/run1/pass4/_vars_

Top - Bottom

| | | | | | | |
|------------|--------------|-------------|-------------|-----------|-------------|------------|
| BHTEMP_Src | BOREID | BOTTEMP | CASEOD | CASETHCK | CASEWGHT | MAXAMPL |
| TEMP | in 7.875 | degF 100 | in 5.5 | in 0 | lb/ft 20 | mV 71.9 |
| MINAMPL | MINATTN | PERFS | PPT | SRFTEMP | TDEPTH | |
| mV 1 | 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: E:\ANTERO 10-23-19\schrader1h.db
 Dataset Pathname: pass4
 Dataset Creation: Thu Oct 24 09:57:41 2019

Gamma Ray Calibration Report

Serial Number: 0111
 Tool Model: Tek-Co 2 3/4
 Performed: Thu Oct 24 08:41:06 2019
 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 08:32:44 2019:

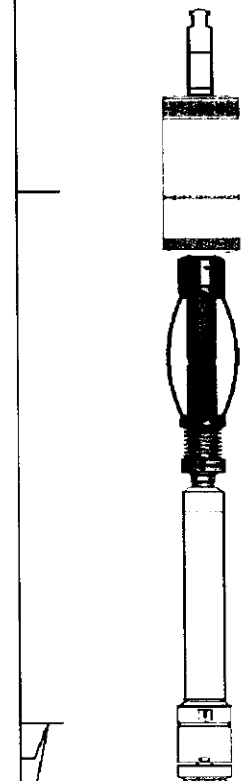
| | Raw (v) | | Calibrated (mv) | | Results | |
|-----|---------|-------|-----------------|---------|---------|--------|
| | Zero | Cal | Zero | Cal | Gain | Offset |
| 3' | -0.006 | 0.919 | 3.500 | 71.921 | 73.945 | 3.947 |
| CAL | 0.630 | 0.627 | | | | |
| 5' | -0.001 | 1.035 | 3.500 | 71.921 | 66.097 | 3.537 |
| SUM | | | | | | |
| S1 | 0.000 | 1.103 | 0.000 | 100.000 | 90.623 | -0.001 |
| S2 | 0.000 | 1.088 | 0.000 | 100.000 | 91.893 | -0.001 |

| | | | | | | |
|-----|-------|-------|-------|---------|---------|--------|
| S3 | 0.000 | 1.122 | 0.000 | 100.000 | 89.105 | -0.001 |
| S4 | 0.000 | 1.089 | 0.000 | 100.000 | 91.833 | -0.001 |
| S5 | 0.000 | 1.045 | 0.000 | 100.000 | 95.695 | -0.001 |
| S6 | 0.000 | 0.965 | 0.000 | 100.000 | 103.660 | -0.001 |
| S7 | 0.000 | 0.897 | 0.000 | 100.000 | 111.452 | -0.001 |
| S8 | 0.000 | 0.821 | 0.000 | 100.000 | 121.859 | -0.001 |
| S9 | 0.000 | 0.802 | 0.000 | 100.000 | 124.691 | -0.001 |
| S10 | 0.000 | 0.932 | 0.000 | 100.000 | 107.249 | -0.001 |
| S11 | 0.000 | 1.003 | 0.000 | 100.000 | 99.726 | -0.001 |
| S12 | 0.000 | 1.091 | 0.000 | 100.000 | 91.674 | -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) |
|---------|-------------|---|--|-------------|-----------|-------------|
| | |  | Titan-1 4375 1 7/16 Titan Type II Cable Head | 1.03 | 1.44 | 5.00 |
| CCL | 19.28 | | CCL-450tekco (450) Tekco 4 1/2" 450 Deg. "F" SmCo Logging CCL | 1.87 | 4.50 | 80.00 |
| | | | 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 | | SCBL-Tek12 (T12_01) Tekco 400 Deg F 12 Sector RIB with Temp | 9.13 | 3.25 | 135.00 |
| WVFS11 | 11.75 | | | | | |
| WVFS10 | 11.75 | | | | | |
| 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 | | Tek-2.75 2 3/4" Tekco Adjustable Centralizer | 2.73 | 2.75 | 25.00 |
| WVF3FT | 11.00 | | | | | |
| WVF5FT | 10.00 | | | | | |
| WVFTEMP | 6.67 | | | | | |
| GR | 1.31 | GR-Tek-Co 2 3/4 (0111) Tekco 2 3/4" 400 Deg. F Logging Gamma Ray | 3.67 | 2.75 | 40.00 | |
| | | Titan-1.4375_Cap Titan 1 7/16" Cap | 0.27 | 1.44 | 1.00 | |

Dataset: schrader1h.db: field/well/run1/pass4
 Total length: 21.42 ft
 Total weight: 311.00 lb
 O.D.: 4.50 in



Company ANTERO RESOURCES
 Well SCHRADER UNIT 1H
 Field MARCELLUS
 County DODDRIDGE
 State W.VA.

Country USA

