



MIDWEST WIRELINE

DUAL INDUCTION  
LOG

|                                                                                    |                                                |                                                                                    |                      |
|------------------------------------------------------------------------------------|------------------------------------------------|------------------------------------------------------------------------------------|----------------------|
| Company TDI, Inc.<br>Well Jerome #2<br>Field Ruder<br>County Ellis<br>State Kansas |                                                | Company TDI, Inc.<br>Well Jerome #2<br>Field Ruder<br>County Ellis<br>State Kansas |                      |
| Location: API #: 15-051-27036-00-00<br>330 FSL & 1035 FEL<br>SEC 7 TWP 15S RGE 18W |                                                | Other Services<br>CNL/CDL<br>MEL                                                   |                      |
| Permanent Datum<br>Log Measured From<br>Drilling Measured From                     | Ground Level<br>Kelly Bushing<br>Kelly Bushing | Elevation<br>2026<br>2036<br>2026                                                  | K.B.<br>D.F.<br>G.L. |
| Date                                                                               | 10/4/2022                                      |                                                                                    |                      |
| Run Number                                                                         | One                                            |                                                                                    |                      |
| Depth Driller                                                                      | 3730                                           |                                                                                    |                      |
| Depth Logger                                                                       | 3730                                           |                                                                                    |                      |
| Bottom Logged Interval                                                             | 3729                                           |                                                                                    |                      |
| Top Log Interval                                                                   | 200                                            |                                                                                    |                      |
| Casing Driller                                                                     | 8.625 @ 225                                    |                                                                                    |                      |
| Casing Logger                                                                      | 224                                            |                                                                                    |                      |
| Bit Size                                                                           | 7.875                                          |                                                                                    |                      |
| Type Fluid in Hole                                                                 | Chemical                                       |                                                                                    |                      |
| Salinity, ppm CL                                                                   | 4600                                           |                                                                                    |                      |
| Density / Viscosity                                                                | 9.2 58                                         |                                                                                    |                      |
| pH / Fluid Loss                                                                    | 11.0 5.8                                       |                                                                                    |                      |
| Source of Sample                                                                   | Flowline                                       |                                                                                    |                      |
| Rm @ Meas. Temp                                                                    | 0.50 @ 84                                      |                                                                                    |                      |
| Rmt @ Meas. Temp                                                                   | 0.38 @ 84                                      |                                                                                    |                      |
| Rmc @ Meas. Temp                                                                   | 0.68 @ 84                                      |                                                                                    |                      |
| Source of Rmt / Rmc                                                                | Charts                                         |                                                                                    |                      |
| Rm @ BHT                                                                           | 0.37 @ 113                                     |                                                                                    |                      |
| Operating Rig Time                                                                 | 3 Hours                                        |                                                                                    |                      |
| Max Rec. Temp. F                                                                   | 113                                            |                                                                                    |                      |
| Equipment Number                                                                   | P-24                                           |                                                                                    |                      |
| Location                                                                           | Hays                                           |                                                                                    |                      |
| Recorded By                                                                        | D. Schmidt                                     |                                                                                    |                      |
| Witnessed By                                                                       | Tom Denning                                    | Herb Deines                                                                        |                      |

<<< Fold Here >>>

All interpretations are opinions based on inferences from electrical or other measurements and Midwest Wireline LLC cannot and does not guarantee the accuracy or correctness of any interpretation, and Midwest Wireline 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.

Hays,  
South to Norfolk Rd, 1 1/8 West,  
North into

Log Measured From: Kelly Bushing

Ft. Above Permanent Datum

THANK YOU FOR USING MIDWEST WIRELINE LLC

785-625-3858

|                            |           |                                  |                                |
|----------------------------|-----------|----------------------------------|--------------------------------|
| Your Midwest Wireline Crew |           | This Log Record Was Witnessed By |                                |
| Engineer: D. Schmidt       | Operator: | Primary Witness: Tom Denning     | Secondary Witness: Herb Deines |
| Operator:                  | Operator: | Secondary Witness:               | Secondary Witness:             |

| Sensor             | Offset (ft)             | Schematic                                                                         |           | Description      | Length (ft)                                | O.D. (in) | Weight (lb) |
|--------------------|-------------------------|-----------------------------------------------------------------------------------|-----------|------------------|--------------------------------------------|-----------|-------------|
| GR                 | 40.33                   |  |           | GR-M&W (106)     | 3.00                                       | 3.50      | 50.00       |
| CNLSC<br>CNSSC     | 37.23<br>36.48          |                                                                                   |           | CNT-M&W (207-MW) | 5.00                                       | 3.50      | 100.00      |
| LSD<br>DCAL<br>SSD | 28.18<br>28.17<br>27.68 |                                                                                   |           | CDL-M&W (307-11) | 8.50                                       | 4.00      | 250.00      |
| MCAL<br>MI<br>MN   | 19.58<br>19.58<br>19.58 |                                                                                   |           | ML-PSIML (401)   | 7.58                                       | 4.00      | 65.00       |
| RLL3F<br>RLL3      | 15.50<br>15.50          |                                                                                   |           |                  |                                            |           |             |
| CILD               | 8.33                    |                                                                                   |           | DIL-M&W (501 HT) | 18.25                                      | 3.50      | 220.00      |
| CILM               | 4.50                    |                                                                                   |           |                  |                                            |           |             |
| SP                 | 0.20                    |                                                                                   |           |                  |                                            |           |             |
|                    |                         |                                                                                   |           | Dataset:         | tdi_jerome 2.db: field/well/stkml/pass3.16 |           |             |
|                    |                         | Total length:                                                                     | 42.33 ft  |                  |                                            |           |             |
|                    |                         | Total weight:                                                                     | 685.00 lb |                  |                                            |           |             |
|                    |                         | O.D.:                                                                             | 4.00 in   |                  |                                            |           |             |

# Log Variables

DatabaseC:\ProgramData\Warrior\Data\tdi\_jerome 2.db  
Dataset field/well/stkml/pass3.16/\_vars\_

## Top - Bottom

| A         | BOREID      | BOTTEMP     | CASEOD      | CASETHCK  | FLUIDDEN   | M     | MATRXDEN     |
|-----------|-------------|-------------|-------------|-----------|------------|-------|--------------|
| 1         | in<br>7.875 | degF<br>113 | in<br>5.5   | in<br>0   | g/cc<br>1  | 2     | g/cc<br>2.71 |
| NPORSEL   | PERFS       | SNDERR      | SNDERRM     | SPSHIFT   | SRFTEMP    | SZCOR | TDEPTH       |
| Limestone | 0           | mmho/m<br>0 | mmho/m<br>0 | mV<br>173 | degF<br>70 | Off   | ft<br>3730   |

## Variable Description

A : Cement Factor (a)  
BOREID : Borehole I.D.  
BOTTEMP : Bottom Hole Temperature  
CASEOD : Casing O.D.  
CASETHCK : Casing Thickness  
FLUIDDEN : Fluid Density  
M : Cement Exp (m)  
MATRXDEN : Matrix Density

NPORSEL : Neutron Porosity Curve Select  
PERFS : Perforation Flag  
SNDERR : Deep Sonde Error Correction  
SNDERRM : Medium Sonde Error Correction  
SPSHIFT : S.P. Baseline Offset  
SRFTEMP : Surface Temperature  
SZCOR : CN Size Cor. ?  
TDEPTH : Total Depth

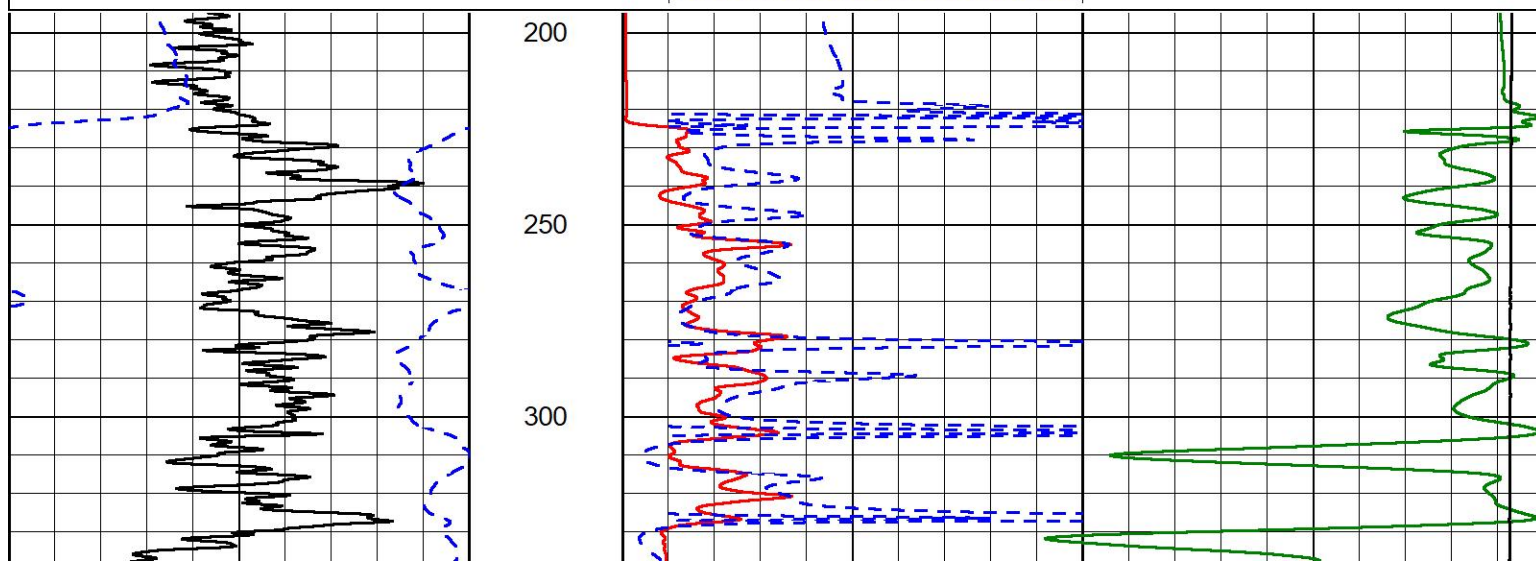


## 2" SCALE RESISTIVITY

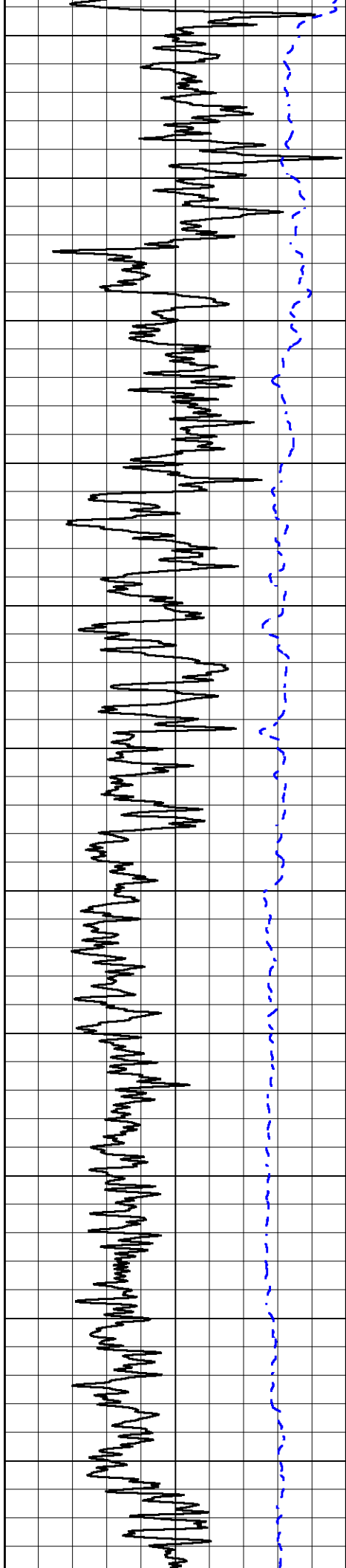
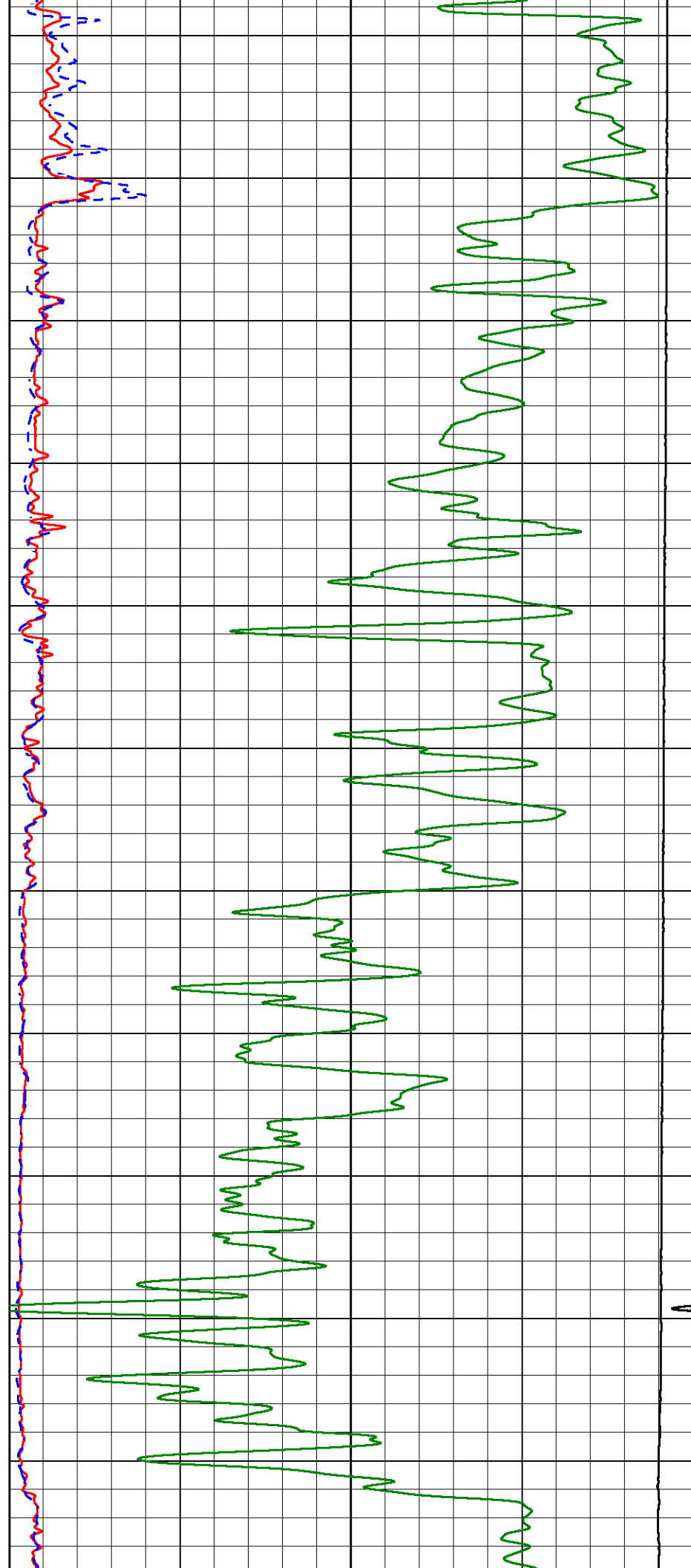
### MAIN PASS

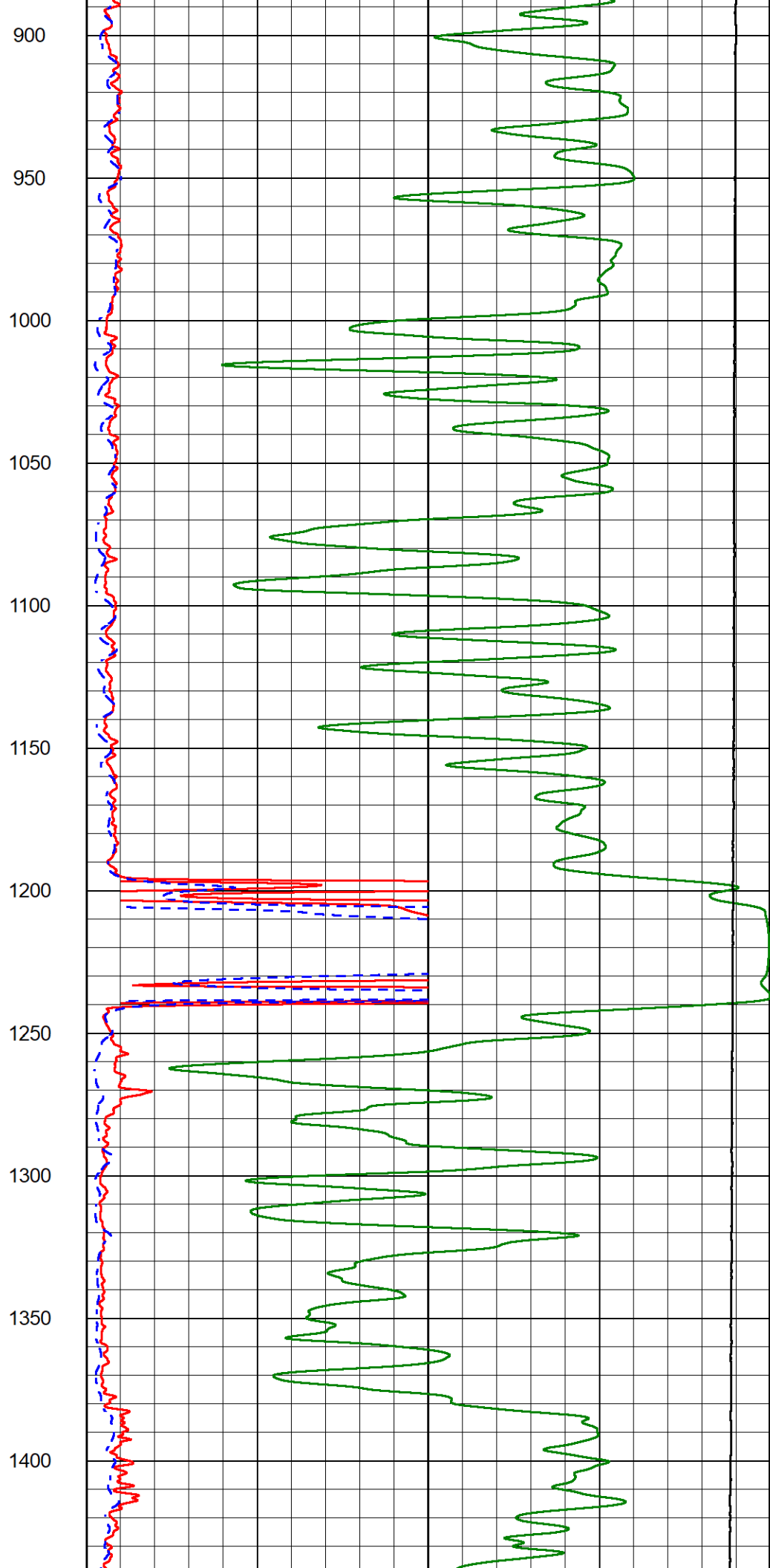
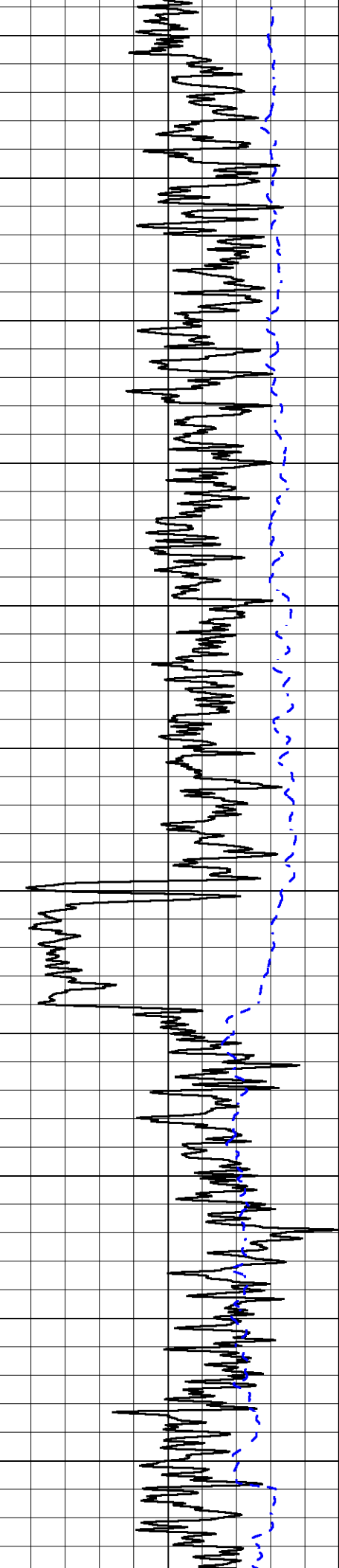
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Dataset Pathname stkml/pass3.3  
Presentation Format \_dil2in  
Dataset Creation Tue Oct 04 22:43:42 2022  
Charted by Depth in Feet scaled 1:600

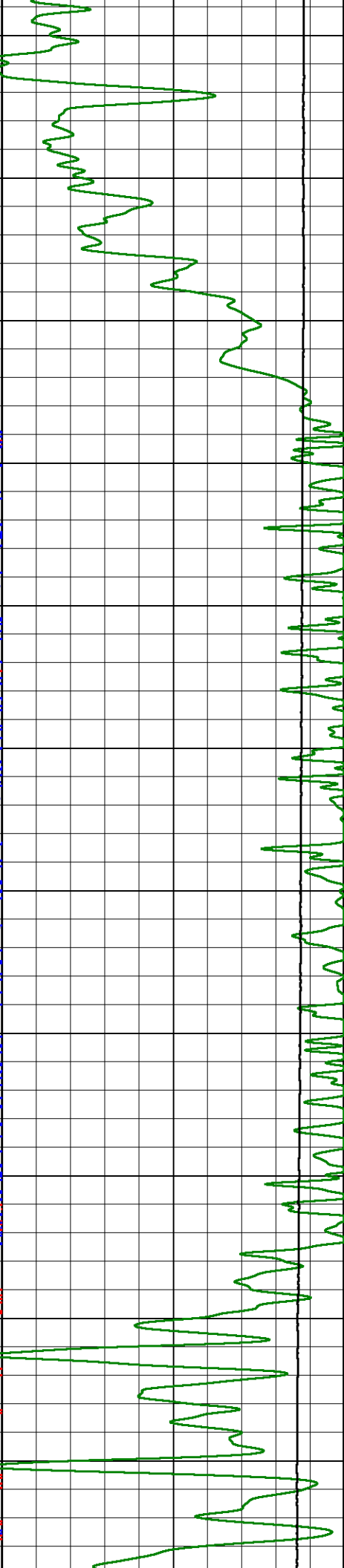
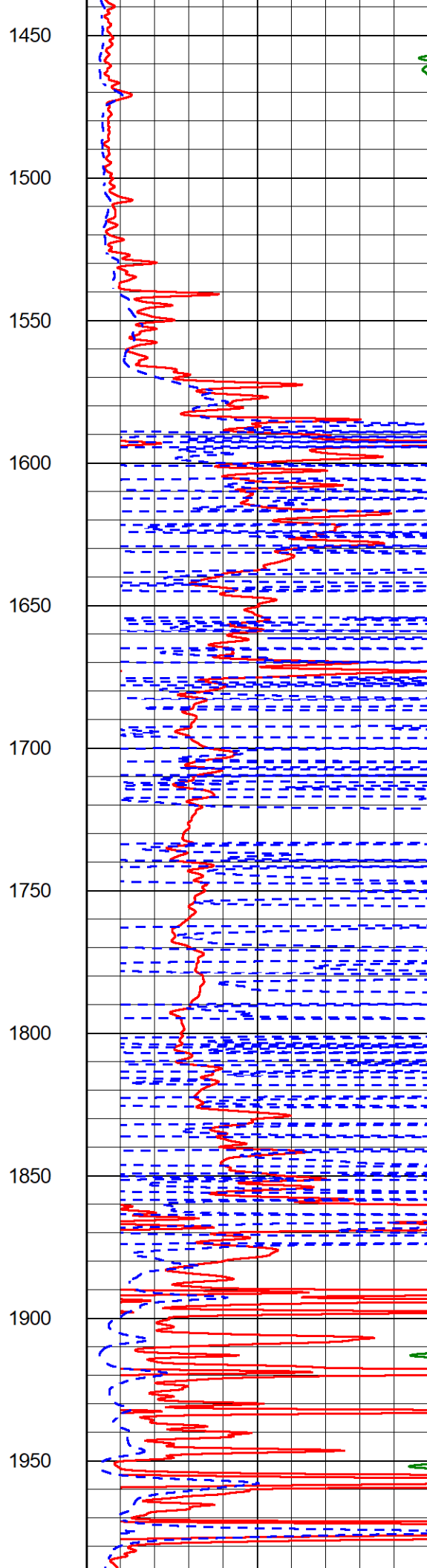
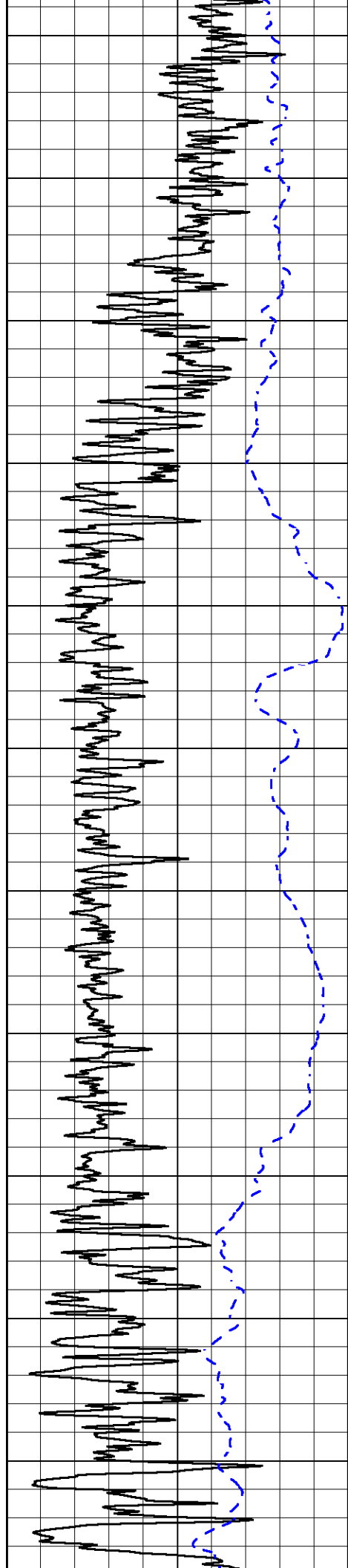
|      |                  |     |                     |                             |     |
|------|------------------|-----|---------------------|-----------------------------|-----|
| 0    | Gamma Ray (GAPI) | 150 | 1000                | Conductivity (mmho/m)       | 0   |
| -200 | SP (mV)          | 0   | 15000               | Line Tension (lb)           | 0   |
|      |                  |     | 0                   | Shallow Resistivity (Ohm-m) | 50  |
|      |                  |     | 0                   | Deep Resistivity (Ohm-m)    | 50  |
|      |                  |     | Shallow Resistivity |                             |     |
|      |                  |     | 50                  | (Ohm-m)                     | 200 |
|      |                  |     | 50                  | Deep Resistivity (Ohm-m)    | 200 |

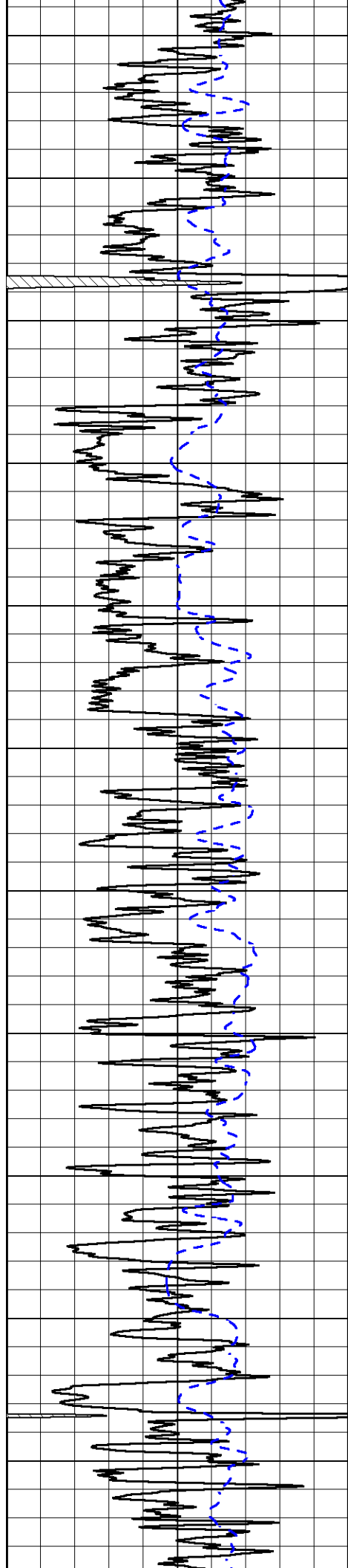


350 400 450 500 550 600 650 700 750 800 850









2000

2050

2100

2150

2200

2250

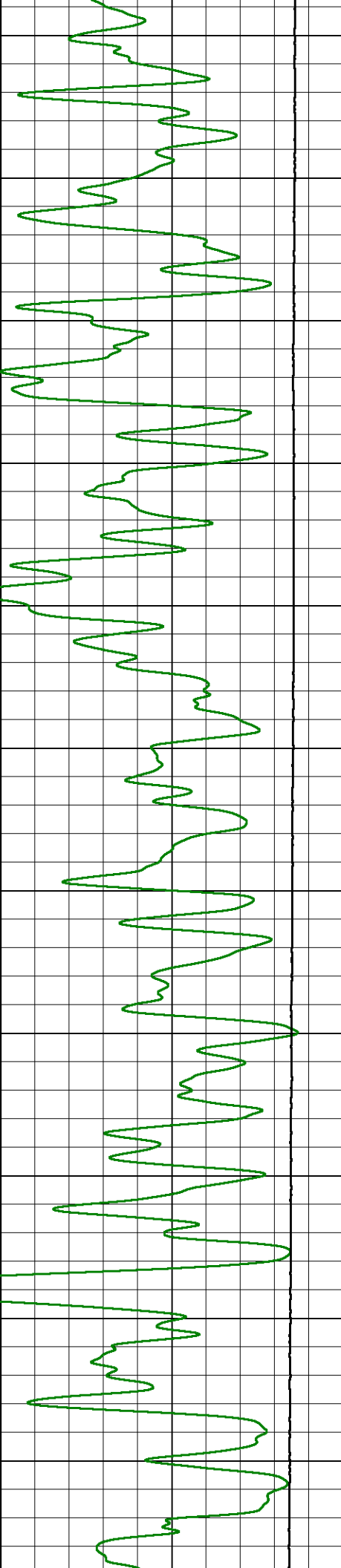
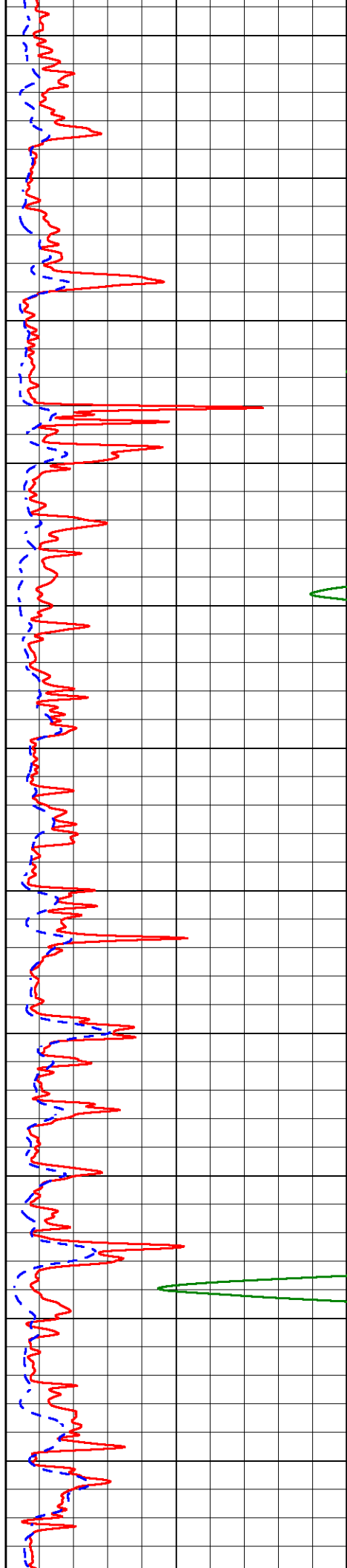
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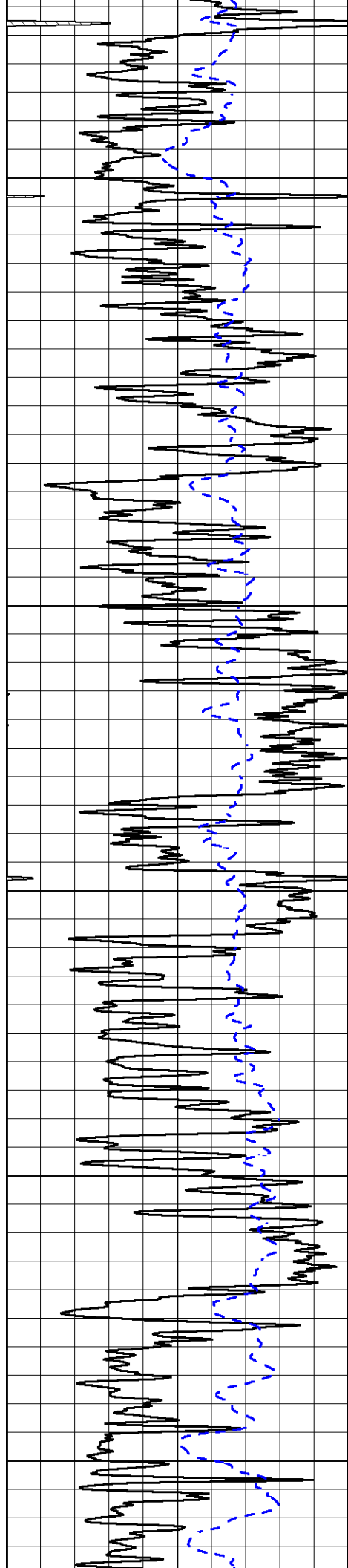
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2400

2450

2500





2550

2600

2650

2700

2750

2800

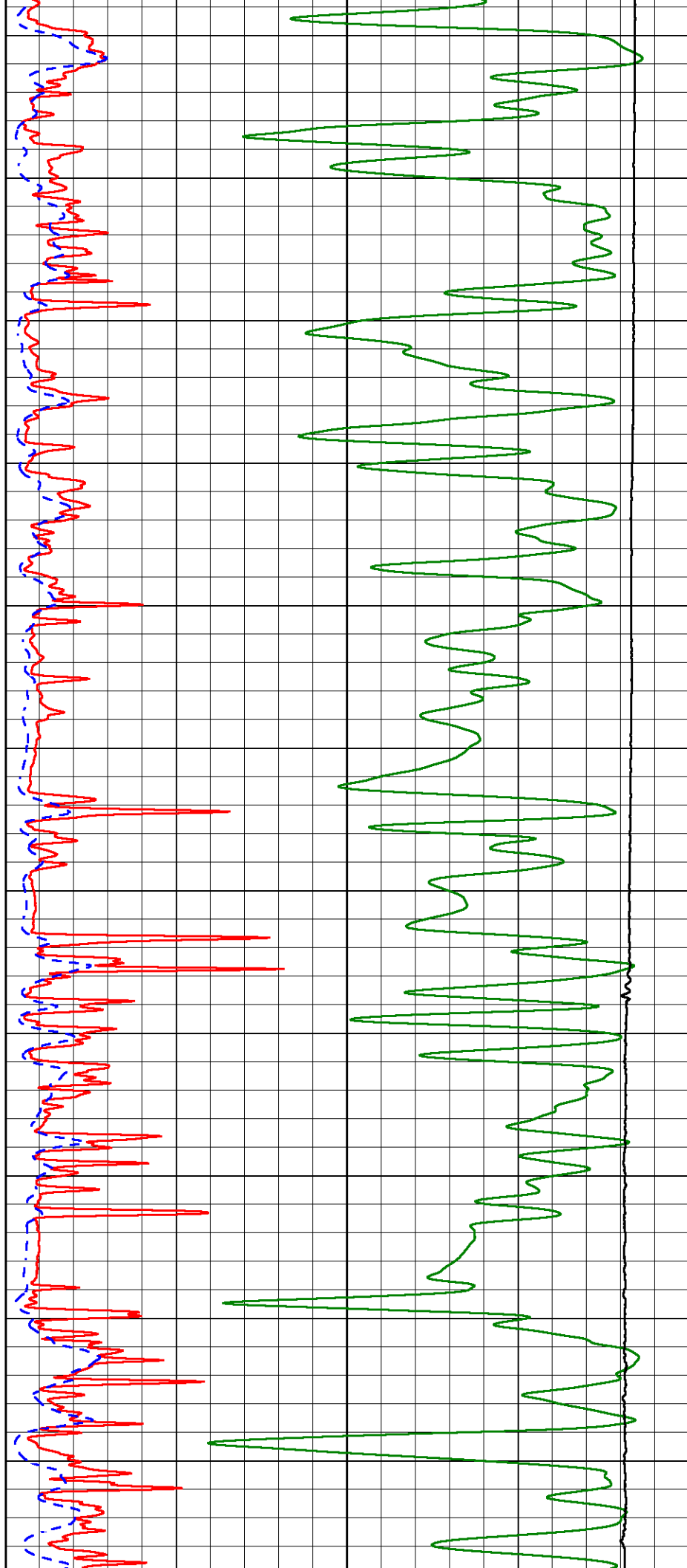
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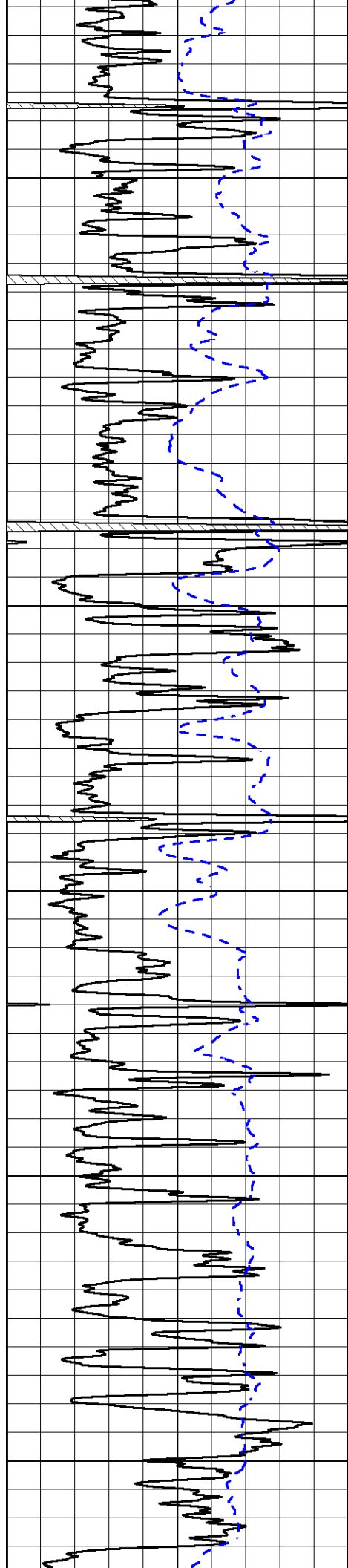
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2950

3000

3050





3100

3150

3200

3250

3300

3350

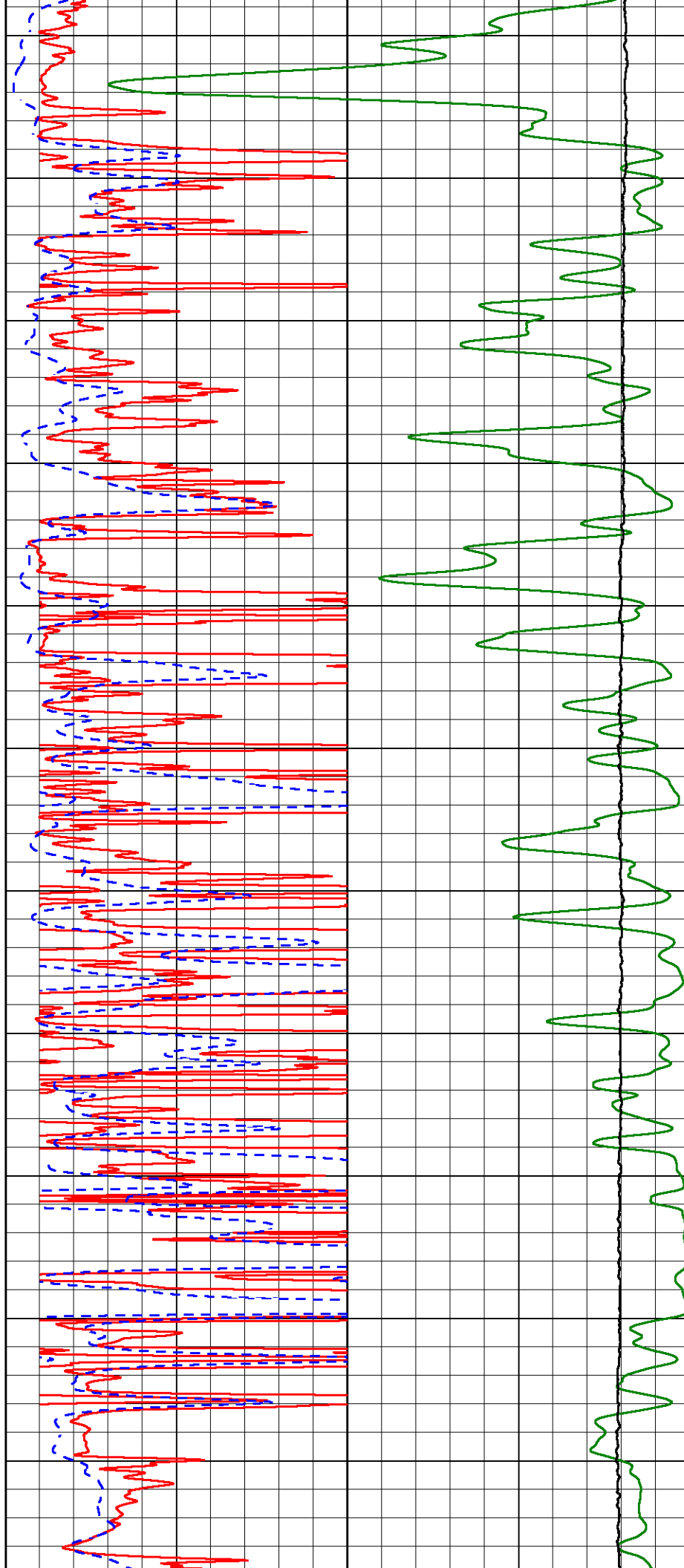
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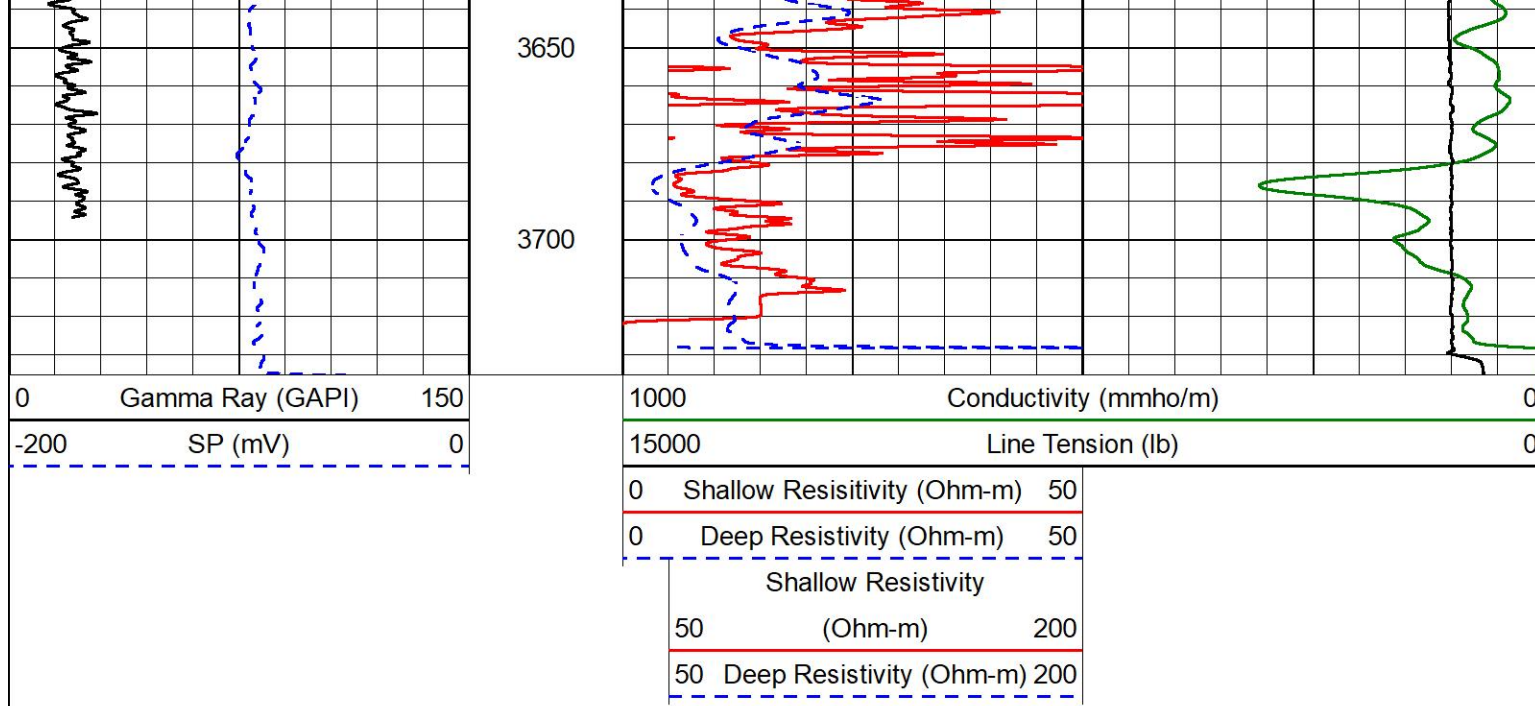
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3500

3550

3600





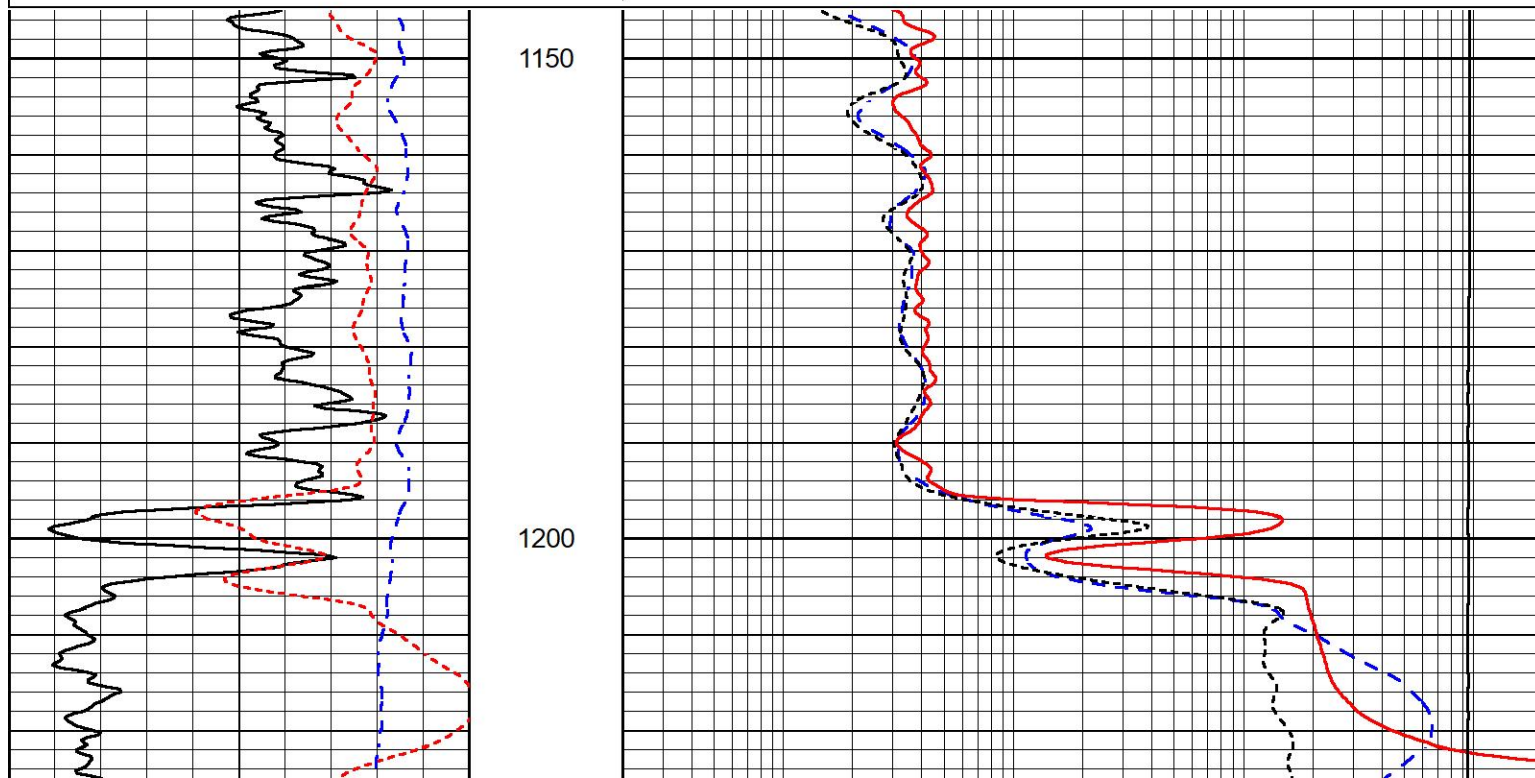
MIDWEST WIRELINE

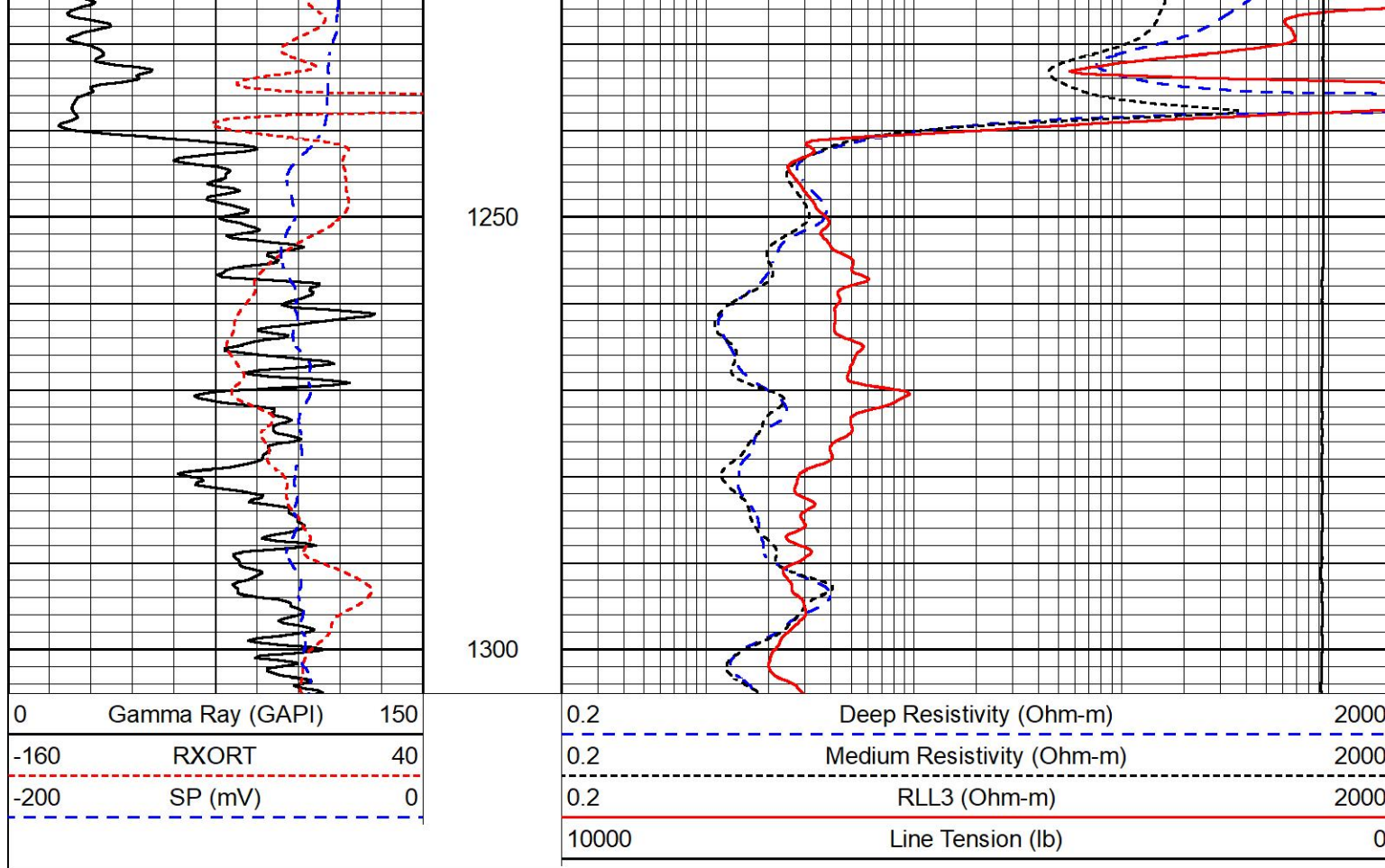
## ANHYDRITE SECTION

### MAIN PASS

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 Dataset Pathname stkml/pass3.4  
 Presentation Format \_dil  
 Dataset Creation Tue Oct 04 22:45:18 2022  
 Charted by Depth in Feet scaled 1:240

|      |                  |     |       |                            |      |
|------|------------------|-----|-------|----------------------------|------|
| 0    | Gamma Ray (GAPI) | 150 | 0.2   | Deep Resistivity (Ohm-m)   | 2000 |
| -160 | RXORT            | 40  | 0.2   | Medium Resistivity (Ohm-m) | 2000 |
| -200 | SP (mV)          | 0   | 0.2   | RLL3 (Ohm-m)               | 2000 |
|      |                  |     | 10000 | Line Tension (lb)          | 0    |

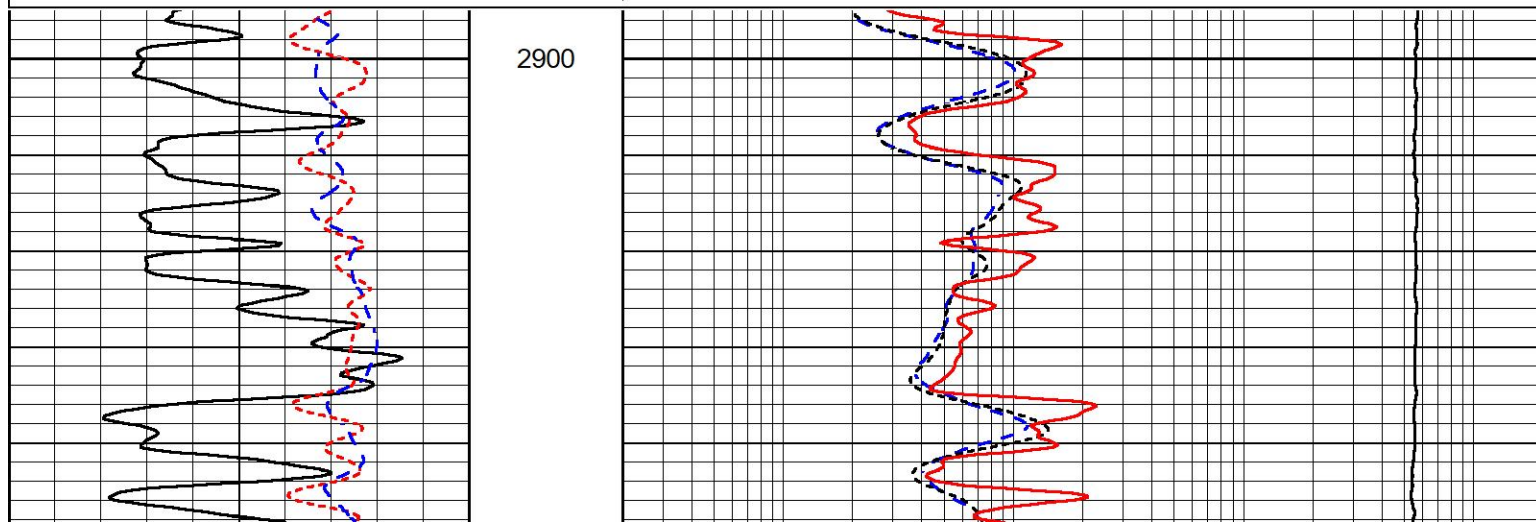
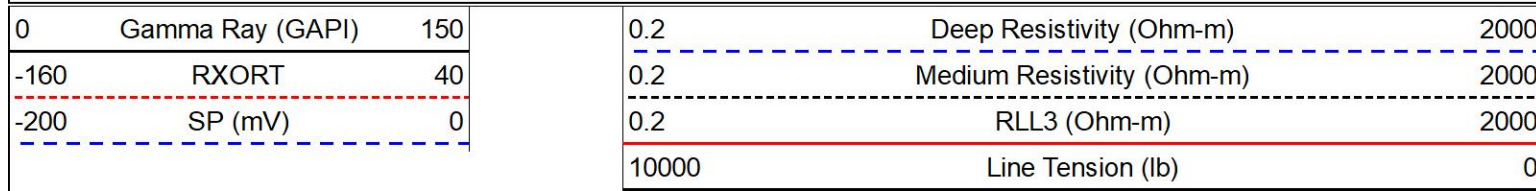


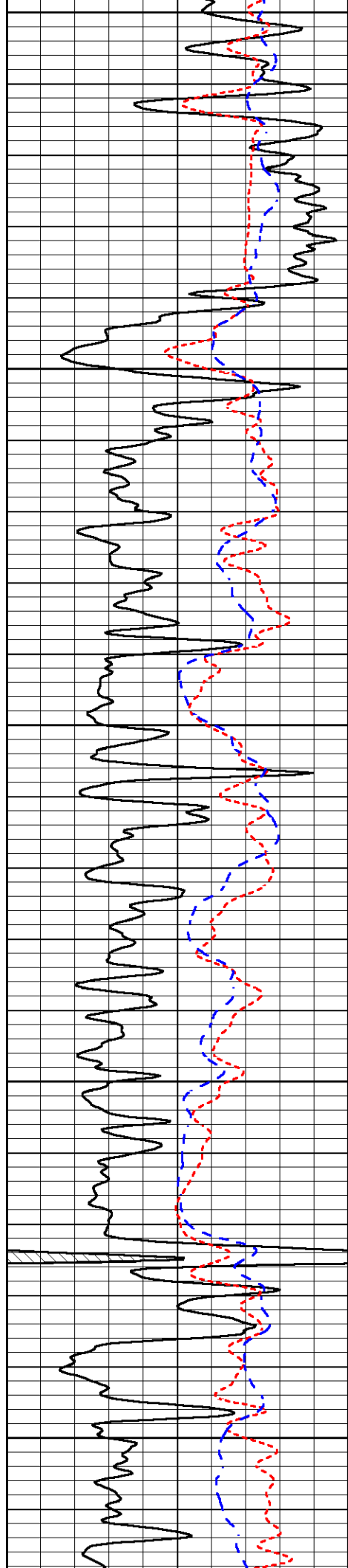


## DETAIL SECTION

### MAIN PASS

Database File tdi\_jerome 2.db  
 Dataset Pathname stkml/pass3.1  
 Presentation Format \_dil  
 Dataset Creation Tue Oct 04 22:43:31 2022  
 Charted by Depth in Feet scaled 1:240





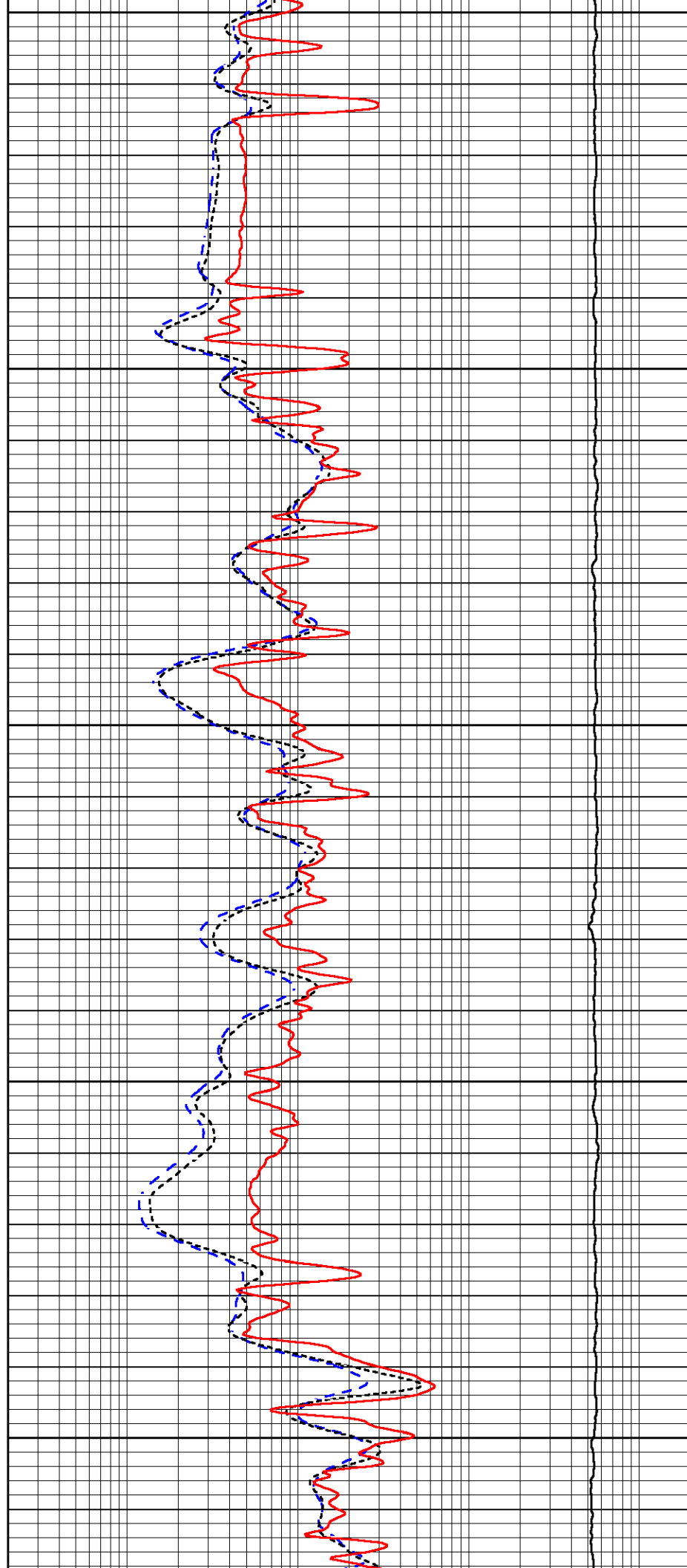
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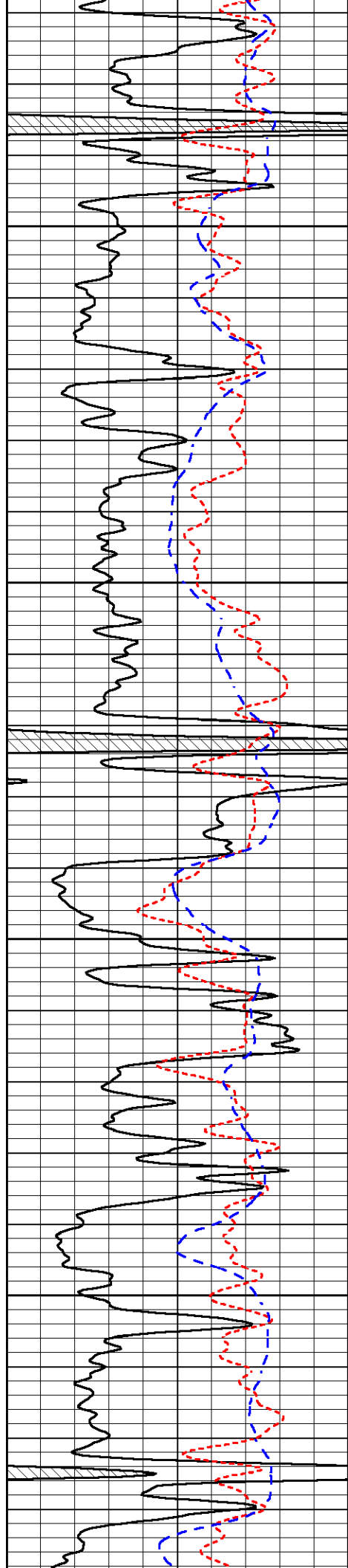
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3050

3100

3150



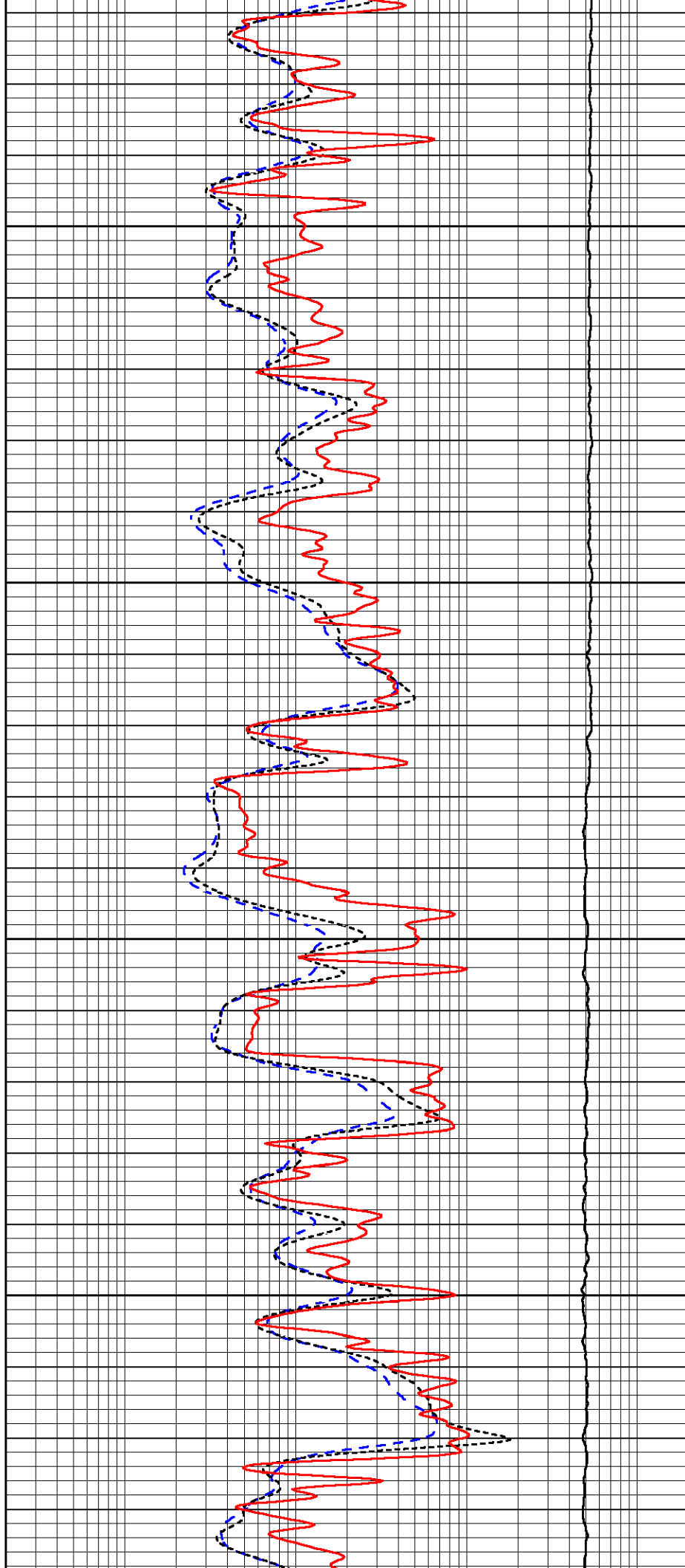


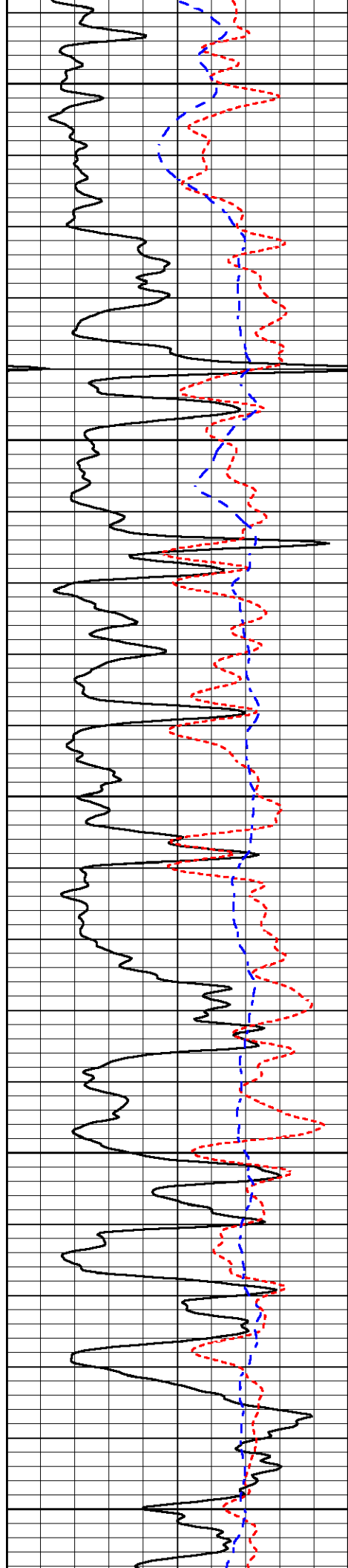
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3250

3300

3350





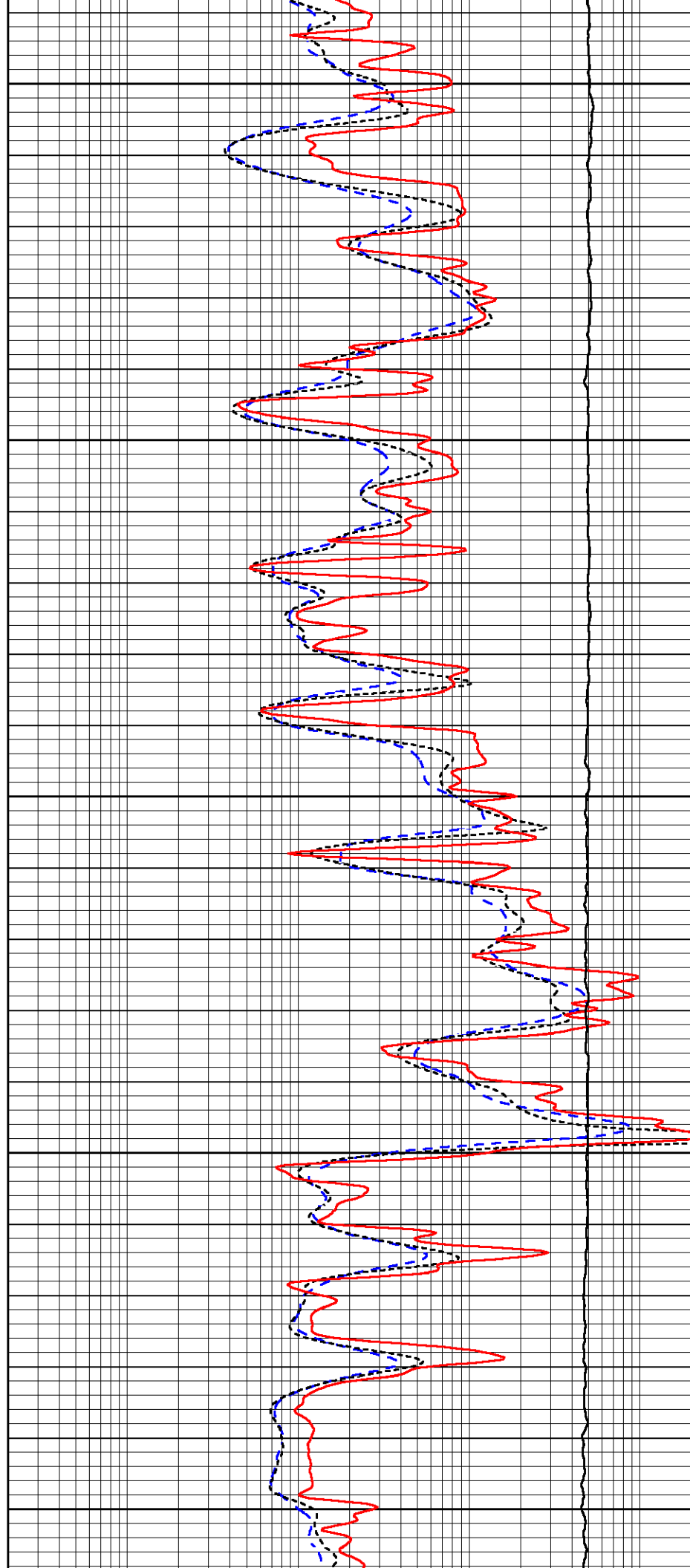
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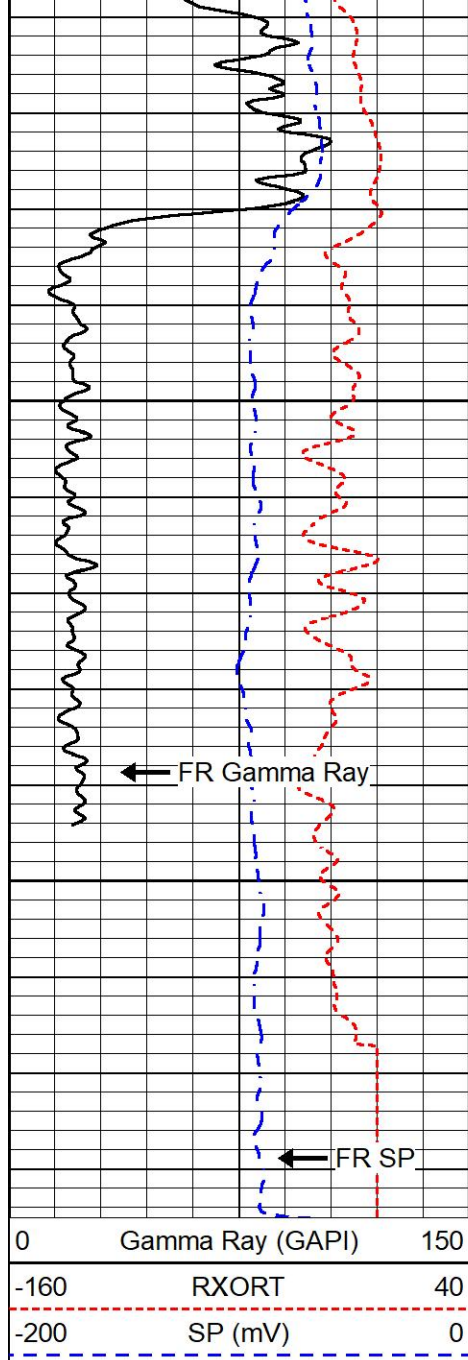
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3500

3550

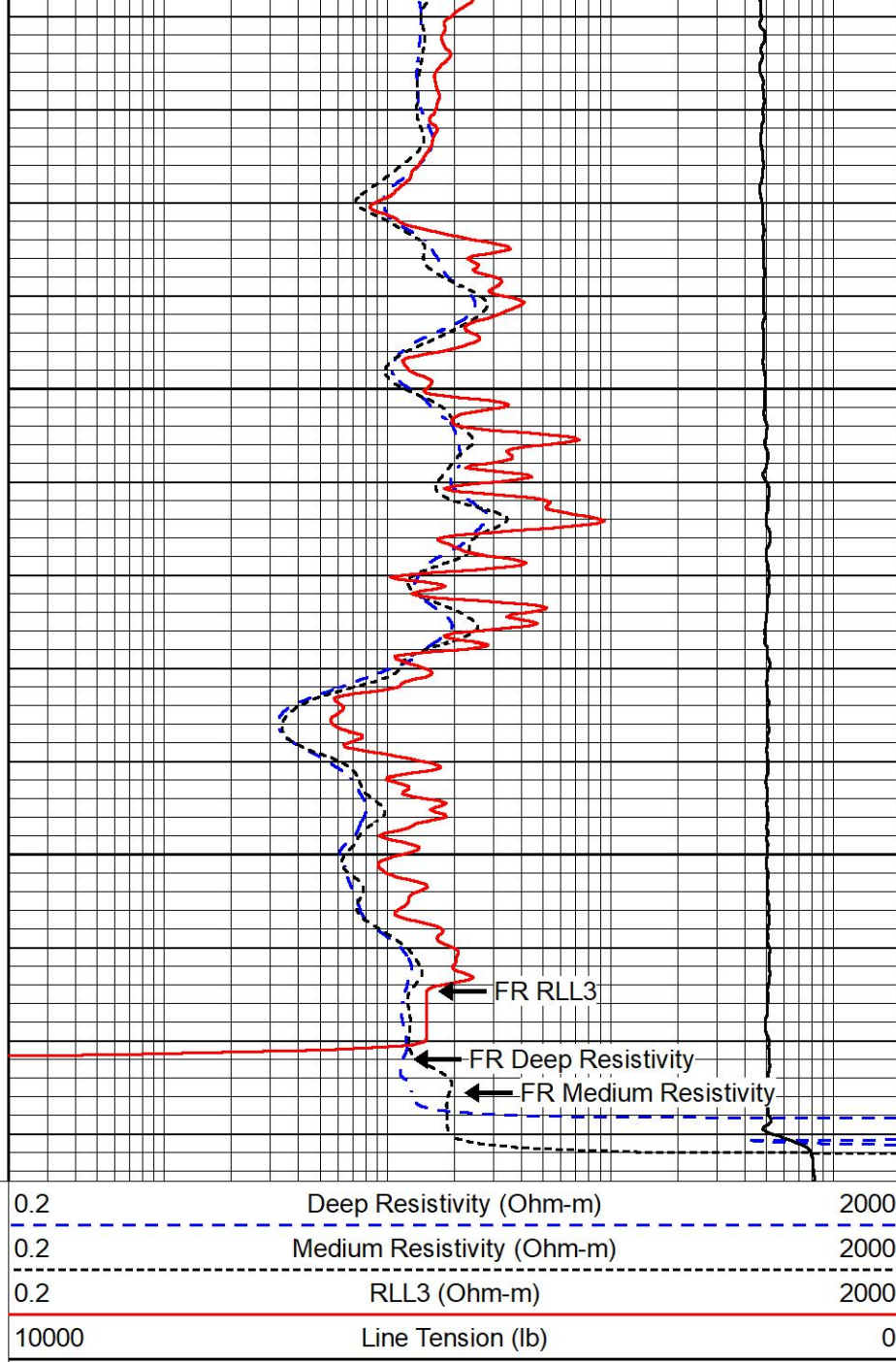
3600





3650

3700

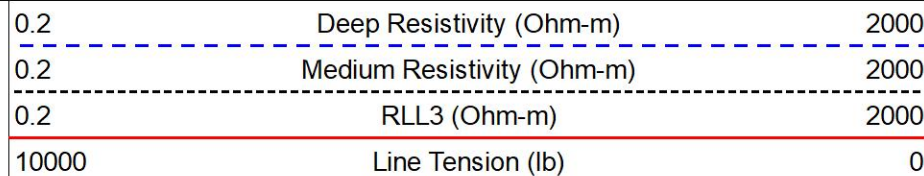
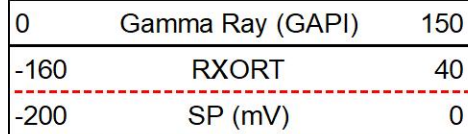


MIDWEST WIRELINE

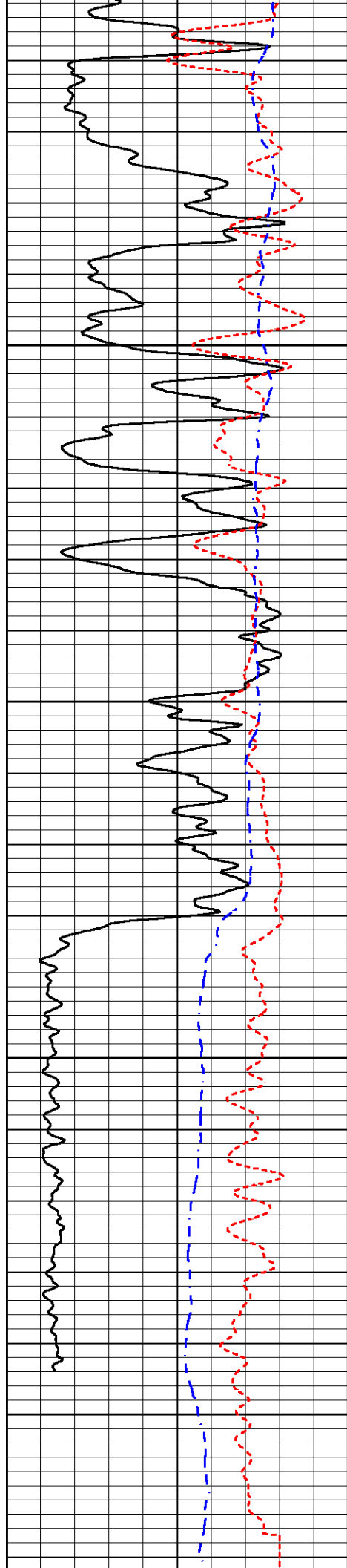
## REPEAT SECTION

### REPEAT PASS

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 Dataset Pathname stkml/pass2.13  
 Presentation Format \_dil  
 Dataset Creation Tue Oct 04 22:10:09 2022  
 Charted by Depth in Feet scaled 1:240



3500

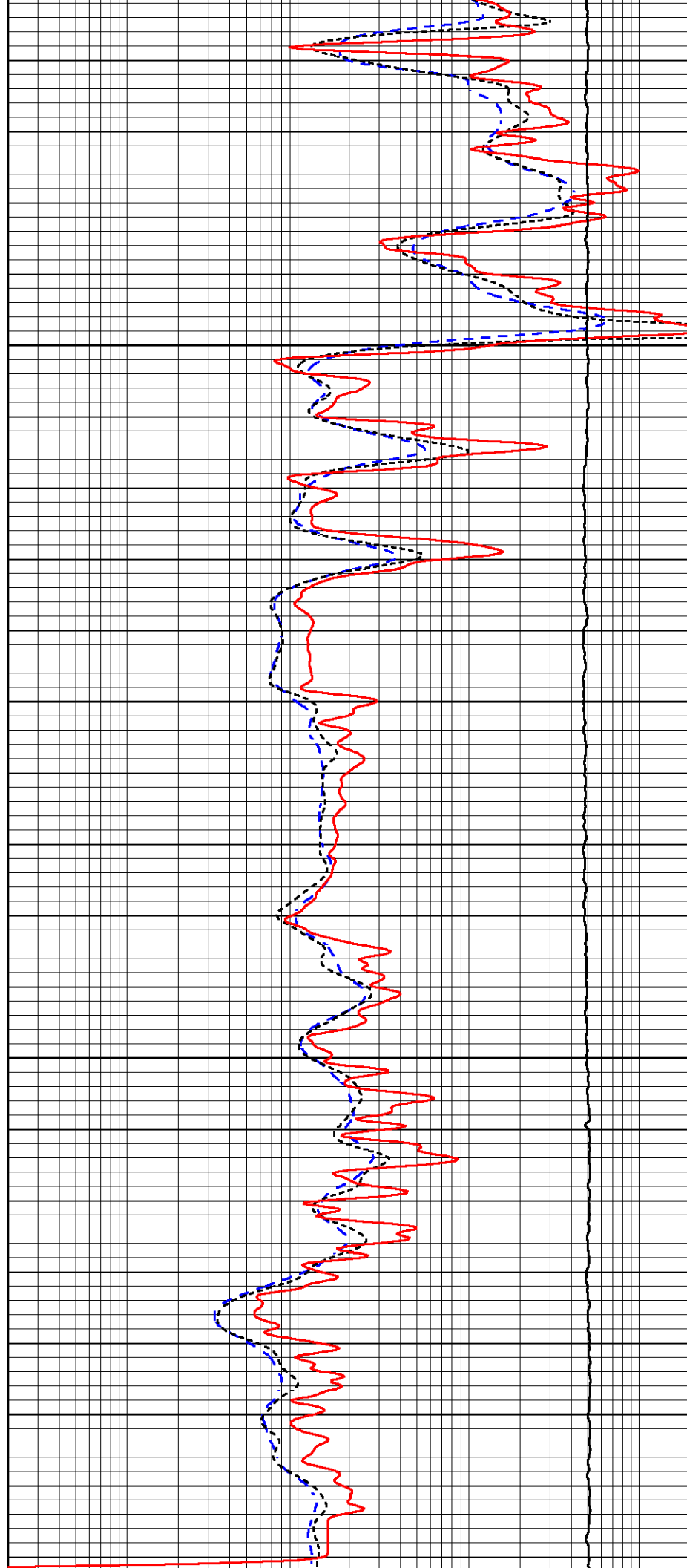


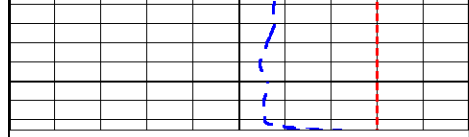
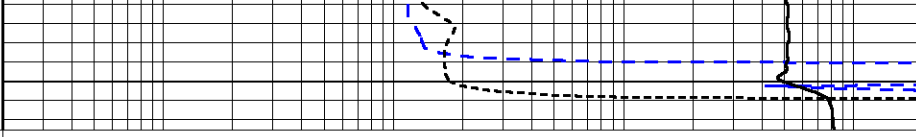
3550

3600

3650

3700



|                                                                                |                                                                                  |
|--------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
|  |  |
| 0      Gamma Ray (GAPI)      150                                               | 0.2      Deep Resistivity (Ohm-m)      2000                                      |
| -160      RXORT      40                                                        | 0.2      Medium Resistivity (Ohm-m)      2000                                    |
| -200      SP (mV)      0                                                       | 0.2      RLL3 (Ohm-m)      2000                                                  |
|                                                                                | 10000      Line Tension (lb)      0                                              |

| Calibration Report |                          |
|--------------------|--------------------------|
| Database File      | tdi_jerome 2.db          |
| Dataset Pathname   | stkml/pass3.16           |
| Dataset Creation   | Tue Oct 04 22:17:18 2022 |

| Dual Induction Calibration Report |
|-----------------------------------|
|-----------------------------------|

|                        |                          |
|------------------------|--------------------------|
| Serial-Model:          | 501 HT-M&W               |
| Surface Cal Performed: | Thu Sep 22 17:20:27 2022 |

| Readings |         | References |       | Results |        |
|----------|---------|------------|-------|---------|--------|
| Loop:    | Air     | Loop       | Air   | Loop    |        |
| Deep     | 83.639  | 487.104    | 0.000 | 183.000 | mmho/m |
| Medium   | 113.335 | 1585.690   | 0.000 | 442.000 | mmho/m |

| Microlog Calibration Report |
|-----------------------------|
|-----------------------------|

|               |                          |
|---------------|--------------------------|
| Serial-Model: | 401-PSIML                |
| Performed:    | Mon Jun 27 17:53:09 2022 |

| Readings |        | References |        | Results |       |
|----------|--------|------------|--------|---------|-------|
|          | Zero   | Cal        | Zero   | Cal     |       |
| Normal   | 0.0000 | 1.0000     | 0.0000 | 1.0000  | Ohm-m |
| Inverse  | 0.0000 | 1.0000     | 0.0000 | 1.0000  | Ohm-m |
| Caliper  | 1.0052 | 1.0858     | 5.0000 | 16.5000 | in    |

| Compensated Density Calibration Report |
|----------------------------------------|
|----------------------------------------|

|                               |                          |
|-------------------------------|--------------------------|
| Serial-Model:                 | 307-11-M&W               |
| Source #:                     | 20762B                   |
| Master Calibration Performed: | Sat Aug 27 10:20:16 2022 |

| Master Calibration  |       |      |                             |               |     |
|---------------------|-------|------|-----------------------------|---------------|-----|
| Density             |       |      | Far Detector                | Near Detector |     |
| Magnesium           | 1.755 | g/cc | 3600.52                     | 4768.22       | cps |
| Aluminum            | 2.670 | g/cc | 693.98                      | 3106.20       | cps |
| Spine Angle = 75.41 |       |      | Density/Spine Ratio = 0.538 |               |     |
| Size                |       |      | Reading                     |               |     |
| Small Ring          | 6.00  | in   | 1.16                        |               |     |
| Large Ring          | 18.00 | in   | 1.01                        |               |     |

| Compensated Neutron Calibration Report |
|----------------------------------------|
|----------------------------------------|

Serial Number:  
Tool Model:207-MW  
M&W

## CALIBRATION

| Detector    | Readings    | Target      | Normalization |
|-------------|-------------|-------------|---------------|
| Short Space | 6240.00 cps | 1000.00 cps | 1.6025        |
| Long Space  | 460.00 cps  | 1000.00 cps | 1.9500        |

## PRE-SURVEY VERIFICATION

|    | Detector    | Readings | Measured | Target |
|----|-------------|----------|----------|--------|
| 1) | Short Space | cps      |          |        |
|    | Long Space  | cps      | pu       | pu     |
| 2) | Short Space | cps      |          |        |
|    | Long Space  | cps      | pu       |        |
| 3) | Short Space | cps      |          |        |
|    | Long Space  | cps      | pu       |        |

## POST-SURVEY VERIFICATION

|    | Detector    | Readings | Measured | Target |
|----|-------------|----------|----------|--------|
| 1) | Short Space | cps      |          |        |
|    | Long Space  | cps      | pu       | pu     |
| 2) | Short Space | cps      |          |        |
|    | Long Space  | cps      | pu       | pu     |
| 3) | Short Space | cps      |          |        |
|    | Long Space  | cps      | pu       | pu     |

## Gamma Ray Calibration Report

|                     |                         |          |
|---------------------|-------------------------|----------|
| Serial Number:      | 106                     |          |
| Tool Model:         | M&W                     |          |
| Performed:          | Fri Dec 3 15:10:46 2021 |          |
| Calibrator Value:   | 500.0                   | GAPI     |
| Background Reading: | 24.0                    | cps      |
| Calibrator Reading: | 637.0                   | cps      |
| Sensitivity:        | 0.5500                  | GAPI/cps |



MIDWEST WIRELINE

|         |           |
|---------|-----------|
| Company | TDI, Inc. |
| Well    | Jerome #2 |
| Field   | Ruder     |
| County  | Ellis     |
| State   | Kansas    |