



# DUAL INDUCTION LOG

Company I.A. OPERATING, INC.  
 Well ZERFAS #30-2  
 Field ZERFAS  
 County ELLIS State KANSAS

Location: API #: 15-051-27042-0000  
 1626' FSL & 1384' FEL  
 SE - SE - NW - SE  
 SEC 30 TWP 11S RGE 19W  
 Permanent Datum GROUND LEVEL Elevation 2135  
 Log Measured From KELLY BUSHING 8' A.G.L.  
 Drilling Measured From KELLY BUSHING  
 Other Services CDL/CNL/PE MEL  
 Elevation K.B: 2143  
 D.F: 2141  
 G.L: 2135

|                              |               |
|------------------------------|---------------|
| Date                         | 8/27/22       |
| Run Number                   | ONE           |
| Depth Driller                | 3703          |
| Depth Logger                 | 3706          |
| Bottom Logged Interval       | 3704          |
| Top Log Interval             | 00            |
| Casing Driller               | 8 5/8"@221'   |
| Casing Logger                | 221           |
| Bit Size                     | 7 7/8"        |
| Type Fluid in Hole           | CHEMICAL MUD  |
| Density / Viscosity          | 9.2/51        |
| pH / Fluid Loss              | 10.0/6.0      |
| Source of Sample             | FLOWLINE      |
| Rm @ Meas. Temp              | 1.40@75F      |
| Rmf @ Meas. Temp             | 1.05@75F      |
| Rmc @ Meas. Temp             | 1.68@75F      |
| Source of Rmf / Rmc          | MEASUREMENT   |
| Rm @ BHT                     | .929@113F     |
| Time Circulation Stopped     | 8 HOURS       |
| Time Logger on Bottom        | 1:30 A.M.     |
| Maximum Recorded Temperature | 113F          |
| Equipment Number             | 922339        |
| Location                     | HAYS, KANSAS  |
| Recorded By                  | JEFF LUEBBERS |
| Witnessed By                 | JEFF LAWLER   |

<<< Fold Here >>>

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.

15-051-27042-0000 Comments

THANK YOU FOR USING ELI WIRELINE HAYS, KANSAS (785) 628-6395  
 DIRECTIONS  
 (BUCKEYE RD. & 170TH AVE.), 4N. W. INTO

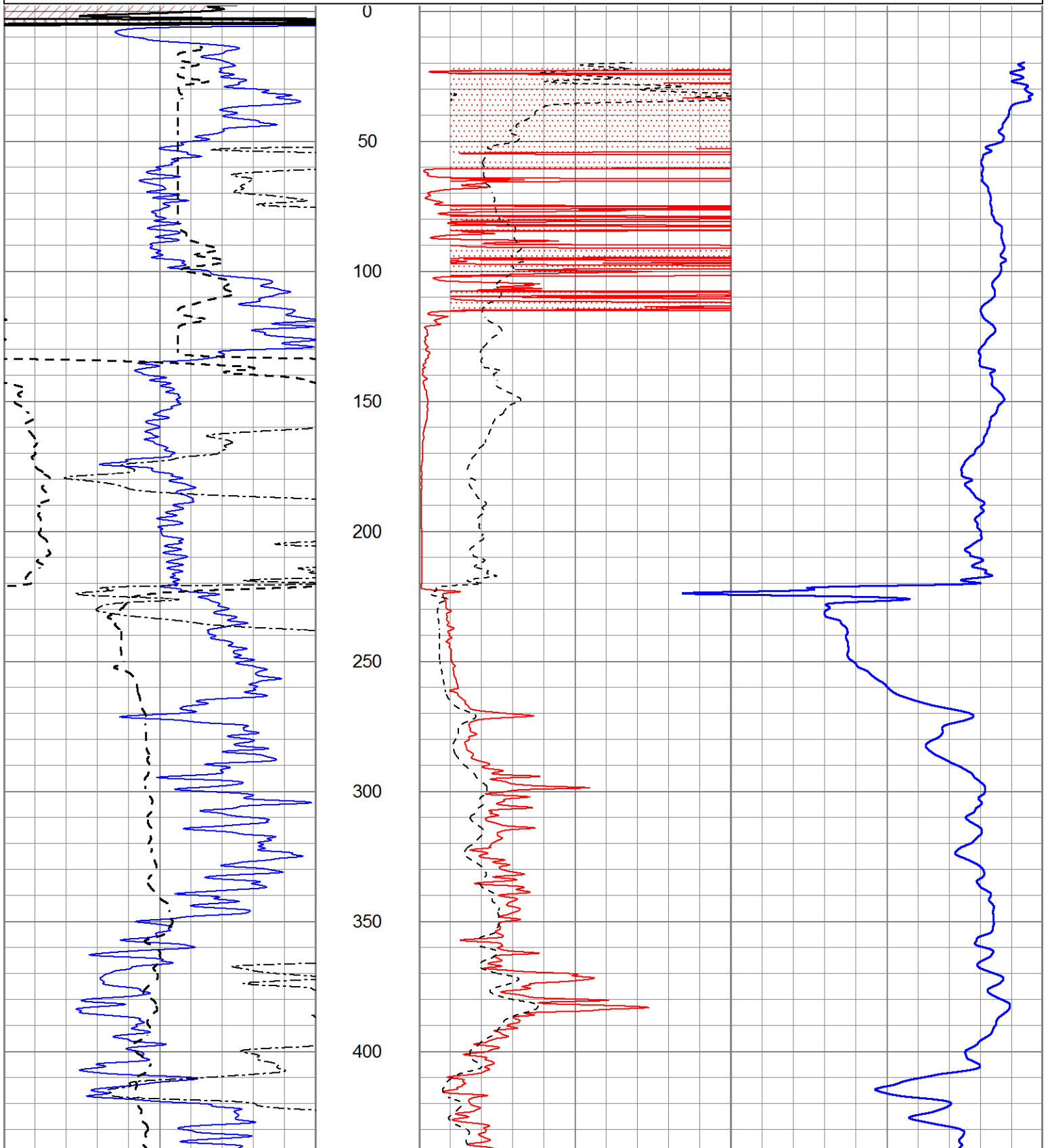


# MAIN SECTION

Database File 6913pe.db  
 Dataset Pathname pass3.1M  
 Presentation Format \_dil2  
 Dataset Creation Sat Aug 27 02:57:56 2022  
 Charted by Depth in Feet scaled 1:600

|      |                  |     |
|------|------------------|-----|
| 0    | Gamma Ray (GAPI) | 150 |
| -100 | SP (mV)          | 100 |
| 0    | RWA (Ohm-m)      | 1   |

|      |                  |     |
|------|------------------|-----|
| 1000 | CILD (mmho/m)    | 0   |
| 0    | RLL3 (Ohm-m)     | 50  |
| 0    | RILD (Ohm-m)     | 50  |
| 50   | RILD X10 (Ohm-m) | 500 |
| 50   | RLL3 X10 (Ohm-m) | 500 |



450

500

550

600

650

700

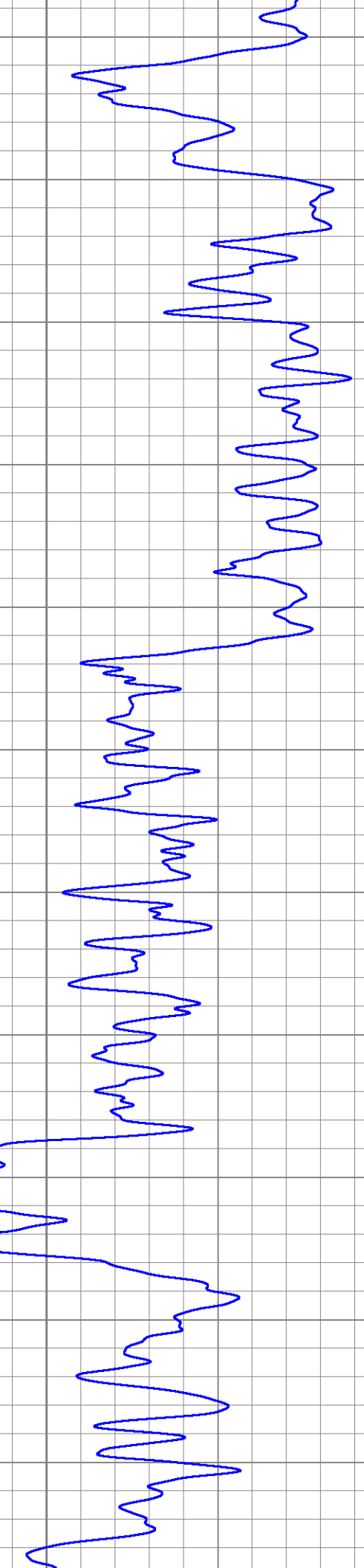
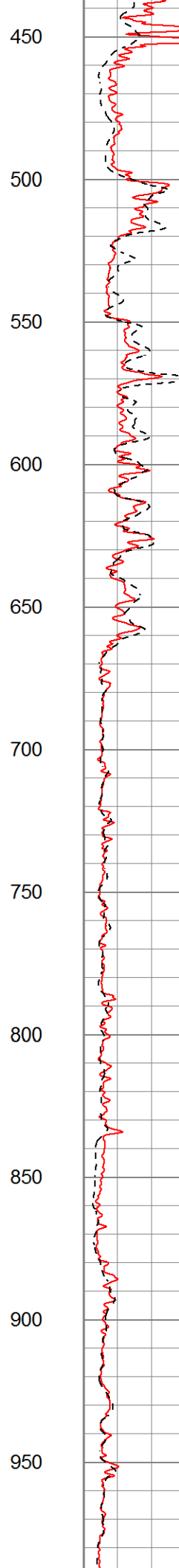
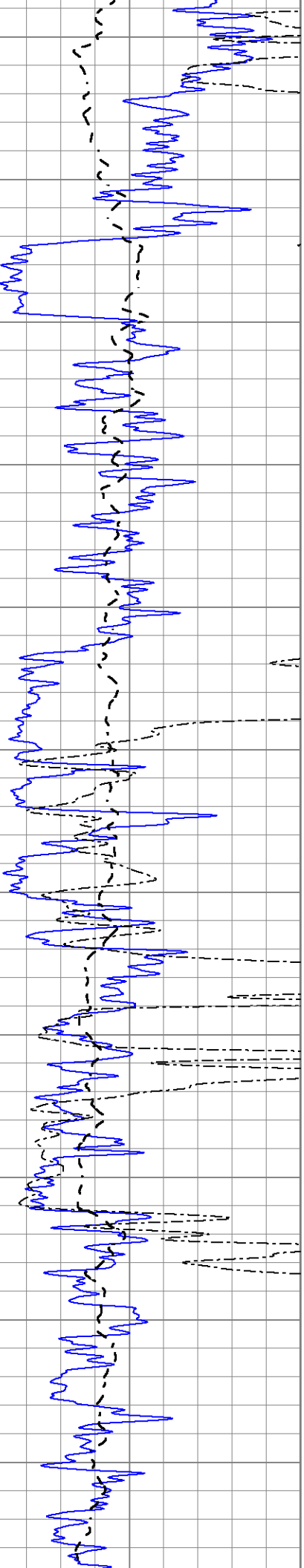
750

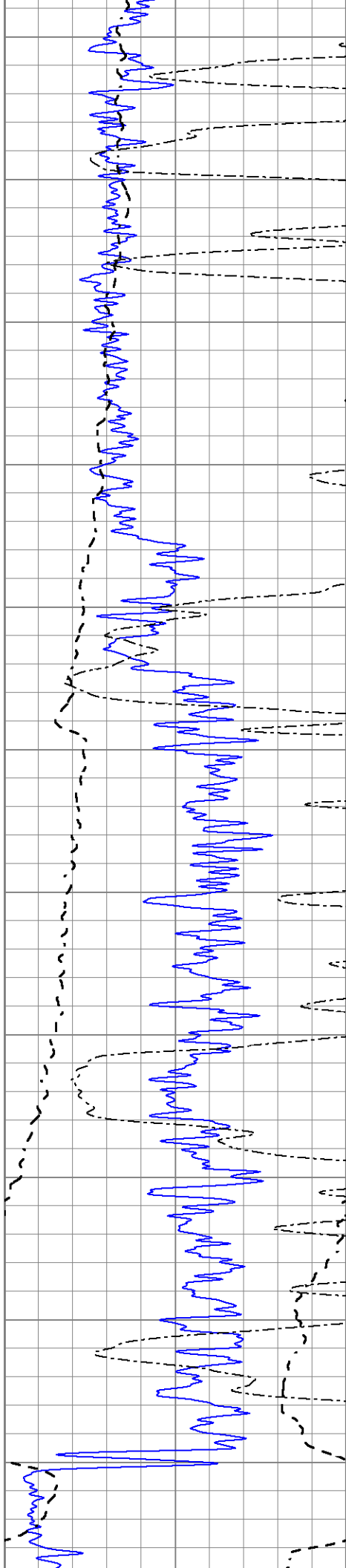
800

850

900

950





1000

1050

1100

1150

1200

1250

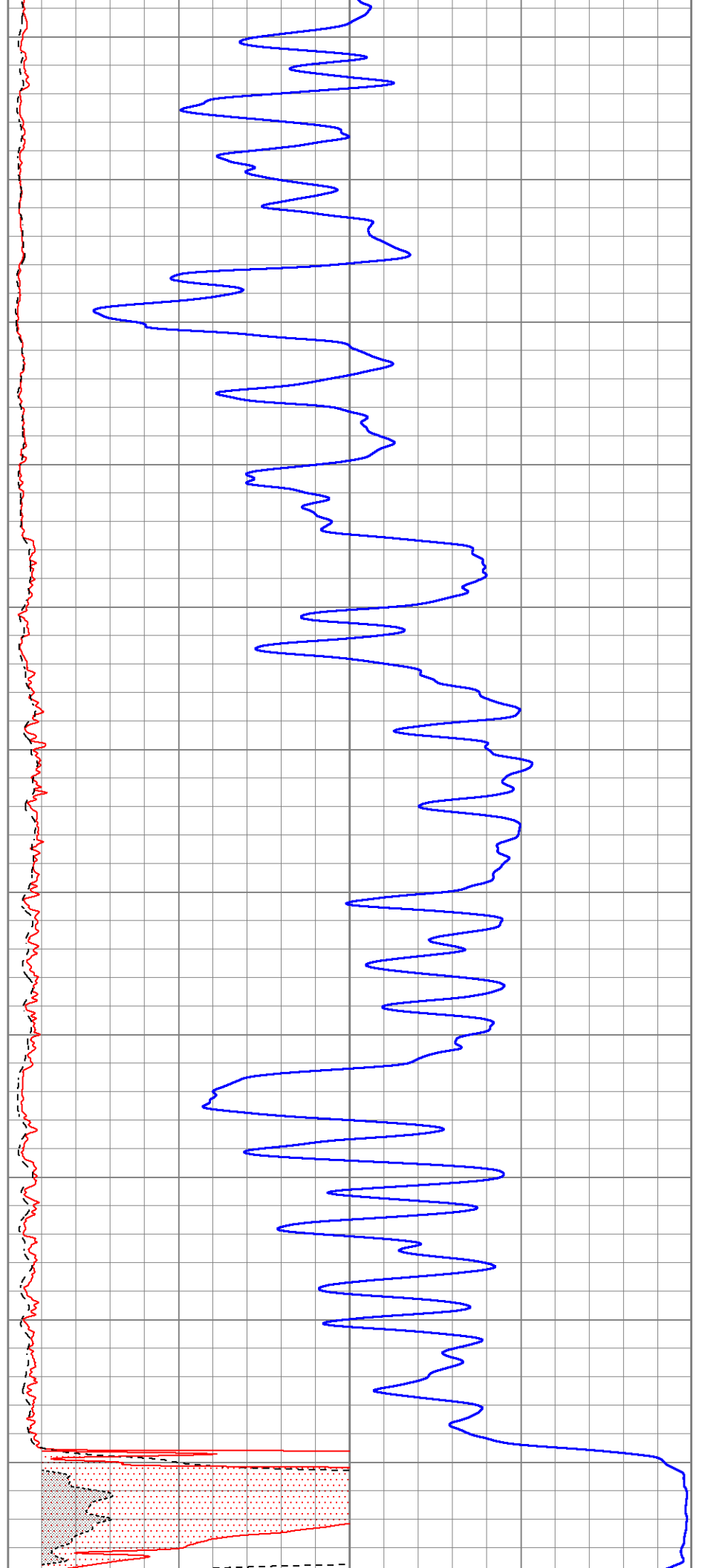
1300

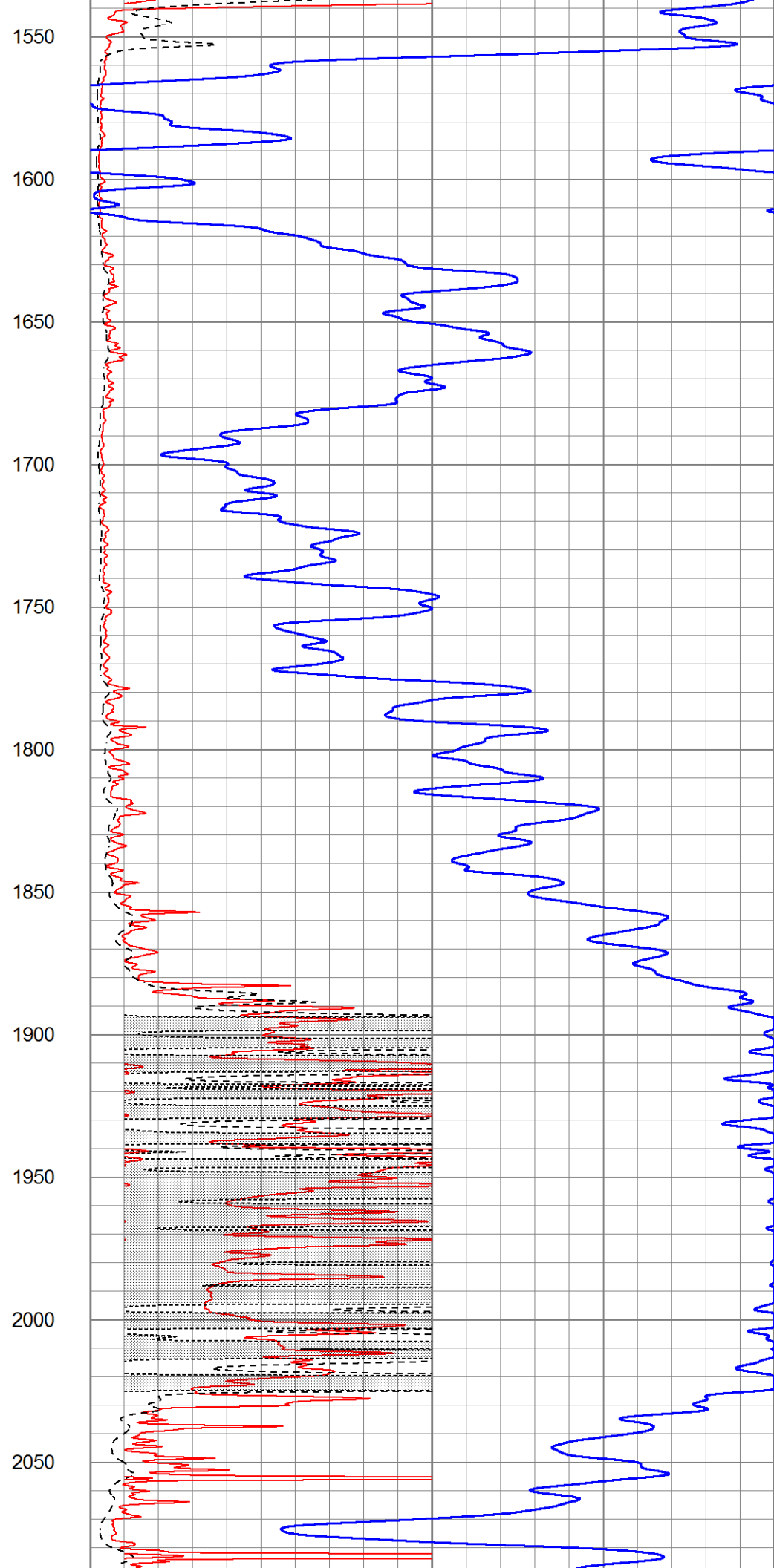
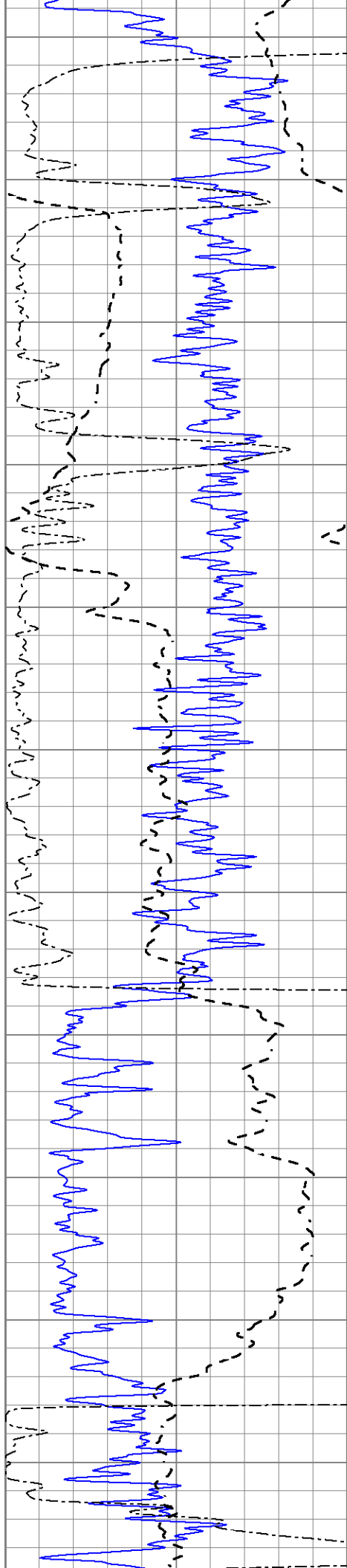
1350

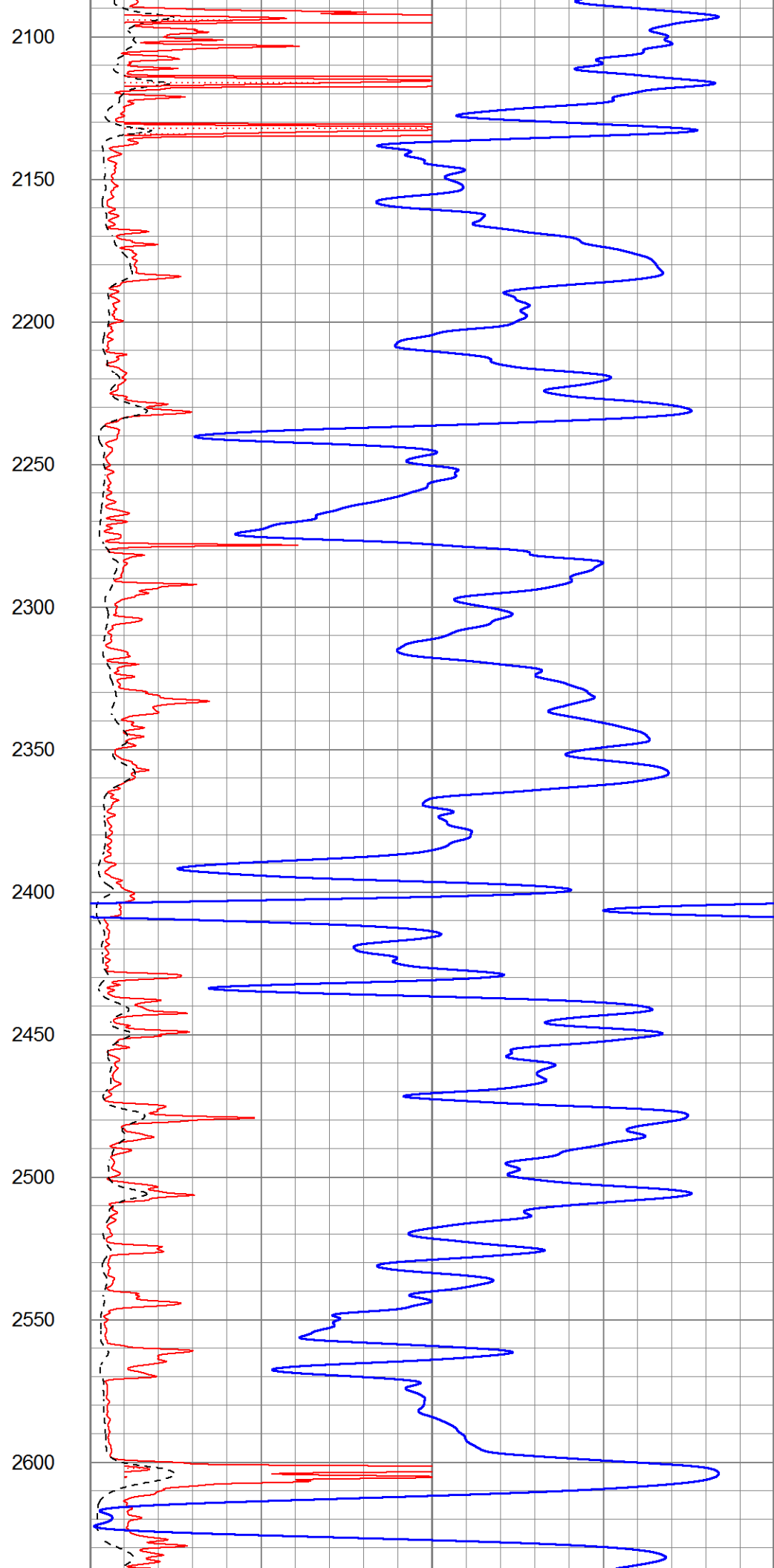
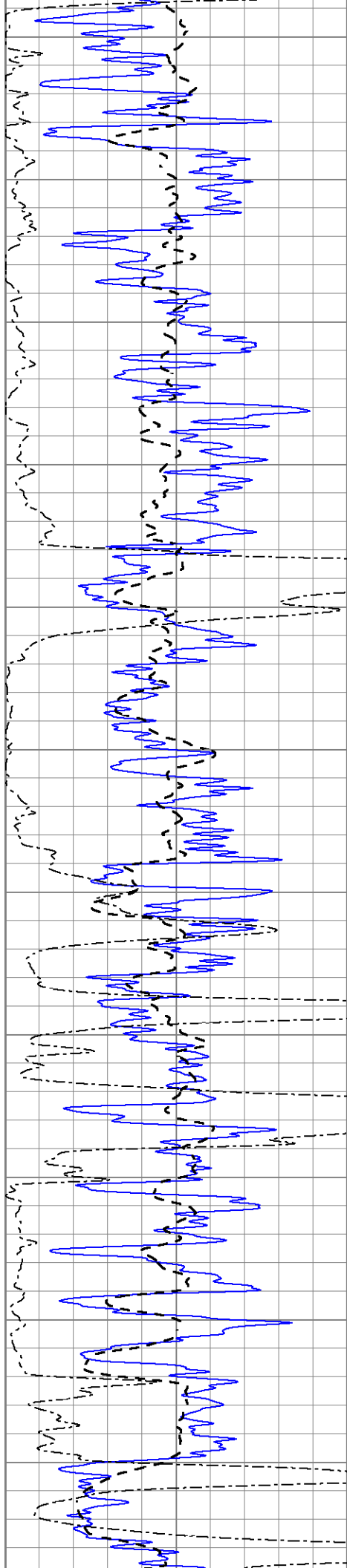
1400

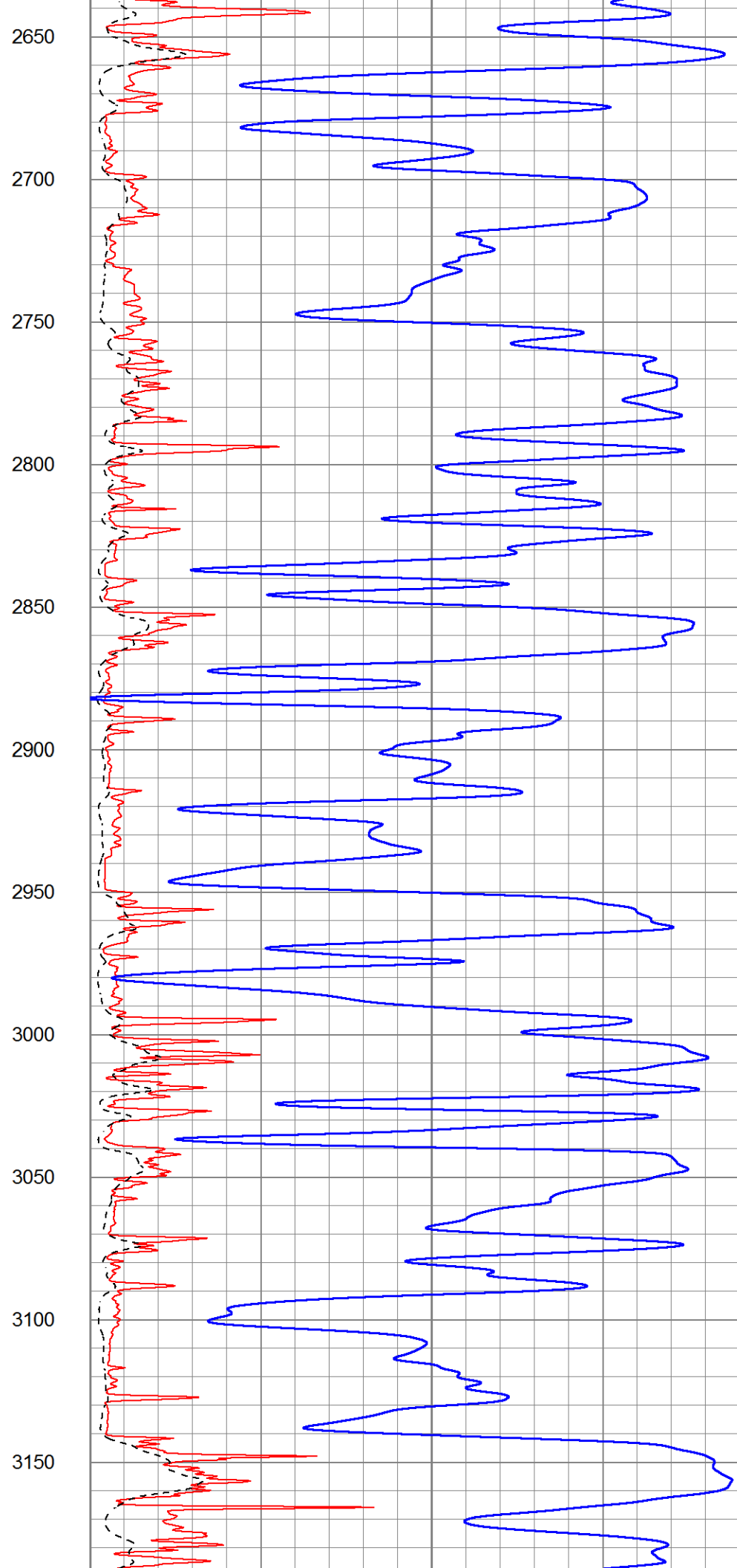
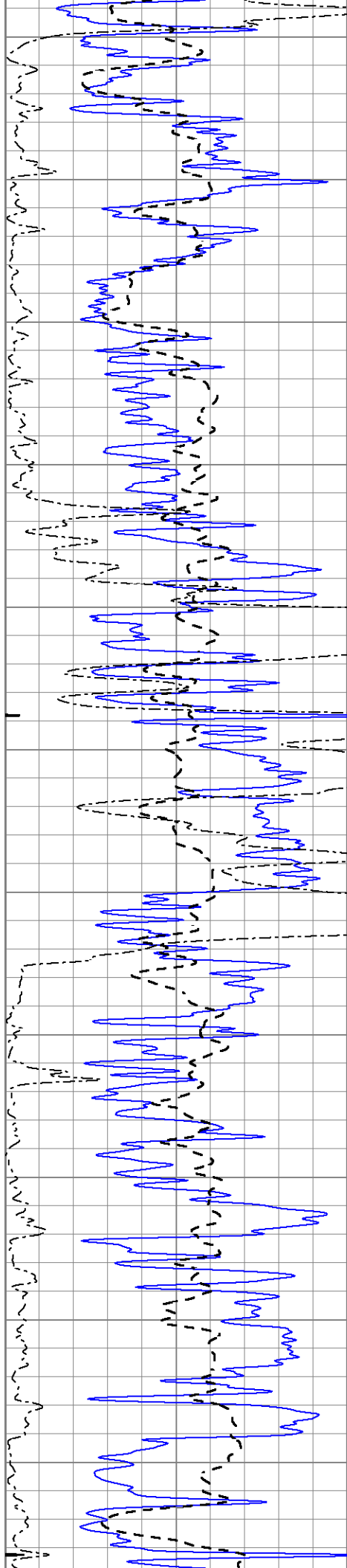
1450

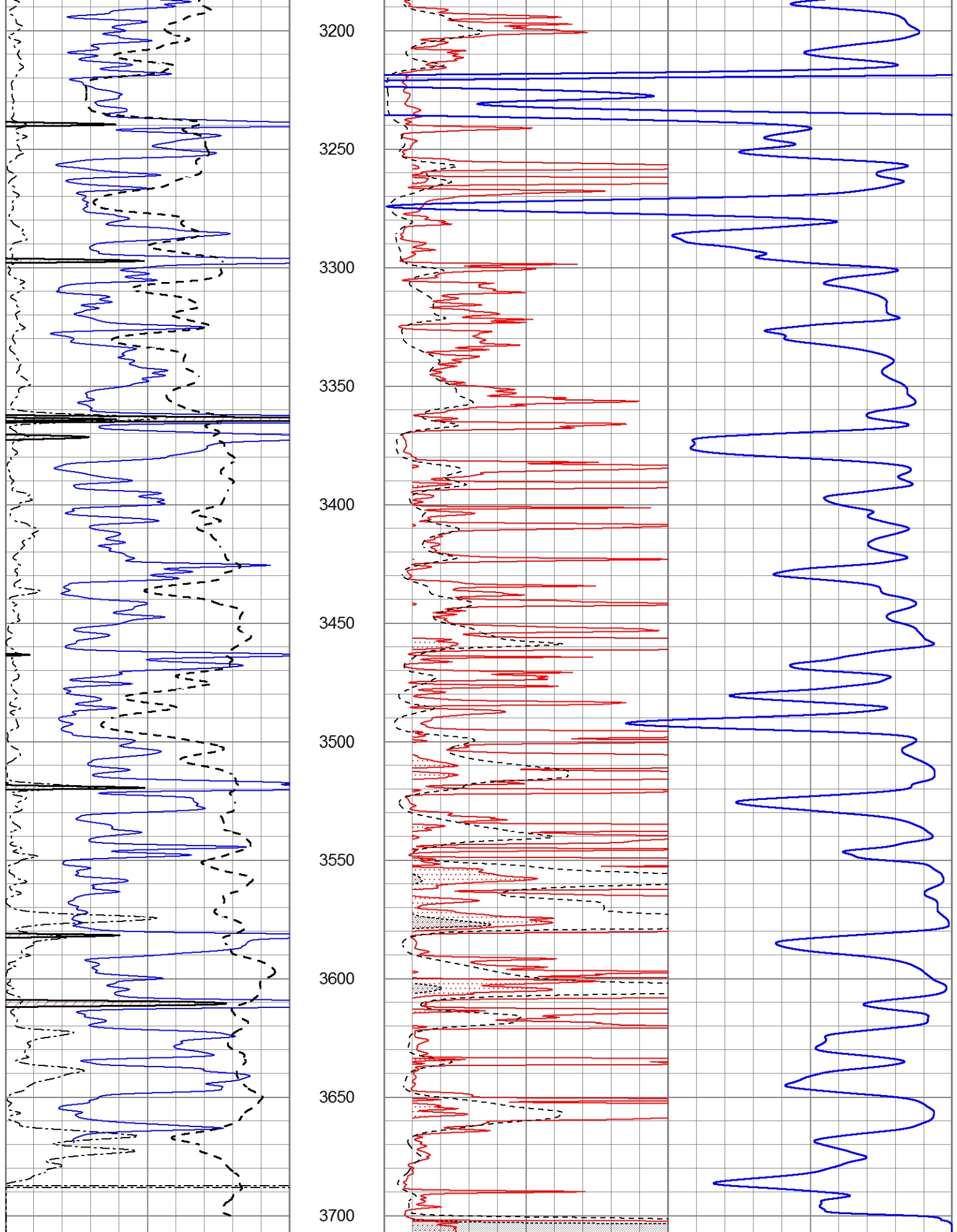
1500











0 Gamma Ray (GAPI) 150  
 -100 SP (mV) 100

1000 CILD (mmho/m) 0  
 0 RLL3 (Ohm-m) 50

|   |             |   |
|---|-------------|---|
| 0 | RWA (Ohm-m) | 1 |
|---|-------------|---|

|    |                  |     |
|----|------------------|-----|
| 0  | RILD (Ohm-m)     | 50  |
| 50 | RILD X10 (Ohm-m) | 500 |
| 50 | RLL3 X10 (Ohm-m) | 500 |

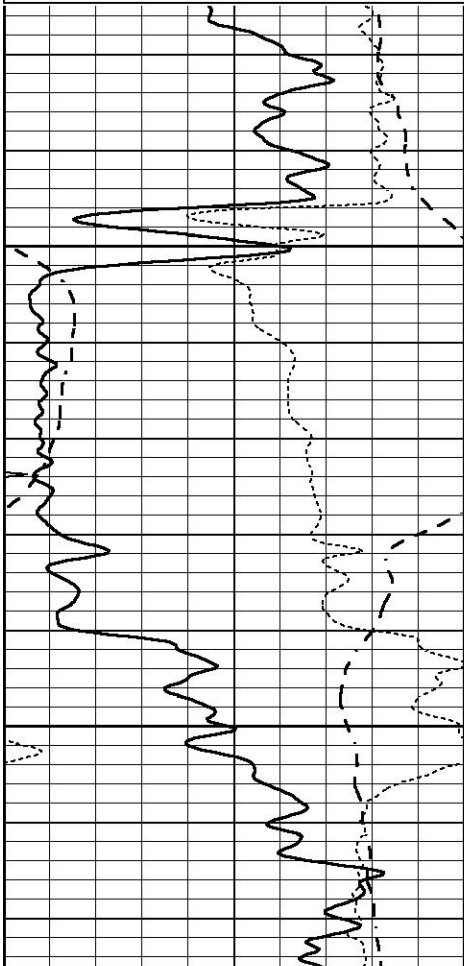


# ANHYDRITE

Database File 6913pe.db  
 Dataset Pathname pass3.1A  
 Presentation Format \_dil  
 Dataset Creation Sat Aug 27 02:58:24 2022  
 Charted by Depth in Feet scaled 1:240

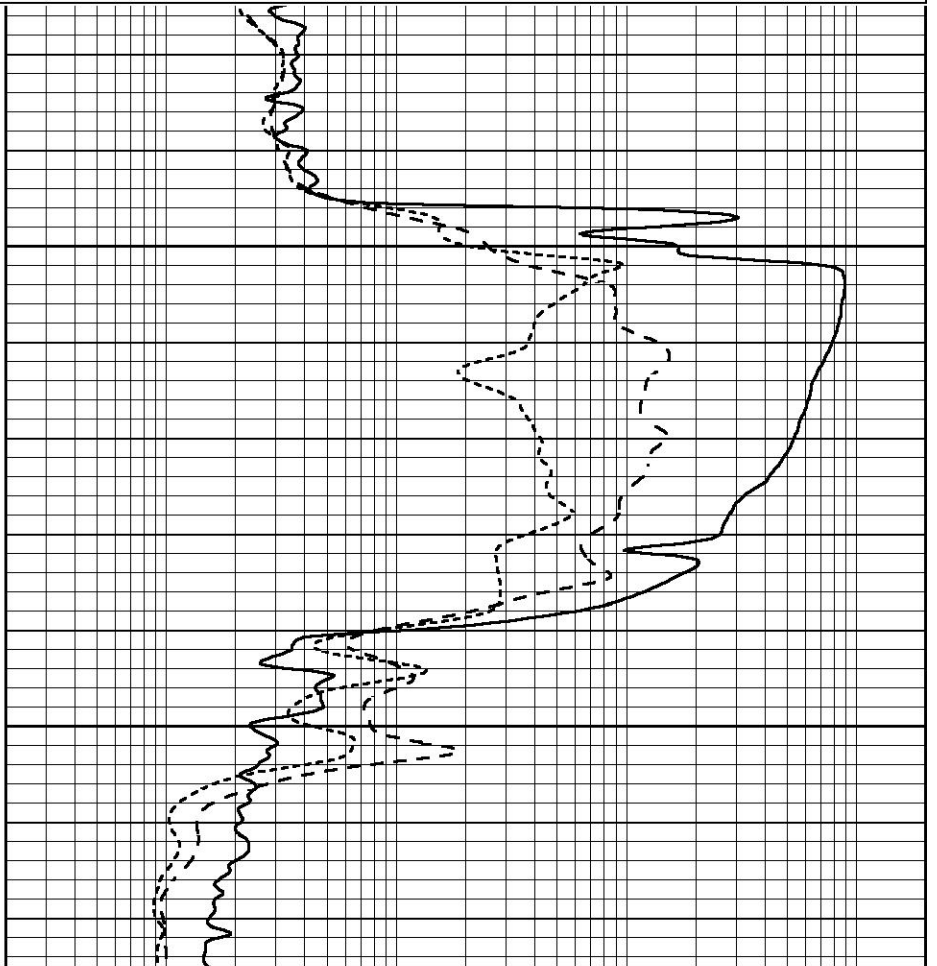
|      |                  |     |
|------|------------------|-----|
| 0    | GAMMA RAY (GAPI) | 150 |
| -100 | SP (mV)          | 100 |
| -250 | Rxo/Rt           | 50  |
| 0    | MINMK            | 20  |

|     |                          |      |
|-----|--------------------------|------|
| 0.2 | SHALLOW GUARD (Ohm-m)    | 2000 |
| 0.2 | DEEP INDUCTION (Ohm-m)   | 2000 |
| 0.2 | MEDIUM INDUCTION (Ohm-m) | 2000 |



1500

1550



|      |                  |     |
|------|------------------|-----|
| 0    | GAMMA RAY (GAPI) | 150 |
| -100 | SP (mV)          | 100 |
| -250 | Rxo/Rt           | 50  |
| 0    | MINMK            | 20  |

|     |                          |      |
|-----|--------------------------|------|
| 0.2 | SHALLOW GUARD (Ohm-m)    | 2000 |
| 0.2 | DEEP INDUCTION (Ohm-m)   | 2000 |
| 0.2 | MEDIUM INDUCTION (Ohm-m) | 2000 |

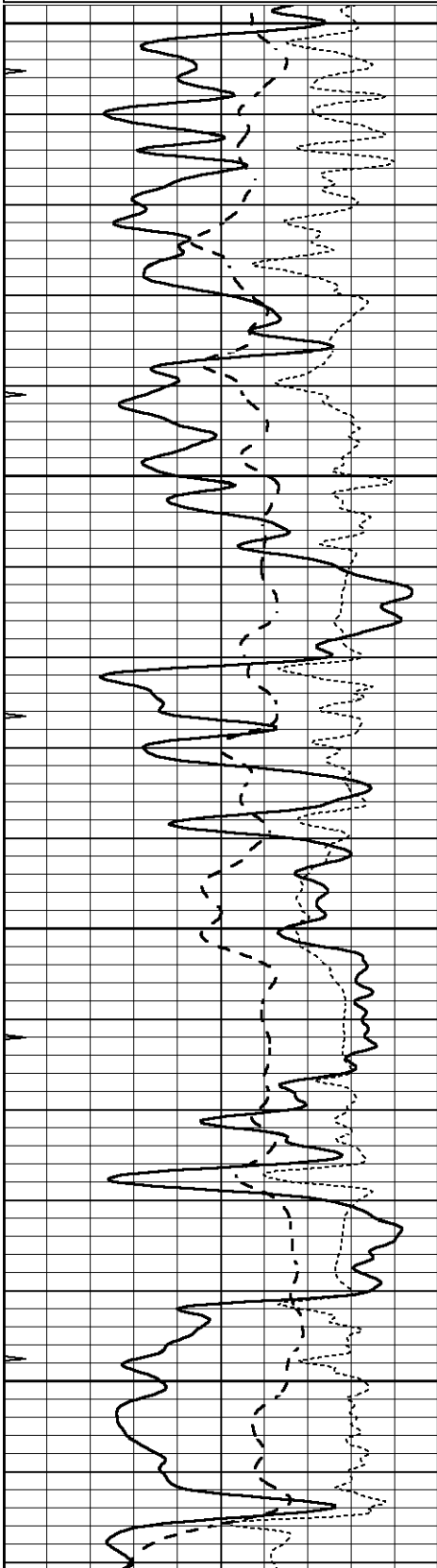


# MAIN SECTION

Database File 6913pe.db  
 Dataset Pathname pass3.1M  
 Presentation Format \_dil  
 Dataset Creation Sat Aug 27 02:57:56 2022  
 Charted by Depth in Feet scaled 1:240

|      |                  |     |
|------|------------------|-----|
| 0    | GAMMA RAY (GAPI) | 150 |
| -100 | SP (mV)          | 100 |
| -250 | Rxo/Rt           | 50  |
| 0    | MINMK            | 20  |

|     |                          |      |
|-----|--------------------------|------|
| 0.2 | SHALLOW GUARD (Ohm-m)    | 2000 |
| 0.2 | DEEP INDUCTION (Ohm-m)   | 2000 |
| 0.2 | MEDIUM INDUCTION (Ohm-m) | 2000 |

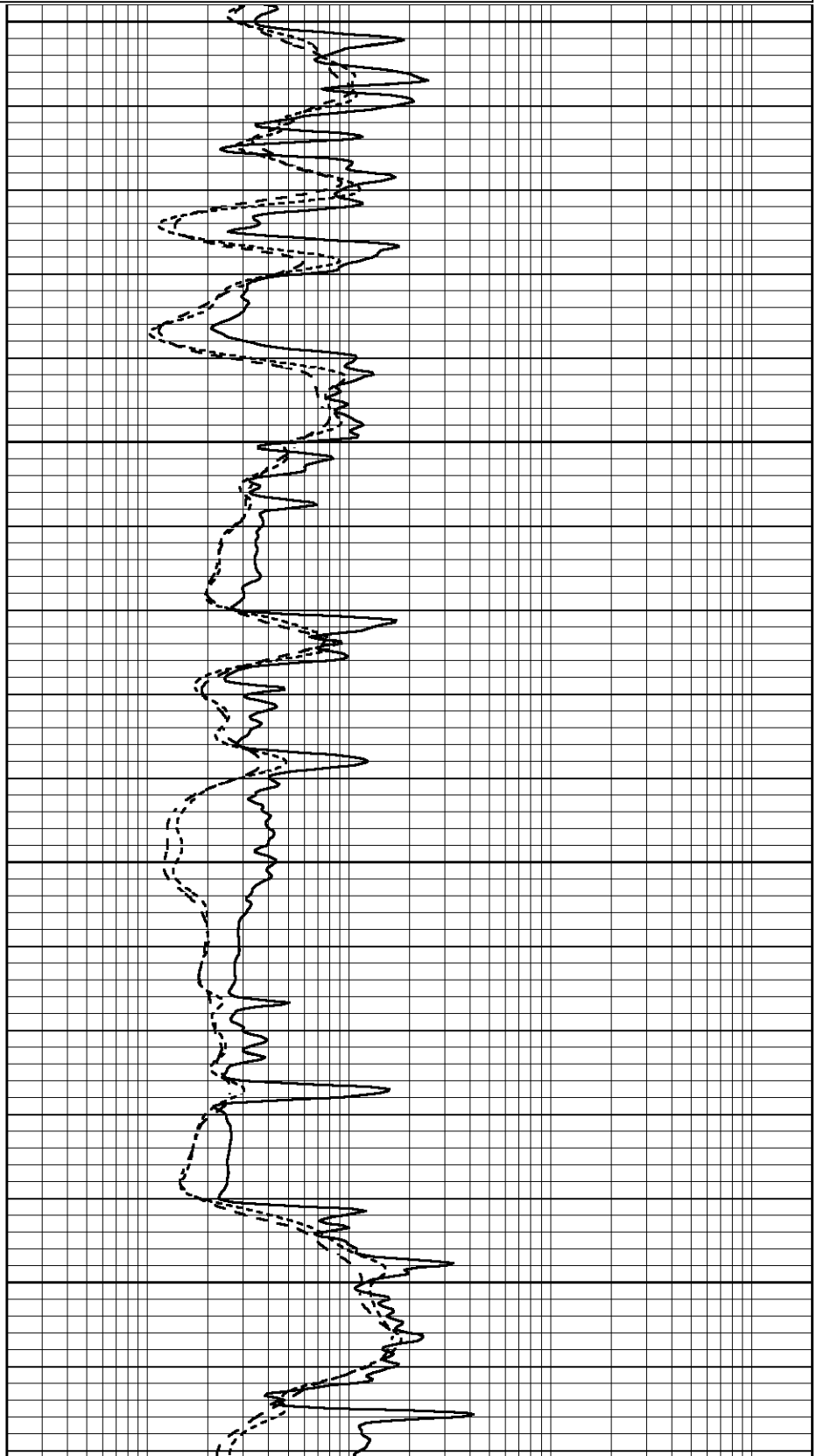


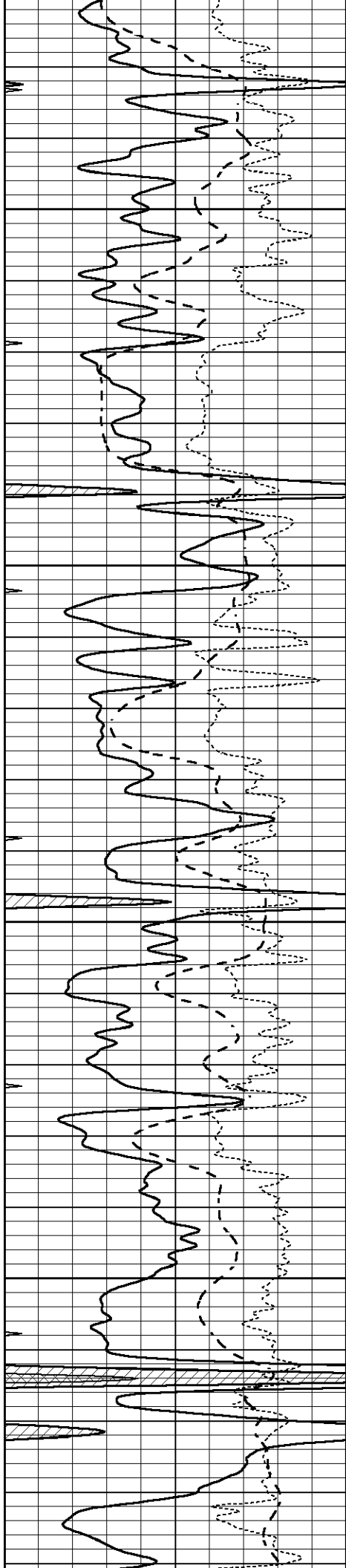
3000

3050

3100

3150



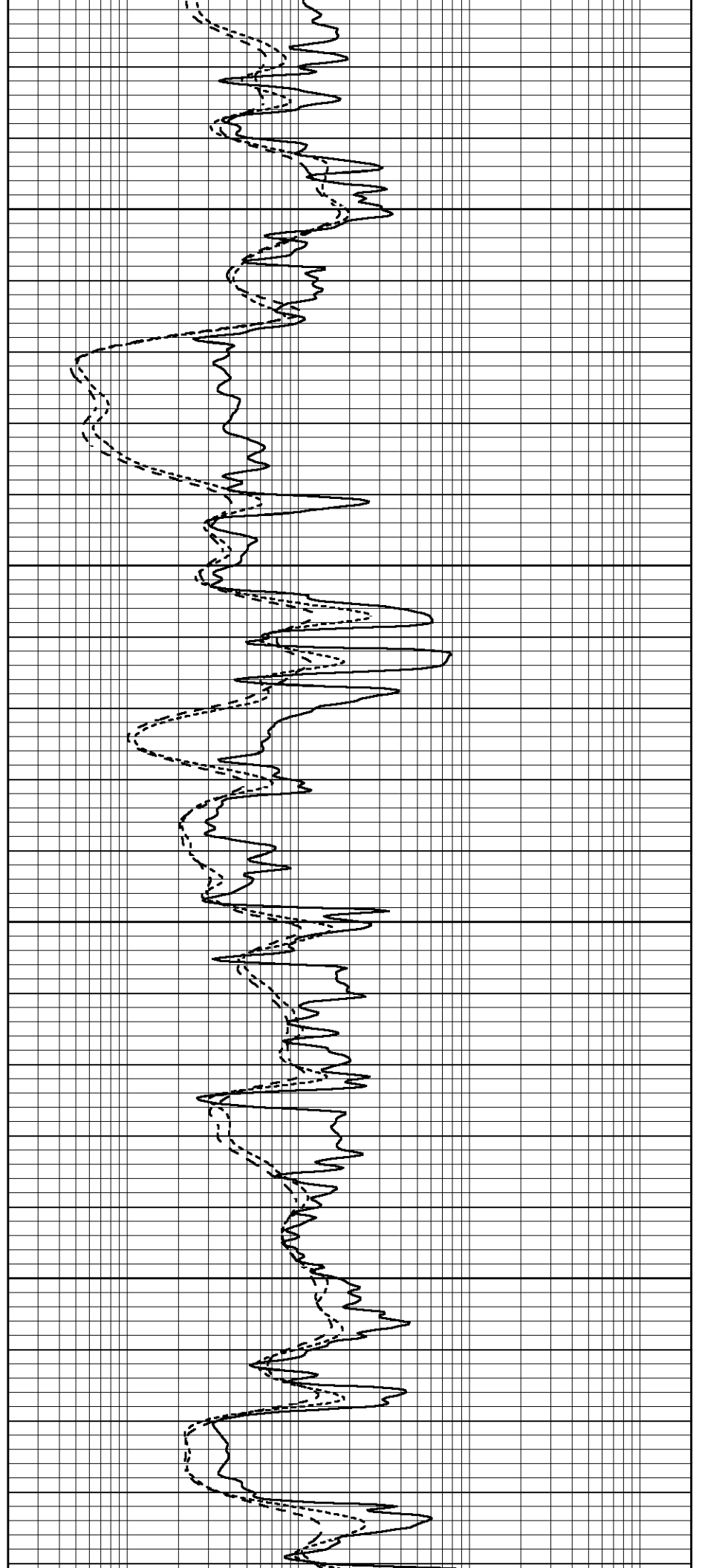


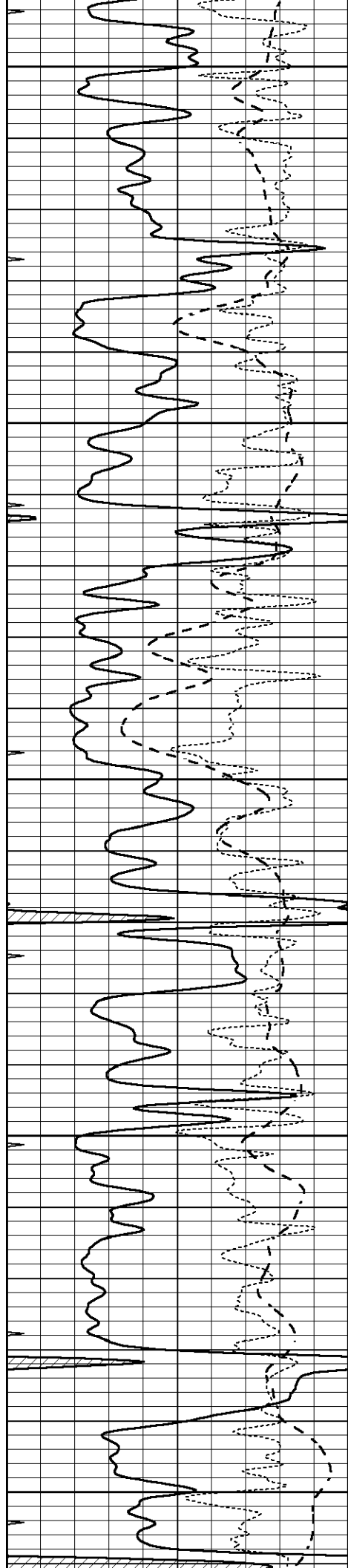
3200

3250

3300

3350





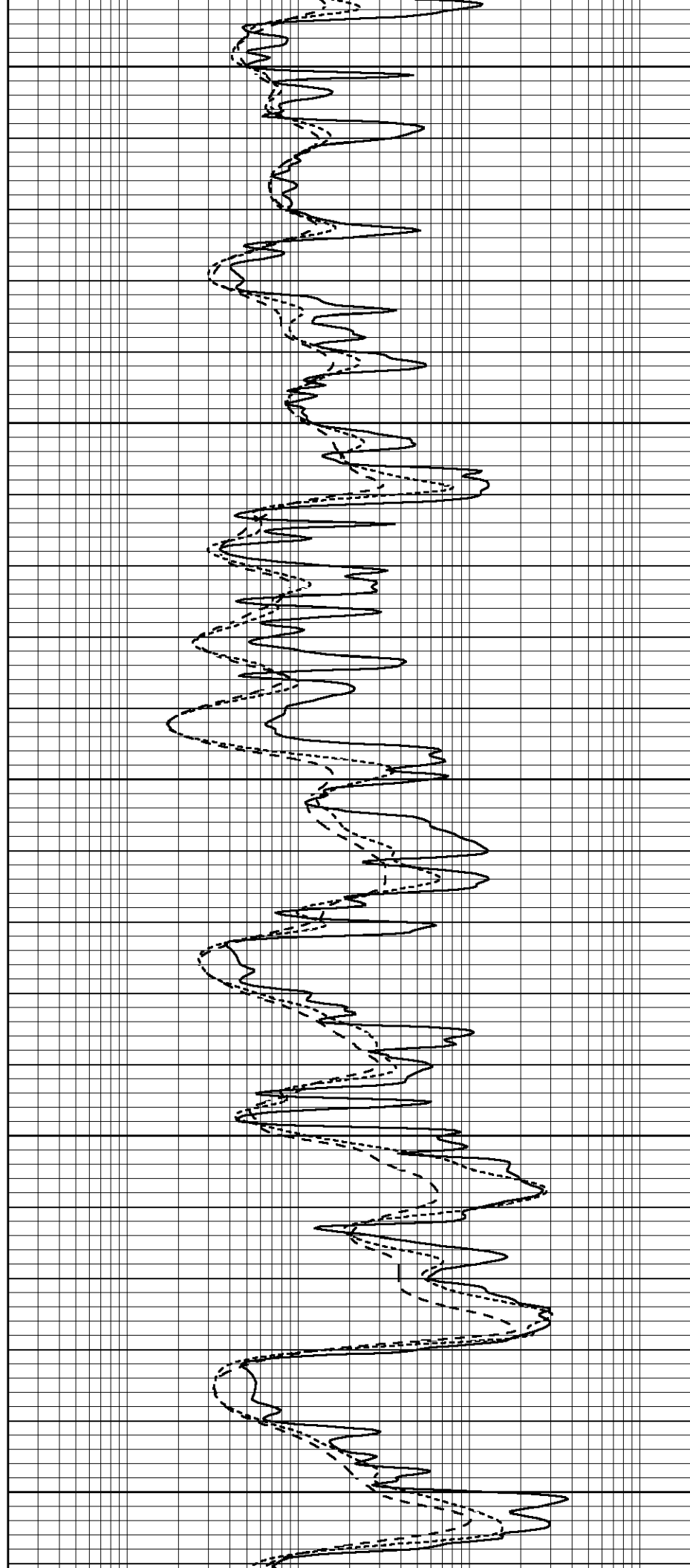
3400

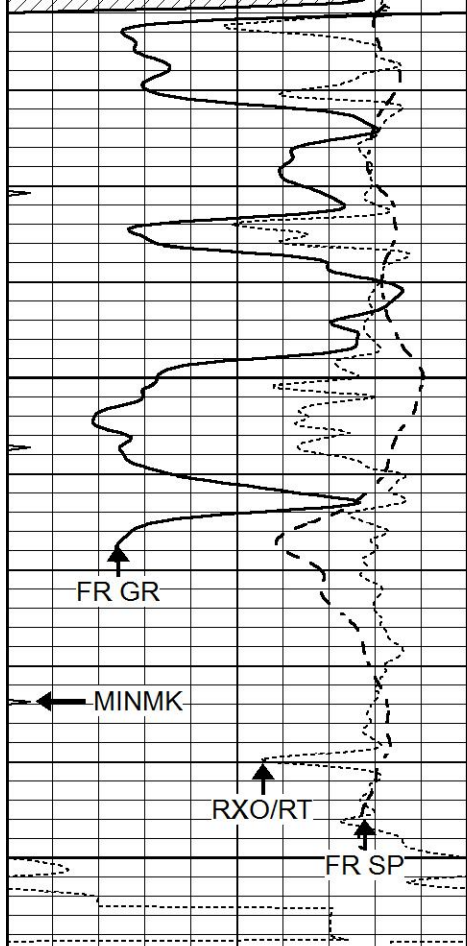
3450

3500

3550

3600

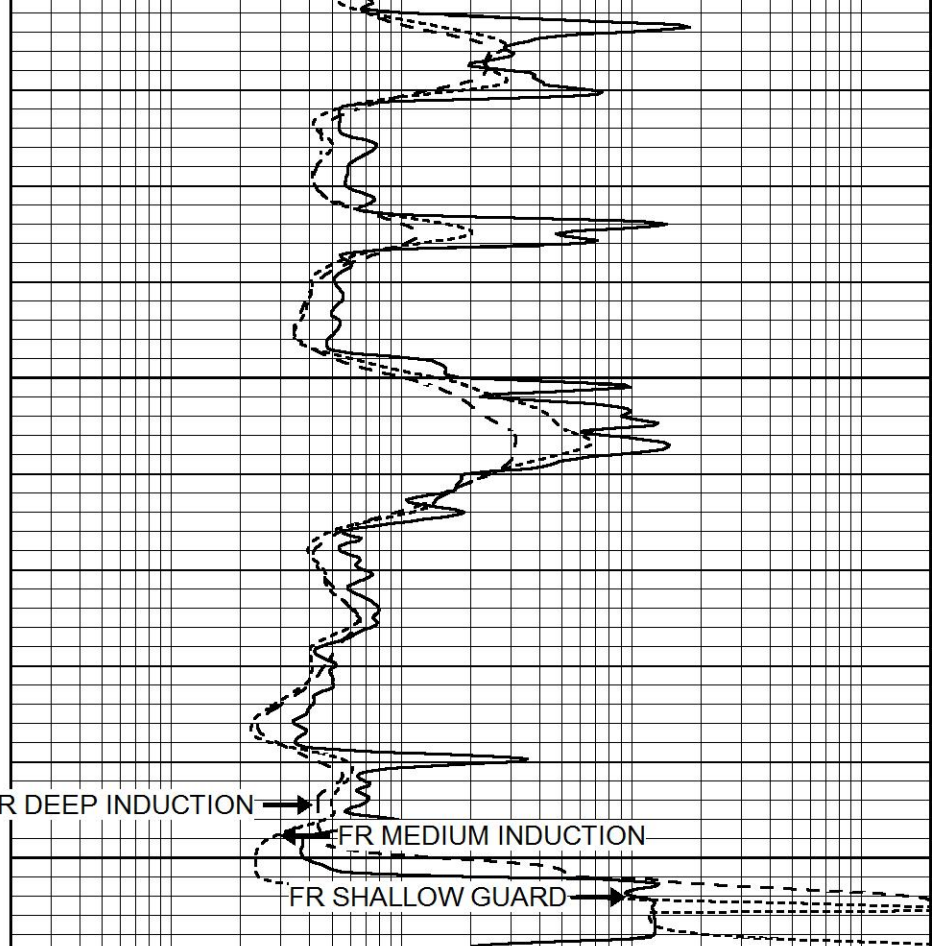




3650

3700  
LTD 3706

|      |                  |     |
|------|------------------|-----|
| 0    | GAMMA RAY (GAPI) | 150 |
| -100 | SP (mV)          | 100 |
| -250 | Rxo/Rt           | 50  |
| 0    | MINMK            | 20  |



|     |                          |      |
|-----|--------------------------|------|
| 0.2 | SHALLOW GUARD (Ohm-m)    | 2000 |
| 0.2 | DEEP INDUCTION (Ohm-m)   | 2000 |
| 0.2 | MEDIUM INDUCTION (Ohm-m) | 2000 |

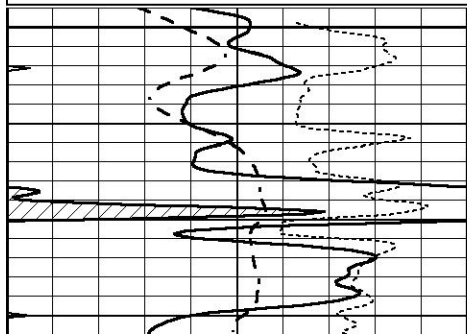


# REPEAT SECTION

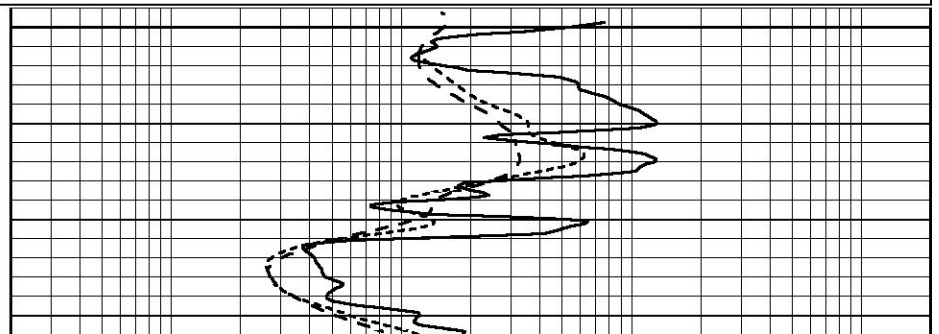
Database File 6913pe.db  
 Dataset Pathname pass2.1R  
 Presentation Format \_dil  
 Dataset Creation Sat Aug 27 02:16:06 2022  
 Charted by Depth in Feet scaled 1:240

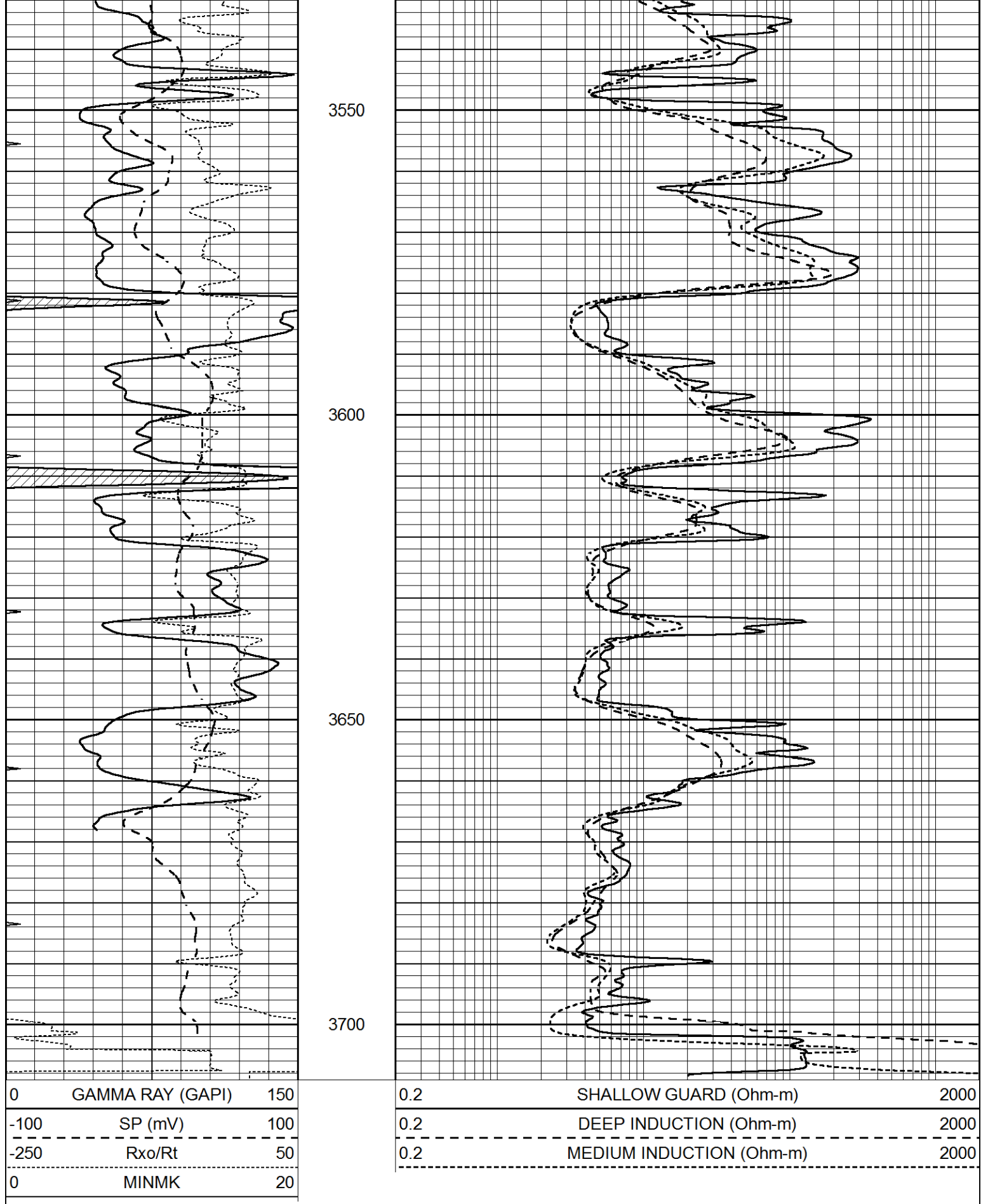
|      |                  |     |
|------|------------------|-----|
| 0    | GAMMA RAY (GAPI) | 150 |
| -100 | SP (mV)          | 100 |
| -250 | Rxo/Rt           | 50  |
| 0    | MINMK            | 20  |

|     |                          |      |
|-----|--------------------------|------|
| 0.2 | SHALLOW GUARD (Ohm-m)    | 2000 |
| 0.2 | DEEP INDUCTION (Ohm-m)   | 2000 |
| 0.2 | MEDIUM INDUCTION (Ohm-m) | 2000 |



3500





### Calibration Report

Database File 6913pe.db  
 Dataset Pathname pass3.1M  
 Dataset Creation Sat Aug 27 02:57:56 2022

Dual Induction Calibration Report

|                                      |                          |
|--------------------------------------|--------------------------|
| Serial-Model:                        | PROBE8-DILG              |
| Surface Cal Performed:               | Sat Aug 27 02:17:37 2022 |
| Downhole Cal Performed:              | Mon Jul 28 11:08:27 2008 |
| After Survey Verification Performed: | Mon Jul 28 11:08:27 2008 |

Surface Calibration

| Loop:     | Readings |       |   | References |         |        | Results |         |
|-----------|----------|-------|---|------------|---------|--------|---------|---------|
|           | Air      | Loop  |   | Air        | Loop    |        | m       | b       |
| Deep      | 0.015    | 0.648 | V | 0.000      | 400.000 | mmho/m | 640.000 | 8.000   |
| Medium    | 0.029    | 0.796 | V | 0.000      | 464.000 | mmho/m | 630.000 | -8.000  |
| Internal: | Zero     | Cal   |   | Zero       | Cal     |        | m       | b       |
| Deep      | 0.017    | 0.657 | V | 0.000      | 400.000 | mmho/m | 625.153 | -10.619 |
| Medium    | 0.016    | 0.757 | V | 0.000      | 464.000 | mmho/m | 625.992 | -9.739  |

Downhole Calibration

|        | Readings |        |        | References |          |        | Results |       |
|--------|----------|--------|--------|------------|----------|--------|---------|-------|
|        | Zero     | Cal    |        | Zero       | Cal      |        | m'      | b'    |
| Deep   | 0.000    | 0.000  | mmho/m | 2.011      | 405.777  | mmho/m | 1.000   | 0.000 |
| Medium | 0.000    | 0.000  | mmho/m | 7.590      | 503.393  | mmho/m | 1.000   | 0.000 |
| LL3    |          | 7.500  | V      |            | 1500.000 | Ohm-m  |         |       |
|        |          | 0.000  | V      |            | 20.000   | Ohm-m  |         |       |
|        |          | -7.200 | V      |            | 3800.000 | mmho-m |         |       |

After Survey Verification

|        | Readings |       |        | Targets |       |        | Results |       |
|--------|----------|-------|--------|---------|-------|--------|---------|-------|
|        | Zero     | Cal   |        | Zero    | Cal   |        | m'      | b'    |
| Deep   | 0.000    | 0.000 | mmho/m | 0.000   | 0.000 | mmho/m | 0.000   | 0.000 |
| Medium | 0.000    | 0.000 | mmho/m | 0.000   | 0.000 | mmho/m | 0.000   | 0.000 |
| LL3    |          | 1.000 | Ohm-m  |         | 1.000 | Ohm-m  |         |       |
|        |          | 0.000 | Ohm-m  |         | 0.000 | Ohm-m  |         |       |
|        |          | 1.000 | mmho-m |         | 1.000 | mmho-m |         |       |

Litho Density Calibration Report

Serial: 004      Model: PRB

Master Calibration

Performed Tue Aug 02 11:29:35 2022

|             | Background | Magnesium   | Aluminum | Aluminum+Fe         |         |
|-------------|------------|-------------|----------|---------------------|---------|
| Window 1    | 1154.2     | 10019.5     | 3137.9   | 2795.6              | cps     |
| Window 2    | 1054.4     | 8597.6      | 2733.4   | 2469.5              | cps     |
| Window 3    | 902.3      | 5241.4      | 1832.1   | 1719.3              | cps     |
| Window 4    | 251.9      | 261.1       | 255.8    | 252.9               | cps     |
| Long Space  | 0.0        | 7543.2      | 1679.0   | 1415.0              | cps     |
| Short Space | 4.4        | 2049.3      | 1321.7   | 1116.8              | cps     |
| Rho         |            | 1.7100      | 2.5900   | 0.0000              | g/cc    |
| Pe          |            | 2.0000      | 2.7500   | 5.7900              |         |
| Rib Angle   | : 43.7     | Rib Slope   | : 0.957  | Density/Spine Ratio | : 0.562 |
| Spine Angle | : 73.7     | Spine Slope | : 3.426  | Spine Intercept     | : -17.2 |

Before Survey Verification

Performed Wed Dec 31 18:00:00 1969

|          |     |     |     |     |     |
|----------|-----|-----|-----|-----|-----|
| Window 1 | 0.0 | 0.0 | 0.0 | 0.0 | cps |
| Window 2 | 0.0 | 0.0 | 0.0 | 0.0 | cps |
| Window 3 | 0.0 | 0.0 | 0.0 | 0.0 |     |
| Window 4 | 0.0 | 0.0 | 0.0 | 0.0 |     |

|                     |     |        |        |        |      |
|---------------------|-----|--------|--------|--------|------|
| Window 3            | 0.0 | 0.0    | 0.0    | 0.0    | cps  |
| Window 4            | 0.0 | 0.0    | 0.0    | 0.0    | cps  |
| Long Space          | 0.0 | 0.0    | 0.0    | 0.0    | cps  |
| Short Space         | 0.0 | 0.0    | 0.0    | 0.0    | cps  |
| Measured Rho        |     | 0.0000 | 0.0000 | 0.0000 | g/cc |
| Measured Correction |     | 0.0000 | 0.0000 | 0.0000 | g/cc |
| Measured Pe         |     |        | 0.0000 | 0.0000 |      |

After Survey Verification

Performed Wed Dec 31 18:00:00 1969

|                     |     |        |        |        |      |
|---------------------|-----|--------|--------|--------|------|
| Window 1            | 0.0 | 0.0    | 0.0    | 0.0    | cps  |
| Window 2            | 0.0 | 0.0    | 0.0    | 0.0    | cps  |
| Window 3            | 0.0 | 0.0    | 0.0    | 0.0    | cps  |
| Window 4            | 0.0 | 0.0    | 0.0    | 0.0    | cps  |
| Long Space          | 0.0 | 0.0    | 0.0    | 0.0    | cps  |
| Short Space         | 0.0 | 0.0    | 0.0    | 0.0    | cps  |
| Measured Rho        |     | 0.0000 | 0.0000 | 0.0000 | g/cc |
| Measured Correction |     | 0.0000 | 0.0000 | 0.0000 | g/cc |
| Measured Pe         |     |        | 0.0000 | 0.0000 |      |

### Compensated Neutron Calibration Report

Serial Number: 070808PMC  
 Tool Model: NABORS

#### PRE-SURVEY VERIFICATION

| Detector    | Readings | Measured | Target |
|-------------|----------|----------|--------|
| Short Space | cps      |          |        |
| Long Space  | cps      | pu       | pu     |

#### POST-SURVEY VERIFICATION

| Detector    | Readings | Measured | Target |
|-------------|----------|----------|--------|
| Short Space | cps      |          |        |
| Long Space  | cps      | pu       | pu     |

### Gamma Ray Calibration Report

Serial Number: 070558  
 Tool Model: OPEN\_GR  
 Performed: Sat Aug 27 02:15:03 2022

Calibrator Value: 1.0 GAPI  
 Background Reading: 0.0 cps  
 Calibrator Reading: 1.0 cps  
 Sensitivity: 0.3000 GAPI/cps