



**COMPLETION  
& PRODUCTION  
SERVICES CO.**

**DUAL  
INDUCTION  
LOG**

|                              |                |                                                                   |  |
|------------------------------|----------------|-------------------------------------------------------------------|--|
| Company                      |                | MULL DRILLING COMPANY                                             |  |
| Well                         |                | HADDON #2-35                                                      |  |
| Field                        |                | SHAEFFER-ROTHGARN                                                 |  |
| County                       |                | BARTON                                                            |  |
| State                        |                | KANSAS                                                            |  |
| Location:                    |                | APL # : 15-009-25886-0000<br>1145' FSL & 1380' FEL<br>SW/4 - SE/4 |  |
| Permanent Datum              |                | GROUND LEVEL Elevation 1868                                       |  |
| Log Measured From            |                | KELLY BUSHING 8' A.G.L.                                           |  |
| Drilling Measured From       |                | KELLY BUSHING                                                     |  |
| SEC 35 TWP 20S RGE 13W       |                | Other Services<br>CDL/CNL<br>PE/MEL                               |  |
| Date                         | 9/30/13        |                                                                   |  |
| Run Number                   | ONE            |                                                                   |  |
| Depth Driller                | 3600           |                                                                   |  |
| Depth Logger                 | 3601           |                                                                   |  |
| Bottom Logged Interval       | 3599           |                                                                   |  |
| Top Log Interval             | 0              |                                                                   |  |
| Casing Driller               | 8 5/8" @ 280'  |                                                                   |  |
| Casing Logger                | 280'           |                                                                   |  |
| Bit Size                     | 7 7/8"         |                                                                   |  |
| Type Fluid in Hole           | CHEMICAL MUD   | CHLORIDES 8400 PPM                                                |  |
| Density / Viscosity          | 9.2 / 46       |                                                                   |  |
| pH / Fluid Loss              | 8.5 / 10.0     |                                                                   |  |
| Source of Sample             | FLOWLINE       |                                                                   |  |
| Rm @ Meas. Temp              | 0.45 @ 93F     |                                                                   |  |
| Rmt @ Meas. Temp             | 0.34 @ 93F     |                                                                   |  |
| Rmc @ Meas. Temp             | 0.54 @ 93F     |                                                                   |  |
| Source of Rmt / Rmc          | MEASUREMENT    |                                                                   |  |
| Rm @ BHT                     | 0.37 @ 112F    |                                                                   |  |
| Time Circulation Stopped     | 2 HOURS        |                                                                   |  |
| Time Logger on Bottom        |                |                                                                   |  |
| Maximum Recorded Temperature | 112F           |                                                                   |  |
| Equipment Number             | 4010           |                                                                   |  |
| Location                     | HAYS, KANSAS   |                                                                   |  |
| Recorded By                  | JEFF GRONEWEG  |                                                                   |  |
| Witnessed By                 | CHUCK SCHMALTZ |                                                                   |  |

<<< Fold Here >>>

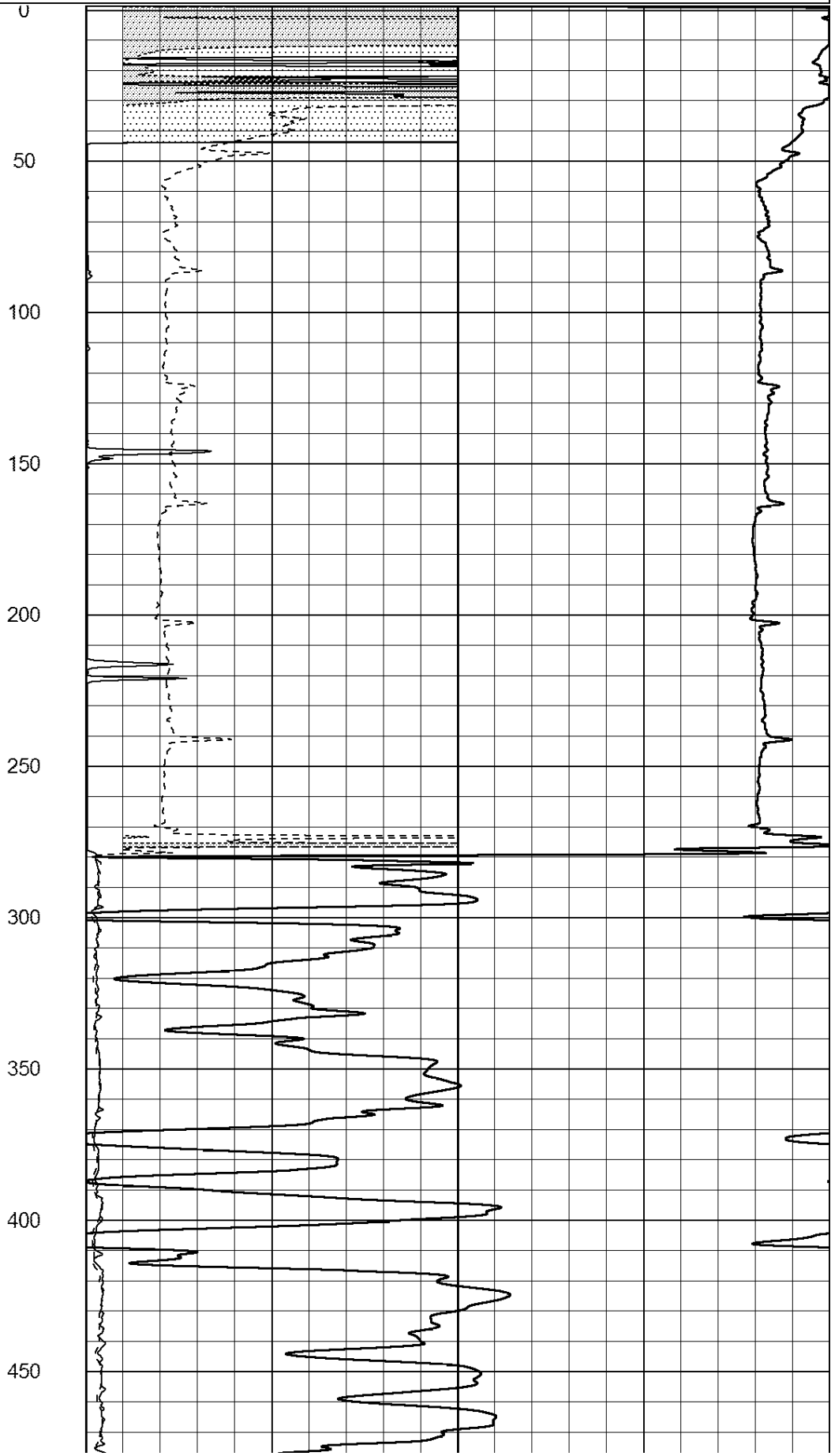
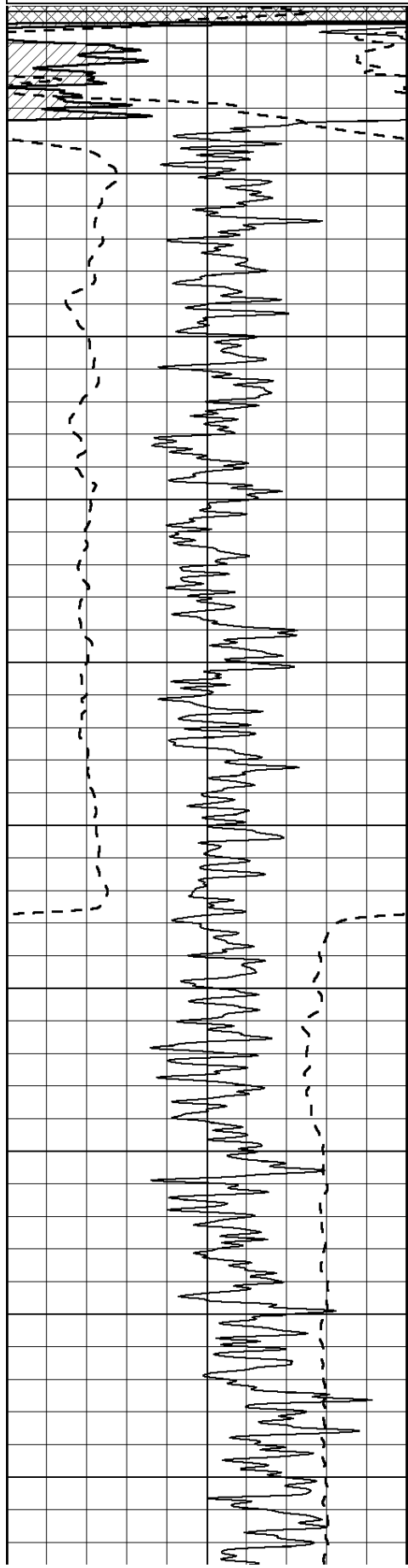
All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, 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.

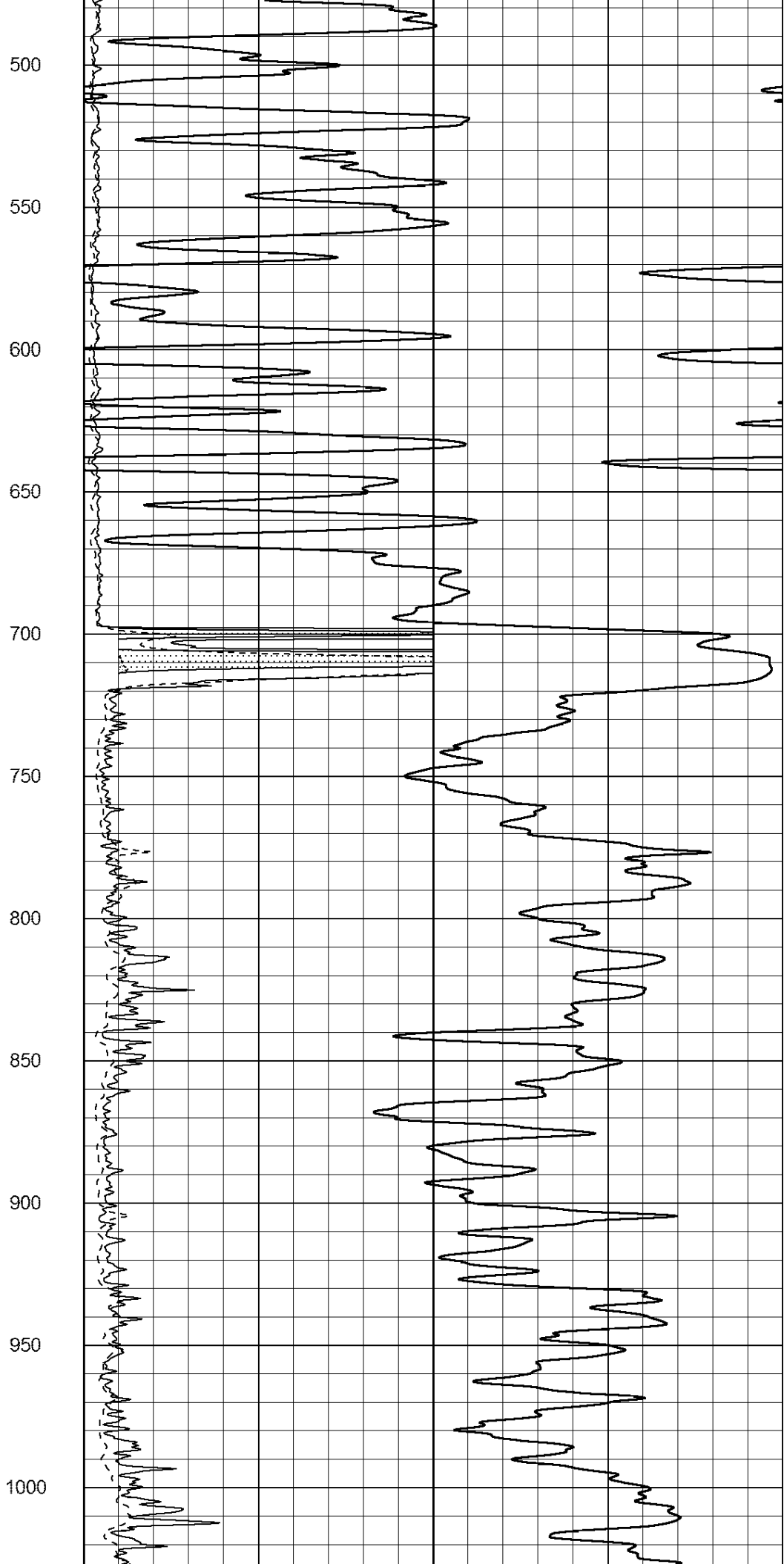
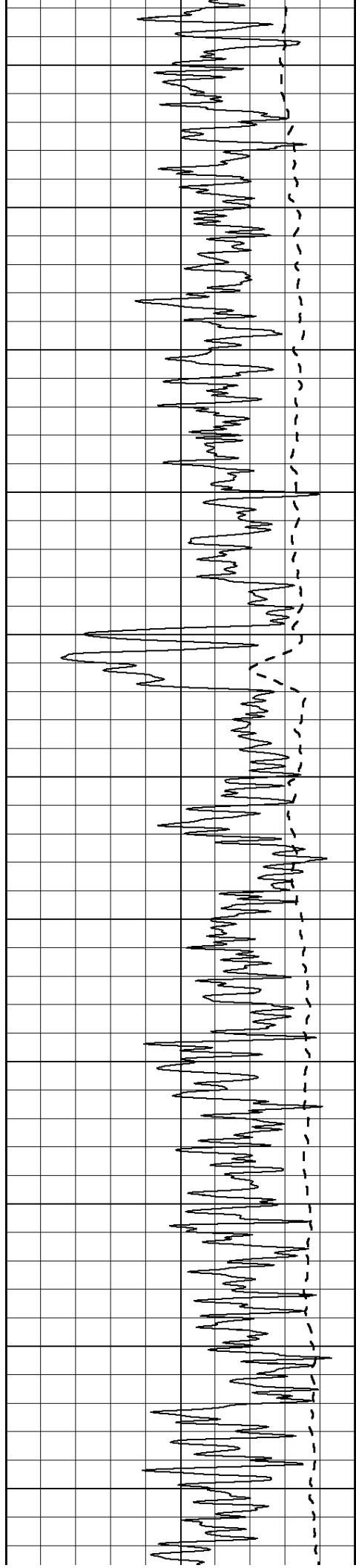
Comments

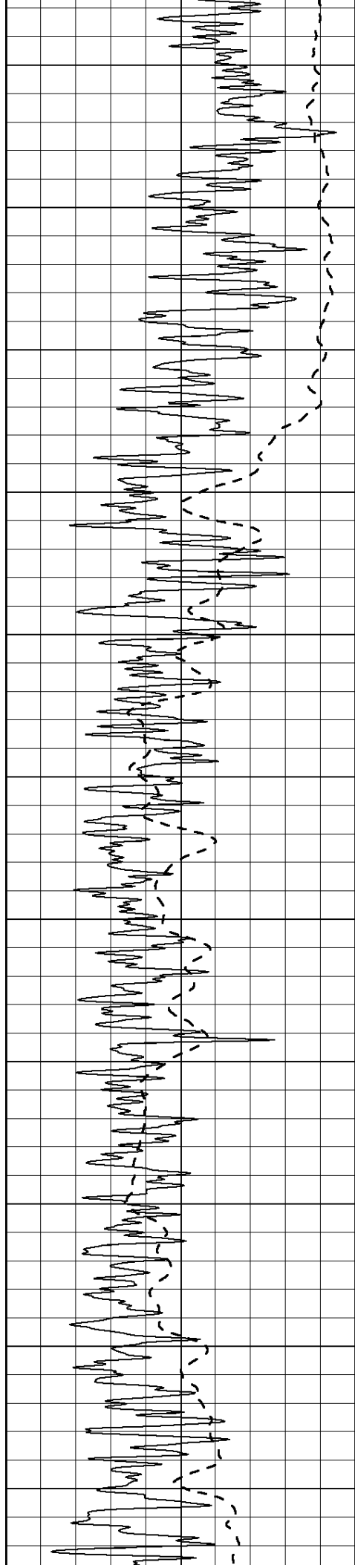
THANK YOU FOR USING NABORS, HAYS, KS. (785) 628-6395  
DIRECTIONS:  
GREAT BEND, KS - 6 MILES SOUTH TO RD SE 60  
2 MILES EAST TO RD SE 30 - 3/4 MILE SOUTH - WEST INTO

|                                         |                  |     |
|-----------------------------------------|------------------|-----|
| Charted by: Depth in feet scaled 1:1000 |                  |     |
| 0                                       | Gamma Ray (GAPI) | 150 |
| -100                                    | SP (mV)          | 100 |
| -----                                   |                  |     |

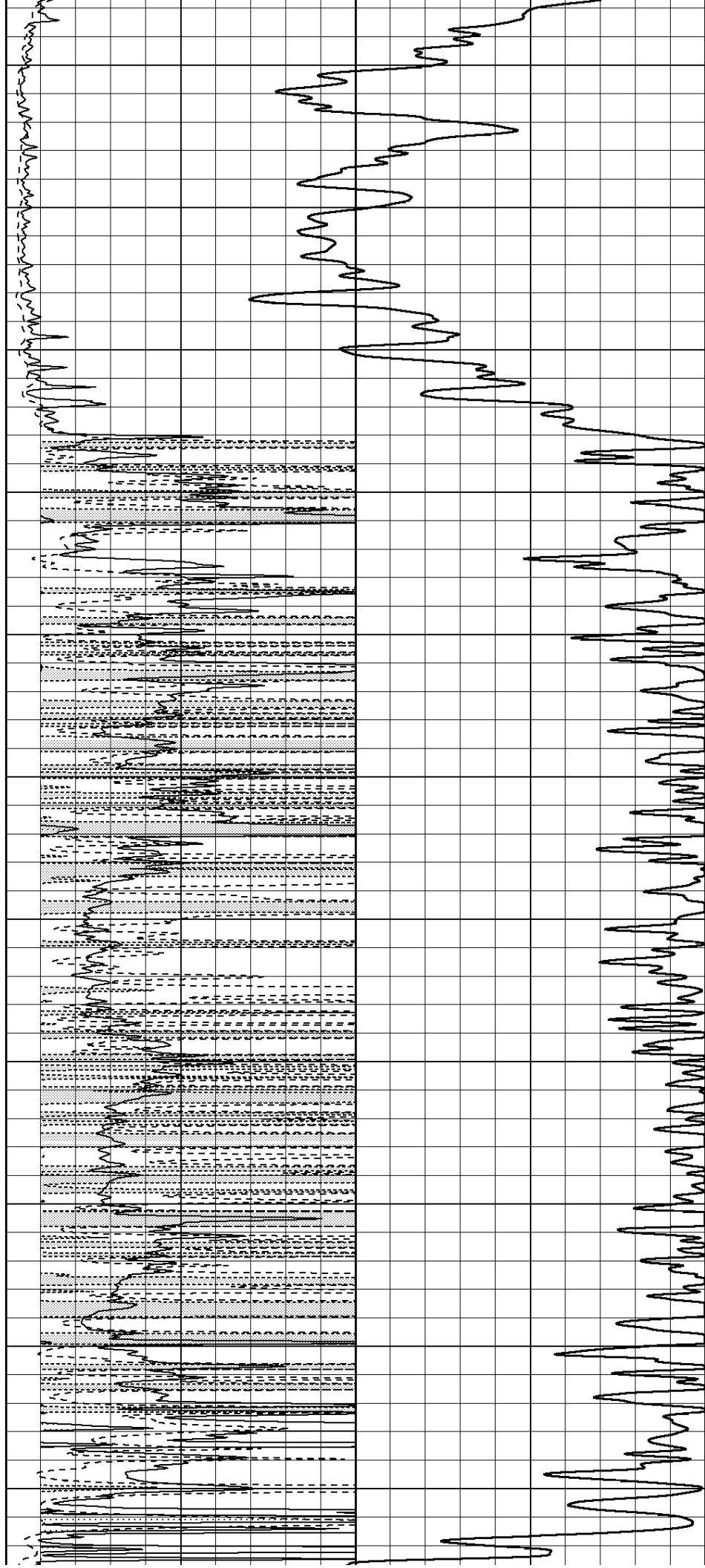
|      |                  |     |  |
|------|------------------|-----|--|
| 0    | RLL3 (Ohm-m)     | 50  |  |
| 0    | RILD (Ohm-m)     | 50  |  |
| 1000 | CILD (mmho/m)    |     |  |
| 50   | RILD X10 (Ohm-m) | 500 |  |
| 50   | RLL3 X10 (Ohm-m) | 500 |  |

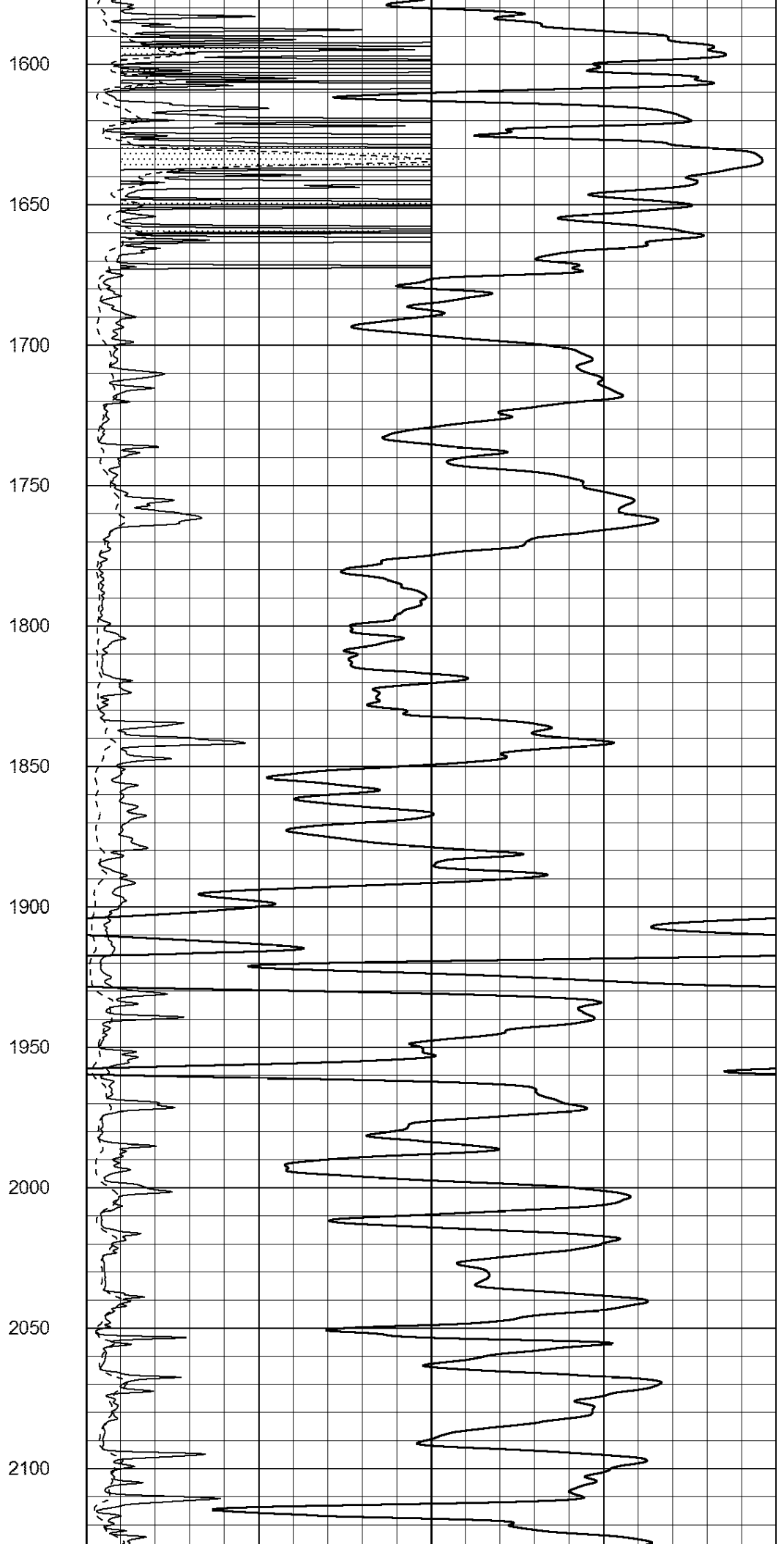
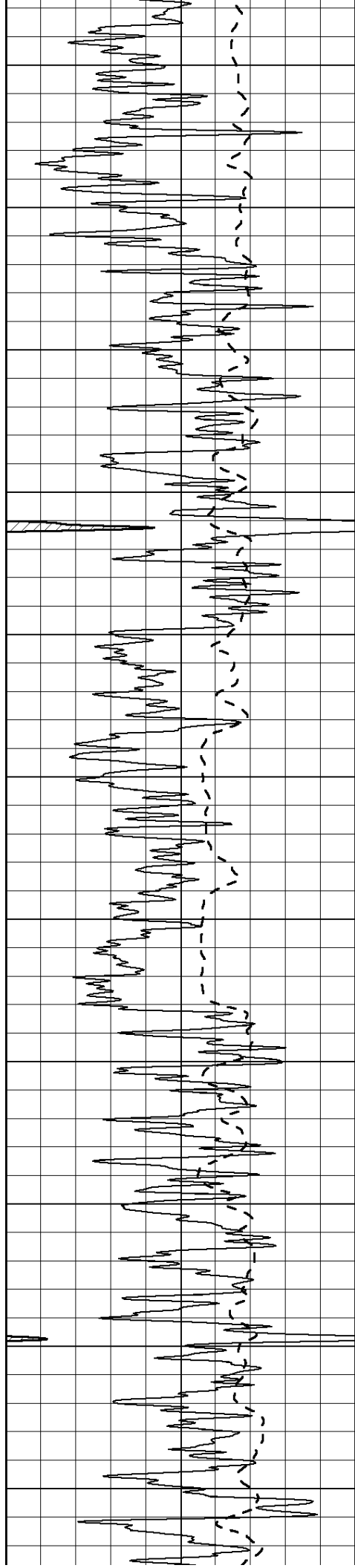


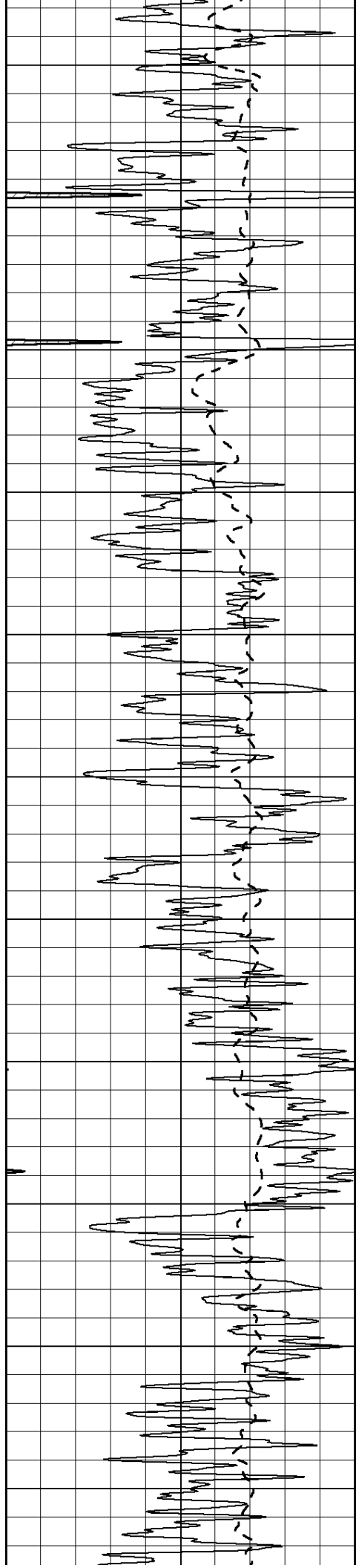




1050  
1100  
1150  
1200  
1250  
1300  
1350  
1400  
1450  
1500  
1550







2150

2200

2250

2300

2350

2400

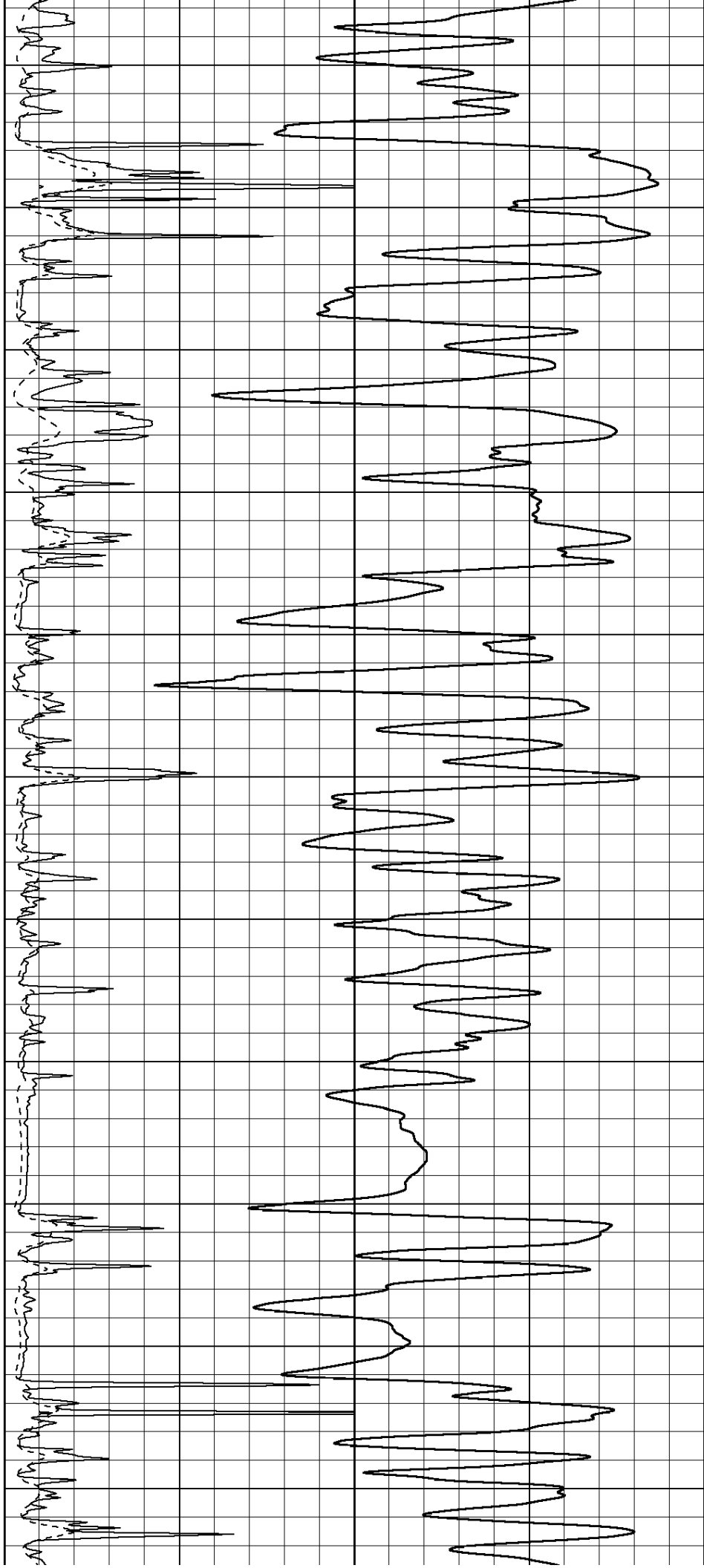
2450

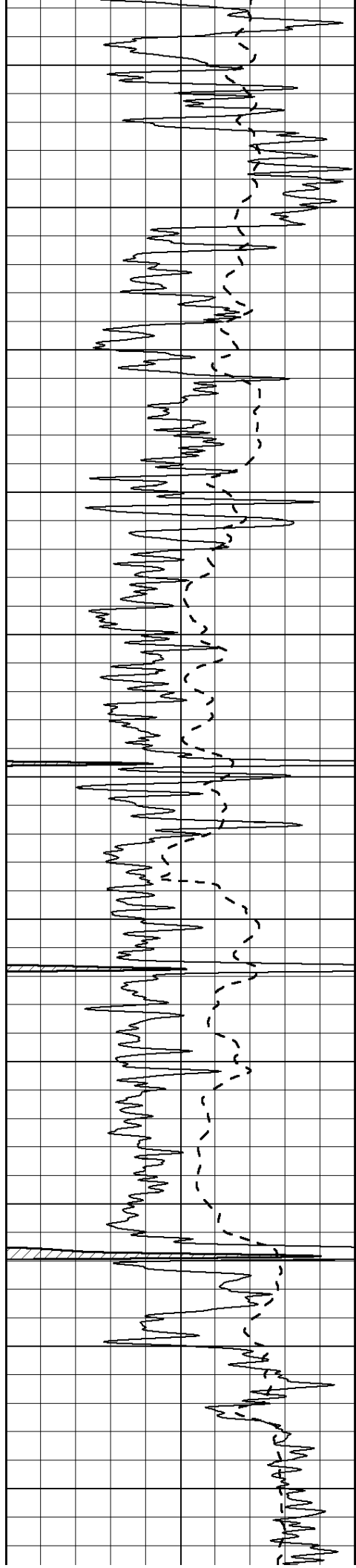
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2550

2600

2650





2700

2750

2800

2850

2900

2950

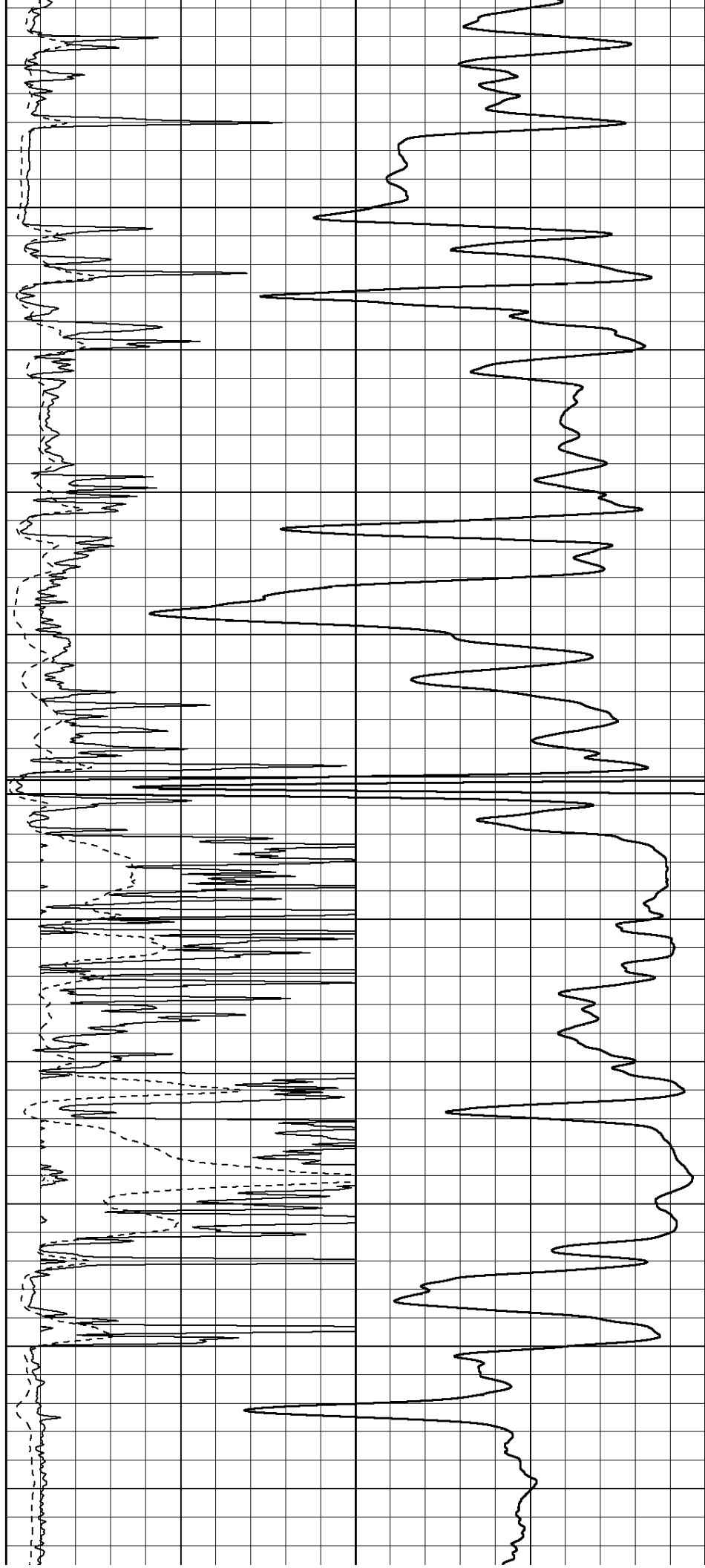
3000

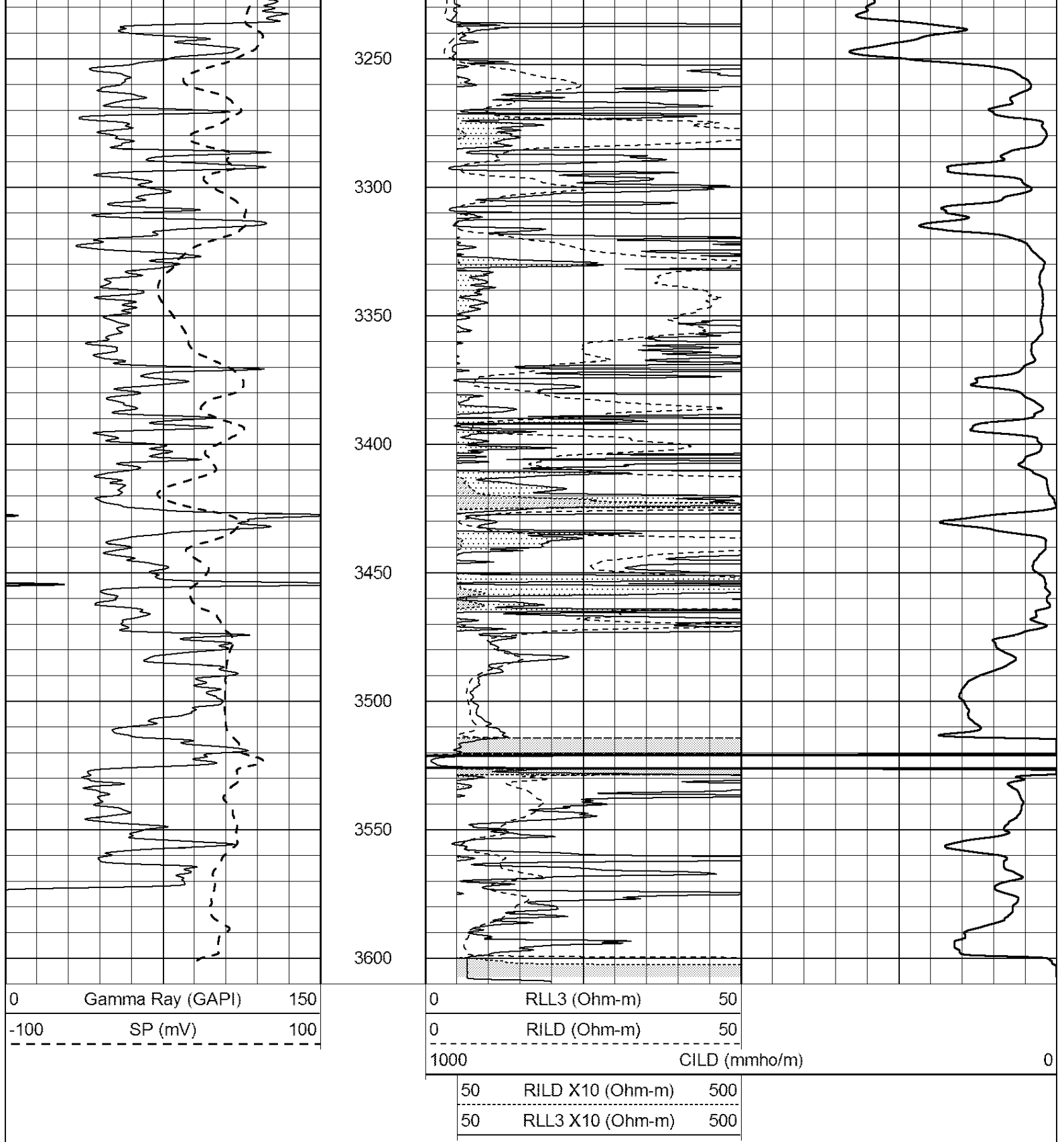
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3100

3150

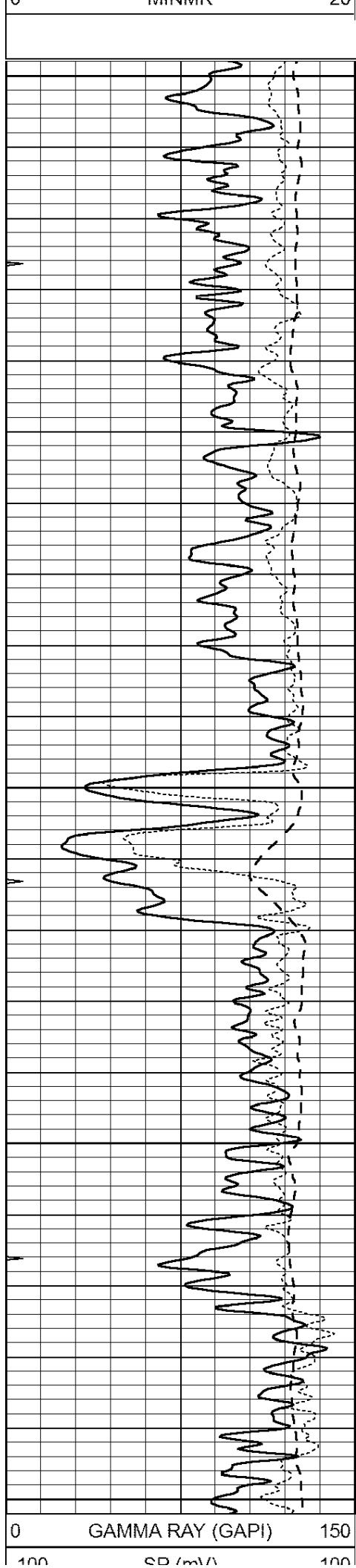
3200





Database File: 011789pe.db  
 Dataset Pathname: pass3.3  
 Presentation Format: \_dil  
 Dataset Creation: Mon Sep 30 12:05:15 2013 by Calc Open-Cased 090629  
 Charted by: Depth in Feet scaled 1:240

|      |                  |     |     |                          |      |
|------|------------------|-----|-----|--------------------------|------|
| 0    | GAMMA RAY (GAPI) | 150 | 0.2 | SHALLOW GUARD (Ohm-m)    | 2000 |
| -100 | SP (mV)          | 100 | 0.2 | DEEP INDUCTION (Ohm-m)   | 2000 |
| -250 | Rxo/Rt           | 50  | 0.2 | MEDIUM INDUCTION (Ohm-m) | 2000 |
| 0    | MINIMUM          | 20  |     |                          |      |



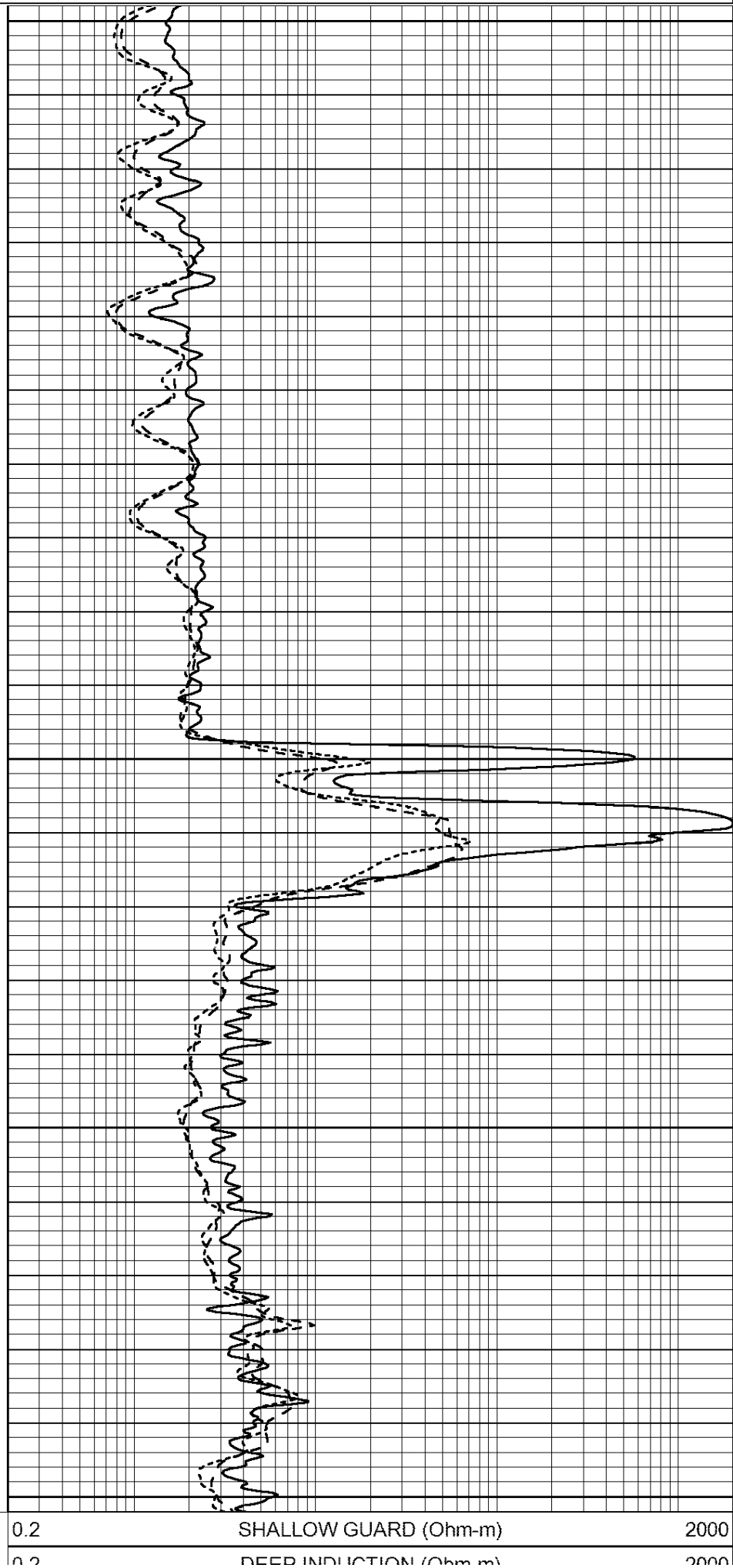
600

650

700

750

800



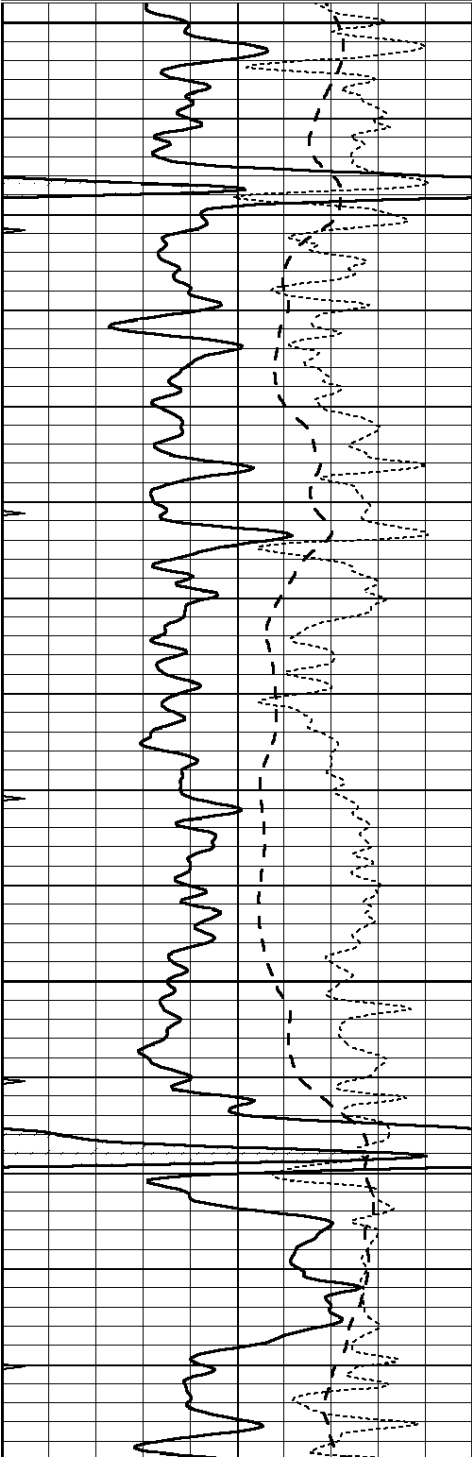
|      |         |     |
|------|---------|-----|
| 100  | SP (mV) | 100 |
| -250 | Rxo/Rt  | 50  |
| 0    | MINMK   | 20  |

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

|                      |                                                    |
|----------------------|----------------------------------------------------|
| Database File:       | 011789pe.db                                        |
| Dataset Pathname:    | pass3.2                                            |
| Presentation Format: | _dil                                               |
| Dataset Creation:    | Mon Sep 30 10:52:48 2013 by Calc Open-Cased 090629 |
| 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 |

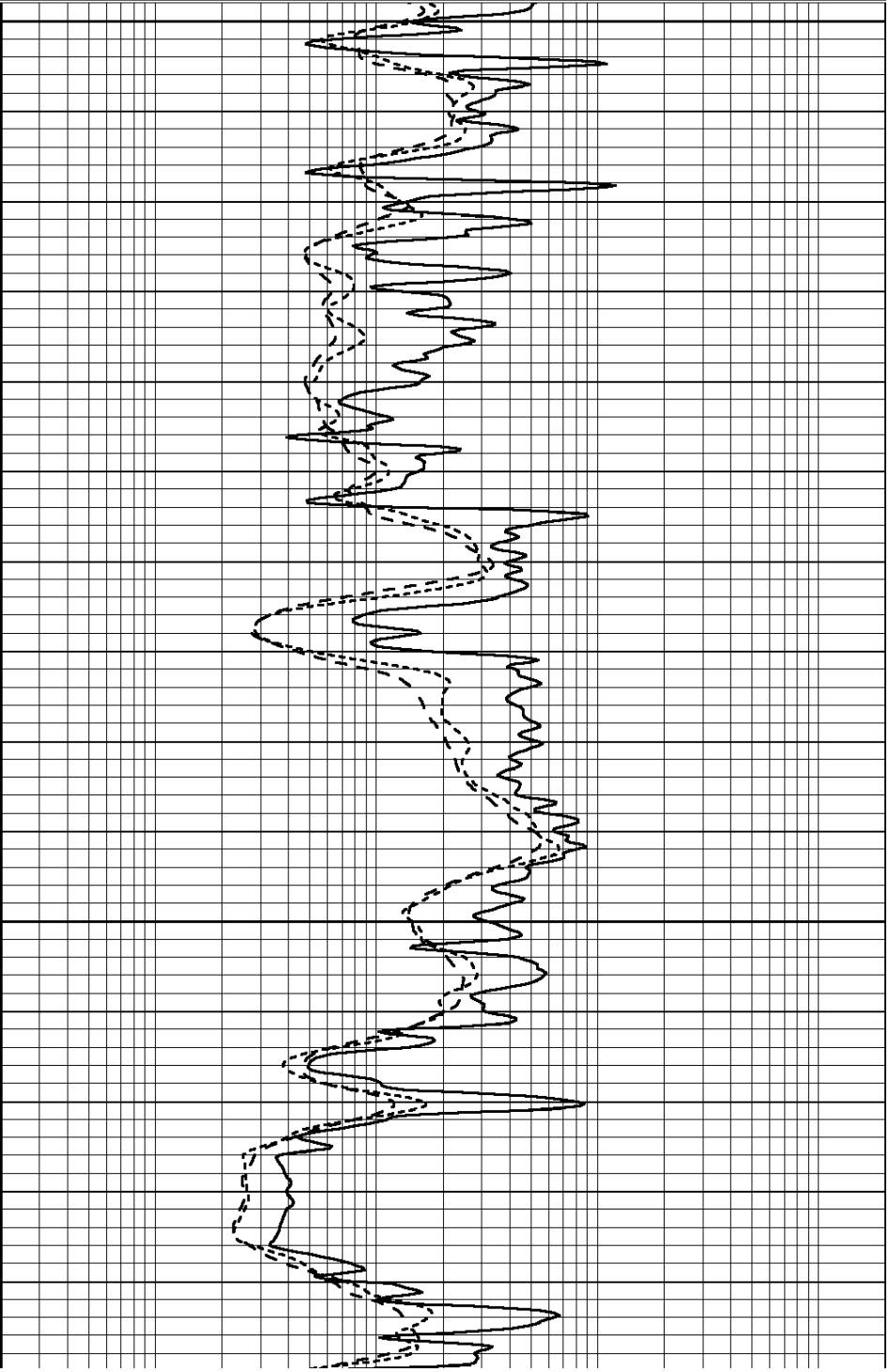


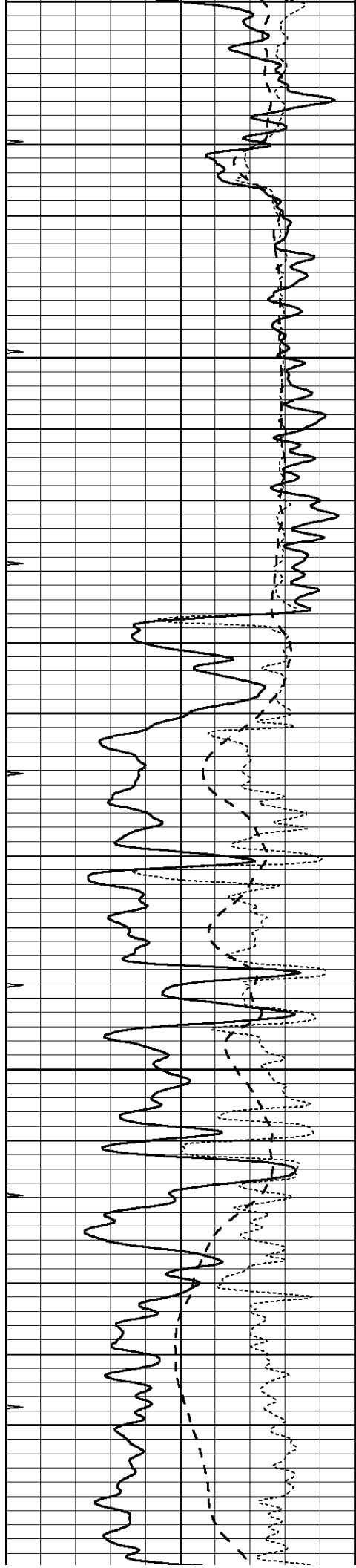
3000

3050

3100

3450





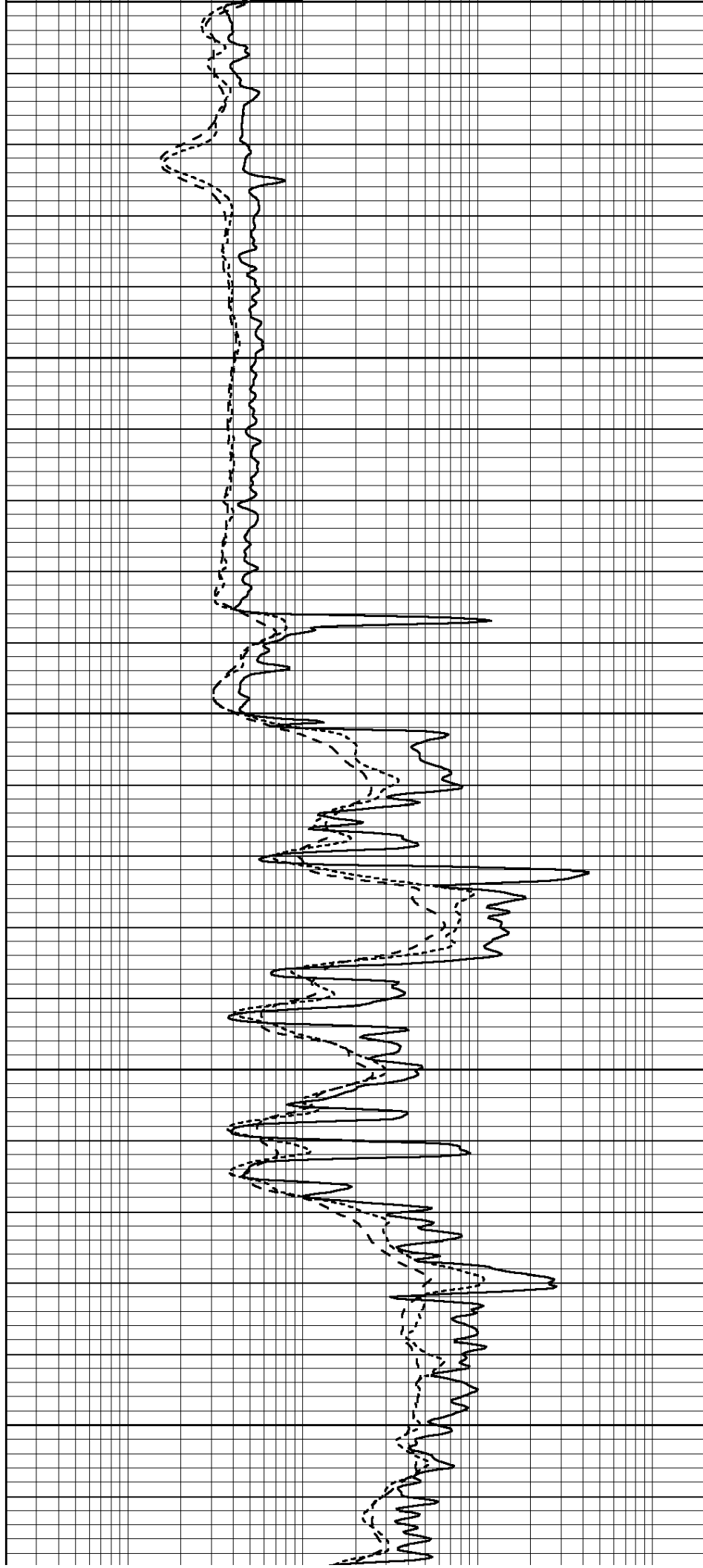
3150

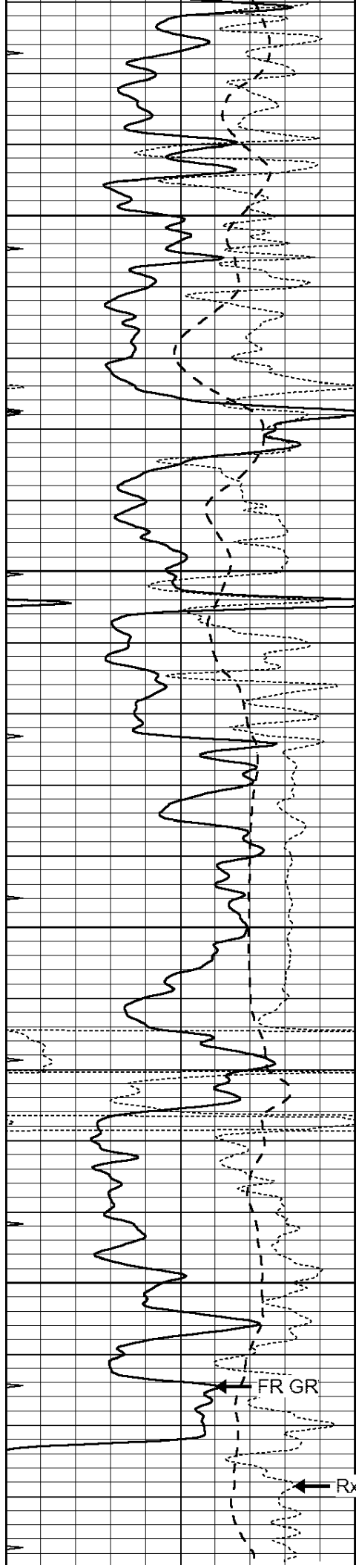
3200

3250

3300

3350





3400

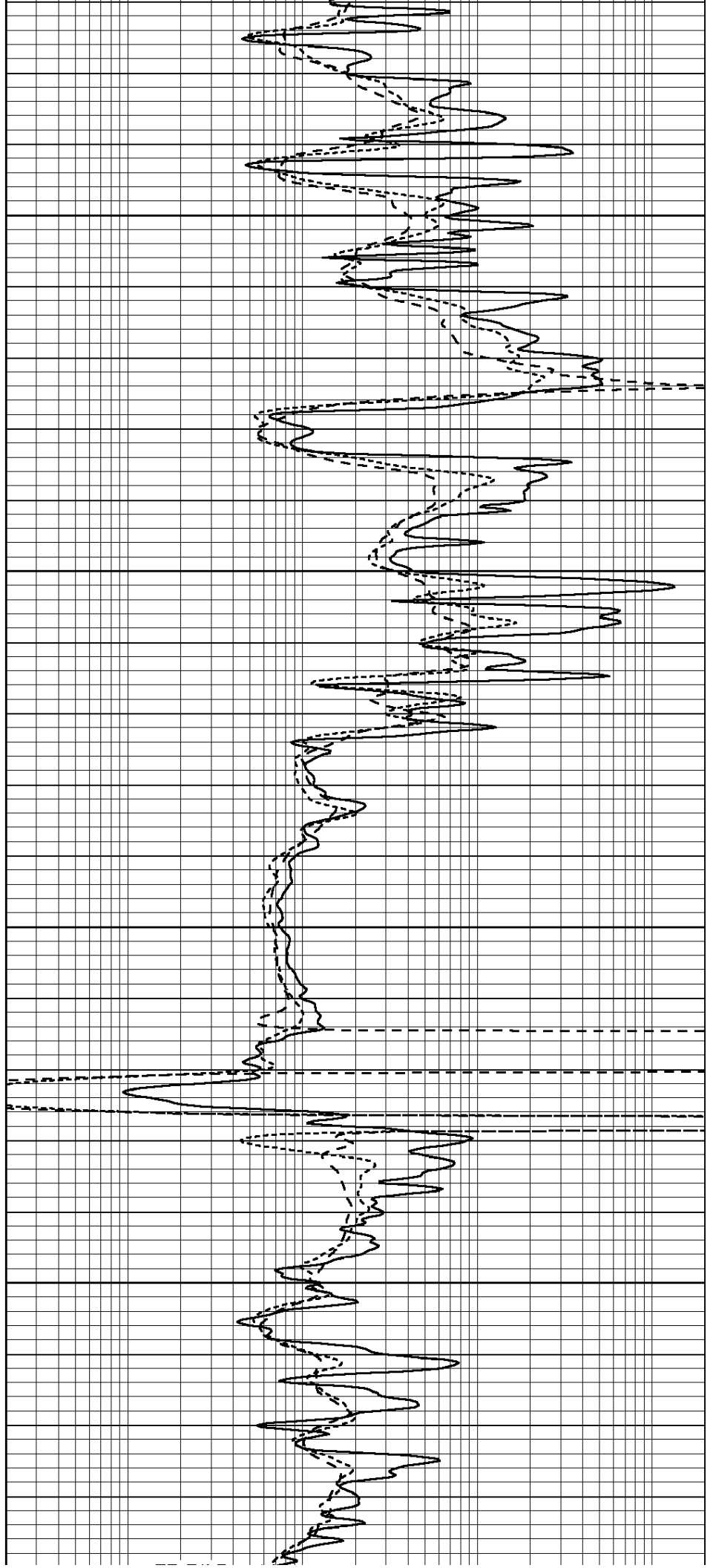
3450

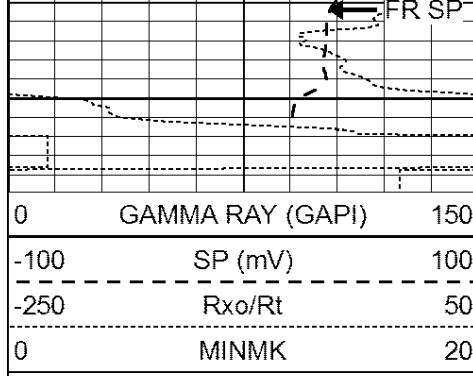
3500

3550

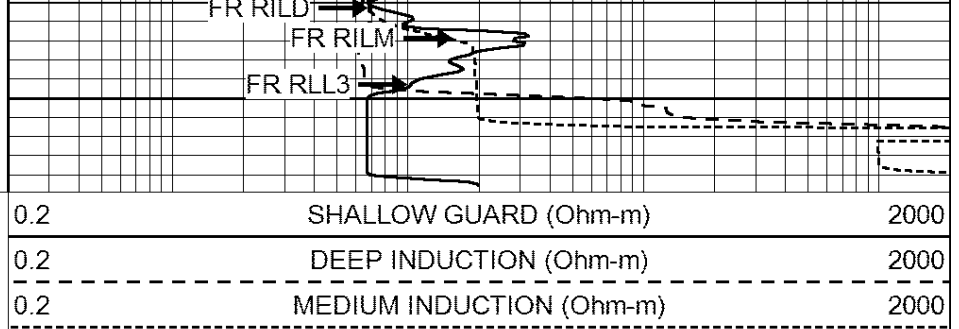
FR GR

RxoRt





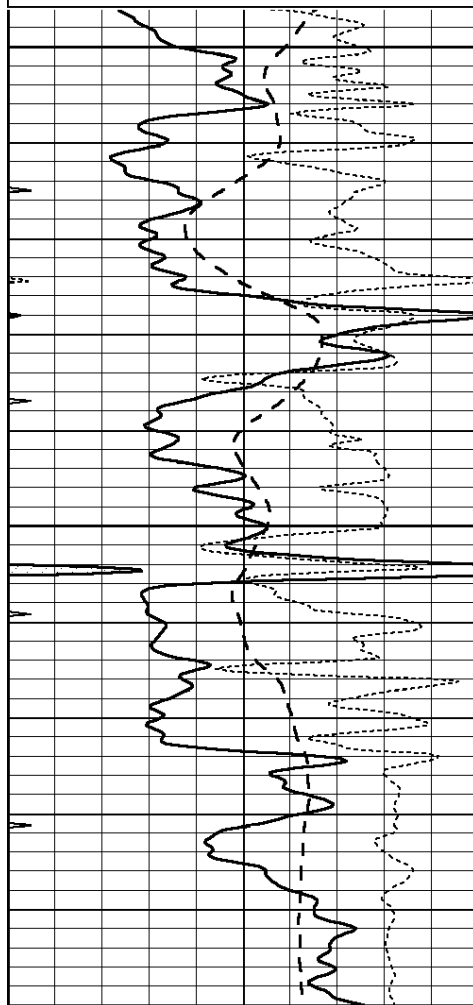
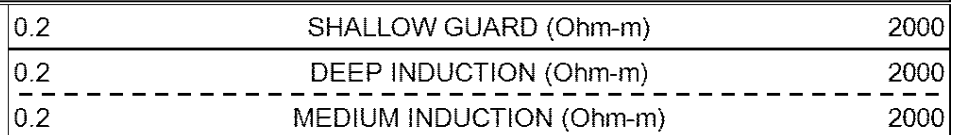
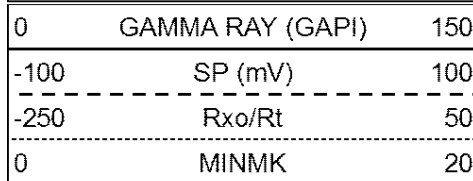
LTD 3601



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# REPEAT SECTION

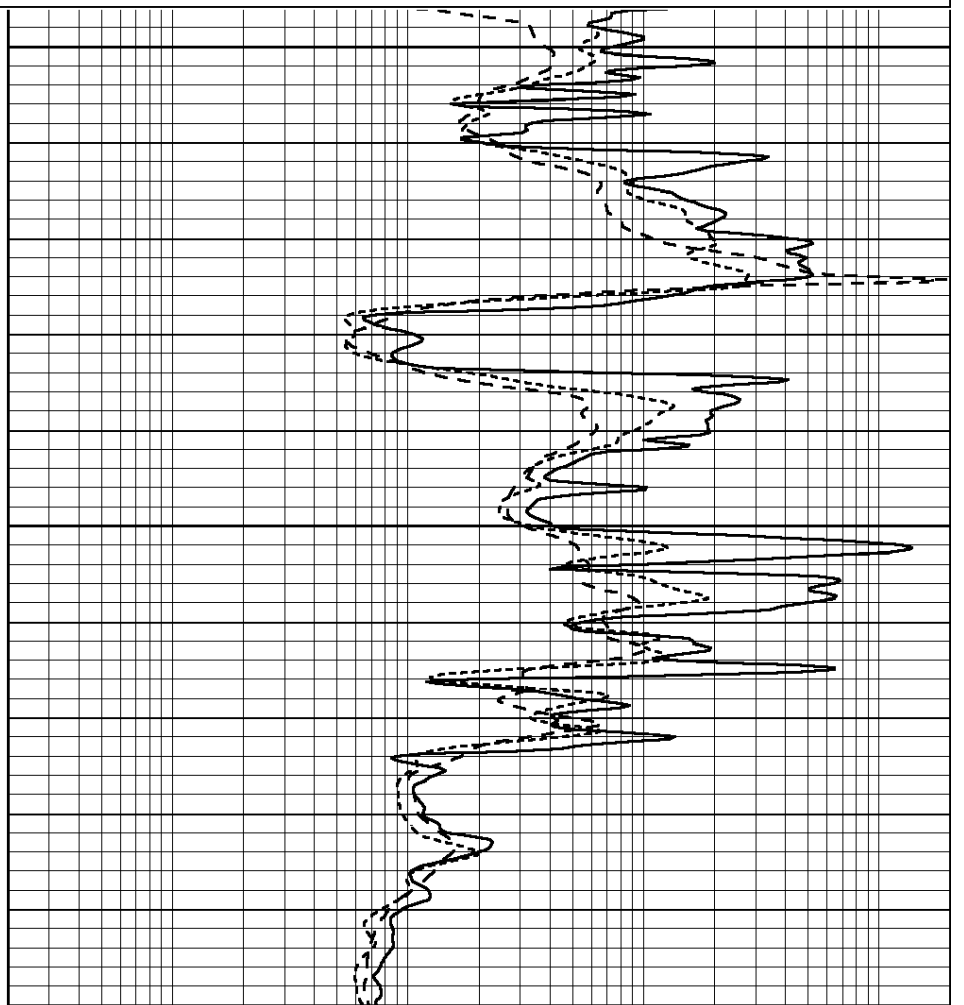
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 Charted by: Depth in Feet scaled 1:240

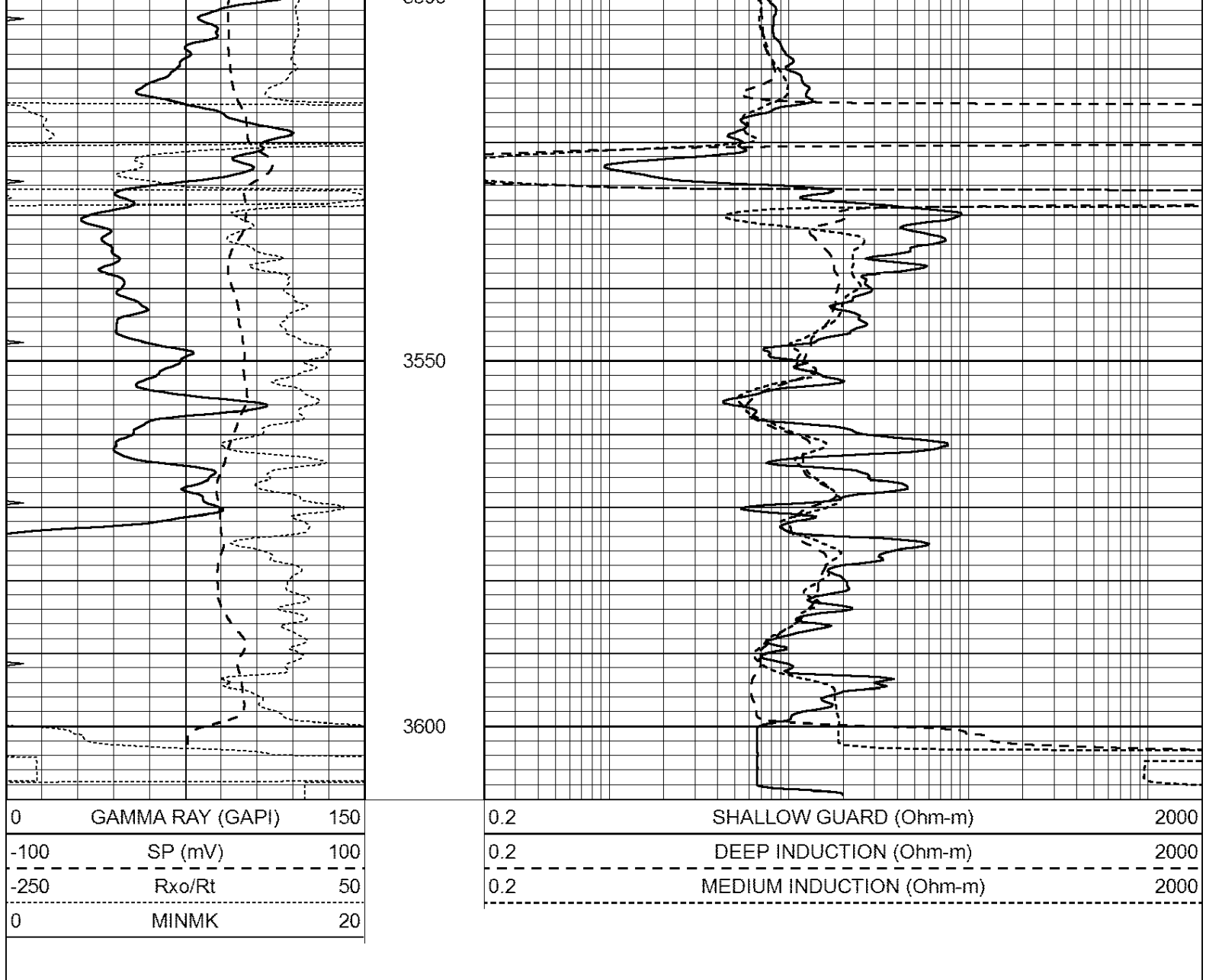


3400

3450

3500





| Calibration Report                   |                                                    |       |   |            |                          |        |         |         |  |
|--------------------------------------|----------------------------------------------------|-------|---|------------|--------------------------|--------|---------|---------|--|
| Database File:                       | 011789pe.db                                        |       |   |            |                          |        |         |         |  |
| Dataset Pathname:                    | pass3.3                                            |       |   |            |                          |        |         |         |  |
| Dataset Creation:                    | Mon Sep 30 12:05:15 2013 by Calc Open-Cased 090629 |       |   |            |                          |        |         |         |  |
| Dual Induction Calibration Report    |                                                    |       |   |            |                          |        |         |         |  |
| Serial-Model:                        |                                                    |       |   |            | PROBE8-DILG              |        |         |         |  |
| Surface Cal Performed:               |                                                    |       |   |            | Fri Aug 01 06:33:19 2008 |        |         |         |  |
| Downhole Cal Performed:              |                                                    |       |   |            | Mon Jul 28 11:08:27 2008 |        |         |         |  |
| After Survey Verification Performed: |                                                    |       |   |            | Mon Jul 28 11:08:27 2008 |        |         |         |  |
| Surface Calibration                  |                                                    |       |   |            |                          |        |         |         |  |
| Readings                             |                                                    |       |   | References |                          |        | Results |         |  |
| Loop:                                | Air                                                | Loop  |   | Air        | Loop                     |        | m       | b       |  |
| Deep                                 | 0.015                                              | 0.648 | V | 0.000      | 400.000                  | mmho/m | 632.616 | -9.730  |  |
| Medium                               | 0.029                                              | 0.796 | V | 0.000      | 464.000                  | mmho/m | 605.049 | -17.680 |  |
| 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: 003                      |  |  | Model: PRB |  |  |  |  |  |

| Master Calibration |            |             | Performed Thu Jul 26 15:13:22 2007 |                     |  |  |         |      |
|--------------------|------------|-------------|------------------------------------|---------------------|--|--|---------|------|
|                    | Background | Magnesium   | Aluminum                           | Sandstone           |  |  |         |      |
| Window 1           | 2128.0     | 9601.6      | 3737.0                             | 10737.0             |  |  |         | cps  |
| Window 2           | 1913.5     | 7519.1      | 3114.0                             | 8210.1              |  |  |         | cps  |
| Window 3           | 1668.2     | 5026.8      | 2370.0                             | 5373.3              |  |  |         | cps  |
| Window 4           | 492.7      | 497.5       | 492.3                              | 491.1               |  |  |         | cps  |
| Long Space         | 0.0        | 5605.6      | 1200.5                             | 6296.6              |  |  |         | cps  |
| Short Space        | 2.2        | 2279.3      | 1489.7                             | 2489.1              |  |  |         | cps  |
| Rho                |            | 1.7100      | 2.5900                             | 1.3800              |  |  |         | g/cc |
| Pe                 |            | 0.0000      | 2.5700                             | 1.5500              |  |  |         |      |
| Rib Angle          | : 44.6     | Rib Slope   | : 0.985                            | Density/Spine Ratio |  |  | : 0.550 |      |
| Spine Angle        | : 74.6     | Spine Slope | : 3.623                            | Spine Intercept     |  |  | : -19.4 |      |

| 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    |  |  |  | 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 |  |  |  |      |

|                                        |             |                          |     |               |     |
|----------------------------------------|-------------|--------------------------|-----|---------------|-----|
| Measured Fe                            |             | 0.0000                   |     | 0.0000        |     |
|                                        |             |                          |     |               |     |
| Compensated Neutron Calibration Report |             |                          |     |               |     |
| Serial Number:                         |             | 6I                       |     |               |     |
| Tool Model:                            |             | G                        |     |               |     |
| CALIBRATION                            |             |                          |     |               |     |
| Detector                               |             | Readings                 |     | Target        |     |
|                                        |             |                          |     | Normalization |     |
| Short Space                            |             | 1.00                     | cps | 1.00          | cps |
| Long Space                             |             | 1.00                     | cps | 1.00          | cps |
| 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:                         |             | #8                       |     |               |     |
| Tool Model:                            |             | OPEN                     |     |               |     |
| Performed:                             |             | Tue Jun 18 19:34:11 2013 |     |               |     |
| Calibrator Value:                      |             | 150.0                    |     | GAPI          |     |
| Background Reading:                    |             | 0.0                      |     | cps           |     |
| Calibrator Reading:                    |             | 175.0                    |     | cps           |     |
| Sensitivity:                           |             | 0.8371                   |     | GAPI/cps      |     |