



# NABORS

**COMPLETION  
& PRODUCTION  
SERVICES CO.**

**COMPENSATED  
DENSITY/NEUTRON  
PE LOG**

|                              |                                                                   |                    |                           |
|------------------------------|-------------------------------------------------------------------|--------------------|---------------------------|
| Company                      | WHITE & ELLIS DRILLING, INC.                                      |                    |                           |
| Well                         | CHAIN RANCH "B" #1                                                |                    |                           |
| Field                        | AMBER CREEK SOUTH                                                 |                    |                           |
| County                       | BARBER                                                            | State              | KANSAS                    |
| Location:                    | AP1 #: 15-007-24163-0000<br>1040' FSL & 530' FWL                  |                    | Other Services<br>DIL/MEL |
| Well                         | CHAIN RANCH "B" #1                                                |                    |                           |
| Field                        | AMBER CREEK SOUTH                                                 |                    |                           |
| County                       | BARBER                                                            | State              | KANSAS                    |
| Permanent Datum              | SEC 1                                                             | TWP 31S            | RGE 12W                   |
| Log Measured From            | GROUND LEVEL Elevation 1581<br>KELLY BUSHING 10' A.G.L.           |                    |                           |
| Drilling Measured From       | KELLY BUSHING<br>Elevation<br>K.B. 1591<br>D.F. 1589<br>G.L. 1581 |                    |                           |
| Date                         | 4/23/14                                                           |                    |                           |
| Run Number                   | ONE                                                               |                    |                           |
| Depth Driller                | 4650                                                              |                    |                           |
| Depth Logger                 | 4650                                                              |                    |                           |
| Bottom Logged Interval       | 4636                                                              |                    |                           |
| Top Log Interval             | 3200                                                              |                    |                           |
| Casing Driller               | 8 5/8" @ 350                                                      |                    |                           |
| Casing Logger                | 344                                                               |                    |                           |
| Bit Size                     | 7 7/8"                                                            |                    |                           |
| Type Fluid in Hole           | CHEMICAL MUD                                                      | CHLORIDES 5000 PPM |                           |
| Density / Viscosity          | 9.3/52                                                            |                    |                           |
| pH / Fluid Loss              | 10.5/9.0                                                          |                    |                           |
| Source of Sample             | FLOWLINE                                                          |                    |                           |
| Rm @ Meas. Temp              | .75 @ 80F                                                         |                    |                           |
| Rmt @ Meas. Temp             | .56 @ 80F                                                         |                    |                           |
| Rmc @ Meas. Temp             | .90 @ 80F                                                         |                    |                           |
| Source of Rmt / Rmc          | MEASUREMENT                                                       |                    |                           |
| Rm @ BHT                     | .48 @ 123F                                                        |                    |                           |
| Time Circulation Stopped     | 2 HOURS                                                           |                    |                           |
| Time Logger on Bottom        |                                                                   |                    |                           |
| Maximum Recorded Temperature | 123F                                                              |                    |                           |
| Equipment Number             | 4010                                                              |                    |                           |
| Location                     | HAYS, KANSAS                                                      |                    |                           |
| Recorded By                  | JASON CAPPELLUCCI                                                 |                    |                           |
| Witnessed By                 | ADAM NIGHSWONGER                                                  |                    |                           |

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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

THANK YOU FOR USING NABORS, HAYS, KS. (785) 628-6395

### DIRECTIONS:

SAWYER, KS. - SOUTH TO RESORT RD. (99 SPRINGS RD.) - 1/4 EAST TO GALLARDIA RD.  
1/4 SOUTH - WEST INTO AT CATTLE GUARD

Database File:

24231pe.db

Dataset Pathname:

pass3.1

Presentation Format:

\_ldt\_neu

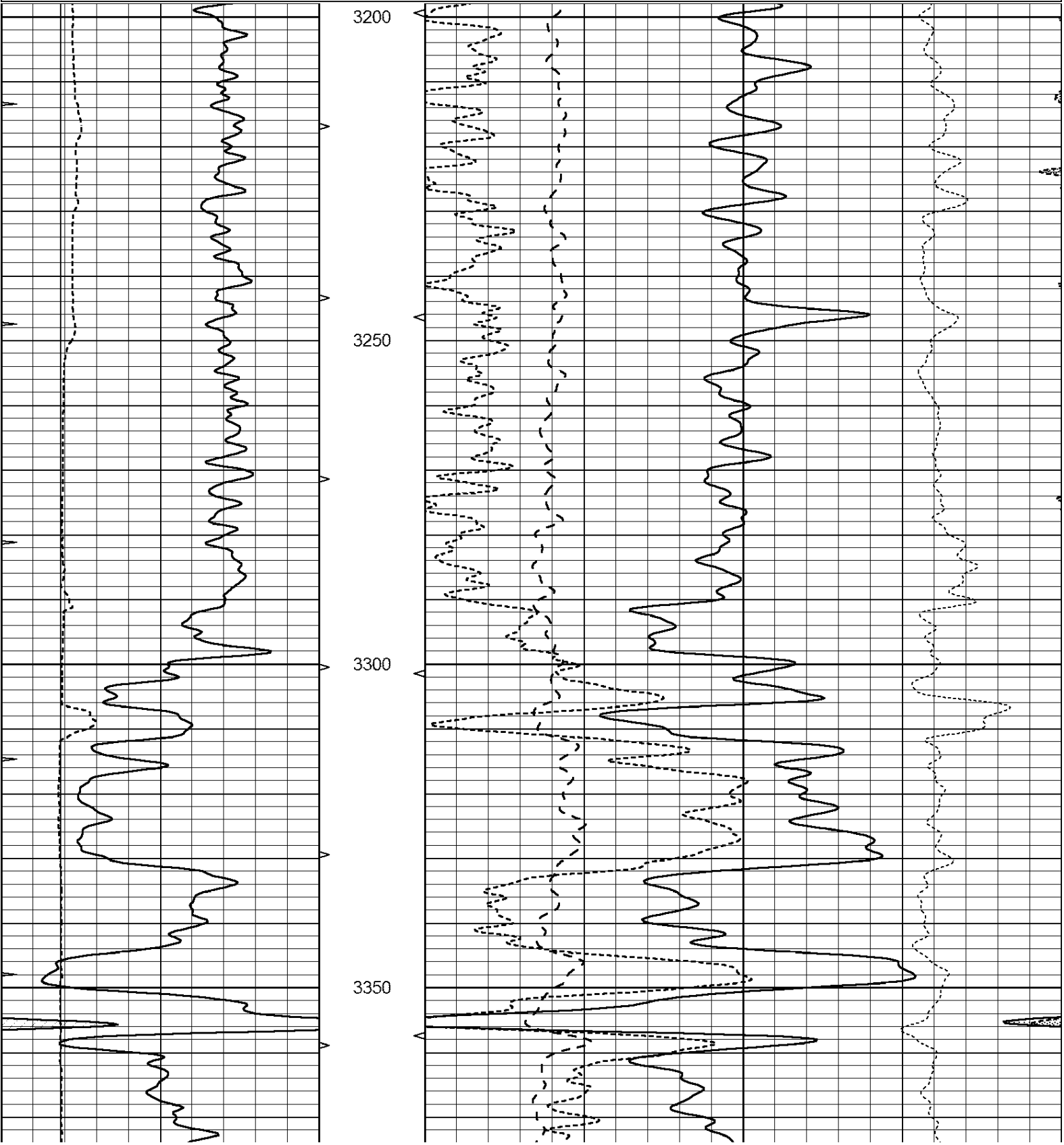
Dataset Creation:

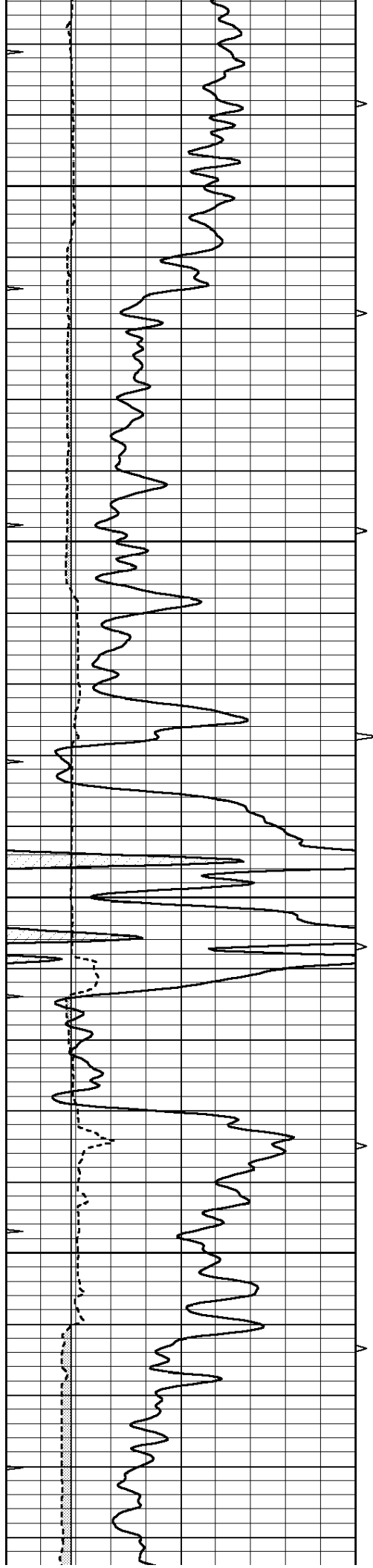
Wed Apr 23 08:07:05 2014 by Calc Open-Cased 090629

Charted by:

Depth in Feet scaled 1:240

|       |                  |     |          |    |                          |                          |       |                   |      |
|-------|------------------|-----|----------|----|--------------------------|--------------------------|-------|-------------------|------|
| 0     | GAMMA RAY (GAPI) | 150 | ABHV     | 30 | COMPENSATED DENSITY (pu) |                          |       | -10               |      |
| 6     | CALIPER (in)     | 16  | 10 (ft3) | 0  | 30                       | COMPENSATED NEUTRON (pu) |       |                   | -10  |
| ----- |                  |     |          |    |                          |                          |       |                   |      |
| 0     | MINMK            | 20  | TBHV     | 0  | PE                       | 10                       | -0.25 | CORRECTION (g/cc) | 0.25 |
|       |                  |     | 0 (ft3)  | 10 |                          |                          |       |                   |      |
|       |                  |     |          |    |                          |                          |       |                   |      |



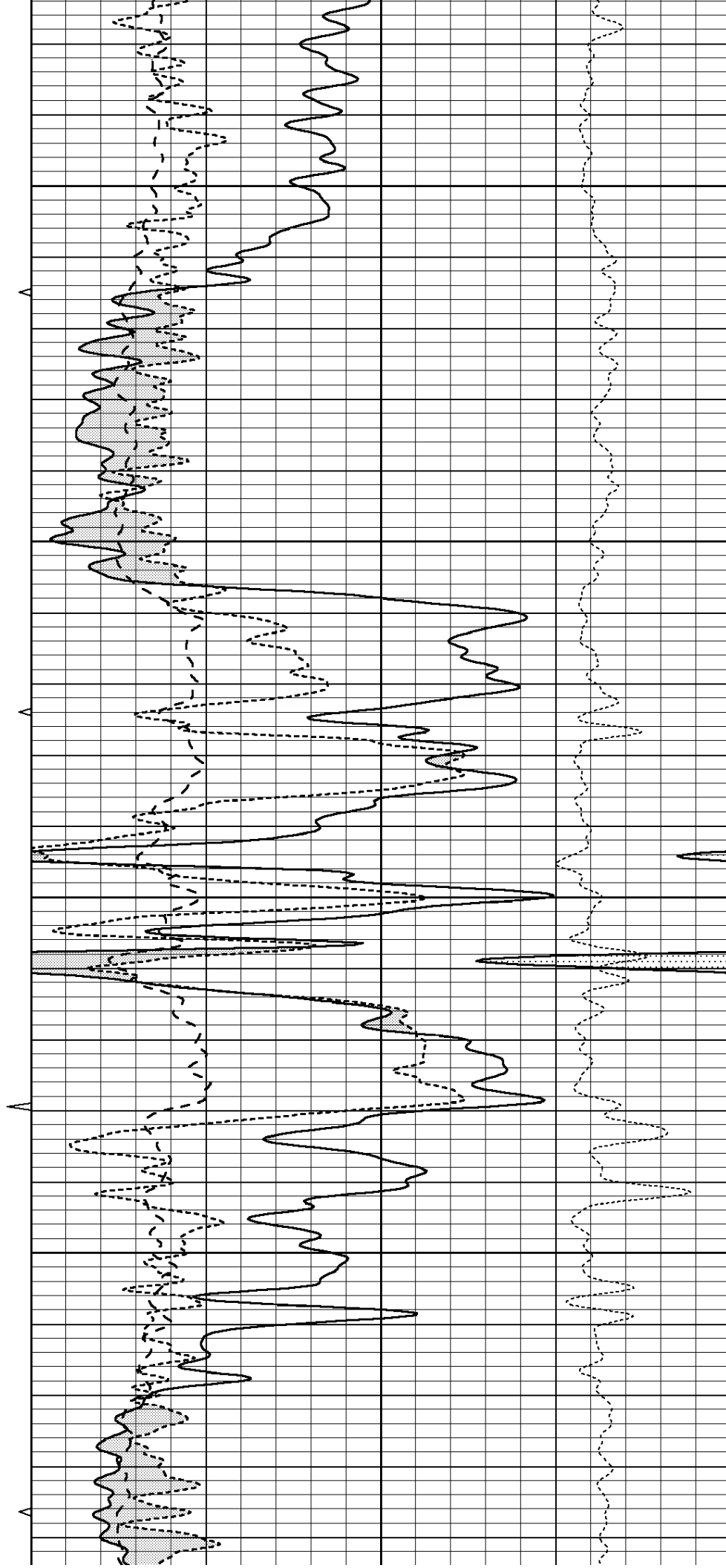


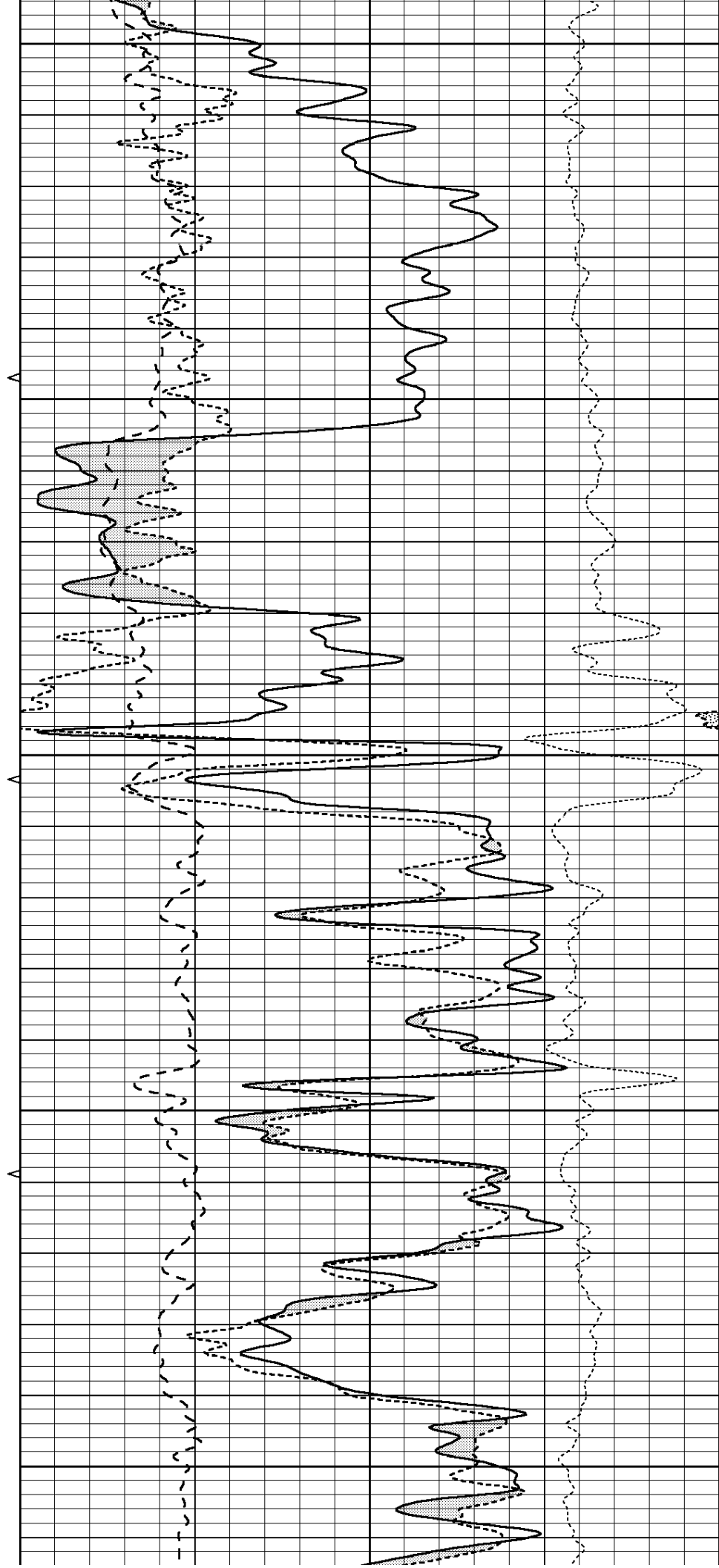
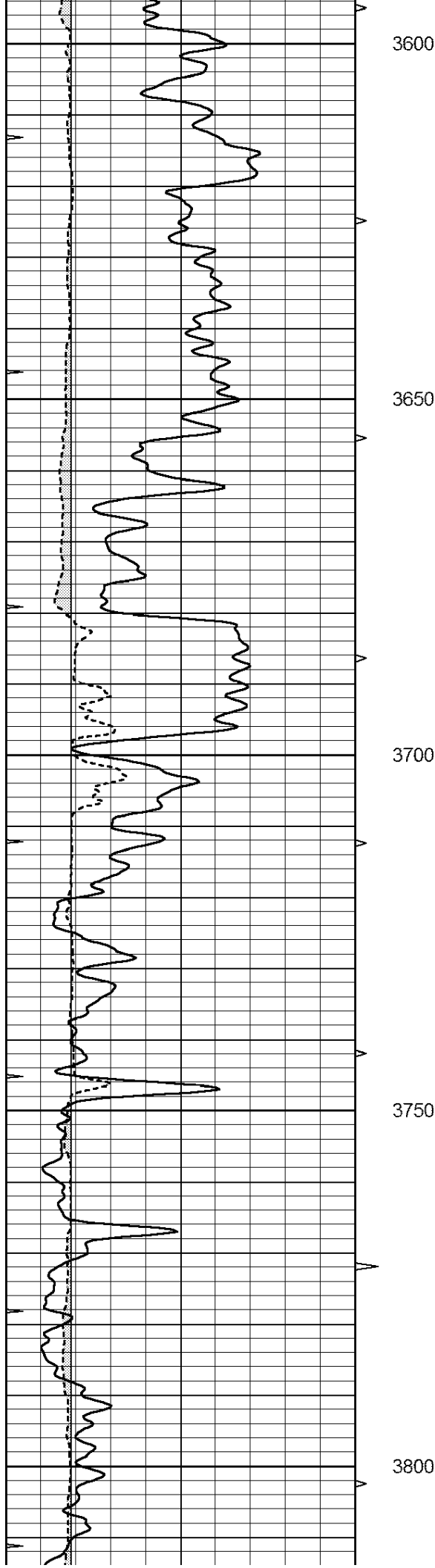
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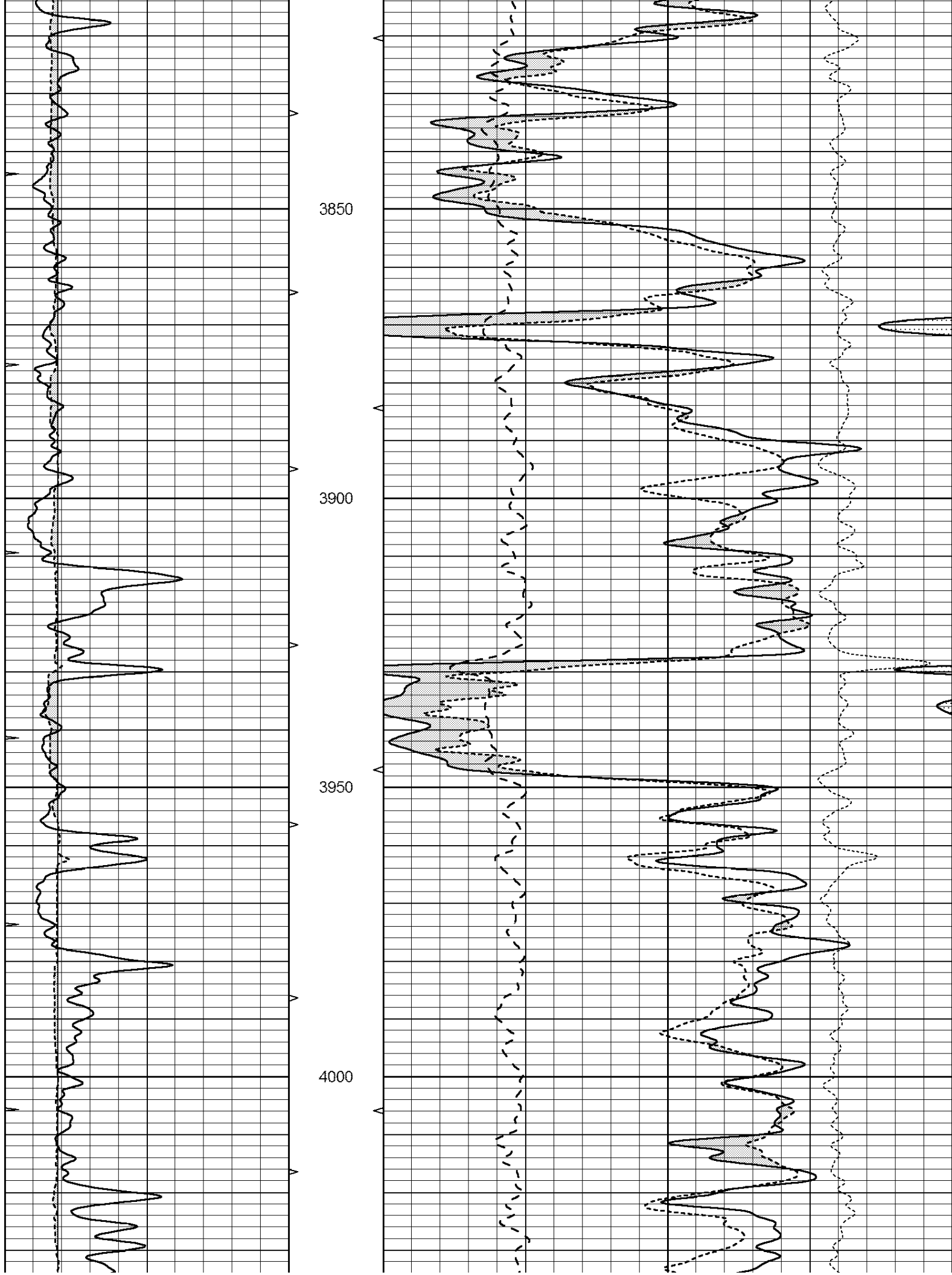
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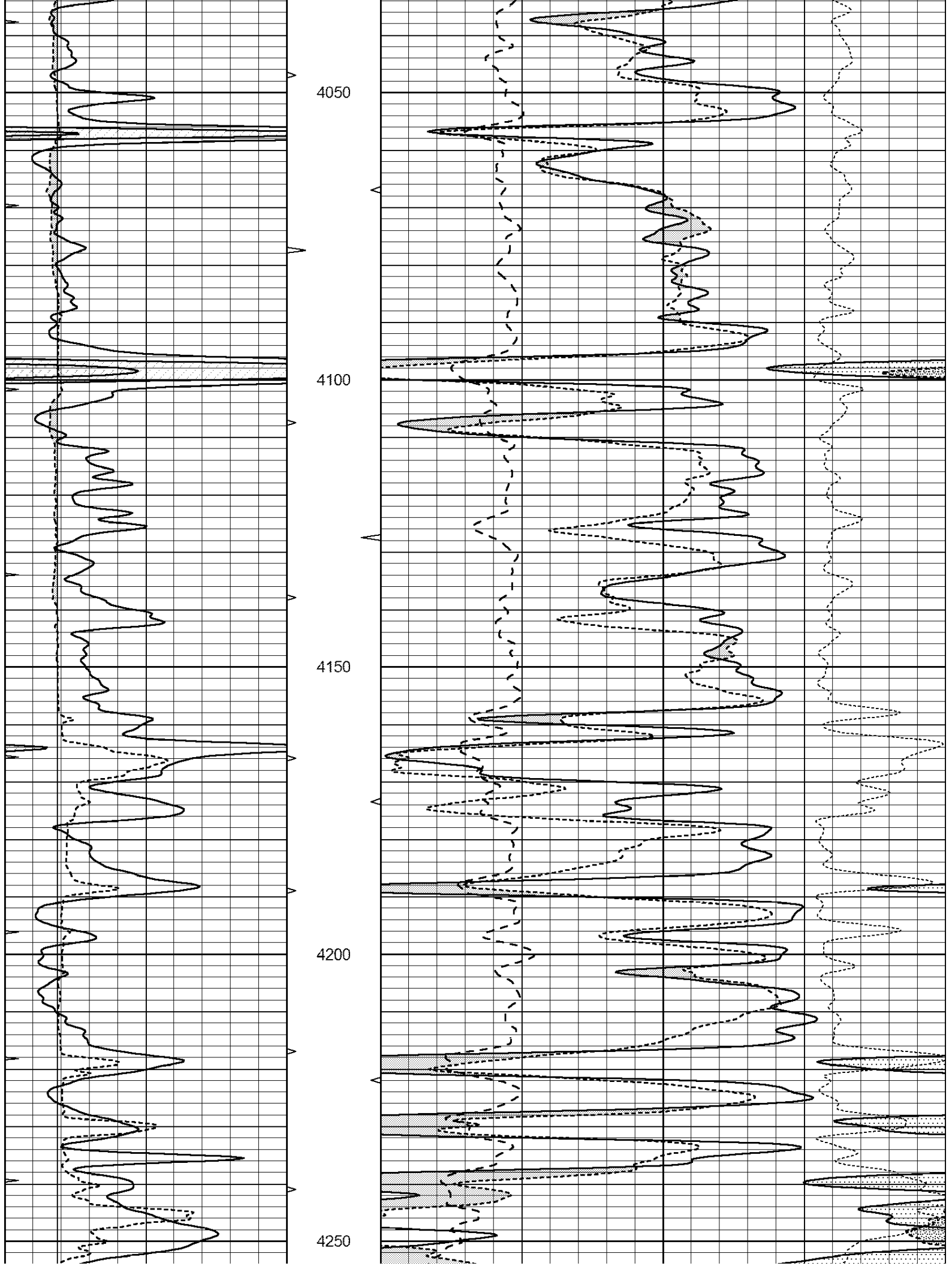
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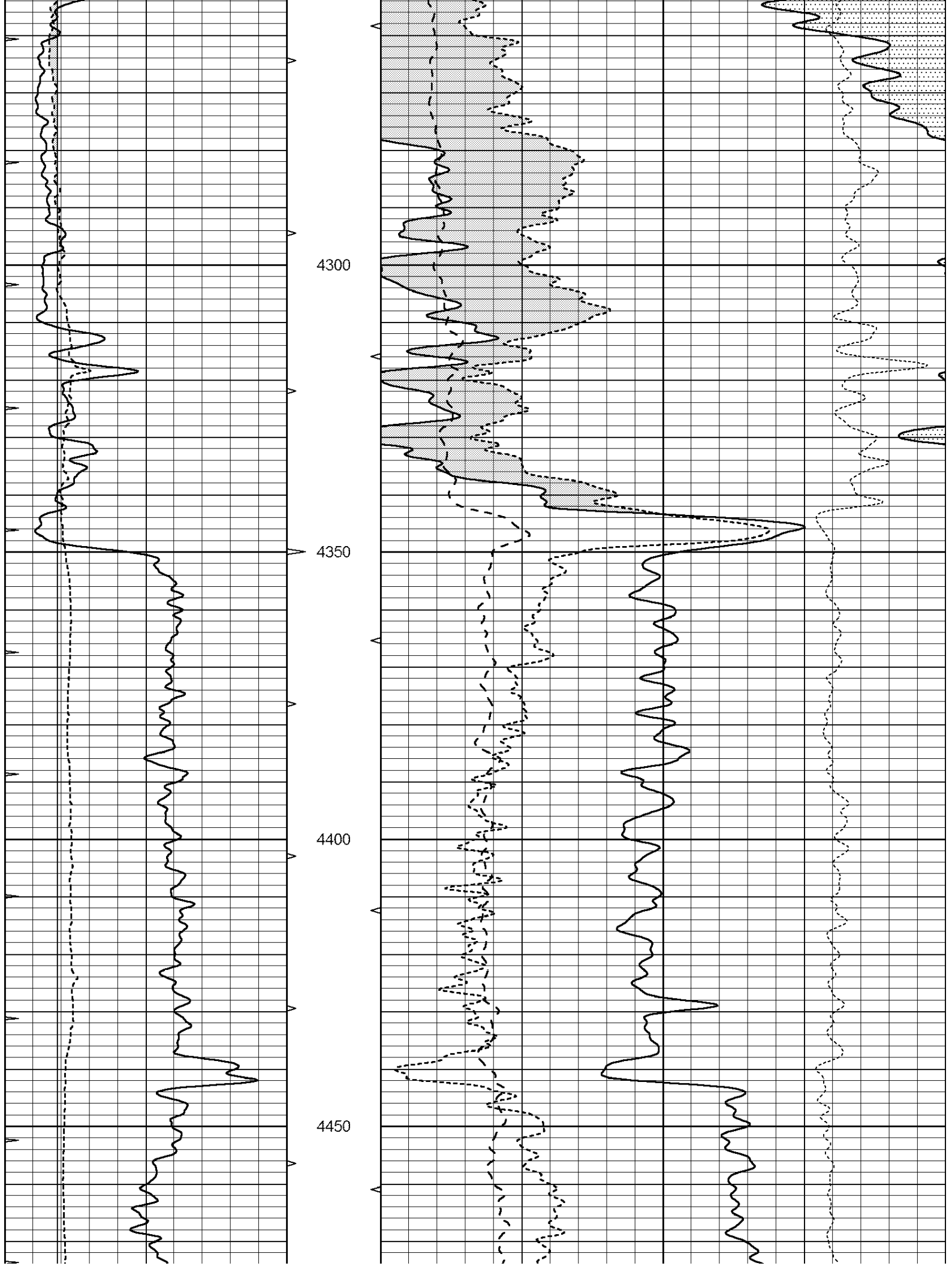
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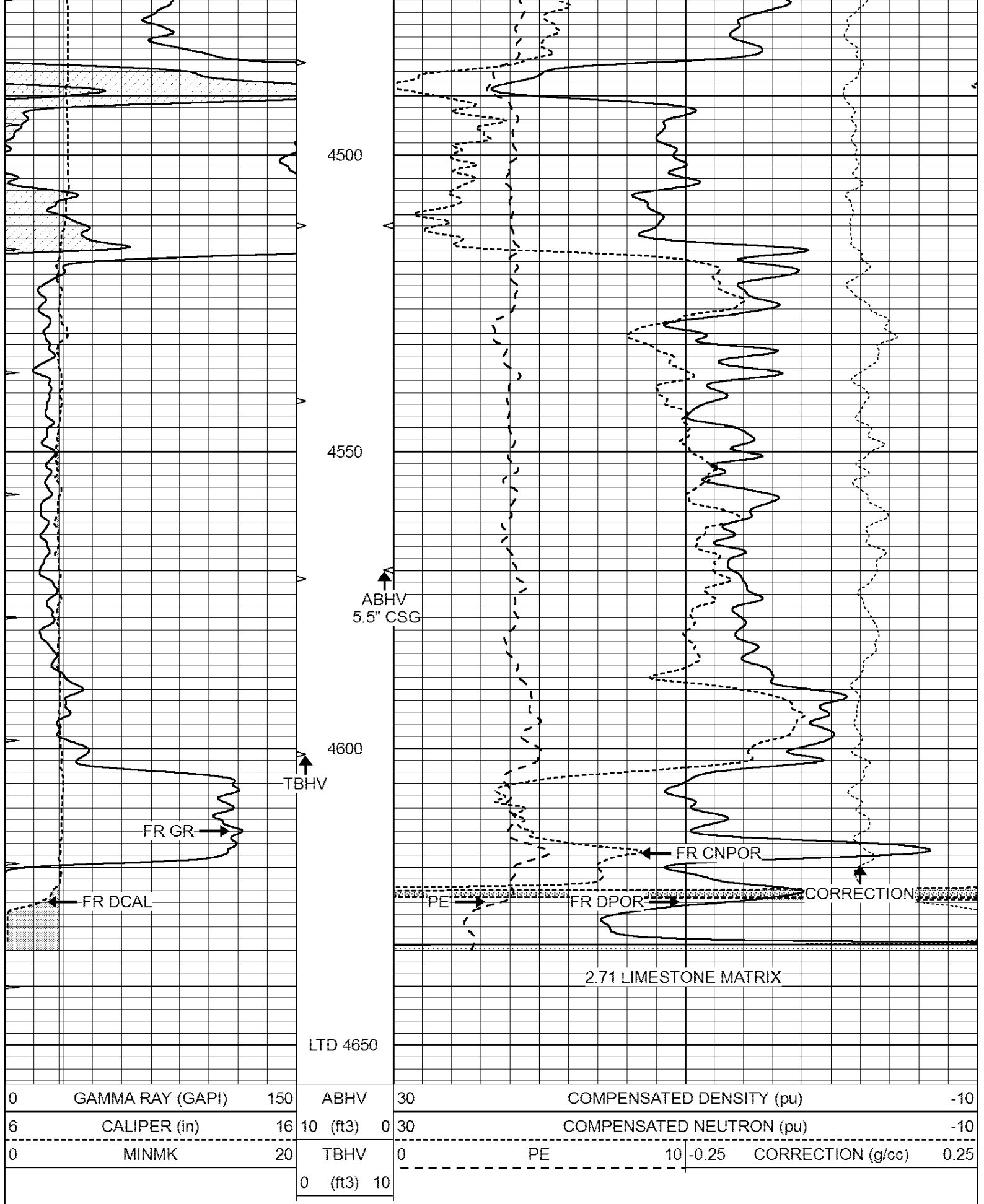








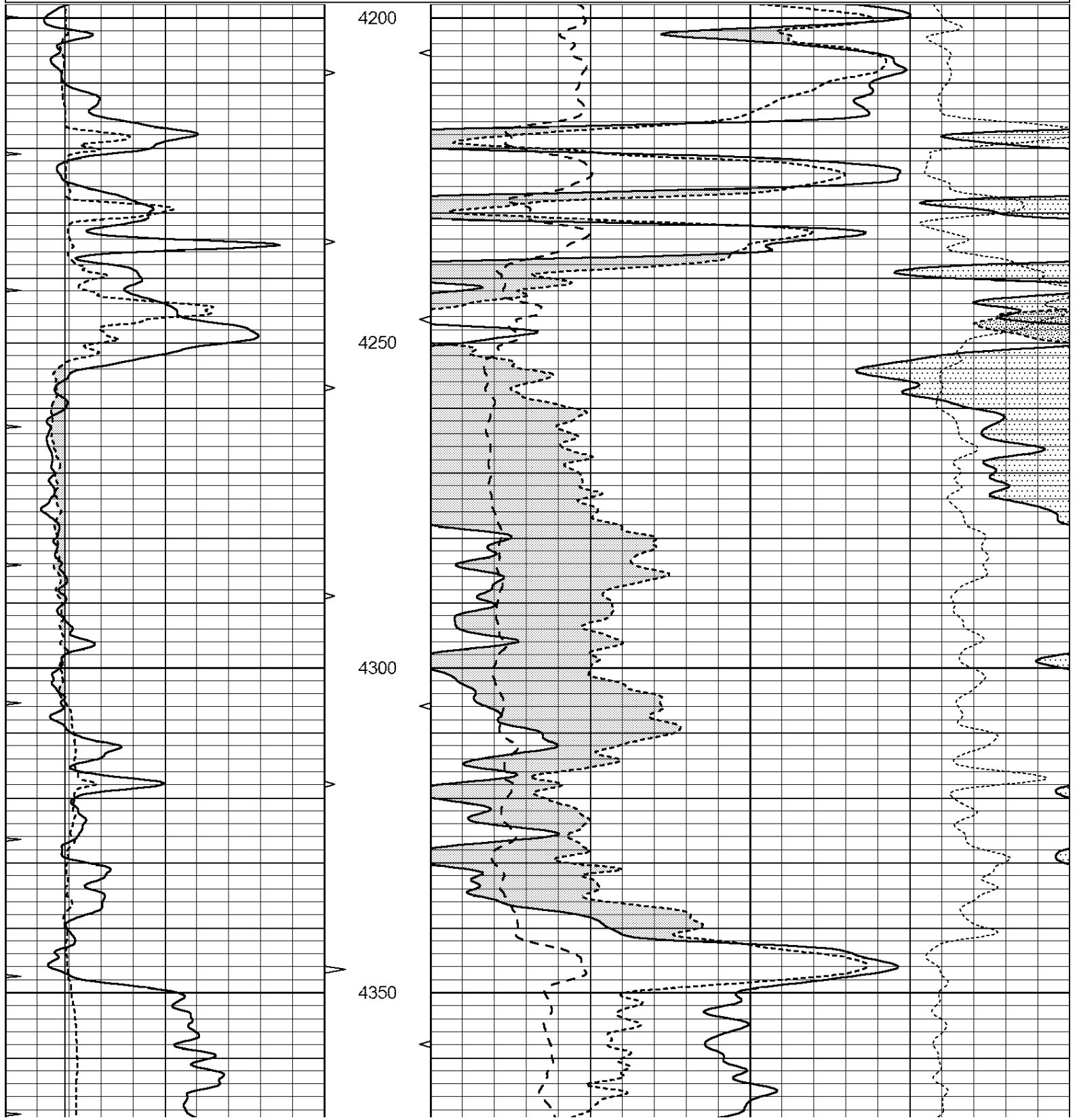


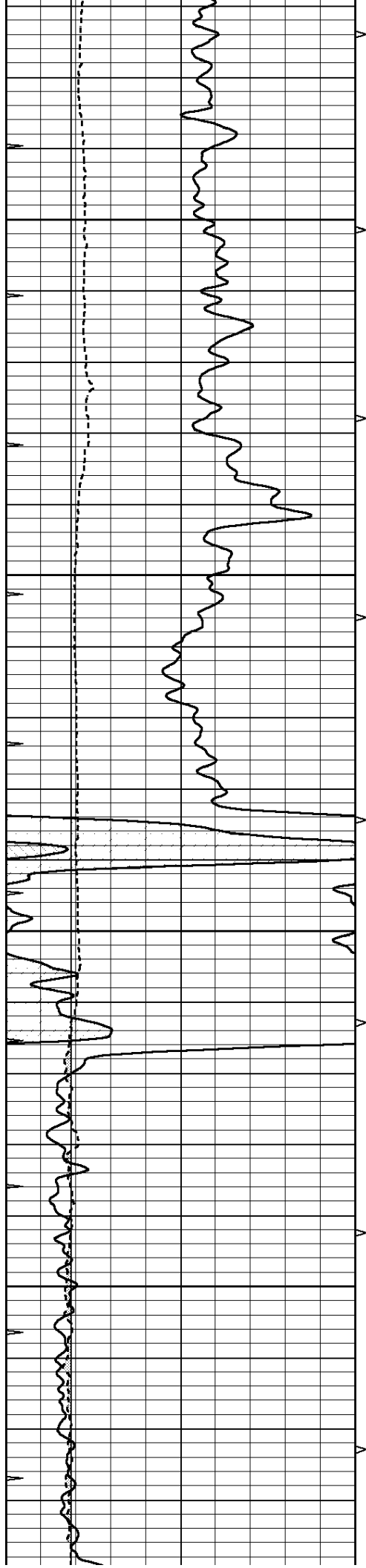




Database File: 24231pe.db  
 Dataset Pathname: pass2.1  
 Presentation Format: \_ldt\_neu  
 Dataset Creation: Wed Apr 23 07:58:21 2014 by Calc Open-Cased 090629  
 Charted by: Depth in Feet scaled 1:240

|   |                  |     |            |    |                          |                                 |
|---|------------------|-----|------------|----|--------------------------|---------------------------------|
| 0 | GAMMA RAY (GAPI) | 150 | ABHV       | 30 | COMPENSATED DENSITY (pu) | -10                             |
| 6 | CALIPER (in)     | 16  | 10 (ft3) 0 | 30 | COMPENSATED NEUTRON (pu) | -10                             |
| 0 | MINMK            | 20  | TBHV       | 0  | PE                       | 10 -0.25 CORRECTION (g/cc) 0.25 |
|   |                  |     | 0 (ft3) 10 |    |                          |                                 |



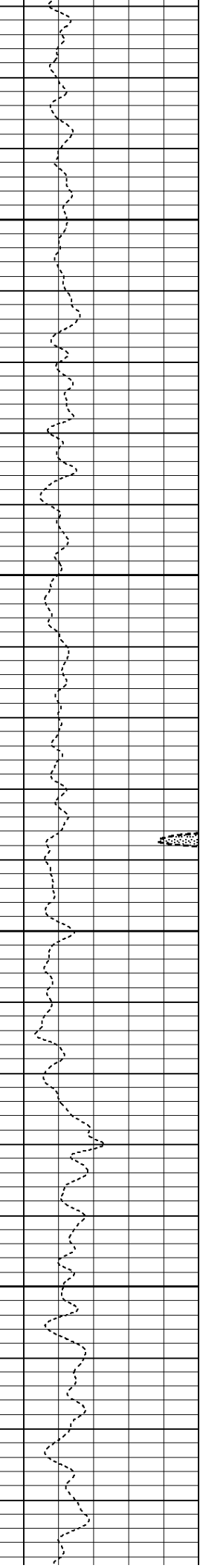
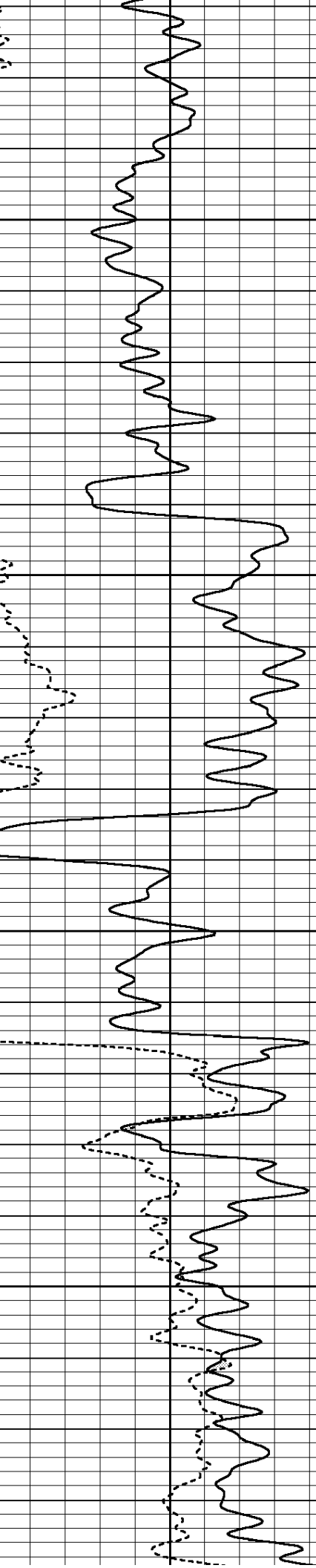
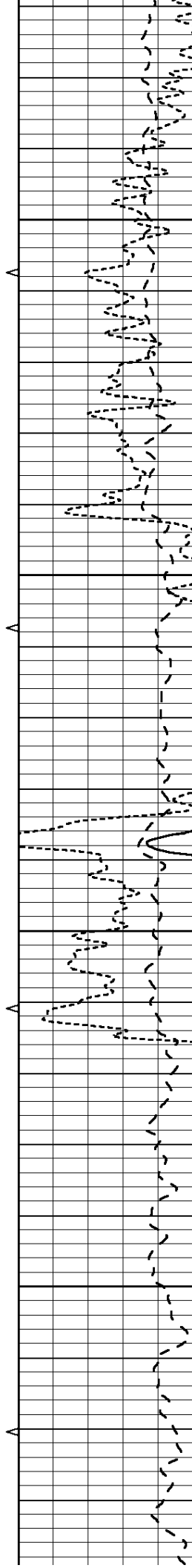


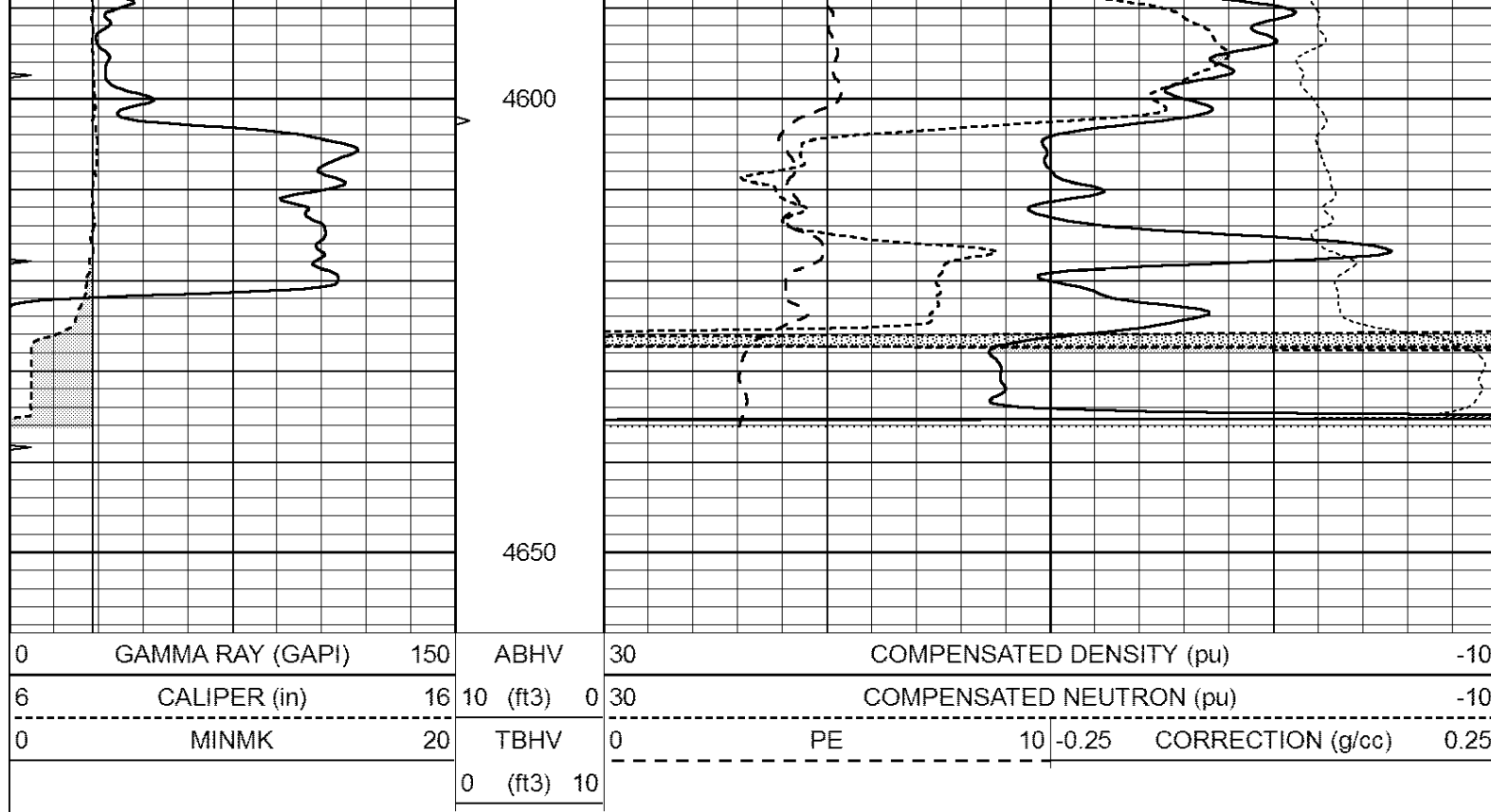
4400

4450

4500

4550





| Calibration Report                   |       |                                                    |        |            |          |        |         |         |  |
|--------------------------------------|-------|----------------------------------------------------|--------|------------|----------|--------|---------|---------|--|
| Database File:                       |       | 24231pe.db                                         |        |            |          |        |         |         |  |
| Dataset Pathname:                    |       | pass2.1                                            |        |            |          |        |         |         |  |
| Dataset Creation:                    |       | Wed Apr 23 07:58:21 2014 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<br>Serial: 001      Model: PRB |            |             |                                    |                     |       |               |       |       |
| Master Calibration                                              |            |             | Performed Thu Sep 17 09:57:21 2009 |                     |       |               |       |       |
|                                                                 | Background | Magnesium   |                                    | Aluminum            |       | Sandstone     |       |       |
| Window 1                                                        | 2056.0     | 9796.8      |                                    | 3673.1              |       | 10821.3       |       | cps   |
| Window 2                                                        | 1920.0     | 8541.1      |                                    | 3303.5              |       | 9307.2        |       | cps   |
| Window 3                                                        | 1563.1     | 4735.7      |                                    | 2212.8              |       | 5017.5        |       | cps   |
| Window 4                                                        | 466.0      | 466.1       |                                    | 465.6               |       | 471.5         |       | cps   |
| Long Space                                                      | 0.0        | 6621.1      |                                    | 1383.5              |       | 7387.2        |       | cps   |
| Short Space                                                     | 2.5        | 2361.7      |                                    | 1523.2              |       | 2534.0        |       | cps   |
| Rho                                                             |            | 1.7100      |                                    | 2.5900              |       | 1.3800        |       | g/cc  |
| Pe                                                              |            | 0.0000      |                                    | 2.5700              |       | 1.5500        |       |       |
| Rib Angle                                                       | : 44.4     | Rib Slope   | : 0.978                            | Density/Spine Ratio |       | : 0.541       |       |       |
| Spine Angle                                                     | : 74.4     | Spine Slope | : 3.570                            | Spine Intercept     |       | : -18.9       |       |       |
| 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        |       |       |
| Compensated Neutron Calibration Report                          |            |             |                                    |                     |       |               |       |       |
| Serial Number:                                                  |            |             |                                    | 6I                  |       |               |       |       |
| Tool Model:                                                     |            |             |                                    | G                   |       |               |       |       |
| CALIBRATION                                                     |            |             |                                    |                     |       |               |       |       |
| Detector                                                        |            | Readings    |                                    | Target              |       | Normalization |       |       |
| Short Space                                                     |            | 1.00        | cps                                | 1.00                | cps   | 1.0000        |       |       |
| Long Space                                                      |            | 1.00        | cps                                | 1.00                | cps   | 1.0000        |       |       |

|                              |             |                          |          |        |
|------------------------------|-------------|--------------------------|----------|--------|
| 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:               |             | GR6                      |          |        |
| Tool Model:                  |             | OPEN                     |          |        |
| Performed:                   |             | Fri Nov 29 08:34:37 2013 |          |        |
| Calibrator Value:            |             | 150.0                    | GAPI     |        |
| Background Reading:          |             | 0.0                      | cps      |        |
| Calibrator Reading:          |             | 276.0                    | cps      |        |
| Sensitivity:                 |             | 0.6035                   | GAPI/cps |        |