



# COMPENSATED DENSITY/NEUTRON LOG

Company MAI OIL OPERATIONS, INC.

Well HAWKER#1

Field TRAPP

County RUSSELL State KANSAS

Location: API #: 15-167-24102-0000

NE-SE-SW-SE  
625' FSL & 1625' FEL

Other Services  
DIL/MEL  
SON

SEC 27 TWP 15S RGE 13W

Permanent Datum GROUND LEVEL Elevation 1856  
Log Measured From KELLY BUSHING 9' A.G.L.  
Drilling Measured From KELLY BUSHING

Elevation  
K.B. 1865  
D.F. 1863  
G.L. 1856

Date 07/15/20

Run Number ONE

Depth Driller 3410

Depth Logger 3410

Bottom Logged Interval 3390

Top Log Interval 2250

Casing Driller 8 5/8" @ 521

Casing Logger 521

Bit Size 7 7/8"

Type Fluid in Hole CHEMICAL MUD

Density / Viscosity 9.3/41

pH / Fluid Loss 9.0/11.2

Source of Sample FLOWLINE

Rm @ Meas. Temp .9@ 82F

Rmf @ Meas. Temp .68@ 82F

Rmc @ Meas. Temp 1.08 @ 82F

Source of Rmf / Rmc MEASURED

Rm @ BHT .66@ 111F

Time Circulation Stopped 2 HOURS

Time Logger on Bottom 111F

Maximum Recorded Temperature 1523

Equipment Number 1523

Location HAYS, KANSAS

Recorded By GUS PFANENSTIEL

Witnessed By JIM MUSGROVE

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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 ELI WIRELINE, HAYS, KS. (785) 628-6395

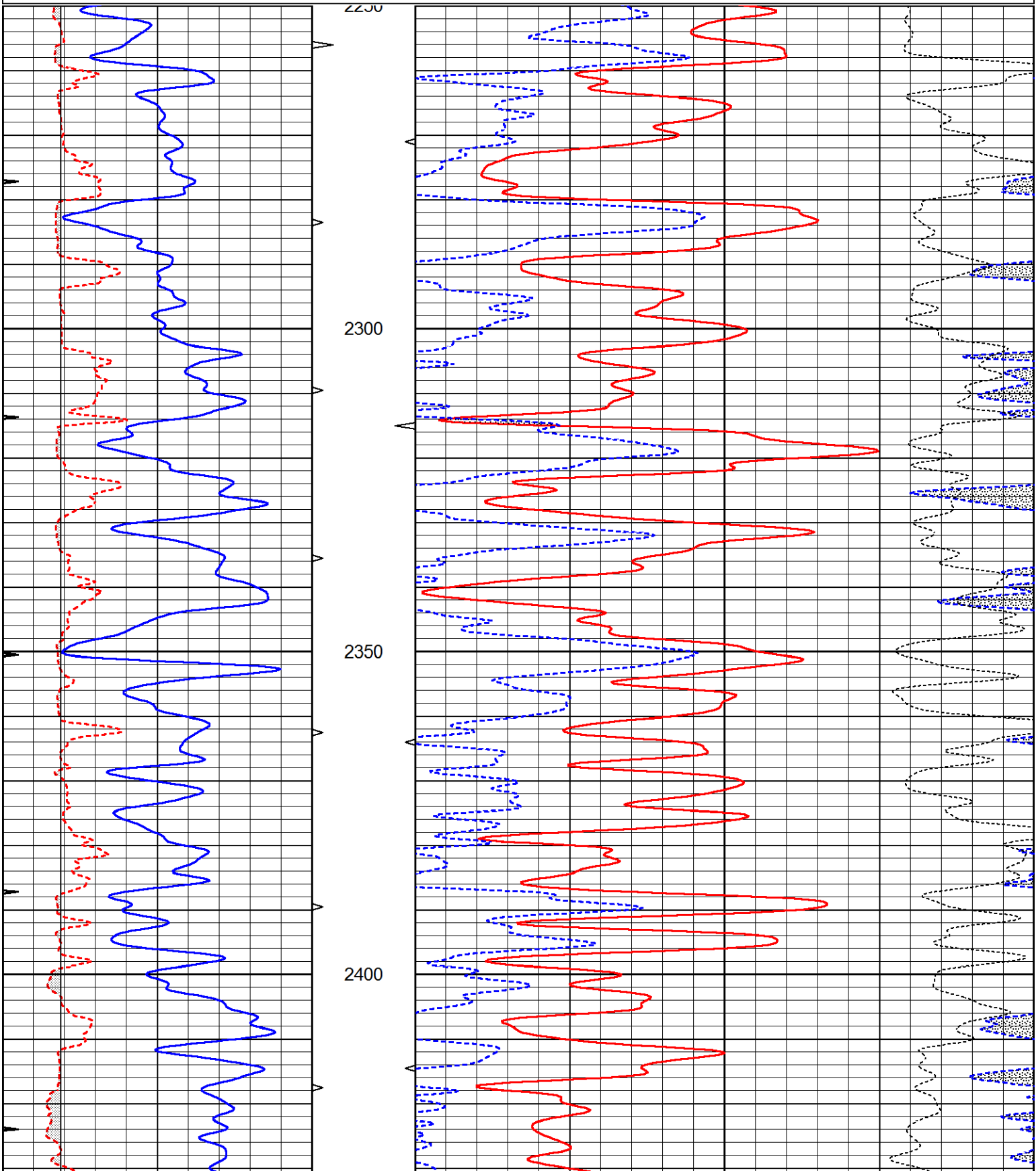
DIRECTIONS:RUSSELL SOUTH TO MICHAELIS RD., 5 EAST NORTH INTO.

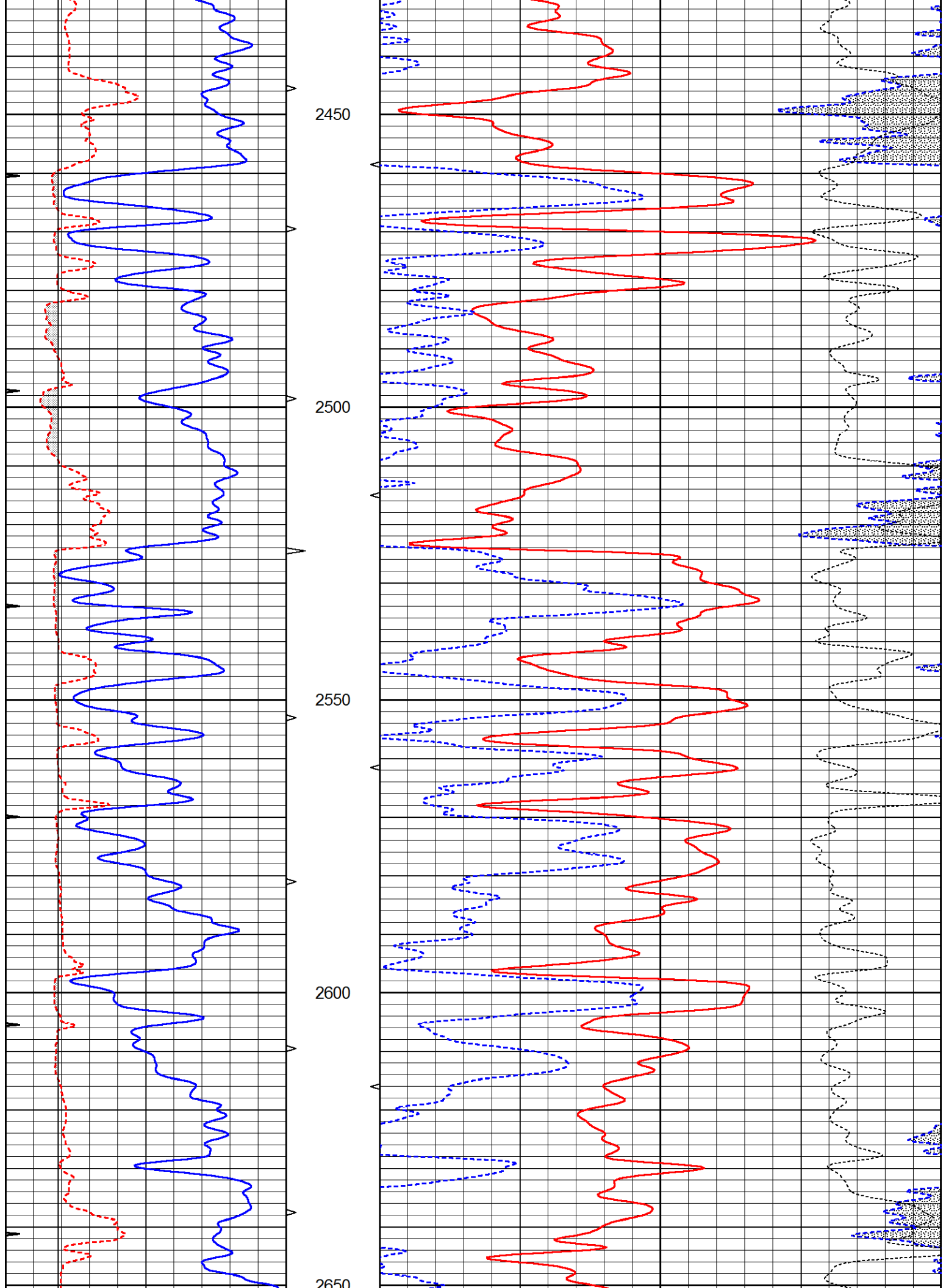


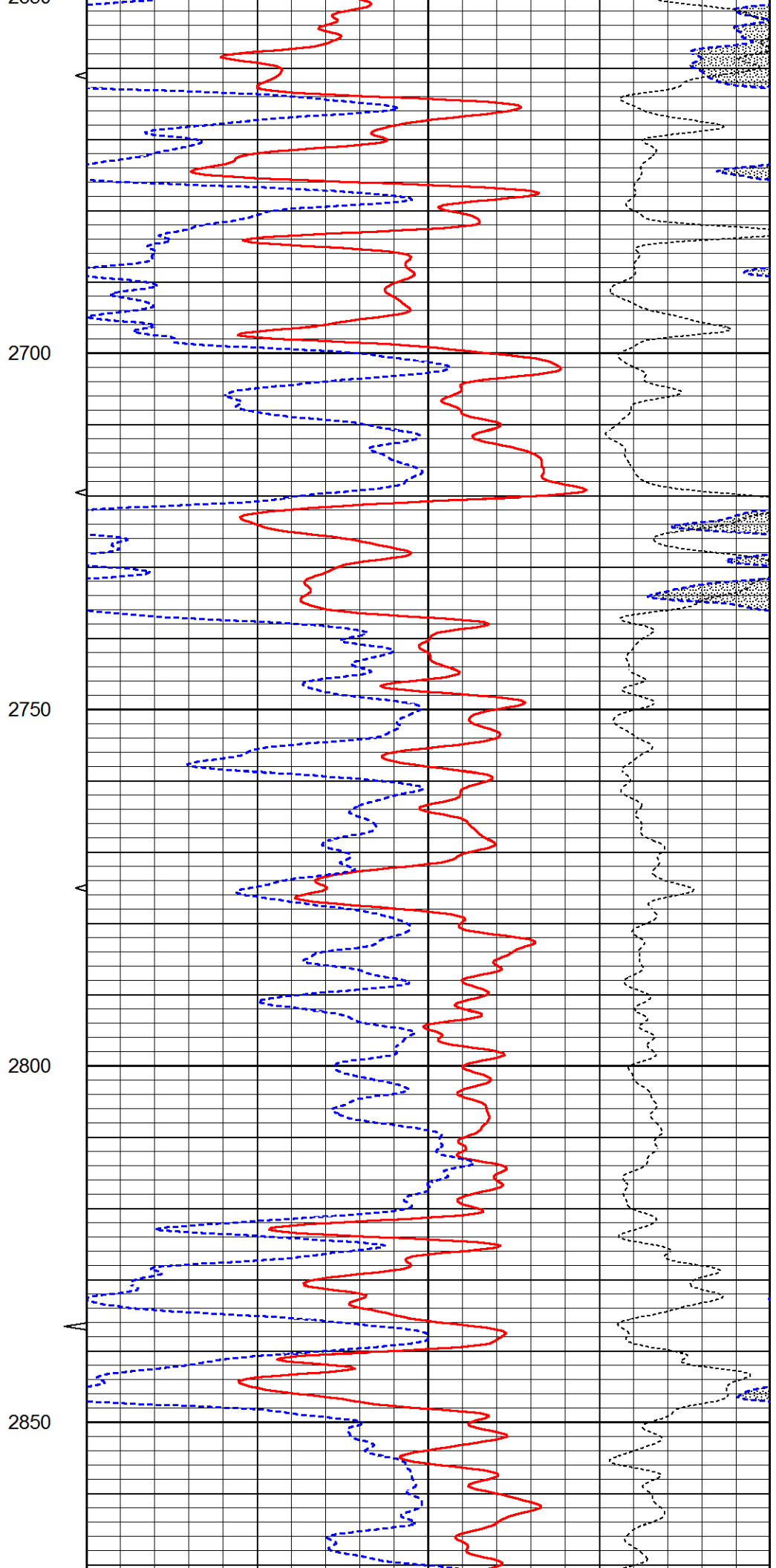
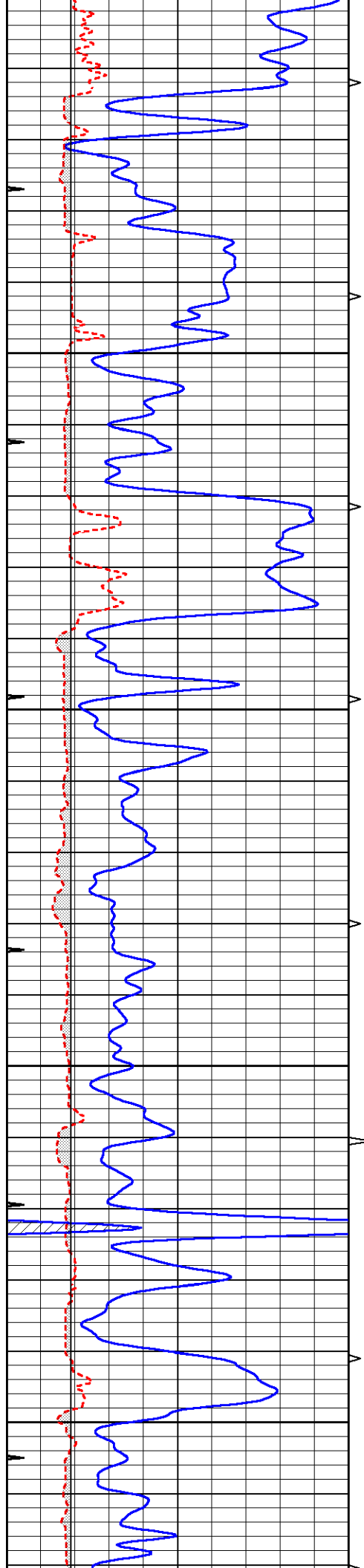
# MAIN PASS

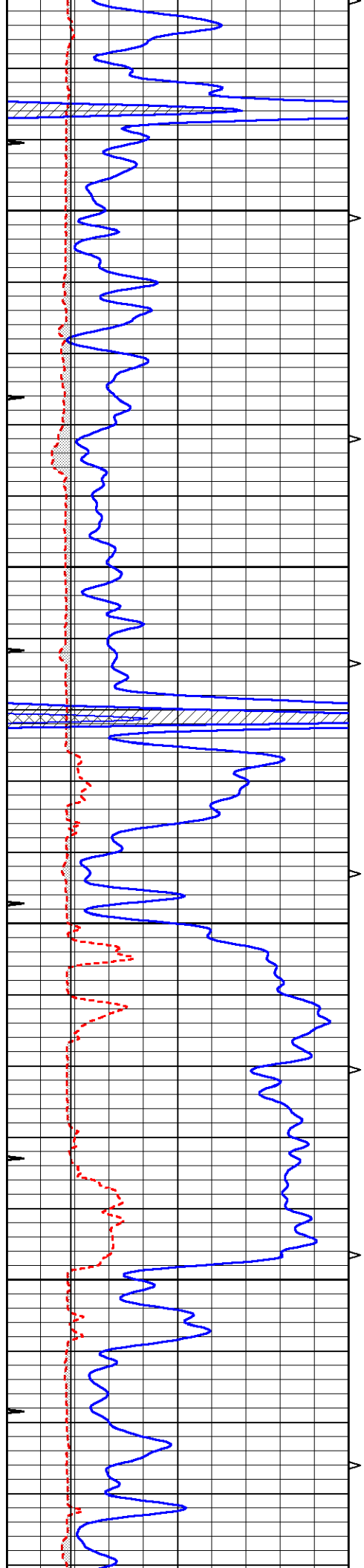
|                     |                            |
|---------------------|----------------------------|
| Database File       | 4695ddn.db                 |
| Dataset Pathname    | pass3.1                    |
| Presentation Format | den_neu                    |
| Dataset Creation    | Wed Jul 15 14:54:20 2020   |
| 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     |    |                          | -0.25                    | CORRECTION (g/cc) | 0.25 |     |
|   |                  |     | 0 (ft3)  | 10 |                          |                          |                   |      |     |







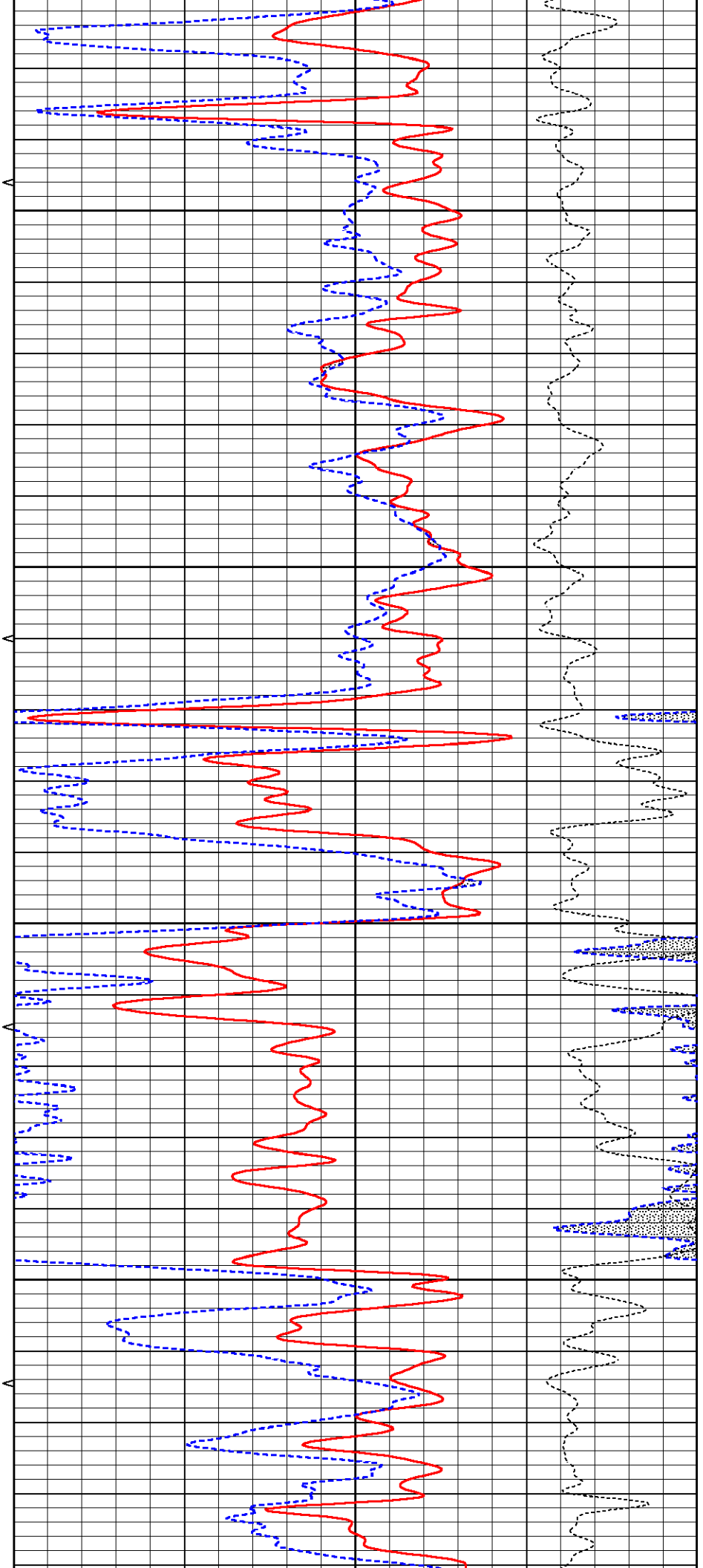


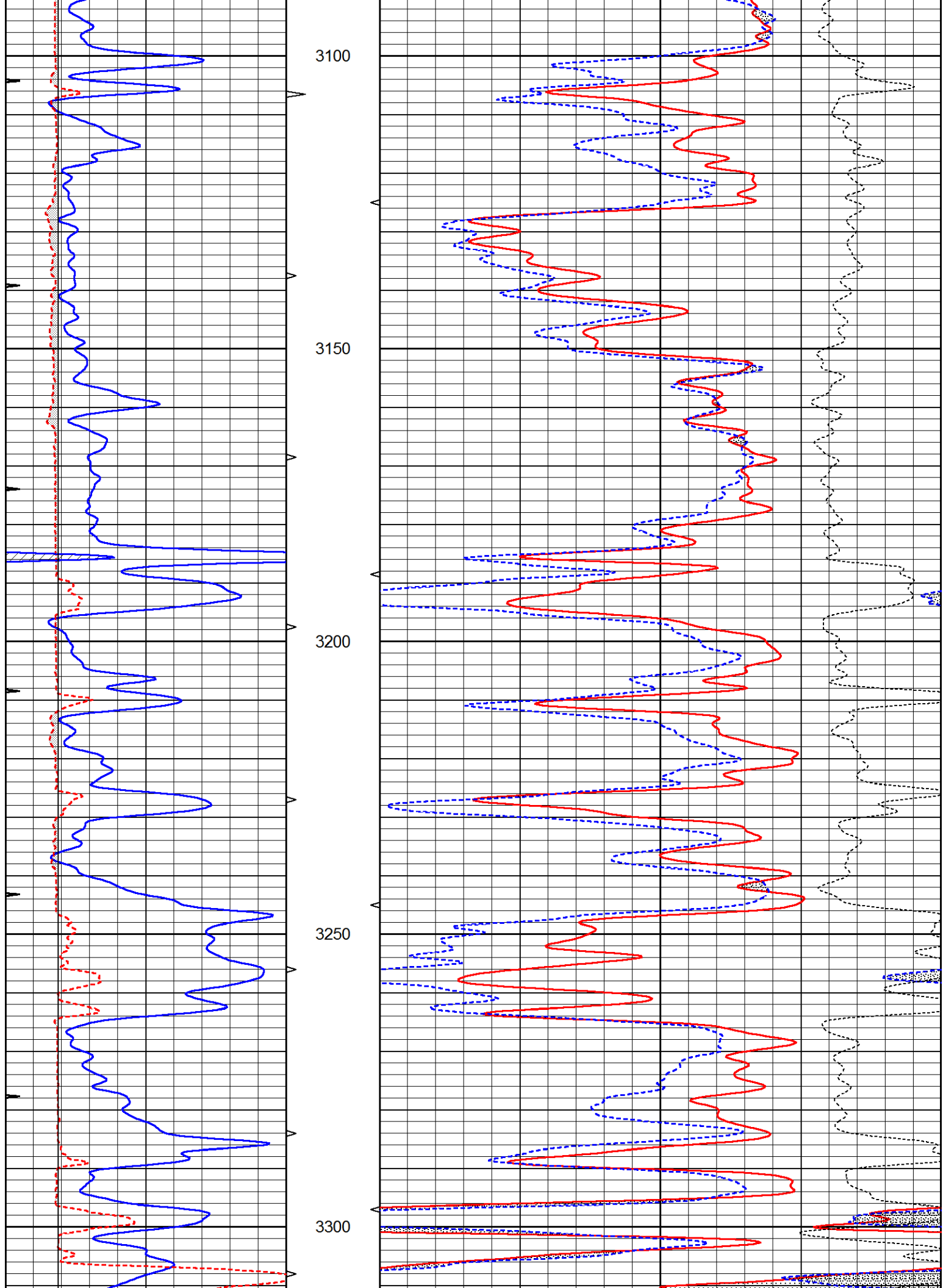
2900

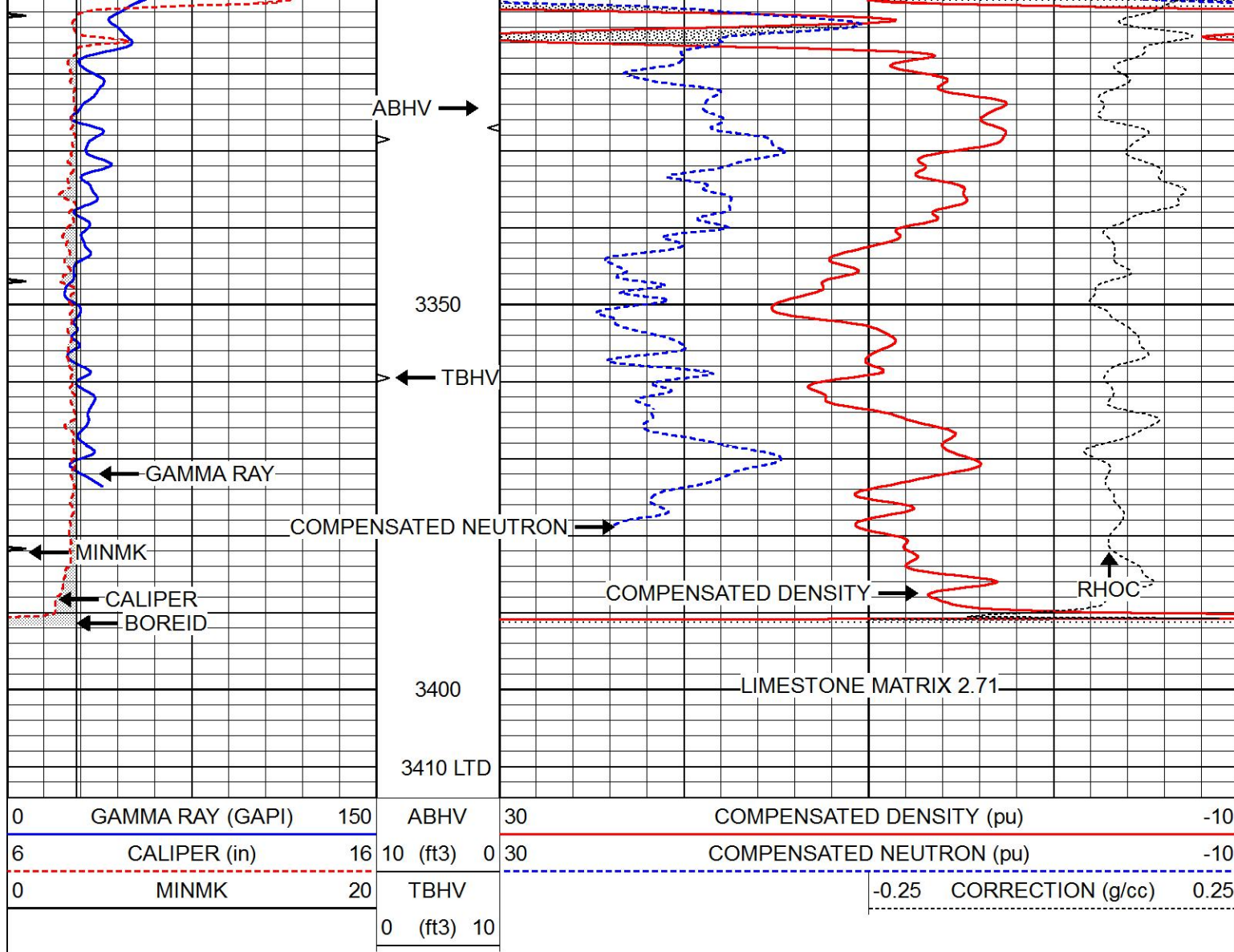
2950

3000

3050



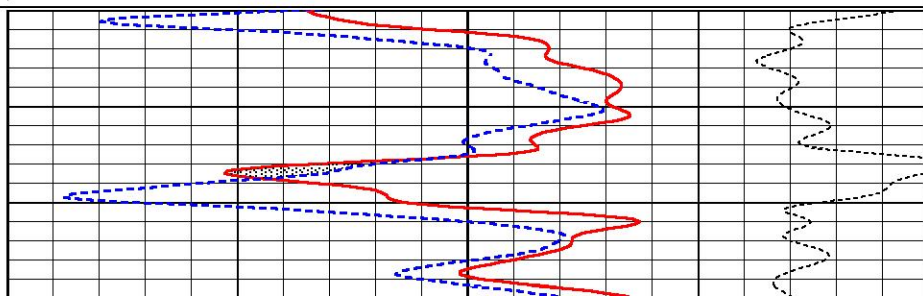
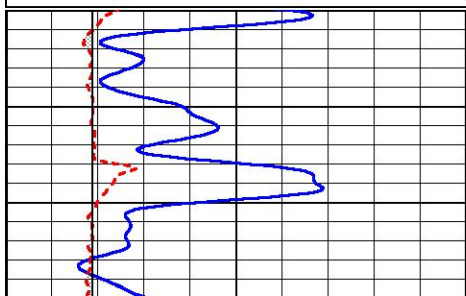


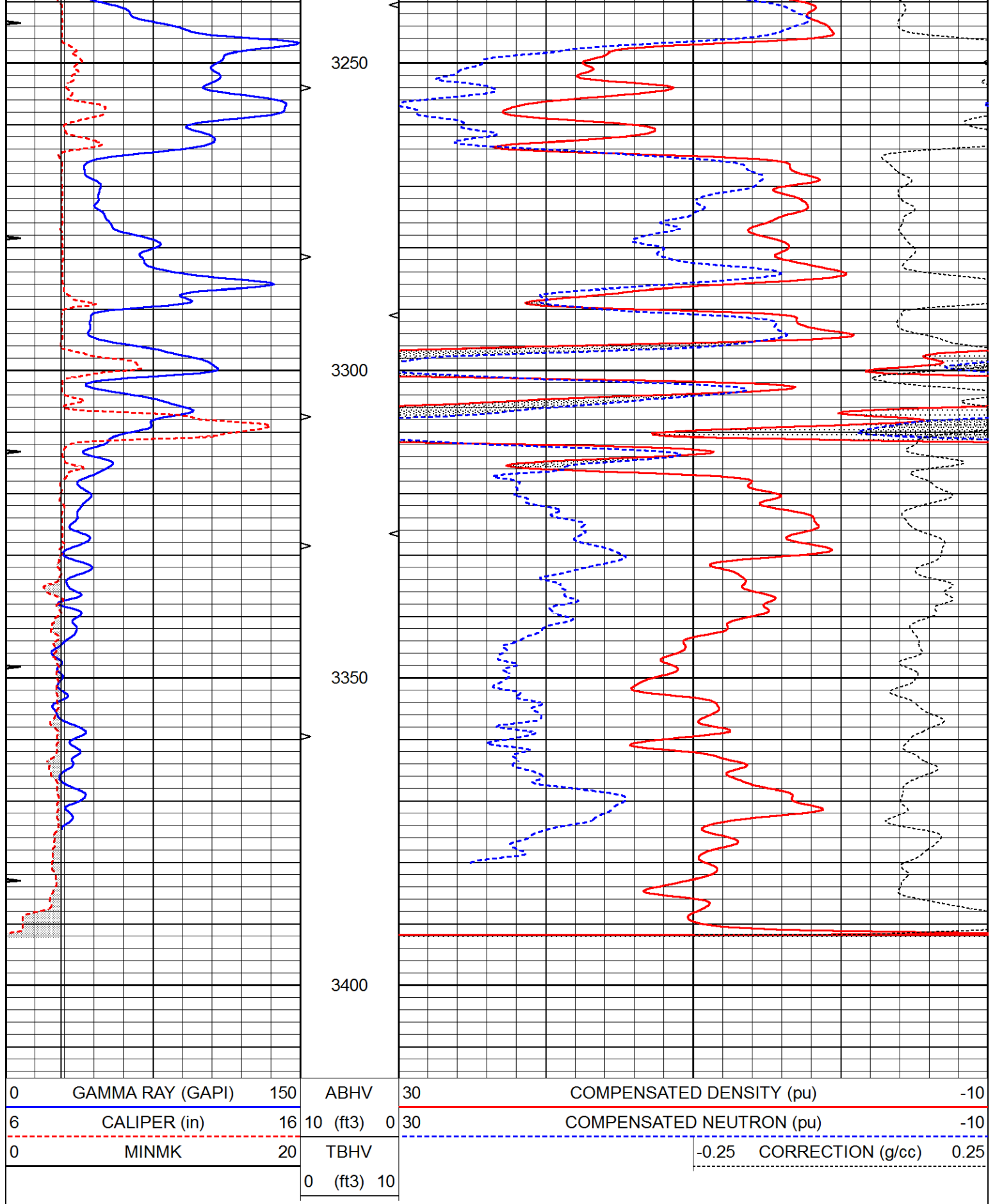


# REPEAT SECTION

Database File 4695ddn.db  
 Dataset Pathname pass2RP.1  
 Presentation Format den\_neu  
 Dataset Creation Wed Jul 15 14:35:00 2020  
 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     |      | -0.25 CORRECTION (g/cc)  | 0.25 |
|   |                  |     | 0 (ft3)  | 10   |                          |      |





### Calibration Report

Database File 4695ddn.db  
Dataset Pathname pass2RP.1  
Dataset Creation Wed Jul 15 14:35:00 2020

## Dual Induction Calibration Report

Serial-Model: PROBE8-DILG  
 Surface Cal Performed: Mon Sep 10 14:28:35 2018  
 Downhole Cal Performed: Mon Sep 10 14:28:38 2018  
 After Survey Verification Performed: Mon Sep 10 14:28:40 2018

## Surface Calibration

| Readings  |       |       |   | References |         |        | Results |         |
|-----------|-------|-------|---|------------|---------|--------|---------|---------|
| Loop:     | Air   | Loop  |   | Air        | Loop    |        | m       | b       |
| Deep      | 0.015 | 0.648 | V | 0.000      | 400.000 | mmho/m | 620.000 | 0.000   |
| Medium    | 0.029 | 0.796 | V | 0.000      | 464.000 | mmho/m | 590.000 | -12.000 |
| 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: 002N Model: PRB

## Master Calibration

Performed Tue Mar 10 15:08:00 2020

|             | Background | Magnesium   | Aluminum | Aluminum+Fe         |         |
|-------------|------------|-------------|----------|---------------------|---------|
| Window 1    | 780.1      | 6981.9      | 2088.6   | 1871.2              | cps     |
| Window 2    | 718.6      | 5898.2      | 1813.8   | 1664.1              | cps     |
| Window 3    | 580.0      | 2989.5      | 1088.0   | 1039.1              | cps     |
| Window 4    | 172.8      | 175.7       | 175.3    | 173.5               | cps     |
| Long Space  | 0.0        | 5179.6      | 1095.2   | 945.5               | cps     |
| Short Space | 1.1        | 1228.6      | 821.2    | 690.4               | cps     |
| Rho         |            | 1.7100      | 2.5900   | 0.0000              | g/cc    |
| Pe          |            | 2.0000      | 2.7500   | 5.7900              |         |
| Rib Angle   | : 45.5     | Rib Slope   | : 1.016  | Density/Spine Ratio | : 0.548 |
| Spine Angle | : 75.5     | Spine Slope | : 3.857  | 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  |
| 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:                         |             | GR6                      |        |               |      |
| Tool Model:                            |             | OPEN                     |        |               |      |
| Performed:                             |             | Wed Jul 03 12:57:34 2019 |        |               |      |
| Calibrator Value:                      |             | 150.0                    |        | GAPI          |      |

|                     |        |          |
|---------------------|--------|----------|
| Calibrator Value:   | 150.0  | GAPI     |
| Background Reading: | 0.0    | cps      |
| Calibrator Reading: | 276.0  | cps      |
| Sensitivity:        | 0.8500 | GAPI/cps |