



**PIONEER**  
Pioneer Energy Services

## DUAL COMP POROSITY LOG

Company GULF EXPLORATION, LLC  
Well GRIFFIN TRUST NO. 1-30  
Field UNNAMED  
County OSBORNE State KANSAS

Location: API #: 15-141-20476-00-00

Other Services

SEC 30 TWP 8S RGE 15W  
990' FNL & 2310' FEL

DIL  
MEL

Permanent Datum GROUND LEVEL Elevation 1976'  
Log Measured From KELLY BUSHING  
Drilling Measured From KELLY BUSHING

Elevation  
K.B. 1981'  
D.F. N/A  
G.L. 1976'

Date 3/4/2018

Run Number ONE

Type Log CNL/CDL

Depth Driller 3694'

Depth Logger 3691'

Bottom Logged Interval 3662'

Top Logged Interval 2000'

Type Fluid In Hole CHEMICAL

Salinity, PPM CL 4000

Density 9.1

Level FULL

Max. Rec. Temp. F 113 DEG/F

Operating Rig Time 3 HOURS

Equipment -- Location 108 HAYS

Recorded By J. HENRICKSON

Witnessed By KEITH REAVIS

### Borehole Record

### Casing Record

| Run No. | Bit    | From | To   | Size   | Wgt. | From | To   |
|---------|--------|------|------|--------|------|------|------|
| ONE     | 12.25" | 0    | 260' | 8.625" | 23#  | 0    | 260' |
| TWO     | 7.875" | 260' | TD   |        |      |      |      |
|         |        |      |      |        |      |      |      |
|         |        |      |      |        |      |      |      |
|         |        |      |      |        |      |      |      |
|         |        |      |      |        |      |      |      |
|         |        |      |      |        |      |      |      |
|         |        |      |      |        |      |      |      |
|         |        |      |      |        |      |      |      |
|         |        |      |      |        |      |      |      |

<<< Fold Here >>>

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

NATOMA KANSAS

10 NORTH TO 160 RD, 1/4 WEST, SOUTH INTO

Log Measured From: KELLY BUSHING 5 Ft. Above Permanent Datum

THANK YOU FOR USING PIONEER ENERGY SERVICES

[www.pioneerenergy.com](http://www.pioneerenergy.com)

785-625-3858

### Your Pioneer Energy Services Crew

Engineer: J. HENRICKSON

Operator:

Operator:

Operator:

### This Log Record Was Witnessed By

Primary Witness: KEITH REAVIS

Secondary Witness:

Secondary Witness:

Secondary Witness:

DatabaseC:\ProgramData\Warrior\Data\gulf\_explo\_griffin\_trust\_1\_30.db  
Dataset field/well/stackml/pass3.1/\_vars\_

## Top - Bottom

|           |              |                  |                   |                |                  |       |                  |
|-----------|--------------|------------------|-------------------|----------------|------------------|-------|------------------|
| A         | BOREID<br>in | BOTTEMP<br>degF  | CASEOD<br>in      | CASETHCK<br>in | FLUIDDEN<br>g/cc | M     | MATRXDEN<br>g/cc |
| 1         | 7.875        | 113              | 5.5               | 0              | 1                | 2     | 2.71             |
| NPORSEL   | PERFS        | SNDERR<br>mmho/m | SNDERRM<br>mmho/m | SPSHIFT<br>mV  | SRFTEMP<br>degF  | SZCOR | TDEPTH<br>ft     |
| Limestone | 0            | 0                | 0                 | -217           | 42               | Off   | 3691             |

| Sensor             | Offset (ft)      | Schematic |       | Description       | Length (ft)                                          | O.D. (in) | Weight (lb) |
|--------------------|------------------|-----------|-------|-------------------|------------------------------------------------------|-----------|-------------|
| GR                 | 40.58            |           |       | GR-M&W (89-M&W)   | 3.00                                                 | 3.50      | 50.00       |
| CNLSC              | 37.48            |           |       | CNT-M&W (tk10-MW) | 5.50                                                 | 3.50      | 100.00      |
| CNSSC              | 36.73            |           |       |                   |                                                      |           |             |
| LSD<br>DCAL<br>SSD | 28.43            |           |       | CDL-M&W (168-986) | 8.50                                                 | 4.00      | 250.00      |
|                    | 28.42            |           |       |                   |                                                      |           |             |
|                    | 27.93            |           |       |                   |                                                      |           |             |
|                    | MCAL<br>MI<br>MN |           | 19.83 |                   | ML-PSI STKBL ML (PSI-02)<br>Stackable Microlog Tools | 7.58      | 4.00        |
| 19.83              |                  |           |       |                   |                                                      |           |             |
| 19.83              |                  |           |       |                   |                                                      |           |             |
| RLL3<br>RLL3F      | 15.80<br>15.79   |           |       |                   |                                                      |           |             |
| CILD               | 8.00             |           |       | DIL-M&W (PSI 978) | 18.50                                                | 3.50      | 220.00      |
|                    |                  |           |       |                   |                                                      |           |             |

CILM

4.70

SP

0.20

Dataset: gulf\_explo\_griffin\_trust\_1\_30.db: field/well/stackml/pass3.1  
Total length: 43.08 ft  
Total weight: 685.00 lb  
O.D.: 4.00 in

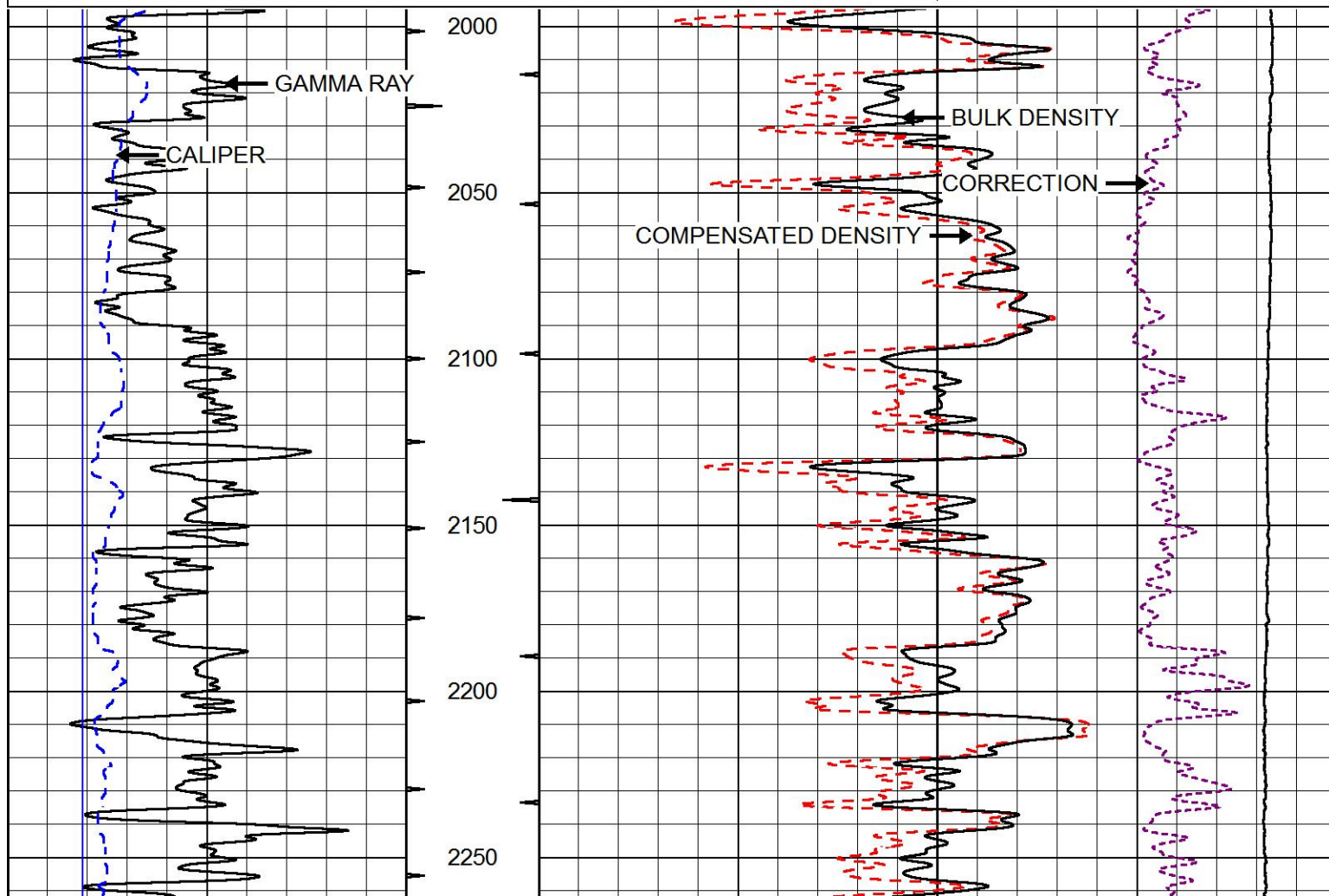


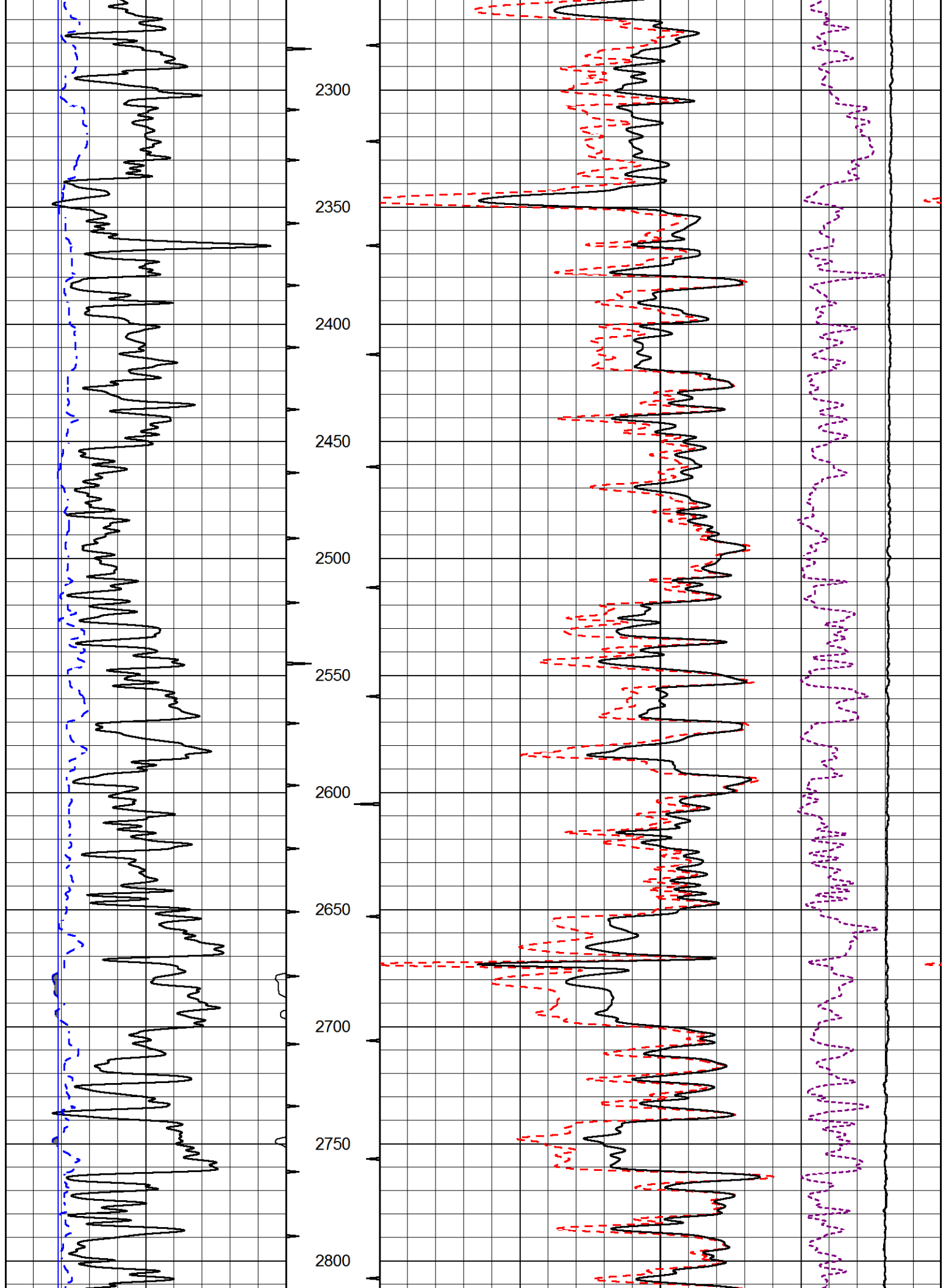
# MAIN PASS

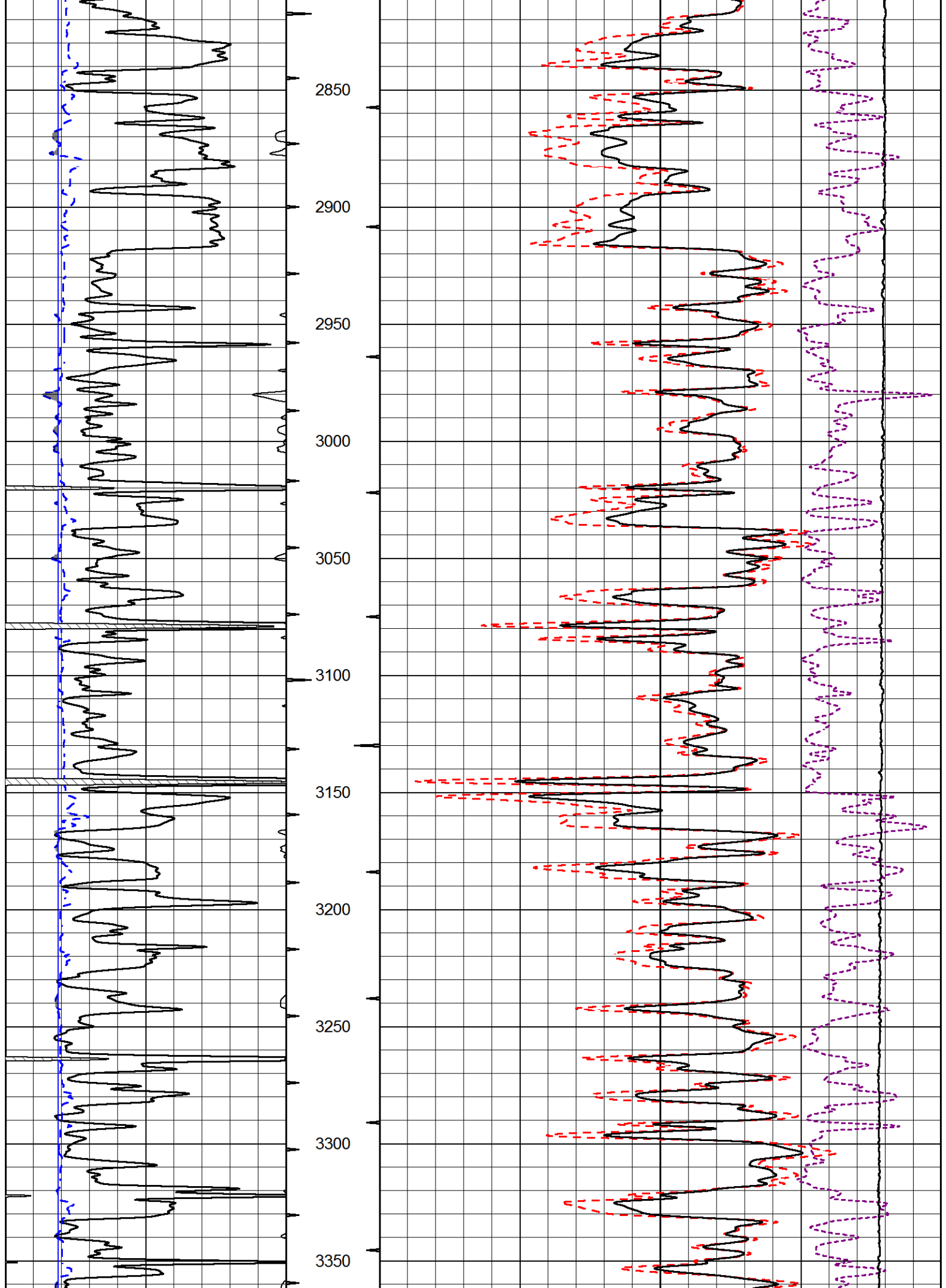
Database File gulf\_explo\_griffin\_trust\_1\_30.db  
Dataset Pathname stackml/pass3.1  
Presentation Format cdl  
Dataset Creation Sun Mar 04 09:46:18 2018  
Charted by Depth in Feet scaled 1:600

0 GAMMA RAY (GAPI) 150  
6 CALIPER (in) 16

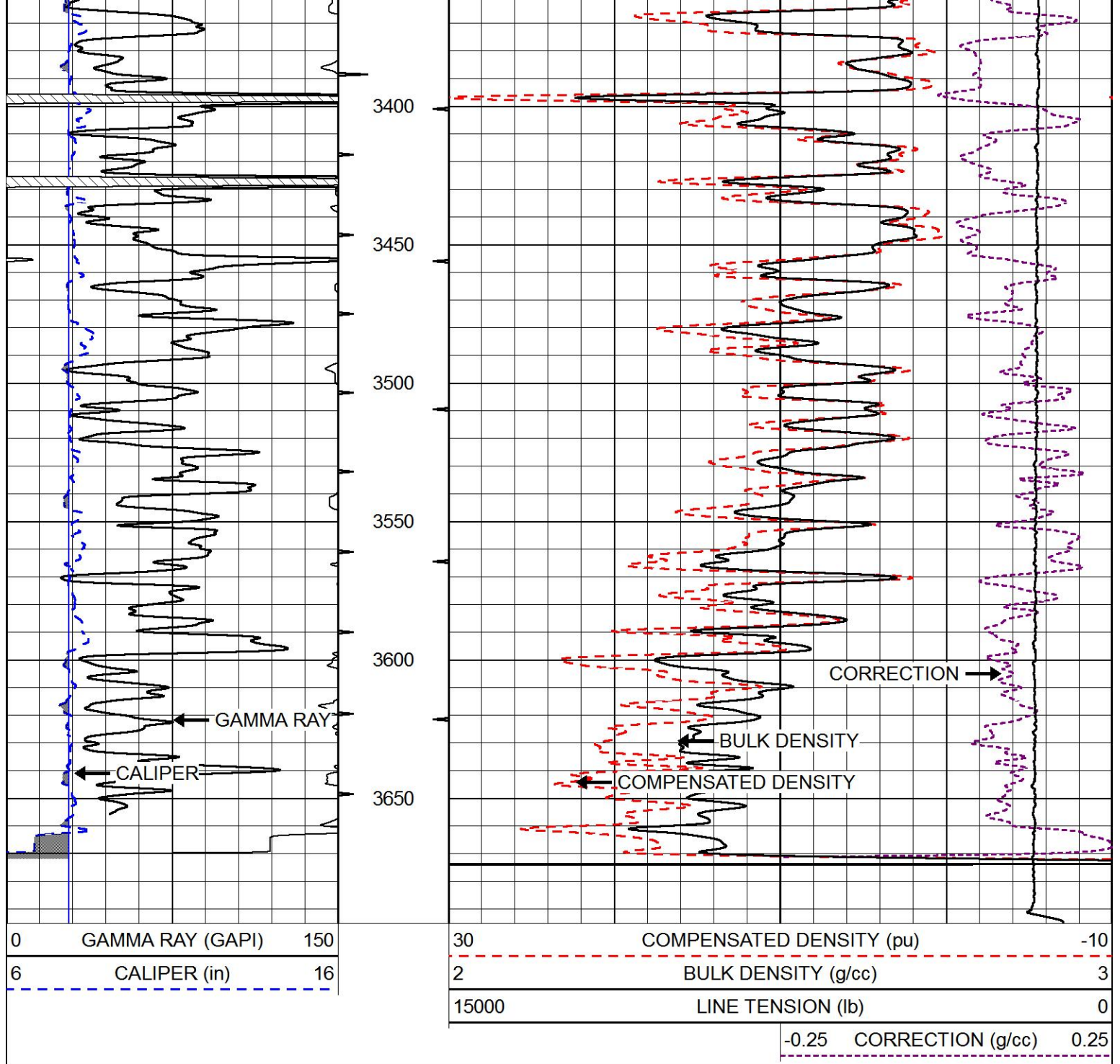
30 COMPENSATED DENSITY (pu) -10  
2 BULK DENSITY (g/cc) 3  
15000 LINE TENSION (lb) 0  
-0.25 CORRECTION (g/cc) 0.25



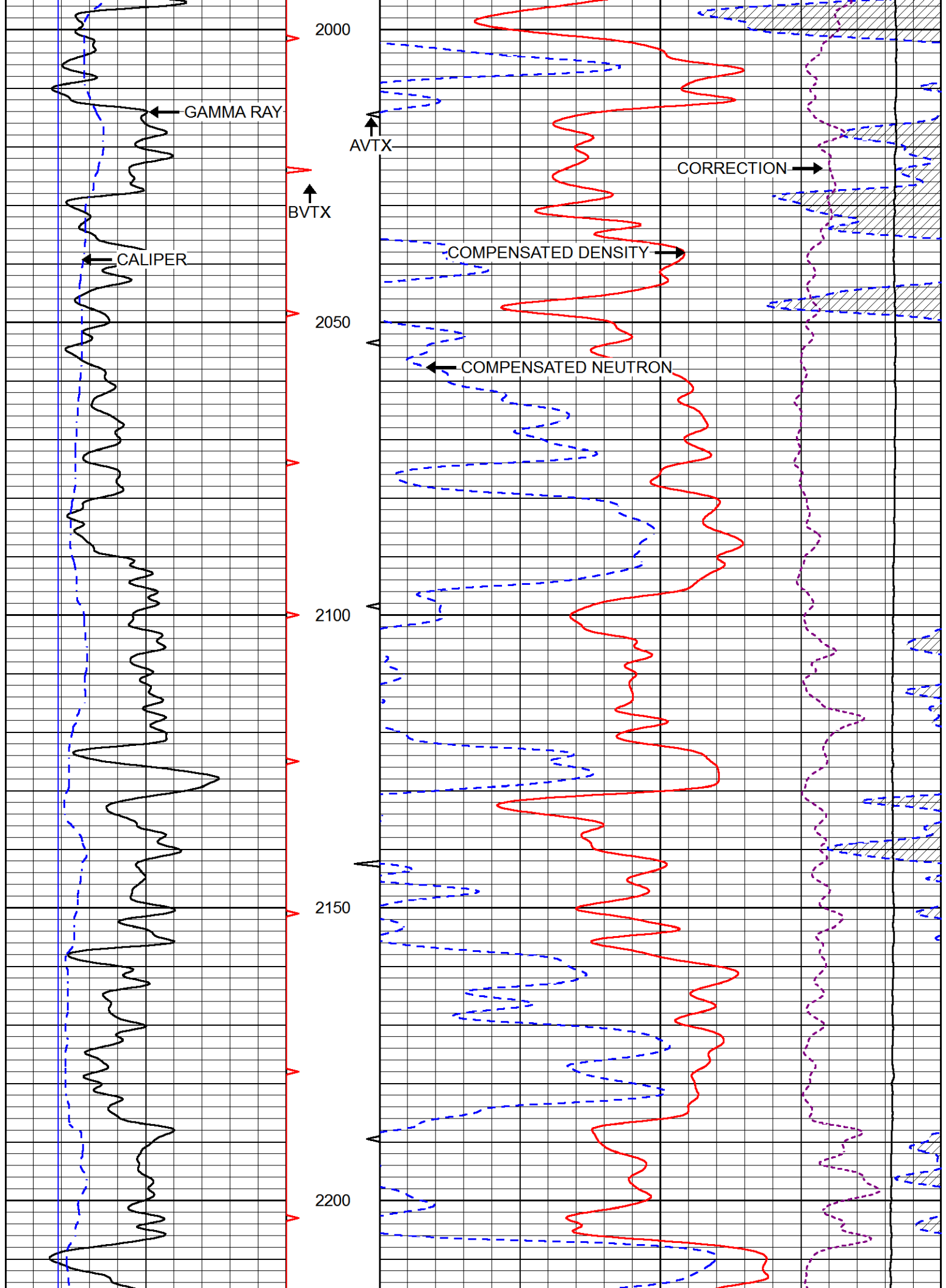


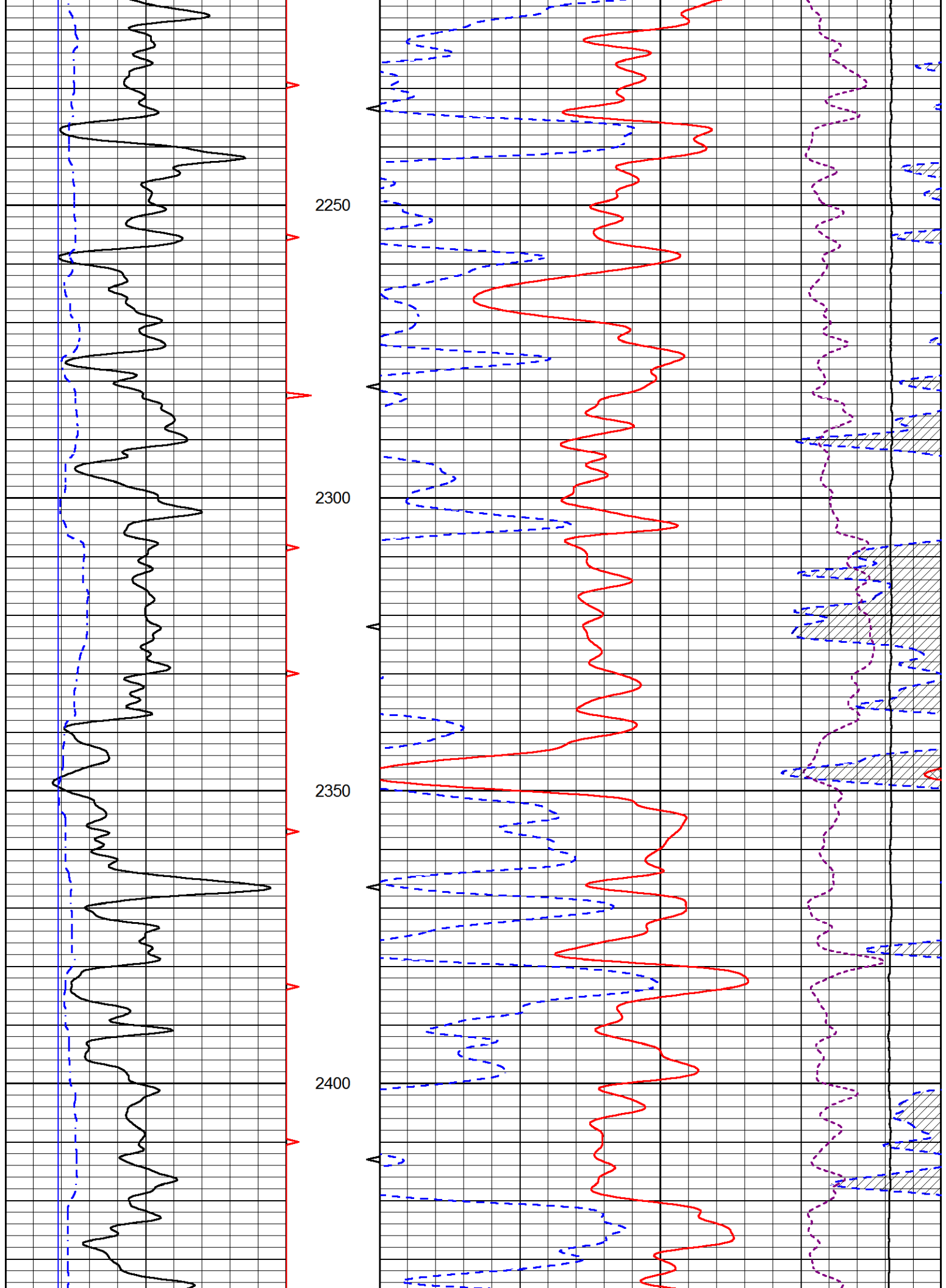




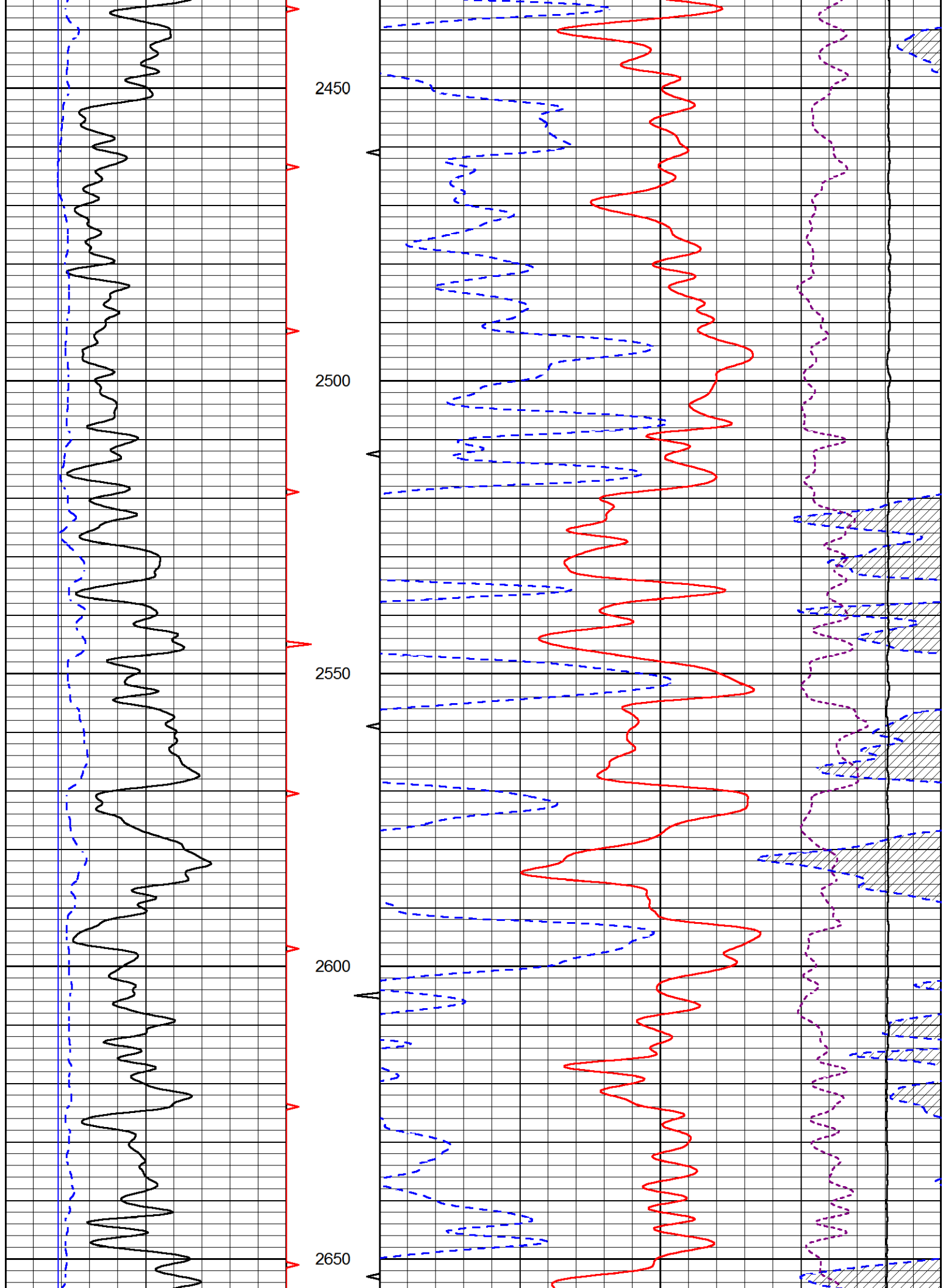


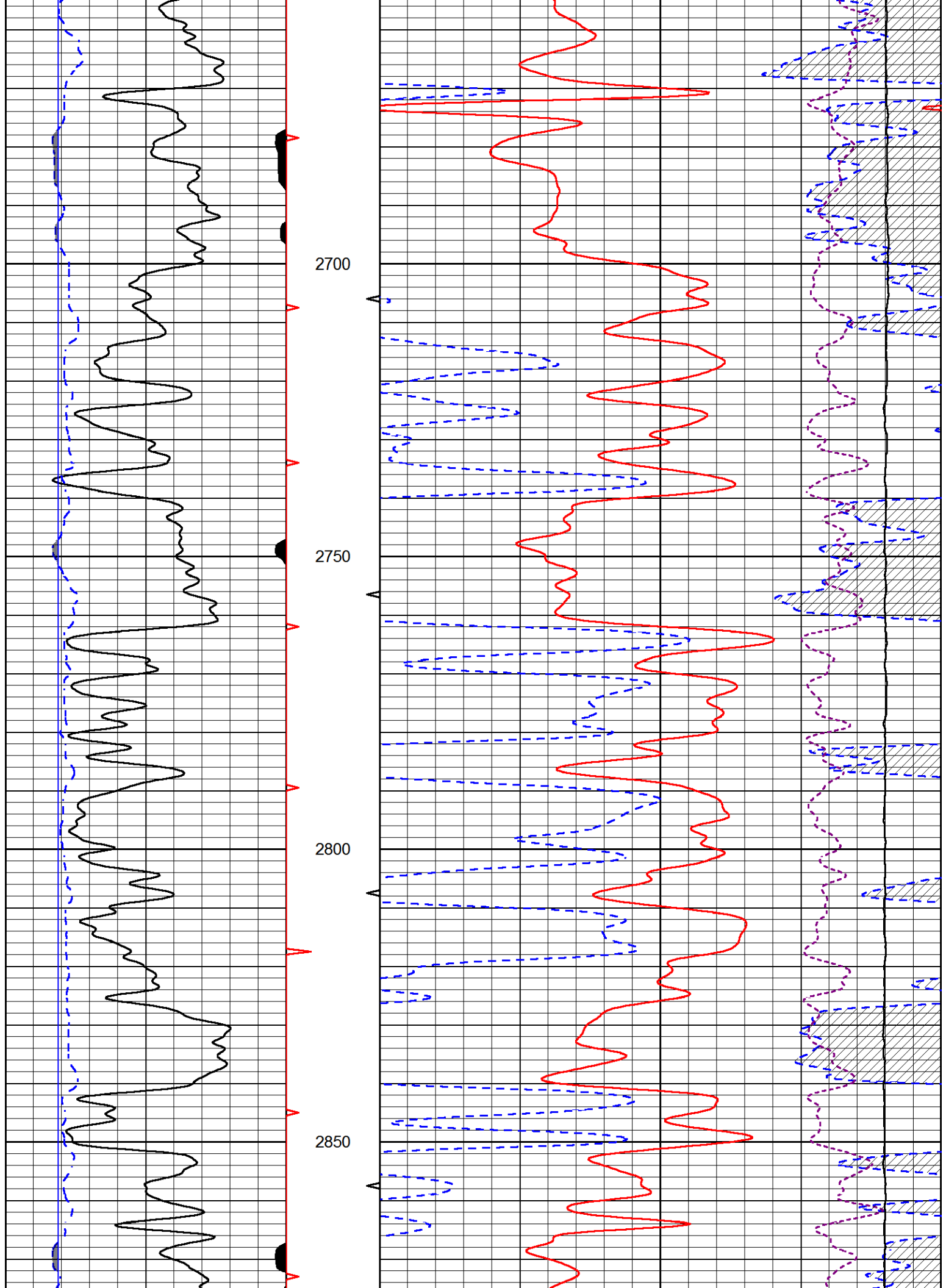
|                                                                                                                                                              |                  |                                  |       |                                    |      |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|----------------------------------|-------|------------------------------------|------|
| <div><div><div>PIONEER</div><div>Pioneer Energy Services</div></div></div> |                  | MAIN PASS                        |       |                                    |      |
| Database File                                                                                                                                                |                  | gulf_explo_griffin_trust_1_30.db |       |                                    |      |
| Dataset Pathname                                                                                                                                             |                  | stackml/pass3.1                  |       |                                    |      |
| Presentation Format                                                                                                                                          |                  | cndlspec                         |       |                                    |      |
| Dataset Creation                                                                                                                                             |                  | Sun Mar 04 09:46:18 2018         |       |                                    |      |
| Charted by                                                                                                                                                   |                  | Depth in Feet scaled 1:240       |       |                                    |      |
| 0                                                                                                                                                            | GAMMA RAY (GAPI) | 150                              | 30    | CNLS (pu)                          | -10  |
| 6                                                                                                                                                            | dcal (in)        | 16                               | 30    | COMPENSATED DENSITY (2.71 ma) (pu) | -10  |
| 6                                                                                                                                                            | BIT SIZE (in)    | 16                               | 15000 | LINE TENSION (lb)                  | 0    |
|                                                                                                                                                              |                  |                                  | -0.25 | CORRECTION (g/cc)                  | 0.25 |

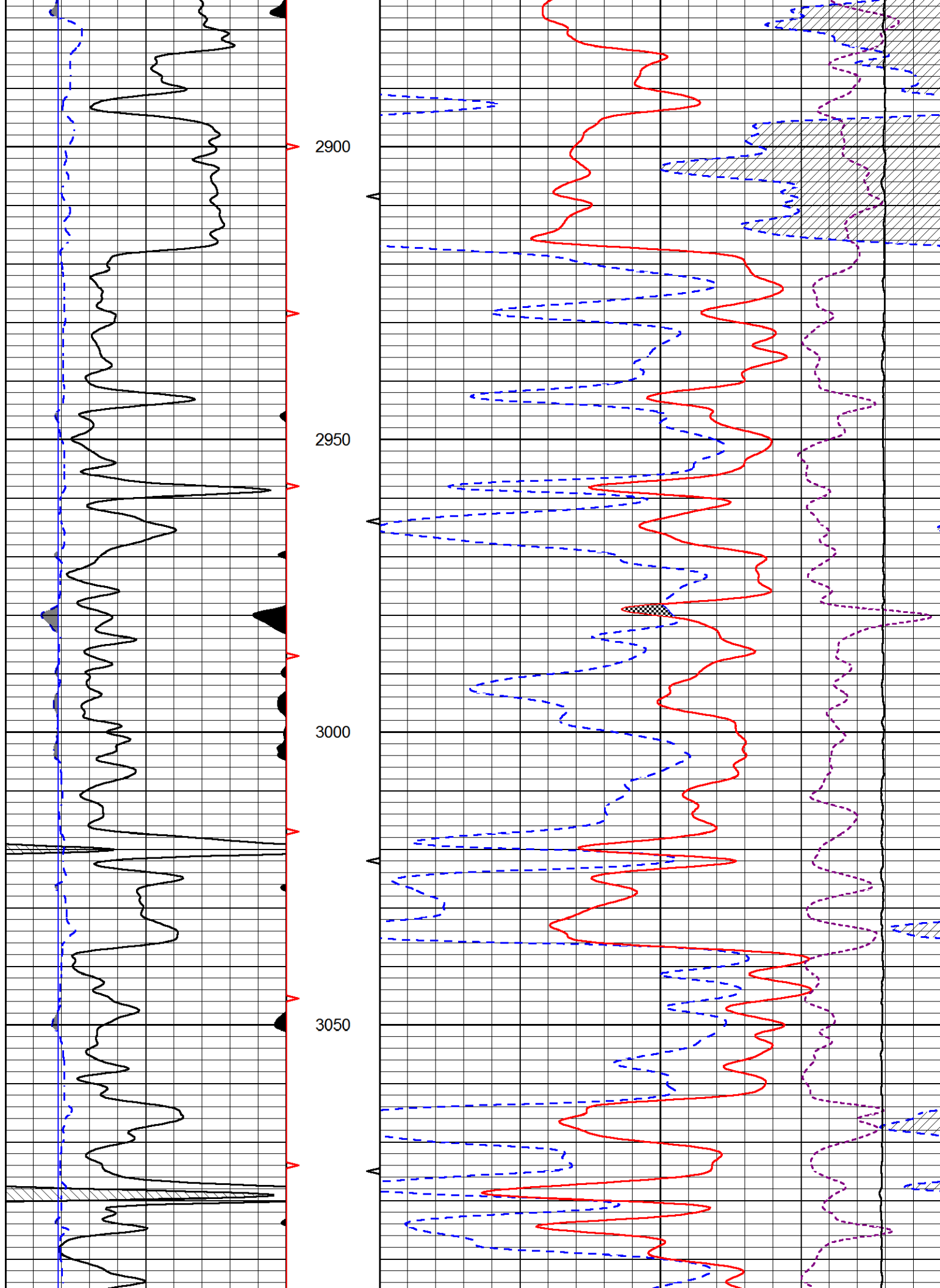


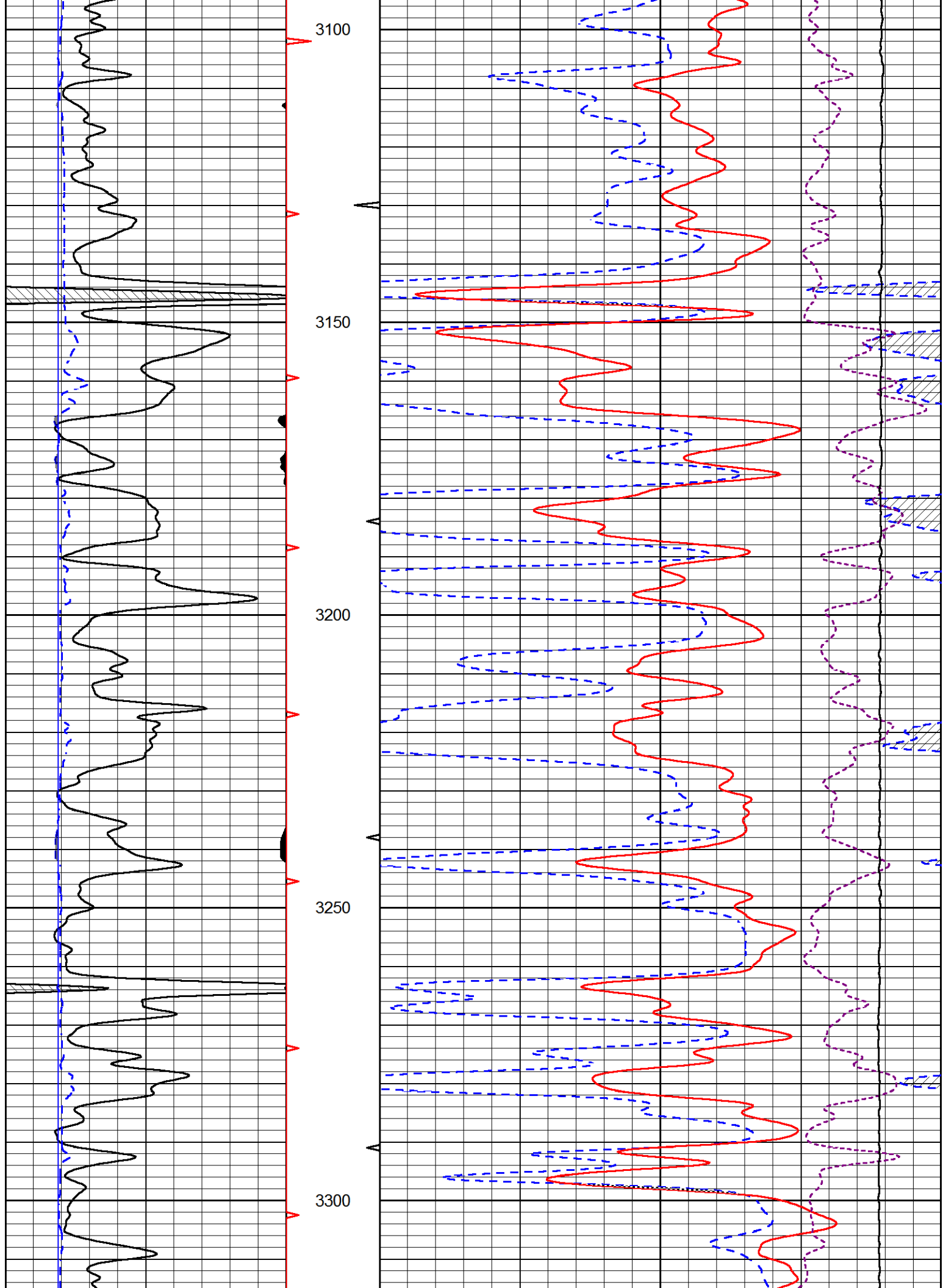


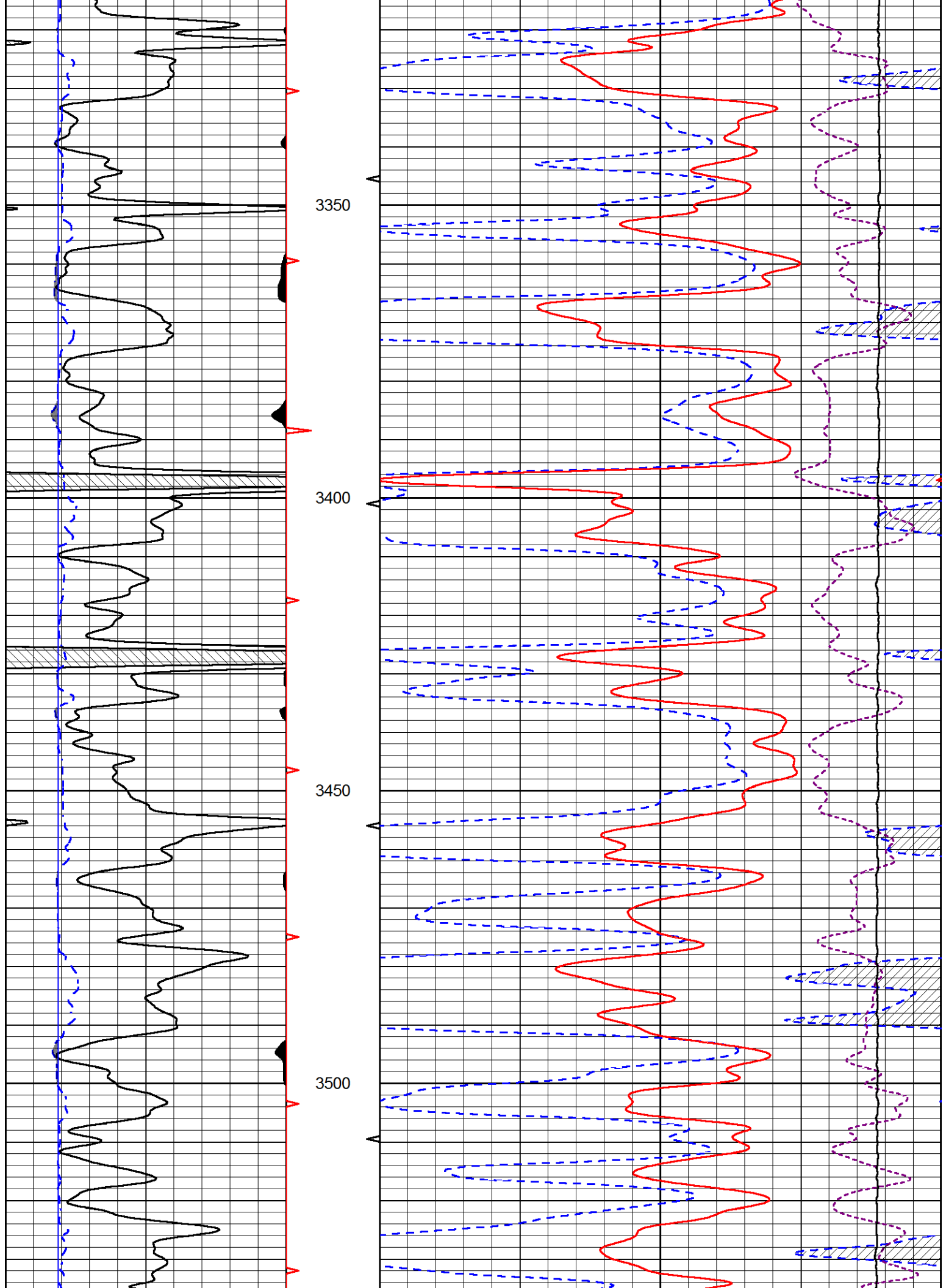




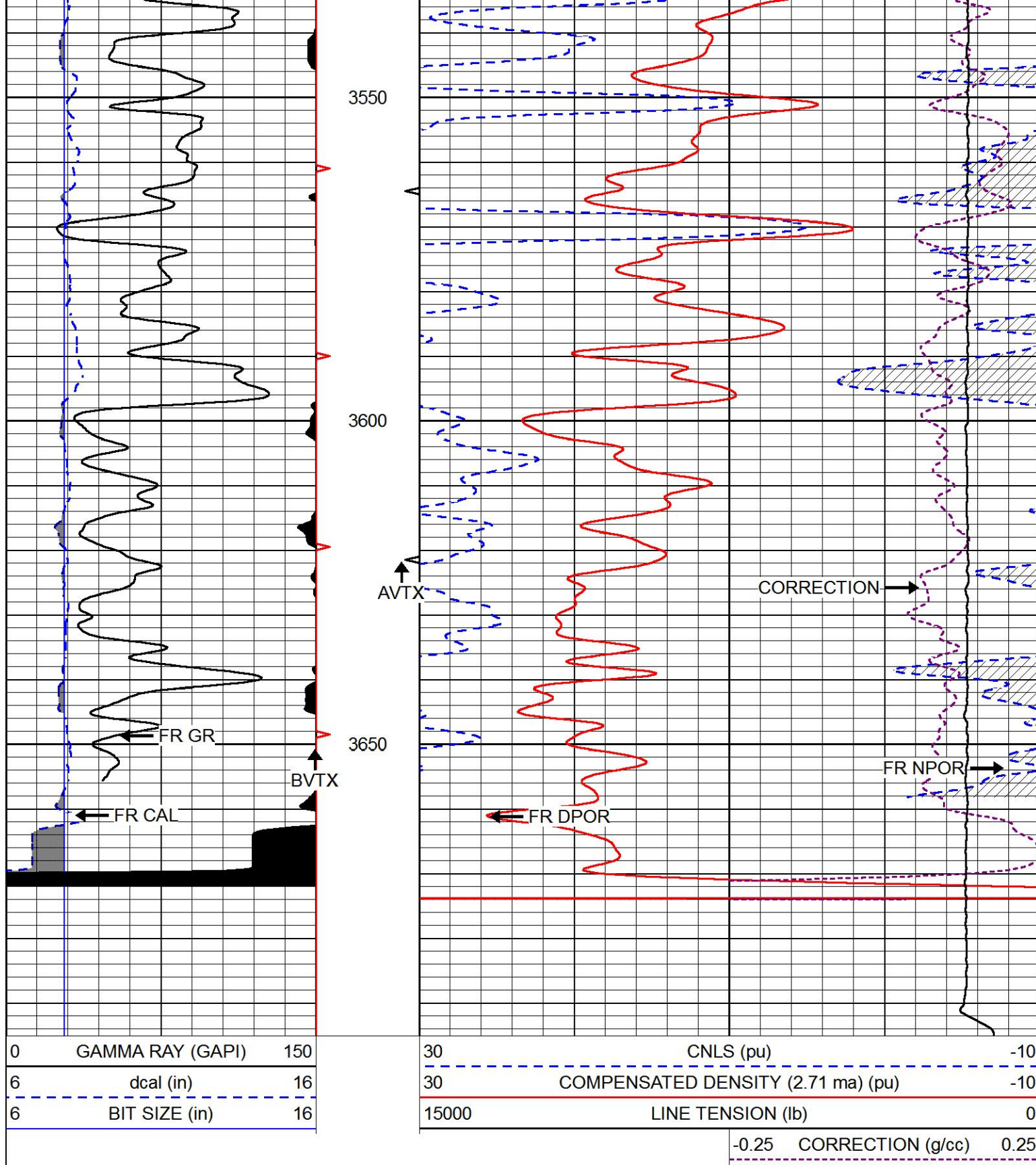










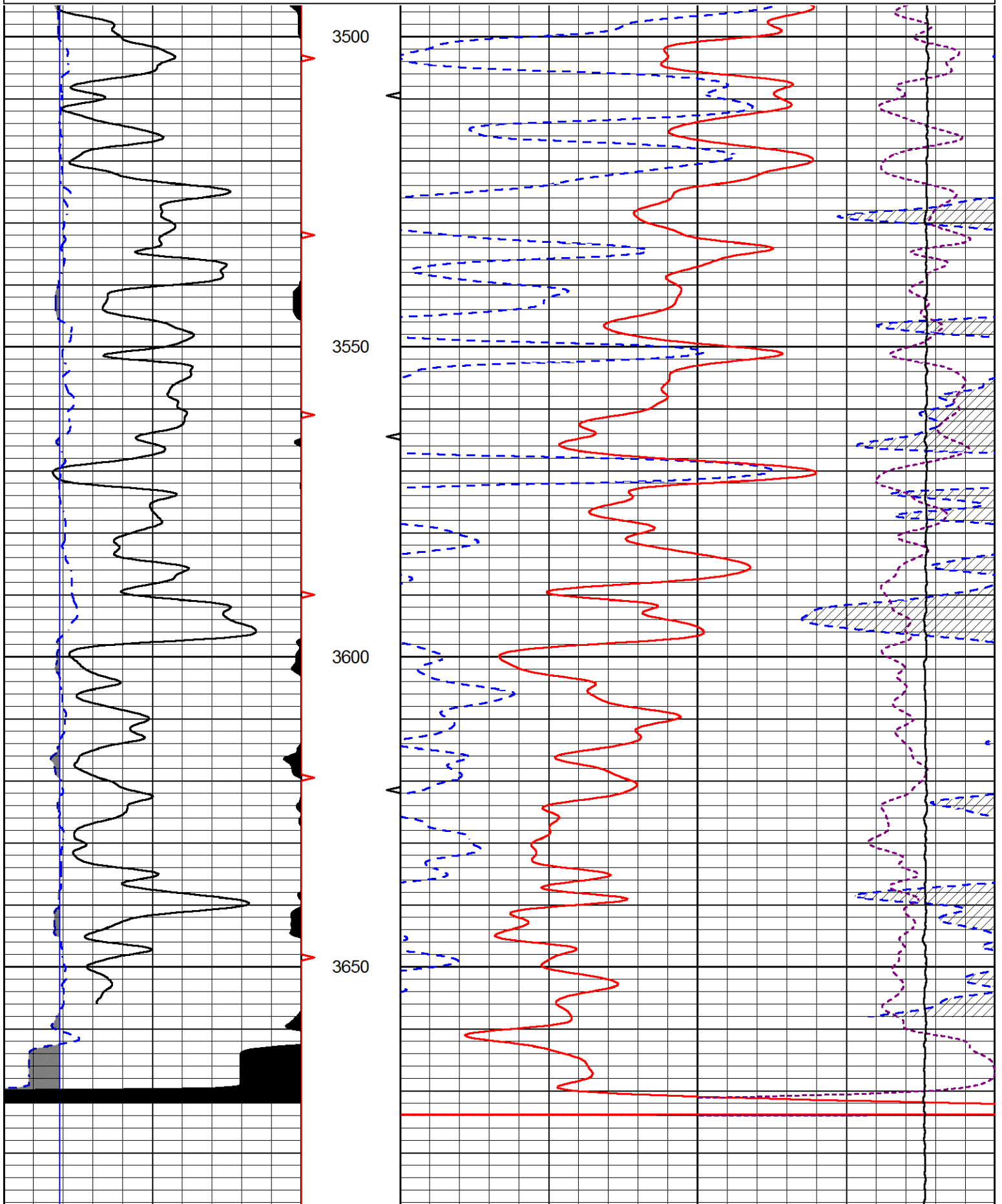


# REPEAT SECTION

Database File gulf\_explo\_griffin\_trust\_1\_30.db  
 Dataset Pathname stackml/pass2.1  
 Presentation Format cndlspec  
 Dataset Creation Sun Mar 04 09:46:29 2018

|   |                  |     |
|---|------------------|-----|
| 0 | GAMMA RAY (GAPI) | 150 |
| 6 | dcal (in)        | 16  |
| 6 | BIT SIZE (in)    | 16  |

|       |                                    |      |
|-------|------------------------------------|------|
| 30    | CNLS (pu)                          | -10  |
| 30    | COMPENSATED DENSITY (2.71 ma) (pu) | -10  |
| 15000 | LINE TENSION (lb)                  | 0    |
| -0.25 | CORRECTION (g/cc)                  | 0.25 |



|   |                  |     |       |                                    |      |
|---|------------------|-----|-------|------------------------------------|------|
| 0 | GAMMA RAY (GAPI) | 150 | 30    | CNLS (pu)                          | -10  |
| 6 | dcal (in)        | 16  | 30    | COMPENSATED DENSITY (2.71 ma) (pu) | -10  |
| 6 | BIT SIZE (in)    | 16  | 15000 | LINE TENSION (lb)                  | 0    |
|   |                  |     |       | -0.25 CORRECTION (g/cc)            | 0.25 |

|                  |  |                                  |  |                    |  |
|------------------|--|----------------------------------|--|--------------------|--|
| Database File    |  | gulf_explo_griffin_trust_1_30.db |  | Calibration Report |  |
| Dataset Pathname |  | stackml/pass3.1                  |  |                    |  |
| Dataset Creation |  | Sun Mar 04 09:46:18 2018         |  |                    |  |

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

|                        |  |  |                          |  |  |
|------------------------|--|--|--------------------------|--|--|
| Serial-Model:          |  |  | PSI 978-M&W              |  |  |
| Calibration Performed: |  |  | Sun Feb 04 11:50:02 2018 |  |  |

|        |  | Readings |          | References |                | Results |         |
|--------|--|----------|----------|------------|----------------|---------|---------|
| Loop:  |  | Air      | Loop     | Air        | Loop           | Gain    | Offset  |
| Deep   |  | 178.615  | 710.235  | 0.000      | 255.800 mmho/m | 0.570   | -40.500 |
| Medium |  | 161.982  | 1441.110 | 0.000      | 255.800 mmho/m | 0.400   | -37.000 |

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

|               |  |  |                          |  |  |
|---------------|--|--|--------------------------|--|--|
| Serial-Model: |  |  | PSI-02-PSI STKBL ML      |  |  |
| Performed:    |  |  | Fri Jun 23 01:25:19 2017 |  |  |

|         |  | Readings |        | References |               | Results    |           |
|---------|--|----------|--------|------------|---------------|------------|-----------|
|         |  | Zero     | Cal    | Zero       | Cal           | m          | b         |
| Normal  |  | 0.0031   | 0.0043 | 0.0000     | 10.0000 Ohm-m | 16000.0000 | -0.8000   |
| Inverse |  | 0.0000   | 0.0013 | 0.0000     | 10.0000 Ohm-m | 12000.0000 | 0.0000    |
| Caliper |  | 1.0020   | 1.0834 | 5.5000     | 16.5000 in    | 135.1560   | -131.6000 |

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

|                               |  |  |                          |  |  |
|-------------------------------|--|--|--------------------------|--|--|
| Serial-Model:                 |  |  | 168-986-M&W              |  |  |
| Source / Verifier:            |  |  | /                        |  |  |
| Master Calibration Performed: |  |  | Tue Apr 11 17:07:47 2017 |  |  |

|                     |  |            |                             |              |               |
|---------------------|--|------------|-----------------------------|--------------|---------------|
| Master Calibration  |  |            |                             |              |               |
|                     |  | Density    |                             | Far Detector | Near Detector |
| Magnesium           |  | 1.755 g/cc |                             | 4691.86      | 4818.19 cps   |
| Aluminum            |  | 2.700 g/cc |                             | 859.57       | 3020.22 cps   |
| Spine Angle = 74.61 |  |            | Density/Spine Ratio = 0.537 |              |               |
|                     |  | Size       |                             | Reading      |               |
| Small Ring          |  | 4.00 in    |                             | 1.00         |               |
| Large Ring          |  | 14.00 in   |                             | 1.20         |               |

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

Serial Number: tk10-MW  
Tool Model: M&W  
Calibration Performed: Wed Nov 16 11:21:36 2016

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

Gamma Ray Calibration Report

|                        |                          |          |
|------------------------|--------------------------|----------|
| Serial Number:         | 89-M&W                   |          |
| Tool Model:            | M&W                      |          |
| Calibration Performed: | Tue Apr 11 17:08:01 2017 |          |
| Calibrator Value:      | 1000.0                   | GAPI     |
| Background Reading:    | 0.0                      | cps      |
| Calibrator Reading:    | 6.2                      | cps      |
| Sensitivity:           | 0.5200                   | GAPI/cps |



|         |                        |
|---------|------------------------|
| Company | GULF EXPLORATION, LLC  |
| Well    | GRIFFIN TRUST NO. 1-30 |
| Field   | UNNAMED                |
| County  | OSBORNE                |
| State   | KANSAS                 |