MIDWEST WIRELINE

# DUAL COMP POROSITY LOG

Company American Warrior, Inc.
Well Hall #1-21
Field Shaeffer-RothGarn
County Stafford
State Kansas

Company American Warrior, Inc.
Well Hall #1-21
Field Shaeffer-RothGarn
County Stafford State Kansas

Location: API # : 15-185-24115-00-00
602 FNL & 1337 FEL
SEC 21 TWP 21S RGE 13W

Other Services
DIL/MEL

Permanent Datum Ground Level Elevation 1887
Log Measured From Kelly Bushing
Drilling Measured From Kelly Bushing

Elevation
K.B. 1900
D.F.
G.L. 1887

| | | | |
|---|---|---|---|
| Date | 8/29/2022 | | |
| Run Number | One | | |
| Type Log | CNL/CDL | | |
| Depth Driller | 3986 | | |
| Depth Logger | 3978 | | |
| Bottom Logged Interval | 3949 | | |
| Top Logged Interval | 3000 | | |
| Type Fluid In Hole | Chemical | | |
| Salinity, PPM CL | 8500 | | |
| Density | 8.9 | | |
| Level | Full | | |
| Max. Rec. Temp. F | 116 | | |
| Operating Rig Time | 3 Hours | | |
| Equipment -- Location | 24 | Hays | |
| Recorded By | D. Schmidt | | |
| Witnessed By | Jim Musgrove | | |

| Borehole Record | | | | Casing Record | | | |
|---|---|---|---|---|---|---|---|
| Run No. | Bit | From | To | Size | Wgt. | From | To |
| One | 12.25 | 0 | 352 | 8.625 | 23 | 0 | 352 |
| Two | 7.875 | 352 | TD | | | | |

<< Fold Here >>>

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

Great Bend,
South to county line, 3 South, 1/4 West,
South into

Log Measured From: Kelly Bushing 13 Ft. Above Permanent Datum

THANK YOU FOR USING MIDWEST WIRELINE LLC
785-625-3858

Your Midwest Wireline Crew

Engineer: D. Schmidt
Operator:
Operator:
Operator:

This Log Record Was Witnessed By

Primary Witness: Jim Musgrove
Secondary Witness:
Secondary Witness:
Secondary Witness:

| Sensor | Offset (ft) | Schematic | Description | Length (ft) | O.D. (in) | Weight (lb |
|---|---|---|---|---|---|---|
| GR | 40.33 | | GR-M&W (106) | 3.00 | 3.50 | 50.00 |
| CNLSC | 37.23 | | CNT-M&W (207-MW) | 5.00 | 3.50 | 100.00 |
| CNSSC | 36.48 | | | | | |
| | | | CDL-M&W (307-11) | 8.50 | 4.00 | 250.00 |
| LSD | 28.18 | | | | | |
| DCAL | 28.17 | | | | | |
| SSD | 27.68 | | | | | |
| | | | ML-PSIML (402) | 7.58 | 4.00 | 65.00 |
| MCAL | 19.58 | | | | | |
| MI | 19.58 | | | | | |
| MN | 19.58 | | | | | |
| RLL3F | 15.50 | | | | | |
| RLL3 | 15.50 | | | | | |
| | | | DIL-M&W (501 HT) | 18.25 | 3.50 | 220.00 |
| CILD | 8.33 | | | | | |
| CILM | 4.50 | | | | | |
| SP | 0.20 | | | | | |

Dataset: amwar_hall 1-21.db: field/well/stkml/pass3.10
Total length: 42.33 ft
Total weight: 685.00 lb
O.D.: 4.00 in

# Log Variables

DatabaseC:\ProgramData\Warrior\Data\amwar_hall 1-21.db
Dataset field/well/stkml/pass3.10/_vars_

**Top - Bottom**

| A | BOREID in | BOTTEMP degF | CASEOD in | CASETHCK in | FLUIDDEN g/cc | M | MATRXDEN g/cc |
|---|---|---|---|---|---|---|---|
| 1 | 7.875 | 116 | 5.5 | 0 | 1 | 2 | 2.71 |
| **NPORSEL** | **PERFS** | **SNDERR mmho/m** | **SNDERRM mmho/m** | **SPSHIFT mV** | **SRFTEMP degF** | **SZCOR** | **TDEPTH ft** |
| Limestone | 0 | 0 | 0 | 110 | 80 | Off | 3978 |

**Variable Description**

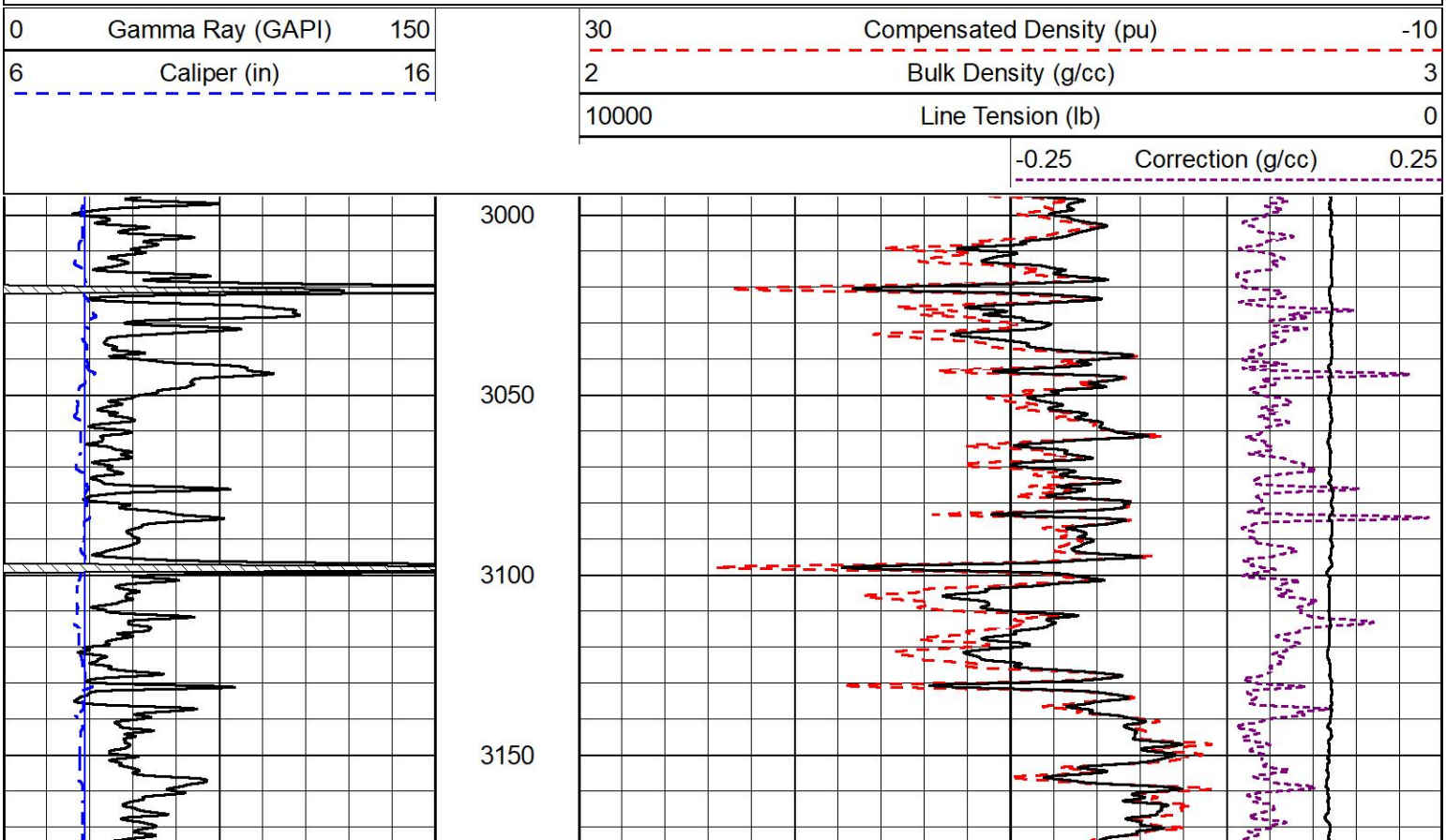
A : Cement Factor (a)
BOREID : Borehole I.D.
BOTTEMP : Bottom Hole Temperature
CASEOD : Casing O.D.
CASETHCK : Casing Thickness
FLUIDDEN : Fluid Density
M : Cement Exp (m)
MATRXDEN : Matrix Density
NPORSEL : Neutron Porosity Curve Select
PERFS : Perforation Flag
SNDERR : Deep Sonde Error Correction
SNDERRM : Medium Sonde Error Correction
SPSHIFT : S.P. Baseline Offset
SRFTEMP : Surface Temperature
SZCOR : CN Size Cor. ?
TDEPTH : Total Depth

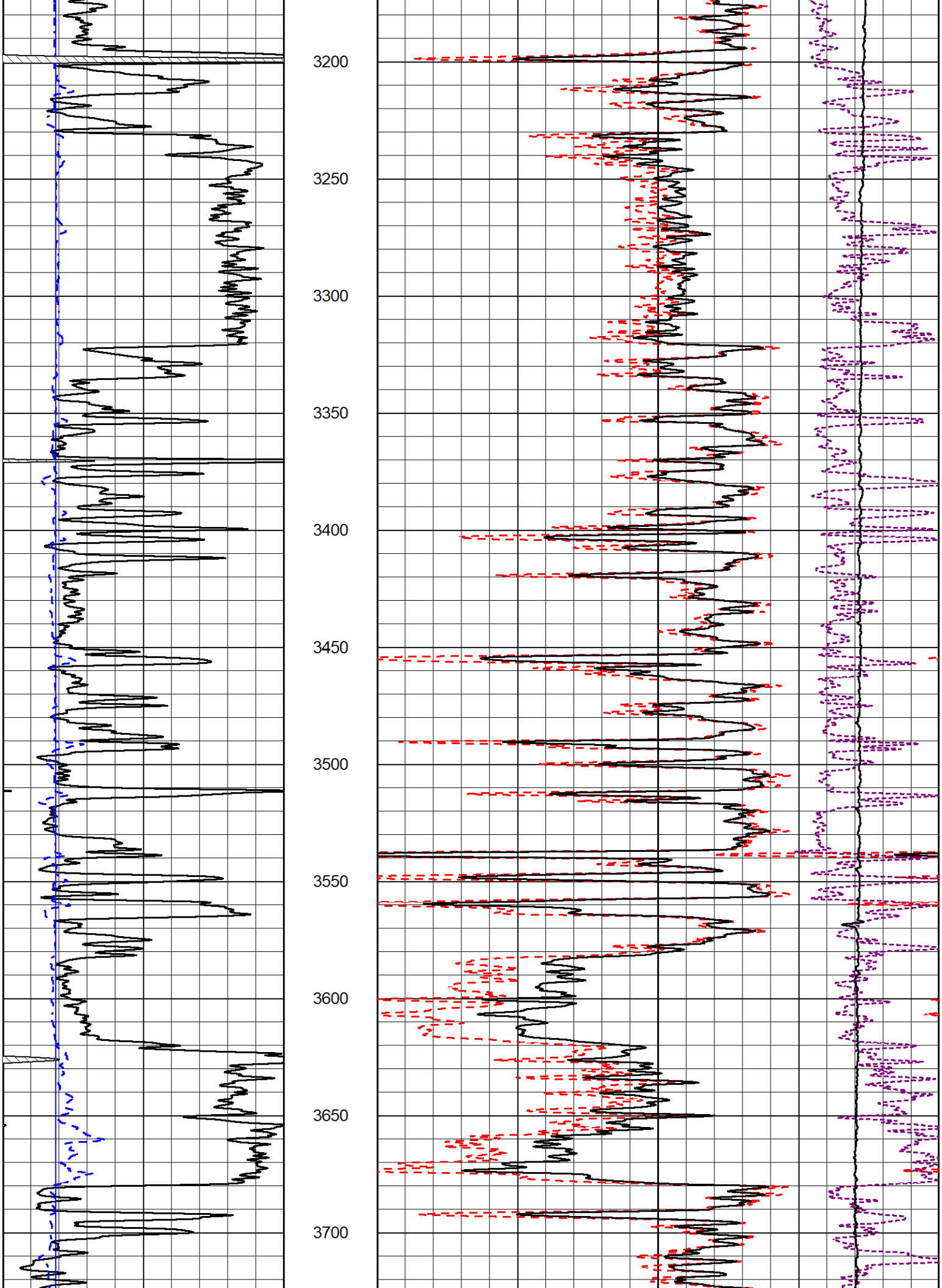
MIDWEST WIRELINE

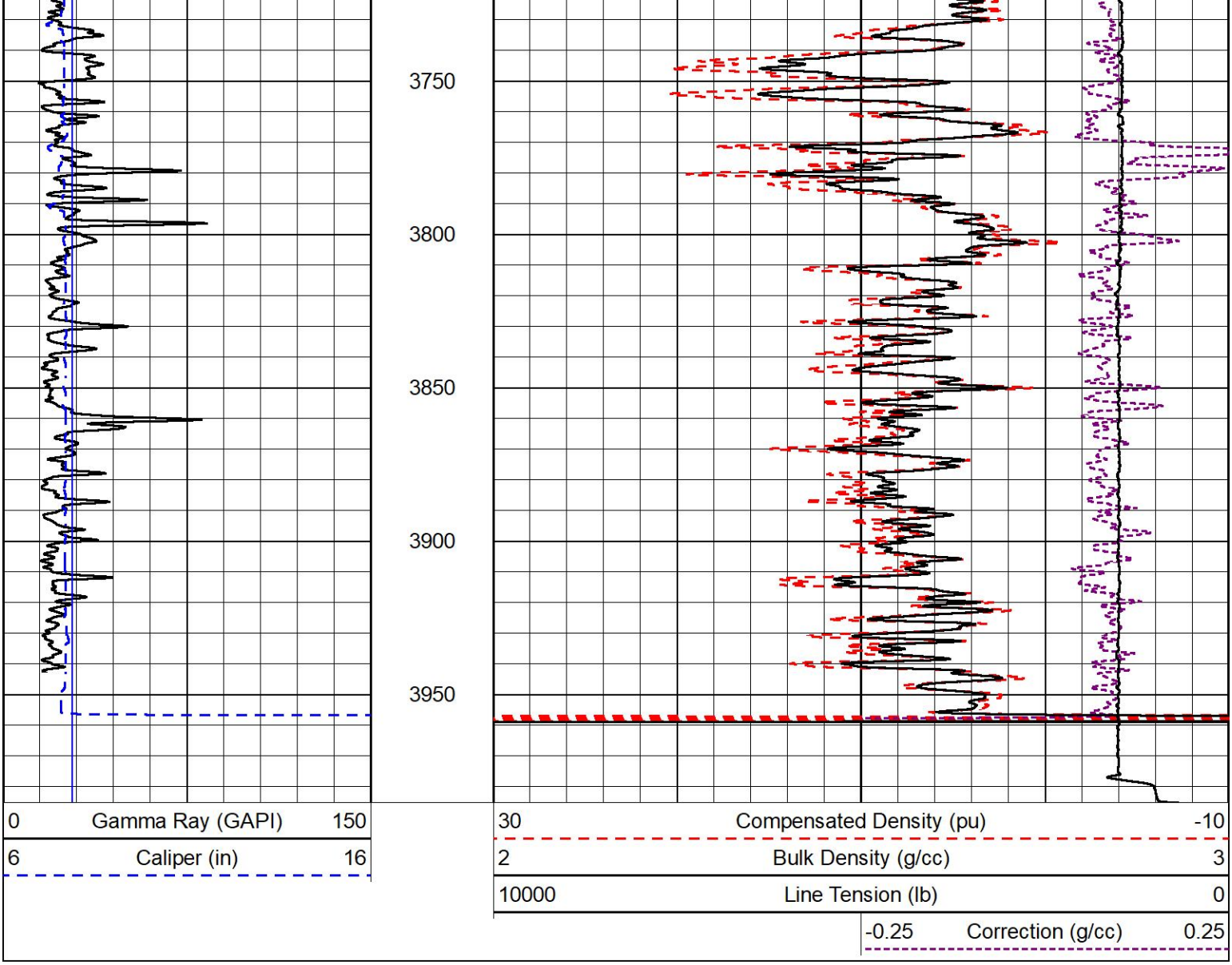
# 2" SCALE BULK DENSITY

## MAIN PASS

| | |
|---|---|
| Database File | amwar_hall 1-21.db |
| Dataset Pathname | stkml/pass3.2 |
| Presentation Format | _cdl |
| Dataset Creation | Mon Aug 29 10:04:02 2022 |
| Charted by | Depth in Feet scaled 1:600 |




3200
3250
3300
3350
3400
3450
3500
3550
3600
3650
3700

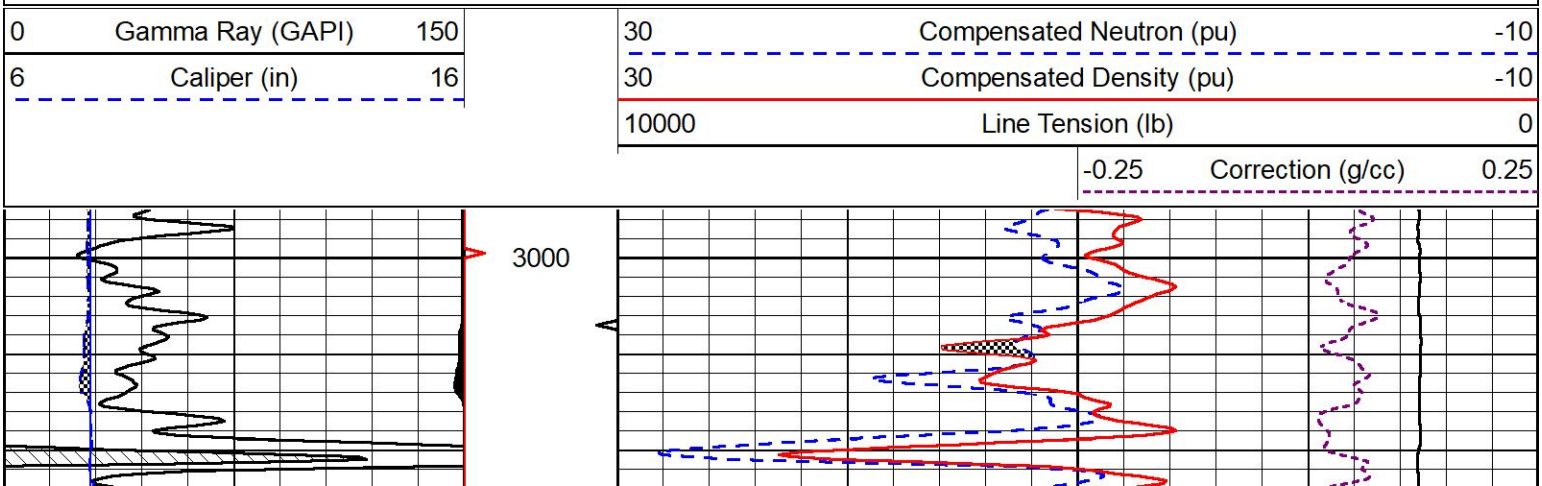


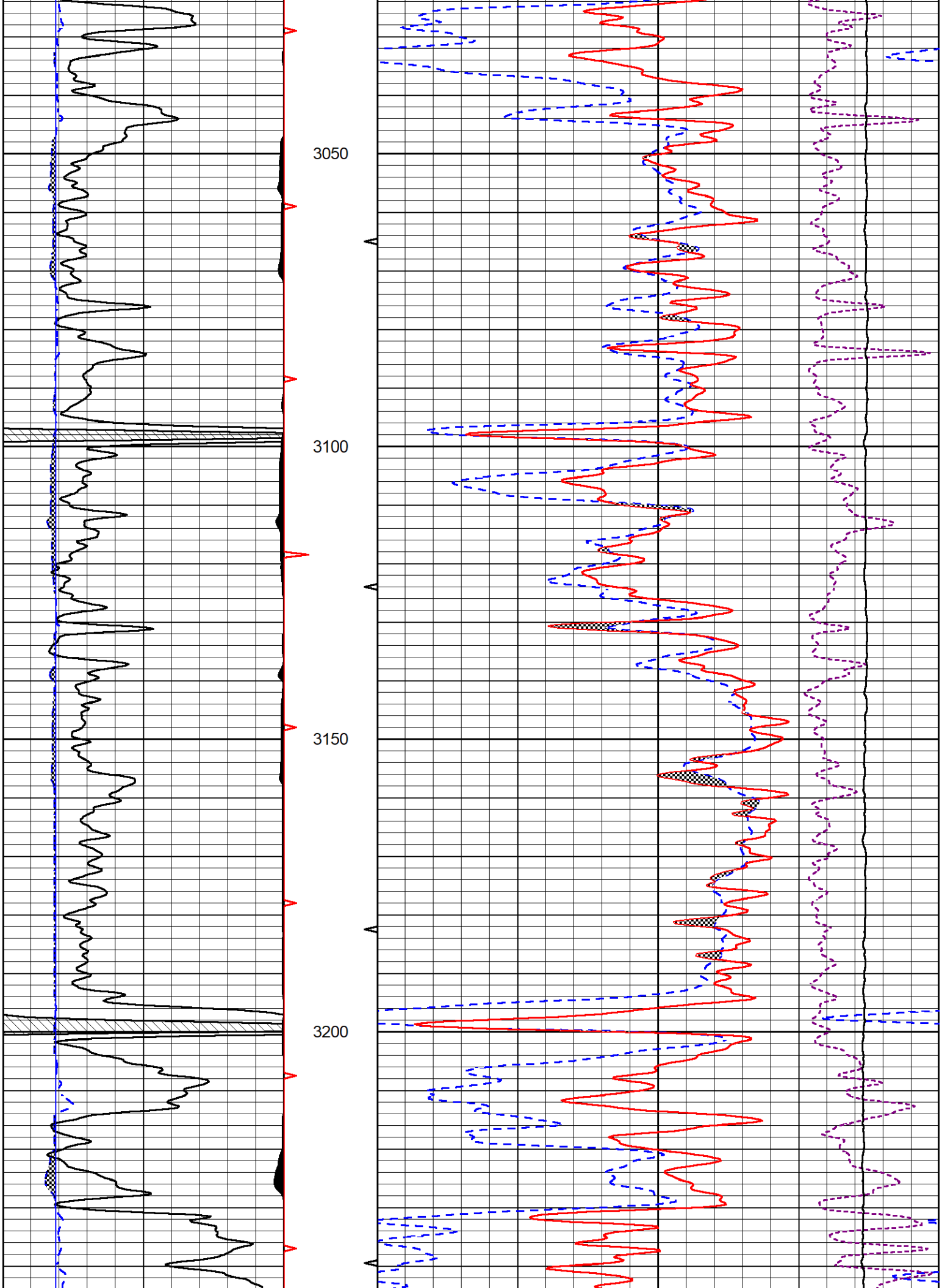

# DETAIL SECTION

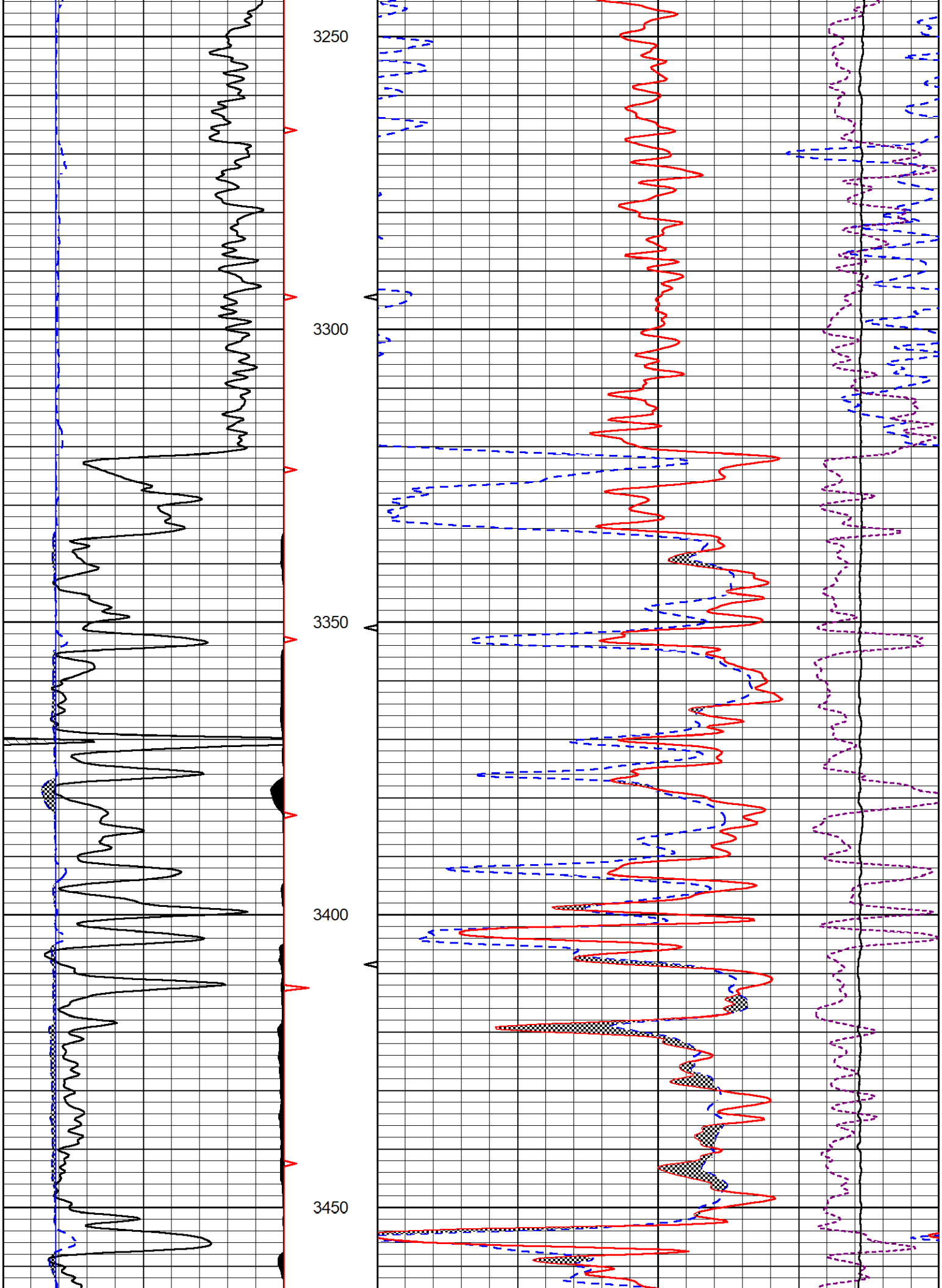
## MAIN PASS

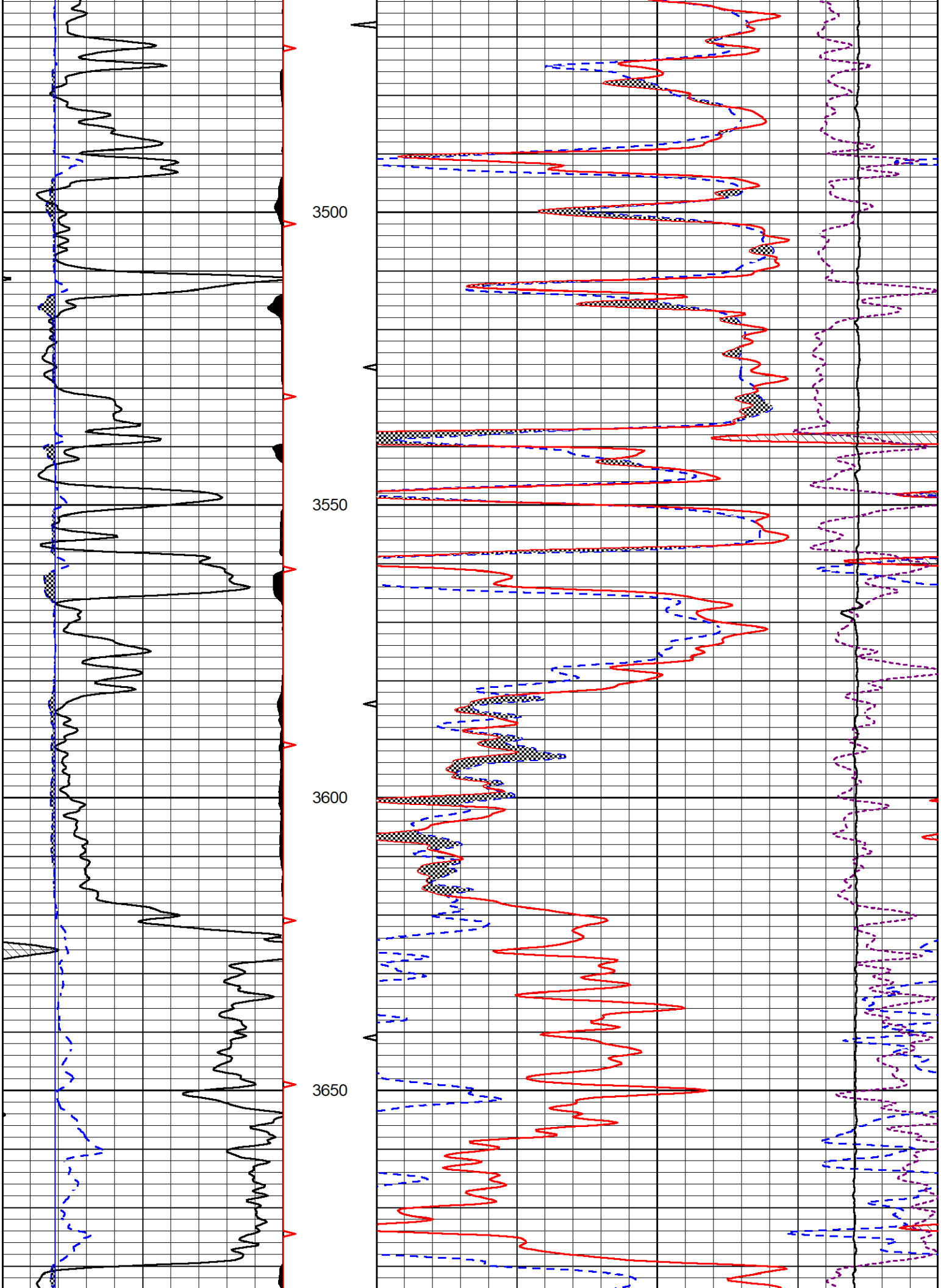
MIDWEST WIRELINE

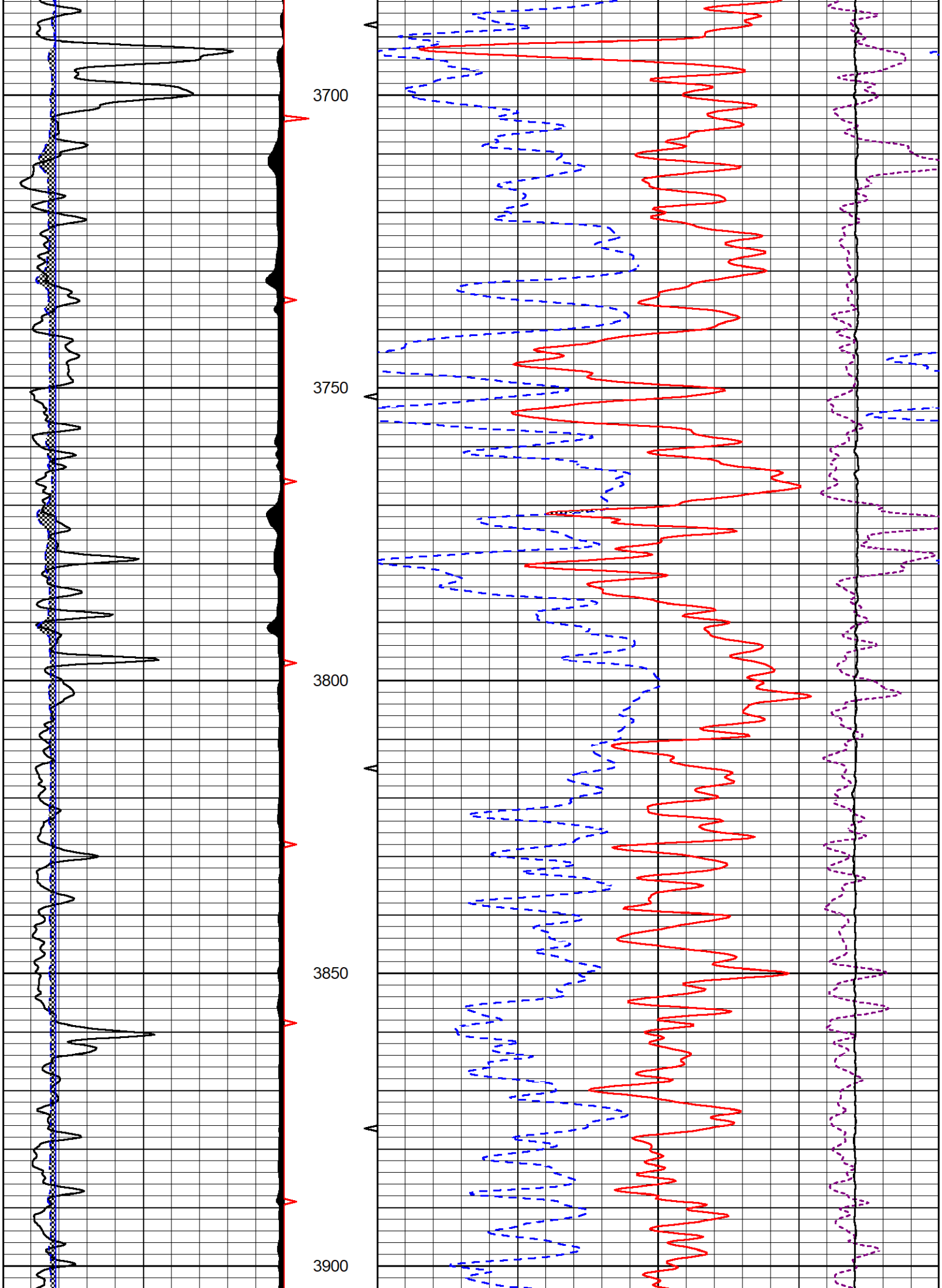
| | |
|---|---|
| Database File | amwar_hall 1-21.db |
| Dataset Pathname | stkml/pass3.5 |
| Presentation Format | _CNDLS~1 |
| Dataset Creation | Mon Aug 29 10:04:09 2022 |
| Charted by | Depth in Feet scaled 1:240 |

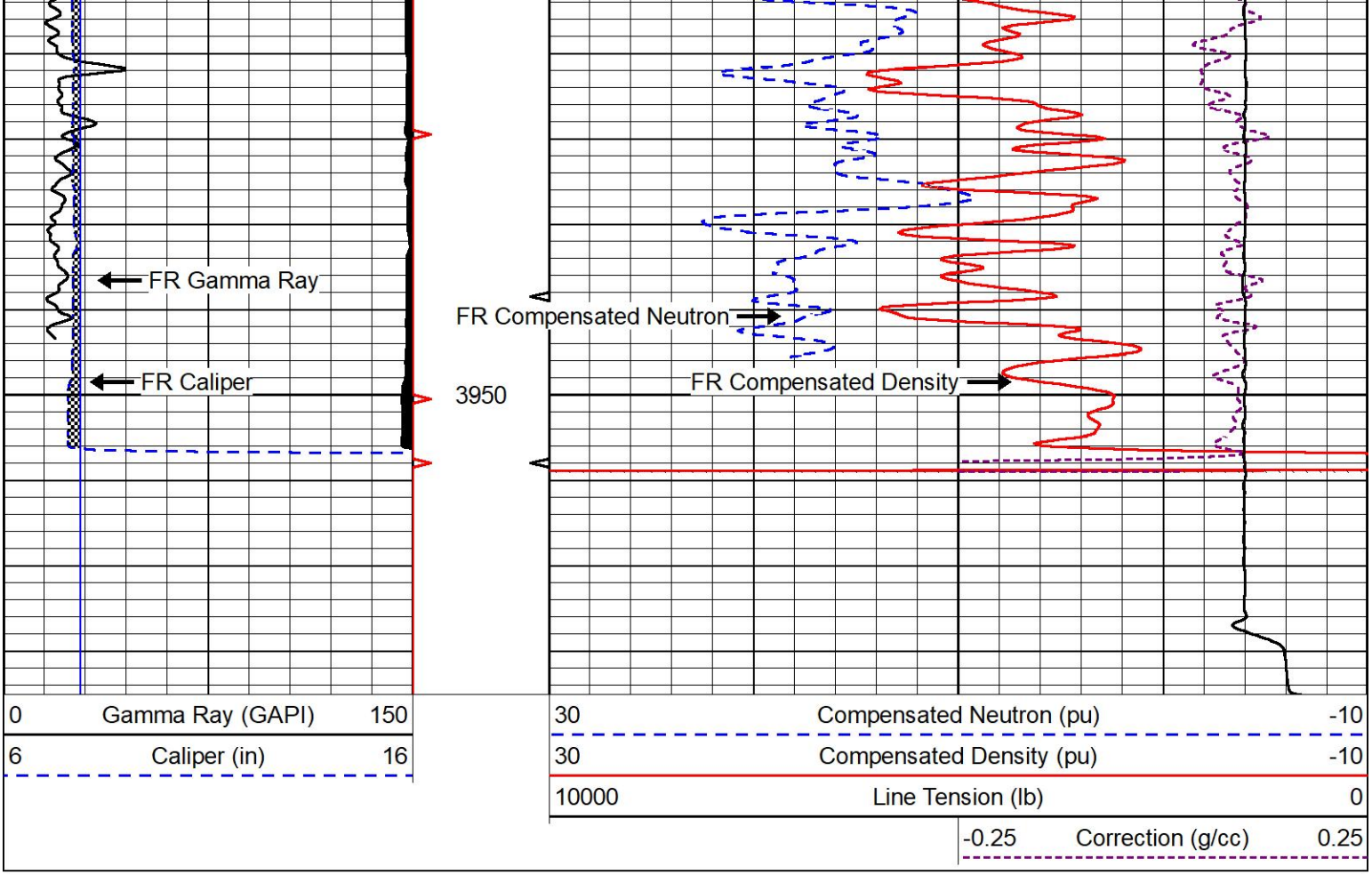



3050
3100
3150
3200


3250
3300
3350
3400
3450


3500
3550
3600
3650


3700
3750
3800
3850
3900

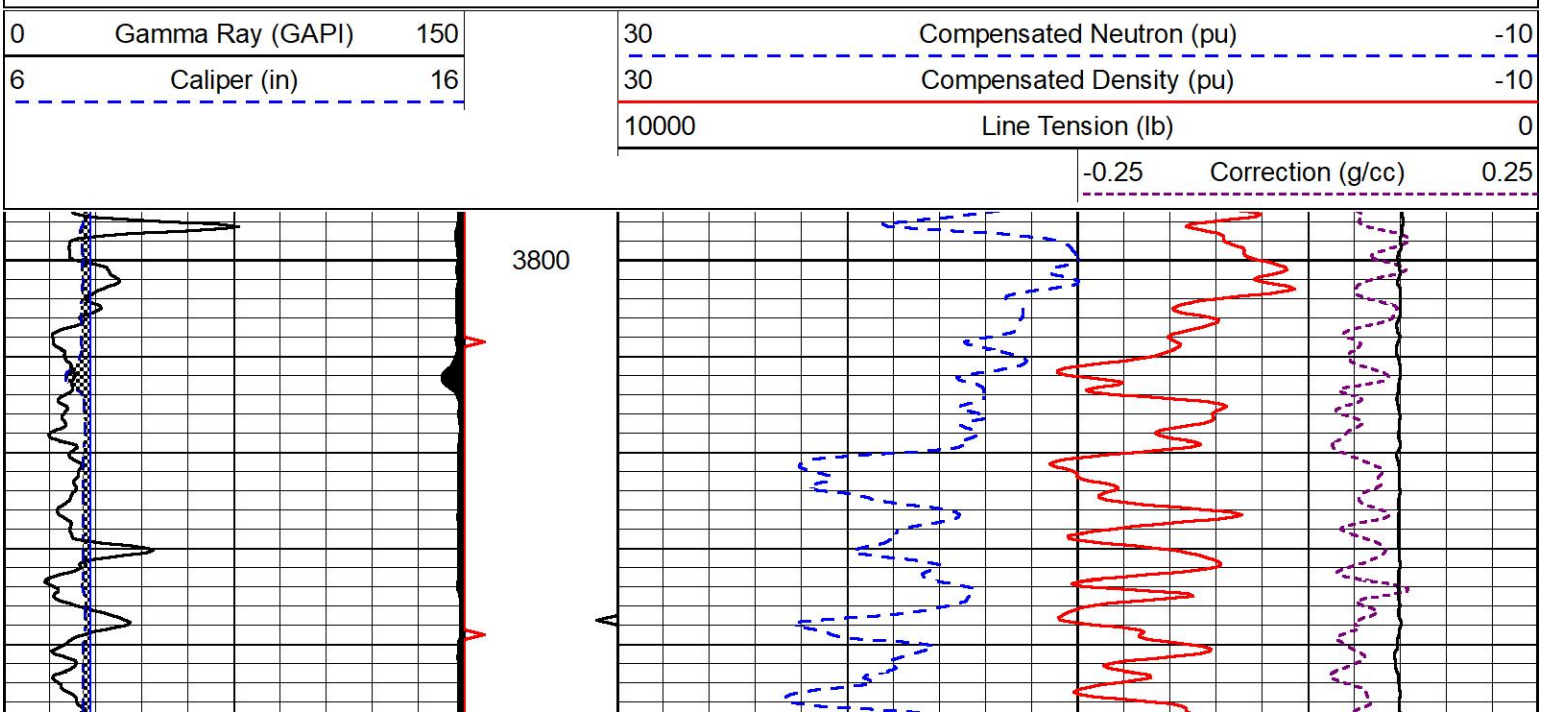


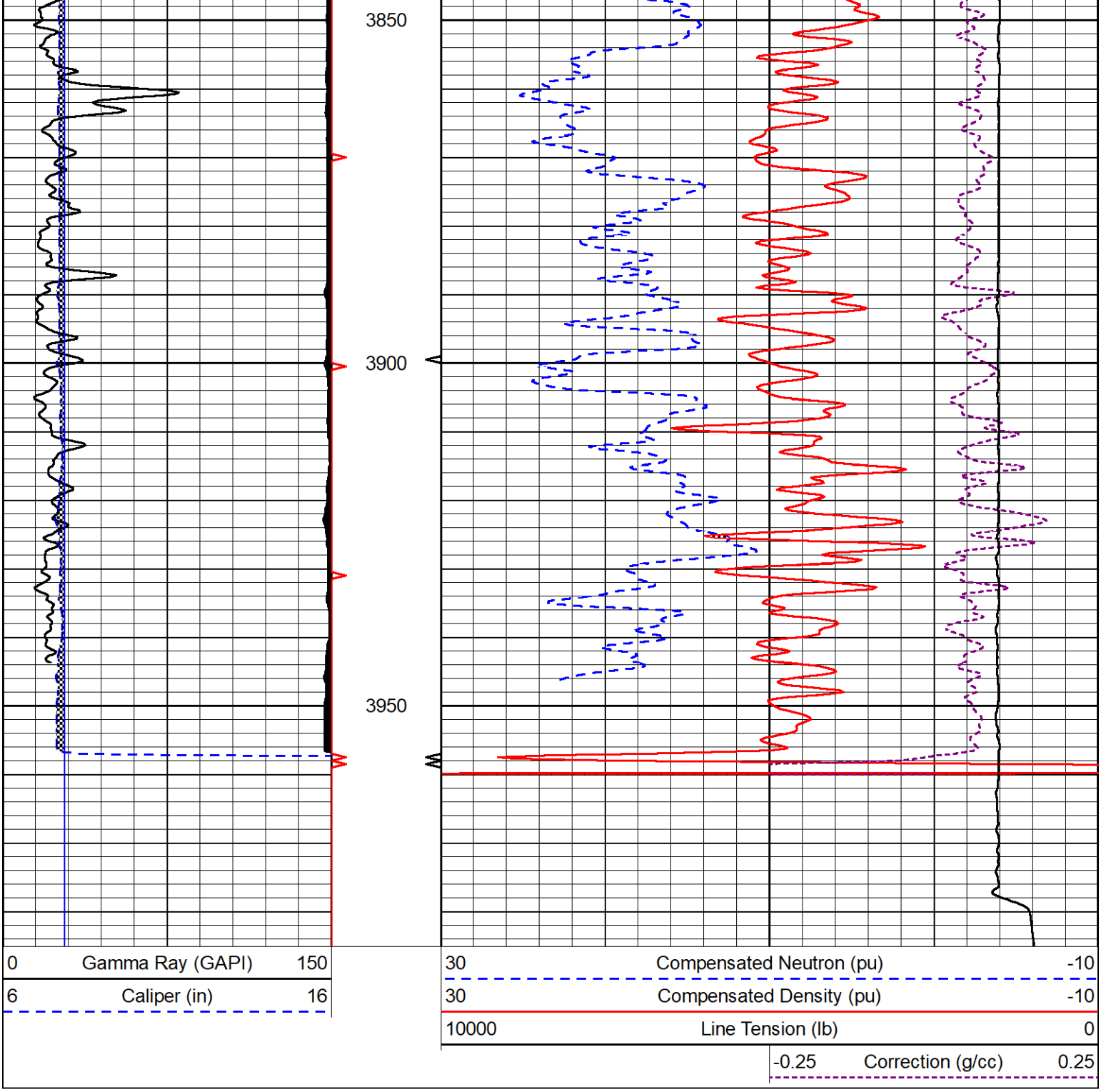

# REPEAT SECTION

## REPEAT PASS

MIDWEST WIRELINE

| | |
|---|---|
| Database File | amwar_hall 1-21.db |
| Dataset Pathname | stkml/pass2.10 |
| Presentation Format | _CNDLS~1 |
| Dataset Creation | Mon Aug 29 09:53:24 2022 |
| Charted by | Depth in Feet scaled 1:240 |






## Calibration Report

| | |
|---|---|
| Database File | amwar_hall 1-21.db |
| Dataset Pathname | stkml/pass3.10 |
| Dataset Creation | Mon Aug 29 09:51:35 2022 |

### Dual Induction Calibration Report

| | |
|---|---|
| Serial-Model: | 501 HT-M&W |
| Surface Cal Performed: | Sat Aug 27 21:37:29 2022 |

| | Readings | | References | | | Results | |
|---|---|---|---|---|---|---|---|
| Loop: | Air | Loop | Air | Loop | | m | b |
| Deep | 83.639 | 487.104 | 0.000 | 183.000 | mmho/m | 0.455 | -37.000 |
| Medium | 113.335 | 1585.690 | 0.000 | 442.000 | mmho/m | 0.305 | -35.000 |

## Microlog Calibration Report

Serial-Model: 402-PSIML
Performed: Sun Jul 17 13:11:21 2022

| | Readings | | References | | | Results | |
|---|---|---|---|---|---|---|---|
| | Zero | Cal | Zero | Cal | | m | b |
| Normal | 0.0000 | 1.0000 | 0.0000 | 1.0000 | Ohm-m | 20000.0000 | 0.0000 |
| Inverse | 0.0000 | 1.0000 | 0.0000 | 1.0000 | Ohm-m | 24000.0000 | 0.2000 |
| Caliper | 1.0052 | 1.0858 | 5.0000 | 16.5000 | in | 65.0000 | -59.8500 |

## Compensated Density Calibration Report

Serial-Model: 307-11-M&W
Source #: 20762B
Master Calibration Performed: Sat Aug 27 10:20:16 2022

Master Calibration

| | Density | | Far Detector | Near Detector | |
|---|---|---|---|---|---|
| Magnesium | 1.755 | g/cc | 3600.52 | 4768.22 | cps |
| Aluminum | 2.670 | g/cc | 693.98 | 3106.20 | cps |

Spine Angle = 75.41 Density/Spine Ratio = 0.538

| | Size | | Reading |
|---|---|---|---|
| Small Ring | 6.00 | in | 1.16 |
| Large Ring | 18.00 | in | 1.01 |

## Compensated Neutron Calibration Report

Serial Number: 207-MW
Tool Model: M&W

CALIBRATION

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

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: | 106 | |
| Tool Model: | M&W | |
| Performed: | Fri Dec 3 15:10:46 2021 | |
| Calibrator Value: | 500.0 | GAPI |
| Background Reading: | 24.0 | cps |
| Calibrator Reading: | 637.0 | cps |
| Sensitivity: | 0.5500 | GAPI/cps |

MIDWEST WIRELINE

| | |
|---|---|
| Company | American Warrior, Inc. |
| Well | Hall #1-21 |
| Field | Shaeffer-RothGarn |
| County | Stafford |
| State | Kansas |