



**PIONEER**

Pioneer Energy Services

## DUAL COMP POROSITY LOG

Company **RJM COMPANY**  
Well **ELVITA #1**  
Field **UNKNOWN**  
County **BARTON** State **KANSAS**

Location: API #: 15-009-26281-00-00

Other Services

550' FSL & 800' FWL  
NW-SE-SW-SW  
SEC 19 TWP 17S RGE 11W

DIL  
MEL

Permanent Datum **GROUND LEVEL** Elevation **1849'**  
Log Measured From **KELLY BUSHING**  
Drilling Measured From **KELLY BUSHING**

Elevation  
K.B. 1858'  
D.F. N/A  
G.L. 1849'

Date **11/10/2019**

Run Number **ONE**

Type Log **CNL/CDL**

Depth Driller **3430'**

Depth Logger **3432'**

Bottom Logged Interval **3400'**

Top Logged Interval **2700'**

Type Fluid In Hole **CHEMICAL**

Salinity, PPM CL **10,000**

Density **9.1**

Level **FULL**

Max. Rec. Temp. F **110 DEG/F**

Operating Rig Time **2 HOURS**

Equipment -- Location **P-108 HAYS**

Recorded By **J. HENRICKSON**

Witnessed By **WYATT URBAN**

### Borehole Record

### Casing Record

| Run No. | Bit    | From | To   | Size   | Wgt. | From | To   |
|---------|--------|------|------|--------|------|------|------|
| ONE     | 12.25" | 0    | 347' | 8.625" | 23#  | 0    | 347' |
| TWO     | 7.875" | 347' | TD   |        |      |      |      |
|         |        |      |      |        |      |      |      |
|         |        |      |      |        |      |      |      |
|         |        |      |      |        |      |      |      |
|         |        |      |      |        |      |      |      |
|         |        |      |      |        |      |      |      |
|         |        |      |      |        |      |      |      |
|         |        |      |      |        |      |      |      |
|         |        |      |      |        |      |      |      |

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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.

CLAFLIN KANSAS

3 WEST TO 100 RD, 2 NORTH, 1/8 EAST, NORTH INTO

Log Measured From: **KELLY BUSHING** 9 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: **WYATT URBAN**

Secondary Witness:

Secondary Witness:

Secondary Witness:

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        | 100              | 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                 | 305            | 0                | Off   | 0                |

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

| Sensor | Offset (ft) | Schematic | Description                                        | Length (ft) | O.D. (in) | Weight (lb) |  |
|--------|-------------|-----------|----------------------------------------------------|-------------|-----------|-------------|--|
| GR     | 44.50       |           | GR-M&W (89-M&W)                                    | 3.00        | 3.50      | 50.00       |  |
| CNLSC  | 41.40       |           | CNT-M&W (tk10-MW)                                  | 5.50        | 3.50      | 100.00      |  |
| CNSSC  | 40.65       |           |                                                    |             |           |             |  |
| LSD    | 32.35       |           | CDL-M&W (979-229)                                  | 8.50        | 4.00      | 250.00      |  |
|        |             |           |                                                    |             |           |             |  |
|        |             |           |                                                    |             |           |             |  |
|        |             |           |                                                    |             |           |             |  |
| DCAL   | 32.33       |           | ML-PSI UDM ML (UDM-01)<br>Stackable Microlog Tools | 11.50       | 4.00      | 215.00      |  |
| SSD    | 31.85       |           |                                                    |             |           |             |  |
| MCAL   | 20.87       |           |                                                    |             |           |             |  |
| MI     | 20.87       |           |                                                    |             |           |             |  |
| MN     | 20.87       |           |                                                    |             |           |             |  |
| RLL3   | 15.80       |           |                                                    |             |           |             |  |

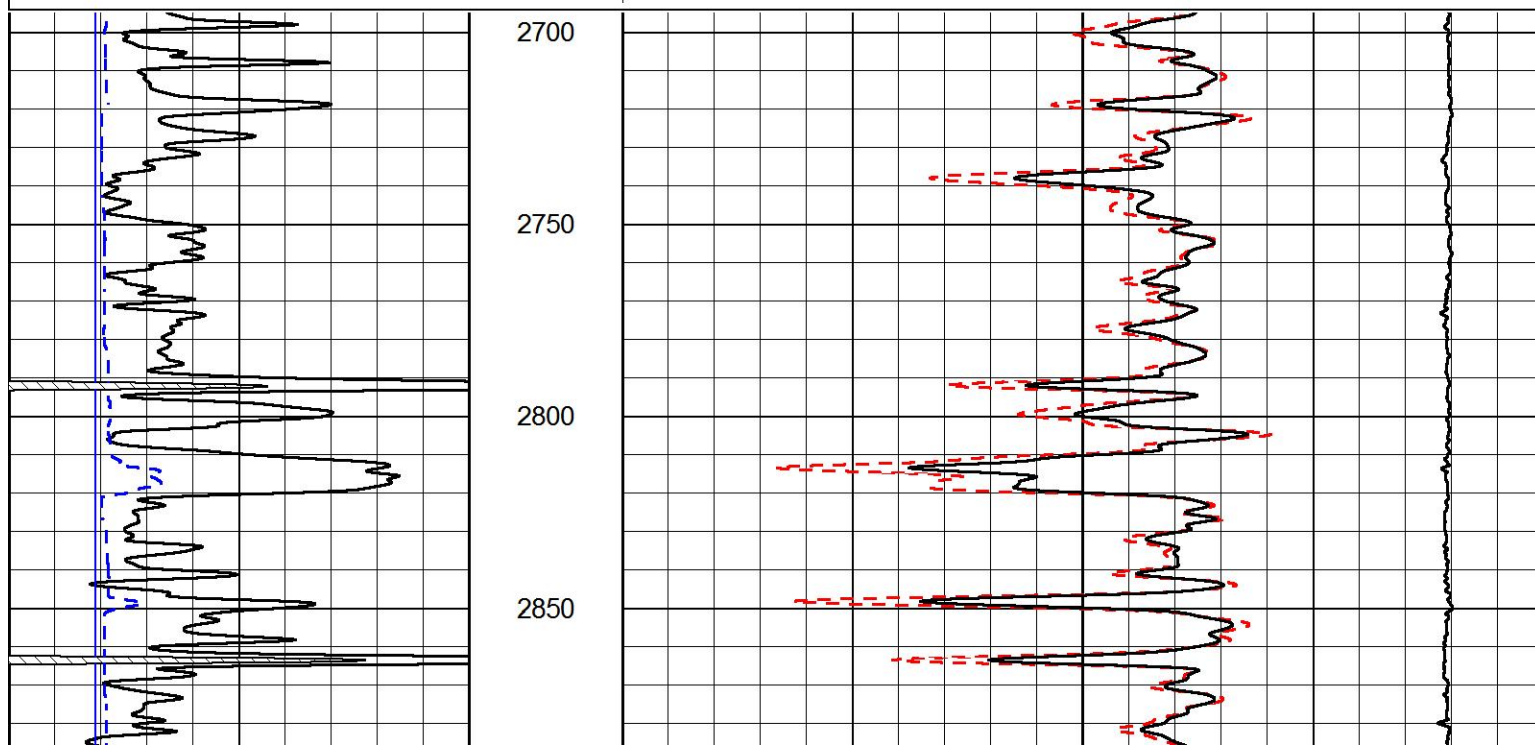
|                                                                                                                            |       |  |                  |       |      |        |
|----------------------------------------------------------------------------------------------------------------------------|-------|--|------------------|-------|------|--------|
| RLL3F                                                                                                                      | 15.79 |  |                  |       |      |        |
| CILD                                                                                                                       | 8.00  |  | DIL-M&W (55-222) | 18.50 | 3.50 | 220.00 |
| CILM                                                                                                                       | 4.70  |  |                  |       |      |        |
| SP                                                                                                                         | 0.20  |  |                  |       |      |        |
| Dataset: rjm_elvita_1.db: field/well/stackml/pass3.1<br>Total length: 47.00 ft<br>Total weight: 835.00 lb<br>O.D.: 4.00 in |       |  |                  |       |      |        |

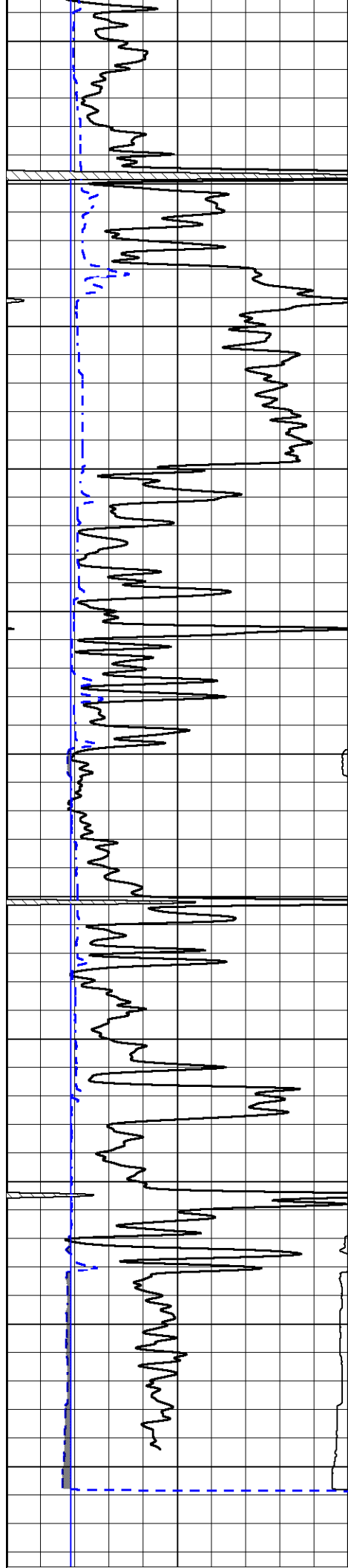


# MAIN PASS

|                     |                            |
|---------------------|----------------------------|
| Database File       | rjm_elvita_1.db            |
| Dataset Pathname    | stackml/pass3.1            |
| Presentation Format | cdl                        |
| Dataset Creation    | Mon Nov 11 00:20:45 2019   |
| Charted by          | Depth in Feet scaled 1:600 |

|   |                  |     |       |                          |     |
|---|------------------|-----|-------|--------------------------|-----|
| 0 | GAMMA RAY (GAPI) | 150 | 30    | COMPENSATED DENSITY (pu) | -10 |
| 6 | CALIPER (in)     | 16  | 2     | BULK DENSITY (g/cc)      | 3   |
|   |                  |     | 15000 | LINE TENSION (lb)        | 0   |





2900

2950

3000

3050

3100

3150

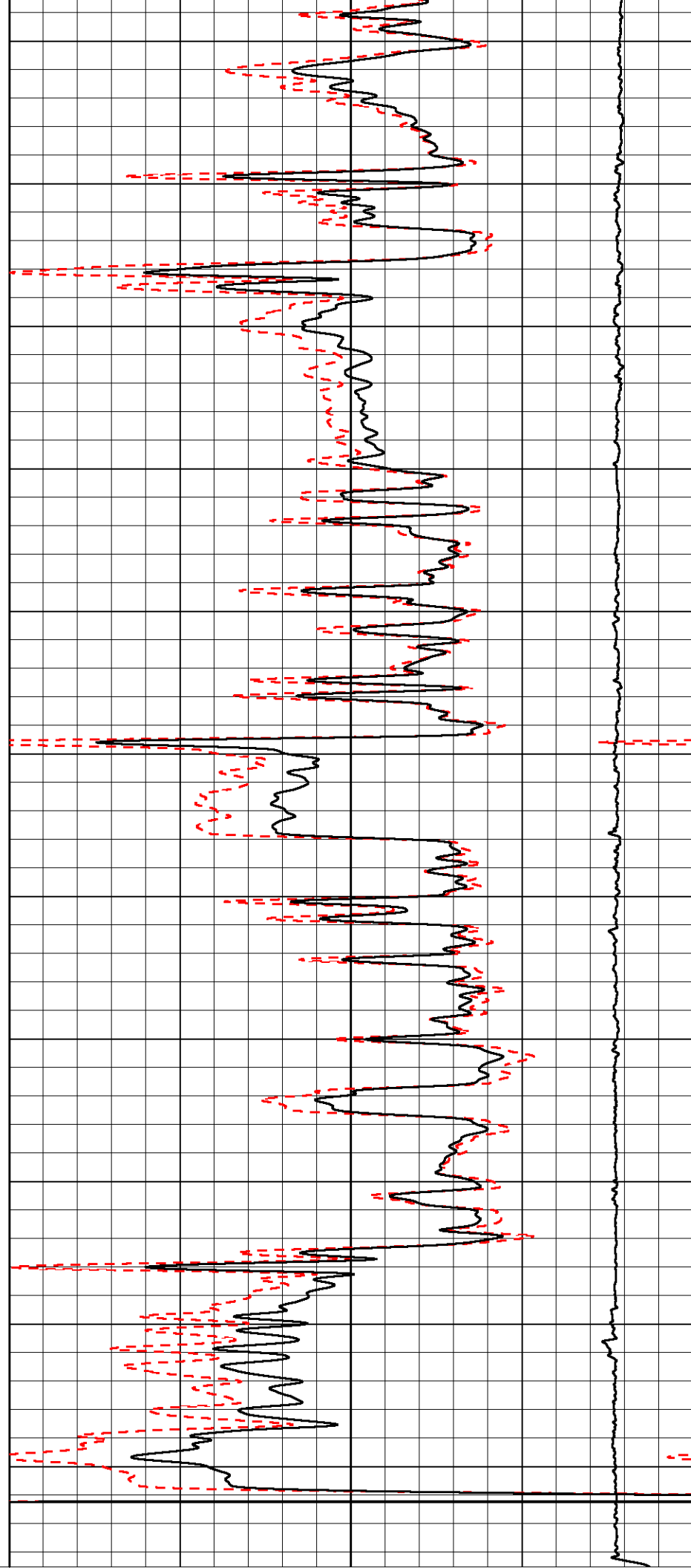
3200

3250

3300

3350

3400



|   |                  |     |
|---|------------------|-----|
| 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   |

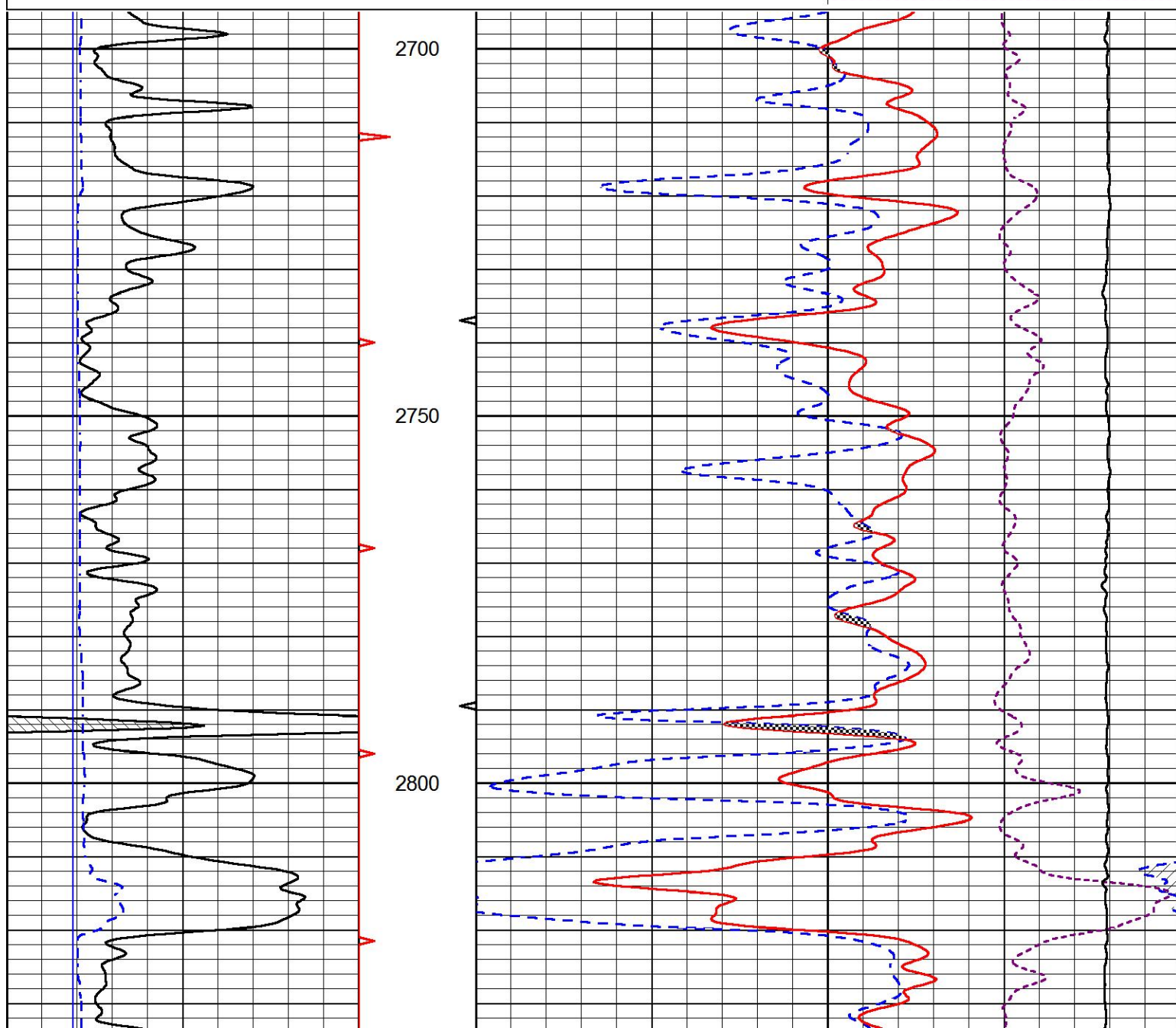


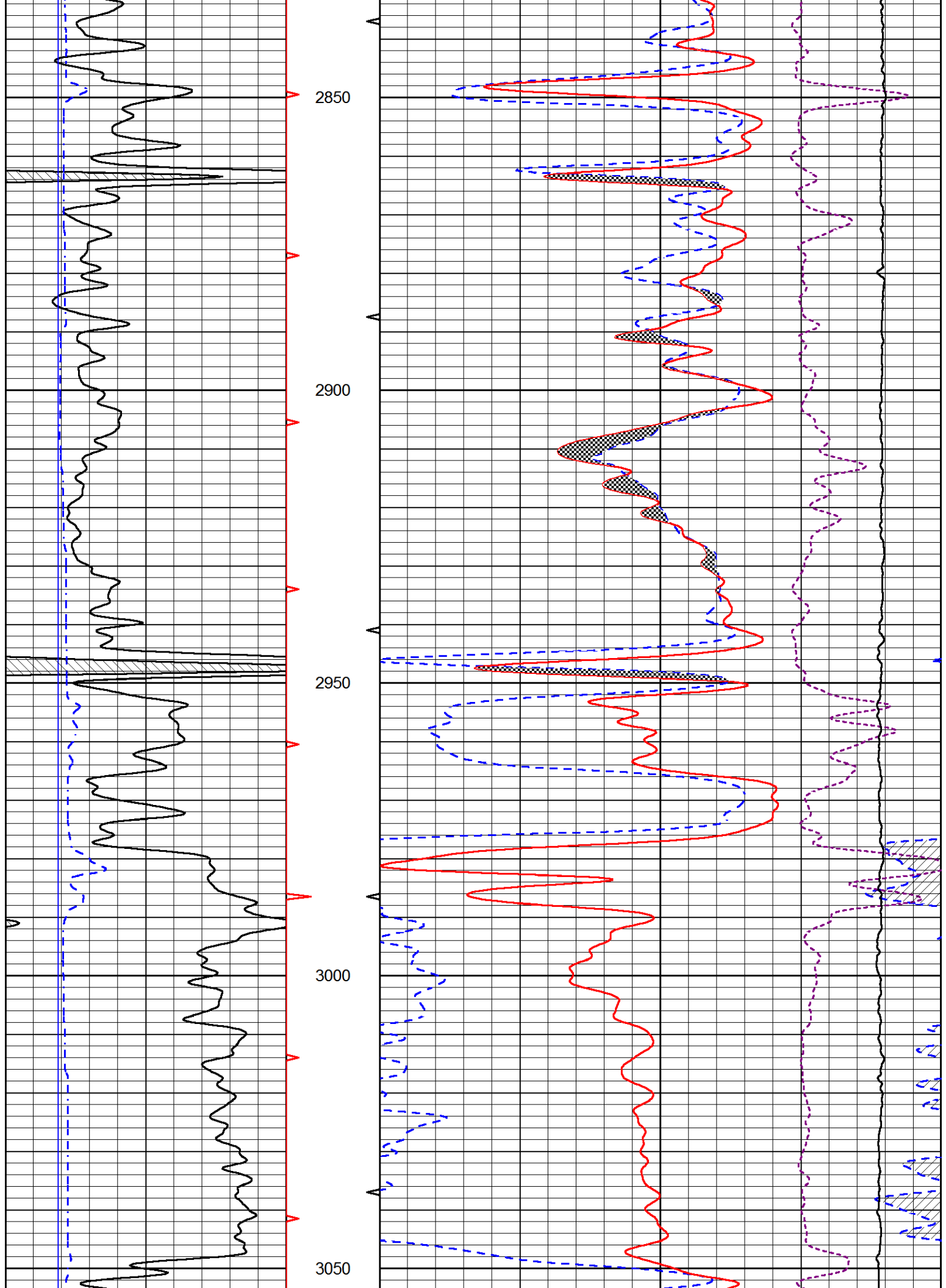
# MAIN PASS

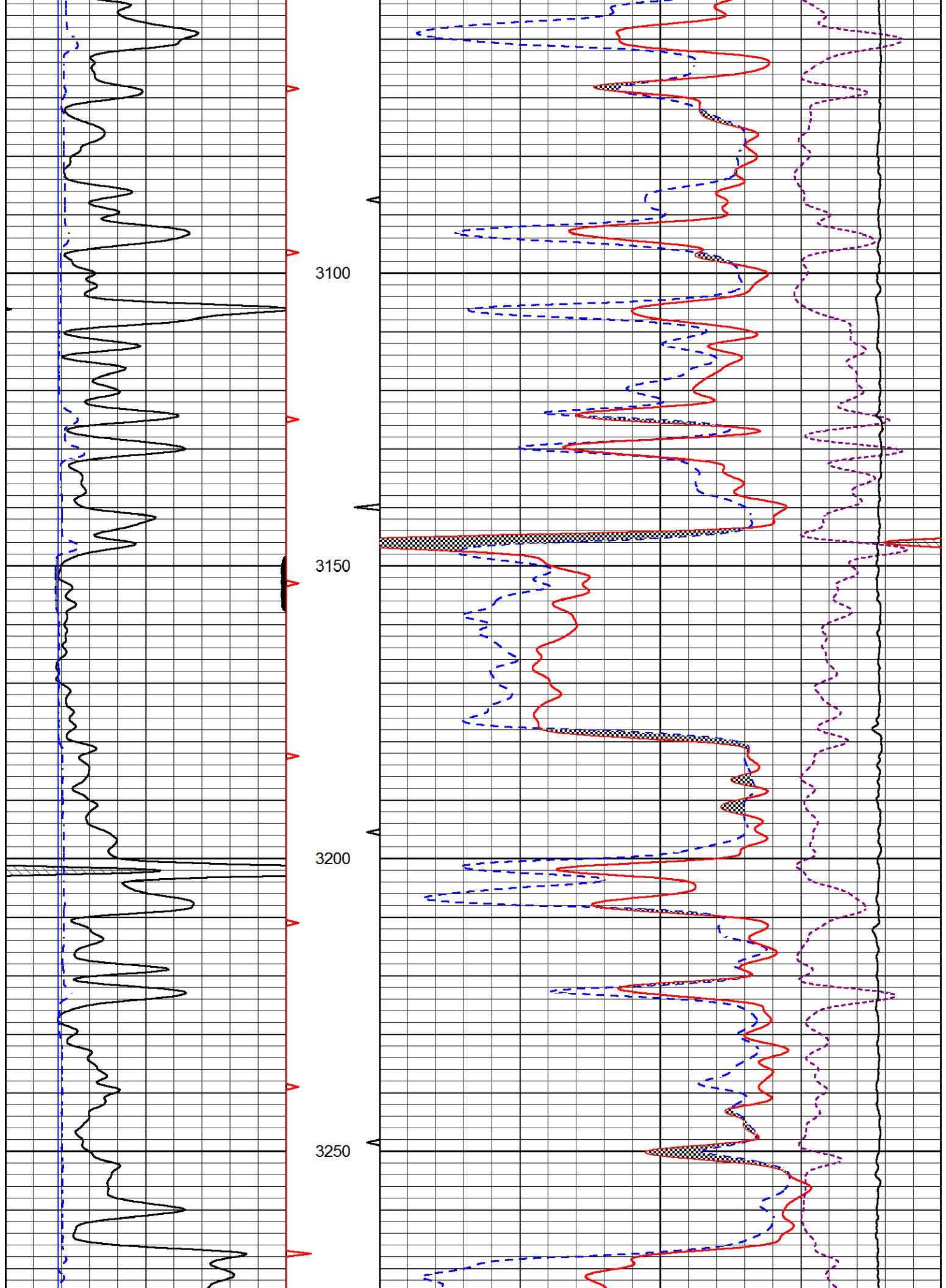
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Dataset Pathname stackml/pass3.1  
Presentation Format cndlspec  
Dataset Creation Mon Nov 11 00:20:45 2019  
Charted by Depth in Feet scaled 1:240

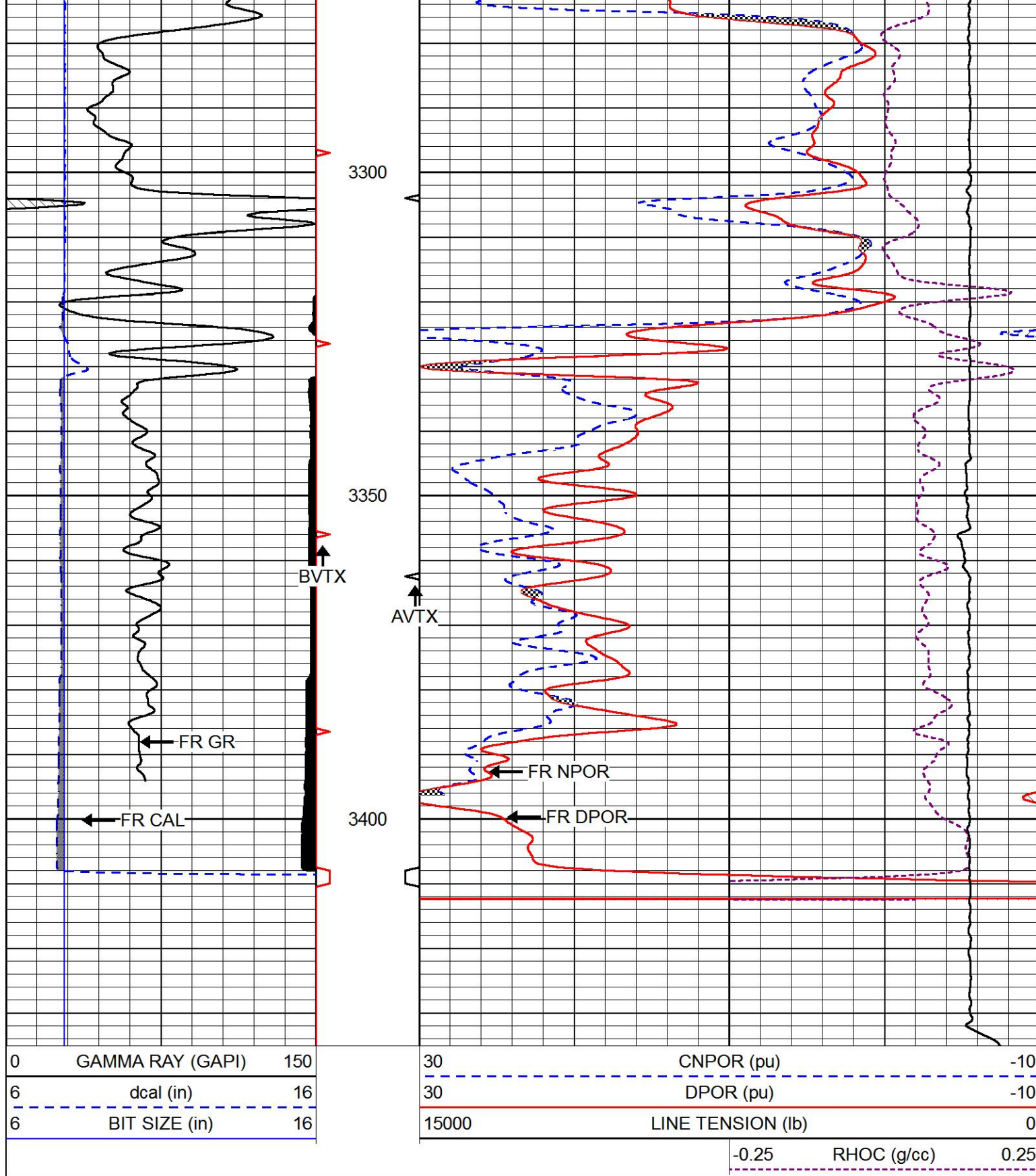
|   |                  |     |
|---|------------------|-----|
| 0 | GAMMA RAY (GAPI) | 150 |
| 6 | dcal (in)        | 16  |
| 6 | BIT SIZE (in)    | 16  |

|       |                   |      |
|-------|-------------------|------|
| 30    | CNPOR (pu)        | -10  |
| 30    | DPOR (pu)         | -10  |
| 15000 | LINE TENSION (lb) | 0    |
|       | RHOC (g/cc)       | 0.25 |







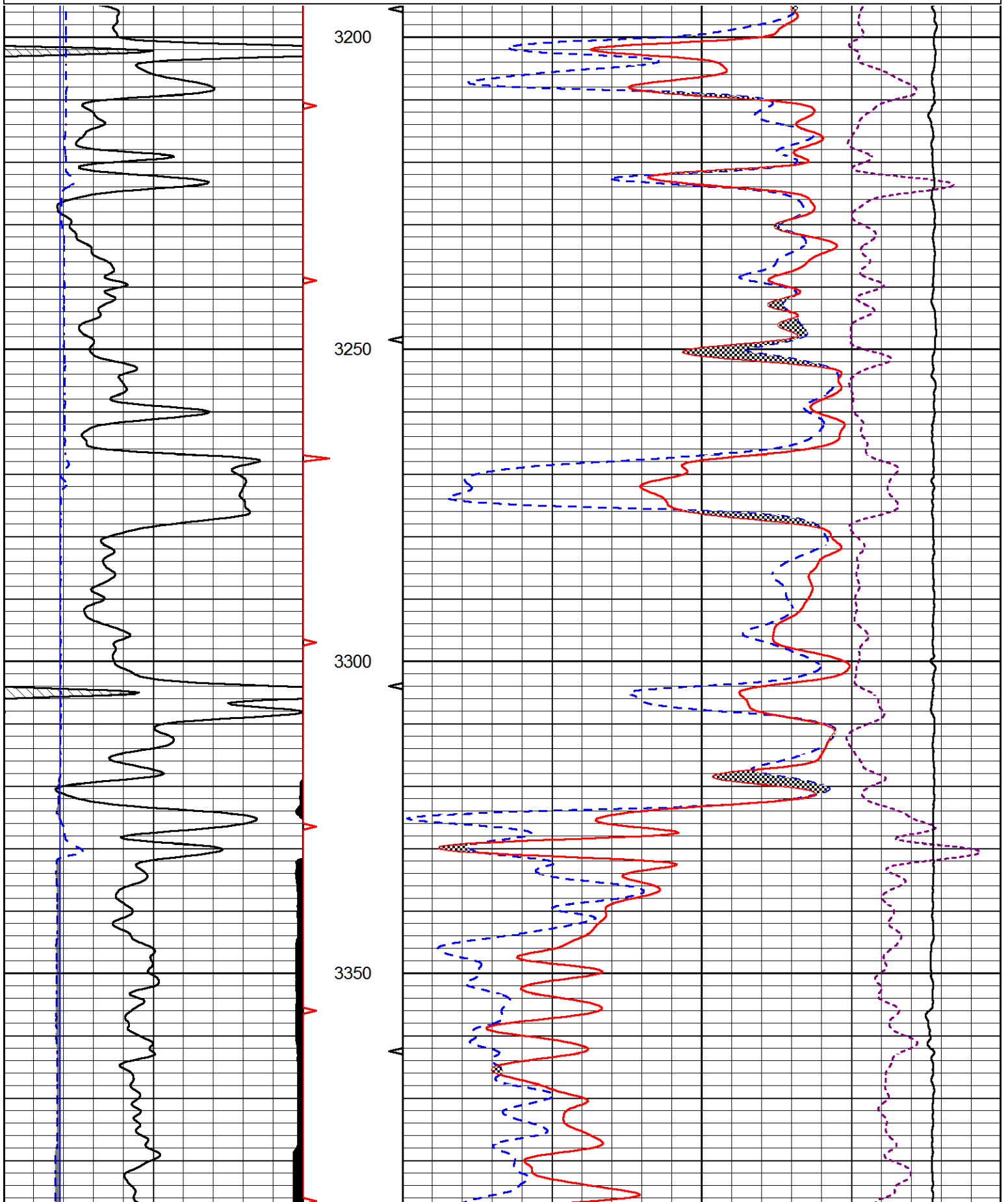


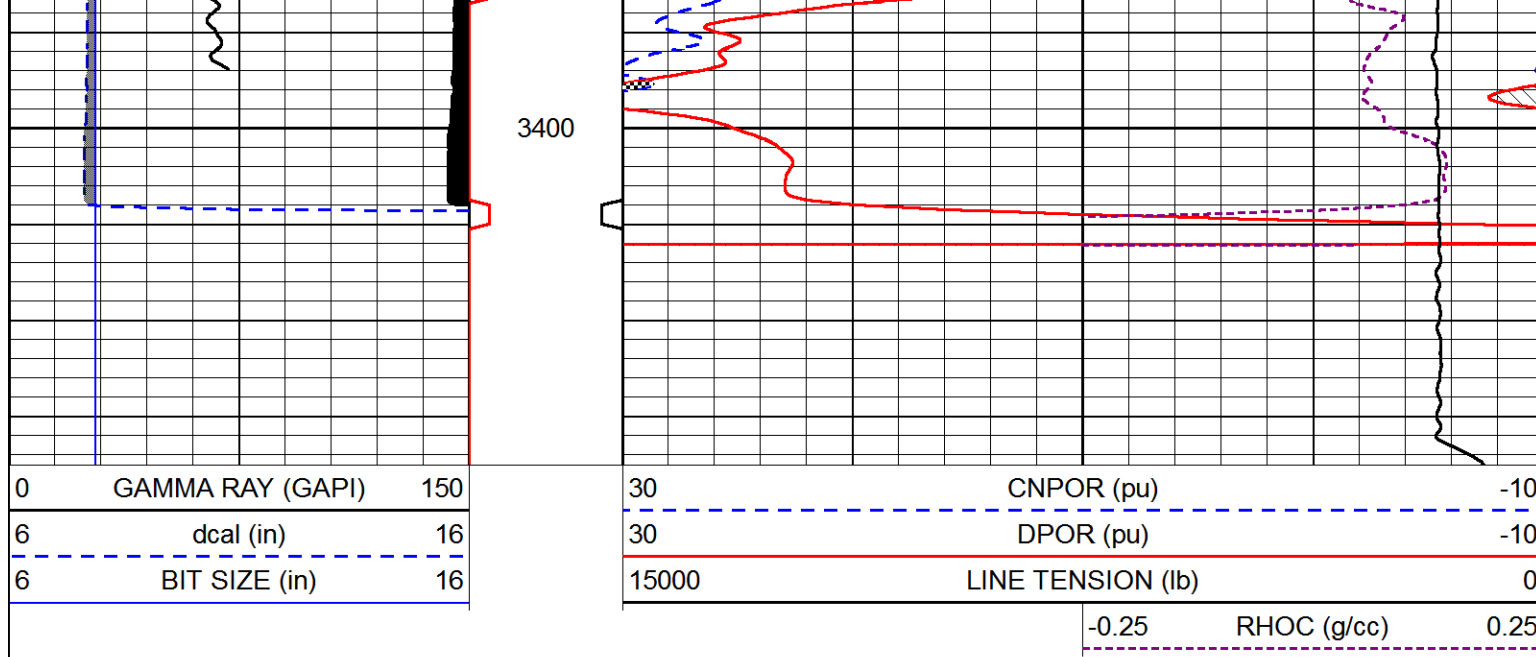
# REPEAT SECTION

Database File rjm\_elvita\_1.db  
 Dataset Pathname stackml/pass2.1  
 Presentation Format cndlspec  
 Dataset Creation Mon Nov 11 09:16:02 2010

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

|       |                   |            |
|-------|-------------------|------------|
| 30    | CNPOR (pu)        | -10        |
| 30    | DPOR (pu)         | -10        |
| 15000 | LINE TENSION (lb) | 0          |
|       | RHOC (g/cc)       | -0.25 0.25 |





### Calibration Report

Database File rjm\_elvita\_1.db  
 Dataset Pathname stackml/pass3.1  
 Dataset Creation Mon Nov 11 00:20:45 2019

### Dual Induction Calibration Report

Serial-Model: 55-222-M&W  
 Calibration Performed: Sun Oct 27 17:18:15 2019

| Loop:  | Readings |          | References |         |        | Results |         |
|--------|----------|----------|------------|---------|--------|---------|---------|
|        | Air      | Loop     | Air        | Loop    |        | Gain    | Offset  |
| Deep   | 167.000  | 835.000  | 0.000      | 255.800 | mmho/m | 0.510   | -41.000 |
| Medium | 0.000    | 1348.000 | 142.000    | 255.800 | mmho/m | 0.360   | -15.000 |

### Microlog Calibration Report

Serial-Model: UDM-01-PSI UDM ML  
 Performed: Fri May 31 06:10:42 2019

|         | Readings |        | References |         |       | Results    |          |
|---------|----------|--------|------------|---------|-------|------------|----------|
|         | Zero     | Cal    | Zero       | Cal     |       | m          | b        |
| Normal  | 0.0000   | 1.0000 | 0.0000     | 1.0000  | Ohm-m | 25000.0000 | 0.0000   |
| Inverse | 0.0000   | 1.0000 | 0.0000     | 1.0000  | Ohm-m | 25000.0000 | 0.0000   |
| Caliper | 0.7305   | 0.9327 | 8.0000     | 22.0000 | in    | 69.2371    | -42.5804 |

### Compensated Density Calibration Report

Serial-Model: 979-229-M&W  
 Source / Verifier: 21170B /  
 Master Calibration Performed: Tue Jul 23 10:17:03 2019

### Master Calibration

Density

Far Detector

Near Detector

|           |       |      |         |         |     |
|-----------|-------|------|---------|---------|-----|
| Magnesium | 1.755 | g/cc | 7680.82 | 9959.08 | cps |
| Aluminum  | 2.690 | g/cc | 1424.07 | 6427.19 | cps |

Spine Angle = 75.43

Density/Spine Ratio = 0.537

|            | Size  |    | Reading |
|------------|-------|----|---------|
| Small Ring | 4.00  | in | 1.15    |
| Large Ring | 14.00 | in | 1.02    |

### 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 RJM COMPANY  
Well ELVITA #1  
Field UNKNOWN  
County BARTON  
State KANSAS