



**PIONEER**  
Pioneer Energy Services

## DUAL COMP POROSITY LOG

Company **CHOLLA PRODUCTION, LLC**  
Well **SCHLEGEL # 1-4**  
Field **WILDCAT**  
County **NESS**  
State **KANSAS**

Company **CHOLLA PRODUCTION, LLC**  
Well **SCHLEGEL # 1-4**  
Field **WILDCAT**  
County **NESS** State **KANSAS**

Location: API #: 15-135-26054-00-00

Other Services

1080' FNL & 510' FEL  
SEC 4 TWP 20S RGE 25W

DIL  
MEL/BHCS

Permanent Datum **GROUND LEVEL** Elevation **2416'**  
Log Measured From **KELLY BUSHING**  
Drilling Measured From **KELLY BUSHING**

Elevation  
K.B. 2423'  
D.F. N/A  
G.L. 2416'

Date **7/10/2019**

Run Number **ONE**

Type Log **CNL/CDL**

Depth Driller **4520'**

Depth Logger **4518'**

Bottom Logged Interval **4497'**

Top Logged Interval **3600'**

Type Fluid In Hole **CHEMICAL**

Salinity, PPM CL **6000**

Density **9.5**

Level **FULL**

Max. Rec. Temp. F **121 DEG/F**

Operating Rig Time **4 HOURS**

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

Recorded By **J. HENRICKSON**

Witnessed By **CLAYTON ERICKSON**

### 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.  
NESS CITY, KANSAS  
WEST TO J ROAD, 8 SOUTH, 1 WEST, SOUTH INTO

Log Measured From: KELLY BUSHING 7 Ft. Above Permanent Datum

THANK YOU FOR USING PIONEER ENERGY SERVICES  
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: CLAYTON ERICKSON  
Secondary Witness:  
Secondary Witness:  
Secondary Witness:

Top - Bottom

|           |             |             |             |           |            |       |              |
|-----------|-------------|-------------|-------------|-----------|------------|-------|--------------|
| A         | BOREID      | BOTTEMP     | CASEOD      | CASETHCK  | FLUIDDEN   | M     | MATRXDEN     |
| 1         | in<br>7.875 | degF<br>121 | in<br>5.5   | in<br>0   | g/cc<br>1  | 2     | g/cc<br>2.71 |
| NPORSEL   | PERFS       | SNDERR      | SNDERRM     | SPSHIFT   | SRFTEMP    | SZCOR | TDEPTH       |
| Limestone | 0           | mmho/m<br>0 | mmho/m<br>0 | mV<br>130 | degF<br>62 | Off   | ft<br>4518   |

| Sensor             | Offset (ft)             | Schematic                                                                           |                                                                                     | Description       | Length (ft) | O.D. (in) | Weight (lb) |
|--------------------|-------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------|-------------|-----------|-------------|
| GR                 | 33.00                   |    |    | GR-M&W (89-M&W)   | 3.00        | 3.50      | 50.00       |
|                    |                         |                                                                                     |                                                                                     |                   |             |           |             |
| CNLSC<br>CNSSC     | 29.90                   |    |    | CNT-M&W (tk10-MW) | 5.50        | 3.50      | 100.00      |
|                    | 29.15                   |                                                                                     |                                                                                     |                   |             |           |             |
| LSD<br>DCAL<br>SSD | 20.85<br>20.83<br>20.35 |   |   | CDL-M&W (144-84)  | 8.50        | 4.00      | 250.00      |
|                    |                         |                                                                                     |                                                                                     |                   |             |           |             |
|                    |                         |                                                                                     |                                                                                     |                   |             |           |             |
|                    |                         |                                                                                     |                                                                                     |                   |             |           |             |
| RLL3<br>RLL3F      | 15.80                   |  |  | DIL-M&W (PSI 988) | 18.50       | 3.50      | 220.00      |
|                    | 15.79                   |                                                                                     |                                                                                     |                   |             |           |             |
| CILD               | 8.00                    |  |  |                   |             |           |             |

CILM 4.70

SP 0.20

Dataset: cholla\_schlegel\_1\_4.db: field/well/stack/pass3.1  
Total length: 35.50 ft  
Total weight: 620.00 lb  
O.D.: 4.00 in

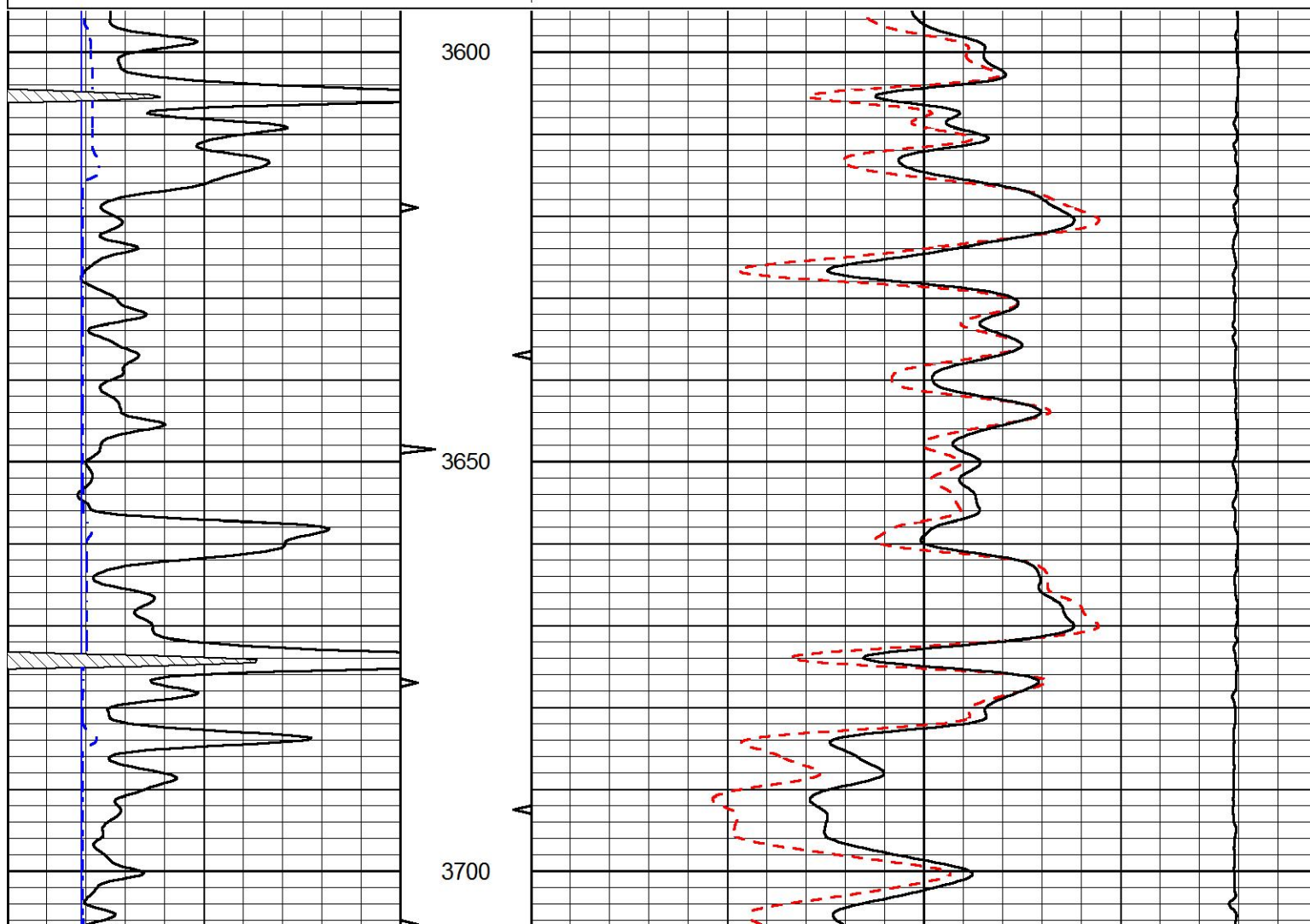


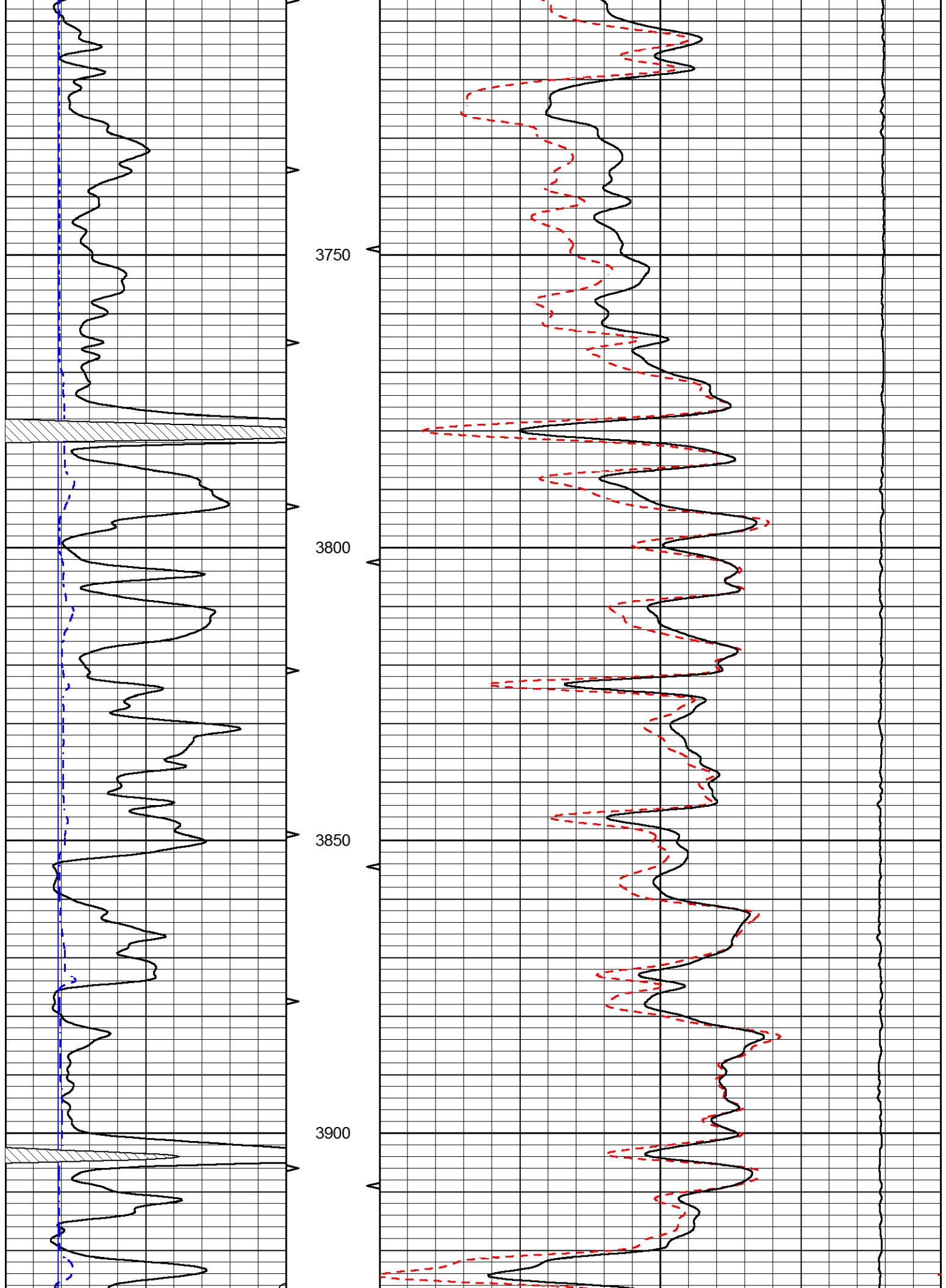
# MAIN PASS

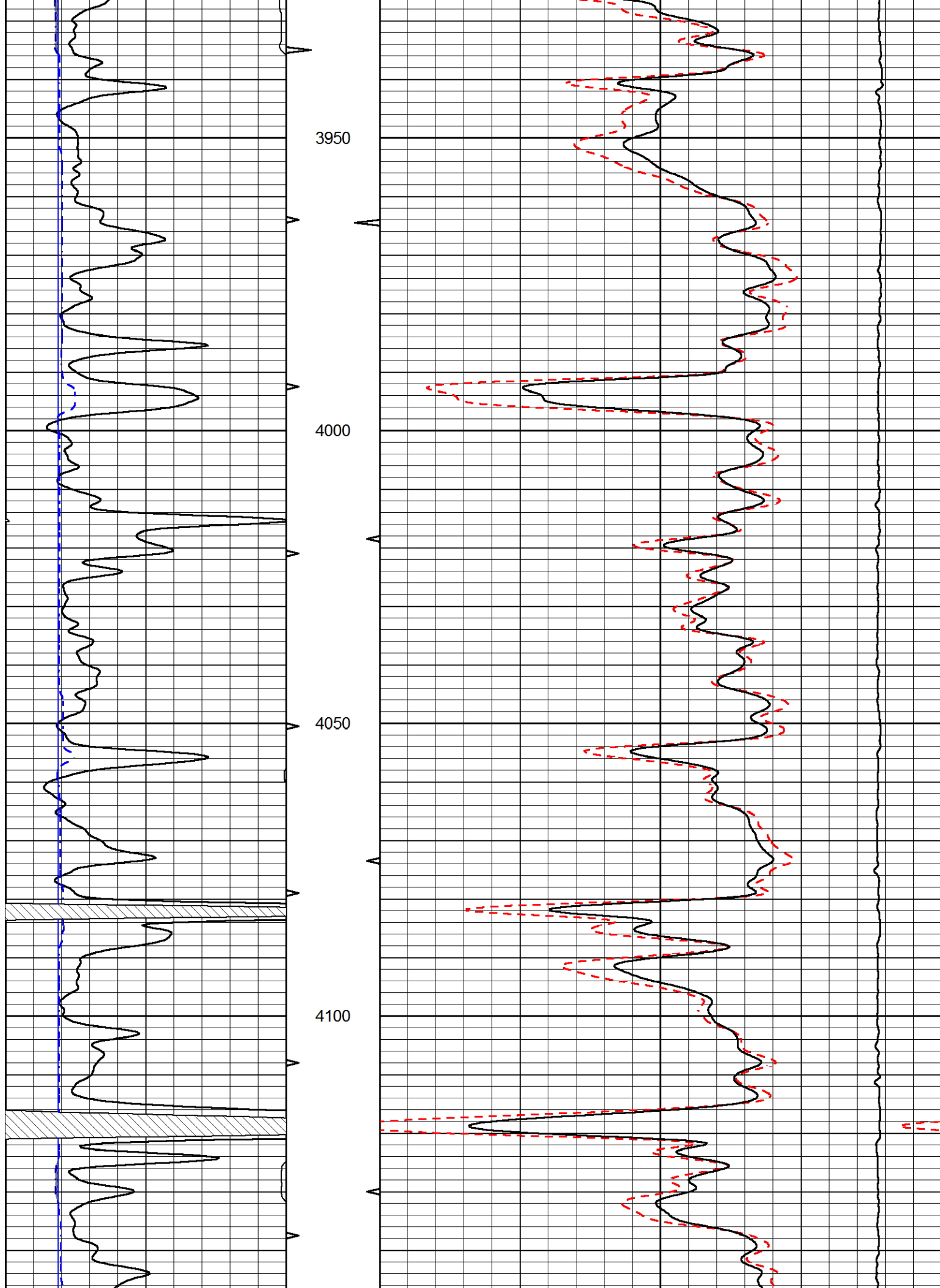
Database File cholla\_schlegel\_1\_4.db  
Dataset Pathname stack/pass3.1  
Presentation Format cdl  
Dataset Creation Wed Jul 10 03:24:34 2019  
Charted by Depth in Feet scaled 1:240

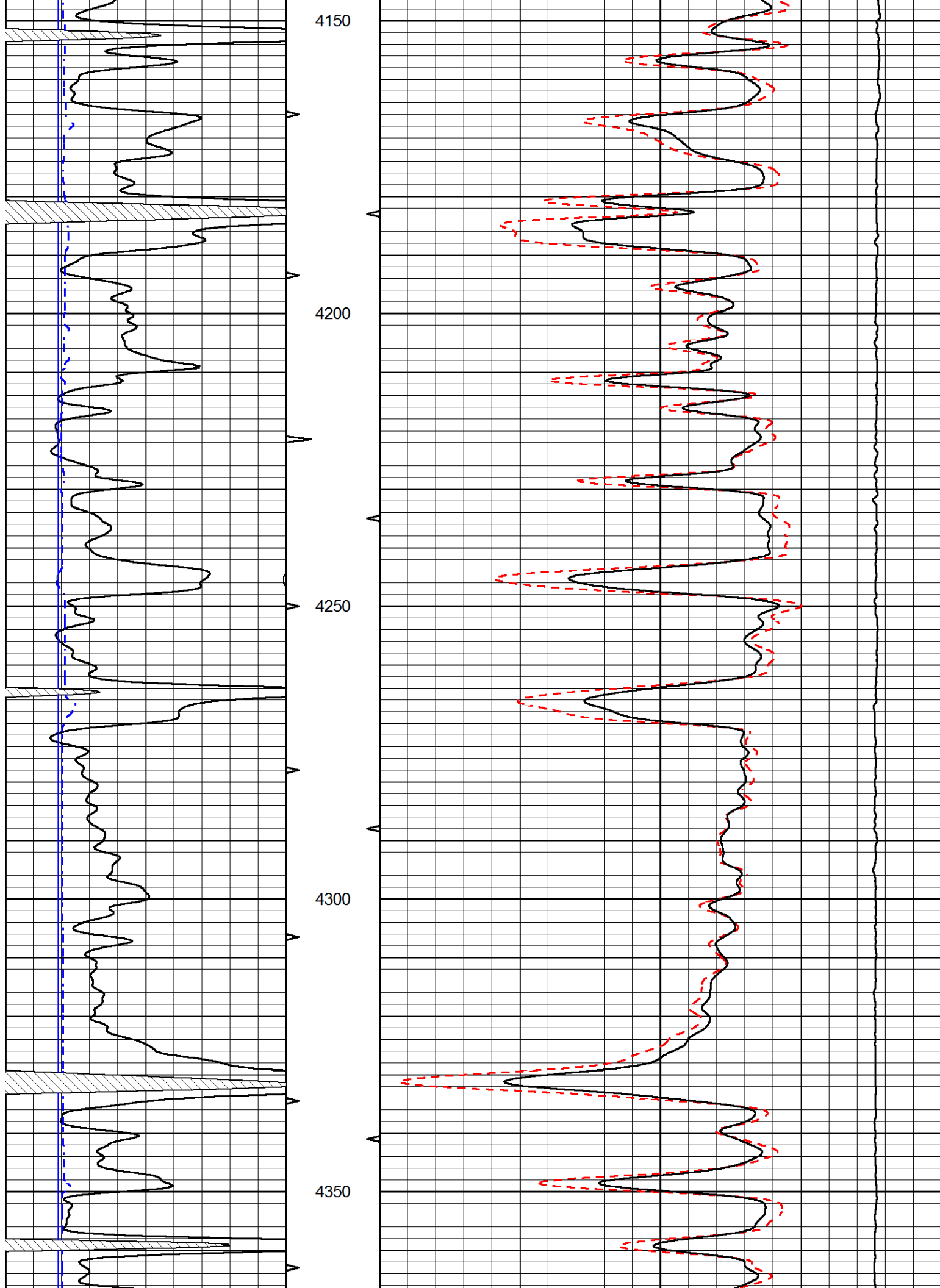
0 GAMMA RAY (GAPI) 150  
6 CALIPER (in) 16

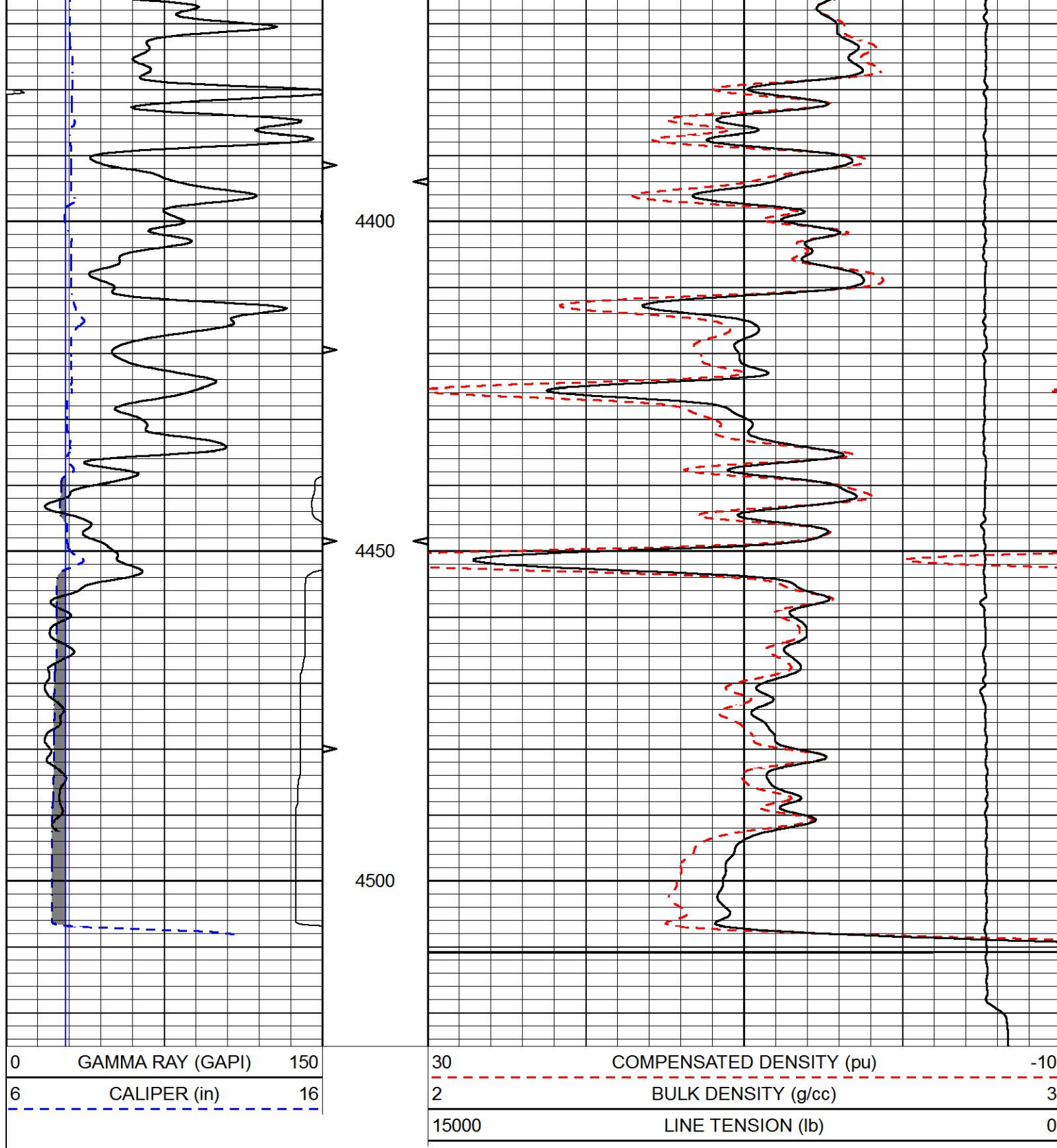
30 COMPENSATED DENSITY (pu) -10  
2 BULK DENSITY (g/cc) 3  
15000 LINE TENSION (lb) 0











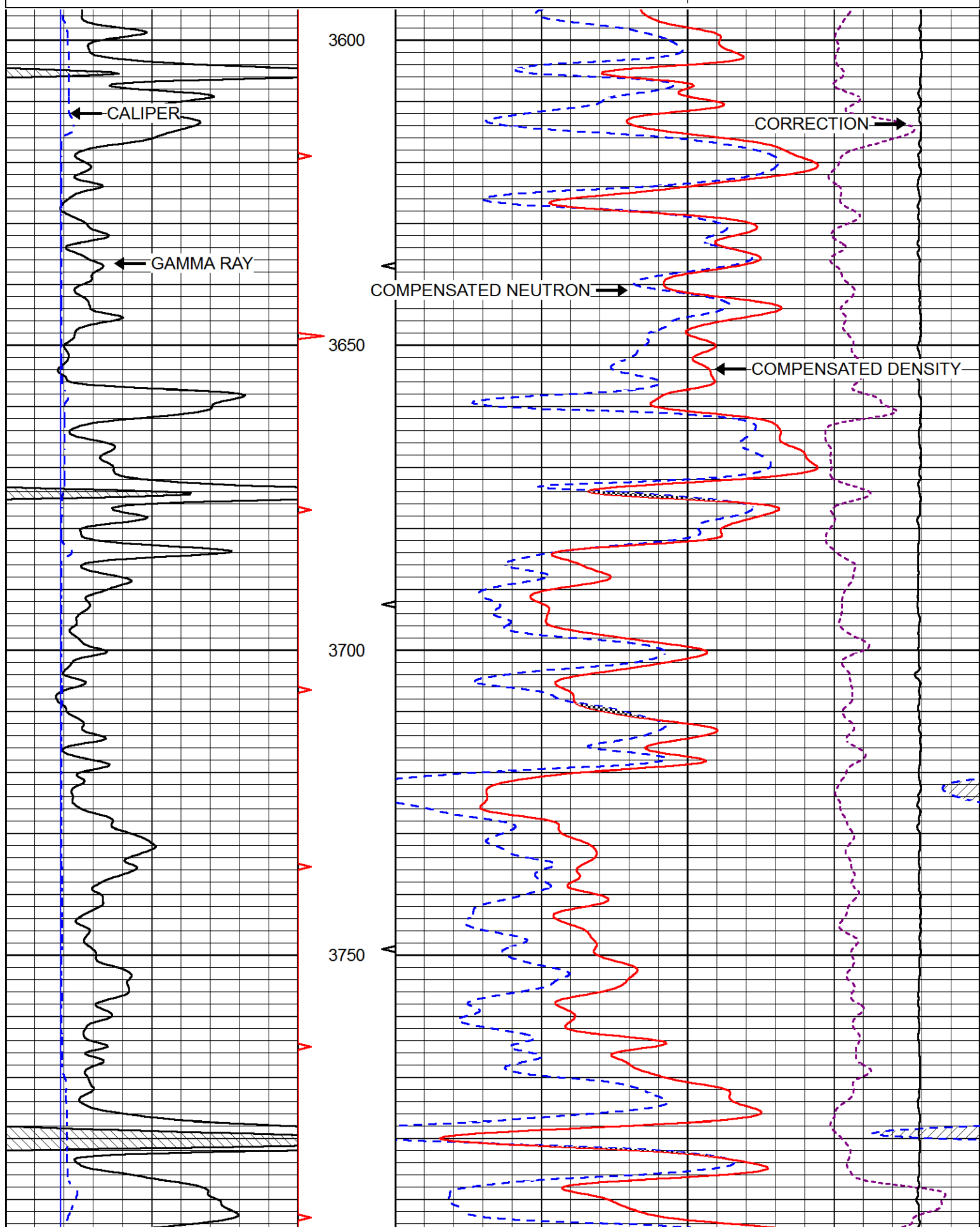
# MAIN PASS

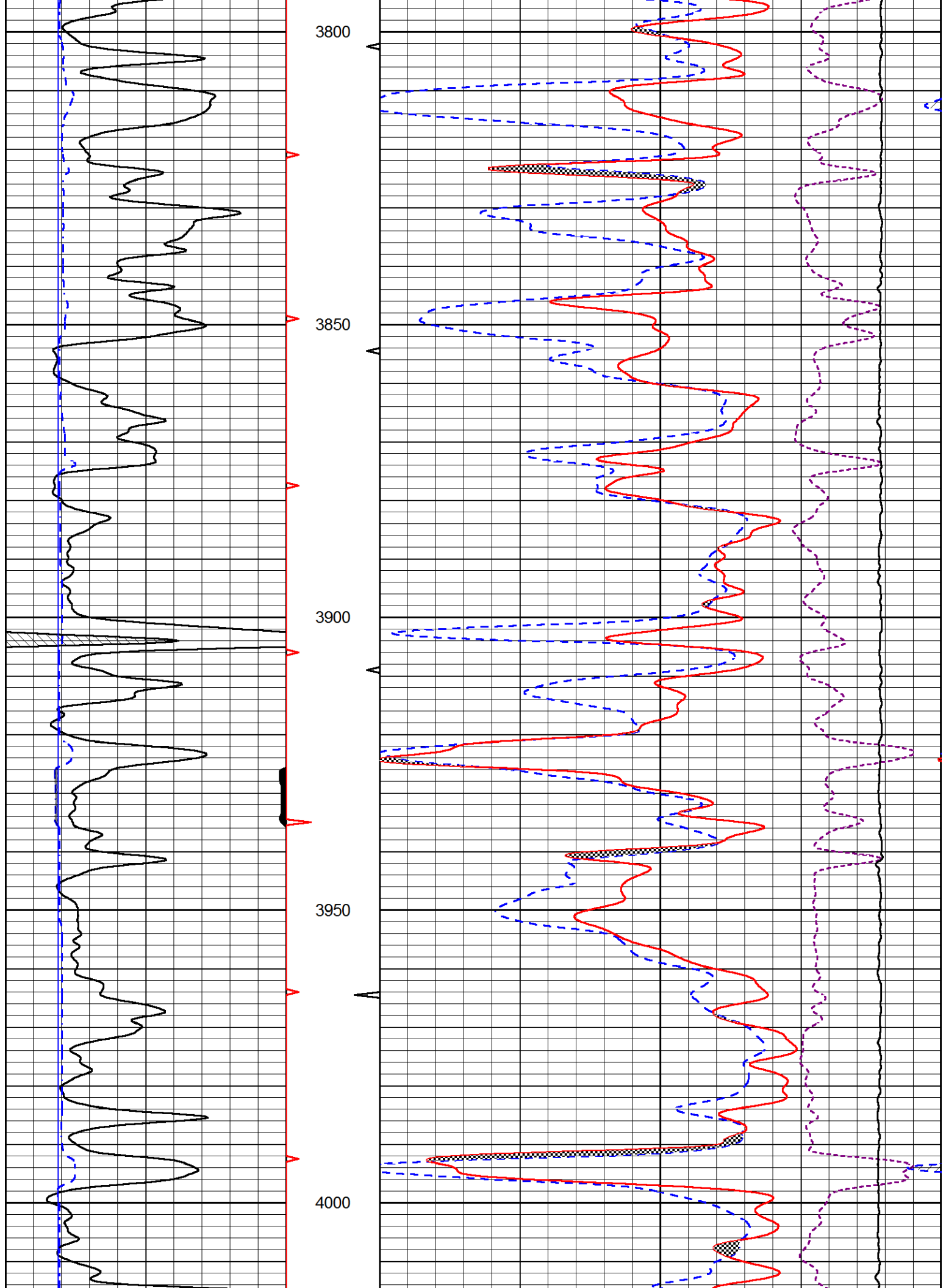
Database File cholla\_schlegel\_1\_4.db  
Dataset Pathname stack/pass3.1  
Presentation Format cndlspec  
Dataset Creation Wed Jul 10 03:24:34 2019  
Charted by Depth in Feet scaled 1:240

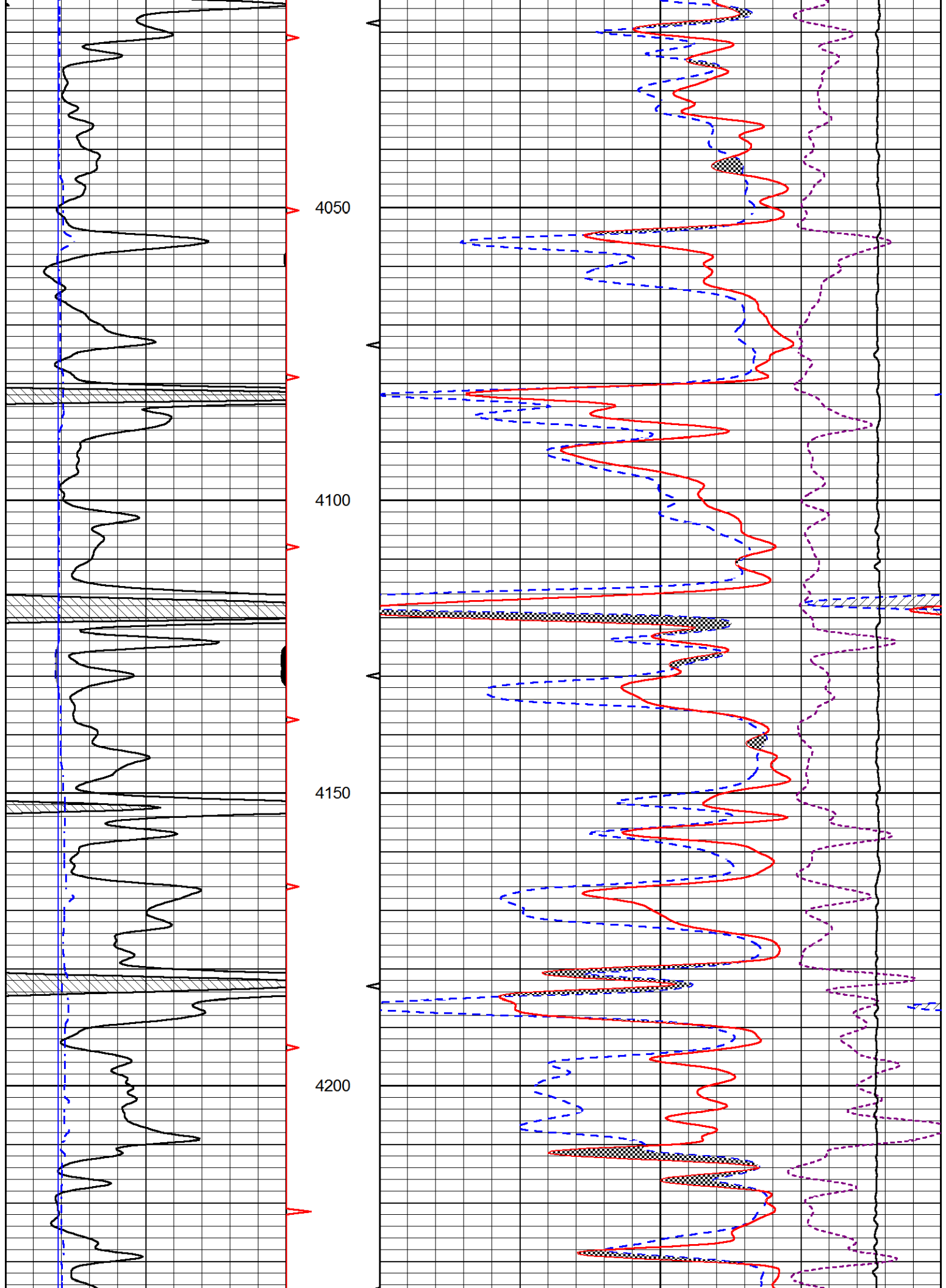
|   |                  |     |
|---|------------------|-----|
| 0 | GAMMA RAY (GAPI) | 150 |
| 6 | dcal (in)        | 16  |
| 6 | BIT SIZE (in)    | 16  |

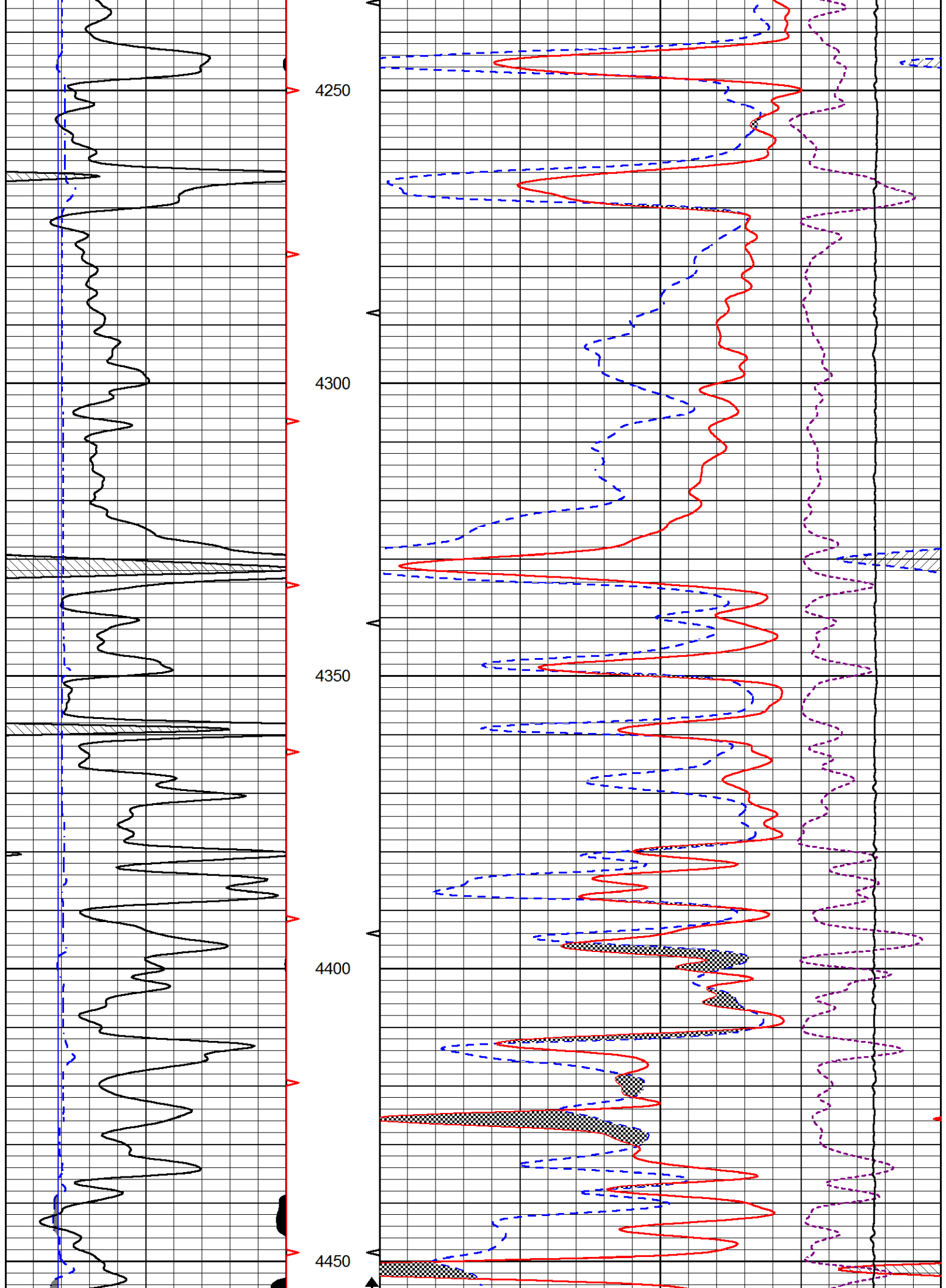
|       |                   |     |
|-------|-------------------|-----|
| 30    | CNLS (pu)         | -10 |
| 30    | DPOR (pu)         | -10 |
| 15000 | LINE TENSION (lb) | 0   |

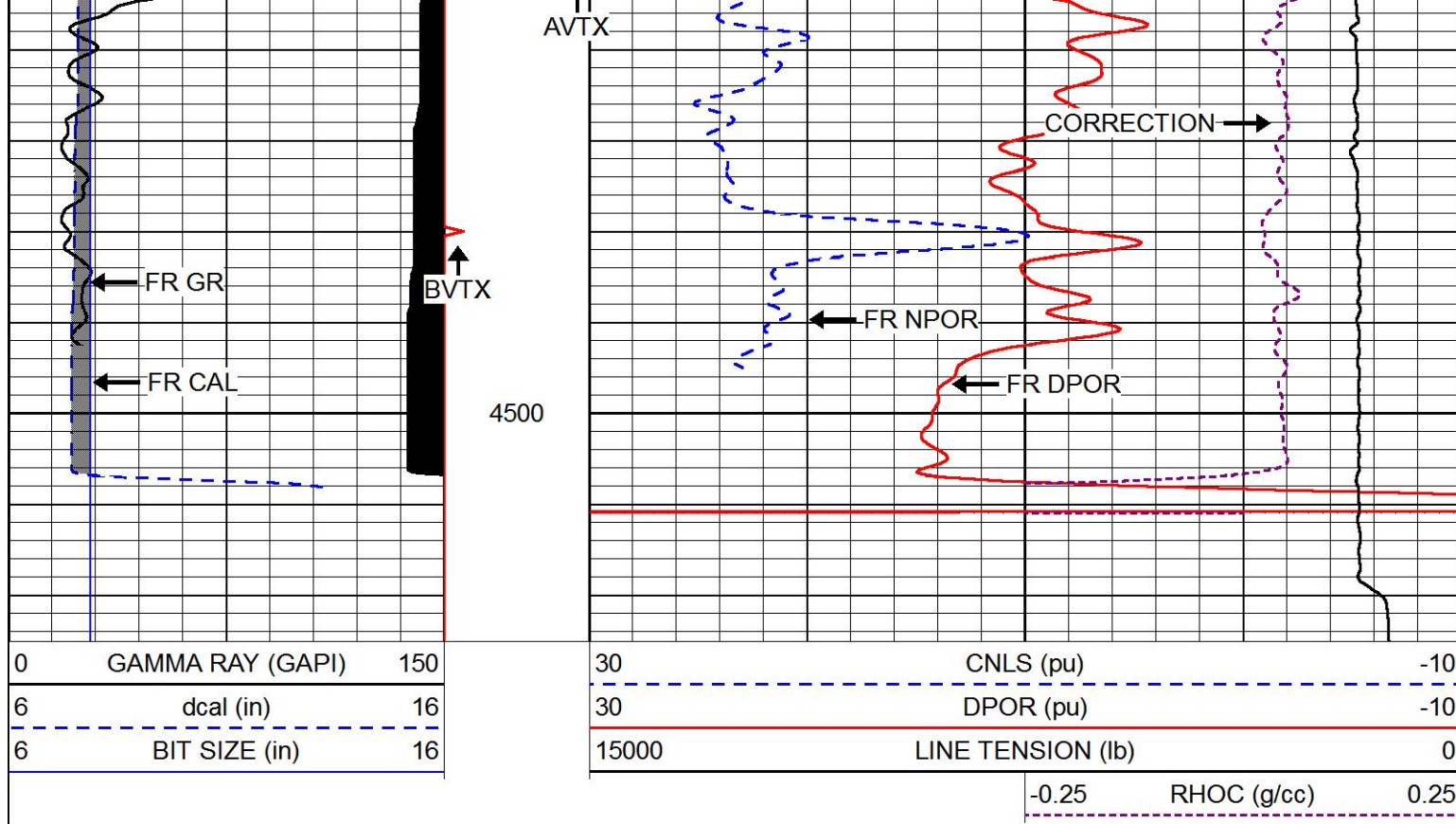
|       |             |      |
|-------|-------------|------|
| -0.25 | RHOC (g/cc) | 0.25 |
|-------|-------------|------|













**PIONEER**  
Pioneer Energy Services

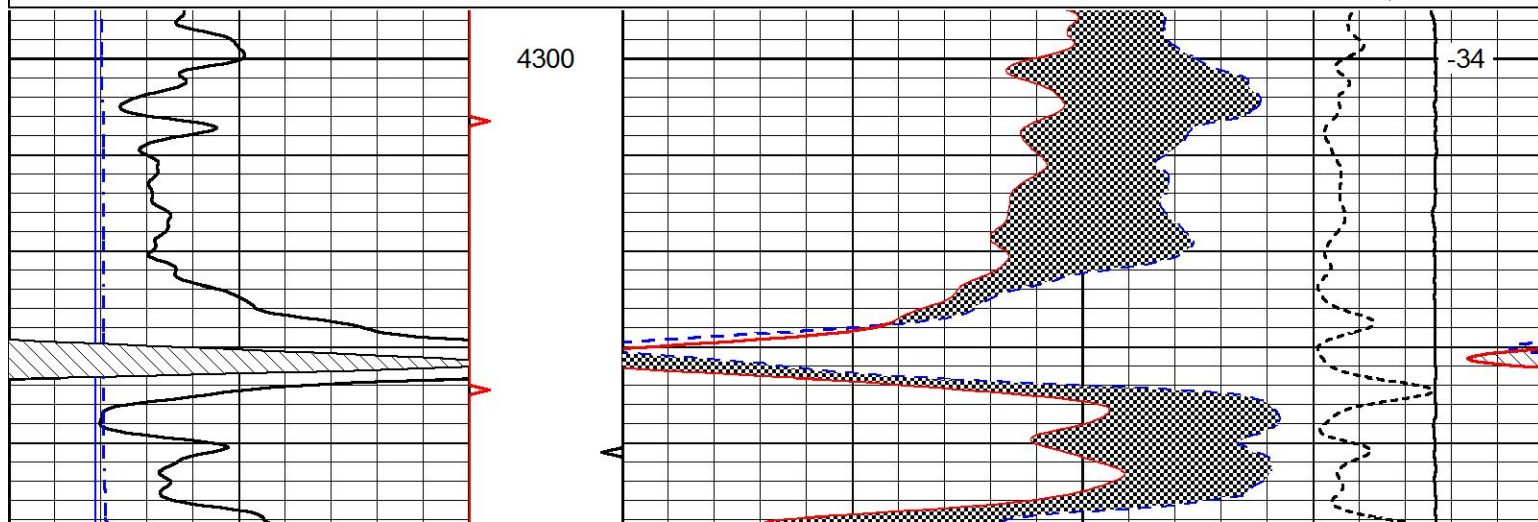
# DOLO MATRIX (2.83)

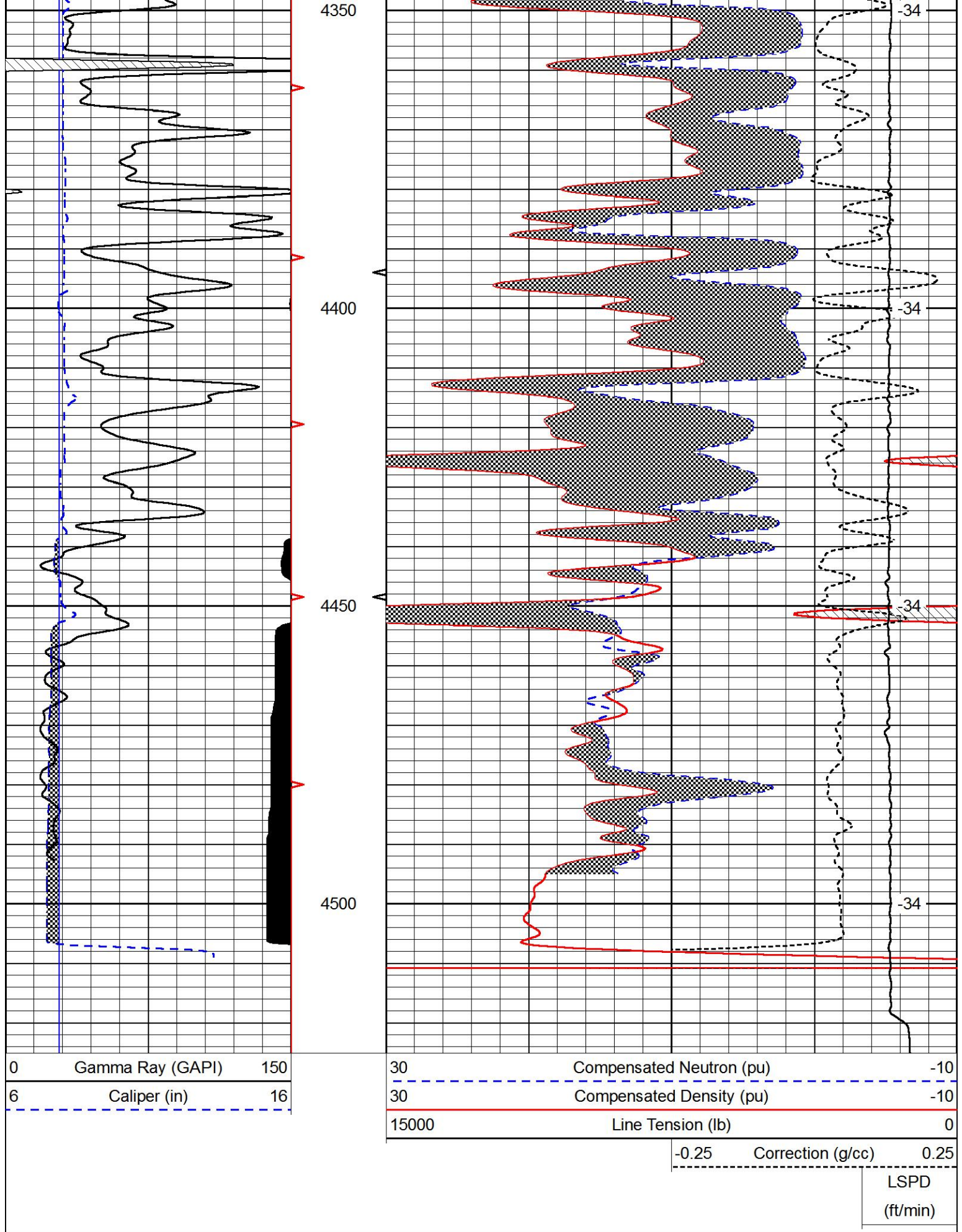
|                     |                            |
|---------------------|----------------------------|
| Database File       | cholla_schlegel_1_4.db     |
| Dataset Pathname    | stack/pass10.1             |
| Presentation Format | cnldol                     |
| Dataset Creation    | Wed Jul 10 02:44:26 2019   |
| Charted by          | Depth in Feet scaled 1:240 |

|   |                  |     |
|---|------------------|-----|
| 0 | Gamma Ray (GAPI) | 150 |
| 6 | Caliper (in)     | 16  |

|       |                          |      |
|-------|--------------------------|------|
| 30    | Compensated Neutron (pu) | -10  |
| 30    | Compensated Density (pu) | -10  |
| 15000 | Line Tension (lb)        | 0    |
| -0.25 | Correction (g/cc)        | 0.25 |

LSPD  
(ft/min)



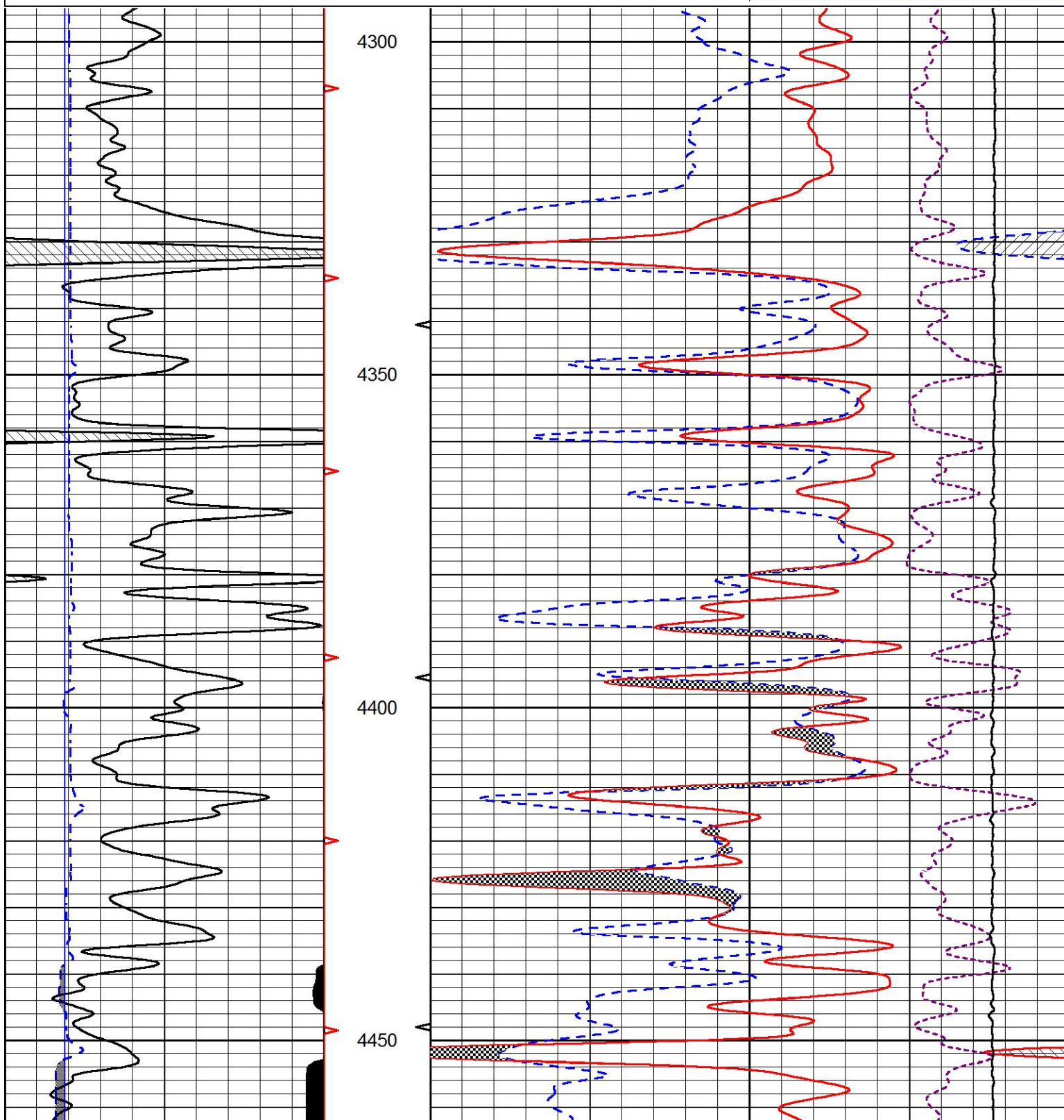


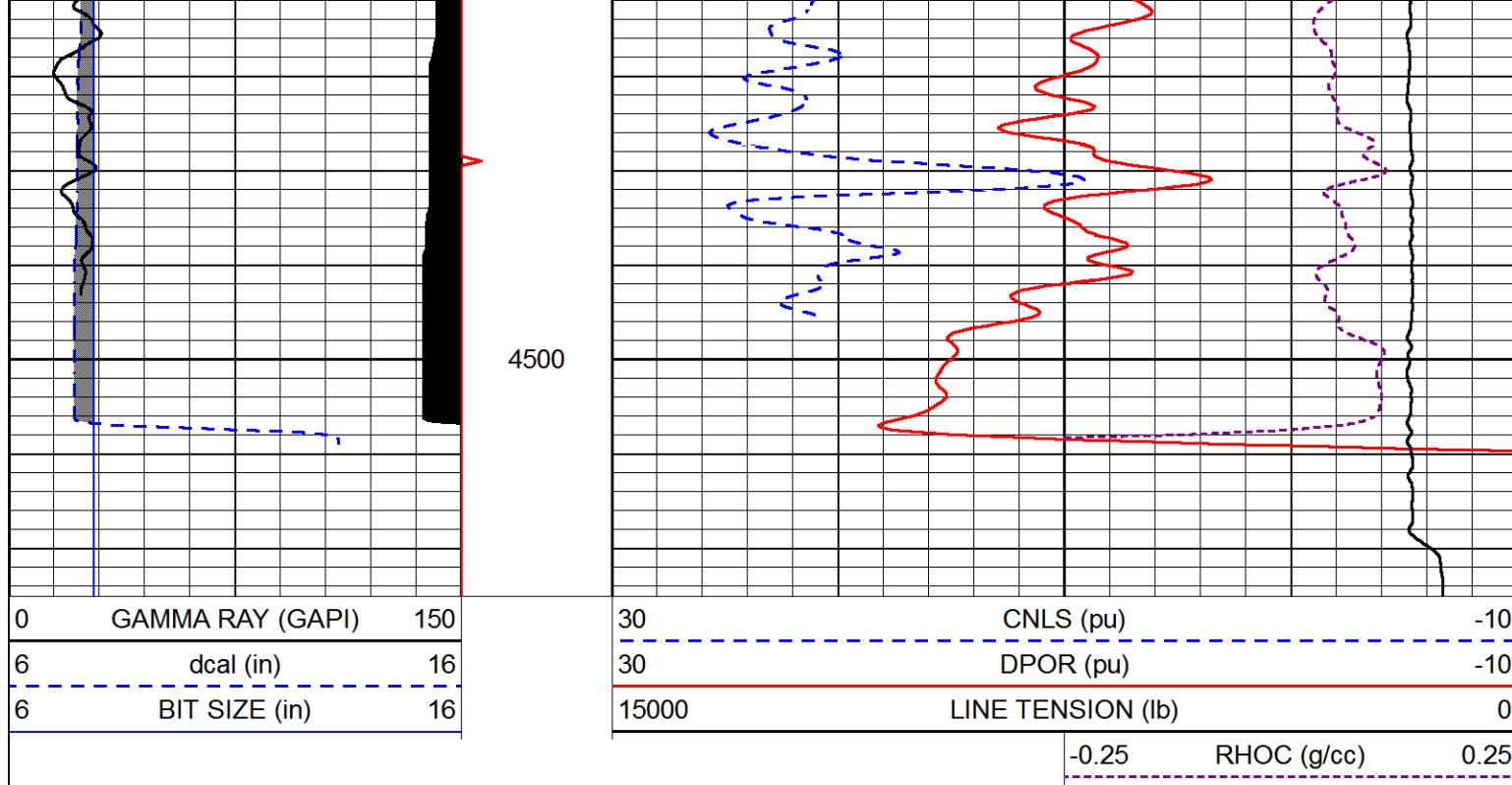
REPEAT SECTION

Database File cholla\_schlegel\_1\_4.db  
 Dataset Pathname stack/pass2.1  
 Presentation Format cndlspec  
 Dataset Creation Wed Jul 10 03:24:49 2019  
 Charted by Depth in Feet scaled 1:240

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

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





### Calibration Report

Database File cholla\_schlegel\_1\_4.db  
 Dataset Pathname stack/pass3.1  
 Dataset Creation Wed Jul 10 03:24:34 2019

### Dual Induction Calibration Report

Serial-Model: PSI 988-M&W  
 Calibration Performed: Tue Nov 20 10:50:19 2018

| Loop:  | Readings |          | References |         |        | Results |         |
|--------|----------|----------|------------|---------|--------|---------|---------|
|        | Air      | Loop     | Air        | Loop    |        | Gain    | Offset  |
| Deep   | 178.615  | 710.235  | 0.000      | 255.800 | mmho/m | 0.525   | -44.000 |
| Medium | 161.982  | 1441.110 | 0.000      | 255.800 | mmho/m | 0.380   | -17.000 |

### Compensated Density Calibration Report

Serial-Model: 144-84-M&W  
 Source / Verifier: /  
 Master Calibration Performed: Mon Jan 07 15:00:31 2019

### Master Calibration

|                     | Density |      | Far Detector                | Near Detector |     |
|---------------------|---------|------|-----------------------------|---------------|-----|
| Magnesium           | 1.755   | g/cc | 4315.49                     | 5309.89       | cps |
| Aluminum            | 2.675   | g/cc | 825.26                      | 3443.46       | cps |
| Spine Angle = 75.33 |         |      | Density/Spine Ratio = 0.538 |               |     |
|                     | Size    |      | Reading                     |               |     |
| Small Ring          | 4.00    | in   | 0.69                        |               |     |
| Large Ring          | 14.00   | in   | 0.04                        |               |     |

### 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 CHOLLA PRODUCTION, LLC  
Well SCHLEGEL # 1-4  
Field WILDCAT  
County NESS  
State KANSAS