

BOREHOLE COMPENSATED SONIC ARRAY TOOL

Fold here

LOGGING DATA

| GENERAL | | | GAMMA | | ACOUSTIC | | | DENSITY | | | NEUTRON | | | |
|---|-------|-----|--------|-------|----------|-------|-------|------------|-------|-------|-----------|-------|-------|--------|
| Run | Depth | | Speed | Scale | | Scale | | Matrix | Scale | | Matrix | Scale | | Matrix |
| No. | From | To | ft/min | L | R | L | R | | L | R | | L | R | |
| ONE | 4497 | 436 | REC | 0 API | 200 API | 30 % | -10 % | 47.5 us/ft | 30 % | -10 % | 2.71 g/cc | 30 % | -10 % | LIME |
| ONE | 436 | 75 | REC | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| DIRECTIONAL INFORMATION | | | | | | | | | | | | | | |
| Maximum Deviation @ | | | | | | | | KOP @ | | | | | | |
| Remarks: RUN ONE: RWCH/GTET/DSNT/SDLT/FLEX/BSAT/ACRT/BN | | | | | | | | | | | | | | |
| BORHOLE RUGOSITY, TENSION PULLS, LCM ADDITIVE, AND WASHOUTS MAY EFFECT LOG QUALITY AND REPEATABILITY | | | | | | | | | | | | | | |
| CHLORIDES REPORTED TO BE 1800 ppm | | | | | | | | | | | | | | |
| ANNULAR HOLE VOLUME CALCULATED USING 4.5-INCH CASING. | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| YOU CREW TODAY: J. VIGIL, B. CALDWELL, A. KOBE | | | | | | | | RIG: H2 1 | | | | | | |
| THANK YOU FOR CHOOSING HALLIBURTON ENERGY SERVICES, GRAND JUNCTION, CO (970) 523-3600 | | | | | | | | | | | | | | |
| HALLIBURTON DOES NOT GUARANTEE THE ACCURACY OF ANY INTERPRETATION OF THE LOG DATA, CONVERSION OF LOG DATA TO PHYSICAL ROCK PARAMETERS OR RECOMMENDATIONS WHICH MAY BE GIVEN BY HALLIBURTON PERSONNEL OR WHICH APPEAR ON THE LOG OR IN ANY OTHER FORM. ANY USER OF SUCH DATA, INTERPRETATIONS, CONVERSIONS, OR RECOMMENDATIONS AGREES THAT HALLIBURTON IS NOT RESPONSIBLE EXCEPT WHERE DUE TO GROSS NEGLIGENCE OR WILLFUL MISCONDUCT, FOR ANY LOSS, DAMAGES, OR EXPENSES RESULTING FROM THE USE THEREOF. | | | | | | | | | | | | | | |
| HALLIBURTON | | | | | | | | | | | | | | |

HALLIBURTON

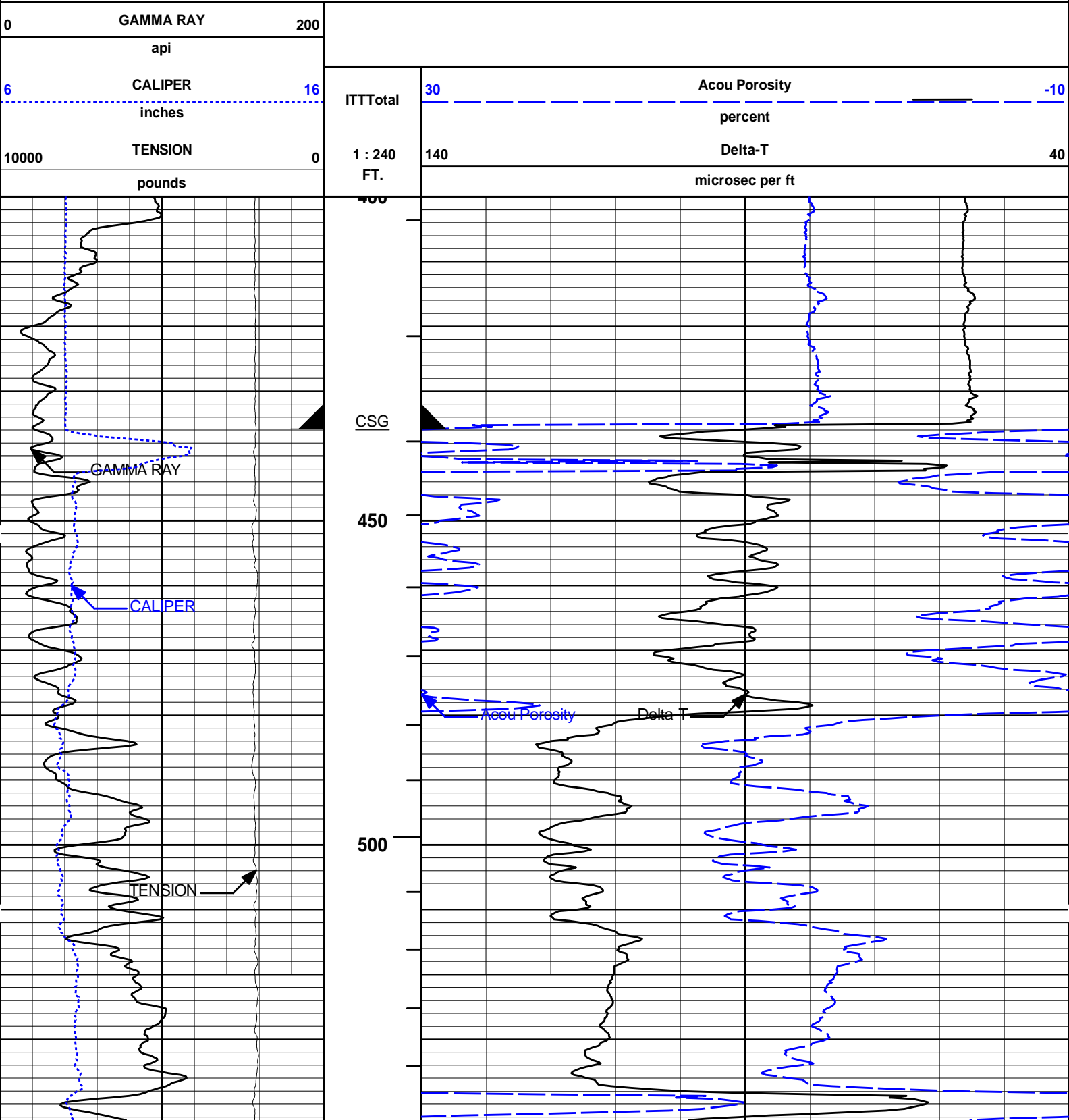
PARAMETERS REPORT

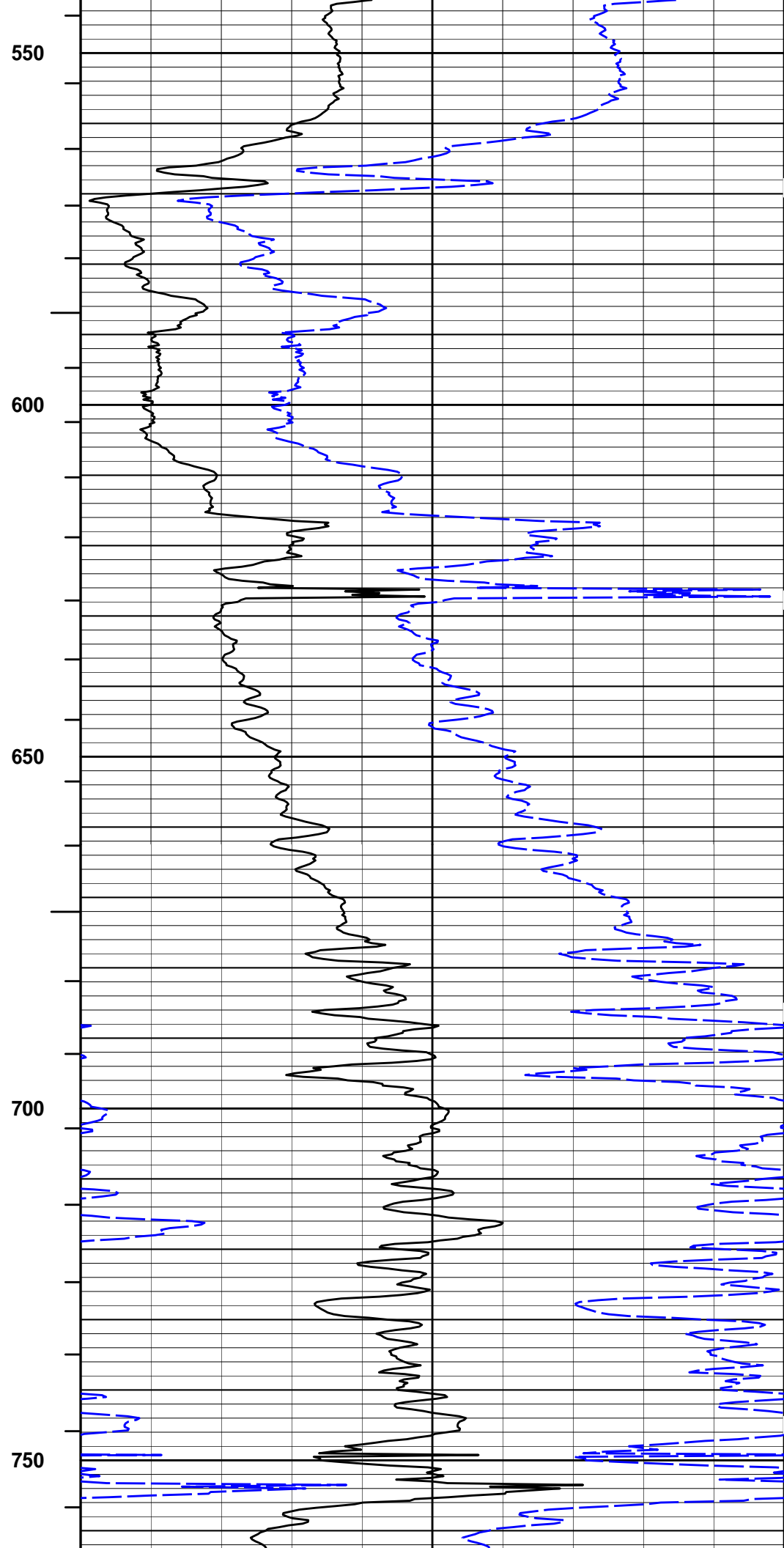
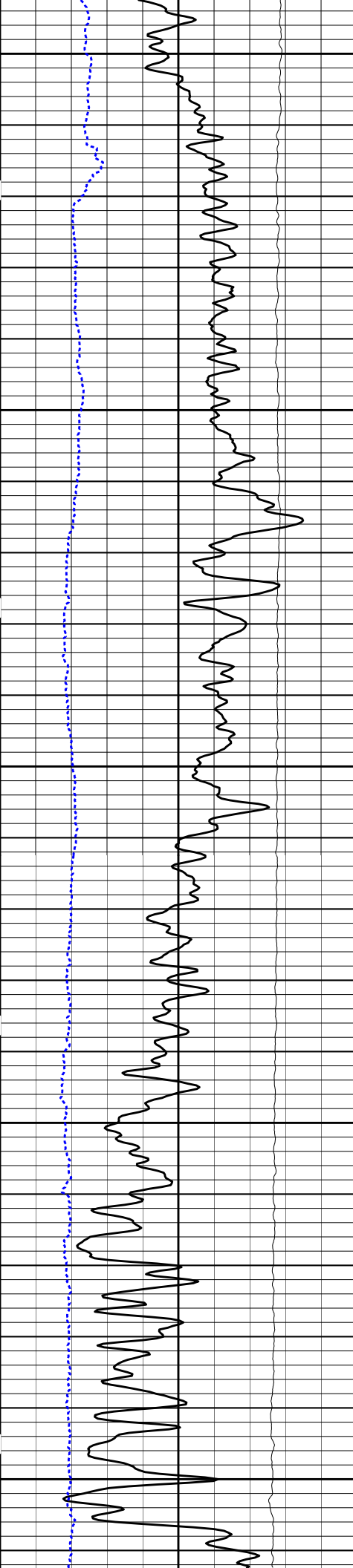
| Depth (ft) | Tool Name | Mnemonic | Description | Value | Units |
|------------|-----------------|----------|---|-----------|-------|
| TOP | | | | | |
| | SHARED | BS | Bit Size | 7.875 | in |
| | SHARED | UBS | Use Bit Size instead of Caliper for all applications. | No | |
| | SHARED | MDBS | Mud Base | Water | |
| | SHARED | MDWT | Borehole Fluid Weight | 9.200 | ppg |
| | SHARED | WAGT | Weighting Agent | Barite | |
| | SHARED | BSAL | Borehole salinity | 2400.00 | ppm |
| | SHARED | FSAL | Formation Salinity NaCl | 0.00 | ppm |
| | SHARED | KPCT | Percent K in Mud by Weight? | 0.00 | % |
| | SHARED | RMUD | Mud Resistivity | 0.898 | ohmm |
| | SHARED | TRM | Temperature of Mud | 68.6 | degF |
| | SHARED | CSD | Logging Interval is Cased? | No | |
| | SHARED | ICOD | AHV Casing OD | 4.500 | in |
| | SHARED | ST | Surface Temperature | 60.0 | degF |
| | SHARED | TD | Total Well Depth | 4497.00 | ft |
| | SHARED | BHT | Bottom Hole Temperature | 150.0 | degF |
| | SHARED | SVTM | Navigation and Survey Master Tool | NONE | |
| | SHARED | AZTM | High Res Z Accelerometer Master Tool | GTET | |
| | SHARED | TEMM | Temperature Master Tool | NONE | |
| | Rwa / CrossPlot | XPOK | Process Crossplot? | Yes | |
| | Rwa / CrossPlot | FCHO | Select Source of F | Automatic | |
| | Rwa / CrossPlot | AFAC | Archie A factor | 0.6200 | |

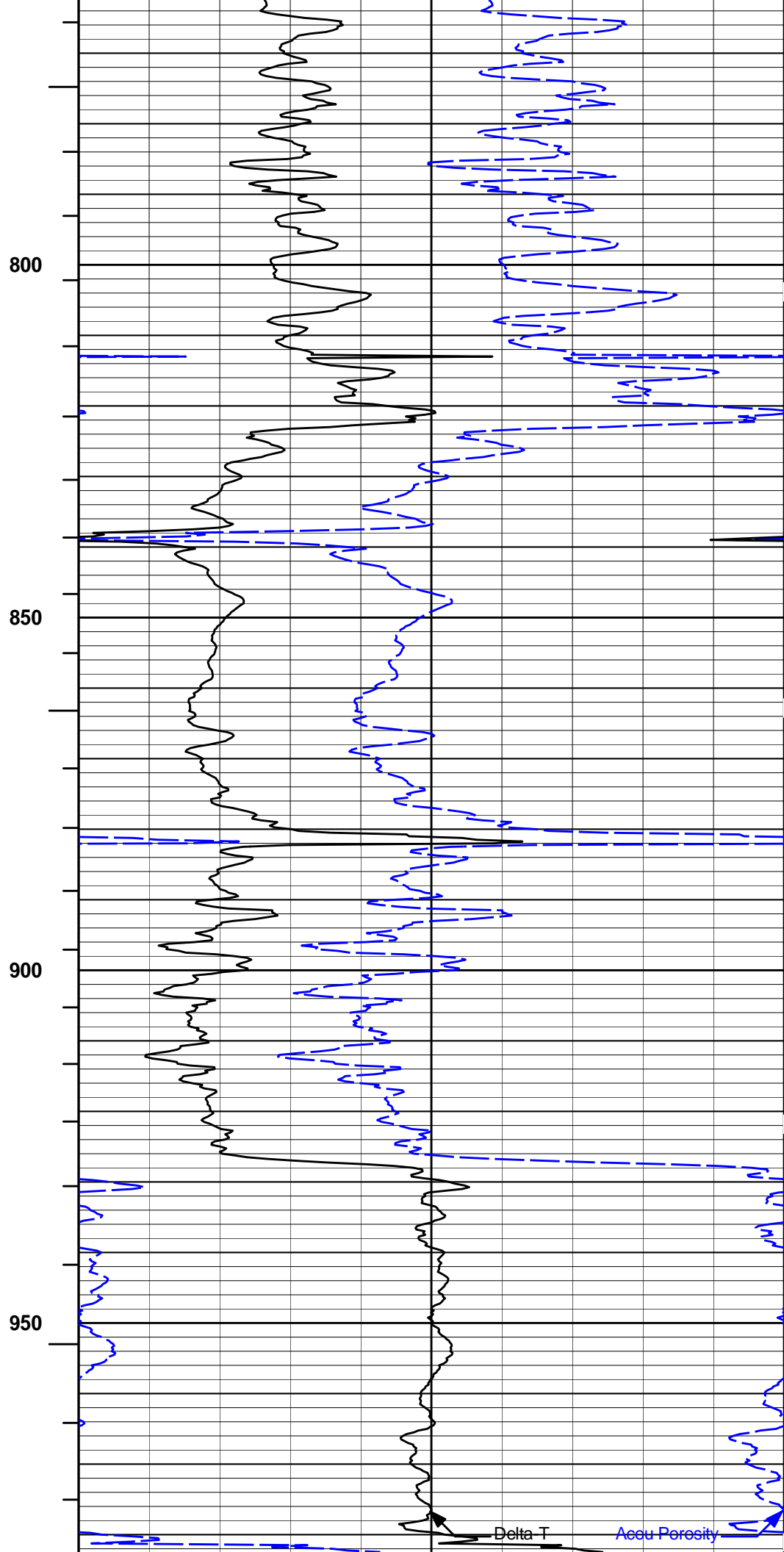
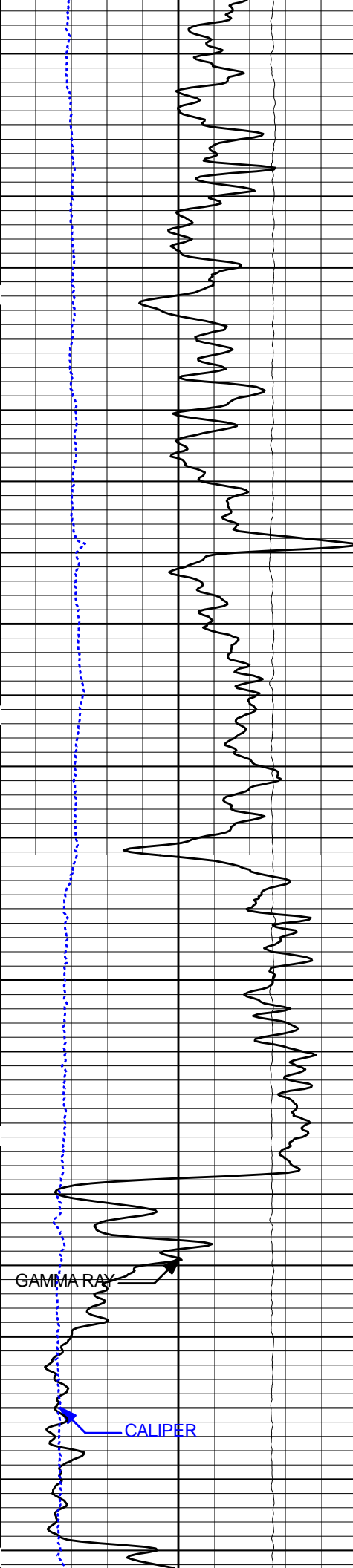
| | | | | |
|-----------------|------|--|-----------------|------|
| Rwa / CrossPlot | MFAC | Archie M factor | 2.1500 | |
| Rwa / CrossPlot | RMFR | Rmf Reference | 0.10 | ohmm |
| Rwa / CrossPlot | TMFR | Rmf Ref Temp | 75.00 | degF |
| Rwa / CrossPlot | RWA | Resistivity of Formation Water | 0.05 | ohmm |
| Rwa / CrossPlot | ADP | Use Air Porosity to calculate CrossplotPhi | No | |
| Rwa / CrossPlot | BHSM | Borehole Size Source Tool | SDLT | |
| GTET | GROK | Process Gamma Ray? | Yes | |
| GTET | GRSO | Gamma Tool Standoff | 0.000 | in |
| GTET | GEOK | Process Gamma Ray EVR? | No | |
| GTET | TPOS | Tool Position for Gamma Ray Tools. | Eccentered | |
| GTET | BHSM | Borehole Size Source Tool | SDLT | |
| DSNT | DNOK | Process DSN? | Yes | |
| DSNT | DEOK | Process DSN EVR? | No | |
| DSNT | NLIT | Neutron Lithology | Limestone | |
| DSNT | DNSO | DSN Standoff - 0.25 in (6.35 mm) Recommended | 0.250 | in |
| DSNT | DNTP | Temperature Correction Type | None | |
| DSNT | DPRS | DSN Pressure Correction Type | None | |
| DSNT | SHCO | View More Correction Options | No | |
| DSNT | UTVD | Use TVD for Gradient Corrections? | No | |
| DSNT | LHWT | Logging Horizontal Water Tank? | No | |
| DSNT | BHSM | Borehole Size Source Tool | SDLT | |
| SDLT | CLOK | Process Caliper Outputs? | Yes | |
| SDLT Pad | DNOK | Process Density? | Yes | |
| SDLT Pad | DNOK | Process Density EVR? | No | |
| SDLT Pad | CB | Logging Calibration Blocks? | No | |
| SDLT Pad | SPVT | SDLT Pad Temperature Valid? | Yes | |
| SDLT Pad | DTWN | Disable temperature warning | No | |
| SDLT Pad | DMA | Formation Density Matrix | 2.710 | g/cc |
| SDLT Pad | DFL | Formation Density Fluid | 1.000 | g/cc |
| SDLT Pad | BHSM | Borehole Size Source Tool | SDLT | |
| Microlog Pad | MLOK | Process MicroLog Outputs? | Yes | |
| BSAT | MBOK | Compute BCAS Results? | Yes | |
| BSAT | FLLO | Frequency Filter Low Pass Value? | 5000 | Hz |
| BSAT | FLHI | Frequency Filter High Pass Value? | 27000 | Hz |
| BSAT | DTFL | Delta -T Fluid | 189.00 | uspf |
| BSAT | DTMT | Delta -T Matrix Type | Limestone 47.5 | |
| BSAT | DTSH | Delta -T Shale | 100.00 | uspf |
| BSAT | SPEQ | Acoustic Porosity Equation | Wylie | |
| ACRt Sonde | RTOK | Process ACRt? | Yes | |
| ACRt Sonde | MNSO | Minimum Tool Standoff | 1.50 | in |
| ACRt Sonde | TCS1 | Temperature Correction Source | FP Lwr & FP Upr | |
| ACRt Sonde | TPOS | Tool Position | Centered | |
| ACRt Sonde | RMOP | Rmud Source | Mud Cell | |
| ACRt Sonde | RMIN | Minimum Resistivity for MAP | 0.20 | ohmm |
| ACRt Sonde | RMIN | Maximum Resistivity for MAP | 200.00 | ohmm |
| ACRt Sonde | THQY | Threshold Quality | 0.50 | |
| ACRt Sonde | MRFX | Fixed mud resistivity | 2000 | ohmm |
| ACRt Sonde | BHSM | Borehole Size Source Tool | SDLT | |
| ACRt Sonde | MBFL | Apply Corkscrew Effect? | No | |

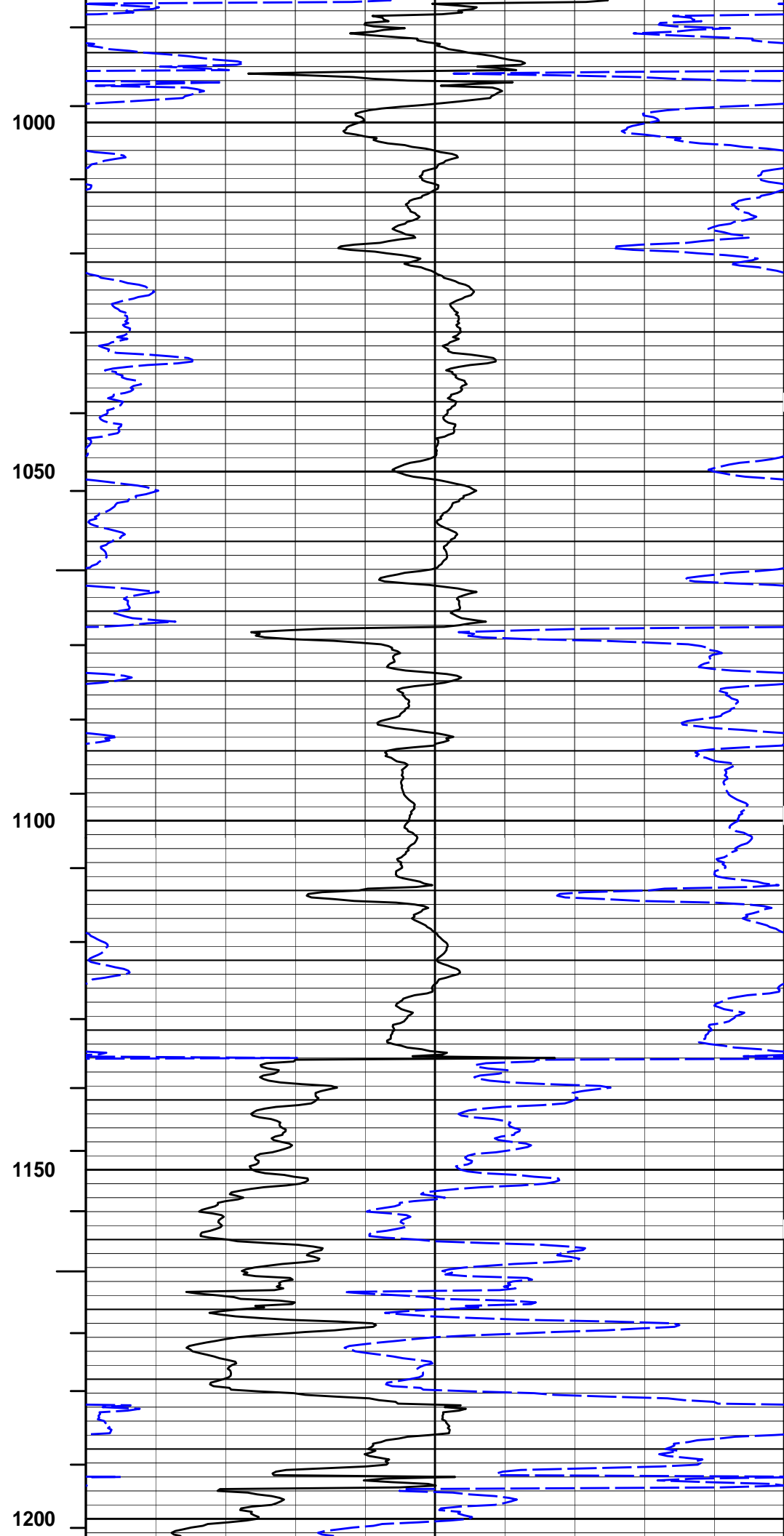
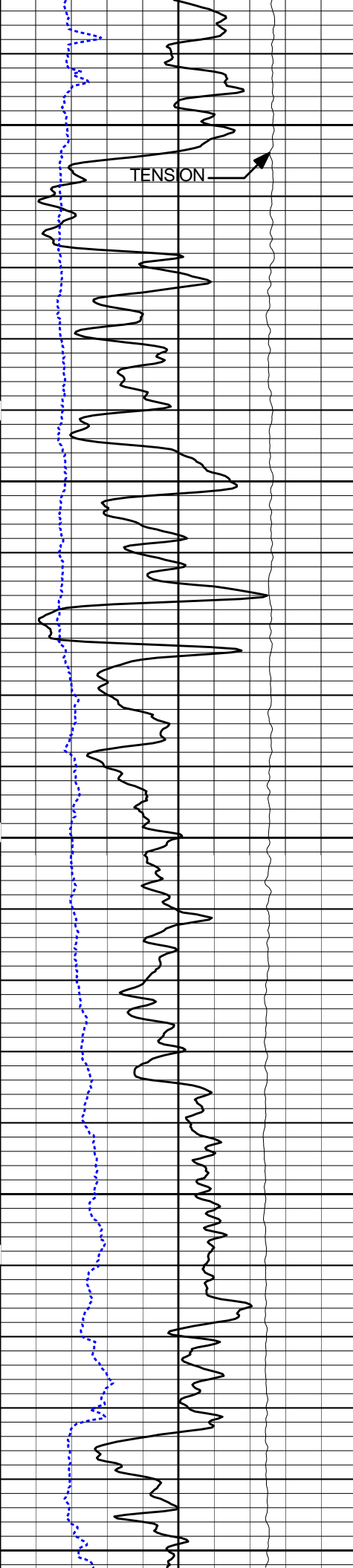
BOTTOM

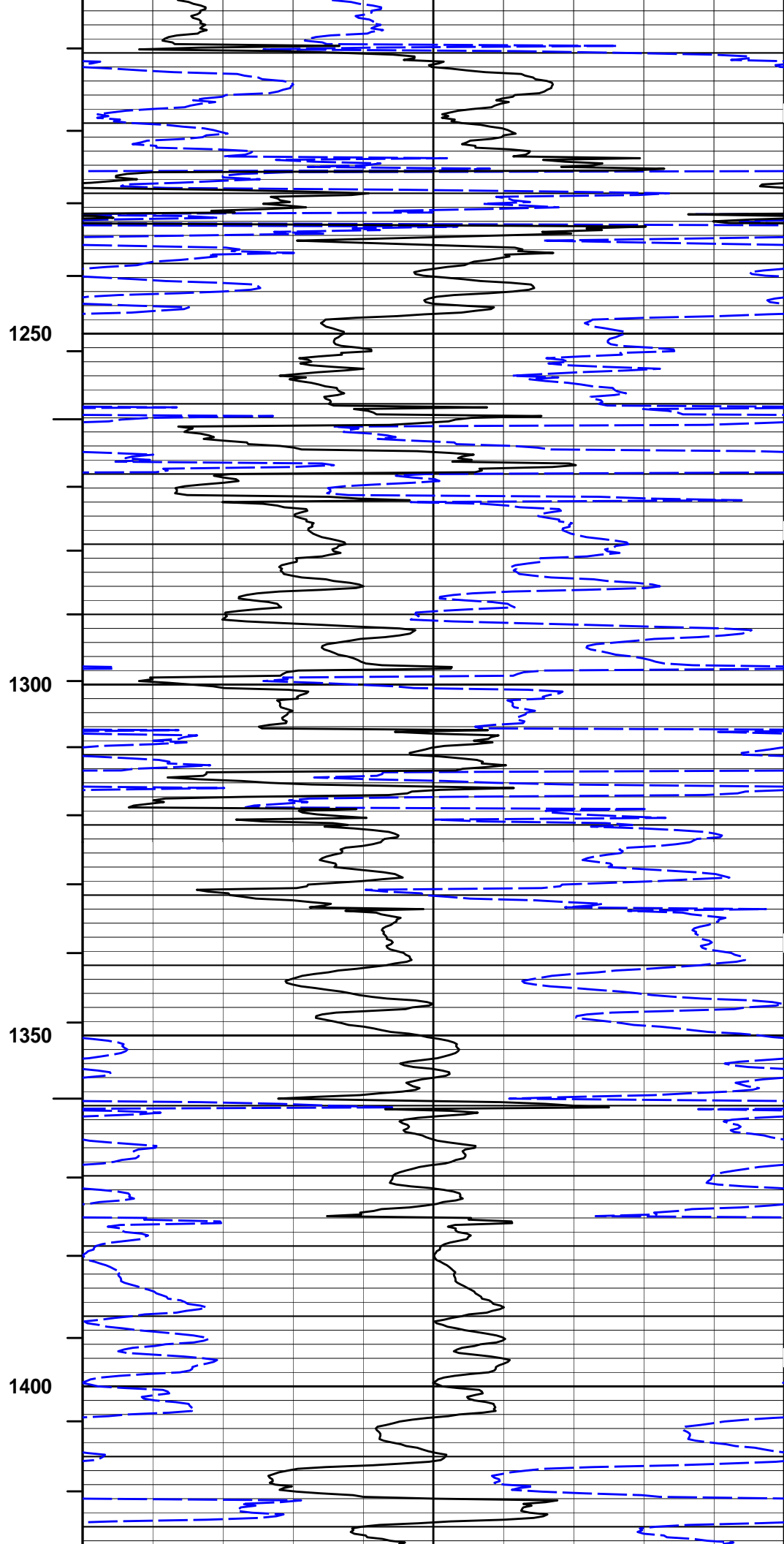
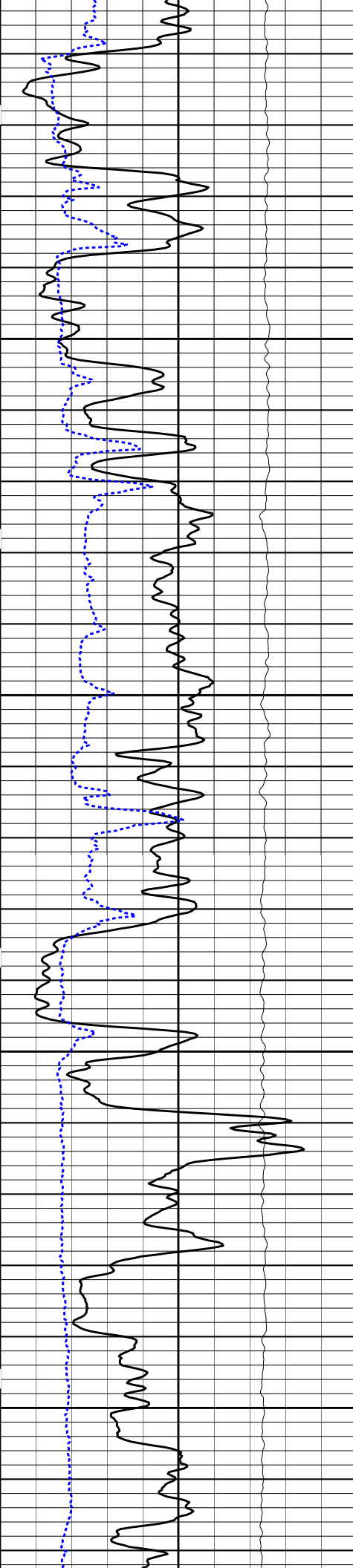
MAIN PASS 5" = 100'
LIMESTONE MATRIX

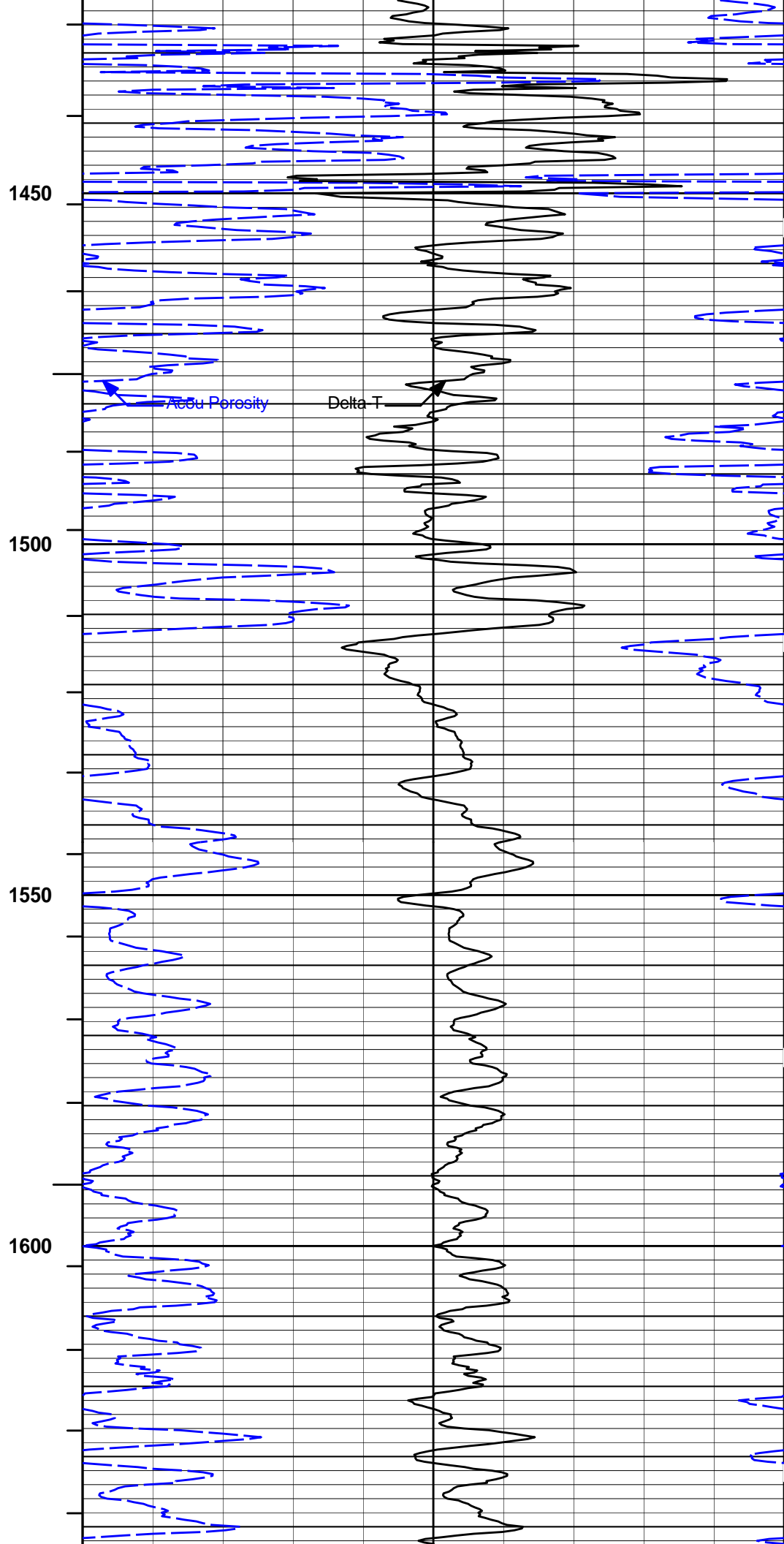
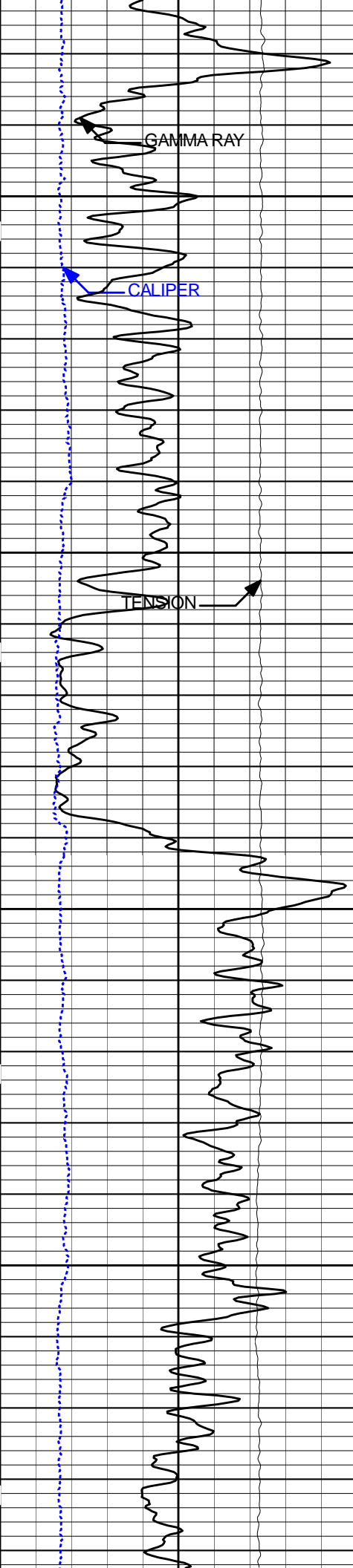


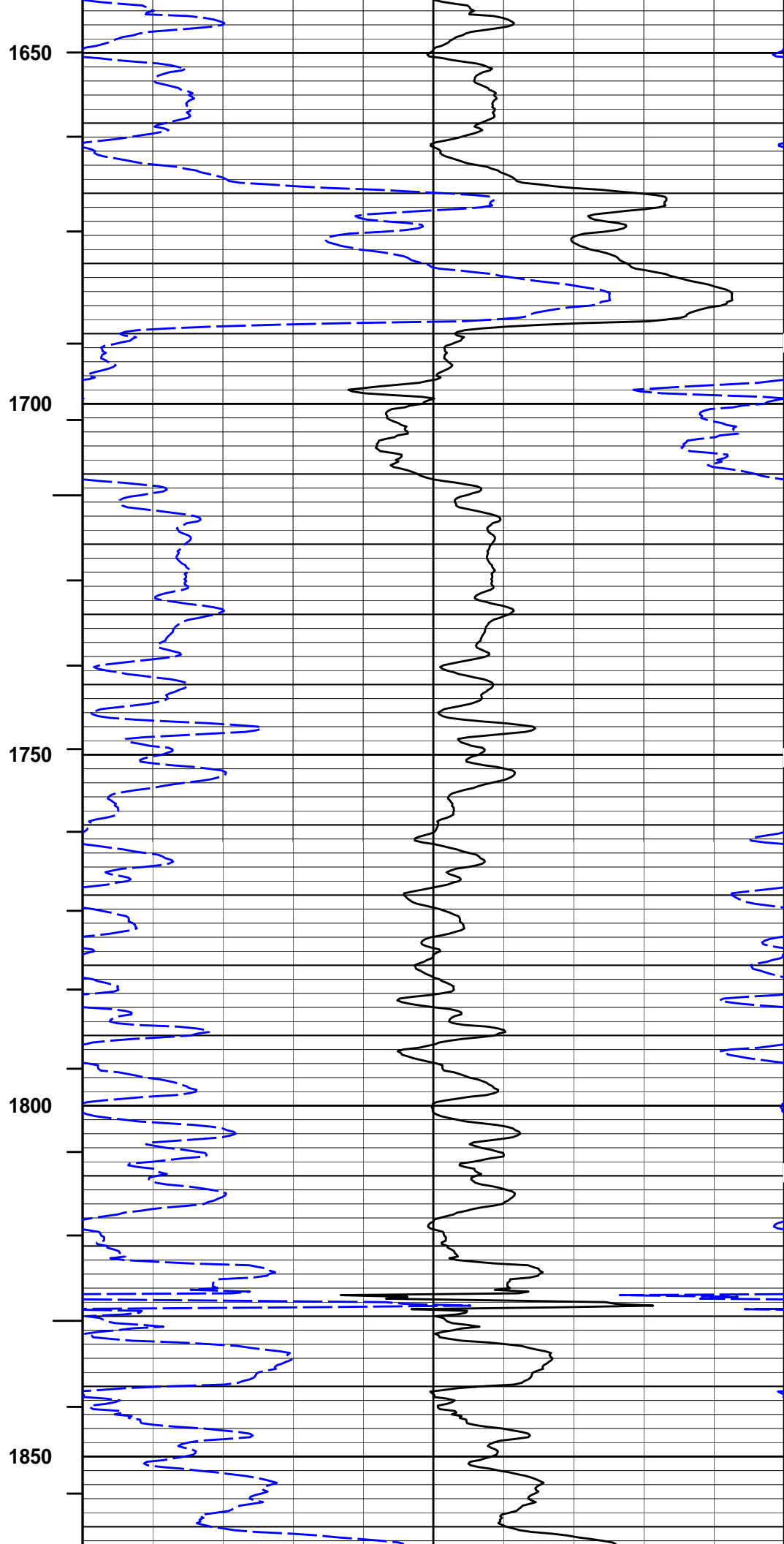
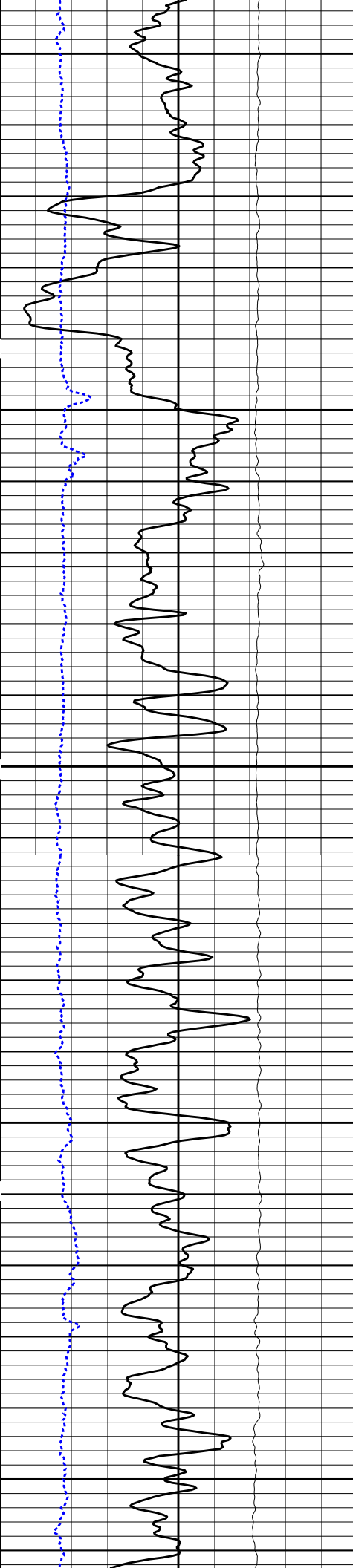


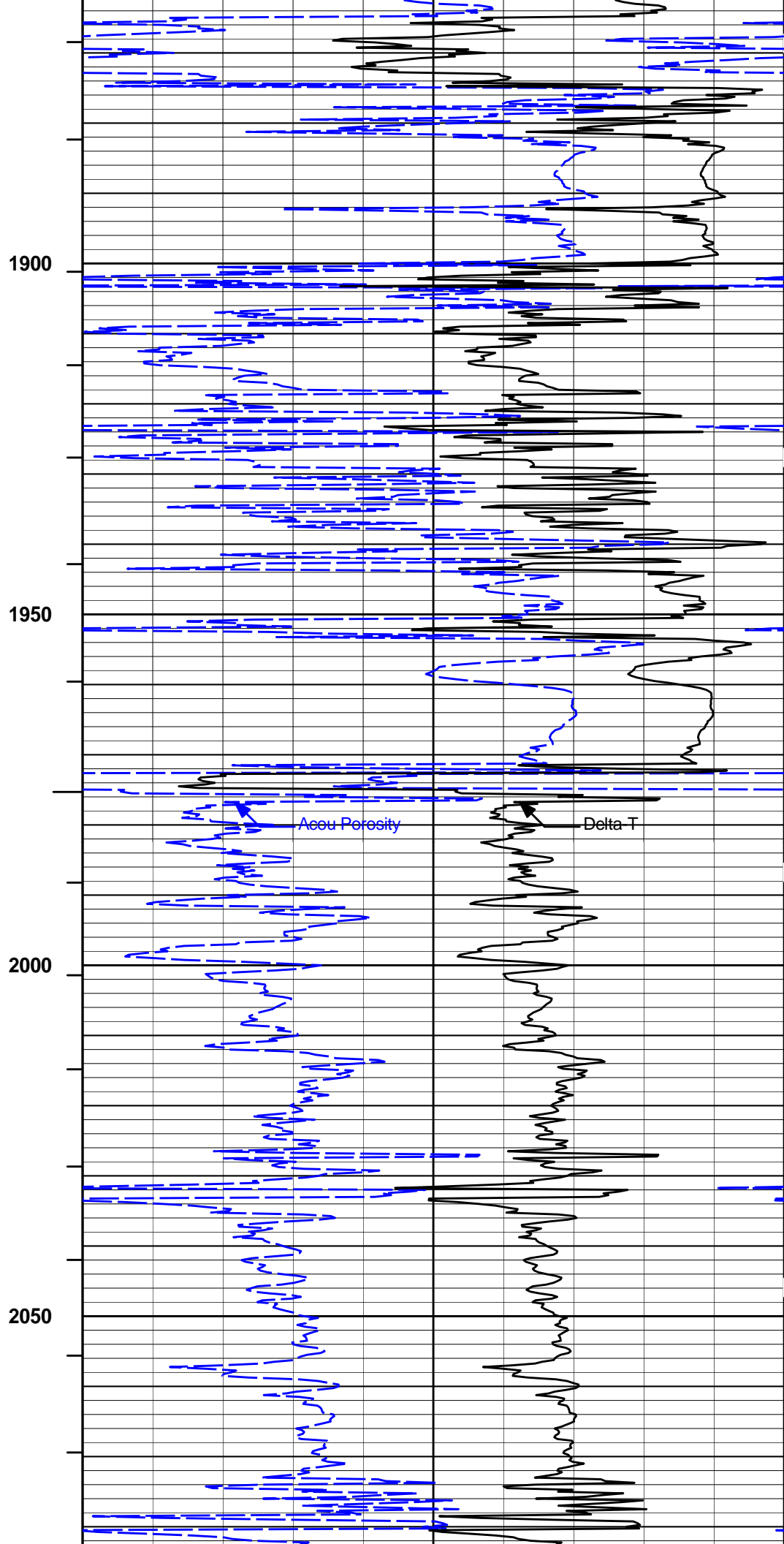
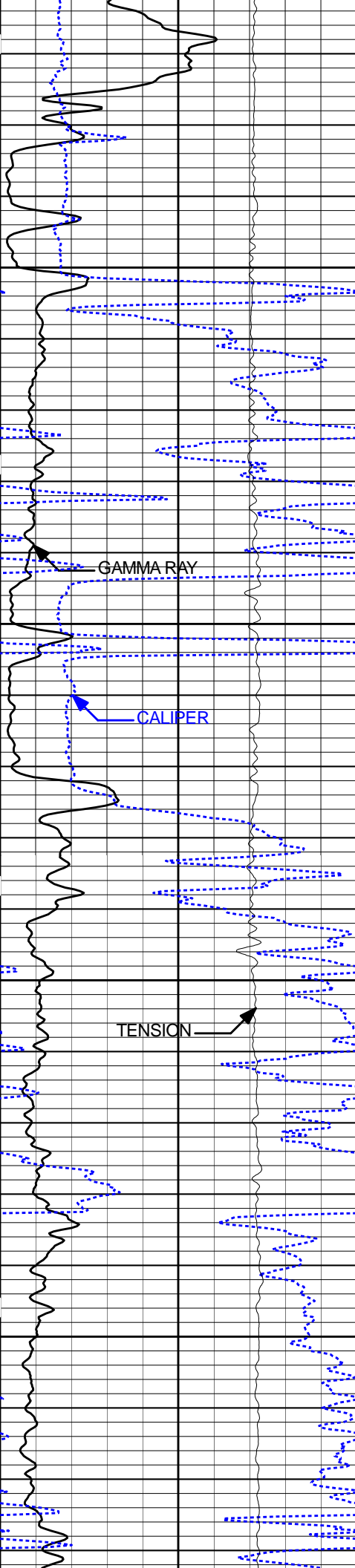


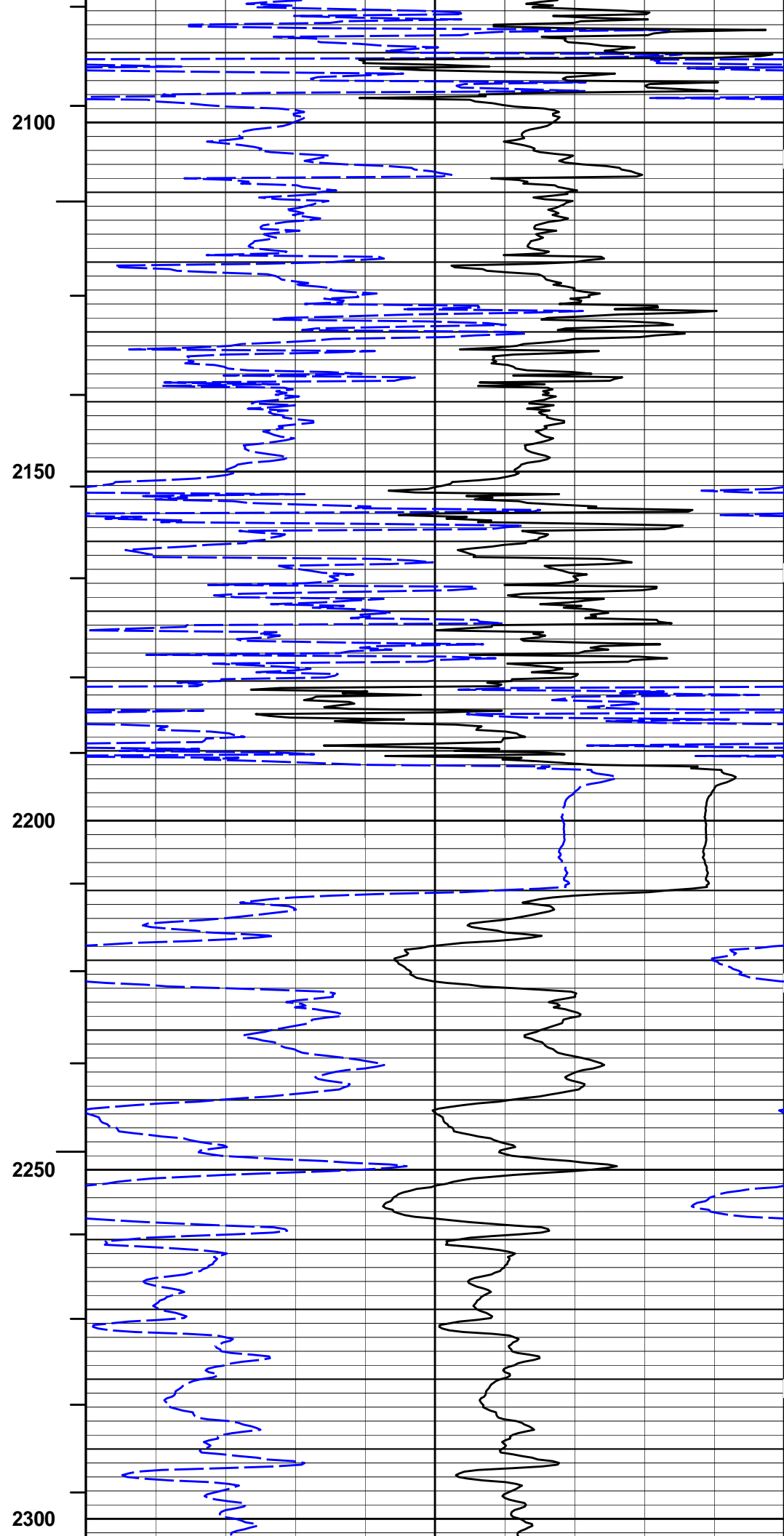
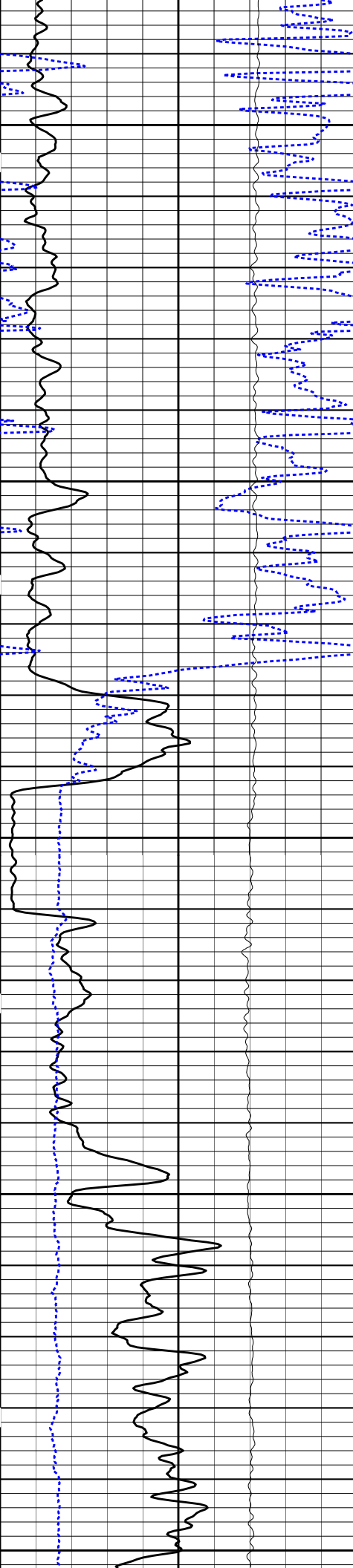


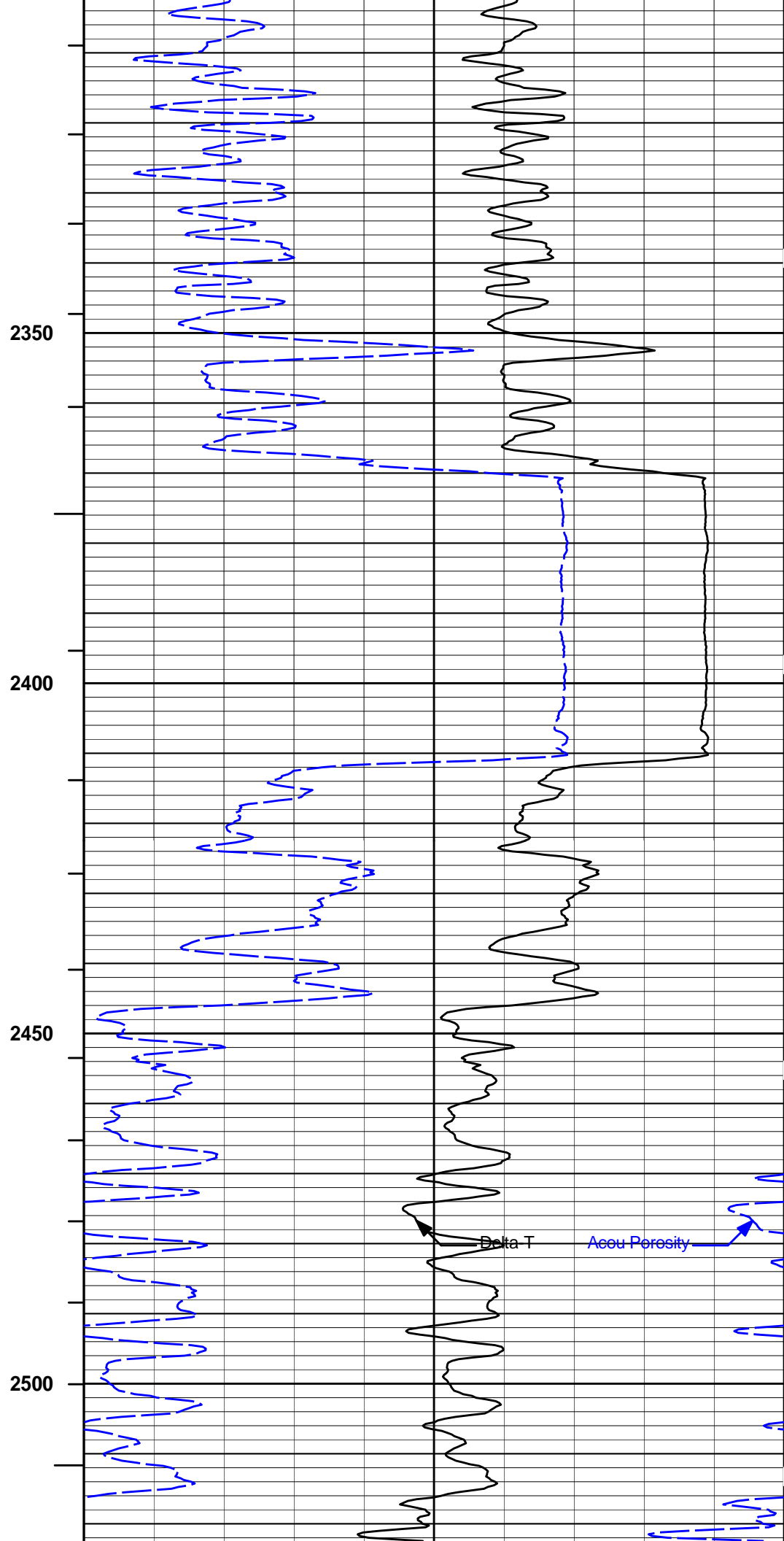
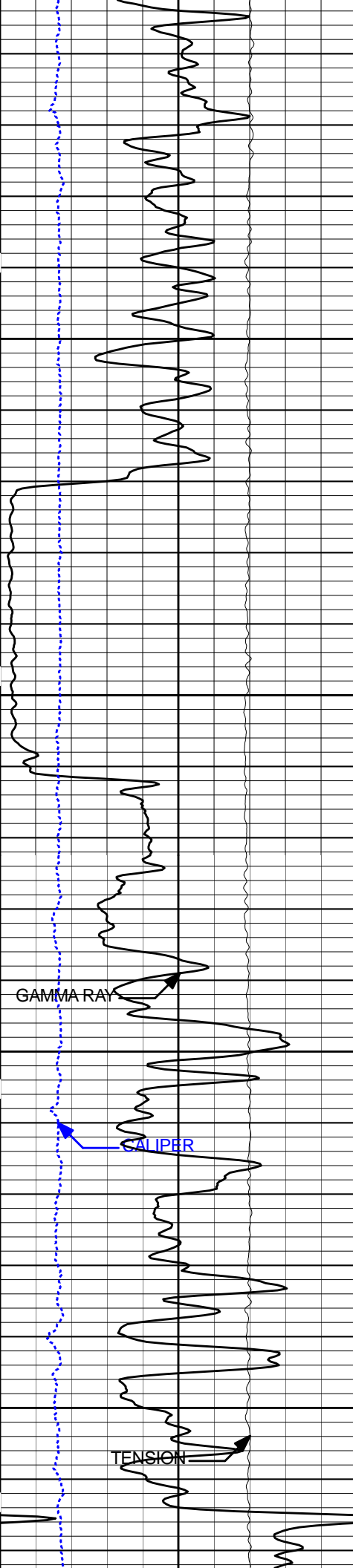


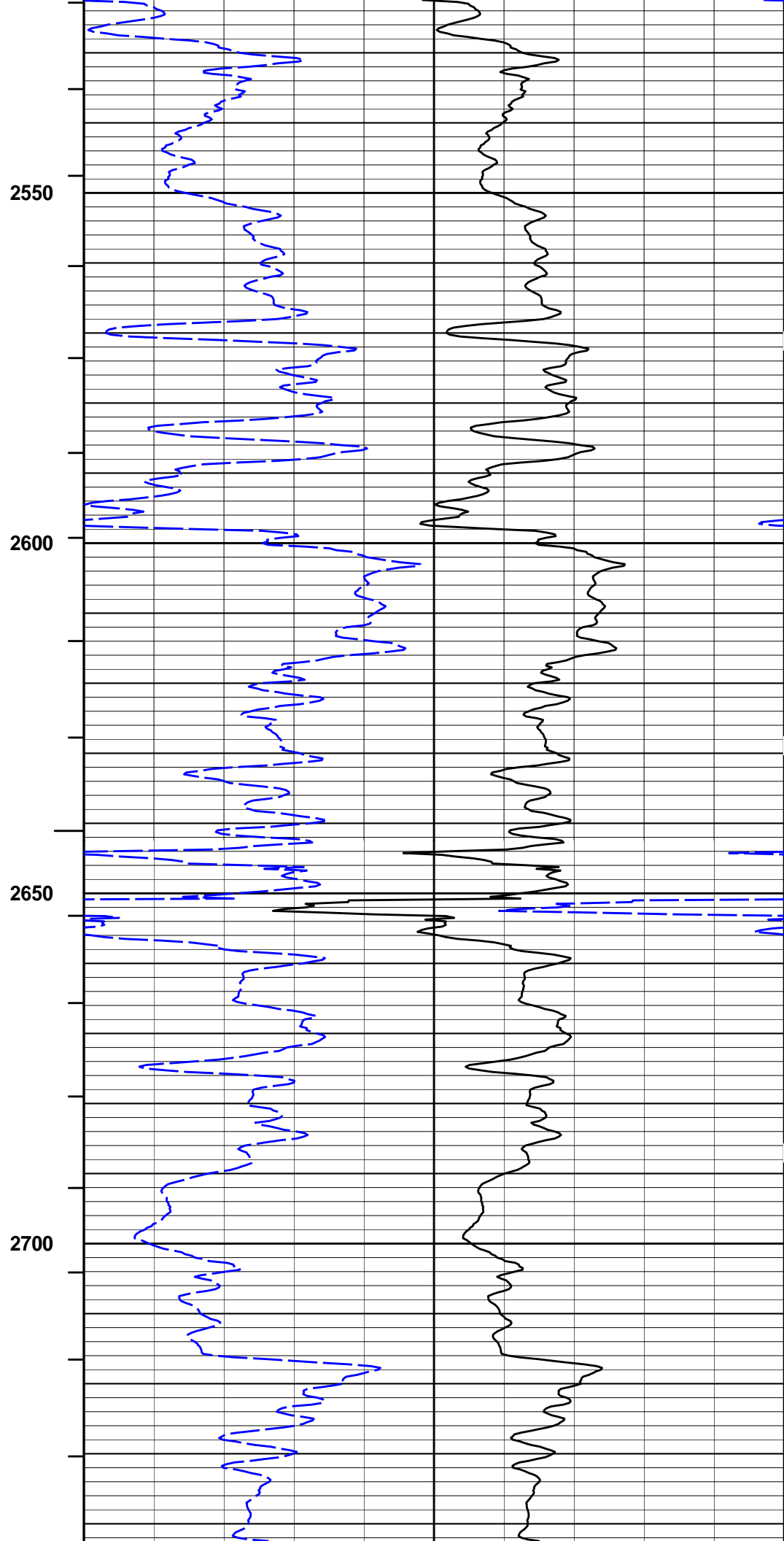
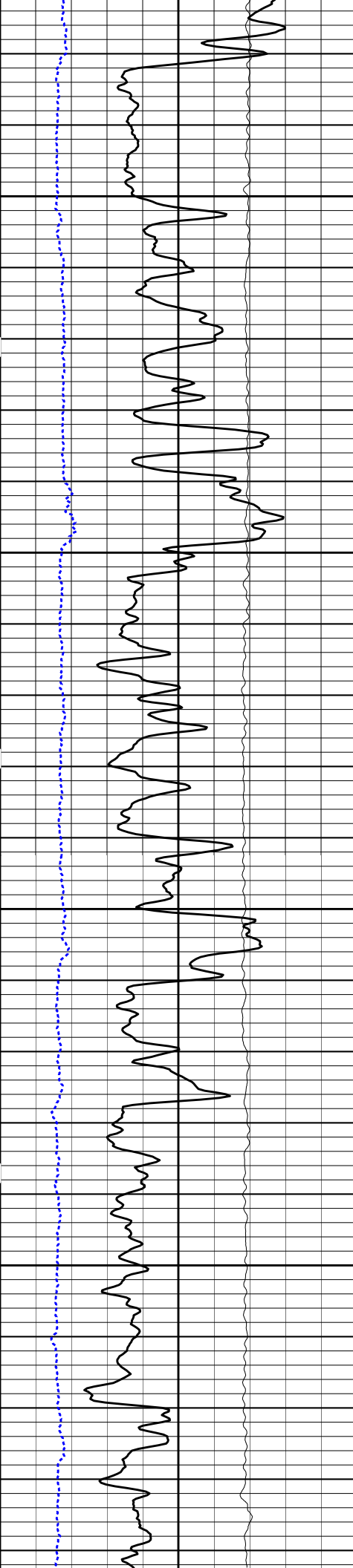


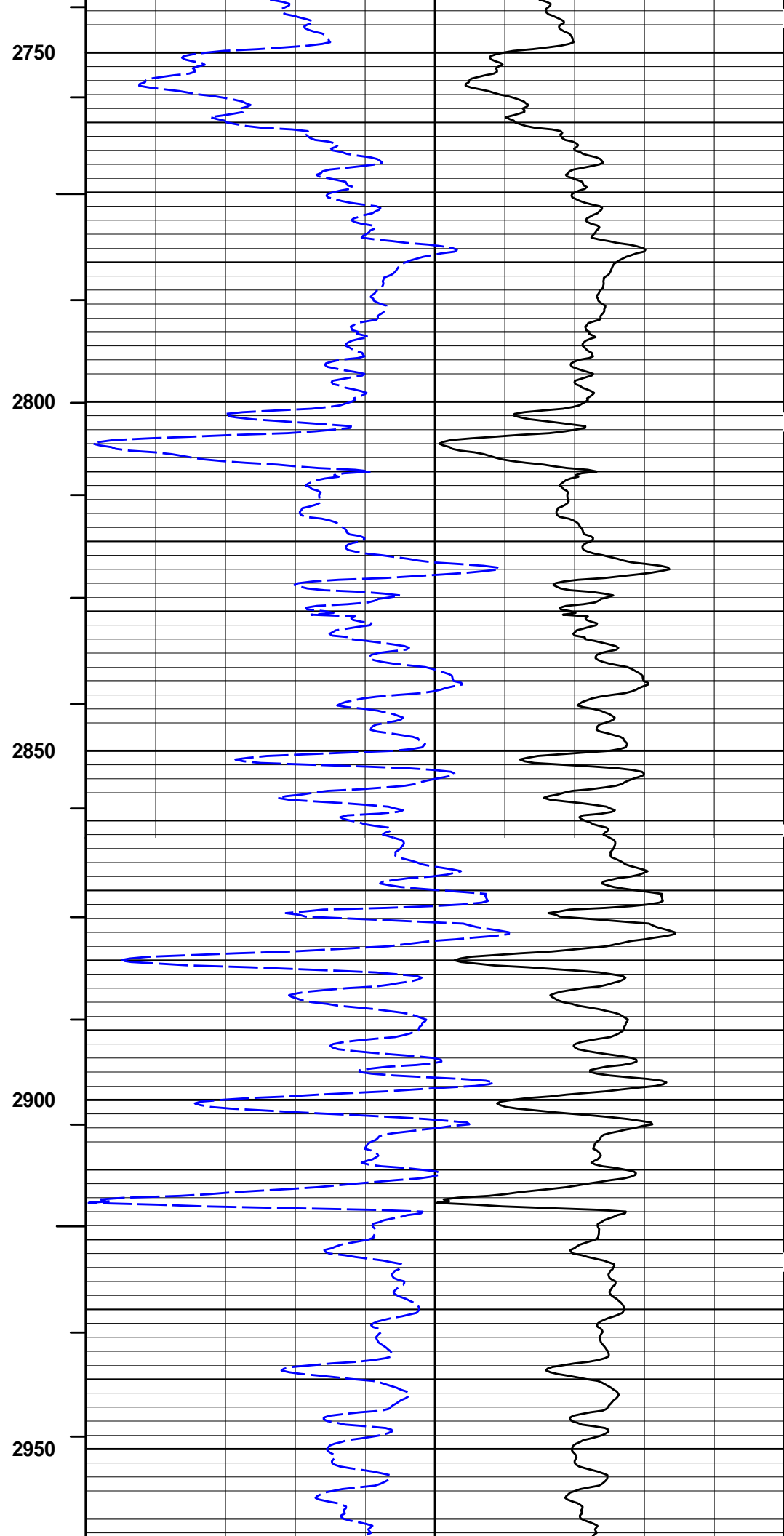
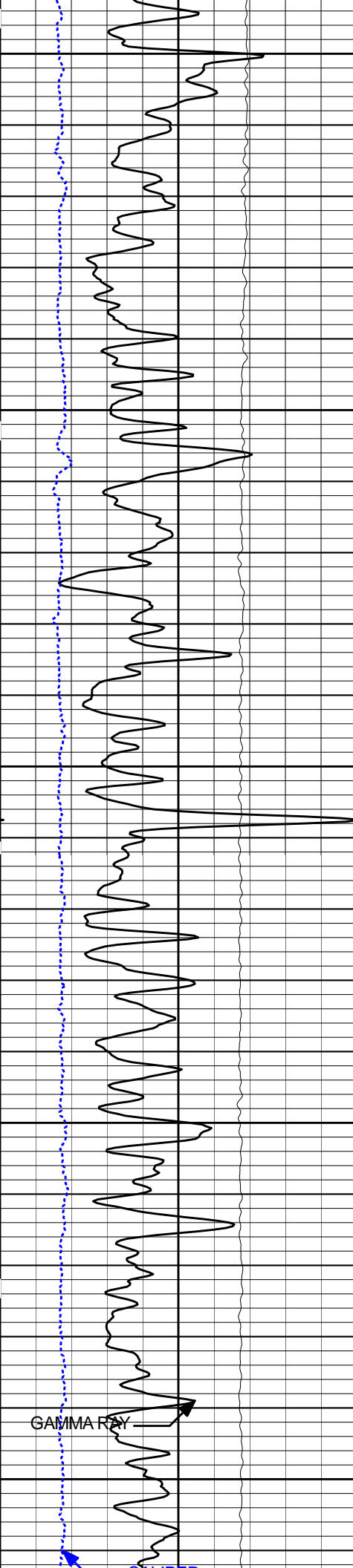


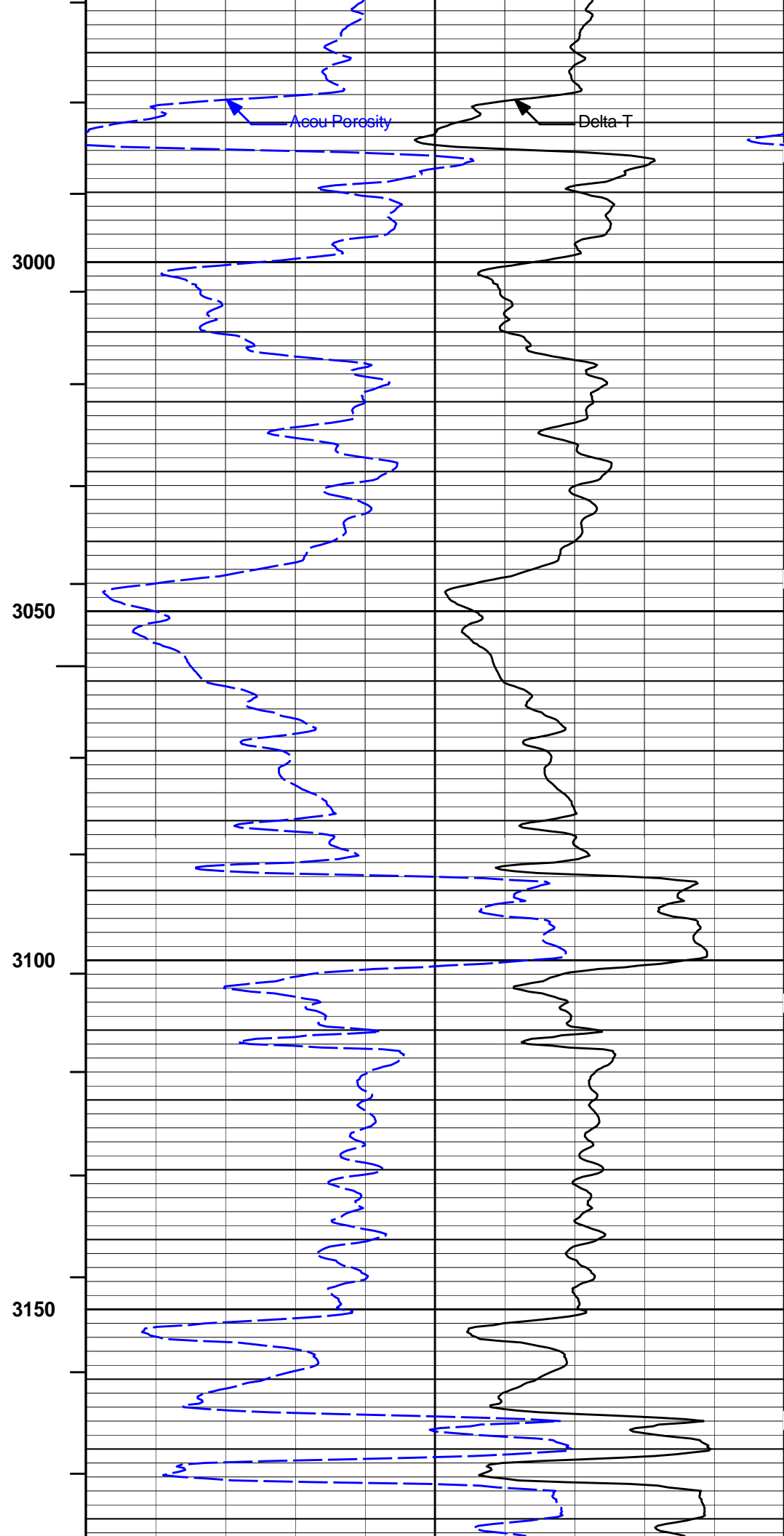
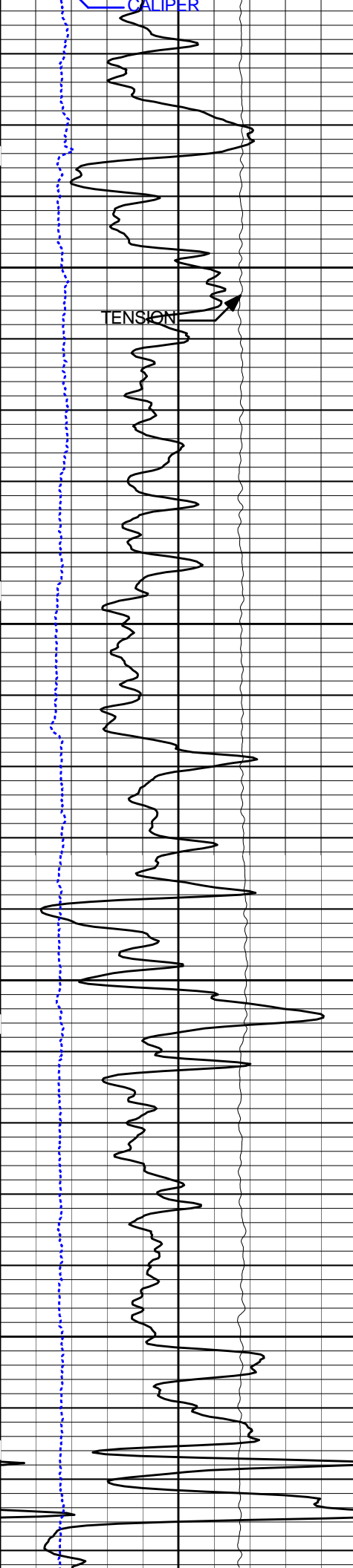


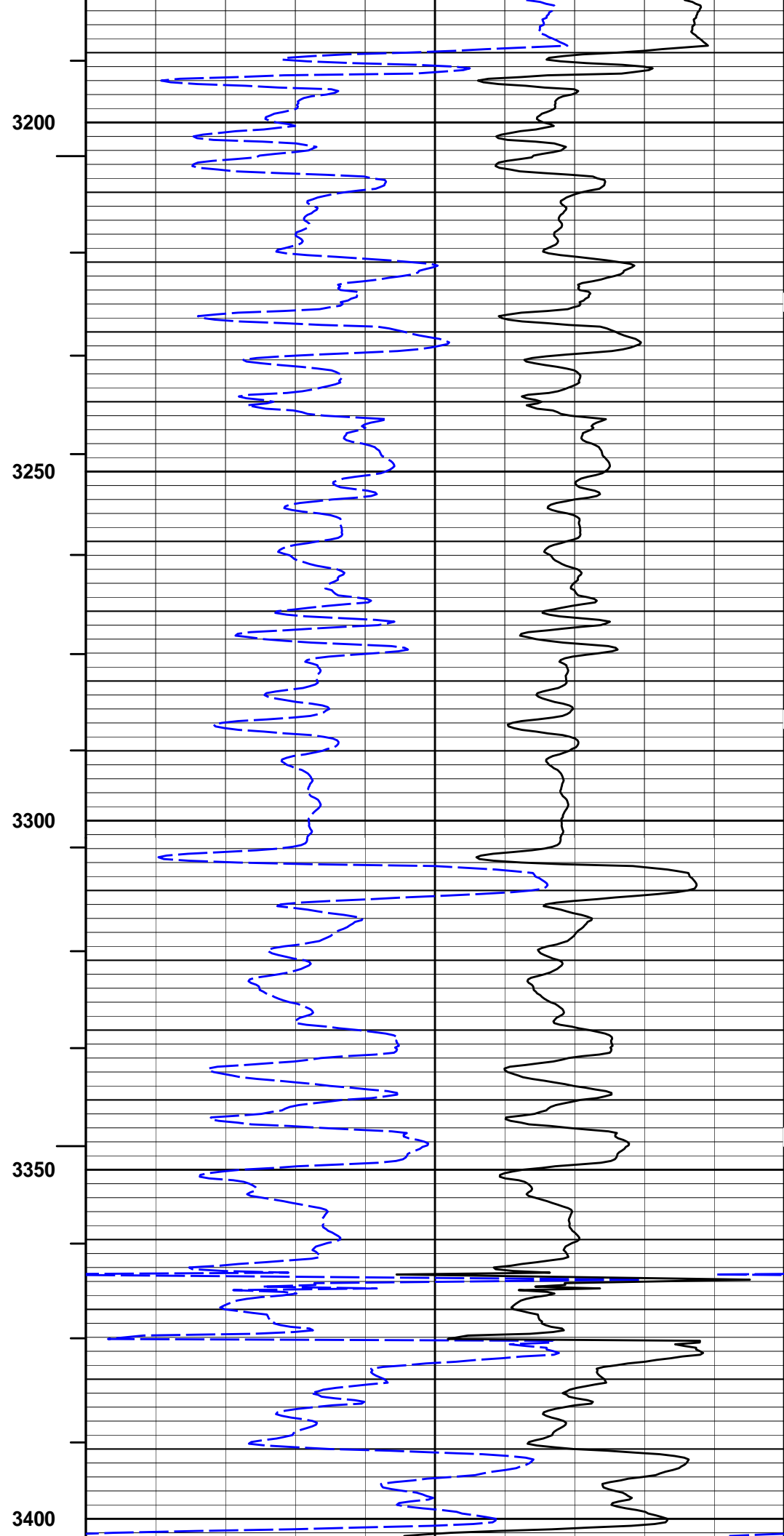
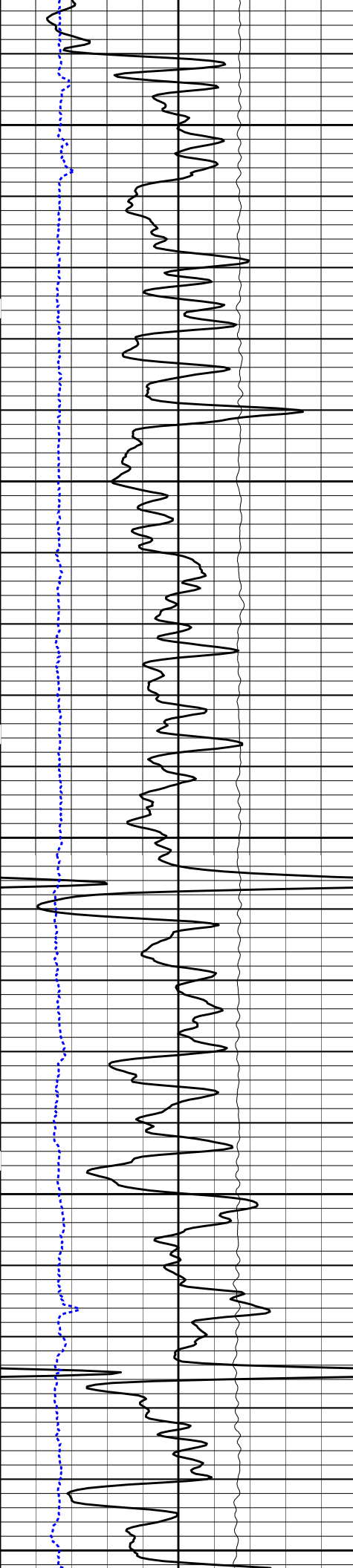


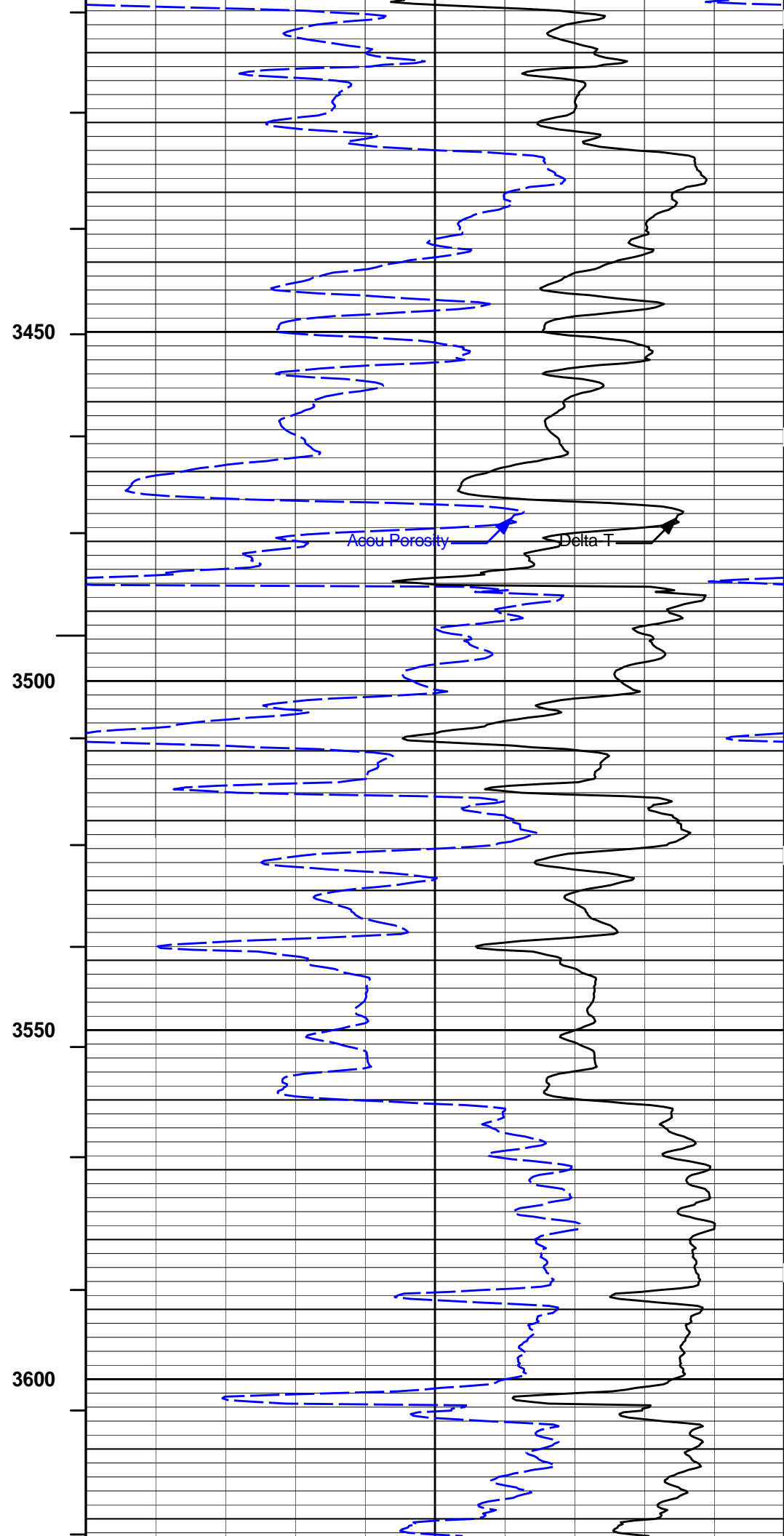
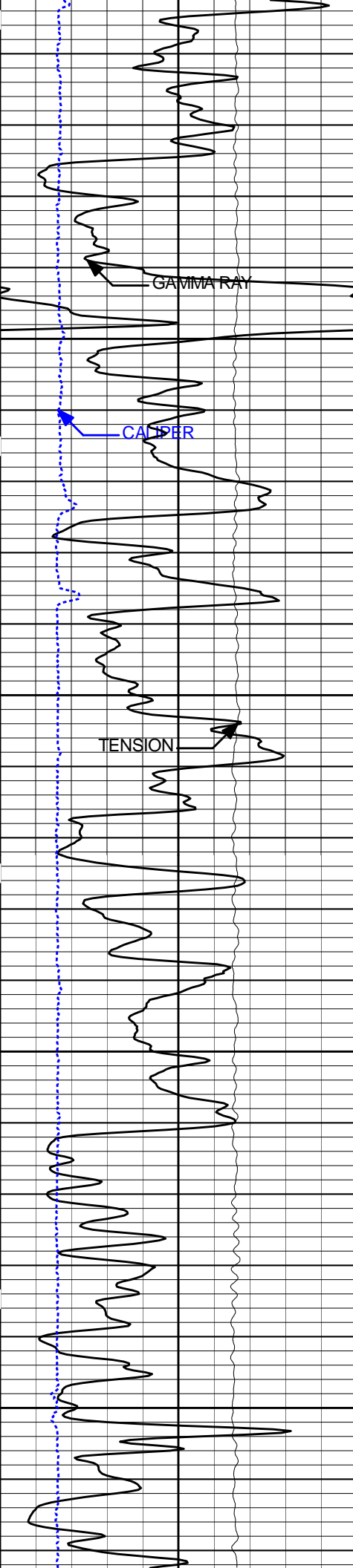


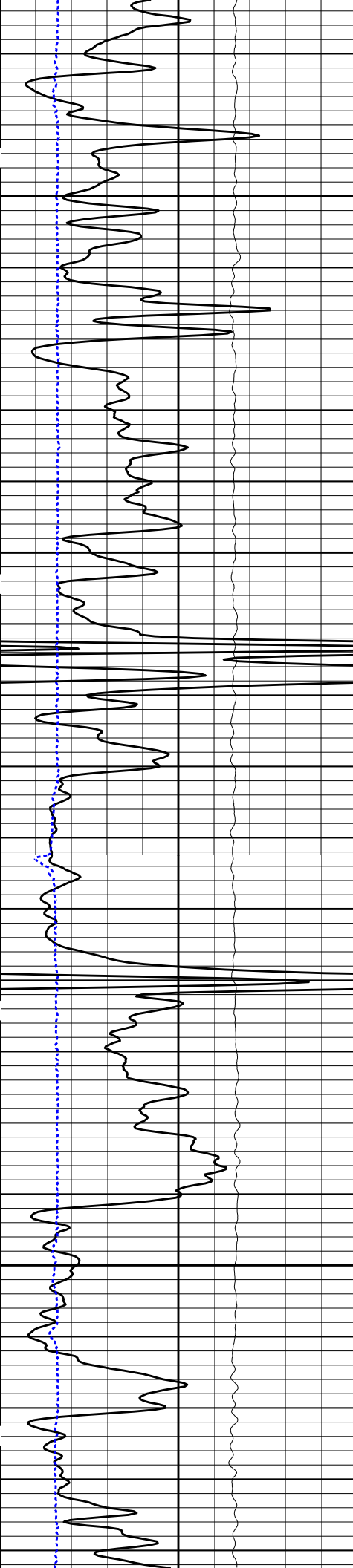










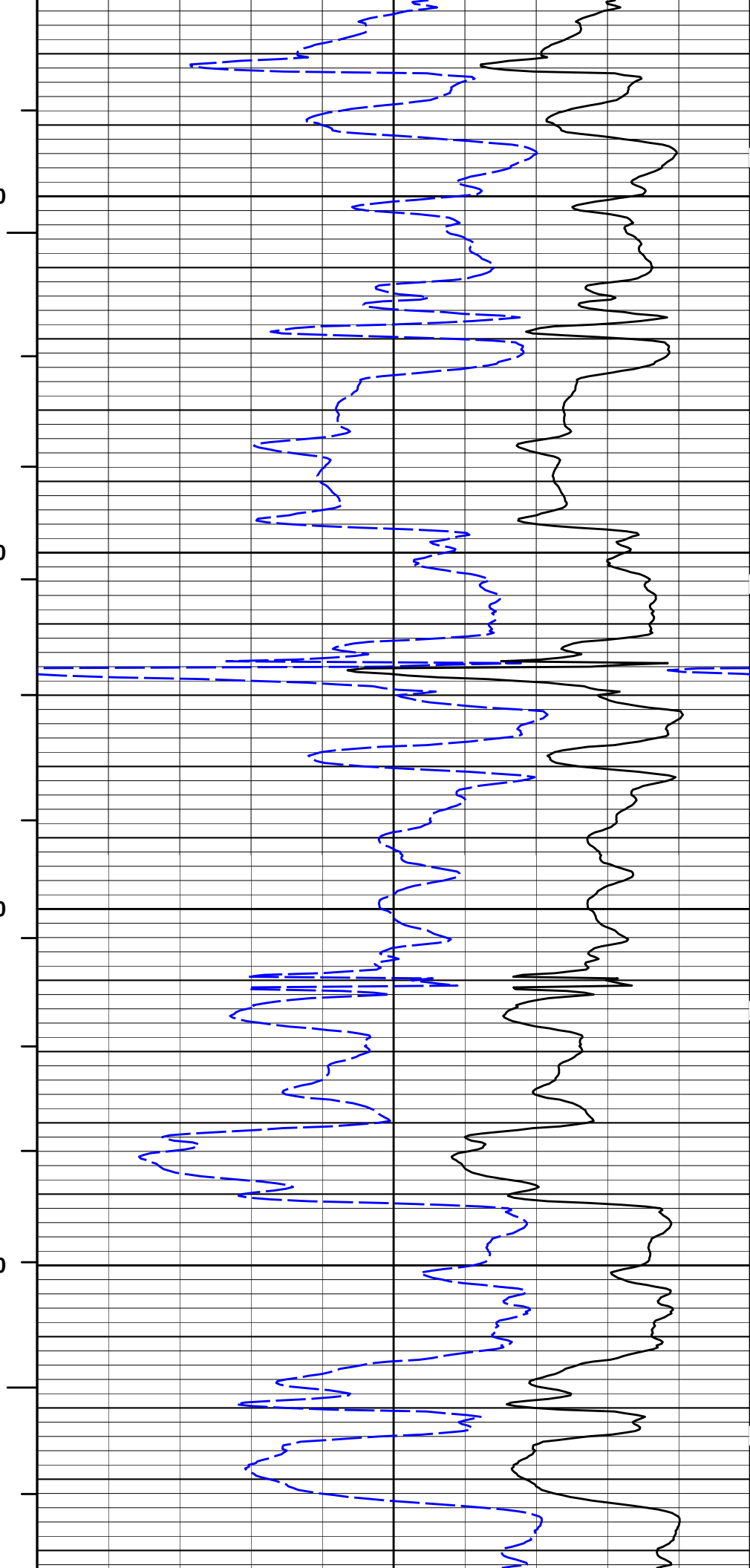


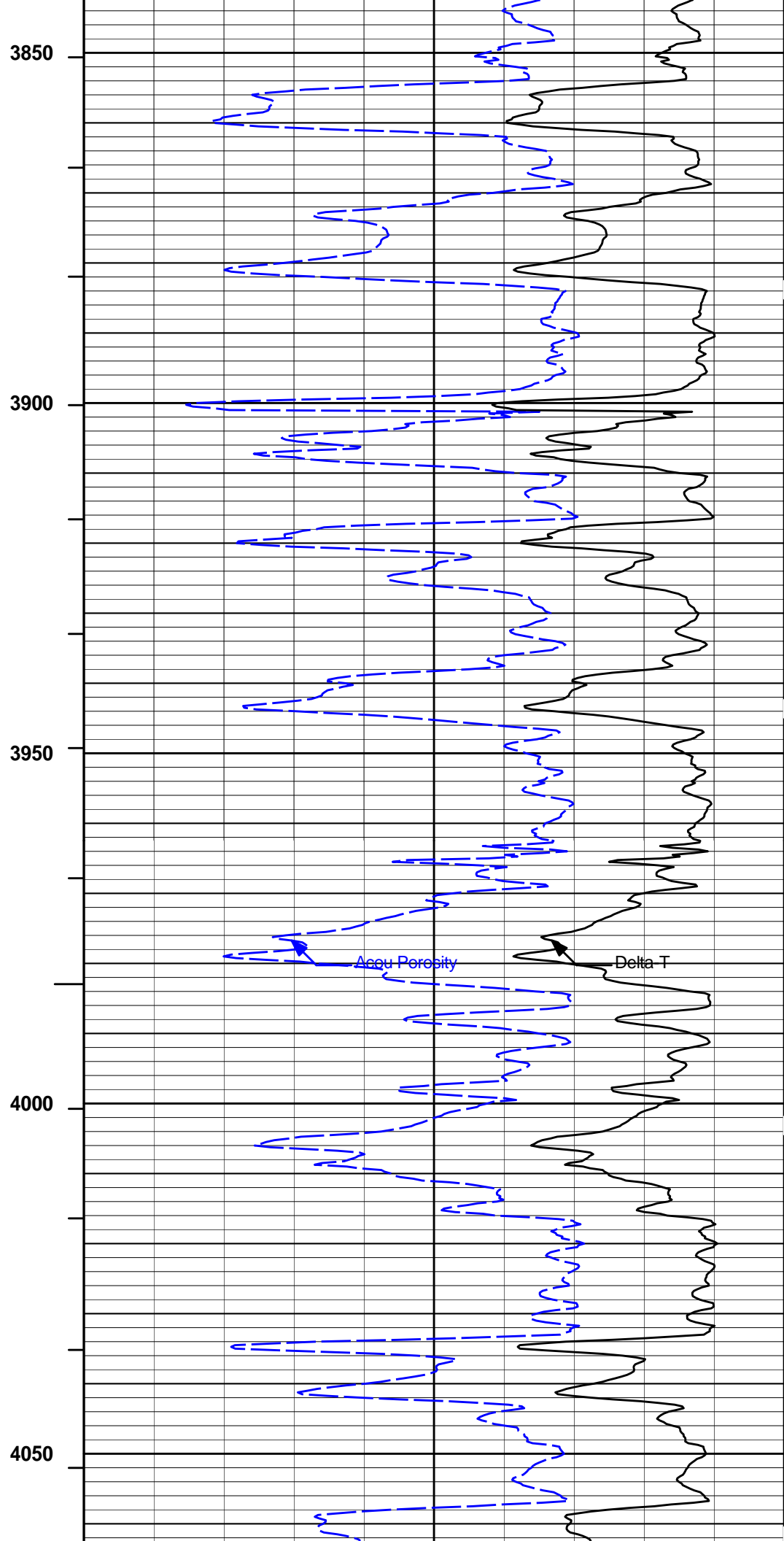
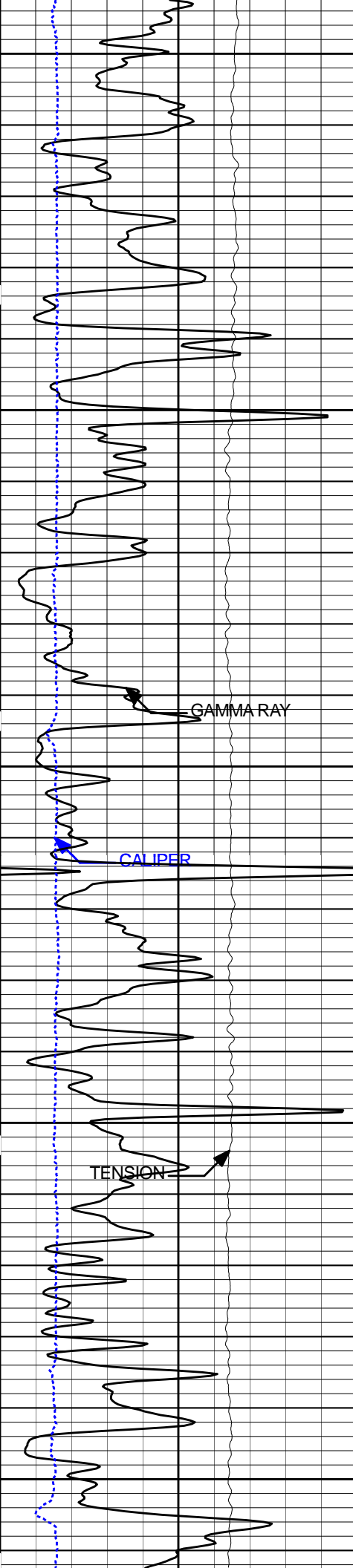
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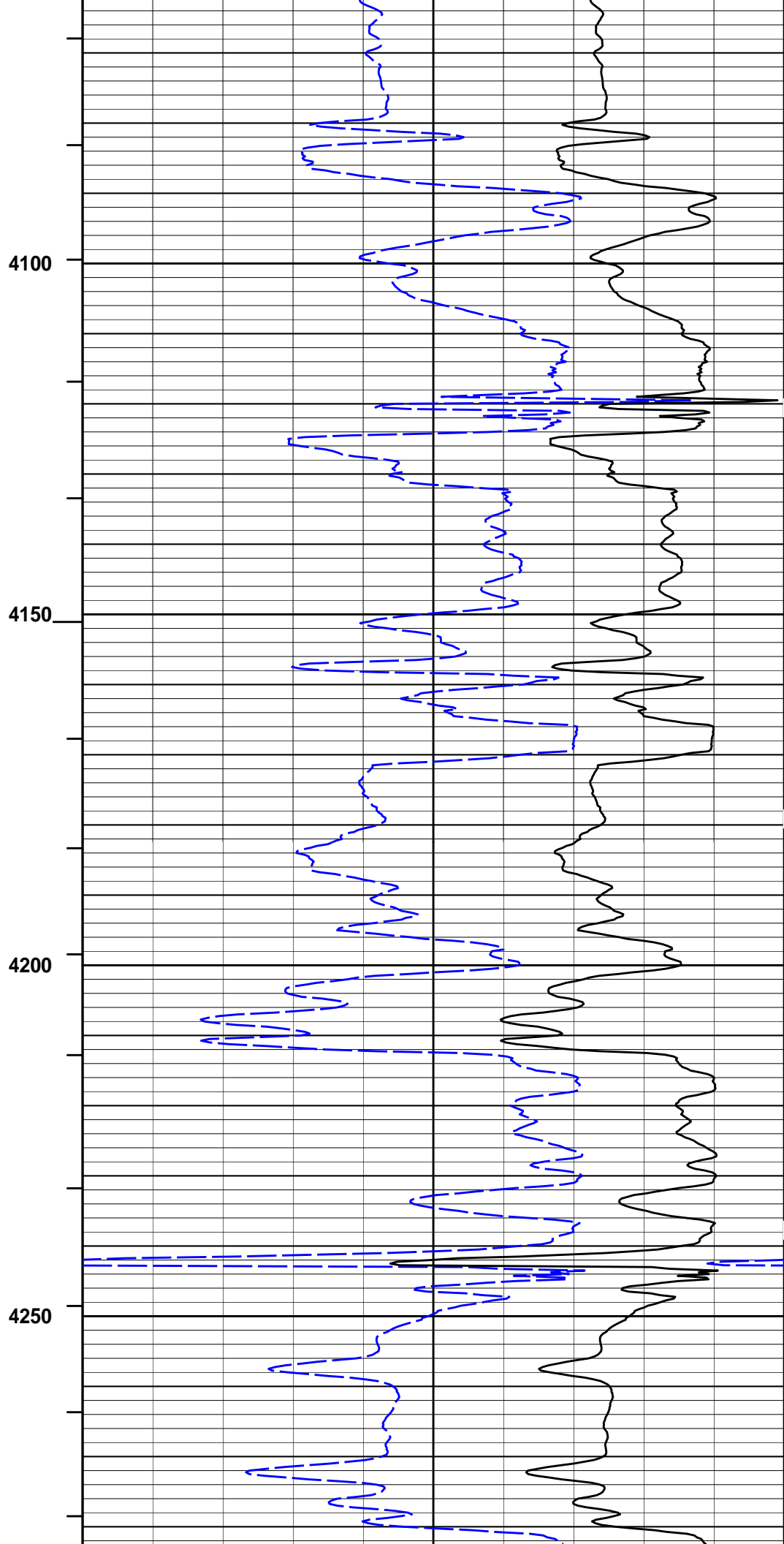
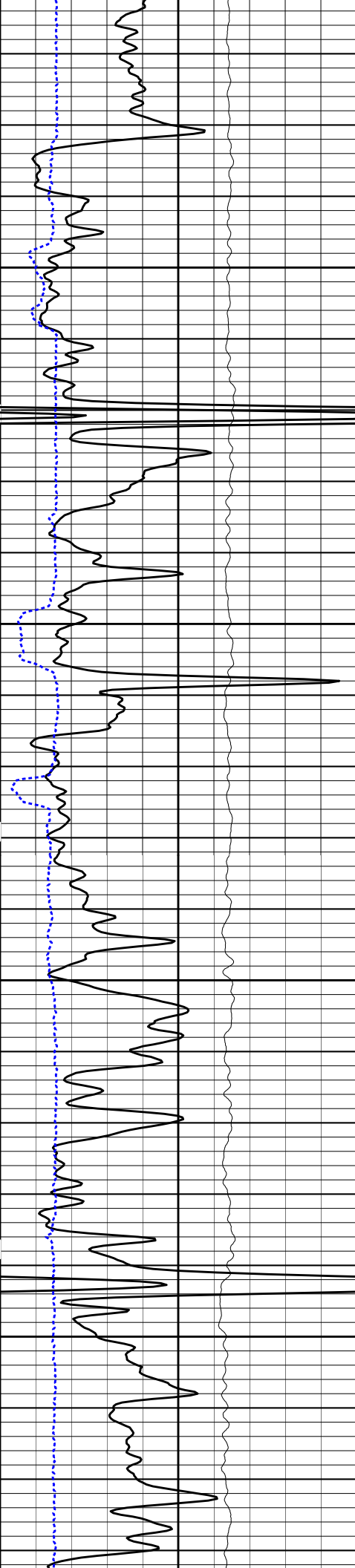
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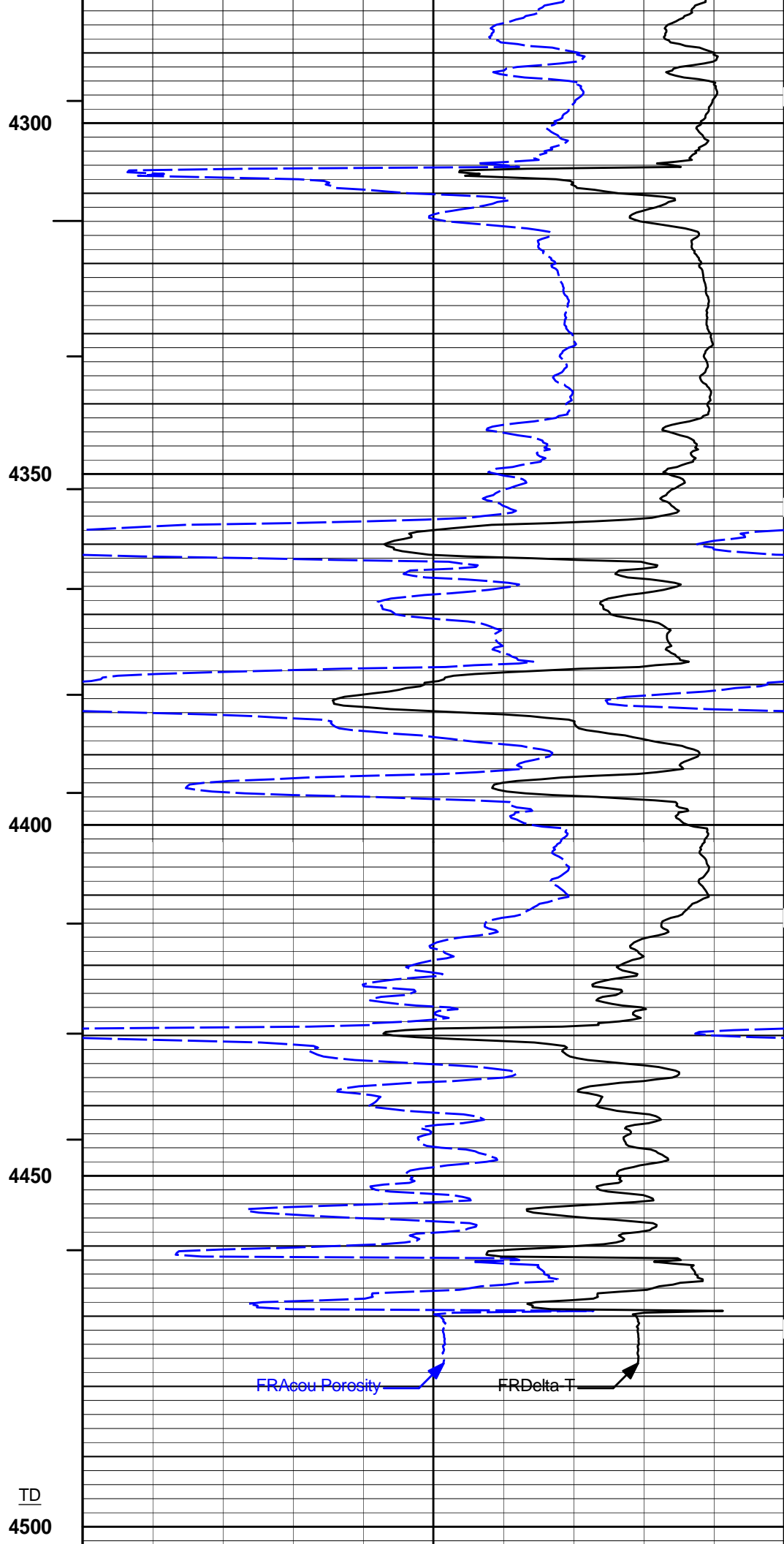
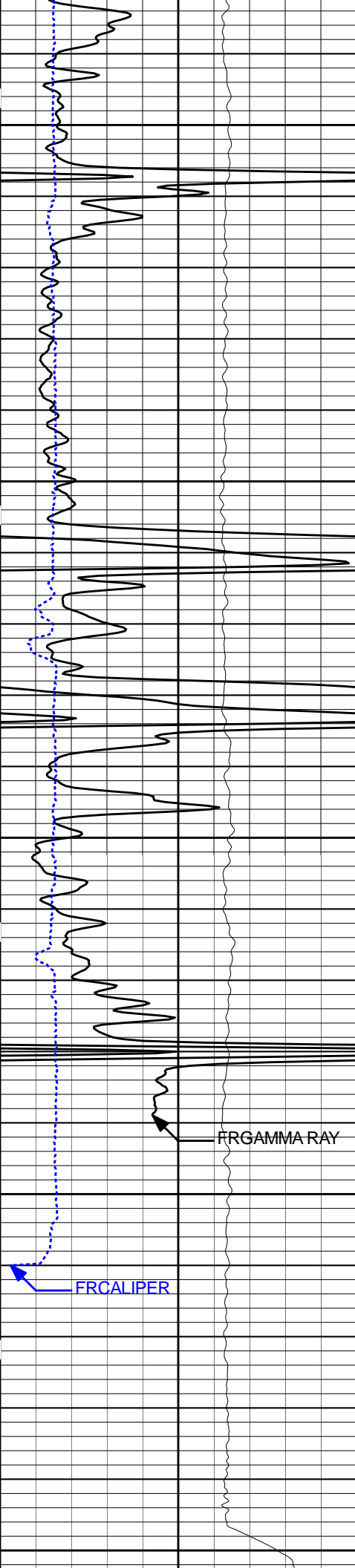
3750

3800









| | | | | | | |
|-------|-----------|-----|----------------|-----|-----------------|-----|
| 10000 | TENSION | 0 | 1 : 240 FT. | 140 | Delta-T | 40 |
| | pounds | | | | microsec per ft | |
| 6 | CALIPER | 16 | ITTTotat | 30 | Acou Porosity | -10 |
| | inches | | | | percent | |
| 0 | GAMMA RAY | 200 | | | | |
| | api | | | | | |

HALLIBURTON

Plot Time: 22-Mar-15 13:00:36
Plot Range: 400 ft to 4504 ft
Data: TRESHOMBRES1_22\Well Based\MAIN\
Plot File: \\SONIC\ TRIPLE_M

MAIN PASS 5" = 100'

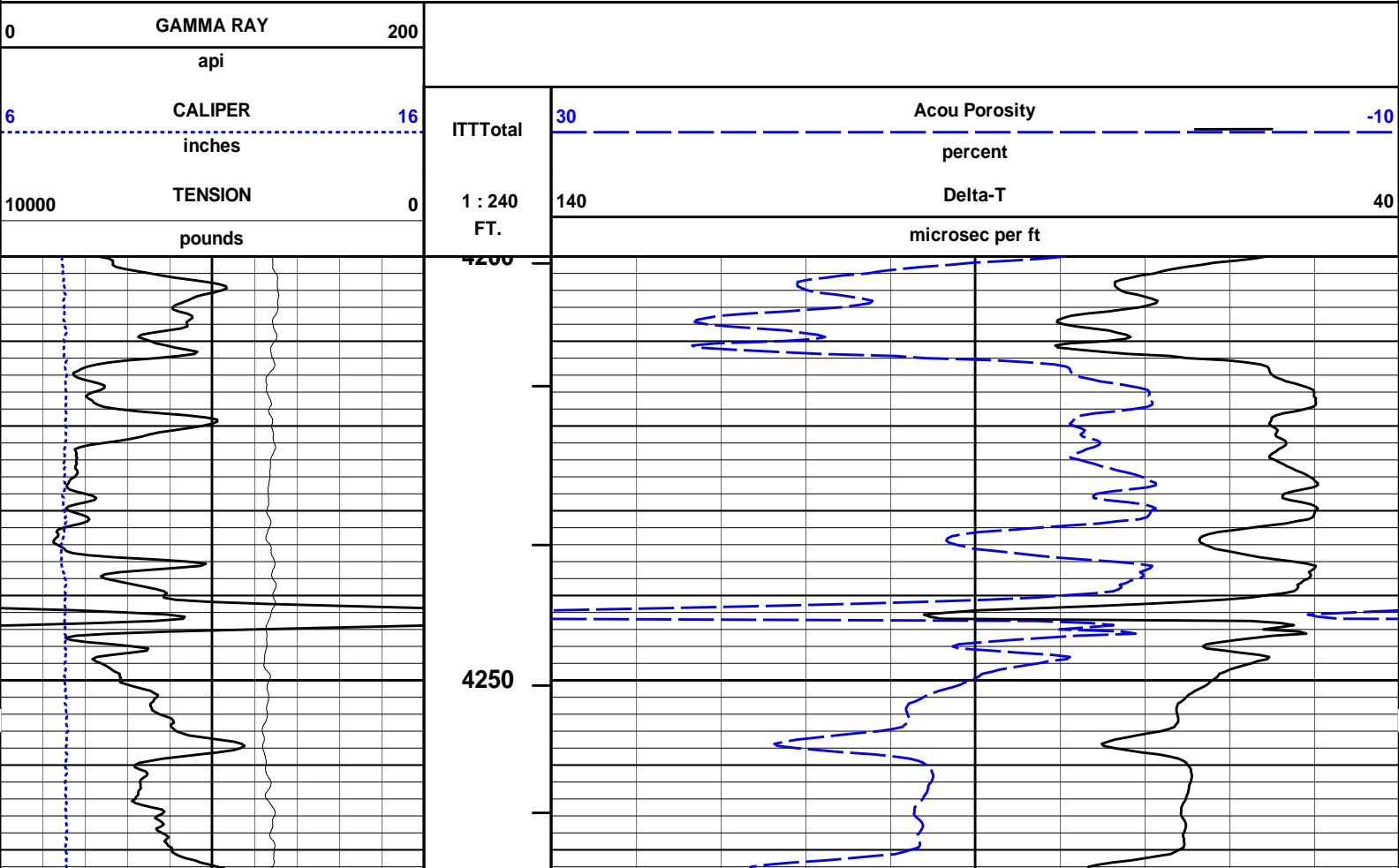
LIMESTONE MATRIX

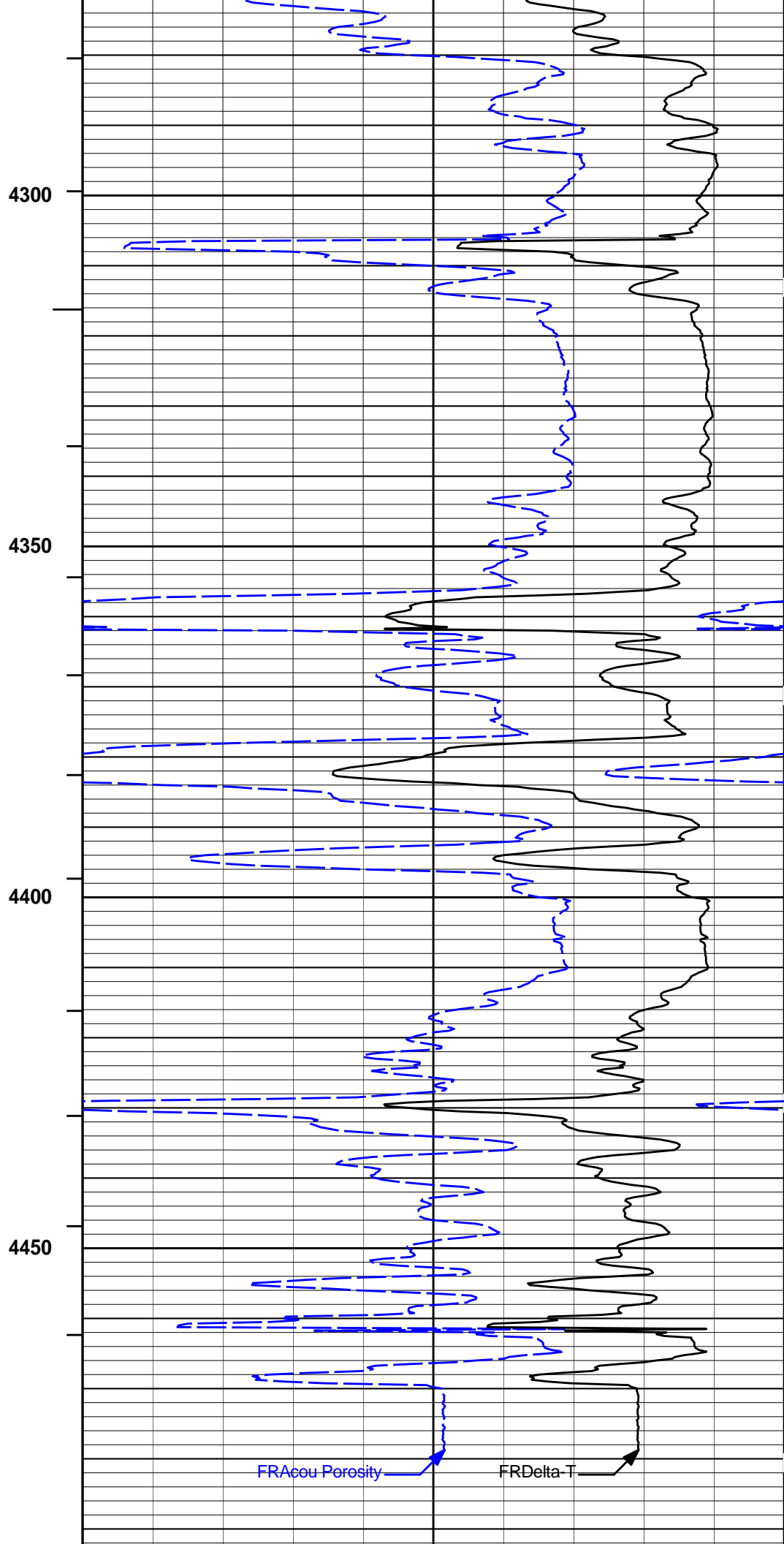
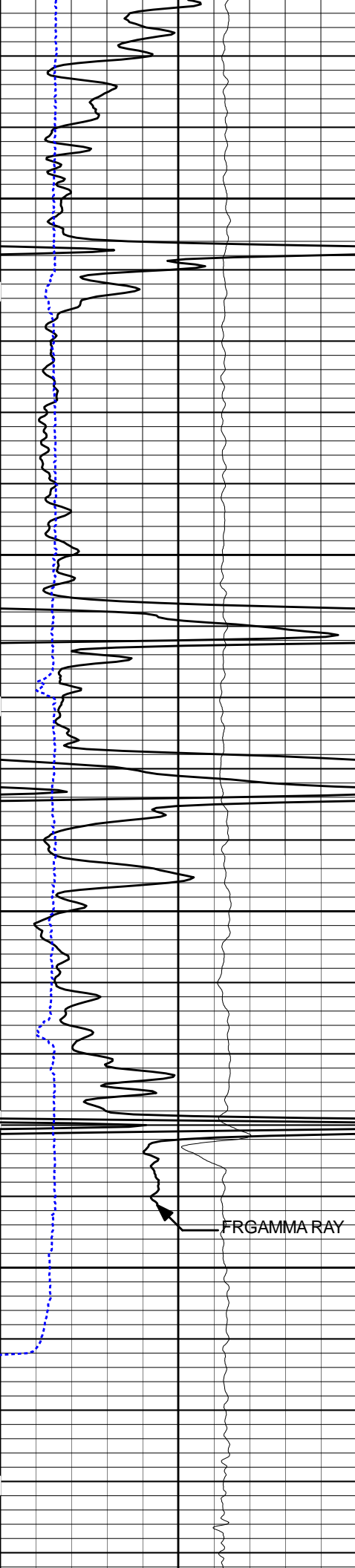
HALLIBURTON

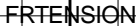
Plot Time: 22-Mar-15 13:00:36
Plot Range: 4200 ft to 4505.83 ft
Data: TRESHOMBRES1_22\Well Based\REPEAT\
Plot File: \\SONIC\ TRIPLE_R

REPEAT PASS 5" = 100'

LIMESTONE MATRIX







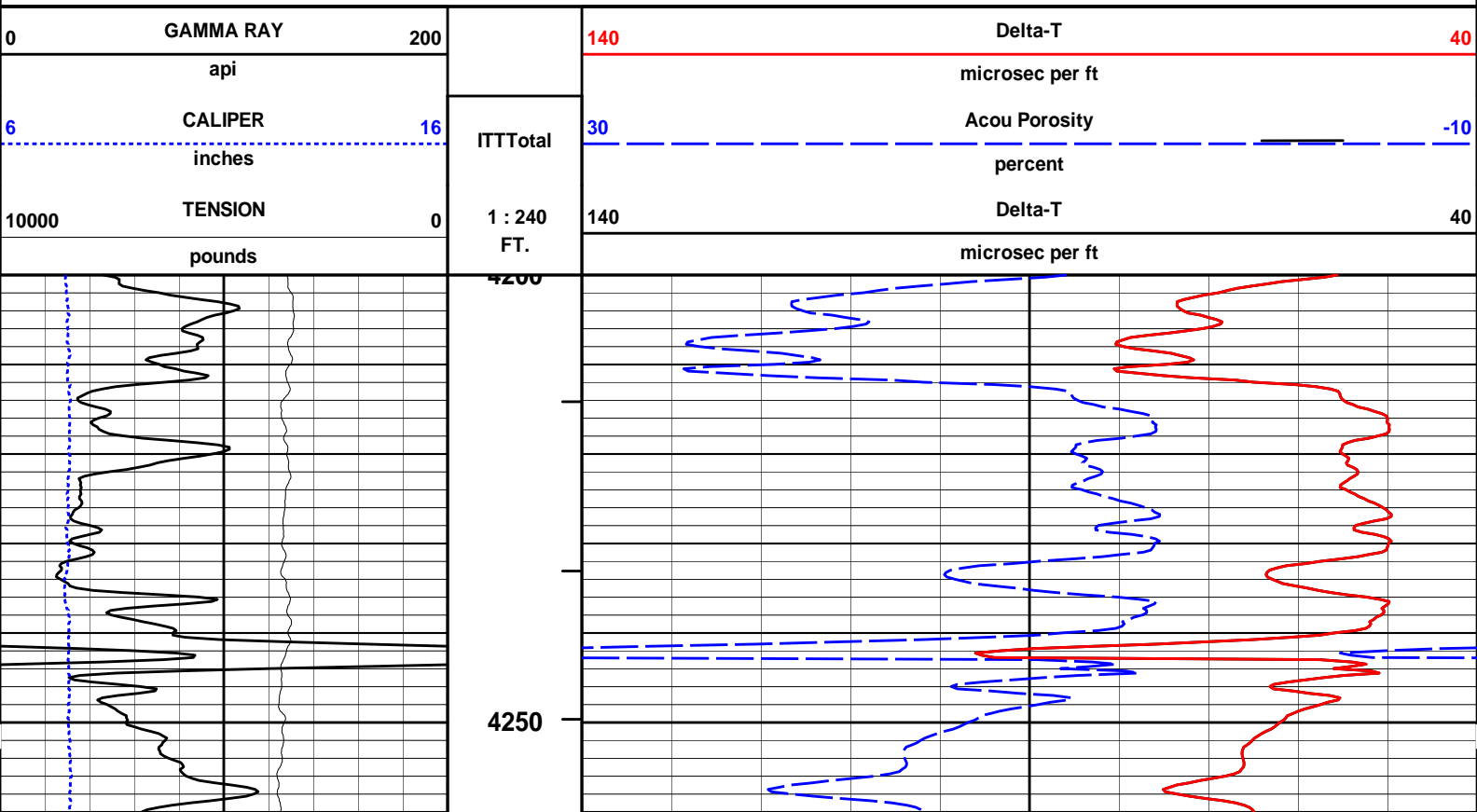
| | | | | | | |
|-------|-----------|-----|----------------|-----|-----------------|-----|
| 10000 | TENSION | 0 | 1 : 240 FT. | 140 | Delta-T | 40 |
| | pounds | | | | microsec per ft | |
| 6 | CALIPER | 16 | ITTTotat | 30 | Acou Porosity | -10 |
| | inches | | | | percent | |
| 0 | GAMMA RAY | 200 | | | | |
| | api | | | | | |

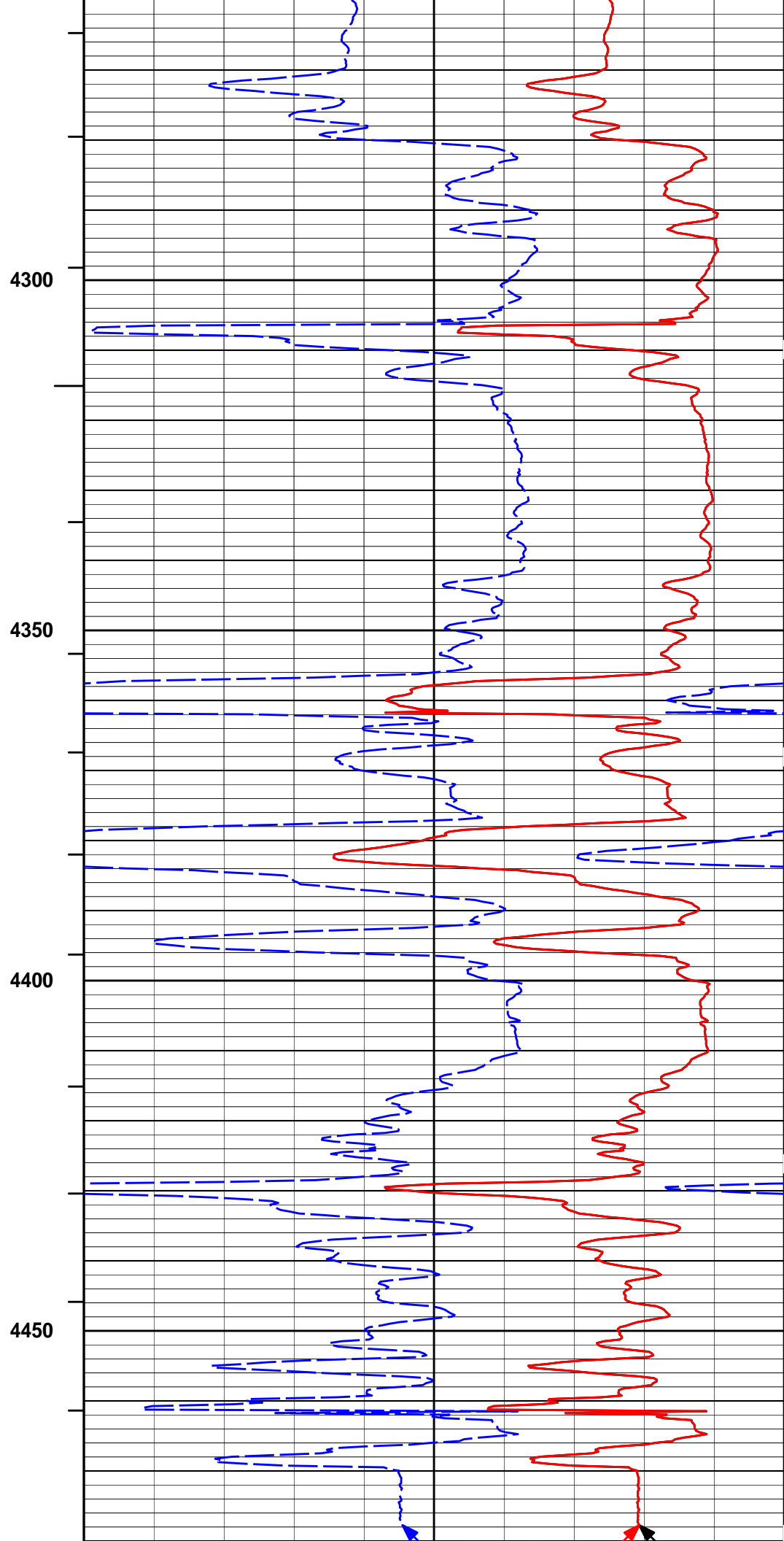
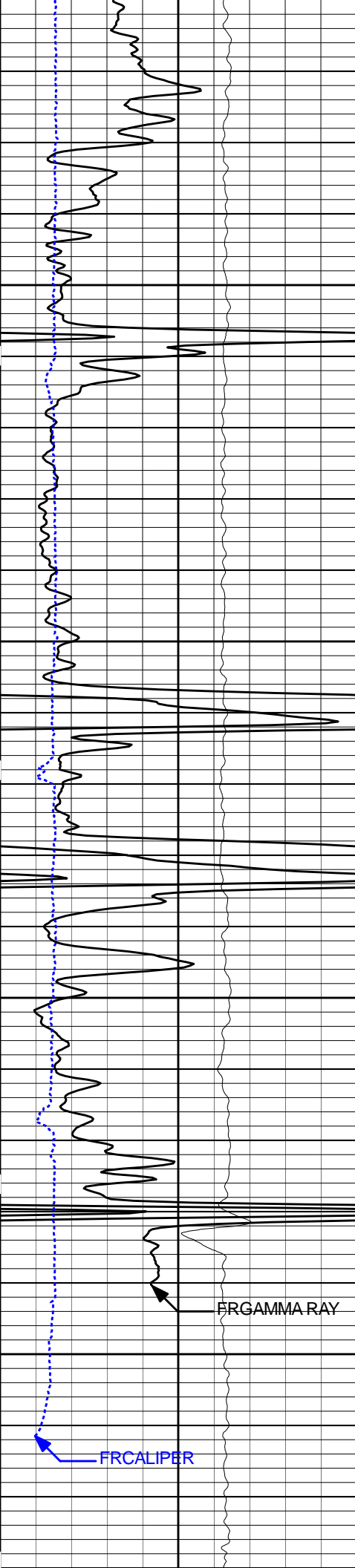
Plot Time: 22-Mar-15 13:00:39
Plot Range: 4200 ft to 4505.83 ft
Data: TRESHOMBRES1_22\Well Based\REPEAT\
Plot File: \\SONIC\ TRIPLE_R

LIMESTONE MATRIX

Plot Time: 22-Mar-15 13:00:40
Plot Range: 4200 ft to 4505.83 ft
Data: TRESHOMBRES1_22\Well Based\DOLO_REPEAT\
Plot File: \\SONIC\ TRIPLE R

DOLOMITE MATRIX





| Calibrator Source S/N: MP051807-04 | | | |
|---|-------|-------|-------|
| Calibrator API Reference:239.00 api | | | |
| Equivalent Calibrator API Reference:243.2 api | | | |
| Field Verification | Shop | Field | Units |
| Background | 43.9 | 44.4 | api |
| Background + Calibrator | 287.1 | 290.0 | api |
| Calibrator | 243.2 | 245.7 | api |

| | | | | |
|--|-------|-------|------------|-----------|
| | Shop | Field | Difference | Tolerance |
| | 243.2 | 245.7 | -2.5 | +/- 9.00 |

DUAL SPACED NEUTRON SHOP CALIBRATION

Tool Name: DSNT - 10993888

Reference Calibration Date: 29-Jan-15 10:21:15

Engineer: B. RIDDEL

Calibration Date: 05-Mar-15 14:06:08

Software Version: WL INSITE R4.6.0 (Build 4)

Calibration Version: 1

Logging Source S/N: DSN-388

Tank Serial Number: GJ WATER TANK

Reference value assigned to Tank: 52.750

Snow Block S/N: GJ SNOW BLOCK

Calibration Tank Water Temperature: 66 degF

Min. Tool Housing Outside Diameter: 3.625 in

CALIBRATION CONSTANTS

| Measurement | Prev. Value | New Value | Control Limit On New Value |
|-------------|-------------|-----------|----------------------------|
| Gain: | 0.993 | 0.998 | 0.900 - 1.100 |

WATER TANK SUMMARY (Horizontal Water Tank)

| Measurement | Current Reading (Previous Coef.) | Calibrated (New Coef.) | Change | Control Limit On Change |
|-------------------|----------------------------------|------------------------|--------|-------------------------|
| Porosity (decp): | 0.2157 | 0.2169 | 0.0013 | +/- 0.0020 |
| Calibrated Ratio: | 9.89 | 9.93 | 0.043 | +/- 0.050 |

VERIFIER

| Measurement | Value | Control Limit |
|-----------------------------|--------|-------------------|
| Snow-Block Porosity (decp): | 0.0691 | 0.02000 - 0.09000 |

PASS/FAIL SUMMARY

| | |
|-------------------|--------|
| Background Check: | Passed |
| Gain-Range Check: | Passed |
| Snow-Block Check: | Passed |

DUAL SPACED NEUTRON FIELD CALIBRATION

Tool Name: DSNT - 10993888

Reference Calibration Date: 05-Mar-15 14:06:08

Engineer: P. DIMPFL

Calibration Date: 22-Mar-15 09:34:21

Software Version: WL INSITE R4.6.0 (Build 4)

Calibration Version: 1

Logging Source S/N: DSN-388

Snow Block S/N: GJ SNOW BLOCK

NEUTRON FIELD-CHECK SUMMARY

| | Shop | Field | Difference | Control Limit On Change |
|-----------------------------|--------|--------|------------|-------------------------|
| Snow-Block Porosity (decp): | 0.0691 | 0.0709 | 0.0019 | +/- 0.0150 |

PASS/FAIL SUMMARY

| | |
|------------------------|--------|
| Block Change Check: | Passed |
| Snow Block Stat Check: | Passed |
| Temperature Check: | Passed |

DENSITY CALIPER SHOP CALIBRATION

Tool Name: SDLT - 10951300

Reference Calibration Date: 19-Feb-15 10:11:47

Engineer: B. RIDDEL

Calibration Date: 19-Feb-15 10:15:00

| CALIBRATION COEFFICIENTS | | | |
|--------------------------|----------------|--------------|----------------------------|
| Measurement | Previous Value | New Value | Control Limit On New Value |
| Pad Offset | -3445.21 | -3550.63 | -7000.00 - -1000.00 |
| Pad Gain | 0.0003644 | 0.0003685 | 0.000200 - 0.000600 |
| Arm Offset | -1416.13 | -1695.85 | -5000.00 - 3000.00 |
| Arm Gain | 0.0004667 | 0.0005038 | 0.000300 - 0.000700 |
| Arm Power | -0.000001974 | -0.000004478 | -0.000010000 - 0.000010000 |

The ring diameter is computed from: DIAMETER = PAD EXTENSION + ARM EXTENSION + TOOL DIAMETER

Tool Diameter: 4.50 in

| CALIBRATION RINGS | | | | |
|-------------------|-----------------------------------|-------------------------|--------|----------------------------|
| Measurement | Current Reading (Previous Coeff.) | Calibrated (New Coeff.) | Change | Control Limit On New Value |
| PAD EXTENSION: | | | | |
| Small Ring (in) | 2.02 | 2.00 | -0.02 | +/- 0.20 |
| Medium Ring (in) | 3.75 | 3.75 | 0.00 | +/- 0.20 |
| RING DIAMETER: | | | | |
| Small Ring (in) | 6.55 | 6.50 | -0.05 | +/- 0.20 |
| Medium Ring (in) | 8.21 | 8.25 | 0.04 | +/- 0.20 |
| Large Ring (in) | 15.00 | 15.00 | 0.00 | +/- 0.20 |

| PASS/FAIL SUMMARY | |
|---------------------------------------|--------|
| Calibration-Coefficients Range Check: | Passed |
| Ring-Measurement Check: | Passed |
| PASS/FAIL SUMMARY | |
| Calibration-Coefficients Range Check: | Passed |

SDLT CALIPER FIELD CALIBRATION

Tool Name: SDLT - 10951300

Reference Calibration Date: 19-Feb-15 10:15:26

Engineer: P. DIMPFL

Calibration Date: 22-Mar-15 09:31:28

Software Version: WL INSITE R4.6.0 (Build 4)

Calibration Version: 1

| MEASURED CALIPER VALUES | | | | |
|-------------------------|------|-------|--------|----------------------------|
| Measurement | Shop | Field | Change | Control Limit On New Value |
| Pad Extension | 3.75 | 3.71 | -0.04 | +/- 0.10 |
| Ring Diameter | 8.25 | 8.17 | -0.08 | +/- 0.15 |

| PASS/FAIL SUMMARY | |
|----------------------|--------|
| Pad Extension Check: | Passed |
| Diameter Check: | Passed |

SPECTRAL DENSITY SHOP CALIBRATION

Tool Name: SDLT Pad - 10865876

Reference Calibration Date: 16-Feb-15 12:04:38

Engineer: B. RIDDEL

Calibration Date: 05-Mar-15 09:54:34

Software Version: WL INSITE R4.6.0 (Build 4)

Calibration Version: 1

Logging Source S/N: 5153 GW

Aluminum Block S/N: GJ ALUMINUM BLOCK

Magnesium Block S/N: GJ MAG BLOCK

Density: 2.608g/cc

Density: 1.681g/cc

Pe: 3.230

Pe: 2.600

DENSITY CALIBRATION SUMMARY

| Measurement | Previous Value | New Value | Control Limit |
|----------------------|----------------|-----------|---------------|
| Near Bar Gain | 1.0255 | 1.0249 | 0.90 - 1.10 |
| Near Dens Gain | 1.0142 | 1.0101 | 0.90 - 1.10 |
| Near Peak Gain | 1.0006 | 1.0022 | 0.90 - 1.10 |
| Near Lith Gain | 0.9771 | 0.9813 | 0.90 - 1.10 |
| Far Bar Gain | 1.0131 | 1.0118 | 0.90 - 1.10 |
| Far Dens Gain | 1.0010 | 1.0016 | 0.90 - 1.10 |
| Far Peak Gain | 0.9950 | 0.9932 | 0.90 - 1.10 |
| Far Lith Gain | 0.9729 | 0.9727 | 0.90 - 1.10 |
| | | | |
| Near Bar Offset | -0.0252 | -0.0232 | NONE |
| Near Dens Offset | 0.0817 | 0.1143 | NONE |
| Near Peak Offset | 0.1903 | 0.1710 | NONE |
| Near Lith Offset | 0.3704 | 0.3293 | NONE |
| Far Bar Offset | 0.0212 | 0.0272 | NONE |
| Far Dens Offset | 0.1081 | 0.0978 | NONE |
| Far Peak Offset | 0.1359 | 0.1479 | NONE |
| Far Lith Offset | 0.2750 | 0.2725 | NONE |
| | | | |
| Near Bar Background | 857.39 | 857.08 | 700 - 1450 |
| Near Dens Background | 285.49 | 286.70 | 230 - 480 |
| Near Peak Background | 128.01 | 127.29 | 100 - 210 |
| Near Lith Background | 155.13 | 154.92 | 125 - 260 |
| Far Bar Background | 529.31 | 526.12 | 450 - 900 |
| Far Dens Background | 206.13 | 204.04 | 175 - 345 |
| Far Peak Background | 80.69 | 80.77 | 70 - 140 |
| Far Lith Background | 86.11 | 85.27 | 75 - 145 |

CALIBRATION BLOCK SUMMARY

| Measurement | Current Reading (Previous Coef) | Calibrated (New Coef) | Change | Control Limit On Change |
|----------------|------------------------------------|--------------------------|--------|----------------------------|
| MAGNESIUM | | | | |
| Density (g/cc) | 1.681 | 1.681 | -0.000 | +/- 0.015 |
| Pe | 2.536 | 2.558 | 0.022 | +/- 0.150 |
| ALUMINUM | | | | |
| Density (g/cc) | 2.609 | 2.608 | -0.001 | +/- 0.01500 |
| Pe | 3.157 | 3.179 | 0.022 | +/- 0.150 |

TOOL SUMMARY

| Measurement | Near Detector | | Far Detector | |
|----------------------------|---------------|----------------|--------------|----------------|
| | Value | Control Limits | Value | Control Limits |
| QUALITY | | | | |
| Background | -0.0018 | +/- 0.0110 | 0.0000 | +/- 0.0140 |
| Magnesium Block | -0.0005 | +/- 0.0110 | -0.0021 | +/- 0.0140 |
| Aluminum Block | -0.0011 | +/- 0.0110 | 0.0013 | +/- 0.0140 |
| Resolution | 8.96 | 6.00 - 11.50 | 9.64 | 6.00 - 11.50 |
| Internal Verifier(B+D+P+L) | 1426 | 1200 - 2700 | 896 | 800 - 1700 |

PASS/FAIL SUMMARY

| | |
|------------------------------|--------|
| Background Quality Check: | Passed |
| Background Range Check: | Passed |
| Background Resolution Check: | Passed |

| | |
|--------------------------------|--------|
| Background Verification Check: | Passed |
| Magnesium Quality Check: | Passed |
| Aluminum Quality Check: | Passed |
| Gains Check: | Passed |
| Changes in Calibration Blocks: | Passed |

SPECTRAL DENSITY FIELD CHECK

| | | | |
|-------------------|----------------------------|-----------------------------|--------------------|
| Tool Name: | SDLT Pad - 10865876 | Reference Calibration Date: | 05-Mar-15 09:54:34 |
| Engineer: | P. DIMPFL | Calibration Date: | 22-Mar-15 09:28:59 |
| Software Version: | WL INSITE R4.6.0 (Build 4) | Calibration Version: | 1 |

Pad Temperature: 45.8 degF

| DENSITY FIELD CALIBRATION SUMMARY | | | | |
|-----------------------------------|----------|----------|--------|-------------------|
| Measurement | Shop | Field | Change | Control Limit +/- |
| Near (B+D+P+L) cps | 1425.983 | 1417.139 | -8.844 | 15.241 |
| Far (B+D+P+L) cps | 896.206 | 893.990 | -2.216 | 16.290 |
| Near Resolution | 8.96 | 9.19 | 0.230 | 0.50 |
| Far Resolution | 9.64 | 9.70 | 0.060 | 1.00 |

| PASS/FAIL SUMMARY | |
|-------------------------|--------|
| Bkg Quality Check: | Passed |
| Bkg Resolution Check: | Passed |
| Bkg Verification Check: | Passed |

MICRO LOG SHOP CALIBRATION

| | | | |
|-------------------|----------------------------|-----------------------------|--------------------|
| Tool Name: | Microlog Pad - 10951300 | Reference Calibration Date: | 17-Jan-15 11:47:55 |
| Engineer: | B. RIDDEL | Calibration Date: | 05-Mar-15 11:19:23 |
| Software Version: | WL INSITE R4.6.0 (Build 4) | Calibration Version: | 1 |
| Host Tool Name: | DSNT - 10993888 | | |

| CALIBRATION COEFFICIENT SUMMARY | | | | | |
|---------------------------------|--------------------------------|------------|---------------------------------|------------|-------|
| Measurement | Micro Log Normal | | Micro Log Lateral | | Units |
| | Measured | Calibrated | Measured | Calibrated | |
| Tool Zero | -0.04 | -0.04 | 0.01 | 0.01 | ohmm |
| Calibration Point #1 | 0.00 | 0.00 | -0.00 | 0.00 | ohmm |
| Calibration Point #2 | 19.70 | 20.00 | 19.72 | 20.00 | ohmm |
| Internal Reference | 19.91 | 20.21 | 19.97 | 20.25 | ohmm |
| Measurement | Micro Log Normal Tool Value | | Micro Log Lateral Tool Value | | Units |
| | | | | | |
| Tool Zero | | 6.11 | | 6.17 | V |
| Calibration Point #1 | | 17.37 | | 2.30 | V |
| Calibration Point #2 | | 5224.88 | | 6862.02 | V |
| Internal Reference | | 5280.52 | | 6946.90 | V |

ARRAY COMPENSATED TRUE RESISTIVITY SHOP CALIBRATION

| | | | |
|-------------------|----------------------------|-----------------------------|--------------------|
| Tool Name: | ACRt Sonde - 11585797 | Reference Calibration Date: | 27-Jan-15 15:50:02 |
| Engineer: | P. DIMPFL | Calibration Date: | 27-Jan-15 16:03:38 |
| Software Version: | WL INSITE R4.2.0 (Build 2) | Calibration Version: | 1 |
| Host Tool Name: | ACRt Instrument - 11585787 | | |

TYPICAL GAIN RANGE

| Subarray | R12KHz | R36KHz | R72KHz |
|----------|--------|--------|--------|
|----------|--------|--------|--------|

| | Lower | (mmho/m) | Upper | Lower | (mmho/m) | Upper | Lower | (mmho/m) | Upper |
|----------|-------|----------|-------|-------|----------|-------|-------|----------|-------|
| A1 (80") | 0.95 | 1.0234 | 1.05 | 0.95 | 1.0213 | 1.05 | 0.95 | 1.0201 | 1.05 |
| A2 (50") | 0.95 | 1.0120 | 1.05 | 0.95 | 1.0125 | 1.05 | 0.95 | 1.0133 | 1.05 |
| A3 (29") | 0.95 | 1.0058 | 1.05 | 0.95 | 1.0054 | 1.05 | 0.95 | 1.0047 | 1.05 |
| A4 (17") | 0.95 | 1.0036 | 1.05 | 0.95 | 1.0005 | 1.05 | 0.95 | 1.0023 | 1.05 |
| A5 (10") | N/A | N/A | N/A | 0.95 | 1.0075 | 1.05 | 0.95 | 1.0083 | 1.05 |
| A6 (6") | N/A | N/A | N/A | 0.95 | 0.9861 | 1.05 | 0.95 | 0.9861 | 1.05 |

| SONDE OFFSET | | | | | | | | | |
|--------------|----------|--|--|----------|--|--|----------|--|--|
| Subarray | R12KHz | | | R36KHz | | | R72KHz | | |
| | (mmho/m) | | | (mmho/m) | | | (mmho/m) | | |
| A1 (80") | -1.400 | | | -4.436 | | | -5.489 | | |
| A2 (50") | -1.992 | | | -3.255 | | | -4.694 | | |
| A3 (29") | -15.645 | | | -4.528 | | | -3.257 | | |
| A4 (17") | -119.763 | | | -35.638 | | | -27.444 | | |
| A5 (10") | N/A | | | -97.013 | | | -50.120 | | |
| A6 (6") | N/A | | | 312.823 | | | 158.068 | | |

| TRANSMITTER CURRENT GAIN | | | | | R-MUD VERIFICATION | | | |
|--------------------------|-------|------|-------|--|--------------------|---------------|------------------|---------------|
| Signal | Lower | R | Upper | | Signal | Lower (ohm-m) | Measured (ohm-m) | Upper (ohm-m) |
| 12K | 0.6 | 0.85 | 1.3 | | Mud Cell | 0.95 | 1.00 | 1.05 |
| 36K | 1.0 | 1.83 | 2.0 | | | | | |
| 72K | 1.0 | 1.10 | 2.0 | | | | | |

| PASS/FAIL SUMMARY | |
|-------------------|------|
| GAIN RANGE CHK | PASS |
| SONDE OFFSET CHK | PASS |

TOOL OK TO LOG

| CALIBRATION SUMMARY | | | | | | |
|-----------------------|----------|----------|-------|------------|------------|-------|
| Sensor | Shop | Field | Post | Difference | Tolerance | Units |
| GTET-11958949 | | | | | | |
| Gamma Ray Calibrator | 243.2 | 245.7 | ----- | -2.5 | +/- 9.00 | api |
| DSNT-10993888 | | | | | | |
| Snow-Block Porosity | 0.0691 | 0.0709 | ----- | -0.0018 | +/- 0.0150 | decp |
| SDLT-10951300 | | | | | | |
| Pad Extension | 3.75 | 3.71 | ----- | 0.04 | +/-0.10 | in |
| Ring Diameter | 8.25 | 8.17 | ----- | 0.08 | +/-0.15 | in |
| SDLT Pad-10865876 | | | | | | |
| Near(B+D+P+L) | 1425.983 | 1417.139 | ----- | 8.844 | +/-15.241 | cps |
| Far(B+D+P+L) | 896.206 | 893.990 | ----- | 2.216 | +/-16.290 | cps |
| Microlog Pad-10951300 | | | | | | |
| MicroLog Normal | 20.21 | ----- | ----- | 0.00 | ----- | ohmm |
| MicroLog Lateral | 20.25 | ----- | ----- | 0.00 | ----- | ohmm |
| ACRt Sonde-11585797 | | | | | | |
| Mud Cell | 1.00 | ----- | ----- | 0.00 | ----- | ohm-m |

Data: TRESHOMBRES1 22\0001 QUAD\004 22-Mar-15 11:10 Up @4502.5f

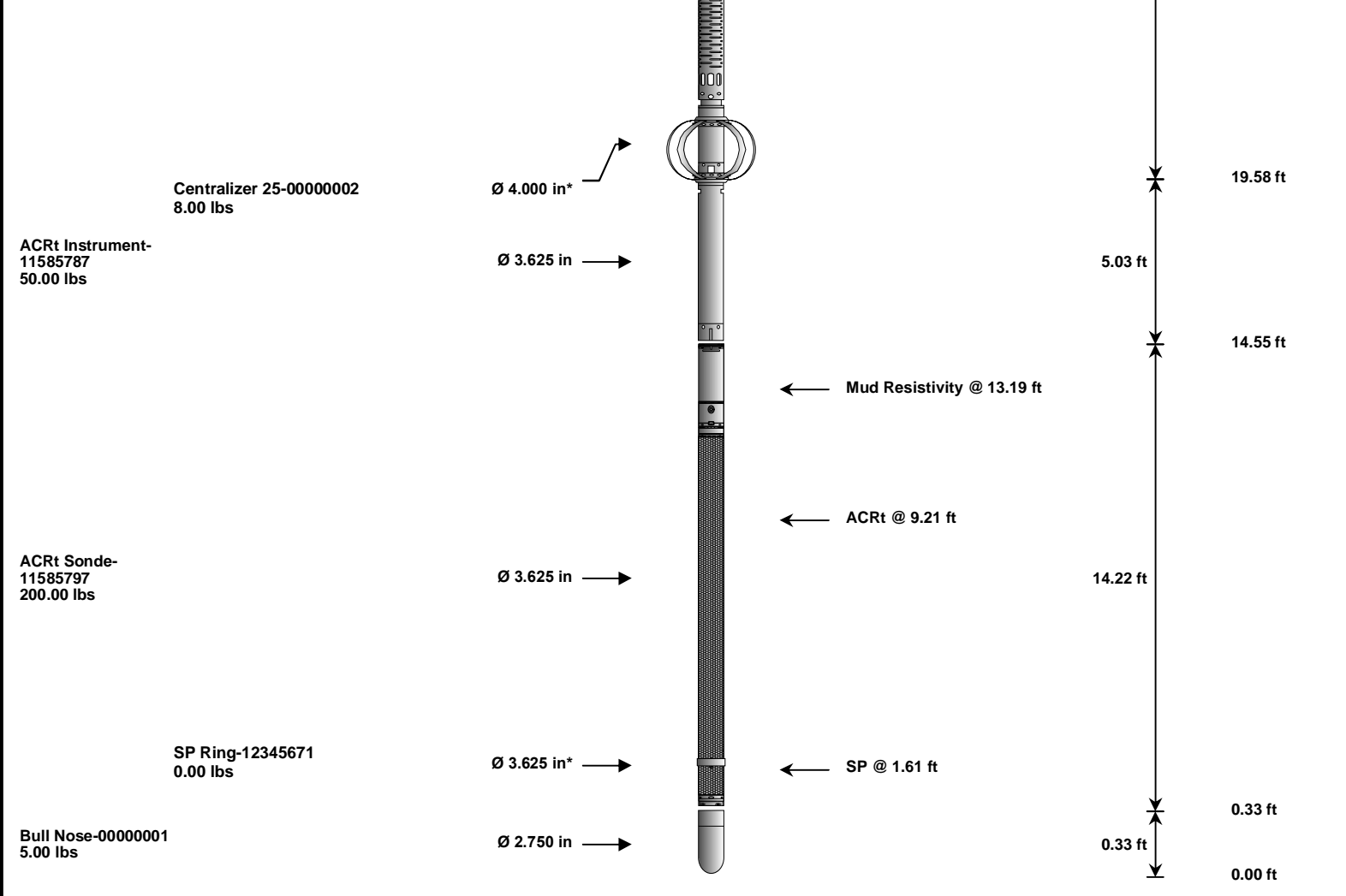
Date: 22-Mar-15 11:51:33

HALLIBURTON

TOOL STRING DIAGRAM REPORT

TOOL STRING DIAGRAM REPORT

| Description | Overbody Description | O.D. | Diagram | Sensors @ Delays | Length | Accumulated Length |
|---|---|--|---------|---|----------|--------------------|
| | | | | | | 76.60 ft |
| RWCH-A032 135.00 lbs | | Ø 3.625 in → | | ← Load Cell @ 72.91 ft ← BH Temperature @ 72.35 ft | 6.25 ft | |
| | | | | | | 70.35 ft |
| GTET-11958949 165.00 lbs | | Ø 3.625 in → | | ← GammaRay @ 64.29 ft | 8.52 ft | |
| | | | | | | 61.83 ft |
| DSNT-10993888 174.00 lbs | DSN Decentralizer-12026050 6.60 lbs | Ø 5.000 in* → Ø 3.625 in → | | ← DSN Far @ 54.89 ft ← DSN Near @ 54.14 ft | 9.69 ft | |
| | | | | | | 52.14 ft |
| SDLT-10951300 360.00 lbs | SDLT Pad-10865876 65.00 lbs Microlog Pad-10951300 8.00 lbs | Ø 4.500 in → Ø 4.750 in* → Ø 4.750 in* → | | ← Microlog @ 44.33 ft ← SDL Caliper @ 44.14 ft ← SDL @ 44.13 ft | 10.81 ft | |
| | | | | | | 41.33 ft |
| Flex Joint - Pressure Comp-11208102 140.00 lbs | | Ø 3.625 in → | | | 5.97 ft | |
| | | | | | | 35.36 ft |
| | Centralizer 25-00000001 8.00 lbs | Ø 4.000 in* → | | | | |
| BSAT-10939054 300.00 lbs | | Ø 3.625 in → | | ← Sonic Receivers @ 26.84 ft | 15.77 ft | |



| Mnemonic | Tool Name | Serial Number | Weight (lbs) | Length (ft) | Accumulated Length (ft) | Max.Log. Speed (fpm) | |
|---|---|---------------|--------------|-------------|--------------------------|----------------------|--------|
| RWCH | Releasable Wireline Cable Head | A032 | 135.00 | 6.25 | 70.35 | 300.00 | |
| GTET | Gamma Telemetry Tool | 11958949 | 165.00 | 8.52 | 61.83 | 60.00 | |
| DSNT | Dual Spaced Neutron | 10993888 | 174.00 | 9.69 | 52.14 | 60.00 | |
| DCNT | DSN Decentralizer | 12026050 | 6.60 | 5.13 | * | 55.47 | 300.00 |
| SDLT | Spectral Density Tool | 10951300 | 360.00 | 10.81 | 41.33 | 60.00 | |
| SDLP | Density Insite Pad | 10865876 | 65.00 | 2.55 | * | 43.54 | 60.00 |
| MICP | Microlog Pad | 10951300 | 8.00 | 1.00 | * | 43.83 | 60.00 |
| FLEX | Flex Joint - Pressure Compensated | 11208102 | 140.00 | 5.97 | 35.36 | 300.00 | |
| BSAT | Borehole Sonic Array Tool | 10939054 | 300.00 | 15.77 | 19.58 | 60.00 | |
| OBCEN | Centralizer - 25 in. Overbody | 00000001 | 8.00 | 2.08 | * | 32.62 | 300.00 |
| ACRt | Array Compensated True Resistivity Instrument Section | 11585787 | 50.00 | 5.03 | 14.55 | 120.00 | |
| OBCEN | Centralizer - 25 in. Overbody | 00000002 | 8.00 | 2.08 | * | 19.36 | 300.00 |
| ACRt | Array Compensated True Resistivity Sonde Section | 11585797 | 200.00 | 14.22 | 0.33 | 120.00 | |
| SP | SP Ring | 12345671 | 0.00 | 0.25 | * | 1.61 | 300.00 |
| BLNS | Bull Nose | 00000001 | 5.00 | 0.33 | 0.00 | 300.00 | |
| Total | | | 1,624.60 | 76.60 | | | |
| * Not included in Total Length and Length Accumulation. | | | | | | | |
| Data: TRESHOMBRES1_22\0001 QUAD\004 22-Mar-15 11:10 Up @4502.5f | | | | | Date: 22-Mar-15 11:49:52 | | |

| | | | |
|---------|-------------------------|-------|----|
| COMPANY | BAYHORSE PETROLEUM, LLC | | |
| WELL | TRES HOMBRES 1-22 | | |
| FIELD | LEFT HAND | | |
| COUNTY | KIOWA | STATE | CO |

HALLIBURTON

**BOREHOLE COMPENSATED
SONIC ARRAY TOOL**