

HALLIBURTON

ARRAY COMPENSATED  
TRUE RESISTIVITY  
LOG

|                          |            |                     |  |                      |  |                      |  |
|--------------------------|------------|---------------------|--|----------------------|--|----------------------|--|
| COMPANY                  |            |                     |  | MERIT ENERGY COMPANY |  |                      |  |
| WELL                     |            |                     |  | MCWILLIAMS E-7       |  |                      |  |
| FIELD/BLOCK              |            |                     |  | COWGILL              |  |                      |  |
| COUNTY                   |            |                     |  | FINNEY               |  |                      |  |
| STATE                    |            |                     |  | KANSAS               |  |                      |  |
| Permanent Datum          |            | GL                  |  | COMPANY              |  | MERIT ENERGY COMPANY |  |
| Log measured from        |            | KB                  |  | WELL                 |  | MCWILLIAMS E-7       |  |
| Drilling measured from   |            | KB                  |  | FIELD/BLOCK          |  | COWGILL              |  |
| Date                     |            | 08-Apr-18           |  | COUNTY               |  | FINNEY               |  |
| Run No.                  |            | ONE                 |  | STATE                |  | KANSAS               |  |
| Depth - Driller          |            | 5269.0 ft           |  | Sect. 21             |  | Twp. 24S             |  |
| Depth - Logger           |            | 5268.0 ft           |  | Rge. 33W             |  |                      |  |
| Bottom - Logged Interval |            | 5259.00 ft          |  |                      |  |                      |  |
| Top - Logged Interval    |            | 1706.00 ft          |  |                      |  |                      |  |
| Casing - Driller         |            | 8.625 in            |  | @ 1704.0 ft          |  | @                    |  |
| Casing - Logger          |            | 1706.0 ft           |  |                      |  |                      |  |
| Bit Size                 |            | 7.875 in            |  |                      |  | @                    |  |
| Type Fluid in Hole       |            | Water Based Mud     |  |                      |  |                      |  |
| Density                  | Viscosity  | 9.3 ppq             |  | 62.00 s/qt           |  |                      |  |
|                          | Fluid Loss | 11.00 pH            |  | 5.6 cpm              |  |                      |  |
| Source of Sample         |            | MUD PIT             |  |                      |  |                      |  |
| Rm @ Meas. Temperature   |            | 1.11 ohmm           |  | @ 75.00 degF         |  | @                    |  |
| Rmf @ Meas. Temperature  |            | 0.94 ohmm           |  | @ 75.00 degF         |  | @                    |  |
| Rmc @ Meas. Temperature  |            | 1.25 ohmm           |  | @ 75.00 degF         |  | @                    |  |
| Source Rmf               |            | MEAS                |  | MEAS                 |  |                      |  |
| Rm @ BHT                 |            | 0.65 ohmm           |  | @ 132.0 degF         |  | @                    |  |
| Time Since Circulation   |            | 5.00 hr             |  |                      |  |                      |  |
| Time on Bottom           |            | 08-Apr-18 16:00     |  |                      |  |                      |  |
| Max. Rec. Temperature    |            | 132.00 degF         |  | @ 5268.0 ft          |  | @                    |  |
| Equipment                |            | 12147634            |  | EL RENO              |  |                      |  |
| Recorded By              |            | JORGE ORLANDO PEREZ |  |                      |  |                      |  |
| Witnessed By             |            | MARTIN LANGE        |  | AUSTIN GARNIER       |  |                      |  |

API No. 15055224840100  
Location (SHL) 2'145' FSL & 205' FEL  
SE NE NE SE

Other Services:  
DSNT/SDLT  
MICROLOG  
BSAT  
ACRT

Fold here

|                                         |            |          |        |              |     |                            |                 |                           |         |           |                 |                                         |     |          |  |  |  |
|-----------------------------------------|------------|----------|--------|--------------|-----|----------------------------|-----------------|---------------------------|---------|-----------|-----------------|-----------------------------------------|-----|----------|--|--|--|
| Service Ticket No.: 904762847           |            |          |        |              |     | API No.: 15055224840100    |                 |                           |         |           |                 | PGM Version: WL INSITE R5.0.5 (Build 8) |     |          |  |  |  |
| CHANGE IN MUD TYPE OR ADDITIONAL SAMPLE |            |          |        |              |     |                            |                 | RESISTIVITY SCALE CHANGES |         |           |                 |                                         |     |          |  |  |  |
| Date                                    | Sample No. |          |        |              |     | Type Log                   | Depth           | Scale Up Hole             |         |           | Scale Down Hole |                                         |     |          |  |  |  |
| Depth-Driller                           |            |          |        |              |     |                            |                 |                           |         |           |                 |                                         |     |          |  |  |  |
| Type Fluid in Hole                      |            |          |        |              |     |                            |                 |                           |         |           |                 |                                         |     |          |  |  |  |
| Density                                 | Viscosity  |          |        |              |     |                            |                 |                           |         |           |                 |                                         |     |          |  |  |  |
| Ph                                      | Fluid Loss |          |        |              |     |                            |                 |                           |         |           |                 |                                         |     |          |  |  |  |
| Source of Sample                        |            |          |        |              |     | RESISTIVITY EQUIPMENT DATA |                 |                           |         |           |                 |                                         |     |          |  |  |  |
| Rm @ Meas. Temp                         |            | @        |        |              | @   | Run No.                    | Tool Type & No. | Pad Type                  |         | Tool Pos. |                 | Other                                   |     |          |  |  |  |
| Rmf @ Meas. Temp.                       |            | @        |        |              | @   | ONE                        | ACRT            | N/A                       |         | 1.5 S.O.  |                 | N/A                                     |     |          |  |  |  |
| Rmc @ Meas. Temp.                       |            | @        |        |              | @   |                            | I-11026095      |                           |         |           |                 |                                         |     |          |  |  |  |
| Source Rmf                              | Rmc        |          |        |              |     |                            | S-11005908      |                           |         |           |                 |                                         |     |          |  |  |  |
| Rm @ BHT                                |            | @        |        |              | @   |                            |                 |                           |         |           |                 |                                         |     |          |  |  |  |
| Rmf @ BHT                               |            | @        |        |              | @   |                            |                 |                           |         |           |                 |                                         |     |          |  |  |  |
| Rmc @ BHT                               |            | @        |        |              | @   |                            |                 |                           |         |           |                 |                                         |     |          |  |  |  |
| EQUIPMENT DATA                          |            |          |        |              |     |                            |                 |                           |         |           |                 |                                         |     |          |  |  |  |
| GAMMA                                   |            |          |        | ACOUSTIC     |     |                            |                 | DENSITY                   |         |           |                 | NEUTRON                                 |     |          |  |  |  |
| Run No.                                 |            | ONE      |        | Run No.      |     | ONE                        |                 | Run No.                   |         | ONE       |                 | Run No.                                 |     | ONE      |  |  |  |
| Serial No.                              |            | 11958947 |        | Serial No.   |     | 10747683                   |                 | Serial No.                |         | 10951315  |                 | Serial No.                              |     | 11055304 |  |  |  |
| Model No.                               |            | GTET     |        | Model No.    |     | BSAT                       |                 | Model No.                 |         | SDLT      |                 | Model No.                               |     | DSNT     |  |  |  |
| Diameter                                |            | 3.625"   |        | No. of Cent. |     | 2                          |                 | Diameter                  |         | 5.5"      |                 | Diameter                                |     | 3.625"   |  |  |  |
| Detector Model No.                      |            | T-102    |        | Spacing      |     | EVEN                       |                 | Log Type                  |         | GAM-GAM   |                 | Log Type                                |     | NEU-NEU  |  |  |  |
| Type                                    |            | SCINT    |        |              |     |                            |                 | Source Type               |         | CS137     |                 | Source Type                             |     | AM241BE  |  |  |  |
| Length                                  |            | 8"       |        | LSA [Y/N]    |     |                            |                 | Serial No.                |         | 5168GW    |                 | Serial No.                              |     | DSN-424  |  |  |  |
| Distance to Source                      |            | N/A      |        | FWDA [Y/N ]  |     |                            |                 | Strength                  |         | 1.5 Ci    |                 | Strength                                |     | 15.0 Ci  |  |  |  |
| 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                                     | TD         | CSG      | REC    | 0            | 150 | 30                         | -10             | 47.6 uSec/ft              | 30      | -10       | 2.71 gr/cc      | 30                                      | -10 | LIME     |  |  |  |

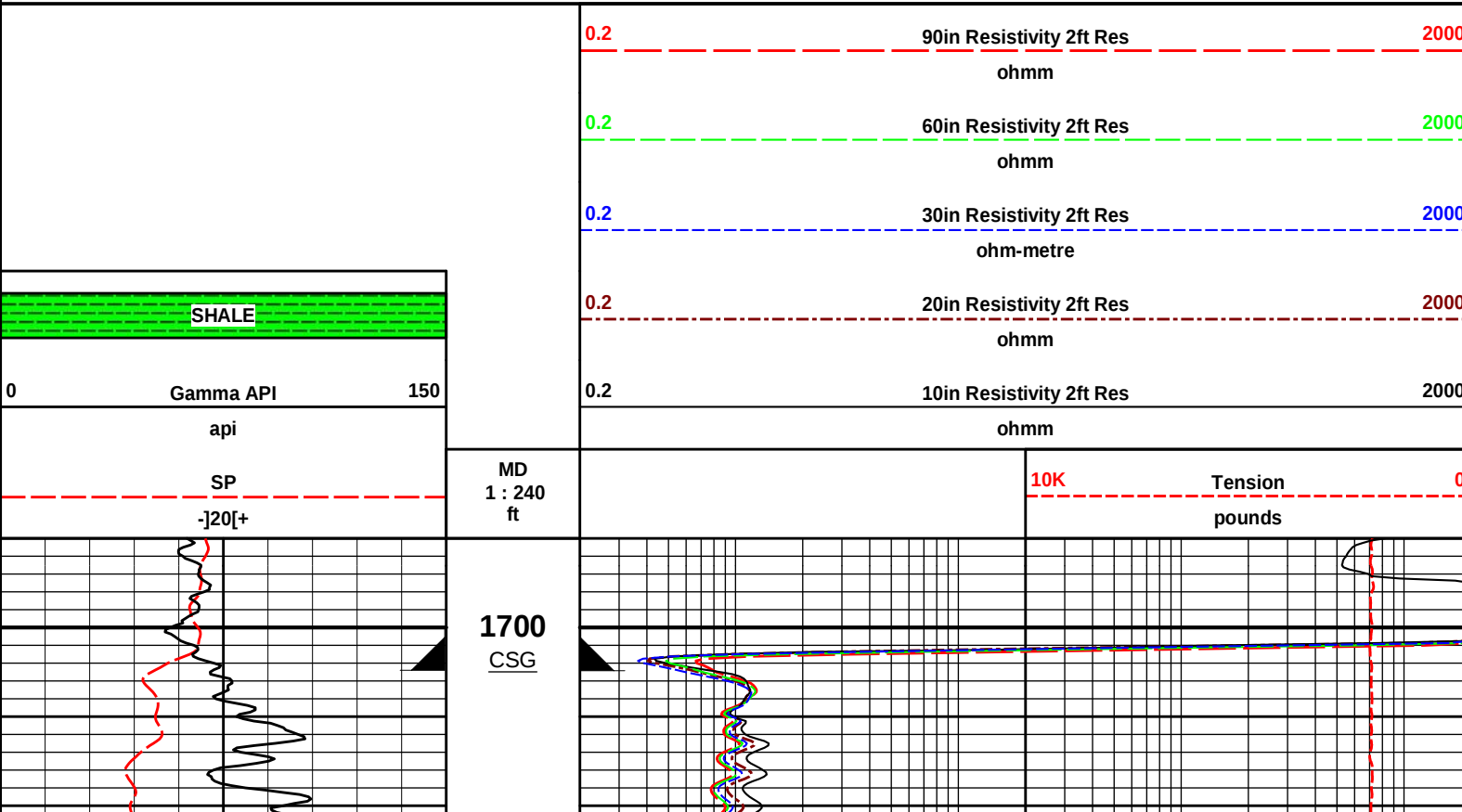
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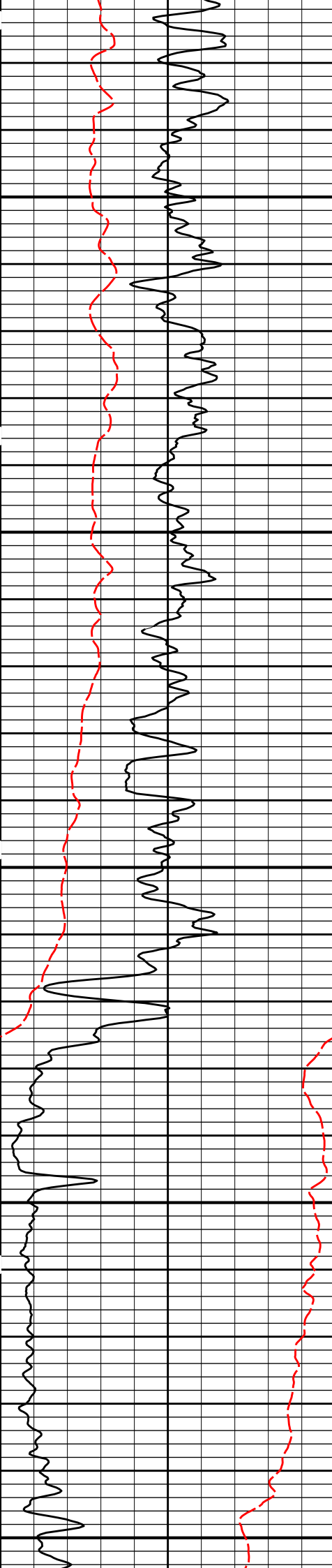
# HALLIBURTON

Plot Time: 08-Apr-18 17:18:19  
Plot Range: 1690 ft to 5273.33 ft  
Data: MCWILLIAMS\_E7\Well Based\MAIN\  
Plot File: \\LOCAL-1\MCWILLIAMS\_E7\Well Based\ACRT5\ACRT\_5\_main.lib

# 5 INCH MAIN LOG

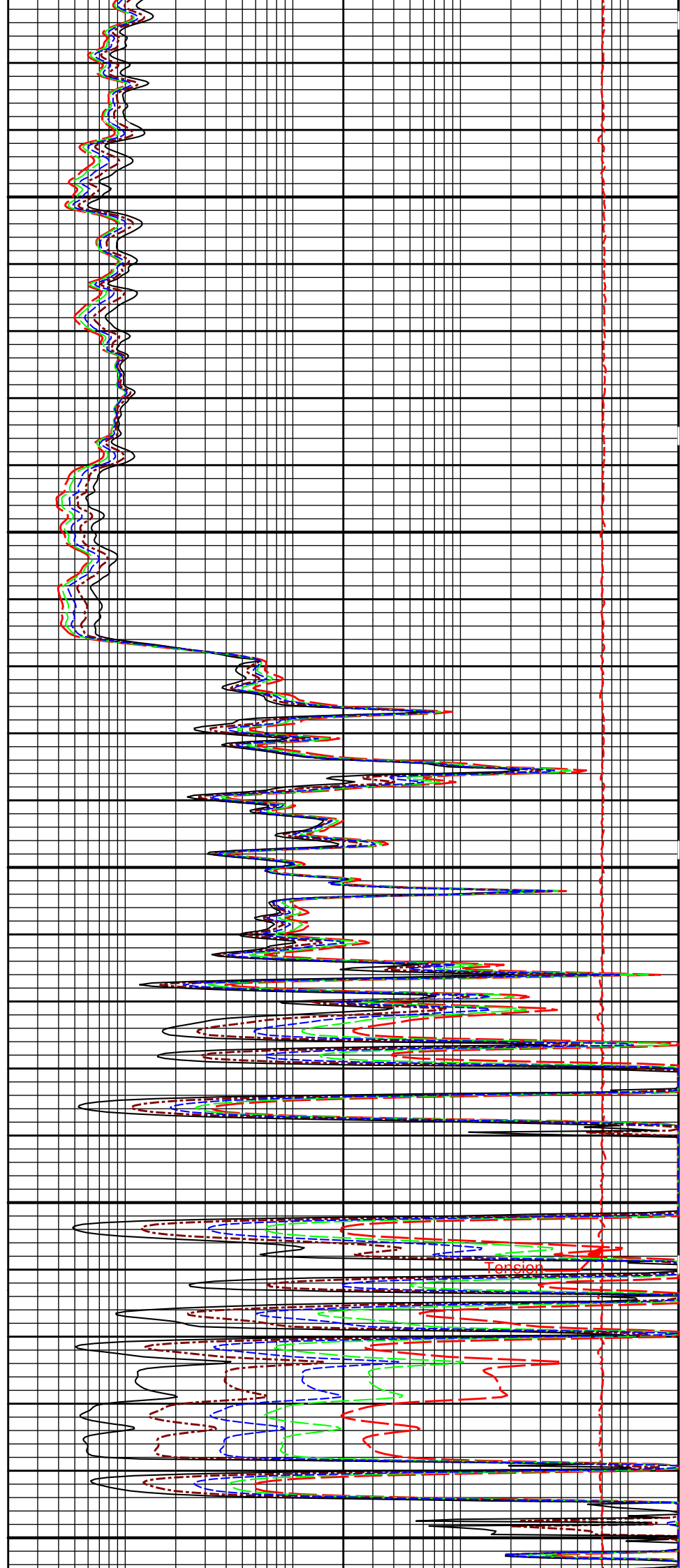
MEASURED DEPTH  
MAIN SECTION 5" PER 100'

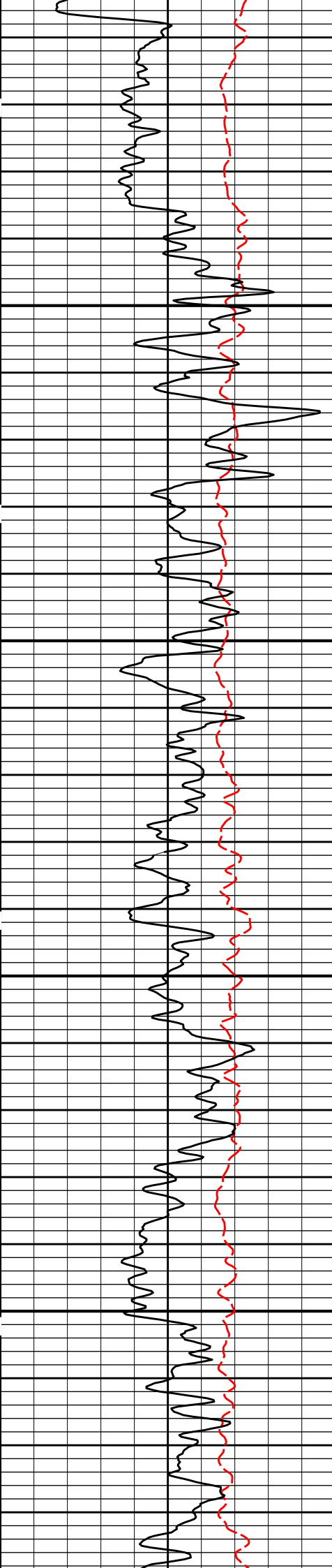




1800

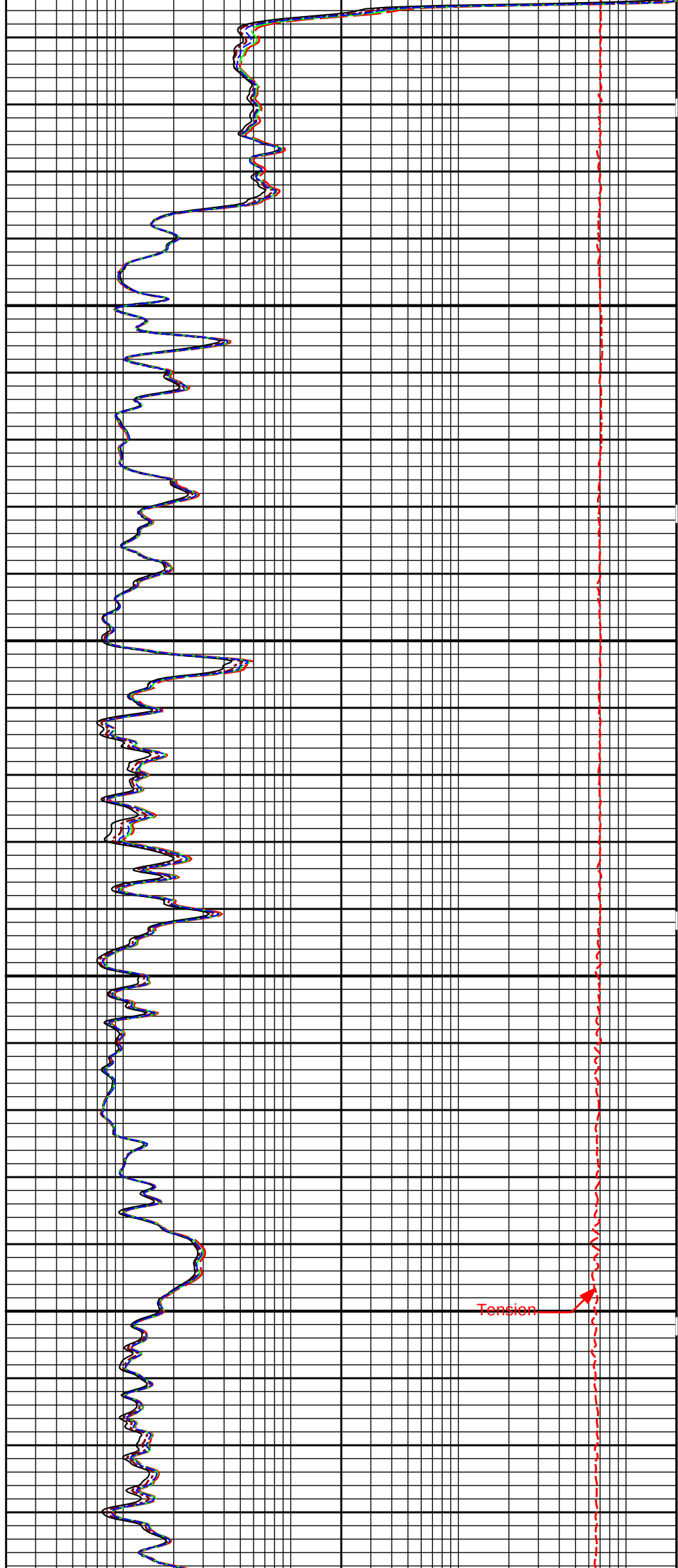
1900



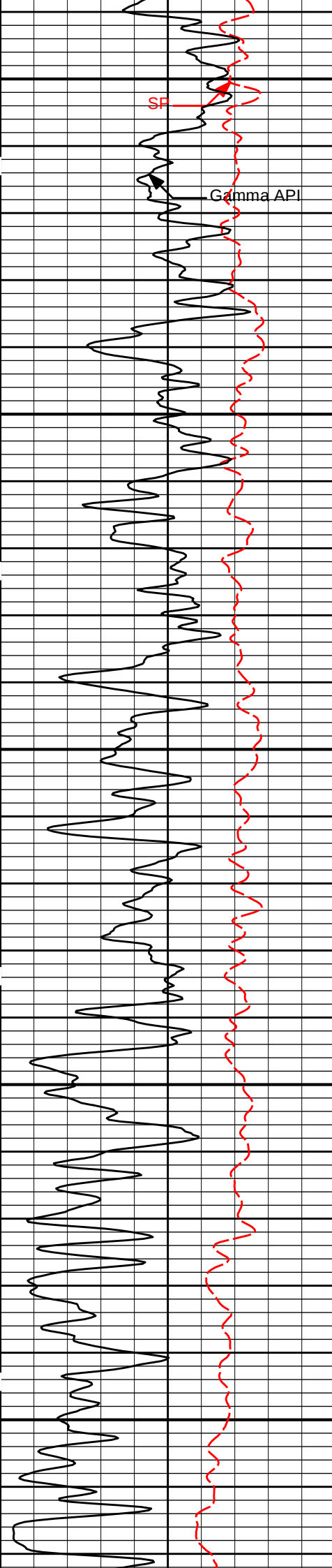


2000

2100



Tension



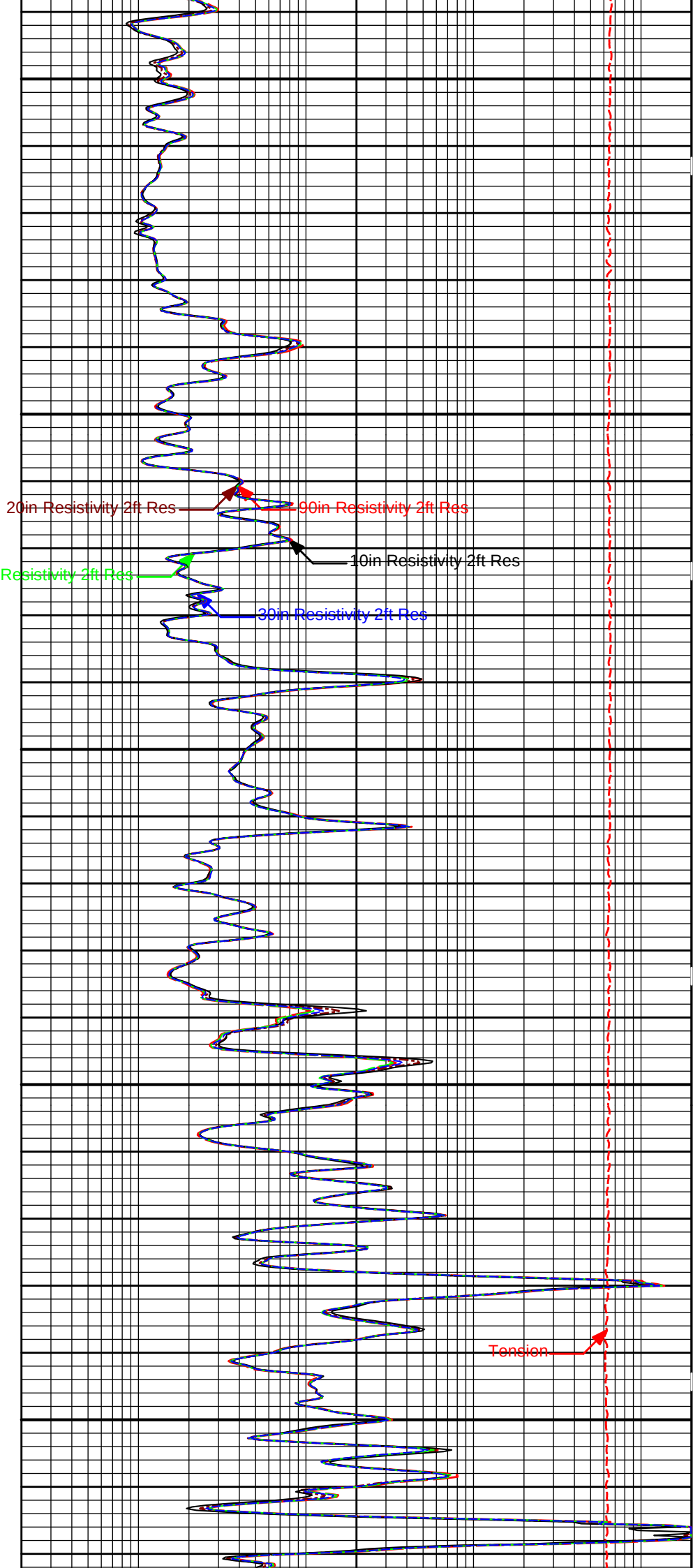
2200

SF

Gamma API

2300

2400



20in Resistivity 2ft Res

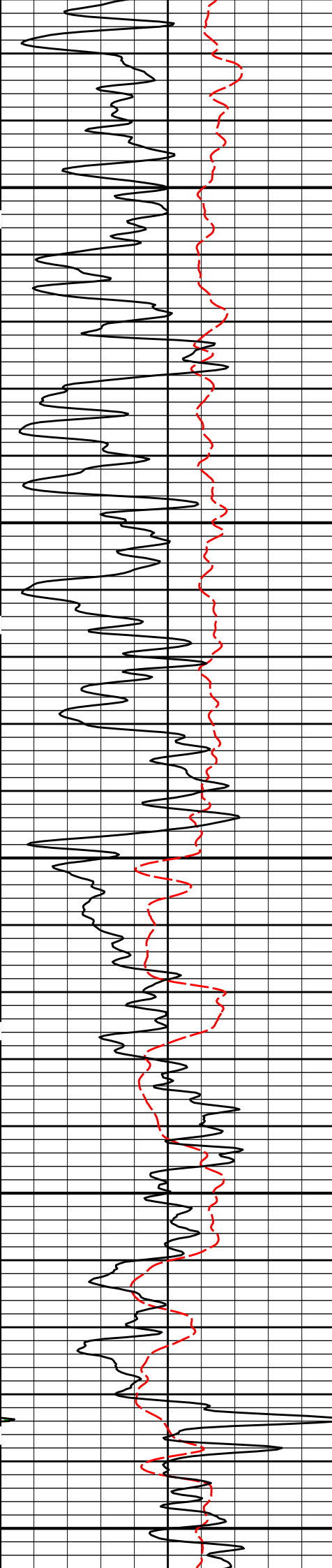
90in Resistivity 2ft Res

60in Resistivity 2ft Res

10in Resistivity 2ft Res

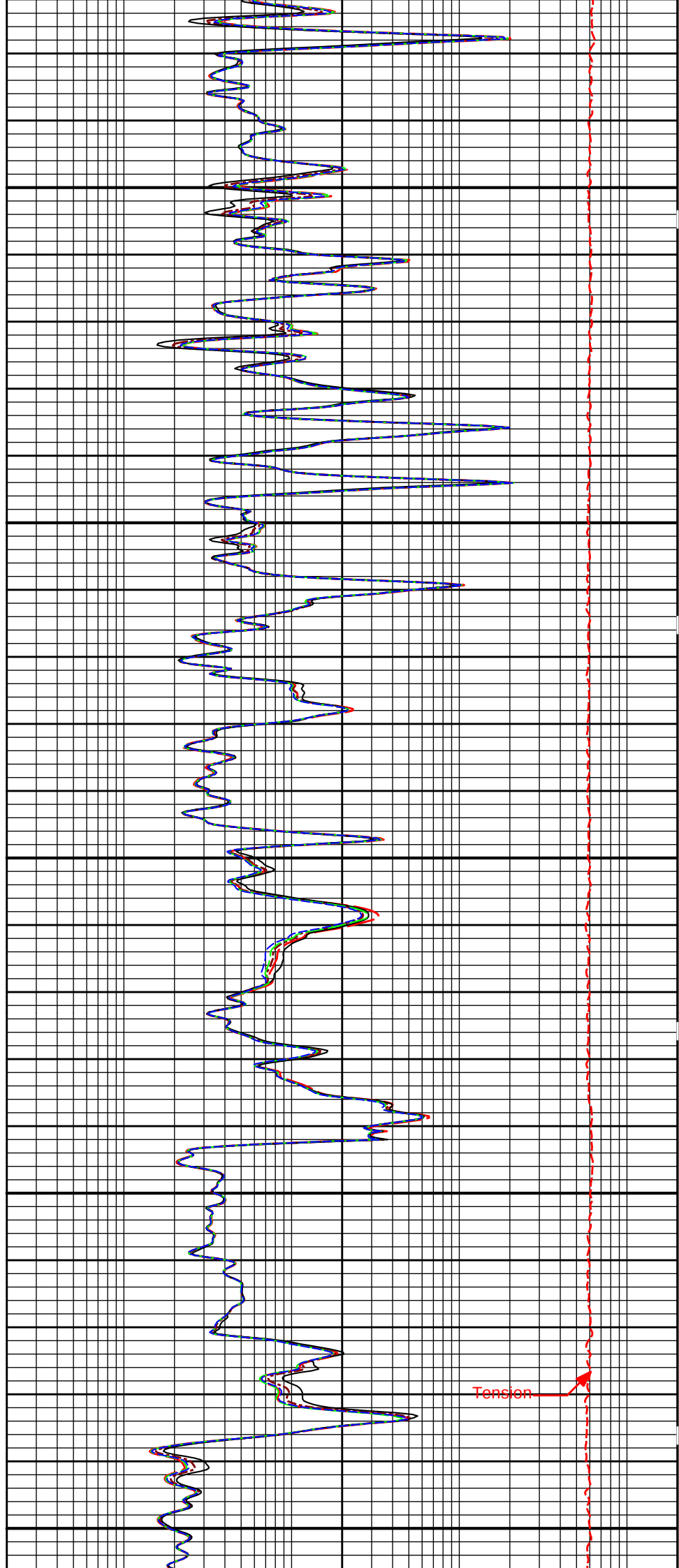
30in Resistivity 2ft Res

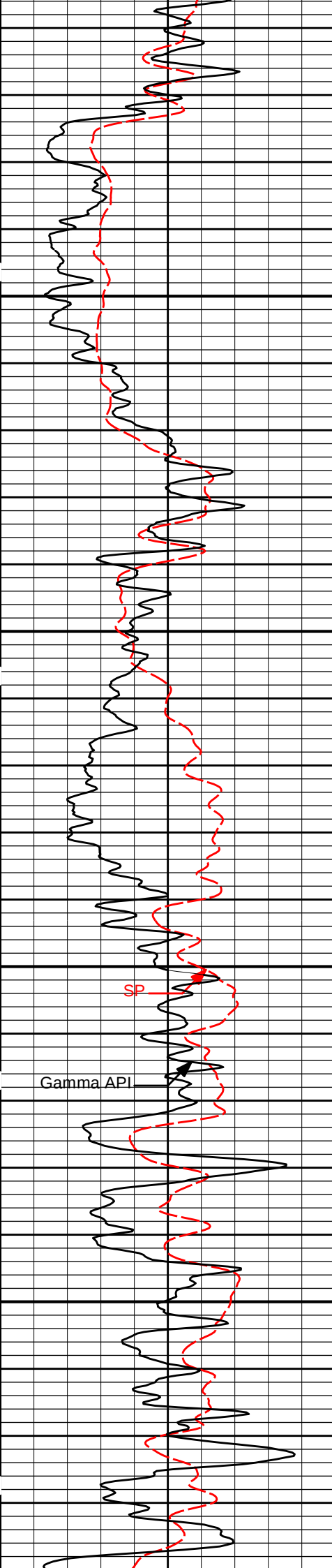
Tension



2500

2600





2700

2800

Gamma API

SP

20in Resistivity 2ft Res

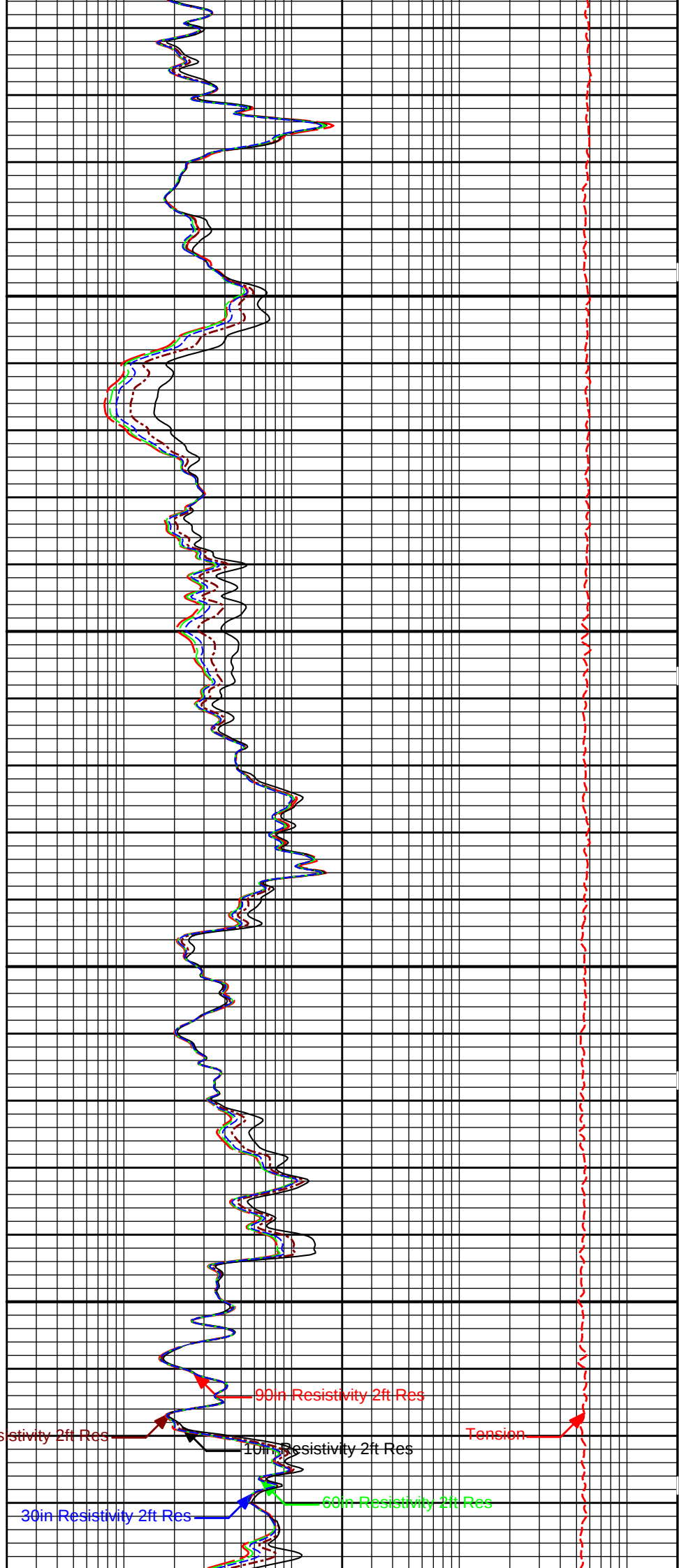
30in Resistivity 2ft Res

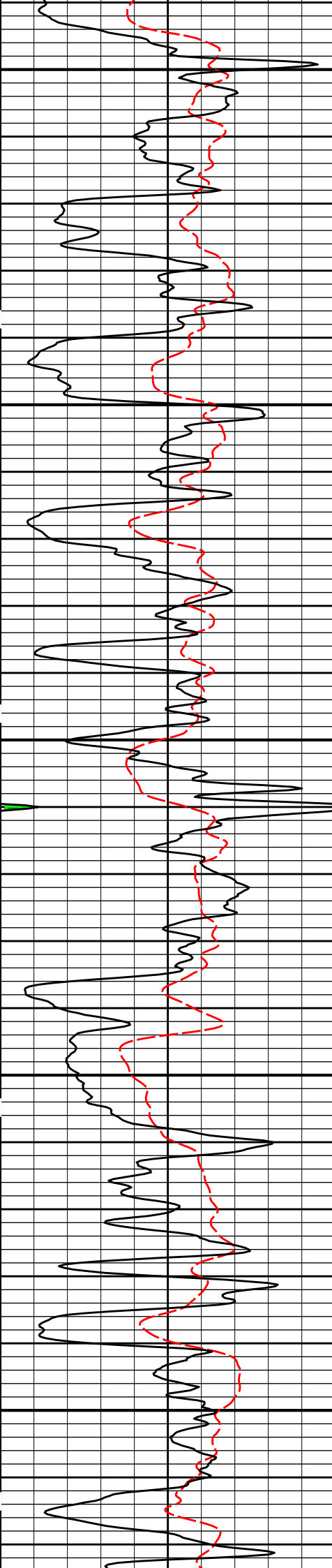
10in Resistivity 2ft Res

60in Resistivity 2ft Res

90in Resistivity 2ft Res

Tension

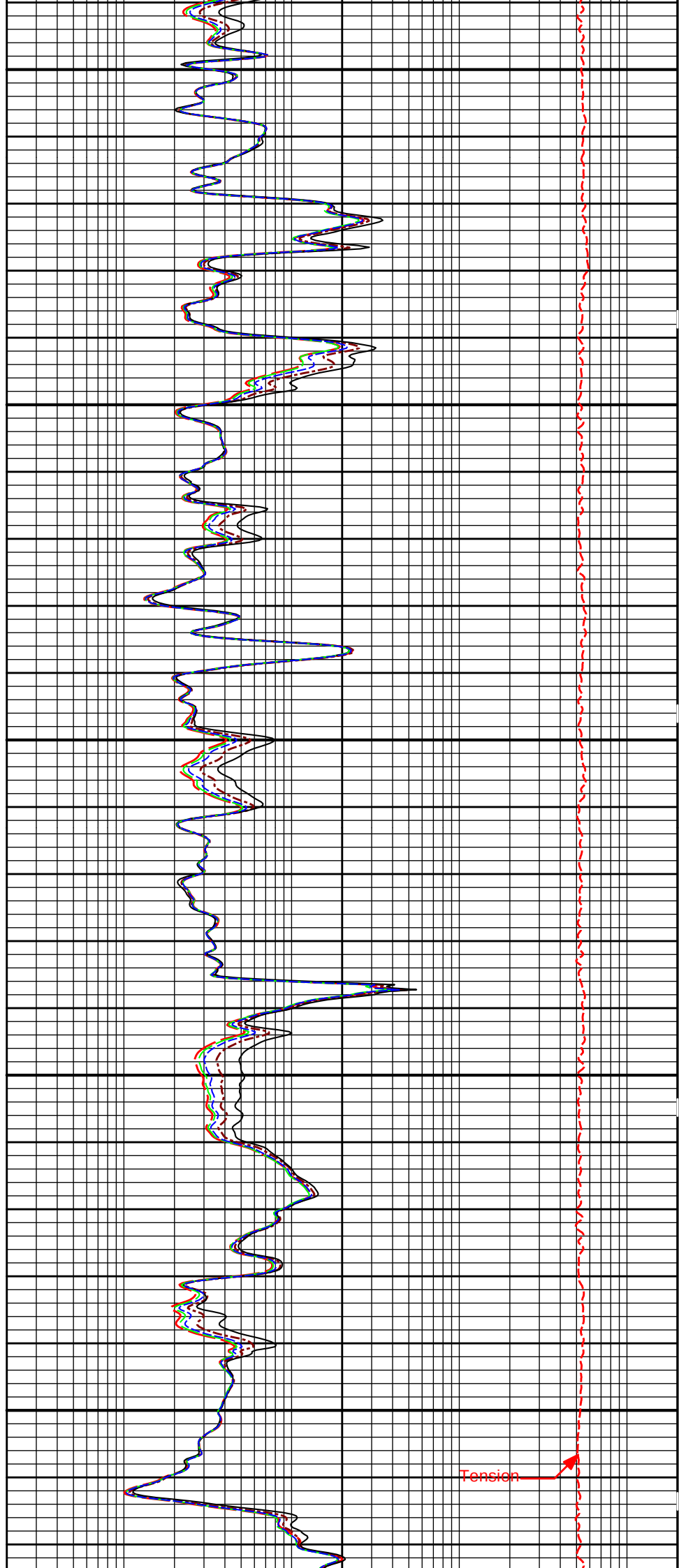




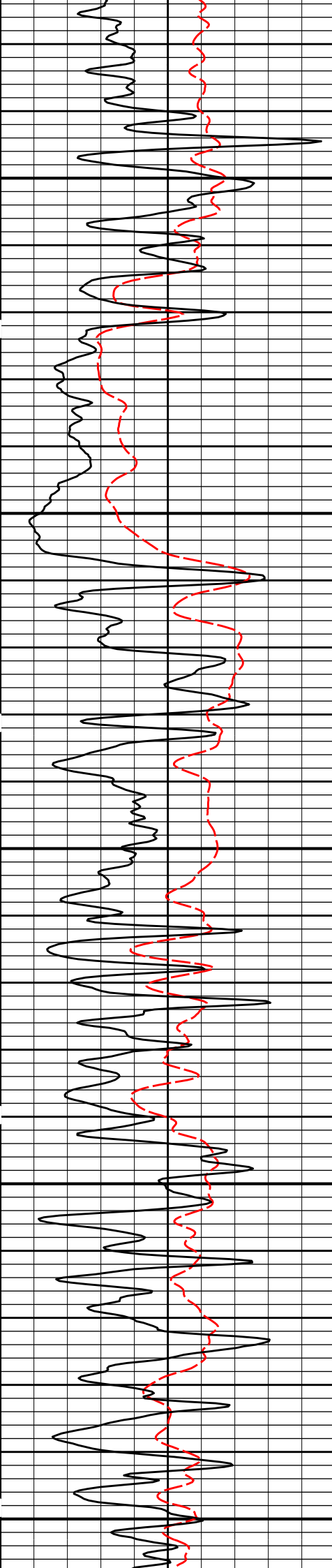
2900

3000

3100

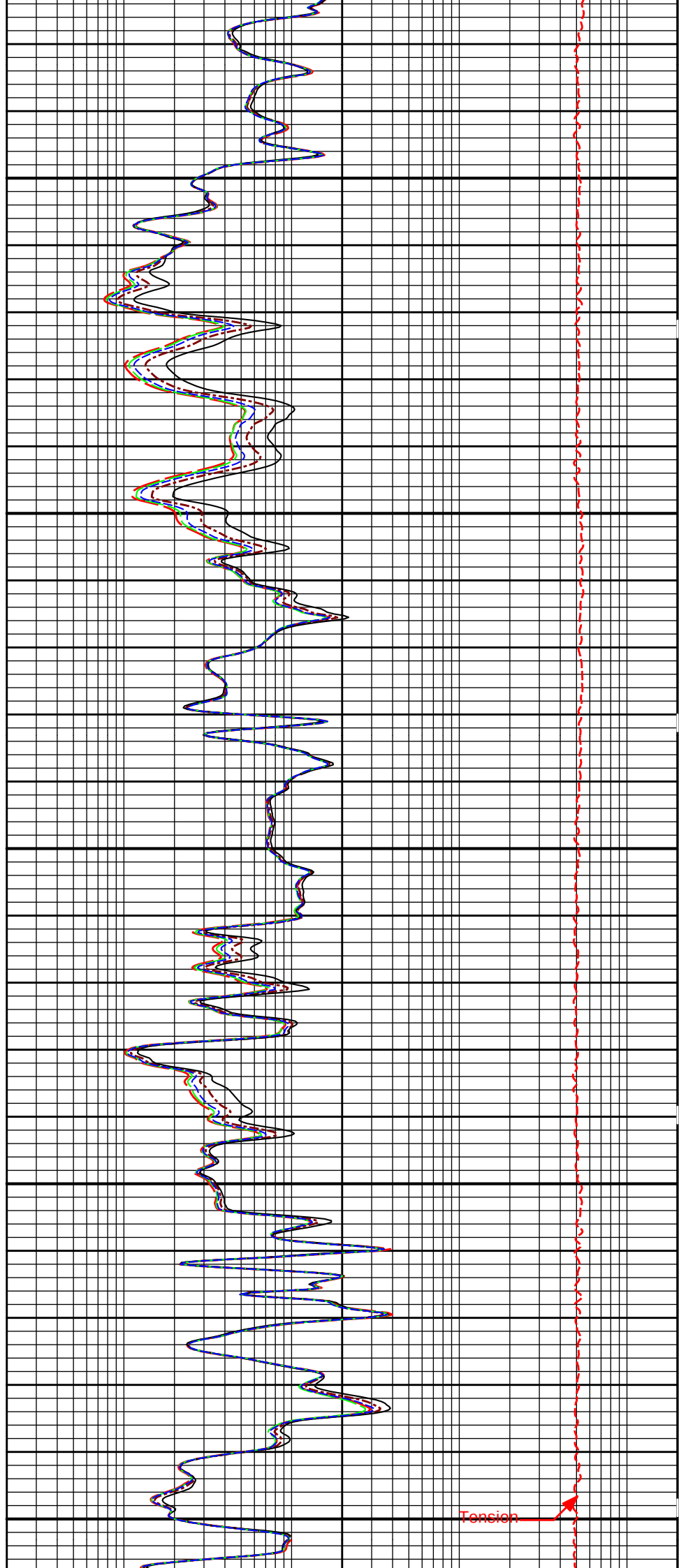


Tension

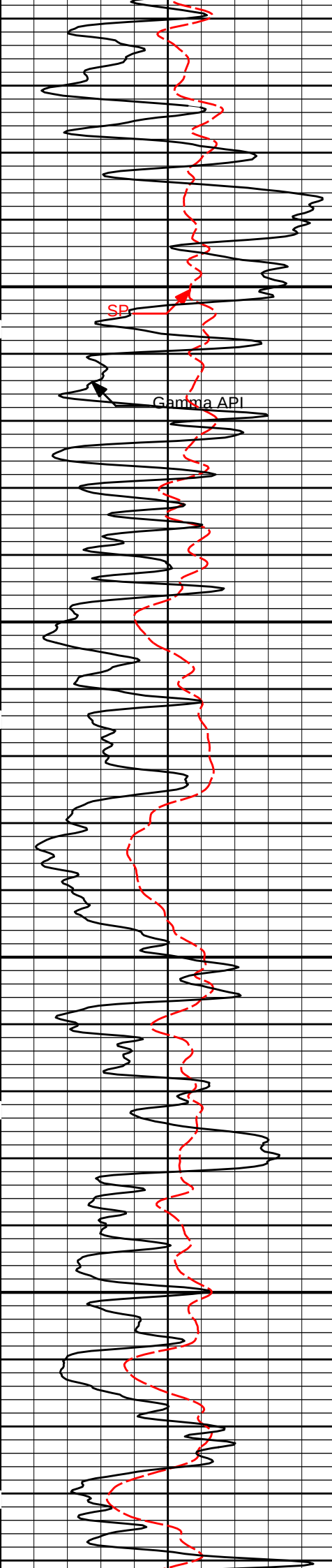


3200

3300

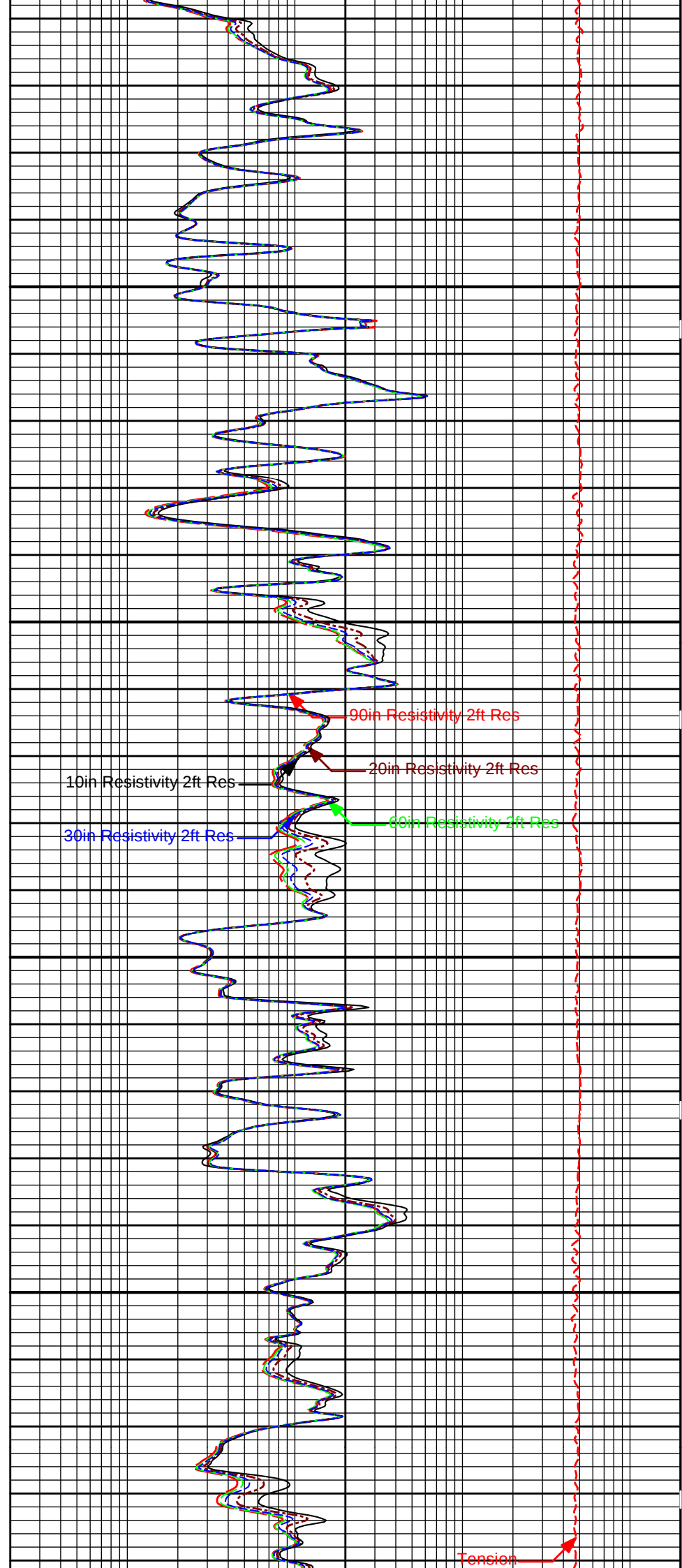


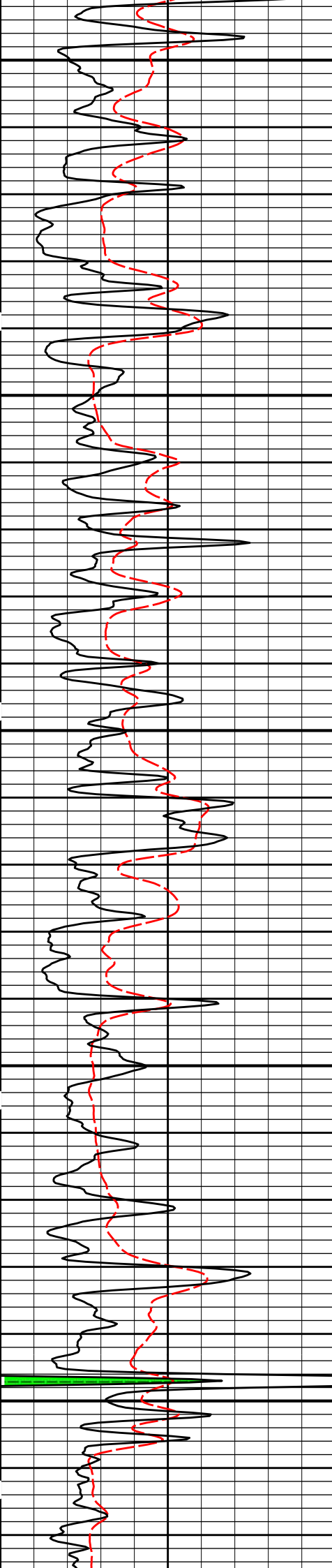
Tension



3400

3500

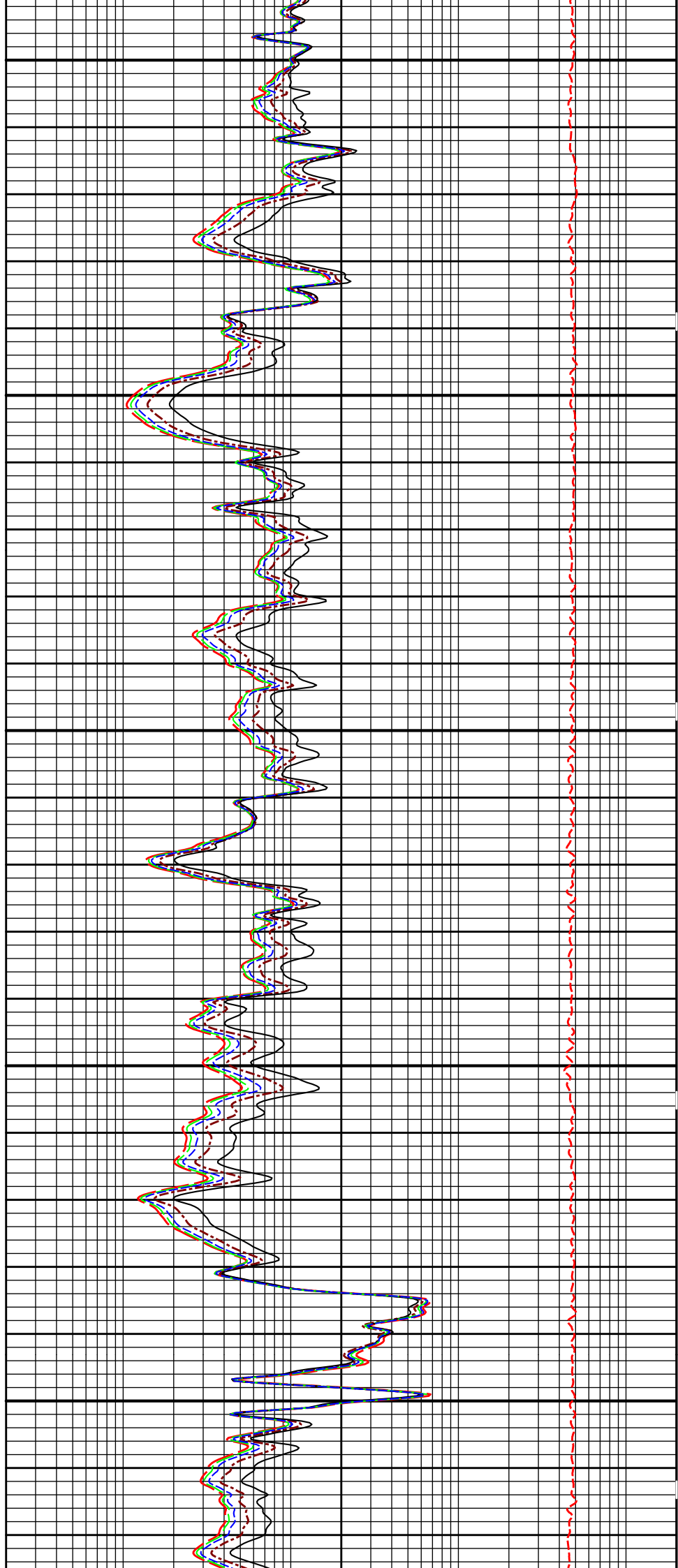


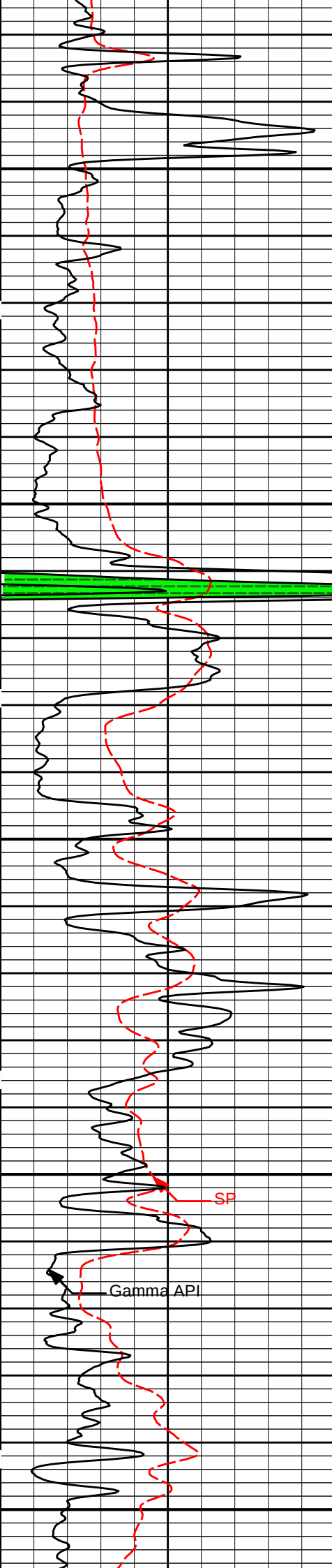


3600

3700

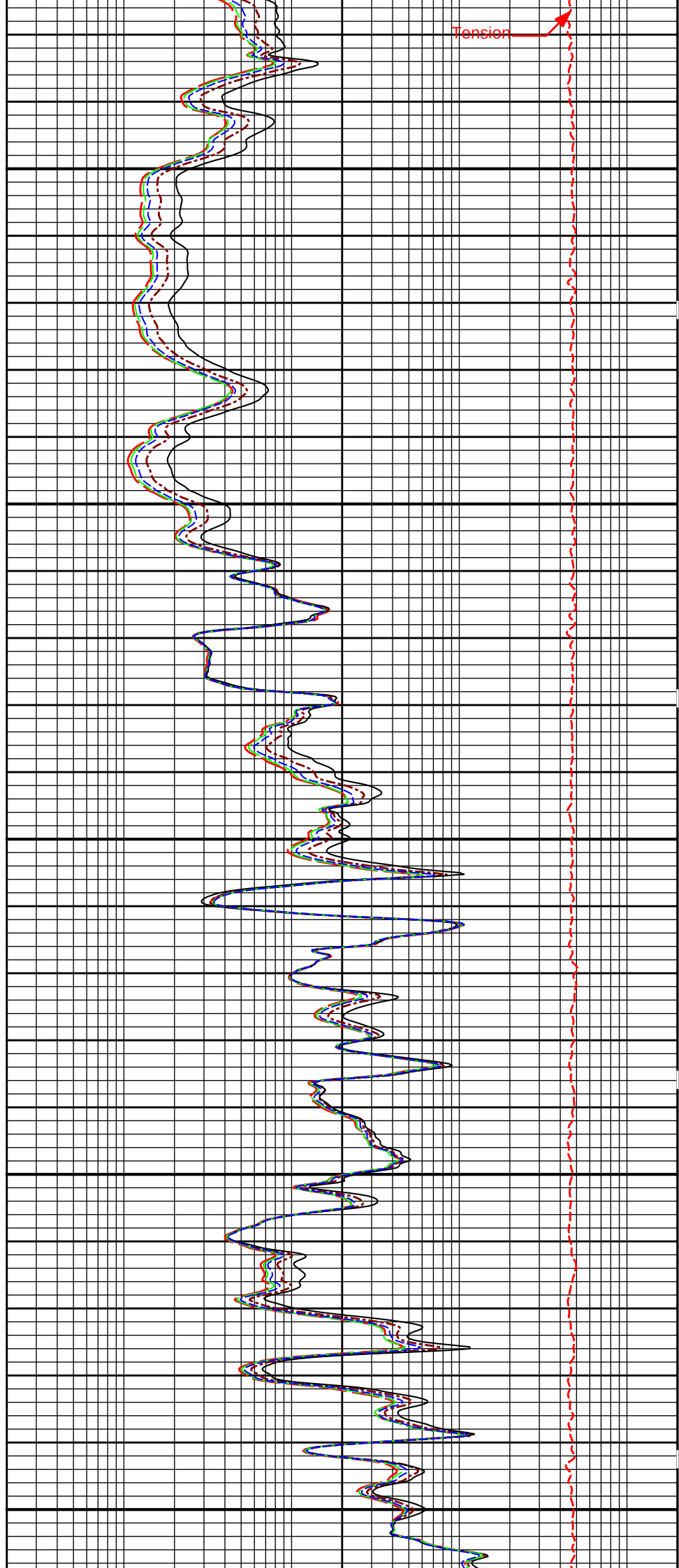
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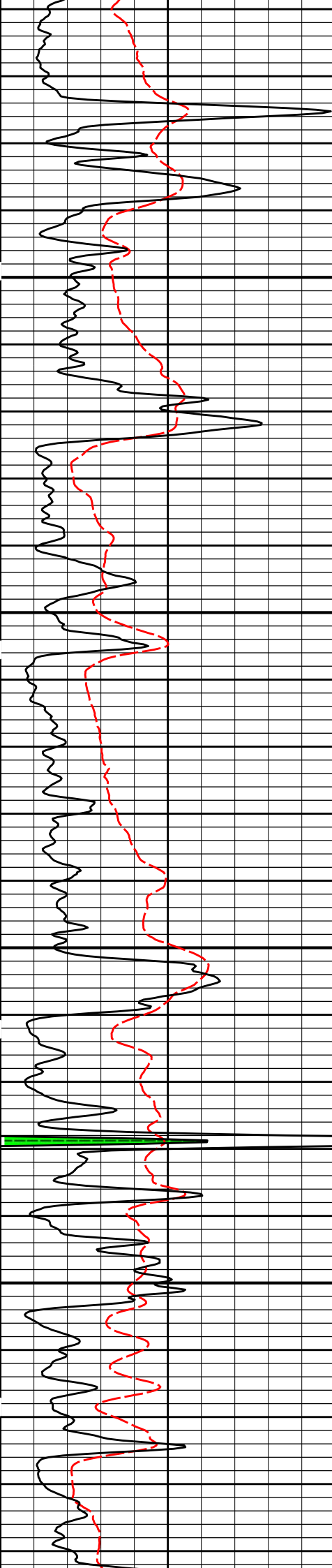




3900

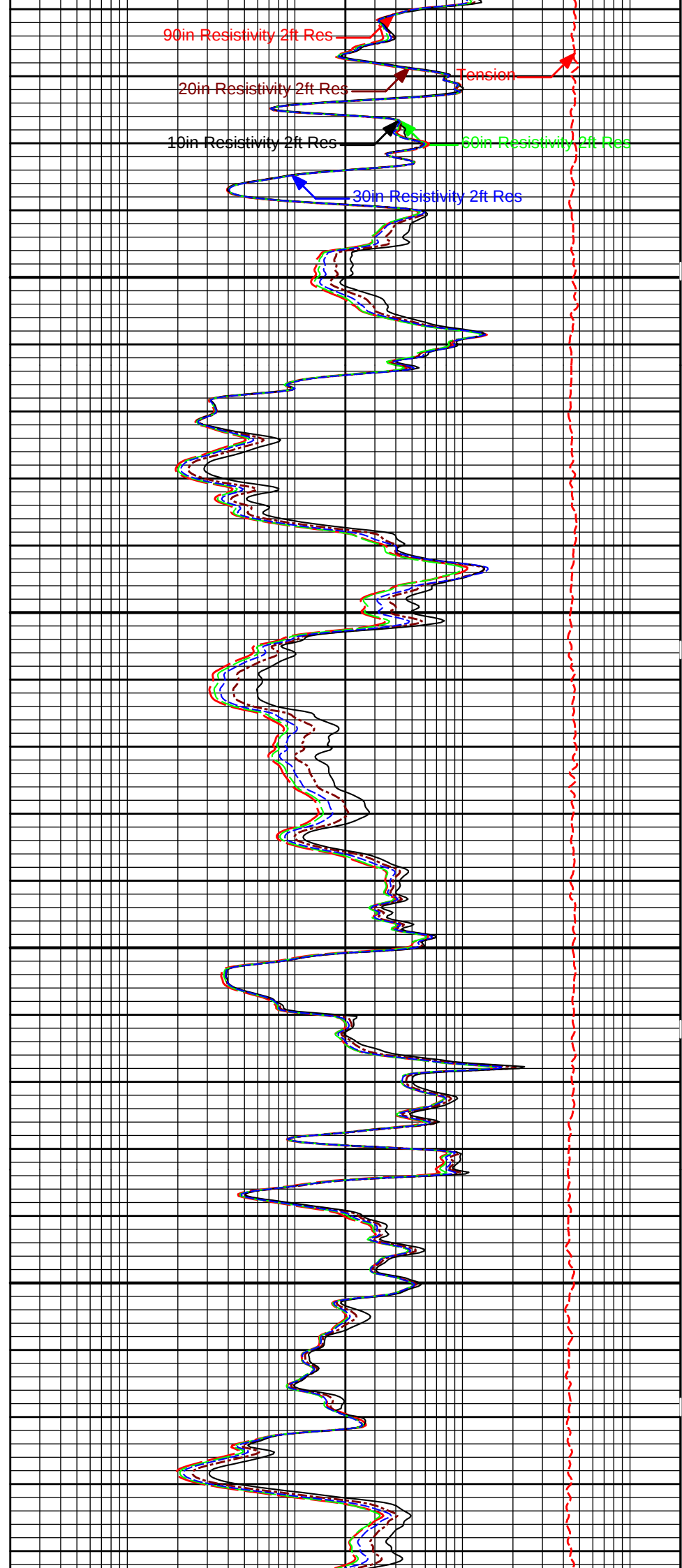
4000

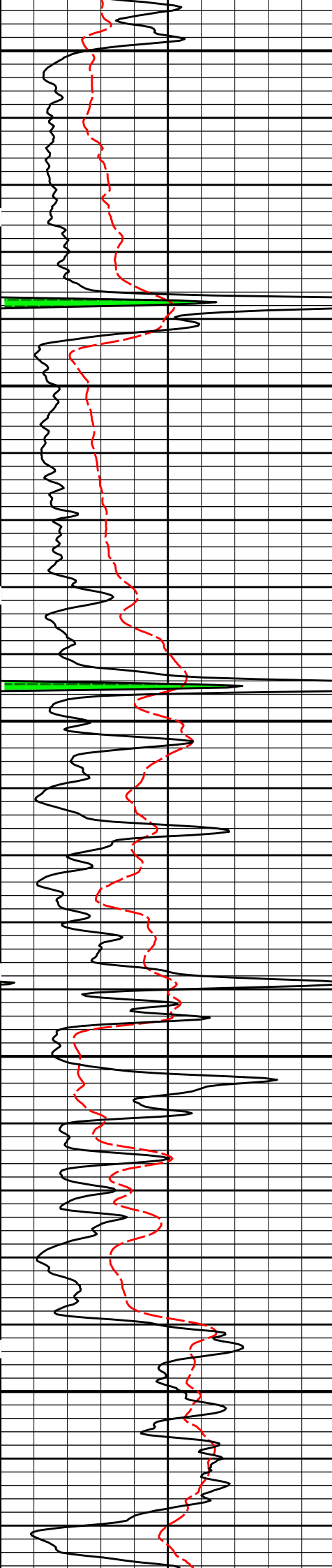




4100

4200

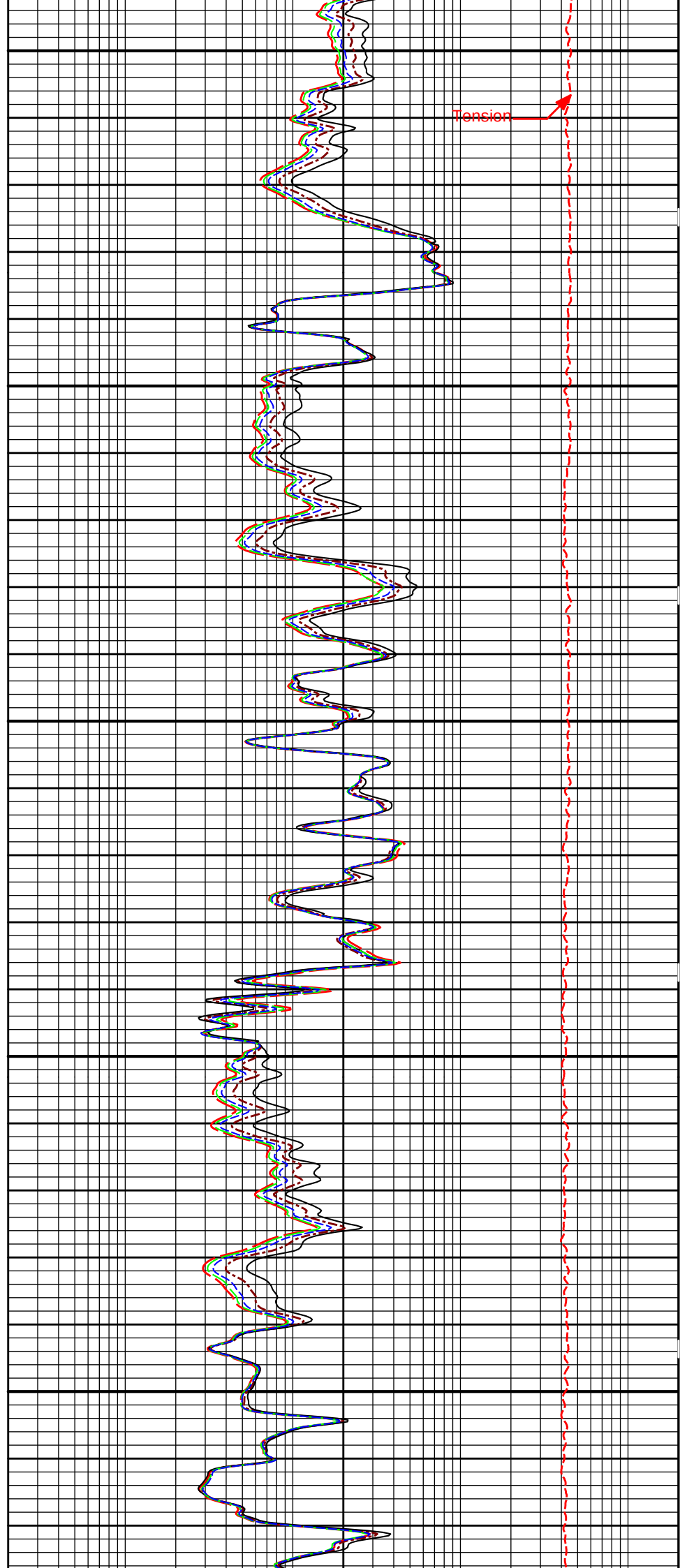


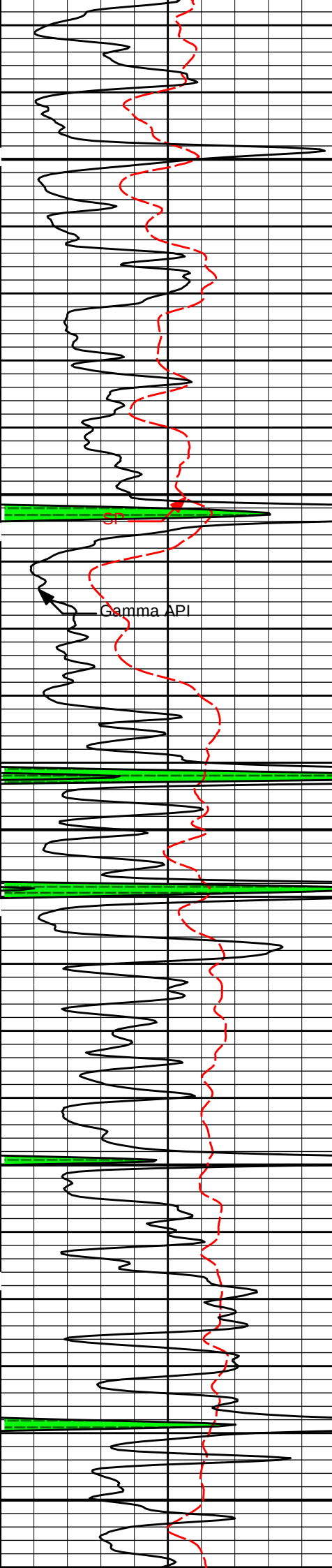


4300

4400

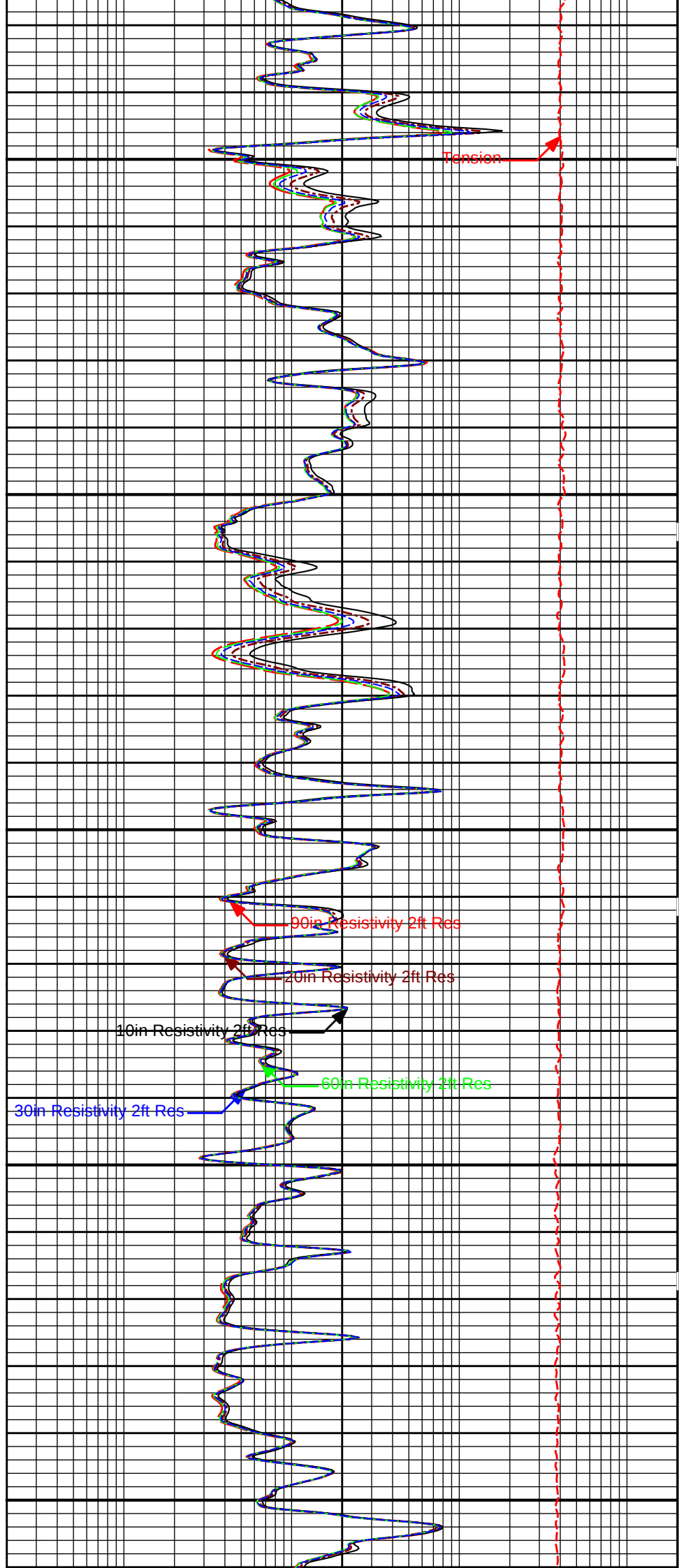
4500





4600

4700



Tension

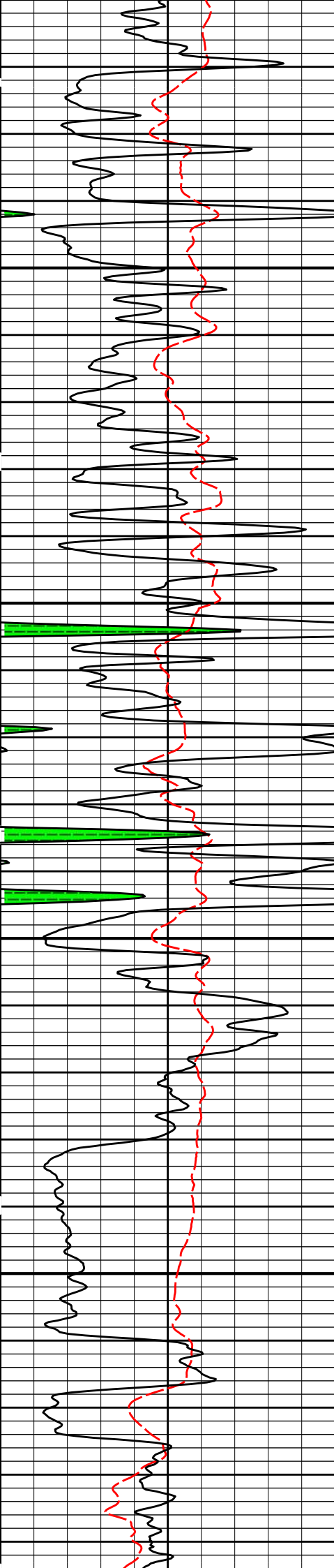
90in Resistivity 2ft Res

20in Resistivity 2ft Res

10in Resistivity 2ft Res

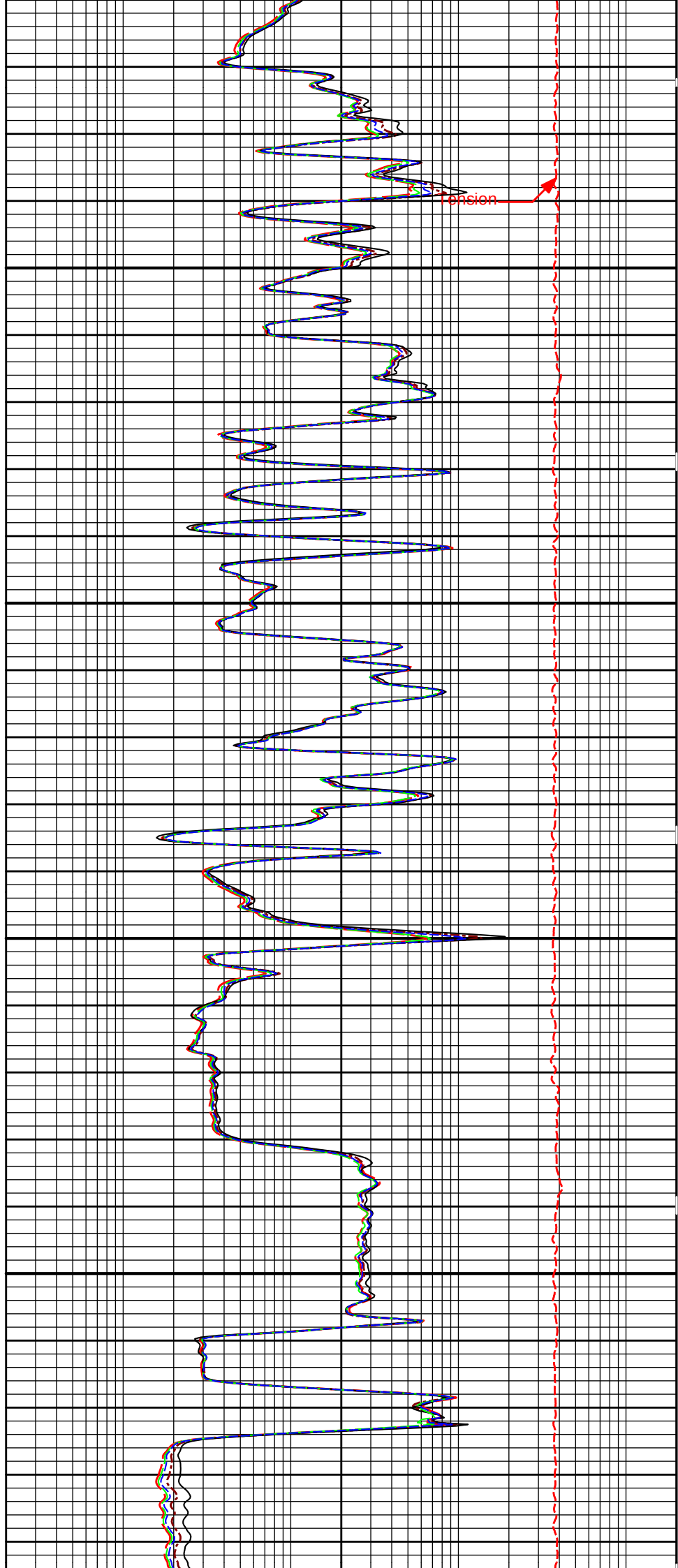
60in Resistivity 2ft Res

30in Resistivity 2ft Res

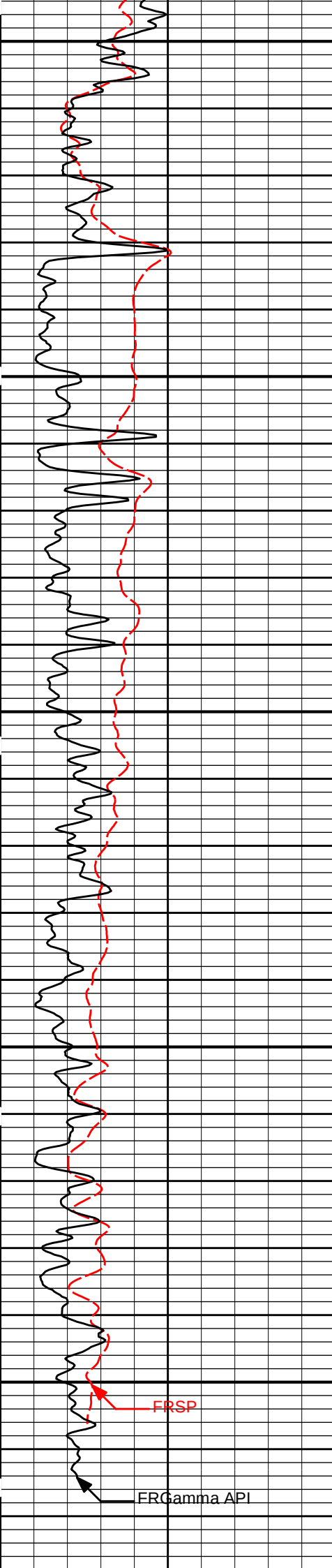


4800

4900



tension



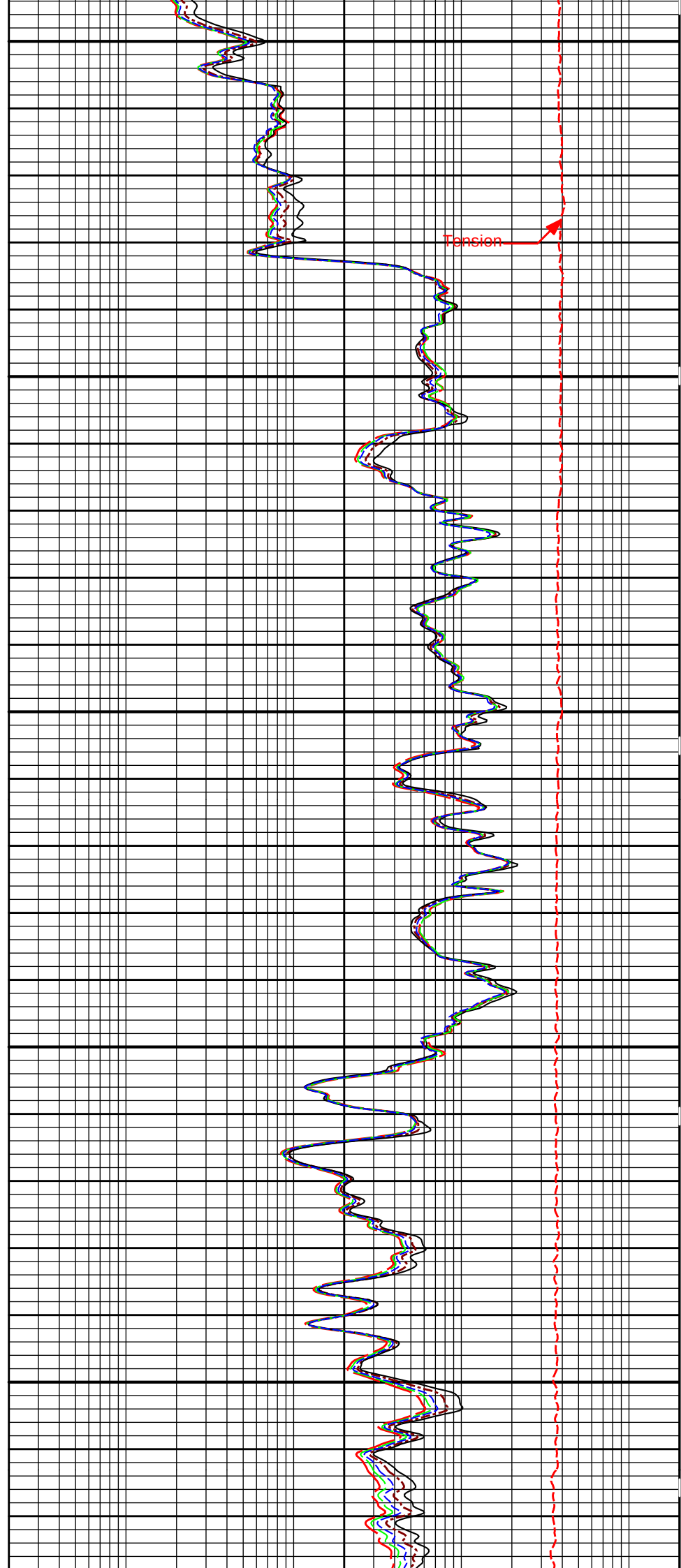
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5100

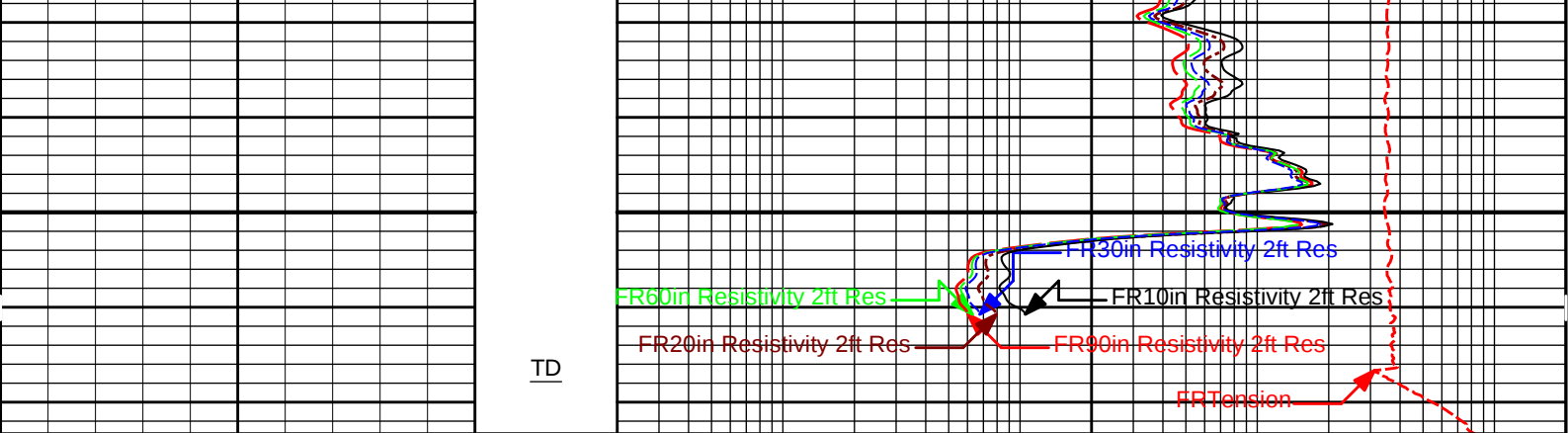
5200

FRSP

FRCgamma API



Tension



|   |                      |                     |     |                                       |      |
|---|----------------------|---------------------|-----|---------------------------------------|------|
| 0 | SP<br>-J20[+         | MD<br>1 : 240<br>ft | 0.2 | 10in Resistivity 2ft Res<br>ohmm      | 2000 |
|   | Gamma API 150<br>api |                     |     |                                       |      |
|   | SHALE                |                     | 0.2 | 20in Resistivity 2ft Res<br>ohmm      | 2000 |
|   |                      |                     | 0.2 | 30in Resistivity 2ft Res<br>ohm-metre | 2000 |
|   |                      |                     | 0.2 | 60in Resistivity 2ft Res<br>ohmm      | 2000 |
|   |                      |                     | 0.2 | 90in Resistivity 2ft Res<br>ohmm      | 2000 |

HALLIBURTON

Plot Time: 08-Apr-18 17:18:22  
Plot Range: 1690 ft to 5273.33 ft  
Data: MCWILLIAMS\_E7\Well Based\MAIN\  
Plot File: \\-LOCAL-\\MCWILLIAMS\_E7\Well Based\ACRT5\ACRT\_5\_main\_lib

5 INCH MAIN LOG

MEASURED DEPTH  
MAIN SECTION 5" PER 100'

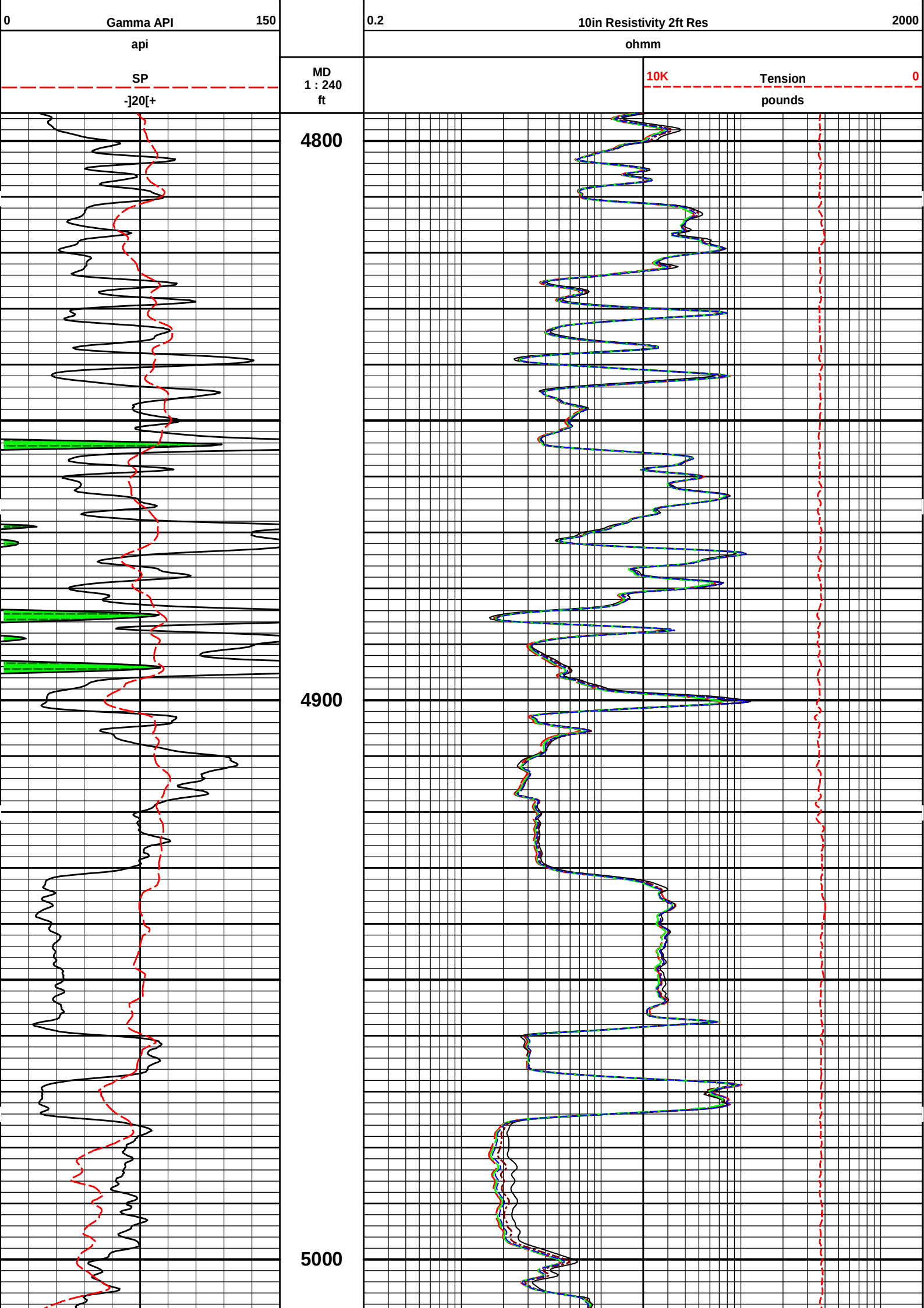
HALLIBURTON

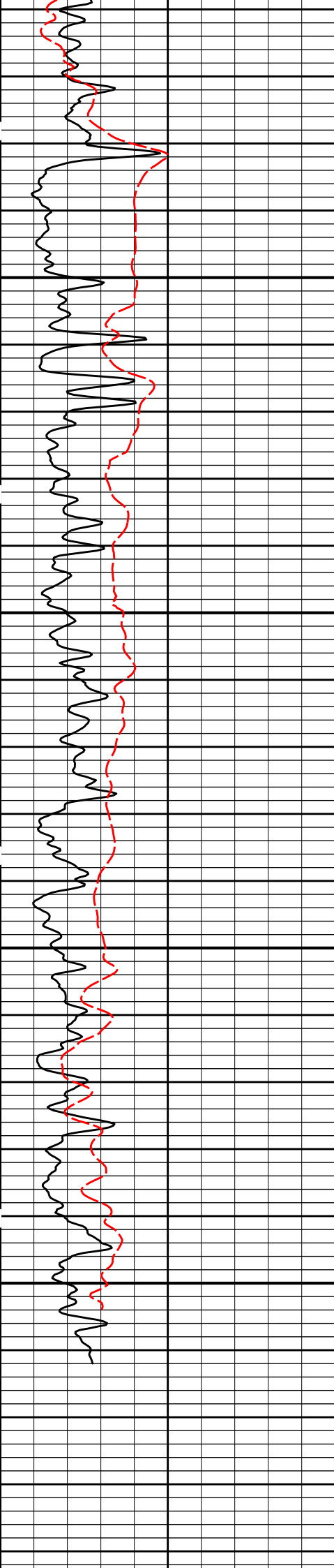
Plot Time: 08-Apr-18 17:18:23  
Plot Range: 4795 ft to 5271.25 ft  
Data: MCWILLIAMS\_E7\Well Based\REPEAT\  
Plot File: \\-LOCAL-\\MCWILLIAMS\_E7\Well Based\ACRT5\ACRT\_5\_repeat\_lib

REPEAT SECTION

|  |     |                          |      |
|--|-----|--------------------------|------|
|  | 0.2 | 90in Resistivity 2ft Res | 2000 |
|  |     | ohmm                     |      |
|  | 0.2 | 60in Resistivity 2ft Res | 2000 |
|  |     | ohmm                     |      |
|  | 0.2 | 30in Resistivity 2ft Res | 2000 |
|  |     | ohm-metre                |      |
|  | 0.2 | 20in Resistivity 2ft Res | 2000 |
|  |     | ohmm                     |      |

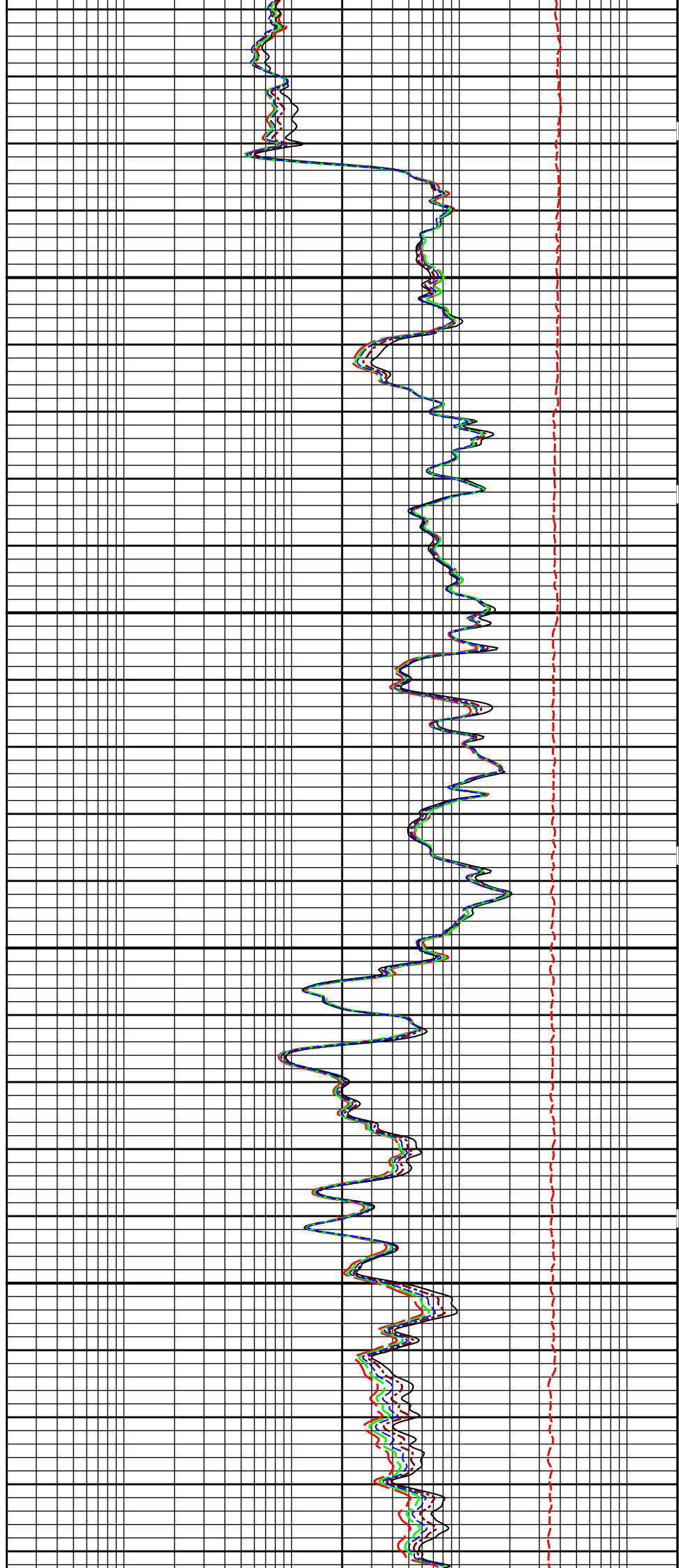
SHALE

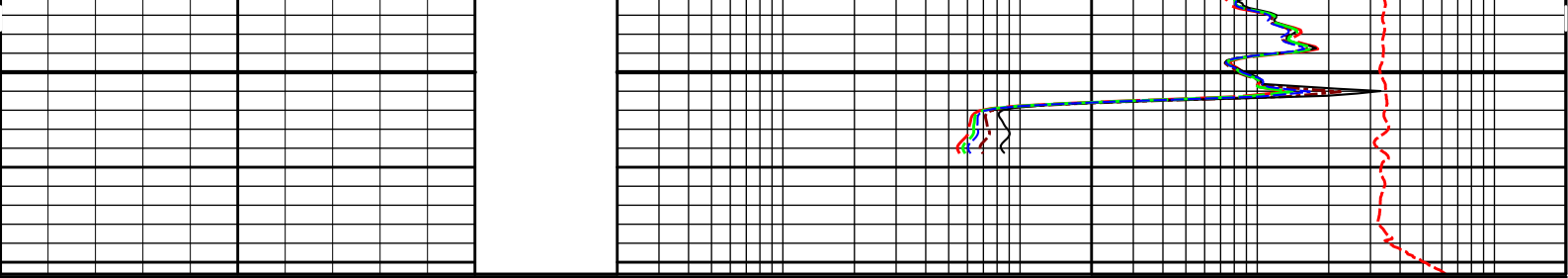




5100

5200





|                              |                     |                                                      |                               |
|------------------------------|---------------------|------------------------------------------------------|-------------------------------|
| SP<br>-J20[+                 | MD<br>1 : 240<br>ft |                                                      | 10K<br>Tension<br>pounds<br>0 |
| 0<br>Gamma API<br>api<br>150 |                     | 0.2<br>10in Resistivity 2ft Res<br>ohmm<br>2000      |                               |
| SHALE                        |                     | 0.2<br>20in Resistivity 2ft Res<br>ohmm<br>2000      |                               |
|                              |                     | 0.2<br>30in Resistivity 2ft Res<br>ohm-metre<br>2000 |                               |
|                              |                     | 0.2<br>60in Resistivity 2ft Res<br>ohmm<br>2000      |                               |
|                              |                     | 0.2<br>90in Resistivity 2ft Res<br>ohmm<br>2000      |                               |

HALLIBURTON

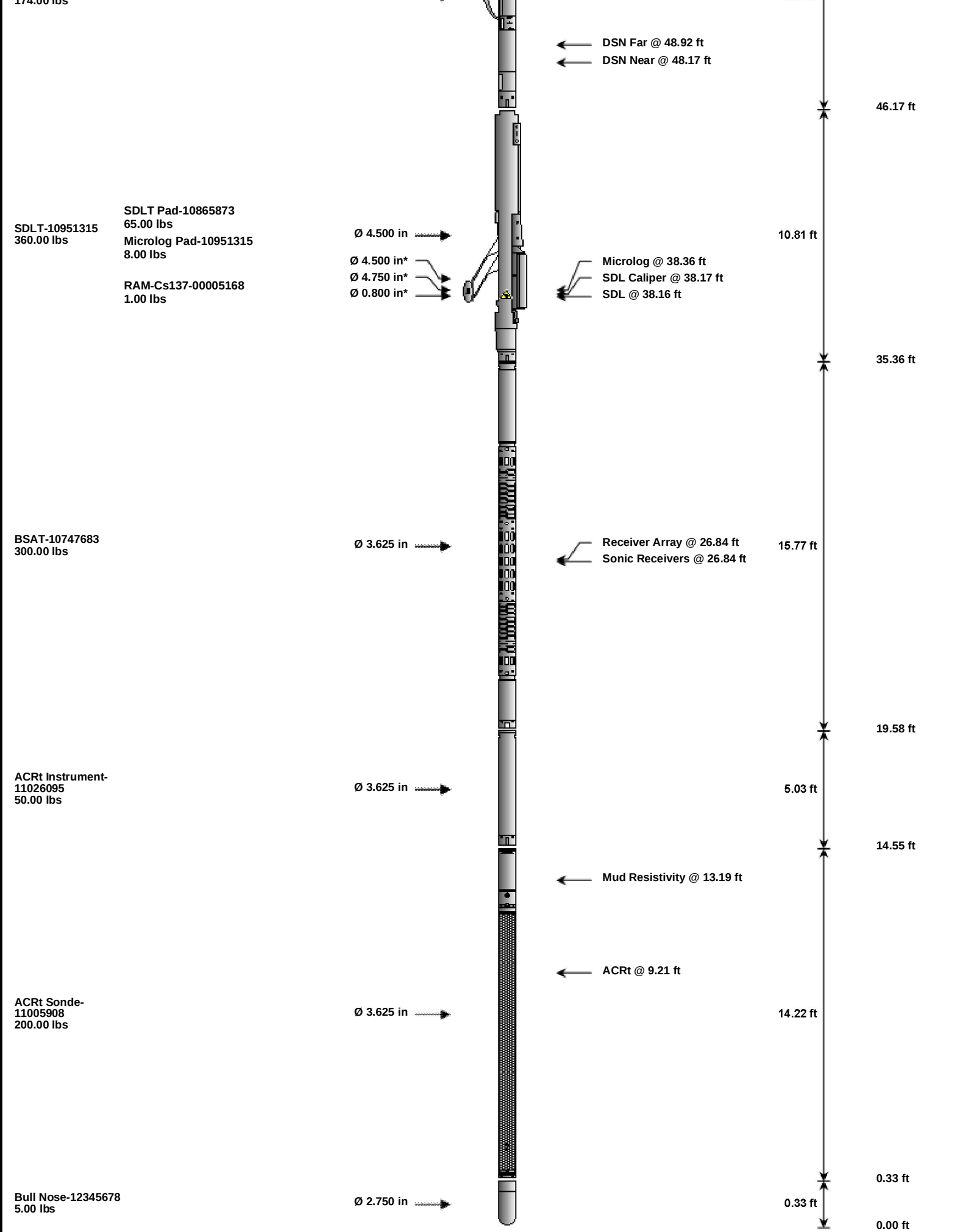
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Plot Range: 4795 ft to 5271.25 ft  
Data: MCWILLIAMS\_E7\Well Based\REPEAT\  
Plot File: \\-LOCAL-MCWILLIAMS\_E7\Well Based\ACRT5\ACRT\_5\_repeat\_lib

REPEAT SECTION

HALLIBURTON

TOOL STRING DIAGRAM REPORT

| Description                  | Overbody Description                         | O.D.                      | Diagram | Sensors @ Delays           | Length  | Accumulated Length |
|------------------------------|----------------------------------------------|---------------------------|---------|----------------------------|---------|--------------------|
| CH_HOS-11459024<br>37.50 lbs | Weak Point 7000 lbs-<br>00000025<br>0.01 lbs | Ø 2.750 in<br>Ø 0.010 in* |         | Temperature @ 71.07 ft     | 2.50 ft | 71.57 ft           |
| XOHD-11569312<br>20.00 lbs   |                                              | Ø 2.750 in<br>Ø 3.625 in  |         |                            | 0.95 ft | 69.07 ft           |
| SP Sub-11153357<br>60.00 lbs |                                              | Ø 3.625 in                |         | SP @ 66.34 ft              | 3.74 ft | 68.12 ft           |
|                              |                                              |                           |         | Z-Accelerometer @ 63.93 ft |         | 64.38 ft           |
| GTET-11958947<br>165.00 lbs  |                                              | Ø 3.625 in                |         |                            | 8.52 ft |                    |
|                              |                                              |                           |         | GammaRay @ 58.32 ft        |         | 55.86 ft           |
|                              |                                              |                           |         |                            |         |                    |
|                              |                                              |                           |         |                            |         |                    |
|                              |                                              |                           |         |                            |         |                    |
|                              |                                              |                           |         |                            |         |                    |
| DSNT-11055304<br>174.00 lbs  | DSN Decentralizer-<br>11055304<br>6.60 lbs   | Ø 5.000 in*<br>Ø 3.625 in |         |                            | 9.69 ft |                    |



| Mnemonic | Tool Name                         | Serial Number | Weight (lbs) | Length (ft) | Accumulated Length (ft) | Max.Log. Speed (fpm) |
|----------|-----------------------------------|---------------|--------------|-------------|-------------------------|----------------------|
| CH_HOS   | Hostile Cable Head with Load Cell | 11459024      | 37.50        | 2.50        | 69.07                   | 300.00               |
| WP7K     | Weak Point 7000 lbs               | 00000025      | 0.01         | 0.01        | * 69.87                 | 300.00               |
| XOHD     | Hostile to Dits Cross Over        | 11569312      | 20.00        | 0.95        | 68.12                   | 300.00               |
| SP       | SP Sub                            | 11153357      | 60.00        | 3.74        | 64.38                   | 300.00               |

|                                                                    |                                                       |          |          |                          |       |        |
|--------------------------------------------------------------------|-------------------------------------------------------|----------|----------|--------------------------|-------|--------|
| GTET                                                               | Gamma Telemetry Tool                                  | 11958947 | 165.00   | 8.52                     | 55.86 | 60.00  |
| DSNT                                                               | Dual Spaced Neutron                                   | 11055304 | 174.00   | 9.69                     | 46.17 | 60.00  |
| DCNT                                                               | DSN Decentralizer                                     | 11055304 | 6.60     | 5.13 *                   | 49.50 | 300.00 |
| SDLT                                                               | Spectral Density Tool                                 | 10951315 | 360.00   | 10.81                    | 35.36 | 60.00  |
| SDLP                                                               | Density Insite Pad                                    | 10865873 | 65.00    | 2.55 *                   | 37.57 | 60.00  |
| Cs137                                                              | Logging Source, SDLT-I, 1.78 Ci - Cs137               | 00005168 | 1.00     | 0.80 *                   | 37.80 | 300.00 |
| MICP                                                               | Microlog Pad                                          | 10951315 | 8.00     | 1.00 *                   | 37.86 | 60.00  |
| BSAT                                                               | Borehole Sonic Array Tool                             | 10747683 | 300.00   | 15.77                    | 19.58 | 60.00  |
| ACRt                                                               | Array Compensated True Resistivity Instrument Section | 11026095 | 50.00    | 5.03                     | 14.55 | 120.00 |
| ACRt                                                               | Array Compensated True Resistivity Sonde Section      | 11005908 | 200.00   | 14.22                    | 0.33  | 120.00 |
| BLNS                                                               | Bull Nose                                             | 12345678 | 5.00     | 0.33                     | 0.00  | 300.00 |
| Total                                                              |                                                       |          | 1,452.11 | 71.57                    |       |        |
| * Not included in Total Length and Length Accumulation.            |                                                       |          |          |                          |       |        |
| Data: MCWILLIAMS_E710001 GTET-DSNT-SDLT-BSAT-ACRT-634-DRIVERS\IDLE |                                                       |          |          | Date: 08-Apr-18 14:47:13 |       |        |



# 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                                 | 9.300      | ppg   |
|            | SHARED          | WAGT     | Weighting Agent                                       | Natural    |       |
|            | SHARED          | BSAL     | Borehole salinity                                     | 0.00       | ppm   |
|            | SHARED          | FSAL     | Formation Salinity NaCl                               | 0.00       | ppm   |
|            | SHARED          | KPCT     | Percent K in Mud by Weight?                           | 0.00       | %     |
|            | SHARED          | RMUD     | Mud Resistivity                                       | 1.112      | ohmm  |
|            | SHARED          | TRM      | Temperature of Mud                                    | 75.0       | degF  |
|            | SHARED          | CSD      | Logging Interval is Cased?                            | No         |       |
|            | SHARED          | ICOD     | AHV Casing OD                                         | 5.500      | in    |
|            | SHARED          | CSTR     | Compressive Strength                                  | 1000.00    | psia  |
|            | SHARED          | ST       | Surface Temperature                                   | 75.0       | degF  |
|            | SHARED          | TD       | Total Well Depth                                      | 5269.00    | ft    |
|            | SHARED          | BHT      | Bottom Hole Temperature                               | 138.0      | degF  |
|            | SHARED          | SVTM     | Navigation and Survey Master Tool                     | NONE       |       |
|            | SHARED          | AZTM     | High Res Z Accelerometer Master Tool                  | GTET       |       |
|            | SHARED          | TEMM     | CBM Temperature Master Tool                           | GTET       |       |
|            | 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                                         | 0.93       | 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       |       |
|            | Rwa / CrossPlot | ROIN     | Input for RO Calculation                              | Rwa        |       |
|            | GTET            | GROK     | Process Gamma Ray?                                    | Yes        |       |
|            | GTET            | GEOK     | Process Gamma Ray EVR?                                | No         |       |
|            | GTET            | TPOS     | Tool Position for Gamma Ray Tools                     | Eccentered |       |

|                                                                     |      |                                              |                          |
|---------------------------------------------------------------------|------|----------------------------------------------|--------------------------|
| 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                                                                | DNTT | 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                      |
| Microlog Pad                                                        | MLOK | Process MicroLog 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                     |
| 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 Pore Fluid                          | 189.00 uspf              |
| BSAT                                                                | DTMT | Delta -T Matrix Type                         | Limestone 47.6           |
| 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                                | Free Hanging             |
| ACRt Sonde                                                          | RMOP | Rmud Source                                  | Mud Cell                 |
| ACRt Sonde                                                          | RMIN | Minimum Resistivity for MAP                  | 0.20 ohmm                |
| ACRt Sonde                                                          | RMAX | 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                                                              |      |                                              |                          |
| Data: MCWILLIAMS_E7I0001 GTET-DSNT-SDLT-BSAT-ACRT-634-DRIVERS\\IDLE |      |                                              | Date: 08-Apr-18 16:38:30 |

|                                                                                                                       |                            |                             |                    |
|-----------------------------------------------------------------------------------------------------------------------|----------------------------|-----------------------------|--------------------|
| <div> <div>HALLIBURTON</div> <div>CALIBRATION REPORT</div> </div>                                                     |                            |                             |                    |
| NATURAL GAMMA RAY TOOL SHOP CALIBRATION                                                                               |                            |                             |                    |
| Tool Name:                                                                                                            | GTET - 11958947            | Reference Calibration Date: | 20-Feb-18 09:19:12 |
| Engineer:                                                                                                             | JORGE ORLANDO PEREZ        | Calibration Date:           | 20-Feb-18 09:23:22 |
| Software Version:                                                                                                     | WL INSITE R5.0.5 (Build 8) | Calibration Version:        | 1                  |
| Calibrator Source S/N: TB-146<br>Calibrator API Reference:225.00 api<br>Equivalent Calibrator API Reference:228.9 api |                            |                             |                    |
|                                                                                                                       | Measurement                | Measured                    | Calibrated         |
|                                                                                                                       | Background                 | 29.2                        | 29.5               |
|                                                                                                                       |                            |                             | api                |

|                         |       |       |     |
|-------------------------|-------|-------|-----|
| Background + Calibrator | 256.0 | 258.4 | api |
| Calibrator              | 226.8 | 228.9 | api |

## NATURAL GAMMA RAY TOOL FIELD CALIBRATION

|                   |                            |                             |                    |
|-------------------|----------------------------|-----------------------------|--------------------|
| Tool Name:        | GTET - 11958947            | Reference Calibration Date: | 20-Feb-18 09:23:22 |
| Engineer:         | JORGE ORLANDO PEREZ        | Calibration Date:           | 07-Mar-18 09:29:45 |
| Firmware Version: | WL INSITE R5.0.5 (Build 8) | Calibration Version:        | 1                  |

Calibrator Source S/N: TB-146  
Calibrator API Reference:225.00 api  
Equivalent Calibrator API Reference:228.9 api

| Field Verification      | Shop  | Field      | Units     |
|-------------------------|-------|------------|-----------|
| Background              | 29.5  | 23.3       | api       |
| Background + Calibrator | 258.4 | 253.5      | api       |
| Calibrator              | 228.9 | 230.1      | api       |
|                         |       |            |           |
| Shop                    | Field | Difference | Tolerance |
| 228.9                   | 230.1 | -1.2       | +/- 9.00  |

## ARRAY COMPENSATED TRUE RESISTIVITY SHOP CALIBRATION

|                   |                            |                             |                    |
|-------------------|----------------------------|-----------------------------|--------------------|
| Tool Name:        | ACRt Sonde - 11005908      | Reference Calibration Date: | 24-Jan-18 11:50:13 |
| Engineer:         | JORGE ORLANDO PEREZ        | Calibration Date:           | 16-Mar-18 10:34:00 |
| Software Version: | WL INSITE R5.0.5 (Build 8) | Calibration Version:        | 1                  |
| Host Tool Name:   | ACRt Instrument - 11026095 |                             |                    |

## TYPICAL GAIN RANGE

| Subarray | R12KHz |          |       | R36KHz |          |       | R72KHz |          |       |
|----------|--------|----------|-------|--------|----------|-------|--------|----------|-------|
|          | Lower  | (mmho/m) | Upper | Lower  | (mmho/m) | Upper | Lower  | (mmho/m) | Upper |
| A1 (80") | 0.95   | 1.0415   | 1.05  | 0.95   | 1.0202   | 1.05  | 0.95   | 1.0109   | 1.05  |
| A2 (50") | 0.95   | 1.0485   | 1.05  | 0.95   | 1.0233   | 1.05  | 0.95   | 1.0144   | 1.05  |
| A3 (29") | 0.95   | 1.0353   | 1.05  | 0.95   | 1.0139   | 1.05  | 0.95   | 1.0048   | 1.05  |
| A4 (17") | 0.95   | 1.0423   | 1.05  | 0.95   | 1.0194   | 1.05  | 0.95   | 1.0121   | 1.05  |
| A5 (10") | N/A    | N/A      | N/A   | 0.95   | 1.0134   | 1.05  | 0.95   | 1.0048   | 1.05  |
| A6 (6")  | N/A    | N/A      | N/A   | 0.95   | 1.0044   | 1.05  | 0.95   | 0.9956   | 1.05  |

## SONDE OFFSET

| Subarray | R12KHz   | R36KHz   | R72KHz   |
|----------|----------|----------|----------|
|          | (mmho/m) | (mmho/m) | (mmho/m) |
| A1 (80") | 1.428    | -4.149   | -5.990   |
| A2 (50") | -0.217   | -4.118   | -5.417   |
| A3 (29") | -14.051  | -4.501   | -3.906   |
| A4 (17") | -92.668  | -28.984  | -24.290  |
| A5 (10") | N/A      | -111.115 | -48.871  |
| A6 (6")  | N/A      | 354.229  | 183.875  |

## TRANSMITTER CURRENT GAIN

| Signal | Lower | R    | Upper |
|--------|-------|------|-------|
| 12K    | 0.6   | 0.92 | 1.3   |
| 36K    | 1.0   | 1.93 | 2.0   |
| 72K    | 1.0   | 1.27 | 2.0   |

## R-MUD VERIFICATION

| Signal   | Lower<br>(ohm-m) | Measured<br>(ohm-m) | Upper<br>(ohm-m) |
|----------|------------------|---------------------|------------------|
| Mud Cell | 0.95             | 1.00                | 1.05             |

## 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-11958947                                                      |       |       |       |            |                          |       |
| Gamma Ray Calibrator                                               | 228.9 | 230.1 | ----- | -1.2       | +/- 9.00                 | api   |
| ACRt Sonde-11005908                                                |       |       |       |            |                          |       |
| Mud Cell                                                           | 1.00  | ----- | ----- | 0          | -----                    | ohm-m |
| Data: MCWILLIAMS_E7I0001 GTET-DSNT-SDLT-BSAT-ACRT-634-DRIVERS\IDLE |       |       |       |            | Date: 08-Apr-18 14:50:36 |       |



INPUTS, DELAYS AND FILTERS TABLE

| Mnemonic        |                                                         | Input Description | Delay (ft) | Filter Type | Filter Length (ft) |
|-----------------|---------------------------------------------------------|-------------------|------------|-------------|--------------------|
| Depth Panel     |                                                         |                   |            |             |                    |
| TENS            | Tension                                                 |                   | 0.00       | NO          |                    |
| Rwa / CrossPlot |                                                         |                   |            |             |                    |
| TPUL            | Tension Pull                                            |                   | 71.57      | NO          |                    |
| BS              | Bit Size                                                |                   | 71.57      | NO          |                    |
| HDIA            | Measured Hole Diameter                                  |                   | 0.00       | NO          |                    |
| CH_HOS          |                                                         |                   |            |             |                    |
| DHTN            | DownholeTension                                         |                   | 0.00       | BLK         | 0.000              |
| SP Sub          |                                                         |                   |            |             |                    |
| PLTC            | Plot Control Mask                                       |                   | 66.34      | NO          |                    |
| SP              | Spontaneous Potential                                   |                   | 66.34      | BLK         | 1.250              |
| SPR             | Raw Spontaneous Potential                               |                   | 66.34      | NO          |                    |
| SPO             | Spontaneous Potential Offset                            |                   | 66.34      | NO          |                    |
| GTET            |                                                         |                   |            |             |                    |
| TPUL            | Tension Pull                                            |                   | 58.32      | NO          |                    |
| GR              | Natural Gamma Ray API                                   |                   | 58.32      | TRI         | 1.750              |
| GRU             | Unfiltered Natural Gamma Ray API                        |                   | 58.32      | NO          |                    |
| EGR             | Natural Gamma Ray API with Enhanced Vertical Resolution |                   | 58.32      | W           | 1.416 , 0.750      |
| HDIA            | Measured Hole Diameter                                  |                   | 0.00       | NO          |                    |
| ACCZ            | Accelerometer Z                                         |                   | 0.00       | BLK         | 0.083              |
| DEVI            | Inclination                                             |                   | 0.00       | NO          |                    |
| DSNT            |                                                         |                   |            |             |                    |
| TPUL            | Tension Pull                                            |                   | 48.07      | NO          |                    |
| RNDS            | Near Detector Telemetry Counts                          |                   | 48.17      | BLK         | 1.417              |
| RFDS            | Far Detector Telemetry Counts                           |                   | 48.92      | TRI         | 0.583              |
| DNTT            | DSN Tool Temperature                                    |                   | 48.17      | NO          |                    |
| DSNS            | DSN Tool Status                                         |                   | 48.07      | NO          |                    |
| ERND            | Near Detector Telemetry Counts EVR                      |                   | 48.17      | BLK         | 0.000              |
| ERFD            | Far Detector Telemetry Counts EVR                       |                   | 48.92      | BLK         | 0.000              |
| ENTM            | DSN Tool Temperature EVR                                |                   | 48.17      | NO          |                    |
| HDIA            | Measured Hole Diameter                                  |                   | 0.00       | NO          |                    |
| SDLT            |                                                         |                   |            |             |                    |
| TPUL            | Tension Pull                                            |                   | 38.17      | NO          |                    |
| PCAL            | Pad Caliper                                             |                   | 38.17      | TRI         | 0.250              |
| ACAL            | Arm Caliper                                             |                   | 38.17      | TRI         | 0.250              |
| BSAT            |                                                         |                   |            |             |                    |
| TPUL            | Tension Pull                                            |                   | 26.84      | NO          |                    |
| SEAL            | Seal Bit                                                |                   | 26.84      | NO          |                    |

|            |                                               |       |     |       |
|------------|-----------------------------------------------|-------|-----|-------|
| STAT       | Status                                        | 26.84 | NO  |       |
| DLYT       | Delay Time                                    | 26.84 | NO  |       |
| SI         | Sample Interval                               | 26.84 | NO  |       |
| TXRX       | Raw Telemetry 10 Receivers                    | 26.84 | NO  |       |
| FRMC       | Tool Frame Count                              | 26.84 | NO  |       |
| GMOD       | Gain processing mode                          | 19.58 | NO  |       |
|            |                                               |       |     |       |
| ACRt Sonde |                                               |       |     |       |
| TPUL       | Tension Pull                                  | 2.73  | NO  |       |
| F1R1       | ACRT 12KHz - 80in R value                     | 8.98  | BLK | 0.000 |
| F1X1       | ACRT 12KHz - 80in X value                     | 8.98  | BLK | 0.000 |
| F1R2       | ACRT 12KHz - 50in R value                     | 6.48  | BLK | 0.000 |
| F1X2       | ACRT 12KHz - 50in X value                     | 6.48  | BLK | 0.000 |
| F1R3       | ACRT 12KHz - 29in R value                     | 4.98  | BLK | 0.000 |
| F1X3       | ACRT 12KHz - 29in X value                     | 4.98  | BLK | 0.000 |
| F1R4       | ACRT 12KHz - 17in R value                     | 3.98  | BLK | 0.000 |
| F1X4       | ACRT 12KHz - 17in X value                     | 3.98  | BLK | 0.000 |
| F1R5       | ACRT 12KHz - 10in R value                     | 3.48  | BLK | 0.000 |
| F1X5       | ACRT 12KHz - 10in X value                     | 3.48  | BLK | 0.000 |
| F1R6       | ACRT 12KHz - 6in R value                      | 3.23  | BLK | 0.000 |
| F1X6       | ACRT 12KHz - 6in X value                      | 3.23  | BLK | 0.000 |
| F2R1       | ACRT 36KHz - 80in R value                     | 8.98  | BLK | 0.000 |
| F2X1       | ACRT 36KHz - 80in X value                     | 8.98  | BLK | 0.000 |
| F2R2       | ACRT 36KHz - 50in R value                     | 6.48  | BLK | 0.000 |
| F2X2       | ACRT 36KHz - 50in X value                     | 6.48  | BLK | 0.000 |
| F2R3       | ACRT 36KHz - 29in R value                     | 4.98  | BLK | 0.000 |
| F2X3       | ACRT 36KHz - 29in X value                     | 4.98  | BLK | 0.000 |
| F2R4       | ACRT 36KHz - 17in R value                     | 3.98  | BLK | 0.000 |
| F2X4       | ACRT 36KHz - 17in X value                     | 3.98  | BLK | 0.000 |
| F2R5       | ACRT 36KHz - 10in R value                     | 3.48  | BLK | 0.000 |
| F2X5       | ACRT 36KHz - 10in X value                     | 3.48  | BLK | 0.000 |
| F2R6       | ACRT 36KHz - 6in R value                      | 3.23  | BLK | 0.000 |
| F2X6       | ACRT 36KHz - 6in X value                      | 3.23  | BLK | 0.000 |
| F3R1       | ACRT 72KHz - 80in R value                     | 8.98  | BLK | 0.000 |
| F3X1       | ACRT 72KHz - 80in X value                     | 8.98  | BLK | 0.000 |
| F3R2       | ACRT 72KHz - 50in R value                     | 6.48  | BLK | 0.000 |
| F3X2       | ACRT 72KHz - 50in X value                     | 6.48  | BLK | 0.000 |
| F3R3       | ACRT 72KHz - 29in R value                     | 4.98  | BLK | 0.000 |
| F3X3       | ACRT 72KHz - 29in X value                     | 4.98  | BLK | 0.000 |
| F3R4       | ACRT 72KHz - 17in R value                     | 3.98  | BLK | 0.000 |
| F3X4       | ACRT 72KHz - 17in X value                     | 3.98  | BLK | 0.000 |
| F3R5       | ACRT 72KHz - 10in R value                     | 3.48  | BLK | 0.000 |
| F3X5       | ACRT 72KHz - 10in X value                     | 3.48  | BLK | 0.000 |
| F3R6       | ACRT 72KHz - 6in R value                      | 3.23  | BLK | 0.000 |
| F3X6       | ACRT 72KHz - 6in X value                      | 3.23  | BLK | 0.000 |
| RMUD       | Mud Resistivity                               | 12.52 | BLK | 0.000 |
| F1RT       | Transmitter Reference 12 KHz Real Signal      | 2.73  | BLK | 0.000 |
| F1XT       | Transmitter Reference 12 KHz Imaginary Signal | 2.73  | BLK | 0.000 |
| F2RT       | Transmitter Reference 36 KHz Real Signal      | 2.73  | BLK | 0.000 |
| F2XT       | Transmitter Reference 36 KHz Imaginary Signal | 2.73  | BLK | 0.000 |
| F3RT       | Transmitter Reference 72 KHz Real Signal      | 2.73  | BLK | 0.000 |
| F3XT       | Transmitter Reference 72 KHz Imaginary Signal | 2.73  | BLK | 0.000 |
| TFPU       | Upper Feedpipe Temperature Calculated         | 2.73  | BLK | 0.000 |
| TFPL       | Lower Feedpipe Temperature Calculated         | 2.73  | BLK | 0.000 |
| ITMP       | Instrument Temperature                        | 2.73  | BLK | 0.000 |
| TCVA       | Temperature Correction Values Loop Off        | 2.73  | NO  |       |
| TIDV       | Instrument Temperature Derivative             | 2.73  | NO  |       |
| TUDV       | Upper Temperature Derivative                  | 2.73  | NO  |       |
| TLDV       | Lower Temperature Derivative                  | 2.73  | NO  |       |

|                                                                    |                            |       |                          |       |
|--------------------------------------------------------------------|----------------------------|-------|--------------------------|-------|
| TRBD                                                               | Receiver Board Temperature | 2.73  | NO                       |       |
| HDIA                                                               | Measured Hole Diameter     | 0.00  | NO                       |       |
| Microlog Pad                                                       |                            |       |                          |       |
| TPUL                                                               | Tension Pull               | 38.36 | NO                       |       |
| MINV                                                               | Microlog Lateral           | 38.36 | BLK                      | 0.750 |
| MNOR                                                               | Microlog Normal            | 38.36 | BLK                      | 0.750 |
| SDLT Pad                                                           |                            |       |                          |       |
| TPUL                                                               | Tension Pull               | 38.16 | NO                       |       |
| NAB                                                                | Near Above                 | 37.99 | BLK                      | 0.920 |
| NHI                                                                | Near Cesium High           | 37.99 | BLK                      | 0.920 |
| NLO                                                                | Near Cesium Low            | 37.99 | BLK                      | 0.920 |
| NVA                                                                | Near Valley                | 37.99 | BLK                      | 0.920 |
| NBA                                                                | Near Barite                | 37.99 | BLK                      | 0.920 |
| NDE                                                                | Near Density               | 37.99 | BLK                      | 0.920 |
| NPK                                                                | Near Peak                  | 37.99 | BLK                      | 0.920 |
| NLI                                                                | Near Lithology             | 37.99 | BLK                      | 0.920 |
| NBAU                                                               | Near Barite Unfiltered     | 37.99 | BLK                      | 0.250 |
| NLIU                                                               | Near Lithology Unfiltered  | 37.99 | BLK                      | 0.250 |
| FAB                                                                | Far Above                  | 38.34 | BLK                      | 0.250 |
| FHI                                                                | Far Cesium High            | 38.34 | BLK                      | 0.250 |
| FLO                                                                | Far Cesium Low             | 38.34 | BLK                      | 0.250 |
| FVA                                                                | Far Valley                 | 38.34 | BLK                      | 0.250 |
| FBA                                                                | Far Barite                 | 38.34 | BLK                      | 0.250 |
| FDE                                                                | Far Density                | 38.34 | BLK                      | 0.250 |
| FPK                                                                | Far Peak                   | 38.34 | BLK                      | 0.250 |
| FLI                                                                | Far Lithology              | 38.34 | BLK                      | 0.250 |
| PTMP                                                               | Pad Temperature            | 38.17 | BLK                      | 0.920 |
| NHV                                                                | Near Detector High Voltage | 37.57 | NO                       |       |
| FHV                                                                | Far Detector High Voltage  | 37.57 | NO                       |       |
| ITMP                                                               | Instrument Temperature     | 37.57 | NO                       |       |
| DDHV                                                               | Detector High Voltage      | 37.57 | NO                       |       |
| HDIA                                                               | Measured Hole Diameter     | 0.00  | NO                       |       |
| Data: MCWILLIAMS_E7I0001 GTET-DSNT-SDLT-BSAT-ACRT-634-DRIVERS\IDLE |                            |       | Date: 08-Apr-18 14:50:12 |       |

|             |                      |                                              |        |
|-------------|----------------------|----------------------------------------------|--------|
| COMPANY     | MERIT ENERGY COMPANY |                                              |        |
| WELL        | MCWILLIAMS E-7       |                                              |        |
| FIELD       | COWGILL              |                                              |        |
| COUNTY      | FINNEY               | STATE                                        | KANSAS |
| HALLIBURTON |                      | ARRAY COMPENSATED<br>TRUE RESISTIVITY<br>LOG |        |