

ARRAY COMPENSATED  
TRUE RESISTIVITY  
LOG

----- Fold here -----

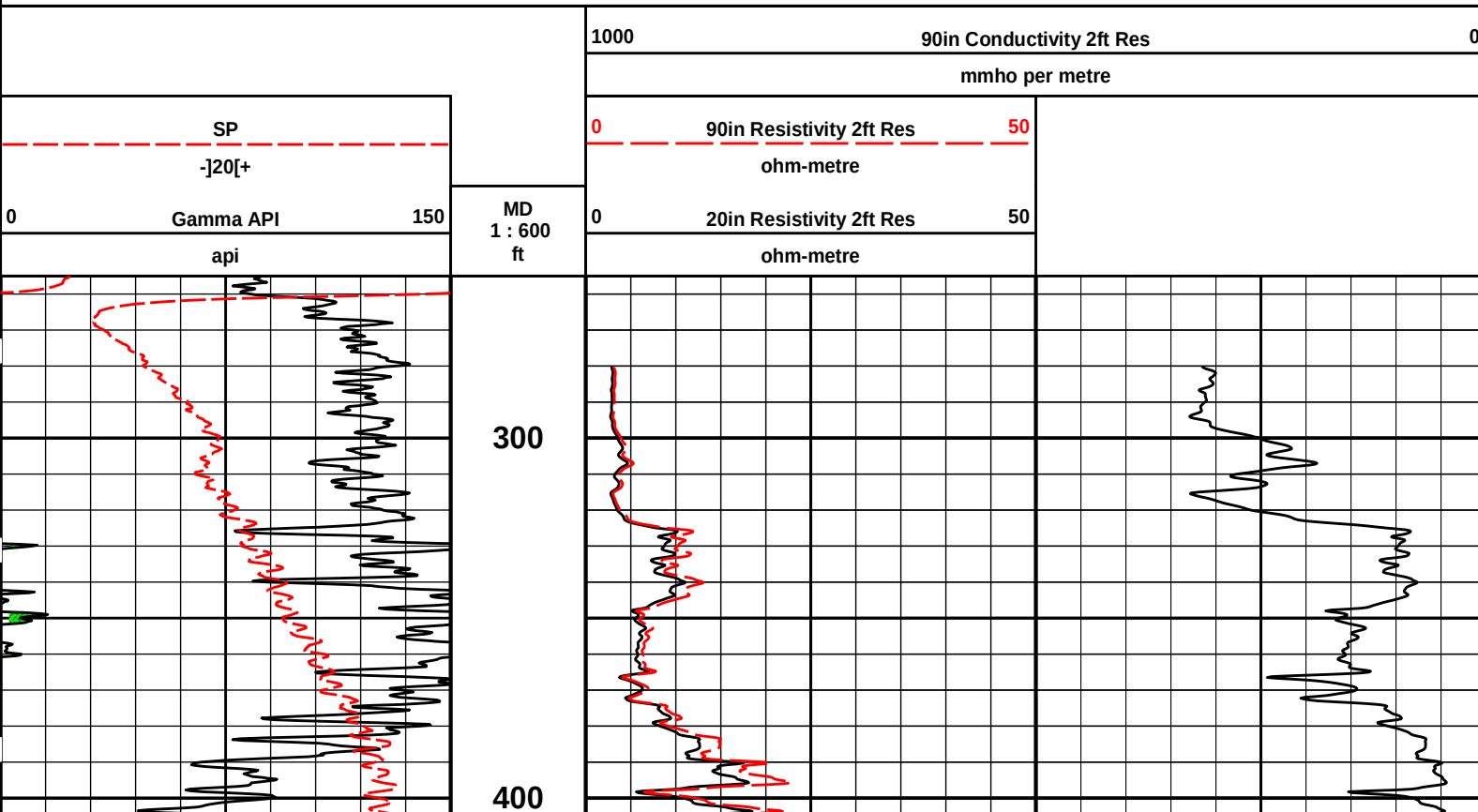
|                                         |            |   |              |                                    |  |                            |                 |                                         |             |                 |       |
|-----------------------------------------|------------|---|--------------|------------------------------------|--|----------------------------|-----------------|-----------------------------------------|-------------|-----------------|-------|
| Service Ticket No.: 901520512           |            |   |              | API Serial No.: 15-195-22955-00-00 |  |                            |                 | PGM Version: WL INSITE R4.2.0 (Build 2) |             |                 |       |
| 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.                       |            | @ |              | @                                  |  |                            | I059_S385       |                                         |             |                 |       |
| Source Rmf                              | Rmc        |   |              |                                    |  | ONE                        | MICRO           | RUBBER                                  | ADJ         | N/A             |       |
| Rm @ BHT                                |            | @ |              | @                                  |  |                            | 10950489        |                                         |             |                 |       |
| Rmf @ BHT                               |            | @ |              | @                                  |  |                            |                 |                                         |             |                 |       |
| Rmc @ BHT                               |            | @ |              | @                                  |  |                            |                 |                                         |             |                 |       |
| EQUIPMENT DATA                          |            |   |              |                                    |  |                            |                 |                                         |             |                 |       |
| GAMMA                                   |            |   | ACOUSTIC     |                                    |  | DENSITY                    |                 |                                         | NEUTRON     |                 |       |
| Run No.                                 | ONE        |   | Run No.      |                                    |  | Run No.                    | ONE             |                                         | Run No.     | ONE             |       |
| Serial No.                              | 11048627   |   | Serial No.   |                                    |  | Serial No.                 | 10844781        |                                         | Serial No.  | 11019643        |       |
| Model No.                               | GTET       |   | Model No.    |                                    |  | Model No.                  | SDLT-I          |                                         | Model No.   | DSNT-I          |       |
| Diameter                                | 3.625"     |   | No. of Cent. |                                    |  | Diameter                   | 4.5"            |                                         | Diameter    | 3.625"          |       |
| Detector Model No.                      | T-102      |   | Spacing      |                                    |  | 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                      | 10'        |   | FWDA [Y/N ]  |                                    |  | Strength                   | 1.5 Ci          |                                         | Strength    | 15 Ci           |       |

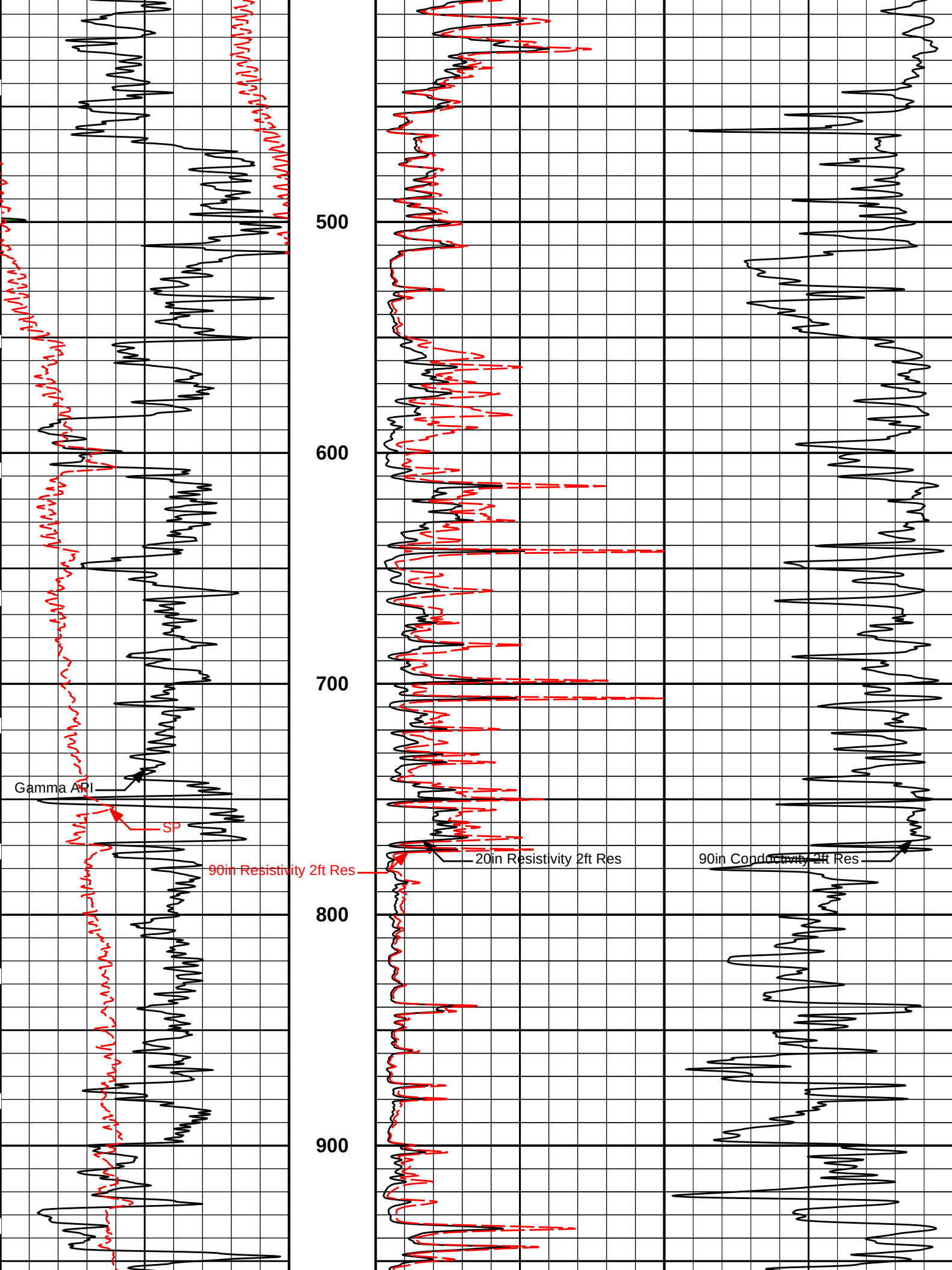
| GENERAL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |       |      |        | 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    | 3400 | REC    | 0     | 150 |          |   |        | 30      | -10 | 2.71   | 30      | -10 | LIME   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |       |      |        |       |     |          |   |        |         |     |        |         |     |        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |       |      |        |       |     |          |   |        |         |     |        |         |     |        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |       |      |        |       |     |          |   |        |         |     |        |         |     |        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |       |      |        |       |     |          |   |        |         |     |        |         |     |        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |       |      |        |       |     |          |   |        |         |     |        |         |     |        |
| DIRECTIONAL INFORMATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |       |      |        |       |     |          |   |        |         |     |        |         |     |        |
| Maximum Deviation @                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |       |      |        |       |     |          |   |        | KOP @   |     |        |         |     |        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |       |      |        |       |     |          |   |        |         |     |        |         |     |        |
| Remarks: ANNULAR HOLE VOLUME CALCULATED FOR 5.5-INCH CASING                                                                                                                                                                                                                                                                                                                                                                                                                                                    |       |      |        |       |     |          |   |        |         |     |        |         |     |        |
| CHLORIDES REPORTED AT 2400 MG/L                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |       |      |        |       |     |          |   |        |         |     |        |         |     |        |
| LCM REPORTED AT 2 LB/BBL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |       |      |        |       |     |          |   |        |         |     |        |         |     |        |
| GTET-DSNT-SDLT-ACRT RUN IN COMBINATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |      |        |       |     |          |   |        |         |     |        |         |     |        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |       |      |        |       |     |          |   |        |         |     |        |         |     |        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |       |      |        |       |     |          |   |        |         |     |        |         |     |        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |       |      |        |       |     |          |   |        |         |     |        |         |     |        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |       |      |        |       |     |          |   |        |         |     |        |         |     |        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |       |      |        |       |     |          |   |        |         |     |        |         |     |        |
| TODAY'S CREW:E.ZAPIEN & K.PIDDINGTON                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |       |      |        |       |     |          |   |        |         |     |        |         |     |        |
| THANK YOU FOR CHOOSING HALLIBURTON ENERGY SERVICES LIBERAL, KS. 620-624-8123                                                                                                                                                                                                                                                                                                                                                                                                                                   |       |      |        |       |     |          |   |        |         |     |        |         |     |        |
| <p>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.</p> |       |      |        |       |     |          |   |        |         |     |        |         |     |        |
| HALLIBURTON                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |       |      |        |       |     |          |   |        |         |     |        |         |     |        |

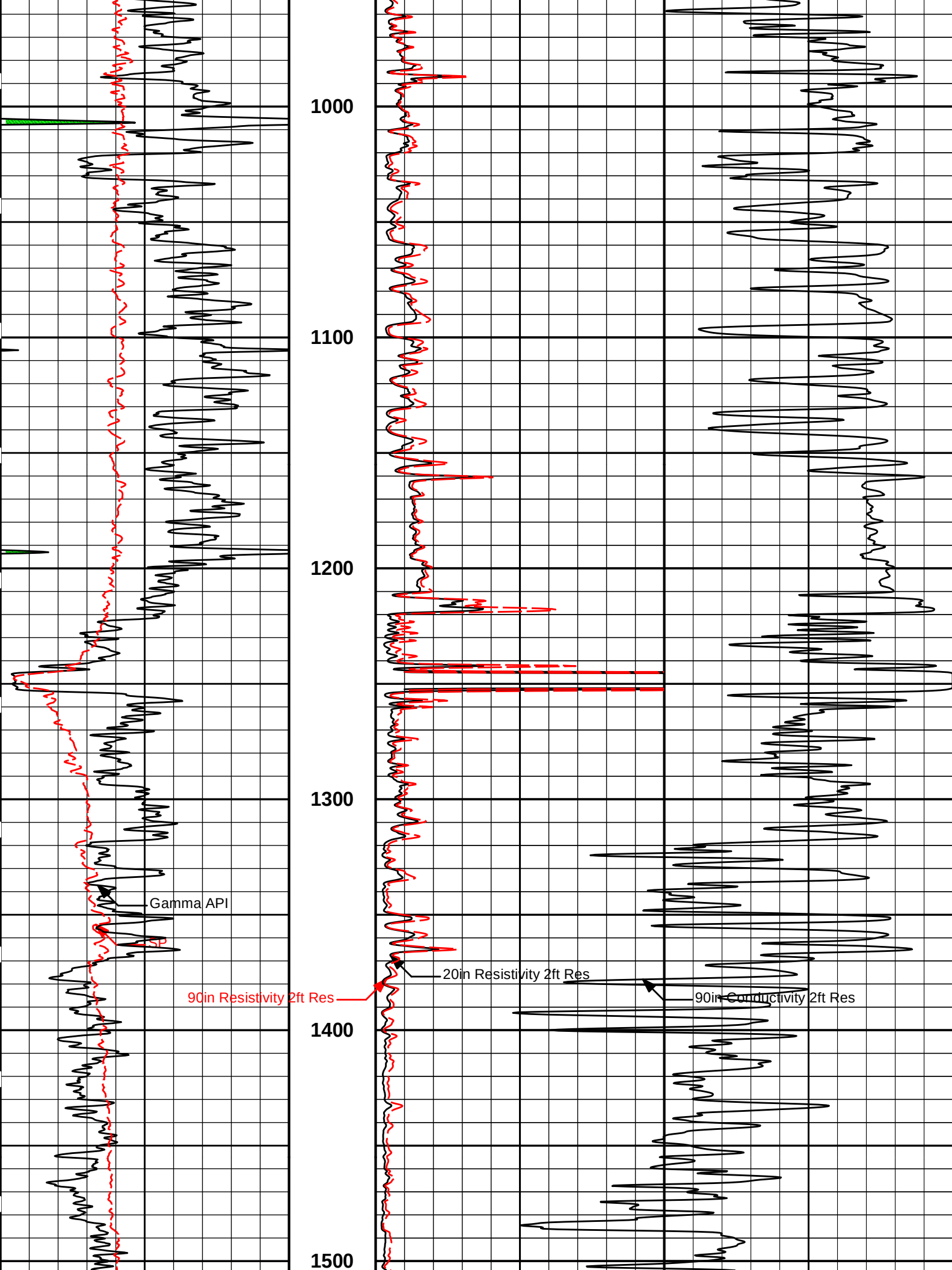
**HALLIBURTON**

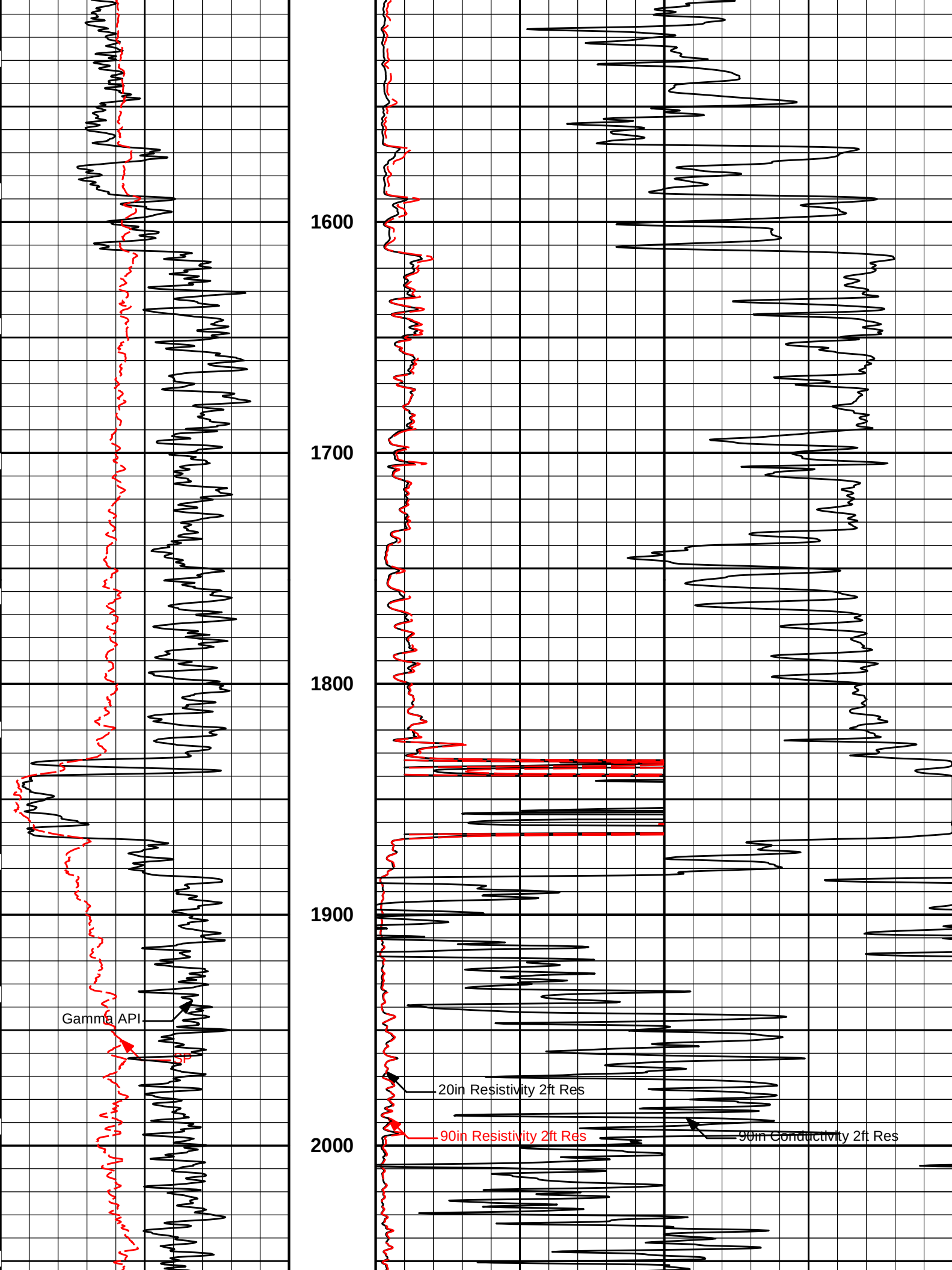
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Plot Range: 255 ft to 4382 ft  
Data: HOWARD A #1\Well Based\MAIN\  
Plot File: \\-LOCAL-\\HOWARD A #1\Well Based\ACRT\ACRT\_2\_lib

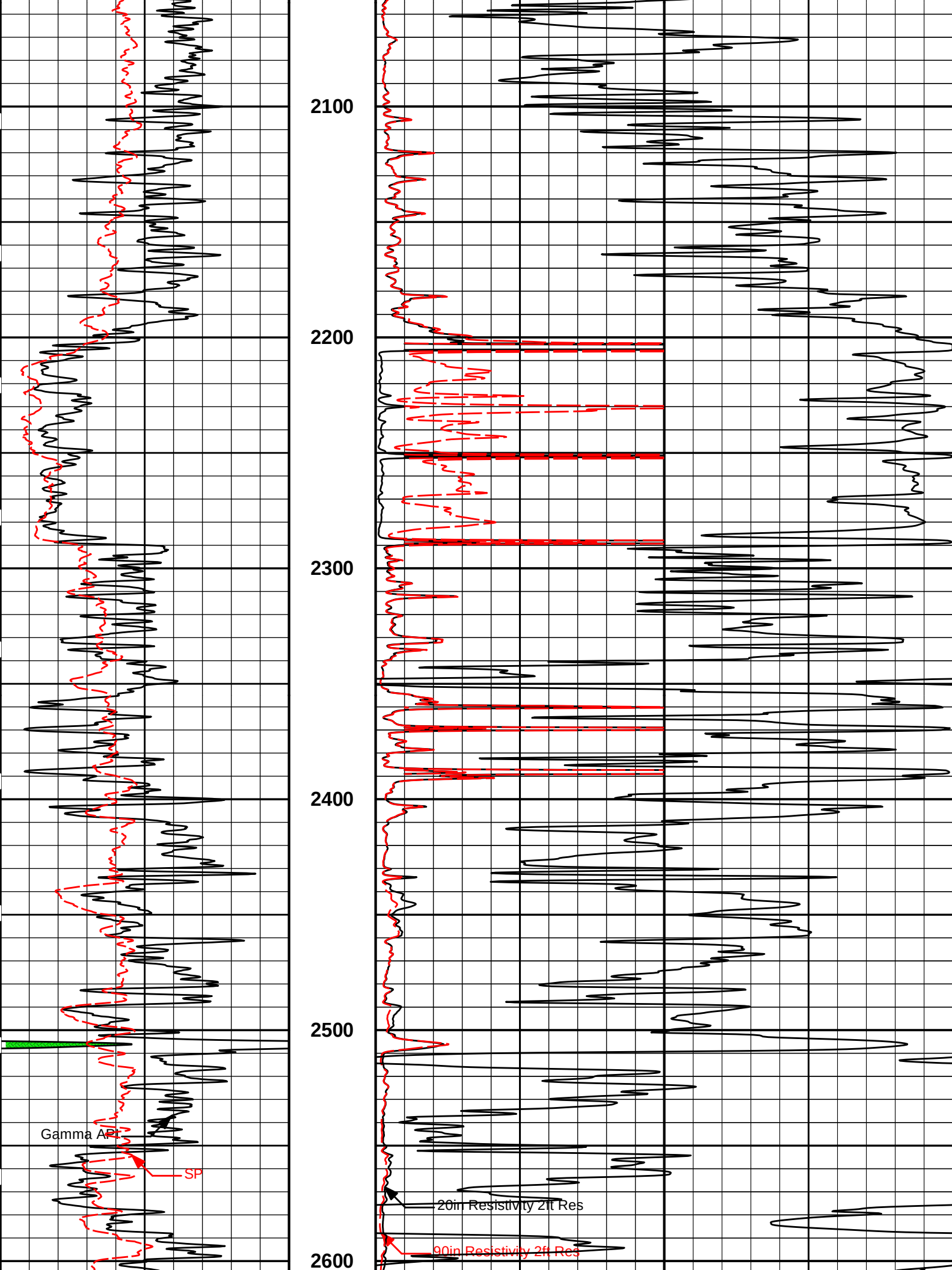
2 INCH MAIN LOG

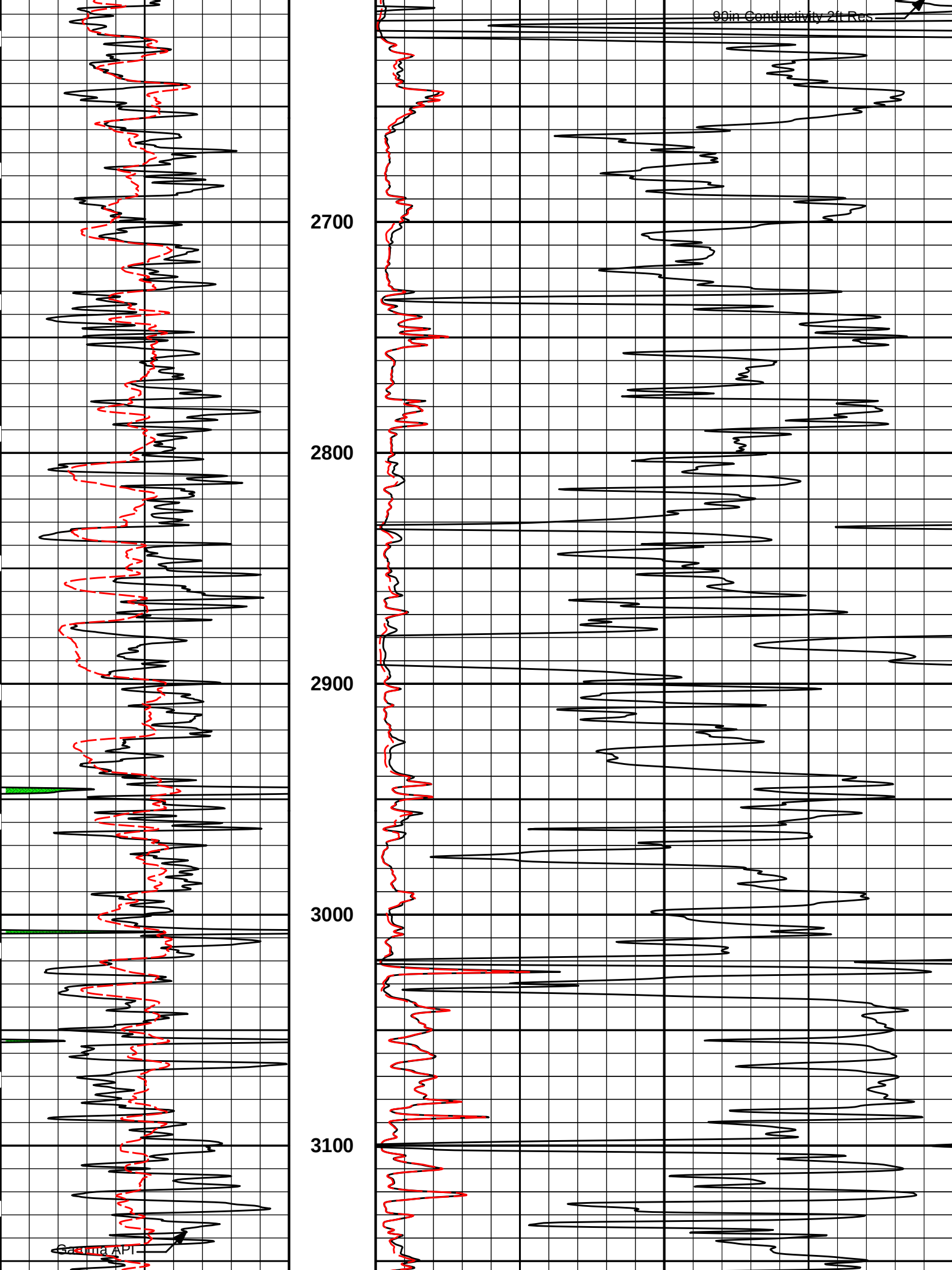


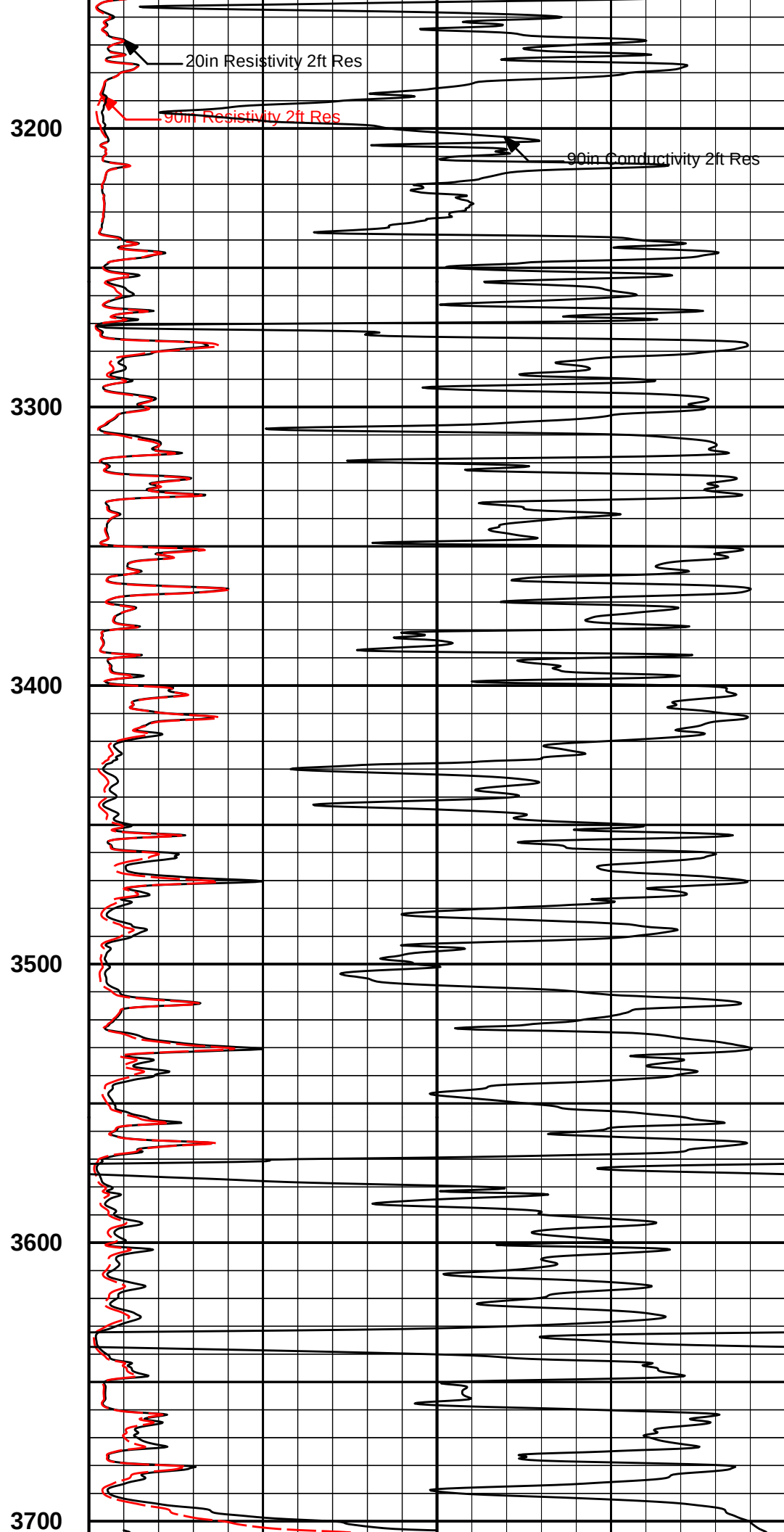
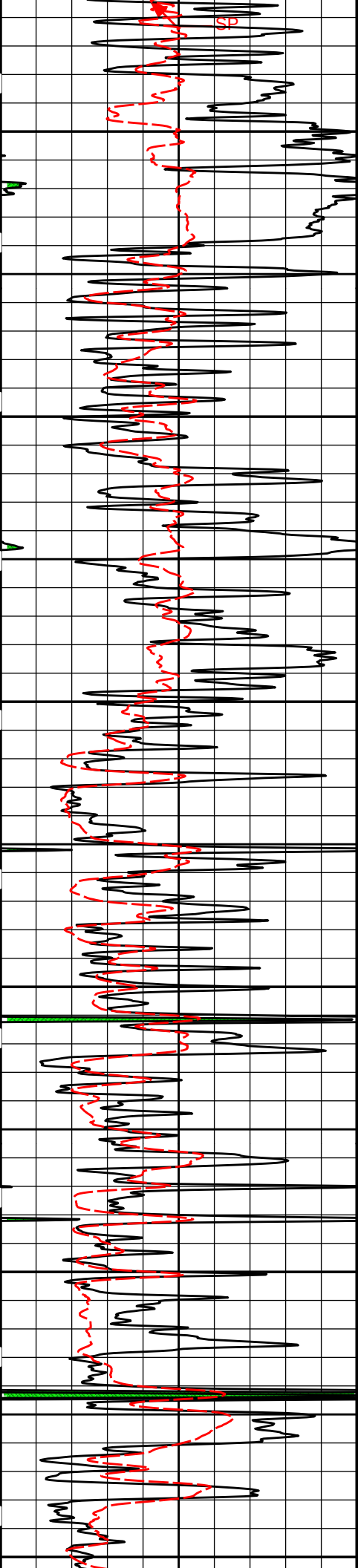




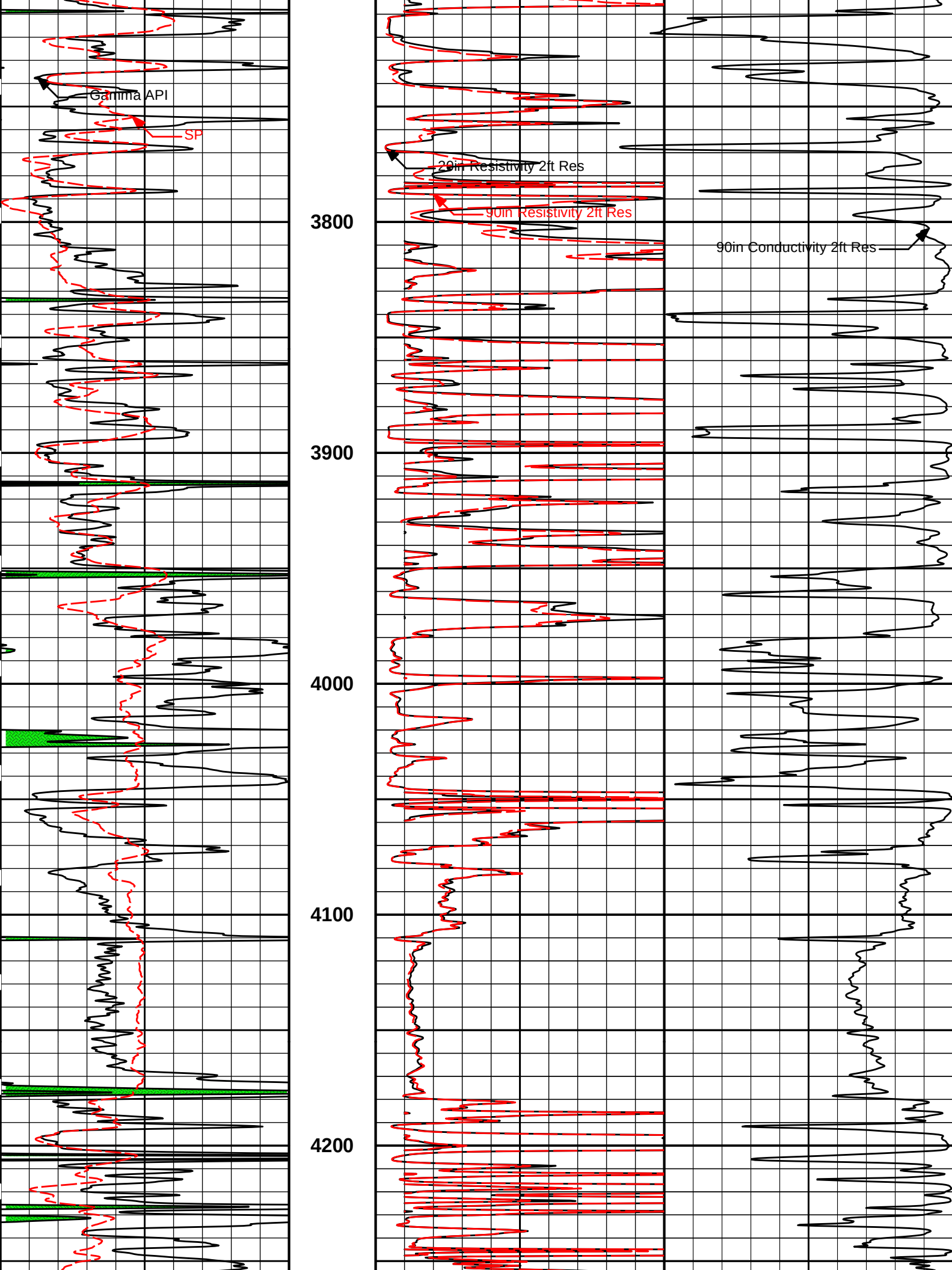




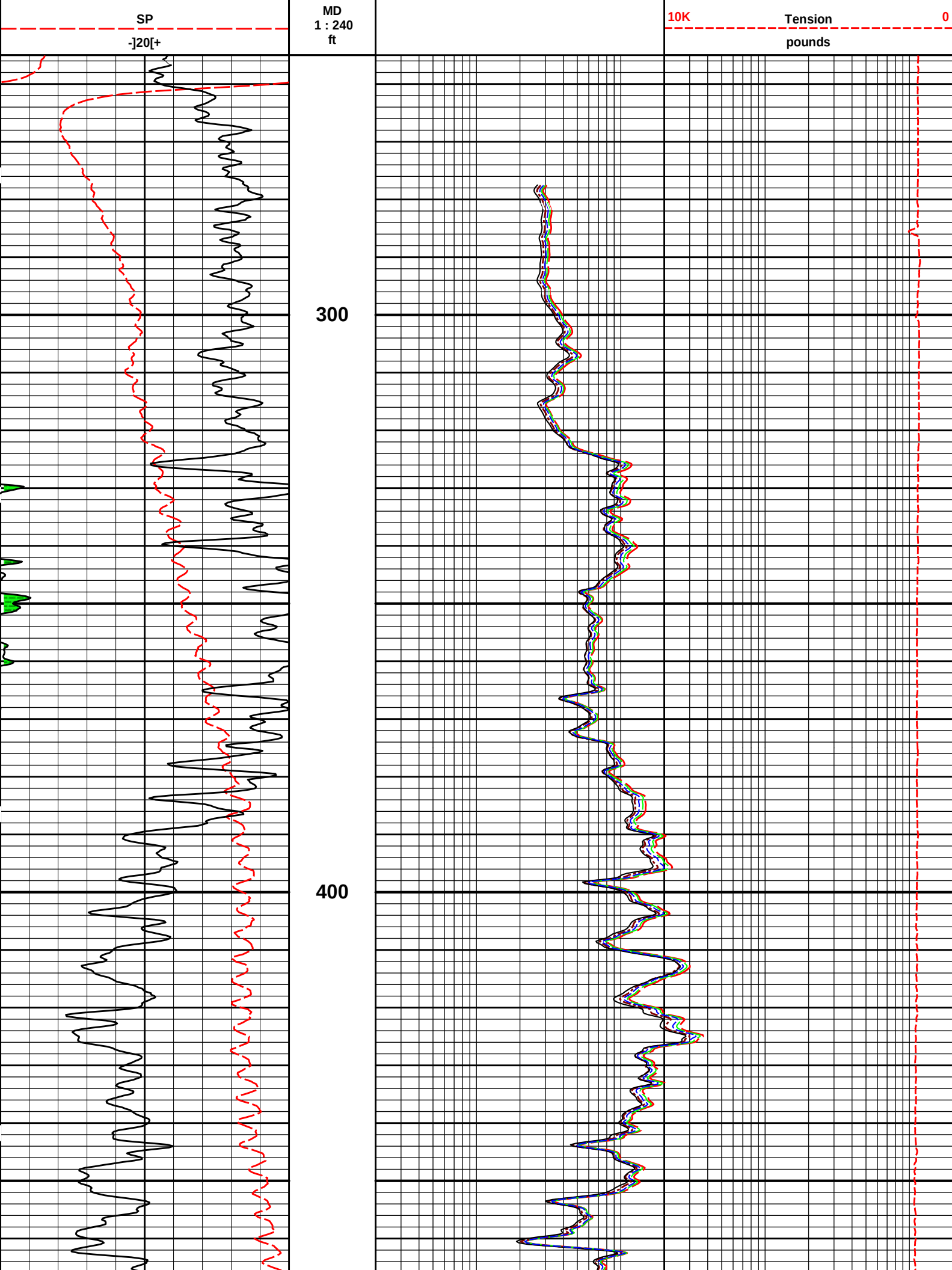


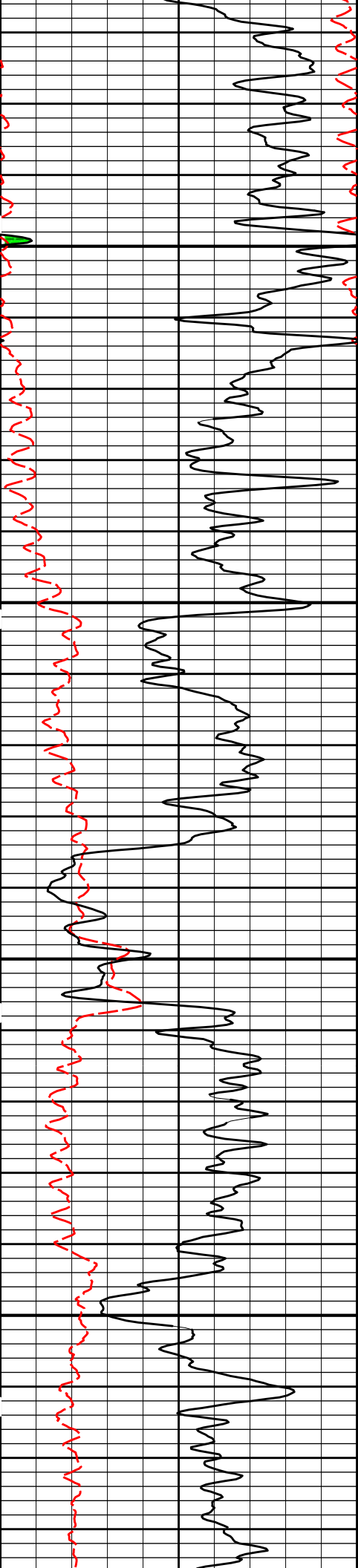






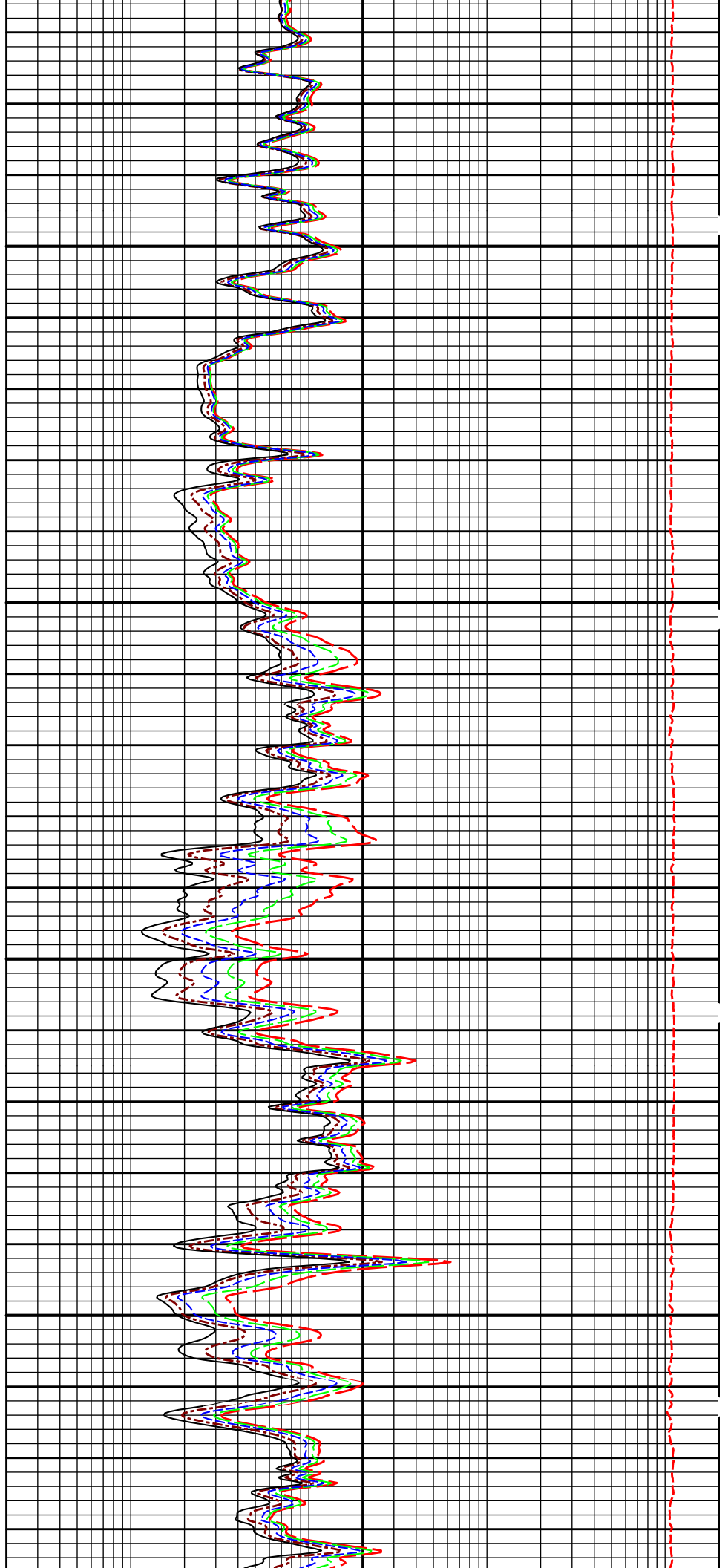


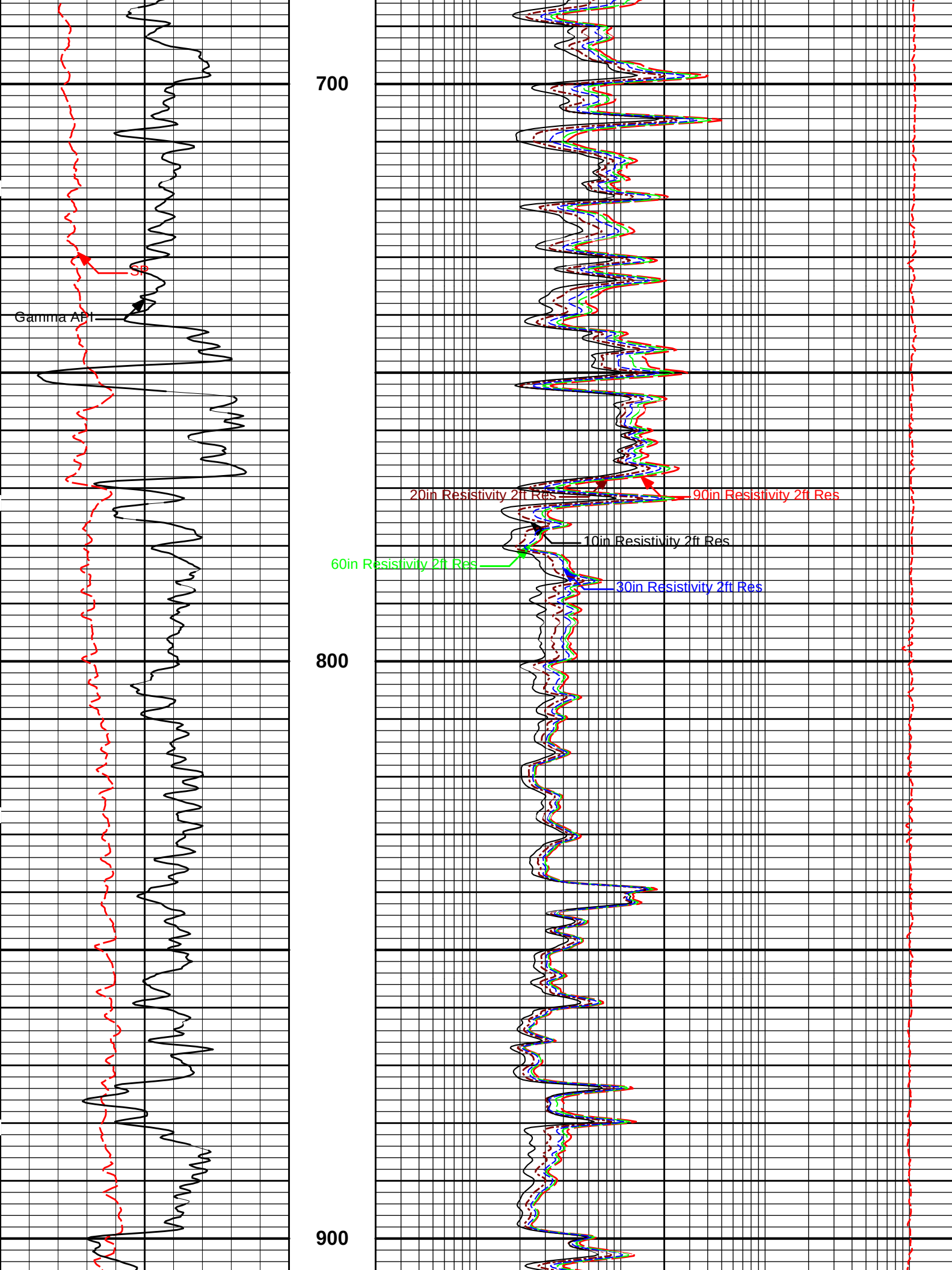


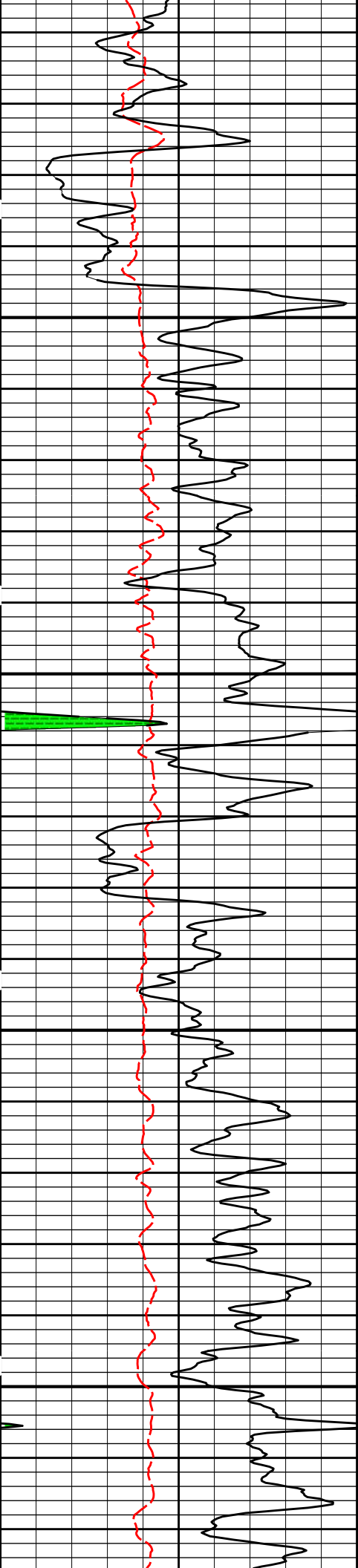


500

600

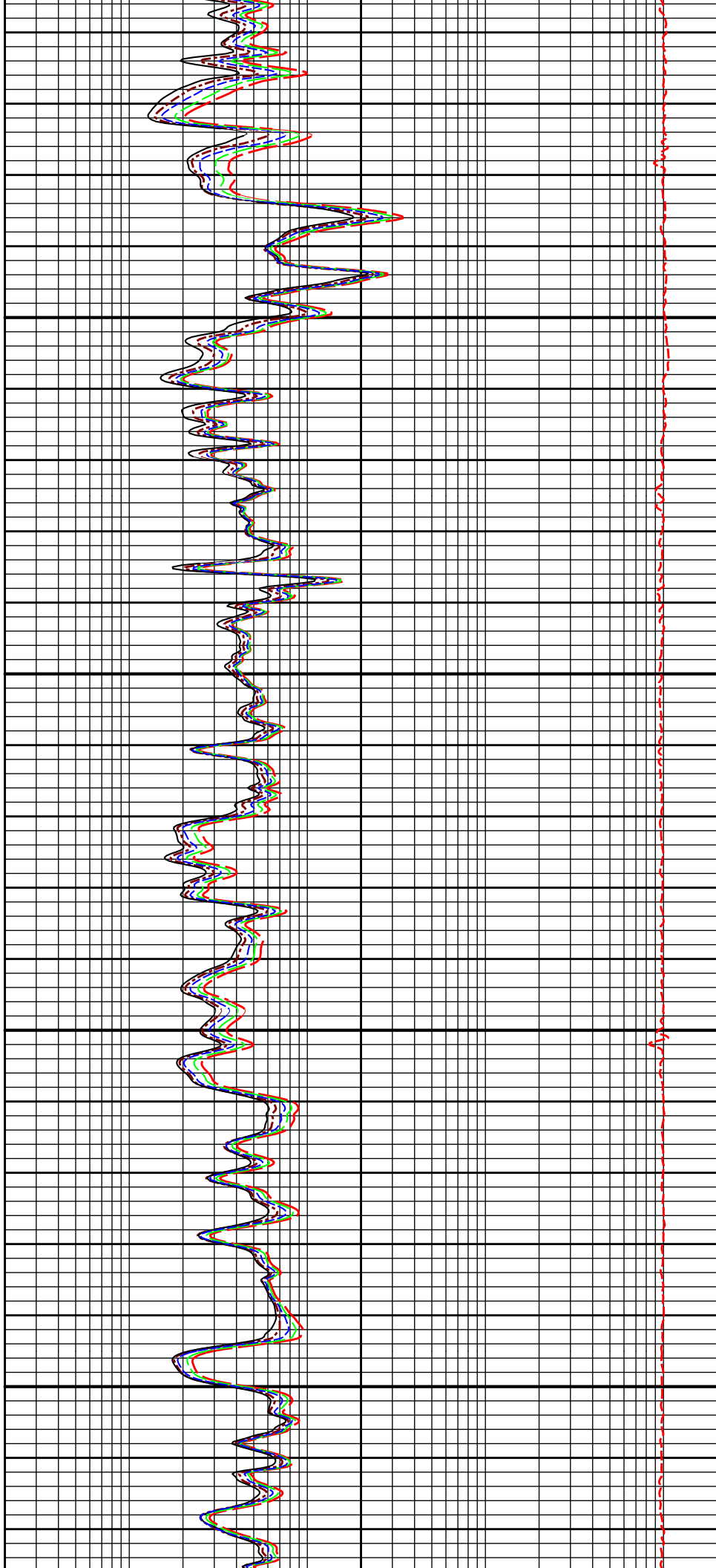


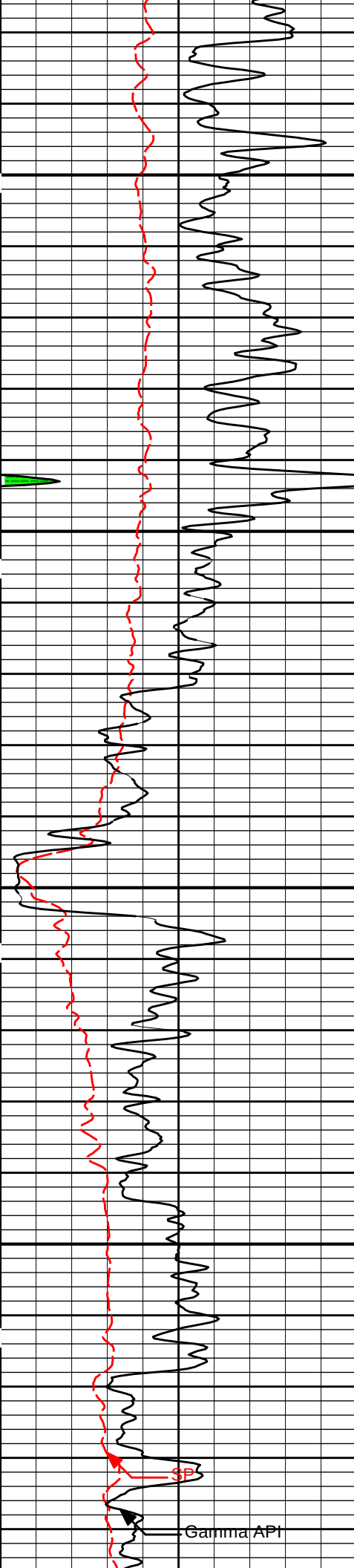




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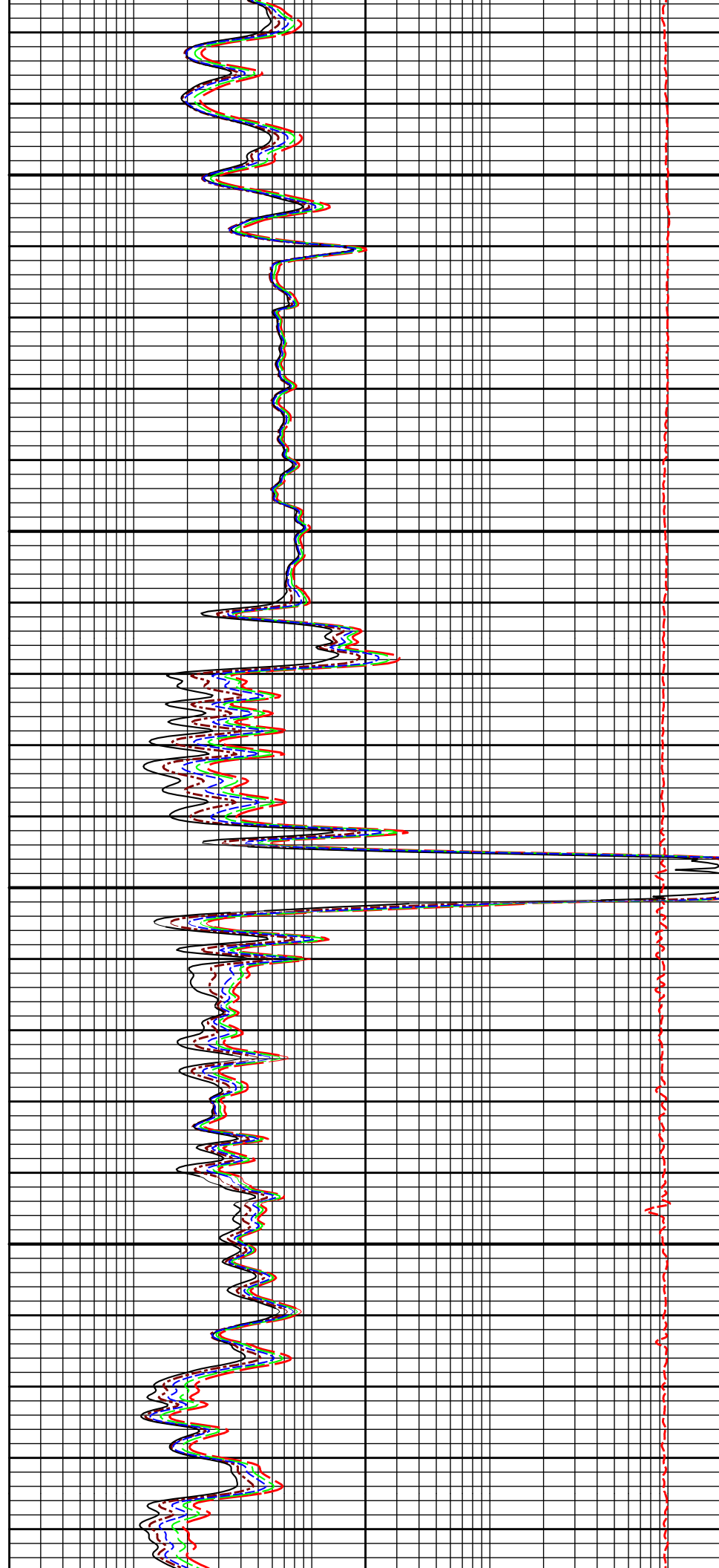
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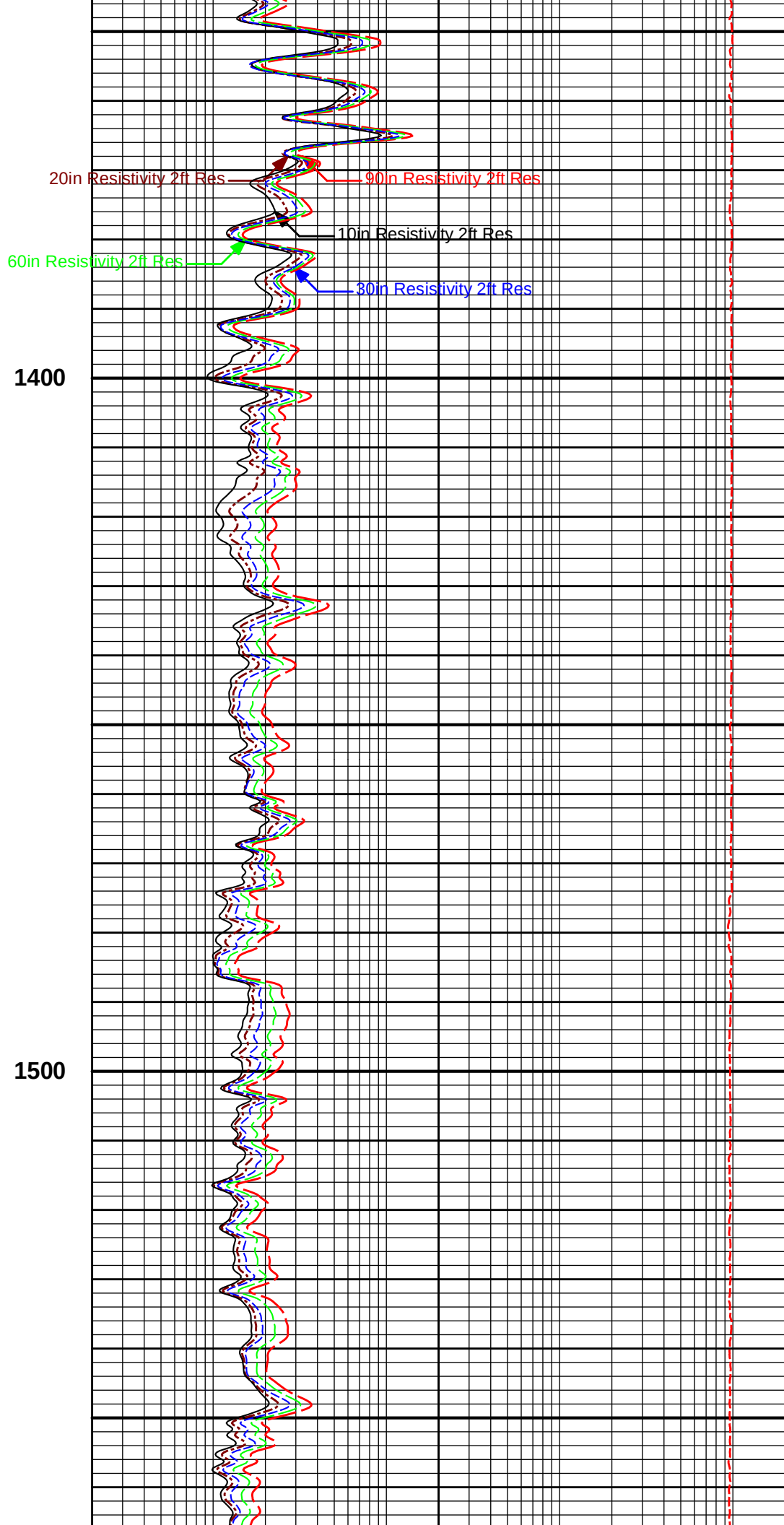
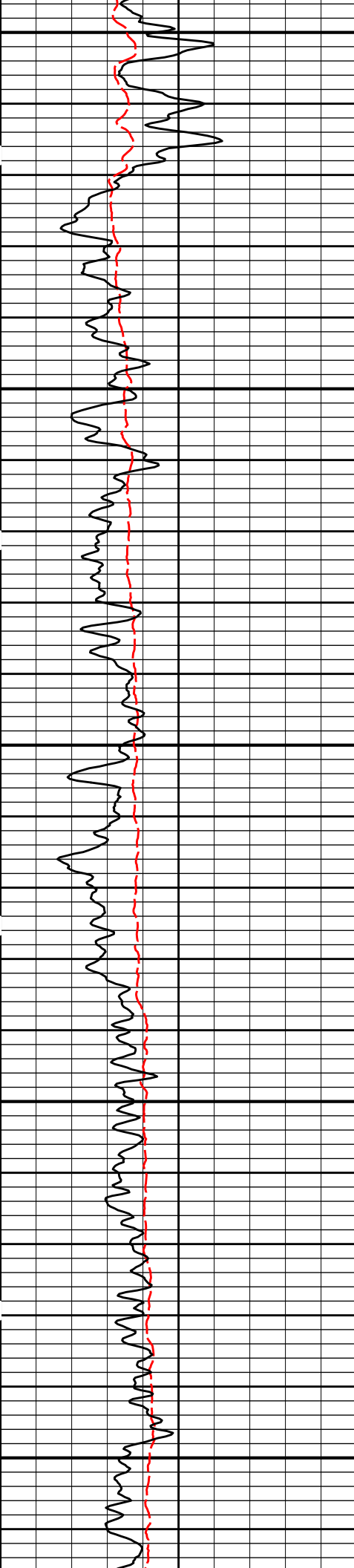




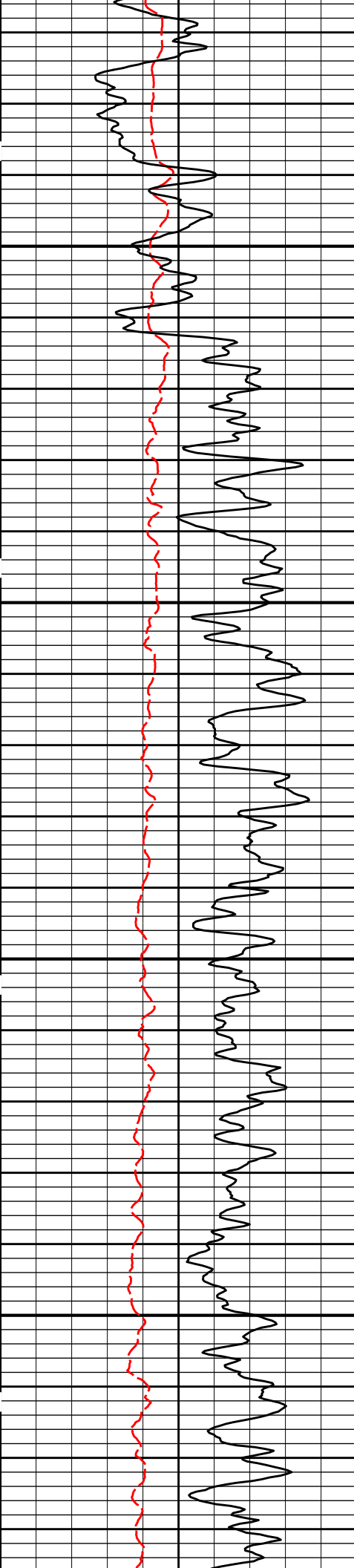
1200

1300



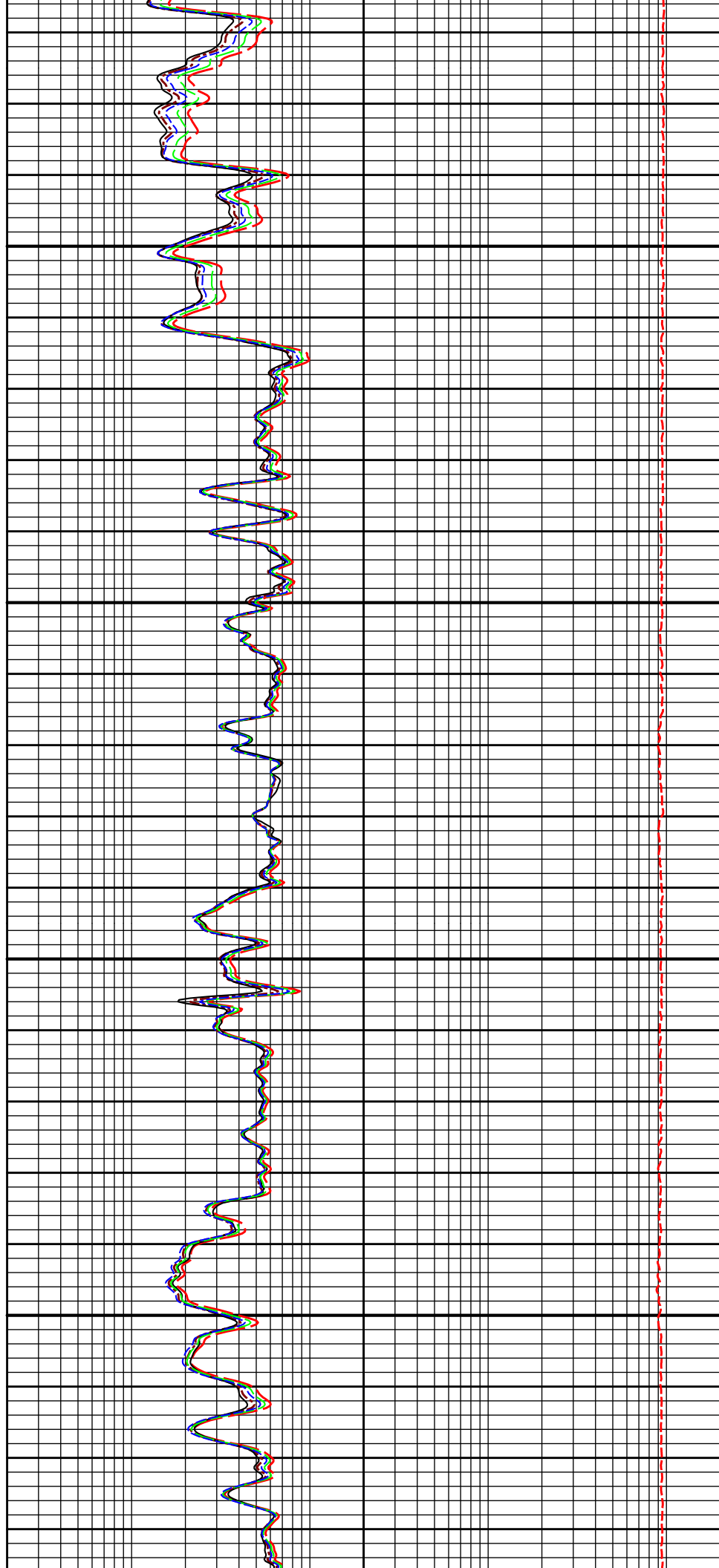


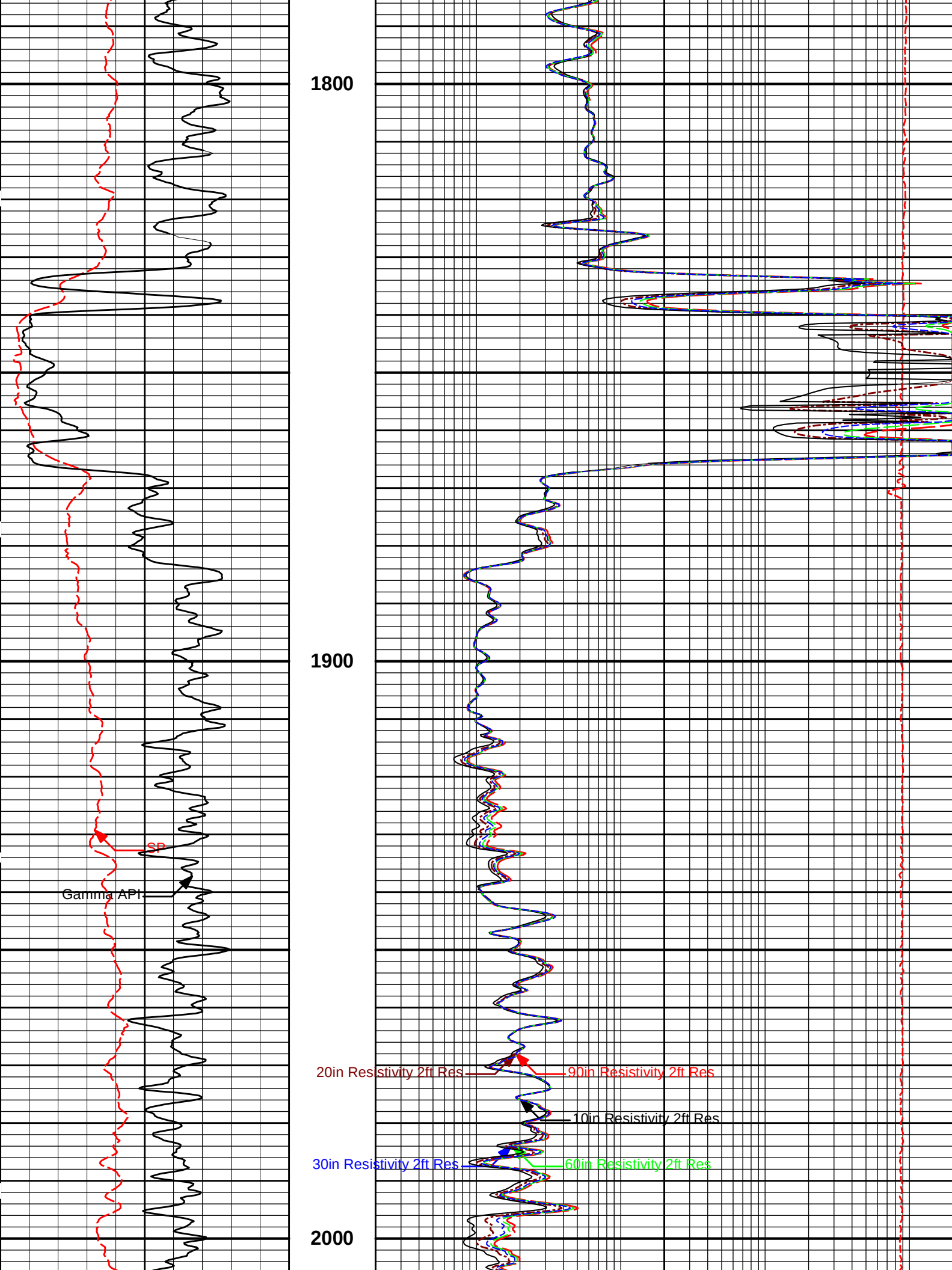


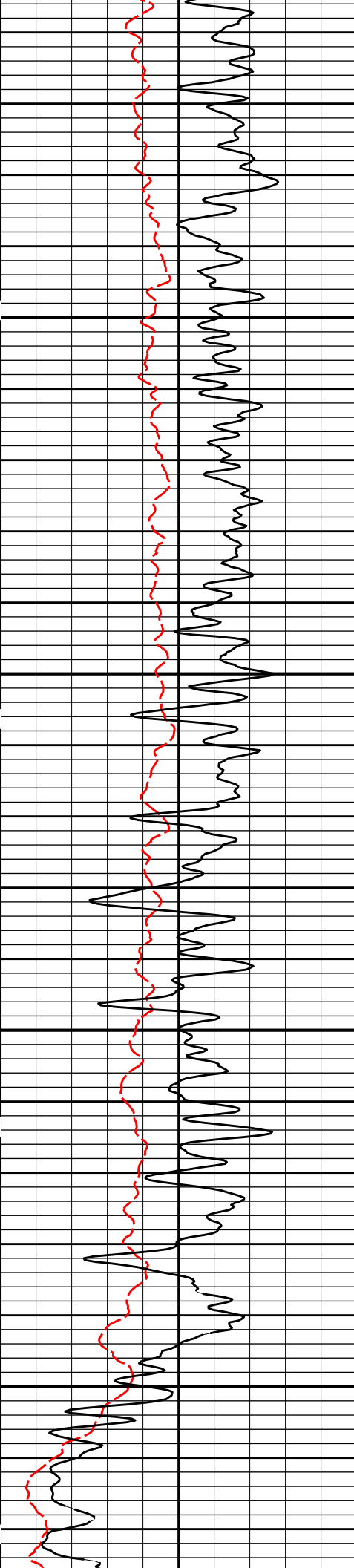


1600

1700

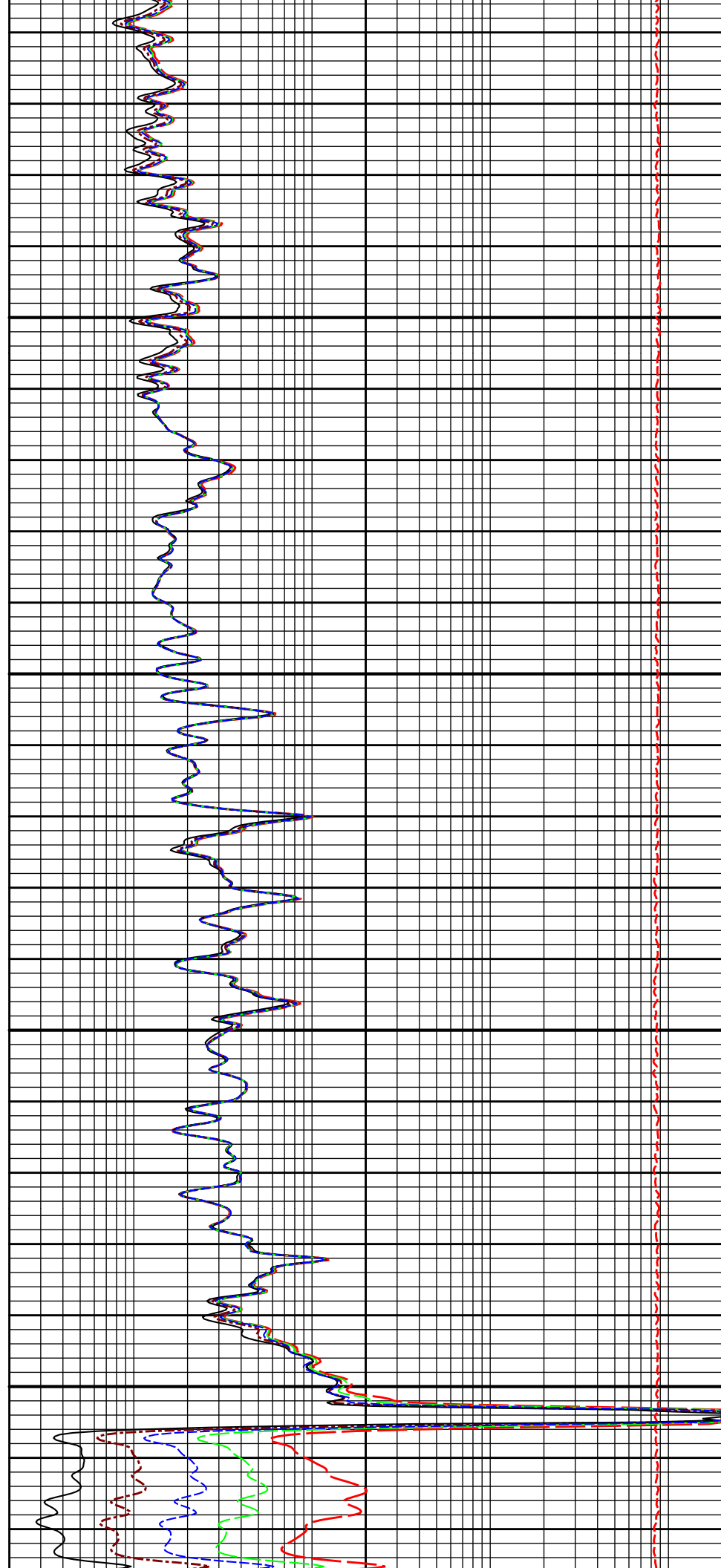


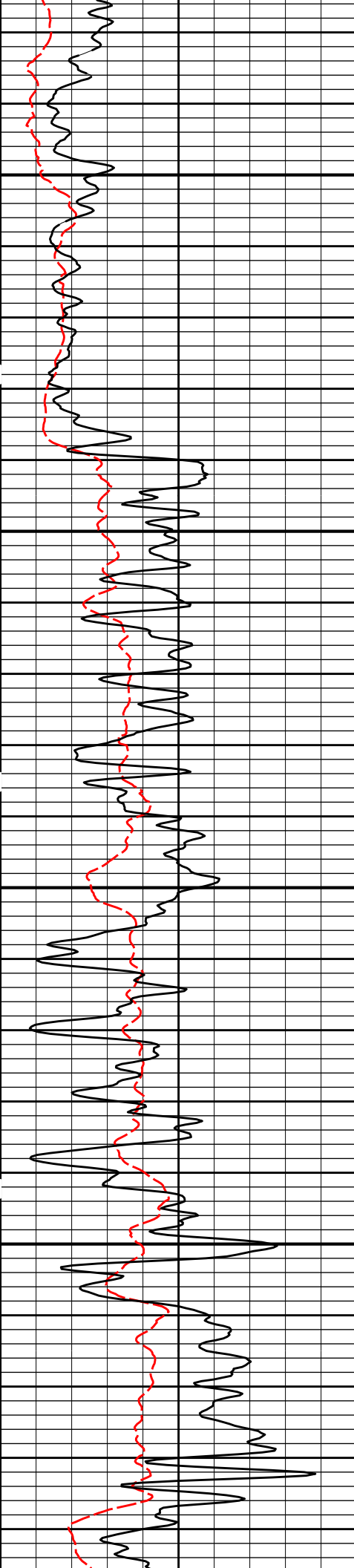




2100

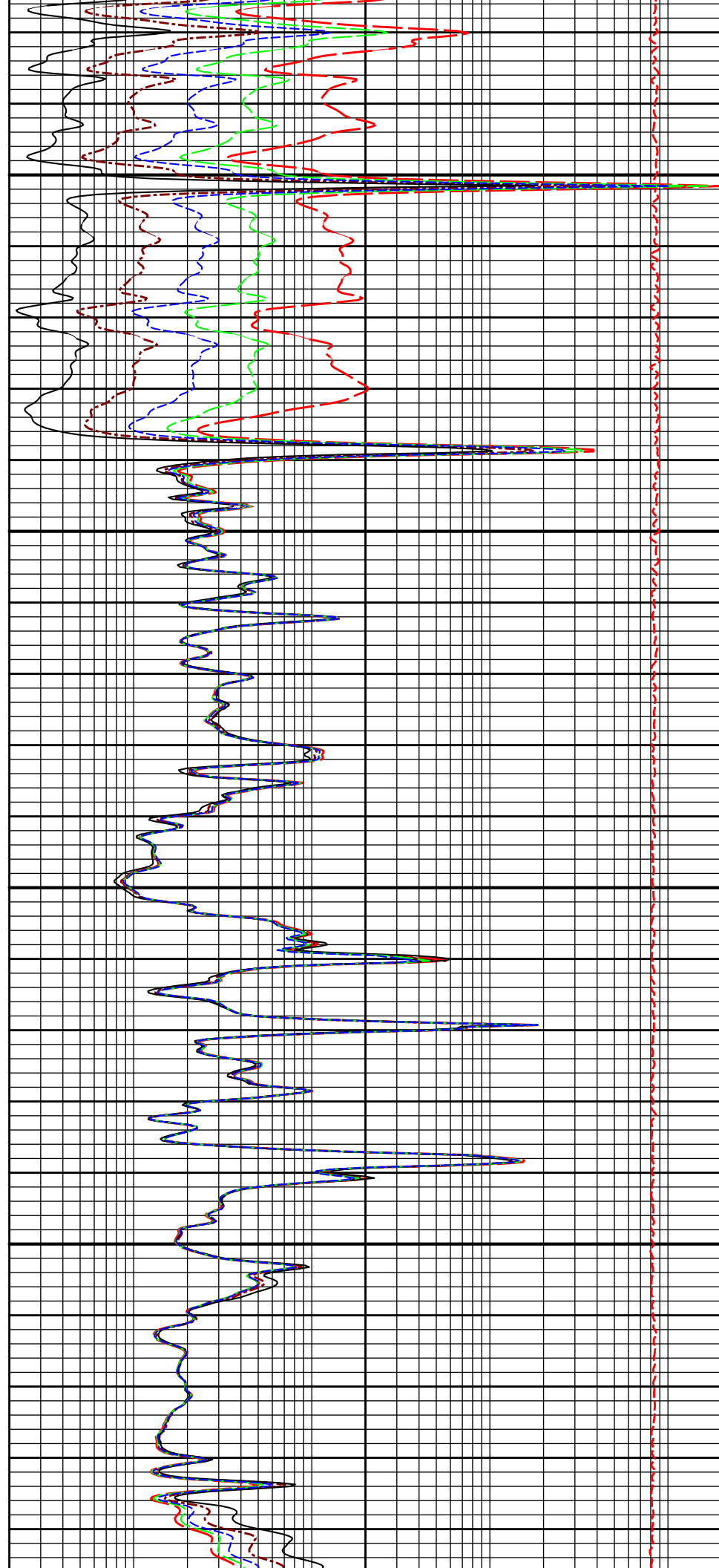
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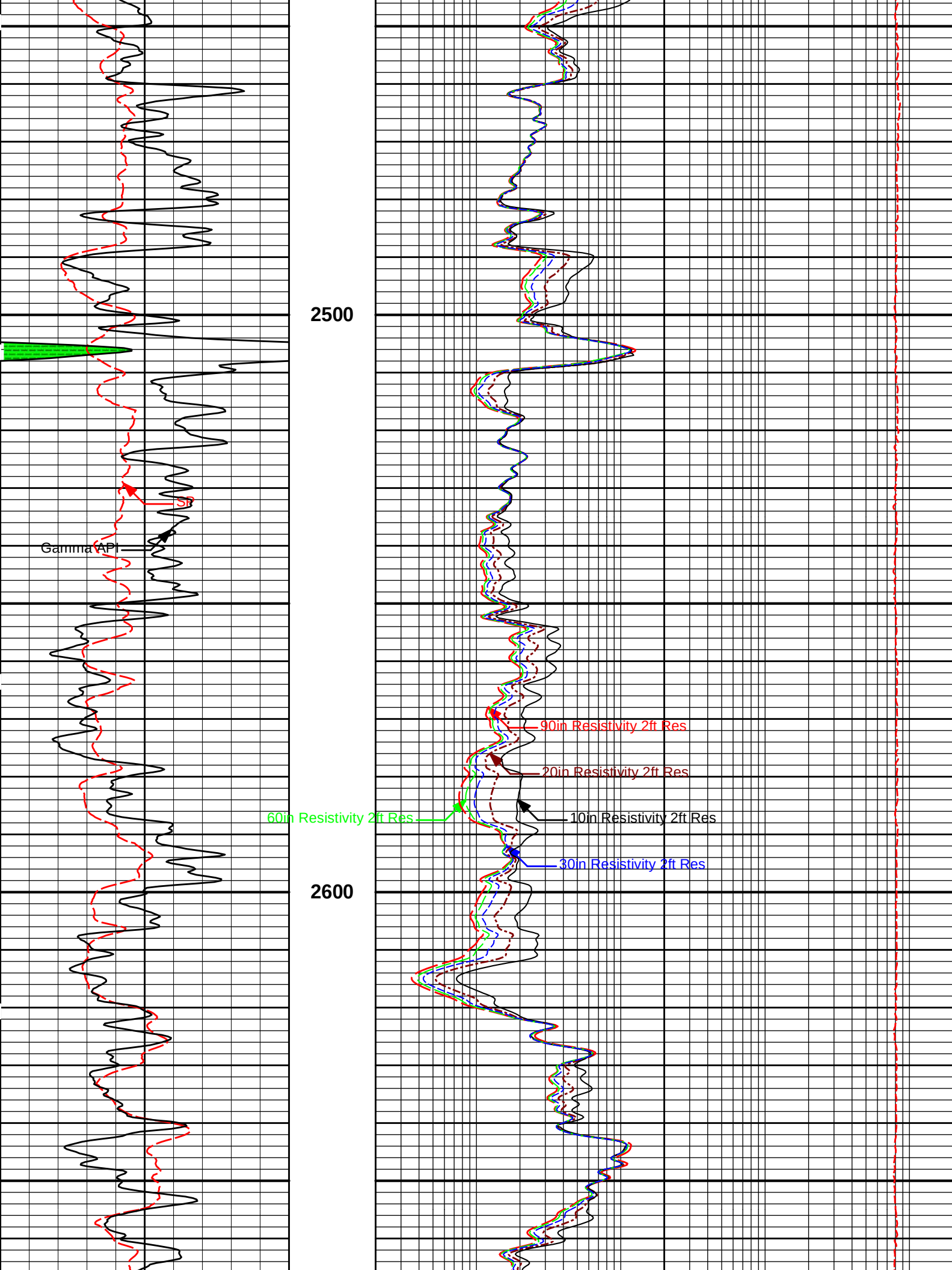


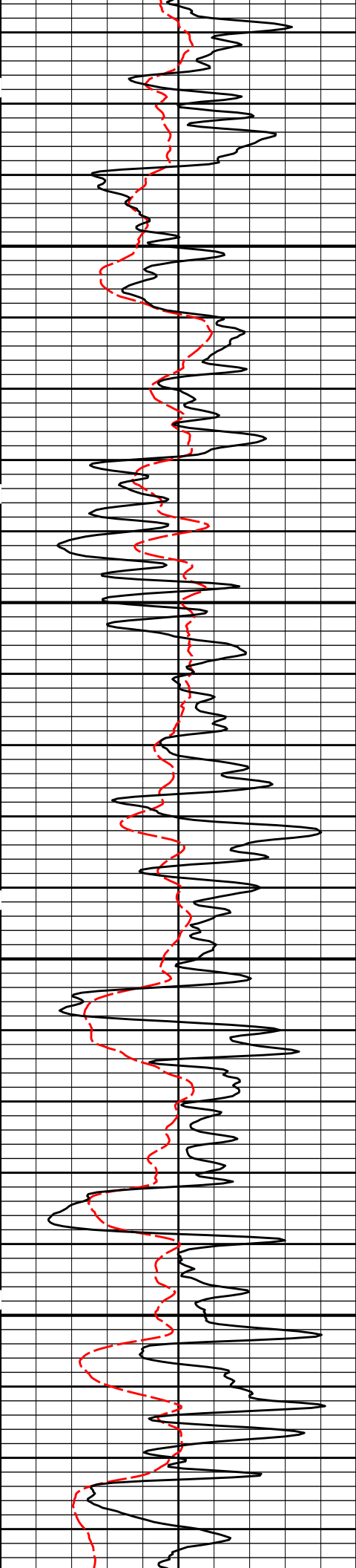


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2400

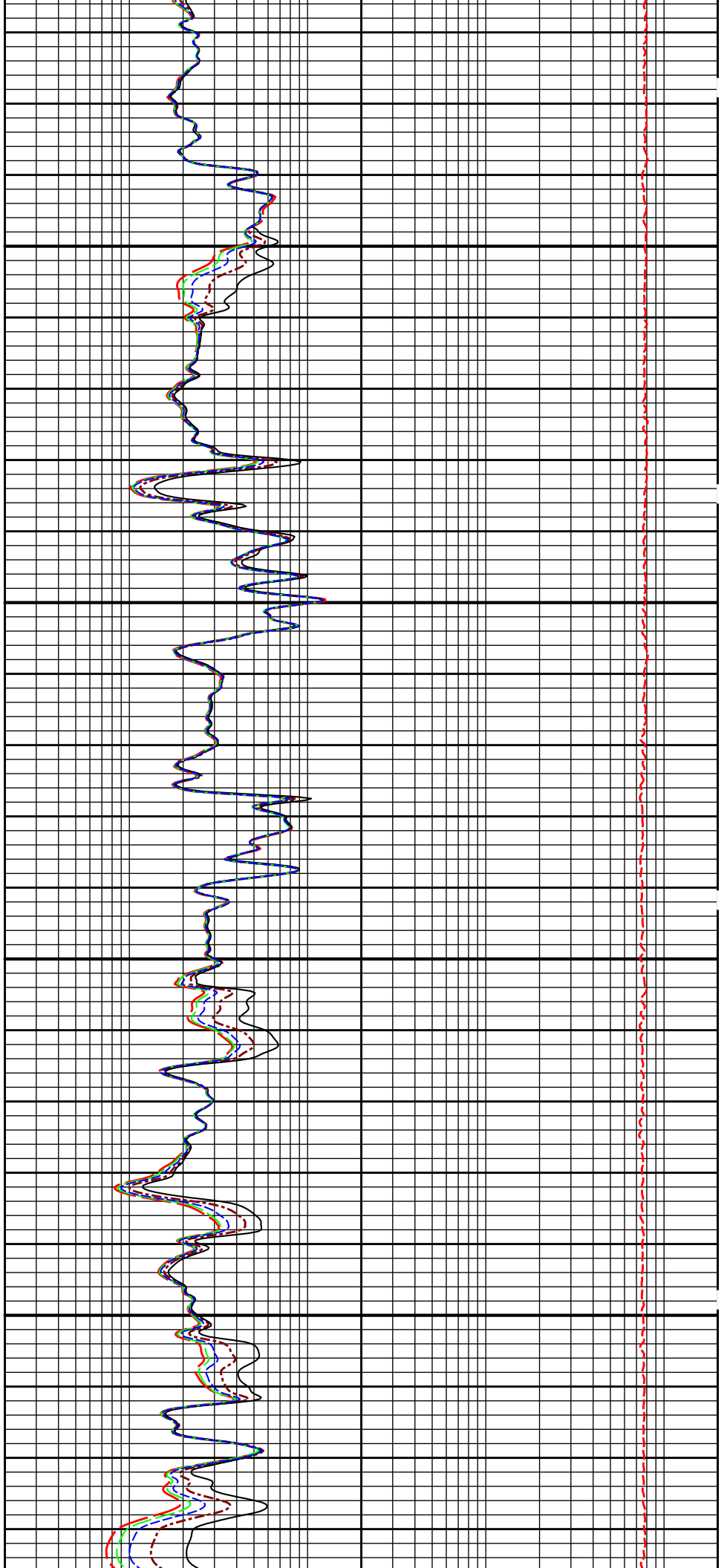


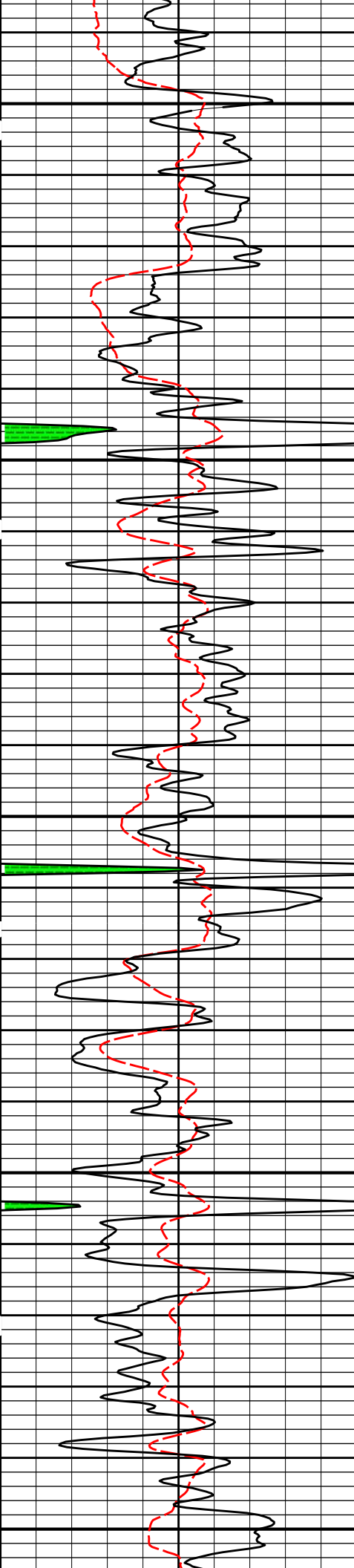




2700

2800

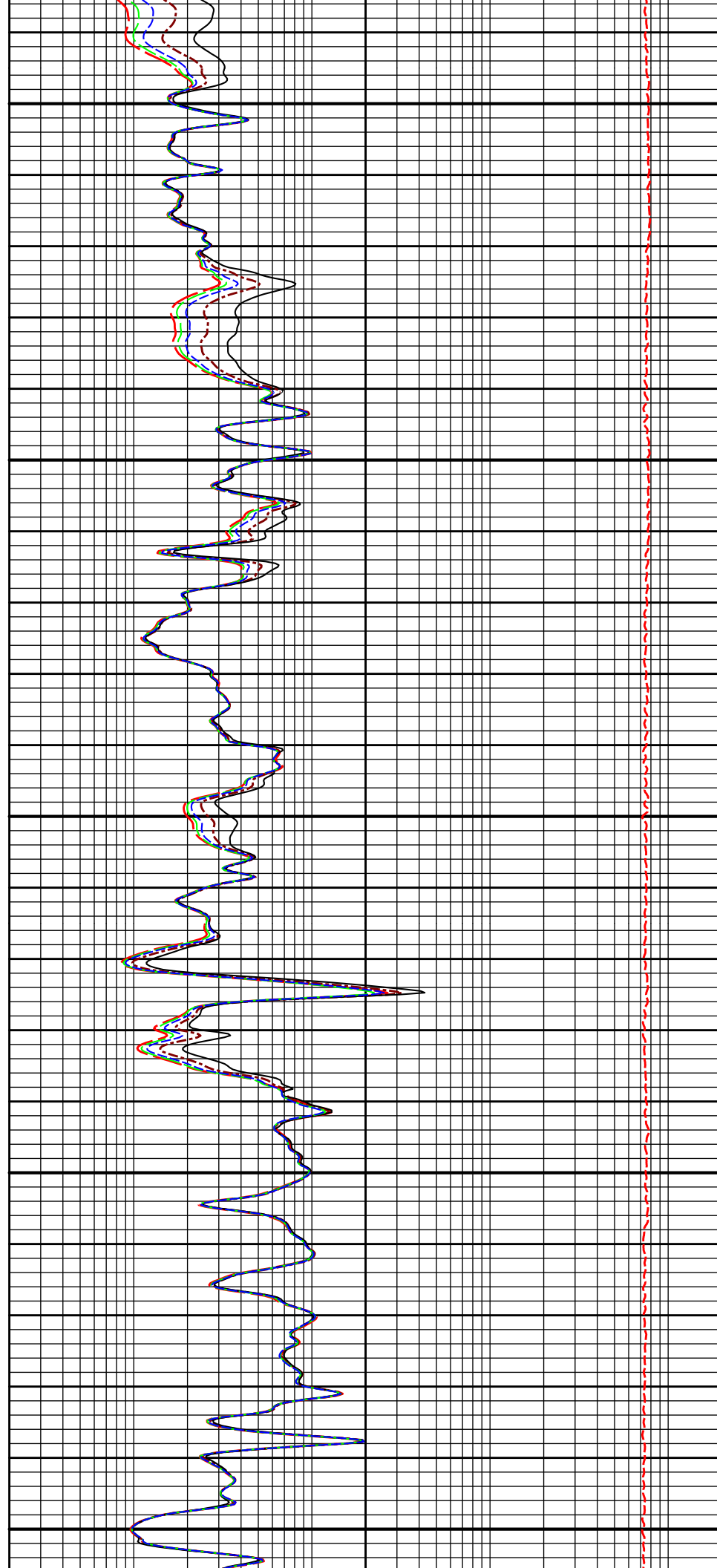


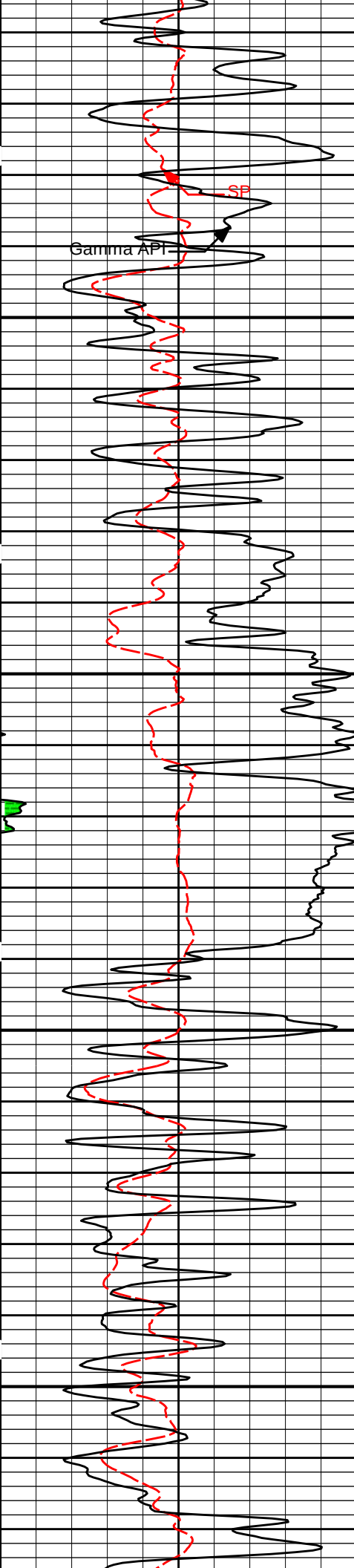


2900

3000

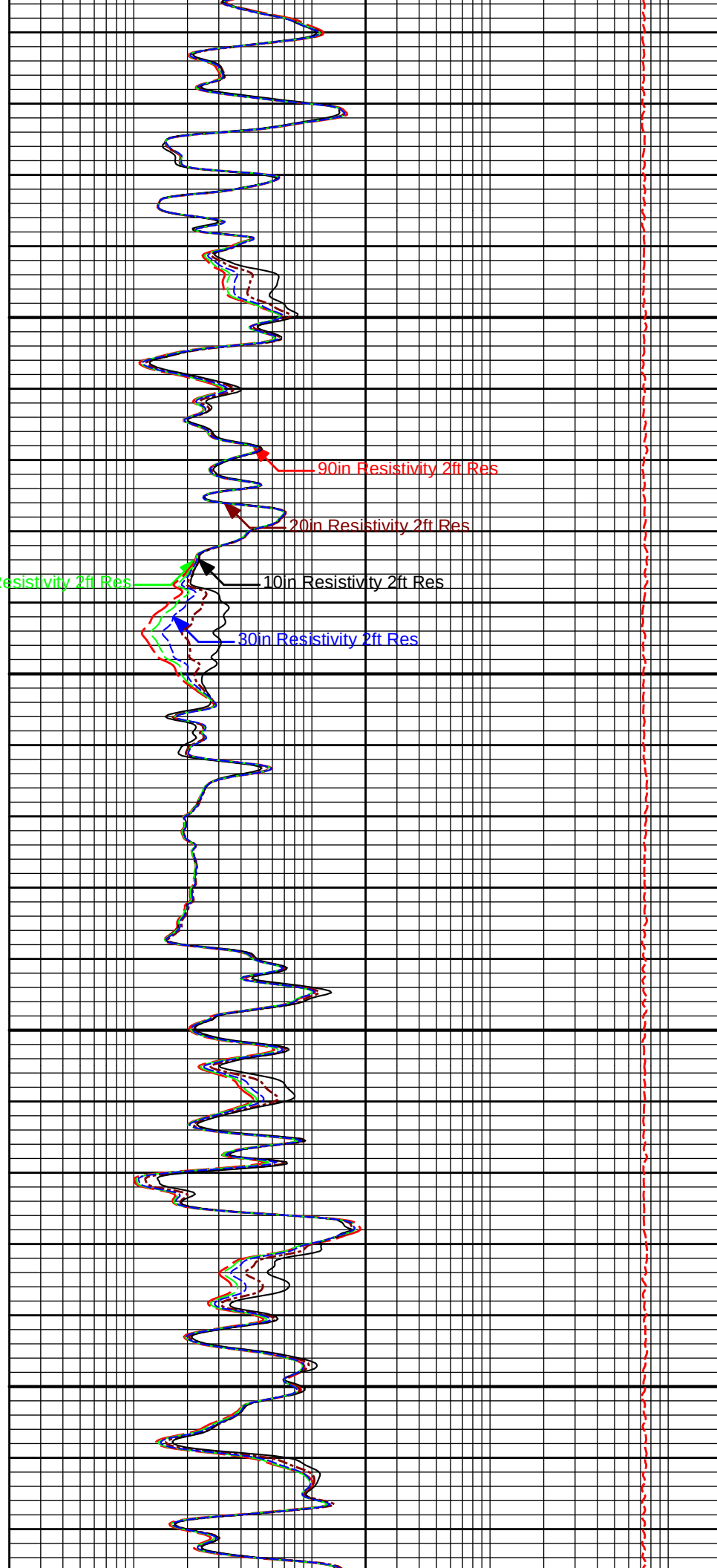
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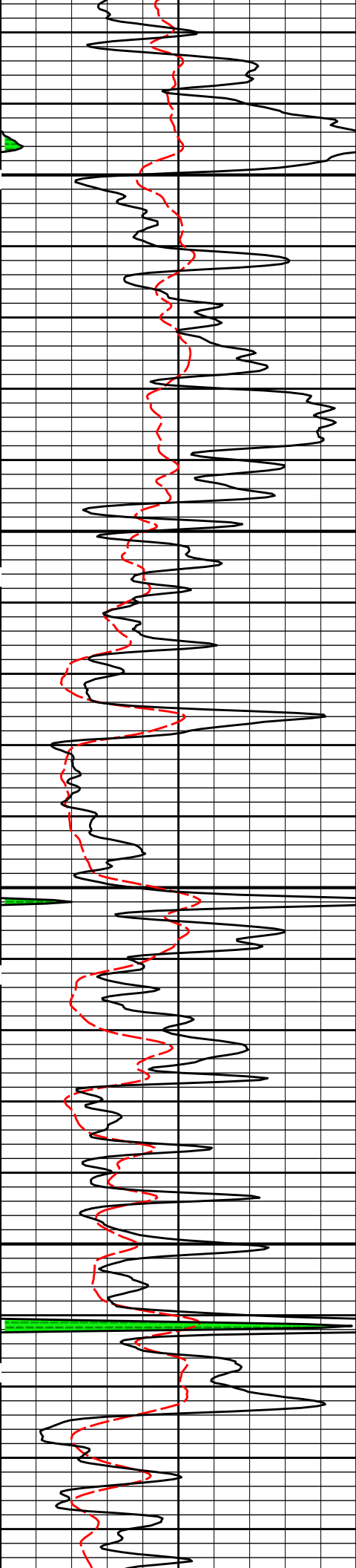


3200

3300

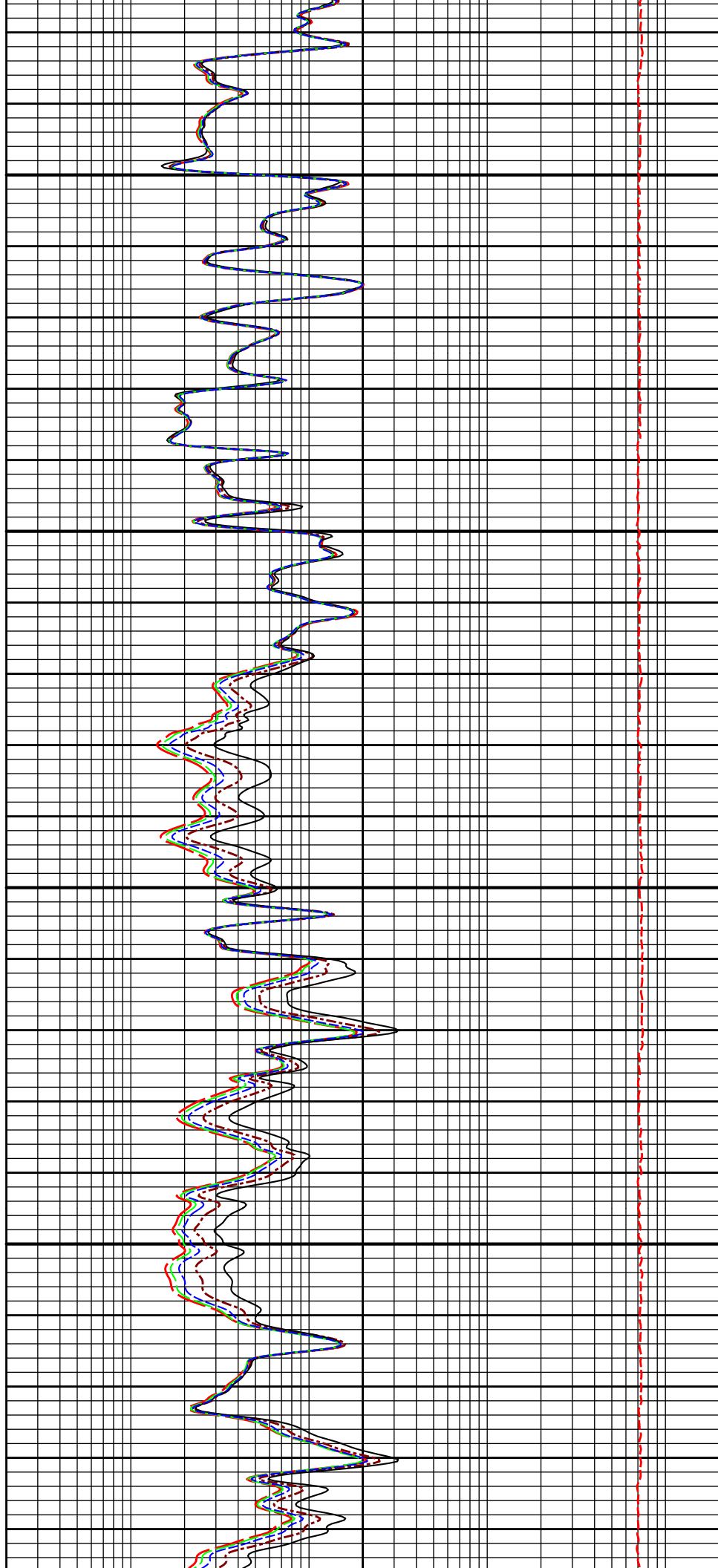


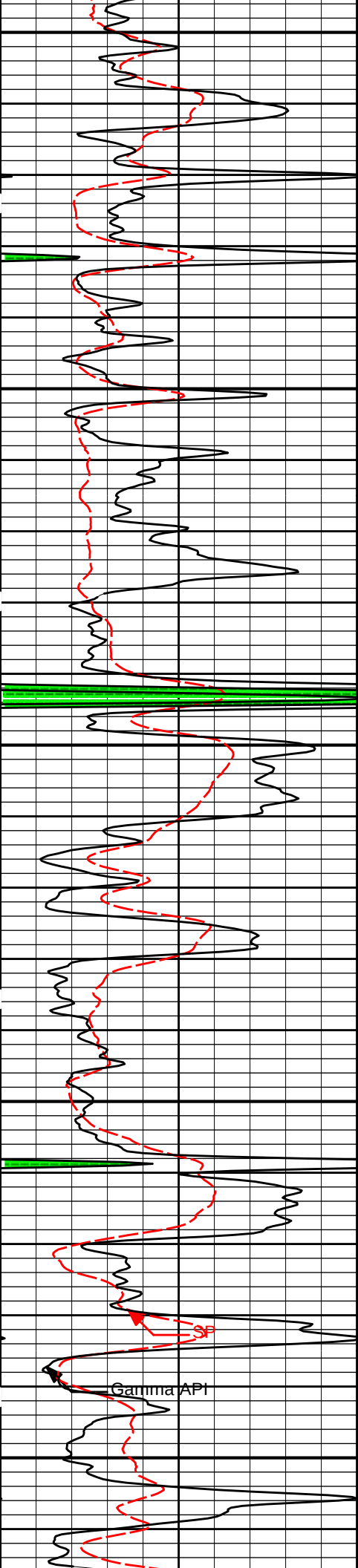




3400

3500

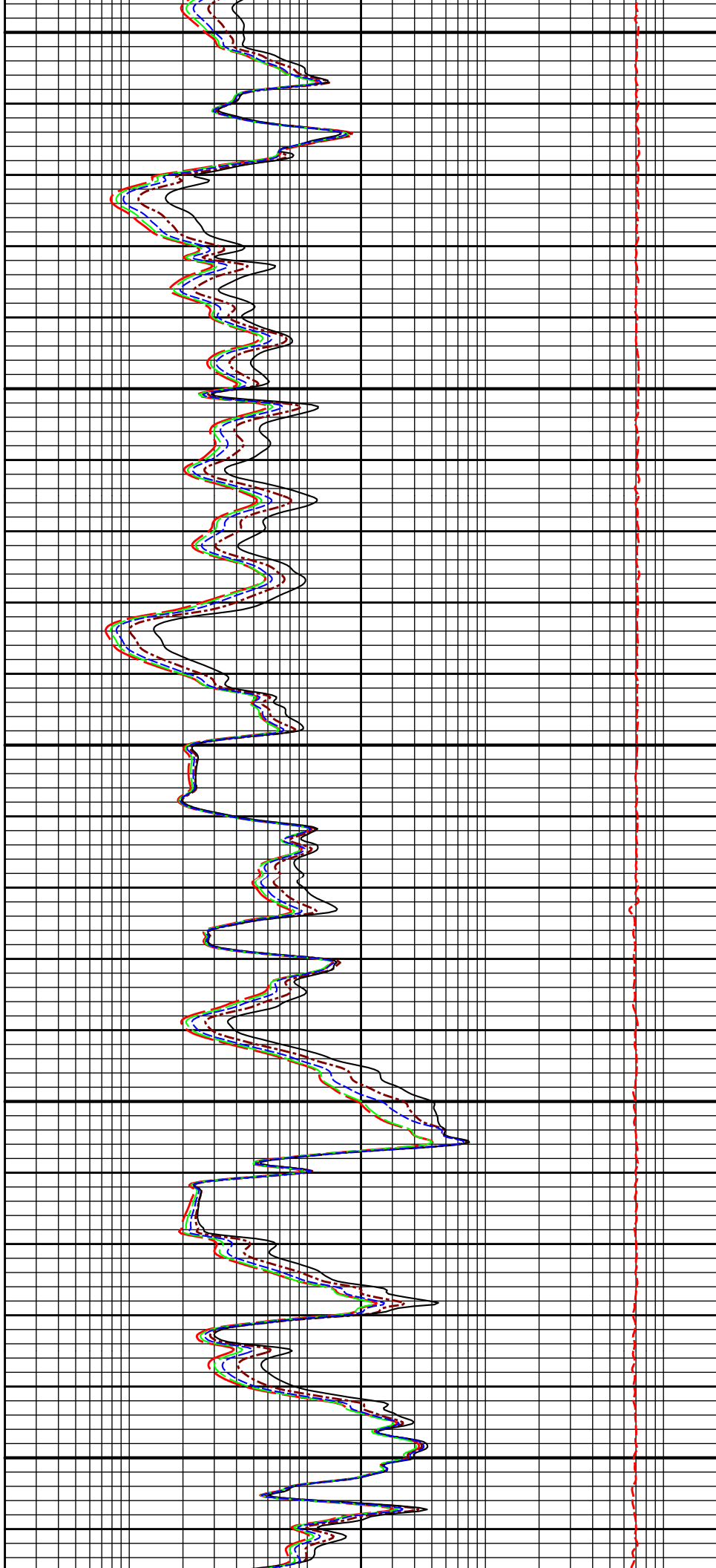


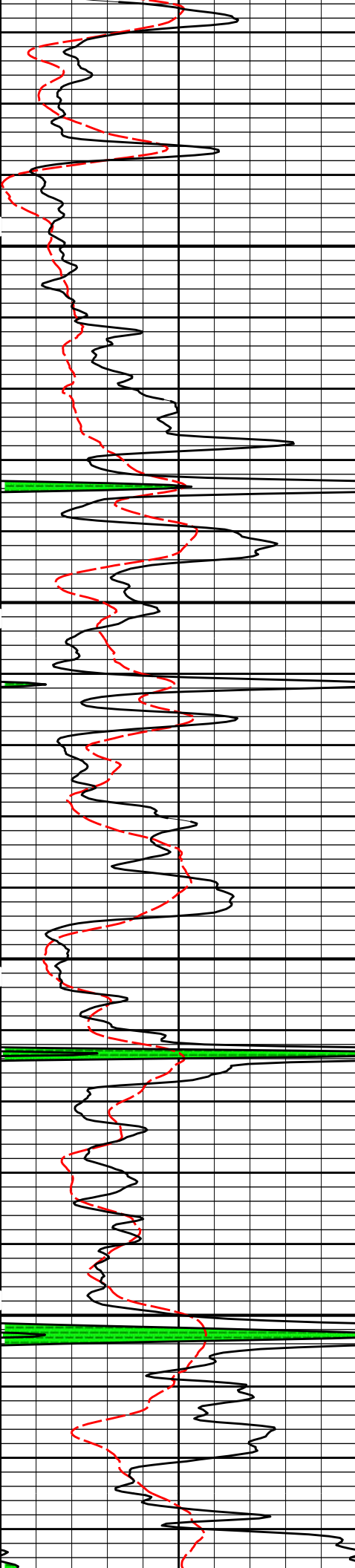


3600

3700

Gamma API





3800

3900

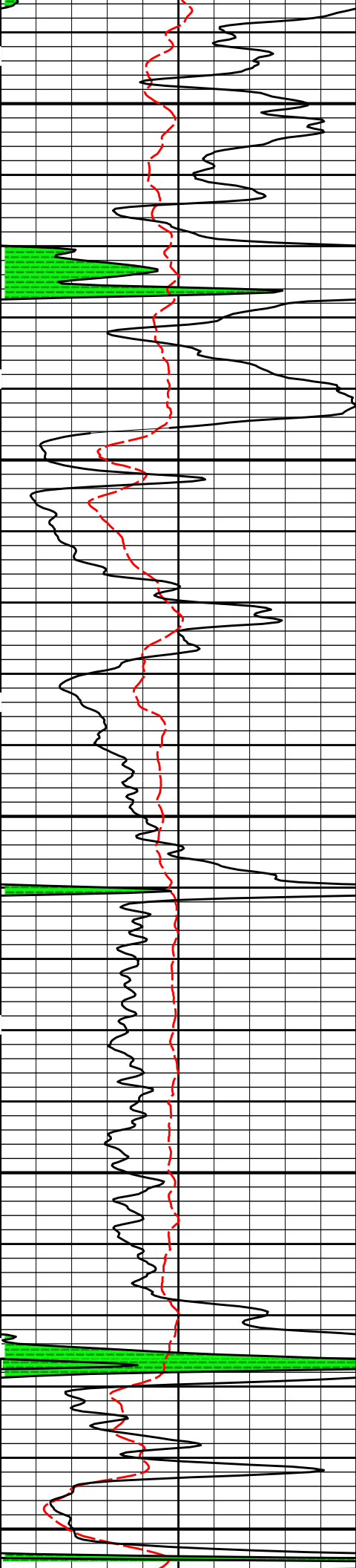
60in Resistivity 2ft Res

90in Resistivity 2ft Res

20in Resistivity 2ft Res

10in Resistivity 2ft Res

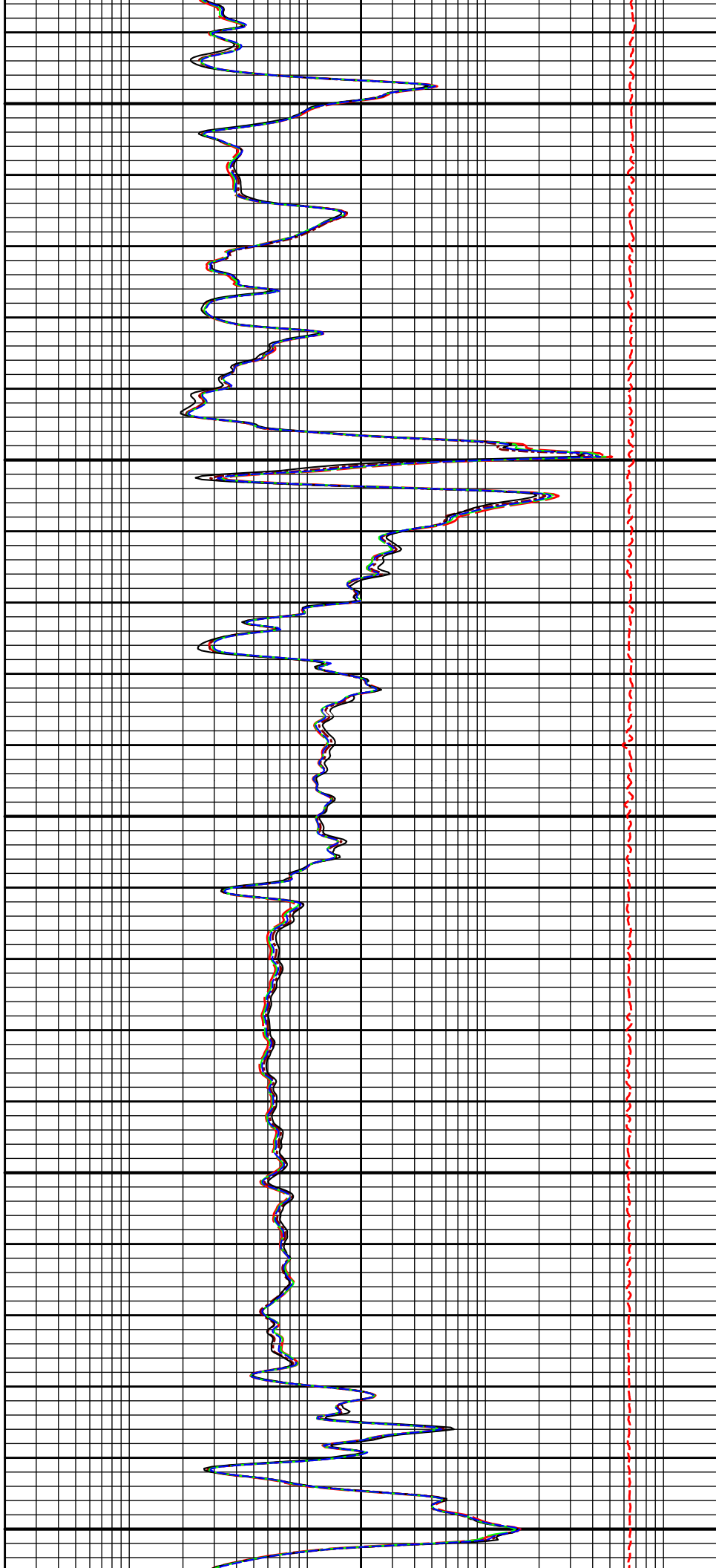
30in Resistivity 2ft Res

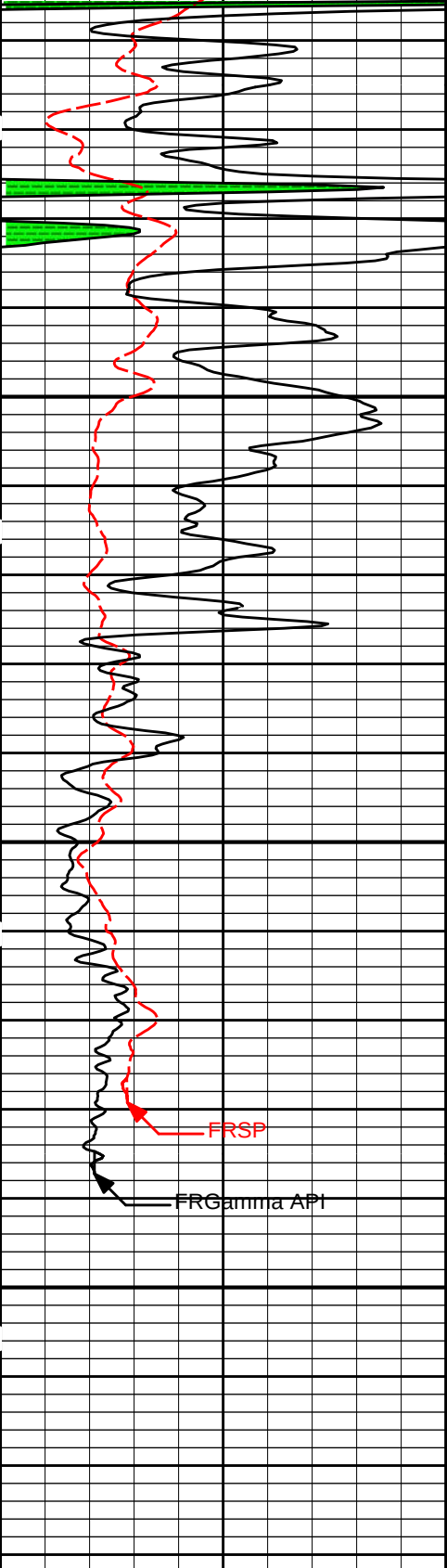


4000

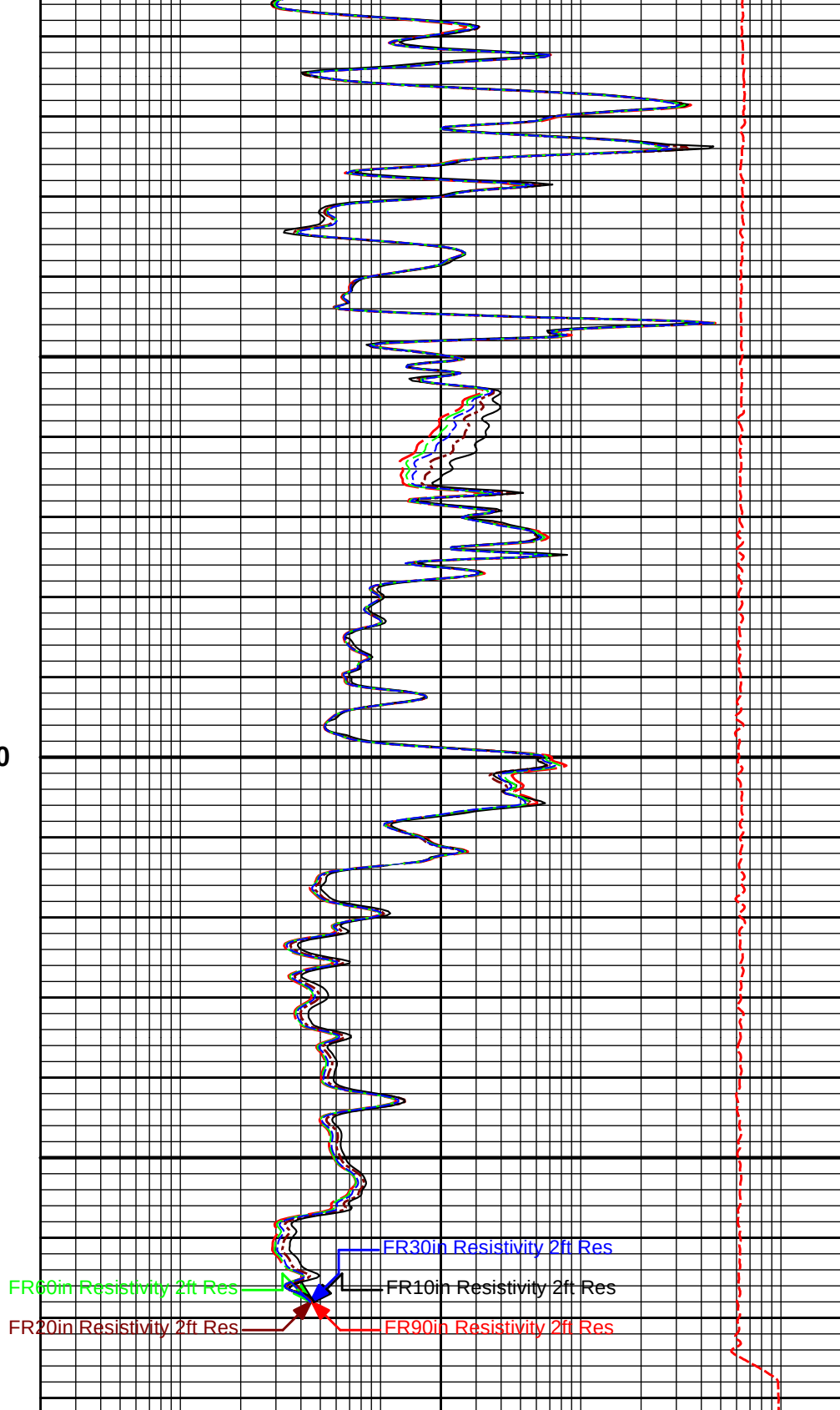
4100

4200





4300



|        |           |     |
|--------|-----------|-----|
| SP     |           |     |
| -120[+ |           |     |
| 0      | Gamma API | 150 |
| api    |           |     |
| SHALE  |           |     |

MD  
1 : 240  
ft

10K

Tension  
pounds

|           |                          |      |
|-----------|--------------------------|------|
| 0.2       | 10in Resistivity 2ft Res | 2000 |
| ohmm      |                          |      |
| 0.2       | 20in Resistivity 2ft Res | 2000 |
| ohmm      |                          |      |
| 0.2       | 30in Resistivity 2ft Res | 2000 |
| ohm-metre |                          |      |

|      |                          |      |
|------|--------------------------|------|
| 0.2  | 60in Resistivity 2ft Res | 2000 |
| ohmm |                          |      |

|  |     |                          |      |
|--|-----|--------------------------|------|
|  | 0.2 | 60in Resistivity 2ft Res | 2000 |
|  |     | ohmm                     |      |
|  | 0.2 | 90in Resistivity 2ft Res | 2000 |
|  |     | ohmm                     |      |

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Plot Time: 25-Jul-14 14:45:03  
Plot Range: 255 ft to 4382 ft  
Data: HOWARD A #1\Well Based\MAIN\  
Plot File: \\LOCAL-HOWARD A #1\Well Based\ACRT\ACRT\_5\_main\_lib

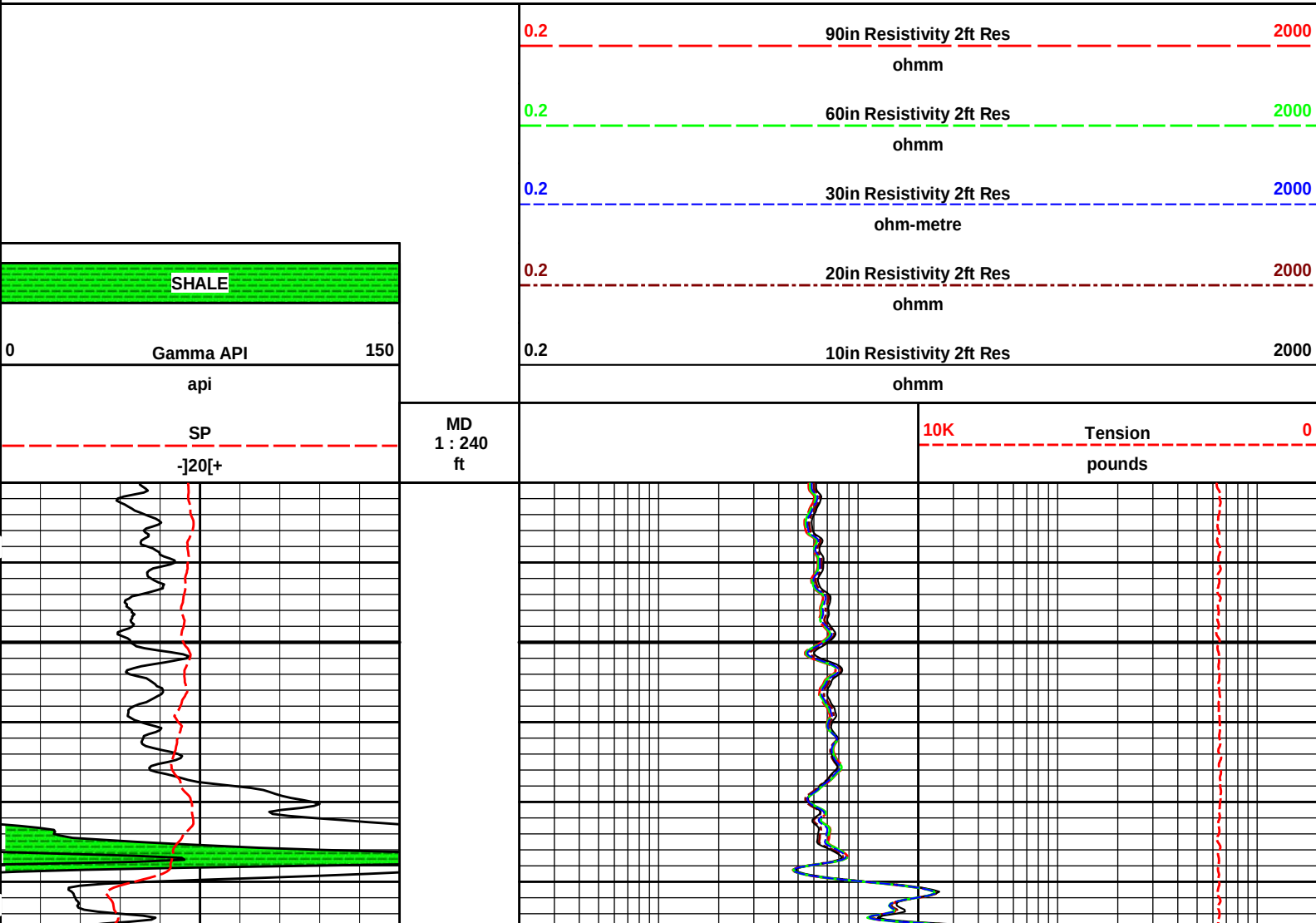
5 INCH MAIN LOG

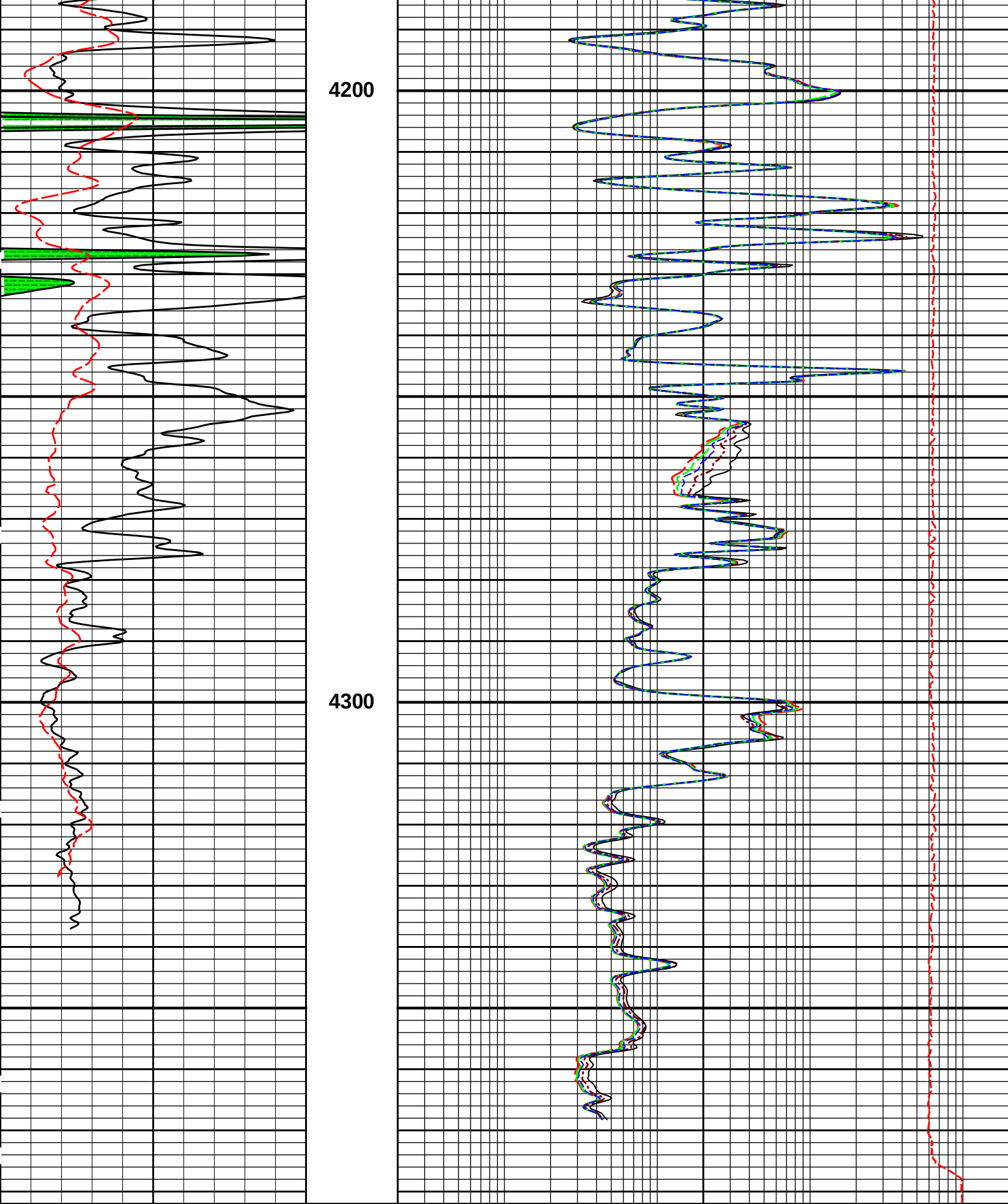
MEASURED DEPTH  
MAIN SECTION 5" PER 100'

HALLIBURTON

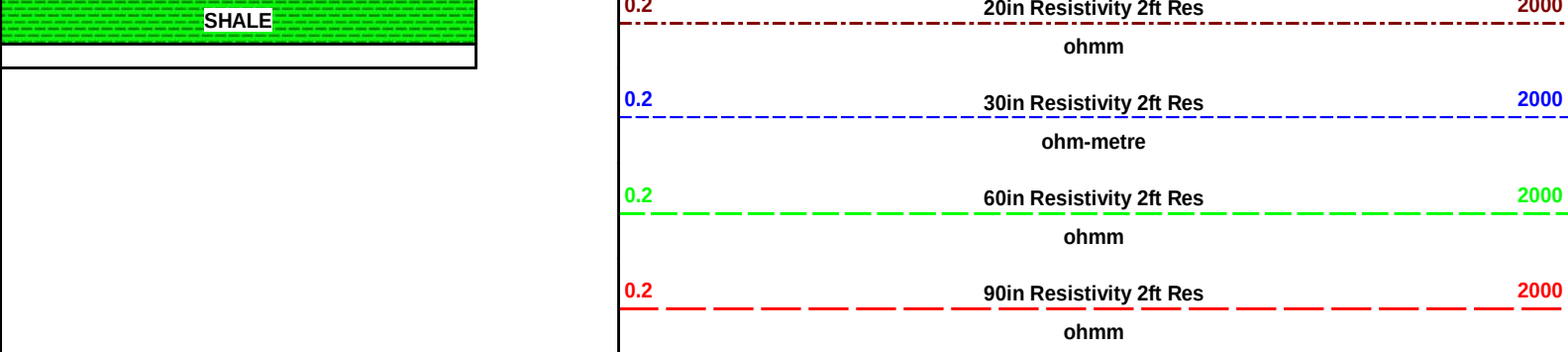
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Plot Range: 4130 ft to 4382 ft  
Data: HOWARD A #1\Well Based\REPEAT\  
Plot File: \\LOCAL-HOWARD A #1\Well Based\ACRT\ACRT\_5\_repeat\_lib

REPEAT SECTION





|                 |                     |                                   |                         |
|-----------------|---------------------|-----------------------------------|-------------------------|
| SP<br>-]20[+    | MD<br>1 : 240<br>ft |                                   | 10K Tension<br>pounds 0 |
| 0 Gamma API 150 |                     | 0.2 10in Resistivity 2ft Res 2000 |                         |
| api             |                     | ohmm                              |                         |



HALLIBURTON

Plot Time: 25-Jul-14 14:45:05  
Plot Range: 4130 ft to 4382 ft  
Data: HOWARD A #1\Well Based\REPEAT\  
Plot File: \\LOCAL-HOWARD A #1\Well Based\ACRT\ACRT\_5\_repeat\_lib

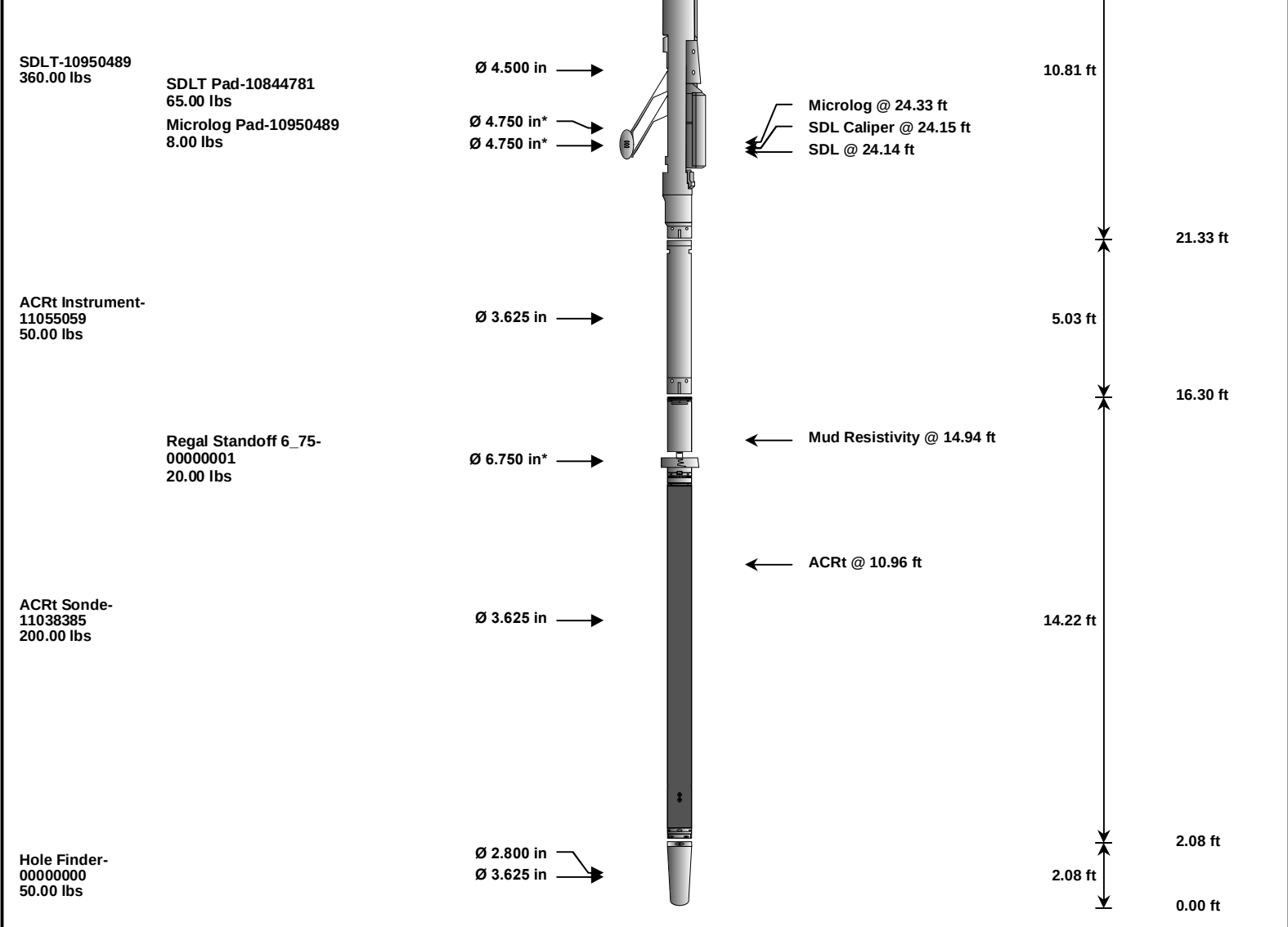
REPEAT SECTION

HALLIBURTON

TOOL STRING DIAGRAM REPORT

| Description                            | Overbody Description | O.D.          | Diagram | Sensors @ Delays                                      | Length  | Accumulated Length |
|----------------------------------------|----------------------|---------------|---------|-------------------------------------------------------|---------|--------------------|
|                                        |                      |               |         |                                                       |         | 60.34 ft           |
| RWCH-12156658<br>135.00 lbs            |                      | Ø 3.625 in →  |         | ← Load Cell @ 56.66 ft<br>← BH Temperature @ 56.09 ft | 6.25 ft |                    |
| SP Sub-12345678<br>60.00 lbs           |                      | Ø 3.625 in →  |         | ← SP @ 52.31 ft                                       | 3.74 ft | 54.09 ft           |
| GTET-11048627<br>165.00 lbs            |                      | Ø 3.625 in →  |         | ← GammaRay @ 44.29 ft                                 | 8.52 ft | 50.35 ft           |
| DSN Decentralizer-11019643<br>6.60 lbs |                      | Ø 5.000 in* → |         |                                                       |         | 41.83 ft           |
| DSNT-11019643<br>174.00 lbs            |                      | Ø 3.625 in →  |         | ← DSN Far @ 34.90 ft<br>← DSN Near @ 34.15 ft         | 9.69 ft | 32.15 ft           |





| Mnemonic | Tool Name                                             | Serial Number | Weight (lbs) | Length (ft) | Accumulated Length (ft) | Max.Log. Speed (fpm) |
|----------|-------------------------------------------------------|---------------|--------------|-------------|-------------------------|----------------------|
| RWCH     | Releasable Wireline Cable Head                        | 12156658      | 135.00       | 6.25        | 54.09                   | 300.00               |
| SP       | SP Sub                                                | 12345678      | 60.00        | 3.74        | 50.35                   | 300.00               |
| GTET     | Gamma Telemetry Tool                                  | 11048627      | 165.00       | 8.52        | 41.83                   | 60.00                |
| DSNT     | Dual Spaced Neutron                                   | 11019643      | 174.00       | 9.69        | 32.15                   | 60.00                |
| DCNT     | DSN Decentralizer                                     | 11019643      | 6.60         | 5.13        | 35.48                   | 300.00               |
| SDLT     | Spectral Density Tool                                 | 10950489      | 360.00       | 10.81       | 21.33                   | 60.00                |
| SDLP     | Density Insite Pad                                    | 10844781      | 65.00        | 2.55        | 23.54                   | 60.00                |
| MICP     | Microlog Pad                                          | 10950489      | 8.00         | 1.00        | 23.83                   | 60.00                |
| ACRt     | Array Compensated True Resistivity Instrument Section | 11055059      | 50.00        | 5.03        | 16.30                   | 120.00               |
| ACRt     | Array Compensated True Resistivity Sonde Section      | 11038385      | 200.00       | 14.22       | 2.08                    | 120.00               |
| RSOF     | Regal Standoff 6.75in                                 | 00000001      | 20.00        | 0.52        | 14.00                   | 300.00               |
| HFND     | Hole Finder                                           | 00000000      | 50.00        | 2.08        | 0.00                    | 300.00               |

|                                                          |          |                          |  |
|----------------------------------------------------------|----------|--------------------------|--|
|                                                          |          |                          |  |
| Total                                                    | 1,293.60 | 60.34                    |  |
| * Not included in Total Length and Length Accumulation.  |          |                          |  |
| Data: HOWARD A #1\0002 GTET-DSN-SDL-ACRT-BN-TRIPPLE\IDLE |          | Date: 25-Jul-14 12:39:38 |  |

# HALLIBURTON

## CALIBRATION REPORT

|                                         |                 |                             |                    |  |  |  |
|-----------------------------------------|-----------------|-----------------------------|--------------------|--|--|--|
| NATURAL GAMMA RAY TOOL SHOP CALIBRATION |                 |                             |                    |  |  |  |
| Tool Name:                              | GTET - 11048627 | Reference Calibration Date: | 03-Jul-14 08:43:55 |  |  |  |
| Engineer:                               | J. BOLLUM       | Calibration Date:           | 09-Jul-14 10:31:38 |  |  |  |

|                                               |  |          |  |                        |  |       |  |
|-----------------------------------------------|--|----------|--|------------------------|--|-------|--|
| Software Version: WL INSITE R4.2.0 (Build 2)  |  |          |  | Calibration Version: 1 |  |       |  |
| Calibrator Source S/N: Error                  |  |          |  |                        |  |       |  |
| Calibrator API Reference:265.00 api           |  |          |  |                        |  |       |  |
| Equivalent Calibrator API Reference:269.6 api |  |          |  |                        |  |       |  |
| Measurement                                   |  | Measured |  | Calibrated             |  | Units |  |
| Background                                    |  | 51.6     |  | 52.0                   |  | api   |  |
| Background + Calibrator                       |  | 319.4    |  | 321.6                  |  | api   |  |
| Calibrator                                    |  | 267.8    |  | 269.6                  |  | api   |  |

|                                               |  |                                                |  |            |  |           |  |
|-----------------------------------------------|--|------------------------------------------------|--|------------|--|-----------|--|
| NATURAL GAMMA RAY TOOL FIELD CALIBRATION      |  |                                                |  |            |  |           |  |
| Tool Name: GTET - 11048627                    |  | Reference Calibration Date: 09-Jul-14 10:31:38 |  |            |  |           |  |
| Engineer: SUHAIL BISHTI                       |  | Calibration Date: 25-Jul-14 01:40:15           |  |            |  |           |  |
| Software Version: WL INSITE R4.2.0 (Build 2)  |  | Calibration Version: 1                         |  |            |  |           |  |
| Calibrator Source S/N: Error                  |  |                                                |  |            |  |           |  |
| Calibrator API Reference:265.00 api           |  |                                                |  |            |  |           |  |
| Equivalent Calibrator API Reference:269.6 api |  |                                                |  |            |  |           |  |
| Field Verification                            |  | Shop                                           |  | Field      |  | Units     |  |
| Background                                    |  | 52.0                                           |  | 50.3       |  | api       |  |
| Background + Calibrator                       |  | 321.6                                          |  | 322.3      |  | api       |  |
| Calibrator                                    |  | 269.6                                          |  | 271.9      |  | api       |  |
| Shop                                          |  | Field                                          |  | Difference |  | Tolerance |  |
| 269.6                                         |  | 271.9                                          |  | -2.3       |  | +/- 9.00  |  |

|                                                     |  |                                                |  |
|-----------------------------------------------------|--|------------------------------------------------|--|
| ARRAY COMPENSATED TRUE RESISTIVITY SHOP CALIBRATION |  |                                                |  |
| Tool Name: ACRt Sonde - 11038385                    |  | Reference Calibration Date: 13-May-14 08:05:05 |  |
| Engineer: J. BOLLLOM                                |  | Calibration Date: 10-Jul-14 10:32:32           |  |
| Software Version: WL INSITE R4.2.0 (Build 2)        |  | Calibration Version: 1                         |  |
| Host Tool Name: ACRt Instrument - 11055059          |  |                                                |  |

|                    |        |          |       |        |          |       |        |          |       |
|--------------------|--------|----------|-------|--------|----------|-------|--------|----------|-------|
| TYPICAL GAIN RANGE |        |          |       |        |          |       |        |          |       |
| Subarray           | R12KHz |          |       | R36KHz |          |       | R72KHz |          |       |
|                    | Lower  | (mmho/m) | Upper | Lower  | (mmho/m) | Upper | Lower  | (mmho/m) | Upper |
| A1 (80")           | 0.95   | 1.0224   | 1.05  | 0.95   | 1.0228   | 1.05  | 0.95   | 1.0223   | 1.05  |
| A2 (50")           | 0.95   | 1.0256   | 1.05  | 0.95   | 1.0268   | 1.05  | 0.95   | 1.0271   | 1.05  |
| A3 (29")           | 0.95   | 1.0109   | 1.05  | 0.95   | 1.0104   | 1.05  | 0.95   | 1.0089   | 1.05  |
| A4 (17")           | 0.95   | 1.0126   | 1.05  | 0.95   | 1.0106   | 1.05  | 0.95   | 1.0108   | 1.05  |
| A5 (10")           | N/A    | N/A      | N/A   | 0.95   | 1.0233   | 1.05  | 0.95   | 1.0225   | 1.05  |
| A6 (6")            | N/A    | N/A      | N/A   | 0.95   | 1.0005   | 1.05  | 0.95   | 0.9989   | 1.05  |

|              |          |  |  |          |  |  |          |  |  |
|--------------|----------|--|--|----------|--|--|----------|--|--|
| SONDE OFFSET |          |  |  |          |  |  |          |  |  |
| Subarray     | R12KHz   |  |  | R36KHz   |  |  | R72KHz   |  |  |
|              | (mmho/m) |  |  | (mmho/m) |  |  | (mmho/m) |  |  |
| A1 (80")     | -0.088   |  |  | -4.638   |  |  | -4.786   |  |  |
| A2 (50")     | -2.051   |  |  | -3.235   |  |  | -4.824   |  |  |
| A3 (29")     | -14.327  |  |  | -4.080   |  |  | -2.550   |  |  |
| A4 (17")     | -105.862 |  |  | -33.747  |  |  | -25.789  |  |  |
| A5 (10")     | N/A      |  |  | -83.410  |  |  | -41.492  |  |  |
| A6 (6")      | N/A      |  |  | 341.006  |  |  | 171.056  |  |  |

|                          |  |  |  |  |                      |  |  |  |  |
|--------------------------|--|--|--|--|----------------------|--|--|--|--|
| TRANSMITTER CURRENT GAIN |  |  |  |  | R-MUD VERIFICATION   |  |  |  |  |
|                          |  |  |  |  | Lower Measured Upper |  |  |  |  |

| Signal                                                                                                               | Lower | R    | Upper | Signal   | Lower<br>(ohm-m) | Measured<br>(ohm-m) | Upper<br>(ohm-m) |
|----------------------------------------------------------------------------------------------------------------------|-------|------|-------|----------|------------------|---------------------|------------------|
| 12K                                                                                                                  | 0.6   | 0.88 | 1.3   | Mud Cell | 0.95             | 1.00                | 1.05             |
| 36K                                                                                                                  | 1.0   | 1.35 | 2.0   |          |                  |                     |                  |
| 72K                                                                                                                  | 1.0   | 1.61 | 2.0   |          |                  |                     |                  |
| <div>PASS/FAIL SUMMARY</div> <div>GAIN RANGE CHKPASS</div> <div>SONDE OFFSET CHKPASS</div> <div>TOOL OK TO LOG</div> |       |      |       |          |                  |                     |                  |

| CALIBRATION SUMMARY                                    |       |       |       |            |                          |       |
|--------------------------------------------------------|-------|-------|-------|------------|--------------------------|-------|
| Sensor                                                 | Shop  | Field | Post  | Difference | Tolerance                | Units |
| GTET-11048627                                          |       |       |       |            |                          |       |
| Gamma Ray Calibrator                                   | 269.6 | 271.9 | ----- | -2.3       | +/- 9.00                 | api   |
| ACRt Sonde-11038385                                    |       |       |       |            |                          |       |
| Mud Cell                                               | 1.00  | ----- | ----- | 0.00       | -----                    | ohm-m |
| Data: HOWARD A #10001 GTET-DSN-SDL-ACRT-BN-TRIPPLEIDLE |       |       |       |            | Date: 25-Jul-14 07:36:25 |       |

|                                                     |  |  |  |  |  |  |
|-----------------------------------------------------|--|--|--|--|--|--|
| <div>HALLIBURTON</div> <div>PARAMETERS REPORT</div> |  |  |  |  |  |  |
|-----------------------------------------------------|--|--|--|--|--|--|

| Depth<br>(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                                       | 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                                       | 2.000     | 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          | ST       | Surface Temperature                                   | 75.0      | degF  |
|               | SHARED          | TD       | Total Well Depth                                      | 4378.00   | ft    |
|               | SHARED          | BHT      | Bottom Hole Temperature                               | 200.0     | 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            |                          |
| ACRt Sonde                                                                       | RTOK | Process ACRt?                                | Yes            |                          |
| ACRt Sonde                                                                       | MNSO | Minimum Tool Standoff                        | 1.50           | in                       |
| ACRt Sonde                                                                       | TCS1 | Temperature Correction Source                | FP Lwr & FP Up |                          |
| 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                                                                       | 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           |                          |
| BOTTOM_____                                                                      |      |                                              |                |                          |
| Data: HOWARD A #110001 GTET-DSN-SDL-ACRT-BN-TRIPPLE\001 25-Jul-14 07:30 Dn @0.3f |      |                                              |                | Date: 25-Jul-14 07:31:22 |

HALLIBURTON

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      | 58.59      | NO          |                    |
| BS              | Bit Size          | 58.59      | NO          |                    |

|            |                                                         |       |     |               |
|------------|---------------------------------------------------------|-------|-----|---------------|
| HDIA       | Measured Hole Diameter                                  | 0.00  | NO  |               |
| RWCH       |                                                         |       |     |               |
| DHTN       | DownholeTension                                         | 0.00  | BLK | 0.000         |
| SP Sub     |                                                         |       |     |               |
| PLTC       | Plot Control Mask                                       | 50.56 | NO  |               |
| SP         | Spontaneous Potential                                   | 50.56 | BLK | 1.250         |
| SPR        | Raw Spontaneous Potential                               | 50.56 | NO  |               |
| SPO        | Spontaneous Potential Offset                            | 50.56 | NO  |               |
| GTET       |                                                         |       |     |               |
| TPUL       | Tension Pull                                            | 42.54 | NO  |               |
| GR         | Natural Gamma Ray API                                   | 42.54 | TRI | 1.750         |
| GRU        | Unfiltered Natural Gamma Ray API                        | 42.54 | NO  |               |
| EGR        | Natural Gamma Ray API with Enhanced Vertical Resolution | 42.54 | 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                                            | 32.30 | NO  |               |
| RNDS       | Near Detector Telemetry Counts                          | 32.40 | BLK | 1.417         |
| RFDS       | Far Detector Telemetry Counts                           | 33.15 | TRI | 0.583         |
| DNTT       | DSN Tool Temperature                                    | 32.40 | NO  |               |
| DSNS       | DSN Tool Status                                         | 32.30 | NO  |               |
| ERND       | Near Detector Telemetry Counts EVR                      | 32.40 | BLK | 0.000         |
| ERFD       | Far Detector Telemetry Counts EVR                       | 33.15 | BLK | 0.000         |
| ENTM       | DSN Tool Temperature EVR                                | 32.40 | NO  |               |
| HDIA       | Measured Hole Diameter                                  | 0.00  | NO  |               |
| SDLT       |                                                         |       |     |               |
| TPUL       | Tension Pull                                            | 22.40 | NO  |               |
| PCAL       | Pad Caliper                                             | 22.40 | TRI | 0.250         |
| ACAL       | Arm Caliper                                             | 22.40 | TRI | 0.250         |
| 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         |

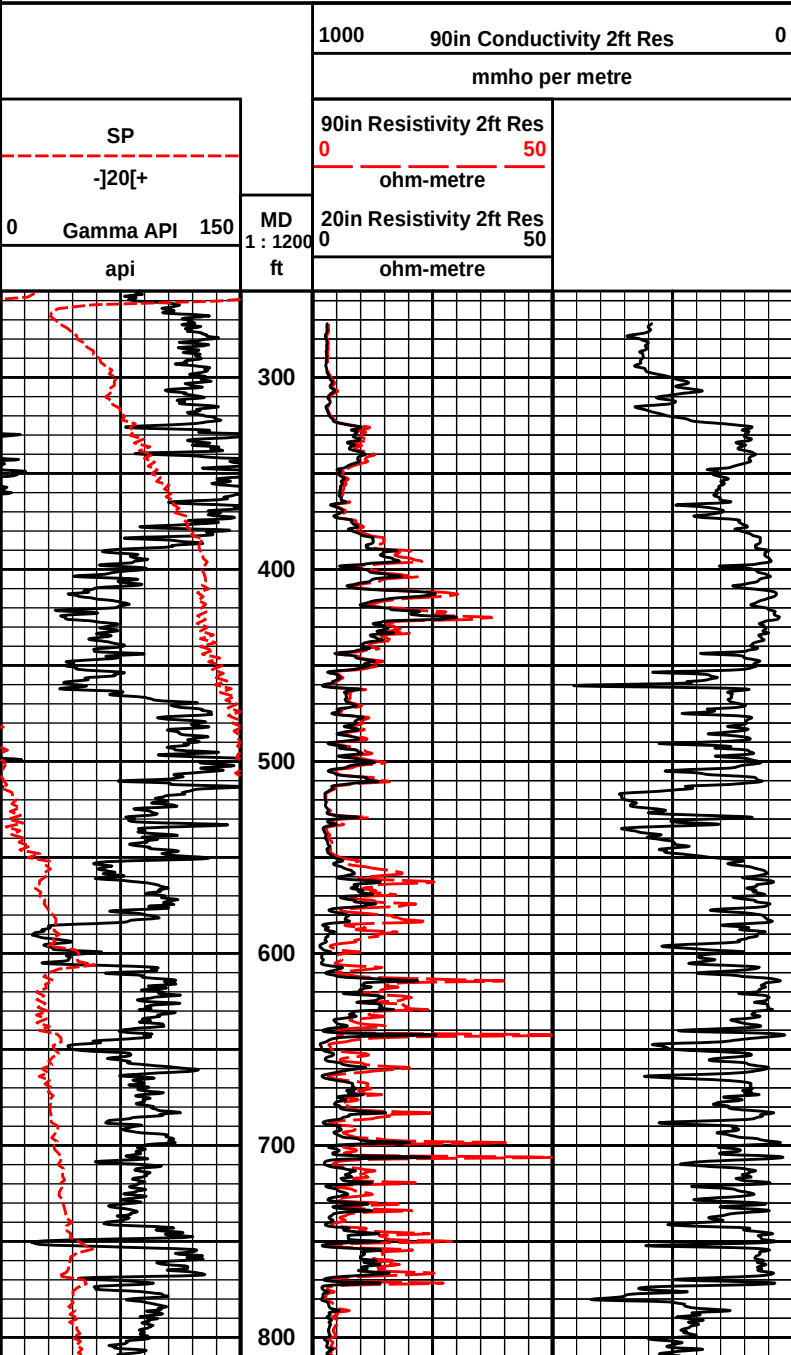
|          |                                               |       |     |       |
|----------|-----------------------------------------------|-------|-----|-------|
| F2R4     | ACRT 36KHz - 17in R value                     | 3.98  | BLK | 0.000 |
| F2X4     | ACRT 36KHz - 17in X value                     | 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  |       |
| SDLT Pad |                                               |       |     |       |
| TPUL     | Tension Pull                                  | 22.39 | NO  |       |
| NAB      | Near Above                                    | 22.21 | BLK | 0.920 |
| NHI      | Near Cesium High                              | 22.21 | BLK | 0.920 |
| NLO      | Near Cesium Low                               | 22.21 | BLK | 0.920 |
| NVA      | Near Valley                                   | 22.21 | BLK | 0.920 |
| NBA      | Near Barite                                   | 22.21 | BLK | 0.920 |
| NDE      | Near Density                                  | 22.21 | BLK | 0.920 |
| NPK      | Near Peak                                     | 22.21 | BLK | 0.920 |
| NLI      | Near Lithology                                | 22.21 | BLK | 0.920 |
| NBAU     | Near Barite Unfiltered                        | 22.21 | BLK | 0.250 |
| NLIU     | Near Lithology Unfiltered                     | 22.21 | BLK | 0.250 |
| FAB      | Far Above                                     | 22.56 | BLK | 0.250 |
| FHI      | Far Cesium High                               | 22.56 | BLK | 0.250 |
| FLO      | Far Cesium Low                                | 22.56 | BLK | 0.250 |
| FVA      | Far Valley                                    | 22.56 | BLK | 0.250 |
| FBA      | Far Barite                                    | 22.56 | BLK | 0.250 |
| FDE      | Far Density                                   | 22.56 | BLK | 0.250 |
| FPK      | Far Peak                                      | 22.56 | BLK | 0.250 |
| FLI      | Far Lithology                                 | 22.56 | BLK | 0.250 |

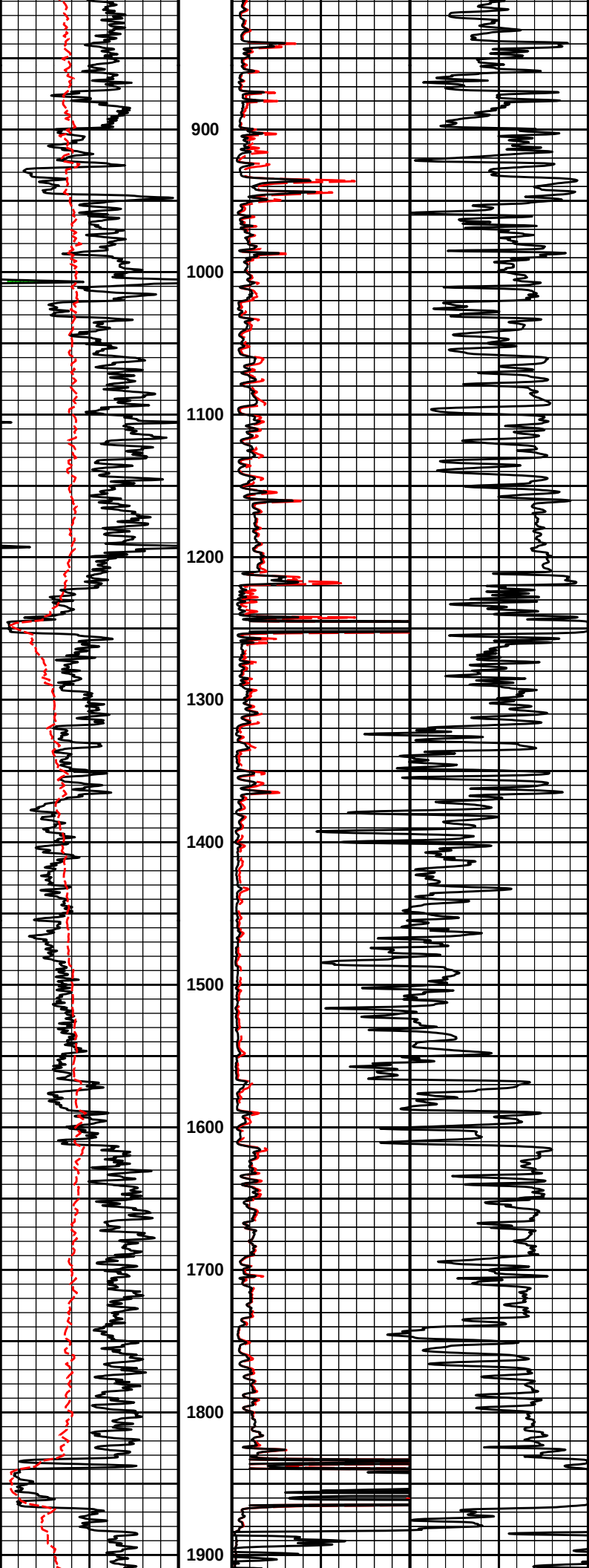
|                                                                                  |                            |       |                          |       |
|----------------------------------------------------------------------------------|----------------------------|-------|--------------------------|-------|
| PTMP                                                                             | Pad Temperature            | 22.40 | BLK                      | 0.920 |
| NHV                                                                              | Near Detector High Voltage | 21.79 | NO                       |       |
| FHV                                                                              | Far Detector High Voltage  | 21.79 | NO                       |       |
| ITMP                                                                             | Instrument Temperature     | 21.79 | NO                       |       |
| DDHV                                                                             | Detector High Voltage      | 21.79 | NO                       |       |
| HDIA                                                                             | Measured Hole Diameter     | 0.00  | NO                       |       |
| Microlog Pad                                                                     |                            |       |                          |       |
| TPUL                                                                             | Tension Pull               | 22.58 | NO                       |       |
| MINV                                                                             | Microlog Lateral           | 22.58 | BLK                      | 0.750 |
| MNOR                                                                             | Microlog Normal            | 22.58 | BLK                      | 0.750 |
| Data: HOWARD A #1\0001 GTET-DSN-SDL-ACRT-BN-TRIPPLE\001 25-Jul-14 07:30 Dn @0.3f |                            |       | Date: 25-Jul-14 07:31:40 |       |

HALLIBURTON

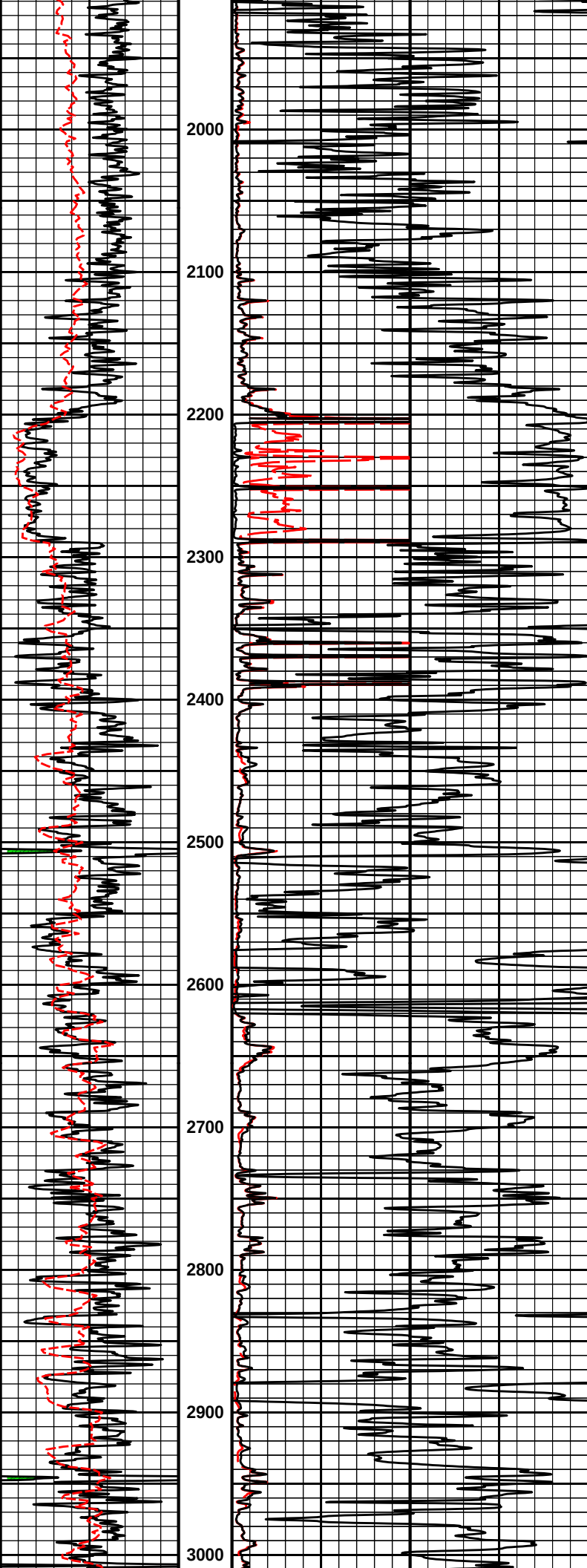
Plot Time: 25-Jul-14 14:45:05  
 Plot Range: 255 ft to 4368 ft  
 Data: HOWARD A #1\Well Based\MAIN\  
 Plot File: \\LOCAL-I\HOWARD A #1\Well Based\ACRT\ACRT\_1\_lib

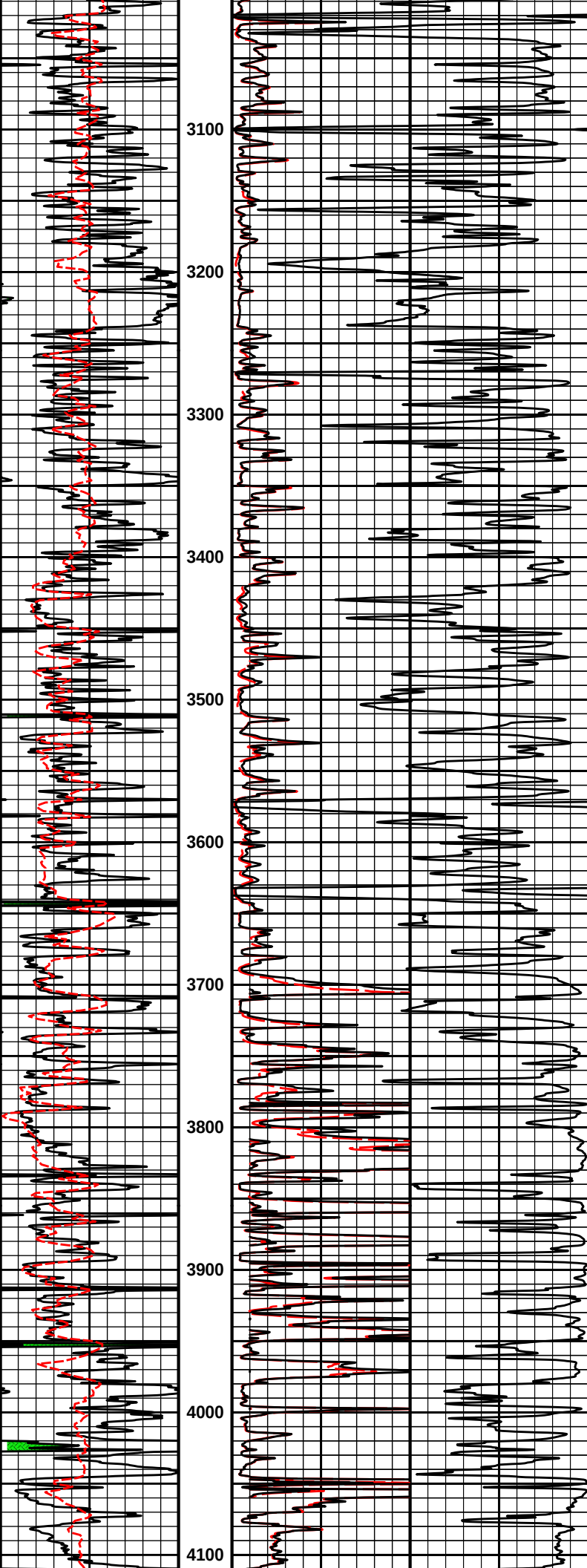
1 INCH MAIN LOG

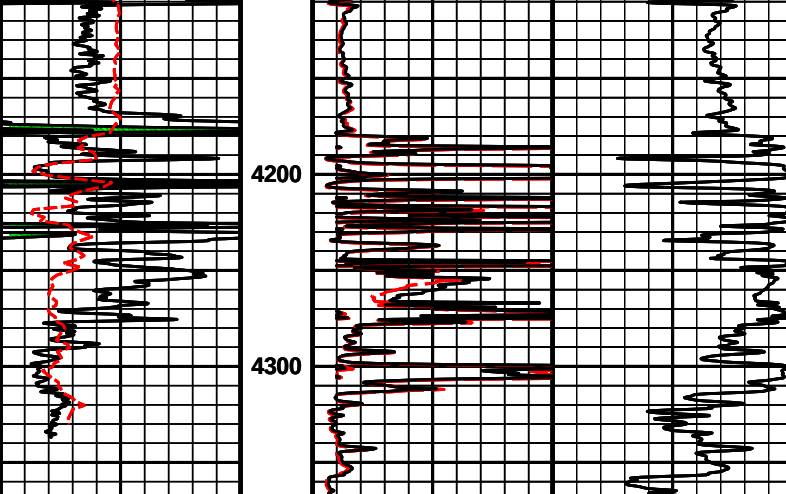












|   |           |     |          |                          |                           |
|---|-----------|-----|----------|--------------------------|---------------------------|
| 0 | Gamma API | 150 | MD       | 20in Resistivity 2ft Res |                           |
|   | api       |     | 1 : 1200 | 0                        | 50                        |
|   | SP        |     | ft       | ohm-metre                |                           |
|   | -]20[+    |     |          | 90in Resistivity 2ft Res |                           |
|   |           |     |          | 0                        | 50                        |
|   |           |     |          | ohm-metre                |                           |
|   |           |     |          | 1000                     | 90in Conductivity 2ft Res |
|   |           |     |          |                          | 0                         |
|   |           |     |          |                          | mmho per metre            |

**HALLIBURTON**  
Plot Time: 25-Jul-14 14:45:07  
Plot Range: 255 ft to 4368 ft  
Data: HOWARD A #1\Well Based\MAIN\  
Plot File: \\LOCAL-I\HOWARD A #1\Well Based\ACRT\ACRT\_1\_lib

**1 INCH MAIN LOG**

|                    |              |                                              |        |
|--------------------|--------------|----------------------------------------------|--------|
| COMPANY            | TENGASCO INC |                                              |        |
| WELL               | HOWARD A #1  |                                              |        |
| FIELD              | UNNAMED      |                                              |        |
| COUNTY             | TREGO        | STATE                                        | KANSAS |
| <b>HALLIBURTON</b> |              | ARRAY COMPENSATED<br>TRUE RESISTIVITY<br>LOG |        |