

**ELECTRIC LOG
LATEROLOG 3
GAMMA RAY**

Job No. 16857
 Company U.S. GEOLOGICAL SURVEY
 Well SDSE
 Field SOLANA BEACH
 County SAN DIEGO State CA

Location:
 GPS: N300 500.529' W1170 15.726'
 Sec. Twp. Rge.
 Other Services:
 GRLL3
 SNCVDL
 DUAL INDUCTION
 CALIPER

| | | | |
|---------------------------|--------------|-------------------|-----------|
| Permanent Datum | G.L. | Elevation 25' | Elevation |
| Log Measured From | G.L. | above perm. datum | K.B. |
| Drilling Measured From | G.L. | | D.F. |
| Date | | | G.L. |
| Run Number | ONE | | |
| Depth Driller | 1185' | | |
| Depth Logger | 1184' | | |
| Bottom Logged Interval | 1184' | | |
| Top Log Interval | 0' | | |
| Casing Driller | N/A | | |
| Casing Logger | N/A | | |
| Bit Size | 8.75" 0-600' | 7.875" 600-1185' | |
| Type Fluid in Hole | BENTONITE | | |
| Density / Viscosity | N/A | | |
| pH / Fluid Loss | N/A | | |
| Source of Sample | PIT | | |
| Rm @ Meas. Temp | 1.6 @ 77F | | |
| Rmf @ Meas. Temp | 1.8 @ 77F | | |
| Rmc @ Meas. Temp | N/A | | |
| Source of Rmf / Rmc | MEASURE | | |
| Rm @ BHT | N/A | | |
| Time Circulation Stopped | 17:15 | | |
| Time Logger on Bottom | 19:50 | | |
| Max. Recorded Temperature | N/A | | |
| Equipment Number | PS-4 | | |
| Location | L.A. | | |
| Recorded By | ABREAU | | |
| Witnessed By | A. KJOS | | |

<<< Fold Here >>>

All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, damages, or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to our general terms and conditions set out in our current Price Schedule.

Comments

Calibration Report

Database File 16857.db
 Dataset Pathname elog
 Dataset Creation Wed Oct 24 19:51:14 2012

Serial: D4
 Model: DTQ
 Shop Calibration Performed: Fri Oct 19 10:46:05 2012
 Before Survey Verification Performed: Fri Oct 19 10:41:51 2012
 After Survey Verification Performed: Thu Oct 18 11:57:06 2012

Shop Calibration

| | Readings | | | References | | | Results | |
|-------|----------|----------|--------|------------|---------|-------|---------|---------|
| | Zero | Cal | | Zero | Cal | | Gain | Offset |
| Short | 9.537 | 101.083 | | 10.200 | 102.200 | Ohm-m | 1.005 | 0.616 |
| Long | 8.898 | 98.443 | | 10.200 | 102.200 | Ohm-m | 1.027 | -11.000 |
| IEE | 74.000 | 6082.180 | counts | 0.081 | 6.656 | A | | |
| VSN | 246.000 | 6886.880 | counts | 4.692 | 131.359 | V | | |
| VLN | 104.920 | 1761.200 | counts | 2.001 | 33.593 | V | | |

Before Survey Verification

| | Readings | | | References | | | Results | |
|-------|----------|----------|--------|------------|---------|-------|---------|----------|
| | Zero | Cal | | Zero | Cal | | Gain | Offset |
| Short | 178.827 | 100.801 | | 295.888 | 100.783 | Ohm-m | 2.501 | -151.272 |
| Long | 934.011 | 103.172 | | 103.094 | 103.094 | Ohm-m | 0.483 | 53.212 |
| IEE | 74.460 | 6115.720 | counts | 0.081 | 6.693 | A | | |
| VSN | 149.600 | 6926.100 | counts | 2.853 | 132.107 | V | | |
| VLN | 195.340 | 1772.260 | counts | 3.726 | 33.804 | V | | |

After Survey Verification

| | Readings | | | References | | | Results | |
|-------|----------|----------|--------|------------|---------|-------|---------|--------|
| | Zero | Cal | | Zero | Cal | | Gain | Offset |
| Short | 40.270 | 101.200 | | 40.249 | 101.201 | Ohm-m | 1.000 | -0.035 |
| Long | 142.491 | 102.843 | | 102.842 | 102.842 | Ohm-m | 1.004 | -0.383 |
| IEE | 213.380 | 7077.580 | counts | 0.234 | 7.746 | A | | |
| VSN | 96.540 | 8047.160 | counts | 1.841 | 153.490 | V | | |
| VLN | 85.400 | 2044.440 | counts | 1.629 | 38.995 | V | | |

After Survey Verification compared to Before Survey Calibration

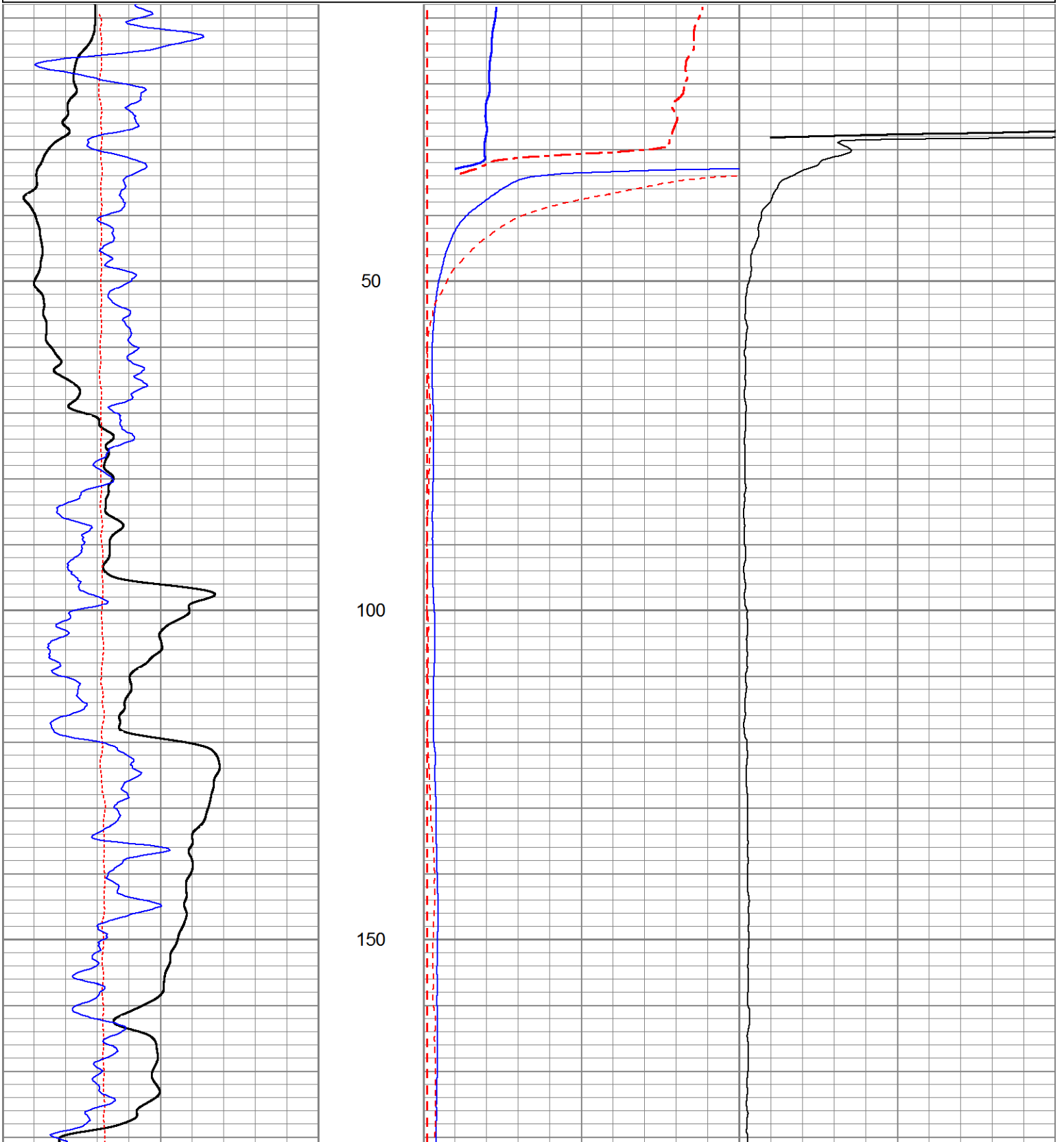
| | Zero | | | Cal | | |
|-------|---------|---------|-------|---------|---------|-------|
| | Before | After | | Before | After | |
| Short | 295.888 | 40.249 | Ohm-m | 100.783 | 101.201 | Ohm-m |
| Long | 504.790 | 142.638 | Ohm-m | 103.094 | 102.842 | Ohm-m |

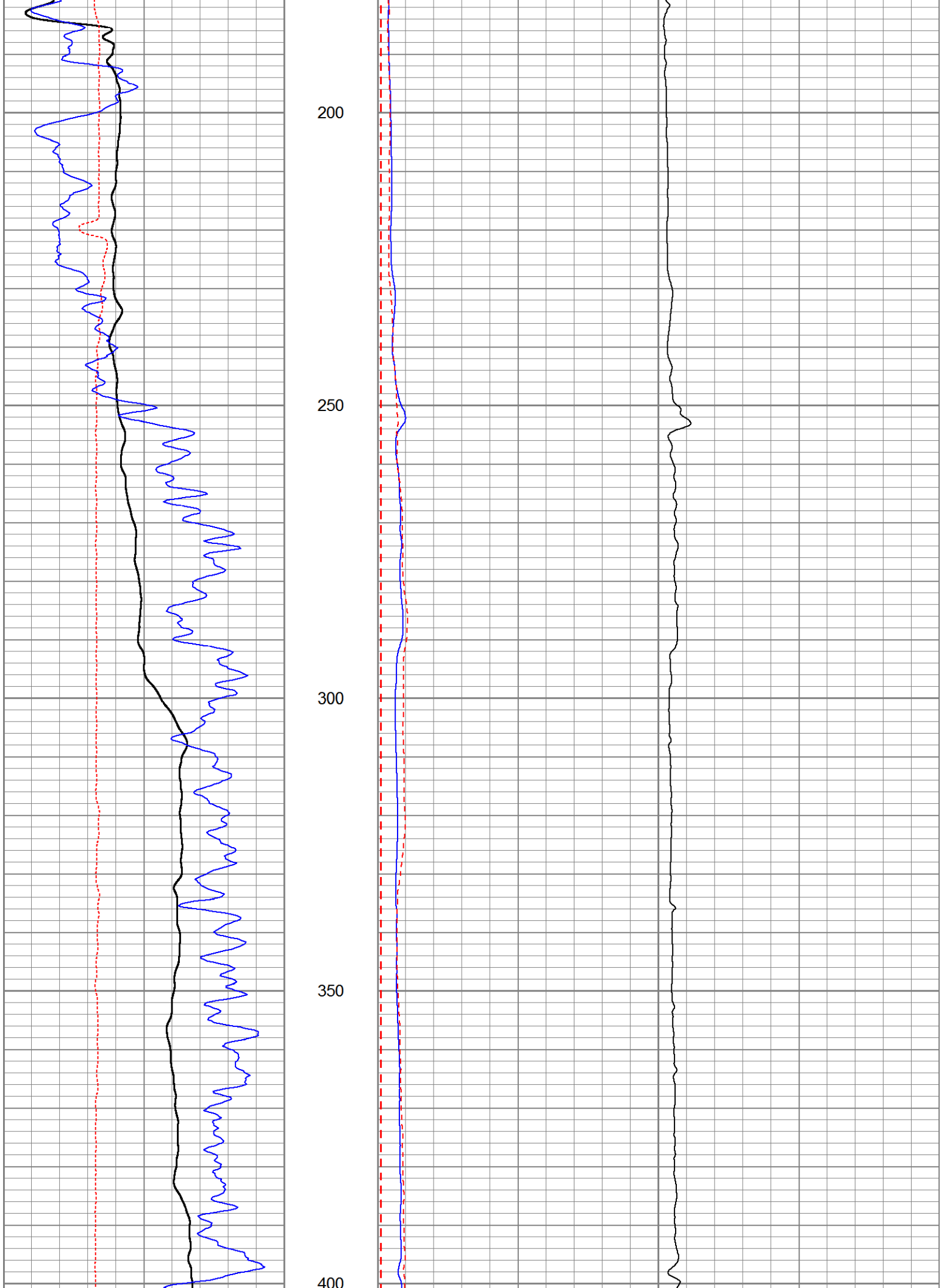
Gamma Ray Calibration Report

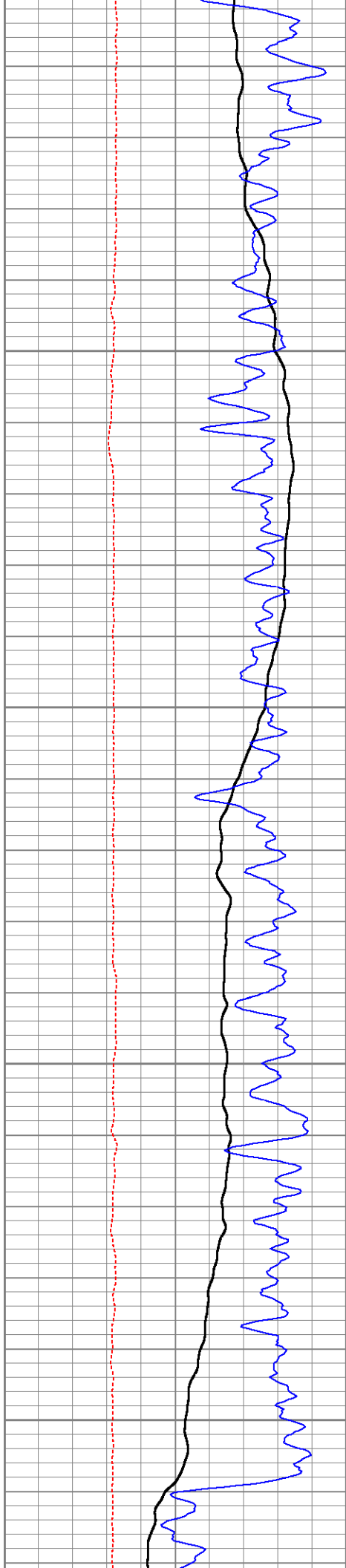
Serial Number: D4
 Tool Model: ELOG
 Performed: Thu Oct 18 11:57:13 2012
 Calibrator Value: 162.0 GAPI
 Background Reading: 173.2 cps
 Calibrator Reading: 678.3 cps
 Sensitivity: 0.3207 GAPI/cps

Database File 16857.db
 Dataset Pathname elog
 Presentation Format elog
 Dataset Creation Wed Oct 24 19:51:14 2012
 Charted by Depth in Feet scaled 1:240

| | | | | | | | | |
|-----|---------------------|------|-----|------------------|------|-------------------------------|--------------|-----|
| -50 | SP (mV) | 100 | 0 | RSN (Ohm-m) | 150 | 0 | RLL3 (Ohm-m) | 150 |
| 0 | Line Speed (ft/min) | -100 | 0 | RLN (Ohm-m) | 150 | 150 RLL3 back-up (Ohm-m) 1500 | | |
| 30 | Gamma-Ray (GAPI) | 130 | 0 | RMF (Ohm-m) | 150 | | | |
| | | | 150 | RSN x 10 (Ohm-m) | 1500 | | | |
| | | | 150 | RLN x 10 (Ohm-m) | 1500 | | | |





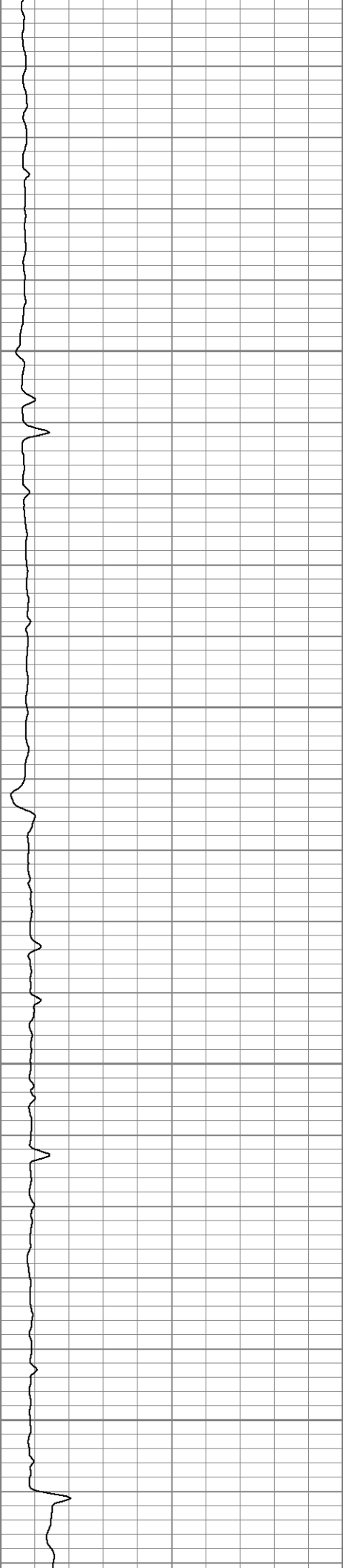
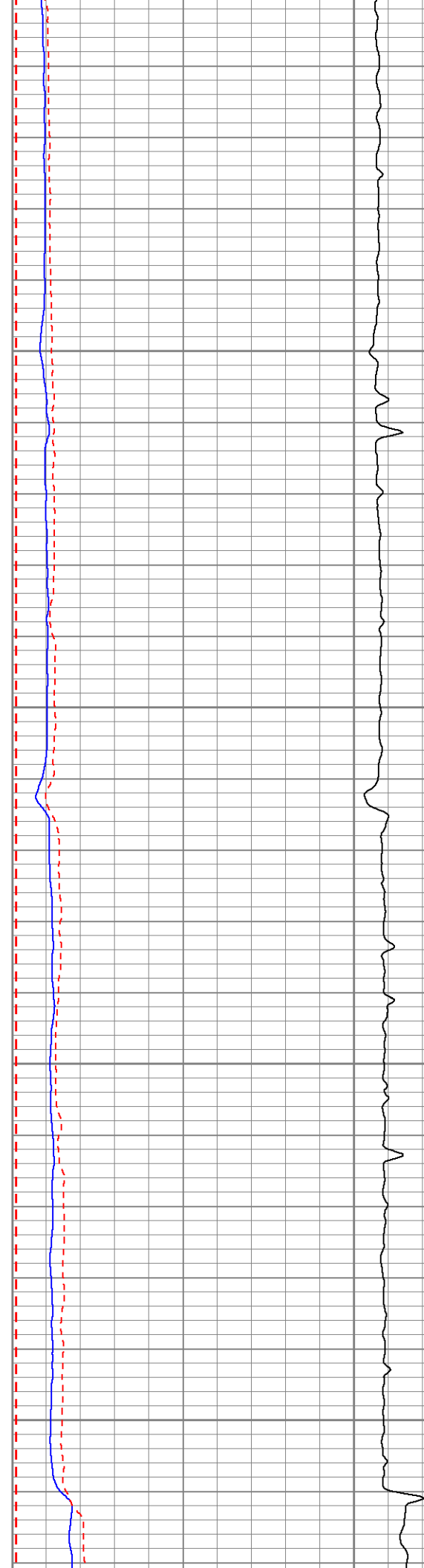


450

500

550

600



Gamma Ray
SP

650

RMF

RSN

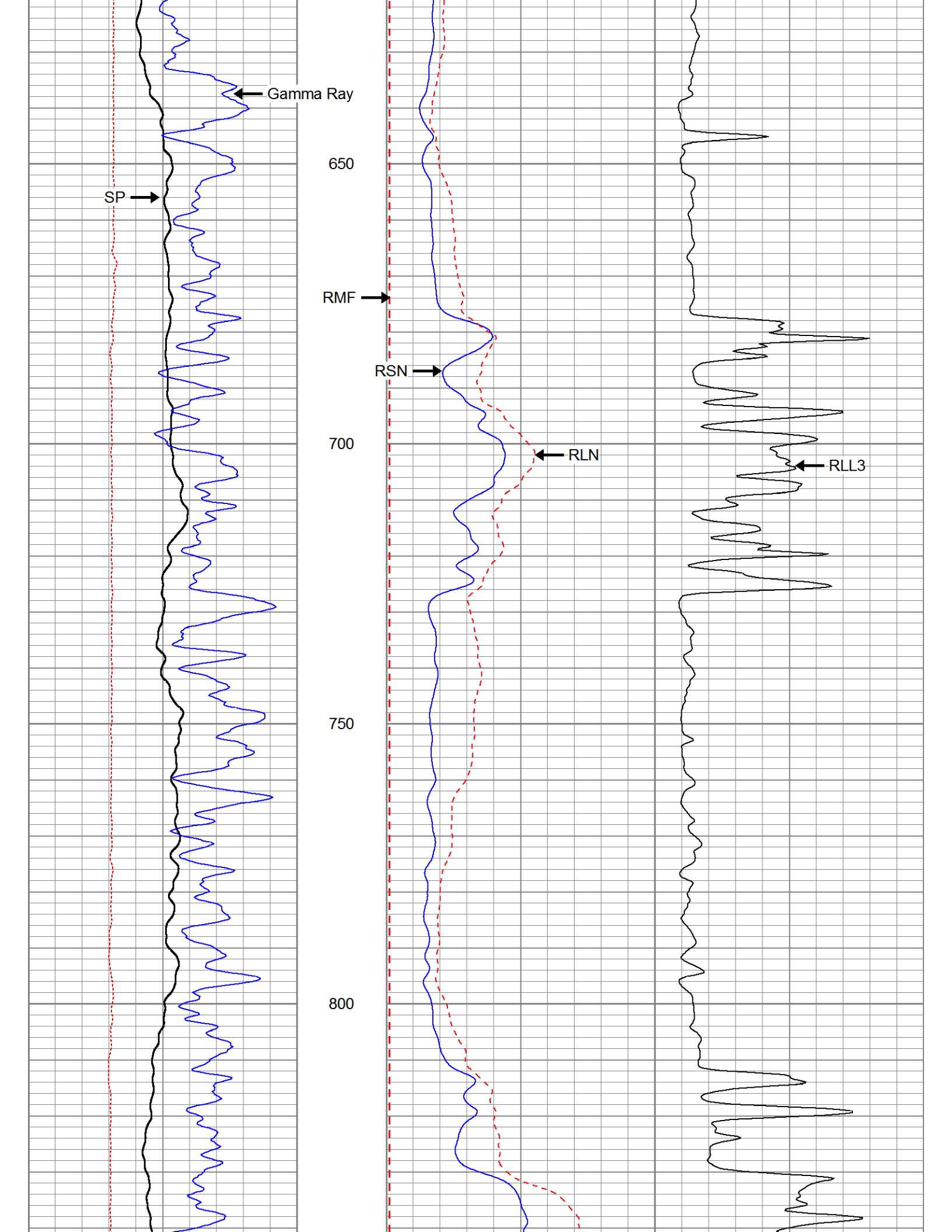
700

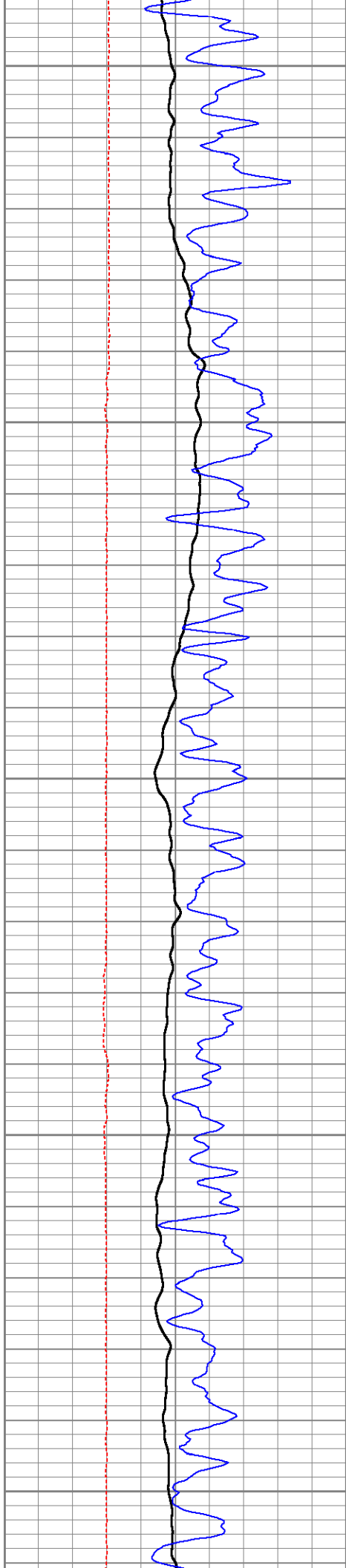
RLN

RLL3

750

800





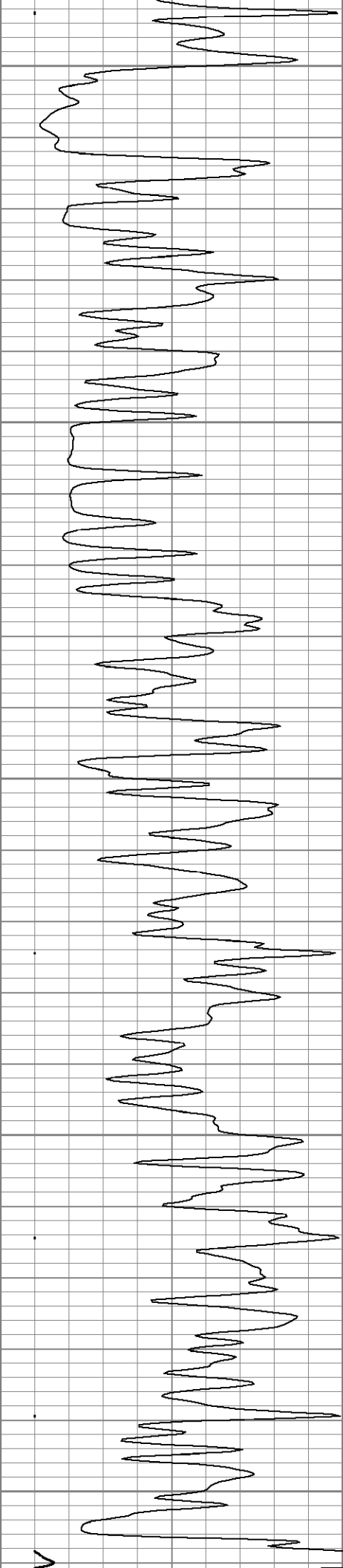
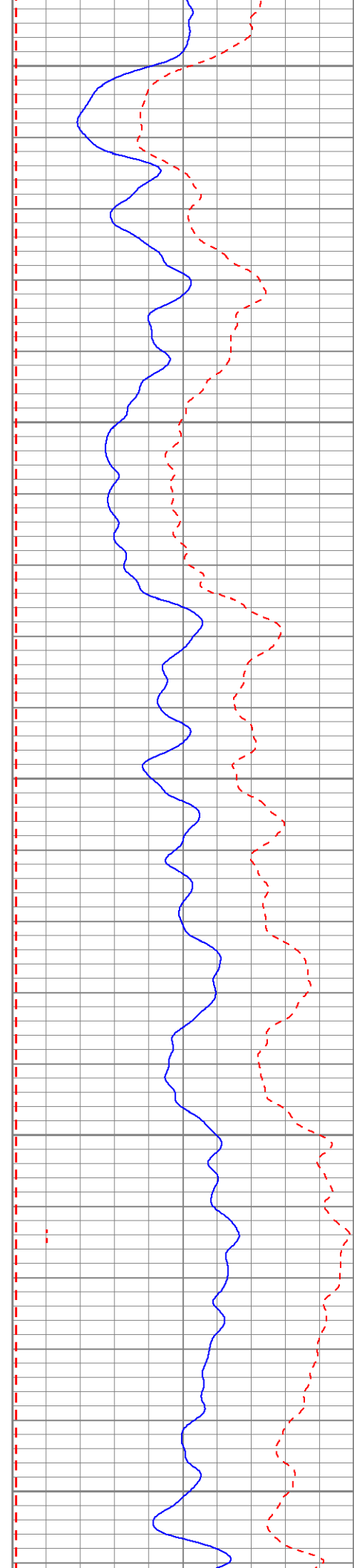
850

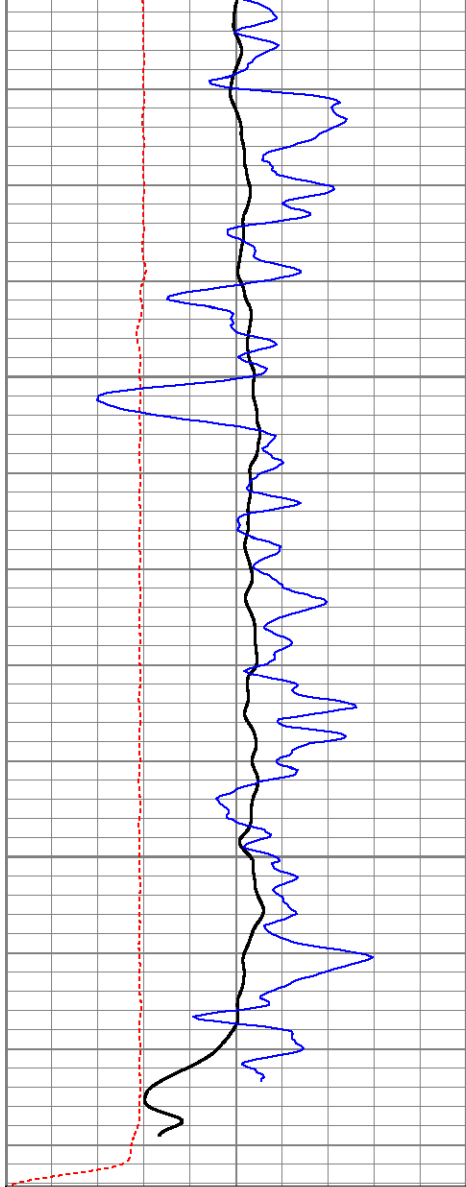
900

950

1000

1050

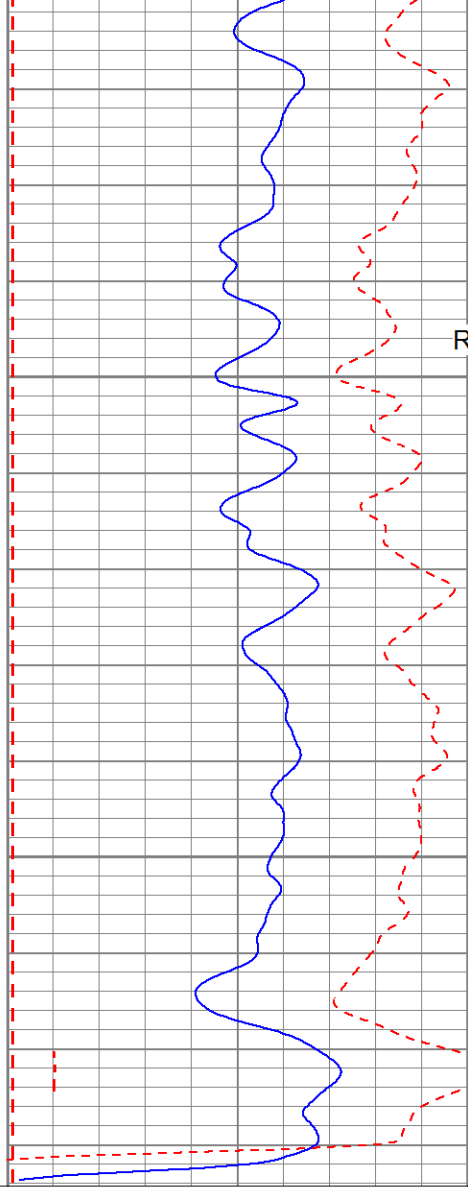




| | | |
|-----|---------------------|------|
| -50 | SP (mV) | 100 |
| 0 | Line Speed (ft/min) | -100 |
| 30 | Gamma-Ray (GAPI) | 130 |

1100

1150



| | | |
|-----|------------------|------|
| 0 | RSN (Ohm-m) | 150 |
| 0 | RLN (Ohm-m) | 150 |
| 0 | RMF (Ohm-m) | 150 |
| 150 | RSN x 10 (Ohm-m) | 1500 |
| 150 | RLN x 10 (Ohm-m) | 1500 |

RLL3 back-up



| | | |
|-----|----------------------|------|
| 0 | RLL3 (Ohm-m) | 150 |
| 150 | RLL3 back-up (Ohm-m) | 1500 |

