SHORE-BASED LOG PROCESSING

HOLE 1050C

Bottom felt: 2308 mbrf
Total penetration: 606 mbsf
Total core recovered: 200.2 m (69.4%)

Logging Runs

Logging string 1: DIT/HLDS/APS/HNGS (main and repeat)
Logging string 2: FMS/SDT/GPIT/NGT (main and repeat)
Logging string 3: GHMT/NGT (main and repeat)

The wireline heave compensator was not available during Leg 171B. Sea-state conditions were moderate, with sea swells on the order of 1.5 m, with no obvious effects on the logging data.

Bottom-Hole Assembly

The following bottom-hole assembly depths are as they appear on the logs after differential depth shift (see "Depth shift" section below) and depth shift to the seafloor. As such, there may be a discrepancy with the original depths given by the drillers on board. Possible reasons for depth discrepancies are ship heave and drill-string and/or wireline stretch.

DIT/HLDS/APS/HNGS: Bottom-hole assembly at ~109 mbsf
FMS/SDT/GPIT/NGT: Recorded open hole
GHMT/NGT: Bottom-hole assembly at ~111 mbsf

Processing

Depth shift: All original logs were interactively depth shifted with reference to HNGS from DIT/HLDS/APS/HNGS run and to the seafloor (–2303 m). The amount of depth shift to the seafloor corresponds to the water depth, as seen on the logs, and differs 5 m from the driller's "bottom-felt" depth. The program used is an interactive, graphical depth-match program that allows us to visually correlate logs and to define appropriate shifts. The reference and match channels are displayed on screen, along with vectors connecting old (reference curve) and new (match curve) shift depths. The total gamma-ray curve (SGR or HSGR) from the HNGS/NGT tool run on each logging string is typically used to correlate the logging runs. In general, the reference curve is chosen on the basis of constant, low cable tension and high cable speed (tools run at faster speeds are less likely to stick and are less susceptible to data degradation caused by ship heave). Other factors, however, such as the length of the logged interval, the presence of drill pipe, and the statistical quality of the collected data (better statistics are obtained at lower logging speeds) are also considered in the selection. A list of the amount of differential depth shifts applied in this hole is available upon request.

Gamma-ray processing: NGT data from the FMS/GPIT/SDT/NGT and GHMT/NGT runs were processed to correct for borehole size and type of drilling fluid. HNGS data from the DIT/APS/HLDS/HNGS tool string were corrected in real time during the recording.

Acoustic data processing: The array sonic tool was operated in standard depth-derived borehole compensated mode, including long-spacing (8-10-10-12 ft) and short-spacing (3-5-5-7 ft) logs. The quality of the former is quite poor, and the data have not been processed. The latter exhibits better quality data, with the exception of the TT2 channel (3-ft spacing), which shows an offset through the upper part of the hole. For this reason, the data have not been processed, and velocity has been computed directly from the DTL (long-spacing) channel, which seems to be the best measurement of the acoustic velocity of the formation.

Quality Control

During the processing, data quality control is performed mainly by cross-correlation of all logging data. Large (>12 in) and/or irregular boreholes affect most recordings, particularly those that require eccentralization (HLDS and APS) and good contact with the borehole wall. Hole deviation can also negatively affect the data; the FMS, for example, is not designed to be run in holes deviated more than 10°, as the tool weight may cause the caliper to close.

Data recorded through the bottom-hole assembly should only be used qualitatively because of the attenuation on the incoming signal. Invalid HNGS data were recorded at 55–60 mbsf.

Hole diameter was recorded by the hydraulic caliper on the HLDS tool (LCAL) and on the FMS string (C1 and C2).

Note: Additional information about the logs can be found in the "Explanatory Notes" and "Site 1050" chapters (this volume). For further information about the logs, please contact:

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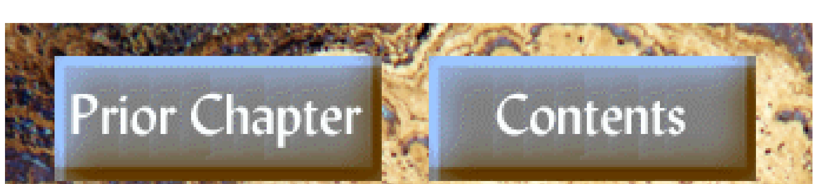
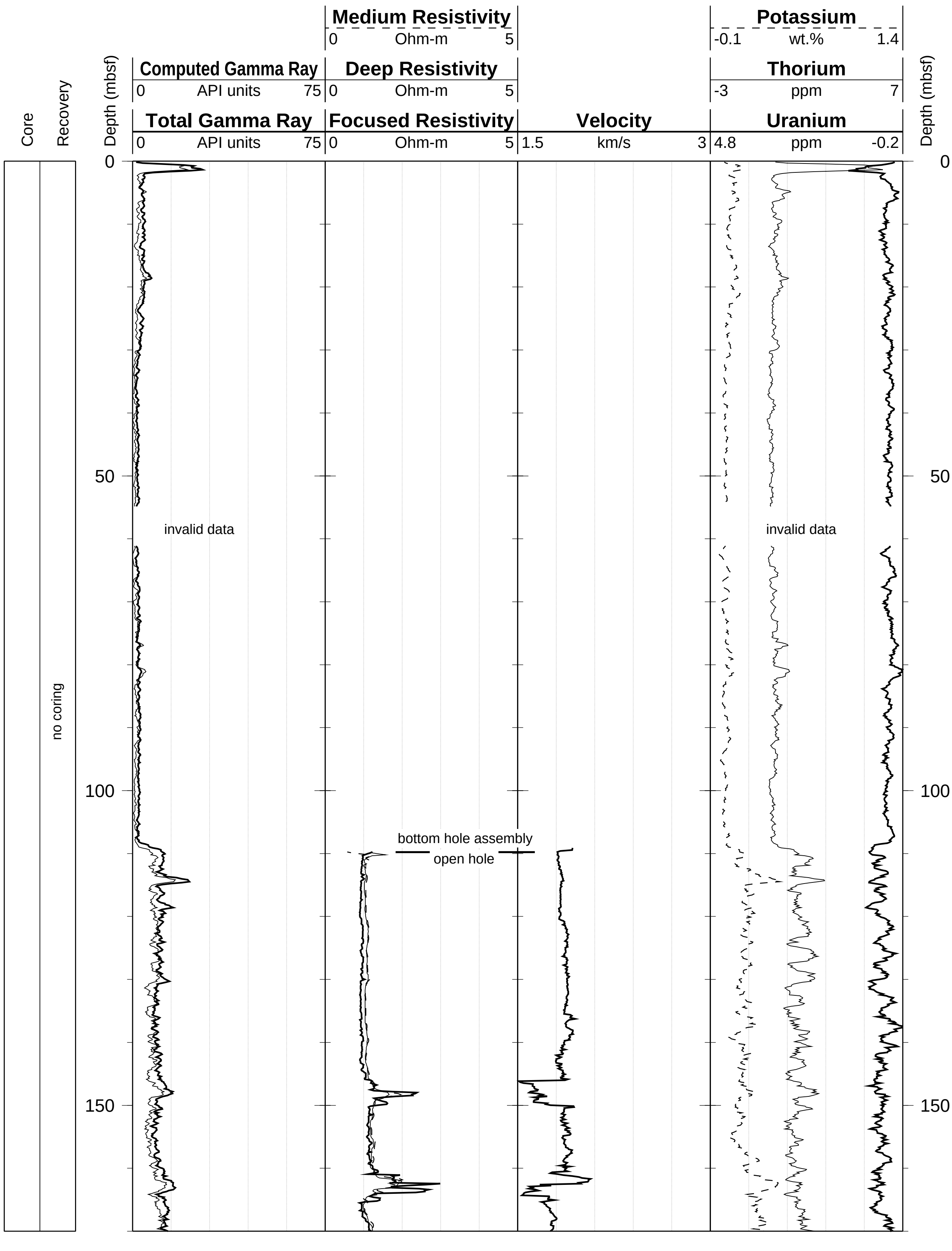
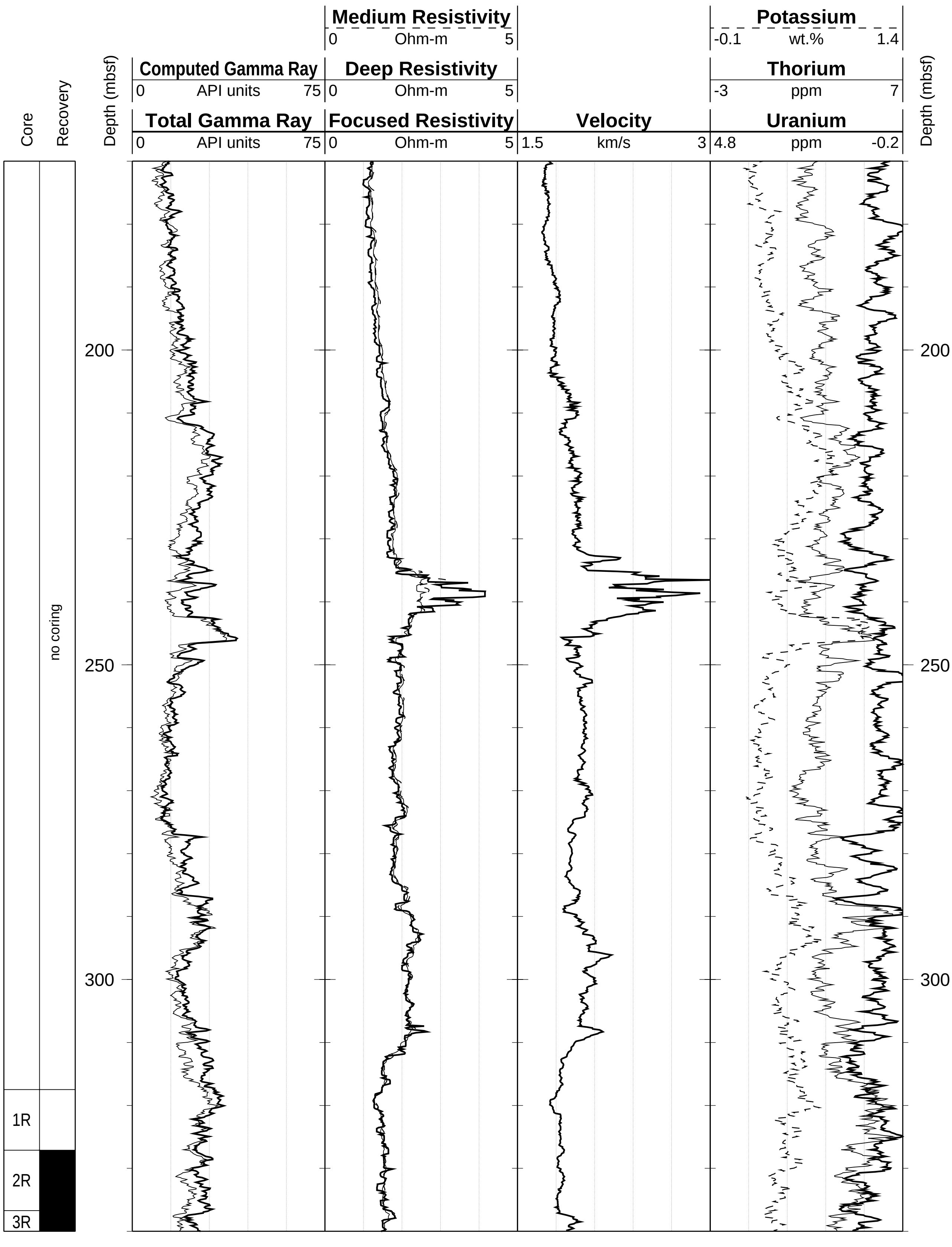


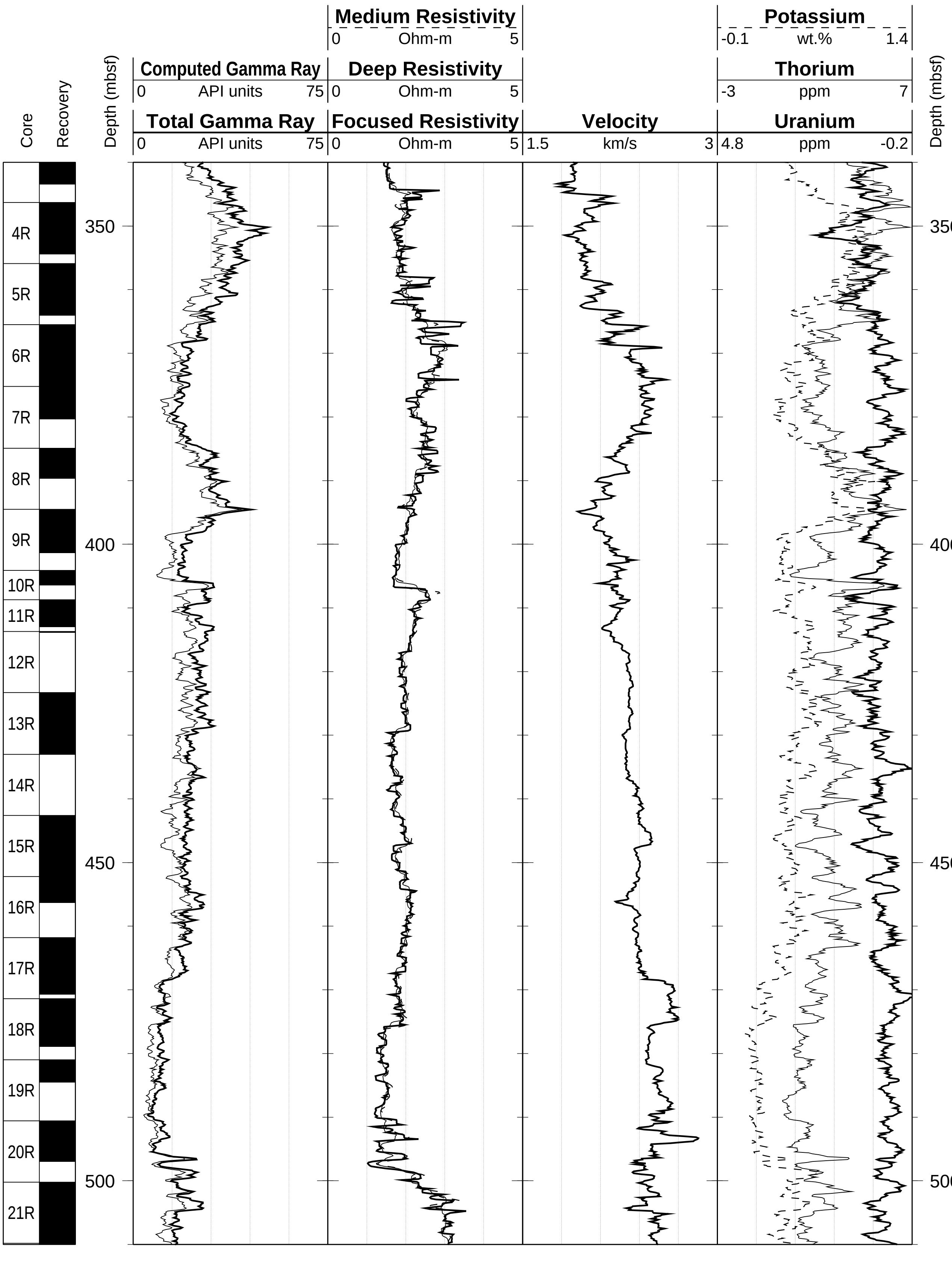
Hole 1050C: Natural Gamma Ray-Resistivity-Sonic Logging Data



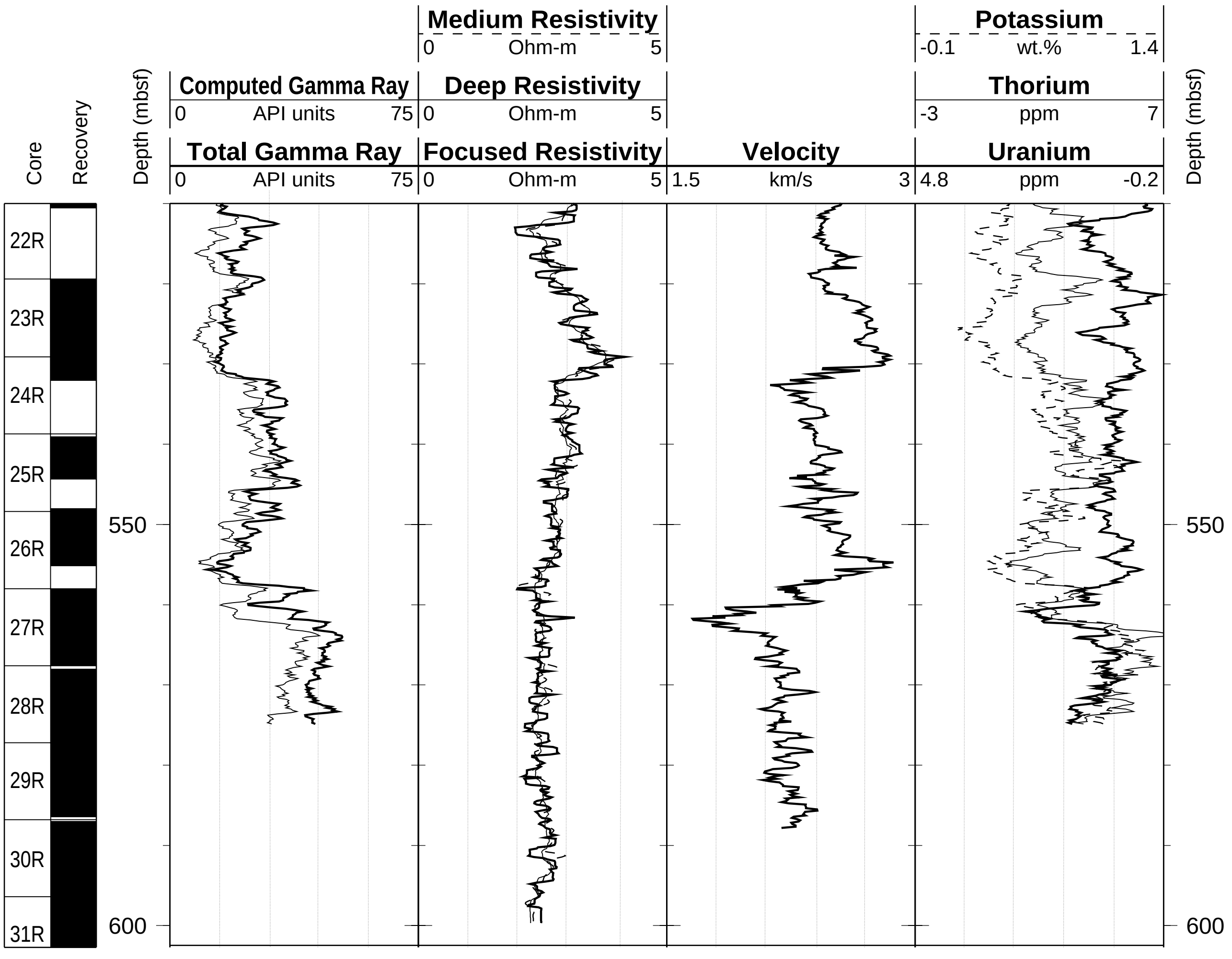
Hole 1050C: Natural Gamma Ray-Resistivity-Sonic Logging Data (cont.)



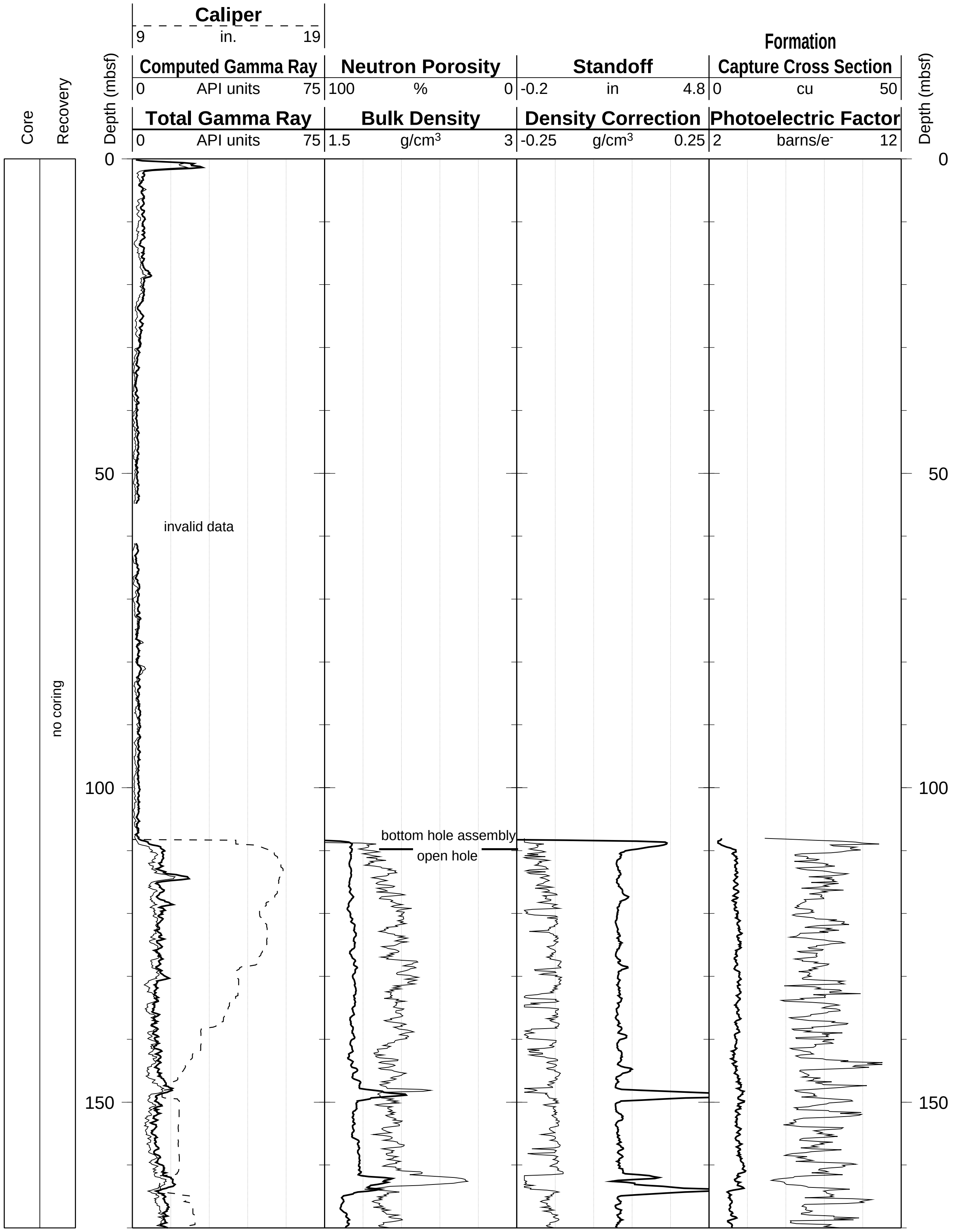
Hole 1050C: Natural Gamma Ray-Resistivity-Sonic Logging Data (cont.)



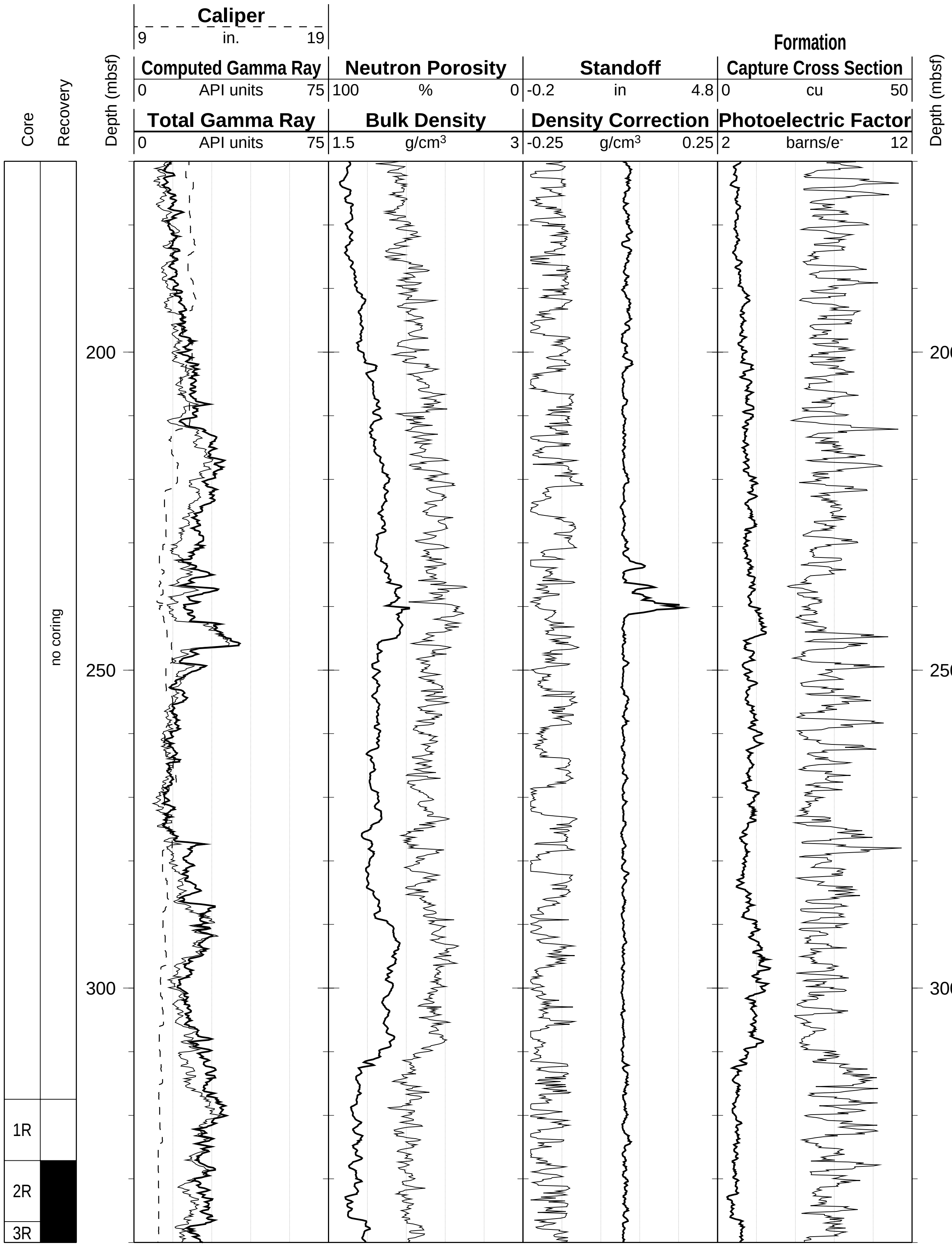
Hole 1050C: Natural Gamma Ray-Resistivity-Sonic Logging Data (cont.)



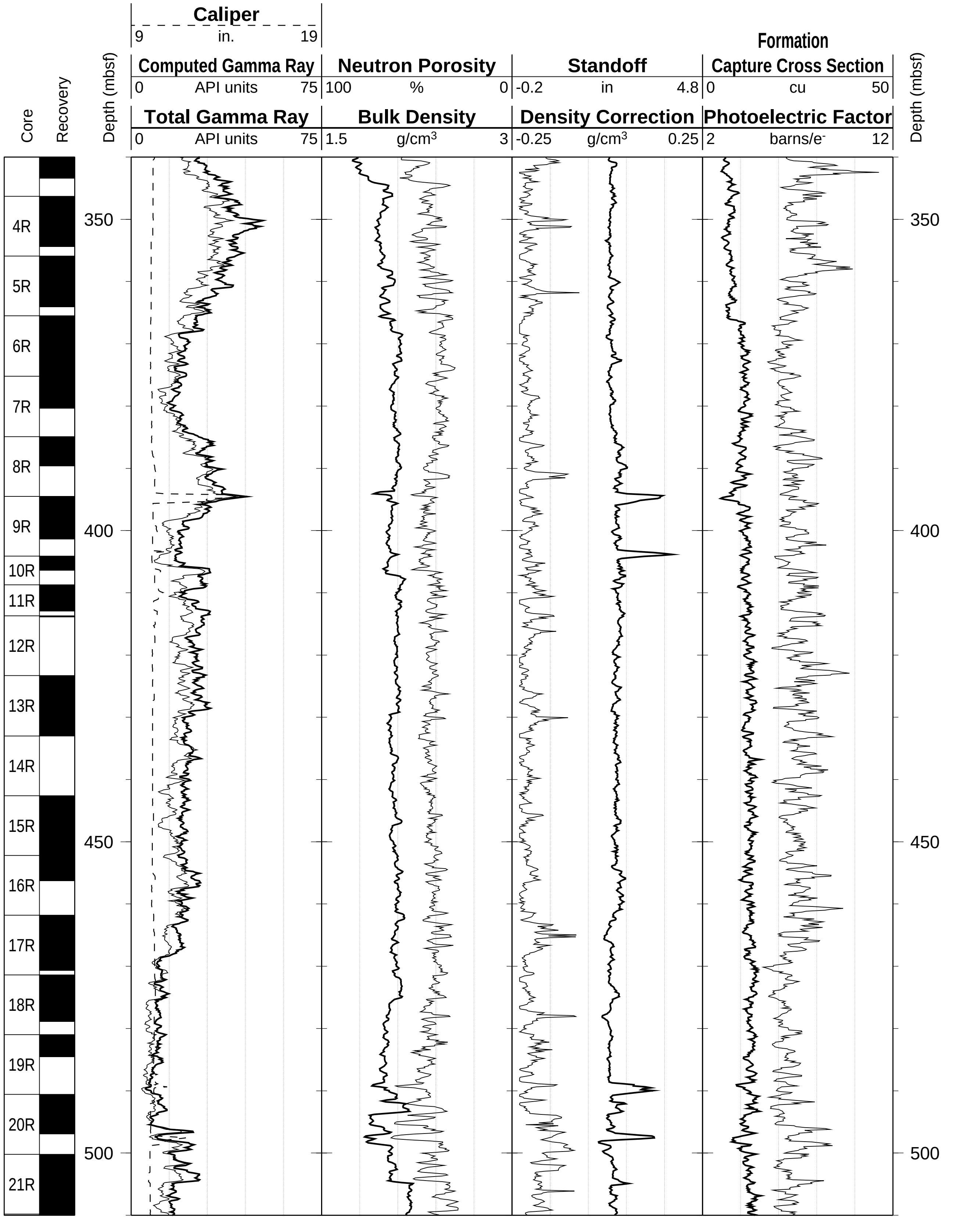
Hole 1050C: Natural Gamma Ray-Density-Porosity Logging Data



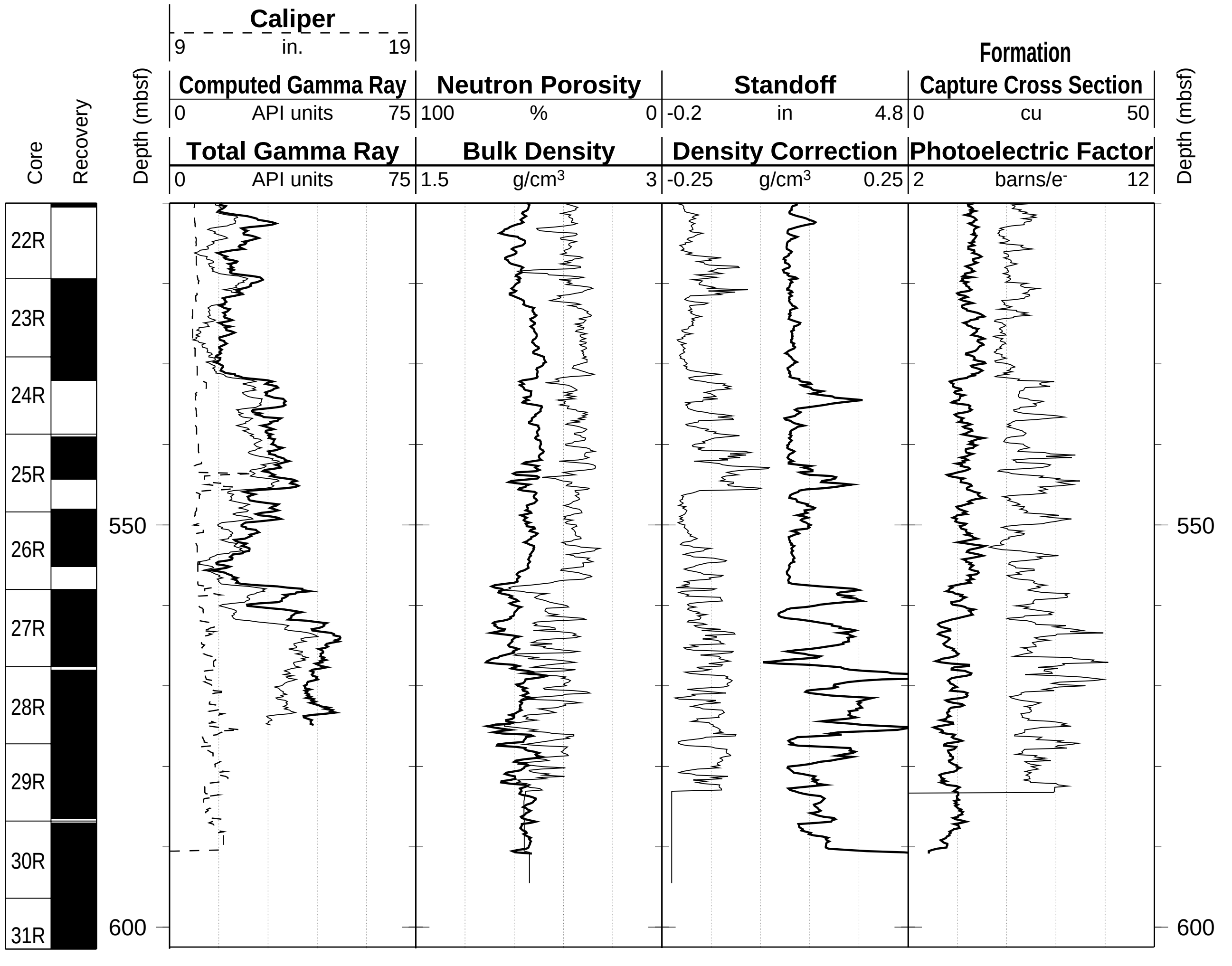
Hole 1050C: Natural Gamma Ray-Density-Porosity Logging Data (cont.)



Hole 1050C: Natural Gamma Ray-Density-Porosity Logging Data (cont.)



Hole 1050C: Natural Gamma Ray-Density-Porosity Logging Data (cont.)



SHORE-BASED LOG PROCESSING

HOLE 1051A

Bottom felt: 1993.3 mbrf
Total penetration: 644.6 mbsf
Total core recovered: 599.9 m (94.3%)

Logging Runs

Logging string 1: DIT/HLDT/APS/HNGS
Logging string 2: FMS/GPIT/NGT (2 passes)
Logging string 3: GHMT/NGT

The array sonic tool (SDT) was originally part of the FMS/GPIT/NGT tool string; however, the tool would not work in combination with the others, possibly because of a telemetry problem, and it was decided to omit the SDT from the tool string.

The wireline heave compensator was not available during Leg 171B. Sea-state conditions were moderate, with sea swells on the order of 2–2.5 m, with no obvious adverse effects on the logging data.

Bottom-Hole Assembly

The following bottom-hole assembly depths are as they appear on the logs after differential depth shift (see "Depth shift" section below) and depth shift to the seafloor. As such, there may be a discrepancy with the original depths given by the drillers on board. Possible reasons for depth discrepancies are ship heave and drill-string and/or wireline stretch.

DIT/HLDT/APS/HNGS: Bottom-hole assembly at ~110 mbsf
FMS/GPIT/NGT: Recorded open hole
GHMT/NGT: Recorded open hole

Processing

Depth shift: All original logs were interactively depth shifted with reference to NGT from DIT/HLDT/APS/HNGS run and to the seafloor (–1992 m). The amount of depth shift to the seafloor corresponds to the water depth, as seen on the logs, and differs 1.3 m from the driller's "bottom-felt" depth. The program used is an interactive, graphical depth-match program that allows us to visually correlate logs and to define appropriate shifts. The reference and match channels are displayed on screen, along with vectors connecting old (reference curve) and new (match curve) shift depths. The total gamma-ray curve (SGR or HSGR) from the HNGS/NGT tool run on each logging string is typically used to correlate the logging runs. In general, the reference curve is chosen on the basis of constant, low cable tension and high cable speed (tools run at faster speeds are less likely to stick and are less susceptible to data degradation caused by ship heave). Other factors, however, such as the length of the logged interval, the presence of drill pipe, and the statistical quality of the collected data (better statistics are obtained at lower logging speeds) are also considered in the selection. A list of the amount of differential depth shifts applied in this hole is available upon request.

Gamma-ray processing: NGT data from the FMS/GPIT/NGT and GHMT/NGT runs were processed to correct for borehole size and type of drilling fluid. HNGS data from the DIT/APS/HLDT/HNGS tool string were corrected in real time during the recording.

Quality Control

During the processing, data quality control is performed mainly by cross-correlation of all logging data. Large (>12 in) and/or irregular boreholes affect most recordings, particularly those that require eccentralization (APS and HLDT) and good contact with the borehole wall. Hole deviation can also negatively affect the data; the FMS, for example, is not designed to be run in holes deviated more than 10°, as the tool weight may cause the caliper to close. Invalid density readings were recorded at 437.5, 500, 522, and 528 mbsf.

Data recorded through the bottom-hole assembly should only be used qualitatively because of the attenuation on the incoming signal. An invalid gamma-ray spike was recorded at 115 mbsf.

Hole diameter was recorded by the hydraulic caliper on the HLDT tool (CALI) and on the FMS string (C1 and C2). The latter did not measure the hole diameter correctly; locally, the measurements are as low as < 3 in (bit size is $9^7/_8$ in). Spurious caliper spikes were recorded at 437.5, 500, 522, and 528 mbsf.

Note: Additional information about the logs can be found in the "Explanatory Notes" and "Site 1051" chapters (this volume). For further information about the logs, please contact:

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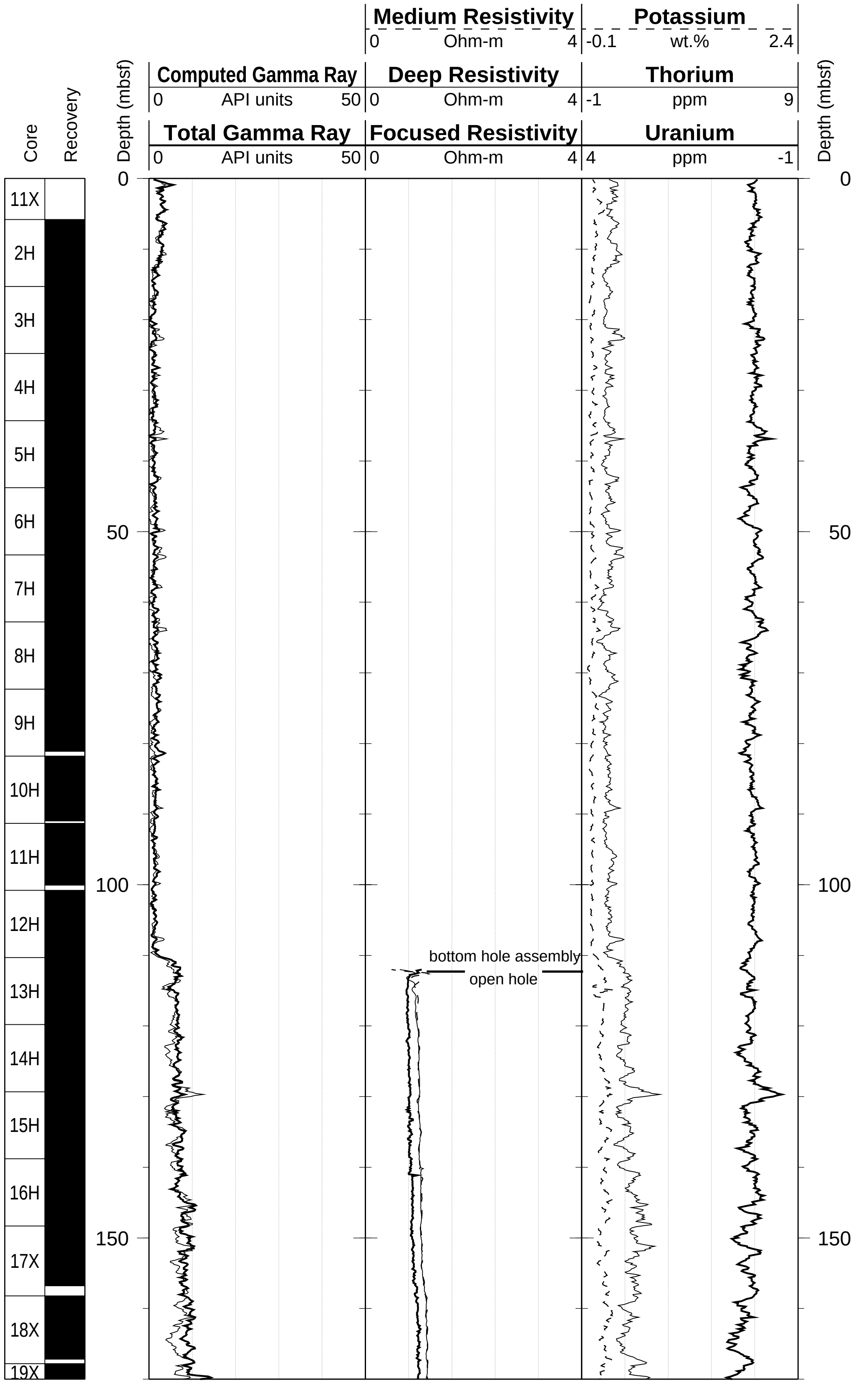
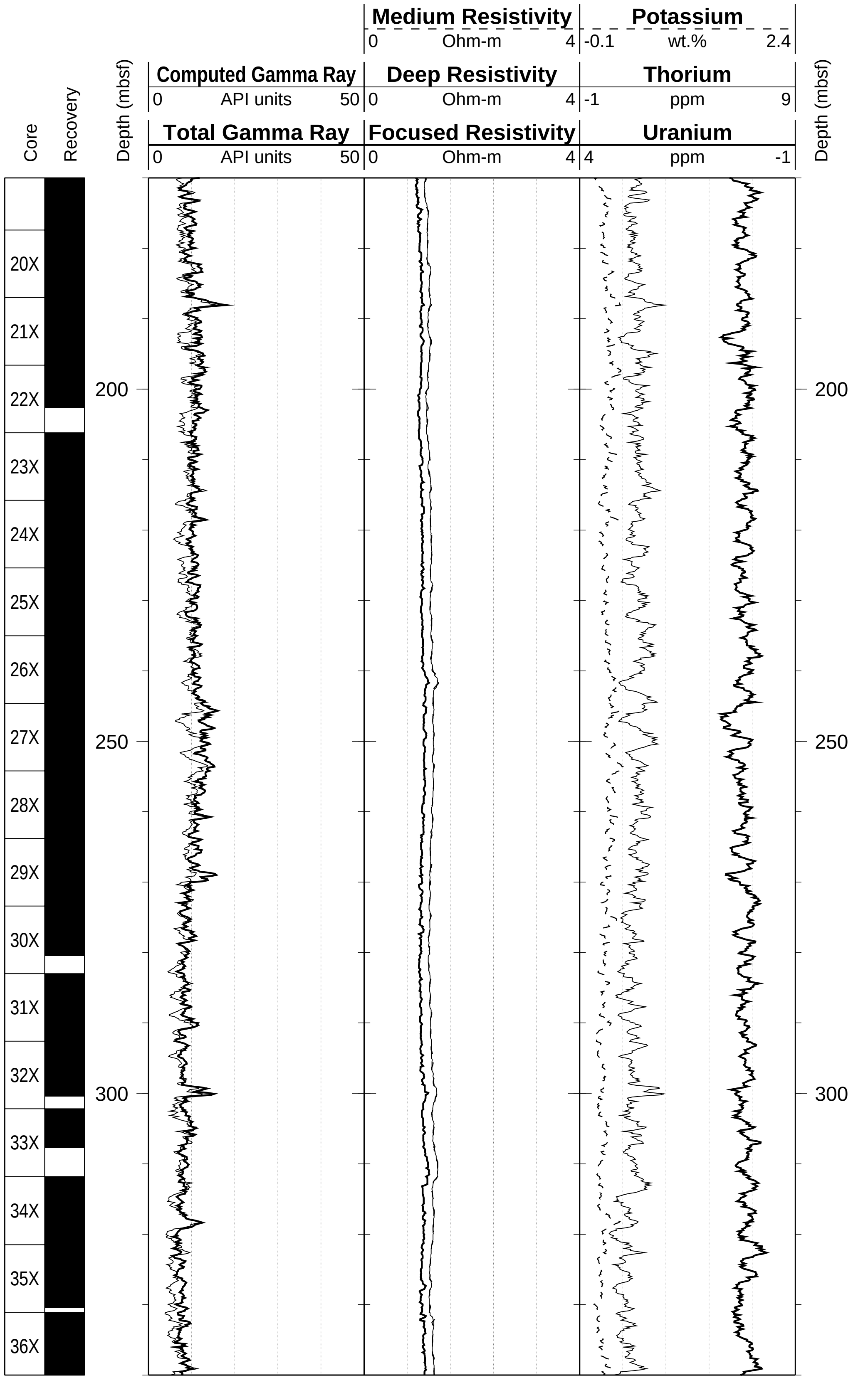
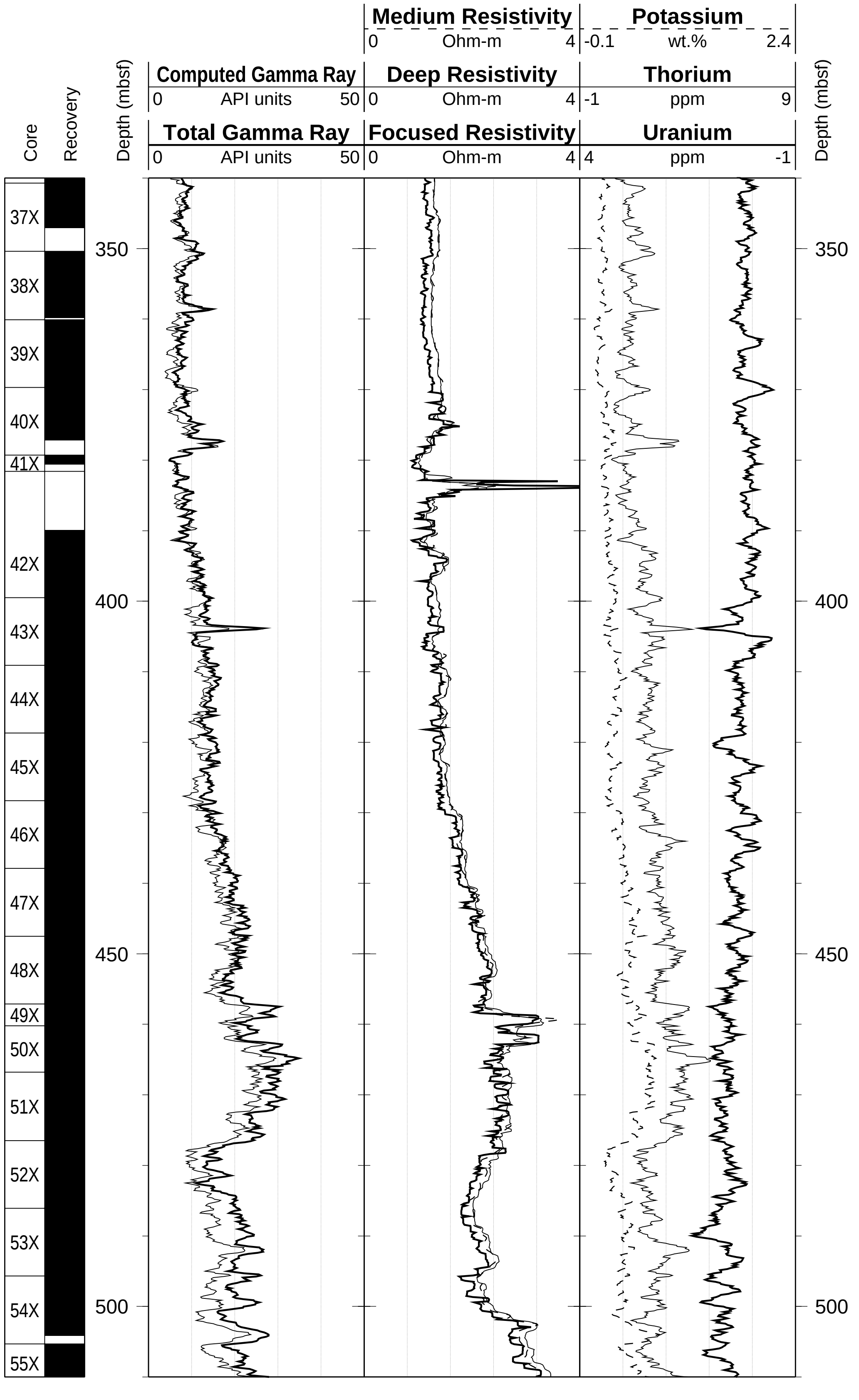
Hole 1051A: Natural Gamma Ray-Resistivity Logging Data



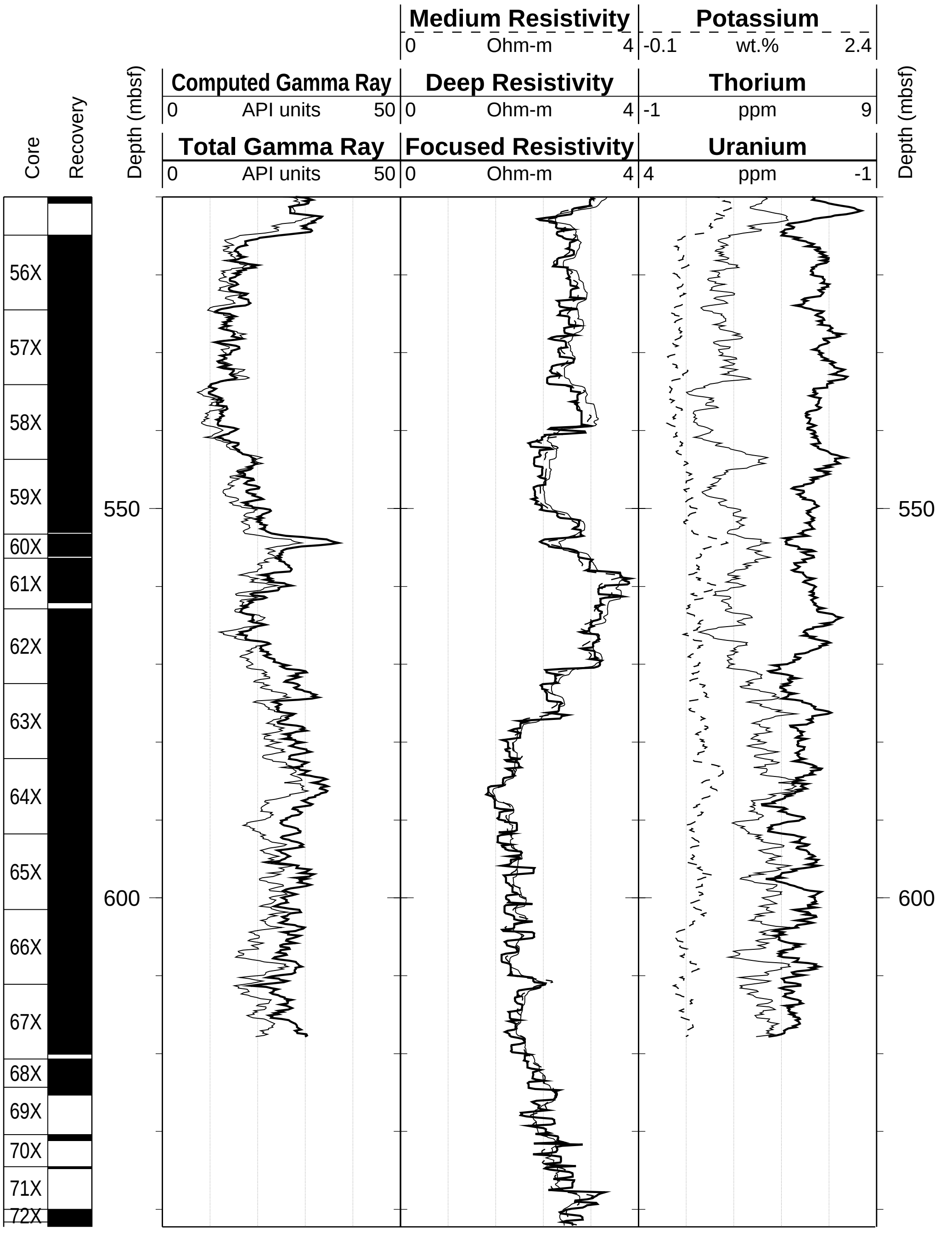
Hole 1051A: Natural Gamma Ray-Resistivity Logging Data (cont.)



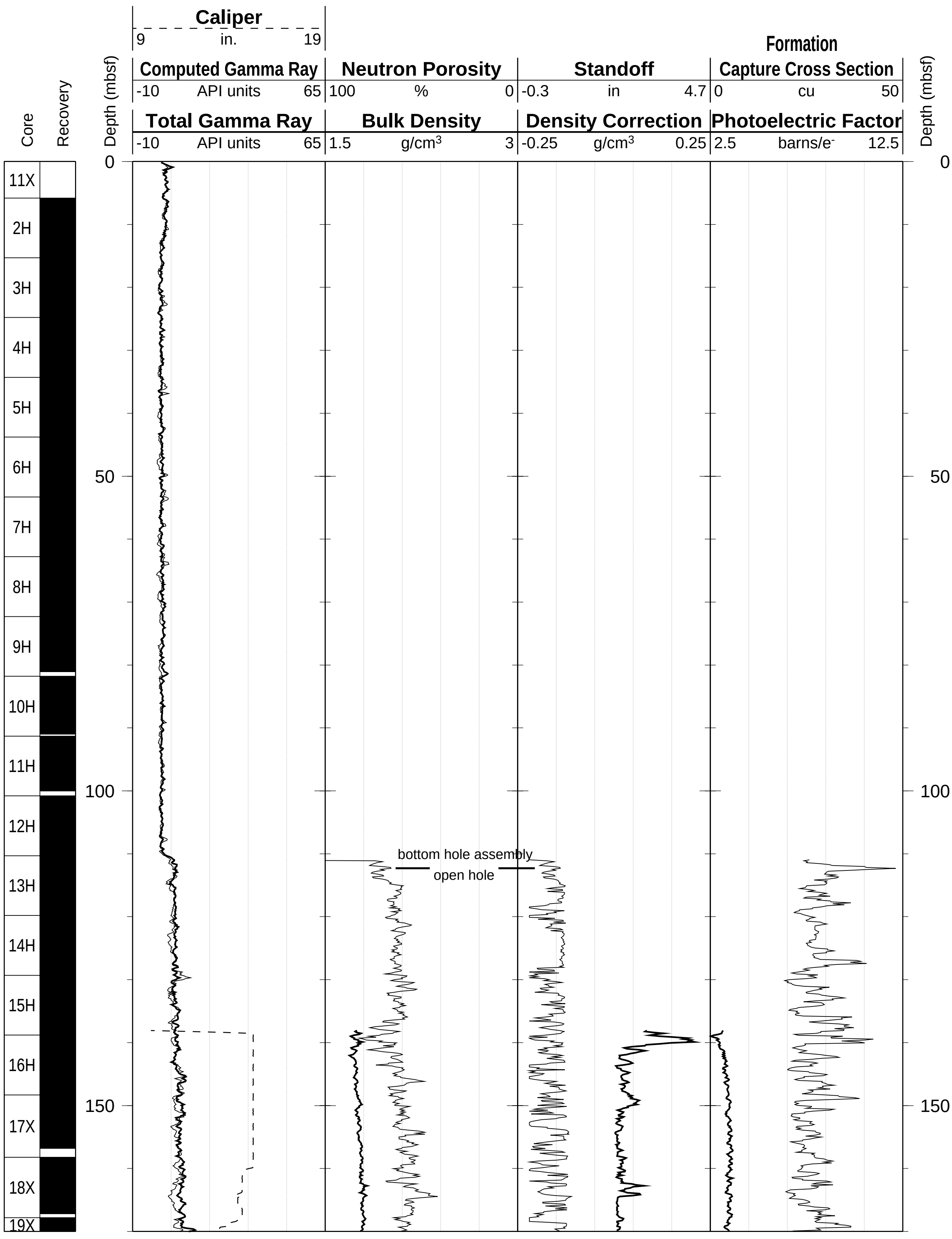
Hole 1051A: Natural Gamma Ray-Resistivity Logging Data (cont.)



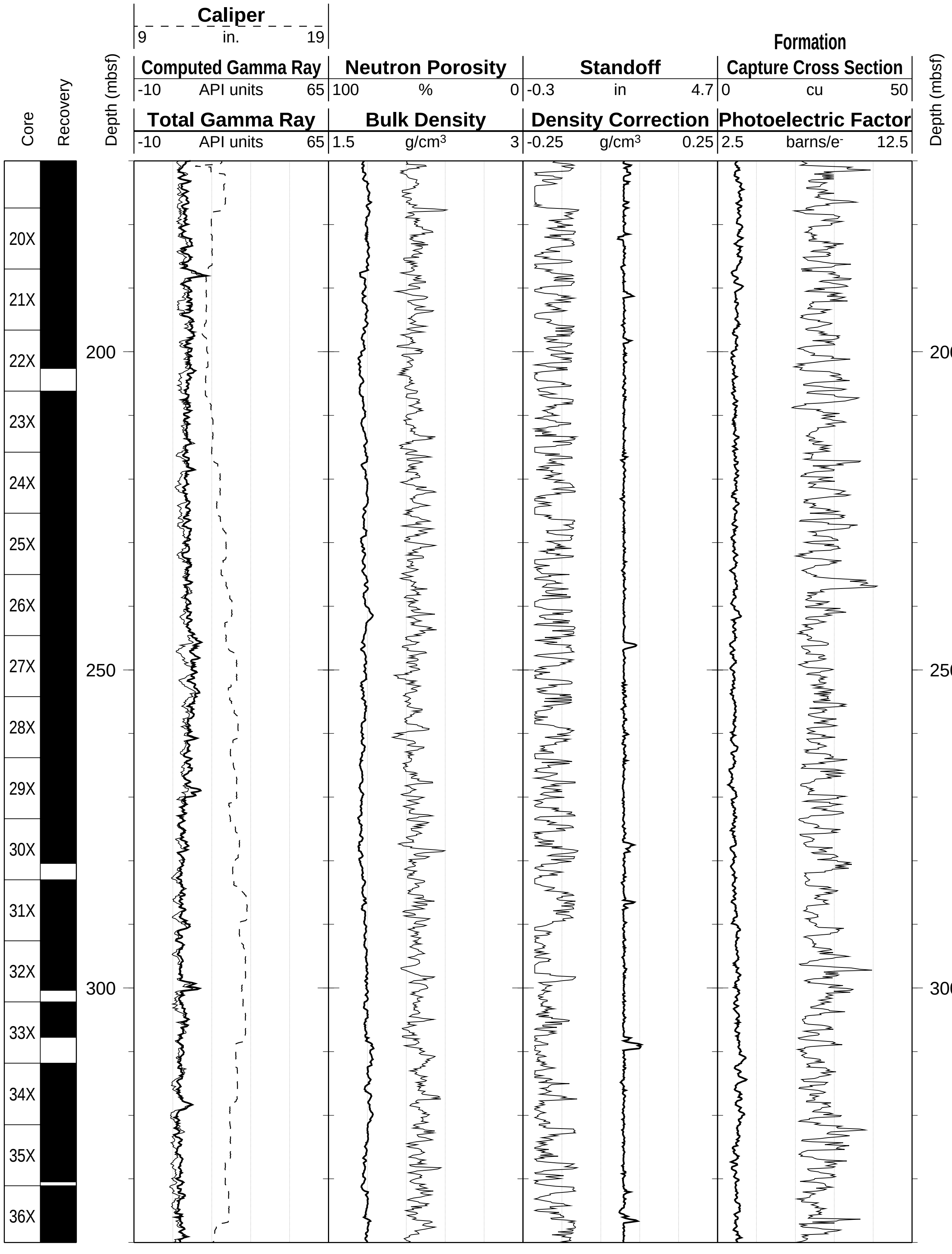
Hole 1051A: Natural Gamma Ray-Resistivity Logging Data (cont.)



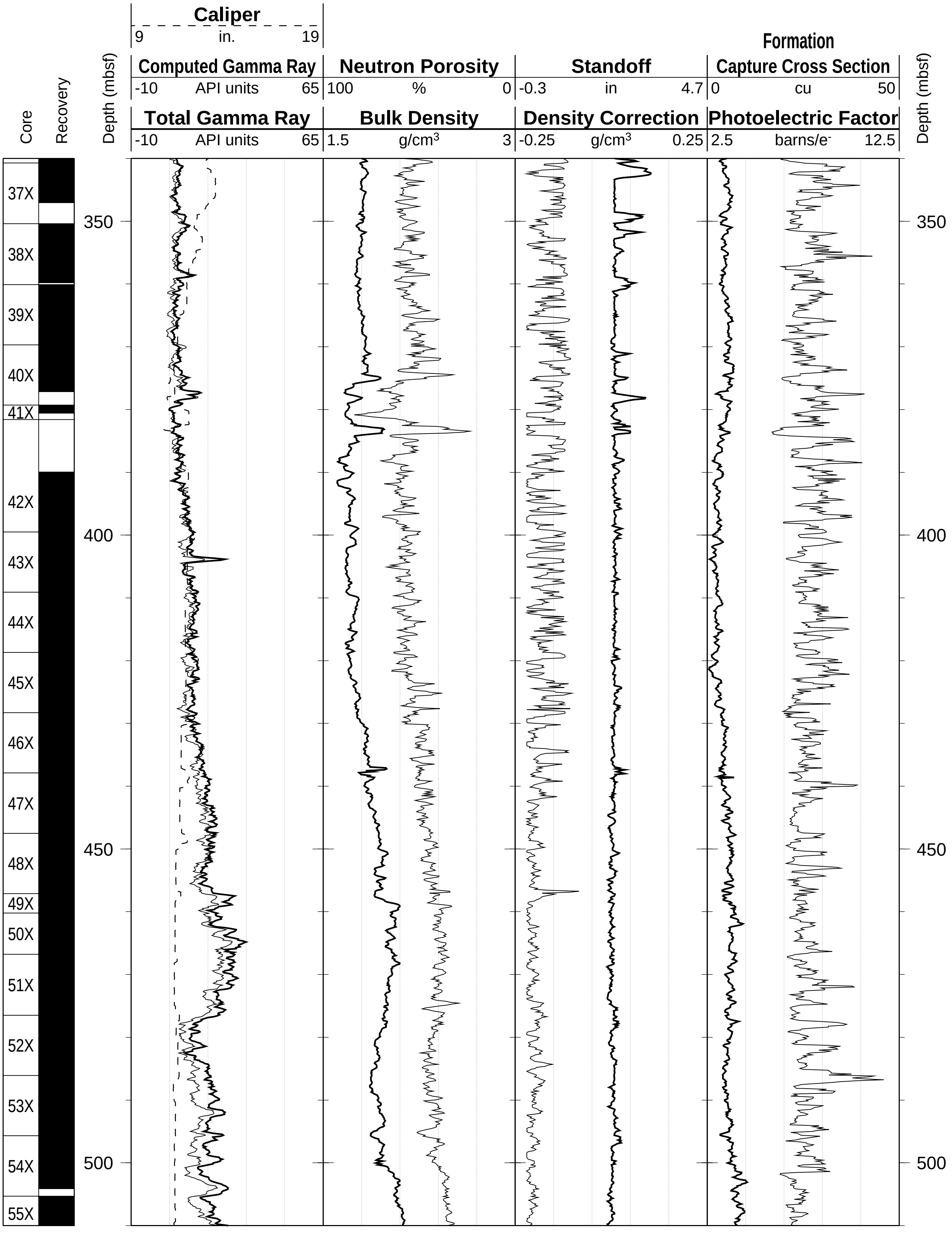
Hole 1051A: Natural Gamma Ray-Density-Porosity Logging Data



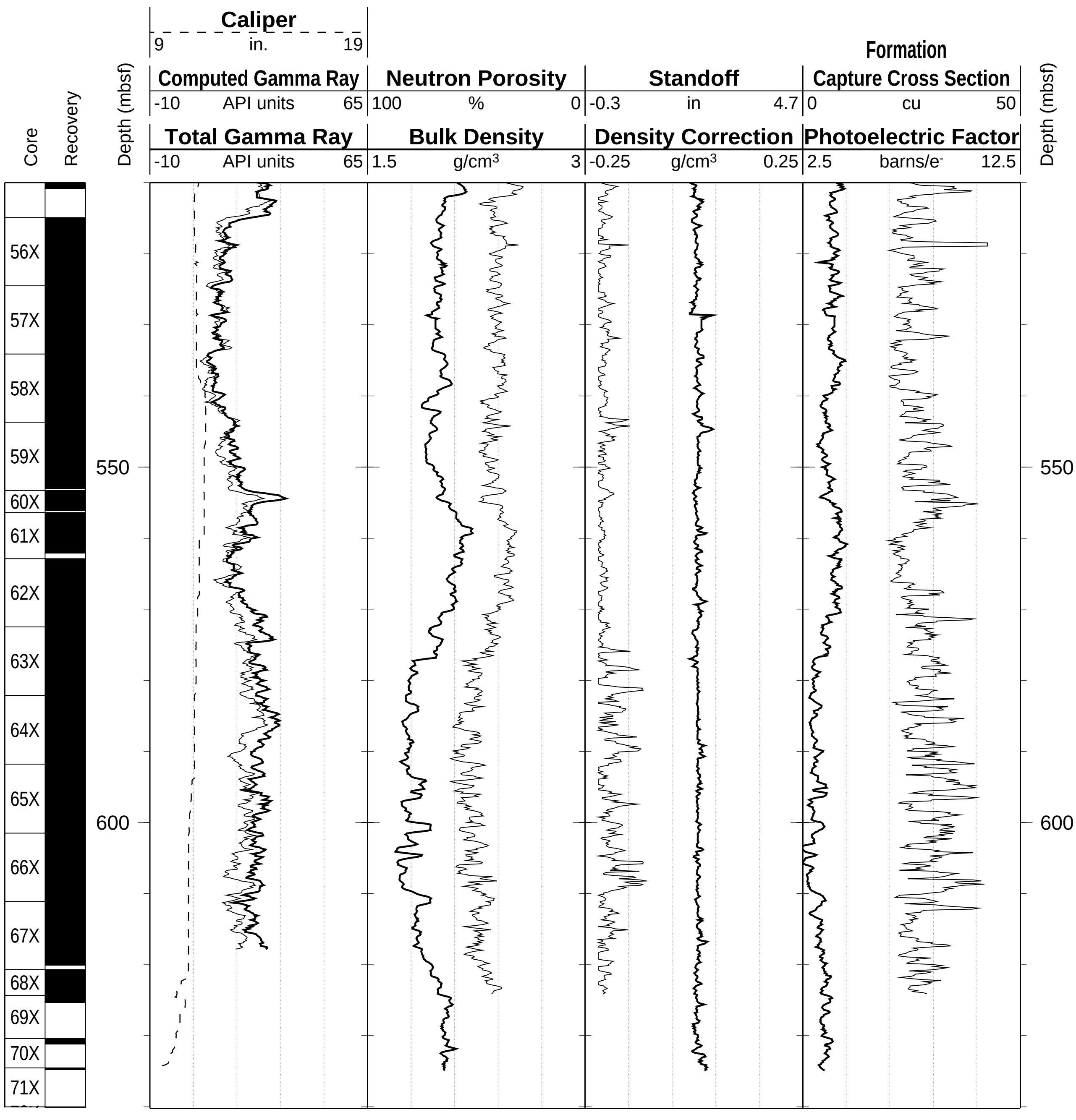
Hole 1051A: Natural Gamma Ray-Density-Porosity Logging Data (cont.)



Hole 1051A: Natural Gamma Ray-Density-Porosity Logging Data (cont.)



Hole 1051A: Natural Gamma Ray-Density-Porosity Logging Data (cont.)



SHORE-BASED LOG PROCESSING
HOLE 1052E

Bottom felt: 1355 mbrf
Total penetration: 684.8 mbsf
Total core recovered: 544.8 m (60.2%)

Logging Runs

Logging string 1: DIT/HLDT/APS/HNGS
Logging string 2: FMS/SDT/GPIT/NGT (main and repeat)
Logging string 3: GHMT/NGT (main and repeat)

The wireline heave compensator was not available during Leg 171B. Sea-state conditions were moderate, with sea swells on the order of 1 m, with no obvious effects on the logging data.

Bottom-Hole Assembly

The following bottom-hole assembly depths are as they appear on the logs after differential depth shift (see "Depth shift" section below) and depth shift to the seafloor. As such, there may be a discrepancy with the original depths given by the drillers on board. Possible reasons for depth discrepancies are ship heave and drill-string and/or wireline stretch.

DIT/APS/HLDT/NGT: Bottom-hole assembly at ~222 mbsf
FMS/SDT/GPIT/NGT: Bottom-hole assembly at ~222 mbsf
GHMT/NGT: Bottom-hole assembly at ~222 mbsf

Processing

Depth shift: All original logs were interactively depth shifted with reference to NGT from DIT/APS/HLDT/NGT run and to the seafloor (−1353 m). The amount of depth shift to the seafloor corresponds to the water depth, as seen on the logs, and differs 2 m from the driller's "bottom-felt" depth. The program used is an interactive, graphical depth-match program that allows us to visually correlate logs and to define appropriate shifts. The reference and match channels are displayed on screen, along with vectors connecting old (reference curve) and new (match curve) shift depths. The total gamma-ray curve (SGR) from the NGT tool run on each logging string is typically used to correlate the logging runs. In general, the reference curve is chosen on the basis of constant, low cable tension and high cable speed (tools run at faster speeds are less likely to stick and are less susceptible to data degradation caused by ship heave). Other factors, however, such as the length of the logged interval, the presence of drill pipe, and the statistical quality of the collected data (better statistics are obtained at lower logging speeds) are also considered in the selection. A list of the amount of differential depth shifts applied in this hole is available upon request.

Gamma-ray processing: NGT data from the FMS/GPIT/SDT/NGT and GHMT/NGT runs were processed to correct for borehole size and type of drilling fluid. HNGS data from the DIT/APS/HLDT/HNGS tool string were corrected in real time during the recording.

Acoustic data processing: The array sonic tool was operated in standard depth-derived borehole compensated mode, including long-spacing (8-10-10-12 ft) and short-spacing (3-5-5-7 ft) logs. The quality of the former is quite poor, and the data have not been processed. The latter exhibits better quality data, with the exception of the TT2 channel (3-ft spacing), which shows some offset in the upper part of the hole. For this reason, the data have not been processed, and velocity has been computed directly from the DTL (long-spacing) channel, which seems to be the best measurement of the acoustic velocity of the formation.

Quality Control

During the processing, data quality control is performed mainly by cross-correlation of all logging data. Large (>12 in) and/or irregular boreholes affect most recordings, particularly those that require eccentralization (APS and HLDT) and good contact with the borehole wall. Hole deviation can also negatively affect the data; the FMS, for example, is not designed to be run in holes deviated more than 10°, as the tool weight may cause the caliper to close.

Data recorded through the bottom-hole assembly should only be used qualitatively because of the attenuation on the incoming signal.

Hole diameter was recorded by the hydraulic caliper on the HLDT tool (CALI) and on the FMS string (C1 and C2).

Note: Additional information about the logs can be found in the "Explanatory Notes" and "Site 1052" chapters (this volume). For further information about the logs, please contact:

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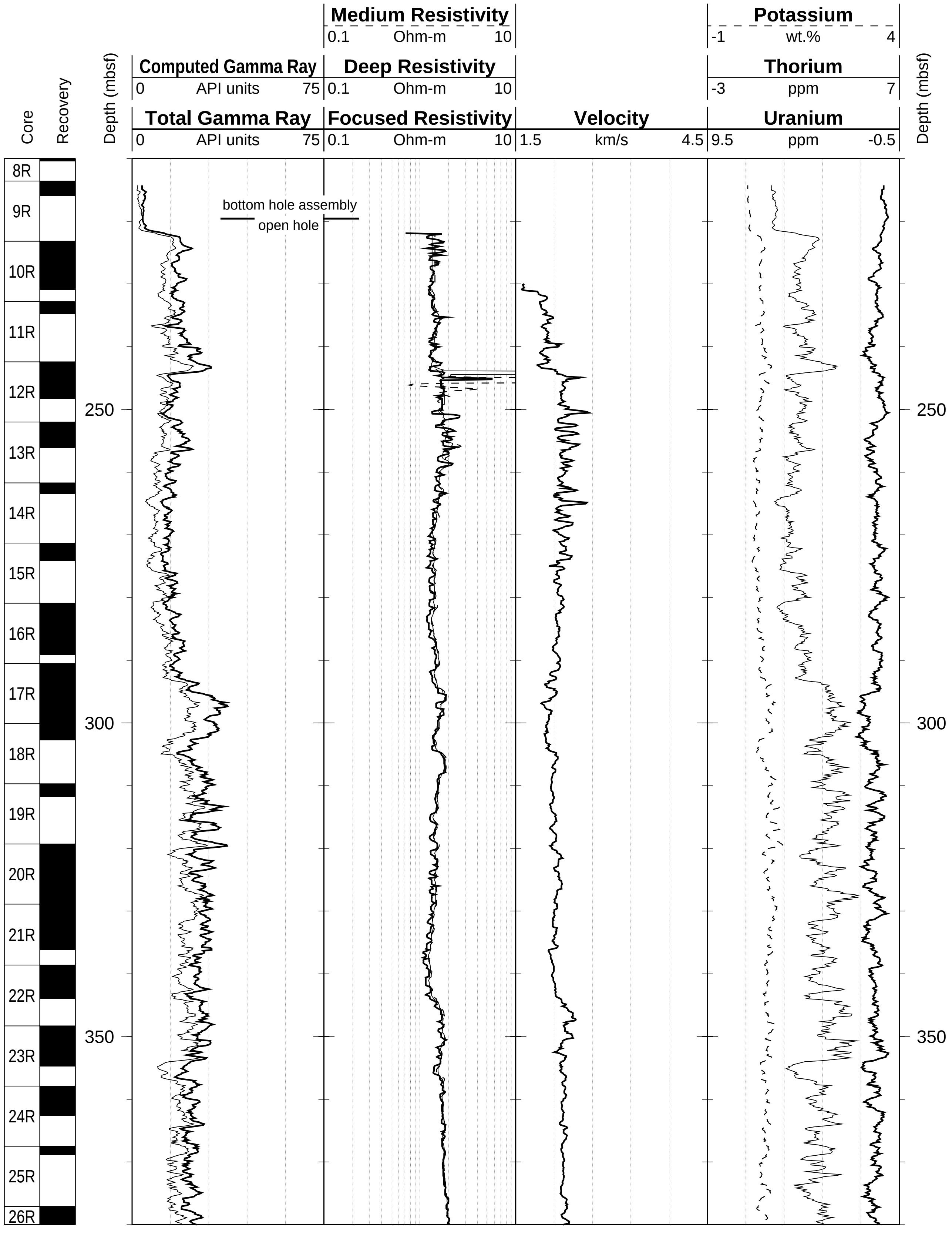
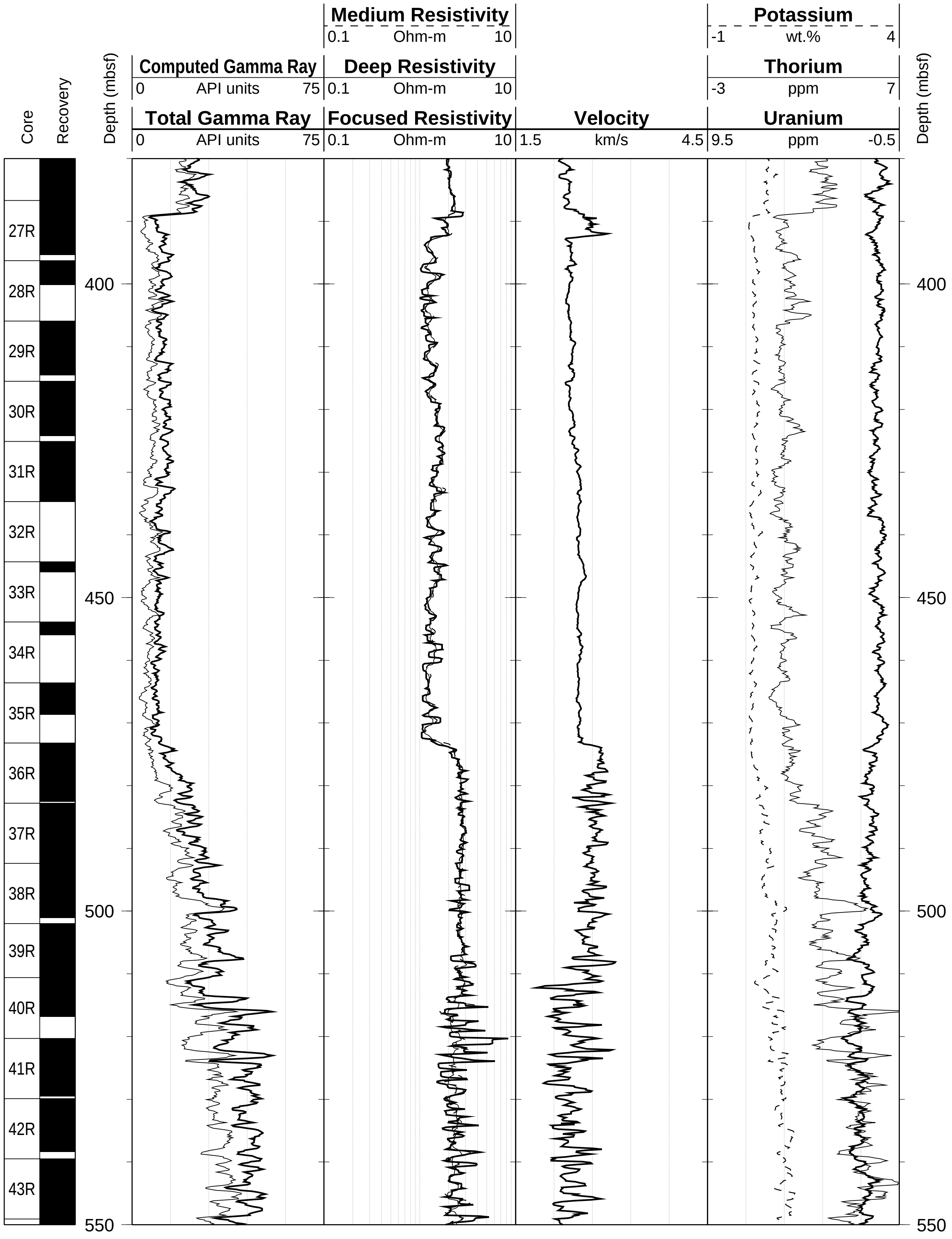
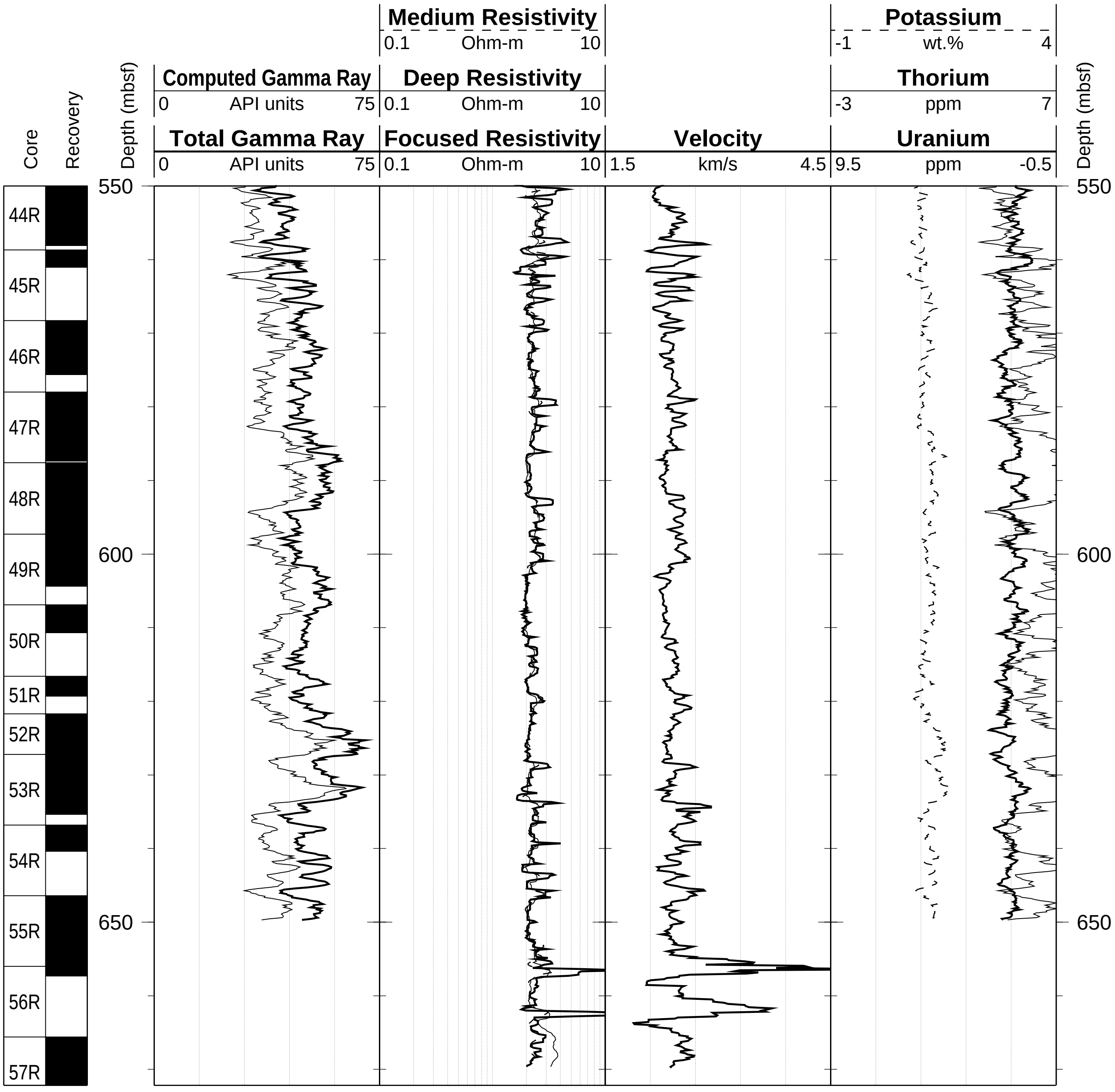
Hole 1052E: Natural Gamma Ray-Resistivity-Sonic Logging Data



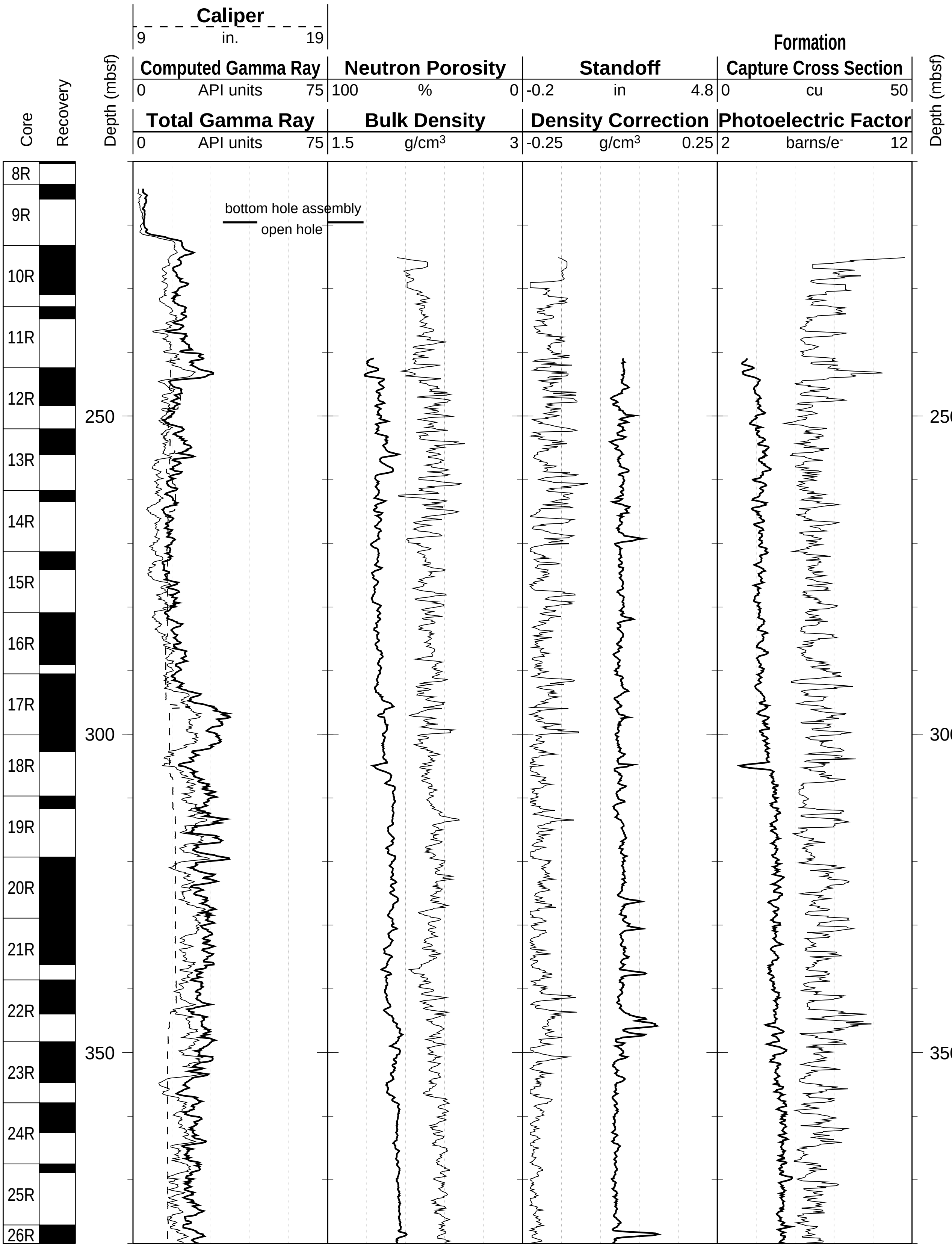
Hole 1052E: Natural Gamma Ray-Resistivity-Sonic Logging Data (cont.)



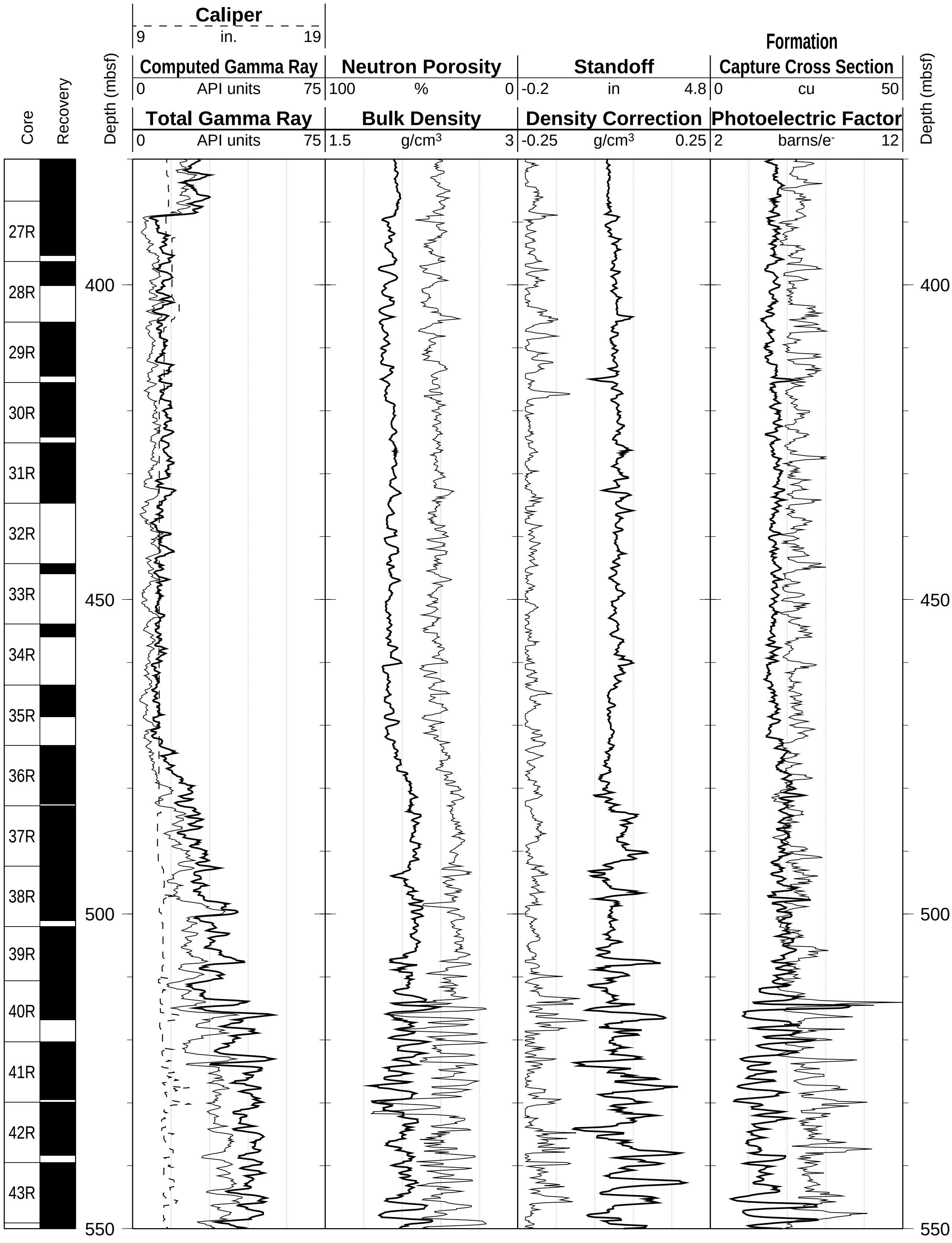
Hole 1052E: Natural Gamma Ray-Resistivity-Sonic Logging Data (cont.)



Hole 1052E: Natural Gamma Ray-Density-Porosity Logging Data



Hole 1052E: Natural Gamma Ray-Density-Porosity Logging Data (cont.)



Hole 1052E: Natural Gamma Ray-Density-Porosity Logging Data (cont.)