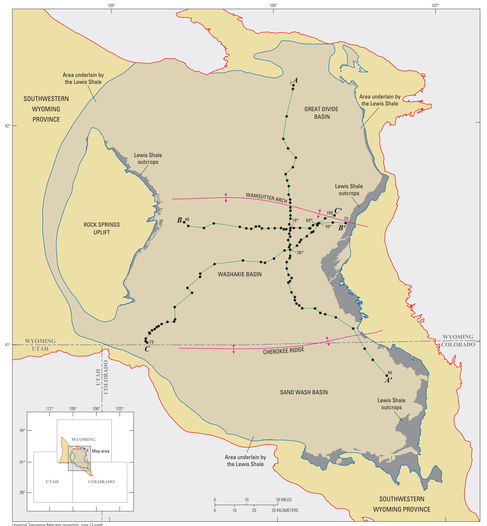
U.S. Department of the Interior
U.S. Geological Survey

Scientific Investigations Map 3511
Pamphlet accompanies map



Universal Transverse Mercator projection, zone 13 north
North American Datum of 1927

Figure 1. Map of the eastern part of the Southwestern Wyoming Province (area within red outline) showing the location of cross sections *A–A′*, *B–B′*, and *C–C′*, and the area underlain by the Lewis Shale (area within blue outline). Outlines are from Hettinger and Roberts (2005). The Southwestern Wyoming Province is in Wyoming, Colorado, and Utah (see inset map). Lewis Shale outcrops (gray shading) are from Green (1992) and Green and Drouillard (1994). The locations of the three cross sections are shown by the green lines. The north to southeast cross section (*A–A′*) is approximately 112 miles long and comprises 48 wells (black dots). The west to east cross section (*B–B′*) is approximately 53 miles long and comprises 25 wells (black dots). The southwest to northeast cross section (*C–C′*) is approximately 82 miles long and comprises 36 wells (black dots). Wells 19*, 26*, 69*, and 70* are intersection points between the cross sections and are denoted on the map. Detailed correlations of formation tops and flooding surfaces within the Lewis Shale-Fox Hills Sandstone-Lance Formation system are displayed in the cross sections (figs. 2–4). The datum for all three sections is informally known as the Asquith marker (see Pasternack, 2005), which is interpreted as a third-order maximum flooding surface (Py-les and Slatt, 2000). Anticlines (Wamsutter arch and Cherokee ridge) are shown with magenta lines; arrows show dip direction of limbs.

EXPLANATION

- **Lance Formation (Upper Cretaceous [Maastrichtian])**—Coastal plain
- **Fox Hills Sandstone (Upper Cretaceous [Maastrichtian])**—Shallow marine
- **Lewis Shale (Upper Cretaceous [Maastrichtian])**—Upper and lower members, offshore marine
- Dad Sandstone Member (Upper Cretaceous [Maastrichtian])—Channels and basin-floor fans
- Asquith marker (Upper Cretaceous [Maastrichtian])—Third-order maximum flooding surface
- **Almond Formation of Mesaverde Group (Upper Cretaceous [Campanian])**—Marginal marine
- 50 **Well number (1–105)**—Located above well log
- 1.8 **Distance between wells, in miles**
- 150 / 100 / 50 **Gamma ray (API) well log**—Green line, in American Petroleum Institute (API) units (0–150). Yellow fill, sand; brown fill, mud. Vertical scale is measured depth below surface, in feet; 1 inch = 400 feet. No horizontal scale
- **Flooding surface**—Dashed where approximately located
- **Flooding surface number (1–15)**
- **Shelf edge location for each clinothem (1–15)**

Figure 2. Cross section *A–A′*, from north to southeast through the Lewis Shale-Fox Hills Sandstone-Lance Formation depositional system in Wyoming and Colorado. The datum of the cross section is the Asquith marker, and the location is shown in figure 1. No data is available where gap in gamma-ray log is present.

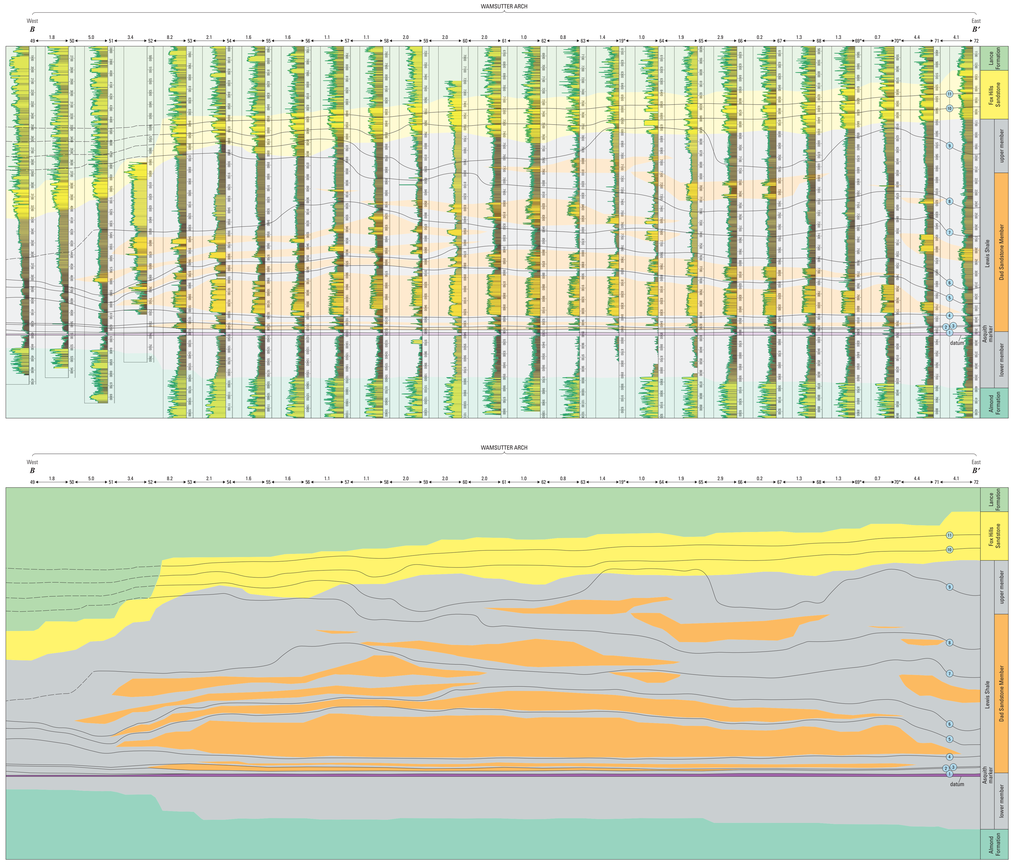


Figure 3. Cross section *B–B′*, from west to east through the Lewis Shale-Fox Hills Sandstone-Lance Formation depositional system in Wyoming. The datum of the cross section is the Asquith marker, and the location is shown in figure 1. No data is available where gap in gamma-ray log is present.

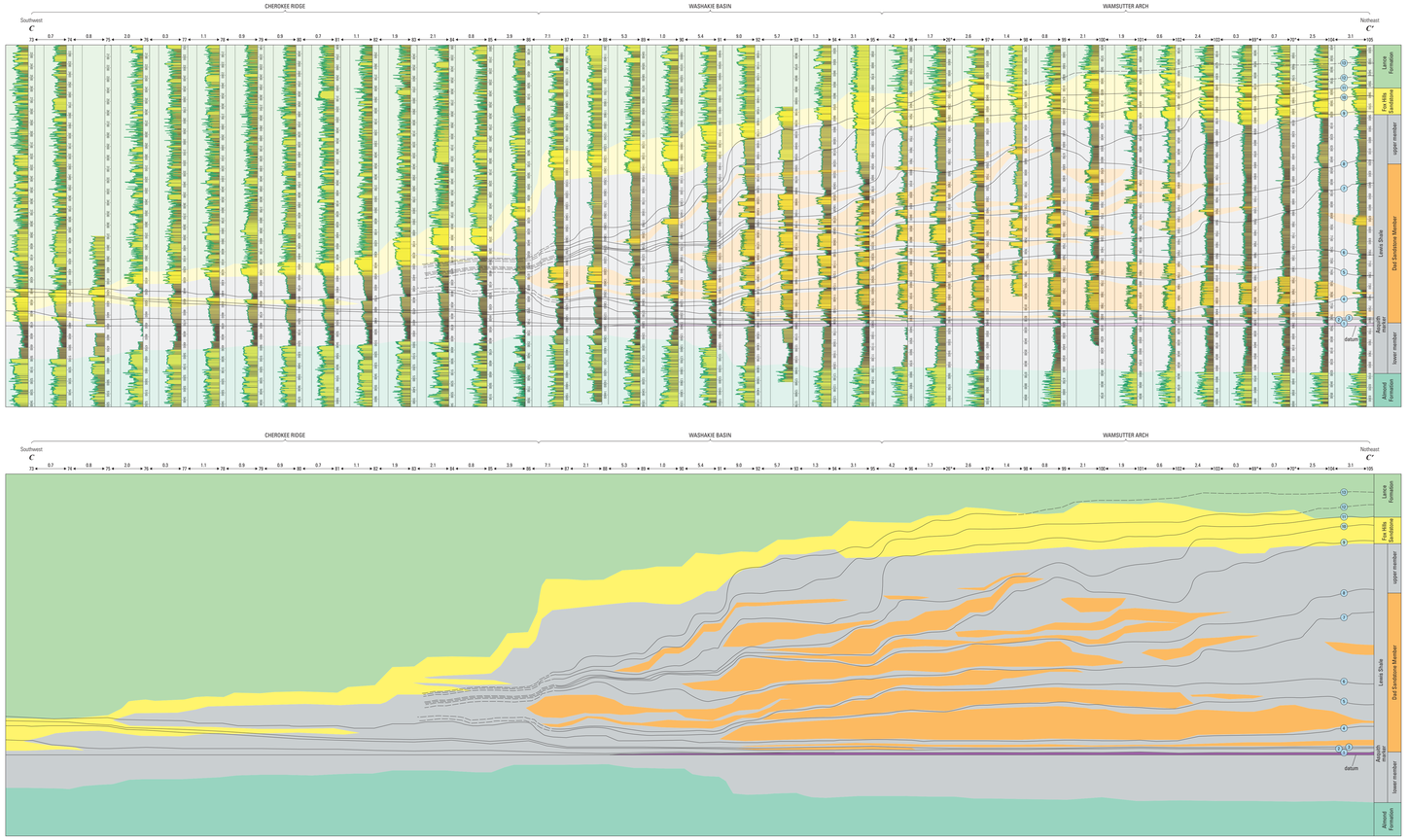


Figure 4. Cross section *C–C′*, from southwest to northeast through the Lewis Shale-Fox Hills Sandstone-Lance Formation depositional system in Wyoming. The datum of the cross section is the Asquith marker, and the location is shown in figure 1. No data is available where gap in gamma-ray log is present.

Stratigraphic Cross Sections of the Lewis Shale in the Eastern Part of the Southwestern Wyoming Province, Wyoming and Colorado

By
Jane S. Hearon
2023

Any use of trade, product, or firm names is for descriptive purposes only and does not imply endorsement by the U.S. Government.

For sale by U.S. Geological Survey, Box 25286, Denver Federal Center, Denver, CO 80225; 888-ASK-USGS (275-8747); 1-888-275-8747.

Suggested citation: Hearon, J.S., 2023, Stratigraphic cross sections of the Lewis Shale in the eastern part of the Southwestern Wyoming Province, Wyoming and Colorado: U.S. Geological Survey Scientific Investigations Map 3511, 1 sheet, 5-p. pamphlet, https://doi.org/10.3133/sim3511.

Associated data for this publication: Hearon, J.S., 2023, Formation tops data from the stratigraphic cross sections of the Lewis Shale in the eastern part of the Southwestern Wyoming Province, Wyoming and Colorado: U.S. Geological Survey data release, https://doi.org/10.5066/P9OBPC5C.

ISSN 2329-132X (online)
https://doi.org/10.3133/sim3511