

Index Map of Cross Sections Through Parts of the Appalachian Basin (Kentucky, New York, Ohio, Pennsylvania, Tennessee, Virginia, and West Virginia)

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Chapter E.1 of

**Coal and Petroleum Resources in the Appalachian Basin:
Distribution, Geologic Framework, and Geochemical Character**

Edited by Leslie F. Ruppert and Robert T. Ryder

Professional Paper 1708

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

Suggested citation:

Ryder, R.T., and Trippi, M.H., 2014, Index map of cross sections through parts of the Appalachian basin (Kentucky, New York, Ohio, Pennsylvania, Tennessee, Virginia, and West Virginia), chap. E.1 of Ruppert, L.F., and Ryder, R.T., eds., Coal and petroleum resources in the Appalachian basin; Distribution, geologic framework, and geochemical character: U.S. Geological Survey Professional Paper 1708, 3 p., <http://dx.doi.org/10.3133/pp1708E.1>.

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Figure

1. Index map of the Appalachian basin region showing the lines of section for cross sections presented in chapter E3

Index Map of Cross Sections Through Parts of the Appalachian Basin (Kentucky, New York, Ohio, Pennsylvania, Tennessee, Virginia, and West Virginia)

By Robert T. Ryder¹ and Michael H. Trippi¹

Introduction to Cross Sections

Ten cross sections and three seismic profiles of regional extent through the subsurface of the Appalachian basin are presented in chapter E of this volume (fig. 1). These cross sections and seismic profiles are subdivided into four groups: (1) five restored cross sections through Cambrian and Ordovician rocks, (2) three restored cross sections through Lower and Upper (part) Silurian rocks, (3) two geologic (structural) cross sections through the entire preserved section of Paleozoic rocks, and (4) three seismic profiles through the entire preserved section of Paleozoic rocks.

The stratigraphic units in the restored cross sections are constructed with respect to a horizontal lithologic datum, whereas the stratigraphic units in the geologic (structural) cross sections are constructed with respect to sea level. The control points for the cross sections are exploratory wells drilled for oil and gas, and many of these wells reached igneous and metamorphic basement rocks of Mesoproterozoic age. Each cross section is illustrated in detail and discussed at length in its respective chapter.

The cross sections and seismic profiles included in this volume were previously published between 1991 and 2009 as U.S. Geological Survey publications; some of these publications were subsequently revised. The earliest cross sections (chapters E.2.1 to E.2.4) refer to an unpublished cross section (*A–A'*); that cross section was never published later and is not the *A–A'* included here as chapter E.3.3.

The cross sections are included in this volume in their original form to provide support for assessments and research studies in the Appalachian basin. There are two additional USGS publications that are not included in this volume but may be useful for research studies: Ryder and others (1996) and Ryder and others (2012).

The appendixes in chapters E.4.1 and E.4.2 include (1) Log ASCII Standard (LAS) files, which encode gamma-ray, neutron, density, and other logs in text files that can be used by most well-logging software programs; and (2) graphic well-log traces. In the appendix to chapter E.4.1, the well-log traces are accompanied by lithologic descriptions with formation tops.

Cross Section Subchapters

The following is a list of the subchapters in chapter E. Click on the link to access each chapter.

- E.2.1 U.S. Geological Survey Miscellaneous Investigations Series Map I–2200, Stratigraphic Framework of Cambrian and Ordovician Rocks in the Central Appalachian Basin From Lake County, Ohio, to Juniata County, Pennsylvania, by Robert T. Ryder, 1992; revised and digitized by Robert D. Crangle, Jr., 2002.

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- E.2.2 U.S. Geological Survey Bulletin 1839–K, Stratigraphic Framework of Cambrian and Ordovician Rocks in the Central Appalachian Basin From Medina County, Ohio, Through Southwestern and South-Central Pennsylvania to Hampshire County, West Virginia, by Robert T. Ryder, Anita G. Harris, and John E. Repetski, 1992; revised and digitized by Robert D. Crangle, Jr., 2003.
- E.2.3 U.S. Geological Survey Miscellaneous Investigations Series Map I–2264, Stratigraphic Framework of Cambrian and Ordovician Rocks in the Central Appalachian Basin From Richland County, Ohio, to Rockingham County, Virginia, by Robert T. Ryder, 1991; revised and digitized by Robert D. Crangle, Jr., 2002.
- E.2.4 U.S. Geological Survey Miscellaneous Investigations Series Map I–2530, Stratigraphic Framework of Cambrian and Ordovician Rocks in the Central Appalachian Basin From Campbell County, Kentucky, to Tazewell County, Virginia, by Robert T. Ryder, John E. Repetski, and Anita G. Harris, 1997; revised and digitized by Erika E. Lentz, 2004.
- E.2.5 U.S. Geological Survey Scientific Investigations Map 2994, Stratigraphic Framework of Cambrian and Ordovician Rocks in the Appalachian Basin From Sequatchie County, Tennessee, Through Eastern Kentucky, to Mingo County, West Virginia, by Robert T. Ryder, Robert D. Crangle, Jr., John E. Repetski, and Anita G. Harris, 2008.
- E.3.1 U.S. Geological Survey Geologic Investigations Series Map I–2810, Stratigraphic Framework and Depositional Sequences in the Lower Silurian Regional Oil and Gas Accumulation, Appalachian Basin: From Ashland County, Ohio, Through Southwestern Pennsylvania, to Preston County, West Virginia, by Robert T. Ryder, 2004.
- E.3.2 U.S. Geological Survey Scientific Investigations Map 2916, Stratigraphic Framework and Depositional Sequences in the Lower Silurian Regional Oil and Gas Accumulation, Appalachian Basin: From Licking County, Ohio, to Fayette County, West Virginia, by Robert T. Ryder, 2006.
- E.3.3 U.S. Geological Survey Geologic Investigations Series Map I–2726, Stratigraphic Framework and Depositional Sequences in the Lower Silurian Regional Oil and Gas Accumulation, Appalachian Basin: From Jackson County, Ohio, Through Northwestern Pennsylvania, to Orleans County, New York, by Robert T. Ryder, 2000.
- E.4.1 U.S. Geological Survey Scientific Investigations Map 3067, Geologic Cross Section *D–D'* Through the Appalachian Basin from the Findlay Arch, Sandusky County, Ohio, to the Valley and Ridge Province, Hardy County, West Virginia, by Robert T. Ryder, Robert D. Crangle, Jr., Michael H. Trippi, Christopher S. Swezey, Erika E. Lentz, Elisabeth L. Rowan, and Rebecca S. Hope, 2009.
- E.4.2 U.S. Geological Survey Scientific Investigations Map 2985, Geologic Cross Section *E–E'* Through the Appalachian Basin from the Findlay Arch, Wood County, Ohio, to the Valley and Ridge Province, Pendleton County, West Virginia, by Robert T. Ryder, Christopher S. Swezey, Robert D. Crangle, Jr., and Michael H. Trippi, 2008.
- E.5.1 U.S. Geological Survey Geologic Investigations Series Map I–2791, Regional Seismic Lines Across the Rome Trough and Allegheny Plateau of Northern West Virginia, Western Maryland, and Southwestern West Virginia, by Christopher S. Kulander and Robert T. Ryder, 2005.

References Cited

- Ryder, R.T., Repetski, J.E., and Harris, A.G., 1996, Stratigraphic framework of Cambrian and Ordovician rocks in the central Appalachian basin from Fayette County, Ohio, to Botetourt County, Virginia: U.S. Geological Survey Miscellaneous Geologic Investigations Series Map I–2495, 1 sheet. (Also available at <http://pubs.usgs.gov/imap/i-2495/>.)
- Ryder, R.T., Trippi, M.H., Swezey, C.S., Crangle, R.D., Jr., Hope, R.S., Rowan, E.L., and Lentz, E.E., 2012, Geologic cross section *C–C'* through the Appalachian basin from Erie County, north-central Ohio, to the Valley and Ridge province, Bedford County, south-central Pennsylvania: U.S. Geological Survey Scientific Investigations Map 3172, 2 sheets, 70-p. pamphlet. (Also available at <http://pubs.usgs.gov/sim/3172/>.)

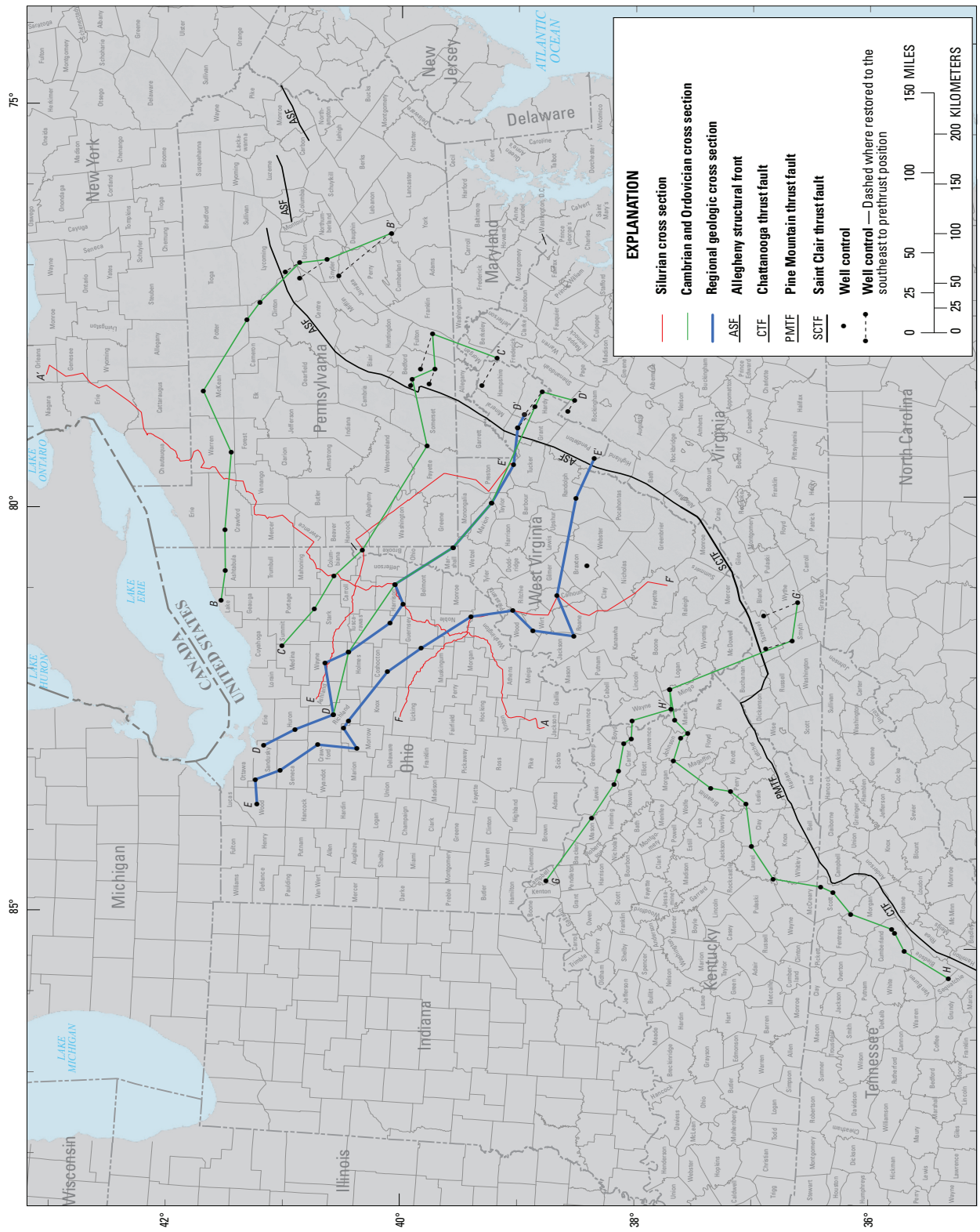


Figure 1. Index map of the Appalachian basin region showing the lines of section for cross sections presented in chapter E. Location of three seismic lines are not shown on this figure.