

**U.S. Geological Survey Publications on
Western Tight Gas Reservoirs**

Topical Report

**M.P. Krupa
C.W. Spencer**

Work Performed Under Contract No.: DE-AI21-83MC20422

**For
U.S. Department of Energy
Office of Fossil Energy
Morgantown Energy Technology Center
P.O. Box 880
Morgantown, West Virginia 26507-0880**

**By
United States Department of the Interior
U.S. Geological Survey
P.O. Box 25046
Denver, Colorado 80225**

February 1989

TABLE OF CONTENTS

	Page
Summary	1
Author Index.	3
State Index	
<i>Colorado</i>	29
<i>Kansas</i>	40
<i>Montana</i>	41
<i>Nebraska</i>	44
<i>New Mexico</i>	44
<i>North Dakota</i>	45
<i>South Dakota</i>	47
<i>Utah</i>	49
<i>Wyoming</i>	54
Basin Index	
<i>Bighorn</i>	65
<i>Denver</i>	66
<i>Greater Green River Basin</i>	67
<i>Green River Basin Proper</i>	73
<i>Hanna Basin</i>	79
<i>Northern Great Plains</i>	80
<i>Piceance Basin</i>	84
<i>Powder River Basin</i>	91
<i>Raton Basin</i>	91
<i>Red Desert-Great Divide</i>	92
<i>Sand Wash</i>	93
<i>Uinta Basin</i>	94
<i>Washakie Basin</i>	98
<i>Williston Basin</i>	100
<i>Wind River Basin</i>	100
Subject Index	
<i>Cross Sections</i>	101
<i>Maps</i>	105
<i>Gas Origins or Generations</i>	107
<i>Reservoir or Mineralogic Studies</i>	113
<i>Miscellaneous Studies</i>	123

SUMMARY

This bibliography includes reports published from 1977 through August 1988. In 1977 the U.S. Geological Survey (USGS), in cooperation with the U.S. Department of Energy's, (DOE), Western Gas Sands Research Program, initiated a geological program to identify and characterize natural gas resources in low-permeability (tight) reservoirs in the Rocky Mountain region. These reservoirs are present at depths of less than 2,000 ft (610 m) to greater than 20,000 ft (6,100 m).

The rock units with the best potential for gas production from tight reservoirs in the Rocky Mountain region are of Tertiary and Cretaceous age. Most of the work has been concentrated on marine sandstone, siltstone, and chalk reservoirs in the northern Great Plains, marine and fluvial sandstones in the Greater Green River Basin of Wyoming and Colorado, and marine and fluvial sandstones in the Piceance Creek Basin in Colorado, and fluvial sandstone reservoirs in the Uinta Basin, Utah.

A wide variety of methods is being used to help resolve resource assessment and recovery technology problems. These methods include surface and subsurface stratigraphic studies, paleoenvironmental interpretation, micropaleontologic analysis, organic geochemical and thermal maturation studies, origin of gases, subsurface-pressure mapping, and core-to-well-log correlation; also analysis of regional, natural-fracture trends, and vertical-seismic profiles. The reservoir rocks are characterized by optical petrography, scanning electron microscopy, X-ray diffraction, and electron probe studies. Other studies include analysis of stable isotopes of oxygen and carbon, fission-track annealing, and fluid inclusion analysis.

Only published reports readily available to the public are included in this report. Additional unpublished administrative reports have been prepared for DOE and DOE contractors. Where appropriate, USGS researchers have incorporated administrative report information into later published studies.

These studies cover a broad range of research from basic research on gas origin and migration to applied studies of production potential of reservoirs in individual wells. The early research included construction of regional well-log cross sections. These sections provide a basic stratigraphic framework for individual areas and basins. Most of these sections include drill-stem test and other well-test data so that the gas-bearing reservoirs can be seen in vertical and areal dimensions.

For the convenience of the reader, the publications listed in this report have been indexed by general categories of (1) authors, (2) States, (3) geologic basins, (4) cross sections, (5) maps, (6) studies of gas origin and migration, (7) reservoir or mineralogic studies, and (8) other reports of a regional or specific topical nature. In

order to minimize the size and expense of this report, extensive cross indexing was not used. For example, Rocky Mountain regional reports are listed under "other" and not under all the individual States and basins.

We wish to especially acknowledge and thank the financial and technical support of the U.S. Department of Energy. Without this support most of the studies listed in this bibliography would not have been made.

This research is being funded through DOE's Morgantown Energy Technology Center (METC). The advice and encouragement of Karl-Heinz Frohne, Charles A. Komar, and J. Keith Westhusing, is gratefully acknowledged.

We recommend that interested persons contact individual authors to ascertain the scope and content of USGS open-file publications prior to purchase.

Note: USGS open-file reports may be ordered in microfiche or hard copy from:

**Book and Open-File Reports
U.S. Geological Survey
Box 25425
Federal Center
Denver, CO 80225

Phone: (303) 236-7476**

AUTHOR INDEX

- Abrams, G.A., and Grout, M.A., 1987, Complete Bouguer profiles and principal facts for gravity stations in the Divide Creek anticline area, Piceance Basin, Colorado: U.S. Geological Survey Open-File Report 87-647, 9 p.
- Bader, J.W., 1983, Section A-A', subsurface correlations of some Upper Cretaceous and Tertiary rocks from the Cherokee Ridge, Wyoming to the southeast flank of the Sand Wash Basin, Colorado: U.S. Geological Survey Open-File Report 83-362, 2 sheets.
- Bader, J.W., 1987, Surface and subsurface relations of the Cherokee Ridge arch, south-central Wyoming: San Jose, Calif., San Jose State University, unpublished MS thesis, 68 p.
- Bader, J.W., Gill, J.R., Cobban, W.A., and Law, B.E., 1983, Biostratigraphic correlation chart of some Upper Cretaceous rocks from the Lost Soldier area, Wyoming to west of Craig, Colorado: U.S. Geological Survey Miscellaneous Field Studies Map MF-1548, 1 sheet.
- Bader, J.W., Law, B.E., and Spencer, C.W., 1982, Preliminary chart showing electric log correlation, section D-D', of some Upper Cretaceous and Tertiary rocks, Green River Basin, Wyoming: U.S. Geological Survey Open-File Report 82-129, 2 sheets.
- Bostick, N.H., 1983, Vitrinite reflectance and temperature gradient models applied at a site in the Piceance Basin, Colorado [abs.]: American Association of Petroleum Geologists Bulletin, v. 67, no. 3, p. 427-428.
- Bostick, N.H., and Freeman, V.L., 1984, Tests of vitrinite reflectance and paleotemperature models at the Multiwell Experiment Site, Piceance Creek Basin, Colorado, *in* Spencer, C.W., and Keighin, C.W., eds., Geologic studies in support of the U.S. Department of Energy Multiwell Experiment, Garfield County, Colorado: U.S. Geological Survey Open-File Report 84-757, p. 110-120.
- Bucurel, H.G., 1981, Subsurface correlations of some Upper Cretaceous and Tertiary rocks, Great Divide Basin, Wyoming, Section A-A' East and west: U.S. Geological Survey Open-File Report 81-981, 2 sheets.
- Bucurel, H.G., 1982, Section B-B', subsurface correlations of some Upper Cretaceous and Tertiary rocks, Great Divide Basin, Wyoming: U.S. Geological Survey Open-File Report 82-456, 2 sheets.
- Bucurel-White, Hildie, 1983, Section C-C', surface and subsurface correlations of some Upper Cretaceous and Tertiary rocks from the northeast flank Rock Springs uplift to the Rawlins uplift, Great Divide Basin, Wyoming: U.S. Geological Survey Open-File Report 83-418, 2 sheets.

- Chancellor, R.E., and Johnson, R.C., 1986, Geologic and engineering implications of production history from five wells in central Piceance Creek basin, northwest Colorado: Proceedings Society of Petroleum Engineers Unconventional Gas Technology Symposium, Louisville, Ky., May 18-21, SPE 15237, p. 351-364.
- Charpentier, R.R., Law, B.E., and Prenskey, S.E., 1986, Quantitative model of over-pressured gas resources of the Pinedale anticline, Wyoming [abs.]: American Association of Petroleum Geologists Bulletin, v. 70., no. 8, p. 1034-1035.
- Charpentier, R.R., Law, B.E., and Prenskey, S.E., 1987, Quantitative model of over-pressured gas resources of the Pinedale anticline, Wyoming, *in* SPE/DOE Joint Symposium on Low Permeability Reservoirs, Denver, 1987, Proceedings: Society of Petroleum Engineers, p. 153-164, SPE/DOE 16404.
- Cowgill, D.F., and Pitman, J.K., 1981, NMR determination of porosity and permeability of western tight gas sands: Proceedings of the SPE/DOE Symposium on Low Permeability Gas Reservoirs, Dallas, Tex., Society of Petroleum Engineers, p.437-448.
- Cowgill, D.F., SeEVERS, D.O., Pitman, J.K., and Dobecki, T.L., 1981, Application of nuclear magnetic resonance to characterization of low permeability sandstone reservoirs, Uinta Basin, Utah [abs.]: Geophysics, v. 46, no. 4, p. 415.
- Crovelli, R.A., 1985, An analytic probabilistic methodology for resource appraisal of undiscovered oil and gas resources in play analysis: U.S. Geological Survey Open-File Report 85-657, 51 p.
- Crovelli, R.A., 1986, U.S. Geological Survey quantitative petroleum resource appraisal methodologies, *in* Rice, D.D., ed., Oil and gas assessment Methods and application: American Association of Petroleum Geologists Studies in Geology, v. 21, p. 69-76.
- Crovelli, R.A., 1987, Probability theory versus simulation of petroleum potential in play analysis, *in* Albin, S.L., and Harris, C.M., eds., Statistical and computational issues in probability modeling, Part 1: Annals of Operations Research, v. 8, p. 363-381.
- Crovelli, R.A. and Balay, R.H., 1986, FASP, An analytic resource appraisal program for petroleum play analysis: Computers and Geosciences, v. 12, no. 4B, p. 423-475.
- Dickinson, W.W., 1984, Isotope geochemistry of carbonate minerals in Upper Cretaceous and Tertiary sandstones from the Pinedale anticline, Wyoming, *in* Law, B.E., ed., Geological characteristics of low-permeability Upper Cretaceous and lower Tertiary rocks in the Pinedale anticline area, Sublette County, Wyoming: U.S. Geological Survey Open-File Report 84-753, p. 95-107.

- Dickinson, W.W., and Gautier, D.L., 1983, Diagenesis of nonmarine rocks and gas entrapment in northern Green River Basin, Wyoming [abs.]: American Association of Petroleum Geologists Bulletin, v. 67, no. 3, p. 450.
- Dickinson, W.W., and Law, B.E., 1985, Burial history of Upper Cretaceous and Tertiary rocks interpreted from vitrinite reflectance, northern Green River basin, Wyoming [abs.]: American Association of Petroleum Geologists Bulletin, v. 69, no. 5, p. 846.
- Dickinson, W.W. and Prenskey, S.E., 1986, Porosity and permeability modification in Upper Cretaceous and Tertiary sandstone of the Green River basin, Wyoming [abs.], *in* Sediments down under; 12th International Sedimentological Congress, [Canberra, Australia]: International Association of Sedimentologists, p. 81-82.
- Duda, L.E., and Pitman, J.K., 1981, Preliminary pore-structure analysis of tight sandstones using computer-processed photomicrographs [abs.]: American Association of Petroleum Geologists, v. 65, no. 3, p. 558-559.
- Duda, L.E., and Pitman, J.K., 1982, Pore-structure analysis of sandstones using computer-processed photomicrographs: Sandia National Laboratories Report, Sandia 82-1083, 40 p.
- Fouch, T.D., 1981, Chart showing distribution of rock types, lithologic groups, and interpreted depositional environments for some lower Tertiary and Upper Cretaceous rocks from outcrops at Willow Creek-Indian Canyon through the subsurface of the Duchesne and Altamont oil fields, southwest to north-central parts of the Uinta Basin, Utah: U.S. Geological Survey Oil and Gas Investigations Chart, OC-81, 2 sheets in color.
- Fouch, T.D., and Cashion, W.B., 1979, Distribution of rock types, lithologic groups, and depositional environments for some lower Tertiary and Upper and Lower Cretaceous, and Upper and Middle Jurassic rocks in the subsurface between Altamont oil field and San Arroyo gas field, north-central to southeastern Uinta Basin, Utah: U.S. Geological Survey Open-File Report 79-365, 2 sheets.
- Fouch, T.D., Lawton, T.F., Nichols, D.J., Cashion, W.B., and Cobban, W.A., 1982, Chart showing preliminary correlation of major Albian to middle Eocene rock units from San Pete Valley, central Utah to the Book Cliffs in eastern Utah, *in* Overthrust Belt of Utah: Utah Geological Association Publication 10, p. 267-272.
- Fouch, T.D., Lawton, T.F., Nichols, D.J., Cashion, W.B., and Cobban, W.A., 1983, Patterns and timing of synorogenic sedimentation in Upper Cretaceous rocks of central and northeast Utah, *in* Reynolds, M.W., and Dolly, E.D., eds., Mesozoic paleogeography of west-central United States: Society of Economic Paleontologists and Mineralogists, Rocky Mountain Section, Rocky Mountain Paleogeography Symposium 2, p. 305-336.

- Gardner, K.L., 1980, Impregnation technique using colored epoxy to define porosity in petrographic thin sections: *Canadian Journal of Earth Sciences*, v. 17, no. 8, p. 1104-1107.
- Gautier, D.L., 1979, Post-depositional control of gas reservoir quality in the Eagle Sandstone of the Bearpaw Mountains, north-central Montana [abs.]: *American Association of Petroleum Geologists Bulletin*, v. 63, no. 5, p. 827.
- Gautier, D.L., 1980, Diagenesis in shallow conventional and low-permeability biogenic methane reservoirs of Eagle Sandstone, Montana [abs.]: *American Association of Petroleum Geologists Bulletin*, v. 64, no. 5, p. 712.
- Gautier, D.L., 1980, Physical characteristics of shallow methane reservoirs of northern Great Plains [abs.]: *American Association of Petroleum Geologists Bulletin*, v. 64, no. 5, p. 711-712.
- Gautier, D.L., 1981, Lithology, reservoir properties, and burial history of portion of Gammon Shale (Cretaceous), southwestern North Dakota: *American Association of Petroleum Geologists Bulletin*, v. 65, no. 6, p. 1146-1159.
- Gautier, D.L., 1981, Pierre Shale as a natural gas reservoir [abs.]: *Geological Society of America Abstracts with Programs*, v. 13, no. 4, p. 198.
- Gautier, D.L., 1981, Diagenesis and methane generation in Upper Cretaceous Gammon Shale, northern Great Plains, United States [abs.]: *American Association of Petroleum Geologists Bulletin*, v. 65, no. 5, p. 929.
- Gautier, D.L., 1981, Petrology of the Eagle Sandstone, Bearpaw Mountains area, north-central Montana: *U.S. Geological Survey Bulletin* 1521, 54 p.
- Gautier, D.L., 1983, Diagenesis, Chapter 4 *in* Rice, D.D., and Gautier, D.L., eds., *Patterns of sedimentation, diagenesis, and hydrocarbon accumulation in Cretaceous rocks of the Rocky Mountains: Society of Economic Paleontologists and Mineralogists Short Course No. 11*, p. 4-1 to 4-29.
- Gautier, D.L., 1983, Nonmarine rocks, Chapter 5 *in* Rice, D.D., and Gautier, D.L., eds., *Patterns of sedimentation, diagenesis and hydrocarbon accumulation in Cretaceous rocks of the Rocky Mountains: Society of Economic Paleontologists and Mineralogists Short Course No. 11*, p. 5-1 to 5-43.
- Gautier, D.L., 1983, Gas reservoirs in composite shale-sandstone lithologies A Rocky Mountain energy frontier [abs.]: *American Association of Petroleum Geologists Bulletin*, v. 67, no. 8, p. 1338.
- Gautier, D.L., 1983, Marine shales, Chapter 8 *in* Rice, D.D. and Gautier, D.L., eds., *Patterns of sedimentation, diagenesis and hydrocarbon accumulation in Cretaceous rocks of the Rocky Mountains: Society of Economic Paleontologists and Mineralogists Short Course No. 11*, p. 8-1 to 8-41.

- Gautier, D.L., and Claypool, G.E., 1982, Siderite and methane in Gammon Shale Quantitative reconstruction by analogy with processes in modern diagenetic environments [abs.]: U.S. Geological Survey Workshop on Diagenesis, Golden, Colo., March 16-18, 1982, Program, p. 19.
- Gautier, D.L., and Pollastro, R.M., 1982, Petrology and mineralogy in relation to reservoir properties in the EPNG No. 2 Wagon Wheel Well, Green River Basin, Wyoming [abs.]: University of Wyoming, Wyoming Geological Association, and Geological Survey of Wyoming Annual Spring Conference, Laramie, Wyo., May 2-4, 1982, Proceedings, p. 9.
- Gautier, D.L., and Pratt, L.M., 1986, Organic carbon accumulation and sulfur diagenesis in fine-grained Cretaceous rocks of the Western Interior of North America, *in* Carter, L.M.H., ed., USGS research on energy resources 1986 program and abstracts: U.S. Geological Survey Circular 974, p. 16-17.
- Gautier, D.L., and Rice, D.D., 1981, Comparison of conventional and low-permeability reservoirs of shallow gas in the northern Great Plains, Proceedings of the SPE/DOE Symposium on Low Permeability Gas Reservoirs, Dallas, Tex., Society of Petroleum Engineers, p. 193-204.
- Gautier, D.L., and Rice, D.D., 1981, Facies distribution and reservoir quality of biogenic gas reservoirs of northern Great Plains Example from Eagle-Telegraph Creek (Upper Cretaceous) interval [abs.]: American Association of Petroleum Geologists Bulletin, v. 65, no. 3, p. 559.
- Gautier, D.L., and Rice, D.D., 1982, Conventional and low-permeability reservoirs of shallow gas in the northern Great Plains: Journal of Petroleum Technology, v. 34, p. 1600-1608.
- Gautier, D.L., and Rice, D.D., 1983, Significance of gamma-ray spectroscopy for evaluating shallow gas reservoirs from Bowdoin Dome, Montana [abs.]: American Association of Petroleum Geologists Bulletin, v. 67, no. 3, p. 468.
- Gautier, D.L., Starkey, H.C., and Takahashi, K.J., 1981, Clays, cations, and log response in the gas-productive Upper Cretaceous Gammon Shale of the northern Great Plains [abs.]: 30th Annual Clay Minerals Conference, 18th Meeting Clay Minerals Society, Urbana-Champaign, Ill., Program and Abstracts, p. 45.
- Gautier, D.L., Starkey, H.C., and Takahashi, K.J., 1983, Clays, cations, and log response of gas-producing and non-producing zones in the Gammon Shale (Cretaceous), southwestern North Dakota: Clays and Clay Minerals, v. 32, no. 1, p. 122-128.
- Granica, M.P., and Johnson, R.C., 1980, Structure contour and isochore map of the nonmarine part of the Mesaverde Formation/Group, Piceance Creek Basin, Colorado: U.S. Geological Survey Miscellaneous Field Investigations Map MF-1189, 1 sheet, scale 1:250,000, 10 page pamphlet.

- Grout, M.A., and Verbeek, E.R., 1985, Fracture history of the Plateau Creek and adjacent Colorado River valleys, southern Piceance Basin Implications for predicting joint patterns at depth: U.S. Geological Survey Open-File Report 85-744, 17 p.
- Grout, M.A., and Verbeek, E.R., 1986, Prediction of joint patterns at depth examples from the Piceance Basin, northwestern Colorado: Geological Society of America Abstracts with Programs, v. 18, no. 5, p. 358.
- Grout, M.A., and Verbeek, E.R., 1987, Regional joint sets unrelated to major folds example from the Piceance basin, northeastern Colorado Plateau [abs.]: Geological Society of America Abstracts with Programs, v. 19, no. 5, p. 279.
- Hansley, P.L., 1981, Mineralogy and diagenesis of core samples of Upper Cretaceous sandstones, Twin Arrow Inc. 4-14X C & K well, Piceance Creek Basin, northwestern Colorado: U.S. Geological Survey Open-File Report 81-845, 8 p.
- Hansley, P.L., 1981, Mineralogy, diagenesis, and provenance of Upper Cretaceous sandstones from the Ralston Production Company Federal No. 31 well, Piceance Creek Basin, northwestern Colorado: U.S. Geological Survey Open-File Report 81-1295, 21 p.
- Hansley, P.L., and Johnson, R.C., 1979, Preliminary results of mineralogic and diagenetic studies of low-permeability sandstones of Late Cretaceous age, Piceance Creek Basin, northwestern Colorado: U.S. Geological Survey Open-File Report 79-1702, 39 p.
- Hansley, P.L., and Johnson, R.C., 1980, Mineralogy and diagenesis of low-permeability sandstones of Late Cretaceous age, Piceance Creek Basin, northwestern Colorado: The Mountain Geologist, v. 17, no. 4, p. 88-129.
- Johnson, R.C., 1978, Cross section showing depositional environments and lithologies of some Upper Cretaceous and Tertiary rocks, from DeBeque to the north-central Piceance Creek Basin, Colorado: U.S. Geological Survey Open-File Report 78-182, 1 sheet.
- Johnson, R.C., 1979, Cross Section A-A' of Upper Cretaceous and lower Tertiary rocks, northern Piceance Creek Basin, Colorado: U.S. Geological Survey Miscellaneous Field Investigations Map MF-1129-A, 2 sheets.
- Johnson, R.C., 1979, Cross section B-B' of Upper Cretaceous and lower Tertiary rocks, northern Piceance Creek Basin, Colorado: U.S. Geological Survey Miscellaneous Field Investigations Map MF-1129-B, 2 sheets.
- Johnson, R.C., 1979, Cross section C-C' of Upper Cretaceous and lower Tertiary rocks, northern Piceance Creek Basin, Colorado: U.S. Geological Survey Miscellaneous Field Investigations Map MF-1129-C, 2 sheets.

- Johnson, R.C., 1982, A measured section of the Late Cretaceous Mesaverde Group and lower part of the early Tertiary Wasatch Formation, Rifle Gap, Colorado: U.S. Geological Survey Open-File Report 82-590, 11 p., 1 log.
- Johnson, R.C., 1983, Structure contour map of the top of the Rollins and Trout Creek sandstones, Piceance Creek Basin, Colorado: U.S. Geological Survey Miscellaneous Field Investigations Map MF-1667, scale 1:253,400.
- Johnson, R.C., 1986, Structure contour map of the Castlegate Sandstone, eastern part of the Uinta basin and the western part of the Piceance Creek basin, Utah and Colorado: U.S. Geological Survey Miscellaneous Field Investigations Map MF-1826.
- Johnson, R.C., 1987, Geologic history and hydrocarbon potential of Late Cretaceous-age low-permeability reservoirs, Piceance basin, western Colorado: U.S. Department of Energy, Fossil Energy, DOE/MC/20422-2337, 97 p.
- Johnson, R.C., Crovelli, R.A., Spencer, C.W., and Mast, R.F., 1987, An assessment of gas resources in low-permeability sandstones of the Upper Cretaceous Mesaverde Group, Piceance basin, Colorado: U.S. Geological Survey Open-File Report 87-357, 165 p.
- Johnson, R.C., Crovelli, R.A., Spencer, C.W., and Mast, R.F., 1988, Assessment of gas resources in low-permeability sandstones of Upper Cretaceous Mesaverde Group, Piceance basin, Colorado [abs.]: American Association of Petroleum Geologists Bulletin, v. 72, no. 2, p. 202.
- Johnson, R.C., Crovelli, R.A., Spencer, C.W., and Mast, R.F., 1988, An assessment of gas resources in low-permeability sandstones of Upper Cretaceous Mesaverde Group, Piceance basin, Colorado [abs.], *in* Carter, L.M.H., ed., USGS research on energy resources 1988; program and abstracts: U.S. Geological Survey Circular 1025, p. 23-24.
- Johnson, R.C., and Finn, T., 1985, Age of the Douglas Creek Arch, Colorado and Utah [abs.]: American Association of Petroleum Geologists, v. 69, no. 3, p. 270.
- Johnson, R.C., and Finn, T.M., 1986, Cretaceous through Holocene history of the Douglas Creek Arch, Colorado and Utah, *in* Stone, D.S., ed.: Rocky Mountain Association of Geologists, New Interpretations of Northwest Colorado Geology, p. 77-95.
- Johnson, R.C., Granica, M.P., and Dessenberger, N.C., 1979, Cross section A-A' of Upper Cretaceous and lower Tertiary rocks, southern Piceance Creek Basin, Colorado: U.S. Geological Survey Miscellaneous Field Investigations Map MF-1130-A, 2 sheets.
- Johnson, R.C., Granica, M.P., and Dessenberger, N.C., 1979, Cross section B-B' of Upper Cretaceous and lower Tertiary rocks, southern Piceance Creek Basin, Colorado: U.S. Geological Survey Miscellaneous Field Investigations Map MF-1130-B, 2 sheets.

- Johnson, R.C., Granica, M.P., and Dessenberger, N.C., 1979, Cross section C-C' of Upper Cretaceous and lower Tertiary rocks, southern Piceance Creek Basin, Colorado: U.S. Geological Survey Miscellaneous Field Investigations Map MF-1130-C, 2 sheets.
- Johnson, R.C., and Keighin, C.W., 1981, Cretaceous and Tertiary history and resources of the Piceance Creek Basin, western Colorado: 32nd Field Conference Guidebook, Western Slope Colorado: New Mexico Geological Society, p. 199-210.
- Johnson, R.C., and May, Fred, 1979, Preliminary stratigraphic studies of the upper part of the Mesaverde Group, the Wasatch Formation, and the lower part of the Green River Formation, DeBeque area, Colorado, including environments of deposition and investigation of palynomorph assemblages: U.S. Geological Survey Miscellaneous Field Investigations Map MF-1050, 2 sheets.
- Johnson, R.C., and May, Fred, 1980, A study of the Cretaceous-Tertiary unconformity in the Piceance Creek Basin, Colorado The underlying Ohio Creek Formation (Upper Cretaceous) redefined as a member of the Hunter Canyon or Mesaverde Formation: U.S. Geological Survey Bulletin 1482-B, 27 p.
- Johnson, R.C., and May, Fred, 1978, Maestrichtian conglomerates in the southwestern Piceance Creek basin [abs]: American Association of Petroleum Geologists Bulletin, v. 62, no. 5, p. 885.
- Johnson, R.C., May, Fred, Hansley, P.L., Pitman, J.K., and Fouch, T.D., 1980, Petrology, X-ray mineralogy, and palynology of a measured section of the Upper Cretaceous Mesaverde Group in Hunter Canyon, western Colorado: U.S. Geological Survey Oil and Gas Investigations Chart OC-91, 1 sheet.
- Johnson, R.C., and Nuccio, V.F., 1983, Structural and thermal history of Piceance Creek Basin, Colorado in relation to hydrocarbon occurrence in Mesaverde Group [abs.]: American Association of Petroleum Geologists Bulletin, v. 67, no. 3, p. 490-491.
- Johnson, R.C., and Nuccio, V.F., 1984, Thermal maturity of organic matter in Green River Formation, Piceance Creek Basin, Colorado [abs.]: American Association of Petroleum Geologists Bulletin, v. 68, no. 4, p. 492-493.
- Johnson, R.C., and Nuccio, V.F., 1984, Late Cretaceous through early Tertiary general stratigraphy and structural geology of the Piceance Creek basin, Colorado, *in* Spencer, C.W., and Keighin, C.W., eds., Geologic studies in support of the U.S. Department of Energy Multiwell Experiment, Garfield County, Colorado: U.S. Geological Survey Open-File Report 84-757, p. 14-20.
- Johnson, R.C., and Nuccio, V.F., 1984, The thermal maturity of Late Cretaceous age Mesaverde Group, Uinta Basin, Utah: Society of Economic Paleontologists and Mineralogists Annual Midyear Meeting, August 10-13, San Jose, Calif., Abstracts, p. 40.

- Keighin, C.W., 1978, Some petrographic characteristics of a sequence of siliciclastic rocks from the Mesaverde Group, North Horn Formation, and lower part of the Green River Formation, Price River Canyon area, southwestern Uinta Basin, Utah [abs.]: American Association of Petroleum Geologists Bulletin, v. 62, no. 5, p. 885.
- Keighin, C.W., 1979, Influence of diagenetic reactions on reservoir properties of the Neslen, Farrer, and Tuscher Formations, Uinta Basin, Utah: Proceedings of the SPE Symposium on low-permeability gas reservoirs, Society of Petroleum Engineers, Dallas, Tex., p. 77-84.
- Keighin, C.W., 1980, Characteristics of pores in some Upper Cretaceous nonmarine sandstones, Uinta Basin, Utah: Scanning Electron Microscopy 1980/I, p. 559-564.
- Keighin, C.W., 1980, Some relations between diagenesis and porosity (real and imagined), sandstones of Mesaverde Group, Uinta Basin, Utah [abs.]: American Association of Petroleum Geologists Bulletin, v. 64, no. 5, p. 732.
- Keighin, C.W., 1981, Effects of physical and chemical diagenesis on low-porosity, low-permeability sandstones, Mesaverde Group, Uinta Basin, Utah [abs.]: American Association of Petroleum Geologists Bulletin, v. 65, no. 3, p. 562.
- Keighin, C.W., 1982, Reservoir characteristics of selected low-permeability sandstones, Late Cretaceous age, Uinta basin, Utah, and Green River Basin, Wyoming in *Subsurface practices in geology and geophysics* [abs.]: University of Wyoming, Wyoming Geological Association, and Geological Survey of Wyoming, Laramie, Wyo., May 2-4, p. 16.
- Keighin, C.W., 1983, Behavior of low-permeability sandstones in potential reservoir conditions [abs.]: American Institute of Chemical Engineers National Meeting, Denver, Colo., Aug. 28-31, 1983, p. 89.
- Keighin, C.W., and Fouch, T.D., 1979, Influence of diagenetic reactions on nonmarine Upper Cretaceous rocks of the Southman Canyon gas field, Uinta Basin, Utah [abs.]: American Association of Petroleum Geologists Bulletin, v. 63, no. 5, p. 832-833.
- Keighin, C.W., and Fouch, T.D., 1981, Depositional environments and diagenesis of some nonmarine Upper Cretaceous reservoir rocks, Uinta Basin, Utah, in Ethridge, F.G., and Flores, R.M., eds., *Recent and ancient nonmarine depositional environments as models for exploration*: Society of Economic Paleontologists and Mineralogists Special Publication no. 31, p. 109-125.
- Keighin, C.W., and Sampath, K., 1980, Evaluation of pore geometry of some low-permeability sandstones, Uinta Basin, Utah: Society of Petroleum Engineers 55th Annual Fall Conf., Dallas, Texas, Sept. 21-24, 1980, (SPE Paper 9251), 6 p).

- Keighin, C.W., and Sampath, K., 1982, Evaluation of pore geometry of some low-permeability sandstones, Uinta Basin, Utah: *Journal of Petroleum Technology*, v. 34, no. 1, p. 65-70.
- Kiteley, L.W., 1978, Stratigraphy of the Mesaverde Group and occurrence of natural gas in northwest Colorado [abs.]: *American Association of Petroleum Geologists Bulletin*, v. 62, no. 5, p. 887.
- Kiteley, L.W., 1979, Stratigraphic measured sections of the Upper Cretaceous Mancos Shale (upper part) and Mesaverde Group (lower part), Moffat County, Colorado: U.S. Geological Survey Open-File Report 79-1306, 48 p.
- Kiteley, L.W., 1979, Sedimentology of the Intertonguing Upper Cretaceous Mancos Shale and Mesaverde Group in Moffat, Rio Blanco, and Routt Counties, Colorado [abs.]: *Geological Society of America Abstracts with Programs*, v. 11, no. 7, p. 458-459.
- Kiteley, L.W., 1983, Paleogeography and eustatic-tectonic model of late Campanian Cretaceous sedimentation, southwestern Wyoming and northwestern Colorado, *in* Reynolds, M.W., and Dolly, E.D., eds., *Mesozoic paleogeography of the west-central United States: Society of Economic Paleontologists and Mineralogists, Rocky Mountain Section, Rocky Mountain Paleogeography Symposium 2*, p. 273-303.
- Lanham, R.E., 1980, Petrography and diagenesis of low-permeability sandstones of the lower Almond Formation, southwestern Wyoming: University of Colorado, unpublished Masters thesis, Dept. of Geological Sciences, 113 p.
- Law, B.E., 1979, Section B-B', Subsurface and surface correlations of some Upper Cretaceous and Tertiary rocks, northern Green River Basin, Wyoming: U.S. Geological Survey Open-File Report 79-1689, 2 sheets.
- Law, B.E., 1981, Section C-C', Subsurface correlations of some Upper Cretaceous and Tertiary rocks, northern Green River Basin, Wyoming: U.S. Geological Survey Open-File Report 81-663, 2 sheets.
- Law, B.E., 1984, Geologic characteristics of low-permeability gas reservoirs in Greater Green River Basin of Wyoming, Colorado and Utah [abs.]: *American Association of Petroleum Geologists Bulletin*, v. 68, no. 4, p. 498-499.
- Law, B.E., 1984, Geologic characteristics of low-permeability gas reservoirs in Greater Green River Basin of Wyoming, Colorado and Utah [abs.]: *American Association of Petroleum Geologists Bulletin*, v. 68, no. 4, p. 498-499.
- Law, B.E., 1984, Relationships of source rock, thermal maturity, and overpressuring to gas generation and occurrence in low-permeability Upper Cretaceous and lower Tertiary rocks, Greater Green River Basin, Wyoming, Colorado, and Utah, *in* Woodward, Jane, Melssner, F.F., and Clayton, J.L., eds., *Hydrocarbon source rocks of the greater Rocky Mountain region: Rocky Mountain Association of Geologists*, p. 469-490.

- Law, B.E., 1984 Relationships of source rock, thermal maturity, and overpressuring to gas generation and occurrence in low-permeability Upper Cretaceous and lower Tertiary rocks, Greater Green River Basin, Wyoming, Colorado, and Utah [abs.]: American Association of Petroleum Geologists Bulletin, v. 68, no. 7, p. 140.
- Law, B.E., ed., 1984, Geological characteristics of low-permeability Upper Cretaceous and lower Tertiary rocks in the Pinedale anticline area, Sublette County, Wyoming: U.S. Geological Survey Open-File Report 84-753, 107 p.
- Law, B.E., 1984, Introduction to geological characteristics of low-permeability Upper Cretaceous and lower Tertiary rocks in the Pinedale anticline area, Sublette County, Wyoming, *in* Law, B.E., ed., Geological characteristics of low-permeability Upper Cretaceous and lower Tertiary rocks in the Pinedale anticline area, Sublette County, Wyoming: U.S. Geological Survey Open-File Report 84-753, p. 1-5.
- Law, B.E., 1984, Structure and stratigraphy of the Pinedale anticline, Wyoming, *in* Law, B.E., ed., Geological characteristics of low-permeability Upper Cretaceous and lower Tertiary rocks in the Pinedale anticline area, Sublette County, Wyoming: U.S. Geological Survey Open-File Report 84-753, p. 6-15.
- Law, B.E., 1984, Source rock evaluation of Upper Cretaceous and lower Tertiary rocks in the Pinedale anticline area, Sublette County, Wyoming, *in* Law, Ben E., ed., Geological characteristics of low-permeability Upper Cretaceous and lower Tertiary rocks in the Pinedale anticline area, Sublette County, Wyoming: U.S. Geological Survey Open-File Report 84-753, p. 36-50.
- Law, B.E., 1984, Geological research in the Greater Green River Basin, *in* Frohne, K-H., ed., Third Annual Western Gas Sands Program Review, November 1984: U.S. Department of Energy, Morgantown, West Virginia, DOE/METC 85-7, p. 18-36.
- Law, B.E., 1986, Geologic characterization of tight gas reservoirs, Greater Green River Basin, *in* Komar, C.H., ed., Proceedings of the unconventional gas recovery contractors meeting - Eastern gas shales, coalbed methane, western gas sands: U.S. Department of Energy, Morgantown, West Virginia, DOE/METC 86/6034, p. 111-119.
- Law, B.E., 1987, Tight gas reservoirs Greater Green River Basin, *in* Unconventional gas recovery contractors review meeting, July 28-29, 1987: U.S. Department of Energy, Morgantown, WV, P. 4A.2.
- Law, B.E., Bucurel-White, Hildred, and Bader, J.W., 1983, Sedimentological aspects of stratigraphic correlations in the Upper Cretaceous Ericson Sandstone, Greater Green River Basin, Wyoming, Colorado, and Utah [abs.]: Geological Society of America Abstracts with Programs, v. 15, no. 5, p. 333.

- Law, B.E., and Clayton, J.L., 1987, A burial, thermal, and hydrocarbon source rock evaluation of Lower Cretaceous rocks in the southern Moxa arch area, Utah and Wyoming [abs.], *in* Miller, W. Roger, ed., *The thrust belt revisited: Wyoming Geological Association Guidebook*, p. 357.
- Law, B.E., and Clayton, J.L., 1987, The role of thermal history in the preservation of oil at the south end of the Moxa arch, Utah and Wyoming Implications for the oil potential in the southern Green River basin [abs.], *in* Carter, L.M.H., ed., *USGS research on energy resources 1988; program and abstracts: U.S. Geological Survey Circular 1025*, p. 27.
- Law, B.E., and Dickinson, W.W., 1984, A conceptual model of gas-seal development, Green River Basin, Wyoming [abs.]: *American Association of Petroleum Geologists Bulletin*, v. 68, no. 7, p. 940.
- Law, B.E., and Dickinson, W.W., 1985, Conceptual model of origin of abnormally pressured gas accumulation in low-permeability reservoirs: *American Association of Petroleum Geologists Bulletin*, v. 69, no. 8, p. 1295-1304.
- Law, B.E., Hatch, J.R., Kukul, G.C., and Keighin, C.W., 1983, Geologic implications of dewatering of coal and other carbonaceous rocks A hypothesis [abs.]: *American Association of Petroleum Geologists Bulletin*, v. 67, no. 3, p. 500.
- Law, B.E., Hatch, J.R., Kukul, G.C., and Keighin, C.W., 1983, Geologic implications of coal dewatering: *American Association of Petroleum Geologists Bulletin*, v. 67, no. 12, p. 2255-2260.
- Law, B.E., Lickus, M.R., and Pawlewicz, M.J., 1986, Fluid migration pathways: Evidence from thermal maturity mapping in southwestern Wyoming, *in* Carter, L.M.H., ed., *USGS research on energy resources 1985, program and abstracts: U.S. Geological Survey Circular 974*, p. 35.
- Law, B.E., and Nichols, D.J., 1982, Subsurface stratigraphic correlations of some Upper Cretaceous and lower Tertiary rocks, northern Green River Basin, Wyoming, *in* *Subsurface practices in geology and geophysics: University of Wyoming, Wyoming Geological Association, Geological Survey of Wyoming Annual Spring Conference, May 2-4, Proceedings*, p. 17.
- Law, B.E., and Nuccio, V.F., 1986, Segmented vitrinite reflectance profile from the Deep Seam Project, Piceance Creek Basin, Colorado Evidence of previous high pore pressure: *American Association of Petroleum Geologists*, [abs.], v. 70, p. 1047.
- Law, B.E., Pollastro, R.M., and Keighin, C.W., 1986, Geologic characteristics of low-permeability gas reservoirs in selected wells, Greater Green River Basin, Wyoming, Colorado, and Utah, *in* Spencer, C.W., and Mast, R.F., eds., *Geology of tight gas reservoirs: American Association of Petroleum Geologists Studies in Geology*, 24, p. 253-270.

- Law, B.E., and Smith, C.R., 1983, Subsurface temperature map showing depth to 180° Fahrenheit in the Greater Green River Basin, Wyoming, Colorado, and Utah: U.S. Geological Survey Miscellaneous Field Studies Map MF-1504, scale 1:500,000.
- Law, B.E., and Spencer, C.W., 1981, Abnormally high-pressured, low-permeability, Upper Cretaceous and Tertiary gas reservoirs, northern Green River Basin, Wyoming [abs.]: American Association of Petroleum Geologists Bulletin, v. 65, no. 5, p. 948.
- Law, B.E., and Spencer, C.W., 1988, Tight gas reservoirs, *in* Magoon, L.B., ed., Petroleum systems of the United States: U.S. Geological Survey Bulletin 1870, p. 44-46.
- Law, B.E., Spencer, C.W., and Bostick, N.H., 1979, Preliminary results of organic maturation, temperature, and pressure studies in the Pacific Creek area, Sublette County, Wyoming, *in* Proceedings of the 5th SPE Symposium on Enhanced Oil and Gas Recovery and Improved Drilling Methods, Tulsa, Okla., v. 3 Gas and Drilling: Tulsa, Okla., The Petroleum Publishing Co., p. K2/1-2/13.
- Law, B.E., Spencer, C.W., and Bostick, N.H., 1980, Evaluation of organic matter, subsurface temperature, and pressure with regard to gas generation in low-permeability Upper Cretaceous and lower Tertiary sandstones in Pacific Creek area, Sublette and Sweetwater Counties, Wyoming: The Mountain Geologist, v. 17, no. 2, p. 23-35.
- Law, B.E., Spencer, C.W., and Bostick, N.H., 1980, Evaluation of organic matter, subsurface temperature, and pressure with regard to gas generation in low-permeability Upper Cretaceous and lower Tertiary sandstones in Pacific Creek area, Sublette County [abs.]: American Association of Petroleum Geologists Bulletin, v. 64, no. 5, p. 738.
- Law, B.E., Spencer, C.W., Crovelli, R.A., Mast, R.F., Dolton, G.L., Charpentier, R.R., and Wandrey, C.J., 1988, Assessment of gas contained in overpressured low-permeability reservoirs in the Greater Green River basin of Wyoming, Colorado, and Utah [abs.], *in* Carter, L.M.H., ed., USGS research on energy resources 1988; program and abstracts: U.S. Geological Survey Circular 1025, p. 27-28.
- Law, B.E., Spencer, C.W., and Roehler, H.W., 1979, Section A-A', Surface and subsurface correlations of some Upper Cretaceous and Tertiary rocks, Green River Basin, Wyoming: U.S. Geological Survey Open-File Report 79-357, 2 sheets.
- Lee, M.W., 1984, Delineation of lenticular-type sand bodies by the vertical seismic profiling method: U.S. Geological Survey Open-File Report 84-265, 92 p.

- Lee, M.W., 1984, Vertical seismic profiles at the Multiwell Experiment site, Garfield County, Colorado: U.S. Geological Survey Open-File Report 84-168, 57 p.
- Lee, M.W., 1984, Detection and delineation of lenticular-type sand bodies by the vertical seismic profiling method, *in* Spencer, C.W., and Keighin, C.W., eds., *Geologic studies in support of the U.S. Department of Energy Multiwell Experiment, Garfield County, Colorado*: U.S. Geological Survey Open-File Report 84-757, p. 121-136.
- Lee, M.W., 1985, Interpretation of azimuthal vertical seismic profile survey at Multiwell Experimental site, Garfield County, Colorado: U.S. Geological Survey Open-File Report 85-428, 44 p.
- Lee, M.W., and Miller, J.J., 1985, Acquisition and processing of azimuthal vertical seismic profiles at Multiwell Experiment site, Garfield County, Colorado: U.S. Geological Survey Open-File Report 85-427, 36 p.
- Lee, M.W., 1986, An application of azimuthal vertical seismic profiles [abs.], *in* Carter, L.M.H., ed., *USGS research on energy resources 1986, program and abstracts*: U.S. Geological Survey Circular 974, p. 36.
- Lickus, M.R., and Law, B.E., 1988, Structure contour map of the Greater Green River Basin, Wyoming, Colorado, and Utah: U.S. Geological Survey Miscellaneous field Studies Map MF-2031.
- Lickus, M.R., Pawlewicz, M.J., Law, B.E., and Dickinson, W.W., 1984, Thermal maturity map, northern Green River Basin, Wyoming, *in* Law, B.E., ed., *Geological characteristics of low-permeability Upper Cretaceous and lower Tertiary rocks in the Pinedale anticline area, Sublette County, Wyoming*: U.S. Geological Survey Open-File Report 84-753, p. 60-65.
- Markochick, D.J., Lanham, R.E., Bucurel, H.G., and Law, B.E., 1981, Summary chart of geological data from Amoco Tierney Unit No. 1 well, SW 1/4 SE 1/4 Sec. 15, T. 20 N., R. 94 W., Sweetwater County, Wyoming: U.S. Geological Survey Oil and Gas Investigations Chart OC-116, 1 sheet.
- Markochick, D.J., and Law, B.E., 1981, Estimates of gas content in coal and carbonaceous rocks from deep drilling in Pacific Creek area, northeastern Green River Basin, Sweetwater County, Wyoming [abs.]: *American Association of Petroleum Geologists Bulletin*, v. 65, no. 3, p. 564-565.
- Markochick, D.J., Law, B.E., and Spencer, C.W., 1982, Section E-E', preliminary subsurface correlations of some Cretaceous and Tertiary rocks from Moxa Arch to Rock Springs uplift, Green River Basin, Wyoming: U.S. Geological Survey Open-File Report 82-455, 2 sheets.
- Merewether, E.A., 1983, The Frontier Formation and mid-Cretaceous orogeny in the foreland of southwestern Wyoming: *The Mountain Geologist*, v. 20, no. 4, p. 121-138.

- Merewether, E.A., Blackmon, P.D., and Webb, J.C., 1984, The mid-Cretaceous Frontier Formation near the Moxa arch, southwestern Wyoming: U.S. Geological Survey Professional Paper 1290, 29 p.
- Merewether, E.A., and Cobban, W.A., 1982, Mid-Cretaceous stratigraphy and deformation in the foreland of southwestern Wyoming and adjacent areas [abs.], *in* Subsurface practices in geology and geophysics: University of Wyoming, the Wyoming Geological Association, and the Geological Survey of Wyoming Annual Spring Conference, Laramie, Wyoming, May 2-4, 1982; Proceedings, p. 19.
- Merewether, E.A., and Cobban, W.A., 1983, Mid-Cretaceous biostratigraphic units, unconformities, and diastrophism in Wyoming, Colorado, and adjacent areas [abs.]: American Association of Petroleum Geologists Bulletin, v. 67, no. 3, p. 513.
- Merewether, E.A., and Cobban, W.A., 1985, Biostratigraphic units and tectonism in mid-Cretaceous foreland of Wyoming, Colorado, and adjoining areas [abs.] *in* Rocky Mountain Section Meeting AAPG/SEPM/EMD, Denver, Colorado; June 2-5, 1985: American Association of Petroleum Geologists Book of Abstracts.
- Merewether, E.A., and Cobban, W.A., 1986, Biostratigraphic units and tectonism in the mid-Cretaceous foreland of Wyoming, Colorado and adjoining areas, *in* Peterson, J.A., ed., Paleotectonics and sedimentation in the Rocky Mountain region, U.S.: American Association of Petroleum Geologists Memoir 41, p. 443-468.
- Merewether, E.A., Krystinik, K.B., and Pawlewicz, M.J., 1987, Thermal maturity of hydrocarbon-bearing formations in southwestern Wyoming and northwestern Colorado: U.S. Geological Survey Miscellaneous Investigations Map I-1831, scale 1:1,000,000.
- Naeser, N.D., 1984, Thermal history determined by fission-track dating for three sedimentary basins in California and Wyoming: Fourth International Fission Track Dating Workshop, Troy, New York, 1984, Abstracts, p. 37.
- Naeser, N.D., 1984, Thermal history determined by fission-track dating for three sedimentary basins in California and Wyoming: Geological Society of America Abstracts with Programs, v. 16, no. 6, p. 607.
- Naeser, N.D., 1984, Fission-track ages from the Wagon Wheel no. 1 well, northern Green River basin, Wyoming: Evidence for recent cooling, *in* Law, B.E., ed., Geological characteristics of low-permeability Upper Cretaceous and lower Tertiary rocks in the Pinedale anticline area, Sublette County, Wyoming: U.S. Geological Survey Open-File Report 84-753, p. 66-77.
- Naeser, N.D., 1985, Thermal history determined by fission-track dating for three sedimentary basins in California and Wyoming [abs.]: Nuclear Tracks, v. 10, no. 3, p. 423.

- Naeser, N.D., 1985, Fission-track dating A method for determining thermal history of sedimentary basins [abs.]: American Association of Petroleum Geologists Research Conference, New Orleans, La., March 22-24, Abstracts, p. 38.
- Naeser, N.D., 1985, Fission-track dating A method for determining thermal history of sedimentary basins [abs.]: Conference on Isotopes in the Sedimentary Cycle, Obernai, France, July 1-5, p. 125.
- Naeser, C.W., and Naeser, N.D., 1985, Fission-track dating Application to the thermal history of mountains and basins [abs.]: Geological Society of America Abstracts with Programs, v. 17, no. 7, p. 673.
- Naeser, N.D., 1986, Neogene thermal history of the northern Green River basin, Wyoming evidence from fission-track dating, *in* Gautier, D.L., ed., Roles of organic matter in mineral diagenesis: Society of Economic Paleontologists and Mineralogists Special Publication No. 38, p. 65-72.
- Naeser, N.D., and Naeser, C.W., 1986, Fission-track dating in sedimentary basins An example from the northern Green River Basin: *TERRA cognita*, v. 6, p. 118.
- Nuccio, V.F., 1985, Comparison between immature vitrinite and solid bitumen, Green River Formation, Piceance Creek Basin, Colorado [abs.]: American Association of Petroleum Geologists Bulletin, v. 69, no. 2 p. 293.
- Nuccio, V.F., and Johnson, R.C., 1981, Map showing drill-stem test and perforation recoveries of the Upper Cretaceous Mesaverde Group, Piceance Creek Basin, Colorado: U.S. Geological Survey Miscellaneous Field Studies Map MF-1359, 1 sheet, scale 1:250,000.
- Nuccio, V.F., and Johnson, R.C., 1983, Preliminary thermal maturity map of the Cameo-Fairfield or equivalent coal zone through the Piceance Creek Basin, Colorado: U.S. Geological Survey Miscellaneous Field Study Map MF-1575, 2 sheets.
- Nuccio, V.F., and Johnson, R.C., 1984, Retardation of vitrinite reflectance in Green River oil shales, Piceance Creek Basin, northwestern Colorado [abs.]: American Association of Petroleum Geologists Bulletin, v. 68, no. 4, p. 513.
- Nuccio, V.F., and Johnson, R.C., 1984, Thermal maturation and burial history of the Upper Cretaceous Mesaverde Group, including the Multiwell Experiment (MWX), Piceance Creek Basin, Colorado, *in* Spencer, C.W., and Keighin, C.W., eds., Geologic studies in support of the U.S. Department of Energy Multiwell Experiment, Garfield County, Colorado: U.S. Geological Survey Open-File Report 84-757, p. 102-109.
- Nuccio, V.F., and Johnson, R.C., 1986, Thermal maturity of the lower part of the Upper Cretaceous Mesaverde Group, Uinta Basin, Utah: U.S. Geological Survey Miscellaneous Field Study Map MF-1842.

- Nuccio, V.F., and Johnson, R.C., 1988, Surface vitrinite reflectance map of the Uinta, Piceance and Eagle Basins area, Utah and Colorado: U.S. Geological Survey Miscellaneous Field Study Map, MF-2008-B, one plate, 19 p.
- Nydegger, G.L., Rice, D.D., and Brown, C.A., 1979, Development of shallow gas reserves in low-permeability reservoirs of Late Cretaceous age, Bowdoin Dome area, north-central Montana: Proceedings of the SPE Symposium on Low-Permeability Gas Reservoirs, Denver, Colo., May 20-22, 1979, p. 315-324.
- Nydegger, G.L., Rice, D.D., and Brown, C.A., 1980, Bowdoin Dome area, north-central Montana Example of shallow biogenic gas production from low-permeability reservoirs [abs.]: American Association of Petroleum Geologists Bulletin, v. 64, no. 5, p. 760-761.
- Nydegger, G.L., Rice, D.D., and Brown, C.A., 1980, Analysis of shallow gas development from low-permeability reservoirs of Late Cretaceous age, Bowdoin Dome area: Journal of Petroleum Technology, v. 32, no. 12, p. 2111-2120.
- Nydegger, G.L., Rice, D.D., and Brown, C.A., 1981, Formation evaluation difficult in shallow Bowdoin Dome: World Oil, v. 192, no. 5, p. 78-80.
- Pawlewicz, M.J., Lickus, M.K., Law, B.E., and Dickinson, W.W., 1986, Thermal maturity map showing depth to 0.8% vitrinite reflectance in the Greater Green River Basin, Wyoming, Colorado, and Utah: U.S. Geological Survey Miscellaneous Field Studies Map MF-1890.
- Pitman, J.K., Anders, D.E., Fouch, T.D., and Nichols, D.J., 1985, Depositional environments, diagenesis, and hydrocarbon potential of nonmarine Upper Cretaceous and lower Tertiary rocks, eastern Uinta basin, Utah [abs.]: American Association of Petroleum Geologists Bulletin, v. 69, no. 5, p. 860.
- Pitman, J.K., and Fouch, T.D., 1978, Mineralogic characteristics of some lower Tertiary low-permeability reservoir rocks, south-central Uinta Basin, Utah [abs.]: American Association of Petroleum Geologists Bulletin, v. 62, no. 5, p. 891.
- Pitman, J.K., Fouch, T.D., and Goldhaber, M.B., 1982, Depositional setting and diagenetic evolution of some Tertiary unconventional reservoir rocks, Uinta Basin, Utah: American Association of Petroleum Geologists Bulletin, v. 66, no. 10, p. 1581-1596.
- Pitman, J.K., and Spencer, C.W., 1984, Petrology of selected sandstones in the MWX wells (northwest Colorado) and its relationship to borehole geophysical-log analysis and reservoir quality, in Spencer, C.W., and Keighin, C.W., eds., Geologic studies in support of the U.S. Department of Energy Multiwell Experiment, Garfield County, Colorado: U.S. Geological Survey Open-File Report 84-757, p. 33-66.

- Plitman, J.K., and Sprunt, E.S., 1984, Origin and occurrence of fracture filling cements in the Upper Cretaceous Mesaverde Formation at MWX, Piceance Creek Basin, Colorado, *in* Spencer, C.W. and Keighin, C.W., eds., Geologic studies in support of the U.S. Department of Energy Multiwell Experiment, Garfield County, Colorado: U.S. Geological Survey Open-File Report 84-757, p. 87-101.
- Plitman, J.K., and Sprunt, E.S., 1985, Origin and distribution of fractures in Tertiary and Cretaceous rocks, Piceance basin, Colorado, and their relation to hydrocarbon occurrence [abs.]: American Association of Petroleum Geologists Bulletin, v. 69, no. 5, p. 860.
- Pollastro, R.M., 1981, Clay-mineral diagenesis within a fine-grained, marine, hydrocarbon-bearing, carbonate sequence Evidence from the Cretaceous Niobrara Formation [abs.]: 18th Annual Meeting, The Clay Minerals Society, 30th Annual Clay Minerals Conference, Urbana, Ill., Program and Abstracts, p. 13.
- Pollastro, R.M., 1982, Detrital/authigenic clay-mineral assemblages and their relation to diagenesis in sedimentary rocks [abs.]: 19th Annual Meeting, The Clay Minerals Society, 31st Annual Clay Minerals Conference, Hilo, Hawaii, Program and Abstracts, p. 29.
- Pollastro, R.M., 1983, The formation of illite at the expense of illite/smectite-- Mineralogical and morphological support for a hypothesis [abs.]: 20th Annual Meeting, The Clay Minerals Society, 32nd Annual Clay Minerals Conference, Buffalo, N.Y., Program and Abstracts, p. 82.
- Pollastro, R.M., 1984, Mineralogy of selected sandstone/shale pairs and sandstones from the Multiwell Experiment Interpretations from X-ray diffraction and scanning electron microscopy analyses, *in*, Spencer, C.W., and Keighin, C.W., eds., Geologic studies in support of the U.S. Department of Energy Multiwell Experiment, Garfield County, Colorado: U.S. Geological Survey Open-File Report 84-757, p. 67-74.
- Pollastro, R.M., 1985, Mineralogical and morphological evidence for the formation of illite at the expense of illite/smectite: *Clays and Clay Minerals*, v. 33, no. 4, p. 265-274.
- Pollastro, R.M., and Bader, J.W., 1983, Clay-mineral relationships in some low-permeability hydrocarbon reservoirs and their use as predictive resource tools [abs.]: American Association of Petroleum Geologists Bulletin, v. 67, no. 3, p. 536.
- Pollastro, R.M., and Barker, C.E., 1984a, Comparative measures of paleotemperature an example from clay-mineral, vitrinite reflectance, and fluid inclusion studies, Pinedale anticline, Green River Basin, Wyoming [abs.]: SEPM First Annual Midyear Meeting, San Jose, Calif., Abstracts with Program, p. 65-66.

- Pollastro, R.M., and Barker, C.E., 1984b, Geothermometry from clay minerals, vitrinite reflectance, and fluid inclusions Applications to the thermal and burial history of rocks cored from the Wagon Wheel No. 1 well, Green River basin, Wyoming, *in* Law, B.E., ed., Geological characteristics of low-permeability Upper Cretaceous and lower Tertiary rocks of the Pinedale anticline area, Sublette County, Wyoming: U.S. Geological Survey Open-File Report 84-743, p. 78-94.
- Pollastro, R.M., and Barker, C.E., 1986, Applications of clay-mineral, vitrinite reflectance, and fluid inclusion studies to the thermal and burial history of the Pinedale anticline, Green River basin, Wyoming, *in* Gautier, D.L., ed., Relationship of organic matter and mineral diagenesis: Society of Economic Paleontologists and Mineralogists Special Publication No. 38, p. 73-83.
- Pollastro, R.M., and Martinez, C.J., 1985, Mineral, chemical, and textural relationships in rhythmic-bedded, hydrocarbon-productive chalk of the Niobrara Formation, Denver basin, Colorado: *The Mountain Geologist*, v. 22, p. 55-63.
- Pollastro, R.M., and Martinez, C.J., 1985, Whole-rock, insoluble residue, and clay mineralogies of marl, chalk, and bentonite, Smoky Hill Shale Member, Niobrara Formation near Pueblo, Colorado depositional and diagenetic implications, *in* Pratt, L., Kauffman, E.G., and Zelt, F.B., eds., Fine-grained deposits and biofacies of the Cretaceous Western Interior seaway: Evidence of cyclic sedimentary processes: SEPM Field Trip Guidebook no. 4, p. 215-222.
- Pollastro, R.M., and Scholle, P.A., 1982, Diagenetic relationships in a hydrocarbon-productive chalk The Cretaceous Niobrara Formation: [abs.] U.S. Geological Survey Workshop on Diagenesis, Golden, Colo., March 16-18, 1982, Program and Abstracts, p. 33.
- Pollastro, R.M., and Scholle, P.A., 1984, Hydrocarbon exploration, development from low-permeability chinks Upper Cretaceous Niobrara Formation, Rocky Mountains Region: *Oil and Gas Journal*, v. 82, no. 17, p. 140-145.
- Pollastro, R.M., and Scholle, P.A., 1986, Diagenetic relationships in a hydrocarbon-productive chalk: the Cretaceous Niobrara Formation, *in* Mumpton, F.A., ed., *Studies in Diagenesis*; U.S. Geological Survey Bulletin 1578, p. 219-236.
- Pollastro, R.M., and Scholle, P.A., 1986, Exploration and development of hydrocarbons from low-permeability chinks an example from the Upper Cretaceous Niobrara Formation, Rocky Mountains region, *in* Spencer, C.W., and Mast, R.F., eds., *Geology of tight gas reservoirs*: American Association of Petroleum Geologists *Studies in Geology*, no. 24, p. 129-142.
- Precht, W.F., and Pollastro, R.M., 1985, Organic and inorganic constituents of the Niobrara Formation in Weld County, Colorado, *in* Pratt, L., Kauffman, E.G., and Zelt, F.B., eds., *Fine-grained deposits and biofacies of the Cretaceous western Interior seaway: Evidence of cyclic sedimentary processes*: Society of Economic Paleontologists and Mineralogists Field Trip Guidebook no. 4, p. 223-233.

- Prensky, S.E., 1984, Use of the gamma-ray log for locating the Cretaceous-Tertiary unconformity, Pinedale area, northern Green River Basin, Wyoming [abs.]: American Association of Petroleum Geologists Bulletin, v. 68, p. 946.
- Prensky, S.E., 1986, Geologic implications of large-scale trends in well-log response, northern Green River basin, Wyoming [abs.]: The Log Analyst, v. 27, no. 1, p. 74-75.
- Prensky, S.E., 1986, Geologic implications of large-scale trends in well-log response, northern Green River basin, Wyoming, *in* 27th Annual Logging Symposium Transactions, Paper EEE: Houston, Society of Professional Well Log Analysts, 24 p.
- Prensky, S.E., 1986, Geologic implications of large-scale trends in well-log response, northern Green River basin, Wyoming [abs.]: Tulsa, Society of Exploration Geophysicists, 1986, Technical Program Expanded Abstracts with Bibliographies, p. 668
- Prensky, S.E., and Dickinson, W.W., 1984, Application of computer-processed well-log data for geologic evaluation of Green River Basin, Wyoming [abs.]: American Association of Petroleum Geologists Bulletin, v. 68, no. 4, p. 519.
- Prensky, S.E. and Dickinson, W.W., 1984, Application of computer-processed well-log data for geologic evaluation of the Green River Basin, Wyoming [abs.]: American Association of Petroleum Geologists Bulletin, v. 68, p. 519.
- Prensky, S.E. and Dickinson, W.W., 1986, Computer-generated well-log data plots assist in regional subsurface evaluation of the northern Green River basin, Wyoming: Geobyte, v. 1, no. 2, p. 52-58.
- Rice, D.D., 1977, Stratigraphic sections from well logs and outcrops of Cretaceous and Paleocene rocks, northern Great Plains, North and South Dakota: U.S. Geological Survey Oil and Gas Investigation Chart OC-72, 3 sheets.
- Rice, D.D., 1977, Bibliography on low-permeability natural gas reservoirs of the northern Great Plains: U.S. Geological Survey Open-File Report 77-391, 5 p.
- Rice, D.D., 1980, Coastal and deltaic sedimentation of Upper Cretaceous Eagle Sandstone Relation to shallow gas accumulations, north-central Montana: American Association of Petroleum Geologists Bulletin, v. 64, no. 3, p. 316-339.
- Rice, D.D., 1980, Upper Cretaceous Mosby Sandstone, central Montana Example of thin, widespread storm-generated sandstone cycles [abs.]: American Association of Petroleum Geologists Bulletin, v. 64, no. 5, p. 772-773.
- Rice, D.D., 1981, Subsurface cross section from southeastern Alberta, Canada to Bowdoin Dome, north-central Montana showing correlation of Cretaceous rocks and shallow, gas-productive zones in low-permeability reservoirs: U.S. Geological Survey Oil and Gas Investigations Chart OC-112. 1 pl.

- Rice, D.D., 1984, Controls of shallow gas accumulations in low-permeability reservoirs of northern Great Plains [abs.]: American Association of Petroleum Geologists Bulletin, v. 68, no. 4, p. 520-521.
- Rice, D.D., and Claypool, G.E., 1981, Generation, accumulation, and resource potential of biogenic gas: Gas Energy Review, v. 9, no. 4, p. 8-10.
- Rice, D.D., and Claypool, G.E., 1981, Generation, accumulation, and resource potential of biogenic gas: American Association of Petroleum Geologists Bulletin, v. 65, no. 1, p. 5-25.
- Rice, D.D., and Claypool, G.E., 1981, Biogenic gas requirements for generation, accumulation--Resource potential evaluation: Oil and Gas Journal, v. 79, no. 4, p. 258-273.
- Rice, D.D., and Claypool, G.E., 1981, Significance of shallow gas in ancient marine sequences [abs.]: American Association of Petroleum Geologists Bulletin, v. 65, no. 5, p. 978.
- Rice, D.D., and Gautier, D.L., 1980, Development of biogenic gas from shallow, low-permeability reservoirs. Examples from southeastern Alberta and Bowdoin Dome area, north-central Montana [abs.]: American Association of Petroleum Geologists Bulletin, v. 64, no. 5, p. 773.
- Rice, D.D., and Gautier, D.L., 1983, Coastal sandstones, Chapter 6 *in* Rice, D.D. and Gautier, D.L., eds., Patterns of sedimentation, diagenesis and hydrocarbon accumulation in Cretaceous rocks of the Rocky Mountains: Society of Economic Paleontologists and Mineralogists Short Course No. 11, p. 6-1 to 6-41.
- Rice, D.D., and Gautier, D.L., 1983, Shelf sandstones, Chapter 7 *in* Rice, D.D. and Gautier, D.L., eds., Patterns of sedimentation, diagenesis and hydrocarbon accumulation in Cretaceous rocks of the Rocky Mountains: Society of Economic Paleontologists and Mineralogists Short Course No. 11, p. 7-1 to 7-41.
- Rice, D.D., Nydegger, G.L., and Brown, C.A., 1979, Bowdoin Dome area, north-central Montana. An example of shallow, biogenic gas production from low-permeability reservoirs [abs.]: American Association of Petroleum Geologists Bulletin, v. 63, no. 5, p. 838-839.
- Rice, D.D., and Shurr, G.W., 1978, Potential for major natural gas resources in shallow, low-permeability reservoirs of the northern Great Plains: Montana Geological Society Guidebook, 24th Annual Conference, Williston Basin Symposium, 1978, p. 265-281.
- Rice, D.D., and Shurr, G.W., 1978, Natural gas resources in shallow, low-permeability reservoirs of northern Great Plains [abs.]: American Association of Petroleum Geologists Bulletin, v. 62, no. 5, p. 891-892.

- Rice, D.D., and Shurr, G.W., 1978, The relation between facies and low- permeability (tight) reservoirs in the northern Great Plains, *in* Proceedings of the 4th DOE Symposium on enhanced oil and gas recovery and improved drilling methods, Tulsa, Oklahoma, 1978, v. 2 Gas and drilling: Tulsa, Okla., The Petroleum Publishing Co., p. E3/1-E3/18.
- Rice, D.D., and Shurr, G.W., 1980, Major gas resources in shallow, tight pays seen for northern Great Plains: *Oil and Gas Journal*, v. 78, no. 19, p. 178-194.
- Rice, D.D., and Shurr, G.W., 1980, Shallow, low-permeability reservoirs of the northern Great Plains An assessment of their natural gas resources: *American Association of Petroleum Geologists Bulletin*, v. 64, no. 7, p. 969-987.
- Rice, D.D., and Shurr, G.W., 1981, Paleogeography of the Upper Cretaceous Eagle Sandstone and equivalent rocks, northern Great Plains: *Geological Society of America Abstracts with Programs*, v. 13, no. 7, p. 537-538.
- Rice, D.D., and Sullivan, G.W., 1980, Northern Great Plains/Williston Basin, *in* Report of the National Petroleum Council's Committee on Unconventional Gas Resources, Tight Gas Reservoirs, pt. 2, p. 10-1 to 10-170.
- Sampath, K., and Keighin, C.W., 1981, Factors affecting gas slippage in tight sandstones: *Proceedings of the Symposium on Low-Permeability Gas Reservoirs*, Society of Petroleum Engineers, Proceedings, Dallas, Tex., p. 409-416.
- Sampath, K., and Keighin, C.W., 1982, Factors affecting gas slippage in tight sandstones of Cretaceous age in the Uinta basin: *Journal of Petroleum Technology*, v. 34, no. 11, p. 2715-2720.
- Schmoker, J.W., and Gautier, D.L., 1988, Sandstone porosity as a function of thermal maturity An approach to porosity comparisons and prediction [abs.]: *American Association of Petroleum Geologists Bulletin*, v. 72, no. 7, p. 880.
- Scholle, P.A., and Pollastro, R.M., 1985, Sedimentology and reservoir characteristics of the Niobrara Formation (Upper Cretaceous), Kansas and Colorado, *in* Longman, M.W., Shanley, K.W., Lindsay, R.F., and Eby, D.E., *Rocky Mountain Carbonate Reservoirs*, Society of Economic Paleontologists and Mineralogists Core Workshop No. 7, p. 447-482.
- Searls, C.A., Lee, M.W., Miller, J.J., Albright, J.N., Fried, J., and Applegate, J.K., 1983, A coordinated seismic study of the Multiwell Experiment site: *Proceedings of the Symposium on Low-Permeability Gas Reservoirs*, Society of Petroleum Engineers, Denver, Colo., Paper no. 11613, 10 p.
- Shurr, G.W., 1978, Paleotectonic controls on Cretaceous sedimentation and potential gas occurrence in western South Dakota: *Montana Geological Society Guidebook*, 24th Annual Conference, Williston Basin Symposium 1978, p. 283-292.

- Shurr, G.W., 1980, Geologic setting of the Pierre Shale (Upper Cretaceous) in the northern Great Plains: U.S. Geological Survey Open-File Report 80-675, 8 p.
- Shurr, G.W., and Sieverding, J.L., 1980, Preliminary synthesis of subsurface stratigraphy of the Niobrara Formation (Upper Cretaceous) in the northern Great Plains: U.S. Geological Survey Open-File Report 80-1255, 18 p.
- Spencer, C.W., 1979, Wildcat well penetration map showing wells drilled into and through potentially gas-bearing, low-permeability Upper Cretaceous and Tertiary reservoirs, Great Divide Basin, Wyoming: U.S. Geological Survey Open-File Report 79-826, scale 1:125,000.
- Spencer, C.W., 1983, Geologic aspects of tight gas reservoirs in the Rocky Mountain region: Proceedings of the SPE/DOE Joint Symposium on Low-Permeability Gas Reservoirs, Denver, Colo., March 13-16, 1983, p. 399-408.
- Spencer, C.W., 1983, Overpressured reservoirs in Rocky Mountain region [abs.]: American Association of Petroleum Geologists Bulletin, v. 67, no. 8, p. 1356-1357.
- Spencer, C.W., 1984, Discussion of recent resource assessments of tight gas reservoirs [abs.]: American Association of Petroleum Geologists Bulletin, v. 68, no. 4, p. 530.
- Spencer, C.W., 1984, Significance of overpressured reservoirs in the Rocky Mountain region [abs.]: The Outcrop, v. 33, no. 5, p. 9-10.
- Spencer, C.W., 1984, Overpressured tight gas reservoirs in the Pinedale anticline area, Sublette County, Wyoming, *in* Law, B.E., ed., Geological characteristics of low-permeability Upper Cretaceous and lower Tertiary rocks in the Pinedale anticline area, Sublette County, Wyoming: U.S. Geological Survey Open-File Report 84-753, p. 51-59.
- Spencer, C.W., 1984, Overview of U.S. Department of Energy Multiwell Experiment, Piceance Creek basin, Colorado, *in* Spencer, C.W., and Keighin, C.W., eds., Geologic studies in support of the U.S. Department of Energy Multiwell Experiment, Garfield County, Colorado: U.S. Geological Survey Open-File Report 84-757, p. 1-13.
- Spencer, C.W., 1985, Geologic aspects of tight gas reservoirs in the Rocky Mountain region: Journal of Petroleum Technology, v. 37, no. 8, p. 1308-1314.
- Spencer, C.W., 1985, Multiwell geologic support and Piceance basin studies, *in* Frohne, K-H., ed., Third annual Western Gas Sands Program review, November 1984: U.S. Department of Energy, Morgantown, West Virginia, DOE/METC 85-7, p. 18-36.

- Spencer, C.W., 1986, Geologic characterization of tight gas reservoirs, Piceance basin, *in* Komar, C.A., ed., Proceedings of the Unconventional Gas Recovery Meeting, Eastern Gas Shales, Coalbed Methane, Western Gas Sands, November 1985: U.S. Department of Energy, Morgantown, WV, DOE/METC 86/6034, p. 120-129.
- Spencer, C.W., 1987, Hydrocarbon generation as a mechanism for overpressuring in the Rocky Mountain region: American Association of Petroleum Geologists Bulletin, v. 71, no. 4, p. 368-388.
- Spencer, C.W., 1987, Significance of overpressured reservoirs in the Rockies [abs.]: The Outcrop, v. 36, no. 10, p. 4.
- Spencer, C.W., 1988, Abnormally high- and low-pressured gas reservoirs Examples from Rocky Mountain region [abs.], *in* Carter, L.M.H., ed., USGS research on energy resources 1988; program and abstracts: U.S. Geological Survey Circular 1025, p. 58.
- Spencer, C.W., Fouch, T.D., and Rice, D.D.; 1977, Geological program to provide a characterization of tight, gas-bearing reservoirs in the Rocky Mountain region, *in* Proceedings of the 3rd ERDA Symposium on Enhanced Oil and Gas Recovery and Improved Drilling Methods, Tulsa, Okla., 1977, v. 2 Gas and Drilling, Tulsa, Okla., The Petroleum Publishing Co., p. E1-E15.
- Spencer, C.W., Johnson, R.C., and Law, B.E., 1984, Review of USGS tight gas sands characterization research, *in* Frohne, K-H., ed., Western Gas Sands Subprogram Review, Technical Proceedings, October 18-19, 1983, Morgantown, WV, U.S. Department of Energy, DOE/METC/84-3, p. 5-16.
- Spencer, C.W., and Keighin, C.W., eds., 1984, Geologic studies in support of the U.S. Department of Energy Multiwell Experiment, Garfield County, Colorado: U.S. Geological Survey Open-File Report 84-757, 134 p., 1 plate.
- Spencer, C.W., and Law, Ben E., 1981, Overpressured, low-permeability gas reservoirs in Green River, Washakie, and Great Divide Basins, southwestern Wyoming [abs.]: American Association of Petroleum Geologists Bulletin, v. 65, no. 3, p. 569.
- Spencer, C.W., and Law, B.E., 1988, Unconventional resources Western tight gas reservoirs, *in* National assessment of undiscovered conventional oil and gas resources, USGS-MMS, working paper: U.S. Geological Survey Open-File Report 88-373, p. 480-500.
- Spencer, C.W., and Mast, R.F., eds., 1986, Geology of tight gas reservoirs: American Association of Petroleum Geologists Special Studies in Geology No. 24, 299 p.

- Starkey, H.C., Blackmon, P.D., and Rice, D.D., 1978, Mineralogical analysis of drill core samples from Midlands Gas Corporation wells Federal 0370 No. 1 and Federal 2962 No. 1, Phillips County, Montana: U.S. Geological Survey Open-File Report 78-1001, 35 p.
- Tyler, T.F., 1978, Preliminary chart showing electric log correlation section A-A' of some Upper Cretaceous and Tertiary rocks, Washakie Basin, Wyoming: U.S. Geological Survey Open-File Report 78-703, 4 sheets.
- Tyler, T.F., 1978, Core descriptions, photographs and core X-ray analyses of portions of the Upper Cretaceous Mesaverde Group, Washakie Basin, Wyoming: U.S. Geological Survey Open-File Report 78-708, 63 p.
- Tyler, T.F., 1978, Preliminary chart showing electric log correlation section B-B' of some Upper Cretaceous and Tertiary rocks, Washakie Basin, Wyoming: U.S. Geological Survey Open-File Report 78-1053, 3 sheets.
- Tyler, T.F., 1979, Preliminary chart showing electric log correlation section C-C' of some Upper Cretaceous and Tertiary rocks, Wamsutter Arch, Wyoming: U.S. Geological Survey Open-File Report 79-296, 3 sheets.
- Tyler, T.F., 1979, Preliminary chart showing electric log correlation section D-D' of some Upper Cretaceous and Tertiary rocks, Rock Springs uplift, Wyoming: U.S. Geological Survey Open-File Report 79-1217, 4 sheets.
- Tyler, T.F., 1979, Preliminary chart showing electric log correlation section F-F' of some Upper Cretaceous and Tertiary rocks East Flank Rock Springs uplift, Wyoming: U.S. Geological Survey Open-File Report 79-1573, 1 sheet.
- Tyler, T.F., 1979, Wildcat well penetration map showing wells drilled into and through potentially gas-bearing, low-permeability Upper Cretaceous and Tertiary reservoirs, Sand Wash Basin, Colorado: U.S. Geological Survey Open-File Report 79-1437, 1 sheet.
- Tyler, T.F., 1980, Preliminary chart showing electric log correlation section E-E' of some Upper Cretaceous and Tertiary Rocks, Cherokee Ridge, Wyoming: U.S. Geological Survey Open-File Report 80-191, 4 sheets.
- Tyler, T.F., 1980, Preliminary chart showing electric log correlation section G-G' of some Upper Cretaceous and Tertiary rocks, east flank Rock Springs uplift Wyoming: U.S. Geological Survey Open-File Report 80-1247, 3 sheets.
- Tyler, T.F., 1980, Preliminary chart showing electric log correlation section H-H' of some Upper Cretaceous and Tertiary rocks, south end, Rock Springs uplift, Washakie Basin, Wyoming: U.S. Geological Survey Open-File Report 80-1248, 3 sheets.

- Tyler, T.F., Bucurel-White, Hildie, and Peterson, J.R., 1982, Preliminary chart showing electric log correlation section I-I' of some Upper Cretaceous and Tertiary rocks, Washakie Basin, Wyoming: U.S. Geological Survey Open-File Report 82-720, 2 sheets.
- Tyler, T.F., and Peterson, J.R., 1980, Wildcat well penetration map showing wells drilled into and through potentially gas-bearing, low-permeability Upper Cretaceous and Tertiary reservoirs, Washakie Basin, Wyoming: U.S. Geological Survey Open-File Report 80-189, 1 sheet.
- Tyler, T.F., Peterson, J.R., and Bucurel, H.G., 1981, Preliminary chart showing electric log correlation section J-J' of some Upper Cretaceous and Tertiary rocks, Washakie Basin, Wyoming: U.S. Geological Survey Open-File Report 81-47, 2 sheets.
- Verbeek, E.R., and Grout, M.A., 1984, Fracture studies in Cretaceous and Paleocene strata in and around the Piceance Basin, Colorado-- Preliminary results and their bearing on a fracture-controlled natural gas reservoir at the MWX site: U.S. Geological Survey Open-File Report 84-156, 30 p.
- Verbeek, E.R., and Grout, M.A., 1984, Prediction of subsurface fracture patterns from surface studies of joints. An example from the Piceance Creek Basin, Colorado, *in* Spencer, C.W. and Keighin, C.W. eds., Geologic studies in support of the U.S. Department of Energy Multiwell Experiment, Garfield County, Colorado: U.S. Geological Survey Open-File Report 84-757, p. 75-86.
- Verbeek, E.R., and Grout, M.A., 1986, Cenozoic stress rotation, northeastern Colorado Plateau: Proceedings, 1986 Symposium, Rocky Mountain Association of Geologists, p. 97.
- Verbeek, E.R., and Grout, M.A., 1987, Systematic joints within oil shales and associated rocks of the Green River Formation, *in* Taylor, J.O., ed., Oil shale and mineral wealth, water resource challenge, and development choices. Piceance basin, Colorado: U.S. Geological Survey Prof. Paper 1310, p. 45-55.
- Zelt, F.B., 1984, Gamma-ray spectrometry of marine shales in outcrop. A tool for petroleum exploration and basin analysis [abs.]: American Association of Petroleum Geologists Bulletin, v. 68, no. 4, p. 542.

STATE INDEX

Colorado

- Abrams, G.A., and Grout, M.A., 1987, Complete Bouguer profiles and principal facts for gravity stations in the Divide Creek anticline area, Piceance Basin, Colorado: U.S. Geological Survey Open-File Report 87-647, 9 p.
- Bader, J.W., 1983, Section A-A', subsurface correlations of some Upper Cretaceous and Tertiary rocks from the Cherokee Ridge, Wyoming to the southeast flank of the Sand Wash Basin, Colorado: U.S. Geological Survey Open-File Report 83-362, 2 sheets.
- Bader, J.W., Gill, J.R., Cobban, W.A., and Law, B.E., 1983, Biostratigraphic correlation chart of some Upper Cretaceous rocks from the Lost Soldier area, Wyoming to west of Craig, Colorado: U.S. Geological Survey Miscellaneous Field Studies Map MF-1548, 1 sheet.
- Bostick, N.H., 1983, Vitrinite reflectance and temperature gradient models applied at a site in the Piceance Basin, Colorado [abs.]: American Association of Petroleum Geologists Bulletin, v. 67, no. 3, p. 427-428.
- Bostick, N.H., and Freeman, V.L., 1984, Tests of vitrinite reflectance and paleotemperature models at the Multiwell Experiment Site, Piceance Creek Basin, Colorado, in Spencer, C.W., and Keighin, C.W., eds., Geologic studies in support of the U.S. Department of Energy Multiwell Experiment, Garfield County, Colorado: U.S. Geological Survey Open-File Report 84-757, p. 110-120.
- Chancellor, R.E., and Johnson, R.C., 1986, Geologic and engineering implications of production history from five wells in central Piceance Creek basin, northwest Colorado: Proceedings Society of Petroleum Engineers Unconventional Gas Technology Symposium, Louisville, Ky., May 18-21, SPE 15237, p. 351-364.
- Granica, M.P., and Johnson, R.C., 1980, Structure contour and isochore map of the nonmarine part of the Mesaverde Formation/Group, Piceance Creek Basin, Colorado: U.S. Geological Survey Miscellaneous Field Investigations Map MF-1189, 1 sheet, scale 1:250,000, 10 page pamphlet.
- Grout, M.A., and Verbeek, E.R., 1985, Fracture history of the Plateau Creek and adjacent Colorado River valleys, southern Piceance Basin implications for predicting joint patterns at depth: U.S. Geological Survey Open-File Report 85-744, 17 p.
- Grout, M.A., and Verbeek, E.R., 1986, Prediction of joint patterns at depth examples from the Piceance Basin, northwestern Colorado: Geological Society of America Abstracts with Programs, v. 18, no. 5, p. 358.
- Grout, M.A., and Verbeek, E.R., 1987, Regional joint sets unrelated to major folds example from the Piceance basin, northeastern Colorado Plateau [abs.]: Geological Society of America Abstracts with Programs, v. 19, no. 5, p. 279.

- Hansley, P.L., 1981, Mineralogy and diagenesis of core samples of Upper Cretaceous sandstones, Twin Arrow Inc. 4-14X C & K well, Piceance Creek Basin, northwestern Colorado: U.S. Geological Survey Open-File Report 81-845, 8 p.
- Hansley, P.L., 1981, Mineralogy, diagenesis, and provenance of Upper Cretaceous sandstones from the Ralston Production Company Federal No. 31 well, Piceance Creek Basin, northwestern Colorado: U.S. Geological Survey Open-File Report 81-1295, 21 p.
- Hansley, P.L., and Johnson, R.C., 1979, Preliminary results of mineralogic and diagenetic studies of low-permeability sandstones of Late Cretaceous age, Piceance Creek Basin, northwestern Colorado: U.S. Geological Survey Open-File Report 79-1702, 39 p.
- Hansley, P.L., and Johnson, R.C., 1980, Mineralogy and diagenesis of low-permeability sandstones of Late Cretaceous age, Piceance Creek Basin, northwestern Colorado: *The Mountain Geologist*, v. 17, no. 4, p. 88-129.
- Johnson, R.C., 1978, Cross section showing depositional environments and lithologies of some Upper Cretaceous and Tertiary rocks, from DeBeque to the north-central Piceance Creek Basin, Colorado: U.S. Geological Survey Open-File Report 78-182, 1 sheet.
- Johnson, R.C., 1979, Cross Section A-A' of Upper Cretaceous and lower Tertiary rocks, northern Piceance Creek Basin, Colorado: U.S. Geological Survey Miscellaneous Field Investigations Map MF-1129-A, 2 sheets.
- Johnson, R.C., 1979, Cross section B-B' of Upper Cretaceous and lower Tertiary rocks, northern Piceance Creek Basin, Colorado: U.S. Geological Survey Miscellaneous Field Investigations Map MF-1129-B, 2 sheets.
- Johnson, R.C., 1979, Cross section C-C' of Upper Cretaceous and lower Tertiary rocks, northern Piceance Creek Basin, Colorado: U.S. Geological Survey Miscellaneous Field Investigations Map MF-1129-C, 2 sheets.
- Johnson, R.C., 1982, A measured section of the Late Cretaceous Mesaverde Group and lower part of the early Tertiary Wasatch Formation, Rifle Gap, Colorado: U.S. Geological Survey Open-File Report 82-590, 11 p., 1 log.
- Johnson, R.C., 1983, Structure contour map of the top of the Rollins and Trout Creek sandstones, Piceance Creek Basin, Colorado: U.S. Geological Survey Miscellaneous Field Investigations Map MF-1667, scale 1:253,400.
- Johnson, R.C., 1986, Structure contour map of the Castlegate Sandstone, eastern part of the Uinta basin and the western part of the Piceance Creek basin, Utah and Colorado: U.S. Geological Survey Miscellaneous Field Investigations Map MF-1826.

- Johnson, R.C., 1987, Geologic history and hydrocarbon potential of Late Cretaceous-age low-permeability reservoirs, Piceance basin, western Colorado: U.S. Department of Energy, Fossil Energy, DOE/MC/20422-2337, 97 p.
- Johnson, R.C., Crovelli, R.A., Spencer, C.W., and Mast, R.F., 1987, An assessment of gas resources in low-permeability sandstones of the Upper Cretaceous Mesaverde Group, Piceance basin, Colorado: U.S. Geological Survey Open-File Report 87-357, 165 p.
- Johnson, R.C., Crovelli, R.A., Spencer, C.W., and Mast, R.F., 1988, Assessment of gas resources in low-permeability sandstones of Upper Cretaceous Mesaverde Group, Piceance basin, Colorado [abs.]: American Association of Petroleum Geologists Bulletin, v. 72, no. 2, p. 202.
- Johnson, R.C., Crovelli, R.A., Spencer, C.W., and Mast, R.F., 1988, An assessment of gas resources in low-permeability sandstones of Upper Cretaceous Mesaverde Group, Piceance basin, Colorado [abs.], *in* Carter, L.M.H., ed., USGS research on energy resources 1988; program and abstracts: U.S. Geological Survey Circular 1025, p. 23-24.
- Johnson, R.C., and Finn, T., 1985, Age of the Douglas Creek Arch, Colorado and Utah [abs.]: American Association of Petroleum Geologists, v. 69, no. 3, p. 270.
- Johnson, R.C., and Finn, T.M., 1986, Cretaceous through Holocene history of the Douglas Creek Arch, Colorado and Utah, *in* Stone, D.S., ed.: Rocky Mountain Association of Geologists, New Interpretations of Northwest Colorado Geology, p. 77-95.
- Johnson, R.C., Granica, M.P., and Dessenberger, N.C., 1979, Cross section A-A' of Upper Cretaceous and lower Tertiary rocks, southern Piceance Creek Basin, Colorado: U.S. Geological Survey Miscellaneous Field Investigations Map MF-1130-A, 2 sheets.
- Johnson, R.C., Granica, M.P., and Dessenberger, N.C., 1979, Cross section B-B' of Upper Cretaceous and lower Tertiary rocks, southern Piceance Creek Basin, Colorado: U.S. Geological Survey Miscellaneous Field Investigations Map MF-1130-B, 2 sheets.
- Johnson, R.C., Granica, M.P., and Dessenberger, N.C., 1979, Cross section C-C' of Upper Cretaceous and lower Tertiary rocks, southern Piceance Creek Basin, Colorado: U.S. Geological Survey Miscellaneous Field Investigations Map MF-1130-C, 2 sheets.
- Johnson, R.C., and Keighin, C.W., 1981, Cretaceous and Tertiary history and resources of the Piceance Creek Basin, western Colorado: 32nd Field Conference Guidebook, Western Slope Colorado: New Mexico Geological Society, p. 199-210.

- Johnson, R.C., and May, Fred, 1979, Preliminary stratigraphic studies of the upper part of the Mesaverde Group, the Wasatch Formation, and the lower part of the Green River Formation, DeBeque area, Colorado, including environments of deposition and investigation of palynomorph assemblages: U.S. Geological Survey Miscellaneous Field Investigations Map MF-1050, 2 sheets.
- Johnson, R.C., and May, Fred, 1980, A study of the Cretaceous-Tertiary unconformity in the Piceance Creek Basin, Colorado The underlying Ohio Creek Formation (Upper Cretaceous) redefined as a member of the Hunter Canyon or Mesaverde Formation: U.S. Geological Survey Bulletin 1482-B, 27 p.
- Johnson, R.C., and May, Fred, 1978, Maestrichtian conglomerates in the southwestern Piceance Creek basin [abs]: American Association of Petroleum Geologists Bulletin, v. 62, no. 5, p. 885.
- Johnson, R.C., May, Fred, Hansley, P.L., Pitman, J.K., and Fouch, T.D., 1980, Petrology, X-ray mineralogy, and palynology of a measured section of the Upper Cretaceous Mesaverde Group in Hunter Canyon, western Colorado: U.S. Geological Survey Oil and Gas Investigations Chart OC-91, 1 sheet.
- Johnson, R.C., and Nuccio, V.F., 1983, Structural and thermal history of Piceance Creek Basin, Colorado in relation to hydrocarbon occurrence In Mesaverde Group [abs.]: American Association of Petroleum Geologists Bulletin, v. 67, no. 3, p. 490-491.
- Johnson, R.C., and Nuccio, V.F., 1984, Thermal maturity of organic matter in Green River Formation, Piceance Creek Basin, Colorado [abs.]: American Association of Petroleum Geologists Bulletin, v. 68, no. 4, p. 492-493.
- Johnson, R.C., and Nuccio, V.F., 1984, Late Cretaceous through early Tertiary general stratigraphy and structural geology of the Piceance Creek basin, Colorado, in Spencer, C.W., and Keighin, C.W., eds., Geologic studies in support of the U.S. Department of Energy Multiwell Experiment, Garfield County, Colorado: U.S. Geological Survey Open-File Report 84-757, p. 14-20.
- Kiteley, L.W., 1978, Stratigraphy of the Mesaverde Group and occurrence of natural gas in northwest Colorado [abs.]: American Association of Petroleum Geologists Bulletin, v. 62, no. 5, p. 887.
- Kiteley, L.W., 1979, Stratigraphic measured sections of the Upper Cretaceous Mancos Shale (upper part) and Mesaverde Group (lower part), Moffat County, Colorado: U.S. Geological Survey Open-File Report 79-1306, 48 p.
- Kiteley, L.W., 1979, Sedimentology of the intertonguing Upper Cretaceous Mancos Shale and Mesaverde Group in Moffat, Rio Blanco, and Routt Counties, Colorado [abs.]: Geological Society of America Abstracts with Programs, v. 11, no. 7, p. 458-459.

- Kiteley, L.W., 1983, Paleogeography and eustatic-tectonic model of late Campanian Cretaceous sedimentation, southwestern Wyoming and northwestern Colorado, *in* Reynolds, M.W., and Dolly, E.D., eds., Mesozoic paleogeography of the west-central United States: Society of Economic Paleontologists and Mineralogists, Rocky Mountain Section, Rocky Mountain Paleogeography Symposium 2, p. 273-303.
- Law, B.E., 1984, Geologic characteristics of low-permeability gas reservoirs in Greater Green River Basin of Wyoming, Colorado and Utah [abs.]: American Association of Petroleum Geologists Bulletin, v. 68, no. 4, p. 498-499.
- Law, B.E., 1984, Geologic characteristics of low-permeability gas reservoirs in Greater Green River Basin of Wyoming, Colorado and Utah [abs.]: American Association of Petroleum Geologists Bulletin, v. 68, no. 4, p. 498-499.
- Law, B.E., 1984, Relationships of source rock, thermal maturity, and overpressuring to gas generation and occurrence in low-permeability Upper Cretaceous and lower Tertiary rocks, Greater Green River Basin, Wyoming, Colorado, and Utah, *in* Woodward, Jane, Meissner, F.F., and Clayton, J.L., eds., Hydrocarbon source rocks of the greater Rocky Mountain region: Rocky Mountain Association of Geologists, p. 469-490.
- Law, B.E., 1984 Relationships of source rock, thermal maturity, and overpressuring to gas generation and occurrence in low-permeability Upper Cretaceous and lower Tertiary rocks, Greater Green River Basin, Wyoming, Colorado, and Utah [abs.]: American Association of Petroleum Geologists Bulletin, v. 68, no. 7, p. 140.
- Law, B.E., 1984, Geological research in the Greater Green River Basin, *in* Frohne, K-H., ed., Third Annual Western Gas Sands Program Review, November 1984: U.S. Department of Energy, Morgantown, West Virginia, DOE/METC 85-7, p. 18-36.
- Law, B.E., 1986, Geologic characterization of tight gas reservoirs, Greater Green River Basin, *in* Komar, C.H., ed., Proceedings of the unconventional gas recovery contractors meeting - Eastern gas shales, coalbed methane, western gas sands: U.S. Department of Energy, Morgantown, West Virginia, DOE/METC 86/6034, p. 111-119.
- Law, B.E., 1987, Tight gas reservoirs Greater Green River Basin, *in* Unconventional gas recovery contractors review meeting, July 28-29, 1987: U.S. Department of Energy, Morgantown, WV, P. 4A 2.
- Law, B.E., Bucurel-White, Hildred, and Bader, J.W., 1983, Sedimentological aspects of stratigraphic correlations in the Upper Cretaceous Ericson Sandstone, Greater Green River Basin, Wyoming, Colorado, and Utah [abs.]: Geological Society of America Abstracts with Programs, v. 15, no. 5, p. 333.

- Law, B.E., Hatch, J.R., Kukal, G.C., and Keighin, C.W., 1983, Geologic implications of dewatering of coal and other carbonaceous rocks A hypothesis [abs.]: American Association of Petroleum Geologists Bulletin, v. 67, no. 3, p. 500.
- Law, B.E., Hatch, J.R., Kukal, G.C., and Keighin, C.W., 1983, Geologic implications of coal dewatering: American Association of Petroleum Geologists Bulletin, v. 67, no. 12, p. 2255-2260.
- Law, B.E., and Nuccio, V.F., 1986, Segmented vitrinite reflectance profile from the Deep Seam Project, Piceance Creek Basin, Colorado Evidence of previous high pore pressure: American Association of Petroleum Geologists, [abs.], v. 70, p. 1047.
- Law, B.E., Pollastro, R.M., and Keighin, C.W., 1986, Geologic characteristics of low-permeability gas reservoirs in selected wells, Greater Green River Basin, Wyoming, Colorado, and Utah, *in* Spencer, C.W., and Mast, R.F., eds., Geology of tight gas reservoirs: American Association of Petroleum Geologists Studies in Geology, 24, p. 253-270.
- Law, B.E., and Smith, C.R., 1983, Subsurface temperature map showing depth to 180° Fahrenheit in the Greater Green River Basin, Wyoming, Colorado, and Utah: U.S. Geological Survey Miscellaneous Field Studies Map MF-1504, scale 1:500,000.
- Law, B.E., and Spencer, C.W., 1988, Tight gas reservoirs, *in* Magoon, L.B., ed., Petroleum systems of the United States: U.S. Geological Survey Bulletin 1870, p. 44-46.
- Law, B.E., Spencer, C.W., Crovelli, R.A., Mast, R.F., Dolton, G.L., Charpentier, R.R., and Wandrey, C.J., 1988, Assessment of gas contained in overpressured low-permeability reservoirs in the Greater Green River basin of Wyoming, Colorado, and Utah [abs.], *in* Carter, L.M.H., ed., USGS research on energy resources 1988; program and abstracts: U.S. Geological Survey Circular 1025, p. 27-28.
- Lee, M.W., 1984, Delineation of lenticular-type sand bodies by the vertical seismic profiling method: U.S. Geological Survey Open-File Report 84-265, 92 p.
- Lee, M.W., 1984, Vertical seismic profiles at the Multiwell Experiment site, Garfield County, Colorado: U.S. Geological Survey Open-File Report 84-168, 57 p.
- Lee, M.W., 1984, Detection and delineation of lenticular-type sand bodies by the vertical seismic profiling method, *in* Spencer, C.W., and Keighin, C.W., eds., Geologic studies in support of the U.S. Department of Energy Multiwell Experiment, Garfield County, Colorado: U.S. Geological Survey Open-File Report 84-757, p. 121-136.

- Lee, M.W., 1985, Interpretation of azimuthal vertical seismic profile survey at Multiwell Experimental site, Garfield County, Colorado: U.S. Geological Survey Open-File Report 85-428, 44 p.
- Lee, M.W., and Miller, J.J., 1985, Acquisition and processing of azimuthal vertical seismic profiles at Multiwell Experiment site, Garfield County, Colorado: U.S. Geological Survey Open-File Report 85-427, 36 p.
- Lee, M.W., 1986, An application of azimuthal vertical seismic profiles [abs.], *in* Carter, L.M.H., ed., USGS research on energy resources 1986, program and abstracts: U.S. Geological Survey Circular 974, p. 36.
- Lickus, M.R., and Law, B.E., 1988, Structure contour map of the Greater Green River Basin, Wyoming, Colorado, and Utah: U.S. Geological Survey Miscellaneous field Studies Map MF-2031.
- Merewether, E.A., and Cobban, W.A., 1983, Mid-Cretaceous biostratigraphic units, unconformities, and diastrophism in Wyoming, Colorado, and adjacent areas [abs.]: American Association of Petroleum Geologists Bulletin, v. 67, no. 3, p. 513.
- Merewether, E.A., and Cobban, W.A., 1985, Biostratigraphic units and tectonism in mid-Cretaceous foreland of Wyoming, Colorado, and adjoining areas [abs.] *in* Rocky Mountain Section Meeting AAPG/SEPM/EMD, Denver, Colorado; June 2-5, 1985: American Association of Petroleum Geologists Book of Abstracts.
- Merewether, E.A., and Cobban, W.A., 1986, Biostratigraphic units and tectonism in the mid-Cretaceous foreland of Wyoming, Colorado and adjoining areas, *in* Peterson, J.A., ed., Paleotectonics and sedimentation in the Rocky Mountain region, U.S.: American Association of Petroleum Geologists Memoir 41, p. 443-468.
- Merewether, E.A., Krystinik, K.B., and Pawlewicz, M.J., 1987, Thermal maturity of hydrocarbon-bearing formations in southwestern Wyoming and northwestern Colorado: U.S. Geological Survey Miscellaneous Investigations Map I-1831, scale 1:1,000,000.
- Nuccio, V.F., 1985, Comparison between immature vitrinite and solid bitumen, Green River Formation, Piceance Creek Basin, Colorado [abs.]: American Association of Petroleum Geologists Bulletin, v. 69, no. 2 p. 293.
- Nuccio, V.F., and Johnson, R.C., 1981, Map showing drill-stem test and perforation recoveries of the Upper Cretaceous Mesaverde Group, Piceance Creek Basin, Colorado: U.S. Geological Survey Miscellaneous Field Studies Map MF-1359, 1 sheet, scale 1:250,000.
- Nuccio, V.F., and Johnson, R.C., 1983, Preliminary thermal maturity map of the Cameo-Fairfield or equivalent coal zone through the Piceance Creek Basin, Colorado: U.S. Geological Survey Miscellaneous Field Study Map MF-1575, 2 sheets.

- Nuccio, V.F., and Johnson, R.C., 1984, Retardation of vitrinite reflectance in Green River oil shales, Piceance Creek Basin, northwestern Colorado [abs.]: American Association of Petroleum Geologists Bulletin, v. 68, no. 4, p. 513.
- Nuccio, V.F., and Johnson, R.C., 1984, Thermal maturation and burial history of the Upper Cretaceous Mesaverde Group, including the Multiwell Experiment (MWX), Piceance Creek Basin, Colorado, *in* Spencer, C.W., and Keighin, C.W., eds., Geologic studies in support of the U.S. Department of Energy Multiwell Experiment, Garfield County, Colorado: U.S. Geological Survey Open-File Report 84-757, p. 102-109.
- Nuccio, V.F., and Johnson, R.C., 1988, Surface vitrinite reflectance map of the Uinta, Piceance and Eagle Basins area, Utah and Colorado: U.S. Geological Survey Miscellaneous Field Study Map, MF-2008-B, one plate, 19 p.
- Pawlewicz, M.J., Lickus, M.K., Law, B.E., and Dickinson, W.W., 1986, Thermal maturity map showing depth to 0.8% vitrinite reflectance in the Greater Green River Basin, Wyoming, Colorado, and Utah: U.S. Geological Survey Miscellaneous Field Studies Map MF-1890.
- Pitman, J.K., and Spencer, C.W., 1984, Petrology of selected sandstones in the MWX wells (northwest Colorado) and its relationship to borehole geophysical-log analysis and reservoir quality, *in* Spencer, C.W., and Keighin, C.W., eds., Geologic studies in support of the U.S. Department of Energy Multiwell Experiment, Garfield County, Colorado: U.S. Geological Survey Open-File Report 84-757, p. 33-66.
- Pitman, J.K., and Sprunt, E.S., 1984, Origin and occurrence of fracture filling cements in the Upper Cretaceous Mesaverde Formation at MWX, Piceance Creek Basin, Colorado, *in* Spencer, C.W. and Keighin, C.W., eds., Geologic studies in support of the U.S. Department of Energy Multiwell Experiment, Garfield County, Colorado: U.S. Geological Survey Open-File Report 84-757, p. 87-101.
- Pitman, J.K., and Sprunt, E.S., 1985, Origin and distribution of fractures in Tertiary and Cretaceous rocks, Piceance basin, Colorado, and their relation to hydrocarbon occurrence [abs.]: American Association of Petroleum Geologists Bulletin, v. 69, no. 5, p. 860.
- Pollastro, R.M., 1981, Clay-mineral diagenesis within a fine-grained, marine, hydrocarbon-bearing, carbonate sequence Evidence from the Cretaceous Niobrara Formation [abs.]: 18th Annual Meeting, The Clay Minerals Society, 30th Annual Clay Minerals Conference, Urbana, Ill., Program and Abstracts, p. 13.
- Pollastro, R.M., 1982, Detrital/authigenic clay-mineral assemblages and their relation to diagenesis in sedimentary rocks [abs.]: 19th Annual Meeting, The Clay Minerals Society, 31st Annual Clay Minerals Conference, Hilo, Hawaii, Program and Abstracts, p. 29

- Pollastro, R.M., 1983, The formation of illite at the expense of illite/smectite-- Mineralogical and morphological support for a hypothesis [abs.]: 20th Annual Meeting, The Clay Minerals Society, 32nd Annual Clay Minerals Conference, Buffalo, N.Y., Program and Abstracts, p. 82.
- Pollastro, R.M., 1984, Mineralogy of selected sandstone/shale pairs and sandstones from the Multiwell Experiment Interpretations from X-ray diffraction and scanning electron microscopy analyses, *in*, Spencer, C.W., and Keighin, C.W., eds., Geologic studies in support of the U.S. Department of Energy Multiwell Experiment, Garfield County, Colorado: U.S. Geological Survey Open-File Report 84-757, p. 67-74.
- Pollastro, R.M., and Bader, J.W., 1983, Clay-mineral relationships in some low-permeability hydrocarbon reservoirs and their use as predictive resource tools [abs.]: American Association of Petroleum Geologists Bulletin, v. 67, no. 3, p. 536.
- Pollastro, R.M., and Martinez, C.J., 1985, Mineral, chemical, and textural relationships in rhythmic-bedded, hydrocarbon-productive chalk of the Niobrara Formation, Denver basin, Colorado: The Mountain Geologist, v. 22, p. 55-63.
- Pollastro, R.M., and Scholle, P.A., 1982, Diagenetic relationships in a hydrocarbon-productive chalk The Cretaceous Niobrara Formation: [abs.] U.S. Geological Survey Workshop on Diagenesis, Golden, Colo., March 16-18, 1982, Program and Abstracts, p. 33.
- Pollastro, R.M., and Scholle, P.A., 1984, Hydrocarbon exploration, development from low-permeability chinks Upper Cretaceous Niobrara Formation, Rocky Mountains Region: Oil and Gas Journal, v. 82, no. 17, p. 140-145.
- Pollastro, R.M., and Scholle, P.A., 1986, Diagenetic relationships in a hydrocarbon-productive chalk: the Cretaceous Niobrara Formation, *in* Mumpton, F.A., ed., Studies in Diagenesis; U.S. Geological Survey Bulletin 1578, p. 219-236.
- Pollastro, R.M., and Scholle, P.A., 1986, Exploration and development of hydrocarbons from low-permeability chinks an example from the Upper Cretaceous Niobrara Formation, Rocky Mountains region, *in* Spencer, C.W., and Mast, R.F., eds., Geology of tight gas reservoirs: American Association of Petroleum Geologists Studies in Geology, no. 24, p. 129-142.
- Precht, W.F., and Pollastro, R.M., 1985, Organic and inorganic constituents of the Niobrara Formation in Weld County, Colorado, *in* Pratt, L., Kauffman, E.G., and Zelt, F.B., eds., Fine-grained deposits and biofacies of the Cretaceous western Interior seaway: Evidence of cyclic sedimentary processes: Society of Economic Paleontologists and Mineralogists Field Trip Guidebook no. 4, p. 223-233.

- Scholle, P.A., and Pollastro, R.M., 1985, Sedimentology and reservoir characteristics of the Niobrara Formation (Upper Cretaceous), Kansas and Colorado, *in* Longman, M.W., Shanley, K.W., Lindsay, R.F., and Eby, D.E., Rocky Mountain Carbonate Reservoirs, Society of Economic Paleontologists and Mineralogists Core Workshop No. 7, p. 447-482.
- Searls, C.A., Lee, M.W., Miller, J.J., Albright, J.N., Fried, J., and Applegate, J.K., 1983, A coordinated seismic study of the Multiwell Experiment site: Proceedings of the Symposium on Low-Permeability Gas Reservoirs, Society of Petroleum Engineers, Denver, Colo., Paper no. 11613, 10 p.
- Spencer, C.W., 1984, Overview of U.S. Department of Energy Multiwell Experiment, Piceance Creek basin, Colorado, *in* Spencer, C.W., and Keighin, C.W., eds., Geologic studies in support of the U.S. Department of Energy Multiwell Experiment, Garfield County, Colorado: U.S. Geological Survey Open-File Report 84-757, p. 1-13.
- Spencer, C.W., 1985, Multiwell geologic support and Piceance basin studies, *in* Frohne, K-H., ed., Third annual Western Gas Sands Program review, November 1984: U.S. Department of Energy, Morgantown, West Virginia, DOE/METC 85-7, p. 18-36.
- Spencer, C.W., 1986, Geologic characterization of tight gas reservoirs, Piceance basin, *in* Komar, C.A., ed., Proceedings of the Unconventional Gas Recovery Meeting, Eastern Gas Shales, Coalbed Methane, Western Gas Sands, November 1985: U.S. Department of Energy, Morgantown, WV, DOE/METC 86/6034, p. 120-129.
- Spencer, C.W., 1987, Hydrocarbon generation as a mechanism for overpressuring in the Rocky Mountain region: American Association of Petroleum Geologists Bulletin, v. 71, no. 4, p. 368-388.
- Spencer, C.W., Fouch, T.D., and Rice, D.D., 1977, Geological program to provide a characterization of tight, gas-bearing reservoirs in the Rocky Mountain region, *in* Proceedings of the 3rd ERDA Symposium on Enhanced Oil and Gas Recovery and Improved Drilling Methods, Tulsa, Okla., 1977, v. 2 Gas and Drilling, Tulsa, Okla., The Petroleum Publishing Co., p. E1-E15.
- Spencer, C.W., Johnson, R.C., and Law, B.E., 1984, Review of USGS tight gas sands characterization research, *in* Frohne, K-H., ed., Western Gas Sands Subprogram Review, Technical Proceedings, October 18-19, 1983, Morgantown, WV; U.S. Department of Energy, DOE/METC/84-3, p. 5-16.
- Spencer, C.W., and Keighin, C.W., eds., 1984, Geologic studies in support of the U.S. Department of Energy Multiwell Experiment, Garfield County, Colorado: U.S. Geological Survey Open-File Report 84-757, 134 p., 1 plate.

- Spencer, C.W., and Law, B.E., 1988, Unconventional resources Western tight gas reservoirs, *in* National assessment of undiscovered conventional oil and gas resources, USGS-MMS, working paper: U.S. Geological Survey Open-File Report 88-373, p. 480-500.
- Spencer, C.W., and Mast, R.F., eds., 1986, Geology of tight gas reservoirs: American Association of Petroleum Geologists Special Studies in Geology No. 24, 299 p.
- Tyler, T.F., 1979, Wildcat well penetration map showing wells drilled into and through potentially gas-bearing, low-permeability Upper Cretaceous and Tertiary reservoirs, Sand Wash Basin, Colorado: U.S. Geological Survey Open-File Report 79-1437, 1 sheet.
- Verbeek, E.R., and Grout, M.A., 1984, Fracture studies in Cretaceous and Paleocene strata in and around the Piceance Basin, Colorado-- Preliminary results and their bearing on a fracture-controlled natural gas reservoir at the MWX site: U.S. Geological Survey Open-File Report 84-156, 30 p.
- Verbeek, E.R., and Grout, M.A., 1984, Prediction of subsurface fracture patterns from surface studies of joints An example from the Piceance Creek Basin, Colorado, *in* Spencer, C.W. and Keighin, C.W. eds., Geologic studies in support of the U.S. Department of Energy Multiwell Experiment, Garfield County, Colorado: U.S. Geological Survey Open-File Report 84-757, p. 75-86.
- Verbeek, E.R., and Grout, M.A., 1986, Cenozoic stress rotation, northeastern Colorado Plateau: Proceedings, 1986 Symposium, Rocky Mountain Association of Geologists, p. 97.
- Verbeek, E.R., and Grout, M.A., 1987, Systematic joints within oil shales and associated rocks of the Green River Formation, *in* Taylor, J.O., ed., Oil shale and mineral wealth, water resource challenge, and development choices Piceance basin, Colorado: U.S. Geological Survey Prof. Paper 1310, p. 45-55.

STATE INDEX

Kansas

- Law, B.E., and Spencer, C.W., 1988, Tight gas reservoirs, *in* Magoon, L.B., ed., Petroleum systems of the United States: U.S. Geological Survey Bulletin 1870, p. 44-46.
- Pollastro, R.M., and Scholle, P.A., 1984, Hydrocarbon exploration, development from low-permeability chinks Upper Cretaceous Niobrara Formation, Rocky Mountains Region: Oil and Gas Journal, v. 82, no. 17, p. 140-145.
- Pollastro, R.M., and Scholle, P.A., 1986, Exploration and development of hydrocarbons from low-permeability chinks an example from the Upper Cretaceous Niobrara Formation, Rocky Mountains region, *in* Spencer, C.W., and Mast, R.F., eds., Geology of tight gas reservoirs: American Association of Petroleum Geologists Studies in Geology, no. 24, p. 129-142.
- Scholle, P.A., and Pollastro, R.M., 1985, Sedimentology and reservoir characteristics of the Niobrara Formation (Upper Cretaceous), Kansas and Colorado, *in* Longman, M.W., Shanley, K.W., Lindsay, R.F., and Eby, D.E., Rocky Mountain Carbonate Reservoirs, Society of Economic Paleontologists and Mineralogists Core Workshop No. 7, p. 447-482.
- Spencer, C.W., and Mast, R.F., eds., 1986, Geology of tight gas reservoirs: American Association of Petroleum Geologists Special Studies in Geology No. 24, 299 p.

STATE INDEX

Montana

- Gautier, D.L., 1979, Post-depositional control of gas reservoir quality in the Eagle Sandstone of the Bearpaw Mountains, north-central Montana [abs.]: American Association of Petroleum Geologists Bulletin, v. 63, no. 5, p. 827.
- Gautier, D.L., 1980, Diagenesis in shallow conventional and low-permeability biogenic methane reservoirs of Eagle Sandstone, Montana [abs.]: American Association of Petroleum Geologists Bulletin, v. 64, no. 5, p. 712.
- Gautier, D.L., 1980, Physical characteristics of shallow methane reservoirs of northern Great Plains [abs.]: American Association of Petroleum Geologists Bulletin, v. 64, no. 5, p. 711-712.
- Gautier, D.L., 1981, Pierre Shale as a natural gas reservoir [abs.]: Geological Society of America Abstracts with Programs, v. 13, no. 4, p. 198.
- Gautier, D.L., 1981, Diagenesis and methane generation in Upper Cretaceous Gammon Shale, northern Great Plains, United States [abs.]: American Association of Petroleum Geologists Bulletin, v. 65, no. 5, p. 929.
- Gautier, D.L., 1981, Petrology of the Eagle Sandstone, Bearpaw Mountains area, north-central Montana: U.S. Geological Survey Bulletin 1521, 54 p.
- Gautier, D.L., and Rice, D.D., 1981, Comparison of conventional and low-permeability reservoirs of shallow gas in the northern Great Plains, Proceedings of the SPE/DOE Symposium on Low Permeability Gas Reservoirs, Dallas, Tex., Society of Petroleum Engineers, p. 193-204.
- Gautier, D.L., and Rice, D.D., 1982, Conventional and low-permeability reservoirs of shallow gas in the northern Great Plains: Journal of Petroleum Technology, v. 34, p. 1600-1608.
- Gautier, D.L., and Rice, D.D., 1983, Significance of gamma-ray spectroscopy for evaluating shallow gas reservoirs from Bowdoin Dome, Montana [abs.]: American Association of Petroleum Geologists Bulletin, v. 67, no. 3, p. 468.
- Law, B.E., and Spencer, C.W., 1988, Tight gas reservoirs, in Magoon, L.B., ed., Petroleum systems of the United States: U.S. Geological Survey Bulletin 1870, p. 44-46.
- Merewether, E.A., and Cobban, W.A., 1983, Mid-Cretaceous biostratigraphic units, unconformities, and diastrophism in Wyoming, Colorado, and adjacent areas [abs.]: American Association of Petroleum Geologists Bulletin, v. 67, no. 3, p. 513.

- Nydegger, G.L., Rice, D.D., and Brown, C.A., 1979, Development of shallow gas reserves in low-permeability reservoirs of Late Cretaceous age, Bowdoin Dome area, north-central Montana: Proceedings of the SPE Symposium on Low-Permeability Gas Reservoirs, Denver, Colo., May 20-22, 1979, p. 315-324.
- Nydegger, G.L., Rice, D.D., and Brown, C.A., 1980, Bowdoin Dome area, north-central Montana Example of shallow biogenic gas production from low-permeability reservoirs [abs.]: American Association of Petroleum Geologists Bulletin, v. 64, no. 5, p. 760-761.
- Nydegger, G.L., Rice, D.D., and Brown, C.A., 1980, Analysis of shallow gas development from low-permeability reservoirs of Late Cretaceous age, Bowdoin Dome area: Journal of Petroleum Technology, v. 32, no. 12, p. 2111-2120.
- Nydegger, G.L., Rice, D.D., and Brown, C.A., 1981, Formation evaluation difficult in shallow Bowdoin Dome: World Oil, v. 192, no. 5, p. 78-80.
- Rice, D.D., 1977, Bibliography on low-permeability natural gas reservoirs of the northern Great Plains: U.S. Geological Survey Open-File Report 77-391, 5 p.
- Rice, D.D., 1980, Coastal and deltaic sedimentation of Upper Cretaceous Eagle Sandstone Relation to shallow gas accumulations, north-central Montana: American Association of Petroleum Geologists Bulletin, v. 64, no. 3, p. 316-339.
- Rice, D.D., 1980, Upper Cretaceous Mosby Sandstone, central Montana Example of thin, widespread storm-generated sandstone cycles [abs.]: American Association of Petroleum Geologists Bulletin, v. 64, no. 5, p. 772-773.
- Rice, D.D., 1981, Subsurface cross section from southeastern Alberta, Canada to Bowdoin Dome, north-central Montana showing correlation of Cretaceous rocks and shallow, gas-productive zones in low-permeability reservoirs: U.S. Geological Survey Oil and Gas Investigations Chart OC-112. 1 pl.
- Rice, D.D., 1984, Controls of shallow gas accumulations in low-permeability reservoirs of northern Great Plains [abs.]: American Association of Petroleum Geologists Bulletin, v. 68, no. 4, p. 520-521.
- Rice, D.D., and Gautier, D.L., 1980, Development of biogenic gas from shallow, low-permeability reservoirs Examples from southeastern Alberta and Bowdoin Dome area, north-central Montana [abs.]: American Association of Petroleum Geologists Bulletin, v. 64, no. 5, p. 773.
- Rice, D.D., and Gautier, D.L., 1983, Coastal sandstones, Chapter 6 in Rice, D.D. and Gautier, D.L., eds., Patterns of sedimentation, diagenesis and hydrocarbon accumulation in Cretaceous rocks of the Rocky Mountains: Society of Economic Paleontologists and Mineralogists Short Course No. 11, p. 6-1 to 6-41.

- Rice, D.D., and Gautier, D.L., 1983, Shelf sandstones, Chapter 7 *in* Rice, D.D. and Gautier, D.L., eds., Patterns of sedimentation, diagenesis and hydrocarbon accumulation in Cretaceous rocks of the Rocky Mountains: Society of Economic Paleontologists and Mineralogists Short Course No. 11, p. 7-1 to 7-41.
- Rice, D.D., Nydegger, G.L., and Brown, C.A., 1979, Bowdoin Dome area, north-central Montana An example of shallow, biogenic gas production from low-permeability reservoirs [abs.]: American Association of Petroleum Geologists Bulletin, v. 63, no. 5, p. 838-839.
- Rice, D.D., and Shurr, G.W., 1978, Potential for major natural gas resources in shallow, low-permeability reservoirs of the northern Great Plains: Montana Geological Society Guidebook, 24th Annual Conference, Williston Basin Symposium, 1978, p. 265-281.
- Rice, D.D., and Shurr, G.W., 1978, The relation between facies and low-permeability (tight) reservoirs in the northern Great Plains, *in* Proceedings of the 4th DOE Symposium on enhanced oil and gas recovery and improved drilling methods, Tulsa, Oklahoma, 1978, v. 2 Gas and drilling: Tulsa, Okla., The Petroleum Publishing Co., p. E3/1-E3/18.
- Rice, D.D., and Shurr, G.W., 1980, Major gas resources in shallow, tight pays seen for northern Great Plains: Oil and Gas Journal, v. 78, no. 19, p. 178-194.
- Rice, D.D., and Shurr, G.W., 1980, Shallow, low-permeability reservoirs of the northern Great Plains An assessment of their natural gas resources: American Association of Petroleum Geologists Bulletin, v. 64, no. 7, p. 969-987.
- Rice, D.D., and Shurr, G.W., 1981, Paleogeography of the Upper Cretaceous Eagle Sandstone and equivalent rocks, northern Great Plains: Geological Society of America Abstracts with Programs, v. 13, no. 7, p. 537-538.
- Spencer, C.W., 1987, Hydrocarbon generation as a mechanism for overpressuring in the Rocky Mountain region: American Association of Petroleum Geologists Bulletin, v. 71, no. 4, p. 368-388.
- Spencer, C.W., Fouch, T.D., and Rice, D.D., 1977, Geological program to provide a characterization of tight, gas-bearing reservoirs in the Rocky Mountain region, *in* Proceedings of the 3rd ERDA Symposium on Enhanced Oil and Gas Recovery and Improved Drilling Methods, Tulsa, Okla., 1977, v. 2 Gas and Drilling, Tulsa, Okla., The Petroleum Publishing Co., p. E1-E15.
- Starkey, H.C., Blackmon, P.D., and Rice, D.D., 1978, Mineralogical analysis of drill core samples from Midlands Gas Corporation wells Federal 0370 No. 1 and Federal 2962 No. 1, Phillips County, Montana: U.S. Geological Survey Open-File Report 78-1001, 35 p.

STATE INDEX

Nebraska

- Law, B.E., and Spencer, C.W., 1988, Tight gas reservoirs, *in* Magoon, L.B., ed., Petroleum systems of the United States: U.S. Geological Survey Bulletin 1870, p. 44-46.
- Pollastro, R.M., and Scholle, P.A., 1984, Hydrocarbon exploration, development from low-permeability chinks Upper Cretaceous Niobrara Formation, Rocky Mountains Region: Oil and Gas Journal, v. 82, no. 17, p. 140-145.
- Pollastro, R.M., and Scholle, P.A., 1986, Exploration and development of hydrocarbons from low-permeability chinks an example from the Upper Cretaceous Niobrara Formation, Rocky Mountains region, *in* Spencer, C.W., and Mast, R.F., eds., Geology of tight gas reservoirs: American Association of Petroleum Geologists Studies in Geology, no. 24, p. 129-142.
- Spencer, C.W., and Mast, R.F., eds., 1986, Geology of tight gas reservoirs: American Association of Petroleum Geologists Special Studies in Geology No. 24, 299 p.

New Mexico

- Law, B.E., and Spencer, C.W., 1988, Tight gas reservoirs, *in* Magoon, L.B., ed., Petroleum systems of the United States: U.S. Geological Survey Bulletin 1870, p. 44-46.
- Spencer, C.W., and Mast, R.F., eds., 1986, Geology of tight gas reservoirs: American Association of Petroleum Geologists Special Studies in Geology No. 24, 299 p.

STATE INDEX

North Dakota

- Gautier, D.L., 1980, Physical characteristics of shallow methane reservoirs of northern Great Plains [abs.]: American Association of Petroleum Geologists Bulletin, v. 64, no. 5, p. 711-712.
- Gautier, D.L., 1981, Lithology, reservoir properties, and burial history of portion of Gammon Shale (Cretaceous), southwestern North Dakota: American Association of Petroleum Geologists Bulletin, v. 65, no. 6, p. 1146-1159.
- Gautier, D.L., 1981, Pierre Shale as a natural gas reservoir [abs.]: Geological Society of America Abstracts with Programs, v. 13, no. 4, p. 198.
- Gautier, D.L., 1981, Diagenesis and methane generation in Upper Cretaceous Gammon Shale, northern Great Plains, United States [abs.]: American Association of Petroleum Geologists Bulletin, v. 65, no. 5, p. 929.
- Gautier, D.L., and Rice, D.D., 1981, Comparison of conventional and low-permeability reservoirs of shallow gas in the northern Great Plains, Proceedings of the SPE/DOE Symposium on Low Permeability Gas Reservoirs, Dallas, Tex., Society of Petroleum Engineers, p. 193-204.
- Gautier, D.L., and Rice, D.D., 1982, Conventional and low-permeability reservoirs of shallow gas in the northern Great Plains: Journal of Petroleum Technology, v. 34, p. 1600-1608.
- Gautier, D.L., Starkey, H.C., and Takahashi, K.J., 1981, Clays, cations, and log response in the gas-productive Upper Cretaceous Gammon Shale of the northern Great Plains [abs.]: 30th Annual Clay Minerals Conference, 18th Meeting Clay Minerals Society, Urbana-Champaign, Ill., Program and Abstracts, p. 45.
- Gautier, D.L., Starkey, H.C., and Takahashi, K.J., 1983, Clays, cations, and log response of gas-producing and non-producing zones in the Gammon Shale (Cretaceous), southwestern North Dakota: Clays and Clay Minerals, v. 32, no. 1, p. 122-128.
- Law, B.E., and Spencer, C.W., 1988, Tight gas reservoirs, in Magoon, L.B., ed., Petroleum systems of the United States: U.S. Geological Survey Bulletin 1870, p. 44-46.
- Rice, D.D., 1977, Stratigraphic sections from well logs and outcrops of Cretaceous and Paleocene rocks, northern Great Plains, North and South Dakota: U.S. Geological Survey Oil and Gas Investigation Chart OC-72, 3 sheets.
- Rice, D.D., 1977, Bibliography on low-permeability natural gas reservoirs of the northern Great Plains: U.S. Geological Survey Open-File Report 77-391, 5 p.

- Rice, D.D., and Shurr, G.W., 1978, Potential for major natural gas resources in shallow, low-permeability reservoirs of the northern Great Plains: Montana Geological Society Guidebook, 24th Annual Conference, Williston Basin Symposium, 1978, p. 265-281.
- Rice, D.D., and Shurr, G.W., 1980, Major gas resources in shallow, tight pays seen for northern Great Plains: Oil and Gas Journal, v. 78, no. 19, p. 178-194.
- Rice, D.D., and Shurr, G.W., 1980, Shallow, low-permeability reservoirs of the northern Great Plains: An assessment of their natural gas resources: American Association of Petroleum Geologists Bulletin, v. 64, no. 7, p. 969-987.
- Rice, D.D., and Shurr, G.W., 1981, Paleogeography of the Upper Cretaceous Eagle Sandstone and equivalent rocks, northern Great Plains: Geological Society of America Abstracts with Programs, v. 13, no. 7, p. 537-538.
- Spencer, C.W., 1987, Hydrocarbon generation as a mechanism for overpressuring in the Rocky Mountain region: American Association of Petroleum Geologists Bulletin, v. 71, no. 4, p. 368-388.

STATE INDEX

South Dakota

- Gautler, D.L., 1981, Pierre Shale as a natural gas reservoir [abs.]: Geological Society of America Abstracts with Programs, v. 13, no. 4, p. 198.
- Gautier, D.L., 1981, Diagenesis and methane generation in Upper Cretaceous Gammon Shale, northern Great Plains, United States [abs.]: American Association of Petroleum Geologists Bulletin, v. 65, no. 5, p. 929.
- Gautier, D.L., and Rice, D.D., 1981, Comparison of conventional and low-permeability reservoirs of shallow gas in the northern Great Plains, Proceedings of the SPE/DOE Symposium on Low Permeability Gas Reservoirs, Dallas, Tex., Society of Petroleum Engineers, p. 193-204.
- Gautier, D.L., and Rice, D.D., 1982, Conventional and low-permeability reservoirs of shallow gas in the northern Great Plains: Journal of Petroleum Technology, v. 34, p. 1600-1608.
- Law, B.E., and Spencer, C.W., 1988, Tight gas reservoirs, in Magoon, L.B., ed., Petroleum systems of the United States: U.S. Geological Survey Bulletin 1870, p. 44-46.
- Rice, D.D., 1977, Stratigraphic sections from well logs and outcrops of Cretaceous and Paleocene rocks, northern Great Plains, North and South Dakota: U.S. Geological Survey Oil and Gas Investigation Chart OC-72, 3 sheets.
- Rice, D.D., 1977, Bibliography on low-permeability natural gas reservoirs of the northern Great Plains: U.S. Geological Survey Open-File Report 77-391, 5 p.
- Rice, D.D., and Shurr, G.W., 1978, Potential for major natural gas resources in shallow, low-permeability reservoirs of the northern Great Plains: Montana Geological Society Guidebook, 24th Annual Conference, Williston Basin Symposium, 1978, p. 265-281.
- Rice, D.D., and Shurr, G.W., 1978, The relation between facies and low-permeability (tight) reservoirs in the northern Great Plains, in Proceedings of the 4th DOE Symposium on enhanced oil and gas recovery and improved drilling methods, Tulsa, Oklahoma, 1978, v. 2 Gas and drilling: Tulsa, Okla., The Petroleum Publishing Co., p. E3/1-E3/18.
- Rice, D.D., and Shurr, G.W., 1980, Major gas resources in shallow, tight pays seen for northern Great Plains: Oil and Gas Journal, v. 78, no. 19, p. 178-194.
- Rice, D.D., and Shurr, G.W., 1980, Shallow, low-permeability reservoirs of the northern Great Plains: An assessment of their natural gas resources: American Association of Petroleum Geologists Bulletin, v. 64, no. 7, p. 969-987.

- Rice, D.D., and Shurr, G W., 1981, Paleogeography of the Upper Cretaceous Eagle Sandstone and equivalent rocks, northern Great Plains: Geological Society of America Abstracts with Programs, v. 13, no. 7, p. 537-538.
- Shurr, G.W., 1978, Paleotectonic controls on Cretaceous sedimentation and potential gas occurrence in western South Dakota: Montana Geological Society Guidebook, 24th Annual Conference, Williston Basin Symposium 1978, p. 283-292.
- Shurr, G.W., 1980, Geologic setting of the Pierre Shale (Upper Cretaceous) in the northern Great Plains: U.S. Geological Survey Open-File Report 80-675, 8 p.

STATE INDEX

Utah

- Cowgill, D.F., Seevers, D.O., Pitman, J.K., and Dobecki, T.L., 1981, Application of nuclear magnetic resonance to characterization of low permeability sandstone reservoirs, Uinta Basin, Utah [abs.]: *Geophysics*, v. 46, no. 4, p. 415.
- Fouch, T.D., 1981, Chart showing distribution of rock types, lithologic groups, and interpreted depositional environments for some lower Tertiary and Upper Cretaceous rocks from outcrops at Willow Creek-Indian Canyon through the subsurface of the Duchesne and Altamont oil fields, southwest to north-central parts of the Uinta Basin, Utah: U.S. Geological Survey Oil and Gas Investigations Chart, OC-81, 2 sheets in color.
- Fouch, T.D., and Cashion, W.B., 1979, Distribution of rock types, lithologic groups, and depositional environments for some lower Tertiary and Upper and Lower Cretaceous, and Upper and Middle Jurassic rocks in the subsurface between Altamont oil field and San Arroyo gas field, north-central to southeastern Uinta Basin, Utah: U.S. Geological Survey Open-File Report 79-365, 2 sheets.
- Fouch, T.D., Lawton, T.F., Nichols, D.J., Cashion, W.B., and Cobban, W.A., 1982, Chart showing preliminary correlation of major Albian to middle Eocene rock units from San Pete Valley, central Utah to the Book Cliffs in eastern Utah, *in* Overthrust Belt of Utah: Utah Geological Association Publication 10, p. 267-272.
- Fouch, T.D., Lawton, T.F., Nichols, D.J., Cashion, W.B., and Cobban, W.A., 1983, Patterns and timing of synorogenic sedimentation in Upper Cretaceous rocks of central and northeast Utah, *in* Reynolds, M.W., and Dolly, E.D., eds., Mesozoic paleogeography of west-central United States: Society of Economic Paleontologists and Mineralogists, Rocky Mountain Section, Rocky Mountain Paleogeography Symposium 2, p. 305-336.
- Johnson, R.C., and Finn, T., 1985, Age of the Douglas Creek Arch, Colorado and Utah [abs.]: *American Association of Petroleum Geologists*, v. 69, no. 3, p. 270.
- Johnson, R.C., and Finn, T.M., 1986, Cretaceous through Holocene history of the Douglas Creek Arch, Colorado and Utah, *in* Stone, D.S., ed.: Rocky Mountain Association of Geologists, New Interpretations of Northwest Colorado Geology, p. 77-95.
- Johnson, R.C., and Nuccio, V.F., 1984, The thermal maturity of Late Cretaceous age Mesaverde Group, Uinta Basin, Utah: Society of Economic Paleontologists and Mineralogists Annual Midyear Meeting, August 10-13, San Jose, Calif., Abstracts, p. 40.

- Keighin, C.W., 1978, Some petrographic characteristics of a sequence of siliciclastic rocks from the Mesaverde Group, North Horn Formation, and lower part of the Green River Formation, Price River Canyon area, southwestern Uinta Basin, Utah [abs.]: American Association of Petroleum Geologists Bulletin, v. 62, no. 5, p. 885.
- Keighin, C.W., 1979, Influence of diagenetic reactions on reservoir properties of the Neslen, Farrer, and Tuscher Formations, Uinta Basin, Utah: Proceedings of the SPE Symposium on low-permeability gas reservoirs, Society of Petroleum Engineers, Dallas, Tex., p. 77-84.
- Keighin, C.W., 1980, Characteristics of pores in some Upper Cretaceous nonmarine sandstones, Uinta Basin, Utah: Scanning Electron Microscopy 1980/I, p. 559-564.
- Keighin, C.W., 1980, Some relations between diagenesis and porosity (real and imagined), sandstones of Mesaverde Group, Uinta Basin, Utah [abs.]: American Association of Petroleum Geologists Bulletin, v. 64, no. 5, p. 732.
- Keighin, C.W., 1981, Effects of physical and chemical diagenesis on low-porosity, low-permeability sandstones, Mesaverde Group, Uinta Basin, Utah [abs.]: American Association of Petroleum Geologists Bulletin, v. 65, no. 3, p. 562.
- Keighin, C.W., 1982, Reservoir characteristics of selected low-permeability sandstones, Late Cretaceous age, Uinta basin, Utah, and Green River Basin, Wyoming *in* Subsurface practices in geology and geophysics [abs.]: University of Wyoming, Wyoming Geological Association, and Geological Survey of Wyoming, Laramie, Wyo., May 2-4, p. 16.
- Keighin, C.W., 1983, Behavior of low-permeability sandstones in potential reservoir conditions [abs.]: American Institute of Chemical Engineers National Meeting, Denver, Colo., Aug. 28-31, 1983, p. 89.
- Keighin, C.W., and Fouch, T.D., 1979, Influence of diagenetic reactions on nonmarine Upper Cretaceous rocks of the Southman Canyon gas field, Uinta Basin, Utah [abs.]: American Association of Petroleum Geologists Bulletin, v. 63, no. 5, p. 832-833.
- Keighin, C.W., and Fouch, T.D., 1981, Depositional environments and diagenesis of some nonmarine Upper Cretaceous reservoir rocks, Uinta Basin, Utah, *in* Ethridge, F.G., and Flores, R.M., eds., Recent and ancient nonmarine depositional environments as models for exploration: Society of Economic Paleontologists and Mineralogists Special Publication no. 31, p. 109-125.
- Keighin, C.W., and Sampath, K., 1980, Evaluation of pore geometry of some low-permeability sandstones, Uinta Basin, Utah: Society of Petroleum Engineers 55th Annual Fall Conf., Dallas, Texas, Sept. 21-24, 1980, (SPE Paper 9251), 6 p).

- Keighin, C.W., and Sampath, K., 1982, Evaluation of pore geometry of some low-permeability sandstones, Uinta Basin, Utah: *Journal of Petroleum Technology*, v. 34, no. 1, p. 65-70.
- Law, B.E., 1984, Geologic characteristics of low-permeability gas reservoirs in Greater Green River Basin of Wyoming, Colorado and Utah [abs.]: *American Association of Petroleum Geologists Bulletin*, v. 68, no. 4, p. 498-499.
- Law, B.E., 1984, Geologic characteristics of low-permeability gas reservoirs in Greater Green River Basin of Wyoming, Colorado and Utah [abs.]: *American Association of Petroleum Geologists Bulletin*, v. 68, no. 4, p. 498-499.
- Law, B.E., 1984, Relationships of source rock, thermal maturity, and overpressuring to gas generation and occurrence in low-permeability Upper Cretaceous and lower Tertiary rocks, Greater Green River Basin, Wyoming, Colorado, and Utah, *in* Woodward, Jane, Melssner, F.F., and Clayton, J.L., eds., *Hydrocarbon source rocks of the greater Rocky Mountain region: Rocky Mountain Association of Geologists*, p. 469-490.
- Law, B.E., 1984 Relationships of source rock, thermal maturity, and overpressuring to gas generation and occurrence in low-permeability Upper Cretaceous and lower Tertiary rocks, Greater Green River Basin, Wyoming, Colorado, and Utah [abs.]: *American Association of Petroleum Geologists Bulletin*, v. 68, no. 7, p. 140.
- Law, B.E., 1984, Geological research in the Greater Green River Basin, *in* Frohne, K-H., ed., *Third Annual Western Gas Sands Program Review*, November 1984: U.S. Department of Energy, Morgantown, West Virginia, DOE/METC 85-7, p. 18-36.
- Law, B.E., 1986, Geologic characterization of tight gas reservoirs, Greater Green River Basin, *in* Komar, C.H., ed., *Proceedings of the unconventional gas recovery contractors meeting - Eastern gas shales, coalbed methane, western gas sands*: U.S. Department of Energy, Morgantown, West Virginia, DOE/METC 86/6034, p. 111-119.
- Law, B.E., 1987, Tight gas reservoirs Greater Green River Basin, *in* *Unconventional gas recovery contractors review meeting*, July 28-29, 1987: U.S. Department of Energy, Morgantown, WV, P. 4A.2.
- Law, B.E., Bucurel-White, Hildred, and Bader, J.W., 1983, Sedimentological aspects of stratigraphic correlations in the Upper Cretaceous Ericson Sandstone, Greater Green River Basin, Wyoming, Colorado, and Utah [abs.]: *Geological Society of America Abstracts with Programs*, v. 15, no. 5, p. 333.
- Law, B.E., and Clayton, J.L., 1987, A burial, thermal, and hydrocarbon source rock evaluation of Lower Cretaceous rocks in the southern Moxa arch area, Utah and Wyoming [abs.], *in* Miller, W. Roger, ed., *The thrust belt revisited: Wyoming Geological Association Guidebook*, p. 357.

- Law, B.E., and Clayton, J.L., 1987, The role of thermal history in the preservation of oil at the south end of the Moxa arch, Utah and Wyoming Implications for the oil potential in the southern Green River basin [abs.], *in* Carter, L.M.H., ed., USGS research on energy resources 1988; program and abstracts: U.S. Geological Survey Circular 1025, p. 27.
- Law, B.E., Pollastro, R.M., and Keighln, C.W., 1986, Geologic characteristics of low-permeability gas reservoirs in selected wells, Greater Green River Basin, Wyoming, Colorado, and Utah, *in* Spencer, C.W., and Mast, R.F., eds., *Geology of tight gas reservoirs: American Association of Petroleum Geologists Studies in Geology*, 24, p. 253-270.
- Law, B.E., and Spencer, C.W., 1988, Tight gas reservoirs, *in* Magoon, L.B., ed., *Petroleum systems of the United States: U.S. Geological Survey Bulletin* 1870, p. 44-46.
- Law, B.E., Spencer, C.W., Crovelli, R.A., Mast, R.F., Dolton, G.L., Charpentier, R.R., and Wandrey, C.J., 1988, Assessment of gas contained in overpressured low-permeability reservoirs in the Greater Green River basin of Wyoming, Colorado, and Utah [abs.], *in* Carter, L.M.H., ed., USGS research on energy resources 1988; program and abstracts: U.S. Geological Survey Circular 1025, p. 27-28.
- Lickus, M.R., and Law, B.E., 1988, Structure contour map of the Greater Green River Basin, Wyoming, Colorado, and Utah: U.S. Geological Survey Miscellaneous field Studies Map MF-2031.
- Merewether, E.A., and Cobban, W.A., 1983, Mid-Cretaceous biostratigraphic units, unconformities, and diastrophism in Wyoming, Colorado, and adjacent areas [abs.]: *American Association of Petroleum Geologists Bulletin*, v. 67, no. 3, p. 513.
- Merewether, E.A., and Cobban, W.A., 1985, Biostratigraphic units and tectonism in mid-Cretaceous foreland of Wyoming, Colorado, and adjoining areas [abs.] *in* Rocky Mountain Section Meeting AAPG/SEPM/EMD, Denver, Colorado; June 2-5, 1985: *American Association of Petroleum Geologists Book of Abstracts*.
- Merewether, E.A., and Cobban, W.A., 1986, Biostratigraphic units and tectonism in the mid-Cretaceous foreland of Wyoming, Colorado and adjoining areas, *in* Peterson, J.A., ed., *Paleotectonics and sedimentation in the Rocky Mountain region, U.S.:* *American Association of Petroleum Geologists Memoir* 41, p. 443-468.
- Nuccio, V.F., and Johnson, R.C., 1986, Thermal maturity of the lower part of the Upper Cretaceous Mesaverde Group, Uinta Basin, Utah: U.S. Geological Survey Miscellaneous Field Study Map MF-1842.

- Nuccio, V.F., and Johnson, R.C., 1988, Surface vitrinite reflectance map of the Uinta, Piceance and Eagle Basins area, Utah and Colorado: U.S. Geological Survey Miscellaneous Field Study Map, MF-2008-B, one plate, 19 p.
- Pawlewicz, M.J., Lickus, M.K., Law, B.E., and Dickinson, W.W., 1986, Thermal maturity map showing depth to 0.8% vitrinite reflectance in the Greater Green River Basin, Wyoming, Colorado, and Utah: U.S. Geological Survey Miscellaneous Field Studies Map MF-1890.
- Pitman, J.K., Anders, D.E., Fouch, T.D., and Nichols, D.J., 1985, Depositional environments, diagenesis, and hydrocarbon potential of nonmarine Upper Cretaceous and lower Tertiary rocks, eastern Uinta basin, Utah [abs.]: American Association of Petroleum Geologists Bulletin, v. 69, no. 5, p. 860.
- Pitman, J.K., and Fouch, T.D., 1978, Mineralogic characteristics of some lower Tertiary low-permeability reservoir rocks, south-central Uinta Basin, Utah [abs.]: American Association of Petroleum Geologists Bulletin, v. 62, no. 5, p. 891.
- Pitman, J.K., Fouch, T.D., and Goldhaber, M.B., 1982, Depositional setting and diagenetic evolution of some Tertiary unconventional reservoir rocks, Uinta Basin, Utah: American Association of Petroleum Geologists Bulletin, v. 66, no. 10, p. 1581-1596.
- Sampath, K., and Keighin, C.W., 1981, Factors affecting gas slippage in tight sandstones: Proceedings of the Symposium on Low-Permeability Gas Reservoirs, Society of Petroleum Engineers, Proceedings, Dallas, Tex., p. 409-416.
- Sampath, K., and Keighin, C.W., 1982, Factors affecting gas slippage in tight sandstones of Cretaceous age in the Uinta basin: Journal of Petroleum Technology, v. 34, no. 11, p. 2715-2720.
- Spencer, C.W., 1987, Hydrocarbon generation as a mechanism for overpressuring in the Rocky Mountain region: American Association of Petroleum Geologists Bulletin, v. 71, no. 4, p. 368-388.

STATE INDEX

Wyoming

- Bader, J.W., 1983, Section A-A', subsurface correlations of some Upper Cretaceous and Tertiary rocks from the Cherokee Ridge, Wyoming to the southeast flank of the Sand Wash Basin, Colorado: U.S. Geological Survey Open-File Report 83-362, 2 sheets.
- Bader, J.W., 1987, Surface and subsurface relations of the Cherokee Ridge arch, south-central Wyoming: San Jose, Calif., San Jose State University, unpublished MS thesis, 68 p.
- Bader, J.W., Gill, J.R., Cobban, W.A., and Law, B.E., 1983, Biostratigraphic correlation chart of some Upper Cretaceous rocks from the Lost Soldier area, Wyoming to west of Craig, Colorado: U.S. Geological Survey Miscellaneous Field Studies Map MF-1548, 1 sheet.
- Bader, J.W., Law, B.E., and Spencer, C.W., 1982, Preliminary chart showing electric log correlation, section D-D', of some Upper Cretaceous and Tertiary rocks, Green River Basin, Wyoming: U.S. Geological Survey Open-File Report 82-129, 2 sheets.
- Bucurel, H.G., 1981, Subsurface correlations of some Upper Cretaceous and Tertiary rocks, Great Divide Basin, Wyoming, Section A-A' East and west: U.S. Geological Survey Open-File Report 81-981, 2 sheets.
- Bucurel, H.G., 1982, Section B-B', subsurface correlations of some Upper Cretaceous and Tertiary rocks, Great Divide Basin, Wyoming: U.S. Geological Survey Open-File Report 82-456, 2 sheets.
- Bucurel-White, Hildie, 1983, Section C-C', surface and subsurface correlations of some Upper Cretaceous and Tertiary rocks from the northeast flank Rock Springs uplift to the Rawlins uplift, Great Divide Basin, Wyoming: U.S. Geological Survey Open-File Report 83-418, 2 sheets.
- Charpentier, R.R., Law, B.E., and Prenskey, S.E., 1986, Quantitative model of overpressured gas resources of the Pinedale anticline, Wyoming [abs.]: American Association of Petroleum Geologists Bulletin, v. 70,, no. 8, p. 1034-1035.
- Charpentier, R.R., Law, B.E., and Prenskey, S.E., 1987, Quantitative model of overpressured gas resources of the Pinedale anticline, Wyoming, *in* SPE/DOE Joint Symposium on Low Permeability Reservoirs, Denver, 1987, Proceedings: Society of Petroleum Engineers, p. 153-164, SPE/DOE 16404.
- Dickinson, W.W., 1984, Isotope geochemistry of carbonate minerals in Upper Cretaceous and Tertiary sandstones from the Pinedale anticline, Wyoming, *in* Law, B.E., ed., Geological characteristics of low-permeability Upper Cretaceous and lower Tertiary rocks in the Pinedale anticline area, Sublette County, Wyoming: U.S. Geological Survey Open-File Report 84-753, p. 95-107.

- Dickinson, W.W., and Gautier, D.L., 1983, Diagenesis of nonmarine rocks and gas entrapment in northern Green River Basin, Wyoming [abs.]: American Association of Petroleum Geologists Bulletin, v. 67, no. 3, p. 450.
- Dickinson, W.W., and Law, B.E., 1985, Burial history of Upper Cretaceous and Tertiary rocks interpreted from vitrinite reflectance, northern Green River basin, Wyoming [abs.]: American Association of Petroleum Geologists Bulletin, v. 69, no. 5, p. 846.
- Dickinson, W.W. and Prenskey, S.E., 1986, Porosity and permeability modification in Upper Cretaceous and Tertiary sandstone of the Green River basin, Wyoming [abs.], in Sediments down under; 12th International Sedimentological Congress, [Canberra, Australia]: International Association of Sedimentologists, p. 81-82.
- Gautier, D.L., 1981, Pierre Shale as a natural gas reservoir [abs.]: Geological Society of America Abstracts with Programs, v. 13, no. 4, p. 198.
- Gautier, D.L., 1981, Diagenesis and methane generation in Upper Cretaceous Gammon Shale, northern Great Plains, United States [abs.]: American Association of Petroleum Geologists Bulletin, v. 65, no. 5, p. 929.
- Gautier, D.L., and Pollastro, R.M., 1982, Petrology and mineralogy in relation to reservoir properties in the EPNG No. 2 Wagon Wheel Well, Green River Basin, Wyoming [abs.]: University of Wyoming, Wyoming Geological Association, and Geological Survey of Wyoming Annual Spring Conference, Laramie, Wyo., May 2-4, 1982, Proceedings, p. 9.
- Gautier, D.L., and Rice, D.D., 1981, Comparison of conventional and low-permeability reservoirs of shallow gas in the northern Great Plains, Proceedings of the SPE/DOE Symposium on Low Permeability Gas Reservoirs, Dallas, Tex., Society of Petroleum Engineers, p. 193-204.
- Gautier, D.L., and Rice, D.D., 1982, Conventional and low-permeability reservoirs of shallow gas in the northern Great Plains: Journal of Petroleum Technology, v. 34, p. 1600-1608.
- Keighin, C.W., 1982, Reservoir characteristics of selected low-permeability sandstones, Late Cretaceous age, Uinta basin, Utah, and Green River Basin, Wyoming in Subsurface practices in geology and geophysics [abs.]: University of Wyoming, Wyoming Geological Association, and Geological Survey of Wyoming, Laramie, Wyo., May 2-4, p. 16.
- Keighin, C.W., 1983, Behavior of low-permeability sandstones in potential reservoir conditions [abs.]: American Institute of Chemical Engineers National Meeting, Denver, Colo., Aug. 28-31, 1983, p. 89.

- Kiteley, L.W., 1983, Paleogeography and eustatic-tectonic model of late Campanian Cretaceous sedimentation, southwestern Wyoming and northwestern Colorado, *in* Reynolds, M.W., and Dolly, E.D., eds., Mesozoic paleogeography of the west-central United States: Society of Economic Paleontologists and Mineralogists, Rocky Mountain Section, Rocky Mountain Paleogeography Symposium 2, p. 273-303.
- Law, B.E., 1979, Section B-B', Subsurface and surface correlations of some Upper Cretaceous and Tertiary rocks, northern Green River Basin, Wyoming: U.S. Geological Survey Open-File Report 79-1689, 2 sheets.
- Law, B.E., 1981, Section C-C', Subsurface correlations of some Upper Cretaceous and Tertiary rocks, northern Green River Basin, Wyoming: U.S. Geological Survey Open-File Report 81-663, 2 sheets.
- Law, B.E., 1984, Geologic characteristics of low-permeability gas reservoirs in Greater Green River Basin of Wyoming, Colorado and Utah [abs.]: American Association of Petroleum Geologists Bulletin, v. 68, no. 4, p. 498-499.
- Law, B.E., 1984, Geologic characteristics of low-permeability gas reservoirs in Greater Green River Basin of Wyoming, Colorado and Utah [abs.]: American Association of Petroleum Geologists Bulletin, v. 68, no. 4, p. 498-499.
- Law, B.E., 1984, Relationships of source rock, thermal maturity, and overpressuring to gas generation and occurrence in low-permeability Upper Cretaceous and lower Tertiary rocks, Greater Green River Basin, Wyoming, Colorado, and Utah, *in* Woodward, Jane, Meissner, F.F., and Clayton, J.L., eds., Hydrocarbon source rocks of the greater Rocky Mountain region: Rocky Mountain Association of Geologists, p. 469-490.
- Law, B.E., 1984 Relationships of source rock, thermal maturity, and overpressuring to gas generation and occurrence in low-permeability Upper Cretaceous and lower Tertiary rocks, Greater Green River Basin, Wyoming, Colorado, and Utah [abs.]: American Association of Petroleum Geologists Bulletin, v. 68, no. 7, p. 140.
- Law, B.E., ed., 1984, Geological characteristics of low-permeability Upper Cretaceous and lower Tertiary rocks in the Pinedale anticline area, Sublette County, Wyoming: U.S. Geological Survey Open-File Report 84-753, 107 p.
- Law, B.E., 1984, Introduction to geological characteristics of low-permeability Upper Cretaceous and lower Tertiary rocks in the Pinedale anticline area, Sublette County, Wyoming, *in* Law, B.E., ed., Geological characteristics of low-permeability Upper Cretaceous and lower Tertiary rocks in the Pinedale anticline area, Sublette County, Wyoming: U.S. Geological Survey Open-File Report 84-753, p. 1-5.

- Law, B.E., 1984, Structure and stratigraphy of the Pinedale anticline, Wyoming, *in* Law, B.E., ed., Geological characteristics of low-permeability Upper Cretaceous and lower Tertiary rocks in the Pinedale anticline area, Sublette County, Wyoming: U.S. Geological Survey Open-File Report 84-753, p. 6-15.
- Law, B.E., 1984, Source rock evaluation of Upper Cretaceous and lower Tertiary rocks in the Pinedale anticline area, Sublette County, Wyoming, *in* Law, Ben E., ed., Geological characteristics of low-permeability Upper Cretaceous and lower Tertiary rocks in the Pinedale anticline area, Sublette County, Wyoming: U.S. Geological Survey Open-File Report 84-753, p. 36-50.
- Law, B.E., 1984, Geological research in the Greater Green River Basin, *in* Frohne, K-H., ed., Third Annual Western Gas Sands Program Review, November 1984: U.S. Department of Energy, Morgantown, West Virginia, DOE/METC 85-7, p. 18-36.
- Law, B.E., 1986, Geologic characterization of tight gas reservoirs, Greater Green River Basin, *in* Komar, C.H., ed., Proceedings of the unconventional gas recovery contractors meeting - Eastern gas shales, coalbed methane, western gas sands: U.S. Department of Energy, Morgantown, West Virginia, DOE/METC 86/6034, p. 111-119.
- Law, B.E., 1987, Tight gas reservoirs Greater Green River Basin, *in* Unconventional gas recovery contractors review meeting, July 28-29, 1987: U.S. Department of Energy, Morgantown, WV, P. 4A.2.
- Law, B.E., Bucurel-White, Hildred, and Bader, J.W., 1983, Sedimentological aspects of stratigraphic correlations in the Upper Cretaceous Ericson Sandstone, Greater Green River Basin, Wyoming, Colorado, and Utah [abs.]: Geological Society of America Abstracts with Programs, v. 15, no. 5, p. 333.
- Law, B.E., and Clayton, J.L., 1987, A burial, thermal, and hydrocarbon source rock evaluation of Lower Cretaceous rocks in the southern Moxa arch area, Utah and Wyoming [abs.], *in* Miller, W. Roger, ed., The thrust belt revisited: Wyoming Geological Association Guidebook, p. 357.
- Law, B.E., and Clayton, J.L., 1987, The role of thermal history in the preservation of oil at the south end of the Moxa arch, Utah and Wyoming Implications for the oil potential in the southern Green River basin [abs.], *in* Carter, L.M.H., ed., USGS research on energy resources 1988; program and abstracts: U.S. Geological Survey Circular 1025, p. 27.
- Law, B.E., and Dickinson, W.W., 1984, A conceptual model of gas-seal development, Green River Basin, Wyoming [abs.]: American Association of Petroleum Geologists Bulletin, v. 68, no. 7, p. 940.
- Law, B.E., and Dickinson, W.W., 1985, Conceptual model of origin of abnormally pressured gas accumulation in low-permeability reservoirs: American Association of Petroleum Geologists Bulletin, v. 69, no. 8, p. 1295-1304.

- Law, B.E., Hatch, J.R., Kukul, G.C., and Keighin, C.W., 1983, Geologic implications of dewatering of coal and other carbonaceous rocks: A hypothesis [abs.]: American Association of Petroleum Geologists Bulletin, v. 67, no. 3, p. 500.
- Law, B.E., Hatch, J.R., Kukul, G.C., and Keighin, C.W., 1983, Geologic implications of coal dewatering: American Association of Petroleum Geologists Bulletin, v. 67, no. 12, p. 2255-2260.
- Law, B.E., Lickus, M.R., and Pawlewicz, M.J., 1986, Fluid migration pathways: Evidence from thermal maturity mapping in southwestern Wyoming, *in* Carter, L.M.H., ed., USGS research on energy resources 1985, program and abstracts: U.S. Geological Survey Circular 974, p. 35.
- Law, B.E., and Nichols, D.J., 1982, Subsurface stratigraphic correlations of some Upper Cretaceous and lower Tertiary rocks, northern Green River Basin, Wyoming, *in* Subsurface practices in geology and geophysics: University of Wyoming, Wyoming Geological Association, Geological Survey of Wyoming Annual Spring Conference, May 2-4, Proceedings, p. 17.
- Law, B.E., Pollastro, R.M., and Keighin, C.W., 1986, Geologic characteristics of low-permeability gas reservoirs in selected wells, Greater Green River Basin, Wyoming, Colorado, and Utah, *in* Spencer, C.W., and Mast, R.F., eds., Geology of tight gas reservoirs: American Association of Petroleum Geologists Studies in Geology, 24, p. 253-270.
- Law, B.E., and Smith, C.R., 1983, Subsurface temperature map showing depth to 180° Fahrenheit in the Greater Green River Basin, Wyoming, Colorado, and Utah: U.S. Geological Survey Miscellaneous Field Studies Map MF-1504, scale 1:500,000.
- Law, B.E., and Spencer, C.W., 1981, Abnormally high-pressured, low-permeability, Upper Cretaceous and Tertiary gas reservoirs, northern Green River Basin, Wyoming [abs.]: American Association of Petroleum Geologists Bulletin, v. 65, no. 5, p. 948.
- Law, B.E., and Spencer, C.W., 1988, Tight gas reservoirs, *in* Magoon, L.B., ed., Petroleum systems of the United States: U.S. Geological Survey Bulletin 1870, p. 44-46.
- Law, B.E., Spencer, C.W., and Bostick, N.H., 1979, Preliminary results of organic maturation, temperature, and pressure studies in the Pacific Creek area, Sublette County, Wyoming, *in* Proceedings of the 5th SPE Symposium on Enhanced Oil and Gas Recovery and Improved Drilling Methods, Tulsa, Okla., v. 3 Gas and Drilling: Tulsa, Okla., The Petroleum Publishing Co., p. K2/1-2/13.
- Law, B.E., Spencer, C.W., and Bostick, N.H., 1980, Evaluation of organic matter, subsurface temperature, and pressure with regard to gas generation in low-permeability Upper Cretaceous and lower Tertiary sandstones in Pacific Creek area, Sublette and Sweetwater Counties, Wyoming: The Mountain Geologist, v. 17, no. 2, p. 23-35.

- Law, B.E., Spencer, C.W., and Bostick, N.H., 1980, Evaluation of organic matter, subsurface temperature, and pressure with regard to gas generation in low-permeability Upper Cretaceous and lower Tertiary sandstones in Pacific Creek area, Sublette County [abs.]: American Association of Petroleum Geologists Bulletin, v. 64, no. 5, p. 738.
- Law, B.E., Spencer, C.W., and Roehler, H.W., 1979, Section A-A', Surface and subsurface correlations of some Upper Cretaceous and Tertiary rocks, Green River Basin, Wyoming: U.S. Geological Survey Open-File Report 79-357, 2 sheets.
- Lickus, M.R., and Law, B.E., 1988, Structure contour map of the Greater Green River Basin, Wyoming, Colorado, and Utah: U.S. Geological Survey Miscellaneous field Studies Map MF-2031.
- Lickus, M.R., Pawlewicz, M.J., Law, B.E., and Dickinson, W.W., 1984, Thermal maturity map, northern Green River Basin, Wyoming, *in* Law, B.E., ed., Geological characteristics of low-permeability Upper Cretaceous and lower Tertiary rocks in the Pinedale anticline area, Sublette County, Wyoming: U.S. Geological Survey Open-File Report 84-753, p. 60-65.
- Markochick, D.J., Lanham, R.E., Bucurel, H.G., and Law, B.E., 1981, Summary chart of geological data from Amoco Tierney Unit No. 1 well, SW 1/4 SE 1/4 Sec. 15, T. 20 N., R. 94 W., Sweetwater County, Wyoming: U.S. Geological Survey Oil and Gas Investigations Chart OC-116, 1 sheet.
- Markochick, D.J., and Law, B.E., 1981, Estimates of gas content in coal and carbonaceous rocks from deep drilling in Pacific Creek area, northeastern Green River Basin, Sweetwater County, Wyoming [abs.]: American Association of Petroleum Geologists Bulletin, v. 65, no. 3, p. 564-565.
- Markochick, D.J., Law, B.E., and Spencer, C.W., 1982, Section E-E', preliminary subsurface correlations of some Cretaceous and Tertiary rocks from Moxa Arch to Rock Springs uplift, Green River Basin, Wyoming: U.S. Geological Survey Open-File Report 82-455, 2 sheets.
- Merewether, E.A., 1983, The Frontier Formation and mid-Cretaceous orogeny in the foreland of southwestern Wyoming: *The Mountain Geologist*, v. 20, no. 4, p. 121-138.
- Merewether, E.A., Blackmon, P.D., and Webb, J.C., 1984, The mid-Cretaceous Frontier Formation near the Moxa arch, southwestern Wyoming: U.S. Geological Survey Professional Paper 1290, 29 p.
- Merewether, E.A., and Cobban, W.A., 1982, Mid-Cretaceous stratigraphy and deformation in the foreland of southwestern Wyoming and adjacent areas [abs.], *in* Subsurface practices in geology and geophysics: University of Wyoming, the Wyoming Geological Association, and the Geological Survey of Wyoming Annual Spring Conference, Laramie, Wyoming, May 2-4, 1982; Proceedings, p. 19.

- Merewether, E.A., and Cobban, W.A., 1983, Mid-Cretaceous biostratigraphic units, unconformities, and diastrophism in Wyoming, Colorado, and adjacent areas [abs.]: American Association of Petroleum Geologists Bulletin, v. 67, no. 3, p. 513.
- Merewether, E.A., and Cobban, W.A., 1985, Biostratigraphic units and tectonism in mid-Cretaceous foreland of Wyoming, Colorado, and adjoining areas [abs.] *in* Rocky Mountain Section Meeting AAPG/SEPM/EMD, Denver, Colorado; June 2-5, 1985: American Association of Petroleum Geologists Book of Abstracts.
- Merewether, E.A., and Cobban, W.A., 1986, Biostratigraphic units and tectonism in the mid-Cretaceous foreland of Wyoming, Colorado and adjoining areas, *in* Peterson, J.A., ed., Paleotectonics and sedimentation in the Rocky Mountain region, U.S.: American Association of Petroleum Geologists Memoir 41, p. 443-468.
- Merewether, E.A., Krystinik, K.B., and Pawlewicz, M.J., 1987, Thermal maturity of hydrocarbon-bearing formations in southwestern Wyoming and northwestern Colorado: U.S. Geological Survey Miscellaneous Investigations Map I-1831, scale 1:1,000,000.
- Naeser, N.D., 1984, Thermal history determined by fission-track dating for three sedimentary basins in California and Wyoming: Fourth International Fission Track Dating Workshop, Troy, New York, 1984, Abstracts, p. 37.
- Naeser, N.D., 1984, Thermal history determined by fission-track dating for three sedimentary basins in California and Wyoming: Geological Society of America Abstracts with Programs, v. 16, no. 6, p. 607.
- Naeser, N.D., 1984, Fission-track ages from the Wagon Wheel no. 1 well, northern Green River basin, Wyoming: Evidence for recent cooling, *in* Law, B.E., ed., Geological characteristics of low-permeability Upper Cretaceous and lower Tertiary rocks in the Pinedale anticline area, Sublette County, Wyoming: U.S. Geological Survey Open-File Report 84-753, p. 66-77.
- Naeser, N.D., 1985, Thermal history determined by fission-track dating for three sedimentary basins in California and Wyoming [abs.]: Nuclear Tracks, v. 10, no. 3, p. 423.
- Naeser, N.D., 1985, Fission-track dating: A method for determining thermal history of sedimentary basins [abs.]: American Association of Petroleum Geologists Research Conference, New Orleans, La., March 22-24, Abstracts, p. 38.
- Naeser, N.D., 1985, Fission-track dating: A method for determining thermal history of sedimentary basins [abs.]: Conference on Isotopes in the Sedimentary Cycle, Obernai, France, July 1-5, p. 125.

- Naeser, C.W., and Naeser, N.D., 1985, Fission-track dating Application to the thermal history of mountains and basins [abs.]: Geological Society of America Abstracts with Programs, v. 17, no. 7, p. 673.
- Naeser, N.D., 1986, Neogene thermal history of the northern Green River basin, Wyoming evidence from fission-track dating, *in* Gautier, D.L., ed., Roles of organic matter in mineral diagenesis: Society of Economic Paleontologists and Mineralogists Special Publication No. 38, p. 65-72.
- Naeser, N.D., and Naeser, C.W., 1986, Fission-track dating in sedimentary basins An example from the northern Green River Basin: *TERRA cognita*, v. 6, p. 118.
- Pawlewicz, M.J., Lickus, M.K., Law, B.E., and Dickinson, W.W., 1986, Thermal maturity map showing depth to 0.8% vitrinite reflectance in the Greater Green River Basin, Wyoming, Colorado, and Utah: U.S. Geological Survey Miscellaneous Field Studies Map MF-1890.
- Pollastro, R.M., 1982, Detrital/äuthigenic clay-mineral assemblages and their relation to diagenesis in sedimentary rocks [abs.]: 19th Annual Meeting, The Clay Minerals Society, 31st Annual Clay Minerals Conference, Hilo, Hawaii, Program and Abstracts, p. 29
- Pollastro, R.M., 1983, The formation of illite at the expense of illite/smectite-- Mineralogical and morphological support for a hypothesis [abs.]: 20th Annual Meeting, The Clay Minerals Society, 32nd Annual Clay Minerals Conference, Buffalo, N.Y., Program and Abstracts, p. 82.
- Pollastro, R.M., and Bader, J.W., 1983, Clay-mineral relationships in some low-permeability hydrocarbon reservoirs and their use as predictive resource tools [abs.]: American Association of Petroleum Geologists Bulletin, v. 67, no. 3, p. 536.
- Pollastro, R.M., and Barker, C.E., 1984a, Comparative measures of paleotemperature an example from clay-mineral, vitrinite reflectance, and fluid inclusion studies, Pinedale anticline, Green River Basin, Wyoming [abs.]: SEPM First Annual Midyear Meeting, San Jose, Calif., Abstracts with Program, p. 65-66.
- Pollastro, R.M., and Barker, C.E., 1984b, Geothermometry from clay minerals, vitrinite reflectance, and fluid inclusions Applications to the thermal and burial history of rocks cored from the Wagon Wheel No. 1 well, Green River basin, Wyoming, *in* Law, B.E., ed., Geological characteristics of low-permeability Upper Cretaceous and lower Tertiary rocks of the Pinedale anticline area, Sublette County, Wyoming: U.S. Geological Survey Open-File Report 84-743, p. 78-94.

- Pollastro, R.M., and Barker, C.E., 1986, Applications of clay-mineral, vitrinite reflectance, and fluid inclusion studies to the thermal and burial history of the Pinedale anticline, Green River basin, Wyoming, *in* Gautier, D.L., ed., Relationship of organic matter and mineral diagenesis: Society of Economic Paleontologists and Mineralogists Special Publication No. 38, p. 73-83.
- Prensky, S.E., 1984, Use of the gamma-ray log for locating the Cretaceous-Tertiary unconformity, Pinedale area, northern Green River Basin, Wyoming [abs.]: American Association of Petroleum Geologists Bulletin, v. 68, p. 946.
- Prensky, S.E., 1986, Geologic implications of large-scale trends in well-log response, northern Green River basin, Wyoming [abs.]: The Log Analyst, v. 27, no. 1, p. 74-75.
- Prensky, S.E., 1986, Geologic implications of large-scale trends in well-log response, northern Green River basin, Wyoming, *in* 27th Annual Logging Symposium Transactions, Paper EEE: Houston, Society of Professional Well Log Analysts, 24 p.
- Prensky, S.E., 1986, Geologic implications of large-scale trends in well-log response, northern Green River basin, Wyoming [abs.]: Tulsa, Society of Exploration Geophysicists, 1986, Technical Program Expanded Abstracts with Bibliographies, p. 668
- Prensky, S.E., and Dickinson, W.W., 1984, Application of computer-processed well-log data for geologic evaluation of Green River Basin, Wyoming [abs.]: American Association of Petroleum Geologists Bulletin, v. 68, no. 4, p. 519.
- Prensky, S.E. and Dickinson, W.W., 1984, Application of computer-processed well-log data for geologic evaluation of the Green River Basin, Wyoming [abs.]: American Association of Petroleum Geologists Bulletin, v. 68, p. 519.
- Prensky, S.E. and Dickinson, W.W., 1986, Computer-generated well-log data plots assist in regional subsurface evaluation of the northern Green River basin, Wyoming: Geobyte, v. 1, no. 2, p. 52-58.
- Spencer, C.W., 1979, Wildcat well penetration map showing wells drilled into and through potentially gas-bearing, low-permeability Upper Cretaceous and Tertiary reservoirs, Great Divide Basin, Wyoming: U.S. Geological Survey Open-File Report 79-826, scale 1:125,000.
- Spencer, C.W., 1984, Overpressured tight gas reservoirs in the Pinedale anticline area, Sublette County, Wyoming, *in* Law, B.E., ed., Geological characteristics of low-permeability Upper Cretaceous and lower Tertiary rocks in the Pinedale anticline area, Sublette County, Wyoming: U.S. Geological Survey Open-File Report 84-753, p. 51-59.

- Spencer, C.W., 1987, Hydrocarbon generation as a mechanism for overpressuring in the Rocky Mountain region: American Association of Petroleum Geologists Bulletin, v. 71, no. 4, p. 368-388.
- Spencer, C.W., Fouch, T.D., and Rice, D.D., 1977, Geological program to provide a characterization of tight, gas-bearing reservoirs in the Rocky Mountain region, *in* Proceedings of the 3rd ERDA Symposium on Enhanced Oil and Gas Recovery and Improved Drilling Methods, Tulsa, Okla., 1977, v. 2 Gas and Drilling, Tulsa, Okla., The Petroleum Publishing Co., p. E1-E15.
- Spencer, C.W., Johnson, R.C., and Law, B.E., 1984, Review of USGS tight gas sands characterization research, *in* Frohne, K-H., ed., Western Gas Sands Subprogram Review, Technical Proceedings, October 18-19, 1983, Morgantown, WV; U.S. Department of Energy, DOE/METC/84-3, p. 5-16.
- Spencer, C.W., and Law, Ben E., 1981, Overpressured, low-permeability gas reservoirs in Green River, Washakie, and Great Divide Basins, southwestern Wyoming [abs.]: American Association of Petroleum Geologists Bulletin, v. 65, no. 3, p. 569.
- Spencer, C.W., and Mast, R.F., eds., 1986, Geology of tight gas reservoirs: American Association of Petroleum Geologists Special Studies in Geology No. 24, 299 p.
- Tyler, T.F., 1978, Preliminary chart showing electric log correlation section A-A' of some Upper Cretaceous and Tertiary rocks, Washakie Basin, Wyoming: U.S. Geological Survey Open-File Report 78-703, 4 sheets.
- Tyler, T.F., 1978, Core descriptions, photographs and core X-ray analyses of portions of the Upper Cretaceous Mesaverde Group, Washakie Basin, Wyoming: U.S. Geological Survey Open-File Report 78-708, 63 p.
- Tyler, T.F., 1978, Preliminary chart showing electric log correlation section B-B' of some Upper Cretaceous and Tertiary rocks, Washakie Basin, Wyoming: U.S. Geological Survey Open-File Report 78-1053, 3 sheets.
- Tyler, T.F., 1979, Preliminary chart showing electric log correlation section C-C' of some Upper Cretaceous and Tertiary rocks, Wamsutter Arch, Wyoming: U.S. Geological Survey Open-File Report 79-296, 3 sheets.
- Tyler, T.F., 1979, Preliminary chart showing electric log correlation section D-D' of some Upper Cretaceous and Tertiary rocks, Rock Springs uplift, Wyoming: U.S. Geological Survey Open-File Report 79-1217, 4 sheets.
- Tyler, T.F., 1979, Preliminary chart showing electric log correlation section F-F' of some Upper Cretaceous and Tertiary rocks East Flank Rock Springs uplift, Wyoming: U.S. Geological Survey Open-File Report 79-1573, 1 sheet.

- Tyler, T.F., 1980, Preliminary chart showing electric log correlation section E-E' of some Upper Cretaceous and Tertiary Rocks, Cherokee Ridge, Wyoming: U.S. Geological Survey Open-File Report 80-191, 4 sheets.
- Tyler, T.F., 1980, Preliminary chart showing electric log correlation section G-G' of some Upper Cretaceous and Tertiary rocks, east flank Rock Springs uplift Wyoming: U.S. Geological Survey Open-File Report 80-1247, 3 sheets.
- Tyler, T.F., 1980, Preliminary chart showing electric log correlation section H-H' of some Upper Cretaceous and Tertiary rocks, south end, Rock Springs uplift, Washakie Basin, Wyoming: U.S. Geological Survey Open-File Report 80-1248, 3 sheets.
- Tyler, T.F., Bucurel-White, Hildie, and Peterson, J.R., 1982, Preliminary chart showing electric log correlation section I-I' of some Upper Cretaceous and Tertiary rocks, Washakie Basin, Wyoming: U.S. Geological Survey Open-File Report 82-720, 2 sheets.
- Tyler, T.F., and Peterson, J.R., 1980, Wildcat well penetration map showing wells drilled into and through potentially gas-bearing, low-permeability Upper Cretaceous and Tertiary reservoirs, Washakie Basin, Wyoming: U.S. Geological Survey Open-File Report 80-189, 1 sheet.
- Tyler, T.F., Peterson, J.R., and Bucurel, H.G., 1981, Preliminary chart showing electric log correlation section J-J' of some Upper Cretaceous and Tertiary rocks, Washakie Basin, Wyoming: U.S. Geological Survey Open-File Report 81-47, 2 sheets.

BASIN INDEX

Bighorn Basin

Merewether, E.A., and Cobban, W.A., 1986, Biostratigraphic units and tectonism in the mid-Cretaceous foreland of Wyoming, Colorado and adjoining areas, *in* Peterson, J.A., ed., Paleotectonics and sedimentation in the Rocky Mountain region, U.S.: American Association of Petroleum Geologists Memoir 41, p. 443-468.

Spencer, C.W., 1987, Hydrocarbon generation as a mechanism for overpressuring in the Rocky Mountain region: American Association of Petroleum Geologists Bulletin, v. 71, no. 4, p. 368-388.

BASIN INDEX

Denver Basin

- Merewether, E.A., and Cobban, W.A., 1986, Biostratigraphic units and tectonism in the mid-Cretaceous foreland of Wyoming, Colorado and adjoining areas, *in* Peterson, J.A., ed., Paleotectonics and sedimentation in the Rocky Mountain region, U.S.: American Association of Petroleum Geologists Memoir 41, p. 443-468.
- Pollastro, R.M., and Martinez, C.J., 1985, Mineral, chemical, and textural relationships in rhythmic-bedded, hydrocarbon-productive chalk of the Niobrara Formation, Denver basin, Colorado: *The Mountain Geologist*, v. 22, p. 55-63.
- Pollastro, R.M., and Scholle, P.A., 1984, Hydrocarbon exploration, development from low-permeability chinks Upper Cretaceous Niobrara Formation, Rocky Mountains Region: *Oil and Gas Journal*, v. 82, no. 17, p. 140-145.
- Pollastro, R.M., and Scholle, P.A., 1986, Diagenetic relationships in a hydrocarbon-productive chalk: the Cretaceous Niobrara Formation, *in* Mumpton, F.A., ed., *Studies in Diagenesis*; U.S. Geological Survey Bulletin 1578, p. 219-236.
- Pollastro, R.M., and Scholle, P.A., 1986, Exploration and development of hydrocarbons from low-permeability chinks an example from the Upper Cretaceous Niobrara Formation, Rocky Mountains region, *in* Spencer, C.W., and Mast, R.F., eds., *Geology of tight gas reservoirs*: American Association of Petroleum Geologists *Studies in Geology*, no. 24, p. 129-142.
- Precht, W.F., and Pollastro, R.M., 1985, Organic and inorganic constituents of the Niobrara Formation in Weld County, Colorado, *in* Pratt, L., Kauffman, E.G., and Zelt, F.B., eds., *Fine-grained deposits and biofacies of the Cretaceous western Interior seaway: Evidence of cyclic sedimentary processes*: Society of Economic Paleontologists and Mineralogists Field Trip Guidebook no. 4, p. 223-233.
- Scholle, P.A., and Pollastro, R.M., 1985, Sedimentology and reservoir characteristics of the Niobrara Formation (Upper Cretaceous), Kansas and Colorado, *in* Longman, M.W., Shanley, K.W., Lindsay, R.F., and Eby, D.E., *Rocky Mountain Carbonate Reservoirs*, Society of Economic Paleontologists and Mineralogists Core Workshop No. 7, p. 447-482.
- Spencer, C.W., and Mast, R.F., eds., 1986, *Geology of tight gas reservoirs*: American Association of Petroleum Geologists *Special Studies in Geology* No. 24, 299 p.

BASIN INDEX

Greater Green River Basin

- Bucurel, H.G., 1981, Subsurface correlations of some Upper Cretaceous and Tertiary rocks, Great Divide Basin, Wyoming, Section A-A' East and west: U.S. Geological Survey Open-File Report 81-981, 2 sheets.
- Bucurel, H.G., 1982, Section B-B', subsurface correlations of some Upper Cretaceous and Tertiary rocks, Great Divide Basin, Wyoming: U.S. Geological Survey Open-File Report 82-456, 2 sheets.
- Bucurel-White, Hildie, 1983, Section C-C', surface and subsurface correlations of some Upper Cretaceous and Tertiary rocks from the northeast flank Rock Springs uplift to the Rawlins uplift, Great Divide Basin, Wyoming: U.S. Geological Survey Open-File Report 83-418, 2 sheets.
- Lanham, R.E., 1980, Petrography and diagenesis of low-permeability sandstones of the lower Almond Formation, southwestern Wyoming: University of Colorado, unpublished Masters thesis, Dept. of Geological Sciences, 113 p.
- Law, B.E., 1984, Geologic characteristics of low-permeability gas reservoirs in Greater Green River Basin of Wyoming, Colorado and Utah [abs.]: American Association of Petroleum Geologists Bulletin, v. 68, no. 4, p. 498-499.
- Law, B.E., 1984, Geologic characteristics of low-permeability gas reservoirs in Greater Green River Basin of Wyoming, Colorado and Utah [abs.]: American Association of Petroleum Geologists Bulletin, v. 68, no. 4, p. 498-499.
- Law, B.E., 1984, Relationships of source rock, thermal maturity, and overpressuring to gas generation and occurrence in low-permeability Upper Cretaceous and lower Tertiary rocks, Greater Green River Basin, Wyoming, Colorado, and Utah, in Woodward, Jane, Meissner, F.F., and Clayton, J.L., eds., Hydrocarbon source rocks of the greater Rocky Mountain region: Rocky Mountain Association of Geologists, p. 469-490.
- Law, B.E., 1984 Relationships of source rock, thermal maturity, and overpressuring to gas generation and occurrence in low-permeability Upper Cretaceous and lower Tertiary rocks, Greater Green River Basin, Wyoming, Colorado, and Utah [abs.]: American Association of Petroleum Geologists Bulletin, v. 68, no. 7, p. 140.
- Law, B.E., 1984, Geological research in the Greater Green River Basin, in Frohne, K-H., ed., Third Annual Western Gas Sands Program Review, November 1984: U.S. Department of Energy, Morgantown, West Virginia, DOE/METC 85-7, p. 18-36.

- Law, B.E., 1986, Geologic characterization of tight gas reservoirs, Greater Green River Basin, *in* Komar, C.H., ed., Proceedings of the unconventional gas recovery contractors meeting - Eastern gas shales, coalbed methane, western gas sands: U.S. Department of Energy, Morgantown, West Virginia, DOE/METC 86/6034, p. 111-119.
- Law, B.E., 1987, Tight gas reservoirs Greater Green River Basin, *in* Unconventional gas recovery contractors review meeting, July 28-29, 1987: U.S. Department of Energy, Morgantown, WV, P. 4A.2.
- Law, B.E., Bucurei-White, Hildred, and Bader, J.W., 1983, Sedimentological aspects of stratigraphic correlations in the Upper Cretaceous Ericson Sandstone, Greater Green River Basin, Wyoming, Colorado, and Utah [abs.]: Geological Society of America Abstracts with Programs, v. 15, no. 5, p. 333.
- Law, B.E., Hatch, J.R., Kukal, G.C., and Keighin, C.W., 1983, Geologic implications of dewatering of coal and other carbonaceous rocks A hypothesis [abs.]: American Association of Petroleum Geologists Bulletin, v. 67, no. 3, p. 500.
- Law, B.E., Hatch, J.R., Kukal, G.C., and Keighin, C.W., 1983, Geologic implications of coal dewatering: American Association of Petroleum Geologists Bulletin, v. 67, no. 12, p. 2255-2260.
- Law, B.E., Pollastro, R.M., and Keighin, C.W., 1986, Geologic characteristics of low-permeability gas reservoirs in selected wells, Greater Green River Basin, Wyoming, Colorado, and Utah, *in* Spencer, C.W., and Mast, R.F., eds., Geology of tight gas reservoirs: American Association of Petroleum Geologists Studies in Geology, 24, p. 253-270.
- Law, B.E., and Smith, C.R., 1983, Subsurface temperature map showing depth to 180° Fahrenheit in the Greater Green River Basin, Wyoming, Colorado, and Utah: U.S. Geological Survey Miscellaneous Field Studies Map MF-1504, scale 1:500,000.
- Lickus, M.R., and Law, B.E., 1988, Structure contour map of the Greater Green River Basin, Wyoming, Colorado, and Utah: U.S. Geological Survey Miscellaneous field Studies Map MF-2031.
- Merewether, E.A., 1983, The Frontier Formation and mid-Cretaceous orogeny in the foreland of southwestern Wyoming: *The Mountain Geologist*, v. 20, no. 4, p. 121-138.
- Merewether, E.A., Blackmon, P.D., and Webb, J.C., 1984, The mid-Cretaceous Frontier Formation near the Moxa arch, southwestern Wyoming: U.S. Geological Survey Professional Paper 1290, 29 p.

- Merewether, E.A., and Cobban, W.A., 1982, Mid-Cretaceous stratigraphy and deformation in the foreland of southwestern Wyoming and adjacent areas [abs.], *in* Subsurface practices in geology and geophysics: University of Wyoming, the Wyoming Geological Association, and the Geological Survey of Wyoming Annual Spring Conference, Laramie, Wyoming, May 2-4, 1982; Proceedings, p. 19.
- Merewether, E.A., and Cobban, W.A., 1986, Biostratigraphic units and tectonism in the mid-Cretaceous foreland of Wyoming, Colorado and adjoining areas, *in* Peterson, J.A., ed., Paleotectonics and sedimentation in the Rocky Mountain region, U.S.: American Association of Petroleum Geologists Memoir 41, p. 443-468.
- Merewether, E.A., Krystinik, K.B., and Pawlewicz, M.J., 1987, Thermal maturity of hydrocarbon-bearing formations in southwestern Wyoming and northwestern Colorado: U.S. Geological Survey Miscellaneous Investigations Map I-1831, scale 1:1,000,000.
- Pawlewicz, M.J., Lickus, M.K., Law, B.E., and Dickinson, W.W., 1986, Thermal maturity map showing depth to 0.8% vitrinite reflectance in the Greater Green River Basin, Wyoming, Colorado, and Utah: U.S. Geological Survey Miscellaneous Field Studies Map MF-1890.
- Pollastro, R.M., 1982, Detrital/authigenic clay-mineral assemblages and their relation to diagenesis in sedimentary rocks [abs.]: 19th Annual Meeting, The Clay Minerals Society, 31st Annual Clay Minerals Conference, Hilo, Hawaii, Program and Abstracts, p. 29
- Pollastro, R.M., 1983, The formation of illite at the expense of illite/smectite-- Mineralogical and morphological support for a hypothesis [abs.]: 20th Annual Meeting, The Clay Minerals Society, 32nd Annual Clay Minerals Conference, Buffalo, N.Y., Program and Abstracts, p. 82.
- Pollastro, R.M., and Bader, J.W., 1983, Clay-mineral relationships in some low-permeability hydrocarbon reservoirs and their use as predictive resource tools [abs.]: American Association of Petroleum Geologists Bulletin, v. 67, no. 3, p. 536.
- Pollastro, R.M., and Barker, C.E., 1984a, Comparative measures of paleotemperature an example from clay-mineral, vitrinite reflectance, and fluid inclusion studies, Pinedale anticline, Green River Basin, Wyoming [abs]: SEPM First Annual Midyear Meeting, San Jose, Calif., Abstracts with Program, p. 65-66.
- Pollastro, R.M., and Barker, C.E., 1986, Applications of clay-mineral, vitrinite reflectance, and fluid inclusion studies to the thermal and burial history of the Pinedale anticline, Green River basin, Wyoming, *in* Gautier, D.L., ed., Relationship of organic matter and mineral diagenesis: Society of Economic Paleontologists and Mineralogists Special Publication No. 38, p. 73-83.

- Spencer, C.W., 1979, Wildcat well penetration map showing wells drilled into and through potentially gas-bearing, low-permeability Upper Cretaceous and Tertiary reservoirs, Great Divide Basin, Wyoming: U.S. Geological Survey Open-File Report 79-826, scale 1:125,000.
- Spencer, C.W., 1984, Significance of overpressured reservoirs in the Rocky Mountain region [abs.]: *The Outcrop*, v. 33, no. 5, p. 9-10.
- Spencer, C.W., 1985, Geologic aspects of tight gas reservoirs in the Rocky Mountain region: *Journal of Petroleum Technology*, v. 37, no. 8, p. 1308-1314.
- Spencer, C.W., 1987, Hydrocarbon generation as a mechanism for overpressuring in the Rocky Mountain region: *American Association of Petroleum Geologists Bulletin*, v. 71, no. 4, p. 368-388.
- Spencer, C.W., Fouch, T.D., and Rice, D.D., 1977, Geological program to provide a characterization of tight, gas-bearing reservoirs in the Rocky Mountain region, *in* Proceedings of the 3rd ERDA Symposium on Enhanced Oil and Gas Recovery and Improved Drilling Methods, Tulsa, Okla., 1977, v. 2 Gas and Drilling, Tulsa, Okla., The Petroleum Publishing Co., p. E1-E15.
- Spencer, C.W., Johnson, R.C., and Law, B.E., 1984, Review of USGS tight gas sands characterization research, *in* Frohne, K-H., ed., Western Gas Sands Subprogram Review, Technical Proceedings, October 18-19, 1983, Morgantown, WV; U.S. Department of Energy, DOE/METC/84-3, p. 5-16.
- Spencer, C.W., and Law, Ben E., 1981, Overpressured, low-permeability gas reservoirs in Green River, Washakie, and Great Divide Basins, southwestern Wyoming [abs.]: *American Association of Petroleum Geologists Bulletin*, v. 65, no. 3, p. 569.
- Spencer, C.W., and Law, B.E., 1988, Unconventional resources Western tight gas reservoirs, *in* National assessment of undiscovered conventional oil and gas resources, USGS-MMS, working paper: U.S. Geological Survey Open-File Report 88-373, p. 480-500.
- Spencer, C.W., and Mast, R.F., eds., 1986, Geology of tight gas reservoirs: *American Association of Petroleum Geologists Special Studies in Geology No. 24*, 299 p.
- Tyler, T.F., 1978, Preliminary chart showing electric log correlation section A-A' of some Upper Cretaceous and Tertiary rocks, Washakie Basin, Wyoming: U.S. Geological Survey Open-File Report 78-703, 4 sheets.
- Tyler, T.F., 1978, Core descriptions, photographs and core X-ray analyses of portions of the Upper Cretaceous Mesaverde Group, Washakie Basin, Wyoming: U.S. Geological Survey Open-File Report 78-708, 63 p.

- Tyler, T.F., 1978, Preliminary chart showing electric log correlation section B-B' of some Upper Cretaceous and Tertiary rocks, Washakie Basin, Wyoming: U.S. Geological Survey Open-File Report 78-1053, 3 sheets.
- Tyler, T.F., 1979, Preliminary chart showing electric log correlation section C-C' of some Upper Cretaceous and Tertiary rocks, Wamsutter Arch, Wyoming: U.S. Geological Survey Open-File Report 79-296, 3 sheets.
- Tyler, T.F., 1979, Preliminary chart showing electric log correlation section D-D' of some Upper Cretaceous and Tertiary rocks, Rock Springs uplift, Wyoming: U.S. Geological Survey Open-File Report 79-1217, 4 sheets.
- Tyler, T.F., 1979, Preliminary chart showing electric log correlation section F-F' of some Upper Cretaceous and Tertiary rocks East Flank Rock Springs uplift, Wyoming: U.S. Geological Survey Open-File Report 79-1573, 1 sheet.
- Tyler, T.F., 1979, Wildcat well penetration map showing wells drilled into and through potentially gas-bearing, low-permeability Upper Cretaceous and Tertiary reservoirs, Sand Wash Basin, Colorado: U.S. Geological Survey Open-File Report 79-1437, 1 sheet.
- Tyler, T.F., 1980, Preliminary chart showing electric log correlation section E-E' of some Upper Cretaceous and Tertiary Rocks, Cherokee Ridge, Wyoming: U.S. Geological Survey Open-File Report 80-191, 4 sheets.
- Tyler, T.F., 1980, Preliminary chart showing electric log correlation section G-G' of some Upper Cretaceous and Tertiary rocks, east flank Rock Springs uplift Wyoming: U.S. Geological Survey Open-File Report 80-1247, 3 sheets.
- Tyler, T.F., 1980, Preliminary chart showing electric log correlation section H-H' of some Upper Cretaceous and Tertiary rocks, south end, Rock Springs uplift, Washakie Basin, Wyoming: U.S. Geological Survey Open-File Report 80-1248, 3 sheets.
- Tyler, T.F., Bucurel-White, Hildie, and Peterson, J.R., 1982, Preliminary chart showing electric log correlation section I-I' of some Upper Cretaceous and Tertiary rocks, Washakie Basin, Wyoming: U.S. Geological Survey Open-File Report 82-720, 2 sheets.
- Tyler, T.F., and Peterson, J.R., 1980, Wildcat well penetration map showing wells drilled into and through potentially gas-bearing, low-permeability Upper Cretaceous and Tertiary reservoirs, Washakie Basin, Wyoming: U.S. Geological Survey Open-File Report 80-189, 1 sheet.

Tyler, T.F., Peterson, J.R., and Bucurel, H.G., 1981, Preliminary chart showing electric log correlation section J-J' of some Upper Cretaceous and Tertiary rocks, Washakie Basin, Wyoming: U.S. Geological Survey Open-File Report 81-47, 2 sheets.

BASIN INDEX

Green River Basin Proper

- Bader, J.W., Law, B.E., and Spencer, C.W., 1982, Preliminary chart showing electric log correlation, section D-D', of some Upper Cretaceous and Tertiary rocks, Green River Basin, Wyoming: U.S. Geological Survey Open-File Report 82-129, 2 sheets.
- Charpentier, R.R., Law, B.E., and Prenskey, S.E., 1986, Quantitative model of over-pressured gas resources of the Pinedale anticline, Wyoming [abs.]: American Association of Petroleum Geologists Bulletin, v. 70., no. 8, p. 1034-1035.
- Charpentier, R.R., Law, B.E., and Prenskey, S.E., 1987, Quantitative model of over-pressured gas resources of the Pinedale anticline, Wyoming, *in* SPE/DOE Joint Symposium on Low Permeability Reservoirs, Denver, 1987, Proceedings: Society of Petroleum Engineers, p. 153-164, SPE/DOE 16404.
- Dickinson, W.W., 1984, Isotope geochemistry of carbonate minerals in Upper Cretaceous and Tertiary sandstones from the Pinedale anticline, Wyoming, *in* Law, B.E., ed., Geological characteristics of low-permeability Upper Cretaceous and lower Tertiary rocks in the Pinedale anticline area, Sublette County, Wyoming: U.S. Geological Survey Open-File Report 84-753, p. 95-107.
- Dickinson, W.W., and Gautier, D.L., 1983, Diagenesis of nonmarine rocks and gas entrapment in northern Green River Basin, Wyoming [abs.]: American Association of Petroleum Geologists Bulletin, v. 67, no. 3, p. 450.
- Dickinson, W.W., and Law, B.E., 1985, Burial history of Upper Cretaceous and Tertiary rocks interpreted from vitrinite reflectance, northern Green River basin, Wyoming [abs.]: American Association of Petroleum Geologists Bulletin, v. 69, no. 5, p. 846.
- Dickinson, W.W. and Prenskey, S.E., 1986, Porosity and permeability modification in Upper Cretaceous and Tertiary sandstone of the Green River basin, Wyoming [abs.], *in* Sediments down under; 12th International Sedimentological Congress, [Canberra, Australia]: International Association of Sedimentologists, p. 81-82.
- Gautier, D.L., and Pollastro, R.M., 1982, Petrology and mineralogy in relation to reservoir properties in the EPNG No. 2 Wagon Wheel Well, Green River Basin, Wyoming [abs.]: University of Wyoming, Wyoming Geological Association, and Geological Survey of Wyoming Annual Spring Conference, Laramie, Wyo., May 2-4, 1982, Proceedings, p. 9.
- Keighin, C.W., 1982, Reservoir characteristics of selected low-permeability sandstones, Late Cretaceous age, Uinta basin, Utah, and Green River Basin, Wyoming *in* Subsurface practices in geology and geophysics [abs.]: University of Wyoming, Wyoming Geological Association, and Geological Survey of Wyoming, Laramie, Wyo., May 2-4, p. 16.

- Keighin, C.W., 1983, Behavior of low-permeability sandstones in potential reservoir conditions [abs.]: American Institute of Chemical Engineers National Meeting, Denver, Colo., Aug. 28-31, 1983, p. 89.
- Law, B.E., 1979, Section B-B', Subsurface and surface correlations of some Upper Cretaceous and Tertiary rocks, northern Green River Basin, Wyoming: U.S. Geological Survey Open-File Report 79-1689, 2 sheets.
- Law, B.E., 1981, Section C-C', Subsurface correlations of some Upper Cretaceous and Tertiary rocks, northern Green River Basin, Wyoming: U.S. Geological Survey Open-File Report 81-663, 2 sheets.
- Law, B.E., ed., 1984, Geological characteristics of low-permeability Upper Cretaceous and lower Tertiary rocks in the Pinedale anticline area, Sublette County, Wyoming: U.S. Geological Survey Open-File Report 84-753, 107 p.
- Law, B.E., 1984, Introduction to geological characteristics of low-permeability Upper Cretaceous and lower Tertiary rocks in the Pinedale anticline area, Sublette County, Wyoming, *in* Law, B.E., ed., Geological characteristics of low-permeability Upper Cretaceous and lower Tertiary rocks in the Pinedale anticline area, Sublette County, Wyoming: U.S. Geological Survey Open-File Report 84-753, p. 1-5.
- Law, B.E., 1984, Structure and stratigraphy of the Pinedale anticline, Wyoming, *in* Law, B.E., ed., Geological characteristics of low-permeability Upper Cretaceous and lower Tertiary rocks in the Pinedale anticline area, Sublette County, Wyoming: U.S. Geological Survey Open-File Report 84-753, p. 6-15.
- Law, B.E., 1984, Source rock evaluation of Upper Cretaceous and lower Tertiary rocks in the Pinedale anticline area, Sublette County, Wyoming, *in* Law, Ben E., ed., Geological characteristics of low-permeability Upper Cretaceous and lower Tertiary rocks in the Pinedale anticline area, Sublette County, Wyoming: U.S. Geological Survey Open-File Report 84-753, p. 36-50.
- Law, B.E., and Clayton, J.L., 1987, A burial, thermal, and hydrocarbon source rock evaluation of Lower Cretaceous rocks in the southern Moxa arch area, Utah and Wyoming [abs.], *in* Miller, W. Roger, ed., The thrust belt revisited: Wyoming Geological Association Guidebook, p. 357.
- Law, B.E., and Clayton, J.L., 1987, The role of thermal history in the preservation of oil at the south end of the Moxa arch, Utah and Wyoming: Implications for the oil potential in the southern Green River basin [abs.], *in* Carter, L.M.H., ed., USGS research on energy resources 1988; program and abstracts: U.S. Geological Survey Circular 1025, p. 27.
- Law, B.E., and Dickinson, W.W., 1984, A conceptual model of gas-seal development, Green River Basin, Wyoming [abs.]: American Association of Petroleum Geologists Bulletin, v. 68, no. 7, p. 940.

- Law, B.E., and Dickinson, W.W., 1985, Conceptual model of origin of abnormally pressured gas accumulation in low-permeability reservoirs: American Association of Petroleum Geologists Bulletin, v. 69, no. 8, p. 1295-1304.
- Law, B.E., and Nichols, D.J., 1982, Subsurface stratigraphic correlations of some Upper Cretaceous and lower Tertiary rocks, northern Green River Basin, Wyoming, *in* Subsurface practices in geology and geophysics: University of Wyoming, Wyoming Geological Association, Geological Survey of Wyoming Annual Spring Conference, May 2-4, Proceedings, p. 17.
- Law, B.E., and Spencer, C.W., 1981, Abnormally high-pressured, low-permeability, Upper Cretaceous and Tertiary gas reservoirs, northern Green River Basin, Wyoming [abs.]: American Association of Petroleum Geologists Bulletin, v. 65, no. 5, p. 948.
- Law, B.E., Spencer, C.W., and Bostick, N.H., 1979, Preliminary results of organic maturation, temperature, and pressure studies in the Pacific Creek area, Sublette County, Wyoming, *in* Proceedings of the 5th SPE Symposium on Enhanced Oil and Gas Recovery and Improved Drilling Methods, Tulsa, Okla., v. 3 Gas and Drilling: Tulsa, Okla., The Petroleum Publishing Co., p. K2/1-2/13.
- Law, B.E., Spencer, C.W., and Bostick, N.H., 1980, Evaluation of organic matter, subsurface temperature, and pressure with regard to gas generation in low-permeability Upper Cretaceous and lower Tertiary sandstones in Pacific Creek area, Sublette and Sweetwater Counties, Wyoming: *The Mountain Geologist*, v. 17, no. 2, p. 23-35.
- Law, B.E., Spencer, C.W., and Bostick, N.H., 1980, Evaluation of organic matter, subsurface temperature, and pressure with regard to gas generation in low-permeability Upper Cretaceous and lower Tertiary sandstones in Pacific Creek area, Sublette County [abs.]: American Association of Petroleum Geologists Bulletin, v. 64, no. 5, p. 738.
- Law, B.E., Spencer, C.W., and Roehler, H.W., 1979, Section A-A', Surface and subsurface correlations of some Upper Cretaceous and Tertiary rocks, Green River Basin, Wyoming: U.S. Geological Survey Open-File Report 79-357, 2 sheets.
- Lickus, M.R., Pawlewicz, M.J., Law, B.E., and Dickinson, W.W., 1984, Thermal maturity map, northern Green River Basin, Wyoming, *in* Law, B.E., ed., Geological characteristics of low-permeability Upper Cretaceous and lower Tertiary rocks in the Pinedale anticline area, Sublette County, Wyoming: U.S. Geological Survey Open-File Report 84-753, p. 60-65.
- Markochick, D.J., and Law, B.E., 1981, Estimates of gas content in coal and carbonaceous rocks from deep drilling in Pacific Creek area, northeastern Green River Basin, Sweetwater County, Wyoming [abs.]: American Association of Petroleum Geologists Bulletin, v. 65, no. 3, p. 564-565.

- Markochick, D.J., Law, B.E., and Spencer, C.W., 1982, Section E-E', preliminary subsurface correlations of some Cretaceous and Tertiary rocks from Moxa Arch to Rock Springs uplift, Green River Basin, Wyoming: U.S. Geological Survey Open-File Report 82-455, 2 sheets.
- Naeser, N.D., 1984, Thermal history determined by fission-track dating for three sedimentary basins in California and Wyoming: Fourth International Fission Track Dating Workshop, Troy, New York, 1984, Abstracts, p. 37.
- Naeser, N.D., 1984, Thermal history determined by fission-track dating for three sedimentary basins in California and Wyoming: Geological Society of America Abstracts with Programs, v. 16, no. 6, p. 607.
- Naeser, N.D., 1984, Fission-track ages from the Wagon Wheel no. 1 well, northern Green River basin, Wyoming Evidence for recent cooling, *in* Law, B.E., ed., Geological characteristics of low-permeability Upper Cretaceous and lower Tertiary rocks in the Pinedale anticline area, Sublette County, Wyoming: U.S. Geological Survey Open-File Report 84-753, p. 66-77.
- Naeser, N.D., 1985, Thermal history determined by fission-track dating for three sedimentary basins in California and Wyoming [abs.]: Nuclear Tracks, v. 10, no. 3, p. 423.
- Naeser, N.D., 1985, Fission-track dating A method for determining thermal history of sedimentary basins [abs.]: American Association of Petroleum Geologists Research Conference, New Orleans, La., March 22-24, Abstracts, p. 38.
- Naeser, N.D., 1985, Fission-track dating A method for determining thermal history of sedimentary basins [abs.]: Conference on Isotopes in the Sedimentary Cycle, Obernai, France, July 1-5, p. 125.
- Naeser, C.W., and Naeser, N.D., 1985, Fission-track dating Application to the thermal history of mountains and basins [abs.]: Geological Society of America Abstracts with Programs, v. 17, no. 7, p. 673.
- Naeser, N.D., 1986, Neogene thermal history of the northern Green River basin, Wyoming evidence from fission-track dating, *in* Gautier, D.L., ed., Roles of organic matter in mineral diagenesis: Society of Economic Paleontologists and Mineralogists Special Publication No. 38, p. 65-72.
- Naeser, N.D., and Naeser, C.W., 1986, Fission-track dating in sedimentary basins An example from the northern Green River Basin: TERRA cognita, v. 6, p. 118.
- Pollastro, R.M., 1982, Detrital/authigenic clay-mineral assemblages and their relation to diagenesis in sedimentary rocks [abs.]: 19th Annual Meeting, The Clay Minerals Society, 31st Annual Clay Minerals Conference, Hilo, Hawaii, Program and Abstracts, p. 29

- Pollastro, R.M., 1983, The formation of illite at the expense of illite/smectite-- Mineralogical and morphological support for a hypothesis [abs.]: 20th Annual Meeting, The Clay Minerals Society, 32nd Annual Clay Minerals Conference, Buffalo, N.Y., Program and Abstracts, p. 82.
- Pollastro, R.M., and Bader, J.W., 1983, Clay-mineral relationships in some low-permeability hydrocarbon reservoirs and their use as predictive resource tools [abs.]: American Association of Petroleum Geologists Bulletin, v. 67, no. 3, p. 536.
- Pollastro, R.M., and Barker, C.E., 1984a, Comparative measures of paleotemperature an example from clay-mineral, vitrinite reflectance, and fluid inclusion studies, Pinedale anticline, Green River Basin, Wyoming [abs.]: SEPM First Annual Midyear Meeting, San Jose, Calif., Abstracts with Program, p. 65-66.
- Pollastro, R.M., and Barker, C.E., 1984b, Geothermometry from clay minerals, vitrinite reflectance, and fluid inclusions Applications to the thermal and burial history of rocks cored from the Wagon Wheel No. 1 well, Green River basin, Wyoming, *in* Law, B.E., ed., Geological characteristics of low-permeability Upper Cretaceous and lower Tertiary rocks of the Pinedale anticline area, Sublette County, Wyoming: U.S. Geological Survey Open-File Report 84-743, p. 78-94.
- Prensky, S.E., 1984, Use of the gamma-ray log for locating the Cretaceous-Tertiary unconformity, Pinedale area, northern Green River Basin, Wyoming [abs.]: American Association of Petroleum Geologists Bulletin, v. 68, p. 946.
- Prensky, S.E., 1986, Geologic implications of large-scale trends in well-log response, northern Green River basin, Wyoming [abs.]: The Log Analyst, v. 27, no. 1, p. 74-75.
- Prensky, S.E., 1986, Geologic implications of large-scale trends in well-log response, northern Green River basin, Wyoming, *in* 27th Annual Logging Symposium Transactions, Paper EEE: Houston, Society of Professional Well Log Analysts, 24 p.
- Prensky, S.E., 1986, Geologic implications of large-scale trends in well-log response, northern Green River basin, Wyoming [abs.]: Tulsa, Society of Exploration Geophysicists, 1986, Technical Program Expanded Abstracts with Bibliographies, p. 668
- Prensky, S.E., and Dickinson, W.W., 1984, Application of computer-processed well-log data for geologic evaluation of Green River Basin, Wyoming [abs.]: American Association of Petroleum Geologists Bulletin, v. 68, no. 4, p. 519.
- Prensky, S.E. and Dickinson, W.W., 1984, Application of computer-processed well-log data for geologic evaluation of the Green River Basin, Wyoming [abs.]: American Association of Petroleum Geologists Bulletin, v. 68, p. 519.

Prensky, S.E. and Dickinson, W.W., 1986, Computer-generated well-log data plots assist in regional subsurface evaluation of the northern Green River basin, Wyoming: *Geobyte*, v. 1, no. 2, p. 52-58.

Spencer, C.W., 1984, Overpressured tight gas reservoirs in the Pinedale anticline area, Sublette County, Wyoming, *in* Law, B.E., ed., Geological characteristics of low-permeability Upper Cretaceous and lower Tertiary rocks in the Pinedale anticline area, Sublette County, Wyoming: U.S. Geological Survey Open-File Report 84-753, p. 51-59.

Spencer, C.W., and Law, Ben E., 1981, Overpressured, low-permeability gas reservoirs in Green River, Washakie, and Great Divide Basins, southwestern Wyoming [abs.]: *American Association of Petroleum Geologists Bulletin*, v. 65, no. 3, p. 569.

BASIN INDEX

Hanna Basin

Merewether, E.A., and Cobban, W.A., 1986, Biostratigraphic units and tectonism in the mid-Cretaceous foreland of Wyoming, Colorado and adjoining areas, *in* Peterson, J.A., ed., Paleotectonics and sedimentation in the Rocky Mountain region, U.S.: American Association of Petroleum Geologists Memoir 41, p. 443-468.

Merewether, E.A., and Cobban, W.A., 1986, Biostratigraphic units and tectonism in the mid-Cretaceous foreland of Wyoming, Colorado and adjoining areas, *in* Peterson, J.A., ed., Paleotectonics and sedimentation in the Rocky Mountain region, U.S.: American Association of Petroleum Geologists Memoir 41, p. 443-468.

BASIN INDEX

Northern Great Plains

- Gautier, D.L., 1979, Post-depositional control of gas reservoir quality in the Eagle Sandstone of the Bearpaw Mountains, north-central Montana [abs.]: American Association of Petroleum Geologists Bulletin, v. 63, no. 5, p. 827.
- Gautier, D.L., 1980, Physical characteristics of shallow methane reservoirs of northern Great Plains [abs.]: American Association of Petroleum Geologists Bulletin, v. 64, no. 5, p. 711-712.
- Gautier, D.L., 1981, Lithology, reservoir properties, and burial history of portion of Gammon Shale (Cretaceous), southwestern North Dakota: American Association of Petroleum Geologists Bulletin, v. 65, no. 6, p. 1146-1159.
- Gautier, D.L., 1981, Petrology of the Eagle Sandstone, Bearpaw Mountains area, north-central Montana: U.S. Geological Survey Bulletin 1521, 54 p.
- Gautier, D.L., and Claypool, G.E., 1982, Siderite and methane in Gammon Shale: Quantitative reconstruction by analogy with processes in modern diagenetic environments [abs.]: U.S. Geological Survey Workshop on Diagenesis, Golden, Colo., March 16-18, 1982, Program, p. 19.
- Gautier, D.L., and Rice, D.D., 1981, Comparison of conventional and low-permeability reservoirs of shallow gas in the northern Great Plains, Proceedings of the SPE/DOE Symposium on Low Permeability Gas Reservoirs, Dallas, Tex., Society of Petroleum Engineers, p. 193-204.
- Gautier, D.L., and Rice, D.D., 1981, Facies distribution and reservoir quality of biogenic gas reservoirs of northern Great Plains: Example from Eagle-Telegraph Creek (Upper Cretaceous) interval [abs.]: American Association of Petroleum Geologists Bulletin, v. 65, no. 3, p. 559.
- Gautier, D.L., and Rice, D.D., 1982, Conventional and low-permeability reservoirs of shallow gas in the northern Great Plains: Journal of Petroleum Technology, v. 34, p. 1600-1608.
- Merewether, E.A., and Cobban, W.A., 1986, Biostratigraphic units and tectonism in the mid-Cretaceous foreland of Wyoming, Colorado and adjoining areas, in Peterson, J.A., ed., Paleotectonics and sedimentation in the Rocky Mountain region, U.S.: American Association of Petroleum Geologists Memoir 41, p. 443-468.
- Nydegger, G.L., Rice, D.D., and Brown, C.A., 1979, Development of shallow gas reserves in low-permeability reservoirs of Late Cretaceous age, Bowdoin Dome area, north-central Montana: Proceedings of the SPE Symposium on Low-Permeability Gas Reservoirs, Denver, Colo., May 20-22, 1979, p. 315-324.

- Nydegger, G.L., Rice, D.D., and Brown, C.A., 1980, Bowdoin Dome area, north-central Montana Example of shallow biogenic gas production from low-permeability reservoirs [abs.]: American Association of Petroleum Geologists Bulletin, v. 64, no. 5, p. 760-761.
- Nydegger, G.L., Rice, D.D., and Brown, C.A., 1980, Analysis of shallow gas development from low-permeability reservoirs of Late Cretaceous age, Bowdoin Dome area: Journal of Petroleum Technology, v. 32, no. 12, p. 2111-2120.
- Nydegger, G.L., Rice, D.D., and Brown, C.A., 1981, Formation evaluation difficult in shallow Bowdoin Dome: World Oil, v. 192, no. 5, p. 78-80.
- Rice, D.D., 1977, Stratigraphic sections from well logs and outcrops of Cretaceous and Paleocene rocks, northern Great Plains, North and South Dakota: U.S. Geological Survey Oil and Gas Investigation Chart OC-72, 3 sheets.
- Rice, D.D., 1977, Bibliography on low-permeability natural gas reservoirs of the northern Great Plains: U.S. Geological Survey Open-File Report 77-391, 5 p.
- Rice, D.D., 1980, Coastal and deltaic sedimentation of Upper Cretaceous Eagle Sandstone Relation to shallow gas accumulations, north-central Montana: American Association of Petroleum Geologists Bulletin, v. 64, no. 3, p. 316-339.
- Rice, D.D., 1980, Upper Cretaceous Mosby Sandstone, central Montana Example of thin, widespread storm-generated sandstone cycles [abs.]: American Association of Petroleum Geologists Bulletin, v. 64, no. 5, p. 772-773.
- Rice, D.D., 1981, Subsurface cross section from southeastern Alberta, Canada to Bowdoin Dome, north-central Montana showing correlation of Cretaceous rocks and shallow, gas-productive zones in low-permeability reservoirs: U.S. Geological Survey Oil and Gas Investigations Chart OC-112. 1 pl.
- Rice, D.D., 1984, Controls of shallow gas accumulations in low-permeability reservoirs of northern Great Plains [abs.]: American Association of Petroleum Geologists Bulletin, v. 68, no. 4, p. 520-521.
- Rice, D.D., and Claypool, G.E., 1981, Generation, accumulation, and resource potential of biogenic gas: Gas Energy Review, v. 9, no. 4, p. 8-10.
- Rice, D.D., and Claypool, G.E., 1981, Generation, accumulation, and resource potential of biogenic gas: American Association of Petroleum Geologists Bulletin, v. 65, no. 1, p. 5-25.
- Rice, D.D., and Claypool, G.E., 1981, Biogenic gas requirements for generation, accumulation--Resource potential evaluation: Oil and Gas Journal, v. 79, no. 4, p. 258-273.
- Rice, D.D., and Claypool, G.E., 1981, Significance of shallow gas in ancient marine sequences [abs.]: American Association of Petroleum Geologists Bulletin, v. 65, no. 5, p. 978.

- Rice, D.D., and Gautier, D.L., 1980, Development of biogenic gas from shallow, low-permeability reservoirs. Examples from southeastern Alberta and Bowdoin Dome area, north-central Montana [abs.]: American Association of Petroleum Geologists Bulletin, v. 64, no. 5, p. 773.
- Rice, D.D., and Gautier, D.L., 1983, Coastal sandstones, Chapter 6 *in* Rice, D.D. and Gautier, D.L., eds., Patterns of sedimentation, diagenesis and hydrocarbon accumulation in Cretaceous rocks of the Rocky Mountains: Society of Economic Paleontologists and Mineralogists Short Course No. 11, p. 6-1 to 6-41.
- Rice, D.D., and Gautier, D.L., 1983, Shelf sandstones, Chapter 7 *in* Rice, D.D. and Gautier, D.L., eds., Patterns of sedimentation, diagenesis and hydrocarbon accumulation in Cretaceous rocks of the Rocky Mountains: Society of Economic Paleontologists and Mineralogists Short Course No. 11, p. 7-1 to 7-41.
- Rice, D.D., Nydegger, G.L., and Brown, C.A., 1979, Bowdoin Dome area, north-central Montana. An example of shallow, biogenic gas production from low-permeability reservoirs [abs.]: American Association of Petroleum Geologists Bulletin, v. 63, no. 5, p. 838-839.
- Rice, D.D., and Shurr, G.W., 1978, Potential for major natural gas resources in shallow, low-permeability reservoirs of the northern Great Plains: Montana Geological Society Guidebook, 24th Annual Conference, Williston Basin Symposium, 1978, p. 265-281.
- Rice, D.D., and Shurr, G.W., 1978, Natural gas resources in shallow, low-permeability reservoirs of northern Great Plains [abs.]: American Association of Petroleum Geologists Bulletin, v. 62, no. 5, p. 891-892.
- Rice, D.D., and Shurr, G.W., 1978, The relation between facies and low-permeability (tight) reservoirs in the northern Great Plains, *in* Proceedings of the 4th DOE Symposium on enhanced oil and gas recovery and improved drilling methods, Tulsa, Oklahoma, 1978, v. 2 Gas and drilling: Tulsa, Okla., The Petroleum Publishing Co., p. E3/1-E3/18.
- Rice, D.D., and Shurr, G.W., 1980, Major gas resources in shallow, tight pays seen for northern Great Plains: Oil and Gas Journal, v. 78, no. 19, p. 178-194.
- Rice, D.D., and Shurr, G.W., 1980, Shallow, low-permeability reservoirs of the northern Great Plains. An assessment of their natural gas resources: American Association of Petroleum Geologists Bulletin, v. 64, no. 7, p. 969-987.
- Rice, D.D., and Shurr, G.W., 1981, Paleogeography of the Upper Cretaceous Eagle Sandstone and equivalent rocks, northern Great Plains: Geological Society of America Abstracts with Programs, v. 13, no. 7, p. 537-538.
- Rice, D.D., and Sullivan, G.W., 1980, Northern Great Plains/Williston Basin, *in* Report of the National Petroleum Council's Committee on Unconventional Gas Resources, Tight Gas Reservoirs, pt. 2, p. 10-1 to 10-170.

- Shurr, G.W., 1978, Paleotectonic controls on Cretaceous sedimentation and potential gas occurrence in western South Dakota: Montana Geological Society Guidebook, 24th Annual Conference, Williston Basin Symposium 1978, p. 283-292.
- Shurr, G.W., 1980, Geologic setting of the Pierre Shale (Upper Cretaceous) in the northern Great Plains: U.S. Geological Survey Open-File Report 80-675, 8 p.
- Shurr, G.W., and Sieverding, J.L., 1980, Preliminary synthesis of subsurface stratigraphy of the Niobrara Formation (Upper Cretaceous) in the northern Great Plains: U.S. Geological Survey Open-File Report 80-1255, 18 p.
- Spencer, C.W., Fouch, T.D., and Rice, D.D., 1977, Geological program to provide a characterization of tight, gas-bearing reservoirs in the Rocky Mountain region, *in* Proceedings of the 3rd ERDA Symposium on Enhanced Oil and Gas Recovery and Improved Drilling Methods, Tulsa, Okla., 1977, v. 2 Gas and Drilling, Tulsa, Okla., The Petroleum Publishing Co., p. E1-E15.
- Starkey, H.C., Blackmon, P.D., and Rice, D.D., 1978, Mineralogical analysis of drill core samples from Midlands Gas Corporation wells Federal 0370 No. 1 and Federal 2962 No. 1, Phillips County, Montana: U.S. Geological Survey Open-File Report 78-1001, 35 p.

BASIN INDEX

Piceance Basin

- Abrams, G.A., and Grout, M.A., 1987, Complete Bouguer profiles and principal facts for gravity stations in the Divide Creek anticline area, Piceance Basin, Colorado: U.S. Geological Survey Open-File Report 87-647, 9 p.
- Bostick, N.H., 1983, Vitrinite reflectance and temperature gradient models applied at a site in the Piceance Basin, Colorado [abs.]: American Association of Petroleum Geologists Bulletin, v. 67, no. 3, p. 427-428.
- Bostick, N.H., and Freeman, V.L., 1984, Tests of vitrinite reflectance and paleotemperature models at the Multiwell Experiment Site, Piceance Creek Basin, Colorado, in Spencer, C.W., and Keighin, C.W., eds., Geologic studies in support of the U.S. Department of Energy Multiwell Experiment, Garfield County, Colorado: U.S. Geological Survey Open-File Report 84-757, p. 110-120.
- Chancellor, R.E., and Johnson, R.C., 1986, Geologic and engineering implications of production history from five wells in central Piceance Creek basin, northwest Colorado: Proceedings Society of Petroleum Engineers Unconventional Gas Technology Symposium, Louisville, Ky., May 18-21, SPE 15237, p. 351-364.
- Granica, M.P., and Johnson, R.C., 1980, Structure contour and isochore map of the nonmarine part of the Mesaverde Formation/Group, Piceance Creek Basin, Colorado: U.S. Geological Survey Miscellaneous Field Investigations Map MF-1189, 1 sheet, scale 1:250,000, 10 page pamphlet.
- Grout, M.A., and Verbeek, E.R., 1985, Fracture history of the Plateau Creek and adjacent Colorado River valleys, southern Piceance Basin implications for predicting joint patterns at depth: U.S. Geological Survey Open-File Report 85-744, 17 p.
- Grout, M.A., and Verbeek, E.R., 1986, Prediction of joint patterns at depth examples from the Piceance Basin, northwestern Colorado: Geological Society of America Abstracts with Programs, v. 18, no. 5, p. 358.
- Grout, M.A., and Verbeek, E.R., 1987, Regional joint sets unrelated to major folds example from the Piceance basin, northeastern Colorado Plateau [abs.]: Geological Society of America Abstracts with Programs, v. 19, no. 5, p. 279.
- Hansley, P.L., 1981, Mineralogy and diagenesis of core samples of Upper Cretaceous sandstones, Twin Arrow Inc. 4-14X C & K well, Piceance Creek Basin, northwestern Colorado: U.S. Geological Survey Open-File Report 81-845, 8 p.
- Hansley, P.L., 1981, Mineralogy, diagenesis, and provenance of Upper Cretaceous sandstones from the Ralston Production Company Federal No. 31 well, Piceance Creek Basin, northwestern Colorado: U.S. Geological Survey Open-File Report 81-1295, 21 p.

- Hansley, P.L., and Johnson, R.C., 1979, Preliminary results of mineralogic and diagenetic studies of low-permeability sandstones of Late Cretaceous age, Piceance Creek Basin, northwestern Colorado: U.S. Geological Survey Open-File Report 79-1702, 39 p.
- Hansley, P.L., and Johnson, R.C., 1980, Mineralogy and diagenesis of low-permeability sandstones of Late Cretaceous age, Piceance Creek Basin, northwestern Colorado: *The Mountain Geologist*, v. 17, no. 4, p. 88-129.
- Johnson, R.C., 1978, Cross section showing depositional environments and lithologies of some Upper Cretaceous and Tertiary rocks, from DeBeque to the north-central Piceance Creek Basin, Colorado: U.S. Geological Survey Open-File Report 78-182, 1 sheet.
- Johnson, R.C., 1979, Cross Section A-A' of Upper Cretaceous and lower Tertiary rocks, northern Piceance Creek Basin, Colorado: U.S. Geological Survey Miscellaneous Field Investigations Map MF-1129-A, 2 sheets.
- Johnson, R.C., 1979, Cross section B-B' of Upper Cretaceous and lower Tertiary rocks, northern Piceance Creek Basin, Colorado: U.S. Geological Survey Miscellaneous Field Investigations Map MF-1129-B, 2 sheets.
- Johnson, R.C., 1979, Cross section C-C' of Upper Cretaceous and lower Tertiary rocks, northern Piceance Creek Basin, Colorado: U.S. Geological Survey Miscellaneous Field Investigations Map MF-1129-C, 2 sheets.
- Johnson, R.C., 1982, A measured section of the Late Cretaceous Mesaverde Group and lower part of the early Tertiary Wasatch Formation, Rifle Gap, Colorado: U.S. Geological Survey Open-File Report 82-590, 11 p., 1 log.
- Johnson, R.C., 1983, Structure contour map of the top of the Rollins and Trout Creek sandstones, Piceance Creek Basin, Colorado: U.S. Geological Survey Miscellaneous Field Investigations Map MF-1667, scale 1:253,400.
- Johnson, R.C., 1986, Structure contour map of the Castlegate Sandstone, eastern part of the Uinta basin and the western part of the Piceance Creek basin, Utah and Colorado: U.S. Geological Survey Miscellaneous Field Investigations Map MF-1826.
- Johnson, R.C., 1987, Geologic history and hydrocarbon potential of Late Cretaceous-age low-permeability reservoirs, Piceance basin, western Colorado: U.S. Department of Energy, Fossil Energy, DOE/MC/20422-2337, 97 p.
- Johnson, R.C., Crovelli, R.A., Spencer, C.W., and Mast, R.F., 1987, An assessment of gas resources in low-permeability sandstones of the Upper Cretaceous Mesaverde Group, Piceance basin, Colorado: U.S. Geological Survey Open-File Report 87-357, 165 p.

- Johnson, R.C., Crovelli, R.A., Spencer, C.W., and Mast, R.F., 1988, Assessment of gas resources in low-permeability sandstones of Upper Cretaceous Mesaverde Group, Piceance basin, Colorado [abs.]: American Association of Petroleum Geologists Bulletin, v. 72, no. 2, p. 202.
- Johnson, R.C., Crovelli, R.A., Spencer, C.W., and Mast, R.F., 1988, An assessment of gas resources in low-permeability sandstones of Upper Cretaceous Mesaverde Group, Piceance basin, Colorado [abs.], in Carter, L.M.H., ed., USGS research on energy resources 1988; program and abstracts: U.S. Geological Survey Circular 1025, p. 23-24.
- Johnson, R.C., and Finn, T., 1985, Age of the Douglas Creek Arch, Colorado and Utah [abs.]: American Association of Petroleum Geologists, v. 69, no. 3, p. 270.
- Johnson, R.C., and Finn, T.M., 1986, Cretaceous through Holocene history of the Douglas Creek Arch, Colorado and Utah, in Stone, D.S., ed.: Rocky Mountain Association of Geologists, New Interpretations of Northwest Colorado Geology, p. 77-95.
- Johnson, R.C., Granica, M.P., and Dessenberger, N.C., 1979, Cross section A-A' of Upper Cretaceous and lower Tertiary rocks, southern Piceance Creek Basin, Colorado: U.S. Geological Survey Miscellaneous Field Investigations Map MF-1130-A, 2 sheets.
- Johnson, R.C., Granica, M.P., and Dessenberger, N.C., 1979, Cross section B-B' of Upper Cretaceous and lower Tertiary rocks, southern Piceance Creek Basin, Colorado: U.S. Geological Survey Miscellaneous Field Investigations Map MF-1130-B, 2 sheets.
- Johnson, R.C., Granica, M.P., and Dessenberger, N.C., 1979, Cross section C-C' of Upper Cretaceous and lower Tertiary rocks, southern Piceance Creek Basin, Colorado: U.S. Geological Survey Miscellaneous Field Investigations Map MF-1130-C, 2 sheets.
- Johnson, R.C., and Keighin, C.W., 1981, Cretaceous and Tertiary history and resources of the Piceance Creek Basin, western Colorado: 32nd Field Conference Guidebook, Western Slope Colorado: New Mexico Geological Society, p. 199-210.
- Johnson, R.C., and May, Fred, 1979, Preliminary stratigraphic studies of the upper part of the Mesaverde Group, the Wasatch Formation, and the lower part of the Green River Formation, DeBeque area, Colorado, including environments of deposition and investigation of palynomorph assemblages: U.S. Geological Survey Miscellaneous Field Investigations Map MF-1050, 2 sheets.
- Johnson, R.C., and May, Fred, 1980, A study of the Cretaceous-Tertiary unconformity in the Piceance Creek Basin, Colorado The underlying Ohio Creek Formation (Upper Cretaceous) redefined as a member of the Hunter Canyon or Mesaverde Formation: U.S. Geological Survey Bulletin 1482-B, 27 p.

- Johnson, R.C., and May, Fred, 1978, Maestrichtian conglomerates in the southwestern Piceance Creek basin [abs]: American Association of Petroleum Geologists Bulletin, v. 62, no. 5, p. 885.
- Johnson, R.C., May, Fred, Hansley, P.L., Pitman, J.K., and Fouch, T.D., 1980, Petrology, X-ray mineralogy, and palynology of a measured section of the Upper Cretaceous Mesaverde Group in Hunter Canyon, western Colorado: U.S. Geological Survey Oil and Gas Investigations Chart OC-91, 1 sheet.
- Johnson, R.C., and Nuccio, V.F., 1983, Structural and thermal history of Piceance Creek Basin, Colorado in relation to hydrocarbon occurrence in Mesaverde Group [abs.]: American Association of Petroleum Geologists Bulletin, v. 67, no. 3, p. 490-491.
- Johnson, R.C., and Nuccio, V.F., 1984, Thermal maturity of organic matter in Green River Formation, Piceance Creek Basin, Colorado [abs.]: American Association of Petroleum Geologists Bulletin, v. 68, no. 4, p. 492-493.
- Johnson, R.C., and Nuccio, V.F., 1984, Late Cretaceous through early Tertiary general stratigraphy and structural geology of the Piceance Creek basin, Colorado, *in* Spencer, C.W., and Keighin, C.W., eds., Geologic studies in support of the U.S. Department of Energy Multiwell Experiment, Garfield County, Colorado: U.S. Geological Survey Open-File Report 84-757, p. 14-20.
- Law, B.E., Hatch, J.R., Kukal, G.C., and Keighin, C.W., 1983, Geologic implications of dewatering of coal and other carbonaceous rocks A hypothesis [abs.]: American Association of Petroleum Geologists Bulletin, v. 67, no. 3, p. 500.
- Law, B.E., Hatch, J.R., Kukal, G.C., and Keighin, C.W., 1983, Geologic Implications of coal dewatering: American Association of Petroleum Geologists Bulletin, v. 67, no. 12, p. 2255-2260.
- Law, B.E., and Nuccio, V.F., 1986, Segmented vitrinite reflectance profile from the Deep Seam Project, Piceance Creek Basin, Colorado Evidence of previous high pore pressure: American Association of Petroleum Geologists, [abs.], v. 70, p. 1047.
- Lee, M.W., 1984, Delineation of lenticular-type sand bodies by the vertical seismic profiling method: U.S. Geological Survey Open-File Report 84-265, 92 p.
- Lee, M.W., 1984, Vertical seismic profiles at the Multiwell Experiment site, Garfield County, Colorado: U.S. Geological Survey Open-File Report 84-168, 57 p.
- Lee, M.W., 1984, Detection and delineation of lenticular-type sand bodies by the vertical seismic profiling method, *in* Spencer, C.W., and Keighin, C.W., eds., Geologic studies in support of the U.S. Department of Energy Multiwell Experiment, Garfield County, Colorado: U.S. Geological Survey Open-File Report 84-757, p. 121-136.

- Lee, M.W., 1985, Interpretation of azimuthal vertical seismic profile survey at Multiwell Experimental site, Garfield County, Colorado: U.S. Geological Survey Open-File Report 85-428, 44 p.
- Lee, M.W., and Miller, J.J., 1985, Acquisition and processing of azimuthal vertical seismic profiles at Multiwell Experiment site, Garfield County, Colorado: U.S. Geological Survey Open-File Report 85-427, 36 p.
- Lee, M.W., 1986, An application of azimuthal vertical seismic profiles [abs.], *in* Carter, L.M.H., ed., USGS research on energy resources 1986, program and abstracts: U.S. Geological Survey Circular 974, p. 36.
- Merewether, E.A., and Cobban, W.A., 1986, Biostratigraphic units and tectonism in the mid-Cretaceous foreland of Wyoming, Colorado and adjoining areas, *in* Peterson, J.A., ed., Paleotectonics and sedimentation in the Rocky Mountain region, U.S.: American Association of Petroleum Geologists Memoir 41, p. 443-468.
- Nuccio, V.F., 1985, Comparison between immature vitrinite and solid bitumen, Green River Formation, Piceance Creek Basin, Colorado [abs.]: American Association of Petroleum Geologists Bulletin, v. 69, no. 2 p. 293.
- Nuccio, V.F., and Johnson, R.C., 1981, Map showing drill-stem test and perforation recoveries of the Upper Cretaceous Mesaverde Group, Piceance Creek Basin, Colorado: U.S. Geological Survey Miscellaneous Field Studies Map MF-1359, 1 sheet, scale 1:250,000.
- Nuccio, V.F., and Johnson, R.C., 1983, Preliminary thermal maturity map of the Cameo-Fairfield or equivalent coal zone through the Piceance Creek Basin, Colorado: U.S. Geological Survey Miscellaneous Field Study Map MF-1575, 2 sheets.
- Nuccio, V.F., and Johnson, R.C., 1984, Retardation of vitrinite reflectance in Green River oil shales, Piceance Creek Basin, northwestern Colorado [abs.]: American Association of Petroleum Geologists Bulletin, v. 68, no. 4, p. 513.
- Nuccio, V.F., and Johnson, R.C., 1984, Thermal maturation and burial history of the Upper Cretaceous Mesaverde Group, including the Multiwell Experiment (MWX), Piceance Creek Basin, Colorado, *in* Spencer, C.W., and Keighin, C.W., eds., Geologic studies in support of the U.S. Department of Energy Multiwell Experiment, Garfield County, Colorado: U.S. Geological Survey Open-File Report 84-757, p. 102-109.
- Nuccio, V.F., and Johnson, R.C., 1988, Surface vitrinite reflectance map of the Uinta, Piceance and Eagle Basins area, Utah and Colorado: U.S. Geological Survey Miscellaneous Field Study Map, MF-2008-B, one plate, 19 p.

- Pitman, J.K., and Spencer, C.W., 1984, Petrology of selected sandstones in the MWX wells (northwest Colorado) and its relationship to borehole geophysical-log analysis and reservoir quality, *in* Spencer, C.W., and Keighin, C.W., eds., Geologic studies in support of the U.S. Department of Energy Multiwell Experiment, Garfield County, Colorado: U.S. Geological Survey Open-File Report 84-757, p. 33-66.
- Pitman, J.K., and Sprunt, E.S., 1984, Origin and occurrence of fracture filling cements in the Upper Cretaceous Mesaverde Formation at MWX, Piceance Creek Basin, Colorado, *in* Spencer, C.W. and Keighin, C.W., eds., Geologic studies in support of the U.S. Department of Energy Multiwell Experiment, Garfield County, Colorado: U.S. Geological Survey Open-File Report 84-757, p. 87-101.
- Pitman, J.K., and Sprunt, E.S., 1985, Origin and distribution of fractures in Tertiary and Cretaceous rocks, Piceance basin, Colorado, and their relation to hydrocarbon occurrence [abs.]: American Association of Petroleum Geologists Bulletin, v. 69, no. 5, p. 860.
- Pollastro, R.M., 1984, Mineralogy of selected sandstone/shale pairs and sandstones from the Multiwell Experiment Interpretations from X-ray diffraction and scanning electron microscopy analyses, *in*, Spencer, C.W., and Keighin, C.W., eds., Geologic studies in support of the U.S. Department of Energy Multiwell Experiment, Garfield County, Colorado: U.S. Geological Survey Open-File Report 84-757, p. 67-74.
- Searls, C.A., Lee, M.W., Miller, J.J., Albright, J.N., Fried, J., and Applegate, J.K., 1983, A coordinated seismic study of the Multiwell Experiment site: Proceedings of the Symposium on Low-Permeability Gas Reservoirs, Society of Petroleum Engineers, Denver, Colo., Paper no. 11613, 10 p.
- Spencer, C.W., 1984, Overview of U.S. Department of Energy Multiwell Experiment, Piceance Creek basin, Colorado, *in* Spencer, C.W., and Keighin, C.W., eds., Geologic studies in support of the U.S. Department of Energy Multiwell Experiment, Garfield County, Colorado: U.S. Geological Survey Open-File Report 84-757, p. 1-13.
- Spencer, C.W., 1985, Multiwell geologic support and Piceance basin studies, *in* Frohne, K-H., ed., Third annual Western Gas Sands Program review, November 1984: U.S. Department of Energy, Morgantown, West Virginia, DOE/METC 85-7, p. 18-36.
- Spencer, C.W., 1986, Geologic characterization of tight gas reservoirs, Piceance basin, *in* Komar, C.A., ed., Proceedings of the Unconventional Gas Recovery Meeting, Eastern Gas Shales, Coalbed Methane, Western Gas Sands, November 1985: U.S. Department of Energy, Morgantown, WV, DOE/METC 86/6034, p. 120-129.

- Spencer, C.W., 1987, Hydrocarbon generation as a mechanism for overpressuring in the Rocky Mountain region: American Association of Petroleum Geologists Bulletin, v. 71, no. 4, p. 368-388.
- Spencer, C.W., Fouch, T.D., and Rice, D.D., 1977, Geological program to provide a characterization of tight, gas-bearing reservoirs in the Rocky Mountain region, *in* Proceedings of the 3rd ERDA Symposium on Enhanced Oil and Gas Recovery and Improved Drilling Methods, Tulsa, Okla., 1977, v. 2 Gas and Drilling, Tulsa, Okla., The Petroleum Publishing Co., p. E1-E15.
- Spencer, C.W., Johnson, R.C., and Law, B.E., 1984, Review of USGS tight gas sands characterization research, *in* Frohne, K-H., ed., Western Gas Sands Subprogram Review, Technical Proceedings, October 18-19, 1983, Morgantown, WV,; U.S. Department of Energy, DOE/METC/84-3, p. 5-16.
- Spencer, C.W., and Keighin, C.W., eds., 1984, Geologic studies in support of the U.S. Department of Energy Multiwell Experiment, Garfield County, Colorado: U.S. Geological Survey Open-File Report 84-757, 134 p., 1 plate.
- Spencer, C.W., and Law, B.E., 1988, Unconventional resources Western tight gas reservoirs, *in* National assessment of undiscovered conventional oil and gas resources, USGS-MMS, working paper: U.S. Geological Survey Open-File Report 88-373, p. 480-500.
- Spencer, C.W., and Mast, R.F., eds., 1986, Geology of tight gas reservoirs: American Association of Petroleum Geologists Special Studies in Geology No. 24, 299 p.
- Verbeek, E.R., and Grout, M.A., 1984, Fracture studies in Cretaceous and Paleocene strata in and around the Piceance Basin, Colorado-- Preliminary results and their bearing on a fracture-controlled natural gas reservoir at the MWX site: U.S. Geological Survey Open-File Report 84-156, 30 p.
- Verbeek, E.R., and Grout, M.A., 1984, Prediction of subsurface fracture patterns from surface studies of joints An example from the Piceance Creek Basin, Colorado, *in* Spencer, C.W. and Keighin, C.W. eds., Geologic studies in support of the U.S. Department of Energy Multiwell Experiment, Garfield County, Colorado: U.S. Geological Survey Open-File Report 84-757, p. 75-86.
- Verbeek, E.R., and Grout, M.A., 1986, Cenozoic stress rotation, northeastern Colorado Plateau: Proceedings, 1986 Symposium, Rocky Mountain Association of Geologists, p. 97.
- Verbeek, E.R., and Grout, M.A., 1987, Systematic joints within oil shales and associated rocks of the Green River Formation, *in* Taylor, J.O., ed., Oil shale and mineral wealth, water resource challenge, and development choices Piceance basin, Colorado: U.S. Geological Survey Prof. Paper 1310, p. 45-55.

BASIN INDEX

Powder River Basin

- Merewether, E.A., and Cobban, W.A., 1986, Biostratigraphic units and tectonism in the mid-Cretaceous foreland of Wyoming, Colorado and adjoining areas, *in* Peterson, J.A., ed., Paleotectonics and sedimentation in the Rocky Mountain region, U.S.: American Association of Petroleum Geologists Memoir 41, p. 443-468.
- Naeser, N.D., 1984, Thermal history determined by fission-track dating for three sedimentary basins in California and Wyoming: Geological Society of America Abstracts with Programs, v. 16, no. 6, p. 607.
- Naeser, N.D., 1985, Thermal history determined by fission-track dating for three sedimentary basins in California and Wyoming [abs.]: Nuclear Tracks, v. 10, no. 3, p. 423.
- Spencer, C.W., 1987, Hydrocarbon generation as a mechanism for overpressuring in the Rocky Mountain region: American Association of Petroleum Geologists Bulletin, v. 71, no. 4, p. 368-388.

Raton Basin

- Merewether, E.A., and Cobban, W.A., 1986, Biostratigraphic units and tectonism in the mid-Cretaceous foreland of Wyoming, Colorado and adjoining areas, *in* Peterson, J.A., ed., Paleotectonics and sedimentation in the Rocky Mountain region, U.S.: American Association of Petroleum Geologists Memoir 41, p. 443-468.
- Spencer, C.W., and Mast, R.F., eds., 1986, Geology of tight gas reservoirs: American Association of Petroleum Geologists Special Studies in Geology No. 24, 299 p.

BASIN INDEX

Red Desert-Great Divide

- Bucurel, H.G., 1981, Subsurface correlations of some Upper Cretaceous and Tertiary rocks, Great Divide Basin, Wyoming, Section A-A' East and west: U.S. Geological Survey Open-File Report 81-981, 2 sheets.
- Bucurel, H.G., 1982, Section B-B', subsurface correlations of some Upper Cretaceous and Tertiary rocks, Great Divide Basin, Wyoming: U.S. Geological Survey Open-File Report 82-456, 2 sheets.
- Bucurel-White, Hilde, 1983, Section C-C', surface and subsurface correlations of some Upper Cretaceous and Tertiary rocks from the northeast flank Flock Springs uplift to the Rawlins uplift, Great Divide Basin, Wyoming: U.S. Geological Survey Open-File Report 83-418, 2 sheets.
- Lanham, R.E., 1980, Petrography and diagenesis of low-permeability sandstones of the lower Almond Formation, southwestern Wyoming: University of Colorado, unpublished Masters thesis, Dept. of Geological Sciences, 113 p.
- Law, B.E., Lickus, M.R., and Pawlewicz, M.J., 1986, Fluid migration pathways: Evidence from thermal maturity mapping in southwestern Wyoming, *in* Carter, L.M.H., ed., USGS research on energy resources 1985, program and abstracts: U.S. Geological Survey Circular 974, p. 35.
- Spencer, C.W., 1979, Wildcat well penetration map showing wells drilled into and through potentially gas-bearing, low-permeability Upper Cretaceous and Tertiary reservoirs, Great Divide Basin, Wyoming: U.S. Geological Survey Open-File Report 79-826, scale 1:125,000.
- Spencer, C.W., and Law, Ben E., 1981, Overpressured, low-permeability gas reservoirs in Green River, Washakie, and Great Divide Basins, southwestern Wyoming [abs.]: American Association of Petroleum Geologists Bulletin, v. 65, no. 3, p. 569.

BASIN INDEX

Sand Wash Basin

- Bader, J.W., 1983, Section A-A', subsurface correlations of some Upper Cretaceous and Tertiary rocks from the Cherokee Ridge, Wyoming to the southeast flank of the Sand Wash Basin, Colorado: U.S. Geological Survey Open-File Report 83-362, 2 sheets.
- Bader, J.W., Gill, J.R., Cobban, W.A., and Law, B.E., 1983, Biostratigraphic correlation chart of some Upper Cretaceous rocks from the Lost Soldier area, Wyoming to west of Craig, Colorado: U.S. Geological Survey Miscellaneous Field Studies Map MF-1548, 1 sheet.
- Kiteley, L.W., 1978, Stratigraphy of the Mesaverde Group and occurrence of natural gas in northwest Colorado [abs.]: American Association of Petroleum Geologists Bulletin, v. 62, no. 5, p. 887.
- Kiteley, L.W., 1979, Stratigraphic measured sections of the Upper Cretaceous Mancos Shale (upper part) and Mesaverde Group (lower part), Moffat County, Colorado: U.S. Geological Survey Open-File Report 79-1306, 48 p.
- Kiteley, L.W., 1979, Sedimentology of the intertonguing Upper Cretaceous Mancos Shale and Mesaverde Group in Moffat, Rio Blanco, and Routt Counties, Colorado [abs.]: Geological Society of America Abstracts with Programs, v. 11, no. 7, p. 458-459.
- Tyler, T.F., 1979, Wildcat well penetration map showing wells drilled into and through potentially gas-bearing, low-permeability Upper Cretaceous and Tertiary reservoirs, Sand Wash Basin, Colorado: U.S. Geological Survey Open-File Report 79-1437, 1 sheet.

BASIN INDEX

Uinta Basin

- Cowgill, D.F., Seevers, D.O., Pitman, J.K., and Dobecki, T.L., 1981, Application of nuclear magnetic resonance to characterization of low permeability sandstone reservoirs, Uinta Basin, Utah [abs.]: *Geophysics*, v. 46, no. 4, p. 415.
- Fouch, T.D., 1981, Chart showing distribution of rock types, lithologic groups, and interpreted depositional environments for some lower Tertiary and Upper Cretaceous rocks from outcrops at Willow Creek-Indian Canyon through the subsurface of the Duchesne and Altamont oil fields, southwest to north-central parts of the Uinta Basin, Utah: U.S. Geological Survey Oil and Gas Investigations Chart, OC-81, 2 sheets in color.
- Fouch, T.D., and Cashion, W.B., 1979, Distribution of rock types, lithologic groups, and depositional environments for some lower Tertiary and Upper and Lower Cretaceous, and Upper and Middle Jurassic rocks in the subsurface between Altamont oil field and San Arroyo gas field, north-central to southeastern Uinta Basin, Utah: U.S. Geological Survey Open-File Report 79-365, 2 sheets.
- Fouch, T.D., Lawton, T.F., Nichols, D.J., Cashion, W.B., and Cobban, W.A., 1982, Chart showing preliminary correlation of major Albian to middle Eocene rock units from San Pete Valley, central Utah to the Book Cliffs in eastern Utah, *in* Overthrust Belt of Utah: Utah Geological Association Publication 10, p. 267-272.
- Fouch, T.D., Lawton, T.F., Nichols, D.J., Cashion, W.B., and Cobban, W.A., 1983, Patterns and timing of synorogenic sedimentation in Upper Cretaceous rocks of central and northeast Utah, *in* Reynolds, M.W., and Dolly, E.D., eds., *Mesozoic paleogeography of west-central United States: Society of Economic Paleontologists and Mineralogists, Rocky Mountain Section, Rocky Mountain Paleogeography Symposium 2*, p. 305-336.
- Johnson, R.C., and Finn, T., 1985, Age of the Douglas Creek Arch, Colorado and Utah [abs.]: *American Association of Petroleum Geologists*, v. 69, no. 3, p. 270.
- Johnson, R.C., and Finn, T.M., 1986, Cretaceous through Holocene history of the Douglas Creek Arch, Colorado and Utah, *in* Stone, D.S., ed.: *Rocky Mountain Association of Geologists, New Interpretations of Northwest Colorado Geology*, p. 77-95.
- Johnson, R.C., and Nuccio, V.F., 1984, The thermal maturity of Late Cretaceous age Mesaverde Group, Uinta Basin, Utah: *Society of Economic Paleontologists and Mineralogists Annual Midyear Meeting, August 10-13, San Jose, Calif., Abstracts*, p. 40.

- Keighin, C.W., 1978, Some petrographic characteristics of a sequence of siliciclastic rocks from the Mesaverde Group, North Horn Formation, and lower part of the Green River Formation, Price River Canyon area, southwestern Uinta Basin, Utah [abs.]: American Association of Petroleum Geologists Bulletin, v. 62, no. 5, p. 885.
- Keighin, C.W., 1979, Influence of diagenetic reactions on reservoir properties of the Neslen, Farrer, and Tuscher Formations, Uinta Basin, Utah: Proceedings of the SPE Symposium on low-permeability gas reservoirs, Society of Petroleum Engineers, Dallas, Tex., p. 77-84.
- Keighin, C.W., 1980, Characteristics of pores in some Upper Cretaceous nonmarine sandstones, Uinta Basin, Utah: Scanning Electron Microscopy 1980/I, p. 559-564.
- Keighin, C.W., 1980, Some relations between diagenesis and porosity (real and imagined), sandstones of Mesaverde Group, Uinta Basin, Utah [abs.]: American Association of Petroleum Geologists Bulletin, v. 64, no. 5, p. 732.
- Keighin, C.W., 1981, Effects of physical and chemical diagenesis on low-porosity, low-permeability sandstones, Mesaverde Group, Uinta Basin, Utah [abs.]: American Association of Petroleum Geologists Bulletin, v. 65, no. 3, p. 562.
- Keighin, C.W., 1982, Reservoir characteristics of selected low-permeability sandstones, Late Cretaceous age, Uinta basin, Utah, and Green River Basin, Wyoming *in* Subsurface practices in geology and geophysics [abs.]: University of Wyoming, Wyoming Geological Association, and Geological Survey of Wyoming, Laramie, Wyo., May 2-4, p. 16.
- Keighin, C.W., 1983, Behavior of low-permeability sandstones in potential reservoir conditions [abs.]: American Institute of Chemical Engineers National Meeting, Denver, Colo., Aug. 28-31, 1983, p. 89.
- Keighin, C.W., and Fouch, T.D., 1979, Influence of diagenetic reactions on nonmarine Upper Cretaceous rocks of the Southman Canyon gas field, Uinta Basin, Utah [abs.]: American Association of Petroleum Geologists Bulletin, v. 63, no. 5, p. 832-833.
- Keighin, C.W., and Fouch, T.D., 1981, Depositional environments and diagenesis of some nonmarine Upper Cretaceous reservoir rocks, Uinta Basin, Utah, *in* Ethridge, F.G., and Flores, R.M., eds., Recent and ancient nonmarine depositional environments as models for exploration: Society of Economic Paleontologists and Mineralogists Special Publication no. 31, p. 109-125.
- Keighin, C.W., and Sampath, K., 1980, Evaluation of pore geometry of some low-permeability sandstones, Uinta Basin, Utah: Society of Petroleum Engineers 55th Annual Fall Conf., Dallas, Texas, Sept. 21-24, 1980, (SPE Paper 9251), 6 p).

- Keighin, C.W., and Sampath, K., 1982, Evaluation of pore geometry of some low-permeability sandstones, Uinta Basin, Utah: *Journal of Petroleum Technology*, v. 34, no. 1, p. 65-70.
- Merewether, E.A., and Cobban, W.A., 1986, Biostratigraphic units and tectonism in the mid-Cretaceous foreland of Wyoming, Colorado and adjoining areas, *in* Peterson, J.A., ed., *Paleotectonics and sedimentation in the Rocky Mountain region, U.S.*: American Association of Petroleum Geologists Memoir 41, p. 443-468.
- Nuccio, V.F., and Johnson, R.C., 1986, Thermal maturity of the lower part of the Upper Cretaceous Mesaverde Group, Uinta Basin, Utah: U.S. Geological Survey Miscellaneous Field Study Map MF-1842.
- Nuccio, V.F., and Johnson, R.C., 1988, Surface vitrinite reflectance map of the Uinta, Piceance and Eagle Basins area, Utah and Colorado: U.S. Geological Survey Miscellaneous Field Study Map, MF-2008-B, one plate, 19 p.
- Pitman, J.K., Anders, D.E., Fouch, T.D., and Nichols, D.J., 1985, Depositional environments, diagenesis, and hydrocarbon potential of nonmarine Upper Cretaceous and lower Tertiary rocks, eastern Uinta basin, Utah [abs.]: American Association of Petroleum Geologists Bulletin, v. 69, no. 5, p. 860.
- Pitman, J.K., and Fouch, T.D., 1978, Mineralogic characteristics of some lower Tertiary low-permeability reservoir rocks, south-central Uinta Basin, Utah [abs.]: American Association of Petroleum Geologists Bulletin, v. 62, no. 5, p. 891.
- Pitman, J.K., Fouch, T.D., and Goldhaber, M.B., 1982, Depositional setting and diagenetic evolution of some Tertiary unconventional reservoir rocks, Uinta Basin, Utah: American Association of Petroleum Geologists Bulletin, v. 66, no. 10, p. 1581-1596.
- Sampath, K., and Keighin, C.W., 1981, Factors affecting gas slippage in tight sandstones: Proceedings of the Symposium on Low-Permeability Gas Reservoirs, Society of Petroleum Engineers, Proceedings, Dallas, Tex., p. 409-416.
- Sampath, K., and Keighin, C.W., 1982, Factors affecting gas slippage in tight sandstones of Cretaceous age in the Uinta basin: *Journal of Petroleum Technology*, v. 34, no. 11, p. 2715-2720.
- Spencer, C.W., 1987, Hydrocarbon generation as a mechanism for overpressuring in the Rocky Mountain region: American Association of Petroleum Geologists Bulletin, v. 71, no. 4, p. 368-388.
- Spencer, C.W., Fouch, T.D., and Rice, D.D., 1977, Geological program to provide a characterization of tight, gas-bearing reservoirs in the Rocky Mountain region, *in* Proceedings of the 3rd ERDA Symposium on Enhanced Oil and Gas Recovery and Improved Drilling Methods, Tulsa, Okla., 1977, v. 2 Gas and Drilling, Tulsa, Okla., The Petroleum Publishing Co., p. E1-E15.

Spencer, C.W., and Law, B.E., 1988, Unconventional resources Western tight gas reservoirs, *in* National assessment of undiscovered conventional oil and gas resources, USGS-MMS, working paper: U.S. Geological Survey Open-File Report 88-373, p. 480-500.

Spencer, C.W., and Mast, R.F., eds., 1986, Geology of tight gas reservoirs: American Association of Petroleum Geologists Special Studies in Geology No. 24, 299 p.

BASIN INDEX

Washakie Basin

- Bader, J.W., 1983, Section A-A', subsurface correlations of some Upper Cretaceous and Tertiary rocks from the Cherokee Ridge, Wyoming to the southeast flank of the Sand Wash Basin, Colorado: U.S. Geological Survey Open-File Report 83-362, 2 sheets.
- Bader, J.W., 1987, Surface and subsurface relations of the Cherokee Ridge arch, south-central Wyoming: San Jose, Calif., San Jose State University, unpublished MS thesis, 68 p.
- Bader, J.W., Gill, J.R., Cobban, W.A., and Law, B.E., 1983, Biostratigraphic correlation chart of some Upper Cretaceous rocks from the Lost Soldier area, Wyoming to west of Craig, Colorado: U.S. Geological Survey Miscellaneous Field Studies Map MF-1548, 1 sheet.
- Lanham, R.E., 1980, Petrography and diagenesis of low-permeability sandstones of the lower Almond Formation, southwestern Wyoming: University of Colorado, unpublished Masters thesis, Dept. of Geological Sciences, 113 p.
- Law, B.E., Lickus, M.R., and Pawlewicz, M.J., 1986, Fluid migration pathways: Evidence from thermal maturity mapping in southwestern Wyoming, *in* Carter, L.M.H., ed., USGS research on energy resources 1985, program and abstracts: U.S. Geological Survey Circular 974, p. 35.
- Markochick, D.J., Lanham, R.E., Bucurel, H.G., and Law, B.E., 1981, Summary chart of geological data from Amoco Tierney Unit No. 1 well, SW 1/4 SE 1/4 Sec. 15, T. 20 N., R. 94 W., Sweetwater County, Wyoming: U.S. Geological Survey Oil and Gas Investigations Chart OC-116, 1 sheet.
- Spencer, C.W., and Law, Ben E., 1981, Overpressured, low-permeability gas reservoirs in Green River, Washakie, and Great Divide Basins, southwestern Wyoming [abs.]: American Association of Petroleum Geologists Bulletin, v. 65, no. 3, p. 569.
- Tyler, T.F., 1978, Preliminary chart showing electric log correlation section A-A' of some Upper Cretaceous and Tertiary rocks, Washakie Basin, Wyoming: U.S. Geological Survey Open-File Report 78-703, 4 sheets.
- Tyler, T.F., 1978, Core descriptions, photographs and core X-ray analyses of portions of the Upper Cretaceous Mesaverde Group, Washakie Basin, Wyoming: U.S. Geological Survey Open-File Report 78-708, 63 p.
- Tyler, T.F., 1978, Preliminary chart showing electric log correlation section B-B' of some Upper Cretaceous and Tertiary rocks, Washakie Basin, Wyoming: U.S. Geological Survey Open-File Report 78-1053, 3 sheets.

- Tyler, T.F., 1979, Preliminary chart showing electric log correlation section F-F' of some Upper Cretaceous and Tertiary rocks East Flank Rock Springs uplift, Wyoming: U.S. Geological Survey Open-File Report 79-1573, 1 sheet.
- Tyler, T.F., 1980, Preliminary chart showing electric log correlation section E-E' of some Upper Cretaceous and Tertiary Rocks, Cherokee Ridge, Wyoming: U.S. Geological Survey Open-File Report 80-191, 4 sheets.
- Tyler, T.F., 1980, Preliminary chart showing electric log correlation section G-G' of some Upper Cretaceous and Tertiary rocks, east flank Rock Springs uplift Wyoming: U.S. Geological Survey Open-File Report 80-1247, 3 sheets.
- Tyler, T.F., 1980, Preliminary chart showing electric log correlation section H-H' of some Upper Cretaceous and Tertiary rocks, south end, Rock Springs uplift, Washakie Basin, Wyoming: U.S. Geological Survey Open-File Report 80-1248, 3 sheets.
- Tyler, T.F., Bucurel-White, Hildie, and Peterson, J.R., 1982, Preliminary chart showing electric log correlation section I-I' of some Upper Cretaceous and Tertiary rocks, Washakie Basin, Wyoming: U.S. Geological Survey Open-File Report 82-720, 2 sheets.
- Tyler, T.F., and Peterson, J.R., 1980, Wildcat well penetration map showing wells drilled into and through potentially gas-bearing, low-permeability Upper Cretaceous and Tertiary reservoirs, Washakie Basin, Wyoming: U.S. Geological Survey Open-File Report 80-189, 1 sheet.
- Tyler, T.F., Peterson, J.R., and Bucurel, H.G., 1981, Preliminary chart showing electric log correlation section J-J' of some Upper Cretaceous and Tertiary rocks, Washakie Basin, Wyoming: U.S. Geological Survey Open-File Report 81-47, 2 sheets.

BASIN INDEX

Williston Basin

Spencer, C.W., 1987, Hydrocarbon generation as a mechanism for overpressuring in the Rocky Mountain region: American Association of Petroleum Geologists Bulletin, v. 71, no. 4, p. 368-388.

Wind River Basin

Merewether, E.A., 1983, The Frontier Formation and mid-Cretaceous orogeny in the foreland of southwestern Wyoming: The Mountain Geologist, v. 20, no. 4, p. 121-138.

Merewether, E.A., and Cobban, W.A., 1986, Biostratigraphic units and tectonism in the mid-Cretaceous foreland of Wyoming, Colorado and adjoining areas, *in* Peterson, J.A., ed., Paleotectonics and sedimentation in the Rocky Mountain region, U.S.: American Association of Petroleum Geologists Memoir 41, p. 443-468.

Spencer, C.W., 1987, Hydrocarbon generation as a mechanism for overpressuring in the Rocky Mountain region: American Association of Petroleum Geologists Bulletin, v. 71, no. 4, p. 368-388.

SUBJECT INDEX

Cross Sections

- Bader, J.W., 1983, Section A-A', subsurface correlations of some Upper Cretaceous and Tertiary rocks from the Cherokee Ridge, Wyoming to the southeast flank of the Sand Wash Basin, Colorado: U.S. Geological Survey Open-File Report 83-362, 2 sheets.
- Bader, J.W., Law, B.E., and Spencer, C.W., 1982, Preliminary chart showing electric log correlation, section D-D', of some Upper Cretaceous and Tertiary rocks, Green River Basin, Wyoming: U.S. Geological Survey Open-File Report 82-129, 2 sheets.
- Bucurel, H.G., 1981, Subsurface correlations of some Upper Cretaceous and Tertiary rocks, Great Divide Basin, Wyoming, Section A-A' East and west: U.S. Geological Survey Open-File Report 81-981, 2 sheets.
- Bucurel, H.G., 1982, Section B-B', subsurface correlations of some Upper Cretaceous and Tertiary rocks, Great Divide Basin, Wyoming: U.S. Geological Survey Open-File Report 82-456, 2 sheets.
- Bucurel-White, Hildie, 1983, Section C-C', surface and subsurface correlations of some Upper Cretaceous and Tertiary rocks from the northeast flank Rock Springs uplift to the Rawlins uplift, Great Divide Basin, Wyoming: U.S. Geological Survey Open-File Report 83-418, 2 sheets.
- Fouch, T.D., 1981, Chart showing distribution of rock types, lithologic groups, and interpreted depositional environments for some lower Tertiary and Upper Cretaceous rocks from outcrops at Willow Creek-Indian Canyon through the subsurface of the Duchesne and Altamont oil fields, southwest to north-central parts of the Uinta Basin, Utah: U.S. Geological Survey Oil and Gas Investigations Chart, OC-81, 2 sheets in color.
- Fouch, T.D., and Cashion, W.B., 1979, Distribution of rock types, lithologic groups, and depositional environments for some lower Tertiary and Upper and Lower Cretaceous, and Upper and Middle Jurassic rocks in the subsurface between Altamont oil field and San Arroyo gas field, north-central to southeastern Uinta Basin, Utah: U.S. Geological Survey Open-File Report 79-365, 2 sheets.
- Fouch, T.D., Lawton, T.F., Nichols, D.J., Cashion, W.B., and Cobban, W.A., 1982, Chart showing preliminary correlation of major Albian to middle Eocene rock units from San Pete Valley, central Utah to the Book Cliffs in eastern Utah, *in* Overthrust Belt of Utah: Utah Geological Association Publication 10, p. 267-272.
- Johnson, R.C., 1978, Cross section showing depositional environments and lithologies of some Upper Cretaceous and Tertiary rocks, from DeBeque to the north-central Piceance Creek Basin, Colorado: U.S. Geological Survey Open-File Report 78-182, 1 sheet.

- Johnson, R.C., 1979, Cross Section A-A' of Upper Cretaceous and lower Tertiary rocks, northern Piceance Creek Basin, Colorado: U.S. Geological Survey Miscellaneous Field Investigations Map MF-1129-A, 2 sheets.
- Johnson, R.C., 1979, Cross section B-B' of Upper Cretaceous and lower Tertiary rocks, northern Piceance Creek Basin, Colorado: U.S. Geological Survey Miscellaneous Field Investigations Map MF-1129-B, 2 sheets.
- Johnson, R.C., 1979, Cross section C-C' of Upper Cretaceous and lower Tertiary rocks, northern Piceance Creek Basin, Colorado: U.S. Geological Survey Miscellaneous Field Investigations Map MF-1129-C, 2 sheets.
- Johnson, R.C., Granica, M.P., and Dessenberger, N.C., 1979, Cross section A-A' of Upper Cretaceous and lower Tertiary rocks, southern Piceance Creek Basin, Colorado: U.S. Geological Survey Miscellaneous Field Investigations Map MF-1130-A, 2 sheets.
- Johnson, R.C., Granica, M.P., and Dessenberger, N.C., 1979, Cross section B-B' of Upper Cretaceous and lower Tertiary rocks, southern Piceance Creek Basin, Colorado: U.S. Geological Survey Miscellaneous Field Investigations Map MF-1130-B, 2 sheets.
- Johnson, R.C., Granica, M.P., and Dessenberger, N.C., 1979, Cross section C-C' of Upper Cretaceous and lower Tertiary rocks, southern Piceance Creek Basin, Colorado: U.S. Geological Survey Miscellaneous Field Investigations Map MF-1130-C, 2 sheets.
- Johnson, R.C., and May, Fred, 1979, Preliminary stratigraphic studies of the upper part of the Mesaverde Group, the Wasatch Formation, and the lower part of the Green River Formation, DeBeque area, Colorado, including environments of deposition and investigation of palynomorph assemblages: U.S. Geological Survey Miscellaneous Field Investigations Map MF-1050, 2 sheets.
- Law, B.E., 1979, Section B-B', Subsurface and surface correlations of some Upper Cretaceous and Tertiary rocks, northern Green River Basin, Wyoming: U.S. Geological Survey Open-File Report 79-1689, 2 sheets.
- Law, B.E., 1981, Section C-C', Subsurface correlations of some Upper Cretaceous and Tertiary rocks, northern Green River Basin, Wyoming: U.S. Geological Survey Open-File Report 81-663, 2 sheets.
- Law, B.E., and Nichols, D.J., 1982, Subsurface stratigraphic correlations of some Upper Cretaceous and lower Tertiary rocks, northern Green River Basin, Wyoming, *in* Subsurface practices in geology and geophysics: University of Wyoming, Wyoming Geological Association, Geological Survey of Wyoming Annual Spring Conference, May 2-4, Proceedings, p. 17.

- Law, B.E., Spencer, C.W., and Roehler, H.W., 1979, Section A-A', Surface and subsurface correlations of some Upper Cretaceous and Tertiary rocks, Green River Basin, Wyoming: U.S. Geological Survey Open-File Report 79-357, 2 sheets.
- Markochick, D.J., Law, B.E., and Spencer, C.W., 1982, Section E-E', preliminary subsurface correlations of some Cretaceous and Tertiary rocks from Moxa Arch to Rock Springs uplift, Green River Basin, Wyoming: U.S. Geological Survey Open-File Report 82-455, 2 sheets.
- Nuccio, V.F., and Johnson, R.C., 1983, Preliminary thermal maturity map of the Cameo-Fairfield or equivalent coal zone through the Piceance Creek Basin, Colorado: U.S. Geological Survey Miscellaneous Field Study Map MF-1575, 2 sheets.
- Rice, D.D., 1977, Stratigraphic sections from well logs and outcrops of Cretaceous and Paleocene rocks, northern Great Plains, North and South Dakota: U.S. Geological Survey Oil and Gas Investigation Chart OC-72, 3 sheets.
- Rice, D.D., 1981, Subsurface cross section from southeastern Alberta, Canada to Bowdoin Dome, north-central Montana showing correlation of Cretaceous rocks and shallow, gas-productive zones in low-permeability reservoirs: U.S. Geological Survey Oil and Gas Investigations Chart OC-112. 1 pl.
- Tyler, T.F., 1978, Preliminary chart showing electric log correlation section A-A' of some Upper Cretaceous and Tertiary rocks, Washakie Basin, Wyoming: U.S. Geological Survey Open-File Report 78-703, 4 sheets.
- Tyler, T.F., 1978, Preliminary chart showing electric log correlation section B-B' of some Upper Cretaceous and Tertiary rocks, Washakie Basin, Wyoming: U.S. Geological Survey Open-File Report 78-1053, 3 sheets.
- Tyler, T.F., 1979, Preliminary chart showing electric log correlation section C-C' of some Upper Cretaceous and Tertiary rocks, Wamsutter Arch, Wyoming: U.S. Geological Survey Open-File Report 79-296, 3 sheets.
- Tyler, T.F., 1979, Preliminary chart showing electric log correlation section D-D' of some Upper Cretaceous and Tertiary rocks, Rock Springs uplift, Wyoming: U.S. Geological Survey Open-File Report 79-1217, 4 sheets.
- Tyler, T.F., 1979, Preliminary chart showing electric log correlation section F-F' of some Upper Cretaceous and Tertiary rocks East Flank Rock Springs uplift, Wyoming: U.S. Geological Survey Open-File Report 79-1573, 1 sheet.
- Tyler, T.F., 1980, Preliminary chart showing electric log correlation section E-E' of some Upper Cretaceous and Tertiary Rocks, Cherokee Ridge, Wyoming: U.S. Geological Survey Open-File Report 80-191, 4 sheets.

- Tyler, T.F., 1980, Preliminary chart showing electric log correlation section G-G' of some Upper Cretaceous and Tertiary rocks, east flank Rock Springs uplift Wyoming: U.S. Geological Survey Open-File Report 80-1247, 3 sheets.
- Tyler, T.F., 1980, Preliminary chart showing electric log correlation section H-H' of some Upper Cretaceous and Tertiary rocks, south end, Rock Springs uplift, Washakie Basin, Wyoming: U.S. Geological Survey Open-File Report 80-1248, 3 sheets.
- Tyler, T.F., Bucurel-White, Hildie, and Peterson, J.R., 1982, Preliminary chart showing electric log correlation section I-I' of some Upper Cretaceous and Tertiary rocks, Washakie Basin, Wyoming: U.S. Geological Survey Open-File Report 82-720, 2 sheets.
- Tyler, T.F., and Peterson, J.R., 1980, Wildcat well penetration map showing wells drilled into and through potentially gas-bearing, low-permeability Upper Cretaceous and Tertiary reservoirs, Washakie Basin, Wyoming: U.S. Geological Survey Open-File Report 80-189, 1 sheet.
- Tyler, T.F., Peterson, J.R., and Bucurel, H.G., 1981, Preliminary chart showing electric log correlation section J-J' of some Upper Cretaceous and Tertiary rocks, Washakie Basin, Wyoming: U.S. Geological Survey Open-File Report 81-47, 2 sheets.

SUBJECT INDEX

Maps

- Granica, M.P., and Johnson, R.C., 1980, Structure contour and Isochore map of the nonmarine part of the Mesaverde Formation/Group, Piceance Creek Basin, Colorado: U.S. Geological Survey Miscellaneous Field Investigations Map MF-1189, 1 sheet, scale 1:250,000, 10 page pamphlet.
- Johnson, R.C., 1983, Structure contour map of the top of the Rollins and Trout Creek sandstones, Piceance Creek Basin, Colorado: U.S. Geological Survey Miscellaneous Field Investigations Map MF-1667, scale 1:253,400.
- Johnson, R.C., 1986, Structure contour map of the Castlegate Sandstone, eastern part of the Uinta basin and the western part of the Piceance Creek basin, Utah and Colorado: U.S. Geological Survey Miscellaneous Field Investigations Map MF-1826.
- Law, B.E., and Smith, C.R., 1983, Subsurface temperature map showing depth to 180° Fahrenheit in the Greater Green River Basin, Wyoming, Colorado, and Utah: U.S. Geological Survey Miscellaneous Field Studies Map MF-1504, scale 1:500,000.
- Lickus, M.R., and Law, B.E., 1988, Structure contour map of the Greater Green River Basin, Wyoming, Colorado, and Utah: U.S. Geological Survey Miscellaneous Field Studies Map MF-2031.
- Merewether, E.A., Krystinik, K.B., and Pawlewicz, M.J., 1987, Thermal maturity of hydrocarbon-bearing formations in southwestern Wyoming and northwestern Colorado: U.S. Geological Survey Miscellaneous Investigations Map I-1831, scale 1:1,000,000.
- Nuccio, V.F., and Johnson, R.C., 1981, Map showing drill-stem test and perforation recoveries of the Upper Cretaceous Mesaverde Group, Piceance Creek Basin, Colorado: U.S. Geological Survey Miscellaneous Field Studies Map MF-1359, 1 sheet, scale 1:250,000.
- Nuccio, V.F., and Johnson, R.C., 1983, Preliminary thermal maturity map of the Cameo-Fairfield or equivalent coal zone through the Piceance Creek Basin, Colorado: U.S. Geological Survey Miscellaneous Field Study Map MF-1575, 2 sheets.
- Nuccio, V.F., and Johnson, R.C., 1986, Thermal maturity of the lower part of the Upper Cretaceous Mesaverde Group, Uinta Basin, Utah: U.S. Geological Survey Miscellaneous Field Study Map MF-1842.
- Nuccio, V.F., and Johnson, R.C., 1988, Surface vitrinite reflectance map of the Uinta, Piceance and Eagle Basins area, Utah and Colorado: U.S. Geological Survey Miscellaneous Field Study Map, MF-2008-B, one plate, 19 p.

- Pawlewicz, M.J., Lickus, M.K., Law, B.E., and Dickinson, W.W., 1986, Thermal maturity map showing depth to 0.8% vitrinite reflectance in the Greater Green River Basin, Wyoming, Colorado, and Utah: U.S. Geological Survey Miscellaneous Field Studies Map MF-1890.
- Spencer, C.W., 1979, Wildcat well penetration map showing wells drilled into and through potentially gas-bearing, low-permeability Upper Cretaceous and Tertiary reservoirs, Great Divide Basin, Wyoming: U.S. Geological Survey Open-File Report 79-826, scale 1:125,000.
- Tyler, T.F., 1979, Wildcat well penetration map showing wells drilled into and through potentially gas-bearing, low-permeability Upper Cretaceous and Tertiary reservoirs, Sand Wash Basin, Colorado: U.S. Geological Survey Open-File Report 79-1437, 1 sheet.

SUBJECT INDEX

Gas Origin or Generations

- Bader, J.W., Gill, J.R., Cobban, W.A., and Law, B.E., 1983, Biostratigraphic correlation chart of some Upper Cretaceous rocks from the Lost Soldier area, Wyoming to west of Craig, Colorado: U.S. Geological Survey Miscellaneous Field Studies Map MF-1548, 1 sheet.
- Bostick, N.H., 1983, Vitrinite reflectance and temperature gradient models applied at a site in the Piceance Basin, Colorado [abs.]: American Association of Petroleum Geologists Bulletin, v. 67, no. 3, p. 427-428.
- Bostick, N.H., and Freeman, V.L., 1984, Tests of vitrinite reflectance and paleotemperature models at the Multiwell Experiment Site, Piceance Creek Basin, Colorado, in Spencer, C.W., and Keighin, C.W., eds., Geologic studies in support of the U.S. Department of Energy Multiwell Experiment, Garfield County, Colorado: U.S. Geological Survey Open-File Report 84-757, p. 110-120.
- Chancellor, R.E., and Johnson, R.C., 1986, Geologic and engineering implications of production history from five wells in central Piceance Creek basin, northwest Colorado: Proceedings Society of Petroleum Engineers Unconventional Gas Technology Symposium, Louisville, Ky., May 18-21, SPE 15237, p. 351-364.
- Dickinson, W.W., and Law, B.E., 1985, Burial history of Upper Cretaceous and Tertiary rocks interpreted from vitrinite reflectance, northern Green River basin, Wyoming [abs.]: American Association of Petroleum Geologists Bulletin, v. 69, no. 5, p. 846.
- Gautier, D.L., 1981, Diagenesis and methane generation in Upper Cretaceous Gammon Shale, northern Great Plains, United States [abs.]: American Association of Petroleum Geologists Bulletin, v. 65, no. 5, p. 929.
- Gautier, D.L., 1983, Gas reservoirs in composite shale-sandstone lithologies A Rocky Mountain energy frontier [abs.]: American Association of Petroleum Geologists Bulletin, v. 67, no. 8, p. 1338.
- Gautier, D.L., and Claypool, G.E., 1982, Siderite and methane in Gammon Shale Quantitative reconstruction by analogy with processes in modern diagenetic environments [abs.]: U.S. Geological Survey Workshop on Diagenesis, Golden, Colo., March 16-18, 1982, Program, p. 19.
- Gautier, D.L., and Pratt, L.M., 1986, Organic carbon accumulation and sulfur diagenesis in fine-grained Cretaceous rocks of the Western Interior of North America, in Carter, L.M.H., ed., USGS research on energy resources 1986 program and abstracts: U.S. Geological Survey Circular 974, p. 16-17.
- Johnson, R.C., 1987, Geologic history and hydrocarbon potential of Late Cretaceous-age low-permeability reservoirs, Piceance basin, western Colorado: U.S. Department of Energy, Fossil Energy, DOE/MC/20422-2337, 97 p.

- Johnson, R.C., Crovelli, R.A., Spencer, C.W., and Mast, R.F., 1987, An assessment of gas resources in low-permeability sandstones of the Upper Cretaceous Mesaverde Group, Piceance basin, Colorado: U.S. Geological Survey Open-File Report 87-357, 165 p.
- Johnson, R.C., Crovelli, R.A., Spencer, C.W., and Mast, R.F., 1988, Assessment of gas resources in low-permeability sandstones of Upper Cretaceous Mesaverde Group, Piceance basin, Colorado [abs.]: American Association of Petroleum Geologists Bulletin, v. 72, no. 2, p. 202.
- Johnson, R.C., Crovelli, R.A., Spencer, C.W., and Mast, R.F., 1988, An assessment of gas resources in low-permeability sandstones of Upper Cretaceous Mesaverde Group, Piceance basin, Colorado [abs.], in Carter, L.M.H., ed., USGS research on energy resources 1988; program and abstracts: U.S. Geological Survey Circular 1025, p. 23-24.
- Johnson, R.C., and Nuccio, V.F., 1983, Structural and thermal history of Piceance Creek Basin, Colorado in relation to hydrocarbon occurrence in Mesaverde Group [abs.]: American Association of Petroleum Geologists Bulletin, v. 67, no. 3, p. 490-491.
- Johnson, R.C., and Nuccio, V.F., 1984, Thermal maturity of organic matter in Green River Formation, Piceance Creek Basin, Colorado [abs.]: American Association of Petroleum Geologists Bulletin, v. 68, no. 4, p. 492-493.
- Johnson, R.C., and Nuccio, V.F., 1984, The thermal maturity of Late Cretaceous age Mesaverde Group, Uinta Basin, Utah: Society of Economic Paleontologists and Mineralogists Annual Midyear Meeting, August 10-13, San Jose, Calif., Abstracts, p. 40.
- Law, B.E., 1984, Geologic characteristics of low-permeability gas reservoirs in Greater Green River Basin of Wyoming, Colorado and Utah [abs.]: American Association of Petroleum Geologists Bulletin, v. 68, no. 4, p. 498-499.
- Law, B.E., 1984, Geologic characteristics of low-permeability gas reservoirs in Greater Green River Basin of Wyoming, Colorado and Utah [abs.]: American Association of Petroleum Geologists Bulletin, v. 68, no. 4, p. 498-499.
- Law, B.E., 1984, Relationships of source rock, thermal maturity, and overpressuring to gas generation and occurrence in low-permeability Upper Cretaceous and lower Tertiary rocks, Greater Green River Basin, Wyoming, Colorado, and Utah, in Woodward, Jane, Meissner, F.F., and Clayton, J.L., eds., Hydrocarbon source rocks of the greater Rocky Mountain region: Rocky Mountain Association of Geologists, p. 469-490.
- Law, B.E., 1984 Relationships of source rock, thermal maturity, and overpressuring to gas generation and occurrence in low-permeability Upper Cretaceous and lower Tertiary rocks, Greater Green River Basin, Wyoming, Colorado, and Utah [abs.]: American Association of Petroleum Geologists Bulletin, v. 68, no. 7, p. 140.

- Law, B.E., ed., 1984, Geological characteristics of low-permeability Upper Cretaceous and lower Tertiary rocks in the Pinedale anticline area, Sublette County, Wyoming: U.S. Geological Survey Open-File Report 84-753, 107 p.
- Law, B.E., 1984, Source rock evaluation of Upper Cretaceous and lower Tertiary rocks in the Pinedale anticline area, Sublette County, Wyoming, *in* Law, Ben E., ed., Geological characteristics of low-permeability Upper Cretaceous and lower Tertiary rocks in the Pinedale anticline area, Sublette County, Wyoming: U.S. Geological Survey Open-File Report 84-753, p. 36-50.
- Law, B.E., and Clayton, J.L., 1987, A burial, thermal, and hydrocarbon source rock evaluation of Lower Cretaceous rocks in the southern Moxa arch area, Utah and Wyoming [abs.], *in* Miller, W. Roger, ed., The thrust belt revisited: Wyoming Geological Association Guidebook, p. 357.
- Law, B.E., and Clayton, J.L., 1987, The role of thermal history in the preservation of oil at the south end of the Moxa arch, Utah and Wyoming Implications for the oil potential in the southern Green River basin [abs.], *in* Carter, L.M.H., ed., USGS research on energy resources 1988; program and abstracts: U.S. Geological Survey Circular 1025, p. 27.
- Law, B.E., and Dickinson, W.W., 1984, A conceptual model of gas-seal development, Green River Basin, Wyoming [abs.]: American Association of Petroleum Geologists Bulletin, v. 68, no. 7, p. 940.
- Law, B.E., and Nuccio, V.F., 1986, Segmented vitrinite reflectance profile from the Deep Seam Project, Piceance Creek Basin, Colorado Evidence of previous high pore pressure: American Association of Petroleum Geologists, [abs.], v. 70, p. 1047.
- Law, B.E., Pollastro, R.M., and Keighin, C.W., 1986, Geologic characteristics of low-permeability gas reservoirs in selected wells, Greater Green River Basin, Wyoming, Colorado, and Utah, *in* Spencer, C.W., and Mast, R.F., eds., Geology of tight gas reservoirs: American Association of Petroleum Geologists Studies in Geology, 24, p. 253-270.
- Law, B.E., and Smith, C.R., 1983, Subsurface temperature map showing depth to 180° Fahrenheit in the Greater Green River Basin, Wyoming, Colorado, and Utah: U.S. Geological Survey Miscellaneous Field Studies Map MF-1504, scale 1:500,000.
- Law, B.E., and Spencer, C.W., 1981, Abnormally high-pressured, low-permeability, Upper Cretaceous and Tertiary gas reservoirs, northern Green River Basin, Wyoming [abs.]: American Association of Petroleum Geologists Bulletin, v. 65, no. 5, p. 948.

- Law, B.E., Spencer, C.W., and Bostick, N.H., 1979, Preliminary results of organic maturation, temperature, and pressure studies in the Pacific Creek area, Sublette County, Wyoming, *in* Proceedings of the 5th SPE Symposium on Enhanced Oil and Gas Recovery and Improved Drilling Methods, Tulsa, Okla., v. 3 Gas and Drilling: Tulsa, Okla., The Petroleum Publishing Co., p. K2/1-2/13.
- Law, B.E., Spencer, C.W., and Bostick, N.H., 1980, Evaluation of organic matter, subsurface temperature, and pressure with regard to gas generation in low-permeability Upper Cretaceous and lower Tertiary sandstones in Pacific Creek area, Sublette and Sweetwater Counties, Wyoming: *The Mountain Geologist*, v. 17, no. 2, p. 23-35.
- Law, B.E., Spencer, C.W., and Bostick, N.H., 1980, Evaluation of organic matter, subsurface temperature, and pressure with regard to gas generation in low-permeability Upper Cretaceous and lower Tertiary sandstones in Pacific Creek area, Sublette County [abs.]: *American Association of Petroleum Geologists Bulletin*, v. 64, no. 5, p. 738.
- Markochick, D.J., and Law, B.E., 1981, Estimates of gas content in coal and carbonaceous rocks from deep drilling in Pacific Creek area, northeastern Green River Basin, Sweetwater County, Wyoming [abs.]: *American Association of Petroleum Geologists Bulletin*, v. 65, no. 3, p. 564-565.
- Merewether, E.A., Krystinik, K.B., and Pawlewicz, M.J., 1987, Thermal maturity of hydrocarbon-bearing formations in southwestern Wyoming and northwestern Colorado: U.S. Geological Survey Miscellaneous Investigations Map I-1831, scale 1:1,000,000.
- Nuccio, V.F., 1985, Comparison between immature vitrinite and solid bitumen, Green River Formation, Piceance Creek Basin, Colorado [abs.]: *American Association of Petroleum Geologists Bulletin*, v. 69, no. 2 p. 293.
- Nuccio, V.F., and Johnson, R.C., 1983, Preliminary thermal maturity map of the Cameo-Fairfield or equivalent coal zone through the Piceance Creek Basin, Colorado: U.S. Geological Survey Miscellaneous Field Study Map MF-1575, 2 sheets.
- Nuccio, V.F., and Johnson, R.C., 1984, Thermal maturation and burial history of the Upper Cretaceous Mesaverde Group, including the Multiwell Experiment (MWX), Piceance Creek Basin, Colorado, *in* Spencer, C.W., and Keighin, C.W., eds., *Geologic studies in support of the U.S. Department of Energy Multiwell Experiment, Garfield County, Colorado*: U.S. Geological Survey Open-File Report 84-757, p. 102-109.
- Nuccio, V.F., and Johnson, R.C., 1986, Thermal maturity of the lower part of the Upper Cretaceous Mesaverde Group, Uinta Basin, Utah: U.S. Geological Survey Miscellaneous Field Study Map MF-1842.

- Nydegger, G.L., Rice, D.D., and Brown, C.A., 1980, Bowdoin Dome area, north-central Montana Example of shallow biogenic gas production from low-permeability reservoirs [abs.]: American Association of Petroleum Geologists Bulletin, v. 64, no. 5, p. 760-761.
- Rice, D.D., and Claypool, G.E., 1981, Generation, accumulation, and resource potential of biogenic gas: Gas Energy Review, v. 9, no. 4, p. 8-10.
- Rice, D.D., and Claypool, G.E., 1981, Generation, accumulation, and resource potential of biogenic gas: American Association of Petroleum Geologists Bulletin, v. 65, no. 1, p. 5-25.
- Rice, D.D., and Claypool, G.E., 1981, Biogenic gas requirements for generation, accumulation--Resource potential evaluation: Oil and Gas Journal, v. 79, no. 4, p. 258-273.
- Rice, D.D., and Claypool, G.E., 1981, Significance of shallow gas in ancient marine sequences [abs.]: American Association of Petroleum Geologists Bulletin, v. 65, no. 5, p. 978.
- Rice, D.D., and Gautier, D.L., 1980, Development of biogenic gas from shallow, low-permeability reservoirs Examples from southeastern Alberta and Bowdoin Dome area, north-central Montana [abs.]: American Association of Petroleum Geologists Bulletin, v. 64, no. 5, p. 773.
- Rice, D.D., and Gautier, D.L., 1983, Coastal sandstones, Chapter 6 *in* Rice, D.D. and Gautier, D.L., eds., Patterns of sedimentation, diagenesis and hydrocarbon accumulation in Cretaceous rocks of the Rocky Mountains: Society of Economic Paleontologists and Mineralogists Short Course No. 11, p. 6-1 to 6-41.
- Rice, D.D., and Gautier, D.L., 1983, Shelf sandstones, Chapter 7 *in* Rice, D.D. and Gautier, D.L., eds., Patterns of sedimentation, diagenesis and hydrocarbon accumulation in Cretaceous rocks of the Rocky Mountains: Society of Economic Paleontologists and Mineralogists Short Course No. 11, p. 7-1 to 7-41.
- Rice, D.D., Nydegger, G.L., and Brown, C.A., 1979, Bowdoin Dome area, north-central Montana An example of shallow, biogenic gas production from low-permeability reservoirs [abs.]: American Association of Petroleum Geologists Bulletin, v. 63, no. 5, p. 838-839.
- Rice, D.D., and Shurr, G.W., 1978, Potential for major natural gas resources in shallow, low-permeability reservoirs of the northern Great Plains: Montana Geological Society Guidebook, 24th Annual Conference, Williston Basin Symposium, 1978, p. 265-281.
- Schmoker, J.W., and Gautier, D.L., 1988, Sandstone porosity as a function of thermal maturity An approach to porosity comparisons and prediction [abs.]: American Association of Petroleum Geologists Bulletin, v. 72, no. 7, p. 880.

- Spencer, C.W., 1983, Geologic aspects of tight gas reservoirs in the Rocky Mountain region: Proceedings of the SPE/DOE Joint Symposium on Low-Permeability Gas Reservoirs, Denver, Colo., March 13-16, 1983, p. 399-408.
- Spencer, C.W., 1983, Overpressured reservoirs in Rocky Mountain region [abs.]: American Association of Petroleum Geologists Bulletin, v. 67, no. 8, p. 1356-1357.
- Spencer, C.W., 1984, Significance of overpressured reservoirs in the Rocky Mountain region [abs.]: The Outcrop, v. 33, no. 5, p. 9-10.
- Spencer, C.W., 1984, Overpressured tight gas reservoirs in the Pinedale anticline area, Sublette County, Wyoming, *in* Law, B.E., ed., Geological characteristics of low-permeability Upper Cretaceous and lower Tertiary rocks in the Pinedale anticline area, Sublette County, Wyoming: U.S. Geological Survey Open-File Report 84-753, p. 51-59.
- Spencer, C.W., 1987, Hydrocarbon generation as a mechanism for overpressuring in the Rocky Mountain region: American Association of Petroleum Geologists Bulletin, v. 71, no. 4, p. 368-388.
- Spencer, C.W., 1987, Significance of overpressured reservoirs in the Rockies [abs.]: The Outcrop, v. 36, no. 10, p. 4.
- Spencer, C.W., 1988, Abnormally high- and low-pressured gas reservoirs Examples from Rocky Mountain region [abs.], *in* Carter, L.M.H., ed., USGS research on energy resources 1988; program and abstracts: U.S. Geological Survey Circular 1025, p. 58.
- Spencer, C.W., and Law, Ben E., 1981, Overpressured, low-permeability gas reservoirs in Green River, Washakie, and Great Divide Basins, southwestern Wyoming [abs.]: American Association of Petroleum Geologists Bulletin, v. 65, no. 3, p. 569.
- Spencer, C.W., and Law, B.E., 1988, Unconventional resources Western tight gas reservoirs, *in* National assessment of undiscovered conventional oil and gas resources, USGS-MMS, working paper: U.S. Geological Survey Open-File Report 88-373, p. 480-500.
- Spencer, C.W., and Mast, R.F., eds., 1986, Geology of tight gas reservoirs: American Association of Petroleum Geologists Special Studies in Geology No. 24, 299 p.

SUBJECT INDEX

Reservoir or Mineralogic Studies

- Chancellor, R.E., and Johnson, R.C., 1986, Geologic and engineering implications of production history from five wells in central Piceance Creek basin, northwest Colorado: Proceedings Society of Petroleum Engineers Unconventional Gas Technology Symposium, Louisville, Ky., May 18-21, SPE 15237, p. 351-364.
- Charpentier, R.R., Law, B.E., and Prenskey, S.E., 1987, Quantitative model of over-pressured gas resources of the Pinedale anticline, Wyoming, *in* SPE/DOE Joint Symposium on Low Permeability Reservoirs, Denver, 1987, Proceedings: Society of Petroleum Engineers, p. 153-164, SPE/DOE 16404.
- Cowgill, D.F., and Pitman, J.K., 1981, NMR determination of porosity and permeability of western tight gas sands: Proceedings of the SPE/DOE Symposium on Low Permeability Gas Reservoirs, Dallas, Tex., Society of Petroleum Engineers, p.437-448.
- Cowgill, D.F., Seevers, D.O., Pitman, J.K., and Dobecki, T.L., 1981, Application of nuclear magnetic resonance to characterization of low permeability sandstone reservoirs, Uinta Basin, Utah [abs.]: *Geophysics*, v. 46, no. 4, p. 415.
- Dickinson, W.W., and Gautier, D.L., 1983, Diagenesis of nonmarine rocks and gas entrapment in northern Green River Basin, Wyoming [abs.]: *American Association of Petroleum Geologists Bulletin*, v. 67, no. 3, p. 450.
- Dickinson, W.W. and Prenskey, S.E., 1986, Porosity and permeability modification in Upper Cretaceous and Tertiary sandstone of the Green River basin, Wyoming [abs.], *in* Sediments down under; 12th International Sedimentological Congress, [Canberra, Australia]: International Association of Sedimentologists, p. 81-82.
- Duda, L.E., and Pitman, J.K., 1981, Preliminary pore-structure analysis of tight sandstones using computer-processed photomicrographs [abs.]: *American Association of Petroleum Geologists*, v. 65, no. 3, p. 558-559.
- Duda, L.E., and Pitman, J.K., 1982, Pore structure analysis of sandstones using computer-processed photomicrographs: Sandia National Laboratories Report, Sandia 82-1083, 40 p.
- Gardner, K.L., 1980, Impregnation technique using colored epoxy to define porosity in petrographic thin sections: *Canadian Journal of Earth Sciences*, v. 17, no. 8, p. 1104-1107.
- Gautier, D.L., 1979, Post-depositional control of gas reservoir quality in the Eagle Sandstone of the Bearpaw Mountains, north-central Montana [abs.]: *American Association of Petroleum Geologists Bulletin*, v. 63, no. 5, p. 827.

- Gautier, D.L., 1980, Diagenesis in shallow conventional and low-permeability biogenic methane reservoirs of Eagle Sandstone, Montana [abs.]: American Association of Petroleum Geologists Bulletin, v. 64, no. 5, p. 712.
- Gautier, D.L., 1980, Physical characteristics of shallow methane reservoirs of northern Great Plains [abs.]: American Association of Petroleum Geologists Bulletin, v. 64, no. 5, p. 711-712.
- Gautier, D.L., 1981, Lithology, reservoir properties, and burial history of portion of Gammon Shale (Cretaceous), southwestern North Dakota: American Association of Petroleum Geologists Bulletin, v. 65, no. 6, p. 1146-1159.
- Gautier, D.L., 1981, Pierre Shale as a natural gas reservoir [abs.]: Geological Society of America Abstracts with Programs, v. 13, no. 4, p. 198.
- Gautier, D.L., 1981, Diagenesis and methane generation in Upper Cretaceous Gammon Shale, northern Great Plains, United States [abs.]: American Association of Petroleum Geologists Bulletin, v. 65, no. 5, p. 929.
- Gautier, D.L., 1981, Petrology of the Eagle Sandstone, Bearpaw Mountains area, north-central Montana: U.S. Geological Survey Bulletin 1521, 54 p.
- Gautier, D.L., 1983, Diagenesis, Chapter 4 in Rice, D.D., and Gautier, D.L., eds., Patterns of sedimentation, diagenesis, and hydrocarbon accumulation in Cretaceous rocks of the Rocky Mountains: Society of Economic Paleontologists and Mineralogists Short Course No. 11, p. 4-1 to 4-29.
- Gautier, D.L., 1983, Nonmarine rocks, Chapter 5 in Rice, D.D., and Gautier, D.L., eds., Patterns of sedimentation, diagenesis and hydrocarbon accumulation in Cretaceous rocks of the Rocky Mountains: Society of Economic Paleontologists and Mineralogists Short Course No. 11, p. 5-1 to 5-43.
- Gautier, D.L., 1983, Gas reservoirs in composite shale-sandstone lithologies A Rocky Mountain energy frontier [abs.]: American Association of Petroleum Geologists Bulletin, v. 67, no. 8, p. 1338.
- Gautier, D.L., 1983, Marine shales, Chapter 8 in Rice, D.D. and Gautier, D.L., eds., Patterns of sedimentation, diagenesis and hydrocarbon accumulation in Cretaceous rocks of the Rocky Mountains: Society of Economic Paleontologists and Mineralogists Short Course No. 11, p. 8-1 to 8-41.
- Gautier, D.L., and Claypool, G.E., 1982, Siderite and methane in Gammon Shale Quantitative reconstruction by analogy with processes in modern diagenetic environments [abs.]: U.S. Geological Survey Workshop on Diagenesis, Golden, Colo., March 16-18, 1982, Program, p. 19.
- Gautier, D.L., and Pollastro, R.M., 1982, Petrology and mineralogy in relation to reservoir properties in the EPNG No. 2 Wagon Wheel Well, Green River Basin, Wyoming [abs.]: University of Wyoming, Wyoming Geological Association, and Geological Survey of Wyoming Annual Spring Conference, Laramie, Wyo., May 2-4, 1982, Proceedings, p. 9.

- Gautier, D.L., and Rice, D.D., 1981, Comparison of conventional and low-permeability reservoirs of shallow gas in the northern Great Plains, Proceedings of the SPE/DOE Symposium on Low Permeability Gas Reservoirs, Dallas, Tex., Society of Petroleum Engineers, p. 193-204.
- Gautier, D.L., and Rice, D.D., 1981, Facies distribution and reservoir quality of biogenic gas reservoirs of northern Great Plains Example from Eagle-Telegraph Creek (Upper Cretaceous) Interval [abs.]: American Association of Petroleum Geologists Bulletin, v. 65, no. 3, p. 559.
- Gautier, D.L., and Rice, D.D., 1982, Conventional and low-permeability reservoirs of shallow gas in the northern Great Plains: Journal of Petroleum Technology, v. 34, p. 1600-1608.
- Gautier, D.L., and Rice, D.D., 1983, Significance of gamma-ray spectroscopy for evaluating shallow gas reservoirs from Bowdoin Dome, Montana [abs.]: American Association of Petroleum Geologists Bulletin, v. 67, no. 3, p. 468.
- Gautier, D.L., Starkey, H.C., and Takahashi, K.J., 1981, Clays, cations, and log response in the gas-productive Upper Cretaceous Gammon Shale of the northern Great Plains [abs.]: 30th Annual Clay Minerals Conference, 18th Meeting Clay Minerals Society, Urbana-Champaign, Ill., Program and Abstracts, p. 45.
- Gautier, D.L., Starkey, H.C., and Takahashi, K.J., 1983, Clays, cations, and log response of gas-producing and non-producing zones in the Gammon Shale (Cretaceous), southwestern North Dakota: Clays and Clay Minerals, v. 32, no. 1, p. 122-128.
- Grout, M.A., and Verbeek, E.R., 1986, Prediction of joint patterns at depth examples from the Piceance Basin, northwestern Colorado: Geological Society of America Abstracts with Programs, v. 18, no. 5, p. 358.
- Grout, M.A., and Verbeek, E.R., 1987, Regional joint sets unrelated to major folds example from the Piceance basin, northeastern Colorado Plateau [abs.]: Geological Society of America Abstracts with Programs, v. 19, no. 5, p. 279.
- Hansley, P.L., 1981, Mineralogy and diagenesis of core samples of Upper Cretaceous sandstones, Twin Arrow Inc. 4-14X C & K well, Piceance Creek Basin, northwestern Colorado: U.S. Geological Survey Open-File Report 81-845, 8 p.
- Hansley, P.L., 1981, Mineralogy, diagenesis, and provenance of Upper Cretaceous sandstones from the Ralston Production Company Federal No. 31 well, Piceance Creek Basin, northwestern Colorado: U.S. Geological Survey Open-File Report 81-1295, 21 p.
- Hansley, P.L., and Johnson, R.C., 1979, Preliminary results of mineralogic and diagenetic studies of low-permeability sandstones of Late Cretaceous age, Piceance Creek Basin, northwestern Colorado: U.S. Geological Survey Open-File Report 79-1702, 39 p.

- Hansley, P.L., and Johnson, R.C., 1980, Mineralogy and diagenesis of low-permeability sandstones of Late Cretaceous age, Piceance Creek Basin, northwestern Colorado: *The Mountain Geologist*, v. 17, no. 4, p. 88-129.
- Johnson, R.C., 1987, Geologic history and hydrocarbon potential of Late Cretaceous-age low-permeability reservoirs, Piceance basin, western Colorado: U.S. Department of Energy, Fossil Energy, DOE/MC/20422-2337, 97 p.
- Johnson, R.C., May, Fred, Hansley, P.L., Pitman, J.K., and Fouch, T.D., 1980, Petrology, X-ray mineralogy, and palynology of a measured section of the Upper Cretaceous Mesaverde Group in Hunter Canyon, western Colorado: U.S. Geological Survey Oil and Gas Investigations Chart OC-91, 1 sheet.
- Keighin, C.W., 1978, Some petrographic characteristics of a sequence of siliciclastic rocks from the Mesaverde Group, North Horn Formation, and lower part of the Green River Formation, Price River Canyon area, southwestern Uinta Basin, Utah [abs.]: *American Association of Petroleum Geologists Bulletin*, v. 62, no. 5, p. 885.
- Keighin, C.W., 1979, Influence of diagenetic reactions on reservoir properties of the Neslen, Farrer, and Tuscher Formations, Uinta Basin, Utah: *Proceedings of the SPE Symposium on low-permeability gas reservoirs*, Society of Petroleum Engineers, Dallas, Tex., p. 77-84.
- Keighin, C.W., 1980, Characteristics of pores in some Upper Cretaceous nonmarine sandstones, Uinta Basin, Utah: *Scanning Electron Microscopy 1980/I*, p. 559-564.
- Keighin, C.W., 1980, Some relations between diagenesis and porosity (real and imagined), sandstones of Mesaverde Group, Uinta Basin, Utah [abs.]: *American Association of Petroleum Geologists Bulletin*, v. 64, no. 5, p. 732.
- Keighin, C.W., 1981, Effects of physical and chemical diagenesis on low-porosity, low-permeability sandstones, Mesaverde Group, Uinta Basin, Utah [abs.]: *American Association of Petroleum Geologists Bulletin*, v. 65, no. 3, p. 562.
- Keighin, C.W., 1982, Reservoir characteristics of selected low-permeability sandstones, Late Cretaceous age, Uinta basin, Utah, and Green River Basin, Wyoming *in* *Subsurface practices in geology and geophysics* [abs.],: University of Wyoming, Wyoming Geological Association, and Geological Survey of Wyoming, Laramie, Wyo., May 2-4, p. 16.
- Keighin, C.W., 1983, Behavior of low-permeability sandstones in potential reservoir conditions [abs.]: *American Institute of Chemical Engineers National Meeting*, Denver, Colo., Aug. 28-31, 1983, p. 89.
- Keighin, C.W., and Fouch, T.D., 1979, Influence of diagenetic reactions on nonmarine Upper Cretaceous rocks of the Southman Canyon gas field, Uinta Basin, Utah [abs.]: *American Association of Petroleum Geologists Bulletin*, v. 63, no. 5, p. 832-833.

- Keighin, C.W., and Fouch, T.D., 1981, Depositional environments and diagenesis of some nonmarine Upper Cretaceous reservoir rocks, Uinta Basin, Utah, *in* Ethridge, F.G., and Flores, R.M., eds., Recent and ancient nonmarine depositional environments as models for exploration: Society of Economic Paleontologists and Mineralogists Special Publication no. 31, p. 109-125.
- Keighin, C.W., and Sampath, K., 1980, Evaluation of pore geometry of some low-permeability sandstones, Uinta Basin, Utah: Society of Petroleum Engineers 55th Annual Fall Conf., Dallas, Texas, Sept. 21-24, 1980, (SPE Paper 9251), 6 p).
- Keighin, C.W., and Sampath, K., 1982, Evaluation of pore geometry of some low-permeability sandstones, Uinta Basin, Utah: *Journal of Petroleum Technology*, v. 34, no. 1, p. 65-70.
- Lanham, R.E., 1980, Petrography and diagenesis of low-permeability sandstones of the lower Almond Formation, southwestern Wyoming: University of Colorado, unpublished Masters thesis, Dept. of Geological Sciences, 113 p.
- Law, B.E., 1984, Geologic characteristics of low-permeability gas reservoirs in Greater Green River Basin of Wyoming, Colorado and Utah [abs.]: *American Association of Petroleum Geologists Bulletin*, v. 68, no. 4, p. 498-499.
- Law, B.E., Bucurel-White, Hildred, and Bader, J.W., 1983, Sedimentological aspects of stratigraphic correlations in the Upper Cretaceous Ericson Sandstone, Greater Green River Basin, Wyoming, Colorado, and Utah [abs.]: *Geological Society of America Abstracts with Programs*, v. 15, no. 5, p. 333.
- Law, B.E., and Dickinson, W.W., 1985, Conceptual model of origin of abnormally pressured gas accumulation in low-permeability reservoirs: *American Association of Petroleum Geologists Bulletin*, v. 69, no. 8, p. 1295-1304.
- Law, B.E., Pollastro, R.M., and Keighin, C.W., 1986, Geologic characteristics of low-permeability gas reservoirs in selected wells, Greater Green River Basin, Wyoming, Colorado, and Utah, *in* Spencer, C.W., and Mast, R.F., eds., *Geology of tight gas reservoirs: American Association of Petroleum Geologists Studies in Geology*, 24, p. 253-270.
- Markochick, D.J., Lanham, R.E., Bucurel, H.G., and Law, B.E., 1981, Summary chart of geological data from Amoco Tierney Unit No. 1 well, SW 1/4 SE 1/4 Sec. 15, T. 20 N., R. 94 W., Sweetwater County, Wyoming: U.S. Geological Survey Oil and Gas Investigations Chart OC-116, 1 sheet.
- Merewether, E.A., Blackmon, P.D., and Webb, J.C., 1984, The mid-Cretaceous Frontier Formation near the Moxa arch, southwestern Wyoming: U.S. Geological Survey Professional Paper 1290, 29 p.
- Nydegger, G.L., Rice, D.D., and Brown, C.A., 1979, Development of shallow gas reserves in low-permeability reservoirs of Late Cretaceous age, Bowdoin Dome area, north-central Montana: *Proceedings of the SPE Symposium on Low-Permeability Gas Reservoirs*, Denver, Colo., May 20-22, 1979, p. 315-324.

- Nydegger, G.L., Rice, D.D., and Brown, C.A., 1981, Formation evaluation difficult in shallow Bowdoin Dome: *World Oil*, v. 192, no. 5, p. 78-80.
- Pitman, J.K., Anders, D.E., Fouch, T.D., and Nichols, D.J., 1985, Depositional environments, diagenesis, and hydrocarbon potential of nonmarine Upper Cretaceous and lower Tertiary rocks, eastern Uinta basin, Utah [abs.]: *American Association of Petroleum Geologists Bulletin*, v. 69, no. 5, p. 860.
- Pitman, J.K., and Fouch, T.D., 1978, Mineralogic characteristics of some lower Tertiary low-permeability reservoir rocks, south-central Uinta Basin, Utah [abs.]: *American Association of Petroleum Geologists Bulletin*, v. 62, no. 5, p. 891.
- Pitman, J.K., Fouch, T.D., and Goldhaber, M.B., 1982, Depositional setting and diagenetic evolution of some Tertiary unconventional reservoir rocks, Uinta Basin, Utah: *American Association of Petroleum Geologists Bulletin*, v. 66, no. 10, p. 1581-1596.
- Pitman, J.K., and Spencer, C.W., 1984, Petrology of selected sandstones in the MWX wells (northwest Colorado) and its relationship to borehole geophysical-log analysis and reservoir quality, *in* Spencer, C.W., and Keighin, C.W., eds., *Geologic studies in support of the U.S. Department of Energy Multiwell Experiment, Garfield County, Colorado: U.S. Geological Survey Open-File Report 84-757*, p. 33-66.
- Pollastro, R.M., 1981, Clay-mineral diagenesis within a fine-grained, marine, hydrocarbon-bearing, carbonate sequence: Evidence from the Cretaceous Niobrara Formation [abs.]: 18th Annual Meeting, The Clay Minerals Society, 30th Annual Clay Minerals Conference, Urbana, Ill., Program and Abstracts, p. 13.
- Pollastro, R.M., 1982, Detrital/authigenic clay-mineral assemblages and their relation to diagenesis in sedimentary rocks [abs.]: 19th Annual Meeting, The Clay Minerals Society, 31st Annual Clay Minerals Conference, Hilo, Hawaii, Program and Abstracts, p. 29.
- Pollastro, R.M., 1983, The formation of illite at the expense of illite/smectite--Mineralogical and morphological support for a hypothesis [abs.]: 20th Annual Meeting, The Clay Minerals Society, 32nd Annual Clay Minerals Conference, Buffalo, N.Y., Program and Abstracts, p. 82.
- Pollastro, R.M., 1984, Mineralogy of selected sandstone/shale pairs and sandstones from the Multiwell Experiment: Interpretations from X-ray diffraction and scanning electron microscopy analyses, *in* Spencer, C.W., and Keighin, C.W., eds., *Geologic studies in support of the U.S. Department of Energy Multiwell Experiment, Garfield County, Colorado: U.S. Geological Survey Open-File Report 84-757*, p. 67-74.
- Pollastro, R.M., 1985, Mineralogical and morphological evidence for the formation of illite at the expense of illite/smectite: *Clays and Clay Minerals*, v. 33, no. 4, p. 265-274.

- Pollastro, R.M., and Bader, J.W., 1983, Clay-mineral relationships in some low-permeability hydrocarbon reservoirs and their use as predictive resource tools [abs.]: American Association of Petroleum Geologists Bulletin, v. 67, no. 3, p. 536.
- Pollastro, R.M., and Barker, C.E., 1984a, Comparative measures of paleotemperature an example from clay-mineral, vitrinite reflectance, and fluid inclusion studies, Pinedale anticline, Green River Basin, Wyoming [abs]: SEPM First Annual Midyear Meeting, San Jose, Calif., Abstracts with Program, p. 65-66.
- Pollastro, R.M., and Barker, C.E., 1984b, Geothermometry from clay minerals, vitrinite reflectance, and fluid inclusions Applications to the thermal and burial history of rocks cored from the Wagon Wheel No. 1 well, Green River basin, Wyoming, *in* Law, B.E., ed., Geological characteristics of low-permeability Upper Cretaceous and lower Tertiary rocks of the Pinedale anticline area, Sublette County, Wyoming: U.S. Geological Survey Open-File Report 84-743, p. 78-94.
- Pollastro, R.M., and Barker, C.E., 1986, Applications of clay-mineral, vitrinite reflectance, and fluid inclusion studies to the thermal and burial history of the Pinedale anticline, Green River basin, Wyoming, *in* Gautier, D.L., ed., Relationship of organic matter and mineral diagenesis: Society of Economic Paleontologists and Mineralogists Special Publication No. 38, p. 73-83.
- Pollastro, R.M., and Martinez, C.J., 1985, Mineral, chemical, and textural relationships in rhythmic-bedded, hydrocarbon-productive chalk of the Niobrara Formation, Denver basin, Colorado: *The Mountain Geologist*, v. 22, p. 55-63.
- Pollastro, R.M., and Scholle, P.A., 1982, Diagenetic relationships in a hydrocarbon-productive chalk The Cretaceous Niobrara Formation: [abs.] U.S. Geological Survey Workshop on Diagenesis, Golden, Colo., March 16-18, 1982, Program and Abstracts, p. 33.
- Pollastro, R.M., and Scholle, P.A., 1984, Hydrocarbon exploration, development from low-permeability chinks Upper Cretaceous Niobrara Formation, Rocky Mountains Region: *Oil and Gas Journal*, v. 82, no. 17, p. 140-145.
- Pollastro, R.M., and Scholle, P.A., 1986, Diagenetic relationships in a hydrocarbon-productive chalk: the Cretaceous Niobrara Formation, *in* Mumpton, F.A., ed., *Studies in Diagenesis*; U.S. Geological Survey Bulletin 1578, p. 219-236.
- Pollastro, R.M., and Scholle, P.A., 1986, Exploration and development of hydrocarbons from low-permeability chinks an example from the Upper Cretaceous Niobrara Formation, Rocky Mountains region, *in* Spencer, C.W., and Mast, R.F., eds., *Geology of tight gas reservoirs*: American Association of Petroleum Geologists Studies in Geology, no. 24, p. 129-142.

- Precht, W.F., and Pollastro, R.M., 1985, Organic and Inorganic constituents of the Niobrara Formation in Weld County, Colorado, *in* Pratt, L., Kauffman, E.G., and Zelt, F.B., eds., Fine-grained deposits and biofacies of the Cretaceous western Interior seaway: Evidence of cyclic sedimentary processes: Society of Economic Paleontologists and Mineralogists Field Trip Guidebook no. 4, p. 223-233.
- Prensky, S.E., 1984, Use of the gamma-ray log for locating the Cretaceous-Tertiary unconformity, Pinedale area, northern Green River Basin, Wyoming [abs.]: American Association of Petroleum Geologists Bulletin, v. 68, p. 946.
- Prensky, S.E., 1986, Geologic implications of large-scale trends in well-log response, northern Green River basin, Wyoming [abs.]: The Log Analyst, v. 27, no. 1, p. 74-75.
- Prensky, S.E., 1986, Geologic implications of large-scale trends in well-log response, northern Green River basin, Wyoming, *in* 27th Annual Logging Symposium Transactions, Paper EEE: Houston, Society of Professional Well Log Analysts, 24 p.
- Prensky, S.E., 1986, Geologic Implications of large-scale trends in well-log response, northern Green River basin, Wyoming [abs.]: Tulsa, Society of Exploration Geophysicists, 1986, Technical Program Expanded Abstracts with Bibliographies, p. 668
- Prensky, S.E. and Dickinson, W.W., 1984, Application of computer-processed well-log data for geologic evaluation of the Green River Basin, Wyoming [abs.]: American Association of Petroleum Geologists Bulletin, v. 68, p. 519.
- Prensky, S.E. and Dickinson, W.W., 1986, Computer-generated well-log data plots assist in regional subsurface evaluation of the northern Green River basin, Wyoming: Geobyte, v. 1, no. 2, p. 52-58.
- Rice, D.D., and Gautier, D.L., 1980, Development of biogenic gas from shallow, low-permeability reservoirs Examples from southeastern Alberta and Bowdoin Dome area, north-central Montana [abs.]: American Association of Petroleum Geologists Bulletin, v. 64, no. 5, p. 773.
- Rice, D.D., and Gautier, D.L., 1983, Coastal sandstones, Chapter 6 *in* Rice, D.D. and Gautier, D.L., eds., Patterns of sedimentation, diagenesis and hydrocarbon accumulation in Cretaceous rocks of the Rocky Mountains: Society of Economic Paleontologists and Mineralogists Short Course No. 11, p. 6-1 to 6-41.
- Rice, D.D., and Gautier, D.L., 1983, Shelf sandstones, Chapter 7 *in* Rice, D.D. and Gautier, D.L., eds., Patterns of sedimentation, diagenesis and hydrocarbon accumulation in Cretaceous rocks of the Rocky Mountains: Society of Economic Paleontologists and Mineralogists Short Course No. 11, p. 7-1 to 7-41.

- Sampath, K., and Keighin, C.W., 1981, Factors affecting gas slippage in tight sandstones: Proceedings of the Symposium on Low-Permeability Gas Reservoirs, Society of Petroleum Engineers, Proceedings, Dallas, Tex., p. 409-416.
- Sampath, K., and Keighin, C.W., 1982, Factors affecting gas slippage in tight sandstones of Cretaceous age in the Uinta basin: Journal of Petroleum Technology, v. 34, no. 11, p. 2715-2720.
- Scholle, P.A., and Pollastro, R.M., 1985, Sedimentology and reservoir characteristics of the Niobrara Formation (Upper Cretaceous), Kansas and Colorado, in Longman, M.W., Shanley, K.W., Lindsay, R.F., and Eby, D.E., Rocky Mountain Carbonate Reservoirs, Society of Economic Paleontologists and Mineralogists Core Workshop No. 7, p. 447-482.
- Spencer, C.W., 1983, Geologic aspects of tight gas reservoirs in the Rocky Mountain region: Proceedings of the SPE/DOE Joint Symposium on Low-Permeability Gas Reservoirs, Denver, Colo., March 13-16, 1983, p. 399-408.
- Spencer, C.W., 1985, Geologic aspects of tight gas reservoirs in the Rocky Mountain region: Journal of Petroleum Technology, v. 37, no. 8, p. 1308-1314.
- Spencer, C.W., 1985, Multiwell geologic support and Piceance basin studies, in Frohne, K-H., ed., Third annual Western Gas Sands Program review, November 1984: U.S. Department of Energy, Morgantown, West Virginia, DOE/METC 85-7, p. 18-36.
- Spencer, C.W., 1986, Geologic characterization of tight gas reservoirs, Piceance basin, in Komar, C.A., ed., Proceedings of the Unconventional Gas Recovery Meeting, Eastern Gas Shales, Coalbed Methane, Western Gas Sands, November 1985: U.S. Department of Energy, Morgantown, WV, DOE/METC 86/6034, p. 120-129.
- Spencer, C.W., Fouch, T.D., and Rice, D.D., 1977, Geological program to provide a characterization of tight, gas-bearing reservoirs in the Rocky Mountain region, in Proceedings of the 3rd ERDA Symposium on Enhanced Oil and Gas Recovery and Improved Drilling Methods, Tulsa, Okla., 1977, v. 2 Gas and Drilling, Tulsa, Okla., The Petroleum Publishing Co., p. E1-E15.
- Spencer, C.W., and Mast, R.F., eds., 1986, Geology of tight gas reservoirs: American Association of Petroleum Geologists Special Studies in Geology No. 24, 299 p.
- Starkey, H.C., Blackmon, P.D., and Rice, D.D., 1978, Mineralogical analysis of drill core samples from Midlands Gas Corporation wells Federal 0370 No. 1 and Federal 2962 No. 1, Phillips County, Montana: U.S. Geological Survey Open-File Report 78-1001, 35 p.

- Tyler, T.F., 1978, Core descriptions, photographs and core X-ray analyses of portions of the Upper Cretaceous Mesaverde Group, Washakie Basin, Wyoming: U.S. Geological Survey Open-File Report 78-708, 63 p.
- Verbeek, E.R., and Grout, M.A., 1986, Cenozoic stress rotation, northeastern Colorado Plateau: Proceedings, 1986 Symposium, Rocky Mountain Association of Geologists, p. 97.
- Verbeek, E.R., and Grout, M.A., 1987, Systematic joints within oil shales and associated rocks of the Green River Formation, *in* Taylor, J.O., ed., Oil shale and mineral wealth, water resource challenge, and development choices Piceance basin, Colorado: U.S. Geological Survey Prof. Paper 1310, p. 45-55.

SUBJECT INDEX

Miscellaneous Studies

- Abrams, G.A., and Grout, M.A., 1987, Complete Bouguer profiles and principal facts for gravity stations in the Divide Creek anticline area, Piceance Basin, Colorado: U.S. Geological Survey Open-File Report 87-647, 9 p.
- Bader, J.W., 1987, Surface and subsurface relations of the Cherokee Ridge arch, south-central Wyoming: San Jose, Calif., San Jose State University, unpublished MS thesis, 68 p.
- Bader, J.W., Gill, J.R., Cobban, W.A., and Law, B.E., 1983, Biostratigraphic correlation chart of some Upper Cretaceous rocks from the Lost Soldier area, Wyoming to west of Craig, Colorado: U.S. Geological Survey Miscellaneous Field Studies Map MF-1548, 1 sheet.
- Charpentier, R.R., Law, B.E., and Prenskey, S.E., 1986, Quantitative model of over-pressured gas resources of the Pinedale anticline, Wyoming [abs.]: American Association of Petroleum Geologists Bulletin, v. 70., no. 8, p. 1034-1035.
- Charpentier, R.R., Law, B.E., and Prenskey, S.E., 1987, Quantitative model of over-pressured gas resources of the Pinedale anticline, Wyoming, *in* SPE/DOE Joint Symposium on Low Permeability Reservoirs, Denver, 1987, Proceedings: Society of Petroleum Engineers, p. 153-164, SPE/DOE 16404.
- Cowgill, D.F., SeEVERS, D.O., Pitman, J.K., and Dobecki, T.L., 1981, Application of nuclear magnetic resonance to characterization of low permeability sandstone reservoirs, Uinta Basin, Utah [abs.]: Geophysics, v. 46, no. 4, p. 415.
- Crovelli, R.A., 1985, An analytic probabilistic methodology for resource appraisal of undiscovered oil and gas resources in play analysis: U.S. Geological Survey Open-File Report 85-657, 51 p.
- Crovelli, R.A., 1986, U.S. Geological Survey quantitative petroleum resource appraisal methodologies, *in* Rice, D.D., ed., Oil and gas assessment Methods and application: American Association of Petroleum Geologists Studies In Geology, v. 21, p. 69-76.
- Crovelli, R.A., 1987, Probability theory versus simulation of petroleum potential in play analysis, *in* Albin, S.L., and Harris, C.M., eds., Statistical and computational issues in probability modeling, Part 1: Annals of Operations Research, v. 8, p. 363-381.
- Crovelli, R.A. and Balay, R.H., 1986, FASP, An analytic resource appraisal program for petroleum play analysis: Computers and Geosciences, v. 12, no. 4B, p. 423-475.

- Dickinson, W.W., and Law, B.E., 1985, Burial history of Upper Cretaceous and Tertiary rocks interpreted from vitrinite reflectance, northern Green River basin, Wyoming [abs.]: American Association of Petroleum Geologists Bulletin, v. 69, no. 5, p. 846.
- Fouch, T.D., Lawton, T.F., Nichols, D.J., Cashion, W.B., and Cobban, W.A., 1983, Patterns and timing of synorogenic sedimentation in Upper Cretaceous rocks of central and northeast Utah, *in* Reynolds, M.W., and Dolly, E.D., eds., Mesozoic paleogeography of west-central United States: Society of Economic Paleontologists and Mineralogists, Rocky Mountain Section, Rocky Mountain Paleogeography Symposium 2, p. 305-336.
- Gardner, K.L., 1980, Impregnation technique using colored epoxy to define porosity in petrographic thin sections: Canadian Journal of Earth Sciences, v. 17, no. 8, p. 1104-1107.
- Gautier, D.L., and Pratt, L.M., 1986, Organic carbon accumulation and sulfur diagenesis in fine-grained Cretaceous rocks of the Western Interior of North America, *in* Carter, L.M.H., ed., USGS research on energy resources 1986 program and abstracts: U.S. Geological Survey Circular 974, p. 16-17.
- Grout, M.A., and Verbeek, E.R., 1985, Fracture history of the Plateau Creek and adjacent Colorado River valleys, southern Piceance Basin Implications for predicting joint patterns at depth: U.S. Geological Survey Open-File Report 85-744, 17 p.
- Grout, M.A., and Verbeek, E.R., 1986, Prediction of joint patterns at depth examples from the Piceance Basin, northwestern Colorado: Geological Society of America Abstracts with Programs, v. 18, no. 5, p. 358.
- Grout, M.A., and Verbeek, E.R., 1987, Regional joint sets unrelated to major folds example from the Piceance basin, northeastern Colorado Plateau [abs.]: Geological Society of America Abstracts with Programs, v. 19, no. 5, p. 279.
- Johnson, R.C., 1982, A measured section of the Late Cretaceous Mesaverde Group and lower part of the early Tertiary Wasatch Formation, Rifle Gap, Colorado: U.S. Geological Survey Open-File Report 82-590, 11 p., 1 log.
- Johnson, R.C., Crovelli, R.A., Spencer, C.W., and Mast, R.F., 1987, An assessment of gas resources in low-permeability sandstones of the Upper Cretaceous Mesaverde Group, Piceance basin, Colorado: U.S. Geological Survey Open-File Report 87-357, 165 p.
- Johnson, R.C., Crovelli, R.A., Spencer, C.W., and Mast, R.F., 1988, Assessment of gas resources in low-permeability sandstones of Upper Cretaceous Mesaverde Group, Piceance basin, Colorado [abs.]: American Association of Petroleum Geologists Bulletin, v. 72, no. 2, p. 202.

- Johnson, R.C., Crovelli, R.A., Spencer, C.W., and Mast, R.F., 1988, An assessment of gas resources in low-permeability sandstones of Upper Cretaceous Mesaverde Group, Piceance basin, Colorado [abs.], in Carter, L.M.H., ed., USGS research on energy resources 1988; program and abstracts: U.S. Geological Survey Circular 1025, p. 23-24.
- Johnson, R.C., and Finn, T., 1985, Age of the Douglas Creek Arch, Colorado and Utah [abs.]: American Association of Petroleum Geologists, v. 69, no. 3, p. 270.
- Johnson, R.C., and Finn, T.M., 1986, Cretaceous through Holocene history of the Douglas Creek Arch, Colorado and Utah, in Stone, D.S., ed.: Rocky Mountain Association of Geologists, New Interpretations of Northwest Colorado Geology, p. 77-95.
- Johnson, R.C., and Keighin, C.W., 1981, Cretaceous and Tertiary history and resources of the Piceance Creek Basin, western Colorado: 32nd Field Conference Guidebook, Western Slope Colorado: New Mexico Geological Society, p. 199-210.
- Johnson, R.C., and May, Fred, 1979, Preliminary stratigraphic studies of the upper part of the Mesaverde Group, the Wasatch Formation, and the lower part of the Green River Formation, DeBeque area, Colorado, including environments of deposition and investigation of palynomorph assemblages: U.S. Geological Survey Miscellaneous Field Investigations Map MF-1050, 2 sheets.
- Johnson, R.C., and May, Fred, 1980, A study of the Cretaceous-Tertiary unconformity in the Piceance Creek Basin, Colorado The underlying Ohio Creek Formation (Upper Cretaceous) redefined as a member of the Hunter Canyon or Mesaverde Formation: U.S. Geological Survey Bulletin 1482-B, 27 p.
- Johnson, R.C., and May, Fred, 1978, Maestrichtian conglomerates in the southwestern Piceance Creek basin [abs.]: American Association of Petroleum Geologists Bulletin, v. 62, no. 5, p. 885.
- Johnson, R.C., May, Fred, Hansley, P.L., Pitman, J.K., and Fouch, T.D., 1980, Petrology, X-ray mineralogy, and palynology of a measured section of the Upper Cretaceous Mesaverde Group in Hunter Canyon, western Colorado: U.S. Geological Survey Oil and Gas Investigations Chart OC-91, 1 sheet.
- Johnson, R.C., and Nuccio, V.F., 1984, Late Cretaceous through early Tertiary general stratigraphy and structural geology of the Piceance Creek basin, Colorado, in Spencer, C.W., and Keighin, C.W., eds., Geologic studies in support of the U.S. Department of Energy Multiwell Experiment, Garfield County, Colorado: U.S. Geological Survey Open-File Report 84-757, p. 14-20.
- Keighin, C.W., and Fouch, T.D., 1981, Depositional environments and diagenesis of some nonmarine Upper Cretaceous reservoir rocks, Uinta Basin, Utah, in Ethridge, F.G., and Flores, R.M., eds., Recent and ancient nonmarine depositional environments as models for exploration: Society of Economic Paleontologists and Mineralogists Special Publication no. 31, p. 109-125.

- Kiteley, L.W., 1979, Stratigraphic measured sections of the Upper Cretaceous Mancos Shale (upper part) and Mesaverde Group (lower part), Moffat County, Colorado: U.S. Geological Survey Open-File Report 79-1306, 48 p.
- Kiteley, L.W., 1979, Sedimentology of the intertonguing Upper Cretaceous Mancos Shale and Mesaverde Group in Moffat, Rio Blanco, and Routt Counties, Colorado [abs.]: Geological Society of America Abstracts with Programs, v. 11, no. 7, p. 458-459.
- Kiteley, L.W., 1983, Paleogeography and eustatic-tectonic model of late Campanian Cretaceous sedimentation, southwestern Wyoming and northwestern Colorado, *in* Reynolds, M.W., and Dolly, E.D., eds., Mesozoic paleogeography of the west-central United States: Society of Economic Paleontologists and Mineralogists, Rocky Mountain Section, Rocky Mountain Paleogeography Symposium 2, p. 273-303.
- Law, B.E., ed., 1984, Geological characteristics of low-permeability Upper Cretaceous and lower Tertiary rocks in the Pinedale anticline area, Sublette County, Wyoming: U.S. Geological Survey Open-File Report 84-753, 107 p.
- Law, B.E., 1984, Introduction to geological characteristics of low-permeability Upper Cretaceous and lower Tertiary rocks in the Pinedale anticline area, Sublette County, Wyoming, *in* Law, B.E., ed., Geological characteristics of low-permeability Upper Cretaceous and lower Tertiary rocks in the Pinedale anticline area, Sublette County, Wyoming: U.S. Geological Survey Open-File Report 84-753, p. 1-5.
- Law, B.E., 1984, Structure and stratigraphy of the Pinedale anticline, Wyoming, *in* Law, B.E., ed., Geological characteristics of low-permeability Upper Cretaceous and lower Tertiary rocks in the Pinedale anticline area, Sublette County, Wyoming: U.S. Geological Survey Open-File Report 84-753, p. 6-15.
- Law, B.E., 1984, Geological research in the Greater Green River Basin, *in* Frohne, K.H., ed., Third Annual Western Gas Sands Program Review, November 1984: U.S. Department of Energy, Morgantown, West Virginia, DOE/METC 85-7, p. 18-36.
- Law, B.E., 1986, Geologic characterization of tight gas reservoirs, Greater Green River Basin, *in* Komar, C.H., ed., Proceedings of the unconventional gas recovery contractors meeting - Eastern gas shales, coalbed methane, western gas sands: U.S. Department of Energy, Morgantown, West Virginia, DOE/METC 86/6034, p. 111-119.
- Law, B.E., 1987, Tight gas reservoirs Greater Green River Basin, *in* Unconventional gas recovery contractors review meeting, July 28-29, 1987: U.S. Department of Energy, Morgantown, WV, P. 4A.2.

- Law, B.E., and Dickinson, W.W., 1984, A conceptual model of gas-seal development, Green River Basin, Wyoming [abs.]: American Association of Petroleum Geologists Bulletin, v. 68, no. 7, p. 940.
- Law, B.E., and Dickinson, W.W., 1985, Conceptual model of origin of abnormally pressured gas accumulation in low-permeability reservoirs: American Association of Petroleum Geologists Bulletin, v. 69, no. 8, p. 1295-1304.
- Law, B.E., Hatch, J.R., Kukul, G.C., and Keighin, C.W., 1983, Geologic implications of dewatering of coal and other carbonaceous rocks A hypothesis [abs.]: American Association of Petroleum Geologists Bulletin, v. 67, no. 3, p. 500.
- Law, B.E., Hatch, J.R., Kukul, G.C., and Keighin, C.W., 1983, Geologic implications of coal dewatering: American Association of Petroleum Geologists Bulletin, v. 67, no. 12, p. 2255-2260.
- Law, B.E., Lickus, M.R., and Pawlewicz, M.J., 1986, Fluid migration pathways: Evidence from thermal maturity mapping in southwestern Wyoming, *in* Carter, L.M.H., ed., USGS research on energy resources 1985, program and abstracts: U.S. Geological Survey Circular 974, p. 35.
- Law, B.E., and Nichols, D.J., 1982, Subsurface stratigraphic correlations of some Upper Cretaceous and lower Tertiary rocks, northern Green River Basin, Wyoming, *in* Subsurface practices in geology and geophysics: University of Wyoming, Wyoming Geological Association, Geological Survey of Wyoming Annual Spring Conference, May 2-4, Proceedings, p. 17.
- Law, B.E., and Nuccio, V.F., 1986, Segmented vitrinite reflectance profile from the Deep Seam Project, Piceance Creek Basin, Colorado Evidence of previous high pore pressure: American Association of Petroleum Geologists, [abs.], v. 70, p. 1047.
- Law, B.E., and Spencer, C.W., 1988, Tight gas reservoirs, *in* Magoon, L.B., ed., Petroleum systems of the United States: U.S. Geological Survey Bulletin 1870, p. 44-46.
- Law, B.E., Spencer, C.W., Crovelli, R.A., Mast, R.F., Dolton, G.L., Charpentier, R.R., and Wandrey, C.J., 1988, Assessment of gas contained in overpressured low-permeability reservoirs in the Greater Green River basin of Wyoming, Colorado, and Utah [abs.], *in* Carter, L.M.H., ed., USGS research on energy resources 1988; program and abstracts: U.S. Geological Survey Circular 1025, p. 27-28.
- Lee, M.W., 1984, Delineation of lenticular-type sand bodies by the vertical seismic profiling method: U.S. Geological Survey Open-File Report 84-265, 92 p.
- Lee, M.W., 1984, Vertical seismic profiles at the Multiwell Experiment site, Garfield County, Colorado: U.S. Geological Survey Open-File Report 84-168, 57 p.

- Lee, M.W., 1984, Detection and delineation of lenticular-type sand bodies by the vertical seismic profiling method, *in* Spencer, C.W., and Keighin, C.W., eds., *Geologic studies in support of the U.S. Department of Energy Multiwell Experiment, Garfield County, Colorado*: U.S. Geological Survey Open-File Report 84-757, p. 121-136.
- Lee, M.W., 1985, Interpretation of azimuthal vertical seismic profile survey at Multiwell Experimental site, Garfield County, Colorado: U.S. Geological Survey Open-File Report 85-428, 44 p.
- Lee, M.W., and Miller, J.J., 1985, Acquisition and processing of azimuthal vertical seismic profiles at Multiwell Experiment site, Garfield County, Colorado: U.S. Geological Survey Open-File Report 85-427, 36 p.
- Lee, M.W., 1986, An application of azimuthal vertical seismic profiles [abs.], *in* Carter, L.M.H., ed., *USGS research on energy resources 1986, program and abstracts*: U.S. Geological Survey Circular 974, p. 36.
- Lickus, M.R., Pawlewicz, M.J.; Law, B.E., and Dickinson, W.W., 1984, Thermal maturity map, northern Green River Basin, Wyoming, *in* Law, B.E., ed., *Geological characteristics of low-permeability Upper Cretaceous and lower Tertiary rocks in the Pinedale anticline area, Sublette County, Wyoming*: U.S. Geological Survey Open-File Report 84-753, p. 60-65.
- Markochick, D.J., Lanham, R.E., Bucurel, H.G., and Law, B.E., 1981, Summary chart of geological data from Amoco Tierney Unit No. 1 well, SW 1/4 SE 1/4 Sec. 15, T. 20 N., R. 94 W., Sweetwater County, Wyoming: U.S. Geological Survey Oil and Gas Investigations Chart OC-116, 1 sheet.
- Merewether, E.A., 1983, The Frontier Formation and mid-Cretaceous orogeny in the foreland of southwestern Wyoming: *The Mountain Geologist*, v. 20, no. 4, p. 121-138.
- Merewether, E.A., Blackmon, P.D., and Webb, J.C., 1984, The mid-Cretaceous Frontier Formation near the Moxa arch, southwestern Wyoming: U.S. Geological Survey Professional Paper 1290, 29 p.
- Merewether, E.A., and Cobban, W.A., 1982, Mid-Cretaceous stratigraphy and deformation in the foreland of southwestern Wyoming and adjacent areas [abs.], *in* *Subsurface practices in geology and geophysics*: University of Wyoming, the Wyoming Geological Association, and the Geological Survey of Wyoming Annual Spring Conference, Laramie, Wyoming, May 2-4, 1982; *Proceedings*, p. 19.
- Merewether, E.A., and Cobban, W.A., 1983, Mid-Cretaceous biostratigraphic units, unconformities, and diastrophism in Wyoming, Colorado, and adjacent areas [abs.]: *American Association of Petroleum Geologists Bulletin*, v. 67, no. 3, p. 513.

- Merewether, E.A., and Cobban, W.A., 1985, Biostratigraphic units and tectonism in mid-Cretaceous foreland of Wyoming, Colorado, and adjoining areas [abs.] *in* Rocky Mountain Section Meeting AAPG/SEPM/EMD, Denver, Colorado; June 2-5, 1985: American Association of Petroleum Geologists Book of Abstracts.
- Merewether, E.A., and Cobban, W.A., 1986, Biostratigraphic units and tectonism in the mid-Cretaceous foreland of Wyoming, Colorado and adjoining areas, *in* Peterson, J.A., ed., Paleotectonics and sedimentation in the Rocky Mountain region, U.S.: American Association of Petroleum Geologists Memoir 41, p. 443-468.
- Naeser, N.D., 1984, Thermal history determined by fission-track dating for three sedimentary basins in California and Wyoming: Fourth International Fission Track Dating Workshop, Troy, New York, 1984, Abstracts, p. 37.
- Naeser, N.D., 1984, Thermal history determined by fission-track dating for three sedimentary basins in California and Wyoming: Geological Society of America Abstracts with Programs, v. 16, no. 6, p. 607.
- Naeser, N.D., 1984, Fission-track ages from the Wagon Wheel no. 1 well, northern Green River basin, Wyoming Evidence for recent cooling, *in* Law, B.E., ed., Geological characteristics of low-permeability Upper Cretaceous and lower Tertiary rocks in the Pinedale anticline area, Sublette County, Wyoming: U.S. Geological Survey Open-File Report 84-753, p. 66-77.
- Naeser, N.D., 1985, Thermal history determined by fission-track dating for three sedimentary basins in California and Wyoming [abs.]: Nuclear Tracks, v. 10, no. 3, p. 423.
- Naeser, N.D., 1985, Fission-track dating A method for determining thermal history of sedimentary basins [abs.]: American Association of Petroleum Geologists Research Conference, New Orleans, La., March 22-24, Abstracts, p. 38.
- Naeser, N.D., 1985, Fission-track dating A method for determining thermal history of sedimentary basins [abs.]: Conference on Isotopes in the Sedimentary Cycle, Obernai, France, July 1-5, p. 125.
- Naeser, C.W., and Naeser, N.D., 1985, Fission-track dating Application to the thermal history of mountains and basins [abs.]: Geological Society of America Abstracts with Programs, v. 17, no. 7, p. 673.
- Naeser, N.D., 1986, Neogene thermal history of the northern Green River basin, Wyoming evidence from fission-track dating, *in* Gautier, D.L., ed., Roles of organic matter in mineral diagenesis: Society of Economic Paleontologists and Mineralogists Special Publication No. 38, p. 65-72.
- Naeser, N.D., and Naeser, C.W., 1986, Fission-track dating in sedimentary basins An example from the northern Green River Basin: TERRA cognita, v. 6, p. 118.

- Nuccio, V.F., and Johnson, R.C., 1981, Map showing drill-stem test and perforation recoveries of the Upper Cretaceous Mesaverde Group, Piceance Creek Basin, Colorado: U.S. Geological Survey Miscellaneous Field Studies Map MF-1359, 1 sheet, scale 1:250,000.
- Nuccio, V.F., and Johnson, R.C., 1984, Retardation of vitrinite reflectance in Green River oil shales, Piceance Creek Basin, northwestern Colorado [abs.]: American Association of Petroleum Geologists Bulletin, v. 68, no. 4, p. 513.
- Nydegger, G.L., Rice, D.D., and Brown, C.A., 1981, Formation evaluation difficult in shallow Bowdoin Dome: World Oil, v. 192, no. 5, p. 78-80.
- Pitman, J.K., Anders, D.E., Fouch, T.D., and Nichols, D.J., 1985, Depositional environments, diagenesis, and hydrocarbon potential of nonmarine Upper Cretaceous and lower Tertiary rocks, eastern Uinta basin, Utah [abs.]: American Association of Petroleum Geologists Bulletin, v. 69, no. 5, p. 860.
- Pitman, J.K., and Sprunt, E.S., 1984, Origin and occurrence of fracture filling cements in the Upper Cretaceous Mesaverde Formation at MWX, Piceance Creek Basin, Colorado, *in* Spencer, C.W. and Keighin, C.W., eds., Geologic studies in support of the U.S. Department of Energy Multiwell Experiment, Garfield County, Colorado: U.S. Geological Survey Open-File Report 84-757, p. 87-101.
- Pitman, J.K., and Sprunt, E.S., 1985, Origin and distribution of fractures in Tertiary and Cretaceous rocks, Piceance basin, Colorado, and their relation to hydrocarbon occurrence [abs.]: American Association of Petroleum Geologists Bulletin, v. 69, no. 5, p. 860.
- Pollastro, R.M., 1985, Mineralogical and morphological evidence for the formation of illite at the expense of illite/smectite: Clays and Clay Minerals, v. 33, no. 4, p. 265-274.
- Pollastro, R.M., and Barker, C.E., 1986, Applications of clay-mineral, vitrinite reflectance, and fluid inclusion studies to the thermal and burial history of the Pinedale anticline, Green River basin, Wyoming, *in* Gautier, D.L., ed., Relationship of organic matter and mineral diagenesis: Society of Economic Paleontologists and Mineralogists Special Publication No. 38, p. 73-83.
- Prensky, S.E., and Dickinson, W.W., 1984, Application of computer-processed well-log data for geologic evaluation of Green River Basin, Wyoming [abs.]: American Association of Petroleum Geologists Bulletin, v. 68, no. 4, p. 519.
- Rice, D.D., 1977, Bibliography on low-permeability natural gas reservoirs of the northern Great Plains: U.S. Geological Survey Open-File Report 77-391, 5 p.
- Rice, D.D., 1980, Upper Cretaceous Mosby Sandstone, central Montana Example of thin, widespread storm-generated sandstone cycles [abs.]: American Association of Petroleum Geologists Bulletin, v. 64, no. 5, p. 772-773.

- Rice, D.D., and Shurr, G.W., 1981, Paleogeography of the Upper Cretaceous Eagle Sandstone and equivalent rocks, northern Great Plains: Geological Society of America Abstracts with Programs, v. 13, no. 7, p. 537-538.
- Rice, D.D., and Sullivan, G.W., 1980, Northern Great Plains/Williston Basin, in Report of the National Petroleum Council's Committee on Unconventional Gas Resources, Tight Gas Reservoirs, pt. 2, p. 10-1 to 10-170.
- Sampath, K., and Kelghin, C.W., 1981, Factors affecting gas slippage in tight sandstones: Proceedings of the Symposium on Low-Permeability Gas Reservoirs, Society of Petroleum Engineers, Proceedings, Dallas, Tex., p. 409-416.
- Sampath, K., and Kelghin, C.W., 1982, Factors affecting gas slippage in tight sandstones of Cretaceous age in the Uinta basin: Journal of Petroleum Technology, v. 34, no. 11, p. 2715-2720.
- Schmoker, J.W., and Gautier, D.L., 1988, Sandstone porosity as a function of thermal maturity: An approach to porosity comparisons and prediction [abs.]: American Association of Petroleum Geologists Bulletin, v. 72, no. 7, p. 880.
- Searls, C.A., Lee, M.W., Miller, J.J., Albright, J.N., Fried, J., and Applegate, J.K., 1983, A coordinated seismic study of the Multiwell Experiment site: Proceedings of the Symposium on Low-Permeability Gas Reservoirs, Society of Petroleum Engineers, Denver, Colo., Paper no. 11613, 10 p.
- Shurr, G.W., 1978, Paleotectonic controls on Cretaceous sedimentation and potential gas occurrence in western South Dakota: Montana Geological Society Guidebook, 24th Annual Conference, Williston Basin Symposium 1978, p. 283-292.
- Shurr, G.W., 1980, Geologic setting of the Pierre Shale (Upper Cretaceous) in the northern Great Plains: U.S. Geological Survey Open-File Report 80-675, 8 p.
- Shurr, G.W., and Sieverding, J.L., 1980, Preliminary synthesis of subsurface stratigraphy of the Niobrara Formation (Upper Cretaceous) in the northern Great Plains: U.S. Geological Survey Open-File Report 80-1255, 18 p.
- Spencer, C.W., 1983, Geologic aspects of tight gas reservoirs in the Rocky Mountain region: Proceedings of the SPE/DOE Joint Symposium on Low-Permeability Gas Reservoirs, Denver, Colo., March 13-16, 1983, p. 399-408.
- Spencer, C.W., 1983, Overpressured reservoirs in Rocky Mountain region [abs.]: American Association of Petroleum Geologists Bulletin, v. 67, no. 8, p. 1356-1357.
- Spencer, C.W., 1984, Discussion of recent resource assessments of tight gas reservoirs [abs.]: American Association of Petroleum Geologists Bulletin, v. 68, no. 4, p. 530.

- Spencer, C.W., 1984, Significance of overpressured reservoirs in the Rocky Mountain region [abs.]: *The Outcrop*, v. 33, no. 5, p. 9-10.
- Spencer, C.W., 1984, Overview of U.S. Department of Energy Multiwell Experiment, Piceance Creek basin, Colorado, *in* Spencer, C.W., and Keighin, C.W., eds., *Geologic studies in support of the U.S. Department of Energy Multiwell Experiment, Garfield County, Colorado*: U.S. Geological Survey Open-File Report 84-757, p. 1-13.
- Spencer, C.W., 1985, Geologic aspects of tight gas reservoirs in the Rocky Mountain region: *Journal of Petroleum Technology*, v. 37, no. 8, p. 1308-1314.
- Spencer, C.W., 1987, Hydrocarbon generation as a mechanism for overpressuring in the Rocky Mountain region: *American Association of Petroleum Geologists Bulletin*, v. 71, no. 4, p. 368-388.
- Spencer, C.W., 1987, Significance of overpressured reservoirs in the Rockies [abs.]: *The Outcrop*, v. 36, no. 10, p. 4.
- Spencer, C.W., 1988, Abnormally high- and low-pressured gas reservoirs Examples from Rocky Mountain region [abs.], *in* Carter, L.M.H., ed., *USGS research on energy resources 1988; program and abstracts*: U.S. Geological Survey Circular 1025, p. 58.
- Spencer, C.W., Fouch, T.D., and Rice, D.D., 1977, Geological program to provide a characterization of tight, gas-bearing reservoirs in the Rocky Mountain region, *in* *Proceedings of the 3rd ERDA Symposium on Enhanced Oil and Gas Recovery and Improved Drilling Methods, Tulsa, Okla., 1977*, v. 2 *Gas and Drilling, Tulsa, Okla., The Petroleum Publishing Co.*, p. E1-E15.
- Spencer, C.W., Johnson, R.C., and Law, B.E., 1984, Review of USGS tight gas sands characterization research, *in* Frohne, K.H., ed., *Western Gas Sands Subprogram Review, Technical Proceedings, October 18-19, 1983, Morgantown, WV*: U.S. Department of Energy, DOE/METC/84-3, p. 5-16.
- Spencer, C.W., and Keighin, C.W., eds., 1984, *Geologic studies in support of the U.S. Department of Energy Multiwell Experiment, Garfield County, Colorado*: U.S. Geological Survey Open-File Report 84-757, 134 p., 1 plate.
- Spencer, C.W., and Law, B.E., 1988, Unconventional resources Western tight gas reservoirs, *in* *National assessment of undiscovered conventional oil and gas resources, USGS-MMS, working paper*: U.S. Geological Survey Open-File Report 88-373, p. 480-500.
- Spencer, C.W., and Mast, R.F., eds., 1986, *Geology of tight gas reservoirs*: *American Association of Petroleum Geologists Special Studies in Geology No. 24*, 299 p.

Verbeek, E.R., and Grout, M.A., 1984, Fracture studies in Cretaceous and Paleocene strata in and around the Piceance Basin, Colorado-- Preliminary results and their bearing on a fracture-controlled natural gas reservoir at the MWX site: U.S. Geological Survey Open-File Report 84-156, 30 p.

Verbeek, E.R., and Grout, M.A., 1984, Prediction of subsurface fracture patterns from surface studies of joints An example from the Piceance Creek Basin, Colorado, *in* Spencer, C.W. and Keighin, C.W. eds., Geologic studies in support of the U.S. Department of Energy Multiwell Experiment, Garfield County, Colorado: U.S. Geological Survey Open-File Report 84-757, p. 75-86.

Zelt, F.B., 1984, Gamma-ray spectrometry of marine shales in outcrop A tool for petroleum exploration and basin analysis [abs.]: American Association of Petroleum Geologists Bulletin, v. 68, no. 4, p. 542.