

NWRI Expert Panel for the California Department of Public Health

CV for Proposed Expert Panel Member:

- Perry L. McCarty, Sc.D.

PERRY L. McCARTY

Perry L. McCarty, Silas H. Palmer Professor Emeritus, joined the Stanford University faculty in 1962 when he came to help develop the environmental engineering and science program. From 1980 to 1985 he was Chairman of Stanford's Department of Civil and Environmental Engineering, and from 1989 to 2002 served as Director of the Western Region Hazardous Substance Research Center. He has a B.S. Degree in civil engineering from Wayne State University (1953), and M.S. (1957) and Sc.D. (1959) degrees in sanitary engineering from M.I.T.

The focus of his research and teaching has been on water with primary interest in biological processes for the control of environmental contaminants. His early research was on anaerobic treatment processes, biological processes for nitrogen removal, and water reuse. Current interests are on aerobic and anaerobic biological processes for treatment of domestic wastewaters, and movement, fate, and control of groundwater contaminants.

He was elected to membership in the National Academy of Engineering in 1977 and the American Academy of Arts and Sciences in 1996. He received the John and Alice Tyler Prize for Environmental Achievement in 1992, the Athalie Richardson Irvine Clarke Prize for Outstanding Achievements in Water Science and Technology in 1997, and the Stockholm Water Prize in 2007.

Prof. McCarty has over 350 publications, and is coauthor of the textbooks, *Chemistry for Environmental Engineering and Science*, and *Environmental Biotechnology - Principles and Applications*. He has been active with several professional groups, especially the National Academies. Among his other awards are honorary Doctorates from the Colorado School of Mines and Nanyang Technological University in Singapore; Distinguished Member, American Society of Civil Engineers; Honorary Member in the American Water Works Association, the Water Environment Federation, and the American Academy of Environmental Engineers and Scientist; and Fellow with the American Association for the Advancement of Science and the American Academy of Microbiology. He was selected by the National Academies to be the 2001 Abel Wolman Distinguished Lecturer. Other honors include the Harrison P. Eddy Award for Noteworthy Research (1964 and 1977), the Thomas Camp Award for Unique Application of Engineering Research (1975), and the Gordon Maskew Fair Distinguished Engineering Educator Medal (2012) of the Water Environment Federation; the A. P. Black Research Award (1989) and Water Industry Hall of Fame Award (2009) of the American Water Works Association; the Walter L. Huber Research Prize (1964), the Simon W. Freese Environmental Engineering Lecture Award (1979), and J. James R. Croes Medal (1995) of the American Society of Civil Engineers; and the Joan Hodges Queneau Palladium Medal (2013) of the National Audubon Society.

BIOGRAPHICAL SKETCH

Name: Perry L. McCarty

Education: B. S. Civil Engineering, Wayne State University, 1953
S. M. Sanitary Engineering, Massachusetts Institute of Technology, 1957
Sc.D. Sanitary Engineering, Massachusetts Institute of Technology, 1959

Employment:

1962-date: Faculty Member, Stanford University
1999-date: Silas H. Palmer Professor of Civil Engineering Emeritus
1989-2003: Director, Western Region Hazardous Substance Research Center
1980-1985: Chairman, Department of Civil Engineering
1975-1999: Silas H. Palmer Professor of Civil Engineering
1967-1975: Professor of Civil Engineering
1962-1967: Associate Professor of Civil Engineering
2008-2013: World Class University Professor, Department of Environmental Engineering, Inha University, Incheon, Korea
2004-2007: Chair Professor, Department of Environmental Science and Engineering, Tsinghua University, Beijing, China
2003: Lecturer, Stanford Canada and Great Lakes College
1971: Visiting Professor, University of Cape Town, South Africa
1968-1969: Honorary Research Associate, Harvard University
1969: Visiting Lecturer, Summer Institute in Advanced Sanitary Chemistry, Harvard University
1968-1972: Faculty Member, Curso de Postgrado en Ingenieria Hidrologica, Ministerio de Obros Publicos, Venezuela
1959-1962: Assistant Professor of Sanitary Engineering, Massachusetts Institute of Technology
1958-1959: Instructor of Sanitary Engineering, Massachusetts Institute of Technology
1958-1961: Associate, Rolf Eliassen Associates, Research, development, and industrial waste treatment design
1957: Research Staff, Massachusetts Institute of Technology
1956: Engineer, Civil Engineers, Inc., Subdivision and water treatment plant design
1954-1956: U.S. Army
1954: Field Engineer, George Jerome and Company, Construction inspector
1953-1954: Instructor: Department of Civil Engineering, Wayne State University
1953: Field Engineer: Hubbell, Roth and Clark, Subdivision development
1952: Engineer: Pate and Hirn, Subdivision design
1951: Field Engineer: Edwin Orr. Subdivision development

Honors:

Tau Beta Pi Fellowship, 1956-57.
Harrison P. Eddy Award of the Water Environment Federation for Noteworthy Research (with Ross E. McKinney), 1962.
Walter L. Huber Research Prize of the American Society of Civil Engineers, 1964.
First prize for best paper presented at annual meeting of Society for Industrial Microbiology, 1965.
Inaugural Distinguished Faculty Award in Sanitary Engineering, the American Association of Professors in Sanitary Engineering, 1966.
NSF Science Faculty Fellowship, 1968-69.
Thomas Camp Award of the Water Environment Federation, for Unique Application of Engineering Research, 1975.
Member, National Academy of Engineering, 1977.
Harrison P. Eddy Award of the Water Environment Federation for Noteworthy Research (with Kenneth J. Williamson), 1977.
Simon W. Freese Environmental Engineering Lecture Award, American Society of Civil Engineers, 1979.
Engineering-Science Research Award, Association of Environmental Engineering Professors (with Bruce E. Rittmann), 1979.
Fellow, American Association for the Advancement of Science, 1980.
Honorary Member, American Water Works Association, 1981.
Thomas R. Camp Lecturer Award, Boston Society of Civil Engineers, 1983.
Engineering-Science Research Award, Association of Environmental Engineering Professors (with Edward J. Bouwer), 1983.
Distinguished Professor Lectureship, Association of Environmental Engineering Professors, 1984.
Outstanding Publication Award (with Alonzo Wm. Lawrence), Association of Environmental Engineering Professors, 1985.
Research Division Best Paper Award, American Water Works Association (with Marco Aieta) 1985.
Life Member, American Water Works Association, 1987.
Outstanding Publication Award, Association of Environmental Engineering Professors, 1988.
Wayne State University Engineering Alumni Achievement Award, 1988.
A. P. Black Research Award, American Water Works Association, 1989.
Honorary Member, Water Environment Federation, 1989.
Inaugural Tsuan Hua Feng Distinguished Lecturer, University of Massachusetts, 1989.
CH2M HILL Research Award, Association of Environmental Engineering Professors (with Craig S. Criddle), 1990.
The John and Alice Tyler Prize for Environmental Achievement, 1992.
Engineering-Science Research Award, Association of Environmental Engineering Professors (with Lisa Alvarez-Cohen), 1992.
Founder's Award for sustained and outstanding contributions to environmental engineering education, Association of Environmental Engineering Professors, 1992.
Research Fellowship, Japan Society for the Promotion of Science, 1992.

Honorary Degree of Doctor of Engineering, Colorado School of Mines, 1992.
Fellow, American Academy of Microbiology, 1993.
Fellow, California Council on Science and Technology
J. James R. Croes Medal, American Society of Civil Engineers, 1995.
Life Member, American Society of Civil Engineers, 1995.
Fellow, American Academy of Arts and Sciences, 1996.
The Athalie Richardson Irvine Clarke Prize for Outstanding Achievements in
Water Science and Technology, 1997.
Certificate of Merit, Division of Environmental Chemistry, American
Chemical Society, 1997.
CH2M HILL Research Award, Association of Environmental Engineering
Professors (with James E. Anderson), 1997.
Dean's Award for Academic Excellence, Stanford University, 1997.
Outstanding Publication Award (with Edward J. Bouwer), Association of
Environmental Engineering Professors, 1998.
Inaugural Walter J. Weber Distinguished Lecturer, University of Michigan,
2000.
Inaugural Distinguished Visiting Lecturer, Environmental Engineering and
Science, University of Illinois, 2000.
Abel Wolman Distinguished Lecturer, National Academies, 2001.
The Barnett F. Dodge 2001 Distinguished Lecturer in Chemical Engineering,
Yale University
Inaugural Association of Environmental Engineers and Scientists
Distinguished Lecturer, Georgia Institute of Technology, 2002.
Outstanding Publication Award (with Kenneth Williamson), Association of
Environmental Engineering and Science Professors, 2003.
Inaugural Ryckman Lecture, Environmental Engineering and Science
Program, Washington University, 2003
Golden Drop Award, American Water Works Association, 2007
Stockholm Water Prize, 2007
Brown and Caldwell Lifetime Achievement Award, 2008
Lifetime Achievement Award, Groundwater Resources Association of
California, 2008
Honorary Member, American Academy of Environmental Engineers, 2009
Water Industry Hall of Fame, American Water Works Association, 2009
Honorary Degree of Doctor of Engineering, Nanyang Technological
University, Singapore, 2010
Honorary Professor, Harbin Institute of Technology, China, 2011
Association of Environmental Engineering and Science Professors Lecturer,
WEFTEC, 2011
Honorary Professor, National Chiao Tung University, Taiwan, 2011
Honorary Fellow, the Chinese Institute of Environmental Engineering,
Taiwan, 2011
Distinguished Member, American Society of Civil Engineers, 2012
Fellow, Water Environment Federation, 2012
Gordon Maskew Fair Distinguished Engineering Educator Medal, Water
Environment Federation, 2012

Life Member, Association of Environmental Engineering and Science Professors, 2012
Joan Hodges Queneau Palladium Medal for engineering achievement in environmental conservation, National Audubon Society, 2013
Gordon Maskew Fair Award for exemplary professional conduct, recognized achievements, and significant contributions to the world's environment, American Academy of Environmental Engineers and Scientists, 2014

Organizations: American Society of Civil Engineers
Water Environment Federation
American Water Works Association
American Association for the Advancement of Science
Association of Environmental Engineering and Science Professors
Tau Beta Pi
Omicron Delta Kappa
Kappa Mu Epsilon
Sigma Xi

Professional Activities:

Member, Research Grants Study Section on Environmental Science and Engineering, U.S. Public Health Service, 1964-1966.
Member, Water Pollution Control Federation Program Planning Committee, 1964-1970.
Chairman, American Water Works Association, Task Group on Nutrients in Water, 1965-69.
Chairman, Workshop Seminar on Anaerobic Waste Treatment, U.S.P.H.S., 1965.
Chairman, Standard Methods Committee on Gases in Water, 1965-1970.
Assistant Editor, American Society of Civil Engineers, Sanitary Engineering Division Newsletter, 1965-68.
Member, American Society of Engineering Education, Sanitary Engineering Committee, 1965-67.
Consultant, Interagency Agricultural Wastewater Treatment Study, Federal Water Pollution Control Administration, U.S. Bureau of Reclamation, and California Department of Water Resources, 1966-1971.
Chairman, National Symposium on Estuarine Pollution, ASCE, August 1967.
Chairman, San Francisco Sanitary Engineering Section, American Society of Civil Engineers, 1967.
Trustee, Water Quality Division, American Water Works Association, 1967 to 1974.
Vice Chairman, American Society of Engineering Education, Environmental Engineering Division, 1968-69.

Board of Directors and Consultant, Biostimulation and Biototoxicity Study, California Water Resources Control Board, 1970-1971.

Member, Committee on Wastewater Reclamation, American Water Works Association, 1970-1972.

Member, Committee on Quality Control in Reservoirs, American Water Works Association, 1970-1973.

Consultant, Training Grants Division, Environmental Protection Agency, 1970-1975.

Vice Chairman, Gordon Research Conference on Environmental Science-Air, 1971.

Member, U.S. National Academy of Science – Indian National Science Academy Workshop on, "Water in Man's Life in India," September, 1971, New Delhi, India.

Consultant, Symbiotic Study on Agricultural Wastewaters, U.S. Bureau of Reclamation and California Department of Water Resources, 1971-1973.

Member, Advisory Board, *Environmental Science & Technology*, 1971-1973.

Member, Sanitary Engineering Advisory Committee, California Department of Public Health, 1971-1975.

Member, George Westinghouse Environmental Student Award Committee, American Society of Engineering Education, 1971-1973.

Member, Committee on Control of Nitrates, American Water Works Association, 1971-1974.

Chairman, Water Quality Division, American Water Works Association, 1972-1973.

Chairman, Gordon Research Conference, Environmental Sciences – Water 1972.

Participant, Smithsonian Institution Study on the Effect of Rapid Urbanization on the Environment in Seoul, Korea, 1972.

Member, Water Quality Policy Committee, National Academy of Sciences - National Academy of Engineering, Advisory to the National Commission on Water Quality, 1973- 1976.

Member, T & P Research Committee, American Water Works Association, 1973-1976.

Engineering Board of Consultants: John Wiley & Sons, 1974-1980.

Member, Environmental Studies Board, National Research Council, National Academies, 1976-1981.

Member, Potomac Estuary Committee, National Research Council, National Academies, 1976-1979.

Chairman, Panel on Treatment Processes, National Research Council, National Academies, 1976-1977.

Chairman, Research Committee, Technical and Professional Council, American Water Works Association, 1976-1981.

Member, Technical and Professional Council, American Water Works Association, 1976-1981.

Vice Chairman, Environmental Studies Board, National Research Council, National Academies, 1977-1980.

Member, Commission on Natural Resources, National Research Council, National Academies, 1977-1980.

Member, Stanford Technical Delegation to the People's Republic of China, March-April 1978.

Chairman, Camp Medal Award Committee, Water Pollution Control Federation, 1977-1979.

Member, Innovative and Alternative Technology Committee, California Water Resources Control Board, 1979-1981.

Member, Aquaculture Technical Advisory Committee, California Water Resources Control Board, 1979-1981.

Member, Scientific Advisory Board, Southern California Coastal Water Research Project, 1979-1980.

Member, Panel on Wastewater Reuse Criteria, National Research Council, National Academies, 1979-1982.

Member, Expert Committee on Engineering and Technology, International Joint Commission on the Great Lakes, 1979-1982.

Chairman, Committee to Review Potomac Estuary Experimental Water Treatment Plant, National Research Council, National Academies, 1979-1984.

Member, Committee to Review the Metropolitan Washington Area Water Supply Study, National Research Council, National Academies, 1979-1984.

Chairman, Scientific Advisory Board, Southern California Coastal Water Research Project, 1980-1986.

Member, Visiting Committee, Harvard University Division of Applied Science, 1980-1985.

Member, Wastewater Reclamation Health Effects Advisory Panel, California Department of Health Services, 1980-1985.

Member, Scientific Advisory Board, National Center for Ground Water Research, 1980-1986.

Member, National Science Foundation Advisory Subcommittee for Civil and Environmental Engineering, 1981-85.

Director, International Conference on Ground Water Quality, 1981.

Trustee, Research Division, American Water Works Association, 1981-1985.

Trustee, American Water Works Research Foundation, 1981-1985.

Guest Lecturer, Chinese Academy of Sciences, Biogas Production, Guangzhou and Chengdu, China, 1982.

Chairman, Scientific Panel to Evaluate Sacramento-San Joaquin Delta Water Quality, California Department of Water Resources, 1982-1983.

Member, Task Force on Ground Water Pollution, Office of Technology Assessment, U.S. Congress, 1983-1985.

Member, Engineering Education Board, National Academy of Engineering, 1984-1987.

Member, Engineering Research Board, National Research Council, National Academies, 1984-1986.

Member, Drinking Water Standards Committee, American Water Works Association, 1984-1986.

Member, Organizing Committee, Specialized Seminar on Degradation, Retention, and Dispersion of Pollutants in Groundwater, Copenhagen, 1984.

Chairman, Panel on Energy, Environment, and Resources, National Research Council, National Academies, 1984-1986.

Member, Committee on Groundwater Protection, National Research Council, National Academies, 1984-1986.

Member, Visiting Committee, Princeton University, Dept. of Civil Engineering, 1985-1988.

Chairman, Visiting Committee, University of Minnesota, Dept. of Civil Engineering, 1985.

Member, Technical Advisory Committee, Clean Sites, Inc., 1985-94.

Member, Commission on Mathematics, Physics, Resources, National Research Council, National Academies, 1985-1988.

Editor, *Journal of Contaminant Hydrology*, 1985-1993.

Member, Scientific Advisory Panel on Groundwater Recharge, State of California, 1986-1987.

Member, Visiting Committee, California Institute of Technology, Division of Engineering and Applied Science, 1986-92.

Chairman, Visiting Committee, University of California, Berkeley, Department of Civil Engineering, 1987.

Member, Visiting Committee, University of Southern California, Department of Civil Engineering, 1987.

Member, National Institute of Environmental Health Sciences Panel for review of Superfund Phase II proposals, 1988.

Chairman, Environmental Protection Agency Panel, for review of Hazardous Substance Research Center proposals, 1988.

Member, SCOPE Panel on Groundwater Contamination, 1988-1995.

Member, Civil Engineering Visiting Committee, Massachusetts Institute of Technology, 1989-1993.

Member, Advisory Committee for Center for Environmental Health Sciences, Massachusetts Institute of Technology, 1989-92.

Member, Board on Radioactive Waste Management, National Research Council, National Academies, 1989-1996.

Member, Research Council, WEF Research Foundation, 1989-95.

Chairman, Program Planning Committee, International Symposium on Processes Governing the Movement and Fate of Contaminants in Groundwater, 1989.

Member, Evaluation Committee on Civil Engineering, University of California, Berkeley, 1990.

Chairman, Committee on Remedial Action Priorities for Hazardous Waste Sites, National Research Council, National Academies, 1991-1994.

Chairman, Environmental Protection Agency Panel for review of proposals for Centers of Excellence, 1991.

Member, Visiting Committee, Dept. of Environmental Engineering and Science, University of North Carolina, Chapel Hill, 1992.

Member, Visiting Committee, Environmental Engineering Program, University of Texas, San Antonio, 1992.

Member, Advisory Board, Marine Bioremediation Program, University of Washington, 1993-1996.

Associate Editor, *Journal of Contaminant Hydrology*, 1993-2006.

Member, Editorial Board, *Biodegradation*, 1993-
 Alcoa - Environmental Technology Advisory Board, 1993-2005
 Member, Work Group, President's Council on Sustainable Development,
 1994-1995.
 Member, Commission on Geosciences, Environment, Resources; National
 Research Council, National Academies, 1994-1997.
 Member, National Forum on Science and Technology Goals - No. 1:
 Environment, National Research Council, National Academies, 1995.
 Chairman, Virtual Commission on Environmental Management Science,
 National Research Council, National Academies, 1996-1998.
 Member, Visiting Committee, Dept. of Civil Engineering, Northwestern
 University, 1996.
 Chairman, Peer Review Group, VOC Study in Groundwater, 1996-1999.
 Member, Selection Committee, George and Cynthia Mitchell International
 Prize for Sustainable Development, National Academy of Sciences, 1996-
 1997.
 Member, Visiting Committee, Dept. of Civil Engineering, Cornell University,
 1996.
 Member, Selection Committee, Blasker Award for Environmental Science and
 Engineering, 1996-2001
 Member, Committee on Intrinsic Bioremediation, National Research Council,
 National Academies, 1997-2000 .
 Member, Science Advisory Board, Strategic Environmental Research and
 Development Program, U.S. DOD, DOE, and EPA, 1997- 2002, 2005-
 2010.
 Chairman, Blue Ribbon Panel on San Diego Water Repurification Project,
 1998.
 Member, Chemical & Environmental Engineering Department Industrial
 Advisory Committee, University of Arizona, 1999-2002
 Member, Committee on Assessment of Risks from Remediation of PCB-
 Contaminated Sediments, National Research Council, National
 Academies, 1999-2001
 External Examiner, Environmental Engineering Program, Department of
 Chemical and Environmental Engineering, National University of
 Singapore, 1999-2001
 Member, Expert Panel for Review of Groundwater Treatment Technology,
 Aerojet General Corporation, 2000-2001.
 Member, Expert Panel on Water Reuse, West Basin Municipal Utility District,
 2001-2002
 Member, Tritium Migration Independent Scientific Peer Review Panel, U.S.
 Department of Energy, 2001-2002
 Member, Civil Engineering Peer Committee, National Academy of
 Engineering, 2001-2004
 Member, Panel for Independent Review of DDT Contamination, Kenwood
 Avenue, Los Angeles, requested by Congresswoman Jane Harmon, 2001
 Member, Committee on Water Quality Improvement for The Pittsburgh
 Region, National Research Council, The National Academies, 2002-2004

Member, Oversight Committee for Strengthening Science-Based Decision Making, Policy and Global Affairs Division, the National Academies, 2002-2007

Member, Research Advisory Board, National Water Research Institute, 2005-.

Member, Vietnam Education Foundation Review Panel, The National Academies, 2005.

Member, The Athalie Richardson Irvine Clarke Prize Executive Committee, 2005-2007.

Member, External Advisory Committee, Water: Systems, Science, Society Program, Tufts University, 2006-

Member, Committee on Sediments Dredging at Superfund Megsites, The National Academies, 2006-2007.

Member, Steering Committee for Environmental & Water Technologies, National University of Singapore, 2006-2007

Member, Division of Environmental Science & Engineering Visiting Committee, National University of Singapore, 2006-2007

Member, Project Evaluation Panel, Environmental and Water Industry Development Council, Ministry of the Environment and Water Resources, Singapore, 2006-

Associate Editor-in-Chief, *Frontiers of Environmental Science & Engineering in China*, 2006-.

Member, Lee Kuan Yew Water Prize Nominating Committee, Singapore, 2008-

Member, Peer Review Team, Capital Regional Districts Core Area Wastewater Management Program, Victoria, British Columbia, 2009

Member, Environmental Science and Engineering Visiting Committee, Colorado School of Mines, 2009

Member, International Scientific Advisory Board, World City Forum, Incheon, Korea, 2009.

Chair, External Review Committee, Academic Program Review of Environment Science and Engineering, Tsinghua University, Beijing, China, 2010.

Member, IWA China AD Advisory Group, 2013-

**Invited Guest
Lecturer at
Universities:**

Arizona State University
Brigham Young University
California Institute of Technology
California State Polytechnical University San Luis Obispo
Central Public Health Engineering Research Institute, Nagpur, India
Chico State University
Clarkson University
Clemson University
College of Engineering, Guindy, Madras, India
Cornell University
Dalian University of Technology, China
Drexel University
Georgia Institute of Technology
Hanoi University of Technology, Vietnam
Hanyang University, Korea
Harvard University
Hong Kong University of Science & Technology, Hong Kong
Imperial College London, England
Inha University, Korea
Institute of Biology, Chinese Academy of Sciences, Chengdu, China
Institute of Energy Conversion, Chinese Academy of Sciences, Guangzhou,
China
Iowa State University
Johns Hopkins University
Keimyung University, Korea
Korea University, Korea
Kyoto University, Japan
Manhattan College
Marquette University
Massachusetts Institute of Technology
Northeastern University
Pennsylvania State University
Princeton University
Rensselaer Polytechnic Institute
Rice University
Rutgers University
San Jose State University
Seoul National University, Korea
Sungkyunkwan University, Korea
Swiss Federal Institute of Technology, Zürich, Switzerland
Technische Universität, Dresden, Germany
The Agricultural University Wageningen, The Netherlands
Tokyo University, Japan
Tsinghua University, Beijing, China

Tufts University
University of Alberta, Canada
University of Arizona
University of Birmingham, England
University of California Berkeley
University of California Davis
University of California Riverside
University of California San Diego
University of California San Francisco
University of Cape Town, South Africa
University of Central Florida
University of Colorado
University of Connecticut
University of Florida Gainesville
University of Houston
University of Illinois
University of Iowa
University of Karlsruhe, Germany
University of Maryland
University of Massachusetts
University of Michigan
University of Nevada, Reno
University of New Mexico
University of North Carolina
University of Notre Dame
University of Oklahoma
University of Texas Austin
University of Texas Dallas
University of Toronto
University of Washington
Vanderbilt University
Vietnam National University, Ho Chi Minh City
Vietnamese Academy of Science and Technology
Virginia Polytechnic Institute
Washington University
Wayne State University
Yale University
Yonsei University, Korea

Perry L. McCarty
Silas H. Palmer Professor, Emeritus
Stanford University
Stanford, California

List of Publications

1. McCarty, P. L., and McKinney, R. E., "Volatile Acid Toxicity in Anaerobic Digestion," *Journal Water Pollution Control Fed.*, **33**, 223-232 (1961).
2. McCarty, P. L., and McKinney, R. E., "Salt Toxicity in Anaerobic Digestion," *Journal Water Pollution Control Fed.*, **33**, 399-415 (1961).
3. McCarty, P. L., and Vath, C. A., "Volatile Acid Digestion at High Loading Rates," *International Journal of Air and Water Pollution*, **6**, 65-73 (1962).
4. McCarty, P. L., and Brodersen, C. F., "Theory of Extended Aeration Activated Sludge," *Journal Water Pollution Control Fed.*, **34**, 1095-1103 (1962).
5. McCarty, P. L., Jeris, J. S., and Murdoch, W., "Significance of Individual Volatile Acids in Anaerobic Treatment" in *Proceedings of the 17th Industrial Waste Conference, 1962*, Purdue Engineering Extension Series No. 112, pp. 421-439 (1963); also *Journal Water Pollution Control Fed.*, **35**, 1501-1516 (1963).
6. Jeris, J. S., and McCarty, P. L., "Biochemistry of Methane Fermentation Using C¹⁴ Tracers" in *Proceedings of the 17th Industrial Waste Conference, 1962*, Purdue Engineering Extension Series No. 112, pp. 181-197 (1963); also *Journal Water Pollution Control Fed.*, **37**, 178-192 (1965).
7. Speece, R. E., and McCarty, P. L., "Nutrient Requirements and Biological Solids Accumulation in Anaerobic Digestion" in *Advances in Water Pollution Research*, Vol. 2, Pergamon Press, London, pp. 305-322 (1964).
8. McCarty, P. L., and Brosseau, M. H., "Effect of High Concentrations of Individual Volatile Acids on Anaerobic Treatment" in *Proceedings of the 18th Industrial Waste Conference, 1963*, Purdue Engineering Extension Series No. 115, pp. 283-296 (1964).
9. McCarty, P. L., "The Methane Fermentation," Chap. 16, pp. 314-343 in *Principles and Applications in Aquatic Microbiology*, H. Heukelekian and N. C. Dondero, Eds., John Wiley, New York (1964).
10. McCarty, P. L., "Research and Development for Reuse of Water," pp. 55-59 in *Water; Development, Utilization, Conservation*, Western Resources Conference 1963, R. K. McNickle, Ed., University of Colorado Press, Boulder (1964).
11. Kugelman, Irwin J., and McCarty, P. L., "Cation Toxicity and Stimulation in Anaerobic Waste Treatment," *Journal Water Pollution Control Fed.*, **37**, 97-116 (1965).
12. Konecky, M. S., Kelley, E. J., Symons, J. M., and McCarty, Perry L., "The Determination of the Biodegradability of Detergents (Esso Research Biodegradation Test)," presented at the 36th Annual Meeting of the Water Pollution Control Fed. (October 1963).
13. McCarty, P. L., "Thermodynamics of Biological Synthesis and Growth" in *Advances in Water Pollution Research*, Vol. 2, pp. 169-187, Pergamon Press, New York (1965); also *International Journal of Air and Water Pollution*, **9**, 621-639 (1965).

14. McCarty, P. L., "Free Energy as a Parameter in Biological Treatment, A Discussion," *Journal Sanitary Engineering Division, American Society of Civil Engineers*, **89**(SA6), 65-68 (December 1963).
15. Lawrence, A. Wm., McCarty, P. L., and Guerin, F. J., "The Effects of Sulfides on Anaerobic Treatment" in *Proceedings of the 19th Purdue Industrial Waste Conference* (May 1964); also *International Journal of Air and Water Pollution*, **10**, 207-221 (1966).
16. Kugleman, I. J., and McCarty, P. L., "Cation Toxicity and Stimulation in Anaerobic Waste Treatment. II. Daily Feed Studies" in *Proceedings of the 19th Purdue Industrial Waste Conference*, pp. 667-686 (May 1964).
17. Lawrence, A. Wm., and McCarty, P. L., "The Role of Sulfides in Preventing Heavy Metal Toxicity in Anaerobic Digestion," *Journal Water Pollution Control Fed.*, **37**, 392-406 (1965).
18. McCarty, P. L., "Anaerobic Waste Treatment Fundamentals. Part I, Chemistry and Microbiology," *Public Works*, **95**, 107-112 (September 1964).
19. McCarty, P. L., "Anaerobic Waste Treatment Fundamentals. Part II, Environmental Requirements and Control," *Public Works*, **95**, 123-126 (October 1964).
20. McCarty, P. L., "Anaerobic Waste Treatment Fundamentals. Part III, Toxic Materials and Their Control," *Public Works*, **95**, 91-94 (November 1964).
21. McCarty, P. L., "Anaerobic Waste Treatment Fundamentals. Part IV, Process Design," *Public Works*, **95**, 95-99 (December 1964).
22. McCarty, P.L., "Kinetics of Waste Assimilation in Anaerobic Treatment," Chap. 17, pp.144-155 in *Developments in Industrial Microbiology*, American Institute of Biological Sciences, Washington, D.C. (1966).
23. Lawrence, A. Wm., and McCarty, P. L., "Kinetics of Methane Fermentation in Anaerobic Treatment," *Journal Water Pollution Control Fed.*, **41**, R1-R17 (1969).
24. McCarty, P. L., "Sludge Concentration--Needs, Accomplishments, and Future Goals," *Journal Water Pollution Control Fed.*, **38**, 493-507 (1966).
25. King, P. H., and McCarty, P. L., "The Movement of Pesticides in Soils" in *Proceedings of the 21st Purdue Industrial Waste Conference*, pp. 156-171 (1966).
26. McCarty, P. L., Chairman, Task Group, "Nutrient Associated Problems in Water Quality and Treatment," *Journal American Water Works Association*, **58**, 1337-1355 (1966).
27. McCarty, P. L., Chairman, Task Group, "Sources of Nitrogen and Phosphorus in Water Supplies," *Journal American Water Works Association*, **59**, 344-366 (1967).
28. McCarty, P. L., "Anaerobic Treatment of Soluble Wastes," pp. 336-352 in *Advances in Water Quality Improvement*, E. F. Gloyna and W. W. Eckenfelder, Eds., University of Texas Press, Austin (1968).
29. McCarty, P. L., "Discussion of the Role of Enzymes in Contact Stabilization Process" in *Advances in Water Pollution Research*, Vol. 2, R. H. Siddigi, R. S. Englebrecht, and R. E. Speece, Eds., Water Pollution Control Federation, Washington, D.C., pp. 372-376 (1967).
30. Hill, D. W., and McCarty, P. L., "Anaerobic Degradation of Selected Chlorinated Hydrocarbon Pesticides," *Journal Water Pollution Control Fed.*, **39**, 1259-1277 (1967).

31. Stratton, F. E., and McCarty, P. L., "Prediction of Nitrification Effects on the Dissolved Oxygen Balance in Streams," *Environmental Science and Technology*, **1**, 405-410 (1967).
32. Young, J. C., and McCarty, P. L., "The Anaerobic Filter for Waste Treatment" in *Proceedings of the 22nd Industrial Waste Conference*, Purdue University, pp. 559-574 (1967); also *Journal Water Pollution Control Fed.*, **41**, R160-R173 (1969).
33. McCarty, P. L., "Enzymes in Waste Treatment," *Bulletin, California Water Pollution Control Association*, **3**, 35-36 (1967).
34. McCarty, P. L., Chairman, Task Group, "Chemistry of Nitrogen and Phosphorus in Water," *Journal American Water Works Association*, **62**, 127-140 (1970).
35. McCarty, P. L., "Natural Succession of Microbial Processes Constituting the Anaerobic Decomposition of Organic Compounds, A Discussion," presented at the Fourth International Conference on Water Pollution Research, Prague (April 1969).
36. Stratton, F. E., and McCarty, P. L., "Graphical Evaluation of the Kinetic Parameters for Bacterial Growth," *Canadian Journal Microbiology*, **15**, 1201-1205 (1969).
37. King, P. H., and McCarty, P. L., "A Chromatic Model for Predicting Pesticide Migration in Soils," *Soil Science*, **106**, 248-261 (1968).
38. Lawrence, A. Wm., and McCarty, P. L., "Unified Basis for Biological Treatment Design and Operation," *Journal Sanitary Engineering Division, American Society of Civil Engineers*, **96**(SA3), 757-778 (1970).
39. Stratton, F. E., and McCarty, P. L., "Evaluation of Nitrification in Streams, A Discussion," *Journal of Sanitary Engineering Division, American Society of Civil Engineers*, **95**(SA5), 952-955 (1969).
40. St. Amant, P., and McCarty, P. L., "Treatment of High Nitrate Waters," *Journal American Water Works Association*, **61**, 659-662 (1969).
41. McCarty, P. L., Beck, L., and St. Amant, P., "Biological Denitrification of Wastewaters by Addition of Organic Materials," *Proceedings of the 24th Annual Industrial Waste Conference*, Purdue University, pp. 1271-1285 (May, 1969).
42. Foree, E. G., and McCarty, P. L., "The Decomposition of Algae in Anaerobic Waters," *Proceedings of the 24th Industrial Waste Conference*, Purdue University, pp. 13-36 (May 1969); also *Environmental Science and Technology*, **4**, 842-849 (1970).
43. McCarty, P. L., "Energetics and Bacterial Growth," Chap. 21 in *Organic Compounds in Aquatic Environments*, S. D. Faust and J. V. Hunter, Eds., Marcel Dekker, Inc., New York, pp. 495-531 (1971).
44. Foree, E. G., Jewell, W. J., and McCarty, P. L., "The Extent of Nitrogen and Phosphorus Regeneration from Decomposing Algae" in *Advances in Water Pollution Research*, Vol. I, S. H. Jenkins, Ed., III-27/1-15, Pergamon Press (1970).
45. McCarty, P. L., "Biological Processes for Nitrogen Removal—Theory and Application," *University of Illinois Bulletin*, **68**(2), 136-152 (August 5, 1970).
46. McCarty, P. L., "Phosphorus and Nitrogen Removal by Biological Systems," *Wastewater Reclamation and Reuse Workshop Proceedings*, pp. 226-251, University of California, Tahoe City (June 26, 1970).
47. Bain, R. D., McCarty, P. L., Robertson, J. A., and Pierce, W. H., "Effects of an Oxidation Pond Effluent on Receiving Waters in the San Joaquin River Estuary," *2nd International*

- Symposium for Waste Treatment Lagoons*, pp. 168-180, University of Kansas (June 1970).
48. McCarty, P. L., "Biological Treatment of Food Processing Wastes," *Proceedings, First National Symposium on Food Processing Wastes*, pp. 327-346, Portland, Oregon (April 6-8, 1970).
 49. Ferguson, J. F., and McCarty, P. L., "Effects of Carbonate and Magnesium on Calcium Phosphate Precipitation," *Environmental Science and Technology*, **5**, 534-540 (1971).
 50. McCarty, P. L., "Feasibility of the Denitrification Process for Removal of Nitrate Nitrogen from Agricultural Drainage Waters," Bulletin No. 174-3, California Department of Water Resources, pp. 19-31 (May 1969).
 51. McCarty, P. L., "Energetics and Kinetics of Anaerobic Treatment" in *Anaerobic Biological Treatment Process*, F. Pohland, Ed., Advances in Chemistry Series, No. 105, Chap. 6, American Chemical Society, Washington, D.C., pp. 91-107 (1971).
 52. McCarty, P. L., "Energetics of Organic Matter Degradation," Part II, Chap. 5 in *Water Pollution Microbiology*, R. Mitchell, Ed., John Wiley & Sons, Inc., New York, pp. 91-118 (1972).
 53. Lawrence, A. W., McCarty, P. L. and Guerin, F. J. A., "The Effects of Sulfides on Anaerobic Treatment, Proceedings, Industrial Wastes Conference, Purdue University, Lafayette, IN (1961).
 54. McCarty, P. L., and R. T. Haug, "Nitrogen Removal from Waste Waters by Biological Nitrification and Denitirification" in *Microbial Aspects of Pollution*, G. Sykes and F. A. Skinner, Eds., Academic Press, London (1971).
 55. Haug, R. T., and McCarty, P. L., "Nitrification with Submerged Filters," *Journal Water Pollution Control Fed.*, **44**, 2086-2102 (1972).
 56. Jewell, W. J., and McCarty, P. L., "Aerobic Decomposition of Algae," *Environmental Science and Technology*, **5**, 1023-1031 (1971).
 57. McCarty, P. L., and R. Fisher, "Assaying for Inhibitory Materials in Biological Systems," presented at Water Pollution Control Federation Annual Conference, Atlanta (October 1972).
 58. McCarty, P. L., "Stoichiometry of Biological Reactions" in *Progress in Water Technology*, Vol. 7, pp. 157-172, Pergamon Press, London (1975).
 59. McCarty, P. L., Hahn, D. J., McDermott, G. N., Weaver, P. J., "Treatment of Oily Waste Waters from Food Processing and Soap Manufacture" in *Proceedings Bioconversion Energy Research Conference*, Purdue Engineering Extension Series No. 141, pp. 867-878 (May 1972).
 60. McCarty, P. L., "Methane Fermentation—Future Promise or Relic of the Past" in *Proceedings Bioconversion Energy Research Conference*, pp. 1-7, University of Massachusetts, Amherst, Massachusetts (June 25, 1973).
 61. McCarty, P. L., "The Water Studies Program at Stanford University" in *Civil Engineering Education*, Vol. 1, Part 1, pp. 193-199, American Society of Civil Engineers, New York (1974).
 62. Parkin, G. F., and McCarty, P. L., "Characteristics and Removal of Soluble Organic Nitrogen in Treated Effluents," *Progress in Water Technology*, **7**, 435-445 (1975).

63. Williamson, K., and McCarty, P. L., "A Model of Substrate Utilization by Bacterial Films," *Journal Water Pollution Control Fed.*, **48**, 9-24 (1976).
64. Williamson, K., and McCarty, P. L., "Verification Studies of the Biofilm Model for Bacterial Substrate Utilization," *Journal Water Pollution Control Fed.*, **48**, 281-296 (1976).
65. Williamson, K., and McCarty, P. L., "Rapid Measurement of Monod Half-Velocity Coefficients for Bacterial Kinetics," *Biotechnology and Bioengineering*, **XVII**, 915-924 (1975).
66. McCarty, P. L., "Nitrification–Denitrification by Biological Treatment" in *Proceedings of Correspondence at Home-Conference on Denitrification of Municipal Wastes*, University of Massachusetts Water Resources Research Center, Feb. 1973.
67. Christensen, D. R., and McCarty, P. L., "Multi-Process Biological Treatment Model," *Journal Water Pollution Control Fed.*, **47**, 2652-2664 (1975).
68. McHarness, D. D., Haug, R. T., and McCarty, P. L., "Field Studies of Nitrification with Submerged Filters," *Journal Water Pollution Control Fed.*, **47**, 291-309 (1975).
69. Cooley, R. V., and McCarty, P. L., "Kinetics of Biological Decomposition of Methylmercury" in *Environmental Biogeochemistry*, Vol. 2, J. O. Nriagu, Ed., pp. 451-472, Ann Arbor Science, Ann Arbor (1976).
70. McCarty, P. L., "Anaerobic Processes" in *Proceedings of Short Course on Design Aspects of Biological Treatment*, International Association of Water Pollution Research, Birmingham, England (Sept. 18, 1974).
71. Gossett, James M., and McCarty, P. L., "Heat Treatment of Refuse for Increasing Anaerobic Biodegradability" in *Biochemical Engineering—Energy, Renewable Resources and New Foods*, American Institute of Chemical Engineers Symposium Series, 72, No. 158, pp. 64-71 (1976).
72. Burkstaller, J., McCarty, P. L., and Parks, G. A., "Oxidation of Cinnabar by Fe(III) in Acid Mine Waters," *Environmental Science and Technology*, **9**, 676 (July 1975).
73. Haug, R. T., Stuckey, D. C., Gossett, J. M., and McCarty, P. L., "Effect of Thermal Pretreatment on Digestibility and Dewaterability of Organic Sludges," *Journal Water Pollution Control Fed.*, **50**, 73-85 (1978).
74. Gossett, J. M., Wilson, J. C., Evans, D. S., and McCarty, P. L., "Anaerobic Digestion of Sludge from Chemical Treatment," *Journal Water Pollution Control Fed.*, **50**, 533-542 (1978).
75. McCarty, P. L., Young, L. Y., Gossett, J. M., Stuckey, D. C., and Healy, J. B., Jr., "Heat Treatment for Increasing Methane Yields from Organic Materials" in *Microbial Energy Conversion*, H. G. Schlegel and J. Barnes, Eds., Erich Goltze KG, Göttingen, Germany, pp. 179-199 (1976).
76. McCarty, P. L., Reinhard, M., and Argo, D. G., "Organics Removal by Advanced Wastewater Treatment," Part 1, 5-3, pp. 1-26 in *Proceedings, American Water Works Association 97th Annual Conference*, Anaheim, California (May 8-13, 1977).
77. Randtke, S. J., and McCarty, P. L., "Variations in Nitrogen and Organics in Wastewater," *Journal Environmental Engineering Division, American Society of Civil Engineers*, **103**(EE4), 539-550 (August 1977).

78. Keller, J. V., Leckie, J. O., and McCarty, P. L., "Investigation of Soluble Organic Nitrogen Compounds in Municipal Secondary Effluent," *Journal Water Pollution Control Fed.*, **50**, 2522-2529 (1978).
79. McCarty, P. L., "Fundamental Research Needs in Wastewater Treatment for Biological Processes" in *Fundamental Research Needs for Water and Wastewater Treatment Systems*, J. H. Sherrard, Ed., Proceedings of Conference sponsored by National Science Foundation, pp. 72-76 (1977).
80. Randtke, S. J., and McCarty, P. L., "Removal of Soluble Secondary Effluent Organics," *Journal Environmental Engineering Division, American Society of Civil Engineers*, **105**(EE4), 727-743 (1979).
81. Roberts, P., McCarty, P. L., and Roman, W. M., "Direct Injection of Reclaimed Water into an Aquifer," *Journal Environmental Engineering Division, American Society of Civil Engineers*, **104**(EE5), 933-949 (1978).
82. Reinhard, M., Dolce, C. J., McCarty, P. L., and Argo, D. G., "Trace Organics Removal by Advanced Waste Treatment," *Journal Environmental Engineering Division, American Society of Civil Engineers*, **105**(EE4), 675-693 (1979).
83. McCarty, P. L., Young, L. Y., Healy, J. B., Jr., Owen, W. F., and Stuckey, D. C., "Thermochemical Treatment of Lignocellulosic and Nitrogenous Residuals for Increasing Anaerobic Biodegradability," *Proceedings of the Second Annual Symposium on Fuels from Biomass*, Vol. II, pp. 787-821, CONF-7806107-P2, U.S. Department of Energy (1978).
84. Owen, W. F., Stuckey, D. C., Healy, J. B., Jr., Young, L. Y., and McCarty, P. L., "Bioassay for Monitoring Biochemical Methane Potential and Anaerobic Toxicity," *Water Research*, **13**, 485-492 (1979).
85. Rittmann, B. E., and McCarty, P. L., "Variable Order Model of Bacterial-Film Kinetics," *Journal Environmental Engineering Division, American Society of Civil Engineers*, **104**(EE5), 889-900 (1978).
86. Stuckey, D. C., and McCarty, P. L., "Thermochemical Pretreatment of Nitrogenous Materials to Increase Methane Yield," *Biotechnology and Bioengineering Symposium*, No. 8, pp. 219-233, John Wiley & Sons., Inc., New York (1979).
87. McCarty, P. L., "Environmental Technology for the Future," working group session on "Assaying Future Needs for Environmental Control Technology Research and Development – 1985 through 2000," Berkeley, CA, Aug. 7-10, 1978.
88. Stuckey, D. C., Owen, W. F., and McCarty, P. L., "Anaerobic Toxicity Evaluation by Batch and Semi-Continuous Assays," *Journal Water Pollution Control Fed.*, **52**, 720-729 (1980).
89. McCarty, P. L., and Reinhard, M., "Trace Organics Removal by Advanced Wastewater Treatment," *Journal Water Pollution Control Fed.*, **52**, 1907-1922 (1980).
90. Parkin, G. F., and McCarty, P. L., "Production of Soluble Organic Nitrogen During Activated-Sludge Treatment," *Journal Water Pollution Control Fed.*, **53**, 99-112 (1981).
91. Roberts, P. V., Reinhard, M., Schreiner, J., and McCarty, P. L., "Organic Contaminant Behavior during Groundwater Recharge," *Journal Water Pollution Control Fed.*, **52**, 161-172 (1980).

92. McCarty, P. L., Argo, D. G., and Reinhard, M., "Reliability of Advanced Wastewater Treatment," *Proceedings, Water Reuse Symposium*, Vol. 2, pp. 1249-1268, American Water Works Association, Denver (1979).
93. McCarty, P. L., Argo, D., and Reinhard, M., "Operational Experience with Activated Carbon Adsorbers at Water Factory 21," *Journal American Water Works Association*, **71**, 683-689 (1979).
94. McCarty, P. L., Roberts, P. V., and Dunlap, W. J., "Contaminant Transport in the Groundwater Environment During Recharge of Reclaimed Water," Environmental Research Brief, EPA Robert S. Kerr Environmental Research Laboratory (March 1979).
95. Parkin, G. F., and McCarty, P. L., "Sources of Soluble Organic Nitrogen in Activated-Sludge Effluents," *Journal Water Pollution Control Fed.*, **53**, 89-98 (1981).
96. McCarty, P. L., Young, L., Owen, W., Stuckey, D., and Colberg, P. J., "Heat Treatment of Biomass for Increasing Biodegradability," *3rd Annual Biomass Energy Systems Conference Proceedings*, pp. 411-418, Solar Energy Research Institute, Golden, Colorado (October 1979).
97. McCarty, P. L., Sutherland, K. H., Graydon, J., and Reinhard, M., "Volatile Organic Contaminants Removal by Air Stripping," *Seminar on Controlling Organics in Drinking Water*, Publication No. 20148, American Water Works Association, Denver (1979).
98. McCarty, P. L., "Organics in Water —An Engineering Challenge," *Journal Environmental Engineering Division, American Society of Civil Engineers*, **106**(EEI), 1-17 (1980).
99. Owen, W. F., and McCarty, P. L., "Improving Digester Methane Yield by Heat Treatment," *Proceedings, 1979 National Conference on Environmental Engineering*, pp. 672-679, American Society of Civil Engineers, New York (1979).
100. Bouwer, E. J., Reinhard, M., Everhart, T., and McCarty, P. L., "Organic Materials Formed Through Decolorization of Coffee Wastewater with Chlorine and Chlorine Dioxide" in *Water Chlorination, Environmental Impact and Health Effects*, R. L. Jolley et al., Eds., Vol. 3, pp. 315-323, Ann Arbor Science Pub., Ann Arbor, MI (1980).
101. McCarty, P. L., Rittmann, B. E., and Reinhard, M., "Processes Affecting the Movement and Fate of Trace Organics in the Subsurface Environment" in *Wastewater Reuse for Groundwater Recharge*, T. Asano and P. V. Roberts, Eds., pp. 93-117, California State Water Resources Control Board (May 1980).
102. Buivid, M. G., Wise, D. L., Rader, A. M., McCarty, P. L., and Owen, W. F., "Feasibility of a Peat Biogasification Process," *Resource Recovery and Conservation*, **5**, 117-138 (1980).
103. McCarty, P. L. and Mosey, F. E., "Modeling of Anaerobic Digestion Processes (A Discussion of Concepts)," *Water Science and Technology*, **24**(8), 17-33 (1991).
104. Rittmann, B. E., and McCarty, P. L., "Model of Steady-State-Biofilm Kinetics," *Biotechnology and Bioengineering*, **XXII**, 2343-2357 (1980).
105. Rittmann, B. E., and McCarty, P. L., "Evaluation of Steady-State-Biofilm Kinetics," *Biotechnology and Bioengineering*, **XXII**, 2359-2373 (1980).

106. Argo, D. G., McCarty, P. L., and Reinhard, M., "Reliability of Water Factory 21" in *Wastewater Reuse for Groundwater Recharge*, T. Asano and P. V. Roberts, Eds., pp. 55-72, California State Water Resources Control Board (May 1980).
107. Bouwer, E. J., McCarty, P. L., and Lance, J. Clarence, "Trace Organic Behavior in Soil Columns During Rapid Infiltration of Secondary Wastewater," *Water Research*, **15**, 151-159 (1981).
108. Rittmann, B. E., McCarty, P. L., and Roberts, P. V., "Trace-Organics Biodegradation in Aquifer Recharge," *Ground Water*, **18**, 236-243 (1980).
109. Rittmann, B. E., and McCarty, P. L., "Design of Fixed Film Processes with Steady-State Biofilm Model" in *Progress in Water Technology*, Vol. 12, pp. 271-281, Pergamon Press, Ltd., Great Britain (1980).
110. Rittmann, B. E., and McCarty, P. L., "Utilization of Dichloromethane by Suspended and Fixed Film Bacteria," *Applied and Environmental Microbiology*, **39**, 1225-1226 (1980).
111. McCarty, P. L., "Removal of Organic Substances from Water by Air Stripping," *Control of Organic Substances in Water and Wastewater*, B. B. Berger, Ed., U.S. Environmental Protection Agency Pub. EPA-600/8-83-011, pp. 119-147 (1983); also Noyes Publications, Park Ridge, NJ (1987).
112. McCarty, P. L., "Pretreatment of Lignocellulosic Materials for Increasing Anaerobic Biodegradability to Methane," to be submitted for publication.
113. Bouwer, E. J., Rittmann, B. E., and McCarty, P. L., "Anaerobic Degradation of Halogenated 1- and 2-Carbon Organic Compounds," *Environmental Science and Technology*, **15**(5), 596-599 (1981).
114. McCarty, P. L., Reinhard, M., and Rittmann, B. E., "Trace Organics in Groundwater," *Environmental Science and Technology*, **15**, 40-51 (1981).
116. McCarty, P. L., and O'Melia, C. R., "Excellence in Environmental Engineering Education," *Proceedings, Fourth Conference on Environmental Engineering Education*, J. W. Patterson and R. A. Minear, Eds., pp. 67-78 (June 1980).
117. McCarty, P. L., "Water and Its Challenges," *The Stanford Engineer*, pp. 23-31, School of Engineering, Stanford University (Fall/Winter 1980-81).
118. Baugh, K. D., Bachmann, A., Everhart, T., and McCarty, P. L., "Characterization and Methane Fermentation of Soluble Products from Staged Autohydrolysis of Wood," *Biotechnology and Bioengineering Symposium No. 11*, John Wiley & Sons, Inc., New York, pp. 113-124 (1981).
119. McCarty, P. L., Roberts, P. V., and Bouwer, E. J., "Transport and Fate of Organic Contaminants in Soils," *Proceedings, Water Forum 81*, Vol. 1, pp. 606-615, American Society of Civil Engineers, New York (1981).
120. Bouwer E. J., and McCarty, P. L., "Biofilm Degradation of Trace Chlorinated Organics," *Proceedings, American Society of Civil Engineers, Environmental Engineering Division Specialty Conference*, pp. 196-202 (July 1981).
121. Bouwer, E. J., McCarty, P. L., Bouwer, H., and Rice, R. C., "Organic Contaminant Behavior During Rapid Infiltration of Secondary Wastewater at the Phoenix 23rd Avenue Project," *Water Research*, **18**, 463-472 (1984).

122. Rittmann, B. E., and McCarty, P. L., "Substrate Flux into Biofilms of any Thickness," *Journal Environmental Engineering Division, American Society of Civil Engineers*, **107**(EE4), 831-849 (1981).
123. McCarty, P. L., "One Hundred Years of Anaerobic Treatment" in *Anaerobic Digestion 1981*, Hughes et al., Eds., Elsevier Biomedical Press, Inc., B.V., Amsterdam, pp. 3-22 (1981).
124. McCarty, P. L., Argo, D., Reinhard, M., Graydon, J., Goodman, N., and Aieta, M., "Performance of Water Factory 21 in Removing Priority Pollutants," *Proceedings, Water Reuse Symposium*, American Water Works Association, Washington, D.C., Vol. 3, pp. 2325-2349 (1981).
125. Bouwer, E. J., and McCarty, P. L., "Removal of Trace Chlorinated Organic Compounds by Activated Carbon and Fixed-Film Bacteria," *Environmental Science and Technology*, **16**, 836-843 (1982).
126. Young, L. Y., and McCarty, P. L., "Heat Treatment of Organic Materials for Increasing Anaerobic Biodegradability," Chap. 6 in *Fuel Gas Production from Biomass*, Vol. II, D. L. Wise, Ed., CRC Press, Inc., Boca Raton, FL, 133-176 (1981).
127. Bouwer, E. J., Rittmann, B. E., and McCarty, P. L., "Correspondence on: Anaerobic Degradation of Halogenated 1- and 2-Carbon Organic Compounds," *Environmental Science and Technology*, **16**, 130 (1982).
128. McCarty, P. L., Rittmann, B. E., and Bouwer, E. J., "Microbiological Processes Affecting Chemical Transformations in Groundwater," Chap. 5 in *Groundwater Pollution Microbiology*, G. Bitton and C. P. Gerba, Eds., John Wiley & Sons, Inc., New York, pp. 89-115 (1984).
129. Bachmann, A., Beard, V. L., and McCarty, P. L., "Comparison of Fixed-Film Reactors with a Modified Sludge Blanket Reactor," *Proceedings, First International Conference on Fixed-Film Biological Processes*, Vol. II, pp. 1192-1211, University of Pittsburgh (1982).
130. Gossett, J. M., Stuckey, D. C., Owen, W. F., and McCarty, P. L., "Heat Treatment and Anaerobic Digestion of Refuse," *Journal Environmental Engineering Division, American Society of Civil Engineers*, **108**(EE3), 437-454 (1982).
131. Bouwer, E. J., and McCarty, P. L., "Transformations of 1- and 2-Carbon Halogenated Aliphatic Organic Compounds Under Methanogenic Conditions," *Applied and Environmental Microbiology*, **45**, 1286-1294 (1983).
132. Bouwer, E. J., and McCarty, P. L., "Transformations of Halogenated Organic Compounds Under Denitrification Conditions," *Applied and Environmental Microbiology*, **45**, 1295-1299 (1983).
133. Bouwer, E. J., and McCarty, P. L., "Effects of 2-Bromo- and 2-Chloroethanesulfonic Acid on Acetate Utilization in a Continuous-Flow Methanogenic Fixed-Film Column," *Applied and Environmental Microbiology*, **45**, 1408-1410 (1983).
134. McCarty, P. L., Baugh, K., Bachmann, A., Owen, W., and Everhart, T., "Autohydrolysis for Increasing Methane Yields from Lignocellulosic Materials," Chap 3, pp. 49-72 in *Fuel Gas Developments*, D. L. Wise, Ed., CRC Press, Inc., Boca Raton, FL (1983).

135. McCarty, P. L., "Impact of Fundamental Research on Anaerobic Wastewater Treatment," *AEEP/NSF Conference on Fundamental Research Needs for Water and Wastewater Systems*, pp. 33-38 (1982).
136. Kissel, J. C., McCarty, P. L., and Street, R. L., "Numerical Simulation of Mixed-Culture Biofilm," *Journal Environmental Engineering Division, American Society of Civil Engineers*, **110**, 393-411 (1984).
137. Mackay, D. M., Cherry, J. A., Freyberg, D. L., Hopkins, G. D., McCarty, P. L., Reinhard, M., and Roberts, P., "Implementation of a Field Experiment on Groundwater Transport of Organic Solutes," *1983 National Conference on Environmental Engineering*, A. Medine and M. Anderson, Eds., American Society of Civil Engineers, New York, pp. 24-33 (1983).
138. McCarty, P. L., and Aieta, M., "Chemical Indicators and Surrogate Parameters in Water Treatment," *Journal American Water Works Association*, **76**, 98-105 (Oct. 1984).
139. Bouwer, E. J., and McCarty, P. L., "Modeling of Trace Organics Biotransformation in the Subsurface," *Ground Water*, **22**, 433-440 (1984).
140. Bouwer, E. J., and McCarty, P. L., "Utilization Rates of Trace Halogenated Organic Compounds in Acetate-Supported Biofilms," *Biotechnology and Bioengineering*, **XXVII**, 1564-1571 (1985).
141. McCarty, P. L., "The Effects of Sludge on Groundwater," presented at Southern California Coastal Water Research Project Scientific Meeting on July 28, 1983.
142. LaPat-Polasko, L. T., McCarty, P. L., and Zehnder, A. J. B., "Secondary Substrate Utilization of Methylene Chloride by an Isolated Strain of *Pseudomonas* Sp.," *Applied and Environmental Microbiology*, **47**, 825-830 (1984).
143. Bouwer, E. J., and McCarty, P. L., "Kinetics of Secondary Substrate Utilization," American Chemical Society, Division of Environmental Chemistry, Extended Abstract (1983).
144. Parkin, G. F., and McCarty, P. L., "A Comparison of the Characteristics of Soluble Organic Nitrogen in Untreated and Activated-Sludge Treated Wastewaters," *Water Research*, **15**(1), 139-149 (1981).
145. Bachmann, A., Beard, V. L., and McCarty, P. L., "Performance Characteristics of the Anaerobic Baffled Reactor," *Water Research*, **19**, 99-106 (1985).
146. McCarty, P. L., "Biofilm Transformations of Trace Organic Compounds in Groundwater," pp. 91-111 in *Biofilm Processes in Ground Water Research*, Ecological Research Committee of NFR, Stockholm (1984).
147. McCarty, P. L., "Application of Biological Transformations in Ground Water," *Proceedings, Second International Conference on Ground Water Quality Research*, N. N. Durham and A. E. Redelfs, Eds., pp. 6-11, University Printing Service, Tulsa, OK (1985).
148. Reinhard, M., Goodman, N. L., McCarty, P. L., and Argo, D. G., "Removing Trace Organics by Reverse Osmosis Using Cellulose Acetate and Polyamide Membranes," *Journal American Water Works Association*, **78** (4), 163-174 (1986).

149. Criddle, C., Elliott, C., McCarty, P. L., and Barker, J. F., "Reduction of Hexachloroethane to Tetrachloroethylene in Groundwater," *Journal of Contaminant Hydrology*, **1**(1/2), 133-142 (1986).
150. Stuckey, D. C., and McCarty, P. L., "The Effect of Thermal Pretreatment on the Anaerobic Biodegradability and Toxicity of Waste Activated Sludge," *Water Research*, **18**, 1343-1353 (1984).
151. Baugh, K. D., and McCarty, P. L., "Thermochemical Pretreatment of Lignocellulose to Enhance Methane Fermentation: I. Monosaccharide and Furfurals Hydrothermal Decomposition and Product Formation Rates," *Biotechnology and Bioengineering*, **31**, 50-61 (1988).
152. Baugh, K. D., Levy, J., and McCarty, P. L., "Thermochemical Pretreatment of Lignocellulose to Enhance Methane Fermentation: II. Evaluation and Application of Pretreatment Model," *Biotechnology and Bioengineering*, **31**, 62-70 (1988).
153. McCarty, P. L., and Smith, D., "Effect of Hydrogen Concentration on Population Distribution and Kinetics in Methanogenesis of Propionate" in *Biotechnological Advances in Processing Municipal Wastes for Fuels and Chemicals*, A. A. Antonopoulos, Ed., pp. 53-66, ANL/CNSV-TM-167, Argonne National Laboratory, Argonne, IL (1985).
154. Stephanou, E., Reinhard, M., McCarty, P. L., and Ball, H. A., "Identification of Halogenated and Non-Halogenated Alkylphenol Polyethoxylate Residues in Chlorinated Secondary Effluents by GC/MS Using Electron-Impact and Chemical Ionization", submitted for publication.
155. Bouwer, E. J., and McCarty, P. L., "Ethylene Dibromide Transformation Under Methanogenic Conditions," *Applied and Environmental Microbiology*, **50**, 527-528 (1985).
156. Vogel, T. M., and McCarty, P. L., "Biotransformation of Tetrachloroethylene to Trichloroethylene, Dichloroethylene, Vinyl Chloride, and Carbon Dioxide Under Methanogenic Conditions," *Applied and Environmental Microbiology*, **49**, 1080-1083 (1985).
157. McCarty, P. L., Rittmann, B. E., and Reinhard, M., "Processes Affecting the Movement and Fate of Trace Organics in the Subsurface Environment," Chap. 22, pp. 627-646 in *Artificial Recharge of Groundwater*, T. Asano, Ed., Butterworth Publishers, Boston (1985).
158. McCarty, P. L., "Historical Trends in the Anaerobic Treatment of Dilute Wastewaters," *Proceedings, Seminar/Workshop on Anaerobic Treatment of Sewage*, University of Massachusetts, Amherst, MA, Report No. Env. E. 88-85-5, pp. 3-15 (1985).
159. McCarty, P. L., and Smith, D. P., "Anaerobic Wastewater Treatment," *Environmental Science and Technology*, **20**, 1200-1206 (1986).
160. Kissel, J. C., McCarty, P. L., and Street, R. L., "Numerical Simulation of a Methanogenic Biofilm," submitted for publication.
161. Vogel, T. M., and McCarty, P. L., "Rate of Abiotic Formation of 1,1-Dichloroethylene from 1,1,1-Trichloroethane in Groundwater," *Journal of Contaminant Hydrology*, **1**, 299-308 (1987).

162. Siegrist, H., and McCarty, P. L., "Column Methodologies for Determining Sorption and Biotransformation Potential for Chlorinated Aliphatic Compounds in Aquifers," *Journal of Contaminant Hydrology*, **2**, 31-50 (1987).
163. Vogel, T. M., and McCarty, P. L., "Abiotic and Biotic Transformations of 1,1,1-Trichloroethane Under Methanogenic Conditions," *Environmental Science and Technology*, **21**, 1208-1213 (1987).
164. Vogel, T. M., Criddle, C. S., and McCarty, P. L., "Transformations of Halogenated Aliphatic Compounds," *Environmental Science and Technology*, **21**, 722-736 (1987).
165. Bachmann, A., and McCarty, P. L., "Surface Behavior of a Crude Cellulose Enzyme System on Lignocellulosic and Lignin-Type Materials," submitted for publication.
166. McCarty, P. L., "Bioengineering Issues Related to In-Situ Remediation of Contaminated Soils and Groundwater" in *Environmental Biotechnology*, G. S. Omenn, Ed., pp. 143-162, Plenum Publishing Corp., New York (1988).
167. McCarty, P. L., Roberts, P. V., Reinhard, M., and Hopkins, G., "Movement and Transformations of Halogenated Aliphatic Compounds in Natural Systems," *Fate of Pesticides and Chemicals in the Environment*, Ed., J. L. Schnoor, John Wiley & Sons, Inc., New York, 191-209 (1992), also Ed., M. A. Novitsky, Leningrad Gidrometeoizdat, 338-354 (1991). (In Russian)
168. Smith, D. P., and McCarty, P. L., "Energetic and Rate Effects on Methanogenesis of Ethanol and Propanol in Perturbed CSTRs," *Biotechnology and Bioengineering*, **34**, 39-54 (1989).
169. Mayer, K., Grbić -Galić , D., Semprini, L., and McCarty, P. L., "Degradation of Trichloroethylene by Methanotrophic Bacteria in a Laboratory Column of Saturated Aquifer Material," *Water Science and Technology*, **20**(11-12), 175-178 (1988).
170. McCarty, P. L., "The Particular Relevance of Science in Environmental Engineering Practice," *International Conference on Water and Wastewater Microbiology*, Vol. 1, 2(1-5), Newport Beach, CA (1988).
171. Smith, D. P., and McCarty, P. L., "Hydrogen Partial Pressure: Effect on Methanogenesis of Ethanol and Propionate in a Perturbed CSTR," *Fifth International Symposium on Anaerobic Digestion*, Bologna, May 1988.
172. McCarty, P. L., "Terrestrial Physical and Chemical Processes for Liquid Waste Treatment," *Waste Management & Research*, **9**, 379-387 (1991).
173. Smith, D. P., and McCarty, P. L., "Reduced Product Formation Following Perturbation of Ethanol- and Propionate-Fed Methanogenic CSTRs," *Biotechnology and Bioengineering*, **34**, 885-895 (1989).
174. Semprini, L., Roberts, P. V., Hopkins, G. D., and McCarty, P. L., "Field Evaluation of Aquifer Restoration by Enhanced Biotransformation," *International Conference on Physiochemical and Biological Detoxification of Hazardous Wastes*, Y. C. Wu, Ed., Vol. 2, pp. 955-976, Technomic Publishing, Lancaster, PA (1989).
175. Ball, H. A., Reinhard, M., and McCarty, P. L., "Biotransformation of Halogenated and Nonhalogenated Octylphenol Polyethoxylate Residues Under Aerobic and Anaerobic Conditions," *Environmental Science and Technology*, **23**, 951-961 (1989).

176. Gälli, R., and McCarty, P. L., "Biotransformations of 1,1,1-Trichloroethane, Trichloromethane, and Tetrachloromethane by a *Clostridium* sp.," *Applied and Environmental Microbiology*, **55**, 837-844 (1989).
177. Gälli, R., and McCarty, P. L., "Kinetics of Biotransformation of 1,1,1-Trichloroethane by *Clostridium* sp. Strain TCA IIB," *Applied and Environmental Microbiology*, **55**, 845-851 (1989).
178. McCarty, P. L., "Volatile Organic Chemicals and Intentional Reuse," *Significance and Treatment of Volatile Organic Compounds in Water Supplies*, ed. N. M. Ram, R. F. Christman, and K. P. Cantor, Lewis Publishers, Inc., Chelsea, MI, 127-138 (1990).
179. McCarty, P. L., Semprini, L., and Roberts, P. V., "Methodologies for Evaluating the Feasibility of In-Situ Degradation of Halogenated Aliphatic Groundwater Contaminants by Methanotrophs," *Proceedings, 1989 AWMA/EPA International Symposium on Biosystems for Pollution Control*, pp. 69-82, Air and Waste Management Association, Pittsburgh, PA (1989).
180. McCarty, P. L., "Scientific Limits to Remediation of Contaminated Soils and Groundwater," *Ground Water and Soil Contamination Remediation: Toward Compatible Science, Policy, and Public Perception*, National Academy Press, Washington, D.C., 38-52 (1990).
181. McCarty, P. L., "Bioremediation of Chlorinated Solvents in Groundwater," *Proceedings SCOPE Workshop on Groundwater Contamination in China and Surrounding Countries*, Beijing, China (Aug. 1995).
182. Tong, X., Smith, L. H., and McCarty, P. L., "Methane Fermentation of Selected Lignocellulosic Materials," *Biomass*, **21**, 239-255 (1990).
183. Lanzarone, N. A., and McCarty, P. L., "Column Studies on Methanotrophic Degradation of Trichloroethene and 1,2-Dichloroethane," *Ground Water*, **28**, 910-919 (1990).
184. Smith, D. P., and McCarty, P. L., "Factors Affecting Methane Fluctuations Following Shock Loadings of Digesters," *Research Journal Water Pollution Control Fed.*, **62**, 58-64 (1990).
185. Semprini, L., and McCarty, P. L., "Comparison Between Model Simulations and Field Results for In-Situ Bioremediation of Chlorinated Aliphatics: Part 1. Biostimulation of Methanotrophic Bacteria," *Ground Water*, **29**, (3), 365-374 (1991).
186. Semprini, L., Roberts, P. V., Hopkins, G. D., and McCarty, P. L., "A Field Evaluation of In-Situ Biodegradation of Chlorinated Ethenes: Part 2. Results of Biostimulation and Biotransformation Experiments," *Ground Water*, **28**, 715-727 (1990).
187. Tong, X., and McCarty, P. L., "Microbial Hydrolysis of Lignocellulosic Materials" in *Methane from Community Wastes*, Ed., R. Isaacson, Elsevier Publishers, London, 61-100 (1991).
188. Roberts, P., Semprini, L., Hopkins, G., and McCarty, P., "Biostimulation of Methanotrophic Bacteria to Transform Halogenated Alkenes for Aquifer Restoration," *Proceedings, NWWA Conference on Petroleum, Hydrocarbons, and Organic Chemicals in Groundwater*, Water Well Journal Publishing Co., Dublin, OH, 203-217 (1989).
189. McCarty, P. L., "Processes Governing the Movement and Fate of Contaminants in Groundwater," *Groundwater Contamination: Application of Research to Management*

- Problems in Asia and the Pacific*, Proceedings of the 2nd SCOPE Regional Workshop, Chiang Mai, Thailand, 38-45 (1991).
190. Criddle, C. S., Alvarez, L. M., and McCarty, P. L., "Microbial Processes in Porous Media," *Transport Processes in Porous Media*, Eds. , J. Bear and M. Y. Corapcioglu, Kluwer Academic Publishers, Dordrecht, The Netherlands, 639-691 (1991).
 191. Semprini, L., Hopkins, G., Grbić -Galić , D., McCarty, P. L., and Roberts, P. V., "A Laboratory and Field Evaluation of Enhanced In-Situ Bioremediation of Trichloroethylene, cis- and trans-Dichloroethylene, and Vinyl Chloride by Methanotrophic Bacteria," Chap. 8, *Bioremediation Field Experience*, Eds. P. E. Flathman, D. E. Jerger, J. H. Exner, Lewis Publishers, Boca Raton, 383-412 (1994).
 192. McCarty, P. L., Semprini, L., Dolan, M. E., Harmon, T. C., Tiedeman, C., Gorelick, S. M., "In-Situ Methanotrophic Bioremediation for Contaminated Groundwater at St. Joseph, Michigan," *On-Site Bioreclamation, Processes for Xenobiotic and Hydrocarbon Treatment*, Eds., R. E. Hinchee and R. F. Olfenbuttel, Butterworth-Heinemann, Boston, 16-40 (1991).
 193. Semprini, L., Hopkins, G. D., Roberts, P. V., Grbić -Galić , D., McCarty, P. L., "A Field Evaluation of In-Situ Biodegradation of Chlorinated Ethenes: Part 3, Studies of Competitive Inhibition," *Ground Water*, **29**, 239-250 (1991).
 194. Roberts, P., Semprini, L., Hopkins, G., McCarty, P., Grbić -Galić , D., "Biostimulation of Methanotrophic Bacteria to Transform Halogenated Alkenes for Aquifer Restoration," *Proceedings: Environmental Research Conference on Groundwater Quality and Waste Disposal*, Electric Power Research Institute, Palo Alto, CA, 28-1 to 28-19 (1990).
 195. Alvarez-Cohen, L. M. and McCarty, P. L., "Effects of Toxicity, Aeration, and Reductant Supply on Trichloroethylene Transformation by a Mixed Methanotrophic Culture" *Applied and Environmental Microbiology*, **57**(1), 228-235 (1991).
 196. Criddle, C. S. and McCarty, P. L., "Electrolytic Model System for Reductive Dehalogenation in Aqueous Enviroments," *Environmental Science and Technology*, **25**, 973-978 (1991).
 197. Criddle, C. S., DeWitt, J. T., Grbić -Galić , D., and McCarty, P. L., "Transformation of Carbon Tetrachloride by *Pseudomonas* sp. strain KC under Denitrification Conditions," *Applied and Environmental Microbiology*, **56**, 3240-3246 (1990).
 198. Criddle, C. S., DeWitt, J. T., and McCarty, P. L., "Reductive Dehalogenation of Carbon Tetrachloride by *Escherichia coli* K-12," *Applied and Environmental Microbiology*, **56**, 3247-3254 (1990).
 199. Haag, F., Reinhard, M., McCarty, P. L., "Degradation of Toluene and p-Xylene in Anaerobic Microcosms: Evidence for Sulfate as a Terminal Electron Acceptor," *Environmental Toxicity and Chemistry*, **10**, 1379-1389 (1991).
 200. Alvarez-Cohen, L., and McCarty, P. L., "A Cometabolic Biotransformation Model for Halogenated Aliphatic Compounds Exhibiting Product Toxicity," *Environmental Science and Technology*, **25** (8), 1381-1387 (1991).
 201. Alvarez-Cohen, L., and McCarty, P. L., "Two-Stage Dispersed-Growth Treatment of Halogenated Aliphatic Compounds by Cometabolism," *Environmental Science and Technology*, **25** (8), 1387-1393 (1991).

202. Alvarez-Cohen, L., and McCarty, P. L., "Product Toxicity and Cometabolic Competitive Inhibition Modeling of Chloroform and Trichloroethylene Transformation by Methanotrophic Resting Cells," *Applied and Environmental Microbiology*, **57**, 1031-1037 (1991).
203. McCarty, P. L., "Engineering Concepts for *In Situ* Bioremediation," *Journal of Hazardous Materials*, **28**, 1-11 (1991).
204. Alvarez-Cohen, L., McCarty, P. L., and Roberts, P. V., "Sorption of Trichloroethylene onto a Zeolite, Accompanied by Methanotrophic Biotransformation," *Environmental Science & Technology*, (10), 2141-2148 (1993).
205. Semprini, L., Hopkins, G. D., Roberts, P. V. and McCarty, P. L., "In-Situ Biotransformation of Carbon Tetrachloride, Freon-113, Freon-11, and 1,1,1-TCA Under Anaerobic Conditions," *On-Site Bioreclamation, Processes for Xenobiotic and Hydrocarbon Treatment*, Eds., R. E. Hinchee and R. F. Olfenbuttel, Butterworth-Heinemann, Boston, 41-58 (1991).
206. Semprini, L. and McCarty, P. L., "Comparison Between Model Simulations and Field Results for In-Situ Bioremediation of Chlorinated Aliphatics: Part 2. Cometabolic Transformations," *Ground Water*, **30**(1), 37-44 (1992).
207. McCarty, P. L. and Reinhard, M., "Biological and Chemical Transformations of Halogenated Aliphatic Compounds in Aquatic and Terrestrial Environments," *Biogeochemistry of Global Change: Radiatively Active Trace Gases*, Ed. R. S. Oremland, Chapman & Hall, Inc., New York, 839-852 (1993).
208. Semprini, L., Hopkins, G. D., McCarty, P. L., and Roberts, P.V.," In-Situ Transformation of Carbon Tetrachloride and Other Halogenated Compounds Resulting from Biostimulation Under Anoxic Conditions, *Environmental Science and Technology*, **26** (12), 2454-2461 (1992).
209. Ball, H. A., Reinhard, M., McCarty, P. L., "Biotransformation of Monoaromatic Hydrocarbons Under Anoxic Conditions," *In Situ Bioreclamation, Applications and Investigations for Hydrocarbon and Contaminated Site Remediation*, Eds., R. E. Hinchee and R. F. Olfenbuttel, Butterworth-Heinemann, Boston, 458-463 (1991).
210. Alvarez-Cohen, L., McCarty, P. L., Boulygina, E., Hanson, R. S., Brusseau, G. A. and Tsien, H. C., "Characterization of a Methane-Utilizing Bacterium from a Bacterial Consortium that Rapidly Degrades Trichloroethylene and Chloroform," *Applied and Environmental Microbiology*, **58**(6), 1886-1893 (1992).
211. McCarty, P. L., "Transport, Fate, and In-Situ Bioremediation of Chlorinated Solvents in Groundwater," Proceedings of the Japanese Association of Groundwater Hydrology, Yokohama, 116-135 (1992).
212. Anderson, J. E. and McCarty, P.L., "Model for Treatment of Trichloroethylene by Methanotrophic Biofilms," *Journal of Environmental Engineering*, **120**(2), 379-400 (1994).
213. McCarty, P. L. and Semprini, L., "Ground-Water Treatment for Chlorinated Solvents," in *Handbook of Bioremediation*, Ed. Norris, R. D., et al., Lewis Publishers, Boca Raton, 87-116 (1994).
214. Bae, J. and McCarty, P. L., "Inhibition of Butyrate Oxidation by Formate during Methanogenesis," *Applied and Environmental Microbiology*, **59**(2), 628-630 (1993).

215. Hopkins, G. D., Semprini, L., and McCarty, P. L., "Microcosm and In Situ Field Studies of Enhanced Biotransformation of Trichloroethylene by Phenol-Utilizing Microorganisms," *Applied and Environmental Microbiology*, **59**, 2277-2285 (1993).
216. Henrysson, T. and McCarty, P. L., "Influence of the Endogenous Storage Lipid Poly- β -Hydroxybutyrate on the Reducing Power Availability During Cometabolism of Trichloroethylene and Naphthalene by Resting Methanotrophic Mixed Cultures," *Applied and Environmental Microbiology*, **59**(5), 1602-1606 (1993).
217. Bae, J. and McCarty, P. L., "Variation of Carbon Monoxide Production during Methane Fermentation of Glucose," *Water Environment Research*, **65**(7), 890-898 (1993).
218. Dolan, M. E. and McCarty, P. L., "Chloroethene Transformation Capacities Using A Mixed Methanotrophic Culture," submitted (1992).
219. Bae, J., Semprini, L., and McCarty, P. L., "Apparatus for Down-Well Oxygen Transfer into Contaminated Aquifers," *Journal of Environmental Engineering*, **121**(8), 565-570 (1995).
220. McCarty, P. L., "Aerobic Cometabolism of Chlorinated Aliphatic Hydrocarbons," Chap. 23, *Subsurface Restoration*, Editors: C. H. Ward, J. A. Cherry, M. R. Scaif; Ann Arbor Press, Inc., Chelsea, MI, 373-395 (1997).
221. McCarty, P. L. and Semprini, L., "Engineering and Hydrogeological Problems Associated with *In Situ* Treatment," *Hydrological Sciences*, **38**(4), 261-272 (1993).
222. Dolan, M. E. and McCarty, P. L., "Small-Column Microcosm for Assessing Methane-Stimulated Vinyl Chloride Transformation in Aquifer Samples," *Environmental Science & Technology*, **29**(8), 1892-1897 (1995).
223. Semprini, L., McCarty, P., Dolan, M., Lang, M., McDonald, T., Bae, J., and Kitanidis, P., "Design and Treatability Study of *In Situ* Bioremediation of Chlorinated Aliphatics by Methanotrophs at St. Joseph, Michigan," *Bioremediation of Hazardous Wastes*, EPA/600/R-92/126, U.S. EPA Center For Environmental Research Information, Cincinnati, 43-45 (1992).
224. McCarty, P. L. and Wilson, J. T., "Natural Anaerobic Treatment of a TCE Plume, St. Joseph, Michigan, NPL Site," *Bioremediation of Hazardous Wastes*, EPA/600/R-92/126, U.S. EPA Center For Environmental Research Information, Cincinnati, 47-50 (1992).
225. Hopkins, G. D., Semprini, L., McCarty, P. L., "Evaluation of Enhanced *In Situ* Aerobic Biodegradation of cis- and trans-1-Trichloroethylene and cis- and trans-2, 2-Dichloroethylene by Phenol-Utilizing Bacteria," *Bioremediation of Hazardous Wastes*, EPA/600/R-92/126, U.S. EPA Center For Environmental Research Information, Cincinnati, 71-73 (1992).
226. Semprini, L., Hopkins, G. D., Roberts, P. V., and McCarty, P. L., "Pilot Scale Field Studies of *In-Situ* Bioremediation of Chlorinated Solvents," *Journal of Hazardous Materials*, **32**, 145-162 (1992).
227. McCarty, P. L., "*In Situ* Bioremediation of Chlorinated Solvents," *Current Opinion in Biotechnology*, **4**(3), 323-330 (1993), also in *Association for Rainwater Storage and Filtration Technology*, **11**, 103-115 (1993) (In Japanese).
228. Hopkins, G. D., Munakata, J., Semprini, L., and McCarty, P. L., "Trichloroethylene Concentration Effects on Pilot Field Scale *In-Situ* Groundwater Bioremediation by

- Phenol-Oxidizing Bacteria," *Environmental Science and Technology*, **27**(12), 2542-2547 (1993).
229. Semprini, L., Hopkins, G. D., McCarty, P. L., "A Field and Modeling Comparison of *In Situ* Transformation of Trichloroethylene by Methane Utilizers and Phenol Utilizers," *Bioremediation of Chlorinated and Polycyclic Aromatic Hydrocarbon Compounds*," Eds., Hinchee, R. E., Leeson, A., Semprini, and Ong, S.K., Lewis Publishers, Boca Raton, 248-254 (1994).
230. McCarty, P. L., "Engineering Considerations with Chemical and Microorganism Supplementation For *In-Situ* Groundwater Remediation," Proceedings of U.S. EPA-sponsored Conference on Risk Assessment for Environmental Releases of Biotechnology Products, Duluth, Minnesota, 1993.
231. Dolan, M. E. and McCarty, P. L., "Factors Affecting Transformations of Chlorinated Aliphatic Hydrocarbons by Methanotrophs," *Bioremediation of Chlorinated and Polycyclic Aromatic Hydrocarbon Compounds*, Eds., Hinchee, R. E., Leeson, A., Semprini, L., and Ong, S.K., Lewis Publishers, Boca Raton, 303-308 (1994).
232. McCarty, P. L., "An Overview of Anaerobic Transformation of Chlorinated Solvents," *Symposium on Intrinsic Bioremediation of Ground Water*, EPA/540/R-94/515, EPA Office of Research and Development, Washington, D.C., 135-142 (1994).
233. Hopkins, G. D. and McCarty, P. L., "Field Evaluation of *In-Situ* Aerobic Cometabolism of Trichloroethylene and Three Dichloroethylene Isomers Using Phenol and Toluene as the Primary Substrates," *Environmental Science and Technology*, **29**(6) 1628-1637 (1995).
234. Bae, J. and McCarty, P. L., "Modeling the Behavior of Hydrogen, Volatile Acids, and Cell Storage During Shock Loading of Glucose in Mixed Methanogenic Reactors," submitted.
235. Dolan, M.E. and McCarty, P. L., "Methanotrophic Chloroethene Transformation Capacities and 1,1-Dichloroethene Transformation Product Toxicity," *Environmental Science and Technology*, **29**(11) 2741-2747 (1995).
236. Haston, Z. C., Sharma, P. K., Black, J. N. P., and McCarty, P. L., "Enhanced Reductive Dechlorination of Chlorinated Ethenes," *Symposium on Bioremediation of Hazardous Wastes: Research, Development, and Field Evaluations*, EPA/600/R-94/075, 11-14, (1994).
237. Smith, L. H., Kitanidis, P. K., and McCarty, P. L., "Numerical Modeling and Uncertainties in Rate Coefficients for Methane Utilization and TCE Cometabolism by a Methane Oxidizing Mixed Culture," *Biotechnology and Bioengineering*, **53**(3), 320-331 (1997).
238. McCarty, P. L., Greenberg, M., Wassel, R., et al., "Setting Remediation Priorities for Hazardous Waste Sites. A Unified National Perspective," submitted 1995.
239. McCarty, P. L. and Hopkins, G., "Field-Scale Study of *In Situ* Bioremediation of TCE-Contaminated Ground Water and Planned Bioaugmentation," *Symposium on Bioremediation of Hazardous Wastes: Research, Development, and Field Evaluations*, EPA/600/R-94/075, 65-67, (1994).
240. McCarty, P. L., "Factors Affecting Biotransformation Rates in Groundwater," *Groundwater Contamination: Application of Research to Management Problems in Asia*

- and the Pacific*, Proceedings of the 2nd SCOPE Regional Workshop, Chiang Mai, Thailand, 261-263 (1995).
241. Sharma, P. and McCarty, P. L., "Isolation and Characterization of a Facultative Bacterium that Reductively Dehalogenates Tetrachloroethene to cis-1,2-dichloroethene," *Applied and Environmental Microbiology*, **62**(3), 761-765 (1996).
 242. Munakata-Marr, J., McCarty, P. L., Shields, M.S., Reagin, M., and Francesceni, S.C., "Enhancement of Trichloroethylene Degradation in Aquifer Microcosms Bioaugmented with Wild Type and Genetically Altered *Burkholderia (Pseudomonas) cepacia* G4 and PR1," *Environmental Science and Technology*, **30**(6), 2045-2052 (1996).
 243. McCarty, P. L., "Transferability of Biotreatment from Site to Site," *Wider Application and Diffusion of Bioremediation Technologies, The Amsterdam '95 Workshop*, OECD, Paris, 201-210 (1996).
 244. Smith, L. H., McCarty, P. L., and Kitanidis, P. K., "Spreadsheet Method for Evaluation of Biochemical Reaction Rate Coefficients and Their Uncertainties by Weighted Nonlinear Least-Squares Analysis of the Integrated Monod Equation," *Applied and Environmental Microbiology*, **64**(6), 2044-2050 (1998).
 245. Goltz, M. N., Hopkins, G. D., and McCarty, P. L., "Field Studies: Elicitation of Fate and Transport Processes and Application of Full-Scale Remediation," *Soil and Groundwater Pollution*, Ed. A. J. B. Zehnder, Kluwer Academic Publishers, Dordrecht, 110-116 (1995).
 246. Goltz, M. N., Kawakami, B. T., and McCarty, P. L., "Full-Scale *In-Situ* Bioremediation of Trichloroethylene in Groundwater: Preliminary Modeling Studies," EPA/600/R-95/012, *21st Annual Risk Reduction Engineering Laboratory Research*, U.S. EPA Center for Environmental Research Information, Cincinnati, 283-287 (1995).
 247. Munakata-Marr, J. and McCarty, P. L., "Relative Toluene Ortho-Monooxygenase Expression Levels in *Burkholderia cepacia* G4 and PR1301," submitted 1996.
 248. Fries, M. R., Hopkins, G. D., McCarty, P. L., Forney, L. J., and Tiedje, J. M., "Microbial Succession During a Field Evaluation of Phenol and Toluene as the Primary Substrates for Trichloroethene (TCE) Cometabolism," *Applied and Environmental Microbiology*, **63**(4), 1515-1522 (1997).
 249. Munakata-Marr, J., Matheson, V. G., Forney, L. J., Tiedje, J. M., and McCarty, P. L., "Long-Term Biodegradation of Trichloroethylene Influenced by Bioaugmentation and Dissolved Oxygen in Aquifer Microcosms," *Environmental Science and Technology*, **31**(3), 786-791 (1997).
 250. Anderson, J. and McCarty, P. L., "Effect of Three Chlorinated Ethenes on Growth Rates for a Methanotrophic Mixed Culture," *Environmental Science and Technology*, **30**(12), 3517-3524 (1996).
 251. Smith, L. H. and McCarty, P. L., "Laboratory Evaluation of a Two-Stage Treatment System for Cometabolism by a Methane-Oxidizing Mixed Culture," *Biotechnology and Bioengineering*, **55**(4), 650-659 (1997).
 252. Anderson, J. E. and McCarty, P. L., "Transformation Yields of Chlorinated Ethenes by a Methanotrophic Mixed Culture Expressing Particulate Methane Monooxygenase," *Applied and Environmental Microbiology*, **63**(2), 687-693 (1997).

253. Anderson, J. E. and McCarty, P. L., "Effect of Chlorinated Ethenes on S_{min} for a Methanotrophic Mixed Culture," *Environmental Science and Technology*, **31**(8), 2204-2210 (1997).
254. McCarty, P.L., Goltz, M.N., Hopkins, G.D., and Allan, J.P., "In-Situ Biodegradation of Chlorinated Solvent Contaminants in Groundwater," Proceedings, WEFTEC '96 Conference, **3**, 217-223 (1996).
255. Jenal-Wanner, U., and McCarty, P.L., "Development and Evaluation of Semicontinuous Slurry Microcosms to Simulate *In Situ* Biodegradation of Trichloroethylene in Contaminated Aquifers," *Environmental Science and Technology*, **31**(10), 2915-2922 (1997).
256. Hopkins, G. D., Goltz, M. N., Allan, J. P., Dolan, M. E., and McCarty, P. L., "Full-Scale In-Situ Cometary Biodegradation of Trichloroethene-Contaminated Groundwater through Toluene Injection," Extended Abstract, American Chemical Society, Div. Environmental Chemistry, San Francisco, 233-235 (1997).
257. McCarty, P. L., "The Environmental Engineering and Science Program at Stanford University," *Environmental Engineering Education*, American Academy of Environmental Engineering, 51-53 (1997).
258. McCarty, P. L., Goltz, M. N., Hopkins, G. D., Dolan, M. E., Allan, J. P., Kawakami, B. T., and Carrothers, T. J., "Full-Scale Evaluation of *In Situ* Cometary Degradation of Trichloroethylene in Groundwater through Toluene Injection," *Environmental Science and Technology*, **32**(1), 88-100 (1998).
259. Yang, Y. and McCarty, P. L., "Competition for Hydrogen within a Chlorinated Solvent Dehalogenating Mixed Culture," *Environmental Science and Technology*, **32**(22), 3591-3597 (1998).
260. Rosner, B. M., McCarty, P. L., Spormann, A. M., "In Vitro Studies on Reductive Vinyl Chloride Dehalogenation by an Anaerobic Mixed Culture," *Applied and Environmental Microbiology*, **63**(11), 4139-4144 (1997).
261. Munakata-Marr, J., Matheson, V. G., Forney, L. J., Tiedje, J. M., and McCarty, P. L., "Bioaugmentation with *Burkholderia cepacia*: Trichloroethylene Cometary Metabolism vs. Colonization," *In-Situ and On-Site Bioremediation*, **Vol. 4**, Battelle Press, Columbus, Ohio, 501-506 (1997).
262. McCarty, P. L., "Breathing with Chlorinated Solvents," *Science*, **276**, 1521-1522 (1997).
263. Matheson, V. G., Munakata-Marr, J., Hopkins, G. D., McCarty, P. L., Tiedje, J. M., Forney, L. J., "A Novel Means to Develop Strain-Specific DNA Probes for Detecting Bacteria in the Environment," *Applied and Environmental Microbiology*, **63**(7), 2863-2869 (1997).
264. Haston, Z. C. and McCarty, P. L., "Chlorinated Ethene Half-Velocity Coefficients (K_S) for Reductive Dehalogenation," *Environmental Science and Technology*, **33**(2), 223-226 (1999).
265. McCarty, P.L., "Chlorinated Organics," Chap. 4, *Environmental Availability of Chlorinated Organics, Explosives, and Metals in Soils*, Eds. W.C. Anderson, R. C. Loehr, B. P. Smith, American Academy of Environmental Engineers, Annapolis, 35-84 (1999).

266. Warikoo, V., Sharma, P. K., and McCarty, P. L., "Growth of Six Facultative Bacterial Strains Through Dehalorespiration of Tetrachloroethene to cis-1,2-Dichloroethene," submitted (1998).
267. Goltz, M., Mandalas, G. C., Hopkins, G. D., and McCarty, P. L., "Technology Transfer of an Innovative Remediation Technology from the Laboratory to the Field: A Case Study of *In Situ* Aerobic Cometary Bioremediation," *Environmental Engineering and Policy*, **1**, 117-124 (1998).
268. Dupin, H. J. and McCarty, P. L., "Mesoscale and Microscale Observations of Biological Growth in a Silicon Pore Imaging Element," *Environmental Science and Technology*, **33**(8), 1230-1236 (1999).
269. Kawakami, B.T., Christ, J.A., Goltz, M.N., and McCarty, P.L. "Hydraulic Design of an *In Situ* Injection/Extraction Bioremediation System," *Designing and Applying Treatment Technologies--Remediation of Chlorinated and Recalcitrant Compounds*, Wickramanayake, G.B. and Hinchee, R.E., Eds., pp. 33-38, Battelle Press, Columbus, OH, (1998).
270. McCarty, P.L., Goltz, M.N., Hopkins, G.D., and Allan, J.P., "*In situ* Biodegradation of Chlorinated Solvent Contaminants in Groundwater," *Proceedings of the Water Environment Federation 69th Annual Conference*, 217-223, Dallas TX (1996).
271. Haston, Z. C., Yang, Y., and McCarty, P. L., "Organism Growth and Substrate Utilization Kinetics for the Anaerobic Dehalogenation of cis-Dichloroethene and Vinyl Chloride," submitted (1999).
272. Dupin, H. J., Kitanidis, P., and McCarty, P., "Simulations of Two Dimensional Modeling of Biomass Aggregate Growth in Network Models," *Water Resources Research*, **37**(12), 2981-2994 (2001).
273. Dupin, H. J. and McCarty, P. L., "Impact of Colony Morphologies and Disinfection on Biological Clogging in Porous Media," *Environmental Science & Technology*, **34**(8), 1513-1520 (2000).
274. Yang, Y. and McCarty, P. L., "Biomass, Oleate, and Other Possible Substrates for Chloroethene Reductive Dehalogenation," *Bioremediation Journal*, **4**(2), 125-133 (2000).
275. Yang, Y. and McCarty, P. L., "Response to "Comment on Competition for Hydrogen within a Chlorinated Solvent Dehalogenating Mixed Culture," *Environmental Science and Technology*, **33**(12), 2128 (1999).
276. McCarty, P. L., "Novel Biological Removal of Hazardous Chemicals at Trace Levels," *Water Science and Technology*, **42**(12), 49-60 (2000).
277. MacDonald, T. R., Kitanidis, P. K., McCarty, P. L., and Roberts, P.V., "Mass Transfer Limitations for Macroscale Bioremediation Modeling and Implications on Aquifer Clogging," *Ground Water*, **37**(4), 523-531 (1999).
278. MacDonald, T. R., Kitanidis, P. K., McCarty, P. L., and Roberts, P.V., "Effects of Shear Detachment on Biomass Growth and *In Situ* Bioremediation," *Ground Water*, **37**(4), 555-563 (1999).

279. Yang, Y. and McCarty, P. L., "Biologically Enhanced Dissolution of Tetrachloroethene DNAPL," *Environmental Science & Technology*, **34**(14), 2979-2984 (2000).
280. Dupin, H. J., Kitanidis, P., and McCarty, P. L., "Pore-Scale Modeling of Biological Clogging Due to Aggregate Expansion: A Material Mechanics Approach," *Water Resources Research*, **37**(12), 2965-2979 (2001).
281. McCarty, P. L., "Bioremediation of Chlorinated Solvents in Groundwater," *Groundwater Contamination and Its Control in China*, eds. R. Fu, Y. Qian, and C. A. Shoemaker, Tsinghua University Press, Beijing, China, 83-94 (2000).
282. Gandhi, R. K., Hopkins, G. D., Goltz, M. N., Gorelick, S. M., and McCarty, P. L., "Full-Scale Demonstration of In Situ Cometabolic Biodegradation of Trichloroethylene in Groundwater, 1: Dynamics of a Recirculating Well System," *Water Resources Research*, **38**(4), 10.1- 10.16 (2002).
283. Gandhi, R. K., Hopkins, G. D., Goltz, M. N., Gorelick, S. M., and McCarty, P. L., "Full-Scale Demonstration of In Situ Cometabolic Biodegradation of Trichloroethylene in Groundwater, 2: Comprehensive Analysis of Field Data Using Reactive Transport Modeling," *Water Resources Research*, **38**(4), 11.1 - 11.19 (2002).
284. McCarty, P. L., "Strategies for In-Situ Bioremediation of Chlorinated Solvent Contaminated Groundwater," *Groundwater Quality 2001*, University of Sheffield, Sheffield, UK, 12-15 (2001).
285. McCarty, P. L., "The Development of Anaerobic Treatment and Its Future," *Water Science and Technology*, **44**(8), 149-156 (2001).
286. McCarty, P. L., "Water Technology Development in the Twenty-First Century, What Should We Do, Not What Can We Do?" The Abel Wolman Distinguished Lecture, The National Academies, January 22, 2001.
287. Yang, Y., and McCarty, P. L., "Comparison of Donor Substrates for Biologically Enhanced Tetrachloroethene (PCE) DNAPL Dissolution," *Environmental Science & Technology*, **36**(15), 3400-3404 (2002).
288. McCarty, P. L. and Ellis, D. E., "Natural Attenuation," *Innovative Approaches to the On-Site Assessment and Remediation of Contaminated Sites*, eds. D. Reible and K. Demnerova, Kluwer Academic Publishers, Dordrecht, 141-181 (2002).
289. Chu, M., Kitanidis, P. K. and McCarty, P. L., "Effects of Biomass Accumulation on Biologically Enhanced Dissolution of a PCE Pool: A Numerical Simulation." *Journal of Contaminant Hydrology*, **65**, 75-100 (2003).
290. Cupples, A. M., Spormann, A. M., and McCarty, P. L., "Growth of a *Dehalococcoides*-like Microorganism on Vinyl Chloride and *cis*-Dichloroethene as Electron Acceptors as Determined by Competitive PCR," *Applied and Environmental Microbiology*, **69**(2) 953-959 (2003).
291. McCarty, P. L., "Biotic and Abiotic Transformations of Chlorinated Solvents in Ground Water," Proceedings of the Symposium on Natural Attenuation of Chlorinated Organics in Groundwater, EPA/540/R-97/504, Washington D.C. 7-11(1997).
292. Yang, Y., and McCarty, P. L., "Response to Comment on 'Comparison of Donor Substrates for Biologically Enhanced Tetrachloroethene (PCE) DNAPL Dissolution',"

- Environmental Science & Technology*, **37**(11), 2620-2621 (2003).
293. Cupples, A. M., Spormann, A. M., and McCarty, P. L., "Vinyl Chloride and cis-Dichloroethene Dechlorination Kinetics and Microorganism Growth under Substrate Limiting Conditions," *Environmental Science & Technology*, **38**(4), 1102-1107 (2004).
 294. McCarty, P. L. and Meyer, T. E., "Numerical Model for Biological Fluidized-Bed Reactor Treatment of Perchlorate-Contaminated Groundwater," *Environmental Science & Technology*, **39**(3), 850-858 (2005).
 295. McCarty, P. L. and Ellis, D. E., Hebrew translation by Rubin, H. of "Natural Attenuation," *Hebrew Journal of Water and Environment*, **60**, 19-20, 60-64 (2004).
 296. Chu, M., Kitanidis, P. K. and McCarty, P. L., "Possible Factors Controlling the Effectiveness of Bioenhanced Dissolution of Non-Aqueous Phase Tetrachloroethene," *Advances in Water Resources*, **27**(6), 601-615 (2004).
 297. Lee, I., Bae, J., Yang, Y., McCarty, P. L., "Simulated and Experimental Evaluation of Factors Affecting the Rate and Extent of Reductive Dehalogenation of Chloroethenes with Glucose," *Journal of Contaminant Hydrology*, **74**, 313-331 (2004).
 298. Muller, J. A., Rosner, B. M., Abendroth, G. v., Meshulam-Simon, G., McCarty, P. L., and Spormann, A. M., "Molecular Identification of the Catabolic Vinyl Chloride Reductase from *Dehalococcoides* sp. strain VS and Its Environmental Distribution," *Applied and Environmental Microbiology*, **70**, (8), 4880-4888 (2004).
 299. Cupples, A. M., Spormann, A. M., and McCarty, P. L., "Comparative Evaluation of Chloroethene Dechlorination to Ethene by *Dehalococcoides*-like Microorganisms," *Environmental Science & Technology*, **38**, 4768-4774 (2004).
 300. McCarty, P. L., "Challenges in Environmental Biotechnology," *Proceedings, International Symposium on Biotechnology for Environmental Pollution Control*, Beijing, China (2004).
 301. Chu, M., Kitanidis, P. K., and McCarty, P. L., "Modeling Microbial Reactions at the Plume Fringe Subject to Transverse Mixing in Porous Media: When Can the Rates of Microbial Reaction be Assumed to be Instantaneous?," *Water Resources Research*, **41**(6), 1-15 (2005).
 302. Semprini, L., Dolan, M. E., Mahias, M. A., Hopkins, G. D., and McCarty, P. L. "Bioaugmentation of Butane-Utilizing Microorganisms for the In Situ Cometabolic Treatment of 1,1-Dichloroethene, 1,1-Dichloroethane, and 1,1,1-Trichloroethane," *European Journal of Soil Biology*, **43**, 322-327 (2007).
 303. de Grey, A. D. N. J., Alvarez, P. J. J., Brady, R. O., Cuervo, A. M., Jerome, W. G., McCarty, P. L., Nixon, R. A., Rittmann, B. E., and Sparrow, J. R. "Medical Bioremediation: Prospects for the Application of Microbial Catabolic Diversity to Aging and Several Major Age-Related Diseases," *Ageing Research Reviews*, **4**(3), 315-338 (2005).
 304. Goltz, M. N., Gandhi, R. K., Gorelick, S. M., Hopkins, G. D., Smith, L., Timmins, B. H., and McCarty, P. L., "Field Evaluation of In Situ Source Reduction of Trichloroethylene in Groundwater Using Bioenhanced In-Well Vapor Stripping," *Environmental Science and Technology*, **39**(22), 8963-8970 (2005).
 305. McCarty, P. L., Chu, M., Kitanidis, P., "Biological Degradation and Enhanced Dissolution of Chlorinated Solvent DNAPL," *Proceedings, Third European Bioremediation*

- Conference, Chania, Crete, Greece (2005).
306. Chu, M., Kitanidis, P. K., McCarty, P. L., "Dependence of Lumped Mass Transfer Coefficient on Scale and Reactions Kinetics for Biologically Enhanced NAPL Dissolution," *Advances in Water Resources*, **30**, 1618-1629 (2007).
 307. McCarty, P. L., Chu, M., Kitanidis, P., "Electron Donor and pH Relationships for Biologically Enhanced Dissolution of Chlorinated Solvent DNAPL in Groundwater," *European Journal of Soil Biology*, **43**, 276-282 (2007).
 308. McCarty, P. L., "Thermodynamic Electron Equivalents Model for Bacterial Yield Prediction. Modifications and Comparative Evaluations." *Biotechnology and Bioengineering*, **97**(2), 377-388, (2007).
 309. McCarty, P. L., "Groundwater Contamination by Chlorinated Solvents: History, Remediation Technologies and Strategies," Chapter I. *In Situ Remediation of Chlorinated Solvent Plumes*, ed H. F. Stroo and C. H. Ward, Springer, New York 1-28 (2010).
 310. Semprini, L., Dolan, M. E., Mathias, M. A., Hopkins, G. D., and McCarty, P. L., "Laboratory, Field, and Modeling Studies of Bioaugmentation of Butane-Utilizing Microorganisms for the In Situ Cometabolic Treatment of 1,1-Dichloroethene, 1,1-Dichloroethane, and 1,1,1-Trichloroethane," *Advances in Water Resources*, **30**, 1528-1546 (2007).
 311. Chu, M. J., Kitanidis, P., McCarty, P. L., "Inhibition-Related Limitation to Biologically Enhanced Dissolution of Chlorinated Solvents," Paper B-24, in B. M. Sass, ed., *Remediation of Chlorinated and Recalcitrant Compounds*, Battelle Press, Columbus, Ohio (2006).
 312. Lee, I., Bae, J., McCarty, P. L., "Comparison between Acetate and Hydrogen as Electron Donors and Implications for the Reductive Dehalogenation of PCE and TCE," *Journal of Contaminant Hydrology*, **94**, 76-85 (2007).
 313. McCarty, P. L., "Chemical and Biological Processes – The Need for Mixing," Chapter 2. *Delivery and Mixing in the Subsurface: Processes and Design Principles for In-Situ Remediation*, ed. P. K. Kitandis and P. L. McCarty, 7-52 (2012).
 314. Semprini, L., Dolan, M. E., Hopkins, G. D., McCarty, P. L., "Bioaugmentation with Butane-Utilizing Microorganisms to Promote *In Situ* Cometabolic Treatment of 1,1,1-trichloroethane and 1,1-Dichloroethene," *Journal Of Contaminant Hydrology*, **103**, 157-167 (2009).
 315. Robinson, C., Barry, D. A., McCarty, P. L., Gerhard, J. I. and Kouznetsova, I., "pH Control for Enhanced Reductive Bioremediation of Chlorinated Solvent Source Zones," *Science of the Total Environment*, **407**, 4580-4573 (2009).
 316. McCarty, P.L., "Water, Our Most Precious Resource- Challenges and Opportunities in Addressing Scarcity, Vulnerability, Quality Degradation, and Sustainability. Proceedings, World City Water Forum, Incheon, Korea, August (2009).
 317. Kouznetsova, I., Mao, X., Robinson, C., Barry, D. A., Gerhard, J. I., McCarty, P. L., "Biological Reduction of Chlorinated Solvents: Batch-Scale Geochemical Modeling," *Advances in Water Resources*, **33**, 969-986 (2010).
 318. Kim, J., Kim, K., Ye, H., Lee, E., Shin, C., McCarty, P. L., and Bae, J., "Anaerobic Fluidized Bed Membrane Bioreactor for Wastewater Treatment," *Environmental Science & Technology*, **45**(2) 576-581 (2011).

319. McCarty, P. L. and Bae, J., "Model to Couple Anaerobic Process Kinetics with Biological Growth Equilibrium Thermodynamics," *Environmental Science & Technology*, **45**, 6838-6844 (2011).
320. McCarty, P. L., Bae, J., and Kim, J., "Domestic Wastewater Treatment as a Net Energy Producer – Can This be Achieved?," *Environmental Science & Technology*, **45**(17), 7100-7106 (2011).
321. Shin, C., Lee, E., McCarty, P. L., Bae, J., "DO Effects on the Performance of an Anaerobic Fluidized Bed Reactor with Low-Strength Propionate/Acetate Feed," *Bioresource Technology*, **102**, 9860-9865 (2011).
322. Smith, L., Henrysson, T., and McCarty, P. L., "Chlorinated Aliphatic Hydrocarbon Biodegradation by Methanotrophic Bacteria," Symposium on Bioremediation of Hazardous Wastes: Research, Development, and Field Evaluations, EPA/600/R-93/054, U.S. EPA, Washington DC, 7-12 (1993).
323. Hopkins, G. ID., Semprini, L., and McCarty, P. L., "Field Evaluation of Phenol for Cometabolism of Chlorinated Solvents," Nineteenth Annual RREL Hazardous Waste Research Symposium, EPA/600-R-93/040, U.S. EPA, Washington DC, 41-46 (1993).
324. Shin, C., McCarty, P. L., Bae, J., "Lower Operational Limits to Volatile Fatty Acid Degradation with Dilute Wastewaters in an Anaerobic Fluidized Bed Reactor," *Bioresource Technology*, **109**, 13-20 (2012).
325. Kwak, W., McCarty, P. L., Bae, J., Huang, Y., and Lee, P., Efficient single-stage autotrophic nitrogen removal with dilute wastewater through oxygen supply control, *Bioresource Technology*, **125**, 400-405 (2012).
326. Kitanidis, P. K. and McCarty, P. L., "Introduction," Chapter 1. *Delivery and Mixing in the Subsurface: Processes and Design Principles for In-Situ Remediation*, ed. P. K. Kitandis and P. L. McCarty, 1-6 (2012).
327. Yoo, R., Kim, J., McCarty, P. L. and Bae, J., "Anaerobic treatment of municipal wastewater with a staged anaerobic fluidized membrane bioreactor (SAF-MBR) system," *Bioresource Technology*, **120**, 133-139 (2012).
328. Bae, J., Yoo, R., Lee, E., McCarty, P. L., "Two-Stage Anaerobic Fluidized-Bed Membrane Bioreactor Treatment of Settled Domestic Wastewater," *Water Science and Technology*, **68**, 394-399 (2013).
329. Kim, J., Lee, R., McCarty, P. L., Bae, J., "Physical Aspects of GAC Fluidization on Membrane Fouling in Anaerobic Fluidized Membrane Bioreactor," Proceedings, IWA World Water Congress & Exhibition, Busan, Korea (2012).
330. Lee, P. H., Kwak, W., Bae, J., and McCarty, P. L., "The Effect of SRT on Nitrate Formation During Autotrophic Nitrogen Removal of Anaerobically Treated Wastewater," *Water Science and Technology*, **68**, 1751-1756 (2013).
331. Yoo, R. H., Kim, J. H., McCarty, P. L., Bae, J. H., "Effect of Temperature on the Treatment of Domestic Wastewater with a Staged Anaerobic Fluidized Membrane Bioreactor (SAF-MBR)," Submitted (2013).
332. Aslam, M., McCarty, P. L., Bae, J. H., Kim, J. H., "Effect of Fluidized Media Characteristics on Membrane Fouling and Energy Consumption in Anaerobic Fluidized Membrane Bioreactors," Submitted (2014)
333. Shin, C. H., McCarty, P. L., Kim, J. H., Bae, J. H., "Pilot-Scale Staged Anaerobic

- Fluidized Membrane Bioreactor (SAF-MBR) Treatment of Domestic Wastewater: 1. Startup and Warmer-Temperature Performance,” Submitted (2014).
334. Shin, C. H., Lee, E. Y., Kim, J. H., McCarty, P. L., Bae, J. H., “Anaerobic Treatment of Low-Strength Wastewater: A Comparison Between Single and Staged Anaerobic Fluidized Bed Membrane Bioreactors, “ Submitted (2014).

Books

1. Sawyer, C. N., and McCarty, P. L., *Chemistry for Sanitary Engineers*, 2nd Edition, McGraw-Hill Book Company, New York, 518 pp. (1967).
2. McCarty, P. L., and Kennedy, R., *Proceedings of the National Symposium on Estuarine Pollution*, 850 pp., Stanford, CA (August 23-25, 1967).
3. Sawyer, C. N., and McCarty, P. L., *Chemistry for Environmental Engineers*, 3rd Edition, McGraw-Hill Book Company, New York, 532 pp. (1978).
4. Ward, C. H., Giger, W., and McCarty, P. L., Eds., *Ground Water Quality*, John Wiley & Sons, Inc., New York (1985).
5. Omenn, G. S., Colwell, R., Chakrabarty, A. M., Lewis, M., McCarty, P., Eds., *Environmental Biotechnology, Reducing Risks from Environmental Chemicals through Biotechnology*, Plenum Press, New York (1988).
6. McCarty, P. L., and Roberts, P. V., editors, "Contaminants in the Subsurface Environment," *Water Science and Technology*, **22**(6) 110 pp. (1990).
7. Sawyer, C. N., McCarty, P. L., and Parkin, G. F., *Chemistry for Environmental Engineering*, 4th Edition, McGraw-Hill, Inc., New York, 658 pp. (1994).
8. Sawyer, C. N., McCarty, P. L., and Parkin, G. F., *Solutions Manual, Chemistry for Environmental Engineering*, 4th Edition, McGraw-Hill, Inc., New York, (1994).
9. Rittmann, B. E. and McCarty, P. L., *Environmental Biotechnology, Principles and Applications*, McGraw-Hill, Inc., New York, 754 pp. (2001).
10. Sawyer, C. N., McCarty, P. L., and Parkin, G. F., *Chemistry for Environmental Engineering and Science*, 5th Edition, McGraw-Hill, New York, 752 pp. (2003).
11. Kitanidis, P. and McCarty, P. L., Editors, *Delivery and Mixing in the Subsurface: Processes and Design Principles for In Situ Remediation*, Springer, Science Business Media, New York, 325 pp. (2012)

Reports

1. McCarty, P. L., “Effects of Syndets on Some Sewage Treatment Processes,” Project DSR-7554, Massachusetts Institute of Technology (1957).

2. McCarty, P. L., "Microbiology of Anaerobic Digestion," Final Report on NIH Research Grant WP-173, Technical Report R62-29, Department of Civil Engineering, Massachusetts Institute of Technology (1962).
3. McCarty, P. L., and Speece, R. E., "Nutrient Requirements in Anaerobic Digestion," Final Report on PHS Research Grant WP-00483-01, Technical Report No. 25, Department of Civil Engineering, Stanford University (November 1963).
4. McCarty, P. L., Kugelman, I. J., and Lawrence, A. W., "Ion Effects in Anaerobic Digestion," Final Report on PHS Research Grant WP-482, Technical Report No. 33, Department of Civil Engineering, Stanford University (March 1964).
5. Bennett, G. E., Eliassen, R., and McCarty, P. L., "Progress Report on Water Reclamation Study Program," Stanford Demonstration Project WPD 21-03 (October 1965).
6. Lawrence, A. W., and McCarty, P. L., "Kinetics of Methane Fermentation in Anaerobic Waste Treatment," Technical Report No. 75, Department of Civil Engineering, Stanford University (June 1968).
7. Jewell, William, J., and McCarty, P. L., "Aerobic Decomposition of Algae and Nutrient Regeneration," Technical Report No. 91, Department of Civil Engineering, Stanford University (June 1968).
8. Foree, Edward G., and McCarty, P. L., "The Decomposition of Algae in Anaerobic Waters," Technical Report No. 95, Department of Civil Engineering, Stanford University (August 1968).
9. Young, J. C., and McCarty, P. L., "The Anaerobic Filter for Waste Treatment," Technical Report No. 87, Department of Civil Engineering, Stanford University (March 1968).
10. McCarty, P. L., "An Evaluation of Algal Decomposition in the San Joaquin Estuary," Department of Civil Engineering, Stanford University (December 19, 1969).
11. Ferguson, J. F., and McCarty, P. L., "The Precipitation of Phosphates from Fresh Waters and Waste Waters," Technical Report No. 120, Department of Civil Engineering, Stanford University (December 1969).
12. Haug, Roger T., and McCarty, P. L., "Nitrification with the Submerged Filter," Technical Report No. 149, Department of Civil Engineering, Stanford University (August 1971).
13. McHarness, G. F., and McCarty, P. L., "Field Study of Nitrification with the Submerged Filter," EPA-R2-73-158, Office of Research and Monitoring, U.S. Environmental Protection Agency (February 1973).
14. Parkin, G. F., and McCarty, P. L., "The Nature, Ecological Significance and Removal of Soluble Organic Nitrogen in Treated Agricultural Wastewater," Technical Report No. 180, Department of Civil Engineering, Stanford University (September 1973).
15. Gossett, J. M and McCarty, P. L., "Heat Treatment of Refuse for Increasing Anaerobic Biodegradability," Technical Report No. 192, Department of Civil Engineering, Stanford University (January 31, 1975).
16. Gossett, J. M., Healy, J. B., Jr., Young, L. Y., and McCarty, P. L., "Heat Treatment of Refuse for Increasing Anaerobic Biodegradability," Technical Report No. 198, Department of Civil Engineering, Stanford University (July 31, 1975).

17. Gossett, J. M., Healy, J. B., Jr., Stuckey, D. C. Young, L. Y., and McCarty, P. L., "Heat Treatment of Refuse for Increasing Anaerobic Biodegradability," Technical Report No. 205, Department of Civil Engineering, Stanford University (January 31, 1976).
18. McCarty, P. L., Schertenleib, R., and Niku, S., "Preproject Water Quality Evaluation for the Palo Alto Water Reclamation Facility," Technical Report No. 206, Department of Civil Engineering, Stanford University (April 1976).
19. Gossett, J. M., Healy, J. B., Jr., Owen, W. F., Stuckey, D. C., Young, L. Y., and McCarty, P. L., "Heat Treatment of Refuse for Increasing Anaerobic Biodegradability," Final Progress Report, Technical Report No. 212, Department of Civil Engineering, Stanford University (November 1976).
20. Healy, J. B., Jr., Owen, W. F., Stuckey, D. C., Young, L. Y., and McCarty, P. L., "Heat Treatment of Organics for Increasing Anaerobic Biodegradability," Annual Progress Report, Technical Report No. 222, Department of Civil Engineering, Stanford University (June 30, 1977).
21. McCarty, P. L., Reinhard, M., Dolce, C., Nguyen, H., and Argo, D., "Water Factory 21: Inorganic, Organic, and Biological Quality of Reclaimed Wastewater and Plant Performance," Technical Report No. 226, Department of Civil Engineering, Stanford University (January 1978).
22. Roberts, P. V., Leckie, J. O., McCarty, P. L., Miller, F. G., Parks, G. A., Ramey, H. J., Street, R. L., and Young, L. Y., "Groundwater Recharge by Injection of Reclaimed Water in Palo Alto," Technical Report No. 225, Department of Civil Engineering, Stanford University (February 1978).
23. Roberts, P. V., Leckie, J. O., McCarty, P. L., Parks, G. A., Street, R. L., Young, L. Y., Reinhard, M., and Cooper, R. C., "Groundwater Recharge by Injection of Reclaimed Water in Palo Alto," Technical Report No. 229, Department of Civil Engineering, Stanford University (May 1978).
24. Healy, J. B., Jr., Owen, W. F., Stuckey, D. C., Young, L. Y., and McCarty, P. L., "Heat Treatment of Organics for Increasing Anaerobic Biodegradability." Technical Report No. 233, Department of Civil Engineering, Stanford University (August 5, 1978).
25. McCarty, P. L., Reinhard, M., Dolce, C., Nguyen, H., and Argo, D. G., "Water Factory 21: Reclaimed Water, Volatile Organics, Virus, and Treatment Performance," EPA-600/2-78-076 (June 1978).
26. Bouwer, E. J., Reinhard, M., Everhart, T., Schreiner, J., and McCarty, P. L., "The Formation of Chlorinated Organics Through Chlorination of Coffee Wastewater," Technical Report No. 234, Department of Civil Engineering, Stanford University (November 1978).
27. McCarty, P. L., Reinhard, M., Graydon, J., Schreiner, J., Sutherland, K., Everhart, T., and Argo, D. G., "Advanced Treatment for Wastewater Reclamation at Water Factory 21", Technical Report No. 236, Department of Civil Engineering, Stanford University (January 1980).
28. McCarty, P. L., Reinhard, M., Graydon, J., Schreiner, J., Sutherland, K., Everhart, T., and Argo, D. G., "Wastewater Contaminant Removal for Groundwater Recharge," EPA-600/2-80-114, U.S. Environmental Protection Agency, Cincinnati, 150 pp. (August 1980).

29. Colberg, P. J., Baugh, K., Everhart, T., Bachmann, A., Harrison, D., Young, L. Y., and McCarty, P. L., "Heat Treatment of Organics for Increasing Anaerobic Biodegradability," Technical Report No. 253, Department of Civil Engineering, Stanford University (October 15, 1980), and SERI/TR-98174-1, National Technical Information Service, Springfield, MD (March 1981).
30. McCarty, P. L., Kissel, J., and Everhart, T., "Mutagenic Activity and Chemical Characterization for the Palo Alto Wastewater Reclamation and Groundwater Injection Facility," Technical Report No. 254, Department of Civil Engineering, Stanford University (November 1980), and PB81-179 590, National Technical Information Service (1981).
31. Rittmann, B. E., Bouwer, E. J., Schreiner, J. E., and McCarty, P. L., "Biodegradation of Trace Organic Compounds in Ground Water Systems," Technical Report No. 255, Civil Engineering Department, Stanford University (December 1980).
32. Bouwer, E. J., Reinhard, M., McCarty, P. L., Bouwer, H., and Rice, R. C., "Organic Contaminant Behavior During Rapid Infiltration of Secondary Wastewater at the Phoenix 23rd Avenue Project," Technical Report No. 264, Department of Civil Engineering, Stanford University (March 1982).
33. McCarty, P. L., Reinhard, M., Goodman, N. L., Graydon, J. W., Hopkins, G. D., Mortelmans, K. E., and Argo, D. G., "Advanced Treatment for Wastewater Reclamation at Water Factory 21," Technical Report No. 267, Department of Civil Engineering, Stanford University (August 1982).
34. McCarty, P. L., Bouwer, E. J., Montgomery, M., LaPat-Polasko, L., and Rittmann, B. E., "Trace Organic Degradation in Biofilm Processes," Technical Report No. 268, Department of Civil Engineering, Stanford University (October 1982).
35. Smith, D., and McCarty, P. L., "Wastewater Characterization and Bench-Scale Treatability Study for Pulping Plant Black Liquor Wastewater," Department of Civil Engineering, Stanford University (February 1983).
36. Bachmann, A., Baugh, K., Beard, V., Colberg, P. J., McCarty, P. L., and Young, L., "Heat Treatment of Organics for Increasing Anaerobic Biodegradability," Annual Report, SERI/STR-231-1769, NTIS, Springfield, VA (July 1983).
37. Baugh, K., Bachmann, A., Beard, V. L., Levy, J., and McCarty, P. L., "Thermochemical Pretreatment of Lignocellulosic Biomass for Increasing Anaerobic Biodegradability to Methane," SERI/STR-231-2458, NTIS, Springfield, VA (1985).
38. Levy, J., Tong, X., Lang, M., Bedard, J., and McCarty, P. L., "Thermochemical Pretreatment of Lignocellulosic Biomass for Increasing Anaerobic Biodegradability to Methane," SERI/STR-231-2780, NTIS, Springfield, VA, 88 pages (February 1986).
39. Bachmann, A., and McCarty, P. L., "Enzymatic and Bacterial Hydrolysis of Lignocellulosic Materials," Annual Report, SERI, April 30, 1985.
40. Randtke, S. J., Parkin, G. F., Keller, J. V., Leckie, J. O., and McCarty, P. L., "Soluble Organic Nitrogen Characteristics and Removal," EPA-600/2-78-030, NTIS, Springfield, VA 22161 (March 1978).
41. Beard, V., and McCarty, P. L., "Anaerobic Treatment of Leachate From the Mountain View Landfill," Technical Report No. 277, Department of Civil Engineering, Stanford University (January 1983).

42. McCarty, P. L., Siegrist, H., Vogel, T. M., Nakai, J., and Peltola, J., "Biotransformation of Groundwater Contaminants," Technical Report No. 298, Department of Civil Engineering, Stanford University (December 1986).
43. Roberts, P. V., Semprini, L., Hopkins, G. D., Grbić -Galić , D., McCarty, P. L., and Reinhard, M., "In-Situ Aquifer Restoration of Chlorinated Aliphatics by Methanotrophic Bacteria," Technical Report No. 310, Department of Civil Engineering, Stanford University (June 1989).
44. Roberts, P. V., Semprini, L., Hopkins, G. D., Grbić -Galić , D., McCarty, P. L., and Reinhard, M., "In-Situ Aquifer Restoration of Chlorinated Aliphatics by Methanotrophic Bacteria," EPA/600/2-89/033, U.S. EPA Center for Environmental Information, Cincinnati (July 1989).
45. Criddle, C., DeWitt, J., Gurian, P., Grbić -Galić , D., McCarty, P. L., "Anaerobic Transformation of Carbon Tetrachloride as Sole Substrate and in Mixtures with Hexachloroethane and/or Nitrate by Subsurface Microorganisms," Technical Report No. 311, Department of Civil Engineering, Stanford University (January 1990).
46. McCarty, P. L., Semprini, L., Dolan, M. E., Harmon, T. C., Just, S., Tiedeman, C., Gorelick, S. M., and Roberts, P. V., "Evaluation of In-Situ Methanotrophic Bioremediation for Contaminated Groundwater," St. Joseph, Michigan, Technical Report No. WR-1, WRHSRC, Department of Civil Engineering, Stanford University, Stanford, CA (1990).
47. Semprini, L. Hopkins, G. D., Janssen, D. B., Lang, M., Roberts, P. V., and McCarty, P. L., "In-Situ Biotransformation of Carbon Tetrachloride under Anoxic Conditions," EPA/600/2-90/060 (1991).
48. Semprini, L., Grbić -Galić , D., McCarty, P. L., Roberts, P. V., "Methodologies for Evaluating In-Situ Bioremediation of Chlorinated Solvents," EPA/600/R-92/042, U. S. EPA Center for Environmental Research Information, Cincinnati (March 1992).
49. McCarty, P. L., Gorelick, S. M., Goltz, M. N., Hopkins, G. D. ,and Eisenberg, F., "Operation and Analysis of the BEHIVS System at Edwards Air Force Base," Western Region Hazardous Substance Research Center, Department of Civil and Environmental Engineering, Stanford University, Stanford, CA (June 30, 2002).
50. McCarty, P. L., Hopkins, G. D., Munakata-Marr, J., Matheson, V. G., Dolan, M. E., Dion, L. B., Shields, M., Forney, L. J., and Tiedje, J. M., "Bioaugmentation with *Burkholderia cepacia* PRI301 for In-Situ Bioremediation of Trichloroethylene Contaminated Groundwater," EPA/600/S-98/001, U. S. Environmental Protection Agency, National Health and Environmental Effects Research Laboratory, Gulf Breeze, FL, 11 p. (1998).
51. McCarty, P. L., Vogel, T. M., and Siegrist, H., "Biotransformation of Groundwater Contaminants," Second Report, Department of Civil Engineering, Stanford University, Stanford, CA (January 18, 1986).
52. McCarty, P. L., Stephanou, E., Plastourgou, M., Vogel, T., Mason, S., and Reinhard, M., "The Formation of Halogenated Alkyl-Phenyl Polyethoxylates During Water Chlorination and Their Environmental and Public Health Significance, Department of Civil Engineering, Stanford University, Stanford, CA (March, 1983).

53. McCarty, P. L., Vogel, T. M., and Siegrist, H., and Naki, J., "Biotransformation of Groundwater Contaminants," Third Report, Department of Civil Engineering, Stanford University, Stanford, CA (July, 1986).
54. McCarty, P. L., "Report on a Laboratory Investigation to Determine the Treatability of Edible Oil Processing and Soap Manufacturing Wastes," (April 1971).
55. McCarty, P., De Galco Jr., P., Doull, J., Greenberg, A., Miller, W., O'Connor, D., and Pearl, E., "Public Health Aspects of Sacramento-San Joaquin Delta Water Supplies," Panel Report for the California Department of Water Resources (December 31, 1982).

Patents

1. Williamson, K. J. and McCarty, P. L. "Method and Apparatus for Separating Suspended Solids from Liquids," U.S. Patent No. 4,743,382 (May 10, 1988).
2. Roberts, P. V., Hopkins, G. D., Semprini, L., and McCarty, P. L., "Pulsing for Electron Donor and Electron Acceptor for Enhanced Biotransformation of Chemicals," U.S. Patent No. 5,006,250 (April 9, 1991).
3. McCarty, P. L. and Bachmann, A., "Bioconversion Reactor," Canadian Patent No. 1,294,070 (January 7, 1992).
4. McCarty, P. L. and Bachmann, A., "Bioconversion Reactor," U.S. Patent No. 5,091,315 (February 25, 1992).
5. McCarty, P. L. and Bachmann, A., "Bioconversion Reactor," European Patent No. 0213691 (July 22, 1992).
6. McCarty, P. L. and Alvarez-Cohen, L., "Zeolite Enhanced Organic Biotransformation," U.S. Patent No. 5,139,682 (August 18, 1992).
7. Semprini, L., McCarty, P. L., Kitanidis, P. K., and Bae, J., "Method and Apparatus for *In Situ* Groundwater Remediation," U.S. Patent No. 5,302,286 (April 12, 1994).
8. McCarty, P. L. and Bachmann, A., "Bioconversion Reactor," Japanese Patent No. 1971981 (September 27, 1995).
9. Spormann, A. M., Muller, J. A., Rosner, B. M., von Abendroth, G., Meshulam-Simon, G., and McCarty, P. L., "Microbial Reductive Dehalogenation of Vinyl Chloride," U. S. Patent No. 8,063,192 (November 22, 2011).
10. Bae, J. H., Kim, J. H., and McCarty, P. L., "Fluidized Membrane Bioreactor," U. S. Patent No. 8,404,111 (March 26, 2013).
11. Spormann, A. M., Muller, J. A., Rosner, B. M., von Abendroth, G., Meshulam-Simon, G., and McCarty, P. L., "Microbial Reductive Dehalogenation of Vinyl Chloride," U. S. Patent No. 8,647,824 (February 11, 2014).