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Rank and Department

Cudworth Professor of Urban Water Systems, Department of Civil and Environmental Engineering, University of Alabama

Director of Environmental Institute, University of Alabama

Director of Environmental Engineering program, University of Alabama

Education

Ph.D., Civil and Environmental Engineering, with major work in the areas of water resources, environmental chemistry and statistics, University of Wisconsin-Madison, WI, 1987

M.S.C.E., Environmental Engineering/Hydraulic Engineering, San Jose State University, CA, 1971

B.S. Engineering Science, Humboldt State University, Arcata, CA, 1970

Engineering Registration

State of Wisconsin (No. 24044)

Diplomate, American Academy of Environmental Engineers (No. 93-20037)

Teaching, Research and Industrial Experience

Cudworth Professor of Urban Water Systems, Department of Civil and Environmental Engineering, University of Alabama, Tuscaloosa, AL, 2002 – present.

Professor, Department of Civil and Environmental Engineering, University of Alabama, Tuscaloosa, AL, 2001 – present.

Professor, Department of Civil and Environmental Engineering, with a secondary appointment in the Department of Environmental Health Sciences, University of Alabama at Birmingham, 1997- 2001.

Director, Environmental Health Engineering Ph.D. program, University of Alabama at Birmingham, 1997– 2001.

Associate Professor, Department of Civil and Environmental Engineering, with a secondary appointment in the Department of Environmental Health Sciences, University of Alabama at Birmingham, 1993-1997.

Assistant Professor, Department of Civil and Environmental Engineering, with a secondary appointment in the Department of Environmental Health Sciences, University of Alabama at Birmingham, 1987-1993.

Environmental Engineer, Wisconsin Department of Natural Resources, Madison, WI, 1984-1987.

Consulting Environmental Engineer, Blue Mounds, WI, and Birmingham, AL, 1979-present.

Senior Engineer, Woodward-Clyde Consultants, San Francisco, CA, 1974-1979.

Environmental Engineer, URS Research Company, San Mateo, CA, 1971-1974.

Memberships in Professional Societies

American Society of Civil Engineers (ASCE), Member

Executive Committee Member, Urban Water Resources Research Council
Water Environment Federation (WEF), Member
Chair, Stormwater Technical Advisory Board, Research Council
North American Lake Management Society (NALMS), Member
American Water Resources Association (AWRA), Member
American Water Works Association (AWWA), Member
Alabama Academy of Science, Member
Chair, Engineering and Computer Science Committee
Member, Carmichael Award Committee
Sigma Xi, Member
Society for Environmental Toxicology and Chemistry (SETAC)

Journal Reviewer

Journal of Water Resources Planning and Management (ASCE)
Journal of Environmental Engineering (ASCE)
Water Environment Research (WEF)
Water Research (IAWQ)
Water Resources Bulletin (AWRA)
Water Science and Technology (IAWQ)
Watershed Protection Techniques (Center for Watershed Protection)

Recent Reviews for State and National Agencies

National Academy Press (National Research Council)
Department of Ecology (Washington)
Wisconsin Water Resources Institute (University of Wisconsin)
Alabama Department of Environmental Management (Montgomery)
Computational Hydraulics Institute (Guelph, Ontario)
California Sea Grant Institutional Program (Univ. of Southern California)
Urban Waste Management and Research Center (Univ. of New Orleans)
Water Resources Division (Wisconsin Department of Natural Resources)
Baldwin County Public Works Department (Alabama)
Vermont Water Resources and Lake Studies Center (Univ. of Vermont)
Center of Environmental Research Information (U.S. Environmental Protection Agency)
Division of Water Quality (Minnesota Pollution Control Agency)
Watershed Evaluation Branch (U.S. Environmental Protection Agency)

Memberships on Professional Committees and Boards

U.S. Environmental Protection Agency, Science Advisory Board, Homeland Security Advisory Committee. 2005 – present.
Auckland Regional Council, New Zealand, *Stormwater Projects Review Committee*. 2004 – present.
Federal Advisory Committee on Water Information, *Subcommittee on Sedimentation*. 2005 – present.
U.S. Environmental Protection Agency, National Risk Management Research Lab (NRMRL), *External Reviewer*, 2004.
State of Washington, Office of Salmon Recovery, *Independent Science Panel*, 2003 – 2004.
US EPA, *Experts Panel for the 2003 Report to Congress on Combined Sewer Overflows and Sanitary Sewer Overflows, Public Health Effects*. 2002 – 2003.
Water Environment Research Foundation, *Stormwater Advisory Board, Chairman*. 2001 – present.
Alabama Water Resources Research Institute, *Alabama Water Resources Council*. 2000 – 2001.
National Council of Examiners for Engineering and Surveying (NCEES). Clemson, S.C. *Fundamentals of Engineering (FE) Examination Development Committee*. 1999 – 2001.
U.S. Environmental Protection Agency, Washington, D.C. and the American Society of Civil Engineers, Reston, VA. Peer review committee on *Development of Performance Measures, National Stormwater Best Management Practices (BMP) Database*. 1998 – 2003.

U.S. Environmental Protection Agency, Washington, D.C. *Urban Wet Weather Federal Advisory Subcommittee on Revision of Water Quality Standards*. 1997.

Construction Industry Research and Information Association (CIRIA), London, steering committee member, *Management of Gully Pots for Improved Runoff Quality*. 1997.

New York City, Department of Environmental Protection, member of *Technical Advisory Committee on Combined Sewer Overflow Program*. 1997 – 2000.

Center for Watershed Protection - Editorial Board Member. 1995 – present.

Watershed Management Institute, Inc., Member of Board of Directors. 1995 – present.

International Association on Water Quality (IAWQ), London, member of Scientific and Technical Report group preparing: *Solids in Sewers: Characteristics, Effects, and Controls of Sewer Solids and Associated Pollutants*. 1995 – present.

Univ. of New Orleans, *Urban Waste Management & Research Center*, affiliate member. 1994 – present.

Center for Watershed Protection, member of *Work Group on Stormwater Indicators*. 1995.

The Rensselaerville Institute, NY, committee on evaluating *Phase II U.S. EPA Stormwater Discharge Permit Requirements*. 1995.

Cleveland *CSO Value Engineering Task Force*, 1993.

U.S. EPA “SWAT” Team member for assisting states in determining Total Maximum Daily Loads (TMDL), 1992 – 1995.

U.S. EPA Task Force on Phase II of the Stormwater Permit Program, 1992 – 1994.

U.S. DOE EPSCoR Alabama State Director for Energy and the Environment, 1992 – 1994.

Resource Conservation and Development Council, Jefferson County, Soil and Water Conservation District, 1992 – 1994.

Committee on Class V Underground Injection Control-Stormwater NPDES, U.S. EPA Groundwater Protection Division, 1992.

Committee on Augmenting Natural Recharge of Groundwater with Reclaimed Wastewater, Stormwater, and Irrigation Return Flows. National Research Council, National Academy of Science, 1991 – 1994.

Alabama Erosion and Sediment Control Manual Development Committee, U.S. Department of Agriculture, Soil Conservation Service, 1991-1994.

Chairman, Cahaba River Work Group, Alabama Environmental Management Commission, 1990 – 1994.

U.S. EPA Planning Committee on Pollution Prevention Research, Risk Reduction Engineering Laboratory, 1990.

Conference Program Committees

Ecology of Cities. Russian Academy of Sciences and the General Physics Institute of the RAS, Ministry of Ecology of Greece, and the Ministry of Culture of Greece. Rhodes, Greece, June 1998.

Effects of Watershed Development and Management on Aquatic Ecosystems. Engineering Foundation and ASCE. Snowbird, Utah. August 1996.

Honors, Awards and Listings

Haywards Fellow, Manaaki Whenua - Landcare Research, New Zealand, 2005.

Editors Award, *Journal of Environmental Engineering*, for outstanding service to ASCE and to the profession. 2004.

Distinguished Service Citation, School of Engineering, University of Wisconsin, 2002.

Listed in:

- Marquis' Who's Who in the World (12th edition 1995, to current).
- Marquis' Who's Who in America (51st edition 1997, to current).
- Marquis' Who's Who in American Education (5th edition 1996 – 1997, to current).
- Marquis' Who's Who in the South and Southwest (24th edition 1995 – 1996, to current).
- Marquis' Who's Who in Science and Engineering (2nd edition 1994 – 1995, to current).
- Marquis' Who's Who in Finance and Industry (30th edition, 1998 – 1999, to current).

Guest Lecture at University of Tel Aviv, Israel, 2001.

Outstanding Student Chapter for 1997, American Water Resources Association, faculty advisor.

Board of Visitors Faculty Award for Distinguished Achievement, 1995.

Guest Lectureship, Universität Gesamthochschule Essen, Germany, 1994.

Ellen Gregg Ingals/UAB National Alumni Award for quality of teaching, finalist for 1994.

Excellence in Teaching Award, UAB School of Engineering, 1994.
Water Environment Federation, first place national award for combined sewer project (member of New York City project team), 1992.
North American Lake Management Society, professional presentation award, 1992.
Take Pride in America, first place Alabama environmental volunteer award, 1991.
Award of Recognition, U.S. Department of Agriculture, 1990.
U.S. Soil Conservation Service Earth Team, first place national award, 1989.
General Electric Engineering Education Fellowship, 1984 – 1986.
Federal Water Pollution Control Administration Fellowship, 1970 – 1971.

Representative Experience

Dr. Pitt has been the project manager and principal investigator for many water resources research projects. He has worked on lake management projects, environmental research projects, hazardous material management plans, facility location studies, and environmental assessments. His major area of interest is in stormwater management, especially the integration of drainage and water quality objectives.

Dr. Pitt has conducted research for the U.S. EPA, Environment Canada, Ontario Ministry of the Environment, states, and local governments concerning the effects, sources, and control of urban runoff for more than 30 years. He was also been involved in a number of projects that have used this research information to develop management plans, stormwater ordinances, and design manuals. As an example, he was a member of the technical advisory group for the EPA's Nationwide Urban Runoff Program (NURP). He also prepared the Source Loading and Management Model (SLAMM) and developed the watershed analysis procedures to investigate urban runoff for the priority watershed program of the Wisconsin Department of Natural Resources. These procedures are being used as the basis for state cost-sharing for major runoff control retro-fitting programs. He has also prepared manuals of practice which contain design procedures and construction specifications for stormwater and erosion control practices and has supervised their construction.

Dr. Pitt has also conducted research for the EPA to develop and test procedures to recognize and reduce inappropriate discharges of wastewaters to separate storm drainages. These procedures are being used by municipalities involved in the Clean Water Act's stormwater permit program as a field screening technique to identify and quantify discharge sources.

He has also directed a series of EPA research projects to investigate the sources and control of stormwater toxicants. As an example, he has found that combinations of sedimentation, aeration, and photo-degradation can significantly reduce stormwater toxicity. Automobile service facilities have been identified as a significant toxic pollutant source and a specialized treatment system to be located at these sources has been designed and tested at several locations. His research also examined stormwater effects on groundwater, and a book on this research was published by Ann Arbor Press. He has also evaluated the effects of separate sewage overflows on human health, especially considering toxic metal and organic pollutants and pathogens. Another EPA project directed by Dr. Pitt examined past drainage design procedures and recommends future approaches for drainage design. He has co-authored three recent books and numerous chapters based on this and related material, especially integrating stormwater modeling tools for water quality and drainage design objectives.

Current EPA – funded research includes developing a nationwide database of national stormwater permit information and conducting comprehensive evaluations of this data. He is also updating field screening procedures used for identifying inappropriate discharges to storm drainage systems. Recent research included investigating innovative heavy metal removal techniques for stormwater. He is currently investigating the sources and significance of stormwater bacteria and the transport and effects of stormwater gross solids.

He has also carried out a number of receiving water impact studies associated with stormwater. These studies have included a variety of field monitoring activities, including water and sediment quality, fish and benthos taxonomic composition, and laboratory toxicity tests. He is the co-author of a book (published by CRC/Lewis) detailing field, laboratory, and data analyses methods for use in examining stormwater effects on receiving waters.

Dr. Pitt was the project manager and principal investigator of a project with the telecommunications industry (sponsored by Bellcore, AT&T, plus many “baby Bells” from throughout the U.S.) to evaluate and develop methods that may be needed to treat stormwater that collects in telecommunication manholes. This water needs to be pumped before repair operations can be conducted and stormwater NPDES permits are typically required before its discharge to local drainage systems. He has worked with the industry and the EPA and conducted a comprehensive characterization and field evaluation program and developed protocols to examine potential treatment methods.

Dr. Pitt has helped prepare training manuals on the operation of sanitary wastewater treatment plants and on the clean-up of oil spills. He has evaluated the effects of municipal, industrial, and nonpoint water pollution discharges on receiving water quality and beneficial uses, including model development. He has also been involved in the preparation of contingency plans for spills of petroleum products and other hazardous materials, especially in the assessment of potential water and air quality problems. He has completed the noise, air and water quality assessments for a variety of projects; including nuclear and fossil fuel power facilities, oil refineries, oil fields, coal mines, uranium mines, gravel removal operations, airports, urban redevelopment projects, pipelines, and hazardous material transfer and storage facilities. Many of these studies involved field and laboratory work, as well as statistical analyses and modeling. These projects have been located throughout the United States (including Alaska and Hawaii), and in the Middle East. An experienced photographer, Dr. Pitt has used both aerial and underwater photography in conjunction with many projects. He has developed and managed water and air quality laboratories capable of monitoring a wide range of inorganic and organic pollutants.

Dr. Pitt moved to the University of Alabama campus in Tuscaloosa in 2001. Earlier, he had served on the School of Engineering faculty at the University of Alabama at Birmingham from 1987 to 2001. Prior to that, he was a senior engineer for 16 years in industry and government, and continues to consult to many municipalities and engineering firms. He has also taught workshops and was guest lecturer at several universities (including the Univ. of Wisconsin; the Univ. of Minnesota; Syracuse University, the University of Nevada, Tel Aviv University, Israel; the University of Guelph, Ontario, Canada; Singapore National University; and the Universität Gesamthochschule, Essen, Germany). He has published more than 100 chapters, books, journal articles, and major research reports. Dr. Pitt is a Diplomate of the American Academy of Environmental Engineers and is a registered engineer in the state of Wisconsin.

Research Funding Obtained as Principal Investigator

Alabama Highway Drainage Conservation Design Practices (University Transportation Center for Alabama): \$120,819 (2004).

Evaluation of Inlet Treatment Device, an EPA SBIR Phase 2 Demonstration Project, with US Infrastructure, Edison, NJ. (US Environmental Protection Agency): \$16,968 (2004-2005).

Evaluation of NPDES MS4 Stormwater Monitoring Data, with the Center for Watershed Protection (EPA Office of Wastewater Management 104(b)3 grant): \$419,114 (2001-2004).

Techniques for Identifying/Correcting Inappropriate Discharges, with the Center for Watershed Protection (EPA Office of Wastewater Management 104(b)3 grant): \$477,231 (2001-2004).

Erosion and Sediment Control for Highway Construction (University Transportation Center for Alabama): \$119,239 (2001-2002).

Environmental Health, Public Safety, and Social Impacts Associated with Transportation Accidents Involving Hazardous Substances, with the Dept. of Government and Public Service, UAB (University Transportation Center for Alabama): \$121,580 (2000-2001).

Evaluation of New Techniques for the Identification of Inappropriate Discharges into Storm Drainage Systems (University of New Orleans, Urban Waste Management Institute and EPA): \$60,000 (1999).

Guidance Manual for Integrated Wet Weather Flow Collection and Treatment Systems for Newly Urbanized Areas, with the University of Alabama (U.S. Environmental Protection Agency, Cooperative Agreement): \$150,000 project (1996-1998).

Characterization of Manhole Water and Sediment (NYNEX, BellSouth, Bell Atlantic, GTE, SNET, Pacific Bell, US West, Ameritech and AT&T): \$400,000 (1996-1998).

Development and Testing of a Methodology to Assess the Health Risks and Environmental Impacts from Separate Sanitary Sewer Overflows, co-principal investigator, with UAB EARTH Center (U.S. Environmental Protection Agency): \$199,996 (cooperative agreement) (1996-1997).

The Development of a Tunable Laser Spectrophotometric Method for the Analysis of Toxic Water Pollutants, with UAB Dept. of Physics (National Science Foundation): \$580,587 (1995-1998).

Effects, Sources and Treatment of Stormwater Toxicants (U.S. Environmental Protection Agency): \$942,318 cooperative agreement (1992-1997).

Evaluation and Treatment of Manhole Water (Bellcore, Inc.): \$615,048 (1994-1997).

Drainage of Water from Pavement Structures (U.S. Transportation Research Board and Alabama Department of Transportation): \$111,520 (1993-1994).

Demonstration of Investigation Procedures for the Control of Inappropriate Discharges into Storm Drainage Systems (University of New Orleans, Urban Waste Management Institute): \$25,000 (1992).

Modifications to the Source Loading and Management Model (U.S. Environmental Protection Agency, Region V): \$21,050 (1992).

Review of Existing Water Quality Data (Torchmark Development Corp.): \$9,500 (1991).

Identification and Control of Inappropriate Discharges into Storm Drainage (U.S. Environmental Protection Agency, Office of Research and Development and Office of Water): \$101,048 cooperative agreement (1989-1992).

Sources and Treatment of Stormwater Toxicants (U.S. Environmental Protection Agency, Office of Research and Development): \$155,767 cooperative agreement (1989-1992).

Development of Model Watershed Protection Ordinance and Development Plan Reviews (Birmingham Water Works Board): \$53,785 (1988-1989).

Example Consultations

ADS Environmental Services, Huntsville, AL. Verification of flow monitoring equipment performance. 1994-1995.

Brown and Caldwell, Irvine, CA. Design of MCTT installations for testing by Caltrans. Los Angeles. 1998 – 1999.

Brown and Mitchell, Inc., Gulfport, MS. Evaluation of detention pond design for shopping center development. 1995-1996.

C.M. Towers, West Caldwell, NJ. Design consultation for flow-balancing method installations for stormwater and CSO controls. 1993.

Camp Dresser & McKee, Inc., Detroit, MI. Design work for multi-chambered treatment tank (MCTT) stormwater controls for public works yard in Detroit. 1995.

CH2M-Hill, Portland, OR. Training for use of SLAMM. 1992.

City of New York, Division of Engineering, NY. Evaluation of Fresh Creek (Brooklyn) FBM installation for CSO controls, 1992-1994, and evaluation of litter and floatable debris control for New York City. 1997-present.

Environment Canada, Ottawa, Ontario, Canada. Evaluation of bacteria sources and control in Ottawa. 1985-1987.

Envirometrics Engineering, Inc., Birmingham, AL. Evaluation of stormwater filtration for the U.S. Army Corps of Engineers. 1995-1996.

Foster Wheeler/Enviresponse, Inc. Edison, NJ. Treatment of stormwater toxicants. 1991-1993.

Fresh Creek Technologies, Inc., West Caldwell, NJ. Evaluation of New York City EquaFlow CSO control system. 1993.

Havens and Emerson, Boston, MA. Value engineering evaluation of Cleveland CSO plan. 1993.

Jefferson Co., Environmental Services, AL. Examination of separate sanitary sewer overflows. 1994.

Johnson, Johnson & Roy, Inc., Madison, WI. Review of commercial development stormwater control plan. 1994.

K.B. Weygand and Assoc., Birmingham, AL. Preparation of erosion control plan for commercial development. 1995.

Kurahashi & Assoc., Tigard, OR. Development of stormwater models and particle characterizations. 1994.

Law Engineering, Birmingham, AL. Training for stormwater regulation compliance for industrial activities. 1992.

Liesch Companies, Minneapolis, MN. Evaluation of the retention pond design for the Minneapolis-St. Paul International Airport. 1999.

Loomis & Assoc., Austin, TX. Preliminary design for EquaFlow stormwater control program for Waller Creek watershed in Austin. 1995.

Los Angeles County Department of Public Works, CA. Review of stormwater monitoring activities. 1996 - present.

Metcalf and Eddy, Inc., Wakefield, MA. Review of CSO guidance manual prepared for EPA. 1992.

Moffa & Associates, Syracuse, NY. Decision criteria for CSO evaluations, and retrofitting water quality controls for wet weather flow conditions. 1997-1998.

National Surveying and Engineering. R.A. Smith, Brookfield, WI. Training in the use of the Source Loading and Management Model. 1999.

Natural Resources Defense Council, Los Angeles, CA. Evaluation of Los Angeles County stormwater plan. 1994-1996 - present.

Ontario Ministry of the Environment, Toronto and Ottawa, Ontario, Canada. Stormwater evaluations for industrial activities, and other critical source areas in the Humber River watershed, Toronto. 1985-1988.

OTAK Engineering, Inc., Lake Oswego, OR. Development of joint training program for using stormwater models. 1991.

P.E. LaMoreaux and Assoc., Tuscaloosa, AL. Evaluation of stormwater drainage design, Shelby Co. 1995-1996.

Santa Clara County Flood Control District, CA. Review of special metals control plan for South San Francisco Bay. 1996.

Southern Environmental Law Center, Charlottesville, VA. Evaluation of industrial effluent effects on the Cahaba River. 1992.

The Rensselaerville Institute, Rensselaerville, NY. Review of phase II EPA stormwater plan. 1994.

Robert Bein, William Frost & Associates, Irving, CA. Design review of multi-chambered treatment train (MCTT) stormwater installations for Caltrans. 1998 - 1999.

Urban Waste Management Center, Univ. of New Orleans, LA. Training of field personnel for screening testing of stormwater outfall. 1995-1996.

U.S. Environmental Protection Agency. Effects of compost amended soils on infiltration rates. 1997-1998.

U.S. Geological Survey, Madison, WI. Calibration of SLAMM for Wisconsin conditions. 1994-1995.

U.S. Infrastructure, Birmingham, AL. Wet weather flow consulting. 1998-2002.

Washington State Department of Ecology, Olympia, WA. Statistical guidance for the evaluation of stormwater control test protocols. 2002.

Wisconsin Dept. of Natural Resources, Madison, WI. Design of the multi-chambered treatment tank (MCTT) for Milwaukee public works area. 1995.

Woodward Clyde Consultants, Oakland, CA. Evaluation of field screening analysis methods for stormwater outfalls. 1991-1993.

Dissertation

Pitt, R. *Small Storm Urban Flow and Particulate Washoff Contributions to Outfall Discharges*, Ph.D. Dissertation, Civil and Environmental Engineering Department, University of Wisconsin, Madison, WI, November 1987.

Books

James, W., K.N. Irvine, E.A. McBean, and R.E. Pitt (editors). *Stormwater and Urban Water Systems Modeling*. Computational Hydraulics International. Guelph, Ontario. to be published 2006.

Pitt, R., S. Clark, and D. Lake. *Construction Site Erosion and Sediment Controls: Planning, Design, and Performance*. DEStech Publications. Lancaster, PA. to be published 2005.

James, W., K.N. Irvine, E.A. McBean, and R.E. Pitt (editors). *Effective Modeling of Urban Water Systems*. ISBN 0-9736716-0-2. Computational Hydraulics International. Guelph, Ontario. 2005. 568 pages.

James, W., W.C. Huber, R.E. Dickinson, R.E. Pitt, R.C. James, L.A. Roesner, and J.A. Aldrich. *Water Systems Models User's Guide to SWMM*. Computational Hydraulics International. Guelph, Ontario. May 2003. 406 pages.

Durrans, S. R. with contributions from M. Ahmad, T.E. Barnard, P. Hjorth, and R. Pitt. *Stormwater Conveyance Modeling and Design*. ISBN 0-9657580-8-7. Haestad Methods. Waterbury, CT. 2003. 686 pages.

James, W., W.C. Huber, R.E. Pitt, R.E. Dickinson, and R.C. James. *Water Systems Models [1]: Hydrology, User's guide to SWMM4 RUNOFF and supporting modules and to PCSWMM*. ISBN 0-9683681-0-7. Version 2.4. Computational Hydraulics International. Guelph, Ontario, Canada. October 2002. 311 pages.

James, W., W.C. Huber, R.E. Pitt, R.E. Dickinson, L.A. Roesner, J.A. Aldrich, and R.C. James. *Water Systems Models [2]: Hydraulics, User's guide to SWMM4 TRANSPORT, EXTRAN and STORAGE modules and to PCSWMM*. ISBN 0-9683681-1-5. Version 2.4. Computational Hydraulics International. Guelph, Ontario, Canada. October 2002. 359 pages.

Burton, G.A. Jr., and R. Pitt. *Stormwater Effects Handbook: A Tool Box for Watershed Managers, Scientists, and Engineers*. ISBN 0-87371-924-7. CRC Press, Inc., Boca Raton, FL. 2002. 911 pages.

Heaney, J.P., R. Pitt, and R. Field. *Innovative Urban Wet-Weather Flow Management Systems*. ISBN 1-56676-914-0. Technomics, Lancaster, PA. June 2000. 535 pages.

- Pitt, R., with contributions from S. Clark, R. Field, and K. Parmer. *Groundwater Contamination from Stormwater*. ISBN 1-57504-015-8. Ann Arbor Press, Inc. Chelsea, Michigan. 1996. 219 pages.
- NRC (National Research Council), Groundwater Recharge Committee, National Academy of Science. *Ground Water Recharge using Waters of Impaired Quality*. ISBN 0-309-05142-8. National Academy Press, Washington, D.C. 1994. 284 pages.
- Pitt, R., M. Lalor, R. Field, D. Adrian, and D. Barbe'. *Investigation of Inappropriate Pollutant Entries into Storm Drainage Systems*, ISBN 0-7881-1359-3. Diane Press. Upland, Pennsylvania, 1994. 87 pages.
- Pitt, R., S. Clark, and K. Parmer. *Potential Groundwater Contamination from Intentional and Non-Intentional Stormwater Infiltration*. ISBN 0-7881-1059-4. Diane Press. Upland, Pennsylvania. 1994. 120 pages.

Chapters in Books

- Maestre, A. and R. Pitt. "Observations from the National Stormwater Quality Database." In: *Stormwater and Urban Water Systems Modeling*, Monograph 14. (edited by W. James, K.N. Irvine, E.A. McBean, and R.E. Pitt). CHI. Guelph, Ontario, to be published in 2006.
- Nara, Y., R. Pitt, S.R. Durrans, and J. Kirby. "The use of grass swales as a stormwater control." In: *Stormwater and Urban Water Systems Modeling*, Monograph 14. (edited by W. James, K.N. Irvine, E.A. McBean, and R.E. Pitt). CHI. Guelph, Ontario, to be published in 2006.
- Clark, S.E., R. Pitt, P.D. Johnson, S. Gill, and M. Pratap. "Media filtration to remove solids and associated pollutants from stormwater runoff." *Best Management Practices (BMP) Technology Symposium: Current and Future Directions*, American Society of Civil Engineers. To be published Spring 2005.
- Maestre, A., R. Pitt, S.R. Durrans, and S. Chakraborti. "Stormwater quality descriptions using the three parameter lognormal distribution." *Effective Modeling of Urban Water Systems*, Monograph 13. (edited by W. James, K.N. Irvine, E.A. McBean, and R.E. Pitt). CHI. Guelph, Ontario, pp. 247 – 274. 2005.
- Pitt, R., R. Bannerman, S. Clark, and D. Williamson. "Sources of pollutants in urban areas (Part 1) – Older monitoring projects." In: *Effective Modeling of Urban Water Systems*, Monograph 13. (edited by W. James, K.N. Irvine, E.A. McBean, and R.E. Pitt). CHI. Guelph, Ontario, pp. 465 – 484 and 507 – 530. 2005.
- Pitt, R., R. Bannerman, S. Clark, and D. Williamson. "Sources of pollutants in urban areas (Part 2) – Recent sheetflow monitoring results." In: *Effective Modeling of Urban Water Systems*, Monograph 13. (edited by W. James, K.N. Irvine, E.A. McBean, and R.E. Pitt). CHI. Guelph, Ontario, pp. 485 – 530. 2005.
- Pitt, R., D. Williamson, and J. Voorhees. "Review of historical street dust and dirt accumulation and washoff data." *Effective Modeling of Urban Water Systems*, Monograph 13. (edited by W. James, K.N. Irvine, E.A. McBean, and R.E. Pitt). CHI. Guelph, Ontario, pp 203 – 246. 2005.
- Maestre, A., Pitt, R. E., and Derek Williamson. "Nonparametric statistical tests comparing first flush with composite samples from the NPDES Phase 1 municipal stormwater monitoring data." *Stormwater and Urban Water Systems Modeling*. In: *Models and Applications to Urban Water Systems*, Vol. 12 (edited by W. James). CHI. Guelph, Ontario, pp. 317 – 338. 2004.
- Pitt, R. E., A. Maestre, R. Morquecho, and Derek Williamson. "Collection and examination of a municipal separate storm sewer system database." *Stormwater and Urban Water Systems Modeling*. In: *Models and Applications to Urban Water Systems*, Vol. 12 (edited by W. James). CHI. Guelph, Ontario, pp. 257 – 294. 2004.
- Graettinger, A.J., T. Supriyasilp, S.R. Durrans, and R.E. Pitt. "Directing sampling based on uncertainty analysis." *Stormwater and Urban Water Systems Modeling*. In: *Models and Applications to Urban Water Systems*, Vol. 11 (edited by W. James). CHI. Guelph, Ontario, pp. 123 – 138. 2003.
- Pitt, R. E. Shen-En Chen, S. Clark, J. Lantrip, and C.K. Ong. "Infiltration through compacted urban soils and effects on biofiltration design." *Stormwater and Urban Water Systems Modeling*. In: *Models and Applications to Urban Water Systems*, Vol. 11 (edited by W. James). CHI. Guelph, Ontario, pp. 217 – 252. 2003.
- Pitt, R. "Receiving water impacts associated with urban runoff." In: *Handbook of Ecotoxicology*, 2nd edition (Edited by D.J. Hoffman, B.A. Rattner, G.A. Burton, Jr. and J.Cairns, Jr.). Lewis Publishers/CRC Press, Boca Raton. pp 79 – 101. 2002.
- Pitt, R. and S. Clark. "Emerging stormwater controls for critical source areas." In: *Wet-Weather Flow in the Urban Watershed* (Edited by Richard Field and Daniel Sullivan). CRC Press, Boca Raton. pp 575 – 613. 2002.
- Pitt, R. and J. Voorhees. "SLAMM, the Source Loading and Management Model." In: *Wet-Weather Flow in the Urban Watershed* (Edited by Richard Field and Daniel Sullivan). CRC Press, Boca Raton. pp 103 – 139. 2002.
- Pitt, R., R. Ashley, J-D Baladès, and D. Butler. "Solids control at sources and at inputs to sewerage systems." In: *Solids in Sewers: Characteristics, Effects, and Controls of Sewer Solids and Associated Pollutants*. (Edited by Richard Ashley). International Association on Water Quality (IAWQ). London. 2001.

- Pitt, R. and M. Lalor. "The role of pollution prevention in stormwater management." In: *Models and Applications to Urban Water Systems*, Vol. 9 (edited by W. James). CHI. Guelph, Ontario, 2001., pp. 1-20.
- Myllyoja, R., H. Baroudi, R. Pitt, and J. Paluzzi. "Use of SLAMM in evaluating best management practices." In: *Models and Applications to Urban Water Systems*, Vol. 9 (edited by W. James). CHI. Guelph, Ontario, 2001., pp. 131-141.
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Conference Presentations

- Nara, Y., R. Pitt, S.R. Durrans, and J. Kirby. "Stormwater sediment transport in grass swales during small rains." *78th Annual Water Environment Federation Technical Exposition and Conference*. Washington, D.C. Oct. 29 – Nov. 2, 2005.
- Pitt, R. and A. Maestre. "Stormwater quality as described in the National Stormwater Quality Database." *10th International Conference on Urban Drainage*, Copenhagen, Denmark. August 21-26, 2005.
- Clark, S.E., M.M. Lalor, R. Pitt, and R. Field. "Wet-weather pollution from commonly-used building materials." *10th International Conference on Urban Drainage*, Copenhagen, Denmark. August 21-26, 2005.
- Clark, S.E., P. Johnson, R. Pitt, S. Gill, and M. Pratap. "Filtration for metals removal from stormwater." *10th International Conference on Urban Drainage*, Copenhagen, Denmark. August 21-26, 2005.
- Pitt, R., S. Chen, S. Clark, and J. Lantrip. "Soil structure effects associated with urbanization and the benefits of soil amendments." *World Water and Environmental Resources Congress*. ASCE/EWRI. Anchorage, Alaska. May 2005.
- Clark, S., M.M. Lalor, and R. Pitt. "Wet-weather pollution from commonly-used building materials." *World Water and Environmental Resources Congress*. ASCE/EWRI. Anchorage, Alaska. May 2005.
- Pratap, M., U. Khambhammettu, S. Clark, and R. Pitt. "Stormwater treatment using upflow filters." *World Water and Environmental Resources Congress*. ASCE/EWRI. Anchorage, Alaska. May 2005.
- Morquecho, R. and R. Pitt. "Chemical forms and effects of heavy metals in stormwater." *World Water and Environmental Resources Congress*. ASCE/EWRI. Anchorage, Alaska. May 2005.
- Maestre, A. and R. Pitt. "Observations from the National Stormwater Quality Database." *Conference on Stormwater and Urban Water Systems Modeling*. Computational Hydraulics, Inc., Toronto. February 24 and 25, 2005.
- Nara, Y., R. Pitt, S.R. Durrans, and J. Kirby. "The use of grass swales as a stormwater control." *Conference on Stormwater and Urban Water Systems Modeling*. Computational Hydraulics, Inc., Toronto. February 24 and 25, 2005.
- Pitt, R. "Review of current wet weather research being conducted at the University of Alabama." *Auckland Regional Council Stormwater Research Symposium*. Auckland, New Zealand. Oct. 21-22, 2004.
- Pitt, R. and A. Maestre. "The National Stormwater Quality Database." *Stormwater Management Research Symposium*. University of Central Florida, Stormwater Management Academy. Orlando, FL, Oct. 12, 2004.
- Pitt, R., S. Chaturvedula, Y. Nara. "Source verification of inappropriate discharges to storm drainage systems." *77th Annual Water Environment Federation Technical Exposition and Conference*. New Orleans, LA. Oct 4 – 7, 2004.
- Pratap, M., S. Clark, R. Pitt, and P. Johnson. "WERF: Evaluation of upflow filtration for stormwater treatment at critical source areas." *77th Annual Water Environment Federation Technical Exposition and Conference*. New Orleans, LA. Oct 4 – 7, 2004.

- Shergill, S. and R. Pitt. "Quantification of *Escherichia coli* and enterococci levels in wet weather and dry weather flows." *77th Annual Water Environment Federation Technical Exposition and Conference*. New Orleans, LA. Oct 4 – 7, 2004.
- Pitt, R. "The National Stormwater Quality Database." *Stormwater Management Symposium*. Orlando, FL, Oct. 12, 2004.
- Pitt, R. and J. Voorhees. "The use of WinSLAMM to evaluate the benefits of low impact development." *Low Impact Development Conference: Putting the LID on SWM*. College Park, MD. Sept. 21-23, 2004.
- Pitt, R. and S. Chen. "Land development effects on soil structure and the use of soil amendments." *Low Impact Development Conference: Putting the LID on SWM*. College Park, MD. Sept. 21-23, 2004.
- Pitt, R. "Monitoring the effects of urbanization." *Aquatic Restoration Workshop 2004*. Mobile River Basin Coalition. Birmingham, AL Aug. 24 and 25, 2004.
- Pitt, R., A. Maestre, and R. Morquecho. "Stormwater characteristics as contained in the nationwide MS4 stormwater phase 1 database." *Water World and Environmental Resources Conference 2004*, Environmental and Water Resources Institute of the American Society of Civil Engineers, Salt Lake City, Utah. July 27 – August 1, 2004.
- Pitt, R., S. Clark, P.D. Johnson, R. Morquecho, S. Gill, and M. Pratap. "High level treatment of stormwater heavy metals." *Water World and Environmental Resources Conference 2004*, Environmental and Water Resources Institute of the American Society of Civil Engineers, Salt Lake City, Utah. July 27 – August 1, 2004.
- Pitt, R. and R. Field. "Catchbasins and inserts for the control of gross solids and conventional stormwater pollutants." *Water World and Environmental Resources Conference 2004*, Environmental and Water Resources Institute of the American Society of Civil Engineers, Salt Lake City, Utah. July 27 – August 1, 2004.
- Pitt, R., R. Bannerman, and R. Sutherland. "The role of street cleaning in stormwater management." *Water World and Environmental Resources Conference 2004*, Environmental and Water Resources Institute of the American Society of Civil Engineers, Salt Lake City, Utah. July 27 – August 1, 2004.
- Pitt, R., S. Clark, P.D. Johnson, R. Morquecho, and D. Williamson. "Treatability of stormwater heavy metals; or breaking the irreducible concentration barrier." *Watershed 2004*, Water Environment Foundation. Dearborn, MI. July 11 – 14, 2004.
- Pitt, R., A. Maestre, and R. Morquecho. "Nationwide MS4 stormwater phase 1 database." *Watershed 2004*, Water Environment Foundation. Dearborn, MI. July 11 – 14, 2004.
- Pitt, R. "The status of stormwater quality: What we have learned it the past few years." Keynote presentation. *Stormwater: Emerging Issues for Local Communities*. US EPA, Region IV and the North Carolina Dept. of Environmental Management. Asheville, North Carolina. April 19-22, 2004.
- Pitt, R. *Degradation of Urban Streams and Integrated Sampling Programs to Identify Possible Causative Factors*, Featured Keynote Speaker. Freshwater Mollusk Conservation Society and Water Quality and Freshwater Gastropod Workshop. Tuscaloosa, AL. March 2004.
- Maestre, A., R. Pitt, S.R. Durrans, and S. Chakraborti. "Stormwater quality descriptions using the three parameter lognormal distribution." *Stormwater and Urban Water Systems Modeling Conference*. Computational Hydraulics, Inc. Toronto. February 19-29, 2004.
- Pitt, R., D. Williamson, and R. Bannerman. "Sources of pollutants in urban areas." *Stormwater and Urban Water Systems Modeling Conference*. Computational Hydraulics, Inc. Toronto. February 19-29, 2004.
- Pitt, R., D. Williamson, and J. Voorhees. "Review of historical street dust and dirt accumulation and washoff data." *Stormwater and Urban Water Systems Modeling Conference*. Computational Hydraulics, Inc. Toronto. February 19-29, 2004.
- Pitt, R. "Modeling stormwater controls in complex drainages." Invited Feature Speaker. *Designing Sites for Water Quality: Active Construction & Post-Construction BMPs*. Michigan Water Environment Association. Battle Creek, MI. Dec 2 – 3, 2003.
- Pitt, R., A. Maestre and R. Morquecho. "Compilation and review of nationwide MS4 stormwater quality data." *76th Annual Water Environment Federation Technical Exposition and Conference*. Los Angeles, CA. Oct 11 – 15, 2003.
- Pitt, R. and S. Clark. "Stormwater treatment at critical source areas: The Multi-Chambered Treatment Train (MCTT) and new upflow filters." *76th Annual Water Environment Federation Technical Exposition and Conference*. Los Angeles, CA. Oct 11 – 15, 2003.
- Morquecho, R. and R. Pitt. "Stormwater heavy metal particulate associations." *76th Annual Water Environment Federation Technical Exposition and Conference*. Los Angeles, CA. Oct 11 – 15, 2003.
- Pitt, R. "Urban sprawl: What we know and don't think about." Invited Keynote Address. *Society of Woman Engineers 2003 National Conference*, Birmingham, AL. Oct 9 – 11, 2003.

- Pitt, R. "Stormwater quality database representing long-term U.S. regulatory monitoring: Do we know enough yet and can get on with it?" Invited Keynote Address. *3rd South Pacific Conference on Stormwater*. Auckland Regional Council, New Zealand. May 14-16, 2003.
- Pitt, R. "Innovative metal control using grass swales and stormwater filters." *3rd South Pacific Conference on Stormwater*. Auckland Regional Council, New Zealand. May 14-16, 2003.
- Pitt, R. "Overview of national stormwater needs and priorities." Invited Keynote Address. *A National Stormwater Laboratory: Needs, Priorities and Funding*. University of Minnesota, Minneapolis, MN. May 1 – 2, 2003.
- Johnson, P.D., S. Clark, R. Pitt, S.R. Durrans, M. Urrutia, S. Gill, and J. Kirby. "Metals removal technologies for stormwater." *9th Industrial Wastes Technical Conference*. Austin, TX. Water Environment Foundation. April 16, 2003.
- Clark, S., M. Lalor, R. Pitt, and R. Field. "Investigation of wet-weather pollution contributions from building materials commonly used at industrial sites." *9th Industrial Wastes Technical Conference*. Austin, TX. Water Environment Foundation. April 16, 2003.
- Maestre, A., Pitt, R. E., and R. Morquecho. "Nonparametric statistical tests comparing first flush with composite samples from the NPDES Phase 1 municipal stormwater monitoring data." *Stormwater and Urban Water Systems Modeling Conference*. Computational Hydraulics, Inc. Toronto, Canada, Feb. 2003.
- Pitt, R. E., A. Maestre, and R. Morquecho. "Collection and examination of a municipal separate storm sewer system database." *Stormwater and Urban Water Systems Modeling Conference*. Computational Hydraulics, Inc. Toronto, Canada, Feb. 2003.
- Pitt, R., A. Maestre, and R. Morquecho. *Evaluation of NPDES Phase 1 Municipal Stormwater Monitoring Data*. Urban Stormwater: Enhancing Programs at the Local Level. Chicago Botanic Garden and the U.S. Environmental Protection Agency. Chicago, Illinois. February 17-20, 2003.
- Gabriel, M., D. Williamson, and R. Pitt. *Availability of Atmospherically Deposited Mercury to Runoff and Receiving Waters*. TMDL Science and Policy Conference. Water Environmental Federation. Phoenix, AZ. November 13-16, 2002.
- Pitt, R. "Land use features benefiting stormwater management." *ACS Regional Conference: Campus as a Laboratory for Sustainability*. Birmingham Southern College. October 25-27, 2002.
- Pitt, R., S. Chen, and S. Clark. "Compacted urban soils effects on infiltration and bioretention stormwater control designs." *9th International Conference on Urban Drainage*. IAHR, IWA, EWRI, and ASCE. Portland, Oregon, September 8-13, 2002.
- Burian, S.J., S.J. Nix, S.R. Durrans, and R.E. Pitt. "Analysis of the long-term performance of storage/release systems using linked watershed-water body modeling." *9th International Conference on Urban Drainage*. IAHR, IWA, EWRI, and ASCE. Portland, Oregon, September 8-13, 2002.
- Clark, S.E., M. Lalor, R. Pitt, and R. Field. "Wet-weather pollution prevention through materials substitution as part of industrial construction." *8th Annual Industrial Wastes Technical and Regulatory Conference*, Water Environment Federation. Atlantic City, New Jersey, August 11 - 14, 2002.
- Pitt, R., S. Chen, S. Clark, and C.K. Ong. "Urbanization factors affecting infiltration." *American Water Resources Association Summer Specialty Conference: Ground Water/Surface Water Interactions*. Keystone, Colorado, July 1-3, 2002.
- Pitt, R., S. Clark, and R. Field. "Groundwater contamination potential from stormwater infiltration." *American Water Resources Association Summer Specialty Conference: Ground Water/Surface Water Interactions*. Keystone, Colorado, July 1-3, 2002.
- Pitt, R. "Water quality and hydrology interactions." *California Stormwater Quality Task Force*, Sacramento, CA. June 2002.
- Pitt, R. "Stormwater treatment at critical source areas using the multi-chambered treatment train (MCTT)." *The 2002 Borchardt Conference, A Seminar on Advancements in Water and Wastewater*. The University of Michigan, Ann Arbor, Feb. 2002.
- Pitt, R. C. Shen-En Chen, S. Clark, J. Lantrip, and C.K. Ong. "Infiltration through compacted urban soils and effects on biofiltration design." *Stormwater and Urban Water Systems Modeling*. Computational Hydraulics, Inc. Toronto, Canada, Feb. 2002.
- Pitt, R. "Stormwater control practices in cold climates." *Stormwater Runoff in Vermont: An Educational Workshop*. Vermont Water Resources and Lake Studies Center, UVM and the Vermont Law School. Burlington, VT, Jan. 2002.
- Pitt, R. "Source tracking." NWRI, *The National Urban Watershed Conference*. Costa Mesa, CA, Oct. 2001.

- Pitt, R., S. Clark, and P. Brown. "Modeling of particulate removal in mixed media filters using power equation." Water Environmental Federation, *WEFTEC'01*. Atlanta, GA, Oct. 2001.
- Clark, S., R. Pitt, and P. Brown. "Stormwater filter performance under aerobic and anaerobic conditions." (poster). Water Environmental Federation, *WEFTEC'01*. Atlanta, GA, Oct. 2001.
- Pitt, R. "Source water protection." *AL/MS AWWA Conference*. Biloxi, MS. Oct. 2001.
- Pitt, R. and G.A. Burton. "Methods for the assessment of urban wet-weather flow impacts. Engineering Foundation and the American Society of Civil Engineers Conference on *Information & Monitoring Needs for Evaluating the Mitigating Effects of BMPs*. Snowmass, CO, August 2001.
- Clark, S., R. Pitt, and R. Field. "Wet-weather pollution prevention by product substitution." (poster). Engineering Foundation and the American Society of Civil Engineers Conference on *Information & Monitoring Needs for Evaluating the Mitigating Effects of BMPs*. Snowmass, CO, August 2001.
- Clark, S., R. Pitt, and A. Balakrishnan. "Stormwater filters: Upflow vs. downflow." (poster). Engineering Foundation and the American Society of Civil Engineers Conference on *Information & Monitoring Needs for Evaluating the Mitigating Effects of BMPs*. Snowmass, CO, August 2001.
- Clark, S., R. Pitt, and P. Brown. "Effect of anaerobiosis on filter media pollutant retention." (poster). Engineering Foundation and the American Society of Civil Engineers Conference on *Information & Monitoring Needs for Evaluating the Mitigating Effects of BMPs*. Snowmass, CO, August 2001.
- Pitt, R. "Illicit discharge detection and elimination." *National Storm Water Coordinators Conference*. U.S. Environmental Protection Agency. Orlando, FL. May 2001.
- Easton, J., M.M. Lator, J.J. Gauthier, and R. Pitt. "Pathogen decay in urban streams." *AWRA Specialty Conference*. San Antonio, TX. May 2001.
- Pitt, R. "Stormwater management for highway projects." *Symposium on the Pollution of Water Sources from Road Run-Off*. Tel Aviv University, Israel, Sponsored by The Committee for Public Transportation, the Faculty of Life Sciences, The Institute for Nature Conservation Research, and the Porter School of Environmental Studies at Tel Aviv University. March 19, 2001.
- Pitt, R., and J. Lantrip. "The effects of urbanization on soil infiltration characteristics." *AIH's Conference on Atmospheric, Surface and Subsurface Hydrology Interactions*. Research Triangle Park, NC, November 2000.
- Pitt, R., S. Clark, and R. Field. "Potential groundwater contamination associated with stormwater infiltration." *AIH's Conference on Atmospheric, Surface and Subsurface Hydrology Interactions*. Research Triangle Park, NC, November 2000.
- Pitt, R. "Predicting changes in water quality resulting from changing land use." *AWRA Alabama Section Symposium*, Gulf Shores, AL. September 2000.
- Pitt, R., J. Lantrip, and T.P. O'Connor. "Infiltration through disturbed urban soils." *ASCE's 2000 Joint Conference on Water Resources Engineering and Water Resources Planning & Management*. Minneapolis, MN. July 2000.
- Pitt, R., M. Lator, J. Harper, and C. Nix. "Potential new tools for indicating inappropriate dry weather discharges to storm drainage systems." *Tools for Urban Water Resource Management & Protection*. Chicago Botanic Garden, U.S. EPA, and Northeastern Illinois Planning Commission. Feb. 7-10, 2000.
- Pitt, R. and M. Lator. "The role of pollution prevention in stormwater management." *Conference on stormwater and urban water systems modeling*. Computational Hydraulics Institute. Toronto, Ontario. February 2000.
- Easton, J.H., M. Lator, J.J. Gauthier, and R. Pitt. "In-situ die-off of indicator bacteria and pathogens." *AWRA's Annual Water Resources Conference: Watershed Management to Protect Declining Species*. Seattle, WA. December 1999.
- Pitt, R., R. Harrison, C.L. Henry, D. Xue, and T. O'Connor. "Enhanced infiltration performance of disturbed urban soils using compost amendments." *Water Environment Federation 72nd Annual Conference & Exposition*. New Orleans. October 1999.
- Harper, J., C. Nix, J. Day, III, M. Lator, R. Pitt, S. Clark, D. Barbe, D. Adrian, R. Field. "Detection of inappropriate sewage entries in stormwater drainage systems." *Water Environment Federation 72nd Annual Conference & Exposition*. New Orleans. October 1999.
- Easton, J., M. Lator, J.J. Gauthier, R. Pitt, D.E. Newman, S. Meyland. "Determination of survival rates for selected bacterial and protozoan pathogens from wet weather discharges." *Water Environment Federation 72nd Annual Conference & Exposition*. New Orleans. October 1999.
- Mirov, S.B., R.E. Pitt, A. Dergachev, W. Lee, D.V. Martyshkin, O.D. Mirov, J.J. Randolph, L.J. DeLucas, C.G. Brouillette, T.T. Basiev, Y.V. Orlovskii, and O.K. Alimiv. "A novel laser breakdown spectrophotometer for environmental monitoring." *Society of Photo-Optical Instrumentation Engineers (SPIE) Photonics East*, Boston, MA, September 1999.

- Pitt, R. "Small storm hydrology: Its importance for the design of stormwater control." *5th New York Stormwater Management Conference and Trade Exposition*. Rochester, NY. Feb., 1999.
- Pitt, R., S. Nix, R. Durrans, R. Field, M. Lilburn and S. Burian. "Current and Future Drainage Design, Results of EPA-Funded Research." *34th Annual American Water Resources Association Conference: Applications of Water Use Information*. Point Clear, AL. November 1998.
- Pitt, R., S. Clark, and R. Field. "Groundwater Contamination Risk due to Stormwater Infiltration." *34th Annual American Water Resources Association Conference: Applications of Water Use Information*. Point Clear, AL. November 1998.
- Pitt, R. "Small Storm Hydrology's Impact on the Design of Stormwater Control Practices." *34th Annual American Water Resources Association Conference: Applications of Water Use Information*. Point Clear, AL. November 1998.
- Newman, D., J. Easton, R. Pitt, M. Lalor, and J. Gauthier. "Development of an *in-situ* method to determine the fate of bacterial pathogens discharged into urban receiving waters." *34th Annual American Water Resources Association Conference: Applications of Water Use Information*. Point Clear, AL. November 1998.
- Meyland, S., M. Lalor, and R. Pitt. "Environmental and public health impacts on sanitary sewer overflows." *34th Annual American Water Resources Association Conference: Applications of Water Use Information*. Point Clear, AL. November 1998.
- Easton, J., R. Pitt, M. Lalor, and D. Newman. "The use of a multi-parameter water quality monitoring instrument to continuously monitor and evaluate runoff events." *34th Annual American Water Resources Association Conference: Applications of Water Use Information*. Point Clear, AL. November 1998.
- Harper, J., Clark, S., R. Pitt., J. Day, T. Roberts, and C. Nix. "Evaluating field test kits for citizen water quality monitoring." *34th Annual American Water Resources Association Conference: Applications of Water Use Information*. Point Clear, AL. November 1998.
- Ellis, A., D. Newman, and R. Pitt. "The use of peepers to measure nutrient and bacteria stratification in urban sediments." *34th Annual American Water Resources Association Conference: Applications of Water Use Information*. Point Clear, AL. November 1998.
- Lantrip, J. and R. Pitt. "Infiltration of stormwater through disturbed urban soils." *34th Annual American Water Resources Association Conference: Applications of Water Use Information*. Point Clear, AL. November 1998.
- Easton, J., R. Pitt, and M. Lalor. "The effects of separate sanitary sewer discharges (SSOs) upon photosynthesis and respiration using a continuous monitoring instrument *in-situ*." *34th Annual American Water Resources Association Conference: Applications of Water Use Information*. Point Clear, AL. November 1998.
- Clark, S., R. Pitt, P. Brown, and R. Field. "Stormwater runoff filtration prior to groundwater recharge." *34th Annual American Water Resources Association Conference: Applications of Water Use Information*. Point Clear, AL. November 1998.
- Pitt, R. and R. Field. "An Evaluation of Storm Drainage Inlet Devices for Stormwater Quality Treatment." *Water Environment Federation 71st Annual Conference & Exposition, WEFTEC Technology Forum*. Orlando, FL. October 1998.
- Clark, S., R. Pitt, P. Brown, and R. Field. "Treatment by filtration of stormwater runoff prior to groundwater recharge." *Water Environment Federation 71st Annual Conference & Exposition*. Orlando. October 1998.
- Easton, J., M. Lalor, and R. Pitt. "The use of a multi-parameter sonde for *in-situ* photosynthesis/respiration analyses in sewage contaminated waters." *Water Environment Federation 71st Annual Conference & Exposition*. Orlando. October 1998.
- Easton, J., M. Lalor, and R. Pitt. "The use of a multi-parameter water quality monitoring instrument to detect and quantify the frequency, duration, and magnitude of wet weather events and their associated receiving water impacts." (poster) *Water Environment Federation 71st Annual Conference & Exposition*. Orlando. October 1998.
- Pitt, R., S. Nix, R. Durrans, R. Field, S. Burian. "Current Storm Drainage Design Practices." *UDM'98: Developments in Urban Drainage Modelling*. London. Sept. 21-24, 1998.
- Pitt, R., S. Clark, and R. Field. "Risk of Groundwater Contamination." (poster presentation). *UDM'98: Developments in Urban Drainage Modelling*. London. Sept. 21-24, 1998.
- Pitt, R., B. Robertson, and R. Field. "Innovative Multi-Chambered Stormwater Control Device for Critical Source Areas." *WEF Advances in Urban Wet Weather Pollution Reduction Specialty Conference*. Cleveland, OH. June 1998.
- Pitt, R. and S. Mirov. "Development of a Super-Sensitive Laser Fluorescence Heavy Metal Instrument for Environmental Analyses." *9th Conference on Laser Optics*. St. Petersburg, Russia, June 22 – 26, 1998.

- Pitt, R. and S. Mirov. "The development of extremely sensitive laser-based instrumentation for the analysis of heavy metals in the environment." *Ecology of Cities*. Russian Academy of Sciences and the General Physics Institute of the RAS, Ministry of Ecology of Greece, and the Ministry of Culture of Greece. Rhodes, Greece. June 1998.
- Clark, S., R. Pitt, R. Field, P. Brown, and R. Schulze. "Urban Runoff Filtration for Critical Source Areas." *WEF Advances in Urban Wet Weather Wet Weather Pollution Reduction Specialty Conference*. Cleveland, OH. June 1998.
- Pitt, R., R. Field, S. Burian, M. Lilburn, C-Y Fan, S.J. Nix, and S.R. Durrans. "Wet Weather Flow Designs for the Future." *ASCE Water Resources Conference*. Chicago, IL. June 1998 (invited).
- Pitt, R. "Drainage Design for the Future." *CHI's Stormwater & Water Quality Management Modeling Conference*. Toronto, Ontario. Feb. 1998.
- Pitt, R. "Sediment Control in Alabama." *41st Annual Transportation Conference*. Montgomery, AL. February 1998 (invited).
- Day, J., R. Pitt, and K. Parmer. "Evaluating Field Test Kits for Citizen Water Quality Monitoring." *Water Environment Federation 70th Annual Conference & Exposition*. Chicago. October 1997.
- Clark, S., R. Pitt, J. Easton, O. Mirov, K. Parmer, and R. Field. "Pollutant Removal Capacity of Stormwater Filtration Media – Break through Tests." (poster) *Water Environment Federation 70th Annual Conference & Exposition*. Chicago. October 1997.
- Heaney, J.P., L. Wright, D. Sample, R. Pitt, R. Field, and C-Y. Fan. "Innovative Stormwater Management as a Subsystem of Total Urban Water Management." *Stormwater Management – Creating Sustainable Urban Water Resources for the 21st Century*. Engineering Foundation Conference. Malmo, Sweden. Sept. 1997.
- Pitt, R., M. Lilburn, and S. Burian. "Storm Drainage Design for the Future – Summary of Current U.S EPA Research." *ASCE Technical Conference*. Gulf Shores, AL. July 1997.
- Pitt, R., M. Lilburn, and S. Burian. "Stormwater Design Practices." *1997 Alabama's Water Environment Association and Air & Waste Management Association Alabama Chapter Joint Conference*. Orange Beach, Alabama, April 1997.
- Pitt, R. "SLAMM Stormwater Quality Model." *1997 Alabama's Water Environment Association and Air & Waste Management Association Alabama Chapter Joint Conference*. Orange Beach, Alabama, April 1997.
- Clark, S., J. Easton, R. Pitt. "Breakthrough Tests of Stormwater Filtration Media." *1997 Alabama's Water Environment Association and Air & Waste Management Association Alabama Chapter Joint Conference*. Orange Beach, Alabama, April 1997.
- Nix, S., R. Durrans, R. Pitt, and S. Burian. "Wet Weather Flows in Newly Urbanizing Areas: Initial Thoughts on Designs for the Future." *1997 Georgia Water Resources Conference*, The University of Georgia, Institute of Ecology. Athens, Georgia, March 1997.
- Pitt, R. "Unique Features of the Source Loading and Management Model (SLAMM)." *CHI's Stormwater & Water Quality Management Modeling Conference*. Toronto, Ontario. Feb. 1997.
- Mirov, S. and R. Pitt "A Novel Laser Atomic Fluorescence Spectrometer for Environmental and Biomedical Analyses of Heavy Metals." *Photonics West*, San Jose, CA, Feb. 1997.
- Ashley, R., M. Verbanck, J-L Bertrand-Krajewski, T. Hvitved-Jacobsen, C. Nalluri, G. Perrusquia, R. Pitt, E. Ristenpart, and A. Saul. "Solids in Sewers - the State of the Art." (poster). *Seventh International Conference on Urban Storm Drainage*. Hannover, Germany. Sept. 1996.
- Pitt, R. "Managing Critical Source Areas of Toxicants at the Watershed Level." *Effects of Watershed Development and Management on Aquatic Ecosystems*. Engineering Foundation and ASCE. Snowbird, Utah. August 1996 (invited).
- Pitt, R., S. Mirov, K. Parmer, and A. Dergachev. "Laser Applications for Water Quality Analyses," *Advanced Laser Technology '96 Conference: Laser Methods for Biological and Environmental Applications*. Heraklion, Crete, May 1996 (invited).
- Pitt, R. "Stormwater Control through the use of In-Receiving Water Systems." *Alabama's Water Environment Association and Air and Waste Management Association Joint Conference*. Orange Beach, Alabama, April 1996.
- Pitt, R. and J. Voorhees. "Critical Source Area Controls in the SLAMM Water Quality Model." *A National Symposium: Assessing the Cumulative Impacts of Watershed Developments on Aquatic Ecosystems and Water Quality*. U.S. EPA and Northeastern Illinois Planning Commission. Chicago, Illinois, March 1996 (invited).
- Pitt, R., S. Clark, K. Parmer, and R. Field. "Potential Groundwater Contamination from Stormwater Infiltration." *ASCE Joint Conferences: First International Conference on Water Resources Engineering, International Groundwater Management Symposium, Watershed Management Symposium, and Texas Water '95*. San Antonio. Texas. August 1995.

- Pitt, R. and B. Robertson. "A Multi-Chambered Stormwater Treatment Train for the Treatment of Stormwater." *21st Annual RREL Research Symposium*. U. S. Environmental Protection Agency. EPA/600/R-95/012. Cincinnati, Ohio. pp. 217-221. April 1995.
- Pitt, R., S. Clark, K. Parmer, and R. Field. "Groundwater Contamination from Stormwater Infiltration." *21st Annual RREL Research Symposium*. U. S. Environmental Protection Agency. EPA/600/R-95/012. Cincinnati, Ohio. pp. 222-230. April 1995.
- Pitt, R. and B. Robertson. "Treatment of Stormwater from Critical Source Areas Using a Multi-Chambered Treatment Train (MCTT)." *67th Annual Water Environment Federation Conference*. Chicago, IL. October 1994.
- Pitt, R., S. Clark, K. Parmer, and R. Field. "Potential Groundwater Contamination from Stormwater Infiltration." *67th Annual Water Environment Federation Conference*. Chicago, IL. October 1994.
- Lalor, M., R. Pitt, and R. Field. "Locating Inappropriate Discharges to Storm Drains." Engineering Foundation Conference on: *Stormwater NPDES Related Needs*. Mt. Crested Butte, CO, August 1994 (invited).
- Parmer, K., R. Pitt, R. Field, and S. Clark. "Groundwater Impacts from Stormwater Infiltration." (poster) Engineering Foundation Conference on: *Stormwater NPDES Related Needs*. Mt. Crested Butte, CO, August 1994.
- Robertson, B., R. Pitt, A. Ayyoubi, and R. Field. "Stormwater Treatment Using a Multi-Chambered Treatment Train." (poster) Engineering Foundation Conference on: *Stormwater NPDES Related Needs*. Mt. Crested Butte, CO, August 1994.
- Clark, S., R. Pitt, and R. Field. "Stormwater Treatment Using Inlet Devices, Filter Media, and Filter Fabrics." (poster) Engineering Foundation Conference on: *Stormwater NPDES Related Needs*. Mt. Crested Butte, CO, August 1994.
- Pitt, R. "Detecting Water Quality Trends from Stormwater Discharge Reductions." Engineering Foundation Conference on: *Stormwater NPDES Related Needs*. Mt. Crested Butte, CO, August 1994 (invited).
- Pitt, R. "General Urban Runoff Model for Water Quality Investigations." *ASCE 1994 Conference on Hydraulic Engineering*. Buffalo, New York, August 1994.
- Pitt, R., R. Field and K. Dunkers "Combined Sewer Overflow Control through In-Receiving Water Storage: An Efficiency Evaluation." *Water Environment Federation Specialty Conference on A Global Perspective for Reducing CSOs: Balancing Technologies, Costs, and Water Quality*. Louisville, KY. July 1994.
- Field, R., M. Brown, and R. Pitt. "Optimization of CSO Storage and Treatment Systems." *Water Environment Federation Specialty Conference on A Global Perspective for Reducing CSOs: Balancing Technologies, Costs, and Water Quality*. Louisville, KY. July 1994.
- Pitt, R. "Biological Impacts Associated with Stormwater Discharges." *Society for Environmental Toxicology and Chemistry*. Houston, Texas, November 1993 (invited).
- Pitt, R. and K. Dunkers. "Lake Water Quality Improvements from Treatment of Stormwater Using the Flow Balancing Method." *66th Annual Water Environment Federation Conference*. Anaheim, California. October 1993.
- Pitt, R. and J. Voorhees. "The Stormwater Quality Detention Pond Model (DETPOND)." *26th Annual Water Resources Conference*. University of Minnesota. October 1993.
- Pitt, R. "Small Storm Hydrology - The Key in Identifying Sources of Stormwater Pollutants." *26th Annual Water Resources Conference*. University of Minnesota. October 1993 (invited).
- Pitt, R., A. Ayyoubi, and R. Field. "The Treatability of Urban Stormwater Toxicants." *First International Conference on Diffuse (Nonpoint) Pollution*. International Association on Water Quality. Chicago. Ill. September 1993 (invited).
- Pitt, R. "Detention Pond Design for Water Quality Improvement." *National ASCE Hydraulic Conference*. San Francisco, California. July 1993.
- Pitt, R. and J. Voorhees. "The Source Loading and Management Model (SLAMM)." *National Conference on Urban Runoff Management*. U.S. EPA, Chicago, Ill. March 1993 (invited).
- Pitt, R. "Monitoring the Effects of Urban Runoff: The Coyote Creek Project." *National Conference on Urban Runoff Management*. U.S. EPA, Chicago, Ill. March 1993 (invited).
- Pitt, R. and K. Dunkers. "Combined Treatment of Stormwater and Lakewater in Lake Rönningesjön, Sweden." *12th Annual International Symposium, North American Lake Management Society*, Cincinnati, Ohio, November 1992.
- Lalor, M. and R. Pitt. "Cross-Connection Investigations for Stormwater Permit Applications." *64th Annual Conference of the Water Pollution Control Federation*, Toronto, Ontario, October 1991.
- Pitt, R. and J. McLean. "Stormwater, Baseflow, and Snowmelt Pollutant Contributions from an Industrial Area." *65th Annual Conference of the Water Pollution Control Federation*, New Orleans, Louisiana, September 1992.

- Pitt, R. and R. Field. "The Treatability of Urban Runoff Toxicants." *International Conference on Integrated Stormwater Management*, Singapore, July 1991 (invited).
- Pitt, R., R. Field, M. Lalor, and M. O'Shea. "U.S. EPA's Manual of Practice for the Investigation and Control of Cross-connection Pollution into Storm Drainage Systems." *International Conference on Integrated Stormwater Management*, Singapore, July 1991 (invited).
- Pitt, R. and R. Field. "The Treatability of Urban Stormwater Toxicants." *International Conference on Urban Drainage and New Technologies*, Dubrovnik, Yugoslavia, June 1991 (invited).
- Pitt, R., A. Ayyoubi, and R. Field. "The Treatability of Urban Stormwater Toxicants." *17th Annual Hazardous Waste Research Symposium: Remedial Action, Treatment, and Disposal of Hazardous Waste*. U.S. EPA, Cincinnati, Ohio, April 1991.
- Barron, P. and R. Pitt. "Characterization of PAHs in Urban Runoff Source Area Sheetflows." *63rd Annual Conference of the Water Pollution Control Federation*, Washington, D.C., October 1990.
- Field, R., R. Pitt, and M. Lalor. "U.S. EPA's Manual of Practice for the Investigation and Control of Cross-Connections into Storm Drainage Systems." *Fifth International Conference on Urban Storm Drainage*, Osaka, Japan, July 1990 (invited).
- Pitt, R., P. Barron, and R. Field. "Sources and Reduction of Toxicants in Storm Induced Discharges." *International Symposium - Urban Planning and Stormwater Management*, Kuala Lumpur, Malaysia, June 1990 (invited).
- Pitt, R. and M. Lalor. "Non-Stormwater Discharges into Storm Drainage Systems." *CSO Specialty Conference, Water Pollution Control Federation*, Boston, Massachusetts, April 1990.
- Pitt, R., P. Barron, and R. Field. "Hazardous and Toxic Wastes Associated with Urban Stormwater and Combined Sewer Overflows." *16th Annual Hazardous Waste Research Symposium: Remedial Action, Treatment, and Disposal of Hazardous Waste*. U.S. EPA, Cincinnati, Ohio, April 1990.
- Pitt, R. "Urban and Industrial Stormwater Runoff Toxicity." *Ninth International Symposium on Lake and Reservoir Management, North American Lake Management Society*, Austin, Texas, November 1989.
- Pitt, R. and M. Lalor. "Identification of Cross-Connections Affecting Storm Drainage Systems." *Ninth International Symposium on Lake and Reservoir Management, North American Lake Management Society*, Austin, Texas, November 1989.
- Pitt, R., R. Field, M. Lalor, and E. Driscoll. "Analysis of Cross-Connections and Storm Drainage." *Engineering Foundation Conference on Urban Stormwater Quality Enhancement - Source Control, Retrofitting and Combined Sewer Technology Conference*, Davos, Switzerland, October 1989 (invited).
- Barron, P. and R. Pitt. "Sources and Reduction of Toxicants in Urban Runoff." *62nd Annual Conference of the Water Pollution Control Federation*, San Francisco, CA, October 1989.
- Field, R. and R. Pitt. "Urban Storm-Induced Discharge Impacts: U.S. Environmental Protection Agency Research Program Review." *International Association on Water Pollution Research and Control*, Wageningen, The Netherlands, September 1989 (invited).
- Pitt, R. "Management Alternatives for Urban Stormwater," *Marquette University Nonpoint Pollution Symposium*, Milwaukee, WI, Proceedings published by the U.S. Environmental Protection Agency, April 1985 (invited).
- Pitt, R. "Effects of Urbanization on Receiving Waters," *Urban Effects on Water Quality and Quantity Conference*, Urbana, IL. Proceedings published by the Illinois Department of Energy and Natural Resources, October 1983 (invited).
- Pitt, R. and M. Bozeman. "Biological and Water Quality Degradation in an Urban Creek," *Urban Stormwater and Combined Sewer Overflow Impact on Receiving Water Bodies National Conference*, Orlando, FL. Proceedings published by the U.S. Environmental Protection Agency, November 1979 (invited).
- Pitt, R. "The Potential of Street Cleaning in Reducing Nonpoint Pollution," *Urban Stormwater Management Workshop Proceedings*, U.S. Environmental Protection Agency, August 1978, and *Proceedings of the International Symposium on Urban Storm Water Management*, University of KY, July 1978.
- Pitt, R. and R. Field. "Water Quality Effects of Urban Runoff," *94th Annual AWWA Conference*, Boston, MA, 1975.

Selected Research Reports

- DETPOND 4: A Water Quality Detention Pond Design Program; Model Documentation and Users Manual*. Wisconsin Department of Natural Resources, May 1989.
- Construction Site Erosion Control Manual*, Water Works Board for the City of Birmingham, April 1989.
- Characterization and Control of Storm Water Pollution; Source Loading and Management Model (SLAMM): Volume I: Model Development and Summary*. Wisconsin Department of Natural Resources, March 1989.

SLAMM: Volume II: Model Documentation; Wisconsin Department of Natural Resources, March 1989.

Birmingham Watershed Protection Ordinance, Water Works Board for the City of Birmingham (AL), December 1988.

State Plan for the Control of Construction Site Erosion and Stormwater Runoff, Wisconsin Department of Natural Resources, July 1987.

Manual of Practice for Stormwater Controls, Wisconsin Department of Natural Resources, 1987.

Model Ordinance for the Control of Construction Site and Stormwater Runoff, Wisconsin Department of Natural Resources, October 1986.

Snowmelt as a Pollutant Source, Ontario Ministry of the Environment, Toronto, Canada, January 1986.

Particulate Accumulation and Washoff Relationships - Modifications to the HSPF Model, Ontario Ministry of the Environment, Toronto, Canada, June 1984.

Washoe County Urban Stormwater Management Program, Washoe Council of Governments, Reno, NV, August 1982.

Lake Merritt Management Plan, City of Oakland, CA, Department of Public Works, May 1979.

Water Quality Study for Pittsburgh Power Plant Units 8 and 9, for the Pacific Gas and Electric Company (West Pittsburgh, California), 1978.

Oil Spill Movement Study, for the Port of Long Beach (San Pedro Bay, California), 1978.

Red Desert Uranium Mine and Mill, for Minerals Exploration Company (Sweetwater County, Wyoming), 1978.

Recommended Measures for the Control of Surface Runoff, Alameda County Flood Control and Water Conservation District, September 1977.

Water Quality and Biological Consulting Services Concerning Sewage Treatment Discharge Effects on Alaskan Tundra Ponds, Atlantic Richfield Company (Prudhoe Bay, Alaska), 1977.

Hazardous Material Contingency Plan for a Chemical Facility, for Allied Chemical Corporation (Pittsburg, California), 1977.

Ute Mountain Uranium Exploration Activities, for Mobil Oil Corporation (Montezuma County, Colorado), 1977.

Geothermal Resources Studies, for the Phillips Petroleum Company (Roosevelt Hot Springs, Utah), 1977.

Review of the San Desert Nuclear Power Plant Environmental Report, for the San Diego Gas and Electric Company, 1976.

Water Quality Investigations for Nuclear Notices of Intent, for the Pacific Gas and Electric Company (Stanislaus, Merced, and Madera Counties, California), 1976.

Crow Indian Reservation Coal Mining Lease, for Shell Oil Company (Big Horn County, Montana), 1976.

Water Quality and Biological Survey of the Zeyandeh Rud near Isfahan, Iran, for E. I. duPont de Nemours Company, 1976.

The Effects of Sand and Gravel Removal on Arctic and Subarctic Streams, for the U. S. Fish and Wildlife Service (Alaska), 1976.

Engineering Report for Air Quality Mitigation Measures, for the Southern California Gas Company, 1975.

Air Quality Effects of Oil Spills, Standard Oil Company of California (Santa Barbara), 1975.

Contingency Plan for a Proposed Ammonia and Urea Transfer and Storage Facility, for Collier Carbon and Chemical Corporation (Sacramento, California), 1975.

Environmental Effects of a Possible Oil Spill at Morro Bay, for the Pacific Gas and Electric Company (Morro Bay, California), 1974.

Twin Creek Coal Mine, for the Rocky Mountain Energy Company (Lincoln County, Wyoming), 1974.

Monitoring of Oil Spill Waste Disposal Areas, for Standard Oil Company of California (San Francisco), 1973.

Oakland Airport Maintenance Facility Expansion, for the Port of Oakland (California), 1973.

Environmental, Social, and Economic Impact of the Proposed 1972-1977 Capital Improvement Program for the San Jose Municipal Airport, for the City of San Jose (California), 1972.

Industrial Waste Survey of the Northwest Fruit and Vegetable Canning Industry, for the Environmental Protection Agency (Washington, Oregon, and Idaho), 1972.

Oil Spill/Sorbent Harvesting Systems on Vessels of Opportunity, A motion picture, U.S. Environmental Agency, 1972.

Department of Civil and Environmental Engineering Courses Taught:

CE 333 - Water Supply and Drainage Design
 CE 335 - Water and Wastewater Treatment
 CE 401 – Senior Design Project

CE 435 - Environmental Engineering
 CE 478 – Water Resources Engineering
 CE 484 - Hydraulic Engineering Systems
 CE 485 - Engineering Hydrology
 CE 499 - Senior Design
 CE 527 Urban Water Systems
<http://www.eng.ua.edu/~rpitt/Class/Computerapplications/MainCA.html>
 CE 544 - Engineering Statistical Analyses
 CE 636 - Stormwater Management
<http://www.eng.ua.edu/~rpitt/Class/StormWaterManagement/MainSWM.html>
 CE 637 - Experimental Design and Field Sampling
<http://www.eng.ua.edu/~rpitt/Class/ExperimentalDesignFieldSampling/MainEDFS.html>
 CE 638 - Chemical Processes and Pollutant Impacts in Water
 CE 485/685 – Construction Site Erosion Control
<http://www.eng.ua.edu/~rpitt/Class/Erosioncontrol/MainEC.html>
 CE 641 - Environmental Engineering and Water Resources Seminar
 CE 685 - Research Methods in Civil and Environmental Engineering
 CE 687 - Stormwater Detention Pond Design
<http://www.eng.ua.edu/~rpitt/Class/Detentionponddesign/MainDPD.html>
 CE 690 – Effects and Fates of Hazardous Materials
<http://www.eng.ua.edu/~rpitt/Class/EffectsandFates/MainEffectsandFates.html>
 CE 690 - International Internet based courses on Stormwater Modeling and Stormwater Management
<http://www.computationalhydraulics.com/Training/Courses/ISWM2004/>
 HON 101-406 - Honors course: The Environment: The Earth in Our Shadow
 HON 107/407 - Honors course: The Environment: Earth, Air, Fire, and Water

Major Advisor for the Following Graduate Students:

Agnew, Frank. MSCE. *Performance of Inlet Treatment Devices*. 1996.
 Ayyoubi, Ali. MSCE. *Physical Treatment of Urban Storm Water Runoff Toxicants* (published thesis). 1993.
 Baker, Martin, R. III. MSCE. *Constructed Wetlands for the Treatment of Paper Mill Wastes*. 2001.
 Balakrishnan, Anitha C. MSCE. *Comparison of Upflow and Downflow Filtration on Clogging and Pollutant Removal Capabilities of Stormwater Filters*. 2001.
 Barron, Patricia. MSCE. *Characterization of Polynuclear Aromatic Hydrocarbons n Urban Runoff* (published thesis). 1990.
 Buford, Mark. MSCE. *Land Use Characteristics Affecting Baseflow Quality*. 1995.
 Burnett, David. MSCE. *Snowmelt Water Quality*. 1997.
 Clark, Shirley. MSCE. *Evaluation of Filtration Media for Stormwater Runoff Treatment* (published thesis). 1996.
 Clark, Shirley. Ph.D. *Urban Stormwater Filtration/Sorption: Optimization of Design Parameters and a Pilot-Scale Evaluation* (published dissertation). 2000.
 Creel, Robert. MSCE. *Evaluating Detention Pond Performance with Computer Modeling Verification* (published thesis). 1994.
 Day, James. MSCE. *Selection of Appropriate Analytical Procedures for Volunteer Field Monitoring of Water Quality* (published thesis). 1996.
 Delawadia, Naran. MSCE. *Validation of the DETPOND Model*. 1996.
 Dykes, William C. MSCE. *Water Pipeline Networks*. 1989.
 Echols, W.C. MSCE. *Calibration and Performance of Micro-Scale Peepers for High-Resolution Interstitial Water Sampling*. 1997.
 El-Husari, Ayman. MSCE. *Rain Monitoring Options*. 1996.
 Ellis, April. MSCE. *The use of Peepers to Measure Bacteria and Nutrient Gradients in Urban Pond Sediments*, 1998.
 Farmer, Joseph. MSCE. *Oil and Grease Separators for Stormwater Control*. 1997.
 Garrett, William. MSCE. *Control of Zebra Mussels in Power Plant Cooling Water Systems*. 1995.
 Garrett, William. Ph.D. *Recirculating – Reducing and Alkalinity Producing System (RERAPS) for the Treatment of Acidic Coal Pile Runoff*. (published dissertation). 2002.
 Goertz, Susan. MSCE. *Runoff Quality from a Xeroscaped Area*. 1996.

Hamrick, James. MSCE. *Drainage of Water from Pavement Structures* (published thesis). 1995.

Howser, John. MSCE. *Performance of Stormwater Detention Practices*. 1995.

Karri, Verra. MSCE. *Monte Carlo Mixing Model to Identify Inappropriate Discharges to Storm Drainage Systems* (published thesis). 2004.

Khan, Mustaque. MSCE. *Organic Compound Automated Extraction Methods for Sediments*, 1999.

Kemp, Randall. MSCE. *Demonstration of Erosion Control Practices*. 1995.

Hosmer, Carla. MSCE. *Behavior of Stormwater Filtration Media under Aerobic and Anaerobic Conditions*, 2000.

Lalor, Melinda. Ph.D. (Vanderbilt Univ.) *Assessment of Non-Stormwater Discharges to Storm Drainage Systems in Residential and Commercial Land Use Areas* (published dissertation). 1993.

Lantrip, Janice. MSCE. *Infiltration through Disturbed Urban Soils*. 1999.

Lilburn, Melissa. MSCE. *Storm Drainage Design Practices* (published thesis). 1997.

Morquecho, Renee. MSCE. *Sequential Extraction and Particle Size Associations for Stormwater Pollutants*. 2001.

McConnel, Vic. MSCE. *Design of Detention Ponds for Commercial Development*. 1997.

McGill, Milan. MSCE. *Rainfall Distribution Analysis Options*. 1996.

McKell, Mitch. MSCE. *New Concepts in Wastewater Effluent Diffuser Design*. 1994.

Nelson, John. MSCE. *Characterizing Erosion Processes and Sediment Yields on Construction Sites* (published thesis). 1996.

Nix, Christy, M. MSCE. *Evaluation and Calibration of the Pastel UV for Detecting Sewage in Storm Water Drainage Systems*. 1999.

Nolen, Bobby. MSCE. *Hydraulic Models of the Transition Section of Laurel Lake Spillway*. 1989.

Panwhar, Samina. MSCE. *An Application of a GIS System for Risk Analysis and Routing of Hazardous Materials* (published thesis). 2001.

Peeples, Alan. MSCE. *Comparison of Rainfall Depth Calculation Procedures*. 1995.

Ponstein, Jonathan. MSCE. *Sources and Control of Tastes and Odors in a Public Water Supply*. 2001

Ray, Holly. MSCE. *Street Dirt as a Phosphorus Source in Urban Stormwater* (published thesis). 1997.

Revell, Edwin. MSCE. *Rainfall Measurements using Radar Systems*. 1995.

Richards, Michael. MSCE. *Arsenic Remediation Practices*. 1995.

Roberts, Timothy. MSCE. *Organochlorine Pesticide Detection Using a Compositing Scheme*. 1999.

Robertson, Brian. MSCE. *Evaluation of a Multi-Chambered Treatment Train (MCTT) for Treatment of Stormwater Runoff from Critical Pollutant Source Areas* (published thesis). 1995.

Shergill, Sumandeep. MSCE. *Quantification of Escherichia Coli and Enterococci Levels Wet Weather and Dry Weather Flows* (published thesis). 2004.

Summers, Harry. MSCE. *Upgrading of a Small Municipal Wastewater Treatment System*. 1991.

Weygand, Kenneth. MSCE. *Current Practices in Hydraulic Modeling*. 1996.

Wilson, Robert. MSCE. *Effluent Nitrate Reduction in Onsite Systems through Effluent Recycle* (published thesis). 1992.

Engineering Professional Development Courses and Workshops Taught:

Stormwater Management:	Albany, NY, 2000
and Conservation Design	Birmingham, AL, 1989 - 1998
	Boston, MA, 1993
	Chicago, IL, 1992, 1993, 1998
	Edison, NJ, 2001, 2003
	Essen, Germany, 1994
	Fair Hope, AL, 1995, 1997
	Fishkill, NY, 2002 - 2004
	Guelph, Ontario, 1995
	Huntsville, AL, 1999
	Las Vegas, NV, 2001, 2003
	Madison, WI, 1991 - 2004
	Milwaukee, WI, 1990, 1999
	Montgomery, AL, 1999, 2000
	Portland, OR, 1989, 1992
	Portland, ME, 1994
	Seattle and Olympia, WA, 2003

Singapore, 1991
 Syracuse, NY, 2002, 2003
 St. Paul, MN, 1993
 Vancouver, BC, 2003

Bioretention Control Practices: Birmingham, AL, 1993 – 1995

Construction Site Erosion Control: Birmingham, AL, 1989 – 2003
 Guntersville, AL, 2003
 Mobile, AL 2003

Detention Pond Design: Birmingham, AL, 1989 - 1997
 Boston, MA, 1993
 Chicago, IL, 1998
 Edison, NJ, 2001, 2003
 Fishkill, NY, 2002, 2004
 Guelph, Ontario, 1995
 Las Vegas, NV, 2001, 2003
 Madison, WI, 1991 – 2004
 New York City, 2001
 Portland, OR, 1993
 Portland, ME, 1994
 Rochester, NY, 2001
 Syracuse, NY, 2001
 St. Paul, MN, 1993 - 1998

PE Exam Review: Birmingham, AL, 1988 - 1993
 FE Exam Review: Tuscaloosa, AL, 2002

University Committee Assignments and other Intramural Activities:

School of Engineering Service:
 Computer Network Committee
 Strategic Planning Committee
 Faculty Affairs Committee
 Academic Misconduct Advisory Panel
 Nonacademic Discipline Committee
 Selected speaker for 1999 UAB Day for perspective engineering students
 EGR100 Pre-College Summer Program keynote speaker, 1990
 Selection committee for Presidential Award for Excellence in Teaching
 Faculty advisor to student chapter of the American Water Resources Association (joint with Univ. of Alabama, Tuscaloosa and UAB campuses) (first place national chapter for 1997)
 Faculty advisor to student chapter of the Water Environment Federation (joint with Univ. of Alabama, Tuscaloosa and UAB campuses)
 Graduate Program Committee Chair

University Service:
 Developed new Departmental Honors Program, UAB, approved February 1999.
 Developed new Ph.D. program in Environmental Health Engineering, UAB, approved December 1996.
 Honors Council, 1997 – 2002.
 UAB Faculty Senate, 1996 - 1997.
 9 and 12 Month Conversion Committee, 1996.
 Graduate Student Research Day Committee, 1996.
 EARTH Center Executive Board, 1994 - 1995.
 Center for Telecommunications, Director of Environmental Factors, UAB, 1994 - 2001.

Southern Association of Colleges and Schools Self-Study accreditation committee for professional and graduate schools, 1993.
Minority Initiative for High School Students Program mentor, 1992 – 1997.
UAB Summer Research Program mentor, 1995 – 2001.
Howard University/NIOSH/MOTTEP Program mentor, 2000.
National Institute of Health Summer Program mentor, 1996, 2000, 2001.
Coca-Cola Summer Scholars program mentor, 1993 – 1995.
Chemical Safety Committee, 1993 – 1996.
EPSCoR statewide Energy and the Environment Director, 1992 - 1994.
Teacher Education Council (School of Education), 1990 - 2001.
Task Force on Quality of Teaching, School of Arts and Humanities, 1994.
Environmental Education Committee, 1990 - 2001.
Summer Scholar Program mentor, 1990.