

LARRY A. ROESNER

Professor  
Department of Civil Engineering  
Colorado State University

## QUALIFICATIONS SUMMARY

Dr. Roesner has more than 35 years of experience in water resources and water quality engineering and management. He is a nationally recognized expert in the development and application of hydrologic, hydraulic, and water quality simulation models. He presently holds the endowed Harold H. Short Chair of Civil Engineering Infrastructure Systems at Colorado State University. He teaches undergraduate Senior Design and graduate courses on Urban Stormwater Management and Urban Water Systems Analysis and Water Quality modeling.

## EXPERIENCE

Dr. Roesner's area of specialization since 1970 has been urban hydrology and nonpoint source pollution control. He is a principal developer of the Corps of Engineers model STORM, a simplified urban stormwater management model, and EPA's SWMM EXTRAN model, a sophisticated flow-routing model for urban drainage systems. Applications experience includes nonpoint source pollution studies in California, Michigan, Georgia, and Florida, and storm drainage/combined sewer studies in Seattle, San Francisco, Boston, Cincinnati, Detroit, Cleveland, Omaha, and many Florida cities. International experience in these areas includes Germany, Scotland, Romania, Uruguay and Brazil. He also has considerable experience with time series analysis of hydrologic records and has developed stochastic models of monthly precipitation and runoff.

Another of Dr. Roesner's areas of specialization is water quality simulation of surface water bodies. Dr. Roesner is the principal author of QUAL-II, a stream water quality model developed for USEPA which simulates 11 water quality parameters. He has conducted a number of USEPA-sponsored workshops on the application of QUAL-II and has experience with model applications throughout the United States and Canada plus applications in Romania, Uruguay and Brazil. QUAL-II has been used extensively for wasteload allocation studies throughout the United States. Other major responsibilities include the development of a reservoir temperature model and the application of Ecologic-Water Quality Models to Monterey Bay, California, Puget Sound, Washington, and Montevideo, Uruguay to study the effects of discharges from proposed ocean outfalls on the receiving waters in these areas.

Dr. Roesner's current research addresses developing improved methods of urban runoff management, so that urban drainage systems can be turned into urban water resources that are a community amenity and also provide aquatic ecosystem protection/enhancement. He is also researching residential graywater reuse for residential landscape irrigation and toilet flushing.

EDUCATION            B.S.   - Civil Engineering, Valparaiso University, Indiana, 1963  
                             M.S.   - Hydrology, Colorado State University, 1965  
                             Ph.D.  - Sanitary Engineering, University of Washington, 1969

REGISTRATION        Professional Engineer: California, Colorado  
                             Professional Hydrologist: American Institute of Hydrology

## HONORS

Walter L. Huber Civil Engineering Research Prize, 1975  
 Diplomat, American Academy of Environmental Engineers, 1983  
 Elected Member, National Academy of Engineering, 1990  
 Tau Beta Pi, Eminent Engineer, 1994  
 Who's Who in America (since 1975)  
 Who's Who in Engineering (since 1975)  
 Outstanding Service and Commitment Award from Friends of Wekiva River 1986-87  
 Outstanding Service and Commitment Award from the Technical Services  
 Committee of the Water Environment Federation, 1997  
 Services to the Profession Award from ASCE Water Resources Planning and  
 Management Division, 1999  
 Life Member ASCE, 2005  
 Diplomate, American Academy of Water Resources Engineers, 2006

## SOCIETIES

American Society of Civil Engineers, Fellow  
 Urban Water Resource Research Council, ASCE  
 Water Environment Federation  
 American Institute of Hydrology

## PROFESSIONAL

Member, Urban Water Resources Research Council (UWRRC), ASCE  
 Member, Wet Weather Advisory Committee, WERF  
 WEF – Awards Committee  
 ASCE, Conference Organizing Committee for the 9<sup>th</sup> (triennial) *International  
 Conference on Storm Drainage* held in Portland, August, 2002  
 ASCE, Co-Chair of the Engineering Foundation Conference on *Linking BMP  
 Designs and Performance to Receiving Water Impacts Mitigation*, held at  
 Snowmass, CO Aug, 2001  
 Co-chair, Engineering Foundation Conference on “*Stormwater Management --  
 Creating sustainable Urban Water Resources for the 21st Century*,” Malmo,  
 Sweden, 1997  
 Editor, Proceedings of an Engineering Foundation Conference on “*Effects of  
 Watershed Development an Management on Aquatic Ecosytems*,” 1996  
 Chairman, Engineering Foundation Conference on “*Current Practice and Design  
 Criteria for Urban Runoff Quality Control*,” 1988  
 Task Force Chairman, WPCF/ASCE Manual of Practice on “*Urban Runoff Quality  
 Management*,” 1998  
 Contributor to ASCE/WPCF Manual of Practice on “*Urban Storm Drainage System  
 Design*,” 1993  
 Reviewer of WPCF Manual of Practice on “*Combined Sewer Overflow  
 Pollution Abatement*,” 1989  
 Member, Organizing Committee for Engineering Foundation Conference on  
 “*UrbanRunoff Quality -- Impacts and Quality Assessment Technology*,” 1986  
 Executive Committee Member, National Research Council Committee on  
 Wastewater Management in Coastal Urban Areas.

PROFESSIONAL  
HISTORY

- 1999 to present      Harold H. Short Professor of Civil Engineering Infrastructure Systems, Colorado State University
- Applied research on the development of sustainable urban water infrastructure systems.
  - Investigation of urban storm drainage design criteria to obtain geomorphic stability in receiving water systems.
  - Investigation of the Physical Effects of urban wet weather discharges on aquatic habitat.
  - Investigation of residential graywater reuse for residential irrigation and toilet flushing
- 2000      Interim Head, Department of Civil Engineering, Colorado State University
- 1998 to 1999      Senior Vice President -- Camp Dresser & McKee Inc.
- Technical Director, Water Resources Practice
  - Dean, CDM Corporate University
  - Technical Advisor/Director
    - Development of Web-based BMP manual for San Antonio, and the state of Texas
    - Expert witness regarding adequacy of stormwater BMPs on an industrial clients property
- 1992 to 1998      Senior Vice President and Chief Technical Officer -- Camp Dresser & McKee
- Chair, CDM Technical Council
    - Administer CDM's internal Research and Development Program.
    - Ensure that CDM is using state-of-the-art technology in its projects.
    - Support CDM's Technical Mentoring Program
  - Dean, CDMU Corporate University
  - Technical Director of CDM's National Storm Water Practice
  - Project Technical Director:
    - Master plan for stormwater management (quantity and quality) for an area nine km<sup>2</sup> in Edinburgh, Scotland to be developed from agriculture to an urban community.
    - Rouge River (Metropolitan Detroit) Wet Weather Water Quality Management, National Demonstration Program. This program examines integrated and cost-effective management of non-point sources of pollution, and combined sewer overflows.
  - Project Technical Director: (cont)
    - Charlotte, NC Inflow/infiltration study developing and integrating wet-weather

system management program that includes I/I reduction, relief sewers, flow equalization and treatment plant operation.

- Development of a river-wetlands phosphorus transport model for river tributary to Lake Okeechobee, Florida.
- Development of an urban runoff quality management program for Monterey Bay, California.
- Senior Technical Advisor:
  - Development of an electronic Best Management Practices manual for San Antonio, Texas.
  - Development of an electronic Best Management Practices manual for Texas APWA member cities.
  - Development for Caltrans (California Department of Transportation) of planning design and construction handbooks for control of water quality in highway runoff and staff training in use of handbooks.
  - Wet Weather analysis of wastewater system for Orange County California.
  - Development of a Best Management Practices Handbook for urban runoff quality management for North Central Texas Council of Governments.
  - Value Engineering; CSO management strategy and storage-treatment basin design, New York City Department of Environmental Protection.
  - Analysis and optimization of Allegheny County Sanitation District Metropolitan Pittsburgh.
  - Development of computer model of the Detroit Metropolitan area combined sewer system (200 square miles).
  - CSO river and Lake Erie, water quality impact study for Cleveland Metropolitan Area (Northeast Ohio Regional Sewerage District).
  - CSO system optimization plan and long term master plan, Indianapolis, IN.
  - Water quality impact evaluation of City of Albuquerque wastewater treatment plant effluent discharges to the Rio Grande River.

1988 to 1992

Senior Vice President and Technical Director of Water Resource and Environmental Sciences for the South Region -- Camp Dresser & McKee Inc.

- Project Director, Integrated Wastewater, Stormwater and Combined Sewer Overflow Reduction Masterplan for Cincinnati and Hamilton County, Ohio.
- Technical Advisor:
  - Combined sewer overflow control studies in Indianapolis, IN, Detroit, MI and Pittsburgh, PA
  - Boston Harbor combined sewer overflow facilities plan
  - Chattanooga, TN combined sewer overflow control masterplan
- Technical Advisor (Cont.)
  - Management and treatment of contaminated runoff from the Oakridge,

Tennessee Y-12 plant.

- Control of phosphorous loading to Cherry Creek Reservoir, Denver, CO.
- Platte river water quality impacts on Denver Metro Wastewater effluent discharges.
- Water quality modeling of the impact of discharges from Chicago Metropolitan Water Reclamation District of Greater Chicago treatment plants on the Illinois River.
- Stormwater management master plans, Daytona Beach, FL, Jacksonville FL, Virginia Beach, VA, Kent County, MI.

1983 to 1988

Vice President and Technical Director of Water Resources and Environmental Sciences for the South Region - Camp Dresser & McKee Inc.

- Project director, technical support for EPA water-based programs. Technical review of current studies and literature to provide technical support for EPA's assessment of water quality standards criteria.
- Expert witness regarding non-point source pollution to outstanding Florida Waters of the Wekiva River, and for the drinking water supply -- Occaquan Reservoir in Fairfax County, Virginia.
- Technical advisor for the following projects:
  - Stormwater management studies in Sarasota, Leon, Hillsborough, and Manatee counties and the cities of Tampa, Miami, Tallahassee, and Kissimmee, Florida.
  - Study to determine location, sizing, and design of an ocean outfall for the City of Montevideo, Uruguay.
  - Development of a water quality ecologic model of coral reefs in the Key Largo Marine Sanctuary and the northern keys reef tract.

1975 to 1983

Associate - Camp Dresser & McKee Inc.

- Responsible for water resource investigations and analysis as principal-in-charge and project manager.
- Project director, sewer system planning and management computer program-- Washington Suburban Sanitary Commission.
- Principal investigator, design drainage model for urban highway systems-- Federal Highway Administration.
- Consultant, mitigation of coliform pollution due to storm sewer discharges into the Rideau River in Ottawa Canada--Gore & Storrie Engineers, Ltd.
- Project manager, improvement of the EPA EXTRAN model for simulation of dynamic hydraulics in storm and combined sewer systems--University of Florida.

- Consultant, use of mathematical models for drainage facilities planning--Tennessee Valley Authority.
- Project manager, preparation and delivery of stream water quality modeling (QUAL-II) workshops across the United States--EPA.
- Staff support, pre-impoundment water quality study for proposed drinking water supply reservoir -- Rivanna Water and Sewer Authority.
- Task leader, effectiveness of system operation and alternative wet weather treatment levels on the reduction of combined sewer overflow (CSO) loads to the Missouri River--City of Omaha, Nebraska.
- Task leader, effectiveness of alternative mitigation measures on reduction of CSO pollution loads to Dorchester Bay and evaluation of hydraulic response of Boston interceptor system to wet weather inflows--Metropolitan District Commission, Boston, Massachusetts.
- Project manager, determination of non-point source loads and examination of cost-effectiveness of control measures in Sonoma County, California, Southeast Michigan (Detroit), and Orlando, Florida.

1968 to 1975

Principal Engineer - Water Resources Engineers, Inc.

- Study for EPA of the state-of-the-art and recommendations for future direction of water management models.
- Development of a strategy for real time automatic control of a combined sewer system--San Francisco, California.
- Effectiveness of inflow and infiltration controls on reduction of wet weather overflows from a sanitary sewer system, East Bay Municipal Utility District, Oakland, California.
- Development and application of screening models (SEMSTORM) and detailed models (RUNQUAL) describing the quantity and quality of runoff in urban/suburban areas and a screening model (STORM) to evaluate the effectiveness of alternative treatment rates and storage capacities for reducing the magnitude and frequency of uncontrolled stormwater overflows.
- Development and application of detailed stormwater runoff models describing the quantity and quality of surface runoff and the hydraulic and water quality response of the drainage system. Models have been developed and applied both

for urban areas (RUNQUAL) and for agricultural/rural (AGRUN) areas.

- Development and presentation of a one-week seminar on Management of Urban Storm Runoff for the U.S. Army Corps of Engineers. Presentation of lectures on this topic at seminars sponsored by various public agencies and professional organizations.
- Analysis of the diurnal dynamic behavior of water distribution systems.
- Development and application of QUAL-II stream water quality model (12 parameters) for the U.S. EPA.
- Development and application of a circulation model and a water quality-(Continued) ecologic model of Monterey Bay, California, and Puget Sound, Washington. Models were used to evaluate the impact of wastewater discharges on water quality and the ecologic balance of these waters.
- Study of nearshore circulation, dispersion, and water quality of Lake Michigan in its southwest corner (industrialized sector).
- Provision of consultation and assistance to Romanian study team in the development and application of water quality models for the Mures and Arges River Basins in Romania.
- Development of a mathematical model to simulate dissolved nitrogen gas (N<sub>2</sub>) concentrations in the Lower Columbia River.
- Formulation of a general mathematical model for the U.S. EPA to predict thermal energy regimes in impoundments.

1965 to 1967

Graduate Research Assistant - University of Washington

- Compilation and analysis of water quality data for assessing the present (1966) and predicted future quality of inland waters in the State of Washington.
- Modeling of water filtration systems on an analog computer.

1963 to 1965

Graduate Research Assistant - Colorado State University

- Research in theoretical hydrology and digital computer applications to the solution of hydrologic models for precipitation and runoff.
- Experimental investigation of the properties of three-dimensional slot jets.

## PUBLICATIONS and PRESENTATIONS

1. "Mathematical Models for Time Series of Monthly Precipitation and Monthly Runoff," Colorado State University Hydrology Paper No. 15, October 1966 (with V. M. Yevjevich).
2. Water Resources Engineers, Inc., Mathematical Models for the Prediction of Thermal Energy Changes in Impoundments, Water Pollution Control Research Series 16130EXT12/69, Environmental Protection Agency, December, 1969 (with W. R. Norton and G. T. Orlob).
3. "Decision Criteria for Using Stochastic Hydrology," J. Hydraulics Div., ASCE, Vol. 96, HY4, April 1970 (with G. K. Young and G. T. Orlob).
4. "A Mathematical Model of Urban Storm Drainage," Presented at National Science Foundation Seminar, Logan, Utah, August 2-14, 1970 (with R. P. Shubinski).
5. "A Mathematical Model for Simulating the Temperature Structure of Stratified Reservoirs and Its Use in Reservoir Outlet Design," Presented at the International Symposium on Mathematical Models in Hydrology, Sponsored by IASH, Warsaw, Poland, July 26-31, 1971.
6. "Use of Storm Drainage Models in Urban Planning," Presented at the American Water Resources Association Symposium on Watersheds in Transition, Colorado State University, Fort Collins, Colorado, June 1972 (with D. F. Kibler and J. R. Monser).
7. "A Nitrogen Gas (N<sub>2</sub>) Model of the Lower Columbia River," Presented at the Joint Automatic Controls Conference, Stanford University, August 16-18, 1972 (with G. T. Orlob and W. R. Norton).
8. "Linked Process Routing Models," Presented at the Symposium on Models for Urban Hydrology, Spring Meeting American Geophysical Union, Washington, D.C., April 16-20, 1973 (with R. P. Shubinski).
9. "Water Quality Simulation Studies in the Iowa-Cedar River Basin," Presented at the Ninth American Water Resources Conference, American Water Resources Association, Seattle, Washington, October 21-26, 1973 (with J. R. Monser and D. E. Evenson).
10. "Ecosystem Response of Monterey Bay to Alternative Wastewater Management Plans," Presented at the ASCE National Meeting on Water Resources Engineering, Los Angeles, California, January 21-25, 1974 (with H. M. Nichandros).
11. A Model for Evaluating Runoff-Quantity and Quality in Metropolitan Master Planning, Technical Memorandum No. 23, ASCE Urban Water Resources Research Program, ASCE, New York, April 1974.
12. "Quality of Aspects of Urban Runoff" and "Impact of Stormwater Runoff on Receiving Water Quality," Prepared for U.S. Environmental Protection Agency course-applications of stormwater management models, University of Massachusetts, July-August, 1974.

13. "Pollutional Characteristics of Stormwater," Presented at the Urban Drainage Workshop, American Public Works Association, Workshop 10D, San Francisco, California, January 23-24, 1975.
14. "A Storage Treatment, Overflow, and Runoff Model for Metropolitan Master Planning," Prepared for U.S. Environmental Protection Agency course-Applications of Stormwater Management Models, University of Massachusetts, July-August 1975.
15. "Urban Water Management Models," Urban Runoff: Quantity and Quality, William Whipple, Jr., editor, American Society of Civil Engineers, New York, 1975 (with M. B. Sonnen and R. P. Shubinski).
16. "Data Analysis for Nonpoint Pollution Control" Urban Runoff Quantity Measurement and Analysis, Preprint 3091, ASCE Fall Convention and Exhibit, San Francisco, California, October 17-21, 1977 (with P. G. Collins).
17. "Near and Far-Field Dispersion Analyses in Support of a Secondary Treatment Waiver," Presented at 52nd Annual Conference of Water Pollution Control Federation, Houston, Texas, October 7-12, 1979 (with M. Rosenberg).
18. "Water Quality Aspect of Urban Runoff and Impacts of Detention," Presented at Second Annual Stormwater Management Symposium, The Pennsylvania State University, University Park, Pennsylvania, March 4-6, 1981.
19. "An Improved Dynamic Flow Routing Model for Storm Drainage Systems," Presented at the Second International Conference on Urban Storm Drainage, University of Illinois, Urbana-Champaign, Illinois, June 15, 1981 (with R. P. Shubinski).
20. "Development and Application of a Dynamic Urban Highway Drainage Model," Presented at the Second International Conference on Urban Storm Drainage, University of Illinois, Urban-Champaign, Illinois, June 15-19, 1981 (with R. J. Dever and D. C. Woo).<sup>21</sup> "Analysis of the Effectiveness of Alternative Wet Weather Diversion and Treatment Strategies on the Reduction of Receiving Water Loads," Presented at the 1981 International Symposium in Urban Hydrology, Hydraulics, and Sediment Control, University of Kentucky, July 27-30, 1981 (with C. Clarkson).
22. Chapter 5, "Urban Runoff Processes," Chapter 6, "Quality of Urban Runoff," in Urban Stormwater Hydrology, D. F. Kibler, Ed., American Geophysical Union Monograph 7, 1982.
23. "An Improved Surcharge Computation in EXTRAN," Proceedings of the Water Quality Management User's Conference, Alexandria, Virginia, March 25-26, 1982, EPA (with J. A. Aldrich).
24. "Continuous Simulation of Instream Fecal Coliform Bacteria," Proceedings of the Water Quality Management User's Conference, Alexandria, Virginia, March 25-26, 1982, EPA (with A. C. Rowney).
25. "An Ecologic Model for the Key Largo National Marine Sanctuary," Presented at Coastal Society-8, Baltimore, Maryland, October 1982 (with R. Walton, R. R. Comegys, and J. B. Hamilton).

26. "Stormwater Models," Chapter 5 in Stormwater Management in Urbanizing Areas, by Whipple, et al., Prentice Hall, Englewood Cliffs, New Jersey, 1983 (with R. P. Shubinski).
27. "Sanitary Sewer Analysis/Design with a Microcomputer," Presented 3rd Conference in Computerizing in Civil Engineering, ASCE, April 2-6, 1984 (with J. A. Aldrich and C. R. Bristol).
28. "Washington Suburban Sanitary Commission Sewer System Computer Model," ASCE Urban Water '84, Baltimore, Maryland, May 28-31, 1984 (with C. R. Bristol, J. L. Higgins, and R. L. Humphries).
29. "Receiving Water Modeling in Support of the Design of an Ocean Outfall," Presented at the 20th Annual AWRA Conference, Washington, DC, August 12-17, 1984 (with M.S. Rosenberg and R. Walton).
30. "Transient Mixed-Flow Models for Storm Sewers," in ASCE's Journal of Hydraulic Engineering, March 1985 (with J.A. Aldrich).
31. "Hydrograph Decomposition: Using a Technical Database," Proceedings of the ASCE Computer Applications in Water Resources Conference, Buffalo, New York, June 10-12, 1985 (with C.R. Bristol and S.A. Hanson).
32. "Water Quality Modeling of Key Largo Coral Reef," Proceedings of the ASCE Computer Applications in Water Resources Conference, Buffalo, New York, June 10-12, 1985 (with R. Walton, M.P. Wang, and W.M. Williams).
33. "Coral Reef Modeling: Key Largo Case Study," Presented at the Coastal Zone '85--The Fourth Symposium on Coastal and Ocean Management, Baltimore, Maryland, July 30-August 2, 1985 (with R. Walton, W.M. Williams, and M.P. Wang).
34. "Realistic Water Quality Modeling," presented at NATO Conference in Montpelier, France, August 1985 (with R. Walton and J. P. Hartigan).
35. "Probability Model of Stream Quality Due to Runoff", in Journal of Environmental Engineering, ASCE, Vol. 111 No. 5, October 1985 (with S. A. Dendrou).
36. "Receiving Water Modeling in Support of the Design on a Ocean Outfall," Presented at Oceans '85, San Diego, California, November 1985 (with M. S. Rosenberg and R. Walton).
37. Urban Runoff Quality: Impact and Quality Enhancement Technology, American Society of Civil Engineers, New York, New York, 1986 (editor with B. Urbonas).
38. "Selecting a Stormwater Service Level for Urban Control," Proceedings of Water Forum '86: World Water Issues in Evolution, August 4-6, 1986, Long Beach, California (with R. D. Gibney).
39. "PC-RUNOFF and dBASE-III for Stormwater Data Management, Planning and Design," Proceedings of the Fourth Conference on Computing in Civil Engineering, Boston, Massachusetts, October 27-31, 1986

(with J. A. Aldrich).

40. "Role of Models in Today's Management Programs," Presented at the American Geophysical Union Fall Meeting, San Francisco, California, December 8-12, 1986 (with J. P. Hartigan and J. A. Aldrich).
41. "New Trends in Stormwater Management," Presented at the Virginia Water Resources Research Forum, Blacksburg, Virginia, April 6-7, 1987 (with J. A. Aldrich).
42. "Model Studies for Managing the Key Largo Coral Reef," Proceedings of Coastal Zone '87, Seattle, Washington, May 1987 (with W. M. Williams, R. Walton, and H. Kaufman).
43. "Numerical Model Study of an Ocean Outfall from Montevideo, Uruguay," Presented at "Triennial Conference of IFORS, Buenos Aires, Argentina, August 1987 (with R. Walton, R. Nitrosso, and M. S. Rosenberg).
44. "Comprehensive Sampling Program for the Y-12 Plant: Area Source Pollution Assessment and Control Plan," Proceedings of the Oakridge Model Conference, Oakridge, Tennessee, October 13-16, 1987 (with E. F. Arniella, R. H. Kingrea, and T. Quasebarth).
45. "Urban Water Resources Issues in the 21st Century," Journal of Professional Issues in Engineering, ASCE, Vol. 114, No. 3, July 1988 (with S. G. Walesh).
46. "National Perspectives on Urban Runoff Technologies," Presented at the Urban Runoff Quality Conference, Denver, Colorado, September 8-9, 1988.
47. "Aesthetic Implementation of Nonpoint Source Controls," Proceedings of the Nonpoint Pollution Symposium of the Twenty-fourth Annual American Water Resources Association Conference and Symposia, Milwaukee, Wisconsin, November 6-11, 1988.
48. Design of Urban Runoff Water Quality Controls, American Society of Civil Engineers, New York, 1989 (editor with B. Urbonas and M. B. Sonnen).
49. "A GIS Interface for EPA-SWMM in Cincinnati", ASCE Sixth Conference on Computing in Civil Engineering, Atlanta, Georgia, September 11-13, 1989.
50. "Living Master Plan/Combined Sewer System" Proceedings of the Engineering Foundation Conferences Urban Stormwater Quality Enhancement, Source Control Retrofitting and Combined Sewer Technology, Davos, Switzerland, October 22-28, 1989.
51. "Stormwater Management for the 1990s", American City and County, Volume 105, No. 2, page 44, February 1990 (with Bob Matthews).
52. "A 100-Year Master Plan for Cincinnati's Combined Sewer System", WPCF Specialty Conference Series Control of Combined Sewer Overflows, Boston, Massachusetts, April 8-11, 1990.

53. "Use of Mathematical Models for Urban Stormwater Management Planning", International Symposium on Urban Planning and Stormwater Management, Kuala Lumpur, Malaysia, May 28 - June 1, 1990.
54. "Advances in SWMM Extran Flow Routing" Proceedings of the IAWPRC Fifth International Conference on Urban Storm Drainage, Osaka, Japan, July 23-27, 1990 (with R. Dickinson and W. Huber).
55. "Hydrology of Urban Runoff Quality Management" Proceedings of the 18th National Conference on Water Resources, Planning and Management/Symposium on Urban Water Resources, New Orleans, Louisiana, May 20-22, 1991.
56. "Hydrology of Urban Runoff Quality Management" Proceedings of the International Conference on Computer Applications in Water Resource, Taipei, Taiwan, July 3-6, 1991.
57. "Planning Subsurface Storage - Transport Facilities for Combined Sewer Overflow Control in Cincinnati, Ohio", Proceedings of the 1991 ASCE National Conference on Environmental Engineering, Reno, Nevada, July 8-10, 1991 (with Martin M. Umberg and Thomas A. Saygers.)
58. "Discharge Characterization for Urban Runoff Loads" Proceedings of the WPCF Pre-Conference Workshop Storm Water NPDES Permitting, Issues and Impacts for Municipalities and Industries, Toronto, Canada, October 5-6, 1991.
59. "The Role of Computer Modeling in Combined Sewer Overflow Abatement Planning", Water Science Technology, Volume 26, No. 7-8, pp. 1831-1840, 1992.
60. "Water Quality Issues in Stormwater Management in the U.S." Proceedings of the International Conference Urban Hydrology, Sydney, Australia, February 4-7, 1992.
61. "Application of the STORM Computer Program to Evaluate the Effects of Mining on Urban Runoff in Butte, Montana", Presented at the Geotechnology, Energy, Environment, Materials and Minerals Network 1992 Annual Meeting and Environmental Seminar, Denver, Colorado, March 2, 1992 (with T. Johnson and S. Morea).
62. "Development of a Multiple-Phase Tunnel and Cavern Plan for Combined Sewer Overflow Control" Proceedings of the WEF Conference on the Control of Wet Weather Quality Problems, Indianapolis, Indiana, May 31 - June 3, 1992 (with E. H. Burgess).
63. "A Systemwide Program to Reduce Wet-Weather Overflows in Charlotte, North Carolina", Water Environment Federation Specialty Conference, Indianapolis, Indiana, June 1992.
64. "CSO Rehabilitation Strategies for Urban Areas" Proceedings of the ASCE Water Forum '92, Baltimore, Maryland, August 2-6, 1992 (with E. H. Burgess).

65. "Development of the Lake Okeechobee Watershed Phosphorus Transport Model" Proceedings of the WEF 65th Annual Conference and Exposition, New Orleans, Louisiana, September 20-24, 1992 (with R. Wagner).
66. "Stopping Stormwater Pollution at its Source" Public Works Journal, Volume 123, No. 13, page 55, December 1992 (with M. Hobel).
67. "Urban Runoff Considerations in the Design of Wastewater Management Programs for Coastal Areas" Presented at the 20th Anniversary Conference of the Water Resources Planning and Management Division, Seattle, Washington, May 3-5, 1993.
68. "Adapting BMPs to California Hydrology and Climatology" Presented at the 1993 National Conference On Hydraulic Engineering and International Symposium on Engineering Hydrology, Hydraulics Division, ASCE, San Francisco, California, July 25-30, 1993 (with G. Minton, J. Aldrich, M. Walker and G. Brosseau).
69. "Development of the Lake Okeechobee Watershed Phosphorus Transport Model", Presented at the 1993 National Conference On Hydraulic Engineering and International Symposium on Engineering Hydrology, Hydraulics Division, ASCE, San Francisco, California, July 25-30, 1993 (with R. Wagner).
70. "Hydraulic Modeling of Combined Sewer Interceptors", Presented at the 6th International Conference on Urban Storm Drainage, Niagara Falls, Ontario, Canada, September 12-17, 1993.
71. "Overview of Federal Law and USEPA Regulations for Urban Runoff", Presented at the 6th International Conference on Urban Storm Drainage, Niagara Falls, Ontario, Canada, September 12-17, 1993.
72. "Source Controls for Improving Urban Runoff Quality", Presented at the Water Environment Federation 1993 Preconference Seminar, Urban Planning and Stormwater, Anaheim, California, October 2-8, 1993.
73. "MTV -- Analysis Tool for Review of Computer Models", Published in the proceedings of the WEF Specialty Conference held in Santa Clara the week of August 9th, 1993. Ted Burgess gave a paper at the same conference (with M. TenBroek).
74. "Source Controls for Improving Urban Runoff Quality", Presented at the 66th WEF Annual Conference & Expo, Anaheim, California, October 2-8, 1993.
75. "Joint Management of Urban Runoff Quality and Combined Sewer Overflows", Presented at the ASCE Management of Resource Pollution Seminar, Paris, France, July 4-7, 1994.
76. "Facility Master Planning for CSO Management in an Uncertain Regulatory Environment", Presented at the WEF Specialty Conference on A Global Perspective for CSOs: Balancing Technologies, Costs, and Water Quality, Louisville, Kentucky, July 10-13, 1994.

77. "Overview of Stormwater Monitoring Needs" Presented at the Engineering Foundation conference on NPDES Related Monitoring Needs, Crested Butte, Colorado, August 8-12, 1994.
78. "Minimum Technologies to Achieve Water Quality Goals," Presented at the WEF 67th Annual Conference, Chicago, Illinois, October 15-19, 1994.
79. "Design and Operation of a Wet-Weather Storage Facility to Eliminate Sanitary Sewer Overflows in the Vicinity of a POTW Using an Extended Period Simulation Model," Presented at the EPA National Conference on Sanitary Sewer Overflows, Washington, DC, April 24-26, 1995 (with R. Carrier).
80. □Non Point Sources - Common Sense City, County Controls□, Water Environment and Technology, Water Environment Federation, September, 1995 (with Ron Ott).
81. □Hydrology for Optimal Sizing of Urban Runoff Treatment Control Systems□, Water Quality International, January/February 1996, (with Ben R. Urbonas and C. Y. Guo).
82. □National Storm Water Quality Regulations and Standards□, Journal of Hydraulic Research, Volume 34, 1996 (with Charles Rowney). 34(6):341-864.
83. Effects of Watershed Development and Management on Aquatic Ecosystems, Proceedings of an Engineering Foundation Conference, Snowbird, Utah, August 4-9, 1996 (Editor).
84. □Adaptive Management of the Impacts of In-Stream Flow on Water Temperature in the Central Platte River: Results of a Peer Panel Review□, Presented at Waterpower □97, Atlanta, Georgia, August 5-8, 1997 (with Steven C. McCutcheon and Frank L. Parker).
85. The Hydrology of Urban Runoff Quality Mangement□, Proceedings Engineering Foundation Conference □Stormwater Management, Sustaining Urban Water Resources in the 21st Century□ Malmo, Sweden, September 7 - 12, 1997.
86. Integrating Stormwater Management into Urban Planning in Orlando, Florida□, Proceedings Engineering Foundation Conference □Stormwater Management, Sustaining Urban Water Resources in the 21st Century□ Malmo, Sweden, September 7 - 12, 1997.
87. Combined Sewer Overflows and Urban Runoff Regulations and Control Technologies□, Presented at the Workshop on Research needs for Coastal Pollution in Urban Areas, Milwaukee, Wisconsin, October 16, 1997.
88. Urban Runoff Quality Management, WEF Manual of Practice No. 23, ASCE Manual and Report on Engineering Practice No. 87, 1998 (Task Force co-chair).
89. Corporate University: A Consulting Firm Case Study, Journal of Management in Engineering, March/April, 1998, Volume 14, Number 2.
90. Utilizing the World Wide Web to Organize and Convey Urban Storm Water Management Principals to

- Diverse Audiences. Proceedings of the 8<sup>th</sup> International Conference on Urban Storm Drainage, Sydney Australia, 30 August – 3 September, 1999, Vol. 1, pp 210 – 217, (w/ R. W. Brashear, and John Promise) (Ed. Ian B. Joliffe and James E. Ball).
91. Are BMP Criteria Really Environmentally Friendly. Proceedings of the 8<sup>th</sup> International Conference on Urban Storm Drainage, Sydney Australia, 30 August – 3 September, 1999, Vol. 3, pp 1366 – 1373, (w/ R. W. Brashear) (Ed. Ian B. Joliffe and James E. Ball).
  92. Roesner, L.A., R.W. Brashear, J. Promise. “Utilizing the world wide web to organize and convey urban storm water management principals to diverse audiences,” proceedings of the 8<sup>th</sup> international conference on urban storm drainage, Vol. 1, pp. 210-217, August/September 1999. (ed. I.B. Joliffe, and J.E. Ball)
  93. Roesner, L.A. (1999). “Hydrology of Urban Runoff Quality Management.” proceedings of the 1997 Engineering Foundation Conference, Sep 7-Sep 12 Malmo, Sweden, pp 229-24. ASCE, Reston, VA, USA.
  94. Roesner, L.A., Bledsoe, B.P. and Brashear, R.W. (2001) “Are Best Management-Practice Criteria Really Environmentally Friendly?” *Journal of Water Resources Planning and Mgmt.*, ASCE 5/6-2001 pp150-154.
  95. Nehrke, S.M., and Roesner, L.A. (2002). “Effect of Drainage Controls and BMPs on the Flow Frequency Curve of Urban Runoff.” proceedings of the 2001 Engineering Foundation Conference, Aug 2001 Snowmass CO. pp 254-65. ASCE, Reston, VA, USA.
  96. Nehrke, S.M., and Roesner, L.A. (2004). “Effect of Drainage Controls and BMPs on the Flow Frequency Curve of Urban Runoff.” *Journal of Water Resources Planning and Management*, ASCE.. (March/April) 131-139.
  97. Rohrer, C.A. and L.A. Roesner (2004). “*The Effect of Stormwater Controls on Sediment Transport in Urban Streams*” Proceedings of the EWRI Congress, June 29-July 1, 2004, Salt Lake City, UT, ASCE.
  98. Rajan, R. and L.A. Roesner (2005). “*Effect of Detention Basin and BMP Shape on Outlet Hydrology*” Proceedings of the EWRI Congress, May 16 - May 19, 2005, Anchorage, AL, ASCE.
  99. Rohrer, C.A., N.A. Postel, P.A.O’Neill and L.A. Roesner (2005). “*Development of Design Criteria for Regional Stormwater Management Facilities to Maintain Geomorphic Stability in Cedar Creek*” Proceedings of the EWRI Congress, May 16 - May 19, 2005, Anchorage, AL, ASCE.
  100. Criswell, M.C., L. A. Roesner, Y.L. Qian, M. E. Stromberger, S. M. Klein, and C. Marjoram (2005). “*Experimental Design of a Long-term Study on Landscape Irrigation Using Household Graywater*” Proceedings of the EWRI Congress, May 16 - May 19, 2005, Anchorage, AL, ASCE.

101. Knuth J.W., K P. McBride, and L.A. Roesner (2005). “*Initial Operation of the Udall Natural Area Regional Stormwater Quality Best Management Practice*” Proceedings of the EWRI Congress, May 16 - May 19, 2005, Anchorage, AL, ASCE.
102. Roesner, L. A., B. P. Bledsoe, C. A. Rohrer (2005). “*Physical Effects of Wet Weather Discharges on Aquatic Habitats – Present Knowledge and Research Needs*” Proceedings of the 10<sup>th</sup> International Conference on Urban Storm Drainage, August 21 – 26, 2005, Copenhagen, DK, IWA.
103. Rohrer, C.A. and L.A. Roesner (2005). “*Matching the Critical Portion of the Flow Duration Curve to Minimize Changes in Modeled Excess Shear*” Proceedings of the 10<sup>th</sup> International Conference on Urban Storm Drainage, August 21 – 26, 2005, Copenhagen, DK, IWA.

## CDM REPORTS

1. A Nitrogen Gas (N<sub>2</sub>) Model for the Lower Columbia River, Final Report to the Portland District, U.S. Army Corps of Engineers, January 1971 (with W. R. Norton).
2. Computer Supplement and Users' Guides, A Nitrogen Gas (N<sub>2</sub>) Model for the Lower Columbia River, Final Report to the Portland District, U.S. Army Corps of Engineers, January 1971 (with W. R. Norton).
3. Final Report for the Iowa Cedar River Basins Model Project, Prepared for Systems Development Branch, Environmental Protection Agency, Washington, D.C., September 1973 (with J. R. Monser).
4. Computer Program Documentation for the Stream Quality Model QUAL-II, Prepared for the Systems Development Branch, Environmental Protection Agency, Washington, D.C., May 1973 (with D. E. Evenson and J. R. Monser).
5. An Analysis of Circulation and Dispersion in the Inshore Waters of Southwest Lake Michigan, Prepared for Mayor, Brown and Platt, Attorneys at Law, Chicago, Illinois, April 1974 (with G. T. Orlob).
6. The User of Stormwater Simulation Models in Developing a Coordinated Wastewater Management Plan for the City of San Francisco, Prepared for the Division of Sanitary Engineering City and County of San Francisco, California, September 1974 (with D. F. Kibler and R. P. Shubinski).
7. San Francisco Stormwater Model, Users' Manual and Program Documentation, Prepared for the Division of Sanitary Engineering, City and County of San Francisco, California, February 1975 (with D. F. Kibler and J. R. Monser).
8. The San Francisco Stormwater Model for Computer Simulation of Urban Runoff Quantity and Quality in a Combined Sewer System, Final Report to the Department of Public Works, City and County of San Francisco, California, June 1975 (with D. F. Kibler).
9. Consulting on Water Quality Management Modeling--Missions to Romania, Final Report prepared for the Regional Office for Europe, World Health Organization, Copenhagen, July 1975 (with M. B. Sonnen and I. P. King).
10. Agricultural Watershed Runoff Model for the Iowa-Cedar River Basins, Addendum to the Final Report, Prepared for the Systems Development Branch, Environmental Protection Agency, Washington, D.C., July 1975 (with S. W. Zison, J. R. Monser and T. C. Lyons).
11. Future Direction of Urban Water Models, Final report to the Municipal Environmental Research Laboratory, Office of Research and Development, Environmental Protection Agency, Cincinnati, Ohio, September 1975.
12. "Computer Program Documentation for the Storm Runoff Quality Model-RUNQUAL," Prepared for Southeast Michigan Council of Governments, Detroit, Michigan, July 1977 (with P. R. Giguere and L.

C. Davis).

13. "Computer Program Documentation for the Stream Quality Model, QUAL-II," Prepared for Southeast Michigan Council of Governments, Detroit, Michigan, July 1977, (with P. R. Giguere and D. E. Evenson).
14. "Application of Nonpoint Source Control Techniques at Alternative Institutional Levels," Prepared for East Central Florida Regional Planning Council, December 1977 (with A. J. Knepp, C. R. Bristol and R. J. Trotter).
15. "Analysis Strategy for Estuaries, Dynamic Rivers and Lakes," Prepared for Georgia Department of Natural Resources, June 1978 (with T. S. George).
16. "Nonpoint Source Modeling Strategy," Prepared for Georgia Department of Natural Resources, August 1978 (with T. S. George).
17. "Modeling Procedures Manual," Prepared for Georgia Department of Natural Resources, August 1978 (with R. P. Shubinski).
18. Urban Highway Storm Drainage Model," prepared for the Federal Highway Administration, March 1981.
  - "Vol. 3. Inlet Design Program," FHWA-RD-81-013 (with R. J. Dever and R. A. Schmalz).
  - "Vol. 4. Surface Runoff Program," FHWA-RD-81-014 (with R. J. Dever and J. A. Aldrich).
  - "Vol. 5. Drainage Design Program," FHWA-RD-81-015 (with R. J. Dever).
  - "Vol. 6. Analysis Module," FHWA-RD-81-016 (with R. J. Dever and J. A. Aldrich).
19. "Stormwater Management Model User's Manual Version III - Addendum I EXTRAN," Prepared for Municipal Environmental Research Laboratory, Office of Research and Development U.S. Environmental Protection Agency, Cincinnati, Ohio, May 1981 (with R. P. Shubinski and J. A. Aldrich).
20. "Documentation for the Three-Dimensional Current Processor Model SIM3D," Camp Dresser & McKee, Annandale, Virginia, August 1985 (with R. Walton and W. M. Williams).
21. "Documentation for the Three-Dimensional Coral Reef Simulation Model CORALSIM," Camp Dresser & McKee, Annandale, Virginia, August 1985 (with W. M. Williams, R. Walton, and M. P. Wang).
22. "An Assessment of Stormwater Management Programs," Prepared for the Florida Department of Environmental Regulation, Tallahassee, Florida, October 1985 (with J. P. Hartigan).
23. "Development of the Lake Okeechobee Watershed Phosphorus Transport Model," Prepared for Presentation at: Water Environment Federation, 65th Annual Conference and Exposition, New Orleans, Louisiana, September 20-24,