

WILLIAM J. COOPER

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Environmental Chemist

PERSONAL

Born: December 1, 1945, Rochester, N.Y.

EDUCATION

B.S. Allegheny College, Meadville, PA, (Chemistry) 1969

M.S. Pennsylvania State University, University Park, PA, (Fuel Science/Organic Geochemistry) 1971
Geochemistry of Lipid Components in Peat Forming Environments of the Florida Everglades.

Ph.D. University of Miami, Miami, FL, (Marine and Atmospheric Chemistry) 1987
Short Term Variability of Hydrogen Peroxide in Surface Oceans.

WORK EXPERIENCE

- Jul. 2006 – present Professor, Department of Civil and Environmental Engineering, University of California, Irvine, Irvine, CA 92697 and Director, Urban Water Research Center.
- Jul. 1997 – Jul. 2006 Professor (and Chair 1997 to 2000), Department of Chemistry, University of North Carolina at Wilmington, Wilmington, NC 28403.
- Aug. 1992-Jun. 1997 Associate Professor, Department of Chemistry, Florida International University, Miami, FL. 33199. Tenured in 1995.
- Oct. 1996-Jun. 1997 Research Professor, Drinking Water Research Center, College of Engineering, Florida International University, Miami, FL. 33199. *The focus of the research program was in the reactions of drinking water oxidants with natural organic matter application of ionizing radiation to pollution control and surface water photochemistry.*
- Jan. 1980-Oct 1996 Associate Research Professor, Director (1982-1996), Drinking Water Research Center, College of Engineering, Florida International University, Miami, FL. 33199. *Administrative responsibilities included developing strategic plans for the Center in line with the overall objectives and priorities of the University and the State. Compile data for annual reviews conducted at the University and State level (Board of Regents) to insure that objectives have been met. Implement the policies and procedures of the University. Recommend hiring of new faculty in four academic departments within the University. Research responsibilities include participation in research projects for improving water treatment technology. Research interests in the areas of halogen/organic interactions, aquatic photochemistry, analytical methods development and radiation chemistry..*
- July 1978-Jan. 1980 Department of the Army Civilian with the U.S. Army Medical Bioengineering R & D Laboratory,

Environmental Protection Research Division, Ft. Detrick, Frederick, MD. GS-13. *Responsibilities were research area manager for wastewater reuse research. As research area manager, was responsible for management of the Wastewater Reuse Research Program, in response to user requirements, for water quality criteria for consumptive and non-consumptive reuse, for treatment process design of medically-unique wastes, and for development of analytical methodology of water intended for reuse. The research area manager exercised Centralized management authority over the planning, direction, control and execution of waste water reuse research. The program included technology transfer to user organizations, the cognizant Federal, State, and Local agencies responsible for water reuse, the professional and industrial groups concerned within the research area.*

Dec. 1974-July 1978 Department of the Army Civilian with the U.S. Army Medical Bioengineering R & D Laboratory, Environmental Protection Research Division, Ft. Detrick, Frederick, MD. GS-13. *Responsibilities were as principal investigator of a research project utilizing the gas chromatograph/mass spectrometer. The areas of research involved chemical degradation of pesticides, characterization of trace organics in waters and waste waters and identification of impurities in chemicals for toxicological testing.*

MILITARY EXPERIENCE

Jan. 1972-Dec. 1974 Commissioned Officer, Captain. Originally with the U.S. Army Medical Environmental Engineering Research Unit, which became the U.S. Army Medical Bioengineering R & D Laboratory, Environmental Protection Research Division, Ft. Detrick, Frederick, MD. *Primary responsibilities were as project officer for various research projects concerned with both air and water pollution.*

March 1971-Jan. 1972 Enlisted service, Specialist 4th Class, U.S. Army Environmental Hygiene Agency, Air Pollution Engineering Division. *Primary responsibilities were analytical methods development for stationary source and ambient air pollution surveys.*

PROFESSIONAL SERVICE

International Committees

International Atomic Energy Agency
Member, Electron Beam Destruction of Toxic Organic Compounds in Contaminated Waters and Sludges, Committee and Cooperative Research Programs, Vienna, Austria, 1995 - present

National Committees

National Academy of Sciences
National Research Council Commission on Engineering and Technical Systems; Water Science and Technology Board
- Committee on Recycling, Reuse and Conservation in Water Management for Arid Areas (~1985-1986).
- Committee on Innovative Technologies (1994 - 96)

American Water Works Association Committees,
Disinfection 816
Disinfection Committee 707
Organic Contaminants 727

Division of Environmental Chemistry, American Chemical Society,
Executive Committee. 1980-1985
Student Awards Committee 1992-1993

State of Florida Committees

Appointed by the president of the Florida Senate to the TASK Force Committee on Towing, twelve appointees charged with

the conduct of an in-depth review of Florida's towing industry and the problems associated with abandoned vehicles.

Dade County Committees

Northwest Well Field Technical Committee

West Well Field Technical Committee

Attended monthly meetings and participated in subcommittee assignments relating to the technical aspects of protecting well fields from pollution/contamination.

Symposia

Member, Executive Committee, Water Reuse Symposium, Washington, D.C., March 1979

Chairman, "Chemistry and Chemical Analysis of Water/Waste Water Intended for Reuse," Division of Environmental Chemistry, 179th National American Chemical Society Meeting, Houston, TX, March 1980.

Member, Executive Committee, Water Reuse Symposium II, Washington D.C., August 1981.

Chairman of Workshop, "Water Reuse - An Alternative in Water Resource Management," Orlando, FL., Nov. 1981.

Member, Executive Committee, 5th World's Congress on Water Resources, Buenos Aires, Argentina, Sept. 1982.

Member, Advisory Scientific Committee, 4th International Conference on Chemistry for Protection of the Environment, Toulouse, France, Sept. 1983.

Member, Advisory Scientific Committee, 5th International Conference on Chemistry for Protection of the Environment, Leuven, Belgium, Sept. 1985.

Co-Chairman, "Aquatic Photochemistry," Joint Division Symposium, Geochemistry and Environmental Chemistry, 189th National American Chemical Society Meeting, Miami, FL, April/May, 1985.

Co-Chairman, "Biogenic Sulfur in the Environment," held at the National American Chemical Society Meeting in New Orleans, Aug 30-Sept 4, 1987.

Session Chairman, "Chemical Oceanography Gordon Conference" held at Kimball Union Academy, Meriden, New Hampshire, Aug 14-18, 1989.

Forum Presiding Officer and Panelist, 1993 American Water Works Association Water Quality Technology Conference, Miami, FL.

Panelist, AWWA Research Foundation Microbial and Disinfection By-Products Expert Workshop, Denver, CO., November, 1993.

Member, Organizing Committee, 1995 Environmental Protection Agency/American Chemical Society Waste Testing & Quality Assurance Symposium.

Member, International Scientific Committee for the First International Conference on Advanced Oxidation Technologies for Water and Air Remediation, June 25-30, 1994

Chair, Organizing Committee for "Environmental Applications of Ionizing Radiation: Water, Wastewater, Industrial Waste and Hazardous Waste Treatment and Air Pollution Abatement" symposium at the 1995 International Chemical Congress of Pacific Basin Societies, Honolulu, Hawaii, December 17-22, 1995.

Organizing Committee and Session Chair, "The Third International Conference on Advanced Oxidation Technologies for Water and Air Remediation," Cincinnati, OH, October 26-29, 1996.

Chair, Organizing Committee for "Environmental Applications of Ionizing Radiation" symposium at the 2000 International Chemical Congress of Pacific Basin Societies, Honolulu, Hawaii, December 14-19, 2000.

Chair, Organizing Committee for "Free Radical Chemistry in the Environment" symposium at the 2005 International Chemical Congress of Pacific Basin Societies, Honolulu, Hawaii, December 2005.

Journal Referee

Archives of Environmental Contamination and Toxicology

Advances in Environmental Research

Applied Geochemistry

Applied Radiation and Isotopes

Atmospheric Environment

Aquatic Sciences

Chemosphere

Deep Sea Research

Ecotoxicology and Environmental Safety

Environmental Engineering Science

Egyptian National Information and Documentation Centre

Environmental Science and Technology

Environmental Technology
Environmental Toxicology and Chemistry
Estuarine, Coastal and Shelf Science
Geophysical Research Letters
Hydrobiologia
Industrial and Engineering Chemistry Research
Journal of the American Water Works Association
Journal of Coastal Research
Journal of Environmental Engineering (ASCE)
Journal of Geophysical Research
Journal of Great Lakes Research
Journal of Organic Chemistry
Journal of Physical Chemistry
Journal of Physical Organic Chemistry
Journal of the Water Pollution Control Association (now the Research Journal Water Environment Federation)
Industrial and Engineering Chemistry Research
Limnology and Oceanography
Marine Biology
Marine Chemistry
Marine Environmental Research
Nature
Netherlands Journal of Sea Research
Oceanologica Acta
Ozone Science and Engineering
Radiation Physics and Chemistry
Science
Water Quality Research Journal of Canada
Water Research
Water Resources Research

Proposal Reviewer

American Chemical Society – Petroleum Research Fund
The National Science Foundation
The U.S. Geological Survey
The U.S. Environmental Protection Agency
The Louisiana Cancer Trust Fund
Department of Commerce-Sea Grant National Program
Maine Science and Technology Commission's Experimental Program to Stimulate Competitive Research
New York Sea Grant
North Carolina Sea Grant
Oregon Sea Grant
Israeli Ministry of Science and the Arts
Natural Environment Research Council (UK)
Australian Research Council
Research Corporation
National Research Council/Department of Defense Environmental Scholarships and Grants
International Science Foundation
Water Environment Research Foundation
Water Resources Research Institute – Massachusetts

Invited International Lectures

Austrian Research Centre, Seibersdorf, Austria
Cawthron Institute, Nelson, New Zealand
Department of Nuclear Chemistry, Chalmers University of Technology, Göteborg, Sweden
Institut für Theoretische Chemie und Strahlenchemie der Universität Wien, Vienna, Austria
Trent University, Peterborough, Canada
University of Kyoto, Japan

University of Montreal, Canada
 University of New South Wales, Australia
 University of Otago, New Zealand
 University of Ottawa, Canada
 National Research Centre, Water and Wastewater Section, Cairo, Egypt
 Atomic Energy Center, Radiation Research Section, Cairo, Egypt
 University of the Virgin Islands, St Thomas
 Atomic Energy Authority, Cairo, Egypt
 Water Research and Pollution Control Department, National Research Center, Cairo, Egypt
 Riga Technical University, Riga, Latvia

Invited Lectures

Sixth Annual Statewide Environmental Research Expo, University of Florida, Gainesville FL., October 1992 (Keynote Speaker).
 Dedication Weekend Chemistry Colloquy: An Alumni Celebration to Commemorate the Inaugural of the Foster B. Doane Hall of Chemistry, Allegheny College, Meadville, PA, October, 1993.

International Atomic Energy Agency

<u>Jan 1996 - Dec 1999</u>	Research Coordinated Project “Irradiation Treatment of Water, Wastewater and Sludges”
Feb 19 - 22, 1996	Research Coordinated Meeting, Vienna, Austria
Dec 1-5, 1997	Research Coordinated Meeting, Miami, Florida (Organizer and Host)
Apr 19 - 23, 1999	Research Coordinated Meeting, Sao Paulo, Brazil
Apr 28 - May 2, 1997	Hosted IAEA Fellow Dr. Rosemarie Schrader-Fruh, Chile, “Radiation Processing for Environmental Applications.”
Apr 27 - May 25, 1997	Hosted IAEA Fellow, Dr. Sueli I. Borrely, Brazil, “Practical Applications of Electron Beam Treatment of Toxic Wastes.”
Dec 8 - 10, 1997	Consultants Meeting, “Industrial Wastewater Treatment using Ionizing Radiation,” Miami, Florida.
Sep 28 - Oct 14, 1998	“Radiation Technology for Treatment of Toxic Wastes Wastewater Treatment” King Abdulaziz City for Science and Technology, Riyadh, Saudi Arabia
Oct 17 - 24, 1998	IAEA - Regional (Eastern Europe) Training Workshop “Radiation Treatment of Industrial Wastewater,” Shanghai, China
June 21 - 25, 1999	IAEA - Regional (Eastern Europe) Training Workshop “Radiation Treatment of Industrial Wastewater,” Vienna, Austria
Dec 19-22, 2000	IAEA Expert Consultant’s Meeting, “Electron Beam Applications in Flue Gas Treatment,” Honolulu, Hawaii. (Organizer and Host)
Nov 19 - 23, 2001	IAEA - Regional (Eastern Europe) Training Workshop “Radiation Treatment of Water and Wastewater,” Istanbul, Turkey
May 6 – 10, 2002	IAEA - Regional (North Africa Training Workshop “Radiation Treatment of Water and Wastewater,” Tunis, Tunisia
Oct. 13-16, 2003	IAEA Consultants Meeting, “Status of industrial scale radiation treatment of wastewater and its future,” Daejeon, Korea.
<u>Jan – present</u>	Research Coordinated Project “Irradiation of Water and Wastewater for Treatment”
October 15 – 18, 2002	Research Coordinated Meeting, Lisbon, Portugal
June 14-18, 2004	Research Coordinated Meeting, Warsaw, Poland
2006	Research Coordinated Meeting, Korea
June 7 – 21, 2003	IAEA – Expert Consultant, Mauritius “Applications of Ionizing Radiation to Wastewater Treatment”
Sept 25 – Oct 9, 2003	Expert Mission - “Radiation Wastewater/Water Treatment” King Abdulaziz City for Science and

PUBLICATIONS BY W.J. COOPER**A. Refereed Literature and Book Chapters**

- 1967 Blumer, M. and W.J. Cooper. Isoprenoid Acids in Recent Sediments. *Science* 158: 1463-1464.
- 1968 Cooper, W.J. and M. Blumer. Linear, *iso* and *anteiso* Fatty Acids in Recent Sediments of the North Atlantic. *Deep Sea Research* 15: 535-540.
- 1974 Guter, K.J., W.J. Cooper and C.A. Sorber. Evaluation of Existing Field Test Kits for Determining Free Chlorine Residuals in Aqueous Solutions. *J. Am. Water Works Assoc.* 66: 38-43.
- 1975 Cooper, W.J., C.A. Sorber and E.P. Meier. A Rapid Specific Free Available Chlorine Test with Syringaldazine (FACTS). *J. Am. Water Works Assoc.* 67: 34-39.
- 1975 Cowen, W.F., W.J. Cooper and J.W. Highfill. Evacuated Gas Sampling Valve for Quantitative Head Space Analysis of Volatile Organic Compounds in Water by Gas Chromatography. *Anal. Chem.* 47: 2483-2485.
- 1975 Dennis, W.H. and W.J. Cooper. Catalytic Dechlorination of Organochlorine Compounds. I. DDT. *Bull. of Environ. Contam. and Toxicol.* 14: 738-744.
- 1975 Sorber, C.A., W.J. Cooper and E.P. Meier. "Selection of a Field Method for Free Available Chlorine," in *Disinfection: Water and Wastewater*, ed. J. Donald Johnson, Ann Arbor Science Publishers, Inc. pp 91-112.
- 1976 Miller, T.A., and W.J. Cooper. Portable Outdoor Cages for the Unattended Mating of Female Giant Silkworm Moths (Saturniidae). *J. Lepidopterists' Soc.* 30: 95-104.
- 1976 Dennis, W. H. and W.J. Cooper. Catalytic Dechlorination of Organochlorine Compounds. II. Heptachlor and Chlordane. *Bull. of Environ. Contam. Toxicol.* 16: 424-430.
- 1977 Chian, E.S.K., P.P.K. Kuo, W.J. Cooper, W.F. Cowen and R.C. Fuentes. Distillation-Headspace Gas Chromatographic Analysis for Volatile Polar Organics at the ppb Level. *Environ. Sci. Tech.* 11: 282-285.
- 1977 Dennis, W.H. and W.J. Cooper. Catalytic Dechlorination of Organochlorine Compounds. III. Lindane. *Bull. of Environ. Contam. Toxicol.* 18: 57-59.
- 1977 Miller, T.A., W.J. Cooper and J.W. Highfill. Determination of Sex in Four Species of Giant Silkworm Moth Larvae (Saturniidae). *J. Lepidopterists' Soc.* 31: 144-146.
- 1977 Miller, T.A. and W.J. Cooper. A Method of Handling Eggs and 1st-Instar Larvae of *Callosamia promethea* (Drury) (Saturniidae). *J. Lepidopterists' Soc.* 31: 146-147.
- 1977 Miller, T.A. and W.J. Cooper. Oviposition Behavior of Colonized *Callosamia promethea* (Drury) (Saturniidae). *J. Lepidopterists' Soc.* 31: 282-283.
- 1978 Cooper, W.J. and W.H. Dennis, Jr. Catalytic Dechlorination of Organo-chlorine Compounds. IV. Mass Spectral Identification of DDT and Heptachlor Products. *Chemosphere* 7: 299-306.
- 1978 Miller, R.D., W.J. Cooper and W.P. Lambert. Pilot Facilities Support Army Wastewater Treatment Needs. *Wat. Poll. Control Assoc. of PA.* Sept-Oct. 4 - 9.
- 1979 Dennis, W.H., Jr., Y.H. Chang and W.J. Cooper. Catalytic Dechlorination of Organochlorine Compounds. V. Polychlorinated Biphenyls-Arochlor 1254. *Bull. Environ. Contam. Toxicol.* 22: 750-753.

- 1979 Cooper, W.J. and W.H. Dennis, Jr. Catalytic Dechlorination of Organo-chlorine Compounds. VI. Mass Spectral Identification of Aldrin and Dieldrin Products. *Chemosphere* 8: 191-200.
- 1979 Meier, E.P., W.H. Dennis, Jr., A.B. Rosencrance, W.F. Randall, W.J. Cooper and M.C. Warner. Sulfotepp, a Toxic Impurity in Pesticide Formulations of Diazinon. *Bull. Environ. Contam. Toxicol.* 23: 158-164.
- 1980 Miller, T.A. and W.J. Cooper. A Modular, Transportable Habitat System for Colonization of Giant Silkworm Moths (Saturniidae). *J. Lepidopterists' Soc.* 34: 51-60.
- 1980 Miller, T.A. and W.J. Cooper. Oviposition Behavior of Reared *Antherea polyphemus* (Saturniidae). *J. Lepidopterists' Soc.* 34: 256-259.
- 1980 Liebermann, J., Jr., N.M. Roscher, E.P. Meier and W.J. Cooper. The Development of the FACTS Procedure for Combined Forms of Chlorine and Ozone in Aqueous Solutions. *Environ. Sci. Tech.* 11: 1395-1400.
- 1981 Davenport, R.J., R.A. Wynveen and W.J. Cooper. Continuous, Automated and Low Cost Monitoring of the Organic Content in Water. *J. Am. Water Works Assoc.* 73: 555-558.
- 1981 Lantz, J.B., R.J. Davenport, R.A. Wynveen and W.J. Cooper. Development of a TOC/COD Analyzer for Process Application, in *Chemistry in Water Reuse*, ed. W.J. Cooper, Ann Arbor Science Publishers, Inc., Ann Arbor, MI. pp 147-163.
- 1982 Miller, T.A., W.J. Cooper and J.W. Highfill. Relationships Between Pupal Size and Egg Production in Reared Female *Antherea polyphemus*. *Annals Ent. Soc. Am.* 75: 107-108.
- 1982 Cooper, W.J., N.M. Roscher and R.A. Slifker. Comparison of the DPD-Colorimetric, DPD-Steadifac and FACTS Test Procedures for Free Available Chlorine in Aqueous Solution. *J. Am. Water Works Assoc.* 74: 362-368.
- 1982 Cooper, W.J., M.F. Mehran, R.A. Slifker, D.A. Smith, J.T. Villate and P.H. Gibbs. Comparison of Several Instrumental Methods for Determining Chlorine Residuals in Drinking Water. *J. Am. Water Works Assoc.* 74: 546-552.
- 1982 Miller, T.A., J.W. Highfill and W.J. Cooper. Relationship Between Pupal Size and Sex in Giant Silkworm Moths (Saturniidae). *J. Lepidopterists' Soc.* 36: 207-216.
- 1982 Cooper, W.J., L.M. Meyer, C.C. Bofill and E. Cordall. The Quantitative Effects of Bromine on the Formation and Distribution of Trihalomethanes in a Ground Water with a High Organic Content, in *Water Chlorination: Environmental Impact and Health Effects*, Volume 4. Book 1 - Chemistry and Water Treatment. ed. R.L. Jolley, Ann Arbor Science Pub. Inc., Ann Arbor, MI. pp. 285-296.
- 1982 Cooper, W.J., J.T. Villate, E.M. Ott, R.A. Slifker, F.Z. Parsons and G.A. Graves. Formation of Organohalogen Compounds in Chlorinated Secondary Wastewater Effluent, in *Water Chlorination Environmental Impact and Health Effects*, Volume 4. Book 1 - Chemistry and Water Treatment. ed. R.L. Jolley, Ann Arbor Science Pub. Inc. Ann Arbor, MI, pp. 483-497.
- 1983 Cooper, W.J. and R.G. Zika. Photochemical Formation of H₂O₂ in Surface and Ground Waters Exposed to Sunlight. *Science* 220: 711-712.
- 1983 Miller, T.A., W.J. Cooper and J.W. Highfill. Egg Production in Female *Callosamia promethea* as a Function of Pupal Size and Adult Longevity. *Annals Ent. Soc. Am.* 76: 668-670.
- 1983 Gibbs, P.H., W.J. Cooper and E.M. Ott. A Generalized Statistical Experimental Design for Comparison Testing of Analytical Procedures. *J. Am. Water Works Assoc.* 75: 578-582.
- 1983 Cooper, W.J., P.H. Gibbs, E.M. Ott and P. Patel. Equivalency Testing of Test Procedures for Free Available Chlorine: Amperometric Titration, DPD and FACTS. *J. Am. Water Works Assoc.* 75: 625-629.

- 1984 Moore, H.E., M.J. Garmendia and W.J. Cooper. Kinetics of Monochloramine Oxidation of N,N-diethyl-*p*-phenylenediamine. *Environ. Sci. Technol.* 18: 348-353.
- 1984 Mehran, M.F., R.A. Slifker and W.J. Cooper. A Simplified Liquid-Liquid Extraction Method for Analysis of Trihalomethanes in Drinking Water. *J. Chromatogr. Sci.* 22: 241-243.
- 1984 Mehran, M.F., W.J. Cooper and W.J. Jennings. Gas Chromatographic Separation of Water Pollutants Using Coupled Fused Silica Columns. *J. High Resol. Chromatogr. and Chromatogr. Comm.* 7: 215-217.
- 1984 Miller, T.A. and W.J. Cooper. Estimation of Daily Oviposition Rates in Reared Female *Antherea polyphemus* (Saturniidae). *J. Lepidopterists' Soc.* 37: 319-320.
- 1984 Amy, G.L., P.A. Chadik, P.H. King and W.J. Cooper. Chlorine Utilization During Trihalomethane Formation in the Presence of Ammonia and Bromide. *Environ. Sci. Technol.* 18: 781-786.
- 1984 Cooper, W.J., M.F. Mehran, R.A. Slifker and D.L. Savoie. Elimination of Ammonia Interference in the Purge and Trap Gas Chromatographic Determination of Organohalogens in Water. *J. Chromatogr. Sci.* 22: 462-464.
- 1984 Mehran, M.F., W.J. Cooper, M. Mehran and R. Diaz. Effluent Stream Splitting to Two Different Detectors. *J. High Resol. Chromatogr. and Chromatogr. Comm.* 7: 639-640.
- 1984 Saltzman, E.S., L.T. Gidel, R.G. Zika, P.J. Milne, J.M. Prospero, D.L. Savoie and W.J. Cooper. "Atmospheric Chemistry of Methane Sulfonic Acid." in *Environmental Impact of Natural Emissions* ed. V.P. Aneja, Air Pollution Control Assoc., Pittsburgh, PA. pp. 251-262.
- 1984 Cooper W.J. and J.C. Young. Chemical Nonspecific Organics Analysis. in *Water Analysis, Volume III*. Eds. R.A. Minear and L.S. Keith, Academic Press, Inc. 1984. pp. 41-82.
- 1984 Miller, T.A., W.J. Cooper and J.W. Highfill. Susceptibility of Giant Silkworm Moth Eggs and Larvae to Malathion Water Emulsions. *Insecticide and Acaricide Tests* 9: 360-361.
- 1985 Cooper, W.J., R.G. Zika and M.S. Steinhauer. Bromide Oxidant Interactions and THM Formation: A Literature Review. *J. Am. Water Works Assoc.* 77: 116-121.
- 1985 Zika, R.G., J.W. Moffett, R.G. Petasne, W.J. Cooper and E.S. Saltzman. Spatial and Temporal Variations of Hydrogen Peroxide in Gulf of Mexico Waters. *Geochim. Cosmochim. Acta.* 49: 1173-1184.
- 1985 Zika, R.G., E.S. Saltzman and W.J. Cooper. Hydrogen Peroxide Concentrations in the Peru Upwelling Area. *Mar. Chem.* 17: 265-275.
- 1985 Mehran, M.F., W.J. Cooper, R. Lautamo, R.R. Freeman and W.J. Jennings. A New Bonded Stationary Phase for the Gas Chromatographic Separation of Volatile Priority Pollutants and Chlorinated Pesticides. *J. High Resol. Chromatogr. and Chromatogr. Comm.* 8: 715-717.
- 1985 Cooper, W.J., R.G. Zika and M.S. Steinhauer. The Effect of Bromide in Water Treatment. II. A Literature Review of Ozone and Bromide Interactions and the Formation of Organic Bromide. *Ozone Science and Eng.* 7: 313-325.
- 1985 Cooper, W.J. and D.M. Kaganowicz. A Novel Precursor of Trihalomethanes, in *Water Chlorination Environmental Impact and Health Effects*, Volume 5, Chapter 70, ed. R.L. Jolley et al. Lewis Pub., Inc., Chelsea, MI, pp. 895-906.
- 1985 Amy, G.L., P.A. Chadik, Z.K. Chowdbury, P.H. King and W.J. Cooper. Factors Affecting the Incorporation of Bromide into Brominated Trihalomethanes during Chlorination, in *Water Chlorination Environmental Impact and Health Effects*, Volume 5, Chapter 71, ed. R.L. Jolley et al. Lewis Pub., Inc., Chelsea, MI, pp. 907-922.
- 1985 Zika, R.G., C.A. Moore, L.T. Gidel and W.J. Cooper. Sunlight-Induced Photodecomposition of Chlorine Dioxide, in *Water Chlorination Environmental Impact and Health Effects*, Volume 5, Chapter 82, ed R.L. Jolley et al., Lewis Pub., Inc., Chelsea, MI, pp. 1041-1053.

- 1986 Mehran, M.F., W.J. Cooper, M. Mehran, and W.J. Jennings. Comparison of Direct Headspace and Aqueous Injection Techniques for Halogenated Hydrocarbons in Water. *J. Chromatogr. Sci.* 24: 142-146.
- 1986 Cooper, W.J., G.L. Amy, C.A. Moore, R.G. Zika. Bromoform Formation in Ozonated Groundwater Containing Bromide and Humic Substances. *Ozone Sci. and Engineer.* 8: 63-76.
- 1986 Amy, G.L., P.A. Chadik, R.A. Sierka and W.J. Cooper. Ozonation of Aquatic Organic Matter and Humic Substances: An Analysis of Surrogate Parameters for Predicting Effects on Trihalomethane Formation Potential. *Environ. Technol. Letters.* 7: 99-109.
- 1986 Amy, G.L. and W.J. Cooper. Air Stripping of Volatile Organic Compounds Using a Structured Media. *ASCE - J. of Environ. Engineering*, 112: 729-743.
- 1986 Gordon, A.S., W.J. Cooper and D.J. Scheidt. Denitrification in Marl and Peat Sediments in the Florida Everglades. *App. Environ. Microbiol.* 52: 987-991.
- 1986 Abdel-Shafy, H.I., W.J. Cooper, L.L. Handley-Raven and L.S. Casey. Short Term Fate of Heavy Metals in the Gravel Bed Hydroponics Wastewater Treatment System. *Environment Protection Engineering.* 12(1): 61-80.
- 1986 Mehran, M., M.F. Mehran and W.J. Cooper. Application of Capillary Gas Chromatography for Water Pollution Analysis. in *Chemistry for Protection of the Environment 1985*, Eds. L. Pawlowski, G. Alearts and W.J. Lacey Elsevier, New York, N.Y., 723-743.
- 1986 Miller, T.A., W.J. Cooper and J.W. Highfill. Susceptibility of Eggs and 1st-Instar Larvae of *Callosamia promethea* and *Antheraea polyphemus* to Malathion. *J. Res. Lepidoptera.* 25: 48-51.
- 1986 Villate, J.T., D.A. Smith and W.J. Cooper. The Effect of Chlorination on Biochemical Oxygen Demand. *Environment Protection Engineering.* 12(3): 5-25.
- 1987 Cooper, D.J., W.Z. de Mello, W.J. Cooper, R.G. Zika, E.S. Saltzman, J.M. Prospero and D.L. Savoie. Short Term Variability in Biogenic Sulfur Emissions from a Florida *Spartina alterniflora* Marsh. *Atmos. Environ.* 21: 7-12.
- 1987 de Mello, W.Z., D.J. Cooper, W.J. Cooper, E.S. Saltzman, R.G. Zika, D.L. Savoie and J.M. Prospero. Variability in the Emission of Biogenic Sulfur Compounds from a *Spartina alterniflora* Salt Marsh in Florida. *Atmos. Environ.* 21: 987-991.
- 1987 Cooper, W.J., R.G. Zika, E.S. Saltzman. The Contribution of Rainwater to Variability in Surface Ocean Hydrogen Peroxide. *J. Geophys. Res.* 92: 2970-2980.
- 1987 Cooper, W.J., D.J. Cooper, E.S. Saltzman, W.Z. de Mello, D.L. Savoie, R.G. Zika, and J.M. Prospero. Emissions of Biogenic Sulphur Compounds from Several Wetland Soils in Florida. *Atmos. Environ.* 21: 1491-1495.
- 1987 Amy, G.L., R.M. Narbaitz and W.J. Cooper. Removing VOCs from Groundwater Containing Humic Substances by Means of Coupled Air Stripping and Adsorption. *J. Am. Water Works Assoc.* 79(8): 49-54.
- 1987 Amy, G.L., R.A. Minear and W.J. Cooper. Testing and Validation of a Multiple Nonlinear Regression Model for Predicting Trihalomethane Formation. *Water Res.* 21: 649-659.
- 1987 Cooper, W.J., M. Mehran, D. Riusech and J. Joens. Abiotic Transformations of Halogenated Organics. I. Elimination Reaction of 1,1,2,2-Tetrachloroethane and Formation of 1,1,2-Trichloroethene. *Environ. Sci. Technol.* 21: 1112-1114.
- 1987 Cooper, W.J. and F.L. Herr. Introduction and Overview. in *Photochemistry of Environmental Aquatic Systems*, Zika R.G. and W.J. Cooper, Eds., ACS Symposium Series 327, American Chemical Society, Washington, D.C. pp.1-8.
- 1988 Cooper, W.J., R.G. Zika, R.G. Petasne and J.M.C. Plane. Photochemical Formation of H₂O₂ in Natural Waters

- Exposed to Sunlight. *Environ. Sci. Technol.* 22: 1156-1160.
- 1988 Gordon, G., G.E. Pacey, W.J. Cooper and R.G. Rice. The Chemical Reactions of Ozone and Their Role in Developing Improved Analytical Methods. *Ozone Sci. Eng.* 10: 89-102.
- 1988 Gordon, G., W.J. Cooper, R.G. Rice and G.E. Pacey. Methods of Measuring Disinfectant Residuals. *J. Am. Water Works Assoc.* 80(9): 94-108.
- 1988 Mehran, M.F. and W.J. Cooper. Observations on the GC/MS Analysis of Active Solutes: Acetylenic Thiophenes. *J. High Resol. Chromatgr. and Chromatgr. Comm.* 10: 676-677.
- 1988 Mehran, M.F., N. Golkar, M. Mehran and W.J. Cooper. Abiotic Transformation of Halogenated Organic Compounds. III. Gas Chromatographic Determination of Acetic Acid (in the Hydrolysis of 1,1,1-Trichloroethane) by Direct Aqueous Injection. *J. High Resol. Chromatgr. and Chromatgr. Comm.* 11: 610-612.
- 1989 Handley, L.L., M. Mehran, C.A. Moore and W.J. Cooper. Nitrogen-to-Protein Conversion Factor for Two Tropical C₄ Grasses, *Brachiaria mutica* (Forsk) Stapf and *Pennisetum purpureum* Schumach. *Biotropica* 21(1): 88-90.
- 1989 Cooper, W.J., R.G. Zika, R.G. Petasne and A.M. Fischer. Sunlight Induced Photochemistry of Humic Substances in Natural Waters: Major Reactive Species. in *Influence of Aquatic Humic Substances on Fate and Treatment of Pollutants*, P. MacCarthy and I.H. Suffett, Eds., American Chemical Society, Advances in Chemistry 219, pp. 333-362.
- 1989 Cooper, W.J., R.A. Slifker, J.A. Joens and O.A. El-Shazly. Abiotic Transformation of Halogenated Organic Compounds. II. Considerations during Water Treatment. in *Biohazards of Drinking Water Treatment*, R.A. Larson, Ed., Lewis Publishers, Chelsea, MI. pp. 37-46.
- 1989 Aneja, V.P. and W.J. Cooper. Biogenic Sulfur Emissions: Review and Overview. in *Biogenic Sulfur in the Environment*, E.S. Saltzman and W.J. Cooper, Eds., ACS Symposium Series 393, American Chemical Society, Washington, D.C. pp. 1-13.
- 1989 Cooper, D.J., W.J. Cooper, W.Z. de Mello, E.S. Saltzman and R.G. Zika. Factors Contributing to Variability in Biogenic Sulfur Emissions from Florida Wetlands. in *Biogenic Sulfur in the Environment*, E.S. Saltzman and W.J. Cooper, Eds., ACS Symposium Series 393, American Chemical Society, Washington, D.C. pp. 31-43.
- 1989 Cooper, W.J. and P.A. Matrai. Distribution of Dimethyl Sulfide in the Oceans. in *Biogenic Sulfur in the Environment*, E.S. Saltzman and W.J. Cooper, Eds., ACS Symposium Series 393, American Chemical Society, Washington, D.C. pp. 140-151.
- 1989 Cooper, W.J., D.R.S. Lean and J.H. Carey. Spatial and Temporal Patterns of Hydrogen Peroxide in Lake Waters, *Canadian J. Fish. Aquatic Sciences* 46(7): 1227-1231.
- 1989 Cooper, W.J. and D.R.S. Lean. Hydrogen Peroxide Concentration in a Northern Lake: Photochemical Formation and Diel Variability. *Environ. Sci. Technol.* 23: 1425-1428.
- 1990 Cooper, W.J. and R.G. Zepp. Hydrogen Peroxide Decay in Waters with Suspended Sediments: Evidence for Biologically Mediated Processes. *Canadian J. Fish. Aquatic Sci.* 47: 888-893.
- 1990 Mehran, M.F., M.G. Nickelsen, N. Golkar and W.J. Cooper. Improvement of the Purge - and - Trap Technique for the Rapid Analysis of Volatile Organic Pollutants in Water, *J. High Resol. Chromatgr. and Chromatgr. Comm.* 13: 429-433.
- 1990 Gordon, G., G. Pacey and W.J. Cooper. Current Status of Disinfectant Residual Measurement Methods for Free and Combined Chlorine and Oxychlorine Species, in *Water Chlorination: Environmental Impact and Health Effects*, Volume 6, Lewis Publishers, Inc. pp. 29-45.
- 1990 Amy, G.L., J.H. Greenfield, and W.J. Cooper. Organic Halide Formation During Water Treatment Under Free

Chlorine versus Chloramination Conditions, in *Water Chlorination: Environmental Impact and Health Effects*, Volume 6, Lewis Publishers, Inc. pp. 605-621.

- 1990 Amy, G.L., J.H. Greenfield and W.J. Cooper. Correlations Between Measurements of Organic Halide and Specific Halogenated Volatile Organic Compounds in Contaminated Groundwater, in *Water Chlorination: Environmental Impact and Health Effects*, Volume 6, Lewis Publishers, Inc., pp. 691-701.
- 1991 Kurucz, C.N., T.D. Waite, W.J. Cooper and M.G. Nickelsen. Full-Scale Electron Beam Treatment of Hazardous Wastes - Effectiveness and Costs in *Proceedings of the 45th Annual Purdue University Industrial Waste Conference*, Lewis Publishers, Inc., pp. 539-545.
- 1991 Kurucz, C.N., T.D. Waite, W.J. Cooper and M.G. Nickelsen. High-Energy Electron Beam Irradiation of Water, Wastewater and Sludge, in *Advances in Nuclear Science and Technology*, Volume 22, J. Lewins and M. Becker, Eds., Plenum Press, N.Y., pp. 1-43.
- 1991 Mehran, M., W.J. Cooper, N. Golkar, M.G. Nickelsen, E.R. Mittlefehldt, E. Guthrie and W.J. Jennings. Elution Order in Gas Chromatography, *J. High Resol. Chromatogr. and Chromatogr. Comm.* 14: 745-750.
- 1992 Cooper, W., D. Lean. Hydrogen Peroxide Dynamics in Marine and Fresh Water Systems in *Encyclopedia of Earth System Science Volume 2*, Academic Press, pp. 527-535.
- 1992 Nickelsen, M.G., W.J. Cooper, T.D. Waite, and C.N. Kurucz. Removal of Benzene and Selected Alkyl Substituted Benzenes from Aqueous Solution Utilizing Continuous High-Energy Electron Irradiation. *Environ. Sci. Technol.* 26: 144-152.
- 1992 Cooper, W.J., M.G. Nickelsen, D.E. Meacham, T.D. Waite and C.N. Kurucz. High Energy Electron Beam Irradiation: An Innovative Process for the Treatment of Aqueous-Based Organic Hazardous Wastes. *J. Environ. Sci. Health*, A27(1): 219-244.
- 1992 Farooq, S. C.N. Kurucz, T.D. Waite, W.J. Cooper, S.R. Mane and J.H. Greenfield. Treatment of Wastewater with High Energy Electron Beam Irradiation. *Water Sci. Technol.* 26: 1265-1274.
- 1992 Waite, T.D., W.J. Cooper, C.N. Kurucz, R. Narbaitz, and J.H. Greenfield. Full Scale Treatments of Wastewater Effluent with High Energy Electrons, in *Chemistry for Protection of the Environment 1989*, Elsevier, NY, pp 563-571.
- 1992 Cooper, W.J., M.G. Nickelsen, D.E. Meacham, T.D. Waite and C.N. Kurucz. High Energy Electron Beam Irradiation: An Advanced Oxidation Process for the Treatment of Aqueous Based Organic Hazardous Wastes. *Wat. Poll. Res. J. Canada* 27: 69-95.
- 1993 Farooq, S., C.N. Kurucz, T.D. Waite, W.J. Cooper. Disinfection of Wastewaters: High Energy Electron vs Gamma Irradiation. *Water Research* 27: 1177-184.
- 1993 Cooper, W.J., E. Cadavid, M.G. Nickelsen, K. Lin, C.N. Kurucz, and T.D. Waite. Removing THMs from Drinking Water Using High-Energy Electron-Beam Irradiation. *J. Am. Water Works Assoc.* 85(90): 106-112.
- 1993 Cooper, W.J., D.E. Meacham, M.G. Nickelsen, K. Lin, D.B. Ford, C.N. Kurucz and T.D. Waite. The Removal of Tri- (TCE) and Tetrachloroethylene (PCE) from Aqueous Solution Using High Energy Electrons. *J. Air Waste Manage. Assoc.* 43: 1358-66.
- 1994 Wang, T., T.D. Waite, C.N. Kurucz, W.J. Cooper. Oxidant Reduction and Biodegradability Improvement of Paper Mill Effluent by Irradiation. *Wat. Res.* 28: 237-241.
- 1994 Cooper, W.J., C. Shao, D.R.S. Lean, A.S. Gordon, F.E. Scully Jr. Factors Affecting the Distribution of H₂O₂ in Surface Waters. *Environmental Chemistry of Lakes and Reservoirs*, Ed. L.A. Baker, Advances in Chemistry Series 237, American Chemical Society, Washington, D.C., pp. 391-422.

- 1994 Lean, D.R.S., W.J. Cooper, F.R. Pick. Hydrogen Peroxide Formation and Decay in Lakewaters. *Aquatic and Surface Photochemistry*, G.R. Helz, R.G. Zepp, D.G. Crosby, Eds., Lewis Publishers, Boca Raton, FL, pp. 207-214.
- 1994 Shao, C., W.J. Cooper, D.R.S. Lean. Singlet Oxygen Formation in Lake Waters from Mid-Latitudes. *Aquatic and Surface Photochemistry*, G.R. Helz, R.G. Zepp, D.G. Crosby, Eds., Lewis Publishers, Boca Raton, FL, pp. 215-221.
- 1994 Nickelsen, M.G., W.J. Cooper, K. Lin, C.N. Kurucz, T.D. Waite. High Energy Electron Beam Generation of Oxidants for the Treatment of Benzene and Toluene in the Presence of Radical Scavengers. *Water Research*, 28: 1227-1237.
- 1995 Kurucz, C.N., T.D. Waite, W.J. Cooper. The Miami Electron Beam Research Facility: A Large Scale Wastewater Treatment Application. *Rad. Phys. Chem.* 45: 299-308.
- 1995 Kurucz, C.N., T.D. Waite, W.J. Cooper and M.G. Nickelsen. Empirical Models for Estimating the Destruction of Toxic Organic Compounds Utilizing Electron Beam Irradiation at Full Scale. *Rad. Phys. Chem.* 45: 805-816.
- 1995 Joens, J.A., R.A. Slifker, E.M. Cadavid, R.D. Martinez, M.G. Nickelsen and W.J. Cooper. Ionic Strength and Buffer Effects in the Elimination Reaction of 1,1,2,2-Tetrachloroethane. *Wat. Res.* 29: 1924-28.
- 1995 Lin, K., W.J. Cooper, M.G. Nickelsen, C.N. Kurucz, T.D. Waite. Decomposition of Aqueous Solutions of Phenol Using High Energy Electron Beam Irradiation - A Large Scale Study. *Appl. Rad. Isotopes.* 46: 1307-1316.
- 1995 Scully, N.M., D.R.S. Lean, D.J. McQueen and W.J. Cooper. Photochemical Formation of Hydrogen Peroxide in Lakes: Effects of Dissolved Organic Carbon and Ultraviolet Radiation. *Can. J. Fish. Aquat. Sci.* 52: 2675-2681.
- 1996 Mak, F.T., W.J. Cooper, C.N. Kurucz, M.G. Nickelsen and T.D. Waite. Removal of Chloroform from Drinking Water Using High Energy Electron Beam Irradiation, *Disinfection By-Products in Water Treatment: The Chemistry of Their Formation and Control*, R.A. Minear and G.L. Amy, Eds, CRC Press, Inc. Boca Raton, FL, pp. 131-150.
- 1996 Cooper, W.J., K.L. Sawal, R.A. Slifker, M.G. Nickelsen, Y.S. Hoogland C.N. Kurucz, and T.D. Waite. Precursor Removal from Natural Waters using an Innovative Treatment Process, *Disinfection By-Products in Water Treatment: The Chemistry of Their Formation and Control*, R.A. Minear and G.L. Amy, Eds, CRC Press, Inc. Boca Raton, FL, pp. 151-162.
- 1996 Mehran, M.F., N. Golkar, W.J. Cooper and A.K. Vickers. Headspace Analysis of Some Typical Organic Pollutants in Drinking Water Using Different Detectors: Effects of Columns and Operational Parameters. *J. Chrom. Sci.* 34: 122-129.
- 1996 Scully, N.M., D.J. McQueen, D.R.S. Lean and W.J. Cooper. Hydrogen Peroxide Formation: The Interaction of Ultraviolet Radiation and Dissolved Organic Carbon in Lake Waters along a 43 - 75°N Gradient. *Limnol. Ocean.* 41: 540-548.
- 1996 Cooper, W.J., R.A. Dougal, M.G. Nickelsen, T.D. Waite, C.N. Kurucz, K. Lin and J.P. Bibler. Benzene Destruction in Aqueous Waste. Part 1. Bench-Scale Gamma Irradiation Experiments. *Rad. Phys. Chem.* 48: 81-87.
- 1996 Siddiqui M., G.L. Amy, W.J. Cooper, C.N. Kurucz, T.D. Waite and M.G. Nickelsen. Bromate Removal by High Energy Electron Beam Process (HEEB). *J. Amer. Water Works Assoc.* 88(10): 90-101.
- 1996 Cooper, W.J. and L.A. Holloway. Recipes for cleaner air. "News and Views Section," *Nature* 384: 313-314.
- 1996 Siddiqui M., G.L. Amy, W.J. Cooper. Bromate Ion Removal by Electric-Arc Discharge and High Energy Electron Beam Processes, in *Water Disinfection and Natural Organic Matter*, R.A. Minear and G.L. Amy, Eds, American Chemical Society, Symposium Series 649, Washington, DC, pp. 366 -382.
- 1997 Mak, F.T., S. Zele, W.J. Cooper C.N. Kurucz, T.D. Waite and M.G. Nickelsen. Kinetic Modeling of Carbon Tetrachloride, Chloroform, and Methylene Chloride Removal from Aqueous Solution using the Electron Beam Process. *Wat. Res.* 31: 219-228.

- 1997 Waite, T.D., T. Wang, C.N. Kurucz, W.J. Cooper. Parameters Affecting Conditioning Enhancement of Biosolids by Electron Beam Treatment. *ASCE- J. Environ. Engineer.* 123: 335-344.
- 1997 Scully, N.M., W.F. Vincent, D.R.S. Lean, W.J. Cooper. Implications of ozone depletion for surface water photochemistry: sensitivity of clear lakes. *Aquatic Sci.* 59: 260-274.
- 1997 O'Shea, K.E., S. Beightol, I. Garcia, M. Hernandez, D.V. Kalen, and W.J. Cooper. Photocatalytic Decomposition of Organophosphonates in Irradiated TiO₂ Suspensions. *J. Photochem. Photobiol., A, Chemistry.* 107: 221-226.
- 1998 Nickelsen, M.G., W.J. Cooper, K.E. O'Shea, M. Aguilar, D.V. Kalen, C.N. Kurucz and T.D. Waite. The Elimination of Methane Phosphonic Acid, Dimethyl Ester (DMMP) from Aqueous Solutions Using ⁶⁰Co-γ and Electron Beam Induced Radiolysis: A Model Compound for Evaluating the Effectiveness of the E-Beam Process in the Destruction of Organophosphorous Chemical Warfare Agents. *J. Adv. Oxid. Technol.* 3: 43-54.
- 1998 Kurucz, C.N., H. An, J. Greene, T.D. Waite and W.J. Cooper. Decolorization of Simulated Dye Wastewater by High Energy Electron Beam Irradiation with Fe(II) Addition. *J. Adv. Oxid. Technol.* 3: 116-123.
- 1998 Bolton, J.R., J.E. Valladares, W.J. Cooper, T.D. Waite, C.N. Kurucz, M.G. Nickelsen and D.C. Kajdi. Figures-of-Merit for Advanced Oxidation Processes - A Comparison of Homogeneous UV/H₂O₂, Heterogeneous TiO₂ and Electron Beam Processes. *J. Adv. Oxid. Technol.* 3: 174-181.
- 1998 Pagan, M., W.J. Cooper, J. A. Joens. Kinetic Studies of the Homogeneous Abiotic Reactions of Several Chlorinated Aliphatic Compounds in Aqueous Solution. *Applied Geochem.* 13: 779-785.
- 1998 Zele, S. M.G. Nickelsen, W.J. Cooper, C.N. Kurucz and T.D. Waite. Modeling Kinetics of Benzene, Phenol and Toluene Irradiation in Water using the High Energy Electron-Beam Process. In *Environmental Applications of Ionizing Radiation*, W.J. Cooper, R.D. Curry and K.E. O'Shea, Eds., John Wiley and Sons, Inc. NY, pp. 395-415.
- 1998 Dougal, R.A., W.J. Cooper, M.G. Nickelsen, K. Lin, T.D. Waite, C.N. Kurucz, and J.P. Bibler. Industrial-scale Destruction of Benzene in a Simulated Mixed Waste using Electron-Beam Irradiation. In *Environmental Applications of Ionizing Radiation*, W.J. Cooper, R.D. Curry and K.E. O'Shea, Eds., John Wiley and Sons, Inc. NY, pp. 417-427.
- 1998 Nickelsen, M.G., D.C. Kajdi, W.J. Cooper, C.N. Kurucz, T.D. Waite, F. Gensel, H. Lorenzl and U. Sparka. Field Application of a Mobile 20-kW Electron Beam Treatment System on Contaminated Groundwater and Industrial Wastes. In *Environmental Applications of Ionizing Radiation*, W.J. Cooper, R.D. Curry and K.E. O'Shea, Eds., John Wiley and Sons, Inc. NY, pp. 451-466.
- 1998 Waite, T.D., B.R. Kundalkar, C.N. Kurucz, B.A. Rolingson, and W.J. Cooper. Irradiation of Deicing Fluid in Water for Ultimate Treatment. In *Environmental Applications of Ionizing Radiation*, W.J. Cooper, R.D. Curry and K.E. O'Shea, Eds., John Wiley and Sons, Inc. NY, pp. 531-536.
- 1998 O'Shea, K. E., D.V. Kalen, W.J. Cooper, I. Garcia and M Aguilar. Degradation of Chemical Warfare agent Simulants in Aqueous solutions by cobalt-60 Gamma Irradiation: Similarities with TiO₂ Photocatalyst. In *Environmental Applications of Ionizing Radiation*, W.J. Cooper, R.D. Curry and K.E. O'Shea, Eds., John Wiley and Sons, Inc. NY, pp. 569-585.
- 2000 Tobien, T., W.J. Cooper, M.G. Nickelsen, E. Pernas, K.E. O'Shea and K.-D. Asmus. Odor Control in Wastewater Treatment: The Removal of Thioanisole from Water - A Model Case Study by Pulse Radiolysis and Electron Beam Treatment. *Environ. Sci. Technol.* 34: 1286-91.
- 2000 Cooper, W.J., J.K. Moegling, R.J. Kieber and J.J. Kiddle. A Chemiluminescence Method for the Analysis of H₂O₂ in Natural Waters. *Mar. Chem.* 70: 191-200.
- 2000 Wilson, C.L., N.W. Hinman, W.J. Cooper and C.F. Brown. Hydrogen Peroxide Cycling in Surface Geothermal

Waters of Yellowstone National Park. *Environ. Sci. Technol.* 34: 2655-2662.

- 2000 Tobien, T., W.J. Cooper and K.-D. Asmus. Removal Simulation for the Radiation Induced Degradation of the Disinfection By-Product Chloroform. *Natural Organic Matter and Disinfection By-Products*. Eds. Barrett, S. S. Krasner and G. Amy. ACS Symposium Series 761. Washington DC, pp. 270-281.
- 2000 Cooper, W.J., G. Leslie, P.M. Tornatore, W. Hardison and P.A. Hajali. MTBE and Priority Contaminant Treatment with High Energy Electron Beam Injection. In *Chemical Oxidation and Reactive Barriers*, Eds., G.B. Wickramanayake, A.R. Gavaskar and A.S.C. Chen. 2(6): 209-216 (Battelle Press).
- 2000 Tornatore, P.M., S.T. Powers, W.J. Cooper and E.G. Isacoff. Emerging Treatments for MTBE Synthetic Adsorbents and High Energy Electron Injection. In *Chemical Oxidation and Reactive Barriers*, Eds., G.B. Wickramanayake, A.R. Gavaskar and A.S.C. Chen. 2(7): 57-64 (Battelle Press).
- 2001 Mezyk, S.P., W.J. Cooper, D.M. Bartels, K.E. O'Shea and T. Wu. Radiation Chemistry of Alternative Fuel Oxygenates: Substituted Ethers. *J. Phys. Chem. Part A*, 105: 3521-3526.
- 2001 Cooper, W.J., M.G. Nickelsen, T. Tobien and B.J. Mincher. The Electron Beam Process for Waste Treatment. In: *Hazardous and Radioactive Waste Treatment Technologies Handbook*, C. Oh, Ed. CRC Press LLC, Boca Raton, FL, pp. 5.5 - 1 - 15.
- 2001 Mincher, B.J. and W.J. Cooper. High Energy Photons for Waste Treatment. In, *Hazardous and Radioactive Waste Treatment Technologies Handbook*, C. Oh, Ed. CRC Press LLC, Boca Raton, FL, pp. 5.5. 17 - 25.
- 2001 Kieber, R.J., W.J. Cooper, J.D. Willey and G.B. Avery, Jr. Hydrogen Peroxide at the Bermuda Atlantic Time Series Station. Part 1: Temporal Variability of Atmospheric Hydrogen Peroxide and its Influence on Seawater Concentrations. *J. Atmos. Chem.* 39: 1-13.
- 2001 Cooper, W.J., T. Tobien, S.P. Mezyk, J.W. Adams, M.G. Nickelsen, K.E. O'Shea, G. Inclan, P.M. Tornatore, P. Hajali and D.J. Weidman. The Electron Beam Process for The Destruction of MTBE. In *Oxygenates in Gasoline: Environmental Aspects*. Eds. A. F. Diaz and D. Drogos, ACS Symposium Series 799, American Chemical Society, Washington, DC, pp. 153-164
- 2001 O'Shea, K.E., T. Wu and W.J. Cooper. TiO₂ Photocatalysis of Gasoline Oxygenates. Kinetic Parameters and Effects of Catalyst Types and Loading on the Degradation of Methyl *tert*-Butyl Ether. In *Oxygenates in Gasoline: Environmental Aspects*. Eds. A.F. Diaz and D. Drogos. ACS Symposium Series 799, American Chemical Society, Washington, DC, pp. 165-176.
- 2002 Kim, D.K., K.E. O'Shea and W.J. Cooper. The Degradation of MTBE and Related Gasoline Oxygenates in Aqueous Media by Ultrasound Irradiation. *ASCE – J. Environ. Engineer.* 128: 806-812
- 2002 Hardison, D.R., W.J. Cooper, S.P. Mezyk and D.M. Bartels. The Free Radical Chemistry of *tert*-Butyl Formate: Rate Constants for Hydroxyl Radical, Hydrated Electron and Hydrogen Atom Reaction in Aqueous Solution. *Rad. Phys. Chem.* 65: 309-315.
- 2002 Johnson, H.D., W.J. Cooper, S.P. Mezyk and D.M. Bartels. Free Radical Reactions of Monochloramine and Hydroxylamine in Aqueous Solution. *Rad. Phys. Chem.* 65: 317-326.
- 2002 Williams, J.A., W.J. Cooper, S.P. Mezyk and D.M. Bartels. Absolute Rate Constants for the Reaction of the Hydrated Electron, Hydroxyl Radical and Hydrogen Atom with Chloroacetones in Water. *Rad. Phys. Chem.* 65: 327-334.
- 2002 Wu, T., V. Cruz, S.P. Mezyk, W.J. Cooper and K.E. O'Shea. Gamma Radiolysis of Methyl *t*-Butyl Ether (MTBE). A Study of Hydroxyl Radical Mediated Reaction Pathways. *Rad. Phys. Chem* 65: 335-341.
- 2002 O'Shea, K.E., D.K. Kim, T. Wu, W.J. Cooper and S.P. Mezyk. Degradation of MTBE/BTEX Mixtures by Gamma

- Radiolysis: A Kinetic Modeling Study. *Rad. Phys. Chem.* 65: 343-347.
- 2002 Kurucz, C.N., T.D. Waite, S.E. Otaño, W.J. Cooper and M.G. Nickelsen. A Comparison of Large Scale Electron Beam and Bench Scale ⁶⁰Co Irradiations of Simulated Aqueous Waste Streams. *Rad. Phys. Chem.* 65: 367-378.
- 2002 Cooper, W.J., M.G. Nickelsen, S.P. Mezyk, G. Leslie, P.M. Tornatore, W. Hardison and P.A. Hajali. MTBE and priority contaminant treatment with high energy electron beam injection. *Rad. Phys. Chem.* 65: 451-460.
- 2002 Cooper, W.J., M.G. Nickelsen, R.V. Green and S.P. Mezyk. The removal of naphthalene from aqueous solutions using high energy electron beam irradiation. *Rad. Phys. Chem.* 65: 571-577.
- 2002 Nickelsen, M.G., W.J. Cooper, D.A. Secker, L.A. Rosocha, C.N. Kurucz and T.D. Waite. Kinetic Modeling and Simulation of PCE and TCE Removal in Aqueous Solutions by Electron-Beam Irradiation. *Rad. Phys. Chem.* 65: 579-587.
- 2003 Cooper, W.J., S.P. Mezyk, K.E. O'Shea, D.K. Kim, B.J. Mincher and D.R. Hardison. Kinetic Modeling of the Electron Beam Process: The Bridge between Basic Research and Environmental Application. *Rad. Phys. Chem.* 67: 523-526.
- 2003 Scully, N.M., L.J. Tranvik and W.J. Cooper. Photochemical effects on the interaction of enzymes and dissolved organic matter in natural waters. *Limnol. Oceanogr.* 48: 1818-1824.
- 2003 Mincher, B.J. and W.J. Cooper. The Electron Beam Process for the Radiolytic Degradation of Pollutants. In *Chemical Degradation Methods for Wastes and Pollutants: Environmental and Industrial Applications*. Ed. Matthew A. Tarr, Marcel Dekker, NY, pp. 305-341.
- 2003 Kowalczyk, P., W.J. Cooper, R.F. Whitehead, M.J. Durako and W. Sheldon. Characterization of CDOM in an organic rich river and surrounding coastal ocean in the south Atlantic bight. *Aquatic Sciences* 65: 381-398.
- 2003 Scully, N.M., W.J. Cooper and L.J. Tranvik. Photochemical effects on microbial activity in natural waters: The interaction of reactive oxygen species and dissolved organic carbon. *FEMS Microbiol. Ecol.* 46: 353-357.
- 2004 Mincher, B.J. and W.J. Cooper. The Electron Beam Process for the Radiolytic Degradation of Pollutants. In *Chemical Degradation Methods for Wastes and Pollutants: Environmental and Industrial Applications*. Ed. Matthew A. Tarr, Marcel Dekker, NY, pp. 305-341.
- 2004 Cooper, W.J., P. Gehringer, A.K. Pikaev, C.N. Kurucz and B.J. Mincher. Radiation Processes. In, *Advanced Oxidation Processes for Water and Wastewater Treatment*, Ed. S. Parsons, IWA Publishing, London, Chapter 9, pp.209-246.
- 2004 Mezyk, S.P., W.J. Cooper, K.P. Madden and D.M. Bartels. The Free Radical Destruction of N-Nitrosodimethylamine (NDMA) in Water. *Environ. Sci. Technol.* 38: 3161-3167.
- 2004 Mezyk, S.P., J. Jones, W.J. Cooper, T. Tobien, M.G. Nickelsen, J. W. Adams, K.E. O'Shea, D. M. Bartels, J.F. Wishart, P.M. Tornatore, K.S. Newman, K. Gregorie and D.J. Weidman. Radiation Chemistry of Methyl *tert*-Butyl Ether (MTBE) in Aqueous Solution. *Environ. Sci. Technol.* 38: 3994-4001.
- 2004 Skeen, A.R., C.R. Tomas, W.J. Cooper. The Production of Hydrogen Peroxide by *Heterosigma akashiwo* Under Varying N:P Ratios. In *Harmful Algae2002*, Steidinger, K.A., J.H. Landsberg, C.R. Tomas, and G.A. Vargo (Eds) Florida Fish and Wildlife conservation Commission, Florida Institute of Oceanography, and Intergovernmental Oceanographic Commission of UNESCO, St. Petersburg, FL, U.S.A. 77-79.
- 2004 Hardman, R.C. W.J. Cooper, A.J. Bourdelais, P. Gardinali and D.G. Baden. Brevetoxin Degradation and By-Product Formation via Natural Sunlight. In *Harmful Algae2002*, Steidinger, K.A., J.H. Landsberg, C.R. Tomas, and G.A. Vargo (Eds) Florida Fish and Wildlife conservation Commission, Florida Institute of Oceanography, and

Intergovernmental Oceanographic Commission of UNESCO, St. Petersburg, FL, U.S.A. 153-154.

- 2005 Basfar, A.A., H.M. Kahn, A.A. Al-Shahrani, and W.J. Cooper. Radiation Induced Decomposition of Methyl *tert*-Butyl Ether in Water in the Presence of Chloroform: Kinetic Modeling. *Water Research* 39: 2085-2095.
- 2005 Duesterberg, C., W.J. Cooper and T.D. Waite. Fenton-mediated Oxidation in the Presence and Absence of Oxygen. *Environ. Sci. Technol.* 39: 5052-5058.
- 2005 Kowalczyk, P., J. Stoń, W.J. Cooper, R.F. Whitehead and M.J. Durako. Characterization of Chromophoric Dissolved Organic Matter (CDOM) in the Baltic Sea by Excitation Emission Matrix Fluorescence Spectroscopy. *Mar. Chem.* 96: 273-292.
- 2005 Avery, G.B., W.J. Cooper, R.J. Kieber and J.D. Willey. Hydrogen Peroxide at the Bermuda a Atlantic Time Series Station. Part 2: Temporal Variability of Seawater Hydrogen Peroxide. *Mar. Chem.* 97: 236-244.
- 2005 O'Shea, K.E., D.K. Kim, W.J. Cooper and S.P. Mezyk. Advanced Oxidation Technologies (AOTs) for the Hydroxyl Radical Degradation of Methyl *t*-Butyl Ether (MTBE). in Photocatalytic and Advanced Oxidation Processes for Treatment of Air, Water, Soil and Surfaces, D.F. Ollis and H. Al-Ekabi (eds), Redox Technologies, Inc. (ISBN 0-9738746-0-0), 303-310.
- 2005 Cole, S.K., W.J. Cooper, R.V. Fox, P.R. Gardinali, S.P. Mezyk, B.J. Mincher and K.E. O'Shea. The Radiation Chemistry and Free Radical Treatment of Bromonitromethane. in Photocatalytic and Advanced Oxidation Processes for Treatment of Air, Water, Soil and Surfaces, D.F. Ollis and H. Al-Ekabi (eds), Redox Technologies, Inc. (ISBN 0-9738746-0-0), 311-317.
- 2005 Mezyk, S.P., W.J. Cooper and K.P. Madden. Fundamental Radiolysis of NDMA (N,N-Dimethylnitrosamine): Kinetic and Mechanistic Relevance to AOT Destruction. in Photocatalytic and Advanced Oxidation Processes for Treatment of Air, Water, Soil and Surfaces, D.F. Ollis and H. Al-Ekabi (eds), Redox Technologies, Inc. (ISBN 0-9738746-0-0), 324-332.
- 2006 Mezyk, S.P., T. Helgeson, S.K. Cole, W.J. Cooper, R.V. Fox, P.R. Gardinali, and B.J. Mincher. Free Radical Chemistry of Disinfection By-Products. 1. Kinetics of Hydrated Electron and Hydroxyl Radical Reactions with Halonitromethanes in Water. *J. Phys. Chem.* 110: 2176-2180.
- 2006 Jones, A.C., R.W. Gensemer, W.A. Stubblefield, E. Van Genderen, G.M. Dethloff, and W.J. Cooper. Toxicity of ozonated seawater to marine organisms. *Environ. Toxicol. Chem.* 25:2683-2691.

In Press

Perrins, J.C., Cooper, W.J., van Leeuwen, J., Herwig, R.P. Ozonation of seawater from different locations: Formation and decay of total residual oxidant - implications for ballast water treatment. *Mar. Poll. Bulletin*.

Herwig, R.P., J.R. Cordell, J.C. Perrins, P.A. Dinnel, R.W. Gensemer, W.A. Stubblefield, G.M. Ruiz, J.A. Kopp, M.L. House, and W.J. Cooper. Ozone Treatment of Ballast Water on the Oil Tanker *S/T Tonsina*: Chemistry, Biology, and Toxicity. *Mar. Ecol. Prog. Ser.*

Kowalczyk, P., M.J. Durako, W.J. Cooper, D. Wells and J.J. Souza. Comparison of radiometric quantities measured in water, above water and derived from SeaWiFS imagery in the South Atlantic Bight. *Continental Shelf Research*

Submitted

Tremblay, L.B., T. Dittmar, A.G. Marshall, W.J. Cooper and W. Cooper Molecular Characterization of Dissolved Organic

Matter in a North Brazilian Mangrove Porewater and Mangrove-Fringed Estuaries by Ultrahigh Resolution Fourier Transform-Ion Cyclotron Resonance Mass Spectrometry and Excitation/Emission Spectroscopy. *Mar. Chem.*

Gonsior, M., B.M. Peake, W.J. Cooper, H. Young, A.E. Kahn and P. Kowalczyk. Characterization of chromophoric dissolved organic matter (CDOM) in a fjord (Doubtful Sound, New Zealand) and visualization of Excitation Emission Matrix (EEM) fluorescence using GRASS-GIS. *Aquatic Sciences*

Cole, S.K., W.J. Cooper, R.V. Fox, P.R. Gardinali, S.P. Mezyk, B.J. Mincher and K.E. O'Shea. Free Radical Chemistry of Disinfection-By-Products 2. Rate Constants and Degradation Mechanisms of Trichloronitromethane (Chloropicrin). *Environ. Sci. Technol.*

Rusak, S.A., W.J. Cooper, D.W. King, B.M. Peake, J.J. Kiddle, M.L. Melamed, C.R. Morgan, and S.M. Theberge. Flow Injection Analysis of H₂O₂ in Natural Waters Using Acridinium Ester-Chemiluminescence: Method Development and Optimization using a Kinetic Model. *Anal. Chem.*

In Preparation

Cooper, W.J., C.J. Cramer, N.H. Martin, S.P. Mezyk, K.E. O'Shea and C. von Sonntag. A Proposed Free Radical-Mechanism for the Destruction of Methyl-*tert*-Butyl Ether (MTBE) via Advanced Oxidation Processes. *Chem. Rev.*

Lahoutifard, N., S.L. Schott, W.J. Cooper and D.R.S. Lean. Hydrogen Peroxide in snow of the High Arctic: Photochemical Formation and Diel Variability. *J. Geophys. Res.*

Cooper, W.J., D.W. King, D.R.S. Lean, B.M. Peake, A.L. Rose, S.A. Rusak and T.D. Waite. Hydrogen Peroxide in Aquatic Environments: Part 1 Analytical Methods. *Aquatic Sciences*

Cooper, W.J., D.R.S. Lean, J.A. Marshall, B.M. Peake, A.L. Rose, S.A. Rusak and T.D. Waite. Hydrogen Peroxide in Aquatic Environments: Part 2 Distribution. *Aquatic Sciences*

Kim, D.K., K.E. O'Shea, W.J. Cooper and C. von Sonntag. Degradation of Methyl *tert*-Butyl Ether by Ultrasonic Irradiation: The Role of Pyrolysis and Hydroxyl radical Mediated Degradation and Pathways. *Environ. Sci. Technol.*

Cooper, W.J., A.C. Jones, R.F. Whitehead, R.G. Zika and R.G. Petasne. Sunlight Induced Photochemical Decay of Oxidants in Natural Waters: Implications in Ballast Water Treatment. *Environ. Sci. Technol.*

Westerhoff, P., S.P. Mezyk, W.J. Cooper and D. Minakata. Direct Measurement of Hydroxyl Radical Rate Constants with Suwannee River Fulvic Acid and Other Dissolved Organic Matter Isolates

B. Books (Edited and authored)

- 1981 Cooper, W.J. Ed. *Chemistry in Water Reuse*, Volume 1, Ann Arbor Science, Pub., Ann Arbor, MI. 557p.
- 1981 Cooper, W.J. Ed. *Chemistry in Water Reuse*, Volume 2, Ann Arbor Science, Pub., Ann Arbor, MI. 647p.
- 1987 Zika, R.G. and W.J. Cooper, Eds. *Photochemistry of Environmental Aquatic Systems*. ACS Symposium Series 327, American Chemical Society, Washington, D.C. 288p.
- 1989 Saltzman, E.S. and W.J. Cooper, Eds. *Biogenic Sulfur in the Environment*. ACS Symposium Series 393, American Chemical Society, Washington, D.C. 572p.
- 1992 Gordon, G., W.J. Cooper, R.G. Rice, G.E. Pacey. *Disinfectant Residual Measurement Methods, Second Edition*, AWWA Research Foundation and American Water Works Association, Denver, CO. 889p.
- 1997 Cooper, W.J., R.D. Curry and K.E. O'Shea, Eds. *Environmental Applications of Ionizing Radiation*. John Wiley & Sons, Inc. 722p.
- 2004 Kavanaugh, M., Z. Chowdhury, S. Kommineni, S. Liang, J. Min, J. Crouè, N. Corin, G. Amy, E. Simon, W. Cooper, P. Tornatore, M. Nickelsen. *Removal of MTBE with Advanced Oxidation Processes*. IWA Publishing, London, UK, 272p.

In Preparation:

Chmielewski, A. G. and W.J. Cooper. (Eds.) *Electron Beam Treatment of Wastes*.

C. Presentations/Abstracts (presenter underlined)

- 1973 Guter, K.J., W.J. Cooper and C.A. Sorber. The Evaluation of Existing Field Test Kits for Determining Free Chlorine Residuals in Aqueous Solutions, presented at the First Water Quality Technology Conference sponsored by the Amer. Water Works Assoc., Dec. 3 and 4, Cincinnati, OH.
- 1974 Cooper, W.J., C.A. Sorber and E.P. Meier. A Rapid Specific Free Available Chlorine Test with Syringaldazine (FACTS), presented at the 94th Annual Amer. Water Works Assoc. Conf., June 16-21, Boston, MA.
- 1975 Dennis, W.H. and W.J. Cooper. Catalyzed Dechlorination of DDT Using a Nickel Boride/Sodium Borohydride System, presented at the 169th Amer. Chem. Soc. Meeting, Division of Environmental Chemistry, April, Philadelphia, PA.
- 1975 Dennis, W.H. and W.J. Cooper. Nickel Boride Catalyzed Dechlorination of Several Organo-Chlorine Pesticide Herbicides, presented at the 170th Amer. Chem. Soc. Meeting, Division of Pesticide Chemistry, August 25-29, Chicago, IL.
- 1976 Cooper, W.J. and W.H. Dennis. GC/MS Analysis of Products from the Catalyzed Dechlorination of DDT and Heptachlor, presented at the 24th Annual Conference on Mass Spectrometry and Allied Topics, May 9-14, San Diego, CA.
- 1977 Cooper, W.J. and E.P. Meier. Dimer Formation in the Source of the Mass Spectrometer, presented at the 25th Annual Conference on Mass Spectrometry and Allied Topics, May 29 - June 3, Washington, D.C.
- 1977 Chian, E.S.K., P.P.K. Kuo, W.J. Cooper, W.F. Cowen, and J.J. McCarthy. Removal of Organics in Hospital Waste Waters with Various Physical-Chemical Treatment Processes, presented at the Symposium on the Effects of Treatment on Organics in Water, Environmental Chemistry Section, Joint U.S.-Canadian Chemistry Society Meeting, May 20 - June 2, Montreal, Canada.
- 1978 Liebermann, J., Jr., E.P. Meier, W.J. Cooper and N.M. Roscher. Modified FACTS Test Procedures for Disinfectants other than Free Available Chlorine. I. Combined Chlorine and Ozone, presented at the Division of Environmental Chemistry, American Chemical Society, March 13-17, Anaheim, CA.
- 1978 Meier, E.P., W.J. Cooper and J.W. Highfill. Evaluation of the Specificity of the DPD-Glycine and FACTS Test Procedures for Determining Free Available Chlorine, presented at the Division of Environmental Chemistry, American Chemical Society, March 13-17, Anaheim, CA.
- 1978 Davenport, R.J., W.J. Cooper and R.A. Wynveen. Monitoring Organic Impurity Concentrations in Water Using Differential Capacitance Measurements, presented at the Division of Environmental Chemistry, American Chemical Society, March 13-17, Anaheim, CA.
- 1978 Meier, E.P., W.H. Dennis, M.C. Warner, and W.J. Cooper. Toxic Impurities in Pesticides - Diazinon, presented at the 12th Middle Atlantic Regional Meeting, Division of Environmental Chemistry, April 5-7, Hunt Valley, MD.
- 1978 Cooper, W.J., W.H. Dennis, I.R. DeLeon and J.L. Laseter. Catalytic Dechlorination of Aldrin and Dieldrin: Identification of Reaction Products by GC/MS, presented at the 26th Annual Conference on Mass Spectrometry and Allied Topics, May 28 - June 2, St. Louis, MO.
- 1978 Longley, K.E., J.D. Johnson, E.P. Meier, and W.J. Cooper. Analysis of Disinfectants in Water, presented at the 6th Water Quality Technology Conference, Dec. 3-6, Louisville, KY.
- 1979 Davenport, R.J., W.J. Cooper, J.C. Huang and R.A. Wynveen. Development of an Instrument for Continuous, Automated and Low-Cost Monitoring of the Organic Loading in Water, presented at the Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Symposium, New Techniques on the Horizon, March 5-9, Cleveland, OH.
- 1979 Cooper, W.J., J.C. Eaton and B.W. Peterman. Waste Water Reuse Program at the U.S. Army Medical Bio-

engineering Research and Development Laboratory, presented at the Water Reuse Symposium, March 25-30, Washington, D.C.

- 1979 Peterman, B.W., W.J. Cooper and J.C. Eaton. The U.S. Army Medical Bioengineering Research and Development Laboratory Potable Water and Waste Water Reuse Program, Chesapeake Section, American Water Works Association, Sept. 5-7, Ocean City, MD.
- 1980 Davenport, R.J., J.B. Lantz, R.A. Wynveen and W.J. Cooper. Development of a TOC/COD Analyzer for Reuse Applications, presented at the 179th Amer. Chemical Meeting, Division of Environmental Chemistry, March 23-28, Houston, TX.
- 1980 Davenport, R.J., R.A. Wynveen and W.J. Cooper. Development of an Instrument for Continuous, Automated and Low-Cost Monitoring of the Organic Content in Water, presented at Water Quality Technology Conference VIII, sponsored by the Amer. Water Works Assoc., Dec. 8-9, Miami Beach, FL.
- 1981 Garmendia, M.J., H.E. Moore and W.J. Cooper. DPD and Monochloramine Reaction: Kinetics and Mechanism, presented at the Florida Section, American Chemical Society, May 9, Tallahassee, FL.
- 1981 Cooper, W.J. and I.H. Suffet. Application of Nonspecific Organic Analysis in Water Reuse - A Critical Evaluation, presented at Water Reuse Symposium II, Aug. 23-28, Washington, D.C.
- 1981 Cooper, W.J. Chemical Pollution of Groundwater, presented at the Florida Public Health Association Annual Meeting, Oct. 1, Ft. Lauderdale, FL.
- 1981 Cooper, W.J., L.M. Meyer, C.C. Bofill and E. Cordall. The Quantitative Effects of Bromine on the Formation and Distribution of Trihalomethanes in a Groundwater with a High Organic Content, presented at the Fourth Conference on Water Chlorination: Environmental Impact and Health Effects, Oct. 18-23, Asilomar, CA.
- 1981 Cooper, W.J., J.T. Villate, E.M. Ott, R.A. Slifker, F.Z. Parsons and G.A. Graves. Formation of Organochlorine Compounds in Chlorinated Secondary Wastewater Effluent, presented at the Fourth Conference on Water Chlorination: Environmental Impact and Health Effects, Oct. 18-23, Asilomar, CA.
- 1981 Cooper, W.J., M.F. Mehran, R.A. Slifker, D.A. Smith, J.T. Villate and P.H. Gibbs. Comparison of Several Methods for the Determination of Chlorine Residuals in Drinking Water, presented at Water Quality Technology Conference IX sponsored by the American Water Works Association, Dec. 6-9, Seattle, WA.
- 1982 Garcia-Rivera, M.T., H.E. Moore, M.F. Mehran and W.J. Cooper. The Reaction of Ozone and Bromide in Aqueous Solutions and Its Implications in Water Treatment, presented at the 1982 American Water Works Association Annual Conference, May 16-20, Miami Beach, FL.
- 1982 Cooper, W.J., R.G. Petasne and R.G. Zika. Hydrogen Peroxide Formation in Groundwater Exposed to Sunlight: Implications in Water Treatment, presented at the 1982 American Water Works Annual Conference, May 16-20, Miami Beach, FL.
- 1982 Villate, J.T., and W.J. Cooper. Chlorination: Disinfection and Measurement of Residuals, presented at the XVIII Congress of the Interamerican Association of Sanitary Engineering, Aug. 1-6, Panama City, Republic of Panama.
- 1982 Cooper, W.J. Low Cost Treatment of Pure and Sewage Waters, presented at IV World Congress on Water Resources, Sept. 5-9, Buenos Aires, Argentina.
- 1982 Cooper, W.J., M.F. Mehran, R.A. Slifker and D.L. Savoie. Purge and Trap Analysis of Organohalogen Compounds Using a Method for Eliminating Ammonia Interference, presented at the AWWA Water Quality Technology Conference X, Dec. 5-8, Nashville, TN.
- 1982 Amy, G.L., W.J. Cooper, K. Kasfian, P.H. King. A Mathematical Model for Trihalomethane Formation in a Highly Colored Groundwater Containing Ammonia and Bromide, presented at the 185th National American Chemical Society Meeting, Division of Environmental Chemistry, March 20-25, Seattle, WA.

- 1983 Zika, R.G., R.G. Petasne, L. Gidel and W.J. Cooper. Photochemical Formation of Hydrogen Peroxide in Ground Water Exposed to Sunlight, presented at the 186th National American Chemical Society Meeting, Division of Environmental Chemistry, Aug. 28 - Sept. 2, Washington, D.C.
- 1983 Cooper, W.J., R.G. Zika, L.T. Gidel and R.G. Petasne. Photochemical Formation of H₂O₂ in Fresh Water Systems, presented at the NATO-ARI Conference Photochemistry of Natural Waters, Woods Hole Oceanographic Institution, Sept. 12-16, Woods Hole, MA.
- 1983 Zika, R.G., E. Saltzman, R.G. Petasne, J.W. Moffett and W.J. Cooper. Measured and Calculated H₂O₂ Distributions in the Marine Environment, presented at the NATO-ARI Conference Photochemistry of Natural Waters, Woods Hole Oceanographic Institution, Sept. 12-16, Woods Hole, MA.
- 1983 Cooper, W.J., and R.G. Zika. Implications of Photochemical Reactions, presented at the 4th International Congress on Chemistry for Protection of the Environment, Sept. 20-23, Toulouse, France.
- 1983 Cooper, W.J., R.A. Slifker and J. Almirall. Trihalomethane Formation in Chlorinated Wastewaters, presented at the 4th International Congress on Chemistry for Protection of the Environment, Sept. 20-23, Toulouse, France.
- 1983 Cooper, W.J. Review of Non-Specific Organics Analyses, presented at the 11 Water Quality Technology Conferences, Dec. 4-7, Norfolk, Virginia.
- 1984 Saltzman, E.S., L.T. Gidel, R.G. Zika, P.L. Milne, J.M. Prospero, D.L. Savoie and W.J. Cooper. Atmospheric Chemistry of Methane Sulfonic Acid, presented at the Air Pollution Control Association Meeting, Mar. 7-9, Research Triangle Park, NC.
- 1984 Cooper, W.J., R.G. Zika and C.A. Moore. The Effect of Bromide in Water Treatment in the Presence of Chlorine, Chlorine Dioxide and Ozone, presented at the International Ozone Association Conference, Ozone or Alternative Oxidants and Activated Carbon in Water and Wastewater Treatment, Mar. 26-29, Pretoria, South Africa.
- 1984 Mehran, M.F., W.J. Cooper and W.J. Jennings. Gas Chromatographic Separation of Water Pollutants Using Coupled Fused Silica Columns, presented at the Florida Academy of Sciences, Mar. 29, Boca Raton, FL.
- 1984 Lopez, J.L., W.J. Cooper, L.L. Handley and L.S. Casey. Development of the Nutrient Film Technique as an Appropriate Technology for Wastewater Treatment for Non-Potable Reuse, presented at the Florida Academy of Sciences, Mar. 29, Boca Raton, FL.
- 1984 Casey, L.S., W.J. Cooper and R.J. Cloud. A Predictive Kinetic Model of Trihalomethanes (THMs) in Chlorinated Groundwater presented at the Florida Academy of Sciences, Mar. 29, Boca Raton, FL.
- 1984 Saltzman E.S., L.T. Gidel, R.G. Zika, P.J. Milne, J.M. Prospero, D.L. Savoie and W.J. Cooper. Aerosol Chemistry of Methane Sulfonic Acid, presented at the Conference on Gas-Liquid Chemistry of Natural Waters, Apr. 2-6, Brookhaven, NY.
- 1984 Cooper, W.T., W.J. Cooper and M.F. Mehran. The Determination of Volatile Organics in Water with a Cryogenic, Open-Tubular Purge and Trap Device Directly Connected to Coupled Capillary Columns, presented at the Florida Section, ACS Meeting.
- 1984 Cooper, W.J., and D.M. Kaganowicz. A Novel Precursor of Trihalomethanes, presented at the 5th Water Chlorination Conference, June 3-8, Williamsburg, VA.
- 1984 Amy, G.L., P.A. Chadik, Z.K. Chowdbury, P.H. King and W.J. Cooper. Factors Affecting the Incorporation of Bromide into Brominated Haloforms During Chlorination, presented at the 5th Water Chlorination Conference, June 3-8, Williamsburg, VA.
- 1984 Zika, R.G., C.A. Moore, L.T. Gidel and W.J. Cooper. Sunlight - Induced Photodecomposition of Chlorine Dioxide, presented at the 5th Water Chlorination Conference, June 3-8, Williamsburg, VA.

- 1984 Zika, R.G., R.G. Petasne, L.T. Gidel and W.J. Cooper. Sunlight - Induced Photodecomposition of HOCl/OCl⁻, HOBr/OBr⁻ and NH₂Cl During Water Treatment, presented at the 5th Water Chlorination Conference, June 3-8, Williamsburg, VA.
- 1984 Cooper, W.J., P.V. Roberts and I.H. Suffett. Non-Specific Organics Analyses in Water Treatment, presented at the AWWA Annual Conference, Sunday Seminar "Non-Specific Organics Analyses in Water Treatment Process Monitoring and Control", June 10, Dallas, TX.
- 1984 Cooper, W.J., L.S. Casey, L.L. Handley and J.L. Lopez. The Nutrient Film Technique: An Innovative Biological Process for Wastewater Reuse and Treatment - A Project Overview, presented at the Water Reuse Symposium III, Aug. 26-31, San Diego, CA.
- 1984 Lopez, J.L., L.S. Casey, L.L. Handley and W.J. Cooper. Renovation of Secondary Wastewater for Water Reuse using the Nutrient Film Technique (NFT), presented at Water Reuse Symposium III, Aug. 26-31, San Diego, CA.
- 1984 Cooper, W.J. and J.T. Villate. Wastewater Disinfection: Residual Monitoring, presented at Water Pollution Control Federation Preconference Workshop Wastewater Disinfection - the Pros and Cons, Sept. 29, New Orleans, LA.
- 1985 Handley, L.L., L.S. Casey, J.L. Lopez, J.M. Sutija, S.B. Colley and W.J. Cooper. Gravel Bed Hydroponics for Wastewater Renovation and Biomass Production, presented at the 3rd Southern Biomass Conference, Mar. 12-14, Gainesville, FL.
- 1985 Mehran, M.F., W.J. Jennings and W.J. Cooper. Detection of Water Contaminants by Direct Headspace Injection, presented at the 189th National American Chemical Society Meeting, Apr. 28 - May 3, Miami, FL.
- 1985 Mehran, M., W.J. Cooper and M.F. Mehran. Application of Capillary Gas Chromatography for Water Pollution Analysis, presented at the 5th International Conference Chemistry for the Protection of the Environment, Sept. 10-13, Leuven, Belgium.
- 1986 Cooper, W.J., R.G. Zika, R.G. Petasne, C.A. Moore and E.S. Saltzman. Assessment of Ocean Peroxide Sources using Continuous Flow Analysis, presented at the Ocean Science Meeting, American Geophysical Union, Jan. 13-17, New Orleans, LA.
- 1986 Gordon, A.S., W.J. Cooper, D.J. Scheidt. Denitrification in Peat and Marl Surface Sediments of the Shark River Slough in the Florida Everglades, presented at 1986 American Society of Microbiology Annual Meeting, March. 23-28, Washington, D.C.
- 1986 Cline, P.V., J.J. Delfino, W.J. Cooper. Hydrolysis of 1,1,1-trichloroethane: Formation of 1,1-dichloroethene, presented at the National Well Water Association Conference on "Petroleum Hydrocarbons and Organic Chemicals in Ground Water: Prevention Detection and Restoration." Houston, TX. Nov. 12 - 14.
- 1986 Cooper, W.J., M. Mehran, D. Riusech and J. Joens. Abiotic Transformation of Halogenated Ethanes in Subsurface Environments: Hydrolysis of 1,1,2,2-tetrachloroethane, presented at AGU Fall Meeting, Dec. 8-12, San Francisco, CA; EOS 67(44):948.
- 1986 Cooper, W.J. and R.G. Zika. Cariaco Trench 1986, Continuous Depth Profiles (< 110 meters) of DOM Fluorescence, Chlorophyll *a*, and H₂O₂ Concentration, presented at AGU Fall Meeting, Dec. 8-12, San Francisco, CA; EOS 67(44):1067.
- 1986 Cooper, D.J., E.S. Saltzman, W.J. Cooper and R.G. Zika. Biogenic Sulfur Emissions from Florida Wetlands, presented at AGU Fall Meeting, Dec. 8-12, San Francisco, CA; EOS 67(44):1051.
- 1987 Cooper, W.J. The Effect of Humic Substances on Oxidation Processes: Formation of Natural Reactive Species and Reactions with Oxidants for Disinfection, presented at the 193rd National American Chemical Society Meeting, Apr. 5-10, Denver, CO.

- 1987 Gordon, G., G. Pacey and W.J. Cooper. Current Status of Disinfectant Residual Measurement Methods for Free and Combined Chlorine and Oxychlorine Species, presented at the Sixth Conference on Water Chlorination: Environmental Impact and Health Effects, May 3-8, Oak Ridge, TN.
- 1987 Amy, G.L., J.H. Greenfield and W.J. Cooper. Organic Halide Formation during Water Treatment: Free Chlorine versus Chloramination, presented at the Sixth Conference on Water Chlorination: Environmental Impact and Health Effects, May 3-8, Oak Ridge, TN.
- 1987 Casey, L.S., W.J. Cooper, J.M.E. Quirke and G.L. Amy. Kinetic Rate Constants for the Formation of Trihalomethanes in Ground Water Containing Ammonia, presented at the Sixth Conference on Water Chlorination: Environmental Impact and Health Effects, May 3-8, Oak Ridge, TN.
- 1987 Amy, G.L., J.H. Greenfield and W.J. Cooper. Statistical Correlations between Organic Halide Measurements and Concentrations of Specific Halogenated VOCs in Contaminated Groundwater, presented at the Sixth Conference on Water Chlorination: Environmental Impact and Health Effects, May 3-8, Oak Ridge, TN.
- 1987 Cooper, W.J., D.J. Cooper, E.S. Saltzman and R.G. Zika. Distribution of Dimethylsulfide in Oceanic Environments, presented at the Division of Environmental Chemistry, American Chemical Society, Aug. 31 - Sept. 4, New Orleans, LA.
- 1987 Cooper, W.J., J.A. Joens, M. Mehran and R.A. Slifker. Abiotic Transformation of Halogenated Organic Chemicals During Water Treatment, presented at the Division of Environmental Chemistry, American Chemical Society, Aug. 31 - Sept. 4, New Orleans, LA.
- 1987 Cooper, D.J., W.J. Cooper, E.S. Saltzman, R.G. Zika and W.Z. de Mello. Factors Contributing to Variability in Biogenic Sulfur Emissions From Florida Wetlands, presented at the Division of Environmental Chemistry, American Chemical Society, Aug. 31 - Sept. 4, New Orleans, LA.
- 1987 Abdel-Shafy, H.I., W.J. Cooper, L.L. Handley-Raven, L.S. Casey and J.H. Greenfield. Fate of Heavy Metals in the Gravel Bed Hydroponics Wastewater Treatment System, presented at Heavy Metals in the Environment, Sept. 15-18, New Orleans, LA.
- 1987 Gordon, G., G.E. Pacey, W.J. Cooper and R.G. Rice. Current State-of-the-Art Measurements of Ozone in the Gas Phase and in Solution, presented at 8th Ozone World Congress and Exhibition, Sept. 15-18, Zurich, Switzerland.
- 1987 Cooper, W.J., G.A. Hummel and R.A. Slifker. A Field Comparison of Three Colorimetric Methods for Determining Free Chlorine, presented at the Water Quality Technology Conference, Nov. 15-19, Baltimore, MD.
- 1987 Gordon, G., G.E. Pacey and W.J. Cooper. A Critical Review of the Analytical Methods Currently Used for the Measurement of Free, Combined, and Oxy-Chlorine Species, presented at the Water Quality Technology Conference, Nov. 15-19, Baltimore, MD.
- 1988 Cooper, W.J., D.R.S. Lean and J.H. Carey. Hydrogen Peroxide Concentration in a Northern Lake: Photochemical Formation and Diel Variability, presented at the Division of Environmental Chemistry, 195th National American Chemical Society Meeting, June 5-10, Toronto, Canada.
- 1988 Waite, T.D., W.J. Cooper and H.M. Solo. The Use of High Energy Electrons for the Treatment of Water and Wastewater, presented at the Joint CSCE-ASCE National Conference on Environmental Engineering, July 13-15, Vancouver, B.C., Canada.
- 1988 Cooper, W.J., R.G. Zika, R.G. Petasne and A.M. Fischer. Sunlight Induced Photochemistry of Oxidants in Waters Containing Humic Substances, presented at the Ninth Annual Meeting of the Society of Environmental Toxicology and Chemistry, Nov. 13-17, Arlington, VA.
- 1988 Cooper, W.J. and D.R.S. Lean. Comparison of Hydrogen Peroxide Dynamics in Marine and Fresh Water Systems, presented at the Fall Meeting/ASLO Winter Meeting of the American Geophysical Union, Dec. 5-9, San Francisco,

CA.

- 1989 Cooper, W.J., D. Sosa, E.M. Cadavid, T.D. Waite and C.N. Kurucz. Formation of Hydrogen Peroxide in Electron Irradiated Secondary Effluent, presented at the Division of Environmental Chemistry, 197th National American Chemical Society Meeting, April 9-14, Dallas, TX.
- 1989 Cooper, W.J., D.E. Meacham, M.G. Nickelsen, J.H. Greenfield, R.M. Narbaitz, T.D. Waite and C.N. Kurucz. Removal of Halogenated Methanes, Ethanes and Ethenes in Wastewater Using High Energy Electrons, presented at the American Society, 1989 I&EC Division Winter Symposium on Emerging Technologies for Hazardous Waste Treatment, May 1-4, Atlanta GA.
- 1989 T.D. Waite, C.N. Kurucz, W.J. Cooper, R. Narbaitz, J.H. Greenfield. Disinfection of Wastewater Effluents with Electron Radiation, presented at the 1989 American Society of Civil Engineers National Conference on Environmental Engineering, July 10 - 12, Austin, Texas.
- 1989 W.J. Cooper, T.D. Waite, C.N. Kurucz, R.M. Narbaitz and J.H. Greenfield. Electron Beam Irradiation: An Emerging Technology for Treatment of Water and Wastewater, presented at the American Water Works Association/Water Pollution Control Federation Specialty Conference on Residuals Management, August 13-16, San Diego, California.
- 1989 T.D. Waite, W.J. Cooper, C.N. Kurucz, R.M. Narbaitz, and J.H. Greenfield. Full Scale Treatment of Wastewater Effluent With High Energy Electrons, presented at the VII International Conference, Chemistry for the Protection of the Environment, September 4-7, Lublin, Poland.
- 1989 W.J. Cooper and T.D. Waite. Hazardous Waste Treatment Using An Innovative Treatment Technique, High Energy Electrons: An Overview, presented at the 198th American Chemical Society National Meeting, Division of Environmental Chemistry, September 10-15, Miami, Florida.
- 1989 E.M. Cadavid, W.J. Cooper, D.B. Sosa, M.G. Nickelsen, D.E. Meacham, C.N. Kurucz, T.D. Waite. Removal of Trihalomethanes in Wastewater by High Energy Electrons, presented at the 198th American Chemical Society National Meeting, Division of Environmental Chemistry, September 10-15, Miami, Florida.
- 1989 M.G. Nickelsen, W.J. Cooper, D.E. Meacham, M.A. Quinones, C.N. Kurucz, T.D. Waite, E.W. Merrill, D.E. Savage. High Energy Electron Irradiation of Oxygenated Secondary Effluent for the Removal of Benzene and Substituted Benzene Compounds, presented at the 198th American Chemical Society National Meeting, Division of Environmental Chemistry, September 10-15, Miami, Florida.
- 1989 D.B. Sosa, W.J. Cooper, E.M. Cadavid, R.M. Narbaitz, T.D. Waite, C.N. Kurucz. Formation of Hydrogen Peroxide in Electron Irradiated Secondary Effluent, presented at the 198th American Chemical Society National Meeting, Division of Environmental Chemistry, September 10-15, Miami, Florida.
- 1989 M.A. Quinones, W.J. Cooper, M.G. Nickelsen, D.E. Meacham, T.D. Waite, C.N. Kurucz. Removal of Phenols and Substituted Phenols from Chlorinated Wastewater Using High Energy Electrons, presented at the 198th American Chemical Society National Meeting, Division of Environmental Chemistry, September 10-15, Miami, Florida.
- 1989 D.E. Meacham, W.J. Cooper, M.G. Nickelsen, T.D. Waite, C.N. Kurucz. Halogenated Ethanes and Ethenes Removal from Anaerobic Secondary Effluent by High Energy Electron Radiation, presented at the 198th American Chemical Society National Meeting, Division of Environmental Chemistry, September 10-15, Miami, Florida.
- 1989 J.H. Greenfield, W.J. Cooper, R.M. Narbaitz, T.D. Waite. Electron Beam Irradiation of Secondary Effluents, presented at the Water Pollution Control Federation 62nd Annual Conference, October 15-19, San Francisco, California.
- 1989 W.J. Cooper, T.D. Waite, C.N. Kurucz, R.M. Narbaitz and J.H. Greenfield. High Energy Electrons as a Process for the Treatment of Wastewater, presented at the Water Pollution Control Federation Asia/Pacific Conference on Water Pollution Control, Oct. 22 - 25, Honolulu, Hawaii.

- 1990 E.M. Cadavid, W.J. Cooper, M.G. Nickelsen, C.N. Kurucz, T.D. Waite. Removal of the Trihalomethanes from Waters of Varying Quality Utilizing High-Energy Electrons, presented at the National Meeting of the American Chemical Society, Division of Environmental Chemistry, April 22 - 27, Boston, Mass.
- 1990 T.C. Taylor, W.J. Cooper, M.G. Nickelsen, C.N. Kurucz, T.D. Waite. Removal of Bicyclic Organochlorine Pesticides From Waters of Varying Quality Utilizing High-Energy Electrons: Dieldrin, presented at the National Meeting of the American Chemical Society, Division of Environmental Chemistry, April 22 - 27, Boston, Mass.
- 1990 W.J. Cooper, M.G. Nickelsen, D.E. Meacham, T.D. Waite, C.N. Kurucz. Treatment of Industrial Hazardous Wastes with High Energy Electrons, presented at the Hazardous Materials Control Research Institute's 7th National RCRA/Superfund Conference, May 2-3, St. Louis, Missouri.
- 1990 C.N. Kurucz, T.D. Waite, W.J. Cooper, R.M. Narbaitz. Full Scale Electron Beam Treatment of Hazardous Wastes - Effectiveness and Costs, presented at the 45th Annual Purdue Industrial Waste Conference, May 8-10, Purdue University, West Lafayette, Indiana.
- 1990 W.J. Cooper and M.G. Nickelsen, T.D. Waite and C.N. Kurucz. High Energy Electron Beam Irradiation: An Innovative Treatment Process for the Treatment of Aqueous Based Organic Hazardous Wastes, presented at the Fifth Annual Aerospace Hazardous Waste Minimization Conference, May 22-24, Costa Mesa, California.
- 1990 W.J. Cooper, T.D. Waite, C.N. Kurucz. High Energy Electron Beam Irradiation: An Advanced Oxidation Process or the Treatment of Aqueous-Based Organic Hazardous Wastes, presented at the Symposium on Advanced Oxidation Processes for the Treatment of Contaminated Water and Air, June 4 - 5, Toronto, Ontario, Canada.
- 1990 T.D. Waite, W.J. Cooper, C.N. Kurucz. Recent Advances in Electron Beam Irradiation of Wastewater and Hazardous Waste, presented at the ASCE National Conference on Environmental Engineering, July 8-11, Washington D.C.
- 1990 S. Mane, J. Greenfield, R. Narbaitz, T. Bhatt, W. Cooper, T. Waite, C. Kurucz. BOD, COD, and TOC Relationships of Various Wastewaters Subjected to Electron Beam Irradiation, presented at the ASCE National Conference on Environmental Engineering, July 8-11, Washington, D.C.
- 1990 T.D. Waite and C.N. Kurucz, W.J. Cooper and M.G. Nickelsen. Utilizing High Energy Electrons for Treatment of Industrial Wastes Containing Non-Biodegradable and Toxic Organic Compounds, presented at the 22nd Mid-Atlantic Industrial Waste Conference, July 25-27, Drexel University, Philadelphia, Pennsylvania.
- 1990 T.D. Waite, J.H. Greenfield, C.N. Kurucz, W.J. Cooper, S. Mane, T. Bhatt. Electron Beam Irradiation of Domestic Sewage for Direct Disposal to the Environment, presented at the 63rd Annual Conference of the Water Pollution Control Federation, October 7-11, Washington, D.C.
- 1990 W.J. Cooper, M.G. Nickelsen, D.E. Meacham, T.D. Waite, C.N. Kurucz. Treatment of Complex Mixtures of Toxic Chemicals Using an Innovative Treatment Process: High Energy Electron Irradiation, presented at the 63rd Annual Conference of the Water Pollution Control Federation, October 7-11, Washington, D.C.
- 1990 W.J. Cooper, T.D. Waite, C.N. Kurucz, M.G. Nickelsen, D.E. Meacham. High Energy Electron Beam Irradiation: Quantitative Evaluation of Factors Affecting Removal of Toxic Chemicals from Aqueous Solution, presented at the Superfund '90 Conference and Exhibition, November 26-28, Washington, D.C.
- 1991 W.J. Cooper, T.D. Waite, C.N. Kurucz, M.G. Nickelsen, D.A. Meacham. High Energy Electron Beam Irradiation: An Emerging Technology for the Removal of Hazardous Organic Chemicals From Water and Sludge - An Introduction, presented at the 17th Annual Hazardous Waste Research Symposium, April 9-11, Cincinnati, Ohio.
- 1991 C.N. Kurucz, W.J. Cooper, T.D. Waite, M.G. Nickelsen and K. Lin. High-Energy Electrons for the Removal of Hazardous Organic Compounds, presented at the EPA Third Forum on Innovative Hazardous Waste Treatment

Technologies: Domestic and International, June 11-13, Dallas, Texas.

- 1991 W.J. Cooper, M.G. Nickelsen, D.E. Meacham, K. Lin, T.D. Waite, C.N. Kurucz. Effect of Solids on the Removal of Toxic Organic Compounds in Aqueous Solution Using High Energy Electron Beam Irradiation, presented at the VIII International Conference - Chemistry for Protection of the Environment, September 16-19, Lublin, Poland.
- 1991 C.N. Kurucz, T.D. Waite, W.J. Cooper, M.G. Nickelsen. Treatment of Hazardous Industrial Wastewater and Contaminated Groundwater Using Electron Beam Irradiation, presented at the VIII International Conference - Chemistry for Protection of the Environment, September 16-19, Lublin, Poland.
- 1991 T.D. Waite, C.N. Kurucz, W.J. Cooper. Recent Advances in Electron Beam Irradiation of Toxic Substances at Full Scale, presented at the Annual Meeting of the American Institute of Chemical Engineers, November 17-22, Los Angeles, CA.
- 1992 W.J. Cooper, T.D. Waite, and C.N. Kurucz. Decontaminating of Water Using Energized Electrons, presented at the Washington Academy of Sciences program on Electron Chemistry for Decontamination -- A Shocking Experience, January 16, 1992, Washington D.C.
- 1992 D.R.S. Lean and W.J. Cooper. Hydrogen Peroxide (H₂O₂) Formation and Decay in Lakewaters, presented at the American Society of Limnology and Oceanography (ASLO) 92 Aquatic Sciences Meeting, February 9-14, 1992, Santa Fe, New Mexico.
- 1992 T.D. Waite, C.N. Kurucz, W.J. Cooper, M.G. Nickelsen. High Energy Electrons: Innovative Treatment for Detoxifying Wastestreams and Contaminated Industrial Sites, presented at the International Atomic Energy Agency's International Symposium on Applications of Isotopes and Radiation in Conservation of the Environment, March 9-13, 1992, Karlsruhe, Germany.
- 1992 W.J. Cooper, K. Lin, M.G. Nickelsen, T.D. Waite and C.N. Kurucz. High Energy Electron Beam Irradiation for the Destruction of Hazardous Chemicals, presented at the 40th Annual Scientific Meeting of the Radiation Research Society, March 14-18, 1992, Salt Lake City, Utah.
- 1992 C. Shao, W.J. Cooper, and D.R.S. Lean. Sunlight Induced Singlet Oxygen Formation in Natural Waters, presented at the 203rd National Meeting, American Chemical Society, Symposium on Environmental Aquatic and Surface Photochemistry, April 5-10 San Francisco, CA.
- 1992 D.R.S. Lean, W.J. Cooper, F.R. Pick. Hydrogen Peroxide (H₂O₂) Formation and Decay in Lakewaters, presented at the 203rd National Meeting, American Chemical Society, Symposium on Environmental Aquatic and Surface Photochemistry, April 5-10 San Francisco, CA.
- 1992 W.J. Cooper, T.D. Waite, C.N. Kurucz, M.G. Nickelsen and K. Lin. High Energy Electron Beam Irradiation: An Emerging Technology for the Destruction of Organic Contaminants in Water, Wastewater and Sludge, presented at the 18th Annual Risk Reduction Engineering Laboratory Research Symposium, April 14-16, Cincinnati, OH.
- 1992 William J. Cooper, Michael G. Nickelsen, Kaijun Lin, Charles N. Kurucz, Thomas D. Waite. E-Beam: The Treatment of Aqueous-Based Toxic Organic Wastes, presented at Radtech '92 North America, April 26-30, Boston, Massachusetts.
- 1992 S. Farooq, C.N. Kurucz, T.D. Waite, W.J. Cooper, S.R. Mane, and J.H. Greenfield. Treatment of Wastewater with High Energy Electron Beam Irradiation, presented at the International Association on Water Pollution Research and Control (IAWPRC) 16th Biennial International Conference, May 24-30, Washington, D.C.
- 1992 D.E. Meacham, W.J. Cooper, M.G. Nickelsen, K. Lin, D.B. Ford, C.N. Kurucz and T.D. Waite. An Innovative Treatment Process for the Removal of Trichloroethylene from Aqueous Solution Using High Energy Electrons, presented at the 85th Annual Meeting & Exhibition of the Air & Waste Management Association, June 21-26,

Kansas City, MO.

- 1992 W.J. Cooper, T.D. Waite, C.N. Kurucz, M.G. Nickelsen, K. Lin. An Overview of the Use of High Energy Electron Beam Irradiation for the Destruction of Toxic Organic Chemicals from Water, Wastewater and Waters Containing Solids, presented at the 8th International Meeting on Radiation Processing, Sept. 14 - 19, Beijing, China.
- 1992 W.J. Cooper, M.G. Nickelsen, F. Mak, K. Lin, C. Shao, T.D. Waite, C.N. Kurucz. TCE and Carbon Tetrachloride Removal at Large Scale Using Electron-Beam Irradiation, presented at the ACS I&EC Division Special Symposium on Emerging Technologies for Hazardous Waste Management, Sept. 21 - 23, Atlanta, GA.
- 1992 C.N. Kurucz, T.D. Waite, W.J. Cooper, M.G. Nickelsen. Electron Beam Treatment of Ground and Surface Waters, presented at the International Symposium on Environmental Contamination in Central and Eastern Europe, October 12-16, Budapest, Hungary.
- 1992 K.E. O'Shea, S. Beightol, D.V. Kalen and W.J. Cooper. Photocatalytic Decomposition of Organophosphorus Compounds on Irradiated TiO₂ Suspensions, presented at the 1st International Conference on Titanium Dioxide Photocatalytic Purification and Treatment of Water and Air, Nov. 8 - 13, London, Ontario, Canada.
- 1992 W.J. Cooper, C.N. Kurucz, T.D. Waite, M.G. Nickelsen, K. Lin. Overview of the Destruction Efficiency of Six organic Compounds of Interest to Superfund Site Remediation Using High-Energy Electron Beam Irradiation, presented at the U.S. EPA Fourth Forum on Innovative Hazardous Waste Treatment Technologies: Domestic and International, Nov. 17 - 19, San Francisco, CA.
- 1993 T.D. Waite, C.N. Kurucz, W.J. Cooper. Experiences of Treating Wastewater and Hazardous Waste at Full Scale Utilizing a Continuous Beam Electron Accelerator, presented at the Electric Power Research Institute's Symposium on Environmental Applications of Advanced Oxidation Technologies, February 22-24, San Francisco, CA.
- 1993 W.J. Cooper, M.G. Nickelsen, K. Lin, T.D. Waite, C.N. Kurucz. Summary of the Destruction Efficiency of High-Energy Electrons on Hazardous Chemicals in Water and Slurries, presented at the Electric Power Research Institute's Symposium on Environmental Applications of Advanced Oxidation Technologies, February 22-24, San Francisco, CA.
- 1993 W.J. Cooper, M.G. Nickelsen, K. Lin, T.D. Waite, C.N. Kurucz, D.V. Kalen. Electron Beam Treatment for Superfund Site Remediation, presented at the EPA 19th Annual Risk Reduction Engineering Laboratory's Hazardous Waste Research Symposium, April 13-15, Cincinnati, Ohio.
- 1993 W.J. Cooper, T.D. Waite, C. Kurucz, M.G. Nickelsen, K. Lin. High Energy Electron Beam Irradiation for the Destruction of Toxic Organic Chemicals, presented at the 1993 Conference of Radtech Europe, May 2-6, Genoa, Italy.
- 1993 M.G. Nickelsen, W.J. Cooper, K. Lin, C. Kurucz, T.D. Waite. High Energy Electron Beam Radiation Process for the Removal of Benzene and Toluene from Aqueous Solution, presented at the 1993 Conference of Rad Tech Europe, May 2-6, Genoa, Italy.
- 1993 K. Lin, W.J. Cooper, M.G. Nickelsen, C. Kurucz, T.D. Waite. Decomposition of Phenol and Its Reaction Product Formations in Aqueous Solution Using High Energy Electron Irradiation, presented at the 1993 Conference of Rad Tech Europe, May 2-6, Genoa, Italy.
- 1993 T.D. Waite, W.J. Cooper and C.N. Kurucz. Electron Beam Systems for Treatment of Water and Slurried Soils Contaminated with Toxic Organics and Ordnance Residuals, presented at the 17th Annual Army environmental R&D Symposium and Third USACE Innovative Technology Transfer Workshop, June 22 - 24, Williamsburg, Virginia.
- 1993 C.N. Kurucz, T.D. Waite, W.J. Cooper, and M.G. Nickelsen. Effects of Selected Water Quality Characteristics on

Destruction of Dissolved Organic Compounds Using Large Scale Electron Beam Treatment, presented at the AICHE Summer National Meeting, August 15 - 18, Seattle, Washington.

- 1993 W.J. Cooper, T.D. Waite, C.N. Kurucz, M.G. Nickelsen, D. Kalen and K. Lin. The Development of Electron Beam Irradiation System for the Destruction of Organic Pollutants, presented at the AICHE Summer National Meeting, August 15 - 18, Seattle, Washington.
- 1993 W.J. Cooper, F.T. Mak, M.G. Nickelsen, C.N. Kurucz and T.D. Waite. Chloroform Control Using An Innovative Treatment Process at Pilot Scale: A Kinetic Model Describing the Removal of CHCl_3 With High Energy Electron Beam Irradiation, presented before the Division of Environmental Chemistry at the 206th National Meeting of the American Chemical Society, August 22 - 27, Chicago, Illinois.
- 1993 K. Sawal, B. Millington, R.A. Slifker, W.J. Cooper, M.G. Nickelsen, C.N. Kurucz and T.D. Waite. Disinfection By-Products/Precursor Control Using an Innovative Treatment Process - High Energy Electron Beam Irradiation, presented before the Division of Environmental Chemistry at the 206th National Meeting of the American Chemical Society, August 22 - 27, Chicago, Illinois.
- 1993 T.D. Waite, W.J. Cooper, M.G. Nickelsen, K. Lin, D. Kalen C.N. Kurucz. Destruction of Organic Compounds Using Large-Scale Electron Beam Treatment, presented at the Fine Particle Society, August 24 - 27, Chicago, Illinois.
- 1993 H.R. Fuentes, V.A. Tsihrintzis, R. Jaffe and W.J. Cooper. FIU: Bridge to the Americas, presented at the InterAmerican Dialogue on Water Management, The Global tomorrow Coalition, Oct. 27 - 30, Miami, FL.
- 1993 T. Wang, T.D. Waite, C.N. Kurucz, and W.J. Cooper. Sludge Disinfection, Dewatering and Conditioning by High Energy Electron Beam Treatment, presented at the Water Environment Federation Conference, October, Anaheim, CA.
- 1993 W.J. Cooper, T.D. Waite, C.N. Kurucz and M.G. Nickelsen. The Use of High Energy Electron Beam Irradiation for the Destruction of Halogenated Organic Compounds in Water and Soil, presented at the 2nd International HCH-Forum. Oct. 27 - 28, Magdeburg, Germany.
- 1993 C.N. Kurucz, T.D. Waite, W.J. Cooper and M.G. Nickelsen. High Energy, High Current E-Beam Destruction of Toxic Wastes, presented at Council on Ionizing Radiation Measurements and Standards (CIRMS) Annual Meeting, Nov. 8 - 10, Gaithersburg, MD.
- 1993 C.N. Kurucz, T.D. Waite, W.J. Cooper and M.G. Nickelsen. Contaminated Groundwater Control Using Electron Beam Treatment Systems, presented at the HMCRI Superfund XIV Conference and Exhibition, Nov 30 - Dec. 2, Washington, D.C.
- 1994 W.J. Cooper, C.N. Kurucz, T.D. Waite, M.G. Nickelsen. The Innovative Electron Beam Treatment Process for Hazardous Waste Site Remediation, presented at the Water Environment Federation Conference, Innovative Solutions to Contaminated Site Remediation, March 6 - 9, Miami, FL.
- 1994 W.J. Cooper, M.G. Nickelsen, T.D. Waite and C.N. Kurucz. The Electron Beam Treatment Process for Site Remediation, presented at the National American Chemical Society, March 13 - 18, San Diego, CA
- 1994 J.P. Lopez, W.J. Cooper, R.A. Slifker, L. Rossell, T.D. Waite, C.N. Kurucz and M.G. Nickelsen. Removal of 1,1,1-Trichloroethane from Aqueous Solutions Using the High Energy Electron Beam Process, presented at the National American Chemical Society, March 13 - 18, San Diego, CA.
- 1994 W.J. Cooper, D.C. Kajdi, C.N. Kurucz, M.G. Nickelsen and T.D. Waite. Applications of the Electron Beam Treatment Process to Multi-Source hazardous Waste Leachate Treatment, presented at the USEPA 20th Annual RREL Research Symposium, March 15 - 17, Cincinnati OH.

- 1994 W.J. Cooper, M.G. Nickelsen, K. Lin, C.N Kurucz, T.D. Waite, J. Bibler and R. Dougal. The Removal of Benzene in a Simulated Low-Level Mixed Waste, presented at the Federal Environmental Restoration III & Waste Minimization II Conference & Exhibition. April 27 - 29, New Orleans, LA.
- 1994 C.N. Kurucz, W.J. Cooper, T.D. Waite, M.G. Nickelsen, and D.C. Kajdi. An Innovative Treatment Process for Department of Defense Installation Restoration, presented at the Federal Environmental Restoration III & Waste Minimization II Conference & Exhibition. April 27 - 29, New Orleans, LA.
- 1994 H.R. Fuentes, and W.J. Cooper. Pollution Prevention: A Timely Option for the Hemisphere, presented at the Inter-American Conference on Environmental Issues, May 2 - 4, San Salvador, El Salvador.
- 1994 W.J. Cooper, H.R. Fuentes, T.D. Waite and C.N. Kurucz. Advance Oxidation of Organic Pollutants by High Energy Electron Beam Irradiation, presented at the Inter-American Conference on Environmental Issues, May 2 - 4, San Salvador, El Salvador.
- 1994 M.G. Nickelsen, W.J. Cooper, T.D. Waite, C.N. Kurucz, and D.C. Kajdi. Electron Beam Treatment of Uncontrolled Hazardous Waste Leachate, presented at the 5th Forum on Innovative Hazardous Waste Treatment Technologies: Domestic and International. May 3 - 5, Chicago IL.
- 1994 W.J. Cooper. Radiation Chemistry and Its Application to Hazardous Waste Treatment, presented at the NSF Workshop on Applications of Ionizing Radiation for Decontamination of Environmental Resources, June 1 - 3, 1994, Miami, FL.
- 1994 C.N. Kurucz, T.D. Waite and W.J. Cooper. The Use of Electron Beam Irradiation for the Treatment of Water and Other Environmental Applications, presented at the IEEE International Conference on Plasma Science, June 6 - 8, 1994, Santa Fe, NM.
- 1994 Waite, T.D., C.N. Kurucz and W.J. Cooper. Electron Beam Treatment of Wastewater and Bioresiduals, presented at EPA's National Municipal Technology Transfer Workshop, Jun 8 - 10, Kansas City, MI.
- 1994 Cooper, W.J., C.N. Kurucz, T.D. Waite and M.G. Nickelsen. Electron Beam Treatment of Toxic Organic Compounds at Full-Scale - A Review, presented at the 1st International Conference on Advanced Oxidation Technologies for Water and Air Remediation, June 25 - 30, London, Ontario, Canada.
- 1994 Siddiqui, M., G. Amy, W.J. Cooper, C.N. Kurucz and T.D. Waite. Removal of Bromate After Ozonation by Electron Beam Irradiation, presented at the ASCE Specialty Conference, Environmental Engineering, July 11 - 13, Boulder, Colorado.
- 1994 Cooper, W.J., T.D. Waite and C.N. Kurucz. Application of Radiation Chemistry to Hazardous Waste Site Remediation, presented at the Gordon Conference on Radiation Chemistry, July 17 - 22, Newport RI.
- 1994 Cooper, W.J., M.G. Nickelsen, C.N. Kurucz, T.D. Waite. Innovative Electron Beam Treatment Process for Hazardous Waste Site Remediation, presented at the National Ground Water Association, Eastern Regional Focus conference, Oct. 3 - 5, Burlington, VT.
- 1994 Cooper, W.J., M.G. Nickelsen, C.N. Kurucz, T.D. Waite. Development of an Innovative Treatment Process for Site Remediation, presented at the Florida Environmental Chemistry Conference, Oct. 25 - 29, Palm Coast, FL.
- 1994 Kurucz, C.N., T.D. Waite, D.C. Kajdi, M.G. Nickelsen and W.J. Cooper. A Mobile Electron Beam system for Treating Water and Wastewater, presented at the 13th International conference, Application of Accelerators in Research and Industry, Nov. 7 - 10, Denton, TX.
- 1994 Cooper, W.J., M.G. Nickelsen, C.N. Kurucz, T.D. Waite, and D.C. Kajdi. Application of a Mobile Electron Beam

System for the Treatment of Hazardous Waste, presented at the Superfund XV, Nov. 29 - Dec. 1, Washington, DC.

- 1995 Tigani, R.A., J.P. Lopez, W.J. Cooper, T.D. Waite and C.N. Kurucz. The use of Ionizing Radiation for Pollution Control, presented at the 209th American Chemical Society National Meeting, Apr. 3 - 7, Anaheim, CA.
- 1995 Cooper, W.J., M.G. Nickelsen, T.D. Waite, C.N. Kurucz, D. Kajdi, F. Gensel, M.K. Stinson Case Studies of the High Voltage Electron Beam Technology Wastewater Treatment, presented at the US EPA, RREL Conference, Apr. 3 - 5, Cincinnati, OH.
- 1995 Waite, T.D. C.N. Kurucz, and W.J. Cooper. Water and Waste-Water Treatment Utilizing High Energy Electrons: Perspectives and Case Studies, presented at the annual Meeting of the American Nuclear Society, June 25 - 29, Philadelphia, PA.
- 1995 Cooper, W.J., T.D. Waite, C.N. Kurucz, M.G. Nickelsen and D.C. Kajdi. The Application of Electron Beam Treatment for Water, Wastewater Management in the Electronics Industry, presented at the summer meeting of the American Institute of Chemical Engineers, Jul 31 - Aug 2, Boston, MA.
- 1995 Cooper, W.J., M.G. Nickelsen, D.C. Kajdi, C.N. Kurucz and T.D. Waite. High-Energy Electron Beam Treatment for Drinking Water Disinfection, Precursor Removal, and Disinfection By-Product (DBP) Control, presented at the 210th ACS National Meeting, August 20 - 24, Chicago, IL.
- 1995 Siddiqui, M., G. Amy and W.J. Cooper. Disinfection By-Products Control by High-Energy Electron Beam (HEEB) Irradiation, presented at the 210th ACS National Meeting, August 20 - 24, Chicago, IL.
- 1995 Kurucz, C.N., T.D. Waite and W.J. Cooper. Economics of Large-Scale Electron Beam Treatment of Water, presented at the 1995 International Chemical Congress of Pacific Basin Societies, December 17 - 22, Honolulu, HI.
- 1995 Zele, S.R., M.G. Nickelsen, W.J. Cooper, C.N. Kurucz and T.D. Waite. Modeling Removal of Benzene and Toluene from Aqueous Solutions using Electron Beam Irradiation, presented at the 1995 International Chemical Congress of Pacific Basin Societies, December 17 - 22, Honolulu, HI.
- 1996 Cooper, W.J., C.N. Kurucz and T.D. Waite. High Energy Electron Beam Irradiation of Water, Wastewater and Sludge, presented at the 1996 Borchardt Conference, January 30 - February 1, Ann Arbor, MI.
- 1996 Cooper, W.J., T.D. Waite, C.N. Kurucz, M.G. Nickelsen and D.C. Kajdi. A Highly Versatile Treatment System for Reclaiming Water: The Electron Beam Process, presented at Water Reuse 96, Feb. 25 - 28, San Diego, CA.
- 1996 Cooper, W.J., D.C. Kajdi, M.G. Nickelsen, J.E. Cooper, T.D. Waite, and C.N. Kurucz. Field Demonstrations of the Electron Beam Process on Contaminated Waters and Industrial Wastes using a 20 kW Mobile System, presented at the Second International Symposium on Environmental Applications of Advance Oxidation Technologies, Feb 28 - Mar 1, San Francisco, CA.
- 1996 Kurucz, C.N., T.D. Waite, J. Green, Y. Sheng and W.J. Cooper. Large Scale Electron Beam Irradiation of Simulated Dye Wastewater, presented at the Second International Symposium on Environmental Applications of Advance Oxidation Technologies, Feb 28 - Mar 1, San Francisco, CA.
- 1996 Cooper, W.J., T.D. Waite, C.N. Kurucz, M.G. Nickelsen and D.C. Kajdi. The Electron Beam Process: Bench Scale, Pilot Scale and Field Demonstrations, presented at the 28th Mid-Atlantic Industrial and Hazardous Waste conference, Jul 15 - 17, Buffalo, NY.
- 1996 Bolton, J.R., J.E. Valladares, W.J. Cooper, T.D. Waite and C.N. Kurucz. Figures of Merit for Advanced Oxidation Processes - A Comparison of Homogeneous UV/H₂O₂, Heterogeneous TiO₂ and Electron Beam Processes, presented at the IUPAC Symposium on Photochemistry, July 21 - 28, Helsinki, Finland.

- 1996 Bolton, J.R., J.E. Valladares, J.P. Zanin, W.J. Cooper, M.G. Nickelsen, D.C. Kajdi, T.D. Waite and C.N. Kurucz. Figures of Merit for Advanced Oxidation Processes: A Comparison of Homogeneous UV/H₂O₂, Heterogeneous UV/TiO₂ and Electron Beam Processes, presented at The 2nd TiO₂ Conference, October 26 - 29, Cincinnati, Ohio.
- 1996 Cooper, W.J., M.G. Nickelsen, D.C. Kajdi, T.D. Waite and C.N. Kurucz. The High Energy Electron Beam treatment Process: An Innovative Technology for the On-Site Destruction of Regulated Organic Compounds, presented at the World Environment Congress, October 26 - 29, Cincinnati, Ohio.
- 1996 Cooper, W.J., S.R. Zele, T.D. Waite, C.N. Kurucz, D. C. Kajdi and M.G. Nickelsen. Recent Advances in the Application of Electron Beam Processing to Pollution Control, presented at The 22nd Japan Conference on Radiation and Radioisotopes, December 17 - 19, Yokohama, Japan.
- 1997 Cooper, W.J., N.M. Scully, R.D. Jones, R.A. Larson, D.R.S. Lean, W.F. Vincent, and R.G. Zepp. The Effects of Stratospheric Ozone Depletion on Mid-Latitude Lake Ecosystems, presented at the Aquatic Sciences Meeting, ASLO 97, Santa Fe, NM, Feb. 10 - 14.
- 1997 Cooper, W.J., M.G. Nickelsen, D.C. Kajdi, C.N. Kurucz and T.D. Waite. Field Scale Evaluation of the High Energy Electron Beam Treatment Process using a Mobile 20 kW System, presented at the 213th American Chemical Society National Meeting, San Francisco, CA, April 13 - 17.
- 1997 Cooper, W.J. Drinking Water Quality, Disinfection By-Products and the Re-Authorization of the Safe Drinking Water Act, presented at the 1997 National Meeting of the American College of Occupational and Environmental Medicine, Orlando, FL, May 9 - 16.
- 1997 Cooper, W.J., M.G. Nickelsen, D.C. Kajdi, C.N. Kurucz and T.D. Waite. The Application of High Energy Electron Beam Irradiation in Pollution Control: An Overview and Research Needs, presented at the 214th American Chemical Society National Meeting, Las Vegas, NM, Sep 8 - 11.
- 1997 Waite, T.D., C.N. Kurucz, W.J. Cooper and D. Brown. Full Scale Electron Beam systems for treatment of Water, Wastewater and Medical Waste, presented at IAEA Symposium, Radiation technology for conservation of the environment, Zakopane, Poland, Sep. 8 - 12.
- 1997 Kurucz, C.N., H. An, J. Greene, T.D. Waite, W.J. Cooper and W.Z. Tang. Dye Decolorization Using Fe²⁺ and High-Energy Electron Beam Irradiation, presented at the 9th Emerging Technologies Symposium, Pittsburgh, PA, Sep. 15 - 17.
- 1997 Cooper, W.J., C.N. Kurucz, T.D. Waite, M.G. Nickelsen and D.C. Kajdi. Environmental Applications of Electron Accelerators: Large Scale (75 kW) and Mobile Systems (20 kW), presented at the 1997 American Nuclear Society Winter Meeting, Albuquerque, NM, Nov. 16 - 20.
- 1998 Cooper, W.J. Kinetic Modeling as a Tool for Optimizing the Electron Beam Process, presented at the 1998 Gordon Conference in Radiation Chemistry, Salve Regina University, Newport, RI, July 5 - 9.
- 1998 Tornatore, P.M., K.S. Newman, K. Gregorie, W.J. Cooper, T. Tobien, M.G. Nickelsen, G. Inclan. Remediation of MTBE contaminated Drinking Water supplies with High Energy electron Beam Injection, presented at the 30th Mid-Atlantic Industrial and Hazardous Waste Conference, Philadelphia, PA, July 12 - 15.
- 1998 Cooper, W.J., T. Tobien, M.G. Nickelsen, P.M. Tornatore, K.S. Newman, K. Gregorie. Remediation of MTBE Contaminated Groundwater with High Energy Electron Beam Injection, presented at the National Conference on Environmental Remediation Science and Technology, Greensboro, NC, Sept. 8 - 10.
- 1998 Tobien, T., M.G. Nickelsen, W.J. Cooper, K.E. O'Shea and K.-D. Asmus. An Environmental Application of Free Radical Chemistry: The Removal of Aromatic Thioethers from Water, presented at the South Eastern Regional Meeting of the ACS, Research Triangle Park, NC, Nov. 4 - 11.

- 1998 Moegling, J.K., W.J. Cooper, J.J. Kiddle and R.J. Kieber. Application of a Chemiluminescence Method for the Analysis of H₂O₂ in Surface Water with Varying Natural Organic Matter Concentrations, presented at the Society for Environmental Toxicology and Chemistry. Charlotte, NC, Nov. 16-19.
- 1999 Cooper, W.J. and T. Tobien. Application of Techniques in Radiation Chemistry to Study Disinfection By-Product Control, presented at the 217th American Chemical Society National Meeting, Anaheim, CA, Mar. 21 - 25.
- 1999 Cooper, W.J., J.K. Moegling, J.J. Kiddle and R.J. Kieber. A Chemiluminescent Method for the Determination of H₂O₂ in Waters with High Dissolved Organic Matter, presented at the 217th American Chemical Society National Meeting, Anaheim, CA, Mar. 21 - 25.
- 1999 Cooper, W.J., T. Tobien and K.-D. Asmus. Drinking Water Treatment: Contributions of Radiation Chemistry to Improving the Application of AOP's for Disinfection By-Product Control, presented at the 5th Symposium on Advanced Oxidation Technologies, Albuquerque, May 25 - 27.
- 1999 Cooper, W.J., T. Tobien and J. Williams. Kinetic Modeling of Radiation Chemistry: The Bridge Between Basic Research and Application, presented at the International Conference on Future Nuclear Systems, Jackson Hole WY, Aug 29 - Sep. 3.
- 1999 Slifko, T.R., J.B. Rose, M.G. Nickelsen and W.J. Cooper. Inactivation of Waterborne Microorganisms by a High Energy Electron Beam: A Large Scale Study, presented at the 1999 International Symposium on Waterborne Pathogens, in Milwaukee, Wisconsin, Aug. 29 - Sep. 1.
- 1999 Cooper, W.J., P.M. Tornatore, P.A. Hajali, G.D. Leslie, W.C. Hardison. MTBE and Priority Contaminant Treatment with High Energy Electron Injection, presented at the 48th Chemical and Processing Industry, 99 Chem Show, New York, NY, Nov. 16-18
- 2000 Kieber, R.J., B.A. Jacobs, W.J. Cooper and J.D. Willey. Iron speciation in rainwater: concentration and Deposition to Seawater, presented at the 2000 Ocean Sciences Meeting, San Antonio, TX, Feb.
- 2000 Mezyk, S.P., W.J. Cooper, D.M. Bartels, T. Tobien and K.E. O'Shea. Radiation chemistry of alternative fuel oxygenates - substituted ethers, presented at the 218th American Chemical Society National Meeting, San Francisco, March 26 - 31.
- 2000 Williams, J.A., W.J. Cooper, T. Tobien, S.P. Mezyk, D.M. Bartels. Pulse radiolysis of chlorinated acetones, presented at the 218th American Chemical Society National Meeting, San Francisco, March 26 - 31.
- 2000 O'Shea, K.E., A.A. Larrea, D.K. Kim and W.J. Cooper. Similarities in the treatment of gasoline oxygenates by advanced oxidation processes: Product studies, kinetic evaluations and mechanistic conclusions, presented at the 218th American Chemical Society National Meeting, San Francisco, March 26 - 31.
- 2000 Hinman, N.W., C. Wilson, L. Rothschild and W.J. Cooper. Elemental Cycling in Thermal Springs, presented at the First Annual Astrobiology Science Conference, NASA Ames Research Center, April 3 - 5.
- 2000 Tornatore, P.M., S.T. Powers, W.J. Cooper and E.G. Isacoff. Emerging Treatments for MTBE Synthetic Adsorbents and High Energy Electron Injection, presented at the 2nd International Conference, Remediation of Chlorinated and Recalcitrant compounds, Monterey CA, May 22 - 25.
- 2000 Cooper, W.J., G. Leslie, P.M. Tornatore, W.C. Hardison and P.A. Hajali. MTBE and Priority Contaminant Treatment with High-Energy Electron Injection, presented at the 2nd International Conference, Remediation of Chlorinated and Recalcitrant compounds, Monterey CA, May 22 - 25.
- 2000 O'Shea, K.E., T. Wu, D.K. Kim, W.J. Cooper and S.P. Mezyk. The Degradation of Gasoline Oxygenates by

Ionizing Radiation and Other Advanced Oxidation Processes. A Mechanistic Study, presented at 6th International conference on Advanced Oxidation Technologies for Water and Air Remediation, London, Ontario, Canada, June 25 - 30.

- 2000 Tornatore, P.M., P.A. Hajali and W.J. Cooper. Emerging Treatments for MTBE Synthetic Adsorbents and High Energy Electron Injection, presented at the 32nd Mid-Atlantic Industrial and Hazardous Waste Conference, Troy, NY, June 26 - 28.
- 2000 Wilson, C.L., N.W. Hinman, N.M. Scully, T. Moore and W.J. Cooper. Photochemical Cycling of Iron and Hydrogen Peroxide, presented at the Fall Meeting 2000, American Geophysical Union, San Francisco, CA, Dec. 15 - 19.
- 2000 Hardison, D.R., W.J. Cooper, S.P. Mezyk and D.M. Bartels. Radiation Chemistry of *tert*-Butyl Formate, presented at the 2000 International Chemical Congress of the Pacific Basin Societies, Honolulu, HI, Dec. 14 - 19.
- 2000 Johnson, H., W.J. Cooper, S.P. Mezyk and D.M. Bartels. Radiation Chemistry of Monochloramine, presented at the 2000 International Chemical Congress of the Pacific Basin Societies, Honolulu, HI, Dec. 14 - 19.
- 2000 Knapik, T.J., S.P. Mezyk, W.J. Cooper, D.R. Hardison, J.J. Kiddle, K.E. O'Shea and D.M. Bartels. The Radiation Chemistry of Halogenated Acetaldehydes, presented at the 2000 International Chemical Congress of the Pacific Basin Societies, Honolulu, HI, Dec. 14 - 19.
- 2000 Cooper, W.J., G. Leslie, P.M. Tornatore, W. Hardison and P.A. Hajali. The Electron Beam Process for the Removal of MTBE and Complex Mixtures of organic compounds, presented at the 2000 International Chemical Congress of the Pacific Basin Societies, Honolulu, HI, Dec. 14 - 19.
- 2000 R.V. Green and W.J. Cooper. The Removal of Naphthalene from Aqueous Solutions: Gamma and Electron Beam Irradiation and Kinetic Modeling, presented at the 2000 International Chemical Congress of the Pacific Basin Societies, Honolulu, HI, Dec. 14 - 19.
- 2000 Mezyk, S.P., W.J. Cooper, D.M. Bartels and K.E. O'Shea. The Radiolytic Removal of N-Nitrosodimethylamine from Contaminated Waters, presented at the 2000 International Chemical Congress of the Pacific Basin Societies, Honolulu, HI, Dec. 14 - 19.
- 2000 Williams, J.A., S.P. Mezyk, W.J. Cooper and D.M. Bartels. Radiation Chemistry of Chlorinated Acetones: Part 2, presented at the 2000 International Chemical Congress of the Pacific Basin Societies, Honolulu, HI, Dec. 14 - 19.
- 2000 O'Shea, K.E., T. Wu, D.K. Kim, W.J. Cooper and S.P. Mezyk. Mechanistic Comparisons of Radiolytic, Sonolytic and Titanium Dioxide Photocatalytic Degradation of Methyl *t*-Butyl ether (MTBE), presented at the 2000 International Chemical Congress of the Pacific Basin Societies, Honolulu, HI, Dec. 14 - 19.
- 2000 O'Shea, K.E., T. Wu, D.K. Kim, W.J. Cooper and S.P. Mezyk. The Reactions of Hydroxyl Radicals with Ethyl *t*-Butyl Ether (ETBE), *t*-Amy Methyl Ether (TAME) and Diisopropyl Ether (DIPE), presented at the 2000 International Chemical Congress of the Pacific Basin Societies, Honolulu, HI, Dec. 14 - 19.
- 2000 Nickelsen, M.G., W.J. Cooper, D. Secker, L. Rosocha, C.N. Kurucz and T.D. Waite. Simulation of PCE and TCE Removal in Aqueous Solutions by Electron Beam Irradiation, presented at the 2000 International Chemical Congress of the Pacific Basin Societies, Honolulu, HI, Dec. 14 - 19.
- 2000 Curry, R.D., W.J. Cooper, V. Bailey and H. Lackner. High Dose Rate x-Ray Destruction of Volatile Organic Compounds in Well Water, presented at the 2000 International Chemical Congress of the Pacific Basin Societies, Honolulu, HI, Dec. 14 - 19.
- 2000 Slifko, T.R., W.J. Cooper and J.B. Rose. Novel Disinfection Technology for Inactivating Waterborne Pathogens,

presented at the 2000 International Chemical Congress of the Pacific Basin Societies, Honolulu, HI, Dec. 14 - 19.

- 2001 Kieber, R.J., J.D. Willey and W.J. Cooper. Temporal Variability of Iron Speciation and Hydrogen Peroxide Concentrations at BATS: Atmospheric Influence of Seawater Concentrations, presented at ASLO 2001, Albuquerque, NM, Feb. 12 - 16.
- 2001 Cooper, W.J., N.M. Scully, C.L. Wilson, N.W. Hinman and R. Jaffe. Photochemical Modeling of Hydrogen Peroxide Formation in the Yellowstone National Park Hot Springs, presented at ASLO 2001, Albuquerque, NM, Feb. 12 - 16.
- 2001 Whitehead, R.F. G.C. Shank, S.A. Skrabal, R.J. Kieber and W.J. Cooper. Photochemical Interactions with Copper-Complexing DOM in the Cape Fear River Estuary, NC, presented at ASLO 2001, Albuquerque, NM, Feb. 12 - 16.
- 2001 Kim, D.K., K. E. O'Shea, W.J. Cooper and W. Torres. The Decomposition of MTBE in Aqueous Media by Ultrasound Irradiation. Reaction Mechanisms and the Influence of the Saturating Gas, presented at the ACS National Meeting, San Diego, April 1 - 5.
- 2001 Slifko, T.R., W.J. Cooper, S. Appelt, W. Pribil, R. Sommer, and J.B. Rose. Evaluation and Efficacy of High-Energy Electrons as a Water Treatment Process for Inactivating *Cryptosporidium parvum*, presented at the ASM 101st General Meeting, May 20 - 24.
- 2001 Slifko, T.R., W.J. Cooper, S. Appelt, W. Pribil, R. Sommer, and J.B. Rose. Evaluation and Efficacy of High-Energy Electrons as a Water Treatment Process for Inactivating *Cryptosporidium parvum*, presented at the 4th Annual Foodborne Pathogen Analysis Conference, July 15 - 18.
- 2001 Kim, D.K., K.E. O'Shea and W.J. Cooper. The decomposition of gasoline oxygenates in aqueous media by ultrasound irradiation, presented at 222nd ACS National Meeting, Chicago, Illinois, August 26 - 30.
- 2001 Cooper, W.J. S.P. Mezyk, H. Johnson, D.R. Hardison, T. Knapik, K.E. O'Shea and D.K. Kim. From nanoseconds to megaliters, presented at 222nd ACS National Meeting, Chicago, Illinois, August 26 - 30.
- 2001 Slifko, T.R., W.J. Cooper, S. Appelt, W. Pribil, R. Sommer, and J.B. Rose. Effect of ionizing radiation on waterborne pathogens and alternate indicators: *Cryptosporidium parvum*, *Klebsiella terrigena*, MS-2 f and PRD-1 f. Presentation at the International Water Association World Water Congress 2001, October 15 - 19.
- 2001 Stubblefield, W., R. Gensemer, G. Dethloff, W. Cooper, P. Dinnel, R. Herwig, M. House, J. Kopp, g. Ruiz, E. VanderWende. Ozone as a control treatment for invasive species in marine ballast waters, presented before the Ballast Water Treatment Technology, Research in Technology Conference, Interagency Committee on the Marine Transportation System, National Academy of Sciences, Nov. 15.
- 2002 Cooper, W.J., J. Cordell, P.A. Dinnel, R.W. Gensemer, R.P. Herwig, J.A. Kopp, G.M. Ruiz, G. Sonnevil, W.A. Stubblefield and E. VanderWende. Ozone, Seawater and Aquatic Nonindigenous Species: Testing a Full-Scale Ozone Ballast Water Treatment System on an American Oil Tanker, presented at the conference on Zebra Mussel and Aquatic Nuisance Species Conference, 11th International Conference on Aquatic Invasive Species, Alexandria VA, February 25 - March 1.
- 2002 Kim, D.K., K.E. O'Shea and W.J. Cooper, Ultrasonic Induced Oxidation of Gasoline Oxygenates. A Mechanistic Study, presented at the ACS National Meeting, Orlando, FL, April 7 - 11.
- 2002 Cole, S. K., R.R. Brey and W.J. Cooper. Radiation Shielding Considerations for Drinking Water Facilities Using the Irradiation Treatment Process, presented at the 12th Biennial Radiation Protection Shielding Division, American Nuclear Society National Meeting, Santa Fe, NM, April 14 - 19.
- 2002 Cooper, W.J. Water and Wastewater Treatment, presented at the American Occupational Health Conference,

Chicago, IL, April 15 - 19.

- 2002 Tornatore, P.M., M.G. Nickelsen, W.J. Cooper, A.E. Venosa and K. Greene. Field treatment demonstration for USEPA on MTBE-impacted Water supplies, presented at 3rd International conference on Remediation of chlorinated and Recalcitrant compounds, Monterey CA, May 20 - 23.
- 2002 Mincher, B.G. and W.J. Cooper. Applications of radiation chemistry for water treatment, presented at Spectrum 2002 Conference, American Nuclear Society, Reno, Nevada, August 4 - 8.
- 2002 Cooper, W.J., S.P. Mezyk, K.E. O'Shea and B.J. Mincher. Kinetic Modeling Of The Electron Beam Process: The Bridge Between Basic Research And Environmental Application, presented at the 10th Tihany Symposium on Radiation Chemistry, Sopron, Hungary, August 31 - September 5, 2002.
- 2002 Skeen, A.R., W.J. Cooper, C.R. Tomas and J.D. Willey. The Production of Hydrogen Peroxide by Heterosigma akashiwo under varying N:P Ratios, presented at The Xth International Conference on Harmful Algae, St. Petersburg, FL, October 21 - 25, 2002.
- 2002 Hardman, R. W.J. Cooper, D.G. Baden, A.J. Bourdelais and P. Gardinali. Harmful Algal Blooms In The Gulf Of Mexico: Brevetoxin Degradation And Derivative Formation Via Photochemical Processes, presented At The Xth International Conference On Harmful Algae, St. Petersburg, FL, October 21 - 25, 2002.
- 2002 Scully, N.M., Tranvik, L.J. and Cooper, W.J. Specific Mechanisms Behind Photochemical Effects on Microbial Activity: Inactivation/re-activation of extracellular enzymes, presented at the 8th Symposium on aquatic Microbiology, Taormina (Messina), Italy, Oct. 25 - 30.
- 2002 Bingham, F.M, M.K. Moss, A. Wilbur, M. Posey, L. Pietrafesa, M. Mallin, L. Leonard, T. Lankford, N. Grindlay, W. Cooper, L. Cahoon, M. Durako, L. Xie, and T. Alphin. Coastal Ocean Research and Monitoring Program at the University of North Carolina at Wilmington, presented at the Winter Meeting of the American Geophysical Union, December, 2002.
- 2003 Bingham, F.M., M. K. Moss, A. E. Wilbur, M. H. Posey, M. A. Mallin, L. A. Leonard, T. E. Lankford, N. R. Grindlay, W. J. Cooper, L. B. Cahoon, M. J. Durako, T. D. Alphin, L. J. Pietrafesa, and L. Xie. Coastal Ocean Research And Monitoring Program At The University Of North Carolina At Wilmington, presented at the Southeast Coastal Ocean Science Conference and Workshop, Charleston, SC, Jan 27 - 31.
- 2003 Herwig, R.P., J.C. Perrins, J.R. Cordell, P.A. Dinnel, R.W. Gensemer, G.M. Dethloff, G.M. Ruiz, W.J. Cooper. Ballast water treatment experiments with ozone on board the oil tanker S/T Tonsina, presented at the Third International Conference on Marine Bioinvasions. La Jolla, CA, March.
- 2003 Herwig, R.P., J.C. Perrins, J.R. Cordell, P.A. Dinnel, R.W. Gensemer, G.M. Dethloff, G.M. Ruiz, W.J. Cooper. Ballast water treatment experiments with ozone on board the oil tanker S/T Tonsina, presented at the ICES/IOC/IMO Study Group on Ballast and other Ship Vectors, Vancouver, B.C., March.
- 2003 Kowalczyk, P., J. Stoń, W.J. Cooper, R.F. Whitehead and M.J. Durako. Characterization of CDOM in the Baltic Sea by Fluorescence Excitation Emission Matrix spectra, presented at the meeting for Remote Sensing and Bio-Optical Modeling of the Baltic Sea, Helsinki, FI, Aug. 28 - 29.
- 2003 Mezyk, S.P., J. Jones, J., W.J. Cooper, K.E. O'Shea and D.K. Kim. Electron Beam Destruction of Contaminant Gasoline Additives in Water, presented at the International Congress of Radiation Research Meeting, Brisbane, Australia, Aug.
- 2003 Mezyk, S.P., W.J. Cooper, D.M. Bartels and K.E. O'Shea. Removing NDMA (N,N-dimethylnitrosamine) from Natural Waters, presented at the International Congress of Radiation Research Meeting, Brisbane, Australia, Aug

- 2003 Lahoutifard, N., S. Scott, W.J. Cooper and D.R.S. Lean. Distribution patterns of hydrogen peroxide in the Canadian high Arctic, presented at the Collaborative Mercury Research Network Annual Conference, St. Andrew, New Brunswick, Canada, Nov. 3-5.
- 2003 Peake, B.M., S.A. Rusak, W.J. Cooper, Excitation-Emission Matrix Fluorescent Spectroscopy Of Chromophoric Dissolved Organic Matter (Cdom) In Natural Waters, presented at the New Zealand Institute of Chemistry Conference, Nelson, NZ, Nov 30 – Dec 4.
- 2004 Cooper, W.J.; C.J. Cramer, N.H. Martin, S.P. Mezyk, K.E. O'Shea and C. von Sonntag. Kinetic modeling of free radical destruction of MTBE in aqueous solutions, presented at Constructing a Kinetics Database a NSF-Workshop, NIST, Gaithersburg, MD, April 19 - 21.
- 2004 Cooper, W.J., C.J. Cramer, N.H. Martin, S.P. Mezyk, K.E. O'Shea, and C. von Sonntag. A proposed mechanism for the destruction of methyl tert-butyl ether (MTBE) in water, presented at the International Symposium of Advanced Oxidation Technologies for Wastewater Treatment, Warsaw, Poland, June 18.
- 2004 Mezyk, S.P., Cooper, W.J., C.J. Cramer, N.H. Martin, K.E. O'Shea, and C. von Sonntag. Removing methyl-*tert*-butyl ether (MTBE) from water: The kinetics and mechanisms behind the electron beam advanced oxidation process, presented at the 228th National Meeting of the American Chemical Society, Philadelphia, PA, Aug. 22 - 26.
- 2004 Cooper, W.J. P.A. Tornatore, and M.G. Nickelsen. Endocrine disruptors and their treatment using the electron beam process, presented at the 4th International Conference on Pharmaceuticals and Endocrine Disrupting Chemicals in Water, Minneapolis, MN, Oct. 13 - 15, 2004
- 2004 Kahn, A., H. Young, W. Cooper, M. Durako, R. Whitehead and P. Kowalczyk. Investigating vertical and horizontal trends in the Cape Fear River Plume waters: Evidence of buoyancy-driven transport, presented at the Southeastern Estuarine Research Society, Wilmington, NC, Oct. 14 - 16.
- 2004 Cole, S.K., W.J. Cooper, R.V. Fox, P.R. Gardinali, S.P. Mezyk, B.J. Mincher and K.E. O'Shea. The Radiation Chemistry and Free Radical Treatment of Bromonitromethane, presented at the Advanced Oxidation Technologies - 10, San Diego, CA, Oct. 24 - 28.
- 2004 Mezyk, S.P., D.M. Bartels, W.J. Cooper, and K. Madden. Free Radical Destruction of NDMA, presented at the Advanced Oxidation Technologies - 10, San Diego, CA, October 24 - 28.
- 2004 O'Shea, K.E. D.K. Kim, W. J. Cooper and S.P. Mezyk. Advanced Oxidation Technologies (AOTs) for the hydroxyl radical mediated degradation of methyl t-butyl ether (MTBE), presented at the Advanced Oxidation Technologies - 10, San Diego, CA, October 24 - 28.
- 2004 Stubblefield, W., R. Gensemer, W.J. Cooper and G. Ruiz. Ballast water treatment and strategies: evaluation of efficacy and post-treatment environmental concerns, presented at the Fourth SETAC World congress and 25th Meeting in North America, Portland, OR, Nov. 14 - 18.
- 2004 Cooper, W.J., H. Young, A. C. Jones, R. Herwig, J Perrins. Effects of Ozonation on CDOM in Ballast Water, presented at the Fourth SETAC World congress and 25th Meeting in North America, Portland, OR, Nov. 14 - 18.
- 2005 Cooper, W.J., S. Snyder, M.G. Nickelsen and P.M. Tornatore. A Systematic Approach to Assessing the Application of Advanced Oxidation Technologies to treat Emerging Pollutants of Concern, presented at the 9th Annual Water Reuse Research Conference, Orlando, FL May 23-24.
- 2005 Nickelsen, M.G., P.M. Tornatore, T.R. Slifko, W.J. Cooper, Organic Chemical Removal and Pathogen Inactivation of Reclaimed Water with Electron Beam Irradiation, presented at the 9th Annual Water Reuse Research Conference, Orlando, FL May 23-24.

- 2005 Cooper, W.J., S. Mezyk, S. Snyder, M.G. Nickelsen and J. Talley. Free Radical Treatment of Emerging Pollutants of Concern, presented at the First Biennial Research and Education conference, Association of Environmental Engineers and Science Professors, Clarkson University, July 23-27.
- 2005 Nickelsen, M.G., P.M. Tornatore, W.J. Cooper. Electron Beam Injection: An Emerging Technology for the Treatment of Biologically and Chemically Contaminated Water and Wastewater Systems. Presented: Technology 2005, 2nd Joint Specialty Conference for Sustainable Management of Water Quality Systems for the 21st Century. San Francisco, CA, August 28-31.
- 2005 Gonsior, M., B.M. Peake and W.J. Cooper. Singlet oxygen (¹O₂) photochemical production in a fjord: Doubtful Sound, New Zealand. Presented at the 2005 Chemical Congress of the Pacific Basin Societies, Honolulu, HI Dec. 15 – 20.
- 2005 Richard, L.E. S.A. Rusak, B.M. Peake and W.J. Cooper. Long-term trends in steady-state hydrogen peroxide levels in relation to solar radiation in the Water of Leith, Dunedin, New Zealand. Presented at the 2005 Chemical Congress of the Pacific Basin Societies, Honolulu, HI Dec. 15 – 20.
- 2005 Rusak, S.A., L.E. Richard, B.M. Peake and W.J. Cooper. Steady-state hydrogen peroxide concentrations across the Subtropical convergence east of New Zealand. Presented at the 2005 Chemical Congress of the Pacific Basin Societies, Honolulu, HI Dec. 15 – 20.
- 2005 Rusak, S.A., L.E. Richard, B.M. Peake and W.J. Cooper. Decomposition of hydrogen peroxide in natural waters: the role of catalase. Presented at the 2005 Chemical Congress of the Pacific Basin Societies, Honolulu, HI Dec. 15 – 20.
- 2005 Peake, B.M., W.J. Cooper, S.A. Rusak, T.D. Waite, A. Rose. Hydrogen peroxide in rain and other natural waters. Presented at the 2005 Chemical Congress of the Pacific Basin Societies, Honolulu, HI Dec. 15 – 20.
- 2005 Graham, S.G., W.J. Cooper, M.G. Nickelsen, C.N. Kurucz and T.D. Waite. Destruction and kinetic modeling of chloroform and trichloroethylene mixtures using high energy electron beam irradiation. Presented at the 2005 Chemical Congress of the Pacific Basin Societies, Honolulu, HI Dec. 15 – 20.
- 2005 Cole, S.K., W.J. Cooper, S.P. Mezyk, R.V. Fox, B.J. Mincher, P.R. Gardinali and K.E. O’Shea. Overview of rate constants and reaction mechanisms for the free radical treatment of halonitromethanes. Presented at the 2005 Chemical Congress of the Pacific Basin Societies, Honolulu, HI Dec. 15 – 20.
- 2005 Cockrell, G., W.J. Cooper, B.J. Mincher and R.V. Fox. Free radical destruction of formic and oxalic acids in aqueous solution. presented at 2005 Chemical Congress of the Pacific Basin Societies, Honolulu, HI Dec. 15 – 20.
- 2005 Razavi, B., D. Ewing, S.P. Mezyk, J.J Kiddle, W.J. Cooper, The removal of nitramines (R₂N-NO₂) from waters using free radicals, Presented at the 2005 International Chemical Congress of Pacific Basin Societies, Honolulu, HI, USA, Dec. 15-20.
- 2006 Rusak, S.R., L.E. Richard, B.M. Peake and W.J. Cooper. Trends in hydrogen peroxide levels in relation to solar radiation in the Water of Leith. Presented at “Advances in UV studies, Dunedin, New Zealand, April
- 2006 Rusak, S.R., L.E. Richard, B.M. Peake and W.J. Cooper. Steady state hydrogen peroxide concentrations across the Subtropical convergence east of New Zealand. Presented at “Advances in UV studies, Dunedin, New Zealand, April.
- 2006 Cooper, W.T., L.B. Tremblay, T. Dittmar, M. Huettel, J. Kosta and W.J. Cooper. Molecular characterization of terrestrially-derived DOM in estuaries using ultrahigh resolution mass spectrometry and 3-D fluorescence spectroscopy. Presented at the ASLO Summer meeting, Victoria, B.C., June.
- 2006 Cooper, W. T., L. Tremblay, T. Dittmar, M. Huettel, J. Kostka and W. J. Cooper. Molecular Characterization of Terrestrially-Derived DOM in Estuarine and Marine Environments using Ultrahigh Resolution Mass Spectrometry

and 3-D Excitation/Emission Spectroscopy . Presented at the International Humic Substances Society, July

- 2006 Cooper, W.J.; S.K. Cole; S.P. Mezyk; P.R. Gardinali; R.V. Fox; B.J. Mincher; and K.E. O'Shea. Radiation Chemistry of Halonitromethanes – an Emerging Class of Disinfection By-Products in Water Treatment, presented at the 11th Tihany Symposium on Radiation Chemistry, Eger, Hungary, Aug. 26-31.
- 2006 Cooper, W.J.; S.P. Mezyk; S.K. Cole; R.V. Fox; B.J. Mincher; K.E. O'Shea and P.R. Gardinali. Free Radical Chemistry and Treatment of Halonitromethanes: Possible Reaction By-Products in Water Intended for Reuse, presented at the 21st Annual WateReuse Symposium, Hollywood, CA, September 10-13.

D. Journal Editor (Special Issues)

- 1998 Cooper, W.J., R.D. Curry and K.E. O'Shea. *Journal of Advanced Oxidation Technologies*. 3(1): 11 - 123.
- 2002 Cooper, W.J., R.D. Curry, B.J. Mincher and K.E. O'Shea. *Radiation Physics and Chemistry* 65:299-587.

E. Reports

- Guter, K.J., and W.J. Cooper. The Evaluation of Existing Field Test Kits for Determining Free Chlorine Residuals in Aqueous Solutions. USAMEERU Report 73-03, US Army Medical Environmental Engineering Research Unit, Edgewood Arsenal, MD. AD 752440, 1973.
- Luckan, S.K., and W.J. Cooper. Preliminary Sampling Methodology and Analytical Procedures for Ambient Sulfur Hexafluoride. USAMEERU Report 73-05, US Army Medical Environmental Engineering Research Unit, Edgewood Arsenal, MD. AD 759131, 1973.
- Cooper, W.J., E.P. Meier, J.W. Highfill and C.A. Sorber. The Evaluation of Existing Field Test Kits for Determining Free Chlorine Residuals in Aqueous Solutions, Final Report. Technical Report 7402, US Army Medical Bioengineering Research and Development Laboratory, Fort Detrick, MD. AD 780054, 1974.
- Meier, E.P., W.J. Cooper and C.A. Sorber. Development of a Rapid Specific Free Available Chlorine Test with Syringaldazine (FACTS). Technical Report 7405, US Army Medical Bioengineering Research and Development Laboratory, Fort Detrick, MD. AD 780857, 1974.
- Dennis, W.H., Jr., and W.J. Cooper. Nickel Boride Catalyzed Dechlorination of Several Organochlorine Pesticides. Technical Report 7702, US Army Medical Bioengineering Research and Development Laboratory, Fort Detrick, MD. AD A040118, 1977.
- Rice, R.M., and W.J. Cooper. An Antibody Technique for Detecting Small Molecular Weight Substances in Water: A Feasibility Study. Technical Report 7712, US Army Medical Bioengineering Research and Development Laboratory, Fort Detrick, MD. AD A048320, 1977.
- Roscher, N.M., J. Liebermann, Jr., W.J. Cooper and E.P. Meier, Development of FACTS Procedures for Combined Chlorine and Ozone in Aqueous Solutions, Grant No. DAMD 17-77-G-9436, US Army Medical Bioengineering Research and Development Laboratory, Fort Detrick, MD. 21701, Mar. 1978.
- Ryan, E.E., W.J. Cooper, E.P. Meier and D.H. Rosenblatt. Development of FACTS Procedures for Bromine, Chlorine Dioxide and Iodine in Aqueous Solutions, Technical Report 8003, US Army Medical Bioengineering Research and Development Laboratory, Fort Detrick, MD. AD A091590, 1980.
- Roscher, N.M., E. Hall, B. Rosenthal, W.J. Cooper and E.P. Meier. Comparison of FACTS and DPD-STEADIFAC Procedures for Free and Combined Chlorine in Aqueous Solution, Contract No. DAMD 17-78-C-8045, US Army Medical Bioengineering Research and Development Laboratory, Fort Detrick, MD. 21701, Jan. 1980.
- Cooper, W.J., R.A. Slifker. Development of Total Chlorine and Bromine Reagent and Procedures for Aquascan II. Prepared for Venture Systems of Ames Chemical, Division of Miles Laboratory, Inc., Elkhart, IN. 13 p. Feb. 1982.
- Cooper, W.J., D.A. Smith. Organics Removal and Treatability Study of a Ground Water with High Natural Aquatic Organic Carbon. Prepared for Resources Recovery - Dade County, Miami, FL 47 p. Apr. 1982.
- Cooper, W.J., J.T. Villate, R.A. Slifker, D.A. Smith, E.M. Ott, F.Z. Parsons, M. Ruiz. Effects of Chlorination of Domestic Waste Effluents on BOD Reduction and Production of Chlorinated Organics. State of Florida STAR GRANT 80-034, Drinking Water Research Center, Florida International University, Miami, FL 33199 Apr. 1982.
- Cooper, W.J. and P.H. Gibbs. Equivalency Testing of the Free Available Chlorine Test with Syringaldazine, FACTS. Contract No. DAMD 17-80-C-0164, US Army Medical Research and Development Command, Ft. Detrick, MD. 95 p. July 1982.
- Cooper, W.J. and I.H. Suffet. Nonspecific organic analysis of water for reuse facilities, In Water Reuse Symposium II, Vol. 3,

Washington, DC, AWWA Research Foundation, Denver, CO, August 1981, p. 229.

Cooper, W.J., M. Mehran and R.G. Rice. Gore Tex Thermal Membrane Distillation Process: Distilled Water - Water Quality Investigation. Prepared for W.L. Gore and Assoc., Inc., Flagstaff, AZ. 20 p. Feb. 1983.

Cooper, W.J., R.G. Zika and M.S. Steinhauer. The Influence of Bromide on the Formation of Trihalomethanes During Water Treatment: Evaluation of Alternative Oxidants and Research Needs, Cooperative Agreement CR810277-01, US Environmental Protection Agency, Cincinnati, OH. 45268, 79 p. June 1983.

Handley-Raven, L.L., L.S. Casey, J.L. Lopez, J.H. Richards and W.J. Cooper. Development of the Nutrient Film Technique for Renovation of Wastewater for Nonpotable Reuse. Final Report USGS Grant No. 14-34-001-2406, Washington, D.C. 59 pp. 1985.

Cooper, W.J. Protocol Development and Equivalency Testing of the FACTS Procedure for Chlorine Residual Determination in Drinking Water Contract No DAMD 17-80-C-0164. US Army Medical Research and Development Command, Ft. Detrick, MD. 34 pp. 1986.

McKnight, D., G. Knudson, K. Wrisley, W. Cooper, S. Mezyk, J. Lowy, T. Elliot, S. Hodge, M. Shoemaker, P. Smith, J. Thakar and B. Ware. The Efficacy of the Electron Beam to Decontaminate Chemical and Biological Warfare Agents: Phase One. Final Report, July 30, 2001, 66pp.

Cooper, W.J. and R.D. Curry. Resource Guide for Food Irradiation. Volume 1. Electric Power Research Institute, Palo Alto, CA, 1999, 36 p.

Cooper, W.J. and R.D. Curry. Resource Guide for Food Irradiation. Volume 2. Electric Power Research Institute, Palo Alto, CA, 1999, 38 p.

Cooper, W.J., J.R. Cordell, G.M. Dethloff, P.A. Dinnel, R.W. Gensemer, R.P. Herwig, M.L. House, J.A. Kopp, R.A. Mueller, J.C. Perrins, G.M. Ruiz, G.M. Sonnevil, W.A. Stubblefield and E. VanderWende. Ozone, Seawater And Aquatic Nonindigenous Species: Testing a Full-Scale Ozone Ballast Water Treatment System on an American Oil Tanker. Final Report. May 2002, 150 pp.

E. Additional Publications

Cooper, W.J., editor, Water Reuse - An Alternative in Water Resource Management. Proceedings of a workshop sponsored by the South Florida Water Management District and the Drinking Water Research Center, Florida International University, Miami, FL 33199, Nov. 5-6, 1981. 123 pp.

Cooper, W.J. and I.H. Suffet (1982). Nonspecific Organic Analysis of Water for Reuse Facilities in "Protocol Development: Criteria and Standards for Potable Reuse and Feasible Alternatives." Report of Workshop Proceedings. U.S. Environmental Protection Agency, Office of Drinking Water, Washington, D.C. pp. 355-391.