

Curriculum Vitae

February 2007

RICHARD L. VALENTINE

Dr. Valentine's major research interests lie in the area of environmental process chemistry and design especially as applied to drinking water treatment, processes occurring in distribution systems, and decontamination of contaminated soils and waste streams. He has directed projects covering a number of areas which include among others: Membrane treatment of drinking water, photo degradation of humic substances as related to the formation of trace gases, reaction mechanisms and kinetics of disinfectant by-product formation, role of the pipe-water interface in disinfectant demand and DBP formation, processes affecting water quality in distribution systems, sources and sinks for radium and radon in drinking water distribution systems, radium removal from drinking water, mineral dissolution processes, use of metal oxides as adsorbents in drinking water treatment, advanced oxidation processes and reactions of hydrogen peroxide in the subsurface environment, and treatment and detoxification of contaminated soils and wastewater streams.

***EDUCATION:***

- Ph.D. 1982 Civil Engineering, (Sanitary/Environmental Engin.), University of California, Berkeley.
- M.S.E. 1977 Civil Engineering, (Sanitary/Environmental), University of California, Berkeley.
- M.S.E. 1974 Chemical Engineering, University of Michigan, Ann Arbor Michigan.
- B.S.E. 1973 Chemical Engineering (Cum Laude), University of Michigan, Ann Arbor Michigan.
- B.S. 1973 Chemistry (with distinction), University of Michigan, Ann Arbor, Michigan

***REGISTRATION:***

P.E. State of Iowa

***EXPERIENCE:***

PROFESSOR

Dept. of Civil and Environmental Engineering  
The University of Iowa  
Iowa City, Iowa 52242  
August 1996 to present

ASSOCIATE PROFESSOR

Dept. of Civil and Environmental Engineering  
The University of Iowa  
Iowa City, Iowa 52242  
August 1987 - August 1996

ASSISTANT PROFESSOR

Dept. of Civil and Environmental Engineering  
The University of Iowa; Iowa City, Iowa 52242  
August 1982 - July 1987

GRADUATE STUDENT RESEARCH ASSISTANT

Lawrence Berkeley Laboratory, Berkeley, California. Marine Sciences  
Group  
September 1979 - August 1982.

RESEARCH AND TEACHING ASSISTANT

Department of Civil Engineering, Sanitary/Environmental Division,  
University of California  
December 1978-September 1979.

RESEARCH ASSOCIATE

Department of Chemical Engineering, University of Michigan, Ann Arbor,  
Michigan  
December 1974 through September 1976.

PROJECT ENGINEER

Environmental Dynamics, Inc., Ann Arbor, Michigan - April 1974 - May  
1975.

**CONSULTING:**

**Clients:** Metropolitan Water District, Los Angeles, CA; Chevron Oil Environmental Research Center, Richmond, Ca; University of Nevada, Las Vegas; Wallace, Holland, Schmitt, and Kassel; RJN Associates, Montgomery-Watson; Stanley Consultants; Howard R. Green; CH2M Hill; HDR associates; King Abdul Aziz City for Science and Technology, Saudi Arabia, Black and Veatch; City of San Francisco, Black and Veatch Inc., Metropolitan Water Resources Authority (Boston, MA), Strand Inc. Los Angeles Department of Power and Water, Metropolitan Water Resources Authority (Boston area), City of Cincinnati, Ohio, State of Minnesota, Tonka Equipment Co., City of Joliet, Illinois, Lee Odell Consulting Inc.; Camp Dresser and McGee (CDM); Long Beach California; Aerojet Inc.

**General areas of work:** Application and control of chloramines for disinfection of distribution systems, modeling disinfectant fate and losses, Formation and control of disinfection by-products; corrosion control strategies, chemical degradation of water in distribution systems; design and implementation of technologies for radium and radon control and removal, advanced oxidation processes; general education and technology transfer.

***SOCIETIES AND ORGANIZATIONS:***

Phi Lambda Upsilon (Honor Chemical Society)  
Chi Epsilon ( CE Honor society)  
American Chemical Society  
American Water Works Association  
Water Environment Federation

***AFFILIATIONS:***

Member:  
American Water Works Association  
Water Environment Federation  
American Chemical Society  
Association of Environmental Engineering Professors  
Society for Environmental Toxicology and Chemistry  
American Geophysical Union  
International Chemical Oxidation Society

***PATENTS:***

*Catalytic Fixed Bed Reactor Systems for the Destruction of Contaminants Using Hydrogen Peroxide U.S. pat. no. 5,817,240; October 6, 1998.*

***ACADEMIC HONORS:***

National Research Council Senior Research Associate, 1990. Research Associate working in the EPA Environmental Research Laboratory, Athens, Georgia, 1990-1991.

Recipient of an Office of Research and Development 1993 Scientific and Technological Achievement Award for paper "Formation of Carbon Monoxide from the Photodegradation of Dissolved Organic Carbon", Environmental Science and Technology, Vol. 27, No 2, 1993, pp. 409-412.

1999 Association of Environmental Engineering and Science Professors Outstanding Dissertation Award (Major Advisor) "Monochloramine Loss in the Presence of Ferrous Iron: Kinetics, Mechanisms, and Products", Peter Vikesland, doctoral student.

2000 American Water Works Association Academic Achievement Award (Major Advisor) to Peter Vikesland for Best Ph.D. Dissertation, "Monochloramine Loss in the Presence of Ferrous Iron: Kinetics, Mechanisms, and Products"

***JOURNAL AND OTHER PEER REVIEWED PUBLICATIONS:***

- Schultz, J. S., Valentine, R. L., and Choi, C. Y., "Reflection Coefficients of Homopore Membranes: Effect of Molecular Size and Configuration," *Journal of General Physiology*, Vol. 73, 1979, pp. 49-60.
- Hartwig, E., and Valentine, R.L., "Bromoform Production in Tropical Open-Ocean Waters," *Water Chlorination: Environmental Impact and Health Effects*, Vol. 4, Book 1, 1982; R.L. Jolley et al, eds., Ann Arbor Science, pp. 311-330.
- Valentine, R.L. and Selleck, R.E., "Effect of Bromide and Nitrite on the Degradation of Monochloramine," *Water Chlorination: Environmental Impact and Health Effects*, Vol. 4, Book 1, 1982; R.L. Jolley et al, eds., Ann Arbor Science, pp. 125-137.
- Venkataramiah, A., Lakshmi, G., Best, C., Hartwig, E. and Valentine, R.L., "Effect of Chlorinated Discharges on Marine Animals," *Water Chlorination: Environmental Impact and Health Effects*, Vol 4, Book 2, 1982; R.L. Jolley, et al, eds., Ann Arbor Science, pp. 947-958.
- Valentine, R.L. and Jafvert, C., "Commentary on the Kinetics of Monobromamine Disproportionation - Dibromamine Formation in Aqueous Ammonia Solutions", *Environmental Science and Technology*, Vol. 19, No. 3, 1985, pp. 286-287.
- Valentine, R.L., "The Disappearance of Monochloramine in the Presence of Nitrite", *Water Chlorination: Environmental Impact and Health Effects*; 1985, R.L. Jolley, ed., Ann Arbor Science, pp. 975-984.
- Valentine, R.L., "Bromochloramine Oxidation of N,N-diethyl-p-phenylenediamine in the Presence of Monochloramine", *Environ. Sci. and Technology*, Vol. 20, No. 2, 1986, 166-170.
- Valentine, R.L., Brandt, K.I., Jafvert, C.T., "A Spectrophotometric Study of the Formation of an Unidentified Monochloramine Decomposition Product", *Water Research*, Vol. 20, No. 8, 1986, pp. 1067-1074.
- Jafvert, C.T., Valentine, R.L., "Dichloramine Decomposition in the Presence of Excess Ammonia", *Water Research*, Vol. 21, No. 8, August 1987, pp. 967-973.
- Valentine, R.L., Mulholland, T.S., Splinter, R.C., "Radium Removal Using Sorption to Filter Sand", *Journal of the American Water Works Association*, April 1987, pp. 170-176.
- Valentine, R.L., Jafvert, C.T., "General Acid Catalysis of Monochloramine Disproportionation", *Environmental Science and Technology*, Vol. 22:6, June 1988, pp. 691-696.
- Valentine, R.L., Jafvert, C.T., "Evaluation of a Chloramine Decomposition Model Incorporating General Acid Catalysis", *Water Research*, September 1988, pp. 1147-1153.
- Valentine, R.L. and Wilber, G., "Some Physical-Chemical Characteristics of an Unidentified Chloramine Decomposition Product", In *Water Chlorination: Chemistry, Environmental Impact and Health Effects*, Vol. 6, 1989.
- Valentine, R.L., Meyer, J., Spangler, K., "Removing Radium by Adding Preformed Hydrous Manganese Oxides", *Journal of the American Water Works Association*, February 1990.
- Asolekar, S.R., Valentine, R.L., and Schnoor, J.L., "Kinetics of Chemical Weathering in B Horizon Spodosol Fraction", *Water Resources Research*, Vol. 27, No. 4, April 1991, pp. 527-532.
- Jafvert, C. and Valentine, R.L., "A Reaction Scheme for Chlorination of Ammoniacal Water", *Environmental Science and Technology*, Vol. 26, No. 3, 1992, pp. 577-586.

- Valentine, R.L. and Zepp, R.G., "Formation of Carbon Monoxide from the Photodegradation of Dissolved Organic Carbon", *Environmental Science and Technology*, Vol. 27, No 2, 1993, pp. 409-412.
- Ghosh, M.; Benjamin, M.; Harms, L., Knocke, W., Lowry, J. and Valentine, R. L. "Committee Report: Research Needs for Inorganic Contaminants", *Journal of the American Water Works Association*, June 1993, pp. 106--113.
- Leung, S.W. and Valentine, R. L. "An Unidentified Chloramine Decomposition Product, I: A Proposed Formation Mechanism", *Water Research*, Vol. 28, No. 6, 1994, pp.1475-1483
- Leung, S.W. and Valentine, R. L. "An Unidentified Chloramine Decomposition Product, II: Chemistry and Characteristics", *Water Research*, Vol. 28, No. 6, 1994, pp. 1485-1495.
- Valentine, R. L. and Stearns, S.W. "Formation of Radon from Water Distribution System Deposits", *Environmental Science and Technology*, Vol. 28, No 3, 1994, pp. 534-537.
- Chung M., Hao, Oliver J., and Valentine, Richard L. "Kinetics of Monochloramine Reactions with Nitrite", *Journal of Environmental Engineering (ASCE)*, Vol. 120, No. 4, 1994, (July/Aug.), pp. 859-874.
- Field, W. R., Fisher, E. L., Valentine, R. L. and Kross, B. C. "Radium-Bearing pipe scale deposits: Implications for National Waterborne Radon Sampling Methodologies", *Journal of the American Public Health Association*, Vol. 85, No. 4, 1995 (April), pp.567-570.
- Miller, C. M. and Valentine, Richard L. "Oxidation behavior of aqueous contaminants in the presence of hydrogen peroxide and filter media", *Journal of Hazardous Materials*, Vol 41, No. 1 (April), 1995, pp. 105-116.
- Miller, C. M. and Valentine, Richard L. "Hydrogen Peroxide Decomposition and Quinoline Degradation in the Presence Of Aquifer Material", *Water Research*, Vol. 29, No. 10, 1995, pp. 2353-2359.
- Miller, C.M., Valentine, Richard L., Stacy, J., Roehl, Marc, E. and Alvarez, Pedro, J.J. "Chemical Oxidation and Toxicity Reduction of Pesticide-Contaminated Soils", In *Bioremediation of Recalcitrant Organics*, 3(7), R. L. Hinchee, R. E. Hueppel, D.B. Anderson (Eds.), Battelle Press, 1995, pp. 175-181.
- Miller, C.M., Valentine, Richard L., Roehl, Marc, E. and Alvarez, Pedro, J.J. "Chemical and Microbiological Assessment of Pendimethalin Contaminated Soil After Treatment With Fenton's Reagent", *Water Research*, 1996, Vol. 30, No. 11, pp. 2579-2586.
- Ozekin, Kenan; Valentine, Richard L., and Vikesland, Peter J. "Modeling Chloramine Decay in Natural Waters", *American Chemical Society (ACS) Symposium Series 649, Water Disinfection and Natural Organic Matter*, 1996, pp. 113-125.
- Vikesland, Peter J.; Valentine, Richard L. and Ozekin, Kenan. "Application of Product Studies in the Elucidation of Chloramine Reaction Pathways", *American Chemical Society (ACS) Symposium Series 649, Water Disinfection and Natural Organic Matter*, 1996, pp. 105-114.
- Kovacs, Phillip, E., Alvarez, Pedro J.J., and Valentine Richard L. "The Effect of Static Magnetic Fields on Biological Systems: Implications for Enhanced Biodegradation", accepted for publication, *Critical Reviews in Environmental Science and Engineering*, 27(4):319-382, 1997.

- Valentine, Richard L. and Wang, H.C. "Iron Oxide Surface Catalyzed Oxidation of Quinoline by Hydrogen peroxide" *Journal of Environmental Engineering (ASCE)*, 1998, Vol.124 (1); 31-38.
- Vikesland, P., Ozekin K. and Valentine, R. L "Effect of Natural Organic Matter on Monochloramine Decomposition: Pathway Elucidation Through the Use of Mass and Redox Balances", *Environmental Science and Technology* , Vol. 32, no. 10, 1998.
- Miller, Christopher, and Valentine, Richard L. "Mechanistic Studies of Surface Catalyzed H<sub>2</sub>O<sub>2</sub> Decomposition and Contaminant Degradation in the Presence of Sand", *Water Research*, Vol 33, No. 12 (August), 1999, pp. 2805-2816.
- Jones, Wayne, F., Valentine, Richard L. and Rodgers, V.G.J."Removal of Suspended Clay from Water Using Transmembrane Pressure Pulsed Microfiltration", *Journal of Membrane Science*,157:199-210, 1999.
- Peter J. Vikesland and Richard L. Valentine; "Reaction Pathways Involved in the Reduction of Monochloramine by Ferrous Iron", *Environmental Science & Technology*; 2000; 34(1); 83, January 2000.
- Fisher EL, Fuortes LJ, Field RW, Valentine RL, Mehrhoff M. "Dissolution of 226Radium from Pipe Scale Deposits in a Public Water Supply". *Environment International*. vol. 26, pp. 69-73, 2000.
- Scherer, M.M., Richter, S., Valentine, R. L. and Alvarez, P. J. J. "Chemistry and Microbiology of Permeable Reactive Barriers for In Situ Groundwater Cleanup" [accepted for publication], *Critical Reviews in Environmental Science and Technology*, Vol. 30, issue 3, 363-411, 2000.
- Vikesland, Peter, Ozekin Kenan, and Valentine, R.L. "Monochloramine Decay in Model and Distribution System Water". *Water Research* , Vol. 35, no. 7, pp. 1766-1776, 2001.
- Vikesland, Peter J. and Valentine, Richard L. "Iron-Oxide Surface Catalyzed Oxidation of Ferrous Iron: Implications of Oxide Type and Carbonate on Reactivity", of, *Environmental Science and Technology*, Vol. 36 (Feb), pp. 512-519, 2002.\
- Choi, Junghoon, and Valentine, Richard L. "Formation of N-nitrosodimethylamine (NDMA) from reaction of monochloramine: a new disinfection by-product", *Water Research*, Vol. 36, No. 4, pp. 817-824, 2002.
- Duirk, Steve and Valentine, R. L.," Reaction of Monochloramine with Humic Acid", *Journal of Environmental Monitoring* Vol. 4, pp. 85-89, 2002.
- Vikesland, Peter, Shoup, Michael J., and Valentine, R. L Modeling the Kinetics of Ferrous Iron Oxidation by Monochloramine", *Environmental Science and Technology*, Vol. 36 (Feb.), pp. 662-668, 2002.
- Choi, Junghoon, Duirk, Stephen, E. and Valentine, Richard L. "Mechanistic Studies of N-nitrosodimethylamine formation in Drinking Water", *Journal of Environmental Monitoring*, 4(2), pp.249-252, 2002.
- Choi, Junghoon, and Valentine, Richard L. "A kinetic model of N-nitrosodimethylamine (NDMA) formation during water chlorination/chloramination", *Journal Water Science and Technology*, Vol. 46, No. 3, pp. 65-71, 2002
- Mitch, William A., Sharp, Jonathan O., Trussell, R. Rhodes, Valentine, Richard L., Alvarez-Cohen, Lisa, and Sedlak, David L. "N-Nitrosodimethylamine (NDMA) as a Drinking Water Contaminant: A Review", *Environmental Engineering Science*, Vol. 20, No. 5, pp. 389-403, 2003.

- Choi, Junghoon, and Valentine, Richard L "N-Nitrosodimethylamine (NDMA) Formation By Free Chlorine Enhanced Nitrosation of Dimethylamine (DMA)", Environmental Science and Technology, Vol. 37, No.21, pp. 4871-4876, 2003.
- Duirk, Steve E., Gombert, Bertrand, Croue, Jean-Phillipe, and Valentine, Richard L. "Modeling Monochloramine Loss in the Presence of Natural Organic Matter, Water Research, 39 (14): 3418-3431 Sept. 2005.
- Duirk, Steve, E. and Valentine, Richard L. "Modeling dichloroacetic acid formation from the reaction of monochloramine with natural organic matter", Water Research, 40 (14):2667-2674, 2006.
- Chen, Z., and R. L. Valentine," Modeling the formation of N-nitrosodimethylamine (NDMA) from the reaction of natural organic matter (NOM) with monochloramine", Environmental Science & Technology, 40, 7290-7297, December 2006.

***BOOKS AND MONOGRAPHS:***

- Valentine, R.L., "Nonbiological Transformation", in Vadose Zone Modeling of Organic Pollutants, Stephen C. Hern and Susan M. Melancon, eds., Ch. 10, pp. 223-245, 1986, Lewis Publishers, Inc.
- Valentine, R.L., Schnoor, J.S., "Biotransformation", in Vadose Zone Modeling of Organic Pollutants, Stephen C. Hern and Susan M. Melancon, eds., Ch. 9, pp. 192-223, 1986, Lewis Publishers, Inc.
- Jury, W.A., Valentine, R.L., "Transport Mechanisms and Loss Pathways for Chemicals in Soils", in Vadose Zone Modeling of Organic Pollutants, Stephen C. Hern and Susan M. Melancon, eds., Ch. 2, pp. 37-61, 1986, Lewis Publishers, Inc.
- Valentine, R. L., Kurt, A., Meyer, J., Walsh, D., and Mielke, W. "Radium Removal Using Preformed Hydrous Manganese Oxides", Report for the American Water Works Association Research Foundation, 1992, 87 pp. ISBN 0-89867-625-8
- Valentine, R. L., Ozekin, K. and Vikesland, P.J. "Chloramine Decomposition in Distribution System and Model Waters", Prepared for AWWA Research Foundation, 1998. pp.144, ISBN 0-89867-945-1.
- Valentine, R. L., Vikesland, P.J., Slatenow, S., and Patocha, Anita, "Role of the Pipe-Water Interface in Disinfectant By-product Formation and Disinfectant Loss, Report for AWWA Research Foundation, 2000, pp. 257, ISBN 1-58321-044-7.
- Valentine, R.L., Barrett, S., Andrews, S. "Factors Affecting the Formation of NDMA in Water and Occurrence", Report for AWWA Research Foundation, 2005, AWWA Research Foundation, pp.252 ISBN 1-58321-378-3.
- Drinking Water Distribution Systems: Assessing and Reducing Risks, Committee on Public Water Supply Distribution Systems: Assessing and Reducing Risks, National Research Council, the National Academies Press, Washington, D.C., ISBN 10-309-10306-1, 2006

***CONFERENCE PROCEEDINGS:***

- Pearson, F., Jenkins, D., Valentine, R.L., and Kim, S.J., "Storage Requirements for Domestic Rainwater Collection Systems in California", 1979 Annual Conference Proceedings, American Water Works Association, Part 1, 1979.
- Venkataramiah, A., Lakshmi, G., Best, C., Gunter, G., Hartwig, E., and Valentine, R.L., "Effects of Chemical Pollutants from OTEC Plants on Marine Animals", Proceedings of the 8th Ocean Energy Conference, 1982, The Marine Technology Society, Washington, D.C.
- Horne, A.J., Bennett, M., Valentine, R.L., Selleck, R.E., Russell, P.P., Wild, P.W., "The Effects of Chlorination of Wastewater on Juvenile Dungeness Crabs in San Francisco Bay Waters", In: Life History, Environment and Mariculture Studies of the Dungeness Crab, Cancer Magister with Emphasis on the Central California Fishery Resource, P.W. Wild and R.N. Tasto (eds.), Fish Bulletin 172, Dept. of Fish and Game, State of California (1983).
- Valentine, R.L., Splinter, R.C., Horng, J.J., Nogaj, T. "Factors Affecting Radium Removal in an Iron Removal Process", Proceedings of National Annual AWWA Meeting, Washington, D.C., June 23-27, 1985, pp. 1377-1395.
- Jafvert, C.T., Valentine, R.L., "A Unified Chlorine-Ammonia Speciation and Fate Model", Proceedings of the 1986 National Annual AWWA Meeting, Denver, CO, June 23-26, 1986, pp. 315-318.
- Valentine, R.L., Splinter, R.C., Mulholland, T.S., Baker, J.M., "Removal of Radium from Groundwater Using a Novel Sand Filtration Process", Proceedings of the 1986 National Annual American Water Works Association (AWWA) Meeting, Denver, CO, June 23-26, 1986, pp. 415-420.
- Valentine, R.L., Splinter, R.C., Mulholland, T., Lauch, R.P., "Radium Removal From Groundwater Using Sorption to Filter Sand", Proceedings of the 1986 National American Society of Civil Engineers (ASCE) Environmental Engineering Conference, Cincinnati, OH, July 8-10, 1986, pp. 62-67.
- Valentine, R.L., Jafvert, C.T., "Experimental Verification of a Unified Chlorine-Ammonia Reaction Model", Proceedings of the 1986 National American Society of Civil Engineers (ASCE) Environmental Engineering Conference, Cincinnati, OH, July 8-10, 1986, pp. 240-246.
- Jafvert, C.T., Valentine, R.L., "A Unified Chlorine-Ammonia Speciation and Fate Model", Proceedings of the 1986 National Annual AWWA Meeting, Denver, CO, June 23-26, 1986, pp. 315-318.
- Valentine, R. L. and Jafvert, C.T. "The Effect of Inorganic Composition on the Kinetics of Chloramine Decomposition in the Presence of Excess Ammonia", Proceedings of the American Chemical Society 194th National Meeting, Division of Environmental Chemistry, New Orleans, August 30-September 4, 1987.
- Valentine, R.L., Spangler, K., Meyer, J., "Radium Removal from Groundwater Using Sorption to Freshly Precipitated Hydrous Manganese Oxides", Proceedings of the 1988 National American Water Works Association Meeting, June 19-23, Orlando, FL, pp. 194-195.
- Valentine, R.L., Zepp, R.G., "Factors Affecting the Photochemical formation of Carbon Monoxide in the Southeastern United States", preprints of papers presented at the 201st National ACS Meeting, Atlanta, GA, April 14-19, 1991, Vol. 31, No. 1, pp. 524-527.
- Valentine, R.L., Kurt, A., Walsh, D., Mielke, W., "Radium Removal Using Addition of Hydrous Manganese Oxides: Full-Scale Application", AWWA Seminar Proceedings, Emerging Technologies in Practice, June 17, 1990, Cincinnati, OH.



- Valentine, R.L., and Zepp, R.G., "Photochemical Formation of Carbon Monoxide in Wetland Water", EOS Transactions, American Geophysical Union, Vol. 71, No. 43, October 23, 1990, p. 1236-1239.
- Valentine, R.L., Stearns, S., and Kurt, A., "Radon and Radium From Distribution System and Filter Media Deposits" Proceedings of the American Water Works Association Water Quality Technology Conference, Toronto, Canada, Nov. 15-19, 1992 pp. 501-506.
- Miller, Christopher M. and Valentine, R. L. "Granular Media Surface Catalyzed Hydrogen Peroxide Decomposition and Oxidation of Selected Organics", Proceedings of the Third International Symposium on Chemical Oxidation: Technology for the Nineties, Vanderbilt University, Nashville, Tennessee, February 17-19, 1993; Eds. John Roth and Alan R. Bowers, Technomic Publishing Co., Lancaster, pp.80-90.
- Wang, A.H. and Valentine, R. L. "Hydrogen Peroxide Decomposition Kinetics in the Presence Iron Oxides", Proceedings of the Third International Symposium on Chemical Oxidation: Technology for the Nineties, Vanderbilt University, Nashville, Tennessee, February 17-19, 1993; Eds. John Roth and Alan R. Bowers, Technomic Publishing Co., Lancaster, pp.74-79.
- Thompson, P. and Valentine R. L. "Chloramine Decomposition Studies: Simultaneous Nitrogen and Chlorine Mass Balances " Proceedings of National ACS meeting, Division of Environmental Chemistry , ACS publication, Chicago, Ill. August 22-27, 1993, pp. 168-120.
- Leung, S. W. and Valentine, R. L. "Chloramine Loss and the Formation of an Unidentified Product in Chloraminated Water ", Proceedings of National ACS meeting, Division of Environmental Chemistry,, Chicago, Ill, ACS publication, August 22-27, 1993, pp. 164-167.
- Miller, C. M. and Valentine, R. L, "Kinetics of Quinoline Degradation by Hydrogen Peroxide in the Presence of Aquifer Material" Proceedings of the National Meeting of the Division of Environmental Chemistry, American Chemical Society, Denver, CO, March 28 - April 2, 1993, pp. 32-34.
- Miller, Christopher. M, Valentine, Richard L., and Yoon, Tai-il. "Degradation of Phenol and Quinoline by Hydrogen Peroxide in the Presence of Magnetite and Hematite", Proceedings of the National Meeting of the Division of Environmental Chemistry, American Chemical Society, Anaheim, CA, April 2-7, 1995, pp.59-60.
- Vikesland, Peter J.; Ozekin, Kenan and Valentine, Richard L. "Determination of Chloramine Decomposition Products", Proceedings of the National Meeting of the Division of Environmental Chemistry, American Chemical Society, Chicago, IL, August 21-26, 1995, pp.702-705.
- Ozekin, Kenan; Valentine, Richard L., and Vikeslan, Peter J. "Modeling Chloramine Decomposition in Natural and Model Waters", Proceedings of the National Meeting of the Division of Environmental Chemistry, American Chemical Society, Chicago, IL, August 21-26, 1995, pp.706-707.
- Jackson, James R. and Valentine, Richard L. "The Effect of Corrosion Control Strategies on Radium Accumulation and Radon Release from Model Distribution System Deposits", Proceedings of the 1995 Meeting of the National American Water Works Association, June 18-23, Anaheim, CA, 1995.
- Miller, Christopher, M. and Valentine, Richard L. "Comparison of Recycle Flow and Batch Reactor Contaminant Oxidation Kinetics Utilizing Hydrogen Peroxide and Aquifer

- Material", Proceedings of Annual American Institute of Chemical Engineering (AIChE) Meeting, session "Advanced Techniques for Liquid-Phase Oxidation of Hazardous Wastes", Miami, FL, November 12-17, 1995, pp. .
- Ozekin, Kenan; Valentine, Richard L., and Vikeslan, Peter J. "Modeling Chloramine Decay in Natural Waters", Proceedings of the American Water Works Association Water Quality Technology Conference (American Water Works Association), New Orleans, LA, Nov. 9-14, 1995. pp. 1441-1449.
- Miller, Christopher M. and Valentine, Richard L. "Role of 'Super Oxide Anion in Contaminant Degradation by Hydrogen Peroxide in the Presence of Sandy Aquifer Material", Proceeding of the National Meeting of the Division of Environmental Chemistry, American Chemical Society, Orlando, FL, August 25-29, 1996, pp. 27-28
- Valentine, R., Ozekin, K, and Vikesland, "Effect of NOM on Chloramine Decomposition Kinetics and Product Speciation", Proceedings of the Workshop on the Influence of Natural Organic Matter Characteristics on Drinking Water Treatment and Quality, Ecole Supérieure d'Ingenieurs de Poitiers---Poitiers, France; September 18-19, 1996; pp.43-1 to 43-5.
- Vikesland and Valentine, "Mass Balances on Chloramine Decomposition Products", ACS Specialty Conference on "Surface Chemistry" Proceedings. Potsdam, NY June 1996.pp. 45-47.
- Valentine, R., Wang, H.C. and Choi, Junghoon. "Characteristics and Kinetics of Iron Oxide Surface Catalyzed Hydrogen Peroxide Decomposition and Quinoline Oxidation", Proceeding of the 213 th National Meeting of the Division of Environmental Chemistry, American Chemical Society, San Francisco, April 13-17, 1997, pp. 90-92.
- Vikesland, Peter and Valentine, Richard L. "Kinetics of Fe(II) Oxidation by Monochloramine", Proceeding of the 213 th National Meeting of the Division of Environmental Chemistry, American Chemical Society, San Francisco, April 13-17, 1997, pp. 161-162.
- Valentine, R. L., Ozekin, K. and Vikesland, P.J. "The Chloramine Stability Coefficient: A Simple Parameter for Estimating the Limit of Chloramine Stability in Drinking Water", Proceedings of the 1998 Meeting of the National American Water Works Association, June 18-23, Dallas, Texas, 1998, 134-136.
- Vikesland, P.J. and Valentine, R. L., "Monochloramine Reactions with Reduced Iron", Proceedings of the 1998 Meeting of the National American Water Works Association, June 18-23, Dallas, Texas, 1998, 231-235.
- Valentine, R. L., Ozekin, K. and Vikesland, "Chloramine Decay in Drinking Water Distribution Systems". Proceedings of Symposium, Protecting Water Quality in the Distribution System: What is the Role of Disinfection Residuals ? April 26-28, 1998 Philadelphia, PA, pp. 45-48.
- Vikesland P. J. and Valentine R. L., "Reactions of Iron with Monochloramine with Iron" Proceeding of the American Chemical Society Meeting, August 1999, Chicago, Ill., 214-216.
- Valentine, R. L., Angermann, B., Vikesland, P. and Slatenow, S. "Characterization of disinfectant Decay and DBP Formation in the Presence of Distribution System Deposits", Proceedings of the Water Quality Technology Conference, American Water Works Association, Paper Tu 13, pp. 245-248, Oct. 31-Nov. 3 1999, Tampa, FL.

- Choi, J. and Valentine, R. L.. " Formation of N-nitrosodimethylamine (NDMA) in chloraminated Water: New disinfection by-product", Proceedings the 221 st National Meeting (Environmental Division), San Diego, CA, April 1-5, 2001, Vol 41, No. 1, pg 8-11.
- Duirk, S. and Valentine, R. L. ." Modeling the Reactions of Monochloramine and Free Chlorine with NOM", Proceedings of the 2001 National American Water Works Association (AWWA) Annual Conference, Disinfectants, DBPs and Distribution Systems, Chapter MON9, paper no. 5, 7 pp., June 17-22, 2001- Washington D.C.
- Choi, J. and Valentine, R. L.. "Studies on the Formation of Nitrosodimethylamine (NDMA) in Drinking Water: A New Chloramination Disinfection By-product", Proceedings of the 2001 National American Water Works Association (AWWA) Annual Conference, Universities Forum-Water Science and Research Division, Chapter TUE22, paper no. 4, 9 pp., June 17-22, 2001- Washington D.C.
- Choi, Junghoon and Richard L. Valentine, " Mechanistic studies of N-nitrosodimethylamine (NDMA) formation in chloraminated drinking water", Proceedings of the 222nd American Chemical Society (Environmental Division), Vol. 41(2), Paper no. 112, pp. 804-809 August 26-30, 2001, Chicago, Illinois.
- Duirk, S. E., Bertrand Gombert, Jean-Phillippe Croue, and Richard L. Valentine, 2001 "Modeling Monochloramine Loss in the presence of Natural Organic Matter and Relationship to Haloacetic Acid Formation", Proceeding of the 222nd American Chemical Society (Environmental Division), Vol. 41(2), Paper no. 111, pp. 799-803, August 26-30, 2001, Chicago, Illinois.
- Valentine, R. L. and Choi J. "A kinetic model of N-Nitrosodimethylamine (NDMA) formation during water chlorination/chloramination", IAW 2nd World Water Congress, Preprints, Health Standards-Track 8, Paper no. 4, 6 pp., October 15-19, Berlin, Germany, 2001.
- Duirk, S. E., Whitney, J. C., and Richard L. Valentine, 2002. "Preliminary Investigations into Chloramine Loss and DBP Formation in the Presence of NOM and Bromide", Proceed. of the 2002 National American Water Works Association (AWWA) Annual Conference, DBP and Distribution Systems, Chapter THUR7, paper no. 3, pp. 5, June 16-20, 2002 New Orleans, LA.
- Valentine, R.L. "Recent Research in Disinfectant Loss and DBP Formation in Distribution System", Proceedings of the Workshop on Global Distribution System Research, IWA Third World Congress, April 7-12, 2002, Melbourne, Australia.
- Valentine, R.L. (2002) "Disinfectant Loss and Disinfectant By-product Formation in Distribution Systems", Proceedings of the International Workshop on "Evaluating Retention Time to Manage Distribution System Water Quality", AWWARF report, Chp. 2, paper no. 2, Nov. 7-9, 2002, Seattle, Washington.
- Barrett, Sylvia; Cordelia Hwang, and Yingbo "Carrie" Gu, Susan A. Andrews, and Richard Valentine. (2003) Occurrence of NDMA in Drinking Water: A North American Survey 2001-2002 Proceedings of the 2003 National American Water Works Association (AWWA) Annual Conference, June 2003 Anaheim, California.
- Choi , Junghoon, and Valentine, R.L. (2003). Free Chlorine Catalyzed Formation of NDMA. Proceedings of the 2003 National American Water Works Association (AWWA) Annual Conference, June 2003 Anaheim, California.
- Valentine R.L., J. Choi, M. Mena, and Z. Chen. (2003) Formation of N-Nitrosodimethylamine (NDMA) as a Disinfection By-Product. Proceedings of the

Leading Edge Conference Series: Global Conference on Leading Edge Water and Wastewater Treatment Technologies, Noordwijk/Amsterdam, The Netherlands, 26-28 May 2003.

Valentine, R. L. "The Chemistry and Kinetics of Chlorine and Ammonia Reactions", Proceedings of the 2<sup>nd</sup> Concaribe, Cartagena, Columbia, May 22-24 2004.

Valentine, R.L. "Recent Advances in Understanding Chloramine Based DBP Formation". Proceeding of the Workshop on Leading Edge Technologies for Water Treatment. Sponsored by the IWA, Prague, Czech Republic, May 12-14, 2004.

Chen, Z. and Valentine, R L. (2005) Studies on the formation of N-nitrosodimethylamine (NDMA) from natural organic matter, Chen Z, Valentine RL ABSTRACTS OF PAPERS OF THE AMERICAN CHEMICAL SOCIETY 229: U847-U847 132-ENVR Part 1, MAR 13 2005

Chen, Zhuo and Valentine, R.L. (2005) Formation of NDMA from Natural Organic Matter, Proceeding of the National AWWA Annual Conference and Exposition, pp. 123-126 (CD), San Francisco, CA, June 12-16, 2005.