

Curriculum VitaeThomas L. Theis

Director
Institute for Environmental Science and Policy
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Citizen of the United States

Educational Background

Ph.D. (Environmental Engineering), University of Notre Dame
Dissertation title: "The Stabilization of Ferrous Iron by Natural Organic Compounds in Oxygen-Rich Environments" Advisor: Dr. Philip C. Singer

M.S. (Environmental Health Engineering), University of Notre Dame

B.S. (Civil Engineering), University of Notre Dame

Professional Societies

American Society of Civil Engineers
American Chemical Society, Member, Division of Environmental Chemistry
Association of Environmental Engineering and Science Professors
International Society for Industrial Ecology
American Association for the Advancement of Science
Chi Epsilon
Sigma Xi
Tau Beta Pi

Registration

Registered Professional Engineer, State of Indiana (PE60017316)

Honors/Distinctions/Professional Activities

Association of Environmental Engineering and Science Professors (AEESP)/Mary Ann Liebert Award for Publication Excellence in *Environmental Engineering Science*, 2020 (with J. Bozeman and W. Ashton)
Member, USEPA Chartered Science Advisory Board (2003-2009)
Member, USEPA Science Advisory Board, Environmental Engineering Committee (2000-2003), Consultant (1998-2000).
Editorial Board, *Environmental Justice* (2008-present)
Guest Editor, *Challenges in Industrial Ecology* (2012-2013)
Keynote Speaker, NitroEurope Annual Conference (2009)
Gordon Research Conference, Industrial Ecology, invited speaker (2008)
Council Member, International Society for Industrial Ecology (2007-2010)
Board of Directors, World Water Watch (2005-present)

Diplomate Environmental Engineer, American Association of Environmental Engineers, Election by Eminence (2002)
Journal of Environmental Engineering, Editor (1994-1996), Associate Editor, (1987-1994), Past Editor (1996-1998)
Albert D. Merrill Award, Dept. of Civil and Environmental Engineering, Clarkson University (1993)
Chapter Honor Member, Chi Epsilon (1999)
Editorial Board, *Environmental Technology* (1989-1994)
Editorial Board, *Journal of Contaminant Hydrology* (1990-2005)
Editorial Board, *Issues in Environmental Science and Technology* (1998-2000)
Invited Participant, "Diversity in the New Millennium", AIChE Meeting, Dallas, TX (October 1999)
Invited Participant, "Workshop on Environmental Engineering Education, Universidad Nacional Del Litoral, Santa Fe, Argentina (June 1998)
Symposium Organized, "Urban Biosolids Management," 1998 National Conference on Environmental Engineering, Chicago, IL (1998)
Organizing Committee, 70th Colloid and Surface Science Symposium (1996)
Dept. of Energy University Research Instrumentation Program Review Panel (1985), Chairman Biomedical and Environmental (1987, 1988)
Chairman, American Geophysical Union Symposium, "Coupling of Geochemical and Hydrologic Models for Subsurface Solute Transport," Baltimore, MD (1985)
Member, Electric Power Research Institute Solid Waste Review Committee (1981-1982)
Member, Waste Combustion Working Group, New York State Solid Waste Combustion Institute (1989-1992)
Member, Technical Advisory Panel, Monroe County, NY (1991-1992)
Member, Trace Inorganic Research Committee, American Water Works Association (1980-1990)
Member, Environmental Protection Agency Chemistry and Physics Proposal Review Panel (1980-1999)
Member, USEPA Exploratory Research Centers Review Panel and Site Review Team (1991, 1996)
Member, Groundwater Committee, American Geophysical Union (1984-1986)
Invited Participant, Scientific Committee on Problems in the Environment (SCOPE) Workshop on Groundwater Contamination (1989)
Member, Review Panel USEPA Distinguished Visiting Scientist Program (1986-1987)
Federal Water Quality Administration Pre-Doctoral Fellow (1970-1972)

Reviewer of Proposals: Dept. of Energy, National Science Foundation, U.S. Environmental Protection Agency, New York State Center for Hazardous Waste Management, National Research Council (Canada)

Manuscript Reviewer: World Resources Institute, *Journal of Industrial Ecology*, *Journal of Cleaner Production*, *Water Research*, *J. Environmental Engineering*, *Environmental Science and Technology*, *Journal Water Environment Federation*, *Soil Science Society of America Journal*, *Advances in Chemistry Series (ACS)*, *Journal of Environmental Quality*, *Journal of Colloid and Interface Science*, *Chemical Speciation and Bioavailability*, *Industrial and Engineering Chemistry Research*, *Journal of Contaminant Hydrology*

Book Reviewer: John Wiley & Sons, National Academy of Engineering

Professional Experience

January, 2002—present, Director, Institute for Environmental Science and Policy, and Professor of Civil and Materials Engineering, University of Illinois at Chicago, Chicago, IL

July, 1999 – December, 2001, Bayard D. Clarkson Distinguished Professor, Clarkson University, Potsdam, NY.

July, 1999 – December, 2001, Director, Center for Environmental Management, Clarkson University, Potsdam, NY.

July, 1996 – June, 1999, Chair, Department of Civil and Environmental Engineering, Clarkson University, Potsdam NY.

January, 1985 – June, 1999, Professor of Civil and Environmental Engineering, Clarkson University, Potsdam, NY.

August, 1988 – December, 1988, Visiting Professor, School of Civil and Environmental Engineering, Cornell University, Ithaca, NY.

May, 1979 – December, 1984, Associate Professor of Civil Engineering, University of Notre Dame, Notre Dame, IN.

September, 1983 – June, 1984, Visiting Fellow, Dept. of Civil Engineering, Princeton University, Princeton, NJ.

August, 1980 – December, 1984, Institutional Director, U.S. EPA Industrial Waste Elimination Research Center, A Consortium of the University of Notre Dame and Illinois Institute of Technology.

August, 1973 – May, 1979, Assistant Professor of Civil Engineering, University of Notre Dame, Notre Dame, IN.

Summer, 1978, Faculty Research Participant, Analytical Chemistry Division, Oak Ridge National Laboratory, Oak Ridge, TN.

September, 1970 – August, 1972, Federal Water Quality Administration pre-doctoral fellow.

June, 1969 – August, 1970, Federal Water Quality Administration trainee.

February, 1969 – May, 1969, Teaching Assistant, Department of Civil Engineering, University of Notre Dame.

June, 1968 – February, 1969, Associate Engineer of Structural Technology, Boeing Corporation, Vertol Division, Philadelphia, PA.

Service to the University

Member, Faculty Senate, ND, 1974-77, 1980-83, CU, 1985-88, 1991-92.

Member, Graduate Council, ND, 1981-84.

Member, Committee on Appointments and Promotions, Dept. of Civil Engineering, ND, 1979-1982.

Member, University Committee on Education for Justice, ND, 1980-82.

Chairman, Environmental Science and Engineering Matrix Group, CU, 1987-88.

Member, Undergraduate Committee, Dept. of Civil and Environmental Engineering, CU, 1989-91.

Member, University Graduate and Research Committee, CU, 1989-92, 1995-96.

Chairman, Graduate Committee, Dept. of Civil and Environmental Engineering, CU, 1991-96.

Member, Dean of Engineering Search Committee, UIC, 2004

Member, Committee on Centers and Institutes, UIC, 2004.

Courses Taught

Undergraduate: Sustainability and Policy, Environmental Engineering Systems, Environmental Engineering Design, Water Quality Engineering, Hazardous Waste Management.

Graduate: Industrial Ecology, Environmental Systems Analysis, Introductory and Advanced Aquatic Chemistry, Contaminant Transport in Groundwater, Biogeochemical Cycles in Natural Waters, Environmental Physico-Chemical Systems.

Consulting (Major Activities Only)

Oak Ridge National Laboratory
West Virginia University
Electric Power Research Institute
Clyde E. Williams and Associates
Ten-Ech Environmental Consultants
Indiana University
TRC Environmental Consultants
Allied Corporation
Dames and Moore, Inc.
IBM Corporation
Atlantic Environmental Services
U.S. Environmental Protection Agency, Regions II and V
Eastern Utilities
Gas Research Institute
Malcolm Pirnie, Inc.
Remediation Technologies, Inc.
Baltimore Gas and Electric Company
Occidental Chemical Company
Enthone/OMI, Inc.
Wisconsin Electric Power Company
Alcoa
DuPont

Research Experience

Principal Investigator (with M. Bilec, C. Babbitt, C. Isenhour, D. Fullerton, V. Khanna, and E. Beckman), "Growing Convergence Around the Circular Economy", National Science Foundation, October 1, 2019, September 30, 2022, NSF 1934841, \$ 524,915.

Co-Principal Investigator (with B. Bakshi, T. Gutowski, V. Thomas, and D. Sekulic), "NSF2026: Convergence Around a Sustainable World Without Waste", NSF 2027185, August 26, 2020-August 25, 2021, \$100,000.

Co-Principal Investigator (with X. Cai, S. Miller, P. Jaffe, and L. Rodriguez), "Planning Grant: Engineering Research Center for Innovations in Resource Loss Reduction, Recovery, and Reuse (InnR3) for Sustainable Food Systems", NSF 1937023, \$100,000.

Co-Principal Investigator (with P. Westerhoff, H. Fairbrother, J. Hutchison, D. Plata, and J. Zimmerman), "NCCLC: Life Cycle of Nanomaterials", US Environmental Protection Agency, September 1, 2013-August 31, 2018, \$5,000,000.

Co-Principal Investigator (with I. Cruz, N. Ai, S. Derrible, and S. Dorevitch), "CyberSEES: Type 2: Data Integration for Urban Metabolism, National Science Foundation, September 1, 2013-August 31, 2015, \$600,000.

Co-Principal Investigator (with S. Kaplan), "Identifying Best Management Practices and Providing Technical Assistance for Sustainable Brownfields Redevelopment," US Environmental Protection Agency, October 1, 2008-December 31, 2013, \$900,000.

Principal Investigator, "NSF-EPA Workshop on Life Cycle Aspects of Nanoproducts, Nanostructured Materials, and Nanomanufacturing: Problem Definitions, Data Gaps, and Research Needs, August 1, 2009-July 31, 2010, \$80,000.

Co-Principal Investigator, "Regional Socioeconomic and Environmental Impacts of Alternative Biofuel Pathways", Energy Biosciences Institute, University of Illinois, August 16, 2007-August 15, 2010, \$315,924.

Principal Investigator, "Life Cycle Assessment of Nanomanufacturing Technologies" National Science Foundation, October 1, 2006-September 30, 2009, \$200,000.

Principal Investigator, "Life Cycle Analysis of Biolubricants for Aluminum Rolling," Environmental Protection Agency, Technology for a Sustainable Environment Program, November 1 2003-October 31, 2006, \$250,000.

Principal Investigator, "Life Cycle and Economic Impacts of Bio-based Production," National Science Foundation, BES-0329359, August 31, 2003—August 30, 2004, \$99,691.

Principal Investigator, "Comparative Life Cycle Impacts of Bio- and Petro-based Lubricants," National Science Foundation, PREMISE Phase II Program, July 1, 2004--June 30, 2008, \$599,600.

Principal Investigator, "Comparative Life Cycle Impacts of Bio- and Petro-based Lubricants," National Science Foundation, DMI-0225912 (Premise Phase I), August 31-2002— August 30, 2003, \$99,452.

Principal Investigator, "Symposium on Sustainability," National Science Foundation, BES-0105321, March 15, 2001-February 28, 2002, \$20,000.

Principal Investigator, "Environmental Manufacturing Management," National Science Foundation Integrative Graduate Education Research and Training Program (IGERT), DGE-9870646, July 1, 1998 – June 30, 2005, \$1,949,201.

Principal Investigator, "Investigation of Methods for Perchlorate Destruction in Aqueous Streams," American Water Works Research Foundation, January 15, 1999 – May 15, 2001, \$100,000.

Principle Investigator, "Identification of Cyanide Species in MGP Purifier Materials", Ishinc, April 1, 2000-August 31, 2001, \$27,000.

Principal Investigator, "A Thermodynamic Basis for LCA and Optimization of Industrial Processes for Environmental Performance," National Science Foundation (Lucent Fellowship), October 1, 1998 – September 30, 2000, \$99,781.

Principal Investigator, "Optimization Studies of Oil Recovery and Groundwater Treatment at the Spring Gardens Site," Electric Power Research Institute/Baltimore Gas and Electric Company, June 1, 1998 – December 31, 1999, \$93,100.

Principal Investigator, "Comparison of Cyanide Analysis Methods," Electric Power Research Institute," June 1, 1998 – December 31, 1998, \$8,866.

Co-Principal Investigator, "Cyanide Formation and Fate in Complex Effluents and Its Relation to Water Quality," Joint Project with Malcolm Pirnie, Carnegie Mellon University, Alcoa, EPRI, GRI, Michigan Consolidated Gas Co., Metropolitan Water Reclamation District of Greater Chicago, Massachusetts Water Resources Authority, East Bay Municipal Utility District, City of Sunnyvale, and the City of Phoenix, funded by the Water Environment Research Foundation, July 1, 1998 – June 30, 2001, \$1,449,700.

Co-Principal Investigator, "Acquisition of Analytical Equipment for the Analysis of Aqueous Contaminants," National Science Foundation, August 1, 1995 – July 31, 1998, \$165,956.

Co-Principal Investigator, "Controlling Contaminant Mobility During Cleanup," Great Lakes Protection Fund, September 1, 1995 – August 31, 1998, \$377,000.

Principal Investigator, "Photochemical Treatment of Cyanide in Aluminum Pot-Lining Leachates," Alcoa Technical Center, May 1, 1995 – June 30, 1997, \$80,000.

Principal Investigator, "Optimization Studies of the BG&E Spring Gardens Groundwater Oil Recovery/Remediation Facility," Baltimore Gas and Electric Co., Electric Power Research Institute, January 1, 1995 – June 30, 1997, \$197,951.

Co-Principal Investigator, "Energy Conservation Technology Assistance and Technology Transfer Program," New York State Energy Research and Development Authority, January 1, 1995 – July 31, 1997, \$150,000.

Principal Investigator, "Photocatalytic Treatment of Iron Cyanides," New York State Science and Technology Foundation, Centers for Advanced Technology Program, July 1, 1992-June 30, 1996, \$75,140.

Co-Principal Investigator, "Subsurface Flow Wetland Treatment System," New York State Energy Research and Development Authority, October 1994 – October 1996, \$362,633.

Co-Principal Investigator, "Pelletization and Incineration of Kraft Process Pulp and Paper Sludge: Operational Feasibility and Chemical Mass Balance," New York State Energy Research and Development Authority/James River Corp., November 3, 1993 – October 31, 1996, \$344,973.

Principal Investigator, "Field Demonstration of Thermal Desorption for the Remediation of Manufactured Gas Plant Sites," New York State Center for Hazardous Waste Management and Niagara Mohawk Power Corp., August 1, 1993 – January 31, 1995, \$91,481.

Principal Investigator, "Biotechnology of Metal Ion Biosensors," Grant N00014-91-5-1520, Office of Naval Research, June 1, 1994 – August 31, 1995, \$47,707.

Principal Investigator, "Long Term Fate of Land Applied Wastewater Sludge," New York State Energy Research and Development Authority, August 1, 1992 – December 31, 1996, \$660,785.

Co-Principal Investigator, "Influence of Dynamic Fluid-Particle Interactions on Contaminant Phase Partitioning in Aqueous Systems," Grant. R-818952, U.S. Environmental Protection Agency, September 15, 1992 – September 14, 1995, \$458,011.

Principal Investigator, "Cyanide Characterization in Pot-Lining Wastes and Leachates," Alcoa Technical Center, January 1 – December 31, 1994, \$45,586.

Principal Investigator, "Studies on the Environmental Characteristics of Purifier Wastes at Manufactured Gas Plant Sites," Gas Research Institute, June 1, 1992 – December 31, 1993, \$20,000.

Co-Principal Investigator, "Anaerobic Pretreatment of Sewage: Optimization Studies," New York State Energy Research and Development Authority, June 1, 1991 – February 28, 1995, \$493,022.

Principal Investigator, "Studies on the Treatment of Cyanide-Bearing Wastes at Manufactured Gas Plant Sites," Institute of Gas Technology, August 1992 – June 30, 1994, \$92,740.

Co-Principal Investigator, "Precipitation and Colloidal Properties of Ammonium Fluoride Mixed Precipitates as Applied to Semiconductor Wastewaters," New York State Center For Hazardous Waste Management, July 1, 1992 – June 30, 1993, \$90,385.

Principal Investigator, "Measurement, Characterization, and Treatment of Cyanide-Bearing Wastes at Manufactured Gas Plant Sites," New York State Center for Hazardous Waste Management/Gas Research Institute, July 1, 1990 – June 30, 1992, \$156,940.

Principal Investigator, "Field Analysis of Soils for PAH Concentrations Using UV-Fluorescence Spectroscopy," Gas Research Institute, May 1, 1990 – December 31, 1992, \$77,961.

Principal Investigator, "Characterization of Leachates from Municipal Incinerator Ash Materials," New York State Solid Waste Combustion Institute, June 1, 1989 – June 30, 1992, \$218,657.

Principal Investigator, "Development of Oxides of Iron as Sorbents for the Control, Separation, and Recovery of Inorganic Hazardous Waste Components," New York State Center for Hazardous Waste Management, January 1, 1989 – December 31, 1989, \$52,278.

Principal Investigator, "Development of Oxides of Iron as Sorbents for the Control, Separation and Recovery of Inorganics Contained in Industrial Process and Waste Streams," Industrial Waste Elimination Research Center, February 1, 1987 – December 31, 1991, \$172,904.

Principal Investigator, "Iron Oxide Adsorbents: Design Optimization Studies," Cornell National Supercomputer Facility, July, 1989 – November 1991, 20 Service Units.

Principal Investigator, "Iron Oxide Separation Media," Alcoa Technical Center, April 1987 – March 1989, \$20,000.

Co-Principal Investigator, "Knowledge-Base Expert Systems in Water Utility Operation and Management," AWWA Research Foundation, December 1, 1987 – March 31, 1989, \$32,573.

Co-Principal Investigator, "Flux and Exposure of In-Place Contaminants Due to Resuspension," Univ. of California, Santa Barbara, #VB54899, July 1, 1988 – June 30, 1991, \$57,500.

Co-Principal Investigator, "Exposure and Biological Effects of In-Place Pollutants: Adsorption/Desorption Kinetics of Detroit River In-Place Pollutants," U.S. EPA Project CR812570, October 1, 1985 - September 30, 1987, \$150,000.

Co-Principal Investigator, "Groundwater Chemistry," Clarkson University, Division of Research, \$9,500.

Principal Investigator, "Multi-Solute Subsurface Transport Modeling for Energy Solid Wastes," Dept. of Energy #DE-AC02-79EV10253, January 1, 1982 – August 31, 1986, \$506,119.

Principal Investigator, "Hydrodynamic and Chemical Modeling of Heavy Metals in Ash Pond Leachates," DOE# DE-AC02-79EV10235, July 1, 1979 – December 31, 1981, \$240,262.

Principal Investigator, "Reaction Pathway of Sorbed Species at Solid/Aqueous Boundaries,"

Industrial Waste Elimination Research Center – U.S. EPA Project 5-54688-ND-8302, January 1, 1984 - February 28, 1986, \$52,632.

Principal Investigator, “The Effect of Speciation on the Sorptive Behavior of Metal Ions,” Industrial Waste Elimination Research Center – U.S. EPA Project #8203, January 1, 1992 – December 31, 1983, \$173,776.

Co-Principal Investigator, “Potential for Coal-Related Groundwater Contamination in the Coastal Plain Soils of Maryland,” State of Maryland, Dept. of Natural Resources, September 1, 1982 – December 31, 1983, \$79,854.

Principal Investigator, “Speciation of Transition Metals in Multi-Phase Environments,” Industrial Waste Elimination Research Center – U.S. EPA Project #8007, November 15, 1980 – November 14, 1981, \$28,546.

Principal Investigator, “Biological Oxidation of Iron(II) by *T. ferrooxidans* in a Sequencing Batch Reactor,” U.S. Dept. of the Interior (Bureau of Mines), Project J0100079, May 1, 1980 – December 15, 1982, \$130,271.

Principal Investigator, “Analysis and Assessment of Incinerated Municipal Sludge Ashes,” Environmental Protection Agency, EPA Grant R-806690-01, August 1, 1979 – December 31, 1980, \$86,614.

Principal Investigator, “The Contamination of Groundwater by Heavy Metals from the Land Disposal of Fly Ash,” DOE Grant EY-76-02-2727, June 1, 1975 – September 30, 1979, \$140,000.

Principal Investigator, “Interdisciplinary Evaluation of Eutrophic Lake Reclamation,” EPA Grant R-801245-02, June 1, 1976 – December 1977, \$77,684.

Co-Principal Investigator, “Interdisciplinary Evaluation of Eutrophic Lake Reclamation,” EPA Grant R-801245-05-2, June 1, 1974 – May 31, 1976.

Principal Investigator, “The Use of Metal-Bearing Industrial Wastes for the Precipitation of Phosphorus in Tertiary Treatment Systems,” Office of Research and Sponsored Programs, University of Notre Dame, June 1, 1975 – May 31, 1976, \$2,500.

Principal Investigator, “The Aqueous Chemistry of Polycyclic Aromatic Carcinogenic Agents, Office of Research and Sponsored Programs, University of Notre Dame, March 7, 1977 – April 30, 1978, \$500.

Co-Principal Investigator, “Career Facilitation Training for Women to Enter Graduate Programs in Environmental Health Engineering and Science, “National Science Foundation Grant SMI76020449, September 1976 - August, 1978.

Principal Investigator, “Comparative Stability of Heavy Metals in Wet Oxidation Sludge,” Whirlpool Corporation Design Project Task #18, June 1, 1977 – September 1 1977, \$10,000.

Project Consultant, “Joint Training Environmental Engineering and Law,” EPA Grant T-900065-0, 1973 – 1975.

Principal Investigator, “Iron-Organic Matter Interactions in Natural Waters,” FWQA Research Fellowship #1-F1-WP-26, 602, 01, September 1, 1970 – August 1, 1972, \$11,000.

Theses and Dissertations Directed
Ph.D.

- Thomas, M.J., 1975, "Colloid Chemical Properties of Chrome Hydroxides Applied to Metal Finishing Wastes".
- Hayes, T.D., 1976, "The Effects and Distribution of Selected Heavy Metals in Anaerobic Digestion".
- McCabe, P.J., 1977, "The Role of Sediments in Hypereutrophic Lakes: Factors Affecting Phosphorus Exchange".
- Richter, R.O., 1978, "Chemical Speciation of Fly Ash Leachates in the Underlying Soil/Water System with Emphasis on the Adsorption of Nickel by Oxides".
- Kiphart, K., 1983, "The Kinetics of Sorption Reactions at the Goethite-Aqueous Interface".
- Gardner, K., 1996, "Aggregation Kinetics of Colloidal Particles in Aqueous Solution".
- Seager, T.P. 2001, "Industrial Ecology and the Pollution Potential Hypothesis".
- Grimes, H.G., 2005, "Extended responsibility: Strategic decisions for packaging lifecycle management".
- Miller, S.M., 2006, "A Comparative Life Cycle Assessment of Soybean Based and Mineral Oil Lubricants in Aluminum Rolling".
- Landis, A., 2007. "The Environmental Impacts of Biobased Production".
- Sengul, H. 2009, "Life Cycle Analysis of Quantum Dot Semiconductor Materials"
- Klein-Banai, C. 2010, "Quantitative Measures of Sustainability in Institutions of Higher Education".
- Hicks, A. 2014. "Solid State Lighting: A Nano-enabled Case Study in Sustainability"
- Brecheisen, T. 2017. "Life-Cycle Assessment as a Comparative Analysis Tool to Measure Brownfield Redevelopment Sustainability"
- Bozeman, Joseph F., 2020. "An Exploration of Climate Change, Socioecology, and Human Health in Managing Food-Energy-Water Impacts"
- M.S.
- Palla, R.J., 1974, "The Effect of Fly Ash Addition on the Biological Reduction of Sulfate in Eutrophic Sediments.
- Mulligan, J.H., 1974, "Trace Metals and Organic Matter in Northern Indiana Groundwater Public Drinking Supplies".
- Cox, J.D., 1974, "The Enhancement of Biological Nitrification via Activated Carbon Pretreatment".
- Wirth, J.L., 1976, "The Chemistry of Heavy Metals in Aqueous Fly Ash Environments".
- Fromm, G.A., 1977, "Metal Uptake by Plants Grown in Fly Ash Amended Soils".
- Dixon, J.G., 1977, "Investigation of the Solubilities of Several Polynuclear Aromatic Compounds in Aqueous Solutions".
- Hsu, C.L., 1978, "Heavy Metal Uptake by Soils Surrounding a Fly Ash Pond".

- Dodge, E.E., 1978, "The Effect Of Chemical Speciation on Copper Uptake by *Chironomus tentans*".
- Carter, B.D., 1978, "The Oxidation of Iron by *Thiobacillus ferrooxidans* in a Sequencing Batch Reactor".
- Agnihotri, P.K., 1979, "Solubilities of Polyaromatic Hydrocarbons in the Presence of Impurity Ions".
- Westrick, J.D., 1980, "Field and Laboratory Investigations of Trace Metal Leaching from an Industrial Disposal Site".
- Padgett, L., 1981, "Factors Affecting the Concentration of Heavy Metals in Municipal Sludge Ash Leachates."
- McKiernan, M., 1981, "Mutagenicity of Municipal Sludge Ashes in the Ames Salmonella/Microsome Test."
- O'Brien, J., 1982 "Attachment and Growth Characteristics of *T. Ferroxidans* in the Biological Treatment of Acid Mine Drainage".
- Cronin, T., 1983, "Use and Documentation of FIESTA, a Model for Computing Multi-Solute Subsurface Transport with Complex Chemical Interactions".
- West, M., 1983, "The Effects of Cyanide on Trace Metal Adsorption by γ -FeOOH".
- Kaul, L., 1985, "Mini-Column Study of Transient Sorption on γ -FeOOH".
- McCann, M., 1986, "Sorption Kinetics of Hydrophobic Compounds on Gamma Aluminum Oxide."
- Iyer, R., 1988, "Modeling of Transient Adsorption of Inorganic Ions at the Goethite-Water Interface".
- Madgal, S., 1990, "A study of Cationic and Anionic Sorption Equilibrium on a Granular Iron Oxide Adsorbent."
- Gardner, K., 1991, "Characterization of Leachates from Municipal Incinerator Ash Materials."
- Monsour, P., 1991, "Analysis of Polyaromatic Hydrocarbons in MGP Wastes by Ultraviolet Fluorescence Spectroscopy".
- Knutsen, K., 1992, "Leaching Behavior and Treatment of Cyanide-Bearing Wastes at Manufactured Gas Plant Sites".
- Alderman, B., 1993, "Optimization of Anaerobic Pretreatment of Wastewater".
- Zhao, J., 1994, "The Treatment of Cyanide-Bearing Wastes at Manufactured Gas Plant Sites".
- Fair, J., 1994, "Studies on the Land Application of Sludge: Effects of Physical Weathering on Trace Element Mobilization".
- Boston, J., 1995, "Assessment of the Effects of Full-Scale Thermal Desorption on Manufactured Gas Plant Wastes".

- Newman, K., 1995, "Studies on the Fate of Trace Elements from Land-Applied Biosolids Using the Rapid Cycling *Brassica rapa*".
- Moye, D., 1995, "The Influence of Copper Speciation on Bioluminescence".
- Lupichuk, W., 1995, "Characterization and Development of Optimun Analysis Methods of Cyanide Species in Spent Aluminum Potlining Wastes.
- Schaefer, R., 1996, "Photocatalytic Treatment of Cyanide in Aluminum Potlining Leachate Using Ozone as an Oxidizing Agent".
- Brown, R., 1996, "Leachate Characteristics of Land Applied Wastewater Biosolids".
- Tudman, S., 1997, "Photocatalytic Oxidation of Iron Complex Cyanide Utilizing Titanium Dioxide, Hydrogen Peroxide, and Reduced Iron".
- Gibbs, J., 1997, "Plant Uptake and Mobility of Trace Elements from Land Applied Biosolids".
- O'Carroll, D., 1997, "The Development of a Groundwater Treatment Cost Analysis Model".
- Chank, J., 1997, pH-Dependent Adsorption of Hexacyanoferrate(II) onto Selected Sorbents."
- Qiao, X., 1998, "Simultaneous Adsorption of Hexacyanoferrate(II) and Flouride onto Activated Alumina".
- Ying, Y., 2000, "Development of an Analytical Method for Organocyanide Compounds, "Chemical Oxidation of Organocyanide Compounds".
- Li, X., 2002 "Electrochemical Reduction of Perchlorate Ion," (w/A.K. Zander).

Book

Theis, Thomas L., and Jonathan H. Tomkin, eds. 2011. *Sustainability: A Comprehensive Foundation*. Chicago, Urbana, and Springfield: University of Illinois. <http://cnx.org/content/col11325/latest/>.

Refereed Publications

Theis, T.L., Tenney, W.F. Echelberger, and P.C. Singer, (1970) "Phosphate Removal: Summary of Papers," *Journal of the Sanitary Engineering Division, ASCE*, Discussion, Proc. paper 7441, p. 1004.

Singer, P.C., and T.L. Theis, (1972) "Anaerobic Digestion of Sludge Containing Iron Phosphates," *Journal of the Sanitary Engineering Division, ASCE*, Discussion, Proc. Paper 9225, p.784.

Theis, T.L., and P.C. Singer, (1973) "The Stabilization of Ferrous Iron by Organic Compounds in Natural Waters," pp.303-320 in *Trace Metals and Metal-Organic Interactions in Natural Waters*, P.C. Singer, ed., Ann Arbor Science.

Theis, T.L., and P.C. Singer, (1974) "Complexation of Iron(II) by Organic Matter and Its Effect on Iron(II) Oxygenation," *Environmental Science and Technology*, 8, 569.

Theis, T.L., and J.V. DePinto, (1976) "Studies on the Reclamation of Stone Lake, Michigan," Ecological Research Series EPA 600/3-76-106.

Thomas, M.J., and T.L. Theis, (1976) "Effects of Selected Ions on the Removal of Chrome(III) Hydroxide," *Journal Water Pollution Control Federation*, 48, 2032.

Theis, T.L., and J.L. Wirth, (1977) "Sorptive Behavior of Trace Metals on Fly Ash in Aqueous Systems," *Environmental Science and Technology*, 11, 12, 1096.

Theis, T.L., and G.A. Fromm, (1977) "Phosphate Removal Using Waste Calcium Sulfate," *Journal Environmental Engineering Division, ASCE*, Proc. Paper 13294, 103(E5) 951.

Theis, T.L., and J.J. Marley, (1977) "Value Orientation in Engineering Education," Proceedings of the Conference on Ethics, Professionalism, and Maintaining Competence, American Society of Civil Engineers, Ohio State University, pp.72-81.

Hayes, T.D., and T.L. Theis, (1978) "The Distribution of Heavy Metals in Anaerobic Digestion," *Journal Water Pollution Federation*, 50, 1, pp. 61-77.

Theis, T.L., J.D. Westrick, C.L. Hsu, and J.J. Marley, (1978) "Field Investigations of Trace Metals in Groundwater from Fly Ash Disposal," *Journal Water Pollution Control Federation*, 50, 2457.

Theis, T.L., and P.J. McCabe, (1978) "Phosphorus Dynamics in Hypereutrophic Lake Sediments," *Water Research*, 12, 677.

Theis, T.L., and P.J. McCabe, (1978) "Retardation of Sediment Phosphorus Release by Fly Ash Application," *Journal Water Pollution Control Federation*, 50, 2666.

Theis, T.L. and T.D. Hayes, (1979) "The Chemistry of Heavy Metals in Anaerobic Digestion," in *Chemistry of Wastewater Treatment*, edited by Alan J. Rubin, pp. 403-419, Ann Arbor Science Publishers, Ann Arbor, Michigan .

Theis, T.L., and J.J. Marley, (1979) "Environmental Considerations for Power Plant Fly Ash Disposal," *Journal of the Energy Division, ASCE*, Proceedings Paper 14286, 105, No. EY1, 47-61.

Theis, T.L., and R.O. Richter, "Chemical Speciation of Heavy Metals in Power Plant Ash Pond Leachate," (1979) *Environmental Science and Technology*, 13, 219.

Spencer, D.F., R.W. Green, T.L. Theis, H.Y. Yeung, Q.E. Ross, E.E. Dodge, (1979) "A Study of the Relationship Between Phytoplankton Abundance and Trace Metal Concentrations in Eutrophic Lake Charles East, Using Correlation Techniques," *Proc. Indiana Academy of Sciences*, 87, 204.

Theis, T.L., E.E. Dodge, (1979) "The Effect of Chemical Speciation on the Uptake of Copper by *Chironomus tentans*," *Environmental Science and Technology*, 13, 1287.

Theis, T.L., (1979) "Lake Pollution: Causes, Management, and Restoration Methods," *The Michigan Riparian*, pp. 4-8.

Theis, T.L., R.W. Greene, P.J. McCabe, B.P. Higgins, D.F. Spencer, H.Y. Yeung, R.L. Irvine, (1979) "Reclamation of Lake Charles East, Indiana, Final Report," Environmental Protection Agency, Ecological Research Series, EPA-600/3-79-060.

Richter, R.O., and T.L. Theis, (1980) "Nickel Speciation in a Soil-Water System," *Biogeochemistry of Nickel*, edited by J.O. Nriagu, John Wiley and sons, pp. 189-202.

Theis, T.L., and R.O. Richter, (1981) "Adsorption Reactions of Nickel Species at Oxide Surfaces," *Particles in Water: Characterization, Fate, Effects, and Removal*, American Chemical Society, Advances in Chemistry Series #189, edited by M.C. Kavanaugh and J.O. Leckie, pp. 73-96.

Theis, T.L., L.E. Padgett, and M. McKiernan, (1981) "Physical, Chemical and Mutagenic Properties of Incinerated Municipal Sludge Ash," National Conference on Environmental Engineering, F.M. Saunders, ed., Am. Soc. of Civil Engineers, pp.548-557.

Theis, T.L., L.H. Ketchum, and R.L. Irvine, (1982) "Biological Oxidation of Fe(II) by *T. ferrooxidans* in a Sequencing Batch Reactor," Final Report on Contract J-100079, Bureau of Mines, Minerals Environmental Technology, U.S. Dept. of the Interior, 139 pp.

Jennings, A.A., D.J. Kirkner, and T.L. Theis, (1982) "Multi-Component Equilibrium Chemistry in Groundwater Quality Models," *Water Resources Research*, 18, pp. 1089-1096.

Theis, T.L., and L.E. Padgett, (1983) "Factors Affecting the Release of Trace Metals from Municipal Sludge Ashes," *Journal Water Pollution Control Federation*, 55, 1271-1279.

Kirkner, D.J., T.L. Theis, and A.A. Jennings, (1984) "Multi-Component Solute Transport with Sorption and Soluble Complexation," *Advances in Water Resources*, 7, 120-125.

Kirkner, D.J., A.A. Jennings, and T.L. Theis, (1984) "Multisolute Mass Transport with Chemical Interaction Kinetics," *Journal of Hydrology*, 76, 107-117.

Theis, T.L., L.H. Ketchum, W.H. Englemann, (1985) "Biological Catalysis of the Oxidation of Iron(II) in Acid Mine Waters in a Sequencing Batch Suspended Film Reactor," *Transactions of Soc. Mining Engineers*, Am. Inst. of Mining Engineers, 276, 1891-1899.

McKiernan, M., T.L. Theis, and L.E. Padgett, (1985) "Analysis and Assessment of Incinerated Municipal Sludge Ashes and Leachates," *Waste Management and Research*.

Theis, T.L., (1985) "Factors Affecting the Release of Trace Metals from Municipal Sludge Ashes," *Journal Water Pollution Control Federation*, 52, 423.

Theis, T.L., and M.J. West, (1986) "The Effects of Cyanide Complexation on the Adsorption of Trace Metals at the Surface of Goethite," *Environmental Technology Letters*, 7, 309-318.

Theis, T.L., R Iyer, and L.W. Kaul, (1988) "Kinetic Studies of Cadmium and Ferricyanide Sorption on Goethite," *Environmental Science and Technology*, 22, 1013.

Theis, T.L., (1988) "Reactions and Transport of Trace Metals in Groundwater," in *Metal Speciation, Theory, Analysis and Application*, pp. 81-97, ed. by J.R. Kramer and H.E. Allen, Lewis Publishers.

Theis, T.L., T.C. Young, and J.V. DePinto, (1988) "Factors Affecting Metal Partitioning During In Situ Resuspension of Sediments from the Detroit River," *Journal of Great Lakes Research*, 14, 216.

Theis, T.L., K.H. Gardner, (1990) "Environmental Assessment of Ash Disposal," *Critical Reviews in Environmental Control*, ed. C.P. Straub, CRC Press, Inc., 20, 21-42.

Young, T.C., and T.L. Theis, (1991) "Determination of Cyanide in Manufactured Gas Plant Purifier Wastes," *Environmental Technology*, 12, 1063.

Young, T.C., M.R. Waltman, T.L. Theis, and J.V. DePinto, (1992) "Some Factors Affecting Heavy Metal Sorption by Trenton Channel (Detroit River) Sediments," *Hydrobiologia*, 235, 649-660.

Theis, T.L., R. Iyer, and S.K. Ellis, (1992) "Evaluating a New Granular Iron Oxide Adsorbent for Removing Lead from Drinking Water," *Journal of the American Water Works Association*, 84, 101-105.

DePinto, J.V., T.L. Theis, T.C. Young, and S. Leach, (1993) "Predicting Metals Partitioning During Resuspension Events," pp. 177-204 in *Transport and Transformation of Contaminants Near the Sediment-Water Interface*, J.V. DePinto, W. Lick, J. Paul, eds., Lewis Publishers, Boca Raton, FL .

Theis, T.L., R. Iyer, and S.K. Ellis, (1994) "Parameter Estimation for Trace Element Sorption on a New Granular Iron Oxide," *Environmental Progress*, 13(1), 72-77.

Alderman, B.J., T.L. Theis, and A.G. Collins, (1994) "A Numerical Approach to Clarifier Operation According to Flux Theory," *Journal of Environmental Engineering* 120(3), 670-676.

Theis, T.L., T.C. Young, M. Huang, and K.C. Knutsen, (1994) "Leachate Characteristics and Composition of Cyanide-Bearing Wastes at Manufactured Gas Plants," *Environmental Science and Technology*, 28, 99-106.

Theis, T.L., and R. Iyer, (1994) "Trace Metal Chemical Reactions in Groundwater: Parameterizing Coupled Chemistry-Transport Models," in *Metal Speciation and Contamination of Soil*, H.E. Allen, C.P. Huang, G.W. Bailey, A.R. Bowers editors, Lewis Publishers, Boca Raton, Florida, 207-225.

Theis, T.L., (1995) "Discussions," *Journal of Environmental Engineering*, 121(3), 201.

Theis, T.L., (1995) "Cost, Benefits, the Environment, and Engineering," *Journal of Environmental Engineering*, 121(6), 427.

Theis, T.L., (1995) "Environmental Engineering and Accreditation," *Journal of Environmental Engineering*, 121(9), 607.

Theis, T.L., (1995) "Publication Time in the *Journal of Environmental Engineering*," *Journal of Environmental Engineering*, 121(11), 765.

Theis, T.L., (1995) "Future of Environmental Engineering," Discussion, *Journal of Environmental Engineering*, 121(3), 268-269.

Theis, T.L., (1996) "Characterization and Treatment of Cyanide in MGP Purifier Wastes," *Journal of Land Contamination and Reclamation*.

Zander, A.K., T.L. Theis, and M. Brennan, (1996) "Energy Recovery from Paper Sludge: Criteria and Organic Hazardous Air Pollutants," *Journal of Environmental Engineering* 122(8), 758-760.

Gardner, K.H., and T.L. Theis, (1996) "A Unified Kinetic Model for Particle Aggregation," *Journal of Colloid and Interface Science*, 180, 162-173.

Wiesner, M.R., and T.L. Theis, (1996) "Environmental Engineering Education: Application Area and Discipline," *Journal of Environmental Engineering*, 122(2), 89-90.

Theis, T.L., (1996) "Too Many Equations?," *Journal of Environmental Engineering*, 122(6), 451.

Theis, T.L., (1996) "Reviewing for the *Journal of Environmental Engineering*," *Journal of Environmental Engineering*, 122(7), 555.

Theis, T.L., (1996) "Trends in Environmental Engineering: Education and Practice," *Journal of Environmental Engineering*, 122(11), 955.

Gregg, J.J., A.K. Zander, and T.L. Theis, (1997) "Fate of Trace Elements in Energy Recovery from Recycled Paper Sludge," *TAPPI Journal*, 80(9), 157-162.

Gardner, K.H., T.L. Theis, and T.C. Young, (1998) "The Significance of Shear Stress in the Agglomeration Kinetics of Fractal Aggregates," *Water Research*, 32(9), 2660-2668.

Gardner, K.H., T.L. Theis, and T.C. Young, (1998) "Colloid Aggregation: Numerical Solution and Measurements," *Colloids and Surfaces A: Physicochemical and Engineering Aspects*, 141, 237-252.

Alderman, B.J., T.L. Theis, and A.G. Collins, (1998) "Optimal Design for Anaerobic Pretreatment of Domestic Wastewater," *Journal of Environmental Engineering*, 124(1), 4-10.

Collins, A.G., T.L. Theis, S. Kilambi, L. He, and S.G. Pavlostathis, (1998) "Anaerobic Treatment of Low Strength Domestic Wastewater Using an Anaerobic Expanded Bed Reactor," *Journal of Environmental Engineering*, 124(7), 652-659.

Theis, T.L., Brown, R.L., Gibbs, J., Collins, A.G. (1998). "Land application of biosolids: comparison among stabilization methods." in Wilson, T.E. (Ed.), *Water Resources and the Urban Environment-98*, Proceedings of the (1998) National Conference on Environmental Engineering, Reston, VA.

Alderman, B.J., T.L. Theis, and A.G. Collins, (1999) "Optimal Design for Anaerobic Pretreatment of Municipal Wastewater," *Journal of Environmental Engineering*, 125(7), 679-680.

Theis, T.L., and D.A. Moyer, (2000) "The Influence of Aqueous Copper Speciation on Bioluminescence," *Chemical Speciation and Bioavailability*, 12(1), 27-33.

Gardner, K.H., T.L. Theis, and R. Iyer, (2002) "An Experimental and Analytical Approach to Understanding the Dynamic Leaching from Municipal Solid Waste Combustion Residue," *Environmental Engineering Science*, 19(2), 89-100.

Seager, T.P., and T.L. Theis, (2002) "A Uniform Definition and Conceptual Framework for Industrial Ecology," *Journal of Cleaner Production*, 10: 225-235.

Yi, Y., and T.L. Theis, (2002) "The Effect of Chlorination on Organocyanide Compounds," *Water Environment Research Journal*, 79(1), 51-57.

Seager, T.P., and T.L. Theis, (2002) "Exergetic Pollution Potential: Estimating the Revocability of Chemical Pollution," *Exergy, An International Journal*, 2, 273-282.

Theis, T.L., A.K. Zander, X. Li, J. Sene, and M.A. Anderson, (2002) "Electrochemical Photocatalytic Reduction of Perchlorate Ion," *Aqua*, 51(7), 367-374.

Ahmadi, A., B. Williamson, T.L. Theis, and S.E. Powers, (2003) "Life-Cycle Inventory of Toner Produced for Xerographic Processes," *Journal of Cleaner Production*, 11(5), 573-582.

Seager, T. P., and T.L. Theis, (2003) "A Thermodynamic Basis for Evaluating Environmental Policy Trade-offs," *Clean Technologies and Environmental Policy*, 4, 217-226.

Thomas, V.M., T.L. Theis, R. Lifset, D. Grasso, B. Kim, C Koshland, and R Pfahl, (2003) "Industrial Ecology: Policy Potential and Research Needs," *Environmental Engineering Science*, 20 (1)1-9.

Theis, T.L., D.M. O'Carroll, D. Vogel, and A. Lane, (2003) "Systems Analysis of Pump-and-Treat Groundwater Remediation," *ASCE Practice Periodical of Hazardous, Toxic, and Radioactive Waste Management*, 7(3): 177-181.

Seager, T.P., and T. L. Theis, (2003) "Replacements for CFCs—Pollution Potential Approach," in *Sustainable Engineering*, edited by R. Bellandi, John Wiley & Sons, New York.

Seager, T.P., and T.L. Theis, (2004) "A taxonomy of metrics for testing the industrial ecology hypothesis and application to design of freezer insulation," *Journal of Cleaner Production*, 12(8): 865-875.

Miller, S.A., and T. L. Theis, (2005) "Comparison of Life-Cycle Inventory Databases: A case study using soybean production", *Journal of Industrial Ecology* 10: (1-2) 133-147.

Landis, A. E. and T. L. Theis (2005) "Workshop on the Economic and Environmental Impacts of Biobased Production." *International Journal of Life Cycle Assessment* 10(3): 226-227.

Miller, S.A., A. E. Landis, T. L. Theis, (2006) "Using Monte Carlo Simulation to Estimate Nitrogen Flows in Agroecosystems" *Environmental Science and Technology* 40(7): 2324-2332.

Young, T.C., X. Zhao, and T.L. Theis. (2006) "Fate and Transport of Anthropogenic Cyanide in Surface Water", pp. 171-190 in *Cyanide in Water and Soil: Chemistry, Risk, and Management*, Edited by D.A. Dzombak, R.S. Ghosh, and G.M. Wong-Chong, Taylor and Francis, Boca Raton FL.

Nakles, D.V., D.A. Dzombak, R.S. Ghosh, G.M. Wong-Chong, and T.L. Theis. (2006) "Regulation of Cyanide in Water and Soil", pp. 351-386 in *Cyanide in Water and Soil: Chemistry, Risk, and Management*, Edited by D.A. Dzombak, R.S. Ghosh, and G.M. Wong-Chong, Taylor and Francis, Boca Raton FL.

Ghosh, R.S., T.L. Theis, J.R. Smith, and G.M. Wong-Chong. (2006). "Ambient Temperature Oxidation Technologies for Treatment of Cyanide", pp. 393-412 in *Cyanide in Water and Soil: Chemistry, Risk, and Management*, Edited by D.A. Dzombak, R.S. Ghosh, and G.M. Wong-Chong, Taylor and Francis, Boca Raton FL.

Landis, A.E., S. A. Miller, and T. L. Theis, (2007) "Life Cycle of the Corn-Soybean Agroecosystem for Biobased Production" *Environ. Sci. Technol.* 41(4):1457 – 1464.

Grimes-Casey, H.G., T. P. Seager, T. L. Theis and S. E. Powers (2007) "A game theory framework for cooperative management of refillable and disposable bottle lifecycles" *Journal of Cleaner Production*, 15(17):1618-1627.

Miller, S.A., A.E. Landis, T.L. Theis, and R.L. Reich (2007) "A Comparative Life Cycle Assessment of Petroleum and Soybean-Based Lubricants", *Environmental Science and Technology* 41(11): 4143-4149.

Miller, S.A., A.E. Landis, and T.L. Theis (2007) "Environmental Tradeoffs of Bio-based Production" *Environmental Science and Technology*, 41:5176-5182.

Sengul, H., T.L. Theis, and S. Ghosh (2008) "Towards Sustainable Nanoproducts: An Overview of Nanomanufacturing Methods" *Journal of Industrial Ecology* 12(3):329-359.

Sengul, H., and T. L. Theis (2008) "Life Cycle Inventory of Semiconductor CdSe Quantum Dots for Environmental Applications", in *Nanotechnology for Water Quality*, edited by A. Street, N. Savage, M.Diallo, J. Duncan, and R. Sustich. William Andrew, Inc. Norwich, NY.

Zellner, M. L., T. L. Theis, A. T. Karunanithi, A. S. Garmestani, and H. Cabezas (2008) "A New Framework for Urban Sustainability Assessments: Linking Complexity, Information and Policy", *Computers, Environment and Urban Systems, Special Issue on Geocomputation* 32:474–488.

Fiksel, J., T. Graedel, A.D. Hecht, D. Rejeski, G.S. Saylor, P.M. Senge, D.L. Swackhamer, and T.L.Theis (2009). EPA at 40: Bringing Environmental Protection into the 21st Century. *Environmental Science and Technology*, 43 (23):8716–8720.

Klein-Banai, C., T.L. Theis, T. A. Brecheisen, and A. Banai (2010). A Greenhouse Gas Inventory as a Measure of Sustainability for an Urban Public Research University. *Environmental Practice* 12 (1) March 2010.

Grimes-Casey, H., T. Seager, C. Ruebeck, T. Theis, and A. Berardy (2010). "A Game-theoretic Model for Investigating Packaging Life Cycle Policy", *Journal of Industrial Ecology* (submitted).

Şengül, H., and T.L. Theis (2011). "An environmental impact assessment of quantum dot photovoltaics (QDPV) from raw material acquisition through use", *Journal of Cleaner Production*, 19(1), 21-31.

Khodadoust, A.P., P. Naithani, T.L. Theis, and I.P. Murarka (2011). "Leaching Characteristics of Arsenic from Aged Alkaline Coal Fly Ash Using Column and Sequential Batch Leaching", *Industrial and Engineering Chemistry Research*, 50(4): 2204 – 2213.

Klein-Banai, C., and T.L. Theis (2011). An Urban University's Ecological Footprint and the Effect of Climate Change" *Ecological Indicators*, 11:857-860.

Klein-Banai, C., and T.L. Theis (2011). "Quantitative Analysis of Factors Affecting Greenhouse Gas Emissions at Institutions of Higher Education" *Journal of Cleaner Production*, available online: <http://dx.doi.org/10.1016/j.jclepro.2011.06.004>

Theis, T.L., B. Bakshi , R. Clift, D. Durham , V. Fthenakis , T. Gutowski , J. Isaacs , T. Seager , and M.R. Wiesner (2011). "A Life Cycle Framework for the Investigation of Environmentally Benign Nanoparticles and Products", *Physica Status Solidi RRL* 5 (9):312–317.

Galloway, J.N., T.L. Theis, O. Doering, V. Aneja, E. Boyer, K.G. Cassman, E.B. Cowling, R.R. Dickerson, W. Herz, D.L. Hey, R. Kohn, J.S. Lighty, W. Mitsch, W. Moomaw, A. Mosier, H. Paerl, B. Shaw, and P. Stacey (2011). U.S. Environmental Protection Agency Science Advisory Board. *Reactive Nitrogen in the United States: An Analysis of Inputs, Flows, Consequences, and Management Options - A Report of the EPA Science Advisory Board*. EPA-SAB-11-013, U.S. EPA Science Advisory Board, Washington, DC.

Brecheisen, T., and T.L. Theis (2013). "The Chicago Center for Green Technology: Life-cycle Assessment of a Brownfield Redevelopment Project", *Environ. Res. Lett.* 8:015038.

Hicks, A., and T.L. Theis (2014). "Residential Energy Efficient Lighting Adoption Survey", *Energy Efficiency*, 7:323-333.

Hicks, A., and T.L. Theis (2014). "An Agent Based Approach to the Potential for Rebound Resulting from Evolution of Residential Lighting Technologies", *The International Journal of Life Cycle Assessment*, 19(2), 370-376.

Brecheisen, T., and T. Theis (2015) "Life-cycle Assessment as a Comparative Analysis Tool for Sustainable Brownfield Redevelopment Projects: Cumulative Energy Demand and Greenhouse Gas

Emissions”, Chapter 10 in *Assessing and Measuring Environmental Impact and Sustainability*, J. Klemes and H. Cabezas editors, Elsevier pp. 323-361.

Erisman, J.W., G. Brasseur, P. Ciais, N. van Eekeren, and T. L. Theis (2015). “Put People at the Centre of Global Risk management”, *Nature*, 519:151-153 (12 March 2015).

Hicks, A.L., L.M. Gilbertson, J.S. Yamani, T.L. Theis, and J.B. Zimmerman (2015). “Life Cycle Payback Estimates of Nano-silver Enabled Textiles under Different Silver Loading, Release, and Laundering Scenarios Informed by Literature Review”, *Environmental Science and Technology* 49 (13): 7529–7542.

Hicks, A., M. Zellner, and T. Theis (2015). “Emergent Effects of Residential Lighting Choices: Prospects for Energy Savings”, *Journal of Industrial Ecology* 19(2): 285-295.

Galloway, J.N., T.L. Theis, and O.C. Doering (2015). “Managing Nitrogen Pollution in the US: a Success, a Challenge and an Action Plan”, *Air and Waste Management Association: Environmental Management*, September 2015, 6-11.

Hicks, A.L., and T.L. Theis (2015). “A Comparative Life Cycle Assessment of Commercially Available Household Silver Enabled Polyester Textiles” *Int. Journal of Life Cycle Assessment* 22 (2): 256–265.

Hicks, A.L., R.B. Reed, T.L. Theis, D. Hanigan, H. Huling, T. Zaikova, J.E. Hutchison, and J. Miller (2016). “Environmental of reusable nanoscale silver-coated hospital gowns compared to single-use, disposable gowns” *Environ. Sci.: Nano* 3:1124-1132.

Chopra, S., and T.L. Theis (2017). “Comparative Cradle-to-Gate Energy Assessment of Indium Phosphide and Cadmium Selenide Quantum Dot Displays”, *Environmental Science: Nano*, 4, 244-254.

Falinski, M. M.; Plata, D. L.; Chopra, S. S.; Theis, T. L.; Gilbertson, L. M.; Zimmerman, J. B. (2018) “Navigating nanomaterial space for performance, hazard, and cost: approaching more responsible nanomaterial selection and design”, *Nature Nanotechnology* (13): 708-714.

Pourzahedi, L., M. Pandorf, D. Ravikumar, J. B. Zimmerman, T. P. Seager, T. L. Theis, P. Westerhoff, L. M. Gilbertson, G. V. Lowry (2018). Life cycle considerations of nano-enabled agrochemicals: Are today’s tools up to the task? *Environmental Science: Nano* 5 (5):1047–1254.

Brown, F., Y. Bi, S. Chopra, K. Hristovski, P. Westerhoff, and T. Theis (2018). “End-of-Life Heavy Metal Releases from Photovoltaic Panels and Quantum Dot Films: Hazardous Waste Concerns or Not?” *ACS Sustainable Chemistry & Engineering* 6 (7): 9369-9374.

Chopra, S., Y. Bi, F.C. Brown, T. L. Theis, K. D. Hristovski, and P. Westerhoff (2019) “Interdisciplinary collaborations to address the uncertainty problem in life cycle assessment of nano-enabled products: case of the quantum dot-enabled display” *Environmental Science: Nano* doi.org/10.1039/C9EN00603F.

Ai, N., M. Kjerland, C. Klein-Banai, and T. L. Theis (2019). “Sustainability assessment of universities as small-scale urban systems: A comparative analysis using Fisher Information and Data Envelopment Analysis”, *Journal of Cleaner Production* (212):1357-1367.

Bozeman, J. F., R. Bozeman, and T.L. Theis (2019). “Overcoming climate change adaptation barriers: A study on food–energy–water impacts of the average American diet by demographic group” *Journal of Industrial Ecology* DOI: 10.1111/jiec.12859.

Bozeman, J., W. Ashton, and T.L. Theis (2019). "Distinguishing Environmental Impacts of Household Food-Spending Patterns Among U.S. Demographic Groups, *Environmental Engineering Science*, 36 (7): 1-15. AEESP/Mary Ann Liebert Award for Publication Excellence in Environmental Engineering Science, 2020.

Bozeman, J., J. Mulrow, S. Derrible, and T.L. Theis (2020). "Urban Carbon Management Strategies", *Advances in Carbon Management Technologies*, Ed. S. Sikdar, CRC Press, Ch. 13, pgs. 229 – 249.

Bozeman III, J.F., S. Springfield, and T.L. Theis (2020). "Meeting EAT-Lancet Food Consumption, Nutritional, and Environmental Health Standards: A U.S. Case Study across Racial and Ethnic Subgroups". *Environmental Justice* 13(5) DOI: 10.1089/env.2020.0018.

Chopra, S. Y. Bi, F. Brown, T. Theis, K. Hristovski, and P. Westerhoff (2019). "Interdisciplinary Collaborations to Address the Uncertainty Problem in Life Cycle Assessment of Nano-enabled Products: Case of the Quantum Dot enabled display", *Environmental Science Nano* (in press)

Gilbertson, L.M., L. Pourzahedi, S. Laughton, X. Gao, J.B. Zimmerman, T.L. Theis, P. Westerhoff, and G.V. Lowry (2020). Guiding the design space for nanotechnology to advance sustainable crop production. *Nature Nanotechnol.* <https://doi.org/10.1038/s41565-020-0706-5>.

Bozeman, J.F. and T.L. Theis. (2020). Sustainability. AccessScience from McGraw-Hill. DOI:<https://doi.org/10.1036/1097-8542.671906>.

Diwekar, U., A. Amekudzi-Kennedy, B. Bakshi, R. Baumgartner, R. Boumans, P. Burger, H. Cabezas, M. Egler, J. Farley, B. Fath, T. Gleason, Y. Huang, A. Karunanithi, V. Khanna, A. Mangan, A.L. Mayer, R. Mukherjee, G. Mullally, V. Rico-Ramirez, D. Shonnard, M. Svanström, T. Theis (2021). A Perspective on the Role of Uncertainty in Sustainability Science and Engineering, *Resources, Conservation and Recycling* 164, p.105140.

Lee, Eunsang, and T.L. Theis (2021). "Blockchain-enabled plastic recycling: cost saving opportunities" *Journal of Cleaner Production* (submitted).

Other Publications

Thomas, M.J., and T.L. Theis, (1975) "Colloid Chemical Properties of Chrome Hydroxides Applied to Metal Finishing Wastes," *Proc. 30th Industrial Waste Conference*, Purdue University, pp.1-34 (1975).

Theis, T.L., "An Evaluation of the Use of Fly Ash for Control of Phosphorus in an Eutrophic Lake," *Proc. Lake Management Conference*, Water Resources Research Center, Purdue University, pp.70-85 (1975).

Theis, T.L., (1975) "The Potential Trace Metal Contamination of Water Resources Through the Land Disposal of Fly Ash," 2nd National Conference on Complete Water Reuse, AIChE, pp.219-224.

Theis, T.L., J.J. Marley, and R.O. Richter, (1976) "Sorbitive Characteristics of Heavy Metals in Fly Ash-Soil Environments," *Proc. 31st Industrial Waste Conference*, Purdue University, pp.312-324.

Hayes, T.D., T.L. Theis, (1976) "Effects and Fate of Selected Heavy Metals on Anaerobic Digestion," *Proc. 31st Industrial Waste Conference*, Purdue University, pp. 157-173.

Theis, T.L., (1985) "Equilibrium and Kinetic Descriptions of Sorption Reactions on Hydrous Oxide Surfaces," pp. 60-100, *Proc. Seminar on Adsorption*, U.S. Environmental Protection Agency, EPA/600/85/122, Cincinnati, OH.

Theis, T.L., (1986) "Discussion Paper: Heavy Metals Removal, Pilot Scale Research on the Advanced Mexico Precipitation Process," in *Proc. International Symposium on Metal Speciation, Separation and Recovery*, pp. VII-93, Industrial Waste Elimination Research Center, Chicago, IL.

Theis, T.L., (1979) "Physical and Chemical Treatment of Lake Sediments," *Proc. National Conference on Lake Restoration*, Environmental Protection Agency, EPA-440/5-9-001, pp.115-120.

Theis, T.L., J.A. Ripp, and J.F. Villaume, (1989) "Physical and Chemical Characteristics of Unsaturated Pore Water and Leachate at a Dry Fly Ash Disposal Site," *Proc. 43rd Industrial Waste Conference*, Purdue University, pp. 161-172, Lewis Publishers.

Theis, T.L., (1989) "Transport of Trace Elements and Species in Groundwater," *Proc. International Symposium on processes Governing the Movement and Fate of Contaminants in the Subsurface Environment*, Stanford University, Stanford, CA.

Theis, T.L., A.G. Collins, P.J. Monsour, S.G. Pavlostathis, and C.D. Theis, (1991) "Analysis of Total Polyaromatic Hydrocarbon Using Ultraviolet-Fluorescent Spectrometry," pp. 805-809 in 2nd Int. Symposium on Field Screening Methods for Hazardous Wastes and Toxic Chemicals, USEPA Environmental Monitoring Systems Laboratory, Las Vegas, NV.

Theis, T.L., B.J. Alderman, and A.G. Collins, (1994) "Optimization Studies of Anaerobic Expanded Bed Pretreatment of Domestic Wastewater," *Proc. of the 1994 National Conference on Environmental Engineering*, ASCE, ed. by J.N. Ryan and M. Edwards, 289-296.

Invited Lectures

Purdue University, Water Resources Institute, Lake Management Meeting, 1975.

Michigan Lake and Stream Association, Annual Meeting, 1977.

Oak Ridge National Laboratory Analytical Chemistry Division, 1977; Environmental Sciences Division, 1980.

Syracuse University, Department of Civil Engineering, 1977, 1986.

Clarkson University, Department of Civil and Environmental Engineering, 1977, 1983.

Northwestern University, The Technological Institute, Department of Civil Engineering, 1978, 2003.

Corvallis Environmental Research Laboratory, U.S. EPA, 1978.

Electric Power Research Institute, Environmental Workshop, 1978

Swiss Federal Institute for Water Pollution Control, 1978.

Environmental Protection Agency, National Meeting on Lake Restoration, 1978.

West Virginia University, Department of Civil Engineering, 1978.

Washington State University, Department of Civil and Environmental Engineering, 1978.

Batelle Pacific Northwest Laboratories, 1978.

University of Wisconsin, Water Chemistry Program, 1978, 1981, 1984, 1993, 1998, 2013.

Indiana University at South Bend, Department of Chemistry, 1978, 1982.

University of Tennessee, Department of Civil Engineering, 1979.

The Ohio State University, Department of Civil Engineering, 1981.

Los Alamos National Laboratory, 1982.

Princeton University, Dept. of Civil Engineering, 1984.

Drexel University, Dept. of Civil Engineering, 1984.

University of Ottawa, Dept. of Civil Engineering, 1986.

University of Arizona, Dept. of Hydrology and Water Resources, 1986.

Alcoa Technical Center, 1986.

Association of Environmental Engineering Professors Workshop, Purdue University, 1987.

Workshop on Metal Speciation, U.S. EPA Office of Exploratory Research, Jekyll Island, Ga., 1987.

Lehigh University, Dept. of Civil Engineering, 1988.

Cornell University, School of Civil and Environmental Engineering, 1988, 1998.

Stanford University, International Symposium on Processes Affecting the Movement and Fate of Contaminants in the Subsurface Environment, 1989.
Cornell University, Center for Environmental Research, 1989.
University of Quebec, INRS-Eau, 1990.
Rensselaer Polytechnic Institute, 1990.
Workshop on Metal Speciation and Contamination of Soil, Jekyll Island, Ga., 1991.
Wastewater Technology Center, Burlington, Ont., 1992.
University of California, Riverside, 1992.
Case Western Reserve University, 1992.
State University of New York, Potsdam, 1993.
Blasland, Bouck and Lee, Engineers, 1993.
Purdue University, 1995, 2006.
Parsons-Engineering Science, 1995.
State University of New York at Buffalo, Dept. of Civil and Environmental Engineering, 1995.
Metropolitan Water Reclamation District of Greater Chicago, 1996, 2008.
University of North Carolina at Charlotte, 1998.
ALCOA, Environmental Technology Advisory Board, 1998, 2005, 2014.
University of Florida, Dept. of Environmental Engineering Sciences, 1999.
Columbia University, Earth and Environmental Engineering, 1999.
New Jersey Institute of Technology, 2000.
Duke University, Department of Civil and Environmental Engineering, 2001.
Duke University, Center for the Environmental Implications of Nanotechnology, 2010.
University of Illinois, Chicago, Department of Civil and Materials Engineering, 2001.
University of Illinois Urbana Champaign, 2009, 2010, 2011.
United States Department of Agriculture, National Center for Agricultural Utilization Research, 2003.
Gordon Research Conference *Industrial Ecology*, 2008.
Clemson University, 2009.
NitroEurope Conference Keynote Speaker, 2009
US-Japan Conference on Sustainable Infrastructure, 2009.

Major Presentations: Over 250 presentations before professional meetings and conferences