

## **Kerry J. Howe, Ph.D., P.E., BCEE**

*Director, Center for Water and the Environment*

*Professor and Regents' Lecturer*

Department of Civil Engineering

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### Summary of Key Experience and Expertise

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- Over 25 years of experience with drinking water treatment.
- Experienced as a university professor (13 years) and a professional engineer in an environmental engineering consulting firm (12 years).
- Author of two major textbooks about water treatment processes.
- Author of over 100 peer-reviewed journal publications, conference proceedings, reports, and presentations.
- Principal investigator on over \$8.5 million in extramural research funding while in academia.
- Primary research focus on the use of membranes in water and wastewater applications including fouling of microfiltration, ultrafiltration, and reverse osmosis membranes, selective recovery and beneficial use of minerals from desalination concentrate, increasing water recovery in reverse osmosis by minimizing scaling, and removal of pharmaceuticals during tertiary wastewater treatment using either reverse osmosis or ozone/biofiltration for indirect potable reuse applications.
- Additional research experience with experimental investigation of a wide variety of water treatment processes and topics, including coagulation, flocculation, membrane filtration, reverse osmosis, chemical precipitation, ion exchange, ozonation, biofiltration, membrane bioreactors, and removal of pharmaceuticals and other trace contaminants.
- Patent on a process to selectively recover minerals from reverse osmosis concentrate.
- Engineering consulting experience involved treatability studies, regulatory compliance analyses, master plans, pilot testing, predesign, detailed design, construction management, and drinking water treatment plant startup. Process design experience has included coagulation, flocculation, sedimentation, granular media filtration, countercurrent packed tower aeration, membrane processes, chemical feed systems, and pumping systems.
- Registered professional engineering and board certified environmental engineer.

### Education

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B.S. Civil and Environmental Engineering, University of Wisconsin-Madison, 1984.

M.S. Environmental Health Engineering, the University of Texas at Austin, 1986.

Ph.D. Environmental Engineering, University of Illinois at Urbana-Champaign, 2001.

## Registration and Certification

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Registered Professional Engineer, Wisconsin and New Mexico  
Board Certified Environmental Engineer (BCEE), American Academy of Environ. Engineers

## Employment History

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- 2002-present: University of New Mexico (Albuquerque, NM).  
2015-present: Professor.  
2013-present: Director of the Center for Water and the Environment  
2008-2015: Associate professor.  
2002-2008: Assistant professor.
- 1998-2001: University of Illinois at Urbana-Champaign (Urbana, IL). Research assistant.
- 1986-1998: Montgomery Watson Harza, Inc. (Pasadena, CA, Plantation, FL, and Tulsa, OK).  
Started as Engineer; promoted to Principal Engineer before leaving company.  
Participated in many types of water and wastewater treatment engineering projects as project engineer or project manager. Types of projects included treatability studies, facility evaluations, master plans, pilot studies, predesign, detailed design, construction management, and plant startup.
- 1986: CH2M-Hill (Corvallis, OR). Engineer. Worked as staff engineer on wastewater treatment studies and design projects.

## Selected Awards

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1. Harrison Faculty Recognition Award, UNM, 2015.
2. Stamm Outstanding Faculty Award, UNM, 2014.
3. Regents' Lecturer, UNM, 2012.
4. Golden Spigot Award, award for service to the American Water Works Association, 2007.
5. Junior Faculty Teaching Excellence Award, UNM School of Engineering, 2006.
6. Outstanding Young Investigator, UNM Chapter of Sigma Xi. 2004.
7. Honor Award in the University Research category of the Excellence in Environmental Engineering competition, sponsored by the American Academy of Environmental Engineers. 2002. (awarded for Ph.D. Thesis)
8. François Fiessinger Memorial Scholarship, 3-year fellowship awarded by the Environmental Research and Education Foundation in a national competition. 1998.

## Patents

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U.S. Patent 8,557,119 B1. "High Water Recovery from Desalination Systems using Ion Exchange Technology," issued Oct. 15, 2013.

## Externally-Funded Research Projects at UNM

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Total external funding = \$9.2M, total as PI = \$8.5M.

The primary focus of Dr. Howe's research activities is the use of membrane technologies for water and wastewater applications. Funded research projects include (Howe as principal investigator unless noted otherwise):

- *CREST Center for Water and the Environment*. Sponsored by the National Science Foundation, \$5,370,000.
- *Predicting RO Removal of Toxicologically Relevant Unique Organics*, Sponsored by the WaterReuse Research Foundation, \$300,000.
- *Coagulation Optimization at the San Juan Chama Water Treatment Plant*, Sponsored by the Albuquerque Bernalillo County Water Utility Authority, \$38,000.
- *Development of Selective Recovery Methods for Desalination Concentrate Salts*. Sponsored by the WaterReuse Foundation, \$400,000.
- *Optimization of the MBR-RO Process for Treatment and Reclamation of Municipal Wastewater*. Sponsored by the New Mexico Environment Department, \$150,000.
- *Optimization of the MBR-RO Process for Treatment and Reuse of Municipal Wastewater: Field Studies*. Sponsored by Sandia National Laboratories, \$150,000. PI: Bruce Thomson.
- *Controlled Precipitation and Beneficial Use of RO Concentrate*. Sponsored by Sandia National Laboratories, \$92,000.
- *Optimization of Membrane Treatment for Direct and Clarified Water Filtration*. Sponsored by the American Water Works Association Research Foundation (subcontract to MWH Americas, Inc.), \$100,000.
- *Support of Pilot Study Operations for the Rio Rancho Water Reuse Study*. Sponsored by MWH Americas, Inc., \$55,850.
- *Coagulation-Assisted Microfiltration and Ultrafiltration for Removal of Arsenic from Drinking Water*. Sponsored by WERC, \$59,500.
- *Investigation of Long-Term Stability of Residuals from Drinking Water Arsenic Treatment in a Landfill Environment*. Sponsored by WERC (\$63,000) and Sandia National Laboratories (\$39,600). PI: Bruce Thomson.

- *Physical Modeling of Scaled Water Distribution System Networks.* Sponsored by Sandia National Laboratories, \$41,080.
- *Development of A Fluoride Treatment Process for Small Communities in NM,* Sponsored by the New Mexico Environment Department, \$134,726, PI: Bruce Thomson.
- *International Workshop on Energy and Environment in the Development of Sustainable Asphalt Pavements,* Sponsored by the National Science Foundation, \$40,000, PI: Rafiqul Tarefder.
- *Membrane Flux Experiments and Fouling Assessment for the City of Appleton, Wisconsin.* Sponsored by Carollo Engineers. \$5,000.
- *Isolation of Nanocolloidal Matter in Natural Waters: A Preliminary Investigation.* Sponsored by WERC. \$10,000.
- *Identification of Membrane Foulants in Natural Waters.* Sponsored by NM Water Resources Research Institute. \$4,500.
- *1-day Short Course: Wastewater Collection System and Lift Station Design.* Sponsored by NM Highway and Transportation Department. \$3,929. PI: Bruce Thomson.
- *2-day Short Course: Design of Wastewater Treatment Systems for Small Communities.* Sponsored by NM Highway and Transportation Department. \$5,000. PI: Bruce Thomson.
- *Experimental Investigation of Debris Transport in Water Flumes.* Sponsored by Los Alamos National Laboratory, \$93,000. PI: Arup Maji.
- *High Pressure Safety Injection Throttle Valve Testing and Sump Screen Penetration Testing.* Sponsored by Los Alamos National Laboratory. \$237,000. PI: Arup Maji.
- *Investigation of Chemical Effects on Debris-Induced Head Loss on Sump Screens: Integrated Chemical Effects Tests.* Sponsored by Los Alamos National Laboratory, \$422,000.
- *South Texas Project Chemical Effects Analysis.* Sponsored by the South Texas Project Nuclear Operating Company, \$935,000.
- *Experiments to Assess Impact of Chemical Effects on Resolution of GSI-191.* Sponsored by the Southern Nuclear Operating Company, \$575,000, Ed Blandford PI for last \$75k.

## Publications and Presentations

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- \* Graduate student advised by K. Howe
- # Post-doctoral researcher supported by K. Howe

### **CITATIONS**

Citations from Google Scholar (accessed Jan 29, 2016)

	All	Since 2011
Total citations	2,111	1,401
Sum of citations for 3 most cited papers	538	
h-index	18	13
i10-index	24	19

### **BOOKS**

1. Howe, K.J., D.H. Hand, J.C. Crittenden, R.R. Trussell, and G. Tchobanoglous. *Principles of Water Treatment*. John Wiley and Sons, New York. ISBN 978-0-470-40538-3. 2012.
2. Crittenden, J.C., R.R. Trussell, D.H. Hand, K.J. Howe, and G. Tchobanoglous. *MWH's Water Treatment: Principles and Design, 3rd ed.* John Wiley and Sons, New York. ISBN 978-0-470-40539-0. 2012.
3. *Membrane Treatment for Drinking Water and Reuse Applications: A Compendium of Peer-Reviewed Papers*. Edited by Kerry J. Howe. American Water Works Association, Denver, CO. ISBN 1-58321-475-5. 2006.

### **PEER-REVIEWED JOURNAL MANUSCRIPTS**

4. Corral, A.F. # and Howe, K.J. "Cleaning Strategies for Membrane Distillation in Water Reuse Applications." Submitted for publication in *Water Research*.
5. Ali, A. #, Labrier, D. #, Howe, K.J., and Blandford, E.D. "Experimental Study of Aqueous Chemical TSP Environment under Post-LOCA Conditions with Head Loss Measurements." Submitted for publication in *Journal of Nuclear Engineering and Radiation Science*.
6. Labrier, D. #, Ali, A. #, Blandford, E.D. and Howe, K.J. "Integrated Chemical Effects Head-Loss Experiments Using Multi-Constituent Fibrous Debris Beds." Submitted for publication in *Journal of Nuclear Engineering and Radiation Science*.
7. Ali, A. #, Labrier, D. #, Blandford, E.D. and Howe, K.J. "Corrosion and Solubility in a TSP-Buffered Chemical Environment following a Loss of Coolant Accident: Part 4 – Integrated Chemical Effects Testing." *Nuclear Engineering and Design*. Vol. 300, pp. 644-654. 2016.

8. Olson, S.\*, Ali., A. #, Labrier, D. #, Blandford, E.D. and Howe, K.J. “Corrosion and Solubility in a TSP-Buffered Chemical Environment following a Loss of Coolant Accident: Part 3 – Calcium.” *Nuclear Engineering and Design*. Vol. 300, pp. 632-643. 2016.
9. Pease, D.\*, Labrier, D. #, Ali., A. #, Howe, K.J., and Blandford, E.D. “Corrosion and Solubility in a TSP-Buffered Chemical Environment following a Loss of Coolant Accident: Part 2 – Zinc.” *Nuclear Engineering and Design*. Vol. 300, pp. 620-631. 2016.
10. Howe, K.J., Mitchell, L.\*, Kim, S-J. #, Blandford, E.D., Kee, E.J. “Corrosion and Solubility in a TSP-Buffered Chemical Environment following a Loss of Coolant Accident: Part 1 – Aluminum,” *Nuclear Engineering and Design*. Vol. 292, pp. 296-305. 2015.
11. Kim, S-J. #, Howe, K.J., Leavitt, J.J. #, Hammond, K.\* Mitchell, L.\*, Kee, E., Blandford, E.D. “An Experimental Study of the Corrosion and Precipitation of Aluminum in the Presence of Trisodium Phosphate Buffer Following a Loss of Coolant Accident (LOCA),” *Nuclear Engineering and Design*. Vol. 282, pp. 71-82. 2015.
12. Farias\*, E.L., K.J. Howe, and B.M. Thomson. “Spatial and Temporal Evolution of Organic Foulant Layers on Reverse Osmosis Membranes in Wastewater Reuse Applications,” *Water Research*. Vol. 58, pp. 102-110. 2014.
13. Farias\*, E.L., K.J. Howe, and B.M. Thomson. “Effect of Membrane Bioreactor Solids Retention Time on Reverse Osmosis Membrane Fouling for Wastewater Reuse,” *Water Research*. Vol. 49, pp. 53-61. 2014.
14. Lee\*, C.O., K.J. Howe, and B.M. Thomson. “Ozone and Biofiltration as an Alternative to Reverse Osmosis for Removing PPCPs and Micropollutants from Treated Wastewater,” *Water Research*. Vol. 46, No. 4, pp. 1005-1014. 2012.
15. Leavitt\*, J.J. K.J. Howe, and S.E. Cabaniss. “Equilibrium Modeling of U(VI) Speciation in High Carbonate Groundwaters: Model Error and Propagation of Uncertainty,” *Applied Geochemistry*, Vol. 265, No. 12, pp. 2019-2026. 2011.
16. Nguyen, A.H., J.E., Tobiasson, and K.J. Howe. “Fouling Indices for Low Pressure Hollow Fiber Membrane Performance Assessment.” *Water Research*. Vol. 45, No. 8, pp. 2627-2637. 2011.
17. Higgin\*, R., K.J. Howe, and T.M. Mayer. “Synergistic Behavior between Silica and Alginate: Novel Approach for Removing Silica Scale from RO Membranes.” *Desalination*, Vol. 250, No. 1, pp. 76-81. 2010.
18. Chen #, D., K.J. Howe, J. Dallman, and B.C. Letellier. “Corrosion of Aluminum in the Aqueous Chemical Environment of a Loss of Coolant Accident at a Nuclear Power Plant.” *Corrosion Science*. Vol. 50, No. 4, pp. 1046-1057. 2008.

19. Howe, K.J., A. Marwah\*, K-P. Chiu, and S. Adham. "Effect of Membrane Configuration on Bench-scale MF and UF Fouling Experiments." *Water Research*. Vol. 41, No. 17, pp. 3842-3849. 2007.
20. Chen<sup>#</sup>, D., K.J. Howe, J. Dallman, B.C. Letellier, M. Klasky, J. Leavitt\*, and B.P. Jain. "Experimental Analysis of the Aqueous Chemical Environment Following a Loss-of-coolant Accident." *Nuclear Engineering and Design*. Vol. 237, No. 20-21, pp. 2126-2136. 2007.
21. Ghosh<sup>#</sup>, A.K., K.J. Howe, A.K. Maji, B. Letellier, R. Johns, and T-Y. Chang. "Head Loss Characteristics of a Fibrous Bed in a Chemical Environment." *Journal of Nuclear Technology*. Vol. 157, No. 2, pp. 196-207. 2007.
22. Howe, K.J., A. Marwah\*, K-P. Chiu, and S. Adham. "Effect of Coagulation on the Size of MF and UF Membrane Foulants." *Environmental Science and Technology*. Vol. 40, No. 24, pp. 7908-7913. 2006.
23. Howe, K.J. and M.M. Clark. "Effect of Coagulation Pretreatment on Membrane Filtration Performance." *Journal of the American Water Works Association*. Vol. 98, No. 4, pp. 133-146. 2006.
24. AWWA Membrane Technology Research Committee (primary authors I.C. Escobar, E.M. Hoek, C.J. Gabelich, F.A. DiGiano, Y.A. Le Gouellec, P. Berube, and K.J. Howe). "Committee Report: Recent Advances and Research Needs in Membrane Fouling." *Journal of the American Water Works Association*. Vol. 97, No. 8, pp. 79-89. 2005.
25. Koh, M., M.M. Clark, and K.J. Howe. "Filtration of Lake Natural Organic Matter: Adsorption Capacity of a Polypropylene Microfilter." *Journal of Membrane Science*. Vol. 254, No. 1-2, pp. 169-175. 2005.
26. Howe, K.J. and M.M. Clark. "Fouling of Microfiltration and Ultrafiltration Membranes by Natural Waters." *Environmental Science and Technology*. Vol. 36, No. 16, pp. 3571-3576. 2002.
27. Howe, K.J. K.P. Ishida, and M.M. Clark. "Use of ATR/FTIR Spectrometry to Study Fouling of Microfiltration Membranes by Natural Waters." *Desalination*. Vol. 147, pp. 251-255. 2002.
28. Howe, K.J., and D.F. Lawler. "Acid-Base Reactions in Gas Transfer: A Mathematical Approach." *Journal of the American Water Works Association*. Vol. 81, No. 1, pp. 61-66. 1989.

### **PUBLISHED TECHNICAL REPORTS**

29. Goldman\*, J.E., K.J. Howe, B.M. Thomson, and R. Fowlie. *Selective Salt Recovery from Reverse Osmosis Concentrate using Inter-Stage Ion Exchange*. WateReuse Research Foundation, Alexandria, VA. May, 2012.
30. Lee\*, C.O., K.J. Howe, and B.M. Thomson. *Ozone and Biofiltration as an Alternative to Reverse Osmosis for Removing PPCPs and EDCs from Wastewater*. Final Report, New Mexico Environment Department, Albuquerque, NM. May, 2010.
31. Field\*, E.F., K.J. Howe, and B.M. Thomson. *Effect of Solids Retention Time in Membrane Bioreactors on Reverse Osmosis Membrane Fouling*. Final Report, New Mexico Environment Department, Albuquerque, NM. April, 2010.
32. Lee\*, C.O., K.J. Howe, and B.M. Thomson. *State of Knowledge of Pharmaceutical, Personal Care Product, and Endocrine Disrupting Compound Removal During Wastewater Treatment*. Final Report, New Mexico Environment Department, Albuquerque, NM. April, 2009.
33. Dallman, J., B.C. Letellier, J. Garcia\*, J. Madrid, W. Roesch, D. Chen<sup>#</sup>, and K.J. Howe. *Integrated Chemical Effects Test Project (Volumes 1 through 6)*. Nuclear Regulatory Commission Report NUREG/CR-6914. December, 2006.
34. Klasky, M., J. Zhang, M. Ding, B.C. Letellier, D. Chen<sup>#</sup>, and K.J. Howe. *Aluminum Chemistry in a Prototypical Post-Loss-of-Coolant-Accident, Pressurized-Water-Reactor Containment Environment*. Nuclear Regulatory Commission Report NUREG/CR-6915. December, 2006.
35. Adham, S., K-P. Chiu, G. Lehman, K. Howe, A. Marwah\*, C. Mysore, J. Clouet, Z. Do-Quang, and O. Cagnard. *Optimization of Membrane Treatment for Direct and Clarified Water Filtration*. AWWARF: Denver, CO. ISBN 978-1-84339-967-4. 2006.
36. Sadasivan, P., C.B. Dale, B.C. Letellier, A. Maji, K.J. Howe, F. Carles\*, and C.E. Anderson. *Effect of Insulation Debris on Throttle-Valve Flow Performance*. Nuclear Regulatory Commission Report NUREG/CR-6902. March, 2006.
37. Dale, C.B., B.C. Letellier, A. Maji, K.J. Howe, and F. Carles\*. *Screen Penetration Test Report*. Nuclear Regulatory Commission Report NUREG/CR-6885. October, 2005.
38. Ding, M., A. Abdel-Fattah, S. Fisher, B.C. Letellier, K.J. Howe, J. Garcia\*, and C.J. Shaffer. *Characterization and Head-Loss Testing of Latent Debris from Pressurized-Water-Reactor Containment Buildings*. Nuclear Regulatory Commission Report NUREG/CR-6877. July, 2005.
39. Shaffer, C.J., M.T. Leonard, B.C. Letellier, D.V. Rao, A.K. Maji, K.J. Howe, A. Ghosh<sup>#</sup>, J. Garcia\*, W.A. Roesch, and J.D. Madrid. *GSI-191: Experimental Studies of Loss-of-Coolant-Accident-Generated Debris Accumulation and Head Loss with Emphasis on the*

*Effects of Calcium Silicate.* Nuclear Regulatory Commission Report NUREG/CR-6874. May, 2005.

40. Johns, R.C., B.C. Letellier, K.J. Howe, and A.K. Ghosh<sup>#</sup>. *Small-Scale Experiments: Effects of Chemical Reactions on Debris-bed Head Loss.* Nuclear Regulatory Commission Report NUREG/CR-6868. March, 2005.
41. Howe, K.J. and M.M. Clark. *Coagulation Pretreatment for Membrane Filtration.* AWWA and AWWARF: Denver, CO. ISBN 978-1-58321-265-5. 2002.
42. Amy, G., J. Cho, Y. Yoon, S. Wright, M. Clark, E. Molis, C. Combe, Y. Wang, P. Lucas, Y. Lee, M. Kumar, K. Howe, and K-S. Kim. *NOM Rejection by, and Fouling of, NF and UF Membranes.* AWWA and AWWARF: Denver, CO. ISBN 978-1-58321-106-9. 2001.

#### **MANUSCRIPTS IN CONFERENCE PROCEEDINGS**

43. Ali, A. F., E. D. Blandford, and K. J. Howe, "Filtration of Particulates and Pressure Drop in Fibrous Media in Resolution of GSI-191," *Transactions 2014 American Nuclear Society Winter Meeting*, Anaheim, CA, November 9-13, 2014.
44. Olson\*, S., K. J. Howe, D. A. Pease\*, A. Ali, D. Labrier, and E. D. Blandford, "Fiberglass Calcium Leaching Release Rate Characterization in Post LOCA Conditions," *Transactions 2014 American Nuclear Society Winter Meeting*, Anaheim, CA, November 9-13, 2014.
45. Pease\*, D. A., K. J. Howe, S. Olson\*, A. Ali, D. Labrier, and E. D. Blandford, "Risk-informed Resolution of GSI-191: Zinc Chemical Effects during a PWR LOCA Event," *Transactions 2014 American Nuclear Society Winter Meeting*, Anaheim, CA, November 9-13, 2014.
46. Amirhosein, J., Valentin, V., Howe, K.J., and Russell, M. "Environmental Impact of Housing Retrofit Activities: Cast Study" *Proceedings of World SB14 Barcelona*, Barcelona, Spain, October 28-30, 2014.
47. Kim<sup>#</sup>, S. J., J. Leavitt, E. D. Blandford, E. Kee, K. Howe, "Experimental study of chemical effect on ECCS strainer head loss and flow sweep test with two indicating beds (Blender-processed debris bed vs. NEI-processed debris bed)," *American Nuclear Society Transactions*, Washington, DC, November 11-15, 2013.
48. Alspach, B. and K.J. Howe. "Not Just a Better Mousetrap: Outside-the-box Thinking on Concentrate Management." *Proceedings of the AWWA Membrane Technology Conference*, San Antonio, TX, March 25-28, 2013.
49. Howe, K.J., J.E. Goldman\*, and B.M. Thomson. "Selective Recovery of Desalination Concentrate Salts Using Interstage Ion Exchange." *Proceedings of the AWWA Membrane Technology Conference*, Long Beach, CA, March 28-30, 2011.

50. Howe, K.J., C.O. Lee\*, and B.M. Thomson. "Ozone and Biofiltration as an Alternative to Reverse Osmosis for Removing PPCPs from Wastewater," *Proceedings of the AWWA Annual Conference and Exposition*, Chicago, IL, June 20-24, 2010.
51. Howe, K.J., J.E. Goldman\*, and B.M. Thomson. "Selective Recovery of Desalination Concentrate Salts Using Interstage Ion Exchange." *Proceedings of the AWWA Annual Conference and Exposition*, Chicago, IL, June 20-24, 2010.
52. Howe, K.J. "Impact Categories for Life Cycle Assessment of Sustainable Asphalt Pavements." *Proceedings of the International Workshop on Energy and Environment in the Development of Sustainable Asphalt Pavements*, Xi' An, China, June 8, 2010.
53. Bogus, S.M., and K.J. Howe. "Innovative Design-Build Approach to Project Based Learning." *Proceedings of the 2008 ASEE Gulf-Southwest Annual Conference*. Albuquerque, NM. March 27, 2008.
54. Howe, K.J., E. Livingston, A.T. Hanson, S.E. Cabaniss, B.M. Thomson, and D. Chen<sup>#</sup>. "Indirect Potable Reuse Using Membrane Bioreactors and Reverse Osmosis." *Proceedings of the 2007 AWWA Membrane Technology Conference*, Tampa, FL, March 18-21, 2007.
55. Howe, K.J., and N. Ahuja\*. "Beneficial Use of Concentrate from Reverse Osmosis Facilities." *Proceedings of the 2006 AWWA Water Sources Conference*, Albuquerque, NM, February 5-8, 2006.
56. Ahuja\*, N., and K.J. Howe. "Beneficial Use of Concentrate from Reverse Osmosis Facilities." *Proceedings of the 2005 AWWA Annual Conference*, San Francisco, CA, June 12-16, 2005.
57. Chiu, K-P., S. Adham, G. Lehman, K.J. Howe, C. Mysore, and Z. Do-Quang. "Optimization of Pretreatment for MF/UF Membrane Applications." *Proceedings of the 2005 AWWA Annual Conference*, San Francisco, CA, June 12-16, 2005.
58. Ahuja\*, N., and K.J. Howe. "Strategies for Concentrate Management from Inland Desalination." *Proceedings of the 2005 AWWA Membrane Technology Conference*, Phoenix, AZ, March 6-9, 2005.
59. Marwah\*, A., K.J. Howe, K-P. Chiu, and S. Adham. "Effect of Pretreatment on MF/UF Fouling by Foulants in Specific Size Ranges." *Proceedings of the 2005 AWWA Membrane Technology Conference*, Phoenix, AZ, March 6-9, 2005.
60. Chiu, K-P., S. Adham, K.J. Howe, C. Mysore, and Z. Do-Quang. "Bench-, Pilot-, and Full-Scale Studies of Pretreatment for MF/UF Membrane Applications." *Proceedings of the 2005 AWWA Membrane Technology Conference*, Phoenix, AZ, March 6-9, 2005.

61. Chiu, K-P., S. Adham, K.J. Howe, C. Mysore, and Z. Do-Quang. "Optimization of Pretreatment for MF/UF Membrane Performance." *Proceedings of the AWWA Water Quality Technology Conference*, San Antonio, TX, November 14-18, 2004.
62. Marwah\*, A., K.J. Howe, K-P. Chiu, and S. Adham. "Bench-Scale Studies of Pretreatment for Membrane Filtration." *Proceedings of the 2004 AWWA Annual Conference*, Orlando, FL, June 13-17, 2004.
63. Chiu, K-P., S. Adham, K.J. Howe, C. Mysore, and Z. Do-Quang. "Optimization of Low Pressure Membrane Pretreatment." *Proceedings of the 2004 AWWA Annual Conference*, Orlando, FL, June 13-17, 2004.
64. Howe, K.J., A. Ghosh<sup>#</sup>, A.K. Maji, B.C. Letellier, R. Johns, and T.Y. Chang. "Effects of Debris Generated by Chemical Reactions on Head Loss through Emergency-Core Cooling-System Strainers." *Proceedings of the NEA/NRC Workshop on Debris Impact on Emergency Coolant Recirculation*, Albuquerque, NM, February 25-27, 2004.
65. Howe, K.J. and M.M. Clark. "Integrating Coagulation Pretreatment with Membrane Filtration: Mechanisms for Fouling by Dissolved Organic Matter." *Proceedings of the 2001 AWWA Annual Conference*, Washington D.C. June, 2001.
66. Howe, K.J., M.M. Clark, and Y. Wang. "Effect of Coagulation on Ultrafiltration Membrane Performance." *Proceedings of the 2001 AWWA Membrane Technology Conference*, San Antonio, Texas. March, 2001.
67. Grace, D.M., K.J. Howe, G.W. Dunkelberger, and J.E. Singley. "The Lead and Copper Rule: Status of Utilities in Southeast Florida." *Proceedings of the 1993 Florida Water Resources Conference*, Orlando, Florida. pp. 189-194. 1993.
68. Grace, N.O., K.J. Howe, and G.W. Dunkelberger. "Ozonation of Two South Florida Groundwaters – A Comparative Evaluation." *Proceedings of the 11th Ozone World Congress*, International Ozone Association. San Francisco, California. August, 1993.
69. Gilmore, L.A., K.J. Howe, and G.J. Wohlgemuth. "Ozonation and Biofiltration of a South Florida Groundwater." *Proceedings of the 1992 Florida Water Resources Conference*, Daytona Beach, Florida. pp. 134-138. 1992.
70. Howe, K.J., M.A. Biggers, and R.C. Adams. "Compliance with the Surface Water Treatment Rule: A Case Study." *Proceedings of the 1991 Florida Water Resources Conference*, Pensacola, Florida. pp. 66-71. 1991.
71. Glaser, H.T., K.J. Howe, and G.L. Warren. "Production CAD Implementation for Water and Wastewater Treatment Plant Design." *Proceedings of Watercomp 89*, Melbourne, Australia. 1989.

72. Howe, K.J., H.T. Glaser, and G.L. Warren. "Two-Dimensional Computer-Aided Design Modeling for Detailed Design of Water System Facilities." *Proceedings of the 1989 AWWA Computer Specialty Conference*, Denver, Colorado. pp. 355-360. 1989.
73. Howe, K.J., and D.F. Lawler. "An Equilibrium Approach to pH Effects in Gas Transfer." *Proceedings of the 1986 AWWA Annual Conference*. Denver, CO: AWWA. pp. 301-314. 1986.

### **PRESENTATIONS AND POSTERS**

74. Howe, K.J. (2016) "One Water: the Academic Perspective" Keynote Presentation at New Mexico Water Workshop, Albuquerque, NM, April 28-29, 2016.
75. Corral, A.F., and K.J. Howe (2016) "Cleaning Strategies for Membrane Distillation for Water Reuse Applications," poster presented at the New Mexico Water Workshop, Albuquerque, NM, April 28-29, 2016.
76. Breitner, L., Howe, K.J, and A.F. Corral. (2016) "Predicting RO Removal of Toxicologically Relevant Unique Organics," poster presented at the New Mexico Water Workshop, Albuquerque, NM, April 28-29, 2016.
77. Baca, E. and K.J. Howe. (2016) "Silica Removal to Facilitate Industrial Waste Water Reuse," poster presented at the New Mexico Water Workshop, Albuquerque, NM, April 28-29, 2016.
78. Howe, K.J. (2016) "Predicting the Removal of Trace Organic Compounds by Reverse Osmosis," Invited Presentation at the University of Houston, Houston, TX, April 15, 2016.
79. Howe, K.J. (2016) "Center for Water and the Environment," Invited Presentation at Eastern New Mexico University, Portales, New Mexico, Feb. 19, 2016.
80. Howe, K.J. (2015) "A Tale of Two Careers in the Same Field," Invited presentation at Michigan Technological University, Houghton, MI, Oct. 15, 2015
81. Howe, K.J. and M. Sims\* (2015). "Removing Silica to Prevent RO Membrane Fouling," Presented at the *2015 AEESP Research and Education Conference*, New Haven, CT, June 14-16, 2015.
82. Howe, K.J. (2015) "Potable Reuse of Municipal Wastewater," Keynote speech at the RMSAWWA/RMWEA 2015 Student Conference, Las Cruces, NM, May 21, 2015.
83. Miller\*, M.D. and K.J. Howe (2015). "Investigation of Membrane Cleaning for Direct Contact Membrane Distillation for Municipal Wastewater Tertiary Treatment for Potable Water Reuse," Poster presented at the *RMSAWWA/RMWEA 2015 New Mexico Spring Workshop*, Albuquerque, NM, April 30, 2015.

84. Sims\*, M. and K.J. Howe (2015). "Examination of Silica Removal with Solids Recycle for Reverse Osmosis Pretreatment," Poster presented at the *RMSAWWA/RMWEA 2015 New Mexico Spring Workshop*, Albuquerque, NM, April 30, 2015.
85. Sims\*, M., K.J. Howe. "Examination of Silica Removal with Solids Recycle for Reverse Osmosis Pretreatment." Presented at the *RMWEA/RMSAWWA Annual Conference*, Albuquerque, NM September 8-10, 2014.
86. Fowlie, R., K.J. Howe, and J.E. Goldman\*. "Marketability and Selective Recovery of Salts from Brackish Water Desalination." Presented at *56th Annual New Mexico Water Conference: New Water New Energy*, Alamogordo, NM, December 13-14, 2011.
87. Thomson, B.M. and K.J. Howe. "Use of Low Quality Water for Algal Production: Constraints." Presented at *56th Annual New Mexico Water Conference: New Water New Energy*, Alamogordo, NM, December 13-14, 2011.
88. Leavitt\*, J.J., S. Cabaniss, K.J. Howe, L.R. Comolli, J.R. Bargar, V. Stucker, R. Csencsits, D. Pham, and P. Long. "U(VI) adsorption to *G. uraniireducens* and *A. palmae*," *Poster presented at the American Geophysical Union (AGU) fall meeting*, San Francisco, CA, December 6-12, 2011.
89. Howe, K.J. "Designing and Building a Sustainable Future." Presented at the *American Society of Civil Engineers Seminar*, Albuquerque, NM, March 4, 2011.
90. Howe, K.J. "Designing and Building a Sustainable Future." Invited lecture for the *Bryant W. Lemon Distinguished Lecture Series*, University of New Mexico, Albuquerque, NM, February 24, 2011.
91. Goldman\*, J.E., K.J. Howe, and B.M. Thomson. "Selective Recovery of Desalination Concentrate Salts Using Interstage Ion Exchange." Presented at the *14th annual Water Reuse and Desalination Research Conference*, Tampa, FL, May 24-25, 2010.
92. Howe, K.J. "Radionuclides in Drinking Water: 1. Sources, Regulations, and Analytical Methods." Presented at the *Rocky Mountain Section AWWA/WEF Annual Conference*. Albuquerque, NM. September 14, 2009.
93. Howe, K.J. "Radionuclides in Drinking Water: 2. Occurrence, Treatment, and Implications." Presented at the *Rocky Mountain Section AWWA/WEF Annual Conference*. Albuquerque, NM. September 14, 2009.
94. Field\*, E.L., K.J. Howe, and B.M. Thomson. "Effect of SRT in MBRs on RO Membrane Fouling." Presented at the *Rocky Mountain Section AWWA/WEF Annual Conference*. Albuquerque, NM. September 14, 2009.

95. Goldman\*, J.E. and K.J. Howe. "Concentrate Minimization with Selective Salt Recovery." Presented at the *Rocky Mountain Section AWWA/WEF Annual Conference*. Albuquerque, NM. September 14, 2009.
96. Leavitt\*, J.J., S. Cabaniss, and K.J. Howe. "Potential Error and Uncertainty in Uranium Speciation Calculations." Presented at the *Rocky Mountain Section AWWA/WEF Annual Conference*. Albuquerque, NM. September 14, 2009.
97. Lee\*, C.O., K.J. Howe, and B.M. Thomson. "State of Knowledge of Pharmaceutical, Personal Care Products, and Endocrine Disrupting Compound Removal during Municipal Wastewater Treatment." Presented at the *Rocky Mountain Section AWWA/WEF Annual Conference*. Albuquerque, NM. September 14, 2009.
98. Kowalchuk, E., J. Samson, B.M. Thomson, K.J. Howe, and J. Chwirka. "Selective Fluoride Removal from Drinking Water." Presented at the *Rocky Mountain Section AWWA/WEF Annual Conference*. Albuquerque, NM. September 14, 2009.
99. Thomson, B.M., K.J. Howe, R. Jim\*, and E.L. Field\*. "Fouling of RO Membranes used to Treat Municipal Wastewater." Presented at the *Rocky Mountain Section AWWA/WEF Annual Conference*. Albuquerque, NM. September 14, 2009.
100. Kowalchuk, E., J. Samson, B.M. Thomson, K.J. Howe, and J. Chwirka. "Development of a Fluoride Treatment Process for Small Communities in New Mexico" Poster presented at the *New Mexico Water Resources Research Institute Research Symposium*, Socorro, NM. August 11, 2009.
101. Howe, K.J. "Planned Indirect Potable Reuse using Membrane Bioreactors and Reverse Osmosis. Invited presentation at the *University of Massachusetts-Amherst*. Amherst, MA, June 29, 2009.
102. Howe, K.J. "Membrane Bioreactors and Reverse Osmosis for Indirect Potable Reuse in Cloudcroft, NM." Presented at the NMSPE Young Engineers Council Seminar Series. Albuquerque, NM. April 16, 2009.
103. Leavitt\*, J.J., S. Cabaniss, and K.J. Howe. "Potential Error and Uncertainty in Uranium Speciation Calculations." Poster presented at the 237th American Chemical Society National Meeting and Exposition. Salt Lake City, UT. March 22-26, 2009.
104. Howe, K.J. "Low Pressure Membrane Basics: Pre- and Post-Treatment." Invited presentation at the *AWWA Membrane Technology Conference*. Memphis, TN. March 15-18, 2009.
105. Howe, K.J. "UNM Research on Membrane Fouling, Concentrate Management, and Water Reuse." Invited presentation at the *AWWA Membrane Technology Conference*. Memphis, TN. March 15-18, 2009.

106. Howe, K.J. "Review of Water Quality in the Rio Grande for Potable Use." Invited presentation at the *Rocky Mountain Section WEF/AWWA Seminar*. Albuquerque, NM. February 26, 2009.
107. Howe, K.J. "Research on Membrane Fouling, Concentrate Management, and Water Reuse." Presented at the *AWWA Water Quality Technology Conference*, Cincinnati, OH. November 16-19, 2008.
108. Thomson, B.M. and K.J. Howe. "Brackish Ground Water Desalination: Challenges to Inland Desalination Technologies." Presented at the *National Ground Water Association International Conference on Nonrenewable Ground Water Resources*, Portland, OR. October 13-14, 2008.
109. Jim\*, R, E.L. Field\*, B.M. Thomson, K.J. Howe, R. Kottenstette, and M. Cappelle. "Optimization of the MBR-RO Process for Treatment and Reuse of Municipal Wastewater: Field Studies." Poster presented at the *New Mexico Water Resources Research Institute Research Symposium*, Socorro, NM. August 12, 2008.
110. Jim\*, R. K.J. Howe, and B.M. Thomson. "Investigation of Cleaning Methods of RO Membranes Utilized in Wastewater Treatment Processes." Presented at the *5th Annual Rocky Mountain Section WEF/AWWA Student Conference*. Golden, CO. May 13, 2008
111. Howe, K.J. "Desalination of Brackish Water in Arid Inland Areas: Some Things to Think About" Presented at the *Association of Water Professionals Workshop*, Albuquerque, NM. March 29, 2008.
112. Howe, K.J. "Brackish Groundwater Treatment." Presented at *New Mexico Society of Professional Engineers Issues Conference*, Albuquerque, NM. November 30, 2007.
113. Howe, K.J. "Engineers and Pollution." Presented at *UNM Society of Women Engineers meeting*, Albuquerque, NM. November 19, 2007.
114. Jim\*, R., K.J. Howe, K.J., B.M. Thomson, E.L. Field\*, R. Kottenstette. "Fouling of RO Membranes Treating Effluent from Wastewater Treatment Processes." Presented at the *2007 AWRA Annual Water Resources Conference*. Albuquerque, NM. November 12-15, 2007.
115. Howe, K.J. "Introduction to the Use of Reverse Osmosis for Treatment of Brackish Groundwater." *Lorman Seminar*, Albuquerque, NM. March 29, 2007.
116. Howe, K.J. "Evaluation of Pretreatment for Microfiltration/Ultrafiltration Systems." Invited presentation at the *University of Illinois at Urbana-Champaign*. Urbana, IL, October 27, 2006.

117. Howe, K.J., and N. Ahuja\*. "Increasing Water Production from Reverse Osmosis by Controlling Precipitation and Scaling." Poster presented at *2006 AWWA Annual Conference*, San Antonio, TX, June 11-15, 2006.
118. Howe, K.J. "Controlled Precipitation of Minerals in RO Concentrate." Invited presentation at the *University of Central Florida*. Orlando, FL, March 31, 2006.
119. Howe, K.J. "Evaluation of Pretreatment for Microfiltration/Ultrafiltration Systems." Invited presentation at *Microfiltration IV (sponsored by the National Water Research Institute)*. Anaheim, CA, March 20-23, 2006.
120. Howe, K.J., and N. Ahuja\*. "Controlled Precipitation of Minerals in RO Concentrate." Invited presentation at *Desalination Conference 2006: Concentrate on Concentrate*. El Paso, TX, March 15-17, 2006.
121. Howe, K.J., and N. Ahuja\*. "Increasing Water Production from Reverse Osmosis by Controlling Precipitation and Scaling." Poster presented at *National Salinity Management and Desalination Summit*, Albuquerque, NM, Dec 8-9, 2005.
122. Ahuja\*, N., and K.J. Howe. "Beneficial Uses of Concentrate from Reverse Osmosis Facilities." Presented at *Rocky Mountain Section AWWA Conference*. Albuquerque, NM, September 12-14, 2005.
123. Howe, K.J. "Innovative Strategies for Desalination Concentrate Management." Invited presentation at *New Mexico Tech*, Socorro, NM, November 12, 2004.
124. Howe, K.J. "Innovative Strategies for Desalination Concentrate Management." Invited presentation for *Sigma Xi Outstanding Young Investigator Presentation*, Albuquerque, NM, October 8, 2004.
125. Howe, K.J. "Innovative Strategies for Desalination Concentrate Management." Invited presentation at *Lawrence Livermore National Laboratory*, Livermore, CA, September 17, 2004.
126. Adham, S., K.J. Howe, A. Marwah\*, and K-P. Chiu. "Optimization of MF/UF Membrane Treatment for Direct and Clarified Water Filtration." Poster presented at the *AWWA Annual Conference*, Orlando, FL, June 13-17, 2004.
127. Howe, K.J. "Technical Challenges to Concentrate Disposal from Inland Desalination." Presented at the *Conference on Identifying Technologies to Improve Regional Water Stewardship for the North - Middle Rio Grande Corridor*, Albuquerque, NM, April 21-22, 2004.
128. Howe, K.J. "Chemistry of Membrane Materials and Foulants." Invited presentation at the *Chemistry 101/102 Workshop at the 2001 AWWA Water Quality Technology Conference*, Nashville, Tennessee. November, 2001.

129. Clark, M.M. and K.J. Howe (co-presenters). “Organic Fouling of Membranes.” Invited presentation at the *Research Directions Workshop at the 2001 AWWA Membrane Technology Conference*, San Antonio, Texas. March, 2001.
130. Howe, K.J. “Protection of a Wellfield Contaminated with VOCs.” Presented at the *AWWA Southwest Section Annual Conference*. New Orleans, Louisiana. August, 1994.
131. Howe, K.J. “Pilot Evaluation of Ozone and Biological Treatment.” Presented at the *AWWA Florida Section Annual Conference*. Plantation, Florida. May, 1992.
132. Adams, R.C. and K.J. Howe. “Tracer Studies for Compliance with the Surface Water Treatment Rule.” Presented at the *AWWA Florida Section Annual Conference*. Plantation, Florida. May, 1992.
133. Howe, K.J., F. Coulter, G.J. Wohlgemuth, and M.A. Biggers. “Comparative Analysis: Membrane Softening versus Lime Softening/Ozone for Meeting the 1986 SDWA Amendments – A Case Study.” Poster presented at the *AWWA Membrane Processes Conference*. Orlando, Florida. March, 1991.

## Courses Taught at UNM

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CE 160 – Introduction to civil engineering  
 CE 202 – Engineering statics  
 CE 335 – Introduction to water and wastewater treatment  
 CE 431/531 – Physical/chemical treatment processes  
 CE 438/538 – Sustainable engineering  
 CE 497/499 – Design construction integration, design of civil engineering systems  
 CE 532 – Advanced physical/chemical treatment processes  
 CE 534 – Environmental engineering chemistry  
 CE 691 – Graduate seminar

## Students/Postdocs Advised

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### FORMER STUDENTS

Name	Degree	Year	Thesis/project title
Elizabeth Herrick (Anderson)	M.S.	2005	Effects of Phosphate and Silica on Coagulation-Assisted Microfiltration for Arsenic Removal (Current employer: CH2M-Hill)
Khalid Mehboob	M.S.	2005	Effect of Dissolved Calcium and Silica on Microfiltration of Rio Grande Water (Current employer: AECOM, Doha, Qatar)
Ashish Marwah	M.S.	2005	Effect of Pretreatment and Foulant Size on Membrane Filtration Performance (Current employer: Parsons)
Rajarishi Immanni	M.S.	2005	Effects of Silica and Vanadium on Arsenic Removal

			using Ferric Coagulation (Current employer: Tetra Tech)
Felix Carles	M.S.	2005	Debris Penetration Through Sump Screens and Throttle Valve Blockage (Current employer: URS Corporation)
Consuelo Silva (Otero)	M.S.	2005	Modeling Threat Assessments of Water Supply Systems using Markov Latent Effects Methodology (Current employer: unknown)
Janet Garcia (Leavitt)	M.S.	2006	Effects of Organic Complexing Agents on Aluminum Solubility and Colloid Formation (Current employer: Alion Science and Technology)
Sariah Jurado (Bujanda)	M.S.	2006	Consequence Analysis of a Water Distribution System using EPANET (Current employer: URS Corporation)
Roslyn Higgin	M.S.	2007	Investigation of Biofouling and Silica Scaling on Reverse Osmosis Membranes (Current employer: UOP / SciCentric)
Katharyn Lee (Emmer)	M.S. (MWR)	2007	Evaluation of Selected Ground Water Abatement Strategies for Two Produced Water Impact Sites (Current employer: MAC Resources)
Rochelle Jim (Larson)	M.S.	2008	Investigation of Cleaning Methods for RO Membranes Utilized in Municipal Wastewater Treatment and Reclamation Processes (Current employer: CDM Smith)
David Steen	M.S.	2008	Analysis of Treatment Alternatives for the Encinal Springs Water System, Pueblo of Laguna, NM (Current employer: Indian Health Services)
Elizabeth Field (Farias)	M.S.	2009	Effect of Solids Retention Time in Membrane Bioreactors on Reverse Osmosis Membrane Fouling (Current employer: CERL Environmental Consultants)
Carson Odell Lee	M.S.	2010	Ozone and Biofiltration as an Alternative to Reverse Osmosis for Removing PPCPs and EDCs from Wastewater (Current employer: Postdoc, Technical University of Denmark, Lyngby, Denmark)
Janet Leavitt	Ph.D.	2011	Biosorption of Uranium and its Effect on Uranium Transport in Groundwater (Current employer: Alion Science and Technology)
Joshua Goldman	Ph.D.	2011	Selective Salt Recovery from Reverse Osmosis Concentrate using Inter-stage Ion Exchange (Current employer: CDM Smith)
Kyle Hammond	M.S. (Mech. Eng.)	2013	A Study on the Mechanical Characteristics of a Fiberglass Bed Formed During a Loss-of-Coolant-Accident at a PWR Nuclear Facility (Current employer: Los Alamos National Laboratory)

Mark Holstad	M.S.	2014	Impacts of Diurnally Exposed Slime Layer Hydrogen Sulfide Concentrations in Sewer Atmosphere (Current employer: Albuquerque Bernalillo County Water Utility Authority)
Magdalena Sims	M.S.	2015	Examination of Silica Removal with Solids Recycle for Reverse Osmosis Pretreatment (Current employer: Souder Miller and Associates).
Michelle Miller	M.S.	2015	Investigation of Membrane Fouling and Cleaning in Direct Contact Membrane Distillation of Municipal Wastewater (Current employer: TetraTech).
Sterling Olson	M.S. (ChemE)	2015	Investigation of Calcium Orthophosphates Chemical Effects in a Post-LOCA Nuclear Reactor Containment (Currently a student at UNM).
David Pease	M.S. (NucE)	2015	Experimental Studies of the Chemical Effects of Zinc-Bearing Materials Following a Loss-of-Coolant Accident in a Pressurized Water Reactor
Kathryn Gillen	M.S. (MWR)	2016	Managing the Risks to Groundwater Resources During Coalbed Methane Development in a Rural Community

#### **FORMER POST-DOCS**

Dong Chen. Current Employer: Indiana University-Purdue University, Fort Wayne.

Seung Jun Kim. Current Employer: Los Alamos National Laboratory.

Janet Leavitt. Current Employer: Alion Science and Technology.

Amir Ali (co-sponsored with Ed Blandford)

Daniel Labrier (co-sponsored with Ed Blandford)

Andrea Corral

#### Current Graduate Students / Post-Doc Advisees

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Lauren Breitner (M.S.)

Ehren Baca (M.S.)

Jennifer Winslow (M.S.)

Brendan Brady (M.S.)

Heather Himmelberger (Ph.D)

Zachary Stoll (Post-doc)

#### Professional Affiliations

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American Academy of Environmental Engineers

American Water Works Association

American Society of Engineering Education

Association of Environmental Engineering and Science Professors

## National/International Service Activities

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State Representative, American Academy of Environmental Engineers  
Membrane Technology Research Committee Member, AWWA  
Membrane Processes Committee Member, AWWA

Peer review for the following journals:

- Environmental Science & Technology
- Water Research
- Journal of Membrane Science
- Journal American Water Works Association
- Journal of Water Supply: Research and Technology (Aqua)
- Desalination
- ASCE-Environmental Engineering
- ASCE-Practice Periodical of Hazardous, Toxic, and Radioactive Waste Management
- Ozone Science and Engineering
- Environmental Engineering Science
- Environmental Progress
- Water Environment Research

Reviewer and/or Technical Advisory Committee for the following agencies/foundations:

- National Science Foundation
- Environmental Protection Agency
- New Mexico Environment Department
- Water Research Foundation
- Water Environment Research Foundation
- WaterReuse Research Foundation
- Ohio Sea Grant Program
- Scientific Advisory Committee of the National Conference on Interstate Milk Shipments
- American Chemical Society Petroleum Research Fund
- Qatar National Priorities Research Program
- Natural Sciences and Engineering Research Council of Canada
- New Zealand Research Council

PhD Dissertation Committees outside UNM

- John Minnery, Boston University, Boston, MA
- Seungjin Lee, Georgia Tech, Atlanta, GA
- Sy Nuygen, RMIT University, Melbourne, Australia
- Bernard Agana, Victoria University, Melbourne, Australia