

21018 Osborne Street, Ste. 1
Canoga Park, CA 91304
Tel: 818-435-4500 ext. 104
Fax: 818-484-3100
Email: ofelia.romero@wqts.com
URL: <http://www.WQTS.com>

EDUCATION:

Ph.D., Environmental Engineering, Univ. of Illinois at Urbana-Champaign 2014
M.S., Environmental Engineering, Univ. of Illinois at Urbana-Champaign 2009
B.S., Civil & Environmental Engineering, University of California Berkeley 2007

REGISTRATION:

California Engineer-in-Training. Registration Number 128942; July 2007

PROFESSIONAL EXPERIENCE:

Water Quality & Treatment Solutions, Inc.
Los Angeles, California
2015 – present: Engineer

Alameda County Water District
Fremont, California
Feb. 2015 – Jul 2015; Temporary Environmental Engineer

Stanford University, Center for Ocean Solutions
Palo Alto, California
July 2014 – Feb 2015; Life Science Research Assistant/Associate

University of Illinois at Urbana-Champaign
Urbana, Illinois
Jun 2008 – Aug 2014; Graduate Research Assistant

California Department of Public Health
Monterey, California
Jan 2008 – May 2008; Sanitary Engineer, Range A

SUMMARY:

Dr. Ofelia Romero is an Engineer with WQTS. She is a graduate of the University of California Berkeley with a Bachelor of Science degree in Civil and Environmental Engineering, and a graduate of the University of Illinois at Urbana-Champaign with an MS and PhD degrees in Environmental Engineering. Her PhD dissertation research focused on the disinfection kinetics and mechanisms of viruses in water irradiated with sunlight, with emphasis on the photochemical and microbiological processes leading to disinfection. She brings to WQTS strong expertise in laboratory experimental work, and strong technical knowledge of disinfection kinetics. Since her time with WQTS, Ofelia has been the project engineer for a number of bench and pilot-scale projects including a pilot-scale chlorite study and bench-scale studies for chromium removal through SBA resin columns, TOC removal with activated carbons and/or coagulants, metals removal with various adsorbents, and a detailed bench-scale study examining the effect of pH on the inactivation efficiency of chlorine. Ofelia has built Excel-based models for data evaluation and analysis of various scenarios.



EXPERIENCE:**Corrosion Control Desktop Studies****2015 – Present***Various Agencies, California*

Los Angeles Department of Water & Power, City of Ceres, City of Santa Barbara, Zone 7 Water Agency, and more have retained the services of WQTS to prepare corrosion control desktop studies. To prepare these assessments, water quality data, customer reports relating to the corrosivity of the water, and lead and copper tap results are collected, data are organized, corrosion indices are calculated using an Excel-based model developed by WQTS. The results are interpreted and presented in tables and plots. Corrosion control treatment alternatives are evaluated and a final report is prepared with conclusions and recommendations. Dr. Romero is primarily responsible for data organization and analysis, calculation of corrosion indices, generation of GIS maps showing the geographical distribution of the lead and copper results, customer reports, and key water quality parameters in relation to the water source(s), and assists in finalizing the report.

Bench-Scale Testing for Understanding the Effect of pH on the Microbial Inactivation**Efficiency of Free Chlorine at High pH Levels****2016 – Present***Water Research Foundation*

WQTS conducted bench-scale inactivation tests with *Bacillus subtilis* spores and free chlorine at pH levels ranging from 5 through 12. The inactivation results were modeled using a chlorine speciation model that treated the two chlorine species (HOCl and OCl⁻) as two separate disinfectants. Dr. Romero was the lead engineer for this project and tasks included: planning, conducting the bench-scale tests, data entry and analysis, writing progress reports and the final report.

Evaluation of DBP Reduction Strategies**2015 - Present***Various Agencies, California*

The City of Santa Barbara, Elsinore Valley Municipal Water District, Carollo Engineers, and various more have retained the services of WQTS to provide an evaluation of various DBP reduction strategies, including (1) reducing TOC, the precursor material of DBPs, via alternative coagulant types and/or doses and (2) evaluating different pre-oxidants other than free chlorine. The overall evaluation included extensive bench-scale jar testing where various water quality conditions, pre-oxidants, coagulants and coagulant doses were evaluated. Jar testing is complimented with simulated distribution system (SDS) DBP formation potential testing to assess the effectiveness of the various treatment alternatives on the formation of DBPs. The results of the testing and recommendations are presented in a Technical Report. Dr. Romero is one of the engineers who prepares testing plans, performs the testing, carries out data analysis, prepares tables and/or plots to summarize the results, and prepares the final reports.

Excel-Based Integrated Process & Predictive Models**2016 – 2017***Park City Municipal Corporation, Park City, Utah**Alameda County Water District, Fremont, California*

WQTS generated Excel-based models aimed to help in the decision-making to meet water quality or permit regulations. Using existing bromate and water quality data, WQTS created a model that helps predict bromate formation in a pre-ozone water treatment plant using only real-time parameters (those measured daily or on a continuous basis). Another Excel-based model was developed to aid operators of a membrane treatment plant meet monthly TSS and volume discharge permit limits into the sewer. Dr. Romero has been primarily responsible for generating these Excel-based models.

Evaluation of Chlorite Addition for Nitrification Prevention & Control**2015 – 2017***Los Angeles Department of Water and Power, Los Angeles, California*

WQTS carried out a pilot-study investigating the applicability and efficiency of chlorite addition as a supplemental tool for nitrification control and prevention in the Los Angeles Department of Water & Power (LADWP) distribution system. Dr. Romero served as the project engineer and performed data

collection and analysis, prepared reports and presentations for quarterly meetings, and was one of lead writers of the final report.

Public Health Assessment**2016 – 2017**

Los Angeles Department of Water and Power, Los Angeles, California

The Los Angeles Department of Water & Power (LADWP) retained the services of WQTS to conduct a public health assessment of their finished drinking water. In the early 2000s, LADWP staff began a more comprehensive and integrated review of the health risks presented by contaminants detected in their drinking water. This approach relies on the available health effects information (PHGs, MCLGs or more recent toxicological data) to evaluate the potential carcinogenic and non-carcinogenic risk posed by each detected constituent. The review considers the cost estimates for various treatment technologies and their corresponding potential risk reduction. An Excel-based model was upgraded to include 10-years of water quality data that allowed the user to assess the health risks over time for each drinking water source. The model included interactive tools that allow for the assessment of the effect of treatment(s) on the overall risk and corresponding cost estimates. Dr. Romero was responsible for upgrading the model, creating interactive tools, and providing updated treatment cost estimates.

Watershed Sanitary Survey**2016 – 2017**

Santa Clara Valley Water District, Santa Clara, California

Santa Clara Valley Water District retained the services of WQTS to prepare a five-year watershed sanitary survey update. Updates to watershed sanitary surveys include site visits to sources and treatment plants, review of water quality data, identification of potential sources of contamination, and submittals of a Final Report with recommendations for improving water quality over the next five-year period. Dr. Romero was primarily responsible for updating the GIS maps used in the Final Report and assisted with the water quality data analysis.

Evaluation of Treatment Technologies for Mining-Influenced Water**2015 – 2016**

Park City Municipal Corporation, Park City, Utah

Park City draws a portion of their drinking water from flows out of the portals for two closed mines, which contain elevated levels of multiple metals. As the City works on a long-term program to build and operate treatment facilities for this mining-influenced water, the City retained the services of WQTS to provide technical support in the evaluation of treatment alternatives and the bench-scale and pilot-scale testing of potential treatment technologies. Dr. Romero has performed bench-scale jar testing to evaluate various water quality conditions and coagulants and equilibrium isotherm testing to evaluate various adsorbents. Dr. Romero analyzed the results, prepared tables and plots of the results, and helped prepare the Final Report.

Evaluation of Waste Minimization Alternatives for Cr(VI) Treatment Systems**2015 – 2016**

Water Research Foundation, Denver, Colorado

WQTS completed a research project that evaluated alternatives to reduce waste production from three treatment technologies commonly used for the removal of hexavalent chromium, Cr(VI), in water. The study included bench-scale testing to evaluate reuse and recovery of the brine solution used for the strong base anion resin technology, evaluation of the beneficial uses for spent weak base anion resin and cost comparisons of backwash treatment and disposal alternatives for reduction, coagulation, and filtration treatment. Dr. Romero served as the project engineer and conducted the bench-scale testing, data analysis, and was one of the lead writers of the final report.

RECOGNITIONS & AWARDS:

- Invited Speaker, EES Graduate Student Seminar, Stanford University, Stanford, CA – 2013
- Best Afternoon Presentation, Environmental Engineering Research Symposium, UIUC – 2012
- Mentor, CEE Professional Development Program, UIUC; 2012 – 2014
- Vice Chair, EES Graduate Student Committee; 2011 – 2012
- National Science Foundation Graduate Student Fellow – 2009

JOURNAL ARTICLES:

1. Djurhuus, A. Port, J., Closek, C.J., Yamahara, K.M., **Romero-Maraccini, O.**, Walz, K.R., Goldsmith, D.B., Michisaki, R., Breitbart, M., Boehm, A.B., Chavez, F.P. (2017). Evaluation of filtration and DNA extraction methods for environmental DNA biodiversity assessments across multiple trophic levels. *Frontiers in Marine Science*, 4:314.
2. Port, J.; O'Donnell, J.; **Romero-Maraccini, O.C.**; Leary, P.; Litvin, S.; Nickols, K.; Yamahara, K.; Kelly, R. (2016). Assessing Vertebrate Biodiversity in a Kelp Forest Ecosystem using Environmental DNA. *Molecular Ecology*, 25(2), 527-541.
3. **Romero-Maraccini, O. C.**; Shisler, J. L.; Nguyen, T. H. (2015). Solar and Temperature Treatments Affect the Ability of Human Rotavirus Wa To Bind to Host Cells and Synthesize Viral RNA. *Applied and Environmental Microbiology*, 81, 4090–4097.
4. **Romero-Maraccini, O. C.**, Sadik, J., Rosado-Lausell, S. L., Pugh, C. R., Niu, X.-Z., Croue, J.-P., & Nguyen, T. H. (2013). Sunlight-Induced Inactivation of Human Wa and Porcine OSU Rotaviruses in the Presence of Exogenous Photosensitizers. *Environmental Science & Technology*, 47(19), 11004–11012.
5. Rosado-Lausell, S. L., Wang, H., Gutiérrez, L., **Romero-Maraccini, O. C.**, Niu, X.-Z., Gin, K. Y. H., Nguyen, T. H. (2013). Roles of singlet oxygen and triplet excited state of dissolved organic matter formed by different organic matters in bacteriophage MS2 inactivation. *Water Research*, 47(14), 4869–4879.
6. **Romero, O. C.**, Straub, A. P., Kohn, T., & Nguyen, T. H. (2011). Role of temperature and Suwannee River natural organic matter on inactivation kinetics of rotavirus and bacteriophage MS2 by solar irradiation. *Environmental Science & Technology*, 45(24), 10385–10393.

CONFERENCE PRESENTATIONS:

1. **Romero-Maraccini, Ofelia**, Najm, I., Askenaizer, D., Gallagher, B. Minimizing Waste Residuals from Cr(VI) Treatment Plants Using a Strong Base Anion (SBA) Resin. Paper presented at the AWWA Annual Conference & Exposition, Chicago, IL (2016)
2. **Romero-Maraccini, O.C.**; Sadik, N.J.; Pugh, C.R.; Nguyen, T.H. (Presentation) Sunlight-induced inactivation of human Wa and porcine OSU rotavirus in the presence of different photosensitizers. ReNUWIit Sunlight Symposium, Stanford University, Stanford, CA, April 2, 2013.
3. **Romero-Maraccini, O.C.**; Wang, H.; Sadik, N.J.; Rosado-Lausell, S.L.; Gutierrez, L.A.; Pugh, C.R.; Xi-Zhi N.; Gin, H.K.; Croué, J.P.; Nguyen, T.H. (Poster) Sunlight-Induced Inactivation of Human Rotavirus Wa, Porcine Rotavirus OSU, and Bacteriophage MS2: The Role of Natural Exogenous Sensitizers. 2012 UNC Water and Health Conference: Science, Policy and Innovation, Chapel Hill, NC, October 29 – November 2, 2012.
4. **Romero, O.C.**; Gutierrez, L.A.; Kohn, T.; Nguyen, T.H. (Poster) Role of natural organic matter and temperature on inactivation kinetics of rotavirus and bacteriophage MS2 by solar irradiation. International Water Association. Fourth IWA Specialty Conference Natural Organic Matter: From Source to Tap and Beyond, Costa Mesa, CA, July 27-29, 2011.
5. **Romero, O.C.**; Kohn, T.; Nguyen, T.H. (Presentation) Role of natural organic matter & temperature on the inactivation of rotavirus and bacteriophage MS2 by solar irradiation. Association of Environmental Engineering and Science Professors, Tampa, FL, July 11, 2011.
6. **Romero, O.C.**; Kohn, T.; Nguyen, T.H. (Presentation) Role of natural organic matter & temperature on inactivation of rotavirus by solar irradiation. Pacificchem 2010 Congress, Honolulu, Hawaii, December 17, 2010.