Analytical Chemistry/Environmental Chemistry/Budget/Management

QUALIFICATIONS

- Experienced researcher with 4 plus years working in Analytical Chemistry labs and over 12 years' experience teaching science based courses
- Focused on Environmental Chemistry topics including emerging contaminants, micropollutants, water treatment, remediation and water use efficiency; familiar with NEPA
- Supervisory experience with team members, mentoring new teachers and working collaboratively with department heads
- Trained in project management principles, consensus building, and effective communication
- Lab budget management of $12K per year; monitoring grant expenditures and ensuring compliance with grant guidelines
- Managed LLC for real estate investments with a budget in excess of $800,000; managed budget of $50,000 and organized meetings as an executive board member of the Poudre Education Association

LABORATORY EXPERTISE

- Extensive laboratory instrumentation work including GC/FID, GC/MS, GC/MS-MS, LC/MS-TOF, HPLC, SEM, and IC
- Proficiency with Liquid & Gas Chromatography, Mass Spectrometry, GC/ECD, TOC, BET Surface Area Analysis, Powder X-Ray Diffraction, UV/Vis Spectroscopy, and Cyclic Voltammetry
- Experience with method development, troubleshooting of analytical instruments, and best lab practices regarding documentation and QA/QC protocol
- Familiar with EPA and NELAP requirements for laboratory QA/QC practices & MDL/LOQ determination
- Utilization of Excel, Sigma Plot and Igor for data analysis and interpretation
- Extensive experience crafting Standard Operating Procedures in compliance with ISO14001 regulations and Globally Harmonized System for HazCom, as well as compliance audits and corrective action plans when needed

RELATED EXPERIENCE

Colorado State University, Fort Collins, CO
Graduate Research Assistant, PI Thomas Borch and Jens Blotevogel 2011 – present
Research focuses on Emerging Environmental Contaminants and Treatment Technologies

- Work independently and as part of a team to complete project goals on time and within budget for developing an effective treatment technology for 1,4-dioxane in groundwater as per grant guidelines
- Constructed bench-scale electrolytic column reactors with TiO_2 catalyst to successfully treat persistent aqueous emerging contaminants such as 1,4-dioxane and pharmaceuticals like lamotrigine; successful lab studies have led to field scale reactors treating 1,4-dioxane in the Netherlands spring of 2015
- PhD Dissertation utilizes analytical and solid state chemistry instrumentation to optimize electrolytic treatment system, characterize TiO_2 catalyst properties, and elucidate novel mechanism
- Supervision of undergraduate students

Internship, Natural Resource & Ecology Lab, CSU *April* 2010 – Jan 2011

- Investigated silica-based phytoliths as biological tracers of hydrological flow paths
- Performed environmental sampling at field site locations in Costa Rican rain forest, followed by analyte extraction and analysis

City of Fort Collins, Water Treatment Division, Fort Collins, CO
Part-time Contract August 2013 – present

- Reviewed and revised ~100 water treatment operations and process control lab SOP's to align with requirements of the ISO14001 environmental management system and Globally Harmonized System for HazCom
- Chaired a team to update chemical inventory, SDS documents and chemical labels to comply with Globally Harmonized System requirements (OSHA HazCom Standard Final Rule 2012)
- Implemented corrective actions plans to employ best practices in treated waste water management, chlorine leak emergency procedures, and proper handling and disposal for chemical spills and excess chemical residuals for six hazardous substances commonly used at water treatment facility

EDUCATION

PhD Analytical Chemistry/Environmental Focus (emerging contaminants research)
Colorado State University, Fort Collins, CO Graduation 2015

Teaching Certifications in Life Science and Physical Science, *summa cum laude*
California State University, Sacramento Graduation 2001

BS Biochemistry, Psychology Minor, *cum laude*
University of California, Davis Graduation 1997

ADDITIONAL EMPLOYMENT

Poudre High School, Fort Collins, CO
Teacher, Chemistry, AP Environmental Science & Physics 2005 – 2011

- Managed $250,000 budget, mediated teacher/administrator grievances, negotiated contracts and organized meetings as Executive Board Member of the Poudre Education Association
- Served as Chemistry Curriculum Committee Chair and as teacher leader for process-oriented, guided-inquiry learning (POGIL) techniques, selected as chemistry teacher recipient of NSF STEM/GK12 fellowship
- Supervised and Mentored student teachers
- Founder and advisor of Poudre Environmental Club which monitored water quality of local rivers and coordinated events to promote sustainable living practices

Hiram Johnson High School, Sacramento, CA
Teacher, Chemistry and Biological Science 1999 – 2005

- Managed budget and facilitated meetings as Science Department Chair

Vision Service Plan, Sacramento CA 1997 – 1999
Sales Representative

- Achieved 100% of sales revenue and business development goals

PROFESSIONAL MEMBERSHIPS

National Honor Society, American Chemical Society, Wilderness Society, American Water Works Association, WateReuse Assn., Sustainable Remediation Forum, National Groundwater Assn., Idea Wild, Trees Water & People

AWARDS AND GRANTS

- ACS Environmental Chemistry Graduate Student Award January 2015 in recognition of scholarship, research productivity and potential for high impact in environmental chemistry
- Recipient of five years of funding ($150,000) from DuPont for graduate research to investigate innovative treatment technologies for persistent organic pollutants.
- Chemistry teacher recipient of National Science Foundation's STEM/GK-12 fellowship ($8000 over 2 years) collaborating with Colorado State University to make graduate level research accessible and engaging to high school students.
- Personally awarded grant funding from Caring for Our Watershed Project ($1000), GO3 Foundation Ozone Monitoring Grant ($4500), Whole Foods Schools Grant ($3700), Sacramento Municipal Utility District Energy and Education Grant ($250) for environmental projects.

PRESENTATIONS AND PUBLICATIONS

J.; Borch, T.; Sale, T.C.; Blotevogel, J. Electrolytic degradation of 1,4-dioxane catalyzed by titanium dioxide pellets in the absence of light. In preparation.

, J.; Borch, T.; Sale, T.C.; Blotevogel, J. "Electrolytic degradation of aqueous contaminants catalyzed by novel titanium dioxide pellets." Aug. 19-21, 2014. Iowa City, Iowa. Presented at *EmCon 2014 – 4th International Conference on Emerging Contaminants in the Environment.*

Lenker, C.; Harclerode, M.; Aragona, K.; Fisher, A.;, J.; Hadley, P. Integrating groundwater conservation and reuse into remediation projects. *Remediation Journal*. Spring 2014. DOI: 10.1002/rem.21389

, J.; Borch, T.; Sale, T.C.; Blotevogel, J. "Electrolytic degradation of 1,4-dioxane catalyzed by titanium dioxide pellets." March 16-19, 2014. Dallas, Texas. Presented at *Conference of the American Chemical Society.*

Hadley, P.; Keddington, P.; J., et al. Groundwater Conservation and Reuse at Remediation Sites. *Sustainable Remediation Forum (SURF)*. January 2014. http://www.sustainableremediation.org (last visited September 2014)

, J.; Borch, T.; Sale, T.C.; Blotevogel, J. "Catalyzed electrolytic degradation of 1,4-dioxane in contaminated water". March 25-27, 2013. Fort Collins, CO. Presented at *33rd Annual American Geophysical Union Hydrology Days*.

J.; Borch, T.; Sale, T.C.; Blotevogel, J. "Non-aqueous media technologies for treatment (desorption and degradation) of hydrophobic contaminants such as PCBs". June 12-14, 2012. Guelph, Ontaria Canada. Presented at *University Consortium for Field-focused Groundwater Contamination Research.*

, J.; Borch, T.; Sale, T.C.; Blotevogel, J. March 21-23, 2012. Fort Collins, CO. "Reductive dechlorination and desorption of hydrophobic contaminants in non-aqueous media." Presented at *32nd Annual American Geophysical Union Hydrology Days*.

, J. Application and chemical properties of polymers. *Teach Engineering.* August 2012. www.teachengineering.org

, J. Class activities for high school chemistry using a process oriented, guided-inquiry learning (POGIL) approach. Spring 2011. *High School POGIL Initiative.* www.pogil.org/high-school/hach.

Guest speaker on a panel to highlight work done by our student environmental club on PSD's Resource Conservation and Sustainability Video Series (Channel 10) www.psdschools.org/about-us/district-operations/sustainability/sustainability-video-segments.