

Alice H. England, Ph.D.

Project Scientist



Expertise

- Ph.D. chemist with over 11 years of experience in experimental design and development, data collection, data analysis, and technical writing
- Conducted research projects related to environmental chemistry such as investigating pH gradients of streams, metal complexation with humic acids in soils, corrosion of infrastructure/metals due to weathering, materials characterization of paints and coatings, and effects of radioactive decay and transport of nuclear waste in the environment
- Experienced in a variety of standard analytical chemistry methods
- Author on 17 peer-reviewed publications and one patent, including three cover articles
- Excellent communication and presentation skills from teaching chemistry in the classroom, giving research presentations at local and national conferences, and public outreach

Summary

Ms. England is a project scientist with expertise in environmental chemistry and preparing technical deliverables including remedial investigation (RI) reports, work plans, sampling and analysis plans, and health and safety plans. She has conducted historical and property research in association with due diligence and litigation support; identified contaminant sources and pathways; and designed, planned, and managed soil, sediment, and groundwater sampling field activities for urban and industrial properties.

Professional Experience

Expert Consultant for Sediment and Uplands Cleanup Cost Allocation (2019–Ongoing)

Confidential Client, New York

TIG Environmental provides litigation support to a private client participating in a Superfund site allocation. The site includes nearly two miles of waterway in a heavily industrialized area of New York state. Contamination at the site includes PCBs and other chemicals. PCBs are the primary chemicals of concern. After an initial remedial design phase was completed, regulatory agencies required additional investigation of the study area. Findings from the investigation increased the estimated remedial cost nearly seven-fold. A comprehensive assessment of the watershed is necessary. The client has retained TIG Environmental's services for PRP identification and investigation, sampling and data analysis, and expert witness testimony. TIG Environmental has evaluated and investigated documents for PRP sites to gather evidence of historical releases related to operations, developed recommendations for site sampling, and developed a preliminary conceptual site model of the relationships between PRP operations and the contaminated waterway. TIG Environmental has also overseen additional site sampling and data forensic analysis to determine the deposition of PCBs and other chemicals that could be indicators of historical PCB use. TIG Environmental provided a data analysis report, final conceptual site model, and data visualization tools to assist the client in strengthening the connection between contamination in the waterway and adjacent PRPs, identified PRPs that may not be responsible for contamination, and identified additional discharge points that may be associated with additional PRPs.

Ms. England is a member of the technical team that conducted detailed analysis of historical regulatory and remedial documentation for sites within an industrialized area of New York. This analysis of priority sites has helped to delineate the extent of contamination in the area and will assist in future cost allocation and liability assessments.

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Technical Consultation and Allocation/Litigation Support (2019–Ongoing)

Confidential Client, Multnomah County, Oregon

TIG Environmental provides technical expert support for environmental liability assessment and cost allocation for the remediation of sediments at the Portland Harbor Superfund Site and for the associated Natural Resource Damages claims. The harbor has been the site of numerous manufacturing, shipbuilding, petroleum storage and distribution, metal salvaging, and electrical power generation operations for more than a century. Development of expert reports has included research and forensic analysis to determine the specific contaminant nexus to the sediments for each upland PRP. Specific forensic analysis has included evaluation of potential historical contaminant sources, chemical fingerprinting of PAHs, PCBs, PCDD/Fs, and contaminant fate and transport. Key issues revolve around potential contributions from state-maintained roads, bridges, and other right-of-way properties and supporting facilities. This effort has included collection and evaluation of sediment, stormwater, and bridge paint samples. TIG Environmental is also responsible for evaluating the potential relationship between activities on state-owned submerged lands and the contamination in the river.

Since 2019, Ms. England has served on the technical team conducting detailed analysis of environmental documents, lease agreements, deed transfers, and historical photographs. The findings of this research have been summarized in reports that evaluate the potential relationship between activities conducted on sites of interest and contamination in Portland Harbor. Ms. England has also conducted field sampling activities for PCB source tracing and led a sampling effort on relevant materials for the client. Ms. England has served as task manager, author, and researcher in support of production of technical expert reports in support of the advocacy process.

Technical Consultation and Allocation/Litigation Support (2020–Ongoing)

Confidential Client, Seattle, Washington

TIG Environmental provides litigation support to a Washington state agency participating in a Superfund site allocation. The Superfund sediment site consists of five miles of urban and industrial estuarine waterway. The key issues revolve around potential contaminant loading in stormwater from state-maintained roads, bridges, and supporting facilities. TIG Environmental has prepared expert reports that evaluate whether there is a potential relationship between the Superfund site sediment contamination and the discharge of hazardous substances from the state-owned facilities, potentially resulting in the need for remedial action and associated response costs. TIG Environmental is developing an allocation strategy based on sampling and statistical analysis of stormwater, historical and scientific research, drainage pathway delineation, and sediment transport modeling. TIG Environmental is also assisting the state agency with the development of source control plans in accordance with Washington State Department of Ecology's source control strategy.

Since 2019, Ms. England has served on the technical team providing support to the proposed allocation strategy through development of a probabilistic cost model, forensics analysis, and evaluation of the preliminary allocation results. Since 2020, Ms. England has also served in the deputy project manager role.

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Technical Consultation and Allocation/Litigation Support (2020–Ongoing)

Confidential Client, Seattle, Washington

TIG Environmental provides support to a Washington state agency in responding to a broad Section 104(e) information request at a Superfund sediment site in the early stages of investigation and remediation. As a state agency, our client was potentially involved at several facilities in the vicinity of the subject site. TIG Environmental first supported its client in identifying which facilities potentially connected to the client were responsive to the EPA's request through drainage pathway delineation, interpretation of aerial photographs, and review of historical records. TIG Environmental then assisted its client in screening potentially responsive documents for relevance to the EPA's request, conducting current and former employee interviews, and preparing responses to the EPA's request for the responsive facilities. TIG Environmental is also working alongside the state agency to develop a strategy in anticipation of a potential future allocation process.

Since 2020, Ms. England has served on the technical team to review and triage of large volumes of historical and technical records for relevance and has contributed to communicating the relevant findings in written responses to the 104(e) information request.

Technical Consultation and Allocation/Litigation Support (2019–2020)

Confidential Shipyard Site, Whatcom County, Washington

TIG Environmental is providing technical expert support for environmental liability assessment and cost allocation for the remediation of contamination at a shipyard site under an Agreed Order with Washington State Department of Ecology (Ecology). TIG Environmental's client is corporate successor to a former owner and operator of a facility on the site. TIG Environmental is producing technical evaluations of historical and current operations on the site and developing forensic and statistical analyses to identify contaminants attributable to the different types of operations at the site. Based on the results of these technical evaluations and analyses, TIG Environmental is developing an allocation strategy and methodology to estimate potential allocable shares to each owner and operator associated with the Site. TIG Environmental is assisting client's counsel with developing early cash-out settlement strategies to negotiate with the party performing the remediation.

From 2019 to 2020, Ms. England has served on the technical team conducting detailed analysis of environmental documents, lease agreements, deed transfers, and historical photographs. The findings of this research have been summarized in reports that evaluate the potential relationship between activities conducted on sites of interest and contamination in the Bellingham Bay.

Technical Support of Cost Allocation (2019–Ongoing)

Confidential Client, New Jersey

TIG Environmental provides technical support on investigative identification of PRPs in a tidal tributary system with contaminated sediments for remedial cost allocation purposes. The evaluation includes research and forensic analysis to determine the nexus from investigated upland PRP sites to the tributary system for specific contaminants. The results of this investigation were used to develop a comprehensive allocation strategy and supporting expert reports for sediment and marsh cleanup cost allocation. Continuing efforts include developing evaluations and analyses to support mediation efforts.



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Ms. England has provided allocation support by conducting a rigorous analysis of other PRP's proposed allocation methodologies to identify and respond to biases and flaws in their approach.

Adjunct Chemistry Instructor (2016–2019)

Clark College, Vancouver, Washington

Ms. England taught over 500 students in lecture and laboratory for various general chemistry courses (Chem 110, 121, 139, 141/142/143, 151/152/153). Her responsibilities included course development, lesson planning, grading, course website maintenance, and homework website maintenance.

Adjunct Chemistry Instructor (2016–2017)

University of Portland, Portland, Oregon

Ms. England taught weekly lab experiments for Chem 277 (General Chemistry I laboratory) with short lectures, supervised undergraduate TAs, organized and maintained course website (Moodle), graded lab notebooks, group presentations, and formal lab reports.

Post-Doctoral Research (2014–2015)

Oregon Health & Science University, Portland, Oregon

Ms. England focused on single particle cryo transmission electron microscopy (TEM) experiments to solve high resolution structures of small biomolecules; developed a method to streamline TEM random conical tilt data collection and analysis via arrays of overlapping micrographs; designed and built a nano electrospray instrument for spray application of protein samples onto TEM grids. Significant work in using an in-house software package using 2D image processing algorithms to reconstruct high-resolution 3D molecular structures.

Post-Doctoral Research (2012–2014)

Portland State University, Portland, Oregon

Ms. England synthesized and characterized polymer hydrogels as flexible electrode materials; designed and constructed a novel surface electrode electrochemical impedance (EIS) cell for in situ measurements on outdoor metal sculptures at the Olympic Sculpture Park (Seattle, WA). She developed and wrote scripts on Igor Pro software for processing, analysis, and visualization of EIS data and X-ray fluorescence maps.

Ph.D. Research (2006–2011)

University of California - Berkeley, Berkeley, California

Ms. England performed X-ray absorption spectroscopy of various aqueous solutions, such as the pH-dependent carbonate system, combined with molecular dynamics modeling and quantum mechanical spectral simulations.

Ph.D. Research (2008)

Notre Dame Radiation Laboratory, Notre Dame, Indiana

Ms. England applied pulse radiolysis and UV-Vis spectroscopy to characterize high-temperature aqueous Nickel (II) solutions and completed data analysis with kinetic modeling.



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Undergraduate Research (2004–2006)

Vassar College, Poughkeepsie, New York

Ms. England conducted independent thesis research on time-resolved fluorescence of the pH-dependent humic acid complexation with pyrene and the effects of added magnesium and aluminum. She also characterized the natural pH gradient in the Coxsack stream (New Paltz, NY) by Inductively Coupled Plasma-Atomic Emission Spectroscopy analysis.

Undergraduate Research (2005)

University of Utah, Salt Lake City, Utah

For undergraduate summer research, Ms. England investigated gas phase reactivity of protonated alcohol dimers via guided ion beam tandem mass spectrometry and performed theoretical calculations of dissociation energies using Gaussian software.

Undergraduate Research (2004)

University of Utah, Salt Lake City, Utah

As an American Heart Association summer research intern, Ms. England built an electrode cage, assisted with experiments and was responsible for data analysis in an electrocardiology study of mouse hearts with 3D electrical mapping.

Academic Qualifications

Ph.D. in Chemistry, University of California – Berkeley, 2011

BA in Chemistry, Vassar College, 2006

Professional Training

- 40-Hour OSHA Hazardous Waste Operations (HAZWOPER) Safety Training
- DOT HazMat Transportation & Security Awareness
- CPR and First Aid Training

Publications and Presentations

England, A. H., K. N. Hosbein, C. A. Price, M. K. Wilder, K. S. Miller, T. L. Clare, "Assessing the Protective Quality of Wax Coatings on Bronze Sculptures Using Hydrogel Patches in Impedance Measurements." *Coatings* 6, no. 4 (2016): 45.

Clare, T. L. and A. H. England, "Hydrogel Compositions and Methods for Electrochemical Sensing," WIPO Patent WO/2014/201023, published December 18, 2014 (24 claims).

England, A. H. and T. L. Clare. "Synthesis and characterization of flexible hydrogel electrodes for electrochemical impedance measurements of protective coatings on metal sculptures." *Electroanalysis* 26, no. 5 (2014): 1059–1067.

England, A. H., A. M. Duffin, C. P. Schwartz, J. S. Uejio, D. Prendergast, R. J. Saykally, "On the hydration and hydrolysis of carbon dioxide." *Chemical Physics Letters* 514, no. 4-6 (2011): 187–195. Cover Article.

Contributing author for 13 additional publications in peer-reviewed journals.