



**The Environmental Remediation Group**  
A Division of CES



# Brian Timmins

## Technical Expert

### Groundwater Recirculation & Bioremediation

Brian is widely recognized and highly acclaimed as an expert in bioremediation and groundwater recirculation systems. He has designed, implemented, and optimized groundwater recirculation systems to effectively stimulate and enhance in situ aerobic and anaerobic biodegradation of contaminated Sites at over 400 industrial projects throughout North America. Brian supports The Group as a Technical Advisor to bioremediation and groundwater recirculation applications, helping oversee bioremediation system design, system performance analysis, and interpretation of operational data.

### Professional History

- ❖ **The Environmental Remediation Group**  
Technical Advisor & Senior SME  
*2023 - Present*
- ❖ **Remedial Assessment & Design**  
Director  
*2016 - Present*
- ❖ **Director, ETEC, LLC**  
Director  
*2006 - 2016*
- ❖ **Enzyme Technologies, Inc.**  
Project Manager  
*2004 - 2006*
- ❖ **Kennedy/Jenks Consultants**  
Senior Staff Engineer  
*2002 - 2004*
- ❖ **Stanford University**  
Field Engineer  
*2001 - 2002*
- ❖ **Oregon State University**  
Research Associate  
*1999-2001*

Career Highlights	
Experience	25 Years
Education	<p><b>M.Sc.</b> - Environmental Engineering, Oregon State University, 2001</p> <p><b>B.Sc.</b> - Environmental Science, University of Florida, 1996</p>
Career Accolades	<ul style="list-style-type: none"> <li>✓ World-recognized expert in the engineering design, construction, and implementation of groundwater recirculation systems, for enhanced amendment delivery.</li> <li>✓ Successfully implemented over <u>400</u> full-scale in situ groundwater recirculation and bioremediation projects for petroleum hydrocarbons and chlorinated solvents .</li> <li>✓ Strong relationships with various Federal Agencies (USEPA, USACE, ATSDR, DOE, DOD, DOT)</li> <li>✓ Extensive experience successfully implementing directed groundwater recirculation in fractured bedrock and tight lithologies.</li> </ul>



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## Relevant Project Experience

### *Groundwater Recirculation and Bioremediation (>400 projects)*

- Directed and designed closed loop groundwater recirculation/bioremediation system as part of a large scale combined in situ remediation effort for Clay National Guard and Savannah District USACE, which utilized thermal remediation source zone removal with heat enhanced bio recirculation to remediate dissolved phase TCE impacts throughout the much larger (~50,000 cubic yard) groundwater plume.
- Directed and designed closed loop groundwater recirculation/bioremediation system as part of a large scale, complex, combined in situ remediation effort for the City of Bothell, WA, which utilized thermal remediation source zone removal with heat enhanced bio recirculation to remediate large diffuse dissolved phase CVOC impacts throughout groundwater plume (~90,000 cubic yards).
- Conducted full-scale in situ chemical oxidation projects using catalyzed hydrogen peroxide, catalyzed sodium persulfate, as well as permanganate.
- Conducted field/lab research to evaluate biological methods for the reduction of hexavalent chromium, abiotic methods for dissolved phase metals (Pb, As, etc.), and chemical oxidation of halogenated organics (PCP, PCBs, pesticides, etc).
- Directed bench, pilot (Push-Pull Tests), and full-scale implementations of ex situ landfarming and biopiles to degrade diesel fuel, jet fuel, PAHs, and overall TPH in soil.
- Directed the operation and maintenance of a large (>1,000 gpm) in situ groundwater recirculation system to biodegrade TNT and associated daughter products in soil/groundwater at the Umatilla Army Depot located in Oregon (US Army Corps of Engineers).
- Designed, constructed, and operated numerous in situ remediation systems for the Oregon Dry Cleaner Program. Constructed and operated an in situ remediation system for a hexavalent chromium site in Walla Walla, WA (WA Ecology).
- Designed in situ remedial approaches for large rail yards (BNSF, UPRR, CSX), Air Force Bases, Ports, and private industrial clients across the US.
- Conducted numerous projects under Pay-for-Performance (PFP) terms, either Cost-Cap or Milestone/Performance based terms for both private industries and state agencies.
- Responsible for managing multiple in situ bioremediation projects at gasoline stations and fuel storage facilities. Implemented and evaluated in situ bioremediation systems that used an automated recirculation approach to deliver amendments to the subsurface to enhance microbial degradation of contaminants (BTEX, MTBE, naphthalene).
- Mobilized over 30,000 lbs of equipment to the Alaskan back country and operated thermal soil treatment systems to destroy petroleum hydrocarbons in soil at remote sites in Alaska (Quinhagak, AK).
- Mobilized large soil processing equipment to Kenai, AK area to implement ex situ soil oxidation on an active drilling pad. Conducted bench-scale PCB chemical oxidation studies for Elmendorf AFB (Anchorage, AK).
- Conducted pilot-scale studies for chlorinated solvents (PCE, TCE, DCE, and VC). Research, design, and implementation of chemical oxidation remedial alternatives for in situ and ex situ applications.
- Constructed biopiles in Alaska (Kenai) to remediate natural gas condensate impacted soil.
- Lead Engineer for the design/build of an anaerobic bioremediation treatment system to remove chlorinated solvents (DCE and VC) in a regional groundwater plume using horizontal wells.
- Lead Engineer for the design/build of a permeable reactive barrier (PRB) in the subsurface to treat a TCE plume.
- Lead Engineer of an SVE pilot study work plan (design/build) for a PCE/TCE source area.
- Designed an in situ remediation system to anaerobically treat PCE and Cr<sup>+6</sup> impacted aquifer using hydraulically-fractured injection wells. .



- Responsible for the operation and maintenance of a biologically enhanced (toluene addition, co-metabolism) in-well vapor stripper system to treat a TCE (DNAPL) contaminated aquifer. Data was collected on a continuous basis (24/7) over a six-month time, which required intensive QA/QC.
- Researched aerobic chlorinated aliphatic hydrocarbon (CAH) co-metabolic microbial processes using laboratory microcosms and field demonstrations.
- Involved in multiple on-site bromide tracer transport and propane biostimulation tests at McClellan Air Force Base, CA.

## Applicable Skills

### *Professional Certifications, Memberships, & Accolades*

- Engineer in Training Certification, State of Washington (12/17/03)
- Completed 40-hour Hazardous Waste Operations and Emergency Response training course in accordance with 29 CFR 1910.120 and OAR 437
- Oregon Stater Award 2012, Environmental Engineering

## Selected Publications & Presentations

(Complete list available upon request)

- **B. Timmins** and D. Laughlin. 2006. Use of a Low-cost Substrate in a Continuous Recirculation Process to Stimulate Plume-wide Anaerobic Dechlorination of Chlorinated Solvents. *Remediation: The Journal of Environmental Cleanup Costs, Technologies, and Techniques*. Summer 2006, Vol. 16, No. 3.
- M. Goltz, R. Gandhi, S. Gorelick, G. Hopkins, L. Smith, **B. Timmins**, and P.L. McCarty. 2005. Field Evaluation of In Situ Source Reduction of TCE in Groundwater Using Bioenhanced In-Well Vapor Stripping. *Environmental Science and Technology*. Vol. 39 (22), 8963-8970.
- M. Dolan, L. Semprini, and **B. Timmins**. 2001. Aerobic Cometabolic Transformation of Trichloroethylene and cis-Dichloroethylene in Propane-Fed Aquifer Microcosms. Battelle Press, Columbus, OH, 179-186 (2001).
- M.E. Dolan, L. Semprini, and **B. Timmins**. 2001. Soil Microcosm Protocol for Evaluating the Potential for Aerobic Cometabolism of Chlorinated Aliphatic Hydrocarbons Using Gaseous Cometabolic Substrates. Final Report: submitted to the U.S. Air Force and ESTCP.
- M.E. Dolan, A. Tovanabootr, M. Azizian, L. Semprini, and **B. Timmins**. 2001. Comparison of Microcosm Tests and a Field Demonstration of Cometabolic Air Sparging With Propane for the Bioremediation of Trichloroethylene and cis-Dichloroethylene. American Geophysical Union Fall Meeting, San Francisco, CA