

Peer-Reviewed Publications:

Borchert, S., R. Desrosiers, F. Lakhwala, and J. Mueller. 1996. *In situ* bioremediation using the UVB technology: A case study. In Kostecky, P., Calabreses, E., and Bonazountas, M. (Eds), Contaminated Soils. Volume 2, Chapter 30, pp 369-378. Amherst Scientific Publishers, Amherst, MA.

Borchert, S.M., F.S. Lakhwala and J.G. Mueller. 1997. UVB Technology invigorates microbes at a Superfund Site. *Soil & Groundwater Cleanup*. February/March Issue: pages 6-10.

Boyd, T. J., Montgomery, M. T., Spargo, B. J., Smith, D.C., Coffin, R. B., Kelley, C. A., and J. G. Mueller. 2001. Effects of oxygenation on hydrocarbon biodegradation in a hypoxic environment. *Bioremediation. J.* 5(2):145-157.

Coffin, R.B., M.T. Montgomery, C.A. Kelley, B.T. Hammer, L.A. Cifuentes, and J.G. Mueller. (2004). Nutrient cycling during *in situ* bioremediation using groundwater circulation well technology. *Appl. Environ. Microbiol.* (submitted) .

Kelley, C.A., R.B. Coffin, and J.G. Mueller. 1998. Stable Isotope Analyses – An innovative technique to monitor biodegradation of petroleum hydrocarbons. *GeoTechnical News*, September, 1998, Pages 20-24.

Lakhwala, F., R. Desrosier, E. Klingel, W. Langley and J.G. Mueller. 1995. *In situ* treatment of TCE contaminated ground water using an integrated bioreactor in a groundwater circulation well. In Battelle's Third International Symposium on In Situ and On-Site Bioreclamation. April 24-27, 1995. San Diego, CA.

Lakhwala, F., R.J. Desrosiers and J.G. Mueller. 1998. Demonstration of a microbiologically enhanced vertical groundwater circulation well technology at a Superfund site. *Groundwater Monitoring and Remediation*. Spring: 97-106.

Montgomery, M. T., Spargo, B. J., Mueller, J. G., Coffin, R. B., Smith, D. C., and T. J. Boyd. 2002. Bacterial production stimulated across the zone of influence of a groundwater circulation well in a BTEX-contaminated aquifer. *Ground Water Monitoring and Remediation*. Summer 2002:144-150.

Mueller, J.G., J.-E. Lin, S.E. Lantz, and P.H. Pritchard. 1993. Recent Developments in Cleanup Technologies: Implementing Innovative Bioremediation Technologies. *Remediation/ Summer Issue* 369-381.

Mueller, J., M. Ohr, B. Wardwell, D. and F. Lakhwala. 1999. mGCW Technology for Remediation of Groundwater Containing Chlorinated Hydrocarbons and Heavy Metals: I – *In Situ* Hydraulics. *Soil & Groundwater Cleanup* Oct/Nov 1999: pages 8-14.

Pritchard, P.H., J. Jones-Meehan, W. Straube, J.G. Mueller. 1999. Bioremediation of High Molecular Weight PAHS: Application of Techniques in Bioaugmentation and Bioavailability Enhancement. In Fass *et al.* (Ed), *Novel Approaches for Bioremediation of Organic Pollution*. Kluwer Academic/ Plenum Publishers, New York. Pages 157-170.

Spargo, B.J. (ed) "*In Situ* Bioremediation and Efficacy Monitoring". US NAVY, Naval Research Laboratory, Washington D.C. NRL/PU/6115-96-317. October 1996. 323 pages.

Borchert, S., J. Mueller, F. Lakhawa, S. Lantz, W.W. Schultz, W. Langley, E. Klingel, B.J. Spargo, T. J. Boyd, M.T. Montgomery, J.P. Connolly, L.A. Cifuentes, L.A. Roelke, B.A. Trust, and C.A. Kelley. 1996. Mesocosm Studies Simulating Processes Around the *In Situ* Groundwater Circulation Well Bioremediation Technology. In Spargo, B.J. (ed) "*In Situ* Bioremediation and Efficacy Monitoring". US NAVY, Naval Research Laboratory, Washington D.C. NRL/PU/6115-96-317. October 1996. Pages 33-50.

Coffin, R., M.T. Montgomery, C.A. Kelley, B.A. Trust, J.G. Mueller, and L.A. Cifuentes. 1996. Analyses of Carbon and Nutrient Concentrations for Optimization of Groundwater Circulation Systems Used in Bioremediation of Organic Contaminants. In Spargo, B.J. (ed) "*In Situ* Bioremediation and Efficacy Monitoring". US NAVY, Naval Research Laboratory, Washington D.C. NRL/PU/6115-96-317. October 1996. Pages 207-222.

Lakhwala, F., J.G. Mueller, C.S. Heard, M.D. Brouman, and T. Aley. 1996. Validation of Groundwater Circulation Cell Models Using Fluorescent Dye Tracing and Pressure Transducers. In Spargo, B.J. (ed) "*In Situ* Bioremediation and Efficacy Monitoring". US NAVY, Naval Research Laboratory, Washington D.C. NRL/PU/6115-96-317. October 1996. Pages 259-270.

Montgomery, M., T.J. Boyd, B.J. Spargo, J.G. Mueller, R.B. Coffin, and D.C. Smith. 1996. Bacterial Productivity in A BTEX-contaminated Aquifer: A Comparison of ³H-Leucine And ³H-Thymidine Incorporation Methods. In Spargo, B.J. (ed) "*In Situ* Bioremediation and Efficacy Monitoring". US NAVY, Naval Research Laboratory, Washington D.C. NRL/PU/6115-96-317. October 1996. Pages 123-132.

Montgomery, M., T.J. Boyd, B.J. Spargo, J.G. Mueller, and R.B. Coffin. 1996. Bacterial Production Stimulated Across the Zone of Influence of a Groundwater Circulation Well in a Creosote-contaminated Aquifer. In Spargo, B.J. (ed) "*In Situ* Bioremediation and Efficacy Monitoring". US NAVY, Naval Research Laboratory, Washington D.C. NRL/PU/6115-96-317. October 1996. Pages 223-234.

Montgomery, M., T.J. Boyd, B.J. Spargo, J.G. Mueller, R.B. Coffin, and D.C. Smith. 1996. Bacterial Production Stimulated Across the Zone of Influence of a Groundwater Circulation Well in a BTEX-contaminated Aquifer. In Spargo, B.J. (ed) "*In Situ* Bioremediation and Efficacy Monitoring". US NAVY, Naval Research Laboratory, Washington D.C. NRL/PU/6115-96-317. October 1996. Pages 235-242.

Mueller, J., E. Klingel, M.D. Brouman, R.B. Coffin, L.A. Cifuentes, W.W. Schultz, and B.J. Spargo. 1996. Field Demonstration of *In Situ* Chemical Containment Technologies Case Study: Naval Battalion Command, Port Hueneme, CA. In Spargo, B.J. (ed) "*In Situ* Bioremediation and Efficacy Monitoring". US NAVY, Naval Research Laboratory, Washington D.C. NRL/PU/6115-96-317. October 1996. Pages 3-12.

Mueller, J., E. Klingel, M.D. Brouman, R.B. Coffin, L.A. Cifuentes, W.W. Schultz, and B.J. Spargo. 1996. Field Demonstration of *In Situ* Chemical Containment Technology Case Study: Cabot Carbon/Kopper's Superfund Site, Gainesville, FL. In Spargo, B.J. (ed) "*In Situ* Bioremediation and Efficacy Monitoring". US NAVY, Naval Research Laboratory, Washington D.C. NRL/PU/6115-96-317. October 1996. Pages 13-32.

Trust, B., D.H. Scerno, R.B. Coffin, L.A. Cifuentes, and J.G. Mueller. 1996. Tracing Biodegradation with Stable Carbon Isotope Measurements of Respired CO₂. *In* Spargo, B.J. (ed) "*In Situ Bioremediation and Efficacy Monitoring*". US NAVY, Naval Research Laboratory, Washington D.C. NRL/PU/6115-96-317. October 1996. Pages 51-56.

Trust, B., C.A. Kelley, R.B. Coffin, L.A. Cifuentes, and J.G. Mueller 1996. ¹³C Values of Polycyclic Aromatic Hydrocarbons Collected from Two Creosote-Impacted Sites. *In* Spargo, B.J. (ed) "*In Situ Bioremediation and Efficacy Monitoring*". US NAVY, Naval Research Laboratory, Washington D.C. NRL/PU/6115-96-317. October 1996. Pages 179-194.

Spargo, B.J. and J.G. Mueller. 2000. Advanced Remediation Technologies and Management Strategies for Sites Impacted by Hydrocarbon Contaminants. "Handbook of Solvents". ChemTec Publishing. Pages 1617-1630.

Symposia/Workshop Proceedings (*speaker):

Anderson*, C., J. Vorhagen, C. Page, and J. Mueller. 1995. *In situ* air stripping and bioremediation of ground water impacted by petroleum hydrocarbons. Haz. Mat. Control Res. Institute. Federal Environmental Restoration IV and Defense Cleanup. March 14-15, Atlanta, Georgia.

Borchert*, S., R. Desrosier, F. Lakhwala, J. Mueller, and W. Schultz. 1995. Using the Mesocosm System to Validate the Success of *In Situ* Bioremediation Strategies. 5th Annual Symposium on Groundwater and Soil Remediation. Oct. 2-6, 1995. Toronto, Ontario.

Borchert*, S., J. Mueller, E. Alesi, C. Leins and V. Haninger. 1995. *In situ* bioremediation application strategies for soil and groundwater impacted by PAHs. International Symposium and Trade Fair on the Cleanup of Manufactured Gas Plants and Creosote Sites, September 19-21, 1995, Prague, Czech Republic.

Borchert*, S., J. Mueller, R. Coffin, W. Schultz, L. Cifuentes, and R. Checkai. 1995. Efficacy of Monitoring *In Situ* Bioremediation of Fossil Fuels Using the Mesocosm System. Superfund 95. Washington, D.C. Nov. 6-8, 1995.

Borchert*, S., J. Mueller, E. Alesi, and C. Leins. 1995. Strategy and design criteria for *In situ* bioremediation of soil and groundwater impacted by PAHs. IGT's 8th International Symposium on Gas, Oil and Environmental Biotechnology. December 11-13, 1995. Colorado Springs, CO.

Borchert*, S., J. Mueller, C. Heard, F. Lakhwala, S. Lantz, E. Alesi, E. Klingel, W. Langley, M. Brouman, M. Montgomery, T. Boyd, and B. Spargo. 1996. Vertical Groundwater Circulation Technology for *In Situ* Bioremediation. The Sixth West Coast Conference on Contaminated Soils and Groundwater Association for the Environmental Health of Soils (AEHS) March 11-14, 1996, Newport Beach, CA

Borchert*, S., J. Mueller, F. Lakhwala, B. Spargo, T. Montgomery, T. Boyd, R. Coffin, and L. Cifuentes. 1996. Efficacy Monitoring of *In Situ* Bioremediation in Field Applications Using Stable Carbon Isotopes. Annual Meeting, Geological Society of America, October 28-30, Denver, CO.

Brouman*, M.D., M. Tischuk, E.J. Klingel, M. Sick, D. Smyth, E.A., Sudicky, S. Shikaze, S. Borchert, and J.G. Mueller. 1997. *In Situ* Management System Employing Integrated Funnel- and Gate/GZB Containment and Recovery Technologies. Proceedings Battelle's Third International Symposium on *In Situ* and on-Site Bioremediation April 28-May 1, New Orleans, LA.4(4):149-154

Lakhwala, F.*, R. Desrosier, J. Mueller, N. Kolack and A. Gatchett. 1996. Demonstration of a microbiologically enhanced *in situ* groundwater circulation well technology at a Superfund site. Proceedings Amer. Soc. Microbiol. 96th Ann. Meeting, New Orleans, LA.

Lakhwala*, F., S. Borchert, J. Mueller and R. Desrosier. 1997. An Introduction to Groundwater Circulation Well Technologies for *In Situ* Remediation: Design, Operation and Case Studies. National Association of Remedial Project Managers, June 30-July 3, Boston, MA.

Lakhwala*, F., W. Langley, S. Borchert and J. Mueller. 1997. Field Validation of the Zone of Influence of Groundwater Circulation Wells using Tracer Dyes and/or Pressure Transducers. Petroleum Hydrocarbons Conference and Exhibition, November 12-14, Houston, TX.

Lakhwala*, F., J. Mueller and W. Langley. 1997. Experimental validation of groundwater circulation cell models using tracer dyes and/or pressure transducers. Proceedings 12 Annual Conference on Contaminated Soils. Cot. 20-23, 1997, Amherst, MA. Page 19.

Montgomery*, M. T., T. J. Boyd, B. J. Spargo, J.G. Mueller, L. A. Cifuentes, C. A. Kelley, R. B. Coffin. 1997. Effect of a groundwater circulation well on BTEX degradation in a gasoline contaminated aquifer. Proceedings Amer. Soc. Microbiol. 97th Ann. Meeting, New Orleans, LA.

Mueller*, J.G., M.D. Brouman, W.W. Schultz and E.J. Klingel. 1995. Microbiologically Enhanced Vertical Ground Water Circulation (UVB) Technology for *In Situ* Chemical Containment. Bioremediation Training: Innovative Technologies and Case Histories in Bioremediation. February 15-16, Charleston, SC.

Mueller*, J.G., F. Lakhwala, S.E. Lantz, E.J. Klingel, M.D. Brouman, R.B. Coffin, C. Kelley, B. Trust, L.A. Cifuentes, M.T. Montgomery and W.W. Schultz. 1995. Use of UVB Technology and Integrated Bioreactors for Chemical Containment and *In Situ* Bioremediation of Subsurface Environments Contaminated by Coal Tar Creosote: Full-Scale Field Demonstration. International Symposium and Trade Fair on the Cleanup of Manufactured Gas Plants and Creosote Sites, September 19-21, 1995, Prague, Czech Republic.

Mueller*, J., S. Borchert, C. Gatlin, C. Heard, F. Lakhwala, S. Lantz, E. Klingel, W. Langley, M. Brouman, R. Coffin, C. Kelley, B. Trust, L. Cifuentes, T. Montgomery, T. Boyd, and B. Spargo. 1996. Efficacy Monitoring of a Full-Scale *In Situ* Creosote Source Management System. American Chemical Society, September 9-11, Birmingham, AL.

Mueller*, J., S. Borchert, C. Heard, F. Lakhwala, S. Lantz, E. Alesi, E. Klingel, W. Langley, M. Brouman, R. Coffin, C. Kelley, B. Trust, M. Montgomery, T. Boyd, and B. Spargo. 1996. Efficacy Monitoring of *In Situ* Fuel Bioremediation. The Sixth West Coast Conference on Contaminated Soils and Groundwater Association for the Environmental Health of Soils (AEHS) March 11-14, 1996, Newport Beach, CA.

Mueller*, J., S. Borchert, C. Heard, F. Lakhwala, S. Lantz, M. Brouman, R. Coffin, C. Kelley, B. Trust, T. Montgomery, T. Boyd, B. Spargo, and L. Cifuentes. 1996. Efficacy Monitoring of *In Situ* Fuel Bioremediation. Proceedings Petroleum Hydrocarbons & Organic Chemicals in Ground Water: Prevention, Detection, and Remediation, November 13-15, Houston, TX.

Mueller*, J., S. Borchert, F. Lakhwala, and R. Desrosier. 1996. *In Situ* Bioremediation Using the UVB Technology: Description and Case Study. Proceedings Superfund 96. October 15-17, Washington, D.C.

Mueller*, J.G., S.M. Borchert, R.J. Desrosier, R. Kraybill, R. Rico, E.J. Klingel; W. Langley, D.J.A. Smyth, E.A. Sudicky, S.G. Shikaze, M. Tischuk, and M.D. Brouman. 1997. Integrated Funnel-and-Gate/GZB Product Recovery Technologies for *In Situ* Management of a Creosote- NAPL Impacted Aquifer. International Containment Technology Conference and Exhibition February 9-12, St. Petersburg, FL.

Mueller*, J.G., S.M. Borchert, R.J. Desrosier, E.J. Klingel; W. Langley, D.J.A. Smyth, E.A. Sudicky, S.G. Shikaze, M. Tischuk, and M.D. Brouman. 1997. Integrated Funnel-and-Gate/GZB Product Recovery and Containment Technologies for *In Situ* Management of a Creosote-NAPL Impacted Aquifer. Outdoor Action Conference, National Ground Water Association April 1-3, Las Vegas, NV.

Mueller*, J., S. Borchert, and F. Lakhwala. 1997. An overview of *in situ* vertical groundwater circulation cell technologies. Proceedings Superfund '97. December 2-4, Washington, D.C.

Mueller*, J., F. Lakhwala, J. Carter, B. Spargo, M. Montgomery and M. Brouman. 1998. Economics and Performance of GCW Technology at a Creosote Site. Proceedings Battelle's First International Symposium on Remediation of Chlorinated and Recalcitrant Compounds. May 18-21, 1998, Monterey, CA.

Mueller, J., M. Brouman, J. Cook, M. Slenska, and M. Tischuk. 2000. *In situ* source management strategies at wood treatment sites. Proceedings Battelle's Second International Symposium on Remediation of Chlorinated and Recalcitrant Compounds. May 22-25, Monterey, CA.

Mueller, J., J. Molin, D. Hill, K. Bolanos-Shaw and A. Seech. 2004. mGCW *In Situ* Bioreactor Technology for Accelerated Removal of Perchlorate and Nitrogenous Compounds from Soil and Groundwater. 228th ACS National Meeting, Philadelphia PA August 22-26, 2004.

Subramanian, S. M. Ander, J. Day and J. Mueller. 2004. Bioremediation of PCP using VS-GCW Technology. Battelle's Fourth International Conference on Remediation of Chlorinated and Recalcitrant Compounds, Monterey Ca. May 24-27, 2004.

Patents:

Bernhardt, B., W.L. Langley, E. Klingel, F. Lakhwala, and J.G. Mueller. 1999. Bioremediation well and method for bioremediation treatment of contaminated water. US Patent 5,910,245 (June 8, 1999).