Key Resumes

Patrick W. McLoughlin, Ph.D., Technical Director

Dr. Patrick McLoughlin joined Microseeps in 1996 and has focused his expertise in chemistry on near surface geochemistry as applied to gases, soils and groundwater, particularly those contaminated with various fuels and petroleum. Dr. McLoughlin has been Microseeps' leader in the development and refinement of high sensitivity methods for the detection of components of these products which, in turn, has enabled Microseeps to be a leader, both nationally and internationally in monitoring and assessment of gas seeps and geochemistry. Additionally, as Microseeps Quality Control Officer, he has implemented a quality structure that has lead to our certification under the National Environmental Laboratory Accreditation Program (NELAP).

Education:

Cornell University, Doctor of Philosophy, 1996 Major: Physical Chemistry	University of Notre Dame, B.S., 1990 Major: Chemistry
Cornell University, Master of Science, 1992 Major: Physical Chemistry	

Professional Experience:

Research Scientist

- Assessed internal analytical capabilities and analytical needs of Natural Attenuation market.
- Developed analytical capabilities to meet needs of Natural Attenuation market, particularly for dissolved hydrogen
- Invented robust sampling apparatus for rapid, reliable and simple hydrogen gas sampling.
- Developed and tested methods for storage and shipment of hydrogen samples that changed practices industry wide and made hydrogen analyses affordable for even small remediation sites.

Technical Director

- Directed equipment acquisitions that enabled Microseeps to perform in target analytical markets.
- Proposed, conducted, reviewed and reported field studies for both the engineered and natural attenuation of MTBE.
- Established complete analysis of fuel oxygenates in groundwater that is sensitive, accurate and affordable.
- Discerned analytical problem that had tainted accuracy of results for analysis of alcohols in groundwater and developed, tested and documented a solution to the problem.
- Provided assistance to clients in assessing their analytical needs and interpreting their reports, both as an analytical chemist and a biogeochemist.

Quality Control Officer

- Improved storage and analysis methods for analytical suites pertinent to the assessment of natural attenuation.
- Developed and lead program to document Microseeps quality through re-writes of all standard operating procedures and the quality systems manual.
- Lead Microseeps through programs for certification as an analytical laboratory in West Virginia, Connecticut, South Carolina and the National Conference of Environmental Laboratories.
- Established Microseeps as a laboratory capable of supplying definitive data for the Westinghouse Savannah River Site DOE facility through extensive laboratory data reviews, SOP reviews, and on-site audits.

Select Publications and Presentations:

- Patrick W. McLoughlin, Michael B. Taylor, and Robert J. Pirkle, "Making the Use of Dissolved Hydrogen Analysis Easier: A New Sampling Procedure, Thorough Holdtime Studies and New Quality Assurance and Control Measures". Paper presented at Battelle Conference, San Diego, 1999.

- Robert J. Pirkle, Patrick W. McLoughlin, and Robert C. Williams, "Hydrogen Analysis Using an Off-Site Laboratory Analysis—Testing with Field Samples", Poster Abstract for Presentation at 17th Contaminated Soils, Sediments and Groundwater Conference, 2000.

- Michael B. Taylor, Patrick McLoughlin, Donn Marrin, and Robert J. Pirkle, "Biodegradation Indicator Graphical (BIG) System for Biogeochemical Evaluation of Groundwater Systems', Poster abstract for 17th Annual Contaminated Soils, Sediments, and Groundwater Conference, 2000.

- Patrick McLoughlin, Robert Pirkle, Tim Buschek, Ravi Kolhatkar and Norman Novick, "Redox Conditions at Fuel Oxygenate Release Sites", Battelle Conference, San Diego, 2001.

- Patrick W. McLoughlin, Robert Pirkle, Joseph E. Haas II, Stephen S. Koenigsberg, Donald A. Trego and Michael B. Taylor, "Case Study: Manipulating Groundwater Redox Conditions for MTBE Remediation", Battelle Conference in San Diego, 2001.

- Robert J. Pirkle, Patrick McLoughlin, "Sampling and Analyses Developments for Monitored Natural Attenuation", Battelle Conference in San Diego, 2001.

- Patrick McLoughlin, Robert Pirkle, Tim Buschek, Ravi Kolhatkar and Norman Novick, "Redox Conditions at Fuel Oxygenate Release Sites", Proceedings of the Sixth International In Situ and On-Site Bioremediation Conference, vol. 6, no 1, pg. 35, San Diego, CA, 2002.

- Robert J. Pirkle and Patrick W. McLoughlin, "The Analysis of Selected Components of Reformulated Gasoline in Environmental Samples" from MTBE Handbook, ed. Kostecki, P. and Moyer, E. Amherst Scientific Publishers, 2002.

- Patrick W. McLoughlin, John T. Wilson, Dennis Fine and Robert J. Pirkle, "Hydrolysis of MTBE in Ground Water Samples Preserved with Hydrochloric Acid", Proceedings of the 2002 Petroleum Hydrocarbons and Organic Chemicals in Ground Water, Atlanta, GA, 2002.

- Robert J. Pirkle and Patrick W. McLoughlin, “A Three Laboratory Study of a Complete Analysis of Reformulated Gasoline in Ground Water”, Proceedings of the 2002 Petroleum Hydrocarbons and Organic Chemicals in Ground Water, Atlanta, GA

- Robert J. Pirkle and Patrick W. McLoughlin, "Enhancing Natural Attenuation through Measurement of Volatile Fatty Acid Concentrations", Battelle Conference, Orlando, Fl, 2003.

- Patrick W. McLoughlin and Robert J. Pirkle, "Field Observations of a Methyl tert-Butyl Ether Degradation Product", Battelle Conference, Orlando, Fl, 2003.

- Robert J. Pirkle and Patrick W. McLoughlin, “Implications from an Overview of Volatile Fatty Acid Observations” Proceedings of the Eighth International In Situ and On-Site Bioremediation Symposium, Baltimore, MD, June 2005.

- Patrick W. McLoughlin and Robert J. Pirkle, “Electron Shuttles in Redox Processes: Characterization, Quantification and Remediation Optimization”, Proceedings of the Eighth International In Situ and On-Site Bioremediation Symposium, Baltimore, MD, June 2005.