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**PUBLICATIONS*****Papers in Professional Journals***

- Campbell, K.M., Malasarn, D., Saltikov, C.W., Newman, D.K., and Hering, J.G. “Simultaneous Microbial Reduction of Iron(III) and Arsenic(V) in Suspensions of Hydrated Ferric Oxide”, *Environ. Sci. Technol.*, submitted.
- Ferguson, M.A. and Hering, J.G. (2006) “TiO<sub>2</sub>-photocatalyzed As(III) oxidation in a fixed-bed, flow-through reactor”, *Environ. Sci. Technol.*, 40: 4261-4267.
- Dixit, S. and Hering, J.G. (2006) “Sorption of Fe(II) and As(III) on goethite in single- and dual-sorbate systems”, *Chemical Geology*, 228: 6-15.
- Reisinger, H.J., Burris, D.R., and Hering, J.G. (2005) “Remediating subsurface arsenic contamination with monitored natural attenuation”, *Environ. Sci. Technol.*, 39: 458A-464A.
- Ferguson, M.A., Fernandez, D.P., and Hering, J.G., “Lowering the detection limit for arsenic: Outlook for a new PQL”, *J. Amer. Water Works Assoc.*, submitted.
- Salmassi, T.M., Walker, J.J., Newman, D.K., Leadbetter, J.R., Pace, N.R. and Hering J.G. (2006) “Community and Cultivation Analysis of Arsenite Oxidizing Biofilms at Hot Creek”, *Env. Microbiol.*, 8: 50-59. online publication date: 25-Jul-2005, doi: 10.1111/j.1462-2920.2005.00862.x.
- Lee, G. and Hering, J.G. (2005) “Oxidative dissolution of chromium hydroxide at pH 9 and 2 and its inhibition at pH 2 by the reaction product Cr(VI)”, *Environ. Sci. Technol.*, 39: 4921-4928.
- Ferguson, M.A., Hoffmann, M.R., and Hering, J.G. (2005) “TiO<sub>2</sub>-photocatalyzed As(III) oxidation in aqueous suspensions: Reaction kinetics and effects of adsorption”, *Environ. Sci. Technol.*, 39: 1880-1886.
- Malasarn, D., Saltikov, C.W., Campbell, K.M., Santini, J.M., Hering, J.G. and Newman, D.K. (2004) “*arrA* is a reliable marker for As(V)-respiration”, *Science*, 306: 455.
- Giammar, D.E. and Hering, J.G. (2004) “Influence of Dissolved Sodium and Cesium on Uranyl Oxide Hydrate Solubility”, *Environ. Sci. Technol.* 38: 171-179
- Stephens, J.C. and Hering, J.G., (2004) “Factors Affecting the Dissolution Kinetics of Volcanic Ash Soils: Dependencies on pH, CO<sub>2</sub>, and Oxalate”, *Appl. Geochem.* 19: 1217-1222.
- Dixit, S. and Hering, J.G. (2003) “Comparison of Arsenic(V) and Arsenic(III) Sorption onto Iron Oxides: Implications for Arsenic Mobility”, *Environ. Sci. Technol.*, 37: 4182-4189.
- Lee, G. and Hering, J.G. (2003) “Removal of Chromium(VI) from Drinking Water by Redox-Assisted Coagulation with Iron(II)”, *J. Water Supply: Res. Technol. – AQUA*, 52: 319-332.
- Giammar, D.E. and Hering, J.G. (2002) Equilibrium and Kinetic Aspects of Sodyite Dissolution and Secondary Phase Precipitation in Aqueous Suspension, *Geochim. Cosmochim. Acta*, 66: 3235-3245.
- Kneebone, P.E., O’Day, P.A., Jones, N., and Hering, J.G. (2002) “Deposition and Fate of Arsenic in Iron- and Arsenic-Enriched Reservoir Sediments”, *Environ. Sci. Technol.*, 36: 381-386.

- Stephens, J.C. and Hering, J.G. (2002) "Comparative Characterization of Volcanic Ash Soils Exposed to Decade-Long Elevated Carbon Dioxide Concentrations at Mammoth Mountain, California", *Chem. Geol.*, 186: 301-313.
- Salmassi, T.M., Venkateswaren, K., Satomi, M., Nealson, K.H., Newman, D.K., and Hering, J.G. (2002) "Oxidation of Arsenite by *Agrobacterium albertimagni*, AOL15, sp. nov., Isolated from Hot Creek, California", *Geomicrobiol. J.*, 19: 53-66.
- Giammar, D.E. and Hering, J.G. (2001) "Time Scales for Sorption-Desorption and surface Precipitation of Uranyl on Goethite", *Environ. Sci. Technol.*, 35: 3332-3337.
- Kneebone, P.E. and Hering, J.G., (2000) "The Behavior of Arsenic and Other Redox-Sensitive Elements in Crowley Lake, CA, a Reservoir in the Los Angeles Aqueduct System", *Environ. Sci. Technol.*, 34: 4307-4312.
- Chiu, V.C. and Hering, J.G. (2000) "Arsenic adsorption and Oxidation at Manganite ( $\gamma$ -MnOOH) surfaces: Part 1. Method for Simultaneous Determination of Adsorbed and Dissolved Arsenic Species", *Environ. Sci. Technol.*, 34: 2029-2034.
- Hering, J.G. and Chiu, V.C. (2000) "Arsenic Occurrence and Speciation in a Municipal Groundwater-Based Supply System", *J. Environ. Eng. ASCE*, 126: 471-474.
- Piatina, T.B. and Hering, J.G. (2000) "Direct Quantification of Metal-Organic Interactions by Size-Exclusion Chromatography (SEC) and Inductively Coupled Plasma Mass Spectrometry (ICP-MS)", *J. Environ. Qual.*, 29: 1839-1845.
- Min, J.H. and Hering, J.G. (1999) "Removal of Selenite and Chromate using Fe(III)-Doped Alginate Gels", *Water Environ. Research*, 71: 169-175.
- Kraemer, S.M., Chiu, V.Q., and Hering, J.G. (1998) "Influence of pH and competitive adsorption on the kinetics of ligand-promoted dissolution of aluminum oxide", *Environ. Sci. Technol.*, 32: 2876-2882.
- Min, J.H. and Hering J.G. (1998) "Arsenate, Selenite, and Chromate Sorption by Fe(III)-Doped Alginate Gels" *Adv. Environ. Res.*, 2: 207-217.
- Wilkie, J.A. and Hering, J.G. (1998) "Rapid Oxidation of Geothermal Arsenic(III) in Streamwaters of the Eastern Sierra Nevada", *Environ. Sci. Technol.*, 32: 657-662.
- Baron, D. and Hering, J.G. (1998) "Analysis of Metal-EDTA Complexes by Electrospray Mass Spectrometry" *J. Environ. Qual.*, 27: 844-850.
- Min, J.H. and Hering, J.G. (1998) "Arsenate Sorption by Fe(III)-Doped Alginate Gels" *Water Research*, 32: 1544-1552.
- Kraemer, S.M. and Hering, J.G. (1997) "Influence of Solution Saturation State on the Kinetics of Ligand-Controlled Dissolution of Oxide Phases", *Geochim. Cosmochim. Acta*, 61: 2855-2866.
- Hering, J.G., Chen, P.Y., Wilkie, J.A., and Elimelech, M. (1997) "Arsenic Removal from Drinking Water During Coagulation", *J. Environ. Eng., ASCE*, 123: 800-807.
- Waypa, J.A., Elimelech, M., and Hering, J.G. (1997) "Arsenic Removal by Reverse Osmosis and Nanofiltration Membranes", *J. Amer. Water Works Assoc.*, 89(10): 102-114.
- Hering, J.G., Chen, P.Y., Wilkie, J.A., Elimelech, M., and Liang, S. (1996) "Arsenic Removal by Ferric Chloride", *J. Amer. Water Works Assoc.*, 88(4): 155-167.
- Wilkie, J.A. and Hering, J.G., (1996) "Adsorption of Arsenic onto Hydrous Ferric Oxide: Effects of Adsorbate-Adsorbent Ratios and Co-occurring Solutes", *Colloids Surf. A*, 107: 97-124.
- Hering, J.G., (1996) "Risk Assessment for Arsenic in Drinking Water: Limits to Achievable Risk Levels", *J. Hazard. Mat.*, 45: 175-184.
- Hering, J.G. and Kraemer, S. (1994) "Kinetics of Complexation Reactions at Surfaces and in Solution: Implications for Enhanced Radionuclide Migration", *Radiochimica Acta*, 66/67: 63-71.

- Ching, H.-W., M. Elimelech, and J.G. Hering (1994) "Dynamics of Coagulation of Clay Particles with Aluminum Sulfate" *J. Environ. Eng.*, 120: 169-189.
- Benoit, P., J.G. Hering, and W. Stumm (1993) "A comparative study of the adsorption of organic ligands on aluminum oxide by titration calorimetry", *Appl. Geochem.*, 8: 127-139.
- Xyla, A.G., B. Sulzberger, G.W. Luther, III, J.G. Hering, P. van Cappellen, and W. Stumm (1992) "Reductive Dissolution of Manganese (III,IV) (hydr)oxides: the Effect of pH and Light", *Langmuir*, 8: 95-103.
- Hering, J.G. and W. Stumm (1991) "Fluorescence Spectroscopic Evidence for Surface Complex Formation at the Mineral-Water Interface: Elucidation of the Mechanism of Ligand-Promoted Dissolution", *Langmuir*, 7: 1567-70.
- Sulzberger, B., J.L. Schnoor, R. Giovanoli, J.G. Hering, and J.Zobrist (1990) "Biogeochemistry of iron in an acidic lake" *Aquatic Sciences*, 52: 56-74.
- Hering, J.G. and F.M.M. Morel, (1990) "The Kinetics of Trace Metal Complexation: Ligand-Exchange Reactions" *Environ. Sci. Technol.* 24: 242-52.
- Hering, J.G. and F.M.M. Morel (1989) "Slow coordination reactions in seawater" *Geochim. Cosmochim. Acta* 53: 611-8.
- Price, N.M., G.I.Harrison, J.G. Hering, R.J. Hudson, P.M.V. Nirel, B. Palenik, F.M.M. Morel (1988/1989) "Preparation and Chemistry of the Artificial Algal Culture Medium Aquil" *Biol. Oceanogr.* 6: 443-461.
- Hering, J.G. and F.M.M. Morel (1988) "Kinetics of Trace Metal Complexation: Role of Alkaline-Earth Metals" *Environ. Sci. Technol.* 22: 1469-78.
- Hering, J.G. and F.M.M. Morel (1988) "Humic Acid Complexation of Calcium and Copper" *Environ. Sci. Technol.* 22:1234-7.
- Hering, J.G., W.G. Sunda, R.L. Ferguson, and F.M.M. Morel (1987) "A Field Comparison of Two Methods for the Determination of Copper Complexation: Bacterial Bioassay and Fixed-Potential Amperometry" *Mar. Chem.* 20: 299-312.
- Boyle, E.A., D.F. Reid, S.S. Husted, and J. Hering (1984) "Trace metals and radium in the Gulf of Mexico: an evaluation of river and continental shelf sources" *Earth Planet. Sci. Lett.* 69: 69-87.

### **Books and Chapters in Books**

- Hering, J.G. and Dixit, S. (2005) "Contrasting Sorption Behavior of Arsenic(III) and Arsenic(V) in Suspensions of Iron and Aluminum Oxyhydroxides", in *Advances in Arsenic Research*, ed. P.A. O'Day, D. Vlassopoulos, X. Meng, and L.G. Benning, ACS Symposium Series v. 915, American Chemical Society, Washington, DC, pp.8-24.
- Hering, J.G., Dixit, S., Campbell, K., and O'Day, P. (2004) "Arsenic mobilization from contaminated sediments: a full-scale experiment in progress", *Water-Rock Interaction: Proceedings of the 11<sup>th</sup> International Symposium on Water-Rock Interactions*, Ed. R.B. Wanty and R.R. Seal, A.A. Balkema, Leiden, The Netherlands, pp. 39-44.
- Hering, J.G. and Kneebone, P.E. (2001) "Biogeochemical Controls on Arsenic Occurrence and Mobility In Water Supplies", in *Environmental Chemistry of Arsenic*, ed. W. Frankenberger, Marcel Dekker, pp. 155-181.
- Hering, J.G. and S. Kraemer (1998) "Environmental Chemistry of Trace Metals", in *Perspectives in Environmental Chemistry*, ed. D. Macalady, Oxford Univ. Press, pp.57-74.
- Hering, J.G., Chen, P.Y., and Wilkie, J.A. (1997) "Arsenic Removal from Drinking Water by Coagulation: The Role of Adsorption and Effects of Source Water Composition", in *Arsenic: Exposure and Health Effects*, ed. C.O. Abernathy, R.L. Calderon, and W.R. Campbell, Chapman and Hall, pp. 369-381.

- Hering, J.G. (1995) "The effects of organic-surface interactions on geochemical processes at the mineral-water interface", in *Advances in Aquatic Chemistry*, ed. C.P Huang, C.R. O'Melia, and J.J. Morgan, *ACS Advances in Chem. Ser.*, 244, 95-110, American Chemical Society, Wash., DC.
- Hering, J.G., (1995) "Implications of Complexation, Sorption, and Dissolution Kinetics for Metal Transport in Soils" in *Metal Speciation and Contamination of Soils*, ed. H.E. Allen, C.P. Huang, G.W. Bailey, A.R. Bowers, Lewis: Chelsea, MI, 59-86.
- Morel, F.M.M. and J.G.Hering (1993) *Principles and Applications of Aquatic Chemistry*, Wiley-Interscience, New York, 588 pp.
- Hering, J.G. and W. Stumm (1990) "Oxidative and reductive dissolution of minerals" in *Reviews in Mineralogy (vol. 23): Mineral-Water Interface Geochemistry*, ed. M. Hochella and A. White (Mineralog. Soc. Am.: Wash.) pp. 427-465.
- Hering, J.G. and F.M.M. Morel (1990) "The Kinetics of Trace Metal Complexation: Implications for Metal Reactivity in Natural Waters" in *Aquatic Chemical Kinetics*, ed. W. Stumm (Wiley-Interscience: New York) pp. 145-171.

#### **Other Publications**

- Anderson, P.A., Blum, J., Brantley, S.L., Chadwick, O., Chorover, J., Derry, L.A., Drever, J.I., Hering, J.G., Kirchner, J.W., Kump, L.R., Richter, D., and White, A.F. (2004) "Proposed initiative would study Earth's weathering engine", *EOS Transactions*, 85(28): 1+.
- Hering, J.G. (1997) "Chinatown Revisited: Arsenic and the Los Angeles Water Supply", *Engineering and Science*, vol. LX, No. 3, Calif. Inst. of Technol, Pasadena, CA, pp. 34-40.

#### **Technical Reports**

- Min, J.H., Boulos, L., Brown, J.C., Cornwell, D.A., LeGoullec, Y., Coppola, E.N., Baxley, J.S., Rine, J.A., Hering, J.G., and Vural, N. (2005) "Innovative Alternatives to Minimize Arsenic, Perchlorate, and Nitrate Residuals", Amer. Water Works Assoc. Res. Fndn. Report 91054F, Denver, CO.
- Hering, J.G. and Harmon, T.C. (2004) "Geochemical Controls on Chromium Occurrence, Speciation, and Treatability", Amer. Water Works Assoc. Res. Fndn. Report 91043F, Denver, CO.
- Hering, J.G. and Elimelech, M. (1996) "Arsenic Removal by Enhanced Coagulation and Membrane Processes", Amer. Water Works Assoc. Res. Fndn. Report 90706, Denver, CO.

#### **Papers in Conference Proceedings**

- Lee, G., Stewart, L., Gadtke, A. and Hering, J. (2002) "Hollywood, Health Goals, and Hexavalent Chromium: Cr(VI) Occurrence and Treatment in Southern California Groundwater", Proceedings of the American Water Works Association Inorganic Contaminants Workshop, San Diego, CA, Feb. 3-5.
- Steinberg, L.J. and Hering, J.G. (2001) "Variations in Arsenic Concentrations within a Groundwater Distribution System", Proceedings of the World Water and Environmental Resources Conference, ASCE, Orlando, FL, May 20-24.
- Min, J.H. and Hering, J.G., "Arsenate, Selenite, and Chromate Sorption by Fe(III)-Doped Alginate Gels", Proceedings of the 1997 Annual Meeting of the American Institute of Chemical Engineering, Los Angeles, CA, Nov. 16-21, 1997.
- Hering, J.G. and Chiu, V.P. "Arsenic Occurrence and Speciation in Groundwater, Hanford, CA: Implications for Health Effects and Treatment Options", Proceedings of the 1997 Canadian Society of Civil Engineers-American Society of Civil Engineers Environmental Engineering Conference, Edmonton, Alberta, Canada, July 23-25, 1997.
- Hering, J.G. "Arsenic Speciation in Environmental Systems: Consequences for Biogeochemistry, Toxicology, and Treatment", Proceedings of the Royal Australian Chemical Institute, 13th Symposium on Analytical Chemistry and 4th Environmental Chemistry Conference, Darwin, Australia, July 9-14, 1995.

- Hering, J.G. and Chen, P.Y., "The Effect of Source Water Composition on Arsenic Removal by Enhanced Coagulation", Proceedings of the National Meeting of the American Water Works Association, Anaheim, June 18-22, 1995, pp.C941-C951.
- Hering, J.G. and Elimelech, M., "International Perspectives on Arsenic in Groundwater: Problems and Treatment Strategies", Proceedings of the National Meeting of the American Water Works Association, Anaheim, June 18-22, 1995, pp. C1-C6.
- Hering, J.G. (1994) "Arsenic Removal by Coagulation Treatment: Current Models and Research Needs", Proceedings of the National Meeting of the American Water Works Association, New York, June 19-24, 1994.
- Hering, J.G. and Chen, P.Y. (1993) "Removal of inorganic contaminants from industrial wastewaters: Effects of pH and competing ions on adsorption and precipitation", Proceedings of the 66th Annual Conference and Exposition, Water Environment Federation, AC93-040-006.