

Kevin R. Henke, Ph.D.  
Research Scientist II (2002-present)  
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#### Education

1997            Ph.D., Geology, University of North Dakota  
1984            M.S., Geology, University of North Dakota  
1979            B.A., Physical Sciences (physics and geology), Doane College, Crete, NE

#### Professional Experience

Research Scientist II, Center for Applied Energy Research, University of Kentucky, Lexington (2002-present): investigating chemistry of mercury and other heavy metals in coal utilization byproducts and water.

Part-time Instructor, Department of Geological Sciences, University of Kentucky, Lexington (2003-present): taught undergraduate introductory courses in environmental geology and volcanoes and earthquakes.

Part-time/Visiting Assistant Professor of Geology, Department of Geological Sciences, University of Kentucky, Lexington (1998, 2000-2002): taught geochemistry, mineralogy, teaching methods courses, and undergraduate introductory courses in environmental geology, natural resources and physical geology.

Developing supplemental websites for college-level environmental biology textbooks: Saunders and Harcourt College Publishing, Thomson Publishing and Brooks/Cole Publishing (1997-1998, 1999-present).

Post-doctoral Associate, Department of Chemistry, University of Kentucky, Lexington (1998-2000): researched, evaluated and modified chemical precipitation technologies for mercury and other heavy metals in waste waters.

Research and Post-doctoral Associate, Department of Chemistry, North Dakota State University, Fargo, North Dakota (Summer 1996, 1997-1998): synthesized and investigated mercury and other organic metallic compounds and identified applications in wastewater and groundwater treatment.

Dissertation research on mercury contamination and hydrogeology at Oak Ridge National Laboratory (ORNL) and Y-12 Nuclear Weapons Plant, Oak Ridge, Tennessee (1994-1996): investigated mercury contamination problems at the facilities and evaluated treatment technologies. Also performed hydrological studies.

Chemist, University of North Dakota Energy & Environmental Research Center (1983-1994, part time 1994-1996): researched mercury pollution problems in the natural gas industry, and investigated the chemistry of mercury and other heavy metals in coal ashes and developed treatment strategies. Wrote peer-reviewed research reports and developed computer databases for the natural gas industry.

Selected Publications:

Henke, K.R., 2005, "Trace Element Chemistry of Fly Ashes from Co-combusted Petroleum Coke and Coal," World of Coal Ash Symposium, University of Kentucky Center for Applied Energy Research, April, Lexington, KY.

Perkins, D. and K.R. Henke, 2004, *Minerals in Thin Section*, 2nd ed., Prentice-Hall, Inc. Englewood Cliffs, NJ.

Henke, K.R., 2003, "Distribution of Mercury and Other Chemical Species in Surface Waters in and around Coal Combustion Byproduct Ponds at the Ghent Generating Station, Kentucky," International Ash Utilization Symposium, University of Kentucky Center for Applied Energy Research, October, Lexington, KY.

Matlock, M.M., B.S. Howerton, M. Van Aelstyn, K.R. Henke, and D.A. Atwood, 2003, "Soft Metal Preferences of 1,3-benzenediamidoethanethiol," *Water Research*, v. 37, n. 3, p. 579-584.

Matlock, M.M., K.R. Henke, and D.A. Atwood, 2002, "Effectiveness of Commercial Reagents for Heavy Metal Removal from Water with New Insights for Future Chelate Designs," *J. Haz. Mat.*, v. 92, n. 2, p. 129-142.

Atwood, D., B. Howerton, M. Matlock, and K.R. Henke, 2002, "Effectiveness of Chemical Reagents for Mercury Precipitation," *Abs. Papers Am. Chem. Soc.*, 223: 204-ENVR Pt. 1, Apr. 7.

Bailey, J.R., M.J. Hatfield, K.R. Henke, M.K. Krepps, J.L. Morris, T. Otieno, K.D. Simonetti, E.A. Wall, D.A. Atwood, 2001, "Transition Metal Complexes of 2,4,6-trimercapto-1,3,5-triazine (TMT): Potential Precursors to Nanoparticulate Metal Sulfides," *J. Organometallic Chemistry*, 623 (1-2), pp. 185-190.

Matlock, M.M., K.R. Henke, and D.A. Atwood, 2001, "Effectiveness of Commercial Heavy Metal Chelators with New Insights for the Future in Chelate Design," *Progress in Environmental Research at Mine Sites*, [http://www.infomine.com/technology/enviromine/publicat/pub\\_main.html](http://www.infomine.com/technology/enviromine/publicat/pub_main.html)

Matlock, M.M., B.S. Howerton, K.R. Henke, and D.A. Atwood, 2001, "A Pyridine-Thio Ligand with Multiple Bonding Sites for Heavy Metal Precipitation." *J. Haz. Mat.*, B82, pp. 55-63.

Henke, K.R., J.D. Robertson, M.K. Krepps and D.A. Atwood, 2000, "Chemistry and Stability of Precipitates from Aqueous Solutions of 2,4,6- Trimercaptotriazine, Trisodium Salt, Nonahydrate (TMT-55) and Mercury (II) Chloride," *Water Research*, 34(11) pp. 3005-3013.

Hutchison, A.R., K.R. Henke, J.T. Twyman, and D.A. Atwood, 2000, "The Determination of the Acid Dissociation Constants of Trithiocyanuric Acid," *Abstracts and Program of 32nd American Chemical Society Central Regional Meeting*, May, p. 206.

Henke, K.R.; A.R. Hutchison; M.K. Krepps; M.M. Matlock; and D.A. Atwood, 1999, "Chemical Precipitation of Mercury: Commercial Claims and New Approaches," *Energeia*, Center for Applied Energy Research, University of Kentucky.

Henke, K.R., 1998, "Chemistry of Heavy Metal Precipitates Resulting from Reactions with Thio-Red®," *Water Environment Research*, v. 70, n. 6, September-October, pp. 1178-1185.

Henke, K. and D.A. Atwood, 1998, "Group 2 Complexes of 2,4,6-Trimercaptotriazine (TMT)," *Inorganic Chemistry*, v. 37, pp. 224-227.

Henke, K.R.; M.A. Bogle, and R.R. Turner, 1996, *The Subsurface Hydrology around Building 9201-2: Results of the July 1994 Water Level Recovery Test, Oak Ridge Y-12 Plant, Oak Ridge, Tennessee*: Environmental Sciences Division, Oak Ridge National Laboratory, P.O. Box 2008, Oak Ridge, TN, 37831-6036, Y/ER-263, 42pp.

Henke, K.R., V. Kühnel, D.J. Stepan, R.H. Fraley, C.M. Robinson, D.S. Charlton, H.M. Gust and N.S. Bloom, 1993, *Critical Review of Mercury Contamination Issues Relevant to Manometers at Natural Gas Industry Sites*: GRI-93/0117, Gas Research Institute, Chicago, 110pp.