

## Expert System for Identifying CBR Agents in Water Supplies

Lawrence H. Keith<sup>1</sup>, Herbert J. Brass<sup>2</sup>, Steve Allgeier<sup>3</sup>, and Jerome M. Diamond<sup>4</sup>

<sup>1</sup>Instant Reference Sources, Inc., 329 Claiborne Way, Monroe, GA 30655-8406  
U.S. EPA, Office of Groundwater and Drinking Water, <sup>2</sup>Technical Support Center and <sup>3</sup>Water Security Division,  
26 W. Martin Luther King Dr., Cincinnati, OH 45268

<sup>4</sup>Tetra Tech, Inc., 10045 Red Run Blvd., Suite 110, Owings Mills, MD 21117

### Biographical Sketch of Presenting Author

Lawrence H. Keith has over 35 years of experience in environmental sampling and analysis including developing new methods, validating methods, and applying them to many specific projects. He also is past co-chair of the National Environmental Monitoring Index (NEMI) workgroup and contributes to the development of NEMI-CBR, a database of methods for chemical, biological, and radiological (CBR) methods. He began working with expert systems 20 years ago and is currently developing the CBR Methods Advisor for EPA's Water Security Division.

### Abstract

An "expert system" is an interactive computer program that emulates a human expert's decision-making process in a particular domain of knowledge. The Water Anti-Terrorism Expert-system Response Advisor (WATER Advisor) is an expert system that provides advice on using analytical methods for chemical, biological, and radiological (CBR) agents in drinking water from a national database. The WATER Advisor is designed for planning, training, or use in an emergency. In the latter it is used to advise applicable methods as quickly as possible, even when the identity of the agent may not be known. It is also used to provide advice for methods that are appropriate for environmental monitoring or for confirming a suspected analyte or organism identity. In addition, the expert system also provides general advice on where and how to sample for CBR agents within a drinking water system.