

## Using EPA's Three Water Contaminant Tools

Over the past several years, EPA has released three related tools available to assist water utilities, state primacy agencies, laboratories, public health officials and others responsible for water safety: WCIT, NEMI-CBR (National Environmental Methods Index for Chemical, Biological, and Radiological Methods), and Standardized Analytical Methods (SAM). Although each tool is a unique resource to the water sector, all three contain analytical methods for detecting chemical, biological and radiological contaminants. So how are these tools related, and when should you use each of them?

WCIT, NEMI-CBR, and SAM serve different primary purposes. WCIT and NEMI-CBR provide multiple methods per contaminant, while SAM lists one method for each contaminant/matrix combination.

- The purpose of WCIT is to provide comprehensive data on a select list of approximately 100 contaminants that pose a serious threat if introduced into drinking water systems, either intentionally or accidentally. In addition to analytical methods, WCIT provides other information to identify contaminants (e.g., basic properties, fate and transport data, and medical and toxicity information). The analytical methods listed in WCIT only include EPA-approved methods.
- NEMI-CBR contains more methods than WCIT, some of which are not EPA-approved methods, and provides a mechanism to compare and contrast the performance, speed, and relative cost of multiple analytical methods that can be used by any laboratory. NEMI-CBR contains both confirmatory and screening techniques. The companion CBR Advisor (see Toolbox column) is also housed within NEMI-CBR.
- The purpose of SAM is to standardize the analytical procedures that are used by EPA and its certified laboratories for measuring and confirming the presence of a contaminant. SAM assumes that the analyte has already been identified and focuses on confirmation, quantification, risk assessment, and remediation.

FEATURES	WCIT	NEMI-CBR	SAM
Number of contaminants	97	2,909	207
Multiple methods per contaminant	✓	✓	
Screening methods	✓	✓	
Confirmatory methods	✓	✓	✓
Performance, speed and relative cost of analytical methods		✓	
Advisor to help find analytical methods		✓	✓
Trade and common names	✓	✓	✓
Treatment and decontamination methods	✓		
Utility response considerations	✓		
Medical and toxicity information	✓		
First aid procedures	✓		
Early warning and environmental indicators	✓		

**ALL 50 STATES USING WCIT**

U.S. EPA reports that as of 2009, drinking water and environmental agencies and laboratories in all 50 states, the District of Columbia, Puerto Rico and Guam have become registered users of WCIT.

### INSIDE THE TOOLBOX

## CBR Advisor: Expert System for Planning and Response

The CBR Advisor is an expert system companion within NEMI-CBR that enables users to obtain advice when responding to a water contamination incident and to access detailed information for planning and training purposes. Incorporating information modules from EPA's Response Protocol Toolbox, the CBR Advisor provides easy access to vital response information, including the following:

- How to classify threat warnings
- Initial threat evaluation and immediate response operations
- How to collect, package, and ship samples of hazardous materials

The CBR Advisor also includes tables that quickly provide advice on recommended analytical methods for a particular contaminant (i.e., response versus confirmation/monitoring needs).

The CBR Advisor uses a dual-screen format – the left screen contains Questions and Answers (Q&A), while the right screen provides additional information, definitions, and links to forms associated with each question to assist users. Each menu is color coded based on intended use: red for responding to an incident and blue for training and planning.

Check out the CBR Advisor by selecting "Consult the CBR Advisor..." in the NEMI-CBR column on the right-hand side of the home page.

## Making Public Health Decisions with WCIT



Public water systems face contamination threats from chemical, biological, and radiochemical contaminants that may be introduced into a facility. Public health officials need access to information to assist with contaminant identification and understand possible public health effects. Utilities need to decide how to respond to minimize both utility worker and public exposure to the contaminated water. How can these decisions and recommendations be made quickly and confidently?

WCIT can be used as a “one stop shop” to minimize time required to collect relevant information. The information in WCIT can help public health officials and utilities more efficiently confirm contaminant exposure, assess risk, and determine a utility’s required or recommended response.

To assist public health officials in managing risk, WCIT provides historical and projected mortality and morbidity data, symptom onset time, time available for effective medical treatment, and toxicity/infectivity information. WCIT’s “Utility Response Considerations” field lists items to keep in mind when determining whether to issue a drinking water advisory, such as a “boil water” order. Limitations associated with use of contaminated water for activities, such as firefighting and irrigation, are also discussed. With this information immediately at hand, public health officials and utilities can make informed and timely decisions about safe water use.

### WCIT MAILBOX: Is WCIT available on CD? How do I take WCIT into the field if it is not?

WCIT is available to registered users through a secure, on-line connection. EPA does not produce a WCIT CD because it is difficult to keep data on CDs current. You may, however, take WCIT into the field for training or other response purposes by printing reports containing information for one or more contaminants. You can do this by selecting a contaminant from the contaminant index. At the top of the page, select Comprehensive Report. Choose File, Page Set Up on your browser. Make sure the orientation is Landscape, then print. It is also important to know that when responding to an incident, EPA On-Scene Coordinators have access to WCIT and may give that information to other responders, as appropriate. All data in WCIT are considered sensitive, so follow secure handling and storage procedures for all WCIT information.

**Send Us Your Feedback.** Do you have a question, comment, or suggestion for the WCIT Administrator regarding WCIT? Please send an email to [WCITA@epa.gov](mailto:WCITA@epa.gov).

### WCIT Expanding: Four Contaminants to be Added

Over the next few months, EPA will be adding four new contaminant profiles to WCIT. The new contaminants are substances that are commonly present in many drinking water treatment plants and have been released into drinking water in the recent past.

### Researcher Evaluates Wastewater Contaminants

Since 2003, the Water Environment Federation (WEF) and its research foundation, have engaged researchers at the University of Pittsburgh in an effort to identify the most serious chemical, biological, and radiological contaminants and develop screening and treatment methodologies. EPA is funding the research.

University of Pittsburgh researchers, led by Leonard W. Casson, Ph.D., P.E., have presented a prioritized list of contaminants to EPA and WEF. EPA is working with WEF to determine which five contaminants that emerged from the research will be added to WCIT.



Leonard Casson

“Drinking water systems have one primary concern and one primary evaluation endpoint: public health,” notes Dr. Casson, who is an associate professor in the Department of Civil and Environmental Engineering at the University of Pittsburgh. By contrast, he explains, wastewater systems have not only the public health endpoint, but also three other endpoints with potential adverse impacts: physical damage to system infrastructure, “upsets” to wastewater treatment processes, and contaminant pass-through.

#### Prioritization Framework Guided Research

The research project has evaluated nearly 150 contaminants by using an eight-criteria prioritization framework developed for the project. Many of the contaminants evaluated are of concern for drinking water, but the research also addresses substances such as decontamination agents, process upset contaminants, flammable or explosive materials, and secondary contaminants.

Dr. Casson believes the prioritization framework can be a useful tool for wastewater systems that are evaluating contaminants or developing or updating their vulnerability assessments or emergency response plans.