

# Water Security Initiative: Guidance for Building Laboratory Capabilities to Respond to Drinking Water Contamination

## **Overview**

Drinking water contamination can occur as a result of natural, accidental, or intentional acts. Under EPA's Water Security Initiative, a Surveillance and Response System is an integrated utility program of active distribution system surveillance and response protocols. Active surveillance can improve water quality and operations at the utility and, when paired with effective response actions, can detect distribution system contamination early enough to mitigate consequences.

If water contamination is suspected, **sampling and analysis** is one of the earliest utility-led response actions. Sampling and analysis includes field investigation, site safety screening, water quality parameter analyses, rapid field testing, sample collection, and laboratory analyses to confirm or rule out contamination.

This guidance is for water utilities to help them prepare for laboratory analysis of a wide range of contaminant classes of concern to water security during consequence management of *Possible*, *Credible* or *Confirmed* contamination incidents.

The recommended approach is to build capabilities, either in-house or through support laboratories, for representative contaminants from each contaminant class of concern to water security. Identifying contaminants, analytical methods and laboratory support partners in advance of an emergency response situation enables the utility to:

- practice methods and exercise laboratory partnerships
- establish baseline contaminant occurrence and method performance for water samples from their distribution system
- improve the efficiency of their response through identification and development of sampling and analysis procedures

# **Contents of Guidance**

- Contaminant Classes of Concern
- Preferred Analytical Methods for Representative Contaminants
- Building a Laboratory Support Network
- Reimbursement of Costs Incurred During Emergency Response

# Link to Guidance

Contaminant Classes of Concern to Water Security

Chemicals

Carbamate pesticides
Organophosphate pesticides
Arsenic compounds
Mercury compounds
Cyanide compounds
Petroleum products
Herbicides

Chemical warfare agents
Pharmaceuticals
Fluorinated organic compounds
Heavy metal compounds
Persistent chlorinated organics
Rodenticides

#### **Biotoxins**

Plant toxins Algal toxins Bacterial toxins Fungal toxins Animal toxins

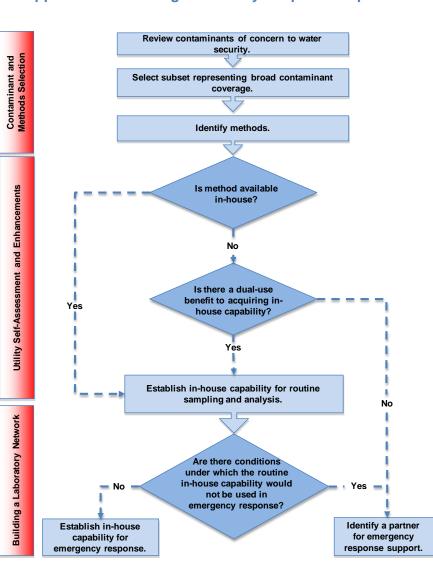
# Pathogens Select and non-select bacteria

Select and non-select viruses
Protozoa
Rickettsia

## Radiochemicals

Alpha emitters Beta emitters Beta + Gamma emitters

# **Approach for Building Laboratory Response Capabilities**



http://water.epa.gov/infrastructure/watersecurity/lawsregs/upload/epa817r13001.pdf