

# **EARLY-WARNING CONTAMINANT SURVEILLANCE SYSTEMS: FUNDAMENTAL ISSUES**

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## **ABSTRACT**

This paper raises some fundamental issues associated with early-warning contaminant surveillance systems. In particular, the following set of questions is addressed:

1. What are the respective roles of on-line real-time monitoring and the traditional sampling/lab analysis approaches?
2. What is the appropriate measure of the significance of a contamination event - Is LD50 the best measure?
3. How should we address the trade-off in location of monitoring sites and the size of the at-risk population?
4. How should we develop the list of contaminants of concern? How to set priorities among the chemical, biological and radiological agents of concern?
5. How to design a system that can be upgraded as new sensing technologies become available?
6. How to make the monitoring system itself secure against purposeful interference?
7. How to process the data from the set of instruments?

A new metric for risk of terrorism to water systems will be introduced.