Distribution System Issues: Research/Information Needs

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This Meeting's Presentations

Objectives

Provisions

System compliance

Improvement

Research

Distribution System Issues

Presentation Objectives

- Update FAC on progress to date
- Present the preliminary elements of a process to evaluate issues and prioritize research needs and data collection

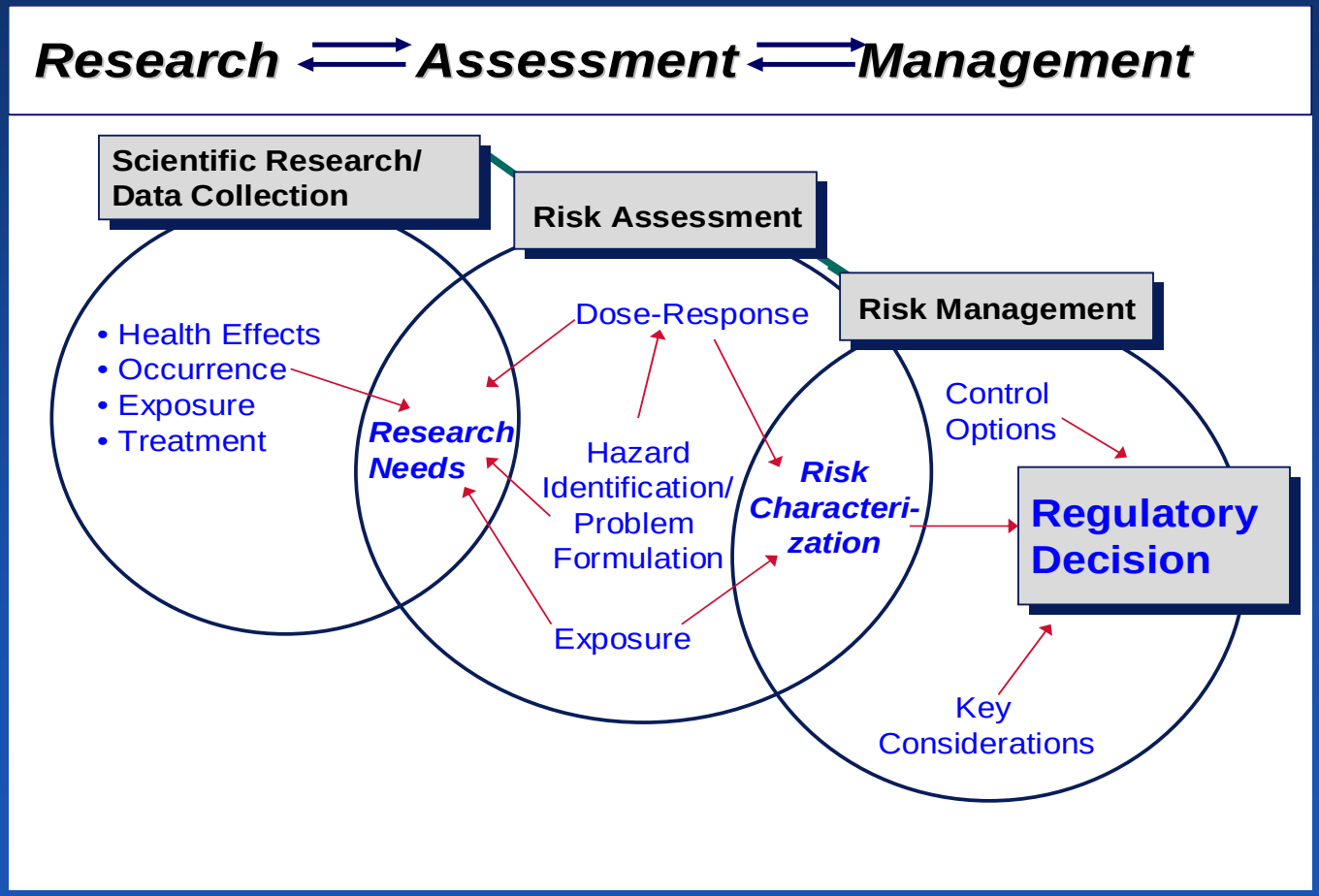
Background: September Meeting FAC Priority Issues from Workshops/Panels

Distribution System Issue	Expert Panel/Workshop					
	NRC	EPA WP	EPA PS	EPA EA	AwwaRF PI	AwwaRF SIRP
Cross connection & backflow	H	H	H	H	H	---
Biofilm and microbial ecology	M	H	M	H	L	H/M
New and repaired mains & breaks	H	H	M	L	H	---
Storage facility integrity	H	M	L	H	M	---
Pressure transients & intrusion	---	H	M	H	H	---
Nitrification	L	M	M	M	---	M

Deteriorating Infrastructure

- The FAC requested that the TWG consider deteriorating infrastructure when addressing distribution system issues.
- Addressing deteriorating infrastructure could help to address other distribution system issues, such as biofilm and microbial ecology, pressure transients and intrusion, and storage facility integrity.
- TWG is evaluating compilation and synthesis documents, such as
  - AWWA Evaluations Papers
  - EPA Aging Infrastructure White Paper
- TWG is also investigating the EPA Sustainable Water Infrastructure program

Risk Assessment & Management Model



Issues and Attributes Matrix

	Research / Information Collection Need				
ATTRIBUTE / ISSUE	Health Effects	Detection and Occurrence	Exposure	Treatment / Prevention	Summation
Cross-connection & Backflow - chemical					
Cross-connection & Backflow - microbial					
Biofilm and microbial ecology					
Pressure transients and Intrusion					
New and Repaired Mains and Breaks					
Storage Facility Integrity					
Nitrification					

To identify issues where additional research or information is needed prior to consideration of regulatory action

Issues and Attributes Matrix – Example of Research Needs

ATTRIBUTE / ISSUE	Health Effects	Detection and Occurrence	Exposure	Treatment / Prevention
Cross-connection & Backflow - chemical	Moderate - some information available on chemical effects	High - lack of occurrence data, especially for specific contaminants	High - lack of information on occurrence relative to water consumption	Low - good information available on prevention options

Note: This is a conceptual example of a finished product, not actual findings of the TWG

Advantages of This Approach to Compile Information and Inform Prioritization

- Uses existing risk assessment and management terminology
- Follows logical framework for identifying availability of existing information
- Allows for direct evaluation of specific areas for data collection and research

Challenges to This Approach

- Qualitative approach based on expert opinion
- Limited to identification of research and data collection needs

- Use of typical risk assessment framework is extremely difficult to do in the distribution system environment
  - Variety of contaminants in the DS
  - Variety of concentrations throughout the DS
  - Concentrations can be intermittent and fleeting

Future Direction for the TWG

1. Should the TWG work towards completing the research needs matrix?
2. Are there additional categories that need to be added to that matrix?
3. Process for prioritization is not yet complete