US EPA ARCHIVE DOCUMENT

What the Research and Information Collection Partnership Means to EPA

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Overview of Presentation

- Regulatory context
- Total Coliform Rule Distribution System Advisory Committee (TCRDSAC) role and recommendations
- Research Information Collection Partnership (RICP) role and recommendations
- Summary of what RICP means to EPA

Background - Regulatory Context

- Multiple regulations attempt to protect DS integrity and limit bacterial growth
  - maintenance of disinfectant residual or HPC levels less than 500/ml at 95% of monitoring sites (Surface Water Treatment Rule -SWTR)
  - sanitary surveys and remedial action (Interim Enhanced Surface Water Treatment Rule and Ground Water rule)
  - total coliform and *E.coli* measurements in DS, assessments and possible remedial actions *(Revised Total Coliform Rule - RTCR)*
- Stage 1 and 2 D/DBPRs limit exposure to DBPs and disinfectant residuals in DS
- Six year review of all of Microbial/DBP rules to be completed December 2015

RTCR developmental process (1)

- In 2007 EPA established a TCRDS Advisory Committee to:
  - “develop an agreement in principle regarding recommendations on revisions to the TCR and
  - on what information about distribution systems is needed to better understand and address possible public health impacts from potential degradation of drinking water quality in distribution systems”.

RTCR developmental process (2)

- The Advisory Committee met multiple times and developed an Agreement in Principal (AIP) (2008) which included recommendations on
  - how to revise the 1989 TCR to make it more protective
  - forming a Research and Information Collection Partnership (RICP) that would provide information and research that would inform national risk management decisions for furthering public health protection (and support the 3rd six year review)

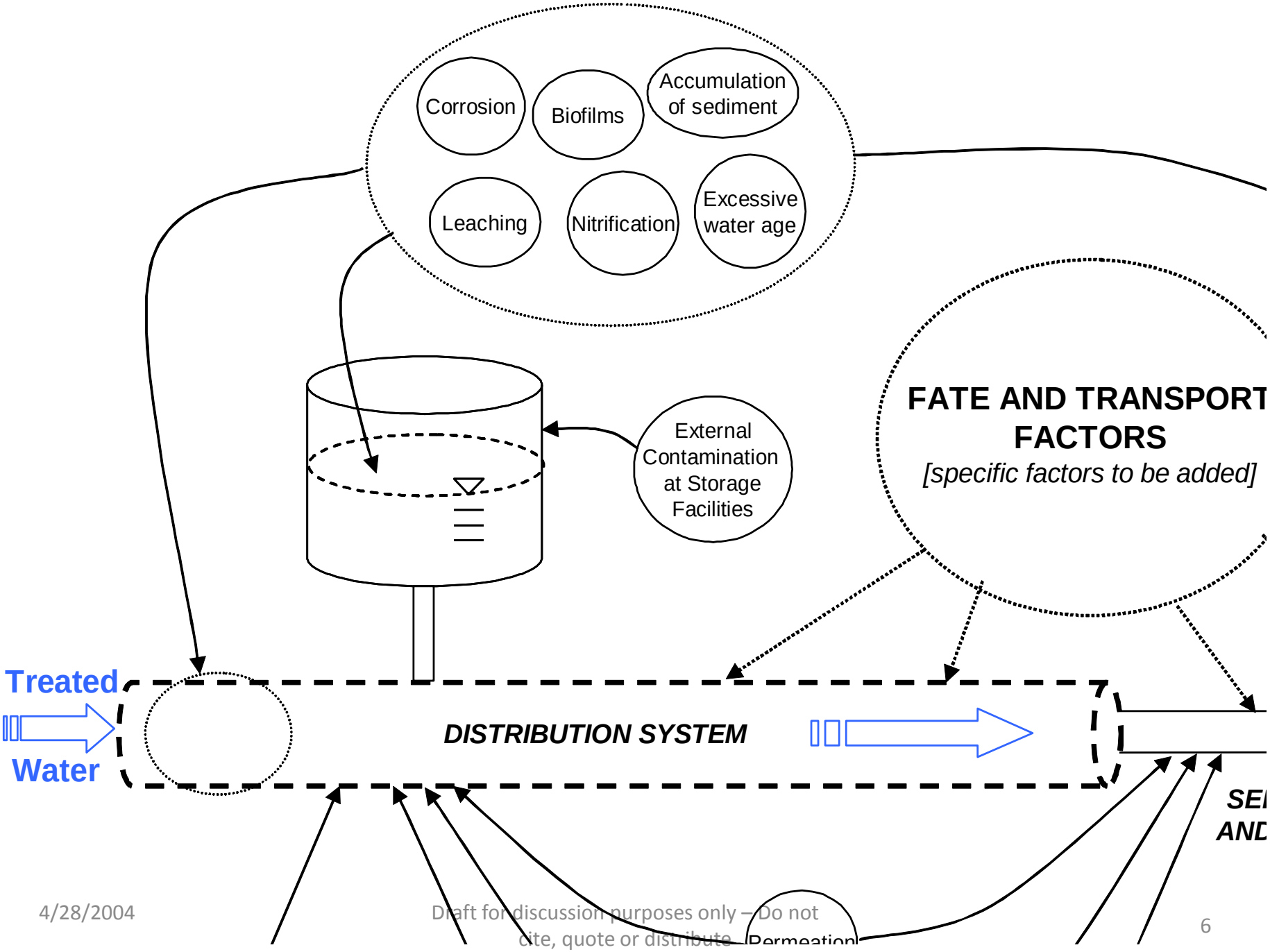

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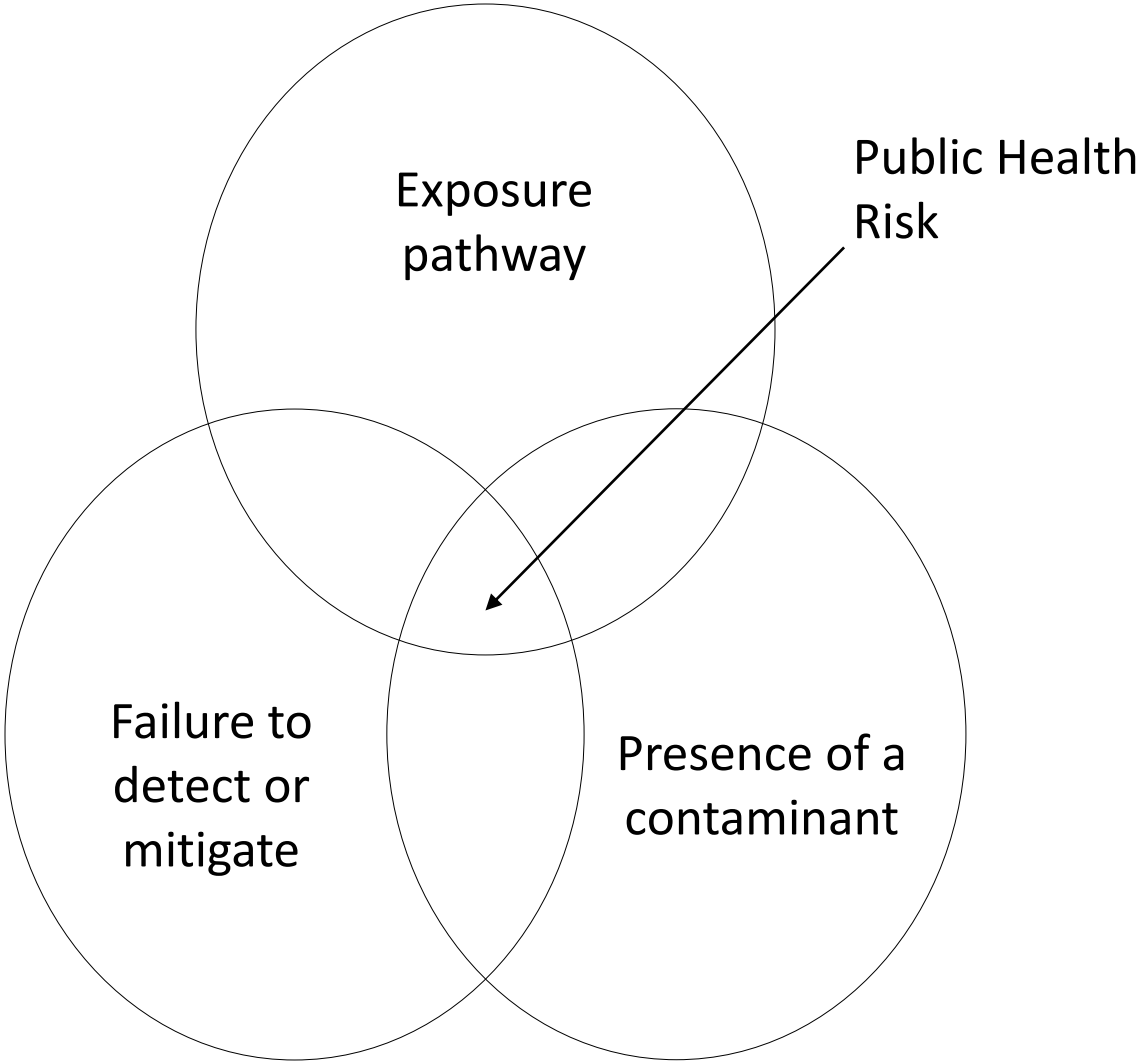
Illustration of components of a contamination event



Priorities Identified by TCRDS AC

- Tier One: —These issues are associated with documented health outcomes. Some information is available to characterize the extent of these issues, although more national characterization of the occurrence and relationship between these issues is needed. Some best practices information is available.
  - Cross connections and backflow of contaminated water
  - Contamination due to storage facility design, operation or maintenance
  - Contamination due to main installation, repair or rehabilitation practices
  - Contaminant intrusion due to pressure conditions and physical gaps in distribution system infrastructure

Priorities Identified by TCRDS AC

- Tier Two: —For these issues, public health impacts are suspected to be associated with these topics, although available information is more anecdotal in nature and additional research and information collection is necessary to better define public health risks. Little occurrence information is available to document or characterize these issues.
  - Significance and control of biofilm and microbial growth
  - Nitrification issues that lead to public health effects
  - Accumulation and release of contaminants from distribution system scales and sediments

History of RICP

- RICP formed in 2009 between WaterRF and EPA
  - to establish a decision-relevant research and information collection agenda that encompasses short, medium, and long term research and information needs.
  - to stimulate distribution system research and information collection from all interested parties.
  - recruited a Steering Committee to guide Partnership
- RICP met with steering committee ~ bimonthly and developed a final document listing priorities of distribution system research and information collection in April 2010.
- Annual meetings since 2010 to monitor progress

RICP Prioritization Criteria

- Relevance to each of the seven issues described in the AIP, with higher priority given to project areas that address multiple issues
- Extent to which the project area is expected to inform an understanding of the magnitude of public health risk
- Extent to which the project area is expected to inform an understanding of the mitigation of public health risk

What RICP Means for EPA

- Instrumental in helping to identify, initiate, and coordinate (with WaterRF) information collection and research to enhance public health protection
  - Influencing STARs priorities
  - Influencing SSWR priorities
  - Supporting 6 year review of M/DBP rules

Appendix

Links to additional information

- http://www.epa.gov/ogwdw/disinfection/tcr/pdfs/tcrdsac/agreementinprinciple_tcrdsac_2008-09-18.pdf (Agreement in Principle for RTCR)
- *www.epa.gov/safewater/disinfection/tcr/pdfs/tcrdsac/fsdsricp510.pdf (Final Priorities Document of RICP)*
- http://water.epa.gov/lawsregs/rulesregs/sdwa/tcr/regulation_revisions.cfm (Total Coliform Rule revisions)

RICP Priority Project Areas

- Best Practices to Minimize Risks Associated with Cross Connections and Backflow (CC1)
  - *Goal: Identify and characterize the best practices (BPs) (including design, operations and costs) for cross connections and backflow that can be used to mitigate potential contamination concerns.*
- Contaminant Entry from Breaches in Storage Facilities (Con3)
  - *Goal: Compile data to better understand and predict health risks associated with contaminant entry through structural breaches in storage facilities.*

Priority Project Areas

- Estimation of Contaminated Water Volumes and Contaminant Concentrations Introduced Into Distribution Systems Due to Backflow Events from Unprotected Cross-Connections Based on Model Predictions and Field and Pilot-Scale Experiments (Con4)
  - *Goal: To compile data to better predict health risks associated with entry of external contaminants into drinking water distribution systems through unprotected cross-connections*

Priority Project Areas

- Quantitative Microbial Risk Assessment (QMRA) to Evaluate Exposure to Pathogens through Drinking Water Distribution Systems (HEA1)
  - *Goal: To develop an adaptive tool that can be used to estimate relative risks of exposure to distribution system pathogens and the effectiveness of risk management strategies for preventing/controlling microbial risks.*

Priority Project Areas

- Epidemiological Studies of Health Effects Associated with Low or Negative Pressure Events in Distribution Systems (HEA2)
  - *Goal: To obtain information on the incidence and severity of adverse health effects occurring among customers who are impacted by low or negative pressure events in water distribution systems. The information can inform estimates of both baseline risks and reduction in those risks from mitigation actions.*

Priority Project Areas

- Survey of Distribution System Pressure Management Practices (Pres1)
  - *Goal: To assess pressure management practices in water distribution systems to determine the prevalence of specific high risk distribution system attributes leading to low or negative pressures.*
- Survey of Large Drinking Water Utility Distribution Systems (Sur1)
  - *Goal(s): To identify characteristics of drinking water distribution and storage systems that serve > 50,000 people*.

Priority Project Areas

- Characterize Propagation of Pressure Events through Water Distribution Systems to Improve Pressure Management Approaches (Pres2)
  - *Goal(s): Evaluate the propagation of pressure events through the distribution system and compare field data with surge model results for the same events. Evaluate pressure propagation events at a number of systems and investigate the impact and cost of changes intended to mitigate the number and extent of such events.*

Priority Project Areas

- Best Practices for Minimizing Risks Associated with Storage Facilities (Stor1)
  - *Goal(s): Identify and characterize the best practices (BPs) for storage that can be used to mitigate potential contamination exposure concerns.*

Priority Project Areas

- Targeted Surveys to Obtain Information on State and Local Regulations, Policies, Manufacturing Practices and Guidelines for Distribution Systems (Sur4)
  - *Goal: To evaluate extent to which distribution system risk management and mitigation practices are implemented by states or through manufacturing, installation, or inspection programs.*