

Learning from the Past, Looking Toward the Future

過去に学び、未来に向かう

Lawrence W. Reiter, U.S. EPA

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U.S. Delegation



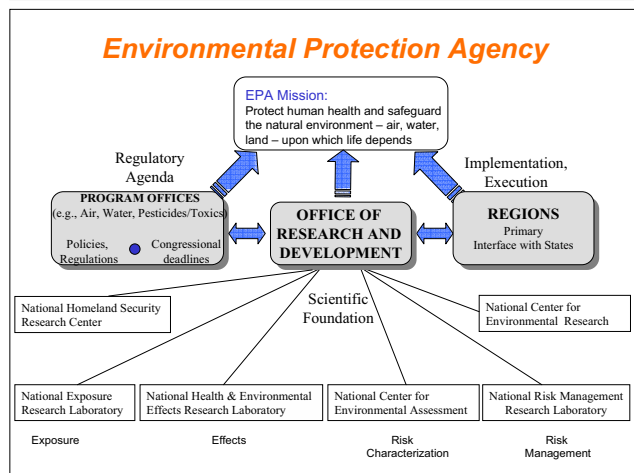



Office of Research and Development
National Risk Management Research Laboratory
Office of Ground Water and Drinking Water
Office of Wastewater Management
EPA Region 10

7th Japan - U.S. Conference on Drinking Water Quality Management and Wastewater Control

Learning from the Past, Looking toward the Future

Dr. Lawrence Reiter, Acting Director
National Risk Management Research Laboratory
July 12, 2004
Honolulu, Hawaii



Research and Development at EPA

Building a scientific foundation for sound environmental decisions



- 1,950 employees
- \$700 million budget
- \$100 million extramural research grant program
- 13 research facilities across the U.S.
- Credible, relevant and timely research results and technical support that inform EPA policy decisions

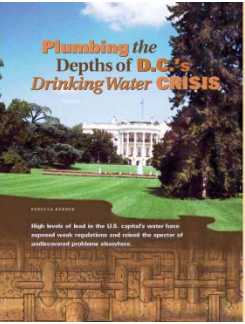


PAST ENVIRONMENTAL PROBLEMS PERSIST

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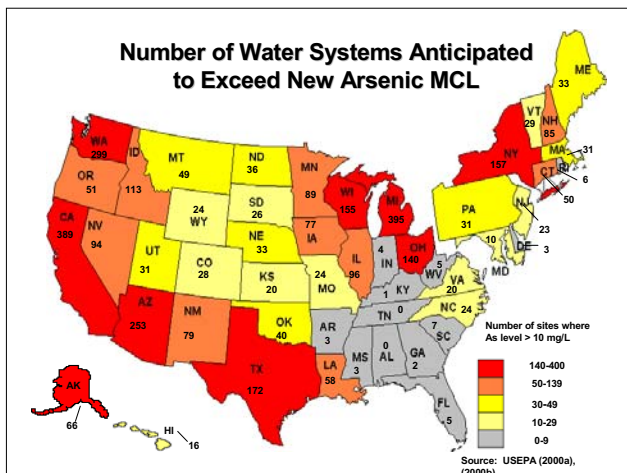
Lead in Drinking Water in Washington, D. C.

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Plumbing the Depths of D.C.'s Drinking Water Crisis

High levels of lead in the U.S. capital's water have exposed such regulations and raised the specter of widespread problems elsewhere.

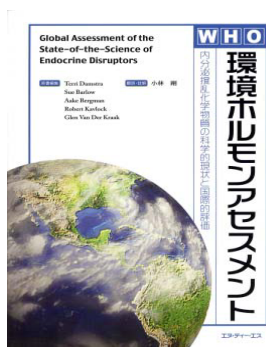
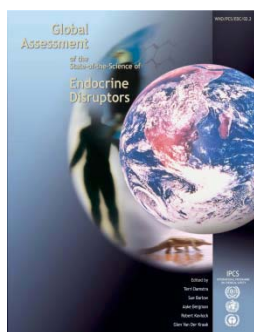


RESEARCH & DEVELOPMENT

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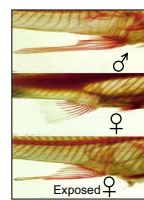
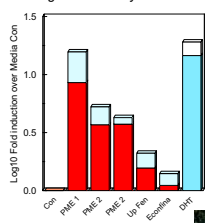
CONTINUING ENVIRONMENTAL CHALLENGES

Endocrine Disruptors



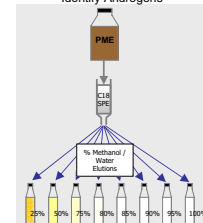
Androgens in the Environment: Effects of PME on Fish

AR Agonist Activity in CV1 Cells



Buckeye Plant, Fenhalloway River, FL

Fractionation/Analysis to Identify Androgens



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STATE-of-the-ENVIRONMENT



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Lessons and Action

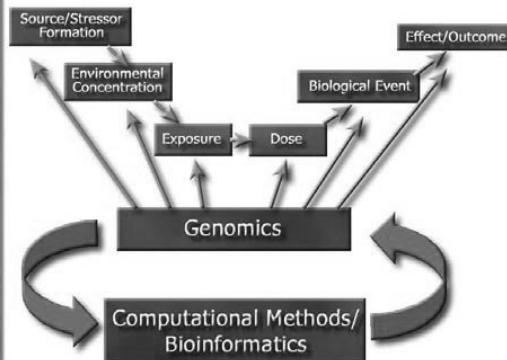
- Data inadequate to determine status and trends of ambient water quality conditions across the country
- Unable to determine relationship of water quality conditions to human health and environmental impacts on a national basis
- Agency decided to pursue an initiative to improve shortcomings highlighted in the report

RESEARCH & DEVELOPMENT

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EMERGING ENVIRONMENTAL PRIORITIES

Computational Toxicology



To integrate modern computing and information technology with the technology of molecular biology and chemistry to improve EPA's prioritization of data requirements and risk assessments for toxic chemicals

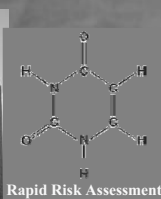
"A Framework for a Computational Toxicology Program in ORD"



- Improve linkages in source-to-outcome paradigm
- Improve predictive models for screening and testing
- Enhance quantitative risk assessment

Homeland Security Research

EPA Homeland Security Research Program



Characterization/Detection Research



- Screening protocol for water contaminants chemicals/biologicals

- Bioconcentration methods for water



- Early warning monitor evaluation



- Review available detection devices to inform utility decisions on management approaches

Decontamination Research

- Modeling & decontamination of high rise distribution systems



- Water distribution system decontamination methods Evaluation

- Analysis/guidance on water utility contingency planning/alternative supplies
- Voluntary design/retrofit standards

Rapid Risk Assessment Research

- Risk values for CB agents
- PC-based rapid risk assessment tool
- Framework for microbial risk assessment

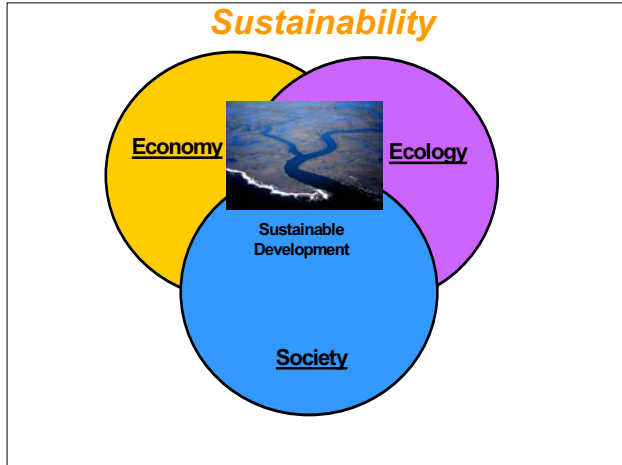


- Multiple exposure route factors- CB agents in water
- Threat scenario simulations and screening level risk analyses

Sustainability

“Pursuing the goal of sustainability allows us to use innovative science and technology to achieve the goals of environmental and economic prosperity for both current and future generations”

Dr. Paul Gilman, Science Advisor
U.S. EPA



Global Sustainability Challenges for Water

Practice

Water use
Safe drinking water
Water reuse
Source water protection

Challenge

Reduction
Availability of technologies
Affordable technologies
Prevention of stressors

Thank You