



**APPA Institute for
Facilities Management**

Energy & Utilities

Water (304)

Campus Domestic and Fire Protection Water Supply and Distribution Systems

Mark St. Onge, EFP

Purpose of Today's Presentation

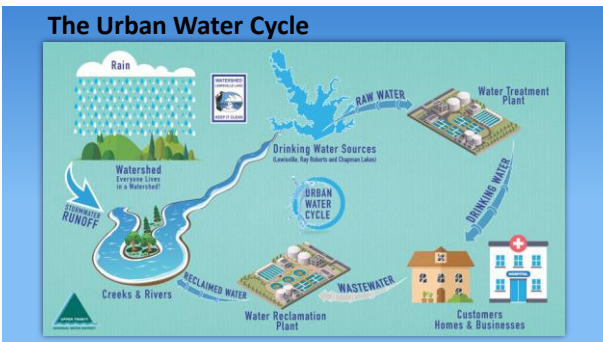


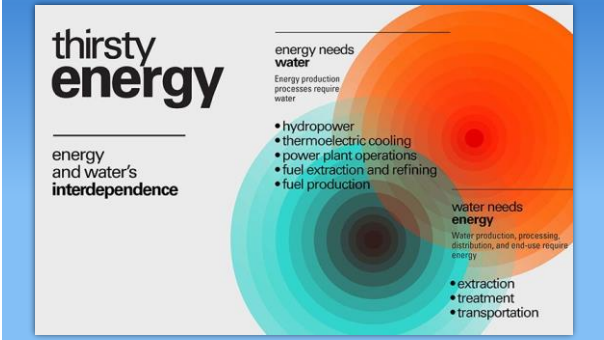
To provide a broad understanding of campus water systems

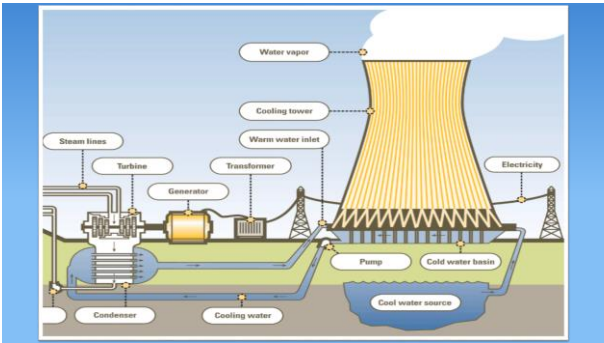




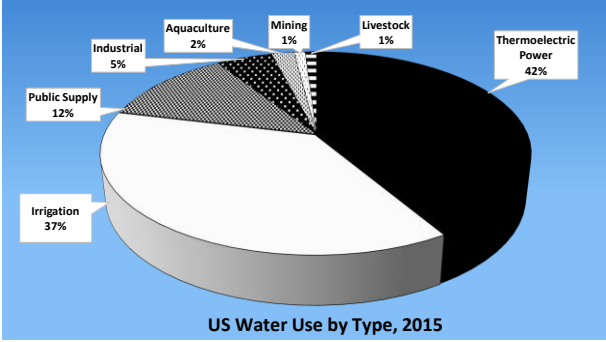
Where does your water come from?



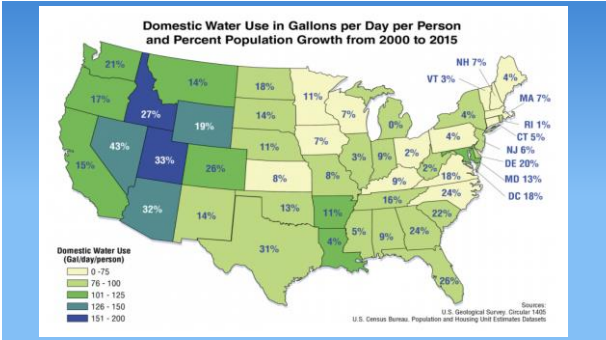




Where do we use water in the United States?

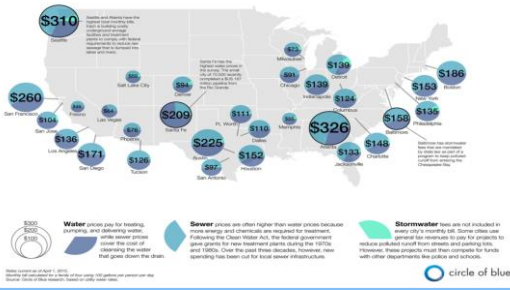


Is water usage generally going up or down?



What does water cost?

THE PRICE OF WATER: 2015
Combined water, sewer and stormwater prices for households in 30 major U.S. cities.



Flint, Michigan, Declares State of Emergency Amid Lead in Drinking Water Scare

by Erik Ortiz / Dec 15, 2015

Detroit schools to use bottled water due to lead, copper concerns

by Dennis Romero / Aug 29, 2018

How are standards set for drinking water quality in the United States?

Who is responsible for the water quality and water safety on your campus?

Safe Water Drinking Act

Certified Operators



ABC
Association of
Boards of Certification

ABC Certification Program

Certification Process

- Certification through Examination
- Certification by Reciprocity

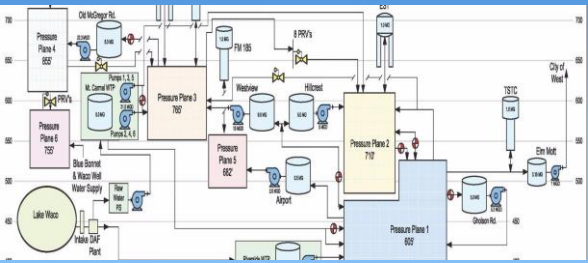
ABC's Certification Program



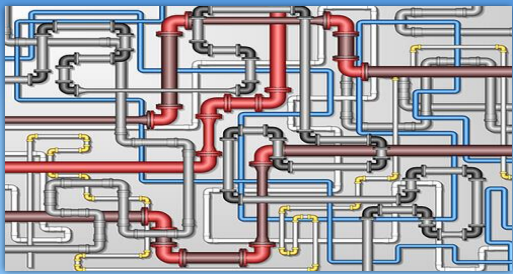
Certification: Protecting public health and building strong careers.

ABC offers a voluntary certification program to water treatment, distribution, collection, wastewater treatment, and industrial waste operators, water and wastewater laboratory analysts, plant maintenance technologists, and biosolids land appliers. ABC certification is not only a way to protect public health and the environment, but provides numerous career benefits to both employees and employers.

Operations and Maintenance

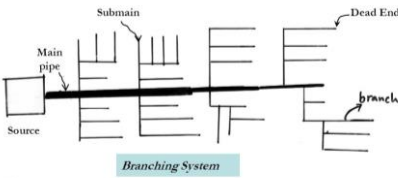


Distribution Systems



Water Distribution System

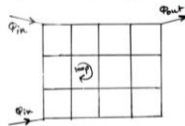
Branching System (tree system)



- Advantages:
- Simple to design and build.
 - Less expensive than other systems.

Water Distribution System

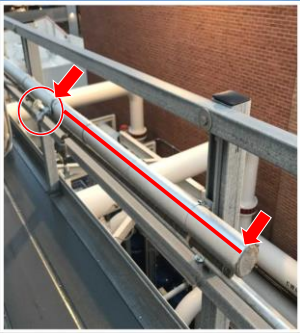
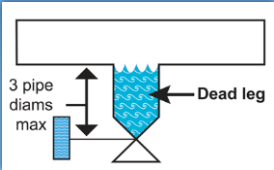
Grid System (Looped system)



- Advantages:**
- The grid system overcomes all of the difficulties of the branching system discussed before.
 - No dead ends. (All of the pipes are interconnected).
 - Water can reach a given point of withdrawal from several directions.

Dead-Legs

Dead-Legs

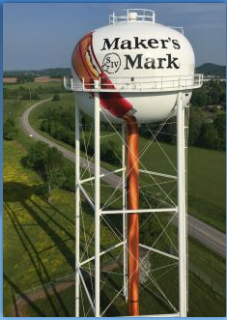


Is your campus including water in its emergency planning?

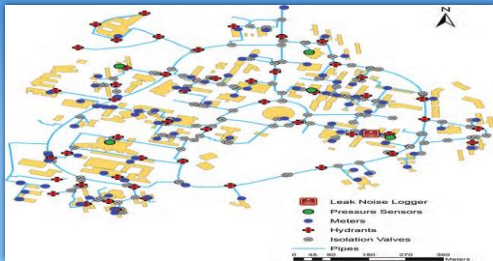
Fire Protection



Storage Systems



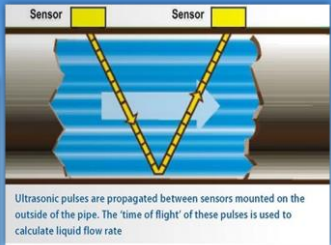
System Mapping



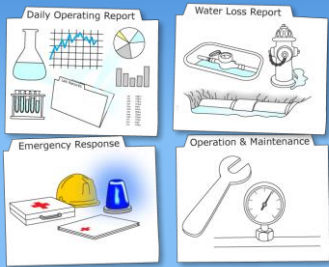
Cross Connection Control



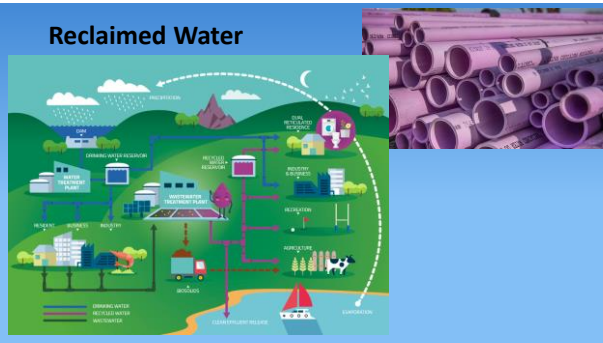
Metering



Public Water System Reporting and Record Keeping



Reclaimed Water



Sewer System Management Plan






Key Takeaways

- Water and energy are interdependent
- Be prepared for emergencies
- Drinking water is regulated under the SWDA
- Contaminates in drinking water are regulated by standards set by the EPA; these standards are typically enforced by state agencies

Evaluation Forms



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Questions related to specific materials, methods, and services will be addressed at the conclusion of this presentation.

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