CUPSS and Us

Getting Started in Asset Management Using

Prevent this!

Guatemala Sewer Pipe Explosion, February 2007

Credit: Associated Press

Photo: 330 foot deep sinkhole in Guatemala – swallowed a dozen homes, forced the evacuation of nearly 1,000 people, and three people died. Sewage main ruptured after being clogged and exposed to recent heavy rains. Explosion occurred February 26, 2007.

Using asset management could have prevented this sinkhole – knowing what condition the sewer pipes were in would have let officials know that a potential disaster could occur.

And this!

Leaking reservoir

Credit: Rural Community Assistance Corporation

The purpose of this presentation is to learn the benefits of using CUPSS for managing utility operations. Communities do not want leaky reservoirs.

Agenda

Bad Problem – Not having a backup plan

Good Solution – Asset management

What is Asset Management?

"A process for maintaining a desired level of customer service at the best appropriate cost."

-Desired level of service = what utilities want assets to provide

-Best appropriate cost = lowest life cycle cost (not necessarily without cost, however)

How Will it Help?

- Asset management has many benefits
  - "Make investment decisions – large and small – based on understanding of life cycle costs and benefits."
  - "Set Service Levels and make investments needed to meet them – now and into the future."
  - "Reduce asset risk through capital investments, or changed maintenance practices and response protocols."

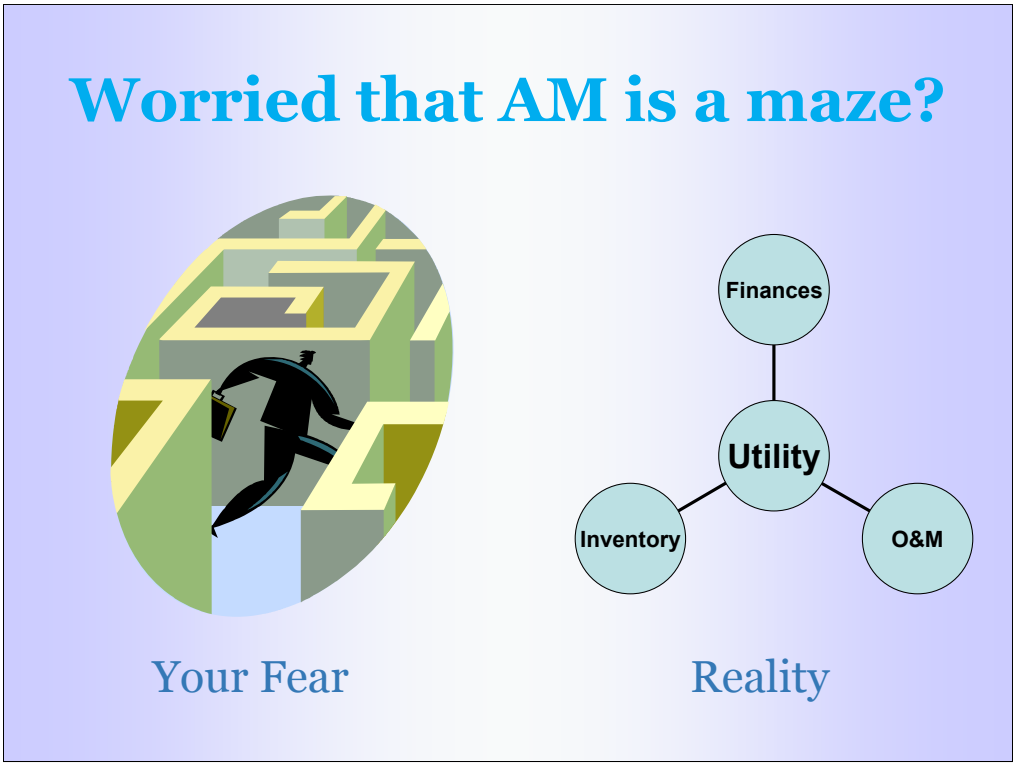
Asset management is already helping many larger communities. Seattle Public Utilities is known for their advances asset management practices.

In Other Words…

Booster station with above ground piping
Credit: Rural Community Assistance Corporation

- Back up budget talks with solid facts
- Boost utility efficiency
- Save staff time
- Understand that a utility is running a customer service business
- Keep customers happy

Now this is what the larger system experience could mean for us. [list] The bottom line is that utilities can make better decisions because they're more informed.



Big systems, like those in Seattle, have big budgets and big needs for asset management. They take asset management to a very detailed, complex, expensive level. But this doesn't mean that it won't work for small systems. The benefits of getting organized and developing a plan are the same, regardless of the size of the community and so are the basic ideas.

-Know what you have

-Establish preventive maintenance practices

-Work towards recovering the full cost of doing business

Check Up Program for Small Systems

- Free, easy-to-use software
- Asset Management 101 for water/wastewater systems
- Prepare an asset management plan in 7 steps

Credit: City of North Bend, Washington WWTP; Sewer Division

And CUPSS makes it even easier!

-CUPSS is software that helps utilities do asset management – just insert the CD in a computer

-Water or wastewater systems can use the tool

Photo: The City of North Bend has a small wastewater collection system that serves a population of approximately 3,335.

Why Manage Assets?
Remember Aging Infrastructure

NYC pipe explosion, July 2007
Credit: Mario Tama, Getty Images

NYC pipe explosion, July 2007
Credit: Robert Stolank, New York Times

Photos: Steam pipe explosion near Grand Central Terminal in Manhattan. Sent 40 story high hot steam, mud, and debris onto crowded rush-hour for 2 hours. Eighteen people taken to hospital, one died. Left 35 foot wide, 15 feet deep crater. Possible causes include water hammer (cold water coming into contact with steam pipes), broken water main, heavy rain that day, or a crack in the pipe. The steam pipe was installed in 1924. The explosion occurred on July 18, 2007.

Aging infrastructure throughout the country is causing problems for many communities – big and small. CUPSS will help you understand asset lifecycles and plan for repair, rehabilitation or replacement.

It's all about improving customer service, in downtown NYC and on Main Street USA.

Why Manage Assets?
Remember the Condition of Assets

Poorly maintained reservoir

Credit: Rural Community Assistance Corporation

Rusted iron water pipe

Credit: Timothy Ford, Montana State University

Would your community be satisfied with receiving their drinking water from a reservoir (left image) or a pipe (right image) like this?

Why Manage Assets?
Remember Importance of Redundancy

MN bridge collapse, August 2007

Credit: Jim Gehrz, Associated Press

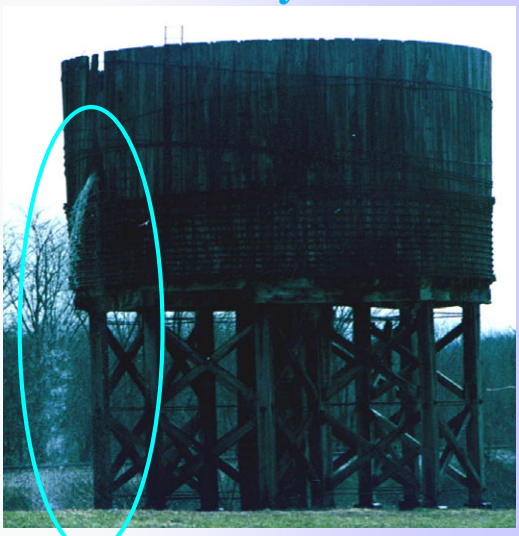
Photo: I-35W bridge collapse in Minneapolis, Minnesota. Main spans of the bridge collapsed causing 100 vehicles to fall into the Mississippi River and onto its banks. Thirteen people died and approximately one hundred more were injured. One cause was lack of redundancy in the main truss system. The bridge was built in 1967. The bridge collapsed on August 1, 2007.

Lack of redundancy in any system is not good. If one part of a system fails and there is not another part online to immediately take it's place, a devastating situation can occur like the Minnesota bridge collapse. CUPSS keeps track of redundancy within a utility and gives specific risk factors for each component.

Why Manage Assets?
Remember the Community

Leaking valve

Credit: Rural Community Assistance Corporation



Ruptured Wooden Water Tower, March 1999

Credit: Charles Myers, Rolla, MO

Photos: (left) A leaking valve can cause major problems within a utility – not only is water being lost but leaking water can flood and damage the building.

(right) Leaky wooden water tower in Kinmundy, Illinois. Photo taken March 1999.

All structures will fail at some point. These communities lost valuable water from these leaks. CUPSS helps utilities become more effective at maintenance and increase efficiency in many areas.

Why Manage Assets?
Remember Surrounding Watersheds

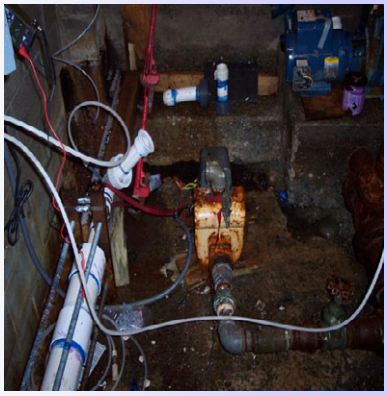
Fuel tank leaking diesel next to wellhead

Credit: Rural Community Assistance Corporation

Knowing where wellheads are located and what's around them can prevent source water from becoming contaminated. CUPSS allows utilities to create personalized diagrams that includes the specific location of each asset.

Asking the Right Questions

- What is the current *state* of the assets?
- What is the desired "sustainable" *level of service*?
- What assets are *critical* to sustained performance?
- What are the best minimum *life-cycle-costs* and O&M strategies?
- What is the long-term *financing* strategy?



Failed booster pump results in well house flooding

Credit: Rural Community Assistance Corporation

Asset management begins with asking the right questions. Doing asset management means you've got an idea of the answers.

1. Inventory (What is the current state of my assets?)

-Condition

-Age

-Value

-Useful life

2. Service history (What is my desired "sustainable" level of service?)

-Customer demand

-Regulations

-Physical capabilities of assets

3. Prioritize (Which assets are critical to sustained performance?)

-Criticality (public health, safety concern)

-Redundancy, importance

4. Develop Maintenance Plan (What are my best "minimum life-cycle-cost" capital improvement plan and my best operations and maintenance strategies?)

-Feasible strategies for your operation

-Alternative strategies

5. Develop Financial Plan (What is my best long-term financing strategy?)

-Revising rate structure

-Create reserve from current revenues

Identifying Areas of Improvement

Leaking reservoir wall

Credit: Rural Community Assistance Corporation

Spring Box with open access

Credit: Rural Community Assistance Corporation

Wellhead that needs to be replaced

Credit: Rural Community Assistance Corporation

CUPSS can help a utility identify preventive measures. Regular maintenance can prevent costly repairs; managing assets keeps the utility on track.

Lessons Learned

Tracking Fire Hydrants

Fire at DC's historic Eastern Market

Credit: Arthur Delaney, Washington City Paper

An out of service fire hydrant in DC

Credit: Dave Statter, WUSA9 News

In November 2007, DC's Water and Sewer Authority (WASA) stated that 62 fire hydrants were not working properly. The Fire Department's number was much higher – 235 fire hydrants were in need of repair or replacement in November 2007. Because there isn't a comprehensive list maintained of broken fire hydrants in DC, faulty hydrants are not discovered until a fire occurs.

Having a list of broken hydrants is not as important as having a list of aging hydrants that should be repaired, rehabilitated, or replaced. Utilities need to know it is old to take the proper measures, to prevent the break. CUPSS can help keep the staff up to date with the age of a community's assets.

Lessons Learned

Hurricane Katrina Response

Flooding in Louisiana caused by Hurricane Katrina, August 2005

Credit: Wikimedia Commons

Fallen water tower in Biloxi, Mississippi caused by Hurricane Katrina, August 2005

Credit: Andrew Richards

Photos: (left) Flooded I-10/I-610/West End Blvd interchange and surrounding area of northwest New Orleans and Metairie, Louisiana; (right) Fallen water tower in Biloxi, Mississippi

Hurricane Katrina occurred on August 23, 2005. Estimates of about 100 million gallons of wastewater was in the treatment system in New Orleans when Katrina shut the city down. EPA estimated that 200 wastewater treatment plants and 1,100 drinking-water facilities in New Orleans were affected by Katrina.

While a hurricane cannot be avoided, knowing what to do when mother nature strikes will help lessen the harmful effects on the community. Having asset inventories and maps will help utilities find and restore critical assets after a natural disaster, like a hurricane. Being able to containing wastewater and shut the system down will keep hazardous wastes out of the flood waters. CUPSS will keep track of inventories as well as tasks and procedures for utilities to follow.

Communities Using Asset Management

- Elkhart County, Indiana
  - Unaccounted for water exceeded 40%.
  - Meters were the problem – adding the proper meter in the proper location showed that they didn't have water loss at all.
  - "By incorporating an asset management program the system was able to locate the problem and correct the problem. By incorporating [maintenance] costs into the annual budget, the utility recoups the most value out of its assets and has the financial resources to rehabilitate and replace assets as needed."

According to the well house master meter and residential meters, unaccounted for water exceeded 40%. It turned out the meters were the problem with this system. In fact by adding the proper meter in the proper location, the system determined that they didn't have water loss at all.

How can CUPSS Help?

- **Communicate** effectively with decision makers!
- **Decisions** will be predictive, not reactive!
- **Ensure** funds are spent in the most appropriate manner!

Small system wellhead with hydrotank

Credit: Rural Community Assistance Corporation

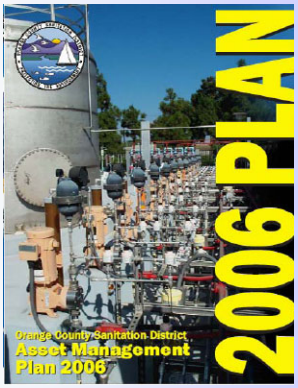
-Helps utilities be more knowledgeable about their utility – utilities will be able to confidently describe the risks of not maintaining system components

-Keeps all important information in one place – utilities will be able to effectively communicate system's requirements

-Helps keep customers happy – utilities will be able to justify long-term financial plan to customers

What Will CUPSS Do?

- Track:
  - Inventory
  - Tasks
  - Finances
- Develop a personalized Asset Management Plan!



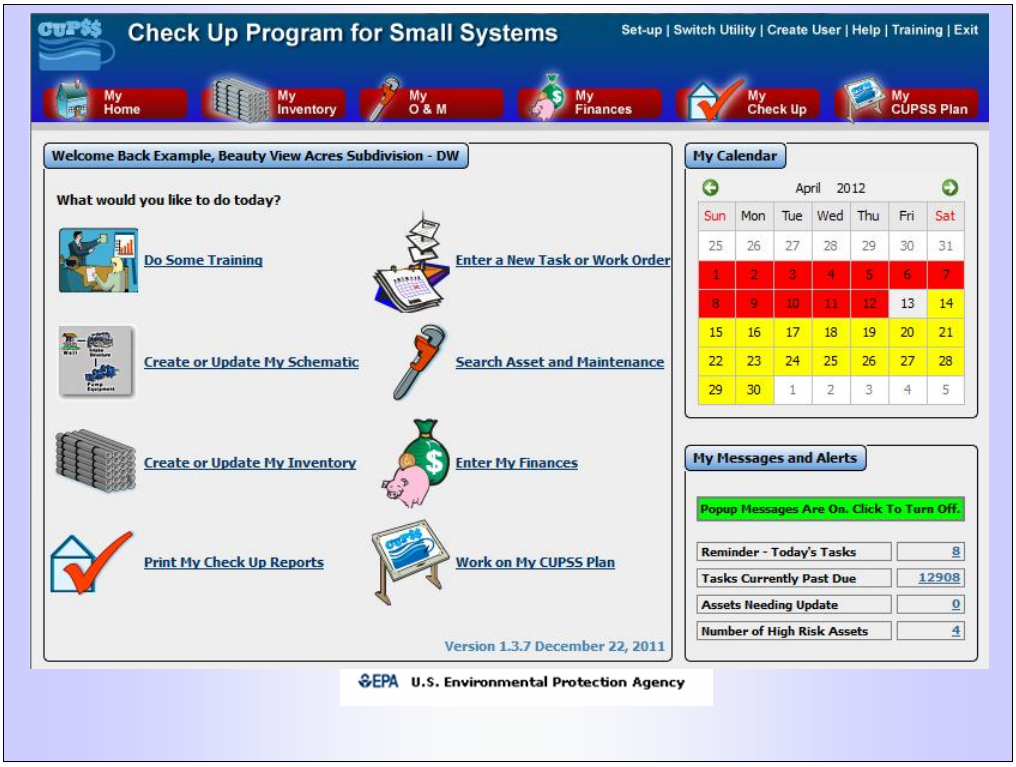
CUPSS will keep all inventory, operating and financial information in one easy to manage program. CUPSS helps utilities complete the five steps to developing a personalized asset management plan.

A CUPSS Asset Management plan will focus on a system's level of service goals:

-Response time

-Planning

-Coordination



-Introduces the asset management process

-Examples and training

-Manage asset inventory

-Schedule and track operation and maintenance activities

-Track and manage finances

-My CUPSS Reports

-Asset Management Plan

How Is CUPSS Easy to Use?

- CUPSS is tailored for small systems:
  - Simple interface
  - Less jargon
  - Baby-step approach
  - Features enable easy data entry

Small drinking water treatment plant

Credit: Village of Forsyth, IL

Photo: Top view of operating claricones within small drinking water plant in Forsyth, Illinois. Portion of plant funded with an EPA state and tribal assistance grant.

CUPSS is a simple application that is easy to use by those you manage water and wastewater utilities. The application guides a user through a straightforward five step process. There is a simple interface with less confusing jargon in a step by step approach. The features make data entry easy.

How Will We Get Started?

- Organize records
- Form a team
- Reach out to others
- Identify level of service goals

Small wastewater treatment plant

Credit: Rural Community Assistance Corporation

-Organize asset and financial records. Think about assets at the utility – when were they installed? When was the last maintenance performed?

-Form a team. Who helps manage the utility? Make important decisions?

-Reach out to others. What other utilities are implementing asset management? Using CUPSS? Is there a local CUPSS Trainer that can help me?

-Identify level of service goals. How many connections are there? What is the community's projected growth in the next 10 years?

-Technical Assistance Providers are trained to use CUPSS

-There are free how-to manuals available

-Anyone can get a copy of the CD or the manuals

Who is CUPSS For?

- CUPSS is for small drinking water and wastewater utilities that want to:
  - Apply proactive decision making
  - Prevent surprises or worse
  - Establish, reach or maintain Level of Service goals
  - Comply with financial reporting procedures (GASB 34 or FASB) for a good credit rating
  - Implement long range planning

CUPS$

-Less crisis decision making (Predictive, not reactive decision making)

-Prevent disasters

-Level of Resource goals: lower response time, more planning, and higher level of coordination

-Compliance with Government Accounting Standards Board (GASB) Statement Number 34 financial reporting procedures (private companies can also follow FASB); helps establish a good credit rating

-Utility in control of resource demands

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