



Asset Management for the Smaller System

Presented by:

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Sanitary Engineer 3

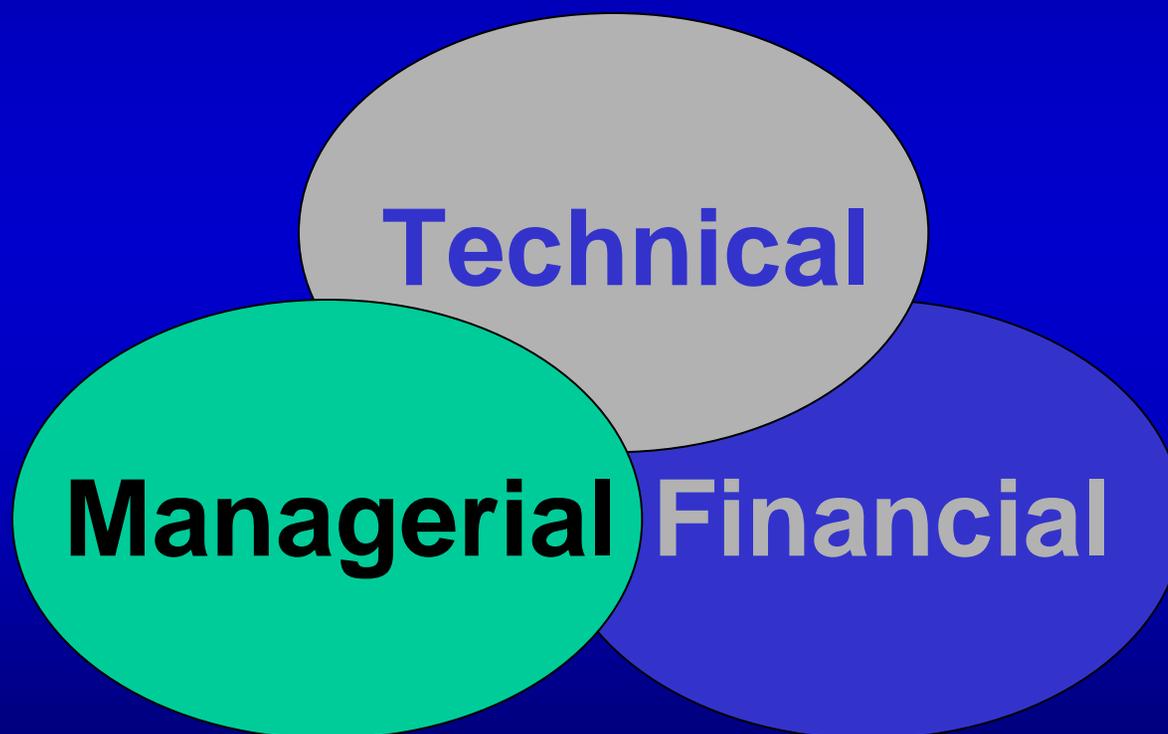
Capacity Development Unit

Department of Public Health - Drinking Water Section

ATCAVE

February 23, 2011

Drinking Water System Capacity



Managerial Capacity

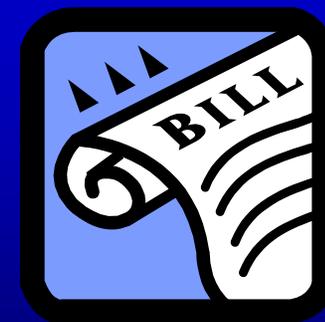
- 💧 Pride of ownership
- 💧 Competent Staffing:
 - 💧 Certified operator(s)
 - 💧 Support personnel
 - 💧 Training
- 💧 System assessment and planning
- 💧 Responsive to system needs
- 💧 Records Maintenance
- 💧 Development of standard operating procedures and policies
- 💧 Effective stakeholder communications

Technical Capacity

- 💧 Condition and location of facilities and infrastructure:
 - 💧 Drinking water source(s)
 - 💧 Treatment
 - 💧 Pumping, storage & distribution
- 💧 Supply and demand management
i.e., safe yield vs. margin of safety
- 💧 Operator Certification, training and development
- 💧 Participation in professional water associations

Financial Capacity

- 💧 Revenues that meet or exceed expenses
- 💧 Review of operating and capital budgets
- 💧 Asset Management
- 💧 Capital improvement plan
- 💧 Fiscal controls that ensure operational efficiency



Asset Management

- 💧 Managing assets to minimize the cost of ownership and operation, while delivering the desired service levels.
 1. Your public water system is an asset that depreciates over time
 2. Maintenance of facilities and equipment is necessary
 - 💧 Developing an Asset Management Plan will assist in meeting this goal (EPA Manual)

5 Questions to Answer

- 💧 What is the current state of my assets?
- 💧 What is my required level of service?
- 💧 Which assets are critical to sustained performance?
- 💧 What are my best O&M and capital improvement strategies?
- 💧 What is my best long-term funding strategy?



Four Steps to Start Your Asset Management Plan

1. Inventory System
2. Assess Condition
3. Prioritize your Assets
4. Capital Improvement Plan



First: Inventory System

- 💧 What do you have? Where is it?
 - 💧 Well (source)
 - 💧 Well house
 - 💧 Treatment components
 - 💧 Storage tank
 - 💧 Valves
 - 💧 Distribution system
 - 💧 Electrical components
 - 💧 Etc.....



Second: Assess Condition

- 💧 Age
- 💧 Original expected useful service life
- 💧 Condition
- 💧 Estimated remaining service life
 - 💧 It may be beyond its service life
- 💧 Maintenance history
 - 💧 Equipment info: Make, model, supplier
 - 💧 Record of who installed & serviced



Estimated Useful Service Life



- How to determine?
 - EPA estimates/guidelines (Asset Management handbook)
 - Manufacturer recommendations
- Can vary depending on conditions and maintenance
- Maximum life is based on ideal conditions and proper maintenance

Inventory Worksheet

💧 What do you need to know about the asset?

- 💧 Category
- 💧 Type
- 💧 Status (active, etc.)
- 💧 Condition
- 💧 Consequence of Failure
- 💧 Redundancy – do you have back-up?
- 💧 Age (installation date or year)
- 💧 Useful life remaining
- 💧 Cost (original & replacement)
- 💧 Optional (recommended): manufacturer & installer

Third: Prioritize Your Assets

- 💧 How important or critical is it to your system? – High, medium, low, etc.
- 💧 Priority – prioritize each asset (1, 2, 3, etc.)
- 💧 What is the consequence if the asset failed?
- 💧 How bad would it be if this asset failed unexpectedly?



OR



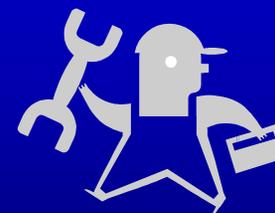
Fourth: Capital Improvement Plan

- 💧 A budgeting and financial tool that a water system can use to establish asset rehabilitation and maintenance priorities and to budget for repairs and improvements
- 💧 Budget for rehabilitation and/or replacement of assets



Operation & Maintenance

- 💧 What can you do in-house?
- 💧 What needs more expertise?
- 💧 Service contract or on-call?
- 💧 Daily, monthly, annually, etc.
- 💧 What duties does your Certified Operator perform?



Other Elements of Capacity

- 💧 Emergency Planning
- 💧 Water Outage – what to do
- 💧 Security – reporting and responding protocols
- 💧 Reporting to DWS
 - 💧 Emergencies, MCL violations, interruptions in water system operation, etc.

Current Issue – Potential Flooding



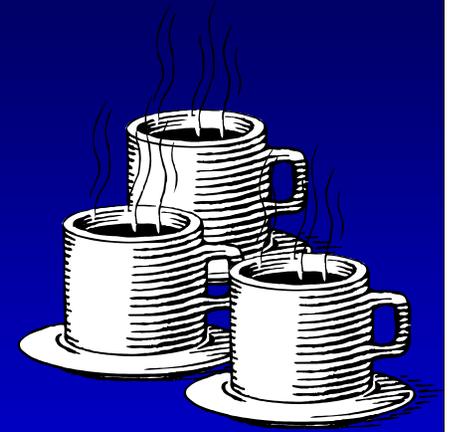
- 💧 Flooding from snow melt – is your system vulnerable?
- 💧 Could flooding wash out roads/soil and expose pipes or cause breaks?
- 💧 Do you know where your valves are?
- 💧 Article from Safe Drinking Water Trust:
<http://www.watertrust.org/articles.asp>

CUPSS - Check Up Program for Small Systems

- 💧 EPA Asset Management desktop software
- 💧 **FREE!!!**
- 💧 <http://water.epa.gov/infrastructure/drinkingwater/pws/cupss/index.cfm>
- 💧 Password protected access to data
 - 💧 Who is on the water system team?
 - 💧 What is each person responsible for?

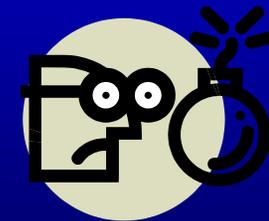


CUPSS, cont.



- ☘ List of Assets
- ☘ Condition, age, expected useful life of assets
- ☘ Prioritizes Capital Improvement projects
- ☘ Operational schematic
- ☘ Operation & Maintenance tasks
- ☘ Finances – revenue vs. expenses
- ☘ Generates customizable reports

Asset risk – Consequence and Probability of Failure



Getting into CUPSS

Check Up Program for Small Systems (CUPSS)

Check Up Program for Small Systems (CUPSS)

CUPSS

Welcome to CUPSS
Brought to you by USEPA

UNITED STATES • AGENCY
ENVIRONMENTAL PROTECTION

Welcome! CUPSS is meant to make asset management easy for you. To make it even easier to use CUPSS, information from a small community with both drinking water and wastewater assets has been provided as an example. You may view the example or proceed directly to Your CUPSS.

Enter Example CUPSS **Enter Your CUPSS**

Trainers - Advanced Options

Select Database: Your CUPSS **Enter**

Create Database **Load Database** **Remove Database**

Example –
pre-loaded
system
information

Enter Your CUPSS – the first time
will be the initial set-up

Asset Management Team & CUPSS Users

- 💧 Determine who will have access to your CUPSS program (user)
- 💧 Add as many names as you need to; not all need to have access to CUPSS (i.e. no username or password)
- 💧 Names are used to assign responsibility



CUPSS "My Home" Screen

Check Up Program for Small Systems (CUPSS)

CUPSS Check Up Program for Small Systems Set-up | Switch Utility | Create User | Help | Training | Exit

My Home | My Inventory | My O & M | My Finances | My Check Up | My CUPSS Plan

Welcome Back Example, Beauty View Acres Subdivision - DW

What would you like to do today?

- [Do Some Training](#)
- [Create or Update My Schematic](#)
- [Create or Update My Inventory](#)
- [Print My Check Up Reports](#)
- [Enter a New Task or Work Order](#)
- [Search Asset and Maintenance](#)
- [Enter My Finances](#)
- [Work on My CUPSS Plan](#)

Version 1.3.5 February 1, 2010

My Calendar

February 2011

Sun	Mon	Tue	Wed	Thu	Fri	Sat
30	31	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	1	2	3	4	5
6	7	8	9	10	11	12

My Messages and Alerts

Popup Messages Are On. Click To Turn Off.

Reminder - Today's Tasks	8
Tasks Currently Past Due	9273
Assets Needing Update	0
Number of High Risk Assets	3

Training Module: "Do Some Training"



Do Some Training

Training Options

1. Flash Tutorials - Click on a tutorial below to see a brief walk-through on how to use CUPSS. Though the application has been updated since the development of this training and some of the flash training is now out of date, it still provides users a instruction for how to use the application. *(Note - these tutorials will open your browser, you may be asked to download a Flash plug-in if these tutorials do not play.)*

 <u>Introduction</u> 4:19	 <u>Overview & My Home</u> 7:17	 <u>My Inventory</u> 6:04	 <u>My O&M</u> 3:02
 <u>My Finances</u> 4:13	 <u>My Check up</u> 5:50	 <u>My CUPSS Plan</u> 3:14	

2. User's Guide

3. More Training on the Web
Go to epa.gov/cupss for additional training materials and a list of training dates in your area.

- 💧 Tutorials are available for each module
- 💧 Will open in your web browser
- 💧 User Guide
- 💧 Link to EPA CUPSS website

My Inventory

Check Up Program for Small Systems (CUPSS)

CUPSS Check Up Program for Small Systems Set-up | Switch Utility | Create User | Help | Training | Exit

My Home **My Inventory** My O & M My Finances My Check Up My CUPSS Plan

Beauty View Acres Subdivision - DW Asset Inventory

The My Inventory section allows you to create/edit a schematic, create/edit an asset inventory list, view asset information and search your data.

[Create or Edit My Schematic](#) [View My Inventory List](#) [Search](#)

[Create or Edit My Inventory List](#) [View My Capital Improvement Projects](#) [Export to KMZ](#)

Beauty View Acres Subdivision - DW Schematic

Asset Risk Matrix [Click to Expand](#)

Inventoried Asset List

- Source
 - Well#1
 - pump
 - Wellhouse
 - well property
- Pumping Facility
 - Main valve
 - Security
 - Chlorinator
- Treatment
 - Chlorine testing
- Storage
 - Storage Tank
- Distribution
 - Water Production Meter
 - Tank

My Inventory – the Asset Inventory

- 💧 Create & Edit the Inventory of your system
- 💧 Create & Edit a Schematic of flow using pre-loaded icons
- 💧 View your Inventory list
- 💧 View your Capital Improvement Projects list

Schematic

Check Up Program for Small Systems (CUPSS)

CUPSS Check Up Program for Small Systems Set-up | Switch Utility | Create User | Help | Training | Exit

My Home | My Inventory | My O & M | My Finances | My Check Up | My CUPSS Plan

Beauty View Acres Subdivision - DW Print Schematic

well property | Wellhouse | Well #1 | pump | Main valve | Water Production on Meter | Chlorinator | Storage Tank | Distribution | Chlorine testing

Source
 Wells and Springs
 Intake Structures
 Pumping Facility
 Treatment
 Storage
 Distribution
 Other

Schematic, cont.

- 💧 Visual representation of your system
- 💧 Pre-set icons for different asset types
- 💧 Can link assets
 - 💧 E.g. Well #1 and Well #1 pump
- 💧 Linked assets can also represent water flow through your system

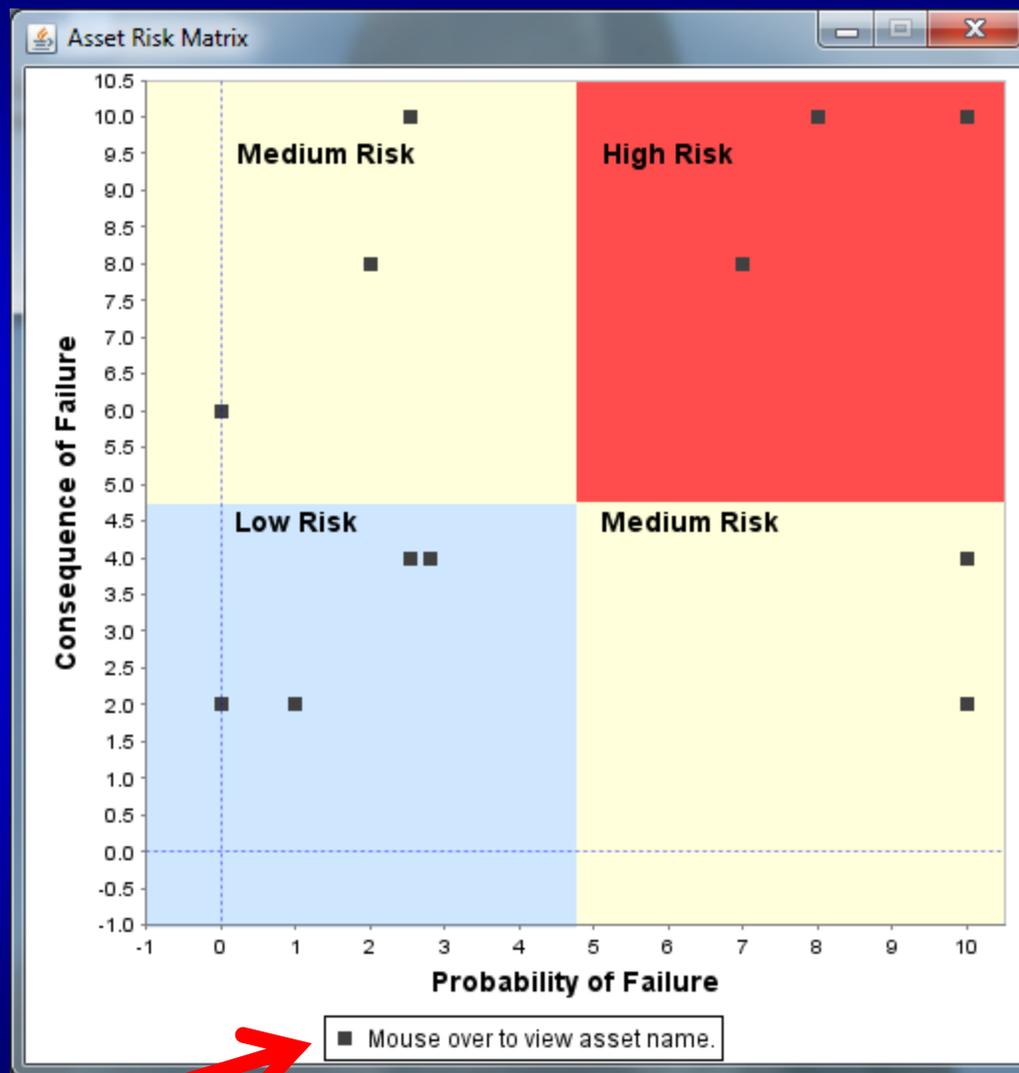


“My Capital Improvement Projects”

- 💧 From the “Inventory” screen, click on “**View My Capital Improvement Projects**”
- 💧 Lists the assets, assigns a priority rank, and calculates “Recommended Action” and “Recommended Date” based on the information entered
 - 💧 The date can be manually changed in this screen

Asset Risk Matrix

- Chart to help assess the risk associated with each asset
- Calculated from information entered about each asset in the inventory



Operation & Maintenance

- 💧 “My O&M” – a monthly calendar with daily tasks.
 - 💧 “Enter a New Task or Work Order” also takes you to this screen
- 💧 “Search Asset & Maintenance” – allows you to print reports or work orders for the asset(s) you select

Tasks

Required info:

- Task name
- Type (from pre-set list)
- Name of responsible staff member
- Start & end dates – can be recurring

Optional info:

- Associate task to an asset
- Chemical information (if applicable)
- Parts information

Task Notification

Right Click on Item to Edit

Task Name	Task Due Date	Task Status
Check and record chlori...	2/22/2011	TODAY'S TASK
Check and record water...	2/22/2011	TODAY'S TASK
Check instrumentation f...	2/22/2011	TODAY'S TASK
Check water meter rea...	2/22/2011	TODAY'S TASK
Complete a daily securit...	2/22/2011	TODAY'S TASK
Inspect heater operatio...	2/22/2011	TODAY'S TASK
Inspect well pumps, mo...	2/22/2011	TODAY'S TASK
Investigate customer co...	2/22/2011	TODAY'S TASK
Check and record chlori...	2/21/2011	PAST DUE TASK
Check and record water...	2/21/2011	PAST DUE TASK

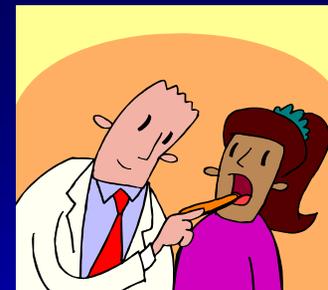
Close



"My Finances"

- 💧 Enter and track expense & revenue information
- 💧 Organized by year
- 💧 Pre-set categories for 'type of cost'
- 💧 Generate a graph at the click of the mouse





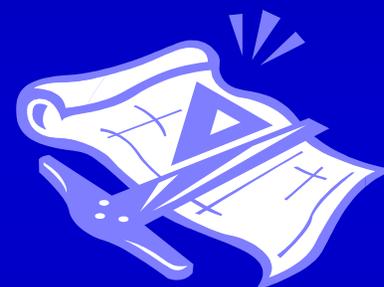
"My Check-Up"

- 💧 Two types of reports to analyze the data entered
 - 💧 My Asset Check-up Report
 - 💧 View & customize your prioritized list of assets
 - 💧 My Financial Check-Up Report
 - 💧 View & customize budget predictions

- 💧 The reports can help you communicate with decision-makers and are a building block in developing an Asset Management Plan

My CUPSS Plan

- 💧 Create a customized Asset Management Plan
- 💧 7 steps to complete the plan
 1. Utility Profile
 2. Mission and Level Of Service (LOS) Agreement
 3. Critical Assets
 4. O&M Strategy
 5. CIP – Capital Improvement Program
 6. Financial Management Strategy
 7. Finalize Plan
- 💧 Most information is pre-populated – can modify as necessary



Sanitary Survey & Water Supply Plan

- 💧 Using CUPSS will maintain water system records
- 💧 Have information to answer our questions during a sanitary survey
- 💧 Use the data from CUPSS to help prepare your water supply plan (My CUPSS Plan)



Helpful Worksheets



- 💧 Use to gather necessary data to enter into CUPSS
 - 💧 Inventory List (separate lists for Drinking Water and Wastewater)
 - 💧 New Task
 - 💧 Finances
- 💧 Where are they? (Click on 'Print Blank Worksheet')
 - 💧 Asset Inventory form screen
 - 💧 My O&M screen
 - 💧 My Finances screen

Effective Utility Management (EUM)

- 💧 EPA is working with national organizations that support drinking water & wastewater utilities to identify the characteristics of sustainable utilities and to promote effective utility management
- 💧 10 Attributes of Effectively Managed Utilities
- 💧 Not just for the big utilities!
- 💧 Tailor the concepts to fit your needs

10 Attributes of Effectively Managed Utilities

- 💧 Product Quality
- 💧 Customer Satisfaction
- 💧 Financial Viability
- 💧 Community Sustainability
- 💧 Stakeholder Understanding & Support
- 💧 Operational Optimization
- 💧 Operational Resiliency
- 💧 Infrastructure Stability
- 💧 Water Resource Adequacy
- 💧 Employee & Leadership Development

Effective Utility Management Resources

- 💧 EPA Website:
<http://water.epa.gov/infrastructure/sustain/watereum.cfm>
- 💧 Resource Toolbox: www.watereum.org
- 💧 “Water Sector Collaboration of Effective Utility Management” – Fact Sheet May 2007
- 💧 “Effective Utility Management – A Primer for Water & Wastewater Utilities”

EPA Sustainability Policy



- 💧 EPA Sustainable Water Infrastructure
<http://water.epa.gov/infrastructure/sustain/>
- 💧 Water systems should use robust and comprehensive planning processes when making investments in infrastructure so that they are cost-effective over their life cycle, are resource efficient, and are consistent with community sustainability goals.

EPA Sustainability Policy

- 💧 Systems should have on-going collaboration with all stakeholders to determine where and how water infrastructure investments are made in their communities.



EPA Environmental Finance Centers (EFC)

- 💧 EFC network:

 - <http://www.epa.gov/efinpage/efcn.htm>

- 💧 Various software programs to help with water system financial management

- 💧 Website dedicated to sustainable infrastructure:

 - <http://efc.boisestate.edu/efc/SI/tabid/149/Default.aspx>

- 💧 Also offer **FREE** on-line training

EPA STEP Guides

Simple Tools for Effective Performance

- 💧 Taking Stock of Your Water System: An Asset Inventory for Very Small Water Systems
- 💧 Sources of Financial and Technical Assistance for Small Systems
- 💧 Strategic Planning: A Handbook for Small Water Systems
- 💧 Asset Management: A Handbook for Small Water Systems
- 💧 Setting Small Drinking Water System Rates for a Sustainable Future

EPA Best Practices Guides & Quick Reference Guides

- 💧 Water System Operator Roles & Responsibilities
- 💧 Talking To Your Decision Makers
- 💧 Water System Owner Roles & Responsibilities
- 💧 Distribution Systems
- 💧 Cross-Connection Control
- 💧 Record Keeping Rules
- 💧 Asset Management
- 💧 Building an Asset Management Team
- 💧 Asset Management for Local Officials



Helpful Information

- 💧 DPH website: www.ct.gov/dph
- 💧 DWS website: www.ct.gov/dph/publicdrinkingwater
- 💧 DWS Phone: (860) 509-7333 (during business hours: M-F 8:30 am – 4:30 pm)
- 💧 DPH Main/Emergency phone: (860) 509-8000 (outside of business hours)
- 💧 US EPA website:
<http://water.epa.gov/drink/index.cfm>
- 💧 EPA Small system info (including STEP, Quick Reference, Best Practices guides, & CUPSS):
<http://water.epa.gov/type/drink/pws/smallsystems/index.cfm>

Feedback

💧 Questions??

💧 Comments??

