Getting Started with CUPSS

A Workbook for Users

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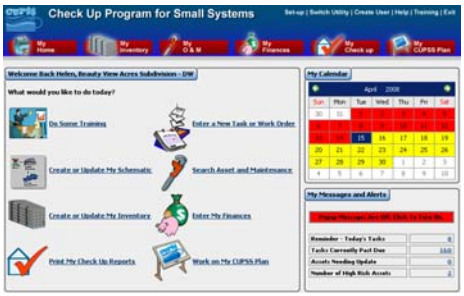
Getting Started with CUPSS



This workbook is designed to give you five easy steps to get ready for using the Check Up Program for Small Systems (CUPSS) for drinking water and wastewater utilities—the new asset management software developed by the U.S. Environmental Protection Agency (EPA). By completing several pencil-and-paper exercises, you will have a head start on 'doing asset management' and adding your information into CUPSS. Let's get started!

For step-by-step instructions on installing and using CUPSS, consult your User's Guide.

Before you Begin

Before you begin using this workbook, you might have a few questions about CUPSS. Maybe your state regulator or a technical assistance provider handed you this workbook and said, "Go for it!" In this section, we'll give you a little bit of information about the CUPSS software and how you might find it beneficial. We'll even tell you what asset management really means for your utility.

The first thing you may ask is "What is CUPSS?" CUPSS is 'desktop software,' meaning it is a program that runs on your PC at no cost to the user. Because CUPSS is desktop software, all of your CUPSS data will be stored on your computer and is not accessible by EPA. You do not need an Internet connection to use CUPSS, just a computer to load the software. If you are connected, the program can use the Internet so that you can register your copy and update your version when necessary. If you have questions about technical specifications, consult your User's Kit. The User's Kit is a binder that contains everything you need to know about CUPSS. It includes the *CUPSS Installation CD*, helpful fact sheets like the *Asset Management Best Practices Guide* as well as the *CUPSS User's Guide*.

CUPSS is asset management software; its purpose is to help you organize and develop a plan for the physical and financial health of your drinking water or wastewater utility. If you are effectively managing your assets, you should be able to successfully meet customers' expectations at an appropriate cost.

Like other types of computer software, there are two key components—*input* (what goes in), and *output* (what comes out). CUPSS relies on a combination of specific information entered by the user and general information provided by EPA. The information entered by EPA has been inserted to provide additional assistance—such as the life expectancy of 6" mains—to provide simple, eye-opening reports. You only need to enter in a couple of important assets and last year's financial statement to generate a targeted action plan.

You are likely most intrigued by what CUPSS can actually do for you. We think CUPSS will help you do these tasks:

- Communicate with the decision makers in your community

- Make more informed, proactive choices
- Improve the efficiency and focus of your operations
- Maximize limited financial resources

Like anything worth doing, integrating CUPSS and asset management into your utility's culture will take time and effort. These are certainly high goals, but we think taking the simple approach used in CUPSS will result in great strides forward for your community.

Helpful Tip:

Don't forget to check out http://www.epa.gov/cupss to register your copy of CUPSS, find training events near you and learn more about asset management.

Step 1 – Why am I here?

Your discovery of CUPSS might have been by accident, on purpose or by recommendation. It might even have been a condition of a loan or grant agreement. Regardless of the how, it is time to think about the why. Ask yourself, "Why should I or anyone else use CUPSS? How can this program help me operate and manage my utility more efficiently?" These exercises will answer these and many other questions you might have.

Also start thinking about who helps you manage your utility—whether it be with operations or financial records. Having your team in mind will help you with the exercises included in this workbook.

Let's begin by identifying what you are doing well. We will start by listing **three areas of your utility where you see yourself already succeeding.** For example, if you have someone, perhaps a town clerk or someone else, who keeps your accounting records organized and up-to-date, this would be great to include below. Keeping these strengths in mind will help you leverage opportunities for making changes as needed.

1. _____

2. _____

3. _____

Helpful Tip:

A map will help your utility understand the current service capacity. Use Internet-based mapping tools (try Google Maps or Google Earth) to visually designate the boundary of your utility's service area and important features. You can also do this by hand using a regular or topographic map!

Now, think about and list three areas in your management strategy that could be improved to facilitate your customer service interactions and relationships. For example, having a comprehensive list of aging fire hydrants that need to be rehabilitated or repaired is beneficial to the safety of a community.

1. _____

2. _____

3. _____

CUPSS will help improve these areas! CUPSS also provides additional information addressing other potential areas of improvement. These areas can be as simple as improving customer relations or as detailed as developing a long-term maintenance strategy. **What would you like to improve and how would you do it?** Select one of the areas you just listed, create a target goal and date. **What is your first step toward reaching your goal?** Think about it and write it below.

Here is an example: You have an issue area of "leak or break response time" Your current response time is 24 hours.

Specific Goal: Reduce the leak or break response time by 50%
Goal Date: One year
First Step: Convene a meeting of all utility staff to discuss why the response time is currently 24 hours

Area Selected #____

Specific Goal: _____

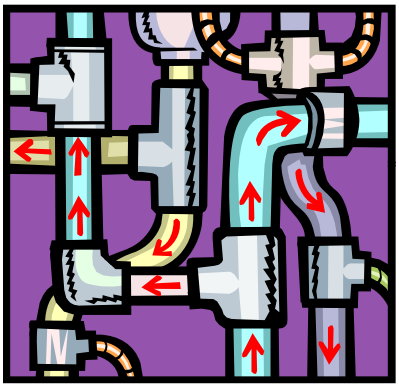
Goal Date: _____

First Step: _____

Goal and milestone tracking is crucial in asset management applications. CUPSS will allow you to establish and keep track of both while conducting normal activities and following your established maintenance plan. For now, just keep thinking about these important issues. When you start using the software, it will automatically prompt you to formally begin the goal-setting process.

Helpful Tip:

Get a head start on data entry by getting your files organized!



Step 2 – What assets do I have?

Now that you have figured out where you are and why you are here, let's examine your utility's assets. We will use a drinking water chlorination system as an example. How much do you know about the chlorination system? Can you answer the following questions about this chlorination system? Do you know how your responses make the difference between having safe, disinfected water and potentially health-hazardous water?

- When was it installed?
- How much did it cost?
- When was the last major repair?
- What maintenance will you perform on it this year?
- What and when are the typical routine maintenance actions performed?
- When are the major components scheduled to be replaced?
- Will you be financially prepared to replace a major component if it fails?

If you knew the answers to all these, you are already on the fast track to success. It is more likely, however, that you knew some of the answers and knew where or how to find the rest. CUPSS helps you identify your assets; allowing all of your important asset information to be stored in one place.

While entering information about each of your assets is the most time-consuming part of CUPSS, it is not difficult. In fact, this workbook has been developed to make it an easier process. The form on the next page is similar to what you will see in CUPSS within the "My Inventory" section. You can make copies of it, attach it to a clipboard and start digging out those records. Taking baby steps—like planning 30 minutes every day to add one of the major assets in your system—will have you in great shape in no time. Once you have mastered this process, you can start using CUPSS to inventory and manage your assets. Just copy the information you collected on the forms and putting it into CUPSS. Because CUPSS contains dropdown features and help tools, you'll find it more efficient to use the software. But for now, let's focus on thinking about the most important assets you have.

Helpful Tip:

Start with what you know and don't worry about leaving blanks. You can always come back later!

Inventory List (Drinking Water)

Asset Name	Location
Associated Asset	**Associated Location**

Asset Category

❑ Source ❑ Pumping Facility ❑ Treatment ❑ Storage ❑ Distribution ❑ Other

Asset Type

❑ Wells and Springs	❑ Valves	❑ Hydrants	❑ Galleries and Tunnels
❑ Intake Structures	❑ Computer Equipment/ Software	❑ Treatment Equipment	❑ Meters
❑ Pumping Equipment	❑ Transformers/ Switchgears/ Wiring	❑ Lab/Monitoring Equipment	❑ Raw Water Reservoirs
❑ Disinfection Equipment	❑ Motor Controls/Drives	❑ Tools and Shop Equipment	❑ Generators
❑ Hydropneumatic Tanks	❑ Sensors	❑ Transportation Equipment	❑ Liquid Waste Handling & Disposal
❑ Concrete & Metal Storage Tanks	❑ Buildings	❑ Security Equipment	❑ Solid Waste Handling & Disposal
❑ Transmission Mains	❑ Service Lines	❑ Land	❑ Other
❑ Distribution Pipes			

Asset Status

❑ Active ❑ Not in Use – Abandoned ❑ Not in Use – Back Up ❑ Future Investment

Can this Asset be Repaired? ❑ Yes ❑ No

Can this Asset be Rehabilitated? ❑ Yes ❑ No

Condition

❑ Excellent ❑ Good ❑ Fair (Average) ❑ Poor ❑ Very Poor

Is the asset maintained according to manufacturer's recommendations? ❑ Yes ❑ No

Consequence of Failure

❑ Insignificant – CoF of 2 ❑ Minor – CoF of 4 ❑ Moderate – CoF of 6
❑ Major – CoF of 8 ❑ Catastrophic – CoF of 10

Redundancy

❑ 0% Backup ❑ 50% Backup ❑ 100% Backup ❑ 200% Secondary Backup

Installation Date	Original Cost
	$
Expected Useful Life	**Replacement Cost**
	$
Routine Maintenance Costs	**Timeframe**
$	❑ per/day ❑ per/week ❑ per/month ❑ per/year ❑ lifetime

Optional Information

Frequency of Routine Maintenance	Start Date
Model Number	**Manufacturer**

Supplier Name

Address	City, State, Zip
Phone Number	**Fax Number**

Notes

Inventory List (Wastewater)

Asset Name	Location
Associated Asset	**Associated Location**

Asset Category

❑ Pumping Facility ❑ Treatment ❑ Storage ❑ Collection ❑ Other

Asset Type

❑ Pumping Equipment ❑ Disinfection Equipment ❑ Concrete & Metal Storage Tanks ❑ Transmission Mains ❑ Valves ❑ Computer Equipment/ Software	❑ Transformers/ Switchgears/ Wiring ❑ Motor Controls/Drives ❑ Sensors ❑ Buildings ❑ Service Lines ❑ Treatment Equipment	❑ Lab/Monitoring Equipment ❑ Tools and Shop Equipment ❑ Transportation Equipment ❑ Security Equipment ❑ Land ❑ Sewers ❑ Pressure Pipework	❑ Galleries and Tunnels ❑ Meters ❑ Generators ❑ Liquid Waste Handling & Disposal ❑ Solid Waste Handling & Disposal ❑ Other

Asset Status

❑ Active ❑ Not in Use – Abandoned ❑ Not in Use – Back Up ❑ Future Investment

Can this Asset be Repaired? ❑ Yes ❑ No

Can this Asset be Rehabilitated? ❑ Yes ❑ No

Condition

❑ Excellent ❑ Good ❑ Fair (Average) ❑ Poor ❑ Very Poor

Is the asset maintained according to manufacturer's recommendations? ❑ Yes ❑ No

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	$
Routine Maintenance Costs	**Timeframe**
$	❑ per/day ❑ per/week ❑ per/month ❑ per/year ❑ lifetime

Optional Information

Frequency of Routine Maintenance	Start Date
Model Number	**Manufacturer**

Supplier Name

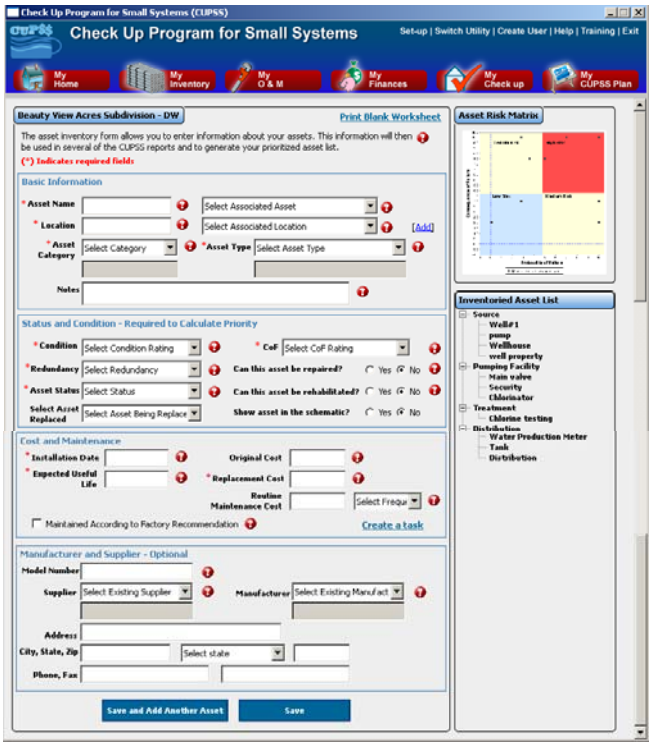
Address	City, State, Zip
Phone Number	**Fax Number**

Notes

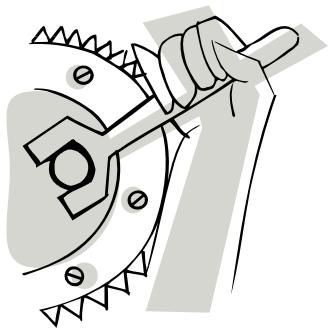
Once you have a few assets documented, begin thinking about how you'll enter your assets in CUPSS!

1st Start by entering the most important assets you have. Let's use a chlorination system (like the previous asset example). You'll type *Chlorination System* into the box beside Asset Name.
2nd Where is your chlorination system located? You'll type this information in the Location box on this form.
3rd What is the Asset Category for your chlorination system? Not sure what an Asset Category is? Any time you're not sure what to type in the form, click the red circle with a question mark, and help text appears to guide you along the way.
Next Go through the rest of the boxes to enter all the information you have available about your chlorination system.
Done! Do you want to add another asset to CUPSS? If so, click the "Save and Add Another Asset" button. If you want to wait to add more assets, click the "Save and Return Home" button. Whatever you decide, be sure to click one of these buttons! You want to save all the information you entered.

Wasn't starting your inventory list easy? You'll be ready for CUPSS in no time!



For specific details on "My Inventory," see Chapter 5 of the CUPSS User's Guide.



Step 3 – What do I do every day?

Do you often feel like saying, "I barely remember what I did yesterday, let alone two years ago!" You are not alone! Recalling the service history of important parts of your utility is as critical as planning how you will get things done in the future. CUPSS allows you to do both. It is important to develop habits that make and keep record-keeping super easy.

> Reminder! For help with record-keeping procedures, see *Record Keeping Rules: A Quick Reference Guide.* September 2006, EPA 816-F-06-033.

Let's practice developing a service record to see how easy it can be. When maintaining a service record, you must begin by entering in all necessary information into the task list shown on the next page. Use it over the next few days to plan and track both routine and unexpected maintenance tasks. You can print this form from the "My Inventory" section. Don't forget that you'll be entering your information into CUPSS when you're done! Pretty soon, you'll be using CUPSS without relying on these paper versions. But for now, let's get started with tracking the tasks you can think of right now.

Helpful Tip:

Institutional knowledge is valuable! If you already keep service records, it is well worth spending time each week entering them into CUPSS!

Remember the bigger picture!! We understand that operating a water or wastewater utility is a tough job that requires a lot of brain power. To get ahead of the curve, it helps to plan. What preventive actions do you routinely take? Write down three important tasks you complete routinely, say, every quarter.

1. _____

2. _____

3. _____

Are these written down anywhere else? Is there a record of these tasks? How do you ensure that they are completed? The next form looks very similar to CUPSS. Begin filling it out, starting with the three tasks above.

New Task

Staff Name	Task Name

Task Type

❑ Monitoring ❑ Routine Maintenance ❑ Repair ❑ Rehabilitation ❑ Replacement ❑ Other

Is this task planned? ❑ Yes ❑ No

Task Details

Task Notes

Cost of the Task	$

For Asset-related Tasks

Asset Name	

Condition

❑ Excellent ❑ Good ❑ Fair (Average) ❑ Poor ❑ Very Poor

Is the asset maintained according to manufacturer's recommendations? ❑ Yes ❑ No

For Monitoring Tasks

Chemicals	Amount

Schedule

Task Start-End Date	Completed Date

Frequency

❑ Daily ❑ Weekly ❑Monthly ❑ Annually

Recurs every

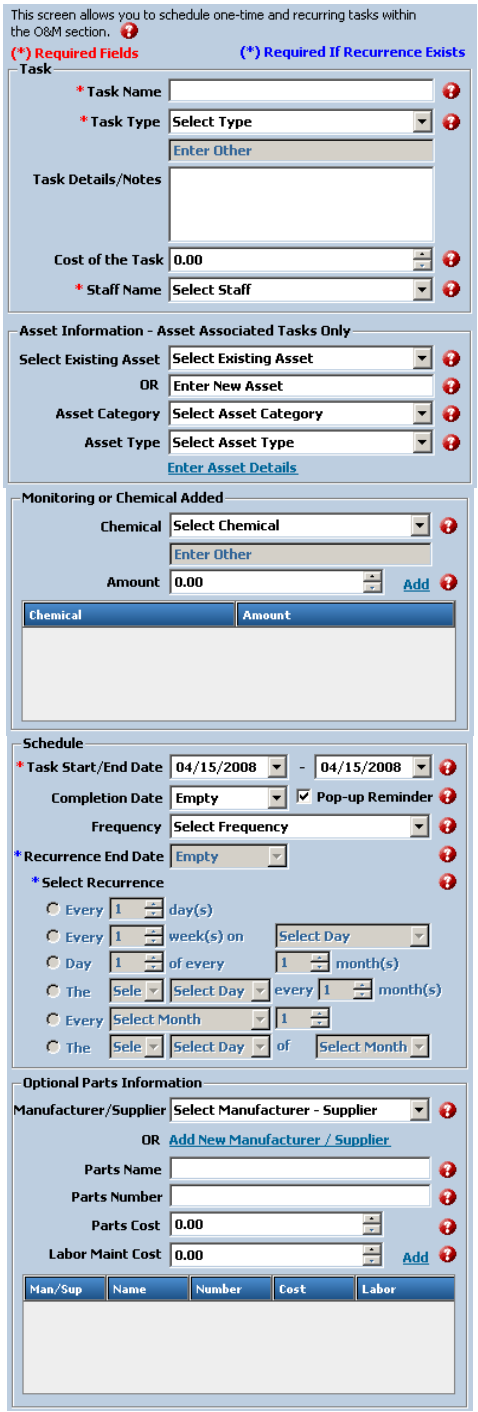
_____ days	_____ week on _____ (Day of week)	_____ day of every ____ (Month)

Recurrence End Date	

Optional Parts Information

Manufacturer/Supplier	
Parts Name	
Parts Number	
Parts Cost	$
Labor Maintenance Costs	$

You can take these tasks that you've listed on the last form and enter them into your CUPSS tasks list. Just select "Add a Task" in the "My O&M" section. Enter the *Task Name* and specific details about the task. For an asset-specific task, such as pressure testing your pipes, you can pick from one of the assets you've already entered into CUPSS or you can enter a new asset. It's best to put as much information as you can into the system because it saves it for you. Now your tasks are in your CUPSS calendar! CUPSS recommends many preventive maintenance tasks and allows you to enter your own, all on this central calendar.



For specific details on "My O&M," see Chapter 6 of the CUPSS User's Guide.

Step 4 – Where is the money going?

As you've been learning, CUPSS is intended to make your job easier. Financial decisions are one of the most important and most difficult aspects of managing a utility. Do you know what you will need to spend in the next 5 years? CUPSS will help. However, before CUPSS can give you indicators of your future financial health, it needs some information from you.

Use the next form to summarize last year's financial statement or this year's budget. You can use the revenue and expense categories listed or add your own.

Helpful Tip:

Customer rates and service related fees should recover the full cost of service, offset by any grants the system receives for capital improvements.

Finances

Year	Cash on Hand	Interest Rate
	$	

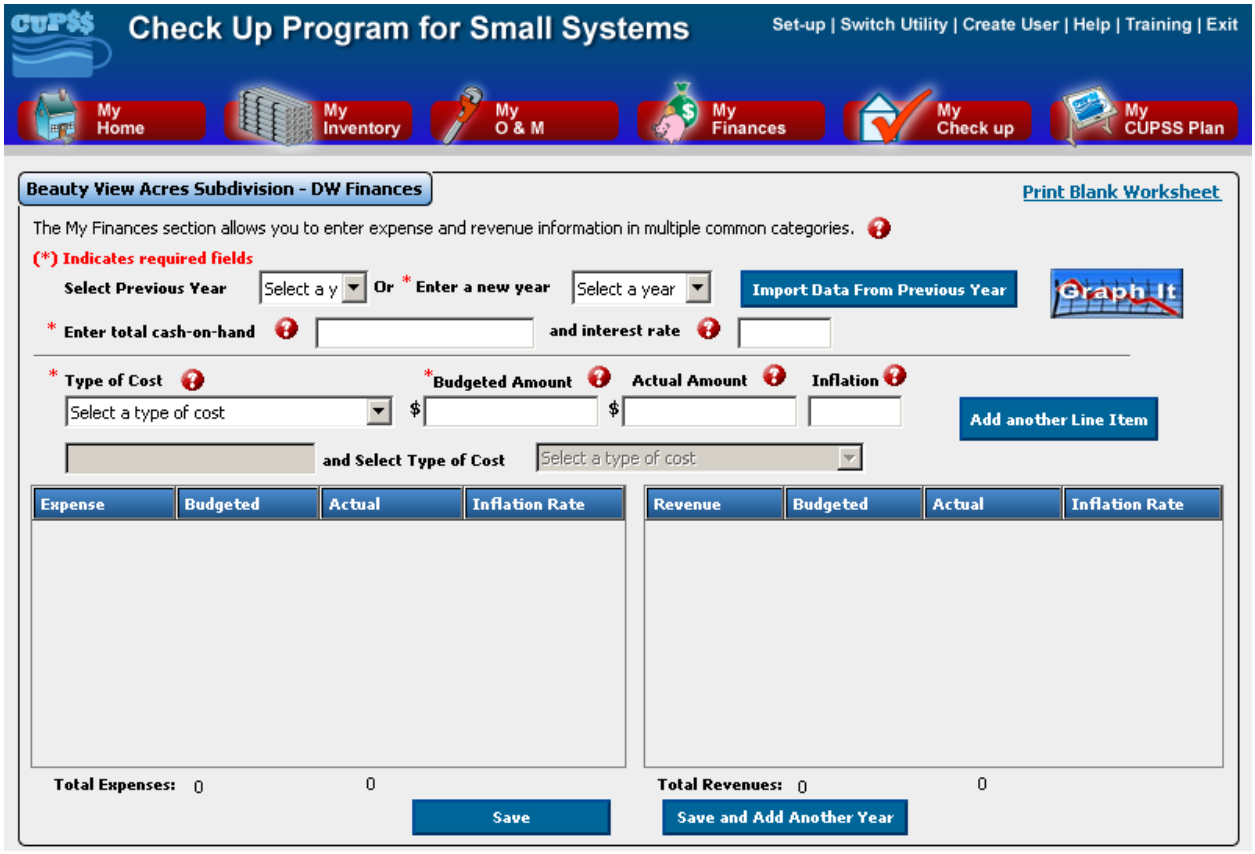
Revenue

Revenue from user rates			$
Revenue from grants			$
Revenue from loans/bonds			$
Transfer from reserve fund			$
Interest			$
Other Revenues (Total)			$
❑ One-time fees	$	❑ Contract sales	$
❑ Bulk sales	$	❑ Product sales	$
Other			$
Total Revenue			**$**

Expenses

Operating Expenses (Total)			$
❑ Maintenance	$	❑ Equipment	$
❑ Salaries, wages, benefits	$	❑ Supplies	$
❑ Chemicals	$	❑ Contracts	$
❑ Utilities	$	❑ Monitoring & testing	$
❑ Emergency	$	❑ Rent or mortgage	$
❑ Insurance	$	❑ Services	$
❑ Training Costs	$	❑ Billing Costs	$
❑ Fees	$	❑ Security	$
Capital Improvements			$
Debt Payment			$
Capital Reserve Contribution			$
Emergency Reserve Contribution			$
Other			$
Total Expenses			**$**

Using "My Finances" keeps track of all your budgeted and actual revenues and expenses that you expect to occur this year. It also keeps track of what your revenues and expenses were for past years. You'll even be able to graphically display how your finances change each year by simply clicking the "Graph It" button at the top right of this section. In addition, you'll be able to see your actual expenses and revenues in relation to your current interest rate—without having to figure out any tough calculations. This is a simple, yet crucial, preparation step for understanding how to recover the full cost of doing business. Coupled with several completed asset records, you will be well on your way to harnessing the full powers of CUPSS and long-term success of your utility.



For specific details on "My Finances," see Chapter 7 of the CUPSS User's Guide.

Step 5 – What now?

It is likely that you needed to do some searching for the information we requested in this workbook. Maybe you needed to ask others for help or sell your decision makers on the process. Before you open the User's Kit, take a few moments to list potential members of your CUPSS Team. Most members of your team will not use CUPSS on a day-to-day basis but will need to be kept informed of your progress. You might not have the ultimate authority to make decisions, especially financial ones. Anyone who does should be a member of your team.

Helpful Tip:

Don't forget to include any administrative personnel as team members. If you are lucky to have these professionals in your water utility, you've got a leg up on many others!

List names and phone numbers of three key team members you would like to recruit. Bonus points for already bringing them on board!

1. _____

2. _____

3. _____

For more information on creating your asset management team, see *Building an Asset Management Team Factsheet.* December 2007, EPA 816-F-07-013.

To gain decision makers' interest in being a part of your asset management team, set up a meeting to view the *CUPSS and Us* presentation available in the User's Kit.

For more information on asset management and CUPSS, see http://www.epa.gov/cupss

Your *CUPSS User's Guide*, the CUPSS Training Module, and any in-person training will complement this workbook and provide additional tips and tricks. However, completing the five easy steps in this workbook should give you the confidence to add CUPSS to your utility's 'best practices.' **Ready? Set! Go!**

Glossary

Term	Definition
Annual Debt Payment	The dollar amount that must be paid each year toward retiring existing debt.
Annual Operating Expenses	Total annual cost of operating and maintaining the water or wastewater utility service. This does not include savings or future draws from capital savings accounts.
Asset	A component of a facility with an independent physical and functional identity and age (e.g. pump, motor, sedimentation tank, main).
Asset Category	Where the asset best fits within your system (e.g., source water, distribution or collection), for organizational purposes.
Asset Inventory	A list of assets with details about each one (installation date, original cost, condition, and such). Also known as an *asset register*.
Asset Management	A process for maintaining a desired level of customer service at the best appropriate cost.
Asset Name	The name of the technology or equipment that is used for your system to properly function (for example, "5th Street Pumping Station"). *See* Asset.
Asset Status	This is how your utilities view an asset. Assets can be active (most assets), not in use or a future investment. You would designate an asset a "future investment" if you would like it added to your capital improvement plan.
Asset Type	The asset's functional purpose for a specific asset category (for example, intake structure, pumping station, transmission main, storage tank, and the like).
Associated Asset	Assets that are directly related to a primary asset's function.
Associated Location	A location that complements an associated asset.
Capital Improvement (Expense)	Funds required for the future purchase, repair and/or alteration to or for an asset, structure, or major pieces of equipment.
Capital Improvement Program (CIP) Plan	A plan that projects and assesses which projects (including asset improvements, repairs, replacements, and such) need to be completed in the future.
Capital Reserve	Funds set aside to fund capital improvements (i.e. future

Term	Definition
Contribution	purchase, repair and/or alteration to or for an asset, structure, or major pieces of equipment).
Cash on Hand	The amount of cash that is available to the system within a 24 hour period.
Condition	The current condition, in your opinion, of an asset based on age and physical functionality (ranging from poor to excellent).
Consequence of Failure	The real or hypothetical results associated with the failure of an asset.
Debt Payment	The dollar amount that must be paid each year toward paying down or retiring existing debt.
Debt Ratio	Debt Ratio =Total Liabilities / Total Assets The debt ratio measures the amount of debt being used by the organization. A ratio of 0.6 means that 60% of operations have been financed with debt and the remaining 40% has been financed by equity.
Emergency Reserve Contribution	Funds set aside for unexpected repairs and replacements. CUPSS recommends that utilities work towards an emergency reserve balance of 25% of its annual operating expenses.
Expected Useful Life	The average amount of time, in years, that a system or component is estimated to function when installed new.
Expense	Money spent by the utility to continue its ongoing operations.
Expense Ratio	Expense Ratio = Operating Expense / Total Expense The expense ratio measures the amount of operating expenses compared to total expenses. A high ratio indicates that most expenditures are for operations – leaving the remaining balance for non-operating costs (such as debt service, capital improvements, etc.). If the non-operating balance is small, then the utility is not likely to meet all of its capital-related expenses, which may cause the system to deteriorate more rapidly.
Financial Assets	Intangible assets such as cash and bank balances.
Growth	The amount, as a percent, a community's demand for water or wastewater treatment has increased or decreased. This value will be used to adjust future revenues and expenses.
Inflation	The anticipated rate of increase in the price level of goods and services.

Term	Definition
Interest Rate	A rate which is charged or paid for the use of money. Note: Do not include a percentage sign.
Level of Service	The characteristics of system performance such as *how much*, *of what nature*, and *how frequently*, with regard to the system's service.
Liabilities	The financial obligations for which the utility is responsible.
Maintained According to Factory Recommendation	The frequency of routine maintenance as recommended by the manufacturer.
Operating Expenses	Total annual cost of operating and maintaining the water or wastewater utility service. This does not include savings or future funds withdrawal from capital savings accounts. Operating expenses include maintenance, equipment, salaries, wages, benefits, supplies, chemicals, contracts, utilities, monitoring, testing, emergency, rent, mortgage, insurance, services, training costs, billing costs, fees, and security costs.
Operating Ratio	Operating Ratio = Operating Revenue / Operating Expense The operating ratio demonstrates the relationship between operating revenues and operating expenses. A high ratio indicates that the organization has operating efficiency by keeping expenses low relative to revenue.
Original Cost	The amount paid for the initial purchase of an asset.
Probability of Failure	The chance an asset will fail based on the percent of effective life consumed and redundancy.
Redundancy	Spare assets that have the ability to do the same job, if a failure of the primary asset were to occur.
Replacement Cost	How much will it cost to replace the asset, if required today?
Revenue	Funds earned by the system through the sale of water or by other means.
Revenue Surplus/Deficit	The difference between the total cost of doing business and the funds received from fees, loans and grants, and interest earned from any accounts. If the result is zero or greater, the utility is taking in enough money to fully recover its costs and have a surplus. If the result is less than zero, the utility will not cover all costs and therefore will have a deficit.
Risk	The potential for realization of unwanted adverse consequences or events.

Term	Definition
Routine Maintenance Cost	How much does it cost for a single routine maintenance activity to be performed on the asset?
Sales Ratio	Sales Ratio = Sales / Total Revenue The sales ratio measures the percentage of total revenue that is made up of sales from operations. A low ratio indicates that the organization is overly reliant on outside funding.
Savings Withdrawal	A fixed amount of money removed from the savings account of the utility to help pay for capital improvement items or other planned or unplanned maintenance.
Total Annual Cost of Doing Business	The total annual operating expenses plus the required total annual reserve contributions to reserve funds.