



Household Water Audit

Homeowner Guide To Assessing Water Use



KCWA
KANSAS CITY WATER AUTHORITY



WHAT IS A HOUSEHOLD WATER AUDIT?

A household water audit is a great opportunity to conduct a detailed assessment of water use at your household and a realization of the potential for water and monetary savings. Conducting a water audit involves calculating your water use and identifying simple ways for reducing water use in the home.

WHAT ARE THE BENEFITS OF CONDUCTING A WATER AUDIT?



Conducting a water audit can help you save money by reducing your home water bill. It may also reduce your sewer bill, if you are connected to a public sewer system or extend the life of your septic system. Conducting a water audit will raise your awareness of how you use water. It will help identify simple ways you can minimize water use through certain conservation measures or practices. It is possible to cut your water usage significantly by implementing simple conservation activities without modifying your lifestyle.

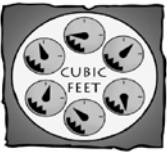
HOW DO I CALCULATE WATER USAGE IN MY HOME?

The first step is to calculate your average daily water use from your water bill. Use a 90 day billing period as your standard. Your meter is read quarterly, plus or minus a few days. You can then calculate your average daily consumption by dividing the total consumption for the quarter by 90 days. Your water bill reflects consumption measured in cubic feet (cf) so you need to multiply by 7.5 to convert to gallons.

It is important to realize that water use throughout the year often varies with each season. Most customers use more water in the warmer months due to outside water usage such as for gardening, washing cars, and lawn irrigation. If you conduct your water audit in the winter or fall, you should still consider the additional water you use in the summer months. You can do this by examining your water bills for the past year and perform the same calculations on your summer quarter. Following is a simple tabular calculation matrix you can follow.

	Quarter 1 (1)	Quarter 2 (2)	Quarter 3 (3)	Quarter 4 (4)	Yearly
Water Consumption From KCWA Bill	Cu. Ft.	Cu. Ft.	Cu. Ft.	Cu. Ft.	Cu.Ft. 1+2+3+4
Multiply "A" by 7.5	Gal.	Gal.	Gal.	Gal.	Gal.
Average Daily Use ("B" Divided By 90 Days) Yearly ÷ 365	Gal/day	Gal/day	Gal/day	Gal/day	Gal/day
# Of People In Household					
Average Daily Use Per Person ("C" Divided By "D")	Gal/day/ person	Gal/day/ person	Gal/day/ person	Gal/day/ person	Gal/day/ person/year

CAN I CALCULATE MY WATER USE BY TAKING METER READINGS?



You can also read your water meter to obtain consumption information. Water meters measure the total amount of water used in your home and are usually located in the basement or in a meter pit, if your home is located far from the roadway. The meter measures in cubic feet. To obtain your water use over the course of a 24-hour day, read your meter at the same time on two consecutive days. You may want to measure water use for several days and then calculate a daily average. This is important, particularly in warmer months when usage increases may necessitate measurements over several days for an accurate determination.

It is very important to check the meter size, as some larger meters (1-inch and larger) have a stationary "0" and read in 10 cubic foot intervals.

HOW DOES MY WATER USAGE RANK?

The average KCWA customer uses about 100 gallons of water per person per day. This includes indoor as well as outdoor water usage. Use the calculation you just made for Row "E" in the table above and then look at the following chart to rate your water usage.



Gallons Per Person Per Day	Rank
<80 gal/day	Excellent
80 - 100 gal/day	Can Save More
101 - 120 gal/day	Should Save More
> 120 gal/day	Must Save More



HOW CAN I ESTIMATE WHERE I USE WATER?

It is important to measure all water use, indoor and outdoor, to accurately estimate the quantity of water used. To determine how much water you consume in your home, it is necessary to measure water flow from each fixture (water device) in your house:

To calculate flow for faucets (indoor and outdoor) and showerheads, turn faucet to the normal flow rate that you use, and hold a container under the tap for 10 seconds and measure the quantity of water in the container. Multiply the measured quantity of water by 6 to calculate the gallons per minute (gpm).

To calculate flow for toilets, turn off the water supply to the toilet; mark the water line on the inside of the tank, flush, and then fill tank with water using a measured container such as a gallon bucket. Measure the volume of water that is required to fill water back up to the water line mark inside the toilet tank and record this number. Turn the water on to the toilet to resume normal use.

If your appliances or fixtures are relatively new, you may be able to obtain the flow rate from the manufacturer's specifications. Otherwise, use the following averages:

- Washing machine 41 gallons per full load
- Dishwashing machine 9 gallons per load

Next, measure how many times per day or how many minutes each day you use each fixture or appliance. Multiply the water flow per fixture by the minutes per day the fixture is used.

Multiply the flow average for each appliance by the number of times the appliance is used each week. Don't forget to include the amount of time you use outdoor faucets each day. The table on the next page is a useful tool to evaluate water use in the home.



Water Device	Current Water Use		
	Gallons per Minute/ Use (A)	Minutes of Use per Day (B)	Actual Gallons Used Daily (A x B)
Kitchen Faucet			
Utility Faucet			
Bathroom Faucet #1			
Bathroom Faucet #2			
Bathroom Faucet #3			
Shower #1			
Shower #2			
Shower #3			
Outside Faucet #1			
Outside Faucet #2			
Outdoor Sprinkler System			
	Gallons per Flush (C)	# Flushes per Day (D)	Gallons used Daily (C x D)
Toilet #1			
Toilet #2			
Toilet #3			
	Gallons per Load (E)	# of Loads per Day (F)	Gallons used Daily (E x F)
Dishwasher			
Washing Machine			
Total			

NOTES ON OUTDOOR SPRINKLER SYSTEM/ IRRIGATION SYSTEM USE:

If you do not have a meter on your system you can estimate use by:

1. Counting the number of sprinkler heads in each zone.
2. Estimating the gallons per minute from each sprinkler head.
3. Water use = # heads in zone 1 x gal/min x minutes running + # heads in zone 2 x gal/min x minutes running, etc.

Or, you can read your main household water meter at the beginning and end of a sprinkler cycle (as long as you do not use water anywhere else). The difference in the reading is the amount of water used in cubic feet. Total usage per week = # of cycles x cubic feet/cycle x 7.5 = # gallons used per week.

ESTIMATING YOUR POTENTIAL SAVINGS

The tables below will allow you to estimate your potential savings on your annual water bill and the annual number of gallons saved by reducing your water consumption to 80 gallons/person/day. Less water used, the greater the savings will be to you.

TABLE 1

Annual Savings (\$) By Reducing Use to 80 Gallons/Person/Day

Estimated Water Saved (gallons per person per day)	Number of people in your household					
	1	2	3	4	5	6
150	\$131	\$262	\$394	\$525	\$656	\$787
140	\$112	\$225	\$337	\$450	\$562	\$675
130	\$94	\$187	\$281	\$375	\$469	\$562
120	\$75	\$150	\$225	\$300	\$375	\$450
110	\$56	\$112	\$169	\$225	\$281	\$337
100	\$37	\$75	\$112	\$150	\$187	\$225
90	\$19	\$37	\$56	\$75	\$94	\$112

TABLE 2

Annual Savings (Gallons) By Reducing Use to 80 Gallons/Person/Day

Estimated Water Saved (gallons per person per day)	Number of people in your household					
	1	2	3	4	5	6
150	25,550	51,100	76,650	102,200	127,750	153,300
140	21,900	43,800	65,700	87,600	109,500	131,400
130	18,250	36,500	54,750	73,000	91,250	109,500
120	14,600	29,200	43,800	58,400	73,000	91,250
110	10,950	21,900	32,850	43,800	54,750	65,700
100	7,300	14,600	21,900	29,200	36,500	43,800
90	3,650	7,300	10,950	14,600	18,250	21,900

Example of how to use these tables:

A homeowner currently uses 130 gallons/person/day in their household. There are four people living in the house. On table (1) go to “130” in the left column. Follow this line to the right until you get to the column “4”, indicating four people in the household. The annual savings is \$375.

To estimate the annual saved gallons of water do the same thing on table (2). The estimated savings are 73,000 gallons.

WHAT TO DO NOW?

Examine and modify your habits. Some of the simplest and least expensive ways to conserve water involve making small changes in how you use water. To complete your water audit take a close look at your family’s water use habits.

Do:

- ✦ Have an automatic shut-off nozzle on your outdoor hoses.
- ✦ Water your grass and plants only when needed during the coolest part of the day.
- ✦ Use a dishpan or plug the sink when washing and rinsing dishes by hand.
- ✦ Run your clothes washer or dishwasher fully loaded.
- ✦ Take 5 minute and no more than 10 minute showers instead of baths.



Don't:

- ✦ Let the water run while you brush your teeth or shave.
- ✦ Take long showers.
- ✦ Pre-rinse your dishes prior to loading them in the dishwasher.
- ✦ Do partial loads of laundry without adjusting water level.
- ✦ Water your grass before, after or during a rainstorm.

See our water conservation brochure on our website www.kentcountywater.org for a comprehensive list of suggestions that will help you save water in your home.

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