EAST BAY
MUNICIPAL UTILITY DISTRICT



WaterSmart
Home Survey Kit

water
SMART

Welcome

This kit will help you conserve water and save money. You'll learn how to find leaks, identify inefficient faucets and showerheads, and water your landscape effectively.

Most homes can be surveyed within an hour. Smaller homes will take less time. Homes with large landscapes may take longer.

Once you complete the entire survey and send in the attached worksheet, we will mail you free water-efficient devices—including showerheads, faucet aerators, and garden hose nozzles as needed.

Thank you for taking this simple action toward wise water use.

- ✓ **Find your meter**
- ✓ **Test your water using appliances**
- ✓ **Send the worksheet to us**
- ✓ **Receive FREE showerheads, garden hose nozzles, and aerators**

Let's Get Started

Begin by writing your name, address, account number, and contact information on the worksheet. You'll find your account number on your water bill.

The survey will require some simple tools found in most homes like a screw driver, stopwatch or timer, and gloves (optional).

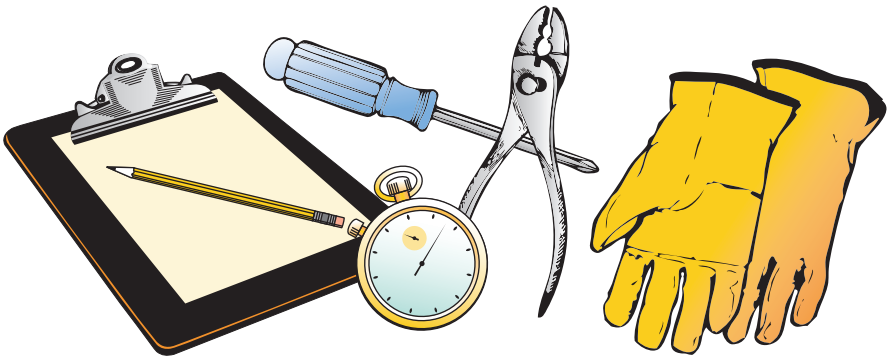
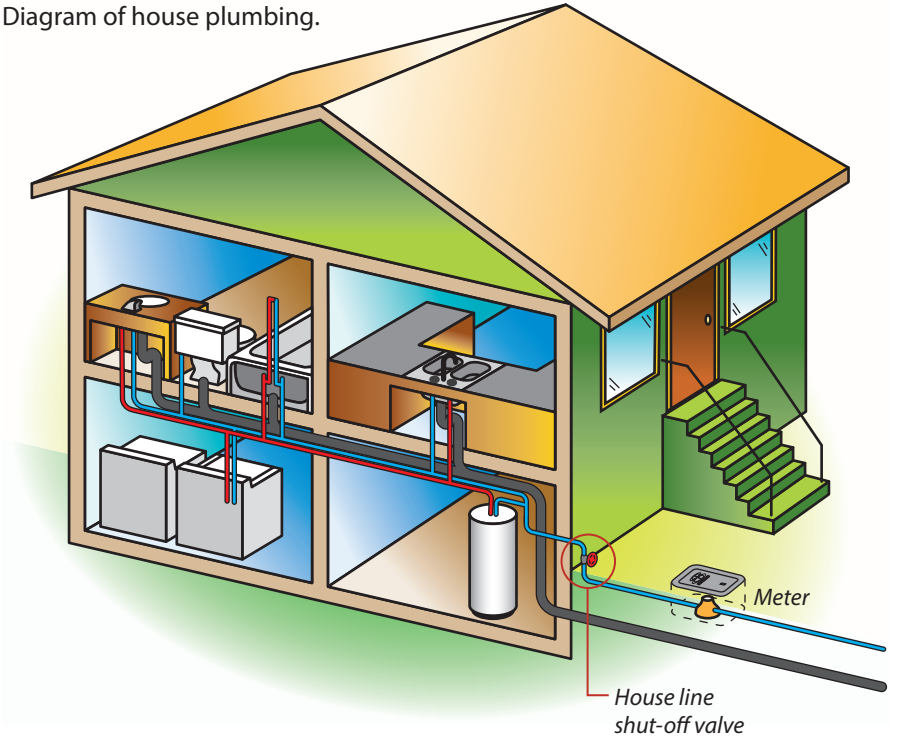
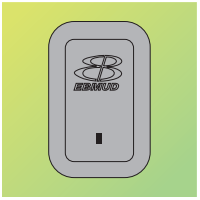


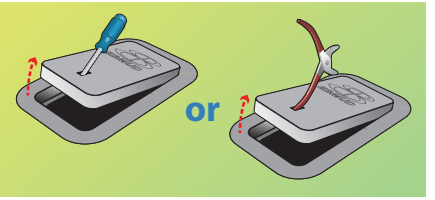
Diagram of house plumbing.

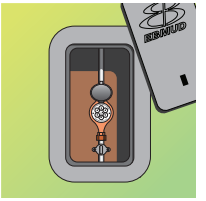


Find your meter

Your water meter is in a concrete box near the curb. Look for the EBMUD logo on the lid. Carefully lift the lid and slide it off to one side. We recommend wearing gloves to protect your hands. Be careful not to drop the lid on your meter.







Flip up the meter cover and take a look at the dial. The hands on the dial move any time water passes through the meter. Read the dial on your meter, then enter the reading into the worksheet, below your contact information.

Meters read in cubic feet. 1 cu. ft. = 7.48 gallons. One turn of the large hand equates to 1 cubic foot or 7.48 gallons of water used.

Leak Tests

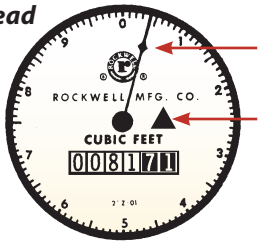
Test 1: the "Pin" Test

Use the meter to check for leaks in your pipes and appliances. Allow at least 30 minutes for the test.

Step 1 Turn off all water-using fixtures and appliances, both indoors and outdoors.

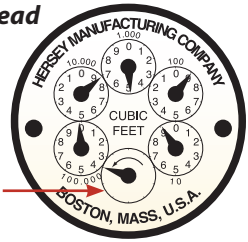
Step 2 Determine your meter type. There are two types: straight-read and round-read meters.

Straight-read meter



The large hand on the dial or a small triangle is used to test for leaks.

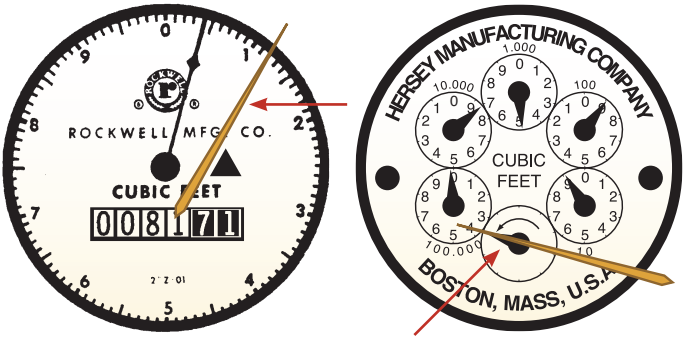
Round-read meter



The "one foot" hand, or blank hand, is used to test for leaks.



Step 3 Place a toothpick or pin on the face of the dial so that it lines up exactly with the hand or the edge of the triangle. You can also take a photo with your phone.

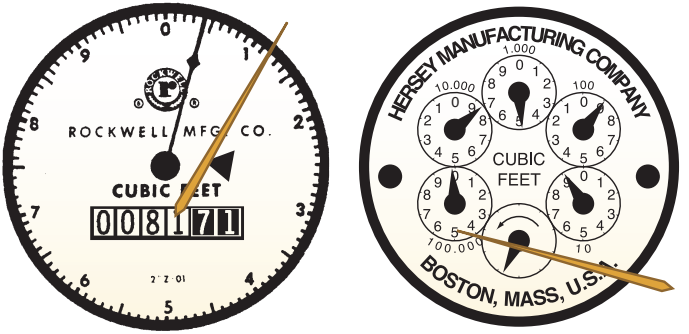


Step 4 Wait for 30 minutes. Then, before turning on any faucets or hoses, check the dial of the meter to see if the hand has moved.

If the hand moved:

There is most likely a leak somewhere on the customer side of the meter, either in a toilet, faucet, or pipe.

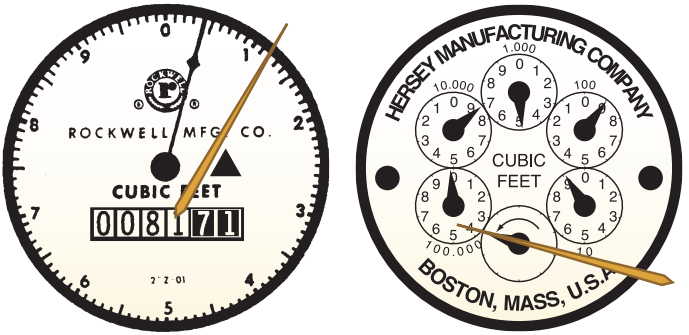
Write the results on the worksheet and go to Test 2, where you will try to locate the leak.



If the hand did not move:

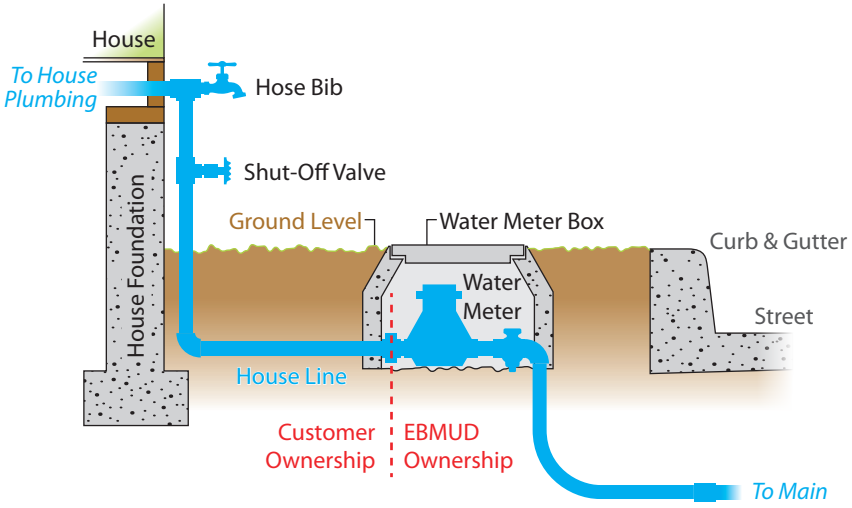
There is no continuous leak, but there still may be an intermittent leak from a toilet or irrigation system.

Record the result on the worksheet and go to Test 3.



Test 2: the House Line Test

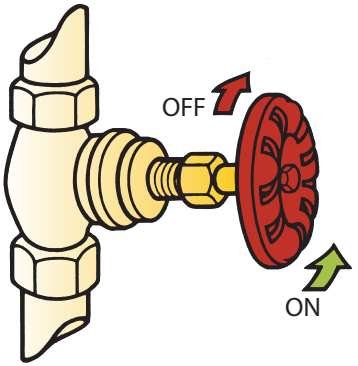
If the Pin Test indicates a leak, the next step is to test if the leak is in the house line (the pipe that goes from the meter to your house). Keep all of your water using fixtures and appliances turned off.



Your irrigation system might branch off before reaching your house line shut-off valve. If so, you may need to test both the irrigation pipes and the house line.

If the irrigation system has a shut-off valve, turn it completely off to test only the house line. If there is no irrigation shut-off valve, you will have to test the house line and the irrigation system at the same time.

Step 1 - Find the house line shut-off valve.
Usually, but not always, the house line goes in a straight line from your meter to your house. Turn the valve clockwise as far as it will go. Count the number of turns it takes to shut it off. You will use the same number of turns to turn the water back on once you complete the test.



Step 2 After you have turned off the house line shut-off valve, line up a toothpick or a pin with the hand of the meter or take a picture, as before. Wait 30 minutes, then look at the water meter dial.

If the hand **keeps moving**, there is a leak between the meter and your house. The leak may be in your house line, shut-off valve, or in your irrigation system if it branches off before the shut-off valve. Call a plumber to fix this leak.

If the hand **stops moving**, there is no leak in the house line. However, there is a leak in the system somewhere after the house valve, inside your house.

Record your results on the worksheet.

Step 3 Turn the house line shut-off valve back on. Be sure to open the valve completely, using the same number of turns as it took to turn it off.

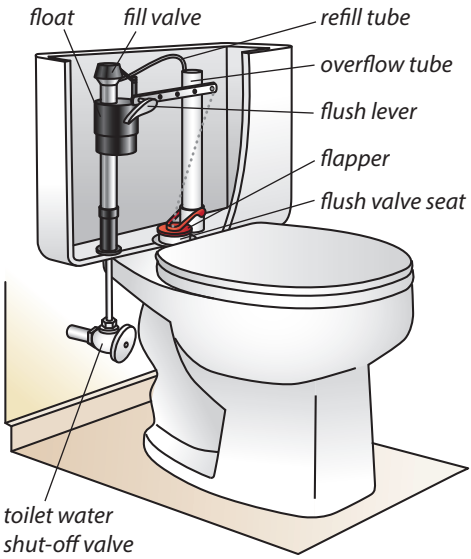
Test 3: Check for Toilet Leaks

You should test your toilets for slow or intermittent leaks not detected by the Pin Test.

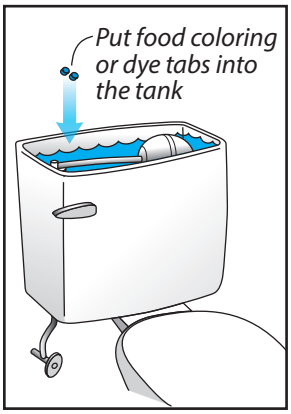
Step 1 - *Listen*: If you hear the sound of running water or a hissing sound, it means your toilet has a leak and is trying to refill.

Step 2 - *Look*: Remove your toilet tank lid and flush the toilet. Check to see that all the moving parts work smoothly, without getting hung up or tangled.

Step 3 - *Check the water level*: After the tank has refilled, check to see if water is flowing down the overflow tube. This leak may be silent. To correct it, adjust the water level or repair/replace the float. The water level should stop about one inch below the top of the tube.



Step 4 - *Flapper test*: The flapper valve is the rubber stopper at the bottom of the toilet tank. A flapper test will tell you if the flapper valve is leaking. To complete a flapper test, you will need food coloring or dye tabs. Put enough food coloring in the toilet tank to change the color (5 drops or 2 dye tabs) and then replace the tank lid. Wait 20 minutes without flushing. See how to video at *ebmud.com/leaks*.



If the water in the bowl has turned color: Your flapper valve is leaking from the tank into the bowl and must be replaced.

If the water is clear: Your flapper valve is not leaking.

Record the results in the worksheet

Test 4: Measure Flow Rates of Devices and Check for Leaks around the House

Step 1 Find a measuring cup and container that will hold water (flow bag, pitcher or plastic bag).



To measure flow rate:

1. Turn the water on all the way.
2. Hold the container under the flow for exactly 5 seconds.
3. Remove the container and turn off the water.
4. Pour the water into a measuring cup to see how much water was collected.
5. Use the below conversion table to determine the flow rate.
6. ***Record your flow rates on the worksheet or if using a flow bag, read the measurement on the side of the bag.***

Cups to Gallon Per Minute (GPM) Conversion (for a 5-second sample)						
2/3 Cup	1-1/3 Cup	1-2/3 Cup	2 Cups	2-1/3 Cups	2-2/3 Cups	3-1/3 Cups
.5 GPM	1 GPM	1.25 GPM	1.5 GPM	1.75 GPM	2 GPM	2.5 GPM

For larger numbers, add .25 GPM for every 1/3 cup.

Step 2 - Look for dripping faucets, both indoors and outdoors. The most common cause of faucet leaks is a worn washer.

Step 3 - Check around your water heater, dishwasher, and washing machine. Standing water, moisture or signs of water damage around these machines could mean water is leaking.



Outdoor Tests

Test 1: Check Your Yard

Look for wet ground or spots that are greener than the rest of the landscape. These spots could be getting extra water due to a leak or from broken sprinklers.

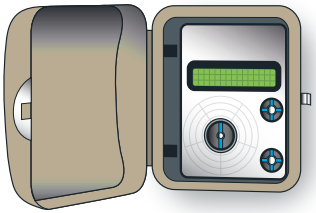
Test 2: Check Your Irrigation System

Step 1 - *Run the sprinklers or the drip lines.* Do this one station at a time. Check the system for the following problem signs:

- uneven pressure (could mean a leak in an underground pipe)
- blocked spray heads
- leaning spray heads
- clogged spray heads
- uneven coverage
- disconnected drip tubing
- missing or clogged drip emitters
- spray hitting sidewalks or driveways instead of plants

Go to EBMUD's website at ebmud.com/saveoutdoors for examples and more information.

Step 2 - Review your watering schedule. If you have an automatic sprinkler system, adjust the watering schedule using the table below as a guide. Turn your system off in the winter once it starts raining.



Use the "program" function on your automatic timer. Different types of plants require different programs. For example, your lawn should be on one program and your groundcovers and shrubs on another.

Planting California native or Mediterranean plants, which are well adjusted to this climate, will help you use less water.

Watering Schedule Example

How much to water (minutes and starts per day) is a fixed setting determined by your soil, plant type, and irrigation system. When to water (days per week) should be changed with seasonal weather patterns. Customers living in hot inland areas may need to water more days per week. Those in coastal communities may need to water less often. Turn your system off during the rainy months.

Plant type	Irrigation type	Start times (cycles)	Zone run time	Total minutes	Spring days per week	Summer days per week	Fall days per week	Winter days per week
Lawn	Fixed sprinkler	3	5-7	15-20	1-2	3-4	2-3	off
Lawn	MP rotators	3	15-20	45-60	1-2	3-4	2-3	off
Shrubs	MP rotators	3	20-25	60-75	1-2	2	1-2	off
Shrubs	Drip	2-3	20-30	40-90	1-2	2	1-2	off
Shrubs	Bubblers	3	5-7	15-21	1-2	2	1-2	off
Natives	Drip	3	20	60	2-3	as needed	as needed	off
Trees	Drip	2-3	20-30	40-90	off	1-2	1-2	off
Trees	Bubblers	3	5-7	15-21	off	1-2	1-2	off

Step 3 - Record your irrigation schedule and keep it with your automatic timer. This way you will always know how long and how often each valve or station runs.

You're finished with the survey!

What's next?

Now that you've completed these tests, you can:

- Fix any leaks you've identified,
- Make a list of which faucets and showerheads need replacing, and
- Set up a landscape irrigation schedule that uses water efficiently.

Be sure to send in your worksheet. We'll send you water-efficient aerators and showerheads to replace your high-flow models as appropriate. If you have questions about what you discovered or how to do the repairs, call 866-403-2683 or go to *ebmud.com/watersmart*.

Thank You

Email: *waterconservation@ebmud.com*
Mailing Address: EBMUD, PO Box 24055, MS 109, Oakland, CA 94623

WaterSmart Home Survey Web Resources

Go to *ebmud.com/watersmart* for information on:

- **Using your meter to find leaks**
- **Repairing your toilet**
- **Ways to save outdoors**
- **Photos of common irrigation problems**
- **Landscape and irrigation equipment rebates**

Home Survey Worksheet

Fill out this worksheet and return to: EBMUD, PO Box 24055, MS 109, Oakland, CA 94623-1055 or *waterconservation@ebmud.com*

Name _____

Address _____

City _____

Account Number _____ Date _____

Email _____ Telephone _____

Meter reading _____

Indoor Tests

The Pin Test

Does your water meter move when all your water using fixtures and appliances are turned off?

☐ Yes *(Go to **House Line Test**)*

☐ No *(Go to **Toilets and Flow Rate Tests**)*

The House Line Test

After you turn off the house line and do a **second Pin Test:**

Is there movement? ☐ Yes *(Call a plumber to fix a house line leak, or check irrigation system)*

☐ No *(Leak is beyond this valve. Go to **Toilet Test and Flow Rate Test**)*

Turn on the house line valve using the same number of turns you used to turn it off.

Toilets

		Bathroom 1	Bathroom 2	Bathroom 3	Bathroom 4
Listen:	Did you hear a noise?	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
Look:	Did the parts work smoothly?	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
	Does water stop 1-inch below the top of the overflow pipe?	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
Dye Test:	Did the flapper leak?	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No

Flow Rate Test

Bathroom		Bathroom 1	Bathroom 2	Bathroom 3	Bathroom 4
Sink Faucets	(Efficient Faucet: 1.0 gpm or less)	_____ gpm	_____ gpm	_____ gpm	_____ gpm
Showers	(Efficient Showerhead: 1.8 gpm or less)	_____ gpm	_____ gpm	_____ gpm	_____ gpm
Kitchen Sink Faucet	(Efficient Kitchen Faucet: 1.5 gpm or less)	_____ gpm			

Leaks

Did you find any leaks indoors? ☐ Yes ☐ No

If so, where?

_____

Outdoor Tests

Irrigation

Do you use a hose to water plants by hand?	☐ Yes ☐ No	Explain: _____
Do you have a hose shut-off nozzle?	☐ Yes ☐ No	Explain: _____
Do you have an automatic irrigation system?	☐ Yes ☐ No	Explain: _____
Do you turn your system off when it starts raining?	☐ Yes ☐ No	Explain: _____
Do you have your irrigation schedule written down?	☐ Yes ☐ No	Explain: _____

Other Outdoor Water Use

Do you have a pool? ☐ Yes ☐ No Do you have and use a cover? ☐ Yes ☐ No

Do you have a spa? ☐ Yes ☐ No Do you have and use a cover? ☐ Yes ☐ No

Leaks

Did you find any leaks outdoors? ☐ Yes ☐ No

If so, where? _____

Device Request Please send me the following free device(s)

☐ *Efficient showerhead* Qty (max 2) _____

☐ *Bathroom faucet aerator* Qty (max 2) _____

☐ *Kitchen faucet aerator* Qty (max 1) _____

☐ *Garden hose nozzle with shut-off valve* Qty (max 1) _____

Comments

_____

Thank you for completing this WaterSmart Home Survey worksheet. Requested showerheads, aerators and hose nozzles will be mailed to you.