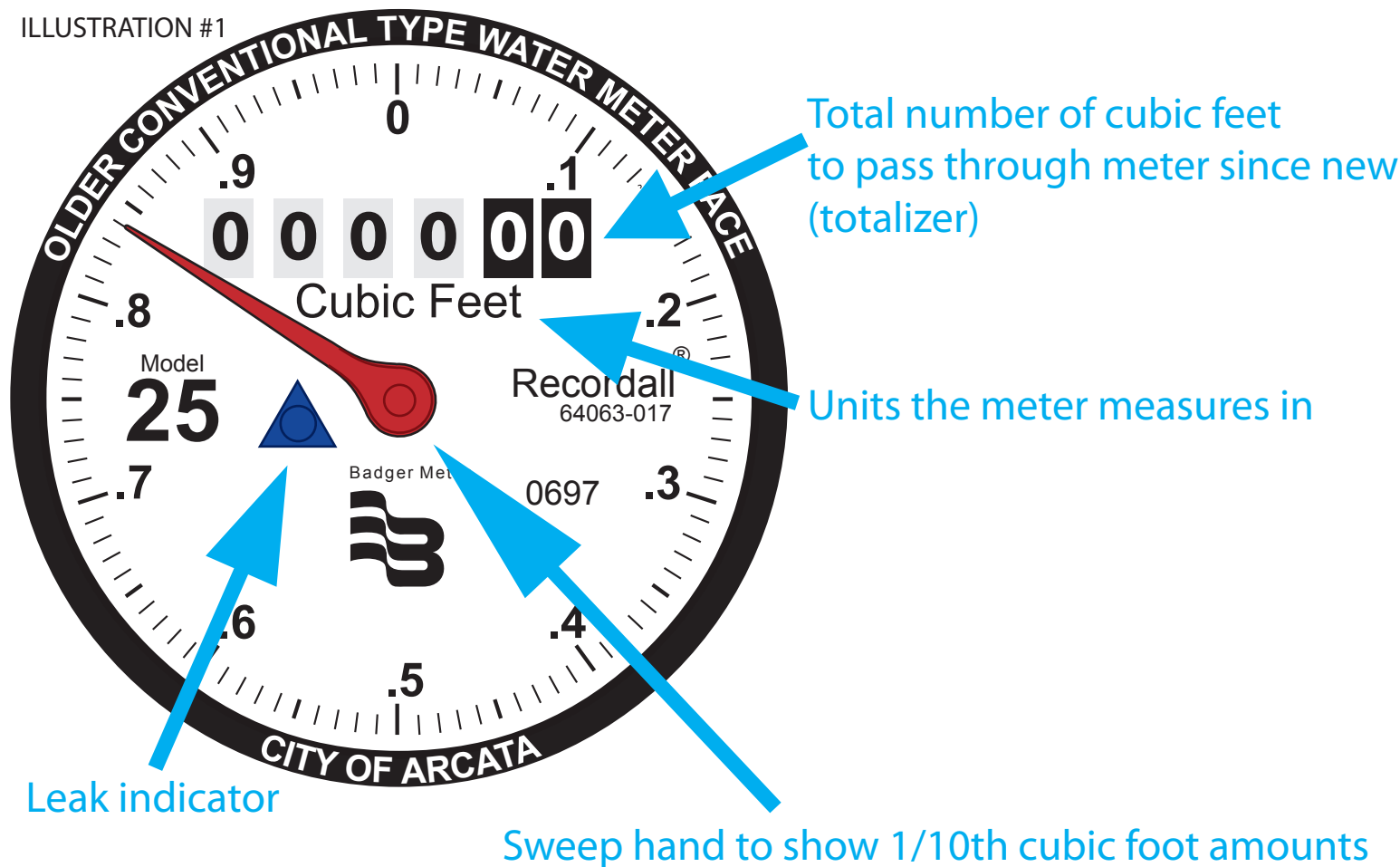


CITY OF ARCATA WATER METER READING BASICS

ILLUSTRATION #1



Water meters like the one pictured above are used for billing by the City of Arcata. They can be a little confusing to read so we've developed this guide to help.

Start by deciding what you want to know because you will need to look at different parts of the face to get specific information.

1) CHECKING FOR LEAKS

Leaks are shown by the small leak indicator. This is shown in the illustration above as a blue triangle although each brand and type of meter may use different indicators. Please refer to the other illustrations or contact us if you are having trouble identifying your leak indicator. There are typically three varieties of leaks: the steady trickle of a faucet leaking in a steady stream, a faucet which is occasionally dripping, or a toilet which runs occasionally. Each of these leaks cause different movement of the leak indicator. Steady streams result in a steady rotation of the leak indicator; slow rotations are small leaks and fast rotations are big leaks. Drips cause the leak indicator to make small rotations or stop-go-stop-go movements. Toilet leaks are the hardest to detect because 5 minutes or more may pass between movements of the leak indicator but once the indicator starts moving it will spin for several seconds before stopping. When checking for leaks do not run water while checking because the leak indicator spins anytime water is flowing through the meter.

2) CHECKING YOUR BILLING AMOUNT

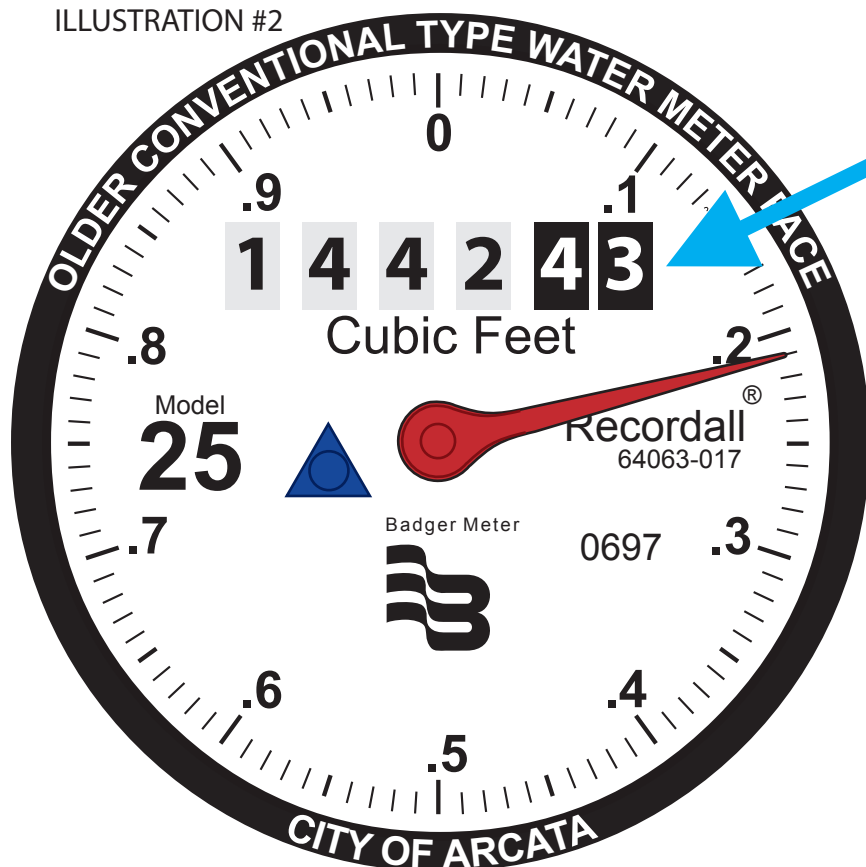
The amount you are billed for in your water bill comes from the totalizer digits only. The leak indicator and the dial are not used for billing purposes so only the digits should be used to calculate monthly use.

Although the digits are in black squares for the right hand columns and then white for the remainder this is not important and varies between different meters. On the meter above the totalizer reads 000,000.84 cubic feet. Please refer to the illustrations on the next page for an example read over a one month period.

3) USE PER WASHER CYCLE <this is continued on page 3>

CITY OF ARCATA MONTHLY BILLING AMOUNT EXAMPLE

ILLUSTRATION #2



Total number of cubic feet to pass through meter since new (totalizer)

In this illustration the exact read is 144,243.21 cubic feet.

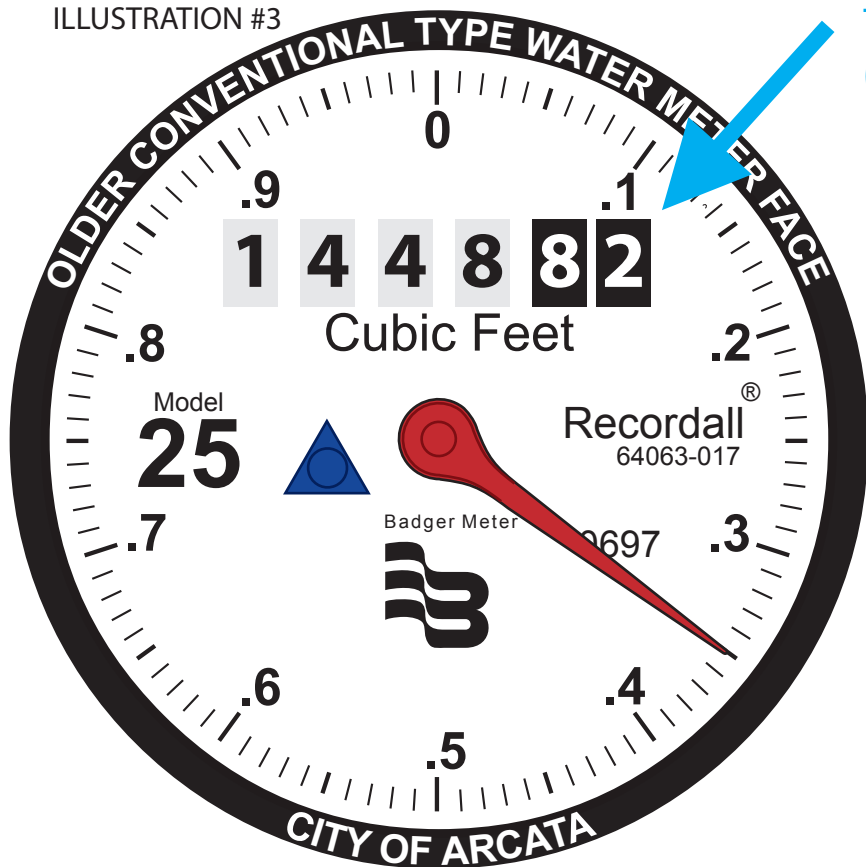
Because City billing is structured on hundred cubic feet none of the information shown by the needle is used. Also, the digits indicated by the red arrows are not used:

1 4 4 2 4 3
 ↑ ↑

The totalizer read that is entered into the billing computer on this day is 1,442 hundreds of cubic feet (144,200 cubic feet).

THIRTY DAYS LATER

ILLUSTRATION #3



Total number of cubic feet to pass through meter since new (totalizer)

A month has passed and the City has returned to the meter to get the end read for this billing cycle.

The exact current read is now 144,882.35 cubic feet.

Because City billing is structured on hundred cubic feet none of the information shown by the needle is used. Also, the digits indicated by the red arrows are not used:

1 4 4 8 8 2
 ↑ ↑

The totalizer read that is entered into the billing computer on this day is 1,448 hundred cubic feet (144,800 cubic feet).

Please note that rounding is not done based on the second column and that the digits are read exactly as they are represented on the face. In this example the billed amount would be 6 hundred cubic feet (600 cubic feet).

Measuring Usage in Gallons

3) USE PER WASHER CYCLE <this is continued from page 1>

Standard drinking water meters use a nutating disk to precisely measure water use. It is easy to measure exactly how many gallons are used by your dishwasher per cycle or any other use such as taking a shower or flushing the toilet.

In order to use your water meter in this way we must learn how to use the columns not used for your bill (the ones marked with red arrows in the previous example) and the sweep hand.

The sweep hand typically rotates in a clockwise direction but there some brands that move in the opposite direction so it is most important to realize that water never travels backwards through a meter during normal use. The hand will always rotate to higher numbers. In the previous examples if the hand had moved from the "noon" position to the 3 o'clock position that would mean that 0.25 cubic feet had passed through the meter.

Although cubic feet are useful units for water billing programs they are not ideal for customers. Most people do not go the grocery store looking for 0.13 cubic foot container of milk even though that would be a one gallon jug. So the next step is to learn how to change the number of cubic feet that has passed through the meter into the number of gallons. The rule is that there are 7.48 gallons in 1 cubic foot of water. One last thing to know before we show a couple of examples is that once the sweep hand makes a complete rotation it equals 1 unit of the meter's capacity has passed through the meter. This is important because on some meters the amount will be 1 cubic foot (or 7.48 gallons) but on some meters this amount will be 10 cubic feet (or 74.8 gallons). In fact, meters can be ordered to read in virtually any quantity so it is important to read the units that are printed on the meter face directly next to the totalizer digits. This will tell you what amount of water has passed through the meter for each rotation of the sweep hand. It will also tell you what the totalizer read means so a before and after quantity can be determined.

Illustrated Example of Measuring Usage in Gallons

Clothes Washer Example

Finding out exactly how much water you use every time you do a typical load of laundry is done by precisely reading your water meter before you start a load of laundry and reading it again once the washer is done running. Subtracting the ending read from the beginning read will tell you how many gallons were used. The first step is precisely reading the meter before starting the washer. To the right is an example meter face with starting read of 71,574.62 cubic feet.

This method will not work if there are leaks or other water uses happening at the during the measurement.

ILLUSTRATION #4

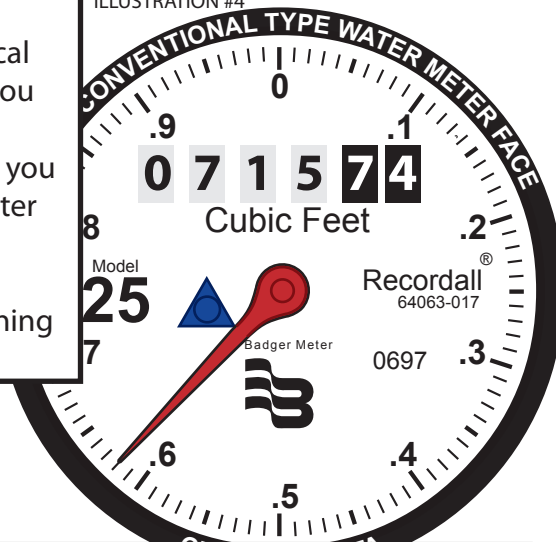
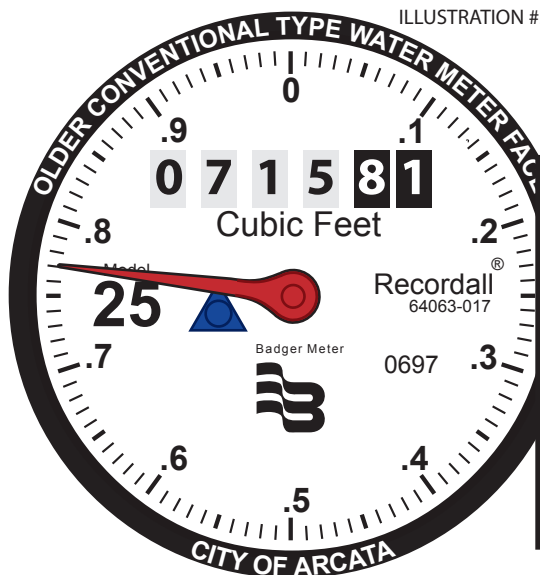


ILLUSTRATION #5

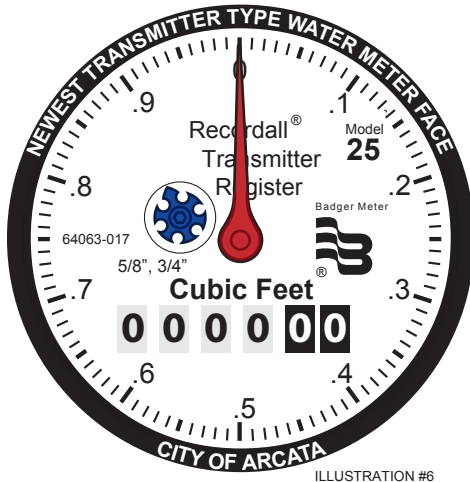


Clothes Washer Example Continued

Now the meter reads 71,581.77 cubic feet which means the washer used 7.15 cubic feet of water. Using the 7.48 gallons in each cubic foot rule we can multiply 7.15 cubic feet by 7.48 gallons/cubic foot and get the amount used in gallons. In this case the washer used 53.482 gallons for a typical load.

This can be related back to the amounts used for billing because every 14 times the washer runs the billing amount will go up by 1 hundred cubic feet. This is because this washer will use approximately 750 gallons of water (100 cubic feet) every 14 loads.

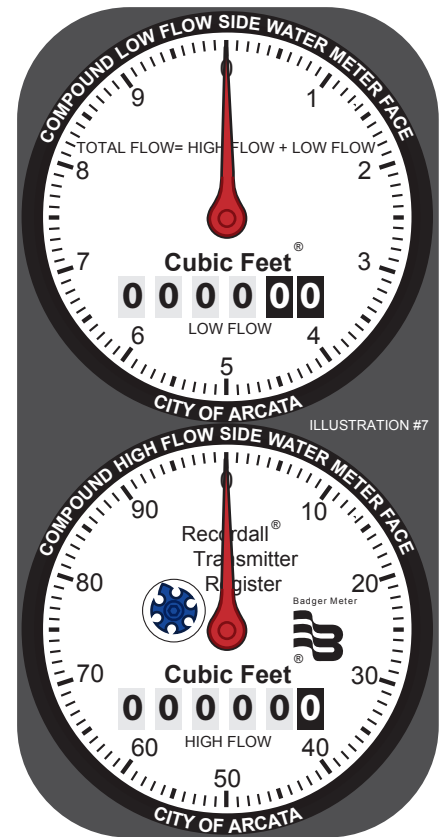
Common City of Arcata Water Meter Styles



The newest style of meters use a star shaped wheel for their leak detector.

The meter face shown to the left is a residential meter with the star wheel leak detector.

The meter to the right is a special type of meter which is actually two meters built into one brass housing. One of the meters only can measure small flows while the other can only measure high flows. When reading this type of meter the two totalizer reads must be added together and particular care must be taken to pay attention to the units of each totalizer in order to correctly calculate hundreds of cubic feet. Please contact the City of Arcata if you would like more information.



Usage Worksheet

USE THIS METHOD FOR EXACT USAGE

Final Read

						.		
--	--	--	--	--	--	---	--	--

Initial Read

						.		
--	--	--	--	--	--	---	--	--

Subtract Above for Total in Cubic Feet

						.		
--	--	--	--	--	--	---	--	--

 X 7.48 =

						.		
--	--	--	--	--	--	---	--	--

 gallons

USE THIS METHOD FOR BILL COMPARISON

The City makes every attempt to read water meters 30 days from the date of the previous read so taking an initial read on the day you see your meter reader out front and then taking the final read thirty days later will usually be fine. The City water meter readers are not at work on Saturdays, Sundays, or holidays and may not be able to read your meter on the exact day so your bill may include more or less than 30 days of usage. The only way to be sure is to watch for the meter reader or to read the meter several days in advance and read the meter several days after when they are due back. Then use the read from the date that appears on your bill.

Final Read

						.		
--	--	--	--	--	--	---	--	--

Initial Read

						.		
--	--	--	--	--	--	---	--	--

Subtract Above for Total in Cubic Feet

						.		
--	--	--	--	--	--	---	--	--

 =

						.		
--	--	--	--	--	--	---	--	--

 hundred cubic feet



Disregard these columns to calculate usage in hundred cubic feet

SPACE FOR NOTES