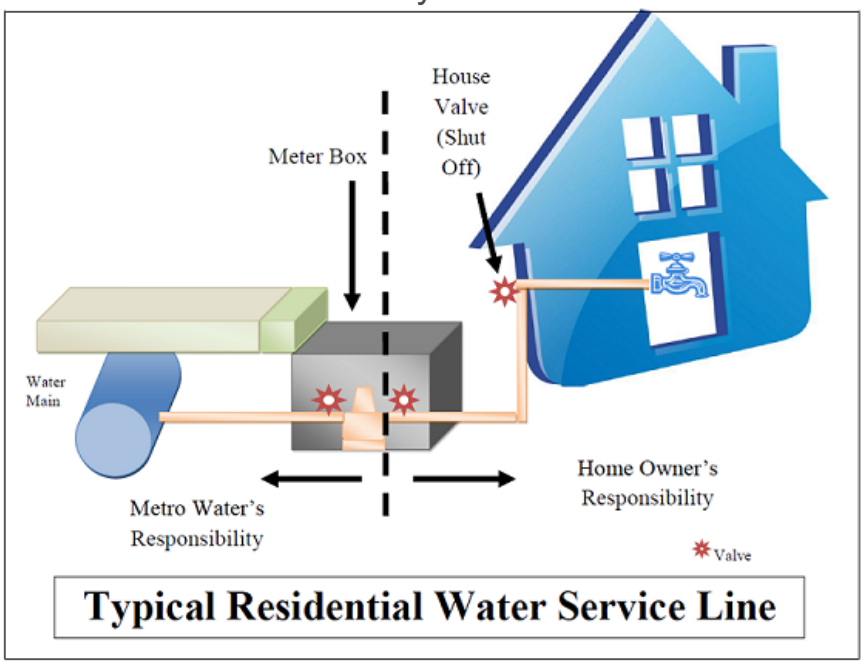
Where is my Meter?
The meter to your house is located near the street curb in front of your house or in the alley behind the house. It is a rectangular box in the ground with a metal cover. The meter tells Louisa Water Company District how much water flows through it, which means how much water you use. The meter is owned by Louisa Water Company District. You are then responsible for the pipes and water from the meter to your house and throughout your property.
If you need to turn off water to your house, please turn it off at the water shut-off valve at the house, NOT at the water meter. If you need the water turned off to your whole property, please call Louisa Water Company District and we will turn off the water at the meter.

How do I shut off my water?
Most main shut-off valves for the water will be located on the front or rear of the house. It is usually attached to a pipe that rises from the ground and enters through an exterior wall. If you know where the water meter is for your house, either on the front of the street or in the back in an alley, then usually the main water valve will be on the same side of the house but near the house structure. It is important to know where your water shut-off valve is in case you need to quickly turn off the water to the whole house.

Here is an illustration for your main service shut-off valve:



How to Check for a Leak?
To check for leaks follow these steps:
Method 1
Turn off all water taps inside and outside your home. Record the meter reading and return in two to three hours to check for movement. If the meter reading has changed, you may have a leak.
Method 2
Many meters have a small red (or blue) triangle on the meter face, designed to detect even small leaks. If this red triangle is moving when you have all water off inside and outside your home, you may have a leak.

Common sources of leaks are a toilet that is running, a constant drip in a sink or outdoor faucet, a loose or dripping washer connection, a home water treatment unit, an evaporative cooler unit, or a sprinkler system.

How to Read Your Meter?
There are several reasons why you'd want to be able to locate and read your water meter. First, you might be interested in just how much water you use in a day. By reading your meter at the beginning and the end of the day you can compare the two totals tell how much water you and your family used. The second reason is to check for leaks. If you turn off all the taps in your house, look at your meter and it is still turning, chances are you have a leak somewhere. Here are some hints to help you find and read your water meter.

STEP 1: Locate Your Meter
Your water meter is generally located near the curb in front of your home or in the back if you have an alley. Outside meters are typically housed in a concrete box usually marked "water" (as shown in the photo) or in a meter pit with a cast iron lid. Carefully remove the lid by using a tool such as a large screwdriver or pliers. Visually examine the area around the meter to make sure there are no harmful insects or other animals.

STEP 2: Read Your Water Meter
Water meters in the District measure volume in gallons. Water charges are based on 1000 gallon units.

The meter shown in the figure is brand new; hence the reading for this meter is 0.00. The small blue triangle (just to the right of the "35") is the low

flow indicator. That triangle will spin if any water is flowing through the meter. This indicator can be useful in leak detection.

How to Winterize your Pipes

Take a quick survey look for any water pipes exposed to the elements - typically, this would include the main pipe entering the house (located typically with the water shut-off valve), irrigation lines, backflow preventers and, if applicable, swamp cooler lines and swimming pool lines.

Any water line that is normally exposed to the elements, where water does not constantly move, is a potential candidate for freezing. There are a variety of ways to protect exposed lines with pipe insulation. Pipe insulation is a low cost solution to protect pipes from freezing and can be purchased at local hardware stores.

What if it's too late and your pipes freeze?

During an extended or severe cold spell, your pipes can freeze, even if you take all the proper precautions. If you think you know where the freeze occurred and you want to try thawing it yourself, the easiest tool to use is a hair dryer. DO NOT under any circumstances use an open flame. Using the hair dryer, wave the warm air back and forth along the pipe. DO NOT heat only one spot on the pipe, as this can cause it to burst.

If you don't have a hair dryer, you can wrap the frozen section with rags or towels and pour hot water over them. It's messy, but it works.

Be carefully when heating the pipe. It may already be broken and just not leaking because the water is frozen. When you thaw it out, the water could come gushing out. Be ready to run for the main water shut-off valve if necessary.

How can I be prepared for natural/man-made disasters?

You cannot predict when (or if) natural or man-made disasters will occur, but you can do some simple planning and take some simple precautions in the effect they do occur. The Federal Emergency Management Agency (FEMA) under the Department of Homeland Security (DHS) has prepared guidelines for preparing a kit, having a plan for your family or business, and remaining informed in case such events occur. This information can be accessed at: http://www.ready.gov/

Where can I receive information on how to make water safe to drink in an emergency?

In the event of emergencies, where the safety of food the water supply may come into doubt, the Center for Disease Control (CDC) has established guidelines and provides instructions for ensuring safe food and what to do to ensure safe drinking water. This information can be accessed at: http://emergency.cdc.gov/disasters/foodwater/

Back to top

WATER QUALITY

How do I know my water is safe?

As a Louisa Water Company customer, you can be assured your water is safe based on our meeting and exceeding all requirements and regular testing of contaminants for the U.S. Environmental Protection Agency (EPA) throughout each year, including both regulated and unregulated contaminants. Our highest priority is safety of the public water supply we deliver to our customers. An interesting fact is that commercially bought bottled water, regulated by the Food and Drug Administration (FDA) and not the EPA, actually has less stringent requirements for contaminants than municipal water providers (regulated by the EPA). This means the purity of your tap water exceeds even that of bottled water (by way of regulated contaminants). You can get more information about the actual list and levels of regulated and unregulated contaminants from our most recently published Water Quality Reports.

Where does my water come from, and what does Louisa Water Company add to it (or remove from it)?

All of the water for District customers currently comes from existing municipal wells throughout our service areas. Louisa Water Company only adds/maintains a residual amount of chlorine in the water delivered to customers to eliminate any type of bacterial contamination that could occur in the water pipes. Since Louisa Water Company has a current allotment of Central Arizona Project (CAP) water that is currently unused (and being recharged into the aquifer of the Tucson basin), it is a future goal to deliver this CAP water to Louisa Water Company customers for our long-term renewable supply of water. Our current well sources would still need to be maintained as backup sources in the event of an outage or for maintenance periods on the CAP canal.

Why does my water sometimes look milky coming out of the tap?
When the tap water turns warm in summer, this is a common occurrence in the desert. The reasons involve some basic knowledge of thermodynamics and chemistry of water. When water is cold, it can hold more dissolved oxygen. Water under pressure will also retain more dissolved oxygen, even when a rise in temperature would release this oxygen when open to the air. Water in aquifers is generally cold, under pressure, and full of oxygen, and gets pumped from the aquifer and into water pipes that are also under pressure. During the summer, additional warming occurs to the water in the pipes throughout the system, but a great deal of this dissolved oxygen remains in the water since the system remains under pressure. When the water is suddenly released to atmospheric pressure coming out of your faucet, all this extra dissolved oxygen is suddenly released into the water in the form of very small bubbles giving a milky appearance. This process is similar to that of opening a pressurized can of soda, and the carbon dioxide being suddenly released into the soda (though with much larger bubbles). There is no danger to health or property with this phenomenon, and the milky appearance will disappear after a short while.

Why does my water have a taste/odor?
The only possible taste/odor you should experience with Louisa Water Company is from the chlorine residual that must be maintained to ensure public health and safety in the water system, especially in the summer months. If this taste/odor is an issue for you, allowing the water to rest in a container in the sunlight for two hours, or overnight in the refrigerator may help. You may also wish to consider some solutions in the next section regarding filtration.
Most other taste and especially odor complaints are usually due to filters and/or traps within home water systems or plumbing that needs to be periodically changed or replaced. Sometimes gases build up in the trap of the drains, or due to sewer vents being blocked or obstructed, and are only released once the water moves through the drain, giving the impression the water from the faucet or shower head is the source of the odor. An easy test is to go to the sink when the odor is not present. Fill a clean jar halfway with water from the tap (without letting any down the drain) and check to see if this odor is coming from the jar. Then seal the jar with a lid and shake the water vigorously to release whatever might give off the odor. Remove the lid and check again to see if the water is the source of the odor. If no odor is detected, gases from the drain are likely the source of the odor. If

you can smell an odor from the water (when no water has gone down the drain), please contact Customer Service to report this issue.

What is the deal with water filtration?
While additional filtration of Louisa Water Company is not necessary to meet EPA requirements, some customers elect make use of a variety of filtration choices to further purify water above and beyond what the EPA regulates, and/or to address aesthetic taste/odor issues related to chlorine in delivery water systems from a municipal provider. All filtration solutions are not equal, however, and some are far more costly than others. Below is a list of common filtration solutions:

Distillation - This process involves heating water to the boiling point where it vaporizes. The vapor is then condensed and recovered. This process removes all dissolved or suspended solids (that are left behind after the water vaporizes), and is good for disinfection, but not good for removal of volatile organic compounds/contaminants that may distill before or along with the water.
Ion Exchange - Popular with water softening, this chemical process involves exchanging the calcium and magnesium ions contributing to hardness and water deposits, with sodium ions that remain in solution.
Carbon Adsorption - This process involves water passing through carbon filters to get rid of unpleasant tastes/odor, chlorine, gases, and many chemicals. Occasionally, this process gets rid of microorganisms, but should not be considered effective for this purpose. This process has no effect on hardness of water, heavy metals, and solids absorbed in water, and should be used in combination with other methods of filtration to remove these components.

Ultra-filtration - This process involves water moving through an ultra-filter which acts like a molecular sieve, taking away dissolved molecules according to size. This process removes many particles, microorganisms, pyroids and colloids, but has no effect on removal of tastes/odors, chlorine, and many other organic contaminants.

Ultraviolet (UV) Radiation - This process utilizes ultraviolet radiation to kill germs and other microorganisms in water.

Reverse Osmosis (RO) - This process makes use of hydraulic pressure against an extremely fine membrane to reverse natural osmotic forces. In

the presence of a semi-permeable membrane, osmosis describes a natural process whereby a solution of a lower concentration moves through a semi-permeable membrane to a solution of a higher concentration to establish an equilibrium concentration between the two sides. Considerable energy/pressure is required to reverse this natural osmotic force across the membrane, but the water produced is generally purer than any other form of filtration. Reverse osmosis not only removes most contaminants, but also minerals in water that are desirable to maintain. Most commercially produced RO water, such as many bottled water providers, reintroduces minerals after the purification process.

Many water filtration solutions make use of a combination of the lesser expensive processes, such as both ultra-filtration and carbon adsorption, to achieve more comprehensive removal of contaminants, as well as pretreatment for reduce costs for more expensive processes like reverse osmosis.

Back to top

WATER PRESSURE

What affects water pressure in my area?

One factor affecting pressure in your area is your static pressure location. To meet operational guidelines and state requirements, and to accommodate existing building and plumbing codes, the water pressure supplied to customers generally needs to be delivered approximately between 40 and 80 pounds per square inch (psi). This pressure is initially created either by having a reservoir at a higher elevation, or by wells pumping directly into the water system. A range of pressure exists since, as elevations naturally rise or fall, static water pressure in pipes decreases or increases, respectively, at a constant rate of 1 psi per 2.31 feet in elevation. Therefore, for roughly each additional 100-foot change in elevation, pressures need to be adjusted to fall within a new pressure range. To accomplish this, service areas are broken up into pressure "zones", where the top of each zone is approximately 40 psi down to the bottom of each zone at approximately 80 psi. Louisa Water Company has several zones that are necessary to accommodate the topography involved with providing service at an acceptable pressure. At what elevation a residence exists within each zone determines what your static pressure will be. For example, if our ‘A'-zone is from 2311 ft. to 2416 ft. in elevation, someone with a house at 2,315 ft. would have relative high static pressure in ‘A'-zone, while someone with a house at 2,410 ft. would have relatively low static pressure in ‘A'-zone.

Another factor that may affect pressure in your area are demands on the water system. The static pressure above only remains as stable in as much as the water system has ability to manage added demand. If every customer ran every fixture in their house at the same time, there is no way adequate pressure could be experienced by all due to such a high demand. The same effect would occur with the electric company if everyone turned on every electric-powered item they had in their homes at once. In areas where existing pipe sizing and interconnectivity are still lacking, even normal demands (or lack thereof) can sometimes have profound consequences to a stable static pressure, producing significant low or high swings in pressure. As Louisa Water Company became an improvement district, and inherited smaller water companies, such deficiencies have been identified, and as funding permits, are being addressed with transmission mains in our capital improvement program, and our mainline replacement program, to assist in stabilizing pressures. With the changing fire codes over the years, Louisa Water Company has also inherited water systems with inadequate fire protection, so further addition of fire hydrants are being addressed in the mainline replacement program as well.

What should I do if I lose water pressure?
Loss of pressure can occur for a number of reasons, including a broken water main, a broken service line (either the public or private side), a scheduled shutdown for connections by new development, or even the water being shut off at the meter. If it is not evident why you have lost water pressure, our Customer Service will be able to give additional information as to the nature and/or expected duration of the outage, or notify our personnel to investigate and correct the problem. Until pressure has been restored, it is best to keep all fixtures closed in the house until all necessary repairs have been made, as the public system may need to be flushed after repairs. Depending on the nature or duration of the outage, you may also need to open up fixtures to clear out air in the system immediately after pressure is restored.

Need help troubleshooting private pressure problems?
Customers often call with private side pressure problems and hopefully the following can address most issues. All of the below assume adequate pressure at meter before entering the private system.
Constricted private service line - If when turning on the water, the pressure is fine, but then immediately trails off to far less undesirable pressure, you may be experiencing a constricted private service line. If the house is

several decades old and you still have galvanized pipes from the initial construction, it is very possible the private service line has extensive deposits or corrosion that is not allowing adequate flow through the pipe to sustain the pressure. In this case, part or all of your private water service may need to be replaced to correct the problem.
Obstructed filters - If you have no trouble with pressure where water comes to the house (when testing a hose bib or irrigation), but the whole rest of the house (or portions inside the house) subject to filtering have been experiencing lower pressure, these filters are probably due to be changed. No filter lasts forever, and a lack of pressure through any filter is usually a clear indication that its usable life has ended and/or cleaning is necessary.
·Obstructed aerators/shower heads - If your pressure problems are relegated to only one fixture, this is probably due to calcification or other obstruction by sediment within this fixture. For faucets, the aerators can be removed and cleaned or replaced (if necessary), as can faulty or clogged showerheads. You may wish to consider low-flow fixtures as a replacement, and there are many varieties on the market today.

Irrigation timing/zones - The best times for irrigation are from midnight to 6:00 AM, when there is less wind/evaporation, better soaking down to the roots of plants and turf, and fewer system pressure problems with the demands of other customers. If you are running into pressure problems when your irrigation system is running, you may need to adjust the times irrigation occurs to not coincide with other water uses, such a laundry, dishes, etc. If you are having problems with pressure within the irrigation system itself no matter when it is run, this is probably due to assigning too many sprinkler heads/bubbler/etc. per station, and the existing pressure to your home is unable to meet all these demands simultaneously. One solution is to increase the amount of stations and further split of how much gets watered and at what time to stagger this demand.
Back to top

WATER CONSERVATION

How do I know if I have a leak?

The easiest way to determine if you have a leak is to first verify that all water sources on the property are turned off, including your ice makers, toilets (not running), and irrigation system. Once you are sure this is done, have a look at the face of the water meter to your property, which should resemble the picture to the left.

Typically there will be a small triangle or star (above), sometimes in a different color than the dial (red or blue) that is a leak detector, and will continue to spin clockwise when everything is turned off but you still have a small leak in the system. This will occur even when the large sweep hand does not appear to be moving. Each small division on the dial above is one tenth of a gallon (or about the volume of can of soda), and one entire revolution of the large sweep hand is 10 gallons. So if the leak detector is moving but the large sweep hand appears to not, the leak is very small. Naturally, if you can perceive the sweep hand moving while everything is off, you have larger issues with leaks, which will usually manifest themselves as growing muddy areas at the ground surface, or by obvious damage indoors.

How do I know where the leak is located?

Once you have determined you have an undiscovered small leak, and everything is turned off in the house (see previous question), the following are some troubleshooting steps to narrow down where the small leak is occurring:

Step 1 - If you have a main shut off valve where the water enters the house, close this valve and recheck the leak detector on the meter. If it does not stop turning, the leak is outside on your private side service line, from the meter to the house.

Solutions - Connections and fittings are the most likely points of leaks, and very often occur were the water comes up into the house or where the meter is connected on the private side (especially if your meter box is subject to vehicle traffic). Other than recent digging in the area of your pipes, it is also possible for the root systems of large trees to damage your private service line, and it may be necessary to expose the water line along these areas to pinpoint the leak. If you have polybutylene pipe, or very old steel or galvanized pipes, these could have also deteriorated to the point of failure.

Step 2 - If the leak detector stops turning after Step 1, the leak is beyond the main shut off and inside your house or part of your irrigation system (if after this valve). Reopen the main shut off valve and verify the leak detector is again moving. Next check the irrigation system.

Solutions - Since irrigation systems are routinely to blame for leaks, isolate the entire irrigation system. Most backflow preventers leading to the irrigation systems have small isolation valves incorporated into the top, and can be used for this purpose of physically shutting off the backflow preventer. If you have no other valve other than the main shut off at the house or at the meter to shut off the irrigation system, you may consider this is the time to install one, since you should have a way of isolating the irrigation system from the rest of the house for times just like this. If isolating the entire irrigation system stops the leak detector, you have a leak somewhere in your irrigation system. The only part of the irrigation system that remains under constant pressure is from the connection to the water source to the station box(es) housing all your station control valves. Check all fittings between these locations. If you still cannot find any visible leaks, it is possible one of the station valves is not fully closing and allow water to pass, so each control valve will need to be verified that it is working properly.

Step 3 - If the leak detector fails to stop turning after Step 1 and Step 2, you have eliminated all other possibilities besides the leak being inside the house.

Solutions - Most fixtures or appliances have connections to the water system that can be isolated (so they can be replaced), and you should systematically eliminate each as the culprit by isolating them and checking the leak detector until the faulty appliance or fixture is found. Check everything that has a connection to the water supply, including faucets, toilets, water heaters, hose bibs, water/ice maker from the refrigerator, washing machine, dishwasher, etc. One of these should be the source of

the problem, since the only thing left are the pipes in your walls, and evidence of a leak would be obvious as it pools out onto the floor.

How can I conserve more water?

Certainly, doing all you can to maintain your water system free of leaks is where to start. Even the smallest of leaks can translate to very large losses of water. At an average water pressure of 60 psi, a hole as small as 1/32" can leak almost 74,000 gallons of water in year! Running toilets and dripping faucets or other fixtures are the biggest culprits of leaks, and other tips on troubleshooting leaks can be found above.

Next, conservation is often just a matter of developing good habits and using common sense. Taking short showers, not letting water run unnecessarily, minimizing the amount of water used to wash dishes, and minimizing the loads of laundry done each week, can translate to a considerable amount of water conservation.

Irrigation is a large source of water use for many customers, so having a properly managed and maintained system is critical. Pets can often damage irrigation systems that can lead to large unintended uses of water, so taking extra steps to protect water features your pet could come in contact with will help you conserve water, as well as time and money for repairs. Since plants are very often overwatered, how much water plants actually need should be monitored from season to season, letting the plants tell you how much water they need to avoid overwatering. Choosing low water and/or native desert plants, and limiting turf use will also greatly minimize the amount of irrigation required. Very often, once desert plants are established, no further watering is necessary at all. Making use of household greywater, and/or water harvesting to offset irrigation needs will also assist in conservation of water.

Many customers have pools or fountains that are large sources of evaporation. Only running fountains for specific events, and making use of pool covers (when not in use) will greatly decrease evaporation.

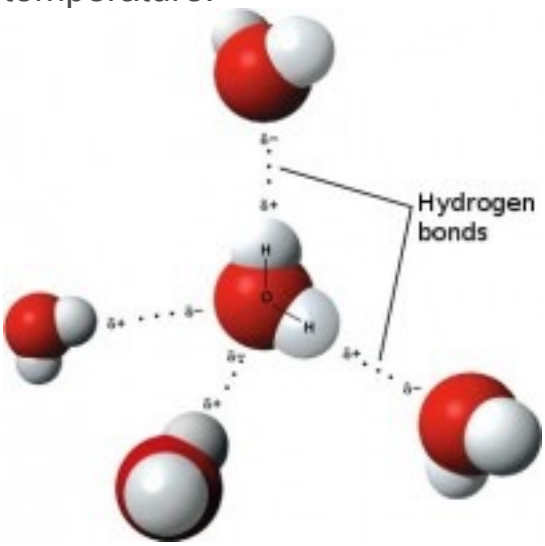
Back to top

KIDS KORNER

What is water?

Water is the building block of all life, and an essential component to all living things. Known by its popular chemical formula, H_2O, each molecule of water is made from two hydrogen atoms and one oxygen atom, forming a covalent-bonded, polar molecule. As a molecule, water has very unique properties, especially in how it expands as it freezes (about 9%), which is

why ice floats on water, and why lakes freeze from the top down. The only other substances that expand when frozen are silicon, bismuth, antimony, and gallium. For its size of molecule, water can also form an unusually large number of intermolecular hydrogen bonds that lead to a strong attraction between water molecules, evident in water's high surface tension and capillary forces. These intermolecular bonds give water the second highest specific heat capacity of any substance (ammonia is the highest), and a very high heat of vaporization, both of which allows water to moderate the climate of planet Earth by buffering large fluctuations in temperature.



Many know or are not surprised that water covers over 70% of the Earth's surface, and that oceans comprise 97% of all water. However many are surprised to find out the fresh water in rivers, lakes, and ponds comprise only 0.6% of the total water on earth, or that only an estimated 1.6% of all water is contained within underground aquifers. The remainder is contained in frozen glaciers and polar ice caps. Depending upon someone's size, between 55% and 78% of a human body is comprised of water, and water has very unique chemical properties that make life possible and sustainable. There is a reason humans can only survive a few days in a hot desert without water, because so much of how our bodies work and regulate temperature is reliant on being properly hydrated. For this, and many other reasons, clean drinking water should always be considered a precious resource for all living things.

What is the water cycle?

The water cycle is the continuous process water goes through on earth shown in the diagram below. Surface water, primarily from oceans or other

freshwater storage, undergoes "evaporation" into the atmosphere. Along with evaporation is "transpiration" (or evapotranspiration), where water vapor is also released from plants and animals. Also, "sublimation" occurs when frozen water vaporizes without first melting. All this water vapor is stored in the atmosphere until finally undergoing condensation when the air becomes sufficiently saturated, forms into droplets, and falls to the ground by way of "precipitation" in rain, snow, etc. Frozen precipitation is generally stored until it seasonally melts and joins other liquid water in streams, rivers, and other surface runoff as it makes its way back to the oceans or other freshwater storage areas. A portion of this surface runoff also sinks into underground aquifers, or groundwater, that also is eventually released into the oceans. The cycle then begins all over again. A printable PDF of the USGS Water Cycle poster below can be found here.


USGS
science for a changing world
The heat of the sun provides energy to make the water cycle work.
The sun evaporates water from the oceans into water vapor.
This invisible vapor rises into the atmosphere, where the air is colder.
The water vapor condenses into clouds.
Volcanoes emit steam, which forms clouds.
Air currents move clouds all around the Earth.
Water drops form in clouds, and the drops then fall to Earth as precipitation (rain and snow).
In cold climates, precipitation builds up as snow, ice, and glaciers.
SUBLIMATION
ICE AND SNOW
VOLCANIC STEAM
PRECIPITATION
SNOWMELT
RUNOFF
RIVERS
FOG AND DEW
STREAMFLOW
SPRING
RUNOFF
LAKES
INFILTRATION

Why does the water come out when I turn on the faucet?
Water comes out of your faucet because it is stored under pressure in the water pipes. Pressure is defined as a force applied to a given area. If you hold your finger over a straw and try to blow through the straw, you can feel the pressure building behind your finger. If you release your finger, air is allowed to flow out of the straw. The same applies to water within pipes when a faucet is opened.

Where does the water come from when I turn on the faucet?
For customers ofLouisa Water Company, water coming out of your faucet first comes from a well, typically from hundreds of feet below ground, pumped up to the surface and usually stored in very large tanks called "reservoirs". This water is then either pumped or drops in elevation through underground pipes in the streets to each neighborhood. Each house then connects to these bigger pipes call "mains" with smaller pipes called "service lines". The water then enters the plumbing in each house, and to each fixture such as a faucet.

How do you know how much water people use?
Louisa Water Company knows how much water each customer uses with what is called a "meter". This device is placed along the service line extending from the water main to where the water enters a home (typically at the property line), and records the volume of water that passes through it. Readings are taken each month to determine how much water a customer used since the reading the previous month.
Back to top