

# Water Leak Detection in an Irrigation System

This time of year, with cooling temperatures we get more service calls regarding possible leaks. A couple of things you can check to see if you have a leak or just too much water.

- 1) Do you have too much run time on your zones? Do you still have summer settings? Time to cut back. You should be at about 60%-70% of summer setting now.
- 2) Do you have multiple start times on your controller? This can be done accidentally and have your system run several times per zone. Good for the summer to allow for soak in time but not needed in the fall/winter season.
- 3) Is the wet area in one place or all over your yard? If wet all over yard you probably have sprinkler system running too much or have a problem with your sprinkler controller. IF one specific area is wet it is more than likely you have a leak or a mechanical failure in one of your valves.
- 4) Has anyone done any digging in your yard that could have caused leak? Plumbers, foundation companies, phone and cable and even clean up from Harvey.

**If you think you have a leak, call our service team at 281-494-3700. We offer a free static pressure test on your main line sprinkler system when you schedule service.**



Here is an article I read from Watergeek that has some good information.

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**watergeek**

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Are your water bills too high? Have you replaced your fixtures and appliances with water efficient ones and reduced your use of water to little avail? Or are you already aware that you might have leaks, but don't know where they are? Most people catch indoor leaks pretty quickly, but outdoor leaks can be harder to find, especially with the irrigation system.



*This ground is too soft. The lawnmower should not have been able to make that deep a furrow in this spot. There could be an underground leak here. | Source*

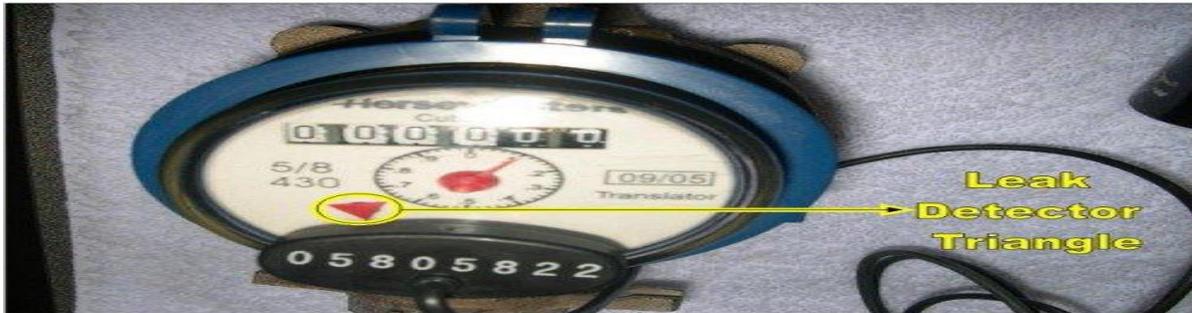
## Dedicated Irrigation Meter

In most homes the majority of water is used outside by the landscape, where overflow feeds into the storm drains. Indoor overflow (and wastes) feed into the sewage system. In houses with large landscapes, it makes sense to measure the two uses separately. Here's why:

1. If you find a sudden spike in your water bill, you can find out right away, by reading your meters, whether it's from extra use indoors or extra outdoors. You'll have half the area to check.
2. Since sewage charges are calculated from all meter readings, except dedicated irrigation meters, you may be paying too much. Check to see how sewage is billed. If it's billed by a flat charge, you're ok. If it's billed by the amount used, you may be paying sewage charges you don't owe.

3. Once a dedicated meter is installed, check the main meter (called a mixed meter) to see how much water you normally use per month for indoor use. That's the only thing sewage should be billed on - for maintaining the public sewage system. Multiply that amount by the sewer rate charged by your water provider. If you have been paying more than that each month, the water provider owes you money.

Some water suppliers will refund the homeowner for prior overcharges, so install the meter first, do your checks, then call them.



*Water Meter - Check your meter to see if the needle moves when all water is turned off. It will be located somewhere between the street and the house, before the plumbing system starts (under a cover in the ground or somewhere next to the house). | Source*

## Irrigation System Troubleshooting

The following instructions presuppose that you have a dedicated meter. If not, you can still use your house's mixed-use meter to run this check. Just make sure that *all* water is turned off before starting, inside and out.

Set aside a day to turn off the irrigation system and go through some checks. Find your water shutoff valve - somewhere between the house and street - and turn it off. Give it about twenty minutes for water in the system to stop flowing. Now check your meter. Is it still running? Is the leak indicator triangle or circle showing? If yes, you have a leak.

Now it's time to find out where that leak is. The procedure is to check the irrigation controller, then the valves, then the sprinklers. If you still haven't found it, then you'll check for underground piping leaks, for which you may want to purchase equipment.

## Irrigation Controller Check

Controllers, themselves, don't leak water. What they are is an electrical clock that tells the sprinkler valves when to release water through the sprinklers and for how long. What you're checking for when you look at the controller is to make sure that the programming is reasonable. Sometimes, for whatever reason, a sprinkler station (collection of sprinklers under one timer) loses its programming and goes on default, which may be totally the wrong schedule for your area.

My water use audit team once found a small hotel whose controller was out of control, turning sprinklers on for hours at a time on Saturday, when sprinklers were required to be off. We reprogrammed it to a more reasonable schedule and taught him how to do it. Subsequent calculations predicted he could save 75% of his water bill from that move alone.

*Irrigation Controller - Check the programming of each station to make sure it's what works best for the plants watered by that station. | Source*

## Sprinkler Stations Check

If you have a large landscape, you will need the help of another person - one to stay at or near the controller to turn stations on and off, the other to walk around the sprinklers, as they come on, and take notes. The walker should also be carrying little flags to mark whatever problems they find for later repair.

Turn the stations on one by one. You will be looking for several indications of wasted water:

- Water geysers - which indicate missing sprayheads.
- Floods around the base of a sprinkler - grass may need to be cut shorter or a short riser replaced with a taller one. Also could be an old valve that is not shutting off properly. You might want to check the valve that supplies that sprinkler again.
- Misaligned spray head - shoots water into a nearby obstruction or over the sidewalk or parking lot, instead of grass. Technically not a leak, just needs to be realigned.
- Water spurts in the space between sprinkler heads - indicating a broken pipe (lateral line) that has already blown out the soil above it.
- Flooded areas between sprinklers - can indicate a slow, steady leak in a lateral line underground. You will have to dig down to find the actual spot. (See next section.)
- Spurts of water at the base of a sprinkler - indicating a broken seal where the nozzle or riser meets the supply line beneath.

All of these problems are commonly found with large landscapes. They need to be checked for and fixed on a regular basis - at least once a month. Routine maintenance, in itself, will save you water.

Once all the stations have been checked and repairs made, you can test the irrigation meter again. In the majority of cases, this is all you will need to do. But if the meter is still showing water being used, even when all water is off, you may have a leak underground. In that case, you can run through the following steps with or without the equipment shown in the next section. Having the equipment makes it easier.



*Finding Leaks - Some leaks are pretty easy to find. Others you may have to use equipment to locate.*

## Pinpoint the Exact Location

Once you think you have a location identified, turn the water off and take a shovel over to test the ground. These are indications that you are in the right spot:

- The ground will likely be soggy, so look for that first. Mushrooms growing in that location and nowhere else are another potential indicator.

- If you don't have equipment, you will probably have to dig down in a few locations to find the exact location of the leak. When you think you're close, manually turn the valve that goes to that area on low. You want dribbles coming out of the sprinkler heads, not a spray. This prevents water and mud from suddenly gushing up into your face when you've uncovered the leak with your shovel.
- Keep digging around the area, looking for the difference in soil moisture. When you find the leak, fix it. Then test the meter and that area (if you need to) again.

## Water Provider Assistance

If you have tested all of your stations and water pressure seems the same, if you have found no floods and no area-specific patches of mushrooms, and you've heard no sounds of water leaking underground, but the meter is still running when all the water is off, then there may be a problem with the meter itself. In that case, you will need to call your water provider.

Tell them all of the tests you've run and ask them to send someone over to check the meter. If it's an old meter, there could be something wrong with it. If it's a newer meter, it could have been improperly installed. If everything is ok when they check, it's time to call a plumber.

Whatever results and whoever pays, you will still have benefitted by each problem discovered and fixed in the process of locating the leak.

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