

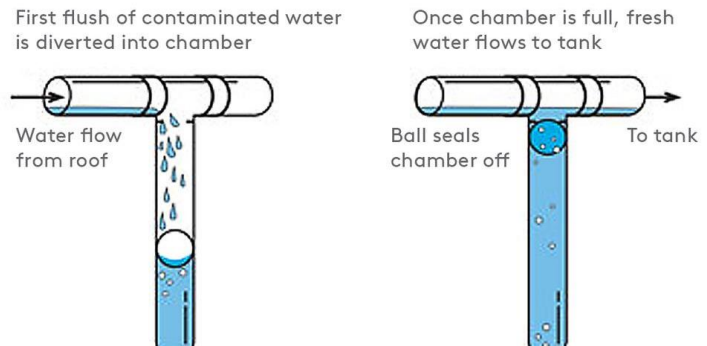


## First Flush—Is it Important?

By Dr. Larry Sunn

A few articles ago we committed to three topics for further discussion, water filtration, a wet vs. dry system, and first flush. Two down, one to go.

First flush is a term used for a simple contraption that diverts the first flow of water away from your rainwater storage tank. As rain falls, the initial rainwater in a storm sort of “washes your roof” of sediments that have collected on your roof since the last rain. The idea is that diverting the first few gallons of this rainfall can help ensure cleaner water in your rainwater storage tanks. In this graphic, the down-facing pipe is the first flush diverter. In this example water enters the system from the roof, sediments sink to the bottom of the down pipe, the ball floats sealing off the bad water, and cleaner water spills over into your rain tank.



First flush diverters should discard a minimum of 12.5 gallons per 1000 square feet of roof area—if you intend to use the water for potable purposes. Discarding this initial wash of water helps ensure the safety of the collected water. However, contamination does not normally occur if rains happen within about a week or so of each other—because the roof is still clean.

There are many different first flush alternatives available, and all are touted by the respective sellers as “the best.” Some first flush systems will include a filter to remove smaller particulates—these filters must be cleaned regularly. Additionally, you must periodically inspect the roof, gutters, and piping to ensure they are free of debris or buildup that may cause your first flush system to fail. Leaf guards on your gutters are important to make sure that leaves and debris do not build up in your downspouts and pipes—these could damage your plumbing and make your first flush pointless. Regardless of the type of first flush system used, it is important to inspect it regularly to ensure it's working properly.

First flush—cleaner water—it sounds like a good idea, right? All CTGCD Directors with rain catchment systems have installed some type of first flush diverter. However, many rainwater harvesting professionals aren't so encouraging, noting that over the years they're often hired to remove a first flush. So why wouldn't folks use a first flush diverter if it's so easy to do? There are many reasons.

Several downspouts. If your roof has many downspouts, installing and maintaining several first flush diverters—one on each downspout—can be a chore.

Size matters. If your first flush is too big, you waste water and limit your ability to fill your collection tanks. If your first flush is too small (often the case), the unit will be overwhelmed, and sediments will enter your primary storage anyway—this then becomes a maintenance issue. First flush diverters need to be sized correctly for optimal performance, and this is difficult to do. There are many variables that go into determining the optimal size for a first flush diverter. These include rainfall intensity and duration; length of time between rains; roof size, slope, and material; gutter size; wind direction and speed; pollen, and even air quality. The good news is we at the CTGCD will help you design a suitable and efficient system.

Maintenance. First flush diverters on a potable system can require significant maintenance, and if neglected, can worsen the problem they aim to solve. Most first flush diverters must be cleaned regularly in order for them to serve their purpose. Even the most well-meaning user will often neglect this maintenance.

It may be easier to divert the first flush manually. Rather than losing water in subsequent rains just a few days away, you may find that only the very first rain of the season is dirty enough to justify diverting. All in all, at the CTGCD we find that a properly maintained first flush diversion is an important safeguard for your family's drinking water.

Feel free to send rainwater capture questions to us at the Comal Trinity Groundwater Conservation District by emailing Dr. Sunn at [comaltrinitygcdsecretary@gmail.com](mailto:comaltrinitygcdsecretary@gmail.com); our water well and rain catchment consulting services are offered to the public without charge.