



HOW TO PROTECT YOUR RAINWATER SYSTEM DURING A HARD FREEZE¹

Note: For most residential potable water systems, the water inside your tank will almost never freeze solid though a thin layer of ice may form at the top of your water in the tank - please do not attempt to break up the ice as this can damage the tank liner.

Steps to Protect A Rainwater System During a Hard Freeze

- **Open the collection line (or first flush tank) drain valve.**² Keep the drain valve OPEN until the threat of freeze has passed and any ice has melted (i.e. water flows from the open drain).
- **Insulate all exposed pipes** - 2" or under. Use a good quality foam or wrap that self seals and/or tape to keep closed.
- **Insulate the main valve** at the tank (FDC) because it is especially vulnerable during a deep freeze. In a pinch, an old carpet or sheet can be effective.
- **Drip faucet(s)**
Drip the lowest, furthest faucet from the disinfection station and open at a very slow drip and the bathtub (if you have one) faucet – plug the drain so that you will have this water available to you to use if the power goes out. More flow = more water = less likely to freeze. Finding a balance here is tough because you don't want to run too much water out of your tank but enough to prevent freezing. Moving water has more friction and therefore more heat.
- **Deploy a heater or heat lamp** - If any of your components (pump, disinfection system) are in an out-building (e.g. pump shed or detached garage) running a heater, heat lamp, or wrapping in heat tape can keep components from freezing.

¹ NWS definition of a "hard freeze": occurs when the temperature reaches 28 degrees or lower for at least a few hours. Also, please NOTE that these recommendations can only minimize risk of damage and do not guarantee against system failures during extreme weather events.

² NOTE:: After opening the drain valve, the system will not be collecting water, rather, all new water that falls on the roof will flow out of the drain valve until closed.



Emergency procedures to fully disconnect your system when the power has failed.

Power failure = no water (unless you have backup generation capacity or solar batteries) To prevent harm to the system during a hard freeze we recommend the following procedure to fully freeze protect your system:

NOTE: these emergency procedures will result in shutting off all water coming into your home and you should not perform these steps without first knowing the requirements for your equipment, such as hot water heaters, as this could result in damage to your equipment – IF YOU ARE NOT SURE CONTACT AN APPLIANCE PRO.

- PUMP: Turn off power to pump by shutting off the breaker in the load center.
NOTE: DO NOT turn back on until all the steps have been reversed!
- UV light – unplug;
- MAIN SHUT OFF: Close the main shut off valve at the storage tank (located inside the access hatch on the tank);
- BLEED VALVE: (also inside the access hatch) there is a ¼ turn valve with a small length of pipe open to the air– open this valve fully. This will de-pressurize your system. Keep open until power returns;
- FILTER HOUSINGS: use the bleed valves on the bottom of both filter housings to drain the water from both into a bucket. Depress the red buttons on the top of the canisters to allow air to flow in which will release the water to drain;
- DRAIN HOUSE LINES: Identify and fully open the lowest water outlet inside and outside of the house. Typically inside this would be a bathtub; outside, a hose bib. This will depressurize and drain the plumbing.