The Kitchen Fort Water System

The kitchen fort, delivered in 2023, is a marvel in camp automation, allowing us to bring a commercial-quality working kitchen to playa and start using it without any setup. However, we're still learning about the best way to hook it up to water.

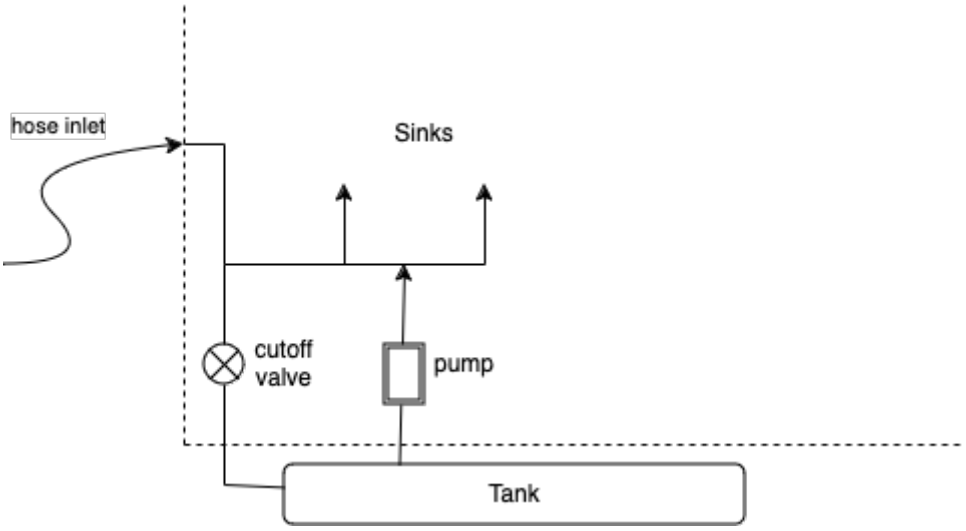
Fresh Water

There are two separately plumbed fresh water systems: one for sinks and one for the ice maker. The inlet for each of these systems is on the passenger side, front. They are 3/4" garden hose inlets:



We no longer use the ice machine as of 2025, as so much of it was lost in the war.

The fresh water system is laid out like this:



Each one has:

- a hose attachment outside for connecting water to the system
- two tanks, per system, under the bottom of the trailer to store water.

> These tanks have an opening at the top, allowing air in and out so they can fill and empty. This opening also means that if you overfill them with a hose, the excess water just starts to pour out onto the ground without warning.

- a little Shur-Flo pump inside the trailer that can pump water up from the tanks to pressurize the system
- a shut off valve inside the trailer that connects or disconnects the tanks and pump. Here's what the shut off valves look like:



Running the system off tanks

In 2023/24 we ran the food fort by filling its tanks. Here's how that works:

1. Open the valve inside
2. Connect the hose, outside
3. Turn on the hose until the tank is full
4. Remove the hose
5. Close the valve inside
6. The pump will pump water up from the tank into the food fort system

You need to do this for both the sinks and the ice maker, separately.

We thought this was a nice idea because it got the water team involved every once in a while and avoided the risk of the kitchen using up all of our camp water by mistake. In reality someone had to fill the tanks once or twice per day, and in particular the ice machine's running out of water probably caused it to dump the water it had instead of just producing a lot of ice.

Running the system without tanks

In 2025 we started running the system without using its tanks. Here's how that worked:

1. Close the valves inside
2. Unplug the pump(s)
3. Connect the hose, outside
4. Turn on the hose outside
5. The external water pressure should provide water inside the food fort.

The way we set this up:

- The SSS 500 gallon tank is set up next to the fire lane. It comes with a pump and a 15' hose. As of 2026, there will be two of these so we can switch back and forth.
- from the output of that hose, supplied by SSS, we'll connect
  - to a hose splitter with shutoff valves
  - to two smaller hoses
- each of those hoses goes through a check valve (to prevent backwash)
- and also through a water meter (so we can monitor usage)
  - one hose goes into the food fort main water (not ice maker! ice maker is dead!)
  - the other goes around to the shower system where it provides water for drinking, showering, and the sinks.

Ice Maker (RIP)

The ice maker system is just like the fresh water system, with its own tanks and pump and shut off valve. In 2023 and 2024 we were underwhelmed by the amount of ice this system could produce (it was nothing close to what it should have been able to produce based on specs) and overwhelmed

by the amount of clean but undrinkable water that it dumped on the ground through an open spout under the trailer as a part of it's too-frequent "clean" cycle. In 2025 we want to give it one last chance by keeping it connected to pressurized water so it never runs out of water to see what it can produce.

> **2025 Spoiler Alert.** One thing we found was that the Ice Maker does *not* actually have a shut-off valve to bypass the tank. The Ice Maker **must** use the 50 gallon tank. Another thing we learned is that the Ice Maker was damaged probably due to not being properly winterized, and, for all intents and purposes, is no longer useful

Grey Water - 2026 Plan

We are going to try a system where the grey water goes, via gravity, through a hose to the shower grey water tote, where it joins with water from the showers etc. and is then pumped off to the main grey water tanks automatically.

Grey Water - 2025 Plan

There are grey water tanks under the kitchen which fill up about once a day. In. 2024, we pumped this water across about 100' to a grey water tank supplied by SSS.

The waste spout of these tanks is a 1.5" ID threaded outlet. It is probably about 9" above the ground.



For 2025 the official plan will be to put the SSS tank right next to the kitchen, and it will be exclusively used for kitchen grey water. The SSS tank is about 17½" high with input from the top:



To pump the water from the Food Fort tanks to the SSS tank, we connect a Valterra T01-0094VP or Valterra T01-0091VP to the 1.5" outlet, and then from there a small length of garden hose, to a transfer pump that can pump the grey water up to the SSS tank on demand. We use a Milwaukee cordless transfer pump which runs on the same batteries as our impact drivers; with that connected it takes about 10 minutes to completely empty the food fort.

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