SKILL GUIDE · WATER & FOOD

Storing Water Correctly

The Water & Food chapter covers how much water to store and roughly what to store it in. This guide covers what's easy to get wrong: what the standard 1 gallon/person/day figure actually assumes and doesn't, how to prepare a container before you fill it, whether the water needs treating first, and how to keep a stored supply safe to drink months or years later. For treating water that's already questionable, see Water Purification; this guide is about water you're storing while it's still known-good.

How much should you actually store

The manual's own 1 gallon/person/day figure comes from FEMA and CDC guidance, and it's built the way most people have heard it described: roughly half a gallon for drinking, and the rest for food preparation and minimal hygiene. That's a real, defensible number, but it's a **survival floor**, not a comfort target, and it's worth knowing exactly what it does and doesn't cover before you treat it as the whole plan.

What it assumes: rationed drinking, no laundry, and no toilet flushing at all, which is exactly why this site's own sanitation approach uses a no-flush bucket system instead of trying to keep a flush toilet running. A single flush of an older toilet is 3.5–7 gallons; even a modern EPA WaterSense low-flow toilet is 1.28–1.6 gallons. Flushing more than once or twice would consume the entire household's daily ration by itself.

The fuller number: WHO / Sphere humanitarian standards

Humanitarian relief agencies plan water supply using the Sphere Handbook, the standard reference for disaster response and refugee camps, which breaks the same problem into three categories:

Use	Amount per person, per day
Drinking (survival minimum)	2.5–3 liters (~0.7–0.8 gal)
Basic hygiene	2–6 liters (~0.5–1.6 gal)
Basic cooking	3–6 liters (~0.8–1.6 gal)
Total	7.5–15 liters (~2–4 gal)

Sphere is explicit that 7.5 liters is only the acute-emergency floor, the number used in the first days of a crisis response, and that 15 liters (about 4 gallons) is the real target once things stabilize even slightly, and

even that "is never a maximum." That's up to **four times** FEMA's 1-gallon figure.

What this means for a 14-day supply

The manual's Tier 1 target of 14 gallons/person over 14 days is internally consistent with the FEMA floor, and it works specifically because the household's sanitation plan avoids flush water and doesn't assume laundry. At the WHO/Sphere comfort target, the same 14 days works out to roughly **56 gallons/person**, not 14. Neither number is "wrong"; they're answering different questions; treat 14 gallons as the minimum floor and build toward the higher figure with any storage capacity you have beyond it.

What neither number includes

- **Laundry.** The single biggest line item people forget. Hand-washing one load costs roughly **2 gallons for the wash alone**, and **15–20+ gallons once you add rinse water** using the three-basin method in the hygiene guide above. One load of laundry can cost more water than one person's entire daily ration.
- **Dishwashing.** Smaller per instance, but it happens multiple times a day and adds up over weeks.
- **Illness.** Fever, vomiting, and diarrhea all increase water needs, and anyone you're isolating needs a higher personal ration than the household average, not the same one.
- **Hot weather.** CDC guidance states plainly that water needs can double in high heat.
- **Pregnancy and breastfeeding.** Baseline drinking-water needs run roughly 2.4 liters/day (~0.6 gal) pregnant and 3.1 liters/day (~0.8 gal) breastfeeding, independent of and on top of the hygiene/cooking share above.
- **Physical exertion.** Hauling water, clearing debris, or walking out on foot meaningfully raises the drinking-water floor above what a sedentary household member needs.
- **Children.** CDC specifically flags children as needing more water relative to the standard figure, not less, contrary to the instinct to scale down for smaller people.
- **Wound irrigation.** Proper wound care calls for irrigating thoroughly with clean water; real, if occasional, consumption.
- **Pets.** Already factored into this site's shopping list: roughly 0.5–1 gallon/day combined for a dog and two cats, on top of the household's own figure.

None of this means the manual's 14-gallon Tier 1 target is wrong, it's the floor, and it's a reasonable one for the first two weeks of nearly any disruption. But if your household includes anyone pregnant, nursing, sick, doing hard physical work, or if you're planning past the first couple of weeks, plan your Tier 2 bulk storage toward the WHO figure rather than just multiplying the Tier 1 number by more days, and treat laundry as its own explicit planning line rather than something the daily ration is supposed to quietly absorb.

Calculate your own numbers

Enter your household and however much water you actually have stored, or are considering storing, and see how many days it covers at both the FEMA survival floor and the fuller WHO/Sphere comfort level above.

People in the household

e.g. 4

Dogs

0

Cats

0

Gallons of water stored

e.g. 56

Count every food-grade container you'd actually use, barrels, jugs, sealed commercial bottles, not water you're relying on a tap or well to keep providing.

Calculate

Why pets get one flat number instead of a range

A dog's or cat's water need doesn't have a "survival minimum" separate from a comfortable one the way a person's does, it's just what keeps them healthy, so this calculator adds one estimate per animal rather than scaling it with the rest of the range: about 0.3 gal/day for an average ~40 lb dog and 0.1 gal/day for an average ~12 lb cat, based on the standard veterinary guideline of roughly 1 ounce of water per pound of body weight per day for dogs and slightly less for cats. A much larger or smaller pet, hot weather, or an all-wet-food diet will shift this in either direction, treat it as a planning estimate, not a precise figure.

Choosing a container

Use **food-grade containers only**. These carry a recycling number 1 (PETE), 2 (HDPE), or 4 (LDPE), or are explicitly labeled food-grade, and won't leach chemicals into water over long storage. 55-gallon food-grade barrels work well for whole-household bulk storage; stackable 5–7 gallon jugs are easier to move and better for a portable, grab-and-go subset.

Never reuse a container that held a toxic chemical

A container that previously held bleach, pesticides, motor oil, or any other chemical is never safe to reuse for water storage, even after washing. Residue and absorbed chemicals in the plastic itself can leach into the water. This includes most household chemical jugs, don't repurpose them no matter how thoroughly they're rinsed.

Cleaning and sanitizing a new container before its first fill

A brand-new food-grade container still needs this step; dust, manufacturing residue, and open-air storage before purchase are all reasons to sanitize before the first fill, not just reused containers.

1. Wash the container with dish soap and rinse it completely with clean water.
2. Make a sanitizing solution: **1 teaspoon of unscented household bleach** (5–9% sodium hypochlorite, no added scent or dye) per **1 quart (4 cups) of water**.
3. Pour the solution into the container, cap it tightly, and shake well so it touches every interior surface.
4. Let it stand for at least **30 seconds**, then pour the sanitizing solution out.
5. Let the container air-dry completely before filling it with water for storage.

Does the water need to be treated before storing it?

Water source	Treat before storing?
Municipal tap water (already treated by your water utility)	No, store as-is
Private well water, tested and known safe	No, store as-is
Any untested, questionable, or outdoor source	Yes, treat first using the same bleach dosing in the Water Purification guide before storing it
Commercially bottled water	No, use the manufacturer's own sealed container and printed date; don't decant it into another container

Filling and protecting the container

- **Leave headspace.** Water expands roughly 9% when it freezes. Leave about 10% empty space at the top of a rigid container, or store it somewhere that stays above freezing, to keep it from cracking.
- **Store out of direct sunlight**, in as cool a location as practical. Heat and light both accelerate plastic degradation and make algae growth in the container more likely if any light reaches the water.
- **Label every container with the fill date**, the same FIFO habit the rest of this site uses for food storage. A container without a date is a container you can't trust without re-testing it.
- **Store away from gasoline, pesticides, solvents, and other chemicals.** Some plastics can absorb vapors from nearby chemical storage over time, even through a sealed cap.

Rotation: how long stored water actually stays good

Properly sanitized and sealed water has a very long practical shelf life, but taste and confidence both degrade over time. **Replace stored tap water every 6 months** for best taste and peace of mind; some guidance extends that to 12 months for water that's been correctly sanitized and sealed. Tie the swap to a date you'll actually remember, the same daylight-saving-time habit the rest of the site uses for food rotation, so it doesn't quietly slip past a year unnoticed.

When you rotate, dump the old water (it's still fine to use for non-drinking purposes like plants or cleaning) and repeat the full clean-and-sanitize process before refilling, don't just top off an old container.

TIP

Fix flat-tasting stored water by pouring it back and forth

Water that's sat sealed for months loses dissolved oxygen and can taste flat even though it's perfectly safe. Pour it back and forth between two clean containers a few times right before drinking, or shake a partly-full bottle, to reintroduce air and restore a normal taste. It's a taste fix, not a safety step; it doesn't replace treating water you actually suspect is contaminated.

Dispensing without contaminating the supply

Draw water off with a barrel spigot or a siphon pump rather than dipping a cup directly into bulk storage. Every hand or cup that touches the stored water introduces new contamination risk to the entire container, not just the portion removed.

Northern Utah note: unheated storage

Garages and sheds along the Wasatch Front regularly drop below freezing in winter. If your bulk storage lives in an unheated space, either move it somewhere conditioned for the winter months or make sure every rigid container has the full 10% headspace described above; a cracked barrel loses its entire contents at once, right when you're least likely to have a backup.

Sources

- CDC, "How to Create and Store an Emergency Water Supply" (container type, cleaning and sanitizing steps, bleach dosing, rotation interval): CDC
- Utah State University Extension, "Storing Water for an Emergency": USU Extension
- University of Florida IFAS Extension, preparing and storing an emergency safe drinking water supply: UF/IFAS
- FEMA / Ready.gov, the 1 gallon/person/day drinking-and-hygiene guidance: Ready.gov
- Sphere Association, minimum water quantity standards in humanitarian response (drinking, hygiene, cooking breakdown): Sphere; WHO, "How Much Water is Needed in Emergencies": WHO
- CDC, increased water needs for illness and hot weather: Ready.gov
- Institute of Medicine drinking-water guidance for pregnancy and breastfeeding: WebMD
- EPA WaterSense, toilet water use by age/generation (older vs. low-flow fixtures): EPA
- Flat taste from lost dissolved oxygen in long-stored water, and pouring/aerating to restore it: Oxygen SuperCharger; Backdoor Survival