Water Storage Container FAQ
Version 2.6, Jan. 2005

 Version 2.6 Comments, suggestions, constructive criticism, e-mail me at aldolney@bellsouth.net

V2.6 Changes:
- Added pictures and minor cleanups

General comments:

The following Water Storage Container Frequently Asked Questions (FAQ) is designed to answer basic questions about commonly used containers for storing water, either short- or long-term. All of these containers discussed below (except where noted) are made of High-Density Polyethylene (HDPE), which is certified by the FDA for storing potable water (i.e. drinking water). It is up to the reader to ensure that used containers have not been previously used to store dangerous chemicals, petroleum products or anything else that would contaminate potable water. For this reason, I do not recommend the use of used containers for potable water unless you are sure of the source and what has been previously stored in the used container.

Although this is not a water storage FAQ, the following water storing advice is common sense and is available on many preparedness sites and is repeated here for your convenience. If you disagree with specific storing advice, fine, use what works for you in your area and circumstance. For long-term water storage, use standard storage common sense: store in a cool, dry, dark place. If stored outside, protect the containers from light and ensure the containers are robust enough to survive freezing temperatures and allow enough headroom (usually 1/4 of volume). Do not store potable water containers near sources of gasoline, kerosene or other petroleum products, pesticides or other poisons or chemicals; the fumes from these products can and will penetrate the plastic water container material and be absorbed by your stored water.

Large barrels need to be secured if stacked especially if stored in an earthquake-prone area. In no case should barrels be stored more than 2 high due to danger of collapse. Do not store large quantities of water in your attic or other areas of your home or apartment unless you know the underlying structure can take the extra weight. For example, most apartment complexes will not allow waterbeds above the ground floor of their buildings. The reason is simple: a 200-gallon waterbed will weigh over 1600 lbs and most residential structures are not designed for this concentrated weight.

Here's what the Federal Emergency Management Agency (FEMA)[1] says about preparing containers and water for storing:

- Containers for water should be rinsed with a diluted bleach solution (one part bleach to ten parts water) before use. Previously used bottles or other containers may be contaminated with microbes or chemicals. Do not rely on untested devices for decontaminating water.
- If your water is treated commercially by a water utility, you do not need to treat water before storing it. **Additional treatments of treated public water will not increase storage life.** [emphasis added]
- If you have a well or public water that has not been treated, follow the treatment instructions provided by your public health service or water provider.
- If you suspect that your well may be contaminated, contact your local or state health department or agriculture extension agent for specific advice.
- Seal your water containers tightly, label them and store them in a cool, dark place. It is important to change stored water every six months.

If you wish to treat our water prior to storing it, I recommend the chlorox.com site for the latest information on disinfecting water with chlorine bleach. Any "clorox" type bleach product will work, as long as it only contains 5.25% or 6% sodium hypochlorite as its active ingredient and does not contain brighteners or scents. Per the Clorox site use the following amounts of bleach to disinfect water: 4 drops per quart, 16 drops per gallon, 1 teaspoon per 5 gallons; shake or stir the water and let sit for 30 minutes before using. If, after 30 minutes, you cannot smell chlorine, retreat and wait 30 minutes. On my used barrels from the local bottling plant, I treat my stored water with a saturated iodine crystal solution, just for insurance. Again, if you have confidence in the cleanliness of your local tap water, storing it as-is is okay also.

Some may advocate the use of potable water-compatible hoses to fill large barrels. However, I just use my garden hose, running the water for several minutes to ensure I am getting fresh water direct from the water main in front of my house. Again, YMMV; use what you're comfortable with.

Except for those containers which I note that I have no experience with, I have listed water storage containers in order reflecting my personal preference and experience. Currently, I have over 450 gallons of water stored, with approximately 330 gallons in the water storage containers discussed in this FAQ. With one exception, none of these containers have leaked. Your personal circumstance and preferences (cost, need for robustness, convenience, storage space, amount of water to store, etc.) will determine what's best for you. This FAQ is designed to help you determine what to containers to store the amount of

[1] * FEMA Guide H-34, "Are You Ready?", pg. 13, dated Sept. 2002

water you feel you need. All prices shown represent the North Alabama area during 2002.

Freezing water containers: Most of the containers listed here are freezable, with certain limitations. Sufficient headroom must be left in order to prevent splitting or bursting the container since water expands when it freezes into ice. Headroom is nothing more than air left at the top of the container. The only exception to the headroom rule are store bought 12 and 20 oz. water bottles that can be frozen as they come from the store; all larger containers need to have headroom to ensure the container will survive the freezing and water expansion process. Usually ¼ of the container's volume is sufficient headroom.

Cleaning previously used containers: First make sure you know what has been previously stored in your used containers. This usually means that you bought the container new with its original contents (e.g. pop bottles) or you have confidence of its previous use from a commercial source (e.g. a Coke Cola or Pepsi bottler). Under no circumstances would I use containers that I was not sure what it might have been used for in the past. For example, I do not recommend that people collect used pop bottles from recycling centers or bins for use as potable water containers.

To clean small used containers, I rinse out several times, allow the container to soak filled with hot water a couple of times, and then fill with tap water and call it good. For larger containers like barrels, I will use a solution of Clorox and water (1/8 cup per gallon of water) and rinse several times afterwards. I do not recommend that you use any type of detergent or other cleaning solutions to clean your containers. If the containers are really dirty, grungy or contain visible signs of algae, I would not use them, unless you can ensure you can fully clean the container (i.e. can physically remove the dirt, not just rinse) or use them for non-potable water uses.

To clean new containers, I usually just rinse them out a few times, fill them with city tap water and call it good to go. I have tested my city water (Madison, AL) several times for chlorine and it always has a very high level of free chlorine. YMMV, especially if you are using well water. All of my smaller containers are filled from the water tap; the larger containers are filled with a standard garden hose, well flushed to ensure clean, fresh water is stored. For the ultimate in cleanliness, a water potable hose could be used; these are available from RV suppliers. I personally don't feel its necessary, but feel free to use what you think is best.

Attributes assessed for this FAQ: Cost, robustness, size, convenience, and FDA approved materials along with other comments as necessary.

Cost assessment is important to people new to preparedness; they almost always looking to save money when they are starting down the preparedness road. Cost is also important in order to maximize dollars for water stored.

There is another dimension to cost that most people might not think about. Suppose there's a crisis in your area and you've prepared but your friends, neighbors and relatives haven't. A neighbor comes to the door asking for water knowing you have several hundred gallons stored; will the decision to share easier knowing that you can give him several gallons in containers that cost you nothing vs. the possibility of losing a $20 USGI water can? Exactly. There are a number of good reasons to share with others during times of crisis and the possibility of losing expensive water containers shouldn't be an impediment to so doing.

Robustness is important for 2 reasons: mobility and longevity. People need to know which containers they can take with them if they are forced to evacuate, having confidence the containers and therefore their water will survive travel; longevity is important so containers don't have to be replaced once they are bought. Furthermore, people usually store their water with their stored food; it's important to know that your water containers are not going to leak and destroy your food supply. There is one water storage container designed to store water and both of the ones I had leaked; more about this later.

Size is important to people with very little storage area available for preparedness items because they live in an apartment or small house. Size also allows everyone to maximize their storage capability. Size is important if you have to carry your water container any distance to fill or use and it's also important is children, older people or anybody else that does not have the strength to easily handle the filled containers.

Convenience is important to those who may be aged or are not strong enough to move heavy weights or may have children that need to use the water. Water weighs 8.3 lb/gallon and cannot be condensed or dehydrated (despite what you read on the Internet!). Having comfortable handles makes it easier moving and using water containers. All weights shown below are for the water only; container weights are usually pretty negligible compared to the weight of the water; exceptions are large barrels and other very large water containers. Even an empty 55-gallon barrel is pretty easy for even a child to move. Very large containers (i.e. +100 gallons) may be more difficult to move or handle even when empty.

Containers made to FDA specifications for potable water is obviously important because we want our stored water to be healthy and safe when we need it. However, just because a container is not made to FDA standards does not mean it's not useful for preparedness: water stored in non-FDA containers such as water beds or swimming pool water (or fish tanks as one person on Arfcom

suggested!) can be used for non-potable water uses such as toilet flushing or bathing. This leaves your stored potable water for drinking and cooking.

Containers specifically NOT recommended for storing water:

- Glass containers: too fragile, especially in earthquake-, tornado- and hurricane-prone areas; glass is heavy, making it harder for people to move the containers when filling, emptying, etc. Glass containers are especially hazardous if you are forced to evacuate.
- Metal containers: will impart a metallic taste to water and will eventually make the water undrinkable. Note: I have no experience with FDA approved lined steel containers designed for storing water. Assuming the liner remains intact (big assumption IMO), the only objection would be cost and the fact that metal containers would be heavier than equivalent sized plastic containers. For example, the 5-gallon metal jerry water cans sold by Back Country Trailers cost $49 each, plus shipping i.e. +$10/gallon of water stored!
- Milk jugs and other containers made of milk jug-type plastic materials: This material, while approved by the FDA for contact with food, are made of Low Density Polyethylene (LDPE), which is a very thin container material and designed to biodegrade; it is guaranteed to leak after a couple of months, sooner if exposed to light.
- Used bleach jugs: Designed to biodegrade plus the added hazard of using a hazardous material container for potable water; not made of FDA materials approved for potable water; thin material, will leak within a couple of months, especially if exposed to light.
- Plastic fuel cans: Material not made of FDA approved materials for potable water; also increases the chance of contamination with petroleum products. It's just a bad idea to use any hazardous material container, new or not, for a water storage container.
- Any container that previously contained any hazardous materials, chemicals, pesticides, petroleum products or food products that will impart an objectionable taste to water (i.e. pickled eggs, meat products, condiments etc.)
- "Desert Patrol" water containers: Although designed for water storage, I've personally had **both** of my units leak. Furthermore, I've heard from at least 3 other users that their Desert Patrol containers also leaked.
- "Collapsible" containers: made of LDPE, not robust enough to hold water permanently and the fact that they are collapsible almost guarantees they won't be filled until the crisis occurs, then it will be too late to discover this container has a pinhole and leaks, assuming, of course, that you have water by then to fill it.

Given the many viable and safe water containers available, the above list should not realistically limit anyone who is planning to store enough safe, clean water for their family.

How much water to store? Preparedness discussion groups and sites all have the standard advice: A grown male needs at least ½ gallon of drinking water per day for normal activities; 1 gallon if he is doing heavy work and it's hot. Others recommend at least 2 gallons per day per person. People with special needs (the aged, pregnant mothers, etc.) will need even more water. My advice is going to be a little simpler: Store as much as you can afford and space allows. If you ever really need it, it's very likely you'll need more than you think and probably more than you thought possible. The good news is that good water containers need not be expensive.

Temporary water storage: Hopefully since you are reading this water storage container FAQ, you won't wait until an emergency is upon you to start storing water. Once an emergency occurs or is about to occur, there are several potential obstacles to acquiring enough water for you and your family. Among them: No time to buy or acquire water or water containers since these are usually the first things to go in a crisis. For example: the most Aqua-tainers I've ever seen at my local Super Walmart at one time is about a half dozen or so. Additional reasons are that there will be no time to fill containers since you have to evacuate or have something more important to do; your public water supply may already be shut off or contaminated (indeed this may be the reason for the crisis); containers you have may no longer be usable or require time-wasting cleaning; containers may not protect water for even short term survival needs (i.e. bathtubs); probably will not be able to store enough water in the amount of time available. All of the above reasons reinforce planning ahead and storing water well before the crisis is at hand.

However, you may be in a situation where you need to temporarily store water because you are not at home or want to store more water quickly in a crisis for backup water. Here are some ideas for quickly storing more water.

Hot water heaters will store anything from 40 to 80 gallons of potable water. House pipes will also store a few more gallons. To use this water, shut off the electricity or gas to the tanks (this is very important!); open the highest water tap you can to allow air into the system and then use the water tank water spigot to get your water (make sure the tank is completely filled when water service is restored before turning the electricity or gas back on; failing to do so will cause your water heater to fail). The water from toilet flush tanks, but not the bowl, can be used. You can also fill many household items for temporary storage: bathtubs, food and cooking appliances, pots and pans, water cooler barrels, garbage bags (put them in pillow cases to support the weight and protect the bag; don't drink this water since garbage bags are treated with pesticides); dig a hole in the backyard and put plastic sheeting down (see Nuclear Survival Skills for more information on this technique), ice chests and so on.

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Water Storage Container FAQ:

- 20 Liter (5.2 gal.) US Military Water Cans (MWC):
Advantages: The heaviest duty and most rugged water storage containers out there, this is the US Military Water Can and, in my opinion, the toughest and most convenient portable water storage container available (see Figure 1). It has the classic jerry can rectangular shape, which since at least WWII has been shown to be one of the most convenient container shapes of all time. This can will fit all military or military type jerry can holders (carriers available from surplus stores, J.C. Whitney, Northern Tools among others); designed to stack on a pallet; easy to fill with the large fill hole and easy to pour since they have a small pour spout and air vent hole; available in olive green, desert tan and now blue (note: it appears that the black container has been discontinued, but it can still be found used); they have comfortable handles; freezable with sufficient headroom. The MWC is the quintessential water storage container for your BOV's. Every person serious about being prepared should have at least a couple MWC's.
Disadvantages: Cost, at $20 each plus shipping, represents one of the most expensive form of water storage container on a per gallon basis ($4/gallon); there is only two known sources for new containers, Brigade Quartermaster (actiongear.com, $20) and Davidson Products (davidsonproducts.com, $21); it's not made in the US (Sceptor of Canada); the darker colors (black and olive green) will absorb more sunlight and therefore the water will get warmer if the container is left in the sun; with some cans, I have discovered that the pour hole and vent cap do not line up with the pour hole below the vent (I've seen this on surplus US Army water containers, so this minor defect is not limited to new containers sold directly to civilians). The US military specification for water cans, MIL-C-43613D[2], does not directly specify that the pour cap and vent line up (with the pour hole below the vent) when the cap is fully closed. However, I have been unable to find to drawings referenced by MIL-C-43614 for the can and the cap assembly: US Army Natick Research, Development and Engineering Center drawing 2-9-248 (can) and drawing 2-9-249 (cap assembly); if anyone can get me a copy of either of these drawings, please e-mail me at aldolney@bellsouth.net.
Sometimes these containers are available at surplus stores; however, the prices are almost always at least new cost or more. Personally, I wouldn't buy a used USGI water can; in my opinion, if the used price is the same or higher than new, I would buy new and not have to worry about what's been in my water can.

[2] MIL-C-43613D, dated 8 December, 1993, Military Specification, Can, Water, Military: Plastic, 5 Gallon Capacity

Size and weight: 6.5”w x 13”l x 17.5”h; 44 lbs full; Brigade Quartermaster also sells 10 liter (2.5 gallon) military water cans. While I don’t have any experience with these smaller cans, they have the same qualities as the 20 liter cans, except for size, capacity and being easier to move and use due their lighter weight; unfortunately, at $15 each plus shipping, they are even more expensive than the 5 gallon USGI water can on a per gallon basis (+$6/gallon). However, these cans could be very useful for those who have a hard time carrying or lifting +40 lbs of water or need them for the racks of ATV’s etc.

Figure 1. The US Military Water Can (MWC) in desert tan color (olive green and blue also available). The toughest and most convenient portable water storage container available but costly.

- Aqua-tainers 7 gal.):
Advantages: Square cubic shape, they stack great (see note below); with their deep blue color they almost scream “fill with water”; at $8 each from Walmart, they represent a excellent value for storing water; available almost anywhere although usually cheaper to buy locally and save on shipping; has the reversible cap/spout that is real convenient; has a comfortable handle (see Figure 2). Should freeze okay if enough headroom is left. **Combining cost, availability and convenience, this is the probably best overall water container.**
Disadvantages: Not quite as robust as US mil cans although they come pretty close; for some people, they may be too heavy or awkward to move when full; do

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not fit military jerry can holders; much more expensive if bought over the Internet (e.g. $14 each plus shipping). Note: since writing V2.1 of this FAQ, I have heard from one Aqua-tainer user who stacked his filled containers 2 high and suffered a leak on the bottom unit. He called the manufacturer (Reliance) and they stated that they do NOT recommend stacking these containers when full, only when empty (thanks to Mr. Grinch of Frugal's Forums for this info). I have also heard that, but have not experienced, of the spout being fragile. Since I store my water with the spout inside the cap, I haven't had this problem. I recommend that you only move this container with the spout installed inside the container to preclude damage to it.
Size and weight: TBD; 58 lbs.

Figure 2. Reliance Aquatainer. Note the convenient spout at bottom and air vent at top. Combining cost, availability and convenience, this is probably the best overall water storage container out there.

- German 20-liter (5 gal.) water cans:
Advantages: Fairly rugged, but not as rugged as the US military water cans; fairly inexpensive at 3 for $18 from Major Surplus; will fit military or civilian jerry can holders; the containers themselves are pretty light when empty.
Disadvantages: Handle is not nearly as comfortable as US mil cans but weigh essentially the same when full; do not stack; not as rugged as US mil cans; dark green color will absorb sunlight, heating the water if left in the sun; freezing capability unknown; only one source known: Major Surplus and Survival; non-American manufacture. Last time I checked (mid-Jan. '05), Major's didn't appear to have anymore of these water containers; check back with them from time-to-time to see if they ever get restocked.
Size and weight: approx. 6.5"l x 13"w x 18"h; 44 lbs.

- Used 15/30/55 gallon water barrels:
Advantages: Rugged water barrels; represent excellent value for cost per gallon of water stored; available fairly cheaply from the local Coca Cola or Pepsi

bottler[3], my cost: $7/15 gallon, $10/30 and $15/55 (Huntsville, AL bottler, 7/02 prices). Stack well, but can be dangerous if stacked and not secured in case of an earthquake. Freezable, therefore can be stored outside (store out of or otherwise protect from light) if sufficient headroom is left; store large amounts of water in a fairly dense space.
Disadvantages: Very heavy to move when full; their large size make then not as convenient to store as smaller containers; requires thorough washing/rinsing to minimize residual taste; stored water may take on some taste of cola additives, which is usually not objectionable; may not be available in all areas or require long distance travel to acquire; supply may be inconsistent depending on location and demand; requires tools to conveniently use (bung wrenches for the caps and siphon pumps or valves to pour the water). Note about water barrel tools: These tools are very important to have and use to make your barrels useful; I highly recommend that you have these when you get your barrels. Tools are NOT available from the bottler, but there are several suppliers via the Internet.
Size and weight: 15 gallon: 14" d x 26"h; 125 lbs. 30 gallon: 19" d x 31" h; 250 lbs. 55 gallon: 23" d x 35" h; 459 lbs.

- Used 2 or 3 liter pop bottles:
Advantages: Free after using the soda pop; fairly rugged containers that can stand freezing with sufficient headroom; will stack somewhat if laid on their sides (although I wouldn't stack them more than 2-3 high); small size makes it easy to store.
Disadvantages: Takes a large number of containers for any significant amount of stored water; can take up the previous contents taste; requires thorough washing/rinsing to minimize residual taste; have no handles and therefore difficult to carry more than a couple at a time without something to hold them; clear plastic makes it mandatory to protect from light.
Size and weight: size varies; 2 liter: 4.4 lbs; 3 liter: 6.6 lbs.

- New water barrels:
Advantages: Same as used barrels, except cost; plus you're absolutely sure that the barrels are new and therefore have never stored anything; will not leave any aftertaste from previous stored contents.
Disadvantages: Very heavy to move when full; not as convenient to store as smaller containers; cost is much higher than used barrels, new barrels will usually start at around $35 for 15 gallon barrels, prices go up from there for the larger size barrels plus you have to pay shipping; requires tools to conveniently use: bung wrenches for the caps and siphon pumps or valves to pour the water;

[3] To buy used barrels from your Coca Cola or Pepsi bottler, call the bottler and ask for the guy that sells their used barrels. Each bottler should have one since they are prohibited by FDA regulations from reusing the barrels. It's usually a person that works for the bottler selling them from his home. Be prepared to pick up the barrels from him and be aware that they do take up a lot of room, so ensure your vehicle can carry them all safely. In addition, while transporting the barrels, ensure you have them well secured: unsecured and empty 55 gallon barrels **will** fly out of the back of a pickup or trailer at highway speeds, creating a definite roadway hazard.

these tools are very useful if you have water barrels and they are highly recommended, they will make using your barrels a lot easier.
Size and weight: 15 gallon: 14" d x 26"h; 125 lbs. 30 gallon: 19" d x 31" h; 250 lbs. 55 gallon: 23" d x 35" h; 459 lbs.

- US Military 2 liter canteens:
Advantages: Like their 5 gallon counterparts, 2 liter US military canteens are very tough; they are also in a pretty convenient shape, with the designed cover, they can be fastened to your belt for convenient carry; freezable with sufficient headroom; excellent BOV containers; convenient 2 liter size for personal use.
Disadvantages: Cost, usually $12-$14, although I can usually pick some up at a gun show for $10, including the cover with strap (this is important, without the cover and strap, these containers are almost useless); small size and cost means it is not convenient for storing large amounts of water.
Weight: 4.4 lbs.

- US Military 1 quart canteens:
Advantages: Tough, freezable with sufficient headroom; convenient size for carry, will attach to most belts; cover will insulate cold or warm liquids; excellent BOV containers; convenient 1 quart size for personal use.
Disadvantages: Cover adds weight if it gets wet; small size and cost means it is not convenient for storing large amounts of water.
Weight: 2 lbs.

- Other Misc. Used containers (juices, gator aid, etc):
Advantages: Free after using contents; will hold up to 1 gallon; will somewhat stack; easy to store; one gallon versions usually have a plastic handle.
Disadvantages: Requires large number of containers to store much water; may take taste of previous contents; requires thorough washing/rinsing to minimize residual taste; clear plastic makes it mandatory to protect from light.
Weight: 1 gallon: 8.3 lbs; ½ gallon: 4 lbs.

- Store-bought water: 5 gallon "water cooler" jugs:
Advantages: Water is virtually guaranteed to be clean and last a long-time with no objectionable tastes; container is pretty tough; not too hard to move even though it has no handle; will fit "water cooler" appliances making it easy to pour water. If you're sure of the source, getting these used would make a pretty good low cost container.
Disadvantages: Cost of water is usually pretty high compared to city water; container cost may be high; container not freezable as bought from the store due to lack of headroom; cannot be stacked without special holders or on their sides; no handle may make them hard to move for some people; clear plastic requires it be protected from light for long-term storage.
Size and weight: Size TBD; weight: 41 lbs.

- Store-bought water: 20 oz. bottles:

Advantages: Water is virtually guaranteed to be clean and last a long-time with no objectionable tastes; 20 oz. containers are pretty tough and freezable as-is with little or no damage after melting; as bought in the store in cases of 24 are stackable; handy personal size containers; containers are usable for other uses besides water containers; fairly convenient form of water storage (3.75 gallons per case); cases are easy to handle if containers left packaged.
Disadvantages: Cost of water more expensive than city water; large number of containers (although smaller number of cases) in order to store a significant amount of water; individual containers are not stackable; clear plastic requires it be protected from light for long-term storage.
Size and weight: Case of 24 bottles: 14"w x 18"l x 8"h; weight: 31 lbs.

- Boxed water containers:
These are mylar bags, usually 5 gallons in capacity, that are stored inside box containers for protection and strength. While I don't have any experience with these containers, here's my take.
Advantages: Available from a number of suppliers (e.g. beprepared.com); cost is OK at about $29 per 25 gallons water stored; boxes stack great although your are usually limited to no more than 3 high; comes with a convenient fill and pour spout; boxes provide medium protection, jury is out on whether these are good BOV containers. Another source of similar containers is used wine coolers, although usually the capacity is 2-5 liters.
Disadvantages: mylar bags, by themselves, are not puncture resistant; if boxes get wet, then the bags themselves are no longer protected, stacked containers would be in jeopardy of collapsing; the fact that you can buy replacement bags indicates to me that the bags are the weak point in this concept. **Not a recommended** water storage container with so many better containers to choose from.
Size varies depending on container size and capacity; weight: 41 lbs for 5 gallons.

- Desert Patrol 6 gallon cans <u>DO NOT BUY</u>:
Advantages: Fairly cheap at approximately $8 each at Walmart; has a handle and reversible spout (see Figure 3).
Disadvantages: Very light duty plastic, cannot withstand virtually any impacts when full; does not fit military jerry can holders (considering their shape, this is an extremely major design blunder, IMO); cannot be stacked; freezing capability unknown but probably not good since they aren't very tough at room temperature to begin with. This is the only purpose-built water container for storing water that leaked for me. **Not a recommended** water storage container with so many better containers to choose from. Note: since writing V2.1 of this FAQ, I have heard from at least 3 other Desert Patrol users that have experienced leaks with this container. Note also that this container is now available in Khaki color; it still has the same construction and design and is not recommended.
Weight: 50 lbs. **<u>DO NOT BUY</u>**

Figure 3. The infamous Desert Patrol, in light green color. The only purpose designed and built water storage container that leaked for me. Not a recommended water storage container. Note that this container is also available in Khaki color.

- Collapsible water containers:
I have no direct experience with these containers, but here are my thoughts:
Advantages: Fairly cheap at several survival and preparedness sites; don't take up much room when empty.
Disadvantages: Lightweight and thin material made of LDPE (same material as milk jugs), not robust at all; will probably leak if kept full permanently; worst of all: their collapsible ability encourages not filling containers until the emergency is at hand; this may a very big disadvantage if: the water is already off or contaminated, you have no time to fill containers, have something more important that you need to take care of, or most important of all, you then find out the container has a pinhole and leaks. **Not a recommended** water container.

- Milk jugs:
Advantages: Free after using the milk; pretty light when empty; has a handle.
Disadvantages: They are designed to rot (i.e. biodegrade) and therefore are not very robust; will eventually leak after about 6 months, although are useful for very short term storage; not stackable; impossible to eliminate all milk product, therefore stored water may contain milk aftertaste; freezable with a very limited number of cycle times. **Not a recommended** long-term water storage container with so many better containers to choose from.
Weight: 8.1 lbs.

- Store bought water, misc. jugs:
Advantages: Water is virtually guaranteed to be clean and last a long-time with no objectionable tastes; some are designed with "water cooler" taps, which is convenient for pouring water.

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Disadvantages: Cost of water is usually much higher than city water; jugs usually made of same LDPE material as milk jugs and therefore are not robust and are leak prone; not freezable due to lack of headroom as bought from the store and robustness; usually not stackable without holders; virtually clear plastic requires it be protected from light for long-term storage. **Not a recommended** long-term water storage container with so many better containers to choose from.

- Blitz water cans:
I don't have any experience with these cans but I have heard positive reports from users. Here's what I do and don't know:
Advantages: Fairly large (6.5 gallon) capacity; robustness unknown, but probably pretty good (I have 2 Blitz plastic gas cans and both are robust cans); cost unknown; other conveniences (i.e. cap/spout) also unknown; transparent color allows view of water level; convenient top handle and back grip for ease in carrying and pouring.
Disadvantages: Weight when full may be a problem for some; do not fit standard military jerry can holders (hard to believe since Blitz was for years the major manufacturer of military jerry gas cans that fit military jerry can holders);
Size: unknown; weight: 54 lbs.

- Water bed bladders:
Advantages: Large amount of water (e.g. 150-200 gallons); does not take up space, except as a bed; water can be used for non-potable uses such as flushing the toilet or bathing.
Disadvantages: Usually not made from FDA certified materials (i.e. vinyl) for potable water, therefore not recommended for drinking water; will contain hazardous poisons if treated with algae chemicals; cannot be moved after filling; if used as a bed, location not convenient for water use; potential structural problems for large mass of water on typical housing and apartment structures; vinyl liner not very robust. **Not a recommended <u>potable</u>** water storage container with so many better containers to choose from.
Size and weight: Depends on size of bed; 1620 lbs (200 gallons)

- Swimming pools:
Advantages: Extremely large amounts of water can be stored, depending on the size of the swimming pool; although not potable (i.e. for drinking) swimming pool water can be used to flush toilets, bathe and other non-potable uses. A swimming pool's great advantage is that having pool water means not having to use scarce potable water for non-potable uses.
Disadvantages: Swimming pool water cannot be considered for potable water unless you use distillation or reverse osmosis to purify the water due to swimming pool chemicals, specifically algae killers, but also for other reasons. One "other" reason: I've had a fairly large pool (i.e. +45,000 gallons) for 6 years and even though my pool is used quite heavily during the spring and summer months by a large number of kids, in that time, only about a dozen kids have asked to use the bathroom. Do the math.

- Large and super large tanks (i.e. +55 to 300 or more gallons):
Advantages: (Note: I have no direct knowledge of these containers since I don't own any). Available from Northern Tools, Tractor Supply, etc, including units that will fit in the bed of a pickup truck or even by buried; cost is reasonable, approximately $1-$2 per gallon of water stored; shipping will increase cost; will store large amounts of water, depending on size.
Disadvantages: Difficult or impossible to move after filling; trucks carrying large tanks in their beds need to be careful while driving, especially when the tanks are half-filled since the water will slosh, potentially causing control problems.

Sources:

Back Country Trailers: http://backcountrytrailers.com ; Wedco NATO-style jerry fuel and water cans and spouts with gaskets; off-road trailers and gear.

Bass Pro Shops: http://www.basspro.com/servlet/catalog.OnlineShopping ; Super Siphon and other camping gear.

Brigade Quartermaster: http://www.actiongear.com/cgi-bin/tame.exe/agcatalog/index.tam ; MWC and fuel cans plus spouts, 20l and 10l sizes; other military gear

Cheaper than Dirt: http://www.cheaperthandirt.com/ctd/default.asp ; surplus NATO, Israeli and French jerry cans; spouts and gaskets for the NATO cans; other surplus items.

Davidson Products: http://www.davidsonproducts.com ; MFC and accessories, MWC and other items.

Generator Joe: http://www.generatorjoe.net/store.asp ; MFC and MWC, plus the Wedco cans; generators and associated hardware.

Mad 4WD: http://mad4wd.com/tek9.asp ; Wedco fuel and water jerry cans; other 4x4 items and gear.

Major Survival and Surplus: http://www.majorsurplusnsurvival.com/ ; surplus MFC's, NATO fuel cans, spouts and gaskets, French jerry cans, German water cans; other surplus items.

Scepter: http://www.scepter.com/gc/gc_page.exe ; manufacturer of USGI MFC and MWC jerry cans; other plastic products.

  Comments, suggestions, constructive criticism, e-mail me at aldolney@bellsouth.net