

Household practices

Collection, storage, treatment and handling

This management advice document should be used as guidance for the operation and maintenance (O&M) of components relating to household drinking-water collection (including transportation), storage, treatment and handling. Guidance for typical O&M activities is provided in Table 1 with suggested frequencies for each activity.

To protect the quality of the water, these activities are important for preventing contamination throughout the household drinking-water supply chain. Table 2 lists potential issues associated with drinking-water collection, storage, treatment and handling. Suggested corrective actions are listed for each potential issue.

I. OPERATION AND MAINTENANCE

Ensuring the integrity of the household drinking-water supply chain is important to ensure the risk from environmental contamination is minimized. Use of multiple water sources may be required to ensure adequate water quantity, but may increase the risk to the user if one of the sources is unprotected and vulnerable to contamination. All containers or tanks used to collect or store drinking-water should be dedicated for this purpose (i.e. store only drinking-water and no other liquids, including water of lesser quality) and should not be directly used for other household activities (e.g. bathing, washing). Re-use of old/recycled containers should be avoided (e.g. those which may leach chemical contaminants, such as engine oil containers). Periodic disinfection of containers or tanks may also be required (e.g. after long periods without use).^a

Where there is a risk of contamination, drinking-water should be treated at the household level prior to consumption, for example, by filtration and/or disinfection (i.e. to treat turbid water and remove/inactivate microbial contaminants). Where practiced, effective household water treatment methods should be used in a consistent manner, following the manufacturer's guidance to ensure optimal treatment of drinking-water. To minimize the risk of contamination from the user, general hygienic practices should be followed. Effective handwashing prior to handling is particularly important.

Table 1. Operation and maintenance schedule guidance

Frequency	Activity
Daily	- When not in use, ensure the collection container is covered and kept in a clean, sanitary area. - Inspect and clean the area around the bulk storage container (if present) and final storage container, checking for any obvious signs of contamination. - If present, ensure the tap and/or utensil used to draw/collect water from the bulk and final storage containers are clean and functioning. - If present, ensure the utensil is stored in a sanitary manner.
Weekly	- Drain, clean (e.g. with soap, sand or ash) and disinfect the collection and final storage containers (e.g. chlorine disinfection).^a - Inspect each container for obvious signs of damage or failure. - If present, check that household drinking-water treatment procedures are being followed, any reagents (e.g. chlorine) being used are not expired, and treatment equipment is in good condition and functioning correctly.
Annually	Check sediment levels within the bulk storage container and if necessary, drain, clean and disinfect^a the tank (e.g. batch chlorine disinfection).
As the need arises ^b	- Repair or replace containers. - Maintain household water treatment apparatus as per manufacturer's guidance (e.g. clean/disinfect, replace consumable parts or out of date reagents).^c - Perform maintenance tasks (e.g. tap maintenance). - Monitor water use (e.g. during periods of drought).

Notes:

- The suggested frequencies in Table 1 represent a minimum requirement and may need to be increased depending on the local context. A suitable timetable should be made for each household drinking-water supply chain.
- Only persons with relevant training/skills should undertake the activities in Table 1. Care should be taken when handling disinfection products.
- For guidance on appropriate frequencies for monitoring (e.g. sanitary inspections and water quality testing), refer to [Guidelines for drinking-water quality, 2nd edition: Volume 3 - Surveillance and control of community supplies](#) (WHO, 1997).

II. ISSUES AND REMEDIAL ACTIONS

Table 2. Common issues associated with household drinking-water supply chains, and suggested remedial actions

Each issue in Table 2 is linked by a number to a corresponding question in the *Household practices: Collection, storage, treatment and handling* sanitary inspection form (e.g. issue 1 below is linked to question 1 in the sanitary inspection form.)

Issue		Remedial actions to consider
1	Drinking-water is collected from more than one source, increasing the likelihood that one of the sources will be unprotected (e.g. open dug well) and vulnerable to contamination.	- Where possible, collect drinking-water from only one source that is protected. - Where this is not possible, collect water from other sources in dedicated containers, and practice household water treatment if deemed necessary.
Collection container		
2	The collection container is cracked, leaking or unclean, increasing the likelihood of contaminants entering the container during collection.	- If unclean, clean and disinfect (e.g. with chlorine) the collection container. - If cracked or leaking, repair or replace the collection container.
3	The collection container is used to store liquids other than drinking-water, increasing the likelihood of cross-contamination.	Stop the practice of storing other liquids in the collection container immediately and clean the container thoroughly, or replace if deemed necessary.
4	When not in use, the collection container is kept in a place where it may become contaminated.	Store the collection container in a clean designated area (e.g. table, hook or shelf) away from potential sources of contamination.
5	The collection container is uncovered, providing a route for contaminants to enter the container.	- Where possible, find an appropriate replacement collection container that has a narrow opening and tight fitting cover. - If a replacement collection container is not available, find a temporary clean cover for the collection container.
Bulk storage container		
6	The bulk storage container is cracked, leaking or unclean, providing an entry route for contaminants during storage.	- If unclean, clean and disinfect (e.g. with chlorine) the bulk storage container. - If cracked or leaking, repair or replace the bulk storage container.
7	The bulk storage container is used to store liquids other than drinking-water, increasing the likelihood of cross-contamination.	Stop the practice of storing other liquids in the bulk storage container immediately and clean the container thoroughly or replace if deemed necessary.
8	The bulk storage container is located where it may become contaminated.	- Relocate the bulk storage container to a sanitary location, if possible. - If relocating the bulk storage container is not possible, additional protective measures should be considered (e.g. raising above ground level, installing a fence).
9	When not being filled, the bulk storage container is inadequately covered, providing a route for contaminants to enter the container.	Provide a clean cover to minimize contamination from entering the container.
10	The inside of the bulk storage container contains visible signs of contamination (e.g. animals/animal waste, sediment accumulation), which constitutes a risk to water quality.	- If animals or their waste are present, consider what immediate actions should be taken to minimize the risk to health (e.g. if the risk posed is significant, advise users to seek an alternative safe water source in the interim). - Drain, clean and disinfect the bulk storage container. - Consider appropriate measures to minimize the risk of contamination entering the bulk storage container from this source in the future (e.g. cover the container, strengthen the fencing/barrier, frequent sediment removal).

Table 2 Common issues associated with spring water collection systems and suggested remedial actions (continued)

Issue		Remedial actions to consider
11	The tap or utensil used to draw/collect water from the bulk storage container is broken or unclean, increasing the likelihood of contaminants entering the container.	• Clean and/or repair the existing tap/utensil, where possible. • In cases where the existing tap/utensil cannot be repaired, find an appropriate replacement. • Store the utensil in a clean designated area (e.g. raised table, hook or shelf) away from potential sources of contamination.
12	The water from the bulk storage container is directly used for purposes other than drinking-water (e.g. washing or bathing), increasing the likelihood of cross-contamination.	• Cease all non-drinking-water related activities from the bulk storage container. • Source a separate bulk storage container for non-drinking-water related activities, and store it a safe distance from the drinking-water bulk storage container.
Final storage container		
13	The final storage container is cracked, leaking or unclean, providing an entry route for contaminants during storage.	• If unclean, clean and disinfect (e.g. with chlorine) the final storage container. • If cracked or leaking, repair or replace the final storage container.
14	The final storage container is used to store liquids other than drinking-water, increasing the likelihood of cross-contamination.	• Stop the practice of storing other liquids in the final storage container immediately and clean the container thoroughly or replace if deemed necessary.
15	The final storage container is kept in a place where it may become contaminated.	• Keep the final storage container in a clean designated area (e.g. raised table, countertop or shelf) away from potential sources of contamination.
16	The final storage container is inadequately covered (e.g. missing or damaged cover) to prevent entry of contaminants.	• Provide a clean cover to minimize contamination from entering the container.
17	The tap or utensil used to draw/collect water from the final storage container is broken or unclean increasing the likelihood of contamination.	• Clean and/or repair the existing tap/utensil, where possible. • In cases where the existing tap/utensil cannot be repaired, find an appropriate replacement. • Store the utensil in a clean designated area (e.g. raised table, hook or shelf) away from potential sources of contamination.
18	The water from the final storage container is directly used for purposes other than drinking-water (e.g. washing or bathing) increasing the likelihood of cross-contamination.	• Cease all non-drinking-water related activities from the final storage container. • Source a separate storage container for non-drinking-water related activities, and store it at a safe distance from the final storage container for drinking-water.
Household treatment		
19	There is evidence that household-level treatment is being carried out ineffectively, meaning contaminants may not be adequately removed/inactivated.	• Review manufacturer's guidance/instructions to ensure treatment and maintenance is being carried out correctly and to identify solutions to challenges. (Technical support may be required.)

- a. Guidance for disinfecting storage tanks may be found in [Technical notes on drinking-water, sanitation and hygiene in emergencies: Cleaning and disinfecting water storage tanks and tankers](#) (WHO/WEDC, 2013).
- b. See Table 2 for potential issues that could trigger these activities.
- c. See the list of household water treatment technologies evaluated under the WHO [International scheme to evaluate household water treatment technologies](#).