Piped distribution – storage tank

A. GENERAL INFORMATION

A.1. Storage tank information

Storage tank location (e.g. village, town, community, parish, district, province, state)			
Additional location information State the reference system and units, if using coordinates (e.g. national grid reference coordinates, GPS coordinates)			
Name of entity responsible for the management of the storage tank (e.g. name of water utility, private operator, community group)			
Year of construction of storage tank		**Storage tank volume** (including units)	
Storage tank construction material Tick (✓) the appropriate box(es) and provide further information where applicable	❑ Ductile iron (DI) ❑ Ferrocement ❑ Concrete ❑ Lead ❑ Polyvinylchloride (PVC) ❑ High density polyethylene (HDPE) ❑ Other. Describe:		
Is the storage tank underground, at ground level, or elevated? Tick (✓) the appropriate box(es) and provide further information where applicable	❑ Underground[a] ❑ Ground level ❑ Elevated. Approximate height (including units):		

Circle the options below				If **Yes**, describe (e.g. what happens, how often, for how long)
Is the storage tank affected by flooding?	Unsure	No	Yes	
Is the storage tank affected by drought?	Unsure	No	Yes	

A.2. Weather conditions during the 48 hours before inspection

Circle the temperature and precipitation options below to indicate the main conditions during the 48 hours before the inspection. More than one option may be circled if conditions changed during this time. Record additional information in Section C if needed.

Temperature	<0 °C	0–15 °C	16–30 °C	>30 °C
Precipitation	Snow	Heavy rain	Rain	Dry

A.3. Water quality sample information

Record details of any water quality samples taken during the inspection. Include information for any parameters tested. Add **NA** if information is not applicable. Record additional information in Section C if needed.

Sample taken? Circle **No** or **Yes**		**Sampling location**	**Sample identification code**	**Other information**
No (go to A.4)	Yes			

Parameter tested	*E. coli*[b]		***or*** Thermotolerant (faecal) coliforms[b]		Additional parameter		Additional parameter		Additional parameter	
Results and units	Results	Units	Results	Units	Results	Units	Results	Units	Results	Units

A.4. Water treatment

Tick (✓) the appropriate box(es) and provide additional information as needed.

Location	Is the water treated?			If **Yes,** describe (e.g. type of treatment, chlorine dose, frequency of dosing, if known)[c]
Before the storage tank (e.g. at a water treatment plant)	❑ Unsure	❑ No	❑ Yes	
At the storage tank	❑ Unsure	❑ No	❑ Yes	
Downstream of the storage tank (e.g. household water treatment)	❑ Unsure	❑ No	❑ Yes	

[a] This form is intended for use on ground level or elevated storage tanks. For underground storage tanks, the form should be adapted. For more information, see the *Technical fact sheet.*

[b] The presence of *E. coli* (or thermotolerant [faecal] coliforms) suggests recent faecal contamination. If detected, further action is needed, such as increased disinfection before or at the storage tank, additional sampling and investigation of potential sources of contamination, and/or household water treatment advisories (e.g. boil water notice).
Note – thermotolerant (faecal) coliforms are distinct from "total coliforms", where total coliforms do not necessarily indicate recent faecal contamination.

[c] Where chlorine is applied, the free chlorine residual concentration in the drinking-water should be tested during the inspection and the result recorded in Section A.3. Where possible, turbidity and pH should also be measured. For guidance on adequate chlorine disinfection, see the *Management advice sheet.*

General notes

- This form is intended for use on a single treated water storage tank. Where there are multiple storage tanks to be inspected, additional forms will be needed. Storage tanks may be inspected on a rotational basis where there are too many to cover during each inspection.
- If water from the storage tank feeds a piped distribution network, tapstand, kiosk or filling station, or if users collect and store water in the home, carry out an inspection using the corresponding sanitary inspection packages.

B. SANITARY INSPECTION

IMPORTANT: Read the following notes before completing the sanitary inspection

1. Tick (✓) the appropriate box for each question. For guidance, refer to the numbered risk factors in Figure 1; the numbers in the figure are linked to the questions. Record any additional risk factors present in Section C. Refer also to the *Technical fact sheet* for information on the individual components of the storage tank. *Note* – the questions in this section are example risk factors only, which can be used as a starting point for adapting the form to the local context.
2. Tick the **NA** (not applicable) box if the question ***does not apply*** to the storage tank being inspected.
3. Tick the **No** box if the question does apply to the storage tank being inspected, but the risk factor ***is not present***.
4. Tick the **Yes** box if the risk factor ***is present***. For important situations that require attention, record the corrective actions to be taken in the last column. These notes can be used to develop a detailed improvement plan, documenting what will be done, who will do it, by when it will be done and what resources are required. For guidance, refer to the *Management advice sheet*. Where possible, address the most serious risk factors first, considering low-cost or no-cost improvements that can be made immediately.
5. If a question cannot be answered because access to a component is not possible, tick the **Yes** box. Record these issues in Section C for further investigation.

Figure 1. Typical risk factors associated with a drinking-water storage tank

	Sanitary inspection questions	NA	No	Yes	If Yes, what corrective action is needed?
1	**Is the storage tank cover (or roof) absent or in poor condition?** Contaminants could enter the tank, particularly after rain, if the cover is absent. This could also happen if the cover is damaged (e.g. broken, missing sections, severely corroded, deep cracks).	❑	❑	❑	
2	**Is the storage tank inspection hatch lid missing or in poor condition?** Contaminants could enter the tank (e.g. from the entry of contaminated water following rain, entry of animals) if the inspection hatch lid is missing (or open, unlocked). This could also happen if the lid is damaged (e.g. cracked, severely corroded, does not fit tightly when closed).	❑	❑	❑	
3	**Is the overflow pipe poorly designed so that overflow water falls from a height onto the ground?** The tank may be undermined and damaged if water from the overflow pipe falls from a height and erodes the ground beneath the tank. This could affect water quality, or result in water loss.	❑	❑	❑	
4	**Does the overflow pipe lack adequate protection from vermin?** Contaminants could enter the tank (e.g. from insects, rodents, birds) if the overflow pipe is not covered with a vermin-proof screen (e.g. mesh, gauze).	❑	❑	❑	
5	**Are the air vents poorly designed so that contaminants could enter the storage tank?** Contaminants could enter the tank if the air vents are angled upwards, or are not covered with a vermin-proof screen.	❑	❑	❑	
6	**Are the storage tank walls cracked or leaking?** Contaminants could enter the tank if the walls are damaged (e.g. with deep cracks). A leaking tank could also result in stagnant water contaminating the tank area, as well as water loss.	❑	❑	❑	
7	**Are there any signs of contaminants inside the storage tank?** The presence of animals or faeces inside the tank is a serious risk to the safety of the drinking-water, and indicates that harmful microorganisms are present. Sediments may also contain harmful microorganisms and other contaminants (such as metals) that can affect the safety or acceptability of the water.	❑	❑	❑	

Sanitary inspection questions		NA	No	Yes	If Yes, what corrective action is needed?
8	**Is drainage inadequate, which could allow water to accumulate in the storage tank area?** Stagnant water could contaminate the tank area if there is no drainage system in place. This could also happen if the drainage system is damaged or blocked (e.g. from leaves, sediment). This is especially likely after rain. *Note* – the presence of pooled water during the inspection may indicate poor drainage.	❑	❑	❑	
9	**Is the fence or barrier around the storage tank missing or inadequate so that animals could enter the storage tank area?** Animals or unauthorized people could contaminate or damage the tank area if the fence or barrier around the storage tank is missing. This could also happen if the fence or barrier is broken or poorly built (e.g. has large gaps), or the entry point (e.g. gate) does not close and lock securely.	❑	❑	❑	
10	**Is there any vegetation or structures above the storage tank?** Contaminants (e.g. from animal faeces) could enter the tank if there is overhanging vegetation, balconies or wires above the tank. Heavy vegetation could also physically damage the tank (e.g. fallen tree branch during a storm; tree roots undermining the tank structure). This could affect water quality, or result in water loss.	❑	❑	❑	
11	**Can sources of pollution be seen in the storage tank area (e.g. open defecation, animals, rubbish, commercial activity, open drains)?** The presence of animals or faeces on the ground close to the storage tank poses a serious risk to the safety of the drinking-water. Contaminants from other waste (e.g. household, agricultural, industrial) could also be washed into the storage tank area during rain.	❑	❑	❑	
12	**Is the storage tank excluded from routine maintenance and quality control programmes?**[d] Failure of the responsible management entity to routinely inspect, maintain and monitor the quality of water at the tank may result in unsafe drinking-water being supplied.	❑	❑	❑	

Sanitary inspection questions		NA	No	Yes	If Yes, what corrective action is needed?
13	**Does the storage tank water lack disinfection?**[c,d] Failure to adequately disinfect water with chlorine (or provide an alternative appropriate means of disinfection, such as ultraviolet [UV] or ozone) can result in unsafe drinking-water being supplied.	❑	❑	❑	
	Total number of Yes responses				

[d] Risk factor is not illustrated in Figure 1. To answer this question, interview the operator. Check network activity log books for confirmation. Provide further information in Section C to support your answer if necessary.

C. ADDITIONAL DETAILS

Include any additional risk factors,[e] recommendations, observations or remarks from users of the water source (e.g. problems with the taste, odour or appearance of the water, water source reliability). Attach additional sheets and photographs if needed.

[e] These risk factors should be considered for future inclusion in Section B.

D. INSPECTION DETAILS

Name of inspector: _____

Organization: _____

Designation/title of inspector: _____

Signature: _____ Date: _____

Name of water supply representative: _____

Contact number (if available): _____

Signature (if available): _____ Date: _____

World Health Organization
Water, Sanitation, Hygiene and Health Unit
Avenue Appia 20, 1211 Geneva 27, Switzerland
Email: gdwq@who.int
Website: https://www.who.int/health-topics/water-sanitation-and-hygiene-wash

World Health Organization

Piped distribution – storage tank

This technical fact sheet provides background information on a storage tank, which supports the sanitary inspection of a drinking-water supply.

Storage tanks hold drinking-water prior to delivery to users. They are a common feature of piped distribution systems, and their storage capacities can vary greatly (typically ranging from kilolitres to megalitres).

Storage tanks can provide a buffer to help ensure the continuity of supply (e.g. during peak usage times, intermittent supply outages, unplanned supply outages). They can also help to provide stable pressure throughout the piped distribution network.

Storage tanks can store untreated source water or treated water, and can be located either underground, at ground level, or be elevated (e.g. water towers).

Drinking-water should always be stored in a sanitary manner (i.e. in a clean storage tank that is protected from contamination).

If chlorine disinfection is practised, there should be an adequate free chlorine residual concentration to help protect the water from harmful microorganisms during storage and distribution.[a]

Figure 1 shows a common type of storage tank in a piped distribution network (storing treated drinking-water at ground level). This figure shows a typical design. Other designs can also provide safe drinking-water.

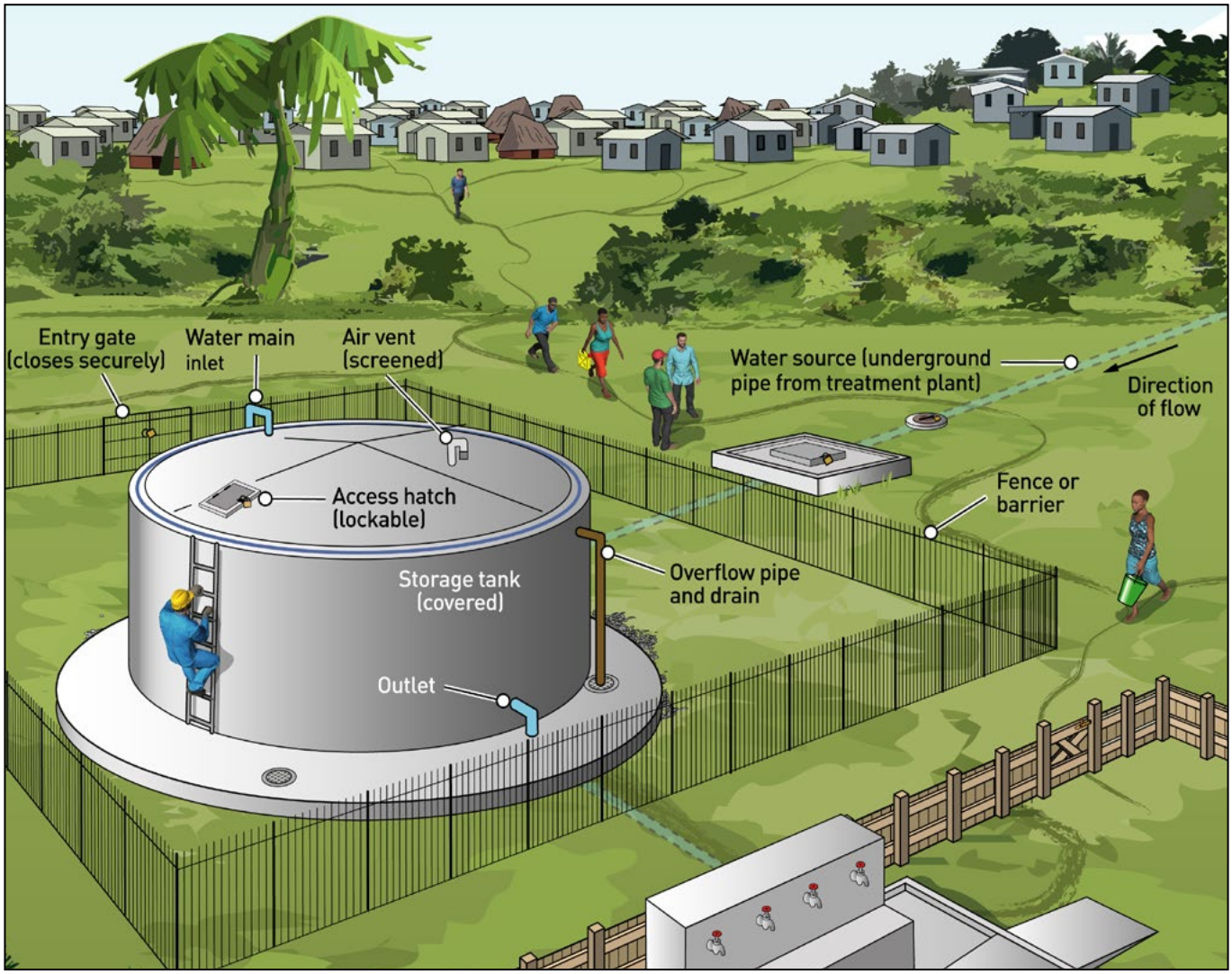


Figure 1. A common drinking-water storage tank in a sanitary condition

Note – For guidance on the piped network and tapstand components, see the corresponding sanitary inspection packages.

[a] For guidance on adequate chlorine disinfection, refer to the *Management advice sheet.*

Typical risk factors associated with storage tanks are presented in the corresponding *Sanitary inspection form.*

Storage tanks typically include the following main components.

- **Water source:** Typically provided from a water treatment plant via a piped distribution network (as shown in Figure 1), or from surface water or groundwater sources (e.g. river, borehole, spring). The source water should be treated/disinfected as required to ensure it is safe for human consumption.
- **Water main inlet:** Pipe that delivers drinking-water into the storage tank (e.g. from a water treatment plant).
- **Water storage tank:** Stores water prior to distribution to the users. Storage tanks are commonly made from high density polyethylene (HDPE), polyvinylchloride (PVC), ferro-cement, metal or concrete. The storage tank should be covered and sealed to stop contaminants entering the tank. The tank should have a sump (not shown in Figure 1) to allow cleaning and maintenance. The sump should be located at the lowest point of the tank floor to ensure the tank can be drained completely.
- **Inspection hatch:** Allows access to the storage tank for inspection or operations and maintenance. The inspection hatch should have a lid that is tightly fitting and lockable to stop contaminants from entering the tank, and to stop unauthorized access by people.
- **Air vent:** Allows ventilation in the storage tank. The air vent should be facing downwards and have a vermin-proof screen to stop contaminants entering the tank.
- **Overflow pipe:** Directs excess water from the storage tank to a drainage system. This stops the tank overflowing in an uncontrolled way, which could contaminate the tank area or damage the components. The overflow pipe should face downwards and have a vermin-proof screen (e.g. gauze or mesh) to prevent contaminants entering the tank. Water from the overflow pipe should not erode the ground beneath the pipe, as this could undermine and damage the tank, which could lead to contamination or water loss.
- **Drainage system:** Directs water away from the storage tank. The drainage system should slope down from the tank to ensure adequate drainage. This prevents water ponding and stagnating, which could contaminate the tank area.
- **Fence or barrier**: A physical barrier to prevent animals or unauthorized people from contaminating the storage tank area or damaging the components. The fence or barrier should have an entry point (e.g. a gate) that can be closed tightly and latched shut/locked.

Additional considerations

Before a new tank is used to store drinking-water, cleaning and disinfection is required (e.g. with chlorine).[b] Water quality testing should then be conducted before the storage tank is commissioned to confirm the water is safe for consumption. Periodic disinfection of the storage tank and testing may also be required (e.g. after maintenance).

When constructing new storage tanks or rehabilitating old ones, all materials used should be safe for contact with drinking-water (e.g. using materials approved through an appropriate certification scheme, including for lead-free or low-lead materials).

Storage tank inlet and outlet pipes should be designed to avoid flow short-circuiting, which can affect water quality (e.g. contamination from harmful microorganisms as a result of chlorine decay; formation of disinfection by-products; taste and odour issues). Consult with a local engineer as needed to determine the risk from flow short-circuiting in the tank. If required, take appropriate corrective actions (e.g. installation of internal baffles to ensure adequate mixing within the tank).

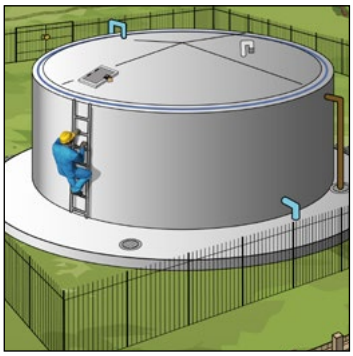
For underground storage tanks, consider additional risk factors associated with contaminated water entering the underground tank (e.g. poor drainage leading to the entry of surface water run-off, infiltration of groundwater due to poor tank condition).

[b] Guidance for disinfecting water 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).

World Health Organization
Water, Sanitation, Hygiene and Health Unit
Avenue Appia 20, 1211 Geneva 27, Switzerland
Email: gdwq@who.int
Website: https://www.who.int/health-topics/water-sanitation-and-hygiene-wash

Piped distribution – storage tank

This management advice sheet provides guidance for the safe management of a storage tank, which supports the sanitary inspection of a drinking-water supply.



Guidance for typical operations and maintenance (O&M) activities is provided in Table 1, including suggested frequencies for each activity. These activities are important for keeping the storage tank in good working condition and protecting drinking-water quality.

Table 2 lists potential problems that may be identified during a sanitary inspection, and provides basic corrective actions to consider for each problem.

This management advice sheet can also support routine management and monitoring practices, which are required to help ensure the ongoing safety of the water supply.

A. OPERATIONS AND MAINTENANCE

Basic O&M can usually be carried out by a trained network operator (e.g. checking the free chlorine residual, cleaning and disinfecting the storage tank). Larger repairs and maintenance tasks (e.g. repairing the storage tank cover, replacing the tank liner) may need skilled labour, which can be provided by local craftspeople, or with support from outside of the local area.

The condition of the storage tank and all related components and fittings should be inspected routinely to help prevent contaminants entering the water supply. Any damage or faults should be repaired immediately (e.g. deep cracks in the storage tank walls, damaged inspection hatch, broken fence). Standard operating procedures (SOPs) should be developed for important O&M tasks (e.g. inspecting and repairing the storage tank). These should be followed by trained individuals so the work is carried out safely and the water supply is not contaminated during the work.

The storage tank should only contain drinking-water – no other liquids, including water of lesser quality, should be stored in the tank. The storage tank should be periodically cleaned and disinfected according to SOPs.[a]

Adequate treatment/disinfection are required before consuming the drinking-water (e.g. at a water treatment plant). Where chlorine disinfection is practised, operators should make sure there is an adequate free chlorine residual concentration by monitoring at regular intervals (see Table 1) and the results recorded (e.g. in a log book). As needed, the free chlorine residual concentration should be optimized upstream of the storage tank (e.g. at a water treatment plant) and/or by batch chlorine disinfection of the storage tank water (with all related activities conducted by trained operators according to SOPs).[b] Chemicals (e.g. chlorine) or testing reagents should be used before their expiry date and stored appropriately according to manufacturer's instructions.

If not already in place, the responsible management entity should work towards the development of a water safety plan (or equivalent risk management approach). This should cover the entire water supply (i.e. source/catchment, water treatment plant (if present), distribution and storage, and user practices). This will help ensure the safe management of the water supply. The water safety plan should reflect the complexity of the water supply and the local resources and capacity (e.g. a more basic water safety plan is appropriate for simple piped supplies where resources and capacity are limited).[c]

Table 1. Guidance for developing an operations and maintenance schedule

Frequency	Activity
Daily to weekly	• Check that the storage tank facility is clean. Remove any polluting materials (e.g. faeces, rubbish) and clean the area as needed. • Check the storage tank cover (e.g. roof) is in good condition. Repair or replace damaged parts. • Check that the storage tank inspection hatch lid is in place and in good condition, and is closed and locked securely. Repair or replace damaged parts, and lock as needed. • Check that the storage tank air vent and overflow pipe are in good condition, with protective vermin-proof screens securely fitted and functional. Repair or replace damaged parts. • Check that the inside of the storage tank is clean (e.g. free from animals, faeces, sediment build-up). Drain as needed, then clean and disinfect the storage tank.[a] • Check that the drainage system is clear and functioning. Remove debris or repair as needed. • Check that the fence or barrier is in good condition and that the entry point (e.g. gate) can be closed securely and latched shut/locked. Repair as needed. • Where chlorination of the water supply is practised, check that the free chlorine residual concentration in the storage tank is adequate. Optimize the chlorine concentration before or within the water storage tank as needed (e.g. by increasing the chlorine dose at a water treatment plant, batch dosing the storage tank).[a,b]
Monthly to every three months	• Inspect the storage tank (and the tank support base if present) for signs of damage or failure. Repair or replace damaged parts as needed.
As the need arises[d]	• Drain the storage tank, remove sediment and clean the internal tank walls (e.g. using a brush and clean water), and then disinfect the storage tank (e.g. with chlorine).[a] • Perform maintenance tasks (e.g. tank liner maintenance). • Monitor water use to identify changes (e.g. during periods of drought). • Ensure procurement of any materials in contact with drinking-water and water treatment chemicals (where used) are safe for drinking-water use.

[a] For guidance on O&M, including safely cleaning and disinfecting water storage tanks, refer to Technical notes on drinking-water, sanitation and hygiene in emergencies: cleaning and disinfecting water storage tanks and tankers (WHO & WEDC, 2013). This activity is required following a contamination event (e.g. presence of animals in the storage tank; *E. coli* detection). *Note* – in water scarce areas, consult with local health authorities before draining a storage tank to ensure that the risk to water quality justifies the water loss. Alternative water supply arrangements may then be needed to ensure that users have sufficient water quantity to meet domestic needs.

[b] Where chlorine disinfection is practised, the free chlorine residual concentration should be at least 0.2 mg/L at the point of use. This means that the free chlorine residual concentration at the storage tank should be higher (e.g. at least 0.5 mg/L at pH less than 8 after at least 30 minutes contact time) - this can allow for chlorine decay during distribution, and subsequent storage and handling at the household level. Note that chlorine effectiveness is impacted by several factors including turbidity, pH and temperature. Chlorine doses or contact times will need to be adjusted to ensure adequate chlorine residual concentrations based on the local context. The free chlorine residual concentration in the water should also consider user acceptability. For more information, refer to Technical notes on drinking-water, sanitation and hygiene in emergencies: measuring chlorine levels in water supplies (WHO & WEDC, 2013).

During outbreaks of waterborne disease, or when faecal contamination of a drinking-water supply is detected, the residual free chlorine concentration should be increased to at least 0.5 mg/L throughout the network as a minimum immediate response pending further investigation. *Note* – the concentration of chlorine should always be less than 5 mg/L in drinking-water prior to consumption.

[c] For information on water safety planning, refer to Water safety planning for small community water supplies: step-by-step risk management guidance for drinking-water supplies in small communities (WHO, 2012).

[d] See Table 2 for potential problems that could trigger these activities.

General notes on Table 1

- The suggested frequencies in Table 1 are a minimum recommendation. The frequency of activities may need to be increased depending on the local context. A suitable O&M schedule should be made for each site, including who is responsible for performing the work. Completion of activities as per the O&M schedule should be recorded, including additional details for any problems identified and corrective actions undertaken.
- Only people with relevant training and skills should undertake the activities in Table 1. Appropriate safety measures should be in place when entering a storage tank for inspection or maintenance. Safety risks such as storage tank collapse or asphyxiation should be appropriately managed. Care should be taken when handling disinfection products.
- For guidance on appropriate frequencies for monitoring (e.g. sanitary inspections, water quality testing), refer to Guidelines for drinking-water quality: small water supplies (WHO, 2024).

B. PROBLEMS AND CORRECTIVE ACTIONS

Each problem in Table 2 is linked to the same question number in Section B of the *Sanitary inspection form*. Where relevant, corrective actions should be completed by trained individuals according to SOPs. Where needed, develop awareness raising and education programmes, and if necessary, local rules or regulations, to support safe drinking-water management in the context of the guidance provided in Table 2.

If problems are identified that represent an immediate threat to drinking-water safety (e.g. likely presence of faecal contamination in the water supply, positive *E. coli* detection), consider what immediate actions should be taken to minimize the risk to public health (e.g. advise users to seek an alternative safe drinking-water source, disinfect the water at the point of use).

Table 2. Common problems associated with a storage tank, and suggested corrective actions

Question	Problem identified	Corrective actions to consider
1	The storage tank is inadequately covered, which could allow contaminants to enter the tank.	• Provide a temporary cover (e.g. impermeable plastic sheeting) to minimize contaminants entering the storage tank. Install or repair the tank cover as soon as possible. • Clean and disinfect the storage tank (e.g. with chlorine).[a]
2	The storage tank inspection hatch lid is missing (or open, unlocked), or it is in poor condition (e.g. deep cracks, severely corroded, does not fit tightly when closed), which could allow contaminants to enter the tank.	• If the inspection hatch lid is absent or in poor condition, provide a temporary cover (e.g. impermeable plastic sheeting) over the inspection hatch to minimize the entry of contaminants. Repair or replace the hatch and/or lid as soon as possible. • If the inspection hatch lid is open or unlocked, communicate the importance of closing and locking the lid securely when not in use.
3	The overflow pipe is poorly designed and allows overflow water to fall from a height and erode the ground beneath the pipe, which could damage the tank and affect water quality, or result in water loss.	• Modify or extend the overflow pipe to direct the overflow water away from the storage tank area (e.g. via a drainage system).
4	The overflow pipe is inadequately protected (e.g. with a vermin-proof screen) which could allow vermin to enter the storage tank and contaminate the water.	• If the overflow pipe is unprotected, cover the pipe with a vermin-proof screen (e.g. gauze or mesh). • If the overflow pipe screen is damaged (e.g. ripped, broken) or has wide gaps, replace with a functioning vermin-proof screen.
5	The air vents are poorly designed (e.g. facing upwards) or unprotected (e.g. without a vermin-proof gauze), which could allow contaminants to enter the storage tank.	• If the air vents are facing upwards, modify the vents so they face downwards. • If the air vent screens are absent, cover the vents with vermin-proof screens. • If the air vent screens are damaged or have wide gaps, replace with functioning vermin-proof screens.

Table 2. ...continued

Question	Problem identified	Corrective actions to consider
6	The storage tank walls are cracked or leaking, which could allow contaminants to enter the tank, or result in water loss.	• If the storage tank is cracked or leaking, engage local craftspeople to repair or replace the storage tank as needed. • Clean and disinfect the storage tank (e.g. with chlorine).[a]
7	There are signs of contaminants in the storage tank (e.g. animals, faeces, sediment build-up) that could present a serious risk to water quality.	• Remove the contaminants immediately if possible. • Consider what immediate actions should be taken to minimize the risk to public health (e.g. advise users to treat the water before consumption). • Drain, clean and disinfect the storage tank (e.g. with chlorine).[a] • Consider appropriate measures to minimize the risk of contamination entering the storage tank from this source in the future (e.g. install a storage tank cover if not present, lock inspection hatch lid).
8	The drainage is inadequate (e.g. absent, damaged or blocked drain), which could result in stagnant water contaminating the storage tank area.	• If a drainage system is absent, dig a temporary channel to divert water away from the tank area. Construct a permanent solution as soon as possible. • If a drainage system is not functioning correctly, consider whether maintenance is needed (e.g. repair, cleaning), or if deepening, widening or extending is required.
9	The fence or barrier around the storage tank is missing or inadequate, which could allow animals or unauthorized people to contaminate or damage the storage tank area.	• If missing, construct a robust fence or barrier with a lockable gate that closes securely. • If a fence or barrier is present but inadequate to prevent access, repair or replace it. • If the entry point (e.g. gate) to the storage tank area is damaged and/or does not close securely, repair or replace it.
10	There are vegetation or structures overhanging the storage tank that could attract animals which may contaminate the tank area with faecal material, or damage the tank components.	• Remove any overhanging vegetation. • Deter birds or other animals from any structures overhanging the storage tank. • Where practical, relocate any overhanging structures (e.g. move overhanging wires in consultation with the responsible authority).

11	There are sources of pollution (e.g. open defecation, animals, rubbish, commercial activity, open drains) around the storage tank that could affect water quality.	• Where practical, remove the pollution (e.g. remove animal faeces, rubbish).
		• Communicate the importance of maintaining the storage tank area in a clean condition.
		• Consult with local authorities and users to consider:
		  ○ appropriate actions to relocate or eliminate the source of pollution
		  ○ other actions to minimize the issue from occurring again (e.g. signage, enforcement measures).

Table 2. ...continued

Question	Problem identified	Corrective actions to consider
12	The storage tank is excluded from routine maintenance and quality control programmes.	• Develop and implement an appropriate routine maintenance and quality control programme, liaising with relevant authorities if appropriate. • Where needed, ensure adequate provision is made for water quality testing equipment and consumables, alongside appropriate SOPs and training for operators.
13	The water in the storage tank is not adequately disinfected.[b]	• Develop the necessary SOPs and provide operator training on adequate disinfection practices (including on the use of free chlorine residual test kits where chlorination is practised, and turbidity and pH where possible). • Ensure adequate provision is made to procure chlorine (or an appropriate alternative means of disinfection), along with water quality testing equipment and consumables for monitoring. • Ensure disinfection is practised correctly and consistently, and is optimized through routine monitoring and water quality testing.

World Health Organization
Water, Sanitation, Hygiene and Health Unit
Avenue Appia 20, 1211 Geneva 27, Switzerland
Email: gdwq@who.int
Website: https://www.who.int/health-topics/water-sanitation-and-hygiene-wash