

Hygiene Management for Small-Scale Water Supply Systems



「ちよすいぞう」 is a mascot used by Setagaya City to promote proper hygiene management for water storage tanks.

The Setagaya Public Health Center



What Is a Small Scale Water Supply System?

A small-scale water supply facility is a type of tank-based water supply system used in buildings such as offices and apartment complexes. In this system, tap water is first stored in a water storage tank such as a receiving tank or an elevated tank and is subsequently supplied throughout the building by pumps.

In Setagaya City, a **small-scale water supply system** refers to facilities that use only the water supplied by the Tokyo Metropolitan Waterworks Bureau as their source, and that have water storage tanks with an **effective capacity[※] of 10 m³ or less.**

However, systems that do not supply drinking water, as well as those regulated under the Water Supply Act or the Act on Maintenance of Sanitation in Buildings, are excluded from this category.

According to the Setagaya City Guidelines for Hygiene Management of Small-Scale Water Supply Systems (see p. 9–10), administrators are requested to follow recommended management practices to ensure the safe supply of water.

※ Effective Capacity

Effective capacity is the amount of water that can be properly used, stored between the highest and lowest water levels in a receiving tank, which is the first tank to hold water supplied by the Tokyo Metropolitan Waterworks Bureau.

Reporting to the Public Health Center

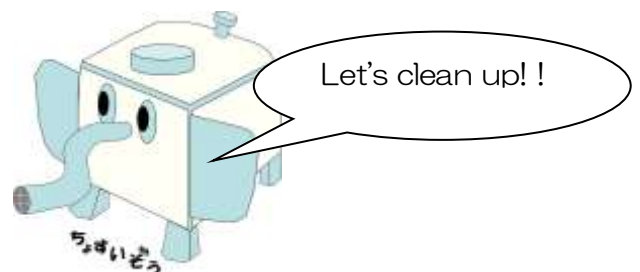
Administrators of small-scale water supply systems in Setagaya City are required to notify the Setagaya Public Health Center (せたがやほけんじょ) whenever a system is installed, modified, or discontinued.

Key points of hygiene management

Once water is stored in a water tank, it is just like the water you keep in a kettle at home. Therefore, the facility manager is responsible for ensuring its proper sanitary management.

1 Cleaning the water storage tank

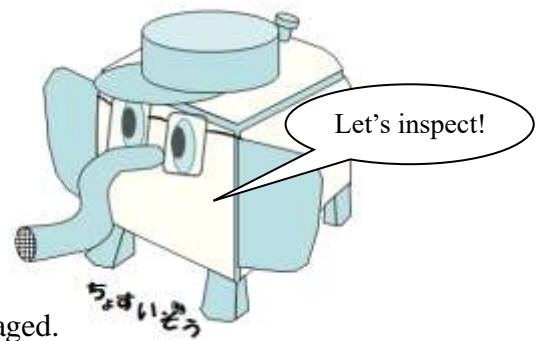
Even under normal use, water stains, sand, and other debris gradually accumulate inside the tank. Therefore, **it should be cleaned once a year.** When cleaning the Water Storage Tank, be sure to inspect the interior at the same time.



2 Inspection of Facilities

To ensure the safety of stored water, **inspect the facilities approximately once a month.** The main inspection points are as follows (see pages 5–6 for details of the monthly inspection):

- Check that the area around the water storage tank is organized and free of unnecessary items .
- Ensure that the tank has no damage or cracks.
- Confirm that there are no foreign objects or sediment inside the tank.
- Make sure the manhole is locked and that its gasket is not detached.
- Ensure that the insect screens installed on the overflow pipes and vent pipes are not damaged.



3 Water Quality Testing

It is recommended to conduct water quality tests to ensure the safety of the stored water.

① **Checking the color, turbidity, odor, and taste of the water**

Every day, pour tap water into a clear glass and check whether the water is transparent, free of cloudiness, has no unusual odors other than chlorine, and has no abnormal taste. (For further details, please refer to “Self-Check for Water Quality” (p. 3).)

② **Measuring Residual Chlorine Levels**

Chlorine is added to tap water as a disinfectant to eliminate various types of bacteria. When contaminated water, containing bacteria or organic matter, enters the tap water supply, the chlorine is consumed as it reacts with these substances, causing its concentration to drop rapidly. By regularly measuring the residual chlorine, you can detect water contamination early.

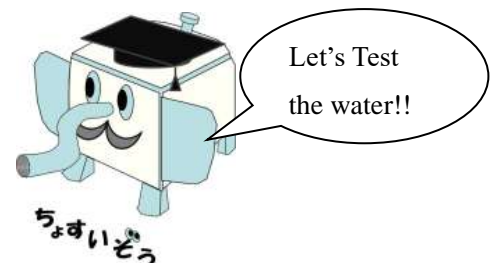
Using a residual chlorine concentration meter, check once a week to ensure that the free residual chlorine level at the end-point faucet is at least 0.1 mg/L.

③ **Water Quality Testing by Water Quality Inspection Agencies**

To verify overall safety, including whether inspections, cleaning, and other hygiene management practices are being carried out properly, it is recommended to conduct water quality tests on the following items.

Please request these tests from a private, certified water quality testing agency.

Water Quality Testing Items (9 parameters) General bacteria, Escherichia coli ,Chloride ion Organic matter (Total Organic Carbon: TOC) pH level, Taste, Odor, Color, Turbidity



4 Storage of Facility Drawings

Always keep the facility drawings on file so that they can be quickly reviewed when needed, such as in the event of an accident.

Self Check for Water Quality

The Water Supply Act's water quality standards include items evaluated through human senses, such as color, cloudiness, odor, and taste. These sensory tests are important because they help detect abnormalities in the water at an early stage.

Using a clear glass, take water directly from the faucet and check the following items ①–④.

①

Place the glass on a black surface and check for **any white cloudiness**.



②

Place the glass on a white surface and check for any dark or reddish cloudiness, or any foreign objects.



③

Smell the water and check for any **odor** other than chlorine.

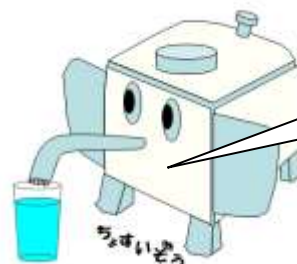


④

Take a small sip and check whether the **taste** is abnormal in any way.



If you notice any abnormality in items ①–④, please contact the building manager or the public health center.



Let's check it ourselves!

To Ensure the Safety and Quality of Drinking Water

Chlorine is added to tap water for disinfection, and its disinfecting effect remains in the water until it comes out of the faucet. This is referred to as residual chlorine.

However, due to dirt in the water tank and other factors, the residual chlorine can be consumed, and if it falls below the level that should be maintained at or above 0.1 mg/L, the safety of the tap water may be compromised.

Furthermore, the disinfecting effect of residual chlorine decreases over time. Therefore, water that has been sitting in the pipes for a long period, such as first thing in the morning or after being away on a trip, may have lost its residual chlorine. For the first water that comes out of the faucet, such as in the morning, run about one bucketful and use it for non-drinking purposes, such as laundry, cleaning, or watering plants.



In the Event of a Contamination Incident

If you discover that the stored water has been contaminated, or if you determine that abnormalities in water quality may pose a risk to human health, you must report the situation to the public health center and promptly take the following measures.

- ① Inform users of the situation and take measures such as stopping the water supply or restricting its use.
- ② If the water supply is stopped, secure an alternative water source, such as through faucets directly connected to the municipal water system.
- ③ Eliminate the cause of the contamination and restore the facility.
- ④ After restoration, conduct water quality testing to ensure the safety of the drinking water before resuming the supply.



Inspect Your Water Storage Tank Every Month !

If your water storage tank is in any of the following conditions, please arrange for repairs as soon as possible.

① Overgrowth of vegetation around the water receiving tank



[Impact of Plant Growth]

When plants grow densely around the water receiving tank, they may attract pests that can affect the stored water, and they may also hinder regular inspections.

[Measure]

Remove weeds.

② Manhole Gasket Coming Off or Inner Lid Damage



[Impact of Gasket Detachment or Inner-Lid Damage]

In the upper-left photo, the gasket around the manhole has deteriorated and come off.

In the upper-right photo, the inner lid is damaged and has cracks (indicated by the red arrow).

When this happens, the sealing performance of the manhole is reduced. The manhole can no longer be tightly sealed. As a result, as shown in the lower-left photo, fallen leaves, insects, rainwater, and other debris can enter the tank, leading to deterioration of the water quality.

[Measure]

Replace the old gasket with a new one, and repair or replace the inner lid.

③ Damage to the Insect Screen



[Effect of a Damaged Insect Screen]

In the upper-left photo, the insect screen installed on the vent pipe is damaged.

If the insect screen on the vent pipe or overflow pipe is left damaged, insects and other small pests can enter the tank, as shown in the lower-left photo (inside the red box), and this can lead to a decline in water quality.



[Measure]

Repair using a screen with a mesh size of approximately 2 mm.

④ Damage to the Upper Panels of the Water Tank

[Effects of Damage to the Tank Panels]

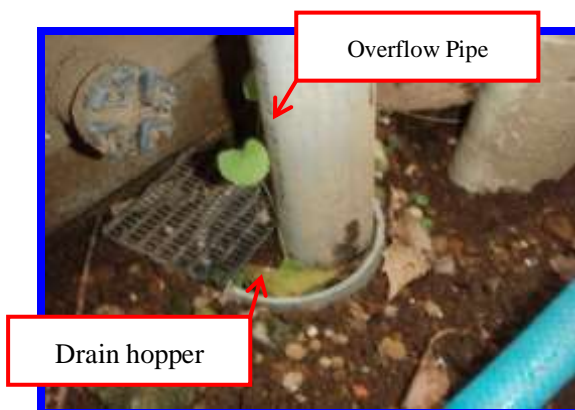
If the panels of the water tank become damaged, for example due to a broken vent pipe, rainwater, insects, and other unwanted things can enter the stored water, as shown in the photo on the right (inside the red box). This can lead to a decline in water quality. In addition, damaged panels can reduce the structural strength of the water tank.

[Measure]

Repair the damaged panels immediately.



⑤ Overflow Pipe Without a Proper Air Gap



[Effects of Having No Air Gap]

If the overflow pipe extends too far into the drain hopper and there is no air gap, wastewater can flow back into the tank.

This may contaminate the stored water.

[Measure]

Cut the lower end of the overflow pipe to create a proper air gap.

Use of Water Storage Tanks During Disaster

Even in the event of a water outage during a disaster, the water stored in a water storage tank may still be available for use. However, great care must be taken to avoid contamination of the stored water. ※

Please refer to the following methods and precautions for using stored water in such situations. For the location and functions of each component, see the next section, “Example of a Typical Water Storage Tank.”

① Drawing Water from the emergency water supply faucet

By installing an emergency water supply faucet on the water storage tank, the stored water can be accessed directly and easily. This method poses no risk of contaminating the water inside the tank and is the most effective option.

It is advisable to implement measures to prevent the faucet from being used except in times of disaster, and to clearly display a notice stating that the faucet is for emergency use only.

② Drawing water with a bucket from the manhole on top of the water storage tank

This method is used when the tank does not have an emergency water supply faucet.

When drawing water, be careful not to contaminate the stored water with dirt from the outside of the tank or from the bucket. Also take care to prevent objects or the person scooping the water from falling into the tank.

③ Drawing water from the drainpipe at the bottom of the water storage tank

This method is used when methods ① and ② are not possible. Because the drainpipe is normally used only when cleaning the inside of the tank, the following problems may occur

- (1) The inside of the drainpipe may be dirty, causing the water to become contaminated.
- (2) Since the water is drawn from the bottom of the tank, rust or debris accumulated on the tank floor may mix into the water.
- (3) Due to the situation described in (2), if rust or debris becomes caught in the shutoff valve of the drainpipe, the valve may fail to close properly. As a result, the water may not stop flowing, and all stored water could drain out.

For any of the methods ① through ③, the following items ④ and ⑤ must be confirmed.

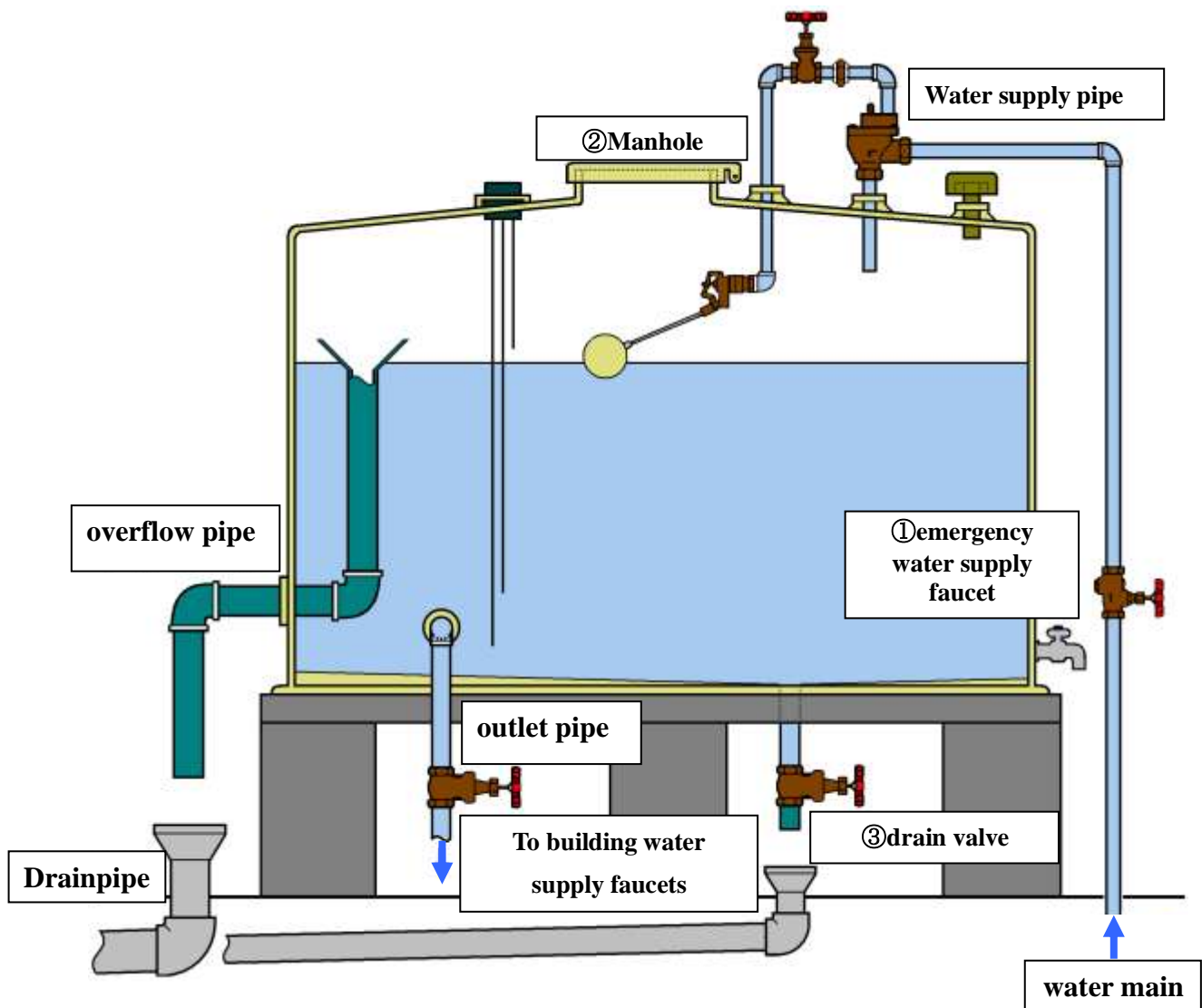
④ Before use, ensure that there is no damage to the water storage tank that could allow contamination of the stored water.

⑤ Confirm that there are no issues with the color, turbidity, odor, or taste of the water.

If both ④ and ⑤ present no problems, and you have a residual chlorine meter, also confirm that the free residual chlorine concentration is 0.1 mg/L or higher.

If the free residual chlorine concentration is below 0.1 mg/L, boil the water or disinfect it using a chlorine-based disinfectant suitable for drinking water and then confirm again that the free residual chlorine concentration is 0.1 mg/L or higher before using the water for drinking.

To make effective use of the stored water in a water storage tank during a disaster, regular inspections and cleaning of the tank are essential. It is therefore important to maintain proper sanitary management of the tank on a daily basis.



Example of a Typical Water Storage Tank

