

Guidelines for Managing Aquatic Facilities in Singapore

These guidelines serve to provide guidance to aquatic facility operators and owners on how to conduct on-site daily testing and what to do in the event of faecal/vomitus/animals entering the aquatic facility.

1. Conducting on-site daily testing for pH and free residual disinfectant

The Environmental Public Health (Licensable Aquatic Facilities) Regulations require aquatic facility licensees to conduct on-site testing for pH and residual disinfectant (Chlorine/Bromine) at least once daily.

The daily testing is important to ensure that free residual chlorine is at the optimal pH range, to kill the microbes that may cause diarrheal disease and irritation to swimmers. The free residual chlorine should be maintained within the optimal pH range before the pool is opened for use.

Bromine shall be used only for indoor pools. Licensees of such aquatic facilities are also required to carry out daily testing for total bromine level.

The daily testing is to be carried out in the steps below, using a proper test kit:

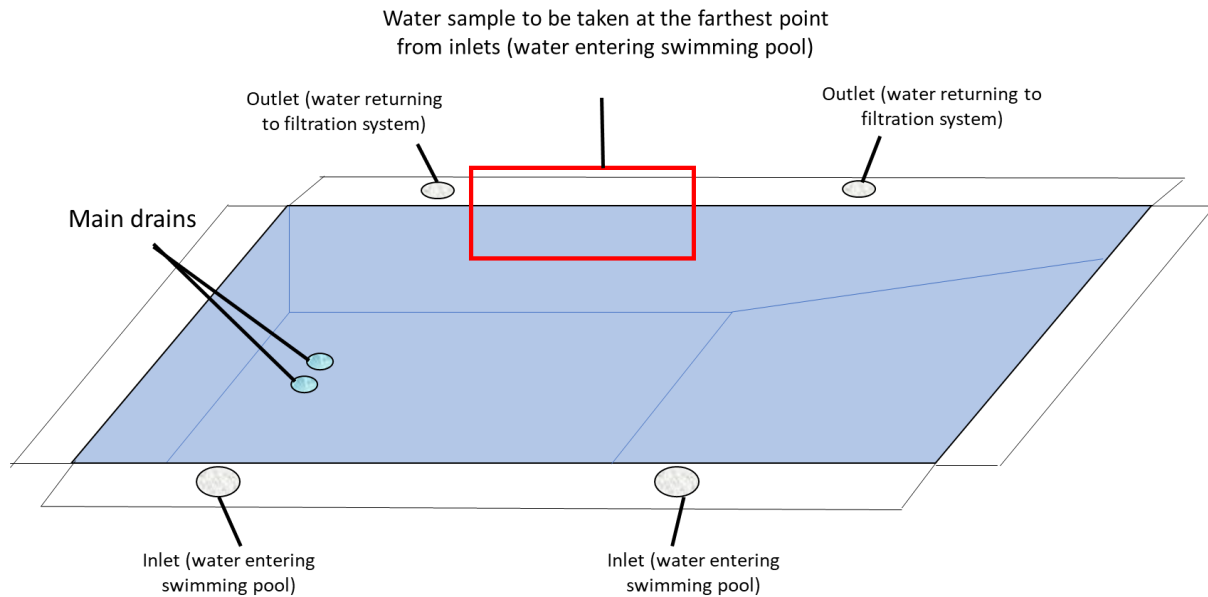
- Scoop water with the test kit;
- Collect from between 30 and 40 cm depth (at elbow length);
- Record the test readings in a record book; and
- If reading is not within regulatory limit, contact your maintenance contractor to treat the pool and perform the test again, before opening the pool for use.

The daily on-site testing can be conducted by any in-house personnel, through pool maintenance contractor or laboratory personnel accredited by Singapore Accreditation Council. The test results should be recorded and kept for 12 months.

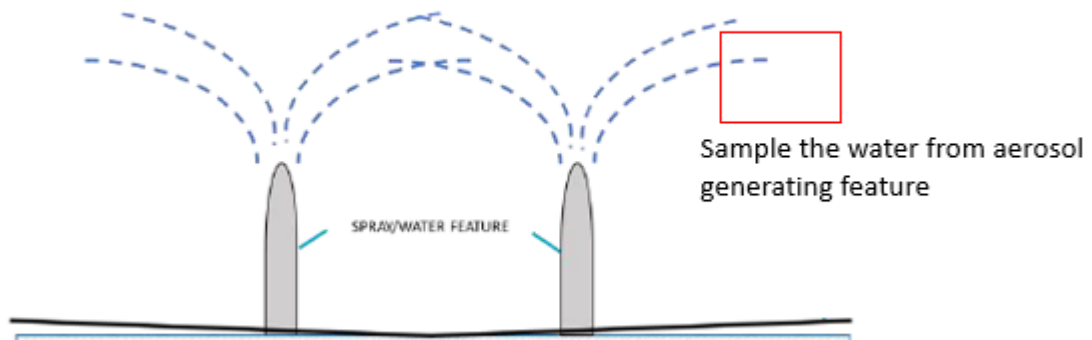
2. Choosing a representative location for water sampling

It is important that a representative location for water sampling is selected for the aquatic facility. This is to ensure that the water quality test done is reflective of the water quality of the aquatic facility.

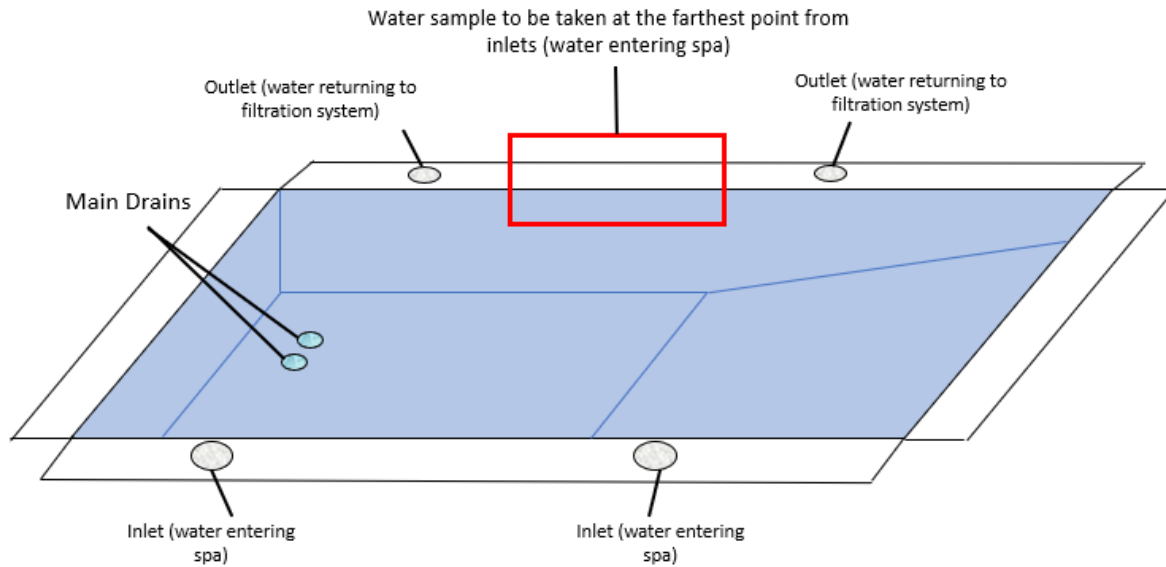
For swimming pools without aerosol generating features, take the sample from a depth of 300-400 mm (at elbow length) below the water surface level, at a spot as near as possible to the outlet, and as far as possible from the inlets where water is entering the swimming pool.



For swimming pools containing aerosol generating features, as well as water playgrounds, water sample shall be taken as near the nozzle of the spray/water features as feasibly possible.



For spa pools, take the sample from a depth of 300-400 mm (at elbow length) below the water surface level, at a spot as near as possible to the outlet, and as far as possible from the inlets where water is entering the swimming pool.



3. Faecal/Vomitus Incident Response and Animals Entering an Aquatic Facility

Faecal matter, vomitus and domestic/animals in public aquatic facilities pose a potential health risk for all users. The presence of these in an aquatic facility may potentially introduce pathogens such as *Cryptosporidium* and *Giardia* etc, to the water.

In adaptation from the World Health Organisation's Guidelines for Safe Recreational Water Environments Volume 2 (2006), please follow the following procedures on disinfection and cleaning after being alerted to the incident:

1. Immediately close the affected swimming pool (including other pools using the same balancing tank/filtration system)
2. Remove the animal OR as much of the vomitus/faecal matter as possible
3. Thoroughly clean and vacuum the swimming pool
4. Chlorine residual levels should be maintained at 20 ppm for at least 8 hours
5. Filter pool water for 6 turnover cycles
6. Thoroughly backwash the filters
7. Ensure that the residual chlorine level is between 1-3 ppm and pH is between 7.2-7.8
8. Collect and send swimming pool water for laboratory analysis
9. Re-open the swimming pool only when test results comply with the limits stipulated in the Environmental Public Health (Licensable Aquatic Facilities) Regulations 2021

At the same time, in case of human waste matter, the premises' owner/occupier should also try to determine if the person who defecated/vomited has or recently had gastrointestinal disease and record the incident details.