Guidelines for Managing Water Quality for Cooling Towers, Swimming Pools and Water Fountains During the Period of Heightened Safe Distancing Measures

This set of guidelines provides guidance on managing water quality in water features regulated by the National Environment Agency (NEA) during the ongoing COVID-19 situation where tighter safe distancing rules apply and activities are restricted as announced on 3 April 2020.

During such a situation of heightened safe distancing measures, all swimming pools and water fountains shall be closed. Only cooling towers serving essential services are allowed to operate. No laboratory test will be required during this period from 7 April to 4 May 2020 (inclusive) for all regulated water features, including cooling towers serving essential services.

1. Cooling Towers* (CTs)

1.1 CTs in operation during the period of heightened safe distancing measures

1.1.1 A maximum of 2 water treatment personnel are allowed to visit the site once every 2 weeks to conduct necessary water treatment and replenish the chemicals for both auto and manual dosing systems.

1.1.2 Water treatment contractors shall ensure the water treatment chemicals can last for at least 2 weeks and the treatment programme is able to keep *Legionella* at bay.

1.1.3 Premise owners/occupiers shall ensure that adequate water treatment is carried out to prevent the risk of acquiring *Legionellosis* at all times.

1.2 CTs closed during the period of heightened safe distancing measures

1.2.1 Premise owners/occupiers shall drain all closed CTs of any water and keep these CTs dry.

1.3 Procedures of cleaning and testing before re-starting CTs

1.3.1 For CTs that have not been in use for more than 5 consecutive days, premise owners/occupiers shall thoroughly clean and disinfect these CTs before re-starting.
(Refer to Code of Practice for The Control of Legionella Bacteria in Cooling Towers for guidance.)

1.3.2 Water samples taken from the CTs shall pass the regulated limit of Standard Plate Counts stipulated in the Environmental Public Health (Cooling Towers and Water Fountains) Regulations before the CTs are allowed to be re-started.

**Untreated CTs (> 5 consecutive days) could pose a risk of Legionellosis which could compromise public health.*

2. Water Fountains (WFs)

2.1 WFs closed during the period of heightened safe distancing measures

2.1.1 Premise owners/occupiers shall drain all closed WFs of any water and keep these WFs dry.

2.1.2. For those large WFs where draining of water will damage the structure of WFs, water treatment contractors shall take the following steps to prepare for WF closure:

a. Switch off the pump.
b. Brush all surfaces of WF to remove as much algae as possible
c. Remove all debris from WF
d. If sand filter is used, perform thorough backwash and rinse sand filtration system
e. Super-chlorinate the water by raising the free chlorine concentration to 10 mg/L for 24 hours to manage algae growth (Pool Water Treatment Advisory Group (PWTAG), UK)

2.1.3 A maximum of 2 water treatment personnel are allowed to visit the site once every 2 weeks to conduct necessary water treatment and replenish the chemicals for both auto and manual dosing systems.

2.2 Procedures of cleaning and testing before re-starting WFs

2.2.1 For WFs that have not been in use for more than 5 consecutive days, premise owners/occupiers shall thoroughly clean and disinfect WFs before re-starting.

2.2.2 Water samples taken from the WFs shall pass the regulated limit of Standard Plate Counts stipulated in the Environmental Public Health (Cooling Towers and Water Fountains) Regulations before the WFs are allowed to be restarted.

3. Swimming Pools (SPs)

Algae will bloom in SPs if nutrients are present and the residual chlorine level is low or negligible. This may happen to untreated closed pools. Large quantities of chlorine-based chemicals are required to kill algae and destroy odours. It may require multiple times of backwash to remove algae. If the sand filter is infested with algae, it may require a replacement.

In addition to algae growth in the pool, closed pool may pose a risk as breeding ground for mosquitoes. Prior to the closure of SPs, premise owners/occupiers shall ensure that treatment is carried out to minimise microbial amplification and prevent damage to the filtration system and pump.

3.1 Step to prepare for pool closure

3.1.1 Water treatment contractors shall take the following to prepare pool closure:

a. Close the pool
b. Brush all surfaces of pool to remove as much algae as possible
c. Vacuum the pool to remove all debris
d. Clear wastes from all strainers
e. Perform thorough backwash and rinse filtration system
f. Super-chlorinate the pool water by raising the free chlorine concentration to 10 mg/L for 24 hours to manage algae growth (Pool Water Treatment Advisory Group (PWTAG), UK)
g. Add calcium hypochlorite/sodium hypochlorite to tap water in the bucket until fully dissolved and dispense evenly around the pool. Continue to agitate the container to ensure the solution mixes well while dispensing. Failure to dilute properly and spread evenly can result in the precipitation of scales.
h. Super-chlorination will raise pH, so acid will be needed to be added to reduce the pH value to 7.5 or less.
i. Ensure filtration system is operating. Test for chlorine level to ensure 10 mg/L is achieved during super-chlorination.

3.2 Procedures during pool closure

3.2.1 Premise owners/occupiers should work with their water treatment contractors to ensure that they have sufficient stock of water treatment chemicals to tie over the period of pool closure.

3.2.2 A maximum of 2 water treatment personnel are allowed to visit the site once every 2 weeks to conduct necessary water treatment and replenish the chemicals for both auto and manual dosing systems. The pool is dosed with 5-10 mg/L of chlorine every two weeks during this period. Water treatment contractors are to operate the pump to circulate and distribute chlorine to the pool for 2 to 6 hours, depending on the turnover rate.

3.3 Steps to remove algae in SPs before re-opening SPs

3.3.1 Premise owners/occupiers shall brush all surfaces of SP to remove as much algae as possible.

3.3.2 Water treatment contractors shall re-start the pool filtration system and proceed to super-chlorinate the pool with 10 mg/L of chlorine for 24 hours to kill the algae. The pool filtration system should continue to run for 24 hours a day.

3.3.3 If the condition of the SP does not significantly improve after 24 hours of filtration, water treatment contractors shall repeat this process until the algae has been eliminated.

3.3.4 Once the algae is dead, it will turn to white greyish colour, and suspend in the pool water or settle down on the floor. When there is no sign of green colour in the pool, premise owners/occupiers shall thoroughly vacuum the SP. Dead algae should be removed through draining to sewer and not through the filter.

3.3.5 The pool filtration system should be backwashed to ensure that any dead algae is not trapped inside the filtration system.

3.3.6 Water samples taken from the SPs shall pass all regulated limits stipulated in the Environmental Public Health (Swimming Pools) Regulations before the SPs are allowed to be re-opened for use.