

COVID-19 - PWTAG Technical Notes on Re-opening a Pool and Technical Operation after COVID-19 Shutdown

Swimming pools can reopen from 25 July if they are ready to do so and can do so safely, following public health guidance.

This guidance note summarises the key points contained in technical notes issued by the Pool Water Treatment Advisory Group (PWTAG) on reopening a pool after COVID-19 shutdown regarding pool plant, disinfection, water testing etc; and subsequent technical operation.

Headteachers of schools with swimming pools should read this guidance alongside COVID-19 – Educational Settings Risk Assessment – Swimming Pools on operational management of pools and swimming activities.

These should be read in conjunction with:

- COVID-19 Compliance code for all educational settings – September
- COVID 19 – Educational Settings Risk Assessment – September - on the [Norfolk Schools website](#) and HR InfoSpace
- Swimming Pool Water Health and Safety Code of Practice

For ease of reference, changes that are made to this document are detailed below:

Date of change	Section, Page and Change
14-07-2020	New document. Please read.

Re-opening a Pool and Technical Operation after COVID-19 Shutdown

PWTAG Guidance – Re-opening a Pool after COVID-19 Shutdown

PWTAG technical note TN45 sets out the steps required for reopening a pool for use following temporary closure. This should be read by the pool operator and the headteacher.

A pool that is disinfected and that keeps pH levels to the parameters advised by PWTAG, as set out below and in NCC's Swimming Pool Water Health and Safety Code of Practice, will greatly reduce the potential for transmission of COVID-19 in pool water.

While the risk of transmission of COVID-19 remains, the operating pH for pool water should be reduced to between 7.0 to 7.4 and ideally maintained between **7.0 to 7.2**.

The free chlorine concentrations should also be raised to at least **1.5 mg/l** and ideally at the top of the recommended range for your pool.

If your pool was closed using option 2, 'stopping circulation' (as advised in COVID-19 – Educational Settings Risk Assessment – Premises Management, issued in May) you must follow instructions contained in [TN45](#) if you re-open your pool for school or community use.

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The main actions to be taken are summarised below but pool operators should refer directly to TN45:

- Check chlorine level
- Turn on circulation pump and reinstate flocculant dosing (if used). Run for 6 pool turnovers.
- Clean and disinfect the level deck grilles, scum channels and skimmers, pool surround and all pool equipment following disinfection guidance in [TN44](#)
- Check the pool bottom and sides are clean and free from dirt etc; vacuum and brush as necessary
- Backwash filter(s) sequentially
- Circulate for one further turnover and carry out free chlorine and pH tests. Free chlorine concentration is likely to be high so a dilution test may well be needed to get an accurate free chlorine reading. See methodology for dilution test to test high-range free chlorine at the end of TN45.
- Calculate the amount of sodium thiosulphate needed to lower the free chlorine concentration to around 2 mg/l . If only slightly above 2 mg/l water replacement is an easier option. Follow Option 2 steps 8 and 9 on page 3, adding diluted sodium thiosulphate gradually in stages.
- Leave pool to circulate, allowing the chemical to react for a further turnover before re-testing
- Gradually start to heat the pool water and air (step 10). The air handling system should be set to operate on 100% fresh air.
- Once chlorine residual is restored, switch on auto controller and chemical dosing systems. The pH should then be adjusted to 7.0 to 7.4, ideally maintained at the lower end of this range (7.0 to 7.2).
- Once pool water reaches normal temperature carry out normal checks and tests, including free chlorine of at least 1.5 mg/l, combined chlorine less than 1 mg/l and as near zero as possible
- Resume normal microbiological sampling and testing

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PWTAG Guidance - Technical Operation after a COVID-19 Shutdown

TN46 takes pools through what they need to do to manage safely while the pandemic subsides. The key points are summarised below, but pool operators should refer directly to TN46.

- Update Normal and Emergency operating procedures to reflect any changes to the operation of the pool due to COVID-19.
- If pool water pH and free chlorine is maintained as described in TN45 the risk of transmission through pool water is negligible. The main risk of transmission remains through airborne transmission.
- If the pool cannot realistically achieve a pH below 7.4, the minimum free chlorine residual (from hypochlorite) may have to be as high as 2.7 mg/l as long as the pandemic continues.
- The recommended free chlorine levels and pH values are required whether secondary disinfection (UV) is used or not, as it is the amount of residual disinfectant present in the pool water that is crucial to deactivating the virus in the pool.
- Routine tests of free chlorine, combined chlorine and pH (and of cyanuric acid where dichlor is used to disinfect) should continue to be carried out at the normal recommended frequencies, as set out in Swimming Pool Water Health and Safety Code of Practice G643h.
- Circulation of pool water should be maintained at 100% to get good dilution of any released virus particles and to ensure the distribution of free chlorine so that the risk of infection is minimised.
- Remove any contaminated water from the pool as soon as possible through the pool hydraulics and circulation system. This is more readily achieved in a deck-level pool with 80-100% surface water removal. Pools with circulation systems featuring scum channels or skimmers will not achieve the same contamination removal rate, so they must be kept clean and free from debris.
- Everyone using a pool building should wash or disinfect their hands as they enter and leave. Pre-swim showering is vital to ensure the free chlorine in the pool water is available for disinfecting the virus (rather than being used to oxidise organic material coming off bathers). Bathes should be actively encouraged to shower with soap and water while maintaining the statutory physical distancing. In some circumstances, pool operators may consider encouraging showering at home before a swim, but this is clearly less than ideal. If showers are unused, they should be flushed weekly.**

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****[Government guidance for providers of grassroots sport and gym/leisure facilities](#)**, published after the PWTAG technical note, qualifies PWTAG advice on showers in section 6.4:

It is important that social distancing is maintained in changing rooms and showers and that they are only use if essential. All venues should encourage attendees to arrive at the facility in sports kit and where possible to travel home to change/shower. Use of changing rooms and showering facilities should in general be avoided where possible, although these must be available for participants with disabilities or special needs and are likely to be needed after swimming. If changing rooms are to be used, users should use the facilities as quickly as possible.

- Bathers should be reminded to use the toilet and then wash their hands (following the physical distancing rules) before swimming and children given that opportunity at intervals during their swim, if practicable.
- Pool hall ventilation system which normally run with recirculation should where possible maximise the input of outside fresh air.
- A full and deep clean of all pool surrounds and changing rooms should be carried out before opening.
- Any shared equipment should be cleaned and disinfected using disinfectant wipes each time it is used

Outdoor Pools:

Cyanuric acid reduces the effectiveness of free chlorine, significantly increasing the contact time needed to kill a range of pathogens. It is assumed that this is also the case for COVID-19. Reduced effectiveness is likely to mean that the virus is not killed and that cross infection via pool water is possible.

Therefore, PWTAG recommends that outdoor pools should maintain cyanuric acid levels **below 100 mg/l** – the normal recommendation is to keep below 150 mg/l); and minimum free chlorine levels to a minimum of **5 mg/l** - the normal recommended range is 3.0 to 5.0 mg/l, ideally 4.0 mg/l. This may mean dumping and diluting pool water more than usual.

[PWTAG Technical Note 44](#) gives guidance on how to disinfect areas which may have been used by symptomatic people and repeats guidance contained in COVID-19 Educational settings – management of cases guidance G646k.

Refer to the table on preparing disinfectant solutions on page 3 of TN44, including using household bleach, sodium hypochlorite and dichlor granules (all used in Norfolk school pools).