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| Aquatic facility incident response procedures  |
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Diarrhoeal incident response procedure – public aquatic facilities that use chlorine ***without cyanuric acid***

Diarrhoeal incidents pose a particularly high risk to the health of bathers. Immediately closing the affected water body(ies) and undertaking appropriate remediation is the only way to prevent the spread of disease.

Aquatic facilities should incorporate this procedure into their water quality risk management plan. All staff must be aware of this procedure and be trained in its implementation.

For further information, contact the Water Unit on 1300 761 874 or email <water@dhhs.vic.gov.au>.

### Recommended remedial steps

1. Immediately close the affected water body and any other connected water body(ies) within the aquatic facility and ensure staff involved in the response have appropriate personal protective equipment.
2. Remove as much of the faecal material as possible using a bucket, scoop or another container that can be discarded or easily cleaned and disinfected. Dispose of the faecal material to the sewer. Do not use aquatic vacuum cleaners for removing faecal material unless the vacuum waste can be directly discharged to the sewer and the vacuum equipment can be adequately cleaned and disinfected.
3. Adjust the pH to 7.5 or lower.
4. Hyperchlorinate the affected water body(ies) by dosing the water to achieve a free chlorine contact time (CT) inactivation value of 15,300 mg.min/L (for example, free chlorine of 20 mg/L for 13 hours or 10 mg/L for 26 hours or via alternative combinations of chlorine concentration and time that achieve the required CT).
5. Ensure filtration and any secondary disinfection systems operate for the whole decontamination process.
6. If the filtration system incorporates a coagulation step, ensure coagulant concentration is correct to enhance the filtration process.
7. After the required CT has been achieved, reduce total chlorine to below 10 mg/L. Sodium thiosulphate can be added to neutralise excess chlorine.
8. Backwash filter media or replace the filter element as appropriate. Precoat filter media should be replaced.
9. Ensure the water is balanced.
10. Hygienically clean, disinfect or dispose of materials, tools, equipment or surfaces that have come into contact with contaminated water.
11. Record the incident and remedial action taken.
12. Reopen the water body(ies).

# Diarrhoeal incident response procedure – public aquatic facilities that use chlorine ***with cyanuric acid***

Diarrhoeal incidents pose a particularly high risk to the health of pool users. Immediately closing the affected water body(ies) and undertaking appropriate remediation is the only way to prevent the spread of disease. Chlorine stabiliser (cyanuric acid) significantly slows the rate at which free chlorine inactivates or kills contaminants such as *Cryptosporidium*. It is therefore important to achieve a much higher free chlorine CT than is necessary in water bodies that do not use cyanuric acid.

Aquatic facilities should incorporate this procedure into their water quality risk management plan. All staff must be aware of this procedure and be trained in its implementation.

For further information, contact the Water Unit on 1300 761 874 or email <water@dhhs.vic.gov.au>.

### Recommended remedial steps

1. Immediately close the affected water body and any other connected water body(ies) in the aquatic facility and ensure staff involved in the response have appropriate personal protective equipment.
2. Remove as much of the faecal material as possible using a bucket, scoop or another container that can be discarded or easily cleaned and disinfected. Dispose of the faecal material to the sewer. Do not use aquatic vacuum cleaners for removing faecal material unless the vacuum waste can be directly discharged to the sewer and the vacuum equipment can be adequately cleaned and disinfected.
3. Adjust the pH to 7.5 or lower.
4. Ensure cyanuric acid is 15 mg/L or less (this can be achieved by partially draining and adding fresh water without chlorine stabiliser to the affected water body).
5. Once the cyanuric acid concentration is 15 mg/L or less, use unstabilised chlorine to hyperchlorinate the affected water body(ies) by dosing the water to achieve a free chlorine CT inactivation value of 31,500 mg.min/L (for example, free chlorine of 20 mg/L for 28 hours or via alternative combinations of chlorine concentration and time that achieve the required CT).
6. Ensure filtration and any secondary additional disinfection systems operate for the whole decontamination process.
7. If the filtration system incorporates a coagulation step, ensure coagulant concentration is correct to enhance the filtration process.
8. After the required CT has been achieved, reduce total chlorine to below 10 mg/L. Sodium thiosulphate can be added to neutralise excess chlorine.
9. Backwash filter media or replace the filter element as appropriate. Precoat filter media should be replaced.
10. Ensure the water is balanced.
11. Hygienically clean, disinfect or dispose of materials, tools, equipment or surfaces that have come into contact with contaminated water.
12. Record the incident and remedial action taken.
13. Reopen the water body(ies).

# Formed stool and vomit contamination response procedure – public aquatic facilities that use chlorine ***with or without cyanuric acid***

Formed stool (faeces) and vomit contamination incidents pose a risk to the health of users. The only way to prevent the spread of disease is to immediately close the affected body(ies) and undertake appropriate remediation.

Aquatic facilities should incorporate this procedure into their water quality risk management plan. All staff must be aware of this procedure and be trained in its implementation.

For further information, contact the Water Unit on 1300 761 874 or email <water@dhhs.vic.gov.au>.

**Recommended remedial steps**

1. Immediately close the water body and any other connected water body within the aquatic facility and ensure staff involved in the response have appropriate personal protective equipment.
2. Remove the stool or as much of the vomit as possible using a bucket, scoop or another container that can be discarded or easily cleaned and disinfected. Dispose of the waste to the sewer. Do not use aquatic vacuum cleaners for removing the stool or vomit unless vacuum waste can be discharged to the sewer and the vacuum equipment can be adequately cleaned and disinfected. Ensure filtration and any secondary disinfection systems run until the end of the decontamination process.
3. For facilities that do not use chlorine stabiliser (cyanuric acid), raise the free chlorine concentration to a minimum of 2 mg/L and maintain that concentration for 25–30 minutes, making sure not to exceed a pH of 7.5.
**or**
For facilities that use chlorine stabiliser (cyanuric acid), raise the free chlorine concentration to a minimum of 2 mg/L and maintain that concentration for 50 minutes, making sure not to exceed a pH of 7.5.
4. If the filtration system incorporates a coagulation step, ensure coagulant concentration is correct to enhance the filtration process.
5. Backwash filter media or replace the filter element as appropriate. Precoat filter media should be replaced.
6. Ensure the water is balanced.
7. Hygienically clean, disinfect or dispose of materials, tools, equipment or surfaces that have come into contact with contaminated water.
8. Record the incident and remedial action taken.
9. Reopen the water body(ies).

*Note that no remedial action is required for blood in the water provided an appropriate primary disinfectant residual is present.*

# Microbiological requirements - Public Health and Wellbeing Regulations 2019

### Microbiological quality of aquatic facility water (regulation 49)

An aquatic facility operator must ensure that while the aquatic facility is in operation the microbiological standard of the water in the aquatic facility is maintained within the following parameters:

* the heterotrophic colony count is less than 100 colony forming units per millilitre;
* *Escherichia coli* is not detected in 100 millilitres;
* *Pseudomonas aeruginosa* is not detected in 100 millilitres.

### Procedure for responding to non-compliance with microbiological parameters (regulation 59)

1. This regulation applies if an aquatic facility operator is notified by an initial laboratory report that any sample of water taken from the aquatic facility does not comply with the microbiological parameters set out in regulation 49.
2. Within 24 hours of receiving a notification, the aquatic facility operator must ensure that the following procedure is implemented –
	1. corrective action is taken to bring the water quality within the microbiological parameters set out in regulation 49;
	2. any water quality risk management plan required under the Water Quality Guidelines that is in place for the aquatic facility is reviewed;
	3. any faults are corrected;
	4. any changes necessary to prevent a re-occurrence of those faults is implemented.
3. Within 48 hours of receiving a notification, the aquatic facility operator must ensure that a further sample of water is taken from the aquatic facility and provided to a laboratory to assess compliance with the microbiological parameters set out in regulation 49.
4. Within 24 hours of receiving a report from a laboratory with the results of the testing undertaken in accordance with subregulation (3), the aquatic facility operator must notify the Council of the test results.
5. If a laboratory has tested a further sample of water in accordance with subregulation (3) and reports that the sample of water does not meet microbiological parameters set out in regulation 49, the aquatic facility operator must ensure that the steps set out in subregulations (2) to (4) are repeated within 24 hours of receiving the laboratory report.
6. If a laboratory has tested a further sample of water in accordance with subregulation (5) and reports that the sample of water does not meet the microbiological parameters set out in regulation 49, the aquatic facility operator must ensure the aquatic facility is closed and not operated until the water in the aquatic facility complies with microbiological parameters set out in regulation 49.
7. Within 24 hours of closing the aquatic facility, the aquatic facility operator must notify the Council in writing of the closure.

Aquatic facilities should incorporate this procedure into their water quality risk management plan. All staff must be aware of this procedure and be trained in its implementation.

For further information, contact the Water Unit on 1300 761 874 or email <water@dhhs.vic.gov.au>.

## Contamination of surfaces response procedure

Hard surfaces within a public aquatic facility may become contaminated with faeces, vomit or blood, or with water of poor quality that has been contaminated by such substances. In these instances, operators should follow the remediation measures outlined below.

Aquatic facilities (including **spas**) should incorporate this procedure into their water quality risk management plan. All staff must be aware of this policy and be trained in its implementation.

For further information, contact the Water Unit on 1300 761 874 or email <water@dhhs.vic.gov.au>.

**Recommended remedial steps**

1. Restrict access to the affected area.
2. Remove all visible contamination with disposable cleaning products and dispose of appropriately.
3. Disinfect the affected area using a chlorine solution of one-part household bleach to 10 parts water. Note that the mentioned dilution factor is based on a bleach product containing 10–12.5 per cent sodium hypochlorite. Apply liberally and leave to soak for 10 minutes.
4. Hose the affected area, directing the water to a stormwater drainage point.
5. Record the incident and remedial action taken.
6. Reopen the affected area.

## Spa pool incident management procedure

Faecal incidents pose a particularly high risk to the health of bathers. Immediately closing the affected water body(ies) and undertaking appropriate remediation is the only way to prevent the spread of disease.

The following procedure can be applied to any of the following incidents:

* Diarrhoeal Incident
* Formed Stool and Vomit Contamination

Aquatic facilities should incorporate this procedure into their water quality risk management plan. All staff must be aware of this procedure and be trained in its implementation.

For further information, contact the Water Unit on 1300 761 874 or email <water@dhhs.vic.gov.au>.

**Recommended remedial steps for spas**

1. Empty all water from the spa (including balance tanks).
2. Scrub and rinse with tap water all surfaces known to have an acceptable water quality.
3. Spray all surfaces with a chlorine solution of one part bleach to 10 parts water. Note that the dilution factor is based on a bleach product containing 10–12.5 per cent sodium hypochlorite. Apply liberally and leave to soak for 10 minutes.
4. Rinse with tap water known to have an acceptable water quality.
5. Refill the spa.
6. Raise the primary disinfectant level to that recommended in Appendix 2 (3 mg/L for chlorine or 6 mg/L bromine) and maintain that concentration for 25–30 minutes, making sure not to exceed a pH of 7.5.
7. Backwash filter media or replace the filter element as appropriate. Precoat filter media should be replaced.
8. Ensure the water is balanced and the concentration of disinfectant is acceptable.
9. Hygienically clean, disinfect or dispose of materials, tools, equipment or surfaces that have come into contact with contaminated water.
10. Record the incident and remedial action taken.
11. Reopen the spa.

**or**

Follow the diarrhoeal incident response procedure.

*In major contamination events it may be necessary to submit a sample of the water to demonstrate it is free of microbiological contamination before reopening. Public aquatic facility operators should contact a local government environmental health officer for advice*.

## *Procedure for Cryptosporidium* and/or general suspected illness or possible outbreak

Where a state or local government environmental health officer suspects or confirms a public aquatic facility has been linked to illness, or an outbreak of illness (including *Cryptosporidium*), all water bodies in the facility should be disinfected using the relevant diarrhoeal incident response procedure (with or without cyanuric acid). This requirement may not apply if a facility has a system that is validated to treat *Cryptosporidium* risk and it can be demonstrated to have been operating within the validated parameters during and since the contamination event. Note that *Cryptosporidium* has been singled out since it is the most common reported source of illness or outbreak associated with aquatic facilities in Australia.