

PROTOCOL FOR HANDLING FECAL ACCIDENTS IN SWIMMING POOL WATER

There are two different procedures recommended for disinfecting swimming pool water that has been contaminated by fecal/vomitus accidents. Depending on the type of contamination, one of these procedures should be followed to protect the public and facility staff from infection or illness.

Procedure A should be followed when the pool water is contaminated with **normally formed stools**. Quick action on the part of the pool operator is likely to kill any pathogens associated with this type of contamination.

Procedure B should be followed when the pool water is contaminated with **watery stool**. Organisms that are sensitive to chlorine, and parasites such as *Cryptosporidium* or *Giardia*, that are not sensitive to chlorine, can be introduced to pool water by liquid diarrheal stools, and special care must be taken to prevent illness associated with organisms.

NOTE: When cleaning and disinfecting areas contaminated with fecal material or vomitus, staff should wear the appropriate protective equipment for the job (e.g., gloves, rubber boots, aprons, face mask, etc. may be required if large amounts of chlorine are to be used).

Procedure A – Pool Water Contaminated With Normally Formed Stools or With Vomitus

1. Evacuate the pool immediately.
2. Remove fecal material from the pool using a scooping device and dispose of stools into a toilet. Clean and disinfect all equipment used for removing the fecal material, with a detergent solution, followed by a chlorine solution (i.e. 1 part bleach to 9 parts water).
3. Manually superchlorinate the contaminated area of the pool to at least 10 ppm free available chlorine and allow pool water to recirculate for 1 hour.

Note: pH must be maintained between 7.2 and 7.8 to ensure chlorine effectiveness.

4. Test the water to ensure the chlorine and pH meet regulatory requirements prior to re-opening the pool. Take samples for bacterial analysis (i.e. total coliforms and fecal coliforms - **One sample should be taken for each analysis at a water depth of at least 1 foot below the water's surface**)
5. Document in your logbook all steps taken, and all analytical results obtained.

Procedure B – Pool Water Contaminated With Diarrhea

1. Evacuate the pool immediately.
2. Remove any visible stool with a scooping device and dispose of the material into a toilet. Clean and disinfect all equipment used for removing the fecal material, with a detergent solution, followed by a chlorine solution (i.e. 1 part bleach to 9 parts water).
3. Provide enough chlorine to ensure a CT (Concentration/Time) Value of 15300.

NOTE: A CT Value of 15300 is any combination of chlorine concentration and time, in minutes that will yield 15300.

Eg. Raising the chlorine residual to 20 ppm, and running the recirculation equipment for 12.75 hours will provide a CT of 15300, if the pH is maintained between 7.2 to 7.8 to ensure chlorine effectiveness.

(i.e. $20 \text{ ppm} \times 12.75 \text{ hours} \times 60 \text{ minutes/hour} = 15300$)

Increasing the chlorine level would allow you to decrease the time required, but the CT value must always be at least 15300.

(Ensure the pool equipment can withstand the high chlorine concentration)

4. Clean and brush down the walls of the pool, the skimmer housings, and skimmer baskets.
5. Backwash the filters to waste.
6. Disinfect the filters using one of the procedures listed:
 - a) **Sand Filters** – Add 30 liters of sodium hypochlorite directly into the filter and let stand 6 – 8 hours. Amount of sodium hypochlorite added to filters may vary depending on filter size (i.e. Larger filters will require more sodium hypochlorite).

Backwash again.

- b) **Cartridge Filters** – Remove the cartridge and clean and disinfect the filter casing thoroughly with 200 ppm solution of chlorine for 1 hour. Rinse and allow the casing to dry completely.
 - c) **Diatomaceous Earth (DE) Filters** – Clean the DE off the filters, dispose of the DE, and soak the tank and septums in a 100 ppm solution of chlorine for 2 hours.
7. Disinfect the deck area surrounding the swimming pool with 100 ppm chlorine (bleach) solution or equivalent.
 8. Restart the recirculation system and test the water to ensure the chlorine and pH meet regulatory requirements prior to re-opening the pool. Take samples for bacterial analysis (i.e. total coliforms and fecal coliforms - **One sample should be taken for each analysis at a water depth of at least 1 foot below the water's surface**)
 9. Document all steps taken, and all analytical results obtained in your log book.

Contact your District Public Health Inspector on the next working day to inform him/her of actions taken.

Fecal Accidents or Vomiting on the Pool Deck, Washrooms or Other Common Areas

From time to time vomiting and fecal accidents occur in areas of the facility outside of the pool basin. Appropriate steps must be taken to clean and disinfect the contaminated area to protect employees and patrons. These steps include:

1. Remove and dispose of all fecal material/vomit into a toilet.
2. Wash the contaminated area with soap and water, flushing all waste away from the pool.
3. Sanitize the contaminated area with 100 ppm chlorine (bleach).

NOTE: Always wear gloves when cleaning these types of accidents.

Procedure B is based on protocol provided by Nelson Fok, Manager R&D, Environmental Health, Capital Health, Edmonton, Alberta, with input from the Medical Officer of Health, Environmental Health Officers from the Province of Manitoba and City of Winnipeg and employees from the Public Works Department of the City of Winnipeg, and recommendations from the U.S. Centers for Disease Control.