Pool Fouling Recommendations

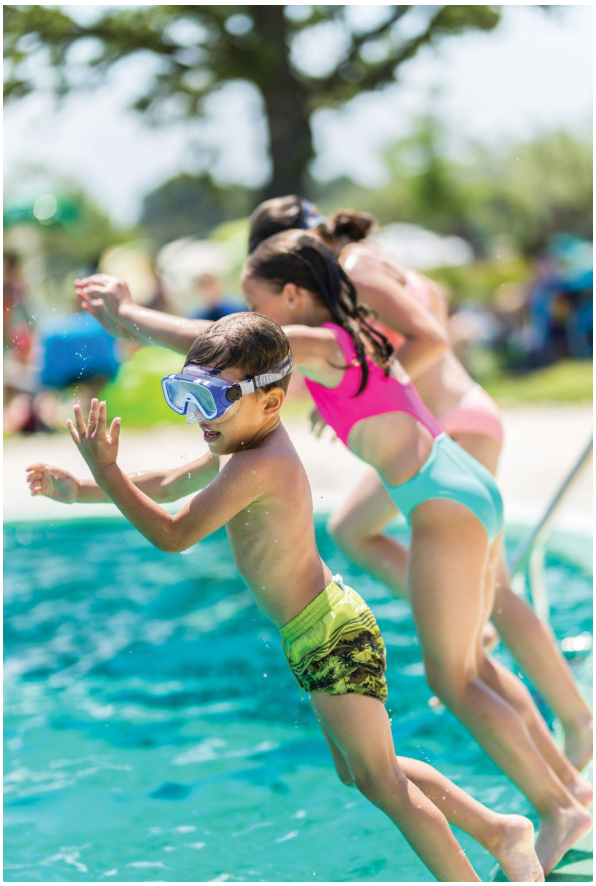
These recommendations are intended to help pool operators respond to fouling incidents.

A fouling incident occurs when a pool becomes contaminated with vomit or feces. Swimmers are put at risk by contacting and ingesting contaminated water. Staff must respond to fouling incidents as quickly as possible to limit the spread of germs that can lead to illness.

LOW-RISK FOULING PROCEDURES

In the case of a low-risk fouling incident (i.e., formed stool, vomit, or blood), the following procedure must be followed:

- **Close the pool to swimmers.**
- Do not vacuum the fouling matter (formed stool or vomit) from the water.
- Remove as much of the fouling material as possible with a net or scoop and dispose of it in a sanitary manner (i.e., toilet).
- Clean and disinfect the net or scoop in the facility's clean-up sink. Clean and disinfect the clean-up sink.
- Ensure that the recirculation system, including the filtration system, is operating while the water reaches and maintains the proper free available chlorine concentration and pH during the disinfection process.
- Test the free available chlorine residual. The pool may be reopened if the free available chlorine level is within the normal operating parameter of a minimum 2.0 mg/L.
- If the free available chlorine is below the normal operating parameter, the pool must remain closed.
- Using unstabilized chlorine, raise the free available chlorine residual to the required minimum of 2.0 mg/L for at least 25 minutes; pH maintained between 7.2 and 7.5.
- An operator may decide to increase the free available chlorine concentration to meet the equivalent CT value more quickly as shown in Table 1. CT refers to the concentration (C) of free available chlorine in mg/L, multiplied by the time (T) in minutes.



- Ideally, the water temperature should be 25°C or higher during the disinfection process.
- The pool water must be balanced including the free available chlorine concentration and pH within the operating range before swimmers are allowed back into the water.
- Record on an Incident Report Form.

TABLE 1: CT Response to a low-risk incident (formed stool, blood, or vomit)

Unstabilized Chlorine Concentration (mg/L)	Disinfection Time (minutes)	Equivalent CT Value
2.0	25	50
3.0	17	50
5.0	10	50

In outdoor pools, chlorine stabilizer (cyanuric acid) slows the disinfection process. Thus, higher chlorine levels are necessary to reach the appropriate CT inactivation value for *Giardia*.

HIGH-RISK FOULING PROCEDURES

A diarrheal fecal accident is a much higher risk event than a formed stool accident. Diarrheal illnesses contain infectious organisms, such as *Cryptosporidium* ('Crypto').

For diarrheal (liquid/watery stool) discharge, the following the procedure must be followed:

- **Close the pool to swimmers.**
- Direct swimmers to take a cleansing shower.
- If swimmers are being transferred to another pool in the facility, they must take a cleansing shower. If other pools are on the same filtration system, they must be closed, too.
- Do not vacuum the fecal matter from the water.
- With a net or scoop, remove as much fecal material as possible and dispose of it in a sanitary manner (i.e., toilet). Clean the net or scoop in the facility's clean-up sink, then disinfect it by leaving it in the pool during the disinfection process, or by placing it in a separate receptacle containing disinfectant. Disinfect the sink where the net or scoop was cleaned.
- Superchlorinate the pool to reach a "CT value" of 15,300. CT refers to the concentration (C) of free available chlorine in mg/L, multiplied by the time (T) in minutes.
- Using unstabilized chlorine, raise the free available chlorine residual to 20 mg/L and maintain it for at least 12.75 hours, ensuring the pH is maintained between 7.2 and 7.5. An operator may decide to increase the free available chlorine concentration to meet the equivalent CT value more quickly as shown in Table 2.
- Ideally, the water temperature should be 25°C or higher during the disinfection process.
- Recirculate pool water for the necessary amount of time.
- While the pool, recirculation system, and filters are being disinfected, do the following:
  - Clean and disinfect deck surfaces and equipment (water slides, pool toys, etc.).
  - A proper disinfectant solution can be prepared by mixing one part of household bleach (5.25%) with nine parts of cool water (5000 mg/L).
  - A 10-minute contact time is recommended (more than one application of the solution may be required).
  - Clean and brush down the walls of the pool, skimmer housings, and skimmer baskets.
- For sand filters, backwash after reaching the CT inactivation value. For cartridge filters, rinse and disinfect according to the manufacturer's guidelines. It is recommended to use a high-level disinfectant (e.g., 1:10 chlorine-to-water ratio). In certain cases, it may be necessary to replace the filter or filter media entirely.
- When the CT inactivation value is achieved and the free available chlorine concentration and pH are within the operating range, swimmers can be allowed in. If necessary, a chlorine neutralizer can be used.
- Record on an Incident Report Form.

TABLE 2: CT Response to a high-risk incident (diarrhea)

Unstabilized Chlorine Concentration (mg/L)	Disinfection Time	Equivalent CT Value
2.0	7,650 minutes (127.5 hours)	15,300
10.0	1,530 minutes (25.5 hours)	15,300
20.0	765 minutes (12.75 hours)	15,300

In outdoor pools, chlorine stabilizer (cyanuric acid) slows the disinfection process. Thus, higher chlorine levels are necessary to reach the appropriate CT inactivation value for *Cryptosporidium* (Crypto).

References:

» 2023 Model Aquatic Health Code (MAHC)
» CDC Fecal Incident Response Handout
» BC Guidelines for Pool Operations

For more information, call your local Public Health Inspection office.