ENVIRONMENTAL Fact Sheet

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

29 Hazen Drive, Concord, New Hampshire 03301 • (603) 271-3503 • www.des.nh.gov

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Fecal Accidents – A Protocol for Public Bathing Facilities

Fecal accidents occasionally occur in swimming pools, wading pools, spas, and special recreation pools. If these accidents are not treated, they can lead to serious illnesses. Bacteria and other pathogens that are introduced to the water could easily be swallowed, inhaled, or absorbed through the skin, resulting in a health risk to the swimmers.

If a fecal accident does occur, NHDES suggests that the facility take the following actions. Please note: the following calculations assume that no cyanuric acid (stabilizer) is present in the pool water. The presence of stabilizer can drastically reduce the efficacy of chlorine.

A. Liquid Stool

These procedures can be followed after a NHDES bacterial violation, as well.

1. Advise all bathers to exit the bathing facility immediately and not to reenter until all decontamination procedures are completed.
2. Shut down filtration system. Remove all fecal matter using a fine mesh net or scoop. Dispose of waste in a sanitary manner. Vacuuming is not recommended. Clean and disinfect the net or scoop. Restart the system once removal is complete.
3. Raise the free chlorine level in the pool to 20 mg/L (ppm) (pH = 7.2-7.5) and **maintain** for at least 13 hours, or bring to 10 mg/L (ppm) (pH = 7.2-7.5) and maintain for at least 26 hours.∗ Keep the pool closed during this time period. Calculate the amount of chlorine product needed based on your pools volume. Do not guess.
4. Confirm that the filtration system is operating while the proper chlorine level is reached and maintained. Backwash sand filters or disassemble and clean diatomaceous earth and cartridge filters using a solution of 20 parts of water to 1 part 12 percent-15 percent sodium hypochlorite (liquid chlorine). Be sure that backwash effluent is discharged directly to waste. Do not send the backwash through the filter.
5. If an accident occurs in a spa, wading pool, or other small volume pool, drain it completely. When a public bathing facility is drained by discharge to a municipal sewer, the free disinfectant residual must not exceed 3 mg/L chlorine or bromine. Disinfectant residual can be neutralized by adding sodium thiosulfate. Scrub the interior surface of these small volume

∗ The CT inactivation value is the concentration (C) of free chlorine in ppm multiplied by time (T) *in minutes* (CT value = C x T). The CT value for Crypto is 15,300. If you choose to use a different chlorine concentration or inactivation time, you must ensure that the CT values remain the same.

facilities and disinfect with a solution of 20 parts of water to 1 part 12 percent-15 percent sodium hypochlorite (liquid chlorine). Then refill with fresh water.

6. Check the disinfectant level. Allow swimmers to return only if the disinfectant levels are within the acceptable range. Chlorine shall be 1-5 mg/L for swimming pools, wading pools, and special recreation pools and 2- 10 mg/L for a spa. Where bromine is used, 2-10 mg/l is required for all facility types. If the chlorine or bromine levels are still very high you can use sodium thiosulfate to neutralize. Be aware that a little sodium thiosulfate goes a long way.
7. Balance water. Reopen the pool.

B. Solid Stool (or Vomit):

1. Advise all bathers to exit the bathing facility immediately and not to reenter until all decontamination procedures are completed.
2. Shut down filtration system. Remove all fecal matter using a fine mesh net or scoop. Dispose of waste in a sanitary manner. Vacuuming is not recommended. Clean and disinfect the net or scoop. Restart the system once removal is complete.
3. "Spot treat" the contamination area with 10-12 oz. of 12%-15% sodium hypochlorite (liquid chlorine) or 2 oz. of granular chlorine. Raise the free chlorine level in the pool to 3.0 mg/L (ppm) (pH = 7.2-7.5), if it is < 3.0 mg/L, and maintain for at least 1 hour. Keep the pool closed during this time period.
4. Balance water. Reopen the pool.

The only way to be sure that the pool is free of contamination is to test the water for fecal coliform or *Escherichia coli*. A water sample can be submitted to a certified laboratory to analyze the water for bacteria. For more information on water sampling and analysis, you can call the NHDES Laboratory at (603) 271-3445.

Env-Wq 1104.01 requires that all fecal accidents are documented. Record the date and time of the event, solid or liquid stool, free available chlorine concentration at the time of the event and before opening the pool, the pH, and the procedures followed to respond to the fecal accident.

Tips That May Reduce Fecal Contamination:

- Educate swimmers and parents with some easy steps to ensure the health and safety of all:
  - Please don't swim if you have diarrhea.
  - Please don't swallow the pool water.
  - Please practice good hygiene.
  - Please take your kids on bathroom breaks often.
  - Please change diapers in a bathroom and not at poolside.
  - Please wash your child thoroughly with soap and water before swimming.
- Post and distribute educational material highlighting the health risks associated with pools and spas. Fact sheets from the Centers for Disease Control (CDC) can be found on the NHDES website.
- Install diaper-changing facilities close to the pool to discourage risky public health behavior.
- Maintain Water Quality and Equipment.
  - Keep disinfectant feeders and disinfectant at optimal levels
  - Maintain disinfectant and pH within acceptable operating range. Remember that poor pH control will reduce chlorine's effectiveness as a disinfectant.

    - Conduct regular and thorough maintenance of the recirculation and filtration equipment to provide maximum filtration.
- Keep bathhouse, pool deck, and surrounding areas clean and sanitary.
- Prevent dogs, birds, and other animals from entering the bathing place.

Organism Inactivation Time in Chlorinated Water
1ppm (1mg/L) chlorine at pH 7.5 and 77°F (25°C)

Organism	**Time**
E. coli O157:H7 (bacterium) and *Shigella*	Less than 1minute
Hepatitis A (virus)	16 minutes
Legionella	18 minutes
Norwalk and Rotavirus (virus)	30 minutes
Giardia (parasite)	45 minutes
Cryptosporidium (parasite)	15,300 minutes (10.6 days)

Super-chlorination for Liquid Stool (15,300 CT)
(times are rounded up)

Concentration	5 ppm	10 ppm	15 ppm	20 ppm	40 ppm
Duration	51 Hrs	26 Hrs	17 Hrs	13 Hrs	6.5 Hrs

For more information, call the NHDES Public Bathing Places Program at (603) 271-7108; email pools@des.nh.gov or visit http://des.nh.gov/organization/divisions/water/wmb/pools/index.htm