# 360 Pool Contamination Guidelines

## 1.0 Introduction

This policy is to outline the required procedures for responding to fecal accidents in chlorinated Water Recreation Facilities, as defined by WAC 246-260. According to the Centers for Disease Control (CDC), a diarrheal fecal accident presents a higher risk than a formed stool accident. With most diarrheal illnesses, the number of infectious germs found in each bowel movement decreases as the diarrhea stops and the person's bowel movements return to normal. Therefore, formed stool is probably less of a risk than a diarrheal accident and the decontamination steps are slightly different.

## 1.0 Pool Contamination Guidelines

### 1.1 Decontamination Steps

1. For both formed stool and diarrhea accidents, direct everyone to leave the pool. If you have multiple pools that use the same filter, all pools will have to be closed. Do not allow anyone to enter the contaminated pool(s) until all decontamination procedures are completed.
2. Remove as much of the fecal material as possible using a net or scoop and dispose of it in a sanitary manner. Clean and disinfect the net or scoop (e.g., after cleaning, leave the net or scoop immersed in the pool during disinfection).
3. Spot disinfect the area of contamination with a small quantity of available disinfectant. A solution of 5.25 percent calcium or sodium hypochlorite diluted 1:10 with water may be used for disinfection.

### 1.2 What do I do about formed stool in the pool?

Formed stools can act as a container for germs. If the fecal matter is solid, removing the feces from the pool without breaking it apart will decrease the likelihood of pool contamination.

1. Raise the free available chlorine to a minimum of **4 ppm** and ensure the pH is between 7.2 - 7.5. This chlorine concentration was selected because it will kill Giardia in less than **30 minutes**, which is the worst scenario according to the CDC
2. **Backwash the filter** thoroughly after reaching the CT value. Where appropriate, replace the filter media.
3. Check the level of chlorine again to ensure the concentration is at least 4.0 ppm, and pH 7.2 - 7.5, for an **additional 30 minutes**.
4. Swimmers may be allowed back into the pool after the required CT value has been achieved and the chlorine level has been returned to the **normal operating range** allowed by WAC 246-260-999.

Check to make sure chlorine is not more than the test kit can read; use **dilution tests. Before reopening the pool**, record the accident on the WSMPD Contamination Incident Report and Incident Log.

### 1.3 What do I do about diarrhea in the pool?

Diarrheal accidents are much more likely to contain germs than formed stool accidents.

1. Raise the free available chlorine concentration to **20 ppm** (footnote 2) (mg/L) and maintain the pH between 7.2 and 7.5. This chlorine and pH level should be sufficient to inactivate *Cryptosporidium* and should be maintained for at least **12.75 hours**(footnote 1).
2. Ensure that the filtration system is operating while the pool reaches and maintains the proper chlorine level during disinfection. If necessary, consult an aquatics professional to determine and identify the feasibility, practical methods, and safety considerations before attempting the hyperchlorination of any pool.
3. **Backwash the filter** thoroughly after reaching the CT value. Where appropriate, replace the filter media.

4. Swimmers may be allowed back into the pool after the required CT value has been achieved and the chlorine level has been returned to the **normal operating range** allowed by WAC 246-260-999.
5. Check to make sure chlorine is not more than the test kit can read; use **dilution tests** (see footnote

**Before reopening the pool**, record the accident on the WSMPD Contamination Incident Report and Incident Log.

NOTE:

- *For incidents resulting in vomitus, blood, or other bodily fluids on the pool deck or in the locker rooms, refer to Washington State Department of Labor and Industries for proper bloodborne pathogens precautions and procedures.*
- *Improper handling of chlorine-based disinfectants could cause injury. Follow proper occupational safety and health requirements when following these recommendations.*

If an incident occurs resulting in minor cuts and scrapes to the bather, verify that at the time of the incident the pool's disinfection levels meet the requirements outlined in the water recreation facility guidelines.

**Footnote 1** : *CT refers to concentration (C) of free available chlorine in ppm multiplied by time (T) in minutes. If pool operators want to use a different chlorine concentration or inactivation time, they need to ensure that CT values always remain the same (See CDC Web address for examples and additional recommendations:* http:// www.cdc.gov/healthyswimming/fecal_response.htm*)*
**Footnote 2** *: Many conventional test kits cannot measure high free available chlorine levels. Use chlorine test strips that can measure free available chlorine in a range that includes 20 ppm (such as those used in the food industry) or make dilutions for use in a standard DPD test kit using chlorine-free water.*

# Attachment A:
# WSMPD Pool Contamination Procedures

**Feces and Vomitus**
Pool and spa operators should be aware that fecal matter (stool) or vomitus in the pool poses a potential health risk for all pool users. If contamination should occur, the following is a general guide developed for pool operators by the Washington State Department of Health.

**Step 1 - Evacuation.**
Instruct bathers to exit the pool. Close the pool until all steps in this guideline are completed.

**Step 2 - Evaluation.**
Determine (if possible) who contaminated the pool.
**a) Go to Step 3 if all of these conditions are met:** The stool or vomitus is intact, easily picked up, and illness is not suspected.
**b) Go to Step 4 if one or more of these conditions is met:** The stool is loose, the stool or vomitus is not easily picked up, or illness is suspected.

**Step 3 – Removal and Disinfection Procedures for Conditions Listed in Step 2a.**
**a)** Remove as much of the feces or vomitus as possible. Use of leaf catchers or leaf rakes is helpful.
**b)** Vacuum the remaining visible material.
**c)** Small material that is floating on the surface and cannot be removed by use of leaf catchers or leaf rakes should be pushed toward the overflow or skimmers until all visible material is removed.
**d)** Spot disinfect the area of contamination with a small quantity of available disinfectant.
* Add one ounce of calcium hypochlorite (or 4 to 5 ounces of Calcium or Sodium hypochlorite) which has been mixed in a small bucket of water to the affected area.
* Brush the walls and bottom of the pool in the contaminated area.
**e) Wait approximately 30 minutes** to ensure chlorine levels and pH levels meet the requirements outlined in the Water Recreation Facility Regulations, especially in the area where chemicals have been added.
**f)** Backwash the filter. (Pool operators with vacuum DE [diatomaceous earth] filters may use the **Vacuum DE Filter Option** on the reverse page.)
**g)** Reopen the pool.

**Step 4 – Removal and Disinfection Procedures for Conditions Listed in Step 2b.**
**a)** Follow all the measures outlined in Steps 3 a, b, and c above.
**b)** Swimming pools; raise the chlorine to a minimum maintained free chlorine residual of 4 PPM and let the water recirculate for a minimum of 24 hours. (Refer to the **High Chlorine Dosage guidelines** if the pool cannot be closed for 24 hours.) Spas and wading pools; it is recommended that spas (and small wading pools) be drained, the sides and bottom brushed with 100 PPM chlorine, refilled and balanced.
**c)** Backwash the filter.
**d)** Reopen the pool.

**Step 5 – Recordkeeping.**
When incidents of contamination occur document what you did to correct the situation. Maintain this record with your daily operating records.

An **Incident Report** is attached for recordkeeping (see attachment c).

**Blood**
If an incident occurs resulting in minor cuts and scrapes to a bather, verify that at the time of the incident the pool's disinfection levels meet the requirements outlined in the water recreation facility regulations.

**If there is a serious injury resulting in significant blood loss in the pool, follow the procedures outlined in Steps 1, 3 d, e, and g, and 5.**

**Note:** ***For incidents resulting in feces, vomitus, blood or other bodily fluids on the pool deck or in the locker rooms, refer to Washington State Department of Labor and Industries for proper bloodborne pathogens precautions and procedures.***

# Attachment: B
# High Chlorine Dosage Guidelines

Use only after contamination of pool by feces or vomitus.

**CAUTION:**

- You are using this worksheet because your pool has been contaminated by feces or vomitus AND the responsible person is ill or suspected to be ill, OR the stool or vomitus is loose or spread into a large area.
- Use this sheet only if the pool cannot be closed for 24 hours (see Step 4b on the other side of this guide).
- Be aware that you will be trying to reach a high chlorine residual. After determining the needed chlorine level, you should contact your swimming pool equipment supplier to ensure this level will not have a harmful effect on the pool or equipment.
- Do not use this procedure unless you are familiar with calculating and reaching high chlorine residuals.
- Do not use this procedure unless you understand how to use your chlorine test kit to accurately read high chlorine residuals.
- Do not use this procedure unless you can quickly lower high free chlorine residuals to less than 6 PPM.

**Time and Concentration Calculation:**
Use this chart to determine the amount of time you wish to keep the pool closed and the minimum concentration of chlorine necessary for that time to ensure bacteria from the incident are killed. Times different from the chart can be calculated by using the formula: 7,200, T = C **or** 7,200, Time in minutes = the Concentration of chlorine in PPM.

| **Time** | **4 hrs** | **6 hrs** | **8 hrs** | **10 hrs** | **12 hrs** | **14 hrs** | **16 hrs** | **18 hrs** | **20 hrs** |
|---|---|---|---|---|---|---|---|---|---|
| **Hours** | **30ppm** | **20ppm** | **15ppm** | **12ppm** | **10ppm** | **9ppm** | **8ppm** | **7ppm** | **6ppm** |

**Amount of Chlorine Needed:**
The amount of chlorine needed to achieve the PPM you have determined will depend on:

1. the volume of water in your pool and,
2. the concentration of the chlorine you are using. Read the product information with the chlorine you are using or contact your pool equipment supplier. You might consider using chlorine made for shocking which would dissipate quickly. The pool cannot be opened until the free chlorine level is below 6 PPM.

# Attachment C:
# Contamination Incident Report

**Incident Control Log #**_____

Date of Occurrence: _____ Material in the pool was: _____

**Refer to the WSMPD Pool Contamination Procedures and the High Chlorine Dosage Guidelines for specific response and calculations needed for incident.**

The person responsible:
( ) had illness symptoms; ( ) had no illness symptoms, ( ) could not be found.

Contaminated material in the water was: ( ) Solid ( )Liquid

It was determined to close the pool for _____ hours and the free chlorine level to be maintained was _____ ppm.

The amount of chlorine added was _____ (lbs, ozs.,qts, gals.) of _____ (type of chlorine added).

The pool was closed at _____ ( )AM; ( )PM on ___/___/___.

The pool was reopened at _____ ( )AM; ( )PM on ___/___/___.

The chlorine level at the time of opening was _____ ppm *(pools with a free chlorine level above 6ppm cannot be opened)*

Signed: _____

Name:_____ Date:_____

Supervisor:_____

Signed:_____ Date:_____