

Calvin College Swimming Pool Contingency and Emergency Action Plan		Revision 3	
Prepared by: Jennifer Ambrose	Date: 4/26/2010	Approved by: CEHS	Date: 4/27/2007

1.0 PURPOSE

Michigan's Public Health Code, 1978 PA 368 and Rule 325.2194a sets forth rules requiring that each public swimming pool owner write and implement a plan to address mitigation of contamination, rescues and submersions, equipment failure, injuries and other conditions or events that create a hazard to the health and safety of persons using the pool.

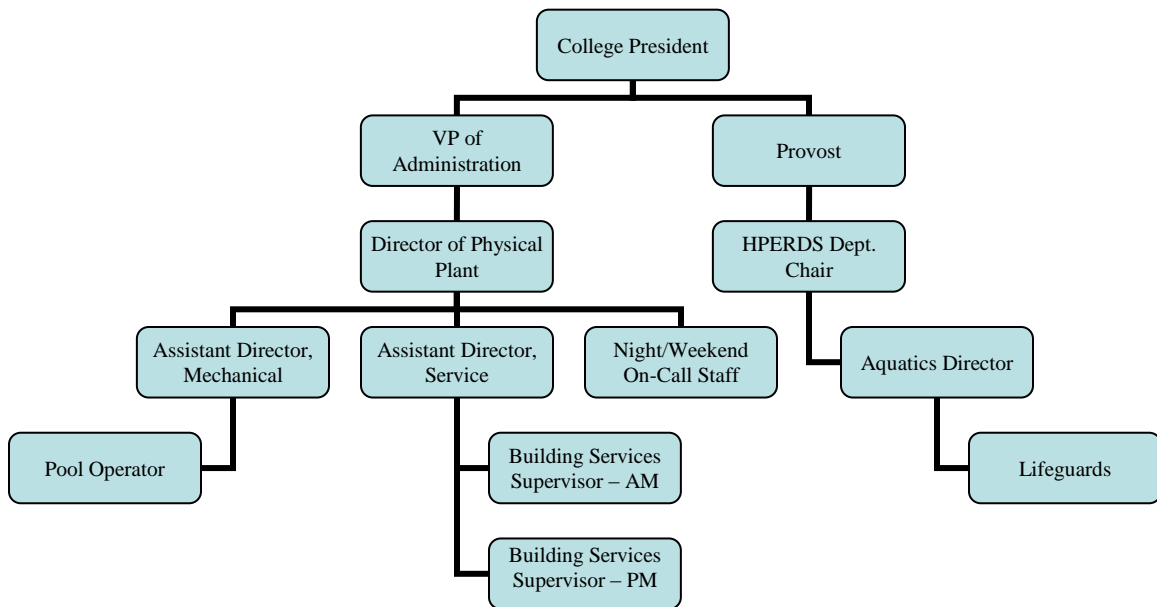
2.0 EMERGENCY SERVICES

Campus Safety (Emergency): **3-3333** (campus phones) or **526-3333** (cell/other phones)
 Emergency Fire or Police Department: **911**
 Poison Control Center: 800-222-1222

Pool Resource Personnel

Position	Name	Number
Calvin Pool Operator	Larry Van Hoe	Office: 526-6857 Cell: 862-1935
SFC Building Services Supervisor – day shift	Richard Field	Office: 526-6250 Cell: 292-1949
SFC Building Services Supervisor – evening shift	Tim VerStrate	Office: 526-7130 Cell: 813-1807
SFC Building Services – late night shift	Stafford Trapp	Cell: 318-6574
SFC Building Services Supervisor – late night shift	Dave Zylstra	Cell: 291-7053
Calvin Aquatics Director	Dan Gelderloos	Office: 526-6703 Cell: 821-6351
Kent County Health Dept. Pool Expert	Steve Petrides	Office: 632-6921
MDNRE Water Division, Recreational Resources Unit	Dave Timm	Office: 616-356-0277

Chain of Command for Pool



Who to call first to report a pool contamination:

1. Between 7:00 AM and 3:30 PM: SFC Building Services Supervisor, Richard Field
2. Between 3:00 PM and 11:30 PM: SFC Building Services Supervisor, Tim Verstrate
3. Between 8:00 PM and 4:00 AM: SFC Building Services Supervisor, Dave Zylstra
4. After 11:30 PM or on Weekends: Call Campus Safety Dispatch, instruct them to call the Night/Weekend on-call Physical Plant staff

NOTE: If none of the above listed people can be reached, go up the chain of command until a responsible person has been notified.

Also notify the following people:

1. Dan Gelderloos, Aquatics Director
2. Larry Van Hoe, Pool Operator

NOTE: If one of the above listed people cannot be reached, go up the chain of command until a responsible person has been notified.

3.0 SOLID FECAL (FORMED, NON-LIQUID), VOMIT OR BLOOD CONTAMINATION PROCEDURE

1. Clear the pool of bathers immediately and close the pool. Lock all access doors. Do not allow anyone to enter the contaminated pool until all decontamination procedures are completed.

Fecal accidents are a concern and an inconvenience to both pool operators and patrons. Pool operators should carefully explain to swimmers the need to close the pool in response to a fecal accident for their own health and safety. Understanding that pool closure is necessary for proper disinfection and protection of the health of swimmers is likely to promote support rather than frustration. Pool closures allow chlorine to do its job and protect swimmers from Recreational Water Illnesses (RWIs).

2. All solid contaminants should be removed from the pool using a net or scoop and disposed of in a sanitary manner. Clean and disinfect the net or scoop. Vacuuming the pool to remove the contaminant is not recommended.
3. "Shock" chlorinate the pool, or the affected area of a large pool. Raise the free available chlorine concentration to 2.0 ppm (4.0 ppm in the presence of chlorine stabilizers), and adjust the pH range to 7.2 to 7.5. Ensure this concentration is found throughout the pool by sampling at least three widely spaced locations away from water outlets.
4. Ensure that the filtration system is operating while the pool reaches and maintains the proper free available chlorine concentration during the disinfection process.
5. If the pH and free chlorine levels are maintained as above, the pool may be reopened after 40 minutes.
6. Document the incident on the monthly operation report by recording:
 - a. date and time of the event
 - b. type and amount of contaminant
 - c. free available chlorine concentration and pH when the contamination was first noted
 - d. free available chlorine concentration and pH at the beginning and end of the contact time
 - e. free available chlorine concentration and pH when the pool is ready to be re-opened
 - f. procedures followed to respond to the incident (including the process used to increase free chlorine residual if necessary)
 - g. contact time (CT) or concentration (C) of free available chlorine in ppm multiplied by time (T) in minutes.
7. Report the incident to the local health department and be sure to include these details in the discussions. If a contingency plan has not been prepared, obtain approval to re-open the pool from the local health department or the Department of Environmental Quality, Water Division, Recreational Resources Unit.

4.0 UNFORMED (DIARRHEA, LIQUID STOOL) FECAL CONTAMINATION PROCEDURE:

1. Unformed or diarrhea material is an indication that a person with an infectious disease of the digestive tract has used the pool. Some parasites such as *Cryptosporidium* or *Giardia* can be resistant to lower concentrations of free chlorine. As such, higher levels should be used to ensure that these infectious agents are neutralized.
2. Clear the pool of bathers immediately and close the pool. Lock all access doors. Do not allow anyone to enter the contaminated pool until all decontamination procedures are completed.

3. All solid contaminants should be removed from the pool using a net or scoop and disposed of in a sanitary manner. Clean and disinfect the net or scoop. Vacuuming the pool to remove the contaminant is not recommended.
4. Chlorinate the pool to at least 20 ppm and maintain the pH between 7.2 and 7.5. Ensure this concentration is found throughout the pool by sampling at least three widely spaced locations away from water outlets. The chlorine and pH level should be sufficient to inactivate *Cryptosporidium* and should be maintained for at least 12 hours.
5. A different free chlorine level and time period may be used according to Table 1 below, so long as the Concentration Time Factor (CT) is 14,400*. Examples of other residual levels and time periods are given in Table 1 below.

Table 1

Free chlorine residual level	Time Period
10 ppm	24 hours
15 ppm	16 hours
20 ppm	12 hours
24 ppm	10 hours

** CT is determined by multiplying the time period in minutes times the concentration of the free chlorine residual. For example, maintaining 10 ppm of free chlorine for 24 hours (1440 minutes) yields a CT = (10 ppm) X (1440 minutes) = 14,400.*

6. Ensure that the filtration system is operating while the pool reaches and maintains the proper free available chlorine concentration during the disinfection process.
7. Backwash the filter thoroughly after reaching the CT value. Be sure the effluent is discharged directly to waste and into a sanitary sewer. Do not return backwash through the filter. Where appropriate, replace the filter media.
8. After the CT value has been reached, adjust the free available chlorine level to the normal operating range of 2 to 5 ppm and adjust the pH to a level of 7.2 to 7.5. If necessary, consult an aquatics professional, the Kent County Health Department representative, or the M-DEQ for recommendations on bringing the free available chlorine levels back to an acceptable operating range.
9. Document the incident on the monthly operation report by recording:
 - a. *date and time of the event*
 - b. *type and amount of contaminant*

- c. free available chlorine concentration and pH when the contamination was first noted
 - d. free available chlorine concentration and pH at the beginning and end of the contact time
 - e. free available chlorine concentration and pH when the pool is ready to be re-opened
 - f. procedures followed to respond to the incident (including the process used to increase free chlorine residual if necessary)
 - g. contact time
10. Report the incident to the local health department and be sure to include these details in the discussions. If a contingency plan has not been prepared, obtain approval to re-open the pool from the local health department or the Department of Natural Resources and Environment, Water Division, Recreational Resources Unit.

5.0 PROCEDURES FOR RESPONDING TO CONTAMINATION OF THE DECK OR RESTROOM

1. If there is a diaper spill or discharge of bodily fluids on the pool deck, deck furniture, or in the restroom, prohibit access to the area by posting personnel or by placement of stanchions with appropriate signs. Do not allow anyone to enter the contaminated area until all decontamination procedures are completed. If the contamination is limited to the surface of deck furniture, it may be simpler to take the furniture to a secure area for decontamination.
2. All solid contaminants should be removed using a scoop or a mop and bucket.
3. Dispose of the contaminants in a sanitary manner and disinfect the equipment. A hose or pressure washer should not be used to remove the contaminants as this may only spread the contamination to nearby areas or accidentally contaminate the pool.
4. Scrub the affected area with a strong bleach solution (one cup of bleach per 3 gallons of water) and let the chlorinated water remain for a period of 30 minutes. Rinse this area with water ensuring that the rinse-water does not go into the pool. Let the area completely dry or keep it closed overnight before allowing usage.

6.0 EMERGENCY ACTION PLAN

Rescues and Submersions

1. Lifeguard recognizes emergency and acts.
2. Second Lifeguard provides backup and coverage.
3. 1st lifeguard contacts victim and moves to safety.
4. Lifeguard assesses victim's condition.

If Victim is O.K.

- a. Lifeguard completes accident report form (in office desk)
- b. First Aid and equipment checked and replaced
- c. Note any corrective action that needs to be taken to prevent accident from happening again
- d. Staff discussion, contact Dan Gelderloos, Aquatics Director
- e. Return to duty

If Victim Needs Care

- a. Second lifeguard calls Campus Safety at 3-3333 (campus phones) 526-3333 (other phones)
- b. Provide First Aid
- c. Second lifeguard clears and closes the pool. Carefully search for other potential victims.
- d. Notify Dan Gelderloos, Aquatics Director
- e. Witnesses interviewed and complete accident report form (in office desk)
- f. Replace first aid and check equipment
- g. Note any corrective action that needs to be taken to prevent the accident from happening again
- h. Staff discussion, contact Dan Gelderloos, Aquatics Director
- i. Return to duty

1. The pH and concentration of free disinfectant residual in the pool water should be checked along with water clarity, and this information entered into the swimming pool operation report form.
2. Treatment of the pool deck or water in the pool is the next priority when there is a discharge of bodily fluids. The discharge of bodily fluids is to be assumed if the victim is unconscious. The treatment of the pool should follow the appropriate section in the contingency plan.
3. An important part of the process is to conduct a critical review of procedures and conditions at the time of the incident and note where changes or improvements could be made that might have prevented the incident. Make any necessary changes in the plan.
4. Finally, the information should be placed on an incident report form and copies submitted to the local health department and the Department of Environmental Quality.

Equipment Failure

1. The pool is to be closed should there be a failure in any of the pool piping or treatment equipment (pump, filter, chemical feeder). Should other

equipment fail, there may be a need to close the pool depending on whether the failure of the equipment poses a safety hazard. For example, if one of the main drain covers were to fail, a safety hazard would exist without a cover over the main drain, the failure would thus constitute a safety hazard, and the pool would need to be closed.

2. Contact Larry Van Hoe, Calvin Pool Operator, to request repairs. Repair or replace the failed equipment with the same size, make, and model number as shown on the pool plans approved by the Department of Environmental Quality. Contact the Department of Environmental Quality and obtain approval before installing any equipment that is not on the approved plans.

Severe Thunderstorm Warning

A severe thunderstorm warning means that severe thunderstorms are in the area. These storms are possibly accompanied by cloud-to-ground lightning, high winds and hail. When a severe thunderstorm warning has been issued that includes Calvin College, the pool will be closed. The Life Guards who are on duty will make the determination after consulting with the Aquatics Director and Campus Safety. The pool will remain closed for 30 minutes after a thunderstorm.

Lightning

If lightning is sighted the pool will be closed. The Life Guards who are on duty will make the determination after consulting with the Aquatics Director and Campus Safety. The pool will remain closed for 30 minutes after the last lightning strike.

Tornado Warning

A tornado warning means that one or more tornados have been spotted in the area. In the event of a tornado warning the pool will be closed and Life Guards will move all swimmers and spectators to the locker rooms. The Life Guards who are on duty will make the determination after consulting with the Aquatics Director and Campus Safety.

Power Outage

When a power outage affects the aquatic center, clear the pool of swimmers immediately and close the pool. The pool remains closed until power is restored with lighting and filtration systems back on line.

Other Emergencies

Refer to the [Emergency Response Plan for Calvin College](#) for information on responding to other situations that are not addressed in this plan such as bomb threats, and fires.

7.0 REVISIONS

Revision	Date	Description
3	4/26/2010	Formatting changes