

**RECREATIONAL WATER FACILITIES**

**Closure Requirements - Table 64-16 A**

CLOSURE EVENT	CORRECTIVE ACTION REQUIRED	CLOSURE EVENT	CORRECTIVE ACTION REQUIRED
A. Free Chlorine = 0.5 ppm or less	Close the facility. Determine the cause. Make repairs or corrections.	<b>I. Fecal Accident or Release of Blood or Vomitus into Water</b>  Evacuate patrons from the water. Evaluate situation.  <u>Follow Cleanup Procedure A if:</u>  <ul style="list-style-type: none"> <li>• Stool may be easily picked up;</li> </ul> <p style="text-align: center;">or</p> <ul style="list-style-type: none"> <li>• Person is not ill, but vomited due to gulping water or overexertion.</li> </ul> <u>Follow Cleanup Procedure B if:</u>  <ul style="list-style-type: none"> <li>• Visible blood is discharged into the water; or</li> <li>• Stool is loose and spread in large area; or</li> <li>• Person who contaminated water is ill (stomach cramps, fever, flu-like symptoms); or</li> <li>• You cannot determine if person who contaminated water is ill.</li> </ul>	Follow Cleanup Procedure A if:  <u>Cleanup Procedure A</u> <ol style="list-style-type: none"> <li>1. Remove as much of the feces or vomitus as possible. Leaf catchers/rakes are helpful.</li> <li>2. Vacuum remaining visible material or push remaining small material towards overflow or skimmers until all visible material is removed.</li> <li>3. Spot disinfect area of contamination:               <ol style="list-style-type: none"> <li>a. Add 1 oz. of calcium hypochlorite (or 4 to 5 oz. of sodium hypochlorite) which has been mixed in small bucket of water to the affected area; and</li> <li>b. Brush the walls and bottom of pool in contaminated area.</li> </ol> </li> <li>4. Wait 30 minutes to assure chlorine and pH levels meet minimum requirements, especially in area where chemicals were added.</li> </ol> <u>Cleanup Procedure B</u> <ol style="list-style-type: none"> <li>1. First complete all steps of Cleanup Procedure A.</li> <li>2. Swimming Pools:               <ol style="list-style-type: none"> <li>a. Raise chlorine to maintain free chlorine residual of 5 ppm and recirculate water for at least 24 hours; or</li> <li>b. Raise chlorine to maintain free chlorine residual of 20 ppm and recirculate water for at least 8 hours.</li> </ol> </li> <li>3. Wading Pools and Spas:               <ol style="list-style-type: none"> <li>a. Drain wading pool or spa;</li> <li>b. Brush sides and bottom with 100 ppm chlorine; and</li> <li>c. Refill. Balance chemicals.</li> </ol> </li> <li>4. Backwash the filter.</li> </ol>
B. pH of water = greater than 7.8	Close the facility. Determine the cause. Make repairs or corrections.		
C. pH of water = less than 7.2	Close the facility. Determine the cause. Make repairs or corrections.		
D. Inadequate lifeguards or lifesaving equipment	Close the facility until the required number of lifeguards and lifesaving equipment are provided.		
E. <u>Accident Resulting In:</u> Lifeguard leaving station OR Body fluids discharged into water	Close facility until lifeguard returns to station. Follow fecal accident cleanup procedures outlined below in item I if blood or feces are discharged into the water.		
F. Water Clarity Unsatisfactory (Main drain or 6 inch black disk on bottom of deepest part not visible from sidewall.)	Close the affected area until the main drain or a six (6) inch black disk on bottom of deepest part is visible from the sidewall. Determine cause. Make repairs or corrections.		
G. Free bromine = 1.0 ppm or less	Close the facility. Determine the cause. Make repairs or corrections.		
H. Equipment Failure - Main pump or Disinfectant pumps	Close the facility immediately upon main pump failure. Close the facility when disinfectant pumps fail and free chlorine nears 0.5 ppm. Repair equipment. Test and balance chemical parameters prior to re-opening the recreational water facility.		

**Lifeguard Requirements - Table 64-16 B**

Number of Patrons in Water	Water Surface Area in Square Feet					
	Up to 2000	2001-4000	4001-6000	6001-8000	8001-10,000	10,000 +
1-30	1	2	2	3	3	3
31-60	2	2	3	3	3	4
61-90	2	3	3	3	4	4
91-120	3	3	3	4	4	4
121-150	3	3	4	4	4	4
151 +	3	4	4	4	4	5

RECREATIONAL WATER FACILITIES

Water Quality Guidelines - Table 64-16 C

A. Disinfectant	Min.	Ideal	Max.	Comments
1. Free chlorine mg/l (ppm)	1.0	2.0 - 3.0	5.0	Chlorine should be maintained at this level continuously. Super-chlorinate regularly. See B-1.
2. Combined chlorine mg/l (ppm)	None	None	0.5	Eliminated by super-chlorination. If too high, you may have: <ul style="list-style-type: none"> <li>• Sharp chlorinous odors</li> <li>• Eye burn</li> <li>• Algae growth</li> <li>• Bacteria growth</li> </ul>
3. Bromine mg/l (ppm)	2.0	2.0-3.0	5.0	Consult health dept. officials before use.
B. Chemical	Min.	Ideal	Max.	Comments
1. pH	7.2	7.5	7.8	<p>TOO HIGH</p> <p>Low chlorine efficiency Scale formation Increased chemical demand Cloudy water Eye discomfort</p> <p>TOO LOW</p> <p>Rapid dissipation of chlorine Eye discomfort Plaster/concrete etching Corrosion of metals</p>
2. Total alkalinity as CaCO <sub>3</sub> mg/l (ppm)	60	80-100 or 120	180	<p>TOO HIGH</p> <p>Increased scaling potential Cloudy water pH maintained too high</p> <p>TOO LOW</p> <p>Corrosion tendency pH bounce</p>
3. Undissolved solids mg/l (ppm) (Turbidity)	None	None	None	<p>TOO HIGH</p> <p>Chlorine level may be too low Filtration system may be inoperative May lead to drowning due to decreased visibility</p>
4. Dissolved solids mg/l (ppm)	300	...	2000	<p>TOO HIGH</p> <p>Chlorine may be less effective Salty taste Add fresh water to reduce solids</p> <p>Dull water Chemical balance difficult to maintain Scaling may occur</p> <p>TOO LOW</p> <p>Total alkalinity may be too low Aggressive water</p>
5. Hardness <sub>3</sub> as CaCO <sub>3</sub> mg/l	50	125	800	<p>TOO HIGH</p> <p>Scaling may occur Water has bad "feel" Short filter runs</p> <p>TOO LOW</p> <p>Plaster or concrete etching Corrosion may occur</p>
6. Copper mg/l (ppm)	None	None	0.3	<p>TOO HIGH</p> <p>Staining may occur Water may discolor Chlorine dissipates rapidly Filter may plug May indicate pH too low Corrosion may occur</p>
7. Iron mg/l (ppm)	None	None	0.2	<p>TOO HIGH</p> <p>Staining may occur Waste may discolor Chlorine dissipates rapidly Filter may plug</p>
8. Manganese mg/l (ppm)	None	None	0.05	<p>TOO HIGH</p> <p>Staining may occur</p>
C. Biological	Min.	Ideal	Max.	Comments
1. Algae	None	None	None	Super-chlorinate or shock treat Supplement with brushing and vacuuming Maintain adequate free chlorine residual Use approved algaecide according to label direction

2. Bacteria	None	None	Refer to 64 CSR 3	If bacteria count exceeds health dept. requirements: Super-chlorinate RWF Follow proper maintenance procedures Maintain proper free chlorine residual
D. Stabilizer	Min.	Ideal	Max.	Comments
1. Cyanuric acid mg/l (ppm)	10	30-50	100	<p>TOO HIGH</p> <p>May exceed health department regulations</p> <p>TOO LOW</p> <p>Chlorine residual rapidly destroyed by sunlight</p> <p>NOTE</p> <p>Stabilizer is not needed for indoor facilities and should not be used in hot water facilities. Cyanuric acid may titrate as Alkalinity.</p>
E. Algacides	Min.	Ideal	Max.	Comments
1. Quaternary mg/l (ppm)	...	...	...	Not permitted in public recreational water facilities.
2. Copper based (nonchelated) mg/l (ppm)	0.1	0.2	0.3	Ineffective against some algae. Consult health dept. officials before using. May contribute to staining.
3. Copper based (chelated) mg/l (ppm)	0.1	1.0	3.0	Ineffective against some algae. Consult health dept. officials before using. May contribute to staining.
4. Silver based mg/l (ppm)	0.5	1.5	3.0	Precipitates with cyanuric acid. Ineffective against some algae. Consult health dept. officials before use.
F. Remedial Practices	Min.	Ideal	Max.	Comments
1. Super-Chlorination	When Combined Chlorine is 0.2 mg/l (ppm) or more			* As needed
2. Required super-chlorination /shock chlorine	10*			*10 times combined chlorine reading. Must be done when the facility is not in use. May reopen when free chlorine is below 5.0ppm.
3. Floccing	Not Recommended			Consult health dept. officials before using.
4. Water Replacement Hot water facility	...	...	...	Change water and clean monthly as a minimum, more frequently when heavy use and chemical treatment difficulties are experienced.
G. Temperature	Min.	Ideal	Max.	Comments
1. Water temperature Hot water facility	Patron preference	...	105° F	<p>TOO HIGH</p> <p>Excessive fuel requirement Increased chlorine use Increased scaling potential Patron discomfort Health threat to those with high blood pressure</p> <p>TOO LOW</p> <p>Patron discomfort</p>
2. Water temp. Artificially heated	75° F	...	90° F	
3. Air temp. Indoor facilities	Water temp. minus 2° F	...	Water temp. plus 8° F	Excluding hot water facilities.
H. Water Clarity	Min.	Ideal	Max.	Comments
1. Turbidity	Must be able to see main drain or six inch black disk on bottom of deepest part from the sidewall.			<p>TOO HIGH</p> <p>Chlorine level may be too low Filtration level may be inoperative May lead to drowning due to decreased visibility</p>