

Busting the Myth on What Really Causes Accidental Chlorine Gas Exposures at Swimming Pools

By Guest Author Rudy Stankowitz

August 16, 2019

On what was [described](#) as “the first nice day of summer break” in Pleasant Grove, Utah, Veterans Memorial Swimming Pool became a scene of mayhem when suddenly a *chlorine gas release* sickened 50 people. [Reports](#) of dozens rushed to the hospital due to the June 4 tragedy, including the admission of children to pediatric intensive care units, detail the magnitude of the event.

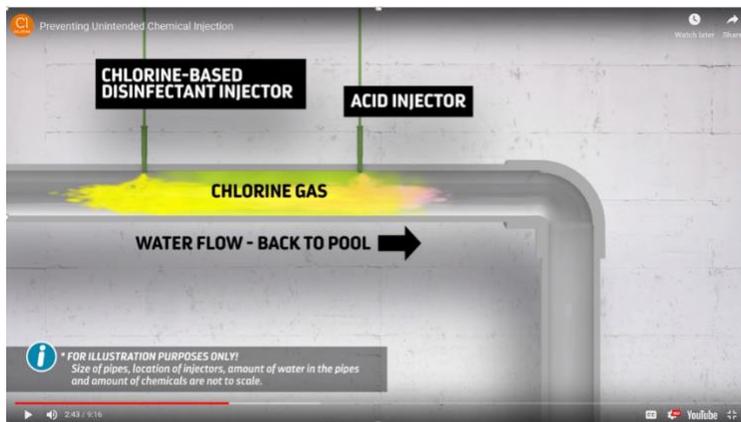
Although relatively rare, incidents of this type turn the tables on our expectations for chlorine at swimming pools. Suddenly, a substance we use to help keep swimming healthy and safe by destroying waterborne pathogens becomes a threat to public safety. How can this be possible?

As it turns out, we in the swimming pool industry are committed to preventing these accidental chlorine gas releases. An expert group of swimming pool stakeholders organized by the American Chemistry Council produced a free training video on this subject in 2018. Due to the gravity of the topic and to assist in the outreach, I joined forces and became a member of this panel following my viewing of [Preventing Unintended Chemical Injection](#). The video walks the viewer through the scenarios that can lead to an unintended release of chlorine gas at an aquatic facility, hotel, or apartment complex. Our current challenge is raising awareness of the prevention strategies described in the video and dispelling the false notion that the problem is specific to *pools that utilize chlorine gas* as a disinfectant.

The Heart of the Problem

The video explains how chlorine gas can form in the pipelines of the pool water circulation system by utilizing a combination of actual footage and animation. The problem arises when the water circulation pump stops—for example, suddenly due to a tripped circuit, or intentionally for maintenance—but the chemical feed equipment continues to release treatment chemicals.

The chemicals typically fed into the lines in these scenarios are sodium hypochlorite bleach (to destroy waterborne pathogens) and acid, such as hydrochloric acid (for pH adjustment). When mixed, acids and chlorine-based disinfectant compounds such as liquid chlorine bleach (and possibly with other chlorine-based compounds depending on feeder type and installation) react with one another to form chlorine gas. Normally, the treatment chemicals are immediately dissolved into the flow of water in the pipes, but when the pump stops the flow of water, these substances have time to react in place in the “dry” line, forming



chlorine gas. Once the pump restarts, the gas may be pushed out to the pool area, endangering swimmers, staff, lifeguards, guests, residents, and spectators.

Electrical Interlock Is the Answer

The video highlights the importance of *electrically interlocking* the circulation pump and the chemical feed equipment to avoid this risk. Once both of these instruments are on the same electrical circuit, for example, if the pump stops circulating water through the lines, the chemical feed is also suspended. This eliminates the possibility of the production of chlorine gas. The video describes various levels of electrical interlock protection. It also provides best practices for pool staff and maintenance techs in managing access to the pool when performing maintenance or in the event the pump suddenly stops working.

Surprisingly, I have found that many pool managers are under the impression that these accidental chlorine gas incidents *can only occur in pools that use chlorine gas* as a disinfectant. As my description of the cause of these incidents demonstrates, that is not the case. Many pool operators who run their pumps 24 hours a day also seem to believe the information is not applicable, but this too is not the case. These individuals in areas where the local departments of health require non-stop operation may need a reminder that they will cease power to the pump periodically, as mentioned above, in the case of backwash or repair. I believe these preconceived notions have become an obstacle for some to viewing the video.

The interlock safety video should be promoted to pool staff, pool pros, aquatics professionals, and maintenance teams far and wide to ensure accurate information and knowledge of the steps needed to help prevent accidental releases of chlorine gas. I believe this should be a global initiative. No one, anywhere, wants an incident like the one in Pleasant Grove.

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