



"...ATE" Your Pool: 5 Simple Steps to Improving Indoor Air Quality at your Facility

By Ed Dockter – March 2008

Obnoxious odours...eye irritation...sure, I've been accused of causing those symptoms but the true cause is actually chloramine production. When chlorine is combined with organic substances normally found in swimming pool water (urine, sweat, body oils) and isn't at a high enough level to effectively oxidize the substances, the ammonia and nitrogen based compounds *combine* with the chlorine to create a stinky irritant known as chloramines. These chloramines give your pool that distinct "pool smell" and can be a health hazard. Lifeguard Lung, Pool Pneumonia and Wet Chest are all slang for a condition first identified by Colorado Occupational Physician, Dr. Cecil Rose. In 1986 Dr. Rose examined a number of lifeguards from an indoor water park who exhibited similar ill-health symptoms. Over the past 2 decades there have been innumerable studies and reports on the effects of poor air quality in indoor aquatic facilities. What can pool operators do to reduce the risks?

EDUCATE: Perhaps the most un-enforced and most ignored rule in the industry. SHOWER BEFORE ENTERING THE POOL. This rule is in the health act (section 73 f) for a reason. Some pool chemists believe that chlorine demand could be reduced by up to 50% if everyone who entered the pool had a shower prior to remove the excess oils, sweat and dirt. By educating your patrons on the importance of showering and by actively enforcing the shower rule you will see a reduction in the amount of chloramines created. Bathroom breaks are also a great way to reduce the amount of "natural additives" people bring to your pool. Logistics prevent a swimming instructor or coach from taking their class or team to the bathroom but reminders to parents when they register for swim lessons that a bathroom break prior to the lesson will allow their youngster to better focus on having fun in their lesson. When you have school booking you may want to consider asking the teacher to give a quick speech on going to the bathroom and showering before going swimming.

FILTRATE: Clean pool filters equals improved air quality. Frequent backwashing or cleaning will remove the organic load in your filters reducing the chance for re-introduction back to the pool. Some operations use zeolite or volcanic ash as additives to their filtration system. These additives will trap ammonia and hold it in the filter media. Check with your filtration equipment supplier/manufacturer to ensure your system will operate properly with the additives.

OZONATE: Used for over 50 years as a pool water disinfectant in Europe, ozone systems are now becoming more common in North American aquatic facilities. A toxic, aggressive gas, ozone destroys organic compounds and the end result is lower total dissolved solids, clearer water, and reduced chloramines and chlorine demand.

VENTILATE: As my favourite actor, Fred Flintstone, once said "In with the good air, out with the bad". A well maintained and balanced air system plays a huge part in keeping your pool area healthy. In today's active play swimming pools, water spray features allow water to become airborne, effectively introducing more chloramines from the water into the air. Investigate the possibility of increasing the amount of fresh air your system brings in during busy swims, swim team practices or meets. A simple increase of 1 – 2 % fresh air can yield huge benefits. Your air

system should be clean, inside and out. Make sure the filters are changed, regularly. Activated carbon filters could be used. These filters trap chloramines, stopping them from re-circulating through out the area. Check with your HVAC technician to see if your system is able to use this type of filter. Ensure your condensate pump and drain pan are cleaned regularly. Standing water in an air unit is a major source of bacteria introduction into the pool air. Ensure your exhaust fans are operating properly. These fans are typically located at strategic points (over your hot tub for example) to allow for quick removal of chloramine-loaded air.

CHLORINATE: There is a move toward higher than traditional FAC (free available chlorine) levels. An increase of 0.5 – 1.0ppm should be considered if you are still seeing high chloramine levels after trying the other solutions listed above. You may also wish to consider anticipatory chlorination. This means increasing your FAC levels prior to busy swims or sessions. Non-chlorine additives like monopersulfate-based oxidizers are also a logical choice for occasional use. Your pool chemical supplier will be able to advise which non-chlorine oxidizer meets your needs.

Whenever water or air quality issues at an indoor pool arise, there is a blame game. The swimmers blame the operator. Operators blame the swimmers. HVAC blames the chemistry while chemistry points at HVAC. The trick to good air and water quality is getting everything to work together. Chloramines are usually detectable by smell at a 0.25ppm level. Keeping your pool at or below that level will take a lot of work, trial and error and experimentation. And if all else fails, blame the smell on me!