

Evaluation of Lap Pool Water chemistry as of July 03, 2023

The chemical reaction patrons were affected by were due to the number of chloramines in the Lap Pool water. Chloramine is an off gas that occurs when free chlorine reacts to ammonia compounds in the pool water. This off gas typically disperses to the atmosphere, however because the pool is enclosed the off gas is trapped and unable to escape, and rather than dispersing into the air it is forced back into the pool water. When this happens the residual of chloramine levels in the pool will rise, causing irritable odors at risk of being ingested by swimmers using the pool. The ammonia compounds that enter the water are often containments brought in by patrons using the pool. Example of ammonia compounds are body sweat, oils, lotion, and in many cases urination. Although rules are put in place to govern the pools not many members will abide, and for that reason there are preventive measure that can be used moving forward to ensure situations as such are subsided. Medium pressure Ultraviolet Systems have been designed to produce the light capacity needed to eliminate the elevation of chloramine off gas as well as the irritable odors.

Title 22 Health department testing requirements for California Public Pools

- **Chlorine Levels:** Chlorine is used to kill bacteria and algae and will keep your pool water clear and clean. Chlorine is important for maintaining the overall health of the individuals in the pool/spa as well as maintaining the life of the pool/spa itself.
- **Combined Chlorine Levels:** Combined chlorine is the portion of chlorine in the water that has reacted and combined with ammonia, nitrogen-containing contaminants, and other organics such as perspiration, urine and other swimmer waste. High combined chlorine (chloramines) results in reduced sanitizer efficacy. If you have a high combined chlorine level, take remedial action to reduce combined chlorine such as super chlorination (shock treatment). Other signs of combined chlorine include sharp chlorine-like odor and eye irritation.
- **pH Levels:** The pH of your pool water should always be between 7.2 and 7.8. If it is lower or higher, the chlorine in your water won't work properly. The right pH is also important to your comfort in the water.

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- Free Chlorine 2.6ppm
- Total Chlorine 3.2ppm
- Combine Chlorine .6ppm (health code states that combine chlorine should not exceed over .4ppm, when exceeded the strength of free chlorine weakens and chloramine residual rises)

Chemical test concluded high residual of chloramine.

Chemical Logs of pool water were kept up to date by facility operator, chemical controller designed to control and monitor PH and ORP were within proper setpoint and operating per standard to sanitize pool water per health code. The result of chloramine in the pool water was a result of basic water chemistry that can go unprevented without the use of ventilation and installation of secondary disinfectant system such as medium pressure ultraviolet system.

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