LOG REDUCTION & KILL RATES

Typically, when a product or chemical is tested for effectiveness in killing germs, bacteria, virus, etc. the term LOG REDUCTION is used.

In simple terms, LOG REDUCTION provides a quantitative measurement describing what percentage of the contaminants which were present when the test began were killed during the test.

Each full log reduction represents a 90% kill rate (x .10) "stacked" on top of each other.
As an example, if we start with a contaminant load of 1,000,000 cells,

- A log reduction of 1 = 1,000,000 x .10 = 100,000 cells remain (10%). 90% kill rate.
- A log reduction of 2 = 1,000,000 x .10 x.10 = 10,000 cells remain (1%). 99% kill rate.
- A log reduction of 3 = 1,000,000 x .10 x .10 x .10 = 1,000 cells remain (.1%). 99.9% kill rate.
- A log reduction of 4 = 1,000,000 x .10 x .10 x .10 x .10 = 100 cells remain (.01%). 99.99% kill rate.
- A log reduction of 5 = 1,000,000 x .10 x .10 x .10 x .10 x .10 = 10 cells remain (.001%). 99.999% kill rate.

If adequate sanitizer is present, all dead cells are removed via oxidation or filtration and all remaining cells remain planktonic, the sanitizer should manage the remaining cells until the next scheduled purge is conducted.

However, if the cells come together to form a biofilm, even with a good sanitizer level, biofilm regrowth is likely to occur quickly. Particularly, if the dead cells have not been removed.

Therefore, treatments must be continued. If performed regularly, subsequent treatments should not be as dramatic as the initial purge. If, occasionally, there is little evidence of buildup being purged, do not let this fool you. Biofilm, when left alone, form and grow very quickly.