



TREATING WATER. BETTER.™

## Silver Bullet Water Treatment AOP Sustainability Benefits for Data Centers

### Carbon Footprint

Analysis was conducted of the four most common data center/commercial cooling water treatment systems: the Silver Bullet Water Treatment Advanced Oxidation Process (SBWT AOP) system, a “traditional” chemical dosing system using sodium hypochlorite (NaClO), a “traditional” chemical dosing system using chlorine dioxide (ClO<sub>2</sub>), and a corona discharge ozone system. Ultimately the totals for each system were as follows:

- 14,950 lbs. CO<sub>2</sub>/year for SBWT AOP;
- 29,150 lbs. CO<sub>2</sub>/year for NaClO;
- 59,280 lbs. CO<sub>2</sub>/year for ClO<sub>2</sub>; and
- 20,360 lbs. CO<sub>2</sub>/year for the corona discharge system.

Research concludes that due to the smallest overall carbon footprint, the SBWT AOP water treatment system is the most sustainable of the four common water treatment systems.

### Water Savings

Beyond water management, water savings also can be made by carefully examining the overall sustainability of the common water treatment systems. Chemical dosing systems and corona discharge systems typically require a corrosion inhibitor to ensure proper increase Cycles of Concentration (CoC) and proper cooling tower operation. However, SBWT AOP solutions may not require corrosion inhibitors to reach high CoC levels, thus saving water without having to contribute to the carbon footprint of the production and transportation of an additional chemical or the overall carbon footprint of the corona discharge system.

### Non-Chemical Data Center Cooling Tower Solutions

Silver Bullet Water Treatment’s AOP system is unique in that it uses ambient air as a seedstock to create a mixed oxidant gas directly onsite. The ambient air flows through our proprietary reactor. The reactor converts the free oxygen into a highly reactive mixed oxidant gas. This mixed oxidant gas is then injected into the open loop evaporative cooling system water.

The mixed oxidant gas quickly reacts with the common biological contaminants (bacteria, fungus, algae, etc.), including Legionella. Once oxidant gas is injected into the water, it has both an instant disinfection impact and a sanitizing effect. This is accomplished by the immediate formation of hydroxyl radicals in the water along with the development of many other species of highly reactive oxidants. This soup of oxidant species attack and mitigate microbial outbreaks more effectively than liquid chemicals.