

Chlorination Retrofit Procedures  
For  
Recycle Process Units

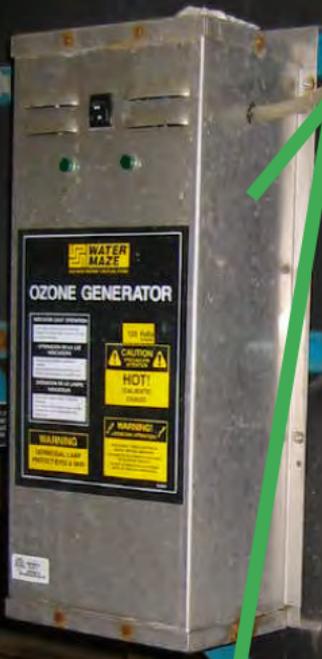
Recently total coliform and E. coli bacteria have been found in the recycled wash water used in Caltrans recycle wash systems. These systems exist at Maintenance Stations not connected to municipal sewer systems. In response to this discovery, the Water & Wastewater Branch recommends the installation of chlorine injection pumps on the Recycle Process Unit (RPU) to add chlorine to the processed water entering the storage tank.

The first step in treating the bacteria problem should be to ensure the ozonators are operational. The original ozonator system installed on Aquacycle systems was prone to failure. An intermediate fix being used in District 10 with great success is to plumb the piping from the storage tank to the ozonator injection with plastic tubing high enough to get above the overflow pipe of the storage tank. This was done by connecting the plastic tube so that it flowed from the inlet, all the way up to the top of the inlet vent of the pipe from the clarifier tank, then down to the injector port. This modification prevents the tank water from backing into the ozonator and disabling it.

Since the water we are most concerned about is the pressurized water that comes from the storage tank, we recommend treating the storage tank. This would be accomplished by injecting chlorine via a standard chlorine-metering pump commonly used by the State at Roadside Rest Areas and other water well systems.

Currently the transfer pump pumps through the multi media filter, the granulate activated carbon (GAC) filter, then into the storage tank. We propose to add an injection port to the piping after the GAC filter and before the tank. The chlorine-metering pump will be activated by an existing relay in the RPU control panel so that when the transfer pump operates, the chlorine-metering pump will also operate.

With an operating ozonator, the ozonator pump will circulate the water in the storage tank and help distribute the chlorine. The chlorine-metering pump will be adjusted, after time for the system to stabilize, so there is a 2 parts per million (ppm) residual at the pressure washer and hose faucet.



Ozonator tubing going up to top of inlet pipe

Ozonator tubing above storage tank inlet

