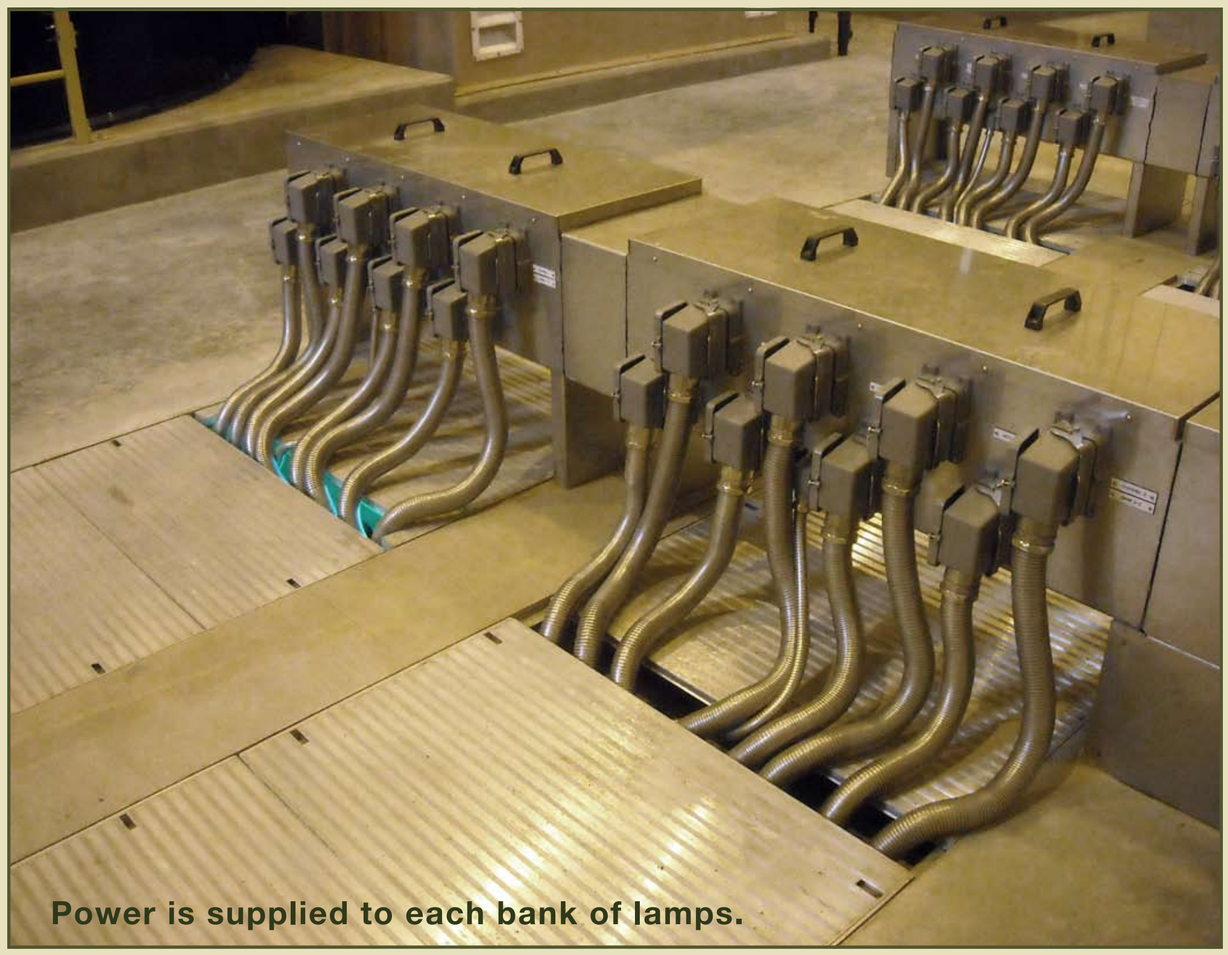
Ultraviolet Disinfection

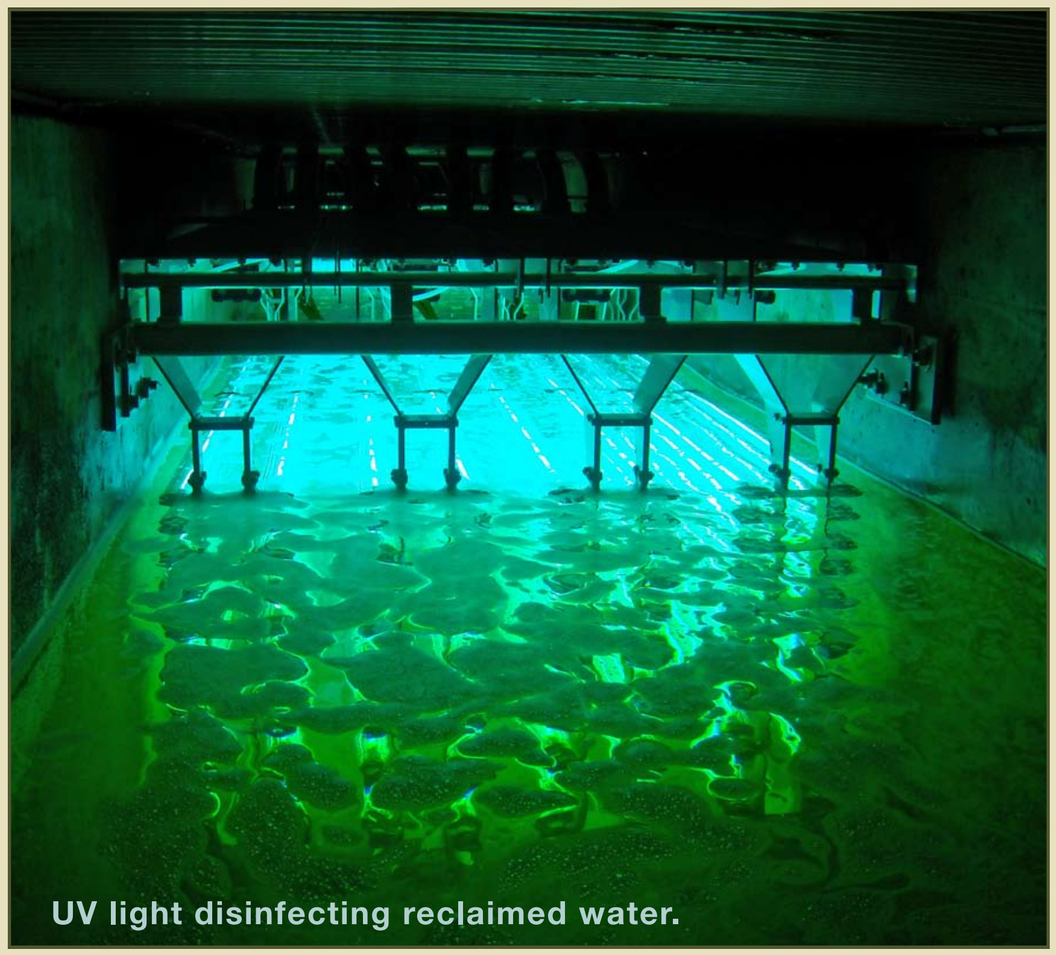
Johns Creek Environmental Campus

FULTON COUNTY

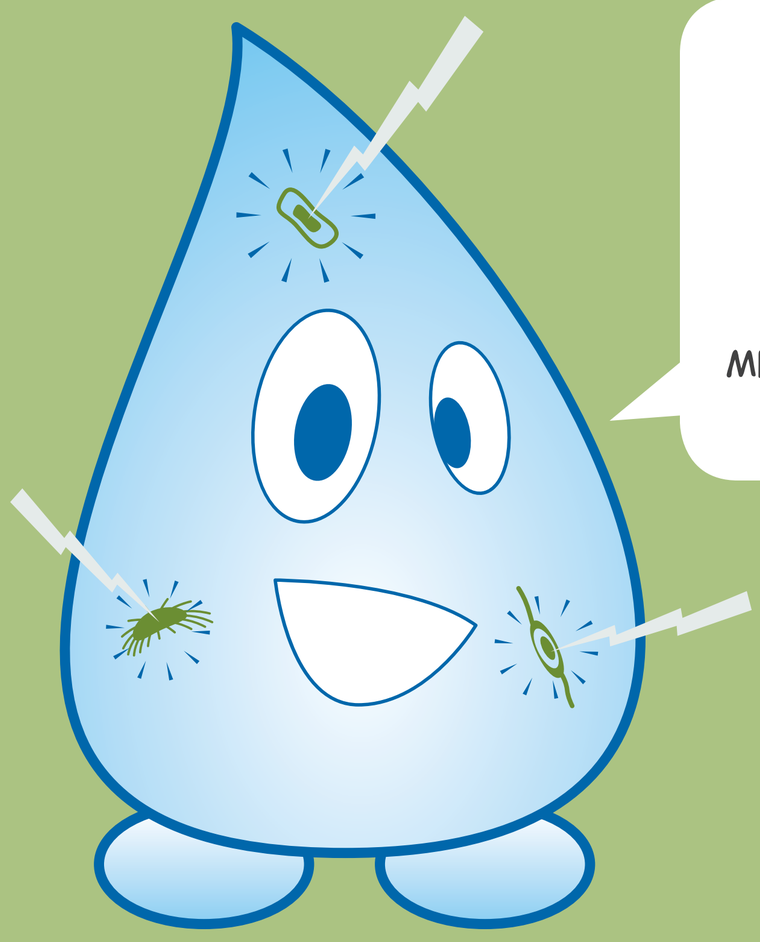
Ultraviolet (UV) disinfection is an effective method to inactivate bacteria and viruses often found in wastewater. At the Johns Creek Environmental Campus, treated water is subjected to UV disinfection as a final treatment step. Although nearly all of the pathogens and microorganisms have been filtered out of the water by the membranes, the UV system provides a redundant treatment barrier in case any organisms get through. UV light is emitted through low-pressure, high-intensity UV lamps, which are encased in clear quartz sleeves. The UV lamps are located in two parallel channels with three sets of lamp arrays per channel. The water enters the channel of reactors and passes through the bulbs. As the water passes, UV rays are emitted from the bulbs and absorbed by the flowing water. The UV rays work to attack the genetic structure of the bacteria and viruses, rendering them inert. The benefit of using UV as a disinfection method is that UV disinfection does not involve the use of chemicals, so additional pollutants are not introduced into the environment during the process.



Power is supplied to each bank of lamps.



UV light disinfecting reclaimed water.



PATHOGENS ARE BIOLOGICAL AGENTS THAT CAUSE DISEASE OR ILLNESS.

UV LIGHT RENDERS ANY REMAINING PATHOGENS AND MICROORGANISMS INERT SO THEY CAN NO LONGER HARM YOU.

UV Disinfection Process Design Parameters	
Flow Capacity of UV System	24.7 mgd (Maximum Daily Flow)
Number of Reactor Trains	2 (2 duty)
Number of Banks per Reactor Train	3 (2 duty / 1 standby)
Number of Lamps per Bank	72
Total Number of Lamps	432
Design UV dose	65 mJ/cm^2
UV System Type	Low Pressure – High Intensity

Brown AND Caldwell