

Conserving Water through the Recycling and Filtering of Greywater through a Domestic System

Goodin, Bryce (School: Bartlesville High School)

McCullough, Colton (School: Bartlesville High School)

Cochran, Caleb (School: Bartlesville High School)

This project aims to produce and test a prototype aid in water conservation within a domestic, consumer context. A specialized recirculating faucet system was built using direct filtration techniques: three mechanical filters were used for initial filtration ranging from an absolute 50 micron filtration to an absolute 0.5 micron filtration with polyester, activated carbon, and ceramic components. An ultraviolet sterilization unit and chlorine injection system were used to insure the water from bacterial presence. The system was tested by filtering on-site, treated tap water from the Bartlesville Water Treatment Plant (BWTP), and filtering water from the Hudson Lake (the water source for the BWTP), and comparing the experimental data with data already collected by the plant. The final goal of this project is to create a system that conserves water before it leaves the consumer. The system was made to be modular for easy installment and be able to filter introduced contaminants, including bacterial contaminants, to a level that is safe and accepted by all regulatory organizations in the United States. This system, if implemented in the average American household, would not only reduce water costs, but also conserve up to 50 gallons of water daily with further potential conservation within commercial contexts.