

For my honors thesis I participated in the 29<sup>th</sup> annual WERC competition at New Mexico State University. The task that I competed in was the Silver-based Microbial Check Valve for Spacecraft Potable Water System. The goal was to deliver 300-500 parts per billion of silver to a stream of DI water with microgravity considerations. Additional requirements are a flow rate of 100-150 ml/min, and running five gallons of DI water.

My contribution to the Silver-based Microbial Check Valve for Spacecraft Potable Water Systems was the analytical methods used, presentation and poster, along with working in the lab on the project. For the analytical methods I researched the ways to detect silver at the low concentration of 300-500 parts per billion. I found that the chemistry department has an ICP machine that can detect silver at that concentration. I contacted Eric Pollock and delivered samples to be tested there. In addition to the ICP testing of samples, I found a conductivity probe and manual to use in the lab as we were running experiments. I also found a silver portable photometer that can detect silver concentration in the range that we were operating.

As the quality control person, I ensured that the process flow diagrams were accurate as well as the presentation and poster. I was also the financial liaison with Jessica for all the ordering of materials. This means that I ensured all the materials we needed for the project were ordered, checked on delivery status, and picked up the materials.

In addition to my individual roles, I contributed to the team by working in the lab countless hours every day of the week. This included e. coli kills, membrane testing, resin testing, and running the apparatus. A lot of trouble shooting went into all of these experimental runs. Because of this I got a lot of learning experiences out of the design project and learned quite a bit about membranes, resins and how to work as group.