



CASE STUDY

NASA's Solid Rocket Booster Refurbishment Facility

Dragonfly Wastewater Treatment System



A key feature of the Space Shuttle Program was its ability to be, for the most part, reusable. The Shuttle itself returned to the Kennedy Space Center (KSC) after every mission and it was then processed in its unique special hangar in the Orbiter Processing Facility. Two very important and large components of the system were the Solid Rocket Boosters. These boosters, at almost 120 ft in length, provided the power necessary to give the Shuttle the initial push to get off the launch pad and escape earth's gravity and, together with the Shuttle's main engines, comprised the propulsion system for the Shuttle system. Once the Boosters had done their job, in a little more than 2 minutes, they were jettisoned and with the help of giant parachutes were returned to the ocean. Then the boosters were picked up and returned to their specialized facility at Cape Canaveral Air Force Station (CCAFS) in Florida. Here the boosters were cleaned, disassembled, and shipped back to Utah for reprocessing and use again in future missions.

During the refurbishment phase, the retrieved boosters were cleaned and washed much like a huge car wash. Dirt and residual contaminants were collected together with the water used and stored in large holding tanks. Water Energy Technologies, Inc. was hired to design a water treatment system that would allow for the reuse of the water for these purposes.

Water Energy utilized ozone technology that was in its infancy. Ozone for wastewater treatment was being used but in very few applications. The water was filtered to remove larger size dirt particles and then it was processed through a contact column that would oxidize the contaminants as well as destroy any microorganisms present in the water. The system allowed for the water to be stored and reused in the process again.

The project is a huge success and allowed the program to operate in areas of extreme environmental importance without disposing of the water used for cleaning the boosters.

