



# Water Conservation System

The NDCEE provided planning, design, and installation expertise to support water conservation at Fort Hood, TX.

## Problem Statement

Because Fort Hood has established a comprehensive water conservation program, water has not historically been a major concern; the installation has access through the local water district to water sufficient to meet current and future needs. However, recent Army guidance mandating a 2% year reduction in potable water use (Executive order [EO] 13423) along with Army and installation sustainability initiatives combined with a general water conservation ethic has prompted the installation to examine options to more efficiently use its available water. The NDCEE assisted Fort Hood with identifying and testing opportunities for using non-potable water for irrigation to replace potable water.

## Technology Description

Like most places, Fort Hood has traditionally used potable water to irrigate its golf course. By definition, potable water is treated water. To replace the potable water, a pumping station was installed at the Landfill Lake and integrated with the base-wide water supply delivery system.

This innovative pumping station contains the following components: 1) an adequately sized water pump; 2) a generator to provide a steady supply of sufficient electricity in the remote location to power the motor; 3) a properly sized fuel storage tank for the generator; and, 4) a concrete pad for the pump and generator and a containment system for the fuel tank.

The pumping station at Landfill Lake requires a generator to power the motor to drive the water pump. The decision to use biofuel is multi-faceted and the biofuel of choice would be biodiesel. Biodiesel supplied to the generator would be made from the combination of organic oils such as soybean, canola oil, or other waste vegetable oils with other products to create an alternative fuel similar to petroleum-based diesel fuel; hence the use of the term, 'green fuel'.

## Environmental, Safety, Occupational Health, and Energy (ESOHE) and Cost Benefits

- **ESOHE Benefit.** Allows the Army to comply with potable water reduction goals
- **Cost Benefit.** Will allow the Army to reduce potable water costs

## Technology Benefits

- Using reclaimed water instead of potable water helps Fort Hood meet the mandated potable water reduction requirements in EO 13423 and reduces installation utility expenditures.
- The reclaimed water system supports the installation and regional drought contingency plan requirements.

## Technology Limitations

- Solar and wind technologies may be necessary to augment the biofueled generator because of its remote location.
- Drought may affect the amount of storm water and wash-rack runoff that collects in Landfill Lake and is available for irrigation.



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## Accomplishments

- Coordinated with project stakeholders to execute the revised strategy to implement a pumping station at Landfill Lake
- Prepared and submitted a Demonstration/Validation Report
- Installed and demonstrated the pumping station at Fort Hood

## Technology Transition Opportunities

Once successful, the water conservation technology demonstrated at Fort Hood's golf course could be deployed at other military-managed golf courses to achieve water conservation goals and to work toward achieving the goals established in EO 13423.

## Points of Contact

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*Landfill Lake looking from the dam*



*Installed pump system*



*Generator and fuel tank*