



GRAY WATER TREATMENT AND REUSE SYSTEM (G-WTRS)

NATIONAL DEFENSE CENTER FOR ENERGY AND ENVIRONMENT

PROJECT OVERVIEW

This project will demonstrate the Gray Water Treatment and Reuse System (G-WTRS, 'gee-waters') and complementary shower water heat recovery technology in an Army operational training environment. The demonstration will occur at Fort Leonard Wood's Contingency Basing Integration Technology Evaluation Center (CBITEC). Reusing gray water can reduce logistics requirements and costs. Each G-WTRS can support 600-1000 personnel. The complementary shower water heat recovery technology reduces the amount of fuel needed for heating water in field shower systems.

BENEFITS

G-WTRS end users, such as contingency basing managers and training area managers at installations could see water supply requirements reduced by 60% and a pay back in under one year. It will also use approximately 50% less energy than conventional Army reverse osmosis water purifiers while providing equivalent or better levels of treatment. The shower water heat recovery technology is expected to reduce power requirements for shower water heating by up to 50%.

PATH FORWARD

G-WTRS and shower water heat recovery technology is a 3-Phase demonstration. In each phase, the level of water reuse will be increased. Phases I, II, and III will demonstrate water reuse for latrine flushing, laundry, and showering, respectively. The shower water heat recovery technology will be demonstrated in all three phases to optimize the heat recovery and to study integration with the various reuse scenarios. Key parameters including energy savings, treatment performance, and water savings will be monitored and recorded continuously, and water quality analyses will include screens for regulated contaminants as well as relevant emerging micropollutants.



The G-WTRS was set up for assessments in a training area at Fort Leonard Wood in June 2016.



Gray water before and after treatment by the G-WTRS.

FOR FURTHER INFORMATION:

NATIONAL DEFENSE CENTER FOR ENERGY AND ENVIRONMENT (NDCEE): <http://ndcee.army.mil/>

U.S. ARMY ENGINEER RESEARCH AND DEVELOPMENT CENTER (ERDC): <http://www.erdcd.usace.army.mil/>