Bluegrass Chemical Agent Pilot Plant System

The disposal of chemical warfare agents is a challenging problem in the U.S. and other nations. Many of these weapons have been stored since World War II and some are sensitive to handling. With public opposition to the use of incineration for the destruction of these agents, Congress mandated that the U.S. destroy some of its stockpile of aging chemical warfare agents using alternative methods. The Program Manager for Assembled Chemical Weapons Assessment (PMACWA) is chartered to demonstrate viable alternative technologies to "baseline" incineration for the disposal of assembled chemical weapons.

A significant inventory of chemical munitions is stored at Bluegrass Army Depot in Richmond, KY. GA is a member of the Bechtel-Parsons Bluegrass Team that is responsible for the design, construction, systemization, operation, and closure of the Bluegrass Chemical Agent Pilot Plant (BGCAPP). This facility will treat agent, explosives, and propellants in a two-step process. In the first step, chemical agents and explosives are neutralized in separate processes to nonlethal and nonexplosive materials by means of low temperature, low pressure chemical reactions. The resulting agent and energetics hydrolysates are subjected to post-treatment using supercritical water oxidation (SCWO). GA is responsible for the design, testing, and construction of Energetic Batch Hydrolyzers (EBHs) used to hydrolyze energetic components and for SCWO systems for treatment of agent and energetics hydrolysates.

Agent and energetics hydrolysates generated at BGCAPP will be processed in three SCWO systems, producing salts and water. Over 6000 hours testing in SCWO pilot units was performed to verify the process for destruction of the hydrolysates. Testing involved both surrogate materials and actual agent and energetics hydrolysates. These tests demonstrated that SCWO can be used to process hydrolysates in a manner that fully supports the BGCAPP mission and operating schedule.

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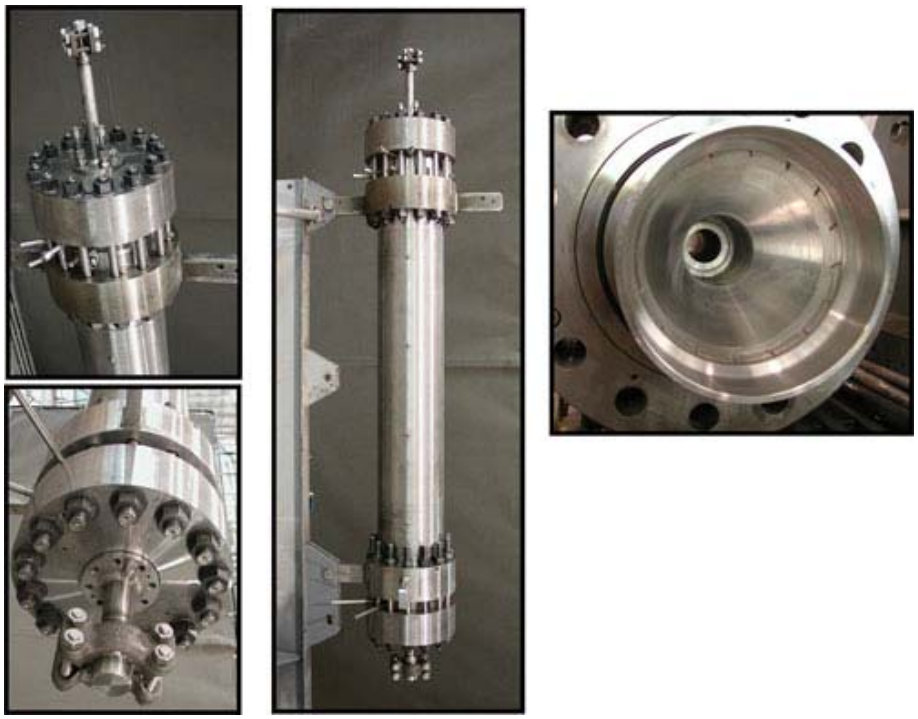

SCWO Reactor