

*The 242-A Evaporator is a vital facility for tank space management, supporting the Direct-Feed Low-Activity Waste Program and tank waste retrieval.*



*The U.S. Department of Energy and contractor Washington River Protection Solutions are safely and compliantly operating and upgrading the 242-A Evaporator, managing tank waste volume at the Hanford Site in southeastern Washington state.*

## Background

The 242-A Evaporator is located near the center of the Hanford Site in the 200 East Area. Since its construction in 1977, the evaporator has removed more than 81 million gallons of liquid from radioactive and chemical waste stored in Hanford’s large underground tanks. The evaporator boils liquid tank waste to evaporate water and reduce the waste’s volume. This creates more space in the tank storage system to receive waste retrieved from older tanks, to meet cleanup milestones. As Hanford prepares to treat tank waste for safe disposal under the Direct-Feed Low-Activity Waste Program, workers are upgrading the evaporator and other Site facilities to support 24/7 treatment operations.

## Mission

The evaporator mission is to create more storage in the tank system by evaporating water from liquid tank waste. This supports continued operations to retrieve waste from Hanford’s older tanks for treatment and safe disposal.



*Control room operators for the 242-A Evaporator train on a simulator.*



*242-A Evaporator at night.*



*Replacement transfer lines between waste-storage tanks and the 242-A Evaporator.*





# 242-A Evaporator (cont.)

## Hazards, Safety and Efficiency

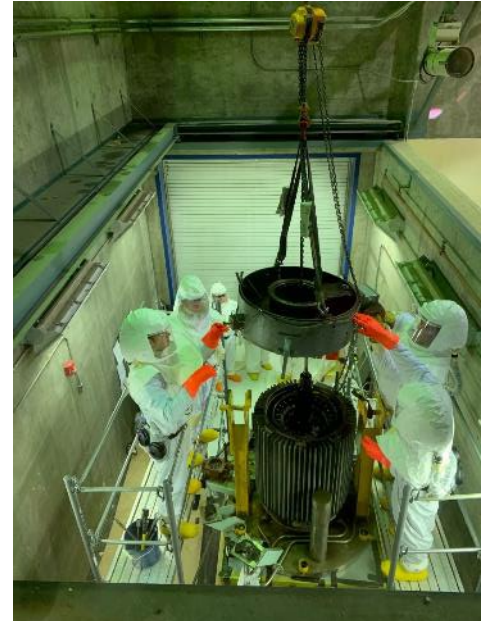
Hanford has a long history of operating the waste-reduction campaigns at the 242-A Evaporator safely and efficiently. Hazards that come with treating radioactive and chemical waste are mitigated through programs in safety and health and waste management. Workers are highly trained to ensure safe and compliant operations.

## Progress

- Since 2014 the facility has removed enough water from waste to create 3 million gallons of storage space in the tank system.
- Workers have upgraded equipment in the facility to enable evaporator operations at a higher capacity, which will be needed during tank waste treatment operations at Hanford's nearby Waste Treatment and Immobilization Plant.
- Control room operators train with a simulator to prepare for 24/7 operations to treat waste at the Waste Treatment and Immobilization Plant.

## Future

The evaporator will continue to play a critical role in waste-volume reduction in the Hanford tank-waste storage system for decades to come.



An evaporator pump ready to be built.

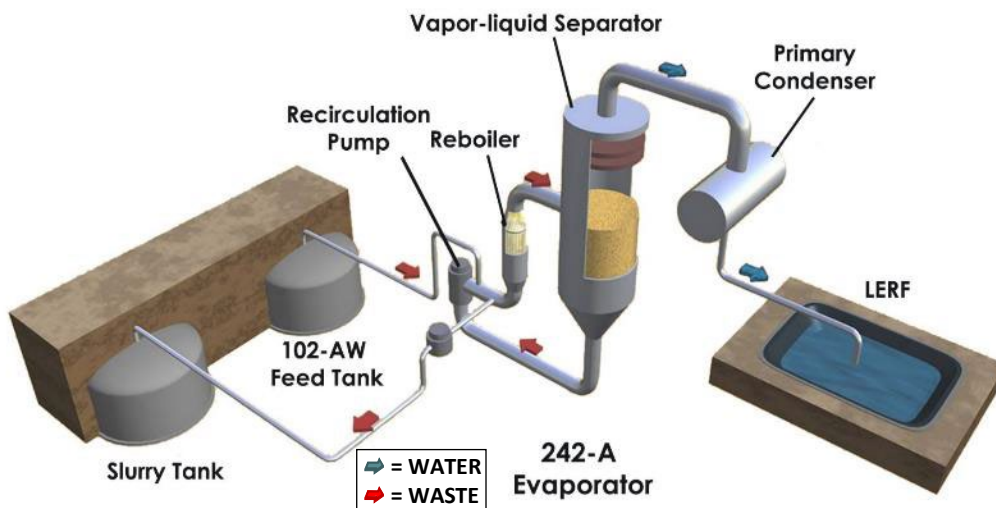


Diagram of operations to remove water from tank waste at the 242-A Evaporator.

The 242-A Evaporator has operated since 1977, reducing the volume of waste stored in newer, double-shell tanks and making room for waste retrieved from older, single-shell tanks. Liquid waste is pumped to the evaporator from a nearby double-shell tank.

Waste is heated in a sealed vessel under partial vacuum to boil the waste at 125 degrees Fahrenheit, nearly 90 degrees lower than normal. Water evaporated from the waste is captured, filtered and sent to a nearby facility for treatment and disposal.

Since it began operating, the 242-A Evaporator has removed more than 81 million gallons of water from tank waste and created storage space in the tank system.

