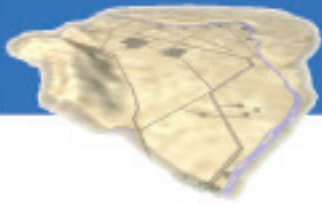


Overview



242-A Evaporator

WRPS operates the 242-A Evaporator in the 200 East Area of the Hanford Site. The evaporator is critical to the safe management of Hanford's tank waste. It began operating in 1977 to reduce the volume of waste stored in Hanford's underground tanks. By removing water from the waste, WRPS is able to make additional storage space available for continued retrieval of waste from Hanford's aging 149 single-shell tanks.

Prior to processing waste through the Evaporator, the waste is extensively analyzed to determine its key constituents. This information is used to determine how the waste will behave both during and after the evaporation process, and to determine how much water can be safely removed from the waste.

If acceptable for processing, the waste is pumped into the evaporator from nearby double-shell tanks via double-walled underground transfer lines. It goes into a sealed vessel where atmospheric pressure is reduced and steam heat is applied, boiling the waste at only 125 degrees F., much lower than it would under normal pressure. When the waste reaches a designated thickness, called specific gravity, the waste is transferred to a double-shell tank for storage.

The evaporated water is captured, condensed, filtered, sampled and sent to the nearby Liquid Effluent Retention Facility, which further treats the liquid before disposal. The evaporator is able to achieve a significant reduction in waste volume, which increases available tank storage space. This reduction in volume helps avoid the high cost of building and eventually disposing of new storage tanks. In 2007 and 2009 evaporator campaigns reduced the volume of tank waste by nearly 2.2 million gallons.

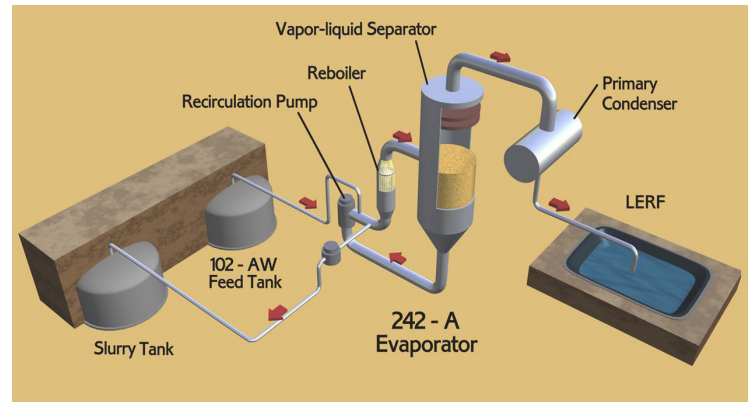
The 242-A Evaporator is the only operating nuclear processing facility at Hanford. It operates under strict environmental regulations, stringent operational controls, and requires extensive maintenance and operator training to maintain the facility in a fully operable condition. In years where waste processing campaigns are not required to meet space management objectives, an evaporator "cold run" campaign is conducted using water instead of waste to ensure continued facility and systems operability, and to train and maintain the proficiency of operators.

In 1987 engineering and design studies were initiated to extend the operating life of the evaporator. In 1989 a series of additional changes were made to address environmental protection issues. Following facility modifications and upgrades the 242-A Evaporator was restarted in 1994. Since 1994 additional modifications and upgrades have been completed to extend the operating life of the facility. Recent upgrades, which include replacing the ventilation system and upgrading the monitoring and control system, will extend the operating life of the facility to 2034.

Since it began operating in 1977, the Evaporator has reduced the total volume of waste in Hanford's tanks by 67 million gallons, helping avoid the high cost of building new waste storage tanks.



242-A Evaporator and Surrounding Area



Evaporator Process Diagram



242-A Cold Crew

Contact:
Jerry Holloway, Manager, External Affairs
Washington River Protection Solutions
(509) 372-9953
jerry_n_holloway@rl.gov

<http://www.wrpstoc.com/>