

Reverse Osmosis

Background

The mobile reverse osmosis (RO) system was developed in 2012 to address the need for waste reduction following advanced scale conditioning agent (ASCA) applications. Coupling Westinghouse RO waste reduction services with ASCA services allows customers to meet their steam generator cleaning and waste reduction needs while interfacing with a single service provider.



Reverse osmosis berm setup

Description

The purpose of the RO system is to reduce the volume of ASCA process and rinse waste, thus decreasing the amount of waste that must be shipped from the site. This waste reduction significantly reduces disposal costs for the customer.

The ASCA RO system has the potential to reduce volume by approximately 70 to 90 percent when the process is applied to typical ASCA waste with conventional plant discharge limits. The process is especially favorable to plants that use makeup water that already contains tritium. When applied to a typical ASCA treatment, the process has the potential to save the project significant cost, which represents a direct reduction to the customer's bottom-line costs.

Once the ASCA waste solution is processed with the RO system, the product (or permeate) is discharged to a designated utility location and the concentrated waste (or reject) is sent to a waste disposal facility.

Benefits

The Westinghouse mobile RO system has the following process and design benefits:

- Reduces waste solution handling cost
- Reduces the amount of radioactive waste on site
- Can reuse or discharge product water (permeate) at the utility's discretion
- Can be operated remotely or locally
- Self contained and easily interfaced with the Westinghouse ASCA system

Experience

The initial Westinghouse implementation of mobile RO technology was performed in the spring of 2012. The system was used to reduce the volume of process and rinse waste following a full bundle ASCA application. A 10-to-one reduction was achieved, thus decreasing the amount of waste that was shipped from the site. The implementation of RO technology following ASCA significantly reduced the waste disposal costs for the utility.



Reverse osmosis system