

Decontamination, Decommissioning, Remediation and Waste Management/Decontamination

Mini System Chemical Decontamination Skid

Background

Westinghouse offers innovative solutions to meet customer's decontamination and effluent waste treatment needs.

The need to eliminate site specific hot spots and treat small components cost effectively is an issue. This is due to effluent treatment containing contamination from utility operating processes or complex radionuclides from legacy decommissioning, which share similar challenges in addressing activation levels.

Westinghouse addresses this need by developing a variety of chemical decontamination processes and delivery systems.

In addition to Westinghouse's Standard, Intermediate and Full System Decontamination systems, we are introducing our Mini System Decontamination (MSD) skid. The MSD is a solution to the need of complex ion exchange technology in terms of cost and physical restrictions.

System	Application	System Volume
Mini	Small systems or components	Up to 50 gal
Intermediate	Partial or components	Up to 1,000 gal
Standard	Sub systems	Up to 25,000 gal
Full	Large systems	Up to 105,000 gal

Description

The addition of the Mini System Decontamination system allows Westinghouse to address challenges with elevated radiation levels in a cost-effective way. The MSD equipment is designed for use on small problem areas such as sample sinks and sample lines, drain lines and vent lines with volumes up to 50 gallons.

The entire system is designed and constructed to fit on a single, moveable cart. It fits into a standard elevator and is easy to move, set up and demobilize. The system is shipped in one small container and set up and operated by an engineer and technician. The system can be operated on a single shift or the engineer and technician can split responsibilities to allow for continuous 24-hour operations, as needed. An individual plant system can normally be decontaminated in about one day, allowing for several systems to be cleaned in a week.

The skid may be operated in a recirculation or a once-through (flush) mode depending on the plant system and cleaning requirements. This allows for multiple location and type applications within a single design.



Mini System Decontamination (MSD) Skid

Benefits

The MSD skid provides the following benefits:

- Assists utilities in achieving ALARA goals by reducing radiation exposure, both in outage and on-line.
- Cost-effective operation is achieved through a smaller footprint and modular design
- Increased mobility and easy set-up allows for more efficient use of site operations allowing more decontaminations in a similar timeframe
- Targets small hot spots and/or components which may allow the site to abandon in place outdated systems without continual dose concerns or expensive shielding packages.
- Generates minimal radwaste during operation which can be disposed of within the guidelines of most waste disposal programs

Although the MSD skid is ideally suited for decontamination activities, it can also increase thermal efficiency in non-contaminated systems.

Deliverables

Westinghouse offers the system in two categories:

- Standalone - Will supply the MSD skid, hoses and personnel to operate it. The equipment and personnel can decontaminate a system for dose reduction or chemically clean a system for thermal efficiency.
- Purchase - Will design and fabricate a new MSD skid that owners can utilize for multiple applications or applications at multiple sites. The Westinghouse personnel can support the operations on an as needed basis going forward.

Experience

Westinghouse has more than 30 years of global experience supporting nuclear power plants, DOE and National Lab sites, with chemical decontamination services. Our variety of processes system sizes allows Westinghouse to offer customized solutions to a customer's specific need. Westinghouse has performed greater than 500 chemical decontaminations,

from small components to full-system decontaminations.

From one of our most recent operations utilizing the MSD, Westinghouse performed a chemical decontamination on portions of a sample line system including the delay coil. The utilities desire was to see a >10 Decontamination Factor (DF). The average results were:

System	DF	Activity Removal
Delay Coil	42	97%
Auxiliary Piping	15	93%



Operator changing out an ion exchange filter



Typical ion exchange filter