



Pall Corporation

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## Filtration and Separation Solutions

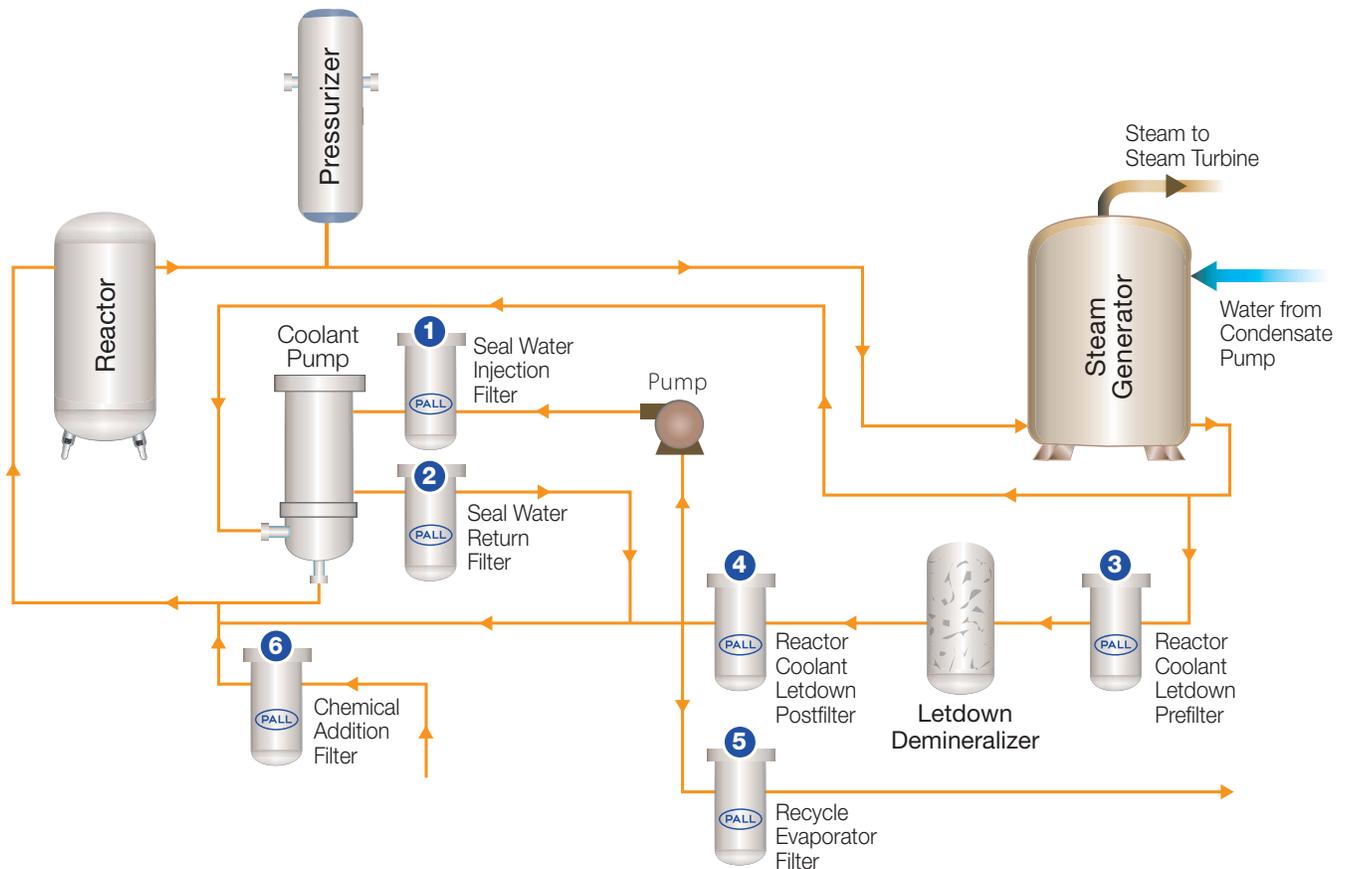
for Safe and Reliable Operations in Nuclear Power Plants



*Filtration. Separation. Solution.<sup>SM</sup>*

# Typical Filtration and Separation Applications at Nuclear Power Plants

## Pressurized Water Reactor (PWR)



 Fine grade nuclear filter



Application	Technology	Application Benefits
1 Reactor coolant pump protection (seal water injection)	Seal water injection filter used on the pressure side of the coolant pump seal to minimize wear and seal replacement costs	<ul style="list-style-type: none"> <li>• Protects mechanical seals and bearings from wear</li> <li>• Prevents leaks of radioactive primary coolant water</li> <li>• Extends pump maintenance intervals</li> </ul>
2 Reactor coolant pump protection (seal water return)	Located downstream of the pump seals, the return filter protects the CVCS (Chemical & Volume Control System) against contamination generated or ingressed in the seals	<ul style="list-style-type: none"> <li>• Protects the plant from out of core/hot particle incidents</li> <li>• Removes fine radioactive particles leaking through the seals</li> </ul>
3 CVCS ion exchange resin bed protection	Located upstream in the CVCS system, the reactor coolant letdown prefilter protects the CVCS ion exchange resin beds. By removing radioactive contaminants such as iron, cobalt and silver, this filter helps reduce overall dose rate in the primary circuit. This filter is the first and best line of protection against out of core radiation.	<ul style="list-style-type: none"> <li>• Protects de-mineralizer beds from fouling and abrasion</li> </ul>
4 Circuit protection against possible resin leakage	Placed downstream of the resin bed in the CVCS loop, the reactor coolant letdown post filter protects the circuits against possible resin leakage from the vessels. The filter also controls resin fines down to the submicron level.	<ul style="list-style-type: none"> <li>• Removes resin debris released from demineralizer beds</li> <li>• Prevents release of material into VCT (Volume Control Tank) and RCS (Reactor Coolant System)</li> </ul>
5 Evaporator protection	Recycle evaporator filter protects evaporators from deposition	<ul style="list-style-type: none"> <li>• Reduces corrosion</li> <li>• Improves efficiency</li> </ul>
6 Chemical injection system protection	As a protection against ingressed contaminants in the boron injection system, the filter prevents fine particulates as well as undissolved crystals from entering the main coolant loop	<ul style="list-style-type: none"> <li>• Protects demineralizer and coolant loop</li> </ul>

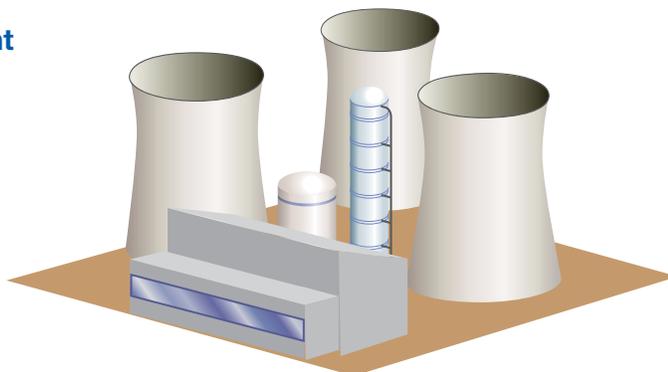
### Experience Matters

For over 30 years power plants around the world have relied on Pall's advanced separation technologies to provide cleaner, safer, more reliable power to their customers. And as regulatory conditions tighten, Pall's experience plays an even greater role in meeting new environmental requirements. Don't take our word for it. Just ask the thousands of nuclear plant personnel around the world why Pall is their supplier of choice for filtration and separation solutions in their plants. Let them tell you how our extended filter life and simple maintenance protocols save them time that can be spent on value-add process improvements.

**Contact Pall today and let us put our experience to work for you.**

## Plant optimization → Bottom line safety and reliability

- ✓ **Improve reliability of plant equipment**
- ✓ **Minimize personnel exposure to radiation**
- ✓ **Increase safety of plant operations**
- ✓ **Reduce cost of ownership**
- ✓ **Meet or exceed environmental regulations**



### Why Pall?

For over 65 years, Pall Corporation has been solving complex contamination problems for our customers around the world. As a recognized leader in the field of filtration, separation and purification technologies, our products and services enable our nuclear power customers to meet stringent regulatory requirements while increasing productivity, reliability and safety to reduce total cost of ownership. Our advanced technologies enable improved product quality and consistency to keep our customers satisfied.

Find out how Pall filtration systems help nuclear plants maintain low levels of radioactive contamination, reduce costs, and maximize output. Contact Pall today to see how we can help you protect your valuable assets.



Pall Corporation

#### Power Generation

25 Harbor Park Drive  
Port Washington, New York 11050  
+1 516 484 3600 telephone  
+1 888 873 7255 toll free US

#### Visit us on the Web at [www.pall.com](http://www.pall.com)

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