BWR SOURCE TERM REDUCTION

ChemStaff
Expert Consulting for the Global Power Industry

Value Delivered

- ✓ Technical rigor applied to source term reduction
- ✓ Cross-discipline collaboration (Chemistry, Radiation Protection, Operations, Engineering)
- ✓ Industry-best practices, including gamma scans and cobalt minimization/transport studies
- ✓ Collaboration with other key industry vendors
- ✓ Decision-making, project oversight, and technical support on chemical decontaminations

Industry Challenge

Collective radiation exposure (CRE) reduction is one of the most complex problems facing the industry. Dose goals are pushed to lower levels while changes necessary to achieve these improved levels of performance remain elusive. To achieve CRE goals, a fact-based source term reduction strategy is required, including initiatives targeting all five steps of radiation field formation.

STEP 1	STEP 2	STEP 3	STEP 4	STEP 5
Introduction and Release	Deposition on Fuel	Neutron Activation	Release from Fuel	Deposition or Incorporation
Atom of nickel or cobalt introduced or released into reactor coolant	Atom of nickel or cobalt deposited on fuel	Atom of nickel or cobalt activated to form gamma-emitting radionuclide	Atom of radionuclide released from fuel into reactor coolant	Atom of radionuclide deposits on or incorporates into surface

ChemStaff Solution

ChemStaff 's plant experience and knowledge of the factors that influence radiation fields remove the uncertainty associated with radiation field reduction programs. ChemStaff works with plant personnel to develop a fact-based source term reduction strategy with radionuclide-specific and location-specific initiatives designed to target critical source term problems, including chemical decontaminations. ChemStaff also recommends initial and ongoing monitoring programs to measure improvements and evaluates the efficacy of zinc programs.

- ✓ Origin of radiation fields determined
- ✓ Radionuclide-specific and location-specific initiatives
- ✓ Lower radiation fields leading to reduced CRE
- ✓ Cobalt transport studies