

Radiological Engineering Analyses

The Westinghouse Solution

The Westinghouse BOP and Design Engineering Radiological Engineering Analyses team is comprised of specialists with extensive technical and licensing backgrounds covering the disciplines of radiological engineering, nuclear engineering, mechanical engineering, chemistry, and physics. Most of the engineers have over 30 years of experience in the nuclear power industry and were part of the Balance-of-Plant (BOP) Architect Engineering (AE) teams that were responsible for putting numerous nuclear power plants online. The team provides support to both advanced reactor designs as well as the fleet of U.S. operating nuclear power plants.

Services Include:

- Radionuclide Inventory in the Core, Coolant Process Systems, and Components
- Gamma Radiation Shielding Analyses
- Gamma Radiation Scatter through Penetrations / Labyrinths
- Radiation Zoning of Nuclear Facilities
- Building Airborne Radioactivity Levels
- Ventilation Design to Control Airborne Radioactivity Levels
- Accident and Normal Operation Radiation Environments for Equipment Qualification
- Normal Operation Radiological Release and Dose Calculations
- Accident Dose Consequences Using Traditional and Alternate Source Term Methodology
- Control Room / TSC Habitability (Radiological and Toxic Chemical Releases)
- Operability Assessments Supporting Control Room Habitability and Dose Consequences
- Fission Product / Aerosol Transport (e.g., Sprays, Plateout, Gravitational Settling, Diffusiophoresis, etc.)
- Post Accident Mission Doses
- Process Design and Shielding of Severe-Accident Radioactivity Treatment Systems (Fukushima)
- Radiation Monitor Sensitivity / Range / Setpoints
- High Density Fuel Racks
- Energy Deposition due to Gamma Heating
- ALARA Evaluations
- Radwaste System Design
- Third-Party Independent Peer Reviews
- Emergent Operational Assessment

Major Types of Projects:

- Core Power Upgrades
- Implementation of Alternative Source Terms
- Steam Generator Replacements
- Control Room Habitability
- Licensing Basis Verification

Radiological Analysis Software

- RADTRAD™
- MCNP™
- ORIGEN™
- SCALE™
- PERC2™
- SW-NAUA™
- SW-QADCGGP™
- Westinghouse Proprietary Codes

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