

Thermal Hydraulic Engineering and Safety Analyses

The Westinghouse Solution

The Westinghouse BOP and Design Engineering Thermal-Hydraulic Engineering and Safety Analyses team is comprised of specialists with extensive technical and licensing background covering the disciplines of heat transfer, fluid flow, nuclear engineering, and mechanical engineering. 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. Currently, the team provides support to both advanced reactor designs as well as the fleet of operating nuclear power plants.

Services Include:

- System Steady State and Transient Analyses
- External & Contained Fluid Flow using Computational Fluid Dynamics (CFD)
- Heat Transfer Analyses for Thermal Management (in liquids / gases / solids)
- Simulation of Transport of Gas Mixtures, Liquid Mixtures, and Aerosols using CFD
- Mass / Energy Releases from Pipe Breaks
- High Energy Line Break (HELB) Analyses for Equipment Qualifications
- Building Pressure / Temperature Response
- Thermal Lag Analyses for Equipment Qualification
- Containment Integrity Analyses
- Sub-Compartment Pressurization
- Emergency Condensate Storage Tank Sizing (Fukushima Mod)
- Room Heat-Up Following Loss of Ventilation
- Ultimate Heat Sink Analyses
- Post-Accident RCS Cooldown Using Natural Circulation
- Hydrogen Generation
- Containment Spray Coverage
- Thermal Effectiveness of Containment Spray
- Flooding and Pump NPSH Analyses
- Sump and Spray pH Analyses
- System Failure Modes and Effects Analyses
- Gas Explosion Analyses

Major Types of Projects:

- Core Power Upgrades
- Steam Generator Replacements
- Licensing Basis Verification

Thermal Hydraulic Analyses Software

RADTRAD™

GOTHIC™

ANSYS FLUENT™

FATHOM™

ARROW™

IMPULSE™

MATLAB/SIMSCAPE™

Westinghouse Proprietary Codes

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