GE Hitachi
Nuclear Energy

Executive BWR Training

fact sheet

GEH BWR Expertise – Improving your Plant Management

GEH has more than 50 years in the nuclear energy industry and is the original designer of Boiling Water Reactor (BWR) nuclear power plants. To help utilities better manage BWR plants, GEH offers Executive BWR Training — a proven course of instruction for executives and upper management.

Designed to increase overall knowledge of plant and system design, operation and maintenance, the course is especially valuable for management personnel with little or no commercial nuclear experience, or to those who only have PWR experience.

Customized Training

The course focuses on plant design and operation, while also providing an overview of systems, components, and procedures. To accommodate various learning styles, Executive BWR Training utilizes numerous training methods, including tours, presentations by experts, and reactor maintenance and refueling training at our refueling and maintenance facility. Course content is tailored to the needs of utilities and may be customized for specific sites.

Modules available for this customized training include operation analysis, technical issues, systems design, safety functions, abnormal events analysis, station nuclear engineering, core management, mechanical maintenance, refueling floor activities, inspection activities, chemistry, instrumentation and control.

One-of-a-Kind Facility

- Training provided at full-scale reactor and component mock-up in San Jose, California
- Reactor can be drained and filled for tours, tooling testing, and qualification

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- Ability to practice moving dummy fuel bundles; conduct modification and tooling qualifications; and perform In-Vessel Visual Inspections (IVVI) training and qualification

Benefits

- Increased overall knowledge for upper management of BWR nuclear power plants and systems, including technical training on plant design, operation and maintenance
- GEH's experience of more than 50 years in the nuclear power industry ensures customized training from the most qualified experts
- Establishment of relationships with key industry experts

Features

- Emphasis on plant design and operation
- Module selection for customized training
- Utilizes numerous training methods, including tours, presentations by experts, and use of our refueling and maintenance facility
- Unique facility with hands-on learning opportunities in a full-scale reactor

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Building an agenda…

The Executive BWR Training typically lasts four and a half days, but may be tailored to fit the individual and unique needs of the participants. A sample course schedule of events includes the following modules:

Day 1

- ❑ BWR Design and Overview
- ❑ Basic Theory
  - Neutron Cycle
  - Reactivity-Reactivity Coefficients
  - Xenon
  - Thermal Hydraulics
- ❑ In-Vessel Tour
- ❑ Reactivity Control/Water Level Control
  - Reactor Vessel Internals
  - Fuel
  - Control Rods and Drive Mechanisms
  - Recirculation System and Flow Control
  - Standby Liquid Control
  - Reactor Water Cleanup

Day 2

- ❑ Basic Theory (continued)
  - Thermal Limits
- ❑ Pressure Control/Heat Removal
  - Main Steam
  - Main Turbine
  - Turbine Control/Reactor Pressure Control
  - Condensate and Feed Water
  - Reactor Water Level Control
  - Shutdown Cooling (RHR)
  - Reactor Core Isolation Cooling
- ❑ Nuclear Instrumentation
  - Source Range and Intermediate Range Monitors
  - Local and Average Power Range Monitors
  - Traversing Incore Probe
  - Reactor Protection System
- ❑ Mechanical Maintenance Overview (Lab)
  - Recirculation Pump Seal
  - Control Rod Drive Diagnostics

Day 3

- ❑ Refuel Floor Activities Overview and Fuel Moves (Lab)
- ❑ Transient & Safety Analysis/Design Bases
  - Pressure Increase Events
  - Moderator Temperature Decrease Events
  - Positive Reactivity Insertion Events
  - Core Flow Deviation Events
  - Loss of Feed Water Transient
  - Loss of Coolant Accident
  - Anticipated Transients Without Scram (ATWS)
  - Containment Response
  - Fuel Design & Performance (Lecture and Lab)
- ❑ Emergency Core Cooling Systems
  - High Pressure Coolant Injection/Core Spray
  - Automatic Depressurization System
  - Low Pressure Core Spray
  - Low Pressure Coolant Injection
  - Residual Heat Removal System
- ❑ GEH Facilities Tour
  - Electrical Discharge Machining (EDM) Lab
  - Welding Lab
  - Reactor Modifications
  - Control Rod Drive Undervessel

Day 4

- ❑ Operating Strategies
  - Core Power Response
  - Bundle Hydraulics
- ❑ Licensing
  - Organization
  - Process
  - Review of Current Issues
- ❑ BWR Owners' Group Activities
  - Mission
  - Organization
  - Current Activities
- ❑ Probabilistic Risk Assessment
- ❑ System Engineering Activities
  - Overview
  - Specific Systems (selected)
  - Service Information Letters (SILs)
- ❑ Part 21 Processes
- ❑ Material Issues
- ❑ BWR Plant Startup Overview

Day 5

- ❑ Asset Enhancement Activities
  - Power Uprate Projects
  - Plant Performance Improvement Projects
- ❑ BWR Chemistry Overview
- ❑ Advanced BWR Designs
- ❑ Instrument Setpoint Calculation Methodology

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For more information, contact your GE Hitachi Nuclear Energy sales representative or visit us at www.ge-energy.com/nuclear

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