

Course Description

Designed by industry experts for chemistry personnel who have a basic understanding of plant operation and plant systems, this course focuses on the essentials of primary and secondary operational water chemistry and delivers practical, hands-on learning and proven techniques for personnel responsible for operational chemistry analysis, corrosion prevention, and system diagnostics. Common topics will be covered as well as reactor coolant chemistry and radiochemistry, steam generator and balance of plant chemistry, demineralizer and filtration performance, startup and shutdown chemistry, corrosion concerns, and data evaluation techniques.

Course Information

- Course duration is five days – 2.5 days Primary Chemistry and 2.5 days Secondary Chemistry.
- Detailed course handbooks will be provided upon arrival.
- Attendees are encouraged to bring plant data for group discussion and analysis.

Course Topics

- ✓ Radiochemistry fundamentals
- ✓ RCS metallurgy
- ✓ RCS corrosion mechanisms
- ✓ RCS chemistry environments
- ✓ EPRI guidelines & requirements for RCS chemistry
- ✓ Corrosion product formation
- ✓ RCS pH chemistry
- ✓ RCS oxygen & oxygen ingress sources as it relates to the transport of corrosion products
- ✓ Purposes of acid reducing & acid oxidizing chemistry
- ✓ Fission types & sources
- ✓ Distribution of fast & slow neutrons, fission yield, & fission decay chains
- ✓ Letdown system cleanup general flow & components
- ✓ Resin properties, structure, & performance evaluation
- ✓ Define breakthrough, bleed, & selectivity in relation to resin performance
- ✓ Fuel defects, the types of defects, & effects on radionuclides
- ✓ Decontamination factor & measurement
- ✓ Fuel Reliability Indicator (FRI) purpose & calculation
- ✓ RCS chemical conditions during startup & shutdown
- ✓ PWR steam generator corrosion & corrosion mechanism
- ✓ Factors that influence corrosion
- ✓ Secondary cycle conditions & corrosion control
- ✓ Impurity influence on corrosion
- ✓ Water & steam properties as they relate to steam generation
- ✓ Steam generator characteristics
- ✓ Amines usage, properties of amines, & effects of amines within the system
- ✓ pH monitoring program through amines
- ✓ Water & steam cycle real-time measurements
- ✓ Hideout & hideout returns occurrence, measurement, calculation, & trending

