The primary coolant serves not only in transporting heat from the reactor core to the steam generators but also as a moderator for fast neutrons being produced by nuclear fission. Consequently the coolant should not interfere with operation of the power plant by any form of corrosion or activation and its consequences like high dose rates. These risks of loss of plant integrity are minimized by applying the best plant specific water chemistry treatment.

Based on AREVA’s worldwide expertise in water chemistry treatments we can assist for instance:
- Primary coolant circuit integrity
- Fuel cladding integrity
- Dose rate reduction measures
- Reactor core reactivity control

For determination of the best water chemistry treatment for your specific plant all necessary parameters are taken into account, e.g.
- Design
- Materials
- Operational conditions

The recommendations will always aim for minimization of corrosion, thereby reduced corrosion and activated product transport to counteract dose rate increase.

We will combine your operational experience and our long-standing international experience with plant designs of various OEMs for plant specific data evaluation to find the best solution for your needs and requirements.

In addition, we offer you on-site support for technical challenges and adaptation of state-of-the-art techniques like use of enriched boric acid (EBA) or zinc injection (DZO).

Let us also help you with your documentation, e.g. an update of your chemistry handbooks.

AREVA’s approach for tailored evaluation studies

Extract of our Portfolio:
- Evaluation dose rate reduction measures and dose rate plant behavior
- Integrity evaluation of primary components and related systems
- Evaluation of fuel - chemistry interactions
- Enriched boric acid and zinc injection implementation
- Optimization of plant shut-down operation
- On-site technical support
- Creation and revision of documents, e.g. Chemistry Handbooks
Overview of latest AREVA projects

- Primary side component aging program
  - Annually assessment of primary side water chemistry parameter in the frame of a component aging program.
- Dose Rate Reduction Study
  - Multi step study performed over several years
  - Evaluation of effectiveness of dose rate reduction measures of an Asian NPP reflecting European experiences.
- Full System Decontamination
  - Chemistry support during on-site performance.
  - Evaluation of plant recontamination behavior after FSD.
- Steam Generator Replacement
  - Evaluation of a water chemistry commissioning program regarding minimization of dose rate build-up

Further AREVA products

- Database of qualified products for maintenance work and during outage
- Diagnosis Monitoring System
- PWR Secondary Side Chemistry Consulting
  - Steam generator assessment
  - Water chemistry treatments
- BWR Chemistry Consulting
- PHWR Chemistry Consulting

Overview of latest AREVA projects

- Primary side component aging program
- Dose Rate Reduction Study
- Full System Decontamination
- Steam Generator Replacement

Effect of zinc on oxide layers

Corrosion product generation, subsequent activation, transport and deposition in primary coolant circuit

Your Benefits at a Glance

- AREVA international experience covers plant designs of various OEMs
- Knowledge of manifold chemistry treatments and chemistry guidelines
- State-of-the-art chemistry measures applied at AREVA’s EPR™
- Tailored plant specific studies in close cooperation with operators fitting your needs and requirements

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