

3471. PWR Secondary Water Chemistry Guidelines Revision 4

State-of-the-art water chemistry programs will reduce equipment corrosion and enhance steam generator reliability. These revised PWR secondary water chemistry guidelines, prepared by a committee of industry experts, represent the latest field and laboratory data on secondary system corrosion and performance issues. PWR operators can use these guidelines to update their secondary water chemistry programs. Revision 4 of the *PWR Secondary Water Chemistry Guidelines*, which provides recommendations for PWR secondary systems of all manufacture and design, has been completely reformatted as follows:

- Section 1 contains a shortened list of management responsibilities.
- Section 2 presents a compilation of corrosion data for steam generator tubing and, to a lesser extent, balance-of-plant materials. This information serves as the technical basis for the specific parameters and programs detailed in the document.
- Section 3 discusses the role of the concentration processes in local regions of the steam generator and the chemistry programs available for minimizing the impact of impurity concentration. It briefly identifies the supporting aspects and considerations in adopting these chemistry regimes.
- Section 4 presents a detailed method for performing the plant-specific optimization, including development of a modified chemistry program. To ensure the method's effectiveness, several utilities performed plant-specific evaluations using the materials presented in Appendix A. Section 4 also presents startup and operating chemistry parameters and limits which form the basis for the steam generator water chemistry controls. These controls serve as a starting point for site-specific optimization.
- Sections 5 and 6 present water chemistry programs for the recirculating steam generator (RSG) and once-through steam generator (OTSG), respectively. These sections are usually referred to frequently by chemistry personnel. The tables in these sections provide the boundaries for the plant-specific optimization procedures described in Section 4.
- Section 7 provides information on data evaluation, data management, and surveillance. This section has been revised to incorporate methods of using EPRI chemWORKS™ modules for evaluating plant data and predicting high-temperature chemistry environments throughout the cycle.

This fourth revision of the *PWR Secondary Water Chemistry Guidelines* represents another step in developing a more proactive chemistry program to limit or control steam generator degradation, with increased consideration of corporate resources and plant-specific design/operating concerns.

For more information see: EPRI TR-102134-R4, Final Report, November 1996, 250 pages.

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