REGULATORY ANALYSIS

DRAFT REGULATORY GUIDE-1265

(Proposed Revision 2 of Regulatory Guide 1.68.1, dated January 1977)

INITIAL TEST PROGRAM OF CONDENSATE AND FEEDWATER SYSTEMS FOR LIGHT-WATER REACTORS

Statement of the Problem

The U.S. Nuclear Regulatory Commission (NRC) issued Revision 1 to Regulatory Guide (RG) 1.68.1 in January 1977 to provide guidance for preoperational testing of condensate and feedwater (FW) systems for boiling water reactors (BWRs) licensed under the requirements of Title 10 of the *Code of Federal Regulations* (10 CFR), Part 50, "Domestic Licensing of Production and Utilization Facilities."

No similar regulatory guide exists to describe preoperational, initial plant startup, and power ascension testing of condensate and feedwater systems for pressurized water reactors (PWRs) or the new reactor designs including the advanced boiling water reactor (BWR), economic simplified BWR, U.S. evolutionary power reactor (EPR), U.S. advanced pressurized water reactor (PWR), and advanced passive 1000 (AP1000), including the AFW/EFW systems for the U.S. EPR and the U.S. advanced PWR.

Objective

The NRC staff should develop guidance for preoperational testing of condensate and feedwater systems for all types of light water reactors (LWR) subject to the requirements of 10 CFR Parts 50 or 52.

Regulatory guide 1.68.1 should be revised to address preoperational, initial plant startup, and power ascension tests for all condensate and FW systems for LWRs including startup, auxiliary and emergency FW systems for existing and new PWR types of LWR power plants. The revision to this RG should also address new feedwater design certification (DC) and combined license (COL) design information using the requirements in 10 CFR Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants." The NRC should also include important operating experience changes to detect condensate and FW component failures during preoperational tests.

This revision to RG 1.68.1 should provide NRC staff, licensees, and applicants with additional guidance for the development of an acceptable initial test program (ITP) for existing and new condensate and FW systems in 10 CFR Parts 50 and 52 plants. This revision should also incorporate lessons learned from operating experience that would be applicable to existing and new LWRs.

Alternative Approaches

Prior to developing the revision to RG 1.68.1 the NRC staff considered the following alternatives:

- Do not revise RG 1.68.1
- Update RG 1.68.1 to incorporate only BWR issues.
- Revise RG 1.68.1 to address preoperational, initial plant startup, and power ascension tests for LWR power plant condensate, FW, SFW, AFW, and EFW systems.

Alternative 1: Do Not Revise Regulatory Guide 1.68.1

Under this alternative, the staff would not revise this guidance, and the original version of this regulatory guide would be retained. This alternative is considered the baseline or "no action" alternative and, as such, involves no value or impact considerations.

Alternative 2: Update Regulatory Guide 1.68.1 to address only Boiling Water Reactor Issues

Under this alternative the staff would update RG 1.68.1 but only address items covered in the current revision of the RG. This would provide up-to-date guidance for BWRs but would not improve the availability of guidance for other types of LWRs licensed under 10 CFR Parts 50 or 52.

Development, review and issuing of this alternative would cost approximately the same as completing the development of guidance for all types of LWRs without providing the level of guidance the NRC staff prefers. This alternative is considered to provide the least benefit for the cost.

Alternative 3: Revise RG 1.68.1 to address Preoperational, Initial Plant Startup, and Power Ascension Tests for Light Water Reactor Power Plant Condensate, Feedwater, Startup Feedwater, Auxiliary Feedwater, and Emergency Feedwater Systems.

Under this alternative RG 1.68.1 would be revised to address all LWRs licensed under 10 CFR Parts 50 and 52. This revision would allow the NRC staff to promulgate the most current testing guidance and incorporate lessons learned and operating experience from both BWR and PWR facilities.

The costs to the NRC would be the one-time cost of issuing the revised regulatory guide (which is expected to be relatively small) and licensees would incur little or no cost.

Conclusion

The NRC should revise RG 1.68.1 to address condensate and feedwater system testing procedures in accordance with the objectives outlined above. This is consistent with current and new regulatory guidance practices. The benefit of this action is that it would enhance reactor safety for existing and new reactors licensed under 10 CFR Parts 50 and 52. The value to the NRC staff and its applicants would be the benefits associated with enhanced efficiency and effectiveness in using a common guidance document as the technical basis for COL applications and other interactions between the NRC and its regulated entities.

The NRC should issue this RG to improve the licensing process. The NRC staff concludes that the proposed action will enhance reactor safety and reduce regulatory burden on both the NRC and its licensees. It can also result in a more uniform process for licensee development of the ITP for condensate and FW systems, including startup, auxiliary and emergency FW systems for existing and new LWRs. It may also lead to cost savings for the nuclear industry, especially for standard plant DC and COL applications.