Regulatory Guide Periodic Review

Regulatory Guide Number: **1.96, Revision 1**

Title: **Design of Main Steam Isolation Valve Leakage Control Systems for Boiling Water Reactor Nuclear Power Plants**

Office/division/branch: **NRR/DSS/SCPB**
Technical Lead: **Angelo Stubbs**

Staff Action Decided: **Withdraw**

1. What are the known technical or regulatory issues with the current version of the Regulatory Guide (RG)?

Regulatory Guide 1.96, Revision 1, issued in June 1996, establishes the Nuclear Regulatory Commission's (NRC) position for an acceptable approach for the design of boiling water reactors main steam line leakage control systems (LCS). The purpose of the LCS is to limit the release of fission products to the environment and minimize the contribution of main steam line bypass leakage to offsite doses, which limits are specified in Title 10 of the *Code of Federal Regulations*, Part 100, "Reactor Site Criteria."

An alternative to LCS is now currently being employed by boiling water reactors (BWRs), which involves use of a passive method for controlling offsite dose consequences resulting from leakage past main steam line isolation valves. It involves using alternate methods based on the Alternate Source Term (AST) and/or taking credit for fission product plateout and holdup in the large volume and surface area of the main steam piping, main steam drain lines, turbine bypass lines, turbine, and main condenser subject to complying with additional requirements for these items. Regulatory Guide 1.183 provides guidance for evaluations using such methodology.

Given this, RG 1.96 is recommended for withdrawal. The withdrawal of RG 1.96 will require identification of all RGs and Standard Review Plans (SRP) that reference RG 1.96, such that future reviews and revisions of these documents will account for the withdrawal of RG 1.96.

2. What is the impact on internal and external stakeholders of <u>not</u> updating the RG for the known issues, in terms of anticipated numbers of licensing and inspection activities over the next several years?

No expected impact. Most of the BWR's that are currently being operated in the US do not use or credit LCS in the mitigation of leakage through the MSIV valves and the associated consequences. Current licensees may continue to use RG 1.96 if it is part of their licensing basis, and the withdrawal does not affect any existing licenses or agreements. New reactors utilize passive methods for controlling offsite dose consequences resulting from leakage past main steam line isolation valves, and do not incorporate LCS into their design. Therefore, this RG is not applicable to new reactors and withdrawal of the guide should not affect future NRC licensing activities.

3. What is an estimate of the level of effort needed to address identified issues in terms of full-time equivalent (FTE) and contractor resources?

The level of effort to address the dispositioning of the Regulatory Guide, including conforming changes in other documents such as Standard Review Plan, Section 6.7 is estimated to be approximately 0.1 FTE.

4. Based on the answers to the questions above, what is the staff action for this guide (Reviewed with no issues identified, reviewed with issues identified for future consideration, Revise, or Withdraw)?

Withdraw

5. Provide a conceptual plan and timeframe to address the issues identified during the review.

The NRC staff should plan to begin the withdraw process for RG 1.96 in calendar year 2023.

NOTE: This review was conducted in August 2023 and reflects the staff's plans as of that date.