

REGULATORY ANALYSIS

DRAFT REGULATORY GUIDE DG-1287 AN APPROACH FOR PLANT-SPECIFIC, RISK-INFORMED DECISIONMAKING: TECHNICAL SPECIFICATIONS

(Proposed Revision 2 of Regulatory Guide 1.177, dated May 2011)

1. Statement of the Problem

The U.S. Nuclear Regulatory Commission (NRC) is considering revising Regulatory Guide (RG) 1.177, “An Approach for plant specific, Risk-Informed Decisionmaking: Technical Specifications.” Proposed Revision 2 of RG 1.177 provides guidance for using risk information to evaluate changes to nuclear power plant Technical Specifications (TS), which typically affect completion times (CTs) and surveillance frequencies (SFs). This RG would supplement the guidance provided in RG 1.174, “An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis,” Revision 3, issued January 2018.

This revision of RG 1.177 would update the defense-in-depth philosophy to be consistent with the philosophy described in RG 1.174, which was revised in 2018 to expand the meaning of, and the process for, assessing defense-in-depth considerations. Specifically, this revision of RG 1.177 would reference the defense-in-depth guidance in RG 1.174 in several staff regulatory positions.

Additionally, this revision of RG 1.177 would (1) adopt the term “PRA acceptability,” and related phrasing variants to describe the appropriateness of the Probabilistic Risk Assessment (PRA) used to support risk-informed licensing submittals, instead of terms such as “PRA quality,” “PRA technical adequacy,” and “technical adequacy;” (2) update Section 2.3, “Evaluation of Risk Impact,” of this RG; and (3) delineate the difference between temporary CT extensions and permanent CT extensions of TS or maximum backstop CTs.

2. Objective

This revision of RG 1.177 would provide licensees with the latest definition of the defense-in-depth guidance, to include expansion of the guidance on the meaning of, and the process for, assessing the defense-in-depth considerations as stated in RG 1.174.

Additionally, the staff would revise this guide to (1) adopt the term “PRA acceptability,” and related phrasing variants, instead of terms such as “PRA quality,” “PRA technical adequacy,” and “technical adequacy” to describe the appropriateness of the PRA used to support risk-informed licensing submittals; (2) update Section 2.3 of this RG to reflect the latest guidance for PRA; and (3) delineate the difference between temporary CT extensions and permanent CT extensions of TS or maximum backstop CTs.

This revision would provide specific guidance relating to a backstop CT or maximum backstop CT. Specifically, the maximum that backstop CTs could be extended would be up to 90 days in a TS limiting condition of operation, if sufficient trains remained operable to fulfill the TS safety function when the risk-informed CT is applied.

3. Alternative Approaches

The NRC staff considered the following alternative approaches:

1. Do not revise RG 1.177
2. Withdraw RG 1.177
3. Revise RG 1.177 to address the current methods and procedures.

Alternative 1: Do Not Revise RG 1.177

Under this alternative, the NRC would not revise RG 1.177 and would retain the current version of the RG. This alternative is considered the “no-action” alternative and provides a baseline condition from which the staff will assess any other alternatives. The no-action alternative results in no additional costs to the public, licensees, or the NRC. However, this alternative also means no potential new benefits to the public, licensees, or the NRC and the identified concerns with the current version of the RG would not be addressed. The NRC staff would continue to review each application on a case-by-case basis. This could result in inconsistent interpretation and application of the guidance.

Alternative 2: Withdraw RG 1.177

Under this alternative the NRC would withdraw RG 1.177. This would eliminate the problems identified above regarding the RG. However, it would also eliminate the only readily available description of the methods the NRC staff considers acceptable for the use of PRA for risk-informed applications for plant TS in demonstrating compliance with 10 CFR 50.90, “Application for amendment of license, construction permit, or early site permit,” and 10 CFR 50.36, “Technical Specifications.” Withdrawing RG 1.177 would be less costly than revising it; however, it would also mean that users would not have access to important regulatory guidance.

Alternative 3: Revise RG 1.177

Under this alternative, the NRC would revise RG 1.177. This revision would incorporate the latest guidance regarding defense-in-depth, supporting information, and use of risk information to evaluate changes to plant TS. Revising RG 1.177 would help ensure that NRC staff, the industry, and the public have access to the most current guidance available that accurately reflects the agency’s position.

The impact to the NRC would be the costs associated with preparing and issuing the RG revision. The impact to the public would be the voluntary costs associated with reviewing and providing comments to NRC during the public comment period. The benefit to NRC staff and its applicants would be enhanced efficiency and effectiveness in using a common guidance document as the technical basis for license applications and other interactions between the NRC and its regulated entities.

Conclusion

Based on this regulatory analysis, the NRC staff concludes that revision of RG 1.177 is warranted. The action will enhance the efficiency and effectiveness of license applications for

changes to plant TS and related regulatory reviews. It could also lead to cost savings for the industry, especially with regards to applications that affect defense-in-depth and use risk information to evaluate changes to nuclear power plant TS.