Regulatory Guide Periodic Review

Regulatory Guide Number:	**1.178, Revision 1**
Title:	**An Approach for Plant-Specific Risk-Informed Decisionmaking for Inservice Inspection of Piping**
Office/division/branch:	**RES/DRA/PRB**
Technical Lead:	**Anders Gilbertson**
Staff Action Decided:	**Revise**

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

RG 1.178 was issued in 2003 to provide guidance on methods acceptable to the NRC staff for integrating insights from probabilistic risk assessment (PRA) techniques with traditional engineering analyses into inservice inspection programs for piping.

In SRM-SECY-11-0014, "Staff Requirements – SECY-11-0014 – Use of Containment Accident Pressure in Analyzing Emergency Core Cooling System and Containment Heat Removal System Pump Performance in Postulated Accidents," the staff were directed by the Commission to revise Regulatory Guide (RG) 1.174, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis," using precise language to assure that the defense-in-depth philosophy is interpreted and implemented consistently, which includes similarly revising other regulatory guidance that refers to defense-in-depth, as appropriate. Section 2.1.2 of RG 1.178 contains guidance related to ensuring that a risk-informed change is consistent with the defense-in-depth philosophy. As such, RG 1.178 has been identified as regulatory guidance that will need revisions similar to RG 1.174. Specifically, the guidance in RG 1.178 related to defense in depth should be revised to refer readers to the defense-in-depth guidance published in RG 1.174, Revision 3, which was published in January 2018.

Additionally, the following issues have been identified. As directed in the agency's decision on differing professional opinion (DPO)-2016-001 (available in ADAMS under accession number ML17013A015), RG 1.178 has been identified as a guidance document that is to be revised to adopt the term probabilistic risk assessment "PRA acceptability." Finally, the references in RG 1.178 should be updated to reflect, at a minimum, the publication of new revisions of RGs, such as RG 1.174, Revision 3, and withdrawal of any referenced RGs, such as RG 1.176. In addition, the format of RG 1.178 should also be updated to conform to the latest acceptable RG program guidance.

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?

If RG 1.178 is not updated with revised language to ensure consistency with the defense-in-depth philosophy, licensing reviews of related risk-informed applications may be significantly inconsistent relative to previous licensing reviews. Although the adoption

of the term PRA acceptability does not change the implementation of any NRC regulatory processes (e.g., current policies and practices are not affected), if RG 1.178 is not updated accordingly, this will not support consistent use of PRA acceptability in our regulatory guidance, standard review plans, training materials, and other information that supports our regulatory program.

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 changes needed to update the defense-in-depth guidance and adopt the term PRA acceptability are expected to require relatively minimum effort (i.e., on the order of weeks). It is anticipated that the revised guidance on defense in depth would simply direct readers to the related defense-in-depth guidance in RG 1.174, Revision 3, and only minor changes are anticipated related to the adopt of the term PRA acceptability. Changes to RG 1.178 that bring the document in conformance with the latest RG template are expected to similarly require relatively minimum effort (i.e., on the order of weeks). In total, it is estimated that approximately 0.35 FTE would be needed to complete the next revision of RG 1.178. The changes in RG 1.178 would be implemented by staff in the Office of Nuclear Regulatory Research in coordination with the Office of Nuclear Reactor Regulation and the Office of New Reactors and no contractor support is anticipated.

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)?

Revise.

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

The staff is planning to revise RG 1.178 to update the defense-in-depth guidance so that it is consistent with the recently revised RG 1.174, Revision 3. The staff expects the effort to affect this revision will largely involve developing language that refers the reader to RG 1.174, Revision 3, for the agency's updated guidance on defense in depth. Regarding the adoption of the term PRA terminology, the staff will review RG 1.178 to identify uses of terms such as technical adequacy, PRA quality, and technical acceptability as a the high-level term to discuss the overall "goodness" of a PRA model used for a regulatory application and replace those terms with PRA acceptability. Other changes that serve to make RG 1.178 conform to the latest RG format are largely editorial in nature and will also involve a reorganizing of existing text to conform to the current RG program guidance. The staff expects to submit a draft version of this RG to the Office of Nuclear Regulatory Research staff for processing by November 2018 and issue it for public comment by the 1st quarter CY 2019.

NOTE: This review was conducted in June 2018 and reflects the staff's plans as of that date. These plans are tentative and subject to change.