REGULATORY ANALYSIS

REGULATORY GUIDE (RG)1.29
SEISMIC DESIGN CLASSIFICATION FOR NUCLEAR POWER PLANTS

(Proposed Revision 6 of RG 1.29 issued July 2016)

1. Introduction

This document presents the results of a regulatory analysis of the U.S. Nuclear Regulatory Commission's (NRC's) determination of whether to Revise RG 1.29 "Seismic Design Classification for Nuclear Power Plants." The analysis is to provide the public with an insight in how the NRC arrives at a decision.

2. Statement of the Problem

The NRC issued Revision 5 of Regulatory Guide (RG) 1.29 in July 2016 to provide guidance for complying with the General Design Criterion (GDC) 2, "Design Bases for Protection Against Natural Phenomena," as set forth in Appendix A, "General Design Criteria for Nuclear Power Plants," to Title 10, Part 50, of the *Code of Federal Regulations* (10 CFR Part 50), "Licensing of Production and Utilization Facilities." The guide describes methods acceptable for use in identifying and classifying those features of light-water-reactor (LWR) nuclear power plants that must be designed to withstand the effects of the safe-shutdown earthquake (SSE). The revision was to ensure that nuclear power plant structures, systems, and components important to safety are designed to withstand the effects of earthquakes without loss of capability to perform their safety functions.

Recently it was noted that there was a clerical error in numbering of the guidance in Section C "Staff Regulatory Guidance." The last item in that section (i.e., C.1.i) should have been C.2. That would be consistent with the Revision 4 of RG 1.29. What is C.2 in Revision 5 should be C.3 and C.3 should be C.4. This error needs to be corrected. This change would clarify Section C. In addition, it needs to be reformatted to align with the current template for regulatory guides.

3. Objective

The objective of this regulatory action is to assess the need to update NRC guidance on the classification of those features of LWR nuclear power plants that must be designed to withstand the effects of the SSE.

4. Identification and Analysis of Alternative Approaches

The NRC staff considered the following alternative approaches for providing NRC guidance on acceptable methods and procedures for classification of those features of LWRs that must be designed to withstand the effects of the SSE:

1. Do not revise Regulatory Guide 1.29.

2. Withdraw Regulatory Guide 1.29.

3. Revise Regulatory Guide 1.29.

Alternative 1: Do Not Revise Regulatory Guide 1.29

Under this alternative, the NRC would not revise this guidance, and applicants would continue to use the present version of this regulatory guide. This is considered the "No Action" alternative. If NRC takes no action, there would be no cost to NRC in revising the guide. However, the "no-action" alternative would not address the issue of incorrect numbering within Section C, "Staff Regulatory Guidance." This has resulted in one inquiry from a stakeholder.

Alternative 2: Withdraw Regulatory Guide 1.29

Withdrawing this regulatory guide would eliminate the guidance regarding seismic design classification for LWRs. Applicants would be impacted by a withdrawal by having to propose and justify methods and procedures for the determination of static and dynamic soil and rock properties used in seismic response analyses and engineering design. NRC staff would be impacted by being required to review the alternate methods and procedures and the review may result in an increase in the number of Requests for Additional Information (RAIs) which could extend the length of an application review. Applicants would be burdened by the effort required to respond to the RAIs.

Alternative 3: Revise Regulatory Guide 1.29

Under this alternative, the NRC would revise Regulatory Guide 1.29 to correct the numbering issue in Section C, "Staff Regulatory Guidance." The value to NRC staff and applicants in revising the guide would be the benefits associated with correcting what is a modest error to preclude further inquiries from stakeholders. The impact on the NRC would be the costs associated with preparing and issuing the regulatory guide which will be modest in this case.

5. Comparison of Alternatives

The three alternatives were compared against each other with respect to safety, as well as NRC and applicant resources.

Alternative 1, the "no action option," would not result in unsafe conditions as the renumbering would not change the regulatory positions. The only cost is in responding to future inquiries. The withdrawal of formal NRC guidance (Alternative 2) does not necessarily represent unsafe results since applicants/licensees would either continue to use existing methods with which they are familiar and have not proven unsafe, or they may even adopt methods more recent than those found in the previous revisions of the RG. Alternative 3 would be superior to Alternative 1 and possibly 2 in that it would update the RG to correct the numbering in Section C, "Staff Regulatory Guidance."

With regard to NRC resources, Alternative 3 represents the greatest initial cost to the NRC, which is attributable to the modest cost associated with preparing and issuing a revised regulatory guide. When considered over the lifetime of the RG and the potential for expenditures the overall cost to NRC as well as applicants/licensees of Alternative 3 is anticipated to closer to or less than the overall cost of Alternatives 1 or 2.

6. Decision Rationale

Based on this regulatory analysis, the NRC staff concludes that revision of Regulatory Guide 1.29 is warranted. The proposed action will enhance an applicant's ability to prepare submittals to NRC. An updated guide will reduce staff review time and the need for requests for additional information thus reducing costs to applicants, applicants, and the NRC. The cost to NRC in revising the RG and to applicants and applicants in adapting to a revised RG are deemed to be less than the benefits accrued by reducing the need for RAIs.