

# **REGULATORY ANALYSIS**

## **DRAFT REGULATORY GUIDE DG-1386**

### **QUALIFICATION OF SAFETY-RELATED ACTUATORS IN PRODUCTION AND UTILIZATION FACILITIES**

(Proposed Revision 2 of Regulatory Guide 1.73, Revision 1, issued October 2013)

#### **1. Introduction**

This document presents the results of a regulatory analysis conducted by the U.S. Nuclear Regulatory Commission (NRC) concerning its determination of whether to issue Draft Regulatory Guide (DG)-1386 (proposed Revision 2 of Regulatory Guide (RG) 1.73), “Qualification of Safety-Related Actuators in Production and Utilization Facilities.” The analysis provides the public with an insight into how the NRC arrives at a decision.

#### **2. Statement of the Problem**

The NRC staff developed the current version (Revision 1) of RG 1.73 in October 2013 to endorse Institute of Electrical and Electronics Engineers (IEEE) Standard (Std.) 382-2006, “Standard for Qualification of Safety-Related Actuators for Nuclear Power Generating Stations.” However, the IEEE standard was revised in 2019. In September 2020, the Office of Nuclear Reactor Regulation, Division of Engineering and External Hazards, and the Office of Nuclear Regulatory Research, Division of Engineering, agreed to consider updating the RG to endorse the revised standard. As environmental qualification is a recent focus area for the agency and licensees, the NRC expects that current licensees and new applicants would use the new standard and revised RG. Further, the new standard and updated RG can be used in license renewals under 10 CFR Part 54 for replacing equipment or extending the qualified life. Therefore, the staff needs to determine whether revision of this RG is warranted to provide guidance that reflects updated information to address those identified recommendations and current methodologies for the qualification of safety-related actuators in production and utilization facilities.

#### **3. Objective**

The objective of this regulatory action is to assess the need to provide up-to-date guidance for evaluating the qualification of safety-related actuators in production and utilization facilities.

#### **4. Alternative Approaches**

The staff considered three alternative approaches:

- (1) Do not revise RG 1.73.
- (2) Withdraw RG 1.73.
- (3) Update RG 1.73.

### Alternative 1: Do Not Revise Regulatory Guide 1.73

Under this alternative, the NRC would not revise this guidance, and applicants and licensees would continue to use the present version of the guide. This is considered the “no-action” alternative. If the NRC took no action, there would be no initial cost to the NRC to revise the guide. However, the no-action alternative would not provide updates to address the identified recommendations and current methodologies for the qualification of safety-related actuators in production and utilization facilities. This may result in the NRC issuing requests for additional information (RAIs) to applicants and licensees. Applicants and licensees would be burdened by the effort required to respond to the RAIs, and the NRC staff would be burdened by the need to review applicants’ and licensees’ responses.

### Alternative 2: Withdraw Regulatory Guide 1.73

Under this alternative, withdrawing RG 1.73 would leave a void in the NRC’s regulatory guidance for the qualification of safety-related actuators. Eliminating guidance for licensees and future applicants would mean the content of future applications could vary from licensee to licensee and from applicant to applicant, making the review of these applications more burdensome for the staff. The burden on applicants and licensees would also be greater under this alternative because without specific guidance, applicants and licensees might spend more time preparing applications and potentially responding to RAIs.

### Alternative 3: Update Regulatory Guide 1.73

Under this alternative, the NRC would update RG 1.73, implementing the recommendations of the expert evaluation team report and addressing current methodologies. One benefit of this action is that it would enhance reactor safety by providing up-to-date guidance and information on the qualification of safety-related actuators in production and utilization facilities. It would also improve the staff’s ability to quickly review future applications. The costs to the NRC would be the one-time cost of issuing the revised RG, expected to be relatively small. address those identified recommendations and current methodologies for the qualification of safety-related actuators in production and utilization facilities. The environmental qualification of safety related power operated valve actuators in production and utilization facilities is required regardless of the existence or currency of the RG, so applicants and licensees would incur little or no additional cost relative to Alternative 1. Updated regulatory guidance might reduce applicants’ and licensees’ costs relative to Alternative 2.

## **5. Comparison of Alternatives**

Alternative 1 is considered the baseline or no-action alternative and, as such, involves no value/impact considerations. Alternative 2 would make application review more burdensome for the staff and very likely make application preparation more burdensome for applicants and licensees. Alternative 3 would impose a one-time additional cost to the NRC relative to Alternatives 1 and 2. The one-time cost would be offset by the avoidance of the burdens imposed by Alternative 2. Alternative 3 would not impose significant additional costs on applicants and licensees relative to Alternative 1 and could possibly result in reduced costs to the applicant and licensee relative to Alternative 2.

## **6. Decision Rationale**

Based on this regulatory analysis, the staff recommends that the NRC revise RG 1.73 to reflect the availability of new information and improved methodologies. The staff concludes that the proposed action would enhance the safety of production and utilization facilities by providing up-to-date guidance and information on the qualification of safety-related actuators in production and utilization facilities. Applicants and licensees can use this guidance to ensure that designs are constructed to be safe and to help ensure that the NRC staff review submitted designs in a timely manner.