

REGULATORY ANALYSIS

DRAFT REGULATORY GUIDE DG-1388

EVALUATIONS OF EXPLOSIONS POSTULATED TO OCCUR AT NEARBY FACILITIES AND ON TRANSPORTATION ROUTES NEAR NUCLEAR POWER PLANTS

(Proposed Revision 3 of Regulatory Guide 1.91 Revision 2, issued April 2013)

1. Statement of the Problem

The U.S. Nuclear Regulatory Commission (NRC) staff issued the current version (Revision 2) of Regulatory Guide (RG) 1.91, "Evaluations of Explosions Postulated to Occur at Nearby Facilities and on Transportation Routes Near Nuclear Power Plants," in April 2013. The NRC issued an expert evaluation team report in April 2020 that identified several recommendations for updates to RG 1.91, Revision 2 (see Agencywide Documents Access and Management System (ADAMS) Accession No. ML20100F635). Therefore, the staff determined that revision of this RG may be warranted, or another mechanism would be needed to provide guidance that reflects updated information to address those identified recommendations and current methodologies for evaluating postulated explosions at nearby facilities and transportation routes near nuclear power plants.

2. Objective

The objective of this regulatory action is to assess the need to provide up-to-date guidance for evaluating postulated explosions at nearby facilities and transportation routes near nuclear power plants.

3. Alternative Approaches

The staff considered three alternative approaches:

- (1) Do not revise RG 1.91
- (2) Withdraw RG 1.91
- (3) Update RG 1.91

Alternative 1: Do Not Revise Regulatory Guide 1.91

Under this alternative, the NRC would not revise this guidance, and applicants would continue to use the present version of the guide. This is considered the "No-Action" alternative. If NRC takes 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 evaluating postulated explosions at nearby facilities and transportation routes near nuclear power plants.

The NRC would continue to review each new application and license amendment request on a case-by-case basis. This may result in the NRC issuing requests for additional information (RAIs) to applicants. Applicants would be burdened by the effort required to respond

to the RAIs, and the NRC staff would be burdened by the need to review the applicant responses.

Alternative 2: Withdraw Regulatory Guide 1.91

Under this alternative, the withdrawal of RG 1.91 would leave a void in the NRC's regulatory guidance for the evaluation of postulated explosions at nearby facilities and transportation routes near nuclear power plants. By eliminating guidance for future applicants, the content of future applications could vary from applicant to applicant, thereby making the review of these applications more burdensome for the staff. The burden on applicants would be greater under this alternative because without specific guidance, applicants might spend more time preparing applications and potentially responding to RAIs.

Alternative 3: Update Regulatory Guide 1.91

Under this alternative, the NRC would update RG 1.91, 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 evaluation of postulated explosions at nearby facilities and transportation routes near nuclear power plants. In addition, it would 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 (which is expected to be relatively small). Evaluating postulated explosions at nearby facilities and transportation routes near nuclear power plants is required regardless of the existence or currency of the RG, so applicants would incur little or no additional cost relative to Alternative 1. Updated regulatory guidance might reduce the applicants' cost relative to Alternative 2.

Conclusion

Alternative 1 is considered the baseline or "No-Action" alternative and, as such, involves no value/impact considerations; however, additional burdens on the staff and applicants would be anticipated due to the lack of updated guidance. Alternative 2 would make application review more burdensome for the staff and very likely make application preparation more burdensome for applicants. 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 anticipated by Alternative 1 and imposed by Alternative 2. Alternative 3 would not impose significant additional costs on applicants relative to Alternative 1 and could possibly result in reduced costs to the applicant relative to Alternative 2.

Based on this regulatory analysis, the staff recommends that the NRC revise RG 1.91 to reflect the availability of new information and improved methodologies. The staff concludes that the proposed action would enhance nuclear power plant safety by providing up-to-date guidance and information on evaluating postulated explosions at nearby facilities and transportation routes near nuclear power plants. Applicants and licensees can use this guidance to ensure that designs are constructed to be safe and to help ensure timely review by the NRC staff of the submitted designs.