

REGULATORY ANALYSIS

DRAFT REGULATORY GUIDE DG-4028 NRC REGULATORY GUIDE ON VOLCANIC HAZARDS ASSESSMENT FOR NUCLEAR POWER REACTORS (Proposed New Regulatory Guide)

1. Statement of the Problem

The U.S. Nuclear Regulatory Commission (NRC) does not currently have any guidance for assessing volcanic hazards at proposed new or advanced reactor sites, despite several prospective applicants considering sites with known volcanic hazards. Applicants for reactors in those areas will need to factor this into their proposed design bases and to address challenges of siting in areas of potential volcanic hazards. Therefore, there is need for guidance to facilitate staff review of volcanic hazards to support the siting of new nuclear power reactors licensed under Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50 or 10 CFR Part 52. Specifically, there is need for an acceptable, risk-informed framework for consideration of volcanic hazards in licensing 10 CFR Part 50 or Part 52 facilities. Guidance in the form of a Regulatory Guide would address the issue and it would provide applicants with information regarding what methods and approaches the NRC staff considers acceptable for the assessment of volcanic hazards in license applications.

2. Objective

The objective of this regulatory action is to address the need to develop NRC guidance for assessing volcanic hazards for 10 CFR Part 50 and 52 facilities and provide applicants with a method to demonstrate compliance with the 10 CFR Part 100.23(c), 10 CFR Part 50, Appendix A, and 10 CFR Part 52.17(a)(1)(vi) requirements for new reactor siting.

3. Alternative Approaches

The NRC staff considered the following alternative approaches:

1. Do not develop formal guidance (a Regulatory Guide)
2. Develop a Regulatory Guide that provides a method to assess volcanic hazards at proposed new and advanced reactor sites.

Alternative 1: Do Not Develop a Regulatory Guide

Under this alternative, the NRC would not develop or issue additional guidance. This alternative is considered the “no-action” alternative and provides a baseline condition from which any other alternatives will be assessed. If NRC does not take action, there would not be any changes in costs or benefit to the public, licensees or NRC. However, the “no-action” alternative would not address identified concerns with the absence of NRC guidance for assessing volcanic hazards at proposed new reactor sites. The NRC would continue to review each application on a case-by-case basis with no guidance for its review or guidance to applicants to guide the development of a complete application that appropriately addresses all external hazards, including volcanic hazards, that may affect a proposed site.

Alternative 2: Develop a Regulatory Guide

Under this alternative the NRC would develop formal guidance in the form of a Regulatory Guide. This guidance document would incorporate the latest information, supporting guidance, review practices, and provide an approach by which prospective applicants and the staff can assess volcanic hazards and their effects on a proposed new or advanced reactor site. By doing so, the NRC would ensure that the RG guidance available in this area is current, and accurately reflects the staff's position.

The impact to the NRC would be the costs associated with preparing and issuing the Regulatory Guide, including the method to assess volcanic hazards at proposed new and advanced reactor sites. The impact to the public would be the voluntary costs associated with reviewing and providing comments to NRC during the public comment period. The value to NRC staff and its applicants would be the benefits associated with 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 development of a new Regulatory Guide with a method to assess volcanic hazards for proposed new and advanced reactor sites is warranted. The action will enhance the assurance of site safety by ensuring that all external hazards with the potential to adversely affect the safe operations of the proposed facility are adequately considered and that the appropriate guidance is available to all stakeholders. It could also lead to cost savings for the industry, especially with regard to preparing an application for sites with known or suspected volcanic hazards by providing an approved method to assess those hazards rather than requiring the applicant to develop a new method of assessment for the proposed site. The availability of guidance on an acceptable method to assess volcanic hazards at a proposed site may also result in more efficient staff reviews and fewer requests for additional information.