

NRC REGULATORY GUIDE ON
VOLCANIC HAZARDS ASSESSMENT
WORKING OUTLINE

October 21, 2019

1) INTRODUCTION

- a) Purpose
 - i) The NRC staff is preparing this Regulatory Guidance (RG) to provide clarifying guidance to facilitate staff review and understanding of volcanic hazards assessments that are used to support siting of new power reactors licensed under 10 CFR Part 50 or 10 CFR Part 52.
- b) Applicability
 - i) Applicable to all applicants for new power reactors
- c) Applicable Orders and Regulations
 - i) 10 CFR Part 100.23(c), 10 CFR Part 50, Appendix A, Criterion 2(1), 10 CFR Part 52.17(a)(1)(vi), and 10 CFR Part 52.79(a)(1)(iii)
- d) Related Guidance
 - i) (None)
- e) Purpose of Regulatory Guides
- f) Paperwork Reduction Act
- g) Public Protection Notification

2) DISCUSSION

- a) Reason for Issuance
 - i) Although volcanic hazards exist only in certain areas of the USA, some potential nuclear reactors are being considered in areas that have experienced direct volcanic disruption in the past. The guidance in this RG develops a risk-informed framework for the consideration of volcanic hazards, which the NRC staff finds acceptable for use in licensing Part 50/52 facilities.
- b) Background:
 - i) Overview of volcanic hazards
 - ii) Rationale for the Period of Interest
 - iii) Rationale for the Regions of Interest
 - iv) Discussion on the use of SSHAC study guidelines
 - v) Proposed Volcanic Hazards Analysis (VHA) approach
 - (1) Initial Characterization
 - (2) Screening of Volcanic Hazards
 - (3) Initial Risk Insights
 - (4) Evaluate Eruption Potential and/or Hazard Potential
 - (5) Detailed Risk Insights
 - (6) Evaluate Design Bases
 - (7) Evaluate Mitigating Strategies
- c) Harmonization with International Standards:
 - i) General consistency with existing standard IAEA SSG-21
 - ii) ANS 2.34 is under development, but no draft released
- d) Documents Discussed in Staff Regulatory Guidance

3) STAFF REGULATORY GUIDANCE

- a) Period of Interest
- b) Regions of Interest
 - i) Volcanic ash falls potentially different from surface flow hazards?
- c) Tectono-magmatic model
- d) Deterministic Screening of Volcanic Hazards
- e) Initial Risk Insights
- f) Evaluate Probability of Eruption and/or Hazard
- g) Detailed Risk Insights
- h) Evaluate Design Basis
- i) Evaluate Mitigation Strategies
- j) Siting Decision

4) IMPLEMENTATIONS

- a) Use by Applicant and Licensees
- b) Use by NRC Staff

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