Development of a Volcanic Hazards Regulatory Guide

Public Meeting

October 21, 2019

Agenda

Time	Topic	Presenter
1:00 – 1:05 pm	Welcome and General Information	Dan Mussatti
1:05 – 1:20 pm	Overview and Schedule	Jenise Thompson
1:20 – 2:00 pm	Draft Outline of Proposed Regulatory Guide	Brittain Hill
2:00 – 2:15 pm	Break	
2:15 – 3:15 pm	Public Comments and Discussion	All
3:15 – 3:30 pm	Closing Remarks	NRC

Purpose

- to share the regulatory bases for developing the RG,
- to inform stakeholders about the RG process and planned timeline for developing the RG, and
- to explain and solicit feedback on the outline of technical information planned for inclusion in the draft RG.

Overview of Regulatory Analysis

- NRC has regulatory requirement to consider potential volcanic hazards (10 CFR Parts 50 and 52, GDC 2, 100.23), but lacks guidance on acceptable approaches
- NRC considered five alternative approaches to develop a method to assess volcanic hazards at proposed nuclear power plant sites
  - No action
  - Develop and issue guidance
  - Endorse existing IAEA safety guide SSG-21
  - Endorse ANS 2.34 currently under development
  - Review and accept for use a topical report
- Staff determined that the best path forward is to develop a draft Regulatory Guide (RG) with input from interested stakeholders.

Regulatory Guide Issuance Process

- NRC staff will write a draft guide (DG) over the coming months and will consider stakeholder feedback received by November 8, 2019
- DG will begin internal review process by late 2019/early 2020
- Formal public comment period expected in late spring/early summer of 2020
- Comment capture email box will remain open and monitored throughout the development of the DG
- DG can be updated based on public comments and initial use of method by prospective applicants
- Final RG will not be issued until after ANS 2.34 is certified, likely in 2022

1 INTRODUCTION

1a) Purpose
- 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.

1b) Applicability
- Applicable to all applicants for new power reactors.

1c) Applicable Orders and Regulations
- 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)

1d) Related Guidance (None)

1e) Purpose of Regulatory Guides

1f) Paperwork Reduction Act

1g) Public Protection Notification

2 DISCUSSION

2a) Reason for Issuance

- Although volcanic hazards exist only in restricted 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.

2b) 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

2c) Harmonization with International Standards

- i) General consistency with existing standard IAEA SSG-21
- ii) ANS 2.34 under development, but no draft released.

2d) Documents Discussed in Staff Regulatory Guidance

3 STAFF REGULATORY GUIDANCE

3a) Period of Interest

3b) Regions of Interest
- Volcanic ash falls potentially different from surface flow hazards?

3c) Tectono-magmatic model

3d) Deterministic Screening of Volcanic Hazards

3e) Initial Risk Insights

3f) Evaluate Probability of Eruption and/or Hazard

3g) Detailed Risk Insights

3h) Evaluate Design Basis

3g) Evaluate Mitigation Strategies

3h) Siting Considerations

4 IMPLEMENTATION

4a) Use by Applicant and Licensees

4b) Use by NRC Staff

Additional Comments/Questions

- Stakeholder comments can be sent via email to VolcanicHazards-RG@nrc.gov