

NRC NEI License Renewal Workshop  
October 22 and 23, 2002  
Rockville, MD

**Industry Guidance on Revised  
54.4(a)(2) Scoping Criterion**

License Renewal Mechanical  
Working Group



# Background

- During review of an earlier License Renewal Application, NRC requested information regarding scoping of seismic II/I components consistent with 54.4(a)(2).
- The CLB for that application (as well as many of the older plants) does not require treatment of seismic II/I.



# Background

- NRC letter of 12/03/01, articulated proposed guidance for Scoping of Seismic II/I Piping Systems and offered the opportunity for comment.
- After considering comments, NRC letter of 03/15/02, provided Guidance on the identification of Structures, Systems and Components which meet 54.4.(a)(2) with the stated intent of incorporating this position into license renewal guidance documents.



# NRC Position

- A distinction must be made between non safety-related SSCs that are connected to safety-related SSCs and those that are not connected to safety-related SSCs.
- For a non safety-related SSC that is connected to a safety-related SSC, the non safety-related SSC should be included within the scope of license renewal up to the first seismic anchor past the safety/non-safety interface.



# NRC Position

- For non safety-related SSCs which are not connected to safety-related SSCs, but have a spatial relationship such that their failure could adversely impact on the performance of a safety-related SSC's intended function, two scoping options are available; a mitigative option or a preventive option.



# NRC Position

- **Preventive Option** requires that the entire non safety-related SSC be brought into the scope of license renewal.
- Alternately, in order to ensure adequate protection of the safety related SSC, a combination of mitigative features and non safety-related SSCs might be brought within scope.



# NRC Position

- **Mitigative Option** requires demonstration that plant mitigative features are provided which protect safety-related SSCs from failures of non safety-related SSCs, regardless of failure location.



# NRC Position

**Conclusion:** *“the staff expects applicants for license renewal to identify non safety-related SSCs whose failure could adversely impact intended functions. Such SSCs are to be included within the scope of license renewal. The evaluation to determine which non safety-related SSCs are within scope should not consider hypothetical failures, but should, based on engineering judgement and operating experience, consider the likelihood of system failure during the extended period of operation. The information used to support the scoping determination should be documented and available for staff review.”*





# Industry Proposed Guidance

- Guidance is based on approaches utilized by recent applicants to respond to RAIs relative to scoping per 54.4(a)(2).



# Industry Proposed Guidance

- Guidance utilizes operating experience as a basis to eliminate:
  - Air and gas filled systems (non-liquid) from scope of 54.4(a)(2).
  - Physical impact hazard from falling of pipe (due to earthquake), provided the supports are subject to aging management.



# Industry Proposed Guidance

## General Considerations:

- Potential loss of SR components due to failure of NSR components shall be identified. Resolution of potential impact may consider failure of SR components acceptable, provided the functions of 10CFR54.4(a)(1)(i), (ii), and (iii) are not compromised.



# Industry Proposed Guidance

## General Considerations:

- The function of non-safety-related equipment to establish initial conditions for equipment operation or accident assumptions does not constitute the basis for inclusion in license renewal scope under 54.4(a)(2).



# Industry Proposed Guidance

## General Considerations:

- Malfunctions of non safety-related equipment which result in a challenge to safety-related equipment do not constitute a basis for inclusion under §54.4(a)(2), since these malfunctions do not result in the loss of a safety-related function.



# Industry Proposed Guidance

- Vulnerable Equipment
  - Potential for failures due to short term exposure to water (typically active equipment)
  - Not fail-safe
  - Not qualified/designed for the potential environment



# Industry Proposed Guidance

- High Energy Piping: Potential for pipe whip, jet impingement, spray, and harsh environment. NSR high energy piping to be in scope, unless determined not to affect vulnerable SR SSCs.
- Low Energy Piping: Potential for spray and/or leakage. NSR low energy piping to be in scope, unless determined not to affect vulnerable SR SSCs.



# Industry Proposed Guidance

Suggested approach- Preventive Option:

- Determine plant structures that house 54.4(a)(1) equipment.
- Determine non-safety systems or portions of systems that are within the structures identified in 1.
- Determine vulnerable SR equipment in the structures identified in 1.





# Industry Proposed Guidance

Suggested approach- Preventive Option:

- Review documentation and/or perform walkdowns to identify non-safety systems or portions of systems that have spatial interaction potential with vulnerable equipment. Assume a failure anywhere along the length of the non-safety system.



# Industry Proposed Guidance

Suggested approach- **Preventive Option:**

- Add these non-safety systems or portions of systems identified in 4, to the scope of license renewal, and perform screening and aging management review, as appropriate.



# Industry Proposed Guidance

- Guidance is consistent with NRC position.
- Guidance to be included as an attachment to a future revision of NEI 95-10.





