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General Comment

See attached letter OG-23-158.

Attachments

OG-23-158

PWROG
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Project 694
Docket NRC-2023-0079

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OG-23-158

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Washington, DC 20555-0001
ATTN: Program Management, Announcements and Editing Staff

Subject: PWR Owners Group, Analysis Committee
PWROG Comments on Proposed Revision to Standard Review Plan Section 15.0, ‘‘Introduction—Transient and Accident Analyses,” 88 FR 50918; Docket ID NRC-2023-0079

Dear Ekaterina Lenning and Brent Ballard,

The PWR Owners Group has developed on behalf of its members the attached comments on Proposed Revision to Standard Review Plan (SRP) Section 15.0, ‘‘Introduction—Transient and Accident Analyses.” This letter serves to transmit the PWR Owners Group comments to the NRC. The PWROG appreciates the opportunity to comment on SRP Section 15.0 Draft Revision 4.

Attached to this letter please find:
- PWROG Comments on SRP Section 15.0 Draft Revision 4 (Non-Proprietary) (Attachment 1)

If you have any questions, please do not hesitate to contact me at (602) 999-2080 or Mr. D. Olinski, Executive Director of the PWR Owners Group, Program Management Office at (412) 374-3025.

Sincerely yours,

Michael Powell
Chairman and COO
PWR Owners Group

DRPB:CH

Attachment: PWROG Comments on SRP 15.0 Draft Revision 4 (Non-Proprietary)

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cc: PWROG PMO
PWROG Analysis Committee
PWROG Licensing Committee
PWROG Steering Committee
L. Fields, US NRC

PWROG SRP 15.0 Draft Revision 4 Comment 1

Statement in Guidance:
"Note the regulations and the SRP use the term AOO while RG 1.70 (Ref. 2) uses the terms incidents of moderate frequency (i.e., events that are expected to occur several times during the plant's lifetime) and infrequent incidents (i.e., events that may occur during the lifetime of the plant). For facilities that were licensed using different categorizations, the reviewer will continue to evaluate applications according to their licensing bases, unless the licensee proposes to adopt the categorizations and acceptance criteria of this SRP section. The reviewer will evaluate new applications (i.e., those pertaining to plants that are not yet constructed) according to the categorizations and acceptance criteria of this SRP section." (Page 15.0-2)

Comment:
The deletion of the discussion on ANS 51.1 and its categorization process using Condition II, Condition III, and Condition IV as opposed to Anticipated Operational Occurrences (AOOs) and postulated accidents is understandable as it better aligns with the regulations. However, many of the operating Generation II PWRs utilized ANS 51.1 (or an earlier version) categorizations in their Final Safety Analysis Reports (FSARs). It is recommended that a reference to ANS 51.1 be retained in the SRP 15.0 guidance to aid future reviewers in understanding the different categorization scheme that has been utilized by many of the Generation II PWR operating plants in their FSAR Safety Analysis Section.

Proposal:
"Note the regulations and the SRP use the term AOO while RG 1.70 (Ref. 2) uses the terms incidents of moderate frequency (i.e., events that are expected to occur several times during the plant's lifetime) and infrequent incidents (i.e., events that may occur during the lifetime of the plant). For facilities that were licensed using different categorizations *(e.g., ANS 51.1)*, the reviewer will continue to evaluate applications according to their licensing bases, unless the licensee proposes to adopt the categorizations and acceptance criteria of this SRP section. The reviewer will evaluate new applications (i.e., those pertaining to plants that are not yet constructed) according to the categorizations and acceptance criteria of this SRP section."

Basis for Proposal:
The inclusion of a reference to the previous ANS standard, which was used by many of the Generation II PWR operating plants when developing their FSAR Safety Analysis Section, would provide the reviewer a document to aid in their understanding of one such different categorization scheme.

PWROG SRP 15.0 Draft Revision 4 Comment 2

Statement in Guidance:
"Note the regulations and the SRP use the term AOO while RG 1.70 (Ref. 2) uses the terms incidents of moderate frequency (i.e., events that are expected to occur several times during the plant's lifetime) and infrequent incidents (i.e., events that may occur during the lifetime of the plant). For facilities that were licensed using different categorizations, the reviewer will continue to evaluate applications according to their licensing bases, unless the licensee proposes to adopt the categorizations and acceptance criteria of this SRP section. The reviewer will evaluate new applications (i.e., those pertaining to plants that are not yet constructed) according to the categorizations and acceptance criteria of this SRP section." (Page 15.0-2)

Comment:
The discussion in the SRP section acknowledging to the reviewer to "continue to evaluate applications according to their licensing bases" supports the operating PWR fleet. It acknowledges the licensing history and previous NRC approvals for the Generation II PWRs that needs to be taken into consideration when reviewing their licensing basis. The location of this statement under the Categorization According to Frequency of Occurrence subsection has the potential for reviewers to focus the review only on how licensees have categorized events within their licensing basis. A similar statement should be added to the introduction or general use instructions in the SRP to ensure updates being made to the SRP for the passive and other advanced reactor designs are not applied to the Generation II PWR operating plants.

Proposal:
"The Commission (NRC) staff responsible for the review of applications to construct and operate nuclear power plants intends to use in evaluating whether an applicant/licensee meets the NRC's regulations. The SRP is not a substitute for the NRC's regulations, and compliance with it is not required. However, an applicant is required to identify differences between the design features, analytical techniques, and procedural measures proposed for its facility and the SRP acceptance criteria and evaluate how the proposed alternatives to the SRP acceptance criteria provide an acceptable method of complying with the NRC regulations. *For an operating plant in addition to the SRP guidance, the reviewer will continue to evaluate applications according to the operating plant's licensing bases.*" (Page 15.0-1)

Basis for Proposal:
The addition of the last sentence ensures that for changes to the licensing basis of an operating plant, that plant's historical licensing basis needs to be considered in addition to the guidance in the SRP.

PWROG SRP 15.0 Draft Revision 4 Comment 3

Statement in Guidance:
"The reviewer ensures the applicant or licensee has conducted a systematic and comprehensive search for initiating events based on plant-specific design features and site characteristics. The events specified in the relevant 10 CFR Part 50, Appendix A, General Design Criteria (GDC) identified in this SRP establish minimum requirements for the principal design criteria for water-cooled nuclear power plants similar in design and location to plants for which construction permits have been issued by the Commission when the GDC were promulgated. For some water-cooled nuclear power plants, the GDC may not be sufficient and additional criteria must be identified and satisfied in the interest of public safety. In particular, it is expected that additional or different criteria will be needed to take into account unusual sites and environmental conditions, and for water-cooled nuclear power units of advanced design. Also, there may be water-cooled nuclear power units for which fulfillment of some of the GDC may not be necessary or appropriate. For plants such as these, departures from the GDC must be identified and justified." (Page 15.0-2)

Comment:
SRP 15.0 Draft Revision 4 contains a new paragraph providing review guidance on the need to consider additional General Design Criteria (GDC) beyond those specified in 10 CFR 50, Appendix A. This guidance introduces regulatory uncertainty and circumvents the rule making process by allowing a reviewer to add GDC without rulemaking to revise 10 CFR 50, Appendix A. This guidance does not ensure clear, transparent, and consistent regulatory guidance to ensure public safety.

Proposal:
Delete the identified paragraph from the guidance.

Basis for Proposal:
Deletion of the paragraph eliminates the potential to circumvent rulemaking and ensures clear, transparent, and consistent regulatory guidance to ensure public safety.

PWROG SRP 15.0 Draft Revision 4 Comment 4

Statement in Guidance:
"Finally, insights from operating experience have prompted regulatory actions to address a limited set of events beyond the scope of the design-basis criteria used to evaluate reactor designs. These beyond-design-basis events involve conditions not fully considered in the design process (e.g., the occurrence of multiple, independent failures) because they were judged to be too unlikely. Considering their very low likelihood of occurrence, beyond-design-basis events are typically assessed with best-estimate inputs in lieu of the conservative design-basis assumptions associated with design-basis events. The following are examples of beyond-design-basis events required to be addressed:
• Anticipated transient without scram (ATWS) (10 CFR 50.62)
• Station blackout (10 CFR 50.63)
• Loss of all alternating current (ac) power (10 CFR 50.155)
The individual subsections of Chapter 15 of the SRP provide guidance for the review of these specific events, except for loss of all ac power events. For new reactor designs, the relevant set of analyzed events and their categorization may differ from the examples above." (Page 15.0-4)

Comment:
What is the intent of including these beyond design basis events as events required to be addressed? Guidance for station blackout (10 CFR 50.63) is not addressed in a subsection of Chapter 15 of the SRP; it is addressed in a subsection of Chapter 8 of the SRP.

Proposal:
"The ~~individual subsections of Chapter 15 of the~~ SRP provide*s* guidance for the review of these specific events, except for loss of all ac power events. *ATWS is addressed in SRP 15.8 and station blackout is addressed in SRP 8.4.* For new reactor designs, the relevant set of analyzed events and their categorization may differ from the examples above."

Basis for Proposal:
The change identifies the specific SRP subsections that provide guidance for ATWS and station blackout.

PWROG SRP 15.0 Draft Revision 4 Comment 5

Statement in Guidance:
"In evaluations of AOOs and postulated accidents, the performance of each credited protection or safety system is required to include the effects of the most limiting postulated single failure. This verifies satisfaction of the GDC that require protection and safety systems to adequately perform their intended safety functions in the presence of single failures." (Page 15.0-8)
"The reviewer ascertains that the applicant has evaluated the effects of the most limiting single failures and operator errors and that the applicant's or licensee's application contains sufficient detail to permit independent evaluation of the adequacy of systems, as they relate to the subject events." (Page 15.0-9)
"For single failures in electrical and instrumentation and control (I&C) components, both passive and active failures should be considered in addition to the initiating event. The failure may be postulated to occur at any time during the event." (Page 15.0-9 and 15.0-10)
"An active failure in a fluid system means the failure of a component that relies on mechanical movement for its operation to complete its intended function on demand, or an unintended movement of the component. Examples of components that require mechanical movement include air-operated valves, check valves, and pumps. A passive failure in a fluid system means a breach in the fluid pressure boundary or a mechanical failure which adversely affects a flow path. Passive failures in fluid systems should be considered as initiating events and during long-term core cooling modes of operation (e.g., degradation and leakage from valve or pump seals). For additional guidance related to applying the single failure criterion to systems and components see SECY-77-439 (Ref. 6), and regarding the current Commission position on the treatment of check valves in passive safety systems see SECY-94-084 (Ref. 11)." (Page 15.0-10)

Comment:
The changes to discussion on the need to consider single failures in the AOOs and postulate accidents have made the guidance more generic in that it covers designs with both active and passive safety systems. The guidance acknowledges that "[p]assive failures in fluid systems should be considered as initiating events and during long-term core cooling modes of operation." This change was a valuable clarification for the plant designs with active safety features.
It is suggested that additional language be added to the clarification that check valves be treated as active failures based on SECY-94-084. SECY-94-084 was specific to Advanced Light Water Reactor designs with passive safety systems such as the AP600. Check valves are clearly identified as passive failures in SECY-77-439.
Additionally, the statement that I&C component "failure[s] may be postulated to occur at any time during the event." can result in disagreement between Staff (NRC) and licensees as to what I&C component failure should be postulated to occur when. Most licensees limit single failures, be they I&C components or others components, to 1) time zero, 2) time of reactor trip/turbine trip, or 3) time of component demand or actuation.

Proposal:
For additional guidance related to applying the single failure criterion to systems and components see SECY-77-439 (Ref. 6), and regarding the current Commission position on the treatment of check valves in *the fully* passive safety systems *of the Advanced Light Water Reactor designs* see SECY-94-084 (Ref. 11)."
With respect to the 3rd paragraph, the proposed guidance would provide clear direction to licensees and reviewers. "For single failures in electrical and instrumentation and control (I&C) components, both passive and active failures, although not together, should be considered in addition to the initiating event. ~~The failure may be postulated to occur at any time during the event.~~ *The single failure should be*

considered to occur at the worst time of the following 3 conditions – initiation of transient; time of reactor trip or turbine trip; time of component demand or actuation."

Basis for Proposal:
The proposed text clarifies the treatment of the failure of check valves in SECY-94-084 as being applicable to Advanced Light Water Reactors utilizing fully passive safety systems and provides clear guidance on when to assume failures of I&C components.

PWROG SRP 15.0 Draft Revision 4 Comment 6

Statement in Guidance: None
Comment: Section II. Acceptance Criteria (page 15.0-12) in Draft Revision 4 of SRP 15.0 made changes to the listed General Design Criteria (GDC). GDC 2, 4, and 5 have been deleted from the list. GDC 12, 14, 16, 38, and 50 were added to the list. It is unclear why these changes were made, provide the rational for the deletion and addition of the identified GDCs.
Proposal: None.
Basis for Proposal: N/A

PWROG SRP 15.0 Draft Revision 4 Comment 7

Statement in Guidance: None
Comment: Draft Revision 4 of SRP 15.0 revises the guidance to extend its applicability to passive and other advance reactor designs. Is the NRC planning to make similar changes to other SRP sections? If so, what is the schedule for these updates? This information would be beneficial for planning purposes to ensure the public and the industry are prepared to review and provide comments in a timely manner to support the NRC's efforts.
Proposal: None.
Basis for Proposal: N/A