



U.S. NUCLEAR REGULATORY COMMISSION
STANDARD REVIEW PLAN
OFFICE OF NUCLEAR REACTOR REGULATION

3.4.1 FLOOD PROTECTION

REVIEW RESPONSIBILITIES

Primary - ~~Auxiliary Systems Branch (ASB)~~ Plant Systems Branch (SPLB)¹

Secondary - ~~None~~ Civil Engineering and Geosciences Branch (ECGB)²

I. AREAS OF REVIEW

1. The ~~ASB~~SPLB³ review of the plant flood protection includes all structures, systems, and components (SSCs) whose failure could prevent safe shutdown of the plant or result in uncontrolled release of significant radioactivity to ~~assure~~ensure⁴ conformance with the requirements of General Design Criterion 2 (GDC 2), "Design Bases for Protection Against Natural Phenomena."⁵ The facility design and equipment arrangements presented in the applicant's safety analysis report (SAR) are reviewed with respect to the following considerations:⁶
 - a. To identify the safety-related SSCs that must be protected against flooding from both external and internal causes;
 - b. To determine the capabilities of structures housing safety-related systems or equipment to withstand flood conditions, i.e., the relationship between structure elevation and flood elevation including waves and wind effects as determined in the review described in ~~SRP~~ Standard Review Plan (SRP)⁷ Sections 2.4.1 through 2.4.14;
 - c. To determine the capability of roofs designed for safety-related structures to withstand the effects of maximum precipitation events;⁸

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USNRC STANDARD REVIEW PLAN

Standard review plans are prepared for the guidance of the Office of Nuclear Reactor Regulation staff responsible for the review of applications to construct and operate nuclear power plants. These documents are made available to the public as part of the Commission's policy to inform the nuclear industry and the general public of regulatory procedures and policies. Standard review plans are not substitutes for regulatory guides or the Commission's regulations and compliance with them is not required. The standard review plan sections are keyed to the Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants. Not all sections of the Standard Format have a corresponding review plan.

Published standard review plans will be revised periodically, as appropriate, to accommodate comments and to reflect new information and experience.

Comments and suggestions for improvement will be considered and should be sent to the U.S. Nuclear Regulatory Commission, Office of Nuclear Reactor Regulation, Washington, D.C. 20555.

- d. To determine the adequacy of the isolation of redundant safety-related systems or equipment subject to flooding; and
 - f. To identify possible inleakage sources, such as cracks in structures not designed to withstand seismic events and exterior or access openings or penetrations in structures located at a lower elevation than the flood level and associated wave activity.
2. The ASBSPLB⁹ review also includes consideration of flooding of SSCs important to safety from internal sources of SSC important to safety from, such as those caused by¹⁰ failure of tanks, vessels, and piping and backflow through floor drains.¹¹ The effects of piping failures are considered in SRP Section 3.6.1. The effects of flooding due to failure of tanks and vessels are reviewed within the context of this SRP section. Internal flooding caused by operation of the fire protection system should also be considered.¹²

Review Interfaces¹³

1. The ASBSPLB¹⁴ review for the underground drainage system and for flood protection uses information provided by HGEBECGB¹⁵ reviews, as indicated below, to assure¹⁶ that the integrated design of the underground drainage system is capable of performing its safety function and that the flood protection utilized is compatible with the maximum flood elevation established for the plant site.

~~Coordinated reviews are performed by other branches and the results used by the ASB to complete the overall evaluation of the flood protection. The coordinated reviews are as follows:~~¹⁷

- a. ~~The Hydrologic and Geotechnical Engineering Branch (HGEB)ECGB¹⁸ reviews the underground drainage system as part of its primary review responsibility for SRP Section 2.4.13.~~
- b. ~~The HGEBECGB¹⁹ also²⁰ verifies the water²¹ elevations and coincident conditions determined for the various conditions of site flooding, including and examines²² the adequacy of the type of flood protection utilized as part of its primary review responsibility for SRP Sections 2.4.1 through 2.4.14.~~
- c. ~~The ECGB coordinates and performs the review of site parameters postulated for design in a standard design certification application as part of its primary review responsibility for SRP Section 2.3.6.²³~~
- d. ~~The Structural Engineering Branch (SEB)ECGB²⁴ determines the acceptability of the design analyses, procedures, and criteria used for structures that must withstand the effects of the design basis flood as part of its primary review responsibility for SRP Section 3.4.2.~~

2. Coordinated reviews are performed by other branches, and the ASBSPLB²⁵ uses the results to complete an overall evaluation of flood protection, as follows:²⁶
 - a. The Instrumentation and Controls Systems Branch (ICSBHICB²⁷) and the Power Systems Branch (PSB) Electrical Engineering Branch (EELB)²⁸ will, upon request, verify the adequacy of instrumentation needed for flood protection, including adequacy of detectors and alarms necessary to detect rising water levels within structures, and will evaluate the consequences of flooding on other safety-related instrumentation and electrical equipment in affected areas.
 - b. The review of technical specifications is coordinated and performed by the Licensing Guidance Branch Technical Specifications Branch (TSB)²⁹ as part of its primary review responsibility for SRP Section 16.0.
 - c. The Mechanical Engineering Branch (EMEB) reviews the applicant's listing of structures, systems, and components in which failure could prevent safe shutdown of the plant as part of its primary review responsibility for SRP Sections 3.2.1 and 3.2.2.³⁰
 - d. The Probabilistic Safety Assessment Branch (SPSB) coordinates and performs the review of an applicant's plant- and/or site-specific probabilistic risk assessment, including a flooding analysis during plant shutdown conditions, as part of its primary review responsibility for SRP Chapter 19.1 (proposed).³¹

For those areas of review identified above as being reviewed as part of the primary review responsibility of other branches, the acceptance criteria necessary for the review and their methods of application are contained in the referenced SRP section of the corresponding primary branch.³²

II. ACCEPTANCE CRITERIA

Acceptability of the flood protection measures described in the SAR is based on meeting specific general design criteria and regulatory guides. The plant design for protection of SSCs from the effects of flooding, including internal flooding,³³ is acceptable if it meets the relevant requirements of General Design Criterion GDC 2, "Design Bases for Protection Against Natural Phenomena,"³⁴ and 10 CFR Part 100, Appendix A, "Seismic and Geologic Siting Criteria for Nuclear Power Plants," Sections IV(c), V(c), and VI(c)³⁵ as related to protecting SSCs important to safety from the effects of floods, tsunamis, and seiches. Acceptance is based on the design meeting the guidelines of Regulatory Guide 1.59³⁶ with regard to the methods utilized for establishing the probable maximum flood (PMF), probable maximum precipitation (PMP), seiche, and other pertinent hydrologic considerations and on³⁷ the guidelines of Regulatory Guide 1.102 regarding the means utilized for protection of SSCs important to safety from the effects of the PMF and PMP.

If safety-related structures are protected from below-grade groundwater seepage by means of a permanent dewatering system, then the system should be designed as a safety-related system and meet the single failure criterion requirements.³⁸

Technical Rationale

The technical rationale for application of these acceptance criteria to reviewing flood protection is discussed in the following paragraphs:³⁹

Compliance with GDC 2 requires that structures, systems, and components important to safety be designed to withstand the effects of natural phenomena such as flood, tsunami, and seiche without loss of capability to perform their safety function. The criterion further specifies that the design bases for these structures, systems, and components reflect the following:

1. Appropriate consideration of the most severe natural phenomena historically reported for the site and surrounding area, with sufficient margin for the limited accuracy, quantity, and time period in which the historical data have been accumulated;
2. Appropriate combinations of the effects of normal and accident conditions with the effects of the natural phenomena; and
3. The importance of the safety functions to be performed.

10 CFR Part 100, Appendix A, sets forth the principal seismic and geologic considerations guiding the Commission's design basis evaluation, as established in GDC 2, for proposed nuclear power plant sites. Appendix A requires the following with regard to floods:

1. Section IV(c), "Required Investigations for Seismically Induced Floods and Water Waves," specifies factors to be considered when investigating seismically induced floods and water waves.
2. Section V(c), "Determination of Design Bases for Seismically Induced Floods and Water Waves," specifies factors to be considered when determining the protection required against seismically induced flooding.
3. Section VI(c), "Application to Engineering Design, Seismically Induced Floods and Water Waves and Other Design Conditions," requires that the design basis for seismically induced floods and water waves be considered in the plant design to prevent undue risk to the health and safety of the public.

Under SRP Section 3.4.1, the reviewer determines the adequacy of the plant design for protecting SSCs from floods and related phenomena, including seismically induced flooding and high groundwater levels. This SRP section also examines the adequacy of the plant design for protecting against flooding caused by failure of liquid-carrying components within the plant. Regulatory Guide 1.59 specifies acceptable methods for determining design basis flood conditions that should be accommodated by the plant design. Regulatory Guide 1.102 specifies acceptable measures for protection against floods.

Meeting the requirements of GDC 2, which includes the requirements of 10 CFR Part 100, provides assurance that the plant will retain the capability to shut down safely during a PMF event or under flood conditions that originate within the plant.⁴⁰

III. REVIEW PROCEDURE

The review procedures below are used during the construction permit (CP) or early site permit⁴¹ reviews to determine that the design criteria and bases and the preliminary design as set forth in the preliminary safety analysis report (PSAR) meet the acceptance criteria given in subsection II of this SRP section. For the review of an application for an operating license (OL) or a combined license (COL), applications the procedures are utilized to verify that the initial design criteria and bases have been appropriately implemented in the final design as set forth in the final safety analysis report (FSAR). The reviewer will select and emphasize material from the paragraphs below as may be appropriate for a particular case.

The reviews of flood elevations and other hydrologic considerations pertinent to protection of SSCs important to safety, including the underground drainage system, are performed by HGEBECGB⁴² as part of its primary responsibility for SRP Sections 2.4.1 through 2.4.14. For a standard design certification, ECGB reviews postulated site flooding parameters as part of its primary responsibility for SRP Section 2.3.6.⁴³

Upon request from the primary reviewer, the coordinating review branches will provide input for the areas of review stated in subsection I of this SRP section. The primary reviewer obtains and uses such input as required to assure⁴⁴ that this review procedure is complete.

The review procedure consists of:

1. A determination from the SAR as to which SSCs are safety related and should be protected against floods or flooded conditions.
2. An evaluation using the plant arrangement and layout drawings as to the various means to prevent flooding of safety-related systems or components, such as external barriers, enclosures, pumping systems, and watertight doors. The measures utilized are reviewed and coordinated with HGEBECGB⁴⁵ to determine their ability to cope with the design basis flood conditions, as established in SRP Sections 2.4.1 through 2.4.14.
3. An assessment of leakage, a determination if liquid-carrying systems could produce flooding, and an evaluation of the measures taken to protect safety-related equipment. The effects of piping failures are considered in SRP Sections 3.6.1 and 3.6.2.⁴⁶ The effects of potential flooding of SSCs due to postulated failure of nonseismic Category I and non-tornado protected tanks, vessels, and other process equipment is⁴⁷ considered in this SRP section. The applicant's risk assessment of external and internal flooding submitted as required by 10 CFR 52.47(a)(1)(v) for a design certification review and by 10 CFR 50.34(f)(1)(i) will be reviewed to identify potentially significant vulnerabilities to flooding, including an analysis of flooding during shutdown conditions.⁴⁸ A failure modes and effects analysis may be performed to determine that the flooding consequences resulting from failures of such liquid-carrying systems close to essential equipment will not preclude required functions of safety systems.
4. A review of the SAR to ascertain if safety-related systems or components are capable of normal function while completely or partially flooded.

5. A review of plant arrangement and layout drawings to determine if safety-related equipment or components are located within individual compartments or cubicles which act as positive barriers against possible means of flooding, and if barriers or other means of physical separation are utilized between safety-related trains.
6. A review of Review⁴⁹ plant structure design drawings to determine if any safety-related structures have been provided with a safety-related permanent dewatering system for control of groundwater seepage. The dewatering system should be designed to safety grade requirements. In addition, see SRP Section 2.4.13.
7. A review of provisions for drainage from roofs to determine that the design will accommodate maximum precipitation events in accordance with Regulatory Guide 1.102 and Generic Letter (GL) 89-22.⁵⁰

For standard design certification reviews under 10 CFR Part 52, the procedures above should be followed, as modified by the procedures in SRP Section 14.3 (proposed), to verify that the design set forth in the standard safety analysis report, including inspections, tests, analysis, and acceptance criteria (ITAAC), site interface requirements and combined license action items, meet the acceptance criteria given in subsection II. SRP Section 14.3 (proposed) contains procedures for the review of certified design material (CDM) for the standard design, including the site parameters, interface criteria, and ITAAC.⁵¹

IV. EVALUATION FINDINGS

The reviewer verifies that sufficient information has been provided that his the⁵² evaluation supports conclusions of the following type, to be included in the staff's safety evaluation report:

The flood protection review included all systems and components whose failure could prevent safe shutdown of the plant and maintenance thereof or result in significant uncontrolled release of radioactivity. Based on the review of the applicant's proposed design criteria, design bases, and safety classification for safety-related SSCs necessary for a safe plant shutdown during and following the flood condition from either external or internal causes, the staff concludes that the design of the facility for flood protection conforms to the Commission's regulations as set forth in General Design Criterion 2 and 10 CFR Part 100, Appendix A. This conclusion is based on the applicant having met the requirements of General Design Criterion 2 and Appendix A to 10 CFR Part 100 with respect to protection of SSCs important to safety from the effects of floods, tsunamis, and seiches by:

- (a) Meeting Regulatory Guide 1.59, positions C.1 regarding the conditions utilized for design of SSCs important to safety for the worst site-related flood probable at a nuclear power plant (e.g., PMF, seismically induced flood, hurricane, seiche, surge, PMP) and C.2 regarding alternatives to hardened protection of SSCs important to safety.
- (b) Meeting Regulatory Guide 1.102, positions C.1 regarding the type of flood protection provided and C.2 regarding provision of guidance in establishing shutdown technical specifications and emergency operating procedures related to flooding.

- (c) Meeting Regulatory Guide 1.102 and GL 89-22 regarding design of roof drainage systems to accommodate maximum precipitation events.⁵³
- (ed) Using a ~~The method used by the applicant for protection of SSC important to safety from flooding from external and internal causes~~ that has been reviewed by the staff and found acceptable to protect SSCs important to safety from flooding by external and internal causes;⁵⁴ and
- (de) Protecting essential SSCs from external and internal flooding by locating the systems and components in individual flood-proof enclosures, providing exterior barriers (levees, seawalls, floodwalls, revetments, or breakwaters), or design of individual systems to maintain their safety function if they are flooded.

For design certification reviews, the findings will also summarize, to the extent that the review is not discussed in other safety evaluation report sections, the staff's evaluation of inspections, tests, analyses, and acceptance criteria (ITAAC), including design acceptance criteria (DAC), site interface requirements, and combined license action items that are relevant to this SRP section.⁵⁵

V. IMPLEMENTATION

The following is intended to provide guidance to applicants and licensees regarding the staff's plans for using this SRP section.

This SRP section will be used by the staff when performing safety evaluations of license applications submitted by applicants pursuant to 10 CFR 50 or 10 CFR 52.⁵⁶ Except in those cases in which the applicant proposes an acceptable alternative method for complying with specified portions of the Commission's regulations, the method described herein will be used by the staff in its evaluation of conformance with Commission regulations.

The provisions of this SRP section apply to reviews of applications docketed six months or more after the date of issuance of this SRP section.⁵⁷

Implementation schedules for conformance to parts of the method discussed herein are contained in the referenced regulatory guides.

VI. REFERENCES

1. 10 CFR Part 50, Appendix A, General Design Criterion 2, "Design Bases for Protection Against Natural Phenomena."
2. 10 CFR Part 100, Appendix A, "Seismic and Geologic Siting Criteria for Nuclear Power Plants."
3. Regulatory Guide 1.59, "Design Basis Floods for Nuclear Power Plants."

4. Regulatory Guide 1.102, "Flood Protection for Nuclear Power Plants."
5. Generic Letter 89-22, "Potential for Increased Roof and Plant Area Flood Runoff Depth at Licensed Nuclear Plants due to Recent Change in Probable Maximum Precipitation Criteria Developed by the National Weather Service," October 19, 1989.⁵⁸

SRP Draft Section 3.4.1
Attachment A - Proposed Changes in Order of Occurrence

Item numbers in the following table correspond to superscript numbers in the redline/strikeout copy of the draft SRP section.

| Item | Source | Description |
|------|--|--|
| 1. | Current PRB name and abbreviation | Changed PRB to Plant Systems Branch (SPLB). |
| 2. | Current SRB name and abbreviation | Added Civil Engineering and Geosciences Branch (ECGB) as the secondary review branch per guidance from NRC. |
| 3. | Current PRB designation | Changed PRB to SPLB. |
| 4. | Editorial | Changed "assure" to "ensure." |
| 5. | Editorial | Added initialism and title for GDC 2. |
| 6. | Editorial | Review considerations to be followed were separated to aid the reviewer. |
| 7. | Editorial | Defined "SRP" as "Standard Review Plan." |
| 8. | Editorial | A clause was inserted to show that the areas of review include roof loadings from maximum rainfall events. Regulatory Guide 1.102 addresses design of roof structures to withstand maximum probable precipitation. This issue is not addressed in Regulatory Guide 1.70. However, it is addressed for the ABWR in SER Section 3.4.1. An IPD Form 7.0 has been submitted to add this to the regulatory guide. |
| 9. | Current PRB designation | Changed PRB to SPLB. |
| 10. | Editorial | Moved the phrase "of SSCs important to safety" closer to the term it modifies. |
| 11. | Integrated Impact No. 313 | Added backflow through floor drains as a potential internal source of flooding since this source was mentioned in NUREG-0933. |
| 12. | Integrated Impact No. 313, PRB Comment | Added internal flooding caused by operation of the fire protection system in response to NRC staff comments of 11/95. |
| 13. | SRP-UDP format item | Added "Review Interfaces" to AREAS OF REVIEW. |
| 14. | Current PRB designation | Changed PRB to SPLB. |
| 15. | Current SRB designation | Changed SRB to ECGB. |
| 16. | Editorial | Changed "assure" to "ensure." |
| 17. | Editorial | This paragraph was moved down in the text and was numbered "2" to separate primary reviews from coordinated reviews. Review interfaces are excerpted from subsection I, AREAS OF REVIEW. |
| 18. | Current SRB designation | Changed SRB to ECGB. |

SRP Draft Section 3.4.1
Attachment A - Proposed Changes in Order of Occurrence

| Item | Source | Description |
|------|-----------------------------------|---|
| 19. | Current SRB designation | Changed SRB to ECGB. |
| 20. | Editorial | Deleted "also" as unnecessary. |
| 21. | Editorial | Inserted "water" because the focus is on water elevations rather than on structural elevations as in SRP Section 2.4 plans. |
| 22. | Editorial | Deleted "including" and inserted "and examines" because "including" made no sense. |
| 23. | SRP-UDP format item | Added interface for reviewing the site parameter envelope for a standard design certification per new 10 CFR Part 52. Renumbered the interfaces that follow. |
| 24. | Current SRB designation | Changed SRB to ECGB. |
| 25. | Current PRB designation | Changed PRB to SPLB. |
| 26. | Editorial | This paragraph was created to separate primary reviews from coordinated reviews. |
| 27. | Current review branch designation | Changed review interface branch to HICB. |
| 28. | Current review branch designation | Changed review interface branch to EELB. |
| 29. | Current review branch designation | Changed review interface branch to TSB. |
| 30. | Editorial | A review interface is added to show that another branch has primary responsibility for identification of SSCs important to safety under SRP Sections 3.2.1 and 3.2.2. SPLB review of SSCs under this SRP section is provided to ensure protection of SSCs from flooding. |
| 31. | Integrated Impact 313 | Added a review interface to the PRA review. The PRA is a TMI item and is required under 10 CFR 52.47. External and internal flooding contributes substantially to risk. This review interface also identifies reviews conducted to satisfy SECY 93-087 and ABWR FSER Staff guidance on Shutdown and Low Power Operations. The staff requested that design certification applicants complete an assessment of shutdown and low-power risk. The shutdown and low-power risk assessment must identify design-specific vulnerabilities and weaknesses and document consideration and incorporation of design features that minimize such vulnerabilities. In the shutdown risk analysis a separate flooding analysis that evaluates the flood protection provided by the plant during shutdown conditions is conducted. Consideration of the flooding analysis in the shutdown and low-power risk assessment is the responsibility of the SPSB and will be included in the proposed SRP Section 19.1 on risk assessments. |

SRP Draft Section 3.4.1
Attachment A - Proposed Changes in Order of Occurrence

| Item | Source | Description |
|------|------------------------------------|--|
| 32. | Editorial | Simplified for clarity and readability. |
| 33. | Integrated Impact Nos. 312 and 313 | Added a clause acknowledging that GDC 2 also considers the basis for protection against internal flooding. Note that Integrated Impact No. 312 had argued that GDC 4 should be added here as the basis for protecting against internal flooding. |
| 34. | Editorial | Used initialism for GDC 2 and deleted its title, which appears on the previous page. |
| 35. | SRP-UDP format item | Provided two additional section-specific citations to 10 CFR Part 100, Appendix A, to broaden the technical basis for reviewing flood protection measures. |
| 36. | Integrated Impact No. 326 | Regulatory Guide 1.59 contains an outdated standard: ANSI N170-1976. RG 1.59 should be revised to cite the more current standard. Note that the CESSAR SER references the updated standard. |
| 37. | Editorial | Added "on" to sentence to improve clarity. |
| 38. | Editorial | A separate paragraph was formed to accommodate a separate subject. |
| 39. | SRP-UDP format item | Added "Technical Rationale" and lead-in paragraph to ACCEPTANCE CRITERIA. |
| 40. | SRP-UDP format item | Added technical rationale for GDC 2. In recognition of Integrated Impact Nos. 312 and 313, the text emphasizes that GDC 2 is also the technical rationale for protecting against internal flooding. |
| 41. | SRP-UDP format item | Inserted reference to early site permit review and to combined license review per 10 CFR Part 52, Subpart C. |
| 42. | Current SRB designation | Changed SRB to ECGB. |
| 43. | SRP-UDP format item | Inserted additional guidance relative to the standard plant design certification postulated flooding parameters per 10 CFR 52.47. |
| 44. | Editorial | Changed "assure" to "ensure." |
| 45. | Current SRB designation | Changed SRB to ECGB. |
| 46. | Editorial | Identified SRP Sections 3.6.1 and 3.6.2 instead of 3.6 to provide a more specific reference. There is no SRP Section 3.6. |
| 47. | Editorial | Changed "is" to "are" to provide noun/verb agreement. |

SRP Draft Section 3.4.1
Attachment A - Proposed Changes in Order of Occurrence

| Item | Source | Description |
|------|--|---|
| 48. | Integrated Impact No. 313 | Added review of the applicant's risk assessment for external and internal flooding. If this review is performed under a new SRP Section in Chapter 19, then some revision of the text may be warranted. This review procedure also identifies reviews conducted to satisfy SECY 93-087 and ABWR FSER Staff guidance on Shutdown and Low Power Operations. The staff requested that design certification applicants complete an assessment of shutdown and low-power risk. The shutdown and low-power risk assessment must identify design-specific vulnerabilities and weaknesses and document consideration and incorporation of design features that minimize such vulnerabilities. In the shutdown risk analysis a separate flooding analysis that evaluates the flood protection provided by the plant during shutdown conditions is conducted. Consideration of the flooding analysis in the shutdown and low-power risk assessment is the responsibility of the SPSB and will be included in the proposed SRP Section 19.1 on risk assessments. |
| 49. | Editorial | Changed the sentence structure to parallel that of the previous five items. |
| 50. | Editorial | Added a procedure for examining roofs for the capability to withstand natural phenomena. This issue was included in Regulatory Guide 1.102 and was addressed for the ABWR in SER Section 3.4.1. |
| 51. | SRP-UDP Guidance, Implementation of 10 CFR 52 | Added standard paragraph to address application of Review Procedures in design certification reviews. |
| 52. | Editorial | Changed "his" to "the" to eliminate gender-specific reference. |
| 53. | Editorial/ SRP-UDP format item | Added an evaluation finding for maximum precipitation. Regulatory Guide 1.102 addresses this issue, as does SER Section 3.4.1 for the ABWR. Included reference to GL 89-22, which is used in standard plant SERs (in Chapter 20). Renumbered succeeding paragraphs. |
| 54. | Editorial | Revised to preserve parallel structure. |
| 55. | SRP-UDP Format Item, Implement 10 CFR 52 Related Changes | To address design certification reviews a new paragraph was added to the end of the Evaluation Findings. This paragraph addresses design certification specific items including ITAAC, DAC, site interface requirements, and combined license action items. |
| 56. | SRP-UDP Guidance, Implementation of 10 CFR 52 | Added standard sentence to address application of the SRP section to reviews of applications filed under 10 CFR Part 52, as well as Part 50. |

SRP Draft Section 3.4.1
Attachment A - Proposed Changes in Order of Occurrence

| Item | Source | Description |
|-------------|------------------|---|
| 57. | SRP-UDP Guidance | Added standard paragraph to indicate applicability of this section to reviews of future applications. |
| 58. | Editorial | Added a reference to GL 89-22, which resolved GSI 10. Maximum precipitation was identified in RG 1.102 but was not previously addressed in SRP Section 3.4.1. |

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SRP Draft Section 3.4.1
Attachment B - Cross Reference of Integrated Impacts

| Integrated Impact No. | Issue | SRP Subsections Affected |
|-----------------------|--|--|
| 312 | Add GDC 4 as the acceptance criterion for protection from internal flooding. | No change made to text |
| 313 | Add specific guidance for internal flooding. Revise ACCEPTANCE CRITERIA and REVIEW PROCEDURES to address the concerns of USI A-17 and NRC staff comments. | I.2; II; & III.3 |
| 326 | Regulatory Guide 1.59 cites an outdated ANSI standard. | II |
| 1183 | Revise the Acceptance Criteria, Review Procedures, and Evaluation Findings as necessary to incorporate the guidance of the proposed draft Regulatory Guide FP 811-4. | This is a placeholder integrated impact and will not be processed further. |
| 1219 | Revise the SRP to incorporate the new and revised requirements from proposed rulemaking 59 FR 52255. | This is a placeholder integrated impact and will not be processed further. |