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August 15, 2013

Ms. Cindy K. Bladey
Chief, Rules, Announcements, and Directives Branch (RADB)
Office of Administration
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Subject: NEI Comments on mPower Design-Specific Review Standard, 78 *Fed. Reg.* 28258; Docket ID NRC-2013-0089

Project Number: 689

Dear Ms. Bladey:

On behalf of the nuclear energy industry, the Nuclear Energy Institute (NEI)¹ appreciates the opportunity to provide comments on the Generation mPower Design-Specific Review Standard (DSRS) as requested in the subject *Federal Register* notice.

The purpose of the mPower DSRS is to more fully integrate the use of risk insights into the review of a design certification (DC), an early site permit (ESP) or a combined license (COL) that incorporates the mPower design. We note that Generation mPower has submitted their own comments on the mPower DSRS and NEI fully supports those comments.

NEI is also providing the attached comments for generic consideration in anticipation of future DSRSs that, although design-specific, will have a common purpose of integrating the use of risk insights into the review of a DC, ESP or COL that incorporates a small modular reactor (SMR) design. We believe that incorporation of the comments provided in the attachment to this letter will improve the mPower DSRS, will appropriately lay the groundwork for future DSRSs, and will effectively achieve the NRC's stated objectives.

¹ The Nuclear Energy Institute (NEI) is the organization responsible for establishing unified industry policy on matters affecting the nuclear energy industry, including the regulatory aspects of generic operational and technical issues. NEI's members include all entities licensed to operate commercial nuclear power plants in the United States, nuclear plant designers, major architect/engineering firms, fuel cycle facilities, nuclear materials licensees, and other organizations and entities involved in the nuclear energy industry.

J. Starafos (JLS1)

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Note that we have also provided related comments on the SRP Introduction on March 25, 2013, and NEI continues to provide industry comments on several SRP revisions, including SRPs that would be applicable to review of the mPower and other SMR designs.

We appreciate the NRC staff's consideration of these comments. If you have any questions concerning this letter or the attached comments, please contact Kati Austgen (202.739.8068; kra@nei.org) or me.

Sincerely,

A handwritten signature in black ink, appearing to read "RJB", is positioned above the typed name.

Russell J. Bell

Attachment

c: Mr. Stewart L. Magruder, Jr., NRO/DARR/SMRLB1, NRC
Ms. Joelle L. Starefos, NRO/DARR/SMRLB1, NRC
Mr. Joseph Colaccino, NRO/DARR/APOB, NRC
NRC Document Control Desk

Industry Comments on mPower Design-Specific Review Standard (DSRS) – August 15, 2013

Affected Section	Comment/Basis	Recommendation
1. DSRS, throughout	RG 1.182 has been withdrawn (77 FR 70846 dated November 27, 2012) based on its substantive content being incorporated into RG 1.160, Revision 3.	Delete all references to RG 1.182.
2. DSRS, throughout	For RG 1.52, both Revision 2 and Revision 3 are used, while Revision 4 has been issued. For RG 1.140, both Revision 1 and Revision 2 are used. Recommend citing the RGs without the revision numbers, as only one revision should be applicable to a new facility.	Revise references to RGs to remove revision numbers.
3. 2.4.0, throughout	Much of the new topics and information addressed in 2.4.0 are already addressed in other 2.4.x subsections. An applicant will be forced to address particular hydrology issues in two places, contrary to NRC's stated preference.	Revise to ensure each topic is addressed in only one DSRS section (either 2.4.0 or the appropriate 2.4.x, not both).
4. 2.4.4, I. Areas of Review, Item 1, p. 2.4.4-1; and II. Acceptance Criteria, Acceptance Criterion 2, p. 2.4.4-4.	<p>On page 2.4.4-1, the item 1 paragraph has been revised to include flooding from potential onsite and offsite water storage tanks. However, this change is not reflected by any additional acceptance criteria or review procedures in this section. For example, it is not clear the extent that offsite tanks are to be considered (distance from site). Also, onsite tank failure is reviewed under section 3.4.1.</p> <p>On page 2.4.4-4, Acceptance Criterion 2 should include within the criterion the extent to which upstream dam failures must be considered, i.e. how far upstream.</p>	<p>Revise throughout to reflect review guidance for tank failures, or delete sentence.</p> <p>Clarify with guidance on how far upstream dam failure must be considered.</p>

Affected Section	Comment/Basis	Recommendation
5. 2.4.5, II. Acceptance Criteria, DSRS Acceptance Criteria, p. 2.4.5-4 & 5	Consider including RG 1.221, "Design-Basis Hurricane and Hurricane Missiles for Nuclear Power Plants" as an NRC acceptance criterion, as most of the recent DC and COL applicants have received RAIs on this topic in order to show compliance.	Revise to include RG 1.221 as an acceptance criterion.
6. 2.4.12, III. Review Procedures, Item 3, pg. 2.4.12-10	Effects on Subsurface or Risk-Significant SSCs: the DSRS states that "where margins between anticipated conditions and the design bases are small, technical specifications or permit conditions about continuing groundwater level monitoring may be needed to assure that actual post-construction groundwater conditions remain as represented in the COL application." "Small" is vague, and creates challenges for applicant in anticipating potential problems and with Staff in defining this and agreeing upon when TS or permit conditions will be required.	Clarify what is meant by an acceptable margin (i.e. not too small) to preclude TS or permit conditions by explicitly stating an acceptable margin, or otherwise identify parameters and guidance relevant to determining an acceptable margin for a particular site.
7. 2.4.13, II. Acceptance Criteria, DSRS Acceptance Criterion 6, p. 2.4.13-6	Acceptance Criterion 6 should state that if the design meets the passive mitigative design features to preclude releases to the environment, then only the site-specific groundwater and surface water, as well as effects of ice, etc. analyses need to be performed, and that the continuation of the tank failure analysis is unnecessary. ISG-013 states that this is allowed.	Revise to clarify that mitigative design features may be used to partially satisfy the tank failure analysis requirement.
8. 3.2.1, III. Review Procedures, Item 4, last sentence, p. 3.2.1-9	The positions (C.2 and C.3) associated with RG 1.151 are from an older revision of the RG and need to be updated to reflect the current Revision 1 as they now have nothing to do with seismic classification.	Revise to reflect current revision of RG 1.151.

Affected Section	Comment/Basis	Recommendation
9. 3.2.1, VI. References, Reference 23, p. 3.2.1-14	BTP 3-2 deals only with BWRs, so should be deleted for the mPower iPWR review standard.	Delete reference 23.
10. 3.5.1.3, I. Areas of Review, 1 st paragraph, p. 3.5.1.3-1; II. Acceptance Criteria, DSRS Acceptance Criterion 1, p. 3.5.1.3-3 & 4; VI. References, Reference 3, p. 3.5.1.3-11	Title of RG 1.115 should be, "Protection Against Turbine Missiles" rather than "Protection Against Low-Trajectory Turbine Missiles." Also, consistent with normal practice, the RG revision number should be omitted so the DSRS will not have to be revised if the RG is revised.	Revise RG title and delete revision number.
11. 3.5.1.3, I. Areas of Review, Item 1, p.3.5.1.3-1; II. Acceptance Criteria, DSRS Acceptance Criterion 1, p. 3.5.1.3-2 & 3	These sections refer to large steam turbines. "Large" is vague and a potentially important distinction for SMR designs.	Clarify what is meant by "large."
12. 3.5.1.4, I. Areas of Review, 2 nd paragraph, p. 3.5.1.4-1	This paragraph states that based on a "deeply embedded concrete reactor building" and a "fully protected spent fuel pool," the probability of a direct hit of missiles generated from extreme wind conditions is reduced. It is not clear what "deeply embedded" and "fully protected" mean. Clarification would assist a future applicant to understand how the review would be similarly affected for their design.	Clarify meaning of "deeply embedded" and "fully protected" as it relates to minimizing probability of missile hit.

Affected Section	Comment/Basis	Recommendation
13. 3.5.1.5, VI. References, Reference 9, p. 3.5.1.5-8	RG 1.91, "Evaluations of Explosions Postulated To Occur on Transportation Routes Near Nuclear Power Plants" title should be, "Evaluations of Explosions Postulated To Occur at Nearby Facilities and on Transportation Routes Near Nuclear Power Plants."	Revise title of RG.
14. 3.5.1.6, III. Review Procedures, 2. Airways, Item (3), p. 3.5.1.6-6	"Accident Analysis of Aircraft into Hazardous Facilities," DOE-STD-3014-96, October 1996 is now DOE-STD-3014-2006 as it was reaffirmed in 2006.	Revise to reflect current version of standard.
15. 3.5.2, I. Areas of Review, 3 rd paragraph, p. 3.5.2-1	This paragraph states that based on a "deeply embedded concrete reactor building" and a "fully protected spent fuel pool," the probability of a direct hit of missiles generated from extreme wind conditions is reduced. It is not clear what "deeply embedded" and "fully protected" mean. Clarification would assist a future applicant to understand how the review would be similarly affected for their design.	Clarify meaning of "deeply embedded" and "fully protected" as it relates to minimizing probability of missile hit.
16. 3.5.2, I. Areas of Review, Item 4, p. 3.5.2-2	"...related to this SRP section..." should read "related to this <u>DSRS</u> section..." and "...acceptance criteria contained in this SRP section" should read "...acceptance criteria contained in this <u>DSRS</u> section."	Revise as indicated.
17. 3.5.3, I. Areas of Review, Review Interfaces, Items 3 & 4, pg. 3.5.3-2	<p>In item 3, the scope of SSCs to be protected from externally generated missiles was changed from "all plant site safety-related SSCs...reviewed in accordance with SRP section 3.5.2" to "all plant site safety-related SSCs or risk-significant non-safety-related SSCs. These SSCs are listed in DSRS section 3.2.2."</p> <p>The list of SSCs in DSRS section 3.2.2 is a generic list of normally important-to-safety (ITS) SSCs for PWRs; it is</p>	<p>Revise item 3 to correctly state which SSCs need protection (safety-related and RTNSS-B risk-significant SSCs) and to refer to DSRS section 3.5.2 for that determination.</p> <p>Delete item 4.</p>

Affected Section	Comment/Basis	Recommendation
	<p>not limited to risk-significant SSCs, and some of the SSCs that are ITS in a large PWR will not be ITS for the mPower, or other, iPWRs. Moreover, not all risk-significant SSCs must be protected from externally generated missiles, only RTNSS-B SSCs per DSRS section 3.5.2. Thus, the existing interface with section 3.5.2 for determining the appropriate SSCs for external-missile protection should be maintained.</p> <p>In turn, DSRS section 3.5.2 refers to SRP section 19.3 for the RTNSS determination, such that DSRS section 3.5.3 item 4 should not refer to SRP section 19.0.</p>	
18. 3.6.2, III. Review Procedures, Item 5.C.i, p. 3.6.2-10	Section III.5.C.i refers to "subsection III.2.C(iv)...." This reference should read "Subsection III.5.C.iv...."	Revise "subsection III.2.C(iv)..." to read "Subsection III.5.C.iv...."
19. 3.6.2, III. Review Procedures, Item 5.C.iv, p. 3.6.2-10.	Section III.5.C.iv refers to "subsection III.2.B(ii) or III.2.B(iii)...." This reference should read "Subsection III.5.B.ii or III.5.B.iii...."	Revise "subsection III.2.B(ii) or III.2.B(iii)..." to read "Subsection III.5.B.ii or III.5.B.iii...."
20. 3.6.2, III. Review Procedures, Item 6.C, p. 3.6.2-11.	Section III.6.C refers to "subsection III.2.C(iv)...." This reference should read "Subsection III.5.C.iv...."	Revise "subsection III.2.C(iv)..." to read "Subsection III.5.C.iv...."
21. 3.6.2, VI. References, p. 3.6.2-13.	The body of mPower DSRS section 3.6.2 includes references to subtier guidance that is not listed in Section VI, "References" (e.g., RG 1.160 and BTP 3-4).	Revise Section VI to include referenced guidance documents as appropriate.
22. 3.6.2, Appendix A, 1 st paragraph, p. 3.6.2-14	The first paragraph of Appendix A refers to "Section III.3...." This reference should read "Section III.6...."	Revise reference to "Section III.3" to read "Section III.6."

Affected Section	Comment/Basis	Recommendation
23. 3.7.2, II. Acceptance Criteria, DSRS Acceptance Criterion 4, p. 3.7.2-20	<p>Regarding percent-reductions of calculated in-structure response spectra (ISRS):</p> <p>For 30 Hz and above, a 30% maximum reduction in the amplitude of spectral accelerations acceptable for the ISRS has been proposed in both SRP 3.7.2 draft rev. 4 and the mPower DSRS 3.7.2. This limit is unduly restrictive as much higher reductions are found for very stiff soil or rock. In fact, as noted in the SRP 3.7.2 draft rev. 4, Description of Changes section, reductions as high as 40-50% are observed in an EPRI analytical study. While the proposed Acceptance Criterion would allow for larger reductions on a case-by-case basis, making such an individualized showing will likely face a high "burden of proof" as the unduly conservative maximum reduction proposed in the SRP/DSRS will prejudice the determination. Rather, the acceptance criterion should not include a presumed maximum reduction, such that applicants aren't forced to overcome the presumed maximum as a matter of course.</p>	Revise to remove the 30% limitation on reductions for incoherency where stiff soil or rock is concerned.
24. 3.8.3, I. Areas of Review, Item 3.A, p. 3.8.3-3	<p>Addition of "loads induced by the proposed construction sequence and differential settlements" to the list of loads encountered during construction in "Loads and Loading Combinations":</p> <p>This issue is not applicable to an SMR design, where the containment and its internal structures are fabricated in factory controlled conditions offsite, and the containment is not placed in the building until the foundation and walls are in place, e.g., NuScale design.</p>	Clarify applicability of this provision for SMR designs.
25. 3.8.4, I. Areas of Review, Item 3.A, p. 3.8.4-4	Addition of "loads that are induced by the proposed construction sequence and by the differential settlements of the soil" to Loads and Loading Combinations:	Clarify applicability of this provision for DC applications, as this requirement should apply only to COLA applicants.

Affected Section	Comment/Basis	Recommendation
	<p>Construction sequence may be, and settlement will be, site specific. Thus, consideration of these specific loads in a design certification (DC) application using generic site parameters may be premature. Inclusion of these loads in confirmatory analysis in the combined license (COL) application (when the site properties are better known) provides a more certain evaluation without jeopardizing the adequacy of the DC analysis, or departing from the DC due to a change in construction sequence planning that may occur at the COL phase.</p>	<p>See also, comment #26.</p>
<p>26. 3.8.4, II. Acceptance Criteria, DSRS Acceptance Criterion 4.H, p. 3.8.4-12</p>	<p>Three methods (two linear or equivalent-linear, one accounting for inelastic strains) are provided to calculate seismically induced lateral soil pressures on embedded walls, where the governing pressure is to be used. If the dynamic soil pressure due to the seismic event is calculated in the SSI analysis, it is unclear whether it is necessary to check the pressures using the other two methods.</p>	<p>Clarify if staff intends to not accept the SSI-generated dynamic soil pressure, but instead to require additional work using other methods to generate soil pressure values and then compare those additional results with SSI results to select a bounding lateral soil pressure.</p>
<p>27. 3.8.5, II. Acceptance Criteria, DSRS Acceptance Criterion 3, 1st paragraph, p. 3.8.5-7</p>	<p>Addition of "loads that are induced by the proposed construction sequence and by the differential settlements of the soil" to Loads and Loading Combinations: see comment #24.</p>	<p>Clarify applicability of this provision for DC applications, as this requirement should apply only to COLA applicants.</p> <p>See also, comment #24.</p>
<p>28. 3.9.1, III. Review Procedures, Item 1, p. 3.9.1-7</p>	<p>This paragraph states that proposed programs may be used to augment or replace some of the review procedures for nonsafety-related SSCs (either risk- or non-risk-significant). In accordance with NUREG-0800 "Introduction," Part 2, "the graded review approach commences at the A2 level for design-based and performance-based acceptance criteria. The reviewer</p>	<p>Revise to state that that programmatic requirements can be used to augment or replace review procedures for safety-related not risk-significant SSCs as well, i.e., A2, B1, and B2 SSCs.</p>

Affected Section	Comment/Basis	Recommendation
	identifies programmatic requirements that may be considered for use in lieu of some analysis and evaluation techniques to demonstrate satisfaction of specific acceptance criteria." Thus, programmatic requirements should also be considered to augment or replace review procedures for safety-related not risk-significant SSCs.	
29. 3.9.1, III. Review Procedures, Item 1, pg. 3.9.1-7	Commensurate with proposed NUREG-0800 Introduction - Part 2, it is not clear how programmatic requirements can be used to augment or replace the acceptance criteria in this section.	Clarify by including some examples of how the risk informed review can be implemented through the use of programmatic requirements as listed.
30. 3.9.5, VI. References, Reference 8, p. 3.9.5-11	Only Reference 8 (RG 1.20) has a revision number. Consistent with normal practice, recommend deleting the revision number so DSRS revision will not be required upon RG revision.	Revise to delete the revision number.
31. 3.13, VI. References, Reference 2, p. 3.13-12	Reference 2 is listed as RG 1.37 (March 1973); the current version of RG 1.37 is Revision 1 dated March 2007.	Revise the reference to RG 1.37 to delete the revision number.
32. 3.13, VI. References, Reference 3, p. 3.13-12	Reference 3 is listed as RG 1.65 (October 1973); the current version of RG 1.65 is Revision 1 dated April 2010. Further, Position C.1 of RG 1.65 is discussed on page 3.13-8 of mPower DSRS section 3.13 and page 3.13-9 of SRP section 3.13. That discussion may warrant revision to conform to the content of RG 1.65 Revision 1.	Revise the reference to RG 1.65 to delete the revision number. Also, consider conforming changes, if/as appropriate, to page 3.13-8 of mPower DSRS section 3.13 and page 3.13-9 of SRP section 3.13 (which currently refer to Position C.1 of RG 1.65 from the previous version dated October 1973).
33. 4.2, II. Acceptance Criteria, Requirements, Item 2, 4.2-4	The basis is not clear for the added language: "For sites with multiple mPower modules, appropriate consideration for fission product releases from multiple reactors shall be included in the site suitability source term based on NRC staff guidance." Releases from multiple reactors should be	Clarify requirement to consider releases from multiple reactors.

Affected Section	Comment/Basis	Recommendation
	considered when accidents in one reactor could realistically lead to accidents in co-located units – consistent with 10 CFR 100.	
34. 5.2.1.2, VI. References, Reference 7, p. 5.2.1.2-10	Reference 7, RG 1.84, title should be, "Design, Fabrication, and Materials Code Case Acceptability, ASME Section III."	Revise to correct title.
35. 5.2.3, I. Areas of Review, Review Interfaces, Item 2, p. 5.2.3-6.	Item 2 was changed to refer to DSRS section 3.6 for review of reactor coolant chemistry and associated chemistry controls. The intended reference was likely new section 9.3.6 for the mPower DSRS, while for other iPWR designs the existing interface reference to section 9.3.4 may be appropriate.	Revise the DSRS section number referred to in Review Interfaces item 2 appropriately.
36. 5.2.5, III. Review Procedures, 3 rd and 4 th paragraphs	These paragraphs discuss construction permit review and operating license review, respectively. Discussion should reflect DC and COL review.	Revise to discuss review of DC and COL applications.
37. 5.3.1, II. Acceptance Criteria, Requirements, Item 11, p. 5.3.1-5	Typographical error "Nuclear Regulatory..."	Revise "Nuclear Regulatory" to "Nuclear Regulatory...."

Affected Section	Comment/Basis	Recommendation
38. 5.3.1,II. Acceptance Criteria, DSRS Acceptance Criterion 4.E, p. 5.3.1-6	Acceptance Criterion 4.E of SRP and mPower DSRS sections 5.3.1 refers to Position C.5 of RG 1.37. The current version of RG 1.37 (Rev. 1, dated March 2007) does not contain Position C.5 of the original RG 1.37 (March 16, 1973), which has been subsumed into ASME NQA 1 1994. Thus, the reference to "Position C.5" should be deleted from the mPowe DSRS section 5.3.1. Further, the substantive content of the original Position C.5 has been retained in NQA-1-2008/1a-2009. Thus, use of NQA-1-2008 and the NQA-1a-2009 addenda ensures that Position C.5 of the original RG 1.37 is satisfied.	Revise to delete reference to "Position C.5." Consider conforming revisions that reflect use of NQA-1.
39. 5.3.1, III. Review Procedures, Item 5, p. 5.3.1-14	The last paragraph of Item 5 is not relevant to new reactor designs and should be deleted from the mPower (and NuScale) DSRS section 5.3.1. This guidance is specific to those plants that were designed and constructed prior to the effective date of Appendix G, 10 CFR 50, such that some of the fracture toughness requirements of Appendix G may not be explicitly met. New designs should meet the 10 CFR 50, Appendix G, fracture toughness requirements.	Delete the last paragraph of Item 5.
40. 5.3.1, VI. References, Reference 23, p. 5.3.1-20	New reference 23, RG 1.215, is added to the mPower DSRS section 5.3.1 (as compared to SRP section 5.3.1). RG 1.215 is not mentioned in the acceptance criteria or other portions of section 5.3.1, and it appears that this additional reference is not appropriate for DSRS section 5.3.1. RG 1.215 provides guidance for ITAAC closure. Thus, the appropriate SRP/DSRS location for this reference is in section 14.3 rather than in section 5.3.1. Note that section I, Areas of Review, and section III, Review Procedures, appropriately refer to SRP section 14.3 for ITAAC review. These references to section 14.3, with RG 1.215 added to DSRS section 14.3, ensure that	Delete reference to RG 1.215 in DSRS section 5.3.1.

Affected Section	Comment/Basis	Recommendation
	RG 1.215 is appropriately cited in the NRC review guidance, with no need for it to be cited as subtier guidance in section 5.3.1.	
41. 6.1.1, II. Acceptance Criteria, Technical Rationale, Item 8, p. 6.1.1-9	This paragraph characterizes a station blackout as a design-basis accident. Although a loss of offsite power is a non-LOCA design-basis accident, a station blackout event is a beyond-design-basis accident.	Revise to appropriately characterize a station blackout event.
42. 6.1.2, VI. References, Reference 7, p. 6.1.2-6	New Reference 7, RG 1.215, is added to the mPower DSRS section 6.1.2 (as compared to SRP section 6.1.2). RG 1.215 is not mentioned in the acceptance criteria or other portions of section 6.1.2, and it appears that this additional reference is not appropriate for DSRS section 6.1.2. RG 1.215 provides guidance for ITAAC closure. Thus, the appropriate SRP/DSRS location for this reference is in section 14.3 rather than in section 6.1.2. Note that section I, Areas of Review, and section III, Review Procedures, appropriately refer to SRP section 14.3 for ITAAC review. These references to SRP section 14.3, with RG 1.215 added to section 14.3, ensure that RG 1.215 is appropriately cited in the NRC review guidance, with no need for it to be cited as subtier guidance in section 6.1.2.	Delete reference to RG 1.215 in DSRS section 6.1.2.
43. 6.2.1.3, I. Areas of Review, Item 3, pg. 6.2.1.3-1	In changing item 3 to reflect that mPower is a PWR, the statement is now awkward and does not match the format of items 1 and 2.	Revise item 3 to clarify as follows: "The mass and energy release rate calculations for the core reflood and post-reflood phases of the accident (because of additional stored energy in the steam generators available for release)."

Affected Section	Comment/Basis	Recommendation
44. 6.2.1.4, II. Acceptance Criteria, Requirement 1, p. 6.2.1.4-2; and Technical Rationale, Item 1, p. 6.2.1.4-4	Although unchanged from the current SRP, GDC 50 does not appear to provide the basis for the review required by this section. GDC 50 explicitly requires that the containment accommodate conditions resulting from a LOCA, and LOCA is clearly defined by Appendix A to mean loss of reactor coolant from breaks in the RCPB (i.e., it does not mean loss of secondary-side coolant). Thus, Staff should clarify the regulatory basis for this SRP/DSRS section.	Clarify the regulatory basis for this SRP/DSRS section.
45. 6.2.4, various	Throughout this document, provisions previously applicable to containment purging and venting have been expanded to include containment evacuation. This change presumes that a containment evacuation system also provides a direct path from the containment atmosphere to the environs. The function and design of an evacuation system for the mPower design is unknown, but this may cause confusion with future SMR designs. For example, the NuScale design includes a containment evacuation system, but it is unlike a purging/venting system in that it does not provide a path to the site environs and is not used to support personnel access to the containment (it draws a partial vacuum). See also, comment #50.	Revise to, at a minimum, include clarifying discussion in the introduction to explain the meaning and function of containment evacuation for the mPower DSRS, as to avoid confusion or improper application of similar requirements to dissimilar systems of the same name in future applications.
46. 6.2.4, I. Areas of Review, Item 1.A, p. 6.2.4-1	Although this is verbatim from the current SRP, in order to properly reflect the scope of the first aspect of the review, replace "valves" with "barriers," and replace "i.e." with "e.g."	Revise as indicated in comment.

Affected Section	Comment/Basis	Recommendation
47. 6.2.4: I. Areas of Review, Review Interfaces, p. 6.2.4-3	There is no interface with DSRS section 6.2.6 listed. As stated in DSRS 6.2.4, II Acceptance Criteria, DSRS Acceptance Criterion 18, on page 6.2.4-9, DSRS section 6.2.6 is used to review the leakage rate testing program for containment isolation barriers.	Revise to include interface with DSRS section 6.2.6.
48. 6.2.4, II. Acceptance Criteria, Requirements, Item 13, p. 6.2.4-5	As with the two TMI-related requirements in item 11, item 13 is imposed by 10 CFR 52.47(a)(8) and 52.79(a)(17), and therefore also is subject to the "technically relevant portions" language that is included in item 11. Therefore, 50.34(f)(3)(iv) should either be included in item 11 along with the other two TMI-related requirements, or the language in item 13 should mirror that of item 11.	Revise to reflect "technically relevant" language.
49. 6.2.4, II. Acceptance Criteria, Requirements, Item 13, p. 6.2.4-5	<p>Considering the variation in size and design of SMRs, arbitrarily requiring a minimum 3-foot diameter opening is overly prescriptive and represents a huge opening for small SMRs with an attendant risk of increased containment leakage.</p> <p>Recommend replacing with an adaptation of the TMI requirement that would be consistent with the "technically relevant" aspect of the rule.</p>	<p>Revise requirement 13 as follows:</p> <p>"10 CFR 50.34(f)(3)(iv) Provide one or more dedicated containment penetrations, equivalent in size to a single 3-foot diameter opening <u>suitable flexibility, such as spare dedicated containment penetrations</u>, in order not to preclude future installation of systems to prevent containment failure, such as a filtered vented containment system. (II.B.8)"</p>
50. 6.2.4, II. Acceptance Criteria, DSRS Acceptance Criterion 1, p. 6.2.4-6	DSRS Acceptance Criterion 1 contains a typographical error, should read "and designed" instead of "are designed."	Revise to "and designed."

Affected Section	Comment/Basis	Recommendation
51. 6.2.4, II. Acceptance Criteria, DSRS Acceptance Criterion 4, p. 6.2.4-6	Acceptance Criterion 4 should make clear that "under water" is not the only relevant consideration.	Revise as follows: "... may be under water <u>or otherwise subjected to a harsh environment</u> ..."
52. 6.2.4, II. Acceptance Criteria, DSRS Acceptance Criterion 14, p. 6.2.4-8	In general, see comment # 45 regarding inclusion of evacuation systems. Specifically, BTP 6-4 does not address evacuation systems. If the mPower design includes an evacuation system similar in function and design to a purging/venting system, that system should be discussed to explain the applicability of BTP 6-4 to the evacuation system, and also to avoid confusion with systems like NuScale's evacuation system. Also, addition of "for iPWRs" after BTP 6-4 is misleading because BTP 6-4 is not guidance specifically pertaining to iPWRs, it is generally applicable.	Clarify evacuation system function and applicability of BTP 6-4 to evacuation systems.
53. 6.2.4, II. Acceptance Criteria, Technical Rationale, Item 4, p. 6.2.4-11	GDC 5 should follow the prototypical format for items in this list (GDC requires..., GDC applies because..., compliance with GDC provides assurance...).	Revise GDC 5 to standard format for Technical Rationale.
54. 6.2.4, III. Review Procedures, Item 12, p. 6.2.4-16	Examples A and B, related to traditional LLWR designs, should be deleted for this design-specific review standard to which they are not relevant.	Delete irrelevant items.
55. 6.2.4, V. Implementation, 2 nd and 3 rd paragraphs, p. 6.2.4-18	The sentences regarding use of the DSRS in meeting the SRP evaluation requirements is confusingly worded. Suggest clarifying the role of the DSRS for staff's and applicant's use.	Revise the transition between paragraphs 2 and 3 to clarify as follows: "...the staff has developed the content of this DSRS section as an alternative method for <u>reviewing</u> mPower-specific DC or COL <u>applications</u> submitted pursuant to 10 CFR Part 52 to comply with 10 CFR 52.47(a)(9) , "Contents of applications; technical

Affected Section	Comment/Basis	Recommendation
		<p>information."</p> <p>This regulation <u>10 CFR 52.47(a)(9)</u> states, in part, that the application must contain "an evaluation of the standard plant design against the Standard Review Plan (SRP) revision in effect 6 months before the docket date of the application." The content of this DSRS section has been accepted as an alternative method for complying with 10 CFR 52.47(a)(9)..."</p>
56. 6.2.4, VI. References, Reference 31, p. 6.2.4-20	Although this is identical to the SRP, the two NUREGs in Reference 31 are already references 26 and 27. Suggest consolidating references.	Revise to consolidate references 26, 27, and 31.
57. 6.4, II. Acceptance Criteria, DSRS Acceptance Criterion 7, p. 6.4-7	The three limits provided for chlorine gas (protective action = 15 ppm, short-term = 4 ppm, and long-term = 1 ppm) are unsupported. The IDLH, from the referenced RG 1.78, is 10 ppm. The 60-minute AEGL-1/2/3 = 0.5/2/20 ppm. The ERPG-1/2/3 = 1/3/20 ppm. The PEL is 1 ppm. It is unclear how the chlorine example limits are derived.	Clarify with appropriate reference and/or methodology to support the chlorine limits and others.
58. 6.4, III. Review Procedures, 5.A.iii., p. 6.4-11	5.A subparagraph iii states "This arrangement is essentially the same as that in (2)..." This should be ii., not (2).	Revise to state "ii."
59. 6.4, VI. References, References 8-17, p. 6.4-19	The cited Regulatory Guides include revision numbers in this DSRS section. This is not a uniform practice across mPower DSRS sections, as most leave off the revision number. The revision numbers/dates should be removed to avoid the need to update the DSRS with each RG revision.	Revise to delete RG revisions numbers/dates.

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60. 7.0, I&C System Review Scope, p. 7.0-2	Is the area which specifies attention to software tools and equipment that are used for I&C design or connected to I&C systems/components for testing referring to cyber security concerns? Where are cyber security and computer security reviewed?	(question)
61. 7.0, DSRS Chapter 7 Acceptance Criteria and Review Process, Item 3, p. 7.0-7	3. Level of Review Applied to I&C Systems: If mPower is expected to classify I&C systems, will the regulator challenge or review those classifications?	(question)
62. 7.0, DSRS Chapter 7 Acceptance Criteria and Review Process, Item 3, p. 7.0-7	3. Level of Review Applied to I&C Systems: If RTNSS SSCs are to be reviewed in accordance with DSRS section 3.2 and SRP sections 17.4 and 19.3, what has been done to ensure that the requirement differences between the DSRS and the SRP are incorporated into the RTNSS SSC design reviews?	(question)
63. 7.0, DSRS Chapter 7 Acceptance Criteria and Review Process, Item 3.A.iii, p. 7.0-8	Typo in the last sentence of the page "rcredited" should be "credited."	Revise "rcredited" to "credited."
64. 7.1.2, III. Review Procedures, Physical Independence, p. 7.1-12	This section does not mention the NRC position on shared impulse lines.	Add a statement and reference to NRC position on shared impulse lines (RG 1.151).
65. 7.1.2, III. Review Procedures, Communications Independence, Item 6, p. 7.1-13 & 14	Item 6 does not include data communication signal or hardware errors that result in alarms for evaluation.	Add requirement for data communication signal or hardware errors to result in alarms.

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66. 7.1.3, I. Areas Of Review, p. 7.1-17 & IV. Evaluation Findings, p. 7.1-19	The redundancy requirements described in 7.1.3 do not allow for 2-out-of-2 logic protection circuits to be worked during an innage, as written.	Revise 7.1.3 such that the safety system function is not lost during on-line testing.
67. 7.1.3, III. Review Procedures, 2 nd paragraph, p. 7.1-18	At the end of the 2 nd paragraph it states, "Additional redundancy may be warranted when protection and control systems share common components." Does this statement refer to sensing or impulse lines as well?	(question)
68. 7.1.4, III. Review Procedures, Item 6, p. 7.1-22	How much "excess capacity margin" is required for data communication systems?	(question)
69. 7.1.5, III. Review Procedures, Item 3, p. 7.1-27 & 28	The diverse means of safety protection function actuation should also require initiation from a remote location in the event the control room is uninhabitable.	Revise as appropriate.
70. 7.0, Appendix A, p. 7.0 Appendix A-1	Appendix A proposes an integrated approach to hazards analysis. Where has the "integrated hazards analysis approach" been used before? What testing or certifications has it received?	(question)
71. 7.0, Appendix A, Evaluation Topics, Item 4, p. 7.0 Appendix A-3	Detection of drift requires multiple indications of the same parameter or at least 30 data points of operating experience. Where is the 95% confidence level requirement in this document?	Clarify the 95% confidence level requirement.
72. 7.0, Appendix C	The subject of simplicity in the DSRS is too vague for an applicant to know what is expected. The DSRS states that there "are no regulations, standards, or guidance to address the aspect of simplicity for digital I&C systems." This appendix adds in an undefined requirement, which an	This appendix needs to be clarified or deleted. If it is clarified, basic requirements need to be laid out for the applicant.

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	<p>applicant cannot be sure is met until after the NRC review. This could lead to a lengthy review process where the applicant and regulator will submit questions and responses back and forth without knowing the goal of the other party.</p>	
<p>73. 8.1, Table 8-1, Item 1.d, p. 8.1-6</p>	<p>The certified design for the AP1000, which does not require AC power for safe shutdown (i.e., passive) has been granted a partial exemption to the GDC 17 requirement that "Electric power from the transmission network to the onsite electric distribution system shall be supplied by two physically independent circuits . . ."</p>	<p>The "Remarks" section(s) should be revised to acknowledge that a single circuit can be acceptable if AC power is not required for safe shutdown.</p>
<p>74. 8.1, Table 8-2, Staff interpretation c., p. 8.1-15</p>	<p>The certified design for the AP1000, which does not require AC power for safe shutdown (i.e., passive) has been granted a partial exemption to the GDC 17 requirement that "Electric power from the transmission network to the onsite electric distribution system shall be supplied by two physically independent circuits . . ."</p>	<p>The "Staff interpretation" section should be revised to acknowledge that a single circuit can be acceptable if AC power is not required for safe shutdown.</p>
<p>75. 8.2, II. Acceptance Criteria, Technical Rationale, Item 2, p. 8.2-7 & 8</p>	<p>Item 2, which deals with GDC 17 compliance, does not acknowledge that there are designs (such as the AP1000 passive plant) that may qualify for a partial or full exemption from GDC 17 because the AC electrical system is not required to be functional under anticipated operational occurrences or postulated accidents (e.g., safety-related electrical requirements are fulfilled by use of DC battery systems).</p> <p>Item 2 also emphasizes the need for offsite power systems to power defense-in-depth systems such as those used for reactor coolant makeup and decay heat removal. The need for offsite power systems, however, may not be an immediate requirement (for example, the only PRA-</p>	<p>Technical rationale, Item 4 on pages 8.2-8 & 9 discusses compliance with GDCs 33, 34, 35, 38, 41, and 44, and the availability of certain capabilities for reactor systems that must be available during normal and accident conditions, except in the case of passive designs which do not depend on the electric power grid connection and grid stability for safe operation. This same consideration should be applied to the requirements for compliance with GDC 17.</p>

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	<p>based requirement for AC power availability in the AP1000 design is related to decay heat removal during mid-loop operation, and this is not an immediate requirement (multiple hours, as opposed to seconds or minutes), allowing time to align on-site AC power supplies such as diesel generator units, to be aligned to provide AC power, as well as AC power from the off-site grid). This consideration of extended time for recovery from a loss of all offsite AC power is absent from the DSRS (see also III.2.A, last paragraph, on page 8.2-10).</p>	
<p>76. 8.2, II. Acceptance Criteria, Technical Rationale, Item 2, p. 7 & 8</p>	<p>This item does not discuss guidance for review of offsite power systems under operational occurrences related to high-side open phase(s) conditions under all modes of operation. While it is acknowledged that this is a current topic under NRC and industry review (Bulletin 2012-01), it seems that this topic may be mature enough to warrant discussion in this DSRS section.</p>	<p>Address guidance related to loss of phase/open phase conditions and minimum considerations that must be addressed by the mPower design.</p>

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77. 8.2, III. Review Procedures, Item 2.C, p. 8.2-11	<p>General: As written, this paragraph invokes review of detail design information for the offsite power system (of which the switchyard is an integral part) that is neither under the regulation of the NRC nor owned by the licensee; hence the detail design information may or may not be available for review by the licensee or the NRC. The de-regulated environment within the power industry has resulted in multiple owners of switchyards and there are no regulatory provisions in place to mandate the sharing of transmission grid design detailed information as suggested within this procedure. The switchyards at nuclear plants are not a part of the nuclear plant, but rather are an integral part of the transmission grid. Therefore it is not reasonable:</p> <p>a) to invoke a requirement for the licensee to provide transmission grid detailed design information, nor</p> <p>b) to invoke specific detail design requirements for the transmission grid.</p>	<p>Revise 2.C as follows:</p> <p>"As the switchyard may be common to multiple offsite circuits, the electrical schematics of the switchyard breaker control system, its power supply and the breaker arrangement itself should be examined for the possibility of simultaneous failure of multiple circuits from single events such as a breaker not operating during fault conditions, spurious relay trip, <u>or</u> loss of a control circuit power supply, or a fault in a switchyard bus or transformer."</p>
78. 8.2, III. Review Procedures, Item 2.D, 2 nd paragraph, p. 8.2-11	See comment #79.	<p>Revise 2.D, 2nd paragraph, as follows:</p> <p>"The switchyard circuit breaker control scheme should be such that any incoming transmission line, switchyard bus, or any path to the onsite safety-related distribution buses can be isolated so that ac power can be reestablished to the onsite Class 1E buses through its redundant counterpart (as may be available in the mPower DC/COL design). This should be achieved with separate and redundant breaker tripping and closing devices that are actuated by redundant dc battery supplies. Air stored under pressure in accumulators or spring energy should be used to open and/or close breakers independent of ac power. Further</p>

Affected Section	Comment/Basis	Recommendation
		information for the reviewer on the importance of redundancy in transmission grid protective schemes is provided by operating experience events (Reference 27).
79. 8.2, III. Review Procedures, Item 2.F, 1 st & 2 nd paragraphs, p. 8.2-12	See comment #79. Specifically: 1) A requirement for the licensee to provide transmission grid detailed design information, or to require specific detail design requirements for the transmission grid is not reasonable since the transmission grid which includes the switchyard is not owned by the licensee, and is not subject to the regulation of the NRC. Therefore, the requirements of this paragraph should be deleted. 2) While the grid stability study can be made available for NRC review upon request, the grid stability study is, of necessity, performed by and therefore owned by the transmission system owner and not the mPower Plant licensee.	Delete the 1 st and 2 nd paragraphs of 2.F.
80. 8.2, III. Review Procedures, Item 2.I, p. 8.2-13	See comment # 79. Specifically: The transmission system (including the switchyard) grounding, surge, and lightning protection detailed design information may or may not be available for review by the licensee or the NRC, since this is proprietary information that is owned by and maintained by the transmission grid owner, and not the mPower Plant licensee.	Delete 2.I.
81. 8.2, III. Review Procedures, Item 5,	As written, this paragraph infers that the switchyard is subject to the NPP QA Program. The transmission grid (of	Delete this paragraph.

Affected Section	Comment/Basis	Recommendation
p. 8.2-16	which the switchyard is an integral part) is not under the regulation of the NRC nor owned by the licensee. The de-regulated environment within the power industry has resulted in multiple owners of switchyards and there are no regulatory provisions in place to mandate any NPP QA requirements for switchyards. Hence, the Offsite Power System equipment and components in the station switchyard and the switchyard connection to the HV transformers located in the nuclear plant transformer yard are not subject to the requirements of any NPP quality assurance program.	
82. 8.2, IV. Evaluation Findings, 1 st paragraph, 2 nd sentence, p. 8.2-18	See comment #79.	Revise the first paragraph as follows: "The offsite power system includes two or more identified transmission lines from the grid to the plant switchyard and two or more circuits from the switchyard to each reactor unit's onsite distribution system. The review of the offsite power system for an mPower COL application covered single-line diagrams, <u>and</u> station layout drawings, schematic diagrams, and descriptive information. "
83. 8.3.1, I. Areas of Review, Review Interface, Item 18, p. 8.3.1-7	Review Interface 18 is missing text at the end.	Revise to correct editorial issue.
84. 8.3.1, II. Acceptance Criteria, Footnote 1, p. 8.3.1-9	Footnote 1 refers to ADAMS Accession No. ML003708098 for SECY-94-084. The correct ADAMS accession number corresponding with SECY-94-084 is ML003708068. (ADAMS Accession No. ML003708098 corresponds to the SRM dated June 30, 1994.)	Revise to reflect either the ADAMS accession number corresponding with SECY-94-084 (ML003708068) or to refer to the SRM, as intended by the staff.

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85. 8.3.1, II. Acceptance Criteria, DSRS Acceptance Criterion 3.B, p. 8.3.1-9	Acceptance Criterion 3.B specifies the guidelines of RG 1.81, Position D, related to sharing of the onsite AC power system between reactor units. The current revision of RG 1.81 (Rev. 1, January 1975) does not contain a Position D. In addition, DSRS Acceptance Criterion 3.B has been revised (as compared to SRP section 8.3.1) to indicate that RG 1.81 "explicitly excludes the sharing of SSCs of the ac power system." This statement appears inconsistent with Regulatory Position C.3 of RG 1.81, Revision 1, which states that this exclusion is only applicable to safety-related portions of the onsite AC power system that provide ESF loads and loads relied upon to achieve and maintain safe shutdown conditions.	Revise the reference to "Position D" to reflect the intended regulatory position of RG 1.81, Revision 1. Clarify Acceptance Criterion 3.B with respect to the scope of the sharing exclusion of RG 1.81.
86. 8.3.1, II. Acceptance Criteria, Technical Rationale, Item 1, p. 8.3.1-11	The second paragraph of Technical Rationale Item 1 states in part, "...all components of safety-related portions of the onsite ac power system (e.g., safety-related batteries and inverters)..." This parenthetical is inconsistent with the scope of DSRS sections 8.3.1 and 8.3.2. Based on the content of mPower DSRS section 8.3.2, the safety-related batteries and inverters are within the scope of section 8.3.2 rather than section 8.3.1.	Revise this parenthetical content for consistency with the scope of DSRS sections 8.3.1 and 8.3.2. Consistent with Item 2 under "Technical Rationale" on page 8.3.1-11 of DSRS section 8.3.1, the parenthetical might instead read "... <u>(e.g., AC power system SSCs supplied from safety-related batteries and inverters)</u> ..."
87. 8.3.1, II. Acceptance Criteria, Technical Rationale, Item 3, p. 8.3.1-12	Technical Rationale Item 3 states, "Compliance with GDC 5 requires that onsite power system SSCs important to safety not be shared among nuclear power units." This statement is not consistent with GDC 5, which allows for sharing of SSCs important to safety provided "...it can be shown that such sharing will not significantly impair their ability to perform their safety functions, including, in the event of an accident in one unit, an orderly shutdown and cooldown of the remaining units."	Revise Technical Rationale Item 3 for consistency with GDC 5 of 10 CFR 50, Appendix A.

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88. 8.3.1, III. Review Procedures, Item 4.B, p. 8.3.1-17	Review Procedure Item 4.B characterizes reactor coolant pumps and reactor recirculation pumps as "balance of plant loads." As demonstrated by the definitions in 10 CFR 170.3, reactor coolant pumps and reactor recirculation pumps are considered nuclear steam supply system (NSSS) loads rather than BOP loads. While "balance of plant" in this review procedure probably means in the sense of non-1E loads, calling them BOP is confusing.	Clarify Review Procedure Item 4.B with respect to these pump motor loads.
89. 8.3.1, III. Review Procedures, Item 4.C, p. 8.3.1-17 & 18	This subparagraph under Onsite and Offsite Power System Independence appears to be inconsistent with section 8.2, section II, Technical Rationale, Item 2 related to compliance with GDC 17 which was commented on above. (See comment #77.) 8.3.1.III.4.C states that "passive reactor plant designs should; therefore, include one offsite power source with sufficient capacity and capability from the transmission network to power the safety-related systems and all other auxiliary systems under normal, abnormal, and accident conditions." This position is preferable to the position on compliance with GDC 17 in section 8.2, which requires <u>two</u> offsite power systems.	Revise 8.2., II. Acceptance Criteria, Technical Rationale, Item 2 to ensure consistency between section 8.2 and 8.3.1 regarding the need for sufficient capacity and capability for power sources from the transmission network.
90. 8.3.1, III. Review Procedures, Item 4.C, p. 8.3.1-17 & 18	Guidance in the DSRS does not address the possibility that if there are <u>no</u> requirements for ac power for risk-important, nonsafety-related, active systems, then there may be <u>no</u> requirements for offsite power sources.	Address the situation where there are no requirements for onsite ac power to support risk-important, nonsafety-related, active systems under abnormal operating occurrences or postulated accidents.
91. 8.3.1, III. Review Procedures, Item 6, p. 8.3.1-20	Review Procedure Item 6 contains a typographical error as it refers to "2b)" instead of "(2)."	Revise "2b)" to read "(2)."

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92. 8.3.1, III. Review Procedures, Item 9.B, p. 8.3.1-22	<p>The scope of the review specified under Item 9.B is redundant with the review performed under DSRS section 8.4 and could be deleted from this DSRS section.</p> <p>Further, Item 9.B currently states that if "the design is capable of performing all safety-related functions for 72 hours without an alternate onsite ac power system... it need not be evaluated for an SBO coping duration, provided the applicant has implemented an appropriate RTNSS process." As worded, this statement could be interpreted as referring to the coping analysis required by 10 CFR 50.63(a)(2) and thus would appear to be inconsistent with the regulation. If it is the staff's intent that the coping analysis specified by 50.63(a)(2) is not required for passive plants with a 72-hour coping duration, the basis for such conclusion should be clarified. Otherwise, revise wording to avoid apparent conflict.</p>	<p>Delete Item 9.B from DSRS section 8.3.1.</p> <p>If the Staff elects to retain this item, the wording should be revised to avoid confusion.</p>
93. 8.3.1, III. Review Procedures, Item 10, p. 8.3.1-22	Review Procedure Item 10 specifies the applicability of GDC 3, but GDC 3 is not included in section II under "Requirements" or in other sections of DSRS section 8.3.1 that include discussion of GDCs applicable to the onsite AC power system.	Delete Item 10.
94. 8.3.2, III. Review Procedures, Item 4, 1 st partial paragraph, p. 8.3.2-14	Review Procedure Item 4 refers to IEEE Std. 485 for acceptable methods used to size stationary lead acid batteries. Reference 27 on page 8.3.2-19 specifies the 1997 version of IEEE Std. 485. The guidance of IEEE Std. 485 1997 is endorsed by Regulatory Guide (RG) 1.212, which includes clarifying regulatory positions.	Revise Review Procedures and References to include RG 1.212 in section 8.3.2 as the NRC guidance that endorses IEEE Std. 485 1997.
95. 8.4, I. Areas of Review, Item 1, p. 8.4-1 & 2	It appears the scope structure of Item 1 is that: the first paragraph is related to specifying a plant coping duration pursuant to 10 CFR 50.63(a)(1) and 10 CFR	Revise to ensure consistency with the governing requirements of 10 CFR 50.63 and Commission policy. For example, the following is recommended

Affected Section	Comment/Basis	Recommendation
	<p>50.63(c)(1)(i), and the second paragraph is related to the performance of a coping analysis required by 10 CFR 50.63(a)(2) to demonstrate the capability for coping with an SBO of the specified duration. However, the wording could be misinterpreted, particularly in the first paragraph where it states that "applicants for...[passive] plants need not evaluate SBO coping duration..." 50.63 refers to a "specified" and "proposed" SBO duration, whereas to "evaluate" sounds more like to the coping analysis required by 10 CFR 50.63(a)(2). The first paragraph should be clarified.</p> <p>See also, comment #101.</p> <p>In addition, the first paragraph refers to SECY-90-016 for the Commission policy establishing the 72-hour minimum duration for passive plants. It appears that this reference should be SECY-94-084 instead.</p>	<p>for passive designs:</p> <p>" The SBO rule 10 CFR 50.63(a)(1) and 10 CFR 50.63(c)(1)(i) requires each nuclear power plant to specify an SBO coping duration that is justified by an analysis of based on site- and plant-specific factors that contribute to the likelihood of and duration capability for restoring alternating current (AC) power following of an SBO. These factors include consideration for redundancy and reliability of onsite emergency AC (EAC) power sources. Since passive plants do not have EAC power sources, applicants for such plants need not evaluate SBO coping duration, as long as they are able to demonstrate passive plant designs meet the 10 CFR 50.63 requirements for specifying a coping duration by demonstrating that the design is capable of performing safety-related functions are assured for a minimum of 72 hours without operator intervention following an SBO event. The 72 hour approach coping duration for passive plant designs is consistent with the station blackout duration proscribed by the U.S. Nuclear Regulatory Commission (NRC) in SECY 90-016 (Reference 23) approved by the NRC staff for the AP1000 design, as reflected in SECY 94-084 (Reference 25)."</p>
96. 8.4, II. Acceptance Criteria, DSRS Acceptance Criterion 2, p. 8.4-5	DSRS Acceptance Criterion 2 states in part, "... (Referece [sic] 25)." It appears that this parenthetical was intended to read "... (References 23 and 25)."	Revise the parenthetical to "... (References 23 and 25)."

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97. 8.4, III. Review Procedures, Item 5.A p. 8.4-7 & 8	Similar to comment #99 on 8.4.I, Item 1, the content of Review Procedures Item 5.A is subject to misinterpretation.	Revise to ensure consistency with the governing requirements of 10 CFR 50.63 and Commission policy. See the comment #99 on 8.4.I, Item 1, for suggested wording.
98. 8.4, III. Review Procedures, Item 6.E, p. 8.4-8; and VI. References, Reference 14, p. 8.4-13	Review Procedures Item 6.E of both the SRP and mPower DSRS sections 8.4 refer to IEEE Std. 485-1987. IEEE Std. 485-1987 has been superseded by IEEE Std. 485-1997, and is the industry standard currently endorsed (with clarification) by NRC RG 1.212 (November 2008).	Revise Item 6.E to reflect updated industry and regulatory guidance related to sizing station batteries. Specifically, add RG 1.212 to Item 6.E, and as an additional reference in section VI. Also, revise Reference 14 of section VI to indicate the 1997 version of IEEE Std. 485.
99. 8.4, III. Review Procedures, Item 7, p. 8.4-9	Review Procedure Item 7 states in part, "... (Reference 26)." It appears that this parenthetical was intended to read "... (References 25 and 26)."	Revise the parenthetical to "... (References 25 and 26)."
100. 8.4, VI. References, References 10-13, p. 8.4-13	References 10 through 13 cite SRP sections 8.1, 8.2, 8.3.1, and 8.3.2, respectively. These SRP sections are to be issued as DSRS sections. Thus, these references should be to DSRS sections rather than SRP sections.	Revise References 10 through 13 to replace "SRP" with "DSRS."
101. BTP 8-3, A., p. BTP 8.3-1	As compared to SRP BTP 8-3, the first sentence in section A of draft mPower DSRS BTP 8-3 has been changed from "The staff has traditionally required each applicant to perform stability studies for the electrical transmission grid..." to "General Design Criterion (GDC) 17 requires applicants to perform stability studies for the electrical transmission grid...." It appears that this change does not appropriately reflect the content of GDC 17. Specifically, GDC 17 does not specify any requirement for transmission grid stability studies. Rather, grid stability studies are established by Commission policy (e.g., SECY-05-0219 and associated Staff Requirements Memorandum dated December 20, 2005), generic communications (e.g., RIS	Revise the first sentence of DSRS BTP 8-3 to reflect the appropriate regulatory basis for the performance of grid stability studies.

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	2004-05, Generic Letter 2006-02, etc.), and other guidance (e.g., SRP section 8.2, BTP 8-3, etc.) as an acceptable means of demonstrating that GDC 17 is satisfied.	
102. BTP 8-6, general	SRP BTP 8-6 has been significantly revised for the draft mPower DSRS. The revised DSRS BTP 8-6 no longer contains the guidance provided in SRP BTP 8-6 for active plant designs. Rather, draft mPower DSRS BTP 8-6 provides guidance for design, monitoring, and operating considerations needed to address potential degraded grid conditions specifically for passive plant designs. The result is that minimal substantive content remains in the revised document, and the issues to be verified under DSRS BTP 8-6, (Technical Positions B.1, B.2, and B.3) are already addressed to some extent in DSRS sections 8.2, 8.3.1, and 8.3.2. Thus, for efficiency of review, BTP 8-6 could be eliminated for passive plant DSRSs, and the Technical Positions incorporated as appropriate into DSRS sections 8.2, 8.3.1, and/or 8.3.2.	Delete BTP 8-6 for passive plant DSRSs, and revise DSRS sections 8.2, 8.3.1, and/or 8.3.2 to incorporate Technical Positions B.1, B.2, and B.3 in DSRS sections 8.2, 8.3.1, and/or 8.3.2, as appropriate.

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<p>103. 9.1.3, II. Acceptance Criteria, Requirements, Item 9, p. 9.1.3-5</p>	<p>Item 9 was added for the mPower DSRS. It sets requirements for discussions on <u>procedures</u> for operation that will minimize contamination of the facility and the environment. In comparison to the AP1000 COLAs, no discussion was provided in these sections about <u>operating procedures</u> for the spent fuel pool.</p> <p>Item 9 is correct to ask for related design information; however, the discussion of <u>operating procedures</u> should be addressed in DSRS section 11 which deals with liquid waste management. Any spills or leaks from the spent fuel pool are going to end up in the liquid waste management systems and a discussion of design in section 9.1.3 could affirm this.</p>	<p>Revise Item 9 to only address design information. Move discussion of operating procedures to DSRS section 11, as appropriate.</p>
<p>104. 9.2.1, I. Areas of Review, Item 4.D, p. 9.2.1-5</p>	<p>The last sentence states "nonsafety-related nonrisk-significant" apply with regard to effects of failure on non-seismic SSCs on safety-related SWS portions. It is not expected that non-safety-related non-risk-significant SSCs should be protected from failure of non-seismic Category I SSCs.</p>	<p>Remove "nonsafety-related nonrisk-significant" from the last sentence.</p>

Affected Section	Comment/Basis	Recommendation
105. 9.2.1, VI. References, Reference 25, p 9.2.1-32	New Reference 25, RG 1.215, is added to mPower DSRS section 9.2.1 (as compared to SRP section 9.2.1). RG 1.215 is not mentioned in the acceptance criteria or other portions of section 9.2.1, and it appears that this additional reference is not appropriate for DSRS section 9.2.1. RG 1.215 provides guidance for ITAAC closure. Thus, the appropriate SRP/DSRS location for this reference is in section 14.3 rather than in section 9.2.1. Note that 9.2.1 sections I and III appropriately refer to SRP section 14.3 for ITAAC review. These references to SRP section 14.3, with RG 1.215 added to section 14.3, ensure that RG 1.215 is appropriately cited in the NRC review guidance, with no need for it to be cited as subtier guidance in section 9.2.1.	Delete reference to RG 1.215 in DSRS section 9.2.1.
106. 9.2.2, II. Acceptance Criteria, DSRS Acceptance Criterion 5, p. 9.2.2-10	DSRS Acceptance Criterion 5 refers to "BTP ASB 3-3." This BTP designation is not consistent with the current "BTP 3-3" designation, as appropriately reflected in Reference 28.	Revise "BTP ASB 3-3" to "BTP 3-3."
107. 9.2.2, II. Acceptance Criteria, DSRS Acceptance Criterion 7, p. 9.2.2-10	The term "Technical Specifications" is introduced in this mPower version of the SRP. Assuming that CWS is non-safety in the passive design, it is unlikely there will be any applicable "Technical Specifications." Instead, there may be applicable "Investment Protection" surveillances similar to section 16.3 of the AP1000 DCD.	Remove reference to "Technical Specifications" or add an alternate reference to "Investment Protection" surveillances/testing. Alternatively, add a bold note similar to that on page 9.2.2-15 after item F.
108. 9.2.2, VI. References, Reference 18, p. 9.2.2-28	New Reference 18, RG 1.215, is added to mPower DSRS section 9.2.2 (as compared to SRP section 9.2.2). RG 1.215 is not mentioned in the acceptance criteria or other portions of section 9.2.2, and it appears that this additional reference is not appropriate for DSRS section 9.2.2. RG 1.215 provides guidance for ITAAC closure.	Delete reference to RG 1.215.

Affected Section	Comment/Basis	Recommendation
	<p>Thus, the appropriate SRP/DSRS location for this reference is in section 14.3 rather than in section 9.2.2. Note that section I, Areas of Review, and section III, Review Procedures, appropriately refer to SRP section 14.3 for ITAAC review. These references to SRP section 14.3, with RG 1.215 added to section 14.3, ensure that RG 1.215 is appropriately cited in the NRC review guidance, with no need for it to be cited as subtier guidance in section 9.2.2.</p>	
<p>109. 9.2.6, I. Areas of Review, p. 9.2.6-2</p>	<p>The numbering of section I, "Areas of Review," contains a duplicate Item 3.</p>	<p>Revise to correct the duplicate Item 3.</p>
<p>110. 9.3.2, II. Acceptance Criteria, DSRS Acceptance Criterion 2, p. 9.3.2-7</p>	<p>DSRS Acceptance Criterion 2 states the design will be acceptable if there are provisions to detect contamination that may enter as inleakage from other systems. This appears to simply be the purpose of the Process and Post Accident Sampling Systems. The value of this criterion is unclear.</p>	<p>Delete DSRS Acceptance Criterion 2 or clarify.</p>
<p>111. 9.3.2, III. Review Procedures, Items 2 & 3, p. 9.3.2-12</p>	<p>These items concern representative samples of process fluids and keeping sample lines clear. The items refer to RG 1.21 Positions C.6 and C.7, respectively. Position C.6 is, "Solid Radioactive Waste Shipped for Processing or Disposal" and Position C.7 is, "Reporting Errata in Effluent Release Reports." Relationship is unclear.</p>	<p>Clarify applicability of, or revise, referenced RG positions.</p>

Affected Section	Comment/Basis	Recommendation
112. 9.4.1, II. Acceptance Criteria, DSRS Acceptance Criterion 6, p 9.4.1-7; and III. Review Procedures, Item 5, p 9.4.1-12	DSRS Acceptance Criterion 6 addressing 10 CFR 20.1406 for the Control Room Area Ventilation system would imply radiation detectors are required on condensate drains from coolers or ductwork. All the DSRSs modified for mPower have similar acceptance criteria. It is unreasonable to expect that every system is going have rad monitors installed. Certainly this monitoring can be done in systems designed to collect the effluents.	Revise the acceptance criteria to monitor for radiation in other systems that collect the condensation.
113. 9.4.2, VI. References, References 8 & 18, p. 9.4.2-15	Ref. 8: Title of RG 1.13 should be, "Spent Fuel Storage Facility Design Basis" rather than "Fuel Storage Facility Design Basis." Ref. 18: Title of RG 1.115 should be, "Protection Against Turbine Missiles" rather than "Protection Against Low-Trajectory Turbine Missiles."	Revise references to correct titles.
114. 9.4.4, VI. References, Reference 6, p. 9.4.4-11	The correct title of RG 1.52 is, "Design, Inspection, and Testing Criteria for Air Filtration and Adsorption Units of Post-Accident Engineered-Safety-Feature Atmosphere Cleanup Systems in Light-Water-Cooled Nuclear Power Plants."	Revise to correct title.
115. 9.4.4, VI. References, Reference 8, p. 9.4.4-11	The correct title of RG 1.140 is "Design, Inspection, and Testing Criteria for Air Filtration and Adsorption Units of Normal Atmosphere Cleanup Systems in Light-Water-Cooled Nuclear Power Plants."	Revise to correct title.
116. 10.2, II. Acceptance Criteria, DSRS Acceptance Criterion 2.B, p. 10.2-5	A requirement to exercise the extraction non-return valves was introduced in the mPower version of DSRS Acceptance Criterion 2.B on page 10.2-5. It is unclear whether a non-return valve that can be fully exercised from open to closed with a unit at normal operations exists. Most non-return valves are air assist closed check	Clarify that it is not expected that non-return valves are exercised full open to full shut for on-line testing.

Affected Section	Comment/Basis	Recommendation
	<p>valves. The air actuator is not capable of closing the valves as long as flow is going to the feedwater heaters. The non-return valves, however, do fully shut on a reverse flow to the turbine. It would not be possible to test a reverse flow condition. Typically the test involves actuating the valve and observing that the swing arm demonstrates movement. A full shut test on a non-return valve would introduce a secondary plant perturbation in feedwater temperature and heater drain flow.</p>	
<p>117. 10.2, III. Review Procedures, Item 1.A, p. 10.2-6; and VI. References, Reference 4, p. 10.2-9</p>	<p>Review Procedure Item 1.A refers to RG 1.18. It appears that the intended reference was RG 1.182, which is cited as new Reference 4 of section VI. As noted in comment #1, Regulatory Guide 1.182 was withdrawn in November 2012 (77 FR 70846) based on its substantive content being incorporated into RG 1.160, Revision 3.</p>	<p>Delete references to RG 1.182, with conforming changes as needed.</p>
<p>118. 10.2, VI. References, Reference 5, p. 10.2-9</p>	<p>New Reference 25, RG 1.215, is added to mPower DSRS section 10.2 (as compared to SRP Section 10.2). RG 1.215 is not mentioned in the acceptance criteria or other portions and it appears that this additional reference is not appropriate for DSRS section 10.2. RG 1.215 provides guidance for ITAAC closure. Thus, the appropriate SRP/DSRS location for this reference is in section 14.3. Note that 10.2 sections I and III appropriately refer to SRP section 14.3 for ITAAC review. These references to SRP section 14.3, with RG 1.215 added to section 14.3, ensure that RG 1.215 is appropriately cited in the NRC review guidance, with no need for it to be cited as subtier guidance in section 10.2.</p>	<p>Delete reference to RG 1.215 in DSRS section 10.2.</p>

Affected Section	Comment/Basis	Recommendation
119. 10.3, I. Areas of Review, 1 st paragraph, p. 10.3-1	There is a typo in the first paragraph, last sentence, "seconday" should be "secondary."	Revise to "secondary."
120. 10.3, IV. Evaluation Findings, Item 2, p. 10.3-13	The text includes the following incomplete sentence: "The NRC staff has reviewed the interconnections from the MSSS of each unit to."	Revise to correct the error appropriately.
121. 10.3.6, throughout	GDC 35 is cited as a regulatory requirement applicable to steam and feedwater systems in SRP section 10.3.6. These references to GDC 35 are deleted from the mPower DSRS section 10.3.6, which is appropriate for passive plant designs wherein the MSSS does not serve safety functions related to removing decay heat or supplying steam to ESF pumps. However, conforming changes are needed to reflect the elimination of GDC 35.	Revise as follows to reflect the elimination of GDC 35: 1) The list numbering of section II, Acceptance Criteria, Requirements on p. 10.3.6-3 and Technical Rationale on p. 10.3.6-6 should be corrected. 2) First paragraph following Item 6 on p. 10.3.6-4, reference to GDC 35 should be deleted. 3) Second paragraph under section IV, Evaluation Findings, on p. 10.3.6-8, reference to GDC 35 should be deleted.
122. 10.3.6, throughout	DSRS Acceptance Criterion 1.A on page 10.3.6-4 was modified in mPower DSRS section 10.3.6 (as compared to the current SRP) to clarify portions of the ASME code to be applied. Conforming changes are needed to reflect this revision.	Revise the following items to conform with modified DSRS Acceptance Criterion 1.A: 1) Items 2 and 2.A of section III, Review Procedures, on p. 10.3.6-7. 2) Third full paragraph of section IV, Evaluation Findings, on p. 10.3.6-8. 3) Item 9 of section VI, References, on p. 10.3.6-10.
123. 10.3.6, III. Review Procedures, 1 st full paragraph, p. 10.3.6-8	First full paragraph beginning "For review of a DC application...", contains the typo "IFSAR."	Revise to "FSAR."

Affected Section	Comment/Basis	Recommendation
124. 10.4.1, I. Areas of Review, Item 8, p. 10.4.1-2; III. Review Procedures, Last paragraph, p. 10.4.1-7	Reference to "SRP Section 14.3" was replaced with "DSRS Section 14.3." This conflicts with other mPower DSRS sections that continue to indicate section 14.3 as an SRP section (as opposed to DSRS), consistent with the mPower Scope and Safety Review Matrix.	Revise to "SRP Section 14.3."
125. 10.4.1, III. Review Procedures, Item 1.A, p. 10.4.1-5	Review Procedure Item 1.A refers to RG 1.18. It appears that the intended reference was RG 1.182. Regulatory Guide 1.182 was withdrawn in November 2012 (77 FR 70846) based on its substantive content being incorporated into RG 1.160, Revision 3.	Delete reference to RG 1.18. Neither RG 1.18 nor RG 1.182 is listed in section VI, "References," thus no conforming change is needed in section VI.
126. 10.4.1, III. Review Procedures, Item 5.C, p. 10.4.1-6	Review Procedure Item 5.C includes a sentence that is applicable only to direct-cycle plants. This content is not relevant to indirect-cycle plant designs such as the mPower design.	Delete the content relevant only to direct-cycle designs.
127. 10.4.1, IV. Evaluation Findings, 1 st paragraph, p. 10.4.1-7	New text is added to mPower DSRS section 10.4.1 (as compared to the current SRP section 10.4.1) that refers to "SRP Chapter 0." This reference is inconsistent with current SRP chapter numbering.	Revise this reference, to refer to SRP Introduction – Part 2 (or other as appropriate).
128. 10.4.2, I. Areas of Review, Review Interfaces, Item 6, p. 10.4.2-2	Item 6 reads "Review of initial test plant test...." This appears to be a typo and should read "... initial plant test"	Correct typo.
129. 10.4.2, II. Acceptance Criteria, DSRS Acceptance Criterion 1, p. 10.4.2-2	DSRS Acceptance Criterion 1 was modified resulting in the following awkward sentence structure: "...for the control releases of radioactive materials...."	Revise to read "...for the control <u>of</u> releases of radioactive materials...."

Affected Section	Comment/Basis	Recommendation
130. 10.4.2, II. Acceptance Criteria, DSRS Acceptance Criterion 2, p. 10.4.2-3	DSRS Acceptance Criterion 2 reads "...to the environment (i.e., pump discharge, ventilation, etc.)." During maintenance evolutions, alternate ventilation at manholes is used to exhaust to the atmosphere to maintain a safe working environment inside the condenser. The potential for contamination and the spread of contamination is known before this evolution through the radiation monitors of the condenser exhaust ventilation path. Monitoring alternate exhaust ventilation during maintenance therefore is not necessary unless a source of contamination is found prior to shutdown.	Clarify that the ventilation in DSRS Acceptance Criterion 2 is referring to the normal condenser exhaust ventilation. This would be consistent with the 1 st paragraph of the SRP, which reads "... or ventilation exhaust systems."
131. 10.4.2, III. Review Procedures, Item 1.A, p. 10.4.2-5 •	Review Procedure Item 1.A refers to RG 1.18. It appears that the intended reference was RG 1.182. Regulatory Guide 1.182 was withdrawn in November 2012 (77 FR 70846) based on its substantive content being incorporated into RG 1.160, Revision 3.	Delete reference to RG 1.18. Neither RG 1.18 nor RG 1.182 is listed in section VI, "References," thus no conforming change is needed in section VI.
132. 10.4.3, p. 10.4.3-4	Page 10.4.3-4 contains several editorial errors.	Revise as follows: In the first full paragraph, – Change "durning" to "during." – Change "relese" to "release." – Change "containg" to "containing." – Change "accepatble" to "acceptable." – Add a concluding period at the end of the last sentence. In Item 2, revise "i.e gaseous radwaste" to "i.e., gaseous radwaste."

Affected Section	Comment/Basis	Recommendation
133. 10.4.4, III. Review Procedures, Item 1.A, p. 10.4.4-5	Review Procedure Item 1.A refers to RG 1.18. It appears the intended reference is RG 1.182. Regulatory Guide 1.182 was withdrawn in November 2012 (77 FR 70846) based on its substantive content being incorporated into RG 1.160, Revision 3.	Delete reference to RG 1.18. Neither RG 1.18 nor RG 1.182 is listed in section VI, "References," thus no conforming change is needed in section VI.
134. 10.4.5, III. Review Procedures, Item 1.A, p. 10.4.5-5	Review Procedure Item 1.A refers to RG 1.18. It appears the intended reference is RG 1.182. Regulatory Guide 1.182 was withdrawn in November 2012 (77 FR 70846) based on its substantive content being incorporated into RG 1.160, Revision 3.	Delete reference to RG 1.18. Neither RG 1.18 nor RG 1.182 is listed in section VI, "References," thus no conforming change is needed in section VI.
135. 10.4.5, III. Review Procedures, Last paragraph of section III, p. 10.4.5-6	Reference to "SRP Section 14.3" was replaced with "DSRS Section 14.3." This conflicts with other mPower DSRS sections that continue to indicate Section 14.3 as an SRP section (as opposed to DSRS), consistent with the mPower Scope and Safety Review Matrix.	Revise to "SRP Section 14.3."
136. 10.4.6, I. Areas of Review, 1 st paragraph, p. 10.4.6-1	The first paragraph discusses the condensate cleanup system's role in "...maintaining the primary coolant quality in direct cycle plants..." This content is not relevant to DSRS sections to be used for review of reactor designs that are indirect cycle, including the mPower design.	Delete the discussion pertaining to direct cycle plants.
137. 10.4.6, VI. References, References 5 & 6, p. 10.4.6-6	The reference to RG 1.215 is not appropriate. See comment #119. RG 1.68 is also added as a reference, but is not mentioned in the acceptance criteria or other portions of section 10.4.6. With respect to satisfying GDC 14, it appears that this reference is appropriate, but its application should be specified in the body of DSRS section 10.4.6. In other draft mPower DSRS sections (e.g., Item 1 of DSRS section 10.4.7), NRC Staff has added a	Delete reference to RG 1.215. Revise DSRS 10.4.6, section III, Review Procedures, to include application of RG 1.68 (similar to that added to other DSRS sections for initial test program requirements) and consider appropriate reference(s) to RG 1.68.1. Otherwise, delete the reference to RG 1.68 from section 10.4.6.

Affected Section	Comment/Basis	Recommendation
	<p>standard description of potentially relevant programmatic requirements under section III, Review Procedures. This description includes initial test program requirements governed by DSRS section 14.2 and DSRS section 13.4. A similar addition to section III of section 10.4.6 should be considered, or alternatively, delete from section 10.4.6 the reference to RG 1.68. If the Staff determines that including RG 1.68 as relevant guidance subtier to DSRS section 10.4.6 is appropriate, it appears that an additional reference to RG 1.68.1 would also be warranted, as it is relevant to initial testing of condensate and feedwater systems.</p>	
<p>138. 10.4.7, I. Areas of Review, Review Interfaces, Item 2, p. 10.4.7-2</p>	<p>Review Interfaces Item 2 refers to DSRS section 3.5.1.1 for review of protection from internally generated missiles. DSRS section 3.5.1.1 governs internally generated missiles outside containment.</p> <p>For reactor designs that include feedwater system inside containment, DSRS section 3.5.1.2 is appropriate review guidance.</p>	<p>Revise to include DSRS section 3.5.1.2 in Review Interfaces Item 2 as additional review guidance relevant to the review of internally generated missiles (inside containment).</p>
<p>139. 10.4.7, I. Areas of Review, Review Interfaces, Item 3, p. 10.4.7-2; and III. Review Procedures, Last paragraph of section III, p. 10.4.7-10</p>	<p>Reference to "SRP Section 14.3" was replaced with "DSRS Section 14.3." This conflicts with other mPower DSRS sections that continue to indicate section 14.3 as an SRP section (as opposed to DSRS), consistent with the mPower Scope and Safety Review Matrix.</p>	<p>Revise to "SRP Section 14.3."</p>

Affected Section	Comment/Basis	Recommendation
140. 10.4.7, I. Areas of Review, Review Interfaces, Item 13, p. 10.4.7-3	Review Interfaces Item 13 states that the "[d]etermination of the acceptability of seismic and quality group classifications for system components is performed under DSRS section 3.2.1." SSC quality group classifications are reviewed under DSRS section 3.2.2.	Revise to include DSRS section 3.2.2 in Review Interfaces Item 13 as additional review guidance relevant to the review of SSC quality group classification.
141. 10.4.7, I. Areas of Review, Review Interfaces Item 17, p. 10.4.7-3	The terminology "erosion/corrosion" should be replaced with "flow-accelerated corrosion" to conform to the scope and discussion in SRP/DSRS section 10.3.6. DSRS section 10.3.6 distinguishes between "erosion/corrosion" and "flow-accelerated corrosion," and it clarifies that section 10.3.6 governs the latter (e.g., the last sentence of I. Areas of Review, Item 3 on page 10.3.6-2 states: "The subject of this review area is FAC.").	Revise Review Interfaces Item 17 to conform to DSRS section 10.3.6, I. Areas of Review, Item 3, on page 10.3.6-2, or clarify difference.
142. 10.4.7, II. Acceptance Criteria, DSRS Acceptance Criteria 2 & 7, p. 10.4.7-6; III. Review Procedures, Item 8, p. 10.4.7-10; and VI. References, Reference 15, p. 10.4.7-13	EPRI NP-3944 is cited as <i>subtier guidance</i> in the Acceptance Criteria and Review Procedures. This guidance has been superseded by EPRI Report No. 1015425, "Recommendations for an Effective Flow-Accelerated Corrosion Program (NSAC-202L-R3) Non-Proprietary Version," August 2007. (DSRS section 10.3.6 incorporates this change.)	Update references to EPRI NP-3944 in DSRS section 10.4.7 to EPRI Report No. 1015425 (NSAC-202L-R3).
143. 10.4.7, III. Review Procedures, Item 1.E, p. 10.4.7-9; and VI. References	RG 1.68.1 Revision 2 should also be referenced. Where Revision 1 was only relevant to BWRs, Revision 2 is relevant to initial testing of condensate and feedwater systems.	Revise to include references to RG 1.68.1, Revision 2 in Review Procedure Item 1.E and section VI.

Affected Section	Comment/Basis	Recommendation
144. 10.4.7, VI. References, Reference 9, p. 10.4.7-13	New Reference 9, RG 1.215, is added to mPower DSRS section 10.4.7 (as compared to SRP section 9.2.1). RG 1.215 is not mentioned in the acceptance criteria or other portions and it appears that this additional reference is not appropriate for DSRS section 10.4.7. RG 1.215 provides guidance for ITAAC closure. Thus, the appropriate SRP/DSRS location for this reference is in section 14.3. Note that section I, Areas of Review, and section III, Review Procedures, appropriately refer to SRP section 14.3 for ITAAC review. These references to SRP section 14.3, with RG 1.215 added to section 14.3, ensure that RG 1.215 is appropriately cited in the NRC review guidance, with no need for it to be cited as subtier guidance in section 10.2.	Delete reference to RG 1.215 in DSRS section 10.4.7.
145. 11.1, Review Responsibilities, p. 11.1-1.	Primary review organization was revised to include that responsible for source terms associated with anticipated operational occurrences (AOOs) and accident conditions, in addition to normal operations. As correctly noted in the first paragraph on page 11.1-2, accident design basis is evaluated in sections 15.0.3 and 12.2, not 11.1.	Delete "accident conditions" or clarify role of that review with respect to section 11.1.
146. 11.1, I. Areas of Review, Items 1B and 1C, p. 11.1-2 & 3	Use of "particulate" may be confusing. As stated it appears that activation/fission products that exist in an ionic or other non-solid form do not need to be considered.	Recommend replacing "particulate" with a more encompassing phrase such as "fission fragment/activation product."

Affected Section	Comment/Basis	Recommendation
147. 11.1, II. Acceptance Criteria, DSRS Acceptance Criterion 6, p. 11.1-7	Plant Tech Specs generally permit an instantaneous limit of 10 times the EC value during the time of a release. When averaged over the course of a week/month/year, the averaged release is well within the EC value. This applies to SRP 11.2, 11.3, and 11.4 (since the SRP is written for the "general case" where liquids and/or gas might be released directly from the solid waste system (during dewatering, etc.) and not routed back to the liquid waste or waste gas systems.	Acknowledge this in all appropriate Chapter 11 sections of SRP.
148. 11.2, I. Areas of Review, Items 4 & 5, p. 11.2-2; II. Acceptance Criteria, DSRS Acceptance Criterion 3, p. 11.2-10; and III. Review Procedures, Item 7, p. 11.2-20	<p>RG 1.143, rev.3 is misleading and confusing. During initial design, it is possible to conclude that radwaste buildings of relatively low robustness are suitable for handling higher level wastes.</p> <p>Objective should be to have a radwaste building that has a "seismic bathtub" capable of containing inventory of (non-gaseous) radwaste that could be in the building. Building classification based on "unmitigated dose consequences" in the existing RG is ambiguous without additional constraints (e.g. the time frame to be considered, location of individuals relative to the sources in the building, etc.).</p>	Clarify the objective and any additional constraints.
149. 11.2, II. Acceptance Criteria	Many of the passive features used to mitigate the consequences of a tank failure analysis (in order to comply with RG 4.21, BTP 11-06 and DC/COL-ISG-013) are contained in this section. Thus, it would facilitate application development and review to identify what features and level of detail is necessary in order for the applicant to exclude a tank failure analysis.	Revise to include acceptance criteria and related information to identify acceptable passive mitigative design features such that an applicant would not need to perform a tank failure analysis.

Affected Section	Comment/Basis	Recommendation
150. 11.6	This new DSRS section is repetitive, overly detailed and prescriptive, and largely defines attributes that would be found in licensee implementation. Many of the criteria are items that would be found in plant procedures and procurement technical specifications, and the criteria do not allow the necessary latitude to change technologies as industry equipment and processes become available. Many of the criteria are implemented in plant operations programs and would best be seen in an NRC Inspection Manual or ITAAC reports, where applicable. The remaining aspects that are properly within the SRP/DSRS should be instead incorporated into other sections of the DSRS (as evidenced by the Review Interfaces section).	Delete new DSRS section.
151. BTP 11-5: B.2.A.ii, p. BTP 11.5-4; and B.2.B.iii, p. BTP 11.5-5	FRG Report No. 11 Table 2.3 (1988) is referenced for determining radiological impact. Later versions have more up to date numbers.	Revise to use FRG 12 or other more recent data.
152. 12.3 - 12.4: I. Areas of Review, Item 4.G, p. 12.3-12.4-5; II. Acceptance Criteria, DSRS Acceptance Criterion 14, p. 12.3-12.4-14; and VI. References, References 24 & 25, p. 12.3-12.4-30	Areas of Review Item 4.G and Reference 24: ANSI/ANS/HPSSC-6.8.1 has been withdrawn. A different or updated standard should be referenced. DSRS Acceptance Criterion 14 and Reference 25: ANSI/HPS N13.1-1999 is out of date. The 2011 revision is applicable instead of the 1999 version.	Revise to updated standards.
153. 12.5, II. Acceptance Criteria, DSRS Acceptance	Ref. 23: ANSI/ANS 3.1-1993 has been inactive and replaced by a regulatory guide. Ref. 25: ANSI/HPS N13.11-1999 was revised in 2011.	Revise to updated standards. Include conforming changes in 12.5.VI. References.

Affected Section	Comment/Basis	Recommendation
Criteria 23, 25, 27 and 28, p. 12.5-8 & 9	Ref. 27: ANSI/HPS N13.30-1996 was revised in 2011. Ref. 28: ANSI/HPS N13.42-1997 has been withdrawn and should be replaced with an applicable standard.	
154. Ch. 14, various sections of 14.2 & 14.3, throughout	Changes made in the several 14.2 and 14.3 sections in the mPower DSRS provide no additional guidance or clarity regarding the development of necessary and sufficient ITAAC requirements, and those changes are also unrelated to specific aspects of the mPower design. Instead, the changes made generally provide revised references to regulatory documents and do not accomplish the DSRS objective to more fully integrate the use of risk insights into the review of an application that incorporates the mPower design. The result of these changes is only to confuse the industry's "baseline" for the treatment of the ITAAC and the test program that have been resolved by other design certification applications, rather than clarifying issues based on lessons learned. Users of the mPower document will have to interpret the new requirements without benefit of precedence.	Revise DSRS sections 14.2 and 14.3 to incorporate lessons-learned from test plan and ITAAC development and closure efforts to date. Also, revise these DSRS sections to better tailor the guidance to the mPower design.
155. 14.3.2, II. Acceptance Criteria, DSRS Acceptance Criterion 12, p. 14.3.2-9	It is unclear why the NRC added this as an acceptance criterion. It does not identify specific ITAAC requirements, but rather is a reiteration/discussion of the regulations at 10CFR52.47(b)(1) and 10CFR52.97(b). Much of this paragraph should be in the "Requirements" section, while appropriate review criteria should be set forth in this paragraph.	Revise to include review guidance rather than restating the regulations.

Affected Section	Comment/Basis	Recommendation
156. 14.3.4, II. Acceptance Criteria, DSRS Acceptance Criterion 7, p. 14.3.2-7	It is unclear why the NRC added this as an acceptance criterion. It does not identify specific ITAAC requirements, but rather is a reiteration/discussion of the regulations at 10CFR52.47(b)(1) and 10CFR52.97(b). Much of this paragraph should be in the "Requirements" section, while appropriate review criteria should be set forth in this paragraph.	Revise to include review guidance rather than restating the regulations.
157. 14.3.5, general	Additional hazards analysis ITAAC guidance was added to mPower DSRS section 7.0 Appendix A. However, mPower section 14.3.5 does not reference mPower 7.0 App A, nor does mPower section 14.3.5 contain any discussion of "hazards analysis" ITAAC.	Revise to include appropriate references to mPower DSRS 7.0 App. A.
158. 14.3.5, II. Acceptance Criteria, Technical Rationale, p. 14.3.5-5	Although an applicant may choose to provide sufficient design information to make DAC unnecessary, the rationale for DAC remains valid and consistent with Commission policy.	Retain/include in the DSRS the Technical Rationale for DAC/ITAAC.
159. 14.3.5, III. Review Procedures, Item 7, p. 14.3.5-6	Significant detail has been deleted. It is unclear whether the guidance removed is not required for mPower design or it has been replaced by the rewrite of SRP section 7.0 as mPower section 7.0. Also, the reference to the review philosophy of SRP Appendix 7.0-A has been deleted. Appendix 7.0-A still exists, albeit completely rewritten to address a different issue. It is unclear what replaces the review philosophy of Appendix 7.0-A.	Clarify review procedure in light of deleted portions.

Affected Section	Comment/Basis	Recommendation
160. 14.3.7, I. Areas of Review, Review Interfaces, Items 1, 7 & 8, p. 14.3.7-2	These new review interfaces point to DSRS sections 11.2 to 11.5 (waste management and radiological monitoring), 19.0 (PRA and risk classification), and 19.3 (RTNSS). However, unlike the other review interfaces, these new interfaces do not explicitly mention ITAAC. Review interfaces should be clarified with respect to ITAAC.	Clarify review interface requirements with respect to ITAAC.
161. 14.3.8, II. Acceptance Criteria, DSRS Acceptance Criterion 4, p. 14.3.8-5	This new Acceptance Criterion does not refer to DC/COL-ISG-06, which is inconsistent with other similar 14.3 revisions.	Revise to include appropriate reference to DC/COL-ISG-06, with conforming revision to VI. References.
162. Chapter 15, various sections, I. Areas of Review, Review Interfaces.	Some of the chapter 15 DSRS sections state "the determination of safety-related (and risk significant) items are based on the review of the PRA." Others state that only the risk significant determination is based on the PRA. Industry understands that safety-related determinations are based on deterministic criteria, not the PRA. The DSRS sections should be clarified as needed and be consistent.	Revise to correctly and consistently state the use of PRA in determining safety-related and risk-significant items.
163. Chapter 15, various sections, III. Review Procedures.	The various DSRS chapter 15 sections are inconsistent with regard to identifying the parameters considered in reviewing the results of analysis. Some sections are explicit, like 15.2.7 (see page 15.2.7-8). Other sections do not identify explicit parameters. Explicitly identifying the parameters to review will increase application production and review efficiency and lessen uncertainty.	Revise to explicitly identify the analysis parameters reviewed for each transient.

Affected Section	Comment/Basis	Recommendation
164. 15.0, I. Areas of Review, Item 1.A, pg. 15.0-1.	Areas of Review item 1.A uses the terms "power unit" and "plant." Although this is consistent with the referenced regulation and regulatory guides, these terms should be defined clearly for the DSRS, so that the DSRS clearly distinguishes between a single module of an SMR versus the entire plant.	Revise to clearly distinguish between a single module of an SMR versus the entire plant.
165. 15.0.3, I. Areas of Review, Review Interfaces, Item 7, p. 15.0.3-4; and Table 1, p. 15.0.3-8	It is unclear why events analyzed don't include 15.4.8 Spectrum of Rod Ejection Accidents, 15.6.2 Radiological Consequences of the Failure of Small Lines Carrying Primary Coolant Outside Containment, 15.6.3 SGTF, 15.7.4 FHA, and 15.7.5 Spent Fuel Cask Drop Accidents.	Clarify events analyzed for radiological consequences.