D509
S. Shaokman

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Department of Energy
Washington, DC 20585

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Chief, Rules Review and Directives Branch,
Division of Freedom of Information and Publication Services
Mail Stop T-6-D-59
U.S. Nuclear Regulatory Commission
Washington D.C. 20555-0001

Dear Sir:

The Department of Energy has completed its review of the draft NUREG 1567, *Standard Review Plan for Spent Fuel Dry Storage Facilities*. Our comments are enclosed for your consideration. In general, we believe the document accomplishes its objective of providing useful guidance to the NRC staff. It should also be useful to potential applicants for a license to construct and operate a spent fuel dry storage facility. Our comments generally relate to the need for clarification and/or correction of certain technical points.

We appreciate being given the opportunity to comment on the draft review plan. Please contact Fred Rodgers of my staff at (202) 586-9313 if you have any questions on this matter.

Sincerely,

Alan Brownstein, Director
Regulatory Coordination Division

Enclosure:

I&P-11 Guides & Manuals

NUREG-1567 Comment Sheet

Commenter U.S. Department of Energy Issue Number 1 of 61

Summary of Issue:
Existence of similar scope in NUREG-1536 and NUREG-1567 potentially confusing

Chapter _____ Section _____ Paragraph _____

Type of Issue: Please select one of the following categories:
Suggestion _____/ Addition _____/ Grammatical Error _____
Inconsistency _____/ Clarification X

Comment:
Titles and introductions of NUREG-1536 and NUREG-1567 do not draw a clear distinction between the scopes of the two documents. The former applies to dry cask storage and the latter to wet and dry storage, so the reason for existence of NUREG-1536 is not clear. (It would seem NUREG-1567 could address both.)

Bases for Comment:
Self-explanatory.

Suggested Revision/ Replacement Language
Clarify in introductions the difference in scopes between the two documents, explain why both are needed.

NUREG-1567 Comment Sheet

Commenter U.S. Department of Energy Issue Number 2 of 61

Summary of Issue:
Typographical errors

Chapter Acronyms Section _____ Paragraph _____

Type of Issue: Please select one of the following categories:
Suggestion _____/ Addition _____/ Grammatical Error X
Inconsistency _____/ Clarification _____

Comment:
Various typographical errors. Some terms in list are not acronyms (e.g., C, Ci). Some items are listed multiple times (e.g., ACI). Some items are not in proper alphabetical order. Entries for SAR and SER contain parenthetical (See) entries without references.

Bases for Comment:
Self-explanatory.

Suggested Revision/ Replacement Language
As per comment.

NUREG-1567 Comment Sheet

Commenter U.S. Department of Energy Issue Number 3 of 61

Summary of Issue:
Distinction between definitions of "controlled area" and "restricted area" unclear.

Chapter Glossary Section _____ Paragraph _____

Type of Issue: Please select one of the following categories:
Suggestion _____/ Addition _____/ Grammatical Error _____
Inconsistency _____/ Clarification X

Comment:
Definitions of controlled area and restricted area in Glossary appear to be essentially interchangeable. The definition of controlled area does not match that in Part 20, and the definition in Part 60 does not match that in Part 72 or Part 20.

Bases for Comment:
Inconsistent definitions of commonly used terms among different regulations and in SRPs cause confusion.

Suggested Revision/ Replacement Language:
Revise the Glossary definition of controlled area to be consistent with Part 72. Consider standardizing definitions of these terms in the various NRC regulations and guidance documents.

NUREG-1567 Comment Sheet

Commenter U.S. Department of Energy Issue Number 4 of 61

Summary of Issue:
Definition of Design Basis

Chapter Glossary Section _____ Paragraph _____

Type of Issue: Please select one of the following categories:
Suggestion _____/ Addition _____/ Grammatical Error _____
Inconsistency X / Clarification _____

Comment:
The Glossary definition of Design Basis is different from that for "Design Bases" provided in 10 CFR 72. Also, the definition of Design Basis in the Glossary states that Design Basis "compares with Design Events III and IV of ANSI/ANS 57.9." The meaning of this statement is unclear.

Bases for Comment:
Inconsistency between the NUREG and the regulation could lead to confusion or disagreement. It is not immediately clear how "design basis" can be compared to "design events."

Suggested Revision/ Replacement Language
Revise Glossary definition to be consistent with that in 10 CFR 72. Clarify statement regarding comparison between "design basis" and "design events."

NUREG-1567 Comment Sheet

Commenter U.S. Department of Energy Issue Number 5 of 61

Summary of Issue:
No definition of MRS or ISFSI.

Chapter Glossary Section _____ Paragraph _____

Type of Issue: Please select one of the following categories:
Suggestion _____/ Addition X /Grammatical Error _____
Inconsistency _____/ Clarification _____

Comment:
The Glossary does not contain a definition of a Monitored Retrievable Storage Installation. Though there is a listing for ISFSI, the listing does not contain a definition.

Bases for Comment:
Definitions for these terms in the guidance document would be helpful.

Suggested Revision/ Replacement Language
Add definitions consistent with 10 CFR 72.3.

NUREG-1567 Comment Sheet

Commenter U.S. Department of Energy Issue Number 6 of 61

Summary of Issue:
Unclear definition of nonsafety-related electrical equipment

Chapter Glossary Section _____ Paragraph _____

Type of Issue: Please select one of the following categories:
Suggestion _____/ Addition _____/ Grammatical Error _____
Inconsistency _____/ Clarification X

Comment:
Definition of nonsafety-related electrical equipment is potentially confusing. The term as used in 10 CFR 50.49 places requirements on nonsafety-related equipment that could affect safety-related equipment, but 10 CFR 50 does not define "nonsafety-related electrical equipment" in a manner similar to the definition in Draft NUREG-1567. Some nonsafety-related equipment is essentially irrelevant to safety considerations. The definition from NUREG-1567, however, implies that all "nonsafety-related electrical equipment" by definition could affect safety functions.

Bases for Comment:
The FSRP should not imply that the phrase "nonsafety-related" equipment only applies to equipment that could affect safety-related equipment. Many nonsafety-related items have no such effect.

Suggested Revision/ Replacement Language
The definition should either be deleted or revised to indicate that nonsafety-related equipment may affect safety-related equipment, in which case specified requirements are placed on the nonsafety-related equipment involved.

NUREG-1567 Comment Sheet

Commenter U.S. Department of Energy Issue Number 7 of 61

Summary of Issue:
Definition of k_{eff} is misleading

Chapter Glossary Section _____ Paragraph _____

Type of Issue: Please select one of the following categories:
Suggestion _____/ Addition _____/ Grammatical Error _____
Inconsistency _____/ Clarification X

Comment:
Definition of k_{eff} is potentially misleading. Discussion in second sentence actually applies to calculated vs. actual k_{eff}.

Bases for Comment:
Definition obscures the difference between actual and calculated k_{eff}. Glossary should define the term; chapter 10 should explain how the term is used (i.e., what is the difference between actual and calculated k_{eff}).

Suggested Revision/ Replacement Language
Revise definition to: "Measure of nuclear reactivity. At the critical state the actual $k_{eff} = 1.0$. If k_{eff} is less than 1 the system is subcritical."

NUREG-1567 Comment Sheet

Commenter U.S. Department of Energy Issue Number 8 of 67

Summary of Issue:
Structural Features and Geomorphologic Aspects related to the site

Chapter 2 Section 2.4.6.1 Paragraph 1
Type of Issue: Please select one of the following categories:
Suggestion _____/ Addition _____/ Grammatical Error _____
Inconsistency _____/ Clarification X

Comment:
Replace the sentences "Specific structural features of significance, such as folds, faults, synclines anticlines, basins, and domes should be identified on a structural map showing bedrock surface contours. A description of the site geomorphology should include areas of potential landsliding or subsidence, as well as a topographic map showing principal site facilities and geomorphic features."

Bases for Comment:
To clarify (a) global nature of the structural element involved and (b) nature of the geomorphic data requirement

Suggested Revision/ Replacement Language
All planar and linear structures of significance should be identified on a geologic base map with bedrock surface contours. A description of the site geomorphology should include a geologic map of the surficial units and features, including areas of past and potential landsliding or subsidence, as well as locations of principal site facilities.

NUREG-1567 Comment Sheet

Commenter U.S. Department of Energy Issue Number 9 of 61

Summary of Issue:
Proposed rulemaking that would make 10 CFR 100 Subpart B apply to an MRS should be pursued.

Chapter 2 Section 2.4.6.2 Paragraph

Type of Issue: Please select one of the following categories:
Suggestion X / Addition / Grammatical Error
Inconsistency / Clarification

Comment:
The NRC has indicated in the Federal Register (12/11/96) that a separate rulemaking to make Subpart B applicable to an MRS or other non-reactor facility is under consideration. DOE considers such a change to be appropriate and encourages its early consideration.

Bases for Comment:
Because Part 100 Subpart B represents the latest NRC considerations on seismic issues, its applicability should be expanded as the NRC has considered doing.

Suggested Revision/ Replacement Language
Revise regulations to make Part 100 Subpart B applicable to ISFSI/MRS facilities.

NUREG-1567 Comment Sheet

Commenter U.S. Department of Energy Issue Number 10 of 61

Summary of Issue:
Acceptance criteria for vibratory ground motion should reflect revisions to 10 CFR 100.

Chapter 2 Section 2.4.6.2 Paragraph

Type of Issue: Please select one of the following categories:
Suggestion ____/ Addition X / Grammatical Error ____
Inconsistency ____/ Clarification ____

Comment:
This section of the acceptance criteria should reflect the December 1996 revisions to 10 CFR 100 (as discussed in the review procedures in 2.5.6.2) by discussing use of probabilistic methodology for assessing peak ground acceleration.

Bases for Comment:
FSRP needs to reflect current regulations. Examples: Terms such as "capable faults," "floating earthquakes," and "maximum vibratory ground motion at the site" are specific to the deterministic methodology of 10 CFR 100, App A, and not to the new 10 CFR 100, Subpart B.

Suggested Revision/ Replacement Language
State that Subpart B to 10 CFR 100 has been published, and that this rule allows use of probabilistic methodology for assessing peak ground acceleration.

NUREG-1567 Comment Sheet

Commenter U.S. Department of Energy Issue Number 11 of 61

Summary of Issue:
Inappropriate reference to "measurable" ground motions.

Chapter 2 Section 2.4.6.2 Paragraph

Type of Issue: Please select one of the following categories:
Suggestion / Addition / Grammatical Error
Inconsistency / Clarification X

Comment:
The requirement to list historical earthquakes that could have caused "measurable" ground motions is inappropriate. Modern seismographs routinely measure ground motions imperceptible to humans and that have no local engineering significance.

Bases for Comment:
The issue for historical earthquakes should be related to earthquakes of onsite significance. Seismograph measurements of distant earthquakes that are of no significance onsite are not the appropriate focus.

Suggested Revision/ Replacement Language
Substitute "potentially damaging" for "measurable."

NUREG-1567 Comment Sheet

Commenter U.S. Department of Energy Issue Number 12 of 61

Summary of Issue:
Guidance for capable faults needs clarification

Chapter 2 Section 2.4.6.2 Paragraph _____

Type of Issue: Please select one of the following categories:
Suggestion _____/ Addition _____/ Grammatical Error _____
Inconsistency _____/ Clarification X

Comment:
Guidance that only faults having some portion passing within 100 mi of a site must be considered is not considered technically appropriate.

Bases for Comment:
At some sites, faults more distant than 100 mi may control the seismic design at longer periods (e.g., New Madrid fault zone dominates long-period seismic hazard for much of the Midwest). Hazard analysis must determine frequencies of engineering interest for proposed facility, then identify earthquake sources of significance, regardless of distance.

Suggested Revision/ Replacement Language
Revise section to incorporate the approach to analysis described above and eliminate the distance criterion.

NUREG-1567 Comment Sheet

Commenter U.S. Department of Energy Issue Number 13 of 61

Summary of Issue:
Technically incorrect term.

Chapter 2 Section 2.5.6.2 Paragraph 3

Type of Issue: Please select one of the following categories:
Suggestion _____/ Addition _____/ Grammatical Error _____
Inconsistency _____/ Clarification X

Comment:
Second sentence refers incorrectly to a "spectrum of 0.25g."

Bases for Comment:
Spectra have more than one value, anchored at some point.

Suggested Revision/ Replacement Language
Revise "of" to "anchored at."

NUREG-1567 Comment Sheet

Commenter U.S. Department of Energy Issue Number 14 of 61

Summary of Issue:
Vibratory ground motion review procedures need to reflect revision to 10 CFR Part 100.

Chapter 2 Section 2.5.6.2 Paragraph 4

Type of Issue: Please select one of the following categories:
Suggestion _____/ Addition _____/ Grammatical Error _____
Inconsistency _____/ Clarification X

Comment:
The text referring to future publication of Appendix B to 10 CFR 100 needs to be updated to reflect the fact that it actually has been published (as Subpart B rather than as Appendix B). Terminology in the section should be revised to be consistent with Subpart B.

Bases for Comment:
Terms in the section currently apply to deterministic methods in Part 100 Appendix A (e.g., tectonic province boundaries) rather than to the probabilistic method discussed in Part 100 Subpart B.

Suggested Revision/ Replacement Language
Revise section to refer to 10 CFR 100 Subpart B; revise terminology to be consistent with Subpart B.

NUREG-1567 Comment Sheet

Commenter U.S. Department of Energy Issue Number 15 of 61

Summary of Issue:
Clarification of seismic siting and design criteria

Chapter 2 Section 2.5.6.2 Paragraph 4

Type of Issue: Please select one of the following categories:
Suggestion _____/ Addition _____/ Grammatical Error _____
Inconsistency _____/ Clarification X

Comment:
Guidance in the FSRP should reflect the fact that the potential source term is limited for a dry storage facility as compared to a power reactor. A higher annual probability of exceedance of design basis ground motion should be allowed for an ISFSI or MRS.

Bases for Comment:
The potential radiological consequences of a seismically initiated accident at a dry storage facility are very limited as compared to the potential high-energy release at a power reactor. Seismic design criteria should reflect this fact.

Suggested Revision/ Replacement Language
Add guidance to the FSRP to allow a higher annual exceedance probability than is allowed for power reactors.

NUREG-1567 Comment Sheet

Commenter U.S. Department of Energy Issue Number 16 of 61

Summary of Issue:
Guidance for vibratory motion analysis should be flexible.

Chapter 2 Section 2.5.6.2 Paragraph 4

Type of Issue: Please select one of the following categories:
Suggestion _____/ Addition _____/ Grammatical Error _____
Inconsistency _____/ Clarification X

Comment:
The FSRP should, given the lack of experience with the future Regulatory Guide 1.165 requirements, allow flexibility in application of the guidance in that document. Such flexibility is implied in use of all Regulatory Guides, but it should be emphasized in the FSRP.

Bases for Comment:
Site- and facility-specific considerations may warrant different choices for parameters such as reference frequencies, or for use of mean vs median as the central-tendency measure for exceedance probabilities, etc. These application details will take time and experience to work out and should be reviewed on a case-by-case basis.

Suggested Revision/ Replacement Language
Revise the FSRP section to recognize and allow for flexibility in application of the available guidance.

NUREG-1567 Comment Sheet

Commenter U.S. Department of Energy Issue Number 17 of 61

Summary of Issue:
Guidance for maximum magnitude event should incorporate consideration of several empirical relationships.

Chapter 2 Section 2.5.6.2 Paragraph 4

Type of Issue: Please select one of the following categories:
Suggestion _____/ Addition _____/ Grammatical Error _____
Inconsistency _____/ Clarification X

Comment:
Guidance for maximum magnitude event should call for consideration of several empirical relationships, as discussed in DG-1032, Section 2.2.2 (e.g., rupture area, maximum fault displacement, average fault displacement, and fault slip rate).

Bases for Comment:
As noted in DG-1032, Section 2.2.2, it is prudent to consider several empirical relationships that might help determine the maximum magnitude event.

Suggested Revision/ Replacement Language
Revise the FSRP section to recognize and allow for consideration of several empirical relationships to determine maximum magnitude event, as per DG-1032.

NUREG-1567 Comment Sheet

Commenter U.S. Department of Energy Issue Number 18 of 61

Summary of Issue:
Correction of "wear and tear"

Chapter 3 Section 3.4.3.1 Paragraph 5

Type of Issue: Please select one of the following categories:
Suggestion ____ / Addition ____ / Grammatical Error ____
Inconsistency ____ / Clarification X

Comment:
FSRP should not suggest that ANY "wear and tear" should need to be corrected, regardless of its consequence (or lack thereof) for system or component performance. Second sentence of paragraph headed "Acceptable Response for Normal Condition Maximum" appears to imply this meaning.

Bases for Comment:
Existing statement (second sentence in paragraph) suggests that even trivial "wear and tear" needs to be corrected. If taken to extremes, this could apply to minor surface abrasions, etc. that would have no impact on performance or capability.

Suggested Revision/ Replacement Language
To the end of the second sentence, add: "...that would degrade the capabilities of the ISFSI or MRS." This change makes it clear that only "wear and tear" that affects the installation's capabilities need be repaired. This meaning would be consistent with the first sentence of the paragraph, which emphasizes degradation of capabilities.

NUREG-1567 Comment Sheet

Commenter U.S. Department of Energy Issue Number 19 of 61

Summary of Issue:
Should not assume multiple failures of safety-related systems unless they are credible consequences of initiating event.

Chapter 3 Section 3.4.3.1 Paragraph 7

Type of Issue: Please select one of the following categories:
Suggestion _____/ Addition X / Grammatical Error _____
Inconsistency _____/ Clarification _____

Comment:
The paragraph beginning "Accident-level conditions are described..." should be followed by a statement that the NRC staff does not assume multiple failure scenarios of safety-related systems unless these multiple-failure scenarios are credible consequences of the initiating event.

Bases for Comment:
Consistent with reactor licensing precedent

Suggested Revision/ Replacement Language
As per comment.

NUREG-1567 Comment Sheet

Commenter U.S. Department of Energy Issue Number 20 of 61

Summary of Issue:
Relationship between "credible" and "nonmechanistic"unclear

Chapter 3 Section 3.4.3.1 Paragraph 8

Type of Issue: Please select one of the following categories:
Suggestion ____/ Addition ____/ Grammatical Error ____
Inconsistency ____/ Clarification X

Comment:
The paragraph beginning with "The NRC requires analysis..." appears to draw a parallel between "credible" and "non-mechanistic" which is not evident from the definition of the latter term in the Glossary. The paragraph may have intended to require analysis of certain events regardless of whether they are determined to be credible. If this is the case, the first sentence in the paragraph should be revised to reflect this intent.

Bases for Comment:
Per the Glossary definition of "nonmechanistic," such an event has no identified cause. This definition would appear to be consistent with an event being incredible, rather than credible as stated in the text.

Suggested Revision/ Replacement Language
Revise "credible" in first sentence to "incredible."

NUREG-1567 Comment Sheet

Commenter U.S. Department of Energy Issue Number 22 of 61

Summary of Issue:
More guidance needed for criticality analyses

Chapter 3 Section 3.4.3.5 Paragraph 1

Type of Issue: Please select one of the following categories:
Suggestion _____/ Addition _____/ Grammatical Error _____
Inconsistency _____/ Clarification X

Comment:
Bulleted list does not provide much useful detail or references for reviewer or applicant to use in determining what criticality analysis is needed. For example, under "errors in accounting and loading," what types of errors should be considered? Is misloading an assembly with excessive enrichment to be considered? How are multiple errors to be addressed? More detail would be helpful.

Bases for Comment:
Existing guidance is very general.

Suggested Revision/ Replacement Language
Provide additional guidance or references as per comment.

NUREG-1567 Comment Sheet

Commenter U.S. Department of Energy Issue Number 23 of 61

Summary of Issue:
Incorrect regulatory reference

Chapter 4 Section 4.4.5 Paragraph 1 (2nd bullet)

Type of Issue: Please select one of the following categories:
Suggestion _____/ Addition _____/ Grammatical Error _____
Inconsistency _____/ Clarification X

Comment:
Reference to 10 CFR 122(I) should read 10 CFR 72.122(I).

Bases for Comment:
Typographical error

Suggested Revision/ Replacement Language
As per comment.

NUREG-1567 Comment Sheet

Commenter U.S. Department of Energy Issue Number 24 of 61

Summary of Issue:
Undefined term

Chapter 4 Section 4.5.4 Paragraph 1 (3rd item under 1st bullet)

Type of Issue: Please select one of the following categories:
Suggestion _____/ Addition _____/ Grammatical Error _____
Inconsistency _____/ Clarification X

Comment:
Term "nuclear hazards" is undefined.

Bases for Comment:
The implications of use of this term are of potential importance to safety analyses. It should therefore be defined or an alternative term used.

Suggested Revision/ Replacement Language
Define the term or use a different one that is defined.

NUREG-1567 Comment Sheet

Commenter U.S. Department of Energy Issue Number 25 of 61

Summary of Issue:
Unclear/inconsistant use of term

Chapter 4 &5 Section see below Paragraph

Type of Issue: Please select one of the following categories:
Suggestion ____/ Addition ____/ Grammatical Error ____
Inconsistency ____/ Clarification X

Comment:
Page 4-20 (L4.1), page 5-3 (f, 1st bullet), page 5-7 (L5.6-5.8), page 6-15 (L6.x) - Use of the term "surveillance" is not clear.

Bases for Comment:
The term is applied in an inconsistant manner

Suggested Revision/ Replacement Language:
Recommend adding a definition for surveillance in the Glossary

NUREG-1567 Comment Sheet

Commenter U.S. Department of Energy Issue Number 26 of 61

Summary of Issue:
More detail needed in guidance for re-opening storage cask

Chapter 5 Section 5.5.1 Paragraph 11 (numbered list p.5-8)

Type of Issue: Please select one of the following categories:
Suggestion _____/ Addition _____/ Grammatical Error _____
Inconsistency _____/ Clarification X

Comment:
Item 6 requires unspecified additional measures to deal with degraded fuel found when reopening a storage cask. Suggest addressing disposition of fuel that has failed in a storage cask, single vs. multiple failed assemblies, and dealing with stuck fuel assemblies.

Bases for Comment:
Additional guidance would help reviewer and applicant understand NRC viewpoint on the issues discussed in the comment.

Suggested Revision/ Replacement Language
As per comment.

NUREG-1567 Comment Sheet

Commenter U.S. Department of Energy Issue Number 27 of 61

Summary of Issue:
More detail needed in guidance for re-opening storage cask

Chapter 5 Section 5.5.1 Paragraph 1st para under "BWR Crud"

Type of Issue: Please select one of the following categories:
Suggestion _____/ Addition _____/ Grammatical Error _____
Inconsistency X / Clarification _____

Comment:
This section describes a significant difference between crud release into the atmosphere during handling of BWR vs PWR fuels, to the point that BWR crud release is considered to pose significant problems, while PWR fuel does not. In section 11.4.3, however, no distinction is made for Co-60 release (the primary contributor to crud activity) between the two types.

Bases for Comment:
Self-explanatory.

Suggested Revision/ Replacement Language
Explain in Section 11.4.3 why the difference in BWR and PWR fuel release explained in 5.5.1 does not affect the guidance in 11.4.3, or otherwise explain or eliminate the difference in treatment of the subject in the two sections.

NUREG-1567 Comment Sheet

Commenter U.S. Department of Energy Issue Number 28 of 61

Summary of Issue:
Inconsistency with 10 CFR 20 dose acceptance criteria

Chapter 6 Section 6.4 Paragraph _____

Type of Issue: Please select one of the following categories:
Suggestion _____/ Addition _____/ Grammatical Error _____
Inconsistency X / Clarification _____

Comment:
Terminology used in the FSRP dose acceptance criteria, though consistent with that of 10 CFR 72, is inconsistent with new 10 CFR 20 terminology.

Bases for Comment:
Terms such as "committed effective dose equivalent" are not used in the acceptance criteria.

Suggested Revision/ Replacement Language
Revise acceptance criteria to include 10 CFR 20 terminology or at least make note of difference between terminology in Parts 20 and 72. Mention NRC plans to revise Part 72 to be consistent with Part 20.

NUREG-1567 Comment Sheet

Commenter U.S. Department of Energy Issue Number 29 of 61

Summary of Issue:
"Significant impairment of retrievability" not defined

Chapter 7 Section 7.4.2.1 Paragraph 3 (bottom of page)

Type of Issue: Please select one of the following categories:
Suggestion _____/ Addition _____/ Grammatical Error _____
Inconsistency _____/ Clarification X

Comment:
Last item in bulleted list at bottom of page places requirements on the design to preclude "significant impairment of ready retrievability." Description of what the staff would consider to be significant impairment would be helpful.

Bases for Comment:
As a guidance document, the FSRP should go beyond the term above, which is open to widely varying interpretations.

Suggested Revision/ Replacement Language
Describe to the extent feasible what "significant impairment" means.

NUREG-1567 Comment Sheet

Commenter U.S. Department of Energy Issue Number 30 of 61

Summary of Issue:
Unclear guidance on when full radiographic examination is required

Chapter 7 Section 7.4.2.2 Paragraph 19 (last para. in section)

Type of Issue: Please select one of the following categories:
Suggestion _____/ Addition _____/ Grammatical Error _____
Inconsistency _____/ Clarification X

Comment:
The FSRP guidance states that weld integrity testing may be by a combination of ASME-approved techniques which do not necessarily result in full radiographic examination. It does not, however, provide guidance for what situations might warrant less-than-full radiographic inspection (e.g., on what basis can a decision be made as to whether measures under consideration are impractical, should some welds always be radiographed and others not, etc.)

Bases for Comment:
There is considerable variance in the industry regarding this issue, and any guidance to help the reviewer understand the NRC's Staff's perspective on this issue would be helpful.

Suggested Revision/ Replacement Language
Provide guidance in the subject section on criteria for when full radiographic inspection can be replaced with alternative approaches, as discussed in the comment.

NUREG-1567 Comment Sheet

Commenter U.S. Department of Energy Issue Number 31 of 61

Summary of Issue:
Prohibition of permanent degradation is too stringent.

Chapter 7 Section 7.4.2.3 Paragraph 3

Type of Issue: Please select one of the following categories:
Suggestion ____ / Addition ____ / Grammatical Error ____
Inconsistency ____ / Clarification X

Comment:
Last sentence states, "The system should experience no permanent deformation or degradation in response to normal and off-normal conditions." This wording could be open to the interpretation that the slightest dent, scratch, etc. would result in the system being outside the licensing basis.

Bases for Comment:
The issue for degradation should be the effect of the degradation on system functions and performance. If there is demonstrably no such effect of a given "degradation," there should be no prohibition. This simply incorporates a reasonableness criterion.

Suggested Revision/ Replacement Language
Add the following after the word "degradation": "...(other than minor surface defects on visible, external surfaces that would not in any way affect the confinement or other functions of the system)..."

NUREG-1567 Comment Sheet

Commenter U.S. Department of Energy Issue Number 32 of 61

Summary of Issue:
Missing guidance for determining cask storage pad target hardness

Chapter 7 Section 7.4.2.3 Paragraph 14

Type of Issue: Please select one of the following categories:
Suggestion _____/ Addition _____/ Grammatical Error _____
Inconsistency _____/ Clarification X

Comment:
The FSRP subsection on cask tip-over would be more useful to reviewer and applicant if it would provide guidance on acceptable methods for determining cask storage pad target hardness.

Bases for Comment:
Assumptions about target hardness must be made to support impact analyses; guidance on assumptions and methodologies the NRC Staff views as acceptable would be helpful.

Suggested Revision/ Replacement Language
Provide guidance on acceptable assumptions and methodologies for determining storage pad hardness.

NUREG-1567 Comment Sheet

Commenter U.S. Department of Energy Issue Number 33 of 61

Summary of Issue:
No guidance for analysis of a sealed canister drop when being lifted into or out of a ventilated concrete cask

Chapter 7 Section 7.4.2.3 Paragraph 14

Type of Issue: Please select one of the following categories:
Suggestion _____/ Addition X / Grammatical Error _____
Inconsistency _____/ Clarification _____

Comment:
The FSRP does not provide guidance regarding analysis of the case of a sealed canister drop when being lifted into or out of a ventilated concrete cask.

Bases for Comment:
The referenced configuration is pertinent, and guidance on it would be useful to reviewer and applicant.

Suggested Revision/ Replacement Language
Provide guidance as per comment.

NUREG-1567 Comment Sheet

Commenter U.S. Department of Energy Issue Number 34 of 61

Summary of Issue:
Unclear as to whether thermal stresses in basket must be evaluated for basket buckling.

Chapter 7 Section 7.4.2.3 Paragraph First full paragraph on pg 7-23

Type of Issue: Please select one of the following categories:
Suggestion _____/ Addition _____/ Grammatical Error _____
Inconsistency _____/ Clarification X

Comment:
The referenced paragraph does not provide guidance as to whether thermal stresses in the basket must be evaluated for buckling of the fuel basket.

Bases for Comment:
Additional guidance would be useful to reviewer and applicant. Guidance on pg 7-52 appears to exempt thermal stresses from basket calculations, but the wording suggests that the text refers to cylindrical containers and not basket structures.

Suggested Revision/ Replacement Language
Add or clarify guidance as per comment and bases.

NUREG-1567 Comment Sheet

Commenter U.S. Department of Energy Issue Number 35 of 61

Summary of Issue:
No guidance regarding acceptability of slag inclusions

Chapter 7 Section 7.4.2.4 Paragraph First full paragraph pg 7-25

Type of Issue: Please select one of the following categories:
Suggestion _____/ Addition _____/ Grammatical Error _____
Inconsistency _____/ Clarification X

Comment:
Guidance for weld acceptance makes no reference to slag inclusions.

Bases for Comment:
The lack of guidance (when other causes for rejection are listed) implies slag inclusions are acceptable.

Suggested Revision/ Replacement Language
State the acceptability of slag inclusions.

NUREG-1567 Comment Sheet

Commenter U.S. Department of Energy Issue Number 36 of 61

Summary of Issue:
Prohibition of permanent deformation is too stringent

Chapter 7 Section 7.4.5.3 Paragraph 3

Type of Issue: Please select one of the following categories:
Suggestion _____/ Addition _____/ Grammatical Error _____
Inconsistency _____/ Clarification X

Comment:
Last sentence states that no permanent deformation of structures important to safety occurs. This requirement is excessively stringent in that it could be construed to prohibit even minor, inconsequential surface flaws.

Bases for Comment:
The issue for degradation should be the effect of the degradation on system functions and performance. If there is demonstrably no such effect of a given "degradation," there should be no prohibition. This simply incorporates a reasonableness criterion.

Suggested Revision/ Replacement Language
After "deformation," add: "...(other than minor surface defects on visible, external surfaces that would not in any way affect the confinement or other functions of the system)..."

NUREG-1567 Comment Sheet

Commenter U.S. Department of Energy Issue Number 37 of 61

Summary of Issue:
Excessively stringent corrosion criterion; insufficiently stringent review instructions for material interactions

Chapter 7 Section 7.5.2 Paragraph 6

Type of Issue: Please select one of the following categories:
Suggestion _____/ Addition _____/ Grammatical Error _____
Inconsistency _____/ Clarification X

Comment:
First sentence of paragraph requires verifying that materials will not constitute a long term cause of corrosion or other degradation of the system. This requirement could be interpreted as prohibiting long-term corrosion even if it is inconsequential for system performance or functions. Sentence only requires review of interactions among structural materials; should require review of such interactions among all materials in direct contact, structural or otherwise.

Bases for Comment:
Degradation and corrosion processes should be required to be controlled to the extent needed to ensure system performance and function are not degraded. Materials interaction effects should be analyzed for all materials (e.g., between structural and nonstructural materials).

Suggested Revision/ Replacement Language
Revise first sentence to: "Review cask design to verify structural materials in contact with each other or with other materials will not produce a significant chemical or galvanic action or constitute a long-term cause of corrosion or degradation of the system that could adversely affect the system's functions."

NUREG-1567 Comment Sheet

Commenter U.S. Department of Energy Issue Number 38 of 61

Summary of Issue:
No guidance for stainless steel cladding temperature limits

Chapter 8 Section 8.4 Paragraph 3

Type of Issue: Please select one of the following categories:
Suggestion _____/ Addition _____/ Grammatical Error _____
Inconsistency _____/ Clarification X

Comment:
Acceptance criterion for zircaloy fuel cladding is provided; no such guidance is provided for stainless steel cladding.

Bases for Comment:
To add completeness and address an existing spent fuel cladding type.

Suggested Revision/ Replacement Language
Add guidance for stainless steel cladding temperature limits.

NUREG-1567 Comment Sheet

Commenter U.S. Department of Energy Issue Number 39 of 61

Summary of Issue:
More guidance needed for cladding temperature limits being more restrictive at increased cooling time

Chapter 8 Section 8.5.1.2 Paragraph 1

Type of Issue: Please select one of the following categories:
Suggestion _____/ Addition _____/ Grammatical Error _____
Inconsistency _____/ Clarification X

Comment:
The guidance states that temperature limits will be more restrictive for long cooling times. It would be helpful to provide an acceptable reference or method for this determination.

Bases for Comment:
NRC Staff perspective on approaches to developing the restrictions would be useful to reviewer and applicant.

Suggested Revision/ Replacement Language
Add guidance as per comment.

NUREG-1567 Comment Sheet

Commenter U.S. Department of Energy Issue Number 40 of 61

Summary of Issue:
Typographical error

Chapter 9 Section 9.3 Paragraph 20.1301(a)(2)

Type of Issue: Please select one of the following categories:
Suggestion _____/ Addition _____/ Grammatical Error X
Inconsistency _____/ Clarification _____

Comment:
Item in parentheses should read "(0.02 mSv)."

Bases for Comment:
Typographical error.

Suggested Revision/ Replacement Language
As per comment

NUREG-1567 Comment Sheet

Commenter U.S. Department of Energy Issue Number 41 of 61

Summary of Issue:
Erroneous regulatory reference

Chapter 9 Section 9.4.4.2 Paragraph 2 (3rd bullet)

Type of Issue: Please select one of the following categories:
Suggestion _____/ Addition _____/ Grammatical Error _____
Inconsistency _____/ Clarification X

Comment:
Reference should be changed from 20 CFR 101(a) to 10 CFR 20.1201.

Bases for Comment:
Typographical error.

Suggested Revision/ Replacement Language
As per comment

NUREG-1567 Comment Sheet

Commenter U.S. Department of Energy Issue Number 42 of 61

Summary of Issue:
Missing reference to 40 CFR 191

Chapter 9 Section 9.4.6 Paragraph 1

Type of Issue: Please select one of the following categories:
Suggestion _____/ Addition X /Grammatical Error _____
Inconsistency _____/ Clarification _____

Comment:
In addition to referring to the EPA standards in 40 CFR 190, the FSRP should also refer to the standards in 40 CFR 191 for facilities subject to the regulations of that Part.

Bases for Comment:
Facilities not covered by Part 190 are covered by Part 191 (except for NRC-licensed disposal facilities).

Suggested Revision/ Replacement Language
After "40 CFR 190" add: "(or 40 CFR 191, as applicable)".

NUREG-1567 Comment Sheet

Commenter U.S. Department of Energy Issue Number 43 of 61

Summary of Issue:
Add reference for neutron absorber credit

Chapter 10 Section 10.4.1.1 Paragraph 2nd dashed item on pg 10-3

Type of Issue: Please select one of the following categories:
Suggestion _____/ Addition _____/ Grammatical Error _____
Inconsistency _____/ Clarification X

Comment:
Add ANSI/ANS-8.21 as reference for fabrication testing to verify presence and uniformity of neutron absorber

Bases for Comment:
Comment adds industry standard as reference.

Suggested Revision/ Replacement Language
As per comment.

NUREG-1567 Comment Sheet

Commenter U.S. Department of Energy Issue Number 44 of 61

Summary of Issue:
Typographical error

Chapter 11 Section 11.4.3 Paragraph 3

Type of Issue: Please select one of the following categories:
Suggestion _____/ Addition _____/ Grammatical Error X
Inconsistency _____/ Clarification _____

Comment:
Typographical error in last sentence on page 11-18. "From" should read "form."

Bases for Comment:
Self-explanatory

Suggested Revision/ Replacement Language
As per comment

NUREG-1567 Comment Sheet

Commenter U.S. Department of Energy Issue Number 45 of 61

Summary of Issue:
Basis for release fractions not provided, and context of limits unclear

Chapter 11 Section 11.4.3 Paragraph 3

Type of Issue: Please select one of the following categories:
Suggestion _____/ Addition _____/ Grammatical Error _____
Inconsistency _____/ Clarification X

Comment:
This section cites NUREG-1536 as the source for most of the release fractions. However, that document does not provide a reference for these numbers, so essentially no reference exists for them. Also, it is unclear how the numbers are to be used. Do they apply to just uncanistered fuel or the combined effects of fuel matrix, cladding, and containers? For solid radionuclides, are the values for total fraction or respirable fraction?

Bases for Comment:
Preferable to cite original technical source document in NUREGs. Clarifying guidance regarding the release fractions would help prevent misinterpretation.

Suggested Revision/ Replacement Language
Add source document reference to both NUREGs. Clarify issues pointed out in the comment.

NUREG-1567 Comment Sheet

Commenter U.S. Department of Energy Issue Number 46 of 61

Summary of Issue:
Requirement for consideration of off-normal occurrences and accident-level events and conditions subject to misinterpretation

Chapter 12 Section 12.4.1 Paragraph 1

Type of Issue: Please select one of the following categories:
Suggestion _____/ Addition _____/ Grammatical Error _____
Inconsistency _____/ Clarification X

Comment:
The first sentence of this section implies that all off-normal occurrences, even those that are incredible, must be included in the SAR. This would require the applicant to perform risk analyses for situations posing negligible public risk because of their low probability of occurrence.

Bases for Comment:
Regulatory precedent (e.g., recent 10 CFR 60 DBE rulemaking) exists for exclusion from further analysis of highly unlikely events and occurrences.

Suggested Revision/ Replacement Language
Consider providing guidance similar to that in 10 CFR 60 that allows screening events with probability of occurrence lower than 1×10^{-6} from further consideration in risk analysis. State that a comprehensive set of events should be considered and screened. Alternatively, clarify the definition of "off-normal" to clearly indicate that the term refers to events expected to occur (i.e., credible by definition).

NUREG-1567 Comment Sheet

Commenter U.S. Department of Energy Issue Number 47 of 61

Summary of Issue:
Missing regulatory reference

Chapter 13 Section 13.4.3 Paragraph 2

Type of Issue: Please select one of the following categories:
Suggestion _____/ Addition X / Grammatical Error _____
Inconsistency _____/ Clarification _____

Comment:
Add NUREG-1497, Interim Licensing Criteria for Physical Protection of Certain Storage of Spent Fuel, as a source for criteria and guidance.

Bases for Comment:
Missing reference contains useful and applicable information on the subject of physical protection.

Suggested Revision/ Replacement Language
As per comment.

NUREG-1567 Comment Sheet

Commenter U.S. Department of Energy Issue Number 48 of 61

Summary of Issue:
Intent of reference is unclear

Chapter 15 Section 15.2.8b.- et.al. Paragraph Page 15-3 et.al.

Type of Issue: Please select one of the following categories:
Suggestion _____/ Addition _____/ Grammatical Error _____
Inconsistency _____/ Clarification X

Comment:
The reason for the parenthetical reference is not clear.

Bases for Comment:
Editorial/clarification

Suggested Revision/ Replacement Language:
Delete "(15.2.8b)" or explain what this parenthetical reference means

NUREG-1567 Comment Sheet

Commenter U.S. Department of Energy Issue Number 49 of 61

Summary of Issue:
Conflict between NUREG 1567 and Reg. Guide 3.48

Chapter 15 Section 15.2.20 Paragraph

Type of Issue: Please select one of the following categories:
Suggestion ____/ Addition ____/ Grammatical Error ____
Inconsistency X / Clarification ____

Comment:
15.2.20 indicates that the latest revision of ANSI/ASME NQA-1 should be used to develop the applicants program, even though the applicable Reg Guide endorses the 1983 edition. The result is inconsistent and contradictory guidance.

Bases for Comment:
By proposing to review QA Programs to whichever version of NQA is current at the time, it appears that ALL FUTURE versions of NQA-1 are being implicitly endorsed (sight unseen) as being acceptable to the USNRC. And finally, this NUREG appears to be the wrong place to endorse an ANSI Standard - if the USNRC plans to change the version of NQA-1 that they endorse, this should be identified in the appropriate reg guide.

Suggested Revision/ Replacement Language
Clarify the requirement and remove the contradiction

NUREG-1567 Comment Sheet

Commenter U.S. Department of Energy Issue Number 50 of 61

Summary of Issue:
Incorrect reference

Chapter 15 Section 15.4_ Paragraph _____

Type of Issue: Please select one of the following categories:
Suggestion _____/ Addition _____/ Grammatical Error _____
Inconsistency X/ Clarification _____

Comment:
Section 15.4 and the acceptance criteria for control of nonconformances (last paragraph) reference requirements from 10CFR Part 21

Bases for Comment:
Part 21 is a reporting requirement and not a QA requirement. As such it should not be part of the the criteria for the acceptance of a QA program.

Suggested Revision/ Replacement Language:
Clarify the acceptance criteria

NUREG-1567 Comment Sheet

Commenter U.S. Department of Energy Issue Number 51 of 61

Summary of Issue:
Document content is inconsistent

Chapter 15 Section 15.4.1 Paragraph _____

Type of Issue: Please select one of the following categories:
Suggestion _____/ Addition _____/ Grammatical Error _____
Inconsistency _____/ Clarification X

Comment:
The first bullet, second item (page 15-16) conflicts with Paragraph 15.4.2., first bullet, second item (page 15-18). "Siting," "constructing," "receiving," and "assembling" are listed in 15.4.2 but not 15.4.1.

Bases for Comment:
The glossary definition of construction (see page xxvi) includes materials, design, 15.4.2 should not use the term "constructing" if the activities associated with constructing are already listed.

Suggested Revision/ Replacement Language:
.Add the criteria listed in Section 15.4.2 to Section 15.2.1

NUREG-1567 Comment Sheet

Commenter U.S. Department of Energy Issue Number 52 of 61

Summary of Issue:
Incorrect reference

Chapter 15 Section 15.4.7 Paragraph Page 15- 25

Type of Issue: Please select one of the following categories:
Suggestion _____/ Addition _____/ Grammatical Error _____
Inconsistency _____/ Clarification X

Comment:
First bullet, second line. The statement "based on (b) and or (c) below" should be clarified.

Bases for Comment:
There is no b or c below.

Suggested Revision/ Replacement Language:
Correct reference error

NUREG-1567 Comment Sheet

Commenter U.S. Department of Energy Issue Number 53 of 61

Summary of Issue:
Information duplicated in the content

Chapter 15 Section 15.4.7 Paragraph Page 15.26

Type of Issue: Please select one of the following categories:
Suggestion _____/ Addition _____/ Grammatical Error _____
Inconsistency _____/ Clarification X

Comment:
Second and third items are duplicates with the exception of the examples in parenthesis.

Bases for Comment:
Information is duplicated

Suggested Revision/ Replacement Language:
One of these should be deleted.

NUREG-1567 Comment Sheet

Commenter U.S. Department of Energy Issue Number 54 of 61

Summary of Issue:
Reference error

Chapter 15 Section 15.4.8 Paragraph page 15-27

Type of Issue: Please select one of the following categories:
Suggestion ____ / Addition ____ / Grammatical Error ____
Inconsistency ____ / Clarification X

Comment:
First bullet, third item: The statements "mentioned in (1) above" and "mentioned in (2) above" should be clarified.

Bases for Comment:
There is no 1 or 2 above.

Suggested Revision/ Replacement Language:
Correct the reference error (i.e., delete "mentioned in (1) above" and "mentioned in (2) above")

NUREG-1567 Comment Sheet

Commenter U.S. Department of Energy Issue Number 55 of 61

Summary of Issue:
Content incomplete

Chapter 15 Section 15.5.2, Paragraph Page 15-41

Type of Issue: Please select one of the following categories:
Suggestion _____/ Addition _____/ Grammatical Error _____
Inconsistency _____/ Clarification X

Comment:
Second paragraph has two blanks that should be completed.

Bases for Comment:
Information missing.

Suggested Revision/ Replacement Language:
Insert the name of the organization or position

NUREG-1567 Comment Sheet

Commenter U.S. Department of Energy Issue Number 56 of 61

Summary of Issue:
Inconsistent with the requirements in NUREG 1536

Chapter_ Section 15__ Paragraph _____

Type of Issue: Please select one of the following categories:
Suggestion _____/ Addition _____/ Grammatical Error _____
Inconsistency X / Clarification _____

Comment:
This NUREG should Clarify the relationship of its QA review criteria to Draft NUREG 1536 (Dry Cask Storage Systems).

Bases for Comment:
NUREG 1536 does not include QA program review criteria and states that the review is seperate from the SER. The approach to the QA program appears to be inconsistent between the two NUREGs.

Suggested Revision/ Replacement Language
Obtain consistency between NUREGS

NUREG-1567 Comment Sheet

Commenter U.S. Department of Energy Issue Number 57 of 61

Summary of Issue:
Typographical error

Chapter 17 Section 17.2.7 Paragraph 3

Type of Issue: Please select one of the following categories:
Suggestion _____/ Addition _____/ Grammatical Error X
Inconsistency _____/ Clarification _____

Comment:
After "...provide at the [ISFSI/MRS] such safeguards": replace "a" with "as."

Bases for Comment:
Typographical error

Suggested Revision/ Replacement Language
As per comment

NUREG-1567 Comment Sheet

Commenter U.S. Department of Energy Issue Number 58 of 61

Summary of Issue:
Missing regulatory reference

Chapter 18 Section 18.4.2 Paragraph

Type of Issue: Please select one of the following categories:
Suggestion ____ / Addition ____X____ / Grammatical Error ____
Inconsistency ____ / Clarification ____

Comment:
Add NUREG-1497, Interim Licensing Criteria for Physical Protection of Certain Storage of Spent Fuel, to the reference list.

Bases for Comment:
Consistent with addition of this NUREG to chapter 13 text.

Suggested Revision/ Replacement Language
As per comment.

NUREG-1567 Comment Sheet

Commenter U.S. Department of Energy Issue Number 59 of 61

Summary of Issue:
Typographical error

Chapter App A Section Table A-1 Paragraph _____

Type of Issue: Please select one of the following categories:
Suggestion _____/ Addition _____/ Grammatical Error X
Inconsistency _____/ Clarification _____

Comment:
Under section of Table A-1 for 10 CFR Part 73, 73.21(b)(1), change "s" to "as."

Bases for Comment:
Typographical error

Suggested Revision/ Replacement Language
As per comment

NUREG-1567 Comment Sheet

Commenter U.S. Department of Energy Issue Number 60 of 61

Summary of Issue:
Typographical error

Chapter App A Section Table A-1 Paragraph

Type of Issue: Please select one of the following categories:
Suggestion ____/ Addition ____/ Grammatical Error X
Inconsistency ____/ Clarification ____

Comment:
In Table A-1, under heading "Appendix C to Part 73," Introduction text is duplicated.

Bases for Comment:
Typographical error.

Suggested Revision/ Replacement Language
Delete duplicated text.

NUREG-1567 Comment Sheet

Commenter U.S. Department of Energy Issue Number 61 of 61

Summary of Issue:
Typographical error

Chapter App A Section Table A-1 Paragraph

Type of Issue: Please select one of the following categories:
Suggestion ____/ Addition ____/ Grammatical Error X
Inconsistency ____/ Clarification ____

Comment:
In Table A-1 under heading "Appendix C to Part 73"; paragraph quoting article 3.c left out the word "discussed" after "to be."

Bases for Comment:
Typographical error

Suggested Revision/ Replacement Language
Add "discussed" after "to be."