



NUCLEAR ENERGY INSTITUTE

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October 23, 2009

Mr. Michael Tschiltz
Deputy Director
Division of Fuel Cycle Safety and Safeguards
Office of Nuclear Materials Safety and Safeguards
U.S Nuclear Regulatory Commission
Washington, DC 20555-0001

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RULES AND DIRECTIVES
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Subject: Industry Comments on Draft NUREG-1520, Revision 1, "Standard Review Plan for the Review of a License Application for a Fuel Cycle Facility"

Project Number: 689

Dear Mr. Tschiltz:

On behalf of the fuel cycle industry, the Nuclear Energy Institute¹ offers the following comments for your staff's consideration as they work to finalize the subject Draft NUREG-1520. We appreciated the opportunity to discuss the document, provide comments on it, and solicit information from U.S. Nuclear Regulatory Commission (NRC) staff during the October 8, 2009 public meeting. We offer the general comments below and the specific comments enclosed with this letter and trust you will find them useful in finalizing NUREG-1520.

It should also be noted that industry's available time to review the Draft NUREG-1520 was somewhat limited due to the resources expended to support higher priority regulatory activities such as development of the enhanced oversight process for fuel facilities; preparation for and participation in other Part 70 related NRC public meetings; and ongoing routine and reactive inspections at fuel cycle facilities and licensing matters. As such, the comments contained herein are not necessarily all inclusive of potential improvements that could be made to the document.

First, we support incorporation of the Interim Staff Guidance documents that were developed after issuance of the Part 70 final rule and NUREG-1520, to reflect NRC's and industry's approach to certain technical and programmatic issues. Secondly, we are also encouraged by efforts to reduce

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 fabrication facilities, nuclear materials licensees, and other organizations and entities involved in the nuclear energy industry.

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E-RIDS = ADM-03
Add = C. Roman (CRM)

Mr. Michael Tschiltz

October 23, 2009

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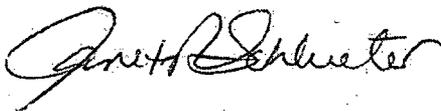
the redundancy of language in the document and increase the transparency of and correlation between regulatory requirements and suggested guidance to meet those requirements. In that regard, we also support the staff's effort to identify and remove vague guidance language and language that implies requirements that are not based on the existing rule. As such, we offer specific comments in the enclosure to help achieve this goal.

Third, and most importantly, we are concerned about certain revisions to Draft NUREG-1520 that address significant topics of ongoing discussion between the NRC and industry held earlier this month and scheduled for November 2009. Specifically, Draft NUREG-1520 contains guidance on how to designate design features versus Items Relied On For Safety (IROFS) and expectations on chemical exposure standards for workers and individuals outside the controlled area, yet current discussions between the NRC and industry indicate that a final NRC position on neither topic is available at this time. For example, during the October 8, 2009 public meeting on design features versus IROFS, NRC staff stated that it was considering issuing guidance on this topic for stakeholder comment by year's end. With regard to chemical exposures, the NRC is scheduled to conduct a public meeting on this topic, at industry's request, on November 9, 2009. As such, NEI strongly suggests that Draft NUREG-1520 not be revised to address these complex and somewhat controversial topics until such time that the agency further engages stakeholders, develops final agency positions, and communicates them to stakeholders. At present, the proposed guidance language would only contribute to the confusion.

Finally, we are also troubled by the inclusion of a new term not defined in or required by Part 70. Specifically, draft NUREG-1520 includes the term "IROFS Boundary Package." This term is not based on a regulatory requirement or any apparent safety basis requiring the development and submittal of such information by the licensee or applicant in preparation for an NRC Operational Readiness Review (ORR). While industry appreciates the need for well-informed inspectors during an ORR, we respectfully suggest that the NRC access the vast array of relevant operations information available on-site since the cost to industry of preparing such a "package" far outweighs the potential additional NRC inspection time and associated costs to both the NRC and its licensees.

We appreciate the opportunity to provide these comments and look forward to reviewing the final version. I am available to respond to any questions or comments on the content of this letter and I may be reached at 202.739.8098.

Sincerely,



Janet R. Schlueter

Enclosure

c: Ms. Cinthya Roman Cuevas, U.S. Nuclear Regulatory Commission

SPECIFIC COMMENTS ON DRAFT NUREG-1520

The following specific comments, by chapter, are offered for NRC's consideration as it prepares the final version for implementation. Also, care should be taken to ensure that the document undergoes further editing and efforts to ensure consistency in numbering of the sections, paragraphs, etc.

Introduction:

The term "IROFS boundary definition package" is a new term which is not defined in the regulations, and it has been included in this version of Draft NUREG-1520. At present, there is no regulatory basis for NRC requiring, through license condition as stated by staff during an October 8, 2009 public meeting, that licensees submit extensive information on IROFS and other structures, systems and components to facilitate the NRC's Operational Readiness Review (ORR). While it is acknowledged that NRC and licensees benefit from well-informed inspectors at the time of an ORR, industry suggests that NRC consider deleting this term and implied expectation in the absence of a regulatory basis. Instead, NRC inspectors should access the vast array of operations information available on site since the cost to industry of preparing such "packages" far outweighs the cost to NRC and industry for the associated inspection hours.

Chapter 1:

There are several references to facility/process descriptions being consistent with those in Chapter 8 (Emergency Management). Several existing licensees simply refer to their emergency plan in chapter 8 so this reference is not necessary.

Chapter 2: No comments.

Chapter 3:

Page 3-6, Section 3.4.1

This section implies that 10CFR70.72 (e) requires the ISA summary to be kept up-to-date on a change-by-change basis. The regulation actually states that "the affected facility documentation shall be updated promptly". However, the rule allows licensees who do not use the ISA summary on a day-to-day basis to update and submit the ISA summary to NRC on an annual basis - see (d)(3). Clarification of what is actually required by the rule is needed so that licensees can implement a performance-based approach to demonstrating compliance with the rule.

Page 3-14, Section 3.4.3.1 (2) d.

This item states, "If a proposed change results in a new type of accident sequence (e.g., different initiating event...". The example implies that a new initiating event constitutes a new type of accident sequence. According to 10CFR70.72 (1)(i), if a facility modification results in a "new type of accident sequence" a license amendment is required. The implied threshold for what constitutes "a new type of accident sequence" is too low relative to requiring a license amendment.

Therefore, industry recommends that the text be changed to "If a proposed change results in a revised accident sequence in the ISA summary or increases the consequences and/or likelihood of a previously analyzed accident sequence within the contest of 10 CFR 70.61, the applicant commits to promptly evaluating the adequacy of existing IROFS and associated management measures and making necessary changes if required".

Page 3-14, Section 3.4.3.2 (3) a.

This section seems to confuse the ISA and the ISA Summary. Specifically, 10 CFR 70.65 (b) pertains to the ISA summary, not the ISA. The second sentence, "The description of the processes analyzed as part of the ISA..." should be changed to read "The description of the processes included in the ISA summary is considered adequate if it describes...".

Also, the fourth sentence states "If the information is available elsewhere..and is adequate to support the ISA, reference...". "ISA" at this location should be "ISA Summary".

The last sentence in this section (newly added) and the following sections i, ii, and iii seem to describe a level of detail that will only be in the ISA and not the ISA Summary. During past NRC interactions with licensees, this type of material was reviewed on site and it was not expected to have this level of detail in the ISA summary. As such, these sections should be deleted.

Page 3-15, Section b second paragraph

This paragraph states "Any locations where hazardous regulated material, including fissile material, could ever be located, even only by accident, should be considered". Licensees consider abnormal conditions / accidents that could put licensed materials where it is not expected under normal conditions. However, the phrase "could ever be located" is unclear, not bounded, and implies an event more remote than "highly unlikely". Industry suggests that this sentence be revised to read "Locations where hazardous regulated material, including fissile material, could accidentally be located should also be considered".

Page 3-15, Section iv

This section is not clear as to what information should be included in the ISA summary versus what information should be included in the safety documentation on site.

Page 3-15, Section c. i.

This section states "The applicant has identified all accidents...". Industry suggests that this sentence be changed to read "The applicant has identified all **types** of accidents...". The book "Guidelines for Hazards Evaluation Procedures" second edition published by the center for chemical process safety on pg. 21 states "It is impossible for a hazard analyst to identify and assess the significance of all possible things that can go wrong—even for a very limited, well-defined set of circumstances". The guideline listed in the Draft NUREG-1520 sets an unreasonable and potential unachievable expectation and is not risk-informed and performance-based in its approach.

Page 3-16, Section C paragraph following ii and indented section iii

See previous comment. The guideline listed here also sets an unreasonable expectation, in that, it is not possible to identify all accident sequences.

Page 3-16, Section C third paragraph third sentence

This sentence states "Initiating events can be either a failure of an IROFS or an external event". This sentence is misleading because initiating events can also be process upsets, non-IROFS failures, events internal to the facility but external to a process system etc. The description of an initiating event here should be consistent with appendix C pg 3-C-2.

Page 3-18, Section ii Consequence, bullet one

The only sections of 10CFR 70.61 that indicate a quantitative standard is required are sections b (4) (ii) and c (4) (ii) and these are only for an individual outside of the controlled area. Currently, there is disagreement between NRC and industry on this rule interpretation. As such, it is the topic of discussion at a public meeting scheduled for November 9, 2009 between NRC and stakeholders. We

respectfully suggest that the guidance be modified to reflect NRC's final position on this matter or, if unavailable at the time of issuing this NUREG in final, the topic not be addressed at all in NUREG-1520.

Page 3-19, Section b. Management Measures

This paragraph could lead a reviewer to assume the management measure discussion for IROFS is provided on an accident sequence-by-accident sequence basis. However, the rule only requires this description on an IROFS basis. Industry suggests revising this portion of the paragraph to "...the application must describe the management measures to be applied to the IROFS listed in the ISA summary as required to meet the requirements of 10CFR 70.61."

Page 3-22, Section (6) b.

This section leads a reviewer to expect that assumptions and conditions such as safety margins are included in the ISA Summary. Typically this information is not in the ISA Summary but is available on site for review at any time.

Page 3-22, Section (6) a. (not indented)

This section states that for the list of IROFS to be complete "...no item, aspect, feature, or property of a process that is needed to show compliance with the safety performance requirements of the regulation may be left of this list". This item has been a source of disagreement between industry and the NRC. This item needs to be clarified as it is not possible to perform a safety analysis when a design is not present first. It appears to industry that certain basic items must be present prior to doing the safety analysis and determining credible abnormal conditions to evaluate for potential high and intermediate consequences.

Page 30-24, Section (7) a. and b.

Industry has historically interpreted the rule as follows and has reflected this interpretation in its ISAs, the Summaries of which have been accepted by NRC. The only sections of 10CFR 70.61 that indicate a quantitative standard is required are sections b (4) (ii) and c (4) (ii) and these are only for an individual outside of the controlled area. Industry believes that the implication that 10CFR 70.61 (b) (4)(i) and 10CFR 70.61 (c) (4)(i) require quantitative standards is in error. As such, we look forward to discussions on this topic scheduled for November 9, 2009 which may impact this language. As such, the Draft NUREG-1520 should not address this matter until a final NRC position is articulated to stakeholders.

Page 3-25, Definition of "Credible"

This section states that " One cannot claim that a process does not need IROFS because it is "not credible" due to characteristics provided by some other controls or features of the plant that are not IROFS, such an evaluation would be inconsistent with 10 CFR 70.61 (d)." This item has been a source of disagreement between industry and the NRC. A meeting between industry and the NRC was held on October 8, 2009 to discuss this issue. The concerns that industry expressed at this meeting need to be resolved prior to issuing this NUREG.

Also, this section makes a distinction between "not credible" and highly unlikely. If an event is not credible, IROFS are not needed. If an event is credible they must be controlled (using IROFS) so that they are highly unlikely---the definitions of credible and highly unlikely do not make it clear how to handle an event (accident sequence) that is highly unlikely without IROFS but is still "credible". Perhaps these matters will be addressed further through additional dialogue with NRC or potential guidance alluded to by NRC staff during the October 8, 2009 public meeting on design features versus IROFS.

Page 3-25, Definitions of “unlikely and highly unlikely”

The frequency designations on these definitions need to be consistent. Highly unlikely was changed to 10^{-4} events per-year for any individual accident sequence. The frequency indicator for unlikely should likewise be reduced an order of magnitude for consistency.

Page 3-25, Section 3.5.2.3, last paragraph second sentence

Industry suggests that “...he or she has fully understands...” be revised to “...he or she has fully understood...”.

Chapter 4:

Page 4-5, Section 4.4.3 second bullet

Specifying how radiation protection procedures will be prepared, authorized approved and distributed is an overly prescriptive expectation for information in a license application or amendment and not consistent with the risk-informed, performance-based intent of the rule.

Page 4-13, Section 4.4.7.3 first bullet

Requiring licensees to maintain equipment and instruments in accordance with manufactures’ recommendations gives recommendations the force of regulation which is not appropriate and without a regulatory basis.

Page 4-13, Section 4.4.7.3 second bullet

This bullet refers to Appendix B of this Chapter however this appendix is not included in the document.

Page 4-13, Section 4.4.7.3 third bullet

If a licensee is not located in an Agreement State, these requirements fall under State Regulations. The guidance should make this clear to the reviewer and applicant.

Page 4-14, Section 4.4.8.3 second bullet

If a scenario is not an intermediate or high consequence event, there is no reason that accuracy of the dose is needed; rather, only that the dose does not meet the criteria for intermediate or high consequences.

Chapter 5:

Page 5-1, Section 5.1

A primary sanity check for this revision is that if a new reviewer were given this guidance to evaluate the Nuclear Criticality Safety program of an existing license, the reviewer should conclude that the licensee has an acceptable program.

The second paragraph, third sentence, could lead a reviewer to expect that the items listed in this chapter are required to demonstrate compliance with the applicable regulatory requirements. It should be clearly stated here, as it is in other locations, that other approaches are acceptable to demonstrate compliance.

Page 5-2, Section 5.3.1 last paragraph

The use of “credible abnormal conditions” here and in the regulation implies a higher degree of “unlikely” then is expected by the rule and guidance for other high consequence events, i.e., 10^{-6} or less for incredible vs. a 10^{-4} or less for highly unlikely. This likely occurred because the language of the rule came from ANSI/ANS 8.1 section 4.1.2.

The context of "credible" in "credible abnormal conditions" as used in this standard is different than used in the rule and elsewhere in this regulatory guide. Section 3.4 on page 3-35 contains a note that explains that use of the word "unlikely", as it appears in 10CRF 70.61(c), does not have the same meaning as when that word is used in the definition of double contingency, which also has origins in ANSI/ANS 8.1. Industry believes it would be prudent to make a similar clarification here as high consequence events (accidental nuclear criticality is a high consequence event) only need to be controlled to highly unlikely. Industry has interpreted the rule to mean that credible abnormal conditions must be evaluated, however only those that are not at least highly unlikely need to be controlled by IROFS.

Page 5-2, Section 5.3.2 first bullet

The term "parameters" as used in this context should either be clarified, footnoted or deleted to avoid confusion.

Page 5-2, Section 5.3.2 second bullet

This item implies that licensees must list both safety limits and controls, and operating limits and controls, in the Nuclear Criticality Safety documentation. The rule only requires that systems be controlled to be Subcritical including an approved margin of sub-criticality. This item leads the reviewer to expect a double tier of limits and controls which goes beyond the requirements of the rule. This expectation is also repeated on pg 5-14 at the first indented hollow bullet.

Page 5-2, Section 5.3.2 seventh bullet

The word "an" should be changed to "any".

Page 5-3, Section 5.3.3 second bullet

The word "unmitigated" really doesn't add anything as accidental criticality is a high consequence event whether it is mitigated or not. Therefore, the word should be deleted.

Page 5-4, Section 5.3.3 first bullet following Review Interface

This bullet refers the reader to chapter 1 to ensure the process descriptions contained therein are consistent with Chapter 5. The chemical safety chapter is chapter 6 not chapter 1.

Page 5-5, Section 5.4.3.1 second bullet, first indentation

This statement is consistent with Regulatory Guide 3.7.1 and the common definition of handled, stored, or used. Recent NRC documentation has stated that the mere presence of special nuclear material in any quantity requires a Criticality Accident Alarm System if the licensee is licensed to possess greater than 700 grams U-235. NUREG-1520 should confirm that the Regulatory Guide 3.7.1 approach and common definition of "handled", "stores", or "used" is correct.

Page 5-6, Section 5.4.3.1 bullets one and two

These bullets pertain to the Criticality Accident Alarm System (CAAS). These sections lead the reviewer to expect that the CAAS will be designed to withstand "credible" events, i.e., 10^{-6} . This design requirement for new CAASs is an excessive expectation and is not required by the rule. Licensees are required to protect against accidental nuclear criticality so that such an event is highly unlikely event, i.e., 10^{-4} . As such, this guidance should be performance-based and allow licensees flexibility on how it will protect against such criticality events.

Page 5-8, Section 5.4.3.1

The first paragraph on this page again discusses "credible" in relationship to abnormal conditions. As in previous comments, the term as used here should probably be equated to "highly unlikely". This sentence is further complicated by the definition in chapter 3 for "not credible" which

specifically states that process designs cannot be credited in defining conditions that are "not credible".

Page 5-15, second bullet

The term "augmented administrative control" should be revised to "enhanced administrative control" for consistency with other portions of the document.

Page 5-16, first bullet under reflection

This paragraph is confusing as written. The second sentence should be clarified to read "The materials adjacent to the unit should be farther than 30 cm (12-inches) from the unit".

Page 5-16, Section of moderation controls

The language used in this section should be carefully reviewed so as not to confuse the important distinction between moderators (a material that can moderate neutrons) and moderation (the process of slowing down neutrons). For example, "the ingress of moderation is precluded..." should more correctly be stated as "the ingress of moderators is precluded...".

Page 5-16, Section on moderation controls

The sixth bullet calls for the restriction on using moderator material during firefighting. In many cases, this is an excessive restriction. Firefighting foam, although a moderator, is of a low enough density that in many cases it can be safely used and its use is frequently the best safety choice to minimize overall risk.

Page 5-18, fifth bullet

This section relates to appendix A of 10 CFR 70. As appendix A of the rule is concerned with more than Nuclear Criticality Safety issues, compliance with Appendix A should be handled elsewhere and in a more universal manner. Discussing compliance with Appendix A in individual technical chapters may result in the NUREG being internally inconsistent, thus making it confusing for NRC staff and potentially difficult for licensees to implement. Additionally some of the sub-bullets redundantly require a licensee to commit to follow federal regulation. Such a statement is unnecessary since all licensees must follow federal regulations whether or not a specific license condition is imposed.

Page 5-22, last paragraph

This section again discusses the likelihood of each credible high-consequence event needing to be highly unlikely after the implementation of IROFS. In many cases, credible events are already highly unlikely without the use of IROFS. This issue needs to be consistently addressed throughout the document.

Page 5-24, Section 5.5.3

This section states that the results of the ISA are the basis for the criticality safety evaluation. This is not correct. Generally, the Criticality Safety Evaluation, k_{eff} sensitivity studies, feed into the evaluation of accident conditions so that the ISA team understands the impact of process deviations etc. This sentence should be changed to read "The results of the ISA and the results of the criticality safety evaluation are closely connected".

Chapter 6:

The 70.4 definition of "hazardous chemicals..." should be referenced in this chapter. The current text is a little misleading in how it refers to chemicals in that it could mean "all" chemical and not limited as defined below.

Hazardous chemicals produced from licensed materials means substances having licensed material as precursor compound(s) or substances that physically or chemically interact with licensed materials; and that are toxic, explosive, flammable, corrosive, or reactive to the extent that they can endanger life or health if not adequately controlled. These include substances commingled with licensed material, and include substances such as hydrogen fluoride that is produced by the reaction of uranium hexafluoride and water, but do not include substances prior to process addition to licensed material or after process separation from licensed material.

Page 6-1, Section 6.1, Section 6.3 pg 6-2, Section 6.4.3.3 bullet five pg. 6-5, Section 6.5.3 pg 6-9 first paragraph

These sections discuss quantitative standards for chemical exposures. However, none of these sections clearly articulate the need for quantitative standards for individuals outside of the controlled area versus qualitative consequence standards for the worker. See also comment on (pg 3-18) section ii, Consequences. This is an area where industry does not agree with NRC's interpretation of the rule and, as such, industry appreciates the opportunity to discuss this topic at the NRC public meeting scheduled for November 9, 2009.

Chapter 7:

Page 7-5, Section 7.4.3.2 Deviations from NFPA Codes and Standards

This section states that when a license meets the intent of the NFPA code that the commitment is the same as committing to the code. These two commitments are significantly different. Licensees who currently have commitments to meeting the intent of the code chose that wording specifically because they did not meet every aspect of the code. Meeting every aspect of a particular code does not reflect the performance-based intent of the rule.

Page 7-4, Section 7.4.3.2

The last sentence needs to be removed. The current language does not reflect past accepted practices and conflicts with some authority granted to local and State authorities regarding fire protection. Deviations from National Fire Protection Association codes and standards do not require NRC approval today and should not in the future. This approach invokes a requirement for NRC pre-approval which is not currently required by 10 CFR 70.21, 70.23, 70.32, or 70.72.

Chapter 8:

Page 8-4, Section 8.4.3.1 and 8.4.3.2

Industry recommends that these sections contain a note or parenthetical statement that this type of information is allowed to be included by reference. Licensees include similar information pertaining to the site in the ISA summaries. Therefore, referencing them should be recognized as an acceptable method of providing information, especially since they are updated annually which keeps the information current and available for NRC review.

Chapter 9: No comments.

Chapter 10: No comments.

Chapter 11:

Page 11-9, Maintenance section item 5

To expect a description of individual surveillances and associated frequencies for each IROFS in the application or ISA summary is an excessive expectation and not performance-based. This level of detail is available at the Licensee's facility and can be reviewed when needed. The SRP should not set the expectation that this information be included in the application or the ISA summary.

Page 11-9, Maintenance section item 8

To expect a description of compensatory measures for individual surveillance or preventative maintenance activities in the application or ISA summary for each IROFS that needs to be taken off line to test is an excessive expectation. This level of detail is available at the Licensee's facility and can be reviewed when needed. The SRP should not set the expectation that this information be included in the application or the ISA summary.

Page 11-15, Incident Investigation item (1)

This section leads a reviewer to expect a specific commitment to report to the NRC as required by 10CFR 70.50 and 10CFR 70.74. As stated previously, it is redundant and unnecessary to have a license commitment to follow a federal regulation. The regulation must be followed regardless of a license commitment or condition.

Page 11-17, Section 11.4.3.8 Other QA Elements

Many of these elements are covered in the other management measures sections. For example, configuration management includes: "design control, instructions, procedures and drawing control, and document control." Listing these items under a separate heading leads a reviewer to expect additional measures associated with these topics when in reality the management measures already discussed cover these areas. At a minimum, the NUREG should acknowledge the overlap and specifically expect repeating information in the "other QA elements" section of an application. It would be preferable to simply remove these redundant elements.

New Appendices:

- Appendix A

Table A-6 has been reworked to include both frequency and risk index value and uses less than or equal to 10^{-5} as highly unlikely. Currently, approved methodologies use 10^{-4} for Highly Unlikely as does the revised definition on page 3-29. This item should be changed to 10^{-4} to be consistent with other portions of the document.

No comments are offered on the remaining Appendices:

- Annex to Appendix A
- Appendix B – incorporates ISG-11
- Appendix C – incorporates ISG-9
- Appendix D – incorporates ISG-8
- Annex to Appendix D