

Non-Power Reactor (NPR) License Renewal Rulemaking

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Organization of Comments on Regulatory Basis Document

August 27, 2012

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Introduction

On June 29, 2012, the Nuclear Regulatory Commission (NRC) made available for comment a preliminary draft regulatory basis for a potential rulemaking that would amend the NRC's regulations concerning the license renewal requirements for non-power reactors (NPRs). The contemplated rulemaking would also make conforming changes to address technical issues in existing NPR regulations. In a *Federal Register* notice, the NRC sought input from the public, licensees, certificate holders, and other stakeholders on the preliminary draft regulatory basis (77 FR 38742).

The NRC received two comments from the following stakeholders: (1) The University of Florida Training Reactor (UFTR), and (2) National Institute of Standards and Technology (NIST) Center for Neutron Research. This document organizes the comments from these stakeholders into several subject areas that were addressed by the comments. The first section addresses the UFTR comment. The UFTR comments were submitted in the form of comments embedded in the draft regulatory basis document, with some of the regulatory basis text highlighted by the commenter. This section presents both the regulatory basis excerpt being commented upon (retaining the commenter's highlighting), as well as the verbatim comment. The discussion also includes a placeholder for NRC's response to the comment. The second section of this document addresses the NIST comments that were submitted as a 1 ½ page narrative document. This section includes the verbatim comment and a placeholder for NRC's response to the comment.

1. UFTR Comment

1.1 Need for Objective Evidence

Regulatory Basis Excerpt: (various, see below)

- “The NRC staff discovered through the license renewal process that for most licensees, the documentation describing the details of their licensing basis, including their design basis calculations, could not be provided.” (page 8)
- “Based on the NRC staff's experience with the SARs submitted as part of license renewal applications, this guidance [the guidance in NUREG 1537 to maintain current SARs] was not heeded by most non-power reactor licensees.” (page 8)
- “Although the ISG allows the NRC staff to apply past safety evaluations of the facility as an acceptable basis for some parts of the license renewal application, these past safety evaluations sometimes proved to be insufficient.” (page 8)
- “Collectively, these topics [a variety of lessons learned identified as an outcome of the ISG piloting] resulted in many rounds of RAIs during license renewal and created additional burden on both licensees and the NRC staff.” (page 9)
- “Licensees generally did not update documentation of their licensing bases during the initial license period.” (page 12)
- “The inadequacy of the 30-day period was highlighted in the numerous instances where a license renewal application did not contain the requisite information.” (page 13)

- “This license maintenance activity can constrain and limit the license renewal process because if the licensee does not update the final safety analysis report (FSAR) documentation to account for the license modifications over time, then this task must be completed at the time of license renewal. This update at the time of license renewal could represent a significant burden on the licensee and could affect the quality of license renewal applications.” (“Constraints and Limitations” column in table on page 38 re: 10 CFR 50.59(c)-(d))

UFTR Comment on the Excerpt: These statements should be supported with objective evidence if they are going to be used as a basis for rulemaking.

NRC Response: The NRC staff disagrees with the comment. The NRC staff based these statements on the findings of NRC reviewers and project managers from the review of numerous license renewal applications. The NRC staff does not intend to provide detailed examples of these statements, because it would be needlessly critical of specific licensees. However, the NRC staff has made minor revisions to the regulatory basis to clarify statements on the staff’s findings.

1.2 Regulatory Burden

Regulatory Basis Excerpt: (various, see below)

- “This option would have no incremental impact on licensees.” (page 52, Impacts on Licensees of Option 1)
- “During the December 19, 2011 public meeting at NRC Headquarters, stakeholders expressed opposition to the “no action” alternative.” (page 53, Stakeholder feedback on Option 1)
- “No incremental burden on licensees.” (page 53, Advantages of Option 1)
- “Further, the burden associated with preparing a license renewal application would decrease substantially because the scope of the submittal would be streamlined.” (page 56, Impacts on Licensees of Option 2)
- Advantages of Option 2 (All) (page 57)
- Impacts on licensees of Option 3 (All) (page 61)
- Summary of advantages and disadvantages of Option 3 (All) (page 63)
- Impacts on licensees of Option 4. (All) (page 66)
- Impacts on public health, safety, and security (Options 3 and 4)

UFTR Comment on the Excerpt: These statements should be supported with objective evidence if they are going to be used as a basis for rulemaking. If polled, I suspect NPRs who have recently been involved in license renewal might indicate that this experience and the costs associated with it would prevent them from seeking further license renewals in the future.

NRC Response: The first three bulleted citations refer to Option 1, the “no action” alternative, and thus there can be no incremental impact. The NRC staff does not agree that it is necessary to provide more objective evidence for these citations. The fourth and fifth bulleted citations refer to Option 2, which would incorporate the streamlined license renewal process developed as Interim Staff Guidance (ISG) (Agencywide Documents Access and Management System (ADAMS) Accession number ML092240256) into the Guidance for Preparing and Reviewing Applications for the Licensing of Non-Power Reactors (NUREG-1537), ADAMS accession number ML042430055 (Part 1) and ML042430048 (Part 2). The NRC staff has already provided objective evidence for this streamlined process in the ISG. The NRC staff does not agree that it is necessary to provide more objective evidence for these citations. For bullets six through nine, the NRC staff cannot provide objective evidence because these Options 3 and 4 are proposed changes to the current NPR licensing process that have not been implemented.

Regulatory Basis Excerpt: (various, see below)

- “(1) For an application for an operating license or combined license for a production or utilization facility, information in the form of a report, as described in § 50.75, indicating how **reasonable assurance** will be provided that funds will be available to decommission the facility.” (“Text Excerpt” column in table on page 27 re: 10 CFR 50.33(k))
- “Except for an early site permit or manufacturing license, the processes to be performed, the operating procedures, the facility and equipment, the use of the facility, and other technical specifications, or the proposals, in regard to any of the foregoing collectively provide **reasonable assurance** that the applicant will comply with the regulations in this chapter, including the regulations in part 20 of this chapter, and that the health and safety of the public will not be endangered.” (“Text Excerpt” column in table on page 30 re: 10 CFR 50.40(a))
- “(3) There is **reasonable assurance** (i) that the activities authorized by the operating license can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the regulations in this chapter; and” (“Text Excerpt” column in table on page 36 re: 10 CFR 50.57)
- “This section establishes requirements for indicating to NRC how a licensee will provide **reasonable assurance** that funds will be available for the decommissioning process.” (“Text Excerpt” column in table on page 40 re: 10 CFR 50.75)

UFTR Comment on the Excerpt: Reasonable people will disagree with exactly just how much documentation is needed to provide “reasonable assurance.” This typically leads to more RAIs as well. Regulation containing these two words should be revised to make the acceptance criteria more objective.

NRC Response: The NRC staff acknowledges these comments, but notes that revision of the quoted NRC regulations that use the phrase “reasonable assurance” is beyond the scope of this proposed rulemaking. The standard of “reasonable assurance” is the traditional standard that the NRC must meet to find licensee applications acceptable. Over the years, the NRC has issued guidance documents to aid licensee in understanding the standard of reasonable assurance. For example, Part 1 of NUREG-1537 was developed to aid licensees in developing applications with sufficient information to allow the NRC staff to reach a finding of reasonable assurance.

Regulatory Basis Excerpt: “This option would result in up-to-date licensing bases, thereby increasing assurance that public health, safety, and security are adequately protected.” (page 69, Impacts on public health, safety, and security of Option 5)

UFTR Comment on the Excerpt: Increasing “assurance” in the form of increased administrative requirements is unlikely to have any actual impact on the health, safety, and security of the public. In fact, an argument could be made that continued NRC insistence on licensees providing administrative assurances beyond what is reasonable is likely to result in the opposite effect as the result of diminished nuclear research, development, and training. An increase in *oversight*, however, has the potential to provide some actual public benefit. Please see other comments regarding “reasonable assurance.”

NRC Response: The NRC staff disagrees with the comment. As indicated in the sentence that follows the quoted citation, the NRC staff noted that benefit to public health, safety, and security of Option 5 would likely be small due to the low risk associated with non-power reactors. However, if licensees were required to update licensing basis documents more frequently, the NRC staff would have a more reliable technical baseline against which to evaluate additional regulatory actions (i.e., orders, license amendment request, etc.).

Regulatory Basis Excerpt: (various, see below)

- “The applicability of current emergency preparedness regulations is confusing and difficult to discern. Therefore, these requirements constrain and limit the license renewal process.” (“Constraints and Limitations” column in table on page 34 re: 10 CFR 50.54(q))
- “This part constrains and limits the license renewal process because the applicability of the regulations to nonpower reactors is confusing and difficult to discern.” (“Constraints and Limitations” column in table on page 44 re: 10 CFR Part 73)

UFTR Comment on the Excerpt: This statement should be expanded to better illustrate the source of confusion. Confusion regarding regulation requirements combined with “reasonable assurance” criteria discussed earlier results in more RAIs and burden on the licensee.

NRC Response: The NRC staff acknowledges the comment. The final regulatory basis has been revised to note that the current regulations of 10 CFR 50.54(q) do not significantly constrain or limit the license renewal process. NPR emergency preparedness requirements will be addressed by the NRC in a separate regulatory basis and rulemaking.

Regulatory Basis Excerpt: “Even though the staff expects the overall burden on licensees to decrease, any new burdens are likely to draw criticism as violations of Section 104.c. of the AEA.” (page 79)

UFTR Comment on the Excerpt: Similar to those regulations that contain the term “reasonable assurance”, AEA Section 104(c) contains words like “minimum”, “promote”, “widespread” and “diverse”. I am not a lawyer, but I recognize that terms like these ensure the NRC can make whatever regulation it deems needed without fear of legal repercussion. That said, this highlighted statement, and the contents of this document, indicate a distinct bias towards tighter and stricter NPR regulation, which taken at face value, in my opinion, are indeed inconsistent with Section 104(c).

The reasons for this bias are understandable. Many of my earlier comments allude to some of the possible causes of this bias (training, minimal onsite presence, etc). This bias is also likely the result of Commission direction. In a speech on 7/5/2012, outgoing Chair Jazcko stated the following:

I replaced that regulatory perspective that said we would not be an impediment to the nuclear renaissance with one that made it clear that NRC staff were first and foremost to ensure the safety of the American people based on the best technical information regardless of what impact this might have on the profitability of the industry we regulate.

Considering the events at Fukushima, this statement seems very reasonable. Missing from this speech, however, was any mention of the NPR community that the NRC also regulates. It's not clear if this oversight was intentional, however, it is clear that this statement, if applied to the NPR community, could be seen as inconsistent with the intent of AEA Section 104(c).

Further evidence of this bias, and the cumulative effect of this bias, are discussed in the NRC document titled, "A Proposed Risk Management Regulatory Framework" (ML12109A277), dated April 2012. An important finding of this document reads as follows:

The analysis of design basis and the maximum hypothetical accidents based on conservative design limits, acceptance criteria, safety margins, and assumptions in conjunction with the application of a defense-in-depth philosophy continues to be a sound but highly conservative licensing approach to ensuring adequate safety of NPRs.

This document elaborates further on the topic of conservatism as follows:

While significant conservatism has contributed to the demonstrated safety of NPRs, it is reasonable to assume that conservative design beyond some point does not yield an equivalent safety benefit. The imposition of excessively conservative NPR design and licensing criteria could be viewed as inconsistent with Section 104c of the Act.

This cumulative effect of these conservatisms is described as follows:

The combination of the conservatisms introduced through the consideration of an incredible accident scenario (e.g., the MHA), the use of restrictive 10 CFR Part 20 standards for evaluation of the effects of a postulated accident at research reactors, and large safety margins associated with the traditional engineering analyses, may result in an overly conservative NPR regulatory framework.

Based on this discussion, and the often stated resource limitations of the NPR community, it is reasonable to assume that the burdens imposed by the NRC on the NPR community have indeed reached the point where the cumulative effect threatens the continued viability of the NPR community with no demonstrated increase in safety or security benefit.

NRC Response: The NRC staff agrees and disagrees with the comment. The NRC staff agrees that NPR design requirements are conservative and that the NRC staff must pay careful attention to ensure its regulations are in compliance with section 104(c) of the Atomic Energy Act of 1954, as amended (AEA). The NRC's position is consistent with the AEA and that the

regulation requirements are minimal requirements to the NPR community. The mission of the NRC is to protect the health and safety of the American public, regardless of the effect on its licensees. Therefore, NRC regulations that apply to NPR licensees must first meet the standard of providing reasonable assurance of protecting the public health and safety. However, unlike power reactors, NRC regulations that apply to NPR licensees must also be the *minimum necessary* to protect the public health and safety. The NRC staff consistently strives to write its regulations for NPR licensees that maintain the lowest possible burden while still protecting the public health and safety. In various public meetings, Commission meetings, and other discussions with licensees, the overwhelming opinion in the NPR community is that the current regulations for relicensing NPRs are over burdensome. Therefore, the NRC staff undertook this regulatory basis effort to explore possible alternatives to the current regulations that reduce the overall burden to the NPR community while still providing reasonable assurance that the health and safety of the American public will be protected. This document only explores the options and makes a recommendation for rulemaking— the NRC staff, as informed by interaction with interested stakeholders, will determine the specific details of how these regulatory constraints will be addressed during the proposed rule period.

1.3 “Timely Renewal”

Regulatory Basis Excerpt A: “A third regulatory constraint related to the license renewal process is the current “timely renewal” provision in 10 CFR 2.109. Under the current regulations, licensees are allowed to submit license renewal applications as late as 30 days before the expiration of the existing license. The regulation allows a non-power reactor to continue operation as long as the NRC has received a renewal application within 30 days before the expiration of the existing license. This provision presents a challenge to license renewal efforts because thirty days has not provided a sufficient amount of time for NRC staff to adequately assess whether or not the license renewal application is acceptable for review.” (page 13, Regulatory Constraint #3)

UFTR Comment on the Excerpt: Contrary to the assertion made in this statement, 10 CFR 2.109(a) does not limit the amount of time available for NRC to address NPR license renewal applications.

NRC Response: The NRC staff agrees with the comment and the final regulatory basis has been revised to clarify this discussion. Actions taken to redress information insufficiencies identified are governed by the Title 10 of the *Code of Federal Regulations* (10 CFR) contained in 10 CFR 2.101, “Filing of Application,” 10 CFR 2.102, “Administrative Review of Application,” 10 CFR 2.107, “Withdrawal of Application,” and 10 CFR 2.108, “Denial of Application for Failure to Supply Information.” The challenge of the 30-day criterion for timely renewal relates to the hypothetical case in which an applicant submits an incomplete or inadequate application, and that it is not accepted for review by the NRC staff. In this case, 30 days is not enough time for the NRC staff to review the application, inform the applicant of shortcomings in the application, and then allow the applicant to enhance the application and resubmit it. Therefore, the applicant could be forced to shut down the facility because the license has expired and the applicant does not have a valid license renewal application on the docket.

Regulatory Basis Excerpt B: “If given more time, the NRC staff would be able to reject or refuse to accept an insufficient application without causing an immediate shutdown of the reactor.” (page 13, Regulatory Constraint #3)

UFTR Comment on the Excerpt: The initial assessment of whether or not a license renewal application is acceptable for review should be narrowly focused on whether or not the appropriate application documentation was submitted rather than a detailed technical review of the submission. Thirty days should be sufficient for the initial administrative review. I'm concerned that more time would simply result in re-classification of technical issues into "application deficiencies". This not only fails to reduce the numbers of docketed RAIs but it will likely lead to additional burden on the licensees in the form of informal and undocketed RAIs.

NRC Response: The NRC staff disagrees with the comment. The most recent round of NPR license renewals review illustrated that 30 days is not a sufficient period to conduct an administrative acceptance review of license renewal applications. In order to provide as little operational impact on licensees as possible, the NRC staff believes that license renewal applications should be submitted more than 30 days prior to the expiration of the current license. Specific changes to the timely renewal requirement, if any, will be discussed during the proposed rule period.

Regulatory Basis Excerpt C: "By changing the "timely renewal" provision to require license renewal applications further in advance of license expiration, the number of RAIs issued during the formal review could be reduced. This would streamline the license renewal process by reducing the overall burden on both licensees and NRC staff." (page 13, Regulatory Constraint #3)

UFTR Comment on the Excerpt: It is not clear how B follows from A. How does providing more time in advance of the "formal review" impact the total quantity of RAIs issued or reduce the total burden on the licensee? This proposed change seems likely to have the opposite effect.

NRC Response: The NRC staff disagrees with this comment. By providing more time for the acceptance review, the NPR licensee can make improvements, if needed, in the application as a result of communication between the NRC staff and the licensee, thus reducing the number of RAIs during the license renewal process.

Regulatory Basis Excerpt D: "However, 10 CFR 2.109(a) does not ensure that the NRC staff will have sufficient time to address low-quality non-power reactor license renewal applications except by rejecting them, in which case the licensee would have to cease operations on the date the license expires. If the license renewal application is submitted further in advance of the license expiration, then the NRC staff has more time to evaluate and comment on the acceptability of the application, and the licensee can address those concerns before having to cease operations." ("Comments and Restraints" column in table on page 20 re: citation 10 CFR Part 2)

UFTR Comment on the Excerpt: Contrary to the assertion made in this C&L [constraints and limitations], 10 CFR 2.109(a) does not limit the amount of time available for NRC to address NPR license renewal applications.

NRC Response: The NRC staff disagrees with the comment. The most recent round of NPR license renewals review illustrated that 30 days is not a sufficient period to conduct an administrative acceptance review of license renewal applications. In order to provide as little operational impact on licensees as possible, the NRC believes that license renewal applications should be submitted more than 30 days prior to the expiration of the current license. Specific

changes to the timely renewal requirement, if any, will be discussed during the proposed rule period.

Regulatory Basis Excerpt E: “(3) Changes to the timely renewal provision in Title 10 of the Code of Federal Regulations (10 CFR), Section 2.109(a). This enhancement would change the current timely renewal provision in 10 CFR 2.109(a) to allow additional time for the NRC to conduct an adequate acceptance review and allow licensees to improve the quality of the license renewal application before the staff commence the formal review.

The “timely renewal” provision presents a challenge to license renewal efforts because the regulation allows a non-power reactor to continue operation as long as the NRC has received a renewal application within 30 days before the expiration of the existing license. This requirement does not ensure that the NRC staff will have sufficient time to address low-quality non-power reactor license renewal applications except by rejecting them, in which case the licensee would have to cease operations on the date the license expires.” (page 59, Description of Option 3)

UFTR Comment on the Excerpt: Contrary to the assertions made in these statements, 10 CFR 2.109(a) does not limit the amount of time available for NRC to address license renewal applications. Perhaps guidance should be developed or revised for use in the PM Handbook to clearly define the expectations for application acceptance review versus formal technical review.

NRC Response: The NRC staff disagrees with the comment. The most recent round of NPR license renewals review illustrated 30 days is not a sufficient period to conduct an administrative acceptance review of license renewal applications. In order to provide as little operational impact on licensees as possible, the NRC staff believes that license renewal applications should be submitted more than 30 days prior to the expiration of the current license. Specific changes to the timely renewal requirement, if any, will be discussed during the proposed rule period.

Regulatory Basis Excerpt F: “A revised regulation could change this requirement so that licensees are required to submit license renewal requests well in advance of license expiration (e.g., 2 years before), rather than the current 30 days before expiration. This would allow the NRC to reject or refuse to accept an insufficient application without causing an immediate shutdown of the reactor.” (page 60, Description of Option 3)

UFTR Comment on the Excerpt: The initial assessment of whether or not a license renewal application is acceptable for review should be narrowly focused on whether or not the appropriate application documentation was submitted rather than a detailed technical review of the submission. Thirty days should be sufficient for the initial administrative acceptance review. I'm concerned that more time would simply result in re-classification of technical issues into "application deficiencies" leading to additional burden on the licensees in the form of informal and undocketed RAIs under the threat of license expiration.

NRC Response: The NRC staff disagrees with the comment. The most recent round of NPR license renewals review illustrated 30 days is not a sufficient period to conduct an administrative acceptance review of license renewal applications. In order to provide as little operational impact on licensees as possible, the NRC staff believes that license renewal applications should be submitted more than 30 days prior to the expiration of the current license. The acceptance review is a tool used by the NRC staff to identify unacceptable applications early in the review process so that they can be returned to the licensee or applicant. A thorough acceptance review is integral to the efficient review of an application. The early identification of insufficient information benefits both the NRC staff and the licensee. The NRC staff benefits by identifying informational needs earlier and expending fewer resources in completing its review. The

licensee or applicant benefits by understanding potential NRC staff concerns and needs earlier, in addition to getting faster decisions on applications. Specific changes to the timely renewal requirement, if any, will be discussed during the proposed rule period.

1.4 Periodic Information Updates

Regulatory Basis Excerpt: “Licensees generally did not update documentation of their licensing bases during the initial license period. In these cases, the scope of a license renewal application review could not be narrowly focused because it was first necessary to understand the changes that had occurred with regard to the design and operational characteristics of the plant. That is, the license renewal process had to document the current licensing basis at a similar scope and depth to the initial licensing, as a fundamental early step in the renewal process.” (page 12, Regulatory Constraint #2)

UFTR Comment on the Excerpt: Changes made to design and operational characteristics of the plant that are safety-related should have been performed under 50.59 or 50.90. In either process, both parties have an awareness of the change either through direct involvement with the LAR process or 50.59 reporting requirements.

NRC Response: The NRC staff agrees and disagrees with the comment. While it is true that safety-related changes should have been performed under 10 CFR 50.59 or 50.90, they were not necessarily incorporated into the facility SAR. Therefore, it would be difficult to have a coordinated source of information on the facility status. Furthermore, there is the potential for changes that should be incorporated into the SAR that have not been reported under 10 CFR 50.59 or 50.90.

Regulatory Basis Excerpt: “An insufficiently prepared SAR and license renewal application, therefore, results in an unnecessarily burdensome process for both the licensees and NRC staff.” (page 12, Regulatory Constraint #2)

UFTR Comment on the Excerpt: There are many reasons beyond the renewal application and SAR that contributed to this burdensome process. For example, a failure to reject an inadequate application early in the process will result in unnecessary burden on both NRC and licensees. Others include turnover, security related changes, and the HEU-LEU conversions that took place during the delays in license renewals. See other comments as well for additional causes.

NRC Response: The NRC staff agrees that there are various reasons beyond the renewal application and SAR that contributed to a burdensome process. These additional reasons are stated elsewhere in the regulatory basis document.

Regulatory Basis Excerpt: “The current regulations constrain and limit the license renewal process because licensees are not required to update this information over time. Consequently, the license renewal process is more burdensome than it would be if the information were kept updated. It also contributes to more RAIs during license renewal.” (“Constraints and Limitations” column in table on pages 27, 30, 31, 40, 43, 48 re: 10 CFR 50.33(k), 50.34(b), 50.40(a), 50.40(b), 50.40(d), 50.75, 51.20(b)(2), 51.21, NUREG-1757 Volume 3 (ML032471471), DG-2004 (ML092400206))

UFTR Comment on the Excerpt: The FSAR that UFTR submitted as part of its license renewal package was accurate and up to date at the time of submittal in 2002. Had license

renewal occurred within a 3 to 12 month interval, as was planned, the burden would have been significantly reduced. Unlike nuclear utility companies, the typical NPR facility cannot absorb the financial impact of being in a constant, prolonged state of license renewal.

NRC Response: The NRC staff acknowledges that, due to the large number of NPR license renewal applications received and other conditions beyond the control of licensees or the NRC staff, a license renewal backlog developed that interrupted the license renewal reviews resulting in delays in the approval of the applications. This backlog was an impetus for developing a proposed rule to streamline the license renewal process. However, the NRC staff disagrees with the notion that requiring more frequent updates of licensing basis documents constitutes a “prolonged state of license renewal.”

Regulatory Basis Excerpt: “The current regulations constrain and limit the license renewal process because licensees are not required to update this information over time. Consequently, the license renewal process is more burdensome than it would be if the information were kept updated.” (“Comments and Restraints” column in table on page 21 re: 10 CFR Part 20)

UFTR Comment on the Excerpt: This portion of this C&L has nothing to do with 10 CFR 20.

NRC Response: The NRC staff disagrees with the comment. This portion of the C&L does apply to 10 CFR Part 20 because it refers to updating the 10 CFR Part 20 analyses when changes occur, either in the research reactors or in the surrounding environment.

Regulatory Basis Excerpt: “The current regulations constrain and limit the license renewal process because license renewal may be the only time the NRC may have a chance to review ancillary plans and documentation, such as operator requalification plans. Consequently, the license renewal process is more burdensome than it would be if the plans were kept updated. It also contributes to more RAIs during license renewal.” (“Constraints and Limitations” column in table on page 32 re: 10 CFR 50.54(i) and (i-1))

UFTR Comment on the Excerpt: This regulation in no way inhibits the NRC staff from reviewing licensee documentation of any sort at any time. Consideration should be given to more frequent NPR site visits and inspections to ensure ancillary processes and documentation are better understood and reviewed on a more frequent basis.

NRC Response: The NRC staff acknowledges the comment. However, the NRC staff notes that the constraint does not specifically refer to 10 CFR 50.54(i) and 10 CFR 50.54(i-1), but to not having an updated operator requalification plan. Inspectors inspect for compliance with current plans while the licensing staff review and approve submitted plans. Thus, more frequent site visits and inspections would not accomplish the intended purpose to review and approve plans.

Regulatory Basis Excerpt: “As of April 5, 2012, seven non-power reactors have yet to submit license renewal applications and as a result have not updated their SARs. For any facilities that have not updated their SARs as a result of license renewal, the burden to do so to comply with a new rule would be substantial.” (page 59, Footnote 11)

UFTR Comment on the Excerpt: Just because a SAR hasn't been submitted to NRC as part of a license renewal package doesn't mean it hasn't been updated. Please provide objective evidence that these seven licensees have failed to update their SARs if this statement is intended to be used as a basis for new rule making.

NRC Response: The NRC staff agrees with the comment and has revised the final regulatory basis accordingly. However, the NRC staff has not received any comments from potentially impacted licensees to the contrary.

Regulatory Basis Excerpt: “Unlike power reactor licensees, non-power reactor licensees are not required to update their SARs periodically. Licensees generally did not update documentation of their licensing bases during the initial license period. In these cases, the scope of a license renewal application review could not be narrowly focused because it was first necessary to understand the changes that had occurred with regard to the facilities and their operations. As a result of the out-of-date SARs, the NRC required numerous rounds of RAIs with licensees to re-establish the licensing basis of the facilities. As discussed in Sections 4.3, 4.4, and 4.5, the NRC could reduce the expected net burden (hours) associated with the license renewal RAI process by requiring nonpower reactors to periodically update their SARs. However, while the overall net burden would be expected to decrease, the earliest effects (i.e., effects prior to the next license renewal) would be slight increases in burden.” (page 80, Conclusion 4)

UFTR Comment on the Excerpt: Although my earlier comments may suggest otherwise, the UFTR is not opposed, in principal, to a change in regulation to require periodic FSAR updates and transmittal to NRC. What my earlier comments attempt to show is that the regulatory basis for, and safety benefits associated with such a change are not well documented. Additionally, outside of the license renewal process, there is no discussion of what process the NRC would implement to review NPR SAR submissions every two years.

NRC Response: The NRC staff acknowledges this comment. The process to review NPR SAR submissions will be determined during the development of the rule. However, as an example, the NRC could treat the NPR SAR submissions just as they do for the power reactor submissions. That is, they would be accepted as certified and accurate and could be used during inspections or as needed.

1.5 Periodicity and Scope of PSRs and/or Inspection

Regulatory Basis Excerpt: “PSRs have been used to help provide a basis for continued operation beyond the designed lifetime to help identify changes and to communicate more effectively with stakeholders regarding nuclear power plant safety and plant operations that enhance safety. Typically, IAEA member states require PSRs of power reactor facilities every 10 years. Although non-power reactors have reduced risks compared to power reactors, a 10-year periodicity between PSRs is equally reasonable in either case because the scope of the PSR would adjust relative to the applicable level of risk.” (page 65, Description of Option 4)

UFTR Comment on the Excerpt: Periodicity and scope should be further evaluated before considering this approach as a means of "streamlining" re-licensing. The IAEA also has a NPR licensing process which includes periodic safety assessments. Why take a power reactor process from IAEA and adapt it to fit U.S. NPRs when you can simply take the IAEA NPR process?

NRC Response Option 1: The NRC staff believes that oversight should be timely. Long periods of inaction can lead to an accumulation of problems, which in turn can lead to costly and disruptive remedial action. Rather than extended periods for PSRs or inspections, the NRC staff would prefer to have more frequent oversight that has been carefully designed to avoid undue burden.

NRC Response Option 2: The PSRs were chosen as another option to consider for reducing the burden of license renewal for NPRs. Most countries have formulated their nuclear licensing regulations considering those of the NRC. While the IAEA has recommended safety standards for Research Reactors, (i.e. NS-R-4, Safety of Research Reactors), the IAEA defers to the individual regulatory bodies for the details of their licensing process.

NRC Response Option 3: The NRC staff agrees with the comment. Should the proposed rule pursue PSRs as a vehicle to reduce licensee burden for license renewal, the NRC staff will look to international regulatory standards for power and non-power reactors to inform its methodology.

Regulatory Basis Excerpt: “Similar to Option 4, the NRC could design these enhanced inspections for a recurring (i.e., 10-year) periodicity.” (page 69, Description of Option 5)

UFTR Comment on the Excerpt: A more frequent periodicity and smaller scope should be considered as another alternative. See earlier comments regarding training and more frequent NPR site visits and inspection. Benchmarking the NRCs resident inspector program for applicability to the NPR side may provide useful insights as well.

NRC Response: The NRC staff agrees and will consider this alternative during development of the proposed rulemaking.

1.6 Periodicity of License Renewals

Regulatory Basis Excerpt: “This requirement limits the amount of time a license can last to no more than 40 years (including any additional time granted by a license renewal). As a result, licenses that reach the 40-year limit must be re-licensed such that the NRC would issue a new license.” (“Constraints and Limitations” column in table on page 32 re: 10 CFR 50.51(a))

UFTR Comment on the Excerpt: NRC staff should revisit the legal interpretation that licensees seeking license renewal must apply for a “new” license after the first 40 year term. This interpretation is the source of significant regulatory burden and is also, therefore, inconsistent with AEA Section 104(c).

NRC Response: The NRC staff acknowledges this comment. The purpose of this recommended rulemaking is to codify a licensing approach that provides effective oversight that meets the “minimum regulation” standard of the AEA. The NRC will address the interpretation of 10 CFR 50.51 with the Office of General Counsel (OGC) and incorporate, as applicable, OGC’s interpretation into the rule being developed.

Regulatory Basis Excerpt: “Consequently, a Class 104.a. or 104.c. license can have a term of no more than 40 years under current requirements and the NRC staff currently limits non-power reactor license renewals to 20-year terms.” (page 64, Description of Option 4)

UFTR Comment on the Excerpt: Please provide an objective basis consistent with AEA Section 104(c) describing the safety basis and rationale for limiting terms to 20 years rather than the 40 years allowed by regulation.

NRC Response: The NRC staff has made a determination that a period of forty years is too long given the lack of a requirement to keep SARs and licensing documentation up-to-date.

The NRC staff experience has been that even after 20 years, licensees have had difficulty preserving and presenting their licensing basis during license renewal, which requires the staff to generate RAIs to which the licensee must respond.

1.7 Consistent Application of Dose Standards

Regulatory Basis Excerpt: (various, see below)

- “Fourth, the accident dose standards in 10 CFR Part 100 apply to testing reactors and not research reactors. The regulations lack separate accident dose standards for research reactors. The staff currently can apply only the standards in 10 CFR Part 20 to research reactors, and cannot apply more specific standards for accidents. The NRC Atomic Safety and Licensing Appeal Board has suggested that Part 20 dose standards are too low for research reactors, but the Part 100 dose standards are too high.” (page 16, Regulatory Constraint #4)
- “These regulations do not significantly constrain or limit the license renewal process. However, one issue that should be considered is 10 CFR Part 100 applies to test reactors and not research reactors. There is a need for research reactor-specific dose standards. An NRC Atomic Safety and Licensing Appeal Board suggested on May 8, 1972 that Part 20 dose standards are too low for research reactors, but the Part 100 dose standards are too high. Therefore, research reactors require a dose standards scheme that is equivalent in structure to the Part 100 requirements for testing facilities.” (“Constraints and Limitations” column in table on page 45 re: 10 CFR Part 100)

UFTR Comment on the Excerpt: This has effectively created an unnecessary regulatory burden on research reactors which is inconsistent with AEA 104(c) and threatens the viability of the research reactor community. A high priority should be placed on correcting this.

NRC Response: The NRC notes this comment. The NRC staff also notes that this issue is a current consideration in this regulatory basis.

1.8 ANS-15.1

Regulatory Basis Excerpt: “This regulation does not significantly constrain or limit the license renewal process. However, in SECY-09-0095, Enclosure 2, the NRC staff suggested that ANS-15.1 provides a structure for non-power reactors to use to produce consistent technical specification submittals for license renewal. Although NUREG-1537, Part 1, Appendix 14.1 recommends that the format and content of the proposed Technical Specifications follow the recommendations of ANSI/ANS 15.1, license renewal applications do not consistently conform to the guidance in NUREG-1537.” (“Constraints and Limitations” column in table on pages 29 and 30 re: 10 CFR 50.36 and 50.40(a))

UFTR Comment on the Excerpt: ANS-15.1 needs significant improvement. Serious consideration should be given to a standardized format similar to the STSs (NUREG-1430_34) in use at power reactor facilities.

NRC Response: The NRC acknowledges this comment, but notes that it is beyond the scope of this rulemaking.

1.9 NUREG-1537

Regulatory Basis Excerpt: “While piloting the ISG review process, the NRC staff found that renewal applications often times did not include the level of detail recommended in the guidance. As a result, renewal applications had to be revised substantially relative to the original license application. This was a time consuming process for both licensees and the staff.” (“Constraints and Limitations” column in table on page 47 Re: NUREG-1537, Parts 1 and 2 (ML042430055 and ML042430048)).

UFTR Comment on the Excerpt: Like the ISG below, portions of NUREG-1537 guidance are not reflected in the regulation yet the guidance is treated as though it is, in fact, a requirement. This and the “reasonable assurance” criteria described earlier results in unnecessary burden, delays, and RAIs. The difficulty determining what is reasonable may be due in part to inadequate NPR safety-related systems training and infrequent on-site visits. This can be partially corrected by more frequent NPR site visits and inspection. Benchmarking the NRCs resident inspector program for applicability to the NPR side may provide useful insights as well.

NRC Response: The NRC staff disagrees with this comment. NUREG 1537 contains regulatory guidance, not regulatory requirements. The positions presented in NUREG-1537 and the ISG provide acceptable ways of meeting the requirements of 10 CFR. Licensees and applicants may propose and justify alternative ways of meeting the requirements.

Regulatory Basis Excerpt: “Option 2: No rulemaking for license renewal. Update NUREG-1537 to incorporate a streamlined license renewal process” (page 53, header for Option 2)

UFTR Comment on the Excerpt: As stated earlier, the current NUREG guidance, like the ISG, is not reflected in the regulation, and therefore this option will also result in unnecessary burden, delays, and RAIs. This could be corrected by streamlining NUREG-1537 to include *only* those items with a clear regulatory basis. Additionally, absent any change to the current regulations, the standard required to demonstrate “reasonable assurance” should be clearly defined and strongly related to the safety-significance (i.e. 50.2 definition of safety related, source term size, and SNM possession).

NRC Response: The intent of option 2 is to update NUREG-1537 to incorporate the streamlined license renewal review process presented by the ISG to reduce the unnecessary burden compared to the current process.

Regulatory Basis Excerpt: “Streamlined license renewal applications. This feature would extend the ISG concept to license renewal applications, thereby reducing the scope of the applications for non-power reactors with power levels less than 2 MW(t) to the most safety-significant sections of the SAR (i.e., reactor design and operation; accident analysis; technical specifications, and radiation protection). Under this extension, license renewal applications would have to include only these sections as well as any other sections of the SAR that have changed since initial licensing or the last renewal. In other words, licensees would not have to submit anything that the staff would not review.” (page 54, Description of Option 2)

UFTR Comment on the Excerpt: Section 7.3 of NUREG-1537 is out for comment and more changes are planned. Sections of the NUREG that change following a license renewal are very

likely to be included by NRC staff in their review to ensure these sections of the SAR have been updated as well. This only adds to the burden on the licensee.

NRC Response: The NRC staff acknowledges that updates are being made to NUREG-1537 under separate initiatives for very specific purposes. Such changes are beyond the scope of this regulatory basis. However, similar to other updates, the intent of any changes is to enhance existing guidance. For example, proposed changes to NUREG-1537, Chapter 7, Parts 1 and 2, are to incorporate advances in digital instrumentation and control. Any such changes will be subject to a public comment process.

1.10 10 CFR 50.59

Regulatory Basis Excerpt: “A rulemaking would allow the NRC staff to revise 10 CFR 50.59(b) so that the section would apply to non-power reactors who have removed fuel from their sites and thereby avoid the need for a license condition.” (page 17, Regulatory Constraint #4)

UFTR Comment on the Excerpt: Without benefit of further details on the magnitude of this problem, it is difficult to imagine how the burden created by this workaround rises to a level warranting revision of 10 CFR 50.59. Similar but different than this scenario, is one that involves licensees who have reduced their SNM possession to the point that it no longer requires a Security Plan by regulation. But, unfortunately, they still have a license condition that imposes implementation of a Security Plan. Licensees in this situation are likely more plentiful than those that have been permanently shutdown. This scenario creates a great deal of confusion and burden and should probably be prioritized much higher than a minor revision of 10 CFR 50.59.

NRC Response: The NRC staff will consider this comment in making a decision as to whether to pursue rulemaking to address 10 CFR 50.59.

Regulatory Basis Excerpt: “Currently, Section 50.59 requires licensees to respond to a series of risk-based questions pertaining to changes, tests, and experiments. However, the NRC staff should consider adding a subsection in Section 50.59 applicable to non-power reactors that includes a more prescriptive set of requirements for the written evaluations performed under Section 50.59.” (page 65, Description of Option 4)

UFTR Comment on the Excerpt: These statements seem intended to imply that NPR licensees are not equipped to adequately answer 50.59 questions without benefit of a PRA. Objective evidence of this should be provided if that is the authors intent. An abundance of NRC endorsed guidance exists regarding the implementation of the 50.59 rule. This rule is well tested and well understood.

NRC Response: This statement is not meant to imply the NPR licensees are not equipped to answer 10 CFR 50.59 questions without benefit of a Probabilistic Risk Assessment (PRA). However, the majority of the guidance developed for the revision of 10 CFR 50.59 was directed at power reactors. The NRC staff intends to consider if specific regulations are warranted for NPRs.

Regulatory Basis Excerpt: “Another area that needs further consideration by the NRC staff relates to licensee submittals under Section 50.59.” (page 69, Description of Option 5)

UFTR Comment on the Excerpt: Please provide a basis and context for this statement. How are NPR 50.59 submittals related to the context of this section of the document?

NRC Response: The majority of the guidance developed for the revision of 10 CFR 50.59 was directed at power reactors. The NRC staff intends to consider if specific regulations are warranted for NPRs.

Regulatory Basis Excerpt: “Another area that needs further consideration by the NRC staff relates to licensee submittals under Section 50.59. Currently, Section 50.59 requires licensees to respond to a series of risk-based questions pertaining to changes, tests, and experiments. However, the NRC staff should consider adding a subsection in Section 50.59 applicable to non-power reactors that includes a more prescriptive set of requirements for the written evaluations performed under Section 50.59.” (page 69, Description of Option 5)

UFTR Comment on the Excerpt: These statements should be supported with objective evidence if they are going to be used as a basis for rulemaking. Please provide objective evidence that this rule needs revision as it relates to written evaluations performed by NPR licensees.

NRC Response: The majority of the guidance developed for the revision of 10 CFR 50.59 was directed at power reactors. The NRC staff intends to consider if specific regulations are warranted for NPRs

1.11 Security

Regulatory Basis Excerpt: “However, applicability is determined based on SNM possession quantities (per 10 CFR 73.60). This regulatory structure could be clarified.” (“Constraints and Limitations” column in table on page 33 re: 10 CFR 50.54(p))

UFTR Comment on the Excerpt: Facilities who have downgraded from HEU to LEU may find the regulatory bases of their security plans are no longer clear nor accurate. NUREG-1537 should be clarified to prevent this by ensuring an evaluation of the security basis is performed as part of any threshold change in SNM possession and that a downgrade to security procedures is pursued if appropriate. Reference NRC event report 47979.

NRC Response: The NRC staff acknowledges this comment. Licensees who make the determination that they no longer need to be licensed to possess certain quantities of special nuclear material (SNM) should apply for commensurate changes in their security programs. However, changes to security requirements are beyond the scope of this rulemaking.

1.12 Incorporation of Lessons Learned

Regulatory Basis Excerpt: “Under this option, the NRC staff would continue with the existing license renewal process as described in current regulations and guidance, including the ISG and NUREG-1537. The staff would not pursue any changes to the current process and would not incorporate any lessons learned from piloting the ISG.” (page 52, Description of Option 1)

UFTR Comment on the Excerpt: Lessons learned should be incorporated regardless of option eventually chosen. Perhaps in the PM Handbook in the case of option 1.

NRC Response: The NRC staff notes that Option 1 is the “no action” alternative; thus the NRC staff would not pursue changes to the current process or incorporate lessons learned. Option 1 was created to provide a base point.

1.13 Notification to NRC

Regulatory Basis Excerpt: “According to Section 50.54(p), nonpower reactors may not make changes that decrease the effectiveness of security plans without prior NRC approval. They may make changes to their plans without NRC approval as long as the changes do not decrease the effectiveness of the plans. Licensees must notify the NRC within 30 days of changes to plans that do not require prior NRC approval.” (“Constraints and Limitations” column in table on page 33 re: 10 CFR 50.54(p))

UFTR Comment on the Excerpt: 2 months.

NRC Response: The NRC agrees that the wording of the draft regulatory basis does not accurately capture the wording of 10 CFR 50.54(p). The final regulatory basis has been revised to state that licensees must notify the NRC within “*2 months*” of changes to plans that do not require prior NRC approval.

1.14 Aging Related Issues

Regulatory Basis Excerpt: “Lack of Sufficient Detail on Relevant Aging Related Topics. A number of aging related issues need to be more clearly addressed in license renewal applications.” (page 8)

UFTR Comment on the Excerpt: SSCs that are important to safety have LCOs and other administrative limits in place designed to ensure they can perform their safety functions when needed. Requiring a RTR to address aging of SSCs, like a power reactor facility, should only be done on a case-by-case basis and only if there is a well-defined and well documented safety concern that could not be readily identified from normal LCO surveillance activities.

NRC Response: Although addressed in NUREG-1537, many of the known aging related topics were not addressed by license renewal applications. This resulted in specific RAIs from the NRC staff to address these aging-related issues.

1.15 Recordkeeping and Reporting

Regulatory Basis Excerpt: “In addition, if the NRC limits the scope of license renewal applications, the appropriateness of additional recordkeeping or reporting requirements to provide assurance that the facility’s licensing basis remains intact would need to be considered.” (page 12)

UFTR Comment on the Excerpt: Additional inspection (see Option 5) can also be used to provide this assurance.

NRC Response: The NRC staff agrees that additional inspection may provide additional assurance that the facility’s licensing basis remains intact.

1.16 Editorial Comments

Regulatory Basis Excerpt: “The ~~technical~~ basis for the applicability of this requirement to testing facilities should be confirmed.” (“Constraints and Limitations” column in table on page 40, 42, 43 re: 10 CFR 50.71(b), Appendix C to Part 50, 51.20(b)(2), 51.21)

Comment on the Excerpt: Strike the word “technical” prior to “basis.”

NRC Response: The NRC agrees with this comment and will revise the final regulatory basis by removing the word “technical” prior to “basis” in these instances.

1.17 Support for Option 5

Regulatory Basis Excerpt: “Option 5: Eliminate license terms (and license renewals) and mandate an enhanced NRC inspection program” (page 68, header for Option 5)

UFTR Comment on the Excerpt: UFTR agrees that Option 5, if revised and implemented carefully, is the option most likely to produce a more streamlined license renewal process.

NRC Response: The NRC staff acknowledges this comment.

2 NIST Comment

2.1 Regulatory Burden

NIST Comment: The authors comment frequently in the document that changing the current license renewal process for NPR will save the licensees and the NRC a great deal of time and money when the currently licensed facilities renew their operating licenses in approximately 20 years. The majority of the NPRs recently relicensed or currently in relicensing are now in their fifth decade of operation. It stands to reason that some, if not many, of these facilities might not relicense for an additional 20 years when their current licenses expire. If this were the case, changing regulations to require periodic updates to the FSAR, periodic safety reviews, or more frequent inspections would represent a significant increase in regulatory burden (and NRC staff resources) over the remaining license without an increase in public safety.

NRC Response: The NRC staff disagrees with this comment. It is not within the NRC’s purview to predict which licensees will renew their licenses and which licensees will choose not to renew. Additionally, it is not practicable for some NPR licensees to be held to a different licensing standard based on a prediction of what will happen to the facility years in the future.

2.2 Proposal for Option 11

NIST Comment: The NRC should consider an Option Eleven that allows a facility to continue to operate within the existing NPR licensing regulations (i.e. No Action) based on an early decision to shutdown and decommission after the third licensed period (approximately 60 years). The NRC might require an immediate facility shutdown as a license condition if the facility management were to decide at a later date not to decommission the facility. The facility would be expected to remain shutdown until brought back into compliance with full submission of all updated documents.

NRC Response: The NRC staff disagrees with this comment. It is not within the NRC’s purview to predict which licensees will renew their licenses and which licensees will choose not

to renew. Additionally, it is not reasonable for some NPR licensees to be held to a different licensing standard based on a prediction of what will happen to the facility years in the future.

2.3 Support for Option 5

NIST Comment: For a well-maintained facility intending to operate longer than three 20 year licensing periods, Option 5 appears to have the most promise because it is a continuous licensing process rather than infrequent, high effort licensing activities.

NRC Response: The NRC staff acknowledges this comment.

NIST Comment: Elimination of license renewals while requiring periodic FSAR updates is an appropriate method to spread the burden of license maintenance over many years. The concern for maintaining an up-to-date FSAR but still requiring license renewal is that the facility may still have a significant number of RAIs during renewal, perhaps on material previously reviewed by the NRC. The NRC staff acknowledges this fact several times in the referenced document. **There is absolutely no guarantee that maintaining an FSAR and licensing documents over a 20 year (for example) license will eliminate or significantly reduce the number of RAIs produced by NRC staff or contractors. Thus the administrative burden on the small research and test reactor staffs over a decade or more might not produce the savings expected during license renewal.**

NRC Response: The NRC staff acknowledges this comment, but notes that under Option 5 there would be no license renewal. Additionally, any RAIs generated would be specific to maintaining the FSAR in a state that reflects the current and continuing licensing basis and would only be issued if there were questions pertaining to required updates.

2.4 Periodicity and Scope of PSRs and/or Inspection

NIST Comment: Periodic Safety Reviews (PSR) (Option 4) are risky to the licensees because they will not be well defined until a guidance document is created. A PSR evaluation that assesses "new technical developments and new siting aspects" during a review would make regulatory compliance a moving target for the licensee and lack long-term consistency. The current non-power reactor inspection program and procedures have been successful and tested over many decades.

NRC Response: The NRC staff acknowledges this comment. The NRC staff, as informed by interaction with interested stakeholders, will determine the specific details of how PSRs will be addressed, if considered, during the proposed rule period.

2.5 Clarification of Definitions

NIST Comment: The NRC staff should revise or clarify the definitions of "non-power reactor" and "testing facility." Testing facility implies some manner of materials or fuels testing activity where there is higher probability of test or experiment failure increasing the potential public risk. The 10 MW(th) power level for a testing facility is as arbitrary a defining power level as 2 MW(th) which is used frequently by NRC staff as a measure of non-power reactor risk. The 10 MW(th) seems to have come from a document referenced in 10 CFR 100.11, Technical Information Document 14844. In this document, the authors modeled fission product release from several non-power "testing facilities" with power levels ranging from 48 to 60 MW(th) but the data

included power reactors up to 630 MW(th). When the authors plotted the results of their calculations they used semilog graph paper with 10 MW(th) as the lowest point on the y-axis. Therefore, the arbitrary defining power level for "testing facilities" of 10 MW(th) was not selected based on a risk analysis but because it was the lowest point plotted on a graph in 1962.

As discussed in the Regulatory Basis Document, the NRC staff should clarify definitions but also examine the basis of those definitions. In this regard it would make it much easier to define non-power specific regulations if all applicable non-power regulations were consolidated into one chapter as suggested in Option 10 (Section 5.5).

NRC Response: The NRC staff acknowledges the comment and notes that this would be considered under Option 8 if the Commission so directs the staff.