



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

August 29, 2014

COMMISSION VOTING RECORD

DECISION ITEM: SECY-14-0016

TITLE: ONGOING STAFF ACTIVITIES TO ASSESS REGULATORY  
CONSIDERATIONS FOR POWER REACTOR  
SUBSEQUENT LICENSE RENEWAL

The Commission acted on the subject paper as recorded in the Staff Requirements Memorandum (SRM) of August 29, 2014.

This Record contains a summary of voting on this matter together with the individual vote sheets, views and comments of the Commission.

Annette L. Vietti-Cook  
Secretary of the Commission

Attachments:

1. Voting Summary
2. Commissioner Vote Sheets

cc: Chairman Macfarlane  
Commissioner Svinicki  
Commissioner Magwood  
Commissioner Ostendorff  
OGC  
EDO

VOTING SUMMARY - SECY-14-0016

RECORDED VOTES

	APRVD	DISAPRVD	ABSTAIN	NOT PARTICIP	COMMENTS	DATE
CHRM. MACFARLANE	X		X			7/30/14
COMR. SVINICKI			X			7/21/14
COMR. MAGWOOD	X		X			6/20/14
COMR. OSTENDORFF			X			7/2/14

NOTATION VOTE

RESPONSE SHEET

TO: Annette Vietti-Cook, Secretary  
FROM: Chairman Allison M. Macfarlane  
SUBJECT: SECY-14-0016 – ONGOING STAFF ACTIVITIES TO  
ASSESS REGULATORY CONSIDERATIONS FOR  
POWER REACTOR SUBSEQUENT LICENSE  
RENEWAL

Approved  X  Disapproved  X  Abstain

Not Participating

COMMENTS: Below   Attached  X  None

  
SIGNATURE

7/30/14   
DATE

Entered on "STARS" Yes  X  No

## **Chairman Macfarlane's Comments on SECY 14-0016, "Ongoing Staff Activities to Assess Regulatory Considerations for Power Reactor Subsequent License Renewal"**

The issue of what is termed "subsequent license renewal," renewing the operating life of nuclear power reactors from 60 to 80 years, beyond the period of extended life from 40 to 60 years, is what is at issue here. The fundamental question surrounding the issue of subsequent license renewal is whether going from 60 to 80 years of operating life for a nuclear power plant presents unique concerns to which the regulator should attend. At present, important research has not been completed and we do not have operating experience beyond 60 years to make a reasoned judgment on whether license extension beyond 60 years is appropriate. The question is how to identify and resolve these technical issues. The options presented in SECY-14-0016 do not address the outstanding technical concerns.

### **Technical Issues with Subsequent License Renewal**

What is the life expectancy of a reactor? Any engineered structure has an ultimate limit on its effective lifetime. We don't presently understand what the limits are and the current regulations do not specify the number of times a license can be renewed. I am confident that the plants that have been granted renewed licenses are safe but do not believe we know enough now from a technical standpoint to state how much beyond 60 years a plant can safely operate. Because of the lack of operating experience beyond 60 years and incomplete research on significant attendant technical issues, we do not know enough to identify when a plant approaches this as-yet undetermined point. Therefore, I believe we must think critically about these issues, make sure we are asking the right questions, and proceed with caution. We need to remain vigilant as new information and insights emerge and consider the new information in all our regulatory activities. Requiring a licensee to do more to obtain subsequent license renewal than was required for the first license renewal period may be necessary to ensure safety.

There are also a number of known technical aging issues that must be resolved before reactors are allowed license extensions beyond 60 years of operating life. The outstanding questions involve issues such as the remaining life of major passive components including the reactor vessel and electrical cables as discussed in SECY-14-0016. The staff and external participants briefed the Commission on the significant efforts underway to better understand reactor pressure vessel embrittlement, irradiation assisted stress corrosion cracking of reactor internals, concrete structures and containment degradation, and electrical cable qualification and condition assessment.

The current license renewal process has been effectively and efficiently implemented and I thank the staff for actively anticipating changes that are needed to support license renewal for 60 to 80 years of plant operation. However, the staff's options for subsequent license renewal address relatively limited aspects of the license renewal regulations without addressing the major issues at-hand.

### **Review of Staff Options**

I approve the staff's proposal for rulemaking in part, but I do not approve Option 4 as proposed in SECY 14-0016. Although this option is preferred by the staff, it appears that many of the

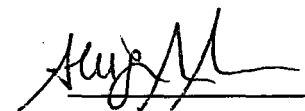
actions proposed in Option 4 can be accomplished through other methods, such as regulatory guidance changes, generic communications and industry initiatives. The staff should also use alternative methods to accomplish the activities discussed in Options 2 and 3 in SECY 14-0016.

For the activities specifically proposed in Option 4, I approve the staff's proposal for rulemaking on the timing of subsequent license renewal (SLR) but do not approve rulemaking regarding the effectiveness of Aging Management Programs (AMPs). The staff proposed limiting the time during which a subsequent license renewal application can be filed. The new limit would ensure adequate experience with the new AMPs. I agree with the staff that it is appropriate to reduce the time when an applicant can submit an application to ensure that enough operating experience has been generated. It is important for the NRC to have plant-specific operating experience from the initial period of extended operation to gauge an individual plant's readiness for subsequent license renewal when reviewing any potential SLR application. With regard to ensuring the effectiveness of aging management programs, rather than rulemaking to require submittal of a licensee assessment and changes to existing reporting requirements, the staff should improve and expand the existing operating experience program and the inspection program as necessary to ensure the NRC staff can appropriately assess the effectiveness of aging management programs. These improved programs, when developed, should be used for oversight of operating reactors that are in the period of extended operation (>40 years). The effectiveness of aging management is not necessarily unique to SLR but as plants age it becomes increasingly important to have confidence in these programs. The staff should inform the Commission of the changes made when they are completed.

#### **Need for Further Commission Involvement**

Although I do not approve much of the staff's proposal, I believe that additional rulemaking or other regulatory framework changes may be necessary as more information becomes available on the remaining technical questions. Since it appears that industry may submit an application for SLR as early as 2017, the staff should submit an information paper to the Commission by the end of 2015 on the progress in resolving the outstanding technical issues related to SLR.

I believe careful consideration of the technical issues is essential for license renewals beyond 60 years of operation. When the staff submits the information paper to the Commission on progress in resolving the technical issues, the staff should also describe the staff's readiness for accepting an application and should discuss any further need for regulatory process changes, rulemaking, or research. The staff should continue to emphasize in communications with industry the need for satisfactory resolution of these issues prior to the NRC beginning a review of any SLR application.

 7/30/14

Allison M. Macfarlane Date

NOTATION VOTE

RESPONSE SHEET

TO: Annette Vietti-Cook, Secretary  
FROM: COMMISSIONER SVINICKI  
SUBJECT: SECY-14-0016 – ONGOING STAFF ACTIVITIES TO ASSESS REGULATORY CONSIDERATIONS FOR POWER REACTOR SUBSEQUENT LICENSE RENEWAL

Approved \_\_\_\_\_ Disapproved XX Abstain \_\_\_\_\_

Not Participating \_\_\_\_\_

COMMENTS: Below \_\_\_ Attached XX None \_\_\_

  
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Entered on "STARS" Yes  No \_\_\_\_\_

**Commissioner Svinicki's Comments on SECY-14-0016  
Ongoing Staff Activities to Assess Regulatory Considerations for Power Reactor  
Subsequent License Renewal**

I disapprove the staff's recommended option and instead approve the staff's Option 1, as contained in the SECY paper. As the staff notes, "the license renewal process and regulations are sound and can support subsequent license renewal." The Advisory Committee on Reactor Safeguards reached the same conclusion in its letter report to the Commission, dated May 22, 2014. I agree and conclude that the NRC's current regulatory framework is adequate to ensure safe operation of operating reactors on an ongoing basis, i.e., during the initial and any subsequent NRC-approved periods of licensed operation.

In 1991, the NRC published safety requirements for license renewal, codified in its regulations as 10 CFR Part 54. The NRC then undertook a demonstration program to apply the rule to pilot plants and develop experience to establish guidance for implementing the renewal program. To establish a scope of review, the rule defined age-related degradation unique to license renewal. However, during the demonstration program, the NRC found that many aging effects are dealt with adequately during the initial license period. In addition, the NRC found that the rule did not allow sufficient credit for existing programs, particularly those under the NRC's maintenance rule, which also addresses plant aging phenomena.

Consequently, as a result of what was learned from the pilots, the NRC amended the license renewal rule in 1995 into the program we have today, which is rooted firmly in the following two principles:

- 1) The current regulatory process is adequate to ensure that the licensing basis of all operating plants provides and maintains an acceptable level of safety; and,
- 2) Each plant's licensing basis is required to be maintained during the renewal term in the same manner and to the same extent as during the original licensing term.

Under this framework, the NRC has issued renewed licenses for a majority of the current fleet of operating reactors in the United States and a number of plants have now entered, and are operating in, their period of extended operations.

License renewals, both beyond 40 years and possible subsequent renewals, are long-term propositions and the NRC and the industry have demonstrated an effective process for nuclear power plant license renewal. When the Commission amended the license renewal rule in 1995, it stated the following:

The final rule's "systematic aging management requirement . . . is warranted by the importance of equipment aging as the key safety issue in nuclear plant life extension and license renewal and is well justified on a cost-benefit basis . . . . In addition, the Commission's continuing regulatory oversight ensures that a plant's [current licensing basis] will evolve as a result of ongoing regulatory initiatives and required backfits during the term of operation to incorporate new safety requirements, thereby continuing to ensure that an acceptable level of safety would exist at any time during operation under a renewed license. . . . The required operation of the plant within the [current licensing basis] and the Commission's continued regulatory oversight, together with the management of age-related degradation unique to license renewal, provide reasonable assurance that operation of a nuclear power plant during the period of extended

operation will not be inimical to the public health and safety or common defense and security.”

In addition, the Commission looked to the future and included a provision in Part 54 that allows a renewed license to be further renewed under the same regulatory structure upon expiration of the initial renewal term. The Commission noted explicitly that if “experience with renewals discloses a previously unknown aging or other time-dependent issue, appropriate regulatory action, including modifying the requirements for obtaining subsequent renewals, can be implemented.”

In establishing the license renewal framework, the Commission’s consideration of issues was comprehensive. Our charge, in the present day, is to consider – with the vast experience of license renewal in the intervening years – whether there is a practical difference in aging management between the first and any subsequent periods of license renewal that may occur. In light of this, our continued collection and examination of operating experience and the conduct of research into aging effects during extended operation beyond 60 years are clearly appropriate. This, too, is not a new concept. In establishing the existing license renewal framework, the Commission in 1995 stated that it “does not agree that it is adequate to wait to address aging concerns when they become apparent in plant operations. Analysis of risk due to aging indicates that core damage frequency can increase to relatively high levels before failures occur, so corrective action after a failure does not adequately control risk.” Consistent with this, NRC, U.S. Department of Energy, and industry collection and examination of operating experience, and its use to inform research plans, is ongoing and must continue.

The NRC has long been at the forefront of performance-based regulation, which we define as a regulatory approach that focuses on desired, measurable outcomes, rather than prescriptive processes, techniques, or procedures. Performance-based regulation leads to defined results without specific direction regarding how those results are to be obtained. As the NRC approaches and readies itself for applications for subsequent license renewal, we must ensure that we will continue to realize the strengths of a performance-based system. NRC should also continually demonstrate its core value as a “continuous learning” organization. In this way, our regulatory framework will best be informed by our extensive experience with the mature program we have today, will be rooted in fact-based observation, and will continue to conform appropriately to our regulatory principles.



Kristine L. Svinicki 7/21/2014



**NOTATION VOTE**


**RESPONSE SHEET**

TO: Annette Vietti-Cook, Secretary  
FROM: COMMISSIONER MAGWOOD  
SUBJECT: SECY-14-0016 – ONGOING STAFF ACTIVITIES TO ASSESS REGULATORY CONSIDERATIONS FOR POWER REACTOR SUBSEQUENT LICENSE RENEWAL

Approved  Disapproved  Abstain

Not Participating

COMMENTS: Below  Attached  None

  
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20 June 2014  
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Entered on "STARS" Yes  No

**Commissioner Magwood's Comments on SECY-14-0016,  
"Ongoing Staff Activities To Assess Regulatory  
Considerations For Power Reactor Subsequent License Renewal"**

The current license renewal process has a sound foundation of well-tested regulations that have guided successfully the renewal of operating licenses for 73 currently operating reactors. While we have learned important lessons over time and enhancements to our processes are appropriate, the current framework was always intended to support the issuance of subsequent license renewals for currently operating plants. As the staff noted in SECY-14-0016, it is not necessary to change the regulations to proceed with the consideration of subsequent license renewals. The Advisory Committee on Reactor Safeguards (ACRS) concurred with this view and recommended in its letter dated May 22, 2014 that no change be made in the regulations. I agree with this approach and support Option 1 in Secy-14-0016.

However, as noted above, there are enhancements to the license renewal process that should be considered. Following a Commission Briefing on May 8, 2014, NRC staff presented a proposal to apply a variety of "alternative vehicles" in order to effect the modifications staff has considered under Options 2, 3, and 4 in SECY-14-0016. These alternative vehicles consisted of the issuance of generic communications, voluntary industry initiatives, or updates to NUREG-1801, "Generic Aging Lessons Learned (GALL) Report," to improve the regulatory framework.

In this context, I support the use of staff's suggested "alternative vehicles" to capture the improvements to the regulatory framework presented in SECY-14-0016 for Options 2 and 3.

Regarding Option 4, I support an effort by the staff to explore with stakeholders the concept of aging management programs self-assessments and consideration of whether the timing of subsequent license renewal applications should be modified. Staff should engage stakeholders in an open and transparent manner and provide its recommendation to the Commission within one year of the Staff Requirements Memorandum.

I note that while the process for considering subsequent license renewals should go largely unchanged, there remain several significant technical issues that remain unresolved regarding the operation of reactors beyond 60 years. These issues include: neutron embrittlement of the reactor pressure vessel at high fluence; stress corrosion cracking of primary system components; concrete and containment performance after long-term exposure to radiation and high temperatures; and environmental qualification, performance, and testing of electrical components, cables, and systems. It is only when these issues are satisfactorily resolved that the NRC will have the technical basis to authorize the extension of a nuclear plant license extension beyond 60 years. Staff should keep the Commission regularly informed on the progress in resolving these technical issues.


Finally, SECY-14-0016 included an enclosure of a non-concurrence written because the paper sent to the Commission failed to provide an option that requires applicants for subsequent license renewal to include an upgraded probabilistic risk assessment in the renewal application. I appreciate this initiative and applaud the open and collaborative values of the NRC that make such an intervention possible. That said, I question why the suggested option was not included for Commission consideration in the staff's paper in the first place.

In any event, I concur with the conclusion in the SECY and the view expressed by the ACRS that a requirement for a probabilistic risk assessment is not uniquely relevant to operation beyond 60 years. However, as suggested in additional comments provided by ACRS Chairman John Stetkar and five additional members as an attachment to the May 22, 2014, letter, the Commission could consider this matter on a generic basis. As Dr. Stetkar noted:

*In 2045, the Commission policy statement on PRA will mark its 50-year anniversary. The first new reactors licensed under 10 CFR Part 52 will be past the mid-point of their first 40 years of operation. Other new reactors may have been licensed under 10 CFR Part 50. Some currently operating reactors may be in their period of extended operation beyond 60 years. By that time in our long history of nuclear power operation, it is incongruous that licensees and regulators would not benefit from consistent use of the risk information afforded by full-scope plant-specific PRAs for the entire fleet of operating reactors.*

I would also highlight that the 1995 Commission Policy Statement, "Use of Probabilistic Risk Assessment Methods in Nuclear Regulatory Activities," and the NRC Strategic Plan both note that the expanded use of risk-informed and performance-based insights and the use of state-of-the-art technologies are the means by which the agency enhances the effectiveness and realism of NRC actions.

The benefits of having a site-specific, probabilistic risk assessment may prove difficult to measure. In that way, they are much like the benefits of a 10 CFR 50, Appendix B, quality assurance and corrective action program. If these programs were to be considered today, their benefits would, likewise, prove difficult to quantify. However, the countless safety benefits of these programs have proven ubiquitous over the years.



William D. Magwood, IV

6/20/14

Date

NOTATION VOTE

RESPONSE SHEET

TO: Annette Vietti-Cook, Secretary  
FROM: COMMISSIONER OSTENDORFF  
SUBJECT: SECY-14-0016 – ONGOING STAFF ACTIVITIES TO ASSESS REGULATORY CONSIDERATIONS FOR POWER REACTOR SUBSEQUENT LICENSE RENEWAL

Approved \_\_\_\_\_ Disapproved XX Abstain \_\_\_\_\_

Not Participating \_\_\_\_\_

COMMENTS: Below \_\_\_\_\_ Attached XX None \_\_\_\_\_

1/10/14 Ostendorff  
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7/2/14  
DATE

Entered on "STARS" Yes X No \_\_\_\_\_

**Commissioner Ostendorff's Comments on SECY-14-0016,  
"Ongoing Staff Activities to Assess Regulatory Considerations for Power Reactor  
Subsequent License Renewal"**

## **I. INTRODUCTION**

Subsequent license renewal is a topic of significant stakeholder and Commission interest. I applaud the staff's efforts in providing SECY-14-0016 to the Commission at this time, both to inform the Commission of ongoing staff initiatives in this area and to allow the Commission to weigh in on the significant policy issue of what changes, if any, are needed to support subsequent license renewal. In my deliberations on this matter, I did not look at subsequent renewal in isolation. Rather, I took a broader integrated view of subsequent license renewal in the context of the current regulatory framework for license renewal and other NRC requirements and programs that ensure the safety of operating plants. I also reflected on the NRC's experience in implementing the license renewal framework in the 16 years since the first application for license renewal was submitted in 1998. I strongly agree with the staff's conclusion that the principles of license renewal established in 1991 and reaffirmed in 1995, continue to be sound today. After a thorough review of the entire regulatory framework for operating reactors, I have concluded that there is currently no need for rulemaking to ensure the adequacy of the license renewal framework. The regulatory framework contained in 10 CFR Part 54, along with the NRC's comprehensive licensing and oversight programs, provide a robust basis for ensuring safety in the event that the NRC grants subsequent license renewals. Therefore, I am voting for Option 1 – no change to the existing 10 CFR Part 54 regulations.

In adherence to the NRC's Principle of Good Regulation of "Openness," I have an obligation as a Commissioner to explain to the public and other stakeholders the basis of my decisions. Therefore, I have provided a discussion below of the regulatory basis for license renewal in the context of the current comprehensive licensing and oversight program for operating reactors that informed my deliberations on this matter.

## **II. BACKGROUND**

### **A. NRC Regulatory Framework Applicable to License Renewal**

In the 1991 rulemaking for 10 CFR Part 54, "Requirements for Renewal of Operating Licenses for Nuclear Power Plants," the NRC established the following principles of license renewal: (1) the regulatory process, continued into the period of extended operation, is adequate to ensure that the current licensing basis of all currently operating plants provides an acceptable level of safety, with the possible exception of the detrimental effects of aging on certain systems, structures, and components, and (2) each plant's current licensing basis is required to be maintained during the renewal term. These principles were reaffirmed by the Commission in 1995.

Consistent with these principles, the focus of license renewal is on issues that are uniquely relevant to public health and safety during the period of extended operation. Specifically, the license-renewal-review scope covers the aging management of "long-lived" (i.e., not subject to replacement based on qualified life or specified time period) passive structures and components that are safety-related or perform other important safety functions as specified in 10 CFR 54.4. As part of the license-renewal review, the staff evaluates: (1) the applicant's Integrated Plant Assessment, which identifies and lists the structures and components subject to an aging management review; (2) the applicant's evaluation of Time Limited Aging Analyses (TLAAs),

which are calculations or analyses that consider the effects of aging and must show that the aging effects encompassed by the TLAAAs will be managed; and (3) the applicant's proposed aging management programs to monitor these structures and components.

The license renewal framework overlies the NRC's oversight and licensing programs that are applied to all operating plants. License renewal is only a part of a holistic program that ensures the safe operation of all operating plants, regardless of plant age. The NRC's regulatory program has several components including: (1) the Reactor Oversight process, under which the NRC inspects, measures, and assesses the safety and security performance of operating plants, and responds to any decline in their performance; (2) evaluation of operating experience and research results on an ongoing basis to inform the development of new regulatory guidance and requirements when necessary for adequate protection of public health and safety or when justified as cost-beneficial safety enhancements; and (3) regulatory requirements. Some of the key regulatory requirements that ensure that plants are being safely operated and maintained include 10 CFR 50.65, "Requirements for monitoring the effectiveness of maintenance at nuclear power plants," 10 CFR 50.55(a), "Codes and Standards," which specifies requirements for inservice inspection and inservice testing, and 10 CFR 50.36, "Technical Specifications," which requires that each license contain technical specifications that govern the plant's operation.

The license renewal framework, in conjunction with the NRC's robust licensing and oversight programs, provides me with confidence that operating plants are being operated safely. This includes plants that have entered a period of extended operation.

## **B. License Renewal Guidance**

The staff has developed comprehensive guidance for the format and content of license renewal applications and for the staff's review of such applications. The staff has successfully implemented this guidance to complete 73 reactor operating license renewals and is currently reviewing an additional 18 license renewal applications. A key part of the guidance is NUREG-1801, the Generic Aging Lessons Learned (GALL) Report. The GALL report is a systematic compilation of plant aging information that provides the technical basis for determining where existing programs, such as the required inservice inspections, are adequate without modification and where existing programs should be augmented for the period of extended operation. The evaluation results documented in the GALL Report indicate that most of the existing programs are adequate to manage the aging effects for structures or components for license renewal without change. The GALL Report also contains recommendations on specific areas for which existing programs should be augmented for license renewal. The GALL report was most recently updated in 2010 to reflect not only domestic, but also international operating experience and lessons learned.

The GALL Report forms the foundation of the staff's review guidance in NUREG-1800, the Standard Review Plan for Review of License Renewal Applications for Nuclear Power Plants. In conducting its review of license renewal applications, the staff ensures that the material presented in the GALL Report is applicable to the specific plant and that the applicant has identified plant-specific aging management programs, as required. The licensee is required to submit a supplement to its final safety analysis report (FSAR) which includes all of the aging management programs that are required for license renewal. In addition, a license condition is imposed to ensure that the FSAR is updated with the required aging management programs to ensure that the licensee fulfills any commitments relied upon in support of the issuance of the

license. The updated FSAR and the license conditions thus become part of the licensing basis and, as a result, are subject to NRC oversight and enforcement.

Below are two examples from the GALL report where the NRC determined that existing programs needed to be enhanced to support license renewal:

- Equipment Qualification: 10 CFR 50.49, "Environmental qualification of electric equipment important to safety for nuclear power plants," requires that licensees establish a program for qualifying electric equipment that is safety related or important to safety to withstand environmental conditions such as temperature, pressure, humidity, radiation to which it is exposed. The qualification also considers the effects of aging. The equipment must be replaced or refurbished at the end of its designated life unless ongoing qualification demonstrates that the item has additional life. Therefore, for license renewal, the GALL specifies that equipment qualification is a TLAA to be evaluated for the period of extended operation.
- Reactor vessel, welds, and internals: Neutron irradiation embrittlement is a TLAA to be evaluated for the period of extended operation for all ferritic materials that have a neutron fluence greater than  $1E17$  n/cm<sup>2</sup> ( $E > 1$  MeV) at the end of the period of extended operation. This evaluation will determine the need for inservice inspection of circumferential welds and the analyses performed in accordance with the Fracture Toughness Requirements contained in 10 CFR Part 50, Appendix G.

These examples demonstrate how the renewal framework is implemented to ensure that the impacts of aging on important structures and components are assessed and managed to ensure safe operation in the period of extended operation.

### **C. Subsequent License Renewal Technical Issues**

Open technical issues associated with subsequent license renewal remain unresolved. The next revision of the GALL Report will incorporate lessons learned from the 20 units that have already entered the period of extended operation and will also reflect aging issues specific to subsequent renewal. Specifically, issues to be addressed include reactor-pressure-vessel embrittlement; irradiation-assisted-stress-corrosion cracking of reactor internals, concrete structures and containment degradation, and electrical cable qualification and condition assessment. These issues have been identified by a comprehensive review of existing aging management programs to identify any gaps in knowledge or monitoring techniques that may impact aging from 60 to 80 years. The staff and industry have both embarked on extensive research programs to evaluate and address these gaps to inform aging management programs for subsequent renewal. I applaud the efforts of the staff and industry to identify and resolve these issues. I agree with Commissioner Magwood that it is only when these issues are satisfactorily resolved that the NRC will have the technical basis to authorize the extension of a nuclear plant license extension beyond 60 years, and I agree that the staff should keep the Commission regularly informed of the progress in resolving these technical issues.

### **III. ANALYSIS OF STAFF RECOMMENDATION**

The staff, in recommending Option 4, has proposed a rulemaking to update certain areas of the license renewal framework. I strongly support adherence to the Principles of Good Regulation. The Principle of Reliability states that "Once established, regulation should be perceived to be

reliable and not unjustifiably in a state of transition." In this case, I see no basis to initiate rulemaking to support subsequent renewal. No safety concerns have been identified and no evidence has been provided that aging management programs are not being effectively implemented. The license renewal process has been carried out effectively to date and I see nothing that would preclude the same framework from being implemented effectively for subsequent renewal. Therefore, I disapprove the staff's recommendation to initiate rulemaking.

The staff has the authority to develop new guidance and to revise guidance, as needed, including license for renewal, to enhance regulatory efficiency and effectiveness and to address new technical issues. The staff has taken such steps in many instances including the issuance of Regulatory Issue Summary (RIS) 2007-16, Revision 1, "Implementation of the Requirements of 10 CFR 54.37(b) for Holders of Renewed Licenses," to clarify the intent of 10 CFR 54.37(b), as discussed in the SECY paper. The staff has also issued several License Renewal Interim Staff Guidance documents. The staff developed the Interim Staff Guidance process specifically to capture and communicate new insights and lessons learned between updates of the GALL Report and the Standard Review Plan. The interim guidance is later incorporated into formal revisions of license renewal guidance documents. The staff should continue to update license renewal guidance, as needed, to provide additional clarity on the implementation of the license renewal framework and to address emerging technical issues and operating experience. Therefore, I agree with Commissioner Magwood that the staff should use "alternative vehicles" to capture the improvements to the regulatory framework presented in SECY-14-0016 for Options 2 and 3.

I particularly appreciate the ACRS's timely review and advice on this matter. The Commission specifically sought the ACRS's views given the regulatory significance of license renewal. I echo the ACRS's perspective that:

The current process for license renewal is used-and-useful and is well understood by both the staff and licensees. The benefit of processes that have proven successful for many license renewals is the constancy of purpose that avoids unwanted or unintended outcomes often associated with new and unproven processes. SLR can be achieved through the current regulatory framework.

I also had the benefit of hearing the views of members of the public and non-governmental organizations during my deliberations. For example, at the May 8, 2014 Commission meeting, David Lochbaum of the Union of Concerned Scientists (UCS) presented his views on subsequent license renewal. He stated that "UCS believes there's nothing inherently unsafe about a nuclear power reactor operating for up to 60 or even up to 80 years." I agree with Mr. Lochbaum's view that "reactors can operate long term if they're properly maintained, but if not properly maintained they can't operate even in the short period." It is incumbent upon all licensees to properly maintain their facilities and manage the effects of aging. It is also incumbent upon the NRC to provide robust oversight of all operating reactors regardless of their age.

Finally, SECY-14-0016 included a non-concurrence presenting the view that probabilistic risk assessments should be required at the time of subsequent renewal. I appreciate the opportunity to hear differing views and to evaluate them as part of my deliberations. I agree with the ACRS's view on this topic that a requirement for a probabilistic risk assessment is not uniquely relevant to operation beyond 60 years. Therefore, in my view the subject of requiring probabilistic risk assessments for operating reactors should be resolved outside the scope of



license renewal. As discussed in more detail below, the effectiveness of aging management programs is an area that warrants additional oversight. That said, it is not an area that needs to be addressed in rulemaking.

#### **IV. ADDITIONAL RECOMMENDATION REGARDING ENHANCED OVERSIGHT OF AGING MANAGEMENT**

The NRC conducts an inspection during the license renewal application review to verify the process used by the licensee to identify those structures and components within the scope of license renewal and the aging management programs. The NRC also conducts an additional inspection upon approval of the application and issuance of a renewed operating license. This inspection verifies that the license conditions and license renewal commitments are implemented in accordance with 10 CFR Part 54, and that aging management programs are implemented consistent with the descriptions contained in the updated FSAR.

As plants gain more experience in the period of extended operation and, if approved, proceed into subsequent renewal, it will become increasingly important to focus an appropriate level of oversight on aging management. Therefore, the staff should implement enhancements to the Reactor Oversight Process to ensure that the NRC continues to have confidence that aging management programs are being effectively implemented after the initial inspections, which the staff typically completes prior to the plants entering the period of extended operation. Specifically, the staff should provide more ongoing oversight of licensee implementation of aging management programs rather than relying predominantly on the inspection that is conducted at the time of issuance of the renewed license. This should encompass the period from 40-60 years of operation in addition to the period from 60-80 years of operation, if authorized. This is consistent with the spirit of the findings of the recent Reactor Oversight Process Independent Assessment (Enclosure 2 to SECY-14-0047, "Reactor Oversight Process Self-Assessment for Calendar Year 2013," dated April 18, 2014) that recommended that the staff "include a risk-informed periodic review of licensee programs or actions implemented to address generic issues in order to enhance the agency's assurance that these measures continue to be effectively implemented."

The staff should inform the Commission of its efforts to enhance the oversight of aging management programs in the next Reactor Oversight Process self-assessment paper, or within 12 months of the date of the staff requirements memorandum on this SECY paper, whichever occurs sooner.

#### **V. CONCLUSION**

In summary, the NRC's current regulatory framework is adequate to ensure safe operation of operating reactors before and after license renewal, and therefore rulemaking is not necessary. Regulatory processes are in place to update guidance to address emerging issues and to enhance the reactor oversight program to focus additional attention on the implementation of aging management programs. Furthermore, the NRC has the authority to impose new requirements to ensure adequate protection based on new information gained from operating experience or elsewhere and when justified as a cost-beneficial safety enhancement.