Comment Response Report

Bin: Backfit

Comment

Lochbaum, David (Union of Concerned Scientists)	The process fails to apply revised license renewal standards adopted by the NRC to previously relicensed reactors (see ML12061A079 and the UCS letter dated 02/07/2012 it answered). Ginna and Point Beach are very similar reactors in terms of design and operating history. NRC relicensed Ginna on May 19, 2004, and Point Beach on December 23, 2005. In between, the NRC revised its license renewal standard review plan and generic aging lessons learned report. NRC required the Point Beach licensee to explicitly address its aging management program for Alloy 600 parts of the reactor coolant system – the NRC did not require that from the Ginna licensee. UCS believes NRC failed to properly apply either 10 CFR 50.100 (by failing to require Ginna to formally incorporate an Alloy 600 aging management program) or 10 CFR 50.109 (by requiring Point Beach to meet a requirement not necessary at Ginna). What if both plants fail to implement aging management programs for Alloy 600 components within the reactor coolant system? NRC has a regulatory hook at Point Beach that it lacks at Ginna.

Response

10 CFR 50.109 is intended to prevent the imposition of new regulatory requirements unless necessary for adequate protection or based on cost justification, and that 10 CFR 50.100 enables the NRC to take action on licenses for misrepresentation of information. However, neither case applies in the examples provided.

The NRC staff updates guidance such as the GALL Report to incorporate new operating experience and reflect the latest information available. With each update to the GALL Report, which includes Interim Staff Guidance (ISG) issued between revisions, new or current applicants for license renewal are expected to address aspects of their aging management reviews against the latest information available in the GALL Report, just as Point Beach did when Revision 1 was issued. Such application of updated guidance by the staff does not constitute a backfit, as applicants for licenses are not protected by the Backfit Rule of 10 CFR 50.109. In addition, measures such as those adopted by Point Beach for its alloy 600 program to be consistent with Revision 1 of the GALL Report should not be construed as a new requirement for previously renewed licenses, and this information does not warrant NRC actions under10 CFR 50.100.

Although we do not agree with the commenter's interpretation of 10 CFR 50.109 and 50.100 in situations such as the example provided, we do acknowledge that differences exist among licensees' aging management programs depending on the timing of their license renewal review. However, our Part 54 regulations require that licensees maintain the effectiveness of their approved aging management programs in order to ensure that systems, structures, and components perform their intended functions. As such, operating experience, including that reflected in subsequent revisions of the GALL Report and other plant-specific as well as industry sources, would serve to inform licensees of potential changes to aging management programs. Further, the NRC's ongoing regulatory process provides the NRC staff an opportunity to verify implementation of these programs and determine whether appropriate operating experience was considered to maintain program effectiveness.

Comment Response Report

Bin: Backfit

Comment

Lochbaum, David (Union of Concerned Scientists)	The process fails to consider the effects from new regulations from which an aging reactor was grandfathered, exempted, or waivered. For example, in the mid-1990s the NRC revised seismic hazard levels for new reactors if built in the central and eastern United States but did nothing about the 27 reactors already operating in this region. As a result, the proposed Unit 3 reactor at North Anna must be designed for significantly greater earthquake magnitude than the operating Unit 1 and 2 reactors. As another example, the NRC resolved USI A 43 by imposing different containment sump screen blockage criteria for new reactors without taking any action for reactors already operating. (See http://www.ucsusa.org/assets/documents/nuclear_power/20031029-ucsregulatory-malpractice.pdf). As yet another example, the NRC requires vendors of new reactors to formally evaluate their designs for aircraft impacts – not so as to be immune from such threats, but to implement reasonable design changes to reduce vulnerabilities. But NRC did not require operating reactors to perform such evaluations (this example is linked to a concern under the Environmental Issues section regarding failure to formally evaluate the pros/cons of a new reactor design more resistant to aircraft hazards instead of continuing to operator the older reactors without such protection).

Response

In general, new regulations that are developed become part of licensee's current licensing basis (CLB), which is carried forward into the renewal period. Therefore, no currently operating plant goes into the period of extended operation (PEO) without consideration of any new requirements that were developed during the initial operating period. Similarly, no plant will enter the SLR period without consideration of regulations invoked in the first PEO.

Nonetheless, in reviewing the current regulatory framework for license renewal, the staff considered new regulations that became effective, or current regulations that were revised, since Part 54 was last amended in 1995. For example, the staff reviewed 10 CFR 50.54(hh)(2) to protect structures, systems, and components from loss of large areas due to fires and explosions and 10 CFR Part 61a regarding alternative fracture toughness requirements to protect against Pressurized Thermal Shock.

In addition, it's expected that any plant-specific exemptions or reliefs would be evaluated on a case-by-case basis.

Comment Response Report

Bin: Backfit

Comment	
Lampert, Mary (Pilgrim Watch)	There is nothing definitive now that requires reactors that came earlier in the license renewal process to implement guidance changes that occurred after their license was renewed.
Lampert, Mary (Pilgrim Watch)	(With regard to backfit) ...Commissioner Apostolakis recognized that the tools that are used to do the cost-benefit analysis are so outdated and inadequate that you are never going to get it (identify the backfit) as cost-beneficial to be done and therefore it is a waste of time to perform the cost-benefit analysis.
Lampert, Mary (Pilgrim Watch)	The earlier plants are older, so they're probably more susceptible.
Lochbaum, David (Union of Concerned Scientists)	50.100 says that if a factor becomes knows after a plant is licensed or relicensed that would have prevented it from being licensed or relicensed, then the NRC can go back and make the licensee meet the requirement.
Lochbaum, David (Union of Concerned Scientists)	For reactors that underwent license renewal prior to the NRC revised guidance for license renewal, it is not clear how they are committed to the guidance change by other means.
Lochbaum, David (Union of Concerned Scientists)	Either the NRC violated 50.109 by requiring standards that were not necessary for safety on reactors that came later for license renewal or the NRC is not requiring reactors that came earlier in license renewal to do those things required for safety.
Lochbaum, David (Union of Concerned Scientists)	You're cheating the people who live around the plants that were in the front of the line for license renewal because you have new information on how to better manage aging and you're not requiring these plants that came earlier to do these things.
Lochbaum, David (Union of Concerned Scientists)	They may have a responsibility or desire, but history has shown that industry doesn't follow rules let alone guidance and notions and suggestions.
Lochbaum, David (Union of Concerned Scientists)	How could you know that there's a problem sufficient enough to change your guidance and do nothing about the plants you know don't have a legal requirement to meet the guidance?
Lochbaum, David (Union of Concerned Scientists)	So does that mean if I'm the first plant relicensed and you can't make the 50.109 argument for revision 2 and you come in and find that I don't meet [revision 2] -- I'm going to say that -- you basically told me I don't have to meet this requirement because you can't apply it to me?
Lochbaum, David (Union of Concerned Scientists)	You cannot revise regulatory guidance like the standard review plan for license renewal in GALL without saying that it is needed for safety to satisfy 50.109.

Comment Response Report

Bin: Backfit

Lochbaum, David (Union of Concerned Scientists)	With regard to backfit, the staff is making the process more difficult than it needs to be because 50.109 and 50.100 should work hand in hand.
Lochbaum, David (Union of Concerned Scientists)	NRC staff has twice revised its license renewal guidance (e.g., the SRP and GALL) but hasn't applied the new safety standards to the reactors already relicensed. I did not realize that the NRC staff imposed the higher standards outside of the 10 CFR 50.109 backfitting requirements. I cannot understand how the NRC could revise its regulatory requirements for the safe operation of nuclear power reactors between 40 and 60 years without at the same time having those requirements apply to ALL nuclear power reactors operating between 40 and 60 years. The NRC has to determine whether safety upgrades are legally justifiable and, if so, applicable to all reactors operating between 40 and 60 years. And if safety upgrades are not legally justifiable, NRC should not require them for any reactors operating past 40 years.
Lochbaum, David (Union of Concerned Scientists)	NRC properly revised its license renewal standards through a healthy, positive, reality-based approach to dealing with the issues, however, the decisions are not retroactive.
Lochbaum, David (Union of Concerned Scientists)	Not all relicensed plants need to meet all new standards; however, they should be reviewed against the standards to determine if grandfathering should apply.
Lochbaum, David (Union of Concerned Scientists)	NRC does not consider when it relicenses plants, exemptions, waivers, and other grandfathering from regulations that have been adopted by the NRC over time to see if those exemptions, waivers, whatnot are still applicable to the plant being relicensed. Some of the examples we gave are the seismic criteria that were formally revised by the NRC in the mid-1990s to apply to new reactors in the Central and Eastern United States. Subsequent to that, the NRC relicensed the North Anna plants to the old seismic criteria.
Lochbaum, David (Union of Concerned Scientists)	What leverage does NRC have to compel plants to make changes retroactively when the licensing renewal process is updated? There is no legal obligation.
Lochbaum, David (Union of Concerned Scientists)	You've already identified what is needed for plants that came late in license renewal and those that came early are not getting that. It's not fair to the American public.
Riccio, Jim (Greenpeace)	Time and time again there are instances in those precursor reports where aging degradation has led to safety significant issues at reactors. And that is used to backfit what you're doing in terms of renewal.
Webster, Richard (Public Justice)	With regard to through-wall corrosion, when the guidance was changed to require both UT and visual inspection, did the NRC require reactors that

have already gone through license
renewal to do both?

Comment Response Report

Bin: Backfit

Response Bin 1- PLACEHOLDER RESPONSE

PLACEHOLDER RESPONSE- above comments not yet dispositioned.

Comment Response Report

Bin: Severe Accident Mitigation Alternatives (SAMA)

Comment	
Buckley, Rick (Entergy Nuclear)	Just want to reaffirm what my other two colleagues said that performing SAMA analysis during subsequent license renewal is really not necessary. However, I do want to point out is that any new information of severe accident mitigation alternatives could be addressed during subsequent licensing since that structure is available for licensee to do that.
Lampert, Mary (Pilgrim Watch)	This is an objection that if SAMAs have been done once, that it will not be required again.
Ranek, Nancy (Nuclear Energy Institute)	Each plant seeking subsequent license renewal will have already provided the NRC with extensive documentation about consideration given to SAMAs and the implementation of SAMAs during the initial licensing period and at the time of subsequent license renewal during the renewed license period. Another SAMA analysis at the point of subsequent license renewal would be unlikely to reveal any major cost beneficial plant modifications needed at that time. Numerous studies of ways to mitigate severe accidents are conducted over the life of each nuclear plant that may seek subsequent license renewal. These include analyses as part of industry programs such as Containment Performance Improvement (CPI), the Accident Management (AM) and the Individual Plant Examination (IPE), as well as the Individual Plant Examination of Externally Initiated Events (IPEEE). NEI and its members encourage the NRC to retain and apply the existing regulatory exemptions in 10 CFR 51.53 to plants seeking subsequent license renewal for which severe accident mitigation alternative analyses have been completed as part of the initial license renewal need for reviews or in the case of Limerick, Watts Bar and Comanche Peak, as part of initial licensing. The impacts of severe accidents are most appropriately considered in terms of ongoing nuclear safety rather that extended operation under license renewal. For Example, nuclear plants seeking subsequent license renewal will have implemented the severe accident mitigation measurements mandated by NRC in response to the 2011 Great East Japan Earthquake. In summary, every licensee performs multiple studies and implements mitigating strategies throughout the life of the plant and provides documentation to that effect to the NRC during plant operation and as part of license renewal application of operation for 40 to 60yrs. Given the requirement to perform SAMA at earlier milestones in a plant's operation, the NRC should not require licensees to explicitly address SAMAs as part of the subsequent license renewal process or continue to apply the existing regulatory exemption in 10 CFR 51.53.

Webster, Richard (Public Justice)	MR. WEBSTER: Right. MR. SUSCO: And I know what your next comment is going to be, and it's that we should do it for second license renewal. MR. WEBSTER: Yes. I think you have to. [This is a continuation of the discussion from a comment on SAMA and second license renewal.]
Webster, Richard (Public Justice)	Which regulations would you cite directly that say SAMA's not required on second license renewal?
Webster, Richard (Public Justice)	Can I ask a question about SAMA? Is it really right that you're thinking of -- A) don't you think Limerick Ecology requires it? And B) if it doesn't require it, why not? And C) even if it didn't require it, wouldn't it be a good idea? Limerick Ecology is a Third Circuit case that says that NEPA, for a major federal action, for a nuclear plant, requires SAMA. You're not familiar with that?
Webster, Richard (Public Justice)	Even they think that SAMA should be included in the site-specific EIS, so I don't quite understand why the staff would be thinking about dropping this when the industry thinks it's a good idea. I agree that we should improve it. We shouldn't make it worse. Removing SAMA from the analysis would make it worse, so I'm very glad that we have substantial agreement between the intervenor community and NEI on a number of important issues.
Yhip, Kathleen (Nuclear Energy Institute)	In general, the GEIS found that impacts of severe accidents are of small significance for all plants due to the measures that are put in place by licensees. SAMA is currently addressed as a Category 2, i.e., site specific issue, as part of the license application, because that reflects the plants have had different levels of analysis performed during their initial licensed period. Industry believes that the impacts of severe accidents are best considered as part of the on-going nuclear safety issue rather than as an issue unique to extended operation under license renewal.

Response

SAMAs are done at the initial operating license or initial license renewal stage. Under the NRC's rules, and prior to approval of a SLR, the staff will have previously considered severe accident mitigation alternatives for each plant applying for SLR. 10 C.F.R.§ 51.53(c)(3)(ii)(L) states: "If the staff has not previously considered severe accident mitigation alternatives for the applicant's plant in an environmental impact statement or related supplement or in an environmental assessment, a consideration of alternatives to mitigate severe accidents must be provided." (See 10 CFR Part 51, Subpt. A, App. B, Table B-1 (citing 10 C.F.R. 51.53(c)(3)(ii)(L)); see also 51.95(c)(4). Therefore, a further SAMA analysis is not needed for plants applying for SLR. See 10 C.F.R. § 54.31(d) ("A renewed license may be subsequently renewed in accordance with all applicable requirements.").

The Commission has weighed in on the topic of additional consideration of SAMA's for license renewal regarding Limerick Generating Station (LGS). 10 CFR 51.53(c)(3)(ii)(L) states that "If the staff has not previously considered severe accident mitigation alternatives for the applicant's plant in an environmental impact statement or related supplement or in an environmental assessment, a consideration of alternatives to mitigate severe accidents must be provided." Furthermore, that Statements of Consideration (SOC) for the 1996 update to Part 51 state that "NRC staff considerations of severe accident mitigation alternatives have already been completed and included in an EIS or supplemental EIS for Limerick, Comanche Peak, and Watts Bar. Therefore, severe accident mitigation alternatives need not be reconsidered for these plants for license renewal." Nevertheless, the NRC has an obligation under NEPA to supplement our environmental review documents if there is "new and significant" information relevant to these matters.

Both the applicant and the NRC must consider whether new and significant information affects environmental determinations in the NRC's regulations, including the determination in 10 CFR 51.53(c)(3)(ii)(L) and Table B-1 that the agency need not reconsider SAMAs at license renewal if it has already done so in a NEPA document for the plant. New information is significant if it provides a seriously different picture of the impacts of the Federal action under consideration. Thus, for mitigation alternatives such as SAMAs, new information is significant if it indicates that a mitigation alternative would substantially reduce an impact of the Federal action on the environment. Consequently, with respect to SAMAs, new information may be significant if it indicated a given cost-beneficial SAMA would substantially reduce the impacts of a severe accident or the probability or consequences (risk) of a severe accident occurring.

Comment Response Report

Bin: Severe Accident Mitigation Alternatives (SAMA)

Comment	
Fulvio, Albert (Exelon Nuclear)	I think the SAMA discussion yesterday certainly applies. I believe our position is you only need to do the SAMA once. Are you asking if a subsequent license renewal should require a subsequent SAMA analysis? My experience with this in terms of the NRC reviews for license renewal of SAMAs is that they do inquire about the PRA and when it was done, and how current it is. We typically keep our PRAs current to the plant configurations and analyses, and the PRA that's current supports the SAMA. So I don't see any real issue there, we already do it. I think the NRC expects it when they're doing their reviews. We update our PRAs every 4-5 years, and when we know that we're doing a license renewal submittal we earmark that point in time for that plant to do a PRA update to support the SAMA analysis.
Lampert, Mary (Pilgrim Watch)	Modeling of the spent fuel is allowed, which is wrong, because you can have the interaction between the reactor and the spent fuel pool, especially in BWRs. A spent fuel pool fire, consequences up to 488 billion dollars, 24,000 latent cancers.
Lampert, Mary (Pilgrim Watch)	NRCs allowance of using means for health impacts dilutes and makes meaningless any consequences.
Lampert, Mary (Pilgrim Watch)	Health impact is underestimated because it’s not based upon BEIR-7, the most recent study.
Lampert, Mary (Pilgrim Watch)	The tools that NRC allows to do cost-benefit analyses guarantee that no mitigation changes will become cost-effective. The MACCS/MACCS2 codes are the examples.
Lampert, Mary (Pilgrim Watch)	Current SAMAs are inadequate because the MACCS Code is inadequate.
Lampert, Mary (Pilgrim Watch)	It seems totally in conflict to Commissioner Apostolakis's leadership on PRAs post-Fukushima lessons learned. (That SAMA analysis would not be a part of second license renewal.)
Lampert, Mary (Pilgrim Watch)	Clearup estimates are totally inadequate, because they go back to the assumptions of the WASH report, which was based on studies done from bomb tests where the radioactive materials are much larger and are far easier to clear up, don't get into crevices.

Lampert, Mary (Pilgrim Watch)	And pointing out again, when the full Commission voted that aqueous discharges, for example, are currently omitted in SAMAs, and that's wrong. They should be included. An example, Pilgrim is what I know best. The marine economy is worth over 14 billion dollars in Massachusetts. We have seen feed and bleed. We also know that atmospheric discharges wind up in the land, as we've seen in Japan. And it goes, slides down into the rivers, gets down into the groundwater, and there you have it. And so that's a huge issue where it's being underestimated. Not to mention using a tool that the person who wrote the FORTRAN says is a piece of -- junk.
Lampert, Mary (Pilgrim Watch)	ATMOS model uses a straight line plume model and the winds don't necessarily go in a straight line at sites.
Lampert, Mary (Pilgrim Watch)	The [MACCS2] code can model a release of four days using IPLUME-3, which they don't do. Now they only model eight hours of release. From Fukushima, the accidents have been shown to go on for weeks.
Lampert, Mary (Pilgrim Watch)	SAMAs underestimate costs.
Lampert, Mary (Pilgrim Watch)	It's important to consider not only the contamination but also the fact that people are forced to leave their homes.
Lochbaum, David (Union of Concerned Scientists)	NRC has not revised its cost of life since 1991, even for inflation, though cost of equipment has been adjusted.
Lochbaum, David (Union of Concerned Scientists)	The process fails to properly value human lives in cost benefit analyses. According to an article in the New York Times ("As U.S. Agencies Put More Value on a Life, Businesses Fret," Binyamin Appelbaum, February 16, 2011), the Office of Management and Budget warned federal agencies that using less than $5 million per life would be difficult to justify, yet NRC uses a significantly lower value.
Lochbaum, David (Union of Concerned Scientists)	The process fails to implement safety upgrades judged to be cost beneficial by the licensees. Many applicants for license renewal have identified cost beneficial safety upgrades that were not implemented (e.g., Dresden in ML041890266, Quad Cities in ML041880213, and Indian Point in ML11223A480).
Lochbaum, David (Union of Concerned Scientists)	Federal agencies are under-valuing human lives when they do cost benefit and risk studies.

Comment Response Report

Lochbaum, David (Union of Concerned Scientists)	The process currently identifies cost beneficial safety upgrades, but none are being implemented. Should a safety incident result, it would open up the licensee for criminal actions that they knew about but did not fix; and agency to criticism of negligence.

Thomas, Jim (Enercon Services, Inc.)	I would add that terrorist acts, while they are considered unlikely to succeed, could initiate a severe accident, potentially. The consequences of a severe accident, regardless of initiating event, are already analyzed by licensees on an ongoing basis as has been previously indicated. These analyses evaluate the dose consequences due to radiological release from a severe accident scenario and are used to develop and implement measures to protect public health and safety through a defense and depth philosophy that has been adopted by the NRC. In summary, the NRC takes actions necessary to enhance protection of public health and environment. This applies to health, safety, common defense and security, and regardless of whether the plant is being operated under the initial license or renewed license or subsequently renewed license. These actions include the orders on additional security measures following the 9/11/2001 event and subsequent changes to 10 CFR Part 73.
Webster, Richard (Public Justice)	It seems a bit bizarre to me that SAMA is on a total different track than the safety review.
Webster, Richard (Public Justice)	At the moment, under SAMA, environmental contamination is either valued at zero or at a tiny amount. Fukushima compensation, which is largely aimed at environmental contamination, is estimated between 20 to 50 billion dollars. If you change the number in the SAMA analysis from a few million to 50 billion, that's going to make a big difference to the outcomes; and to suggest that you've already finished this analysis is completely ludicrous.
Webster, Richard (Public Justice)	I'm in a proceeding right now, and one issue is there's a prison about 10 miles from the plant. Sociologists are predicting that, at the moment, if there's a severe accident then everybody else is told to leave and the prisoners stay, a riot will break out. If there's a prison riot, people will die.
Webster, Richard (Public Justice)	If seismic assumptions have changed, they need to be taken into account on license renewal; and you need to look at your current estimates, not those from 40 years ago.
Webster, Richard (Public Justice)	The estimates of consequence are probably somewhere between 100 and 1,000-fold too low. Severe accident frequency is about ten times the assumptions in the SAMA analysis. It's ten times the output of the PRA. So if we change our consequence number by about a thousand, and we change our frequency number by ten, that means we've got about a 10 to the fourth difference on the problem side, so that should make about a 10 to the fourth difference on the solution side. If you do that, your plants will be a lot safer. I'm glad NEI is on board with this.
Webster, Richard (Public Justice)	You may want to think about integrating SAMA into the safety (or environmental) review.

Webster, Richard (Public Justice)	The nuclear industry can't keep going around saying "This is the most environmentally friendly way to generate power," and then refuse to do upgrades which make the generation of that power more environmentally friendly.
Webster, Richard (Public Justice)	The industry claims it's a psychological effect and not part of NEPA. If somebody hits you over the head with a chair or attacks you to the point of unconsciousness, that's not a psychological effect. It's an indirect sociological effect. At Fukushima, when the evacuation order came at a hospital, most of the staff left, leaving some of the critical patients behind. Forty-five of those critical patients died. That's a real effect and needs to be in these calculations. The criticism from the industry was that the sociological expert doesn't have any expertise in health physics. He doesn't because he's not evaluating a health physics effect. He's evaluating a sociological effect and those sociological effects must be in the SAMA analysis.
Webster, Richard (Public Justice)	With the two tracks of safety and environment, because they are so distinct, you actually miss sometimes some opportunities for holistic mitigation.
Young, Garry (Entergy Nuclear)	…if we credit the PRA, for example, in the risk informed ISI, it is reviewed as part of our ISI program submittals. It's also reviewed under the maintenance rule on a continuous basis, since that's the basis for setting goals for our system and plant performance that's required by the maintenance rule. So the PRA does get evaluated and reviewed by NRC on an ongoing basis, and it is updated in order to keep current with the requirements of programs like the maintenance rule program. If the PRA is credited in some license renewal aging management programs, or in the case of SAMA, if we have to redo the SAMA, it gets reviewed by the NRC as part of the application.

Response

SAMA is a NEPA requirement, not a safety requirement. The purpose of a SAMA analysis is to identify potentially cost beneficial improvements in response to severe accidents. The NRC analyzes SAMAs to meet NEPA's requirement that agencies consider the environmental impacts of license renewal, including alternatives to that action and ways to mitigate the action's impacts. (See Limerick Ecology Action, Inc. v. NRC, 869 F.2d 719, 725, 741 (1989).) NRC undertakes a SAMA analyses as part of its hard look review of the environmental impacts of license renewal. 10 C.F.R. § 51.53(c)(3)(ii)(L). Any significant safety issues are addressed outside of NEPA space in the current licensing term and not deferred to the period of extended operation. The NRC staff actively uses the part 50 process to assure adequate safety of the plant. Plant specific severe accident mitigation has been and continues to be addressed multiple times during the current term and appropriate actions by the licensees are required (For example, IPE, IPEEE, containment integrity, 9/11 issues, and Fukushima)

NEPA is a procedural statute that does not mandate a specific outcome; it only requires disclosure and discussion. Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 350 (1989). Due to the scope of license renewal, licensees are only required to implement those SAMAs found to be cost beneficial and needed to manage the effects of aging. To date more than 73 SAMA analyses have been developed and reviewed by the NRC. Only one cost beneficial SAMA was found to be related to aging management and the applicant implemented it as a part of its aging management programs. The NRC would consider any new and significant information that might relate to the initial SAMA analysis or the NRC's evaluation thereof, or any other site-specific analyses on which the NRC relied. Therefore staff does not see a safety benefit of requiring a SAMA-type analysis as part of SLR.

Both the applicant and the NRC must consider whether new and significant information affects environmental determinations in the NRC's regulations, including the determination in 10 CFR 51.53(c)(3)(ii)(L) and Table B-1 that the agency need not reconsider SAMAs at license renewal if it has already done so in a NEPA document for the plant. New information is significant if it provides a seriously different picture of the impacts of the Federal action under consideration. Thus, for mitigation alternatives such as SAMAs, new information is significant if it indicates that a mitigation alternative would substantially reduce an impact of the Federal action on the environment. Consequently, with respect to SAMAs, new information may be significant if it indicated a given cost-beneficial SAMA would substantially reduce the impacts of a severe accident or the probability or consequences (risk) of a severe accident occurring.

Comment Response Report

Bin: Probabilistic Risk Assessment (PRA)

Comment

Fulvio, Albert (Exelon Nuclear)	[In response to whether PRAs should be required:] There is an industry standard, ASME/ANS RA-SA-2009, used by utilities to update their PRAs typically in a 4-5 year time frame. There is also a Reg Guide 1.200 that addresses guidance for certain submittals that involve a PRA. The statements of consideration are still valid today in that PRA is not used for license renewal, and we're not advocating that we do. We believe the statements of consideration are still valid. I was reacting to the statement that there is no industry standard, because there is.
Remer, Jason (Nuclear Energy Institute)	The existing regulatory requirements for the use of PRAs are currently adequate.

Response

The 1991 Statements of Consideration of 10 CFR Part 54 state that screening methods used by license renewal applicants may include use of PRAs to supplement deterministic methods. At the time of the rule, the Commission felt that aging data and models had not been developed for many SSCs for inclusion in PRAs and uniform criteria did not exist for evaluating PRA results. Nonetheless, the Commission felt that probabilistic assessments could be useful to help draw attention to specific vulnerabilities and help guard against significant oversights in the screening process. But probabilistic assessment alone is not an acceptable basis for exclusion of SSCs for evaluation as part of an integrated plant assessment (IPA) but may be useful to identify additional SSCs to be evaluated as part of an IPA. See 56 FR 64956 – 64957.

The 1995 SOC of 10 CFR Part 54 note that without the necessary regulatory requirements and appropriate controls for plant-specific PRAs, it is not appropriate to establish a license renewal scoping criterion. The Commission also noted that probabilistic methods may be most useful in helping to assess the relative importance of S&Cs subject to an AMR by helping to draw attention to specific vulnerabilities and in developing an approach for aging management adequacy. Finally, the Commission reaffirmed its conclusion from the 1991 rule. See 60 FR 22468, May 8, 1995.

Bin: Probabilistic Risk Assessment (PRA)

Comment	
Fulvio, Albert (Exelon Nuclear)	I think the SAMA discussion yesterday certainly applies. I believe our position is you only need to do the SAMA once. Are you asking if a subsequent license renewal should require a subsequent SAMA analysis? My experience with this in terms of the NRC reviews for license renewal of SAMAs is that they do inquire about the PRA and when it was done, and how current it is. We typically keep our PRAs current to the plant configurations and analyses, and the PRA that's current supports the SAMA. So I don't see any real issue there, we already do it. I think the NRC expects it when they're doing their reviews. We update our PRAs every 4- 5 years, and when we know that we're doing a license renewal submittal we earmark that point in time for that plant to do a PRA update to support the SAMA analysis.
Young, Garry (Entergy Nuclear)	The maintenance rule is the aging management program for active components, and sets the reliability and availability standards based on the PRA models for the plant to ensure that the plants continue to operate within the requirements of the current licensing basis. Whenever there's an issue with equipment reliability or availability, it can be due to aging. If aging is determined to be the cause in reduction of reliability or availability, then it's addressed as part of the corrective action program which may involve changes to the aging management activities. That's currently the requirement of Part 50 regulations. It's subject to continuous oversight and inspection, and the maintenance rule program itself is periodically assessed by the NRC as part of normal plant operations. I would not see a benefit to doing a redundant review of maintenance rule for license renewal or subsequent license renewal when it's already being very thoroughly reviewed and inspected as part of the current license, and has been since 1996.

Young, Garry (Entergy Nuclear)	To clarify using PRAs in risk ranking, there is some use of that in our aging management programs. For example, for the in-service inspection program, some utilities use risk informed information to select the locations for doing the inspections. So, it's a better use of our resources to look in those places where either the risk or the probability having a concern with an aging effect is the focus of those inspections, rather than taking sample locations at random. Also in the buried piping inspection program, we used some risk ranking to identify those systems that have the highest risk and also are more susceptible to potential aging, and we focus on those areas. Again, this is a clarification that we do in fact use some of our PRA and risk informed methods in our aging management programs where appropriate. We do not use it in scoping in accordance with Part 54 regulations. Regarding the question about PRAs and whether they should be required to be updated for subsequent renewal, the current requirements for PRAs address that. The maintenance rule was put into effect in 1996 and it's based on using our PRA models to evaluate system reliability and availability in accordance with the latest version of the model. We do periodically update the model to keep it current with plant configuration and with modifications to the plant. Part of the reason is that model is used in day to day operations as part of the maintenance rule requirements. I believe the regulations are already in place to ensure that the PRA models are up to date and current. If they are subsequently used for a license renewal, then it would be a model that's current and based on existing NRC regulations. Regarding the comment on making the plant safer as they continue to operate, that is certainly our intent, and that is the reason we use operating experience in our aging management programs and in all other activities at the plant. When new information becomes available that would make it possible to operate the plants even more safely, we take advantage of that and implement it as part of our ongoing corrective action program, and upgrading based on Part 50 regulatory requirements. I agree that as the plants continue to operate, we should look for opportunities to operate safer, and I think we are doing that with the activities that are currently in place.
Young, Garry (Entergy Nuclear)	…if we credit the PRA, for example, in the risk informed ISI, it is reviewed as part of our ISI program submittals. It's also reviewed under the maintenance rule on a continuous basis, since that's the basis for setting goals for our system and plant performance that's required by the maintenance rule. So the PRA does get evaluated and reviewed by NRC on an ongoing basis, and it is updated in order to keep current with the requirements of programs like the maintenance rule program. If the PRA is credited in some license renewal aging management programs, or in the case of SAMA, if we have to redo the SAMA, it gets reviewed by the NRC as part of the application.

Young, Garry (Entergy Nuclear)	[In response to a question, "if industry is using risk based to determine adequate aging management, why wouldn't you provide PRA submittal in support of that?"] Buried piping does not use the PRA model, it uses risk informed information. The PRA model doesn't get down to that kind of detail of individual links of pipe. So there is a combination here of using PRA for the bigger picture activities of system reliability and availability that is in place, but when it gets down to a component level, then we use some of the techniques of risk informed, but we don't use the PRA model. It's too complex and not down to the level of detail of individual components.
Young, Garry (Entergy Nuclear)	[Response to, "Would any additional review be considered as an RAI question?"] Again, I think we do supply a certain amount of information in the application, but we don't submit the entire PRA model as part of the application, just as we don't submit the entire aging management program documents. We provide a summary and general information that's sufficient to outline what is in the program. Then, it's subject to the audits and inspections that are part of the license renewal review, and are of course subject to RAI.

Response

The usefulness of PRAs to reliably assess changes to a plant's risk profile, particularly with regard to aging degradation and effects, is a relatively new area. Consideration of the amount and quality of data, and the modeling of structural and component aging and the associated uncertainties, requires considerable discussion and assessment among PRA experts. Also, the current aging management programs and activities are intended to maintain the plant's licensing basis by minimizing the detrimental effects of aging in passive, long-lived structures and components, thus minimizing changes to the plant's risk profile. In addition, the current regulatory framework for the license renewal program allows applicants for renewed licenses to use risk information in developing their AMPs Current applicants for license renewal have applied risk insights enhance the effectiveness of aging management through risk-informed ISI. RI-ISI has been used to identify inspection locations and frequencies to maximize the effectiveness of inspections. This will continue for SLR.

As for additional SAMA review, the Commission has weighed in on this topic regarding the license renewal for Limerick Generating Station (LGS). 10 CFR 51.53(c)(3)(ii)(L) states that "If the staff has not previously considered severe accident mitigation alternatives for the applicant's plant in an environmental impact statement or related supplement or in an environmental assessment, a consideration of alternatives to mitigate severe accidents must be provided." Furthermore, that Statements of Consideration (SOC) for the 1996 update to Part 51 state that "NRC staff considerations of severe accident mitigation alternatives have already been completed and included in an EIS or supplemental EIS for Limerick, Comanche Peak, and Watts Bar. Therefore, severe accident mitigation alternatives need not be reconsidered for these plants for license renewal." Nevertheless, the NRC has an obligation under NEPA to supplement our environmental review documents if there is "new and significant" information relevant to these matters.

Comment Response Report

Bin: Exemptions

Comment

Buckley, Rick (Entergy Nuclear)	The NRC has independent avenues and processes, other than license renewal, to ensure that emerging issues are addressed in a timely manner for protection of public health and the environment. For example, NRC can issue orders for emergent issues, for the plant to take immediate actions. In addition, operational monitoring of regulatory compliance associated with federal, state and local programs occurs as a routine process, thereby allowing for early identification and resolution of emergent issues.
Fulvio, Albert (Exelon Nuclear)	The current rule requires that any exemptions be addressed and evaluated in the LRA. This will continue in the SLR or subsequent license renewal applications. Our experience with this in the present license renewal reviews has been very good. Each exemption is evaluated on its own merits and then disposition reviewed and approved by NRC. There is no reason to change this part of the rule at this time.
Remer, Jason (Nuclear Energy Institute)	10 CFR 54.21(c)(2) requires that plant specific exemption granted by the NRC and in effect that are based on time-limiting aging analysis shall be evaluated and justified for continuation as part of an SLR application. This regulatory requirement properly addresses the need to review relevant exemptions that will be carried forward into the period of extended operation for SLR. Second part of my answer - For plant specific exemptions the NRC insures adequacy and appropriateness in accordance with 10 CFR 50 - any time during the term of operating license the NRC can and does modify previously granted exemptions, when needed, to address new or emerging safety issues. This continuous oversight and evolution of the current licensing basis ensures safe continued operation for all phases of operation independent of SLR.

Response

NRC generally agrees with this statement. The interrelationship between our regulations, licensing, and oversight activities provide for adequate protection of public health and safety at any point during the plant's operations.

Comment Response Report

Bin: Commitments

Comment	
Lampert, Mary (Pilgrim Watch)	When a commitment is made, during the renewal process, you have an opportunity to intervene. But if the commitments changed afterwards, then the public is out of the game. And it seems the remedy would be to allow later intervention if the commitment is changed if the petitioner can show there is a safety issue involved.
Lochbaum, David (Union of Concerned Scientists)	Commitments really don't mean anything. So I know that they are part of the current licensing basis by definition, but they are the unenforceable part, as opposed to regulations that are also unenforceable.
Lochbaum, David (Union of Concerned Scientists)	We are also concerned about bait and switch techniques that allow licensees to get licenses, and then they renege on the commitments made during the renewal process.
Lochbaum, David (Union of Concerned Scientists)	The process allows “bait and switch” antics by licensees. Vermont Yankee is a classic example. The NRC staff, while reviewing the license renewal application, had reservations about the licensee’s manual calculations of thermal cycles. So, the licensee made License Renewal Commitment No. 6 to use a computerized method (FatiguePro) for this aging management task. The NRC renewed the license. And almost immediately, the licensee revised its commitment to use manual accounting methods instead of FatiguePro – in other words, to revert to the method expressly opposed by the NRC staff (see ML12079A031).
Lochbaum, David (Union of Concerned Scientists)	Earlier today, the NRC staff issued a Confirmatory Action Letter (CAL) to the Seabrook licensee regarding commitments made to the NRC about a concrete degradation problem that was identified during the license renewal process. Last week, I'd expressed concern during the NRC's all day meeting on Subsequent License Renewal that commitments are neither binding nor enforceable. I'd submit that today's Confirmatory Action Letter confirms (no pun intended) my position. If commitments made by NRC's licensees were binding and enforceable, the CAL would not be necessary. After all, the commitment themselves would carry the weight needed. Since commitments are actually not commitments except in name, something else (in this case, a CAL by the NRC) is necessary to ensure that the things get done. The NRC cannot and does not rely on commitments and must protect itself with CALs What protects the public for all the many commitments not backed by CALs and CAL-like legal things? Nothing. That's simply not right.

Bin: Commitments

Lochbaum, David (Union of Concerned Scientists)	...we got a letter from the NRC saying that commitments are unenforceable and it doesn't matter that we found some plants that weren't meeting their commitments.
Lochbaum, David (Union of Concerned Scientists)	(With regard to commitments)... the Inspector General did a review last April.... And they said the staff has got some differences. Some consider them enforceable. Some don't. ...So the IG seemed to suggest that there is a disparate way of how the NRC treats commitments. And it's not consistent, which means it's right sometimes and wrong sometimes.
Riccio, Jim (Greenpeace)	It seems... that licensee commitments are considered partly currently licensing basis, but as far as I know, they're not enforceable.

Response

The agency's policy for managing commitments is that commitments cannot be relied upon as the basis for a safety finding. If the actions within a commitment need to be relied on by the staff, the action needs to be escalated to a license condition or incorporated as part of the UFSAR. Currently, DLR has employed license conditions to ensure that commitments that were relied upon and not incorporated as part of the UFSAR are in fact considered part of the UFSAR supplement.

Due to congressional requests, the Office of Inspector General issued an audit report regarding the NRC's use of regulatory commitments in September of 2011. The audit report identified 3 general areas of improvement for NRC staff with regard to regulatory commitments. The OIG audit found inconsistencies in the NRC staffs' understanding of the definition and use of commitments. These inconsistencies were focused on the enforceability and legal standing of commitments.

DLR staff plans to explore the development of training for PMs and technical reviewers communicating that commitments will no longer be accepted. Going forward, NRC staff plans to stipulate to applicants that prior commitments need to be completed before the issuance of a subsequent renewal license.

Comment Response Report

Bin: Scoping

Comment	
Boyd, Randall (Arizona Public Service)	Yes, the current scope of license renewal is appropriate for subsequent license renewal. The scope of subsequent licensing renewal is addressed in 10 CFR 54.4(a) and is consistent with the first license renewal review which includes all safety related structures, systems, and components (SSCs) as well as non-safety related SSCs that could prevent satisfactory accomplishment of a safety function. In addition, SSCs relied on in safety analysis or plant evaluation to perform a function that demonstrates compliance with regulations for fire protection, environmental qualification, pressurized thermal shock anticipated transients without scram (ATWAS), and station black/white are included. Second comment - Although all safety related SSCs are in scope of subsequent license renewal, the aging management review for subsequent license review are limited to passive; they perform an intended function without moving parts, without a change in configuration and long lived. Those that are not subject to a replacement based on a qualified life or specified time period. SSCs in accordance with 10 CFR 54.21(a).
Fulvio, Albert (Exelon Nuclear)	[I] wanted to add onto what Jason said - The modifications that we have are part of our configuration control programs and requirements that are driven by all the Part 50 requirements and the Appendix B of Part 50. So as Jason stated, we all are required to keep a good configuration control of the plant no matter what the components are and certainly when we did the subsequent license renewal we would be identifying those that are in scope with the same scoping criteria that we used for the initial license renewal.
Fulvio, Albert (Exelon Nuclear)	The scope of subsequent licensing applications should be exactly the same as it is now. The scoping criteria in the rule have been successfully applied to all of the licensing renewal applications that have been approved by the NRC for 20 additional years of operation. The requirements of the rule as a whole have been proven to be appropriate and effective to establish successful aging management programs for the periods of extended operation. Active components are adequately covered by the maintenance rule which is also in place during the period of extended operation as is all the current licensing basis requirements. Equipment associated with the Fukushima responses if it does not meet the scoping criteria of the current rule, is not required to be age managed to insure that intended functions are maintained in the period of extended operation.
Lampert, Mary (Pilgrim Watch)	Issues that the public is interested in such as health, radioactive waste, and emergency planning are site-specific, yet they are not allowed to be brought forward. We need to look again at the justification for taking off scope what the public cares the most about.

Bin: Scoping

Lochbaum, David (Union of Concerned Scientists)	During a second license renewal, screening should be redone to determine if issues are binned similarly, and if reasoning for binning remains
Remer, Jason (Nuclear Energy Institute)	I believe the scope is well managed. Aging management of active structures, systems, and components (SSCs) is addressed by the maintenance rule 10 CFR 50.65. In the success of that regulation has been demonstrated by licensing programs to continuously monitor reliability and availability of SSCs beginning in 1996. Therefore, change to the 10 CFR 54 to include aging management reviews of active SSCs for SLR would be an unwarranted and unnecessary duplication of regulatory activities already addressed in 10 CFR 50.65. The second part of my answer - Someone suggested that the entire current licensing basis should be included in the scope of SLRs similar to the scope suggested in the IAEA guidelines for performing a periodic safety review every 10yrs. In 2011, NRC documented an evaluation of the PSR process - and I will repeat what I said before, basically you came to understand that our existing regulatory process we use in this country is superior to the periodic safety review and that's what you're staying with and we agree that that's the appropriate process. Third part of my answer - Someone suggested that the equipment added in response to the Fukushima event to address the beyond design basis events should be subject to an SLR review. At this time, the regulatory changes to address beyond design basis events are being developed. These regulatory changes will apply to all licensees, whether they seek SLR or not. Equipment added in response to the Fukushima event that meets the safety significance threshold defined in the scoping criteria of the license renewal rule will be evaluated for SLR.
Remer, Jason (Nuclear Energy Institute)	Everything is very tightly controlled in regards to documentation at our plants so that would be easy to find as well.
Remer, Jason (Nuclear Energy Institute)	Certainly if you made a mod that was a safety related mod or you added equipment to meet some safety requirement, then if it fell in the scope it would be, of course, in the scope. But all the plant mods are readily available to pull and look at from this period to that for every utility and is doable with the current systems we have.
Vaucher, Rachel (Autorité de sûreté nucléaire)	Will other SSCs than the long-lived passive ones be addressed in subsequent license renewal?

Response

For subsequent license renewal, NRC staff determined that current scoping criteria for the rule is adequate, with the recommendation that it be expanded to include SSCs associated with the 10 CFR 50.54(hh)(2) requirements, equipment intended to maintain or restore core cooling, containment, and spent fuel pool cooling capabilities under the circumstances associated with loss of large areas of the plant due to explosions or fire. Currently, NRC staff relies on voluntary industry initiative to age manage this equipment. NRC staff presented this option for rulemaking to the commission in a SECY paper for consideration, with the response from the commission being that no rulemaking was necessary, and to continue working with industry to maintain proper safety and accountability of the equipment.

A component is not considered within the scope of license renewal, unless it is safety-related, can impact the performance of a safety-related intended function, or performs a function that demonstrates compliance with the Commission's regulations for fire protection, environmental qualification, pressurized thermal shock, anticipated transients without scram, and station blackout. A basis of the license renewal rule is that the performance monitoring of active components is adequately covered by the Maintenance Rule (50.65) and therefore active components are screened out from being age managed.

For subsequent license renewal, NRC staff determined that current scoping criteria for the rule is adequate, with the recommendation that it be expanded to include SSCs associated with the 10 CFR 50.54(hh)(2) requirements, equipment intended to maintain or restore core cooling, containment, and spent fuel pool cooling capabilities under the circumstances associated with loss of large areas of the plant due to explosions or fire. Currently, NRC staff relies on voluntary industry initiative to age manage this equipment. NRC staff presented this option for rulemaking to the commission in a SECY paper for consideration, with the response from the commission being that no rulemaking was necessary, and to continue working with industry to maintain proper safety and accountability of the equipment. Therefore, there will be no change to the current license renewal rule in regards to scoping of SSCs.

Comment Response Report

Bin: Public Comments, Public Intervention, Contention Process, and Hearings

Comment	
Lampert, Mary (Pilgrim Watch)	I had to use my own personal money to participate. There were many, many experts I wanted and talked to, but when we got down to money I simply couldn't afford it.
Lampert, Mary (Pilgrim Watch)	It's hopeless because the way the rules are, people are going to be rubber stamped. Why be like the folks up in Vermont who are over $200,000 in debt or like Mary Lampert's poor husband who has to foot the bill?
Lampert, Mary (Pilgrim Watch)	A lot of people up at Seabrook call asking for my help pro se. None of us have the money to hire a lawyer, to hire the experts, and we don't have staff to do it.
Lampert, Mary (Pilgrim Watch)	Witnesses should be allowed to appear at hearings via video conference or by phone to save costs.
Lampert, Mary (Pilgrim Watch)	Numerous studies regarding funding include the American University Law Journal on efforts in the '70s and '80s, S270 in 1977, and Government Accounting Office reports. GAO left it to federal agencies whether to opt into the program and NRC fought it. Congressman Markey tried to get legislation through and again NRC fought it. So NRC needs to decide that public participation is important, and if so, then push for funding instead of fighting it.
Lampert, Mary (Pilgrim Watch)	It was lopsided at the Atomic Safety Licensing Board hearings because I could come up with a couple of experts who could spend very short hours; whereas, the other side had multiple teams, the NRC and industry. So, how could they really feel that the decision they were making was based upon a fair presentation of facts? It wasn't, and it can't be unless the funding is provided for witnesses, at the least.
Lampert, Mary (Pilgrim Watch)	There is no opportunity for public interest groups to get pro bono legal services because the law firms want business from industry without conflicts of interest.
Lampert, Mary (Pilgrim Watch)	Would the NRC now advocate intervenor funding? In the past both NRC and industry discouraged it. I request documentation be provided for efforts to support and get the process going.
Lampert, Mary (Pilgrim Watch)	For Part L Proceedings, fees for witnesses should be paid by the NRC to insure the public's right to intervene.
Lochbaum, David (Union of Concerned Scientists)	[Refers to Mary Lampert and Richard Webster's comments regarding the difficulty of public participation in the process.] (I've)... never helped anybody as an expert witness despite having the technical ability and having been asked. The travel time versus the 15 minutes one gets once there, makes it impossible for UCS to participate. Video conferencing

would be helpful.

Lochbaum, David (Union of Concerned Scientists)	Can the NRC look at other federal agencies to see if there is a suitable model for intervenor funding it can adopt?
Lochbaum, David (Union of Concerned Scientists)	As Richard Webster pointed out, if you agree to be an expert witness there will be a tremendous demand on your time over the next decade including schedule changes that make it difficult to honor that commitment. It's wrong. The process need to be more disciplined and more amenable to participation.
Lochbaum, David (Union of Concerned Scientists)	... the intervenor funding wouldn't change whether we did or didn't participate in the process. So, the process issue has to be fixed for us to determine that that's the best use of our resources. The intervenor funding wouldn't change that part of the dynamic for us.
Webster, Richard (Public Justice)	Although there are some state precedents for actual funding, I think fee shifting would be tremendously helpful in these proceedings. One of the reasons that it's very hard for us to get involved is that my firm, Public Justice, would be primarily or partly funded by the other side paying our fees when we win. That happens under the Clean Water Act, under RCRA, and on the NEPA litigations through the Equal Access to Justice Act. There's plenty of precedent for public interest lawyers to get paid when they win.
Webster, Richard (Public Justice)	I get lots of calls from people asking me to represent them in relicensings, and I routinely decline because I don't have the time. Oyster Creek took 50% of my time for 4 years and I think the process is inherently rigged against us. I do a little bit here and there where I think important issues are being raised.
Webster, Richard (Public Justice)	We could win if the application was frozen and the applicant was forced to settle with us when actually we had a good point. If we got paid when we win, then we'd be able to do a lot more of these proceedings and we would find a lot of mistakes.

Response

Currently, the NRC has no legal means for providing funding for a member of the public in regards to their involvement in the public hearing process. The NRC does not plan to explore this as an option for rulemaking for current or subsequent operating license renewals of nuclear power plants.

Comment Response Report

Bin: Public Comments, Public Intervention, Contention Process, and Hearings

	Comment
Lampert, Mary (Pilgrim Watch)	The petitioners feel that the rules favor the licensee by getting licenses approved quickly, instead of preserving public safety and the environment.
Lampert, Mary (Pilgrim Watch)	NRC is always siding with industry for license renewal, making it two to one against witnesses.
Lochbaum, David (Union of Concerned Scientists)	If the NRC really wants public participation, they've got to make it easier than it is now. My hat's off to Mary Lampert and others who try it, because I don't have the guts to try that process.
Riccio, Jim (Greenpeace)	In terms of the process, the Environmental Protection Agency has what are known as citizens super meetings. The NRC could do the same. So, there are adequate ways both with legislation and without to improve this process, and there has to be a willingness on the part of the Agency to do so.
Riccio, Jim (Greenpeace)	And it just seems to me that if you actually want participation, you have avenues to do it. You have it. You tried to remove the public from the process, and I'll leave it at that.
Webster, Richard (Public Justice)	Is NRC satisfied with the level of public participation, and do they agree that increased public participation improves decision making?
Webster, Richard (Public Justice)	Thanks for the comments from the Office of General Council. A lot of relicensing people didn't show up probably because it's a labyrinthine process, which reflects poorly on the agency.
Webster, Richard (Public Justice)	Public participation is a requirement under the Atomic Energy Act, and has been shown to improve decision making. Therefore public participation should be welcomed, used as a tool, and given an easy and efficient process.
Young, Garry (Entergy Nuclear)	There is a lot of opportunity for public participation in the license renewal process, although the process can be complicated and difficult.

Response

As with any licensing activity, the public has an opportunity to participate in NRC's decision making process with regard to license renewal. The public is encouraged to participate in the process through public meetings, and public comment periods on rules, renewal guidance, and other documents. In addition, the public has an opportunity to request a formal adjudicatory hearing if that party would be adversely affected by the renewal. The public is notified through the Federal Register, press releases, flyers, and local advertisements after an application for the license renewal of a nuclear power plant has been received by the NRC. A notice is routinely placed in the Federal Register within a month after receipt of the application.

The public can keep abreast of NRC's reactor license renewal regulatory activities through a variety of open meetings, including commission meetings, advisory committee meetings, and staff meetings open to the public (http://www.nrc.gov/public-involve/public-meetings.html).

Comment Response Report

Bin: Public Comments, Public Intervention, Contention Process, and Hearings

Comment	
Lampert, Mary (Pilgrim Watch)	I would also be encouraged by seeing some response on anything brought forward to the NRC.
Lampert, Mary (Pilgrim Watch)	Unless you've had the opportunity for discovery during the license renewal process, you don't have as strong a case to win in those other avenues.
Lampert, Mary (Pilgrim Watch)	Another issue for process that should be discussed is that the standards set for reopening are too high a burden on litigants and unfairly limit our participation on safety matters. When information is developing, you can't expect the petitioners to meet the standards for reopening which requires proving you'd win in summary disposition.
Lampert, Mary (Pilgrim Watch)	If the information is newly brought to the table by the applicant, or by the NRC, it would seem then that the parties should be able to address it after a 60- or 120-day period to study the issue. That would also go for the Staff's Environmental Impact Statement.
Lampert, Mary (Pilgrim Watch)	It would be better for a petitioner to be able to file after the final, instead of after the draft.
Lampert, Mary (Pilgrim Watch)	It's convoluted and confusing to have both Part D and Part L in the same proceeding. For Part L, there should be a requirement for meaningful opening and closing statements and cross-examination allowed across the board.
Lampert, Mary (Pilgrim Watch)	Another very important issue is who can play. I fully object to the NRC legal staff being allowed to be a party to the hearings.
Lampert, Mary (Pilgrim Watch)	Lochbaum, David (Union of Concerned Scientists)
Lampert, Mary (Pilgrim Watch)	
Lochbaum, David (Union of Concerned Scientists)	

Public participation at these hearings does not include witnesses, expert reports, opportunity to reply to the other side's expert reports, et cetera. I have not seen much difference between a draft SEIS and the final document which is indicative of the effect of public comments.

The public is held to stricter standards than the applicant. When an application is filed, 10 CFR 54.13 requires all applications to be complete and accurate, yet the applicant is allowed to make substantive additions and changes long after the application is docketed. However, the petitioners have to file a late filed or request to reopen the record.

The license renewal process should be made equitable with those other processes. Instead of all these undue burdensome administrative barriers to public participation, we choose more amendable outlets to try to raise the same safety issues.

The public needs more time than the allotted 60 days to review applications so they can have an equal opportunity to contend points they don't agree with.

Lochbaum, David (Union of Concerned Scientists)	It was not expected that NRC was going to clarify some of the understandings [Lochbaum] had or misunderstanding [Lochbaum] had.
Lochbaum, David (Union of Concerned Scientists)	The ASLB hearings get delayed so many times that people stop believing they are going to occur, they stop preparing, and then get two days' notice when they finally do occur. There needs to be more scheduler discipline to the process, as Richard Webster says.
Webster, Richard (Public Justice)	The rules are inefficient. We need to expedite the hearing process by eliminating motion practice, motions in limine, and summary disposition.
Webster, Richard (Public Justice)	There should be a process that provides the ability to come in at any time. Licensing is the period when the licensee will decide to spend money to continue operating. After they receive the license, they're more likely to back off if an issue arises and spend as little money as possible.
Webster, Richard (Public Justice)	At Oyster Creek, after the hearing record closed, it turned out that fatigue was incorrectly calculated and did not meet code. The Board ruled we were too late to get in a contention on that. So the gates for getting contentions in close very, very early.
Webster, Richard (Public Justice)	Mandatory hearings, of course, don't require legislation. All we need is the Commission to decide that a second layer of check is a good idea.
Webster, Richard (Public Justice)	Meaningless public participation includes comments that don't affect the way the license or EIS are done. Meaningful public participation is when actual weaknesses are identified that have to be addressed by the NRC or the industry.
Webster, Richard (Public Justice)	I encourage the Agency to make the public comment process a metric driven process. How many words got changed in a FSEIS versus a DSEIS versus how many words were spent in comment? I think it would show that the public comment process is ineffective.
Webster, Richard (Public Justice)	Companies try to improve their applications just enough to get rid of a contention. We have to chase a moving target. Once the FSEIS and SER come out and the contention has been filed, the application needs to be frozen so the applicant and intervenor can go to settlement.
Webster, Richard (Public Justice)	The rules for intervention are incredibly intricate which makes it difficult for public participation.
Webster, Richard (Public Justice)	NRC had 45 relicenses go through without any public hearing at all. This is a failing on NRC's part and OGC's part since this is a legal obligation.

Comment Response Report

Webster, Richard (Public Justice)	Currently, we have to file 3 years before the SER which is a waste of time. If you want to encourage public participation, then let people see the exchange between the staff and the applicant, and what is in the FSEIS.

Webster, Richard (Public Justice)	Either make the hearing process simple and easy for lay people to participate in with some cross-examination, and decisions made by Licensing Board judges; or one that has trial-type protections, evidentiary protections, good discovery, and so forth. Right now it's the weakness of an informal process combined with the difficulty of a formal process.
Webster, Richard (Public Justice)	The hearing needs to have cross-examination in order to look like a real trial to the public. Where there's a lack of evidence in the record, we need to construe the facts in favor of the intervenors, not against them as it is now.
Webster, Richard (Public Justice)	Currently, in the initial licensing process there are mandatory hearings where even if an intervenor doesn't come forward, the Licensing Board or now the Commission, takes the applicant to task. I believe the NRC Staff is not perfect and this second check is very useful. The ESP proceedings were done very well with detailed analysis by the Licensing Board judges before the Commission took them over. Five Presidential appointees can't determine where the technical errors are and this should go back to the ASLB.
Webster, Richard (Public Justice)	At a Senate hearing some time ago, some commissioners agreed that it was inconsistent that there are mandatory hearings for licensing, but no mandatory hearings for relicensing. They wanted to get rid of mandatory hearings completely. This is the wrong way to go because sometimes things that were initially approved were subsequently not approved. An OIG report highlights problems in the relicensing process for the first 60 plants. We can't rely on people like Pixie (Mary Lampert) doing the impossible in their spare time. So, we need quality assurance, checks, and a mandatory hearing.
Webster, Richard (Public Justice)	We need to change the public process. Deadlines are too early. Presently you don't file on the DSEIS for NEPA contentions.
Webster, Richard (Public Justice)	The process of contentions should include discussions with the intervenor, not just between NRC and the applicant.
Webster, Richard (Public Justice)	The Staff should not be part of the hearing and defend the applicant or support the industry. They need to let a fair fight commence. Applicants have enough resources to defend themselves.

Webster, Richard (Public Justice)	MR. WEBSTER: Of the 71 relicensings so far, how many have gone to hearing? I guess what I'm asking is have you measured how many went to hearing. Do you have a metric for that? Are you measuring that, and do you have a goal plan? I guess what I'm asking is have you measured how many went to hearing. Do you have a metric for that? Are you measuring that, and do you have a goal plan? (NRC speaker): No, I'm not aware of any goal for the number of plants that actually do go to hearing. MR. WEBSTER: Well, I think it's probably been—I think I would say it's been less than five that's gone to hearing, five out of 71. It doesn't sound like a very high mark to me.

Response

The NRC conducts hearings on disputed matters involved in the re-licensing of nuclear reactors. However, hearings on license renewal applications are not mandatory. Hearings are held only if a petition that shows standing to intervene and sets forth at least one contention (issue) that is suitable for litigation in the processing is filed. The NRC regulations that govern the hearing process are in Rules of Practice for Domestic Licensing Proceedings and Issuance of Orders (Part 2 of Title 10 of the Code of Federal Regulations (http://www.nrc.gov/reading-rm/doc-collections/cfr/part002/). Any person whose interest may be affected by the proceeding to grant a renewed license to a specific facility may file a written request for a hearing or a petition for leave to intervene with respect to the renewal of the license. The regulations related to intervening in a licensing action are governed by 10 CFR 2.309.

When the NRC receives a license renewal application, it is made available on the NRC's website at www.nrc.gov. Approximately 2 months after the NRC receives the application, a notice is posted in the Federal Register indicating the opportunity for a hearing regarding the renewal of the operating license and instructions for filing a request for a hearing or a petition for leave to intervene. Members of the public have a minimum of 60 days from the date of the Federal Register notice in which to file a request for a hearing or a petition for leave to intervene. A request for a hearing or petition for leave to intervene must be filed with the Secretary of the Commission, U.S. Nuclear Regulatory Commission, Washington, DC 20555- 0001, Attention: Rulemaking and Adjudications Staff, or it may be delivered to the Commission's Public Document Room, 11555 Rockville Pike (first floor), Rockville, Maryland 20855-2738.

If a request for a hearing or a petition for leave to intervene is filed by the date established in the Federal Register notice, the Commission or the Atomic Safety and Licensing Board will rule on the request or petition, and the Commission or the designated Atomic Safety and Licensing Board will issue a notice of hearing or an appropriate order. In the event that no request for a hearing or petition is granted, the NRC may, upon completion of its evaluation and upon making the findings required under the regulations, renew the licenses without further notice.

The regulations (10 CFR 2.309) provide that a request for a hearing or a petition for leave to intervene must show the interest of the petitioner in the proceeding and how that interest may be affected by the results of the proceeding. The petition must specifically explain the reasons that intervention should be permitted, with particular reference to the following factors: 1) the nature of the petitioner's right to be made a party to the proceeding, 2) the nature and extent of the petitioner's property, financial, or other interest in the proceeding, and 3) the possible effect of any order that may be entered in the proceeding on the petitioner's interest. The petition must also identify the contentions and bases for contentions and show the hearing track under which the hearing should be conducted.

Each contention must consist of a specific statement of the issue of law or fact to be raised or controverted. The petitioner must also provide a brief explanation of the bases of each contention and a concise statement of the alleged facts or the expert opinion that supports the contention and on which the petitioner intends to rely in proving the contention at the hearing. The petitioner must also provide references to those specific sources and documents of which the petitioner is aware and on which the petitioner intends to rely to establish those facts or expert opinion. The petitioner must provide sufficient information to show that a genuine dispute exists with the applicant on a material issue of law or fact. Contentions must be limited to matters within the scope of license renewal (the action under consideration). The contention also must be

one that, if proven, would entitle the petitioner to relief.

Bin: Operating Experience, Aging Management Programs (AMPs), and Maintenance Rule

Comment	
Bernhoft, Sherry (Electric Power Research Institute (EPRI))	The problems with cables are the insulation, how they are installed and where they are installed. 23 years' worth of research has been done on cables and at least two techniques have been developed to monitor cable performance. The guidelines for cable are available. Several plants have already performed their first set of walkdowns on cable, and some have done their second.
Bernhoft, Sherry (Electric Power Research Institute (EPRI))	Some plants do have the wedded cable situation. Also, because of installation issues some licenses may not be installed correctly. The information about these things can be credited back to what the aging management programs are doing. The aging management programs are detecting these issues and are a benefit to industry.
Lampert, Mary (Pilgrim Watch)	Will the guidelines for cable inspections be transferred to the aging management programs and be retroactive for reactors that have already been licensed?
Lampert, Mary (Pilgrim Watch)	Will the guidelines for cables be turned into requirements?
Lampert, Mary (Pilgrim Watch)	In the hearing in front of the joint legislature committee April 6, 2011, Entergy admitted, contrary to their previous testimony, that there were no tests by which you could determine the degradation of the buried electric cables. So question number one, is there something different in the past year? Do you have the capability of determining?
Lampert, Mary (Pilgrim Watch)	And so when you are talking about these walk-downs, what are you using to determine the integrity of these cables? I mean, if the lights go on, so to speak, I suppose that could be an indicator but doesn't mean it's going to go on ten minutes later, carry the electricity to allow that, in other words. And, question number two, what about low-voltage cables?
Lampert, Mary (Pilgrim Watch)	Are there testing techniques that can be used to tell the condition of cables with regard to degradation due to corrosion and in particular from moisture?
Lampert, Mary (Pilgrim Watch)	What time frame is proposed for periodic tests for monitoring the cable systems?

Response

PLACEHOLDER RESPONSE- above comments not yet dispositioned. Awaiting input from Cliff Doutt.

Comment Response Report

Bin: Operating Experience, Aging Management Programs (AMPs), and Maintenance Rule

Comment	
Earls, Chris (Nuclear Energy Institute)	Throughout the original licensed period and the extended license, the industry has effectively utilized operating experience and R&D efforts to identify and resolve aging issues as a part of routine plant operations and maintenance. The key concept behind this continuous learning and improvement process is to incorporate insights and observations related to SSC aging effects as soon as they are discovered and then modify the inspection/repair/replacement activities and requirements to maintain the necessary margins for continued safe and efficient operations. The industry has made significant investments into advanced condition monitoring and preventative/predictive maintenance and inspection programs in order to enhance equipment condition and take necessary corrective action well before a loss of a safety function could occur due to aging effects. To date, there have been no new aging effects identified that are unique to the period of time between 60 and 80 years of plant operations. However, if a new aging effect were to be identified (through the rigorous application of the operating experience and R&D efforts), the licensees will address it immediately as part of the ongoing plant operation activities and procedures.
Fallin, Michael (Constellation Energy Nuclear Group)	Predicted aging versus actual aging is going well so far. Nothing has been seen so far that is far different than what has been predicted. This information is shared via working group meetings.
Fulvio, Albert (Exelon Nuclear)	In regard to (NRC speaker's) question about self-assessment, we perform self-assessments to ensure plant safety, equipment reliability, and to identify continuous areas of improvement. We will continue to do them with our aging management programs and also perform them every 5 years in the future. Self-assessment includes whether the program is effective and whether the intended functions will be maintained during the period of operation.
Fulvio, Albert (Exelon Nuclear)	There needs to be adequate time for energy planners to evaluate alternatives for replacement energy if needed. The 20-year term allows this sufficient time. Current regulations also require licensees to submit decommissioning plans on or about 5 years prior to the expiration of the operating license. If the renewal window were 10 years, for example, the effective submittal and review time would only be 5 years until a decommissioning decision needs to be acted upon by the utility. This small window is inadequate for planning and likely result in unnecessary plant shut-downs due to the uncertainty, therefore Exelon's comment is yes to the question to keep 20-year window for submittal.

Fulvio, Albert (Exelon Nuclear)	I just wanted to add on to what (previous commenter) was saying, just from a little bit different perspective on this whole topic. Equipment reliability is absolutely necessary for our plants to perform properly, to be safe, and to have profitability. We are always looking at equipment reliability from the stand point of generator output. When we have good generator output, we have good safety. We know that. We have Institute of Nuclear Power Operations (INPO) that's getting on us all the time about equipment reliability standards, so we're constantly increasing our standards on equipment reliability. And we have confidence that we will be reliable because we are continuously monitoring these plant components, systems, and structures. And we do monitor continuously whether we're in the first 40 years, the next 20 years, or the 20 years after that. You can see what we're doing. Like (previous commenter) pointed out, your NRC inspectors are with us all the time. They know what we're doing in that regard. And we do it continuously. We don't wait for a license renewal application to start monitoring our equipment and taking care of it and planning for refurbishments. Just in summary, in this regard, the statements of consideration conclusions are still valid today.
Hornbuckle, Jon (Southern Nuclear)	My comment is in regards to a question that was brought up on this area this morning concerning how can we show the programs that are new for the current renewal term and don't get implemented until the period of extended operation or shortly before that are adequate to manage aging for the subsequent license renewal term. The answer to that is that adequacy for such programs is shown that same way it is for current license renewal when new or enhanced programs are proposed. When an SLR application is submitted at year 40 or later and the utility does not already have much, if any, operating experience for that new program, the program description provides a basis for saying the program as described is expected to be adequate. Then there will be an IP71003 inspection prior to the new period of extended operation to demonstrate the adequacy of that program and at that time the program will have been in effect for 18 to 20 years, which should adequately allow the NRC to determine that that program is doing what it's supposed to do.
Lampert, Mary (Pilgrim Watch)	This goes back to my initial comment that we have reasonable assurance, preponderance of the evidence. And I asked a question, what level? What level gives reasonable assurance? Ninety-five percent? Fifty-one percent? Fifty-three percent? We've got to have a standard. Otherwise it's just a sop. And it gets rid of us.
Lampert, Mary (Pilgrim Watch)	The commenter stated the question, "(is this) self-regulation?" in response to a discussion on the maintenance rule-type action where the plant does an effectiveness review of their aging management and the NRC comes in and only reviews that.

Comment Response Report

Bin: Operating Experience, Aging Management Programs (AMPs), and Maintenance Rule

Lampert, Mary (Pilgrim Watch)	(With regard to an effectiveness review of the aging management program done by the licensee with this review being inspectable by the NRC) ...the review depends upon the inspection by the licensee and the licensee, particularly in the case of merging plants, does not have a motive to spend the money.
Lampert, Mary (Pilgrim Watch)	You can't make a good decision by looking back. Retired reactors should be dissected and studied to gain more information on the current state of the systems.
Lampert, Mary (Pilgrim Watch)	Aging management programs lack any specificity in their requirements. No one knows what "reasonable assurance and preponderance of the evidence standard" means. These programs need more clarification, something like a percent inspected, to be measureable.
Lampert, Mary (Pilgrim Watch)	How are you going to replace obsolete components in reactors that are 60+ years old? How are you going to find qualified replacement components?
Lampert, Mary (Pilgrim Watch)	(With regard to a contention) ... it was determined leaks of radioactive material that are unmonitored, [and] go off-site are not important. What NRC cares about are solely whether the leak, the break in the pipe is so bloody big that it would interfere with the safe shutdown of the reactor or maintenance of shutdown. ...So it was kicked out on that, which is an absurdity.
Lampert, Mary (Pilgrim Watch)	I would like to see every bloody corrective action, let's say, for Pilgrim, when it was submitted, what it was, when it was resolved.
Lampert, Mary (Pilgrim Watch)	Do you have a list of corrective actions per reactor including the date when it occurred, when it was checked off, and tagged with codes indicating where the corrective actions fit, and is this list available to the public?
Lochbaum, David (Union of Concerned Scientists)	The NRC does a lot of industry trends programs and has a lot of indicators that it tracks, safety system failures, and so on. Are those being culled out to identify those that may have an aging-related component when it's passive failure or an active component to see if trends are going in different directions to back up or supplement the questions you are already asking yourself?
Lochbaum, David (Union of Concerned Scientists)	With regard to trend codes and information related to operating history such as failures that may relate to an aging issue, having a database or the information would better inform decisions about where to apply resources and related issues. It would be helpful to develop the database or information more fully to complement the industry trend program and other data collection.

Lochbaum, David (Union of Concerned Scientists)	If you haven't had any failures and you're not doing the inspections that are done at plants that were late in the license renewal queue you won't have any data and you are not finding problems that are there and getting worse.
Remer, Jason (Nuclear Energy Institute)	As equipment ages, you have a capability curve, and the point of operating safely is to monitor that equipment and repair or replace it when it gets close to that minimum level of safe operability. Why would you wait until a license renewal? It would be unacceptable to have our equipment operate at very minimum levels just to get by. The maintenance rule does this, the aging management program does this, it requires us to go out and inspect, evaluate, monitor, and to make an assessment of remaining useful life for that equipment. On the whole you are maintaining an adequate level of safety at all times.
Remer, Jason (Nuclear Energy Institute)	Well I would say, and I'll be able to comment specifically in the particular issue, is that issues that are attached and the analysis is done with certain time frames on them have to be looked at again, and ones that aren't, then NRC is always free anywhere any time to bring up a safety issue and evaluate. And then the plant is responsible for keeping that equipment maintained, to a high level of performance, and if it reaches the end of its life it will be replaced. Or the plant will cease to operate.
Remer, Jason (Nuclear Energy Institute)	I think that goes back to the strength of the whole aging management program. Not only were (they) implemented through license renewal, but were always part of the plant's operation/maintenance/repair program according to 10 CFR 50 Appendix B. Utilities always have to make sure they know the status of their equipment, and are monitoring that equipment, and upgrading things to maintain safety. You're using operational experience, you're using, you know again I was at ANL for almost 20 years, and we have predictive and preventive maintenance programs that look at all the features of the equipment to determine is this equipment operating safely, is it reaching the end of its life. I'm taking oil samples, I'm doing vibration, I'm doing all kinds of tests on this equipment. It's very much an interactive process, so it's not just a 'oh, wow, we're surprised, now we've got to replace this major equipment'. No, these things are thought about years and years and years in advance and for every major piece of equipment, every plant would very much know of where their equipment is in that life continuum.
Remer, Jason (Nuclear Energy Institute)	I agree that programs need to be managed and maintained and integrated into the living systems of the plant for safety.

Remer, Jason

(Nuclear Energy Institute)

(In answer to, "do you see there being an industry-wide recommendation associated with replacement guidance?") I'll start off by answering that by a personal story. So I've got two, three vehicles at home, I've got a 1987 Ford pickup, and I've got a brand new Ford Flex. So at some point in time I made the decision to replace the Suburban with the Flex because, why, because it was starting to break down more often. Why do I have my 1987 Ford pickup? Well, because I've replaced all the parts, new engine, new transmission, new brakes every couple years, so I'm monitoring the situation of that vehicle. In the same way, it would be hard for me to imagine anybody coming up with a set of guidelines that could just say, well 'this pump can last X number of years', period. We really don't operate equipment that way. We monitor it. We maintain it. We have operators out in the field all the time monitoring that equipment. We have maintenance personnel that are performing the recommended preventive and predictive maintenance - oil analysis, vibration - all the things you have to do, and at some point, where the repairs, many would economically say, 'hey, you're spending more on repairing this thing than we would if we bought a brand new system', then the decision is made to replace it. For instance, a lot of the feedwater control systems. You'll pretty much see that most are (inaudible). Well why is that? Because the old ones need a lot of repair, parts are not available; the new ones work better, so the decision was made to replace those. So again, it points back to the strength of our existing regulations, Part 50 Appendix B and 54, that you're able to monitor those equipments and replace them at the appropriate time for their particular use and application. I can't imagine anybody saying 'well, all cables last this long, period'. No. It's a function of their environment, their usage, their condition, their maintenance, etcetera, and etcetera. So, the point you're getting to, I think, we're in extremely good shape in regards to monitoring. There's never been a better time that we know what's going on with our equipment in our site. And we're able to make those decisions based on data. So to try to figure out a way to say you know 'a pump of this size can only last 42 and a half years' would be hard for me to imagine how anybody could come up with that.

Remer, Jason (Nuclear Energy Institute)	[In response to, "what about acceleration of occurrence of failures?"] I would say if you identify such a thing, then NRC and the industry would need to take action immediately. And it wouldn't have anything to do with license renewal. It would have to do with we've identified a safety issue, or a period of performance issue, or a degradation mechanism that has been unknown previously, or maybe characterized properly. And it would have to have action taken on it based on the safety significance at that time. We're not going to wait until license renewal to take action on a safety issue. Nor would you. And so it doesn't really have anything to do with license renewal. If we find a mechanism through R&D then it's going to be brought to light and brought forward. You have a research division as well that participates on all these research panels already. And so, those things are being known across the industry and to regulators as well. I hope that answers your question.
Remer, Jason (Nuclear Energy Institute)	Equipment replacement and refurbishment activities are already an outcome of the existing aging management programs. Based on the results of the inspection testing and surveillance activities, companies are replacing or refurbishing equipment as needed to maintain safety functions. Aging management program effectiveness is continuously monitored by the licensee and by the onsite NRC inspectors to ensure decisions of replacement and refurbishment are made in a manner to ensure continued safe operation. Aging management programs provide the data needed to make well informed decisions of when or if component replacements or refurbishment is needed. This includes factoring in operating experience (OE) and lessons learned throughout the life of the plant to ensure safe continued operation.

Remer, Jason (Nuclear Energy Institute)	[Response to a question about an industry standard of when to replace equipment:] It's not a clearing house, but it's much, much more than that. With Institute of Nuclear Power Operations (INPO), with the equipment reliability, performance based systems that we have like (NRC speaker) mentioned; a safe plant is a high availability plant. A high availability plant is a safe plant. We spend untold thousands of man-hours training our people on equipment reliability, condition assessment, material supply, operation of equipment, so not only do we have a clearing house, but we have much more than that. We have user groups, say, for this kind of pump, these guys get together, maybe every few months, and talk about that pump, and that motor. So it's not like you got a little guide that says this thing's going to last 7 years and 3 months. You're evaluating this lifetime based on its environment, its maintenance history, its operational experience (OE), not only domestically but internationally. So to think there is some kind of little checklist guide would be way over simplistic. If a company says a thing can operate 15 years but we're seeing that this is not operating well at 10 years, we're not just going to look at that and say well it should operate for 15 though. We're going to say we're going to fix this thing. Or we're going to replace it. So the condition monitoring systems and your maintenance control systems and your training on these kinds of predictive technologies, gives you so much more insight in your equipment's condition.
Remer, Jason (Nuclear Energy Institute)	The way we have right now is adequate - several reasons as far as the operation, most of the programs for aging management are based on programs that are already existing in most nuclear plants. Therefore, you do have at least 40 years of experience in running these programs even though it could be that you just started your subsequent renewal period or extended operating period, you do have at least 4 years of that experience to begin the SLR. Major consideration for seeking SLR 20 years in advance of the expiration date is it takes about 10 years to design, license, and construct major new generating facilities and long lead times required by energy planning decision makers. Although the NRC review of an SLR application is expected to take approximately 2 years, some reviews for SLR have taken more than 6 years. Given their time frames, NRC regulation provides prudent allowance of up to 20 years prior to license expiration. Since licensees must wait until after 40 years of operation to seek SLR and the majority of aging management activities are comprised of existing activities during the 40 year period, the adequacy of aging management activities will have been thoroughly demonstrated and site specific environmental issues will be well understood by the time an SLR application can be submitted to NRC. As far as decommissioning plans, you need at least 5 years prior to license expiration to notify NRC of you intent to decommission. So these times get really compressed given a 20 year time frame you have more room for the decision makers to understand how to go about that process.

Remer, Jason (Nuclear Energy Institute)	It would seem like that should already be being done. If it's challenging the safety systems and not being repaired or replaced appropriately, then the NRC has other mechanisms to deal with the licensee not meeting their safety requirements. We welcome that because we want to operate these plants safely. If we have a component that is challenging our safety systems, and we are not following our programs, then we should do that better. But license renewal doesn't need to impose that. That's an operation consideration for any plant any time. You track those [corrective action] numbers and we track them, and we are all striving to do better every day.
Remer, Jason (Nuclear Energy Institute)	I assume you mean, when you talk about qualification, are you referring to environmental qualification? To look at beginning to apply for another license period, all your equipment would have to be evaluated. And you have to evaluate your plan and say, if a component is going to coming to the end of its useful life, like a turbine or a steam generator, or whatever, any component, a motor, that calculus is done all the time. In fact, industry has developed tools to help us with that ongoing process. It's not just going to go on because of subsequent renewal but happens every day. Because you're sitting there operating a plant and your feedwater pumps needs to be a major refurbishment, that's part of your calculus to continue to operate. So, the process you mentioned happens continuously, it's part of the culture. It doesn't just start when you're thinking about renewing your license. You've got this license period that you hope to be able to operate, but in some cases, like one of our plants, they're not going to be able to make it because the economics don't work. But what you're saying there is a cultural process, it goes on continuously.
Remer, Jason (Nuclear Energy Institute)	That would be a real, real primitive and fundamental thing that we would use if we didn't have anything else. What you have is active equipment history, you got users groups that are, from really, literally, all over the world for this kind of particular equipment, and they know everything there is to know about that particular type of component. It may not be in a book somewhere, but you'd have active users groups and active people involved in predicting the remaining life of those things, or extending the life, or saying hey, it's time to replace this thing. I hope that answers the question. There's a whole lot more than just a list somewhere. I would send your site inspector out there to talk to the guy that system's in charge of that device and say tell me about it. And I bet he would be able to get you all you needed. It's not in one book or one list somewhere, but it's available. My point is there's a very active R&D process going on. And EPRI's working it, DOE's working it, NRC's working it. In some cases the research is intertwined. NRC in a lot of ways is part of a party on those R&D projects.

Remer, Jason (Nuclear Energy Institute)	[Regarding public availability of equipment data:] There's users groups with our vendors. You have the PWR owner's group, the BWR owner's group, and you have the myriad of NEI users groups, the INPO groups, the other groups that are out there, so I wouldn't say it'd be all public, but that literature would be available, and those groups would in some areas be indispensable to you.
Remer, Jason (Nuclear Energy Institute)	As you know, recent news, one of our facilities will be shutting down this next year. Just an economic consideration. It already has a renewed license, but it will be shutting down. For economic reasons. So at any point in time for economics, say that it's not economical to operate, then the plant will cease to operate. If we had particular time limited aging analysis that specifies X number of years, then we have to relook at those. There's no question. But the structure of Part 50, Part 54, and Appendix B is such that it doesn't really say X number of years that is a structure that allows you to operate safely.
Remer, Jason (Nuclear Energy Institute)	For the record... I think the existing regulation, if you look at them, are not a static set of requirements. They are living programs that require you to look the equipment, system structures and components and take the necessary action to either monitor their lifetime, restore them, repair them, replace them at the end of their life to keep nuclear safety at an adequate level.
Remer, Jason (Nuclear Energy Institute)	I would say two things. Number one, NRC at any point in time has the flexibility to look at safety issues, bring up safety issues that are a concern. And issues that are specifically tied to time-limited aging analysis or particularly aging issues are candidates for re-evaluation. But general safety issues and things like that, we don't see that they're necessarily tied to any particular license period other than the fact that you have a period of time where you're requesting and seeking a new license extension. Time limiting aging analysis (TLAA) issues, absolutely. Other safety issues, they should be brought up at any point in time that there's a safety concern.
Remer, Jason (Nuclear Energy Institute)	I think what you're describing, if I understand it properly, really points to the rigor of the aging management programs that are in place right now for license renewal. That they're flexible enough to allow you to not only keep the equipment maintained, but provide a view into the future of limited life items by sampling, by inspection, and by repair. And so, without an exactly specific item to look at, certainly if you add additional regulations that don't improve safety then that's not an economic nor a safety improvement in regards to a nuclear operating facility. I think we'd have to look at specific items to make that calculus - to make that evaluation.
Remer, Jason (Nuclear Energy Institute)	I'd like to note that I think this is a good approach that you have laid out and we fully support that. And, we made comments this morning as well.

Riccio, Jim (Greenpeace)	... I know for a fact that there are all kinds of things that happen in licensing that do not meet the cable separation criteria. Is it possible to actually separate cable as you are replacing it?
Riccio, Jim (Greenpeace)	We would like to believe that the agency would take appropriate steps (or corrective action) to address an aging issue when it found it whether it involves the current license, a renewed license, or an extended renewed license, but that is not the case.
Riccio, Jim (Greenpeace)	With regard to showstoppers in relation to the length of time plants can operate and issues related to whether wholesale cable replacement is necessary at certain ages, we don't see any technical showstoppers at this point, but there's certainly going to be economic showstoppers.
Riccio, Jim (Greenpeace)	...when you had the amnesty program, you'll remember Indian Point had cable separation issues, which never seem to have gotten addressed.
Riccio, Jim (Greenpeace)	With regard to a different regulatory process addressing the French experience on nickel alloy degradation in the upper heads of the reactor pressure vessels for the PWRs in the U.S., the commenter says, "I think that's even worse. It's even worse."
Vaucher, Rachel (Autorité de sûreté nucléaire)	How the issue of obsolescence (e.g. availability of electronic spare parts) will be considered in subsequent license renewal?
Vaucher, Rachel (Autorité de sûreté nucléaire)	How the issue of maintaining skills (utility, vendor, regulator…) will be taken into account in subsequent license renewal?
Webster, Richard (Public Justice)	I can tell you I think it's appalling you have already licensed 71 reactors without deciding this issue of uncertainty levels for AMPs.
Webster, Richard (Public Justice)	We have talked about an analysis of operating experience into the period of extended operation. I wonder two things. One is, how is predicted actually done in practice? And will we see public documents on that?
Webster, Richard (Public Justice)	What certainty is the NRC aiming for in the AMPs as it applies to the CLB? Let's take an example of pipe wall thickness. What certainty do you want to have that that wall thickness will not be below that criteria, what certainty detection do you need to have? I would suggest to you that 95 percent certainty detection is a good thing to aim for. And that should be incorporated into the design of the aging management program. I'm talking about the CLB criteria, the acceptance criteria that are derived from the CLB. And, by the way, it's not just that we can't get information.

Even the staff gets it wrong periodically on what the CLB is.

Comment Response Report

Bin: Operating Experience, Aging Management Programs (AMPs), and Maintenance Rule

Webster, Richard (Public Justice)	I would like to reiterate my concern about the current relicensing reviews. If the Staff does not have a statistical approach to determine how often aging could be missed by the monitoring, I cannot understand how there is any the basis to design the spatial scope and temporal frequency of monitoring programs? Even if the staff relies on codes, what is the basis for designing the codes? Until we answer this fundamental issue, I think we will be doomed to miss aging effects far too often.
Webster, Richard (Public Justice)	The industry's attempt to review operating experience hasn't picked up deviations such as the Oyster Creek tritium leak totally unpredicted by aging management programs and corrosion in containment, again where the aging management programs had predicted no corrosion. I'm sure there are a lot more. But if you haven't picked those up in your review, there is something wrong with your review.
Webster, Richard (Public Justice)	... I hope the operating experience you are looking at is cross-plant. I noticed that there's a tendency to look plant by plant.
Webster, Richard (Public Justice)	... one danger of emphasizing operating experience is, of course, I already found the tendency, though, of don't look, don't find. If you don't inspect a component, you don't find any problems.
Webster, Richard (Public Justice)	(With regard to the functionality of a pipe having both a safety component and an environmental component) ...And that's why those are failure[s]. That's why when the pipe leaks, that's a failure. And that's a failure of aging management. You should count it as a failure.
Webster, Richard (Public Justice)	I'm talking about AMP programs. For license renewal, for the programs that you approve as effective on the license renewal, what I'm suggesting is that there should be a guideline. The program should be adequate to ensure 95 percent certainty of compliance with that aspect of the CLB. As far as I know, there's no guidance out there at all at the moment on the degree of certainty required. See, I don't understand how you would design a program, an aging management program, if you don't know the degree of certainty to which it should ensure compliance. How do you figure out what the spatial scope should be? And how do you figure out what the temporal repeat period -- it goes back to Dave's (previous speaker) one-time inspection thing. If you don't know what certainty of compliance you are aiming for, I don't think you can derive a frequency or a spatial scope.
Webster, Richard (Public Justice)	…what level of certainty do you think when you -- let's say the agency, reviews an AMP. What level of certainty detection is adequate as far as you're concerned right now?

Young, Garry (Entergy Nuclear)	[In response to whether NRC should review the re-analyses:] The analysis that we are talking about, for example, metal fatigue where we calculate the cumulative usage factors. Those calculations are done with NRC-approved methodologies and those calculations are always available for inspection or audit by the NRC. And they are inspected periodically as part of the regional inspection activities and the component design basis activities throughout the life of the plant. So the extra step of submitting them to the NRC is certainly an option, but they are all already available in our review of inspection activities, and are available for audit if the NRC decides to do a special audit.
Young, Garry (Entergy Nuclear)	Regarding (NRC speaker's) comment and expanding on what Albert Fulvio said on the aging management program effectiveness and whether we should address that as part of subsequent license renewal-- the answer is yes. In the current requirements for submitting an application, one of the elements of any aging management program is to document the operating experience of that program and whether or not it has been effective. On periodic safety review and the 10-yr interval that IAEA recommends, that was specifically addressed as part of the integrated regulatory review service mission to the U.S. in 2011. IAEA did a review and evaluation for the NRC and made recommendations, including for the U.S. to consider using the periodic safety review in lieu of the current practices. A document generated by the NRC responding to that comment from IEA concluded that the continuous oversight process that is part of the U.S. practice is as good or better than the European or IEA practice of periodic review every 10 years. In addition, continuously looking at safety issues as they come up is as good or better than the practice of only looking at them every 10 years.
Young, Garry (Entergy Nuclear)	...we can't take an exception based on our CLB to an AMP, the only way we can take an exception if we can show the exception is equivalent to the aging management that's in the GALL report. But regarding any updating of requirements for aging management based on standards that are published, that's a common practice. You know our water chemistry program, for example, is based on industry guidance that's periodically updated for doing the water chemistry aging management program. (Previous speaker), as you mentioned, the ISI program is updated periodically based on changes to the codes. And I think that's throughout the GALL report, our references to standards that do periodically get updated. And when the update is based on operating experience or an issue that needs to be addressed, then that would automatically be folded into each plant's AMP for whatever term they continue to operate. If there are cases where that's not done, I can't think of any right now, the ones I'm thinking of are things like inspection activities, water chemistry, ISI, that sort of thing, they all get updated based on new information and revisions or changes to standards.

Young, Garry (Entergy Nuclear)	Part of the aging management program is predicting intervals between inspections and surveillance such that we do not have a loss of safety functions between inspections. When we reach a point where a component needs to be replaced to insure continued safe operations, then that is planned in advance. That's part of our long-range planning.
Young, Garry (Entergy Nuclear)	The maintenance rule is the aging management program for active components, and sets the reliability and availability standards based on the PRA models for the plant to ensure that the plants continue to operate within the requirements of the current licensing basis. Whenever there's an issue with equipment reliability or availability, it can be due to aging. If aging is determined to be the cause in reduction of reliability or availability, then it's addressed as part of the corrective action program which may involve changes to the aging management activities. That's currently the requirement of Part 50 regulations. It's subject to continuous oversight and inspection, and the maintenance rule program itself is periodically assessed by the NRC as part of normal plant operations. I would not see a benefit to doing a redundant review of maintenance rule for license renewal or subsequent license renewal when it's already being very thoroughly reviewed and inspected as part of the current license, and has been since 1996.
Young, Garry (Entergy Nuclear)	I'd like to comment on the earlier discussion on the reliability of equipment and whether we should be monitoring that and be more proactive. The maintenance rule already requires that we set reliability and availability goals for our safety systems and monitor those to insure that our existing maintenance practices and aging management activities maintain those levels of reliability and availability that are needed for safe plant operation. If there's any indication that we're not going to be able to do that or if a particular component or system is not performing as expected, we go into the corrective action program and we do proactively address that. Those actions may include repair or replacement or other changes to our aging management and maintenance activities. The existing regulations cover this area quite well and it's subject to continuous oversight and monitoring by the NRC under the requirements of the maintenance rule.
Young, Garry (Entergy Nuclear)	Regarding the comment about the TLAA and the option to reanalyze as part of the aging management program: the majority of the calculations done for TLAA are extremely conservative and that's why the reanalyze option is available. Eliminating the option to reanalyze would not be prudent for most of the TLAA aging management programs since they involve an extreme amount of conservatism and once you reach the point where the analysis is close to a best estimate and you're still exceeding your limits, then reanalysis is no longer an option. You can't analyze the issue away. You have to repair or replace.

Bin: Operating Experience, Aging Management Programs (AMPs), and Maintenance Rule

Young, Garry (Entergy Nuclear)	[Response to question about whether additional aging management program implementations are needed:] Some of the earlier license renewal plans, the GALL Rev 0 and the pre-GALL plans, did not commit to some of the aging management programs that are in GALL Rev 2. For the aging management programs, for example buried piping, the buried piping operating experience that came out subsequent to the early license renewal applications indicated a need for considerably more inspection and surveillance activities consisting of opportunistic inspections on a 10- year frequency than what were committed to by the first applicants. Those programs have been implemented for all of the plants in the U.S. as part of applying the operating experience element of the aging management programs which is part of existing part 50 requirements, as well as part of the credit that we take for license renewal for an aging management program if we continue to monitor operating experience and make changes as needed. I think any time there is a situation where there is an aging effect that may not have been identified, or there were new and expanded information based on operating experience, it would indicate a need for more inspection or more frequent inspection that is factored in as part of the current license and part of the requirements to maintain safe continued operations. I can't say all rev2 aging management programs have been implemented on all plants, but I can say that all plants have evaluated operating experience that indicates a need for changing programs and if there is a safety issue or concern, that operating experience is incorporated and changes are made to those programs on a continuous basis.
Young, Garry (Entergy Nuclear)	[Response to question about whether utilities take into consideration accelerated aging from upgrading:] As a clarification, the plants that operate for longer periods do not have a decrease in safety margin. The aging management programs were put in place, as well as all the other programs for maintenance and surveillance activities, to insure that we maintain the safety margin that's in the licensing basis for the plant. So, if the plants go forward there is no decrease in safety margin. That's the purpose of the aging management programs to maintain. It's not good to imply that older plants have reduced safety margin to what they were originally designed for. And as the plants age, and as equipment reaches that point where it needs to be repaired or replaced, or if systems are no longer performing at the level of reliability and availability, then that's dealt with as part of the current regulations for the maintenance rule and the aging management programs.

Response

PLACEHOLDER RESPONSE:
Awaiting input from Butch Burton

Comment Response Report

Bin: Operating Experience, Aging Management Programs (AMPs), and Maintenance Rule

Comment

Young, Garry (Entergy Nuclear)	The NRC and industry efforts to continually improve aging management programs should continue. Lessons learned and operating experience should be incorporated into the subsequent license renewal process. This will result in revisions to industry guidance documents, such as NEI 95-10, as well as regulatory guidance documents, such as the Standard Review Plan and the GALL Report. We as the industry look forward to working collaboratively with the NRC and the other stakeholders.

Response

On January 31, 2014, the staff provided SECY-14-0016 (ADAMS Accession Number ML14050A306) to the Commission for consideration. This SECY included several recommendations for revising the regulatory framework in Part 54 to address operation of nuclear plants for 60-80 years (known as Subsequent License Renewal, SLR). On August 29, 2014, the Commission issued its Staff Requirements Memorandum (SRM) for SECY-14-0016. In the SRM, the Commission did not approve the staff's recommendation to revise Part 54 for SLR and instead directed the staff to, among other things, continue to update license renewal guidance, as needed, to provide additional clarity on the implementation of the license renewal regulatory framework and address emerging technical issues and operating experience through means other than revising Part 54 (e.g., through updates to current guidance documents, through generic communications, and through voluntary industry initiatives). Lessons learned and experience from staff reviews of applications to operate nuclear plants for 40-60 years were major inputs into the staff's updates to the GALL and SRP for SLR.

Comment Response Report

Bin: Operating Experience, Aging Management Programs (AMPs), and Maintenance Rule

Comment	
Lampert, Mary (Pilgrim Watch)	(With regard to aging, corrosion, and the effects of radiation) You do not have the data looking forward.
Lampert, Mary (Pilgrim Watch)	(With regard to aging and corrosion)… you have experience looking backwards, but you don't have experience looking forward because reactors haven't operated for 60 years.
Riccio, Jim (Greenpeace)	Most reactors haven't yet reached 40 years. Tritium is leaking into ground water, cooling towers have collapsed and you're about to relicense Davis-Besse which proves you do not have an adequate handle on aging. You lose public confidence when you have a football-size hole in the vessel head of a nuclear reactor and then say that FirstEnergy has a process that will manage aging.
Young, Garry (Entergy Nuclear)	(With regard to a discussion pertaining to the license being provisional, the terms of the license require continued safe operation and issues that would challenge that conclusion would have to be dealt with) ...any operating experience at any plant that shows an issue with safe continued operation, including aging management, will be reviewed and evaluated through the operating experience program and applied to all plants that it's applicable to. (NRC) do have that ability, though, through their regulations. Sometimes backfit is applied, sometimes it's not.
Young, Garry (Entergy Nuclear)	Radiation is being tested (in context of aging management programs) through research and development at accelerated rates to predict, and be proactive in, identifying effects that may show up later. This is also part of the inspection programs.
Young, Garry (Entergy Nuclear)	The materials and environments in other plants and large facilities are applicable to nuclear facilities for aging management.
Young, Garry (Entergy Nuclear)	I just want to point out that the actual events that occurred at Vermont Yankee were that they did go from FatiguePro to manual cycle counting which is a more conservative approach to managing fatigue. It was not a reduction. It was a safer form of operation in management of aging and that's why the change was made.

Response

Industry operating experience, such as that from Vermont Yankee and Davis Besse, are considered in the staff's update of the GALL and the SRP but the GALL and SRP are not requirements, only guidance, and as such, applicants for license renewal are not required to follow the guidance. However, applicants for license renewal must meet NRC requirements. The GALL and SRP contain staff-approved processes, methodologies, and tools that, if followed, ensure compliance with NRC requirements and therefore provide reasonable assurance of safe plant operation. If applicants choose processes, methodologies, or tools that are not included in the GALL and SRP, the staff will review these alternatives to determine if they provide aging management at least equivalent to what would be expected from following guidance in the GALL and SRP.

In addition to operating experience, the staff reviews lessons learned from past license renewal reviews to identify areas where additional focus can produce more effective and efficient outcomes for future reviews. The staff also investigates or sponsors research to identify areas where new aging mechanisms or effects may be revealed in the period of extended operation and how those effects can be identified and managed to prevent loss of function of structures, systems, and components.

Although there is much information on aging effects resulting from material and environment combinations similar to those found at nuclear power plants, there is significant information from the operation of nuclear plants to reasonably assess aging impacts without extensive input from non-nuclear facilities. However, the staff will consider such information if it can be useful in managing aging in nuclear plants

Comment Response Report

Bin: Operating Experience, Aging Management Programs (AMPs), and Maintenance Rule

Comment

Young, Garry (Entergy Nuclear)	[With regard to a discussion pertaining to the license being provisional, the terms of the license require continued safe operation and issues that would challenge that conclusion would have to be dealt with]...any operating experience at any plant that shows an issue with safe continued operation, including aging management, will be reviewed and evaluated through the operating experience program and applied to all plants that it's applicable to. (NRC) do have that ability, though, through their regulations. Sometimes backfit is applied, sometimes it's not.

Response

The current backfitting process will continue in the SLR period. If a plant-specific backfit is identified, the requirements and processes of 10 CFR 50.109 would apply. Of course, as backfit analysis techniques and methodologies improve, the staff expects that they will be used in backfit determinations and analyses.

Comment Response Report

Bin: Operating Experience, Aging Management Programs (AMPs), and Maintenance Rule

Comment

Young, Garry (Entergy Nuclear)	Aging management occurs since the day the plant starts, has been managed the whole time, and is the basis for the license rule taking credit for the existing programs.

Response

The License Renewal Program is predicated on two fundamental principles:

a. With the possible exception of the detrimental effects of aging on the functionality of certain plant systems, structures, and components, the regulatory process is adequate to ensure that the licensing bases of all currently operating plants provides and maintains an acceptable level of safety so that operation will not be inimical to public health and safety or common defense and security; and

b. Each plant's licensing basis must be maintained during the renewal term, in part through management of age-related degradation.

Many aging management programs (AMPs) were implemented at the beginning of the initial operating period and have continued through the first 40 years. As part of its review of license renewal applications, the staff reviews AMPs used to manage aging to determine if the AMPs can continue to effectively manage aging in the period of extended operation (PEO). As a result of the review, AMPs may continue in their current form, or with further evaluation of certain aspects of the aging, or may require new plant-specific AMPs to address aging expected during the PEO.

Comment Response Report

Bin: Operating Experience, Aging Management Programs (AMPs), and Maintenance Rule

Comment

Riccio, Jim (Greenpeace)	Power uprates have nothing to do with safety. You boosted the power on 40-year old reactors shaking them to shutdown. You collapsed cooling towers, and then turned around and relicensed the reactors. Really, way to instill public confidence.

Response

As part of its review of license renewal applications, the staff considers operating experience across the industry and determines what changes, if any, need to be made to the AMPs to have reasonable assurance that passive, long-lived structures, systems, and components will be adequately managed to maintain the plants current licensing basis (CLB) during the period of extended operation (PEO). This review does not distinguish between plants that have or have not received a power uprate. Either way, the plant is expected to operate safely and in accordance with its CLB during the PEO.

Comment Response Report

Bin: Operating Experience, Aging Management Programs (AMPs), and Maintenance Rule

Comment

Riccio, Jim (Greenpeace)	Under the original rule when originally relicensing reactors, there was an NRC document that showed the embrittlement of reactor vessels. And I know you've reconfigured cores and tried to reduce embrittlement, but you've been pencil-whipping those calculations for years, and opening wider and wider gaps in your safety net.

Response

The NRC has a number of regulations in Part 50 of Title 10, Code of Federal Regulations (10 CFR Part 50) to address potential reductions in the fracture toughness properties of the reactor pressure vessels (RPVs) in boiling water reactors (BWRs) and pressurized water reactors (PWRs). 10 CFR Part 50, Appendix G, requires licensees to use upper shelf energy (USE) analyses to demonstrate that RPVs will have adequate ductile properties throughout the life of the plant (including anticipated periods of extended operation). For PWRs, licensees are required by 10 CFR 50.61, or the alternative regulation in 10 CFR 50.61a, to demonstrate that RPVs are adequately protected against the consequences of pressurized thermal shock (PTS) events throughout the life of the plant (including anticipated periods of extended operation).

Licensees that cannot demonstrate that their RPVs will meet the acceptance criteria in the applicable regulations are required to submit corrective action proposals to the NRC for approval well in advance of exceeding those acceptance criteria levels. However, the regulations permit licensees to decide on the type of corrective action that will be used if they cannot meet the applicable acceptance criteria for the required analyses. Plant shutdowns or core flux reduction modifications are two options that may be used to address such issues. However, the regulations also allow the licensees to demonstrate the acceptability of their RPVs through reanalysis. For example, licensed U.S. owners of BWRs and PWRs that cannot meet the acceptance criteria in 10 CFR Part 50, Appendix G, for USE analyses are required to reanalyze their RPVs using equivalent margins analyses and have those analyses approved by the NRC. Similarly, licensed owners of PWRs that cannot meet the acceptance criteria in 10 CFR 50.61 for PTS analyses are permitted to reanalyze their RPVs in accordance with the alternative PTS analysis methodology in 10 CFR 50.61a. Other alternative methods of reanalysis may be used if the alternative methods are proposed as an applicable exemption to the analysis requirements in the applicable regulation and are approved by the NRC in accordance with the regulatory exemption requirements in 10 CFR 50.12.

Reanalysis methodologies must employ known engineering principles that are demonstrated as being acceptable to the NRC. Such alternative analysis methods would need to include appropriate safety margins that are found to be acceptable to the NRC. Thus, the requirements in 10 CFR Part 50 do not preclude a licensee from reanalyzing their RPVs when they cannot demonstrate acceptability of their RPVs in accordance with the applicable regulatory requirements for analyzing the RPVs. However, if reanalysis is used as the option for taking appropriate corrective action, the reanalysis must be submitted to the NRC and approved by the NRC well in advance of exceeding the acceptance criteria in the applicable regulation.

Comment Response Report

Bin: Operating Experience, Aging Management Programs (AMPs), and Maintenance Rule

Comment

Webster, Richard (Public Justice)	I think we should compound operating experience centrally, and we should compare predicted versus actual for AMPs.

Response

Both the NRC and the nuclear industry collect operating experience from all nuclear power plants. The NRC routinely reviews the data to identify, among other things, plant-specific and industry-wide trends. Important findings and observations are shared with the industry and, when appropriate, regulatory actions are taken (e.g., issuance of generic communications). This process will continue during the period of extended operation (PEO)

In addition, for applications for license renewal, information on plant-specific and industry-wide operating experience is included in Element 10 of the applicable AMPs. In its review of license renewal applications, the staff uses this information to determine whether aging was a factor in the operating experience, whether the AMP is adequate to effectively manage the aging effect, or if revisions have been made to the AMP to manage the aging more effectively.

Comment Response Report

Bin: Operating Experience, Aging Management Programs (AMPs), and Maintenance Rule

Comment

Webster, Richard (Public Justice)	So often, what's on the as-is drawings is not actually what's in the reactor. So, even before you start to look at AMPs, step one is to verify the configuration. Step two, figure out what you've got there. ... When you've got a reactor that's been subject to corrosion, it's been subject to embrittlement, these things are variable under space and under time, so you've got to look at very carefully the spatial and temporal variability.

Response

The two fundamental principles underlying the NRC's License Renewal Program is that (1) current NRC processes are adequate to ensure that the licensing bases of all currently operating plants provide and maintain an acceptable level of safety and (2) each plant's licensing basis must be maintained during the renewal term.

Through inspections and other means, the NRC continuously monitors changes to a plants current licensing basis and this will continue during the license renewal period. With these processes in place, age-related degradation is the additional focus for the NRC in the period of extended operation (PEO) to ensure continued plant safety. This focus is reflected in the AMPs that licensees implement in the PEO. Some aging effects occur over time due to corrosion, erosion, etc. The AMPs monitor the affected structures and components to ensure that the aging effects are addressed and the intended functions of the structures and components are maintained. Other aging effects are temporal in that they occur based on time-dependent factors. For example, the number of thermal and pressure transients on a component may be monitored to determine the fatigue on the component, or monitoring of prestress forces on concrete containment tendons, which lose their prestressing force over time due to creep, concrete shrinkage, or relaxation of the prestressing steel. In all cases, spatial and temporal changes to structures and components are monitored to ensure that structure and component functions are maintained in the PEO.

Comment Response Report

Bin: Operating Experience, Aging Management Programs (AMPs), and Maintenance Rule

Comment

Webster, Richard (Public Justice)	You need to define your margins, what margins you want and what uncertainty in those margins you are prepared to tolerate. You've then go[t] to define past aging rate of increase in fatigue and predict the uncertainty in that aging rate. ... I'm recommending at least 95 percent certainty that margins are being maintained. Unfortunately, the Commission is happy with 50 percent certainty the margin is being maintained.

Response

Through its ongoing licensing, oversight, and enforcement activities, the NRC ensures that licensees maintain adequate margins of safety throughout the life of the plant. If information from inspections and analyses show that the established safety margins are eroding, the NRC is requires licensees to determine the safety impact and how margins will be maintained or restored. If it's determined that safety cannot be maintained, the NRC will require that the plant be shut down.

Comment Response Report

Bin: Operating Experience, Aging Management Programs (AMPs), and Maintenance Rule

Comment

Webster, Richard (Public Justice)	Monitoring should be done more often or over larger areas to reduce uncertainty. There's a tremendous failure to evaluate uncertainty explicitly. Once you do so, you'll see there is a massive amount of error that we need to manage, and we need to take account of variability.

Response

As part of the NRCs ongoing processes, uncertainties and sensitivities are routinely considered in safety analyses. More recently, the Commission has asked the staff to be more transparent in consideration of these factors in risk analyses.

Comment Response Report

Bin: Oversight

Comment

Lampert, Mary (Pilgrim Watch)	How do we know that licensees are adhering to their licensing requirements? That should be checked off for any licensing or license renewal process. Make it transparent.
Remer, Jason (Nuclear Energy Institute)	I was in Arkansas for almost 20 years, and every day I was there, there were two NRC inspectors there all the time. They went to every meeting that we had. And they went to the mod meeting. They were there. They know everything that is going on. And you could walk into any one of our sites and go to those meetings as well. So the data is fully open to you to evaluate. There is nothing done is secret in that regard. It is very much a planning for the outages, and how long is this equipment going to last. So this is a process that is very much open to anyone that is pertinent to NRC.

Response

Application of the current regulatory processes has demonstrated their effectiveness in monitoring operations across the current fleet to identify and address safety issues in a timely fashion. Plants are monitored and inspected by both the staff and the licensees. When safety issues are identified, they are addressed through the Quality Assurance Program, and placed in the Corrective Action Program to ensure that the issues are properly evaluated, resolved, and documented. In addition, safety issues that may arise from plant events are reported, documented, evaluated, and resolved, and the events shared across the industry so that all stakeholders are aware and have the opportunity to address the issue to ensure public health and safety.

Comment Response Report

Bin: General Relicensing Process

Comment

Buckley, Rick (Entergy Nuclear)	The license renewal process is very robust and transparent.
Buckley, Rick (Entergy Nuclear)	The license renewal process actively involves other regulatory agencies. Issues with entrainment, impingement, and thermal issues are set by permits by federal and state agencies. So NRC is strongly encouraged to take advantage of other agencies expertise.
Lochbaum, David (Union of Concerned Scientists)	I get a lot of calls saying the process is a rubber stamp which I know is not the case. Most people don't see the success stories. I encourage the NRC to capture those license renewal success stories and make them publicly available on the web.
Lochbaum, David (Union of Concerned Scientists)	I think the process -- the license renewal process should be an opportunity to go back and look at internal and external hazards, make sure we have the right design and licensing basis controls so that those risks are properly managed over the ensuing operation of the plant. Shame on us if we don't take advantage of those opportunities to identify those things, and just assume that we've been right.
Webster, Richard (Public Justice)	I would suggest that because these reviews have both [an] environmental component and a safety component, that the agency if it can't hang its hat on the safety component should hang its hat on the environmental.

Response

Application of the current regulatory processes has demonstrated their effectiveness in monitoring operations across the current fleet to identify and address safety issues in a timely fashion. Plants are monitored and inspected by both the staff and the licensees. When safety issues are identified, they are addressed through the Quality Assurance Program, and placed in the Corrective Action Program to ensure that the issues are properly evaluated, resolved, and documented. In addition, safety issues that may arise from plant events are reported, documented, evaluated, and resolved, and the events shared across the industry so that all stakeholders are aware and have the opportunity to address the issue to ensure public health and safety.

The success of these processes and programs throughout the initial operating period provides confidence that they will continue to ensure plant safety in the first and subsequent renewal periods and is stated in the first principle of the license renewal program. For operation beyond the initial 40 years, the staff found that aging of passive, long-lived structures and components, along with the current oversight of active components, would ensure safety during 40-60 years. Similarly, these same processes will be effective for operation from 60-80 years. The staff's additional focus for SLR is having the requirements and guidance in place to ensure that the aging management programs and activities will remain effective during the SLR PEO.

Comment Response Report

Bin: 10 CFR 2.206 Petitions

Comment

Lochbaum, David (Union of Concerned Scientists)	If we're going to pursue an issue through 2.206 we have to go after a site that hasn't been relicensed. If you've already had a chance to raise something like a license renewal, then you can't use 2.206.
Webster, Richard (Public Justice)	In 2.206, there is no "discovery," so there is not a chance to view the real underlying documents that would reveal where mistakes would be made.
Webster, Richard (Public Justice)	What can we do to improve the 2.206 process? It's an opportunity to fix a lot of licensing and relicensing issues. If licensing or relicensing issues haven't been closed out generically, then they need to be closed out plant by plant.

Response

The NRC conducts hearings on disputed matters involved in the re-licensing of nuclear reactors. However, hearings on license renewal applications are not mandatory. Hearings are held only if a petition that shows standing to intervene and sets forth at least one contention (issue) that is suitable for litigation in the processing is filed. The NRC regulations that govern the hearing process are in Rules of Practice for Domestic Licensing Proceedings and Issuance of Orders (Part 2 of Title 10 of the Code of Federal Regulations (http://www.nrc.gov/reading-rm/doc-collections/cfr/part002/). No current change to the petitioning process in 10 CFR 2.206 is being considered for subsequent license renewal rulemaking.

Comment Response Report

Bin: Adequacy of Current License Renewal Rule

Comment

Lampert, Mary (Pilgrim Watch)	I would say it's important to require what is required of new reactors, and that be applied to operating reactors in considering relicensing, and admit that those requirements are for safety, as opposed to passing it off so a cost-benefit analyses will be required.
Riccio, Jim (Greenpeace)	Chris Grimes who had your job is now writing briefs on our side saying what your rule solicits or elicits is inadequate to prove that reactors should run another 20 years, let alone 40.
Riccio, Jim (Greenpeace)	I was tempted this morning to print out the original license renewal rule and bring it as a comment on process. You had a good process. When it failed to license the reactors you wanted, you gutted it. And what we have now is Part 54.
Webster, Richard (Public Justice)	... we don't need any discussions of aging management for Mark 1s and Mark 2s. We don't need any more research on those; we've had plenty of that. What we need is to get those reactors closed, and we need to get them closed as quickly as we can. There should be no discussion whatsoever about extending their life.
Webster, Richard (Public Justice)	... further renewal should not be faith-based. If you looked at the Statement of Consideration for the current rule it says our regulations are basically handling everything. ...The problem was, you look at the background of that, and there wasn't a lot of empirical study to find that out.

Response

The current operating fleet of reactors is safe today. While reactor designs and plant licensing has improved over the years in regards to safety, the licensing bases for all plants are upgraded in response to new information and relevant technologies to ensure that all units provide reasonable assurance of public health and safety. The current policies and the current principles of license renewal maintain safety, and are not meant to be a mechanism to increase safety. No changes were made to the regulations in Part 54 and no modifications were made to the principles of license renewal in regards to Part 52 rulemaking, even though new reactors entering the operating fleet under Part 52 have different, enhanced safety requirements. The Commission, however, has the right to change the policy regarding safety maintenance in license renewal to one of safety enhancement, if they see fit.

Comment Response Report

Bin: Adequacy of Current License Renewal Rule

Comment	
Buckley, Rick (Entergy Nuclear)	Overall, no changes in the license renewal environmental review process have been identified as necessary at this time, although the industry is still awaiting the final version of regulations and regulatory guidance for the periodic update that is currently underway, and we understand the SECY paper came out today. I looked at that briefly, but we anticipate this current update will further strengthen and improve the process of the continued evaluation of impacts for continued plant operation.
Buckley, Rick (Entergy Nuclear)	The industry contributes to operating experience by sharing lessons learned. The review cycle for the GEIS incorporates OE and lessons learned, so there is no need to change the regulations for subsequent license renewal.
Buckley, Rick (Entergy Nuclear)	The NRC's existing process is comprehensive and living. This process is transparent, and takes into account lessons learned, emergent issues, and stakeholder input. Although industry realizes that periodic updates will be an ongoing process, NRC's existing structure will meet that need during subsequent license renewal.
Buckley, Rick (Entergy Nuclear)	The existing NRC regulations provide a ten-year cycle to solicit public comments and provide a framework for consideration as to significant new information.
Earls, Chris (Nuclear Energy Institute)	The current license renewal process assures safe plant operation and provides a stable and predictable regulatory platform. The existing regulations will serve us well as we move into the second renewal period, and we do not envision the need for any substantive changes to this regulatory process. Some significant features of the existing process are: -Sound, mature process with transparency in procedures and data -Proven in over 14 years of use and 72 renewed licenses granted -Continuous and on-going incorporation of operating experience and lessons learned as documented in periodic revisions to industry and regulatory guidance documents -Proactively addresses aging management issues -Collaborative process working with industry and other stakeholders
Fulvio, Albert (Exelon Nuclear)	One of the tenets that we were relying on is that we as an industry do not advocate a rule change for the subsequent license renewal because we believe everything is certainly adequate or more than adequate now. But that doesn't preclude us from presenting additional information in a manner that makes it easier for the reviewer. So, if you included that in some kind of communication to us, obviously we would want to have discussions on it first, but if we ended up with an addendum to the GALL or whatever is appropriate, we could do that.

Fulvio, Albert (Exelon Nuclear)	I want to comment... about the packaging of the subsequent license renewal license rule application. When we first started talking about this a couple years ago, one of our first activities was to think about what does the next application look like? We had a couple ideas, but my recollection of what we ended up with is that we would just follow the current rule, and therefore, the package would be what you see today. What (a previous speaker) seem to be suggesting is there may be certain ways of presenting the information in the application that would make it easier for the reviewers. One of our assumptions was that the NRC would not rely on the previous application or previous SER, but instead would do each application on its own merits totally. That may have been a wrong assumption on our part to make, but what would help is if there are some things that you are thinking of that would make it easier for the reviewer to come to their conclusions for the SER. We're certainly willing to entertain anything of that nature and we need to have some meetings on that in the future. Again, we just assumed that this was going to be several years down the road, that the reviewers would all be new, and that they wouldn't want to take credit for the previous SER.
Lochbaum, David (Union of Concerned Scientists)	In March NRC issued orders requiring owners to look at seismic and flooding issues. Rather than singling out FSAR Chapter 2 sections associated with last year's disaster, the NRC should take a broader view and look at all the Chapter 2 areas during license renewal to see if any changes are warranted that mean protection levels at the plant need to be changed, as well. Rather than waiting for accidents to bring about those looks, the NRC should take a proactive stance.
Lochbaum, David (Union of Concerned Scientists)	The license renewal process fails to properly and fully consider changes occurring outside the plant’s fences. The issues typically covered in Chapter 2 of the Final Safety Analysis Reports are not formally evaluated to see if changes over the decades in populations, infrastructure, nearby airports and air traffic use, etc. adversely affect safety and environmental conclusions reached by NRC in originally licensing the plant.
Remer, Jason (Nuclear Energy Institute)	One thing I would say is if the NRC is concerned about an area of safety, that the period of time that would be requested for subsequent renewal would not necessarily be a magic key to look at reviewing that. In other words, if you have a safety issue, you should look at it for all plants today or right now. To wait until you renew the license for an additional 20yrs seems artificial and forced. As you even stated in the Statement of Consideration, if there are safety issues, they need to be looked at for everybody and not wait until the renewal period starts or we apply or whatever. Let's look at it now. That's what I would say about those issues.

Remer, Jason (Nuclear Energy Institute)	[Response to question about agency's potential need to impose newer safety measures to enhance overall safety:] Your question mirrors our previous discussion on equipment replacement. I think you have to evaluate safety features of all the plants, not just plants that are going for license renewal. If the safety issue needs to be addressed, such as the recent events in Japan, you have to look at all the plants. Just because a particular plant comes up for license renewal, that doesn't make that issue any worse or any better; it just happens to be a time where we're asking for another license. So, if the safety issue comes up, it should be evaluated across the fleet to determine if there are adequate levels of safety. NRC determines on an ongoing basis if the plants are safe to operate continuously, and we maintain these plants on an ongoing basis. If that issue is important enough to impact the plant, it should be looked at, at that time. I think the safer path is to look at the issues as they come up, continuously monitor safety, and make changes when they are required, rather than waiting for an arbitrary license date.
Remer, Jason (Nuclear Energy Institute)	License renewal activities are continuously assessed by the licensee and by onsite NRC inspectors. Activities such as QA audit, self-assessment, OE reviews, NRC inspections, and continuous process improvements, insure license activities are effective and efficient in maintaining safe plant operations. There is no need for changes to part 54 to address this topic since it is already addressed by establishing regulations applicable to all operating nuclear plants, not just those seeking SLR. To (NRC speaker's) point, our whole regulatory structure is a continuous process versus an every 10-year process. To impose a 10-year process on our continuous process wouldn't yield what we're seeking. And we certainly do self-assessments.
Riccio, Jim (Greenpeace)	Richard Webster has given some statistics on how many people have actually participated in your processes. It's important to have a legitimate process, but currently it is a rubber stamp. Every single reactor that's requested a license renewal has received one since the original rule was gutted.
Riccio, Jim (Greenpeace)	You should be speaking here today about how you can adequately regulate these reactors and bring these reactors to shutdown rather than continue to operate them into the future forever.
Webster, Richard (Public Justice)	I'm very pleased to hear NEI say that the NRC should listen to other agencies when it comes to environmental issues, because I know for certain nuclear power plants, EPA and Fish and Wildlife has suggested that closed-cycle cooling should have been required by NRC, and NRC refused to require it.

Bin: Adequacy of Current License Renewal Rule

Young, Garry (Entergy Nuclear)	I just want to reinforce what (previous commenter) was saying - the current regulations under Part 54 do require that any generic safety issue that's got a time element to it is evaluated as part of the license renewal process, so all of those discussions that were just held about whether or not we need to go back and look at any of the resolutions of safety issues that may have been based on some time frame, that's already included in the regulations and is already being done as part of each license renewal application.

Response

The current operating fleet of reactors is safe today. If it were not, we would need to take action today to ensure that all units provide reasonable assurance of public health and safety. Rulemaking (regulations), licensing, guidance, oversight (inspections), generic communications, event assessment, operating experience, and orders are tools in the current regulatory framework used by the staff to ensure reasonable assurance of adequate protection since the first commercial reactors were built.

Application of the current regulatory processes has demonstrated their effectiveness in monitoring operations across the current fleet to identify and address safety issues in a timely fashion. Plants are monitored and inspected by both the staff and the licensees. When safety issues are identified, they are addressed through the Quality Assurance Program, and placed in the Corrective Action Program to ensure that the issues are properly evaluated, resolved, and documented. In addition, safety issues that may arise from plant events are reported, documented, evaluated, and resolved, and the events shared across the industry so that all stakeholders are aware and have the opportunity to address the issue to ensure public health and safety.

The success of these processes and programs throughout the initial operating period provides confidence that they will continue to ensure plant safety in the first and subsequent renewal periods and is stated in the first principle of the license renewal program. For operation beyond the initial 40 years, the staff found that aging of passive, long-lived structures and components, along with the current oversight of active components, would ensure safety during 40-60 years. Similarly, these same processes will be effective for operation from 60-80 years. The staff's additional focus for SLR is having the guidance in place to ensure that the aging management programs and activities will remain effective during the SLR PEO.

Comment Response Report

Bin: Adequacy of Current License Renewal Rule

Comment

Earls, Chris (Nuclear Energy Institute)	This process, codified in 10 CFR Part 51 and 10 CFR Part 54, has proven effective in renewing nuclear power plant operating licenses. As companies do long-range planning, there is tremendous benefit in having a stable and predictable regulatory process in place that results in continued operation of the nuclear asset.
Fulvio, Albert (Exelon Nuclear)	I was just going to comment that when we do our analyses, we take the license period when we're doing those evaluations for the individual plant, and that's one of the reasons why we do these license renewals so that we can have a smart economic evaluation performed based on what our license is capable of doing.
Lampert, Mary (Pilgrim Watch)	Relicensing and power uprates are only happening because the cost of building new reactors is to exorbitant and non-competitive and it is putting the public at risk.
Remer, Jason (Nuclear Energy Institute)	I'm not aware that NEI has done a global review. Industry wide cost analyses are being done constantly on operating your facility and as long as the economics work, the facilities will keep operating. It's the same thing for subsequent license renewal. If regulations are added that make it less economically viable, then that will certainly be part of the equation for determining if we want to do subsequent renewal. The existing rule already covers license renewal and subsequent renewal, it doesn't put a limit on it, then we wouldn't have anything to do cost analyses against at this point.
Remer, Jason (Nuclear Energy Institute)	If additional rule changes come about for whatever reason that would certainly enter into the calculus of evaluating the economics of extending the operation.

Response

Licensees will decide whether to operate their nuclear plants beyond 60 years. Many factors are considered in this decision, including whether they can demonstrate that the plant can be operated safely. Other considerations include the cost of other energy alternatives and national policies such as energy independence, energy diversity, and climate change.

The NRC's mission is to evaluate whether licensees have demonstrated that the plant can be operated safely from 60-80 years. Current regulatory processes have already shown that aging issues can be identified and addressed, and these processes would continue in the SLR period. Therefore the primary focus for 60-80 years of operation is for licensees demonstrate not only that actions have been or will be taken to effectively manage aging, but also that processes and programs are in place to ensure that aging management programs and activities will continue to be effective in the 60-80 year operating period.

Comment Response Report

Bin: Alternatives to License Renewal

Comment

Lampert, Mary (Pilgrim Watch)	In the requirement for alternative analyses, the NRC typically compares nuclear to a coal plant as opposed to comparing with a mix of alternatives.
Young, Garry (Entergy Nuclear)	(With regard to a question on merchant plants and their need to replace the power) ... our business is to operate the power plants. If we have one that's going to shut down, then we will be looking at options to replace that power whether it's in a merchant market or in a regulated market.

Response

The National Environmental Policy Act (NEPA) requires the consideration of alternatives to the proposed action in an environmental impact statement (EIS). The President's Council on Environmental Quality (CEQ) says that "reasonable alternatives include those that are practical or feasible from the technical and economic standpoint." It also states that the alternatives are developed "using common sense rather than [being] simply desirable from the standpoint of the applicant." NEPA also requires the alternatives analysis in the EIS to "include the alternative of no action." The interpretation of "no action" depends on the nature of the proposal being evaluated. In the case of license renewal, the "no action" alternative may be thought of in terms of continuing with the present course of action, i.e., operation under the current operating license until the license has expired. Once the license has expired, the licensee must begin decommissioning the facility.

If a licensee is going to choose an alternative to license renewal, it would want the replacement facility (if one is to be built) to be ready to produce power by the end of the current operating term of the nuclear power facility. In many cases, it could take up to 10 or more years to design and construct major new generating facilities. Thus, conducting the review 10 to 20 years in advance of the termination of the current license is not unreasonable for an applicant that may be required to use an alternative to license renewal.

Comment Response Report

Bin: Alternatives to License Renewal

Comment	
Lampert, Mary (Pilgrim Watch)	It was interesting, we had ISO up here on two occasions, once before the Joint Energy Committee on April 6th, 2011, and another time in February at Cape Cod Community College, said unequivocally that Pilgrim and Vermont weren't needed because of the natural gas. I mean, that's only one consideration, whether you need something or not.
Lampert, Mary (Pilgrim Watch)	It is suggested to compare old reactors with new reactors for alternative analyses, which would swing back to a complaint that we have had of not requiring what's required of a new reactor to be required of existing, approved reactors.
Lochbaum, David (Union of Concerned Scientists)	Evaluations of alternatives to relicensing a reactor fail to consider building and operating a new reactor. Advocates of Small Modular Reactors and other proposed reactor designs contend that they are so safe as to justify reducing or even eliminating the emergency planning zones (see ML12111A067). If so, would not a 21st century reactor likely fare better than a 60-plus 20th century reactor in a real alternatives analysis?
Remer, Jason (Nuclear Energy Institute)	We didn't try to make an equation out of it, but the idea that you would need some time to decide what you wanted to do, then if you decided, then you would need 10 years to actually implement those plans. So there's just a lot of planning that has to go into deciding if you need an alternative energy source and it takes a long time to put these in place. And just to address another point that someone made - the consideration wouldn't be just a natural gas plant. There would be many other options that would take a long time to implement as well.
Riccio, Jim (Greenpeace)	The public asks if you considered alternatives, meaning alternatives to a nuclear plant or a coal plant. The Agency's response is yes, we considered a coal plant. But to the public it sounds like you considered wind, solar, efficiency and you haven't.
Riccio, Jim (Greenpeace)	... operating beyond the current license renewal term is an absurdity. I don't actually believe you'll get there because I believe gas is going to crush this industry.
Webster, Richard (Public Justice)	Can you clarify? Why did you decide to put new nuclear into Seabrook but not into any of the others? From plant to plant, how do you decide which alternatives are the most feasible at which plant?
Webster, Richard (Public Justice)	[With regard to the 20-year lead time for license renewal applications] ...it's hard to consider alternatives effectively 20 years ahead. For example, with regard to an alternative such as offshore wind power, the 20-year time frame forces you to speculate on the price and the result is the contention is too speculative, but the Agency, itself, speculates about that in its FSEIS.

Bin: Alternatives to License Renewal

Webster, Richard (Public Justice)	... is the requirement to replace power a relevant consideration for the time frame for application? I suggest to you that in an unregulated market it's not a responsibility of the licensee to look at those issues.
Webster, Richard (Public Justice)	[With regard to the 20-year lead time for license renewal applications and the discussion related to the lead time it takes to build a replacement power plant] ... as far as I'm aware in most markets the operators of merchant plants are not required to replace the power, so I'm not quite sure why that's a consideration in those markets.

Response

The NRC's requirements to consider the environmental impacts of various alternatives are based on the National Environmental Policy Act (NEPA) of 1969. The purpose of NEPA is to ensure that relevant agencies examine and disclose the potential environmental impacts of their actions before taking the action. NEPA is a procedural statute that does not dictate a decision based on relative environmental impacts. Furthermore, the NRC has no authority or regulatory control over the ultimate selection of future energy alternatives. Likewise, the NRC cannot ensure that environmentally superior energy alternatives are used in the future. The NRC makes a decision to renew or not to renew a license based on safety and environmental considerations. The final decision on whether or not to continue operating the nuclear facility will be made by the licensee and by state and Federal (non-NRC) decision-makers. This final decision will be based on economics, energy reliability goals, and other objectives over which the other entities may have jurisdiction. Moreover, given the absence of the NRC's authority in the general area of energy planning, the NRC's identification of a superior alternative does not guarantee that such an alternative will be used.

Comment Response Report

Bin: Current Licensing Basis (CLB)

Comment	
Lochbaum, David (Union of Concerned Scientists)	The only design and licensing basis accident for spent fuel in pools is a fuel handling accident where you drop the irradiated bundle or you bang it against something and it causes fuel rods to fail and radioactive material to be released. There's an AEOD report from 1997, I believe, that looked at a number of things that could cause cooling and/or water inventory to be lost from the spent fuel pool. These should be included in the licensing basis.
Lochbaum, David (Union of Concerned Scientists)	In March the NRC formed a task group to look at criticality of fuel in a spent fuel pool. When the Boraflex and other neutron absorbers began to break down because you went to overcrowding the pools, increased the heat load, increased the inventory, increased the criticality challenge, the proper solution should have been to revise the design and licensing basis, but we didn't go back and change the design and licensing basis.
Lochbaum, David (Union of Concerned Scientists)	Just last month, the NRC issued revised Standard Technical Specifications for all the plants. For the BWR 4 Standard Technical Specifications if you look at Section 3.7.8, you don't even need water in the spent fuel pools unless you're moving irradiated fuel. If you determine the water level is not 23 feet above the fuel and you're moving fuel, all you've got to do is stop moving the bundle. You can drain the rest of the water out, you don't have to put it back. That's because the only design basis accident is a fuel handling accident where you've moving fuel and you bang it into something or you drop it.

Bin: Current Licensing Basis (CLB)

Lochbaum, David (Union of Concerned Scientists)	"New" accidents are not being captured in design and licensing space. For example, Final Safety Analysis Report Chapter 15 typically considers the only accident involving irradiated fuel outside the reactor to be a fuel handling accident. Other accidents – such as loss of spent fuel pool water inventory, loss of spent fuel pool cooling, and criticality of irradiated fuel in the spent fuel pool – are not covered. The technical specifications for Browns Ferry Unit 1 (ML052780019) only require water to be in the spent fuel pool when irradiated fuel is being moved (Tech Spec 3.7.6). If the water level is too low or entirely gone, Action A.1 only requires that movement of irradiated fuel be stopped. There's no requirement to put water back in the pool. Likewise, the BWR/4 standard technical specifications issued by the NRC last month (ML12104A192) only requires water in the spent fuel pool when irradiated fuel is being moved (Tech Spec 3.7.8). Similarly, the technical specifications do not require secondary containment, onsite power, offsite power, and many other safety features except when irradiated fuel is being moved. Fifty years ago when reactors were being contemplated, the guiding notion was that irradiated fuel would remain onsite for a handful of months after removal from the reactor core and then shipped offsite for reprocessing or disposal. With none of these options available, spent fuel pools were re-racked to maximize their storage capacity. But the attendant accidents introduced by this significant philosophy change were not rolled into the applicable design and licensing bases. When regulatory decisions are made (including 10 CFR 50.59 evaluations), the incomplete design and licensing bases for spent fuel storage yield improperly derived answers.
Lochbaum, David (Union of Concerned Scientists)	There's things other than dropping fuel while moving it that could cause damage to the fuel in that pool, but they're not included in the licensing basis. It should -- the license renewal process should be an opportunity to go back and look that we missed that. There's an opportunity to fix that, so we better manage. We're not managing the hazard in the right way.
Remer, Jason (Nuclear Energy Institute)	I fully agree with you. That as we find equipment that is degraded or has reached the end of its life, it has to be replaced or restored. That's always been a requirement of 10 CFR 50 Appendix B in regards to your quality program. So leaving equipment out there that has reached the end of its life is unacceptable and we don't do that. If equipment is found to be degraded or is degrading at a rate greater than we anticipated, then actions are taken to make sure that equipment is restored or replaced. I fully support what you're saying. We don't however believe we need additional regulations to do that. We're already doing that. There are indeed as that - we're performing as things, definitive items are understood better, hopefully it will go into our processes of predicting the life times of these various components and these will be incorporated back into their maintenance, operation, replacement and repair procedures process.

Bin: Current Licensing Basis (CLB)

Remer, Jason (Nuclear Energy Institute)	The current practice of continuously updating the current licensing basis as new and emerging issues arrive should be maintained as part of the operating license for all plants under 10 CFR Part 50. This process has been very effective in ensuring ongoing plant safety. The current regulations for SLR under Part 54 are based on the adequacy of current processes for updating the licensing basis under Part 50 and any additional review for subsequent license renewal would be an unnecessary duplication with no additional benefit to ongoing plant safety. The NRC analysis of policy presented in NUREG-1362 are still valid and appropriate for subsequent license renewal.
Remer, Jason (Nuclear Energy Institute)	I think that whole question points out the ruggedness and rigor of our current programs that we're operating under. Where when you find a safety issue, either the NRC or the industry identifies an issue, it's brought to light immediately and resolved at that point given to ground, discuss, and if things need to change then each plant takes responsibility for that issue as well as the overall industry within the existing framework of Appendix B programs. In other words, we don't see that the program would need to change. Events may happen and issues may come to light as we discover new things by age-related degradation and as they are brought to light then the industry is very aggressive as you are, NRC, in driving those issues to ground and resolving them and restoring the licensing basis that we operate under today.
Remer, Jason (Nuclear Energy Institute)	The current practice of continuous updating of the COB as new and emerging issues arise ensures needed safety enhancements are implemented as part of the operating license for all plants under 10 CFR 50. This regulatory process has been very effective in ensuring ongoing plant safety. The regulations for SLR in Part 54 are based on the adequacy of the current regulatory process for addressing needed safety enhancement under Part 50 and any additional review for SLR would be an unnecessary duplication with no additional benefit to ongoing plant safety.
Remer, Jason (Nuclear Energy Institute)	It's due to the flexibility of the programs that we have that the regulations set out structures and frameworks for operating within and the current structures is more than adequate to deal with whatever issues that come up. So we wouldn't see that adding new regulations would in any way enhance what we're already doing. Given that, if an issue comes up we deal with it immediately, as you do. So additional regulations we wouldn't see that would add any safety benefit.
Riccio, Jim (Greenpeace)	The original rule required plants to prove that they met their licensing basis; however, from memos in the '80s, it was thought cost prohibitive for plants to prove they met their licensing basis. "... the reason I thought to print out that original rule and bring it here is that ... Eventually you'll actually meet the terms of your licenses."

Comment Response Report

Bin: Current Licensing Basis (CLB)

Webster, Richard (Public Justice)	[With regard to upgrades to the CLB] ...you need to upgrade the CLBs for Mark 1s before they can uprate and the Mark 1s do not have any containment. You've got to consider both upgrades to the CLB that actually will bring these reactors into line with the operating reality that they were once thought to meet.
Webster, Richard (Public Justice)	It's not adequate operating a plant on the basis that you're only 50 percent certain that you're maintaining the CLB. ...I hope that the industry doesn't think it's adequate either, even if the Commission does.
Webster, Richard (Public Justice)	So, step one in looking at license renewal and it should have been step one with the current license renewal rule -- I should emphasize, it should have been step one for the current license renewal, is compile the CLB. Let's find out what the CLB is.
Webster, Richard (Public Justice)	Severe accident protection and mitigation needs to be integrated into the CLB. This integration was properly recommended by the NRC Task Force.
Webster, Richard (Public Justice)	... the problem with the CLB is no one knows what it is. It's a concept, not a reality. It's very hard to ensure compliance with the CLB when you don't know what the CLB is. I've had a whole hearing where we contested with the staff what the CLB was. It's pretty hard to review an aging management program if you don't even know what the goal that it should be maintaining is.
Webster, Richard (Public Justice)	The second question is, on this issue of uncertainty, do the panelists think it is reasonable to think about where the 95 percent certainty compliance would be with CLB? Most of those criteria that go into the license renewal come from the part 50 space. Those are the acceptance criteria. But let's start off by just talking about the part 54 space and talking about individual acceptance criteria, which are incorporated into the CLB.
Webster, Richard (Public Justice)	I've been to a whole proceeding where the staff insisted that a certain criteria is not in the CLB when the licensing boards have found that it was. So it's not the lack of information. It's the fact that the definition is too fuzzy for adequate definition, for adequate translation of the words into the numbers.

Bin: Current Licensing Basis (CLB)

Young, Garry (Entergy Nuclear)	...we can't take an exception based on our CLB to a AMP, the only way we can take an exception if we can show the exception is equivalent to the aging management that's in the GALL report. But regarding any updating of requirements for aging management based on standards that are published, that's a common practice. You know our water chemistry program, for example, is based on industry guidance that's periodically updated for doing the water chemistry aging management program. (Previous speaker), as you mentioned, the ISI program is updated periodically based on changes to the codes. And I think that's throughout the GALL report, our references to standards that do periodically get updated. And when the update is based on operating experience or an issue that needs to be addressed, then that would automatically be folded into each plant's AMP for whatever term they continue to operate. If there are cases where that's not done, I can't think of any right now, the ones I'm thinking of are things like inspection activities, water chemistry, ISI, that sort of thing, they all get updated based on new information and revisions or changes to standards.
Young, Garry (Entergy Nuclear)	Again, I think the current practice is that, if we don't meet the GALL program we have to defend it. And if there's a later standard that's not being met, we have to show that the older standard is as good or equivalent as far as aging management. So as long as our focus is on ensuring that the aging management program is effective, and that any aging effects are being managed, then using older standards should continue to be allowed, simply because some of the newer standards have requirements in them not related to aging management that could create difficulties for the plant that would not benefit the continued safe operation. So the flexibility of evaluating each change to the codes and standards, and based on whether or not the program would continue to be effective, is I think the right way to go.

Response

The Current Licensing Basis (CLB) includes the plant-specific design basis that is docketed and in effect. To suggest that the design basis be updated would imply that the current operating plant is somehow not safe or the design is inadequate. Aging management is designed to prevent a loss of intended function. Updating the design basis does not eliminate the need to age manage.

Rulemaking (regulations), licensing, guidance, oversight (inspections), generic communications, event assessment, operating experience, and orders are tools in the current regulatory framework used by the staff to ensure reasonable assurance of adequate protection.

Application of the current regulatory processes has demonstrated their effectiveness in monitoring operations across the current fleet to identify and address safety issues in a timely fashion. Plants are monitored and inspected by both the staff and the licensees. When safety issues are identified, they are addressed through the Quality Assurance Program, and placed in the Corrective Action Program to ensure that the issues are properly evaluated, resolved, and documented. In addition, safety issues that may arise from plant events are reported, documented, evaluated, and resolved, and the events shared across the industry so that all stakeholders are aware and have the opportunity to address the issue to ensure public health and safety.

For any plant, the NRC has found, through its existing regulatory process, that the plant's CLB is adequate for it to operate safely. This is often mistaken for the idea that we are stuck with allowing licensees to operate plants with 1960s design and there is no need for improvements. In fact, licensees undergo numerous changes to their CLBs, some are reviewed and approved by the agency (NFPA-805 LAR, power uprates), some are voluntarily done without need for approval (changes under the 50.59 process), and others may be mandated through NRC orders (Fukushima Near-Term Task Force Orders).

Comment Response Report

Bin: 20 Year Lead Time for Submittal of Renewal Application

Comment	
Fulvio, Albert (Exelon Nuclear)	There needs to be adequate time for energy planners to evaluate alternatives for replacement energy if needed. The 20-year term allows this sufficient time. Current regulations also require licensees to submit decommissioning plans on or about 5 years prior to the expiration of the operating license. If the renewal window were 10 years, for example, the effective submittal and review time would only be 5 years until a decommissioning decision needs to be acted upon by the utility. This small window is inadequate for planning and likely result in unnecessary plant shut-downs due to the uncertainty, therefore Exelon's comment is yes to the question to keep 20-year window for submittal.
Lampert, Mary (Pilgrim Watch)	[With regard to the 20-year time period by which an application is allowed to come in], there is no way to project what you're planning to deal with regarding environmental issues. In addition, there are going to be climate changes, technological changes, and a lack of understanding of the degradation that occurs.
Lampert, Mary (Pilgrim Watch)	[With regard to the bathtub curve] ...things will go wrong in the beginning, then smooth out through the middle up to 20 years, then at the end you start having troubles (e.g., degradation). You're really in the cruising period where things have smoothed out, so you don't have the lessons learned that you would expect to find later on in the process. Not to mention changes in the greater environment.
Lochbaum, David (Union of Concerned Scientists)	[With regard to the 20-year lead time for license renewal applications] ... if a plant goes for a second relicensing way early I think the context that it is in also determines whether it's appropriate or not.…
Lochbaum, David (Union of Concerned Scientists)	[With regard to the 20-year lead time for license renewal applications] ... unless you're perfect at identifying what that right frame is, how do you protect against coming up short? So, I want to look at the process to see if the aging management, the inspection regime, the frequencies, if it's not right, will the wrongness be found soon enough to protect?

Remer, Jason (Nuclear Energy Institute)	The way we have right now is adequate - several reasons as far as the operation, most of the programs for aging management are based on programs that are already existing in most nuclear plants. Therefore, you do have at least 40 years of experience in running these programs even though it could be that you just started your subsequent renewal period or extended operating period, you do have at least 4 years of that experience to begin the SLR. Major consideration for seeking SLR 20 years in advance of the expiration date is it takes about 10 years to design, license, and construct major new generating facilities and long lead times required by energy planning decision makers. Although the NRC review of an SLR application is expected to take approximately 2 years, some reviews for SLR have taken more than 6 years. Given their time frames, NRC regulations provide prudent allowance of up to 20 years prior to license expiration. Since licensees must wait until after 40 years of operation to seek SLR and the majority of aging management activities are comprised of existing activities during the 40 year period, the adequacy of aging management activities will have been thoroughly demonstrated and site specific environmental issues will be well understood by the time an SLR application can be submitted to NRC. As far as decommissioning plans, you need at least 5 years prior to license expiration to notify NRC of you intent to decommission. So these times get really compressed given a 20 year time frame you have more room for the decision makers to understand how to go about that process.
Remer, Jason (Nuclear Energy Institute)	As you mentioned, most of the programs are existing programs and have operated for 40 years at the plant before they would apply for SLR. Given that there are few additional programs that are implemented, the license process and safety oversight process is such that all of those programs are monitored continuously by the NRC. We don't review the plant 1 time every 10 years and then let them go off and do their own thing. We have a continuous credence; you have a continuous presence at the site. You also have safety metrics that you evaluate and so that each and every program, even though you are technically right that they maybe would just be started, they originate from good safety practices and maintaining of equipment which is required under 10 CFR 50 Appendix B.
Webster, Richard (Public Justice)	[With regard to the 20-year lead time for license renewal applications] ...I could see a process where you're issuing kind of a provisional license and then revisit depending on operating experience in the period prior to the extended operation. But to issue a final license that early doesn't seem to me to make sense.
Webster, Richard (Public Justice)	[With regard to the 20-year time period by which an application is allowed to come in] I think we should start off with a default that it's not possible. We should start off with the default that it can't be done. So, we should say we're not accepting any applications for subsequent renewal. At some point, if applicants are able to show it is possible, then we can start talking

about what time frame is appropriate.

Webster, Richard (Public Justice)	I don't think we should even think about any further renewal until we have at least 10 years of operating data into the period of extended operation.
Webster, Richard (Public Justice)	... we're going to go to the point where we're going to have the oldest reactors in the world. It's very hard to extrapolate forward into unknown territory. The error bars start to go out very fast, so let's not make ourselves an experiment that the consequences of failure are extremely large.
Webster, Richard (Public Justice)	(Regarding previous comment by industry)...I find it kind of interesting that the industry position is well set out in the Statement of Consideration. You know, I thought that was the Commission's position, actually.
Webster, Richard (Public Justice)	[With regard to the 20-year time period by which an application is allowed to come in], if subsequent renewal is possible, and you make a timely and sufficient application, then you get the benefit of administrative renewal. So I think somewhere between 10 and 5 if the question comes up, but the question is really -- I think we're prematurely asking a detail question, when we have a big picture question to answer.
Webster, Richard (Public Justice)	[With regard to the 20-year lead time for license renewal applications and prior suggestion for provisional licenses] ...they're not provisional in the sense that the NRC doesn't retain the ability to change the license without doing a backfit.
Webster, Richard (Public Justice)	Allowing applications to come in 20 years prior to the expiration of a license, is too early to meet the burden of proof that safety will be met.
Young, Garry (Entergy Nuclear)	To add to the discussion we just had, on the programs that are implemented right at the time that the plant is 40 years old and which is the same time the applicant can submit their SLR, all those programs, of course the majority of the programs, are programs that have been in place for the first 40 years of operation. The few remaining programs that were new or added are based on the first 40 years of operation to there is considerable operating experience with the techniques and methods that are implemented for those new programs. And, in addition as mentioned earlier, our requirement on all aging management programs, whether they are existing or new, is that we continue to monitor the effectiveness of the program through our operating experience program and our corrective action program, so that would continue on for whatever the term of the license would be and the term of the aging management program. So I think there would be plenty of information to support the review of the application based on the operating experience and based on lessons learned and then that process would continue which is already required by the current license.

Comment Response Report

Bin: 20 Year Lead Time for Submittal of Renewal Application

Young, Garry (Entergy Nuclear)	[With regard to the 20-year lead time for license renewal applications] ... the 20-year term is well documented in the Statement of Considerations as far as the industry position. The industry needs at least 10 years for long range planning to replace a plant that will not continue to operate. In addition, for subsequent renewal, there is at least forty years of operating experience on aging management programs and activities.

Response

An applicant can submit an application for a renewed license up to 20 years before the expiration of the license currently in effect; for potential subsequent license renewals, an application may be filed at the same time a facility enters its initial period of extended operation. NRC staff proposed rulemaking in a SECY paper that would consider limiting the time during which a subsequent license renewal application can be filed. NRC staff felt that a new limit would ensure adequate accumulation of experience with new AMPs, while still allowing utilities an appropriate span of time in which to submit their application prior to the 5-year limit associated with the timely renewal provision. The Commission responded by saying that no rulemaking was necessary, and to continue working with industry to ensure adequate accumulation of experience with new AMPs. Therefore, there will be no change to the current license renewal rule in regards to the time frame of submittal of an application for subsequent license renewal.

Comment Response Report

Bin: Length of Subsequent License Renewal (SLR)

Comment	
Lampert, Mary (Pilgrim Watch)	Extending the license to 80 years should not happen. NRC is giving in to industry like they did with the GE Mark 1 and 2 in 1972.
Remer, Jason (Nuclear Energy Institute)	NRC regulations provide for SLR term of 20 years based on factors such as legal limitations of the Atomic Energy Act and the need to provide supply sufficient time to plan for replacement generation facilities if the SLR is unsuccessful. The second response would be based on the conditions and terms of the SLR, the 20-yr renewed license term is appropriate, insures safety is maintained as a condition for continued operation, and does not unnecessarily distract the NRC from the important function of continuous oversight and inspection of all operating reactors. Third piece of my response is those who suggested that an SLR term of 10 years based on IAEA guidelines for performing periodic safety review every 10 years for some European and Asian nuclear plants. In 2011 the NRC documented an evaluation of the periodic safety review (PSR) process compared to the U.S. practices. The result was that the established NRC regulations and practices fully addressed the elements of a PSR on a continuing basis rather than 10 year intervals. The NRC did not adopt the PSR approach in part because the NRC regulatory programs, including the onsite resident inspector program, generic issue identification, operating experience, systematic evaluation process afford adequate protection to the public. In fact the NRC programs of continuous oversight and evaluation of the current licensing basis result in a more comprehensive safety review that the regulatory program in most countries that utilize the PSR process.
Remer, Jason (Nuclear Energy Institute)	In regards to reviewing the SLR application, it's a very extensive process. It takes a lot of manpower, a lot of effort on the license renewal staff's part. With a shorter operating period, say 10 years, what would be the effect on your manpower to review those applications if they happened every 10 years versus every 20 years? Given that the main focus, your main focus, would be on safety, operating safety of the nuclear facilities, I wonder would that have a negative impact of safety because of the churn required for all the processing of the paperwork.
Riccio, Jim (Greenpeace)	We don't believe you should go to a license extension, but if so, the extension term should be much more realistic. Limit it to 5, 10, or 15 years or maybe come in every five years if you want to continue to operate.
Webster, Richard (Public Justice)	Many other facilities operate beyond 60 years, so there is nothing magic about the 60 years of operation. The research industry has done and the operating experience from plants in the Period of Extended Operation (PEO) do not point to any showstoppers in relicensing or subsequent license renewal.

Bin: Length of Subsequent License Renewal (SLR)

Webster, Richard (Public Justice)	[With regard to having a 20-year license extension] It's a great idea to have shorter and shorter renewals. Can you predict well for 20 years when you're in completely unchartered territory in terms of world operating experience?
Young, Garry (Entergy Nuclear)	[With regard to the 20-year license extensions] ... our preference is to have a 20-year window to work with, which is what is in the current regulations. And that works well.
Young, Garry (Entergy Nuclear)	[With regard to a 20-year license extension]... the 20-year term provides stability to the process so that investments can be made to run the plants for the longer periods of time. Shortening the period of time reduces the opportunity for investment and the opportunity to keep these plants operating safely for these long periods of time.
Young, Garry (Entergy Nuclear)	Additional comment on that is the 20-yr term of the license is really not a guarantee that the plant will continue to operate. There's a number of license conditions and requirements that must be met just as the requirements are required to be met for 40 years or 60 years. The same should apply for 80 years of operation. So getting a license for 20 additional years, you still have to meet all the requirements for safe operation and meeting environmental requirements, including technical specifications and any state regulatory requirements such as associated with water permits and so on. So getting the 20-yr term is no guarantee of continued operation which has been demonstrated by some recent announcements of plant shutdowns even though they have a license to continue to operate for many more years.

Response

The Atomic Energy Act permits the Commission to issue licenses up to 40 years. For the initial licensing period the 1991 SOC stated that the Commission decided to limit the maximum renewal period to 20 years because it believed that sufficient technical understanding of age-related degradation existed to enable nuclear power plant licensees to develop activities for ensuring safe operation for an additional 20 years. Research is ongoing with industry to demonstrate that sufficient technical understanding of age-related degradation exists for ensuring safe operation for an additional 20 years. Absent data that demonstrates plants cannot safely operate up to 80 years, NRC staff finds that the stated basis for granting up to 20 year license extensions remains valid for subsequent renewals. However, NRC staff does have the flexibility to issue a renewed license for less than 20 years, if it so sees fit.

Comment Response Report

Bin: Length of Subsequent License Renewal (SLR)

Comment	
Fulvio, Albert (Exelon Nuclear)	Our response to the question [is the time frame of 20 years appropriate] is yes. The current rule allows for a 20-yr extension of the period of extended operation (PEO). This time frame is appropriate to allow adequate planning and budgeting to support plant operation. The 20-yr term is necessary to economically justify the expenditures to replace or to refurbish large components such as turbines, generators, transformers, or steam generators that are required for the additional operation period. For these large components, a 10-yr term is inadequate to make the investment justification. There is no need to make it shorter because the aging management programs in place insure that the intended functions are maintained further the PEO. If inadequacies are found the corrective action process will correct them. Additionally, our operating experience programs insure that significant conditions are communicated across the industry to allow each plant to evaluate for their own particular situation. Plants applying for SLR have a minimum of 40 years of operating experience and informs all the aging management programs. The current licensing basis is maintained throughout the PEO, period of extended operation, and the regulatory framework is adjusted as necessary when new safety concerns are identified. The NRC oversight process continues in the period of extended operation to insure that safety concerns are addressed by the utilities.
Lampert, Mary (Pilgrim Watch)	[Regarding a 20-year license extension and the investment to operate plants safely for long periods of time] ...you would have to spend the money regardless of the time period. The time period for the extension should be irrelevant.
Lampert, Mary (Pilgrim Watch)	With regard to investments in plants and the time period for a license extension, you (industry) pass on the costs as the cost of generating the electricity.
Webster, Richard (Public Justice)	(With regard to the discussion on a provisional license and a 20-year license extension) You can't have it both ways so that on the one hand say the license is provisional and that we'll invest the money and on the other hand we need business stability.
Webster, Richard (Public Justice)	Considering the oldest reactors in the UK and the oldest in the US (Oyster Creek), several of which shut down after less than 60 years because of continuing large capital expenditures or maintenance became too expensive, it's not clear that even if licensed for 60 years, plants will operate that long.
Webster, Richard (Public Justice)	You (industry) take a business risk and invest the money to operate the plants but it's not the NRC's job to make sure you make money.
Webster, Richard	(Public Justice)

Is it the NRC's job to save you (industry) from business risk?

Webster, Richard (Public Justice)	Because you're maintaining equipment regardless of the length of the license renewal period and aging is always a consideration how does the business risk change whether the period is five years or ten years?
Young, Garry (Entergy Nuclear)	The business risk is evaluated based on the particular term for a license. If you have to renew the license more frequently, then you have to look at the risk of what that may mean financially.
Young, Garry (Entergy Nuclear)	[With regard to the discussion on a provisional license and a 20-year license extension] The plant can shutdown at any time if something comes up as a surprise; however, with power uprates, we're making the investment of upwards of a billion dollars to upgrade a single unit so that it can operate reliably and safely for longer periods of time.

Response

Licensees will decide whether to operate their nuclear plants beyond 60 years. Many factors are considered in this decision, including whether they can demonstrate that the plant can be operated safely. Other considerations include the cost of other energy alternatives and national policies such as energy independence, energy diversity, and climate change.

The NRC's mission is to evaluate whether licensees have demonstrated that the plant can be operated safely from 60-80 years. Current regulatory processes have already shown that aging issues can be identified and addressed, and these processes would continue in the SLR period. Therefore the primary focus for 60-80 years of operation is for licensees demonstrate not only that actions have been or will be taken to effectively manage aging, but also that processes and programs are in place to ensure that aging management programs and activities will continue to be effective in the 60-80 year operating period.

Comment Response Report

Bin: Fukushima

Comment

Lampert, Mary (Pilgrim Watch)	[With regard to aging, corrosion, and the effects of radiation] I guess lessons learned from Fukushima, a hubristic attitude is very detrimental to safety.

Response

NRC agrees with this statement.

The current operating fleet of reactors is safe today. If it were not, we would need to take action today to ensure that all units provide reasonable assurance of public health and safety. Rulemaking (regulations), licensing, guidance, oversight (inspections), generic communications, event assessment, operating experience, and orders are tools in the current regulatory framework used by the staff to ensure reasonable assurance of adequate protection since the first commercial reactors were built.

Application of the current regulatory processes has demonstrated their effectiveness in monitoring operations across the current fleet to identify and address safety issues in a timely fashion. Plants are monitored and inspected by both the staff and the licensees. When safety issues are identified, they are addressed through the Quality Assurance Program, and placed in the Corrective Action Program to ensure that the issues are properly evaluated, resolved, and documented. In addition, safety issues that may arise from plant events are reported, documented, evaluated, and resolved, and the events shared across the industry so that all stakeholders are aware and have the opportunity to address the issue to ensure public health and safety.

Comment Response Report

Bin: Standard, Codes, and Guidance

Comment

Lochbaum, David (Union of Concerned Scientists)	Research that should be done by the federal government that is done by industry or other sources should be as publicly available as the NRC's own documents would have been.
Lochbaum, David (Union of Concerned Scientists)	One of the biggest benefits of the second license renewal is that it gives the Agency and the licensees more time to come into compliance with things like fire protection regulations.
Srinivasan, Makuteswara (Private Citizen)	How do codes and standards get taken into consideration? For codes and standards applied to critical structures and components for the initial 40 years, first 20-year extension, and so forth, what will be incorporated into the codes and standards for the industry to follow and the regulator to review and endorse?
Webster, Richard (Public Justice)	EPRI cannot be the driver of public policy because the public doesn't get to see the background data and doesn't get to see some of the reports without spending large amounts of money. Public policy should be made in the open. It should be made based on data that's available to all, and that's a big problem in the past.
Webster, Richard (Public Justice)	ASME standards for inspection are used as a baseline, but we could do far better by using some data and analysis to derive inspection intervals. I think there's some room to change the standards or how they're applied. ...there's a huge industry influence in how the standards are made, and the industry has a strong influence, or a strong interest in keeping inspections quick and cheap.
Young, Garry (Entergy Nuclear)	(With regard to NEI's plans to revise NEI 95-10) That's one of the things that's being looked at as part of this collaborative effort with EPRI… The NEI 95-10 document is one of the documents that's been tabulated as part of this overall process of looking at the guidance and what issues, what new pieces of information should be incorporated.

Response

PLACEHOLDER RESPONSE;- comments not dispositioned.

Comment Response Report

Bin: Generic Safety Issues (GSIs)

Comment

Webster, Richard (Public Justice)	A comprehensive review is needed and Generic Safety Issues on license renewal need to be closed out; either closed out generically or on a plant-by-plant basis.

Response

In the past, generic safety issues (GSIs) were resolved without consideration of the 20 years of additional plant operation permitted under the proposed license renewal rule. Consideration of extended plant life and any increase in population around nuclear plant sites may alter the resolution bases of GSIs that have not been backfitted.

Both the safety value and the cost impact can increases with added plant operating time. The safety value could increase over time more than the cost impact, as would be the case when costs are largely one-time initial costs but the risk reduction benefit accumulates year after year with continued operation.

NRC staff is in the process of determining how additional operating time would affect the resolution of generic safety issues. In doing so, NRC staff plans to reevaluate those GSIs reviewed in NUREG CR-5382 because as expressed in that document, the analysis only considered an additional 20 years.

Comment Response Report

Bin: Inspections

Comment

Lochbaum, David (Union of Concerned Scientists)	One-time inspections are not revisited to verify their continued applicability. In other words, what assurance exists that the results from a one-time inspection conducted at Year 39 remain valid in Year 74 of a twice-renewed operating license?
Lochbaum, David (Union of Concerned Scientists)	So, our recommendation would be for the NRC to compile some kind of database of results from one-time inspections, what was looked at, what was found, and use that if licenses beyond 60 are granted to determine whether you need to do another one-time inspection, or two-time inspection, or the existing one was adequate. So, that's a concern we have.
Lochbaum, David (Union of Concerned Scientists)	We have a problem with one-time inspections, but don't know what better solution in right now. What assurance it there that a one-time inspection done at year 39 of an original license is still valid at year 78 of a twice renewed license? What is the aging curve, and did the one-time inspection bound that?
Webster, Richard (Public Justice)	... one danger of emphasizing operating experience is, of course, I already found the tendency, though, of don't look, don't find. If you don't inspect a component, you don't find any problems.

Response

Currently, NRC conducts both pre-approval IP 71002 and the post-approval IP 71003 site inspections. The purpose of the IP 71002 inspection is to verify the documentation, implementation and effectiveness of the applicant's AMPs and activities related to the license renewal program. The purpose of the IP 71003 inspection is to ensure the license conditions and commitments after the renewed license was granted are implemented in accordance with 10 CFR Part 54. On a sampling basis, both inspections are conducted once during the first renewal. No inspections are performed to assess the effectiveness of AMP implementation during the PEO. The NRC staff is working with industry on defining AMP effectiveness and developing a mechanism to share AMP data among stakeholders.

Comment Response Report

Bin: Environmental Issues and Environmental Impact Statement (EIS) Requirements

Comment	
Lampert, Mary (Pilgrim Watch)	Isn't the bottom line money? It's going to cost a pile of money for current reactors to go to dry cooling, or cooling towers, or whatever? We saw that played out in New Jersey, and hence they decided "Please, please, please, don't make us do it. If you don't, we'll cut you a deal and only run 10 years on our extended license." So that's -- the bottom line is the bottom line, and so we hope that NRC, EPA, NOAA, et cetera will step up to the plate and do the job they're hired to do, which is to protect the natural resources.
Lampert, Mary (Pilgrim Watch)	Once-through cooling is a very big issue.
Reister, Richard (Department of Energy)	I think there was a statement made earlier that closed-cycle cooling was better than existing technologies, and I guess I question that. There are environmental impacts from closed-cycle cooling: the water consumption doubles from closed-cycle cooling to once-through cooling. There are entrainment of water that gets deposited on the surrounding environment. There's visual impacts from large cooling towers. So I guess I would just question that you can make a blanket statement that closed-cycle cooling is better than once-through cooling or other cooling technologies, or other ways of mitigating environmental impacts from cooling in general.
Webster, Richard (Public Justice)	Closed-cycle cooling has been a requirement for new power plants since around '72, I think. I question strongly why NRC hasn't required a closed cycle in this round of relicensing, even when EPA has recommended it. Even NEI thinks it's a good idea, so if there's going to be any next round, then closed-cycle should be a minimum requirement. It also has some operational advantages.
Webster, Richard (Public Justice)	Closed-cycle (cooling) could be one of those mitigation technologies.
Webster, Richard (Public Justice)	...under NEPA, the NRC could decide that because the licensee is not prepared to fit a closed-cycle cooling system, the environmental impacts are too great to allow relicensing to occur. So although they don't have the ability to specify the technology, NRC does have the right to withhold licensing for environmental reasons.
Webster, Richard (Public Justice)	While no design is going to be impact-free, designs can be sensibly done to minimize aesthetic impact using a closed-cycle.

Bin: Environmental Issues and Environmental Impact Statement (EIS) Requirements

Wilson, Scott (US Environmental Protection Agency)	I think from EPA's perspective, I don't think we'd say that a cooling tower is the best approach in every situation. I think there's a lot of water solutions that it provides, as far as the fish population. I do understand, it does decrease plant efficiency, and there are some drawbacks to it. So it's not a perfect solution. It's one of the solutions under 316(b) in the Clean Water Act. But again, I would agree that it's best to analyze the costs and benefits to see if it's really the best approach or not. There could be other approaches.

Response

In plant-specific environmental reviews, the NRC compares the impacts of renewing the operating license and the impacts from continued plant operations to the environmental impacts of alternatives. Absent some previously unknown impact, the impacts of the proposed action would be unchanged from the initial operating term. Once-through cooling versus cooling towers, water use, entrapment and entrainment, thermal discharge, and other issues are considered in the context of whether environmental impacts from the proposed action outweigh the impacts of the no-action alternative when compared with reasonable alternatives. The NEPA review may recommend that an applicant convert a plant from once-through cooling to cooling towers cooling towers as a mitigative measure to reduce impacts; but the NEPA review simply allows the NRC to determine whether the environmental impacts of license renewal are so great that preserving the option of license renewal for energy-planning decision makers would be unreasonable. If license renewal were reasonable, even without such mitigative measures, converting from once-through cooling to cooling towers would not be a condition of license renewal. NRC's authority does not extend to requiring operating nuclear power plants to replace or modify their cooling systems to reduce impacts. The authority to issue National Pollutant Discharge Elimination System (NPDES) permits is held by the EPA, or delegated to the State, in their implementation of the provisions of the Clean Water Act (CWA).

Comment Response Report

Bin: Environmental Issues and Environmental Impact Statement (EIS) Requirements

Comment

Lampert, Mary (Pilgrim Watch)	(The) final environmental impact statement is written without the consultations of appropriate agencies. And the biological assessments to back up the consultations haven't been accomplished.

Response

The environmental scoping process invites other governmental agencies to assess whether they should be considered cooperating agencies under the regulatory structure afforded by the President's Council on Environmental Quality (CEQ). It also invites them to identify whether they have a particular expertise on an issue that may be invaluable to the NRC, or have consultation roles under other statutes that may have a bearing on site-specific issues.

Further, The NRC staff sends a letter directly to the leaders of the Tribal nations that may have an interest in the land occupied by or in the area surrounding the nuclear power facility. The letter informs the Tribal nations of the receipt of the license renewal application and provides them with information on how to obtain a copy. Instructions for providing comments to the NRC are also given in the letter. Further consultation occurs in the NRC's review of historic and cultural resources. This consultation occurs through discourse with the State Historic Preservation Officer (SHPO) or, when appropriate, the Tribal Historic Preservation Officer (THPO).

Moreover, the NRC consults with the Fish and Wildlife Service (FWS) and National Marine Fisheries Service (NMFS) regarding threatened and endangered species and essential fish habitat for all license renewals to determine if these resources could be affected by license renewal. The 2013 GEIS, at Section 4.6.1.3, better describes this consultative process.

In addition to NRC-coordinated consultation, the draft EIS is reviewed by various Federal agencies at their discretion. For example, at the Federal level, the draft SEISs for license renewal is most commonly reviewed by the U.S. Environmental Protection Agency and the U.S. Department of the Interior. The comments from these agencies are considered and included in the final SEIS, as appropriate.

Each EIS identifies agencies the NRC consulted with during the NEPA process.

Comment Response Report

Bin: Environmental Issues and Environmental Impact Statement (EIS) Requirements

Comment

Webster, Richard (Public Justice)	This whole idea of GEIS as a bounding analysis just doesn't fly in a lot of areas. I suggest that we check with each plant to see if the GEIS is bounding. If the GEIS is bounding, then go with the GEIS. If the GEIS is not bounding, then site-specific analysis is needed.

Response

Since this comment was received, the GEIS has been updated. Revision 1 was published in June 2013. The intent of the GEIS is to determine which issues would result in the same impact at all nuclear power plants and which issues could result in different levels of impact at different plants and thus require a plant-specific analysis for impact determinations. The GEIS revision identifies 78 environmental impact issues for consideration in license renewal environmental reviews, 59 of which have been determined to be generic to all plant sites. The GEIS also evaluates a full range of alternatives to the proposed action. For most impact areas, the proposed action would have impacts that would be similar to or less than impacts of the alternatives, in large part because most alternatives would require new power plant construction, whereas the proposed action would not.

The concept of bounding in the context of the GEIS relates to the NRC's characterization of impact areas. For each potential environmental impact issue, the revised GEIS (1) describes the nuclear power plant activity that could affect the resource, (2) identifies the resource that is affected, (3) evaluates past license renewal reviews and other available information, (4) assesses the nature and magnitude of the environmental impact on the affected resource, (5) characterizes the significance of the effect, (6) determines whether the results of the analysis apply to all nuclear power plants (whether the impact issue is Category 1, Category 2, or uncategorized), and (7) considers additional mitigation measures for adverse impacts.

Impact areas in Category 1 are generically applicable to all plants whereas impact areas in Category 2 require site-specific analyses. A summary of these impact areas by category is found in 10 CFR Part 51, Subpart A, Appendix B. For Category 1 impact areas, the GEIS analysis is applied and thus, bounds, the analysis for that particular area.

Issues that were resolved generically in the GEIS (Category 1 issues) are not reevaluated in the SEIS because the conclusions reached would be the same as in the GEIS, unless new and significant information is identified that would lead the NRC to reevaluate the GEIS's conclusions. New information can be identified from a number of sources, including the applicant, NRC review activities, other agencies, or public comments. The NRC defines the terms "new and significant" information in Supplement 1 to NRC Regulatory Guide 4.2, "Preparation of Supplemental Environmental Reports for Applications to Renew Nuclear Power Plant Operating Licenses".

Comment Response Report

Bin: Environmental Issues and Environmental Impact Statement (EIS) Requirements

Comment	
Remer, Jason (Nuclear Energy Institute)	Existing regulations require consideration of population demographics near the nuclear generating facility prior to and during plant operation, including extended operation. Environmental assessment for license renewal includes evaluating whether the continued operation of the plant has impacts in terms of environmental justice and socioeconomics. Per NRR Office of Instruction LIC 203, the census plot group is used as the recommended geographic area for determining the location of minority and low income populations. Census plot group contains information on income and socioeconomic data that is not collected from the smaller census block. In summary, the environmental reviews performed for license renewal already address potential impacts based on surrounding communities. Subsequent renewal activities should continue to utilize the existing process that's yielded an assessment of the overall impacts of continued operation on the populations living near their facilities and then provide the NRC with the information necessary to reach a reasonable conclusion.
Webster, Richard (Public Justice)	Environmental justice analysis is currently being done incredibly poorly. It doesn't take into account community conditions, and doesn't properly address what would actually happen to environmental justice communities in a severe accident.

Response

Impacts of nuclear plant operations and refurbishment on minority and low-income populations living near nuclear power plants were not addressed in the 1996 GEIS because guidance for implementing Executive Order 12898 was not available at the time. Today, the NRC addresses environmental justice matters for license renewal through (1) identifying the location of minority and low-income populations that the continued operation of the nuclear power plant may affect during the license renewal term, (2) determining whether there would be any potential human health or environmental effects to these populations and special pathway receptors, and (3) determining if any of the effects may be disproportionately high and adverse.

The NRC's "Policy Statement on the Treatment of Environmental Justice Matters in NRC Regulatory and Licensing Action" (69 FR 52040, August 24, 2004) requires a determination of whether human health and environmental effects of continued operations during the license renewal term and refurbishment associated with license renewal on minority and low-income populations would be disproportionately high and adverse. This determination will be made by the NRC in each plant-specific SEIS.

In order to perform a review of environmental justice near a nuclear power plant, the NRC staff examines the geographic distribution of minority and low-income populations within 80 kilometers (50 miles) of the site. The staff uses the most recent census data available. The staff also supplements its analysis by field inquiries to such groups as county planning departments, social service agencies, agricultural extension personnel, and private social service agencies.

Adverse health effects are measured in terms of the risk and rate of fatal or nonfatal adverse impacts on human health. Disproportionately high and adverse human health effects occur when the risk or rate of exposure to an environmental hazard for a minority or low-income population is significant and exceeds the risks or exposure rate for the general population or for another appropriate comparison group. Disproportionately high environmental effects refer to impacts or risk of impact on the natural or physical environment in a minority or low-income community that are significant and appreciably exceed the environmental impact on the larger community.

Comment Response Report

Bin: Environmental Issues and Environmental Impact Statement (EIS) Requirements

Comment	
Lampert, Mary (Pilgrim Watch)	So when are these going to be updated? And not to say site-specific, the effect on, let's say the example of Pilgrim, where a case-controlled study in 1990 by the Mass Department of Public Health shows a fourfold increase in adult leukemia. So there's a difference from reactor site to reactor site on previous exposures and indication of radiation-linked disease. So I suppose that's, in part, a two-part question regarding health, and how, in fact, you're basing your assessment of no impact.
Lampert, Mary (Pilgrim Watch)	Regarding health, could you address the fact of how up to date and what research you're basing health impacts on? BEIR VII I know is not used, and BEIR VII certainly seems like a fairly independent group of scientists. And also, they have found a far greater impact than previously assumed, greater impact on women than men, greater impact on children, obviously. And this has not been integrated into the dose response -- what body of research, when was it published, on dose response consequence? Are you using BEIR VII, for example? I know you're not, but are you planning to use that as your standard on response?
Lampert, Mary (Pilgrim Watch)	As a takeaway for policy, it would seem reasonable to base response on the latest credible research (dose factors and radiological health effects), and I think the National Academies probably satisfies most people.
Lochbaum, David (Union of Concerned Scientists)	In those days, the draft environmental impact statement was somewhere from 250 to 300 pages. There was one paragraph in there, about a quarter of a page, that dealt with potential human health impacts from the plant's operation, and that was limited to EMF, Environmental Mechanical -- Electromagnetic -- something electrical. There were no radiation effects at all. And when I asked a question about that at that time, I was told that those effects were out of scope. Is that still the fact, that the draft environmental impact statement doesn't look at human health effects other than EMF?
Lochbaum, David (Union of Concerned Scientists)	That's the data that's going out. There's no human effects about what that --- radioactive material that's going out gets reported every year, there's no connection whether there's anybody dying as a result of that. You never look at that, other than during some, apparently, of the EISs.
Lochbaum, David (Union of Concerned Scientists)	If the standards are the same, and you say the current standards look at health effects other than EMF, and it wasn't done at Calvert Cliffs, because I can go back and show you that it wasn't done, would you go back and redo it, since you didn't follow your process then? But not until then? That's the question.

Bin: Environmental Issues and Environmental Impact Statement (EIS) Requirements

Lochbaum, David (Union of Concerned Scientists)	MR. LOCHBAUM: Was that changed since those days? (See discussion regarding EIS only looking at EMF and not radiological health effects.) MR. SUSCO: I don't know if I can comment on that. I think it was -- the GEIS was the same, as far as I knew, back then. I'd have to go look at Calvert Cliffs to really be able to answer this question. MR. LOCHBAUM: If it's the same, since Calvert Cliffs didn't address it, would the staff go back and revisit that, since they only looked at EMF for Calvert Cliffs?

Response

The 2013 GEIS considers a number of human health parameters. Specifically, radiological exposures to workers and the public, chemical hazards, microbiological hazards, electromagnetic fields, shock hazards, and other occupational hazards are reviewed. These issues are all Category 1 issues and are not reconsidered in the SEIS absent new and significant information.

Regarding BEIR VII, the NRC completed a review of the BEIR VII report and documented its findings in Commission paper SECY-05-0202, Staff Review of the National Academies Study of the Health Risks from Exposure to Low Levels of Ionizing Radiation (BEIR VII), dated October 29, 2005 (ADAMS Accession No. ML052640532). In this paper, the NRC concluded that the findings presented in the BEIR VII report agree with the NRC's current understanding of the health risks from exposure to ionizing radiation. This conclusion is consistent with the process the NRC uses to develop its standards of radiological protection. Therefore, the NRC's regulations continue to be adequately protective of public health and safety and the environment. Thus, explicit use of BEIR VII for license renewal analyses of human health impacts is not contemplated.

As for updating, the entire GEIS was updated after these comments were received and the current version is NUREG-1437, Revision 1, dated June 2013.

Comment Response Report

Bin: Environmental Issues and Environmental Impact Statement (EIS) Requirements

Comment	
Lochbaum, David (Union of Concerned Scientists)	The license renewal process contradicts the initial licensing process with respect to National Environmental Policy Act (NEPA). In the past, “new” reactors had to incorporate cooling towers instead of using once-through cooling in order to satisfy NEPA. Classic examples include Artificial Island where the two older Salem reactors lack cooling towers and the single newer Hope Creek reactor has a cooling tower (as would Hope Creek Unit 2 if it had been finished) and upstate New York where the newer Nine Mile Point Unit 2 has a cooling tower while the older Nine Mile Point Unit 1 and Fitzpatrick reactors do not. The initial licensing process caused “new” reactors to rely on cooling towers to minimize the impacts on the environment per NEPA. But the license renewal process fails to apply the same rigor and requirements when “old” reactors get to run for 20 or more years without cooling towers. If the “old” reactor was not relicensed and a “newer” reactor built to replace it, it would very likely require a cooling tower (e.g., North Anna Unit 3 will have a cooling tower if built while North Anna Units 1 and 2 lack cooling towers).
Webster, Richard (Public Justice)	Right. I fully concur with that. The states don't have that (resources for cost benefit analyses). And that's one reason, I think, that the licensee and the NRC should help the states out on that, in terms of good quality analyses of these issues in the environmental side of the application.
Wilson, Scott (US Environmental Protection Agency)	If we keep experiencing more and more drought conditions, like it's still looking like it will occur in the southwest again, that's going to be more of an issue.
Wilson, Scott (US Environmental Protection Agency)	Well, if a state were to develop 316(b) requirements on their own, using their best professional judgment, that should be part of the equation (cost-benefit analyses). I would say that no, states don't have the staff, and the economists and people say that's typically not done. I mean, that will be part of our 316(b) rule when that's issued.
Wilson, Scott (US Environmental Protection Agency)	If companies analyze water use, water conservation, that they can do within the plant and moving to cooling towers and other technologies, that probably would be beneficial, both for 316(a) and 316 (b).

Response

These comments are outside the scope the of the NRC NEPA process. NRC's NEPA implementing regulations cannot require a licensee to backfit a cooling tower to replace a once-through cooling system. A backfit could only be imposed if necessary to maintain adequate protection to the health and safety of the public. Such a backfit must be justified on safety grounds, not NEPA ones. NRC's authority does not extend to enforcing compliance with the Clean Water Act. That authority is the purview of the Environmental Protection Agency, or is delegated to the State by the EPA.

Installation of a cooling tower may result in less environmental impact than a once-through cooling system; however, the NEPA determination made by the NRC in license renewal is whether the adverse environmental impacts of license renewal are great enough to deny the option of license renewal for energy-planning decision makers. The proposed action – renewing the license – does not have to be the environmentally preferable action; it simply must be a reasonable alternative that provides an option allowing for baseload power generation capability beyond the term of the current license.

Comment Response Report

Bin: Environmental Issues and Environmental Impact Statement (EIS) Requirements

Comment

Webster, Richard (Public Justice)	Peter Bradford, a former Commissioner, wrote a very interesting affidavit supporting a contention basically saying that the NRC's EISs have been biased since the agency opened, and continue to be biased. And so if you haven't read that, I highly recommend that as reading, because this is somebody who knows the process very well. He has been on the Commission. He has followed NRC in detail for many years. And I think it offers a very interesting perspective.
Webster, Richard (Public Justice)	With the two tracks of safety and environment, because they are so distinct, you actually miss sometimes some opportunities for holistic mitigation.
Wilson, Scott (US Environmental Protection Agency)	And I'd say that's probably something that could be thought of more deeply under NEPA. I have to admit, I haven't seen one of the EISs for one of these projects, but I think in most cases, there are some more things that could be done under NEPA.

Response

NRC's review of an application for license renewal has four components: a safety review, an environmental review, inspections, and an independent review by the Advisory Committee on Reactor Safeguards (ACRS). The NRC performs a safety review of the information provided in the application (as supplemented with additional information provided by the applicant at the NRC's request). The results of the safety review are documented in a publicly available safety evaluation report.

The NRC publishes the results of the license renewal environmental report in a publicly available plant-specific draft SEIS and the public are invited to comment. Then, after considering all public comments, the NRC issues the final SEIS.
Teams of inspectors with experience in nuclear plant safety visit the site and verify that the applicant has implemented its aging management plans as committed to in the application. The results of plant inspections conducted as part of license renewal are documented in inspection reports and are made publicly available. The results are also included in the safety evaluation report. (These inspections are in addition to NRC's ongoing regulatory oversight program for all operating reactors, which also includes inspections.)

The ACRS is an independent panel of experts that advises the Commission on matters related to nuclear safety. The ACRS reviews the applicant's safety analysis report, the NRC's safety evaluation report, and the results of the onsite inspections and makes its recommendations to the Commission regarding issuance of the renewed license.

Comment Response Report

Bin: Environmental Issues and Environmental Impact Statement (EIS) Requirements

Comment

Yhip, Kathleen (Nuclear Energy Institute)	[Response to the NRC's question about whether or not limits should be mandated] If the NRC notes, NEPA is an act that direct agencies to consider the environmental impacts of the proposed discretionary action. It does not, however, mandate action to reduce environmental impacts and so we would encourage the NRC to continue with that perspective. The NRC has also noted that nuclear plants are regulated not only by the agency itself, but by a host of other agencies, many of whom are responsible for granting permits or approvals for plant operation, including the continued operation through all the license renewal period that are approved by the NRC. Integral to those actions, each agency performs their own environmental review and inserts conditions or clauses requiring the agency to take actions necessary to protect the environment and public health. The SLR process should continue to rely on the expertise and oversight of those agencies and should not attempt to mandate actions in an unnecessary duplication of those agencies' efforts.
Yhip, Kathleen (Nuclear Energy Institute)	Just an overall comment - the license renewal process has proven to be so well reasoned and effective in assuring that the potential environmental impacts of continued operation of a nuclear generating facility are evaluated in a consistent and transparent manner. We as an industry and the regulators have extensive experience in the process and we have seen it work successfully in terms of the license renewal. We certainly need to maintain consistent regulatory requirements going on into the future and this process that exists today provides the regulatory stability that is necessary. But, it is my no means a stagnant process. It's a process that continues to expand to address emergent situations and to incorporate lessons learned. As you're certainly aware, under 10 CFR Part 51, the regulations technical basis document and the guidance are required to be updated every 10yrs, so we encourage the NRC to continue to use the existing process for future renewals.

Response

The assertions in these comments reflect the current NRC NEPA process. The NRC consults with other agencies as required by Commission regulations and other statutes; the NRC’s NEPA implementing rules are consistent and provide regulatory stability; and the GEIS is updated periodically with the most recent update having been published in June 2013.

Comment Response Report

Bin: Environmental Issues and Environmental Impact Statement (EIS) Requirements

Comment

Webster, Richard (Public Justice)	Let me just say, on this generic versus non-generic, it's interesting that all new plants are required, on a routine basis, to have closed-cycle or some other technology that's even better than closed-cycle. So it's kind of interesting to me that, say, emergency planning can be done generically, when emergency planning -- you know, the number of people within 12 miles varies from about a few thousand to a couple of million. But this issue can't be dealt with generically. It's kind of amazing.
Webster, Richard (Public Justice)	The GEIS is woefully out of date, and the scope is too big. For instance, doing evacuation planning issues on a generic basis when a plant in New York has 12 million people within 50 miles. I don't think the GEIS bounds those impacts. I can't say that in a proceeding because that would be against the rules, but I can say that here.

Response

Emergency preparedness and planning are part of the current operating license and are outside the scope of the environmental analysis for license renewal. Emergency preparedness programs are required at all nuclear power plants and require specified levels of protection from each licensee regardless of plant design, construction, or license date. Requirements related to emergency planning are in the regulations at 10 CFR 50.47 and Appendix E to 10 CFR Part 50. Within the context of license renewal, the Commission considered the need for a review of emergency planning issues during the 1991 rulemaking proceedings on 10 CFR Part 54, which included public notice and comment. As discussed in the statement of consideration for rulemaking (56 FR 64942, 64966-67; December 13, 1991), the programs for emergency preparedness at nuclear power facilities apply to all nuclear power facility licensees and require the specified levels of protection from each licensee regardless of plant design, construction, or license date. As a result, the Commission determined that “[t]here is no need for a licensing review of emergency planning issues in the context of license renewal.” (56 FR 64966-67).

Comment Response Report

Bin: Environmental Issues and Environmental Impact Statement (EIS) Requirements

Comment

Webster, Richard (Public Justice)	I'd strongly suggest to the NRC that you're doing yourselves more harm than good by continuing to compare a nuclear plant to a coal plant in order to make nuclear look good. No one buys this ruse.

Response

The impacts of renewing the operating license of a nuclear power plant are comparable to the impacts of energy alternatives. The alternatives evaluated are those deemed to be reasonable replacements for the operating plant and include fossil fuels like coal, new nuclear, renewables, conservation, energy efficiency, and purchased power.

Under NEPA, the NRC has the obligation to consider reasonable alternatives to the proposed action of renewing the license for a nuclear reactor. The GEIS facilitates that alternative analysis by providing NRC review teams with empirical evidence of the performance, environmental impacts, and resource demands and impacts of those potential replacement power alternatives current when the analysis – whether the analysis is for the GEIS or the SEIS – was prepared.

Coal is the largest electricity-generating fuel source in the United States. In most cases, coal is a reasonable alternative to the proposed action, and therefore, its impacts are compared to those of renewing the nuclear power plant license.

Comment Response Report

Bin: Environmental Issues and Environmental Impact Statement (EIS) Requirements

Comment

Lampert, Mary (Pilgrim Watch)	The NRC has failed to complete the seven consultation process under the Endangered Species Act for 10 listed endangered and threatened species at Pilgrim, contrary to the NMFS consultation handbook and recommendations and ESA regulations. NRC staff and Entergy have failed to conduct a specific assessment of the impact of relicensing on a variety of endangered species, and most commonly and particularly on endangered species that the NRC knows is most commonly impinged at Pilgrim. And they haven't considered ways to avoid or minimize adverse effects to that endangered species.

Response

This comment is not within the scope of the environmental review process for subsequent license renewal because it pertains to the NRC staff's completed environmental review for an initial relicensing term.

However, with regard to species listed under the Endangered Species Act (ESA) that may be affected by the operation of Pilgrim Nuclear Power Station, the NRC consulted with both the U.S. Fish and Wildlife Service (FWS) and the National Marine Fisheries Service (NMFS) in accordance with section 7 of the ESA during its environmental review. Consultation included the staff's development of a supplemental environmental impact statement and biological assessments that considered potential impacts of license renewal on Federally listed species. Contrary to the commenter's assertion, the NRC did not identify any information indicating that Pilgrim is impinging any federally protected species. FWS and NMFS determined that the continued operation of Pilgrim was not likely to adversely affect any federally listed species under their jurisdictions in letters dated May 23, 2006 (ML061650016) and May 17, 2012 (ML12145A072), respectively.

Comment Response Report

Bin: Environmental Issues and Environmental Impact Statement (EIS) Requirements

Comment

Lampert, Mary (Pilgrim Watch)	NRC staff have failed to comply with the Magnuson-Stevens Fishery Conservation and Management Act of 1976 in implementing regulations -- their very own regulations -- in this regard. And I could go -- and there's another. My point being that if you read the final impact statement, everything seems fine, but the work wasn't done. And so then that leads to the question, if the responsible agencies are not doing their jobs, then where do we go from there? It seems like it's not a priority?

Response

This comment is not sufficiently detailed to provide a specific response. The NRC conducts its license renewal processes in accordance with Commission regulations and the Magnuson-Stevens Fishery Conservation and Management Act, as appropriate.

Comment Response Report

Bin: Environmental Issues and Environmental Impact Statement (EIS) Requirements

Comment

Webster, Richard (Public Justice)	Generally, there may be desert environments or very water-scarce environments where the water consumption is important. In those, I would anticipate moving toward some sort of non-water-cooled approach or other approaches that are much less water consumptive. Look for -- I think one plant uses waste water for cooling, for instance. So the water consumption issue, I think, is sort of a red herring for nearly all situations. Certainly for coastal plants, certainly plants sited on large estuaries. Salt drift issues, generally exaggerated. The AP-42 emission factors on salt drift are generally recognized as being overestimates.

Response

NRC's authority does not extend to requiring operating nuclear power plants to replace or modify their cooling systems to reduce impacts. That authority is held by the State or the EPA in their implementation of the provisions of the Clean Water Act (CWA).

Comment Response Report

Bin: Environmental Issues and Environmental Impact Statement (EIS) Requirements

Comment

Lampert, Mary
(Pilgrim Watch)

And it's clear that our fish, marine life, is becoming more and more scarce as the years pass, and that's what the predictions are, that it will continue. The endangered species list keeps increasing year to year. And it doesn't take a marine biologist to figure out that in they go, and you've got a bouillabaisse going, and then that's spit out at the other end, usually up to 30 degrees higher, and the additional problem of not a requirement to measure the temperature of the discharge on a minute to minute basis. Rather, it's averaged, and lots of games can be played there.

Response

Impingement and entrainment to and thermal impacts of fish and shellfish is a Category 2 issue for those plants with once-through cooling and a Category 1 issue for those plants with cooling towers meaning that, for those plants with once-through cooling systems, the NRC will conduct a site-specific analysis of the impacts as part of SEIS development.

Regarding the specific assertions made about marine life scarcity and the list of endangered species increasing, the commenter does not provide details sufficient to support a substantive response nor are there any examples provided wherein thermal changes as high as 30 degrees occur.

Finally, regarding discharge temperature averaging, thermal discharge limits are set by the National Pollution Discharge Elimination System permit issued by the US EPA or the State, as appropriate, under the provisions of the Clean Water Act. The NRC does not set those limits nor could it impose minute-to-minute temperature discharge monitoring on the licensee. Such requirements are within the purview of the NPDES permit issuer.

Comment Response Report

Bin: Environmental Issues and Environmental Impact Statement (EIS) Requirements

Comment

Webster, Richard (Public Justice)	I mean, one of the ways -- this certainly can be a data-generating tool to give permit writers in the states the ability to write good permit limits. And I certainly support that.

Response

This comment is outside the scope of the NRC NEPA process. Non-radiological effluent permit limits are set by the US EPA or the state, as appropriate.

Comment Response Report

Bin: Environmental Issues and Environmental Impact Statement (EIS) Requirements

Comment

Lampert, Mary (Pilgrim Watch)	I haven't seen, however, comparison of a brand new nuclear reactor -- not that I'm in favor of that -- to the current reactor. That would be quite interesting.

Response

Where reasonable, alternatives to license renewal, which analyze the impacts of new nuclear power generation, are being considered in current SEIS development.

Comment Response Report

Bin: Environmental Issues and Environmental Impact Statement (EIS) Requirements

Comment

Lampert, Mary (Pilgrim Watch)	Well, there's also the policy of "Do no harm." Not a bad way to look at things in the future. (Comment in response to previous comment regarding EPA's perspective.)

Response

This comment does not contain enough information for NRC to provide a response.

Comment Response Report

Bin: Security

Comment

Lampert, Mary (Pilgrim Watch)	And also, there's the security issue. There's an advantage, because we have a couple of boats, and it doesn't take a genius to figure out what could be put up that intake canal.
Remer, Jason (Nuclear Energy Institute)	Security, including terrorist threats, is part of the ongoing operation of a nuclear generating facility in their license regardless of whether the plant is operating under their initial license or renewed license or second renewal of the license. As a proposed revision for the GEIS states, security issues, such as safeguards planning, are not tied to the license renewal action but are considered to be issues that need to be dealt with constantly as part of the current and renewed operating license. Security issues are periodically reviewed and updated for every operating plant. These reviews continue throughout the period of the operating license, whether the original or renewed license. If issues related to security are discovered at a nuclear plant, they are addressed immediately and any necessary changes are reviewed and incorporated under the operating license. As such, decision and recommendations concerning safeguards and security at nuclear power plants are ongoing and outside the regulatory scope of GEIS. Secondly, the NRC long-standing view is that NEPA does not require the NRC to consider the environmental consequences of hypothetical terrorist attacks on NRC licensed facilities. NEPA requires that there be a reasonably close causal relationship between the federal agency action and the environmental consequences. The NRC renewal of a nuclear power plant license would not cause a terrorist attack. A terrorist attack would be caused by the terrorists themselves. Thus the renewal of a nuclear power plant license would not be proximate cause of a terrorist attack on a facility. (8/8/2008 & 8/8/2008, the Attorney General of the Commonwealth of Massachusetts, the Attorney General of California in Denial of Petitions for Rule Making.) Finally, any potential adverse impacts resulting from plant security and design basis threats have been and will continue to be appropriately addressed by multiple layers of defense rather than under NEPA environmental impact.

Response

The License Renewal GEIS documents "a discretionary analysis of terrorist acts in connection with license renewal, and concluded that the core damage and radiological release from such acts would be no worse than the damage and release to be expected from internally initiated events." This finding applies to subsequent license renewal as well. It has been the NRC's consistent position that NEPA does not require the NRC, when assessing whether to license nuclear facilities, to analyze environmental impacts from terrorist attacks. This position is grounded in both the Supreme Courts case law on NEPA and pragmatic policy considerations. Under Supreme Court case law, NEPA requires an agency to analyze only those environmental impacts for which the agency can legitimately be held responsible. Responsibility for deliberate acts of terrorism upon NRC-licensed facilities, in the NRC's view, rests with the attackers, not with the NRC. Thus, NEPA does not require analysis of these impacts. Furthermore, the NRC, in conjunction with several other federal agencies, already addresses terrorist threats via extensive security requirements that seek to prevent terrorist attacks altogether and to minimize the harmful effects if such attacks do occur. Finally, NEPA analysis of terrorist attack scenarios would likely yield information that, because of security concerns, could not be disclosed to the public. Therefore, even if such reviews were done, they would not actually further one of NEPA's basic purposes: informing the public.

Comment Response Report

Bin: Emergency Planning (EP)

Comment

Webster, Richard (Public Justice)	For evacuation you need to look at the current population, not what it was; look at 50 miles, not 10 miles (and you may not want to look at limited small circles at all). In addition, you need to look at vulnerable populations, not just people who can jump in their cars.
Yhip, Kathleen (Nuclear Energy Institute)	The NRC updates requirements for both emergency planning and physical security on an as-needed basis. A case in point, the recent updates to the regulations in 50.47 that went out in November of last year. Also, the security orders that were issued and now regulations that follow the September 11th event.
Young, Garry (Entergy Nuclear)	The programs for emergency preparedness and physical security apply to all operating nuclear plants and require specific levels of protection from each licensee regardless of license date. These requirements will continue to apply to facilities seeking SLR. NRC reviews emergency security plans throughout the life of the facility and assures adjustments are made when needed due to changing demographics or other site related factors. There is no need for an additional redundant review or SLR since these Part 50 requirements are adequately addressing existing regulations.

Response

Through its standards and required exercises, the Commission ensures that existing plans are adequate throughout the life of any plant even in the face of changing demographics and other site-related factors. Thus, these drills, performance criteria, and independent evaluations provide a process to ensure continued adequacy of emergency preparedness in light of changes in site characteristics that may occur during the term of the existing operating license, such as transportation systems and demographics. There is no need for a licensing review of emergency planning issues in the context of license renewal.