

Response to Public Comments on Draft Regulatory Guide (DG)-1341
“Standard Format and Content for Applications To Renew Nuclear Power Plant Operating
Licenses”
Proposed Revision 2 of Regulatory Guide (RG) 1.188

On September 17, 2019 the NRC published a notice in the *Federal Register* (Vol. 84, No. 180, page 48953) that Draft Regulatory Guide, DG-1341 (Proposed Revision 2 of RG 1.188), was available for public comment. The public comment period ended on October 17, 2019. The NRC received comments from the individual and organization listed below. The NRC has combined the comments and NRC staff responses in the following table.

Comments were received from the following:

Samuel Miranda
 WER89794360
 ADAMS Accession No. ML19297G285

Commenter	Section of DG-1341	Specific Comments	NRC Resolution
Sam Miranda	General	(1) On February 25, 2014, the Nuclear Energy Institute (NEI) held a forum [1] in Washington, to discuss the prospect of subsequent license renewals (SLRs) that would allow plants to operate for a total lifetime of 80 years. Jennifer Uhle, the NRC's deputy director for reactor safety programs, stated that the agency staff plans to update its regulatory guidance on conducting license renewal reviews to prepare for SLR applications. It appears that DG-1341 is a draft that update. Dr. Uhle also, “identified several potential aging effects on reactor pressure vessels, piping, cables and plant concrete structures that NRC review guidance must consider and industry should address in its applications. ‘We won't allow subsequent license renewal unless we're assured the plants are safe to operate in the extended period.’” She also pressed industry to address those issues. She said	The staff disagrees with the comments. In accordance with the Atomic Energy Act of 1954, as amended, the NRC regulates commercial nuclear power in the United States. The criteria for review and approval of subsequent license renewal applications (SLRAs) are contained in the NRC’s regulations in 10 CFR Part 54 (“Requirements for Renewal of Operating Licenses for Nuclear Power Plants”) and the NRC’s subsequent license renewal guidance documents, NUREG-2191, Volumes 1 and 2, “Generic Aging Lessons Learned for Subsequent License Renewal (GALL-SLR) Report” (ML17187A031 and ML17187A204) and NUREG-2192, “Standard Review Plan for Review of Subsequent License Renewal Applications for Nuclear Power Plants.” (ML17188A158). It is typical for the NRC to

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		<p>that the NRC staff "is not going to be able to resolve these issues, nor is it our role."</p> <p>Douglas Walters, vice president for regulatory affairs at NEI, did not agree that all of Dr. Uhle's potential aging effects needed to be resolved during the NRC's SLR reviews. Walters said, "Not everything you need to do for long-term operation is a part of the regulatory process. ... I don't agree [finding solutions for each aging effect in advance] should be a requirement of getting a new license."</p> <p>In the 5-1/2 years that followed the NEI's forum, NEI submitted NEI 17-01 [2], the NRC endorsed it [3], NEI revised it, and submitted it in its endorsed version [4], and Dr. Uhle moved from the NRC to the NEI. NEI also requested an exemption for the NRC's review and endorsement fees. [5]</p> <p>It seems that the NEI is leading the NRC in establishing the criteria for review and approval of SLRAs. Who is the regulator of commercial nuclear power in the US, the NRC or the NEI?</p> <p>Section 1.5 of NEI 17-01 lists four approaches to resolve open safety issues, the first of which is, "If resolution has been achieved before issuance of a renewed license, implementation of that resolution could be incorporated within the SLRA. The plant-specific implementation information should be provided."</p> <p>This implies that a renewed license could be issued without resolution of all the applicable open safety issues. What are the potential aging issues that would not be resolved during the SLR reviews?</p>	<p>engage all external stakeholders during the development of regulatory guidance. At times, NRC guidance will endorse industry guidance for developing applications when the NRC staff determines that implementation of the industry guidance would permit an applicant to meet the applicable NRC requirements. In this case, in RG 1.188, Revision 2, the NRC endorses revision 6 of Nuclear Energy Institute (NEI) 95-10, "Industry Guideline for Implementing the Requirements of 10 CFR Part 54-The License Renewal Rule," and NEI 17-01, "Industry Guideline for Implementing the Requirements of 10 CFR Part 54 for Subsequent License Renewal."</p> <p>Contrary to Mr. Miranda's statement, DG-1341 was not a draft of the update to the regulatory guidance referred to by Jennifer Uhle. Rather, Mrs. Uhle was referring to the updated guidance for subsequent license renewal that was issued in July 2017 in NUREG-2191 and NUREG-2192. These NUREGs were published in draft form for comment and were reviewed by the Advisory Committee on Reactor Safeguards (ACRS). The technical bases for these NUREGs are in NUREG-2221, "Technical Bases for Changes in the Subsequent License Renewal Guidance Documents NUREG-2191 and NUREG-2192," (ML17362A126) and the disposition of public comments is in NUREG-2222, "Disposition of Public Comments on the draft Subsequent License Renewal Guidance Documents NUREG-2191 and NUREG-2192," (ML17362A143) both issued December 2017.</p> <p>The final rule for 10 CFR Part 54 (60 FR 22491; May 9, 1995), referred to hereafter as the 1995 license renewal rule, focuses on managing the effects of aging rather than identifying each and every aging mechanism. As such,</p>

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			<p>the NRC regulatory finding for each license renewal focuses on managing the effects of aging during the period of extended operation.</p> <p>The GALL-SLR includes (a) new aging management programs for neutron fluence and high voltage insulators, (b) further evaluations for development of new plant-specific programs, as needed, to manage the effects of irradiation on concrete and steel structural components; and (c) revised programmatic criteria for BWR and PWR vessel internals programs to consider higher fluences during the SLR period. The NRC staff continues to interact with industry, the Department of Energy, and the international community to better understand the state of knowledge, ongoing research, and operating experience regarding appropriate technical issues, including: reactor pressure vessel embrittlement; irradiation-assisted stress corrosion cracking of reactor internals; concrete structures and containment degradation; and electrical cable environmental qualification, condition monitoring, and assessment. Additional knowledge gained from these processes will inform future renewals.</p> <p>Contrary to the commenter's suggestion, the NRC will not renew an operating license if an open safety issue exists for the LRA or SLRA. In addition, the staff's final safety evaluation report will address all applicable license renewal issues per the requirements of 10 CFR Part 54. The staff notes that generic resolutions or methodologies for evaluation of safety issues may be included in topical reports that are referenced by the LRA or SLRA. These topical reports could be used by SLR applicants, as appropriate, for generic solutions or developing plant specific aging solutions, subject to NRC staff approval.</p>

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			<p>Where no generic solutions exist, plant-specific solutions must be provided by license renewal applicants. These plant-specific solutions could be based on unique plant design configurations, radiation fluence levels. etc. All applicable aging issues within the scope of license renewal are addressed during the staff's review of a license renewal application under 10 CFR Part 54.</p> <p>The staff did not make any changes to the DG based on these comments.</p>
Sam Miranda	General	<p>(2) Note Walter's choice of words. He said "new license", not "renewed license." I believe he was correct. 10 CFR §50.51, "Continuation of license" states that, "Each license will be issued for a fixed period of time to be specified in the license but in no case to exceed 40 years from date of issuance.</p> <p>Renewal of operating licenses for nuclear power plants is governed by 10 CFR part 54." Renewal of operating licenses for nuclear power plants, according to 10 CFR §54, would not be license extensions, by amendment. They would be new licenses that expire in 20 years. If these operating licenses were to be renewed, under 10 CFR §50, then they would be license amendments that authorize extending operations by 20 years, provided that licensees implement acceptable aging management programs. So, a plant's lifetime, operating under a new license (10 CFR §54) is only 20 years. A plant's lifetime, operating under a renewed license (10 CFR §50) is 60 years. (After an SLR, that would be 80 years.) It is confusing to see new licenses labelled "renewed" licenses.</p>	<p>The staff disagrees with this comment.</p> <p>In the 1991 license renewal rule statement of considerations, the Commission explained that renewal applications are not initial applications for a facility (i.e., they are not new license applications) (56 FR 64943, 64970; December 13, 1991) and the extended operation of a nuclear power plant beyond the term of its current license is achieved through the issuance of a renewed license and not a license amendment (56 FR at 64961-64962). Therefore, the NRC considers the terms "renewed license" and "subsequent renewed license" to be the appropriate terms for operating licenses renewed under 10 CFR Part 54.</p> <p>The term of the renewed license is established in 10 CFR 54.31 and cannot exceed 20 years (or a maximum of 40 years if 20 years remaining on the existing license is included). The period of time for the renewed license term is the sum of the additional amount of time requested beyond the expiration date of the current operating license plus the remaining number of years on the current operating license.</p>

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			<p>Once a license renewal or subsequent license renewal is issued per 10 CFR 54.31(c), the renewed license becomes effective immediately, thereby superseding the existing operating (or renewed operating) license. As required by 10 CFR 54.35, each holder of the renewed (or subsequent renewed) license is subject to the regulations in Part 54 as well as the regulations that apply to other holders of operating licenses.</p> <p>The staff did not make any changes to the DG based on these comments.</p>
Sam Miranda	General	<p>(3) When a plant nears its 40 year design lifetime, it can be authorized to operate for an additional 20 years via 10 CFR §54 “renewal” process; but this is a new license, not a license amendment. If the plant’s operators were to apply for an extended license expiration date, under the license amendment provisions of 10 CFR §50, then the operators (or licensees) would have to file a “No Significant Hazards” statement, as specified by 10 CFR § 50.92, “Issuance of amendment”. Among other things, the “No Significant Hazards” statement would provide assurance that the proposed license amendment (e.g., a license extension), would not pose a significant hazard if, “operation of the facility in accordance with the proposed amendment would not involve a significant increase in the probability of an accident previously evaluated.”</p>	<p>The staff agrees with the comment that license amendments can be accomplished through the 10 CFR Part 50 license amendment process; however, this does not apply to license extension, which is governed by the 40-year initial operating license term established by statute and 10 CFR 50.51; in contrast, the issuance of a renewed license is separate from the existing license and license renewal is not accomplished by amending the existing license.</p> <p>As explained in the preceding NRC comment response, a license to operate a nuclear power plant beyond the time established in its current operating license is a renewed license, the term of a nuclear power plant license cannot be changed by a license amendment, and the term cannot exceed 20 years (or up to 40 years if the period includes the remaining years on the existing license).</p> <p>Further, the issues presented in this comment with respect to a “No Significant Hazards” consideration (NSHC) were addressed by the NRC in its response to a petition</p>

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			<p>submitted by the commenter under 10 CFR 2.206 and are not addressed here (see ADAMS Accession No. ML17346A939). In addition, 10 CFR 50.90 NSHC findings do not apply to license renewal because renewed licenses are not amendments.</p> <p>The staff did not make any changes to the DG based on these comments.</p>
Sam Miranda	General	<p>(4) If the “renewal” were to be effected as an amendment to the original 10 CFR §50 license, then it would be very difficult, maybe impossible, to show that the amendment “would not involve a significant increase in the probability of an accident previously evaluated.” The licensing bases of all nuclear plants include analyses or evaluations (found in FSARs; usually in Chapter 15), of various postulated events that are grouped into categories, each of which is defined by a range of the expected frequencies of occurrence of its events, and a specification of analysis acceptance criteria. One category, Condition II or “infrequent incidents”, is defined as those incidents or events that, “may occur during the life of the particular plant”. So, an infrequent incident would not occur more than once in 40 years. A single infrequent incident that is not handled correctly, by the plant’s automatic reactor protection systems, or by its operators, could easily end the plant’s operating lifetime. This is what happened at Three Mile Island, in 1979. (That plant had been in operation for only about a year.)</p> <p>If a new license expiration date lengthens the operating lifetime from 40 years to 60 years, then that would significantly increase (e.g., by 50%) the expected frequency of occurrence of “infrequent incidents” previously evaluated. An important principle of license</p>	<p>The staff disagrees with the comment. The staff interprets this comment as speculative in nature (i.e., what if license renewal were a license amendment).</p> <p>As explained in the preceding NRC comment responses, a license to operate a nuclear power plant beyond the time established in its current operating license is a renewed license, and the term of a nuclear power plant license cannot be changed by a license amendment. Therefore, a “renewal” cannot be “effected by an amendment.”</p> <p>10 CFR Part 54 requires that the current licensing basis (CLB) be maintained. A renewed license can’t be issued under 10 CFR 54.29 unless the NRC has reasonable assurance that licensed activities will continue to be conducted in accordance with the CLB and that any changes made to the plant’s CLB in order to comply with 10 CFR 54.29(a) are in accord with the AEA and the Commission’s regulations.</p> <p>Further, the issues presented in this comment with respect to the apparent increase in frequencies of occurrence of infrequent incidents were addressed by the NRC staff in its response to a petition submitted by the commenter</p>

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		<p>renewal holds that the plant-specific licensing basis must be maintained during the renewal term in the same manner and to the same extent as during the original licensing term. Therefore, in order to maintain the expected frequency of occurrence of “infrequent incidents” at the same value, including the “renewed” term, it is necessary to make an improvement in plant design and/or operations. The average expected frequency of occurrence of “infrequent incidents” must become once in 60 years. After an SLR, it must be halved, to once in 80 years.</p> <p>What is the improvement in plant design and/or operations that is planned, by the licensees, to maintain their plant-specific licensing bases to include their respective renewal terms?</p>	<p>under 10 CFR 2.206 and are not addressed here (see ADAMS Accession No. ML17346A939).</p> <p>The staff did not make any changes to the DG based on these comments.</p>
Sam Miranda	General	<p>(5) The first license “renewal”, effected under 10 CFR §54, might not be subject to 10 CFR §50.92, since it would be a new license. However, the SLR would certainly be subject to 10 CFR §50.92, since that would be an amendment to the new, extended license. Consequently, the SLR should entail some improvement in a plant’s design and/or operation to maintain the current licensing basis (CLB), particularly with respect to that plant’s expected frequency of occurrence of “infrequent incidents”. (The CLB includes the NRC regulations contained in 10 CFR parts 2, 19, 20, 21, 26, 30, 40, 50, 51, 54, 55, 70, 72, 73, 100 and the plant specific design-basis information defined in 10 CFR 50.2 as documented in the most recent FSAR.)</p>	<p>The staff agrees that the first license renewal is effected under 10 CFR Part 54 and not under 10 CFR 50.92. However, the subsequent license renewal is also effected under Part 54 and not under 10 CFR 50.92. The staff therefore disagrees with the comment that the SLR would be effectuated under 10 CFR 50.92.</p> <p>The staff agrees with the comment’s description of CLB as it is consistent with the definition of CLB in 10 CFR 54.3. In addition, Part 54 requires that the CLB be maintained. Renewed licenses can’t be issued under 10 CFR 54.29 unless the NRC has reasonable assurance that licensed activities will continue to be conducted in accordance with the CLB and that any changes made to the plant’s CLB in order to comply with 10 CFR 54.29(a) are in accord with the AEA and the Commission’s regulations.</p>

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			<p>The issues presented in this comment with respect to the apparent increase in frequencies of occurrence of infrequent incidents were addressed by the NRC staff in its response to a petition submitted by the commenter under 10 CFR 2.206 and are not addressed further here (see ADAMS Accession No. ML17346A939).</p> <p>The staff did not make any changes to the DG based on these comments.</p>
Sam Miranda	General	(6) 10 CFR §54, “Requirements for Renewal of Operating Licenses for Nuclear Power Plants”, governs the issuance of renewed operating licenses. So, the issuance of renewed operating license is a new license. Would it not be simpler, and less confusing, to issue a license amendment, under 10 CFR §50, which would extend the license expiration date, and record a license commitment (or condition) to establish and implement an acceptable aging management program? Power upratings are authorized by license amendments to licenses issued under 10 CFR §50. Why not license extensions, too?	<p>The staff disagrees with the comment. As explained in preceding NRC comment responses, the NRC cannot issue a power reactor license for a term that exceeds 40 years, and the Commission determined in the 1991 license renewal rule that a nuclear power plant licensee cannot extend its license term through a license amendment.</p> <p>The staff did not make any changes to the DG based on these comments.</p>
Sam Miranda	General	(7) Probabilistic risk assessment (PRA) arguments cannot be used to dismiss the occurrence of three infrequent incidents, as highly unlikely. This is because 10 CFR §54 requires that plants maintain their current, deterministic licensing bases during the extended terms of operation that are authorized by their “renewed” licenses. This is supported by the Statement of Consideration, “The Commission reaffirms its previous conclusion (see 56 FR 64943 - 64956) that PRA techniques are most valuable when they focus the traditional, deterministic-based regulations and support the defense-in depth philosophy. In this regard, PRA methods and techniques would focus regulations and programs on those items most important	<p>The staff agrees that license renewal under 10 CFR Part 54 requires plants to maintain their CLB during the period of extended operation. DG-1341 did not discuss the use of PRA; accordingly, the comments regarding PRA are beyond the scope of the DG.</p> <p>The staff did not make any changes to the DG based on these comments.</p>

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		to safety by eliminating unnecessary conservatism or by supporting additional regulatory requirements. PRA insights would be used to more clearly define a proper safety focus, which may be narrower or may be broader. In any case, PRA will not be used to justify poor performance in aging management or to reduce regulatory or programmatic requirements to the extent that the implementation of the regulation or program is no longer adequate to credit for monitoring or identifying the effects of aging.” --- FR 22468, Vol. 60, No. 88 (May 8, 1995)	
Sam Miranda	General	(8) Aging management programs are focused upon reactor plant systems and components; but they should also account for offsite supporting systems like, for example, emergency power supplies, and cooling water sources. For Peach Bottom, for example, both are found in the Susquehanna River. Exelon Generation Company, LLC (Exelon), applied to the NRC on July 10, 2018 for an SLR for Peach Bottom Units 2 and 3. These reactors, both of which were connected to the grid in 1974, are General Electric MK1 BWRs that could operate until 2053 and 2054. They’re also connected (directly) to the Conowingo Dam, for emergency power. The dam, which was completed in 1928, is now plagued with sediment problems. Its FERC license expired on September 1, 2014. Exelon’s license renewal application (for the next 50 years, until 2054) is contested. Therefore, Conowingo Dam is currently operating without a license. By 2054, if licensed, Conowingo Dam would be 126 years old, and the Peach Bottom reactors would be 80 years old. Peach Bottom is offered herein as only one example. What provisions are contained in DG-1341 to account for issues like these? Would they be addressed in either the	<p>The staff agrees with this comment to the extent that systems, structures, and components (SSCs) support functions within the scope of license renewal per 10 CFR 54.4.</p> <p>10 CFR Part 54 requires that the CLB be maintained. A renewed license can’t be issued under 10 CFR 54.29 unless the NRC has reasonable assurance that licensed activities will continue to be conducted in accordance with the CLB and that any changes made to the plant’s CLB in order to comply with 10 CFR 54.29(a) are in accord with the AEA, as amended, and the Commission’s regulations.</p> <p>The focus of the license renewal regulations in Part 54 is on appropriate aging management of SSCs and will include evaluations of aging management programs. Guidance on acceptable aging management programs is provided in NUREG-2191 and NUREG-2192. If offsite structures or components are credited in the CLB for performing certain functions that are within the scope of license renewal (e.g., dams that may be credited for</p>

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		SLR safety evaluations or the environmental impact statements?	<p>providing a source of power during station blackout conditions per 10 CFR 54.4) there is a requirement to include them within the scope of the aging management review. These aging management programs are addressed in the SLR safety evaluations. As an example, Peach Bottom SLR FSER Section 3.5.2.1.2 credits inspections of the Conowingo Dam concrete required by FERC as adequate aging management. Guidance for SLR applicants on how to address situations as described by the commenter has been provided in both the industry guidance in NEI 17-01 being endorsed by this regulatory guide and in NEI 95-10 which was previously endorsed by the NRC and is being updated by NEI 17-01. In addition, acceptance criteria have been established by the NRC and included in the SRP-SLR (NUREG-2192). Existing guidance already addresses the commenter's concerns.</p> <p>Otherwise, to the extent that the failure of an offsite structure such as a dam, or loss of the power it generates, may affect the safety of a nuclear power plant (under either an initial, renewed, or subsequent renewed license), the licensee is required to consider such potential failure as appropriate, under 10 CFR Part 50.</p> <p>The staff did not make any changes to the DG based on these comments.</p>