POLICY ISSUE
(Notation Vote)

December 7, 1993 SECY-93-331

FOR: The Commissioners

FROM: James M. Taylor
Executive Director for Operations

SUBJECT: LICENSE RENEWAL WORKSHOP RESULTS AND STAFF PROPOSALS FOR REVISION TO 10 CFR PART 54, "REQUIREMENTS FOR RENEWAL OF OPERATING LICENSES FOR NUCLEAR POWER PLANTS"

PURPOSE:

To summarize the significant results of the September 30, 1993, license renewal workshop, and the staff's evaluation of the principal comments made during and after the workshop by the Nuclear Management and Resources Council (NUMARC), Department of Energy (DOE), Yankee Atomic Electric Company (YAEC), Virginia Power Company, and the Ohio Citizens for Responsible Energy (OCRE).

To provide staff conclusions and proposals regarding an approach to license renewal that allows greater credit for existing licensee programs and the requirements of the maintenance rule in the license renewal process.

To present a discussion of key license renewal issues and to identify preliminary changes to the license renewal rule (Title 10 of the Code of Federal Regulations (10 CFR) Part 54) to demonstrate staff proposals which take more explicit advantage of existing licensee programs.

NOTE: TO BE MADE PUBLICLY AVAILABLE IN 5 WORKING DAYS FROM THE DATE OF THIS PAPER

CONTACT:
Thomas G. Hiltz, NRR:PDLR
504-1105

12/16

BACKGROUND:

The Commission concluded in the Statements of Consideration (SOC) for the license renewal rule that, with the exception of age-related degradation unique to license renewal (ARDUTLR) and possibly a few other safety issues, the current regulatory processes are sufficiently broad and rigorous to give reasonable assurance that extended operation of plants would not endanger the public health and safety and would not be inimical to the common defense and security. The intent of the license renewal rule was (and still is) to create an efficient regulatory process that would identify and focus on those systems, structures, and components (SSCs) subject to age-related degradation that is uniquely applicable to the extended period of operation.

Since the final license renewal rule was published, the staff and the nuclear power industry have worked to effectively implement the license renewal rule through the DOE- and Electric Power Research Institute (EPRI)-sponsored lead plant program (Monticello and Yankee Rowe), through review of the NUMARC-sponsored Industry Reports, and, most recently, through interaction with Baltimore Gas and Electric Company and the Babcock and Wilcox Owners Group. In general, comments from industry representatives indicated that, without additional implementation guidance, the current license renewal process may extend beyond the original intent of the license renewal rule, may be too burdensome, and may not provide a stable and predictable regulatory process for license renewal.

After conducting a senior NRC staff management review in late 1992, the staff developed in SECY-93-049, "Implementation of 10 CFR Part 54, 'Requirements for Renewal of Operating Licenses for Nuclear Power Plants,'" and SECY-93-113, "Additional Implementation Information for 10 CFR Part 54, 'Requirements for Renewal of Operating Licenses for Nuclear Power Plants,'" a license renewal rule implementation process that (1) emphasized managing the effects of age-related degradation, (2) placed greater reliance on existing licensee programs for managing age-related degradation effects, (3) attempted to reduce the perceived burden on license renewal applicants, and (4) established a more stable and predictable license renewal process that could be implemented within the current framework of the license renewal rule. At the time, the staff believed that credit could be given, within the language of the license renewal rule, for existing licensee programs which ensure that structures and components perform their intended functions. Credit for certain existing licensee programs was given within the broad definition of ARDUTLR by discussing the necessary content of an "effective program" description. The staff's implementation approach as discussed in SECY-93-049 and SECY-93-113 attempted to lighten the burden on license renewal applicants by giving maximum credit for existing programs without changing the rule or reducing safety.

In SECY-93-113, the staff provided additional details regarding its license renewal approach as described in SECY-93-049 and clarified (1) the meaning of the term "acceptance criteria," (2) the meaning of the terms "character" and "magnitude" as they apply to the definition of ARDUTLR, (3) the staff expectations for descriptions of effective programs in the license renewal

application, and (4) the practical implications of the approach from an enforcement perspective. In addition, the staff (1) discussed its proposed implementation of the license renewal requirements for structures and components that are important to license renewal that are or could be subject to age-related degradation unique to license renewal, and (2) demonstrated an acceptable effective program review. The staff illustrated its proposed integrated plant assessment (IPA) approach by conceptually screening certain structures and components. In these examples, the staff showed how existing programs could be used to meet the requirements for an "effective program" with a correspondingly minimum amount of justification in the application or Final Safety Analyses Report (FSAR) supplement. The proposed interpretations in SECY-93-113 would lead to further crediting of existing programs. However, because ARDUTLR was so broadly defined, many structures and components could still be subject to ARDUTLR.

In a parallel effort, the Office of the General Counsel (OGC) prepared a draft license renewal rulemaking package (COMSECY-93-029) to resolve key differences between the staff's positions in SECY-93-049 and the SOC for 10 CFR Part 54.

In its staff requirements memorandum (SRM) of June 28, 1993, the Commission responded to the staff recommendations in SECY-93-049, SECY-93-113, and COMSECY-93-029. The Commission directed the staff to convene a public workshop to evaluate alternative approaches to how to best take advantage of existing licensee programs and activities as a basis for concluding that aging will be addressed in an acceptable manner, consistent with the fundamental principles of license renewal, during the extended period of operation.

The Commission also directed that the staff's summary of the results of the workshop and draft proposed rulemaking be submitted to the Commission not later than 60 days from the conclusion of the workshop. The Commission approved the staff's recommendations (1) to treat environmental qualification of electrical equipment and fatigue as potential safety issues within the existing regulatory process for operating reactors and (2) to incorporate appropriate technical information from NUMARC-sponsored industry reports into the draft standard review plan for license renewal. The Commission also concurred with the staff's conclusion that the form of the renewal license does not affect the scope of the technical issues reviewed or the safety evaluations required.

On August 12, 1993, the staff published a notice in the Federal Register (58 FR 42987) stating its intent to conduct a public workshop on license renewal. This announcement summarized for interested members of the public recent staff license renewal activities, listed publicly available documents which contained relevant background information, and outlined four possible approaches to best take advantage of existing programs in the license renewal process. The four approaches represented a range of alternatives for taking advantage of existing licensee programs and were intended to facilitate

workshop discussions. In addition, the staff listed 11 questions in the notice, derived primarily from the questions discussed in the SECY-93-113 recommendations, to focus participants on key license renewal issues.

DISCUSSION:

The public workshop was conducted on September 30, 1993, and was attended by more than 180 representatives from the nuclear industry, engineering and consulting firms, Federal and State governments, and public interest groups. The workshop was transcribed and video-recorded. DOE, NUMARC, and YAEC made formal presentations at the workshop; reliance on existing licensee programs in the license renewal process was a central theme of each presentation. DOE, NUMARC, and YAEC stated that a rule change is necessary to establish appropriate credit for existing programs. Following the workshop, NUMARC, DOE, YAEC, OCRE, and Virginia Power submitted written comments to the staff.

Enclosure 1 contains a preliminary revision of the license renewal rule reflecting rule changes which incorporate staff-proposed resolutions to key license renewal issues. The staff has concluded that changes to the license renewal rule would be needed to allow greater explicit credit for existing licensee programs in the license renewal process; to resolve ambiguities between the rule implementation approach, the rule, and the SOC; and to establish a more efficient, stable, and predictable license renewal process.

The preliminary rule changes are based on (1) the staff's review and evaluation of comments from NUMARC, DOE, YAEC, Virginia Power, and OCRE and (2) the staff's assessment of lessons learned from pre-application rule implementation experience associated with the DOE- and EPRI-sponsored license renewal lead-plant program (Monticello and Yankee Rowe), with Baltimore Gas and Electric Company, and with the Babcock and Wilcox Owners Group Generic License Renewal Program.

Summary of Workshop Activities

DOE supported an IPA (10 CFR 54.21(a)) approach for license renewal, which conceptually endorses (with some clarification) the principles of license renewal and attempts to reconcile the scope and intent of the license renewal rule and 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants" (maintenance rule). In general, the approach proposed by DOE would modify the definition of ARDUTLR to place emphasis on evaluating structures and components where performance or condition is not managed by existing programs that are part of the current licensing basis (CLB), that are not subject to the requirements of the maintenance rule and replaced or refurbished, or that had not been previously evaluated and found acceptable by the NRC for the extended period of operation.

NUMARC supported an IPA approach for license renewal which endorses the current scope of the license renewal rule and the license renewal principles.

NUMARC's proposal attempts to more fully integrate the programs and processes associated with the implementation of the maintenance rule by essentially equating "maintaining the important to license renewal (ITLR) function" of a structure or component to "maintaining the current licensing basis" for that structure or component. In general, the NUMARC-proposed changes to the definition of ARDUTLR focus the review on certain long-lived passive structures and components and on SSCs whose ITLR functions would not be assured by the maintenance rule or other existing programs. NUMARC continues to develop and finalize its approach for license renewal and since the September 30, 1993, workshop, the staff has conducted two public meetings with NUMARC representatives to better understand the proposed NUMARC approach for license renewal.

YAEC proposed an approach that endorses neither an IPA nor the concept of ARDUTLR. YAEC does not endorse the current scope of the license renewal rule. YAEC treats aging as a continuous process and, therefore, no aging is unique to license renewal. The YAEC license renewal approach would eliminate the definition of ARDUTLR and would focus on unmonitored long-lived structures and components, confirmation of performance for prominent plant features, and reconciliation of time-limited provisions or assumptions in the CLB. YAEC stated that enactment of the maintenance rule serves as the regulatory justification for substantial refocusing of the license renewal rule.

Virginia Power indicated that the existing license renewal rule describes a basically sound process. However, the rule needs to be changed in order to clarify, simplify, and support an effective license renewal process. Virginia Power recommends that the term ARDUTLR be eliminated. According to Virginia Power, aging is a continuous process and aspects of the rule related to ARDUTLR are contrary to the rule's basic premises that license renewal would not constitute a new broad safety review of the facility and that the CLB would continue to provide adequate margins of safety during the renewal term. The focus of Virginia Power's comments is on time-limited issues similar to the staff's Alternative 4 in the Federal Register notice for the workshop.

OCRE comments emphasized the need to change or eliminate the definition of ARDUTLR. However, OCRE stated that age-related degradation mechanisms in the license renewal period could differ from those encountered in the initial period of operation. OCRE concludes that for a licensee to take credit for current programs, those programs must identify all functional attributes of the structures and components, and periodically monitor their condition so that these functional attributes are maintained within acceptable limits. OCRE also commented on public availability of license renewal documents and on the need to reconsider time-limited analyses for reliefs and exemptions and for proposed plant modifications which were not imposed due to a cost-benefit analysis that had time-limited factors.

The staff concludes that various approaches discussed at the workshop could be implemented, with some modifications, to establish a license renewal process that will maintain an acceptable level of safety during the renewal period.

The proposals from YAEC and Virginia Power which would simplify the rule and allow additional credit for existing license programs and the regulatory process have not received industry endorsement. The retention of the ARDUTLR concept has been endorsed by DOE, NUMARC, and other industry organizations that are actively involved in license renewal activities. NUMARC has indicated that a primary consideration of its proposal to retain ARDUTLR is a belief that its approach represents a relatively small change to 10 CFR Part 54 and, therefore, can be implemented more efficiently and with less litigious risk than the proposals by YAEC and Virginia Power.

The staff believes that aging is a continuous process and concludes that an approach for license renewal should incorporate aspects of the Virginia Power and YAEC approach philosophy by ensuring that the license renewal process takes maximum credit for the regulatory process and for existing licensee programs. However, the staff believes that the concept of ARDUTLR can be a useful regulatory concept which can be used to appropriately focus the renewal evaluation.

The staff identified several themes from one or more of the comments from NUMARC, DOE, YAEC, Virginia Power, and OCRE that the staff concludes should define the license renewal process. The themes are:

(1) The license renewal process should establish a resource-efficient focus on those structures and components subject to aging effects that could be important in the renewal period.

(2) Structures and components whose ITLR function is reasonably assured through existing performance or condition-monitoring programs should not be subject to special review during the license renewal process.

(3) Active and redundant passive components subject to programs or activities implemented under the maintenance rule should not be subject to additional review during the license renewal process.

(4) A key focus of license renewal should be on unmonitored, long-lived structures and components whose ITLR function in the renewal period may not be assured by existing licensee programs.

(5) A key focus of license renewal should be on issues containing time-limited analyses explicitly evaluated for the current operating term.

In general, the staff concludes that these themes can be integrated through rulemaking into an approach, consistent with the principles of license renewal, which allows greater explicit credit for existing programs in the license renewal process.

Staff Approach to License Renewal

The staff has concluded that the license renewal rule should explicitly place greater reliance on existing licensee activities and programs. The staff arrived at this conclusion on the basis of an evaluation of the September 30, 1993, license renewal workshop, written comments received after the workshop, staff experience with license renewal rule implementation, and experience with the maintenance rule development and initial implementation. Although the existing rule could be implemented to emphasize reliance on existing programs, a rule change would more clearly establish the Commission's expectations for carrying out a license renewal evaluation. The staff concludes that a rule change should be undertaken to ensure a more stable and predictable license renewal process.

The staff has developed proposals for several key license renewal issues which emphasize reliance on existing licensee programs in the renewal process. Although the best approach for taking advantage of existing licensee programs will be developed during the rulemaking process, the staff's preliminary revision of the rule (Enclosure 1) incorporates proposals for resolving key license renewal issues, as discussed further below.

Aging Mechanisms and Management of Aging Effects

After the staff issued 10 CFR Part 54, in connection with its efforts to establish implementation guidance, an issue was raised regarding the need to evaluate specific aging mechanisms for structures or components ITLR in the license renewal review. The alternative to a requirement that focuses on aging mechanism identification and evaluation is a requirement that focuses on reliance on programs that monitor the performance or condition of plant structures or components to ensure that the effects of aging, regardless of the aging mechanism, are effectively managed to ensure that functional capability is maintained.

In recommendations contained in SECY-93-049 and SECY-93-113 regarding 10 CFR Part 54 implementation, the staff endorsed the acceptability of performance or condition monitoring programs to effectively manage ARDUTLR, with no need to complete a detailed aging mechanism analysis. OGC, in a memorandum of March 9, 1993, also endorsed the staff's view that 10 CFR Part 54 could be interpreted to not require detailed mechanistic analyses. However, the existing SOC for Part 54 was recognized to contain conflicting language regarding the Commission's intent in this regard. These conflicts were also reemphasized by participants at the recently held license renewal workshop.

The staff continues to endorse the appropriateness of performance or condition monitoring to ensure that aging effects are appropriately managed. Accordingly, if the Commission undertakes rulemaking to revise 10 CFR Part 54, the staff concludes that the SOC should be clarified to remove inconsistencies regarding the need for aging mechanism evaluations versus a reliance on the management of aging effects via performance or conditioning monitoring programs.

Current Licensing Basis

In the SOC for the license renewal rule, the Commission evaluated numerous comments related to an explanation of the CLB, regulatory processes underlying the CLB, compliance with the CLB, compilation of the CLB, and maintaining the CLB. Overall, the Commission concluded that, with the exception of ARDUTLR, the current regulatory processes are sufficiently broad and rigorous and that these processes generally provide reasonable assurance that extended operation of existing plants would not endanger the public health and safety and would not be inimical to the common defense and security. By stating that the CLB must be maintained for the renewal term, the Commission indicated its intent to ensure the continuation of an acceptable level of safety for the plant. (Note: "Maintaining the CLB," as used in this paper, includes a recognition that a plant's CLB is not fixed. Rather, the CLB is dynamic and can be modified at any time during the initial operating term, during the license renewal process, and during the period of extended operation.)

In SECY-93-049 and SECY-93-113, the staff stated that license renewal evaluations and justifications should continue to determine whether the actions proposed by the licensees would manage aging effects such that the CLB would be maintained throughout the renewal term.

A key issue that has been raised in connection with the rule's emphasis on maintaining the CLB, is whether or not a focus on ensuring a structure's or component's function is a sufficient basis for concluding that the CLB will be maintained throughout the renewal period. Although the definition of CLB in Part 54 is broad and encompasses various aspects of the NRC regulatory process (e.g., operability and design requirements), the staff concludes that a specific focus on functionality is appropriate for carrying out the license renewal review.

As discussed in the SOC, the Commission stated that continued safe operation of a nuclear power plant requires that SSCs that perform or support safety functions continue to perform in accordance with the applicable requirements in the licensing basis. In addition, the Commission stated that the effects of ARDUTLR must be mitigated to ensure that the aged SSCs will adequately perform their design safety function. Moreover, a key element of the 10 CFR Part 54 definition of CLB is the plant-specific design basis information defined in 10 CFR 50.2. According to 10 CFR 50.2, "[d]esign bases means that information which identifies the specific functions to be performed by a structure, system, or component of a facility, and the specific values or ranges of values chosen for controlling parameters as reference bounds for design."

Reasonable assurance that the function of important SSCs will be maintained throughout the renewal period, combined with the rule's stipulation that all aspects of a plant's CLB (e.g., technical specifications) and the NRC's regulatory process carry forward into the renewal period, are viewed as sufficient to conclude that the CLB will be maintained. Functional capability is a principal emphasis for much of the CLB, and is the focus of maintenance rule requirements to ensure that aging issues are appropriately managed in the

initial license term. Together with a plant's continuing CLB and the continuing NRC regulatory process, a structured renewal review, which focuses on ensuring the functionality of important plant structures and components, will serve as an appropriate and sufficient demonstration that the CLB will be maintained.

Accordingly, if the Commission directs that rulemaking be undertaken to revise 10 CFR Part 54, the staff recommends that the rule, SOC, and associated documents reflect the position stated above.

Definition of ARDUTLR

The specific application of the term ARDUTLR has been, since it was first introduced in the final rulemaking package, the subject of considerable discussion both within the NRC staff and by interested outside organizations. Since the concept of ARDUTLR establishes a principal focus of the 10 CFR Part 54 license renewal review and the Commission's finding for the issuance of a renewed license, this term is significant. ARDUTLR was introduced in the final Part 54 rule to establish the Commission's intent that only aging issues uniquely relevant to the extended period of operation require special consideration for license renewal. The current rule uses the ARDUTLR concept, including a prescriptive definition of the ARDUTLR term, as a tool to identify, within the IPA process, a set of plant structures and components that require evaluation to ensure that aging effects will be managed during the period of extended operation.

Although the concept of using ARDUTLR to appropriately focus the renewal review is reasonably straightforward, in practice, the establishment of a definition of ARDUTLR and a defined process to accomplish this efficiently has been very difficult. The key problem centers on how unique aging issues are identified and, in particular, how existing licensee and NRC regulatory activities factor into the identification of plant structures and components as either subject to or not subject to ARDUTLR. The difficulty in clearly establishing "uniqueness" associated with aging effects is underscored by the fact that aging is a continuous process, and licensee programs and regulatory activities are already focused on mitigating aging effects to ensure safety in the initial operating term.

Subsequent to promulgation of 10 CFR Part 54, in connection with staff efforts to establish implementation specifics, concerns were identified by both the staff and nuclear industry representatives about the ARDUTLR definition. A staff senior management initiative, which focused on implementation within the existing rule, proposed an approach (SECY-93-049 and SECY-93-113) to interpret the rule's definition of ARDUTLR and carry out the IPA. Although the staff determined that the existing rule could be implemented effectively, all of the workshop participants and commenters have indicated that the rule should be revised. The concerns of most commenters continue to be focused on rule changes to ensure that existing licensee programs and the requirements of the maintenance rule are expressly credited to promote an efficient renewal process.

Having considered the presentations at the license renewal workshop, written comments, and experience to date with rule implementation, the staff agrees that efficiencies can be obtained by rulemaking to more clearly establish the Commission's intent regarding reliance on existing activities to ensure continued safe operation in the extended license period. Although proposals to either redefine or delete the term ARDUTLR could be adopted to revise the rule to be more efficient, the staff concludes that ARDUTLR can be a useful regulatory concept and it should be retained and revised. As previously discussed, the retention of the ARDUTLR concept has been endorsed by DOE, NUMARC, and other industry organizations that are actively involved in license renewal activities. NUMARC has indicated that a primary consideration of its proposal to retain ARDUTLR is a belief that its approach represents a relatively small change to 10 CFR Part 54 and, therefore, can be implemented more efficiently and with less litigious risk than the proposals by YAEC and Virginia Power. The staff believes that since ARDUTLR is explicitly linked to the first principle of license renewal its revision, rather than its elimination, could represent a somewhat smaller and possibly more efficient rulemaking change. A revised definition of ARDUTLR can serve as a useful vehicle to establish the Commission's intent regarding what is and what is not subject to regulatory review for license renewal. However, the proposed revision to the definition of ARDUTLR is viewed as substantive and will require appropriate justification during rulemaking.

The staff has prepared a preliminary revision of the ARDUTLR definition and included it in Enclosure 1. The revision is similar but not identical to the proposal submitted by NUMARC. The revision, which is intended to more explicitly focus on those issues of concern for the extended period of operation, includes (1) an emphasis on certain passive long-lived ITLR structures and components as a principal focus for license renewal (e.g., reactor vessel, containment), (2) the elimination of active and redundant passive components subject to the maintenance rule from further evaluation for license renewal, (3) the elimination of structures and components that have been or will be replaced so that the service life remains less than 40 years from further evaluation for license renewal, and (4) a conclusion that structures and components that are determined to be subject to existing programs that monitor condition or performance to ensure ITLR function need not be further evaluated for license renewal.

The net effect of these proposed changes to the definition of ARDUTLR is to establish the Commission's view that existing programs for structures and components which effectively manage aging effects during the initial license term, should be given maximum credit in the license renewal process. More specifically, the revised definition and supporting arguments in the SOC for a revised rule would establish that active and redundant passive components subject to the maintenance rule will be addressed by activities that will reasonably assure ITLR function, and thus the CLB. The maintenance rule requires that licensees establish goals and monitor the performance or condition of important SSCs to reasonably assure functional capability. The implementation of the maintenance rule will be verified through the existing NRC inspection process. As such, the license renewal and maintenance rules have the same fundamental objective. The proposed change in the definition of

ARDUTLR would establish strong reliance on the requirements of the maintenance rule, combined with all other applicable CLB requirements, and the NRC regulatory process as sufficient for license renewal.

Existing programs (e.g., refurbishment, preventive maintenance, performance trending, life-cycle management) for structures and components that are not within the scope of the maintenance rule can also be credited in the license renewal process. Such programs may already be included in the CLB. The intent of the proposed definition of ARDUTLR is to allow appropriate credit for all programs which effectively manage the effects of aging to support an applicant's conclusion that a structure, system, or component is not subject to ARDUTLR. The staff expects that an applicant for license renewal would provide the bases for any such conclusion in the license renewal application.

A resulting focus of the license renewal IPA review will be on certain long-lived passive plant structures and components. Long-lived passive structures and components would be identified within the IPA and those long-lived passive structures and components whose failure could result in the loss of an ITLR system or structure function (e.g., reactor vessel, reactor coolant pressure boundaries, containment) would require a detailed assessment in the license renewal application. This is appropriate since these structures and components are particularly important in carrying out ITLR functions, are not normally replaced, and do not perform an active function such that age-related degradation would be manifested in readily determinable degraded performance. Other long-lived passive SCs, whose failure would not result in the loss of ITLR function, could be dispositioned as not subject to ARDUTLR if they are subject to the provisions of the maintenance rule or existing condition-monitoring programs. It should be noted, as discussed separately in the next section, that in addition to long-lived passive structures and components, the staff's preliminary revisions to the rule include a key focus on issues related to explicit time-limited safety analyses.

Although Enclosure 1 includes a preliminary definition of the term "passive structures and components," the staff expects to further consider this definition. Since a key focus of the revised rule would be on long-lived passive equipment, the definition of "passive" is significant. An important aspect, for example, is the fact that many components have both active and passive ITLR functions (e.g., pumps and valves). The revised license renewal rule will establish that passive functional capability will be reasonably ensured for the period of extended operation.

The revised ARDUTLR definition and SOC would also establish that structures and components which are either routinely replaced or, as a minimum, are replaced to ensure that service life remains less than 40 years, require no further evaluation for license renewal. This aspect of the revised definition of ARDUTLR is essentially the same position proposed by the staff in SECY-93-113 to implement the existing rule. A more explicit Commission position on this issue in revised rulemaking would establish it more clearly as a fundamental aspect of the rule.

Time-Limited Analyses

The CLB contains certain explicit time-limited provisions or analyses. For example, certain plant-specific safety analyses may have been based on an explicitly assumed 40-year plant life. The construction and interpretation of the existing rule requires evaluation and NRC approval of time-limited analyses that either were based on an assumed service life or period of operation bounded by the original license term. These issues are included within the current definition of ARDUTLR. Accordingly, issues involving explicit time limitations (e.g., aspects of the reactor vessel design) which require NRC review and approval would be addressed as part of the Commission's consideration of license renewal under the current rule.

The intent of the staff's preliminary revisions to 10 CFR Part 54 contained in Enclosure 1 is to retain these time-limited analyses as fundamental issues within the license renewal process. As such, an applicant for license renewal would be required to update the analyses and demonstrate, for each explicit time limitation, that the CLB will be maintained during the renewal term. The revised definition of ARDUTLR, however, does not include these issues. This is a direct result of efforts to more clearly establish ARDUTLR in accordance with the Commission's intent that existing aging management activities be fully credited for license renewal. In order to ensure that the time-limited analysis issues are included for license renewal, the rule needs to be revised (as reflected in Enclosure 1) to (1) explicitly require applicants to address such issues relevant to ITLR structures and components in the license renewal application and (2) include the adequate resolution of time-limited analysis issues as part of the rule's standards for issuance of a renewed license (10 CFR 54.29). The revised SOC would be developed to indicate that time-limited analyses need to be evaluated as one of the "few other safety issues" currently identified in the Commission's first principle of license renewal.

The Integrated Plant Assessment

In the SOC for the license renewal rule, the Commission stated that only degradation mechanisms or effects that are unique to the period of extended operation should be the focus of evaluation for a renewal license. In order to accomplish this, the Commission established in the final rule, specific requirements that an IPA must satisfy. The IPA (1) must describe the methodology for identifying plant-specific SSCs that satisfy the definition of SSCs important to license renewal, (2) must contain specific lists of SSCs important to license renewal, (3) must identify those structures and components that are subject to ARDUTLR and provide the technical basis for concluding that they do not have ARDUTLR, and (4) must demonstrate for all structures and components subject to ARDUTLR that the aging degradation is being managed by an effective program or that an effective program is not required.

After considering the written comments received from NUMARC, DOE, YAEC, Virginia Power, and OCRE, the staff concludes that, in carrying out the IPA, existing licensee programs and activities can be used to disposition structures and components as not subject to ARDUTLR. The integrity of the IPA

process as discussed in the SOC should be preserved. The IPA is a useful and logical process for systematically determining plant SSCs which require additional review for the renewal term. An effective license renewal IPA process should consider the entire plant, quickly and efficiently focus on those SSCs that are important during the renewal term, unambiguously identify structures and components that are subject to or could be subject to ARDUTLR, and clearly define expectations for justification of programs that mitigate the effects of ARDUTLR. The IPA should readily disposition those structures and components that are not subject to ARDUTLR and focus on those that could be subject to ARDUTLR, such as long-lived passive structures and components.

Accordingly, if the Commission directs that rulemaking be undertaken to revise 10 CFR Part 54, the staff recommends that the rule and SOC more clearly reflect the attributes of an IPA (discussed above), resolve ambiguities in the SOC, clarify some of the requirements for the IPA, and ensure the steps of the IPA are fully integrated with the revised definition of ARDUTLR.

Additional Areas for Rule Change

Based on the consideration of all comments received and experience to date with rule implementation, the staff concludes that several other areas of the rule could be changed to provide a more efficient, stable, and predictable license renewal process. Among these are (1) clarifying the level of detail in a license renewal application, (2) decoupling the details of the IPA process from the FSAR supplement, and (3) clarifying change processes and reporting requirements. These changes should help improve the efficiency of the license renewal process and incorporate conforming aspects of the staff's approach to allow greater credit for existing licensee programs and activities in the license renewal process. A proposal to revise the rule to decouple the details of the IPA from the FSAR is included in Enclosure 1. The staff is also considering several areas that may improve the efficiency of the license renewal rule. The areas under consideration are:

(1) defining the term "passive" as it applies to ITLR SSCs and ITLR functions,

(2) clarifying ITLR screening requirements for support systems determined to affect Technical Specification operability determinations for ITLR systems,

(3) clarifying licensee evaluation requirements for passive long-lived structures and components.

NUMARC is also considering recommending additional rule changes and has indicated that additional supplemental information will be submitted to the staff.

Schedule for Rulemaking

The staff estimates that a proposed rulemaking package could be forwarded to the Commission within 4 months after the Commission directs the staff to proceed with rulemaking. This is an ambitious rulemaking schedule considering that there has been a significant refocusing of the approach for license renewal and a large effort will be required to document the bases for these changes. This rulemaking effort may be more complex than similar aspects of an initial rulemaking because development of new documentation or extensive revision of previous analyses and supporting documentation for the current rule will be required. The estimate considers efficiencies that may be gained as a result of staff experience in developing the current rule and its supporting documents.

If the Commission directs the staff to proceed with rulemaking, the staff intends, where appropriate, to continue to work with industry organizations and interested members of the public throughout the rulemaking process to ensure that the revised rule addresses industry and public concerns, and gives appropriate credit to existing licensee programs in the renewal process. The staff also plans, as practicable, to continue to work with industry organizations, owners groups, and individual licensees to identify and resolve license renewal inspection, technical, and implementation issues which are outside the scope of the rulemaking activity.

COORDINATION:

The Office of the General Counsel has reviewed this paper and is providing its views by separate memorandum.

RESOURCES:

Previously anticipated license renewal industry efforts and submittals may be delayed because of the uncertainty associated with rulemaking, therefore, staff resources will be re-assigned to support this rulemaking effort. As discussed under the *Schedule for Rulemaking* section, the staff believes that this rulemaking may be more complex than similar aspects of an initial rulemaking and will require a significant effort to establish the bases for the proposed changes.

RECOMMENDATIONS:

The staff recommends that the Commission:

(1) Direct the staff to proceed with rulemaking to modify 10 CFR Part 54 as necessary to ensure that appropriate credit can be given for existing licensee programs in the license renewal process, resolve ambiguities between the SOC and the license renewal rule, and establish a more efficient, stable, and predictable license renewal process.

(2) Approve the general approach for revising the license renewal rule, so that:

(a) It is clarified to state that a focus of license renewal is the management of the effects of ARDUTLR rather than on the identification and evaluation of aging mechanisms.

(b) It is established that license renewal evaluations which focus on maintaining ITLR functional capability will be sufficient to demonstrate that the CLB will be maintained in the period of extended operation.

(c) The concept of ARDUTLR is retained.

(d) The IPA process is retained.

(e) The principal emphasis for license renewal technical evaluation is on certain passive long-lived structures and components and on issues relating to explicit time-limited analyses.

(f) Active and redundant passive components subject to the maintenance rule require no further technical evaluation for license renewal.

(g) Structures or components which are replaced to ensure that service life is less than 40 years require no further technical evaluation for license renewal.

(h) Structures or components which are identified to be subject to existing programs which monitor condition or performance to ensure that ITLR function will be maintained in accordance with the CLB require no further technical evaluation for license renewal.

(3) Note that among other areas of the license renewal rule to be evaluated during the rulemaking process will be level of detail, separating the IPA from the FSAR update, reporting requirements, and program change processes.

(4) Note that the enclosed preliminary revision of the license renewal rule is intended to reflect the direction in which the staff is proceeding. Specific rule change language with detailed justification will be developed during the rulemaking process.

(5) Note that unless the Commission directs otherwise, within five working days from the date of this paper, the staff will release this paper to the public. The staff plans to publish the proposed Federal Register notice contained in Enclosure 2 announcing the availability of this paper for review by interested persons.

James M. Taylor
Executive Director
for Operations

Enclosures:
1. Comparison of Current 10 CFR Part 54 to Preliminary Staff Rule Revisions
2. Proposed Notice of Public Availability

Commissioners' comments or consent should be provided directly to the Office of the Secretary by COB Wednesday, December 29, 1993.

Commission Staff Office comments, if any, should be submitted to the Commissioners NLT Wednesday, December 22, 1993, with an information copy to the Office of the Secretary. If the paper is of such a nature that it requires additional review and comment, the Commissioners and the Secretariat should be apprised of when comments may be expected.

DISTRIBUTION:
Commissioners
OGC
OCAA
OIG
OPA
OCA
OPP
EDO
ACRS
SECY

COMPARISON OF CURRENT 10 CFR PART 54

TO PRELIMINARY STAFF RULE REVISIONS

ENCLOSURE 1

COMPARISON OF CURRENT PART 54 TO PRELIMINARY REVISION WITH REASON FOR CHANGES

CURRENT RULE AS WRITTEN IN 10 CFR	PRELIMINARY REVISION - ADDITIONS IN *ITALICS*	REASON FOR CHANGE
§ 54.3 Definitions. Aging mechanisms are the physical or chemical processes that result in degradation. These mechanisms include but are not limited to fatigue, erosion, corrosion, erosion/corrosion, wear, thermal embrittlement, radiation embrittlement, microbiologically induced effects, creep, and shrinkage.	§ 54.3 Definitions. Deleted from preliminary revision.	Definition deleted based on emphasis towards aging effects instead of mechanisms and due to no mention of the term "mechanisms" within the rule except in the definition of Age-related degradation. In addition, the definition did not adequately limit aging processes to those being time dependent, recognize that some mechanisms may be beneficial, nor indicate a relationship between aging and performance or condition monitoring.

CURRENT RULE AS WRITTEN IN 10 CFR	PRELIMINARY REVISION - ADDITIONS IN *ITALICS*	REASON FOR CHANGE
§ 54.3 Definitions: Age-related degradation unique to license renewal is degradation - (1) that occurs during the term of the current operating license but whose effects are different in character or magnitude after the term of the current operating license (the period of extended operation); or (2) Whose effects were not explicitly identified and evaluated by the license for the period of extended operation and the evaluation found acceptable by the NRC; or (3) That occurs only during the period of extended operation.	§ 54.3 Definitions: Age-related degradation unique to license renewal (ARDUTLR) *is age-related degradation to structures or components (SCs) important to license renewal the effects of which, notwithstanding the application of existing programs during the period of extended operation, could result in loss of important to license renewal function not in accordance with the current licensing bases during the period of extended operation.* *For purposes of this definition,* *(1) An SC important to license renewal could be subject to ARDUTLR if:* *(i) its service life exceeds 40 years; and* *(ii) it is passive; and* *(iii) its failure would directly result in loss of important to license renewal system or structure function not in accordance with the current licensing bases during the period of extended operation.* *(2) An SC important to license renewal, but not identified as potentially subject to ARDUTLR in (1) above, is not subject to ARDUTLR if it is:* *(i) included in the provisions of 10 CFR 50.65; or* *(ii) replaced such that service life is less than 40 years; or* *(iii) included in an existing program or activity that monitors performance or condition and reasonably assures that the SC will be capable of performing its important to license renewal function in accordance with the current licensing bases during the period of extended operation.*	Definition of ARDUTLR changed to more explicitly focus on those issues of concern for the extended period of operation including 1) an emphasis on passive long-lived ITLR structures and components as the principle focus for license renewal, 2) the elimination of active and certain passive components subject to 10 CFR 50.65 from further evaluation for license renewal, 3) the elimination from further evaluation for license renewal of SCs which have been or will be replaced, such that service life remains less than 40 years, and 4) a determination that SCs identified to be subject to existing programs which monitor performance or condition to ensure ITLR function need not be further evaluated for license renewal.

CURRENT RULE AS WRITTEN IN 10 CFR	PRELIMINARY REVISION - ADDITIONS IN *ITALICS*	REASON FOR CHANGE
§ 54.3 Definitions: Effective program (EP) is a documented program to manage age-related degradation unique to license renewal that ensures that a system, structure, or component important to license renewal will continue to perform its required function or will not prevent the performance of a required function during the period of extended operation.	§ 54.3 Definitions: ***Renewal*** program (*RP*) is a documented program ***that manages the effects of*** age-related degradation unique to license renewal that ***provides reasonable assurance*** that a system, structure, or component important to license renewal will continue to perform its required function or will not prevent the performance of a required function during the period of extended operation. ***Renewal programs must:*** ***(i) contain acceptance criteria against which the need for corrective action will be evaluated, and ensure that timely corrective action will be taken when these acceptance criteria are not met; and*** ***(ii) Be implemented by the facility operating procedures and reviewed by the onsite review committee.***	**Conforming change:** Effective Program was changed to Renewal program to accommodate the continuation of existing programs in the license renewal process. Otherwise, "existing programs" must coexist with "effective programs". Throughout the rule, "the effects of" precedes "ARDUTLR" when referring to management of aging to accent the focus away from mechanisms and toward effects of aging. "provide reasonable assurance" added to conform with the new definition of ARDUTLR and to be consistent with wording used elsewhere in the current rule, i.e. § 54.29(a). The program attributes previously contained in § 54.21(a)(6) have been incorporated into the definition. These attributes, fully covered by 10 CFR 50, App. B and Technical Specifications for safety systems, were retained to apply to any non-safety systems identified as ITLR.
§ 54.3 Definitions: Integrated plant assessment (IPA) is a licensee assessment that demonstrates that a nuclear power plant facility's systems, structures, and components important to license renewal have been identified and that age-related degradation unique to license renewal will be managed to ensure that the facility's licensing basis will be maintained during the renewal term.	§ 54.3 Definitions: Integrated plant assessment (IPA) is a licensee assessment that demonstrates that a nuclear power plant facility's systems, structures, and components important to license renewal have been identified and that ***the effects of*** age-related degradation unique to license renewal will be managed to ***provide reasonable assurance*** that the facility's licensing basis will be maintained during the renewal term.	**Conforming change:** "the effects of" and "provide reasonable assurance" added for reasons indicated above.
§ 54.3 Definitions: Not included in current rule.	§ 54.3 Definitions: ***Passive structures and components (for the purpose of this part) do not have functional performance characteristics that can be monitored to reasonably indicate that their required functions will be adequately performed.***	**Conforming change.** A definition of "passive" is needed based on the inclusion of this term in the new definition of ARDUTLR and to rule out unofficial definitions in use. For example, check valves are commonly referred to as passive, but they are included in current IST programs and they are subject to aging effects (e.g. hinge pin wear, disc and seat wear) beyond purely passive components such as piping and structures. The preliminary definition given was not derived from any current regulatory publication nor fully evaluated for potential impact on other regulations.

CURRENT RULE AS WRITTEN IN 10 CFR	PRELIMINARY REVISION - ADDITIONS IN *ITALICS*	REASON FOR CHANGE
§ 54.21 Contents of application - technical information. Each application must include a supplement to the final safety analysis report (FSAR) that presents the information required by this part. The FSAR supplement shall contain the following information:	§ 54.21 Contents of application - technical information. Each application shall contain the following information:	Decoupled FSAR supplement from the IPA. The FSAR supplement will contain the results and conclusions of the IPA. This enables the IPA to be a one time, non-living document. The requirement for the FSAR supplement now appears in new step § 54.21(g), below.
§ 54.21(a) Integrated plant assessment (IPA). The IPA must: (3) For those SCs identified in paragraph (a)(2) of this section, identify the SCs that could have age-related degradation that is unique to license renewal.	§ 54.21(a) Integrated plant assessment (IPA). The IPA must: (3) For those SCs identified in paragraph (a)(2) of this section, identify the SCs that ***are subject to*** age-related degradation that is unique to license renewal.	**Conforming change.** Replaced "could have" with "are subject to" to be consistent with the new definition of ARDUTLR.
§ 54.21(a) Integrated plant assessment (IPA). The IPA must: (5) For each SC identified in paragraph (a)(3) of this section, demonstrate that the age-related degradation unique to license renewal: (i) Is addressed through an effective program, or (ii) Need not be addressed in an effective program.	§ 54.21(a) Integrated plant assessment (IPA). The IPA must: (5) For each SC identified in paragraph (a)(3) of this section, demonstrate that the ***effects of*** age-related degradation unique to license renewal: (i) ***Are*** addressed through a ***renewal*** program, or (ii) Need not be addressed in a ***renewal*** program.	**Conforming change.** Added "effects of" prior to ARDUTLR, and changed "effective" to "renewal" program for reasons indicated above.
§ 54.21(a)(6) Describe the applicable effective programs for each SC identified in paragraph (a)(5)(i) of this section, and demonstrate that these programs will be effective in maintaining the CLB during the period of extended operation. The evaluation of these programs shall include a review of the CLB as appropriate. Effective programs must: (i) Ensure identification and mitigation of age-related degradation unique to license renewal for the SCs identified pursuant to paragraph (a)(3) of this section; and (ii) Contain acceptance criteria against which the need for corrective action will be evaluated, and ensure that timely corrective action will be taken when these acceptance criteria are not met; and (iii) Be implemented by the facility operating procedures and reviewed by the onsite review committee.	§ 54.21(a)(6) Describe the applicable ***renewal*** programs for each SC identified in paragraph (a)(5)(i) of this section, and demonstrate that these programs will be effective in maintaining the CLB during the period of extended operation. The evaluation of these programs shall include a review of the CLB as appropriate.	**Conforming change.** Changed "effective" to "renewal" program for reasons given above. In (i), deleted "Ensure identification and mitigation of ARDUTLR" to conform with focus on effects rather than mechanisms and deleted "the SCs identified" since this was redundant. Deleted (ii) and (iii) since these procedure attributes were included in the definition of Renewal programs.

CURRENT RULE AS WRITTEN IN 10 CFR	PRELIMINARY REVISION - ADDITIONS IN *ITALICS*	REASON FOR CHANGE
§ 54.21(d) Plant modifications. A description must be provided of any proposed modifications to the facility or its administrative control procedures necessary to ensure that age-related degradation unique to license renewal is adequately managed during the renewal term.	§ 54.21(d) Plant modifications. A description must be provided of any proposed modifications to the facility or its administrative control procedures necessary to ensure that *the effects of* age-related degradation unique to license renewal *are* adequately managed during the renewal term.	**Conforming change.** Added "the effects of" for reasons indicated above.
§ 54.21(f) Not included in current rule.	*§ 54.21(f) Time-limited analyses. All issues previously evaluated and approved for the facility with a time limit corresponding to the current operating term and expected to be still in effect at the end of the current operating term or expiring prior to the end of the extended period of operation must be re-evaluated and:* *(1) shown to be valid for the period of extended operation; or* *(2) corrected or otherwise resolved such that the need for the time-limited analyses is eliminated for the period of extended operation.*	**Conforming change.** Accommodates analyses of time-limited issues to conform to the change to the definition of ARDUTLR.
§ 54.21(g) Not included in current rule.	*§ 54.21(g) FSAR supplement. FSAR supplement for the facility containing the results and conclusions of paragraphs (a)(1) through (a)(6) and (f) above.*	**Conforming change.** Added to conform with separate application and FSAR supplement.
§ 54.29 Standards for issuance of a renewed license. A renewed license may be issued by the Commission, up to the full term authorized by § 54.31, based on the following findings: (a) Actions have been identified and have been or will be taken with respect to age-related degradation unique to license renewal of SSCs important to license renewal, such that there is reasonable assurance that the activities authorized by the renewed license will be conducted in accordance with the current licensing basis, and that any changes made to the plant's current licensing basis in order to comply with this paragraph are otherwise in accord with the Act and the Commission's regulations. (b) Any applicable requirements of Subpart A of 10 CFR Part 51 have been satisfied. (c) Any matters raised under § 2.758 have been addressed as required by that section.	§ 54.29 Standards for issuance of a renewed license. A renewed license may be issued by the Commission, up to the full term authorized by § 54.31, based on the following findings: (a) Actions have been identified and have been or will be taken with respect to age-related degradation unique to license renewal of SSCs important to license renewal ***and with respect to any time-limited issues applicable for the renewal term,*** such that there is reasonable assurance that the activities authorized by the renewed license will be conducted in accordance with the current licensing basis, and that any changes made to the plant's current licensing basis in order to comply with this paragraph are otherwise in accord with the Act and the Commission's regulations. (b) Any applicable requirements of Subpart A of 10 CFR Part 51 have been satisfied. (c) Any matters raised under § 2.758 have been addressed as required by that section.	**Conforming change.** Accommodates analyses of time-limited issues to conform to the change to the definition of ARDUTLR.

CURRENT RULE AS WRITTEN IN 10 CFR	PRELIMINARY REVISION - ADDITIONS IN *ITALICS*	REASON FOR CHANGE
§ 54.33(b) Each renewed license will be issued in such form and contain such conditions and limitations, including technical specifications, as the Commission deems appropriate and necessary to address age-related degradation unique to license renewal, including such provisions with respect to any uncompleted items of plant modification and such limitations or conditions as the Commission believes are required to ensure that operation during the period of completion of such items will not endanger public health and safety. Other conditions and limitations, including technical specifications, that do not address age-related degradation unique to license renewal continue in effect for the renewed license.	§ 54.33(b) Each renewed license will be issued in such form and contain such conditions and limitations, including technical specifications, as the Commission deems appropriate and necessary to address age-related degradation unique to license renewal ***and any time-limited issues applicable for the renewal term***, including such provisions with respect to any uncompleted items of plant modification and such limitations or conditions as the Commission believes are required to ***provide reasonable assurance*** that operation during the period of completion of such items will not endanger public health and safety. Other conditions and limitations, including technical specifications, that do not address age-related degradation unique to license renewal continue in effect for the renewed license.	**Conforming change.** Accommodates analyses of time-limited issues to conform to the change to the definition of ARDUTLR. "ensure" changed to "provide reasonable assurance" to be consistent with wording elsewhere in the rule. See definition of Renewal programs, above.
§ 54.33(d) The licensee shall maintain the programs and procedures reviewed and approved by the staff that manage age-related degradation unique to license renewal. A licensee may make changes to previously approved programs and procedures referenced in the renewal application or FSAR without prior Commission approval if the changes are reviewed by the onsite review committee or equivalent and found not to decrease the effectiveness of the management of age-related degradation unique to license renewal of specific systems, structures, or components previously accepted. Changes that do not reduce the effectiveness of previously accepted programs or procedures must be documented in accordance with § 54.37. Proposed changes that decrease the effectiveness of programs or procedures for management of age-related degradation unique to license renewal must be submitted to the NRC and receive NRC approval before implementation.	§ 54.33(d) The licensee shall maintain the ***renewal*** programs and procedures reviewed and approved by the staff that manage ***the effects of*** age-related degradation unique to license renewal. A licensee may make changes to previously approved ***renewal*** programs without prior Commission approval if the changes are reviewed by the onsite review committee or equivalent and found not to decrease the effectiveness of the management of ***the effects of*** age-related degradation unique to license renewal of specific systems, structures, or components previously accepted. Changes that do not reduce the effectiveness of previously accepted ***renewal*** programs or procedures must be documented in accordance with § 54.37. Proposed changes that decrease the effectiveness of ***renewal*** programs or procedures for management of ***the effects of*** age-related degradation unique to license renewal must be submitted to the NRC and receive NRC approval before implementation.	**Conforming change.** Changed to distinguish between renewal and existing programs with regard to change controls. Added "the effects of" for reasons indicated above.

CURRENT RULE AS WRITTEN IN 10 CFR	PRELIMINARY REVISION - ADDITIONS IN *ITALICS*	REASON FOR CHANGE
§ 54.37(b) The FSAR update required by 10 CFR 50.71(e) must include any SSCs newly identified as important to license renewal as a result of generic information, research, or other new information after the renewed license is issued. The update must also identify any SSCs deleted from the list of SSCs important to license renewal. This FSAR update must describe how the age-related degradation unique to license renewal of newly identified SSCs important to license renewal will be effectively managed during the period of extended operation. The update must also be accompanied by a justification for deleting any SSCs previously identified as important to license renewal.	§ 54.37(b) The FSAR update required by 10 CFR 50.71(e) must include any SSCs newly identified as important to license renewal ***and subject to age-related degradation unique to license renewal*** as a result of generic information, research, or other new information after the renewed license is issued. This FSAR update must describe how the ***effects of*** age-related degradation unique to license renewal of newly identified SSCs important to license renewal ***and subject to age-related degradation unique to license renewal*** will be effectively managed during the period of extended operation.	**Conforming change.** Added "effects of" for reasons indicated above. The addition of "and subject to ARDUTLR" accommodates the possibility that newly identified SSCs ITLR may not be subject to ARDUTLR in accordance with the new definition. The current wording assumes that all newly identified SSCs will have ARDUTLR. Deleted the sentences requiring updates of the list of SSCs ITLR because the original list will no longer be in the FSAR supplement, only in the application. Any changes in the list of SSCs ITLR and subject to ARDUTLR will be included in FSAR updates because these changes represent changes in the FSAR.
§ 54.37(c) The licensee shall submit to the NRC at least annually a list of all changes made to programs for management of age-related degradation unique to license renewal that do not decrease the effectiveness of programs to which the licensee committed and a brief description, including a summary of the safety evaluation of each change. The licensee shall maintain written documentation that provides the basis for concluding that the change does not reduce the effectiveness of these programs.	§ 54.37(c) The licensee shall submit to the NRC ***with the FSAR update*** a list of all changes made to ***renewal*** programs for management of ***the effects of*** age-related degradation unique to license renewal that do not decrease the effectiveness of ***renewal*** programs to which the licensee committed and a brief description, including a summary of the safety evaluation of each change. The licensee shall maintain written documentation that provides the basis for concluding that the change does not reduce the effectiveness of these programs.	**Conforming change.** Linked the submittal to the FSAR update and deleted "annual" frequency to be consistent with the frequency of FSAR updates. Changed wording to accommodate renewal programs and "the effects of" ARDUTLR.

PRELIMINARY REVISIONS TO 10 CFR PART 54

ADDITIONS SHOWN IN *ITALICS*

PART 54 - REQUIREMENTS FOR RENEWAL OF OPERATING LICENSES FOR NUCLEAR POWER PLANTS

General Provisions

§ 54.1 Purpose and scope.

This part governs the issuance of renewed operating licenses for nuclear power plants licensed pursuant to Sections 103 or 104b of the Atomic Energy Act of 1954, as amended (68 Stat. 919) and Title II of the Energy Reorganization Act of 1974 (88 Stat. 1242).

§ 54.3 Definitions.

(a) As used in this part,

Age-related degradation means a change in a system's, structure's, or component's performance or physical or chemical properties resulting in whole or part from one or more aging mechanisms. Examples of this type of change include changes in dimension, ductility, fatigue resistance, fracture toughness, mechanical strength, polymerization, viscosity, and dielectric strength.

Age-related degradation unique to license renewal (ARDUTLR) is age-related degradation to structures or components (SCs) important to license renewal the effects of which, notwithstanding the application of existing programs during the period of extended operation, could result in loss of important to license renewal function not in accordance with the current licensing bases during the period of extended operation.

For purposes of this definition,

(1) An SC important to license renewal could be subject to ARDUTLR if:

(i) its service life exceeds 40 years; and

(ii) it is passive; and

(iii) its failure would directly result in loss of important to license renewal system or structure function not in accordance with the current licensing bases during the period of extended operation.

(2) An SC important to license renewal, but not identified as potentially subject to ARDUTLR in (1) above, is not subject to ARDUTLR if it is:

(i) included in the provisions of 10 CFR 50.65; or

(ii) replaced such that service life is less than 40 years; or

(iii) included in an existing program or activity that monitors

performance or condition and reasonably assures that the SC will be capable of performing its important to license renewal function in accordance with the current licensing bases during the period of extended operation.

Current licensing basis (CLB) is the set of NRC requirements applicable to a specific plant and a licensee's written commitments for assuring compliance with and operation within applicable NRC requirements and the plant-specific design basis (including all modifications and additions to such commitments over the life of the license) that are docketed and in effect. The CLB includes the NRC regulations contained in 10 CFR Parts 2, 19, 20, 21, 30, 40, 50, 51, 54, 55, 70, 72, 73, 100 and appendices thereto; orders; license conditions; exemptions; and technical specifications. It also includes the plant-specific design basis information defined in 10 CFR 50.2 as documented in the most recent final safety analysis report (FSAR) as required by 10 CFR 50.71 and the licensee's commitments remaining in effect that were made in docketed licensing correspondence such as licensee responses to NRC bulletins, generic letters, and enforcement actions, as well as licensee commitments documented in NRC safety evaluations or licensee event reports.

Integrated plant assessment (IPA) is a licensee assessment that demonstrates that a nuclear power plant facility's systems, structures, and components important to license renewal have been identified and that ***the effects of*** age-related degradation unique to license renewal will be managed to ***provide reasonable assurance*** that the facility's licensing basis will be maintained during the renewal term.

Nuclear power plant means a nuclear power facility of a type described in 10 CFR 50.21(b) or 50.22.

Passive structures and components (for the purpose of this part) do not have functional performance characteristics that can be monitored to reasonably indicate that their required functions will be adequately performed.

Renewal program (RP) is a documented program ***that manages the effects of*** age-related degradation unique to license renewal that ***provides reasonable assurance*** that a system, structure, or component important to license renewal will continue to perform its required function or will not prevent the performance of a required function during the period of extended operation.

Renewal programs must:

(1) contain acceptance criteria against which the need for corrective action will be evaluated, and ensure that timely corrective action will be taken when these acceptance criteria are not met; and

(2) Be implemented by the facility operating procedures and reviewed by the onsite review committee.

Renewal term means the period of time that is the sum of the additional amount of time beyond the expiration of the operating license that is requested in the renewal application plus the remaining number of years on the operating license currently in effect.

Systems, structures, and components (SSCs) important to license renewal are:

(1) Safety-related SSCs, which are those relied upon to remain functional during and following design basis events (as defined as in 10 CFR 50.49 (b)(1)) to ensure:

(i) The integrity of the reactor coolant pressure boundary;

(ii) The capability to shut down the reactor and maintain it in a safe shutdown condition: or

(iii) The capability to prevent or mitigate the consequences of accidents that could result in potential offsite exposure comparable to the 10 CFR Part 100 guidelines.

(2) All non-safety-related SSCs whose failure could directly prevent satisfactory accomplishment of any of the required functions identified in paragraphs (1) (i), (ii), or (iii) of this definition.

(3) All SSCs relied on in safety analyses or plant evaluations to demonstrate compliance with the Commission's regulations for fire protection (10 CFR 50.48), environmental qualification (10 CFR 50.49), pressurized thermal shock (10 CFR 50.61), anticipated transients without scram (10 CFR 50.62), and station blackout (10 CFR 50.63).

(4) All SSCs subject to operability requirements contained in the facility technical specification limiting conditions for operation.

(b) All other terms in this part have the same meanings as set out in 10 CFR 50.2 or Section 11 of the Atomic Energy Act, as applicable.

§ 54.5 Interpretations.

Except as specifically authorized by the Commission in writing, no interpretation of the meaning of the regulations in this part by any officer or employee of the Commission other than a written interpretation by the General Counsel will be recognized to be binding upon the Commission.

§ 54.7 Written communications.

All applications, correspondence, reports, and other written communications shall be filed in accordance with applicable portions of 10 CFR 50.4.

§ 54.9 Information collection requirements: OMB approval.

(a) The Nuclear Regulatory Commission has submitted the information collection requirements contained in this part to the Office of Management and Budget (OMB) for approval as required by the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.). OMB has approved the information collection requirements contained in this part under control number 3150-0155.

(b) The approved information collection requirements contained in this part appear in §§ 54.13, 54.17, 54.19, 54.21, 54.22, 54.23, 54.33, and 54.37.

§ 54.11 Public inspection of applications.

Applications and documents submitted to the Commission in connection with renewal applications may be made available for public inspection in accordance with the provisions of the regulations contained in 10 CFR Part 2.

§ 54.13 Completeness and accuracy of information.

(a) Information provided to the Commission by an applicant for a renewed license or by a licensee or information required by statute or by the Commission's regulations, orders, or license conditions to be maintained by the applicant or the licensee must be complete and accurate in all material respects.

(b) Each applicant or licensee shall notify the Commission of information identified by the applicant or licensee as having for the regulated activity a significant implication for public health and safety or common defense and security. An applicant or licensee violates this paragraph only if the applicant or licensee fails to notify the Commission of information that the applicant or licensee has identified as having a significant implication for public health and safety or common defense and security. Notification must be provided to the Administrator of the appropriate Regional Office within 2 working days of identifying the information. This requirement is not applicable to information that is already required to be provided to the Commission by other reporting or updating requirements.

§ 54.15 Specific exemptions.

Exemptions from the requirements of this part may be granted by the Commission in accordance with 10 CFR 50.12.

§ 54.17 Filing of application.

(a) The filing of an application for a renewed license must be in accordance with Subpart A of 10 CFR Part 2 and 10 CFR 50.4 and 50.30.

(b) Any person who is a citizen, national, or agent of a foreign country, or any corporation, or other entity which the Commission knows or has reason to know is owned, controlled, or dominated by an alien, a foreign

corporation, or a foreign government, is ineligible to apply for and obtain a renewed license.

(c) An application for a renewed license may not be submitted to the Commission earlier than 20 years before the expiration of the operating license currently in effect.

(d) An applicant may combine an application for a renewed license with applications for other kinds of licenses.

(e) An application may incorporate by reference information contained in previous applications for licenses or license amendments, statements, correspondence or reports filed with the Commission; provided that the references are clear and specific.

(f) If the application contains Restricted Data or other defense information, it must be prepared in such a manner that all Restricted Data and other defense information are separated from unclassified information, in accordance with 10 CFR 50.33(j).

(g) As part of its application and in any event prior to the receipt of Restricted Data or the issuance of a renewed license, the applicant shall agree in writing that it will not permit any individual to have access to Restricted Data until an investigation is made and reported to the Commission on the character, association, and loyalty of the individual and the Commission shall have determined that permitting such person to have access to Restricted Data will not endanger the common defense and security. The agreement of the applicant in this regard is part of the renewed license whether so stated or not.

§ 54.19 Contents of application - general information.

(a) Each application must provide the information specified in 10 CFR 50.33(a) through (e), (h), and (i). Alternatively, the application may incorporate by reference other documents that provide the information required by this section.

(b) Each application must include conforming changes to the standard indemnity agreement, 10 CFR 140.92, Appendix B, to account for the expiration term of the proposed renewed license.

§ 54.21 Contents of application - technical information.

Each application shall contain the following information:

(a) Integrated plant assessment (IPA). The IPA must:

(1) Identify and list the SSCs important to license renewal.

(2) From the list required by paragraph (a)(1) of this section, identify the structures and components (SCs) that contribute to the performance of a required function, or could, if they fail, prevent an SSC important to license renewal from performing its required function.

(3) For those SCs identified in paragraph (a)(2) of this section, identify the SCs that ***are subject to*** age-related degradation that is unique to license renewal.

(4) Describe and justify the methods used in paragraph (a)(1), (a)(2), and (a)(3) of this section. The description must include (i) the specific criteria for determining whether an SSC is important to license renewal; (ii) the criteria for evaluating whether an SC is necessary for the performance of a required function; and (iii) the technical criteria to be used in determining whether an SC is subject to age-related degradation unique to license renewal.

(5) For each SC identified in paragraph (a)(3) of this section, demonstrate that the ***effects of*** age-related degradation unique to license renewal:

(i) ***Are*** addressed through a ***renewal*** program, or

(ii) Need not be addressed in a ***renewal*** program.

(6) Describe the applicable ***renewal*** programs for each SC identified in paragraph (a)(5)(i) of this section, and demonstrate that these programs will be effective in maintaining the CLB during the period of extended operation. The evaluation of these programs shall include a review of the CLB as appropriate.

(b) CLB Changes. Identification and justification of any changes in the current licensing basis associated with age-related degradation unique to license renewal.

(c) Exemptions. A list of all plant-specific exemptions granted pursuant to 10 CFR 50.12 and reliefs granted pursuant to 10 CFR 50.55a. For those exemptions and reliefs that either were granted on the basis of an assumed service life or period of operation bounded by the original license term of the facility or otherwise relate to SSCs subject to age-related degradation unique to license renewal, an evaluation that justifies the continuation of these exemptions and reliefs for the renewal term must be provided.

(d) Plant modifications. A description must be provided of any proposed modifications to the facility or its administrative control procedures necessary to ensure that ***the effects of*** age-related degradation unique to license renewal ***are*** adequately managed during the renewal term.

(e) CLB changes during NRC review of application. Each year following

submittal of the license renewal application and at least 3 months before scheduled completion of the NRC review, an amendment to the renewal application must be submitted that identifies any change to the current licensing basis of the facility that materially affects the contents of the license renewal application, including the FSAR supplement.

(f) Time-limited analyses. All issues previously evaluated and approved for the facility with a time limit corresponding to the current operating term and expected to be still in effect at the end of the current operating term or expiring prior to the end of the extended period of operation must be re-evaluated and:

(i) shown to be valid for the period of extended operation; or

(ii) corrected or otherwise resolved such that the need for the time-limited analyses is eliminated for the period of extended operation.

(g) FSAR supplement. FSAR supplement for the facility containing the results and conclusions of paragraphs (a)(3) through (a)(6) and (f) above.

§ 54.22 Contents of application - technical specifications.

Each application must include any technical specification changes or additions necessary to support operation during the renewal term as part of the renewal application. The technical justification for these changes or additions must be contained in the FSAR supplement submitted to support license renewal.

§ 54.23 Contents of application - environmental information.

Each application must include an environmental report that complies with the requirements of Subpart A of 10 CFR Part 51.

§ 54.25 Report of the Advisory Committee on Reactor Safeguards.

Each renewal application will be referred to the Advisory Committee on Reactor Safeguards for a review and report. Any report will be made part of the record of the application and made available to the public, except to the extent that security classification prevents disclosure.

§ 54.27 Hearings.

A notice of an opportunity for a hearing will be published in the Federal Register, in accordance with 10 CFR 2.105. In the absence of a request for a hearing filed within 30 days by a person whose interest may be affected, the Commission may issue a renewed operating license without a hearing, upon 30-day notice and publication once in the Federal Register of its intent to do so.

§ 54.29 Standards for issuance of a renewed license.

A renewed license may be issued by the Commission, up to the full term authorized by § 54.31, based on the following findings:

(a) Actions have been identified and have been or will be taken with respect to age-related degradation unique to license renewal of SSCs important to license renewal ***and with respect to any time-limited issues applicable for the renewal term***, such that there is reasonable assurance that the activities authorized by the renewed license will be conducted in accordance with the current licensing basis, and that any changes made to the plant's current licensing basis in order to comply with this paragraph are otherwise in accord with the Act and the Commission's regulations.

(b) Any applicable requirements of Subpart A of 10 CFR Part 51 have been satisfied.

(c) Any matters raised under § 2.758 have been addressed as required by that section.

§ 54.31 Issuance of a renewed license.

(a) A renewed license will be of the class for which the operating license currently in effect was issued.

(b) A renewed license will be issued for a fixed period of time, which is the sum of the additional amount of time beyond the expiration of the operating license (not to exceed 20 years) that is requested in a renewal application plus the remaining number of years on the operating license currently in effect. The total number of years for any renewal term may not exceed 40 years.

(c) A renewed license will become effective immediately upon its issuance, thereby superseding the operating license previously in effect. If a renewed license is subsequently set aside upon further administrative or judicial appeal, the operating license previously in effect will be reinstated unless its term has expired and the renewal application was not filed in a timely manner.

(d) A renewed license may be subsequently renewed upon expiration of the renewal term, in accordance with all applicable requirements.

§ 54.33 Continuation of current licensing basis and conditions of renewed license.

(a) Whether stated therein or not, each renewed license will contain and otherwise be subject to the conditions set forth in 10 CFR 50.54.

(b) Each renewed license will be issued in such form and contain such conditions and limitations, including technical specifications, as the Commission deems appropriate and necessary to address age-related degradation unique to license renewal ***and any time-limited issues applicable for the***

renewal term, including such provisions with respect to any uncompleted items of plant modification and such limitations or conditions as the Commission believes are required to ***provide reasonable assurance*** that operation during the period of completion of such items will not endanger public health and safety. Other conditions and limitations, including technical specifications, that do not address age-related degradation unique to license renewal continue in effect for the renewed license.

(c) Each renewed license will include those conditions to protect the environment that were imposed pursuant to 10 CFR 50.36(b) and that are part of the current licensing basis for the facility at the time of issuance of the renewed license. These conditions may be supplemented or amended as necessary to protect the environment during the term of the renewed license and will be derived from information contained in the supplement to the environmental report submitted pursuant to 10 CFR Part 51, as analyzed and evaluated in the NRC record of decision. The conditions will identify the obligations of the licensee in the environmental area, including, as appropriate, requirements for reporting and recordkeeping of environmental data and any conditions and monitoring requirements for the protection of the nonaquatic environment.

(d) The licensee shall maintain the ***renewal*** programs and procedures reviewed and approved by the staff that manage ***the effects of*** age-related degradation unique to license renewal. A licensee may make changes to previously approved ***renewal*** programs without prior Commission approval if the changes are reviewed by the onsite review committee or equivalent and found not to decrease the effectiveness of the management of ***the effects of*** age-related degradation unique to license renewal of specific systems, structures, or components previously accepted. Changes that do not reduce the effectiveness of previously accepted ***renewal*** programs or procedures must be documented in accordance with § 54.37. Proposed changes that decrease the effectiveness of ***renewal*** programs or procedures for management of ***the effects of*** age-related degradation unique to license renewal must be submitted to the NRC and receive NRC approval before implementation.

(e) The licensing basis for the renewed license includes the current licensing basis, as defined in § 54.3(a); the inclusion in the licensing basis of matters such as licensee commitments does not change the legal status of those matters unless specifically so ordered pursuant to paragraphs (b) or (c) of this section.

§ 54.35 Requirements during term of renewed license.

During the term of a renewed license, licensees shall continue to comply with all Commission regulations contained in 10 CFR Parts 2, 19, 20, 21, 30, 40, 50, 51, 54, 55, 70, 72, 73, and 100 and appendices thereto that are applicable to holders of operating licenses.

§ 54.37 Additional records and recordkeeping requirements.

(a) The licensee shall retain in an audible and retrievable form for the term of the renewed operating license all information and documentation required by, or otherwise necessary to document compliance with the provisions of, this part.

(b) The FSAR update required by 10 CFR 50.71(e) must include any SSCs newly identified as important to license renewal ***and subject to age-related degradation unique to license renewal*** as a result of generic information, research, or other new information after the renewed license is issued. This FSAR update must describe how the ***effects of*** age-related degradation unique to license renewal of newly identified SSCs important to license renewal ***and subject to age-related degradation unique to license renewal*** will be effectively managed during the period of extended operation.

(c) The licensee shall submit to the NRC ***with the FSAR update*** a list of all changes made to ***renewal*** programs for management of ***the effects of*** age-related degradation unique to license renewal that do not decrease the effectiveness of ***renewal*** programs to which the licensee committed and a brief description, including a summary of the safety evaluation of each change. The licensee shall maintain written documentation that provides the basis for concluding that the change does not reduce the effectiveness of these programs.

§ 54.41 Violations.

(a) The Commission may obtain an injunction or other court order to prevent a violation of the provisions of -

(1) The Atomic Energy Act of 1954, as amended.

(2) Title II of the Energy Reorganization Act of 1974, as amended; or

(3) A regulation or order issued pursuant to those Acts.

(b) The Commission may obtain a court order for the payment of a civil penalty imposed under section 234 of the Atomic Energy Act:

(1) For violations of -

(i) Sections 53, 57, 62, 63, 81, 82, 101, 103, 104, 107, or 109 of the Atomic Energy Act of 1954, as amended;

(ii) Section 206 of the Energy Reorganization Act;

(iii) Any rule, regulation, or order issued pursuant to the sections specified in paragraph (b)(1)(i) of this section;

(iv) Any term, condition, or limitation of any license issued under the sections specified in paragraph (b)(1)(i) of this section.

(2) For any violation for which a license may be revoked under Section 186 of the Atomic Energy Act of 1954, as amended.

§ 54.43 Criminal Penalties.

(a) Section 223 of the Atomic Energy Act of 1954, as amended, provides for criminal sanctions for willful violations of, attempted violation of, or conspiracy to violate, any regulation issued under sections 161b, 161i, or 161o of the Act. For purposes of section 223, all the regulations in Part 54 are issued under one or more of sections 161b, 161i, or 161o, except for the sections listed in paragraph (b) of this section.

(b) The regulations in part 54 that are not issued under sections 161b, 161i, or 161o for the purposes of section 223 are as follows: §§ 54.1, 54.3, 54.5, 54.7, 54.9, 54.11, 54.15, 54.17, 54.19, 54.21, 54.22, 54.23, 54.25, 54.27, 54.29, 54.31, 54.41, and 54.43.

UNITED STATES NUCLEAR REGULATORY COMMISSION

OFFICE OF NUCLEAR REACTOR REGULATION

AVAILABILITY OF COMMISSION PAPER FORWARDING

LICENSE RENEWAL WORKSHOP RESULTS AND STAFF PROPOSALS FOR REVISION TO

10 CFR PART 54 "REQUIREMENTS FOR RENEWAL OF OPERATING LICENSES

FOR NUCLEAR POWER PLANTS"

SECY-93-XXX

The U.S. Nuclear Regulatory Commission has released to the public SECY-93-XXX, "License Renewal Workshop Results and Staff Proposals for Revision to 10 CFR Part 54, 'Requirements For Renewal of Operating Licenses For Nuclear Power Plants.'" This paper is in response to a staff requirements memorandum (SRM) dated June 28, 1993. In this SRM, the Commission directed the staff to convene a public workshop to evaluate alternative approaches to how best to take advantage of existing licensee programs in the license renewal process. Additionally, the SRM directed the staff to provide a summary of the workshop results and draft proposed rulemaking no later than 60 days from the conclusion of the workshop. The workshop was held on September 30, 1993. SECY-93-XXX contains a summary of the workshop, a discussion of the areas of the current rule that could be revised to take better advantage of existing licensee programs, and preliminary revisions of the current rule.

ENCLOSURE 2

Copies of SECY-93-XXX and the June 28, 1993, SRM have been placed in the NRC's Public Document Room, the Gelman Building, 2120 L Street, N.W., Washington, D.C. 20555, for review by interested persons.

Dated at Rockville, Maryland, this _____ day of _____ 1993

FOR THE NUCLEAR REGULATORY COMMISSION

Scott F. Newberry, Director
License Renewal and Environmental Review
Project Directorate
Associate Directorate for Advanced Reactors
and License Renewal
Office of Nuclear Reactor Regulation