

No. S-22-92  
Tel. 301/504-2240

REMARKS BY  
COMMISSIONER JAMES R. CURTISS  
U.S. NUCLEAR REGULATORY COMMISSION

AT THE  
NRC REGULATORY INFORMATION CONFERENCE  
MAYFLOWER HOTEL

WASHINGTON, D.C.  
JULY 22, 1992

Good morning, ladies and gentlemen. It is a pleasure to be here this morning to address this fourth annual NRC Regulatory Information Conference. Once again, I am most gratified to see that the commercial nuclear power community is so very well-represented at this year's conference.

As I indicated last year when I had the opportunity to address many of you in this forum, I believe that your attendance here reflects a healthy interest on your part in developing a greater understanding of the issues confronting the Commission that may potentially affect your activities, as well as your interest in exchanging ideas and concerns with both the NRC staff and fellow members of the regulated community. This type of inquisitive and open attitude most certainly benefits both the regulated community and the regulator alike. So I welcome you once again to this year's conference -- a conference that I trust will be as rewarding, both for you as well as for those of us at the agency, as previous conferences.

INTRODUCTION

I would like to focus my remarks this morning on two important -- and indeed, related -- initiatives that have been of great interest to me during my tenure on the Commission -- the license renewal rule and the maintenance rule. In fact, what I would

like to focus on specifically this morning is how these two initiatives relate to one another and what steps we as an agency and you in the reactor licensee community might take to approach the implementation of these two initiatives in a coordinated fashion.

Many of you are no doubt aware of my long-standing interest and involvement in the formulation of the maintenance rule. I view the maintenance rule as an important initiative in its own right, with its focus on results rather than process, on performance rather than programs. Indeed, it is perhaps the single most notable example of performance-based regulation -- and indeed, may well serve as a model for future performance-based regulatory initiatives.

But, as I indicated, my purpose here this morning is not to talk solely about the maintenance rule nor for that matter about the license renewal rule, but instead to devote my time to discussing a question that I know many of you have raised as you individually begin to examine the technical and economic feasibility of license renewal -- "How do these two initiatives relate to one another?" -- and, specifically, to share some of my own personal thoughts on how the activities that a licensee undertakes in implementing the maintenance rule can and should provide a substantial portion of the technical information and the technical basis necessary to support an application for license renewal.

#### Relationship of the License Renewal and Maintenance Rules

At bottom, the fundamental purpose of both the license renewal rule and the maintenance rule is to ensure that age-related degradation of plant equipment is properly addressed. This observation invites two obvious questions: "Why do we need both rules?" and "How do the two rules relate to one another?".

Recognizing that original licensing decisions and subsequent regulatory decisions affecting the current licensing bases (CLBs) of operating plants have generally not considered facility operation beyond the term of the original license, we cannot simply assume, for the purpose of issuing a renewed license, that aging management activities carried out in accordance with the CLBs over the original license term are adequate to address age-related degradation that will occur during the term of a renewed license.

In view of the many complexities that this situation presents, as well as the stakes involved in the license renewal decision, the renewal of operating licenses -- for as much as 20 years --

demands the same type of careful consideration that was brought to bear when the original license was issued.

The regulatory framework for the kind of disciplined, technically rigorous safety evaluation of proposals to renew facility operating licenses that will be necessary, of course, is the license renewal rule, adopted in 1991 and codified at 10 CFR Part 54.

The rule, as you know, requires an accounting of aging and aging management activities over the original license term in order to identify and address age-related effects unique to license renewal which may require aging management actions beyond those considered adequate to ensure compliance with the CLB during the initial license term. Hence, it becomes apparent that aging management activities carried out pursuant to the maintenance rule during the original license term and, prospectively, during any renewal term, therefore constitute a major element to be assessed as part of the safety evaluation process for license renewal.

The license renewal process may lead to modifications to the CLB itself. These modifications may be necessary to reflect either -- (1) additional aging management activities to be carried out during the renewal term to ensure compliance with the CLB as it otherwise existed during the original license term; or (2) circumstances where alternatives to compliance with the CLB as it existed during the original license term have been proposed and found acceptable.

The maintenance rule does not attempt explicitly to address the special circumstances presented by license renewal, or otherwise to ensure the adequacy of the CLB. Instead, the maintenance rule seeks to ensure compliance with relevant aspects of the CLB as it may exist at any time.

With those comments by way of background, let me turn now to a more focused discussion of each of the rules, beginning with license renewal, and conclude with some observations about how these two initiatives might be implemented in a manner that will maximize the benefits of both, in a "win-win" fashion for both the industry and the agency.

#### License Renewal Rule

The procedural framework established by the Commission in Part 54 -- the License Renewal Rule -- is founded on the principle that, with the possible exception of age-related degradation unique to the period of extended operation under a renewed license (i.e. unique to license renewal), the regulatory process is adequate to

ensure that the licensing bases of all currently operating plants provide and maintain an acceptable level of safety. From this, it follows that the focus of any license renewal proceeding is properly limited to the question of whether age-related degradation unique to license renewal has been adequately addressed.

To the extent that actions to address age-related degradation unique to license renewal are, a priori, in addition to, or different from, those which are necessary to manage aging during the original license term, there would seem, at first blush, to be little overlap between aging management activities directed toward the original license term and those necessary for license renewal. From this, it could be inferred that the focus of a license renewal proceeding would only be on that subset of aging management activities addressing aging effects unique to license renewal.

It is clear, however, given the complementary nature of aging management activities during the original license term and those additional actions necessary for the renewal term, that, as a practical matter, the adequacy of all aging management activities for ensuring compliance with the CLB during the renewal term may be subject to scrutiny in a renewal proceeding, including those carried forward from the original license term.

While it is true that those aging management actions ultimately deemed necessary to address age-related degradation unique to license renewal may be separable from those necessary during the original license term, their derivation requires reconsideration of the adequacy of all aging management activities in light of all relevant aging mechanisms. Therefore, under Part 54, an application for license renewal involves a rigorous, formal, multi-staged screening and assessment process which roughly begins with consideration of the entire universe of plant equipment and equipment aging mechanisms.

First, a review of all plant equipment to identify that which falls within the scope of the rule must be performed. Second, those structures and components necessary to ensure the performance of required functions must be identified. Third, for each structure or component necessary to ensure a required function, relevant aging mechanisms must be identified and evaluated to determine whether their effects represent age-related degradation unique to license renewal. It is generally at this stage that equipment history, including past aging management activities, is an important consideration. Finally, licensee-proposed actions to address such degradation must be formulated and justified -- including any proposed changes to the CLB. In this regard, the licensee is required to demonstrate that age-related degradation unique to license renewal is being,

and will continue to be, managed through an existing "effective program", that degradation will be managed through a newly-developed "effective program" which will be adopted as part of the CLB, or that such a program is unnecessary.

In short, Part 54 requires a comprehensive review and evaluation of aging and aging management activities for all plant equipment falling within the scope of the rule. From this review, actions necessary to address age-related degradation unique to license renewal are derived. In general, licensee decisions and aging management proposals, along with their technical bases, must be documented and either submitted as part of the license renewal application or maintained in an auditable form.

#### Maintenance Rule

While sharing with the license renewal rule the central purpose of managing age-related degradation, the maintenance rule, of course, applies to the original license term, as well as any renewal term. Further, in contrast to the license renewal rule, the maintenance rule is focused almost exclusively upon results rather than on the many processes and activities leading to those results.

The maintenance rule requires that, for plant equipment falling within its scope, licensees monitor the performance or condition of the equipment against established goals and, where goals are not met, licensees are required to take appropriate corrective actions. Where maintenance has been demonstrated effective through the absence of failures or unacceptable degradation in performance or condition, formal goal-setting, monitoring, and corrective action is not explicitly required. The effectiveness of maintenance for all equipment within the scope of the rule is to be periodically evaluated. Maintenance practices are to be adjusted, where necessary, based upon the results of these evaluations.

While the maintenance rule lacks the kind of explicit procedural detail contained in the license renewal rule, it is clear that in order to comply with the maintenance rule there are a number of decisionmaking processes that each licensee must go through. Details of these processes are left to licensees, and generic implementing guidance is currently under development through NUMARC, in consultation with the NRC staff.

Regardless of the details of these processes, however, it is apparent that the processes must at least satisfy the following general objectives: (1) identify plant equipment falling within the scope of the rule; (2) determine where equipment performance or condition is being acceptably maintained, based upon actual

equipment performance or condition; (3) determine where goals for equipment performance or condition are necessary and establish appropriate goals; (4) identify and implement appropriate equipment performance or condition monitoring to determine whether goals are being met; and (5) ensure corrective action is taken where equipment performance or condition goals are not met or where the effectiveness of maintenance is otherwise no longer demonstrated. Implicit in these processes, of course, is the consideration of whether equipment is necessary to ensure a required function.

In short, while the maintenance rule is nonprescriptive with regard to maintenance activities per se -- such as work control processes and procedures -- it implicitly requires that processes be established and implemented that will result in the systematic review of the performance or condition of all plant equipment within the scope of the rule and corrective action, where necessary, in order to restore equipment performance or condition to an acceptable level.

#### Implementation of the Maintenance and License Renewal Rules -- A Win-Win Opportunity

From the preceding overviews of both the license renewal and maintenance rules, it should be apparent that, in addition to their similarity of purpose -- the management of age-related degradation -- they share, at a conceptual level, many common elements with regard to implementation. Additionally, the scope of equipment covered by each rule is quite similar.

Indeed, in view of the similarity of activities directed towards license renewal and maintenance, I would submit that it is somewhat unfortunate that terms such as "aging", "age-related degradation", and "current licensing basis" have become quintessential to the vocabulary of license renewal, but have been used only peripherally in the context of implementing the maintenance rule. Instead, discussions involving the maintenance rule tend to revolve around terms drawn directly from the rule itself, such as "performance", "condition", "goals" or "unacceptable degradation".

In fact, I would submit that the adoption and use of different jargon in the license renewal and maintenance rule contexts, particularly for describing concepts which are analogous, if not identical, has contributed to the perception that effective maintenance and license renewal are distinct, and perhaps distant, objectives. This, in turn, has tended to obscure what I see as a real "win-win" opportunity for licensees to approach the implementation of the maintenance rule in a manner that will accomplish much of what is required to support an application for

license renewal, and accomplishing this at the same time and largely with the same resources.

The key to seizing this win-win opportunity, in my view, is to take advantage of the considerable flexibility afforded in the maintenance rule -- and, from what I have seen, the implementing guidance as well -- and to adapt your activities in implementing the maintenance rule to be consistent with the more prescriptive and rigorous procedural and technical requirements of the license renewal rule.

This is not to say that your approach to implementing the maintenance rule should necessarily be broadened to encompass all of the requirements of the license renewal rule -- although, this is certainly one option. Instead, the extent to which a licensee seeks to satisfy the additional requirements of the license renewal rule as the licensee moves forward with implementation of the maintenance rule is, in my view, a matter of licensee discretion. In any case, I would submit that your objective -- as well as ours -- should be to maximize the credit that can be taken for the activities that are undertaken in implementing the maintenance rule if and when a licensee should decide to pursue license renewal.

In this regard, it currently appears that implementation of the maintenance rule will be well underway for all licensees before any but perhaps the lead application for license renewal will be tendered. Further, it appears that while the initial regulatory guidance for license renewal is available, completion of the guidance to implement the maintenance rule will occur well before the final license renewal regulatory guidance is completed -- the latter being developed in connection with the reviews of the lead applications for license renewal. This chronology would seem to suggest, at least on the surface, that one might take a serial approach to implementing these two rules -- an approach whereby a licensee would first focus on compliance with the maintenance rule and then, at some later point, upon completion of the final implementing guidance for license renewal or following a decision to pursue license renewal, adapt the relevant outputs that flow from implementation of the maintenance rule to support a license renewal application.

A serial approach will eventually get the job done; it will not, however, achieve the efficiencies and the advantages that I believe can be achieved through a parallel, complementary approach to implementation of the license renewal and maintenance rules.

Let me expand upon the particular aspects of the license renewal and maintenance rules which I believe argue in favor of such an approach.

First, because of the great similarity in the definitions of the scope of equipment of interest in each of the two rules, I believe that a single scoping review could be conducted to satisfy both the explicit requirements of the license renewal rule for such a review, as well as the implicit requirement to do so in implementing the maintenance rule. The documented results of the scoping review could be used for implementation of the maintenance rule and later referenced or included in a license renewal application.

Second, the license renewal rule explicitly requires that structures and components necessary for -- or whose failures could prevent -- required functions, be identified. While the maintenance rule does not explicitly require this, it would seem essential to develop this information in order to establish goals or to ascertain conformity with goals, as required under paragraph a(1) of the maintenance rule, or to judge whether maintenance has been demonstrated effective under paragraph a(2) of the rule. Thus, in implementing the maintenance rule, licensees would be well advised to take the extra step to develop, formally document, and utilize a uniform methodology for determining equipment necessary for required functions, as well as establishing a list of such equipment, for reference in implementing the maintenance rule and later adoption in a license renewal application.

Third, in developing equipment performance or condition goals, monitoring, and preventive maintenance activities under the maintenance rule, licensees should systematically consider the CLB and formally document the relationship of these items to the CLB. Further, documented bases for these activities could relate them to relevant aging mechanisms. Assessment of aging mechanisms not addressed through these activities could be performed and documented, or flagged as an item to be addressed at some later time.

As I briefly noted earlier, an important aspect of the screening and assessment processes required by the license renewal rule is the burden of proof it places on licensees to demonstrate that the age-related degradation unique to license renewal is either addressed through an existing or newly-developed effective program, or that such a program is unnecessary. Almost certainly, if a licensee identifies age-related degradation mechanisms as a part of implementation of the maintenance rule and subsequently monitors and, if necessary, improves the effectiveness of its maintenance activities to control this degradation, that licensee will be in a much stronger position to demonstrate the effectiveness of aging management at the time of application for license renewal. This could go a long way toward alleviating fears that some in the industry have voiced about the predictability of license renewal.



Fourth and finally, for equipment identified during implementation of the maintenance rule as subject to periodic replacement, a record could be established providing replacement frequencies, along with technical bases, for future reference in a license renewal application.

The foregoing are but a few examples of general areas in which your and our approach to implementation of the maintenance rule can be undertaken in a manner which will provide outputs which can be readily adopted to support a license renewal application. Licensees who wish to pursue such an approach would certainly want to monitor the continued development of technical guidance for the license renewal rule, and adjust their maintenance activities accordingly. In this regard, while I recognize that the technical guidance for license renewal is not yet final, I would submit that completion of all of the detailed technical guidance for license renewal is not a necessary prerequisite to achieving many of the efficiencies that would arise from a parallel approach. Further, since, under a parallel approach, the same licensee resources expended for implementation of the maintenance rule would also produce products that can be used in support of license renewal, the fact that a decision to seek license renewal has not been taken should not, from the standpoint of resource utilization, be a significant consideration.

As I stated earlier, the objective should be an approach which will maximize the extent to which relevant activities undertaken in implementing the maintenance rule can later be used to support license renewal.

Lest I leave anybody with the wrong impression, I cannot at this time state that compliance with the maintenance rule will, by itself, be sufficient to support an application for license renewal. The substantial additional requirements of Part 54 have been carefully developed, based, in part, upon our experience with operating plants and the results of our aging research program, both of which suggest that there are a number of significant technical issues that pose unique concerns for the period of extended operation contemplated under a renewed license. These issues will have to be addressed as we prepare for and process actual license renewal applications. As we gain experience in implementing Part 54 and as we resolve the many technical issues that now confront us, I am confident that even greater efficiencies in the areas of maintenance and license renewal will be possible through the type of parallel approach I have outlined.

While compliance with the maintenance rule will not, alone, satisfy the requirements for license renewal, the approach that I have outlined can serve to identify precisely where additional

attention will be required for license renewal. Among other things, licensees can use this information to assess the technical feasibility and resource requirements for renewing the license of a particular facility.

#### Conclusion

In conclusion, based upon the conceptually common elements and objectives of the maintenance and license renewal rules, I believe that implementation of the maintenance rule presents a "win-win" opportunity for licensees to lay a substantial portion of the groundwork for possible license renewal applications, thereby minimizing duplication of effort -- both for you and for us. The key to this approach is to take advantage of the considerable flexibility afforded by the maintenance rule and adapt those activities undertaken in implementing the maintenance rule with an eye toward the more prescriptive license renewal framework. While implementation of the maintenance rule will not, alone, satisfy all of the requirements for license renewal, this approach can be used to identify where additional effort is warranted and assist licensees in evaluating the viability of license renewal for a particular facility.