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Fair, Firm, and Committed: NRC Regulation
Challenge and Opportunity
by
Dr. Shirley Ann Jackson, Chairman
U.S. Nuclear Regulatory Commission
at the
Nuclear Energy Assembly
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Introduction

Good morning, ladies and gentlemen. It is a pleasure to have this opportunity to address the 1998 annual meeting of the Nuclear Energy Institute (NEI). I am reminded each time I appear before you that it was this assembly, in 1995, that marked my first speaking engagement as a member of the Nuclear Regulatory Commission (NRC). As I now approach my third anniversary as Chairman of the NRC, this assembly provides the sixty-fourth occasion for me to discuss important issues affecting the nuclear industry in a public setting.

These are interesting times -- times of change, whether we are considering electric utility industry restructuring or global climate change. The changes are causing many thoughtful individuals, from electricity producers to policy-makers, to reconsider the nuclear power option and its future. Nuclear power is an important technology and one which is, and can be, safely used. But, it is a complex technology, which is very specifically regulated. Therefore, it is natural to ask -- where is the regulator in all of this?

I will address this question within the context of some specific issues. As I discuss them, I will do so against the backdrop of partnership -- or, what is an appropriate and productive approach for the NRC and the industries it regulates, especially the nuclear power industry.

In my discussion I will try to highlight where partnership makes sense, can work, is essential -- of course, in a manner appropriate to the regulator and the regulated.

Today, I will use this opportunity to address three areas. First, specifically, I would like to address the current status of NRC actions with respect to license renewal. Second, I will speak in broader terms about an ongoing area of debate between the NRC and the regulated industry. Specifically, I would like to answer the following question, posed frequently and in various forms by the nuclear power industry: "Given that the safety performance and reliability of U.S. nuclear power plants continue to improve, why is there not a corresponding decrease in the level of NRC regulation?" Third, I will discuss my vision of what we should hope to accomplish in the year ahead.

Before I begin, let me apologize for not being present in person last month at the Regulatory Information Conference. I know that viewing a video-tape of the NRC Chairman speaking--no matter how riveting my delivery and subject matter--is not the preferred way to begin such a conference. On the other hand, I felt it was important for me to address the conference, even if it had to be in that format. I have received some feedback on the conference--both from the NRC staff and from members of industry. One person commented that the "attitude" at this year's conference was "healthy"--that the interaction appeared to be beneficial, with avid listening from all sides. I appreciate that assessment, because it reinforces my own evaluation of how hard the NRC staff has worked in the past year.

But let me give you some more specific feedback--from a compilation of several "sources"--who, once again, will remain anonymous. Their conclusions, in summary, were as follows:

- (1) To Chairman Jackson: The video-taping was a bit boring--it did not "come across" as effectively as having you there in person!
- (2) To Commissioner Dicus: Great speech--but we would like to hear from you across a broader spectrum of topics!
- (3) To Commissioner Diaz: Your stories were enjoyable--but we want to see risk-informed regulation take a more concrete form (like getting those risk-informed regulatory guides on in-service inspection)!
- (4) To Commissioner McGaffigan: Your speech was short--but we appreciated very much the extended time to interact with you on questions and answers!
- (5) To Corbin McNeil: There is NO WAY that license renewal can be done in 6 months!

To demonstrate that I have learned from this feedback to all the individuals named, I have taken the following action in preparing for my speech today (and you may applaud for each item as you see fit):

- (1) No video-tape--I showed up in person.
- (2) I intend to cover a broad range of topics in my direct remarks and in response to questions.
- (3) The risk-informed regulatory guides on in-service inspection are due to the Commission this month, and we will be acting on them expeditiously! I will have more to say about risk-informed regulation a little later.
- (4) I am going to cut this speech shorter than usual, in order to take your questions on whatever topics you desire. And finally,
- (5) Let me register my agreement with the aforementioned feedback to Corbin McNeil--while I have pushed and continue to push relentlessly for streamlining the license renewal process in a responsible manner, six months is not a realistic time-frame. We can, however, shorten the process.

License Renewal

Having said that, let me make a few points to ensure that you are all up to date on the status of license renewal. Although you are all very familiar with the history of this process, I want to reiterate some of the background, to ensure that industry participation is given appropriate credit. As you are aware, the NRC issued 10 CFR Part 54 in 1991, to establish the technical and procedural requirements for renewal of operating licenses. Based on initial experience in implementing this rule, and with important feedback from industry on the need to modify the rule, the Commission amended the rule in 1995.

My point of emphasis here is that, as I have come to realize, industry feedback on the License Renewal Rule was instrumental in ensuring that a rule change actually was enacted, rather than a simple expansion or clarification of existing guidance documents, as the NRC staff was proposing at that time. In my view, this is an important distinction, and a valuable industry contribution.

The revised rule limited the scope of the license renewal review to time-limited aging analyses, and to aging management of long-lived passive structures, systems, and components. This was the first key step in ensuring that a more stable and predictable regulatory process for license renewal could be established.

A second key step entailed the NRC staff review of NEI 95-10, entitled, "Industry Guideline for Implementing the Requirements of 10 CFR Part 54 - The License Renewal Rule." In August 1996, the staff published a draft regulatory guide for license renewal, proposing to endorse the NEI document as an acceptable method for implementing the license renewal rule. Now I will tell you what you already know. The NRC staff has not, to this point, endorsed NEI 95-10. However, follow-on actions continue in this area. The staff, through its plant-specific and owners' group reviews, is continuing to gain experience with implementation issues, and continues to interact with the industry through NEI.

Even if NEI 95-10 has not been endorsed, efforts to date illustrate the importance of industry placing a "strawman" on the table to challenge us and to galvanize thought. The metric, however, cannot be that we accept -- lock, stock and barrel -- all industry proposals, but we must interact and work with you and other stakeholders in good faith, in an open process.

Finally, the NRC environmental regulation was amended in 1996, to enhance our environmental review process for license renewal. This revision streamlined the environmental review process

by having a large number of environmental issues addressed in a Generic Environmental Impact Statement, thereby eliminating the need for such issues to be addressed individually by each license renewal applicant.

As you all know, last month Baltimore Gas and Electric Company submitted to the NRC the license renewal application for their Calvert Cliffs plant. Additionally, the Duke Power Company has informed the Commission that it intends to submit an application for the Oconee units in July of this year. The Southern Nuclear Operating Company recently announced plans to consider license renewal for its Hatch units. And the Commission has taken note of recent correspondence by a significant number of Chief Nuclear Operators (from Virginia Power, Northern States Power, etc.) explaining their plans and tentative schedules for license renewal applications.

Baltimore Gas & Electric Company has taken an important first formal step toward license renewal. This means that, within the constraints of an adjudicatory process, which I will discuss in more detail in a few minutes -- a process that must be fair to all stakeholders and focused on the technical merits as laid out in 10 CFR Parts 54 and 51 -- the industry, in the specific form of Baltimore Gas & Electric Company, and the NRC must work diligently, efficiently, and, again, in good faith to make license renewal a reality. As far as the NRC staff review is concerned, it must be focused, well-organized, and as timely as the complexity of the issues allows. On the industry/licensee side, responses should be as timely as possible, complete and to the point.

As I stated at the Regulatory Information Conference, the NRC is diligently working to ensure that a predictable license renewal path exists, fair to all parties involved, and resting on the technical merits of the applications.

To these ends, the following actions have been taken:

- (1) I have tasked the Executive Council of the NRC (comprised of the Executive Director for Operations, the Chief Financial Officer, and the Chief Information Officer) to ensure that the implementation of license renewal is a unified and coherent process. These senior managers will focus on three areas: oversight, coordination, and strategic implementation.
- (2) The NRC Chief Financial Officer and Chief Information Officer have been tasked with establishing a process for efficiently shifting or refocusing resources, as needed, to ensure a timely license renewal review.
- (3) I have reminded the Executive Council to ensure that generic policy matters warranting Commission attention are promptly identified and communicated to the Commission. A license renewal steering committee was established to monitor progress and review issues related to implementation of this program. The steering committee is comprised of senior NRC managers who represent the principal functions associated with processing license renewal applications.
- (4) The Commission has before it, and is actively considering, measures identified by our Office of the General Counsel (O.C.) which, if implemented, would streamline the hearing process for license renewal. These measures include issuing a policy statement clearly delineating Commission expectations with regard to license renewal; establishing an efficient and reliable adjudicatory schedule--imposed by order, as necessary and appropriate--while ensuring a fair resolution of contested issues; timely surfacing of any open generic policy issues for Commission decision; taking advantage of lessons learned and applied in Federal Court proceedings, and effective integration of the review of technical issues into the adjudicatory process.

Let me expand on this final area -- that is, the adjudicatory process. This Commission has been keenly interested in the impact of the Atomic Safety and Licensing Board Panel review of licensing proceedings. Last year, the Commission reviewed information related to the timeliness of case closeout. For cases closed during Fiscal Years 1991 through 1997, 40 percent were on the docket less than six months; and, a total of 66 percent of the cases were on the docket less than a year.

Of course, I know that most of you are thinking, "Yes, but what about the exceptions to this

performance?” Let me discuss briefly the Louisiana Energy Services (LES) case, which was recently withdrawn. This application was the first of its kind, and involved complex circumstances. However, notwithstanding its uniqueness and complexity, the Chief Administrative Judge recently reviewed the delays of the Licensing Board in this case, and concluded that procedural improvements could be made. All licensing boards have been directed: (1) to refuse to accept unexamined material into the record solely on the representation of the parties; and (2) to issue all final decisions, absent extraordinary circumstances, within 60 days after receipt of the final post-hearing brief.

The Commission will continue to be involved in adjudicatory matters. Even more germane to this discussion, the Commission intends to address more explicitly its expectations for the adjudicatory proceedings related to license renewal.

I reiterate, then, that the Commission is committed to ensuring a fair, effective, and efficient process for license renewal. We understand and appreciate the industry role in developing and refining the License Renewal Rule and guidance documents. We recognize that NEI continues to sponsor various industry initiatives for license renewal, and has established an industry working group to address license renewal issues. We also are aware that differences continue to exist between the NRC staff and the nuclear power industry on how Part 54 should be implemented. I look forward to ensuring that the stage is set for thorough, yet timely, license renewal reviews.

Industry Safety Performance and NRC Regulatory Oversight

My next area of focus today relates to a question that continues to recur in the ongoing dialogue between the NRC and the industry. The question takes various forms, but in essence it comes down to the following: “Given that U.S. nuclear power plant safety performance and reliability have continued to improve, why has there not been a corresponding decrease in the level of NRC regulation?”

When posed with a question of this sort, I often am reminded of a quote from the philosopher Protagoras, who, around 425 B.C., was asked by his followers, “Do you believe in the Greek gods?” His reply was a blend of ambiguity and irritation: “The question is complex,” Protagoras said, “and life is short.”

Nevertheless, I will endeavor not to shy away from the question at hand. First of all, let me give you my perspective on the underlying question: “Is industry performance, in fact, improving?” The indicators monitored by the industry show a substantial reduction in safety-significant operational events since 1985. The number of initiating events resulting in scrams has declined significantly over the past ten years, and this is reflected in fewer and less complicated plant transients--safety system actuations and significant events.

However, as a safety regulator, we are interested in the root causes that underlie these operational events. In examining the data, we continue to find that equipment problems persist, as evidenced by the percentage of scrams caused by equipment failure (which remains the leading cause of all scrams) and the lack of sustained improvement in safety system failures and forced outage rate. While the average unit availability has improved considerably over the past decade, this improvement has not been due to fewer forced outage hours, but to significant reductions in scheduled outage hours--reductions caused, in turn, by longer fuel cycles and shorter refueling outages.

This overall picture has caused the Commission to consider how NRC programs, including regulations, reactor oversight, and enforcement, might best be focused to address equipment failure--and in particular, maintenance-related equipment failure--as part of reactor licensee performance. A key component of this NRC effort has been the Maintenance Rule, with its risk-informed, performance-based emphasis on ensuring the availability and reliability of key structures, systems, and components. To date, approximately three-fourths of power reactor licensees have been inspected under this rule. Based on insights from these inspections, the Commission has directed the NRC staff to propose a modification of the rule, to clarify that the rule applies to shutdown operations, and to ensure that licensees assess the safety impact of all out-of service equipment when performing maintenance--and in particular, online maintenance. We believe that the continued implementation of this rule--together with industry efforts to collect and use associated equipment reliability and availability data--should produce a significant benefit in precluding risk-significant or unsafe plant equipment configurations, and in reducing the number of safety system failures and forced shutdowns.

Given that context, let me return to the initial question: "If overall performance is improving, why is the level of NRC regulation not decreasing?" The truth is that there has been an overall reduction, in several aspects. From 1990 to 1997, the average number of inspection hours per plant has dropped, from approximately 3100 hours per plant to approximately 2500 hours per plant. In addition, due to improvements in the inspection resource planning process, we have sharpened the gradient of inspection hours per plant in relation to variations in plant performance.

For the top-performing plants, we have pared away the number of hours devoted to NRC inspection and enforcement. As you know, the NRC has a "core inspection program" that reflects the minimum amount of oversight necessary for any plant, in our judgment, in order to detect declines in performance. We are continuing to refine that definition of the "core inspection program," and the NRC Headquarters staff has grown more disciplined in policing regional performance in this area.

On the other end of the spectrum, however, poor-performing plants continue to exhibit performance that warrants elevated levels of NRC attention. In addition, for a number of these plants, the root causes of current performance problems are similar to those that existed in the past, indicating a lack of enduring effectiveness in the associated corrective actions. As a result, the NRC inspection effort has been skewed increasingly toward those facilities.

Another insight into this "performance vs. regulatory oversight" debate is gained by examining the NRC emphasis, over the last several years, on design basis issues. Since I have already addressed this area in numerous speeches and dialogues, I do not intend to review it in detail today. However, I believe we can learn something by examining the early development of this NRC focus area. When the NRC concerns related to maintaining the licensing and design bases first were identified, the natural response of the Commission was to ask whether this problem was limited to a few facilities or more widespread throughout the industry. In the inspections that followed, I believe it is safe to say that the overall level of Commission emphasis would have been quite different if, in fact, the NRC staff had found that licensees, overall, were maintaining their design bases, keeping their Final Safety Analysis Reports (FSARs) updated as required, and, in short, providing confidence that the assumptions underlying their design basis accident analyses remained valid. What we found, however, was quite different. While certain plants certainly were outliers, the industry overall clearly had come to under-emphasize this area. In related actions that have taken place since that time--

including the efforts to revise 10 CFR 50.59 and associated NRC guidance--the Commission has sought to provide both the tools and the regulatory oversight necessary to correct this problem. To do otherwise, in my view, would have been irresponsible. By all appearances, these efforts have paid off, and the number of design basis issues identified appears to be leveling out.

Critics of the NRC have stated that the agency operates from a continually rising set of expectations for industry performance. It is true that, in the past several years, we have been ambitious in refining the NRC regulatory approach--in keeping with the focus on our primary health and safety mission, the desire to improve our effectiveness as regulators, and the need to position the agency for the future. It is also true that, as I have discussed, we have discovered certain areas requiring additional emphasis. However, the overarching theme of many of our changes has been to improve the efficiency and effectiveness of NRC regulatory functions: to develop more objective performance criteria, to improve the scrutability and predictability of our processes for assessing licensee performance, to become more risk-informed in all aspects of our regulatory oversight, and to become more cost-effective in our planning and budgeting processes. In the view of the Commission, while these efforts certainly are intended to enhance public health and safety, they have not resulted in arbitrary increases in our expectations for licensee performance. In fact, we believe strongly that the changes we have made and are making will prove, in the long run, to improve the nuclear regulatory environment for all our stakeholders.

You can help the NRC and help yourselves by ensuring that important issues/areas related to maintenance or plant design basis are not under-emphasized, i.e., that problems are properly assessed and are corrected promptly -- commensurate with their safety/risk significance; that design basis issues are not summarily dismissed, but, similarly, are evaluated relative to safety/risk significance and are addressed. This includes having your FSARs correct and up-to-date. This is partnership of a different kind, but one that is at the heart of the regulator-licensee relationship.

Vision

As a final topic, I would like to discuss with you my vision for progress in the coming year. I will comment briefly on six areas that are "in my spotlight," so to speak--areas that I will give a heightened focus. These are not the only areas on my "tracking list," but I believe they are the issues most relevant for this audience.

First, I will continue to focus on affirming the fundamental health and safety mission of the NRC. Safe operation will be judged by a variety of factors, including the performance of each plant in relation to key nuclear performance indicators. As we carry out our mission, make our judgements, do our work, we have a responsibility to be risk-informed, performance-based, responsive, fair and timely. But the NRC is a regulatory agency, not a fee-for-service consultant. In the end, we are a Federal regulatory agency with a statutory mission, governed by a number of laws -- laws which can be changed to be sure -- but we are creatures of the law. As a result, a fundamental tenet of the NRC mission is that *reasonable assurance of adequate protection is presumptively assured by compliance with NRC requirements*. Given that context, we must continue to hold our licensees accountable for their performance in complying with applicable regulations and license conditions. This necessarily implies the use of the right regulatory tools, especially ones which will allow us to become less intrusive, with less resource-intensive oversight, but places the accountability where it belongs--on you. We

should not have to cajole--it is an inefficient use of your resources, as well as ours, to do so. Licensees should assess problems, become proactive in addressing them, and commit to solutions and results. We should give you a reasonable amount of time to do this, but once committed, we should hold you to it.

Second, regarding license renewal, which I have already covered in some detail: as the year progresses, I will remain committed to ensuring a fair, effective, and efficient license renewal process.

Third, I am determined to finalize licensing and design basis issues. I look forward to an improved rule on 10 CFR 50.59, "Changes, tests, and experiments." I will continue to push for resolution in ensuring that the NRC processes that govern how licensees evaluate plant changes have the appropriate "scope," and are consistent and clear.

In this regard, the recent NEI letter requesting a Commission meeting to discuss these issues is commendable--although, quite frankly, somewhat overdue--and I support both the Commission meeting and an open airing of the issues. As I have stated before, I feel that both the NRC and the industry have achieved some significant momentum in the last year, and I intend to sustain that inertia motion to ensure a sound and timely resolution of these issues.

My fourth area of emphasis is one that I addressed two years ago to this assembly. In that speech, I dedicated a significant amount of time in my remarks commenting on what I termed "a potentially revolutionary change in the industry"--the deregulation of the electric utility industry. That change is no longer "potential." As such, I have endeavored over the last two years to develop a coherent strategy for ensuring that decommissioning funding assurance is maintained, and that cost competition and issues like grid reliability do not impact negatively the safety of power reactor facilities. The NRC staff is evaluating the public comments on the Proposed Rule on decommissioning funding, and we expect to issue the final rule by June 1998.

Fifth, as I indicated in the introduction, I will continue to push for a framework of rules and regulatory guidance for risk-informed decision-making in such areas as technical specifications, in-service testing, in-service inspection, and graded quality assurance. From the beginning of my tenure at the NRC, I have pushed for the increased incorporation of risk assessment into all areas of regulation, seeking to focus the staff on the development and completion of pilot initiatives in the areas mentioned, as well as the development of standard review plans and regulatory guides--both generic and in each specific area. I understand your frustration in desiring to see measured progress on this regulatory guidance, and I am committed to doing my part in ensuring its issuance. However, I believe it is important to say that, if we truly want to move to risk-informed regulation, we must take the risk, which means taking the plunge to re-work the overall regulatory paradigm, not just tinker with it. I have advanced proposals to bring this about. Some have been embraced, some not. I have, at times, been surprised of the timidity of some in the industry in their willingness to move to a new paradigm, but, if you believe in the future of nuclear power, and I do, we must be willing to make the commitment to this path.

The sixth area is one that you have heard about in many of my speeches. I assure you that the rumor is not true that the mantra, "Performance Is As Performance Does," has been chiseled into the marble over the One White Flint North entranceway. However, I am committed to

ensuring that the improvements made so far in evaluating reactor licensee performance are refined. The process has become more predictable, scrutable, credible, and consistent--but I know we are "not there yet." The Commission has continued to deliberate on the merits of the Integrated Reactor Assessment Process, following the Commission meeting in March. I believe that the process holds promise. I continue to hear complaints regarding SALP scores, write-ups, and conclusions that are incommensurate with performance. I also hear, from some licensees, the opposite. The Commission has expressed its intent to remove duplication from the assessment process and to improve its overall efficiency. You must hold us to that intent. We look forward to your comments (once we officially request them, in this case).

There is a seventh area, which I will not cover in detail, because it is basically on track. This relates to the final design approval and design certification of the third advanced reactor design, the Westinghouse AP600. We will continue to ensure that this process remains on track.

CONCLUSION

In conclusion, I would like to congratulate you on a year of progress--difficult progress, to be sure, but progress nonetheless. I would like to reiterate my appreciation for the degree to which the nuclear power industry has been involved in the license renewal process, and I encourage you to continue to work productively with the NRC on the issues I have outlined--as well as on the new issues that arise. Working productively means -- look me in the eye and tell me what you think, i.e., lay your prospects on the table. The Commission is committed to improving the effectiveness and efficiency of our processes, while maintaining our core responsibilities and ensuring the accomplishment of the NRC health and safety mission. In an era characterized by high expectations and tightening budgets, I have every confidence that both the NRC and the nuclear power industry can continue to set high performance goals, develop the strategies necessary to meet those goals, and implement the strategies in a way that shows measurable progress. Thank you for your attention.