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#### **1994 - THE STATE OF THE NUCLEAR INDUSTRY**

Good morning ladies and gentlemen. It is a pleasure to be here today to talk about the state of the nuclear industry and about some NRC programs that may be of interest. In the three years I have been an observer, the nuclear industry has faced numerous challenges. These issues have been molding and reshaping the nuclear industry as we have come to know it today, and are fundamental in setting the tone for how both you and we will be confronting new, unforeseen challenges in the years to come.

This morning, I will focus on four issues that illustrate the course that the nuclear industry and the NRC have taken over the last three years: (1) the certification of standardized designs and streamlining of the licensing process; (2) license renewal for aging reactors; (3) the use, transportation, and disposal of nuclear material; and (4) the achievement of greater openness of NRC's own processes. Of these issues, all but the last involve making decisions in the present which will not have significant impact until some time in the future. In each of these areas, I think the Commission has made considerable progress. I will briefly go over the programs we have in place to tackle these issues, then discuss whichever of them may be of greatest interest to you afterwards.

#### **STANDARDIZED REACTOR DESIGNS**

With respect to our program aimed at future standard reactor designs, significant progress has been made. We are pleased that after several years of combined effort by the vendors and by the NRC, the staff has issued the final design approvals for both

evolutionary standard reactor designs -- the General Electric Advanced Boiling Water Reactor and the ABB-Combustion Engineering System 80+. We expect to complete rulemaking certifications of these designs in the next two years. We also have under review design applications for two additional novel light water reactor designs which employ passive safety features and modular construction: Westinghouse's AP-600 and GE's Simplified Boiling Water Reactor. We are providing adequate resources to develop the independent information and analyses necessary to support our safety decisions on these new and unique designs. However, recent delays on the part of the vendors in implementing their own test programs for the two passive designs will certainly affect the initial certification schedules.

#### **LICENSE RENEWAL**

We continue our focus on ensuring the safe operation of existing operating reactors, both now and in the future. We are putting in place the license renewal mechanisms to help the nation reap the full benefit of existing nuclear plants. At present nuclear power generates about 22 percent of domestic electricity -- more than double the contribution from nuclear power in 1975.

After one off-target foray, the staff has prepared a straightforward license renewal rule which has been issued for public comment. This proposed rule focuses on the practices for managing potential age-related challenges rather than on the underlying aging processes. These practices will depend heavily on today's plant maintenance programs and on the maintenance rule which comes into force in 1996.

The Babcock and Wilcox, Westinghouse, and Boiling Water Reactor Owners Groups have all discussed with us the generic license renewal programs for their designed facilities. Under these programs the owners groups would submit reports on license renewal topics covering systems and components common to their reactors. We are also beginning to have discussions with a utility -- Baltimore Gas and Electric Company -- regarding license renewal programs for their plants.

#### **THE USE, TRANSPORTATION AND DISPOSAL OF NUCLEAR MATERIAL**

Overall, we see many areas where the NRC's regulation of the materials area has improved; however, many of the remaining problems and challenges will require significant effort to resolve. I am already concerned with the burden and possible safety issues which may arise because of the hardship from fee recovery placed on materials licensees. This will continue to be a tough area - in some places we can improve our management at current resource levels and in some areas we hope to cut back.

But it must also be recognized that resolution of some of these issues will require additional resources.

One area where improvement has been made is in the NRC's management of our interface with the agreement states. The Agreement State program covers approximately two-thirds of the nuclear materials licensees in the U.S.

We have developed a policy statement on agreement state adequacy and compatibility with NRC regulatory programs. In consultation with the Agreement States we have also implemented a pilot program incorporating improved data collection and the use of common performance indicators for reviewing Agreement State programs. These data will enable NRC and Agreement States' management to take a more systematic and integrated approach to evaluating the strengths and weaknesses of the respective material licensing and inspection programs.

For the NRC's medical regulatory program we have implemented a medical management plan to guide our licensing, inspections, and rulemaking improvements. Our objective is to ensure that the patients receive adequate radiation protection during medical procedures without undue interference by us in the practice of medicine. More broadly, we have arranged for the Institute of Medicine of the National Academy of Sciences to review the overall scope of our medical use program. The final IOM report is expected in 1996.

In other materials areas we have entered into a Statement of Understanding with DOE on implementing the Energy Policy Act provisions for the regulation of gaseous diffusion uranium enrichment plants. In addition we have promulgated the regulations required by the Energy Policy Act for the certification of these facilities.

In the area of nuclear waste disposal the NRC is providing the regulatory framework that will assist the States in regulating disposal of low-level radioactive waste. NRC has worked with the States and Compacts toward further development of low-level waste disposal facilities. NRC's role was one of issuing guidance on a variety of topics, including methods to assess performance at waste disposal facilities. Although States are still having difficulty siting and licensing low-level waste facilities, measurable progress in Texas and in the Central and Appalachian Compacts have been made in the last year. I remain quite optimistic on the eventual solution to the low-level waste problem.

NRC is also responsible for licensing a high-level waste geologic repository. We have strengthened the links with affected State and Local government representatives, while

laboring mightily to understand the implications of DOE's new program approach.

### **OPENNESS OF NRC PROCESSES**

The first responsibility of the NRC, as an agency that does the public's business and that protects the public's health and safety, is to ensure integrity, candor and openness in all our activities. I feel we have made real progress in the past three years in reshaping the organization's culture, and this has proven beneficial in improved relationships with the public interest community. We have also made the point of soliciting the participation of all those with special concerns, in resolving such issues as procedures for approving standardized reactor designs and the decommissioning of facilities. We have benefited and continue to benefit from their contribution to our processes and consider these public interest groups as valued participants in doing the public's business.

### **THE NRC's OBLIGATIONS**

As significant as these accomplishments have been, I believe that the future offers even greater opportunities and challenges for the nuclear industry and the regulator. We recognize that we are moving toward a new situation in many ways different from the past in which the NRC has had to operate. It is imperative that we maintain a strong regulatory base from which to work. The potential catastrophic results of an ineffective regulator are only too evident when you consider the former Soviet Union and Eastern Europe.

I foresee that three areas will provide the greatest challenge to the NRC over the next several years. The first involves the administration of regulatory activities within the materials area and the profound effect these activities will have on material licensees. Since I have already touched on some of the major issues and challenges facing the materials area, I will focus my comments on the other two, which relate to the nuclear power industry.

Second, the NRC must address the effect of regulatory changes since the accident at Three Mile Island over 15-years ago. In most instances these changes have played a substantial role in meeting the NRC's safety mission; however, the result has been a regulatory process which mixes risk-based regulations in with compliance requirements in a not completely rational fashion.

Finally, the NRC must ensure that those regulations deemed most significant are appropriately implemented and supported by

an aggressive enforcement process while non-safety significant regulations and license conditions are terminated.

Over the last several years the nuclear utilities have been in a stable economic situation and consequently our regulation has been stable -- but this is changing. On the one hand, we believe that it is imperative to reduce those regulation-associated costs that do not produce improvements in safety, while, on the other hand, we believe it necessary to increase our vigilance and rigorously enforce against the utilities' taking any penny-wise but pound-foolish measures that could threaten public health and safety.

During the last three years the NRC has taken many steps to eliminate unnecessary regulatory requirements. As examples, we have developed a technical specification improvement program; we are examining ways to give licensees more flexibility in plant operation to reduce operating costs while maintaining a comparable level of safety; we have taken steps with the Environmental Protection Agency and the Food and Drug Administration to avoid duplicative or inconsistent regulations.

At the same time, as we eliminate unnecessary regulatory requirements that may undercut safety we are working very hard to sharpen our tools for early warning of declining performance in specific plants.

We have tools at all levels - a revised philosophy of regulation, reduction in non-essential license conditions, a sharpened set of priorities and focus for inspection and other operations, better use of the over-all SALP process, and modification of the enforcement process. All are designed to enhance safety rather than mechanical compliance.

One of the most promising of these tools is **RISK BASED REGULATION**. We are trying to modify our safety approach in order to incorporate risk and safety performance alongside the more traditional deterministic approach to regulation, where it makes sense. We need to ensure that regulations and inspections focus licensees' priorities where they belong -- not on assuring mediocrity but on striving for the highest degree of safety.

The use of risk-based considerations in the NRC regulatory process dates back to the era of the Atomic Energy Commission. The NRC is already relying significantly on PRA techniques--a component of risk based regulation--to assess the safety importance of operating reactor events and in the Design Certification review process for Advance Reactor Designs. Moreover, virtually all commercial reactor licensees in executing their Individual Plant Examinations (IPEs) are performing PRAs in order to identify any severe accident vulnerabilities needing

attention. It is my fullest expectation that licensees will evaluate and correct significant adverse conditions which are identified through their IPEs and related risk assessments. Only in the most significant cases should the need for Commission rulemaking occur.

We currently have underway a number of initiatives to concentrate our efforts where risk is the highest. I will briefly go over these programs and discuss those that interest you most after finishing my formal remarks.

#### **COST BENEFICIAL LICENSING ACTIONS**

One area that has improved nuclear power plant safety and performance and that has also resulted in substantial cost savings is cost beneficial licensing actions. The NRC staff has moved to identify which regulatory requirements are candidates for reduction and has developed an efficient process for reviewing industry proposals. In line with the importance we attach to this program, we have assigned a senior NRC manager the responsibility and the appropriate means for its implementation. The industry has responded with submittals of high quality stand-alone documents, adequate advance communications, and plant-specific requests. Happily, by and large only CBLA requests of immediate benefit have been submitted.

#### **GENERIC AND SPECIFIC LICENSING RULES**

Significant progress has been made in the area of review and approval of both generic and individual licensing amendments. This helps to expedite processing of license amendments that would eliminate unnecessary requirements and to focus NRC efforts on safety - two very significant issues. In addition, I am encouraged by the acceptance of the improved standardized technical specifications. I would like to commend Illinois Power's Clinton Station as an industry leader in this area. I fully expect that plant safety will be the primary benefit from their actions and cost savings a long-term benefit.

#### **OPERATIONAL IMPROVEMENTS**

I have found that the two most significant operational improvements the NRC has made involve the inspection and assessment of nuclear power plant licensees.

First are the Inspection Program Improvements. We have learned from inspections at South Texas, Quad Cities, Salem, and Cooper that we need to be quicker to use our inspection findings to form a full, diagnostic picture of plants before trouble hits. Individual plant inspections appear to be adequate--although even this is under review -- but we need to integrate the results of

the various inspections to obtain an overall picture, before performance problems develop rather than after they have started to affect the performance of the plants. The staff is developing a more rigorous and comprehensive periodic protocol inspection to detect deteriorating licensee performance earlier. This program is being pilot tested at five plants: Point Beach, South Texas, Salem, McGuire and Beaver Valley.

Secondly, we have revised the SALP process to cut through the boilerplate and concentrate on these areas of plant strengths and weaknesses. We now involve NRC senior management directly in the assessment of each nuclear power plant, to provide a critical review of licensee management performance and to lessen our reliance on assessments that were made exclusively, and sometimes with a lack of consistency, at lower levels.

Enforcement Discretion is another tool the NRC utilizes to further improve nuclear plant safety. Enforcement Discretion is a policy which is often misunderstood. In a world of black-and-white rules but gray reality, rigid adherence to enforcement of all regulatory requirements could, in certain circumstances, actually have adverse safety implications. Through enforcement discretion, we recognize special situations in which short-term regulatory relief from certain requirements could actually enhance safety.

Let me point out, however, that the use of sharpened enforcement tools also includes the possibility of significantly higher civil penalties. We are determined to achieve better deterrence, providing incentives for licensees to identify and correct violations themselves. Our aim is to reduce our regulations to the safety-significant core, then enforce these to the hilt. This should help reduce the frequency of using discretion in the enforcement area as is currently necessary.

### **THE INDUSTRY'S OBLIGATIONS**

I would like to turn now to the nuclear power industry and share some brief observations on the present state of nuclear reactor safety in the United States.

After nearly 2,000 reactor years of experience, the U.S. has learned that sustainable nuclear safety is like a three-legged stool. If all three legs hold up it will remain stable, but if one buckles the stool may topple with catastrophic results.

The first leg is technical excellence and operational safety, which are the prime responsibility of the operators but must be reinforced by tough-minded, independent regulators.

The second leg is a sound economic climate over the long pull. A nuclear program must be sufficiently profitable to underwrite first-rate training programs and sustained investment in maintenance and equipment.

The third leg is solid organization and management which includes high quality staffing, rigorous training, a strong safety culture, realistic goals and responsible leadership. Integral to this third leg must be a quality-conscious environment in which safety issues can be promptly and effectively identified and resolved without employees being concerned about retribution.

First the good news. The underlying fundamentals in the U.S. are sound and provide a stable base for reactor safety and operations. We clearly have an advanced nuclear safety culture and infrastructure that provide the foundation for adequate safety. Our tools for detecting trends in safety performance are providing good news. We see continuing improvement in overall safety performance as measured by NRC's key performance indicators. For example, significant events are down, scrams are down, and more plants are on our good performers list than any time in the past.

However, we still have plenty to worry about. In spite of good news in general, safety problems can and do develop at particular places and times, usually due to poor management. I continue to be quite concerned at the wide range of performance between the best reactors, the pretty good reactors and the weakest reactors in the U.S.

The problem, therefore, is not that American ingenuity and managerial skills are incapable of excellence in running nuclear power plants; rather, the problem is that there is so great a disparity between the best and the worst performers. When the public sees seven units on the NRC's "watch list," at the same time that there are eight units on the list of good performers, people ask, and reasonably so, why this gap exists. If excellence is achievable at some plants, why are others mired in mediocrity? An industry that depends on public confidence will never succeed in conquering public skepticism about new construction so long as people think that a proposed new plant is as likely to wind up on the watch list as on the list of good performers.

Choose whatever metaphor you like -- a chain of 100 links, a convoy of 100 ships -- but the message remains the same: the weak performance of a few plants, and the inability of many more plants to rise to within at least hailing distance of the best, is a matter of serious concern to the NRC. It should also be of concern to the industry as a whole. Naturally, every nuclear

utility's first priority is its own power plants. I am not suggesting it should be otherwise. But in addition, it behooves each nuclear utility to bear in mind that the performance of every other link in the chain, or every other ship in the convoy, has a direct bearing on its own interests. No one in this room needs to be told what the consequences would be for the nuclear option in the United States if there were to be a major accident at any American plant. I support the nuclear power industry's stated goal of sharing knowledge and resources, but in practice the industry must do more both to press its weaker members to improve and to assist them in doing so. The more that industry can do on its own to put its house in order, solving problems itself rather than waiting for the NRC to act, the less the NRC will have to do in the way of prescriptive measures. Let the industry take the initiative in designating model performers, setting performance standards, and exercising what might be called peer pressure on those utilities that fail to measure up.

There is a large issue on the horizon that I would like to mention and that's retail wheeling. We don't oppose wheeling -- from an economic point of view, retail wheeling may be very good -- but from a safety point of view, we must be sensitive to the unprecedented competitive pressures wheeling could impose on utilities which in turn could lead to significant safety concerns at some nuclear power plants.

We are concerned that management in a number of utilities -- not across the board -- will be tempted to cut corners or reduce those capital investments necessary to maintain equipment in top shape.

For this reason we have been trying to improve our diagnostic tools to give us more lead time for focusing on utilities where we see incipient problems--before technical deterioration takes place.

I am not worried that utilities will become financially unsound, but I am concerned about healthy utilities trying to move preemptively to reduce cost without realizing a net safety benefit.

There are several means by which a utility may choose to address the economic pressures and improve its viability. In many cases utilities have reduced maintenance and operating costs effectively through responsible management actions. These actions have included improved planning, and personnel accountability and productivity. In most cases these steps actually improve safety. However, not all actions being taken meet the test of improvement in the underlying fundamentals of reactor safety and operation. One worrisome example involves measures being taken by some licensees to reduce cost through scheduling preventive and corrective maintenance during power

operations. The staff has found that some licensees are performing more maintenance on-line without assessing the risk consequences. Although this process is technically in compliance with the Technical Specifications, it may decrease safety. We can't let this situation stand.

Lastly, I would like to recognize one of many bright spots: the high standards the industry has set for itself and the tough self assessments that are being performed. I particularly want to commend INPO for its role in performing those assessments, especially the assessments of utility management. INPO has the unique ability to call upon the top senior utility managers in the industry to serve on teams performing management peer reviews. In addition to the contributions these industry managers make to the utility under review, they also bring back lessons for their own utilities, effectively achieving the two-way communication on safety that the industry so badly needs. I encourage the industry and INPO to perform more of these tough management assessments.

This is one of the ways INPO has been important to safety. The NRC and INPO had established an effective professional working relationship based on a mutual goal of assuring safe plant operations. This unique relationship can continue only if INPO eschews the role of industry advocate and lobbyist. That has been NUMARC's role and now NEI's. As representatives of the industry, NEI can provide the advocacy forum which INPO should go to great pains to avoid. NEI as the nuclear representative provides the NRC with a single point of contact on issues that affect the industry as a whole. It is their responsibility, not to us but to the nuclear industry they represent, to raise productive issues and avoid wasteful distractions.

Regardless though of how effective these organizations may prove to be, it remains the bedrock responsibility of each licensee to ensure that conditions that may adversely affect plant operations are brought forward and resolved through direct communication with the regulator. This is the only means by which the nuclear industry and the regulator can assure that the industry's concerns are appropriately resolved.

## **CONCLUSION**

In conclusion, the NRC is committed to meeting its responsibilities for the safety of today's operating reactors and other NRC-licensed activities. We are trying to stay a step ahead of events; by so doing, we have been able to undertake additional responsibilities and invest in those programs that affect the future: streamlining the regulatory process, renewing reactor licenses, certifying standard reactor designs, and regulating waste disposal. We hope to do this in face of

slightly reduced budgets. We will continue to accomplish our mission in a transparent manner that facilitates public understanding of the regulatory process.

In a speech at the NRC's Regulatory Information Conference, Commissioner Rogers talked about the public's perception of safety at nuclear power plants. At the risk of repeating what many of you heard at that conference, I want to impress upon you the importance of that message. The NRC and the industry can only succeed if the regulatory process and its results maintain the confidence of the public and its elected representatives who mandate the regulation. We must realize that public perception of safety or lack of it can be almost as important as the reality of safety. A high visibility failure at a nuclear site -- even one with little nuclear safety significance -- may cause significant damage to the credibility of the entire nuclear industry.