



NRC NEWS

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HISTORY'S LESSONS FOR OUR FUTURE CHALLENGES

by

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Introduction

At this point in the Regulatory Information Conference, I am sure you have heard a dozen speakers tell you how this time last year no one could have imagined the events of September 11th. No rational person would have. While the Commission's response to the events of September 11th were immediate and substantial, we have not allowed ourselves to be swept up by irrational fears. In the short term, we shifted our focus from important ongoing initiatives, like preparing for the review of new plant applications, to ensuring that the existing fleet is secure. Not only did we issue a series of threat advisories, but recently we issued specific orders to reactor licensees to further enhance security.

For the long term, it is obvious that we must remain focused on security issues. However, we must not lose momentum on initiatives that are critical to safety and regulatory effectiveness, such as those associated with enhancing the Reactor Oversight Program, our fire protection standards, and risk-informing our regulations.

Before I address how we will meet this ambitious and challenging agenda, as security has been the Commission's principal concern over the last five months, I want to first share my own views of how we should proceed on security.

Ernest Hemingway once said, "never mistake motion for action." There may be only a subtle difference between motion and action initially, but in the end, they produce different results. Though our motives have always been clear, to maintain public health, safety, and security, our regulatory efforts have not always been as successful as we hoped. I believe it is essential that our security review be conducted in a disciplined and informed manner learning from the lessons of our more significant regulatory hurdles, such as those learned from the Three Mile Island accident.

History as Our Guide

To appreciate how lessons learned from the TMI accident might be applicable to our current situation, let me remind you of some of its details. Occurring almost twenty-three years ago, on the morning of March 28, 1979, the accident quickly led to severe reactor core damage at TMI, Unit 2. Unfolding media coverage of the event over the next few days included reports of radiation releases, experts raising the possibility of a hydrogen explosion, and great uncertainties over emergency planning. As the event wore on, public alarm continued to escalate. Understandably, the American public focused not only on the safety of TMI, but on the safety of the entire fleet of nuclear reactors. Underlying that concern was one question, are these plants safe?

In response, President Jimmy Carter and Congress acted swiftly and demanded full investigations into the accident. The President created a Commission chaired by then Dartmouth College President, John Kemeny to make recommendations about improving nuclear safety. The Kemeny Commission concluded that fundamental changes were necessary in the organization, procedures, practices "and above all -- in the attitudes" of the NRC and the nuclear industry. Congress held numerous hearings and drafted legislation aimed at holding the industry and NRC responsible for the accident and the events surrounding it.

Not until September 11, 2001, would our nation again have that degree of focus and concern about the safety of nuclear power. As with the events of TMI, President George W. Bush and Congress have responded. The President created the Homeland Security Council to evaluate the vulnerabilities of the nation's infrastructure, including nuclear power plants, to determine the most effective use of federal assets to protect these potential targets. Congress for its part has responded by drafting numerous pieces of legislation, holding hearings and sending inquiries to the NRC regarding security.

Obviously the accident at TMI and the events of September 11th, are vastly different. Yet, both events involved accident scenarios that were not considered likely, and consequently neither the federal government, nor the Commission had ready answers to the mounting questions. Just like the events of TMI, the events of September 11th and the continued high threat environment, have placed a tremendous burden on the NRC and industry to demonstrate that nuclear power plants are safe. Because of these similarities, I believe it would be useful to examine some of the lessons learned from the TMI experience.

Lesson 1, Focus on the Big Picture - Safety

In response to the events of September 11th, the NRC is undertaking a comprehensive review of our physical security and safeguards requirements. In conducting this task, we must remember two

important lessons from TMI that demonstrate the need to ensure that regulatory requirements promote safety. The first lesson is to resist the temptation to rapidly address security issues with a new set of burdensome, prescriptive or ineffective requirements. As the Kemeny Commission so clearly stated, such requirements can detract from safety. In 1979, the Kemeny Commission stated that the NRC had a “preoccupation with regulations.”¹ Although it noted that it is the responsibility of the NRC to issue regulations to assure safety, it found that “once regulations become as voluminous and complex as those regulations now in place, they can serve as a negative factor in nuclear safety.”² Indeed, the Kemeny Report described the NRC regulations as “so complex that immense efforts are required by the utility, by its suppliers, and by the NRC to assure that regulations are complied with.” The Report went on to conclude that “it is an absorbing concern with safety that will bring about safety -- not just the meeting of narrowly prescribed and complex regulations.”³

The second important lesson that we have learned from our post-TMI experience is that once a rule is promulgated, even if in hindsight we identify it as too prescriptive, it is an enormous regulatory undertaking to undo it. For example, in 1984 the staff initiated its “marginal-to-safety initiative” and identified a number of requirements that would benefit from a more performance-based, less prescriptive approach. As early as 1986, Appendix J to Part 50, which contains requirements for primary containment leakage testing for water-cooled power reactors, was identified as a potential candidate for change. Yet, the rule modification allowing licensees the option to use a less prescriptive approach, despite extraordinary staff efforts, was not finalized until 1995, nine years later.⁴

Consistent with a more performance-based approach, the Commission, prior to September 11th, was reviewing its security program to determine if a less prescriptive set of requirements could enhance plant security. As part of this effort, the Commission agreed to pilot the Safeguards Performance Assessment, or SPA, program. That program contemplated more frequent force-on-force, exercises, but permitted less direct involvement by the NRC staff in conducting the more frequent exercises.

Irrespective of whether the Commission eventually determines that the SPA program or another security oversight program is appropriate, the Commission cannot lose sight of the lessons learned from TMI. Regulations that are hastily issued can have profound and long-lasting consequences, and as shown in the case of TMI, do not necessarily lead to improvements in safety.

Lesson 2. Communicate and be Understood

Another important lesson that we can learn from TMI is the importance of effective communication. When looking at many of the communication lapses that took place during the TMI event, one of the more disturbing examples occurred on March 30, 1979, two days after the event first began. NRC senior officials, located in Bethesda, recommended that Governor Dick Thornburgh order an immediate evacuation of the area downwind from the TMI facility. They made this recommendation

¹ Report of the President’s Commission On the Accident at Three Mile Island, *The Need for Change: The Legacy of TMI*, (October 30, 1979)(referred to as the “Kemeny Report”), at 9.

² Id.

³ Id.

⁴ Final Rule, “Primary Reactor Containment Leakage Testing for Water-Cooled Power Reactors,” 60 Fed. Reg. 49,495 (September 26, 1995).

without calling the Commissioners whose offices were in Washington, D.C. This recommendation was based on unverified information that later turned out to be incorrect. The Pennsylvania State authorities with more up to date information decided to reject the staff's recommendation and did not order the evacuation at that time. When the Governor called the NRC's Chairman, Joseph Hendrie, to discuss the matter, the Chairman apologized for "the NRC staff error in recommending evacuation." However, by that time, civil defense authorities had announced over the radio that an evacuation might be called.⁵

This was only one of a multitude of communication lapses that occurred during the TMI crisis. I chose this example to illustrate the importance of communication, because it involved several breaks in the communication chain, and it escalated an already extremely tense situation. It involved a breakdown in communication within the NRC, between the NRC and the State of Pennsylvania, and between the NRC and the TMI control room. Because it occurred two days after the initial event, the warning of a possible evacuation caused further questions to be raised about the safety of nearby communities.

The Commission must **never** repeat these mistakes. I am confident that our present emergency response procedures have addressed the TMI communication failures that I have highlighted. However, security issues present different communication concerns because they involve intelligence information that for good reasons must be closely held. Consequently, strict procedures are in place to ensure that only individuals who hold an appropriate clearance, possess secure communications equipment, and who have a "need to know" are permitted to receive the information. Our efforts to respond to the events of September 11th were complicated because generally we have not granted security clearances to our licensees.

To address this issue, the NRC is working with licensees to provide a limited number of clearances at each site to allow access to classified information. This is a major step that should help resolve previous problems in this area. To improve internal NRC communications, the NRC is providing secure telephones to our Resident Inspectors.

Nevertheless, the importance of effective communication should not be understated. As was absolutely clear during the TMI accident, technical expertise is not enough in a crisis situation if the holders of essential information are not appropriately communicating with each other. In fact, as was illustrated, one mistake can cause significant confusion and unnecessary public panic. Therefore, we must continue to take steps to test and address our present communications systems to ensure that we can transmit vital information in this high threat environment.

Lesson 3. Keep the Public Informed

Similarly, effective communication between the NRC and the public is essential. The public's confidence in the security of nuclear facilities depends, in part, on how well the NRC communicates its regulatory actions. In 1979, during the TMI event, the lack of timely and accurate information caused the public to question whether the plant was safe, and whether the NRC and the industry could be trusted. Despite the extensive media coverage of the TMI accident, the Kemeny Commission found that "neither the utility nor the NRC nor the media were sufficiently prepared to serve the public well."⁶

⁵ Kemeny Report at 118-19.

⁶ Id. at 19.

That conclusion was not based on reporters trying to come up with sensational headlines. Instead, the Kemeny Commission concluded that, “a combination of confusion and weakness in the sources of information and a lack of understanding on the part of the media resulted in the public being poorly served.”⁷

The NRC has learned from these lessons and has been seeking out ways to better communicate with the public and the media. In recent years we created massive databases of publicly-available information including our automated electronic document retrieval system, ADAMS, and the NRC Website. Though there have been some significant, inexcusable glitches identified with ADAMS, it is important to note that a principal goal of our information technology efforts has been to enhance the public’s access to information.

Despite recent advances in our ability to communicate with the public, concerns that information in our databases could be used for malicious purposes, caused us to take several steps. We took down our public Website, we refused to make certain documents publicly available and we changed our interactions with the public to ensure that sensitive information was not being disclosed. We have now brought our Website on-line again, although it does not contain the amount of information that it once did. Because information contained in our databases may be of interest to those with malicious intentions, it would be utterly irresponsible for us to ignore the unintended, but potentially significant harm that could result from inappropriate disclosure.

Members of the public are concerned that our restrictions on disclosure are compromising their ability to interact in NRC public meetings and adjudications. These criticisms concern me. Our regulatory process benefits from the valuable insights offered by the public. As the TMI lessons demonstrate, timely and accurate information to the public is essential. Therefore, we must continually assess and improve our communication efforts. Although it is unfortunate that we will never be able to permit the breadth of public disclosure that we permitted prior to September 11th, we should remain committed to disclosing as much information as prudently possible.

Lesson 4, Question the Adequacy of Safety

The Kemeny Report identified a complacent attitude or “mindset” toward nuclear safety as a major contributor to the TMI accident. According to the Report, the widespread belief that plant equipment and operations were sufficiently safe led to numerous programmatic deficiencies.⁸ The specific deficiencies included inadequate training, procedures lacking in clarity, and a failure of organizations to learn from previous incidents.⁹ The report concluded that this attitude must be changed to one that “continually question[s] whether the safeguards already in place are sufficient to prevent major accidents.”¹⁰

I can say with confidence that the NRC and the industry have made substantial organizational changes to address lessons learned from TMI about the need for a questioning attitude. However, the

⁷ Id.

⁸ Id. at 8-9.

⁹ Id. at 11.

¹⁰ Id. at 9.

continued threat environment teaches us that we need to ask many more questions before we complete our current security review. The federal government, the NRC and industry must resist the temptation to prematurely conclude that nuclear security is adequate.

I want to emphasize that we and our licensees are not the sole participants in the effort to ensure the security of nuclear power plants. The September 11th attack was an attack on our nation, and consequently, efforts to prevent and respond to any similar attack will require a national response including state and local involvement. That is not to say that our licensees are not responsible for security at their facilities. To the contrary, they have demonstrated that they are committed to protecting their substantial plant assets and the communities surrounding their plants. But I am convinced that a terrorist act aimed at our nation, whether targeted at a nuclear plant or another facility, is going to require a comprehensive national response in order to prevent it, protect against it, or respond to it.

While it would be easy to myopically focus solely on capabilities of the plants themselves, there are two issues we must keep in mind as we reassess the security requirements for the licensed facilities we regulate. First, security is a shared burden. It falls not simply on private companies, but must include a holistic approach that recognizes and utilizes the significant capabilities of our federal, state, and local governments. Second, nuclear power plants already possess robust safeguard and security programs that are far superior to other portions of the critical infrastructure. Common sense will be an important tool in our effort to find the right balance.

Not Losing Sight of Ongoing Initiatives

I would like to shift focus now from security to other important agency initiatives that were underway on September 11th, and that continue to require significant agency attention. It would be easy to immerse ourselves exclusively into security issues, but that would be a huge mistake. Security is but one element of safety. Day-to-day safe operations require a tremendous amount of attention from our licensees, and if our oversight is to be effective, it must be focused and rigorous. The NRC has made significant progress in numerous programmatic areas and we have a responsibility to continue to improve. Let me detail a few of the ongoing initiatives that I believe are extremely important and which I believe cannot be neglected.

1. It goes without saying that we must not lose focus on our efforts associated with license renewals and new plant licensing. We face significant challenges in these areas and thus, we must provide the resources necessary to keep these programs on track. In this respect, I will leave you with two cautions associated with these programs. First, license renewals must never become routine either for our licensees or for our staff. Licensees must never take shortcuts in their aging management programs, and our staff must never become complacent in their reviews. Second, licensees considering new plant construction must not allow these efforts to distract them from the safety of their existing plants. Constructing a new plant would be a significant endeavor for any licensee, but such an effort cannot interfere with effective and safe day-to-day operation of their current reactors.

2. Another critical area of importance is fire-protection. There is no more glaring example of complex, prescriptive and voluminous regulations than our fire protection regulations contained in Part 50, Appendix R. These regulations are so convoluted that licensees spend an inordinate effort trying to understand and comply with our regulations. The NRC spends an equally inordinate amount of time interpreting the regulations and ensuring consistent compliance and enforcement. I have no doubt that this is exactly the type of regulation that the Kemeny Report criticized. While the staff has been working on developing a risk-informed alternative standard: NFPA 805, the progress has been

unacceptably slow. We must accelerate our efforts so that we can move beyond the unintended consequences associated with Appendix R and focus our efforts on developing sound and clear fire protection requirements.

3. Few would disagree that the new Reactor Oversight Program has dramatically improved our oversight of reactor safety and performance through the use of objective performance indicators and a risk-informed inspection process. It has enhanced regulatory effectiveness, transparency and predictability. In these ways it has served our agency, licensees and the American public very well. We cannot let progress in this area stagnate. We must continue to look at performance indicators that could produce unintended consequences and which may adversely effect safety. It would be absolutely irresponsible to ignore these matters and lose the potential opportunity to make safety enhancements.

We also must improve our significance determination process (SDP). It is cumbersome and in many cases untimely. We must improve the tools we provide our inspectors and regions for assessing risk. Specifically, we must make it a top priority to provide more resources for validating our SDP notebooks and developing SPAR models. We must also resolve regional inconsistencies. Regional inconsistencies lead to regulatory instability and unpredictability, outcomes that I find unacceptable. My challenge to NRR is to make these improvements and continue to look for ways to further enhance our oversight program.

4. Another area we need to continue to enhance is our power uprate review process. The agency has been significantly challenged over the last few years with the increasing number of new uprate applications and with many licensees requesting larger power uprates. We must have confidence that our safety reviews are consistently thorough, efficient, and timely. I am pleased that NRR is now focusing on improving our review process for small uprates related to improved feedwater flow measurement techniques. I encourage NRR to seriously consider the merits of developing a Standard Review Plan for power uprates to ensure regulatory consistency, efficiency and scrutability.

5. The last important safety issue that I would like to address is a possible unintended consequence of our Part 50, Appendix B, quality assurance requirements for nuclear power plants. As many of you know, the number of suppliers with Appendix B quality assurance programs has been declining in the past several years as many of them are adopting the internationally accepted ISO-9000 programs and exiting the nuclear business. As I stated at the Water Reactor Safety Meeting two years ago, my concern is that our Appendix B requirements may be inappropriately discouraging high-quality component suppliers from participating in the U.S. nuclear market. If so, our requirements may unwittingly inhibit potential safety enhancements from taking place.

As I have stated before, I believe our staff should take a fresh look at Appendix B and our regulatory framework surrounding quality assurance. The staff should assess options for adopting more widely accepted international quality standards like ISO-9000. The first time I raised this issue, it received a less than enthusiastic response from the staff and from NUPIC. More recently, some of these same people have begun to express an interest in exploring the potential safety and economic merits of my proposal. I intend to knock on the staff's and NUPIC's door one more time, and this time I expect the door to be opened. I need to be confident that the less than enthusiastic response I received the first time was not because people had become so comfortable with Appendix B that they were resistant to change. Comfort and stagnation are unacceptable in a vibrant regulatory agency and a vibrant industry. We cannot let a "we've always done it that way" mentality stifle regulatory innovations that can improve safety.

Conclusion

Last year we thought we had a lot on our regulatory plate. We had many of the same important ongoing initiatives and we were just coming to grips with the prospect of new plant licensing. This year our plate is overflowing, and security issues are the main course. Our staff has done a terrific job of opening up new lines of communication with our federal counterparts, working tirelessly to identify potential plant vulnerabilities, and keeping ever mindful of the need to communicate effectively with the public. At the same time, they have maintained their watchful eye on safe nuclear operations. For this, I thank them. While we will ask even more from our staff in the coming year, we must recognize that effectively protecting nuclear plants is a challenge for us all. I am confident that together we can work through this critical period of our nation's history.

Thank you for joining me today. I have left a few minutes open for questions.