



NRC NEWS

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**“Regulatory Perspective”
Prepared Remarks for
The Honorable Gregory B. Jaczko
Chairman
U.S. Nuclear Regulatory Commission
at the
55th Annual Meeting of the Health Physics Society
Salt Lake City, Utah
June 28, 2010**

Good morning. Thank you for the invitation to address the 55th Annual Meeting of the Health Physics Society (HPS). I have always been impressed by HPS’s commitment to promoting excellence in the science and practice of radiation safety. HPS conducts commendable work in a number of areas – from supporting health physicists around the country in their important work to promoting a better public understanding of the field of health physics. This conference is just another example of HPS’s strong commitment to facilitating the exchange of scientific information and a dialogue about important radiation safety issues.

I understand that the topic of this plenary session is “The Future of the Nuclear Industry.” That topic is striking in both its scope and importance, and one whose breadth gives me wide latitude to give a full discussion of all the issues that have been the focus of my attention during my five and a half years on the Commission. Fortunately for all of you, that runs contrary to everything that I have learned about public speaking throughout my career.

So today, I will focus my remarks on one important issue for the future of the nuclear industry – the importance of resisting the potential for complacency. Now over 60 years old, the nuclear industry is a mature industry. Many of the NRC’s reactor, fuel cycle, and materials licensees now have decades of experience in operating their facilities and handling nuclear materials. That experience is a tremendous resource for licensees to develop new technologies and operational practices to improve their effectiveness and enhance safety. But that experience also creates the potential for complacency that can compromise safety, and that is something that the nuclear industry must work hard to resist.

I recently read a history of bridge accidents that I thought was really interesting. It centered on the observation that a major bridge disaster appears to occur about every 30 years. According to one view in the academic literature, this historical pattern can be explained by a generational cycle of confidence and complacency. The cycle goes something like this: An accident failure occurs, new and better innovations emerge, safety improvements are achieved, confidence builds because of those successes, and then complacency ensues as those once-new innovations are taken for granted and receive less scrutiny.

I think that all of those in the nuclear field have to be acutely sensitive to the potential tendency for confidence in technology or a past track record to lead to complacency. In my remarks, I would like to discuss two related issues that can enable the NRC and its licensees to guard against the risks of complacency.

The first is the importance of a strong safety culture that ensures that safety and security remain top priorities. The role of safety culture in understanding why safety accidents happen has become increasingly prominent in many fields, and it is certainly not a new issue for the nuclear industry. In fact, the term “safety culture” is reportedly to have first been used in the nuclear context – in the 1987 report by the Nuclear Energy Agency on the Chernobyl disaster. But even going back further, you can read in the Kemeny Commission report on the Three Mile Island accident the concern about complacency, the need for a questioning attitude, and other human factors that we would associate today with the concept of safety culture.

In recent years, the NRC has made substantial progress on this issue in two significant ways. First, the agency has incorporated safety culture into the Reactor Oversight Process (ROP) evaluation process through the cross-cutting issues, components that look at human performance, safety conscious work environment, and problem identification and resolution. Second, the Commission has been developing a new safety culture policy statement that should help clarify our expectations in this area. The draft statement emphasizes (1) that safety culture is no less important for our materials licensees than for our reactors licensees and (2) that security is an important component of safety culture. The final version of the statement is expected to return to the Commission for its consideration by next spring. The Commission and the staff have been working on this issue for quite some time. The agency has worked hard to solicit public and stakeholder input, and kept the process open and transparent. With all the staff work and public input, the Commission will be in a strong position to move forward on this issue. It is clear that we have made a great deal of progress – in changing the ROP to address this issue and drafting the safety culture policy statement – and we will have to decide how much more work we have to left to do.

Regardless of how the agency moves forward on this issue, safety culture has to remain a priority for all of our licensees. No matter how strong our rules, oversight, and enforcement programs are, the simple fact of the matter is that the NRC can’t be everywhere and it can’t inspect everything. The licensee always will retain the primary day-to-day responsibility for ensuring that their facility or plant operates safely. That is why it is critical that our licensees focus on cultivating the type of open, collaborative organizational culture where people feel comfortable raising questions and presenting dissenting views. It’s been said that “a good question outranks an easy answer.” An organization imbued with that kind of spirit will test old assumptions, identify emerging issues, and preempt issues before they become problems. There are no easy answers on how to develop a strong safety culture. It is

important that senior managers set the right priorities, that they have a strong commitment to establish the right type of work climate, and that employees at all levels of the organization demonstrate a consistent dedication to those priorities. It's the NRC's job to identify violations and take the appropriate corrective actions, but we can all agree that it always would be better if those violations had not occurred in the first place. A strong safety culture can help make that happen.

A related issue that is also important in resisting the risks of complacency is human performance. As I said earlier, with the extensive experience of many of our reactor, fuel cycle, and other materials licensees, they are in a position to use that experience to develop new technologies and approaches that enhance safety. We have certainly seen that in the development of new reactor designs, as vendors and applicants have sought to address old safety issues through innovative design changes. But both the NRC and its licensees should be clear in communicating that the performance of the people who run the reactors, the fuel cycle facilities, and the materials locations remains absolutely vital to their safe operation. By keeping the safety role of employees front and center, we can ensure that confidence in new technologies and new approaches doesn't lead to the type of complacency that can lead to safety issues.

Our nation's history of nuclear power has shown that human performance can both positively and negatively impact safety. Redundancies, mitigation measures, and passive safety mechanisms all promote safety. And licensees should continue to look for improvements to their designs and approaches that build on their past experience. But people will always matter – for making sure that things run safely on a day-to-day level and also for showing initiative in finding new ways to improve safety.

One way that the NRC promotes excellence in human performance is through the agency's fitness-for-duty requirements. In the reactor area, the NRC recently completed a significant revision of the agency's rules in this area to ensure that plant employees are fit, alert, and qualified. The NRC is confident in these programs, as well as in our on-site resident inspectors – who as the agency's eyes and ears stay attuned to both technical declines in plant performance and issues related to human performance. The Commission relied on the latest research, practices from other relevant industries, and stakeholder input in developing these regulations. But licensees know their employees better than anyone, and they are responsible for managing them. That is why it is so important that they be proactive in making sure that their employees operate at the high level necessary to protect public health and safety.

I'd like to shift gears a bit and focus on a policy area where I think it is especially important that we guard against the risks of complacency. That is the area of materials security – an issue in which the Health Physics Society has taken a strong interest. In recent years, the NRC has done great work on many fronts to strengthen the security protections that our licensees have in place. Notwithstanding the progress we've made on these issues, the NRC and its licensees have to remain alert to the dynamic threat environment. It is critical that we resist the temptation to think that we have done enough, to be lulled into a sense of complacency, or to think that our security framework should seek "stability."

In addition to strengthening the security of power plants, much of the Commission's security work focuses on safeguarding risk-significant sources at thousands of materials sites. Among our chief goals is ensuring that none of this material is misappropriated for use in a radiological dispersal device, or dirty bomb. The Commission has a number of significant source security initiatives underway that

reflect the Commission's continuing focus on guarding against these security threats and our intention to maintain that strong focus in the future.

The NRC chairs an interagency Radiation Source Protection and Security Task Force that evaluates and provides recommendations related to the security of radiation sources, including from potential terrorist threats. The interagency group is near finalizing the 2010 Report to the President and looks forward to reporting on the progress that we have made since our 2006 Report.

Among the key NRC accomplishments is the launching of a major new security initiative – the National Source Tracking System (NSTS). The NSTS is a secure, Web-based national registry that tracks nuclear materials from the time they are manufactured or imported through the time of their disposal, decay, or export. By tracking more than 70,000 risk-significant sources, this system enhances our ability to detect and act upon inventory anomalies, respond to emergencies, and verify the legitimate use and transfer of sources. The greater accountability for these high-risk sources helps strengthen our national security framework. As is to be expected with any new and complicated system with thousands of users, there have been some challenges along the way with day-to-day implementation. It is one of the leading systems for tracking sources. The Commission right now is focused on ensuring that this system is fully and successfully implemented. Once that work is done, the Commission will be in the position to assess whether this system meets our security objectives or whether further enhancements are necessary.

One material – cesium chloride (CsCl) – has garnered particular attention because of its extensive use in a wide range of applications in medicine, industry, and research. Approximately 550 licensees in the United States possess about 1,100 CsCl irradiators that contain at least a Category 2 quantity of radioactive materials. In recognition of the potential security concerns posed by CsCl the NRC imposes increased security controls on these sources. The Commission recently approved a draft policy statement that recognizes that the security of these risk-significant sources is an essential part of our mission and demonstrates the Commission's commitment to issuing additional security requirements if the threat environment calls for it. The Commission is also moving forward with a proposed rule to institute additional background checks and require comprehensive security programs to limit unauthorized access to Category 1 and 2 sources, including CsCl.

The sheer number of materials licensees – approximately 4,500 NRC licensees and nearly 20,000 Agreement State licensees – creates challenges for ensuring the safeguarding of nuclear materials. And the wide variety of medical, commercial, industrial, and research purposes that they are used for further complicates our work in this area. But these factors bolster the argument that the agency and its licensees must maintain and build upon the strong security focus that we have demonstrated over the last few years.

On security, safety culture, and so many other policy areas, the NRC has an ambitious agenda for advancing our public health and safety mission. To be successful in our mission, we need to make policy based on sound science, technical, and regulatory decisions. In that spirit, it is important to have updated information that the agency can rely upon in making its decisions. Toward that end, the NRC has recently asked the National Academy of Sciences (NAS) to conduct a new study on cancer risk for populations surrounding nuclear facilities. A non-governmental organization that advises the nation on issues of science, technology and medicine, the NAS is recognized for carrying out independent studies

with transparency, objectivity and technical rigor. This new study will take advantage of the tremendous advances in science and data collection since the previous National Cancer Institute study was completed in 1990. The new study will look at cancer diagnosis rates as well as mortality, and it will be able to evaluate records for a broader range of geographical areas. We expect the study to be completed in approximately three years. I think it will be a significant enhancement to the quality of data we had in 1991.

In addition to the kind of sound scientific analysis that the NAS study will provide, I would like to close by emphasizing that the NRC also needs to foster public confidence in our decisions to be a strong and effective regulator. We can only build that confidence when we engage the public and our diverse group of stakeholders. By hearing their concerns and ideas and making them active participants in our decision making processes, we gain the benefit of their expertise and input and build a broader basis of support for our decisions. During my five and a half years on the Commission, the Health Physics Society has made that type of contribution on so many occasions. The Commission has benefited from that, and we look forward to continuing that dialogue.

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