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U.S. NUCLEAR REGULATORY COMMISSION
Office of Public Affairs Telephone: 301/415-8200
Washington, DC 20555-001 E-mail: opa@nrc.gov
Web Site: http://www.nrc.gov/OPA

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Maintaining the Safety Management Perspective for Licensee's Contractors

REMARKS OF NILS J. DIAZ
CHAIRMAN, U.S. NUCLEAR REGULATORY COMMISSION

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It is a great pleasure and honor to participate in this international regulatory forum and to share my perspective on the timely subject of ensuring operational safety and, specifically, ensuring operational safety when utilizing contractors and technical support services. I value our interactions and technical exchanges as nuclear regulators. Each of our countries has a unique array of plants to regulate and different regulatory frameworks. While we may approach and resolve safety issues in different ways, we know that these differences do not equate to different goals or results. We are all focused on ensuring nuclear safety. That is why this forum is so important. It gives us an opportunity to share the paths that we have traveled and discuss the road ahead.

This forum's topic of "Contractor and Technical Support Services" is an important one at any time. However, I believe it is particularly important as we see the interest in building new nuclear power plants gaining momentum in the U.S. and other countries. At one time, we may have expected to look inside our own borders for the fabrication and construction of the majority of the equipment for a nuclear power plant. Today that is not the case. We are all linked by the international suppliers of nuclear equipment and contractor technical expertise. For example, France, Italy, Japan, Spain, and Canada have all supplied steam generators or reactor vessel heads to U.S. nuclear power plants. It appears that this trend will continue. As regulators, we must ensure that the regulatory framework and industry practices are aligned with each other.

I would like to start my remarks today with a story that you may have heard before. It has several versions but the point of the story always remains the same. It is a story about four people named Someone, Anyone, Everyone, and No one. There was an important job that had to be done --

Someone should have done it, Anyone could have done it, and Everyone thought that Someone would do it. In the end, No one did it. At the beginning, the responsibility was not assigned.

In the nuclear arena, we can not afford the luxury of allowing a job to go undone or be poorly done. It is of paramount importance for the lines of responsibility to be clearly defined. The regulator must develop a clear framework to ensure the responsibilities of the regulator, licensee, and contractors are assigned and discharged, consistently. A clear framework starts with a common goal -- here, the common goal is safety. With a framework in place, each party can then determine how best to fulfill its responsibilities in the most effective and efficient manner. With a clear framework, the actions taken by industry and the regulator should be transparent and predictable.

Safety Management

There are many issues and challenges in today's nuclear safety landscape: license renewals, power uprates, materials degradation, risk-informed and performance-based approaches to operation and regulation, and the management of safety. Both the industry and the regulator have responsibilities to address the safety landscape with a comprehensive safety management approach. And good safety management must apply to contractors and vendors as well as to the licensees; there should be no gaps in the assignment or in the discharge of responsibilities.

Everyone probably has their own definition of safety management; they all share some fundamental elements. Here is my version. Safety management is, at least, the collective product of three essential, interactive elements that are actively managed:

1. A functional and executable commitment to operational, maintenance and engineering safety, imbedded in every activity of the organization,

2. a technical expertise that is applied where and when it should be; able to receive, process, form, and communicate technical issues; cognizant of safety functions and safety systems, with licensing and regulation as boundary conditions but taken beyond them by the pursuit of safety and reliability, and

3. management of the people, programs, and processes to implement a safety program effectively.

Let me elaborate on these three essential elements of safety management.

The first element -- commitment to safety -- includes the desire to do things right; a questioning attitude and a receptiveness to questioning attitudes; a willingness and ability to learn; and the experiential awareness of how indispensable safety is.

The second element -- the application of technical expertise -- involves using realistic conservatism in safety analysis; quality engineering based on state-of-the-art information; and, operational safety and maintenance founded in science, engineering, technology, and operating experience.

Our technical and regulatory know-how is increasing. As regulators, our technical competency has to match industry's. As technology and regulation progresses, both industry and the regulator must

learn on a parallel curve. An important part of the nuclear industry's technical know-how depends on the capability of the contractors and technical support services. From cradle to grave, the industry utilizes contractors and support services with the technical know-how to manufacture fuel and safety equipment and to perform specialized services, such as refueling operations, accident analyses, and security operations. There must be appropriate checks by the licensee and regulator to ensure the performance and the technical competency of contractors as well as ensuring the quality of their work. In the U.S., the responsibility of contractor oversight resides with the plant operator but must also be part of the regulatory framework. I believe it is also important that licensees and contractors alike be cognizant of regulatory requirements.

Last but not least, the third element is management. It is my long-standing position that the management of nuclear power plants is the licensee's responsibility and prerogative. Part of management is monitoring performance. Just as any employee's performance must be monitored, contractor performance must also be monitored. Again, there must be criteria against which contractors are measured for quality and performance; and there must also be accountability for not meeting expectations.

The U.S. Framework

The U.S. nuclear industry is a mature industry, and maturity has a lot to do with the present high performance of the U.S. nuclear power plants. In the nuclear business, maturity also requires learning, awareness of the old and new, and the appropriate application of know-how, especially for emerging issues. However, there have been lapses in performance. Extended shutdown of U.S. reactors have occurred too frequently, and there have been a few avoidable events of safety significance <u>because</u> the requisite technical expertise and safety management criteria were not applied in a timely manner to the resolution of design, operational, and maintenance problems. This is not acceptable. Whether poor performance comes from the licensee's staff or its contractor, the licensee bears the responsibility and must accept the consequences.

The NRC has increased its safety focus on licensing and oversight activities by applying a balanced combination of experience, deterministic models, and probabilistic analysis. We call this approach risk-informed and performance-based regulation. This enhanced safety focus is used by our licensees and by the agency in a concerted effort to ensure adequate protection of public health and safety with a more quantitative and up-to-date technical basis. It has resulted in significant improvements in the effectiveness and efficiency of our licensing and oversight activities. Some of the most important licensing activities as you know, are extended power uprates and license renewals. These have become key contributors to the stability of the U.S. nuclear infrastructure.

Aside from licensing activities, we independently conduct assessments and inspections to verify that adequate safety margins are maintained. Thus, the safety framework includes both the licensees' multiple programs for conducting safe operations, implemented through operational safety programs, <u>and</u> the government's clear role in providing independent analysis and oversight for assurance of safety. This is true for licensees and for their contractors. The licensee is responsible for ensuring that the quality of the contractor's work meets the requirements of our regulatory framework. The NRC holds the licensee accountable for the performance of its contractors. If the NRC finds a significant violation of the regulatory requirements by a licensee's contractor, the violation is issued to the licensee. As a result, each licensee is required to and motivated to ensure that its contractors are

meeting the NRC regulations. In some rare cases of willful violation of regulations, the NRC can take and has taken direct action against contractors. In most cases of a program weakness or deficiency, the NRC will take action against the licensee.

In addition, as part of our framework, there are NRC regulations that apply directly to contractors and companies that supply technical services. Part 21 of Title 10 of the U.S. Code of Federal Regulations is titled "Reporting of Defects and Non-compliance." This regulation applies to all licensees, and to all contractors and technical support service companies that affect the safety function of a facility licensed by the NRC. If a contractor becomes aware of a defect which could create a substantial safety hazard, it is required to report it to the NRC. It is subject to a civil penalty if it knowingly fails to report the defect. As the regulator, we act on the reported defect and non-compliance information in several ways: first we look at the immediate corrective actions performed by licensees that are known to be affected. Next, we examine the information for generic applicability to determine if the information should be communicated to all licensees for appropriate action. This is part of our framework for the oversight of licensee contractors.

In the U.S., the amount of regulatory oversight of licensee contractors has varied in response to the maturity of the industry. As utility companies have become more experienced in nuclear operations, they have become more capable of overseeing the technical activities of their contractors. At one time, the NRC had a vendor inspection branch dedicated to the oversight of licensee contractors. Today, we monitor licensees in their oversight of their contractors. One means of contractor oversight by licensees is the Nuclear Procurement Issues Committee (NUPIC) audits. U.S. licensees and other international partners that are NUPIC members participate in a coordinated approach on nuclear vendor quality assurance oversight. As regulators, we will take an active role in emerging situations whenever prudent, to inspect licensee's contractors and to satisfy ourselves that the contractor meets our safety requirements.

For today and looking ahead, the need for clear responsibilities is critical as contractors and technical support companies compete in a global marketplace for nuclear goods and services. International cooperatives are now a common practice for the nuclear industry. For design certification reviews, the NRC performed quality assurance inspections at facilities across the U.S. and in Japan, Italy, and Canada. Specialized inspection services, such as reactor vessel head inspections and steam generator tube inspections, are being performed by international contractors. The IRIS advanced reactor is being designed by an international consortium consisting of vendors, energy companies, and universities from many countries, including Brazil, Italy, Japan, Mexico, Spain, the United Kingdom, and the United States.

In summary, for the U.S., the NRC's technical and regulatory framework establishes high standards that ensure adequate protection of safety, but places the primary responsibility of safety management on the licensee. For other countries, the boundaries may be defined in another manner. Exactly where the boundaries of responsibility are defined is secondary in importance to the overarching necessity to define clear boundaries so the regulatory process can be predictable and transparent to all parties involved.

I believe in the importance of a framework to define responsibilities clearly, and the importance of defining responsibilities driven by a safety management program. Simply stated, safety management embodies using commitment, technical expertise, and good management practices to achieve the

requisite “adequate protection” standard that regulators demand, the reliability that licensees need, and both the protection and the reliability that the public deserves.

I cannot pass on the opportunity today to quote one of my favorite persons. The late former-President Ronald Reagan once said, “There are no great limits to growth because there are no limits of human intelligence, imagination, and wonder.” In this industry, safety, reliability, and growth should not be limited by our know-how, our management, and our imagination. We need to keep them at work, day in and day out. We seek to learn and improve our methods in ensuring the safe operation of nuclear power plants world-wide.

Thank you for the opportunity to speak to you this morning on this important topic. I look forward to discussing the subject with you as the forum continues.