

STATEMENT SUBMITTED  
BY THE  
UNITED STATES NUCLEAR REGULATORY COMMISSION  
TO THE  
SUBCOMMITTEE ON CLEAN AIR, CLIMATE CHANGE,  
AND NUCLEAR SAFETY  
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS  
UNITED STATES SENATE

FOR THE  
OVERSIGHT HEARING

SUBMITTED BY  
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CHAIRMAN

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U.S. NUCLEAR REGULATORY COMMISSION  
OVERSIGHT HEARING

**Introduction**

Mr. Chairman, and members of the Subcommittee, it is a pleasure to appear before you today with my fellow Commissioners to discuss the Nuclear Regulatory Commission's programs. We appreciate the past support that we have received from the Subcommittee and the Committee as a whole, and we look forward to working with you in the new Congress.

Mr. Chairman, I believe that fiscal year 2002 and the first four and one-half months of fiscal year 2003 have been marked by significant achievements by our agency in the face of great challenges. Let me enumerate a few of our achievements and the challenges. I will not go into great detail here because I submit a monthly report on our activities to you and our other authorization and appropriations subcommittees.

**Security**

Over the past 17 months, the Commission has undertaken a comprehensive review of safeguards and security programs, in close consultation with the Department of Homeland Security and other Federal agencies and with significant involvement by State agencies. Out of that review has come a series of interim compensatory measures (ICMs) to strengthen nuclear security at power reactors, Category I fuel cycle facilities, decommissioning reactors, research and test reactors, independent spent fuel storage facilities, the two gaseous diffusion plants, and the conversion facility, as well as in the transportation of spent fuel. Last August we put in place a five-tier threat advisory system compatible with the Homeland Security Advisory System, and we have used that system twice, including just last week, to improve security measures at our licensed facilities. We have issued Orders to strengthen our access authorization programs at power reactors. We have drafted proposed Orders to strengthen guard training and address guard fatigue. We have provided revised design basis threats (DBTs) for comment to other Federal agencies, the States and cleared industry personnel. We have been conducting enhanced table-top security exercises at our reactor facilities and will by the end of this month begin enhanced force-on-force exercises at these facilities. We will conduct force-on-force exercises on a 3-year cycle and have requested the resources to do this in our fiscal year 2004 budget. We have defined the actions that we need to take to ensure better control of high risk radioactive sources containing radioactive isotopes of the most concern for potential use in a radiological dispersal device.

In short, we have a comprehensive and aggressive program to enhance security. Nuclear facilities had very significant security before September 11<sup>th</sup> and that security has been greatly strengthened in the aftermath of the attacks.

### **Reactor Safety Programs**

The past 17 months have seen the maturing of our new reactor oversight process.

We and most stakeholders believe that this new program is a significant improvement over our old inspection, enforcement and assessment processes. One of its strongest factors is its transparency and accessibility to members of the public. You will find on our web page performance indicators and inspection findings for every power reactor, as well as our current assessment of that reactor's overall performance. The transition to the new process has gone remarkably well, although it is still a work in progress on which we will make further improvements.

Overall the industry has performed very well. As of the end of 2002, there was one plant designated for the highest level of scrutiny, the Cooper plant in Nebraska, and one other plant, the Davis-Besse plant in Ohio, which is effectively being treated similarly under our Manual Chapter 0350 restart process. The Cooper plant has received significant attention from both our Region IV and headquarters staffs, and we are confident that it is on a path to resolving long-standing problems.

The Davis-Besse plant has been our greatest recent challenge. Mr. Chairman, you have followed this matter in detail and we have had meetings about this. But let me try to summarize the issues for your colleagues.

In February 2001, Duke Energy, the licensee at the Oconee Nuclear Station, conducted a vessel head inspection at its Unit 3. The vessel head is the very large steel structure that serves as the top of the reactor pressure vessel. Duke found circumferential cracking in several control rod drive mechanism penetration nozzles within the vessel head. The NRC staff immediately recognized the significance of these inspection findings -- the possibility of the ejection of the control rod drive mechanism -- and initiated a series of actions to ensure that any similar cracking would be promptly detected and repaired at other pressurized water reactors.

The Davis-Besse plant was one which the staff and the industry believed potentially had high susceptibility to such cracking. The staff's August 2001 bulletin called for such plants to conduct vessel head inspections by December 31, 2001, unless a later time could be justified. Davis-Besse petitioned for additional time (until April 2002) to complete the inspection. The staff initially planned to issue a shutdown Order, but decided in November 2001 to grant Davis-Besse a 46-day extension on the vessel head inspection requirement. When Davis-Besse shut down and conducted the required inspection, they found no through-wall circumferential cracking in the CRDM penetration welds, but, as they began to repair the axial cracks, they unexpectedly found a large cavity in the carbon steel of the reactor head. The cavity had been caused by corrosion due to the presence of boric acid.

This degradation was preventable, and the licensee's actions leading up to the discovery of the corrosion in March 2002 are unacceptable. This discovery has led to investigations, which are ongoing, of the licensee's actions. It has led us to focus large inspection resources on the facility as it seeks to restart its reactor with a new vessel head. It has also caused the Commission's staff to focus on mistakes the NRC made in dealing with boric acid corrosion issues in the 1990s. In this connection, an internal lessons-learned task force has made a comprehensive set of recommendations related to inspections, assessment of operating experience, NRC staff training and experience, and the assessment of stress corrosion cracking, boric acid corrosion, and barrier integrity requirements. The NRC staff is now developing action plans to implement the highest priority recommendations on an aggressive schedule. On Tuesday of this week NRC issued orders to all 69 pressurized water reactor licensees outlining much tougher vessel head inspection requirements than those previously required by our regulations and by industry codes.

The Commission staff has devoted significant resources to the Davis-Besse plant and to the broader issues raised by the Davis-Besse incident. Davis-Besse will only return to operation after the staff is convinced through intensive inspections both that the plant is physically ready to operate, and, perhaps more importantly, that the safety culture at the plant, which the licensee has identified as the main root cause of this event, is on the path to recovery.

### **Reactor Licensing Programs**

Let me now turn to significant achievements in our reactor licensing programs. Four reactors -- Hatch 1 and 2 in Georgia and Turkey Point 3 and 4 in Florida -- have had their

licenses renewed to operate for twenty additional years. That brings the total of renewed licenses to ten. The staff currently has license renewal applications under review for twenty additional units. In every instance, the staff has met its timeliness goals in carrying out the safety and environmental reviews required by our regulations. This is truly a remarkable achievement. Today we expect almost all of the 104 reactors licensed to operate to apply for renewal of their licenses. The staff will continue to face an increasing workload in this area for the next several years as a bow wave of license renewal applications are submitted (echoing the bow wave of nuclear reactor construction in the 1970s).

The Commission also carefully reviews requests to raise the maximum power level at which a plant may be operated. These so-called power uprates range from requests for small increases based on better flowmeter technology, to large requests in the 15 to 20 percent range that require substantial hardware modifications at the plants. In all instances, staff must be satisfied that safety margins are maintained. In 2001 and 2002, the NRC approved 40 power uprates, which have added approximately 1800 megawatts electric to the Nation's generating capacity -- the equivalent of two large power plants. We expect a similar pace of uprates in the years ahead.

The staff has similarly processed a series of license transfer applications that have allowed significant consolidation within the nuclear power industry. Most of these transfers were processed within a 6-month target, and, with one exception, the NRC was not the last regulatory agency to grant the necessary approval.

The NRC staff is preparing for potential new reactor and reactor design applications. The staff is on target to conduct a timely review of the Westinghouse AP-1000 design certification. It is preparing to review three early site permit requests expected later this year. The staff is also in the pre-application phase in dealing with potential design certifications for several additional reactor designs. And the staff is making infrastructure improvements to prepare for a potential combined operating license request. These are resource-intensive activities, and our fiscal year 2004 budget request provides for the necessary significant growth to meet this challenge.

### **Materials Program**

Mr. Chairman, the NRC in partnership with thirty-two Agreement States also conducts a comprehensive program to ensure the safe use of radiological materials in a variety of medical and industrial settings.

In the last 17 months, the Commission has completed a complex rulemaking on medical use of byproduct material -- a rulemaking on which there was significant interaction with the Congress. We now face the challenge of implementing that rule and assuring that compatible regulations are adopted in the thirty-two Agreement States.

The Commission has also been implementing a major rule change relating to large fuel cycle facilities. This rule requires the submission of an integrated safety assessment for all new licenses and license renewals that applies risk insights to the regulation of these facilities. Several major licensing reviews underway or soon to be submitted will test the new rule. Substantial new construction of fuel cycle facilities is planned in the near future, including a mixed oxide (MOX) fuel fabrication facility in South Carolina as part of the Department of Energy's program to dispose of excess weapons grade plutonium, as well as two new gas centrifuge enrichment facilities, one in Tennessee proposed by Louisiana Energy Services (LES) and one in Ohio proposed by U.S. Enrichment Corporation. The staff is also providing support to our Russian colleagues at Gosatomnadzor (GAN) regarding the licensing of a Russian MOX facility, which will have an identical design to the U.S. facility.

### **Nuclear Waste Programs**

The Commission staff has made progress on a wide array of programs relating to the safe disposal of nuclear waste.

A central focus of this program is the preparation for the Department of Energy's (DOE's) application to construct a high-level waste repository at Yucca Mountain, Nevada. That application is currently expected in December 2004. Over the past year the staff has issued a draft Yucca Mountain Review Plan for public comment and has conducted numerous public meetings with DOE in anticipation of its application. Preparations are now underway for the conduct of the licensing proceeding, including the creation of an information technology system to handle the large number of complex documents that will be involved. This licensing proceeding will present the NRC with a formidable challenge. The technical issues involved will be substantial. Moreover, no single NRC decision or set of decisions since the response to Three Mile Island accident is likely to be scrutinized as closely as those concerning this one-of-a-kind facility.

Yucca Mountain is by no means the sole activity in our waste program. The Commission staff has a substantial effort underway in the area of dry cask storage of spent reactor fuel. Storage and transport casks continue to be certified. Independent Spent Fuel

Storage Installations (ISFSIs) continue to be licensed. The Atomic Safety and Licensing Board panel will soon issue its final decisions on the Private Fuel Storage (PFS) ISFSI in Utah. And the Surrey ISFSI in Virginia is the lead facility for ISFSI license renewal. Indeed, our workload related to ISFSIs and dry cask storage in general will increase substantially in the years ahead based on licensees' plans to adopt dry cask storage at their sites. We also have a major research program underway, the Package Performance Study (PPS), which will conduct full-scale integrity tests of both truck and rail casks under stringent conditions. The PPS test protocols are being issued for public comment.

The NRC staff is also continuing to make significant progress in decommissioning contaminated sites. The staff has identified several issues requiring Commission attention, particularly in the area of making the restricted release and institutional control provisions in our license termination rule work in practice.

### **Human Capital**

The NRC is very dependent on a strong and capable work force for the effective execution of its activities. The Commission's human capital planning integrates strategies for finding and attracting new staff, and for promoting employee development, succession planning, and retention. In this connection, the Commission has developed and implemented a strategic workforce planning system to identify and monitor its human capital assets and needs. This includes the development of an agency-wide online skills and competency system which is used to identify gaps in needed skills and to address critical skills shortages; the development of a restructuring initiative to more closely align NRC's organizational structure with its human capital goals; and the development of a web-based vacancy announcement system that includes online application, rating, ranking, and referral features. The agency has also implemented two leadership competency development programs to select high-performing individuals and train them for future mid-level and senior-level leadership positions. In addition, the agency has continued to support its fellowship and scholarship programs and identified a significant number of highly qualified entry level candidates through participation in recruitment events and career fairs.

NRC is utilizing a variety of incentives to remain competitive with the private sector. So far we have been successful in attracting new staff, particularly at entry-levels. Nonetheless, it is likely to become more difficult for the Commission, as for many Federal agencies, to hire and retain personnel with the knowledge, skills, and abilities to conduct the safety reviews, licensing, research, and oversight actions that are essential to our safety mission. Moreover, the number

of individuals with the technical skills critical to the achievement of the Commission's safety mission is rapidly declining in the Nation, and the educational system is not replacing them. The maintenance of technically competent staff will continue to challenge governmental, academic, and industry entities associated with nuclear technology for some time to come.

## **Budget**

The NRC has proposed a Fiscal Year 2004 budget of \$626.1 million. This represents approximately a 7 percent (\$41.1 million) increase over the Fiscal Year 2003 budget. This budget proposal will allow the NRC to continue to protect the public health and safety, promote the common defense and security, and protect the environment, while providing sufficient resources to address increasing personnel costs and increasing workloads. Approximately 25 percent of the budget growth is for personnel costs, primarily the pay raise that the President has authorized for Federal employees. The remaining increase serves several other needs. First, the NRC's proposed FY 2004 budget supports enhanced security efforts to protect public safety and security. Toward that end, the NRC is strengthening its safeguards and security programs for nuclear reactors, other NRC-regulated facilities, and radioactive materials. Second, the proposed budget addresses the growing interest in building new nuclear power plants. It strengthens the capability of the NRC to conduct reviews of new reactor designs and early site permit applications. Third, the budget enables the agency to process the increasing flow of applications for license renewal. Finally, with Presidential and Congressional approval of the proposed Yucca Mountain site for a HLW repository, the pace of the NRC's high-level waste program is increasing, and the proposed budget enables the NRC to continue its preparations for the license application that the U.S. Department of Energy plans to submit in late 2004. In short, we have important new work and there is strong justification for the budget increase that we seek.

## **Conclusion**

Mr. Chairman, the NRC obviously has many important initiatives underway. This reflects the reality that we are in a time of striking change. Fortunately the NRC is up to the challenges before it.

I have had the privilege of leading the Commission for over 3 years. I can tell you that I am proud of the people with whom I work. They are dedicated to ensuring the safe use of nuclear technology for the benefit of the Nation. You will not find a more technically competent and hard-working workforce in the Federal government. Thanks to them the NRC has



accomplished many milestones during my tenure and will accomplish many more after I step down.

We appreciate the opportunity to appear before you today. My colleagues and I welcome the opportunity to respond to your questions.