

**STATEMENT OF STEPHEN BURNS, CHAIRMAN  
U.S. NUCLEAR REGULATORY COMMISSION**

**BEFORE THE**

**HOUSE COMMITTEE ON ENERGY AND COMMERCE  
SUBCOMMITTEE ON ENERGY AND POWER, AND  
SUBCOMMITTEE ON ENVIRONMENT AND THE ECONOMY**

**SEPTEMBER 9, 2015**

Chairmen Whitfield and Shimkus, Ranking Members Rush and Tonko, and members of the Subcommittees, thank you for the opportunity to appear before you to discuss NRC licensing and regulatory activities.

Just as we did 40 years ago, when the agency first began operation as the newly created U.S. nuclear safety regulator, the NRC finds itself in a changing environment. In emerging as one of the successor agencies to the Atomic Energy Commission, the NRC had approximately 2,000 employees to plan for or review new plant orders that were being announced or applications submitted by the industry on a nearly weekly basis. At the time, 180 reactors were either under construction or in the planning phase. To review these new plant applications and carry out our mission as the independent regulator for the safety and security of reactors, radioactive materials, and nuclear waste management, the NRC built a workforce with expertise across a broad spectrum of technical and scientific disciplines. But even as the agency's budget and staffing levels increased to match the anticipated licensing demands, the industry's plans fluctuated due to double-digit inflation, a projected slowdown in electric power demand and the Three Mile Island accident. By the end of 1980, scores of planned reactors had been deferred or canceled.

The business environment in the nuclear industry today – and the NRC’s response to it – has parallels to these earlier times. In response to the industry’s announced plans in the early 2000s to construct a new fleet of reactors, the NRC aggressively recruited staff and restructured the agency’s licensing organization for reactors – creating the Office of New Reactors and a new construction inspection division in the Region II office. The NRC took these steps to ensure that the safety, security, and emergency preparedness of the operating units would continue without interruption as the agency reviewed new plant designs and reactor license applications. At the peak of the industry’s projections in 2008, the NRC was increasing staffing levels to accommodate up to 23 combined license applications for construction and operation of a total of 34 new reactors. The NRC also had received or was expecting applications for four early site permits and four standardized plant design certifications beyond the one design certification already issued.

It is a different picture today. Now, only six applications remain active out of the 18 combined license applications that were filed. Thus, far, the NRC has issued combined licenses authorizing the construction and operation of five units, and expects to make licensing decisions on several more in the coming year. The agency currently has two early site permit requests, two standardized plant design certifications, and two design certification renewals under review. In late 2016, the agency also expects to receive a small modular reactor design certification application and an application for an early site permit for a small modular reactor. The agency also is now reviewing two construction permit applications for facilities that would produce medical isotopes and expects to make a licensing decision on this application early next year; the nation currently has no such facility and is dependent on imports.

However, the anticipated new reactor work was not the only reason why the NRC needed additional resources. Following the terrorist attacks of September 11, 2001, there was a greater focus on security, safeguards, and emergency preparedness. Work on license renewals, power uprates, and the Yucca Mountain high-level waste repository application precipitated an increased need for resources. Also affecting agency priorities were the significant impacts from the implementation of safety enhancements as a result of lessons learned from the March 2011 accident at the Fukushima Dai-ichi nuclear power station in Japan, the unexpected decommissioning of several reactors before the end of their licensing term, and the shift in nuclear materials work, propelled by an increase in licensing activities related to uranium recovery facilities.

Throughout all of the challenges the NRC has faced through its long history, one thing has always been consistent: the NRC has always been a responsible regulator. The agency's staff have always represented the best-of-the-best in terms of its competence, professionalism and dedication to the agency's mission to protect the public health and safety. The world at large often looks to the NRC as the standard for nuclear regulation. In my testimony today, I plan to highlight the ways in which the NRC continues to demonstrate its responsibility and maintain its respected status.

### **Changing Priorities**

The agency recognizes that with the changing environment it needs to prepare for a future with a reduced workload. In mid-2014, NRC proactively tasked an internal team of senior staff, managers, and experts to develop recommendations on changes the agency could make over the

next five years to its structure, workforce and regulatory processes. The Project Aim 2020 initiative resulted in a number of recommended strategies to streamline processes, reduce the size of the workforce, and improve the effectiveness and timeliness of regulatory decision-making. The Commission directed the staff in June to reassess the agency's workload and to prioritize activities that could be reduced or eliminated. The staff submitted several papers to the Commission in late August regarding its efforts, and a public Commission meeting was held just yesterday to discuss these efforts.

A central element of the Project Aim effort is the re-baselining process outlined in a paper the staff submitted to the Commission last month. In its direction to staff, the Commission made clear that this process should focus in large part on identifying what work is most critical to the safety and security mission of the agency, and on identifying activities that can be shed, de-prioritized, or performed with a less intense resource commitment. In its paper to the Commission, the staff has proposed a plan for undertaking this effort. I want to emphasize that the agency has taken this effort seriously, and has aggressively sought input on the re-baselining effort not only internally, but from external stakeholders as well. In fact, the NRC held a public meeting to solicit feedback on September 1.

The goal of Project Aim is to establish an organizational structure that improves the NRC's ability to plan and execute our mission while being more responsive to changes in the industry. But that effort must be undertaken in a way that ensures the agency retains its ability to carry out its safety and security mission. Over the years, the NRC acquired expertise in mission-critical areas such as nuclear, chemical, structural, and fire protection engineering; health physics and

physical science; earth sciences including hydrology, meteorology, seismology, and geology; economics; information technology systems; and computer and physical security, among others. The NRC currently has approximately 3,700 employees. This is down from a peak of about 4,000 employees in fiscal year 2010. Under Project Aim, we have set a staffing target of 3,600 employees by the end of fiscal 2016 – being mindful to retain the knowledge of our specialty area experts.

While the restructuring is ongoing, the Commission will continue to emphasize both the importance of our mission and the excellence with which we achieve it. Our success is largely due to the dedicated, highly trained, and knowledgeable NRC staff. It is the staff's professionalism and commitment to maintaining the safe and secure use of nuclear materials and facilities that has established NRC's worldwide reputation as a strong, independent, and competent regulator.

### **Fukushima-Related Safety Activities**

After the Fukushima Dai-ichi nuclear power plant accident in 2011, the NRC took swift, decisive action to assess the significance of the event for the U.S. nuclear fleet, and imposed reasonable implementation time frames for action. We have been diligent in ensuring that the most safety significant of the post-Fukushima enhancements have been prioritized and implemented. Most licensees will complete the majority of the highest priority enhancements by the end of 2016. This will be a significant achievement. The NRC and the industry anticipate completing the implementation of nearly all lessons-learned safety enhancements from the Fukushima accident on, or ahead of, the established schedules.

You will recall just two weeks after the accident at Fukushima Dai-ichi, the Commission directed a task force of senior NRC staff members to make recommendations for strengthening safety at U.S. nuclear power plants, and the Near-Term Task Force provided a preliminary, first-cut set of 12 recommendations after a 90-day review. Those recommendations became the starting point for a more in-depth assessment that considered input from the public, stakeholders, additional NRC staff members, and the Commission. The result of the more detailed assessment was prioritization of work, which was implemented through a series of NRC orders, requests for information, and rulemaking.

The highest-priority work focused on the following items: strategies for mitigating impacts of events that are beyond those the plant was originally designed to withstand; improved instruments for measuring the water level in spent fuel pools; seismic and flooding walk downs (visual inspections); updated reevaluations of flooding and earthquake hazards at each site; severe-accident capable vents for BWR reactors with Mark I and II containments (similar types of containments to those at the Fukushima station); and enhancements to emergency preparedness communications and staffing. These safety enhancements will substantially improve the already robust prevention, mitigation, and emergency response capabilities of U.S. nuclear power plants and provide further assurance that these plants can effectively cope with extreme natural hazards or other events.

The NRC technical staff is currently reevaluating the plans for the remaining longer-term or lower-priority recommendations and will provide a paper to the Commission later this year. Some of those recommendations have been subsumed into ongoing or completed work, and other

recommendations, upon reevaluation, may be found not to provide the sufficient, substantial safety enhancements that would merit further regulatory action.

### **Rulemaking Process and Other Regulatory Improvements**

The Commission is making a concerted effort to improve the effectiveness and efficiency of its regulatory processes. The Commission recently directed the staff to provide a proposal for increasing the Commission's involvement in the rulemaking process. The goal of this effort is for the Commission to be more involved during early stages of the rulemaking process before significant agency resources are expended. The staff's proposal, due by mid-October, will include a recommendation for whether to reintroduce Commission approval of the "Rulemaking Activity Plan," as was the practice in the late 1990s and early 2000s, as well as whether to increase the role of the Committee to Review Generic Requirements.

Separately, the agency has been examining ways over the past several years to mitigate the cumulative effects of regulations and to improve its assessment of benefits, costs, and timing associated with implementation of new regulations. The NRC staff has implemented several rulemaking procedures to improve consideration of the cumulative effects of regulations, which allows increased public input through all phases of the rulemaking process and provides an opportunity for the regulated community to provide feedback about potential adverse impacts from the implementation of the proposed new requirements. The agency also has issued guidance documents in support of proposed new requirements and sought input on proposed implementation dates for new requirements. In addition, the agency has engaged with the industry to develop more accurate cost estimates of new requirements, since these estimates

inform the agency's decision about whether and how to pursue new requirements. The NRC continues to look at ways to expand these efforts beyond the rulemaking process. The goal is to consider our requirements in a holistic manner to ensure that the totality of what we are requiring of our licensees is not unintentionally having a detrimental effect on safety by distracting licensees from the most critical safety activities.

The agency's use of quantitative and qualitative factors in its regulatory decision-making has been of high interest to stakeholders in recent years. I acknowledge this Committee's interest as demonstrated by the letter we recently received related to two rulemaking activities:

Mitigation of Beyond Design Basis Events and Containment Protection and Release Reduction. I note that for both items, the Commission recently directed the staff to discontinue further rulemaking efforts that might ultimately have been justified mainly based on the consideration of qualitative factors. The Commission recently approved the staff's plans for updating guidance regarding the use of qualitative factors to improve the clarity, transparency, and consistency of the agency's regulatory and backfit analyses.

Specifically, the updated guidance should support regulatory analyses that clearly present the analyst's consideration of qualitative factors in a transparent way that decision makers, stakeholders, and the public can understand. This approval does not authorize an expansion of the consideration of qualitative factors in regulatory analyses and backfit analyses.

The Commission specifically directed that the revised guidance encourage quantifying costs to the extent possible and use of qualitative factors to inform decisionmaking, in limited cases, when quantitative analyses are not possible or practical (i.e., due to lack of



methodologies or data). As stated in the Commission's direction to the staff, the appropriate weighting of qualitative factors in regulatory decisionmaking ultimately lies with the Commission. As this work is ongoing, the Commission will continue to pay close attention to this element of our work.

It is important to note in this dialogue that the agency has a statutory mandate to provide reasonable assurance of adequate protection of public health and safety, and when establishing that level of adequacy, the Commission does not consider costs, although the Commission may consider costs in selecting between alternative methods of achieving adequate protection. Most of the NRC's regulatory framework today has been established on the basis of adequate protection. That said, the Commission has recognized that it must be deliberate, judicious, and predictable when it comes to establishing new regulatory requirements on the basis of adequate protection.

Another initiative instituted last year focused on decreasing the agency's backlog of power reactor licensing activities, with the goal in the future to eliminate it. Already, in less than a year, the agency has shown some improvement in this area, as we have reallocated resources from lower priority work and expanded the use of contractor support.

Because our resource needs are driven in large part by the workload projections of industry, we also issued a Regulatory Issue Summary seeking information from power reactor licensees on their anticipated licensing actions over the next three years. The staff will use the responses to improve our workload projections.

## **High-Level Waste and Spent Nuclear Fuel**

There are a few other topics that I wanted to discuss briefly. The President's announcement in March authorizing the Department of Energy (DOE) to begin the process of developing a repository for disposal of defense high-level radioactive waste has generated questions about the NRC's involvement. DOE has said that such a repository would be subject to NRC regulation, and the NRC anticipates the need, at the appropriate time in the future, to evaluate existing regulations to determine whether revisions are required for regulating a repository holding defense waste, and possibly deep borehole disposal (because DOE has indicated that deep borehole might be a disposal path for some types of defense waste).

The NRC has been responsive to judicial direction to review the construction authorization application for Yucca Mountain with the carryover resources NRC has available. The NRC issued a draft supplemental environmental impact statement on potential groundwater impacts on August 13, 2015, for a 60-day comment period and will hold public meetings to solicit further input. A final supplement is anticipated to be issued in early 2016. However, no decision can be made on whether to authorize construction of the repository until after a hearing on contested issues and the Commission has completed its review of contested and uncontested issues. The NRC has not been appropriated additional funds necessary to begin and complete these adjudicatory proceedings.

With respect to potential interim storage facilities, the NRC has regulations in place to review a spent fuel interim storage facility license application. This is demonstrated by the fact that the

NRC has already issued a license that would authorize an independent spent fuel storage facility – Private Fuel Storage in Skull Valley, Utah – using its current regulatory structure, although construction of that facility has not gone forward. In the past several months, the NRC has received two letters from potential applicants who have indicated their intent to submit a filing for a consolidated interim storage facility. One facility would potentially be located in Andrews County, Texas, and the other in southeastern New Mexico. The NRC does not have resources budgeted for either review in Fiscal Year 2016, but could reprioritize work if applications are submitted. If a high-quality application is received, with no contentions filed, the NRC could complete a review in approximately three years at an estimated cost of \$5 million per application. If a public hearing is requested and held, additional time and costs would likely be required to complete the licensing process.

### **Advanced Reactors**

Being prepared to evaluate potential applications for light water based small modular reactors and non-light water reactor technologies presents some challenges for the NRC, but the NRC is prepared to receive and review any such applications under its existing framework. To this end, the NRC has been proactive within the framework of its largely fee-based approach to regulatory reviews. Within the constraints of our budget, the agency is working on advanced reactor activities with the Department of Energy, industry standard-setting organizations, and with the Generation IV International Forum. The NRC expects to begin reviewing one small modular reactor design application in late 2016. The NRC is also preparing for potential advanced, non-light-water reactor power applications in the future. NRC's current reactor licensing regulations are anticipated to be adequate for conducting reviews of advanced reactor applications.

However, because the NRC's current reactor licensing regulations and guidance documents were developed based primarily on light-water reactor technologies, the agency recognizes the potential knowledge gaps for both the staff and prospective applicants in applying the acceptance criteria to non-light water reactor designs. In addition, if NRC were to receive an advanced reactor application within the next five years, there may be challenges related to research and modeling work in both the technical issues and code development for non-light-water reactor designs, as well as some critical skill gaps.

### **Decommissioning**

Over the past few years, five reactors permanently ceased operation earlier than anticipated and began the process of decommissioning. These reactors joined 14 other units in some stage of decommissioning under NRC oversight. In addition, Oyster Creek announced it plans to close in 2019, and there are indications other plants may shut down before the expiration of their operating licenses due to economic conditions. The NRC has traditionally used operating reactor regulations for plants undergoing decommissioning, thus requiring the plants to seek exemptions when the regulations for operating reactors are no longer relevant or appropriate. While this approach is sound from a safety standpoint, the Commission has directed the NRC staff to initiate a process for developing a reactor decommissioning rulemaking, with a final rule to be issued by early 2019. This rulemaking will improve the efficiency and predictability of the decommissioning process. The NRC staff will engage the public and stakeholders throughout the rulemaking process.

## **Conclusion**

The NRC is reshaping the agency to meet the changing environment of the nuclear industry while retaining the right skill sets to fulfill our unchanging and challenging safety and security mission. The NRC is on the right path and, as in the past, we will continue to adapt to evolving conditions as we go forward.

Thank you, and I would be pleased to answer your questions.