April 19, 2013

The Honorable Ed Whitfield
Chairman, Subcommittee on Energy and Power
Committee on Energy and Commerce
United States House of Representatives
2125 Rayburn House Office Building
Washington, DC 20515-6115

Dear Chairman Whitfield:

I appeared before the Subcommittee on Energy and Power on February 28, 2013, along with my colleagues on the Commission. On March 22, 2013, you forwarded questions for the hearing record. The responses to those questions are enclosed. My fellow colleagues on the Commission and I worked closely together to respond to the Subcommittees' questions. I expect that my responses will be generally consistent with those provided by Chairman Macfarlane and my other Commission colleagues.

If I can be of further assistance, please do not hesitate to contact me.

Sincerely,

William C. Ostendorff

Enclosures:
As stated

cc: The Honorable Bobby L. Rush

Committee on Energy and Commerce
Subcommittees on Energy and Power & Environment and Economy Hearing
February 28, 2013
Follow-Up Questions for Written Submission

Questions for Commissioner Ostendorff
The Honorable Ed Whitfield

1. In our hearing last July, Commissioner Magwood referred to the post-Fukushima actions the Commission approved on March 9, 2012, and stated: "We still have much work to do but the steps taken thus far represent a very significant increase in safety based on the Fukushima experience."

a. Has any effort been made to account for the increase in safety inherent in those actions?

b. Shouldn't this new, higher level of safety provide the threshold against which the benefits of any future actions should be analyzed?

Answer

a. Yes, the NRC accounts for actions already taken, such as the three March 2012 actions as well as those planned, in evaluating regulatory decisions regarding post-Fukushima actions.

b. Several processes are in place for the rigorous review of possible changes to NRC regulatory requirements. Following the Fukushima accident, the Commission established a senior management steering committee to consider possible post-Fukushima regulatory actions the agency may undertake. In addition, the NRC operates in accordance with its own "backfit rule," which applies whenever the NRC considers adopting possible regulatory changes. These backfit rule assessments consider the safety benefits of existing plant features and those required by previous regulatory actions (e.g., the Orders issued in March 2012).

   As the agency continues to evaluate Tier 2 and Tier 3 recommendations, actions planned or already taken will be considered. For example, the Commission is currently considering a March 27, 2013, staff proposal to change the implementation plans for Tier 2 emergency preparedness recommendations because their intent is adequately addressed through the implementation of the March 2012 Orders on mitigating strategies. In addition, the Commission recently directed the staff to begin rulemaking efforts for the inclusion of filtering strategies for boiling water reactors with Mark I and Mark II containments. In that decision, the Commission approved issuing orders that require licensees to install severe accident capable hardened vents. Therefore, as part of the rulemaking effort, the staff will assume the installation and safety benefit of those severe accidents capable hardened venting systems.

Questions for Commissioner Ostendorff
The Honorable Ed Whitfield

2. I understand that there are several domestic companies developing small modular reactors (SMRs) that have engaged NRC staff about design certification activities. Which designs have been endorsed by potential license applicants who have written to the NRC indicating their intent to build such a design?

a. **Does the NRC currently have adequate staff resources to address its small reactor licensing work?**

b. **If the NRC is faced with limited resources for licensing activities, how will the NRC prioritize its licensing efforts with regard to small reactors?**

c. **Please provide the status of the NRC's progress on aligning the existing regulatory framework developed primarily for large light water reactors with that needed for SMR technologies including any issues that might require rulemaking.**

<u>Answer</u>

The NRC annually publishes a Regulatory Information Summary to request information from industry about plans to submit design certification applications and license applications. Industry responses to NRC's December 2012 request indicate that four domestic companies plan to submit design certification applications to the NRC for small modular light water reactor designs. Those companies are B&W mPower™, NuScale, Westinghouse, and Holtec. Two utilities responded expressing their intent to submit license applications. They are the Tennessee Valley Authority referencing the mPower™ design to be constructed at the Clinch River site in Tennessee and Ameren referencing the Westinghouse design to be constructed at the Callaway site in Missouri. There are also some companies, both foreign and domestic, that have informed the NRC of plans to submit design certification applications and various license applications for non-light water designs. These include Toshiba for their liquid sodium-cooled reactor, the 4S, and STL, a South African company, for their pebble bed high-temperature gas-cooled reactor. Finally, the Next Generation Nuclear Plant Alliance, a consortium of domestic and foreign companies, has informed us of its plans to submit a construction permit application for a high-temperature gas-cooled reactor based on an AREVA design.

a. The NRC's FY2013 budget and FY2014 budget requests were predicated on conducting reviews of two small modular reactor designs that use light water reactor technology. However, neither the current budget nor the FY2014 budget request would support all of the work that has been identified. In addition to NRC staff resources, the agency had planned to rely on contractor support for parts of the reviews. However, impacts from budget sequestration, with reductions to contractor support, will challenge the ability of the NRC to move forward on these projects.

b. The NRC's budget for new reactor licensing activities accommodates licensing and design certification for both large reactor and the small modular reactor designs. The NRC prioritizes the full range of new reactor work (large and small designs) to the extent

budgeted resources are available. Within this larger context, the NRC will prioritize the small modular reactor review work to first support the projects selected by the Department of Energy (DOE) through its SMR Licensing Technical Support Program.

c. NRC's existing regulatory framework is appropriate for reviewing the small modular light water reactor designs and license applications. Through pre-application activities principally with mPower™ and NuScale, design-specific review guidance is being developed by the NRC to facilitate review of these designs and their unique features. These design-specific review standards are supplemented by the NRC's continuing effort to maintain and update its Standard Review Plan.

   Based on responses received to the December 2012 Regulatory Information Summary that indicate that some entities plan to submit design certification applications for non-light water reactor technologies, the NRC has identified approaches that could be implemented to support the review of these "advanced non-light water reactor" designs. Last year, in response to a request from Congress, the NRC staff prepared a document entitled "Report to Congress: Advanced Reactor Licensing," which details the NRC's efforts and plans regarding advanced reactors. The Commission transmitted this report to Congress on August 22, 2012.

Questions for Commissioner Ostendorff
The Honorable John Shimkus

1. I understand the NRC is analyzing the safety of using dry cask storage for extended periods of time. What is the time frame currently being analyzed?

a. Is the NRC considering a requirement that Independent Spent Fuel Storage Installations maintain or reinstate the capability to repackage dry cask storage canisters?

Answer

The NRC is examining the technical needs and potential changes to the regulatory framework that may be needed to continue licensing of spent nuclear fuel storage beyond the initial and first renewal licensing periods. In May 2012, the NRC issued for public comment a report on identifying and prioritizing the technical information needs affecting potential regulation of extended storage and transportation of spent nuclear fuel. This report noted that for this evaluation, the NRC has considered performance of the storage systems over an initial 300 year period following removal of the spent nuclear fuel from the reactor. The NRC staff selected the long analytical period in order to capture potential effects of relatively slow-acting degradation processes.

a. The NRC is not currently considering a requirement that Independent Spent Fuel Storage Installations maintain or reinstate the capability to repackage dry cask storage canisters.

Questions for Commissioner Ostendorff
The Honorable John Shimkus

2. In Finding #2 of the Commission's 2010 waste confidence determination, the NRC found that a repository would be available "when necessary". The court vacated the NRC's determination, and now the Commission is forced to initiate a new waste confidence proceeding.

a. **Since the scope of the NRC waste confidence proceeding seems focused on environmental impact issues, how will you gather evidence to support Finding 2, which addresses repository availability, not environmental impact?**

b. **Will DOE provide evidence for the record on its plans for a repository?**

c. **Without evidence from DOE, what sort of evidence do you think would support a repository availability finding?**

d. **In vacating the NRC's Waste Confidence rule, the court directed the NRC to examine the environmental impact if a repository is never available and the period of storage on site is indefinite. Isn't the Finding #2 determination of repository availability a necessary element of determining the time period to be examined by the environmental impact statement?**

e. **To what extent will the Commission consider the "No Action" alternative documented in the Yucca Mountain Environmental Impact Statement?**

<u>Answer</u>

a. Consistent with the National Environmental Policy Act, the NRC will make reasonable assumptions regarding the availability of a repository. The NRC's reasonable assumptions will include an assessment of repository availability within 60 years beyond the licensed life for operation of the reactor, within 160 years beyond the licensed life for operation of the reactor, and indefinite storage (i.e., a repository is never available). The information that the NRC is considering in the generic environmental impact statement includes international and domestic experience in siting a geologic repository, the January 2013 DOE report, "Strategy for the Management and Disposal of Used Nuclear Fuel and High-Level Radioactive Waste," and the 2012 report of the Blue Ribbon Commission on America's Nuclear Future.

b. In January 2013, DOE published its "Strategy for the Management and Disposal of Used Nuclear Fuel and High-Level Radioactive Waste," which will be used as part of the analysis in the generic environmental impact statement that will support the updated Waste Confidence Rule. The DOE Strategy Report states that it is the Administration's goal to have a repository sited by 2026, licensed by 2042, and constructed and open by 2048. The NRC also plans to consider other publicly available information.

c. The generic environmental impact statement will make a number of reasonable assumptions regarding repository availability. In addition to the DOE's recently published "Strategy for the Management and Disposal of Used Nuclear Fuel and High-Level Radioactive Waste" (January 2013), the NRC will rely on a variety of information and analyses to support any conclusion on repository availability. This information includes international and domestic experience in siting a geologic repository and the 2012 report of the Blue Ribbon Commission on America's Nuclear Future.

d. The Finding #2 determination of repository availability is not a necessary element of determining the time period to be examined by the environmental impact statement. The NRC is planning to analyze three scenarios in the environmental impact statement. These scenarios are the short-term period of continued storage (a repository available after 60 years), a long-term period of continued storage (repository available after 160 years), and indefinite storage (a repository is never available). The environmental impact statement will determine the impacts of continued storage for each of the scenarios.

e. As directed by the Commission on September 6, 2012, the NRC staff will use available information from a number of sources, including the Yucca Mountain Environmental Impact Statement. The NRC will consider the Yucca Mountain Environmental Impact Statement "no-action" alternative in the Waste Confidence generic environmental impact statement.

Questions for Commissioner Ostendorff
The Honorable Doris Matsui

As you know, there are nine commercial shut down nuclear power plant sites in the U.S., including Rancho Seco owned by my hometown utility, the Sacramento Municipal Utility District. Although the spent fuel is monitored and well-guarded, and is not an immediate safety or security concern, the presence of spent fuel at these sites is costly and prevents the use of the site for economically productive uses that would benefit the community.

Because SMUD and the utilities that own the other shut down reactors are not able to move the spent fuel to a permanent storage site, I am supportive of the federal government moving it to interim storage facilities. We need interim storage with or without a permanent facility.

1. Can you outline for me what challenges the Commission faces in moving spent fuel to interim storage?

Answer

The NRC has the regulatory infrastructure in place to license dry interim storage facilities and has licensed such a facility. But, the Department of Energy is the lead agency for implementing any changes to the national policy on nuclear waste management, which includes moving fuel to dry interim storage. This topic is addressed in the recently released "Strategy for the Management and Disposal of Used Nuclear Fuel and High-Level Radioactive Waste" (January 2013), which provides the Administration's framework for implementing a long-term solution for fuel storage and disposal. As the national policy evolves, the NRC's mission remains the same: to ensure the safe and secure use of radioactive materials while protecting people and the environment.

Questions for Commissioner Ostendorff
The Honorable Doris Matsui

2. Do you believe that independent progress can be made on developing interim storage facilities even though we cannot currently reach a consensus on a permanent repository?

Answer

The Department of Energy is the lead agency for implementing any changes to the national policy on nuclear waste management, which includes moving fuel to dry interim storage. This topic is addressed in the recently released "Strategy for the Management and Disposal of Used Nuclear Fuel and High-Level Radioactive Waste" (January 2013), which provides the Administration's framework for implementing a long-term solution for fuel storage and disposal. The NRC is not responsible for implementing the national policy on nuclear waste management, including development of interim storage facilities. The NRC's responsibility is independent licensing, regulation, and oversight of interim storage facilities. The NRC is not responsible for site selection, but will consider the suitability of the site as part of the licensing process. The NRC has in place the appropriate regulatory framework to license and regulate future interim dry storage facilities.

Questions for Commissioner Ostendorff
The Honorable Doris Matsui

I believe it makes sense to move spent nuclear fuel from decommissioned sites first and I hope we can start seeing progress made in this area. As we all know, the U.S. Court of Appeals for the D.C. Circuit is currently considering whether or not to order the NRC to resume consideration of the Yucca Mountain license application.

3. Can you tell me what challenges the NRC or DOE would face if the federal court orders work to resume on Yucca? In particular do you see impediments to reacquiring the permits, or finding the personnel and knowledge base to resume where work was left off?

Answer

If the federal court directs the NRC to resume work on the Yucca Mountain license application, the agency will comply, to the extent that funds are currently available. The NRC's principal challenge would be to reconstitute its review team with individuals from within and outside the agency who possess the critical skills and knowledge base.