April 19, 2013

The Honorable Ed Whitfield
Chairman, Subcommittee on Energy
and Power
Committee on Energy and Commerce
United States House of Representatives
Washington, D.C. 20515

The Honorable John Shimkus
Chairman, Subcommittee on Environment
and the Economy
Committee on Energy and Commerce
United States House of Representatives
Washington, D.C. 20515

Dear Chairman Whitfield and Chairman Shimkus:

I appeared before the Subcommittee on Energy and Power and the Subcommittee on Environment and the Economy of the Committee on Energy and Commerce on February 28, 2013, at an oversight hearing entitled, "The Nuclear Regulatory Commission: Policy and Governance Challenges," along with my colleagues on the Commission. In response to your letter of March 22, 2013, enclosed please find my responses to questions for the record, directed to me, from that hearing.

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

Sincerely,

/RA/

Kristine L. Svinicki

Enclosure: As stated

cc: The Honorable Bobby L. Rush
Ranking Member
Subcommittee on Energy and Power

The Honorable Paul Tonko
Ranking Member
Subcommittee on Environment
and the Economy

Member Requests for the Record from Representative Jerry McNerney

QUESTION 1 **Small Modular Reactors (SMRs) – how long might it take for a competent power producer to get a license for a SMR?**

ANSWER:

For planning purposes, the NRC assumes that it would take a minimum of 30 months after an application is accepted for docketing for the agency to reach a licensing decision. The ability to meet this timeline would be dependent on many factors, including: the licensing process chosen by the applicant (10 CFR Part 50 or Part 52); whether the applicant is referencing a design previously certified by the NRC; the completeness and quality of the license application; and the applicant's responsiveness to NRC requests for additional information. Other factors that could lengthen the time it takes to complete the review of an application, which are separate from the application itself, include the NRC's ability to staff and resource its review, and the degree to which the application presents novel aspects that have not been previously considered by the NRC. This last point, in particular, could have the largest impact on the review schedule of an application incorporating a first-of-a-kind plant design.

QUESTION 2 **Are there any foundries in the United States capable of producing the containment vessels for these reactors?**

ANSWER:

Based on information provided by the NRC staff, it is my understanding that Lehigh Heavy Forge Corporation, in Bethlehem, Pennsylvania, is capable of producing the vessel for an SMR. If there are other fabricators with this capability, they have not yet been identified to the NRC staff.

Questions from Representative Ed Whitfield

QUESTION 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) The Commission will consider the safety benefit of any future post-Fukushima actions, including any cost/benefit and backfit analyses required by NRC regulations. Additionally, actions planned or taken will be accounted for in future decisions.

QUESTION 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 and 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.

ANSWER:

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 the 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 the Areva design.

a) The NRC's FY 2013 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, which result in 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 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, 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) The 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 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 the Congress on August 22, 2012.

Questions from Representative John Shimkus

QUESTION 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 period for analytical purposes in order to capture potential effects of relatively slow-acting degradation processes.

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.

QUESTION 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?

ANSWER:

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, for example, 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 report "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) The Commission, in its staff requirements memorandum of September 6, 2012, directed the NRC staff to adopt or incorporate by reference, as appropriate, all or part of other agencies' EISs. A specific example given by the Commission was the Yucca Mountain Environmental Impact Statement "no-action" alternative.

Questions from Representative Doris O. Matsui

QUESTION 1

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.

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. 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 DOE report "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.

QUESTION 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 DOE report "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. NRC's responsibility is independent licensing, regulation, and oversight of interim storage facilities. NRC is not responsible for site selection, but will consider the suitability of a 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.

QUESTION 3.

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.

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 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.