

December 10, 2009

The Honorable Thomas R. Carper  
Chairman, Subcommittee on Clean Air  
and Nuclear Safety  
Committee on Environment and Public Works  
United States Senate  
Washington, D.C. 20510

Dear Mr. Chairman:

On behalf of the U.S. Nuclear Regulatory Commission (NRC), I am pleased to respond to your October 15, 2009, letter regarding the NRC's efforts related to the review of new nuclear reactor applications. Your letter discusses the challenges for both applicants and the NRC in successfully implementing the new nuclear reactor licensing process established in the Energy Policy Act of 1992, which requires both the regulator and the industry to revive capabilities which have lain dormant in the intervening decades during which applications to build new reactors in the United States were not pursued. The NRC is committed to meeting these challenges with high quality and timely reviews that ensure safety, security, and environmental protection requirements will be met. In pursuit of this goal, the NRC continually examines all aspects of its licensing process, some specifics of which you have inquired about, and which I will address in further detail.

First, your letter acknowledges the essential role of a strong acceptance review process in ensuring that the NRC accept for review only those new reactor applications that are complete, to avoid expending NRC review resources on applications which lack requisite quality or are insufficiently complete to enter the review process. By regulation and by Commission policy, the NRC staff must ensure before docketing that new reactor applications are: (1) complete and (2) technically sufficient. The NRC staff verifies that each application contains sufficient information in scope and depth to undertake a detailed review within a predictable timeframe. To date, the NRC has received 18 combined license (COL) applications for new reactors. The NRC staff was eventually able to find all 18 applications complete and acceptable for docketing; however, in two cases, the staff requested a limited amount of additional information be provided by the applicant prior to acceptance. This is an expected outgrowth of the acceptance review process and demonstrates that the process is functioning as it should. As an element of the acceptance review, the NRC also identifies in the letter of acceptance those areas that may pose technical risk or uncertainty to the estimated review schedule depending on the applicant's approach or response to the identified issue(s). Again, this information is communicated to the applicant to provide predictability and to forecast potential impacts to review schedules.

NRC regulations under Title 10 of the *Code of Federal Regulations* (10 CFR) Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants," are intended to provide a predictable licensing process -- including certification of new nuclear plant designs -- and are rooted in decades of experience with reactor design and operation. The standard design certification (DC) process in 10 CFR Part 52 allows an applicant to obtain approval of a reactor design through rulemaking. This reduces licensing uncertainty by resolving design issues early in the licensing process. It also facilitates standardization of future plants with a high degree of regulatory finality. The DC process provides for early public participation and resolution of safety issues prior to an application to construct and operate a nuclear power plant. An intent of 10 CFR Part 52 was to improve scheduling certainty and predictability with the expectation that industry would have submitted applications for DCs early in the process, and that the NRC would have reviewed them and issued the DCs (if all the regulatory requirements were met) before the agency received the related COL applications.

There are two developments that have impacted schedule predictability for COL applications. The first is that the designs are not final. As a result, COL applicants have submitted their applications while the DC applications are still undergoing review. With one exception, all COL applications that the NRC has received to date have referenced proposed reactor designs that the NRC has not yet certified. Although this circumstance is not precluded by NRC's process, the NRC cannot complete its review of these COL applications until all NRC requirements are met, including certification of the referenced designs in accordance with 10 CFR Part 52 through rulemaking.

In light of this circumstance, and to gain efficiencies in reviewing COL applications, the NRC developed the design-centered review approach. Using this approach, the NRC staff reviews a standard portion of an application once and applies the result of that review to the subsequent applications using the same design. This approach requires significant standardization of the design and also in the formatting and content of the applications submitted. Under this approach, the first COL application to be reviewed for each design is called the "Reference COL" and all others that follow are called "Subsequent COLs." Using this approach, reviews of applications for Subsequent COLs should require significantly fewer resources and ultimately less time than the review of the Reference COL application. However, if portions of the review cannot be standardized because of the applicant's design choices or site-specific factors, the NRC staff must review those portions on an application-specific basis. A majority of the COL applications currently undergoing review deviate, in some aspect, from the standard design in the DC applications.

The NRC is making substantial progress on DC reviews; however, delays have occurred in a number of cases. Delays primarily occurred as a result of: (1) the submittal of design changes after the DC review is underway, (2) the applicant's performance in responding to the NRC staff requests for additional information (RAIs), or (3) use of first-of-a-kind design approaches for which there are a lack of standards or site-specific data. These types of situations can be and are being accommodated within the review process but they do, of necessity, have an impact on the schedules set out at the time of acceptance and docketing of the application and can diminish the predictability of the process by increasing variability.

The NRC staff is also making substantial progress on COL application reviews. Three COL applications are now before the Commission's Advisory Committee on Reactor Safeguards (ACRS). Reaching the ACRS review stage is a significant milestone in a COL application review. However, difficulties similar to those seen with DC application reviews caused schedule delays and resource conflicts for COL application reviews. Delays in COL application reviews are generally attributable to the following causes: (1) the applicant's performance in meeting schedules; (2) the applicant's difficulty in providing an adequate RAI response; (3) the submittal of departures or changes in design after both the DC review and the COL review are underway; or (4) changing applicant business strategies.

In addition to the challenges outlined above, many of which are driven by applicant actions, the NRC also faces internally-driven challenges. NRC has made significant progress in addressing these issues and continues to devote substantial senior-level attention to them. Among the most significant are: (1) the training and mentoring of NRC's new staff (approximately 50 percent of NRC's staff have been with the agency less than five years) involving the transfer of knowledge from senior licensing staff to those new to the regulatory process; (2) managing the significant growth in NRC contracting activity to support the surge in new reactor licensing; and (3) evaluating the effectiveness of issue resolution processes. Increased NRC management attention is being paid to those areas, and the NRC is considering the potential need for earlier management intervention to minimize impacts.

As mentioned in your letter, the Energy Policy Act of 2005 provided the stimulus for the nearly simultaneous submittal of multiple applications for design certification, early site permits, limited work authorizations, and combined licenses and prompted the design-centered review process, as a necessity, in order to handle this one-time, substantial influx of license applications. The challenges of instituting the new process and successfully implementing it are being addressed through the coordinated efforts of the NRC staff and applicants, and with the support provided by the Congress with respect to both resources and needed regulatory infrastructure. In recognition of the complexity of integrating the safety reviews for the design certification and the combined license applications, instituting the Commission's new reactor design policy, and accommodating the changing business environment, the NRC will continue to work with applicants to ensure that they understand the regulatory processes. Further, the NRC will continue to examine and improve these processes based on experience while continuing to ensure that safety, security, and environmental protection requirements are met. It should be noted that while the NRC has not yet achieved the efficiency we expect in the Part 52 process, no utility to date has had a construction schedule delay due to the NRC licensing process.

Thank you for your interest in the NRC licensing process. Please contact me for any additional information.

Sincerely,

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Gregory B. Jaczko