NRC NEWS

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Subsequent License Renewal: Our Collective Obligations
Prepared Remarks of Chairman Allison M. Macfarlane
At the Nuclear Energy Institute Long-Term
Operation/Subsequent License Renewal Forum
February 27, 2013 – Washington, D.C.

Good morning. I appreciate the opportunity to speak to you today about our continued efforts to address aging management issues from a regulatory perspective. I hope that you had productive discussions in yesterday's sessions. In looking at the agenda for this forum, I noted discussion topics on research and public communication. As these are both priority issues for me, I'd like to share my thoughts with you on these and related areas. (Accompanying slides.)

Aging management is a living process, for which we must continuously draw upon operating experience and results of technical studies. The NRC strives to maintain comprehensive regulatory guidance and processes to address aging management, but we must also anticipate that there are unexpected or unknown circumstances that are not taken into account.

License renewal is not a 'once-and-done' action. Licensees are expected to consider new information as we learn lessons and gain experience with plants in their period of extended operation.

In the area of subsequent license renewal, there are even greater unknowns. Due to the age of the U.S. fleet, the United States is in large measure a pioneer in this area. I must be clear that the NRC is not yet in a position to pass judgment on the viability of operation beyond 60 years. The NRC continues to incorporate lessons learned from operating experience into the license renewal process. Additionally, we continue to research the issues that may exist regarding "Life after 60" and coordinate with the Department of Energy as they conduct research.

Upholding its commitment to be an effective regulator, the NRC is actively engaged in both regulatory and technical reviews in the area of aging management. On the regulatory side, the NRC is reviewing the framework for subsequent license renewal and actively soliciting input from a broad range of interested parties. In 2012, we held several public meetings and webinars that yielded useful feedback to inform our activities.

On the technical side, the NRC is conducting ongoing confirmatory and anticipatory research to identify aging management scenarios that may not have been addressed elsewhere. We are conducting effectiveness audits of the aging management programs already in place at many of our licensed facilities. And we are analyzing information from the international community.

Following the development of NRC regulations, it is industry's responsibility to provide a sound technical basis for license renewal, using actual data to demonstrate that issues can be fully resolved. Computer modeling alone may not provide the necessary level of confidence, because some aging management phenomena fall outside the qualification base of existing codes. Industry and regulators alike should study operating experience in the nuclear industry as well as other industries experienced in operating complex machinery for multiple decades. Our licensees must also continue to demonstrate that the aging management programs for license renewals are effective in managing aging issues as they are identified.

We must draw upon the range of available source information and be prepared to adjust our expectations based on what we learn from it. To that end, it is important to emphasize that the NRC will not make regulatory decisions regarding operation beyond 60 years until we have completed the regulations against which applications will be evaluated and until we have enough information to inform our evaluation.

We are aware that the industry is engaged in its own research on degradation issues. It is important that the results of this research are available for the NRC's consideration when applications for operation beyond 60 years start being submitted.

There are a number of degradation issues that must be addressed in considering potential operation beyond 60 years. These include:

- Irradiation-assisted degradation of reactor core internals
- Reactor pressure vessel embrittlement
- Concrete structure degradation
- Electrical cable condition assessment
- Containment liner external corrosion, and
- Neutron absorber degradation

As there have already been degradation concerns in the United States and other countries in reactors that have not yet reached the end of their intended lifespan, these issues require careful consideration. Through operational experience reviews, aging-related issues like buried piping, selective leaching, and alkali-silica reactions have surfaced. In addition, analog controls are becoming increasingly difficult to repair and maintain.

For this topic, the following are my personal views and do not necessarily represent the views of the Commission.

It is important to address long-term storage of used fuel on site even as the nation seeks an off-site solution through interim consolidated storage and permanent disposal. Waste management issues are currently a concern for many U.S. reactor sites. Many spent fuel pools are at capacity. Most spent fuel pools have already been re-racked to accommodate higher fuel densities, and are at full capacity now. These same pools will have to be used for reactor operations beyond 60 years, both for management of core loadings as well as continued long-term storage capacity.[1] In addition, there

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1 http://www.nei.org/resourcesandstats/documentlibrary/nuclearwastedisposal/factsheet/statusofusednuclearfuelstorage/

have been some issues with the aging of spent fuel pools already during their current license terms, such as the degradation of neutron absorbers in the 1990s.

Though our regulatory experience reflects that spent fuel can be stored safely in both wet and dry settings, space constraints in the pools is a separate matter that requires continued careful management. Public confidence in continued safe operation of nuclear power plants will suffer if the industry and government are not addressing the barriers to successfully resolving these matters.

The Fukushima-Daiichi accident in Japan taught us that instrumentation in spent fuel pools needs to be reliable. While the spent fuel pools at Fukushima survived, some members of the public have expressed concerns about extended long-term storage in spent fuel pools. We are in the process of implementing requirements for water-level instrumentation to address this significant lesson learned from the event.

In closing this topic in relation to "life after 60" renewals, until the government fulfills its obligation to take ownership of the nation's spent fuel and to find off-site storage and disposal solutions, licensees must continue to ensure safe and secure on-site storage.

As I mentioned earlier, the NRC is actively engaging the public as we review our regulatory framework for potential subsequent license renewal. The NRC is committed to hearing from all interested parties and understanding their concerns. Public confidence in the safe and secure operation of nuclear power plants depends not only on sharing information, but on demonstrating that we are taking the public's views into account when decisions are made.

Many licensees are striving to maintain effective relationships with local government, law enforcement, and other interested parties, and they are sharing the information they have assembled on continued safe and secure operation of facilities in a way the public can understand. In my view, these are good practices.

The NRC will continue its work to ensure its regulatory framework is robust and that we are prepared to address subsequent license renewal issues. The staff will continue to engage with the public and incorporate feedback from our interactions into our regulatory decision-making. We will also continue our technical research, drawing on a broad range of domestic and international information to reach sound conclusions about aging management issues. We will continue to work to identify materials degradation through the aging management programs, inspections, and other exchanges with our licensees.

As always, while the NRC has an obligation to establish the regulatory requirements, the burden to demonstrate the safety case for continued operation into a subsequent license renewal period rests with industry. We look to industry to identify potential issues specific to each site and identify appropriate resolutions. My personal view is that it is important for industry to maintain focus on the back end of the fuel cycle. We welcome continued dialogue with industry and other interested parties on these complex issues.